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: September 12, 2005

Federal Communications Commission

Via: Electronic Filing

Attention: Authorization & Evaluation Division

Applicant: International Electronics Inc.
Equipment: GCU1
FCC ID: JLFGCU1
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,

Michael Schafer, President

enclosure(s)
cc: Applicant
MS/del

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Transmitter Certification

of

FCC ID: JLFGCU1
Model: GCU1

to

Federal Communications Commission

Rule Part(s) 15.249

Date Of Report: September 12, 2005

On the Behalf of the Applicant:

International Electronics Inc.

At the Request of:

P.O. 36215

International Electronics Inc.
5913 NE 127th Ave, Suite 800
Vancouver, WA 98682

Attention of:

Shary Nassimi, President
(360) 241-9090
email: iei@nwlink.com

Supervised By:

David E. Lee, Quality Assurance Manager

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

Applicant: International Electronics Inc.

FCC ID: JLFGCU1

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
     - Active Devices

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.

Table Of Contents

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:	d0590047
d) Client:	International Electronics Inc. 5913 NE 127th Ave, Suite 800 Vancouver, WA 98682
e) Identification: Description:	GCU1 FCC ID: JLFGCU1 Gate Controller
f) EUT Condition:	Not required unless specified in individual tests.
g) Report Date: EUT Received:	September 12, 2005 September 8, 2005
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, Quality Assurance 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.

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.
5913 NE 127th Ave, Suite 800
Vancouver, WA 98682

Manufacturer:
Applicant

(c)(2): **FCC ID**: JLFGCU1

Model Number: GCU1

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

Please See Attached Exhibits

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

(c)(5): **FREQUENCY RANGE, MHz**: 903 to 927

(c)(6): **Power Rating**: 32.36 mV/m @ 3m

____ Switchable ____ Variable X N/A

(c)(7): **Maximum Power Rating, W**: 50mV/m @ 3m

15.203: **Antenna Requirement**:

X 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	=	0.025
Collector Voltage, Vdc	=	3.6
Supply Voltage, Vdc	=	6.0

(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

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 ANSI C63.4-1992/2000, 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.

THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION

ACCREDITED LABORATORY

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.

Presented this 16th day of June 2004.

President
For the Accreditation Council
Certificate Number 2152-01
Valid to August 31, 2006

A2LA

For tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

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**

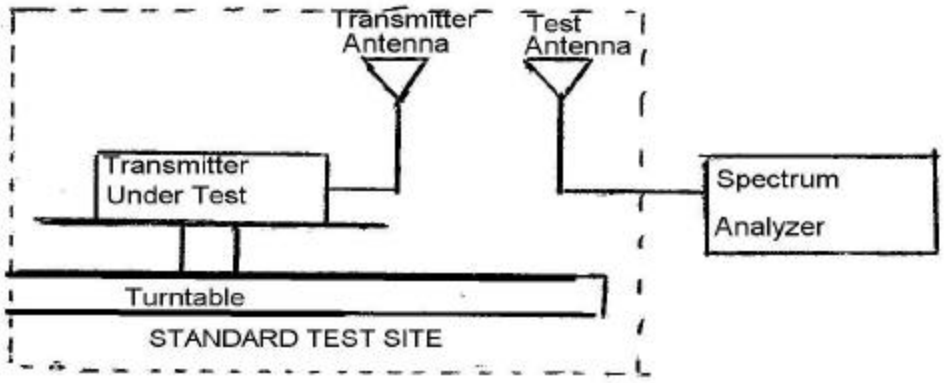
Name of Test: RF Carrier Power (Radiated)

Specification: TIA/EIA 603A (Substitution Method)

Measurement Procedure

Definition
The average radiated power of a licensed device is the equivalent power required, when delivered to a half-wave dipole or horn antenna, to produce at a distant point the same average received power as produced by the licensed device.

Method of Measurement:
A) Connect the equipment as illustrated. Place the transmitter to be tested on the turntable in the standard test site.



B) Raise and lower the test antenna from 1m to 6 m with the transmitter facing the antenna and record the highest received signal in dB as LVL.

C) Replace the transmitter under test with a half-wave or horn vertically polarized antenna. The center of the antenna should be at the same location as the transmitter under test. Connect the antenna to a signal generator with a known output power and record the path loss in dB or LOSS.

D) Calculate the radiated output power from the readings in step C) by the following:

$$\text{average radiated power} = 10 \log_{10} \text{Ó } 10^{(LVL - LOSS)/10} \text{ (dBm)}$$

Name of Test: RF Carrier Power (Radiated)

Test Equipment

	Asset	Description	s/n	Cycle	Last Cal
		Transducer			
	i00088	EMCO 3109-B 25MHz-300MHz	2336	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
		Amplifier			
X	i00028	HP 8449A	2749A00121	12 mo.	May-04
		Spectrum Analyzer			
X	i00029	HP 8563E	3213A00104	12 mo.	May-04
X	i00033	HP 85462A	3625A00357	12 mo.	Sepl-04
		Substitution Generator			
X	i00067	HP 8920A Communication TS	3345U01242	12 mo.	Jun-04
	i00207	HP 8753D Network Analyzer	3410A08514	12 mo.	Jul-04

g0590034: 2005-Sep-09 Fri 15:43:00
State: 2:High Power

Frequency Tuned, MHz	Frequency Emission, MHz	Pol.	Meter, dBuV	CF, dB	Calc, dBuV	mV/m @ 3m
903.250000	903.215000	V	64.32	25.15	89.47	29.750
903.250000	903.220000	H	55.94	25.15	81.09	11.337
915.700000	915.665000	V	65.01	25.19	90.20	32.359
915.700000	915.665000	H	56.47	25.19	81.66	12.105
926.700000	926.725000	H	41.51	25.23	85.47	2.172
926.700000	926.735000	V	46.18	25.23	65.98	3.719

Performed By: Fred Chastain, Test Technician

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

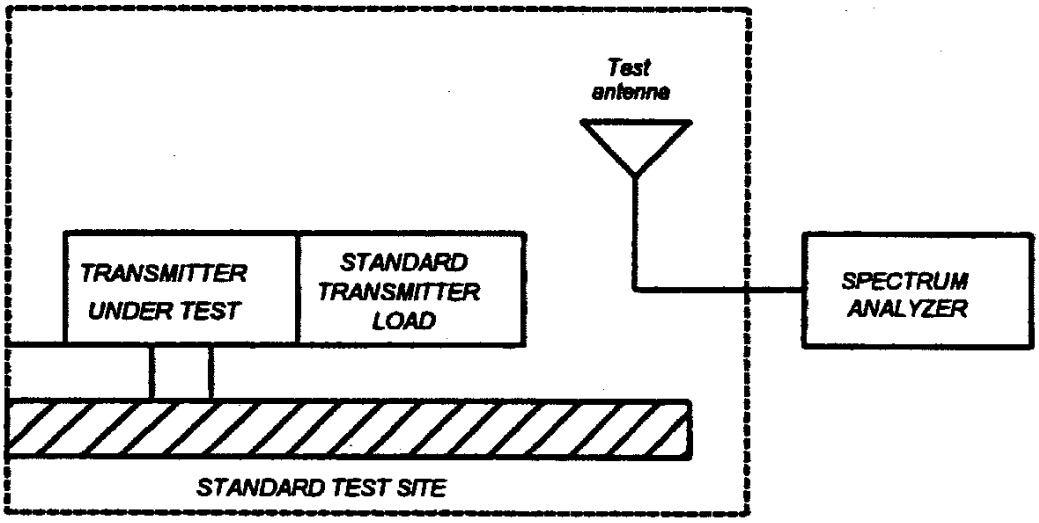
1.2.12.1 Definition: Radiated spurious emissions are emissions from the equipment when transmitting into a non-radiating load on a frequency or frequencies which are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communications desired.

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 ≤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.

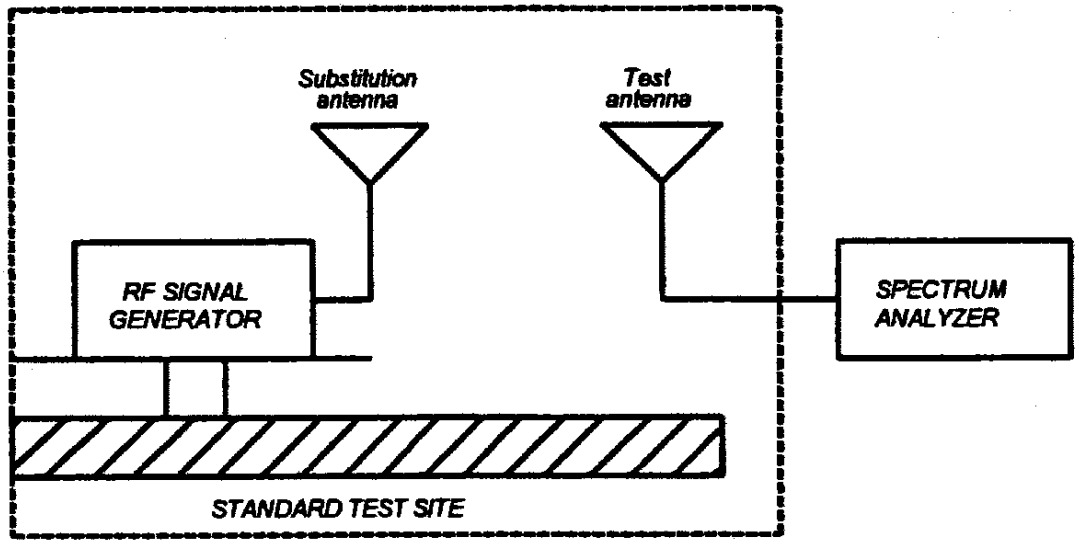


Name of Test: Field Strength of Spurious Radiation (Cont.)

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 ± 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:

Radiated spurious emissions dB =
$10\log_{10}$(TX power in watts/0.001) – 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 (Per ANSI C63.4-1992/2000 Draft, 10.1.4)	Last Cal
Transducer					
X	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
Amplifier					
X	i00028	HP 8449A	2749A00121	12 mo.	May-05
Spectrum Analyzer					
X	i00029	HP 8563E	3213A00104	12 mo.	May-05
X	i00033	HP 85462A	3625A00357	12 mo.	Oct-04
	i00048	HP 8566B	2511AD1467	12 mo.	Jun-05

Name of Test: Field Strength of Spurious Radiation
g0590044: 2005-Sep-12 Mon 16:06:00
State: 2:High Power

Frequency Tuned, MHz	Frequency Emission, MHz	Meter, dBuV	CF, dB	uV/m @ 3m	ERP, dBm	Margin, dB
903.250000	1806.666667	36.60	1.15	77.18	-59.6	-16.3
915.700000	1831.566667	40.27	1.19	118.30	-55.9	-12.5
926.700000	1853.566667	36.27	1.23	74.99	-59.9	-16.5
903.250000	2709.916667	36.77	2.66	93.65	-57.9	-14.6
915.700000	2747.266667	37.60	2.63	102.68	-57.1	-13.8
926.700000	2780.266667	41.93	2.60	168.46	-52.8	-9.5
903.250000	3613.166667	32.60	6.60	91.20	-58.2	-14.8
915.700000	3662.966667	34.77	7.06	123.45	-55.5	-12.2
926.700000	3706.966667	32.77	7.45	102.57	-57.2	-13.8
903.250000	4516.416667	31.27	9.40	108.02	-56.7	-13.3
915.700000	4578.666667	33.60	9.38	140.93	-54.4	-11.0
926.700000	4633.666667	33.60	9.36	140.60	-54.4	-11.0
903.250000	5419.666667	33.27	9.34	135.05	-54.8	-11.4
915.700000	5494.366667	32.77	9.36	127.79	-55.2	-11.9
926.700000	5560.366667	35.60	9.61	182.18	-52.2	-8.8
903.250000	6322.916667	30.43	10.74	114.42	-56.2	-12.8
915.700000	6410.066667	32.10	10.58	136.14	-54.7	-11.3
926.700000	6487.066667	32.10	10.44	133.97	-54.8	-11.5
903.250000	7226.166667	31.93	11.37	146.22	-54.1	-10.7
915.700000	7325.766667	31.77	11.85	151.71	-53.8	-10.4
926.700000	7413.766667	30.10	12.27	131.37	-55.0	-11.6
903.250000	8129.416667	33.43	14.92	261.52	-49.0	-5.7
915.700000	8241.466667	31.93	14.97	221.31	-50.5	-7.1
926.700000	8340.466667	30.43	15.01	187.07	-51.9	-8.6
903.250000	9032.666667	32.10	11.43	150.14	-53.8	-10.5
915.700000	9157.166667	33.77	13.01	218.27	-50.6	-7.2
926.700000	9267.166667	31.77	14.39	203.24	-51.2	-7.8

Performed By: Fred Chastain, Test Technician

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

Specification: 47 CFR 15.249(c)

General Radiated Emission Limits Per 15.209:

Frequency, MHz	Field Strength, µV/m @ 3m
30 – 88	100
88 – 216	150
216 – 960	200
Above 960	300

Measurement Results:

Frequency of Carrier, MHz	=	903.25, 926.75, 915.70
Spectrum Searched	=	30 to 1GHz
All Other Emissions	=	= 20 dB Below Limit
Limit, µV /m @ 3m	=	50 dBc or § 15.209

g0590053: 2005-Sep-13 Tue 11:16:00
State: 0:General

Frequency Emission, MHz	Level, dBuV	@ m	C.F., dB	µV/m	@ m	Margin, dB
40.000000	23.00	3	12.32	58.34	3	-4.7
59.300000	12.14	3	10.23	13.14	3	-17.6
93.990000	11.88	3	8.90	10.94	3	-22.2
125.313000	21.05	3	11.56	42.71	3	-10.4
258.750000	20.08	3	18.42	84.14	3	-7.5
275.825000	14.09	3	21.62	61.02	3	-10.3
321.391000	13.73	3	15.76	29.82	3	-16.5
421.763000	20.35	3	17.87	81.47	3	-7.8
742.800000	7.42	3	25.87	46.18	3	-12.7
770.563000	-3.94	3	25.50	11.97	3	-24.4
902.588000	8.54	3	26.22	54.70	3	-11.2

Performed By: Fred Chastain, Test Technician

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 ±2.5 kHz deviation (or 50% modulation). With level constant, the signal level was increased 16 dB.

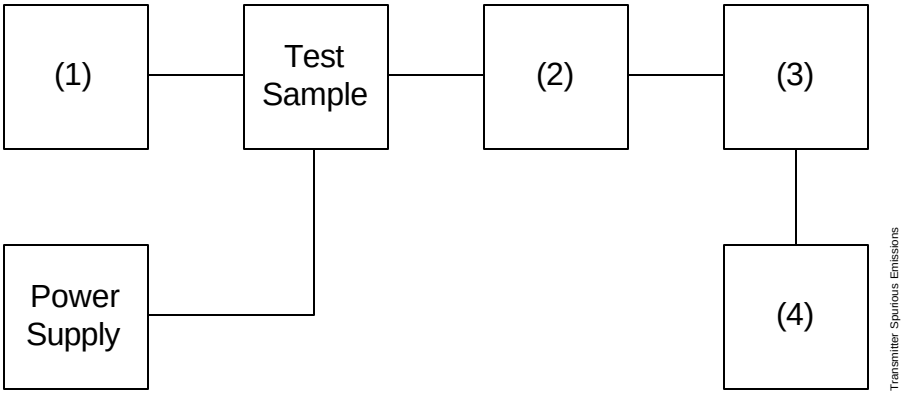
3. For EUTs supporting digital modulation, the digital modulation mode was operated to its maximum extent.

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

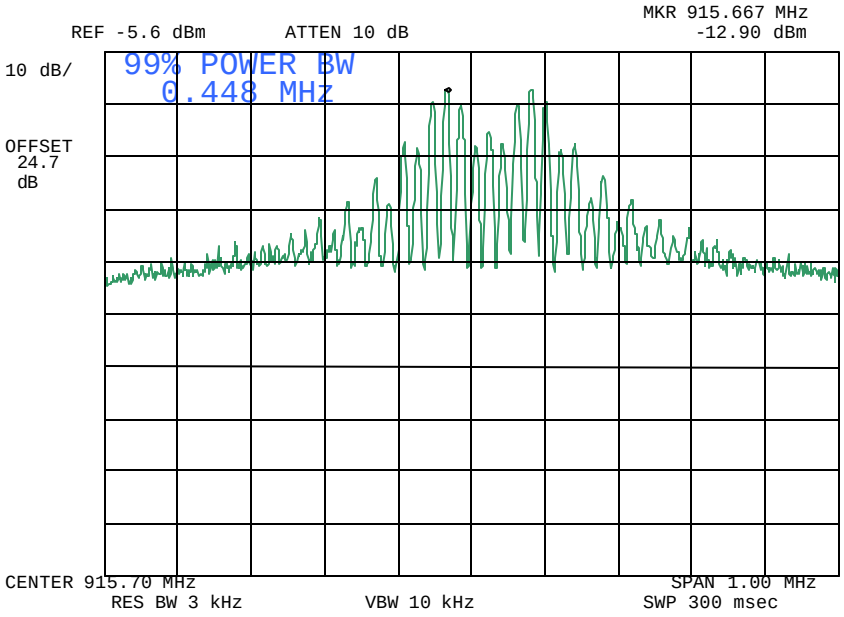


	Asset (as applicable)	Description	s/n	Cycle	Last Cal
(1) **Audio Oscillator/Generator**					
X	i00017	HP 8903A Modulation Meter	2216A01753	12 mo.	Apr-05
(2) **Coaxial Attenuator**					
X	i00231/2	PASTERNACK PE7021-30 (30 dB)	231 or 232	NCR	
	i00123	NARDA 766 (10 dB)	7802A	NCR	
(3) **Interface**					
X	i00021	HP 8954A Transceiver Interface	2146A00159	NCR	
(4) **Spectrum Analyzer**					
X	i00048	HP 8566B Spectrum Analyzer	2511A01467	12 mo.	Oct-04
	i00029	HP 8563E Spectrum Analyzer	3213A00104	12 mo.	May-05

Name of Test: Emission Masks (Occupied Bandwidth)

g0590035: 2005-Sep-12 Mon 10:57:00

State: 0:General

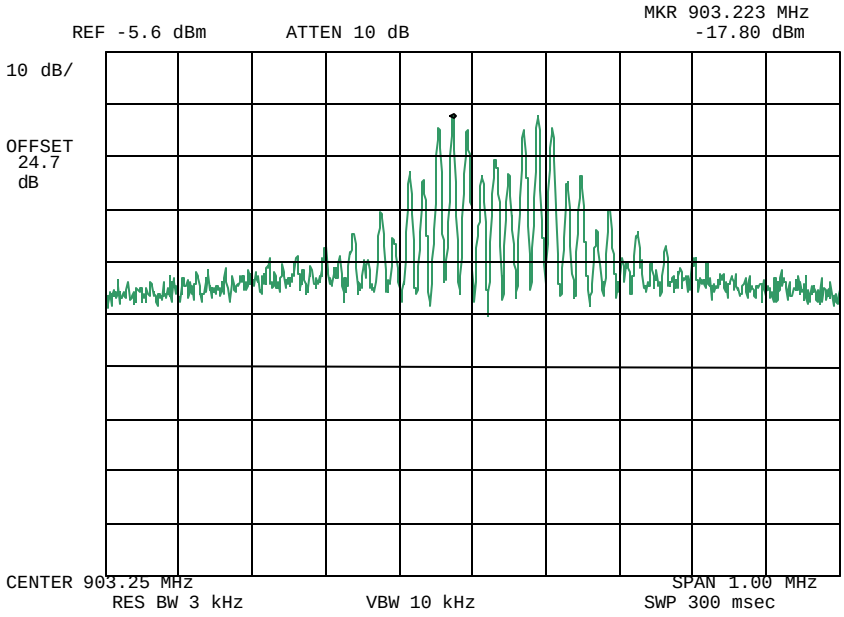


Power: LOOSE COUPLED

Modulation: MID CHAN 99% BW

Performed By: Fred Chastain, Test Technician

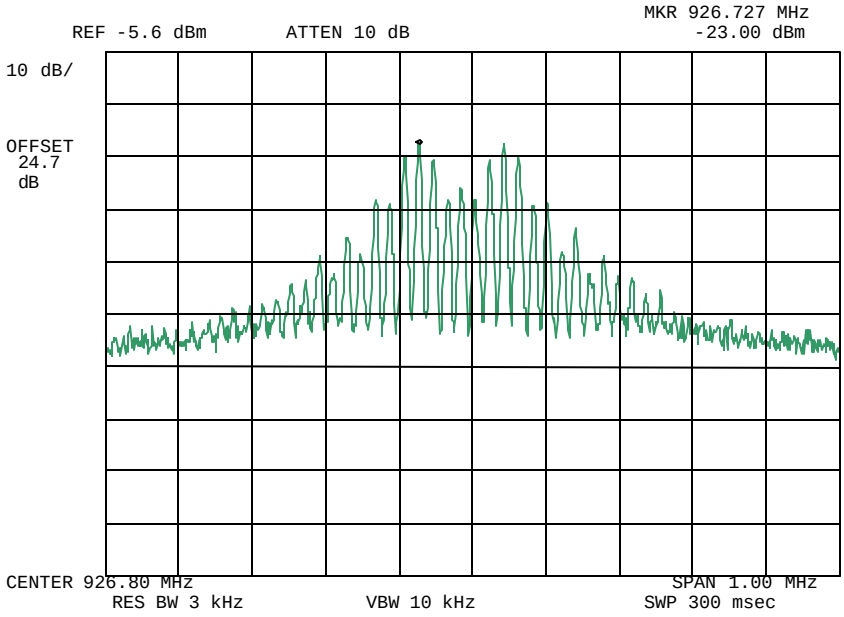
Name of Test: Emission Masks (Occupied Bandwidth)
g0590036: 2005-Sep-12 Mon 10:59:00
State: 0:General



Power: LOOSE COUPLED
Modulation: LOW CHAN

Performed By: Fred Chastain, Test Technician

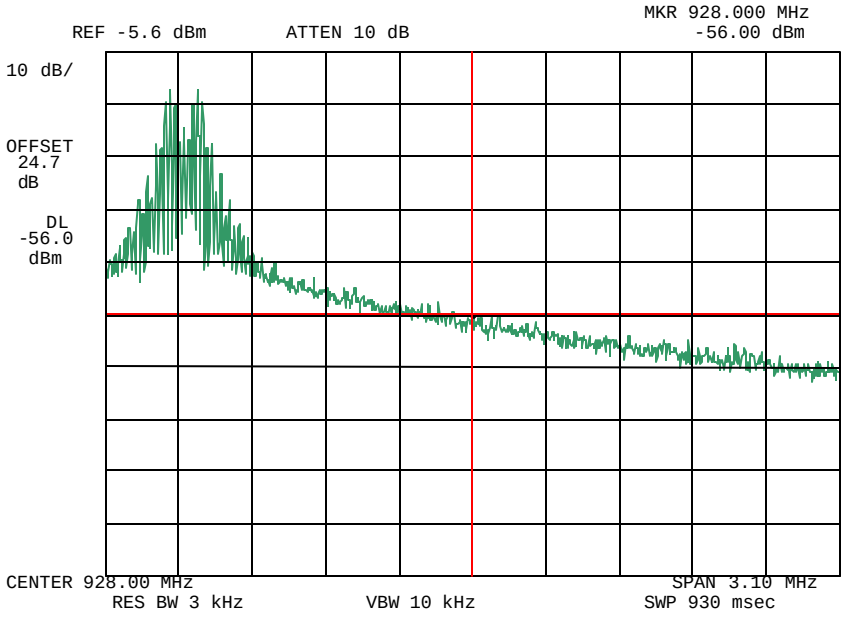
Name of Test: Emission Masks (Occupied Bandwidth)
g0590037: 2005-Sep-12 Mon 11:00:00
State: 0:General



Power: LOOSE COUPLED
Modulation: HIGH CHAN

Performed By: Fred Chastain, Test Technician

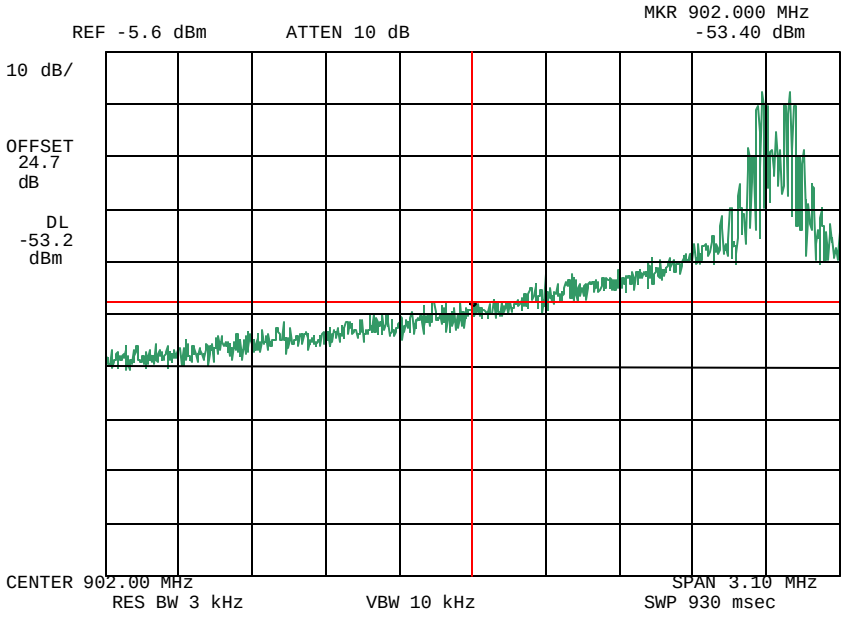
Name of Test: Emission Masks (Occupied Bandwidth)
g0590040: 2005-Sep-12 Mon 11:04:00
State: 0:General



Power: LOOSE COUPLED
Modulation: HIGH BAND EDGE

Performed By: Fred Chastain, Test Technician

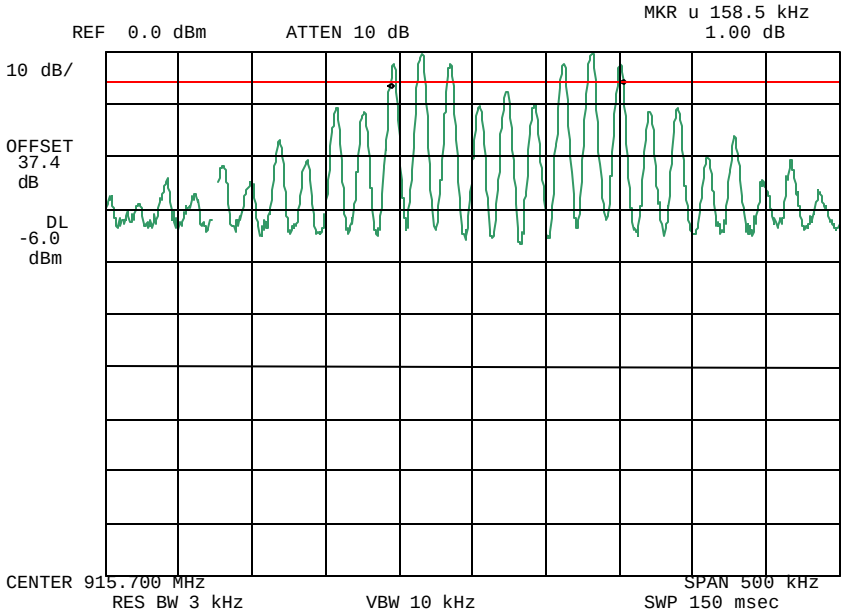
Name of Test: Emission Masks (Occupied Bandwidth)
g0590041: 2005-Sep-12 Mon 11:05:00
State: 0:General



Power: LOOSE COUPLED
Modulation: LOW BAND EDGE

Performed By: Fred Chastain, Test Technician

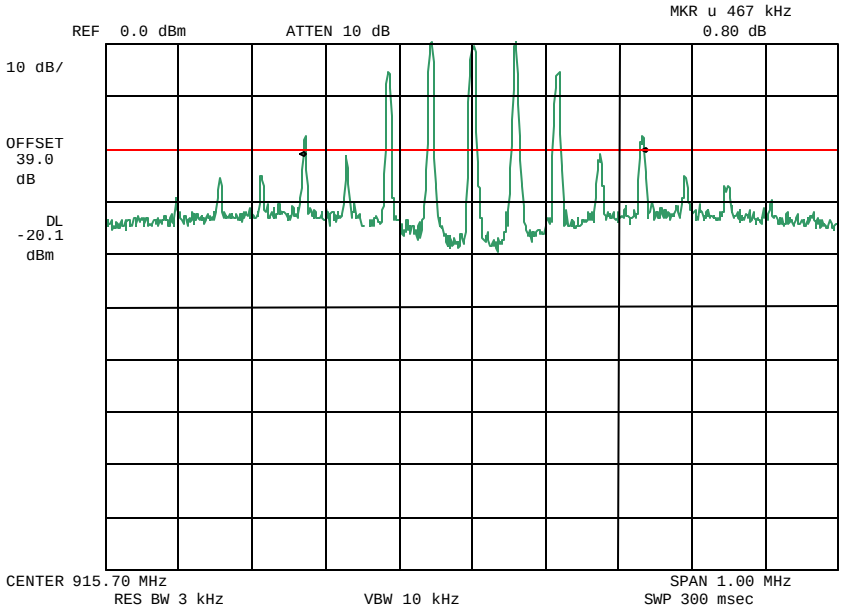
Name of Test: Emission Masks (Occupied Bandwidth)
g0590042: 2005-Sep-12 Mon 11:10:00
State: 0:General



Power: LOOSE COUPLED
Modulation: MID BAND 6DB BW

Performed By: Fred Chastain, Test Technician

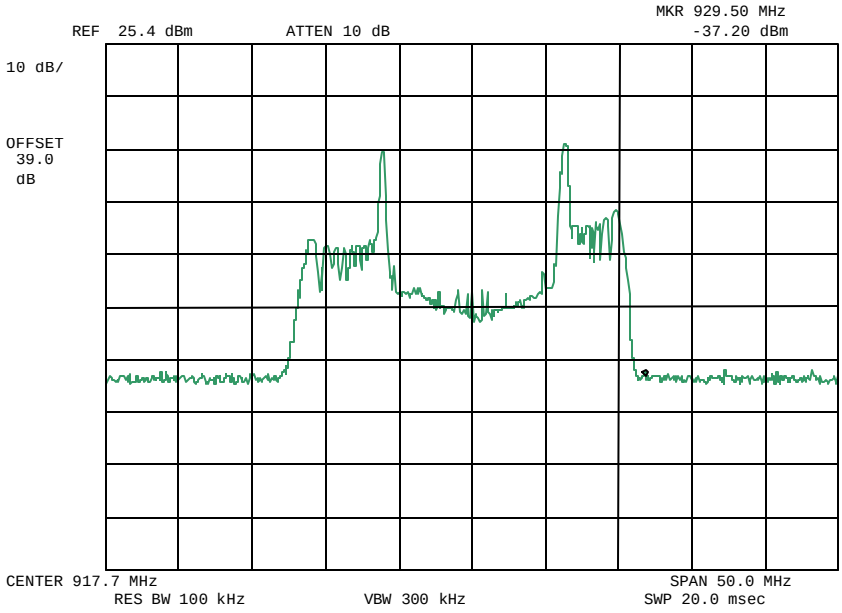
Name of Test: Emission Masks (Occupied Bandwidth)
g0590043: 2005-Sep-12 Mon 11:11:00
State: 0:General



Power: LOOSE COUPLED
Modulation: MID CHANNEL 20DB BW

Performed By: Fred Chastain, Test Technician

Name of Test: Emission Masks (Occupied Bandwidth)
g0590087: 2005-Sep-12 Mon 10:16:00
State: 0:General



Power: LOOSE COUPLED
Modulation: NORMAL OPERATION

Performed By: Fred Chastain, Test Technician

Name of Test: Necessary Bandwidth and Emission Bandwidth

Specification: 47 CFR 2.202(g)

Modulation = FSK

Necessary Bandwidth Calculation:

Measured, kHz = 448

Supervised By: David E. Lee, Quality Assurance 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	FCC, 15.37(b)	1 MHz	=1 MHz
(if averaging)	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

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.

Certifying Engineer: David E. Lee, Quality Assurance Manager

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