



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

toll-free: (866) 311-3268  
fax: (480) 926-3598  
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[info@flomlabs.com](mailto:info@flomlabs.com)

Date: December 6, 2007

Federal Communications Commission  
Via: Electronic Filing

Attention: Authorization & Evaluation Division

Applicant: International Electronics Inc.  
Equipment: OPB3  
FCC ID: JLFOPB3  
FCC Rules: 15.249

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

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

Applicant: International Electronics Inc.

FCC ID: JLFOPB3

**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

FCC ID: JLFOPB3  
Model: OPB3

to

**Federal Communications Commission**

Rule Part(s)15.249

**Date Of Report:** December 6, 2007

**On the Behalf of the Applicant:** International Electronics Inc.  
5913-C NE 127th Ave, Suite 800  
Vancouver, WA 98682

**Attention of:** Jim Crider  
(360) 254-1564  
email: [iejjim@nwlink.com](mailto:iejjim@nwlink.com)

Supervised By:

Hoosamuddin S. Bandu

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

p07b0013, d07c0008

**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.

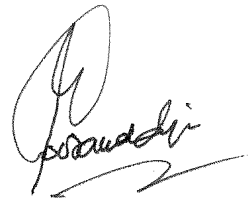
Information detailing any alternative method used to supply the special accessories for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment, as detailed in § 2.909 of this chapter, shall ensure that these special accessories 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:

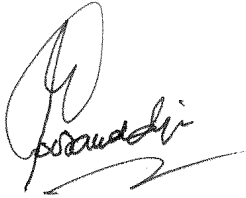


Hoosamuddin S. Bandukwala, Lab Director

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Required information per ISO 17025-2005, paragraph 5.10.2:

- a) **Test Report**
- b) Laboratory: Flom Test Lab, Inc.  
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107  
(Canada: IC 2044A-1) Chandler, AZ 85225
- c) Report Number: d07c0008
- d) Client: International Electronics Inc.
- e) Identification: OPB3  
FCC ID: JLFOPB3  
Description:
- f) EUT Condition: Not required unless specified in individual tests.
- g) Report Date: December 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:
- 
- Hoomasuddin 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

15.249

**Sub-Part 2.1033**

(c)(1):

**Name and Address of Applicant:** International Electronics Inc.

(c)(2): **FCC ID:** JLFOPB3

**Model Number:** OPB3

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

Please See Attached Exhibits

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

(c)(5): **FREQUENCY RANGE, MHz:** 903 – 926 MHz

(c)(6): **Power Rating, W:**  
 Switchable                       Variable                       N/A

(c)(7): **Maximum Power Rating, W:** 1uW

15.203: **Antenna Requirement:**

- 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:

15.249      Operation within bands 902 - 928 MHz (spread spectrum)

### 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, FCC DTS Guide March 23, 2005, 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](http://www.a2la.org) for current scope of accreditation.

Certificate number: 2152.01



**IC O.A.T.S. Number: 2044A-1**

### Test Results Summary

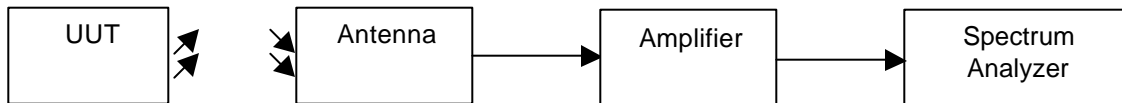
Specification	Test Name	Pass, Fail, N/A	Comments
15.249(a)	Fundamental Field Strength	Pass	
15.249(d)	Out of Band Spurious Emissions	Pass	
RSS-210	99% Occupied Bandwidth	Pass	Industry Canada only

**Name of Test:** Fundamental Field Strength  
**Specification:** 15.249(a)  
**Test Equipment Utilized** i00228, i00317

### Test Procedure

The UUT was tested on an Open Area Test Site (OATS) set 3m from the receiving antenna. A spectrum analyzer was used to verify that the UUT met the requirements for Fundamental Field Strength.

### Test Setup



### Analyzer Settings

Detector Settings	RBW	VBW	Span
Peak	1 MHz	1 MHz	as necessary
Average	1 MHz	10 Hz	0 Hz

### Sample Calculations

Corrected Value = Measured Value + Correction factor  
 Correction factor = ACF + Cable loss

### Fundamental Field Strength

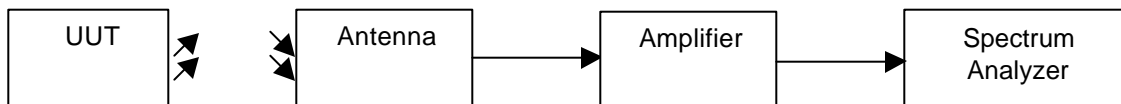
Tuned Freq (MHz)	Peak Measured Level (dBuV/m)	Correction Factor (dB)	Corrected Peak level	Limit (dBuV/m)	Result
903.7	76.8	4.1	80.9	94.0	Pass
915.7	76.8	4.1	80.9	94.0	Pass
926.7	78.8	4.1	82.9	94.0	Pass

**Name of Test:** Radiated Spurious Emissions  
**Specification:** 15.249(d)  
**Test Equipment Utilized** i00028, i00029, i00103

### Test Procedure

The UUT was tested on an Open Area Test Site (OATS) set 3m from the receiving antenna. A spectrum analyzer was used to verify that the UUT met the requirements for Radiated Spurious Emissions. The spectrum for each tuned frequency was examined to the 10<sup>th</sup> harmonic. In addition plots of the radiated spurious emissions at the operating band edges are provided to verify compliance.

### Test Setup



### Analyzer Settings

Detector Settings	RBW	VBW	Span
Peak	1 MHz	1 MHz	as necessary
Average	1 MHz	10 Hz	0 Hz

### Sample Calculations

Corrected Value = Measured Value + Correction factor

Correction factor = ACF + Cable loss

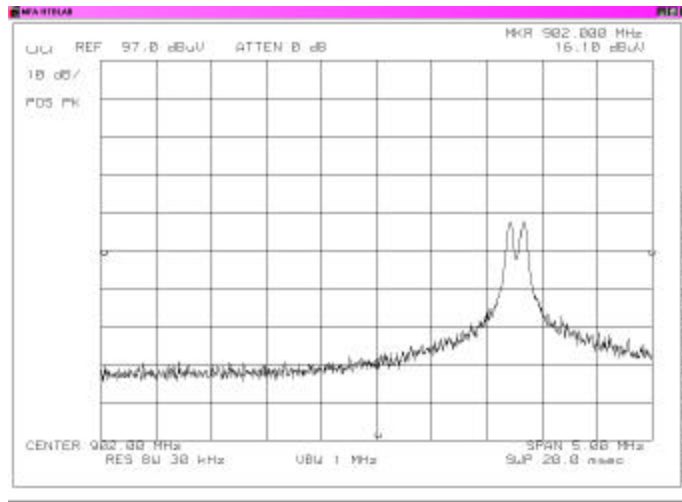
### Radiated Harmonics / Spurious Emissions

Tuned Freq (MHz)	Emission Freq (MHz)	Peak Monitored Level (dBuV/m)	Correction Factor (dB)	Corrected Value (dBuV/m)	Peak Limit (dBuV/m)	Margin
903	1806.3	62.0	-10.8	51.2	74.0	-22.8
915	1831.2	57.0	-10.8	46.2	74.0	-27.8
926	1853.5	57.3	-10.8	46.5	74.0	-27.5
903	2709.6	38.3	-9.1	29.2	74.0	-44.8
915	2747.1	36.9	-9.1	27.8	74.0	-46.2
926	2780.3	39.3	-9.1	30.2	74.0	-43.8
903	3612.7	30.7	-8.7	22.0	74.0	-52.0
915	3662.6	31.6	-8.7	22.9	74.0	-51.1
926	3706.9	31.5	-8.7	22.8	74.0	-51.2
903	4516.3	32.2	-8.1	24.1	74.0	-49.9
915	4578.4	30.7	-8.1	22.6	74.0	-51.4
926	4633.9	30.8	-8.1	22.7	74.0	-51.3

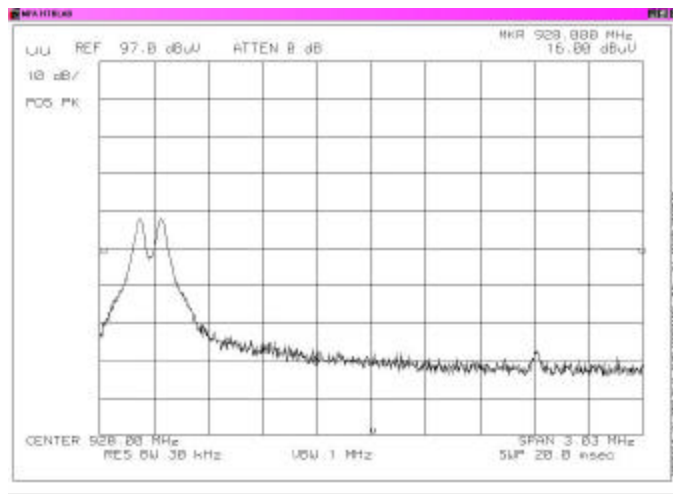
### Radiated Harmonics / Spurious Emissions

Tuned Freq (MHz)	Emission Freq (MHz)	Avg Monitored Level (dBuV/m)	Correction Factor (dB)	Corrected Value (dBuV/m)	Avg Limit (dBuV/m)	Margin
903	1806.3	60.7	-10.8	49.9	54.0	-4.1
915	1831.2	55.8	-10.8	45.0	54.0	-9.0
926	1853.5	54.0	-10.8	43.2	54.0	-11.2
903	2709.6	37.2	-9.1	28.1	54.0	-25.9
915	2747.1	33.3	-9.1	24.2	54.0	-29.8
926	2780.3	37.2	-9.1	28.1	54.0	-25.9
903	3612.7	19.5	-8.7	10.8	54.0	-43.2
915	3662.6	20.6	-8.7	11.9	54.0	-42.1
926	3706.9	22.5	-8.7	13.8	54.0	-40.2
903	4516.3	21.5	-8.1	13.4	54.0	-40.6
915	4578.4	21.3	-8.1	13.2	54.0	-40.8
926	4633.9	20.3	-8.1	12.2	54.0	-41.8

**Band Edge 902 MHz**



**Band Edge 928 MHz**

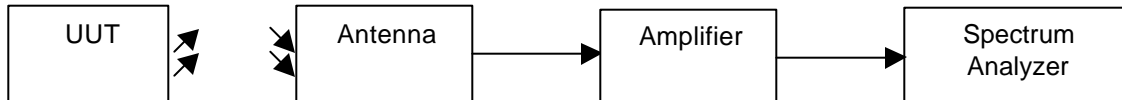


**Name of Test:** 99% Occupied Bandwidth  
**Specification:** RSS 210 Industry Canada Only  
**Test Equipment Utilized** i00329

**Test Procedure**

The UUT was tested on an Open Area Test Site (OATS) set 3m from the receiving antenna. 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 analyzer was set to max hold the 99% bandwidth was measured.

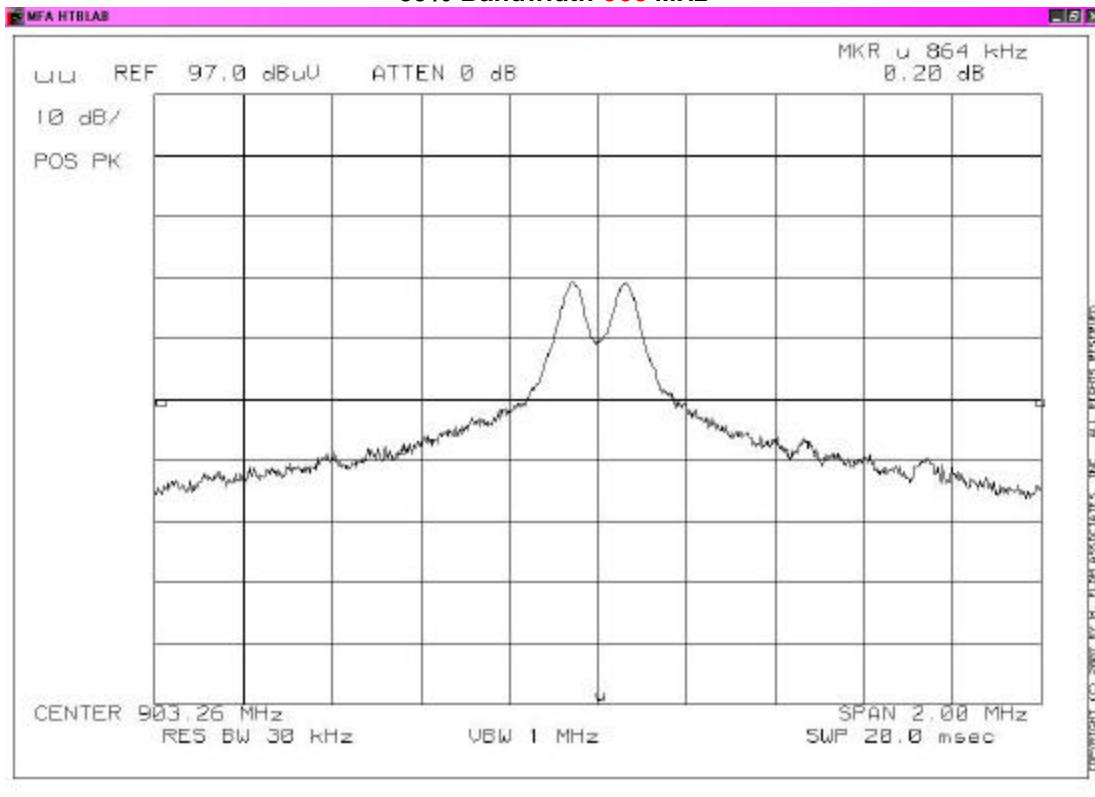
**Test Setup**



**Occupied Bandwidth Summary**

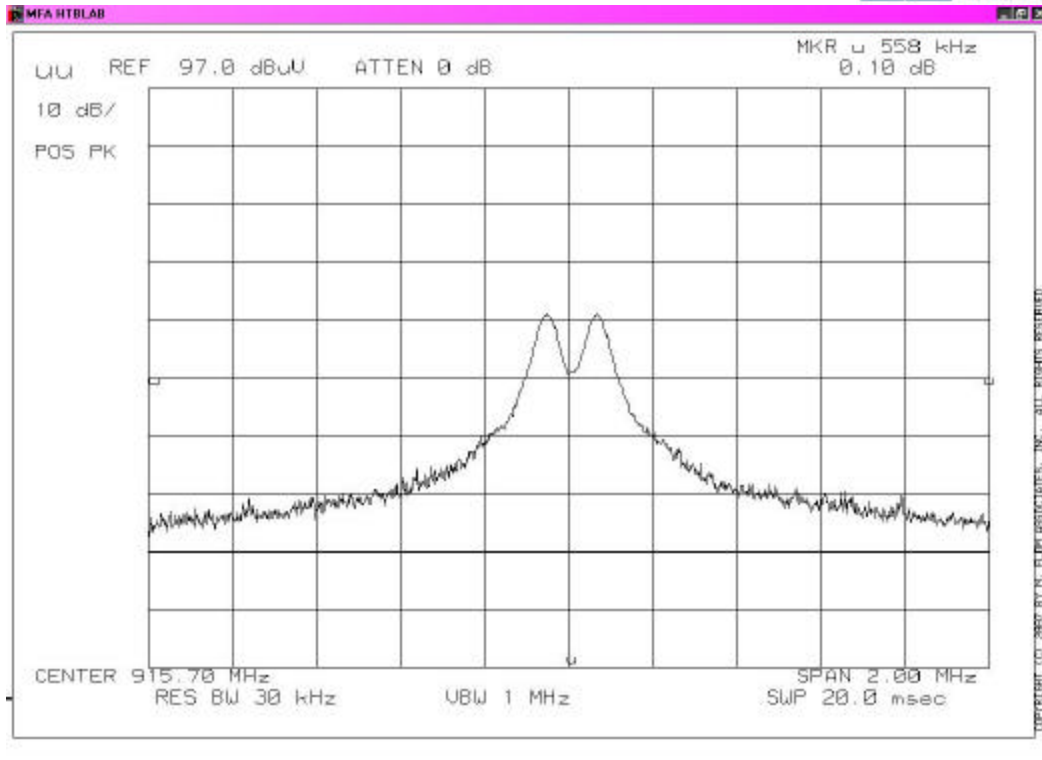
Frequency MHz	Recorded Measurement	Result
903	864KHz	Pass
915	558KHz	Pass
926	554KHz	Pass

**99% Bandwidth 903 MHz**

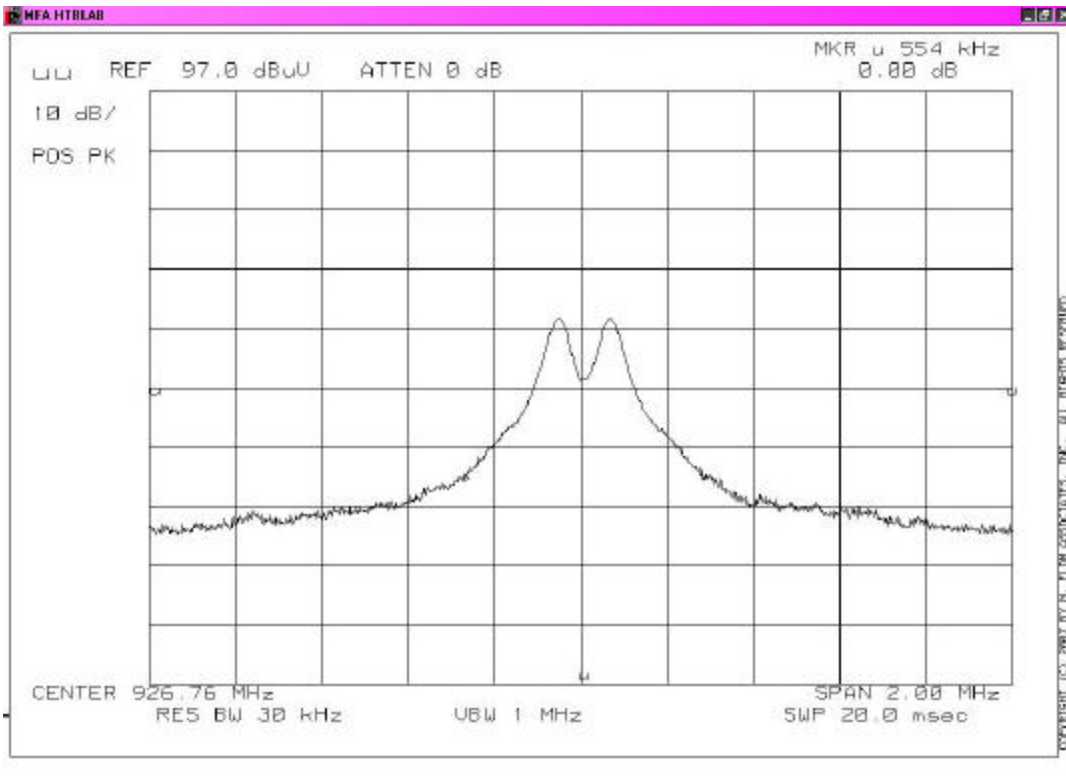


**99% Bandwidth 915 MHz**





**99% Bandwidth 926 MHz**



### Test Equipment Utilized

Description	MFG	Model Number	FTL Asset Number	Last Cal Date	Cal Due Date
RF Pre-Amplifier	HP	8449	i00028	1/23/07	1/23/09
Spectrum Analyzer	HP	8563E	i00029	3/9/07	3/9/08
Spectrum Analyzer	HP	8566B	i00049	8/18/07	8/18/08
Horn Antenna	EMCO	3115	i00103	9/5/06	9/5/08
Log Antenna	Apral	2001	i00089	10/22/07	10/22/08
Spectrum Analyzer	HP	8566B	i00329	4/16/07	4/16/08

In addition to the above listed equipment standard RF connectors 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