TEST REPORT

Report Number: 3065616.011
Project Number: 3065616
December 3, 2004

Evaluation of the
BXR

FCC ID:
SX8-BXR

to
FCC Part 2
FCC Part 15, Subpart C, Section 15.231

For
Bartec USA, LLC

Test Performed by:
Intertek
7250 Hudson Blvd. Suite 100
Oakdale, MN 55128

Test Authorized by:
Bartec USA, LLC
44231 Phoenix Drive
Sterling Heights, MI 48314

Prepared by: _____ Date: December 3, 2004
Troy Ihle

Approved by: _____ Date: December 6, 2004
Norman Shpilsher

CONTENTS

1.0 GENERAL DESCRIPTION

1.1 Related Submittals Grants

This is single application of the Bartec USA, LLC *309MHz Remote Control Transmitter* for Certification under FCC Part 15, Subpart C.
There are no other simultaneous applications.

1.2 Product Description

BXR Transmitter is a RF remote control operating in 309MHz.

RF Power Output:

10 mW maximum (10dBm)

Antenna Description:

Integrated antenna

Sample Submitted: December 1, 2004
Test Work Started: December 2, 2004
Test Work Completed: December 3, 2004

1.3 Test Methodology

Emission measurements were performed according to the procedures in ANSI C63.4-2000. All field strength radiated emissions measurements were performed in the semi-anechoic chamber, and for each scan, the procedure for maximizing emissions in Appendices D and E were followed. All field strength radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

1.4 Test Facility

The test site facility used to collect the radiated and conducted measurement data is located at 7250 Hudson Blvd., Suite 100, Oakdale, Minnesota. This test facility has been fully described in a report dated on March 2003 submitted to FCC. Please reference the site registration number: 90706, dated April 18, 2003.

2.0 SYSTEM TEST CONFIGURATION

2.1 Justification

N/A

2.2 EUT Setup

For simplicity of testing, the transmitter was wired to transmit continuously

2.3 EUT Exercising Software

N/A

2.4 Special Accessories

There are no special accessories necessary for compliance of these products.

2.5 Equipment Modification

No modifications were installed during the testing.

2.6 Support Equipment List and Description

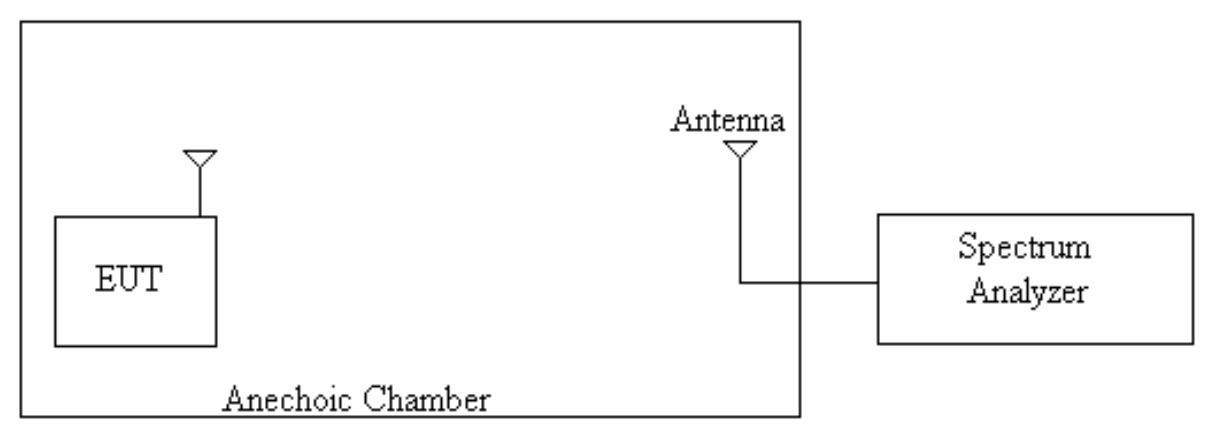
Junction Box, P/N: AF-CDJB-0001-01, S/N: 04CDJB1205

PSU/RS232 Interface, P/N: AF-CDI-0001-01, S/N: 04CD1205

2.7 Test Configuration Block Diagrams

The EUT was setup as tabletop equipment.
The EUT was powered at 120VAC/60Hz.

Field Strength Measurements



3.0 TEST RESULTS

Data is included for the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs, data tables and graphical representations of the emissions are included.

The EUT is intended for operation under the requirements of Part 15 Subpart C. Specific test requirements include the following:

47 CFR 15.231(a)(1)	Transmitting Time
47 CFR 15.231(b)	Field Strength of Fundamental and Spurious Emissions
47 CFR 15.231(c)	Bandwidth of Emissions
47 CFR 15.207	Line Conducted Emissions

3.1 Transmitting Time, FCC 15.231(a)(1)

Measured total transmitting time after pressing the activation button is <1sec. According to FCC Part 15.231(a)(1) a manually operated transmitter should stop transmitting within 5 sec after release the activation button. Therefore the maximum transmitting time after releasing the activation button is <1sec.

3.2 Field Strength of Fundamental and Spurious Emissions, FCC 15.231(b), 15.209

Field Strength of Fundamental and Spurious Emissions measurements were made at Fundamental frequency of 309MHz; Spurious Emissions were tested up to 3.5GHz (10^{th} harmonic).

Average Correction Factor was applied when Peak readings were taken at fundamental and Harmonics Emissions.

The Table 3-2-1, Graphs 3-2-1and 3-2-2 show the Field Strength of Fundamental Radiation and Spurious Emissions for BXR.

3.3 Bandwidth of Emissions, FCC 15.231(c)

Bandwidth of Emissions measurements was made for frequency of 309MHz.

Bandwidth of Emissions for Base Unit at –20dB level was measured at 388kHz.
The maximum allowed Bandwidth level is 309MHz x 0.25% = 772.5kHz

The Graph 3-3-1 shows the Bandwidth of Emission.

3.4 Line Conducted Emissions, FCC 15.207

Line Conducted Emissions testing was performed in frequency range from 150kHz to 30MHz.

The Table 3-4-1 and Graph 3-4-1 show the Line Conducted Emissions.

3.5 Test Procedure

Field Strength Measurements

The EUT was placed on a non-conductive table 0.8m above the ground plane inside the Anechoic Chamber. The table was centered on a motorized turntable, which allows 360-degree rotation. The measurement antenna was positioned at 3m distance. The Bicono-Log antenna was used in frequency range from 30MHz to 1GHz, and the Horn antenna was used in frequency range above 1GHz. The radiated emissions were maximized by configuring the EUT through its placement in three orthogonal axes, by rotating the EUT, by changing antenna polarization, and by changing antenna height from 1 to 4m. Method of the direct Field Strength Calculation is shown in Section 3.6.

Conducted Emissions

For conducted emissions testing, the equipment is moved to an insulating platform over the ground plane, and the EUT is powered from a LISN. Both sides of the AC line are measured and the results are compared to the applicable limits. Measurements are taken using CISPR quasi-peak and average detectors when the peak readings approach or exceed the average limit. Only quasi-peak readings are taken when the emissions from the EUT meet the average limit as measured with the quasi-peak detector.

3.6 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured emissions reading on the EMI Receiver.
The basic equation with a sample calculation is as follows:
FS = RA + AF + CF - AG

Where: FS = Field Strength in dB(µV/m)
RA = Receiver Amplitude in dB(µV)
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB(m^{-1})
AG = Amplifier Gain in dB

Assume a receiver reading of 48.1 dB(µV) is obtained. The antenna factor of 7.4 dB(m^{-1}) and cable factor of 1.6 dB is added and amplifier gain of 16.0 dB is subtracted giving field strength of 41.1 dB(µV/m).

RA = 48.1 dB(µV)
AF = 7.4 dB(m^{-1})
CF = 1.6 dB
AG = 16.0 dB
FS = RA + AF + CF - AG
FS = 48.1 + 7.4 + 1.6 – 16.0
FS = 41.1 dB(µV/m)

In the tables the Cable correction factors are included to the Antenna Factors.

Tested by:

Troy Ihle
Sr. Associate Engineer
Intertek ETL SEMKO

Signature

Date: December 3, 2004

4.0 TEST EQUIPMENT

Receivers/Spectrum Analyzers and Test Software

DESCRIPTION	SERIAL NO.	LAST CAL	CAL DUE	USED
HP85462A Receiver RF Section	3325A00106	08/04	08/05	X
HP85460A RF Filter Section	3330A00109	08/04	08/05	X
TILE! Instrument Control System	ver. 3.2 X	N/A	N/A	X

Antennas

DESCRIPTION	SERIAL NO.	LAST CAL	CAL DUE	USED
Schaffner-Chase Bicono-Log Antenna	2468	01/04	01/05	X
EMCO Horn Antenna 3115	6579	01/04	01/05	X

Artificial Mains Networks/Absorbing Clamps

DESCRIPTION	SERIAL NO.	LAST CAL	CAL DUE	USED
FCC LISN-2	316	04/04	04/05	X

Table # 3-2-1

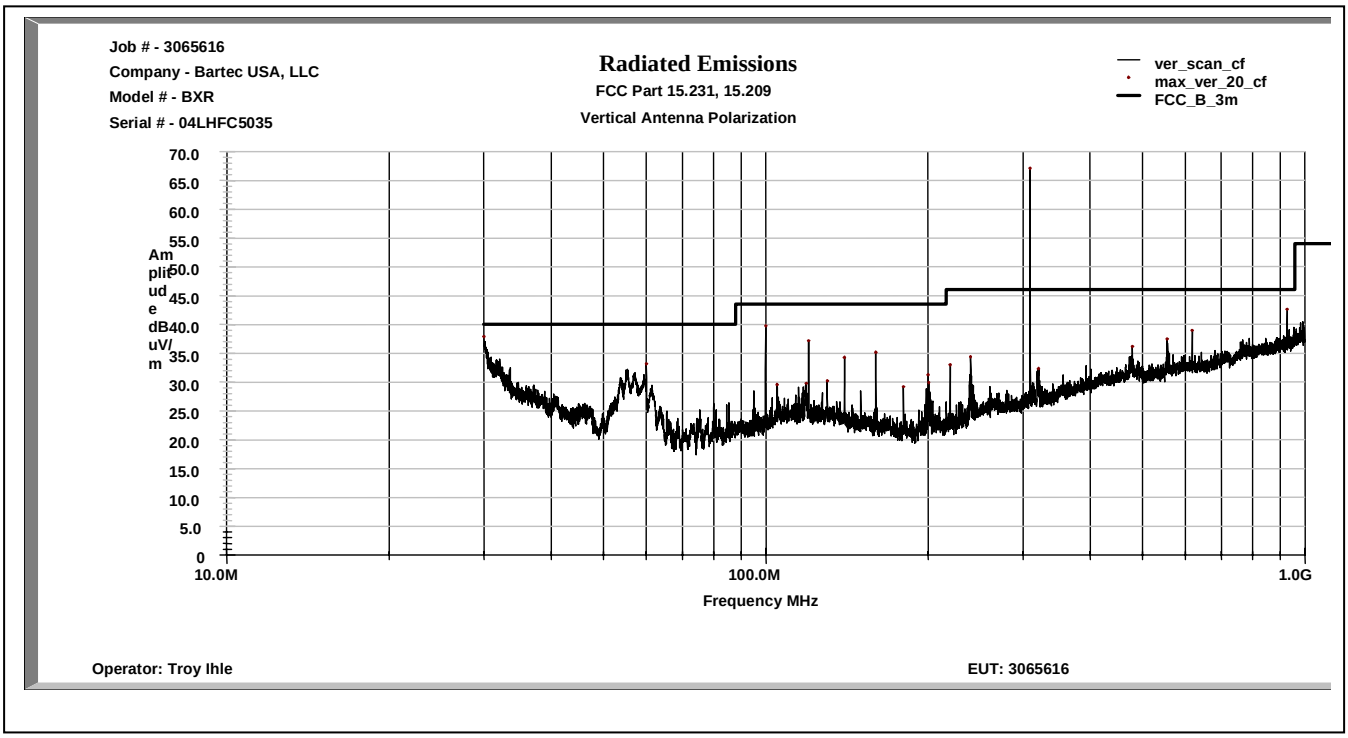
Radiated Emissions **Date:** 12/3/2004
Company: Bartec
Model: BXR
Test Engineer: Troy Ihle
Special Config. Info:
Standard: FCC Part 15.231(a)(b)
Test Site: 3 m Anechoic Chamber
Note: Readings below 1GHz were taken with RBW 100kHz and above 1GHz with RBW 1MHz; and VBW 1MHz - Peak Readings

Frequency	Antenna			Amplifier	QP Reading	Net at 3m.	Limit	Margin	Comments
MHz	Polarity	Hts(m)	Factor(dB/m)	Gain (dB)	dBµV	dBµV/m	dBµV/m	dB	
308.99	V	150	15.9		53.3	69.2	75.3	-6.1	Fundumental
308.99	H	100	15.9		53.1	69.0	75.3	-6.3	Fundumental
618.00	V	100	22.0		17.8	39.8	55.3	-15.5	
618.00	H	134	22.0		16.9	38.9	55.3	-16.4	
1236.25	V	100	0.0		51.7	51.7	55.3	-3.5	
1236.25	H	100	0.0		49.6	49.6	55.3	-5.7	
1545.00	V	100	0.0		41.1	41.1	55.3	-14.2	
1545.00	H	100	0.0		40.7	40.7	55.3	-14.6	
1853.75	V	100	0.0		46.4	46.4	55.3	-8.8	
1853.75	H	100	0.0		45.8	45.8	55.3	-9.5	
2163.75	V	100	0.0		53.9	53.9	55.3	-1.4	
2163.75	H	100	0.0		52.1	52.1	55.3	-3.2	
2473.75	V	100	0.0		48.8	48.8	55.3	-6.5	
2455.00	H	100	0.0		51.5	51.5	55.3	-3.8	
2833.75	V	100	0.0		46.6	46.6	55.3	-8.7	Noise floor
2817.50	H	100	0.0		45.6	45.6	55.3	-9.7	Noise floor
3090.00	V	100	0.0		47.7	47.7	55.3	-7.6	Noise floor
3090.00	H	100	0.0		47.1	47.1	55.3	-8.2	Noise floor

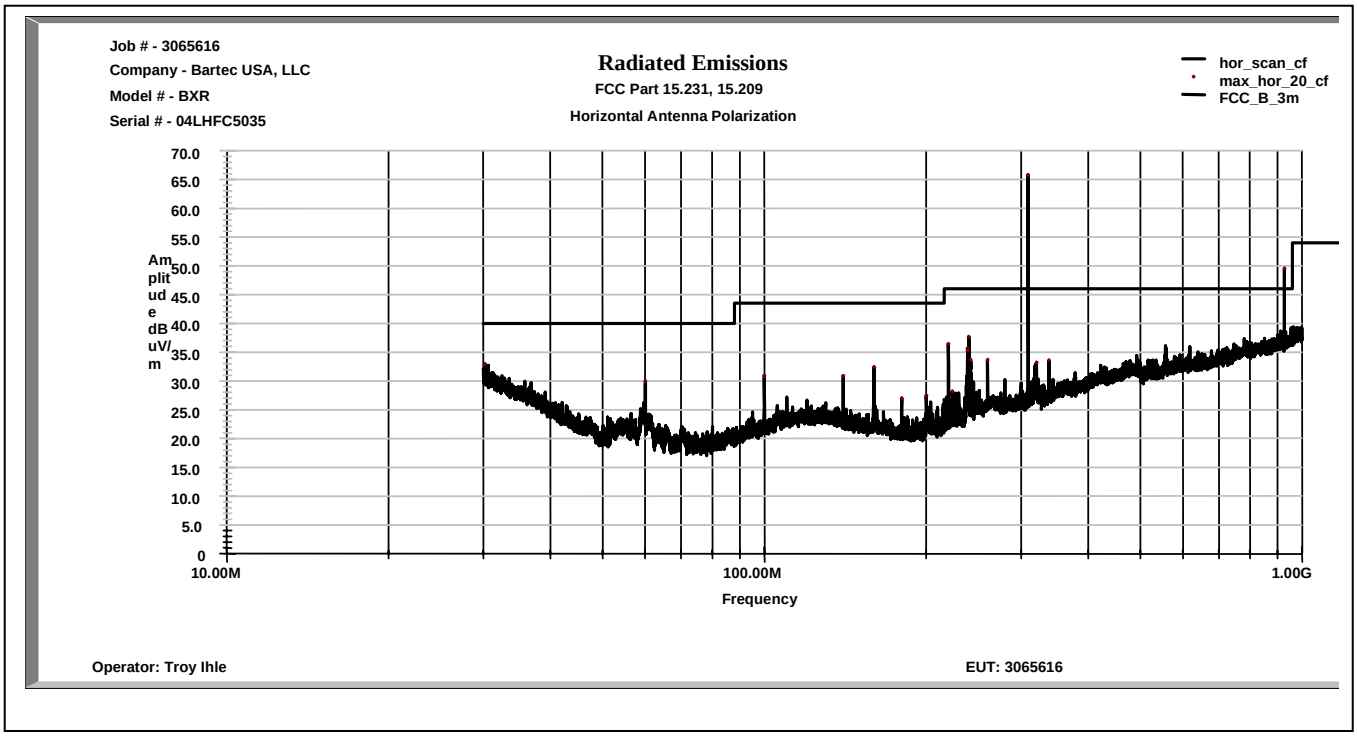
Comments:

Graph # 3-2-1
Radiated Emissions from 30MHz to 1GHz

Vertical Antenna Polarization

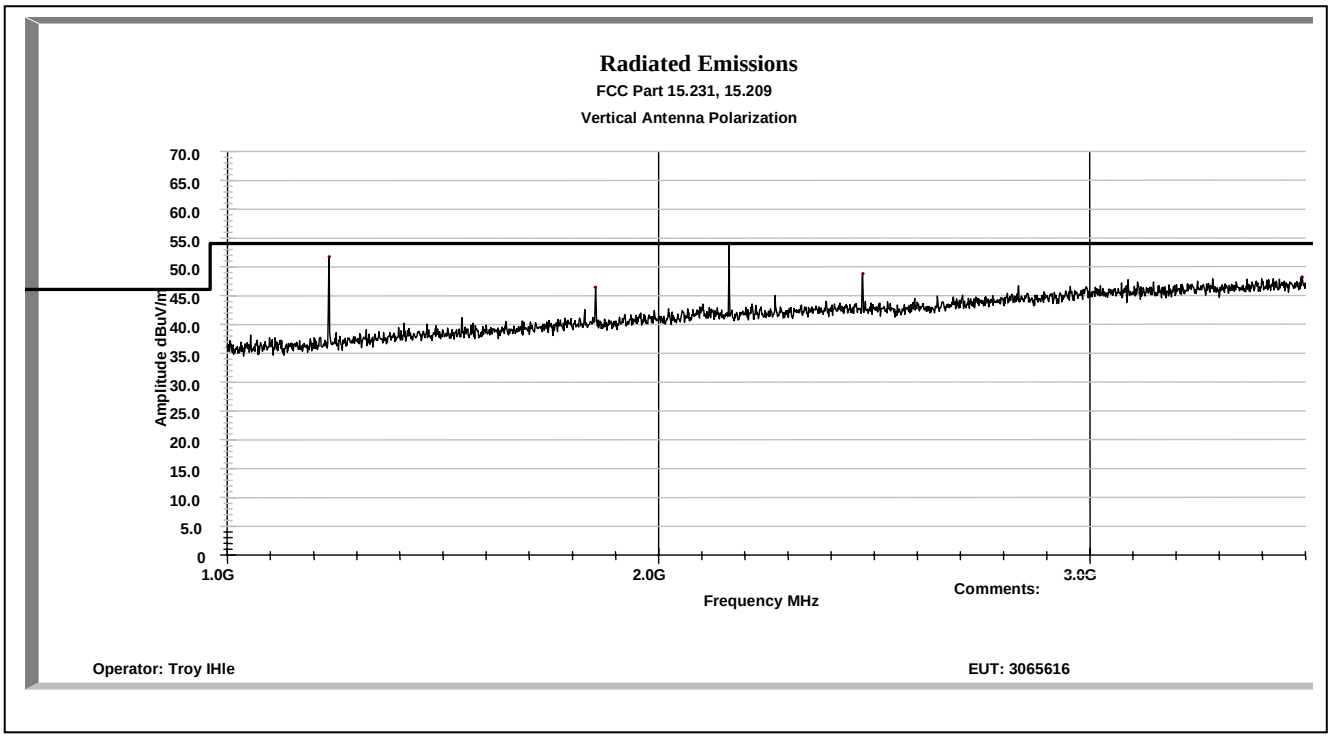


Horizontal Antenna Polarization

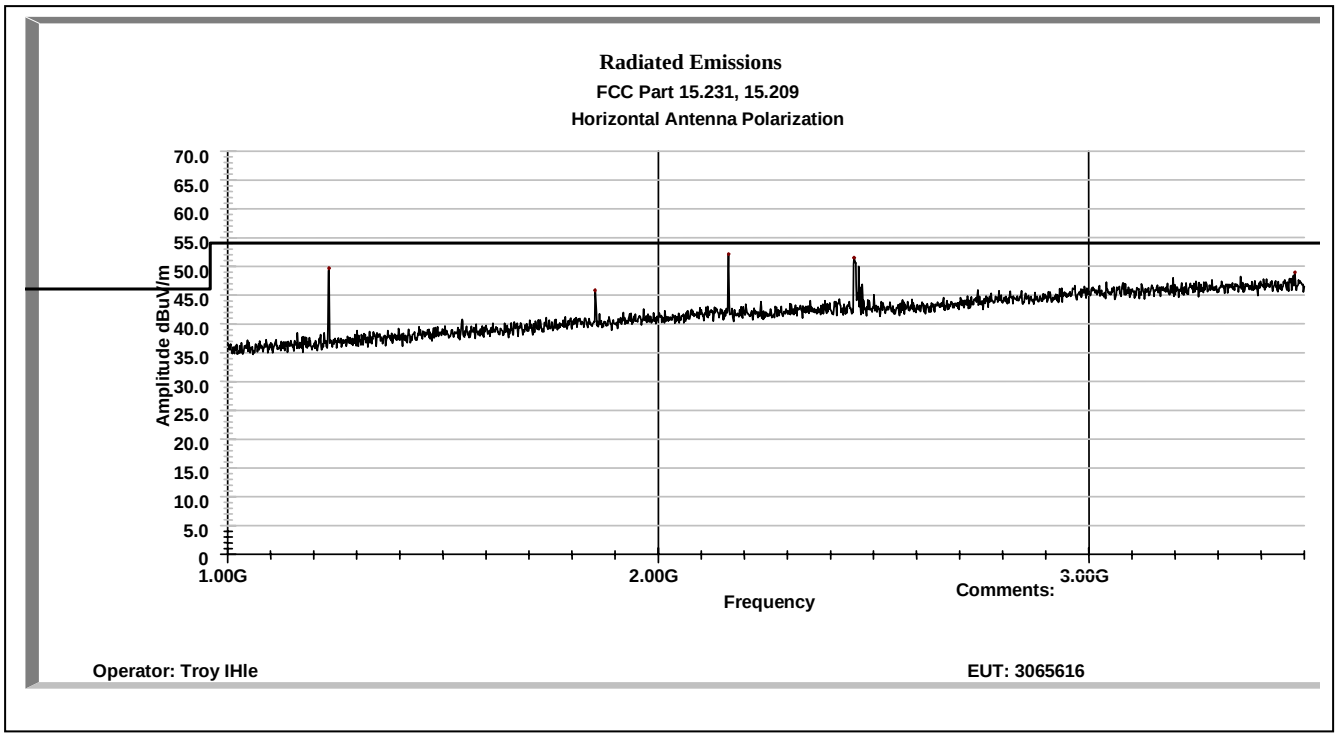


Graph # 3-2-2
Radiated Emissions from 1GHz to 3.5GHz

Vertical Antenna Polarization



Horizontal Antenna Polarization



Graph # 3-3-1

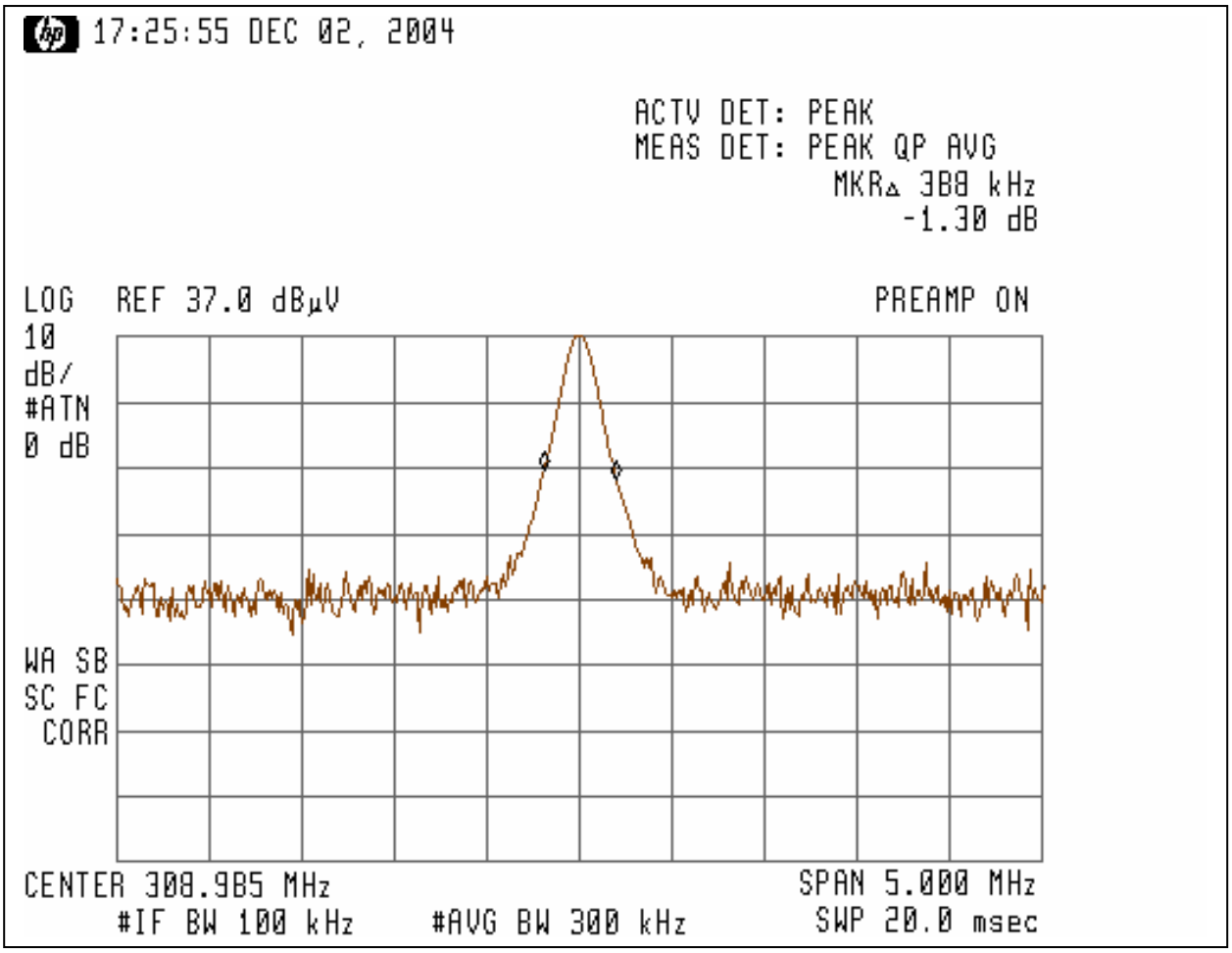

17:25:55 DEC 02, 2004
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 388 kHz
-1.30 dB
LOG REF 37.0 dBµV
PREAMP ON
10
dB/
#ATN
0 dB
WA SB
SC FC
CORR
CENTER 308.985 MHz
SPAN 5.000 MHz
#IF BW 100 kHz
#AVG BW 300 kHz
SWP 20.0 msec

Table # 3-4-1

Conducted Emissions	**Date:**	12/3/2004
Company:	Bartec USA	
Model:	BXR	
Test Engineer:	Troy Ihle	
Standard:	FCC Part 15.207, Class B	
Note:	The table shows the worst case conducted emissions	
	All measurements were taken using a CISPR Quasi-peak detector	

Line 1

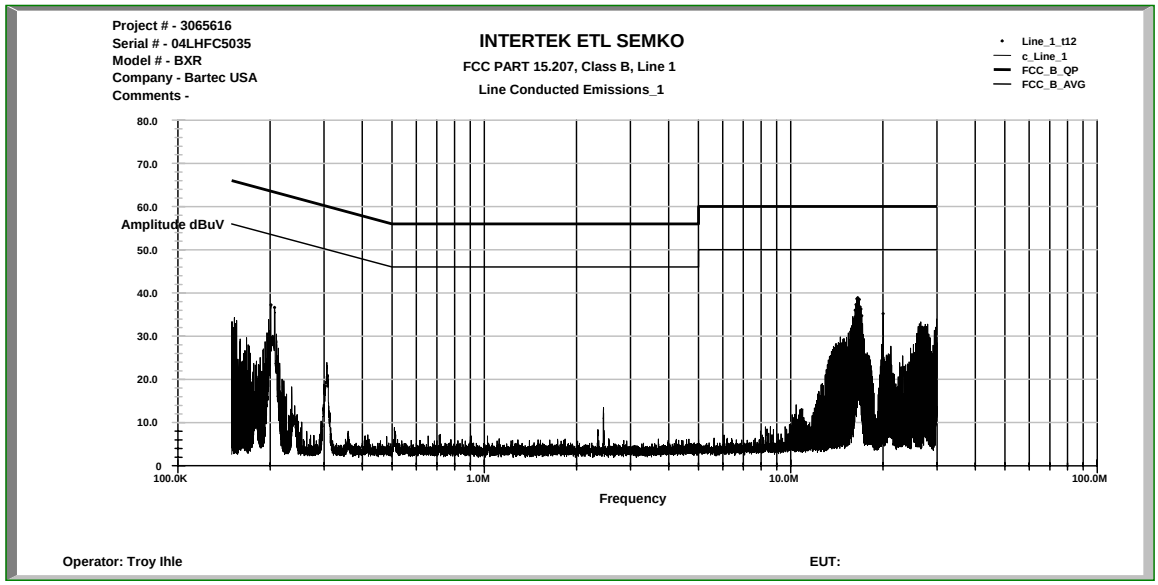
Frequency	QP dBµV	AVG dBµV	QP Limit dBµV	AVG Limit dBµV	QP Margin dB	AVG Margin dB
203.55 KHz	38.8	28.8	64.5	-25.7	54.5	-25.7
203.86 KHz	38.8	28.8	64.5	-25.7	54.5	-25.7
16.432 MHz	34.9	31.7	60.0	-25.1	50.0	-18.3
16.435 MHz	38.3	34.9	60.0	-21.7	50.0	-15.1
16.535 MHz	38.7	36.0	60.0	-21.3	50.0	-14.0
16.536 MHz	38.0	35.7	60.0	-22.0	50.0	-14.3
16.538 MHz	38.3	35.8	60.0	-21.7	50.0	-14.2
16.636 MHz	38.0	35.9	60.0	-22.0	50.0	-14.1
16.64 MHz	38.7	35.0	60.0	-21.3	50.0	-15.0
16.641 MHz	39.4	36.9	60.0	-20.7	50.0	-13.1
16.646 MHz	36.7	31.7	60.0	-23.3	50.0	-18.3
20.0 MHz	31.9	31.6	60.0	-28.1	50.0	-18.4

Line 2

Frequency	QP dBµV	AVG dBµV	QP Limit dBµV	AVG Limit dBµV	QP Margin dB	AVG Margin dB
203.78 KHz	38.4	28.6	64.5	-26.1	54.5	-25.8
204.0 KHz	38.4	28.6	64.5	-26.1	54.5	-25.9
16.237 MHz	36.4	33.5	60.0	-23.6	50.0	-16.5
16.34 MHz	37.7	33.7	60.0	-22.3	50.0	-16.3
16.443 MHz	39.4	35.3	60.0	-20.6	50.0	-14.7
16.545 MHz	39.6	37.1	60.0	-20.4	50.0	-13.0
16.547 MHz	38.7	35.2	60.0	-21.3	50.0	-14.8
16.647 MHz	40.0	37.5	60.0	-20.0	50.0	-12.5
16.648 MHz	39.7	37.1	60.0	-20.3	50.0	-12.9
16.649 MHz	39.6	37.2	60.0	-20.4	50.0	-12.8
16.751 MHz	39.2	36.0	60.0	-20.8	50.0	-14.0
16.754 MHz	37.8	34.0	60.0	-22.2	50.0	-16.0

Graph # 3-4-1
Conducted Emissions

Line 1



Line 2

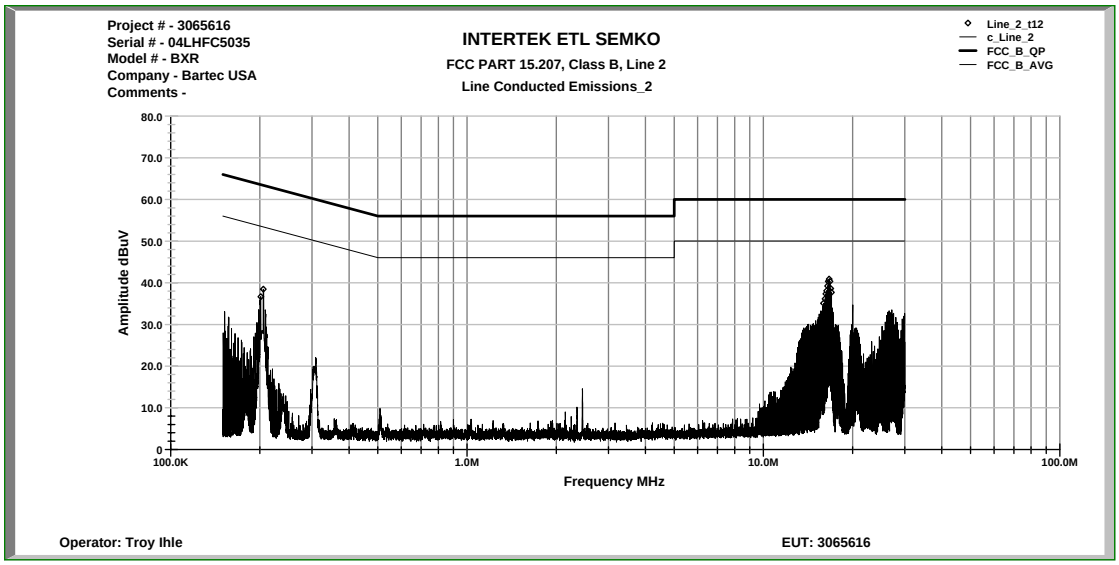
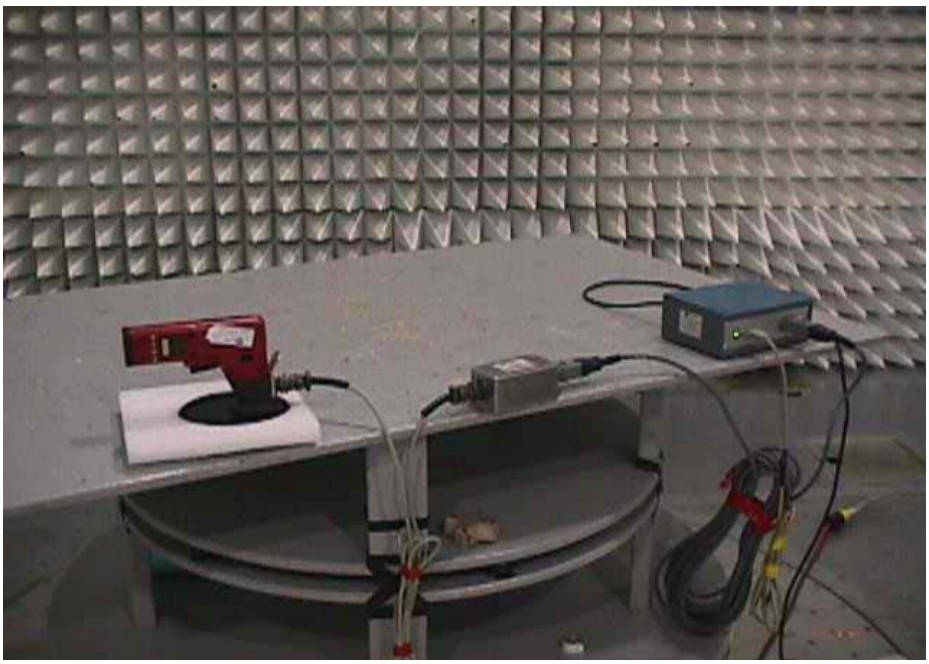
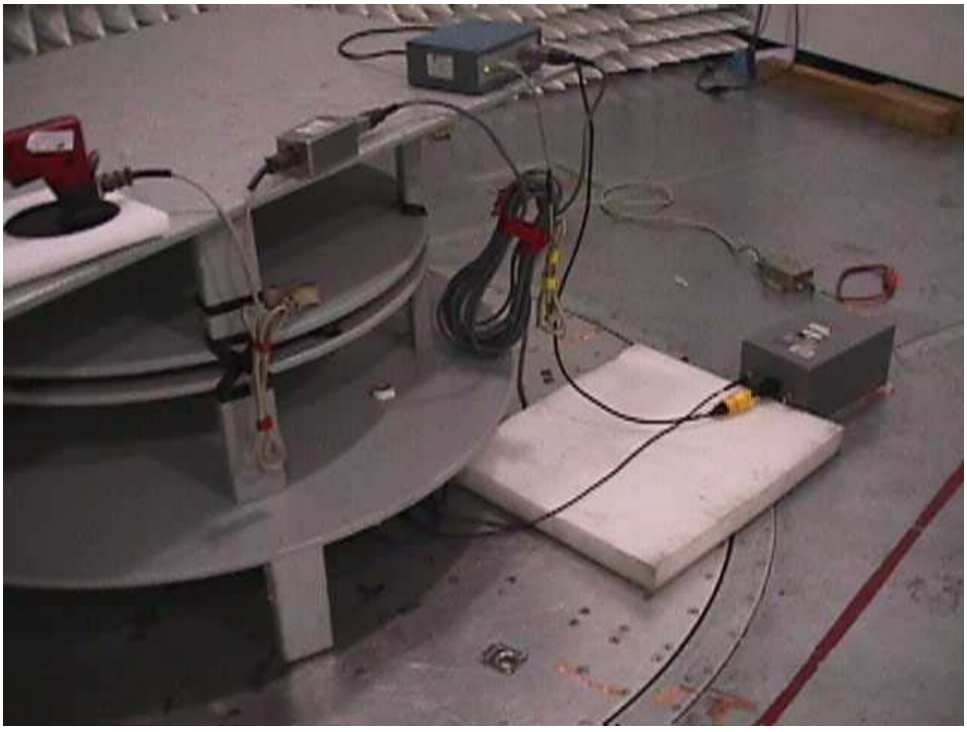


EXHIBIT 1
CONFIGURATION PHOTOS



Radiated Emissions Test Configuration

Radiated Emissions Test Configuration



Conducted Emissions Test Configuration

Conducted Emissions Test Configuration