

EXHIBIT 6

Report of Measurements

Para. 2.1033(b)(6)



**Retlif Testing Laboratories**

Test Report No. R-7457-1  
FCC ID: EVS-0407-1

<b>APPLICANT</b> Detection Systems 130 Perinton Parkway Fairport, NY 14450	<b>MANUFACTURER</b> SAME
---	-----------------------------

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

TEST PROCEDURE: ANSI C63.4:1992

**TEST SAMPLE DESCRIPTION**

BRANDNAME: Detection Systems MODEL: RF3401

TYPE: Security and Alarm Transmitter

POWER REQUIREMENTS: 3.0 VDC derived from (1) Duracell DL 123A Battery

FREQUENCY OF OPERATION: 304 MHz

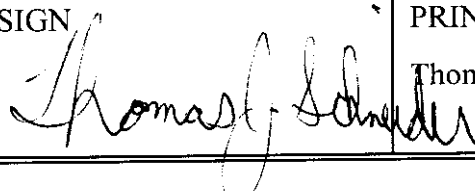
**TESTS PERFORMED**

Para. 15.231(b), Radiated Emissions, Fundamental & Spurious

Para. 15.231(c), Occupied Bandwidth

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.

<b>SIGN</b> 	<b>PRINT</b> Thomas J. Schneider	<b>TITLE</b> EMC Test Engineer
--	-------------------------------------	-----------------------------------



**Retlif Testing Laboratories**

Test Report No. R-7457-1

FCC ID: EVS-0407-1

## REPORT OF MEASUREMENTS

Applicant: Detection Systems  
Device: 304 MHz Security & Alarm Transmitter  
FCC ID: EVS-0407-1  
Power Requirements: 3 VDC via (1) Duracell DL123A battery  
Applicable Rule Section: Part 15, Subpart C, Section 15.231

### TEST RESULTS

- 15.231 (a) - The device is a Security Transmitter designed to replace wired window alarm contacts.
- 15.231 (a)(1) - The transmitter is automatically operated when the window it is installed upon is opened.
- 15.231 (a)(2) - The device transmits only a change of state indicating an alarm condition.
- 15.231 (a)(3) - The unit performs periodic transmissions at 70 minute intervals for system integrity purposes.
- 15.231 (a)(4) - The device is used for Security purposes.
- 15.231 (b) - The fundamental field strength did not exceed  $5833 \mu\text{V/M}$  (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  $583 \mu\text{V/M}$  (AVERAGE).
- 15.231 (c) - The device operates at 304 MHz. The bandwidth of emissions did not exceed 0.25% of the operating frequency (760 kHz).



**Retlif Testing Laboratories**

Test Report No. R-7457-1  
FCC ID: EVS-0407-1

## 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	=	304	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:

$$\text{Fundamental Limit} = 5583 \mu\text{V/M (AVERAGE) @ 3 Meters}$$

$$\text{Harmonic Limit} = 558 \mu\text{V/M (AVERAGE) @ 3 Meters}$$

### DETERMINATION OF DUTY CYCLE

Each packet contains up to 100 data bits (as per manufacturer), we measured 76 data bits on this unit. Data rate is 5 kbit/second. Usage of Manchester encoding ensures 50% ON-AIR duty cycling for each packet. The manufacturer also stated minimum of 100 milliseconds between data packets, in a somewhat random value. This produces ON-AIR time of 100 data bits, times 0.2 seconds/bit, times 0.5 duty cycle or: 10 milliseconds max time in every 120 milliseconds. Measured was  $76 * 0.2 * 0.5$  or: 7.6 milliseconds in 115.2 milliseconds.

MEASURED:

$$\text{Packet Time} = 15.2 \text{ ms}$$

$$\text{Quiet Time between Packets} = 100 \text{ ms}$$

$$\text{ON-AIR Time} = (\text{Packet Tim}) \times 50\% = 7.6 \text{ ms, in } 115.2 \text{ ms}$$

$$\text{Factor} = 20\text{LOG} (\text{ON-AIR Time}/100 \text{ ms}) = 20\text{LOG} (0.076) = -22.38 \text{ dB}$$

COULD BE:

$$\text{ON-AIR} = 10 \text{ ms or } 10\% \text{ duty cycle}$$

$$\text{Factor} = 20\text{LOG} (0.1) = -20.0 \text{ dB}$$



**Retlif Testing Laboratories**

Test Report No. R-7457-1  
FCC ID: EVS-0407-1

## 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:

$$\text{Pulse Desensitization} = 20 \text{ Log ( PW * BW * 1.5)}$$

Setting pulse desensitization equal to zero and utilizing the minimum observed pulse width of 150 microseconds yields a minimum required bandwidth of 4444 Hz. FCC specified bandwidths of 100kHz and 1MHz were utilized below and above 1GHz, respectively.



**Retlif Testing Laboratories**

Test Report No. R-7457-1  
FCC ID: EVS-0407-1

Exhibit 6

Report of Measurements

Radiated Emissions Data, Para. 15.231(b)



**Retlif Testing Laboratories**

Test Report No. R-7457-1  
FCC ID: EVS-0407-1

# RETLIF TESTING LABORATORIES

## TABULAR DATA SHEET

TEST METHOD:	FCC Part 15 Subpart C Radiated Emissions		
CUSTOMER:	Detection Systems	JOB No.:	R-7457-1
TEST SAMPLE:	Pulsed RF Remote FCC ID:EVS-0407-1		
MODEL No.:	RF3401	SERIAL No.:	# 1
TEST SPECIFICATION:	FCC Part 15 Subpart C		
	PARAGRAPH: 15.231		
OPERATING MODE:	Continuously transmitting 304 MHz Pulsed Signal		
TECHNICIAN:	T. Schneider	DATE:	February 27, 1998
NOTES:	Test Distance: 3 Meters Detector Function: <del>Peak</del>		

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
304.0	V/1.5	X	80.9	-4.3	76.6	6760.8	55830 ✓
	V/1.5	Y	80.0		75.7	6095.4	55830
	V/1.0	Z	88.3		84.0	15848.9	55830
	H/1.0	X	81.4		77.1	7161.4	55830
V	H/1.0	Y	89.6	V	85.3	18407.7	55830
304.0	H/1.0	Z	81.1	-4.3	76.8	6918.3	55830
608.0	V/2.6	X	42.1	2.4	44.5	167.9	5000 ✓
	V/1.5	Y	40.1		42.5	133.4	5000
	V/1.4	Z	50.7		53.1	451.9	5000
	H/1.0	X	35.5		37.9	78.5	5000
V	H/1.0	Y	50.0	V	52.4	416.9	5000
608.0	H/1.0	Z	38.2	2.4	40.6	107.2	5000
912.0	V/1.0	X	*32.0	8.3	40.3	103.5	5583 ✓
	V/1.5	Y	36.4		44.7	171.8	5583
	V/1.5	Z	38.2		46.5	211.3	5583
	H/1.0	X	*32.0		40.3	103.5	5583
V	H/1.2	Y	35.5	V	43.8	154.9	5583
912.0	H/1.0	Z	33.9	8.3	42.2	128.8	5583
1216.0	V/1.6	X	47.2	-6.3	40.9	110.9	5000 ✓
	V/1.0	Y	*44.0		37.7	76.7	5000
	V/1.2	Z	50.8		44.5	167.9	5000
	H/1.0	X	44.6		38.3	82.2	5000
V	H/1.0	Y	54.3	V	48.0	251.2	5000
1216.0	H/1.0	Z	*44.0	-6.3	37.7	76.7	5000
1520.0	V/1.0	X	44.0	-4.8	39.2	91.2	5000 ✓
	V/1.0	Y	*42.0		37.2	72.4	5000
	V/1.2	Z	47.6		42.8	138.0	5000
	H/1.0	X	44.7		39.9	98.9	5000
V	H/1.0	Y	44.9	V	40.1	101.2	5000
1520.0	H/1.0	Z	43.6	-4.8	38.8	87.1	5000
The frequency range was scanned from 30 MHz to 3.1 GHz.							
Emissions from the do not EUT exceed the specified limits.							
All emissions not recorder were more than 20 dB below the specified limit.							
*- Noise floor measurement							

# RETLIF TESTING LABORATORIES

## TABULAR DATA SHEET

TEST METHOD:	FCC Part 15 Subpart C Radiated Emissions		
CUSTOMER:	Detection Systems	JOB No.:	R-7457-1
TEST SAMPLE:	Pulsed RF Remote FCC ID:EVS-0407-1		
MODEL No.:	RF3401	SERIAL No.:	# 1
TEST SPECIFICATION:	FCC Part 15 Subpart C		
	PARAGRAPH: 15.231		
OPERATING MODE:	Continuously transmitting 304 MHz Pulsed Signal		
TECHNICIAN:	T. Schneider	DATE:	February 27, 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
1824.0	V/1.0	X	43.4	-2.7	40.7	108.4	5000
	V/1.0	Y	42.5		39.8	97.7	5000
	V/1.2	Z	46.5		43.8	154.9	5000
	H/1.0	X	42.5		39.8	97.7	5000
V	H/1.0	Y	43.3	V	40.6	107.2	5000
1824.0	H/1.0	Z	42.5	-2.7	39.8	97.7	5000
2128.0	V/	X	41.1*	-1.3	39.8*	97.7	5583
	V/	Y	--		--	--	5583
	V/	Z	--		--	--	5583
	H/	X	--		--	--	5583
V	H/	Y	--	V	--	--	5583
2128.0	H/	Z	--	-1.3	--	--	5583
2432.0	V/	X	41.6*	-0.4	41.2*	114.8	5583
	V/	Y	--		--	--	5583
	V/	Z	--		--	--	5583
	H/	X	--		--	--	5583
V	H/	Y	--	V	--	--	5583
2432.0	H/	Z	--	-0.4	--	--	5583
2736.0	V/	X	41.4*	1.1	42.5*	133.4	5000
	V/	Y	--		--	--	5000
	V/	Z	--		--	--	5000
	H/	X	--		--	--	5000
V	H/	Y	--	V	--	--	5000
2736.0	H/	Z	--	1.1	--	--	5000
3040.0	V/	X	41.6*	3.1	44.7*	171.8	5583
	V/	Y	--		--	--	5583
	V/	Z	--		--	--	5583
	H/	X	--		--	--	5583
V	H/	Y	--	V	--	--	5583
3040.0	H/	Z	--	3.1	--	--	5583
The frequency range was scanned from 30 MHz to 3.1 GHz.							
Emissions from the do not EUT exceed the specified limits.							
All Emissions not recorder were more than 20dB below the specified limit.							
*- Noise floor measurement							



# RETLIF TESTING LABORATORIES

## TABULAR DATA SHEET

TEST METHOD:	FCC Part 15 Subpart C Radiated Emissions		
CUSTOMER:	Detection Systems	JOB No.:	R-7457-1
TEST SAMPLE:	Pulsed RF Remote FCC ID: EVS-0407-1		
MODEL No.:	RF3401	SERIAL No.:	# 1
TEST SPECIFICATION:	FCC Part 15 Subpart C PARAGRAPH: 15.231		
OPERATING MODE:	Continuously transmitting 304 Mhz Signal		
TECHNICIAN:	T. Schneider	DATE:	February 27, 1998
NOTES:	Test Distance: 3 Meters    Detector Function: Peak    Worst Case Duty Cycle: 10.0% (-20.0 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
304.0	V/1.5	X	76.6	-20.0	56.6	676.1	5583
	V/1.5	Y	75.7	-20.0	55.7	609.5	5583
	V/1.0	Z	84.0	-20.0	64	1584.9	5583
	H/1.0	X	77.1	-20.0	57.1	716.1	5583
V	H/1.0	Y	85.3	-20.0	65.3	1840.8	5583
304.0	H/1.0	Z	76.8	-20.0	56.8	691.8	5583
608.0	V/2.6	X	44.5	-20.0	24.5	16.8	500
	V/1.5	Y	42.5	-20.0	22.5	13.3	500
	V/1.4	Z	53.1	-20.0	33.1	45.2	500
	H/1.0	X	37.9	-20.0	17.9	7.9	500
V	H/1.0	Y	52.4	-20.0	32.4	41.7	500
608.0	H/1.0	Z	40.6	-20.0	20.6	10.7	500
912.0	V/1.0	X	40.3	-20.0	20.3	10.4	558
	V/1.5	Y	44.7	-20.0	24.7	17.2	558
	V/1.5	Z	46.5	-20.0	26.5	21.1	558
	H/1.0	X	40.3	-20.0	20.3	10.4	558
V	H/1.2	Y	43.8	-20.0	23.8	15.5	558
912.0	H/1.0	Z	42.2	-20.0	22.2	12.9	558
1216.0	V/1.6	X	40.9	-20.0	20.9	11.1	500
	V/1.0	Y	37.7	-20.0	17.7	7.7	500
	V/1.2	Z	44.5	-20.0	24.5	16.8	500
	H/1.0	X	38.3	-20.0	18.3	8.2	500
V	H/1.0	Y	48.0	-20.0	28	25.1	500
1216.0	H/1.0	Z	37.7	-20.0	17.7	7.7	500
1520.0	V/1.0	X	39.2	-20.0	19.2	9.1	500
	V/1.0	Y	37.2	-20.0	17.2	7.2	500
	V/1.2	Z	42.8	-20.0	22.8	13.8	500
	H/1.0	X	39.9	-20.0	19.9	9.9	500
V	H/1.0	Y	40.1	-20.0	20.1	10.1	500
1520.0	H/1.0	Z	38.8	-20.0	18.8	8.7	500
The frequency range was scanned from 30 MHz to 3.1 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							

# RETLIF TESTING LABORATORIES

## TABULAR DATA SHEET

TEST METHOD:	FCC Part 15 Subpart C Radiated Emissions		
CUSTOMER:	Detection Systems	JOB No.:	R-7457-1
TEST SAMPLE:	Pulsed RF Remote FCC ID:EVS-0407-1		
MODEL No.:	RF3401	SERIAL No.:	# 1
TEST SPECIFICATION:	FCC Part 15 Subpart C PARAGRAPH: 15.231		
OPERATING MODE:	Continuously transmitting 304 Mhz Signal		
TECHNICIAN:	T. Schneider <i>TS</i>	DATE:	February 27, 1998
NOTES:	Test Distance: 3 Meters    Detector Function: Peak    Worst Case Duty Cycle: 10.0% (-20.0 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
1824.0	V/1.0	X	40.7	-20.0	20.7	10.8	500
	V/1.0	Y	39.8	-20.0	19.8	9.8	500
	V/1.2	Z	43.8	-20.0	23.8	15.5	500
	H/1.0	X	39.8	-20.0	19.8	9.8	500
V	H/1.0	Y	40.6	-20.0	20.6	10.7	500
1824.0	H/1.0	Z	39.8	-20.0	19.8	9.8	500
2128.0	V/	X	*39.8	-20.0	19.8	9.8	558
	V/	Y	*39.8	-20.0	19.8	9.8	558
	V/	Z	*39.8	-20.0	19.8	9.8	558
	H/	X	*39.8	-20.0	19.8	9.8	558
V	H/	Y	*39.8	-20.0	19.8	9.8	558
2128.0	H/	Z	*39.8	-20.0	19.8	9.8	558
2432.0	V/	X	*41.2	-20.0	21.2	11.5	558
	V/	Y	*41.2	-20.0	21.2	11.5	558
	V/	Z	*41.2	-20.0	21.2	11.5	558
	H/	X	*41.2	-20.0	21.2	11.5	558
V	H/	Y	*41.2	-20.0	21.2	11.5	558
2432.0	H/	Z	*41.2	-20.0	21.2	11.5	558
2736.0	V/	X	*42.5	-20.0	22.5	13.3	500
	V/	Y	*42.5	-20.0	22.5	13.3	500
	V/	Z	*42.5	-20.0	22.5	13.3	500
	H/	X	*42.5	-20.0	22.5	13.3	500
V	H/	Y	*42.5	-20.0	22.5	13.3	500
2736.0	H/	Z	*42.5	-20.0	22.5	13.3	500
3040.0	V/	X	*44.7	-20.0	24.7	17.2	558
	V/	Y	*44.7	-20.0	24.7	17.2	558
	V/	Z	*44.7	-20.0	24.7	17.2	558
	H/	X	*44.7	-20.0	24.7	17.2	558
V	H/	Y	*44.7	-20.0	24.7	17.2	558
3040.0	H/	Z	*44.7	-20.0	24.7	17.2	558
The frequency range was scanned from 30 MHz to 3.1 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

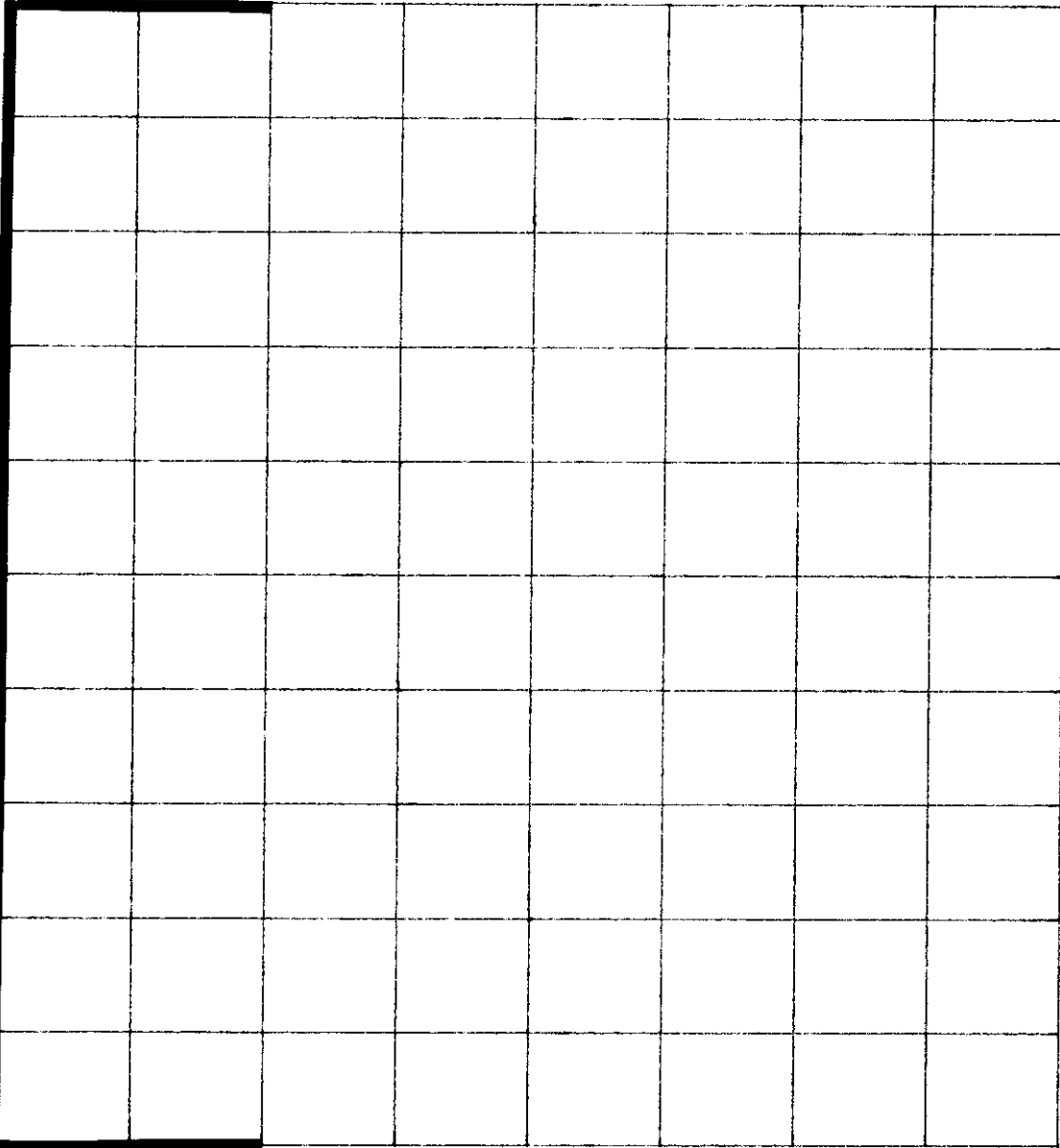
Occupied Bandwidth, Para. 15.231(c)



**Retlif Testing Laboratories**

Test Report No. R-7457-1  
FCC ID: EVS-0407-1

16:40:22 FEB 27, 1998  
 R- RF3401 Occupied Bandwidth TS  
 REF 81.3 dBμV AT 10 dB



PEAK  
 LOG  
 10  
 dB/

VA SB  
 SC FC  
 CORR

CENTER 304.0532 MHz  
 #RES BW 10 kHz  
 SPAN 760.0 kHz  
 SWP 30.0 msec  
 VBW 10 kHz

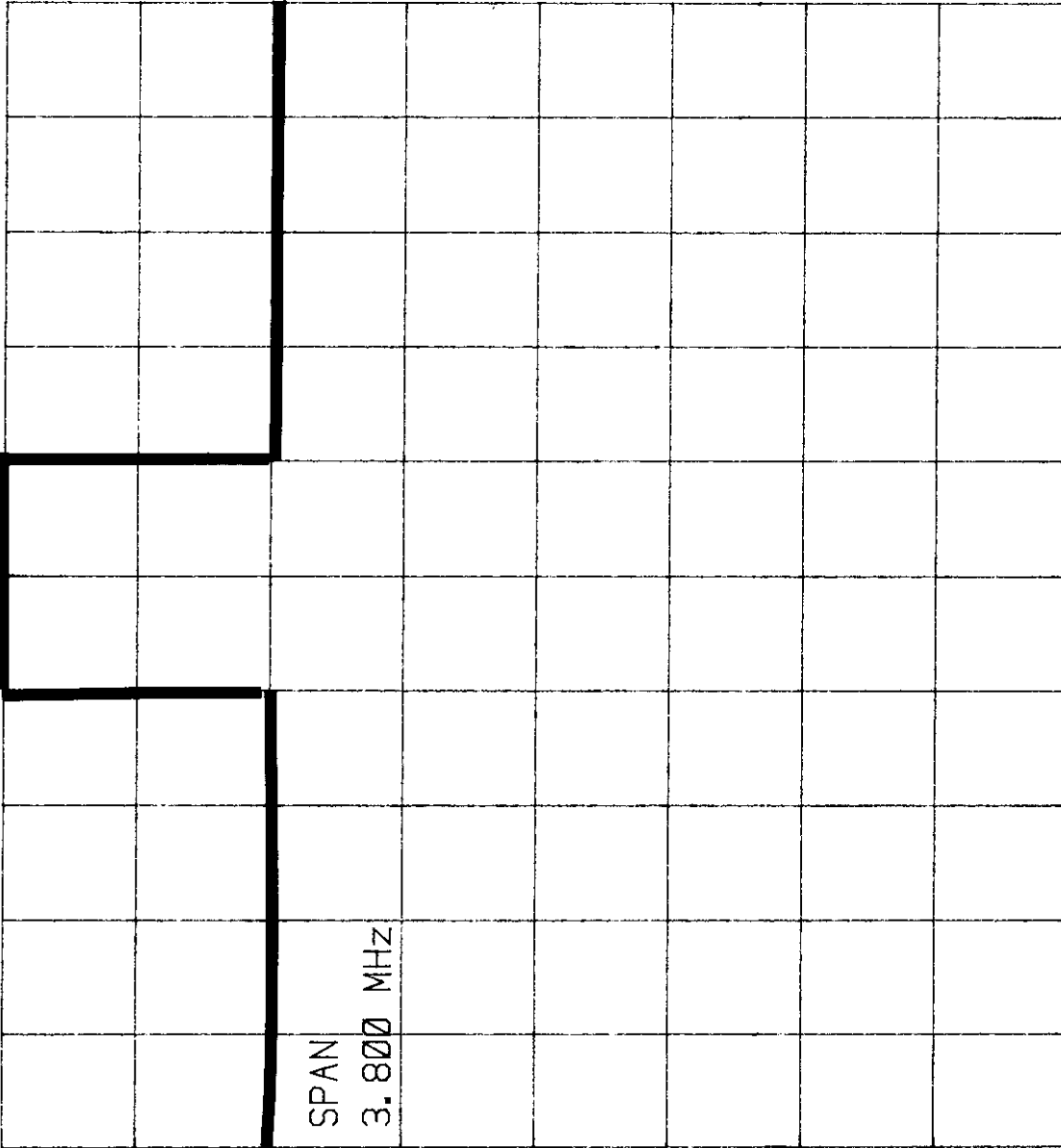
Customer:	Detection Systems Inc.
Test Sample:	Pulsed RF Remote
Model No:	RF 3401 FCC ID:EVS-0407-1
Test Method:	15.231 (c) Occupied Bandwidth
Notes:	The Bandwidth of the emission is not wider than .25% of the center frequency
Date:	02/27/98
Tech:	T.Schneider
Sheet	1 of 2



**Retlif Testing Laboratories**

Report No. R-7457-1

16:44:29 FEB 27, 1998  
 R- RF3401 Occupied Bandwidth TS  
 REF 81.3 dBµV AT 10 dB



PEAK  
 LOG  
 10  
 dB/

VA SB  
 SC FC  
 CORR

CENTER 304.053 MHz SPAN 3.800 MHz  
 #RES BW 10 kHz VBW 10 kHz SWP 114 msec

Customer: Detection Systems Inc.  
 Test Sample: Pulsed RF Remote  
 Model No: RF 3401 FCC ID: EVS-0407-1  
 Test Method: 15.231 (c) Occupied Bandwidth  
 Notes: The Bandwidth of the emission is not wider than .25% of the center frequency  
 Date: 02/27/98 Tech: T. Schneider Sheet 2 of 2



**Retlif Testing Laboratories**

Report No. R-7457-1

Exhibit 6

Report of Measurements

TEST EQUIPMENT LIST



**Retlif Testing Laboratories**

Test Report No. R-7457-1  
FCC ID: EVS-0407-1

## TEST EQUIPMENT LIST

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
206B	6.0 dB Attenuator	Texscan	0 - 1.0 GHz	EP-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**

REPORT No. R-7457-1