



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

Transmitter Certification

of

Model: D-Cam Clip On
FCC ID: TO4-CCAM-0102

to

Federal Communications Commission

Rule Part(s) 74(F), 90.202 and Confidentiality

Date of report: October 7, 2005
Date Amended: January 25, 2006

On the Behalf of the Applicant:

Gigawave US

At the Request of:

P.O. 43113

Total RF Marketing
777 American Drive
Bensalem, PA 19020

Attention of:

Adolph F. Fellmeth III, Secretary and General Counsel
215-633-1000; Fax: 215-633-1085
ffellmeth@totalrf.com

Supervised by:

David E. Lee, FCC Compliance Manager

List of Exhibits

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

Applicant: Gigawave US
FCC ID: TO4-CCAM-0102

By Applicant:

1. Letter of Authorization
2. Confidentiality Request: 0.457 And 0.459
3. Identification Drawings, 2.1033(c)(11)
 - Label
 - Location of Label
 - Compliance Statement
 - Location of Compliance Statement
4. Photographs, 2.1033(c)(12)
5. Documentation: 2.1033(c)
 - (3) User Manual
 - (9) Tune Up Info
 - (10) Schematic Diagram
 - (10) Circuit Description
 - Block Diagram
 - Parts List

By M.F.A. Inc.:

- A. Testimonial & Statement of Certification

The Applicant has been cautioned as to the following:

15.21 Information to the 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

<u>Rule</u>	<u>Description</u>	<u>Page</u>
2.1033(c)(14)	Rule Summary	2
	Standard Test Conditions and Engineering Practices	3
2.1033(c)	General Information Required	4
2.1046(a)	Carrier Output Power (Conducted)	6
2.1051	Unwanted Emissions (Transmitter Conducted)	8
2.1049(c)(1)	Emission Masks (Occupied Bandwidth)	10
2.1055(a)(1)	Frequency Stability (Temperature Variation)	23
2.1055(b)(1)	Frequency Stability (Voltage Variation)	25
2.202(g)	Necessary Bandwidth and Emission Bandwidth	27

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

a) **Test Report**

b) Laboratory: M. Flom Associates, Inc.
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107
(Canada: IC 2044) Chandler, AZ 85225

c) Report Number: d0560046

d) Client: Gigawave US
777 American Drive
Bensalem, PA 19020

e) Identification: D-Cam Clip On
FCC ID: TO4-CCAM-0102
EUT Description: Television Camera Transmitter

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

g) Report Date: October 7, 2005
EUT Received: June 17, 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, FCC Compliance 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(c)(14):

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 2.947, 2.1033(c), 2.1041, 2.1046, 2.1047, 2.1079, 2.1051, 2.1053, 2.1055, 2.1057 and the following individual Parts:

- ☐ 21 – Domestic Public Fixed Radio Services
- ☐ 22 – Public Mobile Services
- ☐ 22 Subpart H - Cellular Radiotelephone Service
- ☐ 22.901(d) - Alternative technologies and auxiliary services
- ☐ 23 – International Fixed Public Radiocommunication services
- ☐ 24 – Personal Communications Services
- ☒ 74 Subpart F – Television Broadcast Auxiliary Stations
- ☐ 74 Subpart H - Low Power Auxiliary Stations
- ☐ 80 – Stations in the Maritime Services
- ☐ 80 Subpart E - General Technical Standards
- ☐ 80 Subpart F - Equipment Authorization for Compulsory Ships
- ☐ 80 Subpart K - Private Coast Stations and Marine Utility Stations
- ☐ 80 Subpart S - Compulsory Radiotelephone Installations for Small Passenger Boats
- ☐ 80 Subpart T - Radiotelephone Installation Required for Vessels on the Great Lakes
- ☐ 80 Subpart U - Radiotelephone Installations Required by the Bridge-to-Bridge Act
- ☐ 80 Subpart V - Emergency Position Indicating Radio Beacons (EPIRB'S)
- ☐ 80 Subpart W - Global Maritime Distress and Safety System (GMDSS)
- ☐ 80 Subpart X - Voluntary Radio Installations
- ☐ 87 – Aviation Services
- ☒ 90 – Private Land Mobile Radio Services
- ☐ 94 – Private Operational-Fixed Microwave Service
- ☐ 95 Subpart A - General Mobile Radio Service (GMRS)
- ☐ 95 Subpart C - Radio Control (R/C) Radio Service
- ☐ 95 Subpart D - Citizens Band (CB) Radio Service
- ☐ 95 Subpart E - Family Radio Service
- ☐ 95 Subpart F - Interactive Video and Data Service (IVDS)
- ☐ 97 - Amateur Radio Service
- ☐ 101 – Fixed Microwave Services

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, 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 74(F), 90.202 and Confidentiality

Sub-part 2.1033

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

Gigawave US
777 American Drive
Bensalem, PA 19020

Manufacturer:

Applicant

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

TO4-CCAM-0102

Model Number:

D-Cam Clip On

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

Please see attached exhibits

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

12M0W7D, 12M0F8W

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

1990 to 2492

(c)(6): **Power Rating, Watts:**

_____ Switchable

_____ Variable

0.100

___X___ N/A

(c)(7): **Maximum Power Rating, Watts:**

100

DUT Results:

Passes

___X___

Fails

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	=	0.700
Collector Voltage, Vdc	=	8.0
Supply Voltage, Vdc (Nominal)	=	12.0

(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
☒ N/A

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

Follows

Name of Test: Carrier Output Power (Conducted)

Specification: 47 CFR 2.1046(a)

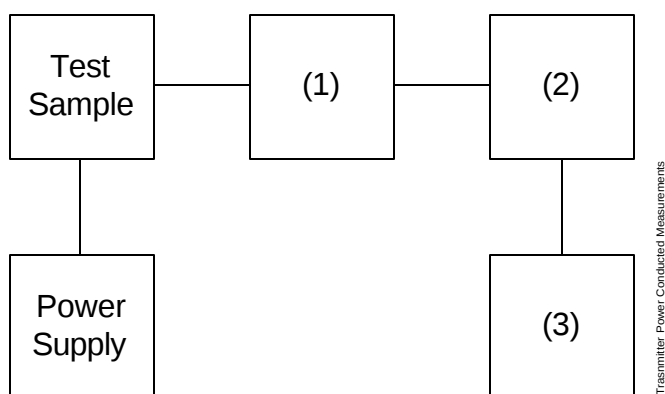
Guide: ANSI/TIA/EIA-603-1992, Paragraph 2.2.1

Measurement Procedure

A) The EUT was connected to a resistive coaxial attenuator of normal load impedance, and the unmodulated output power was measured by means of an RF Power Meter.

B) Measurement accuracy is $\pm 3\%$.

Transmitter Test Set-Up: RF Power Output



Asset	Description	s/n	Cycle	Last Cal
(1) Coaxial Attenuator				
X	i00231/2 PASTERNAK PE7021-30 (30 dB)	231 or 232	NCR	
	i00122/3 NARDA 766 (10 dB)	7802 or 7802A	NCR	
(2) Filters; Notch, HP, LP, BP				
	None required	nsn	NCR	
(3) Spectrum Analyzer				
X	i00048 HP 8566B Spectrum Analyzer	2511A01467	12 mo.	Jun-05
	i00029 HP 8563E Spectrum Analyzer	3213A00104	12 mo.	May-05

Name of Test: Carrier Output Power (Conducted)

Measurement Results
(Worst case)

Frequency of Carrier, MHz = 2200
Ambient Temperature = $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$

Power Setting	RF Power, dBm	RF Power, Watts
High	20.0	0.100



Performed by: Fred Chastain, Test Technician

Name of Test: Unwanted Emissions (Transmitter Conducted)

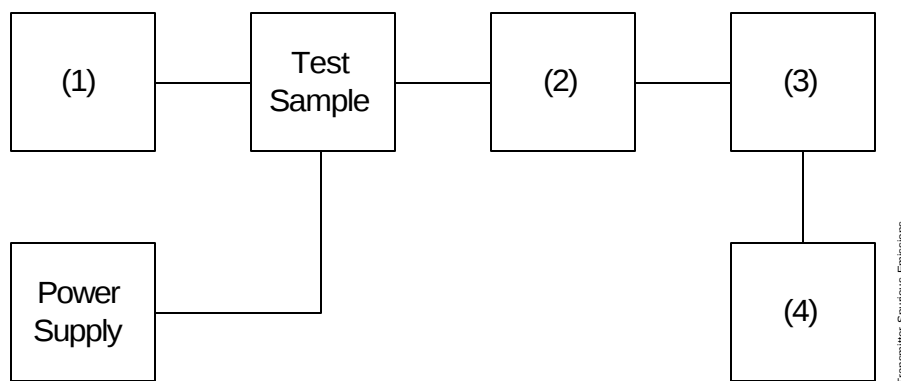
Specification: 47 CFR 2.1051

Guide: ANSI/TIA/EIA-603-1992, Paragraph 2.2.13

Measurement Procedure

- A) The emissions were measured for the worst case as follows:
- 1). within a band of frequencies defined by the carrier frequency plus and minus one channel.
 - 2). from the lowest frequency generated in the EUT and to at least the 10th harmonic of the carrier frequency, or 40 GHz, whichever is lower.
- B) The magnitude of spurious emissions that are attenuated more than 20 dB below the permissible value need not be specified.

Transmitter Test Set-Up: Spurious Emission



Asset	Description	s/n		
(1) Audio Oscillator/Generator				
X	i00017	HP 8903A Audio Analyzer	2216A01753	12 mo. Apr-05
	i00002	HP 3336B Synthesizer / Level Gen.	1931A01465	12 mo. Apr-05
(2) Coaxial Attenuator				
X	i00231/2	PASTERNAK PE7021-30 (30 dB)	231 or 232	NCR
	i0012/3	NARDA 766 (10 dB)	7802 or 7802A	NCR
(3) Filters; Notch, HP, LP, BP				
	Notch	nsn		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: Unwanted Emissions (Transmitter Conducted)

Measurement Results
(Worst Case)

Frequency of carrier, MHz = 1990 to 2492
Spectrum Searched, GHz = 0 to 10 x F_C
All Other Emissions = = 20 dB Below Limit
Limit(s), dBc -50dBc

Measurement Results

g0560275: 2005-Jun-23 Thu 08:53:00

STATE: 2:High Power

Ambient Temperature: 23°C ± 3°C

Frequency Tuned, MHz	Frequency Emission, MHz	ERP, dBm	ERP, dBc
1990.000000	3980.000000	-49.8	-69.8
2016.500000	4033.000000	-34.8	-54.8
2101.500000	4203.000000	-54.4	-74.4
2458.000000	4916.000000	-31.4	-51.4
2492.000000	4984.000000	-53.1	-73.1
1990.000000	5970.000000	-49.4	-69.4
2016.500000	6049.500000	-33.0	-53.0
2101.500000	6304.500000	-53.5	-73.5
2458.000000	7374.000000	-52.1	-72.1
2492.000000	7476.000000	-52.4	-72.4
1990.000000	7960.000000	-46.1	-66.1
2101.500000	8406.000000	-49.3	-69.3
2458.000000	9832.000000	-46.4	-66.4
1990.000000	9950.000000	-44.5	-64.5
2492.000000	9968.000000	-47.2	-67.2
2101.500000	10507.500000	-47.4	-67.4
1990.000000	11940.000000	-42.6	-62.6
2458.000000	12290.000000	-45.8	-65.8
2492.000000	12460.000000	-47.8	-67.8
2101.500000	12609.000000	-46.0	-66.0
1990.000000	13930.000000	-43.1	-63.1
2101.500000	14710.500000	-44.8	-64.8
2458.000000	14748.000000	-43.8	-63.8
2492.000000	14952.000000	-41.4	-61.4
1990.000000	15920.000000	-48.3	-68.3
2101.500000	16812.000000	-47.5	-67.5
2458.000000	17206.000000	-49.6	-69.6
2492.000000	17444.000000	-47.5	-67.5
1990.000000	17910.000000	-40.6	-60.6



Performed by:

Fred Chastain, Test Technician

Name of Test: Emission Masks (Occupied Bandwidth)

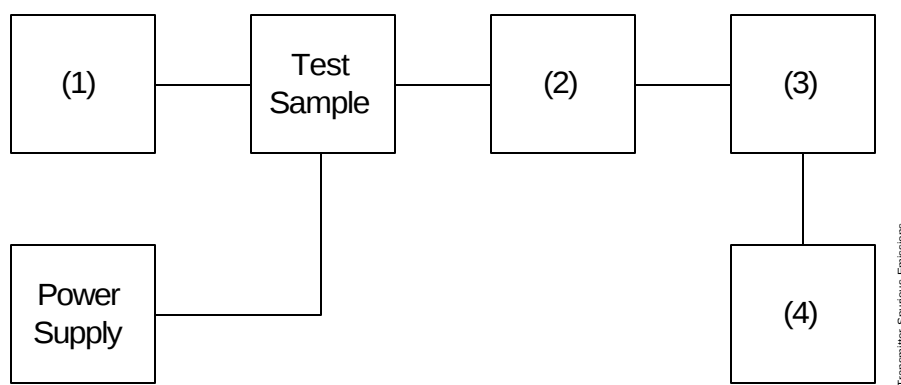
Specification: 47 CFR 2.1049(c)(1)

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

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
(1) Audio Oscillator/Generator				
X i00017	HP 8903A Modulation Meter	2216A01753	12 mo.	Apr-05
(2) Coaxial Attenuator				
X i00231/2	PASTERNAK 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.	Jun-05
i00029	HP 8563E Spectrum Analyzer	3213A00104	12 mo.	May-05

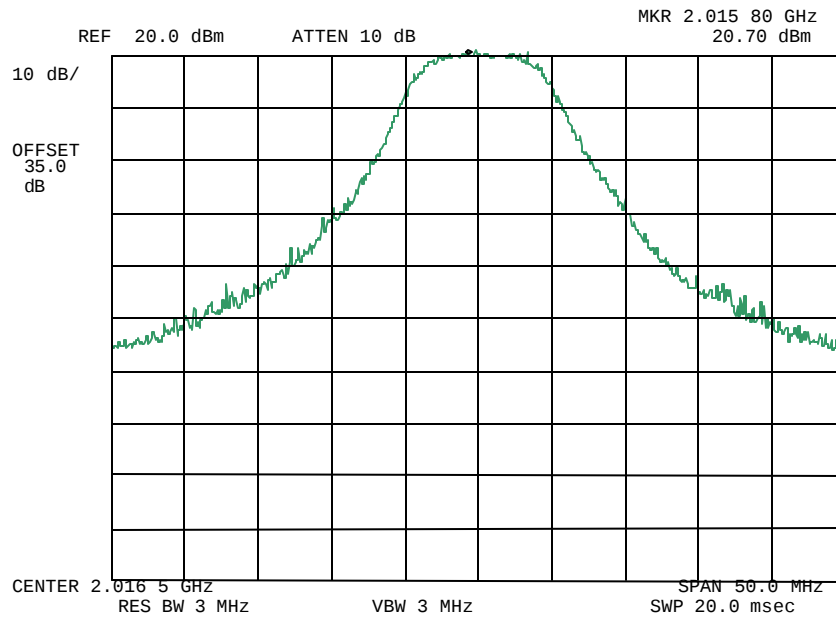
Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g0560247: 2005-Jun-22 Wed 10:00:00

State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:
Modulation:

HIGH
NONE (MAX BW)
REF LEVEL (+20dBm)

Fred Chastain

Performed by:

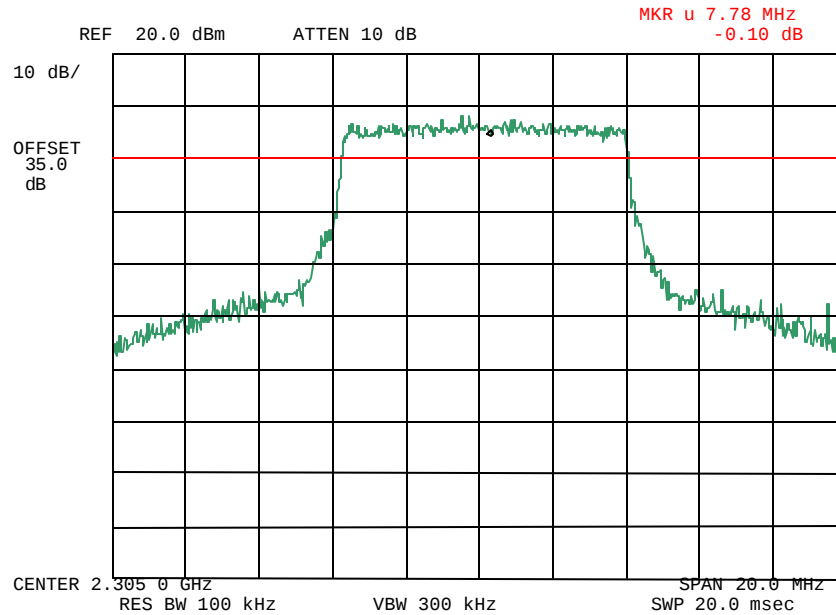
Fred Chastain, Test Technician

Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g0560238: 2005-Jun-21 Tue 10:05:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:
Modulation:

HIGH
64QAM
MID CHANNEL
(OCC BW @ 6dB = 7.78MHz)

Fred Chastain

Performed by:

Fred Chastain, Test Technician

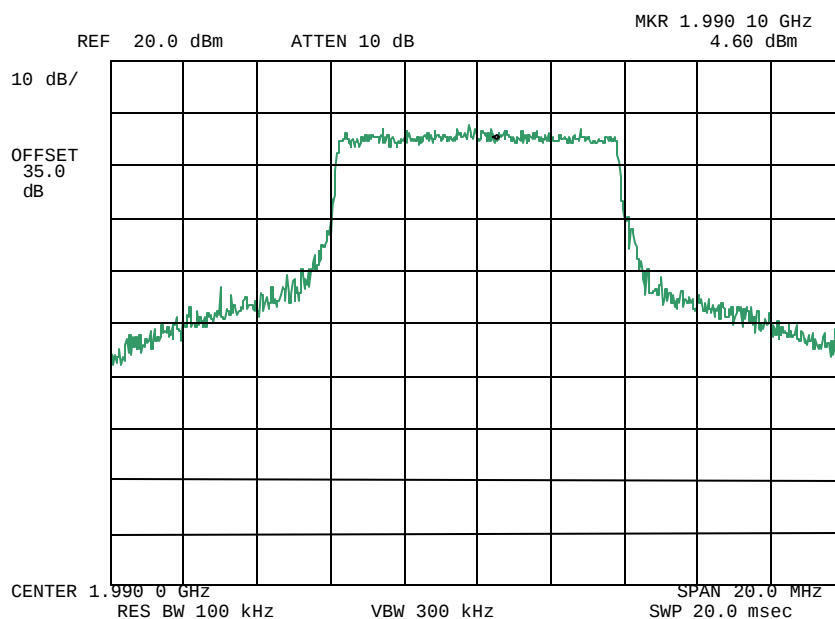
Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g0560239: 2005-Jun-21 Tue 10:06:00

State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:
Modulation:

HIGH
64QAM
LOW CHANNEL

Fred Chastain

Performed by:

Fred Chastain, Test Technician

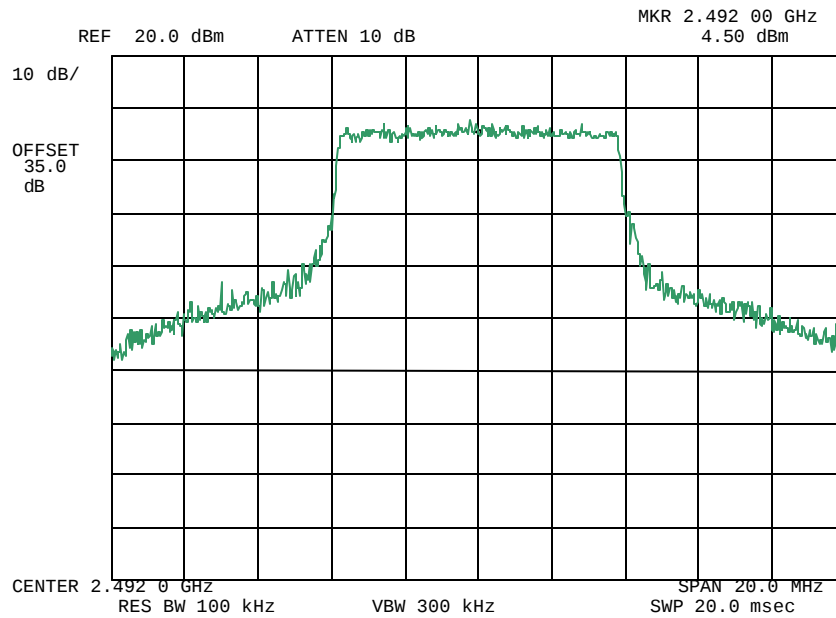
Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g0560240: 2005-Jun-21 Tue 10:08:00

State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:
Modulation:

HIGH
64QAM
HIGH CHANNEL

Performed by:

David E. Lee, FCC Compliance Manager

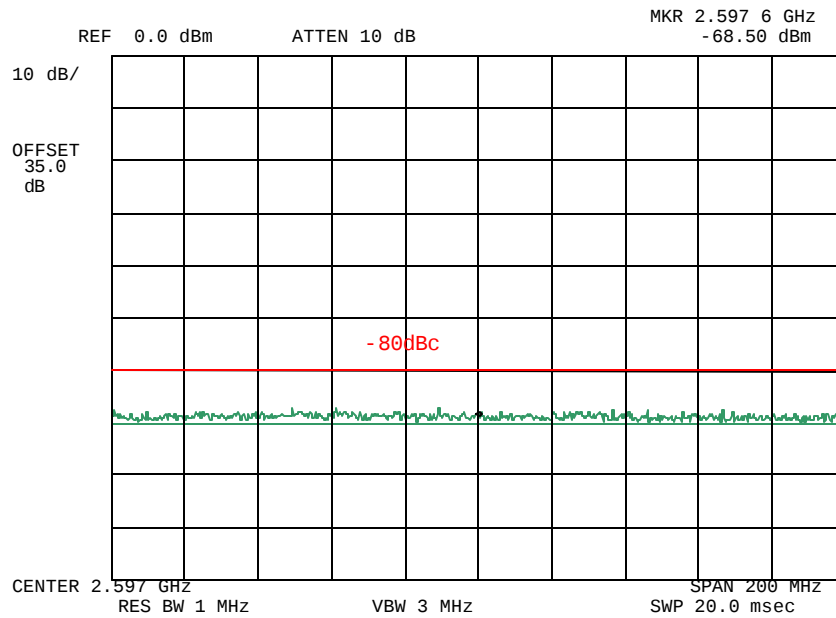
Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g0560241: 2005-Jun-21 Tue 10:08:00

State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:
Modulation:

HIGH
64QAM
UPPER BAND EDGE

Fred Chastain

Performed by:

Fred Chastain, Test Technician

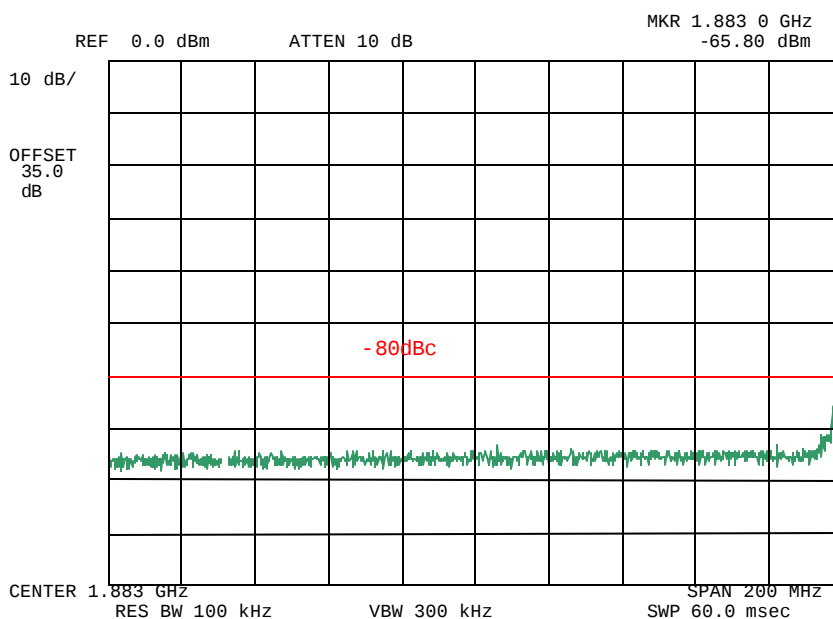
Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g0560242: 2005-Jun-21 Tue 10:10:00

State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:
Modulation:

HIGH
64QAM
LOWER BAND EDGE



Performed by:

Fred Chastain, Test Technician

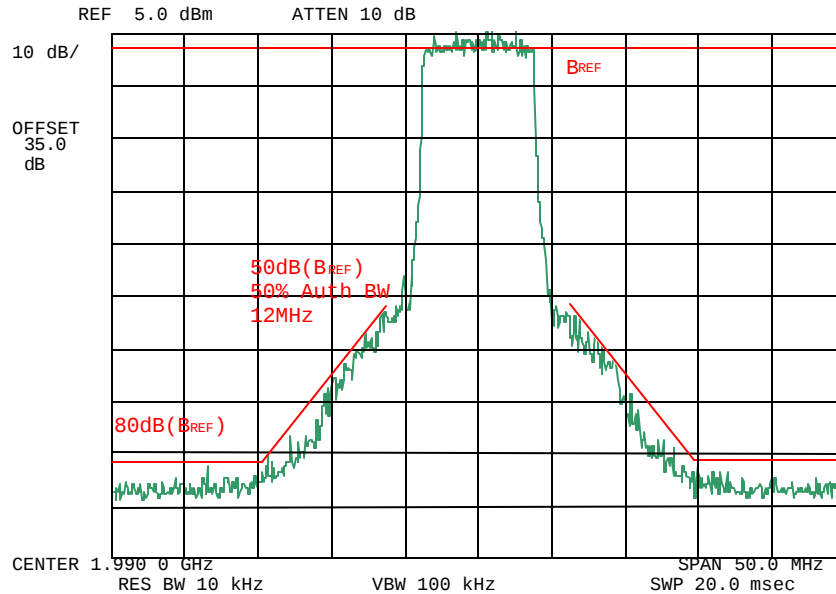
Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g05a0211: 2005-Oct-22 Tue 11:17:00

State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:
 Modulation:

HIGH
 16QAM
 LOW CHANNEL
 MASK 74.637(a)(2)(i)

Performed by:

David E. Lee, FCC Compliance Manager

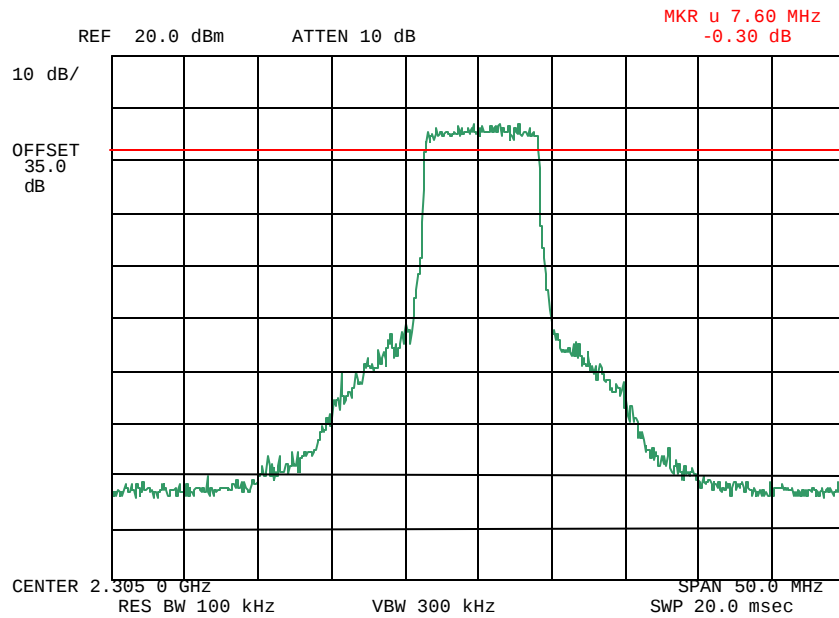
Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g0560244: 2005-Jun-21 Tue 10:14:00

State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:
Modulation:

HIGH
16QAM
MID CHANNEL
(OCC BW @ 6dB = 7.60MHz)

Fred Chastain

Performed by:

Fred Chastain, Test Technician

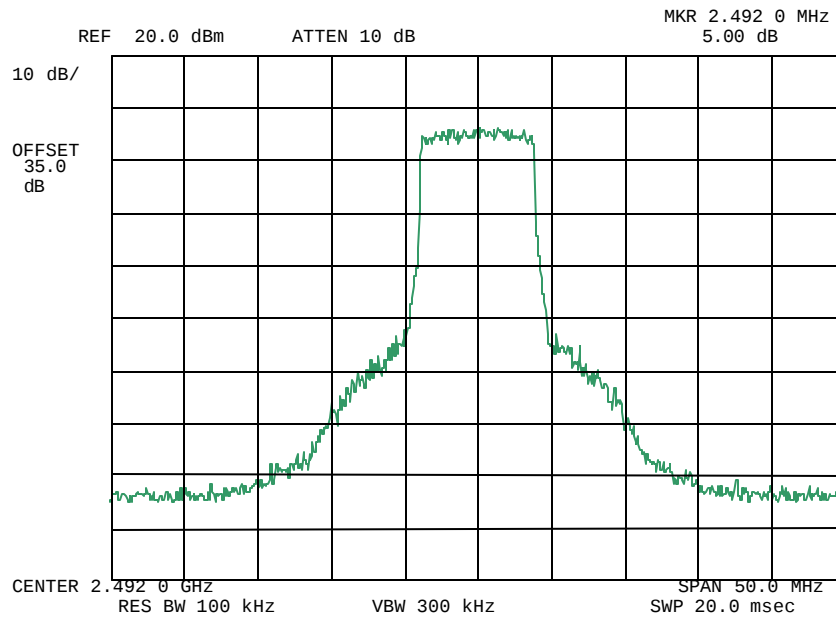
Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g0560245: 2005-Jun-21 Tue 10:17:00

State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:
Modulation:

HIGH
16QAM
HIGH CHANNEL

Fred Chastain

Performed by:

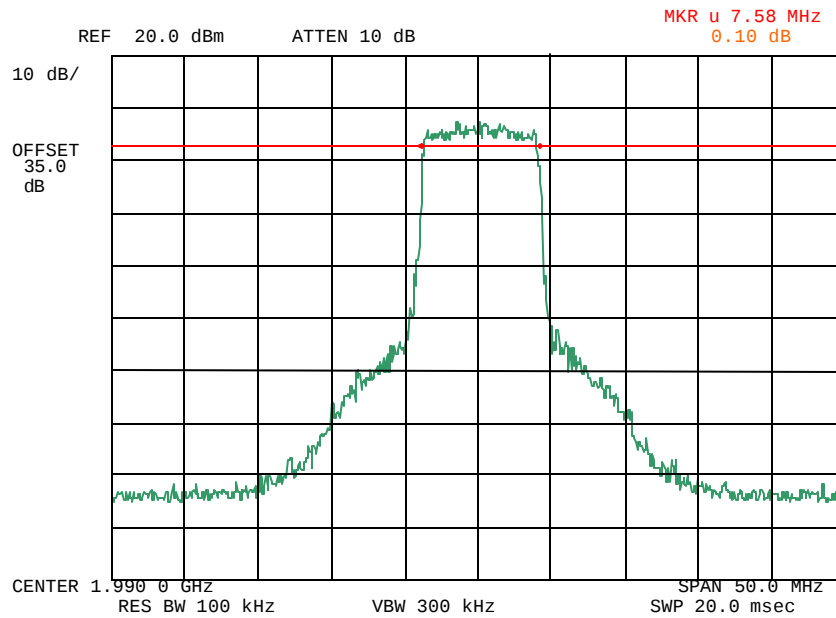
Fred Chastain, Test Technician

Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g0560246: 2005-Jun-21 Tue 10:18:00
 State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:
 Modulation:

HIGH
 QPSK
 LOW CHANNEL
 (OCC BW @ 6dB = 7.58MHz)

Fred Chastain

Performed by:

Fred Chastain, Test Technician

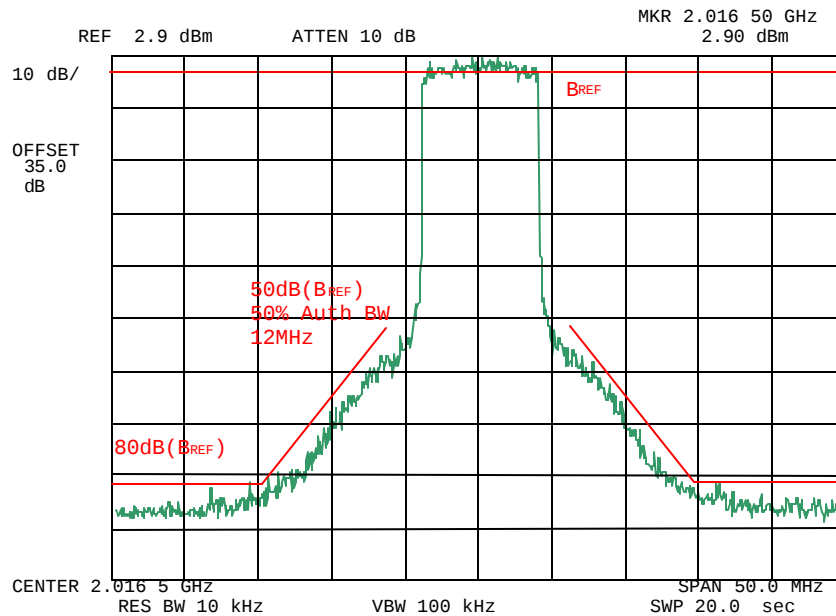
Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g05a0213: 2005-Oct-23 Wed 09:07:00

State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:
Modulation:

HIGH
QPSK
MID CHANNEL
MASK 74.637(a)(2)(i)

Performed by:

David E. Lee, FCC Compliance Manager

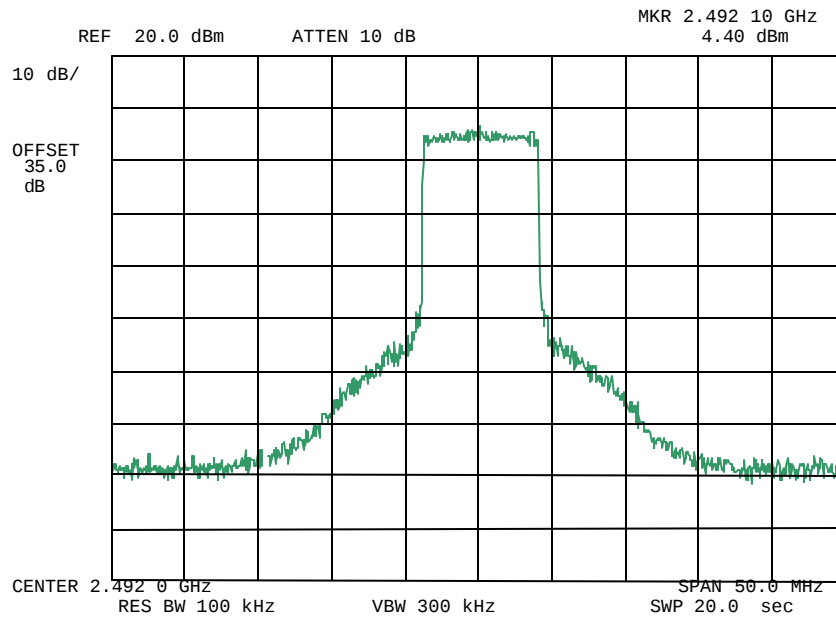
Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g0560249: 2005-Jun-22 Wed 10:07:00

State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:
Modulation:

HIGH
QPSK
HIGH CHANNEL

Fred Chastain

Performed by:

Fred Chastain, Test Technician

Name of Test: Frequency Stability (Temperature Variation)

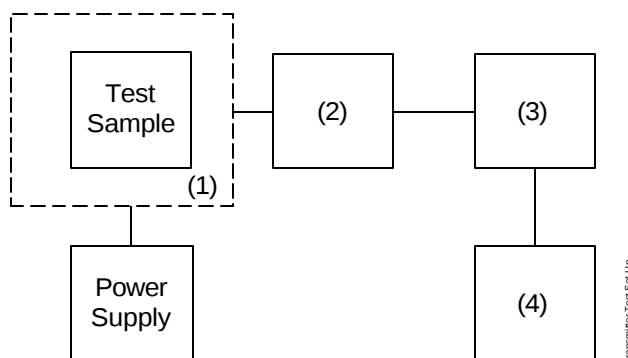
Specification: 47 CFR 2.1055(a)(1)

Guide: ANSI/TIA/EIA-603-1992, Paragraph 2.2.2

Measurement Procedure

- A) The EUT and test equipment were set up as shown on the following page.
- B) With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was noted within one minute.
- C) With power OFF, the temperature was raised in 10°C steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
- D) The temperature tests were performed for the worst case.

Transmitter Test Set-Up: Temperature Variation

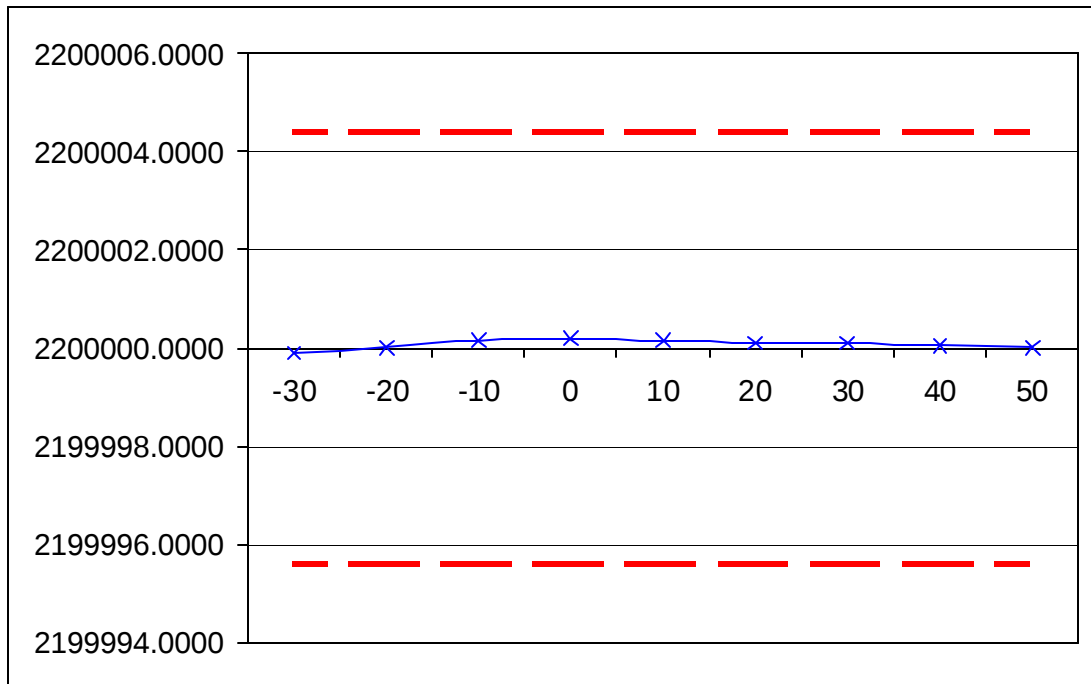


Asset	Description	s/n	Cycle	Last Cal
(1) Temperature, Humidity, Vibration				
X i00027	Tenney Temp. Chamber	9083-765-234	NCR	
(2) Coaxial Attenuator				
X i00231/2	PASTERNAK PE7021-30 (30 dB)	231 or 232	NCR	
i00122/3	NARDA 766 (10 dB)	7802 or 7802A	NCR	
(3) RF Power				
X i00067	HP 8920A Communications TS	3345U01242	12 mo.	Jun-05
(4) Frequency Counter				
X i00067	HP 8920A Communications TS	3345U01242	12 mo.	Jun-05

Name of Test: Frequency Stability (Temperature Variation)

Measurement Results

State: Ambient Temperature: 23°C ± 3°C



Vertical Axis kHz / Horizontal Axis Degrees Centigrade



Performed by: Fred Chastain, Test Technician

Name of Test: Frequency Stability (Voltage Variation)

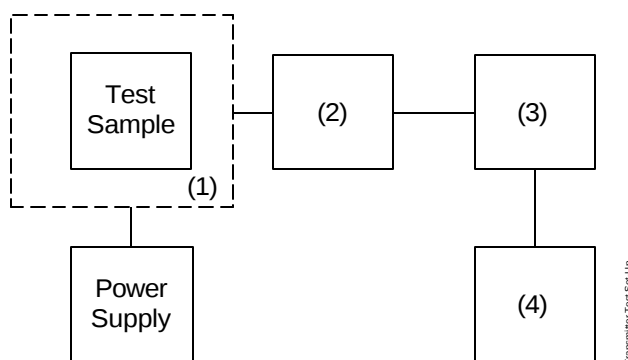
Specification: 47 CFR 2.1055(d)(1)

Guide: ANSI/TIA/EIA-603-1992, Paragraph 2.2.2

Measurement Procedure

- A) The EUT was placed in a temperature chamber (if required) at $25 \pm 5^\circ\text{C}$ and connected as shown below.
- B) The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
- C) The variation in frequency was measured for the worst case.

Transmitter Test Set-Up: Voltage Variation



Asset	Description	s/n	Cycle	Last Cal
(1) Temperature, Humidity, Vibration				
i00027	Tenney Temp. Chamber	9083-765-234	NCR	
(2) Coaxial Attenuator				
X i00231/2	PASTERNAK PE7021-30 (30 dB)	231 or 232	NCR	
i00122/3	NARDA 766 (10 dB)	7802 or 7802A	NCR	
(3) RF Power				
X i00020	HP 8901A Power Mode	2105A01087	12 mo.	Apr-05
(4) Frequency Counter				
X i00020	HP 8901A Frequency Mode	2105A01087	12 mo.	Apr-05

Results: Frequency Stability (Voltage Variation)

State:

Ambient Temperature: 23°C ± 3°C

Limit, ppm = 2.0
Limit, Hz = 4400.0
Battery End Point (Voltage) = 8.0

% of STV	Voltage	Frequency, MHz	Change, Hz	Change, ppm
115	13.8	2200.000200	200.0	+0.05
100	12.0	2200.000200	200.0	+0.05
85	10.2	2200.000200	200.0	+0.05
75	9.0	2200.000150	150.0	+0.03



Performed by:

Fred Chastain, Test Technician

Name of Test: Necessary Bandwidth and Emission Bandwidth

Specification: 47 CFR 2.202(g)

Modulation = QAM, QPSK

Mem	Part Number	Rate (Mbit/s)	COFDM Mode	MPEG	Video Rate (Mbit/s)	Video LPF	Low Delay Mode	Audio Rate (kbit/s)
0	PBSW-TDMP - 0303-05-00	18.096257	64-QAM, 1/2, 1/32	422P@ML, GOP4	16.59	No	No	192
1	PBSW-TDMP - 0303-05-01	18.096257	64-QAM, 1/2, 1/32	SP@ML, infinite GOP,	11.81	No	Yes	192
2	PBSW-TDMP - 0303-05-02	12.06417	16-QAM, 1/2, 1/32	MP@ML, GOP4	10.00	Yes	No	192
3	PBSW-TDMP - 0303-05-03	12.06417	16-QAM, 1/2, 1/32	SP@ML, Infinite GOP, Intra-slice	8.00	Yes	Yes	160
4	PBSW-TDMP - 0303-05-04	9.048128	QPSK 3/4, 1/32	422P@ML, GOP4	7.79	Yes	No	192
5	PBSW-TDMP - 0303-05-05	9.048128	QPSK 3/4, 1/32	SP@ML, Infinite GOP, Intra-slice	6.00	Yes	Yes	192
6	PBSW-TDMP - 0303-05-06	6.032086	QPSK 1/2, 1/32	SP@ML, Infinite GOP	4.94	Yes	No	128
7	PBSW-TDMP - 0303-05-07	6.032086	QPSK 1/2, 1/32	MP@ML, GOP4	4.94	Yes	No	192

Measured as 7.8MHz Bandwidth worst case for all modes.

12M0 Emission Bandwidth used to comply with Mask 74.637(a)(2)(i)



Calculated by:

David E. Lee, FCC Compliance Manager

END OF TEST REPORT

**Testimonial
and
Statement of Certification**

This is to Certify:

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, FCC Compliance Manager