

***Electromagnetic Emissions Test Report
and
Application for Grant of Equipment Authorization
pursuant to***

FCC Part 15 Subpart C

***on the
2Wire, Inc.
Transmitter
Model: RG2701HGV-00***

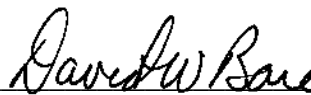
FCC ID: PGR2W2701HGV

GRANTEE: 2Wire, Inc.
1704 Automation Parkway
San Jose, CA 95131

TEST SITE: Elliott Laboratories, Inc.
684 W. Maude Ave
Sunnyvale, CA 94086

REPORT DATE: April 14, 2007

FINAL TEST DATES: February 16, February 23, February 28
and March 2, 2007

AUTHORIZED SIGNATORY: 
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Chief Technical Officer



2016-01

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REVISION HISTORY

Revision #	Date	Comments	Modified By
1	April 27, 2007	Initial Release	David Guidotti

TABLE OF CONTENTS

COVER PAGE..... 1

REVISION HISTORY..... 2

TABLE OF CONTENTS..... 3

SCOPE..... 5

OBJECTIVE..... 6

STATEMENT OF COMPLIANCE..... 6

TEST RESULTS SUMMARY 7

 DIGITAL TRANSMISSION SYSTEMS (2400 – 2483.5MHZ)..... 7

MEASUREMENT UNCERTAINTIES 8

EQUIPMENT UNDER TEST (EUT) DETAILS 9

 GENERAL.....9

 ANTENNA SYSTEM9

 ENCLOSURE.....9

 MODIFICATIONS.....9

 SUPPORT EQUIPMENT9

 EUT INTERFACE PORTS.....10

 EUT OPERATION.....10

TEST SITE.....11

 GENERAL INFORMATION.....11

 CONDUCTED EMISSIONS CONSIDERATIONS.....11

 RADIATED EMISSIONS CONSIDERATIONS.....11

MEASUREMENT INSTRUMENTATION.....12

 RECEIVER SYSTEM.....12

 INSTRUMENT CONTROL COMPUTER.....12

 LINE IMPEDANCE STABILIZATION NETWORK (LISN).....12

 FILTERS/ATTENUATORS.....13

 ANTENNAS.....13

 ANTENNA MAST AND EQUIPMENT TURNTABLE.....13

 INSTRUMENT CALIBRATION.....13

TEST PROCEDURES14

 EUT AND CABLE PLACEMENT.....14

 CONDUCTED EMISSIONS.....14

 RADIATED EMISSIONS.....14

 RADIATED EMISSIONS.....15

 BANDWIDTH MEASUREMENTS.....17

 SPECIFICATION LIMITS AND SAMPLE CALCULATIONS.....18

 GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS.....19

 OUTPUT POWER LIMITS – DIGITAL TRANSMISSION SYSTEMS.....19

 TRANSMIT MODE SPURIOUS RADIATED EMISSIONS LIMITS – FHSS AND DTS SYSTEMS.....19

 SAMPLE CALCULATIONS - CONDUCTED EMISSIONS.....20

 SAMPLE CALCULATIONS - RADIATED EMISSIONS.....20

 SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION.....21

TABLE OF CONTENTS (Continued)

EXHIBIT 1: Test Equipment Calibration Data..... 1
EXHIBIT 2: Test Measurement Data..... 2
EXHIBIT 3: Photographs of Test Configurations..... 3

SCOPE

An electromagnetic emissions test has been performed on the 2Wire, Inc. model RG2701HGV-00 pursuant to the following rules:

FCC Part 15 Subpart C

Conducted and radiated emissions data has been collected, reduced, and analyzed within this report in accordance with measurement guidelines set forth in the following reference standards and as outlined in Elliott Laboratories test procedures:

ANSI C63.4:2003

The intentional radiator above has been tested in a simulated typical installation to demonstrate compliance with the relevant Industry Canada performance and procedural standards. Final system data was gathered in a mode that tended to maximize emissions by varying orientation of EUT, orientation of power and I/O cabling, antenna search height, and antenna polarization.

Every practical effort was made to perform an impartial test using appropriate test equipment of known calibration. All pertinent factors have been applied to reach the determination of compliance.

The test results recorded herein are based on a single type test of the 2Wire, Inc. model RG2701HGV-00 and therefore apply only to the tested sample. The sample was selected and prepared by John Reynolds of 2Wire, Inc.

OBJECTIVE

The primary objective of the manufacturer is compliance with the regulations outlined in the previous section.

Prior to marketing in the USA, all unlicensed transmitters and transceivers require certification. Receive-only devices operating between 30 MHz and 960 MHz are subject to either certification or a manufacturer's declaration of conformity, with all other receive-only devices exempt from the technical requirements.

Certification is a procedure where the manufacturer submits test data and technical information to a certification body and receives a certificate or grant of equipment authorization upon successful completion of the certification body's review of the submitted documents. Once the equipment authorization has been obtained, the label indicating compliance must be attached to all identical units, which are subsequently manufactured.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product which may result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing or I/O cable changes, etc.).

STATEMENT OF COMPLIANCE

The tested sample of 2Wire, Inc. model RG2701HGV-00 complied with the requirements of the following regulations:

FCC Part 15 Subpart C

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product which may result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing or I/O cable changes, etc.).

TEST RESULTS SUMMARY**DIGITAL TRANSMISSION SYSTEMS (2400 – 2483.5MHz)**

FCC Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.247(a)	Digital Modulation	System uses OFDM or DSSS techniques	-	Complies
15.247 (a) (2)	6dB Bandwidth	16.1 MHz	>500kHz	Complies
15.247 (b) (3)	Output Power (multipoint systems)	27.0 dBm (0.5 Watts) EIRP = 0.63 W ^{Note 1}	1Watt, EIRP limited to 4 Watts.	Complies
15.247(d)	Power Spectral Density	-0.7 dBm / 3kHz	8dBm/3kHz	Complies
15.247(c)	Antenna Port Spurious Emissions 30MHz – 25 GHz	Minimum -46dBc	< -30dBc ^{Note 2}	Complies
15.247(c) / 15.209	Radiated Spurious Emissions 30MHz – 25 GHz	53.0dB μ V/m (446.7 μ V/m) @ 4874.0MHz (-1.0dB)	15.207 in restricted bands, all others <-30dBc ^{Note 2}	Complies
15.203	RF Connector	Integral Antenna	Non standard connector or integral antenna	Complies
15.207	AC Conducted Emissions	38.0dB μ V @ 0.415MHz (-9.5dB)	Refer to standard	Complies
15.247 (b) (5) / 15.407 (f)	RF Exposure Requirements	Refer to MPE calculations in Exhibit 11 and User Manual statements.	Refer to OET 65 and FCC Part 1	Complies

Note 1: EIRP calculated using antenna gain of 1 dBi (1.3) for the highest EIRP multi-point system.

Note 2: Limit of -30dBc used because the power was measured using the UNII test procedure (maximum power averaged over a transmission burst) / RMS averaging over a time interval, as permitted under 15.247(b)(3).

MEASUREMENT UNCERTAINTIES

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level and were calculated in accordance with UKAS document LAB 34.

Measurement Type	Frequency Range (MHz)	Calculated Uncertainty (dB)
Conducted Emissions	0.15 to 30	± 2.4
Radiated Emissions	0.015 to 30	± 3.0
Radiated Emissions	30 to 1000	± 3.6
Radiated Emissions	1000 to 40000	± 6.0

EQUIPMENT UNDER TEST (EUT) DETAILS**GENERAL**

The 2Wire, Inc. model RG2701HGV-00 is a DSL wireless gateway that is designed to be used in the home. Since the EUT would be placed on a tabletop during operation, the EUT was treated as tabletop equipment during testing to simulate the end-user environment. The electrical rating of the EUT power adapter is 100-240 Volts, 50/60 Hz, 1 Amp.

The sample was received on February 16, 2007 and tested on February 16, February 23, February 28 and March 2, 2007. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
2Wire	RG2701HGV-00	DSL Wireless Gateway	426211100204	PGR2W2701HGV

ANTENNA SYSTEM

The single transmit antenna is integral to the device. 2Wire stated that the gain is 2dBi.

ENCLOSURE

The EUT enclosure is primarily constructed of plastic. It measures approximately 23 cm wide by 19 cm deep by 4 cm high.

MODIFICATIONS

The EUT did not require modifications during testing in order to comply with emissions specifications.

SUPPORT EQUIPMENT

The following equipment was used as support equipment for emissions testing:

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	Latitude	Laptop Computer	Service Tag J4RN331	-

EUT INTERFACE PORTS

The I/O cabling configuration during emissions testing was as follows:

Config 1

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
EUT Ethernet	Laptop Ethernet	Cat5 Twisted Pair	Unshielded	30.0
DC Input	External GoodPower Adapter	DC Leads	Unshielded	2.0

Config 2

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
EUT Ethernet	Laptop Ethernet	Cat5 Twisted Pair	Unshielded	30.0
EUT Ethernet	Unterminated	Cat5 Twisted Pair	Unshielded	1.0
EUT Ethernet	Unterminated	Cat5 Twisted Pair	Unshielded	1.0
RJ-11	Telephone	Multiwire	Unshielded	1.0
RJ-11	Unterminated	Multiwire	Unshielded	2.0
USB	Laptop	Multiwire	Shielded	1.5
DC Input	External GoodPower Adapter	DC Leads	Unshielded	2.0

EUT OPERATION

During emissions testing the EUT was in continuous transmit or receive mode on the channel selected as noted.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on February 16, February 23, February 28 and March 2, 2007 at the Elliott Laboratories Open Area Test Site #2 located at 684 West Maude Avenue, Sunnyvale, California or 41039 Boyce Road, Fremont, California Pursuant to section 2.948 of the FCC's Rules and section 3.3 of RSP-100, construction, calibration, and equipment data has been filed with the Commission.

ANSI C63.4:2003 recommends that ambient noise at the test site be at least 6 dB below the allowable limits. Ambient levels are below this requirement with the exception of predictable local TV, radio, and mobile communications traffic. The test site contains separate areas for radiated and conducted emissions testing. Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent requirements of ANSI C63.4:2003 and RSS 212.

CONDUCTED EMISSIONS CONSIDERATIONS

Conducted emissions testing is performed in conformance with ANSI C63.4:2003 and RSS 212. Measurements are made with the EUT connected to the public power network through a nominal, standardized RF impedance, which is provided by a line impedance stabilization network, known as a LISN. A LISN is inserted in series with each current-carrying conductor in the EUT power cord.

RADIATED EMISSIONS CONSIDERATIONS

The FCC has determined that radiation measurements made in a shielded enclosure are not suitable for determining levels of radiated emissions. Radiated measurements are performed in an open field environment or in a semi-anechoic chamber. The test sites are maintained free of conductive objects within the CISPR defined elliptical area incorporated in ANSI C63.4:2003 guidelines and meet the Normalized Site Attenuation (NSA) requirements of ANSI C63.4:2003 / RSS 212.

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

An EMI receiver as specified in CISPR 16-1 is used for emissions measurements. The receivers used can measure over the frequency range of 9 kHz up to 2000 MHz. These receivers allow both ease of measurement and high accuracy to be achieved. The receivers have Peak, Average, and CISPR (Quasi-peak) detectors built into their design so no external adapters are necessary. The receiver automatically sets the required bandwidth for the CISPR detector used during measurements. If the repetition frequency of the signal being measured is below 20Hz, peak measurements are made in lieu of Quasi-Peak measurements.

For measurements above the frequency range of the receivers, a spectrum analyzer is utilized because it provides visibility of the entire spectrum along with the precision and versatility required to support engineering analysis. Average measurements above 1000MHz are performed on the spectrum analyzer using the linear-average method with a resolution bandwidth of 1 MHz and a video bandwidth of 10 Hz, unless the signal is pulsed in which case the average (or video) bandwidth of the measuring instrument is reduced to onset of pulse desensitization and then increased.

INSTRUMENT CONTROL COMPUTER

The receivers utilize either a Rohde & Schwarz EZM Spectrum Monitor/Controller or contain an internal Spectrum Monitor/Controller to view and convert the receiver measurements to the field strength at an antenna or voltage developed at the LISN measurement port, which is then compared directly with the appropriate specification limit. This provides faster, more accurate readings by performing the conversions described under Sample Calculations within the Test Procedures section of this report. Results are printed in a graphic and/or tabular format, as appropriate. A personal computer is used to record all measurements made with the receivers.

The Spectrum Monitor provides a visual display of the signal being measured. In addition, the controller or a personal computer run automated data collection programs which control the receivers. This provides added accuracy since all site correction factors, such as cable loss and antenna factors are added automatically.

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

Line conducted measurements utilize a fifty microhenry Line Impedance Stabilization Network as the monitoring point. The LISN used also contains a 250 uH CISPR adapter. This network provides for calibrated radio frequency noise measurements by the design of the internal low pass and high pass filters on the EUT and measurement ports, respectively.

FILTERS/ATTENUATORS

External filters and precision attenuators are often connected between the receiving antenna or LISN and the receiver. This eliminates saturation effects and non-linear operation due to high amplitude transient events.

ANTENNAS

A loop antenna is used below 30 MHz. For the measurement range 30 MHz to 1000 MHz either a combination of a biconical antenna and a log periodic or a bi-log antenna is used. Above 1000 MHz, horn antennas are used. The antenna calibration factors to convert the received voltage to an electric field strength are included with appropriate cable loss and amplifier gain factors to determine an overall site factor, which is then programmed into the test receivers or incorporated into the test software.

ANTENNA MAST AND EQUIPMENT TURNTABLE

The antennas used to measure the radiated electric field strength are mounted on a non-conductive antenna mast equipped with a motor-drive to vary the antenna height. Measurements below 30 MHz are made with the loop antenna at a fixed height of 1m above the ground plane.

ANSI C63.4:2003 and RSS 212 specify that the test height above ground for table mounted devices shall be 80 centimeters. Floor mounted equipment shall be placed on the ground plane if the device is normally used on a conductive floor or separated from the ground plane by insulating material from 3 to 12 mm if the device is normally used on a non-conductive floor. During radiated measurements, the EUT is positioned on a motorized turntable in conformance with this requirement.

INSTRUMENT CALIBRATION

All test equipment is regularly checked to ensure that performance is maintained in accordance with the manufacturer's specifications. All antennas are calibrated at regular intervals with respect to tuned half-wave dipoles. An exhibit of this report contains the list of test equipment used and calibration information.

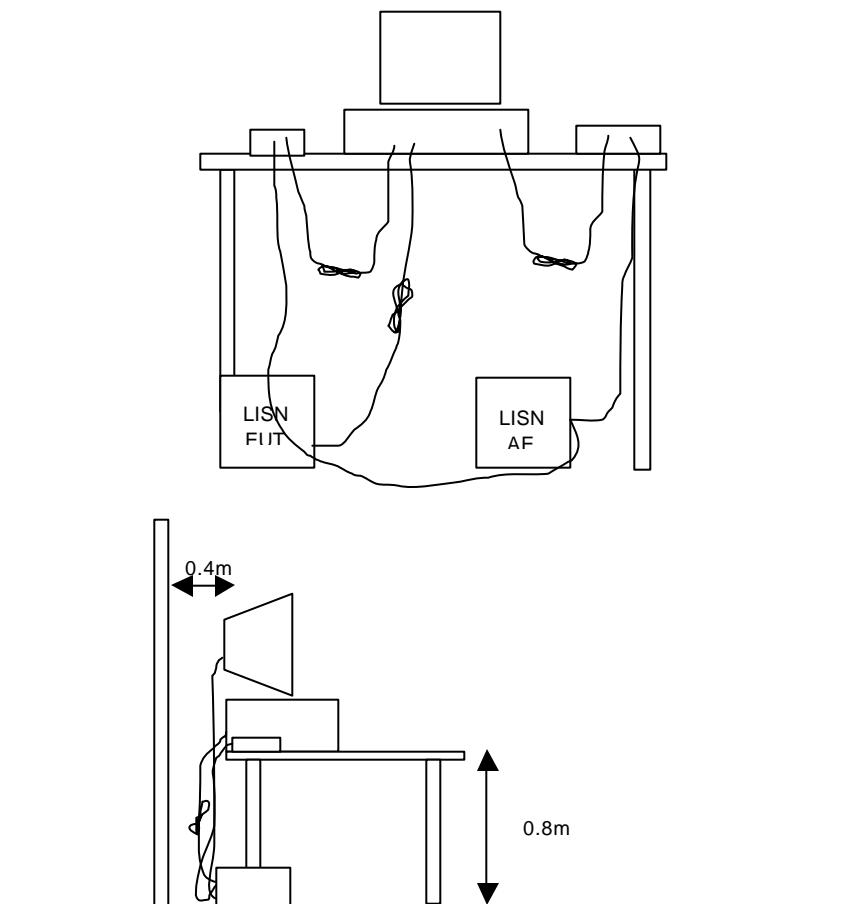
TEST PROCEDURES

EUT AND CABLE PLACEMENT

The regulations require that interconnecting cables be connected to the available ports of the unit and that the placement of the unit and the attached cables simulate the worst case orientation that can be expected from a typical installation, so far as practicable. To this end, the position of the unit and associated cabling is varied within the guidelines of ANSI C63.4:2003, and the worst-case orientation is used for final measurements.

CONDUCTED EMISSIONS

Conducted emissions are measured at the plug end of the power cord supplied with the EUT. Excess power cord length is wrapped in a bundle between 30 and 40 centimeters in length near the center of the cord. Preliminary measurements are made to determine the highest amplitude emission relative to the specification limit for all the modes of operation. Placement of system components and varying of cable positions are performed in each mode. A final peak mode scan is then performed in the position and mode for which the highest emission was noted on all current carrying conductors of the power cord.



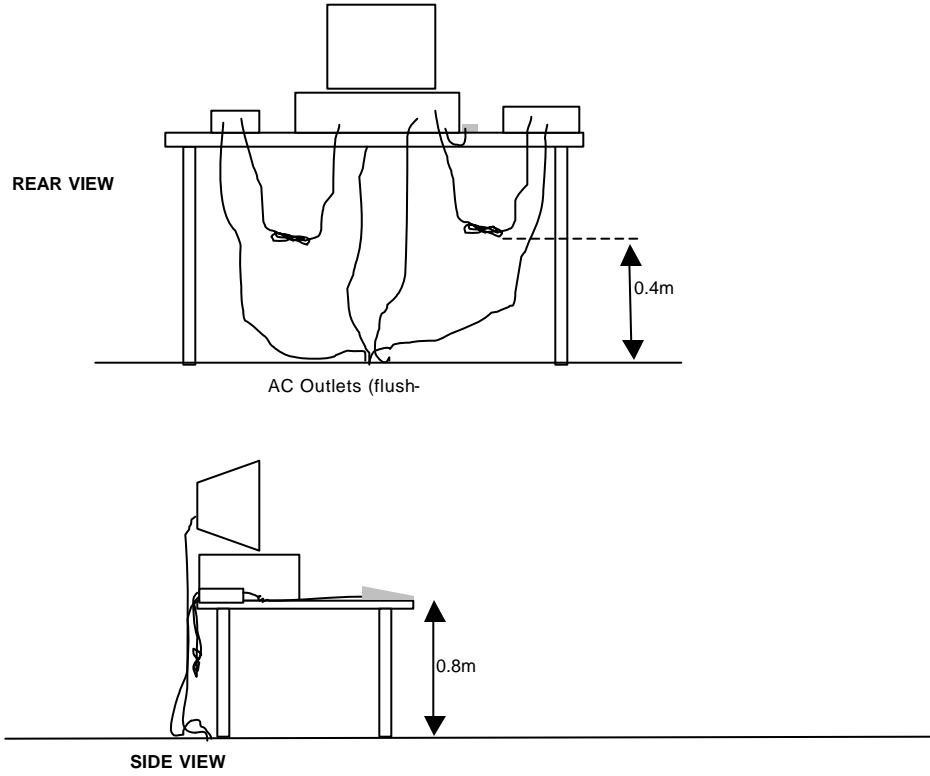
RADIATED EMISSIONS

A preliminary scan of the radiated emissions is performed in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed, one scan for each antenna polarization (horizontal and vertical; loop parallel and perpendicular to the EUT). During the preliminary scans, the EUT is rotated through 360°, the antenna height is varied (for measurements above 30 MHz) and cable positions are varied to determine the highest emission relative to the limit. Preliminary scans may be performed in a fully anechoic chamber for the purposes of identifying the frequencies of the highest emissions from the EUT.

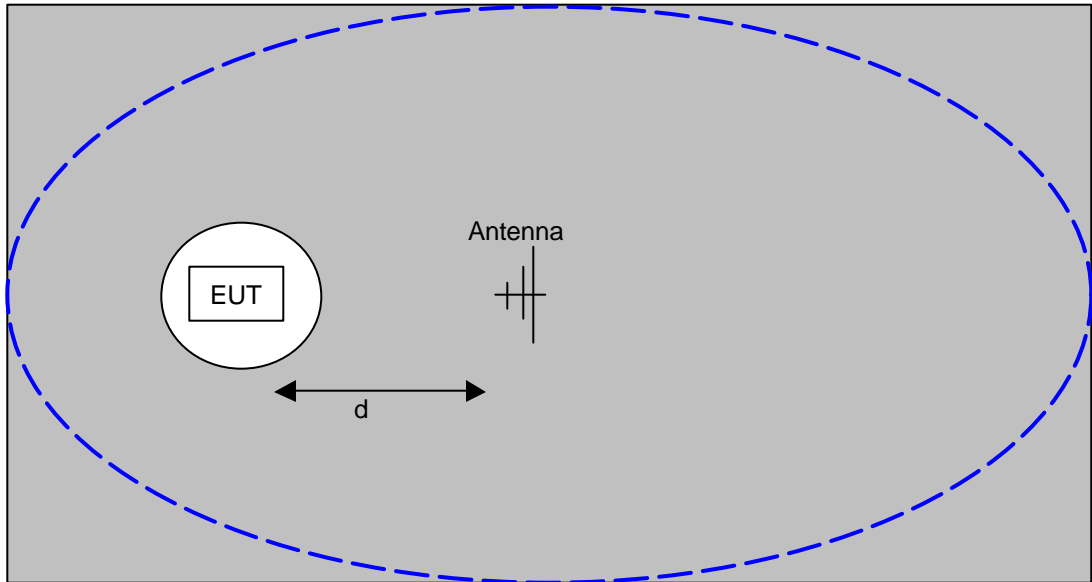
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

Final maximization is a phase in which the highest amplitude emissions identified in the spectral search are viewed while the EUT azimuth angle is varied from 0 to 360 degrees relative to the receiving antenna. The azimuth, which results in the highest emission is then maintained while varying the antenna height from one to four meters (for measurements above 30 MHz, measurements below 30 MHz are made with the loop antenna at a fixed height of 1m). The result is the identification of the highest amplitude for each of the highest peaks. Each recorded level is corrected in the receiver using appropriate factors for cables, connectors, antennas, and preamplifier gain.

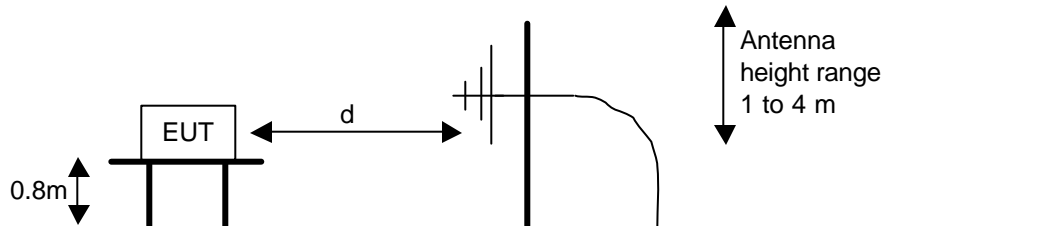
When testing above 18 GHz, the receive antenna is located at 1meter from the EUT and the antenna height is restricted to a maximum of 2.5 meters.



Typical Test Configuration for Radiated Field Strength Measurements



The ground plane extends beyond the ellipse defined in CISPR 16 / CISPR 22 / ANSI C63.4 and is large enough to accommodate test distances (d) of 3m and 10m. Refer to the test data tables for the actual measurement distance.



Test Configuration for Radiated Field Strength Measurements
OATS- Plan and Side Views

BANDWIDTH MEASUREMENTS

The 6dB, 20dB and/or 26dB signal bandwidth is measured in using the bandwidths recommended by ANSI C63.4. When required, the 99% bandwidth is measured using the methods detailed in RSS GEN.

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

The limits for conducted emissions are given in units of microvolts, and the limits for radiated emissions are given in units of microvolts per meter at a specified test distance. Data is measured in the logarithmic form of decibels relative to one microvolt, or dB microvolts (dBuV). For radiated emissions, the measured data is converted to the field strength at the antenna in dB microvolts per meter (dBuV/m). The results are then converted to the linear forms of uV and uV/m for comparison to published specifications.

For reference, converting the specification limits from linear to decibel form is accomplished by taking the base ten logarithm, then multiplying by 20. These limits in both linear and logarithmic form are as follows:

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from transmitters that fall in restricted bands¹ (with the exception of transmitters operating under FCC Part 15 Subpart D and RSS 210 Annex 9), the limits for all emissions from a low power device operating under the general rules of RSS 310 (tables 3 and 4), RSS 210 (table 2) and FCC Part 15 Subpart C section 15.209.

Frequency Range (MHz)	Limit (uV/m)	Limit (dBuV/m @ 3m)
0.009-0.490	2400/F _{KHz} @ 300m	67.6-20*log ₁₀ (F _{KHz}) @ 300m
0.490-1.705	24000/F _{KHz} @ 30m	87.6-20*log ₁₀ (F _{KHz}) @ 30m
1.705 to 30	30 @ 30m	29.5 @ 30m
30 to 88	100 @ 3m	40 @ 3m
88 to 216	150 @ 3m	43.5 @ 3m
216 to 960	200 @ 3m	46.0 @ 3m
Above 960	500 @ 3m	54.0 @ 3m

OUTPUT POWER LIMITS – DIGITAL TRANSMISSION SYSTEMS

The table below shows the limits for output power and output power density. Where the signal bandwidth is less than 20 MHz the maximum output power is reduced to the power spectral density limit plus 10 times the log of the bandwidth (in MHz).

Operating Frequency (MHz)	Output Power	Power Spectral Density
902 – 928	1 Watt (30 dBm)	8 dBm/3kHz
2400 – 2483.5	1 Watt (30 dBm)	8 dBm/3kHz
5725 – 5850	1 Watt (30 dBm)	8 dBm/3kHz

The maximum permitted output power is reduced by 1dB for every dB the antenna gain exceeds 6dBi. Fixed point-to-point applications using the 5725 – 5850 MHz band are not subject to this restriction.

TRANSMIT MODE SPURIOUS RADIATED EMISSIONS LIMITS – FHSS and DTS SYSTEMS

The limits for unwanted (spurious) emissions from the transmitter falling in the restricted bands are those specified in the general limits sections of FCC Part 15 and RSS 210. All other unwanted (spurious) emissions shall be at least 20dB below the level of the highest in-band signal level (30dB if the power is measured using the sample detector/power averaging method).

¹ The restricted bands are detailed in FCC 15.203, RSS 210 Table 1 and RSS 310 Table 2

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

Receiver readings are compared directly to the conducted emissions specification limit (decibel form) as follows:

$$R_r - S = M$$

where:

R_r = Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

Receiver readings are compared directly to the specification limit (decibel form). The receiver internally corrects for cable loss, preamplifier gain, and antenna factor. The calculations are in the reverse direction of the actual signal flow, thus cable loss is added and the amplifier gain is subtracted. The Antenna Factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

A distance factor, when used for electric field measurements above 30MHz, is calculated by using the following formula:

$$F_d = 20 * \text{LOG}_{10} (D_m/D_s)$$

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

For electric field measurements below 30MHz the extrapolation factor is either determined by making measurements at multiple distances or a theoretical value is calculated using the formula:

$$F_d = 40 * \text{LOG}_{10} (D_m/D_s)$$

Measurement Distance is the distance at which the measurements were taken and Specification Distance is the distance at which the specification limits are based. The antenna factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

The margin of a given emission peak relative to the limit is calculated as follows:

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

$$R_r = \text{Receiver Reading in dBuV/m}$$

$$F_d = \text{Distance Factor in dB}$$

$$R_c = \text{Corrected Reading in dBuV/m}$$

$$L_s = \text{Specification Limit in dBuV/m}$$

$$M = \text{Margin in dB Relative to Spec}$$

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

Where the radiated electric field strength is expressed in terms of the equivalent isotropic radiated power (eirp), or where a field strength measurement of output power is made in lieu of a direct measurement, the following formula is used to convert between eirp and field strength at a distance of 3m from the equipment under test:

$$E = \frac{1000000 \sqrt{30 P}}{3} \quad \text{microvolts per meter}$$

where P is the eirp (Watts)

EXHIBIT 1: Test Equipment Calibration Data

1 Page

Antenna Port Conducted Emissions, 23-Feb-07**Engineer: Mark Hill**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	SpecAn 9 kHz - 40 GHz, Purple (SA40)	8564E (84125C)	1771	11-Jul-07

Radiated Emissions, 30 - 26,500 MHz, 28-Feb-07**Engineer: Mehran Birgani**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Elliott Laboratories	Biconical Antenna, 30-300 MHz	EL30.300	54	07-Mar-07
Hewlett Packard	High Pass filter, 3.5 GHz	P/N 84300-80038	1157	24-Apr-07
EMCO	Log Periodic Antenna, 0.2-1 GHz	3146	1294	25-May-07
Rohde & Schwarz	Test Receiver, 0.009-2750 MHz	ESN	1332	21-Nov-07
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	11-Jul-08
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	11-Jul-07
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	15-Nov-07

Radio Conducted Emissions - AC Power Ports, 02-Mar-07**Engineer: Juan Martinez**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Elliott Laboratories	LISN, FCC / CISPR	LISN-3, OATS	304	30-Jun-07
Elliott Laboratories	LISN, FCC / CISPR	LISN-4, OATS	362	30-Jun-07
Rohde & Schwarz	Pulse Limiter	ESH3 Z2	372	28-Aug-07
Hewlett Packard	EMC Spectrum Analyzer, 9 kHz - 6.5 GHz	8595EM	780	05-Sep-07
Rohde & Schwarz	Test Receiver, 0.009-2750 MHz	ESN	1332	21-Nov-07

EXHIBIT 2: Test Measurement Data

43 Pages



EMC Test Data

Client:	2Wire	Job Number:	J66193
Model:	RG2701HGV-00	Test-Log Number:	T67017
		Project Manager:	Susan Pelzl
Contact:	John Reynolds		
Emissions Spec:	FCC 15.247 / 15.209	Class:	B
Immunity Spec:	-	Environment:	-

EMC Test Data

For The

2Wire

Model

RG2701HGV-00

Date of Last Test: 3/2/2007



EMC Test Data

Client:	2Wire	Job Number:	J66193
Model:	RG2701HGV-00	Test-Log Number:	T67017
		Project Manager:	Susan Pelzl
Contact:	John Reynolds		
Emissions Spec:	FCC 15.247 / 15.209	Class:	B
Immunity Spec:	-	Environment:	-

EUT INFORMATION

The following information was collected during the test sessions(s).

General Description

The EUT is a DSL wireless gateway that is designed to be used in the home. Since the EUT would be placed on a tabletop during operation, the EUT was treated as tabletop equipment during testing to simulate the end-user environment. The electrical rating of the EUT power adapter is 100-240 Volts , 50/60 Hz, 1 Amp.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
2Wire	RG2701HGV-00	DSL Wireless Gateway	426211100204	PGR2W2701HGV
DVE	DSA-36W-12	External AC-DC Adaptor	-	-

Other EUT Details

The following EUT details should be noted: Board ASSY: 3200-000631 Rev. 33 with X12, X13, X14, X15, X16, X17, X18, X21, X22 and X23.

EUT Antenna (Intentional Radiators Only)

The antenna is integral to the device.

EUT Enclosure

The EUT enclosure is primarily constructed of plastic. It measures approximately 23 cm wide by 19 cm deep by 4 cm high.

Modification History

Mod. #	Test	Date	Modification
1			
2			
3			

Modifications applied are assumed to be used on subsequent tests unless otherwise stated as a further modification.



EMC Test Data

Client:	2Wire	Job Number:	J66193
Model:	RG2701HGV-00	T-Log Number:	T67017
		Project Manager:	Susan Pelzl
Contact:	John Reynolds		
Emissions Spec:	FCC 15.247 / 15.209	Class:	B
Immunity Spec:	-	Environment:	-

Test Configuration #1

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
None	-	-	-	-

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	Latitude	Laptop Computer	Service Tag J4RN331	-

Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
EUT Ethernet	Laptop Ethernet	Cat5 Twisted Pair	Unshielded	30.0
DC Input	External GoodPower Adapter	DC Leads	Unshielded	2.0

Note: Additional ports not cabled during radio evaluation testing prescan.

EUT Operation During Emissions Tests

During emissions testing the EUT was in continuous transmit or receive mode on the channel selected as noted.

EUT Operation During Immunity Tests

During immunity test the EUT will be exercised by _____.

Normal operation is indicated by _____ and shall be monitored by _____.



EMC Test Data

Client:	2Wire	Job Number:	J66193
Model:	RG2701HGV-00	T-Log Number:	T67017
		Project Manager:	Susan Pelzl
Contact:	John Reynolds		
Emissions Spec:	FCC 15.247 / 15.209	Class:	B
Immunity Spec:	-	Environment:	-

Performance Criteria for Immunity Tests

Criterion A:

During and after testing the EUT shall continue to _____ .

Criterion B:

During application of the transient test, degradation of performance including _____ is allowed provided that the EUT self-recovers to normal operation after testing without any operator intervention.

Criterion C:

Loss of function is allowed provided that normal operation can be restored by _____ .



EMC Test Data

Client:	2Wire	Job Number:	J66193
Model:	RG2701HGV-00	T-Log Number:	T67017
		Project Manager:	Susan Pelzl
Contact:	John Reynolds		
Emissions Spec:	FCC 15.247 / 15.209	Class:	B
Immunity Spec:	-	Environment:	-

Test Configuration #2

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	Latitude	Laptop Computer	Service Tag J4RN331	-
		Telephone	-	-

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
None				

Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
EUT Ethernet	Laptop Ethernet	Cat5 Twisted Pair	Unshielded	30.0
EUT Ethernet	Unterminated	Cat5 Twisted Pair	Unshielded	1.0
EUT Ethernet	Unterminated	Cat5 Twisted Pair	Unshielded	1.0
RJ-11	Telephone	Multiwire	Unshielded	1.0
RJ-11	Unterminated	Multiwire	Unshielded	2.0
USB	Laptop	Multiwire	Shielded	1.5
DC Input	External GoodPower Adapter	DC Leads	Unshielded	2.0

EUT Operation During Emissions Tests

During emissions testing the EUT was in continuous transmit or receive mode on the channel selected as noted.

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: B

Conducted Emissions - Power Ports

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 3/2/2007 13:00	Config. Used: 2
Test Engineer: Juan Martinez	Config Change: None
Test Location: SVOATS #2	EUT Voltage: 120V/60Hz

General Test Configuration

The EUT was located on a wooden table, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment. Remote support equipment was located approximately 30 meters from the test area. All I/O connections were running on top of the groundplane.

Ambient Conditions:

Temperature:	16 °C
Rel. Humidity:	48 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power, 120V/60Hz	EN55022 B	Pass	38.0dBµV (79.4µV) @ 0.415MHz (-9.5dB)
2	CE, AC Power, 120V/60Hz	EN55022 B	Pass	44.0dBµV (158.5µV) @ 0.410MHz (-3.6dB)

Modifications Made During Testing:

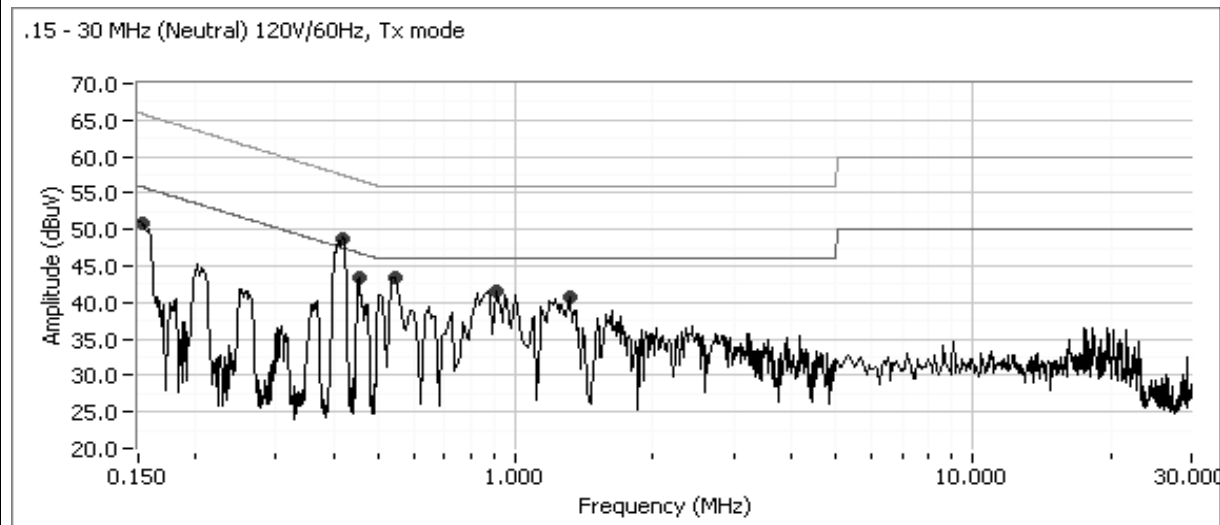
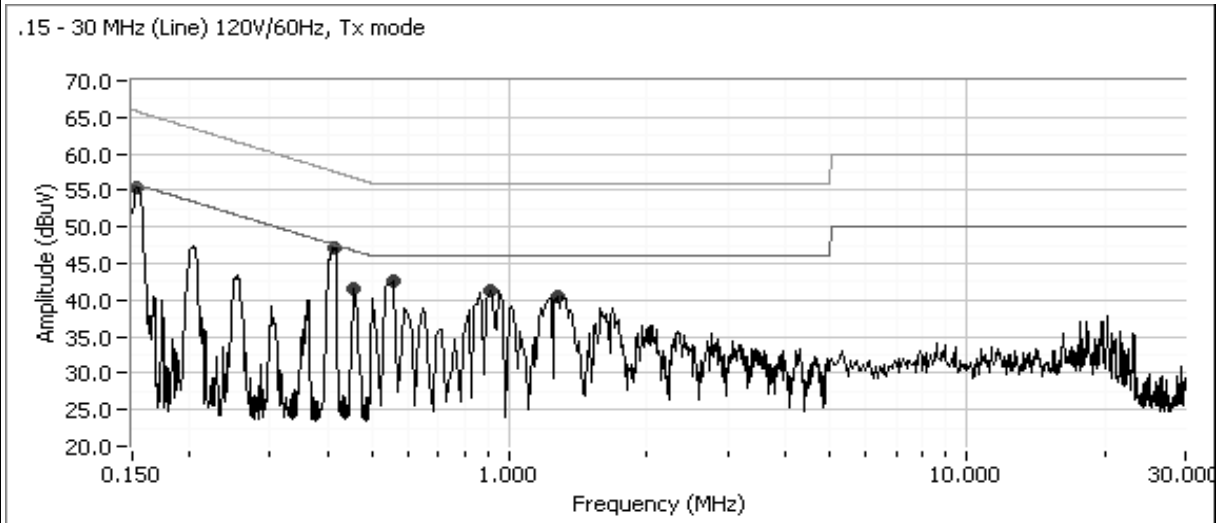
No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: B

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz





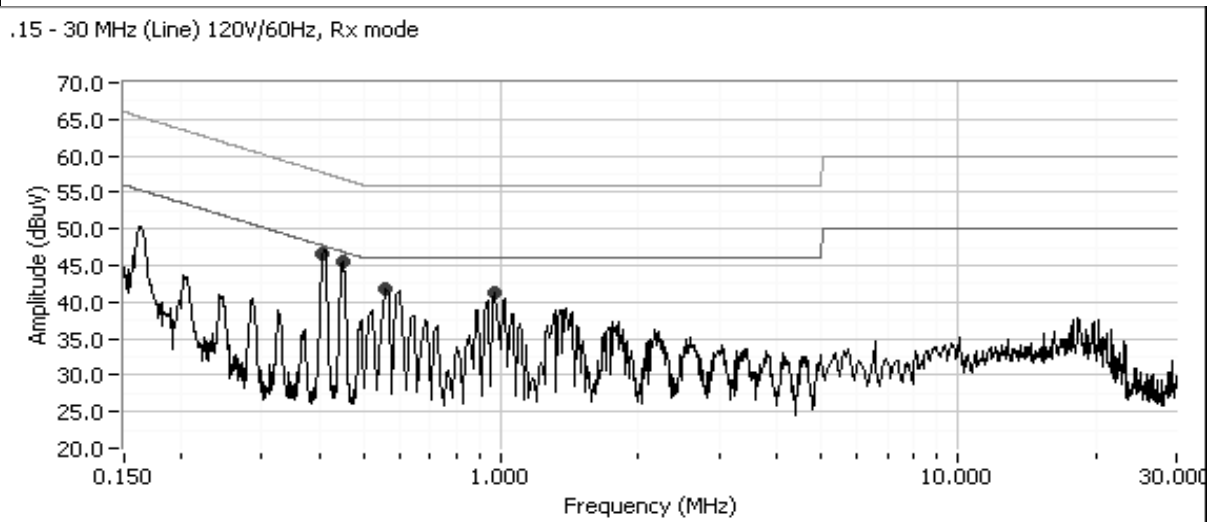
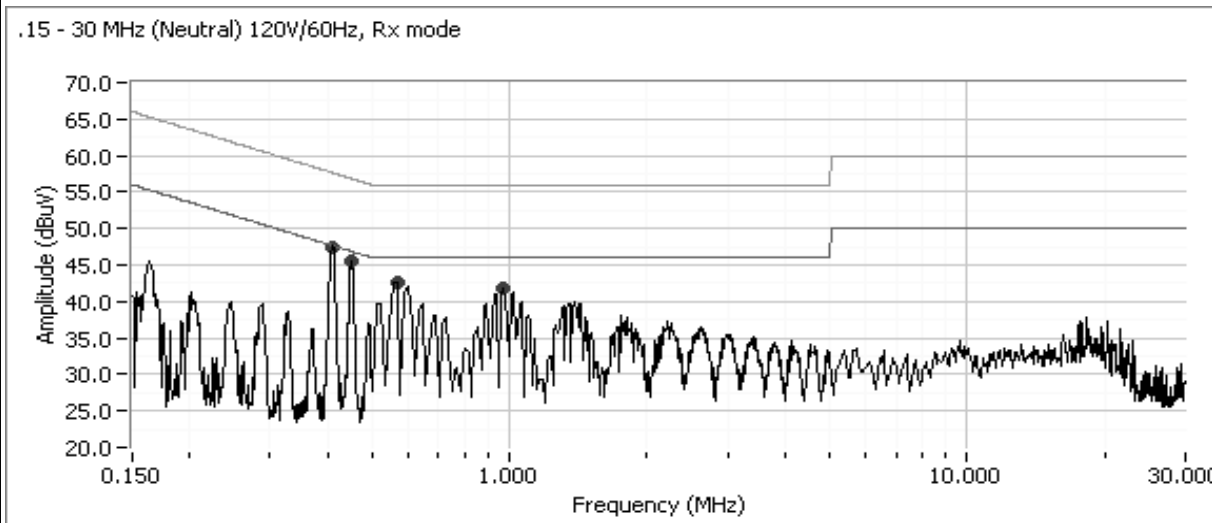
EMC Test Data

Client:	2Wire	Job Number:	J66193
Model:	RG2701HGV-00	T-Log Number:	T67017
Contact:	John Reynolds	Account Manager:	Susan Pelzi
Standard:	FCC 15.247 / 15.209	Class:	B

Frequency MHz	Level dBµV	AC Line	EN55022 B		Detector QP/Ave	Comments
			Limit	Margin		
0.415	38.0	Neutral	47.5	-9.5	AVG	
0.415	46.3	Neutral	57.5	-11.2	QP	
0.556	33.0	Line 1	46.0	-13.0	AVG	
0.154	52.4	Line 1	65.8	-13.4	QP	
0.555	32.0	Neutral	46.0	-14.0	AVG	
0.413	43.4	Line 1	57.6	-14.2	QP	
0.413	33.2	Line 1	47.6	-14.4	AVG	
0.153	40.6	Neutral	55.8	-15.2	AVG	
0.454	31.3	Line 1	46.8	-15.5	AVG	
0.555	40.5	Neutral	56.0	-15.5	QP	
0.556	39.6	Line 1	56.0	-16.4	QP	
0.154	39.0	Line 1	55.8	-16.8	AVG	
0.454	29.8	Neutral	46.8	-17.0	AVG	
0.907	38.8	Line 1	56.0	-17.2	QP	
1.275	28.6	Line 1	46.0	-17.4	AVG	
0.153	48.2	Neutral	65.8	-17.6	QP	
0.454	39.2	Neutral	56.8	-17.6	QP	
0.454	39.0	Line 1	56.8	-17.8	QP	
1.275	37.3	Line 1	56.0	-18.7	QP	
0.907	25.8	Line 1	46.0	-20.2	AVG	
1.245	34.9	Neutral	56.0	-21.1	QP	
0.949	30.0	Neutral	56.0	-26.0	QP	
1.245	15.2	Neutral	46.0	-30.8	AVG	
0.949	6.4	Neutral	46.0	-39.6	AVG	

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: B

Run #2: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz





EMC Test Data

Client:	2Wire	Job Number:	J66193
Model:	RG2701HGV-00	T-Log Number:	T67017
Contact:	John Reynolds	Account Manager:	Susan Pelzl
Standard:	FCC 15.247 / 15.209	Class:	B

Frequency MHz	Level dB μ V	AC Line	EN55022 B		Detector QP/Ave	Comments
			Limit	Margin		
0.410	44.0	Neutral	47.6	-3.6	AVG	
0.410	43.2	Line 1	47.6	-4.4	AVG	
0.451	41.3	Neutral	46.9	-5.6	AVG	
0.447	40.8	Line 1	46.9	-6.1	AVG	
0.575	36.6	Neutral	46.0	-9.4	AVG	
0.575	35.8	Line 1	46.0	-10.2	AVG	
0.410	45.9	Neutral	57.6	-11.7	QP	
0.984	33.9	Line 1	46.0	-12.1	AVG	
0.410	45.0	Line 1	57.6	-12.6	QP	
0.451	43.1	Neutral	56.9	-13.8	QP	
0.447	42.9	Line 1	56.9	-14.0	QP	
0.986	31.9	Neutral	46.0	-14.1	AVG	
0.575	40.3	Neutral	56.0	-15.7	QP	
0.575	39.5	Line 1	56.0	-16.5	QP	
0.984	38.7	Line 1	56.0	-17.3	QP	
0.986	38.5	Neutral	56.0	-17.5	QP	



EMC Test Data

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

Run #1: Receive Radiated Emissions, 30 - 18,000 MHz (802.11b @ 2437 MHz)

Measured at 3m

Frequency MHz	Level dB μ V/m	Pol V/H	RSS 210		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
800.003	45.4	V	46.0	-0.6	QP	347	1.0	
400.008	35.8	H	46.0	-10.2	QP	316	1.0	
85.912	26.0	V	40.0	-14.0	QP	0	1.4	
387.724	23.2	H	46.0	-22.8	QP	10	1.0	
30.636	14.8	H	40.0	-25.2	QP	257	2.5	
40.351	12.5	H	40.0	-27.5	QP	243	3.3	



EMC Test Data

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzl
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

RSS 210 and FCC 15.247 Radiated Spurious Emissions

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 2/28/2007	Config. Used: 1
Test Engineer: Mark Hill	Config Change: None
Test Location: SVOATS #2	EUT Voltage: 120V/60Hz

General Test Configuration

The EUT was located on the turntable for radiated spurious emissions testing. All remote support equipment was located approximately 30 meters from the EUT with all I/O connections running on top of the groundplane.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Ambient Conditions:

Temperature:	11 °C
Rel. Humidity:	52 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1 (802.11b Mode)	RE, 30 - 25000 MHz Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	53.0dBµ V/m (446.7µ V/m) @ 4874.0MHz (-1.0dB)
2 (802.11g Mode)	RE, 30 - 25000 MHz Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	49.8dBµ V/m (309.0µ V/m) @ 4875.3MHz (-4.2dB)

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.



EMC Test Data

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

Run #1: Radiated Spurious Emissions, 30 - 25000 MHz. Operating Mode: 802.11b

Run #1a: Low Channel @ 2412 MHz (Software Power Setting = 18dBm)

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and peak value measured in 100kHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2413.950	101.0	V	-	-	AVG	181	1.1	RB = 1MHz, VB = 10Hz
2413.950	104.1	V	-	-	PK	181	1.1	RB = VB = 1MHz
2415.150	98.8	V	-	-	PK	181	1.1	RB = VB = 100kHz
2413.650	96.1	H	-	-	AVG	159	1.0	RB = 1MHz, VB = 10Hz
2413.650	98.9	H	-	-	PK	159	1.0	RB = VB = 1MHz

Fundamental emission level @ 3m in 100kHz RBW:	98.8 dB μ V/m	
Limit for emissions outside of restricted bands:	68.8 dB μ V/m	Limit is -30dBc (UNII power measurement)

Band Edge Signal Field Strength

Delta Marker - Peak	47.7 dB	Delta between highest in-band and highest
Delta Marker - Average	52.2 dB	

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2412.000	48.8	V	54.0	-5.2	AVG	181	1.1	Note 1
2412.000	56.4	V	74.0	-17.6	PK	181	1.1	Note 1

Note 1: Calculated by subtracting the marker delta values from the fundamental field strength measurements.

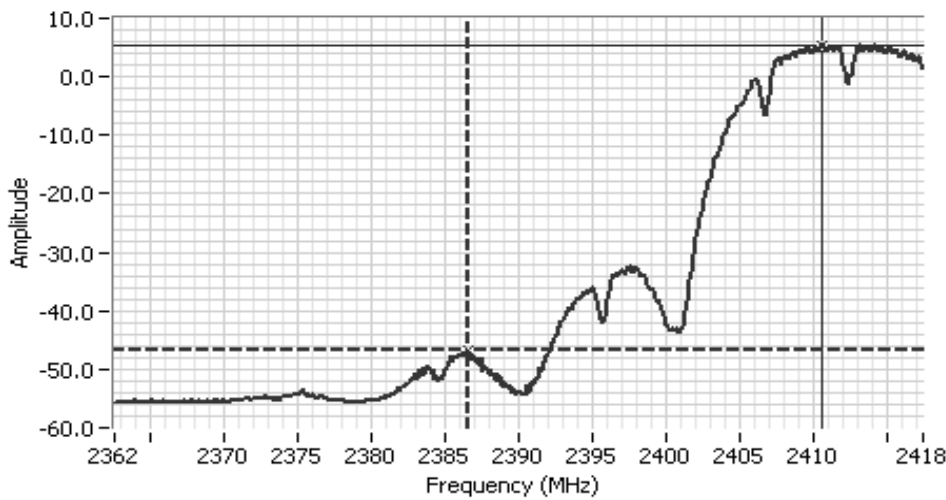
Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
4823.980	48.8	V	54.0	-5.2	AVG	295	1.0	
4824.020	48.0	H	54.0	-6.0	AVG	179	2.0	
7233.470	37.1	H	54.0	-16.9	AVG	197	1.7	
7234.370	36.8	V	54.0	-17.2	AVG	177	1.0	
9649.580	36.5	H	54.0	-17.5	AVG	180	1.0	Note 2
4823.980	51.0	V	74.0	-23.0	PK	295	1.0	
4824.020	50.6	H	74.0	-23.4	PK	179	2.0	
9649.580	47.7	H	74.0	-26.3	PK	180	1.0	Note 2
7233.470	47.6	H	74.0	-26.4	PK	197	1.7	
7234.370	47.2	V	74.0	-26.8	PK	177	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.

Note 2: Signal is not in a restricted band but the more stringent restricted band limit was used.

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: N/A



Analyzer Settings

HP8564E,EMI
 CF: 2390.00 MHz
 SPAN:55.00 MHz
 RB 1.000 MHz
 VB 10 Hz
 Detector Sample
 Att 30
 RL Offset 0.00
 Sweep Time 21.0s
 Ref Lvl:20.00DBM

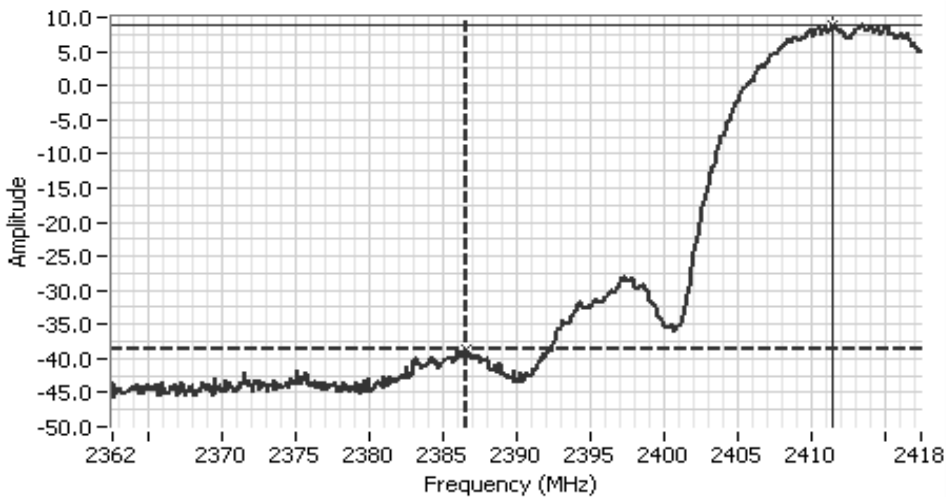
Comments

band edge - b mode,
 low channel, average

Cursor 1	2386.60	-46.83	
Cursor 2	2410.62	5.33	

Delta Freq. 24.02

Delta Amplitude 52.17



Analyzer Settings

HP8564E,EMI
 CF: 2390.00 MHz
 SPAN:55.00 MHz
 RB 1.000 MHz
 VB 1.000 MHz
 Detector POS
 Att 30
 RL Offset 0.00
 Sweep Time 50.0ms
 Ref Lvl:20.00DBM

Comments

band edge - b mode,
 low channel, peak

Cursor 1	2386.51	-38.67	
Cursor 2	2411.54	9.00	

Delta Freq. 25.03

Delta Amplitude 47.67





EMC Test Data

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

Run #1b: Center Channel @ 2437 MHz (Software Power Setting = 19dBm)

Fundamental emission level @ 3m in 100kHz RBW:	101.0 dB μ V/m	Limit is -30dBc (UNII power measurement)
Limit for emissions outside of restricted bands:	71.0 dB μ V/m	

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	V/H	Limit	Margin	Pk/OP/Avg	degrees	meters	
4874.020	53.0	V	54.0	-1.0	AVG	360	1.2	
4873.960	44.3	H	54.0	-9.7	AVG	199	1.0	
7309.470	38.3	V	54.0	-15.7	AVG	30	1.6	
7309.270	36.9	H	54.0	-17.1	AVG	194	1.0	
4874.020	54.8	V	74.0	-19.2	PK	360	1.2	
4873.960	47.9	H	74.0	-26.1	PK	199	1.0	
7309.470	47.2	V	74.0	-26.8	PK	30	1.6	
7309.270	46.8	H	74.0	-27.2	PK	194	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.



EMC Test Data

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

Run #1c: High Channel @ 2462 MHz (Software Power Setting = 18dBm)

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and peak value measured in 100kHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2461.500	101.9	H	-	-	AVG	277	1.8	RB = 1MHz, VB = 10Hz
2461.500	104.9	H	-	-	PK	277	1.8	RB = VB = 1MHz
2461.110	100.1	H	-	-	PK	277	1.7	RB = VB = 100kHz
2461.400	99.6	V	-	-	AVG	179	1.1	RB = 1MHz, VB = 10Hz
2461.400	102.4	V	-	-	PK	179	1.1	RB = VB = 1MHz

Fundamental emission level @ 3m in 100kHz RBW:	100.1 dB μ V/m	Limit is -30dBc (UNII power measurement)
Limit for emissions outside of restricted bands:	70.1 dB μ V/m	

Band Edge Signal Field Strength

Delta Marker - Peak	47.2 dB	Delta between highest in-band and highest
Delta Marker - Average	53.2 dB	

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2462.000	48.7	H	54.0	-5.3	AVG	277	1.8	Note 1
2462.000	57.7	H	74.0	-16.3	PK	277	1.8	Note 1

Note 1: Calculated by subtracting the marker delta values from the fundamental field strength measurements.

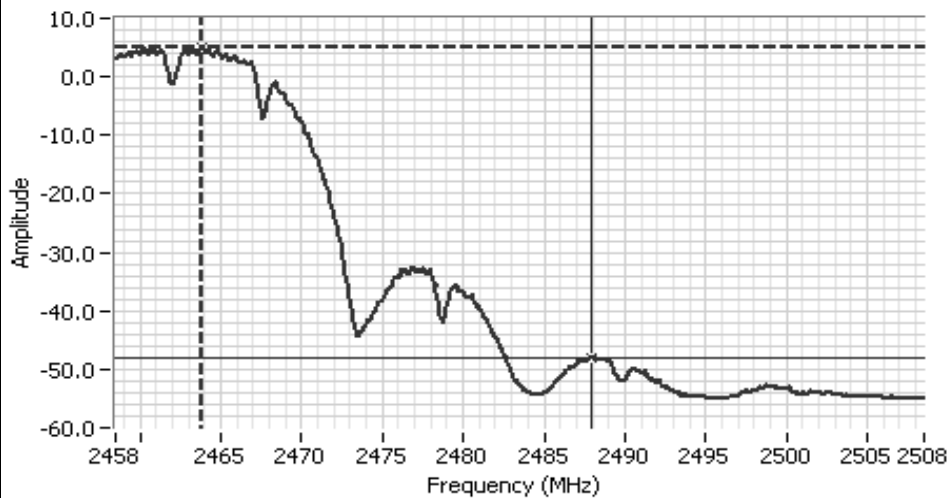
Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
4923.980	51.7	V	54.0	-2.3	AVG	174	1.4	
4923.910	47.5	H	54.0	-6.5	AVG	227	2.2	
7387.240	36.7	V	54.0	-17.3	AVG	178	1.0	
7384.030	36.1	H	54.0	-17.9	AVG	207	1.8	
4923.980	53.3	V	74.0	-20.7	PK	174	1.4	
4923.910	49.8	H	74.0	-24.2	PK	227	2.2	
7387.240	46.9	V	74.0	-27.1	PK	178	1.0	
7384.030	46.6	H	74.0	-27.4	PK	207	1.8	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.

Note 2: Signal is not in a restricted band but the more stringent restricted band limit was used.

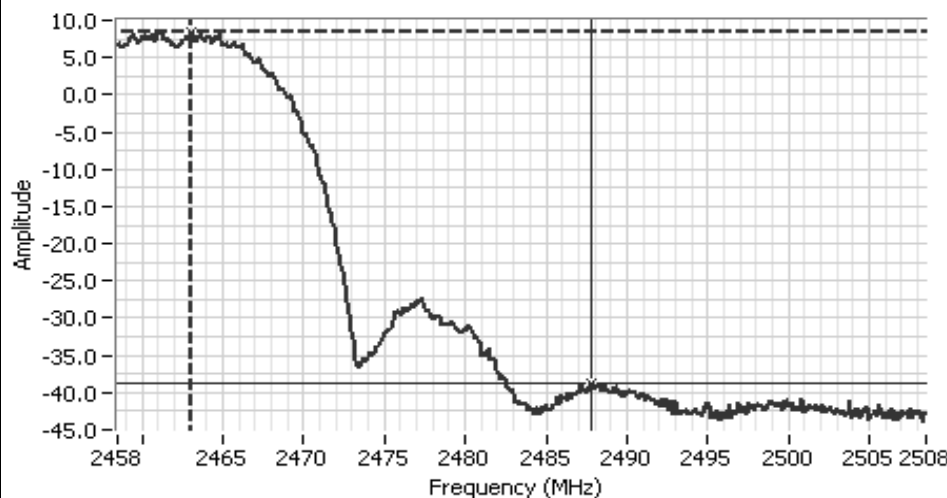
Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: N/A



Analyzer Settings
 HP8564E,EMI
 CF: 2483.50 MHz
 SPAN:50.00 MHz
 RB 1.000 MHz
 VB 10 Hz
 Detector Sample
 Att 30
 RL Offset 0.00
 Sweep Time 19.0s
 Ref Lvl:20.00DBM

Comments
 b mode, band edge
 delta, average

Cursor 1	2463.83	5.17	Delta Freq.	24.08
Cursor 2	2487.91	-48.00	Delta Amplitude	53.17



Analyzer Settings
 HP8564E,EMI
 CF: 2483.50 MHz
 SPAN:50.00 MHz
 RB 1.000 MHz
 VB 1.000 MHz
 Detector POS
 Att 30
 RL Offset 0.00
 Sweep Time 50.0ms
 Ref Lvl:20.00DBM

Comments
 b mode, band edge
 delta, peak

Cursor 1	2463.08	8.50	Delta Freq.	24.75
Cursor 2	2487.83	-38.67	Delta Amplitude	47.17





EMC Test Data

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

Run #2: Radiated Spurious Emissions, 30 - 25000 MHz. Operating Mode: 802.11g

Run #1a: Low Channel @ 2412 MHz (Software Power Setting = 19dBm)

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and peak value measured in 100kHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2417.630	99.3	H	-	-	AVG	290	1.8	RB = 1MHz, VB = 10Hz
2417.630	108.4	H	-	-	PK	290	1.8	RB = VB = 1MHz
2417.300	99.6	H	-	-	PK	290	1.8	RB = VB = 100kHz
2407.330	98.7	V	-	-	AVG	138	1.0	RB = 1MHz, VB = 10Hz
2407.330	107.4	V	-	-	PK	138	1.0	RB = VB = 1MHz

Fundamental emission level @ 3m in 100kHz RBW:	99.6 dB μ V/m	Limit is -30dBc (UNII power measurement)
Limit for emissions outside of restricted bands:	69.6 dB μ V/m	

Band Edge Signal Field Strength

Delta Marker - Peak	40.3 dB	Delta between highest in-band and highest
Delta Marker - Average	45.7 dB	

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	53.6	H	54.0	-0.4	AVG	290	1.8	Note 1
2390.000	68.1	H	74.0	-5.9	PK	290	1.8	Note 1

Note 1: Calculated by subtracting the marker delta values from the fundamental field strength measurements.

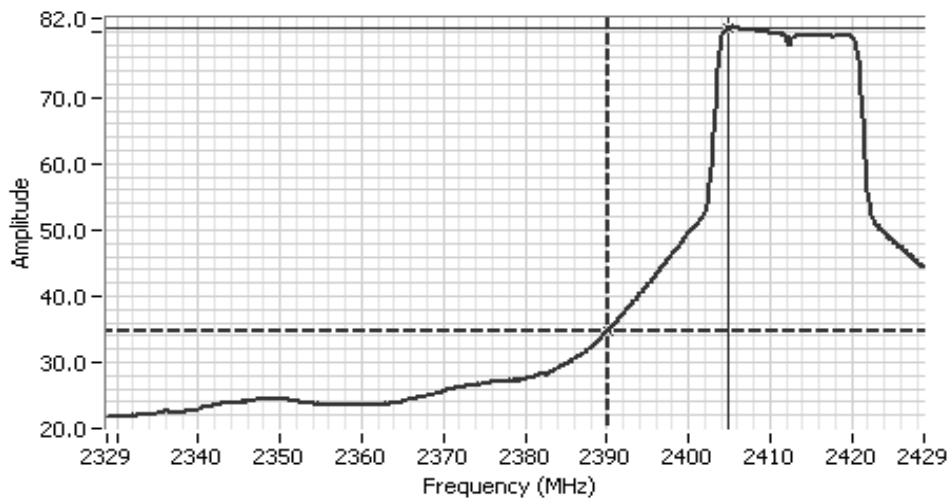
Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
4823.970	44.2	V	54.0	-9.8	AVG	0	1.2	
4822.430	34.4	H	54.0	-19.6	AVG	205	2.1	
4823.970	54.1	V	74.0	-19.9	PK	0	1.2	
4822.430	47.2	H	74.0	-26.8	PK	205	2.1	
7242.600	22.8	H	54.0	-31.2	AVG	0	1.0	
7230.730	22.7	V	54.0	-31.3	AVG	232	1.0	
7242.600	34.3	H	74.0	-39.7	PK	0	1.0	
7230.730	33.8	V	74.0	-40.2	PK	232	1.0	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.

Note 2: Signal is not in a restricted band but the more stringent restricted band limit was used.

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: N/A



Analyzer Settings

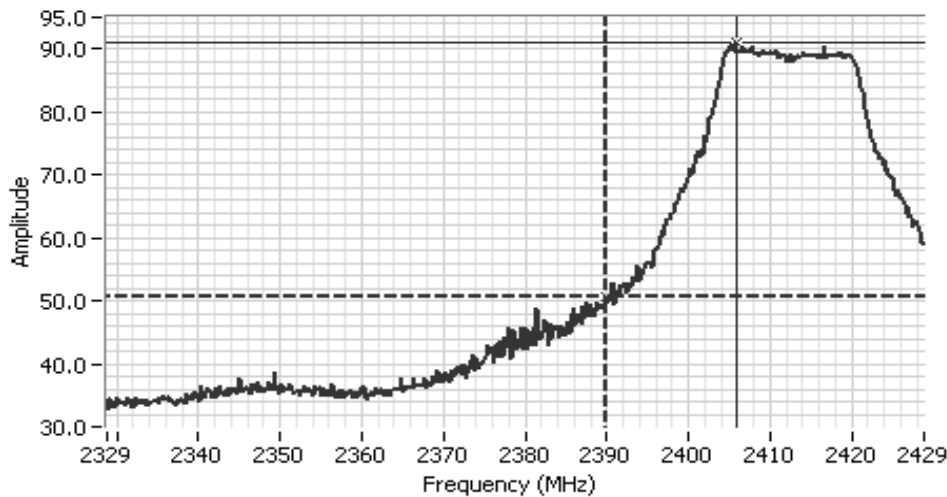
HP8564E,EMI
 CF: 2378.83 MHz
 SPAN:100.00 MHz
 RB 1.000 MHz
 VB 10 Hz
 Detector Sample
 Att 0
 RL Offset 0.00
 Sweep Time 37.0s
 Ref Lvl:82.10DBUV

Comments

802.11g @ 2412 MHz
 Power setting : 19dBm
 Average

Cursor 1	2390.16	34.77	
Cursor 2	2404.83	80.43	

Delta Freq. 14.67
 Delta Amplitude 45.67



Analyzer Settings

HP8564E,EMI
 CF: 2378.83 MHz
 SPAN:100.00 MHz
 RB 1.000 MHz
 VB 1.000 MHz
 Detector POS
 Att 0
 RL Offset 0.00
 Sweep Time 50.0ms
 Ref Lvl:89.40DBUV

Comments

802.11g @ 2412 MHz
 Power setting : 19dBm
 Peak

Cursor 1	2390.00	50.57	
Cursor 2	2405.83	90.90	

Delta Freq. 15.83
 Delta Amplitude 40.33





EMC Test Data

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

Run #2b: Center Channel @ 2437 MHz (Software Power Setting = 19dBm)

Fundamental emission level @ 3m in 100kHz RBW:	97.4 dB μ V/m	Limit is -30dBc (UNII power measurement)
Limit for emissions outside of restricted bands:	67.4 dB μ V/m	

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	V/H	Limit	Margin	Pk/OP/Avg	degrees	meters	
4875.270	49.8	V	54.0	-4.2	AVG	200	1.7	
7308.630	44.3	V	54.0	-9.7	AVG	151	1.7	
4875.270	63.4	V	74.0	-10.6	PK	200	1.7	
4875.800	42.4	H	54.0	-11.6	AVG	311	1.9	
7314.870	38.0	H	54.0	-16.0	AVG	201	1.6	
7308.630	56.8	V	74.0	-17.2	PK	151	1.7	
4875.800	55.1	H	74.0	-18.9	PK	311	1.9	
7314.870	49.4	H	74.0	-24.6	PK	201	1.6	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.



EMC Test Data

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

Run #2c: High Channel @ 2462 MHz (Software Power Setting = 18dBm)

Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and peak value measured in 100kHz

Frequency MHz	Level dB μ V/m	Pol V/H	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
2460.700	98.4	V	-	-	AVG	169	1.0	RB = 1MHz, VB = 10Hz
2460.700	106.4	V	-	-	PK	169	1.0	RB = VB = 1MHz
2454.570	95.9	V	-	-	PK	169	1.0	RB = VB = 100kHz
2460.400	97.5	H	-	-	AVG	291	1.8	RB = 1MHz, VB = 10Hz
2460.400	105.2	H	-	-	PK	291	1.8	RB = VB = 1MHz

Fundamental emission level @ 3m in 100kHz RBW:	95.9 dB μ V/m	Limit is -30dBc (UNII power measurement)
Limit for emissions outside of restricted bands:	65.9 dB μ V/m	

Band Edge Signal Field Strength

Delta Marker - Peak	41.3 dB	Delta between highest in-band and highest
Delta Marker - Average	44.8 dB	

Frequency MHz	Level dB μ V/m	Pol V/H	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
2520.400	53.6	V	54.0	-0.4	AVG	169	1.0	Note 1
2486.060	65.1	V	74.0	-8.9	PK	169	1.0	Note 1

Note 1: Calculated by subtracting the marker delta values from the fundamental field strength measurements.

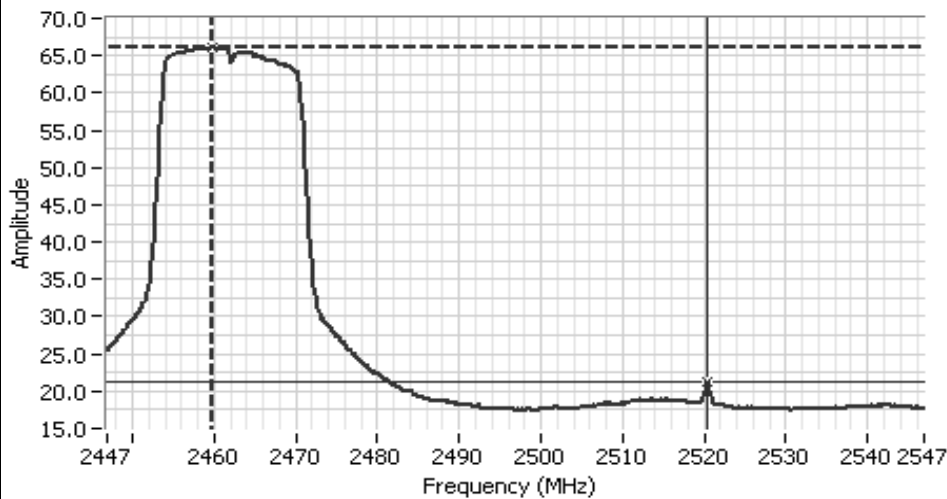
Other Spurious Emissions

Frequency MHz	Level dB μ V/m	Pol V/H	15.209 / 15.247		Detector Pk/QP/Avg	Azimuth degrees	Height meters	Comments
			Limit	Margin				
4923.230	45.2	V	54.0	-8.8	AVG	179	1.5	
4923.230	62.8	V	74.0	-11.2	PK	179	1.5	
4923.200	37.1	H	54.0	-16.9	AVG	177	1.9	
4923.200	56.8	H	74.0	-17.2	PK	177	1.9	
7387.400	36.2	V	54.0	-17.8	AVG	180	1.6	
7384.630	35.9	H	54.0	-18.1	AVG	166	1.7	
7387.400	48.1	V	74.0	-25.9	PK	180	1.6	
7384.630	47.7	H	74.0	-26.3	PK	166	1.7	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.

Note 2: Signal is not in a restricted band but the more stringent restricted band limit was used.

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: N/A

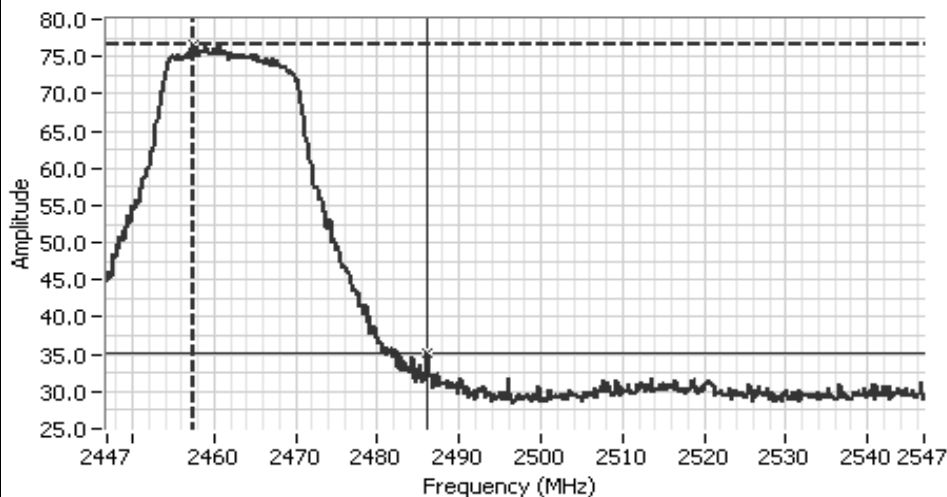


Analyzer Settings
 HP8564E,EMI
 CF: 2496.90 MHz
 SPAN:100.00 MHz
 RB 1.000 MHz
 VB 10 Hz
 Detector Sample
 Att 0
 RL Offset 0.00
 Sweep Time 37.0s
 Ref Lvl:69.20DBUV

Comments
 802.11g @ 2462 MHz
 Power setting : 18dBm
 Average

Cursor 1	2459.73	66.20	
Cursor 2	2520.40	21.37	

Delta Freq. 60.67
 Delta Amplitude 44.83



Analyzer Settings
 HP8564E,EMI
 CF: 2496.90 MHz
 SPAN:100.00 MHz
 RB 1.000 MHz
 VB 1.000 MHz
 Detector POS
 Att 0
 RL Offset 0.00
 Sweep Time 50.0ms
 Ref Lvl:75.70DBUV

Comments
 802.11g @ 2462 MHz
 Power setting : 18dBm
 Peak

Cursor 1	2457.56	76.53	
Cursor 2	2486.06	35.20	

Delta Freq. 28.50
 Delta Amplitude 41.33





Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements Power, Bandwidth and Spurious Emissions

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 2/23/2007	Config. Used: 1
Test Engineer: Mark Hill	Config Change: None
Test Location: SVOATS #2	EUT Voltage: 120V/60Hz

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. All measurements were made on a single chain.

All measurements have been corrected to allow for the external attenuators used.

Ambient Conditions: Temperature: 11 °C
 Rel. Humidity: 48 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power	15.247(b)	Pass	25.4 dBm
2	Power spectral Density (PSD)	15.247(d)	Pass	-0.7 dBm/3kHz
3	6dB Bandwidth	15.247(a)	Pass	16.1 MHz
3	99% Bandwidth	RSS GEN	-	18.6 MHz
4	Spurious emissions	15.247(b)	Pass	46 dBc

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

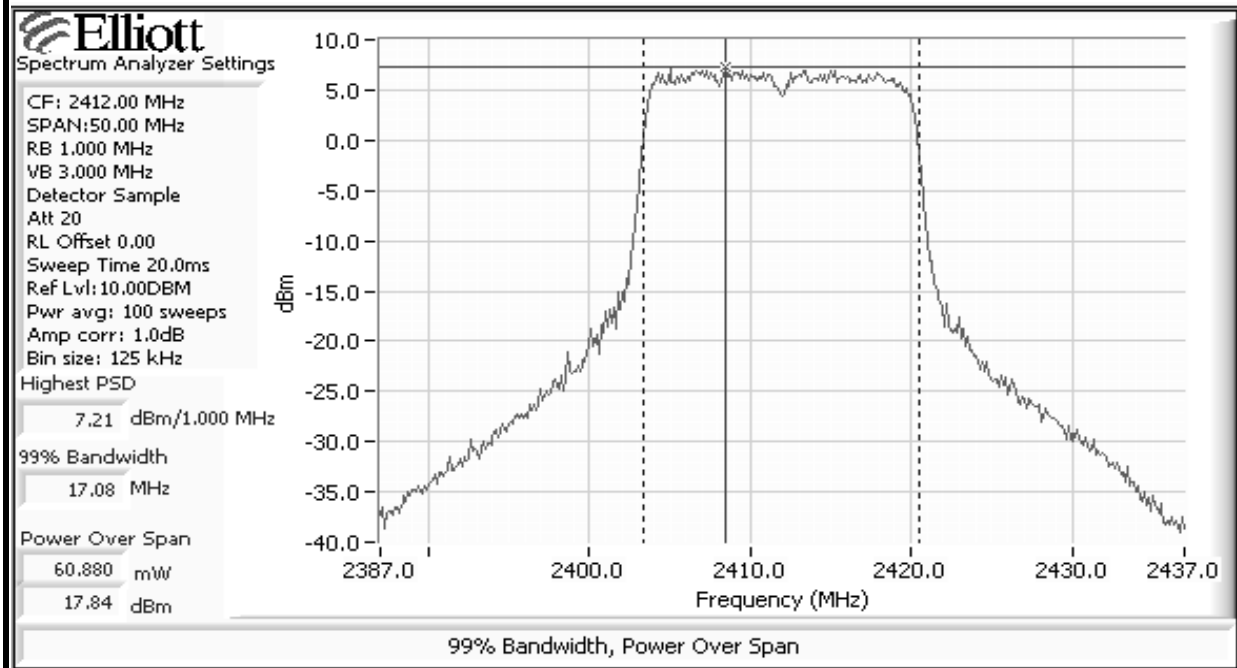
No deviations were made from the requirements of the standard.

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

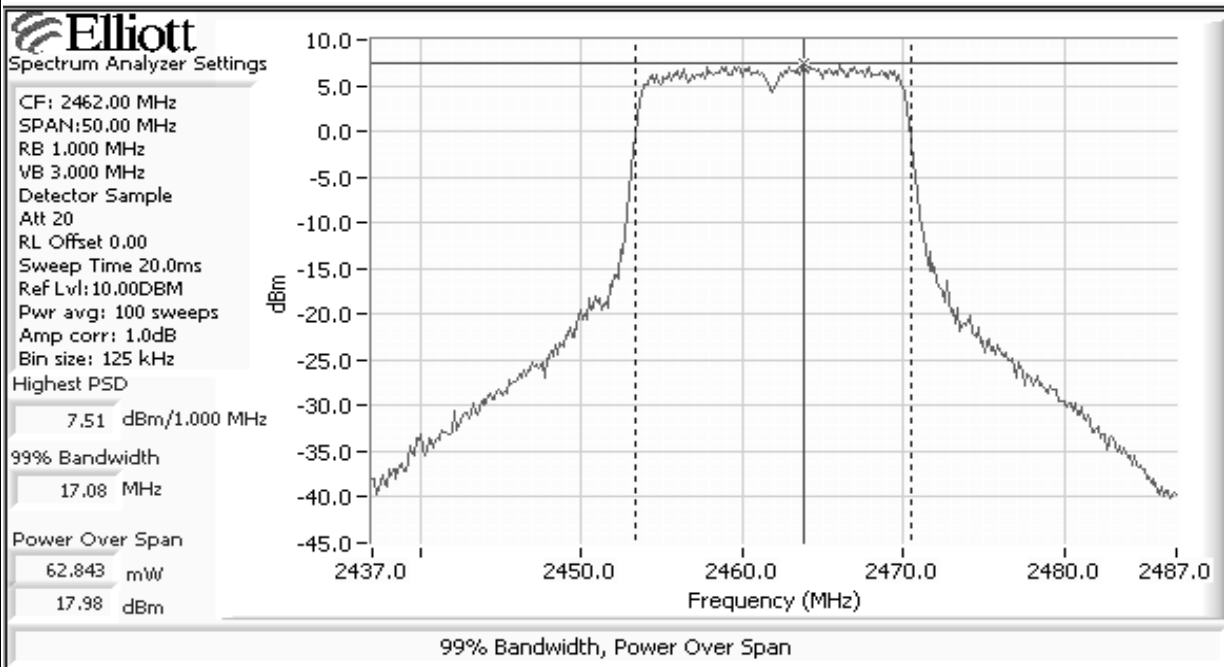
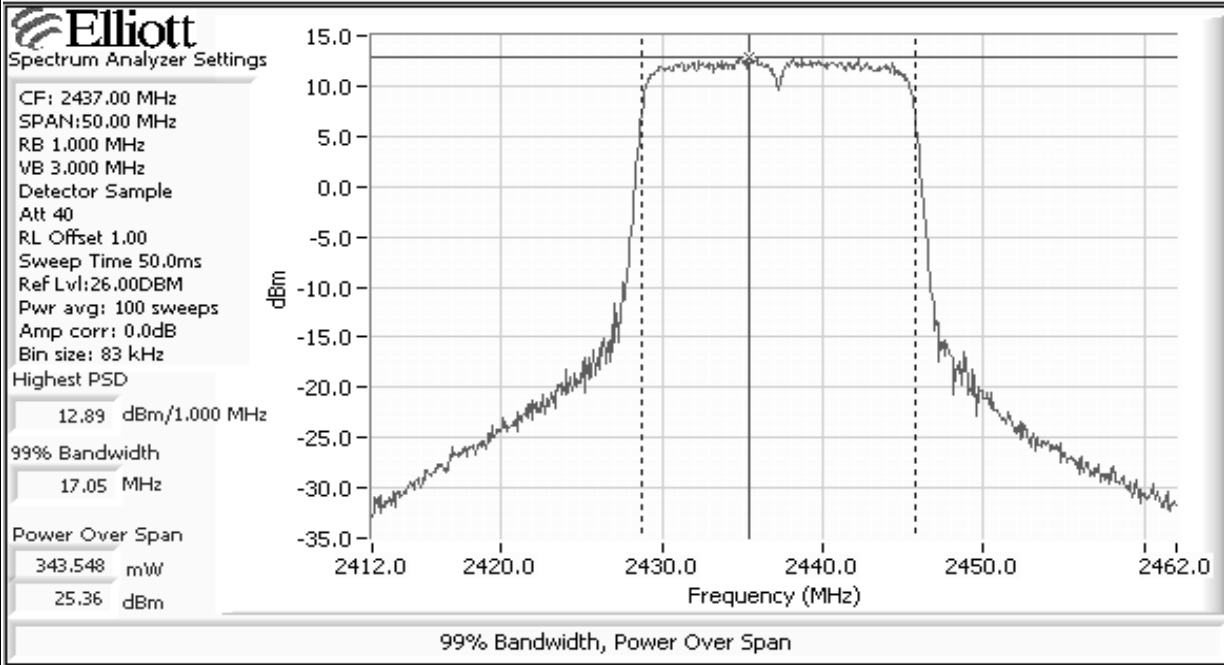
Run #1: Output Power

Power Setting ²	Frequency (MHz)	Output Power		Antenna Gain (dBi)	Result	EIRP ^{Note 2}		Output Power	
		(dBm) ¹	mW			dBm	W	(dBm) ³	mW
20	2412	17.8	60.8	1.0	Pass	18.8	0.077		
25	2437	25.4	346.7	1.0	Pass	26.4	0.437		
20	2462	18.0	62.8	1.0	Pass	19.0	0.079		

- Note 1: Output power measured using a spectrum analyzer (see plots below):
 RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50 MHz
 The output power limit is 30dBm
- Note 2: Power setting - the software power setting used during testing, included for reference only.
- Note 3: PSD and conducted spurious measurements were all made with a power setting of 26, which would produce results higher than those for the actual power settings to be used in normal operation.



Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: N/A

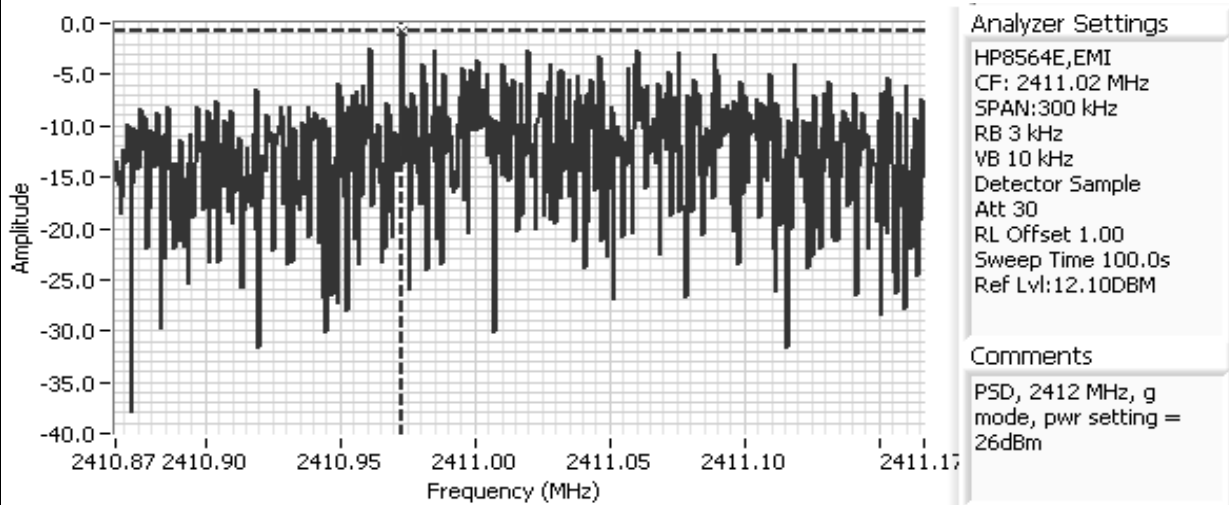


Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

Run #2: Power spectral Density

Power Setting	Frequency (MHz)	PSD	Limit	Result
		(dBm/3kHz) ^{Note 1}		
26	2412	-0.7	8.0	Pass
26	2437	-2.4	8.0	Pass
26	2462	-0.9	8.0	Pass

Note 1: Power spectral density measured using RB=3 kHz, VB=10kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 1 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.



Analyzer Settings

HP8564E,EMI
 CF: 2411.02 MHz
 SPAN:300 kHz
 RB 3 kHz
 VB 10 kHz
 Detector Sample
 Att 30
 RL Offset 1.00
 Sweep Time 100.0s
 Ref Lvl:12.10DBM

Comments

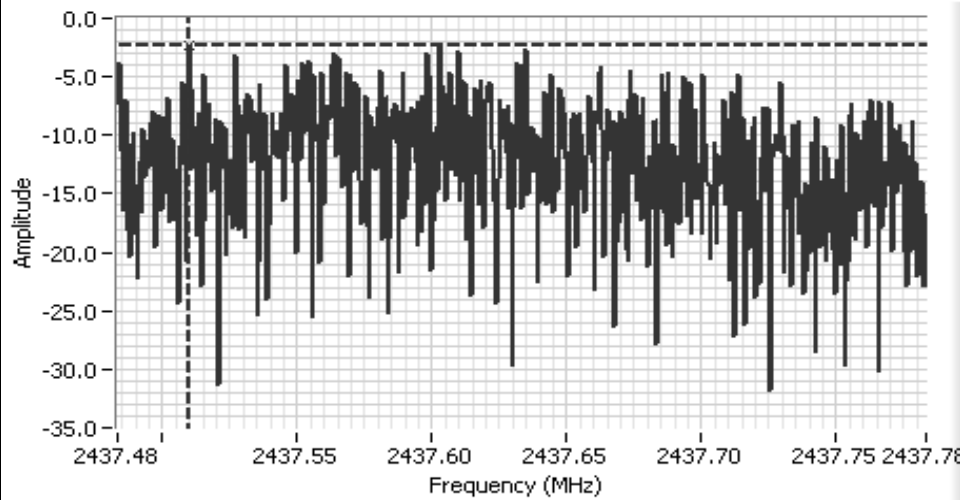
PSD, 2412 MHz, g mode, pwr setting = 26dBm

Cursor 1	2410.97	-0.73	
	0.000	0.00	



EMC Test Data

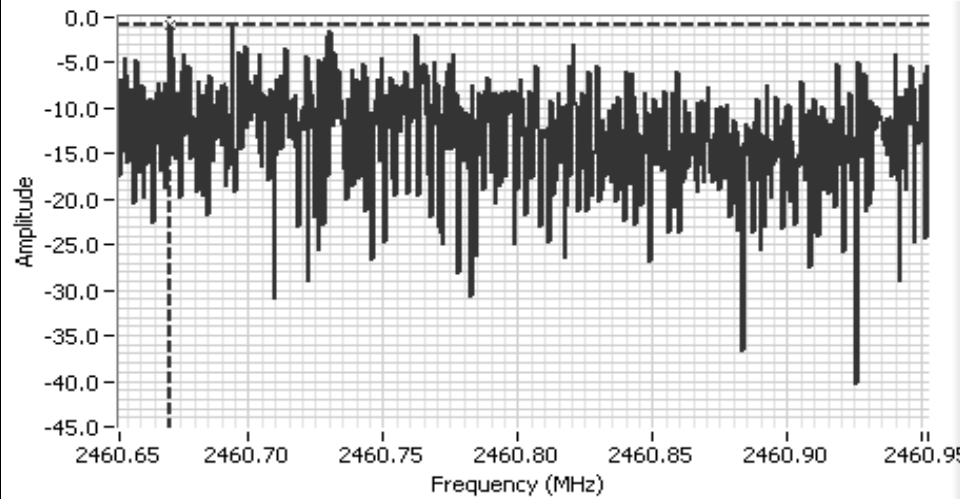
Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: N/A



Analyzer Settings
 HP8564E,EMI
 CF: 2437.63 MHz
 SPAN:300 kHz
 RB 3 kHz
 VB 10 kHz
 Detector Sample
 Att 30
 RL Offset 1.00
 Sweep Time 100.0s
 Ref Lvl:12.10DBM

Comments
 PSD, 2437 MHz, g mode, pwr setting = 26dBm

Cursor 1 2437.51(-2.40) [Icons]
 0.000 0.00 [Icons]



Analyzer Settings
 HP8564E,EMI
 CF: 2460.80 MHz
 SPAN:300 kHz
 RB 3 kHz
 VB 10 kHz
 Detector Sample
 Att 30
 RL Offset 1.00
 Sweep Time 100.0s
 Ref Lvl:12.10DBM

Comments
 PSD, 2462 MHz, g mode, pwr setting = 26 dBM

Cursor 1 2460.67(-0.90) [Icons]
 0.000 0.00 [Icons]

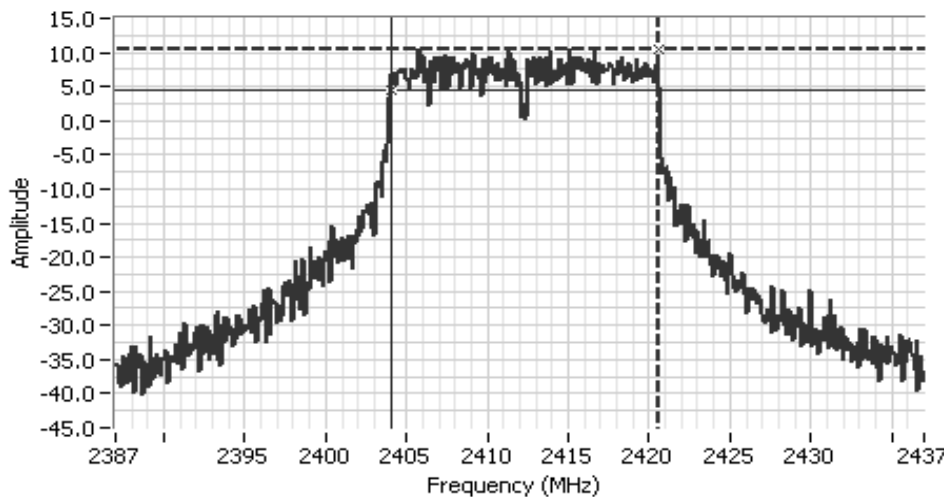


Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

Run #3: Signal Bandwidth

Power Setting	Frequency (MHz)	Resolution Bandwidth	Bandwidth (MHz)	
			6dB	99%
26	2412	100 kHz	16.6	18.6
26	2437	100 kHz	16.6	18.6
26	2462	100 kHz	16.1	18.4

Note 1: 99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB



Analyzer Settings

HP8564E,EMI
 CF: 2412.00 MHz
 SPAN:50.00 MHz
 RB 100 kHz
 VB 100 kHz
 Detector POS
 Att 30
 RL Offset 1.00
 Sweep Time 50.0ms
 Ref Lvl:18.40DBM

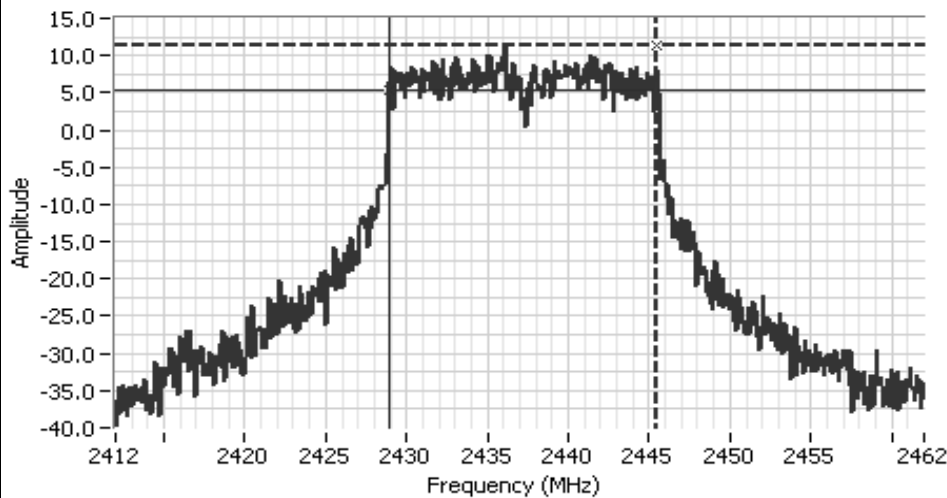
Comments

6dB BW, 2412 MHz, g mode

Cursor 1	2420.58	10.57	
Cursor 2	2404.00	4.57	

Delta Freq. 16.58
 Delta Amplitude 6.00

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: N/A



Analyzer Settings

HP8564E,EMI
 CF: 2437.00 MHz
 SPAN:50.00 MHz
 RB 100 kHz
 VB 100 kHz
 Detector POS
 Att 40
 RL Offset 1.00
 Sweep Time 50.0ms
 Ref Lvl:30.30DBM

Comments

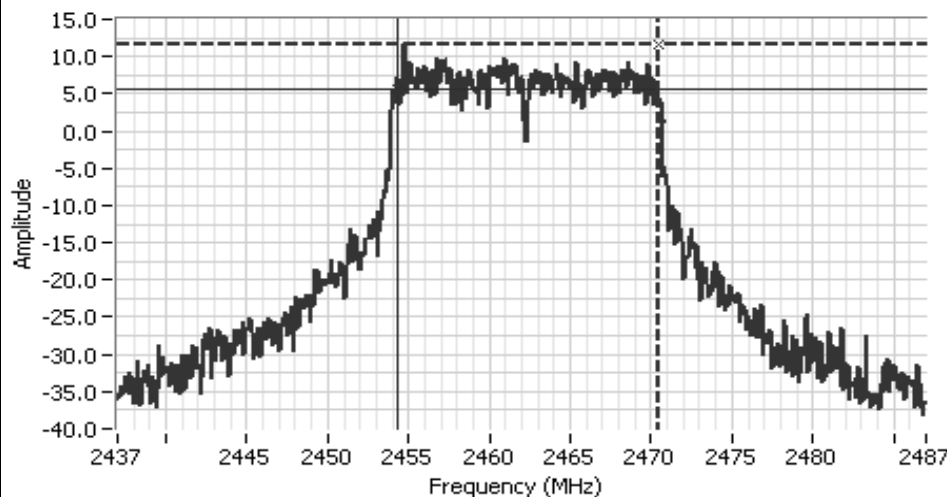
6dB BW, 2437 MHz, g mode

Cursor 1 2445.50 11.30

Cursor 2 2428.91 5.30

Delta Freq. 16.58

Delta Amplitude 6.00



Analyzer Settings

HP8564E,EMI
 CF: 2462.00 MHz
 SPAN:50.00 MHz
 RB 100 kHz
 VB 100 kHz
 Detector POS
 Att 40
 RL Offset 1.00
 Sweep Time 50.0ms
 Ref Lvl:30.30DBM

Comments

6dB BW, 2462 MHz, g mode

Cursor 1 2470.41 11.63

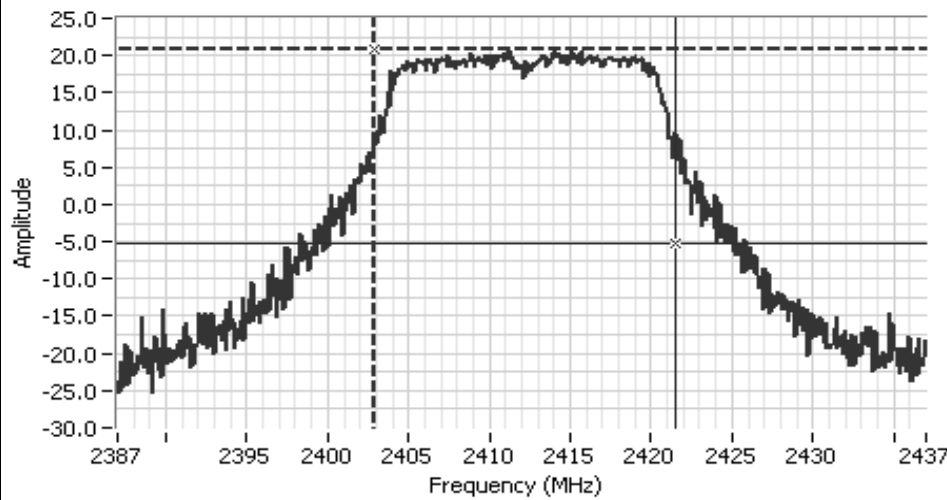
Cursor 2 2454.33 5.63

Delta Freq. 16.08

Delta Amplitude 6.00



Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: N/A



Analyzer Settings

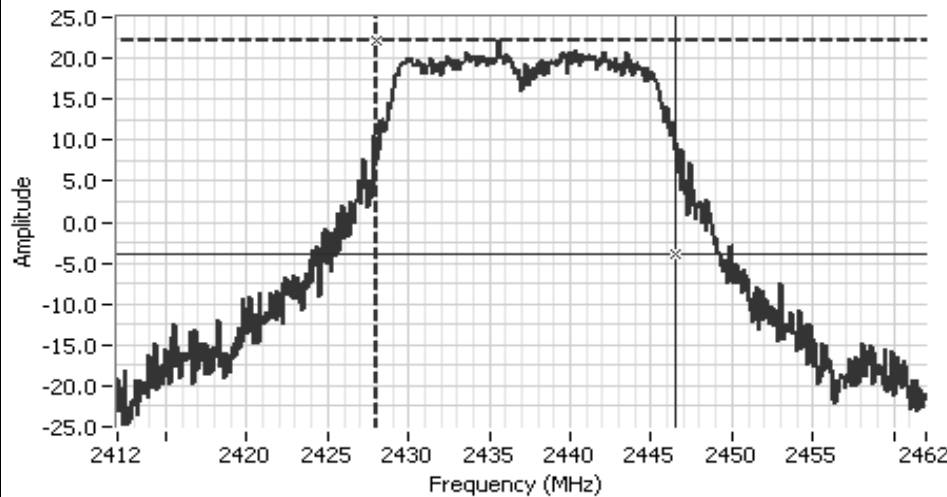
HP8564E,EMI
 CF: 2412.00 MHz
 SPAN:50.00 MHz
 RB 1.000 MHz
 VB 3.000 MHz
 Detector POS
 Att 40
 RL Offset 1.00
 Sweep Time 50.0ms
 Ref Lvl:30.30DBM

Comments

99% power bandwidth:
 18.55 MHz

Cursor 1	2402.89	20.80	
Cursor 2	2421.44	-5.20	

Delta Freq. 18.55
 Delta Amplitude 26.00



Analyzer Settings

HP8564E,EMI
 CF: 2437.00 MHz
 SPAN:50.00 MHz
 RB 1.000 MHz
 VB 3.000 MHz
 Detector POS
 Att 40
 RL Offset 1.00
 Sweep Time 50.0ms
 Ref Lvl:30.30DBM

Comments

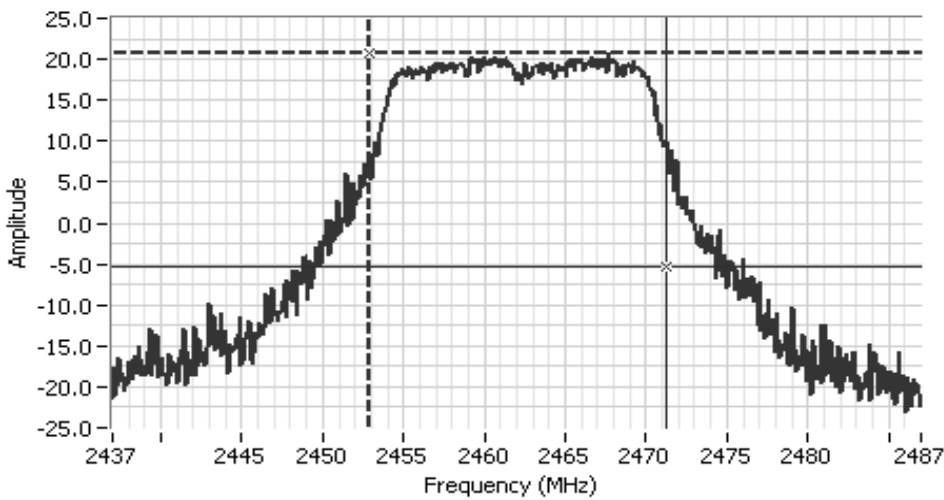
99% power bandwidth:
 18.55 MHz

Cursor 1	2427.97	22.13	
Cursor 2	2446.52	-3.87	

Delta Freq. 18.55
 Delta Amplitude 26.00



Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A



Analyzer Settings

- HP8564E,EMI
- CF: 2462.00 MHz
- SPAN:50.00 MHz
- RB 1.000 MHz
- VB 3.000 MHz
- Detector POS
- Att 40
- RL Offset 1.00
- Sweep Time 50.0ms
- Ref Lvl:30.30DBM

Comments

99% power bandwidth:
18.39 MHz

Cursor 1	2452.890	20.63	
Cursor 2	2471.276	-5.37	

Delta Freq. 18.39

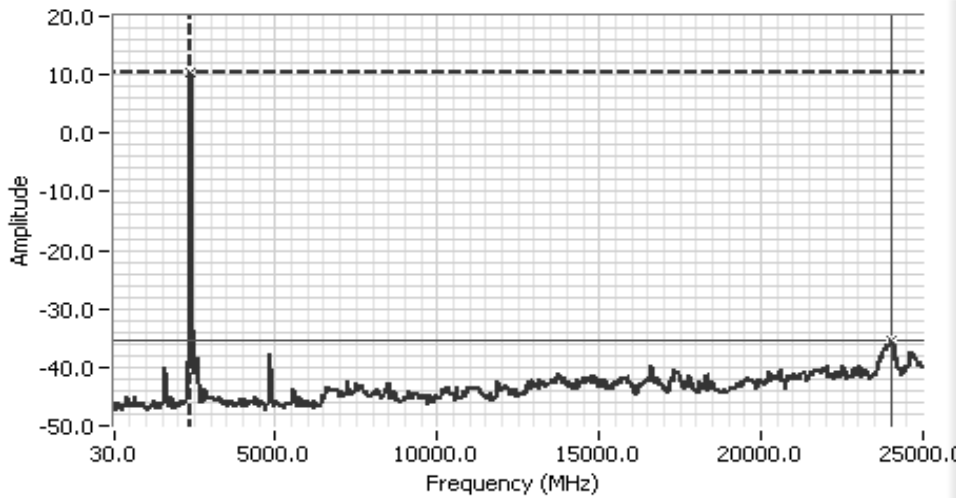
Delta Amplitude 26.00

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzl
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

Run #4: Out of Band Spurious Emissions

Frequency (MHz)	Limit	Result
2412	-30dBc	46 dBc
2437	-30dBc	47.3 dBc
2462	-30dBc	46.3 dBc

Plots for low channel, power setting(s) = 26 dBm



Analyzer Settings

HP8564E,EMI
 CF: 12515.00 MHz
 SPAN:24970.00 MHz
 RB 100 kHz
 VB 100 kHz
 Detector POS
 Att 40
 RL Offset 1.00
 Sweep Time 14.0s
 Ref Lvl:30.30DBM

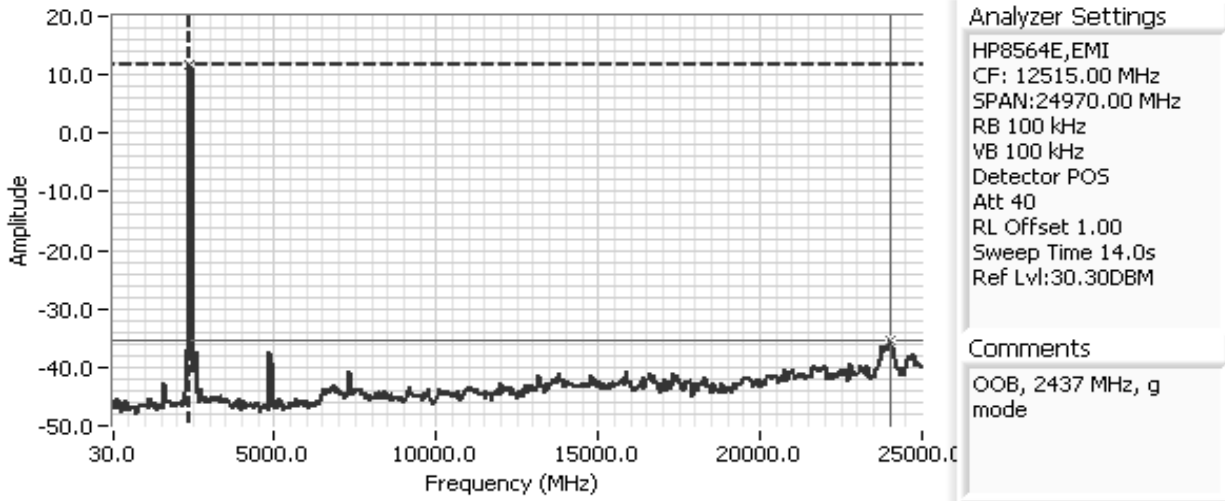
Comments

OOB, 2412 MHz, g mode

Cursor 1	2402.150	10.47	⊕ ⊖ ⊞ ⊚	Delta Freq.	21599.05
Cursor 1	24001.20	-35.53	⊕ ⊖ ⊞ ⊚	Delta Amplitude	46.00

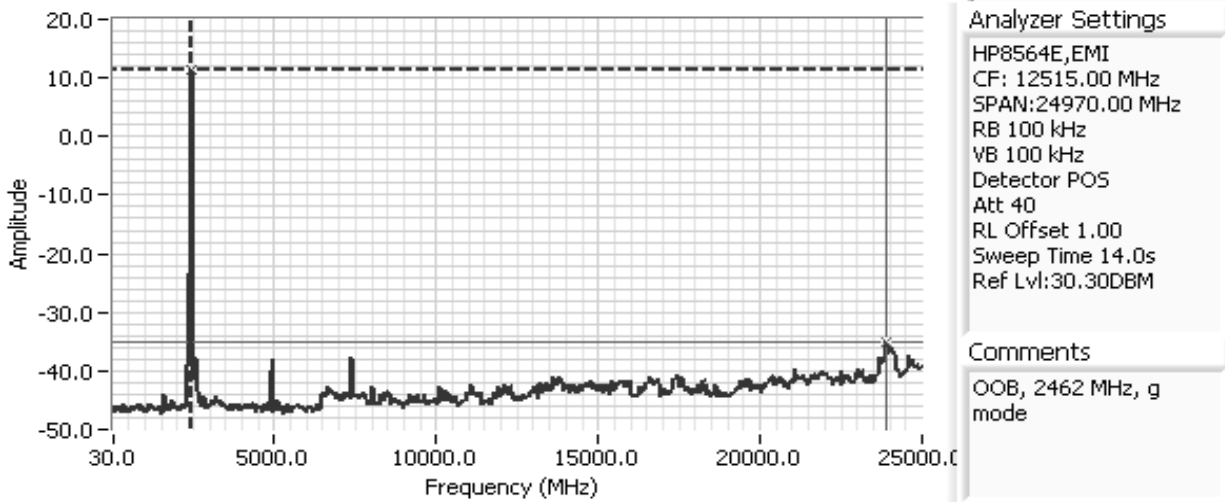
Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: N/A

Plots for center channel, power setting(s) = 26 dBm



Cursor 1	2402.150	11.80		Delta Freq.	21599.05	
Cursor 1	24001.20	-35.53		Delta Amplitude	47.33	

Plots for high channel, power setting(s) = 26 dBm



Cursor 1	2443.760	11.30		Delta Freq.	21474.20	
Cursor 1	23917.90	-35.03		Delta Amplitude	46.33	



Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzl
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements Power, Bandwidth and Spurious Emissions

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 2/23/2007	Config. Used: 1
Test Engineer: Mark Hill	Config Change: None
Test Location: SVOATS #2	EUT Voltage: 120V/60Hz

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. All measurements were made on a single chain.

All measurements have been corrected to allow for the external attenuators used.

Ambient Conditions: Temperature: 11 °C
 Rel. Humidity: 48 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power	15.247(b)	Pass	27.0 dBm
2	Power spectral Density (PSD)	15.247(d)	Pass	0.2 dBm/3kHz
3	6dB Bandwidth	15.247(a)	Pass	10.2 MHz
3	99% Bandwidth	RSS GEN	-	15.6 MHz
4	Spurious emissions	15.247(b)	Pass	42 dBc

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.



EMC Test Data

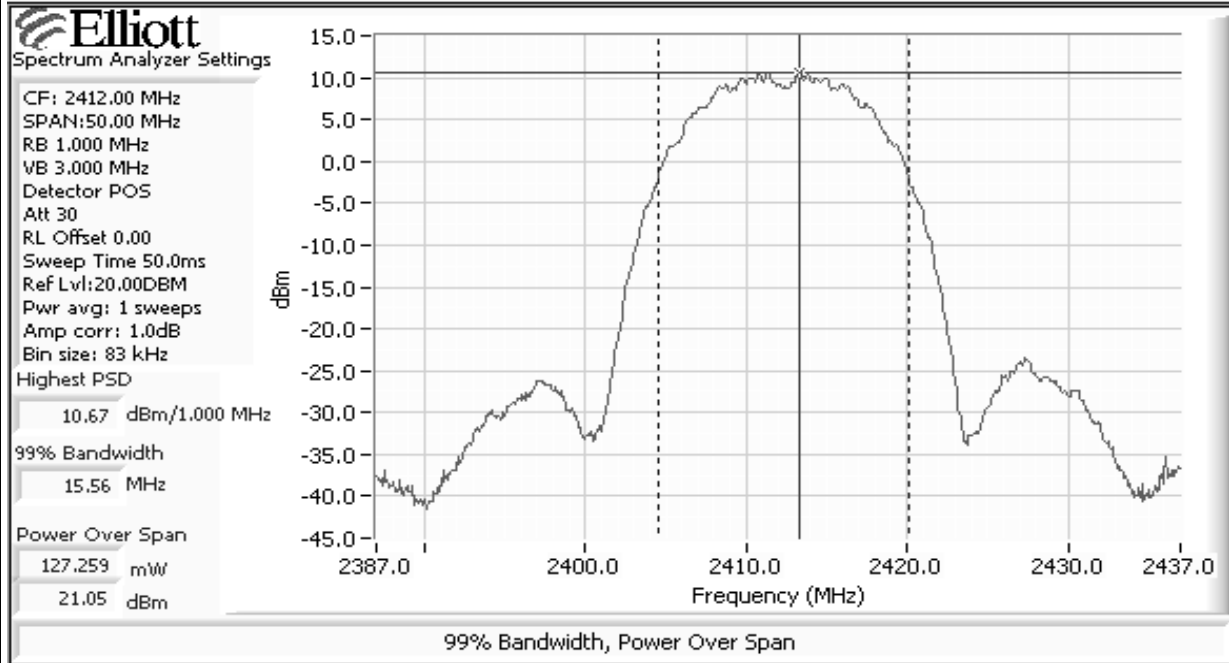
Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

Run #1: Output Power

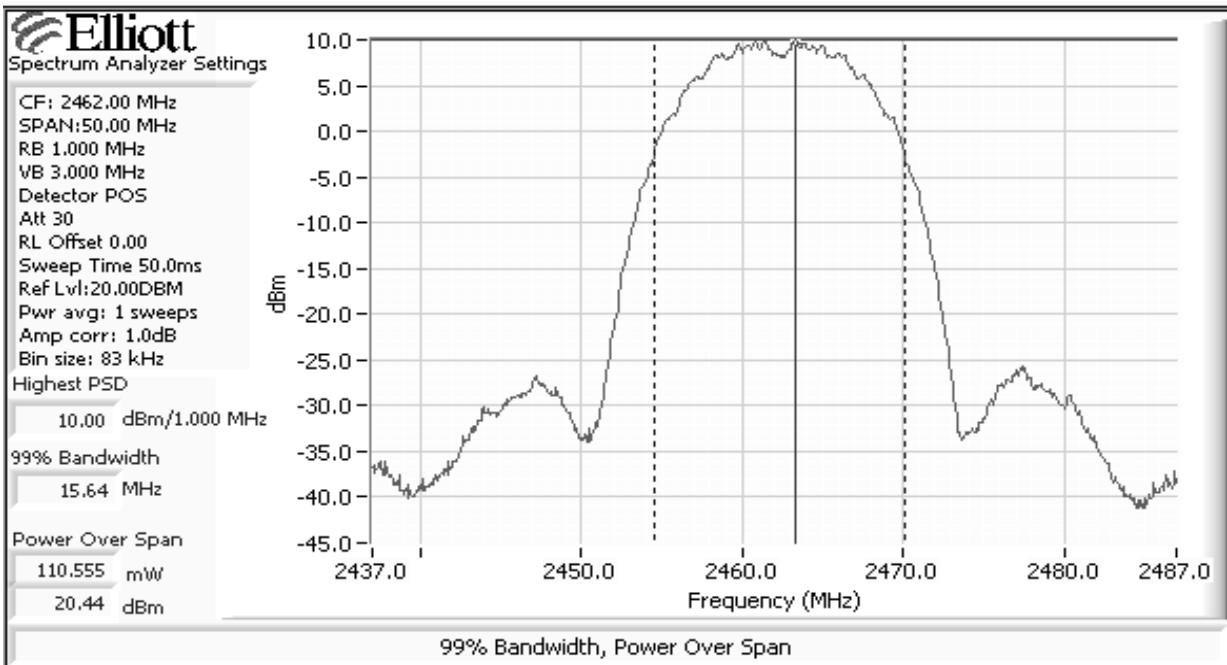
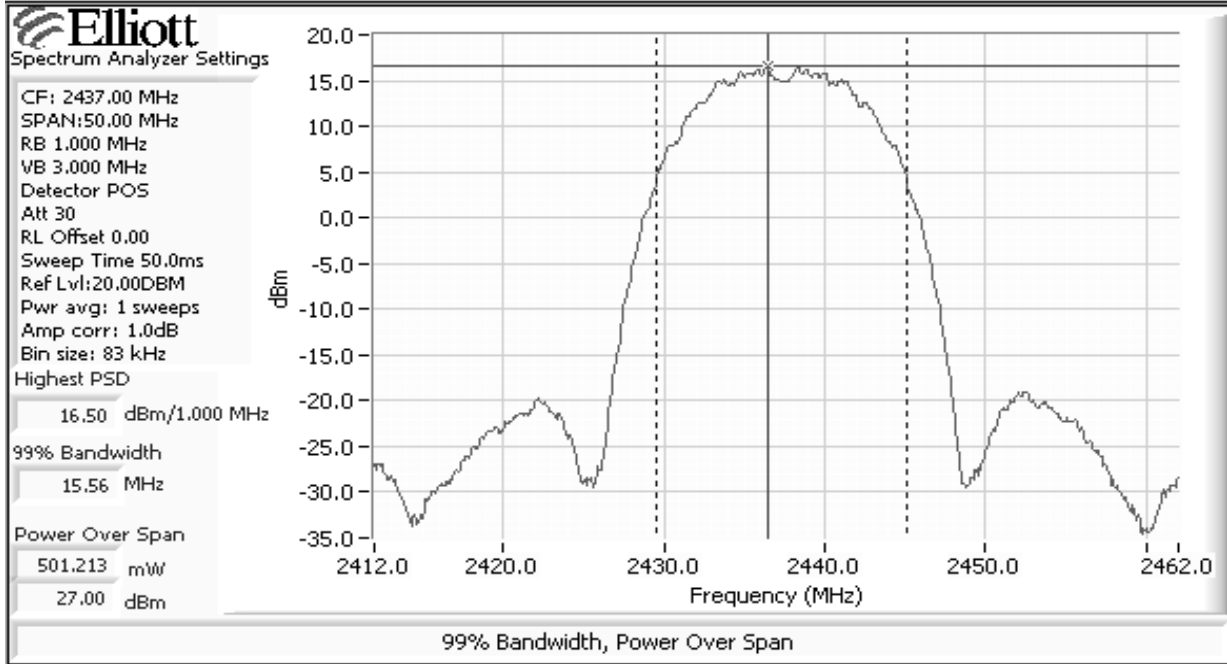
Power Setting ²	Frequency (MHz)	Output Power		Antenna Gain (dBi)	Result	EIRP ^{Note 2}		Output Power	
		(dBm) ¹	mW			dBm	W	(dBm) ³	mW
18	2412	21.1	128.8	1.0	Pass	22.1	0.162		
23	2437	27.0	500.0	1.0	Pass	28.0	0.630		
18	2462	20.4	109.6	1.0	Pass	21.4	0.138		

Note 1: Output power measured using a spectrum analyzer (see plots below):
 RBW=1MHz, VB=3 MHz, peak detector, power averaging off (transmitted signal was continuous) and power integration over 50 MHz
 The output power limit is 30dBm

Note 2: Power setting - the software power setting used during testing, included for reference only.



Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: N/A

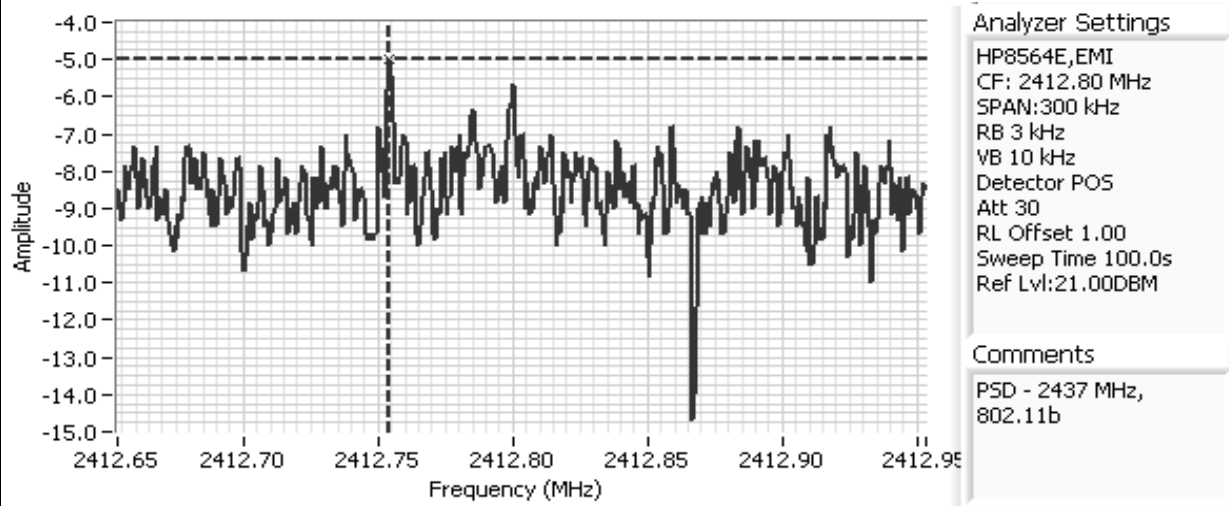


Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: N/A

Run #2: Power spectral Density

Power Setting	Frequency (MHz)	PSD	Limit	Result
		(dBm/3kHz) ^{Note 1}		
18	2412	-5.0	8.0	Pass
23	2437	0.2	8.0	Pass
18	2462	-5.67	8.0	Pass

Note 1: Power spectral density measured using RB=3 kHz, VB=10kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 1 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.

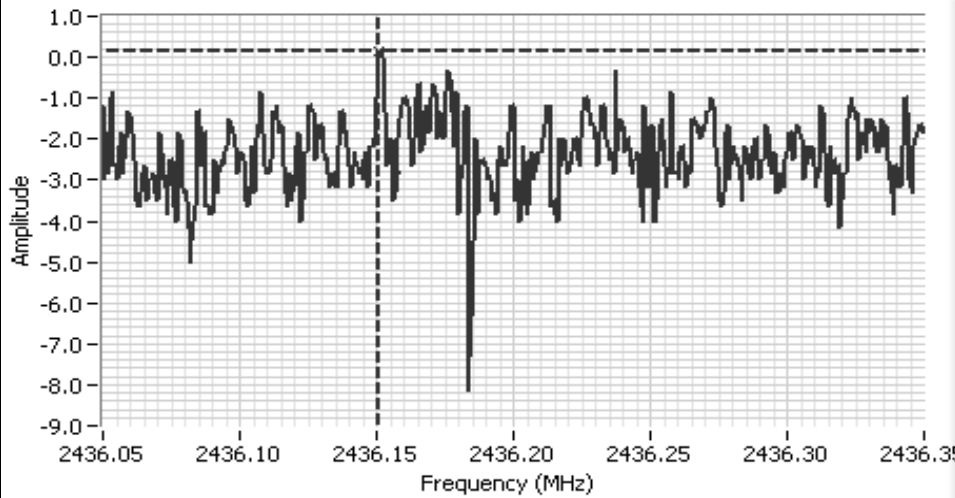


Cursor 1	2412.75	-5.00	+	-	↔
	0.000	0.00	+	-	↔



EMC Test Data

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: N/A

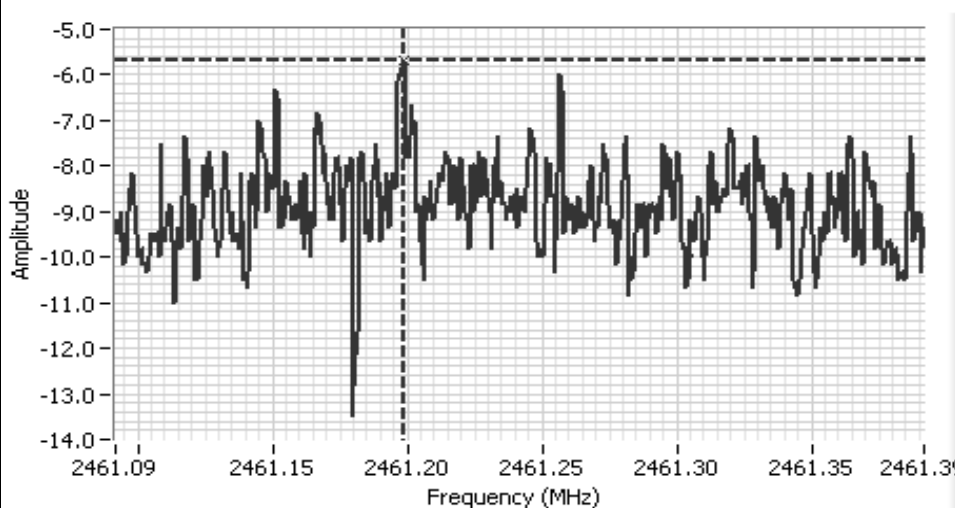


Analyzer Settings
 HP8564E,EMI
 CF: 2436.20 MHz
 SPAN:300 kHz
 RB 3 kHz
 VB 10 kHz
 Detector POS
 Att 30
 RL Offset 1.00
 Sweep Time 100.0s
 Ref Lvl:21.00DBM

Comments
 PSD - 2437 MHz,
 802.11b

Cursor 1 2436.15: 0.17

0.000 0.00



Analyzer Settings
 HP8564E,EMI
 CF: 2461.24 MHz
 SPAN:300 kHz
 RB 3 kHz
 VB 10 kHz
 Detector POS
 Att 30
 RL Offset 1.00
 Sweep Time 100.0s
 Ref Lvl:21.00DBM

Comments
 PSD - 2437 MHz,
 802.11b

Cursor 1 2461.19: -5.67

0.000 0.00



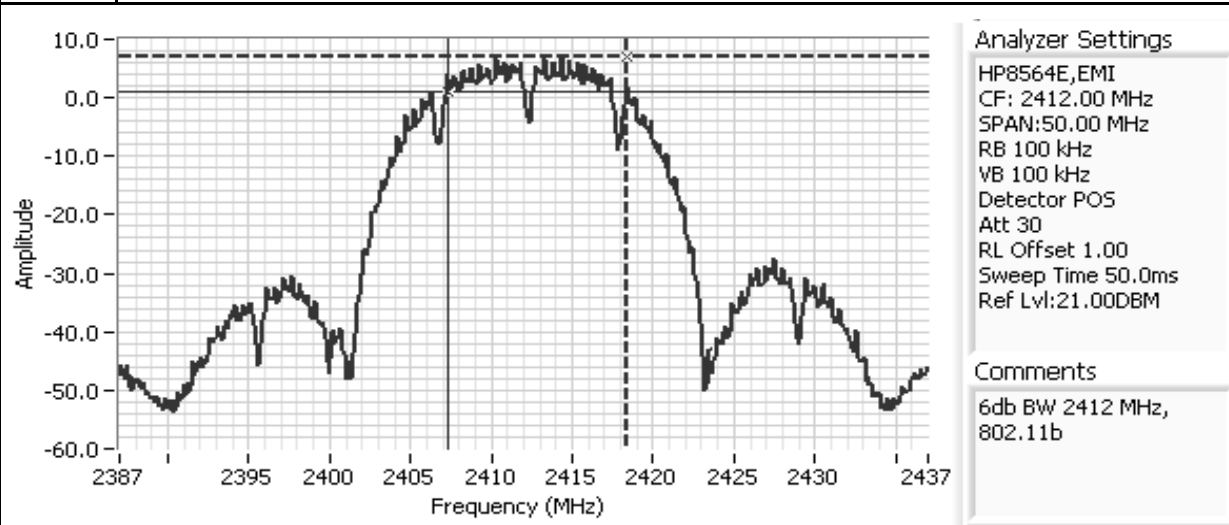
Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

Run #3: Signal Bandwidth

Power Setting	Frequency (MHz)	Resolution Bandwidth	Bandwidth (MHz)	
			6dB	99%
18	2412	See notes	11.2	15.6
23	2437	See notes	12.2	15.6
18	2462	See notes	10.2	15.6

Note 1: 99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB (taken during power measurements - see Run #1 plots)

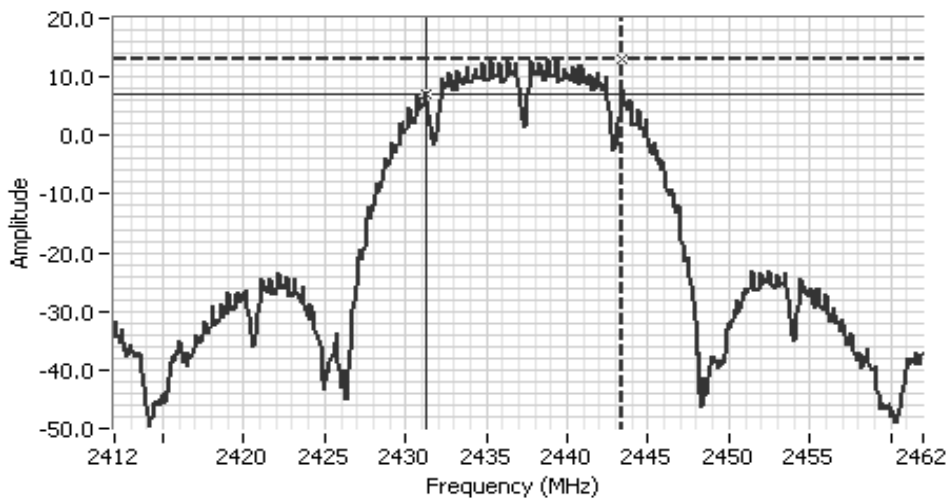
Note 2: 6dB bandwidth measured with RB >= 5% of the minimum permitted bandwidth (500kHz)



Cursor 1 2418.41: 7.17 ⊕ ⊖ ⊞ ⊚ Delta Freq. 11.167

Cursor 2 2407.25: 1.17 ⊕ ⊖ ⊞ ⊚ Delta Amplitude 6.00

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: N/A



Analyzer Settings

HP8564E,EMI
 CF: 2437.00 MHz
 SPAN:50.00 MHz
 RB 100 kHz
 VB 100 kHz
 Detector POS
 Att 30
 RL Offset 1.00
 Sweep Time 50.0ms
 Ref Lvl:21.00DBM

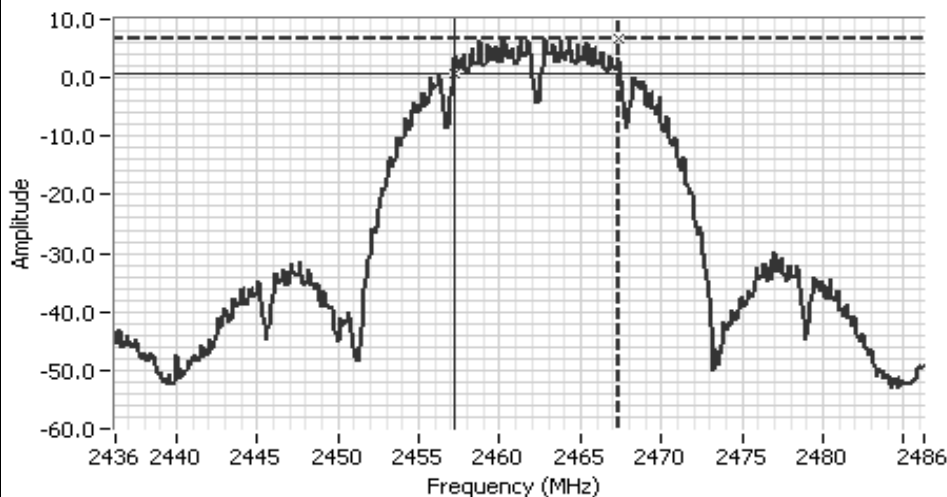
Comments

6db BW 2437 MHz,
 802.11b

Cursor 1	2443.41	13.00	
Cursor 2	2431.25	7.00	

Delta Freq. 12.17

Delta Amplitude 6.00



Analyzer Settings

HP8564E,EMI
 CF: 2461.24 MHz
 SPAN:50.00 MHz
 RB 100 kHz
 VB 100 kHz
 Detector POS
 Att 30
 RL Offset 1.00
 Sweep Time 50.0ms
 Ref Lvl:21.00DBM

Comments

6db BW 2462 MHz,
 802.11b

Cursor 1	2467.40	6.67	
Cursor 2	2457.24	0.67	

Delta Freq. 10.167

Delta Amplitude 6.00

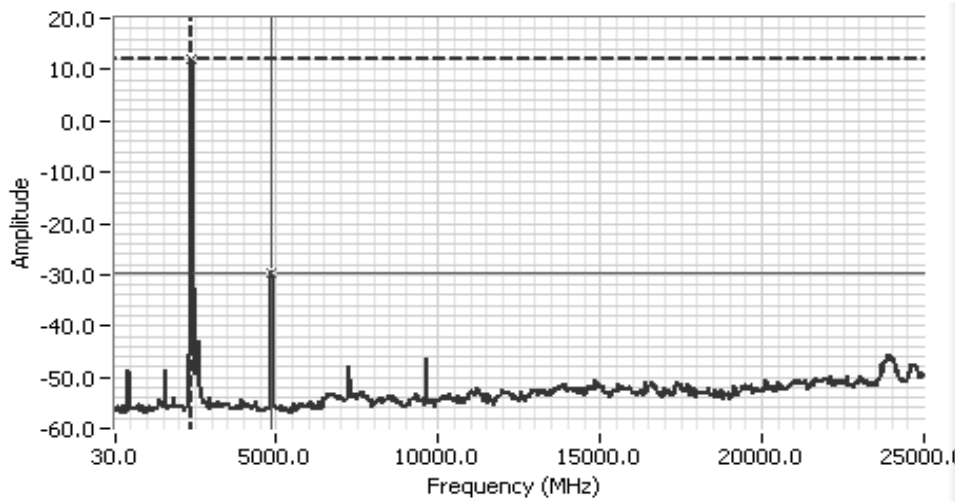


Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
	Account Manager: Susan Pelzi
Contact: John Reynolds	
Standard: FCC 15.247 / 15.209	Class: N/A

Run #4: Out of Band Spurious Emissions

Frequency (MHz)	Limit	Result
2412	-20dBc	42 dBc
2437	-20dBc	46 dBc
2462	-20dBc	43.8 dBc

Plots for low channel, power setting(s) = 23dBm



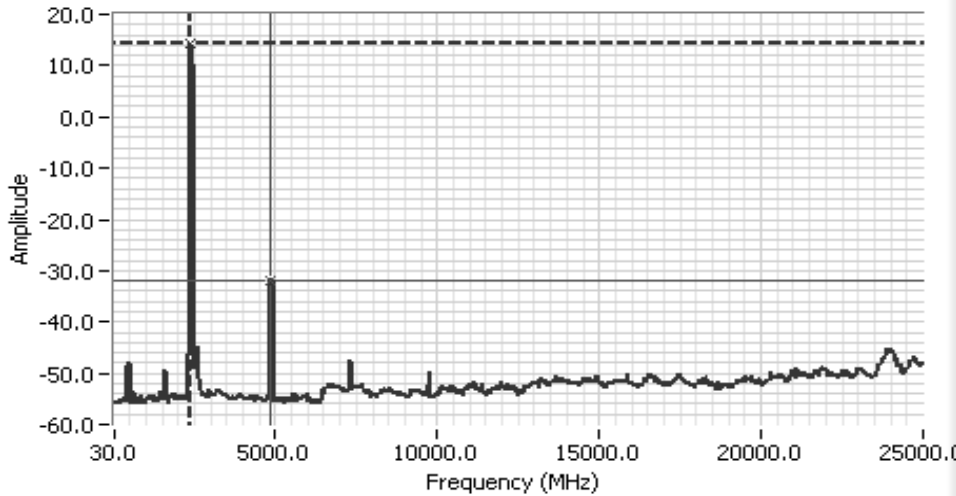
Analyzer Settings
 HP8564E,EMI
 CF: 12515.00 MHz
 SPAN:24970.00 MHz
 RB 100 kHz
 VB 100 kHz
 Detector POS
 Att 30
 RL Offset 1.00
 Sweep Time 14.0s
 Ref Lvl:21.00DBM

Comments
 Out of Band, 2412 MHz, 802.11b, power set to 23dBm

Cursor 1 2402.150 12.17 Delta Freq. 2455.38
 Cursor 2 4857.530 -29.83 Delta Amplitude 42.00

Client: 2Wire	Job Number: J66193
Model: RG2701HGV-00	T-Log Number: T67017
Contact: John Reynolds	Account Manager: Susan Pelzi
Standard: FCC 15.247 / 15.209	Class: N/A

Plots for center channel, power setting(s) = 23 dBm



Analyzer Settings

HP8564E,EMI
 CF: 12515.00 MHz
 SPAN:24970.00 MHz
 RB 100 kHz
 VB 100 kHz
 Detector POS
 Att 30
 RL Offset 1.00
 Sweep Time 14.0s
 Ref Lvl:21.00DBM

Comments

Out of Band, 2437 MHz, 802.11b, power set to 23dBm

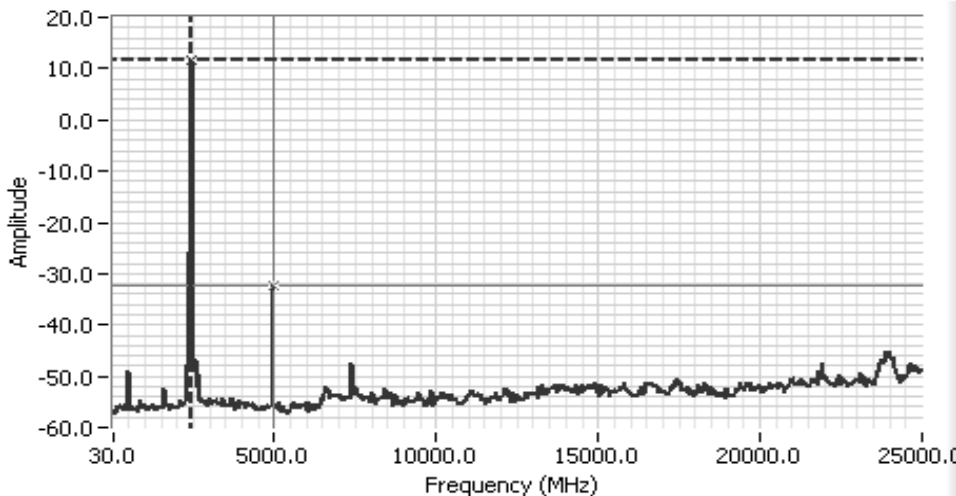
Cursor 1	2402.15	14.17	
Cursor 1	4857.53	-31.83	

Delta Freq. 2455.38

Delta Amplitude 46.00



Plots for high channel, power setting(s) = 23 dBm



Analyzer Settings

HP8564E,EMI
 CF: 12515.00 MHz
 SPAN:24970.00 MHz
 RB 100 kHz
 VB 100 kHz
 Detector POS
 Att 30
 RL Offset 1.00
 Sweep Time 14.0s
 Ref Lvl:21.00DBM

Comments

Out of Band, 2462 MHz, 802.11b, power set to 23dBm

Cursor 1	2443.76	11.67	
Cursor 1	4940.76	-32.17	

Delta Freq. 2497.00

Delta Amplitude 43.83



EXHIBIT 3: Photographs of Test Configurations

2 Pages