APPLICANT		MANUFACTURER	
Name:	X10 (USA), Inc.	Name:	X-10 Electronics (Shenzhen) Co. Ltd.
Address:	19823 58th Place South	Address:	Together Rich Industrial Park B Sanwei Industrial District, Xixiang Town
City, State, Zip:	Kent, WA 98032	City, State, Zip:	Baoan County, Shenzhen, China

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

TEST PROCEDURE: ANSI C63.4:2003

TEST SAMPLE DESCRIPTION

BRANDNAME(s): X10 (USA)

MODEL(s): KR34A

FCC ID: B4SKR34A

TYPE: Pulsed Transmitter

POWER REQUIREMENTS: 3 VDC derived from CR2025 Lithium Battery

FREQUENCY OF OPERATION: 310 MHz

APPLICABLE RULE SECTION: Part 15, Subpart C, Section 15.231

TESTS PERFORMED

Para. 15.231(a), Radiated Emissions, Fundamental and Harmonics

Para. 15.231(b), Radiated Emissions, Spurious Case

Para. 15.231(b), Duty Cycle Determination

Para. 15.231(c), Occupied Bandwidth

TEST RESULTS

15.231 (a)(1) The transmitter is manually operated. Transmission ends within 5 seconds of deactivation.

15.231 (a)(3): The transmitter does not perform periodic transmissions or the transmitter performs periodic transmissions at predetermined intervals greater than 1 hour apart and are shorter than 1 second in duration.

15.231 (b): The fundamental field strength did not exceed 5833 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 583.3 µV/M (AVERAGE).

15.231 (c) The Bandwidth of the emission was no wider than 0.25% of the center frequency (775 kHz) as measured 20 db down from the modulated carrier.

DETERMINATION OF FIELD STRENGTH LIMITS

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

	Frequency	Limit	
F1 =	260	3750 =	L1
Fo =	310 MHz	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 =	5833	µV/M (AVERAGE) @ 3 Meters
Harmonic Limit =	583	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. (See plots for additional information).

Transmitter On Time =	25.1	milliseconds (maximum per cycle)
Transmitter Cycle Time =	112	milliseconds (100 ms maximum)
Transmitter Duty Cycle =	25.1	%

CALCULATION

			1 Large Pulse =	8.6	milliseconds
1	x	8.6	ms (large pulses) =	8.6	milliseconds
			1 Small Pulse =	0.50	milliseconds
33	x	0.50	ms (small pulses) =	16.5	milliseconds
			8.6 ms + 16.5 ms =	25.1	milliseconds
			Duty Cycle (25.1 / 100) =	25.1	%
			Correction Factor =20 log (0.251) =	-12.0	dB

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 0.5 milliseconds yields a minimum required bandwidth of 1333 Hz. FCC specified bandwidths of 100 kHz and 1 MHz 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 3.10 GHz. All emissions not reported were more than 20 dB below the specified limit.

Para. 15.231(a), Radiated Emissions, Fundamental and Harmonics
Test Data

Test Method:	FCC Part 15, Subpart C, Radiated Emissions, Fundamental & Harmonic Emissions.		
Customer:	X-10 (USA) Inc.	**Job No.**	R-11238-1
Test Sample:	Pulsed 310MHz Transmitter	**Paragraph:**	15.231
Model No.:	KR34A	**FCC ID:**	B4SKR34A
Operating Mode:	Continuously Transmitting a pulsed 310 MHz signal.		
Technician:	R. Soodoo	**Date:**	December 02, 2005 & December 5, 2005.

Notes: Test Distance: 3 Meters

Detector: Peak, Unless otherwise specified

Test Freq.	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
310.0	V / 1.0	X	56.8	-12.7	44.1	160.3	58330
|	V / 1.5	Y	72.7	-12.7	60.0	1000.0	|
|	V / 1.5	Z	74.5	-12.7	61.8	1230.3	|
|	H / 1.0	X	72.4	-12.7	59.7	966.1	|
|	H / 2.0	Y	67.3	-12.7	54.6	537.0	|
310.0	H / 2.0	Z	66.8	-12.7	54.1	507.0	58330
620.0	V / 1.0	X	42.6	-11.7	30.9	35.1	5833
|	V / 2.0	Y	46.6	-11.7	34.9	55.6	|
|	V / 1.0	Z	46.1	-11.7	34.4	52.5	|
|	H / 1.0	X	47.3	-11.7	35.6	60.3	|
|	H / 1.0	Y	42.5	-11.7	30.8	34.7	|
620.0	H / 1.0	Z	37.8	-11.7	26.1	20.2	5833
930.0	V / 1.0	X	29.6	-9.5	20.1	10.1	5833
|	V / 1.0	Y	34.2	-9.5	24.7	17.2	|
|	V / 1.0	Z	36.8	-9.5	27.3	23.2	|
|	H / 1.0	X	31.3	-9.5	21.8	12.3	|
|	H / 2.0	Y	28.5	-9.5	19.0	8.9	|
930.0	H / 2.0	Z	27.4	-9.5	17.9	7.9	5833
1240.0	V / 1.0	X	42.4	-15.2	27.2	*22.9	5000
|	V / 1.0	Y	42.4	-15.2	27.2	*22.9	|
|	V / 1.0	Z	42.4	-15.2	27.2	*22.9	|
|	H / 1.0	X	40.1	-15.2	24.9	*17.6	|
|	H / 1.0	Y	40.1	-15.2	24.9	*17.6	|
1240.0	H / 1.0	Z	40.1	-15.2	24.9	*17.6	5000
1550.0	V / 1.0	X	42.2	-15.2	27.0	*22.4	5000
|	V / 1.0	Y	42.2	-15.2	27.0	*22.4	|
|	V / 1.0	Z	42.2	-15.2	27.0	*22.4	|
|	H / 1.0	X	42.0	-15.2	26.8	*21.9	|
|	H / 1.0	Y	42.0	-15.2	26.8	*21.9	|
1550.0	H / 1.0	Z	42.0	-15.2	26.8	*21.9	5000

The Frequency Range was scanned from the first to the tenth harmonic. All emissions not reported herein are at least 20 dB below the specified limit. The EUT complies with the applicable limit.

*=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-11238-1
Test Sample:	Pulsed 310MHz Transmitter	**Paragraph:**	15.231
Model No.:	KR34A	**FCC ID:**	B4SKR34A
Operating Mode:	Continuously Transmitting a pulsed 310 MHz signal		
Technician:	R. Soodoo	**Date:**	December 02, 2005 & December 5, 2005.

Notes: Test Distance: 3 Meters Detector: Peak, unless otherwise specified

Test Freq.	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
1860.0	V / 1.0	X	42.2	-12.4	29.8	*30.9	5833
|	V / 1.0	Y	42.2	-12.4	29.8	*30.9	|
|	V / 1.0	Z	42.2	-12.4	29.8	*30.9	|
|	H / 1.0	X	42.0	-12.4	29.6	*30.2	|
|	H / 1.0	Y	42.0	-12.4	29.6	*30.2	|
1860.0	H / 1.0	Z	42.0	-12.4	29.6	*30.2	5833
2170.0	V / 1.0	X	42.2	-2.6	39.6	*95.5	5833
|	V / 1.0	Y	42.2	-2.6	39.6	*95.5	|
|	V / 1.0	Z	42.2	-2.6	39.6	*95.5	|
|	H / 1.0	X	42.0	-3.2	38.8	*87.1	|
|	H / 1.0	Y	42.0	-3.2	38.8	*87.1	|
2170.0	H / 1.0	Z	42.0	-3.2	38.8	*87.1	5833
2480.0	V / 1.0	X	42.2	-1.1	41.1	*113.5	5833
|	V / 1.0	Y	42.2	-1.1	41.1	*113.5	|
|	V / 1.0	Z	42.2	-1.1	41.1	*113.5	|
|	H / 1.0	X	42.0	-1.5	40.5	*105.9	|
|	H / 1.0	Y	42.0	-1.5	40.5	*105.9	|
2480.0	H / 1.0	Z	42.0	-1.5	40.5	*105.9	5833
2790.0	V / 1.0	X	43.8	0.0	43.8	*154.9	5000
|	V / 1.0	Y	43.8	0.0	43.8	*154.9	|
|	V / 1.0	Z	43.8	0.0	43.8	*154.9	|
|	H / 1.0	X	43.8	-0.5	43.3	*146.2	|
|	H / 1.0	Y	43.8	-0.5	43.3	*146.2	|
2790.0	H / 1.0	Z	43.8	-0.5	43.3	*146.2	5000
3100.0	V / 1.0	X	42.2	1.5	43.7	*153.1	5833
|	V / 1.0	Y	42.2	1.5	43.7	*153.1	|
|	V / 1.0	Z	42.2	1.5	43.7	*153.1	|
|	H / 1.0	X	42.6	0.9	43.5	*149.6	|
|	H / 1.0	Y	42.6	0.9	43.5	*149.6	|
3100.0	H / 1.0	Z	42.6	0.9	43.5	*149.6	5833

The Frequency Range was scanned from the first to the tenth harmonic. All emissions not reported herein are at least 20 dB below the specified limit. The EUT complies with the applicable limit.

*=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-11238-1
Test Sample:	Pulsed 310MHz Transmitter	**Paragraph:**	15.231
Model No.:	KR34A	**FCC ID:**	B4SKR34A
Operating Mode:	Continuously Transmitting a pulsed 310 MHz signal		
Technician:	R. Soodoo	**Date:**	December 02, 2005 & December 5, 2005.

Notes: Test Distance: 3 Meters — Duty Cycle: 25.1%

Detector: Peak, unless otherwise specified — Duty Cycle Correction: -12dB

Test Freq.	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
310.0	V / 1.0	X	44.1	-12.0	32.1	40.3	5833
|	V /1.5	Y	60.0	-12.0	48.0	251.2	|
|	V / 1.5	Z	61.8	-12.0	49.8	309.0	|
|	H / 1.0	X	59.7	-12.0	47.7	242.7	|
|	H / 2.0	Y	54.6	-12.0	42.6	134.9	|
310.0	H / 2.0	Z	54.1	-12.0	42.1	127.4	5833
620.0	V / 1.0	X	30.9	-12.0	18.9	8.8	583
|	V / 2.0	Y	34.9	-12.0	22.9	14.0	|
|	V / 1.0	Z	34.4	-12.0	22.4	13.2	|
|	H / 1.0	X	35.6	-12.0	23.6	15.1	|
|	H / 1.0	Y	30.8	-12.0	18.8	8.7	|
620.0	H / 1.0	Z	26.1	-12.0	14.1	5.1	583
930.0	V / 1.0	X	20.1	-12.0	8.1	2.5	583
|	V / 1.0	Y	24.7	-12.0	12.7	4.3	|
|	V / 1.0	Z	27.3	-12.0	15.3	5.8	|
|	H / 1.0	X	21.8	-12.0	9.8	3.1	|
|	H / 2.0	Y	19.0	-12.0	7.0	2.2	|
930.0	H / 2.0	Z	17.9	-12.0	5.9	2.0	583
1240.0	V / 1.0	X	27.2	-12.0	15.2	*5.8	500
|	V / 1.0	Y	27.2	-12.0	15.2	*5.8	|
|	V / 1.0	Z	27.2	-12.0	15.2	*5.8	|
|	H / 1.0	X	24.9	-12.0	12.9	*4.4	|
|	H / 1.0	Y	24.9	-12.0	12.9	*4.4	|
1240.0	H / 1.0	Z	24.9	-12.0	12.9	*4.4	500
1550.0	V / 1.0	X	27.0	-12.0	15.0	*5.6	500
|	V / 1.0	Y	27.0	-12.0	15.0	*5.6	|
|	V / 1.0	Z	27.0	-12.0	15.0	*5.6	|
|	H / 1.0	X	26.8	-12.0	14.8	*5.5	|
|	H / 1.0	Y	26.8	-12.0	14.8	*5.5	|
1550.0	H / 1.0	Z	26.8	-12.0	14.8	*5.5	500

The Frequency Range was scanned from the first to the tenth harmonic. All emissions not reported herein are at least 20 dB below the specified limit. The EUT complies with the applicable limit.

*=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-11238-1
Test Sample:	Pulsed 310MHz Transmitter	**Paragraph:**	15.231
Model No.:	KR34A	**FCC ID:**	B4SKR34A
Operating Mode:	Continuously Transmitting a pulsed 310 MHz signal		
Technician:	R. Soodoo	**Date:**	December 02, 2005 & December 5, 2005.

Notes: Test Distance: 3 Meters — Duty Cycle: 25.1%

Detector: Peak, unless otherwise specified — Duty Cycle Correction: -12 dB

Test Freq.	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
1860.0	V / 1.0	X	29.8	-12.0	17.8	*7.8	583
|	V / 1.0	Y	29.8	-12.0	17.8	*7.8	|
|	V / 1.0	Z	29.8	-12.0	17.8	*7.8	|
|	H / 1.0	X	29.6	-12.0	17.6	*7.6	|
|	H / 1.0	Y	29.6	-12.0	17.6	*7.6	|
1860.0	H / 1.0	Z	29.6	-12.0	17.6	*7.6	583
2170.0	V / 1.0	X	39.6	-12.0	27.6	*24.0	583
|	V / 1.0	Y	39.6	-12.0	27.6	*24.0	|
|	V / 1.0	Z	39.6	-12.0	27.6	*24.0	|
|	H / 1.0	X	38.8	-12.0	26.8	*21.9	|
|	H / 1.0	Y	38.8	-12.0	26.8	*21.9	|
2170.0	H / 1.0	Z	38.8	-12.0	26.8	*21.9	583
2480.0	V / 1.0	X	41.1	-12.0	29.1	*28.5	583
|	V / 1.0	Y	41.1	-12.0	29.1	*28.5	|
|	V / 1.0	Z	41.1	-12.0	29.1	*28.5	|
|	H / 1.0	X	40.5	-12.0	28.5	*26.6	|
|	H / 1.0	Y	40.5	-12.0	28.5	*26.6	|
2480.0	H / 1.0	Z	40.5	-12.0	28.5	*26.6	583
2790.0	V / 1.0	X	43.8	-12.0	31.8	*38.9	500
|	V / 1.0	Y	43.8	-12.0	31.8	*38.9	|
|	V / 1.0	Z	43.8	-12.0	31.8	*38.9	|
|	H / 1.0	X	43.3	-12.0	31.3	*36.7	|
|	H / 1.0	Y	43.3	-12.0	31.3	*36.7	|
2790.0	H / 1.0	Z	43.3	-12.0	31.3	*36.7	500
3100.0	V / 1.0	X	43.7	-12.0	31.7	*38.5	583
|	V / 1.0	Y	43.7	-12.0	31.7	*38.5	|
|	V / 1.0	Z	43.7	-12.0	31.7	*38.5	|
|	H / 1.0	X	43.5	-12.0	31.5	*37.6	|
|	H / 1.0	Y	43.5	-12.0	31.5	*37.6	|
3100.0	H / 1.0	Z	43.5	-12.0	31.5	*37.6	583

The Frequency Range was scanned from the first to the tenth harmonic. All emissions not reported herein are at least 20 dB below the specified limit. The EUT complies with the applicable limit.

*=Noise Floor Measurements (Minimum system sensitivity)

Para. 15.231(b), Radiated Emissions, Spurious Case
Test Data

Test Method:	FCC Part 15, Subpart C, Spurious Case Radiated Emissions, Paragraph 15.209(a)		
Customer:	X-10 (USA) Inc.	**Job No.**	R-11238-1
Test Sample:	Pulsed 310MHz Transmitter	**FCC ID:**	B4SKR34A
Model No.:	KR34A		
Operating Mode:	Continuously Transmitting a pulsed 310 MHz signal.		
Technician:	R. Soodoo	**Date:**	December 5, 2005.

Notes: Test Distance: 3 Meters Temp: 2°C Humidity: 81%

Detector: Quasi-Peak from 30 MHz to 1 GHz, Peak above 1 GHz

Frequency	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							100
88							100
88							150
216							150
216							200
960							200
960							500
3100							500

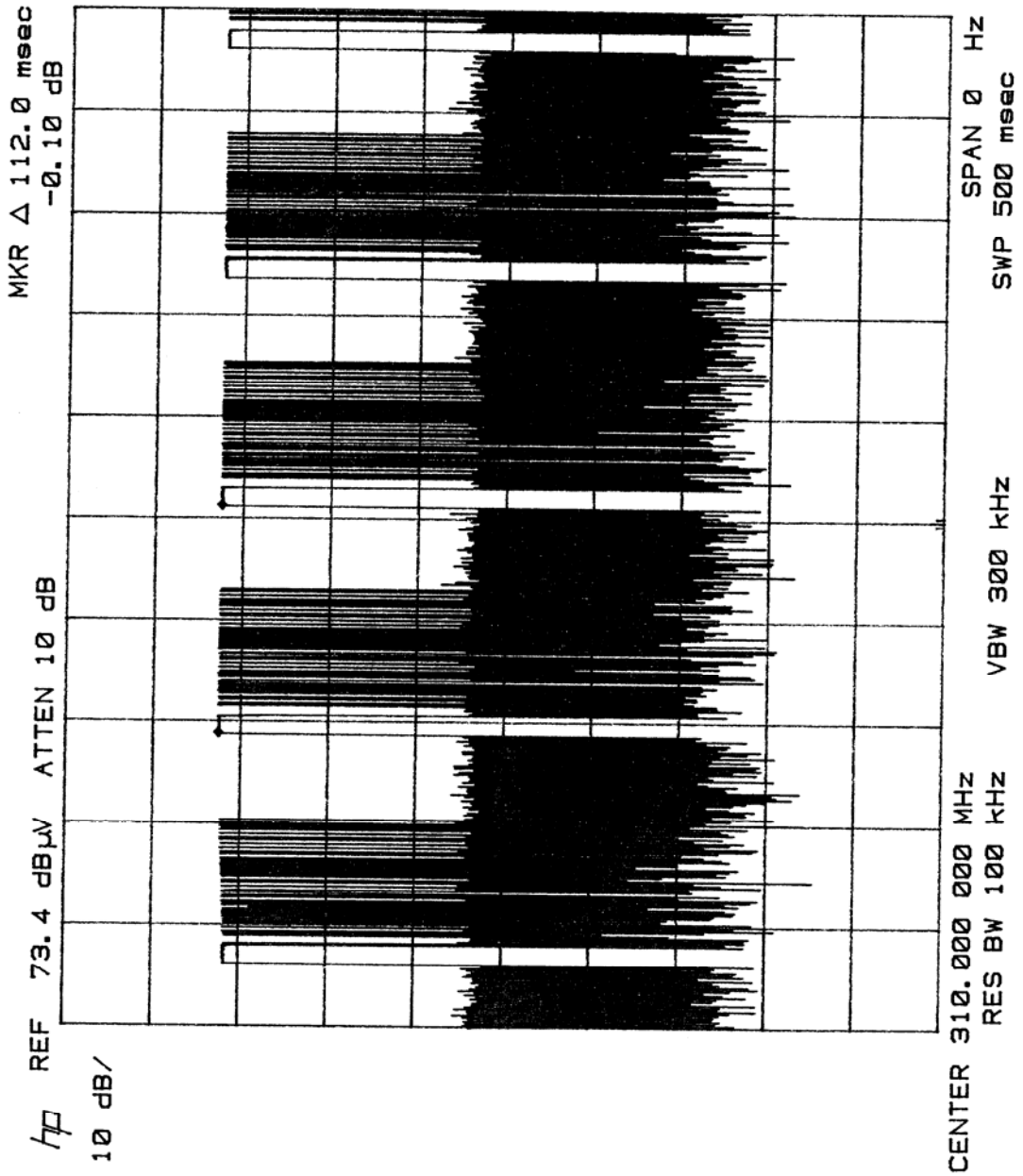
No Emissions Observed at specified test distance

The frequency range was scanned from 30 MHz to 3.1 GHz.

The emissions observed from the EUT do not exceed the specified limits.

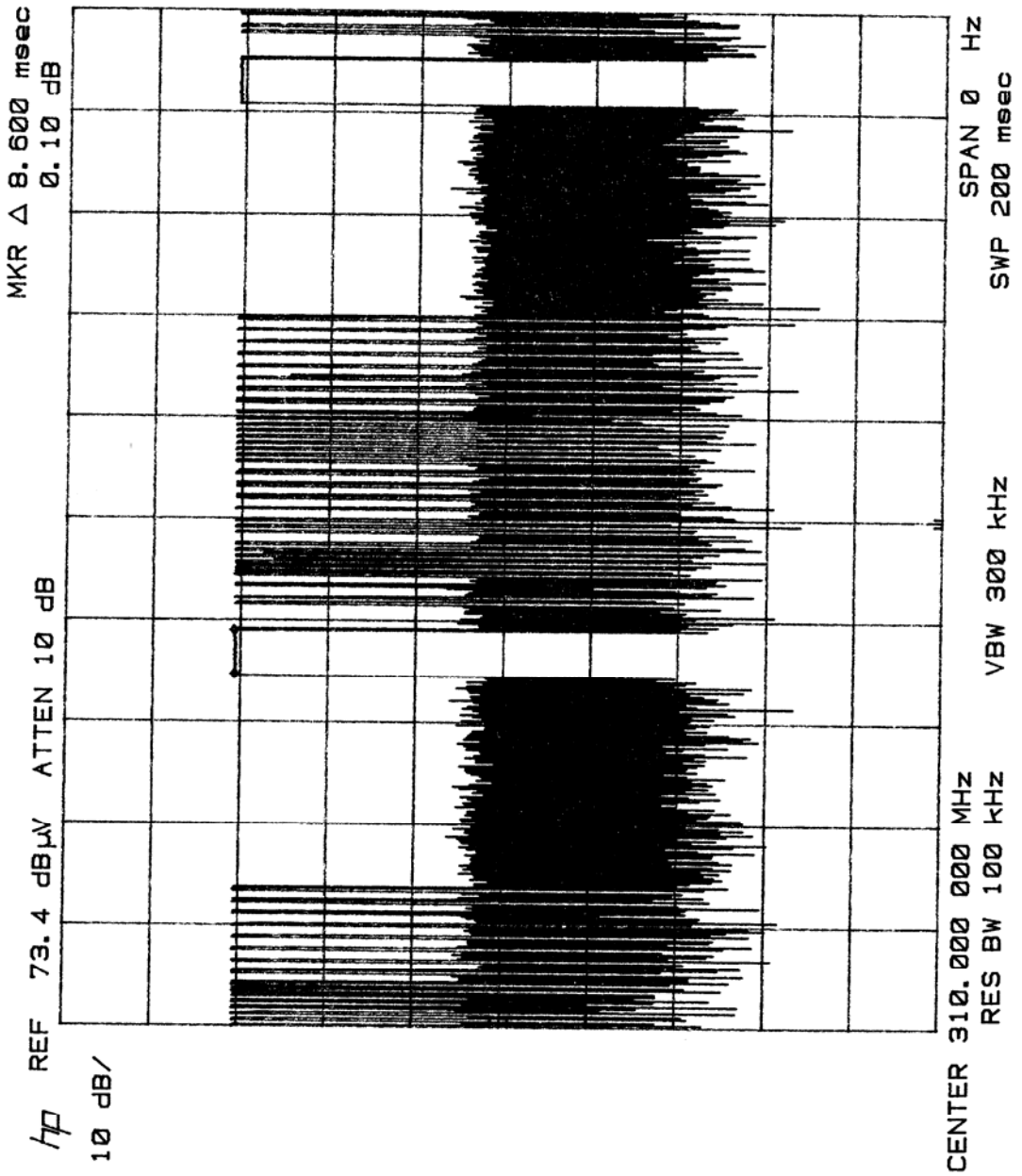
Emissions not recorded were more than 20dB under the specified limit.

Para. 15.231(b), Duty Cycle Determination
Test Data



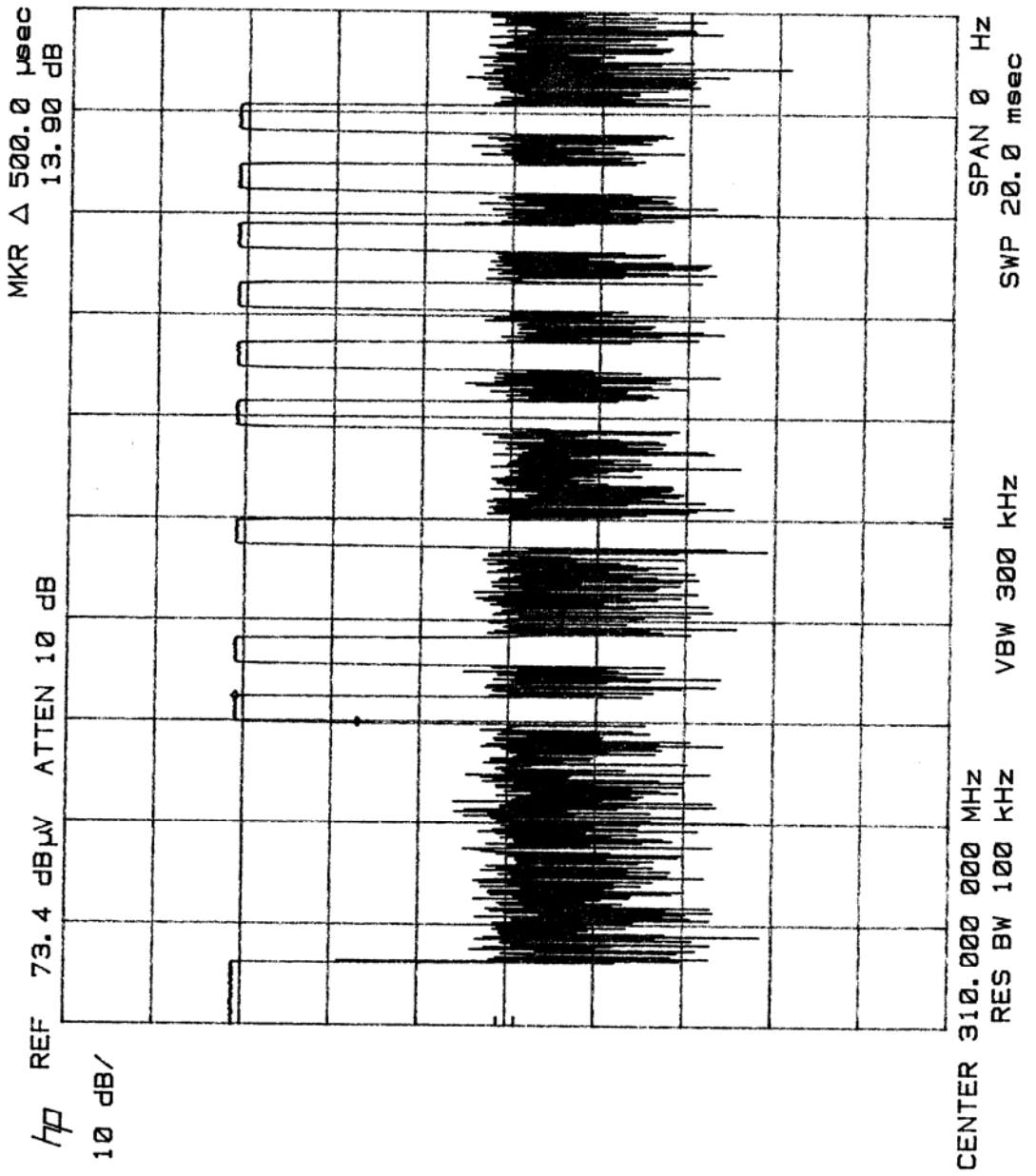
Test Method: FCC Part 15.35, Duty Cycle Determination.
Notes: Measurement of cycle time = 112 mSec.

Customer	X-10 (USA), Inc.		
Test Sample	Pulsed 310 MHz Transmitter..		
Model Number	KR34A		
Date: December 2, 2005.		Tech: R. Soodoo	Sheet 1 of 4



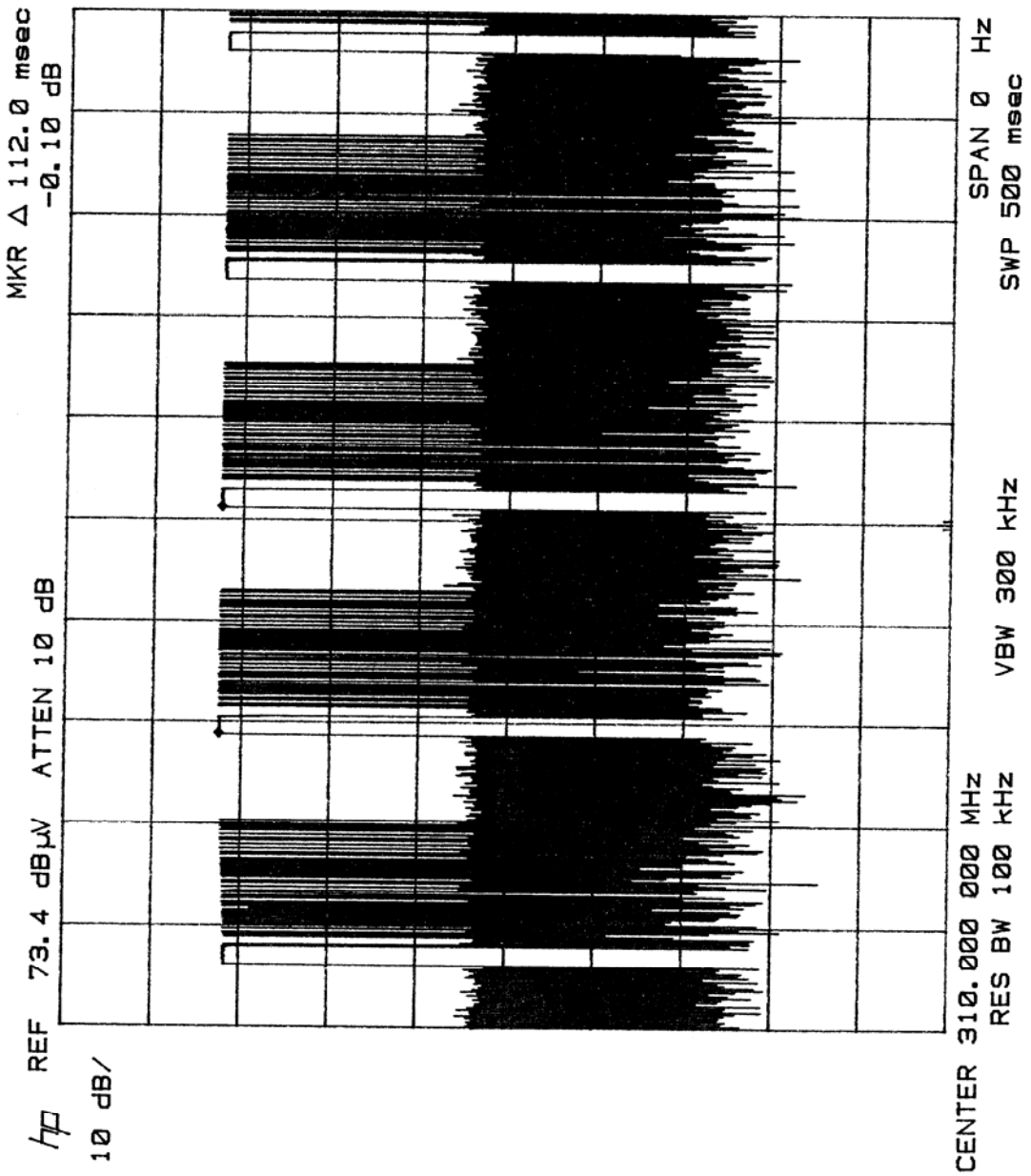
Test Method: FCC Part 15.35, Duty Cycle Determination.
Notes: Measurement of 1 large pulse = 8.6mSec.

Customer	X-10 (USA), Inc.	
Test Sample	Pulsed 310 MHz Transmitter..	
Model Number	KR34A	
Date: December 2, 2005.	Tech: R. Soodoo	Sheet 2 of 4



Test Method: FCC Part 15.35, Duty Cycle Determination.
Notes: Measurement of 1 small pulse = 500µSec.
Measurements of 33 small pulses = 33(500µSec) = 16.5mSec.

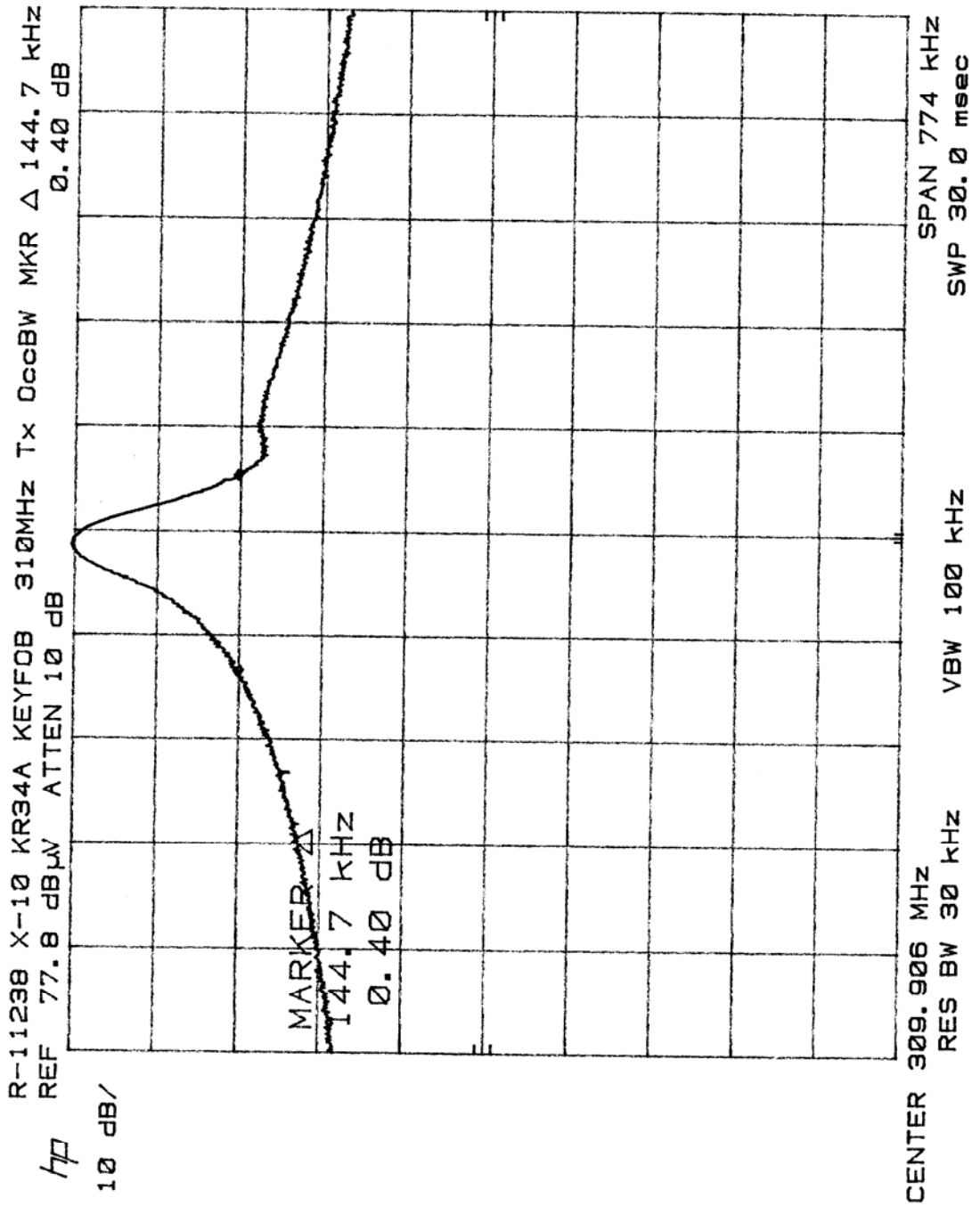
Customer	X-10 (USA), Inc.		
Test Sample	Pulsed 310 MHz Transmitter..		
Model Number	KR34A		
Date: December 2, 2005.		Tech: R. Soodoo	Sheet 3 of 4



Test Method: FCC Part 15.35, Duty Cycle Determination.
Notes: Duty cycle = (1)(8.6mSec) + (33) (500µSec) = 0.251 = 25.1%
= 20 log 0.251 = -12 dB

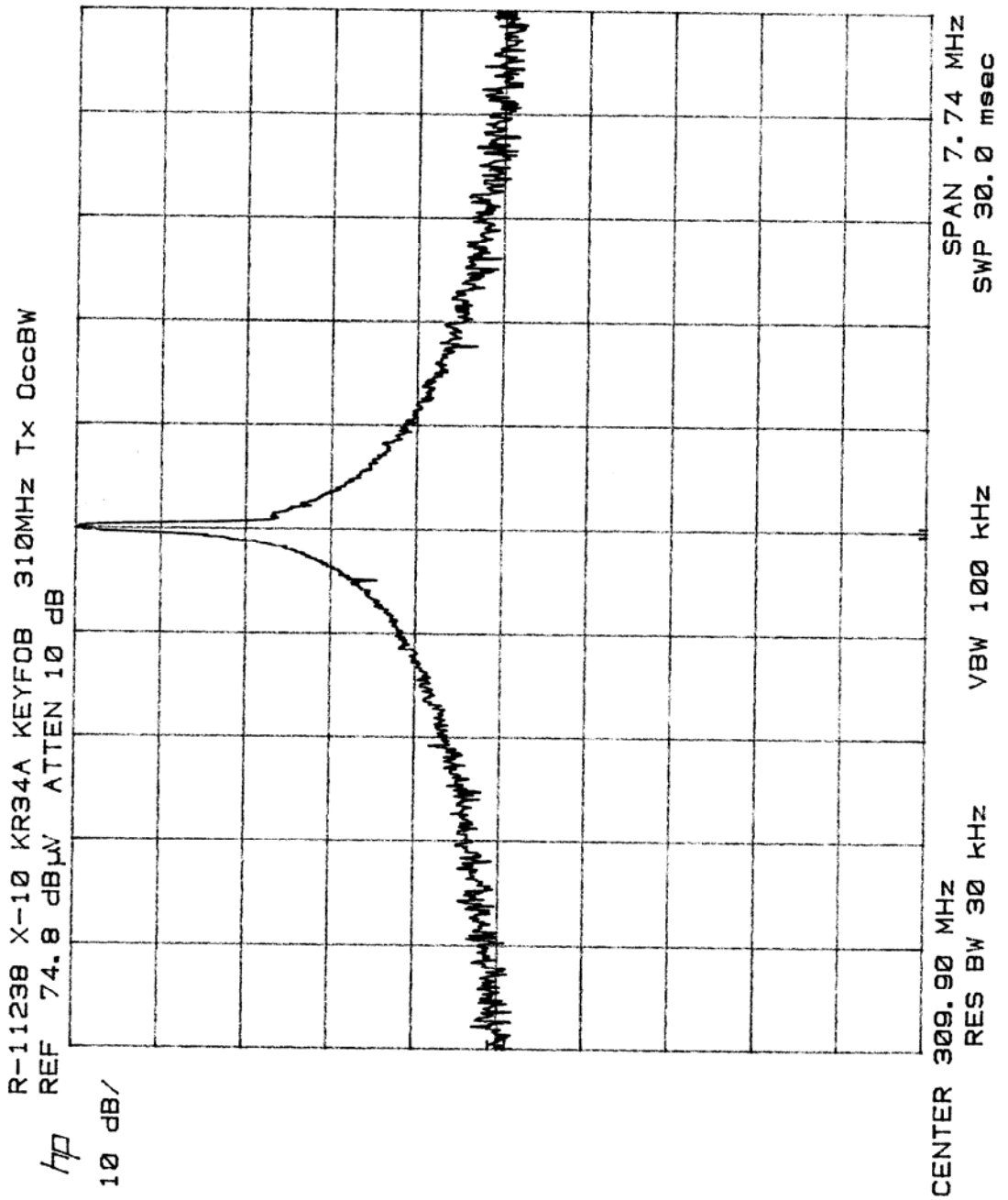
Customer	X-10 (USA), Inc.	
Test Sample	Pulsed 310 MHz Transmitter..	
Model Number	KR34A	
Date: December 2, 2005.	Tech: R. Soodoo	Sheet 4 of 4

Para. 15.231(c), Occupied Bandwidth
Test Data



Test Method: FCC Part 15, Subpart C, 15.231(c), Occupied Bandwidth.
Notes: Bandwidth of 144.7 kHz does not exceed 0.25% of center frequency at the 20 dBc points (775 kHz)

Customer	X-10 (USA), Inc.		
Test Sample	Pulsed 310 MHz Transmitter..		
Model Number	KR34A		
Date: December 2, 2005.	Tech: R. Soodoo	Sheet 1 of 2	



Test Method: FCC Part 15, Subpart C, 15.231(c), Occupied Bandwidth.
Notes: Bandwidth does not exceed 0.25% of center frequency at the 20 dBc points (775 kHz)

Customer	X-10 (USA), Inc.	
Test Sample	Pulsed 310 MHz Transmitter..	
Model Number	KR34A	
Date: December 2, 2005.	Tech: R. Soodoo	Sheet 2 of 2