



Flom Test Lab

EMI, EMC, RF Testing Experts Since 1963

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Date: December 9, 2008

Federal Communications Commission
Via: Electronic Filing

Attention: Authorization & Evaluation Division

Applicant: Quantum Instruments Inc
Equipment: Qflash PILOT
FCC ID: CEXQFPILOT
FCC Rules: 15.231

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: Quantum Instruments Inc

FCC ID: CEXQFPILOT

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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Test Report

for

FCC ID: CEXQFPILOT

Model: Qflash PILOT

to

Federal Communications Commission

Rule Part(s)15.231

Date Of Report: December 9, 2008

On the Behalf of the Applicant: Quantum Instruments Inc
10 Commerce Drive
Hauppauge NY 11788

Attention of: Ph 631-656-7400
Fax 631-656-7410
email r.shaper@qtm.com
att Rick Shaper

Supervised By:

Hoosamuddin S. Bandukwala, Lab Director

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

p08b0004, d08c0008 Rev 2.0

Test Report Revision History

Revision	Date	Revised By	Reason for revision
1.0	December 9, 2008	J Erhard	Original Document
2.0	December 19, 2008	J Erhard	Add test description details per TCB request

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.

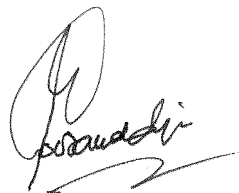
Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories, such as shielded cables and/or special connectors are required to enable an unintentional or intentional radiator to comply 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: d08c0008

d) Client: Quantum Instruments Inc

e) Identification: QF9
FCC ID: CEXQFPILOT
Description: 434 MHz QFlash Pilot

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

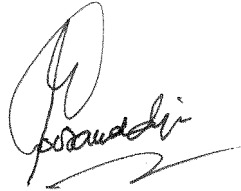
g) Report Date: December 9, 2008
EUT Received:

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: Quantum Instruments Inc(c)(2): **FCC ID:** CEXQFPILOT**Model Number:** QF9(c)(3): **Instruction Manual(s):**

Please See Attached Exhibits

(c)(4): **Type of Emission:** ASK(c)(5): **FREQUENCY RANGE, MHz:** 434 MHz(c)(6): **Power Rating, W:** 0.000631 mW
 Switchable Variable N/A(c)(7): **Maximum Power Rating, W:** 0.002512 mW15.203: **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, 15.231.

Standard Test Conditions and Engineering Practices

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

In accordance with ANSI C63.4-2003 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.

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



FCC OATS Reg. #933597

IC Reg. # 2044A-1

Test Results Summary

Specification	Test Name	Pass, Fail, N/A	Comments
15.231(b)(1)	Fundamental Field Strength	Pass	
15.231(b)(3)	Out of Band Spurious Emissions	Pass	
15.231(c)	Occupied Bandwidth	Pass	
RSS-210	99% Occupied Bandwidth	Pass	

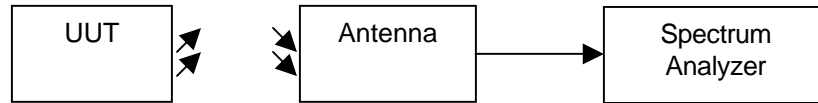
Name of Test: Fundamental Field Strength
Specification: 15.231(b)(1)
Test Equipment Utilized i00033, i00089

Engineer: J Erhard
Test Date: 12/08/2008

Test Procedure

The UUT was tested on an Open Area Test Site (OATS) at a distance of 3 meters from the receiving antenna. A spectrum analyzer was used to verify that the UUT met the requirements for Fundamental Field Strength. The limit was calculated using the standard linearization formula; $Limit = L1 + [(Fo-F1)(L2-L1)/(F2-F1)]$ where Fo is the frequency under test. The UUT was tested by rotating it 360° with the antennas in both the vertical and horizontal orientation and raised from 1 to 4 meters to ensure the TX signal levels were maximized.

Test Setup



RBW = 1MHz

VBW = 3MHz

Span - as necessary to encompass the entire signal

Detector – as indicated in the table below

Fundamental Field Strength

Tuned Freq (MHz)	Measured Level (dBuV/m)	Correction Factor (dB)	Corrected Level (dBuV/m)	Detector	Limit (dBuV/m)	Result
434	56.4	18.8	75.2	Peak	101.0	Pass
434	56.3	18.8	75.1	Average	81.0	Pass

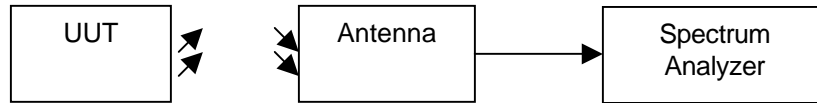
Name of Test: Radiated Emissions
Specification: 15.231(b)(3), 15.209
Test Equipment Utilized i00049, i00088, i00089, i00103

Engineer: J Erhard
Test Date: 12/09/2008

Test Procedure

The UUT was tested on an Open Area Test Site (OATS) at a distance of 3 meters from the receiving antenna. A spectrum analyzer was used to verify that the UUT met the requirements for Radiated Emissions. The spectrum for each tuned frequency was examined to the 10th harmonic. The UUT was tested by rotating it 360° with the antennas in both the vertical and horizontal orientation and raised from 1 to 4 meters to ensure the TX signal levels were maximized

Test Setup



RBW = 120 kHz
 VBW = 300 kHz
 Span - as necessary to encompass the entire signal
 Detector – Quasi Peak

Radiated Emissions

Emission Freq (MHz)	Measured Level (dBuV/m)	Correction Factor (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Result
35.245	16.5	12.7	29.2	40.0	Pass
75.437	19.2	8.7	27.9	40.0	Pass
146.330	14.5	14.8	29.3	40.0	Pass
444.690	14.0	18.9	32.9	47.0	Pass
639.690	14.3	23.8	38.1	47.0	Pass
822.770	14.0	25.6	39.8	47.0	Pass

No other emissions were detectable.

Name of Test:
Specification:
Test Equipment Utilized

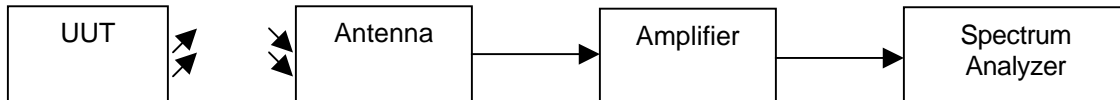
Occupied Bandwidth
15.231(c)
i00331

Engineer: J Erhard
Test Date: 12/09/2008

Test Procedure

The UUT was tested on an Open Area Test Site (OATS) at a distance of 3 meter 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 -20 dB bandwidth was measured.

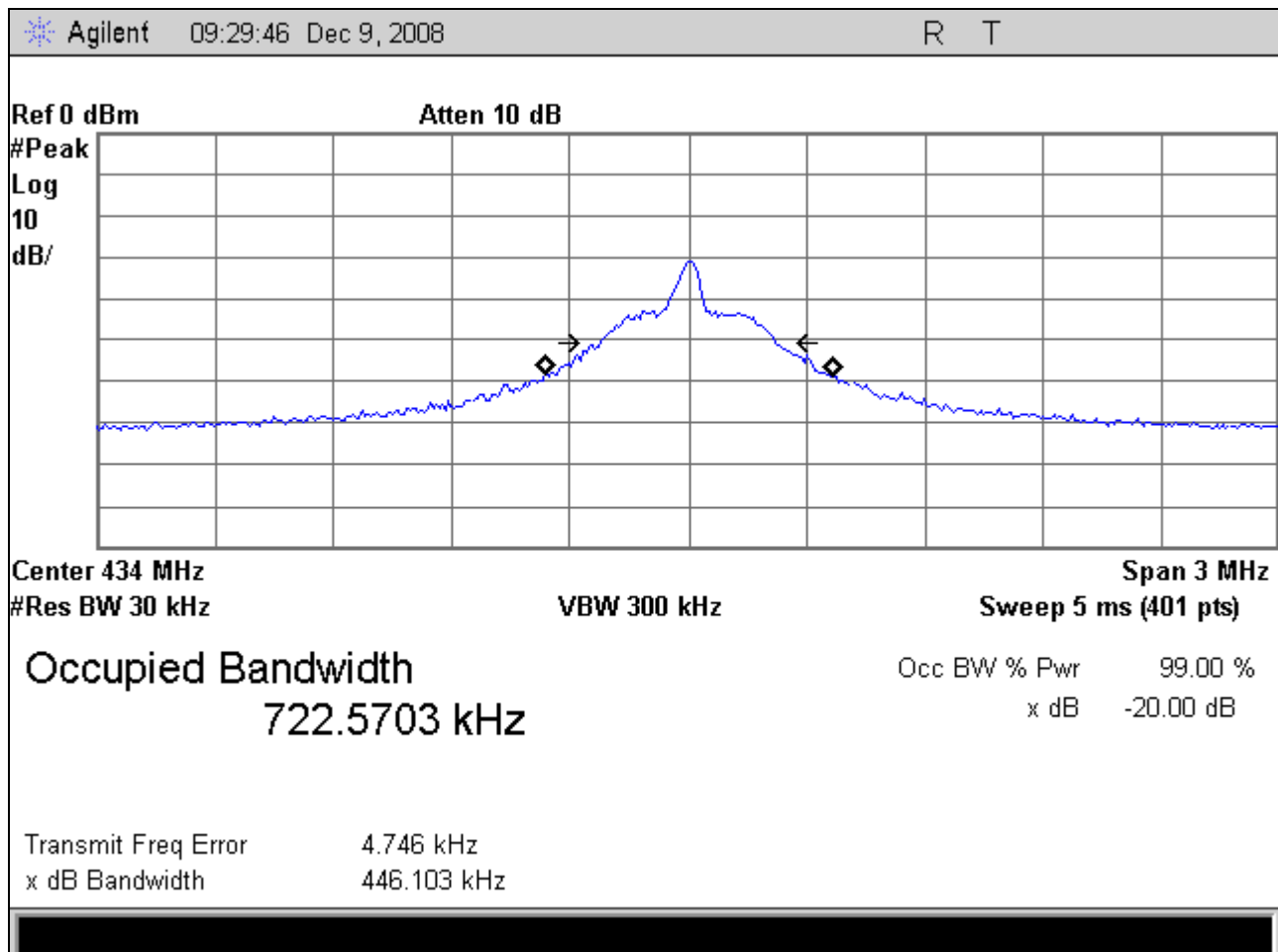
Test Setup



Occupied Bandwidth Summary

Frequency MHz	Recorded Measurement	Result
434 MHz	446.103 kHz	Pass

Occupied Bandwidth Plot



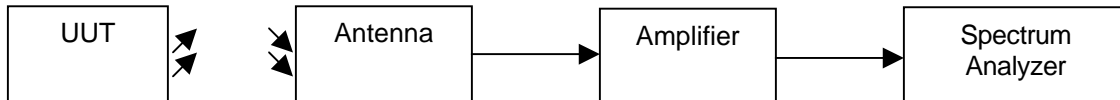
Name of Test: 99% Occupied Bandwidth
Specification: RSS 210 Industry Canada Only
Test Equipment Utilized i00331

Engineer: J Erhard
Test Date: 12/09/2008

Test Procedure

The UUT was tested on an Open Area Test Site (OATS) at a distance of 3 meter 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.

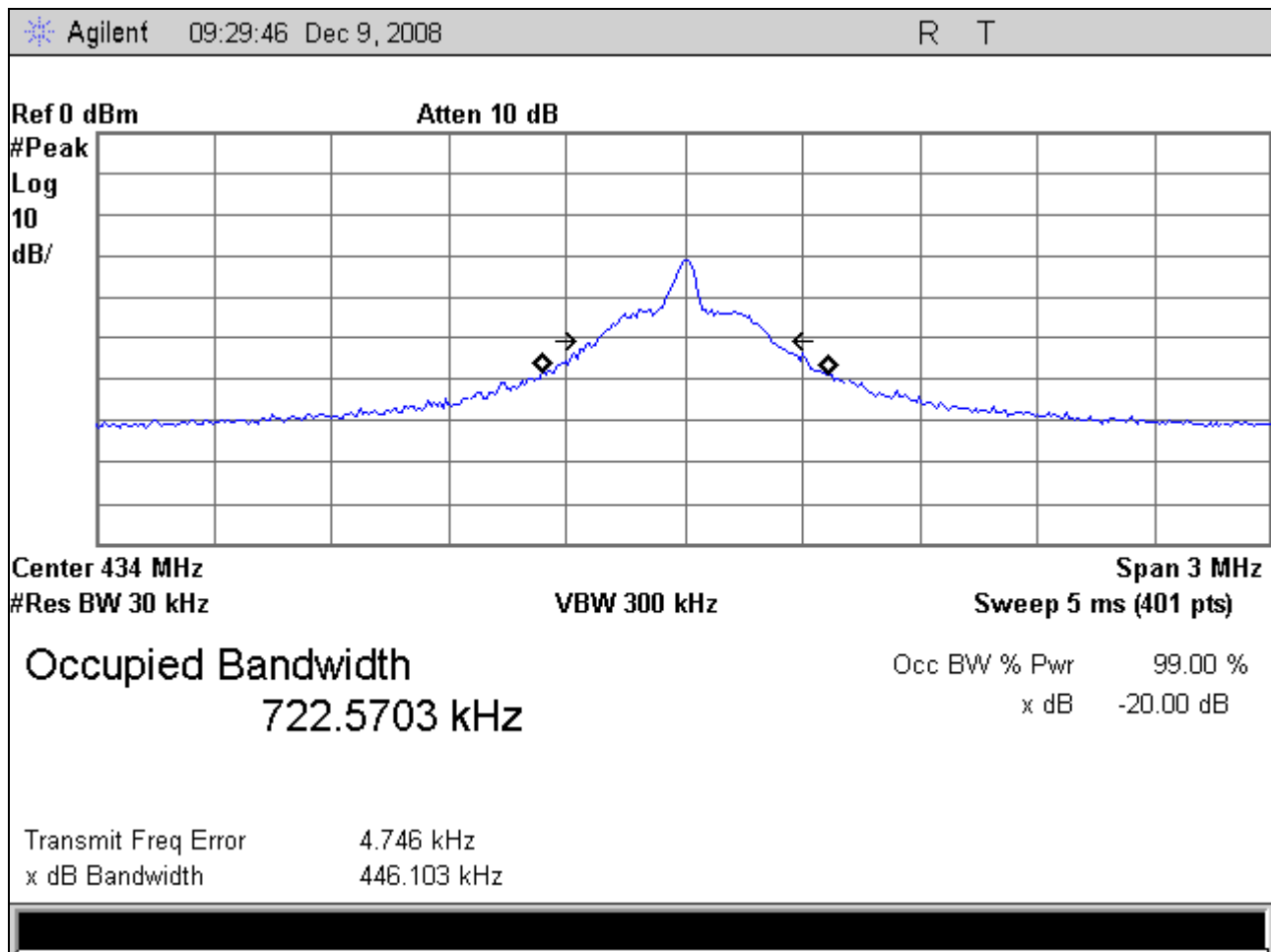
Test Setup



Occupied Bandwidth Summary

Frequency MHz	Recorded Measurement	Result
434	722.5703 kHz	Pass

99% Occupied Bandwidth Plot



Test Equipment Utilized

Description	MFG	Model Number	FTL Asset Number	Last Cal Date	Cal Due Date
Spectrum Analyzer	HP	85462A	i00033	10/14//08	10/14//09
Spectrum Analyzer	HP	8566B	i00049	12/03/08	12/03/09
Bi-conical Antenna	EMCO	3109B	i00088	10/16/07	10/16/09
Log Periodic Antenna	Apral	2001	i00089	10/22/07	10/22/09
Horn Antenna	EMCO	3115	i00103	11/25/08	11/25/10
Spectrum Analyzer	Agilent	E4407B	i00331	11/03/08	11/03/09

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