



ADDENDUM TO CROSSBOW TECHNOLOGY INC. TEST REPORT FC06-050

FOR THE

BU2400

**FCC PART 15 SUBPART C SECTIONS 15.207, 15.209 & 15.247, SUBPART B
SECTIONS 15.107 & 15.109, CLASS B AND RSS-210 ISSUE 6 (2005)**

COMPLIANCE

DATE OF ISSUE: OCTOBER 11, 2006

PREPARED FOR:

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Date of test: August 28 - September 8, 2006

Report No.: FC06-050A

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ADMINISTRATIVE INFORMATION

DATE OF TEST: August 28 - September 8, 2006

DATE OF RECEIPT: August 28, 2006

MANUFACTURER: Crossbow Technology Inc.
4145 North First Street
San Jose, CA 95134

REPRESENTATIVE: Afshin Afzali

TEST LOCATION: CKC Laboratories, Inc.
1120 Fulton Place
Fremont, CA 94539

TEST METHOD: ANSI C63.4 (2003), RSS-201 (2005) and
RSS GEN (2005)

PURPOSE OF TEST: **Original Report:** To demonstrate the compliance of the BU2400 with the requirements for FCC Part 15 Subpart C Sections 15.207, 15.209 & 15.247, Subpart B Sections 15.107 & 15.109, Class B and RSS-210 devices.
Addendum A is to remove a photograph which was of preliminary testing only and to add a comment on the 15.209 9 kHz-30 MHz data sheet.

FCC TO CANADA STANDARD CORRELATION MATRIX

Canadian Standard	Canadian Section	FCC Standard	FCC Section	Test Description
RSS GEN	7.1.4	47CFR	15.203	Antenna Connector Requirements
RSS GEN	7.2.1	47CFR	15.35(c)	Pulsed Operation
RSS GEN	7.2.2	47CFR	15.207	AC Mains Conducted Emissions Requirement
RSS 210	2.1	47CFR	15.215(c)	Frequency Stability Recommendation
RSS 210	2.2	47CFR	15.205	Restricted Bands of Operation
RSS 210	2.6	47CFR	15.209	General Radiated Emissions Requirement
RSS 210	A8.1	47CFR	15.247(a)(1)	Definition of FHSS
RSS 210	A8.1	47CFR	15.247(h)	Incorporation of Intelligence
RSS 210	A8.1(1)	47CFR	15.247(a)(1)	Minimum Channel Bandwidth
RSS 210	A8.1(1)	47CFR	15.247(g)	Hopping Sequence
RSS 210	A8.1(2)	47CFR	15.247(a)(1)	Carrier Separation
RSS 210	A8.1(2)	47CFR	15.247(a)(1)	Carrier Separation 2400 Alternative
RSS 210	A8.1(3)	47CFR	15.247(a)(1)(i)	Carrier Separation
RSS 210	A8.1(3)	47CFR	15.247(a)(1)(i)	Average Time of Occupancy
RSS 210	A8.1(3)	47CFR	15.247(a)(1)(i)	Number of Hopping Channels
RSS 210	A8.1(4)	47CFR	15.247(a)(1)(iii)	Average Time of Occupancy
RSS 210	A8.1(4)	47CFR	15.247(a)(1)(iii)	Number of Hopping Channels
RSS 210	A8.1(5)	47CFR	15.247(a)(1)(ii)	Max 20dB Bandwidth
RSS 210	A8.1(5)	47CFR	15.247(a)(1)(ii)	Average Time of Occupancy
RSS 210	A8.1(5)	47CFR	15.247(a)(1)(ii)	Number of Hopping Channels
RSS 210	A8.2(1)	47CFR	15.247(a)(2)	Minimum 6dB Bandwidth
RSS 210	A8.2(2)	47CFR	15.247(e)	Peak Power Spectral Density
RSS 210	A8.3(1)	47CFR	15.247(f)	Hybrid Systems - Time of Occupancy
RSS 210	A8.3(1)	47CFR	15.247(f)	Hybrid Systems - Power Spectral Density
RSS 210	A8.4(1)	47CFR	15.247(b)(2)	RF Power Output
RSS 210	A8.4(2)	47CFR	15.247(b)(1)	RF Power Output
RSS 210	A8.4(3)	47CFR	15.247(b)(1)	RF Power Output
RSS 210	A8.4(4)	47CFR	15.247(b)(3)	RF Power Output
RSS 210	A8.4(5)	47CFR	15.247(c)(1)	Directional Gain Requirements
RSS 210	A8.4(6)	47CFR	15.247(c)(2)	Beam Steering Antennas
RSS 210	A8.5	47CFR	15.247(d)	Spurious Emissions
	5933		958979	Site File No.

Notes: Rule Sections for RSS 210 are taken from RSS 210 Issue 6

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:

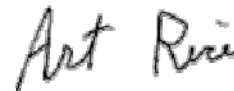


Joyce Walker
Quality Assurance Administrative Manager



Amrinder Brar
EMC Engineer/Lab Manager

TEST PERSONNEL:



Art Rice
EMC Engineer

FCC 15.31(e) Voltage Variations

FREQUENCY MHz	CORRECTED READING dBm 85%	CORRECTED READING dBm 100%	CORRECTED READING dBm 115%	SPEC LIMIT dBm
2480	-8.75	-8.3	-9.17	30

Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart C Section 15.247(b)(1)/15.31(e)
Test Distance: No Distance
Tested By: Art Rice

FCC 15.31(m) Number Of Channels

This device was tested on three channels.

FCC 15.33(a) Frequency Ranges Tested

15.107 Conducted Emissions: 150 kHz – 30 MHz
15.109 Radiated Emissions: 30 kHz – 12.4 GHz
15.207 Conducted Emissions: 150 kHz – 30 MHz
15.209 Radiated Emissions: 9 kHz – 26 GHz
15.247(b) RF Power Output: 1-12.4 GHz
15.247(d) Antenna Conducted Emissions: 30 MHz – 26 GHz
15.247(d) Radiated Spurious Emissions: 1-26 GHz

FCC SECTION 15.35: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	26 GHz	1 MHz

FCC 15.203 Antenna Requirements

The antenna port is a reverse-polarity SMA (male) connector that is not accessible by the end user and it complies with FCC 15.203.

FCC 15.205 Restricted Bands

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

EUT Operating Frequency

The EUT was operating in the 2400 MHz to 2483.5 MHz range.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

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

The following model has been tested by CKC Laboratories: **Base Station USB**

Since the time of testing the manufacturer has chosen to use the following model name in its place. Any differences between the names does not affect their EMC characteristics and therefore complies to the level of testing equivalent to the tested model name shown on the data sheets: **BU2400**

EQUIPMENT UNDER TEST

Base Station USB (2 each)

Manuf: Crossbow Technology Inc.
Model: BU2400
Serial: 001 & 002
FCC ID: SHU003BU2400 (pending)

RF Module (2 each)

Manuf: Crossbow Technology Inc.
Model: MPR2400, P/N 8350-334-2
Serial: NA

USB Module (2 each)

Manuf: Crossbow Technology Inc.
Model: MIB520*, P/N 8350-0347-02
Serial: NA

*This model number was not recorded at the time of testing, but the customer declares that is the model number associated with P/N 8350-0347-02.

PERIPHERAL DEVICES

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

Laptop PC

Manuf: Dell
Model: PP11L
Serial: DGZV9B1

USB Mouse

Manuf: Logitech
Model: M-UV94
Serial: LZB42151642

AC Adapter for PC

Manuf: Dell
Model: NADP-90KBA
Serial: CN-0C2894-48661-57S-FZJT

Print/Scan/Copy

Manuf: HP
Model: C5316A
Serial: MY8C4C207Y

Monitor

Manuf: ACER
Model: 7277e
Serial: 9170602001

REPORT OF MEASUREMENTS

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

Table 1: FCC 15.107 Six Highest Conducted Emission Levels

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V	SPEC LIMIT dB μ V	MARGIN dB	NOTES
		Lisn dB	Att dB	HPF dB	Cable dB				
0.153000	36.7	0.4	9.8	3.7	0.1	50.7	55.8	-5.1	BA
0.156000	35.3	0.4	9.8	0.0	0.1	49.1	55.7	-6.6	WA
0.303000	34.9	0.3	9.8	0.0	0.1	45.4	50.2	-4.8	WA
0.461000	35.2	0.3	9.7	0.0	0.1	45.3	46.7	-1.4	WA
0.464000	33.5	0.3	9.7	0.0	0.1	43.6	46.6	-3.0	WA
1.770000	28.3	0.3	9.7	0.1	0.2	38.6	46.0	-7.4	BA

Test Method: ANSI C63.4 (2003)
Spec Limit: FCC Part 15 Subpart B Section 15.107 Class B

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

COMMENTS: Equipment located on test table 80 cm above ground, set up in accordance with ANSI C63.4. One Base Station USB is continuously transmitting, powered by USB cable connected to PC. The other Base Station USB is continuously receiving the signals and sending the data to the PC over the USB cable. XSniffer software on the PC is monitoring the data received, displaying it on the monitor, and saving it to a file on the desktop. The Base Stations are put in the wall mount vertical polarization, previously determined as worst case on the transmit frequencies. Conducted emissions 0.15-30 MHz.

Table 2: FCC 15.109 Six Highest Radiated Emission Levels

FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS				CORRECTED READING dBμV/m	SPEC LIMIT dBμV/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
119.986	48.9	11.2	-25.8	1.1		35.4	43.5	-8.1	HQ
151.512	48.8	10.6	-25.7	1.2		34.9	43.5	-8.6	HQ
151.512	48.8	10.6	-25.7	1.2		34.9	43.5	-8.6	HQ
174.140	47.0	9.0	-25.6	1.2		31.6	43.5	-11.9	VQ
186.323	50.7	8.6	-25.6	1.2		34.9	43.5	-8.6	H
233.372	48.9	11.2	-25.4	1.3		36.0	46.0	-10.0	H

Test Method: ANSI C63.4 (2003)
Spec Limit: FCC Part 15 Subpart B Section 15.109 Class B
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
Q = Quasi Peak Reading

COMMENTS: Equipment located on test table 80 cm above ground, set up in accordance with ANSI C63.4. One Base Station USB is continuously transmitting, powered by USB cable connected to PC. The other Base Station USB is continuously receiving the signals and sending the data to the PC over the USB cable. XSniffer software on the PC is monitoring the data received, displaying it on the monitor, and saving it to a file on the desktop. The Base Stations are put in the wall mount vertical polarization, previously determined as worst case on the transmit frequencies. Radiated emissions 30-1000 MHz.

Table 3: FCC 15.109 Six Highest Radiated Emission Levels: >1 GHz

FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS				CORRECTED READING dBμV/m	SPEC LIMIT dBμV/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
1064.000	55.6	24.0	-40.3	2.8		42.1	54.0	-11.9	V
1592.000	52.5	26.0	-38.5	3.4		43.4	54.0	-10.6	V
4806.107	48.7	32.3	-37.1	5.8		49.7	54.0	-4.3	H
4806.116	47.9	32.3	-37.1	5.8		48.9	54.0	-5.1	V
4806.140	51.1	32.3	-37.1	5.8		52.1	54.0	-1.9	H
4806.281	50.3	32.3	-37.1	5.8		51.3	54.0	-2.7	V

Test Method: ANSI C63.4 (2003)
Spec Limit: FCC Part 15 Subpart B Section 15.109 Class B
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization

COMMENTS: Located at center of test table 80 cm above ground. Continuous operation.
Receiving on Ch 11=low, RBW=1 MHz. Radiated emissions 1-12.4 GHz.

Table 4: FCC 15.207 Six Highest Conducted Emission Levels

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V	SPEC LIMIT dB μ V	MARGIN dB	NOTES
		Lisn dB	Att dB	HPF dB	Cable dB				
0.173270	40.1	0.4	9.8	0.0	0.1	52.4	54.8	-2.4	W
0.461000	34.5	0.3	9.7	0.0	0.1	44.6	46.7	-2.1	WA
2.352791	33.6	0.3	9.7	0.1	0.2	43.9	46.0	-2.1	W
3.675474	33.5	0.4	9.8	0.1	0.1	43.9	46.0	-2.1	W
4.232617	33.1	0.4	9.8	0.1	0.1	43.5	46.0	-2.5	W
4.585616	33.0	0.4	9.8	0.1	0.2	43.5	46.0	-2.5	W

Test Method: ANSI C63.4 (2003)
Spec Limit: FCC Part 15 Subpart C Section 15.207

NOTES: W = White Lead
A = Average Reading

COMMENTS: Equipment located on test table 80 cm above ground, set up in accordance with ANSI C63.4. One Base Station USB is continuously transmitting, powered by USB cable connected to PC. The other Base Station USB is continuously receiving the signals and sending the data to the PC over the USB cable. XSniffer software on the PC is monitoring the data received, displaying it on the monitor, and saving it to a file on the desktop. The Base Stations are put in the wall mount vertical polarization, previously determined as worst case on the transmit frequencies. Note 1) For this test, only the Base Station USB in the continuous transmit mode is connected to the PC. Conducted emissions 0.15-30 MHz.

Table 5: FCC 15.209 Radiated Emission Levels: 9 kHz - 30 MHz

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
0.061	59.7	9.8		0.2		69.7	71.9	-2.2	H
0.061	59.7	9.8		0.2		69.7	71.9	-2.2	Horiz

Test Method: ANSI C63.4 (2003)
Spec Limit: FCC Part 15 Subpart C Section 15.209
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization

COMMENTS: Equipment located on test table 80 cm above ground, set up in accordance with ANSI C63.4. One Base Station USB is continuously transmitting, powered by USB cable connected to PC. The other Base Station USB is continuously receiving the signals and sending the data to the PC over the USB cable. XSniffer software on the PC is monitoring the data received, displaying it on the monitor, and saving it to a file on the desktop. The Base Stations are put in the wall mount vertical polarization, previously determined as worst case on the transmit frequencies. Note: AC adapter, monitor, print/scan/copy were unplugged during this test to prevent unwanted magnetic fields. Radiated emissions 9 kHz-30 MHz. **No emissions were found from the EUT at this frequency range.**

Table 6: FCC 15.209 Six Highest Radiated Emission Levels: 30-1000 MHz

FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS				CORRECTED READING dBμV/m	SPEC LIMIT dBμV/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
119.986	48.9	11.2	-25.8	1.1		35.4	43.5	-8.1	HQ
151.512	48.8	10.6	-25.7	1.2		34.9	43.5	-8.6	HQ
151.512	48.8	10.6	-25.7	1.2		34.9	43.5	-8.6	HQ
174.140	47.0	9.0	-25.6	1.2		31.6	43.5	-11.9	VQ
186.323	50.7	8.6	-25.6	1.2		34.9	43.5	-8.6	H
233.372	48.9	11.2	-25.4	1.3		36.0	46.0	-10.0	H

Test Method: ANSI C63.4 (2003)
Spec Limit: FCC Part 15 Subpart C Section 15.209
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
Q = Quasi Peak Reading

COMMENTS: Equipment located on test table 80 cm above ground, set up in accordance with ANSI C63.4. One Base Station USB is continuously transmitting, powered by USB cable connected to PC. The other Base Station USB is continuously receiving the signals and sending the data to the PC over the USB cable. XSniffer software on the PC is monitoring the data received, displaying it on the monitor, and saving it to a file on the desktop. The Base Stations are put in the wall mount vertical polarization, previously determined as worst case on the transmit frequencies. Radiated emissions 30-1000 MHz.

Table 7: FCC 15.209/15.247(d) Six Highest Radiated Emission Levels: 1-26 GHz

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
4810.100	46.6	32.3	-37.1	5.8		47.6	54.0	-6.4	VA
7215.000	35.1	36.7	-36.8	8.0		43.0	54.0	-11.0	V
4880.114	51.7	32.5	-37.1	5.8		52.9	54.0	-1.1	VA
4880.202	51.6	32.5	-37.1	5.8		52.8	54.0	-1.2	HA
4960.075	46.9	32.7	-37.0	5.7		48.3	54.0	-5.7	V
9620.015	34.0	38.1	-36.3	8.9		44.7	54.0	-9.3	V

Test Method: ANSI C63.4 (2003)
Spec Limit: FCC Part 15 Subpart C Sections 15.209/15.247(d)
Test Distance: 3 Meters

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

COMMENTS: Located at center of test table 80 cm above ground. Continuous operation. Transmitting on channel as noted. Ch 11=low, Ch 18=mid, Ch 26=hi. CW transmit mode. RBW=1 MHz. Fundamentals not recorded. Radiated emissions 1-26 GHz.

Table 8: FCC 15.247(b)(3) RF Power Output Emission Levels

FREQUENCY MHz	METER READING dBm	CORRECTION FACTORS				CORRECTED READING dBm	SPEC LIMIT dBm	MARGIN dB	NOTES
		Lisn dB		Cable dB					
2405.15000	-7.1	0.0				-7.1	30.0	-37.1	N
2439.70000	-7.0	0.0				-7.0	30.0	-37.0	N
2480.31000	-7.6	0.0				-7.6	30.0	-37.6	N

Test Method: ANSI C63.4 (2003)

Spec Limit: FCC Part 15 Subpart C Section 15.247(b)(3)

NOTES:

N = No Polarization

COMMENTS: MODE 1. Located on wireless bench. Continuous operation. Transmitting on channel as noted. Ch 11=low, Ch 18=mid, Ch 26=hi. EUT antenna output port is directly connected to spectrum analyzer. CW transmit mode. RBW=3 MHz. Fundamentals.

Table 9: FCC 15.247(d) Antenna Conducted Spurious Emission Levels: 30 MHz – 26 GHz

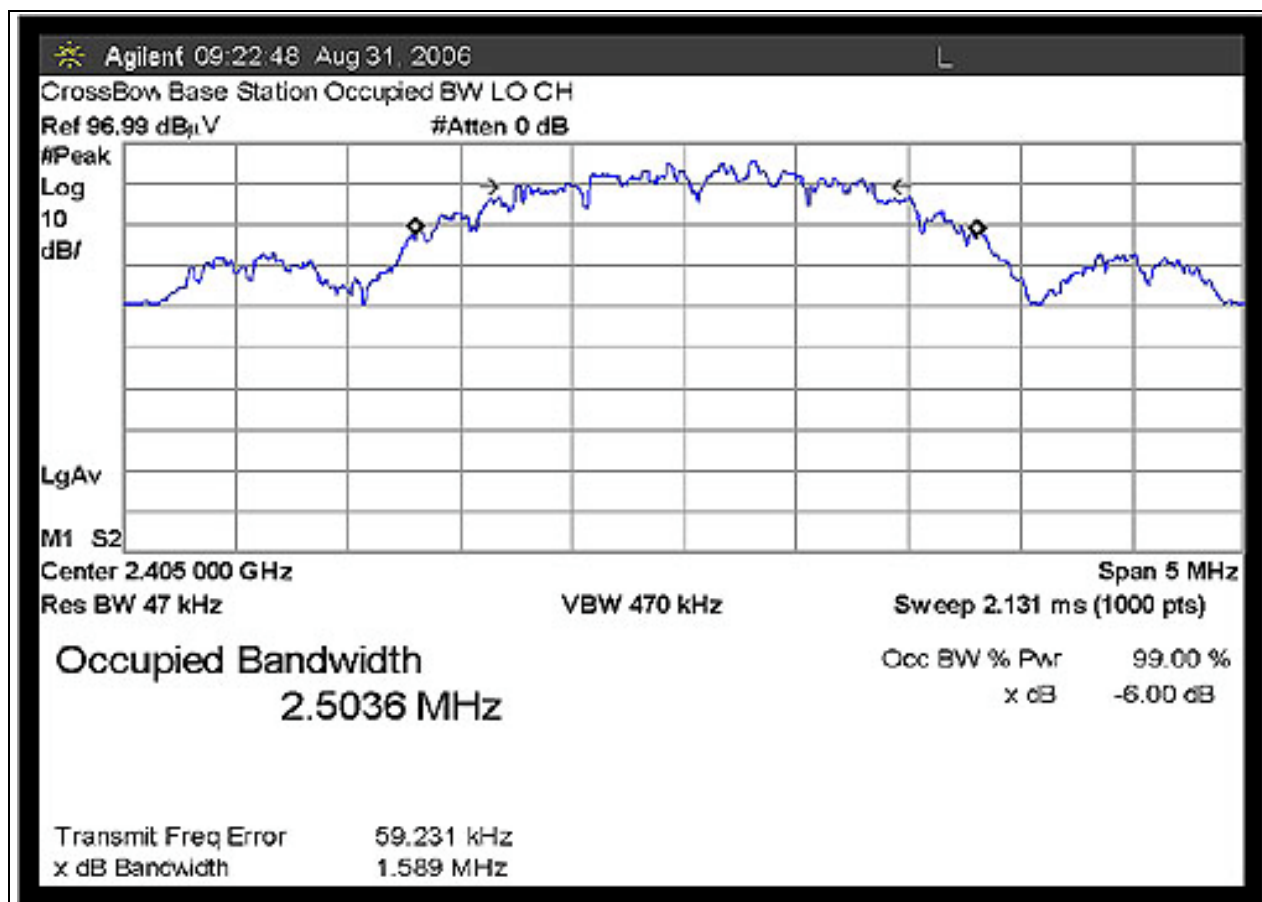
FREQUENCY MHz	METER READING dBm	CORRECTION FACTORS				CORRECTED READING dBm	SPEC LIMIT dBm	MARGIN dB	NOTES
		Lisn dB		Cable dB					
376.800000	-63.8	0.0				-63.8	-28.3	-35.5	N
2180.00000	-63.6	0.0				-63.6	-28.3	-35.3	N
2633.30000	-64.0	0.0				-64.0	-28.3	-35.7	N
4809.00000	-49.3	0.0				-49.3	-28.3	-21.0	N
4878.00000	-50.2	0.0				-50.2	-28.3	-21.9	N
4958.00000	-53.8	0.0				-53.8	-28.3	-25.5	N

Test Method: ANSI C63.4 (2003)
Spec Limit: FCC Part 15 Subpart C Section 15.247(d)

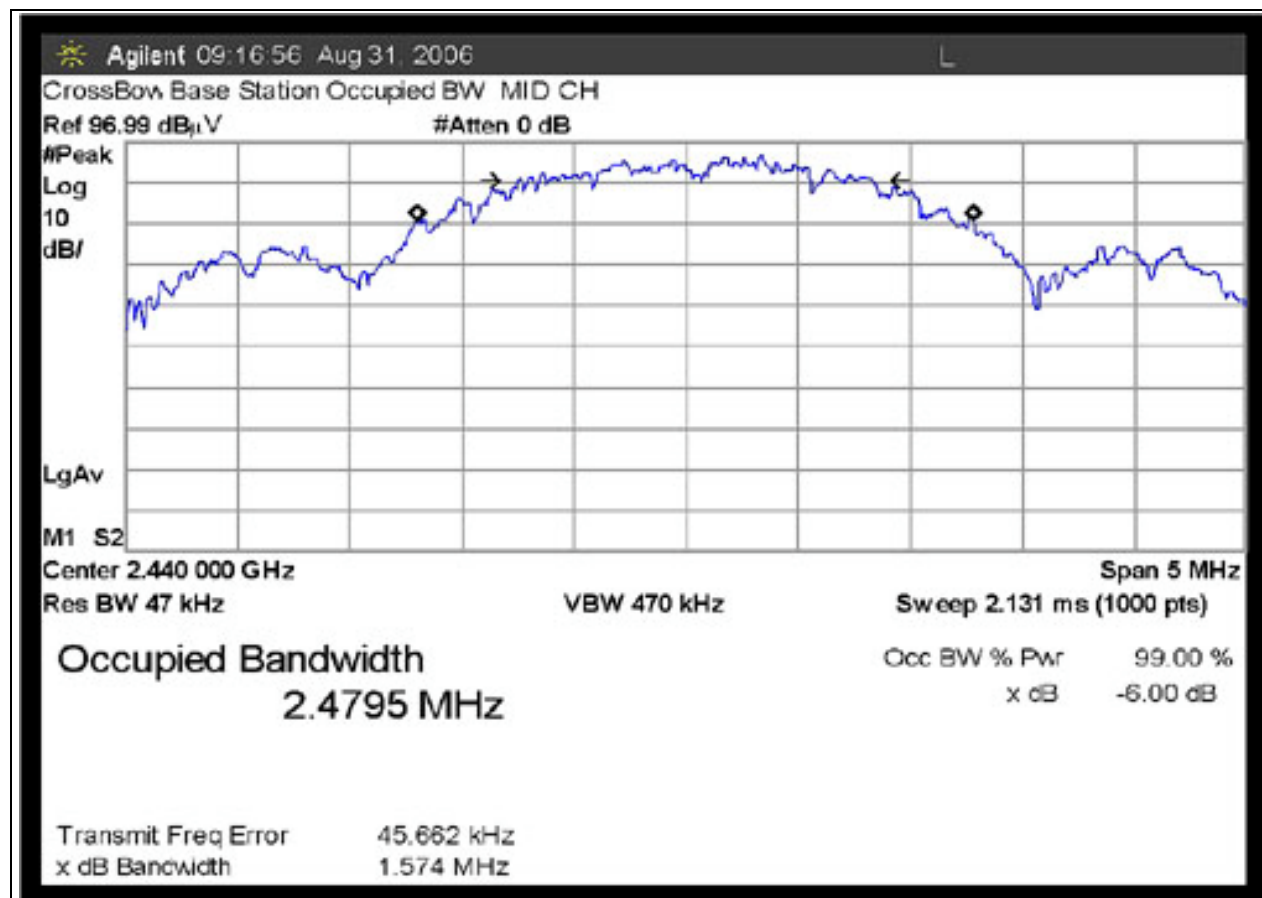
NOTES:
Q = Quasi Peak Reading
A = Average Reading
B = Black Lead
W = White Lead

COMMENTS: MODE 1. Located on wireless bench. Continuous operation. For the 15.247(d) spurious limit, 20 dB was subtracted from the strongest antenna conducted level of the fundamental, -8.3 dBm. Transmitting on channel as noted. Ch 11=low, Ch 18=mid, Ch 26=hi. EUT antenna output port is directly connected to spectrum analyzer. CW transmit mode. RBW=100 kHz. Spurious. Radiated emissions 30 MHz-26 GHz.

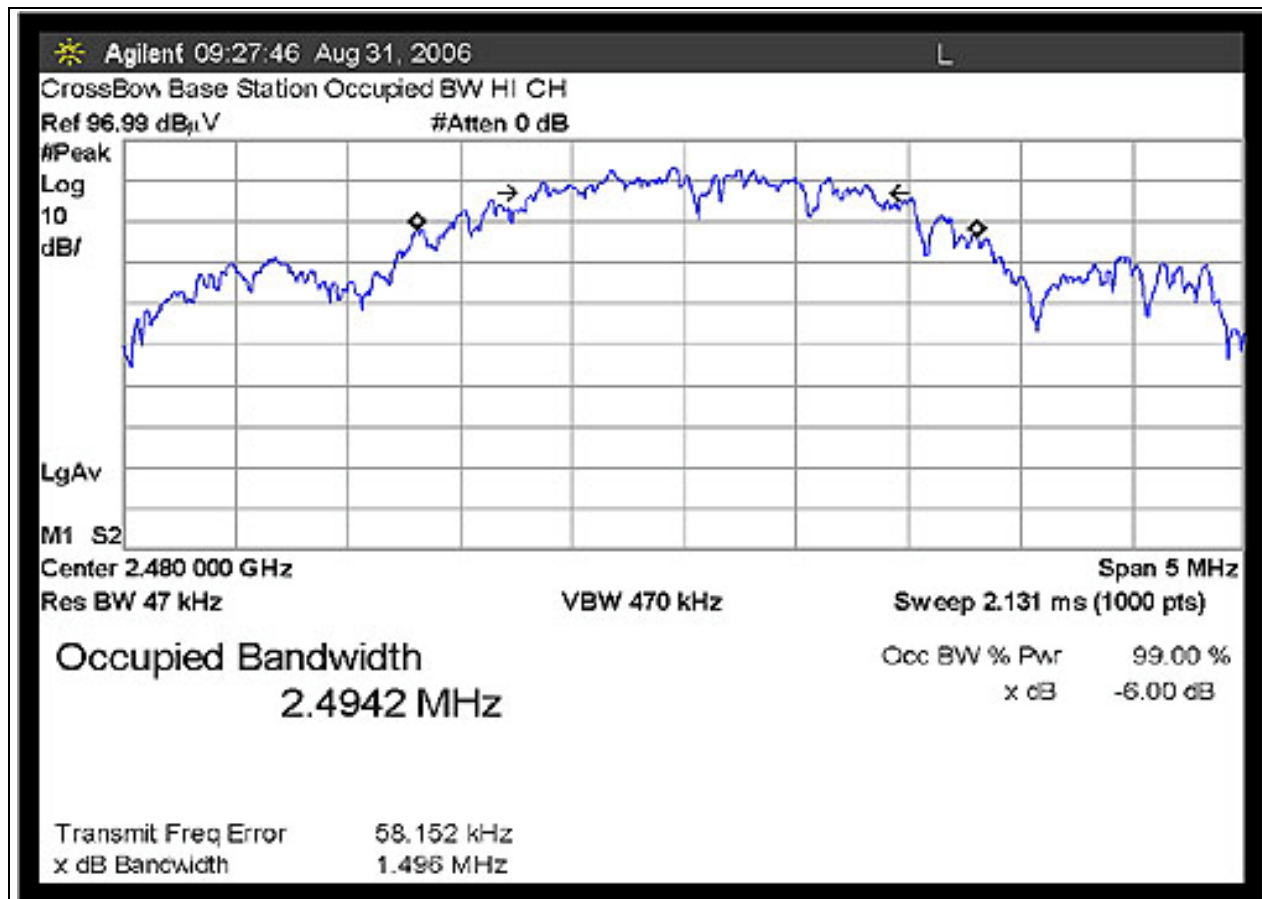
OCCUPIED BANDWIDTH LOW CHANNEL



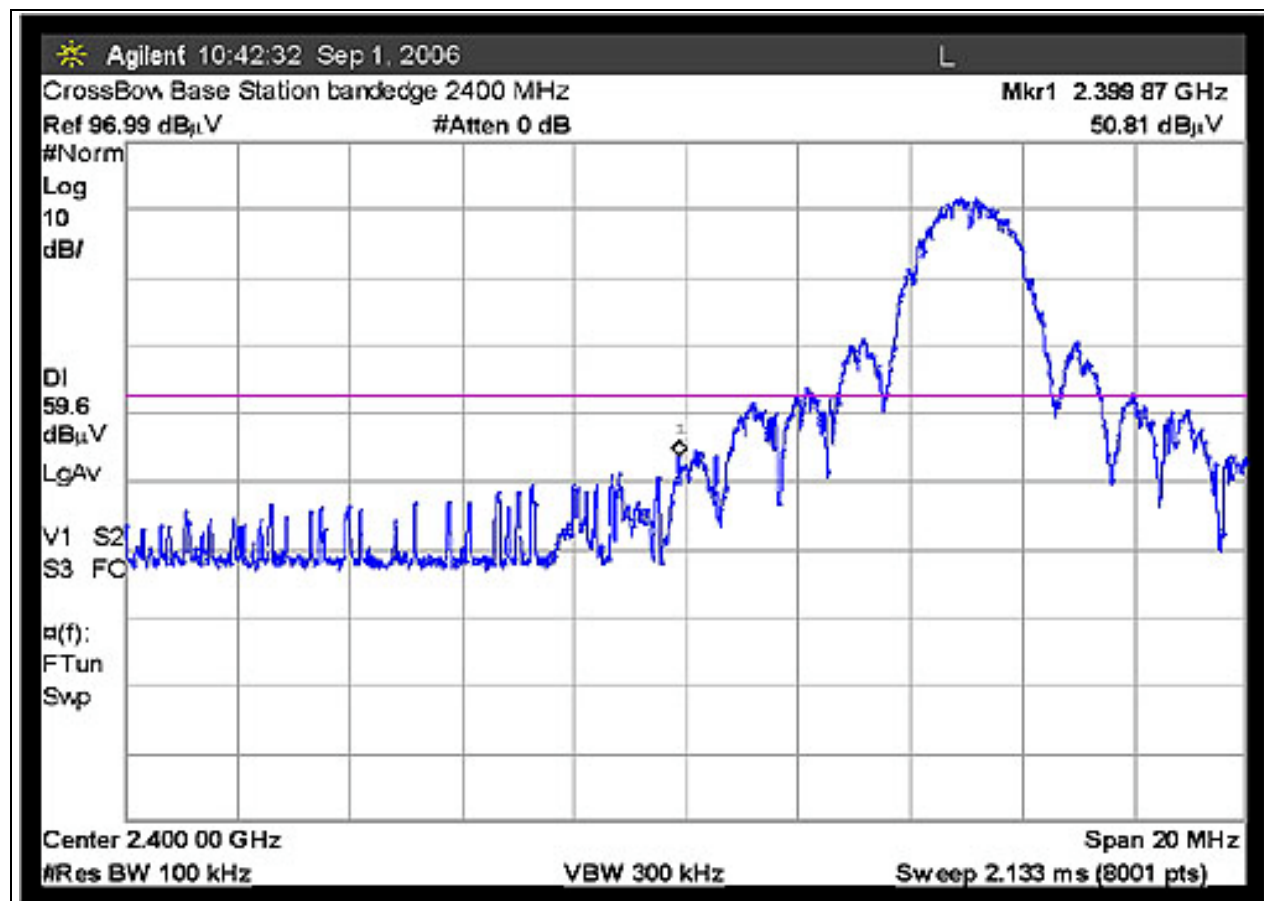
OCCUPIED BANDWIDTH MID CHANNEL



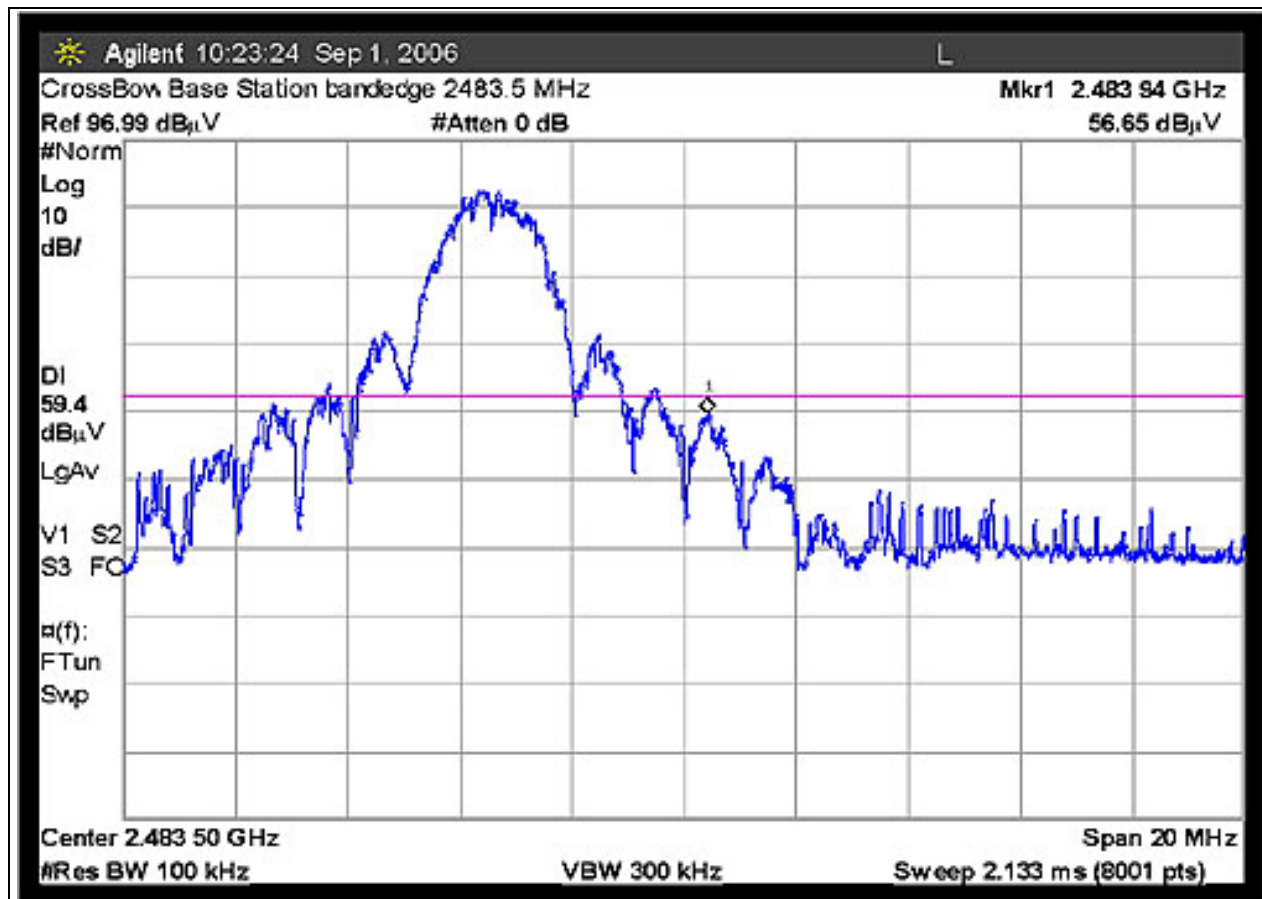
OCCUPIED BANDWIDTH HIGH CHANNEL



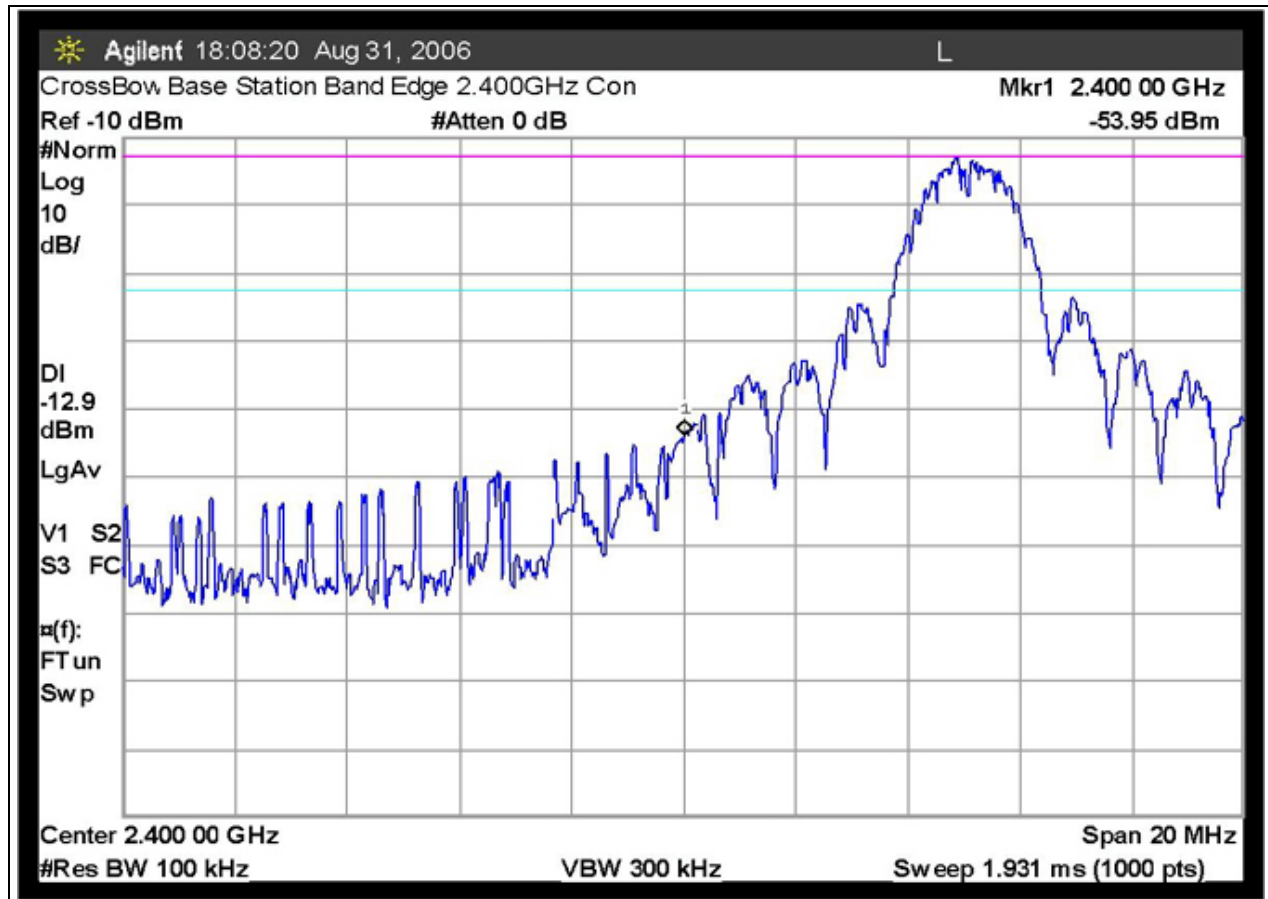
BAND EDGE RADIATED 2400 MHz



BAND EDGE RADIATED 2483.5 MHz



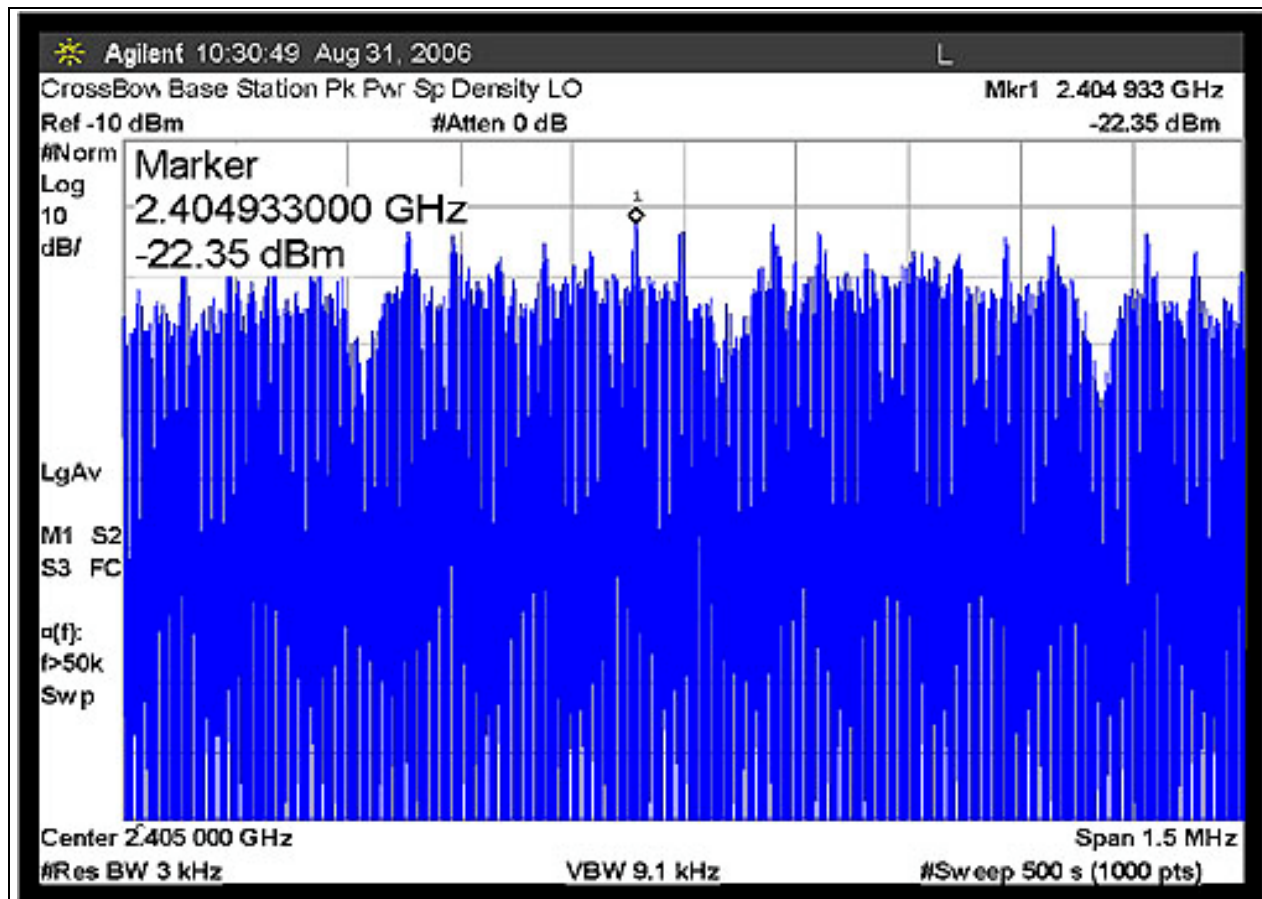
BAND EDGE LOW CONDUCTED



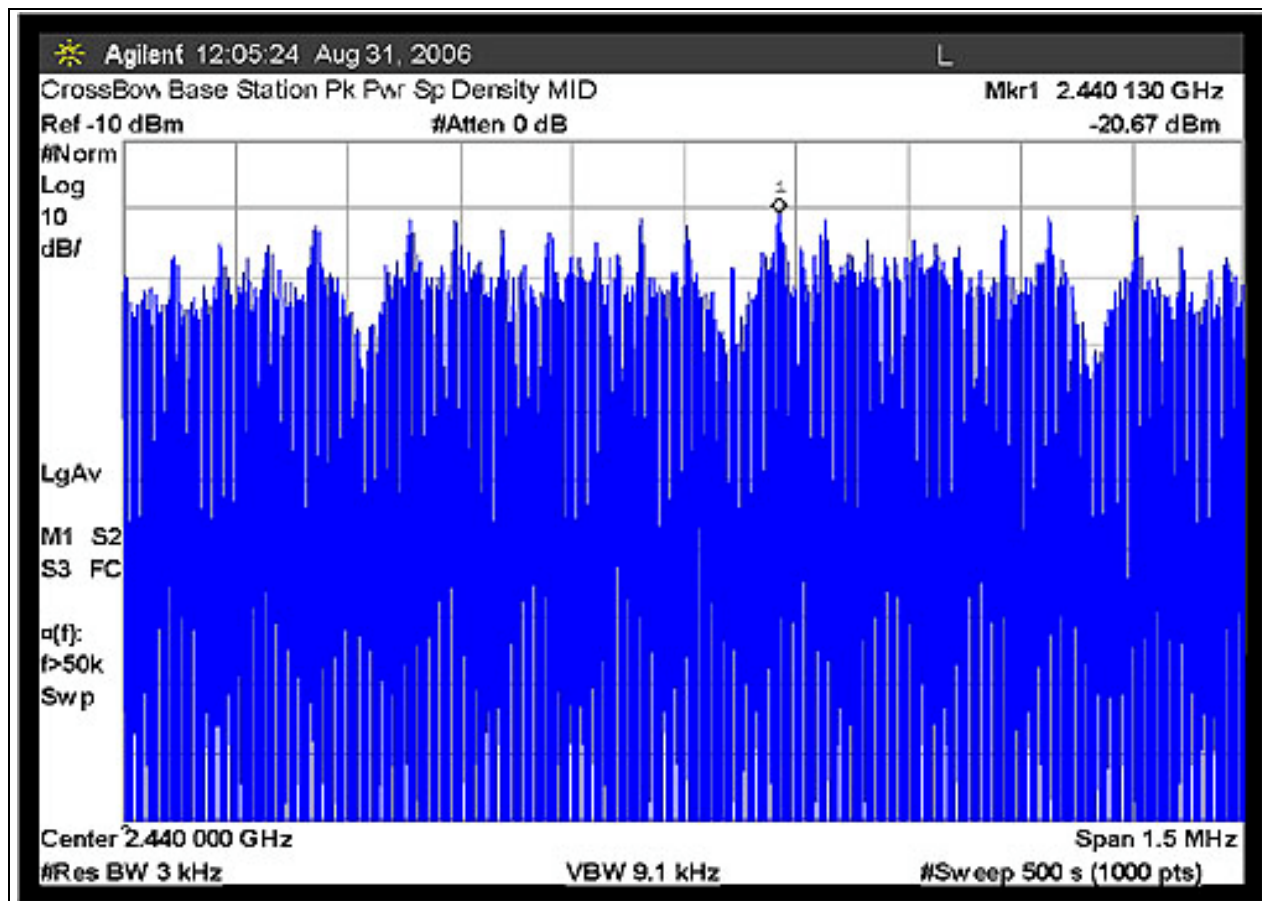
BAND EDGE HIGH CONDUCTED



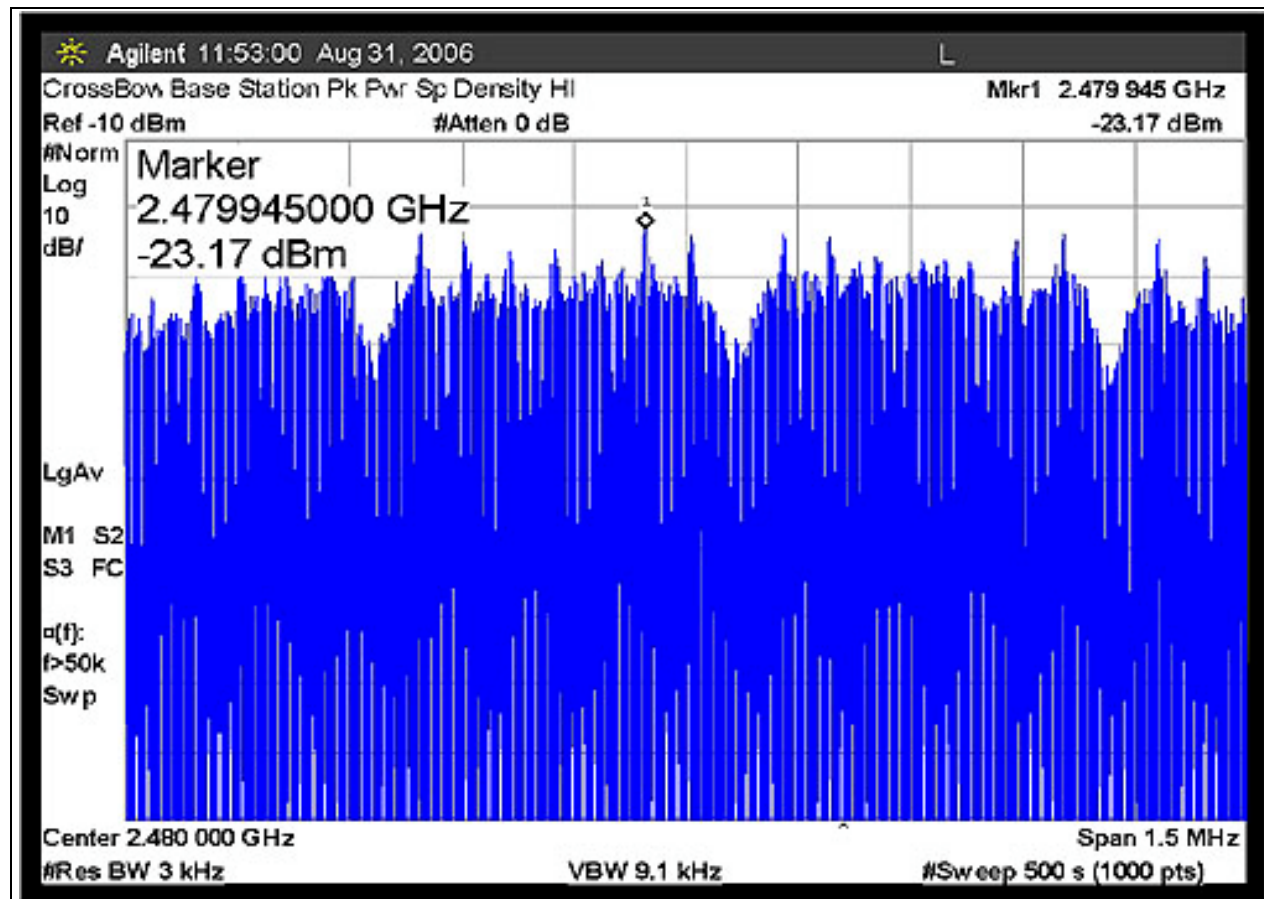
PEAK POWER SPECTRAL DENSITY LOW CHANNEL



PEAK POWER SPECTRAL DENSITY MID CHANNEL



PEAK POWER SPECTRAL DENSITY HIGH CHANNEL



TEMPERATURE AND HUMIDITY DURING TESTING

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

EUT SETUP

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

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

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

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

CORRECTION FACTORS

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

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

TEST INSTRUMENTATION AND ANALYZER SETTINGS

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

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

SPECTRUM ANALYZER DETECTOR FUNCTIONS

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

Peak

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

Quasi-Peak

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

Average

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

EUT TESTING

Mains Conducted Emissions

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

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

The LISNs used were 50 μ H/+50 ohms. A 30 to 50 second sweep time was used for automated measurements in the frequency bands of 150 kHz to 500 kHz, and 500 kHz to 30 MHz. All readings within 20 dB of the limit were recorded, and those within 6 dB of the limit were examined with additional measurements using a slower sweep time.

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.

Radiated Emissions

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

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

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

APPENDIX A

TEST SETUP PHOTOGRAPHS

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Front View

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Side View

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Transmitting, Wall Mount Position

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View

APPENDIX B

TEST EQUIPMENT LIST

FCC 15.107 & 15.207

Function	S/N	Calibration Date	Cal Due Date	Asset #
S.A., Display HP-85662A	2542A12169	11/28/2005	11/28/2007	02662
S.A., RF Section HP-8568B	2601A02492	11/28/2005	11/28/2007	02663
QP Adapter HP-85650A	2043A00188	10/23/2004	10/23/2006	01508
Cable		06/13/2006	06/13/2008	AN 00880
Attenuator	none	10/20/2005	10/20/2007	02223
LISN	9408-1006	05/23/2005	05/23/2007	00493
TTE High Pass Filter	H4120	04/20/2005	04/20/2007	05258

FCC 15.109 & 15.209 30-1000 MHz

Function	S/N	Calibration Date	Cal Due Date	Asset #
S.A., Display HP-85662A	2542A12169	11/28/2005	11/28/2007	02662
S.A., RF Section HP-8568B	2601A02492	11/28/2005	11/28/2007	02663
HP8447F opt H64 preamp	2944A03850	03/05/2005	03/05/2007	00501
QP Adapter HP-85650A	2043A00188	10/23/2004	10/23/2006	01508
Cable	None	06/21/2005	06/21/2007	P05299
Cable	None	06/21/2005	06/21/2007	P05300
Cable	None	06/21/2005	06/21/2007	P05296
Chase Bilog CBL6111C	2630	01/24/2005	01/24/2007	00852

FCC 15.109 >1 GHz

Function	S/N	Calibration Date	Cal Due Date	Asset #
Cable, 6'	n/a	06/07/2006	06/07/2008	P04241
HF-Cable FSJ1P-50A-4A		02/20/2006	02/20/2008	P05138
Antenna, Horn 1-18 GHz	1064	03/08/2005	03/08/2007	02061
Cable, HF 36"	n/a	02/08/2005	02/08/2007	P05200
Preamp, HP83017A	3123A00283	05/09/2005	05/09/2007	00785
E4446A Spectrum Analyzer	US44300408	01/13/2005	01/13/2007	02668
S.A. HP 8593EM	3624A00159	10/31/2004	10/31/2006	02111

FCC 15.209 9 kHz – 30 MHz

Function	S/N	Calibration Date	Cal Due Date	Asset #
S.A., Display HP-85662A	2542A12169	11/28/2005	11/28/2007	02662
S.A., RF Section HP-8568B	2601A02492	11/28/2005	11/28/2007	02663
QP Adapter HP-85650A	2043A00188	10/23/2004	10/23/2006	01508
Cable	None	06/21/2005	06/21/2007	P05299
Cable	None	06/21/2005	06/21/2007	P05300
Cable	None	06/21/2005	06/21/2007	P05296
Mag Loop - 6502	2078	05/13/2005	05/13/2007	00432

FCC 15.209 & 15.247(d) >1 GHz Radiated Emissions

Function	S/N	Calibration Date	Cal Due Date	Asset #
Cable, 6'	n/a	06/07/2006	06/07/2008	P04241
HF-Cable FSJ1P-50A-4A		02/20/2006	02/20/2008	P05138
Antenna, Horn 1-18 GHz	1064	03/08/2005	03/08/2007	02061
Cable, HF 36"	n/a	02/08/2005	02/08/2007	P05200
Preamp, HP83017A	3123A00283	05/09/2005	05/09/2007	00785
E4446A Spectrum Analyzer	US44300408	01/13/2005	01/13/2007	02668
S.A. HP 8593EM	3624A00159	10/31/2004	10/31/2006	02111
Cable, HF	n/a	07/12/2005	07/12/2007	P05314
Active Horn 18-26GHz	1087835	10/25/2005	10/25/2007	02694

FCC 15.247(b)(3) & 15.247(d) Antenna Conducted Emissions

Function	S/N	Calibration Date	Cal Due Date	Asset #
S.A. HP 8593EM	3624A00159	10/31/2004	10/31/2006	02111

APPENDIX C
MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **Crossbow Technology Inc.**
 Specification: **FCC 15.107 B COND [AVE]**
 Work Order #: **85583**
 Test Type: **Conducted Emissions**
 Equipment: **Base Station USB**
 Manufacturer: Crossbow Technology Inc.
 Model: Base Station USB
 S/N: 001, 002

Date: 9/7/2006
 Time: 23:28:56
 Sequence#: 26
 Tested By: Art Rice
 120V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Base Station USB*	Crossbow Technology Inc.	Base Station USB	001
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a
Base Station USB	Crossbow Technology Inc.	Base Station USB	002
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop PC	Dell	PP11L	DGZV9B1
AC Adapter for PC	Dell	NADP-90KBA	CN-0C2894-48661-57S-FZJT
USB Mouse	Logitech	M-UV94	LZB42151642
Monitor	ACER	7277e	9170602001
Print/Scan/Copy	HP	C5316A	MY8C4C207Y

Test Conditions / Notes:

Equipment located on test table 80 cm above ground, set up in accordance with ANSI C63.4. One Base Station USB is continuously transmitting, powered by USB cable connected to PC. The other Base Station USB is continuously receiving the signals and sending the data to the PC over the USB cable. XSniffer software on the PC is monitoring the data received, displaying it on the monitor, and saving it to a file on the desktop. The Base Stations are put in the wall mount vertical polarization, previously determined as worst case on the transmit frequencies. Conducted emissions 0.15-30 MHz.

Transducer Legend:

T1=LISN - AN00493 - Black - ELC "OUT"	T2=ANP02223 10dB Attenuator
T3=TTE HP Filter P05258	T4=Cable P00880

Measurement Data:

Reading listed by margin.

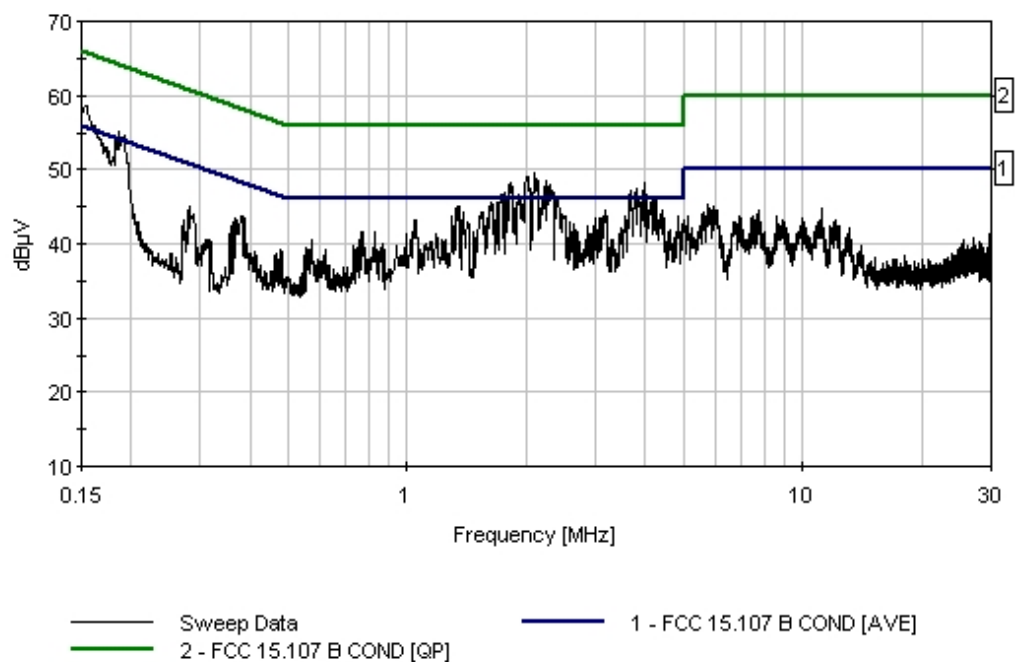
Test Lead: Black

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	153.000k	36.7	+0.4	+9.8	+3.7	+0.1	+0.0	50.7	55.8	-5.1	Black
Ave											
^	152.909k	44.7	+0.4	+9.8	+3.7	+0.1	+0.0	58.7	55.8	+2.9	Black
3	1.770M	28.3	+0.3	+9.7	+0.1	+0.2	+0.0	38.6	46.0	-7.4	Black
Ave											
^	1.770M	36.5	+0.3	+9.7	+0.1	+0.2	+0.0	46.8	46.0	+0.8	Black

5	1.832M	23.2	+0.3	+9.7	+0.1	+0.2	+0.0	33.5	46.0	-12.5	Black
^	1.830M	38.0	+0.3	+9.7	+0.1	+0.2	+0.0	48.3	46.0	+2.3	Black
7	3.667M	22.9	+0.3	+9.8	+0.1	+0.1	+0.0	33.2	46.0	-12.8	Black
^	3.667M	36.9	+0.3	+9.8	+0.1	+0.1	+0.0	47.2	46.0	+1.2	Black
9	2.013M	21.6	+0.3	+9.7	+0.1	+0.2	+0.0	31.9	46.0	-14.1	Black
^	2.013M	38.7	+0.3	+9.7	+0.1	+0.2	+0.0	49.0	46.0	+3.0	Black
11	2.289M	21.3	+0.3	+9.7	+0.1	+0.2	+0.0	31.6	46.0	-14.4	Black
^	2.289M	37.6	+0.3	+9.7	+0.1	+0.2	+0.0	47.9	46.0	+1.9	Black
13	3.786M	21.1	+0.3	+9.8	+0.1	+0.1	+0.0	31.4	46.0	-14.6	Black
^	3.786M	37.1	+0.3	+9.8	+0.1	+0.1	+0.0	47.4	46.0	+1.4	Black
15	2.242M	20.4	+0.3	+9.7	+0.1	+0.2	+0.0	30.7	46.0	-15.3	Black
^	2.242M	38.3	+0.3	+9.7	+0.1	+0.2	+0.0	48.6	46.0	+2.6	Black
17	3.820M	20.3	+0.3	+9.8	+0.1	+0.1	+0.0	30.6	46.0	-15.4	Black
^	3.820M	36.4	+0.3	+9.8	+0.1	+0.1	+0.0	46.7	46.0	+0.7	Black
19	2.098M	20.2	+0.3	+9.7	+0.1	+0.2	+0.0	30.5	46.0	-15.5	Black
^	2.098M	39.2	+0.3	+9.7	+0.1	+0.2	+0.0	49.5	46.0	+3.5	Black
21	3.973M	19.4	+0.3	+9.8	+0.1	+0.1	+0.0	29.7	46.0	-16.3	Black
^	3.973M	37.9	+0.3	+9.8	+0.1	+0.1	+0.0	48.2	46.0	+2.2	Black
23	4.262M	18.6	+0.3	+9.8	+0.1	+0.1	+0.0	28.9	46.0	-17.1	Black
^	4.262M	35.8	+0.3	+9.8	+0.1	+0.1	+0.0	46.1	46.0	+0.1	Black
25	4.024M	18.6	+0.3	+9.8	+0.1	+0.1	+0.0	28.9	46.0	-17.1	Black
^	4.024M	36.3	+0.3	+9.8	+0.1	+0.1	+0.0	46.6	46.0	+0.6	Black

27	2.400M	16.7	+0.3	+9.7	+0.1	+0.2	+0.0	27.0	46.0	-19.0	Black
^	2.400M	36.1	+0.3	+9.7	+0.1	+0.2	+0.0	46.4	46.0	+0.4	Black
29	1.732M	16.7	+0.3	+9.7	+0.1	+0.2	+0.0	27.0	46.0	-19.0	Black
^	1.732M	36.4	+0.3	+9.7	+0.1	+0.2	+0.0	46.7	46.0	+0.7	Black

CKC Laboratories, Inc. Date: 9/7/2006 Time: 23:28:56 CrossBow WVO#: 85583
FCC 15.107 B COND [AVE] Test Lead: Black 120V 60Hz Sequence#: 26
AC adapter for Host PC is connected to LISN.



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **Crossbow Technology Inc.**
 Specification: **FCC 15.107 B COND [AVE]**
 Work Order #: **85583**
 Test Type: **Conducted Emissions**
 Equipment: **Base Station USB**
 Manufacturer: Crossbow Technology Inc.
 Model: Base Station USB
 S/N: 001, 002

Date: 9/7/2006
 Time: 23:49:17
 Sequence#: 27
 Tested By: Art Rice
 120V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Base Station USB*	Crossbow Technology Inc.	Base Station USB	001
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a
Base Station USB	Crossbow Technology Inc.	Base Station USB	002
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop PC	Dell	PP11L	DGZV9B1
AC Adapter for PC	Dell	NADP-90KBA	CN-0C2894-48661-57S-FZJT
USB Mouse	Logitech	M-UV94	LZB42151642
Monitor	ACER	7277e	9170602001
Print/Scan/Copy	HP	C5316A	MY8C4C207Y

Test Conditions / Notes:

Equipment located on test table 80 cm above ground, set up in accordance with ANSI C63.4. One Base Station USB is continuously transmitting, powered by USB cable connected to PC. The other Base Station USB is continuously receiving the signals and sending the data to the PC over the USB cable. XSniffer software on the PC is monitoring the data received, displaying it on the monitor, and saving it to a file on the desktop. The Base Stations are put in the wall mount vertical polarization, previously determined as worst case on the transmit frequencies. Conducted emissions 0.15-30 MHz.

Transducer Legend:

T1=LISN - AN00493 - White - ELC "OUT"	T2=ANP02223 10dB Attenuator
T3=TTE HP Filter P05258	T4=Cable P00880

Measurement Data:

Reading listed by margin.

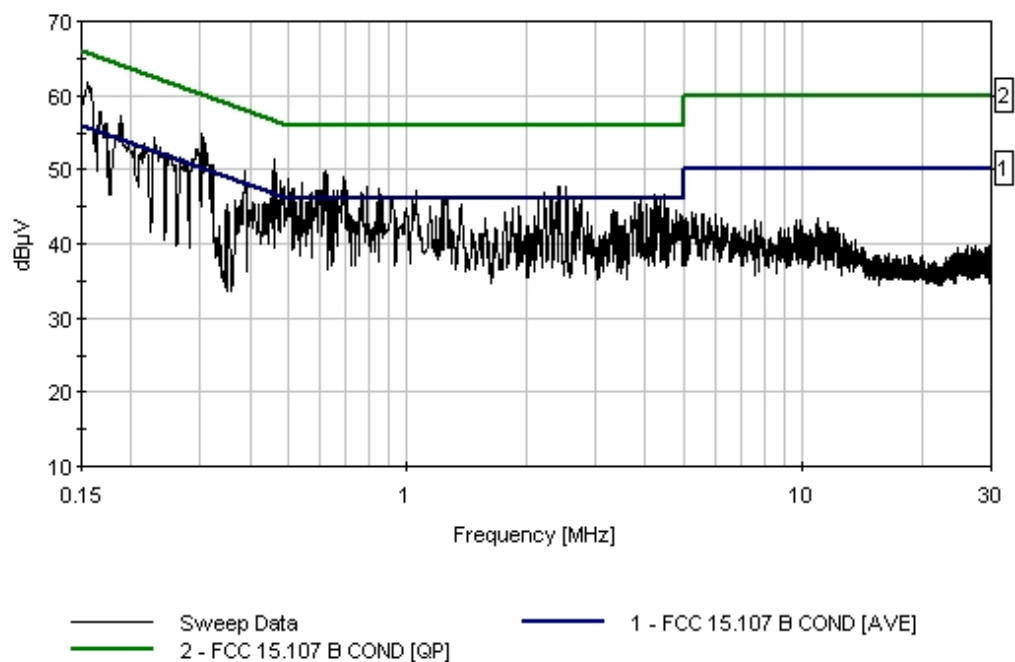
Test Lead: White

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	461.000k	35.2	+0.3	+9.7	+0.0	+0.1	+0.0	45.3	46.7	-1.4	White
Ave											
^	456.878k	37.8	+0.3	+9.7	+0.0	+0.1	+0.0	47.9	46.7	+1.2	White
3	464.000k	33.5	+0.3	+9.7	+0.0	+0.1	+0.0	43.6	46.6	-3.0	White
Ave											
^	460.514k	41.2	+0.3	+9.7	+0.0	+0.1	+0.0	51.3	46.7	+4.6	White
^	466.332k	39.5	+0.3	+9.7	+0.0	+0.1	+0.0	49.6	46.6	+3.0	White

6	303.000k Ave	34.9	+0.3	+9.8	+0.3	+0.1	+0.0	45.4	50.2	-4.8	White
^	302.712k	44.3	+0.3	+9.8	+0.3	+0.1	+0.0	54.8	50.2	+4.6	White
^	301.258k	44.0	+0.3	+9.8	+0.3	+0.1	+0.0	54.5	50.2	+4.3	White
9	156.000k Ave	35.3	+0.4	+9.8	+3.5	+0.1	+0.0	49.1	55.7	-6.6	White
^	155.818k	48.0	+0.4	+9.8	+3.5	+0.1	+0.0	61.8	55.7	+6.1	White
11	201.000k Ave	34.7	+0.4	+9.8	+0.1	+0.1	+0.0	45.1	53.6	-8.5	White
^	196.900k	46.2	+0.4	+9.8	+0.8	+0.1	+0.0	57.3	54.1	+3.2	White
13	619.000k Ave	26.9	+0.3	+9.7	+0.0	+0.1	+0.0	37.0	46.0	-9.0	White
^	623.407k	39.8	+0.3	+9.7	+0.0	+0.1	+0.0	49.9	46.0	+3.9	White
^	620.498k	39.6	+0.3	+9.7	+0.0	+0.1	+0.0	49.7	46.0	+3.7	White
^	620.679k	38.2	+0.3	+9.7	+0.0	+0.1	+0.0	48.3	46.0	+2.3	White
17	620.000k Ave	26.5	+0.3	+9.7	+0.0	+0.1	+0.0	36.6	46.0	-9.4	White
18	2.384M Ave	25.1	+0.3	+9.7	+0.1	+0.2	+0.0	35.4	46.0	-10.6	White
^	2.384M	37.5	+0.3	+9.7	+0.1	+0.2	+0.0	47.8	46.0	+1.8	White
20	540.000k Ave	25.2	+0.3	+9.7	+0.0	+0.1	+0.0	35.3	46.0	-10.7	White
^	539.779k	38.1	+0.3	+9.7	+0.0	+0.1	+0.0	48.2	46.0	+2.2	White
22	692.000k Ave	24.6	+0.3	+9.7	+0.0	+0.1	+0.0	34.7	46.0	-11.3	White
^	692.491k	39.0	+0.3	+9.7	+0.0	+0.1	+0.0	49.1	46.0	+3.1	White
24	293.000k Ave	28.5	+0.3	+9.8	+0.3	+0.1	+0.0	39.0	50.4	-11.4	White
^	293.258k	42.2	+0.3	+9.8	+0.3	+0.1	+0.0	52.7	50.4	+2.3	White
26	385.000k Ave	25.5	+0.3	+9.7	+0.0	+0.2	+0.0	35.7	48.2	-12.5	White
^	385.794k	39.5	+0.3	+9.7	+0.0	+0.2	+0.0	49.7	48.1	+1.6	White
28	700.000k Ave	23.1	+0.3	+9.7	+0.0	+0.1	+0.0	33.2	46.0	-12.8	White
^	700.490k	38.1	+0.3	+9.7	+0.0	+0.1	+0.0	48.2	46.0	+2.2	White

30	498.000k	22.2	+0.3	+9.7	+0.0	+0.1	+0.0	32.3	46.0	-13.7	White
	Ave										
^	498.329k	38.7	+0.3	+9.7	+0.0	+0.1	+0.0	48.8	46.0	+2.8	White
32	230.000k	27.8	+0.4	+9.8	+0.2	+0.1	+0.0	38.3	52.4	-14.1	White
	Ave										
^	229.992k	43.8	+0.4	+9.8	+0.2	+0.1	+0.0	54.3	52.5	+1.8	White
34	167.000k	27.8	+0.4	+9.8	+2.5	+0.1	+0.0	40.6	55.1	-14.5	White
	Ave										
^	166.726k	44.9	+0.4	+9.8	+2.6	+0.1	+0.0	57.8	55.1	+2.7	White
36	479.000k	17.3	+0.3	+9.7	+0.0	+0.1	+0.0	27.4	46.4	-19.0	White
	Ave										
^	479.422k	38.3	+0.3	+9.7	+0.0	+0.1	+0.0	48.4	46.3	+2.1	White

CKC Laboratories, Inc. Date: 9/7/2006 Time: 23:49:17 CrossBow WFO#: 85583
FCC 15.107 B COND [AVE] Test Lead: White 120V 60Hz Sequence#: 27
AC adapter for Host PC is connected to LISN.



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **Crossbow Technology Inc.**
 Specification: **FCC 15.109 Class B Radiated**
 Work Order #: **85583**
 Test Type: **Maximized Emissions**
 Equipment: **Base Station USB**
 Manufacturer: Crossbow Technology Inc.
 Model: Base Station USB
 S/N: 001, 002

Date: 9/7/2006
 Time: 21:56:08
 Sequence#: 24
 Tested By: Art Rice

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Base Station USB*	Crossbow Technology Inc.	Base Station USB	001
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a
Base Station USB	Crossbow Technology Inc.	Base Station USB	002
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop PC	Dell	PP11L	DGZV9B1
AC Adapter for PC	Dell	NADP-90KBA	CN-0C2894-48661-57S-FZJT
USB Mouse	Logitech	M-UV94	LZB42151642
Monitor	ACER	7277e	9170602001
Print/Scan/Copy	HP	C5316A	MY8C4C207Y

Test Conditions / Notes:

Equipment located on test table 80 cm above ground, set up in accordance with ANSI C63.4. One Base Station USB is continuously transmitting, powered by USB cable connected to PC. The other Base Station USB is continuously receiving the signals and sending the data to the PC over the USB cable. XSniffer software on the PC is monitoring the data received, displaying it on the monitor, and saving it to a file on the desktop. The Base Stations are put in the wall mount vertical polarization, previously determined as worst case on the transmit frequencies. Radiated emissions 30-1000 MHz.

Transducer Legend:

T1=0852-Bi-Log Antenna	T2=Cable P05296 25' RG214 N-N
T3=Cable P05299 2' RG214 N-N	T4=Cable P05300 12' RG214 N-N
T5=Amp Cal.HP-8447F OPT H64- AN 00501	

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	T5 dB	dB	dB	dB	Table	dBμV/m	dBμV/m	dB	Ant
1	433.027M	54.0	+16.4	+1.1	+0.1	+0.5	+0.0	45.7	46.0	-0.3	Vert
	QP		-26.4				357		Host PC		116
^	433.042M	56.1	+16.4	+1.1	+0.1	+0.5	+0.0	47.8	46.0	+1.8	Vert
			-26.4				357				116
3	431.418M	53.9	+16.3	+1.1	+0.1	+0.5	+0.0	45.4	46.0	-0.6	Vert
	QP		-26.5				350		Host PC		99
^	431.429M	56.3	+16.3	+1.1	+0.1	+0.5	+0.0	47.8	46.0	+1.8	Vert
			-26.5				350				99

5	799.582M	46.5	+21.3	+1.6	+0.2	+0.8	+0.0	43.5	46.0	-2.5	Vert
	QP		-26.9				200		Host PC		153
^	799.563M	49.7	+21.3	+1.6	+0.2	+0.8	+0.0	46.7	46.0	+0.7	Vert
			-26.9				200				153
7	34.270M	45.0	+16.2	+0.3	+0.1	+0.2	+0.0	35.7	40.0	-4.3	Vert
	QP		-26.1				270		Monitor		99
^	34.277M	48.1	+16.2	+0.3	+0.1	+0.2	+0.0	38.8	40.0	-1.2	Vert
			-26.1				270				99
9	36.066M	44.4	+15.4	+0.3	+0.1	+0.2	+0.0	34.3	40.0	-5.7	Vert
	QP		-26.1				79		Monitor		99
^	36.045M	47.2	+15.4	+0.3	+0.1	+0.2	+0.0	37.1	40.0	-2.9	Vert
			-26.1				79				99
11	34.689M	43.8	+16.0	+0.3	+0.1	+0.2	+0.0	34.3	40.0	-5.7	Vert
	QP		-26.1				143		Monitor		99
^	34.698M	47.2	+16.0	+0.3	+0.1	+0.2	+0.0	37.7	40.0	-2.3	Vert
			-26.1				143				99
13	36.548M	44.3	+15.2	+0.3	+0.1	+0.2	+0.0	34.0	40.0	-6.0	Vert
	QP		-26.1				80		Monitor		100
^	36.504M	47.7	+15.2	+0.3	+0.1	+0.2	+0.0	37.4	40.0	-2.6	Vert
			-26.1				80				99
15	35.701M	43.6	+15.6	+0.3	+0.1	+0.2	+0.0	33.7	40.0	-6.3	Vert
	QP		-26.1				80		Monitor		99
^	35.695M	46.8	+15.6	+0.3	+0.1	+0.2	+0.0	36.9	40.0	-3.1	Vert
			-26.1				80				99
17	366.415M	49.0	+14.6	+1.1	+0.2	+0.6	+0.0	39.5	46.0	-6.5	Vert
	QP		-26.0				340		Host PC		147
^	366.404M	51.3	+14.6	+1.1	+0.2	+0.6	+0.0	41.8	46.0	-4.2	Vert
			-26.0				340				147
19	50.162M	50.0	+8.4	+0.4	+0.1	+0.2	+0.0	33.0	40.0	-7.0	Vert
	QP		-26.1				261		Monitor		99
^	50.194M	56.3	+8.4	+0.4	+0.1	+0.2	+0.0	39.3	40.0	-0.7	Vert
			-26.1				261				99
21	119.986M	48.9	+11.2	+0.6	+0.1	+0.4	+0.0	35.4	43.5	-8.1	Horiz
	QP		-25.8				275				153
^	119.991M	50.1	+11.2	+0.6	+0.1	+0.4	+0.0	36.6	43.5	-6.9	Horiz
			-25.8				275				154
23	151.512M	48.8	+10.6	+0.7	+0.1	+0.4	+0.0	34.9	43.5	-8.6	Horiz
	QP		-25.7				197				190
24	151.512M	48.8	+10.6	+0.7	+0.1	+0.4	+0.0	34.9	43.5	-8.6	Horiz
	QP		-25.7				204				184
^	151.514M	50.5	+10.6	+0.7	+0.1	+0.4	+0.0	36.6	43.5	-6.9	Horiz
			-25.7				204				184
^	151.513M	50.4	+10.6	+0.7	+0.1	+0.4	+0.0	36.5	43.5	-7.0	Horiz
			-25.7				197				190
27	186.323M	50.7	+8.6	+0.7	+0.1	+0.4	+0.0	34.9	43.5	-8.6	Horiz
			-25.6				265				188
28	30.094M	38.8	+17.9	+0.2	+0.0	+0.1	+0.0	31.0	40.0	-9.0	Vert
	QP		-26.0				271		Monitor		99
^	30.102M	43.9	+17.9	+0.2	+0.0	+0.1	+0.0	36.1	40.0	-3.9	Vert
			-26.0				271				99

30	233.372M	48.9	+11.2 -25.4	+0.8	+0.1	+0.4	+0.0 312	36.0	46.0	-10.0	Horiz 135
31	174.140M QP	47.0	+9.0 -25.6	+0.7	+0.1	+0.4	+0.0 7	31.6	43.5	-11.9	Vert 109
^	174.151M	56.0	+9.0 -25.6	+0.7	+0.1	+0.4	+0.0 7	40.6	43.5	-2.9	Vert 109
33	174.138M QP	46.0	+9.0 -25.6	+0.7	+0.1	+0.4	+0.0 341	30.6	43.5	-13.0	Horiz 123
^	174.095M	55.9	+9.1 -25.6	+0.7	+0.1	+0.4	+0.0 341	40.6	43.5	-2.9	Horiz 123
35	172.781M QP	45.1	+9.2 -25.6	+0.7	+0.1	+0.4	+0.0 343	29.9	43.5	-13.6	Horiz 149
^	172.849M	51.2	+9.2 -25.6	+0.7	+0.1	+0.4	+0.0 343	36.0	43.5	-7.5	Horiz 149
37	162.207M QP	44.0	+10.0 -25.7	+0.7	+0.1	+0.4	+0.0 91	29.5	43.5	-14.0	Horiz 194
^	162.232M	51.3	+10.0 -25.7	+0.7	+0.1	+0.4	+0.0 91	36.8	43.5	-6.7	Horiz 194
39	185.659M QP	44.3	+8.6 -25.6	+0.7	+0.1	+0.4	+0.0 265	28.5	43.5	-15.0	Horiz 188
^	185.744M	54.8	+8.6 -25.6	+0.7	+0.1	+0.4	+0.0 265	39.0	43.5	-4.5	Horiz 188
41	126.006M QP	40.6	+11.2 -25.7	+0.6	+0.1	+0.4	+0.0 -10	27.2	43.5	-16.3	Vert 99
^	126.036M	53.3	+11.2 -25.7	+0.6	+0.1	+0.4	+0.0 -10	39.9	43.5	-3.6	Vert 99

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **Crossbow Technology Inc.**
 Specification: **FCC 15.109 Class B Radiated**
 Work Order #: **85583**
 Test Type: **Radiated Scan/Maximized**
 Equipment: **Base Station USB**
 Manufacturer: Crossbow Technology Inc.
 Model: Base Station USB
 S/N: 001

Date: 9/1/2006
 Time: 13:55:07
 Sequence#: 8
 Tested By: Art Rice

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Base Station USB*	Crossbow Technology Inc.	Base Station USB	001
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop PC	Dell	PP11L	DGZV9B1
AC Adapter for PC	Dell	PA-1650-0502	71615-621-64FD

Test Conditions / Notes:

Located at center of test table 80 cm above ground. Continuous operation. Receiving on Ch 11=low, RBW=1 MHz.
 Radiated emissions 1-12.4 GHz.

Transducer Legend:

T1=ANP05200 1-40GHz	T2=ANP04241 HF-Heliox Cable
T3=P05138 HF Cable 25ft	T4=Horn Antenna AN02061 sn1064 (Fremont)
T5=HP-83017A, A/N 00785	

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	4806.140M	51.1	+1.7 -37.1	+0.7	+3.4	+32.3	+0.0 80	52.1	54.0 Maxd	-1.9	Horiz 119
2	4806.281M	50.3	+1.7 -37.1	+0.7	+3.4	+32.3	+0.0 150	51.3	54.0 Maxd	-2.7	Vert 104
3	4806.107M	48.7	+1.7 -37.1	+0.7	+3.4	+32.3	+0.0 80	49.7	54.0 Maxd, RBW=100kHz	-4.3	Horiz 119
4	4806.116M	47.9	+1.7 -37.1	+0.7	+3.4	+32.3	+0.0 150	48.9	54.0 Maxd, RBW=100kHz	-5.1	Vert 104
5	1592.000M	52.5	+1.0 -38.5	+0.5	+1.9	+26.0	+0.0 177	43.4	54.0 PC only on	-10.6	Vert 118
6	1064.000M	55.6	+0.9 -40.3	+0.4	+1.5	+24.0	+0.0 177	42.1	54.0 PC only on	-11.9	Vert 118
7	1327.000M	52.7	+1.0 -39.2	+0.5	+1.7	+24.8	+0.0 177	41.5	54.0 PC only on	-12.5	Vert 118

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **Crossbow Technology Inc.**
 Specification: **FCC 15.207 COND [AVE]**
 Work Order #: **85583**
 Test Type: **Conducted Emissions**
 Equipment: **Base Station USB**
 Manufacturer: Crossbow Technology Inc.
 Model: Base Station USB
 S/N: 001

Date: 9/8/2006
 Time: 00:37:24
 Sequence#: 29
 Tested By: Art Rice
 120V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Base Station USB*	Crossbow Technology Inc.	Base Station USB	001
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop PC	Dell	PP11L	DGZV9B1
AC Adapter for PC	Dell	NADP-90KBA	CN-0C2894-48661-57S-FZJT
USB Mouse	Logitech	M-UV94	LZB42151642
Monitor	ACER	7277e	9170602001
Print/Scan/Copy	HP	C5316A	MY8C4C207Y

Test Conditions / Notes:

Equipment located on test table 80 cm above ground, set up in accordance with ANSI C63.4. One Base Station USB is continuously transmitting, powered by USB cable connected to PC. The other Base Station USB is continuously receiving the signals and sending the data to the PC over the USB cable. XSniffer software on the PC is monitoring the data received, displaying it on the monitor, and saving it to a file on the desktop. The Base Stations are put in the wall mount vertical polarization, previously determined as worst case on the transmit frequencies. Note 1) For this test, only the Base Station USB in the continuous transmit mode is connected to the PC. Conducted emissions 0.15-30 MHz.

Transducer Legend:

T1=LISN - AN00493 - Black - ELC "OUT"	T2=ANP02223 10dB Attenuator
T3=TTE HP Filter P05258	T4=Cable P00880

Measurement Data:

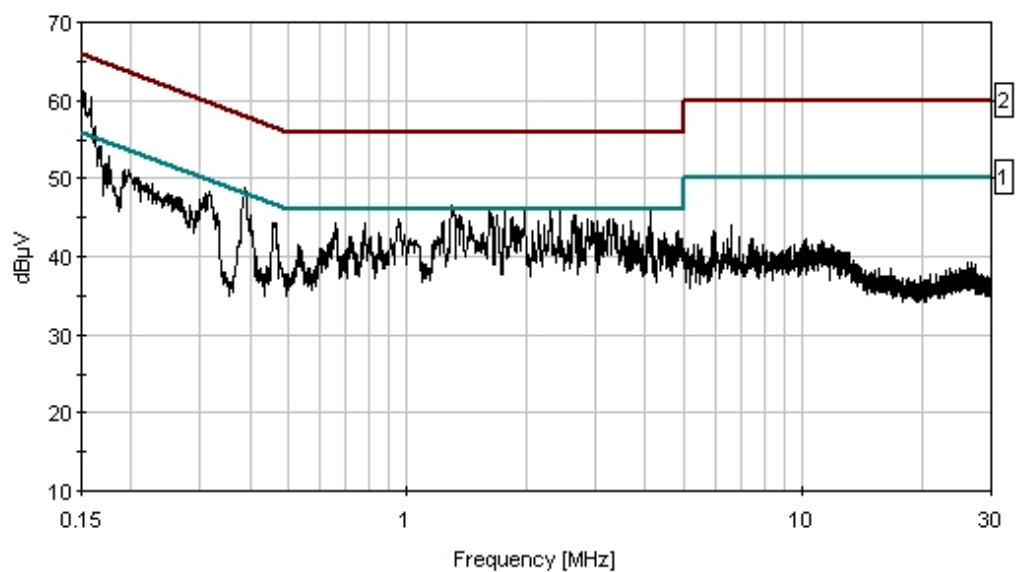
Reading listed by margin.

Test Lead: Black

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	389.000k	33.8	+0.3	+9.7	+0.0	+0.2	+0.0	44.0	48.1	-4.1	Black
Ave											
^	388.522k	38.5	+0.3	+9.7	+0.0	+0.2	+0.0	48.7	48.1	+0.6	Black
3	1.766M	29.9	+0.3	+9.7	+0.1	+0.2	+0.0	40.2	46.0	-5.8	Black
Ave											
^	1.766M	35.9	+0.3	+9.7	+0.1	+0.2	+0.0	46.2	46.0	+0.2	Black
5	1.302M	28.9	+0.3	+9.8	+0.0	+0.1	+0.0	39.1	46.0	-6.9	Black
Ave											
^	1.302M	36.4	+0.3	+9.8	+0.0	+0.1	+0.0	46.6	46.0	+0.6	Black

7	152.000k	30.5	+0.4	+9.8	+3.8	+0.1	+0.0	44.6	55.9	-11.3	Black	
^	Ave	152.182k	47.0	+0.4	+9.8	+3.8	+0.1	+0.0	61.1	55.9	+5.2	Black
9	1.613M	22.4	+0.3	+9.7	+0.1	+0.2	+0.0	32.7	46.0	-13.3	Black	
^	Ave	1.613M	35.9	+0.3	+9.7	+0.1	+0.2	+0.0	46.2	46.0	+0.2	Black
11	2.298M	21.0	+0.3	+9.7	+0.1	+0.2	+0.0	31.3	46.0	-14.7	Black	
^	Ave	2.298M	35.5	+0.3	+9.7	+0.1	+0.2	+0.0	45.8	46.0	-0.2	Black
13	1.987M	17.2	+0.3	+9.7	+0.1	+0.2	+0.0	27.5	46.0	-18.5	Black	
^	Ave	1.987M	35.8	+0.3	+9.7	+0.1	+0.2	+0.0	46.1	46.0	+0.1	Black
15	4.109M	17.0	+0.3	+9.8	+0.1	+0.1	+0.0	27.3	46.0	-18.7	Black	
^	Ave	4.109M	35.5	+0.3	+9.8	+0.1	+0.1	+0.0	45.8	46.0	-0.2	Black
17	2.429M	16.7	+0.3	+9.7	+0.1	+0.2	+0.0	27.0	46.0	-19.0	Black	
^	Ave	2.429M	35.6	+0.3	+9.7	+0.1	+0.2	+0.0	45.9	46.0	-0.1	Black
19	2.655M	16.1	+0.4	+9.7	+0.1	+0.2	+0.0	26.5	46.0	-19.5	Black	
^	Ave	2.655M	35.0	+0.4	+9.7	+0.1	+0.2	+0.0	45.4	46.0	-0.6	Black

CKC Laboratories, Inc. Date: 9/8/2006 Time: 00:37:24 CrossBow WVO#: 85583
 FCC 15.207 COND [AVE] Test Lead: Black 120V 60Hz Sequence#: 29
 AC adapter for Host PC is connected to LISN.



— Sweep Data — 1 - FCC 15.207 COND [AVE] — 2 - FCC 15.207 COND [QP]

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **Crossbow Technology Inc.**
 Specification: **FCC 15.207 COND [AVE]**
 Work Order #: **85583**
 Test Type: **Conducted Emissions**
 Equipment: **Base Station USB**
 Manufacturer: Crossbow Technology Inc.
 Model: Base Station USB
 S/N: 001

Date: 9/8/2006
 Time: 00:26:43
 Sequence#: 28
 Tested By: Art Rice
 120V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Base Station USB*	Crossbow Technology Inc.	Base Station USB	001
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop PC	Dell	PP11L	DGZV9B1
AC Adapter for PC	Dell	NADP-90KBA	CN-0C2894-48661-57S-FZJT
USB Mouse	Logitech	M-UV94	LZB42151642
Monitor	ACER	7277e	9170602001
Print/Scan/Copy	HP	C5316A	MY8C4C207Y

Test Conditions / Notes:

Equipment located on test table 80 cm above ground, set up in accordance with ANSI C63.4. One Base Station USB is continuously transmitting, powered by USB cable connected to PC. The other Base Station USB is continuously receiving the signals and sending the data to the PC over the USB cable. XSniffer software on the PC is monitoring the data received, displaying it on the monitor, and saving it to a file on the desktop. The Base Stations are put in the wall mount vertical polarization, previously determined as worst case on the transmit frequencies. Note 1) For this test, only the Base Station USB in the continuous transmit mode is connected to the PC. Conducted emissions 0.15-30 MHz.

Transducer Legend:

T1=LISN - AN00493 - White - ELC "OUT"	T2=ANP02223 10dB Attenuator
T3=TTE HP Filter P05258	T4=Cable P00880

Measurement Data:

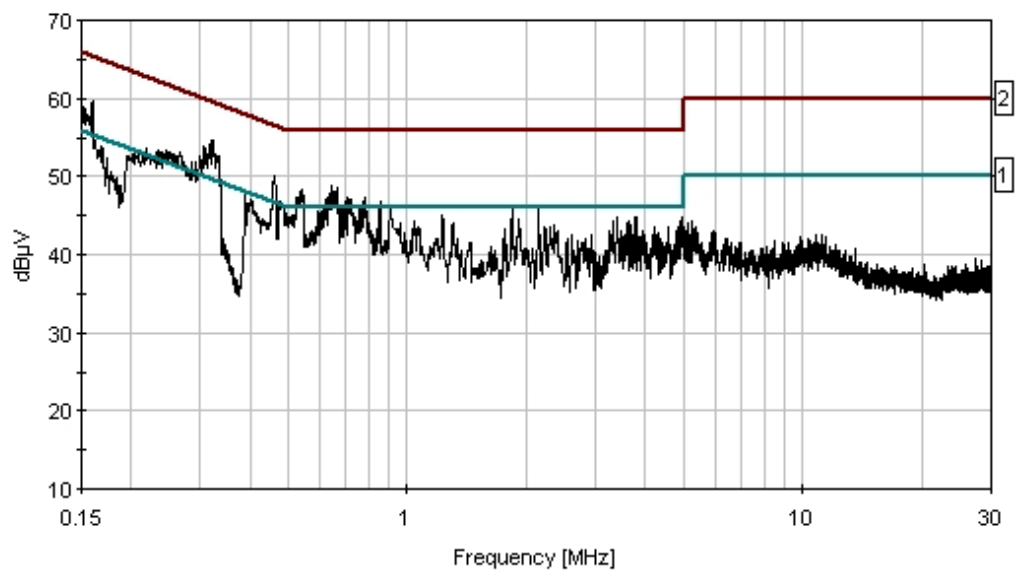
Reading listed by margin.

Test Lead: White

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	461.000k	34.5	+0.3	+9.7	+0.0	+0.1	+0.0	44.6	46.7	-2.1	White
Ave											
^	464.150k	40.0	+0.3	+9.7	+0.0	+0.1	+0.0	50.1	46.6	+3.5	White
3	2.353M	33.6	+0.3	+9.7	+0.1	+0.2	+0.0	43.9	46.0	-2.1	White
4	3.675M	33.5	+0.4	+9.8	+0.1	+0.1	+0.0	43.9	46.0	-2.1	White
5	173.270k	40.1	+0.4	+9.8	+2.0	+0.1	+0.0	52.4	54.8	-2.4	White
6	2.221M	33.2	+0.3	+9.7	+0.1	+0.2	+0.0	43.5	46.0	-2.5	White

7	4.233M	33.1	+0.4	+9.8	+0.1	+0.1	+0.0	43.5	46.0	-2.5	White
8	4.586M	33.0	+0.4	+9.8	+0.1	+0.2	+0.0	43.5	46.0	-2.5	White
9	1.766M	33.1	+0.3	+9.7	+0.1	+0.2	+0.0	43.4	46.0	-2.6	White
10	849.000k Ave	29.6	+0.3	+9.7	+0.0	+0.2	+0.0	39.8	46.0	-6.2	White
^	853.930k	36.7	+0.3	+9.7	+0.0	+0.2	+0.0	46.9	46.0	+0.9	White
12	320.000k Ave	32.4	+0.3	+9.8	+0.2	+0.1	+0.0	42.8	49.7	-6.9	White
^	322.346k	44.3	+0.3	+9.8	+0.2	+0.1	+0.0	54.7	49.6	+5.1	White
14	2.153M Ave	27.4	+0.3	+9.7	+0.1	+0.2	+0.0	37.7	46.0	-8.3	White
^	2.153M	35.5	+0.3	+9.7	+0.1	+0.2	+0.0	45.8	46.0	-0.2	White
16	779.000k Ave	26.9	+0.3	+9.7	+0.0	+0.2	+0.0	37.1	46.0	-8.9	White
^	780.000k	37.2	+0.3	+9.7	+0.0	+0.2	+0.0	47.4	46.0	+1.4	White
18	706.000k Ave	25.9	+0.3	+9.7	+0.0	+0.1	+0.0	36.0	46.0	-10.0	White
^	705.581k	37.1	+0.3	+9.7	+0.0	+0.1	+0.0	47.2	46.0	+1.2	White
20	914.000k Ave	25.5	+0.3	+9.7	+0.0	+0.2	+0.0	35.7	46.0	-10.3	White
^	909.771k	35.5	+0.3	+9.7	+0.0	+0.2	+0.0	45.7	46.0	-0.3	White
22	1.835M Ave	25.2	+0.3	+9.7	+0.1	+0.2	+0.0	35.5	46.0	-10.5	White
^	1.838M	35.7	+0.3	+9.7	+0.1	+0.2	+0.0	46.0	46.0	+0.0	White
24	389.000k Ave	27.1	+0.3	+9.7	+0.0	+0.2	+0.0	37.3	48.1	-10.8	White
^	388.522k	37.3	+0.3	+9.7	+0.0	+0.2	+0.0	47.5	48.1	-0.6	White
26	160.000k Ave	27.3	+0.4	+9.8	+3.1	+0.1	+0.0	40.7	55.5	-14.8	White
^	160.181k	46.2	+0.4	+9.8	+3.1	+0.1	+0.0	59.6	55.5	+4.1	White
28	646.000k Ave	20.3	+0.3	+9.7	+0.0	+0.1	+0.0	30.4	46.0	-15.6	White
^	645.950k	38.6	+0.3	+9.7	+0.0	+0.1	+0.0	48.7	46.0	+2.7	White
30	539.000k Ave	19.5	+0.3	+9.7	+0.0	+0.1	+0.0	29.6	46.0	-16.4	White
^	539.052k	38.2	+0.3	+9.7	+0.0	+0.1	+0.0	48.3	46.0	+2.3	White

CKC Laboratories, Inc. Date: 9/8/2006 Time: 00:26:43 CrossBow WVO#: 85583
 FCC 15.207 COND [AVE] Test Lead: White 120V 60Hz Sequence#: 28
 AC adapter for Host PC is connected to LISN.



— Sweep Data — 1 - FCC 15.207 COND [AVE] — 2 - FCC 15.207 COND [QP]

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **Crossbow Technology Inc.**
 Specification: **FCC 15.209 9k-30M**
 Work Order #: **85583** Date: 9/7/2006
 Test Type: **Radiated Scan/Maximized Emissions** Time: 22:47:00
 Equipment: **Base Station USB** Sequence#: 25
 Manufacturer: Crossbow Technology Inc. Tested By: Art Rice
 Model: Base Station USB
 S/N: 001, 002

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Base Station USB*	Crossbow Technology Inc.	Base Station USB	001
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a
Base Station USB	Crossbow Technology Inc.	Base Station USB	002
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop PC	Dell	PP11L	DGZV9B1
AC Adapter for PC	Dell	NADP-90KBA	CN-0C2894-48661-57S-FZJT
USB Mouse	Logitech	M-UV94	LZB42151642
Monitor	ACER	7277e	9170602001
Print/Scan/Copy	HP	C5316A	MY8C4C207Y

Test Conditions / Notes:

Equipment located on test table 80 cm above ground, set up in accordance with ANSI C63.4. One Base Station USB is continuously transmitting, powered by USB cable connected to PC. The other Base Station USB is continuously receiving the signals and sending the data to the PC over the USB cable. XSniffer software on the PC is monitoring the data received, displaying it on the monitor, and saving it to a file on the desktop. The Base Stations are put in the wall mount vertical polarization, previously determined as worst case on the transmit frequencies. Note: AC adapter, monitor, print/scan/copy were unplugged during this test to prevent unwanted magnetic fields. Radiated emissions 9 kHz-30 MHz. No emissions were found from the EUT at this frequency range.

Transducer Legend:

T1=Cable P05299 2' RG214 N-N	T2=Cable P05300 12' RG214 N-N
T3=Mag Loop - AN 00432- 9kHz-30M	

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	60.660k	59.7	+0.1	+0.1	+9.8		+0.0 -9	69.7	71.9 Not from EUTs	-2.2	Horiz 100
2	60.665k	54.9	+0.1	+0.1	+9.8		+0.0 46	64.9	71.9 Not from EUTs	-7.0	Vert 300

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **Crossbow Technology Inc.**

Specification: **FCC 15.209 30-1000 MHz**

Work Order #: **85583**

Date: 9/7/2006

Test Type: **Maximized Emissions**

Time: 21:56:08

Equipment: **Base Station USB**

Sequence#: 24

Manufacturer: Crossbow Technology Inc.

Tested By: Art Rice

Model: Base Station USB

S/N: 001, 002

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Base Station USB*	Crossbow Technology Inc.	Base Station USB	001
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a
Base Station USB	Crossbow Technology Inc.	Base Station USB	002
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop PC	Dell	PP11L	DGZV9B1
AC Adapter for PC	Dell	NADP-90KBA	CN-0C2894-48661-57S-FZJT
USB Mouse	Logitech	M-UV94	LZB42151642
Monitor	ACER	7277e	9170602001
Print/Scan/Copy	HP	C5316A	MY8C4C207Y

Test Conditions / Notes:

Equipment located on test table 80 cm above ground, set up in accordance with ANSI C63.4. One Base Station USB is continuously transmitting, powered by USB cable connected to PC. The other Base Station USB is continuously receiving the signals and sending the data to the PC over the USB cable. XSniffer software on the PC is monitoring the data received, displaying it on the monitor, and saving it to a file on the desktop. The Base Stations are put in the wall mount vertical polarization, previously determined as worst case on the transmit frequencies. Radiated emissions 30-1000 MHz.

Transducer Legend:

T1=0852-Bi-Log Antenna	T2=Cable P05296 25' RG214 N-N
T3=Cable P05299 2' RG214 N-N	T4=Cable P05300 12' RG214 N-N
T5=Amp Cal.HP-8447F OPT H64- AN 00501	

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	T5 dB	dB	dB	dB	Table	dBμV/m	dBμV/m	dB	Ant
1	433.027M	54.0	+16.4	+1.1	+0.1	+0.5	+0.0	45.7	46.0	-0.3	Vert
	QP		-26.4				357		Host PC		116
^	433.042M	56.1	+16.4	+1.1	+0.1	+0.5	+0.0	47.8	46.0	+1.8	Vert
			-26.4				357				116
3	431.418M	53.9	+16.3	+1.1	+0.1	+0.5	+0.0	45.4	46.0	-0.6	Vert
	QP		-26.5				350		Host PC		99
^	431.429M	56.3	+16.3	+1.1	+0.1	+0.5	+0.0	47.8	46.0	+1.8	Vert
			-26.5				350				99

5	799.582M	46.5	+21.3	+1.6	+0.2	+0.8	+0.0	43.5	46.0	-2.5	Vert
	QP		-26.9				200		Host PC		153
^	799.563M	49.7	+21.3	+1.6	+0.2	+0.8	+0.0	46.7	46.0	+0.7	Vert
			-26.9				200				153
7	34.270M	45.0	+16.2	+0.3	+0.1	+0.2	+0.0	35.7	40.0	-4.3	Vert
	QP		-26.1				270		Monitor		99
^	34.277M	48.1	+16.2	+0.3	+0.1	+0.2	+0.0	38.8	40.0	-1.2	Vert
			-26.1				270				99
9	36.066M	44.4	+15.4	+0.3	+0.1	+0.2	+0.0	34.3	40.0	-5.7	Vert
	QP		-26.1				79		Monitor		99
^	36.045M	47.2	+15.4	+0.3	+0.1	+0.2	+0.0	37.1	40.0	-2.9	Vert
			-26.1				79				99
11	34.689M	43.8	+16.0	+0.3	+0.1	+0.2	+0.0	34.3	40.0	-5.7	Vert
	QP		-26.1				143		Monitor		99
^	34.698M	47.2	+16.0	+0.3	+0.1	+0.2	+0.0	37.7	40.0	-2.3	Vert
			-26.1				143				99
13	36.548M	44.3	+15.2	+0.3	+0.1	+0.2	+0.0	34.0	40.0	-6.0	Vert
	QP		-26.1				80		Monitor		100
^	36.504M	47.7	+15.2	+0.3	+0.1	+0.2	+0.0	37.4	40.0	-2.6	Vert
			-26.1				80				99
15	35.701M	43.6	+15.6	+0.3	+0.1	+0.2	+0.0	33.7	40.0	-6.3	Vert
	QP		-26.1				80		Monitor		99
^	35.695M	46.8	+15.6	+0.3	+0.1	+0.2	+0.0	36.9	40.0	-3.1	Vert
			-26.1				80				99
17	366.415M	49.0	+14.6	+1.1	+0.2	+0.6	+0.0	39.5	46.0	-6.5	Vert
	QP		-26.0				340		Host PC		147
^	366.404M	51.3	+14.6	+1.1	+0.2	+0.6	+0.0	41.8	46.0	-4.2	Vert
			-26.0				340				147
19	50.162M	50.0	+8.4	+0.4	+0.1	+0.2	+0.0	33.0	40.0	-7.0	Vert
	QP		-26.1				261		Monitor		99
^	50.194M	56.3	+8.4	+0.4	+0.1	+0.2	+0.0	39.3	40.0	-0.7	Vert
			-26.1				261				99
21	119.986M	48.9	+11.2	+0.6	+0.1	+0.4	+0.0	35.4	43.5	-8.1	Horiz
	QP		-25.8				275				153
^	119.991M	50.1	+11.2	+0.6	+0.1	+0.4	+0.0	36.6	43.5	-6.9	Horiz
			-25.8				275				154
23	151.512M	48.8	+10.6	+0.7	+0.1	+0.4	+0.0	34.9	43.5	-8.6	Horiz
	QP		-25.7				197				190
24	151.512M	48.8	+10.6	+0.7	+0.1	+0.4	+0.0	34.9	43.5	-8.6	Horiz
	QP		-25.7				204				184
^	151.514M	50.5	+10.6	+0.7	+0.1	+0.4	+0.0	36.6	43.5	-6.9	Horiz
			-25.7				204				184
^	151.513M	50.4	+10.6	+0.7	+0.1	+0.4	+0.0	36.5	43.5	-7.0	Horiz
			-25.7				197				190
27	186.323M	50.7	+8.6	+0.7	+0.1	+0.4	+0.0	34.9	43.5	-8.6	Horiz
			-25.6				265				188
28	30.094M	38.8	+17.9	+0.2	+0.0	+0.1	+0.0	31.0	40.0	-9.0	Vert
	QP		-26.0				271		Monitor		99
^	30.102M	43.9	+17.9	+0.2	+0.0	+0.1	+0.0	36.1	40.0	-3.9	Vert
			-26.0				271				99

30	233.372M	48.9	+11.2 -25.4	+0.8	+0.1	+0.4	+0.0 312	36.0	46.0	-10.0	Horiz 135
31	174.140M QP	47.0	+9.0 -25.6	+0.7	+0.1	+0.4	+0.0 7	31.6	43.5	-11.9	Vert 109
^	174.151M	56.0	+9.0 -25.6	+0.7	+0.1	+0.4	+0.0 7	40.6	43.5	-2.9	Vert 109
33	174.138M QP	46.0	+9.0 -25.6	+0.7	+0.1	+0.4	+0.0 341	30.6	43.5	-13.0	Horiz 123
^	174.095M	55.9	+9.1 -25.6	+0.7	+0.1	+0.4	+0.0 341	40.6	43.5	-2.9	Horiz 123
35	172.781M QP	45.1	+9.2 -25.6	+0.7	+0.1	+0.4	+0.0 343	29.9	43.5	-13.6	Horiz 149
^	172.849M	51.2	+9.2 -25.6	+0.7	+0.1	+0.4	+0.0 343	36.0	43.5	-7.5	Horiz 149
37	162.207M QP	44.0	+10.0 -25.7	+0.7	+0.1	+0.4	+0.0 91	29.5	43.5	-14.0	Horiz 194
^	162.232M	51.3	+10.0 -25.7	+0.7	+0.1	+0.4	+0.0 91	36.8	43.5	-6.7	Horiz 194
39	185.659M QP	44.3	+8.6 -25.6	+0.7	+0.1	+0.4	+0.0 265	28.5	43.5	-15.0	Horiz 188
^	185.744M	54.8	+8.6 -25.6	+0.7	+0.1	+0.4	+0.0 265	39.0	43.5	-4.5	Horiz 188
41	126.006M QP	40.6	+11.2 -25.7	+0.6	+0.1	+0.4	+0.0 -10	27.2	43.5	-16.3	Vert 99
^	126.036M	53.3	+11.2 -25.7	+0.6	+0.1	+0.4	+0.0 -10	39.9	43.5	-3.6	Vert 99

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **Crossbow Technology Inc.**

Specification: **FCC 15.209 1-26 GHz**

Work Order #: **85583**

Date: 9/1/2006

Test Type: **Radiated Scan/Maximized**

Time: 15:13:36

Equipment: **Base Station USB**

Sequence#: 7

Manufacturer: Crossbow Technology Inc.

Tested By: Art Rice

Model: Base Station USB

S/N: 001

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Base Station USB*	Crossbow Technology Inc.	Base Station USB	001
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop PC	Dell	PP11L	DGZV9B1
AC Adapter for PC	Dell	PA-1650-0502	71615-621-64FD

Test Conditions / Notes:

Located at center of test table 80 cm above ground. Continuous operation. Transmitting on channel as noted. Ch 11=low, Ch 18=mid, Ch 26=hi. CW transmit mode. RBW=1 MHz. Fundamentals not recorded. Radiated emissions 1-26 GHz.

Transducer Legend:

T1=ANP05200 1-40GHz	T2=ANP04241 HF-Heliox Cable
T3=P05138 HF Cable 25ft	T4=Horn Antenna AN02061 sn1064 (Fremont)
T5=HP-83017A, A/N 00785	

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	4880.114M	51.7	+1.8	+0.6	+3.4	+32.5	+0.0	52.9	54.0	-1.1	Vert
	Ave		-37.1				50		mid		123
^	4880.075M	52.9	+1.8	+0.6	+3.4	+32.5	+0.0	54.1	54.0	+0.1	Vert
			-37.1				50		mid		123
^	4880.072M	50.0	+1.8	+0.6	+3.4	+32.5	+0.0	51.2	54.0	-2.8	Vert
			-37.1				336		MID, wall mount vertical		122
4	4880.202M	51.6	+1.8	+0.6	+3.4	+32.5	+0.0	52.8	54.0	-1.2	Horiz
	Ave		-37.1				74		MID, wall mount vertical.		129
^	4880.109M	53.6	+1.8	+0.6	+3.4	+32.5	+0.0	54.8	54.0	+0.8	Horiz
			-37.1				74		MID, wall mount vertical.		129
6	4960.075M	46.9	+1.8	+0.5	+3.4	+32.7	+0.0	48.3	54.0	-5.7	Vert
			-37.0				124		hi		130
7	4880.015M	46.4	+1.8	+0.6	+3.4	+32.5	+0.0	47.6	54.0	-6.4	Horiz
			-37.1				347		mid		149

8	4810.100M Ave	46.6	+1.7 -37.1	+0.7	+3.4	+32.3	+0.0 100	47.6	54.0 low	-6.4	Vert 136
^	4810.075M	48.6	+1.7 -37.1	+0.7	+3.4	+32.3	+0.0 100	49.5	54.0 low	-4.5	Vert 136
10	9620.015M	34.0	+2.5 -36.3	+1.5	+4.9	+38.1	+0.0 269	44.7	54.0 low, noise floor	-9.3	Vert 136
11	4810.075M	43.1	+1.7 -37.1	+0.7	+3.4	+32.3	+0.0 94	44.1	54.0 low	-9.9	Horiz 138
12	7215.000M	35.1	+2.2 -36.8	+1.2	+4.6	+36.7	+0.0 113	43.0	54.0 low, noise floor	-11.0	Vert 136
13	4960.075M	40.9	+1.8 -37.0	+0.5	+3.4	+32.7	+0.0 144	42.3	54.0 hi	-11.7	Horiz 150

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **Crossbow Technology Inc.**

Specification: **FCC 15.247 RF Power**

Work Order #: **85583**

Date: 8/31/2006

Test Type: **Maximized Emissions**

Time: 14:35:12

Equipment: **Base Station USB**

Sequence#: 17

Manufacturer: Crossbow Technology Inc.

Tested By: Art Rice

Model: Base Station USB

S/N: 001

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Base Station USB*	Crossbow Technology Inc.	Base Station USB	001
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop PC	Dell	PP11L	DGZV9B1
AC Adapter for PC	Dell	PA-1650-0502	71615-621-64FD

Test Conditions / Notes:

MODE 1. Located on wireless bench. Continuous operation. Transmitting on channel as noted. Ch 11=low, Ch 18=mid, Ch 26=hi. EUT antenna output port is directly connected to spectrum analyzer. CW transmit mode. RBW=3 MHz. Fundamentals.

Transducer Legend:

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Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBm	dB	dB	dB	dB	Dist Table	Corr dBm	Spec dBm	Margin dB	Polar Ant
1	2439.700M	-7.0					+0.0	-7.0	30.0	-37.0	None
									mid		
2	2405.150M	-7.1					+0.0	-7.1	30.0	-37.1	None
									lo		
3	2480.310M	-7.6					+0.0	-7.6	30.0	-37.6	None
									hi		

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **Crossbow Technology Inc.**
 Specification: **FCC 15.247 Spurious Conducted**
 Work Order #: **85583**
 Test Type: **Maximized Emissions**
 Equipment: **Base Station USB**
 Manufacturer: Crossbow Technology Inc.
 Model: Base Station USB
 S/N: 001

Date: 8/30/2006
 Time: 10:34:58
 Sequence#: 11
 Tested By: Art Rice

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Base Station USB*	Crossbow Technology Inc.	Base Station USB	001
RF Module	Crossbow Technology Inc.	MPR2400, P/N 8350-334-2	n/a
USB Module	Crossbow Technology Inc.	P/N 8350-0347-02	n/a

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop PC	Dell	PP11L	DGZV9B1
AC Adapter for PC	Dell	PA-1650-0502	71615-621-64FD

Test Conditions / Notes:

MODE 1. Located on wireless bench. Continuous operation. Transmitting on channel as noted. Ch 11=low, Ch 18=mid, Ch 26=hi. EUT antenna output port is directly connected to spectrum analyzer. CW transmit mode. RBW=100 kHz. Spurious Radiated emissions 30 MHz-26 GHz.

Transducer Legend:

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Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBm	dB	dB	dB	dB	Dist Table	Corr dBm	Spec dBm	Margin dB	Polar Ant
1	4809.000M	-49.3					+0.0	-49.3	-28.3 hi	-21.0	None
2	4878.000M	-50.2					+0.0	-50.2	-28.3 mid	-21.9	None
3	4958.000M	-53.8					+0.0	-53.8	-28.3 hi	-25.5	None
4	2180.000M	-63.6					+0.0	-63.6	-28.3 hi	-35.3	None
5	376.800M	-63.8					+0.0	-63.8	-28.3 hi	-35.5	None
6	2633.300M	-64.0					+0.0	-64.0	-28.3 hi	-35.7	None
7	2629.400M	-64.8					+0.0	-64.8	-28.3 hi	-36.5	None
8	2327.000M	-64.9					+0.0	-64.9	-28.3 hi	-36.6	None
9	2625.500M	-65.5					+0.0	-65.5	-28.3 hi	-37.2	None
10	2261.900M	-65.6					+0.0	-65.6	-28.3 hi	-37.3	None

11	1431.000M	-65.8	+0.0	-65.8	-28.3	-37.5	None
					hi		
12	2257.700M	-66.1	+0.0	-66.1	-28.3	-37.8	None
					hi		
13	2550.600M	-66.2	+0.0	-66.2	-28.3	-37.9	None
					hi		
14	2416.900M	-67.3	+0.0	-67.3	-28.3	-39.0	None
					hi		
15	367.100M	-67.3	+0.0	-67.3	-28.3	-39.0	None
					hi		
16	306.500M	-67.8	+0.0	-67.8	-28.3	-39.5	None
					mid		
17	2342.000M	-68.3	+0.0	-68.3	-28.3	-40.0	None
					hi		
18	294.300M	-68.4	+0.0	-68.4	-28.3	-40.1	None
					hi		
19	2377.800M	-68.5	+0.0	-68.5	-28.3	-40.2	None
					mid		
20	1385.000M	-69.0	+0.0	-69.0	-28.3	-40.7	None
					hi		
21	456.800M	-69.5	+0.0	-69.5	-28.3	-41.2	None
					mid		
22	2114.400M	-69.5	+0.0	-69.5	-28.3	-41.2	None
					hi		
23	439.800M	-69.9	+0.0	-69.9	-28.3	-41.6	None
					hi		
24	289.500M	-71.0	+0.0	-71.0	-28.3	-42.7	None
					mid		
25	449.500M	-71.2	+0.0	-71.2	-28.3	-42.9	None
					mid		
26	376.800M	-71.3	+0.0	-71.3	-28.3	-43.0	None
					mid		