



Report No	EC0895-1
Client	Locknetics 20 Dolphin Road P.O. Box 9338 Forestville, CT 06011-9338
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FRN	0005178298
Models	CM5100-PPK, CM5100-PPI, CM5500-PPK, CM5500-PPI
FCC ID	CM5100-PCK, CM5100-PCI, CM5500-PCK, CM5500-PCI P2GPROXIF
Equipment Type	Low Power Communication Device Transmitter
Equipment Code	DXX
Results	As detailed within this report
Prepared by	 Evan Gould – Test Engineer
Authorized by	 Michael Buchholz – EMC Manager
Issue Date	<u>12/12/02</u>
Conditions of issue	This Test Report is issued subject to the conditions stated in ‘terms and conditions’ section of this report.

Curtis-Straus LLC is accredited by the American Association for Laboratory Accreditation for the specific scope of accreditation under Certificate Number 1627-01. This report may contain data which is not covered by the A2LA accreditation.

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Summary

This report is an application for Certification of a Transmitter operating pursuant to Part 15.209 of the FCC Rules, Code of Federal Regulations 47. The models covered by this report are:

CM5100-PPK
CM5100-PPI
CM5100-PCK
CM5100-PCI

CM5500-PPK
CM5500-PPI
CM5500-PCK
CM5500-PCI

The model tested was the CM5100-PPK. This is considered to be the worst case representative of the models shown above. 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: 1 Meter

Maximization: EUT rotated around vertical axis

Statement of Conformity

The Locknetics CM5100-PPK 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. (The antenna and its connector are underneath the keypad assembly which is in turn professionally installed in the door lock enclosure.)
	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

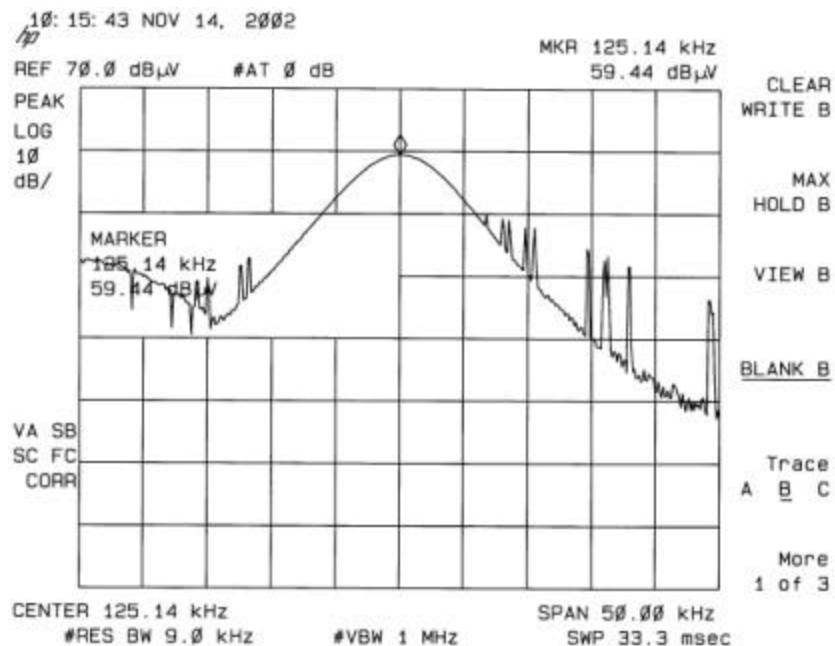
Frequency (MHz)	Limit ($\mu\text{V/m}$)	Measurement Distance (meters)
0.009-0.49	2400/F(kHz)	300
0.49-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

[47 CFR 15.209]

MEASUREMENTS

Fundamental and Harmonics (9kHz-1GHz)									Curtis-Straus LLC		
Date: 15-Nov-02			Engineer: Evan Gould			Work Order: C0895					
Company: Locknetics			EUT: CM5100 - PPK			Fundamental Frequency: 125kHz					
Test Site: "F"			Cable: 65 ft RG8A/U			Pre-amp: Red					
Antennas: Small Loop (9kHz-30MHz)			Filter/Attenuator: N/A			Analyzer: Yellow					
Blue (30MHz-1GHz)											
Measurement Distance: 1 meter			Resolution BW: 9kHz								
Detector Type: Peak			Video BW: 1MHz								
Notes: No spurious emissions were detected.											
									47 CFR 15.209		
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)	Limit (dBμV/m)	Margin (dB)	Result (Pass/Fail)
0°	0.125	59.4	21.7	62.7	0.0	0.0	99.0	1.4	25.6	-24.2	Pass
0°	0.25	48.1	22.0	57.7	0.0	0.0	99.0	-15.2	19.6	-34.8	Pass
0°	0.375	33.9	22.0	55.4	0.0	0.0	99.0	-31.7	16.1	-47.8	Pass
0°	0.5	33.9	22.1	53.1	0.0	0.0	59.0	5.9	33.6	-27.7	Pass
0°	0.625	28.6	22.1	52.2	0.0	0.0	59.0	-0.3	31.6	-31.9	Pass
0° (noise floor)	0.75	16.0	22.1	51.5	0.0	0.0	59.0	-13.6	30.0	-43.6	Pass
0°	0.875	21.7	22.0	51.1	0.0	0.0	59.0	-8.2	28.7	-36.9	Pass
0° (noise floor)	1.0	28.2	22.0	50.8	0.0	0.0	59.0	-2.0	27.6	-29.6	Pass
0° (noise floor)	1.13	25.2	22.0	55.5	0.0	0.0	59.0	-0.3	26.5	-26.8	Pass
0° (noise floor)	1.25	28.6	22.0	54.8	0.0	0.0	59.0	2.4	25.6	-23.2	Pass

FUNDAMENTAL ANALYZER PLOT



Test Equipment Used

Rev. 11/07/02

SPECTRUM ANALYZER					
x	Analyzer	Model No.	Company	Serial No.	Calibration Due
X	YELLOW 9kHz-2.9GHz	8594E	HP	3523A01958	03-JUL-2003

OPEN AREA TEST SITE (OATS)					
x	Site	FCC Code	IC Code	VCCI Code	Calibration Due
X	"F" Florida	93448	IC 2762-F	R-468	04-FEB-2004

ANTENNAS					
x	Antenna	Model No.	Company	Serial No.	Calibration Due
X	BLUE Bilog: 30MHz-1GHz	3143	EMCO	1271	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	RED 0.10-2000MHz	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 1½% 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.