



# M. Flom Associates, Inc.

International Compliance Testing Laboratory

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## Transmitter Certification

of

Model: 315 MHz control  
FCC ID: TG26500-60-AA

to

Federal Communications Commission

Rule Part 15.231 and Confidentiality

Date of report: July 12, 2005  
Amended Report: December 8, 2005

### On the Behalf of the Applicant:

White Conveyors, Inc.

### At the Request of:

Pacific Paralell Research, Inc.  
922 Grange Hall Rd  
Cardiff By The Sea, CA 92007-1018

Attention of:

Craig Davidson  
760-436-6368  
Email: [cdavidson.ppri@earthlink.com](mailto:cdavidson.ppri@earthlink.com)

Supervised By:

David E. Lee, Quality Assurance Manager

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

Applicant: White Conveyors, Inc.

FCC ID: TG26500-60-AA

**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
  - Parts List
  - 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.

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*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:

d0570053

d) Client:

Pacific Paralell Research, Inc.  
922 Grange Hall Rd  
Cardiff By The Sea, CA 92007-1018

e) Identification:

6500-60-AA  
FCC ID: TG26500-60-AA

Description:

Remote Control

f) EUT Condition:

Not required unless specified in individual tests.

g) Report Date:  
EUT Received:

July 12, 2005  
April 11, 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.

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
X _____	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)
_____	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 C63.4-1992/2003, 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.



### 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**

### List Of General Information Required For Certification

In Accordance With FCC Rules And Regulations,  
Volume II, Part 2 and to 15.231 and Confidentiality

Sub-part 2.1033

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

White Conveyors, Inc.  
10 Boright Avenue  
Kenilworth, NJ 07033-1015

**Manufacturer :**

Applicant

(c)(2): **FCC ID:** TG26500-60-AA

**Model Number :** 6500-60-AA

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

Please See Attached Exhibits

(c)(4): **Type of Emission:** Momentary, 00K

(c)(5): **Frequency Range, MHz:** 315.000

(c)(6): **Power Rating:** 5623.00 uV/m @ 3m  
☐ Switchable ☐ Variable ☒ N/A

(c)(7): **Maximum Power Rating, per 15.231(b):** 6041 uv/m @ 3m for 315MHz fundamental

**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	=	0.100 (max)
Collector Voltage, Vdc	=	3.0
Supply Voltage, Vdc	=	3.0

(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

**Name of Test:** Signaling Restriction

**Specification:** 47 CFR 15.231(a)

### Provisions

To Paragraph 15.231

**(a)** Types of momentary signals

- ☒ The EUT only transmits a control signal.  
☐ The EUT meets the requirements provided in (e).

**(a)(1)** Manually operated transmitters

- ☐ The EUT can not be manually activated.  
☒ The EUT ceases transmission within 5 seconds or deactivation.  
☐ The EUT is employed during emergencies.

**(a)(2)** Automatically activated transmitters

- ☐ The EUT can not be automatically activated.  
☒ The EUT does not transmit for more than 5 seconds.  
☐ The EUT only operates during an alarm condition.

**(a)(3)** Automatically activated transmitters

- ☒ The EUT does not transmit at regular predetermined intervals.  
☐ The EUT meets the requirements provided in (e).  
☐ The EUT does not transmit more than one, one second per hour.

**(a)(4)** Emergency transmitters

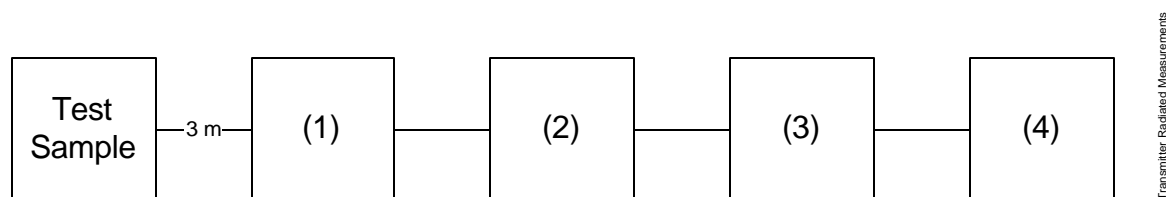
- ☒ The EUT is not an emergency transmitter.  
☐ The EUT only operates during an alarm condition.

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

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

**Guide:** ANSI C63.4 2003

### Transmitter Radiated Measurements

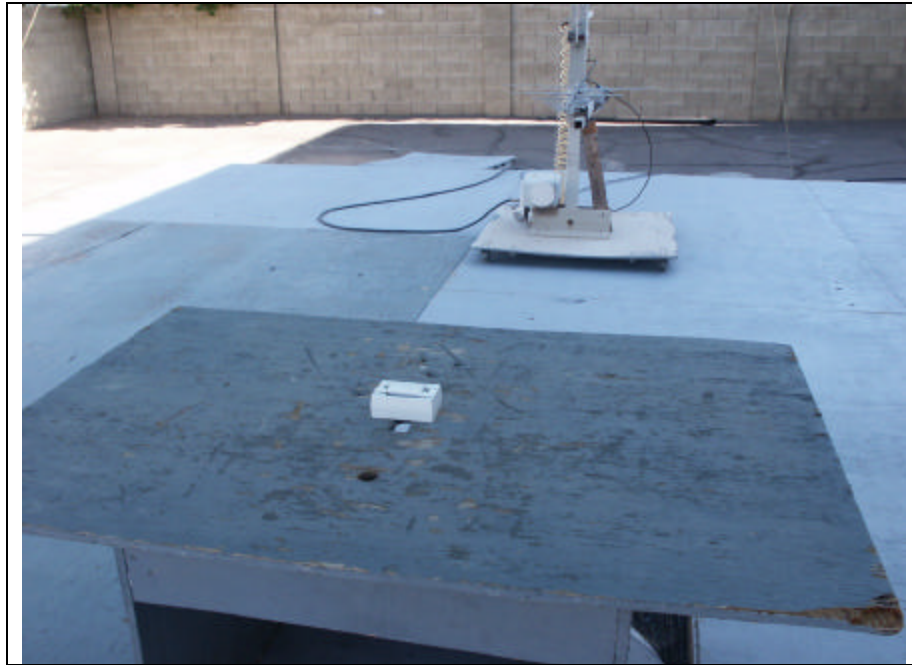


### Test Equipment

Asset (as applicable)	Description	s/n	Cycle	Last Cal
<small>Per ANSI C63.4-1992/2003/2006 Draft, 10.1.4</small>				
<b>1) Transducer</b>				
I00088	EMCO 3109-B 25MHz-300MHz	2336	24 mo.	Sep-05
X I00065	EMCO 3301-B Active Monopole	2635	24 mo.	Sep-05
X I00089	Apriel 2001 200MHz-1GHz	001500	24 mo.	Sep-05
X I00103	EMCO 3115 1GHz-18GHz	9208-3925	24 mo.	Jan-04
<b>2) Amplifier</b>				
I00028	HP 8449A	2749A00121	12 mo.	May-05
<b>3) Cable</b>				
	OATS Heliflex	nsn	12 mo.	May-05
<b>4) Spectrum Analyzer</b>				
I00029	HP 8563E	3213A00104	12 mo.	May-05
X I00033	HP 85462A	3625A00357	12 mo.	Sep-05
I00048	HP 8566B	2511AD1467	12 mo.	Jul-05

**Test Setup:** Radiated Emissions

State:



State:



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

g0540034: 2005-May-25 Wed 14:30

State: 2:High Power

**Fundamental**

**Limit 6041.7 uV/m @ 3m**

Frequency Tuned, MHz	Frequency Emission, MHz	Meter, dBuV	CF, dB	uV/m @ 3m
315.000000	315.000000	59.47	15.62	5623.00

**Harmonically Related 15.231(b)**

**Limit 604.17 uV/m @ 3m**

Frequency Tuned, MHz	Frequency Emission, MHz	Meter, dBuV	CF, dB	uV/m @ 3m
315.000000	629.976500	22.76	31.65	525.41
315.000000	1259.973300	17.18	36.44	478.00
315.000000	1574.969800	13.10	40.66	446.00

All other emissions more than 20dB below limit

**Spurious Noise 47CFR 15.209**

g0540036: 2005-Jul-12 Tue 14:09:31

State: 2:High Power

Emission, Frequency	Meter, dBuV	Test distance	CF, dB	Calc, dBuV	Limit, dBuV	Limit distance	Margin, dB
31.338000	10.61	3	13.81	24.42	40.00	3	-15.60
43.325000	13.09	3	13.98	27.07	40.00	3	-12.90
51.375000	12.31	3	13.19	25.50	40.00	3	-14.50
70.038000	10.53	3	9.95	20.48	40.00	3	-19.50
75.613000	16.44	3	9.55	25.99	40.00	3	-14.00
80.630000	13.52	3	10.07	23.59	40.00	3	-16.40
86.638000	13.69	3	10.32	24.01	40.00	3	-16.00
109.263000	15.08	3	13.24	28.32	43.50	3	-15.20
111.875000	14.84	3	13.46	28.30	43.50	3	-15.20
123.225000	12.98	3	14.37	27.35	43.50	3	-16.20
139.925000	9.58	3	15.13	24.71	43.50	3	-18.80
149.388000	13.65	3	15.50	29.15	43.50	3	-14.40
158.538000	15.16	3	15.55	30.71	43.50	3	-12.80
162.425000	16.18	3	15.55	31.73	43.50	3	-11.80
164.563000	11.63	3	15.55	27.18	43.50	3	-16.30
174.850000	13.06	3	15.60	28.66	43.50	3	-14.80
213.150000	16.50	3	18.41	34.91	43.50	3	-8.60
246.400000	8.72	3	20.50	29.22	46.00	3	-16.80
262.500000	11.27	3	23.27	34.54	46.00	3	-11.50
279.725000	12.64	3	26.61	39.25	46.00	3	-6.80

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

Emission, Frequency	Meter, dBuV	Test distance	CF, dB	Calc, dBuV	Limit, dBuV	Limit distance	Margin, dB
287.300000	9.48	3	28.01	37.49	46.00	3	-8.50
300.100000	13.78	3	19.65	33.43	46.00	3	-12.60
321.300000	12.80	3	20.32	33.12	46.00	3	-12.90
345.225000	15.61	3	21.08	36.69	46.00	3	-9.30
379.550000	9.31	3	22.09	31.40	46.00	3	-14.60
379.550000	11.11	3	22.09	33.20	46.00	3	-12.80
413.800000	11.12	3	22.98	34.10	46.00	3	-11.90
460.250000	12.14	3	24.03	36.17	46.00	3	-9.80
499.275000	12.93	3	24.84	37.77	46.00	3	-8.20
553.425000	10.35	3	28.26	38.61	46.00	3	-7.40
583.400000	8.62	3	30.03	38.65	46.00	3	-7.40
616.413000	6.96	3	31.34	38.30	46.00	3	-7.70
671.025000	-1.51	3	32.53	31.02	46.00	3	-15.00
747.625000	3.48	3	32.76	36.24	46.00	3	-9.80
795.475000	5.06	3	32.41	37.47	46.00	3	-8.50
803.620000	6.73	3	32.43	39.16	46.00	3	-6.80
811.970000	5.34	3	32.55	37.89	46.00	3	-8.10
832.680000	6.55	3	32.85	39.40	46.00	3	-6.60
917.035000	4.37	3	34.69	39.06	46.00	3	-6.90
984.585000	5.19	3	37.49	42.68	54.00	3	-11.30

All other emissions more than 20dB below limit



Performed by:

Fred Chastain, Test Technician

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

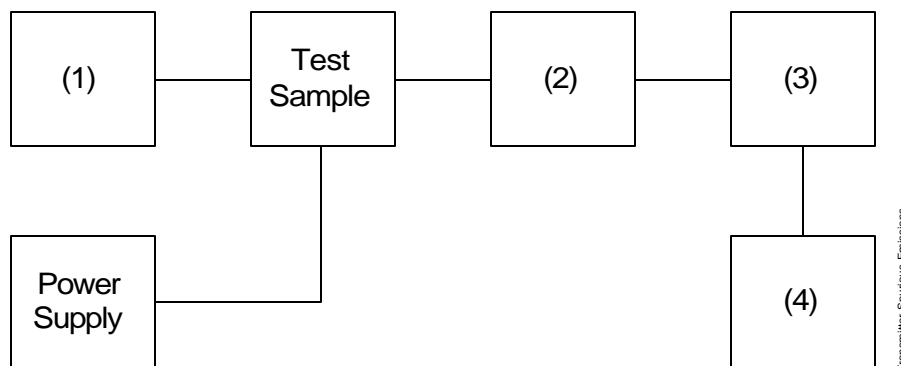
**Specification:** 47 CFR 2.1049(c)(1)

**Guide:** ANSI/TIA/EIA-603-1, Paragraph 2.2.11

### Measurement Procedure

- A) The EUT and test equipment were set up as shown below
- B) For EUTs supporting audio modulation, the audio signal generator was adjusted to the frequency of maximum response and with output level set for  $\pm 2.5/\pm 1.25$  kHz deviation (or 50% modulation). With level constant, the signal level was increased 16 dB.
- C) For EUTs supporting digital modulation, the digital modulation mode was operated to its maximum extent.
- D) The Occupied Bandwidth was measured with the Spectrum Analyzer controls set as shown on the test results.

### Transmitter Test Set-Up: Occupied Bandwidth



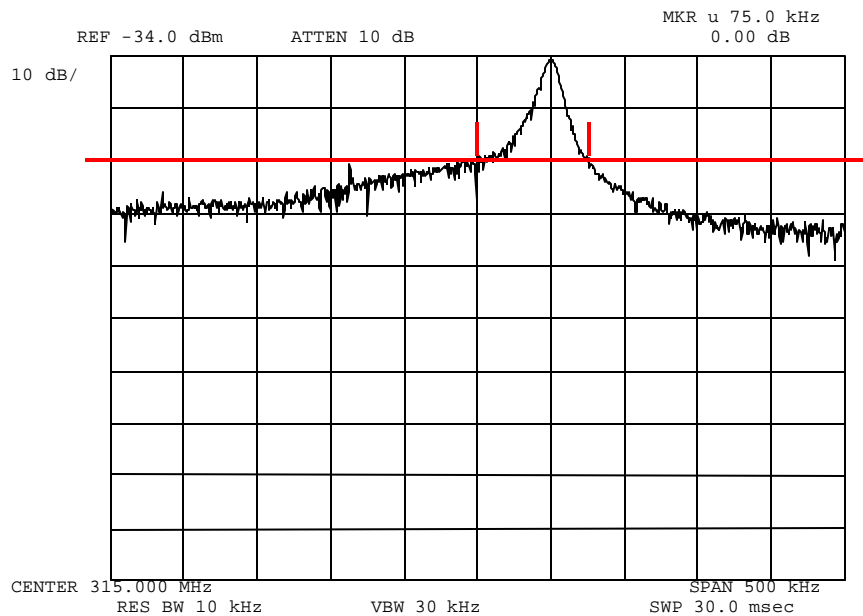
Asset	Description	s/n	Cycle	Last Cal
<b>(1) Audio Oscillator/Generator</b>				
X i00017	HP 8903A Modulation Meter	2216A01753	12 mo.	Apr-05
<b>(2) Coaxial Attenuator</b>				
X i00231/2	PASTERNAK PE7021-30 (30 dB)	231 or 232	NCR	
i00123	NARDA 766 (10 dB)	7802A	NCR	
<b>(3) Interface</b>				
X i00021	HP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

Name of Test: Emission Masks (Occupied Bandwidth)

### Measurement Results

g0570029: 2005-Jul-12 Tue 10:30:00

State: 2:High Power



Power:  
Bandwidth (20dB points):  
Frequency:

High  
75kHz (Limit = 787.5kHz)  
315.050Mhz

*Fred Chastain*

Performed by:

Fred Chastain, Test Technician



**Name of Test:** Necessary Bandwidth and Emission Bandwidth

**Specification:** 47 CFR 2.202(g)

Modulation = 00K

**Measured Bandwidth:** 75kHz



**Supervised By:** David E. Lee, Quality Assurance Manager

## Radiated Measurements For Part 15 Transmitters W/ Integral Antennas

### Radiated Measurements

Range Of Measurement	Specification	Resolution B/W	Video B/A
30 to 1000 MHz	CISPR	$\geq 100$ kHz	$\geq 100$ kHz
>1000 MHz	FCC, 15.37(b)	1 MHz	$\geq 1$ 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