

Retlif Testing Laboratories

795 Marconi Avenue, Ronkonkoma, N.Y. 11779 (516) 737- 1500 - FAX 516-737-1497

(Branch Office)

101 New Boston Road, Goffstown, N.H. 03045 (603) 497-4600 - FAX (603) 497-5281

FCC COMPLIANCE TEST REPORT ON A

418 MHZ PULSED TRANSMITTER
MODEL: CM14A
FCC ID: B4SCM14A

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

CUSTOMER P.O.: Verbal Authorization

DATE OF REPORT: April 17, 1998

TEST REPORT NO.: R-7480-2

TEST START DATE: March 30, 1998

TEST FINISH DATE: April 6, 1998

TEST TECHNICIAN: D. Cortes

TEST ENGINEER: T. Schneider

SUPERVISOR: R.J. Reitz

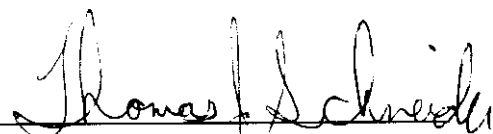
REPORT PREPARED BY: L. Anderson

GOVERNMENT SOURCE INSPECTION: Not Applicable

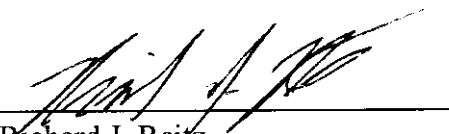
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CERTIFICATION AND SIGNATURES

We certify that this report is a true report of the results obtained from the tests of the equipment stated. We further certify that the measurements shown in this report were made in accordance with the procedures indicated and vouch for the qualifications of all Retlif Testing Laboratories personnel taking them.



Thomas J. Schneider
EMC Test Engineer
NVLAP Approved Signatory



Richard J. Reitz
Laboratory Manager
NVLAP Approved Signatory

NON-WARRANTY PROVISION

The testing services have been performed, findings obtained, and reports prepared in accordance with generally accepted testing laboratory principles and practices. This warranty is in lieu of all other warranties, either express or implied.

NON-ENDORSEMENT

This test report contains only findings and results arrived at after employing the specific test procedures and standards listed herein. It is not intended to constitute a recommendation endorsement, or certification of the product or material tested. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.



Retlif Testing Laboratories

Test Report No. R-7480-2
FCC ID: B4SCM14A

TABLE OF EXHIBITS

Exhibit 1	Equipment Label per 2.1033(b)(7)
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Test Report No. R-7480-2
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EXHIBIT 3

Technical Description

Para. 2.1033(b)(4)



Retlif Testing Laboratories

Test Report No. R-7480-2
FCC ID: B4SCM14A

Technical Report 2.1033(b)(4)

Equipment Manufacturer

X-10 Electronics Shenzhen Co. Ltd.
X-10 Building
Labour Industrial District
Shenzhen, Xixiang, Bao An
Guang Dong, China, 518102

FCC Identifier

B4SCM14A

Operating Instructions

See Exhibit 5

Trade Name

X-10 Activehome

Model Number

CM14A

Additional Model Numbers and Trade Names

Not Applicable



Retlif Testing Laboratories

Test Report No. R-7480-2
FCC ID: B4SCM14A

EXHIBIT 6

Report of Measurements

Para. 2.1033(b)(6)



Retlif Testing Laboratories

Test Report No. R-7480-2
FCC ID: B4SCM14A

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: CM14A

TYPE: Pulsed Transmitter

POWER REQUIREMENTS: 115 VAC, 60 Hz, 1ø

FREQUENCY OF OPERATION: 418 MHz

TESTS PERFORMED

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

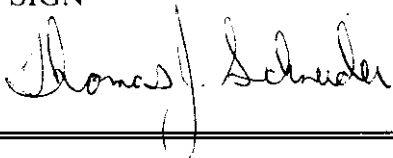
Para. 15.231(c), Occupied Bandwidth

Duty Cycle Determination

Para. 15.207(a), Conducted Emissions

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 Thomas J. Schneider	TITLE EMC Test Engineer
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	Retlif Testing Laboratories
	Test Report No. R-7480-2 FCC ID: B4SCM14A

REPORT OF MEASUREMENTS

Applicant: X-10 (USA), Inc.
Device: 418 MHz Pulsed Transmitter
FCC ID: B4SCM14A
Power Requirements: 115 VAC, 60 Hz, 1 ϕ
Applicable Rule Section: Part 15, Subpart C, Section 15.231

TEST RESULTS

- 15.231 (a) - The device is used as a transmitter for security purposes in home automation.
- 15.231 (a)(1) - The transmitter is manually operated and ceases transmission less than 1 second 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 security.
- 15.231 (b) - The fundamental field strength did not exceed 10,330 μ 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 1,033 μ V/M (AVERAGE).
- 15.231 (c) - The device operates at 418 MHz. The bandwidth of emissions did not exceed 0.25% of the operating frequency (1.05 MHz).



Retlif Testing Laboratories

Test Report No. R-7480-2
FCC ID: B4SCM14A

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	=	418		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:

$$\text{Fundamental Limit} = 10,330 \mu\text{V/M (AVERAGE) @ 3 Meters}$$

$$\text{Harmonic Limit} = 1,033 \mu\text{V/M (AVERAGE) @ 3 Meters}$$

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.

$$\text{Transmitter On Time} = 14.7 \text{ milliseconds (maximum)}$$

$$\text{Transmitter Cycle Time} = 273.9 \text{ milliseconds}$$

$$\text{Transmitter Duty Cycle} = 14.7 \%$$

CALCULATION:

$$3.5 \text{ milliseconds} \times 3 = 10.5 \text{ milliseconds}$$

$$1.4 \text{ milliseconds} \times 3 = 4.2 \text{ milliseconds}$$

$$10.5 \text{ milliseconds} + 4.2 \text{ milliseconds} = 14.7$$

$$\text{Duty Cycle} = 14.7 \%$$



Retlif Testing Laboratories

Test Report No. R-7480-2

FCC ID: B4SCM14A

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 1.4 milliseconds yields a minimum required bandwidth of 476 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 4.2 GHz . All emissions not reported were more than 20 dB below the specified limit.



Retlif Testing Laboratories

Test Report No. R-7480-2
FCC ID: B4SCM14A

Exhibit 6

Report of Measurements

Radiated Emissions Data, Para. 15.231(a)



Retlif Testing Laboratories

Test Report No. R-7480-2
FCC ID: B4SCM14A

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD:	FCC Part 15 Subpart C Radiated Emissions		
CUSTOMER:	X-10 (USA) Inc.	JOB No.:	R-7480-2
TEST SAMPLE:	418 Mhz RF Transmitter FCC ID: B4SCM14A		
MODEL No.:	CM14A	SERIAL No.:	N/A
TEST SPECIFICATION:	FCC Part 15 Subpart C PARAGRAPH: 15.231		
OPERATING MODE:	Continuously transmitting 418 Mhz Signal		
TECHNICIAN:	Dennis Cortes	DATE:	March 31, 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
418	H/1.5	X	78.8	-0.5	78.3	8222.4	103300
418	H/1.0	Y	90.0	-0.5	89.5	29853.8	103300
418	H/1.1	Z	85.3	-0.5	84.8	17378.0	103300
418	V/1.0	X	85.3	-0.5	84.8	17378.0	103300
418	V/2.0	Y	86.9	-0.5	86.4	20893.0	103300
418	V/1.0	Z	87.4	-0.5	86.9	22130.9	103300
836	H/1.4	X	51.4	6.5	57.9	785.2	10330
836	H/1.0	Y	60.9	6.5	67.4	2344.2	10330
836	H/1.0	Z	51.2	6.5	57.7	767.4	10330
836	V/1.4	X	56.0	6.5	62.5	1333.5	10330
836	V/1.0	Y	53.4	6.5	59.9	988.6	10330
836	V/1.2	Z	54.1	6.5	60.6	1071.5	10330
1254	H/1.0	X	51.5	-5.5	46.0	199.5	10330
1254	H/1.1	Y	56.4	-5.5	50.9	350.8	10330
1254	H/1.2	Z	57.3	-5.5	51.8	389.0	10330
1254	V/2.0	X	54.0	-5.5	48.5	266.1	10330
1254	V/1.1	Y	50.6	-5.5	45.1	179.9	10330
1254	V/1.0	Z	47.4	-5.5	41.9	124.5	10330
1672	H/1.0	X	44.7	-3.7	41.0	112.2	5000
1672	H/1.1	Y	45.7	-3.7	42.0	125.9	5000
1672	H/1.2	Z	45.9	-3.7	42.2	128.8	5000
1672	V/1.3	X	45.2	-3.7	41.5	118.9	5000
1672	V/1.2	Y	44.9	-3.7	41.2	114.8	5000
1672	V/1.3	Z	45.0	-3.7	41.3	116.1	5000
2090	H/1.3	X	47.0	-1.4	45.6	190.5	10330
2090	H/1.5	Y	50.7	-1.4	49.3	291.7	10330
2090	H/1.3	Z	52.9	-1.4	51.5	375.8	10330
2090	V/1.1	X	52.3	-1.4	50.9	350.8	10330
2090	V/1.3	Y	44.2	-1.4	42.8	138.0	10330
2090	V/1.0	Z	52.7	-1.4	51.3	367.3	10330
The frequency range was scanned from 30 MHz to 4.2 GHz. All emissions not recorded were more than 20dB 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-7480-2
TEST SAMPLE:	418 Mhz RF Transmitter FCC ID: B4SCM14A		
MODEL No.:	CM14A	SERIAL No.:	N/A
TEST SPECIFICATION:	FCC Part 15 Subpart C PARAGRAPH: 15.231		
OPERATING MODE:	Continuously transmitting 418 Mhz Signal		
TECHNICIAN:	Dennis Cortes	DATE:	March 31, 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
2508	H/1.0	X	*41.0	0.2	41.2	114.8	10330
2508	H/1.0	Y	*41.0	0.2	41.2	114.8	10330
2508	H/1.0	Z	*41.0	0.2	41.2	114.8	10330
2508	V/1.0	X	*41.0	0.2	41.2	114.8	10330
2508	V/1.0	Y	*41.0	0.2	41.2	114.8	10330
2508	V/1.0	Z	*41.0	0.2	41.2	114.8	10330
2926	H/1.0	X	*40.7	2.4	43.1	142.9	10330
2926	H/1.0	Y	*40.7	2.4	43.1	142.9	10330
2926	H/1.0	Z	*40.7	2.4	43.1	142.9	10330
2926	V/1.0	X	*40.7	2.4	43.1	142.9	10330
2926	V/1.0	Y	*40.7	2.4	43.1	142.9	10330
2926	V/1.0	Z	*40.7	2.4	43.1	142.9	10330
3344	H/1.0	X	*41.1	5.1	46.2	204.2	10330
3344	H/1.0	Y	*41.1	5.1	46.2	204.2	10330
3344	H/1.0	Z	*41.1	5.1	46.2	204.2	10330
3344	V/1.0	X	*41.1	5.1	46.2	204.2	10330
3344	V/1.0	Y	*41.1	5.1	46.2	204.2	10330
3344	V/1.0	Z	*41.1	5.1	46.2	204.2	10330
3762	H/1.0	X	*41.3	7.4	48.7	272.3	5000
3762	H/1.0	Y	*41.3	7.4	48.7	272.3	5000
3762	H/1.0	Z	*41.3	7.4	48.7	272.3	5000
3762	V/1.0	X	*41.3	7.4	48.7	272.3	5000
3762	V/1.0	Y	*41.3	7.4	48.7	272.3	5000
3762	V/1.0	Z	*41.3	7.4	48.7	272.3	5000
4180	H/1.0	X	*40.6	11.4	52.0	398.1	5000
4180	H/1.0	Y	*40.6	11.4	52.0	398.1	5000
4180	H/1.0	Z	*40.6	11.4	52.0	398.1	5000
4180	V/1.0	X	*40.6	11.4	52.0	398.1	5000
4180	V/1.0	Y	*40.6	11.4	52.0	398.1	5000
4180	V/1.0	Z	*40.6	11.4	52.0	398.1	5000
The frequency range was scanned from 30 MHz to 4.2 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 Measurement							

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD:	FCC Part 15 Subpart C Radiated Emissions		
CUSTOMER:	X-10 (USA) Inc.	JOB No.:	R-7480-2
TEST SAMPLE:	418 Mhz RF Transmitter FCC ID: B4SCM14ACM14A		
MODEL No.:	CM14A	SERIAL No.:	N/A
TEST SPECIFICATION:	FCC Part 15 Subpart C PARAGRAPH: 15.231		
OPERATING MODE:	Continuously transmitting 418 Mhz Signal		
TECHNICIAN:	Dennis Cortes	DATE:	March 31, 1998
NOTES:	Test Distance: 3 Meters Detector Function: Peak Worst Case Duty Cycle: 14.7% (-16.7 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
418	H/1.5	X	78.3	-16.7	61.6	1202.3	10330
418	H/1.0	Y	89.5	-16.7	72.8	4365.2	10330
418	H/1.1	Z	84.8	-16.7	68.1	2541.0	10330
418	V/1.0	X	84.8	-16.7	68.1	2541.0	10330
418	V/2.0	Y	86.4	-16.7	69.7	3054.9	10330
418	V/1.0	Z	86.9	-16.7	70.2	3235.9	10330
836	H/1.4	X	57.9	-16.7	41.2	114.8	1033
836	H/1.0	Y	67.4	-16.7	50.7	342.8	1033
836	H/1.0	Z	57.7	-16.7	41.0	112.2	1033
836	V/1.4	X	62.5	-16.7	45.8	195.0	1033
836	V/1.0	Y	59.9	-16.7	43.2	144.5	1033
836	V/1.2	Z	60.6	-16.7	43.9	156.7	1033
1254	H/1.0	X	46.0	-16.7	29.3	29.2	1033
1254	H/1.1	Y	50.9	-16.7	34.2	51.3	1033
1254	H/1.2	Z	51.8	-16.7	35.1	56.9	1033
1254	V/2.0	X	48.5	-16.7	31.8	38.9	1033
1254	V/1.1	Y	45.1	-16.7	28.4	26.3	1033
1254	V/1.0	Z	41.9	-16.7	25.2	18.2	1033
1672	H/1.0	X	41.0	-16.7	24.3	16.4	500
1672	H/1.1	Y	42.0	-16.7	25.3	18.4	500
1672	H/1.2	Z	42.2	-16.7	25.5	18.8	500
1672	V/1.3	X	41.5	-16.7	24.8	17.4	500
1672	V/1.2	Y	41.2	-16.7	24.5	16.8	500
1672	V/1.3	Z	41.3	-16.7	24.6	17.0	500
2090	H/1.3	X	45.6	-16.7	28.9	27.9	1033
2090	H/1.5	Y	49.3	-16.7	32.6	42.7	1033
2090	H/1.3	Z	51.5	-16.7	34.8	55.0	1033
2090	V/1.1	X	50.9	-16.7	34.2	51.3	1033
2090	V/1.3	Y	42.8	-16.7	26.1	20.2	1033
2090	V/1.0	Z	51.3	-16.7	34.6	53.7	1033
The frequency range was scanned from 30 MHz to 4.18 GHz. All emissions not recorded were more than 20dB 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-7480-2
TEST SAMPLE:	418 Mhz RF Transmitter FCC ID: B4SCM14A		
MODEL No.:	CM14A	SERIAL No.:	N/A
TEST SPECIFICATION:	FCC Part 15 Subpart C PARAGRAPH: 15.231		
OPERATING MODE:	Continuously transmitting 418 Mhz Signal		
TECHNICIAN:	Dennis Cortes	DATE:	March 31, 1998
NOTES:	Test Distance: 3 Meters Detector Function: Peak Worst Case Duty Cycle: 14.7% (-16.7 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
2508	H/1.0	X	*41.2	-16.7	24.5	16.8	1033
2508	H/1.0	Y	*41.2	-16.7	24.5	16.8	1033
2508	H/1.0	Z	*41.2	-16.7	24.5	16.8	1033
2508	V/1.0	X	*41.2	-16.7	24.5	16.8	1033
2508	V/1.0	Y	*41.2	-16.7	24.5	16.8	1033
2508	V/1.0	Z	*41.2	-16.7	24.5	16.8	1033
2926	H/1.0	X	*43.1	-16.7	26.4	20.9	1033
2926	H/1.0	Y	*43.1	-16.7	26.4	20.9	1033
2926	H/1.0	Z	*43.1	-16.7	26.4	20.9	1033
2926	V/1.0	X	*43.1	-16.7	26.4	20.9	1033
2926	V/1.0	Y	*43.1	-16.7	26.4	20.9	1033
2926	V/1.0	Z	*43.1	-16.7	26.4	20.9	1033
3344	H/1.0	X	*46.2	-16.7	29.5	29.9	1033
3344	H/1.0	Y	*46.2	-16.7	29.5	29.9	1033
3344	H/1.0	Z	*46.2	-16.7	29.5	29.9	1033
3344	V/1.0	X	*46.2	-16.7	29.5	29.9	1033
3344	V/1.0	Y	*46.2	-16.7	29.5	29.9	1033
3344	V/1.0	Z	*46.2	-16.7	29.5	29.9	1033
3762	H/1.0	X	*48.7	-16.7	32.0	39.8	500
3762	H/1.0	Y	*48.7	-16.7	32.0	39.8	500
3762	H/1.0	Z	*48.7	-16.7	32.0	39.8	500
3762	V/1.0	X	*48.7	-16.7	32.0	39.8	500
3762	V/1.0	Y	*48.7	-16.7	32.0	39.8	500
3762	V/1.0	Z	*48.7	-16.7	32.0	39.8	500
4180	H/1.0	X	*52.0	-16.7	35.3	58.2	500
4180	H/1.0	Y	*52.0	-16.7	35.3	58.2	500
4180	H/1.0	Z	*52.0	-16.7	35.3	58.2	500
4180	V/1.0	X	*52.0	-16.7	35.3	58.2	500
4180	V/1.0	Y	*52.0	-16.7	35.3	58.2	500
4180	V/1.0	Z	*52.0	-16.7	35.3	58.2	500
The frequency range was scanned from 30 MHz to 4.18 GHz. All emissions not recorded were more than 20dB below the specified limit. Emissions from the EUT do not exceed the specified limits.							
*=Noise Floor Measurement							

Exhibit 6

Report of Measurements

Occupied Bandwidth, Para. 15.231(c)



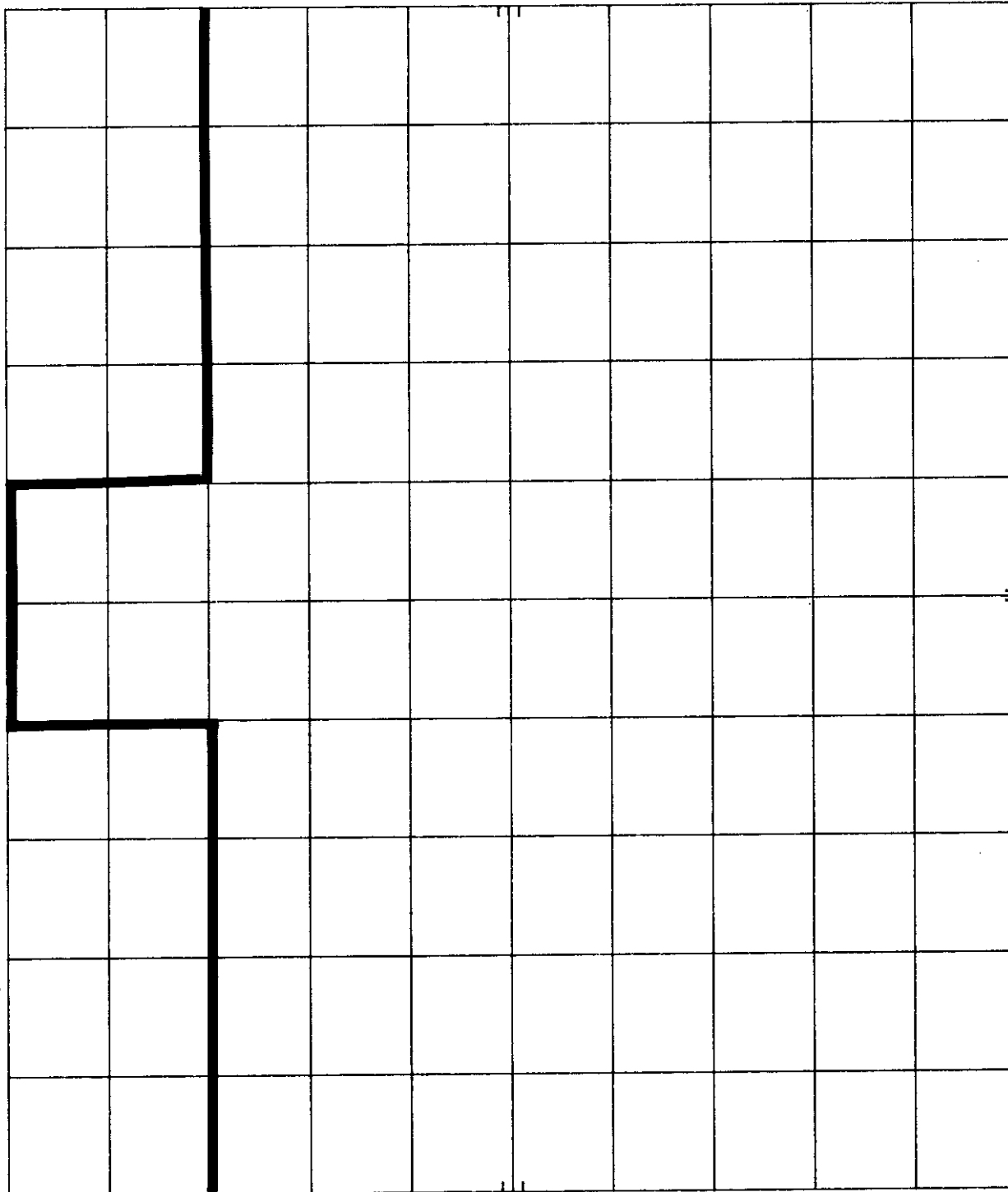
Retlif Testing Laboratories

Test Report No. R-7480-2
FCC ID: B4SCM14A

R-7480 CM14A OCC BW 3/31/98 DC
 REF 71.1 dBμV ATTN 10 dB

hp

10 dB/



SPAN 5.25 MHz
 SWP 158 msec

VBW 30 kHz

CENTER 418.35 MHz
 RES BW 10 kHz

Customer:	X-10 (USA) Inc		
Test Sample:	418 Mhz RF Transmitter		
Model No.:	CM14A	FCC ID:	B4SCM14A
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 carrier		
Date:	March 31, 1998	Tech:	Dennis Cortes
Sheet	1	of	2



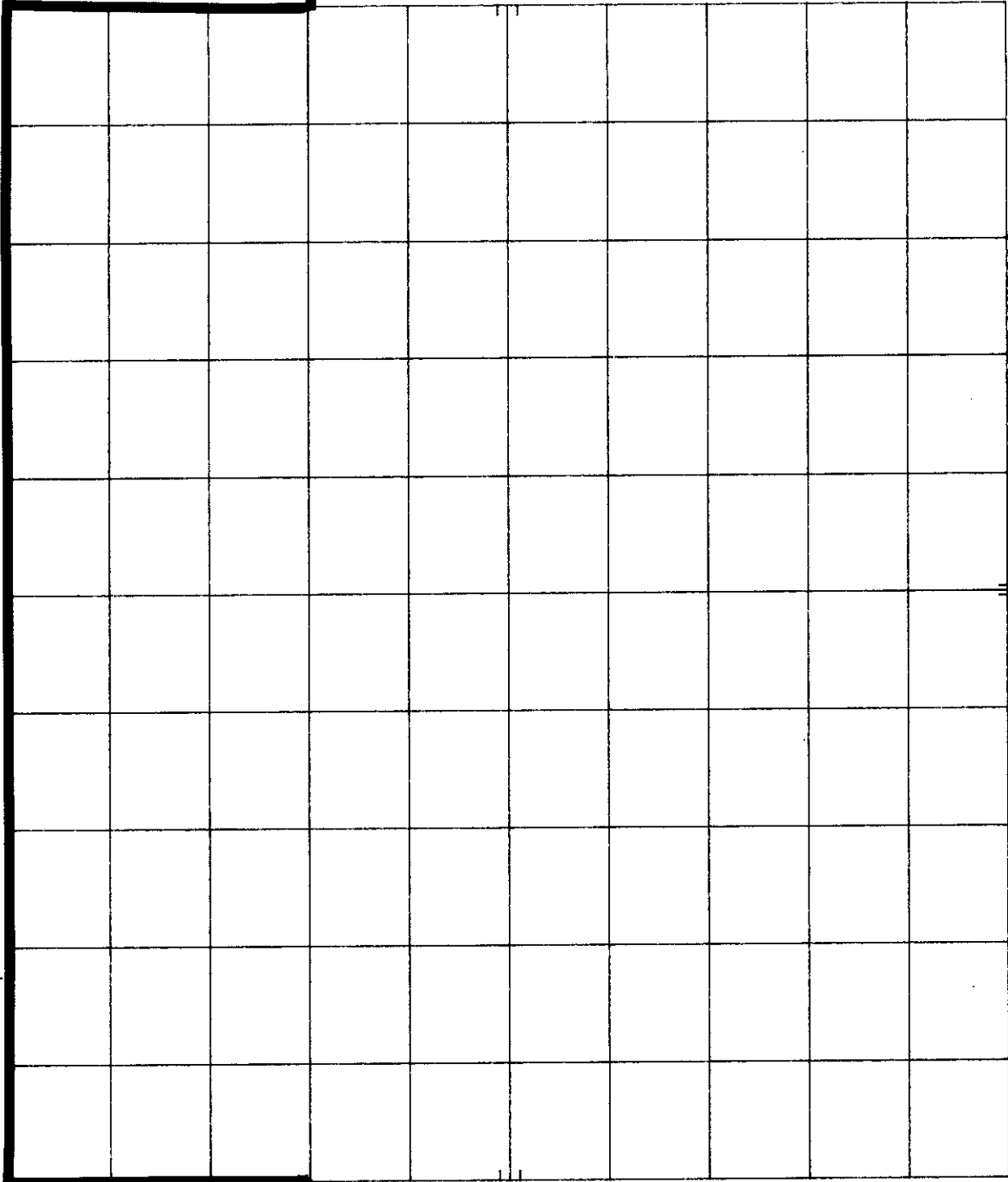
Retlif Testing Laboratories

Report No. R-7480-2

R-7480 CM14A OCC BW 3/31/98 DC
 REF 71.1 dBμV ATTN 10 dB

hp

10 dB/



SPAN 1.05 MHz
 SWP 31.5 msec

VBW 30 kHz

CENTER 418.35 MHz
 RES BW 10 kHz

Customer:	X-10 (USA) Inc		
Test Sample:	418 Mhz RF Transmitter		
Model No:	CM14A	FCC ID:B4SCM14A	
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 carrier		
Date:	March 31, 1998	Tech:	Dennis Cortes
Sheet	2	of	2



Retlif Testing Laboratories

Report No. R-7480-2

Exhibit 6

Report of Measurements

Duty Cycle Determination



Retlif Testing Laboratories

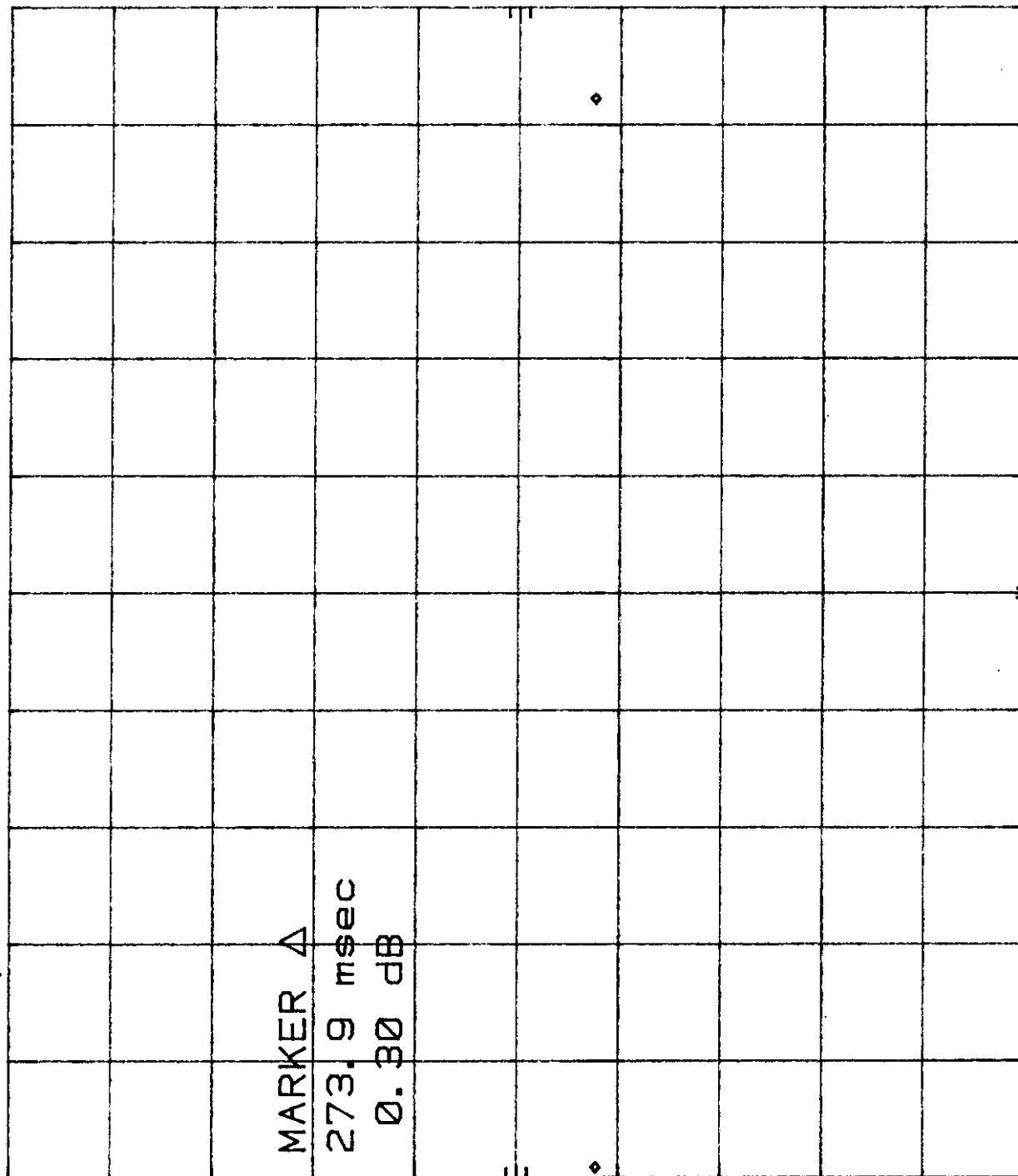
Test Report No. R-7480-2
FCC ID: B4SCM14A

R-7480 CM14A DUTY CYCLE DC 4/1/98
MKR Δ 273.9 msec
0.30 dB

REF 85.0 dB μ V ATTEN 10 dB

hp

10 dB/



SPAN 0 Hz
SWP 300 msec

VBW 300 kHz

CENTER 418.000 000 MHz
RES BW 100 kHz

Customer:	X-10 (USA) Inc
Test Sample:	418 Mhz RF Transmitter
Model No:	CM14A FCC ID:B4SCM14A
Test Method:	Duty Cycle Determination
Notes:	Transmitter Cycle Time= 273.9ms
Date:	March 31, 1998
Tech:	Dennis Cortes
Sheet:	1 of 3

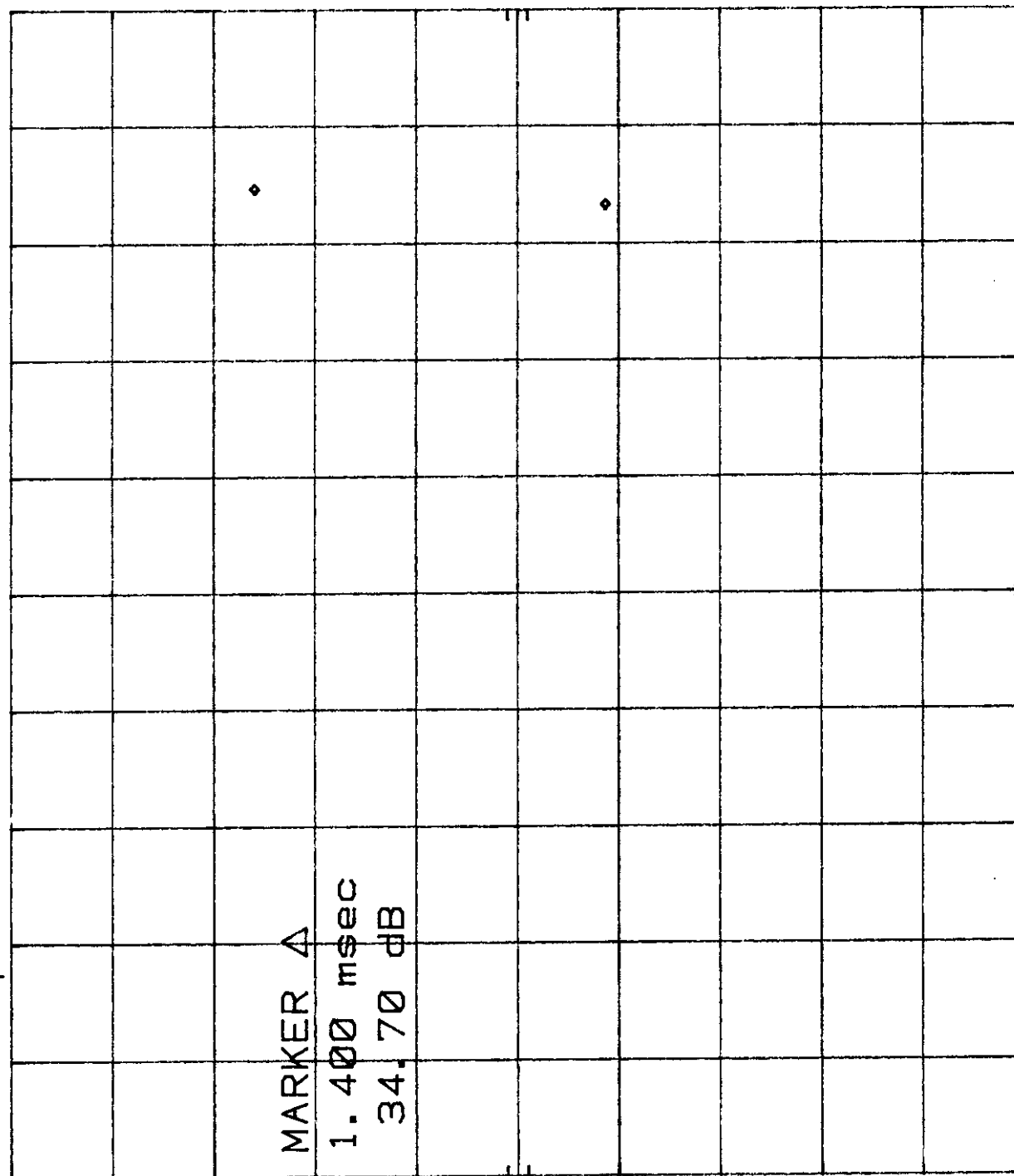


Retlif Testing Laboratories

Report No. R-7480-2

h_p MKR Δ 1.400 msec
34.70 dB

R-7480 CM14A DUTY CYCLE DC 4/1/98
REF 85.0 dBμV ATTEN 10 dB



SPAN 0 Hz
SWP 100 msec

VBW 300 kHz

CENTER 418.000 000 MHz
RES BW 100 kHz

10 dB/

Customer:	X-10 (USA) Inc			
Test Sample:	418 Mhz RF Transmitter			
Model No:	CM14A	FCC ID:	B4SCM14A	
Test Method:	Duty Cycle Determination			
Notes:	Duty Cycle Minimum Pulse width= 1.4msec			
Date:	March 31, 1998	Tech:	Dennis Cortes	Sheet 2 of 3



Retlif Testing Laboratories

Report No. R-7480-2

HP
R-7480 CM14A DUTY CYCLE DC 4/1/98
REF 85.0 dBμV ATTEN 10 dB
MKR Δ 3.500 msec
37.60 dB

10 dB/

MARKER Δ
3.500 msec
37.60 dB

CENTER 418.000 000 MHz
RES BW 100 kHz
VBW 300 kHz
SPAN 0 Hz
SWP 100 msec

Customer: X-10 (USA) Inc
Test Sample: 418 Mhz RF Transmitter
Model No.: CM14A FCC ID: B4SCM14A
Test Method: Duty Cycle Determination
Notes: Duty Cycle Large Pulse width= 3.5msec

Date: March 31, 1998 Tech: Dennis Cortes Sheet 3 of 3



Retlif Testing Laboratories

Report No. R-7480-2

Exhibit 6

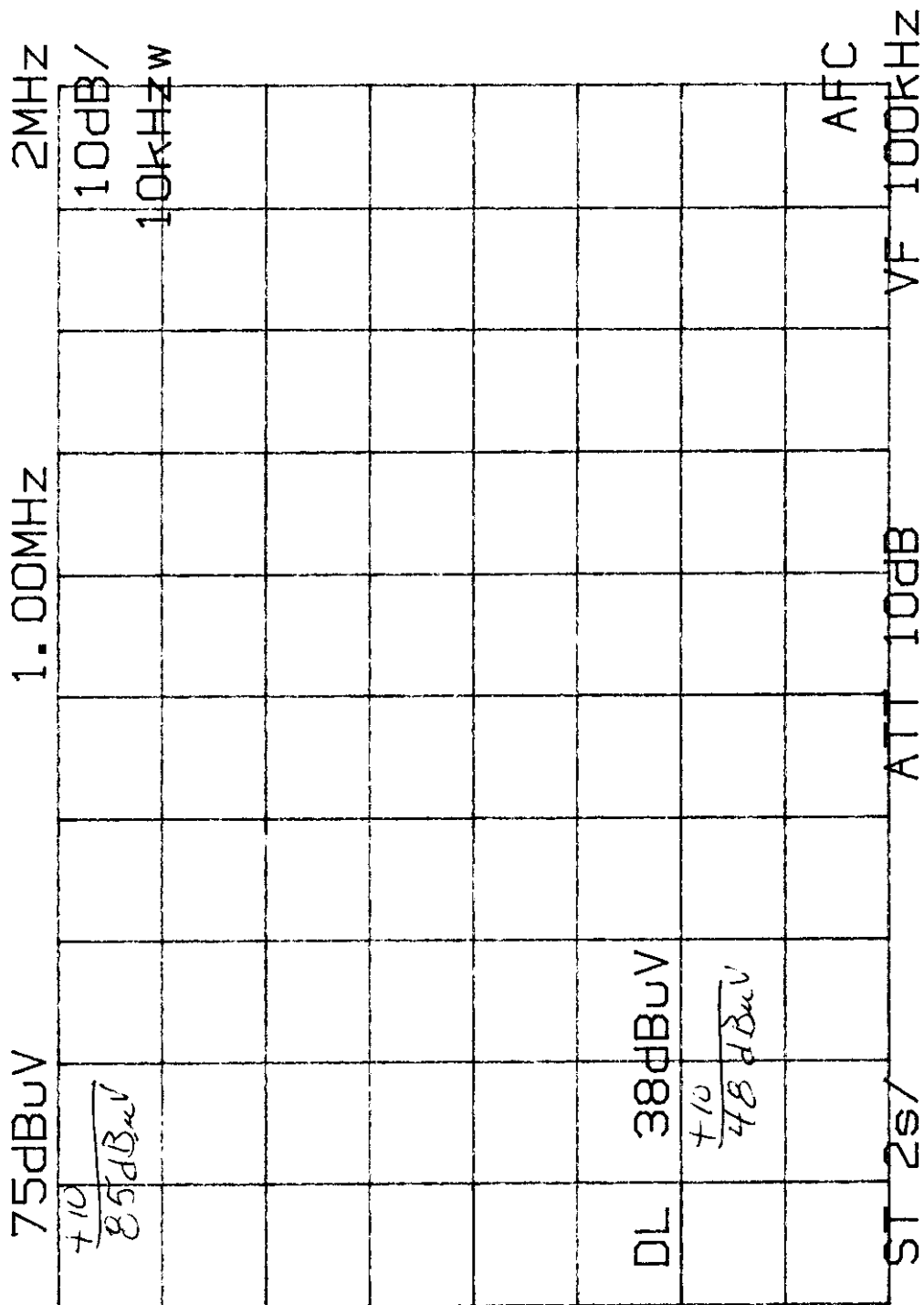
Report of Measurements

AC Line Conducted Emissions, 15.207(a)



Retlif Testing Laboratories

Test Report No. R-7480-2
FCC ID: B4SCM14A

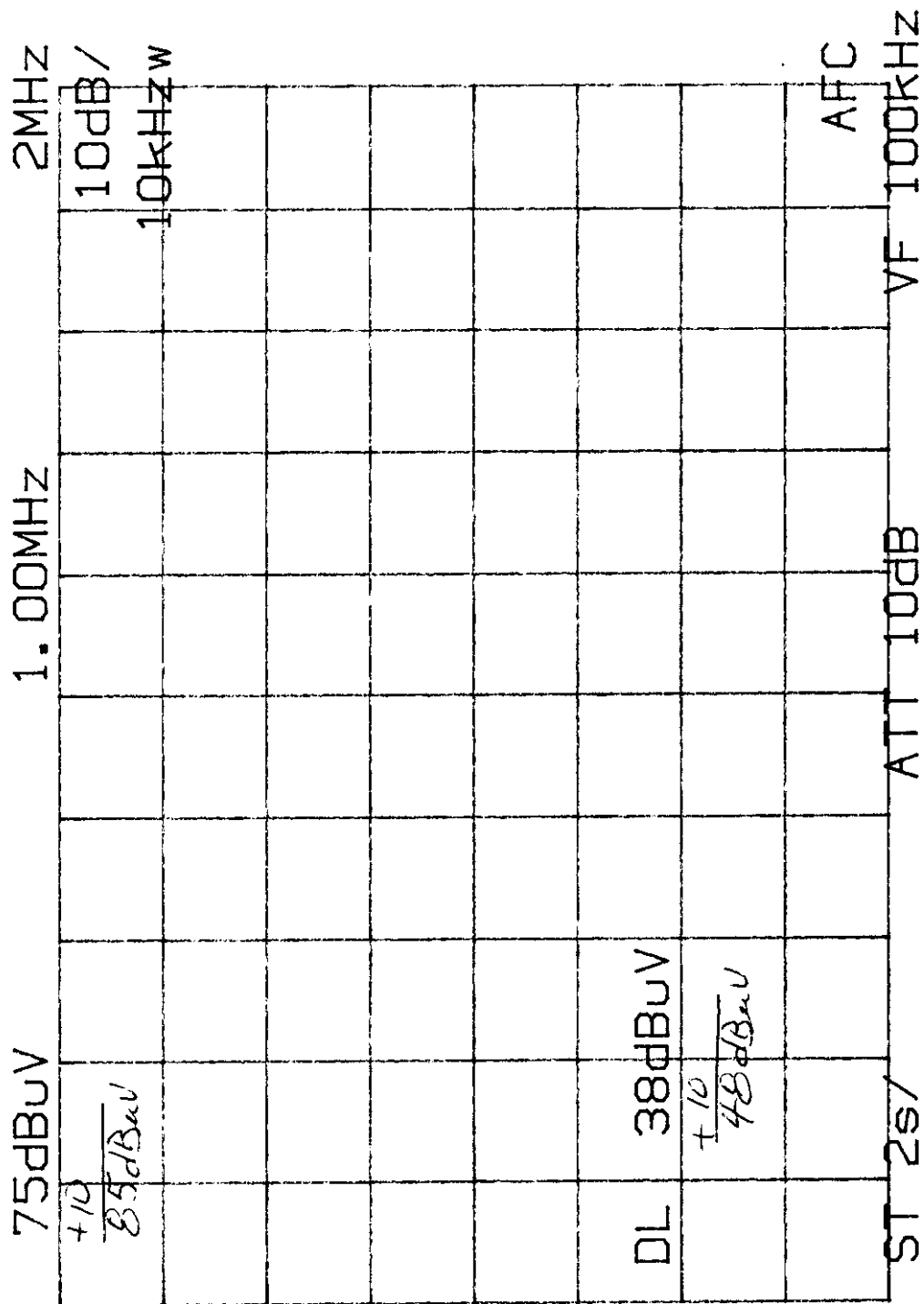


Customer:	X - 10 (USA) Inc.
Test Sample:	418 MHz Pulsed Transmitter
Model No:	CM14A
Test Method:	FCC Part 15 Subpart C, Para 15.231 Conducted Emissions
Notes:	Lead Tested: Hot
	Detector Function: Peak
Date:	03/30/98
Tech:	N. Dragotta
Sheet	1 of 9



Retlif Testing Laboratories

Report No. R-7480-2



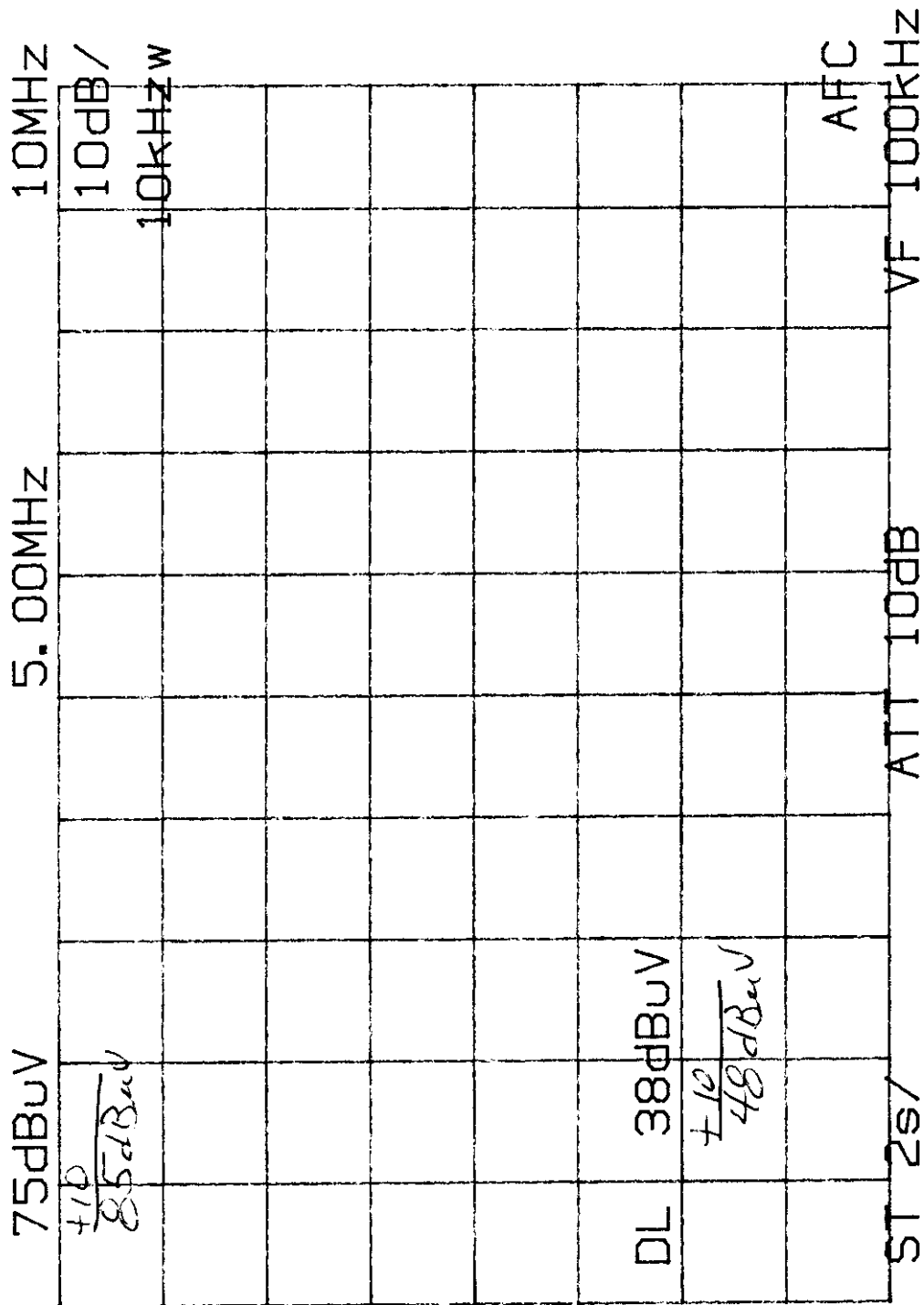
Customer: X - 10 (USA) Inc.
 Test Sample: 418 MHz Pulsed Transmitter
 Model No.: CM14A
 Test Method: FCC Part 15 Subpart C, Para 15.231 Conducted Emissions
 Notes: Lead Tested: Neutral
 Detector Function: Peak

Date: 03/30/98 Tech: N. Dragotta Sheet 2 of 9



Retlif Testing Laboratories

Report No. R-7480-2

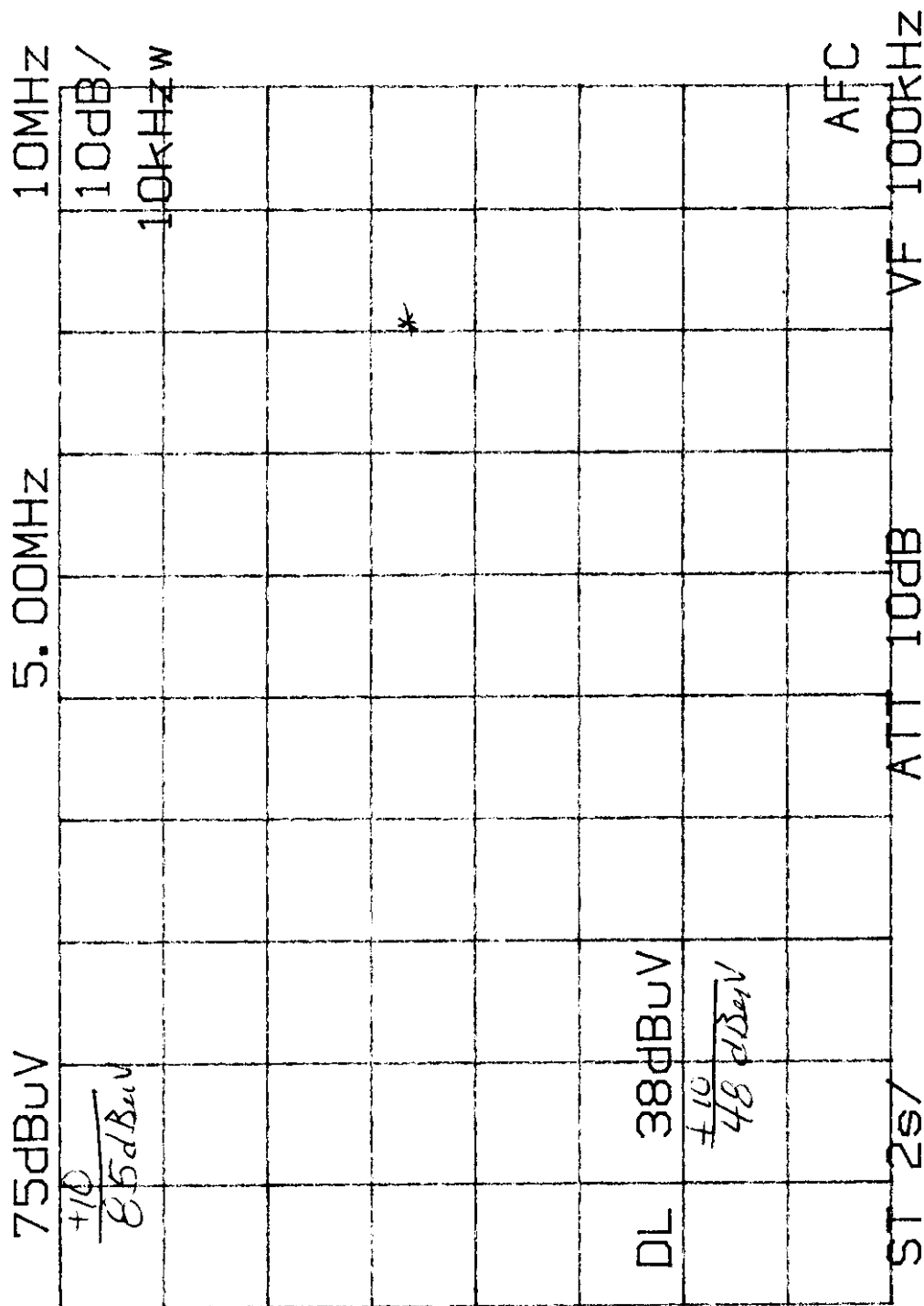


Customer:	X - 10 (USA) Inc.
Test Sample:	418 MHz Pulsed Transmitter
Model No:	CM14A
Test Method:	FCC Part 15 Subpart C, Para 15.231 Conducted Emissions
Notes:	Lead Tested: Hot
	Detector Function: Peak
Date:	03/30/98
Tech:	N. Dragotta
Sheet:	3 of 9



Retlif Testing Laboratories

Report No. R-7480-2

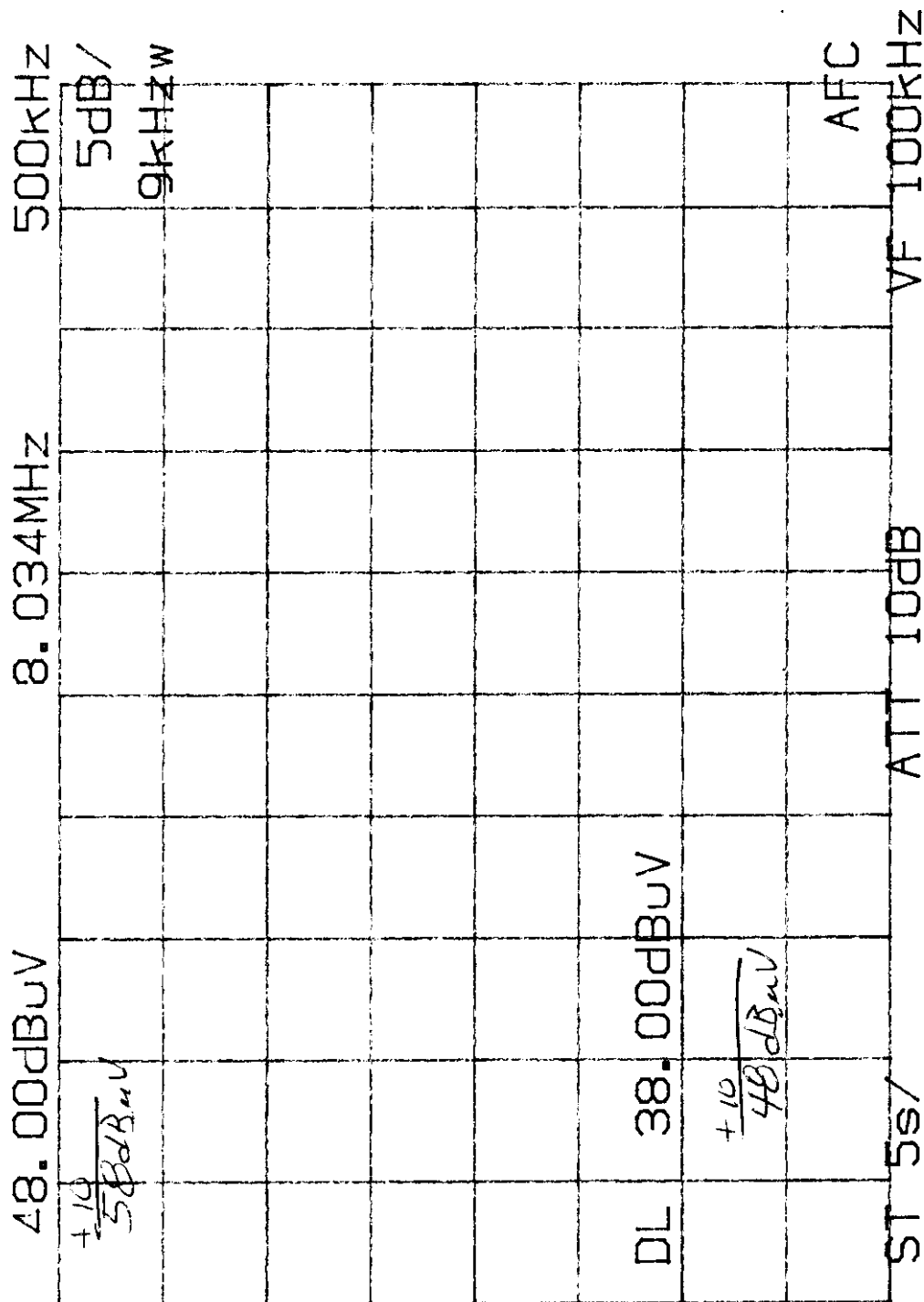


Customer: X - 10 (USA) Inc.
 Test Sample: 418 MHz Pulsed Transmitter
 Model No.: CM14A
 Test Method: FCC Part 15 Subpart C, Para 15.231 Conducted Emissions
 Notes: Lead Tested: Neutral
 Detector Function: Peak (* = see plot #5)
 Date: 03/30/98 Tech: N. Dragotta Sheet 4 of 9



Retlif Testing Laboratories

Report No. R-7480-2

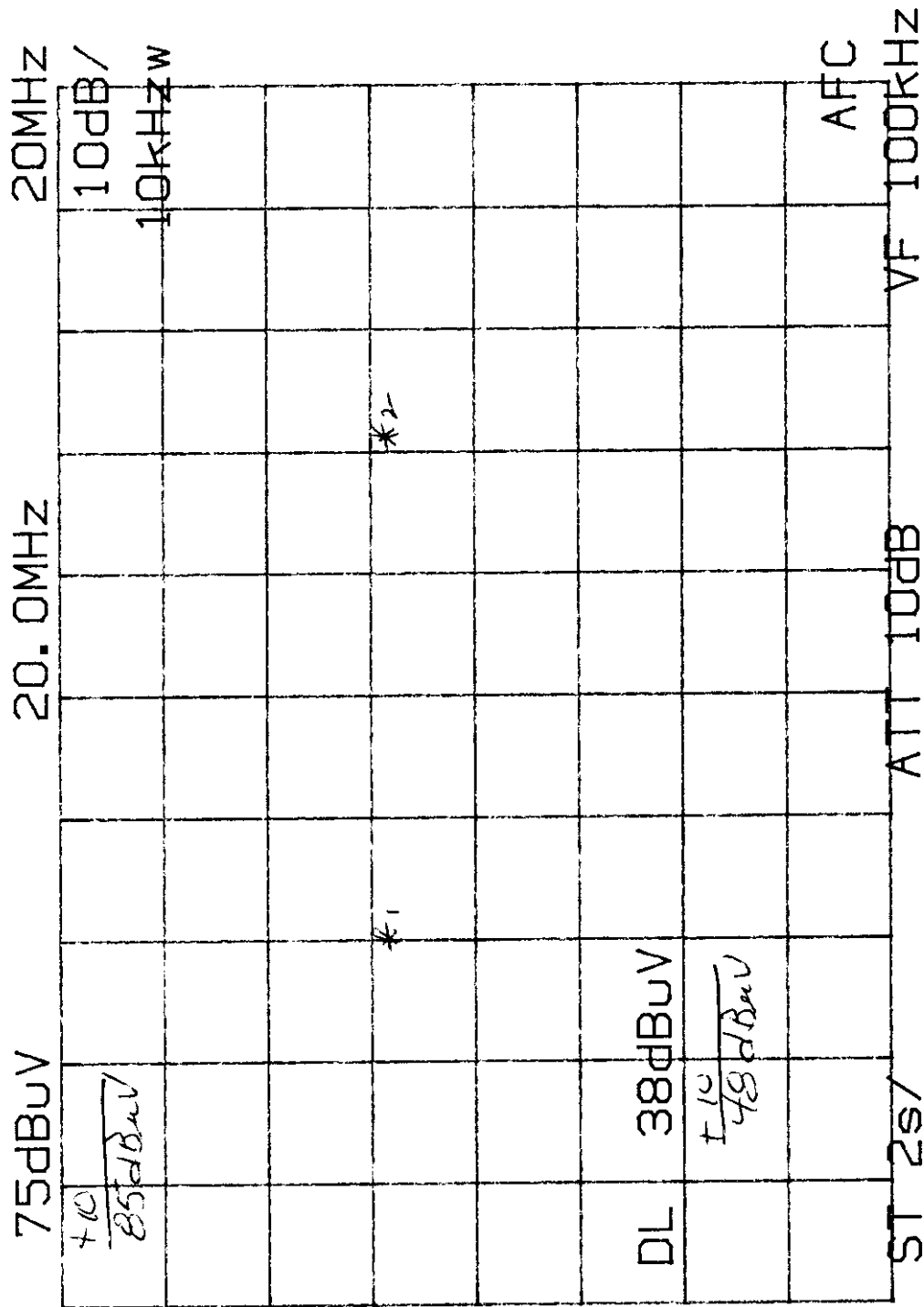


Customer:	X - 10 (USA) Inc.
Test Sample:	418 MHz Pulsed Transmitter
Model No:	CM14A
Test Method:	FCC Part 15 Subpart C, Para 15.231 Conducted Emissions
Notes:	Lead Tested: Neutral Detector Function: Quasi-peak
Date:	03/30/98
Tech:	N. Dragotta
Sheet:	5 of 9



Retlif Testing Laboratories

Report No. R-7480-2

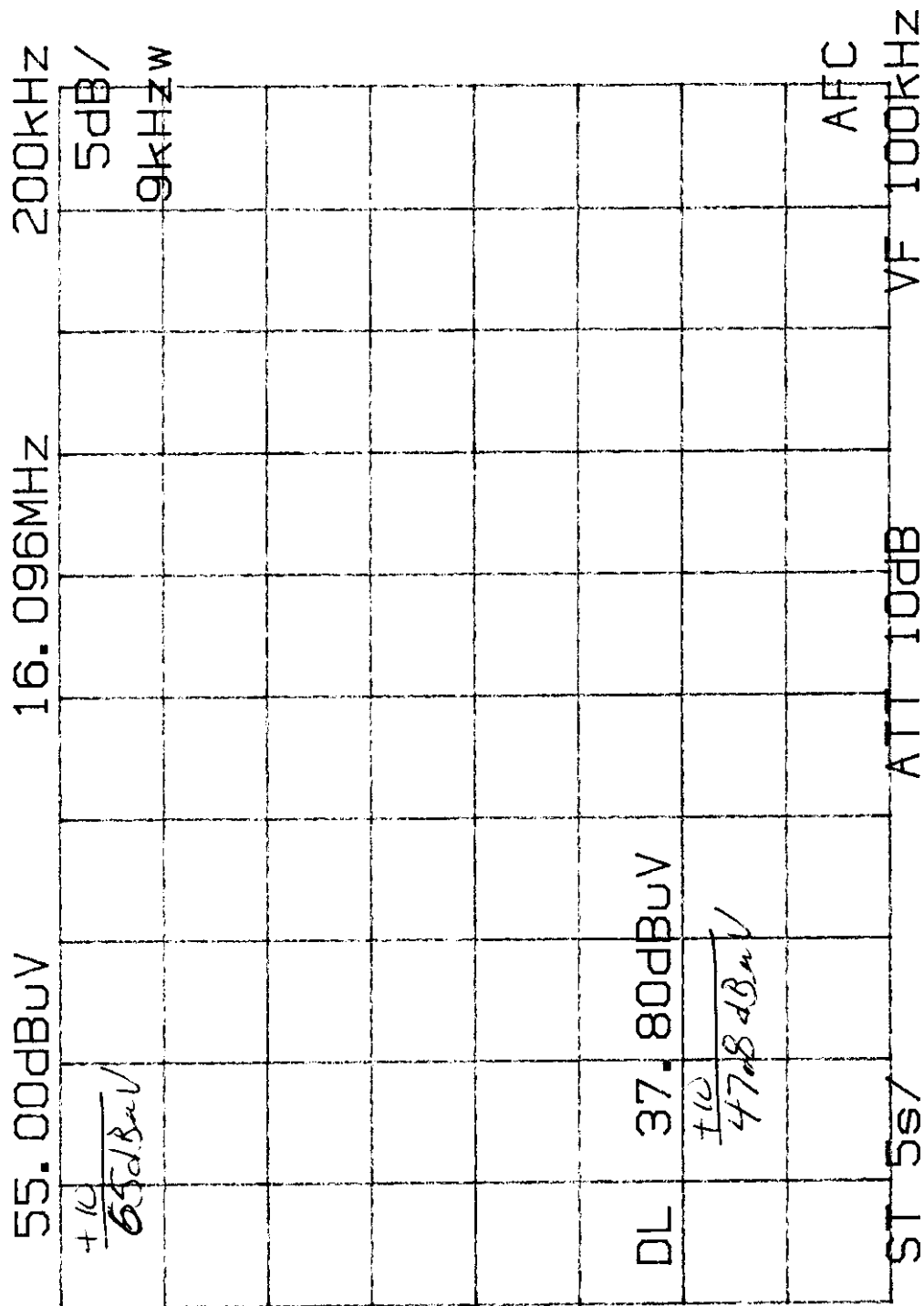


Customer: X-10 (USA) Inc.
 Test Sample: 418 MHz Pulsed Transmitter
 Model No: CM14A
 Test Method: FCC Part 15 Subpart C, Para 15.231 Conducted Emissions
 Notes: Lead Tested: Hot
 Detector Function: Peak (*1 = see plot #7, *2 = see plot #8)
 Date: 03/30/98 Tech: N. Dragotta Sheet 6 of 9



Retlif Testing Laboratories

Report No. R-7480-2

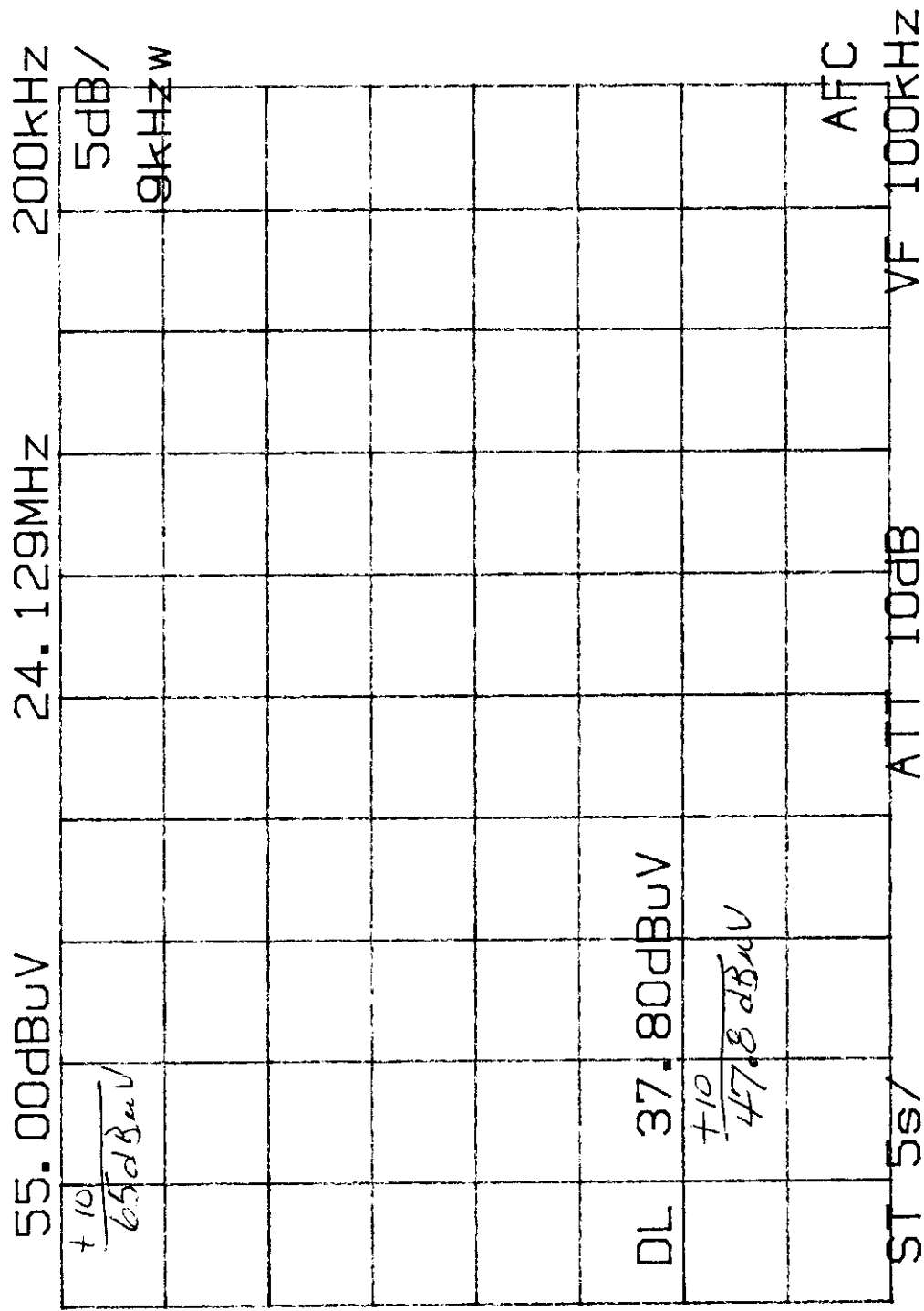


Customer:	X - 10 (USA) Inc.		
Test Sample:	418 MHz Pulsed Transmitter		
Model No.:	CM14A		
Test Method:	FCC Part 15 Subpart C, Para 15.231 Conducted Emissions		
Notes:	Lead Tested: Hot (*1)		
	Detector Function: Quasi-peak		
Date:	03/30/98	Tech:	N. Dragotta
		Sheet	7 of 9



Retlif Testing Laboratories

Report No. R-7480-2

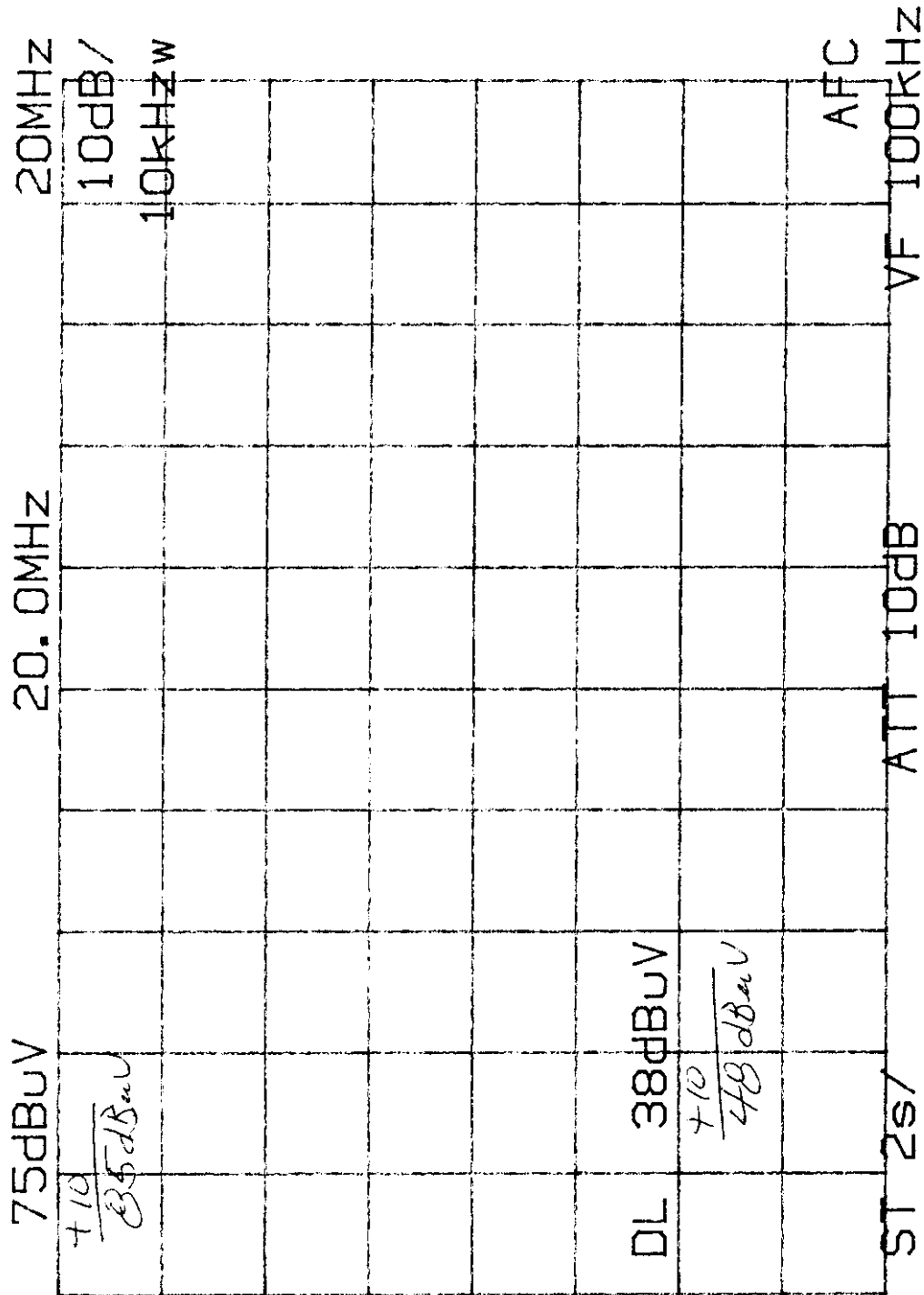


Customer:	X - 10 (USA) Inc.
Test Sample:	418 MHz Pulsed Transmitter
Model No.:	CM14A
Test Method:	FCC Part 15 Subpart C, Para 15.231 Conducted Emissions
Notes:	Lead Tested: Hot (*2)
	Detector Function: Quasi-peak
Date:	03/30/98
Tech:	N. Dragotta
Sheet	8 of 9



Retlif Testing Laboratories

Report No. R-7480-2



Customer: X - 10 (USA) Inc.
 Test Sample: 418 MHz Pulsed Transmitter
 Model No.: CM14A
 Test Method: FCC Part 15 Subpart C, Para 15.231 Conducted Emissions
 Notes: Lead Tested: Neutral
 Detector Function: Peak

Date: 03/30/98 Tech: N. Dragotta Sheet 9 of 9



Retlif Testing Laboratories

Report No. R-7480-2

Exhibit 6

Report of Measurements

TEST EQUIPMENT LIST



Retlif Testing Laboratories

Test Report No. R-7480-2
FCC ID: B4SCM14A

Equipment List

FCC 15.231 Radiated Emissions

EN	Type	Manufacturer	Frequency Range	Model No.	Serial No.	Cal Date	Due Date
067	Open Area Test Site	Retlif	3 Meter	RNY	001	8/30/97	8/30/99
128C	Double Ridge Guide	Eaton Corporation	1 GHz - 18 GHz	96001	2385	10/6/97	10/6/98
133	Broadband Pre-Amplifier	Electro-Metrics	10 kHz - 1 GHz, 26dB	BPA-1000	174	6/20/97	6/20/98
141	Spectrum Analyzer	Hewlett Packard	100 Hz - 40 GHz	8566B	2637A03491	3/2/98	9/2/98
141A	Graphics Plotter	Hewlett Packard	N/A	7470A	2517A07605	3/4/98	3/4/99
141B	Quasi-Peak Adaptor	Hewlett Packard	100 Hz - 1 GHz	85650A	2521A00862	3/3/98	9/3/98
206B	6.0 dB Attenuator	Texscan	0 - 1.0 GHz	FP-50 - 6 dB	5785	6/20/97	6/20/98
523	Biconilog	Electro-Mechanics	26 MHz - 1100 MHz	3143	9602-1234	9/30/97	9/30/98
543	Preamplifier	Hewlett Packard	1.0 GHz - 26.5 GHz	8449B	3008A00829	8/12/97	8/12/98



Retlif Testing Laboratories

Test Report No. R-7480-2
FCC ID: B4SCM14A

Equipment List

EN	Type	Manufacturer	Frequency Range	Model No.	Serial No.	Cal Date	Due Date
076	LISN	Solar Electronics	10 kHz - 30 MHz	8012-50-R-24BNC	837943	1/16/98	1/16/99
202	Transient Limiter	Hewlett Packard	.009 MHz - 200 MHz	11947A	2820A00353	8/21/97	8/21/98
296	Spectrum Analyzer	Advantest	10 kHz - 3.6 GHz	R-4131B	01510010	6/26/97	6/26/98
456	LISN	Solar Electronics	DC - 60 Hz	9409-50-R-24	933309	6/19/97	6/19/98
512	Graphics Plotter	Hewlett Packard	N/A	7470A	2210A08221	11/11/97	11/11/98



Retlif Testing Laboratories

Test Report No. R-7480-2
FCC ID: B4SCM14A