

Retlif Testing Laboratories

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(Branch Office)

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FCC COMPLIANCE TEST REPORT ON A

315 MHZ PULSED RF TRANSMITTER
MODEL: 28401
FCC ID: B4S-28401

CUSTOMER NAME: X-10 (USA), Inc.

CUSTOMER P.O.: Verbal Authorization

DATE OF REPORT: July 30, 1998

TEST REPORT NO.: R-7606

TEST START DATE: June 23, 1998

TEST FINISH DATE: July 16, 1998

TEST TECHNICIAN: D. Cortes

TEST ENGINEER: T. Schneider

SUPERVISOR: R.J. Reitz

REPORT PREPARED BY: L. Anderson

GOVERNMENT SOURCE INSPECTION: Not Applicable

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EXHIBIT 2

Equipment Photographs

Para. 2.1033(b)(7)



Retlif Testing Laboratories

Test Report No. R-7606
FCC ID: B4S-28401

EXHIBIT 6

Report of Measurements

Para. 2.1033(b)(6)



Retlif Testing Laboratories

Test Report No. R-7606
FCC ID: B4S-28401

APPLICANT X-10 (USA), Inc. 91 Ruckman Road Closter, NJ 07624-0420	MANUFACTURER X-10 Electronics Shenzhen Co. Ltd. X-10 Building Labour Industrial District Shenzhen, Xixiang, Bao An Guang Dong, China, 518102
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TEST SPECIFICATION: FCC Rules and Regulations Part 15, Subpart C, Para. 15.231

TEST PROCEDURE: ANSI C63.4:1992

TEST SAMPLE DESCRIPTION

BRANDNAME: X-10 (USA), Inc. MODEL: 28401

TYPE: Pulsed RF Transmitter

POWER REQUIREMENTS: 3 VDC via Maxell Model # CR2016 Battery

FREQUENCY OF OPERATION: 315 MHz

TESTS PERFORMED

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

Para. 15.231(c), Occupied Bandwidth

Duty Cycle Determination

I HEREBY CERTIFY THAT: The measurements shown here were in accordance with the procedure indicated and that the energy emitted by this equipment was found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements and vouch for the qualifications of all persons taking them.

I FURTHER CERTIFY THAT: On the basis of the measurements made, the device tested is capable of operation in compliance with the requirements of Part 15 of the FCC Rules under normal use and maintenance.

SIGN 	PRINT Richard J. Reitz	TITLE Laboratory Manager
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Retlif Testing Laboratories

Test Report No. R-7606
FCC ID: B4S-28401

REPORT OF MEASUREMENTS

Applicant: X-10 (USA), Inc.
Device: 315 MHz Pulsed RF Transmitter
FCC ID: B4S-28401
Power Requirements: 3 VDC via Maxell Model #CR2016 Battery
Applicable Rule Section: Part 15, Subpart C, Section 15.231

TEST RESULTS

- 15.231 (a) - The device is used as a transmitter for remote control security purposes in the home such as turning lights on and off or locking and unlocking doors from outside the home.
- 15.231 (a)(1) & - The transmitter is manually operated and ceases transmission within 5
15.231(2) seconds after deactivation.
- 15.231 (a)(3) - The transmitter does not perform periodic transmissions.
- 15.231 (a)(4)- The device is employed for RC purposes involving home security.
- 15.231 (b) - The fundamental field strength did not exceed 6,040 $\mu\text{V/M}$ (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 604 $\mu\text{V/M}$ (AVERAGE).
- 15.231 (c) - The device operates at 315 MHz. The bandwidth of emissions did not exceed 0.25% of the operating frequency (787 kHz).



Retlif Testing Laboratories

Test Report No. R-7606
FCC ID: B4S-28401

REPORT OF MEASUREMENTS (continued)

DETERMINATION OF FIELD STRENGTH LIMITS

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

Frequency			Limit	
F1	=	260	3750	= L1
Fo	=	315		Lo
F2	=	470	12500	= L2

The formula below was utilized to determine the limits:

$$\text{Limit} = L1 + [(Fo-F1)(L2-L1)/(F2-F1)]$$

Solving yields:

Fundamental Limit = 6,040 μ V/M (AVERAGE) @ 3 Meters

Harmonic Limit = 640 μ V/M (AVERAGE) @ 3 Meters

DETERMINATION OF DUTY CYCLE

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 = 35.1 milliseconds (maximum- worst case in 100 ms)

Transmitter Cycle Time = 72.2 milliseconds

Transmitter Duty Cycle = 35.1 %

CALCULATION:

46 pulses x 270 μ s = 12,420 μ s

46 pulses x 540 μ s = 22,680 μ s

12,420 μ s + 22,680 μ s = 35,100 μ s

Duty Cycle = 35.1 %

Correction Factor = -9.1 db

Handwritten notes and calculations:

- 46 pulses x 270 μ s = 12,420 μ s
- 46 pulses x 540 μ s = 22,680 μ s
- 12,420 μ s + 22,680 μ s = 35,100 μ s
- Duty Cycle = 35.1 %
- Correction Factor = -9.1 db
- Handwritten: 44 normal pulses
- Handwritten: 700 LOW
- Handwritten: OK
- Handwritten: 6.75
- Handwritten: 20 LOG .236 = -12.5 db



Retlif Testing Laboratories

Test Report No. R-7606

FCC ID: B4S-28401

REPORT OF MEASUREMENTS (continued)

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 $270\mu s$ yields a minimum required bandwidth of 2469.1 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. All measurements were made with (1) Maxell CR2016 3V Lithium Battery installed in the unit.
4. The frequency range was scanned from 30 MHz to 3.2 GHz . All emissions not reported were more than 10 dB below the specified limit.



Retlif Testing Laboratories

Test Report No. R-7606
FCC ID: B4S-28401

Exhibit 6

Report of Measurements

Radiated Emissions Data, Para. 15.231(a)



Retlif Testing Laboratories

Test Report No. R-7606
FCC ID: B4S-28401

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD:	FCC Part 15 Subpart C Radiated Emissions		
CUSTOMER:	X-10(USA) Inc.	JOB No.:	R-7606
TEST SAMPLE:	Pulsed RF Transmitter FCC ID: B4S-28401		
MODEL No.:	28401	SERIAL No.:	N/A
TEST SPECIFICATION:	FCC Part 15 Subpart C PARAGRAPH: 15.231		
OPERATING MODE:	Continuously Transmitting 315 Mhz Signal		
TECHNICIAN:	Dennis Cortes	DATE:	July 16, 1998
NOTES:	Test Distance: 3 Meters Detector Function: Peak		

Test Frequency	Antenna Pol./Height	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted Reading	Peak Limit
MHz	(H/V) / meters	X / Y / Z	dBuV	dB	dBuV/m	uV/m	uV/m
315	H/1.7	X	70.4	-3.6	66.8	2187.8	60400
315	H/1.0	Y	73.0	-3.6	69.4	2951.2	60400
315	H/1.0	Z	69.6	-3.6	66.0	1995.3	60400
315	V/1.3	X	56.9	-3.6	53.3	462.4	60400
315	V/2.4	Y	50.4	-3.6	46.8	218.8	60400
315	V/1.8	Z	49.2	-3.6	45.6	190.5	60400
630	H/1.4	X	51.5	3.0	54.5	530.9	6040
630	H/1.0	Y	57.6	3.0	60.6	1071.5	6040
630	H/1.0	Z	47.9	3.0	50.9	350.8	6040
630	V/1.2	X	45.4	3.0	48.4	263.0	6040
630	V/1.2	Y	45.3	3.0	48.3	260.0	6040
630	V/2.0	Z	40.6	3.0	43.6	151.4	6040
945	H/1.0	X	41.0	8.7	49.7	305.5	6040
945	H/1.0	Y	43.2	8.7	51.9	393.6	6040
945	H/1.4	Z	36.9	8.7	45.6	190.5	6040
945	V/1.5	X	39.8	8.7	48.5	266.1	6040
945	V/1.0	Y	33.9	8.7	42.6	134.9	6040
945	V/1.6	Z	34.7	8.7	43.4	147.9	6040
1260	H/1.0	X	53.1	-5.5	47.6	239.9	6040
1260	H/1.1	Y	55.0	-5.5	49.5	298.5	6040
1260	H/1.0	Z	51.6	-5.5	46.1	201.8	6040
1260	V/1.7	X	53.2	-5.5	47.7	242.7	6040
1260	V/1.3	Y	48.9	-5.5	43.4	147.9	6040
1260	V/1.4	Z	49.2	-5.5	43.7	153.1	6040
1575	H/1.3	X	46.3	-4.3	42.0	125.9	5000
1575	H/1.3	Y	47.3	-4.3	43.0	141.3	5000
1575	H/1.7	Z	46.4	-4.3	42.1	127.4	5000
1575	V/1.0	X	48.2	-4.3	43.9	156.7	5000
1575	V/1.2	Y	45.6	-4.3	41.3	116.1	5000
1575	V/1.4	Z	46.0	-4.3	41.7	121.6	5000
The frequency range was scanned from 30 MHz to 3.15 GHz. All emissions not recorded were more than 10dB below the specified limit. Emissions from the EUT do not exceed the specified limits.							

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD:	FCC Part 15 Subpart C Radiated Emissions		
CUSTOMER:	X-10(USA) Inc.	JOB No.:	R-7606
TEST SAMPLE:	Pulsed RF Transmitter FCC ID: B4S-28401		
MODEL No.:	28401	SERIAL No.:	N/A
TEST SPECIFICATION:	FCC Part 15 Subpart C PARAGRAPH: 15.231		
OPERATING MODE:	Continuously Transmitting 315 Mhz Signal		
TECHNICIAN:	Dennis Cortes	DATE:	July 16, 1998
NOTES:	Test Distance: 3 Meters Detector Function: Peak		

Test Frequency	Antenna Pol./Height	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted Reading	Peak Limit
MHz	(H/V) / meters	X / Y / Z	dBuV	dB	dBuV/m	uV/m	uV/m
1890	H/1.0	X	45.4	-2.3	43.1	142.9	6040
1890	H/1.3	Y	44.6	-2.3	42.3	130.3	6040
1890	H/1.2	Z	44.7	-2.3	42.4	131.8	6040
1890	V/1.4	X	44.4	-2.3	42.1	127.4	6040
1890	V/1.3	Y	44.4	-2.3	42.1	127.4	6040
1890	V/1.1	Z	44.0	-2.3	41.7	121.6	6040
2205	H/1.0	X	*42.5	-1.2	41.3	116.1	5000
2205	H/1.0	Y	*42.5	-1.2	41.3	116.1	5000
2205	H/1.0	Z	*42.5	-1.2	41.3	116.1	5000
2205	V/1.0	X	*42.5	-1.2	41.3	116.1	5000
2205	V/1.0	Y	*42.5	-1.2	41.3	116.1	5000
2205	V/1.0	Z	*42.5	-1.2	41.3	116.1	5000
2520	H/1.0	X	*42.1	0.2	42.3	130.3	6040
2520	H/1.0	Y	*42.1	0.2	42.3	130.3	6040
2520	H/1.0	Z	*42.1	0.2	42.3	130.3	6040
2520	V/1.0	X	*42.1	0.2	42.3	130.3	6040
2520	V/1.0	Y	*42.1	0.2	42.3	130.3	6040
2520	V/1.0	Z	*42.1	0.2	42.3	130.3	6040
2835	H/1.0	X	*42.1	1.7	43.8	154.9	5000
2835	H/1.0	Y	*42.1	1.7	43.8	154.9	5000
2835	H/1.0	Z	*42.1	1.7	43.8	154.9	5000
2835	V/1.0	X	*42.1	1.7	43.8	154.9	5000
2835	V/1.0	Y	*42.1	1.7	43.8	154.9	5000
2835	V/1.0	Z	*42.1	1.7	43.8	154.9	5000
3150	H/1.0	X	*42.6	3.6	46.2	204.2	6040
3150	H/1.0	Y	*42.6	3.6	46.2	204.2	6040
3150	H/1.0	Z	*42.6	3.6	46.2	204.2	6040
3150	V/1.0	X	*42.6	3.6	46.2	204.2	6040
3150	V/1.0	Y	*42.6	3.6	46.2	204.2	6040
3150	V/1.0	Z	*42.6	3.6	46.2	204.2	6040

The frequency range was scanned from 30 MHz to 3.1 GHz. All emissions not recorded were more than 10dB below the specified limit. Emissions from the EUT do not exceed the specified limits.

*=Noise Floor Measurements (Minimum System Sensitivity)

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD:	FCC Part 15 Subpart C Radiated Emissions		
CUSTOMER:	X-10(USA) Inc.	JOB No.:	R-7606
TEST SAMPLE:	Pulsed RF Transmitter FCC ID: B4S-28401		
MODEL No.:	28401	SERIAL No.:	N/A
TEST SPECIFICATION:	FCC Part 15 Subpart C PARAGRAPH: 15.231		
OPERATING MODE:	Continuously Transmitting 315 Mhz Signal		
TECHNICIAN:	Dennis Cortes	DATE:	July 16, 1998
NOTES:	Test Distance: 3 Meters Detector Function: Peak Worst Case Duty Cycle: 35.1% (-9.1 dB Duty Cycle Correction Factor)		

Test Frequency	Antenna Pol./Height	EUT Orientation	Peak Corrected Reading	Duty Cycle Corr. Factor	Corrected Average	Converted Average	Average Limit
MHz	(H/V) / meters	X / Y / Z	dBuV/m	dB	dBuV/m	uV/m	uV/m
315	H/1.7	X	66.8	-9.1	57.7	767.4	6040
315	H/1.0	Y	69.4	-9.1	60.3	1035.1	6040
315	H/1.0	Z	66.0	-9.1	56.9	699.8	6040
315	V/1.3	X	53.3	-9.1	44.2	162.2	6040
315	V/2.4	Y	46.8	-9.1	37.7	76.7	6040
315	V/1.8	Z	45.6	-9.1	36.5	66.8	6040
630	H/1.4	X	54.5	-9.1	45.4	186.2	604
630	H/1.0	Y	60.6	-9.1	51.5	375.8	604
630	H/1.0	Z	50.9	-9.1	41.8	123.0	604
630	V/1.2	X	48.4	-9.1	39.3	92.3	604
630	V/1.2	Y	48.3	-9.1	39.2	91.2	604
630	V/2.0	Z	43.6	-9.1	34.5	53.1	604
945	H/1.0	X	49.7	-9.1	40.6	107.2	604
945	H/1.0	Y	51.9	-9.1	42.8	138.0	604
945	H/1.4	Z	45.6	-9.1	36.5	66.8	604
945	V/1.5	X	48.5	-9.1	39.4	93.3	604
945	V/1.0	Y	42.6	-9.1	33.5	47.3	604
945	V/1.6	Z	43.4	-9.1	34.3	51.9	604
1260	H/1.0	X	47.6	-9.1	38.5	84.1	604
1260	H/1.1	Y	49.5	-9.1	40.4	104.7	604
1260	H/1.0	Z	46.1	-9.1	37.0	70.8	604
1260	V/1.7	X	47.7	-9.1	38.6	85.1	604
1260	V/1.3	Y	43.4	-9.1	34.3	51.9	604
1260	V/1.4	Z	43.7	-9.1	34.6	53.7	604
1575	H/1.3	X	42.0	-9.1	32.9	44.2	500
1575	H/1.3	Y	43.0	-9.1	33.9	49.5	500
1575	H/1.7	Z	42.1	-9.1	33.0	44.7	500
1575	V/1.0	X	43.9	-9.1	34.8	55.0	500
1575	V/1.2	Y	41.3	-9.1	32.2	40.7	500
1575	V/1.4	Z	41.7	-9.1	32.6	42.7	500
The frequency range was scanned from 30 MHz to 3.15 GHz. All emissions not recorded were more than 10dB below the specified limit. Emissions from the EUT do not exceed the specified limits.							

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD:	FCC Part 15 Subpart C Radiated Emissions		
CUSTOMER:	X-10(USA) Inc.	JOB No.:	R-7606
TEST SAMPLE:	Pulsed RF Transmitter FCC ID: B4S-28401		
MODEL No.:	28401	SERIAL No.:	N/A
TEST SPECIFICATION:	FCC Part 15 Subpart C PARAGRAPH: 15.231		
OPERATING MODE:	Continuously Transmitting 315 Mhz Signal		
TECHNICIAN:	Dennis Cortes	DATE:	July 16, 1998
NOTES:	Test Distance: 3 Meters Detector Function: Peak Worst Case Duty Cycle: 35.1% (-9.1 dB Duty Cycle Correction Factor)		

Test Frequency	Antenna Pol./Height	EUT Orientation	Peak Corrected Reading	Duty Cycle Corr. Factor	Corrected Average	Converted Average	Average Limit
MHz	(H/V) / meters	X / Y / Z	dBuV/m	dB	dBuV/m	uV/m	uV/m
1890	H/1.0	X	43.1	-9.1	34.0	50.1	604
1890	H/1.3	Y	42.3	-9.1	33.2	45.7	604
1890	H/1.2	Z	42.4	-9.1	33.3	46.2	604
1890	V/1.4	X	42.1	-9.1	33.0	44.7	604
1890	V/1.3	Y	42.1	-9.1	33.0	44.7	604
1890	V/1.1	Z	41.7	-9.1	32.6	42.7	604
2205	H/1.0	X	*41.3	-9.1	32.2	40.7	500
2205	H/1.0	Y	*41.3	-9.1	32.2	40.7	500
2205	H/1.0	Z	*41.3	-9.1	32.2	40.7	500
2205	V/1.0	X	*41.3	-9.1	32.2	40.7	500
2205	V/1.0	Y	*41.3	-9.1	32.2	40.7	500
2205	V/1.0	Z	*41.3	-9.1	32.2	40.7	500
2520	H/1.0	X	*42.3	-9.1	33.2	45.7	604
2520	H/1.0	Y	*42.3	-9.1	33.2	45.7	604
2520	H/1.0	Z	*42.3	-9.1	33.2	45.7	604
2520	V/1.0	X	*42.3	-9.1	33.2	45.7	604
2520	V/1.0	Y	*42.3	-9.1	33.2	45.7	604
2520	V/1.0	Z	*42.3	-9.1	33.2	45.7	604
2835	H/1.0	X	*43.8	-9.1	34.7	54.3	500
2835	H/1.0	Y	*43.8	-9.1	34.7	54.3	500
2835	H/1.0	Z	*43.8	-9.1	34.7	54.3	500
2835	V/1.0	X	*43.8	-9.1	34.7	54.3	500
2835	V/1.0	Y	*43.8	-9.1	34.7	54.3	500
2835	V/1.0	Z	*43.8	-9.1	34.7	54.3	500
3150	H/1.0	X	*46.2	-9.1	37.1	71.6	604
3150	H/1.0	Y	*46.2	-9.1	37.1	71.6	604
3150	H/1.0	Z	*46.2	-9.1	37.1	71.6	604
3150	V/1.0	X	*46.2	-9.1	37.1	71.6	604
3150	V/1.0	Y	*46.2	-9.1	37.1	71.6	604
3150	V/1.0	Z	*46.2	-9.1	37.1	71.6	604
The frequency range was scanned from 30 MHz to 3.1 GHz. All emissions not recorded were more than 10dB below the specified limit. Emissions from the EUT do not exceed the specified limits.							
*=Noise Floor Measurements (Minimum System Sensitivity)							

EQUIPMENT LIST

FCC Part 15 Subpart C Radiated Emissions

EN	Type	Manufacturer	Frequency Range	Model No.	Cal Date	Due Date
067	Open Area Test Site	Retlif	3 Meter	RNY	8/30/97	8/30/99
128C	Double Ridge Guide	Eaton Corporation	1 GHz - 18 GHz	96001	10/6/97	10/6/98
133	Broadband Pre-Amplifier	Electro-Metrics	10 kHz - 1 GHz, 26dB	BPA-1000	6/22/98	6/22/99
141	Spectrum Analyzer	Hewlett Packard	100 Hz - 40 GHz	8566B	3/2/98	9/2/98
141A	Graphics Plotter	Hewlett Packard	N/A	7470A	3/4/98	3/4/99
141B	Quasi-Peak Adaptor	Hewlett Packard	100 Hz - 1 GHz	85650A	3/3/98	9/3/98
206B	6.0 dB Attenuator	Texscan	0 - 1.0 GHz	FP-50 - 6 dB	6/22/98	6/22/99
523	Biconilog	Electro-Mechanics	26 MHz - 1100 MHz	3143	9/30/97	9/30/98
543	Preamplifier	Hewlett Packard	1.0 GHz - 26.5 GHz	8449B	8/12/97	8/12/98



Retlif Testing Laboratories

Test Report No. R-7606
FCC ID: B4S-28401

Exhibit 6

Report of Measurements

Occupied Bandwidth, Para. 15.231(c)

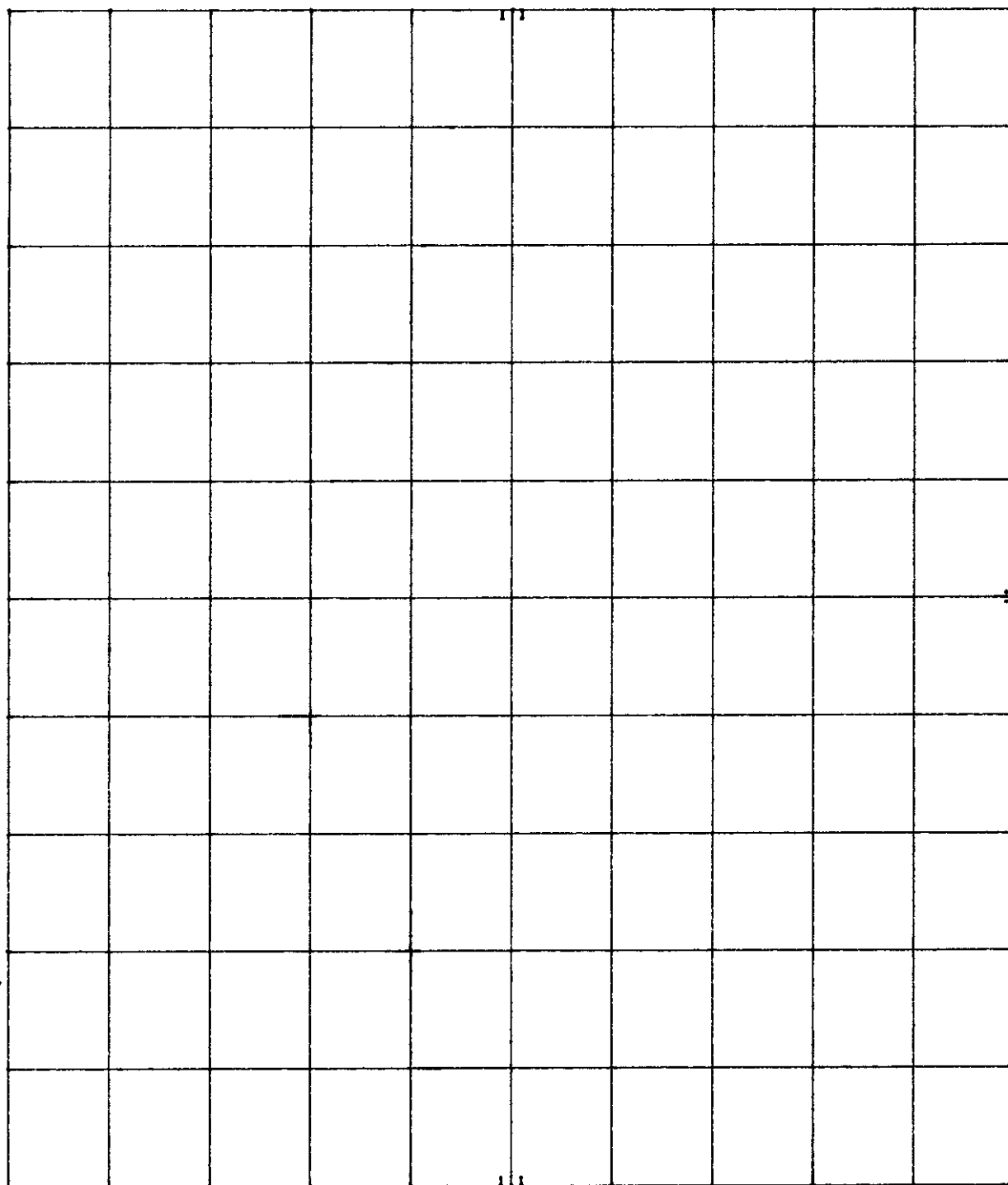


Retlif Testing Laboratories

Test Report No. R-7606
FCC ID: B4S-28401

R-7606 28401 DUTY CYCLE 7/16/98 DC
 REF 74.7 dBμV ATTEN 10 dB

hp
 10 dB/



CENTER 315.039 MHz
 RES BW 10 kHz

VBW 30 kHz

SPAN 787 kHz
 SWP 30.0 msec

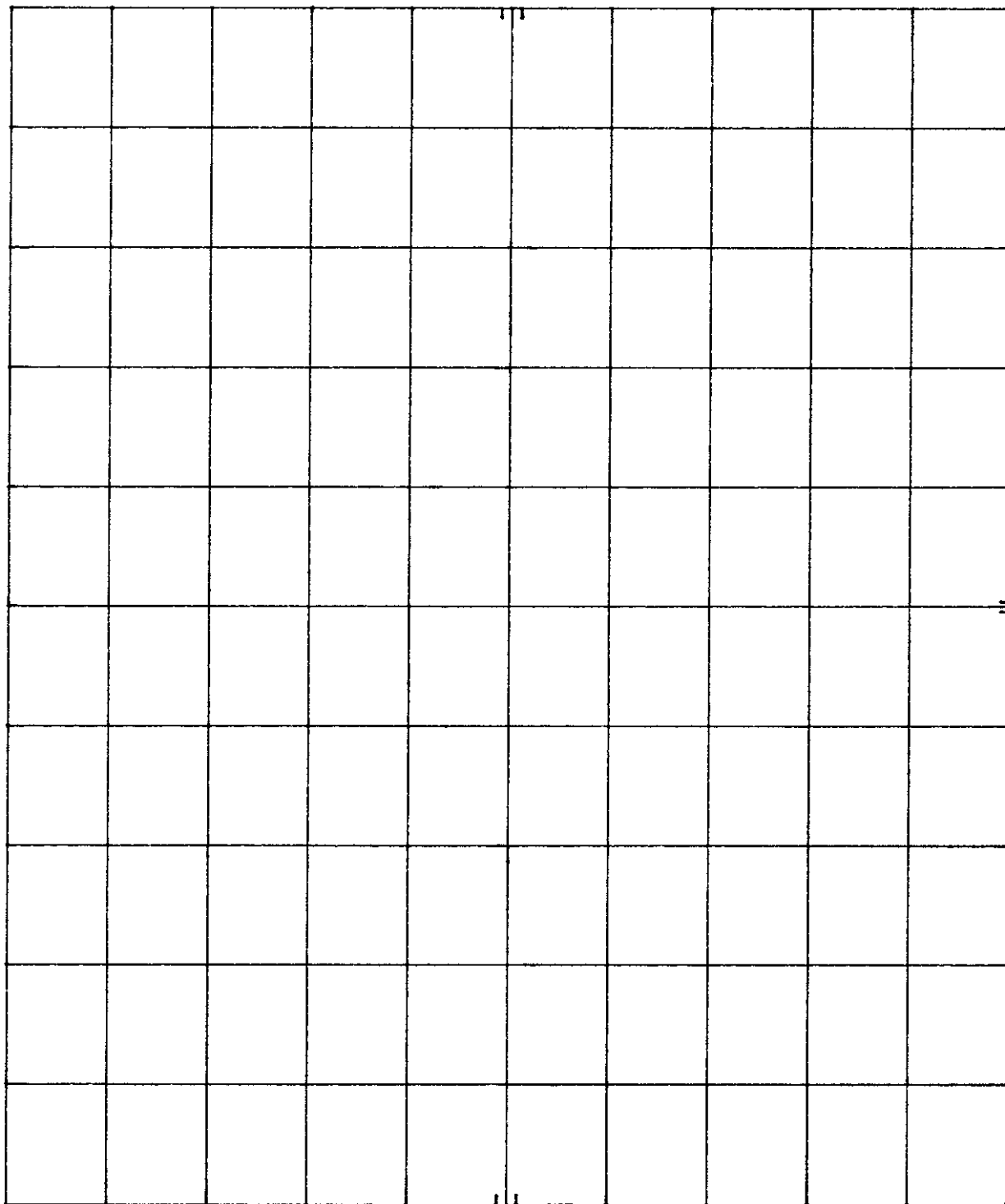
Customer:	X-10 (USA) Inc.		
Test Sample:	315 Mhz Transmitter		
Model No:	28401	FCC ID: B4s-28401	
Test Method:	FCC 15.231 (c) Occupied Bandwidth		
Notes:	The Bandwidth of the emission is not wider than .25% of the center frequency 20dB down from the modulated carrier		
Date:	July 16, 1998	Tech:	Dennis Cortes
Sheet	1	of	2



Retlif Testing Laboratories

Report No. R-7606

R-7606 28401 OCC. BW DC 7/16/98
 REF 74.7 dBμV ATTEN 10 dB



SPAN 3.94 MHz
 SWP 118 msec

VBW 30 kHz

CENTER 315.03 MHz
 RES BW 10 kHz

Customer: X-10 (USA) Inc.
 Test Sample: 315 Mhz Transmitter
 Model No.: 28401 FCC ID: B4s-28401
 Test Method: FCC 15.231 (c) Occupied Bandwidth
 Notes: The Bandwidth of the emission is not wider than .25% of the center frequency 20dB down from the modulated carrier
 Date: July 16, 1998 Tech: Dennis Cortes Sheet 2 of 2



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Report No. R-7606

Exhibit 6

Report of Measurements

Duty Cycle Determination



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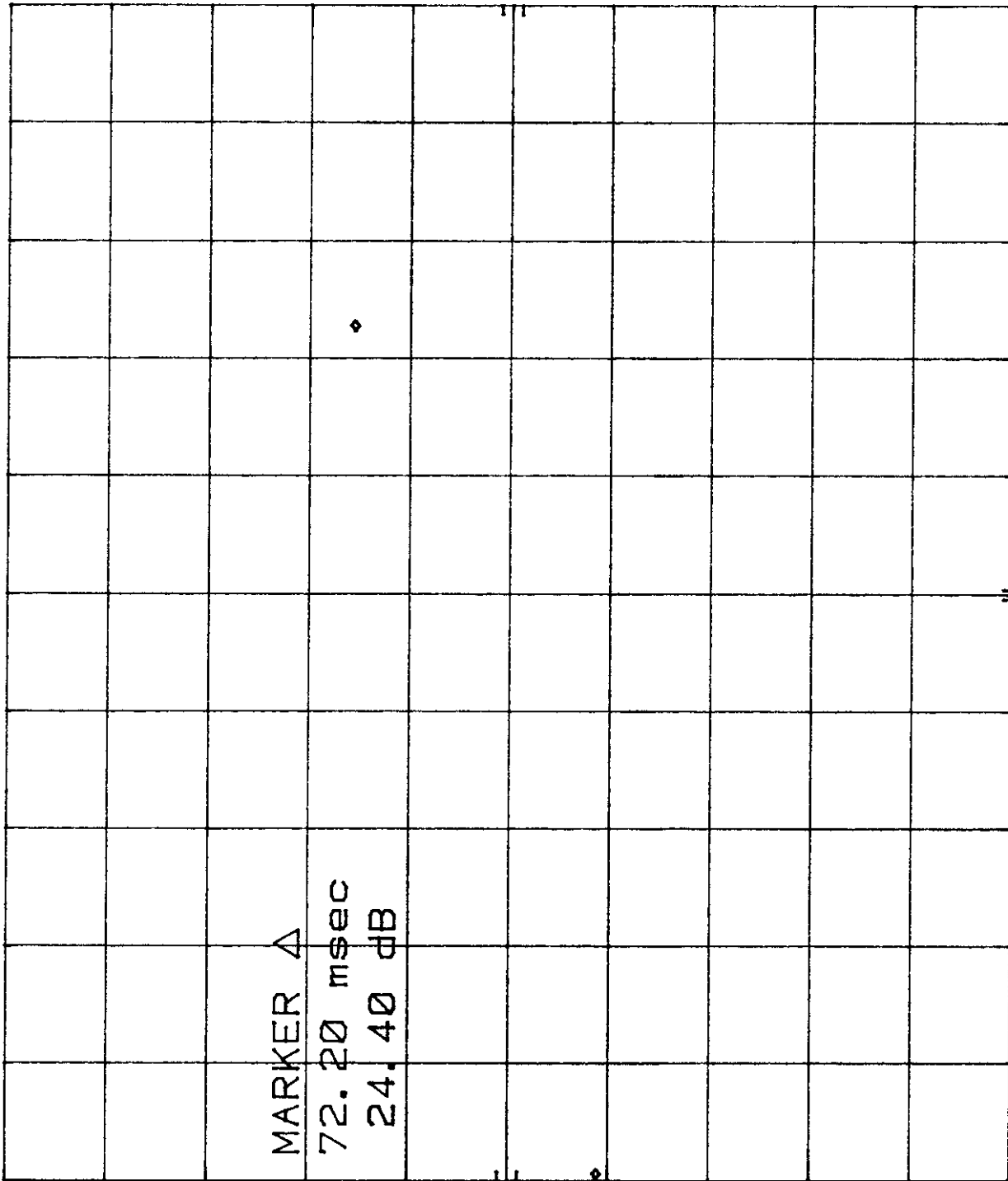
Test Report No. R-7606
FCC ID: B4S-28401

R-7606 28401 DUTY CYCLE 7/16/98 DC
 REF 74.7 dBμV ATTEN 10 dB

MKR Δ 72.20 msec
 24.40 dB

hp

10 dB/



SPAN 0 Hz
 SWP 100 msec

VBW 30 kHz

CENTER 314.944 157 MHz
 RES BW 10 kHz

Customer:	X-10 (USA) Inc.		
Test Sample:	315 Mhz Transmitter		
Model No:	28401	FCC ID: B4S-28401	
Test Method:	Duty Cycle Determination		
Notes:	Transmitter Cycle Time= 72.2msec		
Date:	July 16, 1998	Tech:	Dennis Cortes
Sheet	1	of	3



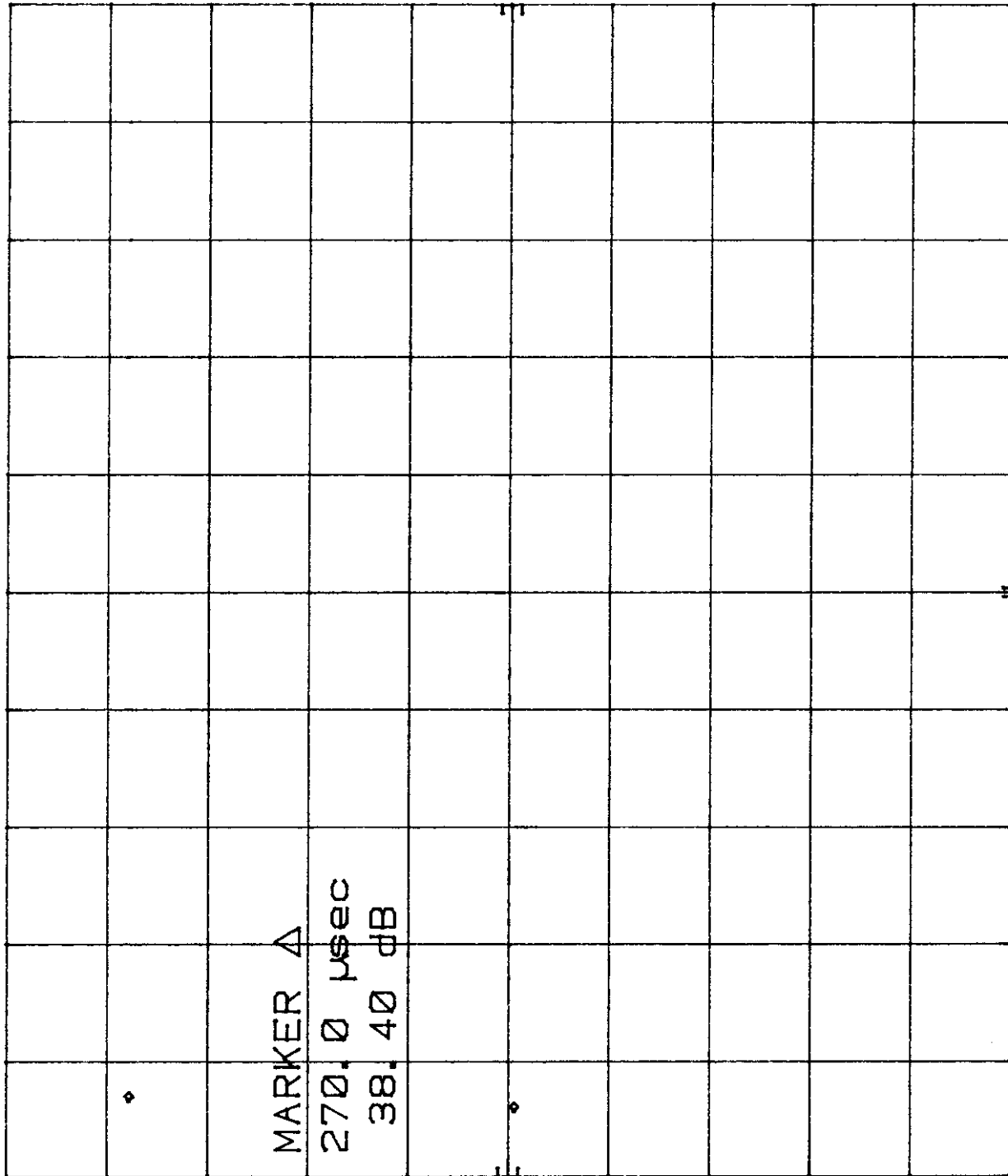
Retlif Testing Laboratories

Report No. R-7606

R-7606 28401 DUTY CYCLE 7/16/98 DC
 REF 74.7 dBμV ATTEN 10 dB MKR Δ 270.0 μsec 38.40 dB

h0

10 dB/



CENTER 314.944 157 MHz RES BW 100 kHz VBW 300 kHz SWP 30.0 msec SPAN 0 Hz

Customer:	X-10 (USA) Inc.
Test Sample:	315 Mhz Transmitter
Model No.:	28401 FCC ID: B4S-28401
Test Method:	Duty Cycle Determination
Notes:	Minimum Pulse Width= 270usec
Date:	July 16, 1998
Tech:	Dennis Cortes
Sheet	2 of 3



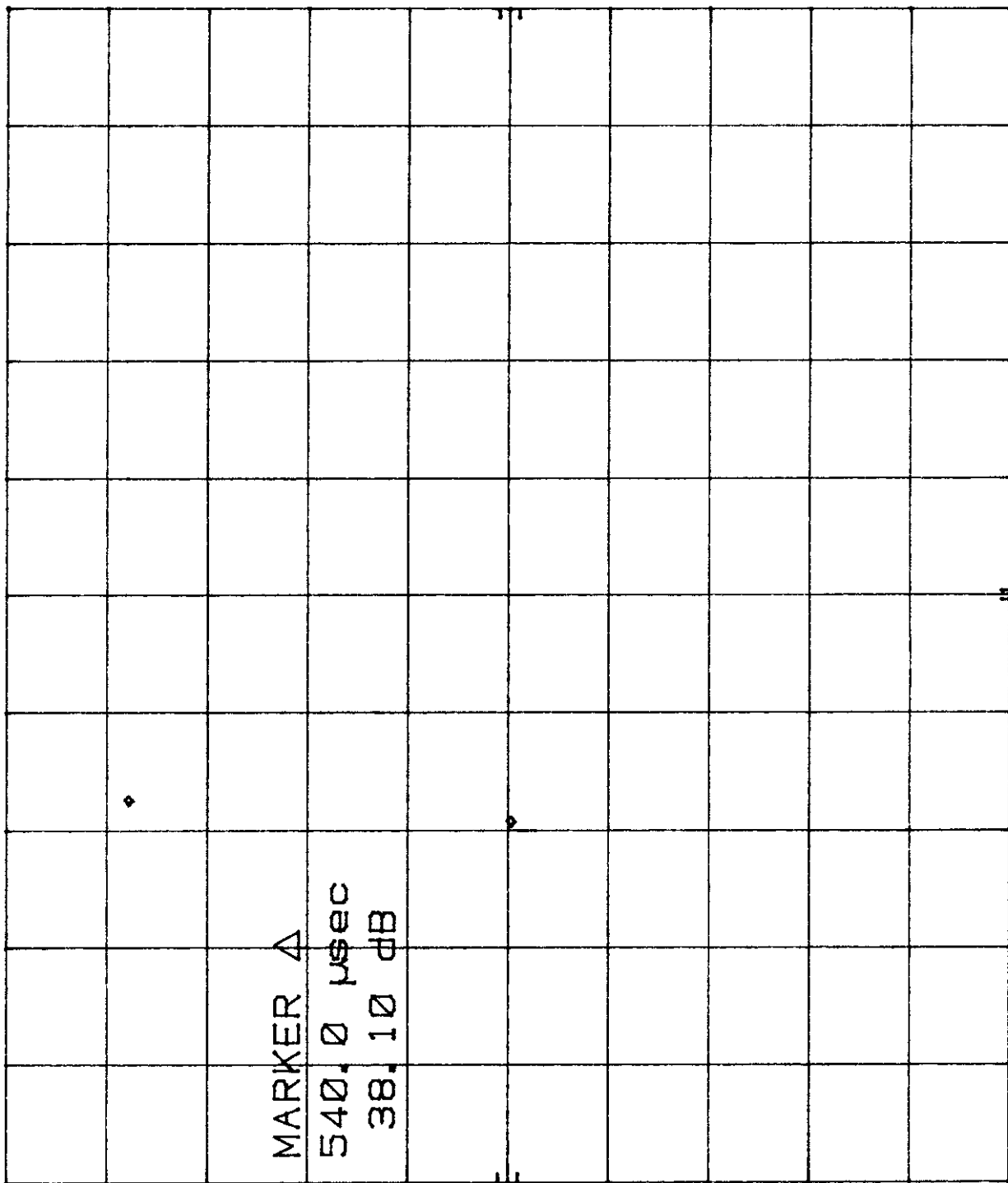
Retlif Testing Laboratories

Report No. R-7606

R-7606 28401 DUTY CYCLE 7/16/98 DC
 REF 74.7 dBμV ATTEN 10 dB

MKR Δ 540.0 μsec
 38.10 dB

hp
 10 dB/



CENTER 314.944 157 MHz
 RES BW 100 kHz
 VBW 300 kHz
 SWP 30.0 msec
 SPAN 0 Hz

Customer:	X-10 (USA) Inc.		
Test Sample:	315 Mhz Transmitter		
Model No:	28401	FCC ID:	B4S-28401
Test Method:	Duty Cycle Determination		
Notes:	Maximum Pulse Width= 540usec		
Date:	July 16, 1998	Tech:	Dennis Cortes
Sheet	3	of	3



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Report No. R-7606