APPLICANT	MANUFACTURER
X-10 (USA), Inc. 19823, 58th Place S. Kent, WA 98032	X-10 Electronics (Shenzhen) Co. Ltd. X-10 Building, Labour Industrial District Xixiang Town, Baoan County, Shenzhen, China

TEST SPECIFICATION: FCC Rules and Regulations Part 15, Subpart C, Para. 15.231

TEST PROCEDURE: ANSI C63.4:2001

TEST SAMPLE DESCRIPTION

BRANDNAME: ATI Technologies Model Number: OR14A

TYPE: Pulsed Transmitter

POWER REQUIREMENTS: 2 "AAA" Batteries

FREQUENCY OF OPERATION: 433.92 MHz

TESTS PERFORMED

Para. 15.231(b),	Radiated Emissions, Fundamental and Harmonics
Para. 15.231(b),	Radiated Emissions, Spurious Case
Para. 15.35,	Duty Cycle Determination
Para. 15.231(c),	Occupied Bandwidth

REPORT OF MEASUREMENTS

Applicant:	X-10 (USA), Inc.
Brand Name:	ATI Technologies
Device:	Pulsed Transmitter
FCC ID:	B4SOR14A
Power Requirements:	2 "AAA" Batteries
Applicable Rule Section:	Part 15, Subpart C, Section 15.231

TEST RESULTS

15.231 (a): This device is used as a remote control transmitter.

15.231 (a)(1) & 15.231(a)(2): The transmitter is manually operated and ceases transmission within 5 seconds after deactivation.

15.231 (a)(3): The transmitter does not perform periodic transmissions.

15.231 (b): The fundamental field strength did not exceed 11,000 µV/M (Average) at a test distance of 3 meters. In addition, the requirements of section 15.35 for averaging pulsed emissions and for limiting peak emissions were met.

The field strength of harmonic and spurious emissions did not exceed 1,100 µV/M (AVERAGE).

DETERMINATION OF FIELD STRENGTH LIMITS

The field strength limits shown below are found in Section 15.231.

Frequency			Limit		
F1	=	260	3750	=	L1
Fo	=	433.92			Lo
F2	=	470	12500	=	L2

The formula below was utilized to determine the limits:

Limit = L1 + [(Fo-F1)(L2-L1)/(F2-F1)]

Solving yields:

Fundamental Limit = 11,000 µV/M (AVERAGE) @ 3 Meters

Harmonic Limit = 1,100 µV/M (AVERAGE) @ 3 Meters

DUTY CYCLE DETERMINATION

The unit's RF output was directly coupled to the input of the spectrum analyzer. The analyzer was set for a frequency span of 0Hz. The sweep time was then adjusted in order to display one full pulse train. The transmitter on time was then summed and compared to the time for one full cycle in order to obtain the duty cycle.

Transmitter On Time	=	15 milliseconds (maximum)
Transmitter Cycle Time	=	45.25 milliseconds
Transmitter Duty Cycle	=	33.1 %

See separate e-file for plots named dutycycle.pdf for additional information.

SPECTRUM ANALYZER DESENSITIZATION CONSIDERATIONS

Due to the nature of the emissions being measured, care was taken to ensure that the resolution bandwidth of the spectrum analyzer was adequate to provide accurate measurements. The following formula was utilized:

Setting pulse desensitization equal to zero and utilizing the minimum observed pulse width of 650 µs yields a minimum required bandwidth of 1,026 Hz. FCC specified bandwidths of 100kHz and 1MHz were utilized below and above 1GHz, respectively.

GENERAL NOTES

1. All readings were taken utilizing a peak detector function at a test distance of 3 meters.

2. The duty cycle was applied to the peak readings in order to determine the average value of the emissions.

3. The frequency range was scanned from 30 MHz to 4.33 GHz. All emissions not reported were more than 20 dB below the specified limit.

EQUIPMENT LIST

FCC Part 15, Subpart C Paragraph; 15.231

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due
067	Open Area Test Site	Retlif	3 Meter	RNY	10/1/2003	10/1/2006
128	Double Ridged Guide	Electro-Mechanics	1 GHz - 18 GHz	3105	6/21/2004	6/21/2005
133	Broadband Pre-Amplifier	Electro-Metrics	10 kHz - 1 GHz, 26dB	BPA-1000	6/12/2004	6/12/2005
206B	6.0 dB Attenuator	Texscan	0 - 1.0 GHz	FP-50 - 6 dB	6/12/2004	6/12/2005
523	Biconilog	Electro-Mechanics	26 - 2000 MHz	3142B	9/8/2003	9/8/2004
543	Preamplifier	Hewlett Packard	1.0 GHz - 26.5 GHz	8449B	7/27/2004	7/27/2005
896	EMI Test Receiver	Rohde & Schwarz	20 Hz - 40 GHz	ESIB40	7/24/2003	8/24/2004

FCC 15.231(b)

RADIATED EMISSIONS, FUNDAMENTAL & SPURIOUS CASE

(See separate e-file named Refundharm & REspur.pdf)

FCC 15.231(c)

OCCUPIED BANDWIDTH

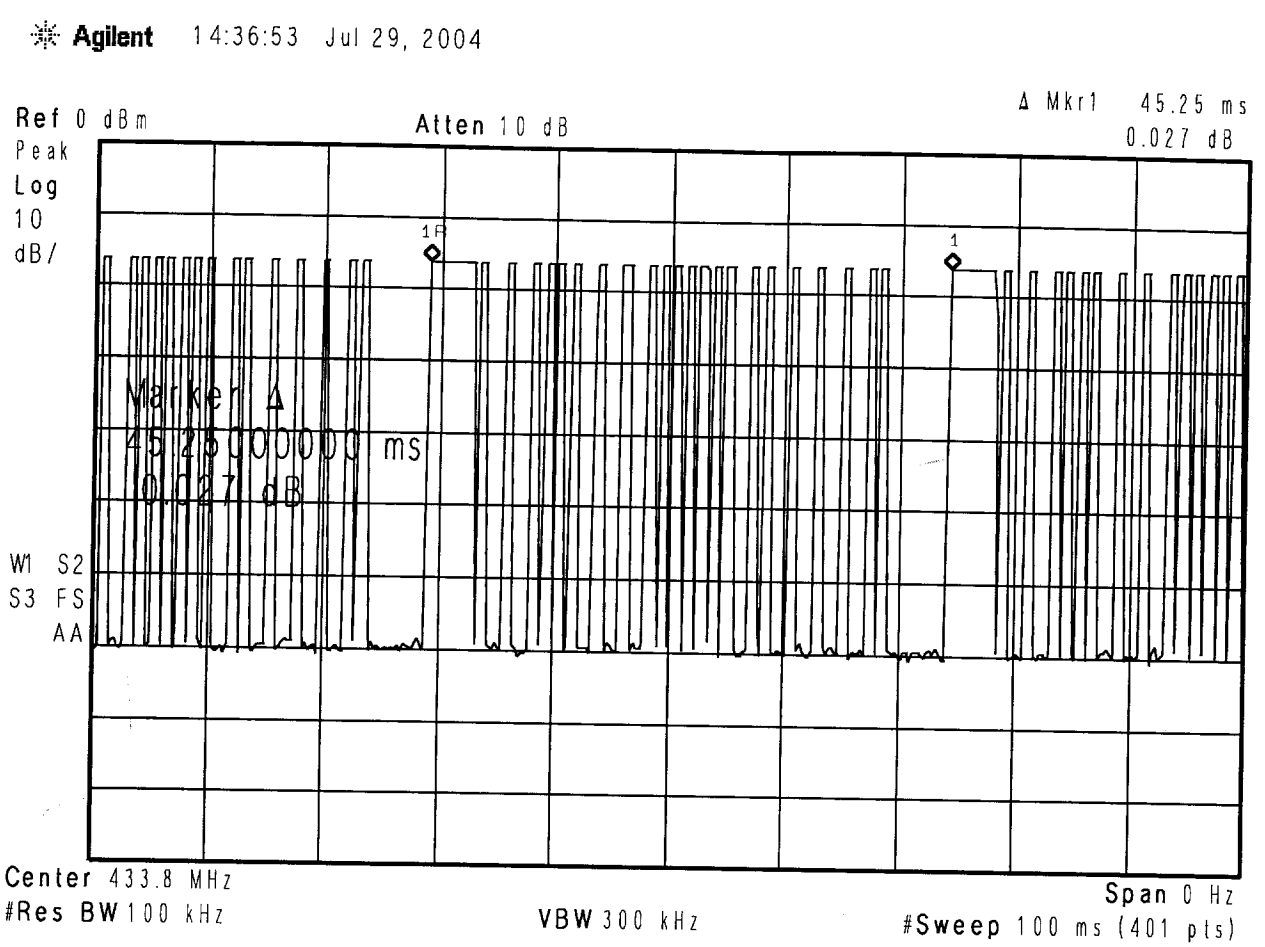
(See separate e-file named occbw.pdf)

FCC 15.231(c)

DUTY CYCLE

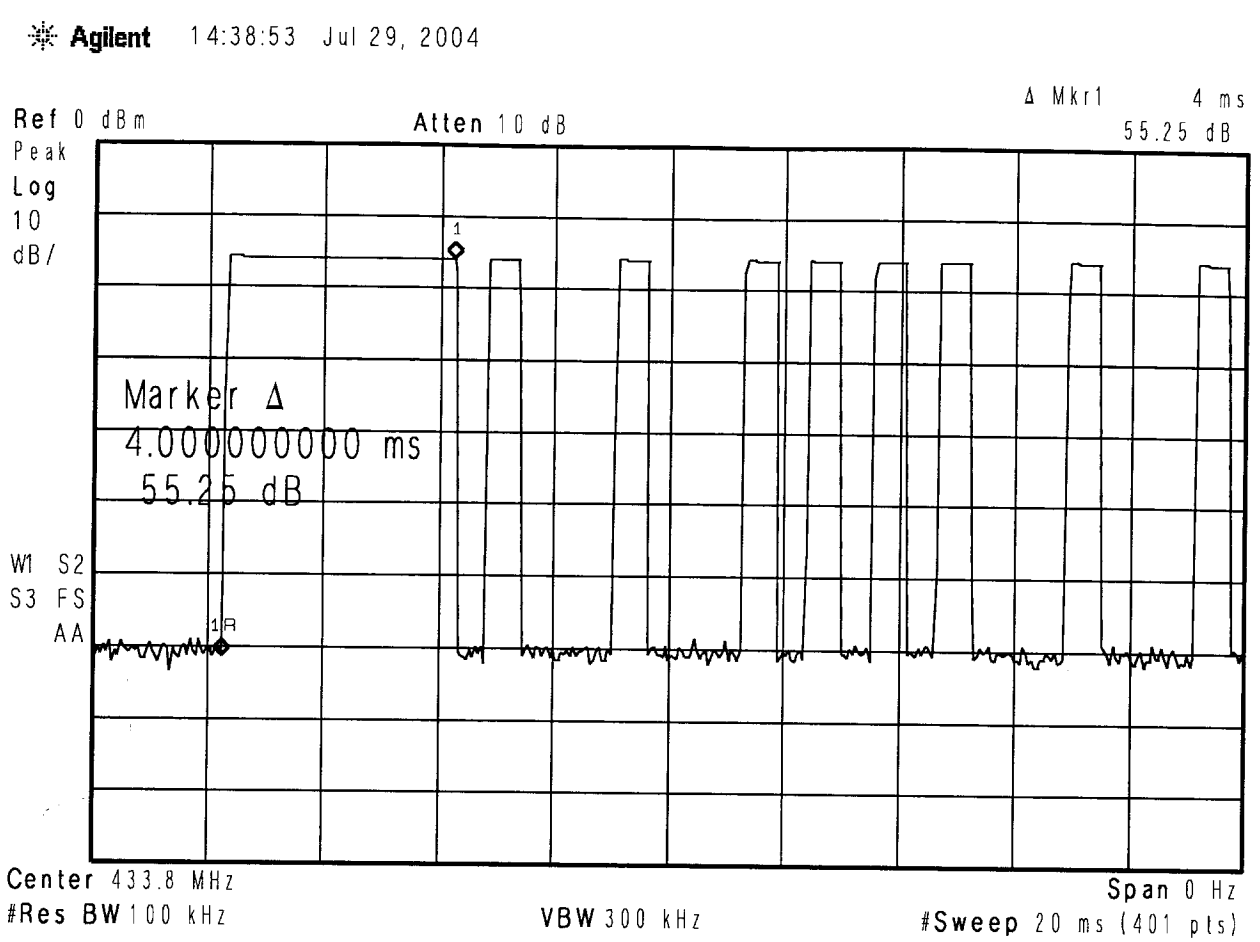
(See separate e-file named dutycycle.pdf)

Test Setup Photograph



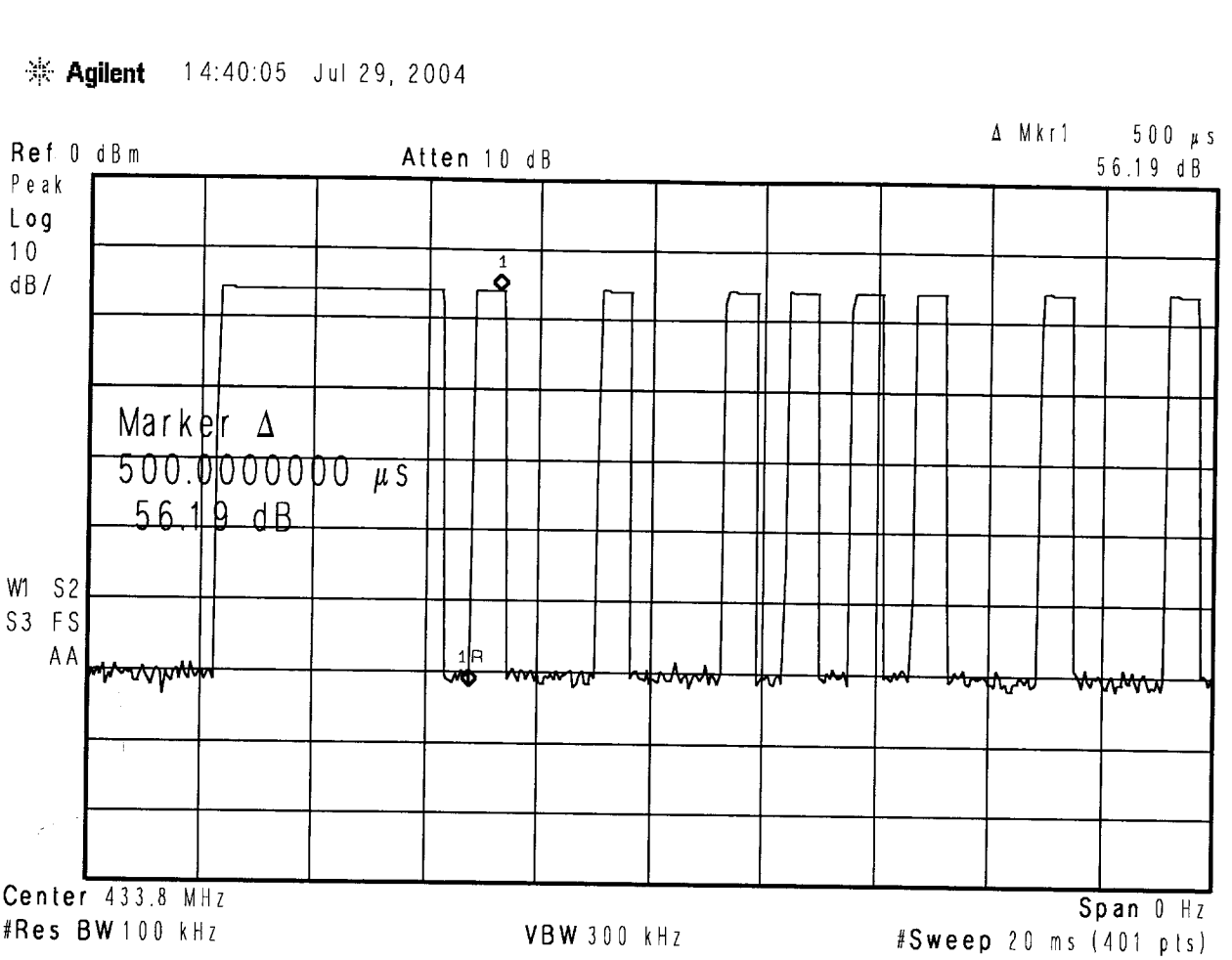
RETLIF TESTING LABORATORIES

Test Method	**FCC Part 15, Subpart C, Paragraph 6.5,Pulsed Operation**		
Customer	X10(USA), Inc	Job No.	R-10506-1
Test Sample	433.92 Pulsed Rf Transmitter		
Model No.	OR14A, PN: 5000026900	Serial No.	FCC ID: B4SOR14A
Test Specification	47 CFR, Part 15	Paragraph	15.35
Operating Mode	Continuously transmitting 433.92 MHz pulsed RF.		
Technician	T. Schneider	Date	July 29, 2004
Lead Tested	N/A		
Notes	Cycle Time Measurement=45.25 mSec, Duty Cycle=(4 + [22*0.5])/45.25= 0.331= 33.1%, Duty Cycle Factor= -9.5 dB		



RETLIF TESTING LABORATORIES

Test Method	**FCC Part 15, Subpart C, Paragraph 6.5,Pulsed Operation**		
Customer	X10(USA), Inc	Job No.	R-10506-1
Test Sample	433.92 Pulsed Rf Transmitter		
Model No.	OR14A, PN: 5000026900	Serial No.	FCC ID: B4SOR14A
Test Specification	47 CFR, Part 15	Paragraph	15.35
Operating Mode	Continuously transmitting 433.92 MHz pulsed RF.		
Technician	T. Schneider	Date	July 29, 2004
Lead Tested	N/A		
Notes	Large Pulse Measurement=4.0 mSec, Duty Cycle=(4 + [22*0.5])/45.25= 0.331= 33.1%, Duty Cycle Factor= -9.5 dB		



RETLIF TESTING LABORATORIES

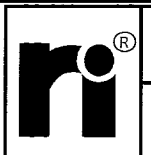
Test Method	**FCC Part 15, Subpart C, Paragraph 6.5,Pulsed Operation**		
Customer	X10(USA), Inc	Job No.	R-10506-1
Test Sample	433.92 Pulsed Rf Transmitter		
Model No.	OR14A, PN: 5000026900	Serial No.	FCC ID: B4SOR14A
Test Specification	47 CFR, Part 15	Paragraph	15.35
Operating Mode	Continuously transmitting 433.92 MHz pulsed RF.		
Technician	T. Schneider	Date	July 29, 2004
Lead Tested	N/A		
Notes	22 Small Pulses Measurement=22 x 0.5 mSec, Duty Cycle=(4 + [22*0.5])/45.25= 0.331= 33.1%, Duty Cycle Factor= -9.5 dB		

Test Method:	FCC Part 15 Subpart C Radiated Emissions, Fundamental & Harmonic Emissions		
Customer:	X-10 (USA), Inc.	**Job No.**	R-10506-1
Test Sample:	433.92 MHz Pulsed RF Transmitter	**Paragraph:**	15.231 (b)
Model No.:	OR14A	**FCC ID:**	B4SOR14A
Operating Mode:	Continuously Transmitting a pulsed 433.92 MHz Signal		
Technician:	D. Lerner	**Date:**	August 10, 2004

Notes: Test Distance: 3 Meters Temperature: 22.0°C Humidity: 58%
Detector: Peak, unless otherwise specified

Frequency	Antenna Pol./Height	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted Reading	Peak Limit
MHz	(V/H)/Meters	X / Y / Z	dBuV	dB	dBuV/m	uV/m	uV/m
433.92	H/1.0	X	81.2	1.0	82.2	12882.5	109,967
|	H/1.0	Y	85.7	1.0	86.7	21627.2	|
|	H/1.0	Z	73.2	1.0	74.2	5128.6	|
|	V/1.0	X	81.4	1.0	82.4	13182.6	|
|	V/2.5	Y	79.8	1.0	80.8	10964.8	|
433.92	V/1.5	Z	85..0	1.0	86	19952.6	109,967
867.84	H/1.0	X	37.5	9.2	46.7	216.3	10,996.7
|	H/1.0	Y	38.5	9.2	47.7	242.7	|
|	H/1.0	Z	30.2	9.2	39.4	93.3	|
|	V/1.0	X	30.7	9.5	40.2	102.3	|
|	V/1.0	Y	33.0	9.5	42.5	133.4	|
867.84	V/1.0	Z	34.0	9.5	43.5	149.6	10,996.7
1301.76	H/1.2	X	47.5	-0.6	46.9	221.3	5,000
|	H/1.7	Y	45.2	-0.6	44.6	169.8	|
|	H/1.1	Z	50.1	-0.6	49.5	298.5	|
|	V/1.0	X	48.6	-1.5	47.1	226.5	|
|	V/1.0	Y	51.4	-1.5	49.9	312.6	|
1301.76	V/1.0	Z	47.2	-1.5	45.7	192.8	5,000
1735.68	H/1.0	X	45.5	4.4	49.9	312.6	10,996.7
|	H/1.0	Y	43.8	4.4	48.2	257.0	|
|	H/1.0	Z	46.6	4.4	51	354.8	|
|	V/1.2	X	45.3	2.8	48.1	254.1	|
|	V/1.0	Y	47.9	2.8	50.7	342.8	|
1735.68	V/1.0	Z	48.7	2.8	51.5	375.8	10,996.7
2169.60	H/1.0	X	48.8	-2.9	45.9	197.2	10,996.7
|	H/1.0	Y	47.6	-2.9	44.7	171.8	|
|	H/1.0	Z	54.4	-2.9	51.5	375.8	|
|	V/1.0	X	47.0	-2.9	44.1	160.3	|
|	V/1.0	Y	53.0	-2.9	50.1	319.9	|
2169.60	V/1.0	Z	48.0	-2.9	45.1	179.9	10,996.7

The frequency range was scanned from 30 MHz to 4.3392 GHz.
All emissions not recorded were more than 10 dB below the specified limit.
Emissions from the EUT do not exceed the specified limits.
*=Noise Floor Measurements (minimum system sensitivity).



Retlif Testing Laboratories

Retlif Job Number R-10506-1

Test Method:	FCC Part 15 Subpart C Radiated Emissions, Fundamental & Harmonic Emissions		
Customer:	X-10 (USA), Inc.	**Job No.**	R-10506-1
Test Sample:	433.92 MHz Pulsed RF Transmitter	**Paragraph:**	15.231 (b)
Model No.:	OR14A	**FCC ID:**	B4SOR14A
Operating Mode:	Continuously Transmitting a pulsed 433.92 MHz Signal		
Technician:	D Lerner	**Date:**	August 10, 2004

Notes: Test Distance: 3 Meters Temperature: 22.0°C Humidity: 58%
Detector: Peak, unless otherwise specified

Frequency	Antenna Pol./Height	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted Reading	Peak Limit
MHz	(V/H)-Meters	X / Y / Z	dBuV	dB	dBuV/m	uV/m	uV/m
2603.52	H/1.3	X	45.0	-7.3	37.7	*76.7	10,996.7
|	H/1.0	Y	46.1	-7.3	38.8	*87.1	|
|	H/1.6	Z	48.9	-7.3	41.6	*120.2	|
|	V/1.0	X	43.6	-7.3	36.3	*65.3	|
|	V/1.4	Y	43.8	-7.3	36.5	*66.8	|
2603.52	V/1.0	Z	45.6	-7.3	38.3	*82.2	10,996.7
3037.44	H/1.0	X	42.6	-7.7	34.9	*55.6	10,996.7
|	H/1.0	Y	42.6	-7.7	34.9	*55.6	|
|	H/1.0	Z	42.6	-7.7	34.9	*55.6	|
|	V/1.0	X	42.6	-7.7	34.9	*55.6	|
|	V/1.0	Y	42.6	-7.7	34.9	*55.6	|
3037.44	V/1.0	Z	42.6	-7.7	34.9	*55.6	10,996.7
3471.36	H/1.0	X	42.6	-8.7	33.9	*49.5	10,996.7
|	H/1.0	Y	42.6	-8.7	33.9	*49.5	|
|	H/1.0	Z	42.6	-8.7	33.9	*49.5	|
|	V/1.0	X	42.6	-8.7	33.9	*49.5	|
|	V/1.0	Y	42.6	-8.7	33.9	*49.5	|
3471.36	V/1.0	Z	42.6	-8.7	33.9	*49.5	10,996.7
3905.28	H/1.0	X	42.6	-12.1	30.5	*33.5	5,000
|	H/1.0	Y	42.6	-12.1	30.5	*33.5	|
|	H/1.0	Z	42.6	-12.1	30.5	*33.5	|
|	V/1.0	X	42.6	-12.1	30.5	*33.5	|
|	V/1.0	Y	42.6	-12.1	30.5	*33.5	|
3905.28	V/1.0	Z	42.6	-12.1	30.5	*33.5	5,000
4339.20	H/1.0	X	42.6	-13.4	29.2	*28.8	5,000
|	H/1.0	Y	42.6	-13.4	29.2	*28.8	|
|	H/1.0	Z	42.6	-13.4	29.2	*28.8	|
|	V/1.0	X	42.6	-13.4	29.2	*28.8	|
|	V/1.0	Y	42.6	-13.4	29.2	*28.8	|
4339.20	V/1.0	Z	42.6	-13.4	29.2	*28.8	5,000

The frequency range was scanned from 30 MHz to 4.3392 GHz.
All emissions not recorded were more than 10 dB below the specified limit.
Emissions from the EUT do not exceed the specified limits.
*=Noise Floor Measurements (minimum system sensitivity).

Test Method:	FCC Part 15 Subpart C Radiated Emissions, Fundamental & Harmonic Emissions		
Customer:	X-10 (USA), Inc.	**Job No.**	R-10506-1
Test Sample:	433.92 MHz Pulsed RF Transmitter	**Paragraph:**	15.231 (b)
Model No.:	OR14A	**FCC ID:**	B4SOR14A
Operating Mode:	Continuously Transmitting a pulsed 433.92 MHz Signal		
Technician:	D. Lerner	**Date:**	August 10, 2004

Notes: Test Distance: 3 Meters — Duty Cycle: 33.1 %

Detector: Peak, unless otherwise specified — Duty Cycle Correction: -9.6 dB

Frequency	Antenna Pol./Height	EUT Orientation	Peak Reading	Correction Factor	Corrected Reading	Converted Reading	Avg. Limit
MHz	(V/H)-Meters	X / Y / Z	dBuV	dB	dBuV/m	uV/m	uV/m
433.92	H/1.0	X	82.2	-9.6	72.6	4265.8	10,996.7
|	H/1.0	Y	86.7	-9.6	77.1	7161.4	|
|	H/1.0	Z	74.2	-9.6	64.6	1698.2	|
|	V/1.0	X	82.4	-9.6	72.8	4365.2	|
|	V/2.5	Y	80.8	-9.6	71.2	3630.8	|
433.92	V/1.5	Z	86.0	-9.6	76.4	6606.9	10,996.7
867.84	H/1.0	X	46.7	-9.6	37.1	71.60	1,099.7
|	H/1.0	Y	47.7	-9.6	38.1	80.40	|
|	H/1.0	Z	39.4	-9.6	29.8	30.90	|
|	V/1.0	X	40.2	-9.6	30.6	33.90	|
|	V/1.0	Y	42.5	-9.6	32.9	44.20	|
867.84	V/1.0	Z	43.5	-9.6	33.9	49.50	1,099.7
1301.76	H/1.2	X	46.9	-9.6	37.3	73.30	500
|	H/1.7	Y	44.6	-9.6	35.0	56.20	|
|	H/1.1	Z	49.5	-9.6	39.9	98.90	|
|	V/1.0	X	47.1	-9.6	37.5	75.00	|
|	V/1.0	Y	49.9	-9.6	40.3	103.5	|
1301.76	V/1.0	Z	45.7	-9.6	36.1	63.80	500
1735.68	H/1.0	X	49.9	-9.6	40.3	103.5	1,099.7
|	H/1.0	Y	48.2	-9.6	38.6	85.10	|
|	H/1.0	Z	51.0	-9.6	41.4	117.5	|
|	V/1.2	X	48.1	-9.6	38.5	84.10	|
|	V/1.0	Y	50.7	-9.6	41.1	113.5	|
1735.68	V/1.0	Z	51.5	-9.6	41.9	124.5	1,099.7
2169.60	H/1.0	X	45.9	-9.6	36.3	65.30	1,099.7
|	H/1.0	Y	44.7	-9.6	35.1	56.90	|
|	H/1.0	Z	51.5	-9.6	41.9	124.5	|
|	V/1.0	X	44.1	-9.6	34.5	53.10	|
|	V/1.0	Y	50.1	-9.6	40.5	105.9	|
2169.60	V/1.0	Z	45.1	-9.6	35.5	59.60	1,099.7

The frequency range was scanned from 30 MHz to 4.3392 GHz.

All emissions not recorded were more than 10 dB below the specified limit.

Emissions from the EUT do not exceed the specified limits.

*=Noise Floor Measurements (minimum system sensitivity).

Retlif Testing Laboratories

Retlif Job Number R-10506-1

Test Method:	FCC Part 15 Subpart C Radiated Emissions, Fundamental & Harmonic Emissions		
Customer:	X-10 (USA), Inc.	**Job No.**	R-10506-1
Test Sample:	433.92 MHz Pulsed RF Transmitter	**Paragraph:**	15.231 (b)
Model No.:	OR14A	**FCC ID:**	B4SOR14A
Operating Mode:	Continuously Transmitting a pulsed 433.92 MHz Signal		
Technician:	D. Lerner	**Date:**	August 10, 2004

Notes: Test Distance: 3 Meters — Duty Cycle: 33.1 %

Detector: Peak, unless otherwise specified — Duty Cycle Correction: -9.6 dB

Frequency	Antenna Pol./Height	EUT Orientation	Peak Reading	Correction Factor	Corrected Reading	Converted Reading	Avg. Limit
MHz	(V/H)-Meters	X / Y / Z	dBuV	dB	dBuV/m	uV/m	uV/m
2603.52	H/1.3	X	37.7	-9.6	28.1	25.4	1,099.7
"	H/1.0	Y	38.8	-9.6	29.2	28.8	"
"	H/1.6	Z	41.6	-9.6	32.0	39.8	"
"	V/1.0	X	36.3	-9.6	26.7	21.6	"
"	V/1.4	Y	36.5	-9.6	26.9	22.1	"
2603.52	V/1.0	Z	38.3	-9.6	28.7	27.2	1,099.7
3037.44	H/1.0	X	34.9	-9.6	25.3	18.4	1,099.7
"	H/1.0	Y	34.9	-9.6	25.3	18.4	"
"	H/1.0	Z	34.9	-9.6	25.3	18.4	"
"	V/1.0	X	34.9	-9.6	25.3	18.4	"
"	V/1.0	Y	34.9	-9.6	25.3	18.4	"
3037.44	V/1.0	Z	34.9	-9.6	25.3	18.4	1,099.7
3471.36	H/1.0	X	33.9	-9.6	24.3	16.4	1,099.7
"	H/1.0	Y	33.9	-9.6	24.3	16.4	"
"	H/1.0	Z	33.9	-9.6	24.3	16.4	"
"	V/1.0	X	33.9	-9.6	24.3	16.4	"
"	V/1.0	Y	33.9	-9.6	24.3	16.4	"
3471.36	V/1.0	Z	33.9	-9.6	24.3	16.4	1,099.7
3905.28	H/1.0	X	30.5	-9.6	20.9	11.1	500
"	H/1.0	Y	30.5	-9.6	20.9	11.1	"
"	H/1.0	Z	30.5	-9.6	20.9	11.1	"
"	V/1.0	X	30.5	-9.6	20.9	11.1	"
"	V/1.0	Y	30.5	-9.6	20.9	11.1	"
3905.28	V/1.0	Z	30.5	-9.6	20.9	11.1	500
4339.20	H/1.0	X	29.2	-9.6	19.6	9.5	500
"	H/1.0	Y	29.2	-9.6	19.6	9.5	"
"	H/1.0	Z	29.2	-9.6	19.6	9.5	"
"	V/1.0	X	29.2	-9.6	19.6	9.5	"
"	V/1.0	Y	29.2	-9.6	19.6	9.5	"
4339.20	V/1.0	Z	29.2	-9.6	19.6	9.5	500

The frequency range was scanned from 30 MHz to 4.3392 GHz.

All emissions not recorded were more than 10 dB below the specified limit.

Emissions from the EUT do not exceed the specified limits.

*=Noise Floor Measurements (minimum system sensitivity).

Retlif Testing Laboratories

Retlif Job Number R-10506-1

Test Method:	FCC Part 15 Subpart C, Spurious Case Radiated Emissions, Paragraph 15.209(a)		
Customer:	X-10 (USA), Inc.	**Job No.**	R-10506-1
Test Sample:	433.92 MHz Pulsed RF Transmitter		
Model No.:	OR14A	**FCC ID:**	B4SOR14A
Operating Mode:	Continuously Transmitting a pulsed 433.92 MHz Signal		
Technician:	D. Lerner	**Date:**	August 10, 2004

Notes: Test Distance: 3 Meters Temp: 22.0°C Humidity: 58%
Detector: Quasi-Peak Below 1 GHz, Peak above 1 GHz

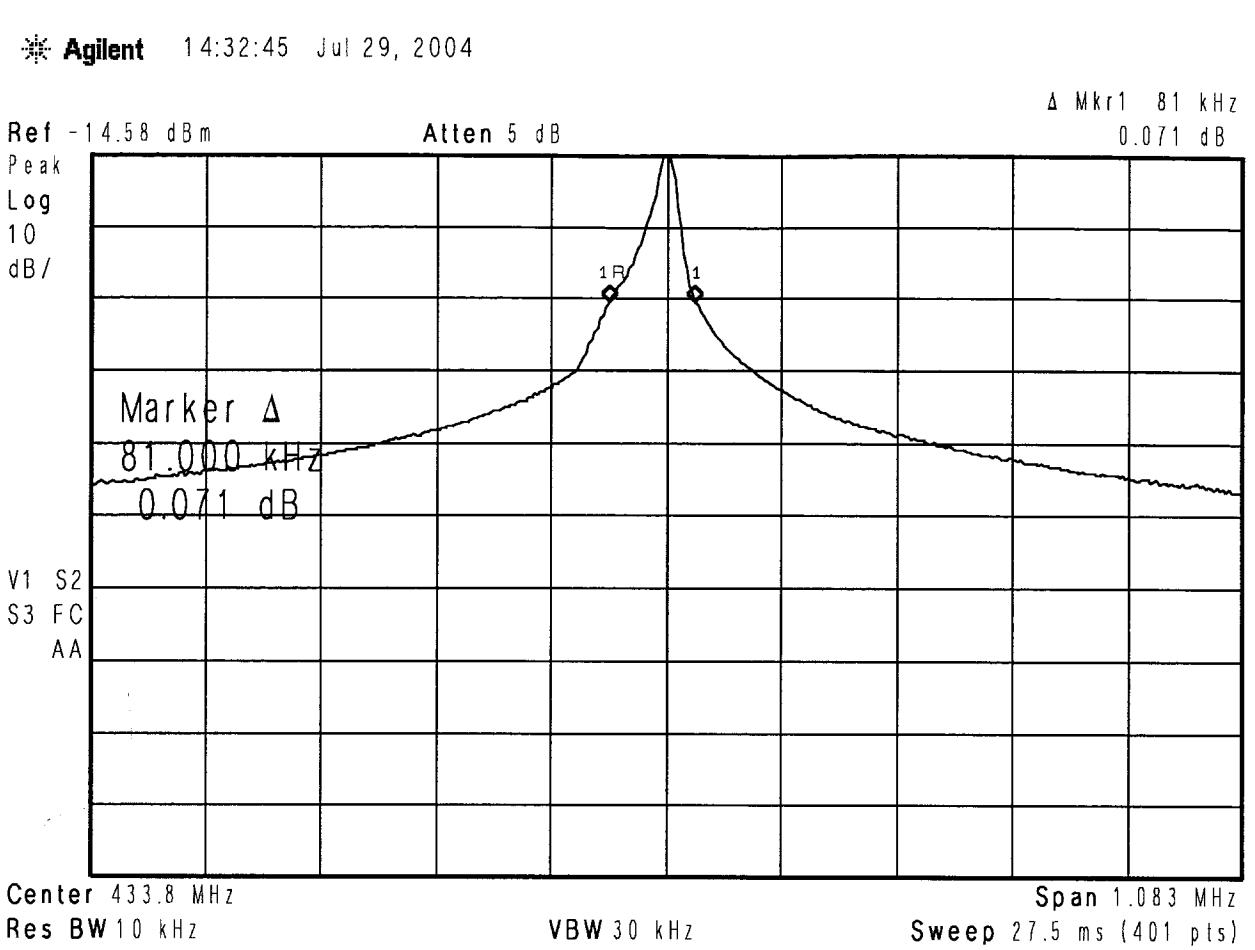
Test Freq.	Antenna Position	EUT Orientation	Meter Readings	Correction Factor	Corrected Reading	Converted Reading	**LIMIT**
MHz	(V/H) / Meters	Degrees	dBuV	dB	dBuV/m	uV/m	uV/m
30.00							100
88.00							100
88.00							150
216.00							150
216.00							200
960.00							200
960.00							500
4330.0							500

NO EMMISSIONS OBSERVED AT 3 METERS

The EUT was scanned from 30 MHz to 4.33 GHz
The emissions observed from the EUT do not exceed the specified limits.
Emissions not recorded were more than 20dB under the specified limit.

Retlif Testing Laboratories

Retlif Job Number R-10506-1



RETLIF TESTING LABORATORIES

Test Method	**FCC Part 15, Subpart C, Paragraph 15.231(c), Occupied Bandwidth**		
Customer	X10(USA), Inc	Job No.	R-10506-1
Test Sample	433.92 Pulsed Rf Transmitter		
Model No.	OR14A, PN: 5000026900	Serial No.	FCC ID: B4SOR14A
Test Specification	47 CFR, FCC Part 15	Paragraph	15.231(c)
Operating Mode	Continuously transmitting 433.92 MHz pulsed RF.		
Technician	T. Schneider	Date	July 29, 2004
Lead Tested	N/A		
Notes	Bandwidth does not exceed 0.25% of center Frequency (!.08 MHz) at 20 dB down points		

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