



# M. Flom Associates, Inc.

## International Compliance Testing Laboratory

3356 N. San Marcos Place, Suite 107  
Chandler, AZ 85225

toll-free: (866) 311-3268  
fax: (480) 926-3598

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

Date: March 8, 2005

Federal Communications Commission  
Via: Electronic Filing

Attention: Authorization & Evaluation Division

Applicant: Mettler-Toledo, Inc.  
Equipment: MCTB  
FCC ID: RITTE0002  
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.

Filing fees are attached.

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,

David E. Lee, Compliance Test Manager

enclosure(s)  
cc: Applicant  
del/ca

M. Flom Associates, Inc.  
3356 N. San Marcos Place, Suite 107  
Chandler, Arizona 85225-7176  
(480) 926-3100 phone, fax (480) 926-3598

FCC ID: RITTE0002  
MFA p04c0002, d053001919



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### Transmitter Certification

of

FCC ID: RITTE0002  
Model: MCTB

to

**Federal Communications Commission**

Rule Part(s) 15.249

**Date Of Report:** March 8, 2005

**On the Behalf of the Applicant:**

Mettler-Toledo, Inc.

**At the Request of:**

P.O. 7215955

Mettler-Toledo, Inc.  
6600 Huntley Rd.  
Columbus, OH 43229

Attention of:

Tom Rice  
(614) 438-4511 ext 7284; Fax: (641) 841-7284  
E-mail: tom.rice@mt.com

Supervised By:

David E. Lee, Compliance Test Manager

M. Flom Associates, Inc.  
3356 N. San Marcos Place, Suite 107  
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(480) 926-3100 phone, fax (480) 926-3598

FCC ID: RITTE0002  
MFA p04c0002, d053001919



### List Of Exhibits

(FCC Certification (Transmitters) - Revised 9/28/98)

Applicant: Mettler-Toledo, Inc.

FCC ID: RITTE0002

#### By Applicant:

1. Letter Of Authorization
2. Identification Drawings
  - Label
  - Location of Label
  - Compliance Statement
  - Location of Compliance Statement
3. Documentation: 2.1033(B)
  - (3) User Manual
  - (4) Operational Description
  - (5) Block Diagram
  - (5) Schematic Diagram
  - (7) Photographs
  - Block Diagram
  - Parts List
  - Active Devices
4. Draft Specification Information

#### By M.F.A. Inc.

- A. Testimonial & Statement of Certification



**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.



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2.1033(c)	General Information Required	2
	Standard Test Conditions and Engineering Practices	6
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2.1049(c)(1)	Emission Masks (Occupied Bandwidth)	14

Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

a)

**Test Report**

b) Laboratory:  
(FCC: 31040/SIT)  
(Canada: IC 2044)

M. Flom Associates, Inc.  
3356 N. San Marcos Place, Suite 107  
Chandler, AZ 85225

c) Report Number:

d0530019

d) Client:

Mettler-Toledo, Inc.  
6600 Huntley Rd.  
Columbus, OH 43229

e) Identification:

MCTB  
FCC ID: RITTE0002

Description:

f) EUT Condition:

Not required unless specified in individual tests.

g) Report Date:

March 8, 2005  
EUT Received:

h, j, k):

As indicated in individual tests.

i) Sampling method:

No sampling procedure used.

l) Uncertainty:

In accordance with MFA internal quality manual.

m) Supervised by:



David E. Lee, Compliance Test Manager

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.

\*\*\*Please check rule numbers\*\*\*

Page Number 2 of 18.

### 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:

Mettler-Toledo, Inc.  
6600 Huntley Rd.  
Columbus, OH 43229

**Manufacturer:**  
Applicant

(c)(2): **FCC ID:** RITTE0002

**Model Number:** MCTB

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

Please See Attached Exhibits

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

(c)(5): **FREQUENCY RANGE, MHz:** 902 to 928

(c)(6): **Power Rating, W:** 50uW (93.91dBuV/m @ 3m)  
 Switchable       Variable       N/A

(c)(7): **Maximum Power Rating** 50 mv/m @ 3m

##### 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): Voltages & Currents in All Elements in Final RF Stage, Including Final Transistor or Solid State Device:

Collector Current, A	= per manual
Collector Voltage, Vdc	= per manual
Supply Voltage, Vdc	= 12

(c)(9): **Tune-Up Procedure:**

Please See Attached Exhibits

(c)(10): **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)(11): **Label Information:**

Please See Attached Exhibits

(c)(12): **Photographs:**

Please See Attached Exhibits

(c)(13): **Digital Modulation Description:**

       Attached Exhibits  
x N/A

(c)(14): **Test and Measurement Data:**

Follows



## A2LA

"A2LA has accredited M. Flom Associates, 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/IEC 17025 – 1999 'General Requirements for the Competence of Testing and Calibration Laboratories' and any additional program requirements in the identified field of testing."

Certificate Number: **2152-01**



UNITED STATES DEPARTMENT OF COMMERCE  
National Institute of Standards and Technology  
Gaithersburg, Maryland 20899

September 15, 1999

Mr. Morris Flom  
M. Flom Associates Inc.  
3356 N. San Marcos Place, Suite 107  
Chandler, AZ 85224

Dear Mr. Flom:

I am pleased to inform you that your laboratory has been validated by the Chinese Taipei Bureau of Standards, Metrology, and Inspection (BSMI) under the Asia Pacific Economic Cooperation Mutual Recognition Agreement (APEC MRA). Your laboratory is now formally designated to act as a Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the APEC MRA between the American Institute in Taiwan (AIT) and the Taipei Economic and Cultural Representative Office (TECRO) in the United States, covering equipment subject to Electro-Magnetic Compatibility (EMC) requirements. The names of all validated and nominated laboratories will be posted on the NIST website at <http://ts.nist.gov/mra> under the "Asia" category.

As of August 1, 1999, you may submit test data to BSMI to verify that the equipment to be marketed into Chinese Taipei satisfies the applicable EMC requirements. Your assigned BSMI number is SL2-IN-E-041R; you must use this number when sending test reports to BSMI. Your designation will remain in force as long as your NVLAP and/or A2LA and/or BSMI accreditation remains valid for the CNS 13416.

Please note that BSMI requires that the entity making application for the approval of regulated equipment must make such application in person at their Taipei office. BSMI also requires the name of the authorized signatures who are authorized to sign the test reports. You can send this information via fax to C-Taiwan CAR Response Manager at 301-975-5414. I am also enclosing a copy of the cover sheet that, according to BSMI requirement, must accompany every BSMI report.

If you have any questions, please contact Robert Gladhill at 301-975-4273 or for Dhillon at 301-975-5521. We appreciate your continued interest in our international conformity assessment activities.

Sincerely,

*[Signature]*  
Bridget L. Collins, P.E.  
Director, Office of Standards Services  
Enclosure

**NIST**

BSMI Number: **SL2-IN-E-041R**

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, Sub-part J, Sections 2.1031, 2.1033, 2.1035, 2.1041, 2.1043, 2.1045, and the following individual Parts:

- \_\_\_\_\_ 15.209 Radiated emission limits; general requirements
- \_\_\_\_\_ 15.211 Tunnel radio systems
- \_\_\_\_\_ 15.213 Cable locating equipment
- \_\_\_\_\_ 15.214 Cordless telephones
- \_\_\_\_\_ 15.217 Operation in the band 160-190 kHz
- \_\_\_\_\_ 15.219 Operation in the band 510-1705 kHz
- \_\_\_\_\_ 15.221 Operation in the band 525-1705 kHz (leaky coax)
- \_\_\_\_\_ 15.223 Operation in the band 1.705-10 MHz
- \_\_\_\_\_ 15.225 Operation in the band 13.553-13.567 MHz
- \_\_\_\_\_ 15.227 Operation in the band 26-27.28 MHz (remote control)
- \_\_\_\_\_ 15.229 Operation in the band 40.66-40.70 MHz
- \_\_\_\_\_ 15.231 Periodic operation in the band 40.66-40.70 MHz and above 70 MHz
- \_\_\_\_\_ 15.233 Operation within the bands 43.71-44.49, 46.60-46.98 MHz  
48.75-49.51 MHz and 49.66-50.0 MHz
- \_\_\_\_\_ 15.235 Operation within the band 49.82-49.90 MHz
- \_\_\_\_\_ 15.237 Operation within the bands 72.0-73.0 MHz, 74.6-74.8 MHz  
and 75.2-76.0 MHz (auditory assistance)
- \_\_\_\_\_ 15.239 Operation in band 88-108 MHz
- \_\_\_\_\_ 15.241 Operation in the band 174-216 MHz (biomedical)
- \_\_\_\_\_ 15.243 Operation in the band 890-940 MHz (materials)
- \_\_\_\_\_ 15.245 Operation within the bands 902-928 MHz, 2435-2465 MHz, 5785-5815 MHz, 10500-10550 MHz, and 24075-24175 MHz (filed disturbance sensors)
- \_\_\_\_\_ 15.247 Operation within bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz (spread spectrum)
- X 15.249 Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz
- \_\_\_\_\_ 15.251 Operation within the bands 2.9-3.26 GHz, 3.267-3.332 GHz, 3.339-3.3458 GHz, and 3.358-3.6 GHz (vehicle identification systems)
- \_\_\_\_\_ 15.321 Specific requirements for asynchronous devices operating in the 1910-1920 MHz and 2390-2400 MHz bands (Unlicensed PCS)
- \_\_\_\_\_ 15.323 Specific requirements for isochronous devices operating in the 1920-1930 MHz sub-band (Unlicensed PCS)



## **Standard Test Conditions And Engineering Practices**

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

In accordance with ANSIC63.4-1992/2001, section 6.1.9, 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.

**Name of Test:** RF Power Output (Radiated)

**Specification:** 47 CFR 2.1046(a)

**Test Equipment:** As per attached page

#### **Measurement Procedure (Radiated)**

1. The EUT was placed on an open-field site and its radiated field strength at a known distance was measured by means of a spectrum analyzer. Equivalent loading was calculated from the equation  $P_t = (E \times R)^2 / 49.2$  watts, where  $R = 3m$ .
2. The EUT was placed on its highest available power setting and set to continuous transmit.
3. A Path-Loss Measurement was taken at low, middle and high frequencies used for the test.
4. Measurement accuracy is  $\pm 1.5$  dB.
5. Limit is 94dBuV @ 3m

#### Measurement Results

g0520124: 2005-Feb-22 Tue 10:28:00

State: 1: Path Loss

Ambient Temperature:  $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$

Frequency Tuned, MHz	Frequency Emission, MHz	Transmitted Level, dBm	Meter, dBuV/m	CF, dB	ERP, dBm	Path Loss, dB
902.200000	902.003800	10.0	86.25	26.19	15.1	-5.1
915.000000	915.007500	10.0	85.45	26.68	14.8	-4.8
927.800000	927.803800	10.0	84.58	27.16	14.4	-4.4

g0520123: 2005-Feb-22 Tue 09:03:00

State: 2:High Power

Ambient Temperature:  $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$

Frequency Tuned, MHz	Frequency Emission, MHz	Meter, dBuV/m	CF, dB	Path Loss, dB	dBuV/m @ 3m
902.200000	902.195000	72.8	26.21	-5.1	93.91
915.000000	914.995000	71.7	26.68	-4.8	93.58
927.800000	927.995000	71.0	27.17	-4.4	93.77

Supervised By:



David E. Lee, Compliance Test Manager

**Name of Test:** Field Strength of Spurious Radiation

**Specification:** 47 CFR 2.1053(a)

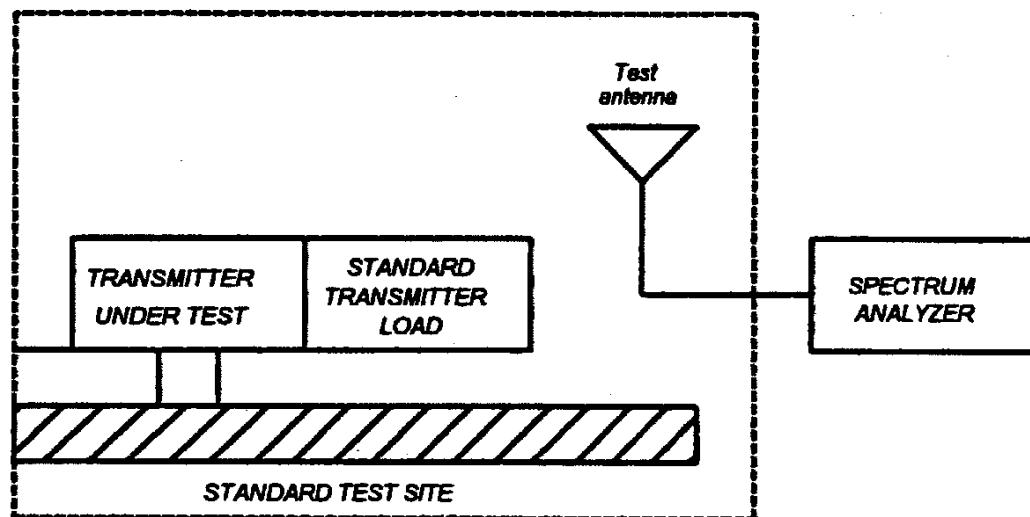
**Guide:** ANSI/TIA/EIA-603-1992/2001, Paragraph 1.2.12 and Table 16, 47 CFR 22.917

#### Measurement Procedure

1.2.12.1 Definition: Radiated spurious emissions are emissions from the equipment when transmitting into a non-radiating load on a frequency or frequencies which are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communications desired.

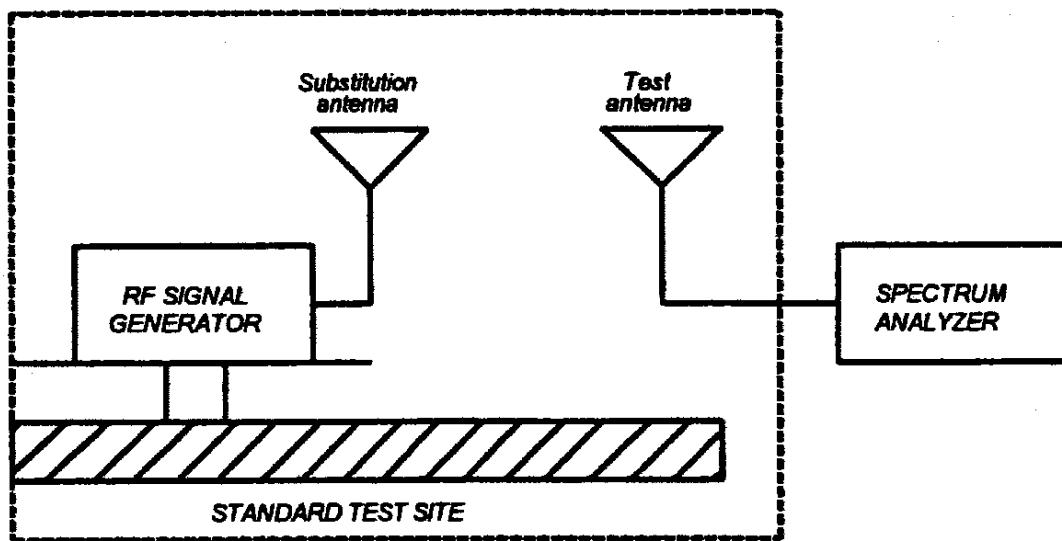
#### 1.2.12.2 Method of Measurement

- A) Connect the equipment as illustrated
- B) Adjust the spectrum analyzer for the following settings:
  - 1) Resolution Bandwidth 100 kHz (<1 GHZ), 1 MHZ (> 1GHz).
  - 2) Video Bandwidth = 3 times Resolution Bandwidth, or 30 kHz (22.917)
  - 3) Sweep Speed  $\leq$ 2000 Hz/second
  - 4) Detector Mode = Mean or Average Power
- C) Place the transmitter to be tested on the turntable in the standard test site. The transmitter is transmitting into a non-radiating load which is placed on the turntable. The RF cable to this load should be of minimum length.



**Name of Test:** Field Strength of Spurious Radiation (Cont.)

- D) For each spurious measurement the test antenna should be adjusted to the correct length for the frequency involved. This length may be determined from a calibration ruler supplied with the equipment. Measurements shall be made from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier, except for the region close to the carrier equal to  $\pm$  the test bandwidth (see section 1.3.4.4).
- E) For each spurious frequency, raise and lower the test antenna from 1 m to 4 m to obtain a maximum reading on the spectrum analyzer with the test antenna at horizontal polarity. Repeat this procedure to obtain the highest possible reading. Record this maximum reading.
- F) Repeat step E) for each spurious frequency with the test antenna polarized vertically.



- G) Reconnect the equipment as illustrated.
- H) Keep the spectrum analyzer adjusted as in step B).
- I) Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. At lower frequencies, where the substitution antenna is very long, this will be impossible to achieve when the antenna is polarized vertically. In such case the lower end of the antenna should be 0.3 m above the ground.

**Name of Test:** Field Strength of Spurious Radiation (Cont.)

J) Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a non-radiating cable. With the antennas at both ends horizontally polarized and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.

K) Repeat step J) with both antennas vertically polarized for each spurious frequency.

L) Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps J) and K) by the power loss in the cable between the generator and the antenna and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna.

M) The levels recorded in step L) are absolute levels of radiated spurious emissions in dBm. The radiated spurious emissions in dB can be calculated by the following:

$$\text{Radiated spurious emissions dB} = 10\log_{10}(\text{TX power in watts}/0.001) - \text{the levels in step I)}$$

NOTE: It is permissible that other antennas provided can be referenced to a dipole.

**Test Equipment:**

Asset (as applicable)	Description	s/n	Cycle	Last Cal
<small>Per ANSI C63.4-1992/2000 Draft, 10.1.4</small>				
<b>Transducer</b>				
i00088	EMCO 3109-B 25MHz-300MHz	2336	24 mo.	Sep-03
i00065	EMCO 3301-B Active Monopole	2635	24 mo.	Sep-03
X i00089	Aprel 2001 200MHz-1GHz	001500	24 mo.	Sep-03
X i00103	EMCO 3115 1GHz-18GHz	9208-3925	24 mo.	Jan-04
<b>Amplifier</b>				
X i00028	HP 8449A	2749A00121	12 mo.	May-04
<b>Spectrum Analyzer</b>				
X i00029	HP 8563E	3213A00104	12 mo.	May-04
X i00033	HP 85462A	3625A00357	12 mo.	Jul-04
i00048	HP 8566B	2511AD1467	12 mo.	Aug-04

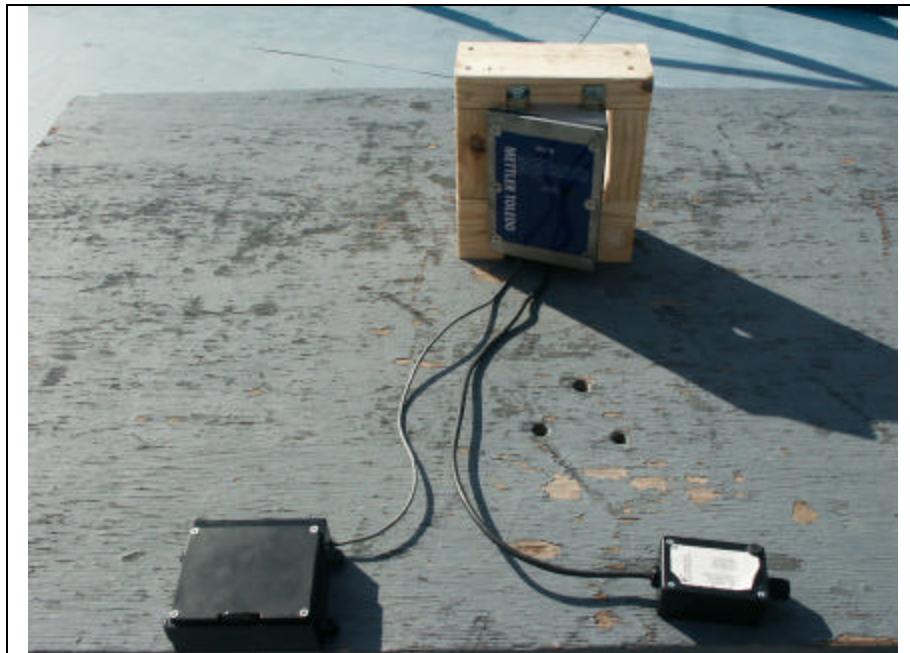
**Test Setup:** Radiated Emissions

State:



**Test Setup:** Radiated Emissions

State:



**Name of Test:** Field Strength of Spurious Radiation

Frequency Tuned, MHz	Frequency Emission, MHz	ERP, dBm	Margin, dB
902.200000	1804.400000	-30.70	-17.70
915.000000	1830.000000	-24.88	-11.88
927.800000	1855.600000	-24.53	-11.53
902.200000	2706.600000	-21.02	-8.02
915.000000	2745.000000	-14.41	-1.41
927.800000	2783.400000	-14.38	-1.38
902.200000	3608.800000	-15.41	-2.41
915.000000	3660.000000	-14.51	-1.51
927.800000	3711.200000	-22.75	-9.75
902.200000	4511.000000	-20.92	-7.92
915.000000	4575.000000	-17.37	-4.37
927.800000	4639.000000	-18.98	-5.98
902.200000	5413.200000	-21.10	-8.10
915.000000	5490.000000	-22.59	-9.59
927.800000	5566.800000	-20.00	-7.00
902.200000	6315.400000	-18.68	-5.68
915.000000	6405.000000	-19.65	-6.65
927.800000	6494.600000	-14.42	-1.42
902.200000	7217.600000	-25.61	-12.61
915.000000	7320.000000	-17.10	-4.10
927.800000	7422.400000	-15.53	-2.53
902.200000	8119.800000	-15.44	-2.44
915.000000	8235.000000	-18.70	-5.70
927.800000	8350.200000	-24.03	-11.03

Supervised By:



David E. Lee, Compliance Test Manager



**Name of Test:** Radiated Spurious Emissions (Non-Harmonic)

**Specification:** 47 CFR 15.249(c)

**Guide:** ANSI/TIA/EIA-603-1992, Paragraph 2.2.1

**Test Equipment:** As per previous page

**15.249(c):**

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emissions limits in § 15.209, whichever is the lesser attenuation.

**General Radiated Emission Limits Per 15.209:**

Frequency, MHz	Field Strength, $\mu$ V/m @ 3m
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	300
Frequency of Carrier, MHz	= 902.2, 915.0, 927.8
Spectrum Searched	= 0 to 10 x $F_c$
All Other Emissions	= 20 dB Below Limit
Limit, $\mu$ V /m @ 3m	= 50 dBc or § 15.209

All Spurious Emissions Were 20 dB or More Below Limit

System Sensitivity IS -130 dBm

Supervised By:

A handwritten signature in black ink, appearing to read "David E. Lee".

David E. Lee, Compliance Test Manager



**Name of Test:** Emission Masks (Occupied Bandwidth)

**Specification:** 47 CFR 2.1049(c)(1)

**Guide:** ANSI/TIA/EIA-603-1992, Paragraph 2.2.11

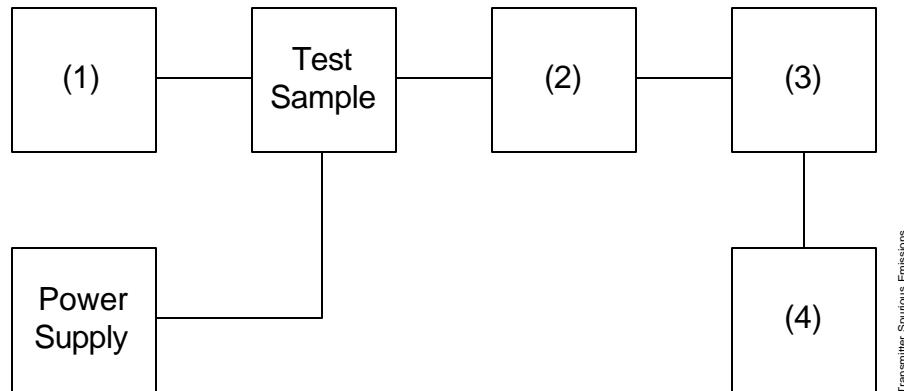
**Test Equipment:** As per previous page

#### **Measurement Procedure**

1. The EUT and test equipment were set up as shown on the following page, with the Spectrum Analyzer connected.
2. For EUTs supporting audio modulation, the audio signal generator was adjusted to the frequency of maximum response and with output level set for  $\pm 2.5$  kHz deviation (or 50% modulation). With level constant, the signal level was increased 16 dB.
3. For EUTs supporting digital modulation, the digital modulation mode was operated to its maximum extent.
4. The Occupied Bandwidth was measured with the Spectrum Analyzer controls set as shown on the test results.
5. Measurement Results: Attached

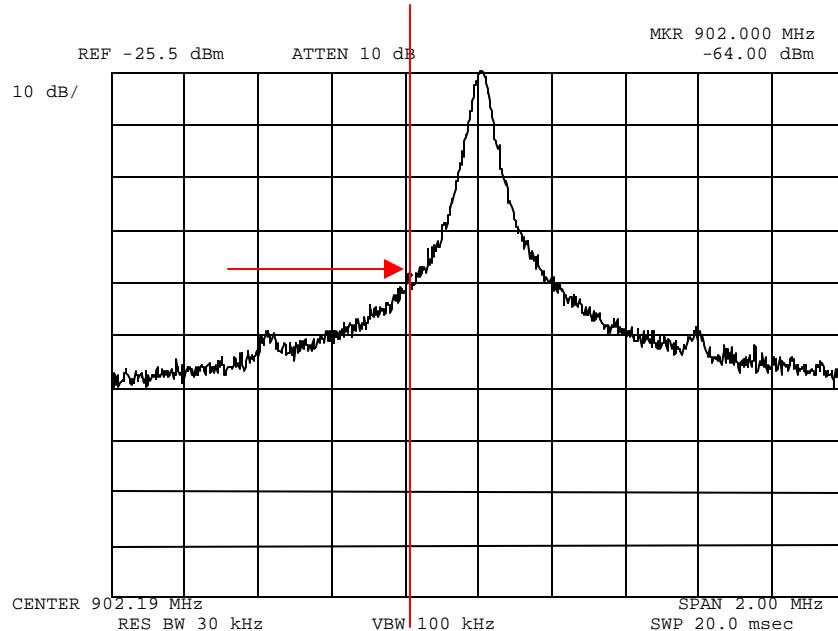
## Transmitter Spurious Emission

Test A. Occupied Bandwidth (In-Band Spurious)  
Test B. Out-of-Band Spurious



Asset (as applicable)	Description	s/n	Cycle	Last Cal
(1)	<b>Audio Oscillator/Generator (if required)</b>			
(2)	<b>Coaxial Attenuator</b>			
i00122	Narda 766-10	7802	NCR	
i00123	Narda 766-10	7802A	NCR	
i00069	Bird 8329 (30 dB)	1006	NCR	
i00113	Sierra 661A-3D	1059	NCR	
(3)	<b>Filters; Notch, HP, LP, BP</b>			
i00126	Eagle TNF-1	100-250	NCR	
i00125	Eagle TNF-1	50-60	NCR	
i00124	Eagle TNF-1	250-850	NCR	
(4)	<b>Spectrum Analyzer</b>			
X i00048	HP 8566B	2511A01467	12 mo.	Aug-04
X i00029	HP 8563E	3213A00104	12 mo.	May-04

**Name of Test:** Emission Masks (Occupied Bandwidth)  
 g04c0011: 2004-Dec-08 Wed 10:42:00  
 State: 2:High Power



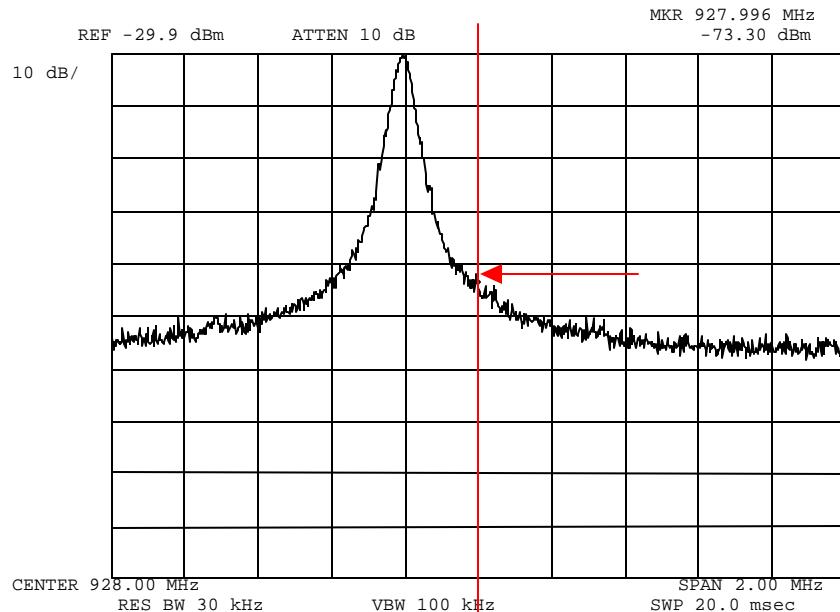
Power: HIGH  
 Lower Band Edge: Low Channel (902.2MHz)

Supervised By:



David E. Lee, Compliance Test Manager

**Name of Test:** Emission Masks (Occupied Bandwidth)  
 g04c0013: 2004-Dec-08 Wed 10:55:00  
 State: 2:High Power



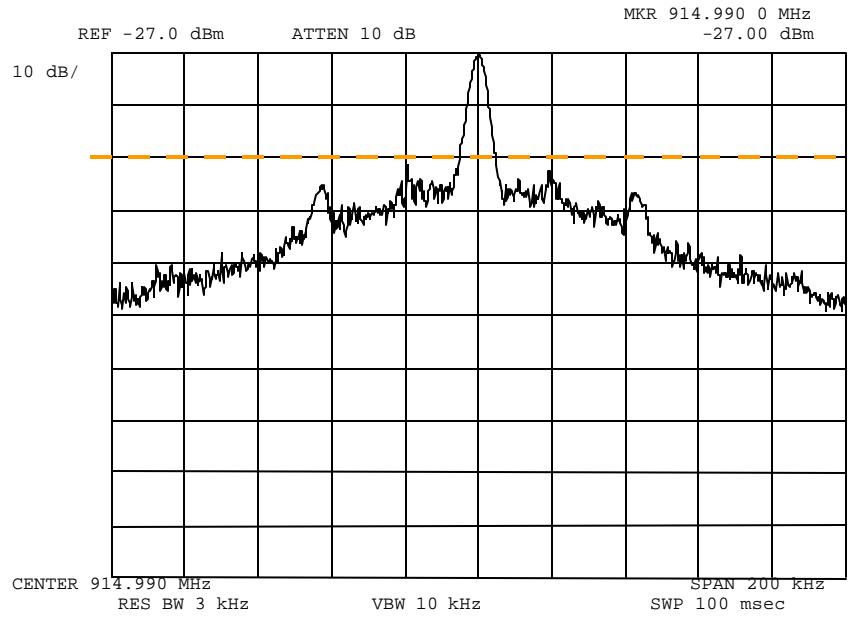
Power: HIGH  
 High Band Edge: High Channel (927.8MHz)

Supervised By:



David E. Lee, Compliance Test Manager

**Name of Test:** Emission Masks (Occupied Bandwidth)  
 g04c0014: 2004-Dec-08 Wed 11:01:00  
 State: 2:High Power



Power: HIGH  
 Modulation: Mid Channel (915.0MHz)  
 20dB Bandwidth: 12kHz

Supervised By:



David E. Lee, Compliance Test Manager



## Radiated Measurements For Part 15 Transmitters with Integral Antennas

### Radiated Measurements

Range Of Measurement	Specification	Resolution B/W	Video B/A
30 to 1000 MHz	CISPR	=100 kHz	=100 kHz
>1000 MHz (if averaging)	FCC, 15.37(b)	1 MHz	=1 MHz
	FCC, 15.37(b)	1 MHz	10 Hz

### Measuring Equipment

#### a. Antennas:

EMCO 3109	20 - 300 MHz
APREL AALP2001	200 - 1000 MHz
APREL AAB20200	20 - 200 MHz
APREL AAH118	1 - 18 GHz

#### b. Instruments:

HP8566B	Spectrum Analyzer
HP85685A	Preselector, w/ preamp below 2 GHz
HP85650A	Quasi Peak Adapter
HP8449	Preamp, above 2 GHz

All test instrumentation is calibrated every January and every July. In addition, all test instrumentation is calibrated daily, or as required by the manufacturer. A Calibration Agreement is maintained with Hewlett Packard.

### Occupied Bandwidth

Occupied Bandwidth is measured as a radiated signal without attenuators and/or filter. RBW, VBW and scan settings as shown were set to produce a meaningful result in accordance with ANSI C63.4, Section 13.1.7.

### Part 15.21, Information to User

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



## § 15.205 Restricted Bands of Operation

(a) Except as shown in paragraph (b) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.25
0.495-0.505	16.69475-16.69625	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2655-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-339.4	3600-4400	
13.36-13.41			

## 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.

Supervised By:



David E. Lee, Compliance Test Manager