FCC PART 15 SUBPART C
EVALUATION REPORT
RADIO FREQUENCY INTERFERENCE TEST

Prepared for:

Electronic Monitoring Systems (EMS) Inc.
26081 Merit Circle, Suite 108
Laguna Hills, Calif. 92653

Product Description:
UHF Transmitter

FCC ID: NSNEMSWPRFA

Model:
Watch Patrol RF

Test Completion Date:

April 12, 2001

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1.0 LETTER OF CERTIFICATION

PDE Laboratories, Inc is accredited by the U.S. National Institute Standards Technology under NVLAP as suppliers of test results to the criteria established by ISO/IEC guide 25 and ISO 9002.

PDE Laboratories, Inc is approved by TUV Product Services as a test facility testing to the EMC DIRECTIVE 89/336/EEC.

PDE Laboratories, Inc is approved as a contractor to Radio Frequency investigation LTD, a UK Competent Body and by Radio Frequency Technologies LTD, a Competent Body of Ireland.

The data, data evaluation and equipment configuration represented herein are a true and accurate representation of the test sample (EUT), and of the radio frequency susceptibility characteristics and measurements obtained as of the dates and at the times of the test under the conditions specified.

The test results provided with this report indicate that the equipment tested is **COMPLIANT** with the following Rules and Regulations:

1) The Code of Federal Regulations 47, Part 15, Subpart C and ANSI C63.4

Tests Performed By:

_____
Terry Reysbergen

Report Approved By:

_____
David Feher

2.0 SUMMARY OF TEST

2.1A ADMINISTRATIVE DATA

DEVICE TESTED: Description: UHF Transmitter (418 MHz)
Model: Watch Patrol RF

ACCESSORIES: N/A

APPLICANT: Electronic Monitoring Systems (EMS) Inc.
26081 Merit Circle, Suite 108
Laguna Hills, Calif. 92653

FCC ID: NSNEMSWPRFA

CONTACT: Michael O'Donnell

MANUFACTURER: Electronic Monitoring Systems (EMS) Inc.

2.1B TEST DESCRIPTION

FREQUENCY RANGES: Conducted: 0.45 - 30.0 MHz
Radiated: 30.0 - 1000 MHz

TEST LOCATION: 950 Calle Negocio, San Clemente, Calif. 92673

TEST DATES: April 12, 2001

PURPOSE OF TEST: To demonstrate compliance with the limits of FCC Part 15C

TESTS PERFORMED:
1. Conducted Emissions Per ANSI C63.4.
2. Radiated emissions Per ANSI C63.4 at 10 Meters.
3. Engineering Evaluations

All Measurement Data is acquired according to the content of ANSI C63.4. The Test Site Data and performance complies with ANSI C63.4, unless supplemented with additional requirements as noted in the test report.

2.2 TEST RESULTS - CONDUCTED EMISSIONS

Conducted Emission Results - High or Supply Lead

*****Not applicable: Device battery powered**

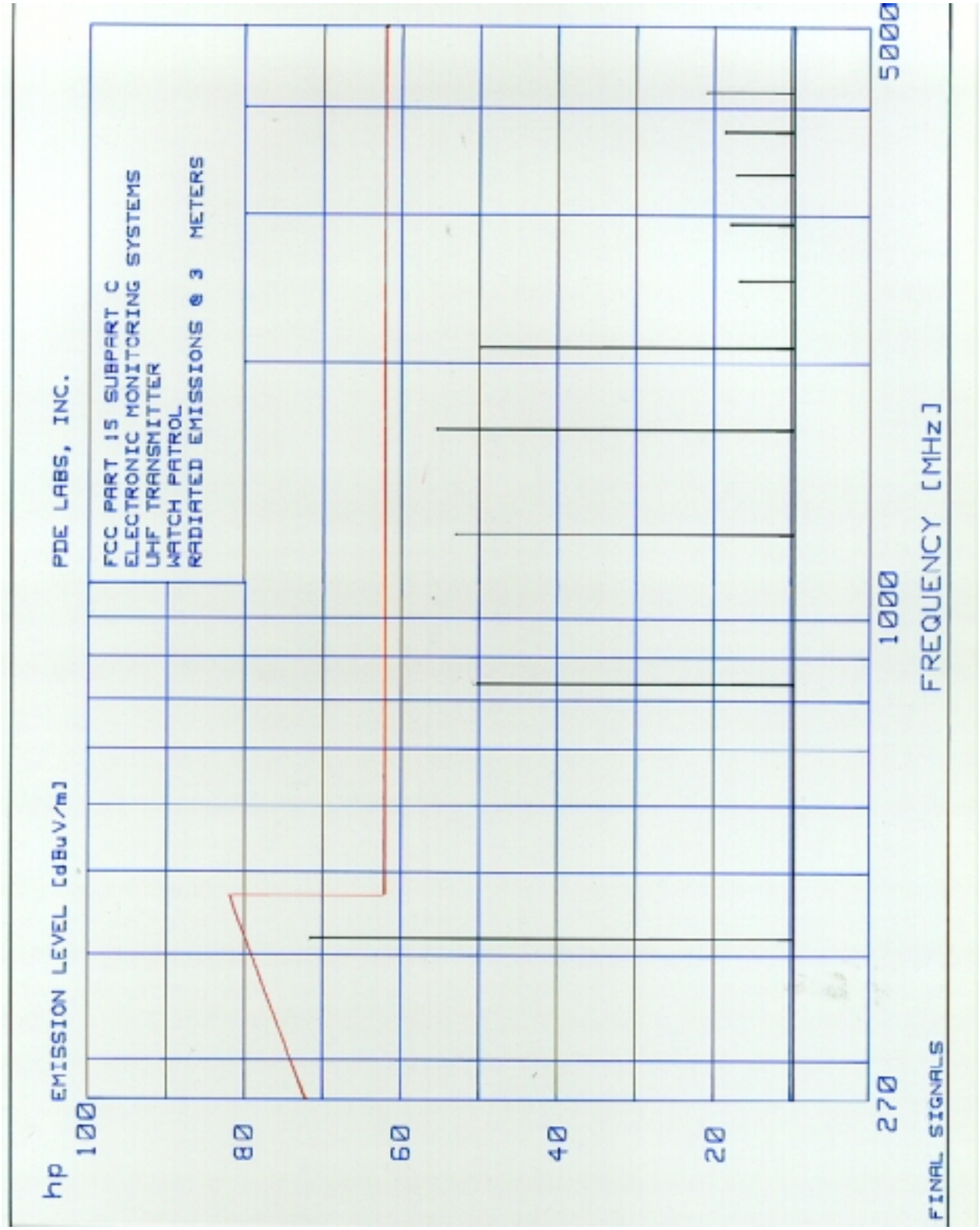
2.2 TEST RESULTS - CONDUCTED EMISSIONS

Conducted Emission Results – Low or Return Lead

*****Not applicable: Device battery powered**

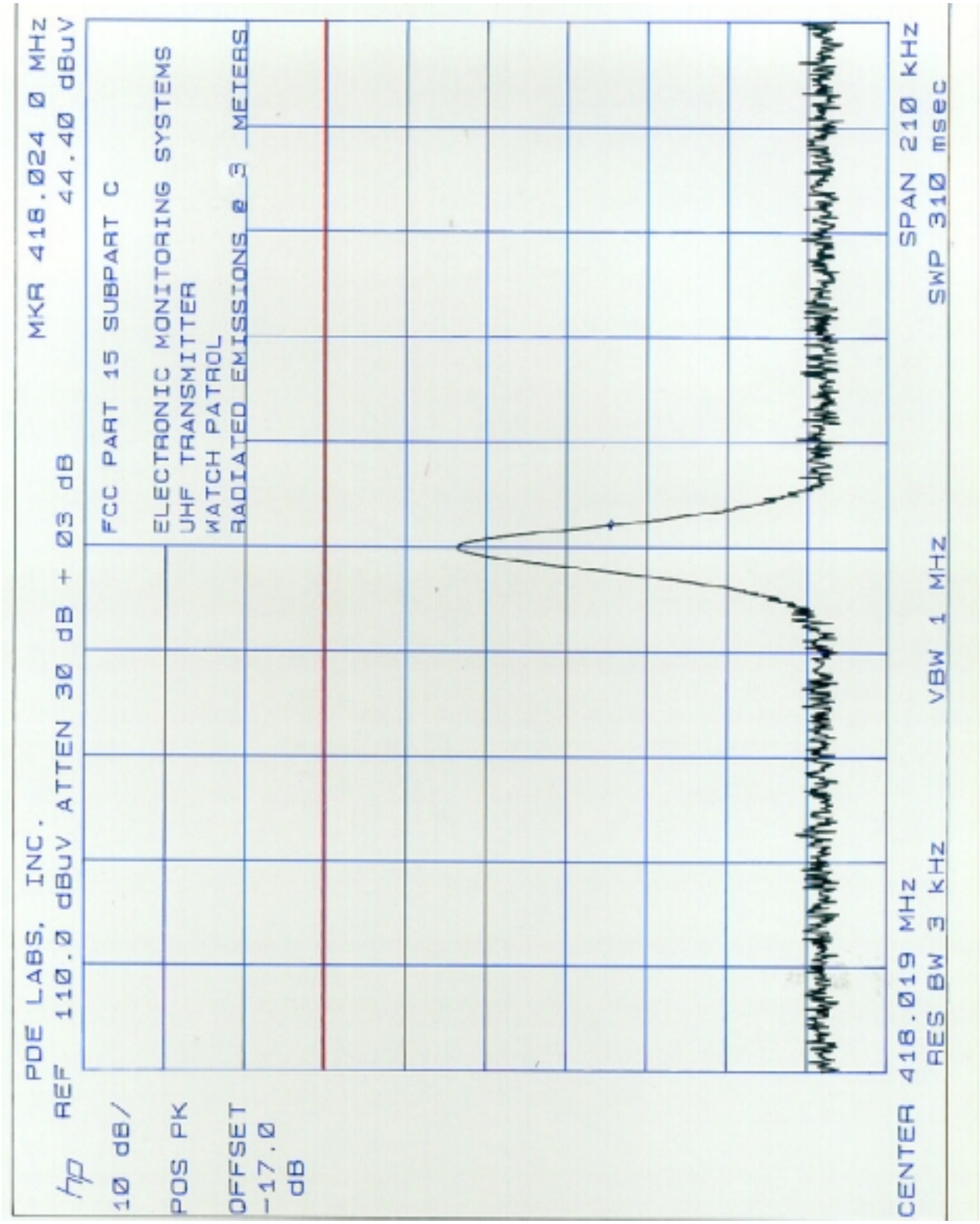
2.3 TEST RESULTS - RADIATED EMISSIONS

Measurements taken at 3 Meters.



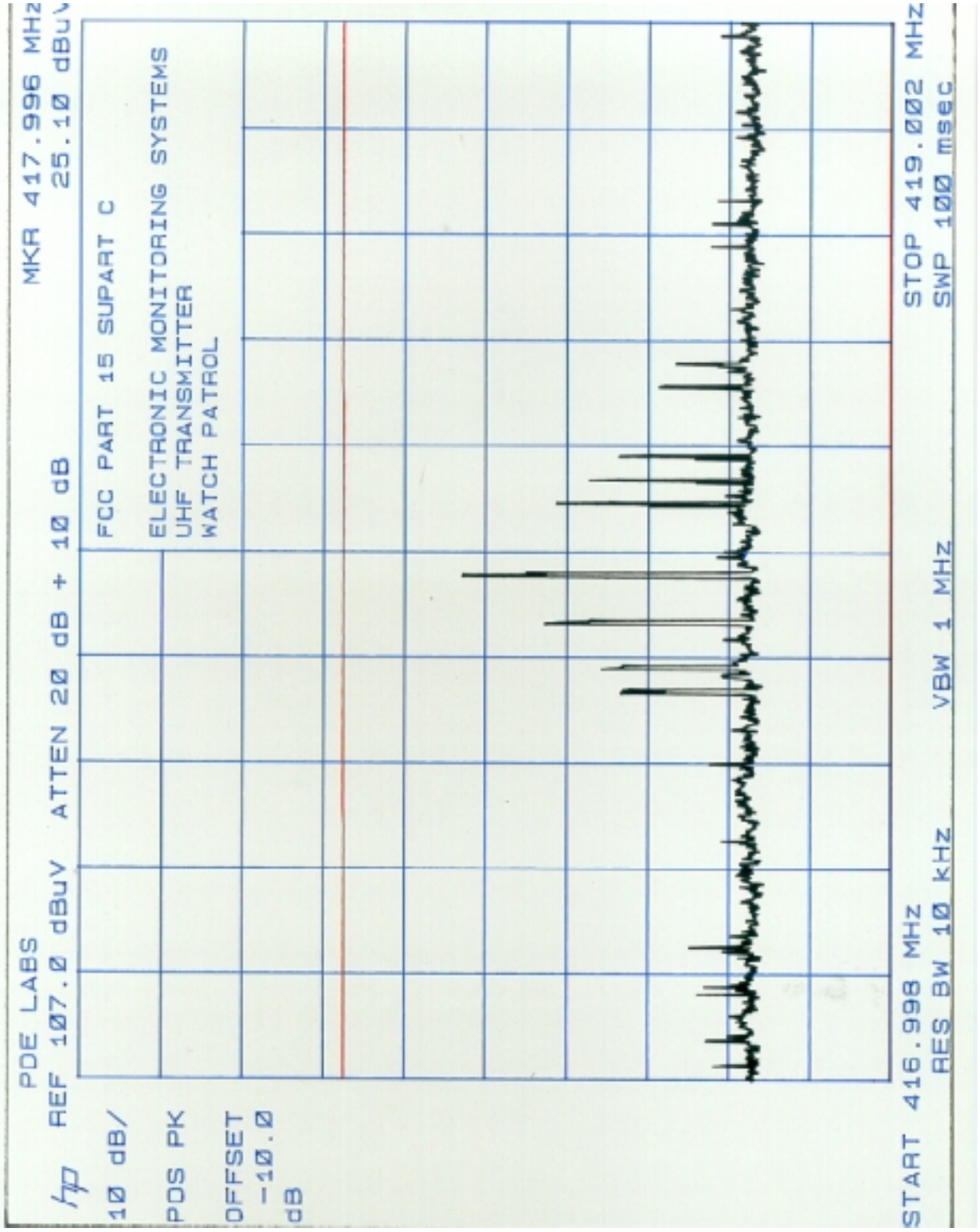
2.3 TEST RESULTS - RADIATED EMISSIONS (Carrier @418 MHz)

Measurements taken at 3 Meters.



2.3 TEST RESULTS - RADIATED EMISSIONS (w/ Modulation)

Measurements taken at 3 Meters.



PRODUCT RADIATED EMISSIONS

No	Emission Frequency MHz	Spec Limit dB	Measurements ABS UV/m	dLim dB	Mode	Site Pol	Hgt Cm	AZM deg	Corr Factor dB	Comments
1	418.058	79.9	71.7	-8.2	PK	V	101	156	-.2	
2	836.121	61.9	50.4	-11.5	PK	V	114	172	9	
3	1254.03	61.9	53.2	-8.7	PK	V	115	172	28.5	
4	1672.07	61.9	55.7	-6.2	PK	V	103	95	31.1	
5	2090.09	61.9	50.1	-11.8	PK	V	115	172	-5.7	
6	2508	61.9	17.0	-44.9	PK					
7	2926	61.9	18.1	-43.6	PK					
8	3344	61.9	17.3	-44.6	PK					
9	3762	61.9	18.8	-43.1	PK					
10	4180	61.9	21.1	-40.8	PK					

NOTE:

This product was tested and evaluated at all harmonics of the internal Local oscillator frequency to the 10th at 4.180 Ghz.

NO EMISSIONS WERE DETECTED ABOVE 2.508 Ghz.

The measurements in the following chart are taken directly at the output of the EUT with the internal antenna removed. The actual output impedance of the RF output stage is unknown and is suspected to be a complex impedance. The measurements were made with a spectrum analyzer presenting a 50-Ohm load to the EUT, which is one of several standard impedances for circuits of this type. The direct measurements seem to correlate with the measurements taken at 3 Meters when normalized for path loss, spiral antenna characteristics and site antenna factors.

PRODUCT EMISSIONS

No	Emission Frequency MHz		Measurement ABS UV/m	dbm
1	418.058		94.8	-12.5
2	836.121		73.9	-33.2
3	1254.03		82.0	-25.1
4	1672.07		73.7	-33.4
5	2090.09		68.8	-38.1
6	2508		37.2	-69.7
7	2926		35.1	-71.8
8	3344		32.7	-74.0
9	3762		26.4	-80.3
10	4180		36.5	-70.3

Note: Measurements taken at the RF output terminals.

2.4 MODIFICATIONS

None required to demonstrate compliance. Unit compliant as tested

2.5 INTENT TO INCORPORATE ENGINEERING REWORK (If required by 2.4 above)

INTENT TO INCORPORATE ENGINEERING REWORK

This is a letter of Intent to Incorporate the Engineering Rework as described in the above referenced PDE Laboratories. Test Report, Section 2.4, to achieve compliance with the intent of the testing as documented. I, the undersigned have the responsibility for marketing the device tested, and have implemented procedures to monitor the quality of the product (device tested), during continued manufacturing processes and possible product changes or enhancements, and take the responsibility to monitor continued compliance through periodic re-testing during the life of product (device tested), and re-testing any new configuration which might alter the status of the product's continued compliance to the applicable Rules and Regulations.

[NOT APPLICABLE FOR THIS TEST REPORT]

_____
Signature Date

_____
Name

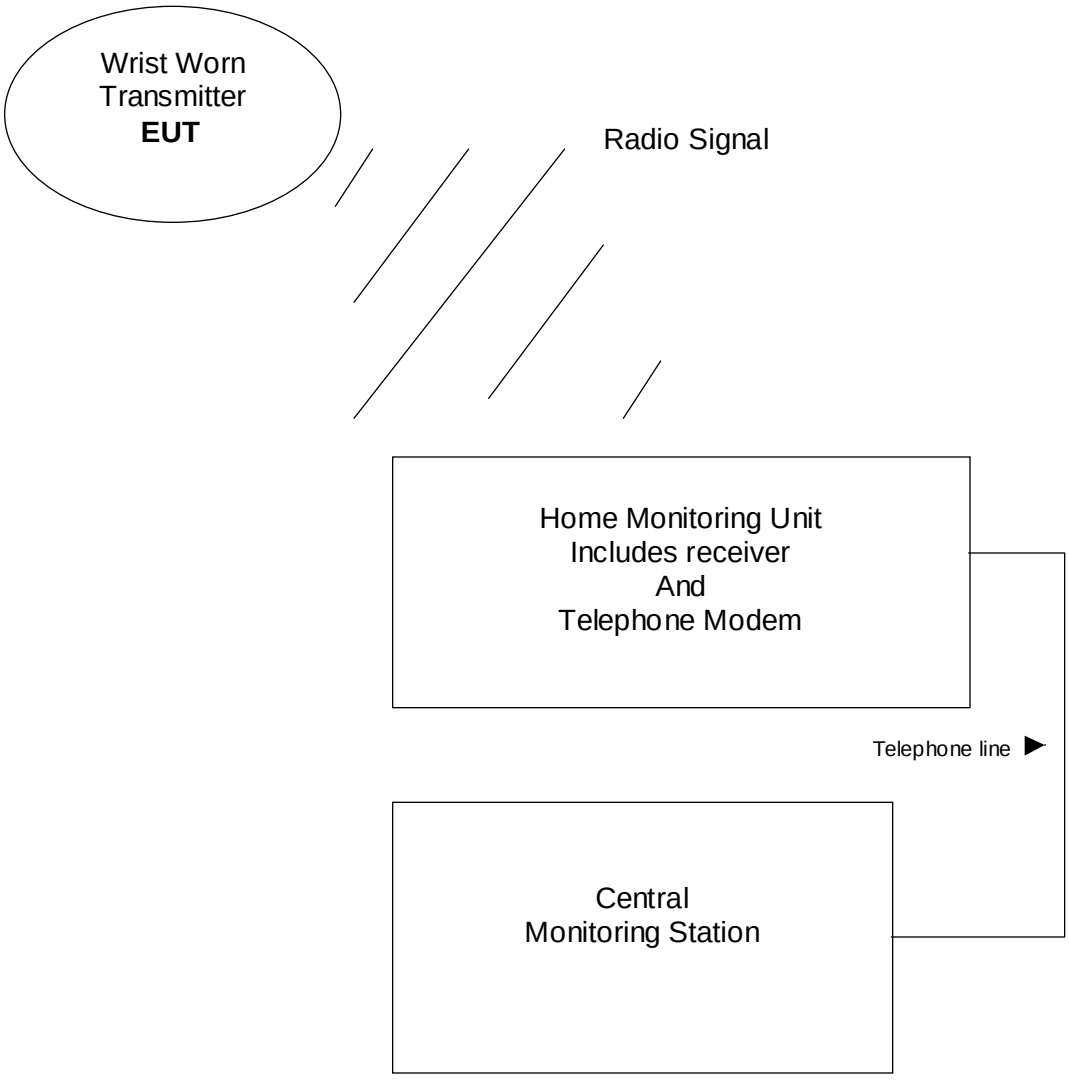
_____
Title

2.6 RECOMMENDATIONS

None. Refer to Paragraph 2.4 for any applicable comments.

3.0 DESCRIPTION OF EUT CONFIGURATION

3.1 SKETCH OF EQUIPMENT AND CABLE CONFIGURATION



3.2 DESCRIPTION OF EUT AND PERIPHERAL EQUIPMENT

3.2.1 DESCRIPTION OF EUT

The EUT is a Electronic Monitoring Systems (EMS) Inc. UHF Transmitter Model: Watch Patrol RF

Equipment:	UHF Transmitter (418 MHz)
Manufacturer:	Electronic Monitoring Systems (EMS) Inc.
Model No.:	Watch Patrol RF
Serial No.:	Engineering Prototype
Internal Frequencies:	418.00 plus or minus for the Local Oscillator heterodyne action
Power Supply:	N/A Internal Power Supply (battery powered)

RFI Suppression Features:

Powerline Filter:	N/A
Ferrite Chokes:	N/A

Internal Components: N/a

Equipment:	N/A
Manufacturer:	
Model No.:	
Serial No.:	
Located:	

3.2.2 DESCRIPTION OF PERIPHERAL EQUIPMENT

1) Equipment None directly attacahed
Manufacturer:
Model No.:
Serial No:

3.3 TYPES OF CABLES USED:

Power Cords

1) Unit: None. Powered internally
Manufacturer:
Shielded:
Length:

I/O Cables - External

1) Connection: None.
Manufacturer:
Shielded:
Connectors:
Length:

3.4 OPERATING MODES

The Electronic Monitoring Systems (EMS) Inc. 's UHF Transmitter, Model: Watch Patrol RF operated continuously during all tests.

The product was configured by EMS internally so it would continuously transmit as opposed to the periodic transmissions. This was done to speed the measurement time of the fundamental and all detectable harmonics as recorded in this report.

Absolute emission level measurements were made with various orientations of the unit relative to the receiving antenna. Prior to actual OATS testing, a near-field RF probe was used to exhaustively survey the EUT for their internal Local Oscillator and clock frequencies.

All final data was taken with the EUT in the above mode of operation. The position of the peripherals (if required in the test set up) and interconnect cables (if required in the test set up) were varied to provide generally the highest emissions prior to the final tests.

Absolute emission level measurements were made in an automatic orientation fashion such that the EUT was uniquely positioned for each of the significant emissions detected in the prescan evaluation. Those data are hereby recorded.

3.5 PHOTOGRAPHS OF TEST SETUP AND EUT (Conducted)

***Not applicable for this report. Product self-contained and battery powered.

3.5 PHOTOGRAPHS OF TEST SETUP AND EUT (Radiated)

3.5 PHOTOGRAPHS OF TEST SETUP AND EUT (Radiated)

3.5 PHOTOGRAPH OF EUT

Top cover removed. Internal spiral antenna visible on top of PCB.

3.5 PHOTOGRAPH OF EUT

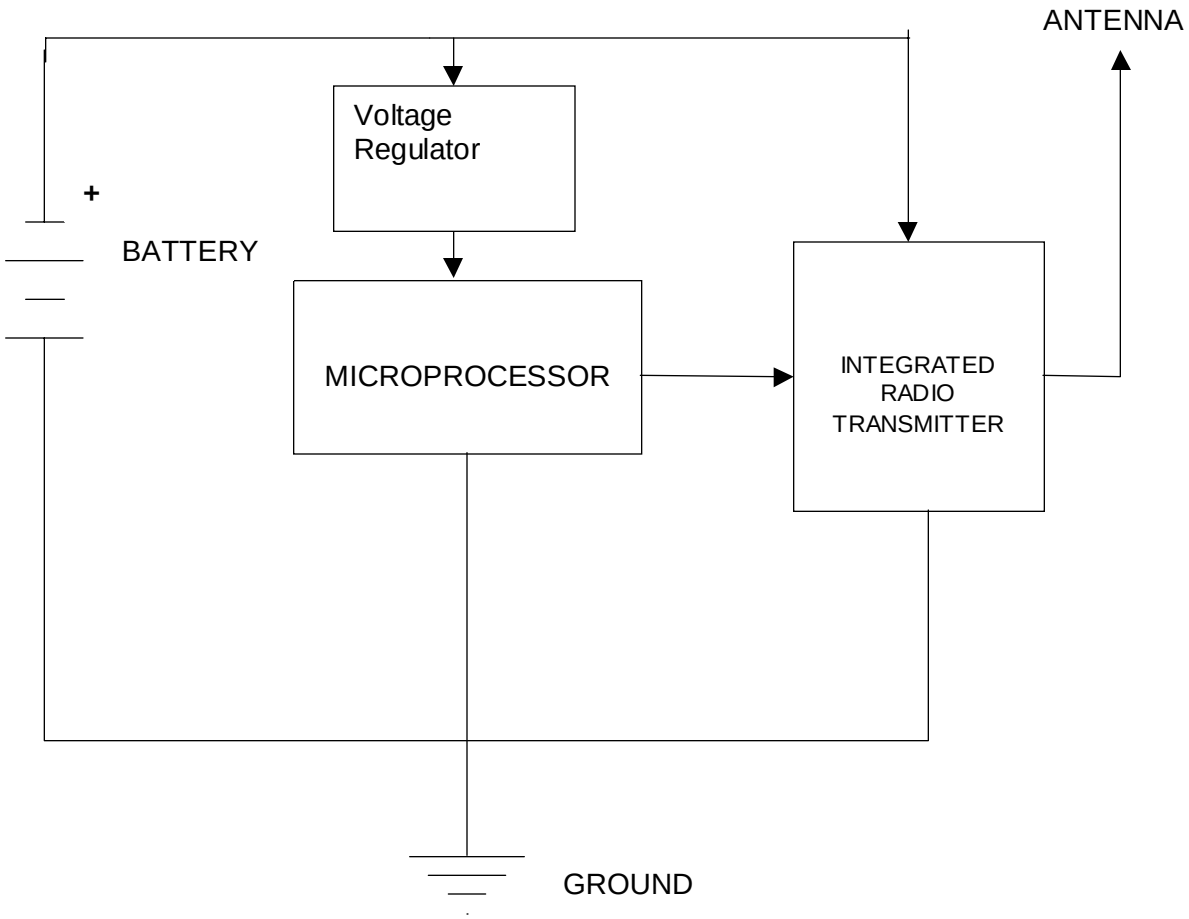
Internal view of underside of EUT, cover removed with battery and PCB. Inside EUT is piezo audio tone transducer.

3.5 PHOTOGRAPH OF EUT

Internal view with PCB component side exposed and spiral antenna element over top of PCB.

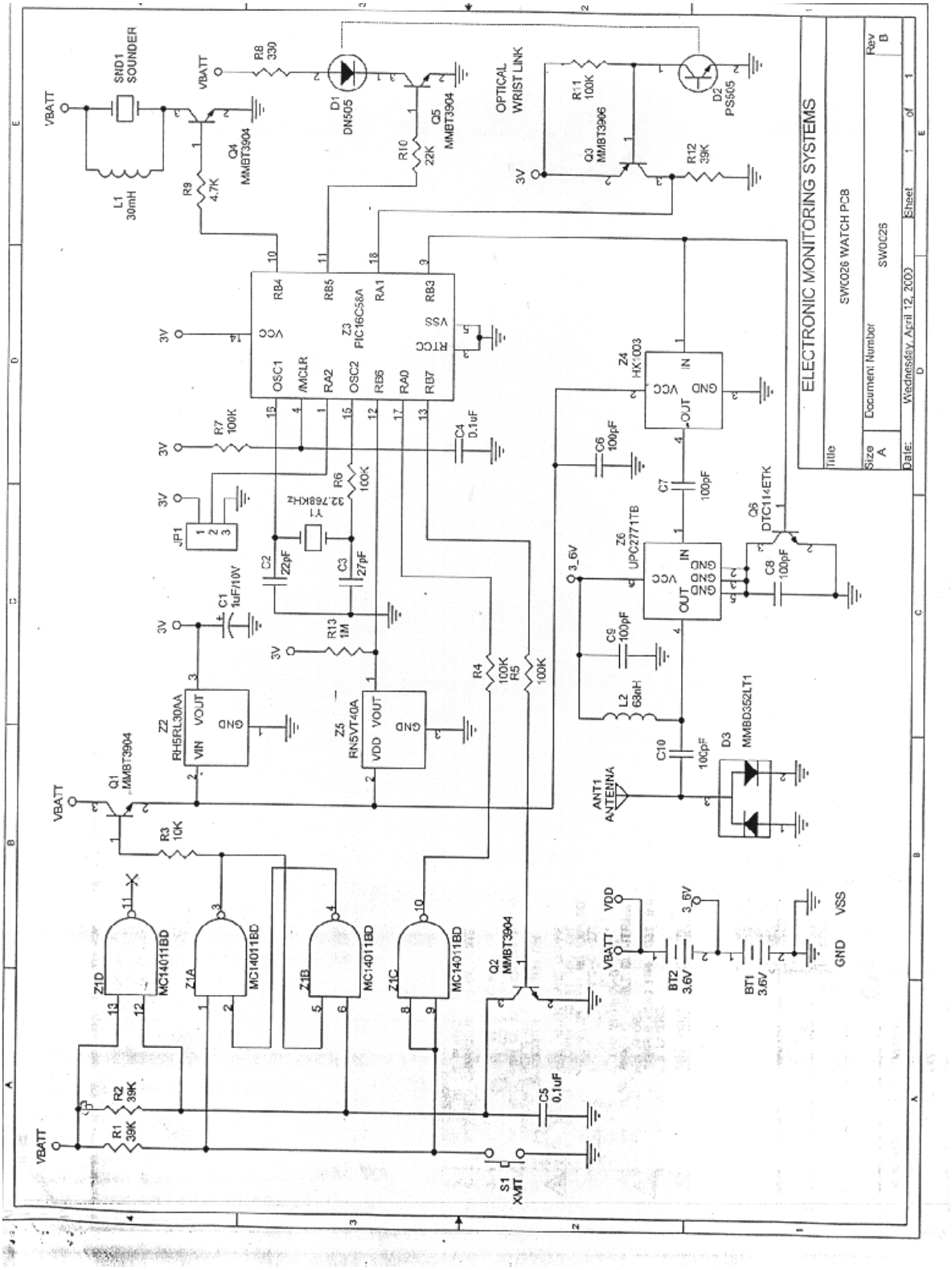
3.6 BLOCK DIAGRAM

WATCH PATROL RF TRANSMITTER
COMPONENT DIAGRAM



NOTE: EUT TESTED WITH A FULL CAPACITY BATTERY TO DEMONSTRATE THE HIGHEST RF LEVEL AVAILABLE SINCE RF MODULE HAS NO VOLTAGE REGULATION.

3.6 Schematic of EUT



3.6 Parts Layout of EUT