

April 26, 2001

Elite Electronic Engineering, Inc.  
1516 Centre Circle  
Downers Grove, IL 60515-1082

Attn: Mr. Richard King

Enclosed you will find an application for Certification of a 418MHz Transmitter, Model 135 Tester, Serial No. n/a, FCC ID: KNKTS0001. Certification is requested to the requirements of Part 15, Subpart C of the Commission's rules. This application is being filed by Retlif Testing Laboratories on behalf of Secure Care Products, Inc. The applicable Certification Filing Fee and 731 Form have been submitted.

I trust that you will find the enclosed application to be complete; however, should you have any questions or require any additional information, please feel free to contact us.

Very truly yours,

RETLIF TESTING LABORATORIES

Scott Wentworth  
Manager

Enc. (as stated)

APPLICANT	MANUFACTURER
Secure Care Products, Inc. 39 Chenell Drive Concord, NH 03301	SAME

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

TEST PROCEDURE: ANSI C63.4:1992

#### TEST SAMPLE DESCRIPTION

BRANDNAME: Secure Care Products, Inc. MODEL: 135 Tester

TYPE: 418MHz Transmitter

POWER REQUIREMENTS: 9VDC Internal Battery (tested with new battery installed)

FREQUENCY OF OPERATION: 418MHz

FCC ID: KNKTS0001

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

#### TESTS PERFORMED

Radiated Emissions, 30MHz - 4.2GHz

Occupied Bandwidth, 0.25% of Fundamental Frequency

Duty Cycle Determination

#### TEST SAMPLE OPERATION

The Model 135 Tester is used to test and/or program system components (transmitters and receivers) associated with the Secure Care 135 ID System. The system is used in hospitals or managed care facilities for patient identification and security. The transmitter is manually activated and transmits a 418MHz pulsed (on/off keyed carrier) control signal for the purpose of verifying proper operation of the emergency cutband portion of the 135 system. The 418MHz transmission consists of a 13msec packet containing 12 pulses utilized as recognition codes.

## TEST SAMPLE / TEST PROGRAM

- The transmitter does not perform periodic transmissions at regularly predetermined intervals.
- The transmitter is manually activated and automatically deactivates within 5 seconds of the switch being released.
- The fundamental field strength at 418MHz did not exceed 10333.33 $\mu$ 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 limit of harmonic and spurious emissions is 1033 $\mu$ V/M (Average).
- The device operates at a frequency of 418MHz. The bandwidth of emissions did not exceed 0.25% of the operating frequency and was determined as follows:

Fundamental Frequency	=	418MHz
0.25% of Center Frequency	=	1.045MHz
1.045 divided by 2	=	0.5225MHz
Bandwidth Range	=	Fundamental Frequency + and - 0.5225MHz
418MHz - 0.5225MHz	=	417.4775MHz
418MHz + 0.5225MHz	=	418.5225MHz
<b>Bandwidth Range</b>	=	<b>417.4775MHz - 418.5225MHz</b>

- The device uses a monopole, circuit trace, internal antenna.
- Radiated Emissions from the EUT were measured in all three axis. The attached Radiated Emissions test data is representative of the worst case orientation.

## TEST SAMPLE / TEST PROGRAM (continued)

### DETERMINATION OF FIELD STRENGTH LIMITS

The field strength limits shown below were calculated as instructed in Section 15.231.

#### **Fundamental Frequency: 418MHz**

Where F is the frequency in MHz, the formula for calculating the maximum permitted fundamental field strength for the band 260-470MHz,  $\mu$ V/m at 3 meters is as follows:

$$\begin{aligned} 41.6667(F) - 7083.3333 &= \text{Field Strength Limit } (\mu\text{V/m}) \\ 41.6667 \times 418 &= 17416.6806 \\ 17416.6806 - 7083.3333 &= 10333.33 \\ \text{Field Strength Limit} &= 10333.33 \mu\text{V/m} \end{aligned}$$

The maximum permitted unwanted emission level is 20dB below the maximum permitted fundamental level.

### DETERMINATION OF DUTY CYCLE

The transmitter controls were adjusted to maximize the transmitted duty cycle. 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.

$$\begin{aligned} \text{Transmitter On Time} &= 4.95 \text{ milliseconds (maximum)} \\ \text{Transmitter Cycle Time} &= 512.50 \text{ milliseconds} \\ (\text{Transmitter Cycle Time is greater than 100 milliseconds, therefore use 100}) \\ \text{Transmitter Duty Cycle} &= 4.95 \% \\ \text{On Time divided by Cycle Time} &= \text{Duty Cycle Factor} \\ 4.95 \text{ divided by 100} &= 0.0495 \\ 0.0495 \text{ converted to dB } (\text{LOG}_{10})20 &= -26.11\text{dB} \\ \textbf{Duty Cycle Factor} &= \textbf{-26.11dB} \end{aligned}$$

Duty Cycle Factor Determination Plots are included with this application as a separate attachment.

## TEST SAMPLE / TEST PROGRAM (continued)

### SPECTRUM ANALYZER

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.

### 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 30MHz to 4.2GHz. Emission levels closest to the specified limit are listed on the attached data sheet.

## EQUIPMENT LIST

### Field Strength of Fundamental

<b>EN</b>	<b>Type</b>	<b>Manufacturer</b>	<b>Description</b>	<b>Model No.</b>	<b>Cal Date</b>	<b>Due Date</b>
296	Spectrum Analyzer	Advantest	10 kHz - 3.6 GHz	R-4131B	9/5/00	9/5/01
4202	Biconilog	EMCO	26 MHz - 2 GHz	3142	7/10/00	7/10/01
4921	Graphics Plotter	Hewlett Packard	N/A	7550A	4/25/00	4/25/01

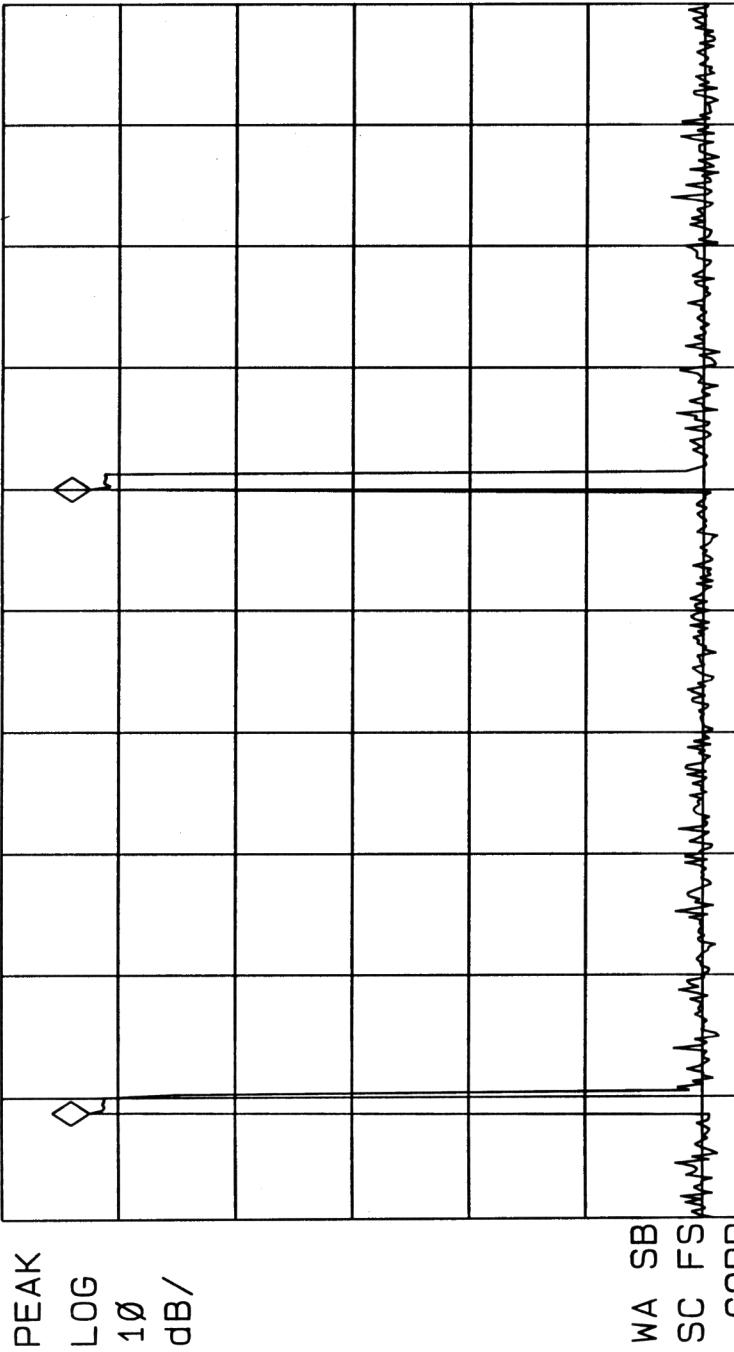
### Occupied Bandwidth

<b>EN</b>	<b>Type</b>	<b>Manufacturer</b>	<b>Description</b>	<b>Model No.</b>	<b>Cal Date</b>	<b>Due Date</b>
296	Spectrum Analyzer	Advantest	10 kHz - 3.6 GHz	R-4131B	9/5/00	9/5/01
4921	Graphics Plotter	Hewlett Packard	N/A	7550A	4/25/00	4/25/01

### Unwanted Emissions

<b>EN</b>	<b>Type</b>	<b>Manufacturer</b>	<b>Description</b>	<b>Model No.</b>	<b>Cal Date</b>	<b>Due Date</b>
296	Spectrum Analyzer	Advantest	10 kHz - 3.6 GHz	R-4131B	9/5/00	9/5/01
3116	Pre-Amplifier	Miteq	0.1 GHz - 18 GHz	AFS42-35	1/4/00	1/4/01
3117	Power Supply	B&K Precision	0-30 Vdc, 3.0 A	1630	2/23/00	2/23/01
3118	Broadband Pre-Amplifier	Electro-Metrics	10 KHz - 1 GHz	BPA-1000	7/11/00	7/11/01
3258	Double Ridge Guide	EMCO	1 - 18 GHz	3115	4/6/00	4/6/01
4202	Biconilog	EMCO	26 MHz - 2 GHz	3142	7/10/00	7/10/01
4921	Graphics Plotter	Hewlett Packard	N/A	7550A	4/25/00	4/25/01

14: 23: 38 SEP 08, 2000  
R-3671N17 Secure Care, Duty Cycle, TMKR 512.50 msec  
REF 77.0 dB $\mu$ V #AT 0 dB



SPAN 0 Hz  
#SWP 1.00 sec  
VBW 300 kHz  
CENTER 418.000 MHz  
#RES BW 100 kHz

Customer: Secure Care Products, Inc.  
Test Sample: 418 MHz Transmitter  
Model No.: 135 Tester  
Test Method: Duty Cycle  
Notes:

Date: 9/8/00

Tech: T. Firkowski

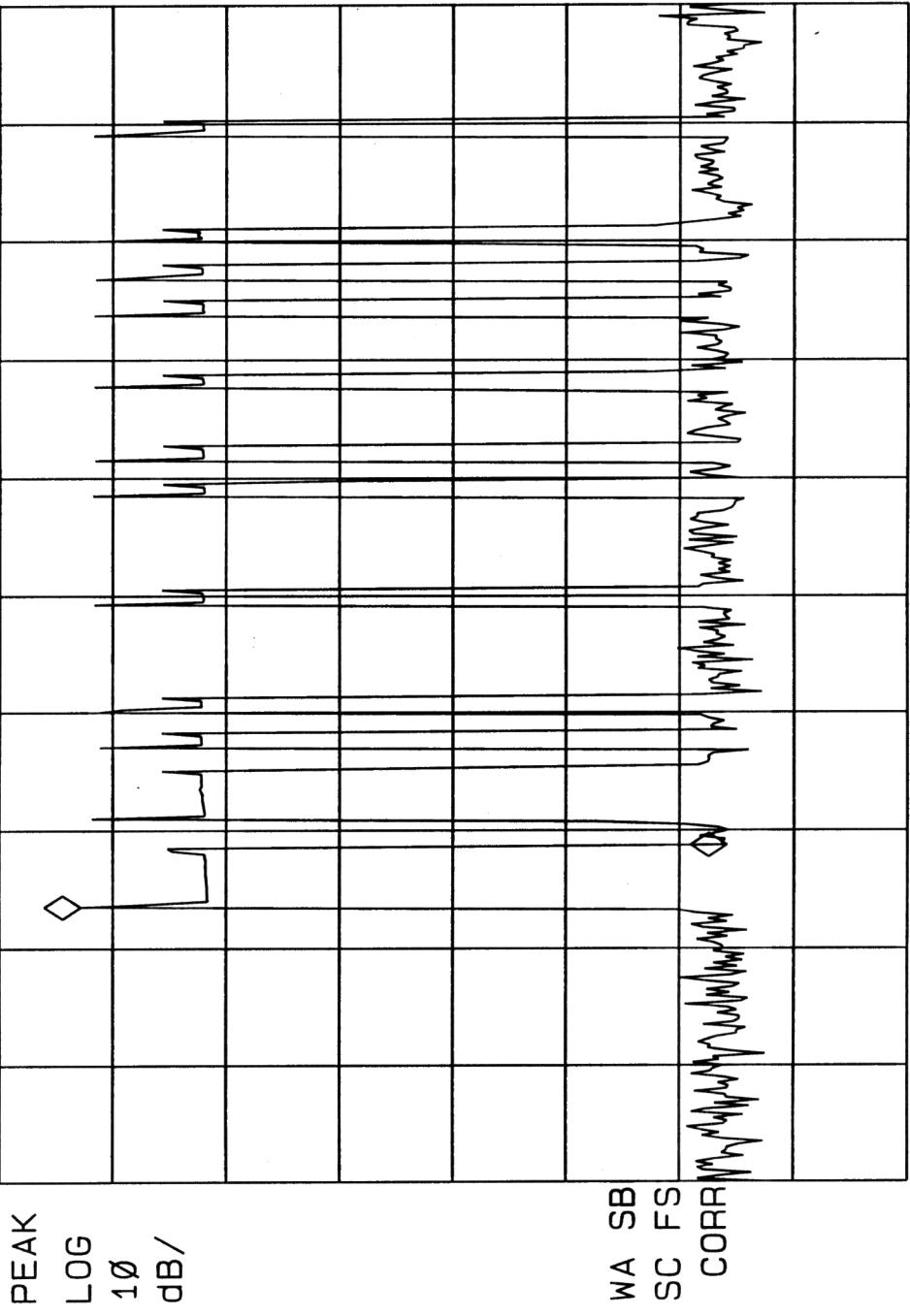
Sheet 1 of 4



Retrif Testing Laboratories

Report No. R-3671N17

14:14:10 SEP 08, 2000  
R-3671N17 Secure Care, Duty Cycle, TRKR 1.000 msec  
REF 77.0 dB $\mu$ V #AT 0 dB



CENTER 418.000 MHz  
#RES BW 100 kHz  
VBW 300 kHz  
SPAN 0 Hz  
#SWP 20.0 msec

Customer:  
Test Sample:  
Model No.:  
Test Method:  
Notes:

Secure Care Products, Inc.

418 MHz Transmitter

135 Tester

Duty Cycle

Date: 9/8/00

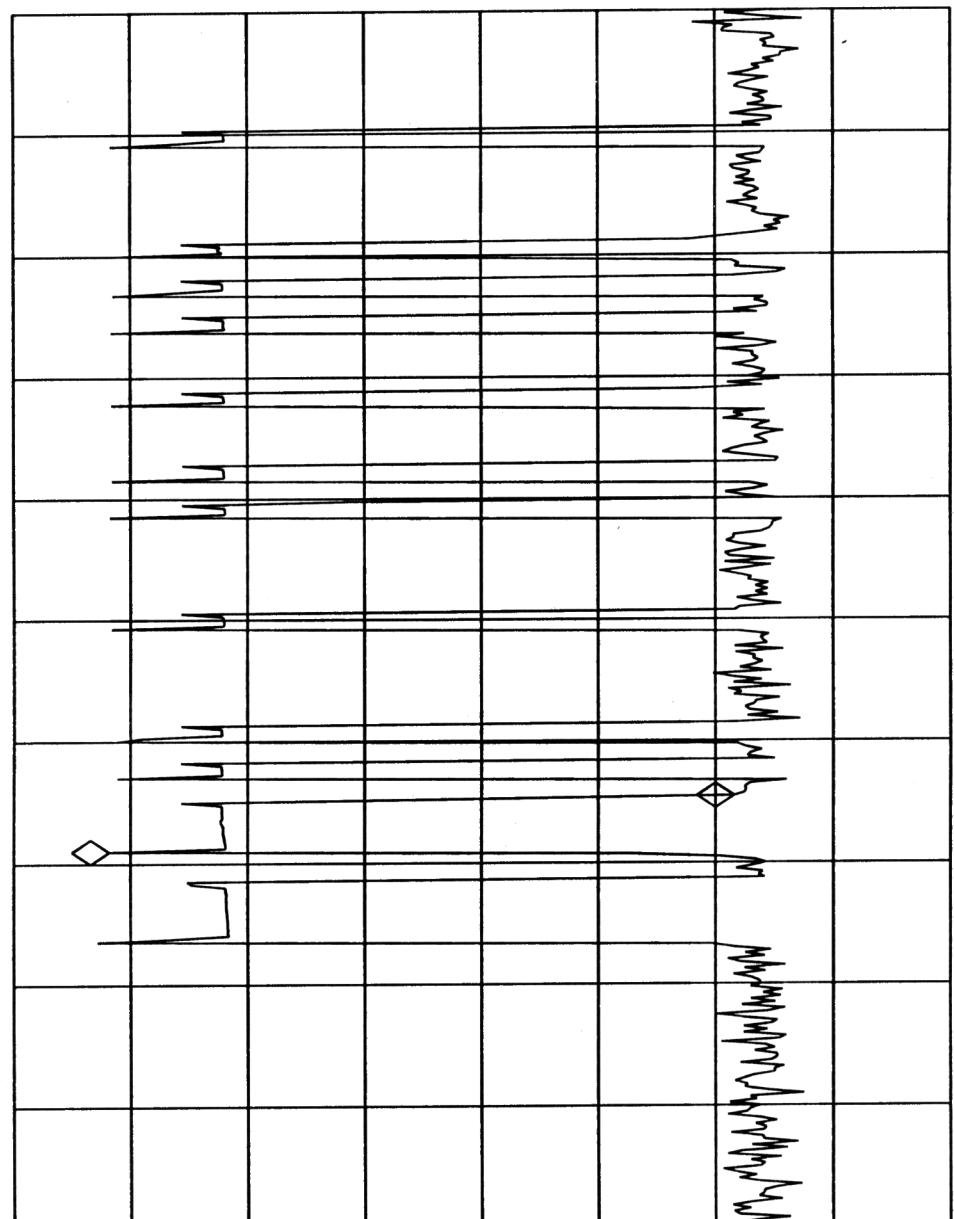
Tech: T. Firkowski

Sheet 2 of 4



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Report No. R-3671N17

14: 16: 32 SEP 08, 2000  
 R-3671N18 Secure Care, Duty Cycle, TRK900.00  $\mu$ sec  
 REF 77.0 dB  $\mu$ V #AT 0 dB  
 PEAK LOG 10 dB/  


WA SB  
 SC FS  
 CORR

CENTER 418.000 MHz  
 #RES BW 100 kHz  
 VBW 300 kHz  
 SPAN 0 Hz  
 #SWP 20.0 msec

Customer: Secure Care Products, Inc.  
 Test Sample: 418 MHz Transmitter  
 Model No.: 135 Tester  
 Test Method: Duty Cycle  
 Notes:

Date: 9/8/00

Tech: T. Firkowski

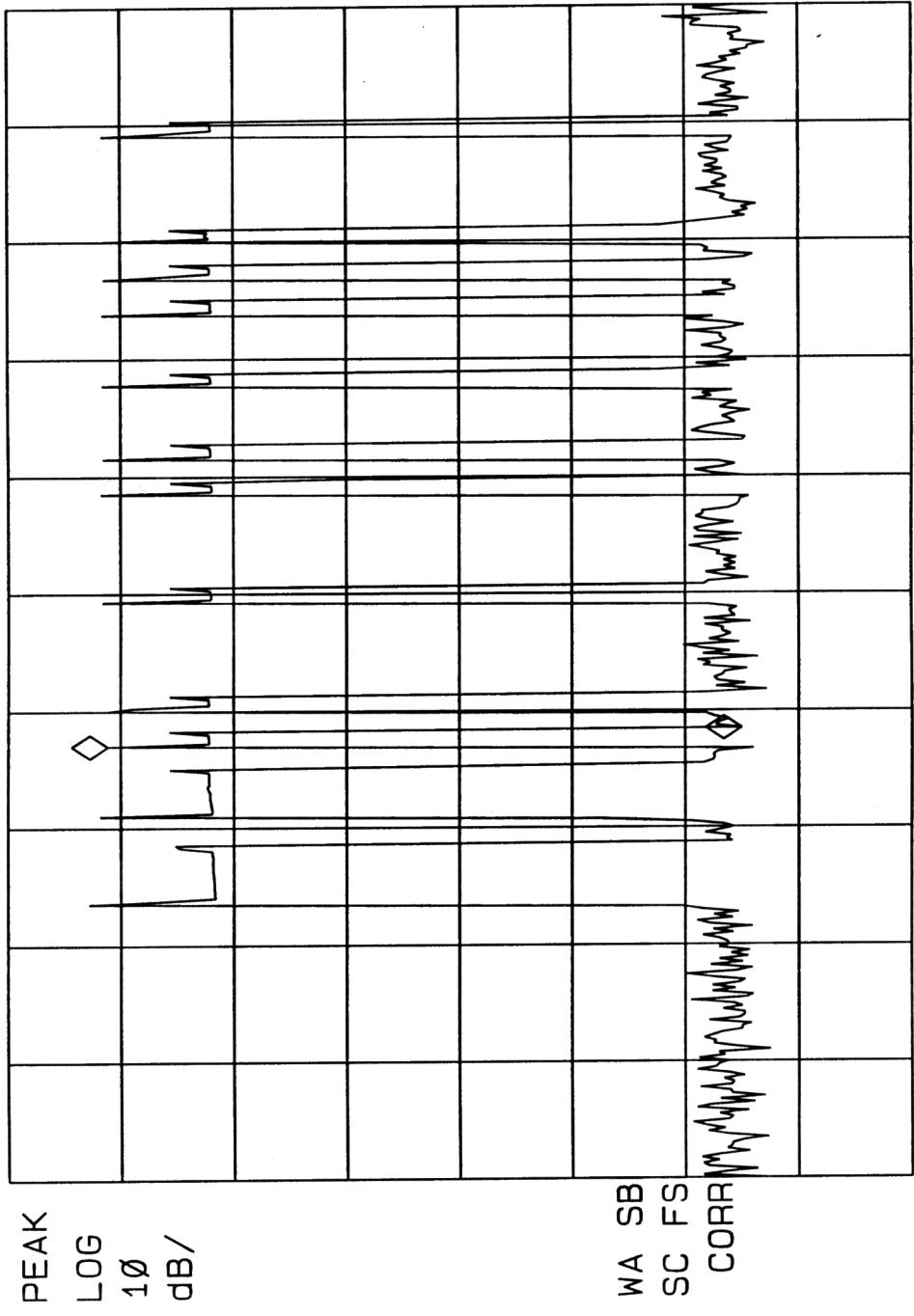
Sheet 3 of 4



Retlif Testing Laboratories

Report No. R-3671N17

14:19:12 SEP 08, 2000  
R-3671N17 Secure Care, Duty Cycle, TMKR 300.00  $\mu$ sec  
REF 77.0 dB  $\mu$ V #AT 0 dB



CENTER 418.000 MHz  
#RES BW 100 kHz  
VBW 300 kHz  
SPAN 0 Hz  
#SWP 20.0 msec

Customer:  
Test Sample:  
Model No.:  
Test Method:  
Notes:

Secure Care Products, Inc.  
418 MHz Transmitter

135 Tester  
Duty Cycle

Date: 9/8/00

Tech: T. Firkowski

Sheet 4 of 4



Retlif Testing Laboratories

Report No. R-3671N17

## RETLIF TESTING LABORATORIES

## TABULAR DATA SHEET

**TEST METHOD:** Field Strength of Fundamental

**CUSTOMER:** Secure Care Products, Inc. **JOB NO:** R-3671N17

## TEST SAMPLE: 418 MHz Transmitter

**TEST SPECIFICATION:** FCC Part 15, Subpart C Paragraph: 15.231(b)

**OPERATING MODE:** Continuously Transmitting

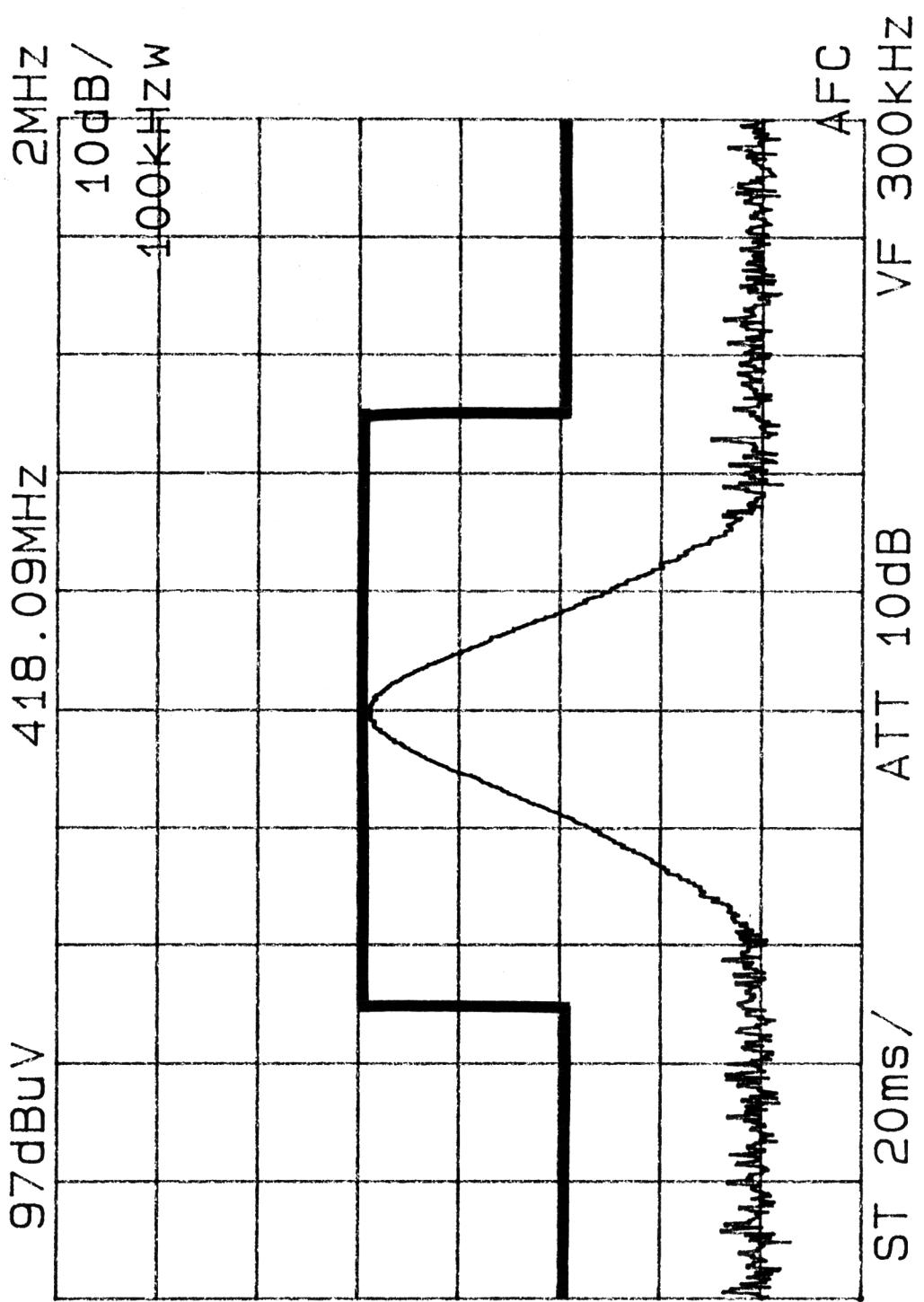
TECHNICIAN: T. Firkowski DATE: 9/8/00

NOTES: Detector Function: Peak @ 3m

Limit for Corrected Peak Reading is 20 dB above the average limit, which is 100.28 dBuV/m

DATA SHEET 1 of 1

**R-3671N17**



Customer:  
Test Sample:  
Model No.:  
Test Method:  
Notes:

Secure Care Products, Inc.  
418 MHz Transmitter  
135 Tester  
FCC Part 15, Subpart C Paragraph: 15.231(c), Occupied Bandwidth

Date: 9/11/00

Tech: T. Firkowski

Sheet 1 of 1



**Retlif Testing Laboratories**

Report No. R-3671N17

## RETLIF TESTING LABORATORIES

## TABULAR DATA SHEET

**TEST METHOD:** Unwanted Emissions 30 MHz – 4.2 GHz

**CUSTOMER:** Secure Care Products, Inc. **JOB NO:** R-3671N17

## TEST SAMPLE: 418 MHz Transmitter

**MODEL NO:** 135 Tester      **SERIAL NO:** n/a

**TEST SPECIFICATION:** FCC Part 15, Subpart C Paragraph: 15.231(b) & 15.205

## **OPERATING MODE:** Continuously Transmitting

TECHNICIAN: T. Firkowski DATE: 9/11/00

**NOTES:** Detector Function: Peak @ 3m

DATA SHEET 1 of 1

**R-3671N17**