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

Amended Transmitter Certification Report

of

FCC ID: R8KUGWM1USHN33A
Wireless USB

to

Federal Communications Commission

Rule Part(s) 2, 15.247, Confidentiality

Date Of Report: November 18, 2004

On the Behalf of the Applicant:

Unigen Corporation

At the Request of:

P.O. 27172

Unigen Corporation
45388 Warm Springs Blvd.
Fremont, CA 94539

Attention of:

Mark Morrissey, Director of Business Development
(800) 826-0808; (510) 668-2088 ext 2087
Email: mmorrissey@unigen.com

Supervised By:

David E. Lee,
Compliance Test Manager

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

c) Report Number: d0490046

d) Client: Unigen Corporation
45388 Warm Springs Blvd.
Fremont, CA 94539

e) Identification: FCC ID: R8KUGWM1USHN33A
Description: Wireless USB

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

g) Report Date: September 26, 2004
EUT Received: September 7, 2004

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.

List Of General Information Required For Certification

In Accordance with FCC Rules and Regulations,
Volume II, Part 2 and to

15.247, Confidentiality

Sub-Part 2.1033

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

Unigen Corporation
45388 Warm Springs Blvd.
Fremont, CA 94539

Manufacturer:
Applicant

(c)(2): **FCC ID**: R8KUGWM1USHN33A

Model Number: UGWM1USHB33
Wireless USB

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

Please See Attached Exhibits

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

(c)(5): **FREQUENCY RANGE, MHz**: 2402-2479

(c)(6): **Power Rating, W**: 0.133

____ Switchable ____ Variable _X_ N/A

(c)(7): **Maximum Power Rating, W**: = 1 Watt peak

15.203: **Antenna Requirement**:

____ The antenna is permanently attached to the EUT
_X_ 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	=	4.5

(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

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

This 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

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**

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

September 15, 1999

Mr. Morton 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 Arrangement (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 imported 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 obligation will remain in force as long as your NVLAP and/or A2LA and/or BSMI accreditation remains valid for the CNS 13438.

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 names of the authorized signatories who are authorized to sign the test reports. You can send this information via fax to C-Taipei CAB Response Manager at 301-975-5414. **I am also enclosing a copy of the cover sheet that, according to BSMI requirements, must accompany every test report.**

NIST

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

Sincerely,

Belinda L. Collins, Ph.D.
Director, Office of Standards Services

Enclosure

NIST

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."

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)
X	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 C63.4-1992/2001, 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.

Page Number 7 of 22.

Name of Test: Maximum Peak Output Power

Specification: 47 CFR 15.247(b)

Spec. Limit: DSSS (Non-FH) = 1 W

Test Equipment: Attached

Measurement Data

Antenna Gain, dBi = 0
Peak Output Power, Watts = 0.00118
Highest Value For All Channels

Radiated:

g0490034:2004-Sep-07 Tue 11:03:00

Frequency Tuned, MHz	Frequency Emission, MHz	Meter, dBuV	CF, dB	uV/m @ 3m	EIRP, dBm	EIRP, W
2402.000000	2401.663000	40.66	48.01	27133.14	-6.6	0.00022
2402.000000	2401.663000	45.60	48.01	47918.15	-1.6	0.00069
2402.000000	2401.688000	44.24	48.01	40973.21	-3.0	0.00050
2402.000000	2401.688000	38.19	48.01	20417.38	-9.0	0.00013
2402.000000	2401.725000	45.24	48.01	45972.70	-2.0	0.00063
2402.000000	2402.275000	47.64	48.02	60673.63	0.4	0.00110
2402.000000	2402.313000	39.47	48.02	23686.45	-7.7	0.00017
2402.000000	2402.350000	40.75	48.02	27447.32	-6.5	0.00022

g0490033: 2004-Sep-07 Tue 10:56:00

Frequency Tuned, MHz	Frequency Emission, MHz	Meter, dBuV	CF, dB	uV/m @ 3m	EIRP, dBm	EIRP, W
2440.000000	2439.613000	39.41	48.32	24350.06	-7.5	0.00018
2440.000000	2439.638000	42.06	48.32	33036.95	-4.8	0.00033
2440.000000	2439.700000	43.30	48.33	38150.48	-3.6	0.00044
2440.000000	2439.725000	44.81	48.33	45394.16	-2.1	0.00062
2440.000000	2440.238000	39.78	48.33	25439.00	-7.1	0.00020
2440.000000	2440.275000	48.13	48.33	66527.00	1.2	0.00133
2440.000000	2440.288000	45.18	48.33	47369.63	-1.7	0.00068
2440.000000	2440.400000	39.25	48.33	23933.16	-7.6	0.00017

Supervised By: David E. Lee,
Compliance Test Manager

Radiated (Continued)

g0490035:2004-Sep-07 Tue 11:15:00

Frequency Tuned, MHz	Frequency Emission, MHz	Meter, dBuV	CF, dB	uV/m @ 3m	EIRP, dBm	EIRP, W
2479.000000	2478.613000	39.57	48.63	25703.96	-7.0	0.00020
2479.000000	2478.625000	45.42	48.63	50408.06	-1.2	0.00076
2479.000000	2478.688000	44.45	48.63	45081.67	-2.1	0.00062
2479.000000	2479.213000	42.88	48.64	37670.38	-3.7	0.00043
2479.000000	2479.225000	38.62	48.64	23067.47	-8.0	0.00016
2479.000000	2479.300000	39.75	48.64	26272.42	-6.8	0.00021
2479.000000	2479.313000	41.93	48.64	33767.58	-4.7	0.00034
2479.000000	2479.313000	46.29	48.64	55782.76	-0.3	0.00093

Conducted:

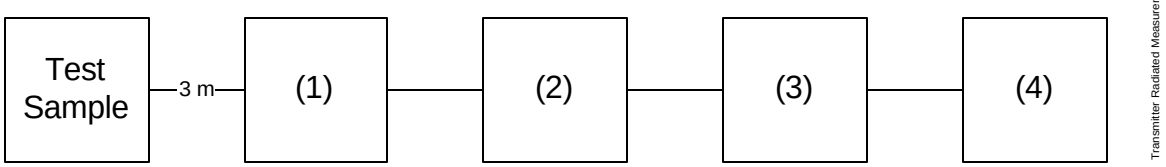
Peak Reference Level shown on Occupied Bandwidth Plots = 85.2dBuV
In line attenuation of test setup = 23.0db
Corrected Reference Level = 108.2dBuV = 0.4 dBm = 0.00110W

Calculation based on Radiated uV/m @ 3m:

$P_{EIRP} = (E_V \times R_M)^2/30.0 = (0.06527 \times 3)^2/30.0 = 0.00133$ Watts

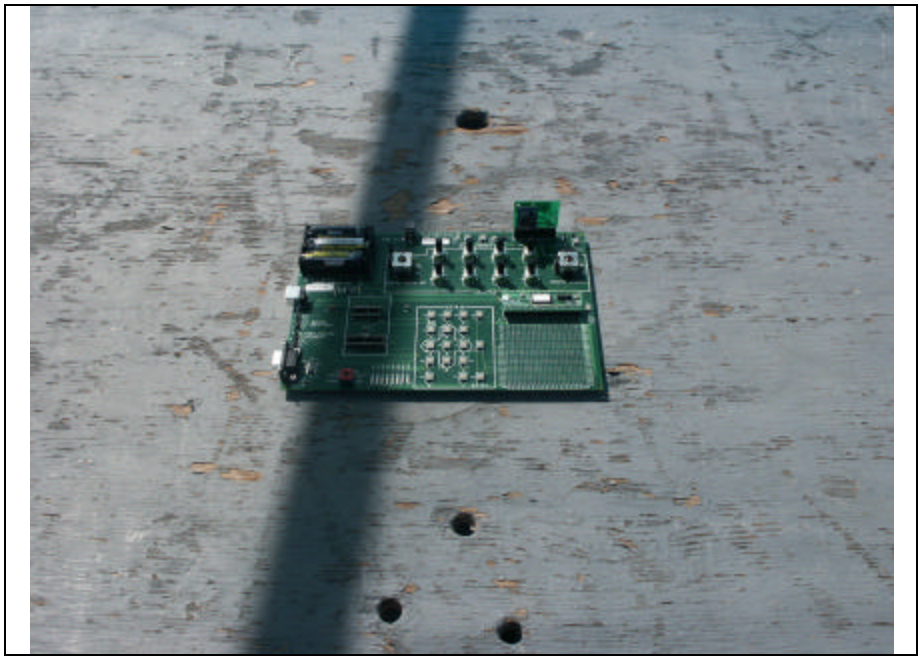
Supervised By: David E. Lee,
Compliance Test Manager

Transmitter Radiated Measurements



	Asset (as applicable)	Description	s/n	Cycle	Last Cal
(1) **Transducer**					
X	i00091	Emco 3115	001469	24 mo	Jan-04
	i00089	Aprel Log Periodic	001500	24 mo	Sep-03
	i00088	EMCO 3301-B Biconical	2336	24 mo	Sep-03
(2) **High Pass Filter**					
	-	Narda μPAD (In-Band Only)	NSN	NCR	
	-	Trilithic (Out-Of-Band Only)	NSN	NCR	
(3) **Preamp**					
X	i00028	HP 8449 (+30 dB)	2749A00121	12 mo	May-04
(4) **Spectrum Analyzer**					
	i00048	HP 8566B	2511A01467	12 mo	Aug-04
X	i00033	HP 85462A	3625A00357	12 mo.	Sep-04
	i00029	HP 8563E	3213A00104	12 mo	May-04

Test Setup: Radiated Emissions



Page Number 11 of 22.

Name of Test: Out of Band Emissions

Specification: 47 CFR 15.247(c), 15.209(a)

Spec. Limit: See Below

Test Equipment: As per previous page

Search Antennas:

10 kHz – 32 MHz:	LOOP 94598-1
32 MHz – 1 GHz:	SINGER DM105,$T_1T_2T_3$
1 GHz – 18 GHz:	EMCO 3115

Limit

In any 100 kHz bandwidth outside these frequency bands, radio frequency power that is produced by the modulation products of the spreading sequence, information sequence, and the carrier frequency shall be either:

at least 20 dB below that in any 100 kHz bandwidth within the band that contains the highest level of the desired power

or

shall not exceed the general levels specified in 15.209(a), whichever results in the lesser attenuation. All other emissions outside these bands shall not exceed the general radiated emission limits specified in 15.209(a).

Measurements Procedure

At first, bench tests were performed to locate the emissions around the antenna terminals.

In the field, tests were conducted over the range shown. The test sample was set up on a wooden turntable above ground, and at a distance of three meters from the antenna connected to the spectrum analyzer.

In order to obtain the maximum response at each frequency, the turntable was rotated, and the search antenna was raised and lowered. The EUT was also adjusted for maximum response.

The field strength was calculated from:

$E\ \mu V/m\ @\ 3\ m = LOG_{10}{}^{-1}(dBm + 107 + A.F. + C.L.)$

The following results are worst case conditions. Tests were conducted in Horizontal and Vertical polarization modes.

Name of Test: Out of Band Emissions

Measurement Results

g0490036: 2004-Sep-08 Wed 08:32:00
State: 2:High Power

Frequency Tuned, MHz	Frequency Emission, MHz	Meter, dBuV	uV/m @ 3m	EIRP, dBm	Margin, dB	Detector*
2402.000	4804.000	42.17	520.00	-40.90	≥20.0	P
2440.000	4880.000	31.00	202.77	-49.10	≥20.0	P
2479.000	4958.000	42.67	550.17	-40.40	≥20.0	P
2402.000	7206.000	41.83	639.73	-39.10	≥20.0	P
2440.000	7320.000	31.67	297.85	-45.70	≥20.0	P
2479.000	7437.000	41.17	669.11	-38.70	≥20.0	P
2402.000	9608.000	44.17	1621.81	-31.00	≥20.0	P
2440.000	9760.050	32.00	559.76	-40.30	≥20.0	P
2479.000	9916.000	42.83	1370.88	-32.50	≥20.0	P
2402.000	12010.000	42.67	940.81	-35.80	≥20.0	P
2440.000	12200.050	28.83	219.03	-48.40	≥20.0	P
2479.000	12395.000	42.17	583.45	-39.90	≥20.0	P
2402.000	14412.000	42.50	523.00	-40.90	≥20.0	P
2440.000	14640.050	29.50	186.85	-49.80	≥20.0	P
2479.000	14874.000	45.00	1080.19	-34.60	≥20.0	P
2402.000	16814.000	42.50	366.44	-43.90	≥20.0	P
2440.000	17080.050	31.17	119.26	-53.70	≥20.0	P
2479.000	17353.000	43.83	500.03	-41.20	≥20.0	P

*Peak And Average Values

15.247(d) Transmitter Power Density

Limit: The transmitter power density peak over any 1 second interval shall not be greater that 8 dBm in any 3 kHz Bandwidth within these bands.

Results:

Frequency	Measured dBm @ 1Hz	Calculated dBm @ 3kHz	Margin dBm
2402.000	-40.90	-6.1	-14.10
2440.000	-49.10	-14.3	-22.30
2479.000	-40.40	-5.6	-13.60

Power Spectral Density per 3-kHz bandwidth = Power Spectral Density per 1-Hz bandwidth + Bandwidth Correction Factor.
Bandwidth Correction Factor = 10*log (3 kHz / 1 Hz) = 34.8 dB

Name of Test: Restricted Bands of Operation

Specification: 47 CFR 15.205

Test Equipment: As per attached page

Measurement Procedure

The EUT was set up on a three meter open field site according to the procedure on ANSI C63.4.

Sensitivity of system was measured:

Below 2 GHz:	
CISPR Bandwidths	= 8 dBµV
1 MHz RBW, 1 MHz VBW	= 12 dBµV
1 MHz RBW, 10 Hz VBW	= 3 dBµV
Above 2 GHz:	
1 MHz RBW, 1 MHz VBW	= 33 dBµV
1 MHz RBW, 10 Hz VBW	= 22 dBµV

Sensitivity of system with preamps:

Below 2 GHz:	
Preamps are not used in this range.	
Above 2 GHz:	
Peak	= 3 dBµV
Average	= -8 dBµV

Cable Loss:

915 MHz	= -0.8 dBµV
2450 MHz	= -3 dBµV

Note:

dB loss vs. frequency included in programmed software.

Test Results: No harmonic or spurious emissions were detected in the restricted bands in excess of the limits of 15.205. System measurement sensitivity was –130 dBm.

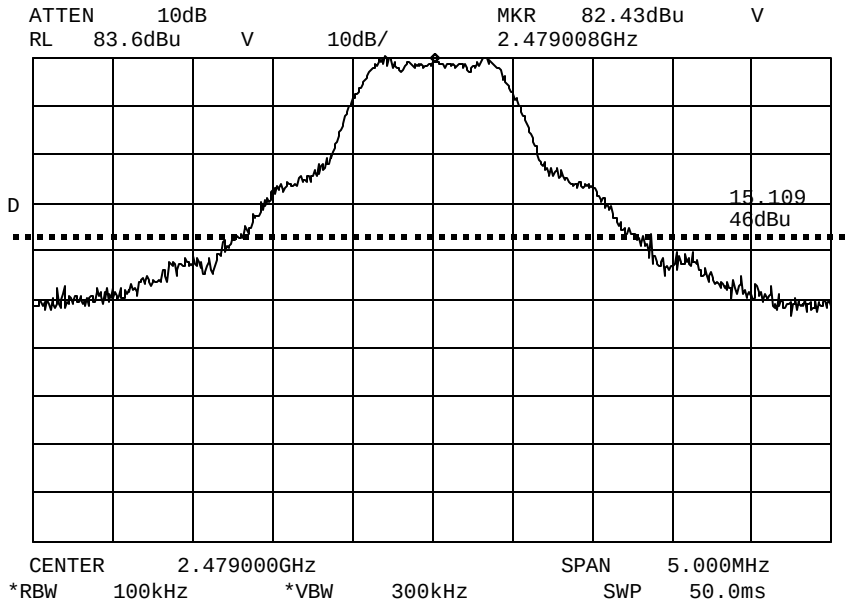
Supervised By: David E. Lee,
Compliance Test Manager

Name of Test: Emissions At Band Edge (Conducted)

Specification: 47 CFR 15.209

Test Equipment: As for "Out of Band Emissions"

g0490041: 2004-Sep-08 Wed 09:42:00
State: 2:High Power (in line attenuation 23dB)



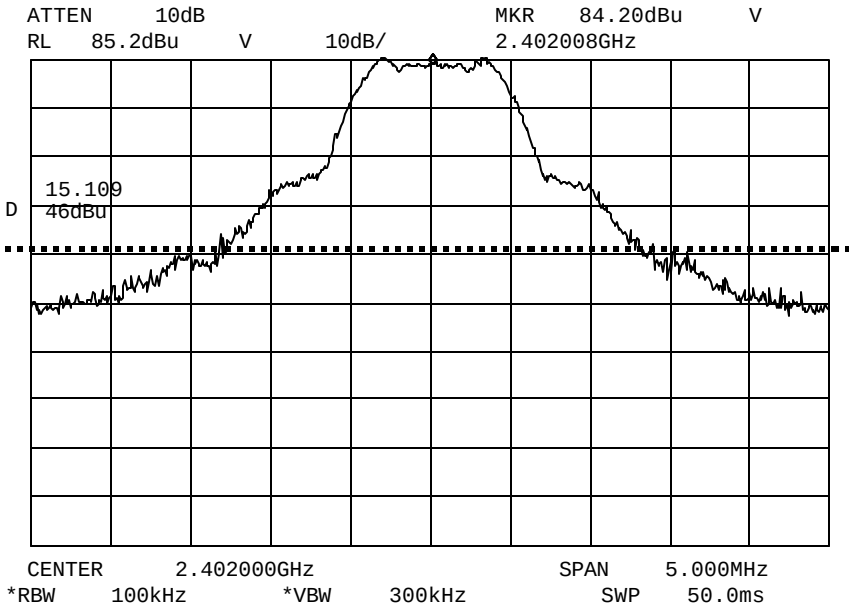
Power: HIGH
Modulation: DSSS – High Channel
Below 46dBuV above 2.480500GHz
(Band Edge 2.483500GHz)

Supervised By: David E. Lee,
Compliance Test Manager

Page Number 15 of 22.

Name of Test: Emission at Band Edges (Conducted)

g0490040: 2004-Sep-08 Wed 09:40:00
State: 2:High Power (in line attenuation 23dB)



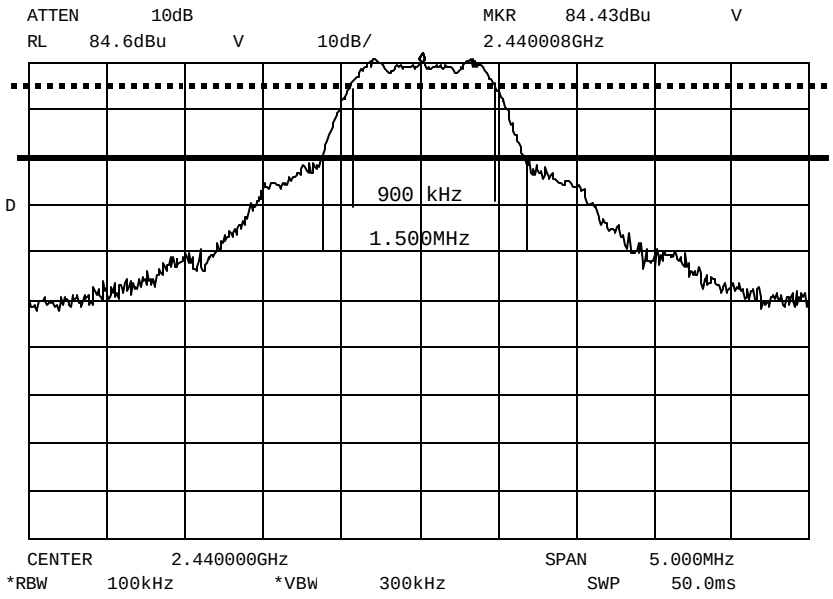
Power: HIGH
Modulation: DSSS – Low Channel
Below 46dBuV below 2.400500GHz
(Band Edge 2.400000GHz)

Supervised By: David E. Lee,
Compliance Test Manager

Page Number 16 of 22.

Name of Test: Emission Masks (Occupied Bandwidth)
Indicating 6/20 dB Bandwidth

g0490041: 2004-Sep-08 Wed 09:42:00
State: 2:High Power (in line attenuation 23dB)



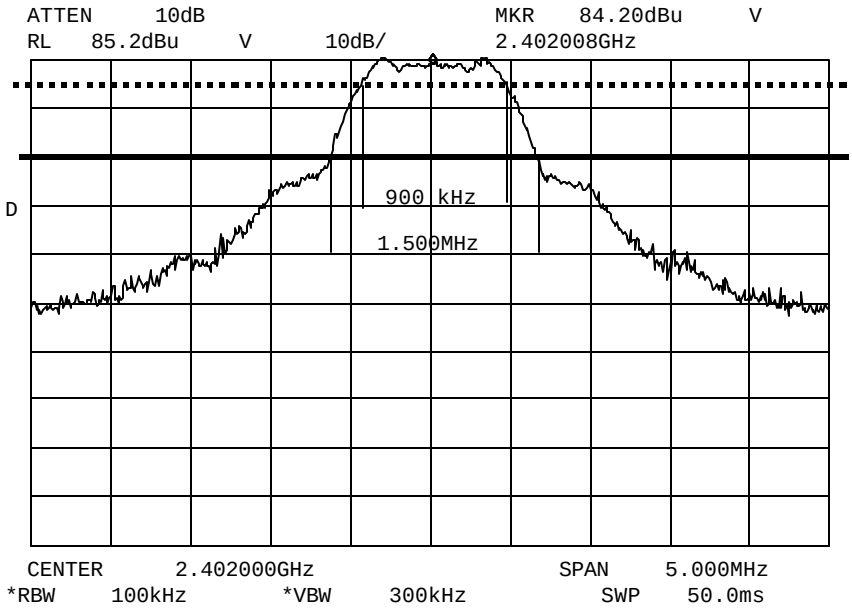
Power: HIGH
Modulation: DSSS – Mid Channel
6dB Bandwidth = 900kHz
20db Bandwidth = 1.5MHz

Supervised By: David E. Lee,
Compliance Test Manager

Page Number 17 of 22.

Name of Test: Emission Masks (Occupied Bandwidth)
Indicating 6/20 dB Bandwidth

g0490040: 2004-Sep-08 Wed 09:40:00
State: 2:High Power (in line attenuation 23dB)



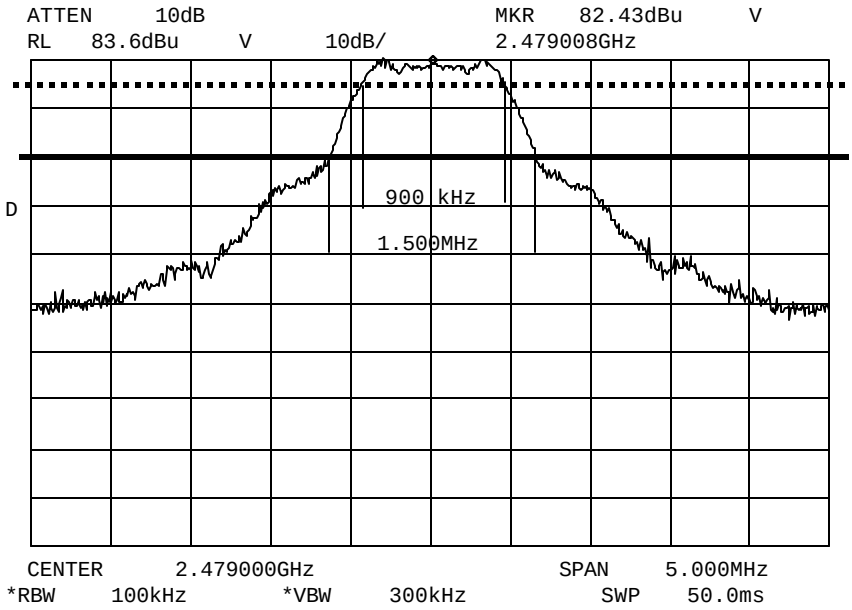
Power: HIGH
Modulation: DSSS – Low Channel
6dB Bandwidth = 900kHz
20db Bandwidth = 1.5MHz

Supervised By: David E. Lee,
Compliance Test Manager

Page Number 18 of 22.

Name of Test: Emission Masks (Occupied Bandwidth)
Indicating 6/20 dB Bandwidth

g0490041: 2004-Sep-08 Wed 09:42:00
State: 2:High Power (in line attenuation 23dB)



Power: HIGH
Modulation: DSSS – High Channel
6dB Bandwidth = 900kHz
20db Bandwidth = 1.5MHz

Supervised By: David E. Lee,
Compliance Test Manager

Page Number 19 of 22.

Name of Test: A/C Powerline Conducted Emissions

Specification: FCC: 47 CFR 15.207

Guide: IEEE Standard 213

Test Conditions: S. T. & H.

Test Equipment: As per attached page

Measurement Procedure

1. A test sample was connected to the Public Utility lines through a LISN (50 μH).

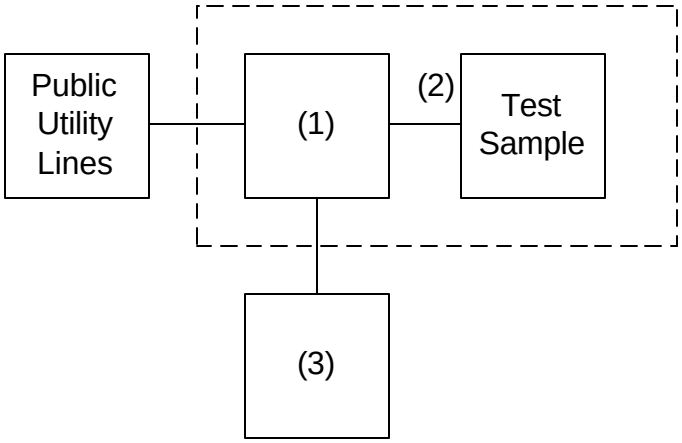
2. A reference level of 250 μV was set on the Spectrum Analyzer. The spectrum was searched over the range of 450 kHz to 30 MHz.

3. All other emissions were 20 dB or more below limit.

4. _X_ The test sample used a charger.
   ____ The test sample does not use a charger.

5. Measurement Results: Attached.

AC Powerline Conducted Measurements



	Asset	Description	s/n	Cycle	Last Cal
				Per ANSI C63.4 -1992/2000 Draft, 10.1.4	
(1) **Line Impedance Stabilization Network**					
	i00244	Fischer 50-20-2-01	2047	NCR	
(2) **Screen Room**					
X	I00170	Lindgren LG170	4999	NCR	
(3) **Spectrum Analyzer**					
X	i00033	HP 85462A	3625A00357	12 mo.	Sep-04
	i00048	HP 8566B	2511AD1467	12 mo.	Aug-04

Test Setup: A/C Powerline Conducted Emissions

Name of Test: A/C Powerline Conducted Emissions

State:

g0490042: 2004-Sep-13 Mon 15:59:00
State: 0:Neutral

Frequency Tuned, MHz	Frequency Emission, MHz	Level, dBuV	C.F., dB	µV/m
2440.000000	1.041833	38.83	0.58	93.43
2440.000000	1.725500	38.83	0.59	93.54
2440.000000	2.360333	39.67	0.59	103.04
2440.000000	2.946333	33.83	0.61	52.72
2440.000000	25.751500	34.83	1.6	66.3
2440.000000	28.486167	37.33	1.66	89.02

g0490043: 2004-Sep-13 Mon 16:03:00
State: 0:Line

Frequency Tuned, MHz	Frequency Emission, MHz	Level, dBuV	C.F., dB	µV/m
2440.000000	0.944167	46	0.53	212.08
2440.000000	1.286000	43.17	0.51	152.76
2440.000000	2.653333	38.67	0.56	91.52
2440.000000	3.678833	34.83	0.63	59.29
2440.000000	25.946833	33.17	1.82	56.17
2440.000000	28.974500	35.17	1.95	71.78

Supervised By: David E. Lee,
Compliance Test Manager

END OF TEST REPORT

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
HP8563E	Spectrum Analyzer, 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	(2)
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,
Compliance Test Manager