

Report No	EC0966-1
Client	Locknetics Security Engineering 575 Birch Street Forestville, CT 06010
Phone	860-314-5248
Fax	860-585-8629
FRN	0005178298
Models	SPC-2PXI, SPM-2PXI, SPMA-2PXI
FCC ID	P2G2PXI
Equipment Type Equipment Code	Low Power Communication Device Transmitter DXX
Results	As detailed within this report
Prepared by	 Evan Gould – Test Engineer
Authorized by	 Michael Buchholz – EMC Manager
Issue Date	<u>1/23/03</u>
Conditions of issue	This Test Report is issued subject to the conditions stated in ‘terms and conditions’ section of this report.

Table Of Contents

<i>EUT Configuration</i>	3
<i>Summary</i>	4
<i>Test Methodology</i>	4
<i>Statement of Conformity</i>	5
<i>Fundamental Frequency Measurement</i>	6
<i>Test Equipment Used</i>	7
<i>Terms And Conditions</i>	8

EUT Configuration

EUT Configuration				
Work Order: C0966				
Company: Locknetics Security Engineering				
Company Address: 575 Birch Street Forestville, CT 06010				
Contact: Adam O'Day				
Person Present: Adam O'Day				
MN		SN		
EUT: SPC-2PXI		-		
EUT Description: Software managed cylindrical locking system				
Support Equipment:	MN	SN		
none				
EUT Cables:	Qty	Shielded?	Length	Ferrites
none				
Unpopulated EUT Ports:	Qty	Reason		
none				
Software / Operating Mode Description:				
Max hold plots were taken as the credential was waved in front of the EUT, which activates the transmitter circuit.				

Summary

This report is an application for Certification of a Transmitter operating pursuant to 47 CFR 15.209. The models covered by this report are:

SPC-2PXI	Cylindrical locking system
SPM-2PXI	Mortise locking system (Latchbolt)
SPMA-2PXI	Mortise locking system (Autobolt)

The model tested was the SPC-2PXI. The only difference between the models is the type of locking mechanism used. This report is designed to demonstrate the compliance of this device with the requirements outlined in 47 CFR Part 15 using the methods outlined in 47 CFR Part 2.

Test Methodology

Radiated emissions testing is performed according to the procedures specified in ANSI C63.4 (2000).

Frequency range investigated: 9kHz – 1GHz

Measurement distance: 3 Meters

Maximization: EUT rotated around vertical axis

Statement of Conformity

The Locknetics SPC-2PXI has been found to conform with the following parts of the 47 CFR as detailed below:

Part 2	Part 15	Comments
	15.15(b)	The product contains no user accessible controls that increase transmission power above allowable levels.
2.925	15.19	The label is shown in the label exhibit.
	15.21	Information to the user is shown in the instruction manual exhibit.
	15.27	No special accessories are required for compliance.
	15.203	The antenna is not accessible to the user and therefore cannot be easily removed.
	15.205 15.209	The fundamental is not in a Restricted band and the spurious and harmonic emissions in the Restricted bands comply with the general emission limits of 15.209.
	15.207	The unit is battery powered without the capability of being recharged or operated from the AC mains.

Fundamental Frequency Measurement

LIMITS

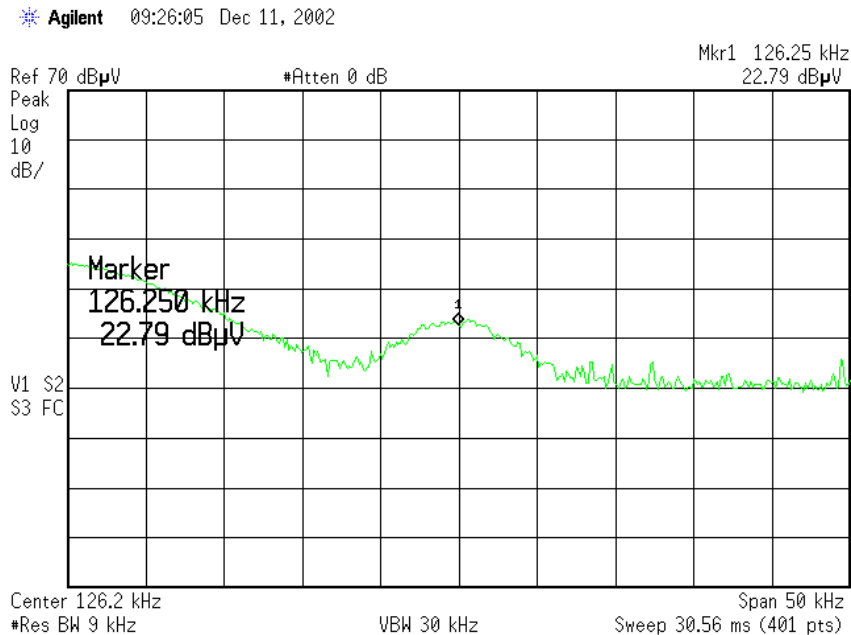
Frequency (MHz)	Limit ($\mu\text{V/m}$)	Measurement Distance (meters)
0.009-0.49	2400/F(kHz)	300
0.49-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

[47 CFR 15.209]

MEASUREMENTS

Fundamental and Harmonics (9kHz-1GHz)									Curtis-Straus LLC		
Date: 11-Dec-02			Engineer: Evan Gould			Work Order: C0966					
Company: Locknetics			EUT: SPC-2PXI			Fundamental Frequency: 125kHz					
Test Site: "T"			Cable: 65 ft RG8A/U			Pre-amp: Black					
Antennas: Small Loop (9kHz-30MHz) Green-White (30MHz-1GHz)			Filter/Attenuator: N/A			Analyzer: Orange					
Measurement Distance: 3 meters						Resolution BW: 9kHz					
Detector Type: Peak						Video BW: 1MHz					
Notes: No spurious emissions were detected.											
Antenna Polarization (0° / 90°)	Frequency (MHz)	Reading (dBμV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Filter/Attenuator Factor (dB)	Distance Factor (dB)	Adjusted Reading (dBμV/m)	47 CFR 15.209		
									Limit (dBμV/m)	Margin (dB)	Result (Pass/Fail)
0deg	0.125	22.8	21.6	62.7	0.0	0.0	80.0	-16.1	25.6	-41.7	Pass
noise floor	0.25	11.0	21.7	57.7	0.0	0.0	80.0	-33.0	19.6	-52.6	Pass
noise floor	0.38	12.9	21.8	55.3	0.0	0.0	80.0	-33.6	16.1	-49.7	Pass
noise floor	0.5	12.9	21.8	53.1	0.0	0.0	40.0	4.2	33.6	-29.4	Pass
noise floor	0.63	27.9	21.8	52.1	0.0	0.0	40.0	18.2	31.6	-13.4	Pass
noise floor	0.75	13.4	21.8	51.5	0.0	0.0	40.0	3.1	30.0	-26.9	Pass
noise floor	0.88	15.3	21.8	51.1	0.0	0.0	40.0	4.6	28.7	-24.1	Pass
noise floor	1.0	13.2	21.8	50.8	0.0	0.0	40.0	2.2	27.6	-25.4	Pass
noise floor	1.13	18.8	21.8	55.5	0.0	0.0	40.0	12.5	26.5	-14.0	Pass
noise floor	1.26	25.9	21.8	54.7	0.0	0.0	40.0	18.8	25.6	-6.8	Pass

FUNDAMENTAL ANALYZER PLOT



Test Equipment Used

Rev. 12/02/02

SPECTRUM ANALYZERS					
x	Analyzer	Model No.	Company	Serial No.	Calibration Due
X	ORANGE 9kHz-26.5GHz	E4407B	HP	US39440975	07-JUN-2003

OPEN AREA TEST SITE (OATS)					
x	Site	FCC Code	IC Code	VCCI Code	Calibration Due
X	"T" Texas	93448	IC 2762-T	R-905	04-FEB-2004

ANTENNAS					
x	Antenna	Model No.	Company	Serial No.	Calibration Due
X	GREEN-WHITE Bilog: 30MHz-2GHz	CBL6112B	Chase	2574	11-JUL-2004
X	SMALL LOOP Passive Loop: 9kHz-30MHz	PLA-130/A	ARA	1024	27-JAN-2004

PREAMPLIFIER					
x	Preamplifier	Model No.	Company	Serial No.	Calibration Due
X	BLACK 0.01-2000MHz	ZFL-1000-LN	MiniCircuits/ C-S	N/A	22-MAR-2003

Unless otherwise noted the calibration interval is one year. All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Terms And Conditions

Paragraph 1. SERVICES. LABORATORY will:

- 1.1 Use the degree of care and skill ordinarily exercised by and consistent with the standards of the profession.
- 1.2 Perform all technical services in substantial accordance with the generally accepted laboratory principles and practices.
- 1.3 Retain all pertinent records relating to the services performed for a period of three (3) years following submission of the report describing such services, during which period the records will be made available to CLIENT upon reasonable request.

Paragraph 2. CLIENT'S RESPONSIBILITIES. CLIENT or his authorized representative will:

- 2.1 Provide LABORATORY with all plans, schematics, specifications, addenda, change orders, drawings and other information for the proper performance of technical services.
- 2.2 Designate a person to act as CLIENT's representative with respect to LABORATORY's services to be performed on behalf of the CLIENT; such person or firm to have complete authority to transmit instructions, receive information and data, interpret and define CLIENT's policies and decisions with respect to the LABORATORY's work on behalf of the CLIENT and to order, at CLIENT's expense, such technical services as may be required.
- 2.3 Designate a person who is authorized to receive copies of LABORATORY's reports.
- 2.4 Undertake the following:
 - (a) Secure and deliver to LABORATORY, without cost to LABORATORY, preliminary representative samples of the equipment proposed to require technical services, together with any relevant data.
 - (b) Furnish such labor and equipment needed by LABORATORY to handle samples at the LABORATORY and to facilitate the specified technical services.

Paragraph 3. GENERAL CONDITIONS:

- 3.1 LABORATORY, by the performance of services covered hereunder, does not in any way assume any of those duties or responsibilities customarily vested in the CLIENT, its employees, or any other party, agency or authority.
- 3.2 LABORATORY shall not be responsible for acts of omissions of any other party or parties involved in the design, manufacture or maintenance of the equipment or the failure of any employee, contractor or subcontractor to undertake any aspect of equipment's design, manufacture or maintenance.
- 3.3 LABORATORY is not authorized to revoke, alter, release, enlarge or release any requirement of the equipment's design, manufacture or maintenance unless specifically authorized by CLIENT or his authorized representative.
- 3.4 THE ONLY WARRANTY MADE BY LABORATORY IN CONNECTION WITH ITS SERVICE PERFORMED HEREUNDER IS THAT IT WILL USE THAT DEGREE OF CARE AND SKILL AS SET FORTH IN PARAGRAPH 1 ABOVE. NO OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE OR INTENDED FOR SERVICES PROVIDED HEREUNDER.
- 3.5 Where the LABORATORY indicates that additional testing is advisable to obtain more valid or useful data, and where such testing has not been authorized, CLIENT agrees to view such test reports as inconclusive and preliminary.
- 3.6 The LABORATORY will supply technical service and prepare a report based solely on the sample submitted to the LABORATORY by the CLIENT. The CLIENT understands that application of the data to other devices is highly speculative and should be applied with extreme caution.
- 3.7 The LABORATORY agrees to exercise ordinary care in receiving, preserving and shipping (F.O.B. Littleton, MA) any sample to be tested, but assumes no responsibility for damages, either direct or consequential, which arise from loss, damage or destruction of the samples due to the act of examination, modification or testing, or technical services or circumstances beyond LABORATORY's control.
- 3.8 The LABORATORY will hold samples for thirty (30) days after tests are completed, or until the CLIENT's outstanding debts to the LABORATORY are satisfied, whichever is later.
- 3.9 The CLIENT recognizes that generally accepted error variances apply and agrees to consider such error variances in its use of test data.
- 3.10 It is agreed between LABORATORY and CLIENT that no distribution of any tests, reports or analysis other than that described below shall be made to any third party without the prior written consent of both parties unless such distribution is mandated by operation of law. It is agreed that tests, reports, or analysis results may be disclosed to third party auditors of the laboratory at the laboratory facility in the course of accreditation maintenance audits. No reference to reports or technical services of the LABORATORY shall be made in any advertising or promotional literature without the express written permission of the LABORATORY.
- 3.11 The CLIENT acknowledges that all employees of LABORATORY operate under employment contracts with the LABORATORY and CLIENT agrees not to solicit employment of such employees or to solicit information related to other clients from said employees.
- 3.12 In recognition of the relative risks and benefits of the project to both CLIENT and LABORATORY, the risks have been allocated such that the CLIENT agrees, to the fullest extent permitted by law, to limit the liability of the LABORATORY to the CLIENT for any and all claims, losses, costs, damages of any nature whatsoever or claims expenses from any cause or causes, including attorneys' fees and costs and expert witness fees and costs, so that the total aggregate liability of the LABORATORY to the CLIENT shall not exceed \$100,000, or the LABORATORY'S total fee for services rendered on this project, whichever is greater. It is intended that this limitation apply to any and all liability or cause of action however alleged or arising, unless otherwise prohibited by law.

Paragraph 4. INSURANCE:

- 4.1 LABORATORY shall secure and maintain throughout the full period of the services provided to the CLIENT adequate insurance to protect it from claims under applicable Workmen's Compensation Acts and also shall maintain one million dollars of general liability coverage to cover claims for bodily injury, death or property damage as may arise from the performance of its services.
- 4.2 The CLIENT hereby warrants that it has sufficient insurance to protect its employees adequately under applicable Workmen's Compensation Acts and for bodily injury, death, or property damage.
- 4.3 No insurance of whatever kind or type, which may be carried by either party is to be considered as in any way limiting any other party's responsibility for damages resulting from their operations or for furnishing work and materials.

Paragraph 5. PAYMENT:

- 5.1 CLIENT shall pay to LABORATORY such fees for services as previously agreed, orally or in writing, within 30 days of presentment of a bill for such services performed. In the event CLIENT ordered, orally or in writing, services but such services were not assigned a rate for billing, such services shall be billed at the LABORATORY's reasonable and customary rate.
- 5.2 CLIENT shall be responsible for all shipping, customs and other expenses related to services provided by LABORATORY to the CLIENT, and shall fully insure any test sample or other equipment provided to LABORATORY by the CLIENT.
- 5.3 Amounts overdue from CLIENT to LABORATORY shall be charged interest at a rate of 1 1/2% per month.

Paragraph 6. ISO/IEC GUIDE 17025 ADDITIONS:

- 6.1 CLIENT agrees that this test report will not be reproduced except in full, without written approval from the LABORATORY.
- 6.2 CLIENT agrees that this test report shall not be used to claim product endorsement by A2LA or ANSI or any agency of the U.S. Government.
- 6.3 CLIENT agrees that test results presented herein relate only to the sample tested by the LABORATORY.