



Flom Test Labs
EMI, EMC, RF Testing Experts Since 1963

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<http://www.flomlabs.com>
info@flomlabs.com

Date: April 6, 2007

Federal Communications Commission
Via: Electronic Filing

Attention: Authorization & Evaluation Division
Applicant: LostNFound Tracking Systems, LLC
9872 E. Pinon Pine Dr
Tucson, AZ 85748
Equipment:
FCC ID: U5HLNFTRACKERAC07
FCC Rules: 15.231, 15.207, 15.209

Gentlemen:

On behalf of the Applicant, enclosed please find Application Form 731, Engineering Test Report and all pertinent documentation, the whole for approval of the referenced equipment as shown.

We trust the same is in order. Should you need any further information, kindly contact the writer who is authorized to act as agent.

Sincerely yours,

Hoosamuddin S. Bandukwala, Lab Director

enclosure(s)
cc: Applicant
HSB/mdw

Flom Test Labs
3356 N. San Marcos Place, Suite 107
Chandler, Arizona 85225-7176
(866) 311-3268 phone, (480) 926-3598 fax

MFA p06c0011, d0720019

List Of Exhibits
(FCC **Certification** (Transmitters) - Revised 9/28/98)

Applicant: . LostNFound Tracking Systems, LLC
9872 E. Pinon Pine Dr
Tucson, AZ 85748

FCC ID: U5HLNFTRACKERAC07

By Applicant:

1. Letter Of Authorization
2. Identification Drawings
 - ☐ Id Label
 - ☐ Location Info
 - ☐ Attestation Statement(S)
 - ☐ Location of Compliance Statement
3. Documentation: 2.1033(B)
 - (3) User Manual(S)
 - (4) Operational Description
 - (5) Block Diagram
 - (5) Schematic Diagram
 - (7) External Photographs
 - Internal Photographs
 - Parts List
 - Active Devices

By F.T.L. Inc.

- A. Testimonial & Statement of Certification
- B. Statement of Qualifications



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Transmitter Certification

of

U5HLNFTRACKERAC07
to

Federal Communications Commission

Rule Part(s) 15.231

Date Of Report: April 6, 2007

On the Behalf of the Applicant:

LostNFound Tracking Systems, LLC

At the Request of:

LostNFound Tracking Systems, LLC
9872 E. Pinon Pine Dr
Tucson, AZ 85748

Attention of:

Dave Fousse
(520)207-5566
(520)207-5566 FAX
dbzone@msn.com

Supervised By:

Hoosamuddin S. Bandukwala, Lab Director

The applicant has been cautioned as to the following:

15.21 Information to User.

The users manual or instruction manual for an intentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.27(a) Special Accessories.

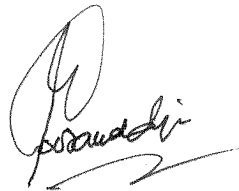
Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories, such as shielded cables and/or special connectors are required to enable an unintentional or intentional radiator to comply with the emission limits in this part, the equipment must be marketed with, i.e. shipped and sold with, those special accessories. However, in lieu of shipping or packaging the special accessories with the unintentional or intentional radiator, the responsible party may employ other methods of ensuring that the special accessories are provided to the consumer, without additional charge.

Information detailing any alternative method used to supply the special accessories for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment, as detailed in § 2.909 of this chapter, shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.

Testimonial And Statement Of Certification

This is to certify that:

1. **That** the application was prepared either by, or under the direct supervision of, the undersigned.
2. **That** the technical data supplied with the application was taken under my direction and supervision.
3. **That** the data was obtained on representative units, randomly selected.
4. **That**, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.



Certifying Engineer:

Hoosamuddin S. Bandukwala, Lab Director

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Required information per ISO 17025-2005, paragraph 5.10:

a) **Test Report**

b) Laboratory: Flom Test Lab, Inc.
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107
(Canada: IC 2044) Chandler, AZ 85225

c) Report Number: d0720019

d) Client: LostNFound Tracking Systems, LLC
9872 E. Pinon Pine Dr
Tucson, AZ 85748

e) Identification: LNFTRACKERAC07
Description: Fob Tracker

f) EUT Condition: Not required unless specified in individual tests.

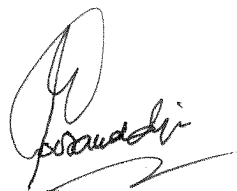
g) Report Date: April 6, 2007
EUT Received:

h, j, k): As indicated in individual tests.

i) Sampling method: No sampling procedure used.

l) Uncertainty: In accordance with FTL internal quality manual.

m) Supervised by:



Hoosamuddin S. Bandukwala, Lab Director

n) Results: The results presented in this report relate only to the item tested.

o) Reproduction: This report must not be reproduced, except in full, without written permission from this laboratory.

List Of General Information Required For Certification

In Accordance with FCC Rules and Regulations,
Volume II, Part 2 and to

15.231

Sub-Part 2.1033

(c)(1): **Name and Address of Applicant:**

LostNFound Tracking Systems, LLC
9872 E. Pinon Pine Dr
Tucson, AZ 85748

Manufacturer:

LostNFound Tracking Systems, LLC
9872 E. Pinon Pine Dr
Tucson, AZ 85748

(c)(2): **FCC ID:** U5HLNFTRACKERAC07

Model Number: LNFTRACKERAC07

(c)(3): **Instruction Manual(s):**

Please See Attached Exhibits

(c)(4): **Type of Emission:**

(c)(5): **FREQUENCY RANGE, MHz:** 433.92

(c)(6): **Power Rating, W:** 0.0192 uW
 _____ Switchable _____ Variable X N/A

(c)(7): **Maximum Power Rating, W:** 500 uW

15.203: **Antenna Requirement:**

sub-miniature coaxial connector(SMCC)

<u> X </u>	The antenna is permanently attached to the EUT
_____	The antenna uses a unique coupling
_____	The EUT must be professionally installed
_____	The antenna requirement does not apply

Subpart 2.1033 (continued)

(c)(8): Circuit Diagram/Circuit Description:

Including description of circuitry & devices provided for determining and stabilizing frequency, for suppression of spurious radiation, for limiting modulation and limiting power.

Please See Attached Exhibits

(c)(9): Label Information:

Please See Attached Exhibits

(c)(10): Photographs:

Please See Attached Exhibits

(c)(11): Digital Modulation Description:

☐ Attached Exhibits

☒ N/A

(c)(12): Test And Measurement Data :

Follows

Sub-part
2.1033(b):

Test And Measurement Data

All tests and measurement data shown were performed in accordance with FCC Rules and Regulations, Volume II; Part 2 and the following individual Parts:

15.231 Operation within bands 260.0 to 470.0 MHz

Standard Test Conditions and Engineering Practices

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI C63.4-2004, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst-case measurements.

A2LA

"A2LA has accredited Flom Test Labs, Inc. Chandler, AZ for technical competence in the field of Electrical testing. The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO 17025:2005 'General Requirements for the Competence of Testing and Calibration Laboratories' and any additional program requirements in the identified field of testing."

Please refer to www.a2la.org for current scope of accreditation.

Certificate number: 2152.01



Test Results Summary

Specification	Test Name	Pass, Fail, N/A	Comments
15.231(b)	Radiated Output Power	Pass	Limit 80.3 dBuV/m
15.231(b)	Transmitter Radiated Emissions	Pass	Limit 64.0 dBuV/m
15.231(a1)	Dwell time	Pass	Limit 5 Sec
15.231(c)	Occupied Bandwidth	Pass	0.25% of carrier

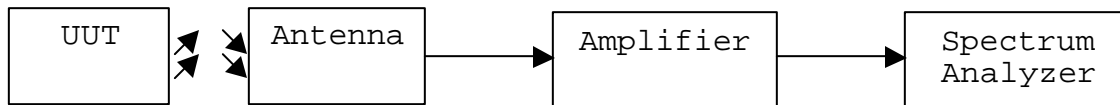
The EUT has potential harmonics that lie in restricted bands per 15.205. The limits for these signals supercede the limits in 15.231.

Name of Test: Peak Output Power
Specification: ANSI C63.4-2005
Test Equipment Utilized i00228, i00317

Test Procedure

The UUT was placed on the OAT's test site. The fundamental peak power was measured and data corrections added to the raw data to display the resultant output power.

Test Setup



Transmitter Radiated Measurements

Tuned Frequency MHz	Recorded Measurement	Specification Limit	Result
433.92	50.23dBuV/m	80.3dBuV/m	Pass

Sample Calculations:

Linear interpolation Limit

$$((433.92-260)(12500-3750) / (470-260)) + 3750 = 10996.68 \text{ uV/m}$$

The specification limit at 433.92 MHz is $20\log(10996.68) = 80.3 \text{ dBuV/m}$

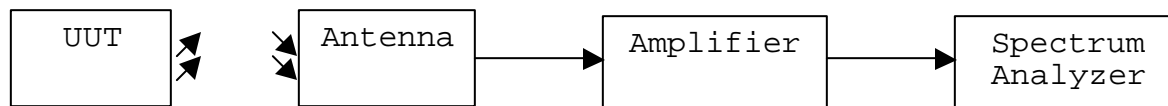
Measured radiated reading was taken from the spectrum analyzer.

Name of Test: Radiated Spurious Emissions
Specification: 15.231 (b, 1, 2, 3)
Spec. Limit
Test Equipment Utilized i00033, i00088, i00089, i00103

Test Procedure

The UUT was tested in an Open Area Test Site (OATS) set 3m from the receiving transducer. A spectrum analyzer was used to verify that the UUT met the requirements for Radiated Spurious Emissions.

Test Setup



Radiated Spurious Emissions 433.92 MHz

Tuned Freq (MHz)	Emission Freq (MHz)	Monitored Level (dBUV/m)	Correction Factor (dB)	Corrected Value (dBUV/m)	Limit (dBUV/m)	Result
433.92	867.797492	27.7	28.3	56.1	61.2	Pass
433.92	1301.759800 *	14.0	30.8	44.8	74 (pk)	Pass
433.92	1301.759800 *	5.0	30.8	35.7	54 (avg)	Pass
433.92	1735.680113	13.2	32.6	45.8	61.2	Pass
433.92	4337.900000 *	12.6	42.5	55.2	74 (pk)	Pass
433.92	4337.900000 *	.2	42.5	42.7	54 (avg)	Pass

* The asterisk indicates there the test frequency is in a restricted band. Limits for the restricted band are listed above. Emissions were tested out to the 10th harmonic.

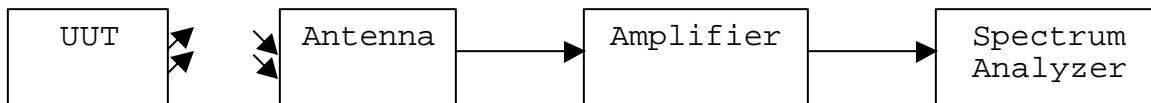
The average and peak limits for the restricted band come from 15.209

Name of Test: Occupied Bandwidth
Specification: 15.231
Limit 1.08 MHz ($\leq 25\%$)
Test Equipment Utilized i00029, i00290

Test Procedure

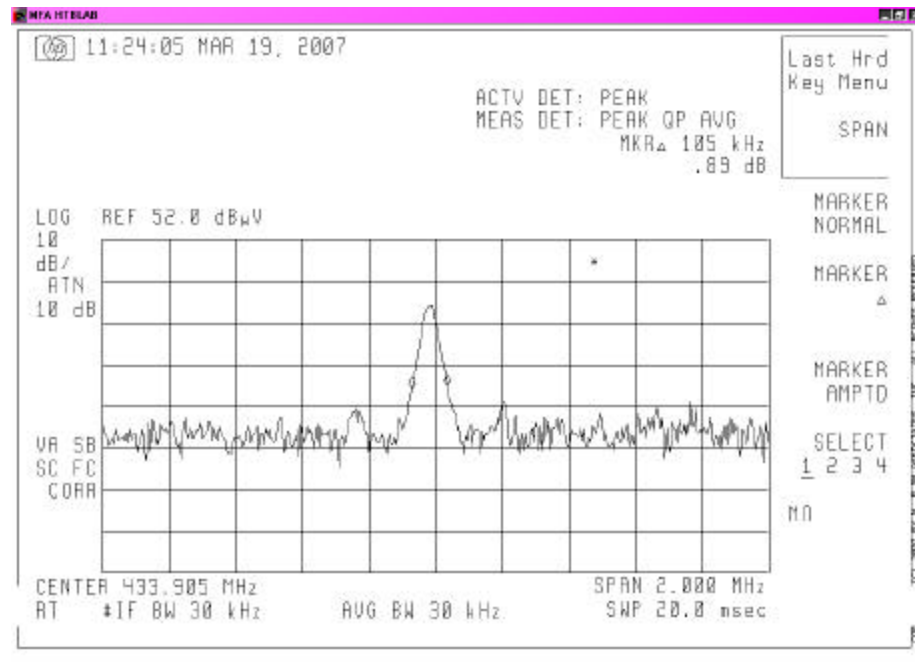
The UUT was tested on the OAT's site. The Span was set wide enough to capture the entire transmit spectrum and the resolution bandwidth was set to at least 1% of the span. The EUT response was captured and the 20 dBc bandwidth was measured. The results were posted below.

Test Setup



Occupied Bandwidth Summary

Frequency MHz	Recorded Measurement	Specification Limit	Result
433.92	105 KHz	1.08MHz ($\leq .25\%$)	Pass



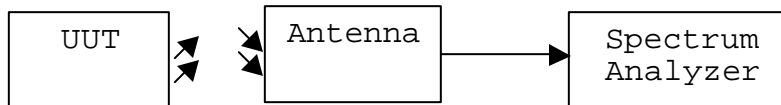
Calculation: $433.92 * .0025 = 1.08$ (MHz) 15.231 (b)(3)
 The measured reading at the 99% BW of the signal is 105KHz

Name of Test: Dwell time
Specification: 15.231
Limit 5 sec
Test Equipment Utilized i00029, i00290

Test Procedure

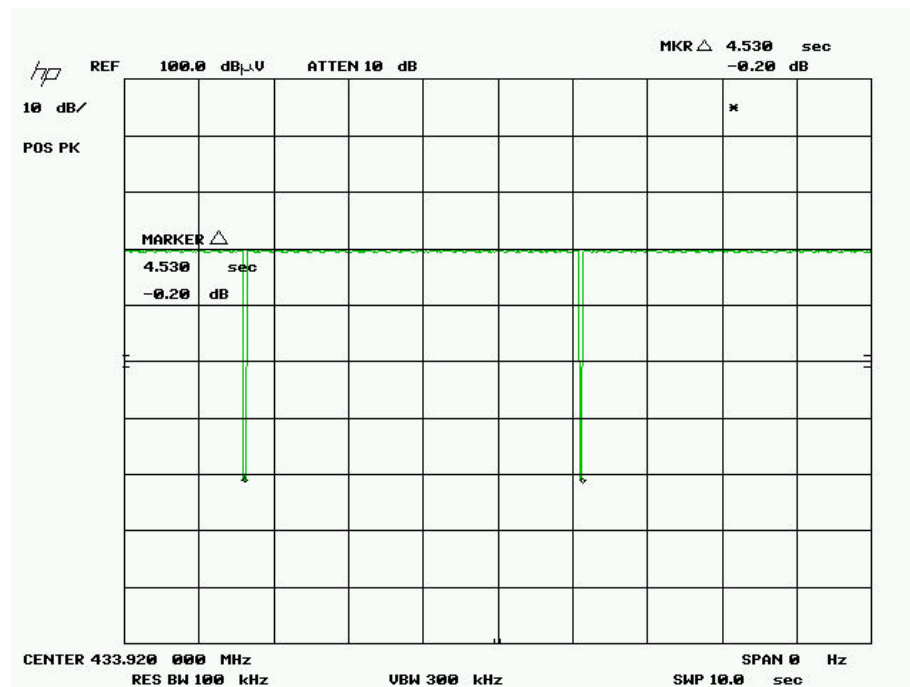
The EUT was placed on the OAT's test site. The EUT signal was centered on the analyzer display and the span adjusted to zero. Then the sweep was adjusted to display at a couple of transmitter shut off's. Markers were set on the shut off pulses to determine the dwell time. Data and plot were recorded below.

Test Setup



Dwell Time Summary

Recorded Measurement	Dwell Time Limit	Result
4.53 Sec	5 Sec	Pass



Test Equipment Available for use.

Description	Manufacturer	Model Number	FTL Asset Number	Last Calibration Date	Calibration Due Date
RF Pre-Amplifier	HP	8449	i00028	01/23/07	01/23/09
Spectrum Analyzer	HP	8563E	i00029	01/26/06	01/26/07
Spectrum Analyzer	HP	8546A	i00033	11/03/06	11/03/07
RF Filter Section	HP	85460A	I00034	11/03/06	11/03/07
Bi-conical Antenna	EMCO	3109B	i00088	10/14/05	10/14/07
Log Periodic Antenna	Apriel	2001	i00089	10/20/05	10/20/07
Horn Antenna	EMCO	3115	i00103	09/05/06	09/05/07
Power Meter	HP	E4418B	i00228	08/01/06	08/01/07
Horn Antenna	ARA	DRG-1181A	i00271	03/06/07	03/06/09
Spectrum Analyzer	HP	8566B	i00290	06/16/06	06/16/07
Power Sensor	HP	8481A	i00317	10/01/06	10/01/07

In addition to the above listed equipment standard RF connectors, attenuators, filters, and cables were utilized in the testing of the described equipment. Prior to testing these components were tested to verify proper operation.

END OF TEST REPORT