Exhibit 6: Test Report

TEST REPORT FROM:

COMMUNICATION CERTIFICATION LABORATORY
1940 W. Alexander Street
Salt Lake City, Utah
84119-2039

Type of Report: Certification

TEST OF: RA3T

FCC ID: NY5RA3T

To FCC PART 15, Subpart C
Section 15.231

Test Report Serial No: 73-6557

Applicant:

Mytrex Inc.
7050 Union Park Avenue
Suite 590
Midvale, UT 84047

Date of Test: June 16, 1998

Issue Date: July 6, 1998

CERTIFICATION OF ENGINEERING REPORT

This report has been prepared by Communication Certification Laboratory to determine compliance of the device described below with the notification requirements of FCC Part 15, Subpart C Section 15.231. This report may be reproduced in full, partial reproduction may only be made with the written consent of the laboratory. The results in this report apply only to the sample tested.

- Applicant: Mytrex Inc.
- Manufacturer: Mytrex Inc.
- Brand Name: RESCUE ALERT
- Model Number: RA3T
- FCC ID: NY5RA3T

On this 6th day of July 1998, I, individually, and for Communication Certification Laboratory, certify that the statements made in this engineering report are true, complete, and correct to the best of my knowledge, and are made in good faith.

Although NVLAP has recognized that the Communication Certification Laboratory EMC testing facilities are in good standing, NVLAP does not endorse the product described in this report.

COMMUNICATION CERTIFICATION LABORATORY

____

Checked by: Anh T. Wride
Telecom Engineering Director

____

Tested by: Roger J. Midgley
EMC Engineering Manager

SECTION 1.0 CLIENT INFORMATION

1.1 Client Information:

Company Name: Mytrex Inc.
7050 Union Park Avenue
Suite 590
Midvale, UT 84047

Contact Name: Richard M. Bangerter
Title: President
Department:

SECTION 2.0 EQUIPMENT UNDER TEST (EUT)

2.1 Identification of EUT:

Trade Name: RESCUE ALERT
Model Name or Number: RA3T
Serial Number: N/A
Options Fitted: N/A
Country of Manufacture: U.S.A.

2.2 Description of EUT:

The RA3T transmitter is designed to send a coded transmission to any standard 418 MHz ASK receiver manufactured by Mytrex, Inc. The RA3T may be worn around the neck or on the wrist and is activated by pressing the button on the front of the transmitter. When the RA3T is activated, the LED on the front is i11ununated to provide an indication of the battery status. A green LED indicates the battery voltage is above 4.5 volts. A red LED indicates the battery voltage is below 4.5 volts. Typically the transmitter will function another year depending on the frequency and length of use each day.

An automatic telephone dialer used in the medical imdustry is a typical application that might utilize an RA3T transmitter and an RA3R series receiver . The receiver would be used to activate the dialer to begin calling for help in response to a user pressing the Panic button on the RA3T

2.3 Modification Incorporated/Special Accessories on EUT:

There were no modifications or special accessories required to comply with the specification.

SECTION 3.0 TEST SPECIFICATION, METHODS & PROCEDURES

3.1 Test Specification:

Title: FCC PART 15, Subpart C (47 CFR 15). Section 15.231

Periodic operation in the band 40.66-40.70 MHz and above 70 MHz.

Purpose of Test: The tests were performed to demonstrate Initial compliance.

3.2 Methods & Procedures:

3.2.1 § 15.231

(a) The provision of this section are restricted to periodic operation within the band 40.66-40.70 MHz and above 70 MHz. Except as chow in paragraph (e) of this section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Radio control of toys in not permitted. Continuous transmissions, such as voice or video, and data transmissions are not permitted. The prohibition against data transmissions does not preclude the use of recognition codes. Those codes are used to identify the sensor that is activated or to identify the particular component as being part of the system. The following conditions shall be met to comply with the provisions for this periodic operation:

(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

(3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmission to determine system integrity of transmitters used in security or safety applications are allowed if the periodic rate of transmission does not exceed one transmission of not more than one second duration per hour for each transmitter.

(4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety

of life, when activated to signal an alarm, may operated during the pendency of the alarm condition.

(b) In addition to the provisions of § 15.205, the field strength of emission from intentional radiators operated under this section shall not exceed the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66 - 40.70	2,250	225
70 -130	1,250	125
130 - 174	1,250 to 3,750 **	125 to 375 **
174 - 260	3,750	375
260 - 470	3,750 to 12,500 **	375 to 1,250 **
Above 470	12,500	1,250

** Linear interpolations

(1) the above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.

(2) Intentional radiators operating under the provisions of this section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provision in § 15.35 for averaging pulsed emission and for limiting peak emissions apply. Further, compliance with the provisions of § 15.205 shall be demonstrated using the measurement instrumentation specified in that section.

(3) The limits on the field strength of the spurious emission in the above table are based on the fundamental frequency of the intentional radiator. Spurious emission shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in § 15.209, whichever limit permits a higher field strength.

(c) The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

(d) For devices operation within the frequency band 40.66-40.70 MHz, the bandwidth of the emission shall be confined within the band edges and the frequency tolerance of the carrier shall be ±0.01%. This frequency tolerance shall be maintained for a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation on the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

(e) Intentional radiators may operate at a periodic rate exceeding that specified in paragraph (a) of this section and may be employed for any type of operation, including operation prohibited in paragraph (a) of this section, provided that intentional radiator complies with the provisions of paragraphs (b) through (d) of this section except the field strength table in paragraph (b) of this section is replaced by the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66 - 40.70	1,00	100
70 -130	500	50
130 - 174	500 to 1,500 **	50 to 150 **
174 - 260	1,500	150
260 - 470	1,500 to 5,000 **	150 to 500 **
Above 470	5,000	500

** Linear interpolations

In addition, devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent periods between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.

3.2.2 § 15.207 Conducted Limits

(a) For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 450 kHz to 30 MHz shall not exceed 250 microvolts. Compliance with the provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

3.2.3 Test Procedure

The line conducted and radiated emissions testing was performed according to the procedures in ANSI C63.4 (1992). Line conducted and radiated emissions testing was performed at CCL’s anechoic chamber located at 1940 W. Alexander Street in Salt Lake City, Utah. This site has been fully described in a report submitted to the FCC, and was accepted in a letter dated March 6, 1996 (31040/SIT).

CCL participates in the National Voluntary Laboratory Accreditation Program (NVLAP) and has been accepted under NVLAP Lab Code:100272-0, which is effective until September 30,1998.

For radiated emissions testing that is performed at distances closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

SECTION 4.0 OPERATION OF EUT DURING TESTING

4.1 Operating Environment:

Power Supply: 4.5 VDC
AC Mains Frequency: N/A
Current Rating: N/A

4.2 Operating Modes:

Each mode of operation was exercised to produce worst case emissions. The worst case emissions were with the RA3T powered up in the transmit mode.

The RA3T operates on 4.5 VDC supplied via a battery; therefore, conducted emissions testing is not required.

4.3 EUT Exercise Software:

The RA3T used internal firmware to produce the worst case emissions.

SECTION 5.0 SUMMARY OF TEST RESULTS

5.1 FCC PART 15, Subpart C Section 15.231

5.1.1 Summary of Tests:

Section	Test Performed	Frequency Range (MHz)	Result
15.231 (a)	Periodic Operation	418.0	Complied
15.231 (b)	Radiated Emissions	30 to 5,000	Complied
15.231 (c)	Bandwidth	418.0	Complied
15.231 (d)	Frequency Stability	40.66 to 40.70	Not Applicable
15.231 (e)	Radiated Emissions	30 to 5,000	Not Applicable
15.207	Line Conducted Emissions (Hot Lead to Ground)	0.45 to 30	Not Applicable
15.207	Line Conducted Emissions (Neutral Lead to Ground)	0.45 to 30	Not Applicable

5.2 Result

In the configuration tested, the EUT complied with the requirements of the specification.

SECTION 6.0 MEASUREMENTS, EXAMINATIONS AND DERIVED RESUTLS

6.1 General Comments:

This section contains the test results only. Details of the test methods used and a list of the test equipment used during the measurements can be found in Appendix 1 of this report.

6.2 Test Results:

6.2.1 § 15.231 (a) (1)

Demonstration of Compliance:

1. The RA3T transmitter incorporates a manual switch that when released ceases transmission within 5 seconds.
2. The RA3T transmitter is not automatically activated.
3. The RA3T transmitter is not a polling or supervision transmitter.

RESULT

In the configuration tested, the EUT complied with the requirements of this section.

6.2.2 § 15.231 (b) Radiated Emissions

Demonstration of Compliance:

The RA3T operates at 418 MHz, therefore; the field strength of the fundamental must be less than 10,333.3 μV/m (80.3 dBμV/m) at 3 meters and the field strength of the harmonics must be less than 1,033.3 μV/m (30.3 dBμV/m) at 3 meters, unless a spurious emission falls within a restricted band as defined in § 15.205, in which case the general limits given in § 15.209 applies (54.0 dBμV/m) at 3 meters.

The RA3T uses a pulsed emission to transmit therefore the field strength readings were reduced by an average factor of -6.4 dB. This was calculated as shown below.

PULSE DESENSITIZATION

With the resolution bandwidth set to 100 kHz or 1 MHz, the RA3T transmitter produces a pulse spectrum on the spectrum analyzer. This occurs because the bandwidth of the analyzer is greater than or equal to the PRF. Because the bandwidth is greater than or equal to $1/t_{eff}$, the displayed amplitude is essentially a peak reading. Therefore, the pulse desensitization (aP) equals zero. Because the pulse desensitization equals zero, no correction factor is needed to obtain a peak reading.

AVERAGE FACTOR

The pulse repetition period is greater than 100 msec; therefore, the total on time in a 100 msec span was used to calculate the average factor. The pulse train consists of 15 pulses that are on for a total of 48 msec; therefore, the total on time in any 100 msec is 48 msec.

The average factor for the RA3T transmitter is –6.4 dB. This factor is derived using the following formula:

Time on in 100 ms = 48.0 msec

$$20 \log \frac{\text{Time on in 100 msec}}{\text{100 msec}} = 20 \log 0.48 = -6.4 \text{ dB}$$

Shown in Appendix 2 is the pulse train that was used to compute this average factor.

Measurement Data Fundamental and Harmonic Emissions:

The frequency range from 30 MHz to the tenth harmonic of the highest fundamental frequency was investigated to measure any radiated emissions.

A diagram of the test configuration is enclosed in Appendix A and a list of reference codes for test equipment used is enclosed in Appendix 1.

Radiated Interference Level Data (Vertical Polarity)

Frequency MHz	Detector	Receiver Reading dBμV	Average Factor dB	Correction Factor dB	Field Strength dBμV/m	Limit dBμV/m
418.0	Peak	46.9	-6.4	25.4	65.9	80.3
836.0	Peak	22.0	-6.4	33.5	49.1	60.3
1254.0	Average	10.8	N/A	29.5	40.3	60.3
1254.0	Peak	24.8	N/A	29.5	54.3	80.3
1672.0	Average	-0.5	N/A	31.6	31.1	60.3
1672.0	Peak	12.2	N/A	31.6	43.8	80.3
2090.0	Average	1.4	N/A	34.7	36.1	60.3
2090.0	Peak	12.4	N/A	34.7	47.1	80.3
2508.0	Average	-1.4	N/A	35.9	34.5	60.3
2508.0	Peak	11.0	N/A	35.9	46.9	80.3
2926.0	Average	-2.6 *	N/A	37.1	34.5	60.3
2926.0	Peak	9.0 *	N/A	37.1	46.1	80.3
3344.0	Average	-2.7 *	N/A	39.0	36.3	60.3
3344.0	Peak	9.1 *	N/A	39.0	48.1	80.3
3762.0 R	Average	-2.5 *	N/A	40.7	38.2	54.0
3762.0 R	Peak	9.6 *	N/A	40.7	50.3	74.0
4180.0 R	Average	-2.2 *	N/A	42.4	40.2	54.0
4180.0 R	Peak	9.4 *	N/A	42.4	51.8	74.0

* No emission detected, noise floor reading from spectrum analyzer.
R = Emission that fall within the Restricted Bands of Section 15.205

Radiated Interference Level Data (Horizontal Polarity)

Frequency MHz	Detector	Receiver Reading dBμV	Average Factor dB	Correction Factor dB	Field Strength dBμV/m	Limit dBμV/m
418.0	Peak	60.3	-6.4	25.4	79.3	80.3
836.0	Peak	28.5	-6.4	33.5	55.6	60.3
1254.0	Average	10.8	N/A	29.5	40.3	60.3
1254.0	Peak	24.7	N/A	29.5	54.2	80.3
1672.0	Average	-2.5	N/A	31.6	29.1	60.3
1672.0	Peak	13.2	N/A	31.6	44.8	80.3
2090.0	Average	1.3	N/A	34.7	36.0	60.3
2090.0	Peak	12.3	N/A	34.7	47.0	80.3
2508.0	Average	2.4	N/A	35.9	38.3	60.3
2508.0	Peak	14.8	N/A	35.9	50.7	80.3
2926.0	Average	-2.6 *	N/A	37.1	34.5	60.3
2926.0	Peak	9.0 *	N/A	37.1	46.1	80.3
3344.0	Average	-2.7 *	N/A	39.0	36.3	60.3
3344.0	Peak	9.1 *	N/A	39.0	48.1	80.3
3762.0 R	Average	-2.5 *	N/A	40.7	38.2	54.0
3762.0 R	Peak	9.6 *	N/A	40.7	50.3	74.0
4180.0 R	Average	-2.2 *	N/A	42.4	40.2	54.0
4180.0 R	Peak	9.4 *	N/A	42.4	51.8	74.0

* No emission detected, noise floor reading from spectrum analyzer.
R = Emission that fall within the Restricted Bands of Section 15.205

Sample Field Strength Calculation:

The field strength is calculated by adding the Correction Factor (Antenna Factor + Cable Factor), to the measured level from the receiver. The receiver amplitude reading is compensated for any amplifier gain. The basic equation with a sample calculation is shown below:

FS = RA + CF Where

FS = Field Strength
RA = Receiver Amplitude Reading (Receiver Reading - Amplifier Gain)
CF = Correction Factor (Antenna Factor + Cable Factor)

Assume a receiver reading of 42.5 dBμV is obtained from the receiver, an amplifier gain of 26.5 dB and a correction factor of 8.5 dB. The field strength is calculated by subtracting the amplifier gain and adding the correction factor, giving a field strength of 24.5 dBμV/m, FS = (42.5 - 26.5) + 8.5 = 24.5 dBμV/m

RESULT

In the configuration tested, the EUT complied with the requirements of this section.

6.2.3 § 15.231 (c) Bandwidth

Demonstration of Compliance:

The bandwidth of the RA3T transmitter was measured to be 61.3 kHz (see bandwidth plot in Appendix 2). This is within the requirement of 1.04 MHz (0.25% of 315 MHz).

RESULT

In the configuration tested, the EUT complied with the requirements of this section.

APPENDIX 1 TEST PROCEDURES AND TEST EQUIPMENT

Radiated Interference Emissions:

The radiated emission from the intentional radiator was measured using a spectrum analyzer with a quasi-peak adapter for peak and quasi-peak readings. A preamplifier with a fixed gain of 26 dB and a power amplifier with a fixed gain of 22 dB were used to increase the sensitivity of the measuring instrumentation. The quasi-peak adapter uses a bandwidth of 120 kHz, with the spectrum analyzer's resolution bandwidth set at 1 MHz, for readings in the 30 to 1000 MHz frequency range. For peak emissions above 1000 MHz the spectrum analyzer’s resolution bandwidth was set to 1 MHz and the video bandwidth was set to 3 MHz. For average emissions above 1000 MHz the spectrum analyzer’s resolution bandwidth was set to 1 MHz and the video bandwidth was set to 1 Hz.

A biconilog antenna was used to measure the frequency range of 30 to 1000 MHz and a Double Ridge Guide Horn antenna was used to measure the frequency range 1 GHz to 10 GHz, at a distance of 3 meters from the EUT. The readings obtained by these antennas are correlated to the levels obtained with a tuned dipole antenna by adding antenna factors.

The configuration of the intentional radiator was varied to find the maximum radiated emission. The EUT was connected to the peripherals listed in Section 2.4 via the interconnecting cables listed in Section 2.5. These interconnecting cable were manipulated manually by a technician to obtain worst case radiated emissions. The intentional radiator was rotated 360 degrees, and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission. Where there were multiple interface ports all of the same type, cables are either placed on all of the ports or cables added to these ports until the emissions do not increase by more than 2 dB.

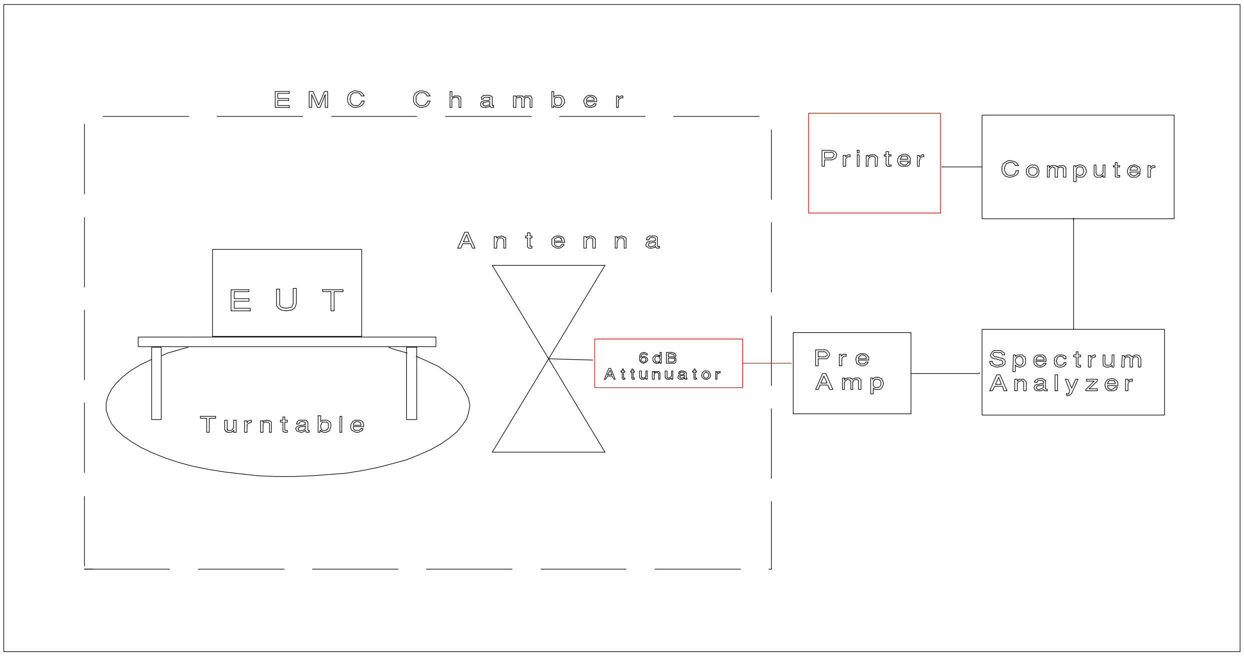
Desktop intentional radiator is measured on a non-conducting table one meter above the ground plane. The table is placed on a turntable which is level with the ground plane. The turntable has slip rings, which supply AC power to the intentional radiator. For equipment normally placed on floors, the equipment shall be placed directly on the turntable.

Type of Equipment	Manufacturer	Model Number	Serial Number
Anechoic Chamber	CCL	N/A	N/A

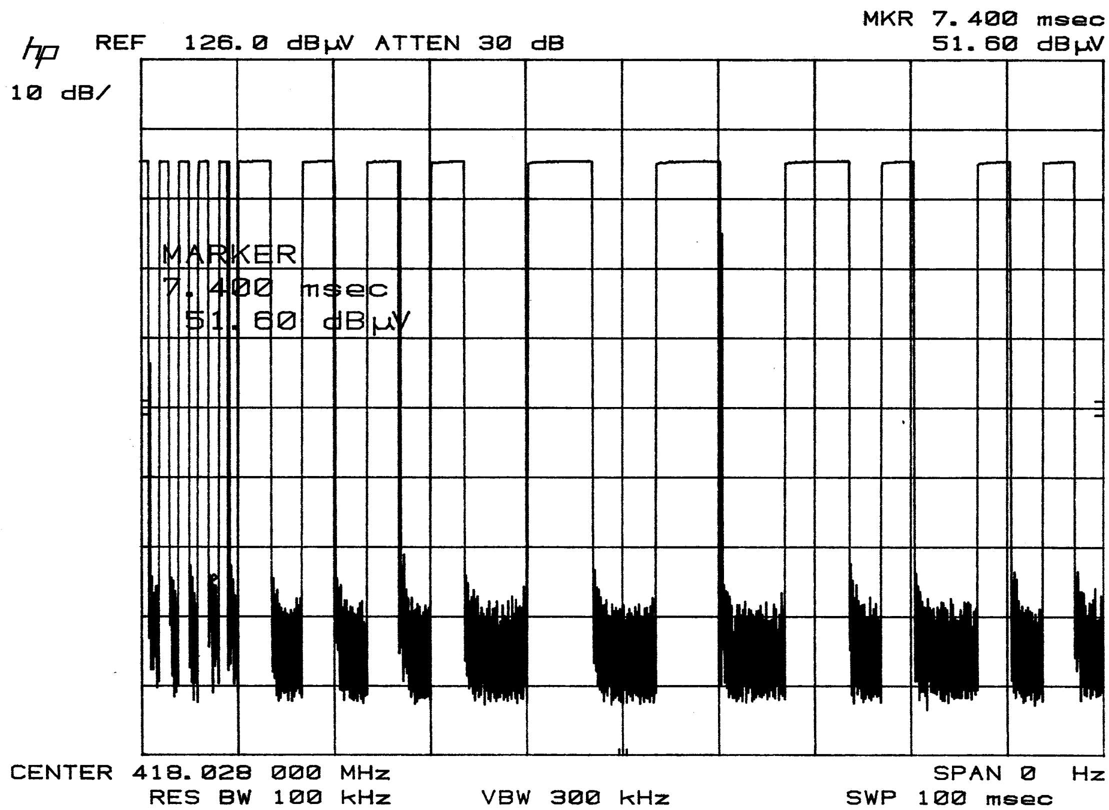
Type of Equipment	Manufacturer	Model Number	Serial Number
Test Software	CCL	Radiated Emissions	Revision 1.3
Spectrum Analyzer	Hewlett Packard	8566B	2230A01711
Quasi-Peak Detector	Hewlett Packard	8565A	3107A01582
Biconilog Antenna	EMCO	3141	1045
Double Ridged Guide Antenna	EMCO	3115	9409-4355
Radiated Emissions Cable Anechoic Chamber	CCL	Cable B	N/A
Pre-Amplifier	Hewlett Packard	8447D	1937A03151
Power-Amplifier	Hewlett Packard	8447E	2434A01975
6 dB Attenuator	Hewlett Packard	8491A	32835

All the equipment listed above is calibrated every 12 months by an independent calibration laboratory or by CCL personal following outlined calibration procedures.

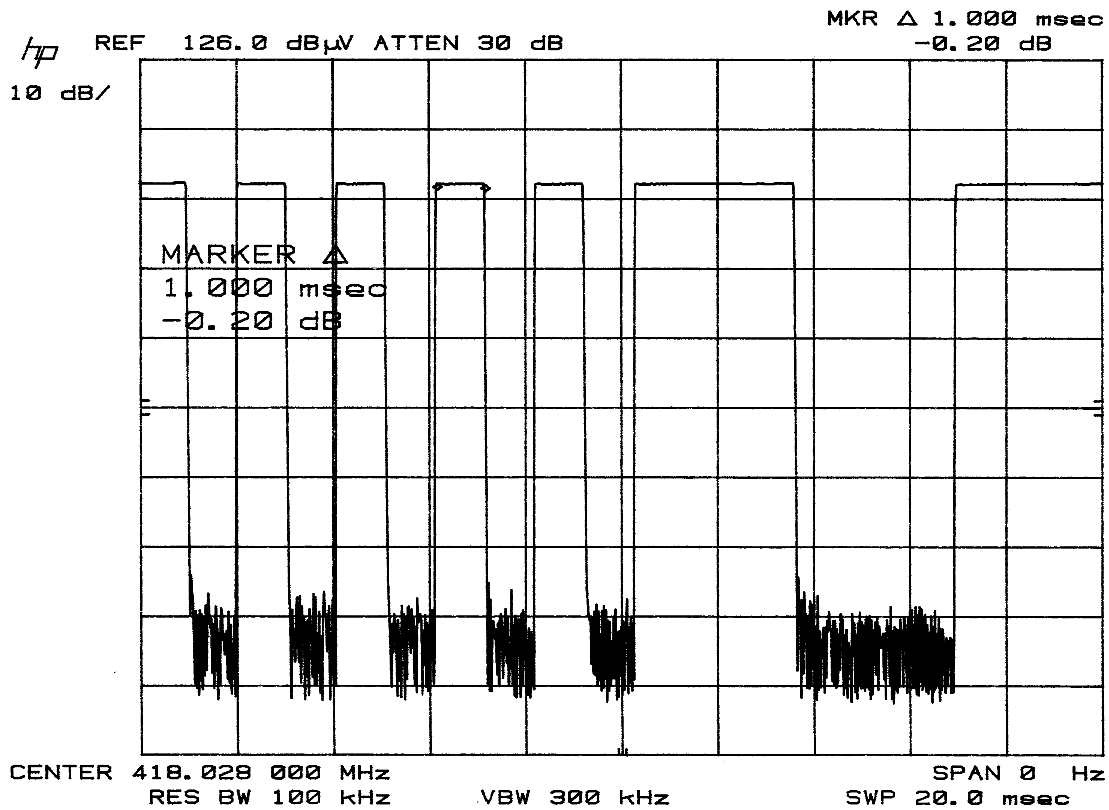
Radiated Emissions Test



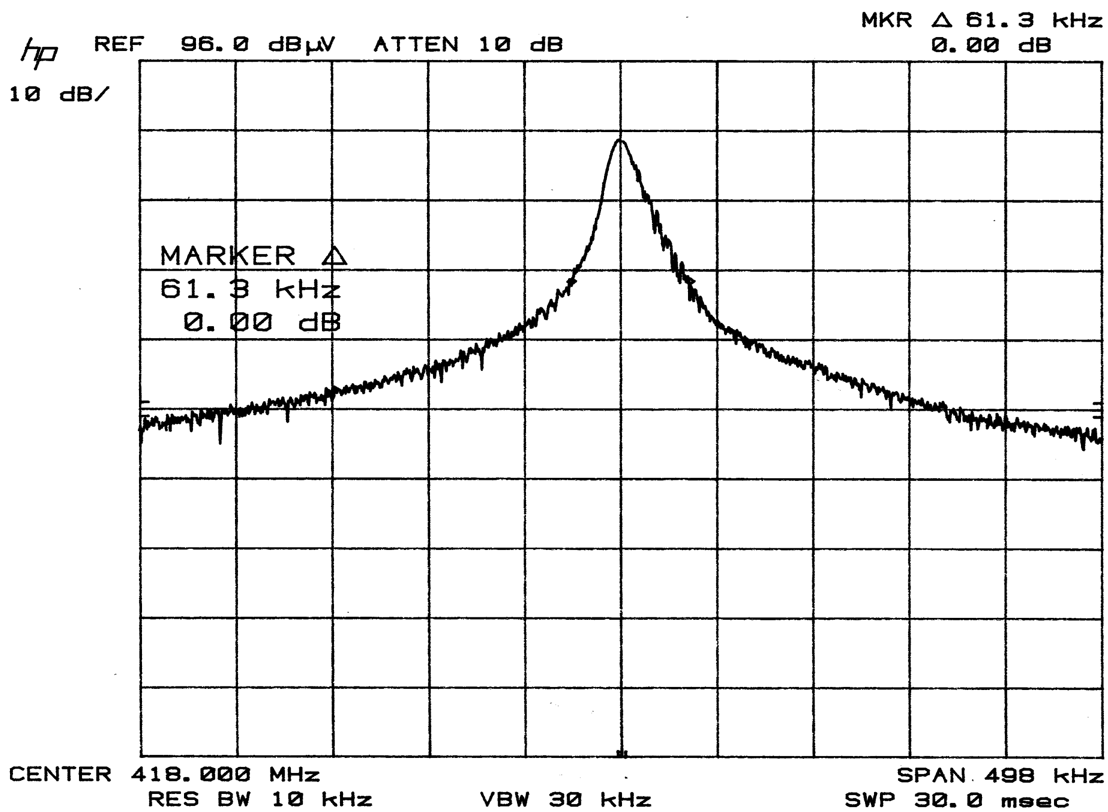
APPENDIX 2. SPECTRUM ANALYZER PLOTS:



Pulse Train Plot (100 msec)



Pulse Train Plot (20 msec)



Emission Bandwidth Plot