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Electromagnetic Emissions Test Report and Application for Grant of Equipment Authorization pursuant to Industry Canada RSS-Gen Issue 1 / RSS 210 Issue 6 FCC Part 15, Subpart C Section 15.247(DTS) on the 2Wire, Inc. Transmitter Model: 2700 HGV

UPN:	3439B-2W2700D
FCC ID:	PGR2W2700RD
GRANTEE:	2Wire, Inc. 1704 Automation Parkway San Jose, CA 95131
TEST SITE:	Elliott Laboratories, Inc. 684 W. Maude Ave Sunnyvale, CA 94086
REPORT DATE:	December 16, 2005
FINAL TEST DATE:	December 8, 2005

AUTHORIZED SIGNATORY: _____

Juan Martinez
Senior EMC Engineer

ACCREDITED
2016-01

Equipment Name and Model:

Transceiver, 2700 HGV

Manufacturer:

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

Tested to applicable standard:

Industry Canada RSS-Gen Issue 1
RSS 210 Issue 6 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"

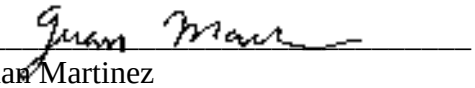
Test Report Prepared For:
Jeremy Muir
2Wire, Inc.
1704 Automation Parkway
San Jose, CA 95131

Measurement Facility Description Filed With Department of Industry:

Departmental Acknowledgement Number: IC2845 SV2 Dated August 16, 2007
Departmental Acknowledgement Number: IC2845 SV3 Dated August 16, 2007

Declaration of Compliance

I declare that the testing was performed or supervised by me; that the test measurements were made in accordance with the above mentioned departmental standards (through the use of ANSI C63.4: 2003 as referenced by FCC Part 15 and by section 1.0 of RSS-212, Issue 1, "Test Facilities and Test Methods for Radio Equipment" / RSS-Gen Issue 1); and that the equipment performed in accordance with the data submitted in this report.

Signature	
Name	Juan Martinez
Title	Senior EMC Engineer
	Elliott Laboratories Inc.
Address	684 W. Maude Ave
	Sunnyvale, CA 94086
	USA
Date:	December 16, 2005

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SCOPE

An electromagnetic emissions test has been performed on the 2Wire, Inc. model 2700 HGV pursuant to the following rules:

Industry Canada RSS-Gen Issue 1
RSS 210 Issue 6 "Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
FCC Part 15, Subpart C requirements for DTS devices

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
RSS-212 Issue 1 Test Facilities and Test Methods for Radio Equipment

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 2700 HGV and therefore apply only to the tested sample. The sample was selected and prepared by Jeremy Muir of 2Wire, Inc.

OBJECTIVE

The primary objective of the manufacturer is compliance with the regulations outlined in the previous section. Certification of these devices is required as a prerequisite to marketing in the US and Canada.

The primary objective of the manufacturer is compliance with the regulations outlined in the previous section. Certification of these devices is required as a prerequisite to marketing in the US. Devices categorized as Class II equipment do not require certification by Industry Canada.

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 2700 HGV complied with the requirements of the following regulations:

Industry Canada RSS-Gen Issue 1
RSS 210 Issue 6 "Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
FCC Part 15, Subpart C requirements for DTS devices

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 Part 15 Reference	RSS Reference	Description	Measured Value / Comments	Limit / Requirement	Result
15.247(a)	RSS 210 A8.2	Digital Modulation	Systems uses OFDM / DSSS techniques	-	Complies
15.247 (a) (2)	RSS 210 A8.2 (1)	6dB Bandwidth	802.11b = 12.2 MHz 802.11g = 16.5 MHz	>500kHz	Complies
	RSP100	99% Bandwidth	802.11b = 19.1 MHz 802.11g = 26.3 MHz	Information only	Complies
15.247 (b) (3)	RSS 210 A8.2 (4)	Output Power (multipoint systems)	30 dBm (1 Watts) EIRP = 1.26 W Note 1	1Watt, EIRP limited to 4 Watts.	Complies
15.247(d)	RSS 210 A8.2 (2)	Power Spectral Density	3.02 dBm / MHz	8dBm/3kHz	Complies
15.247(c)	RSS 210 A8.5	Antenna Port Spurious Emissions 30MHz – 25 GHz	Refer to plots	< -20dBc	Complies
15.247(c) / 15.209	RSS 210 A8.5	Radiated Spurious Emissions 30MHz – 25 GHz	53.6dBµV/m (479.7µV/m) @ 4874.0MHz	15.207 in restricted bands, all others < -20dBc	Complies (-0.4dB)

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

MEASUREMENT UNCERTAINTIES

ISO Guide 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	± ??.?
Radiated Emissions	30 to 1000	± 3.6
Radiated Emissions	1000 to 40000	± ± ??.?

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The 2Wire, Inc. model 2700 HGV is a The EUT is a Wireless VDSL router which is designed to route VDSL signals to various network interfaces. Normally, the EUT would be placed on a tabletop during operation. The EUT was, therefore, treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 120/240 V, 50/60 Hz, 0.8 Amps.

The sample was received on November 19, 2005 and tested on December 8, 2005. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
2 wire	2700	DSL modem	N/A	
Good Power	GPUSW0513000GD0S	AC/DC PSU	GP53100002	N/A
Good Power	GPCSW0512000GD00	AC/DC PSU	GPS3U002AUS	N/A

OTHER EUT DETAILS

List any items from the test log.

ANTENNA SYSTEM

The antenna system used with the 2Wire, Inc. model 2700 HGV consists of an internal 1dBi antenna

ENCLOSURE

The EUT enclosure is primarily constructed of ABS plastic with a fabricated sheet steel outer shield. It measures approximately 29.5 cm wide by 24.5 cm deep by 5 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 local support equipment for emissions testing:

Manufacturer	Model	Description	Serial Number	FCC ID
None				

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

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	PP01L	Laptop# 1	CN-04P240048643-35F-1683	DoC

EUT INTERFACE PORTS

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

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length (m)
Ethernet	Laptop	Cat5	Unshielded	30

EUT OPERATION

EUT was set to transmit at maximum power on low, middle, and high channels. Both 802.11b and 802.11g were tested for transmitter spurious emissions.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on December 8, 2005at 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 biconical antenna is used to cover the range from 30 MHz to 300 MHz and a log periodic antenna is utilized from 300 MHz to 1000 MHz. Narrowband tuned dipole antennas are used over the entire 30 to 1000 MHz range for precision measurements of field strength. Above 1000 MHz, a horn antenna is used. The antenna calibration factors are included in site factors 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.

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.

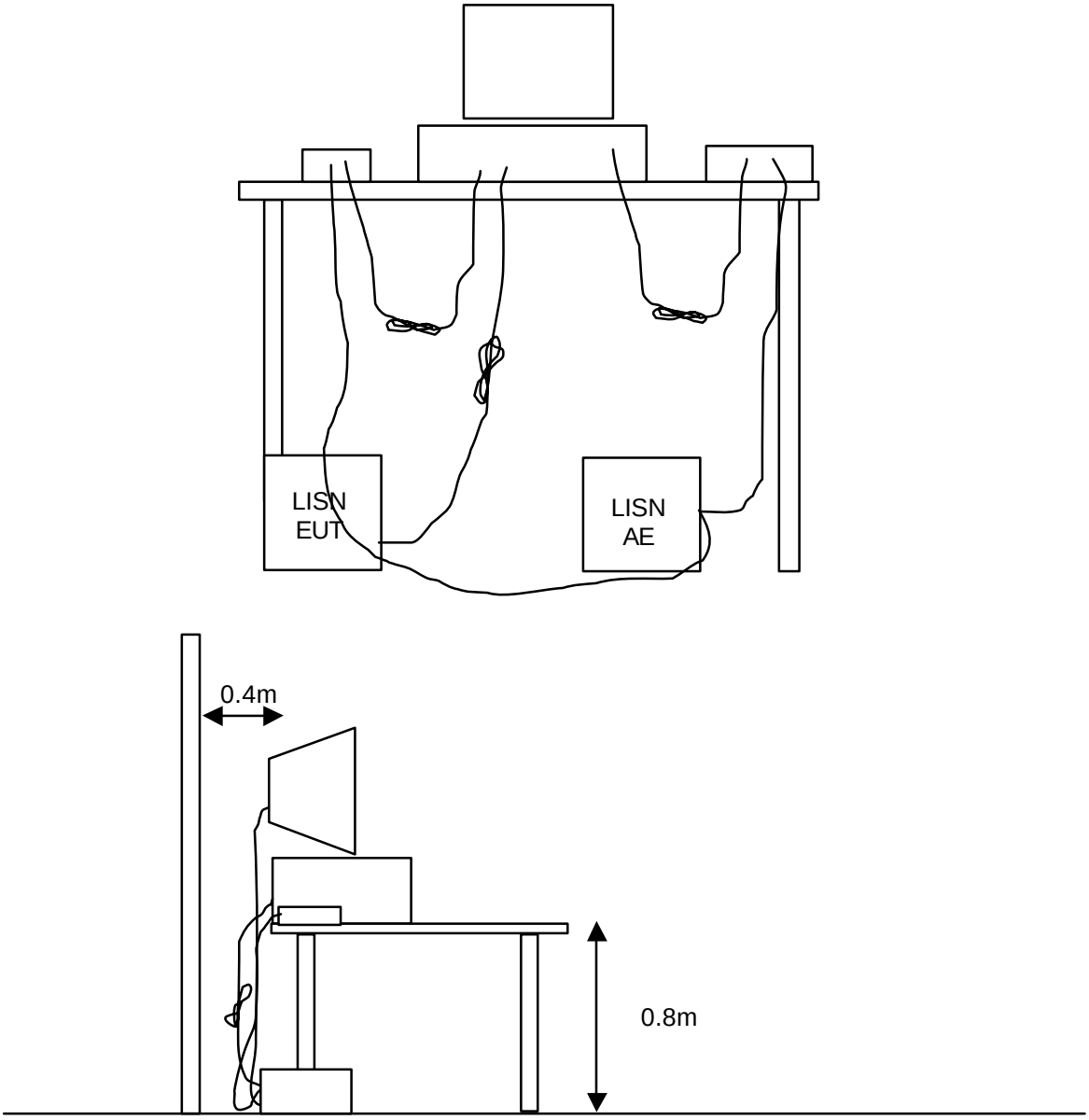
TEST PROCEDURES

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.

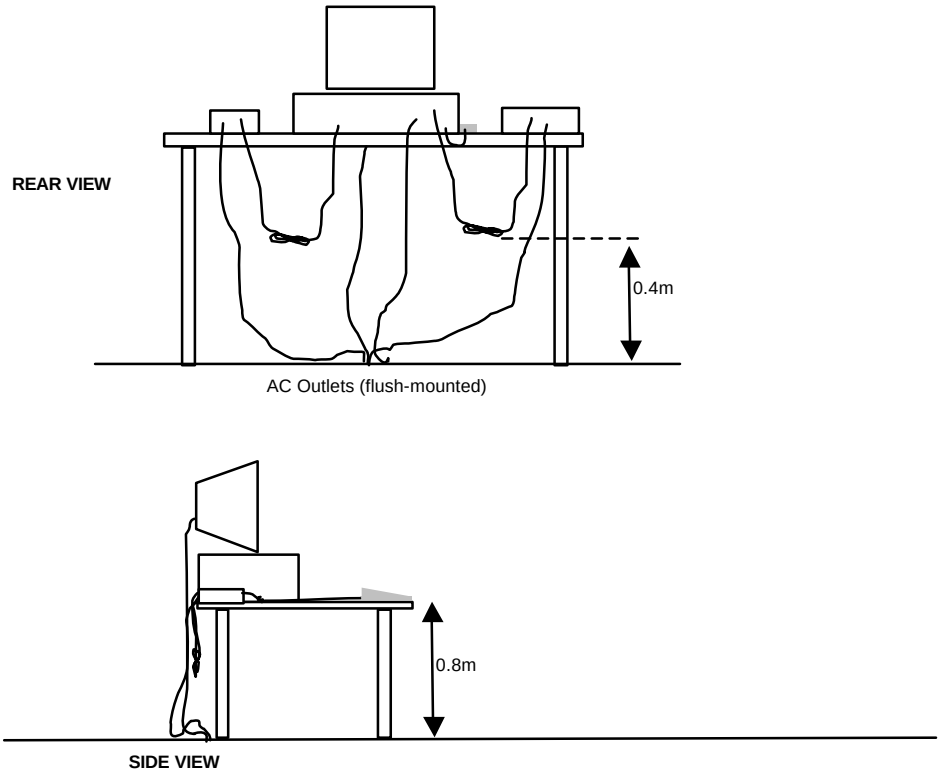

LISN
EUT
LISN
AE
0.4m
0.8m

RADIATED EMISSIONS

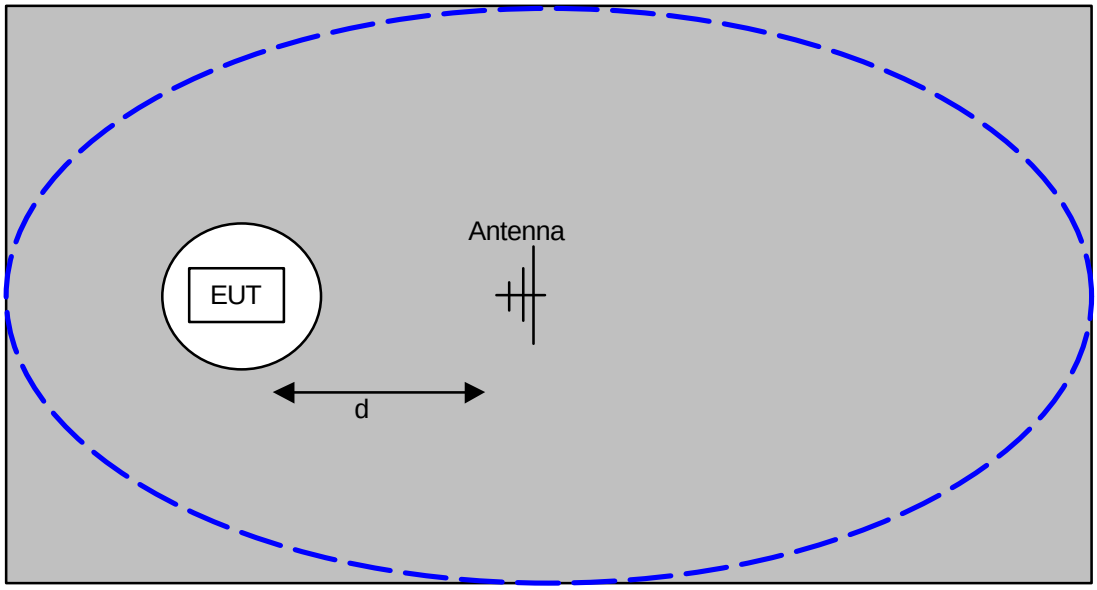
Radiated emissions measurements are performed in two phases as well. A preliminary scan of emissions is conducted in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed from 30 MHz up to the frequency required by the regulation specified on page 1. One or more of these is with the antenna polarized vertically while the one or more of these is with the antenna polarized horizontally. During the preliminary scans, the EUT is rotated through 360°, the antenna height is varied 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.

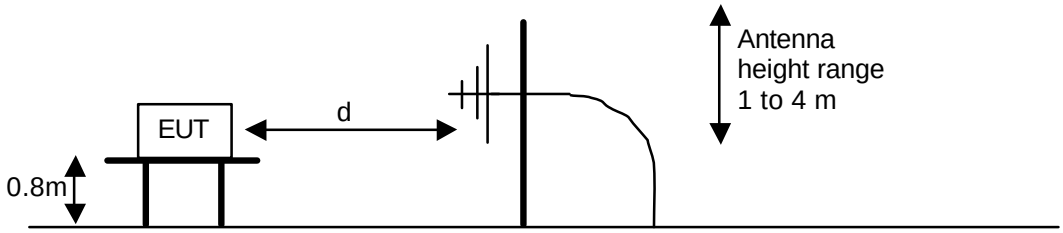
Final maximization is a phase in which the highest amplitude emissions identified in the spectral search are viewed while the EUT azimuth angle is varied from 0 to 360 degrees relative to the receiving antenna. The azimuth, which results in the highest emission is then maintained while varying the antenna height from one to four meters. 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. Emissions, which have values close to the specification limit may also be measured with a tuned dipole antenna to determine compliance.



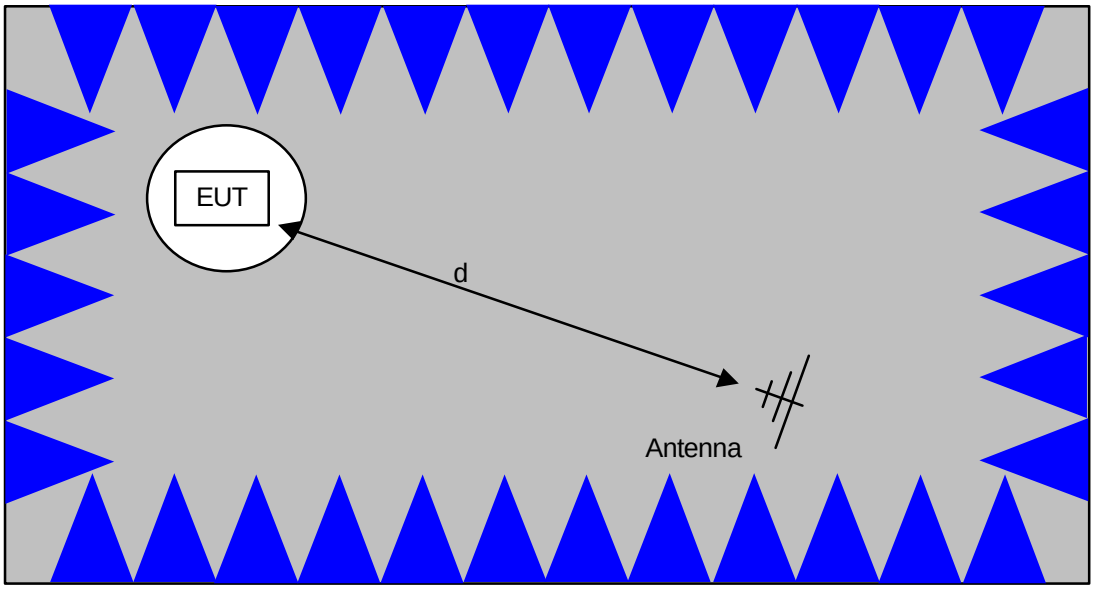
Typical Test Configuration for Radiated Field Strength Measurements



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.

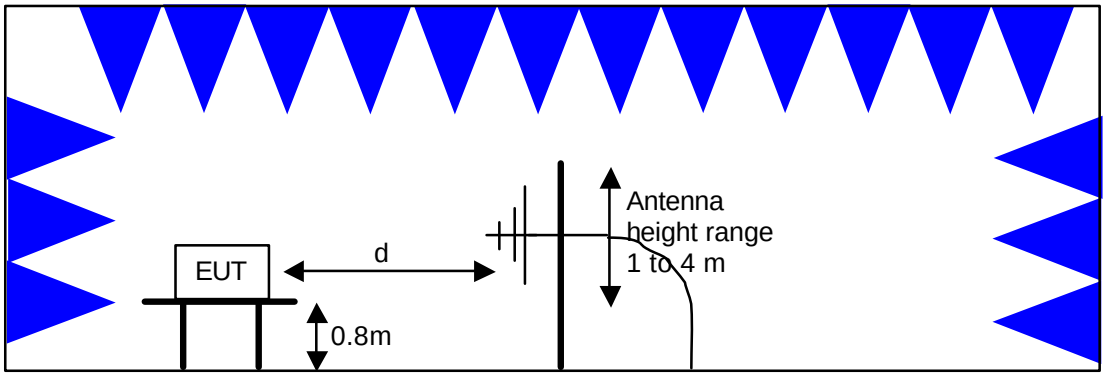


Test Configuration for Radiated Field Strength Measurements
OATS- Plan and Side Views



The anechoic materials on the walls and ceiling ensure compliance with the normalized site attenuation requirements of CISPR 16 / CISPR 22 / ANSI C63.4 for an alternate test site at the measurement distances used.

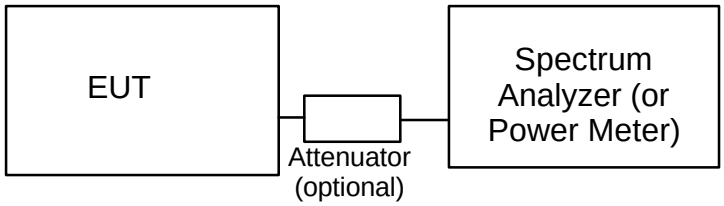
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



Test Configuration for Radiated Field Strength Measurements
Semi-Anechoic Chamber, Plan and Side Views

CONDUCTED EMISSIONS FROM ANTENNA PORT

Direct measurements of power, bandwidth and power spectral density are performed with the antenna port of the EUT connected to either the power meter or spectrum analyzer via a suitable attenuator and/or filter. These are used to ensure that the front end of the measurement instrument is not overloaded by the fundamental transmission.



Test Configuration for Antenna Port Measurements

Measurement bandwidths (video and resolution) are set in accordance with the relevant standards and Elliott's test procedures for the type of radio being tested.

If a power meter is used to make output power measurements the sensor head type (peak or average) is stated in the test data table.

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:

CONDUCTED EMISSIONS SPECIFICATION LIMITS: FCC 15.207; FCC 15.107(a), RSS GEN

The table below shows the limits for the emissions on the AC power line from an intentional radiator and a receiver.

Frequency (MHz)	Average Limit (dBuV)	Quasi Peak Limit (dBuV)
0.150 to 0.500	Linear decrease on logarithmic frequency axis between 56.0 and 46.0	Linear decrease on logarithmic frequency axis between 66.0 and 56.0
0.500 to 5.000	46.0	56.0
5.000 to 30.000	50.0	60.0

GENERAL RADIATED EMISSIONS SPECIFICATION LIMITS

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).

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

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:

$$F_d = 20*LOG_{10} (D_m/D_s)$$

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:

$$F_d = 40*LOG_{10} (D_m/D_s)$$

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 = Receiver Reading in dBuV/m

F_d = Distance Factor in dB

R_C = Corrected Reading in dBuV/m

L_S = Specification Limit in dBuV/m

M = 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:

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

where P is the eirp (Watts)

EXHIBIT 1: Test Equipment Calibration Data

1 Page

Radiated Emissions, 1000 - 26,500 MHz, 19-Nov-05
Engineer: Juan Martinez

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	13-Jan-06
Hewlett Packard	Microwave EMI test system (SA40, 30Hz - 40GHz), Sunnyvale	84125C	1149	09-Jun-06
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	1242	19-Oct-06

Radiated Emissions, 30 - 2,000 MHz, 30-Nov-05
Engineer: Yu Chien Ho

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	13-Jan-06
Filtek	High Pass Filter, 1GHz	HP12/1000-5BA	955	31-Mar-06
Hewlett Packard	EMC Spectrum Analyzer, 9KHz - 22GHz	8593EM	1319	28-Mar-06
EMCO	Biconical Antenna, 30-300 MHz	3110B	1320	05-Oct-06
EMCO	Log Periodic Antenna, 0.2-2 GHz	3148	1321	30-Mar-07
Rohde & Schwarz	Test Receiver, 0.009-2750 MHz	ESN	1332	23-May-06
EMCO	Horn Antenna D. Ridge 1-18 GHz (SA40 horn)	3115	1386	07-Jul-06

Conducted Emissions - AC Power Ports, 30-Nov-05
Engineer: Yu Chien Ho

Manufacturer	Description	Model #	Asset #	Cal Due
Elliott Laboratories	FCC / CISPR LISN	LISN-3, OATS	304	08-Jul-06
Solar Electronics	LISN	8028-50-TS-24-BNC support	904	08-Jul-06
Hewlett Packard	EMC Spectrum Analyzer, 9KHz - 22GHz	8593EM	1319	28-Mar-06
Rohde & Schwarz	Test Receiver, 0.009-2750 MHz	ESN	1332	23-May-06
Rohde& Schwarz	Pulse Limiter	ESH3 Z2	1398	11-Feb-06

EXHIBIT 2: Test Measurement Data

52 Pages

Elliott

EMC Test Data

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	Test-Log Number:	T61804
		Project Manager:	Mark Hill
Contact:	Jeremy Muir		
Emissions Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B
Immunity Spec:	-	Environment:	-

EMC Test Data

For The

2Wire

Model

2700 HGV - Modified

Date of Last Test: 12/13/2005

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	Test-Log Number:	T61804
		Project Manager:	Mark Hill
Contact:	Jeremy Muir		
Emissions Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B
Immunity Spec:	-	Environment:	-

EUT INFORMATION

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

General Description

The EUT is a Wireless VDSL router which is designed to route VDSL signals to various network interfaces. Normally, the EUT would be placed on a table top during operation. The EUT was, therefore, treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 120/240 V, 50/60 Hz, 0.8 Amps.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
2Wire	2700	DSL modem	-	-
Good Power	GPUSW0513000GD0S	AC/DC PSU	GP53100002	-
Good Power	GPCSW0512000GD00	AC/DC PSU	GPS3U002AUS	-

Other EUT Details

The following EUT details should be noted: N/A

EUT Enclosure

The EUT enclosure is primarily constructed of ABS plastic with a fabricated sheet steel outer shield. It measures approximately 29.5 cm wide by 24.5 cm deep by 5 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.

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Project Manager:	Mark Hill
Contact:	Jeremy Muir		
Emissions Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B
Immunity Spec:	-	Environment:	-

Test Configuration #3

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

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Coby	-	Phone	324001152	-
ADAPCOM	Micro-890	ADSL Mini-DSLAM	-	-
Motorola	Moca	Ethernet Bridge	520111-001-00	-
Dell	PP01L	Laptop #1	CN-04P240048643-35F-	-
Dell	-	Laptop #2	CX-04P240-38643-36P-	-
Dell	D610	Laptop #3	-	-

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
-	-	-	-	-

Interface Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
DSL	DSLAM	RJ11	Shielded	1
Voice	Phone	RJ11	Unshielded	3
Ethernet	Laptop	Cat 5	Unshielded	1
USB	Laptop	Multiwire	Shielded	1.5
AC	Power	3 Wire	Unshielded	1.5

EUT Operation During Emissions Tests

During emissions testing, the EUT was connected to three remote laptop PCs using the EUT's MoCA line, Ethernet and USB ports. The three Laptops were pinging the EUT, the DSLAM kept the VDSL port active. The phone terminated the Voice port. The remote laptop was pinging the EUT via wireless.

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Project Manager:	Mark Hill
Contact:	Jeremy Muir		
Emissions Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B
Immunity Spec:	-	Environment:	-

Test Configuration #4

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

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
None				

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	PP01L	Laptop #1	CN-04P240048643-35F-1683	-

Interface Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Ethernet	Laptop	Cat 5	Unshielded	30

EUT Operation During Radio Tests

EUT was set to transmit at maximum power on low, middle, and high channels. Both 802.11b and 802.11g were tested for transmitter spurious emissions.

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B

Conducted Emissions - Power Ports

Test Specifics

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: 11/30/2005
Test Engineer: Yu-Chien Ho
Test Location: SVOATS #2
Config. Used: #3
Config Change: None
EUT Voltage: Refer to individual run

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.

Ambient Conditions:

Temperature: 13 °C
Rel. Humidity: 76 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power, 230V/50Hz	EN55022 B	Pass	52.4dBµV @ 0.197MHz (-11.3dB)
2	CE, AC Power,120V/60Hz	EN55022 B	Pass	44.0dBµV @ 0.406MHz (-3.7dB)
3	CE, AC Power,120V/60Hz	EN55022 B	Pass	52.8dBµV @ 0.192MHz (-11.2dB)
4	CE, AC Power,120V/60Hz	EN55022 B	Pass	53.5dBµV @ 2.482MHz (-2.5dB)
5	CE, AC Power,120V/60Hz	EN55022 B	Pass	47.4dBµV @ 0.408MHz (-10.3dB)

Modifications Made During Testing:

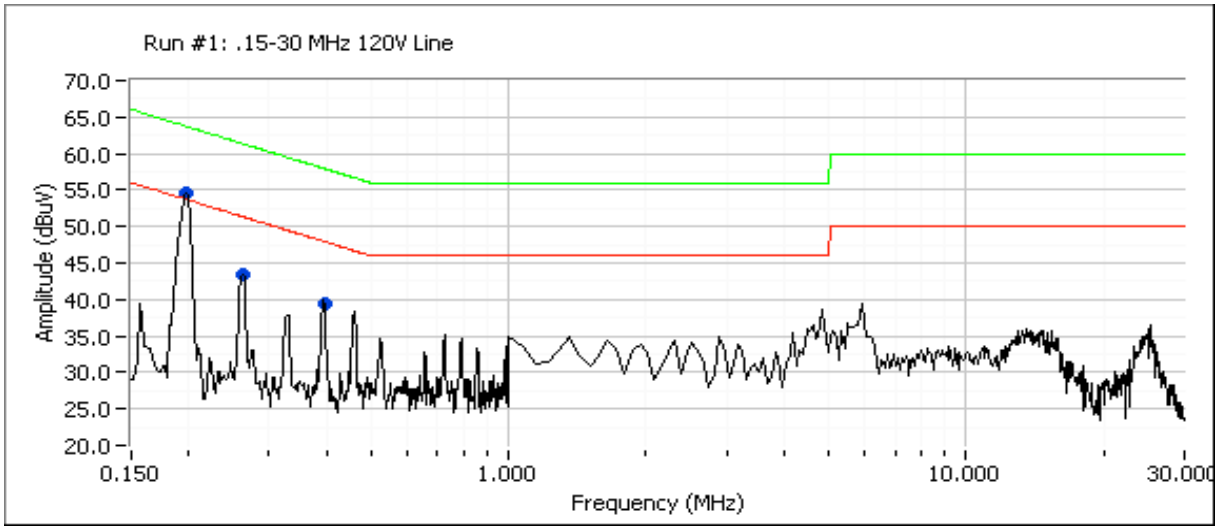
No modifications were made to the EUT during testing

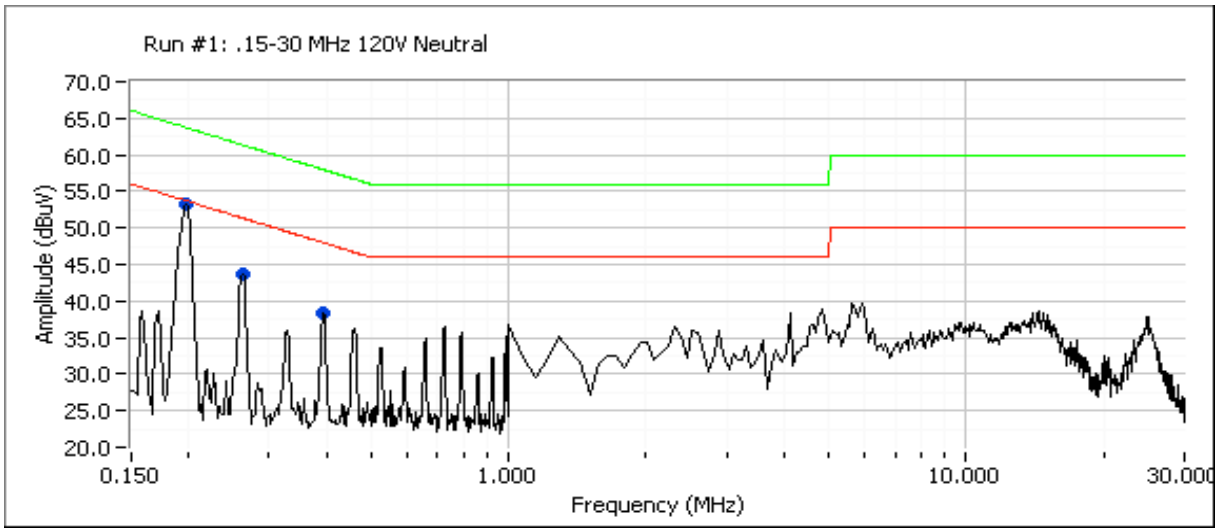
Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz
Using 120V PSU. P/N: GPUSW0513000GD0S. S/N: GP53N001US





Continue Run #1 on next page....

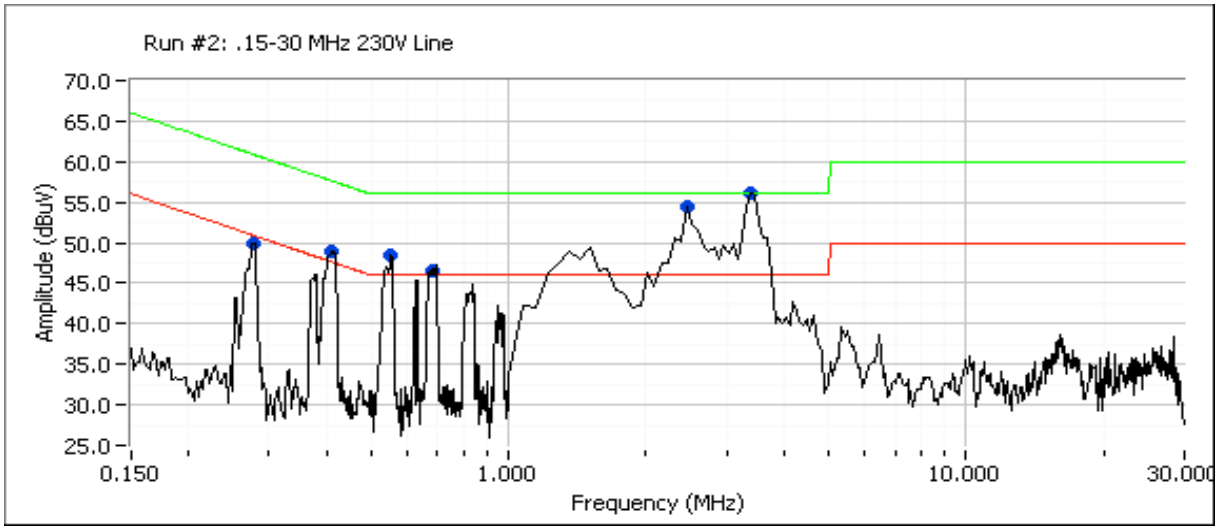
Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B

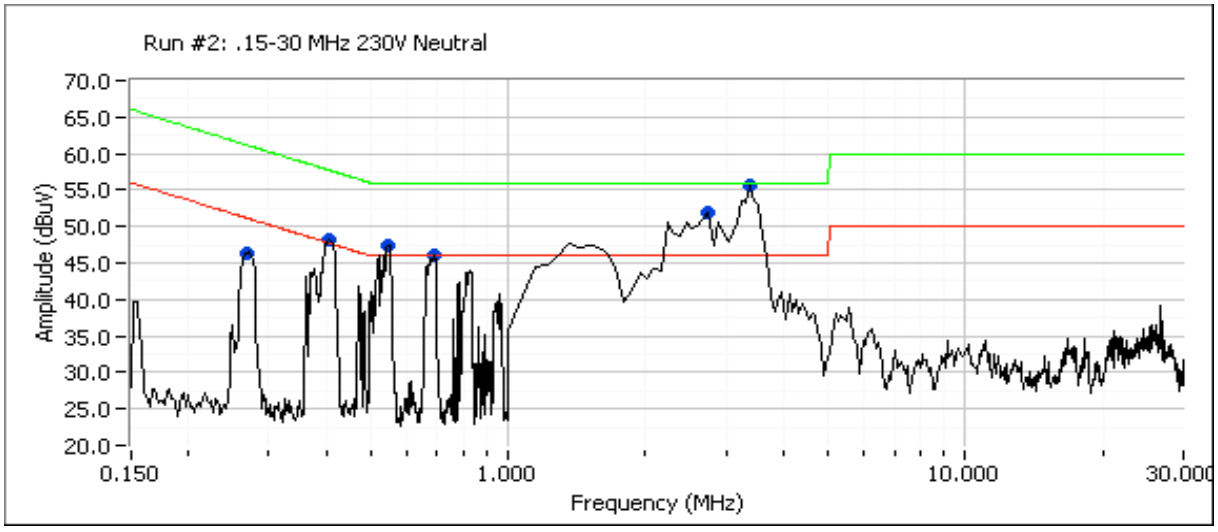
Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz (continue)
Using 120V PSU. P/N: GPUSW0513000GD0S. S/N: GP53N001US

Frequency	Level	AC	EN55022 B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.197	52.4	Neutral	63.7	-11.3	QP	
0.197	42.3	Neutral	53.7	-11.4	Average	
0.197	52.1	Line	63.7	-11.6	QP	
0.393	36.1	Neutral	48.0	-11.9	Average	
0.197	41.6	Line	53.7	-12.1	Average	
0.393	33.8	Line	48.0	-14.2	Average	
0.262	32.8	Line	51.4	-18.6	Average	
0.262	42.7	Neutral	61.4	-18.7	QP	
0.262	32.6	Neutral	51.4	-18.8	Average	
0.393	37.8	Line	58.0	-20.2	QP	
0.262	41.0	Line	61.4	-20.4	QP	
0.393	37.0	Neutral	58.0	-21.0	QP	

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B

Run #2: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz
Using 230V PSU. P/N: GPCSW0512000GD00. S/N: GP53U002AUS





Continue Run #2 on next page....

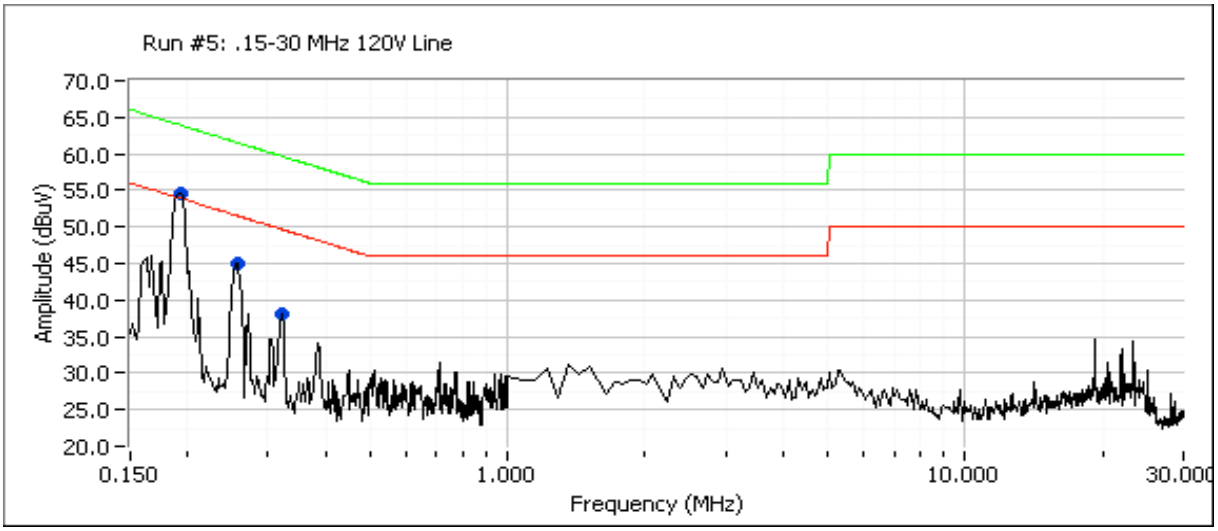
Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B

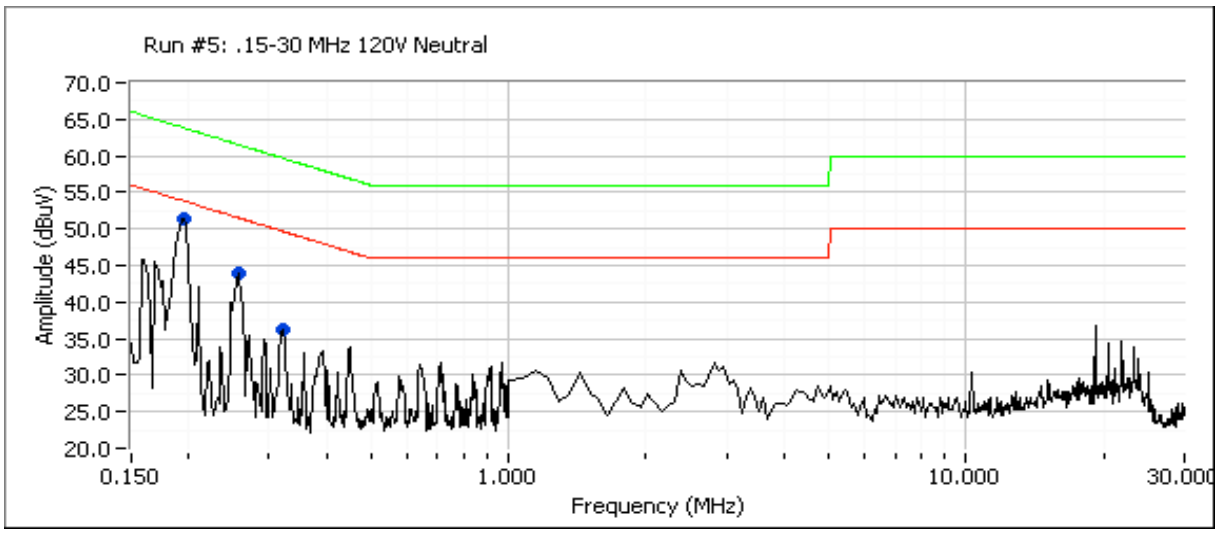
Run #2: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz (continue)
Using 230V PSU. P/N: GPCSW0512000GD00. S/N: GP53U002AUS

Frequency	Level	AC	EN55022 B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.406	44.0	Line	47.7	-3.7	Average	
0.406	44.0	Neutral	47.7	-3.7	Average	
0.542	41.6	Line	46.0	-4.4	Average	
3.443	51.4	Line	56.0	-4.6	QP	
3.443	51.0	Neutral	56.0	-5.0	QP	
0.272	45.4	Line	51.1	-5.7	Average	
0.542	40.3	Neutral	46.0	-5.7	Average	
3.443	39.1	Line	46.0	-6.9	Average	
2.596	48.4	Line	56.0	-7.6	QP	
0.272	42.9	Neutral	51.1	-8.2	Average	
0.679	37.8	Line	46.0	-8.2	Average	
3.443	37.6	Neutral	46.0	-8.4	Average	
2.596	47.4	Neutral	56.0	-8.6	QP	
0.542	47.2	Line	56.0	-8.8	QP	
0.542	46.3	Neutral	56.0	-9.7	QP	
0.406	47.9	Line	57.7	-9.8	QP	
2.596	36.1	Line	46.0	-9.9	Average	
0.679	45.9	Line	56.0	-10.1	QP	
0.679	35.8	Neutral	46.0	-10.2	Average	
0.406	46.9	Neutral	57.7	-10.8	QP	
2.596	34.8	Neutral	46.0	-11.2	Average	
0.679	44.7	Neutral	56.0	-11.3	QP	
0.272	47.1	Line	61.1	-14.0	QP	
0.272	46.9	Neutral	61.1	-14.2	QP	

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B

Run #3: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz
Using 120V PSU. MONNEX P/N: MX-13087 S/N: MX530001US.
2700 HGV S/N: 483311000423





Continue Run #3 on next page....

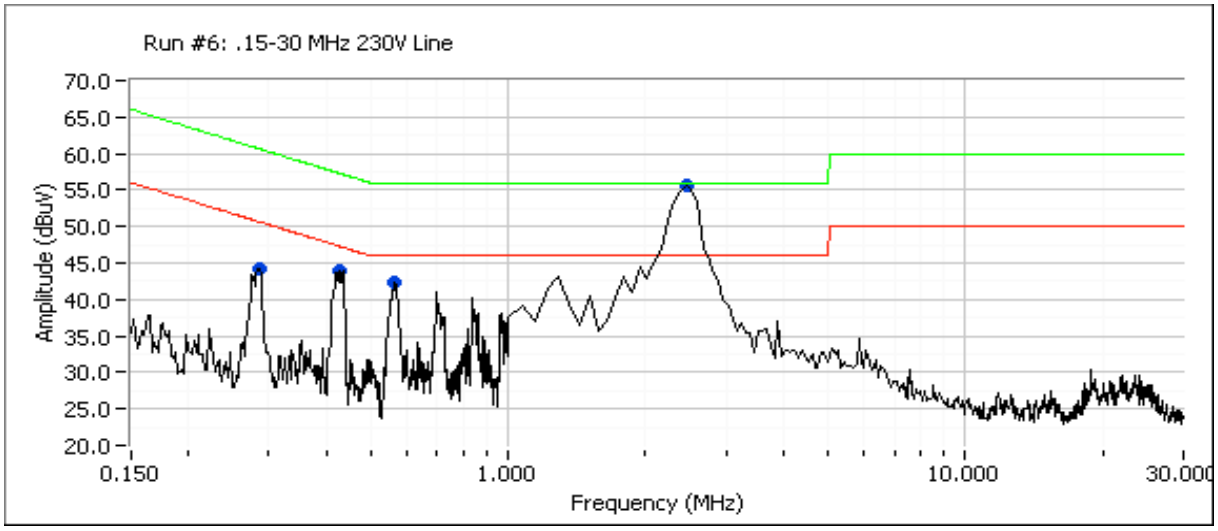
Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B

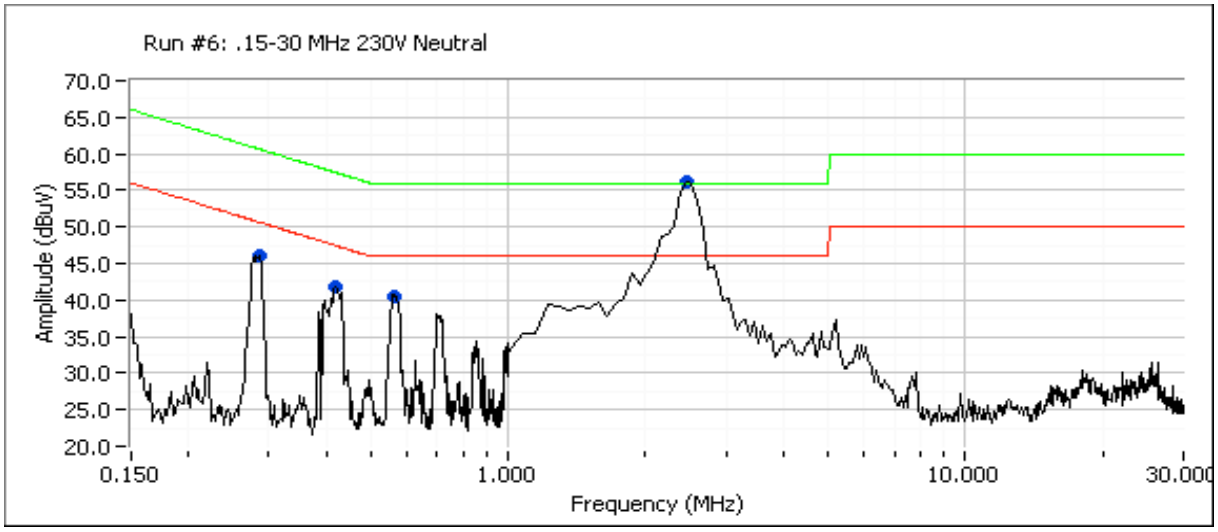
Run #3: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz (continue)
Using 120V PSU. MONNEX P/N: MX-13087 S/N: MX530001US.
2700 HGV S/N: 483311000423

Frequency	Level	AC	EN55022 B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.192	52.8	Line	64.0	-11.2	QP	
0.192	51.6	Neutral	64.0	-12.4	QP	
0.192	40.2	Line	54.0	-13.8	Average	
0.192	39.0	Neutral	54.0	-15.0	Average	
0.255	43.6	Line	61.6	-18.0	QP	
0.255	42.5	Neutral	61.6	-19.1	QP	
0.255	31.8	Neutral	51.6	-19.8	Average	
0.255	31.6	Line	51.6	-20.0	Average	
0.320	27.4	Neutral	49.7	-22.3	Average	
0.320	36.3	Line	59.7	-23.4	QP	
0.320	25.9	Line	49.7	-23.8	Average	
0.320	35.7	Neutral	59.7	-24.0	QP	

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B

Run #4: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz
Using 230V PSU. Good Power P/N: GPBSW0513000GD35 S/N: GP53U001UK.
2700 HGV S/N: 483311000423





Continue Run #4 on next page....

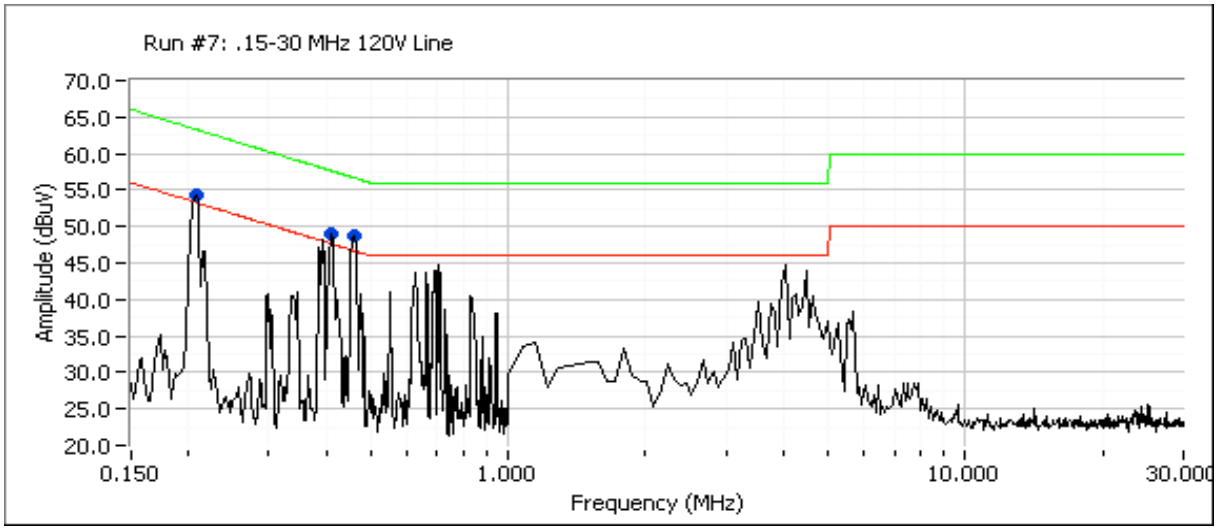
Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B

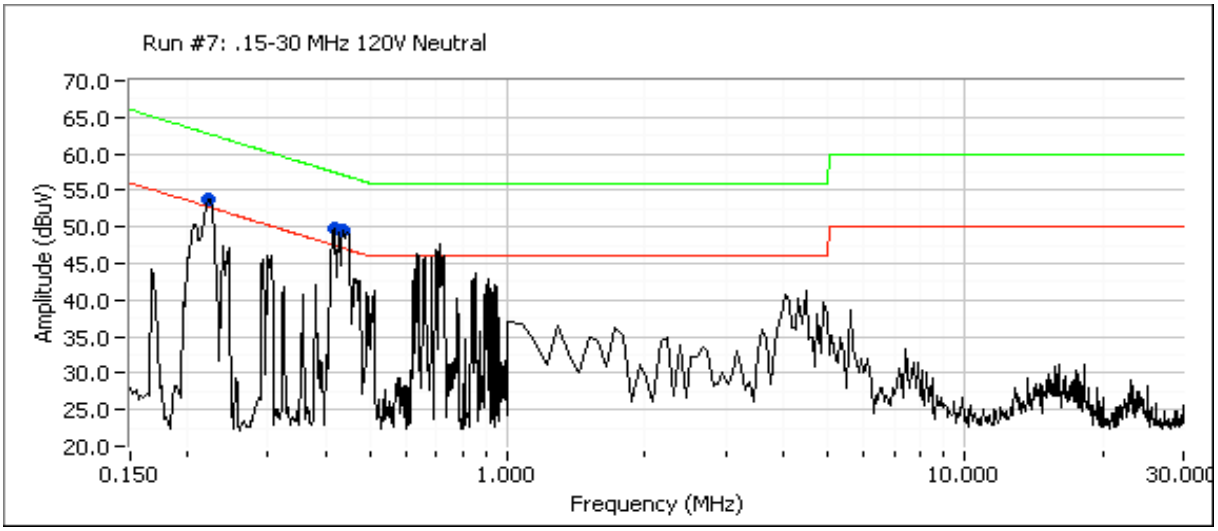
Run #4: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz (continue)
Using 230V PSU. Good Power P/N: GPBSW0513000GD35 S/N: GP53U001UK.
2700 HGV S/N: 483311000423

Frequency	Level	AC	EN55022 B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
2.482	53.5	Neutral	56.0	-2.5	QP	
2.482	42.6	Line	46.0	-3.4	Average	
2.482	52.5	Line	56.0	-3.5	QP	
2.482	42.0	Neutral	46.0	-4.0	Average	
0.282	40.3	Line	50.8	-10.5	Average	
0.564	35.5	Line	46.0	-10.5	Average	
0.564	35.0	Neutral	46.0	-11.0	Average	
0.282	39.2	Neutral	50.8	-11.6	Average	
0.430	34.8	Neutral	47.3	-12.5	Average	
0.430	34.6	Line	47.3	-12.7	Average	
0.430	42.8	Line	57.3	-14.5	QP	
0.564	41.2	Line	56.0	-14.8	QP	
0.564	39.7	Neutral	56.0	-16.3	QP	
0.282	44.3	Neutral	60.8	-16.5	QP	
0.430	40.7	Neutral	57.3	-16.6	QP	
0.282	43.2	Line	60.8	-17.6	QP	

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B

Run #5: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz
Using 120V PSU. Sunfone P/N: ACW011C-05U S/N: SP52N001US.
2700 HG S/N: 483311000415





Continue Run #5 on next page....

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	Radio / B

Run #5: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz (continue)
Using 120V PSU. Sunfone P/N: ACW011C-05U S/N: SP52N001US.
2700 HG S/N: 483311000415

Frequency	Level	AC	EN55022 B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.408	47.4	Neutral	57.7	-10.3	QP	
0.205	52.3	Line	63.4	-11.1	QP	
0.435	45.9	Neutral	57.2	-11.3	QP	
0.408	46.4	Line	57.7	-11.3	QP	
0.205	51.8	Neutral	63.4	-11.6	QP	
0.435	44.4	Line	57.2	-12.8	QP	
0.205	33.6	Line	53.4	-19.8	Average	
0.205	33.2	Neutral	53.4	-20.2	Average	
0.408	26.7	Neutral	47.7	-21.0	Average	
0.408	25.7	Line	47.7	-22.0	Average	
0.435	23.0	Neutral	47.2	-24.2	Average	
0.435	19.4	Line	47.2	-27.8	Average	

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

FCC 15.247 DTS - Power and Spurious Emissions

Test Specifics

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: 12/8/2005 Config. Used: 4

Test Engineer: Juan Martinez Config Change: None

Test Location: SVOATS #2 & 3 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 routed in overhead.

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

When measuring the conducted emissions from the EUT's antenna port, the antenna port of the EUT was connected to the spectrum analyzer or power meter via a suitable attenuator to prevent overloading the measurement system. All measurements are corrected to allow for the external attenuators used.

Ambient Conditions:

Temperature: 17 °C

Rel. Humidity: 40 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	802.11b Bandedges	FCC Part 15.209 / 15.247(c)	Pass	53.5dBµV/m (474.8µV/m) @ 2483.5MHz (-0.5dB)
2	802.11g Bandedges	FCC Part 15.209 / 15.247(c)	Pass	52.6dBµV/m (427.6µV/m) @ 2483.5MHz (-1.4dB)
3	Rx Emissions	RSS-210	Pass	58.4dBµV/m (827.9µV/m) @ 4875.0MHz (-1.6dB)

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

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.

Elliott EMC Test Data

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

Run #1a: Radiated Spurious Emissions, Low Channel @ 2412 MHz
Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and peak value measured in 100kHz
Setting = 20

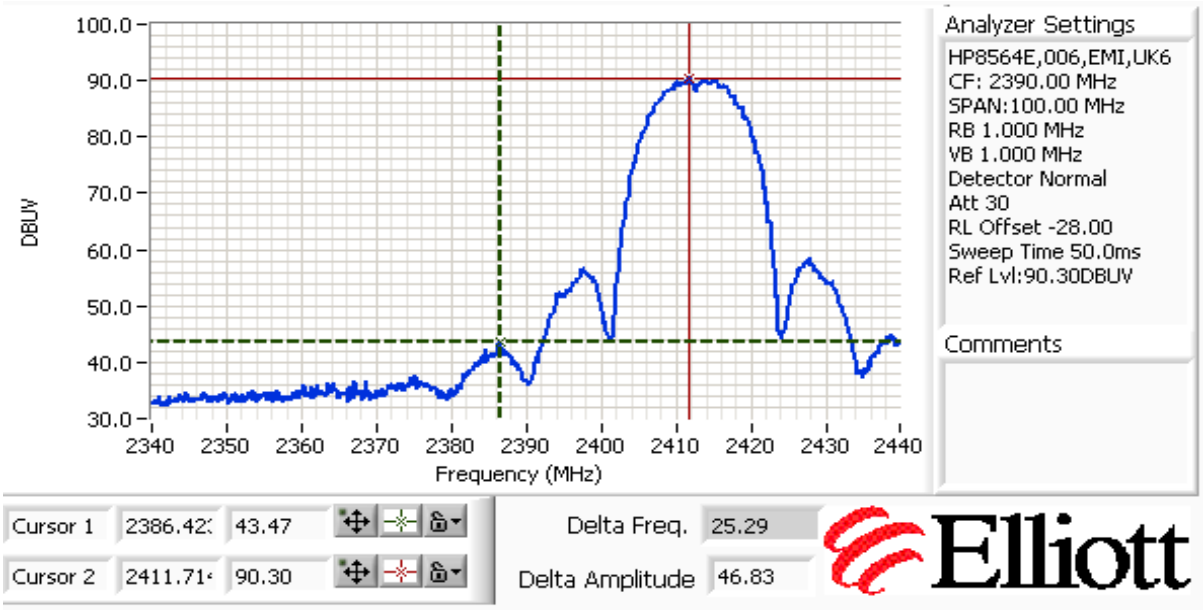
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2410.965	101.2	V	-	-	AVG	301	1.0	
2410.965	104.1	V	-	-	PK	301	1.0	
2410.988	103.0	H	-	-	AVG	208	1.0	
2410.988	106.5	H	-	-	PK	208	1.0	

Delta Marker - Peak	46.83 dB	Delta between highest in-band and highest
Delta Marker - Average	50.33 dB	

Band Edge Signal Field Strength

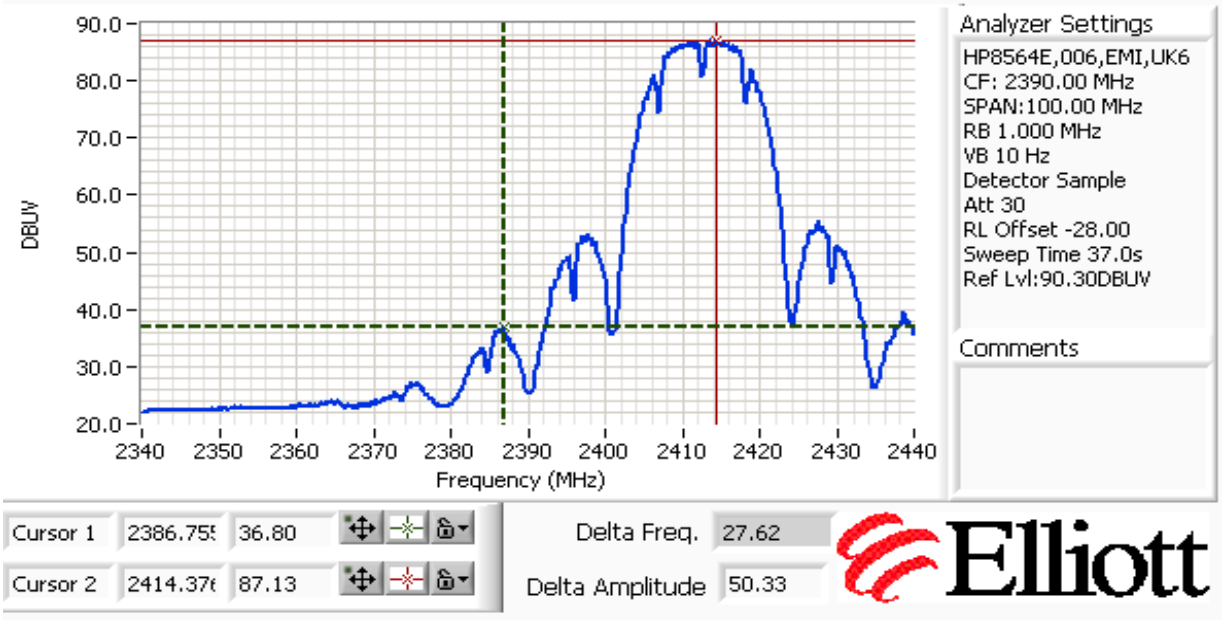
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	52.7	H	54.0	-1.3	AVG	-	-	
2390.000	59.7	H	74.0	-14.3	PK	-	-	

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



EMC Test Data

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A



Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

Run #1b: Radiated Spurious Emissions, High Channel @ 2462 MHz

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

Setting = 20

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2461.025	103.7	H	-	-	AVG	206	1.0	
2461.025	106.6	H	-	-	PK	206	1.0	
2462.930	102.1	V	-	-	AVG	300	1.0	
2462.930	105.3	V	-	-	PK	300	1.0	

Delta Marker - Peak	47.5 dB	Delta between highest in-band and highest
Delta Marker - Average	50.17 dB	

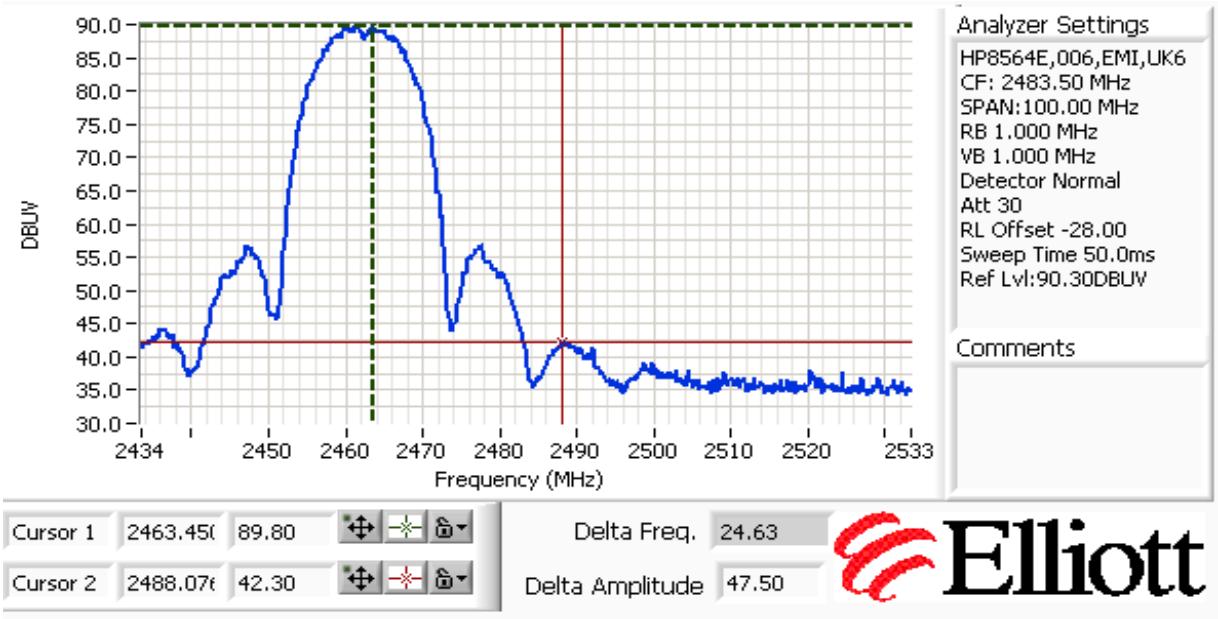
Band Edge Signal Field Strength

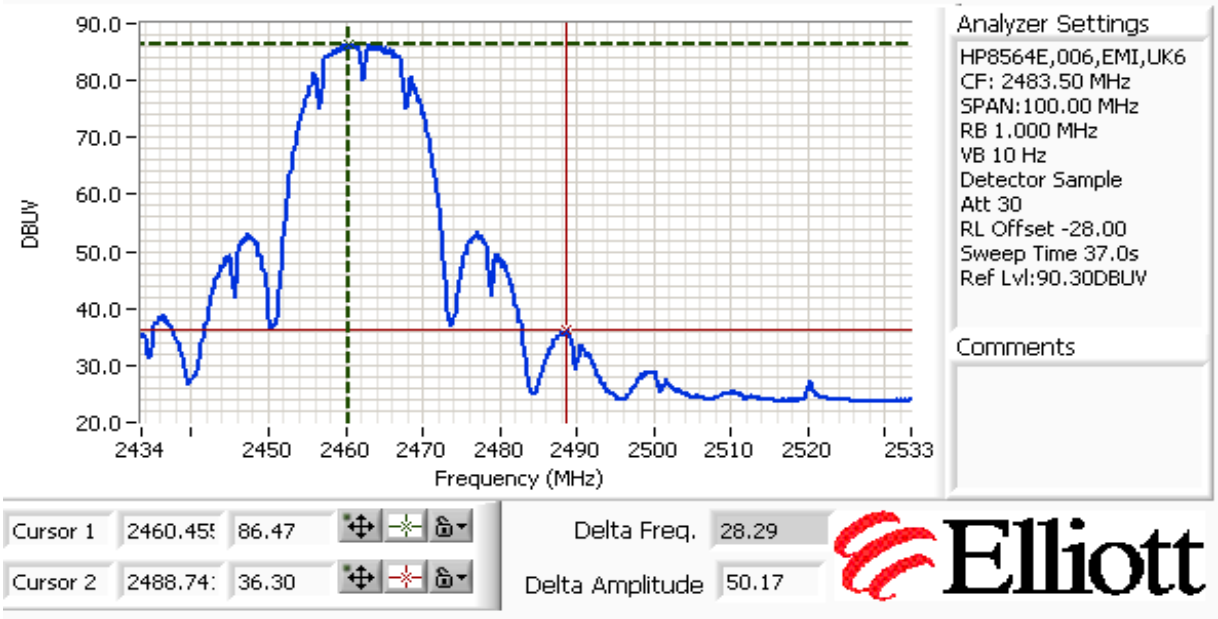
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	53.5	H	54.0	-0.5	AVG	-	-	
2483.500	59.1	H	74.0	-14.9	PK	-	-	

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

EMC Test Data

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A





Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

Run #2a: Radiated Spurious Emissions, Low Channel @ 2412 MHz

Fundamental Signal Field Strength: PC DAC Setting = 24, Power = 23dBm (Using Peak Power Sensor)

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2410.500	92.9	V	-	-	AVG	352	1.1	PCDAC Setting = 24
2410.500	101.4	V	-	-	PK	352	1.1	PCDAC Setting = 24
2414.700	90.3	H	-	-	AVG	91	1.9	PCDAC Setting = 24
2414.700	98.7	H	-	-	PK	91	1.9	PCDAC Setting = 24

Delta Marker - Peak	39.8 dB
Delta Marker - Average	46.2 dB

Delta between highest in-band and highest

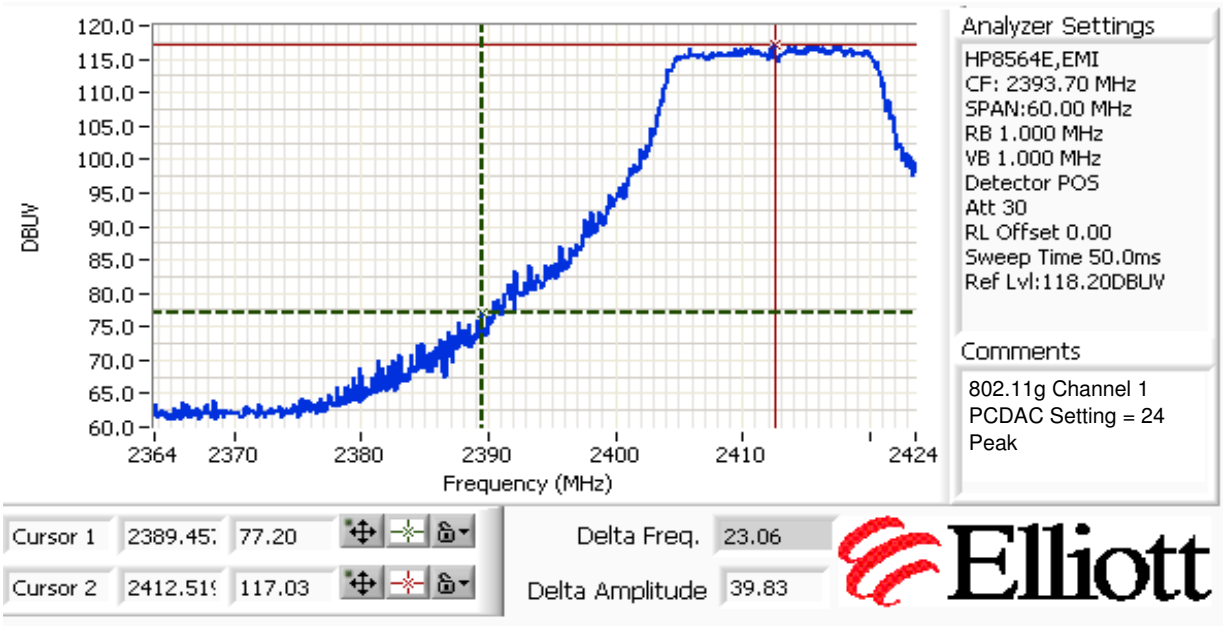
Band Edge Signal Field Strength

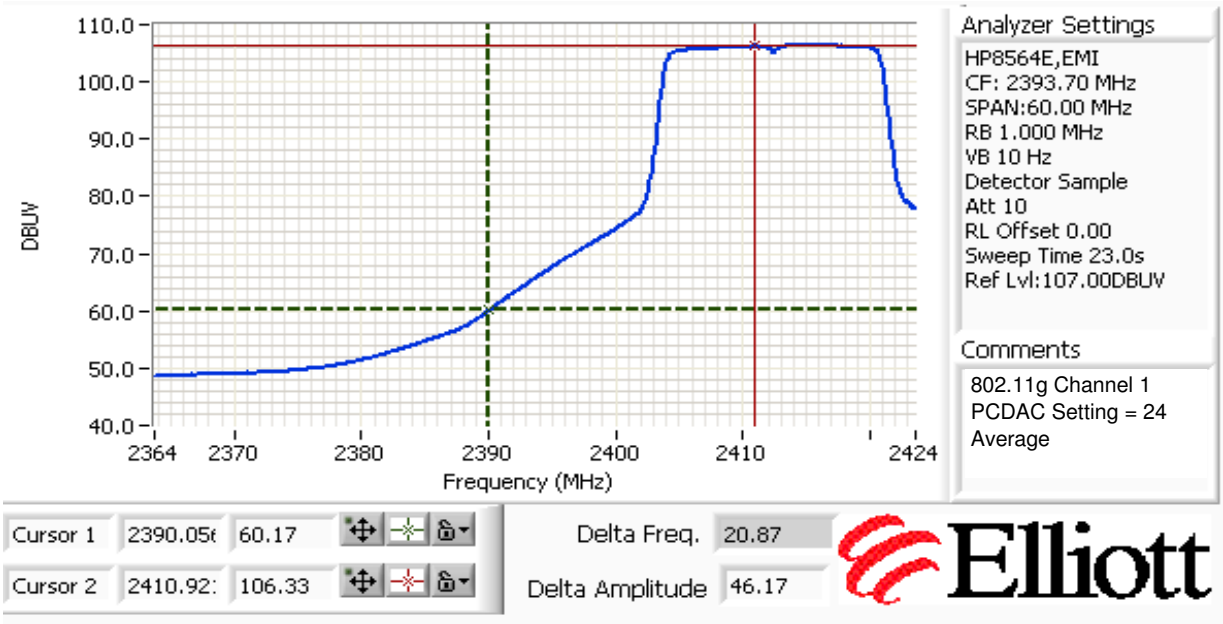
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	46.7	V	54.0	-7.3	AVG	352	1.1	
2389.450	61.6	V	74.0	-12.4	PK	352	1.1	

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

EMC Test Data

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A





Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

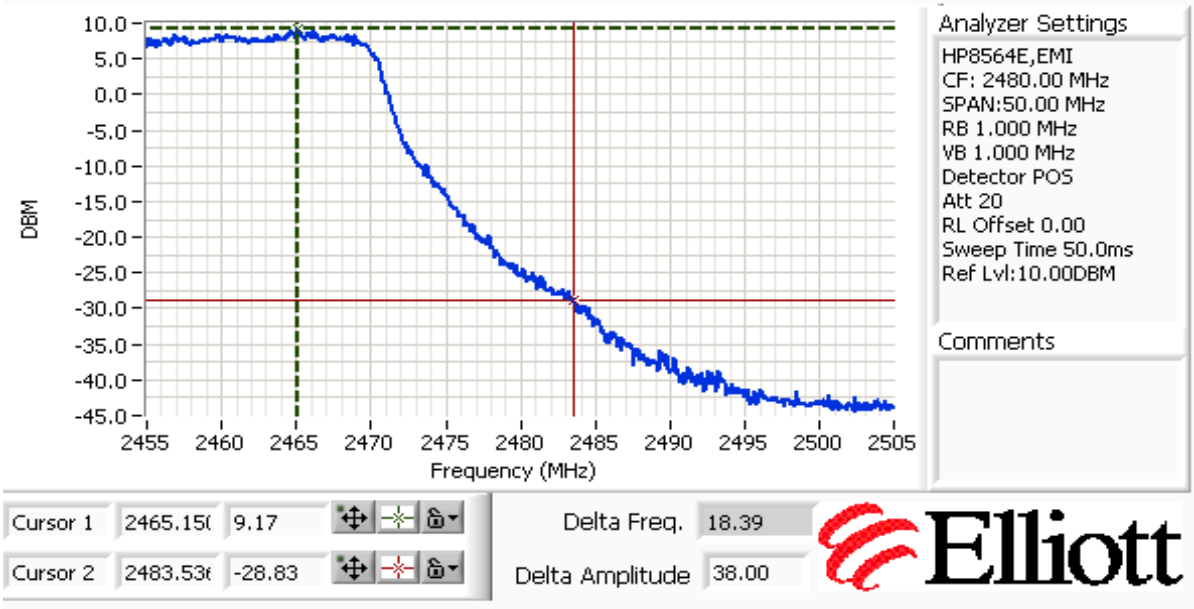
Run #2b: Radiated Spurious Emissions, 2462 MHz (Bandedge)

Power setting = 22, Peak power 23 dBm

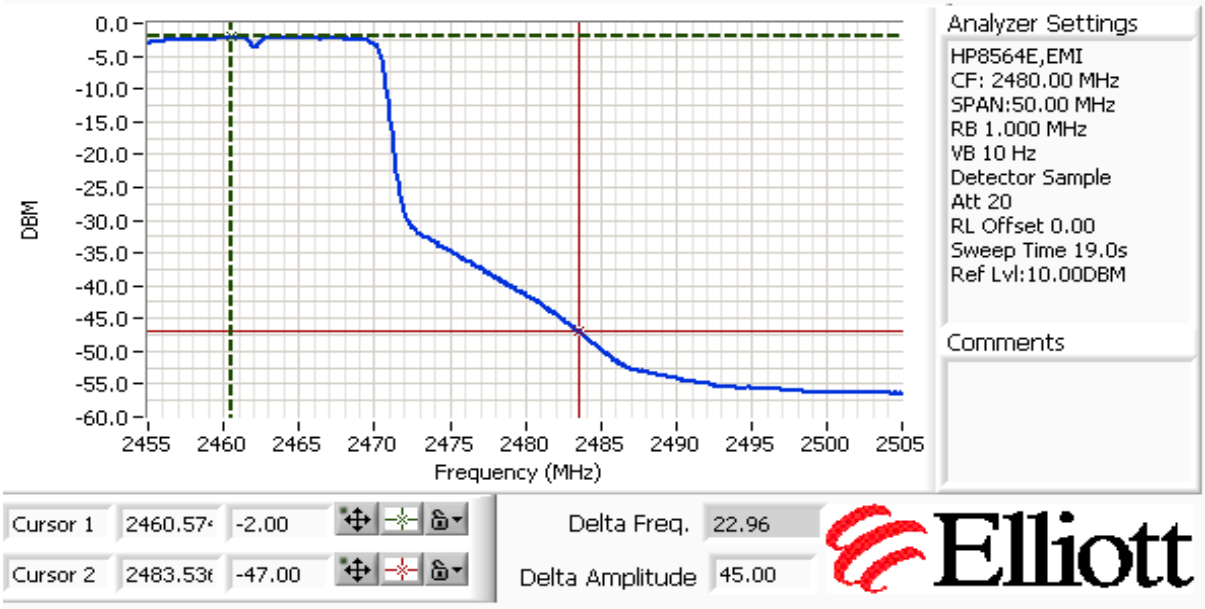
Average Power = 14.9 dBm

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	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2458.033	96.4	H	-	-	AVG	273	1.6	RB = 1MHz, VB = 10Hz
2458.033	104.7	H	-	-	PK	273	1.6	RB = VB = 1MHz
2463.100	97.6	V	-	-	AVG	170	1.1	RB = 1MHz, VB = 10Hz
2463.100	106.9	V	-	-	PK	170	1.1	RB = VB = 1MHz



Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A



Delta Marker - Peak	38 dB	Delta between highest in-band and highest
Delta Marker - Average	45 dB	

Band Edge Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	52.6	V	54.0	-1.4	Avg	-	-	
2483.500	68.9	V	74.0	-5.1	Pk	-	-	

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

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

Run #3: Rx Spurious Emissions Middle Channel 2437 MHz.

Frequency	Level	Pol	RSS-210 Rx		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
4874.96	58.4	V	60.0	-1.6	AVG	62	1.0	
4874.96	59.2	V	80.0	-20.8	PK	62	1.0	
7336.75	37.7	V	60.0	-22.4	AVG	349	1.2	
7336.75	46.6	V	80.0	-33.4	PK	349	1.2	
12260.88	34.1	V	60.0	-25.9	AVG	0	1.0	
12260.88	45.4	V	80.0	-34.6	PK	0	1.0	
4874.970	48.7	H	60.0	-11.3	AVG	161	1.0	
4874.970	59.6	H	80.0	-20.4	PK	161	1.0	
7336.800	38.6	H	60.0	-21.5	AVG	345	1.7	
7336.800	47.2	H	80.0	-32.8	PK	345	1.7	
12260.24	40.8	H	60.0	-19.2	AVG	336	1.4	
12260.24	49.5	H	80.0	-30.6	PK	336	1.4	

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

FCC 15.247 DTS - Power, Bandwidth and Spurious Emissions (802.11g)

Test Specifics

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: 11/19/2005
Test Engineer: Juan Martinez
Test Location: SVOATS #2

Config. Used: 4
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

When measuring the conducted emissions from the EUT's antenna port, the antenna port of the EUT was connected to the spectrum analyzer or power meter via a suitable attenuator to prevent overloading the measurement system. All measurements are corrected to allow for the external attenuators used.

Ambient Conditions:

Temperature: 17 °C
Rel. Humidity: 40 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Out of band, 30 - 26,000 MHz Spurious Emissions	15.247(c)	Pass	Refer to run
2	6dB Bandwidth	15.247(a)	Pass	Refer to run
3	Output Power	15.247(b)	Pass	30 dBm
4	Power Spectral Density (PSD)	15.247(d)	Pass	Refer to run

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

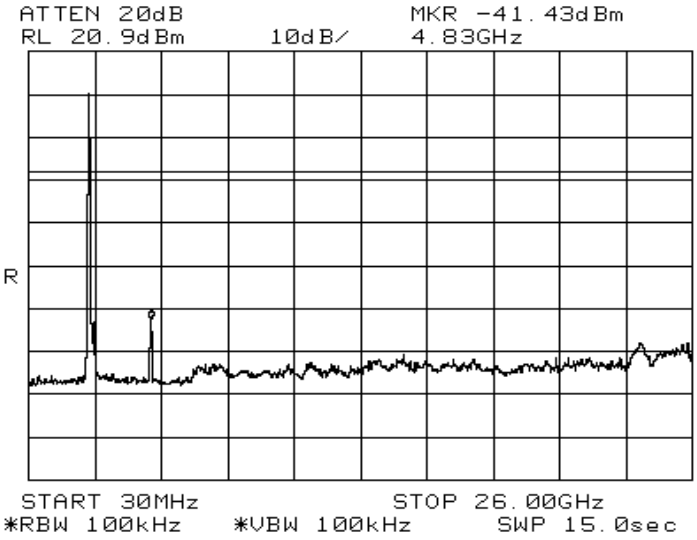
No deviations were made from the requirements of the standard.

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

Run #1: Antenna Conducted Spurious Emissions, 30 - 26,000 MHz.

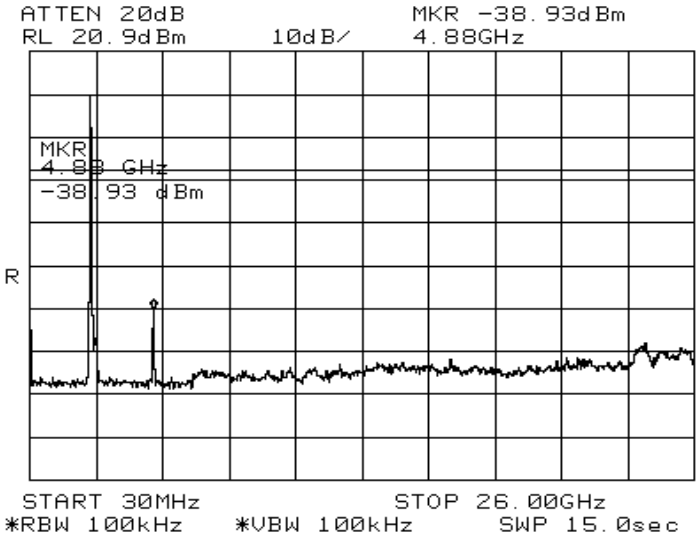
Refer to plots below. Scans made using RBW=VB=100 KHz with the limit line set at 20dB below the highest in-band signal level.

2412 MHz

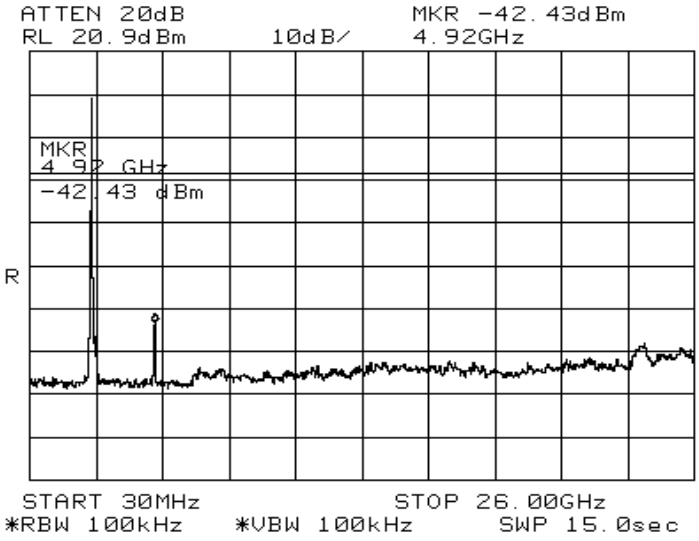


Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

2437 MHz



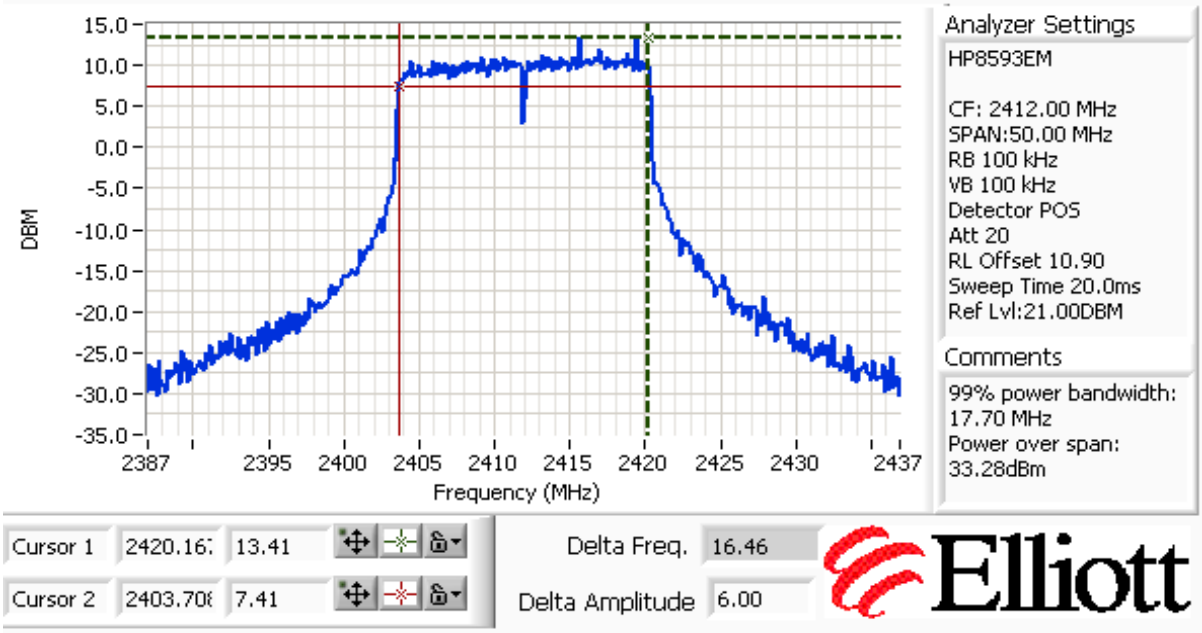
2462 MHz



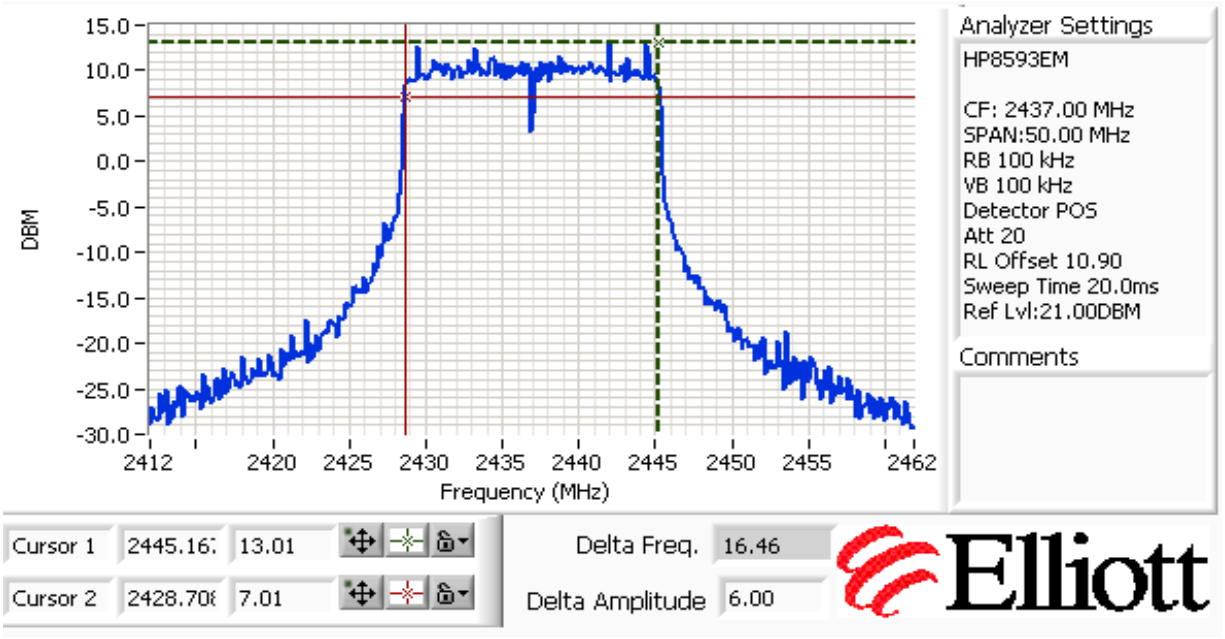
Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

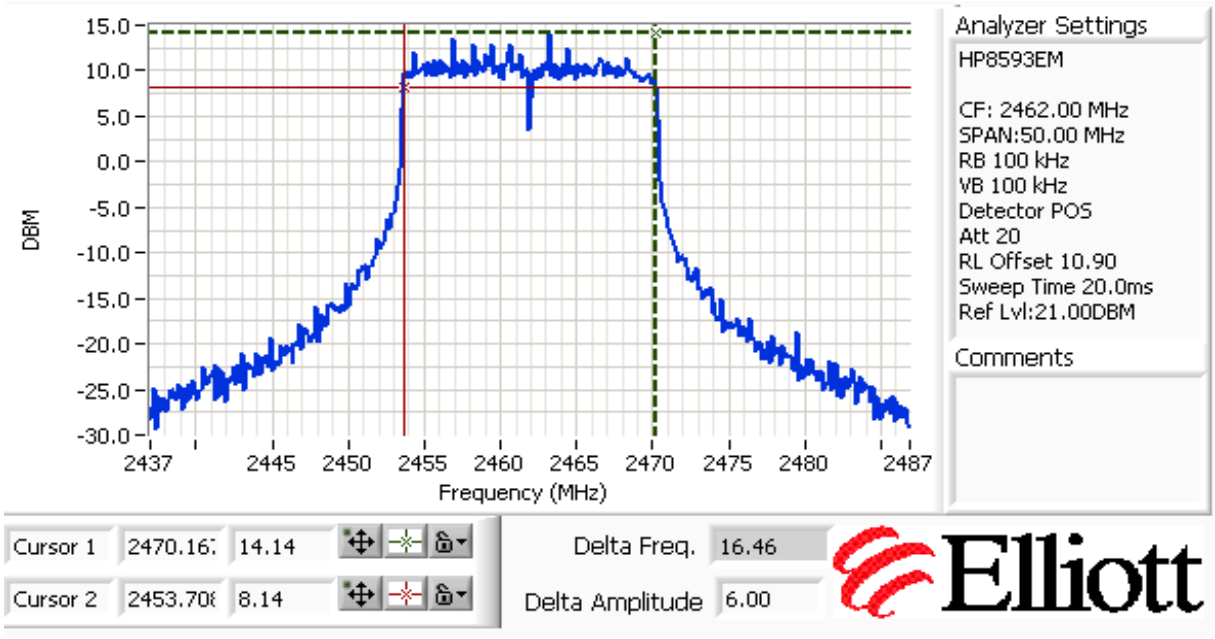
Run #2: Signal Bandwidth

Power Setting	Frequency (MHz)	Resolution Bandwidth	6dB Signal Bandwidth	99% Signal Bandwidth
26	2412	100 kHz	16.46	24.81
26	2437	100 kHz	16.46	26.18
26	2462	100 kHz	16.46	26.31



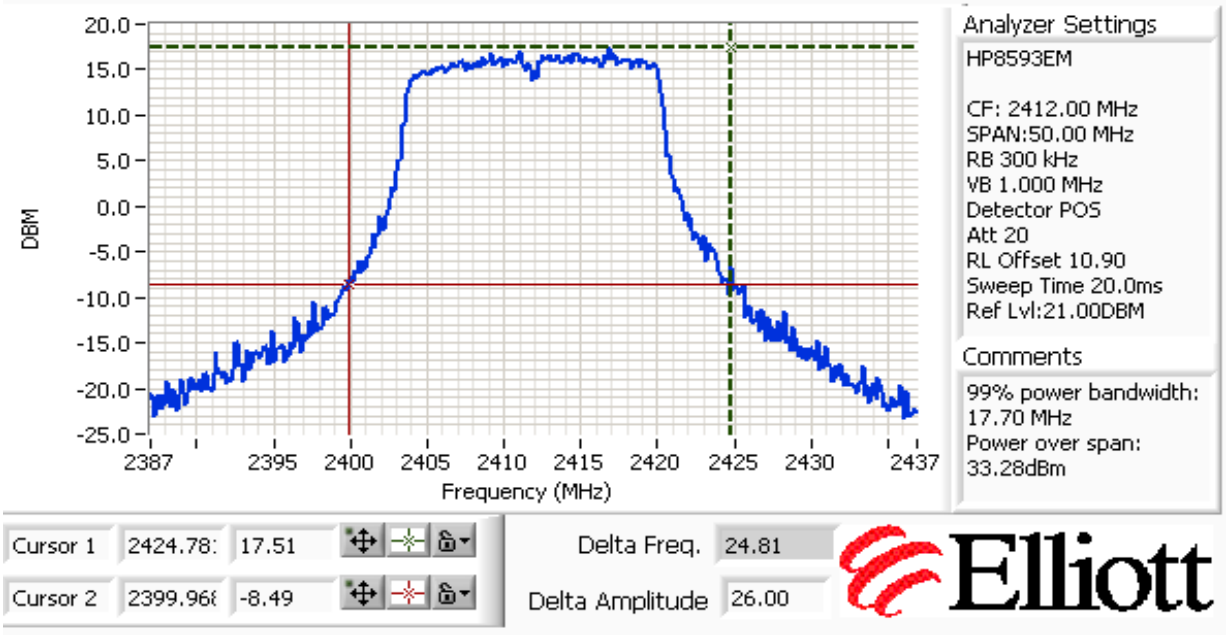
Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

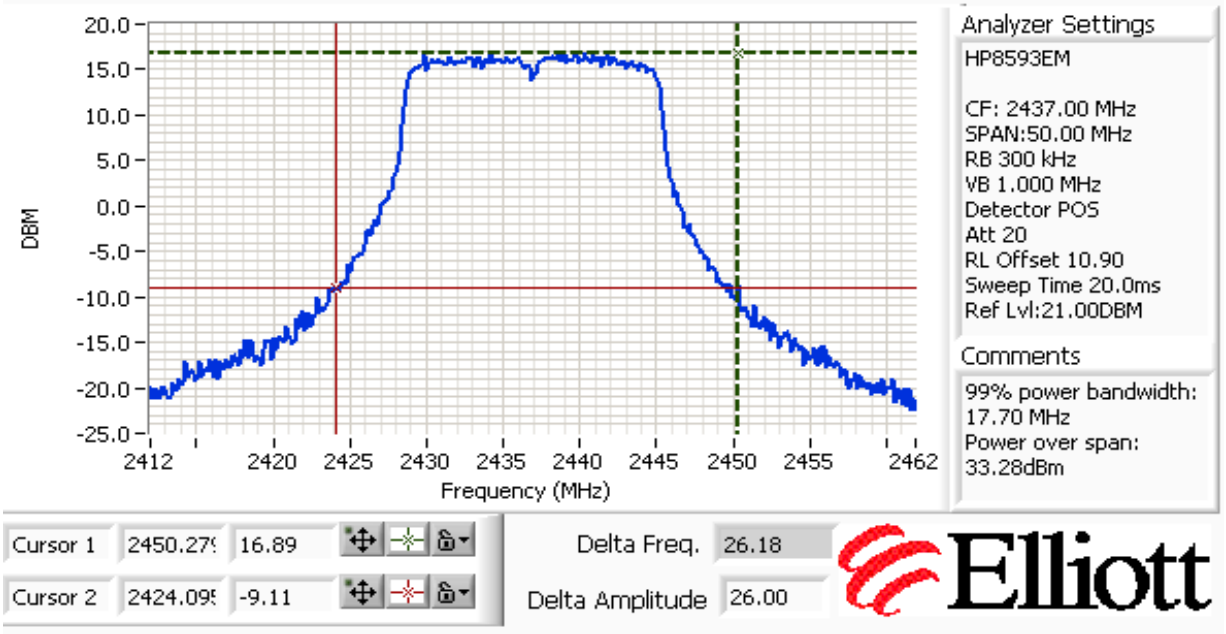




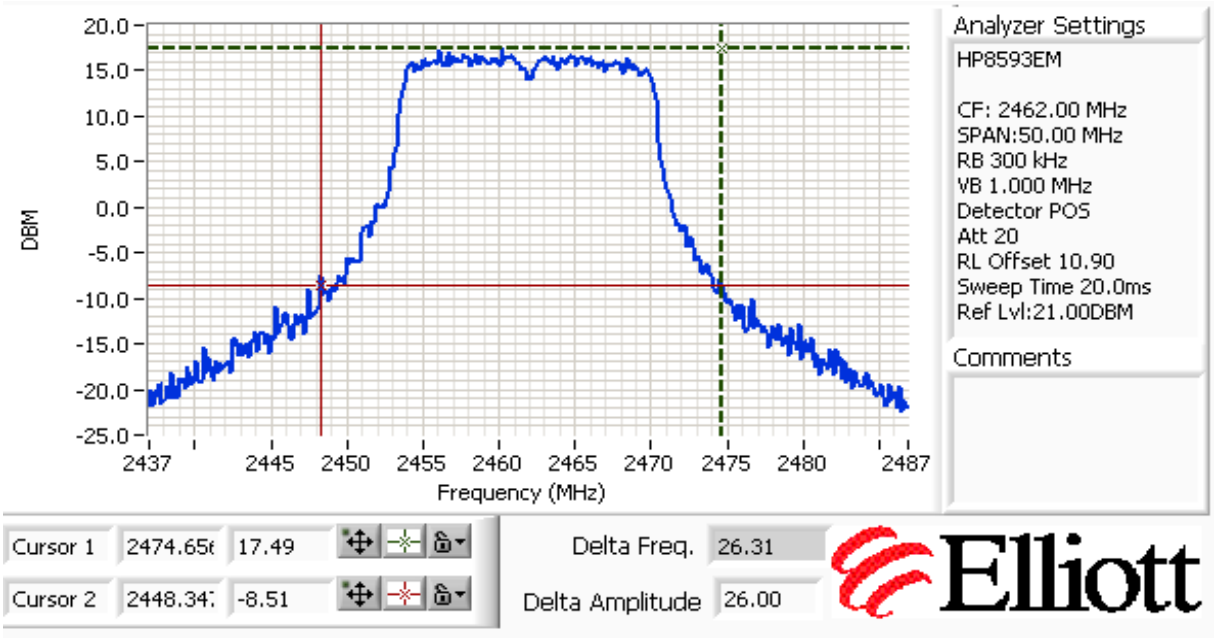
EMC Test Data

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A





Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A



Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

Run #3: Output Power

Maximum antenna gain: 1 dBi

Power Setting	Frequency (MHz)	Res BW MHz	Output Power Note 1 dBm	Output Power Note 1 W	EIRP W	Average Power Note 2 dBm	Average Power Note 2 W
24	2412	-	23	0.200	0.251	14.8	0.030
26	2437	-	30	1.000	1.259	25.6	0.363
22	2462	-	23	0.200	0.251	14.9	0.031

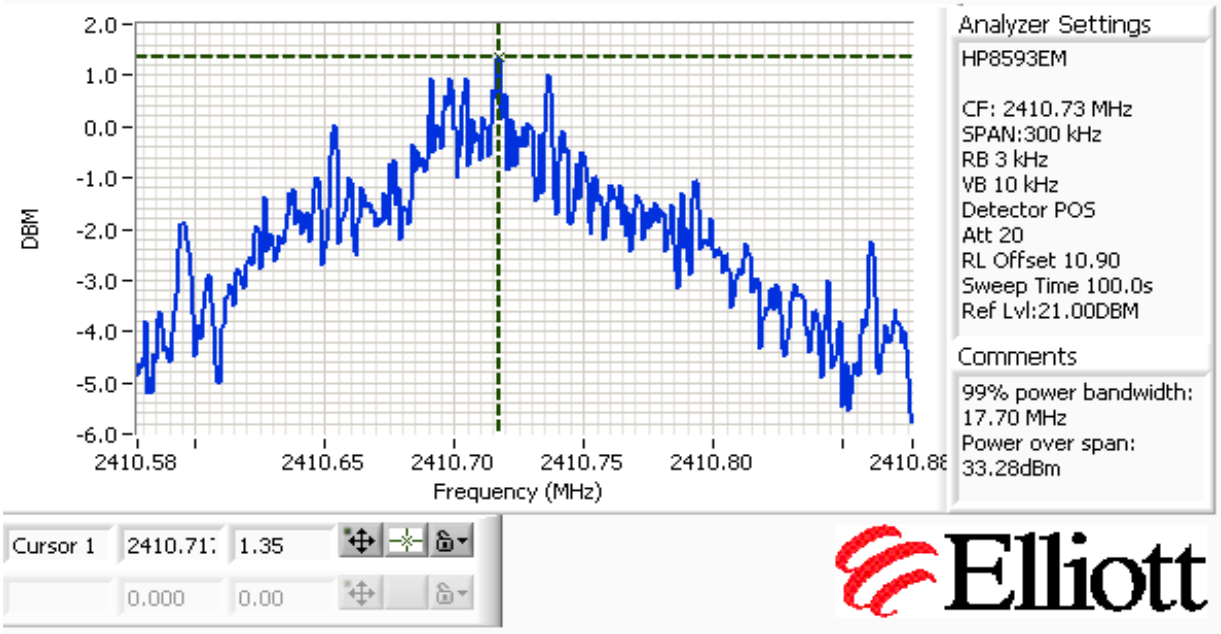
Note 1:	Output power measured using a peak power meter
Note 2:	Output power measured using an average power sensor - this value is for reference purposes only.

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

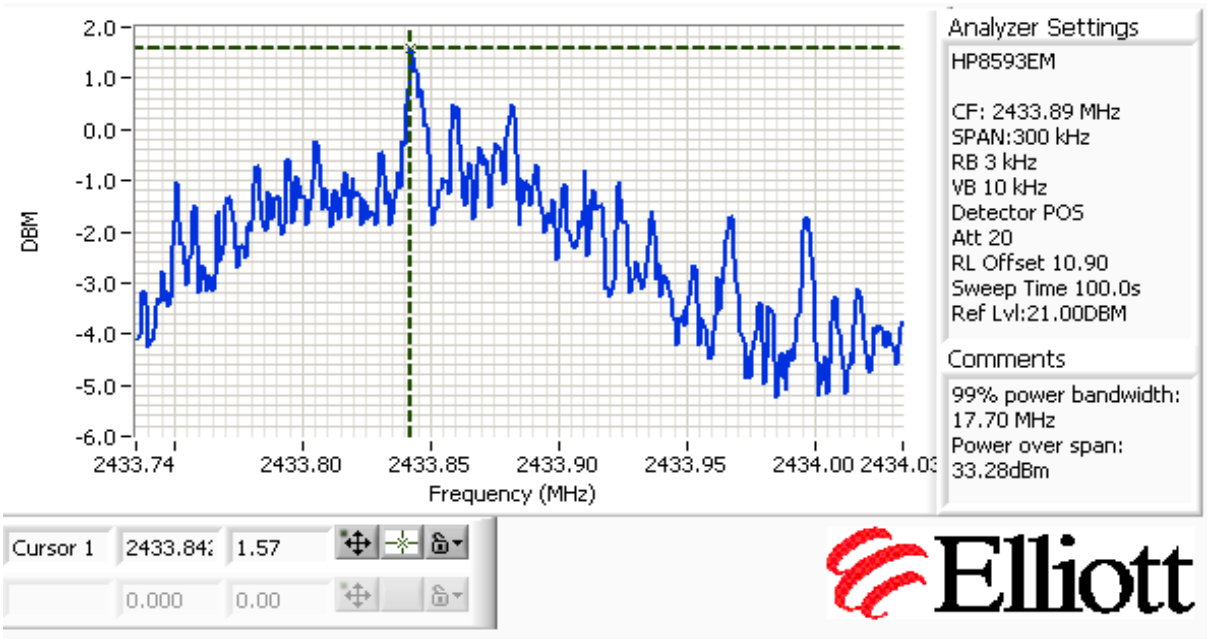
Run #4: Power Spectral Density

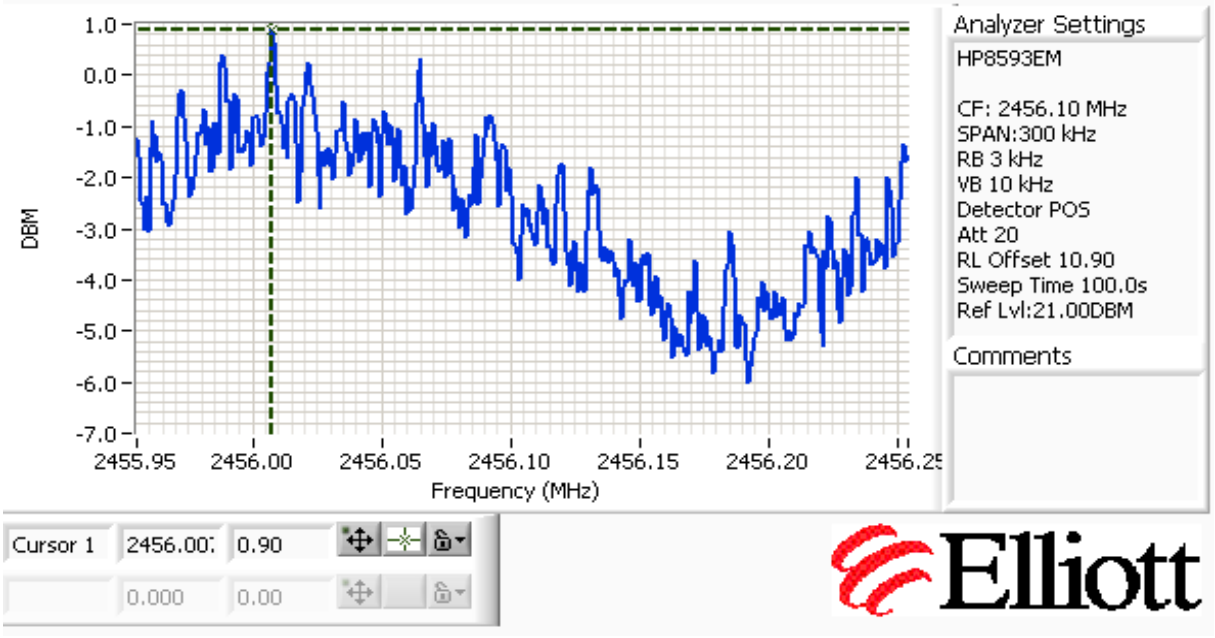
Power Setting	Operating Frequency (MHz)	Freq. @ PPSD	Res BW	P.S.D. (dBm/3kHz)
26	2412	-	3kHz	1.35
26	2437	-	3kHz	1.57
26	2462	-	3kHz	0.9

Note 1:	Freq. @ PPSD: Frequency of the Peak Power Spectral Density (PPSD)
Note 2:	Power spectral density measured using RB=3 kHz, VB=10kHz 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.



Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A





Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

FCC 15.247 DTS - Power, Bandwidth and Spurious Emissions (802.11b)

Test Specifics

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: 11/19/2005 Config. Used: 4

Test Engineer: Juan Martinez Config Change: None

Test Location: SVOATS #2 EUT Voltage: 120V/60Hz

General Test Configuration

When measuring the conducted emissions from the EUT's antenna port, the antenna port of the EUT was connected to the spectrum analyzer or power meter via a suitable attenuator to prevent overloading the measurement system. All measurements are corrected to allow for the external attenuators used.

Ambient Conditions:

Temperature: 17 °C

Rel. Humidity: 40 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Out of band, 30 - 26,000 MHz Spurious Emissions	15.247(c)	Pass	Refer to run
2	6dB Bandwidth	15.247(a)	Pass	Refer to run
3	Output Power	15.247(b)	Pass	27 dBm
4	Power Spectral Density (PSD)	15.247(d)	Pass	Refer to run

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

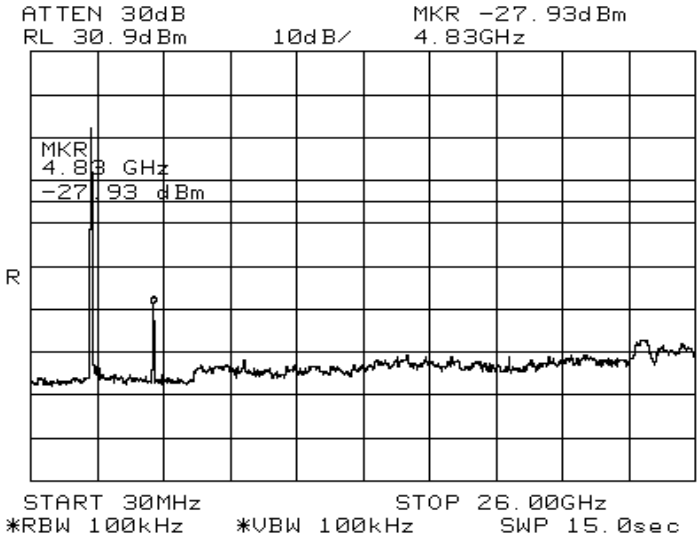
No deviations were made from the requirements of the standard.

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

Run #1: Antenna Conducted Spurious Emissions, 30 - 26,000 MHz.

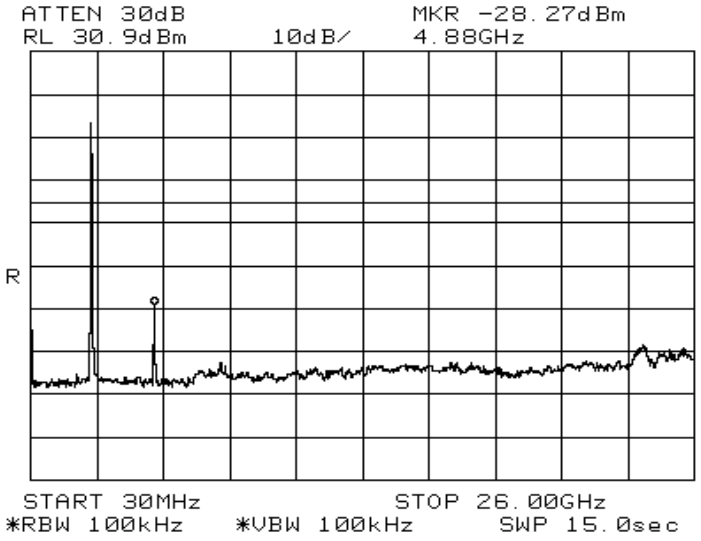
Refer to plots below. Scans made using RBW=VB=100 KHz with the limit line set at 20dB below the highest in-band signal level.

2412 MHz

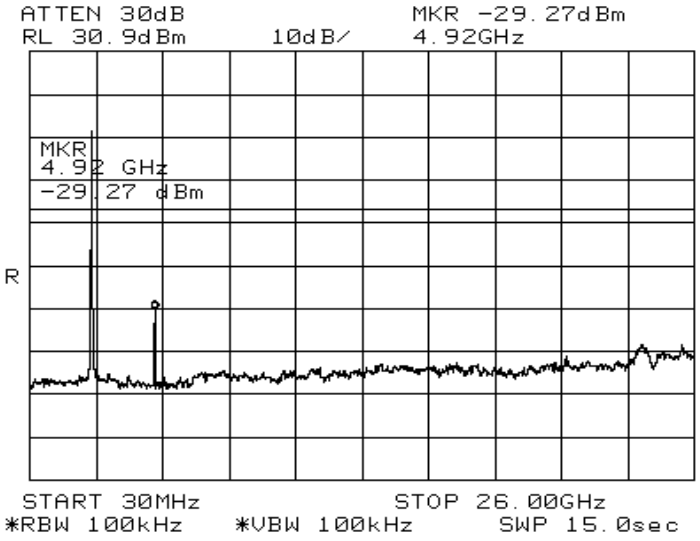


Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

2437 MHz



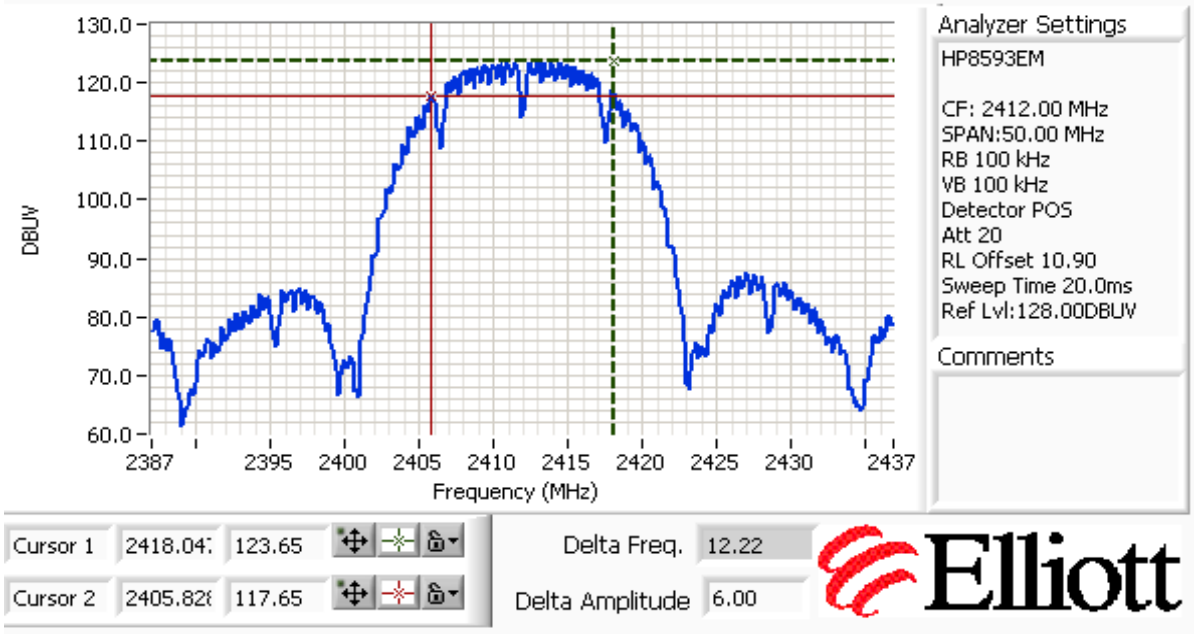
2462 MHz



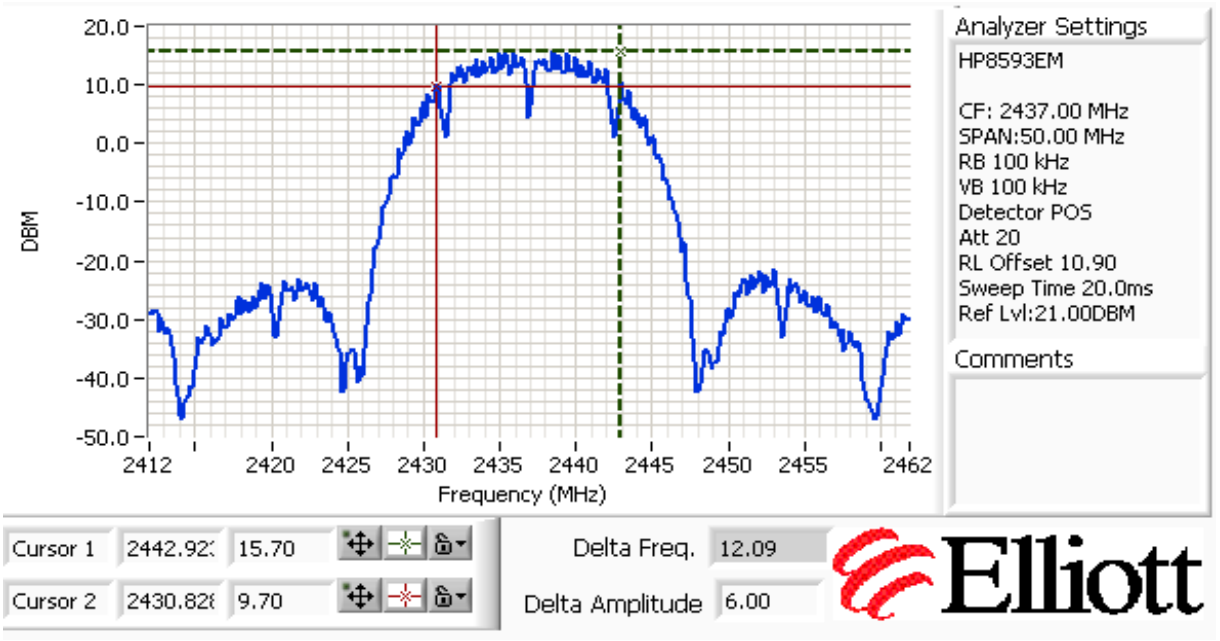
Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

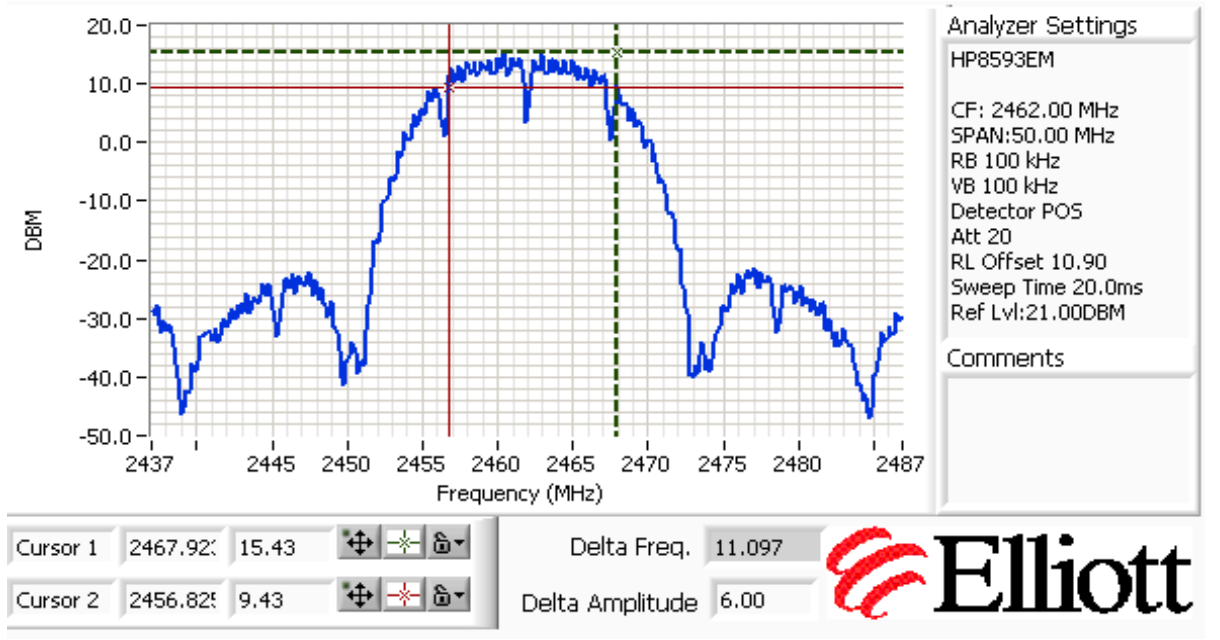
Run #2: Signal Bandwidth

Power Setting	Frequency (MHz)	Resolution Bandwidth	6dB Signal Bandwidth	99% Signal Bandwidth
23.5	2412	100kHz	12.22	18.83
25.5	2437	100kHz	12.09	19.08
26	2462	100kHz	11.1	18.95

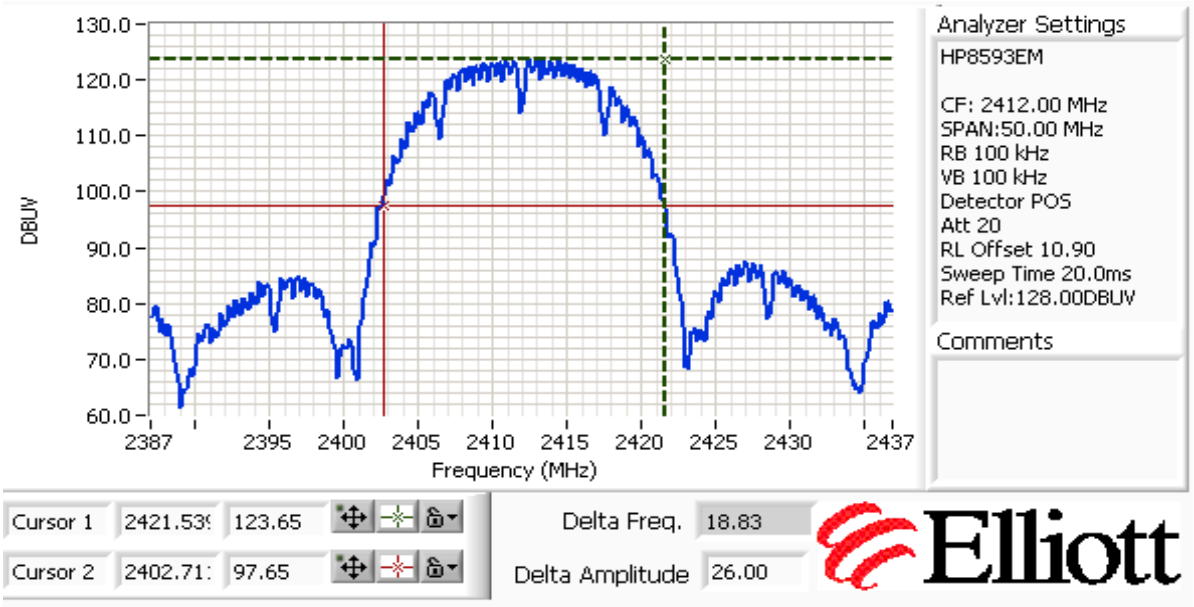


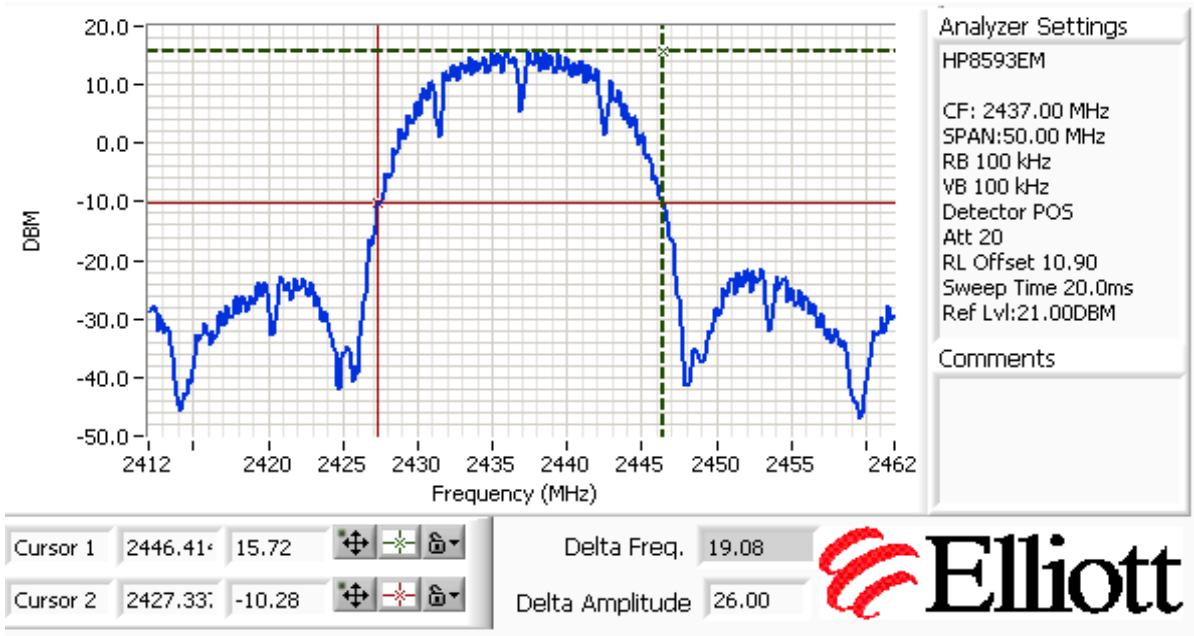
Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A





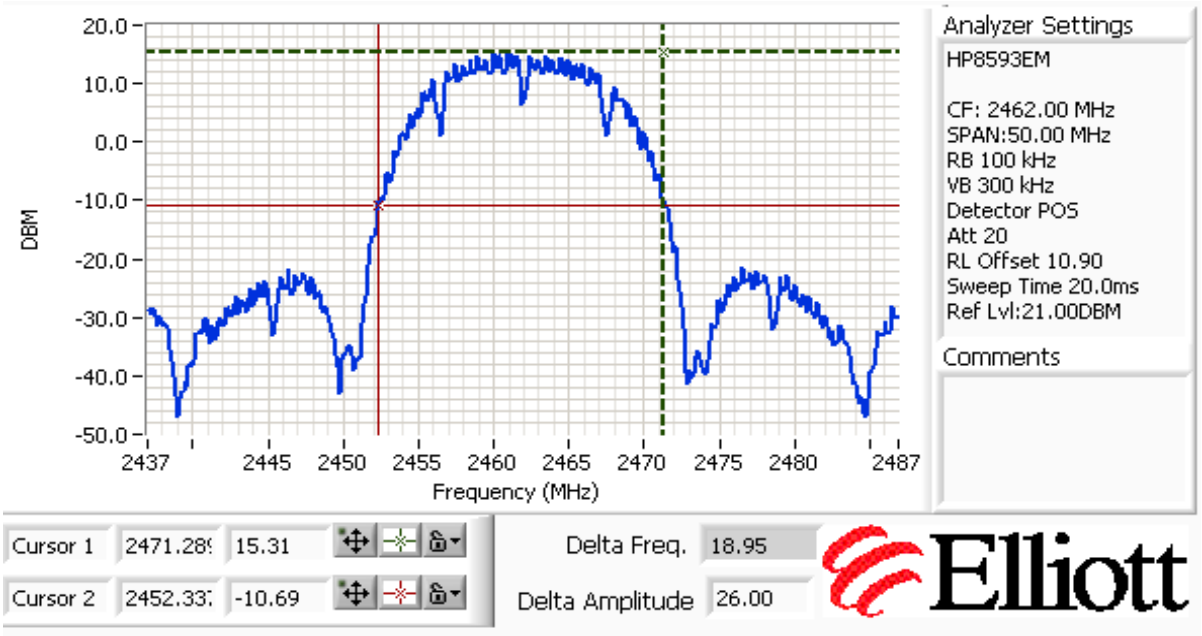
Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A





EMC Test Data

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A



Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

Run #3: Output Power

Maximum antenna gain: 1 dBi

Power Setting	Frequency (MHz)	Res BW MHz	Output Power Note 1 dBm	Output Power Note 1 W	EIRP W	Average Power Note 2 dBm	Average Power Note 2 W
20	2412	-	21.6	0.145	0.182	20	0.100
25.5	2437	-	27	0.501	0.631	25.5	0.355
20	2462	-	21.6	0.145	0.182	20	0.100

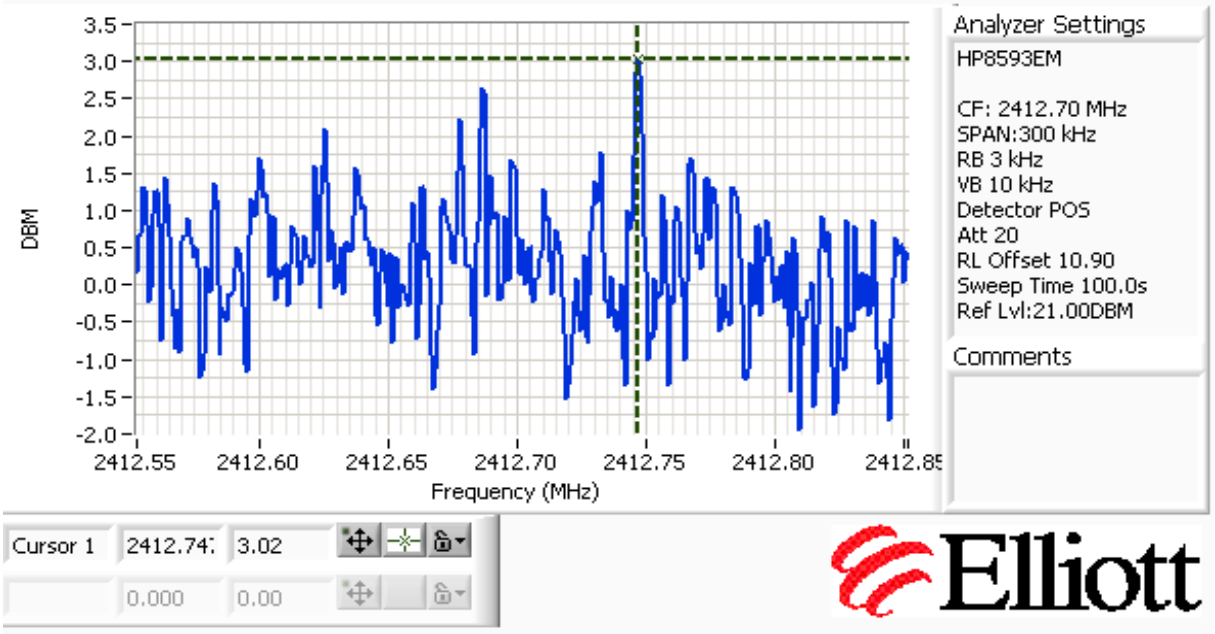
Note 1:	Output power measured using a peak power meter
Note 2:	Output power measured using an average power sensor - this value is for reference purposes only.

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

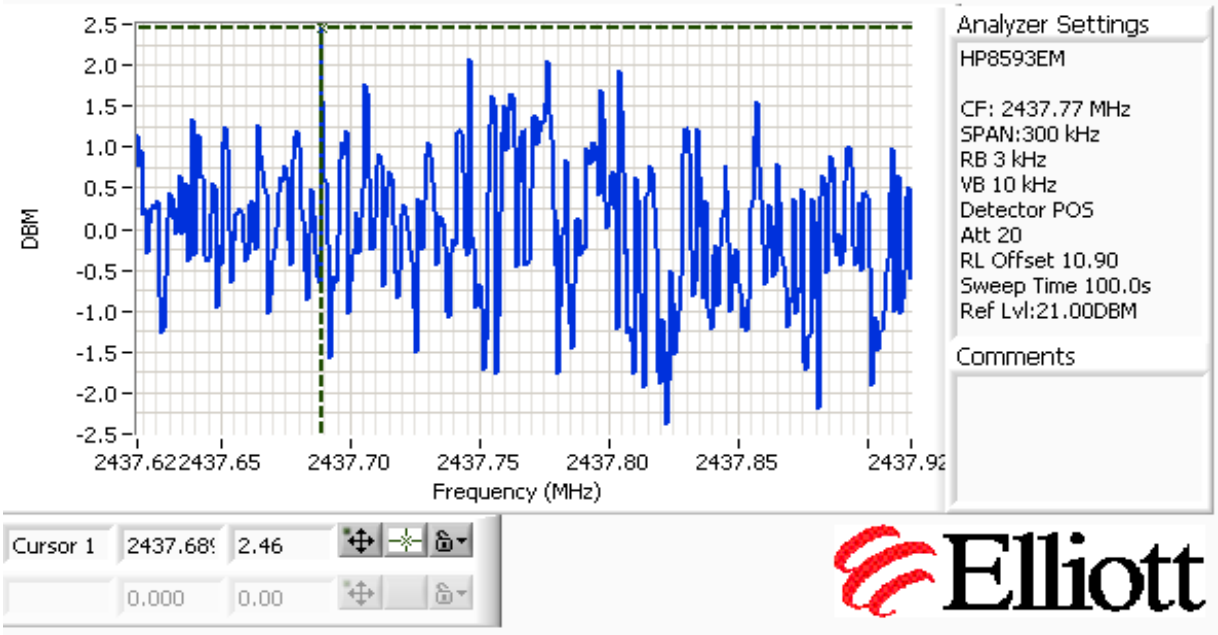
Run #4: Power Spectral Density

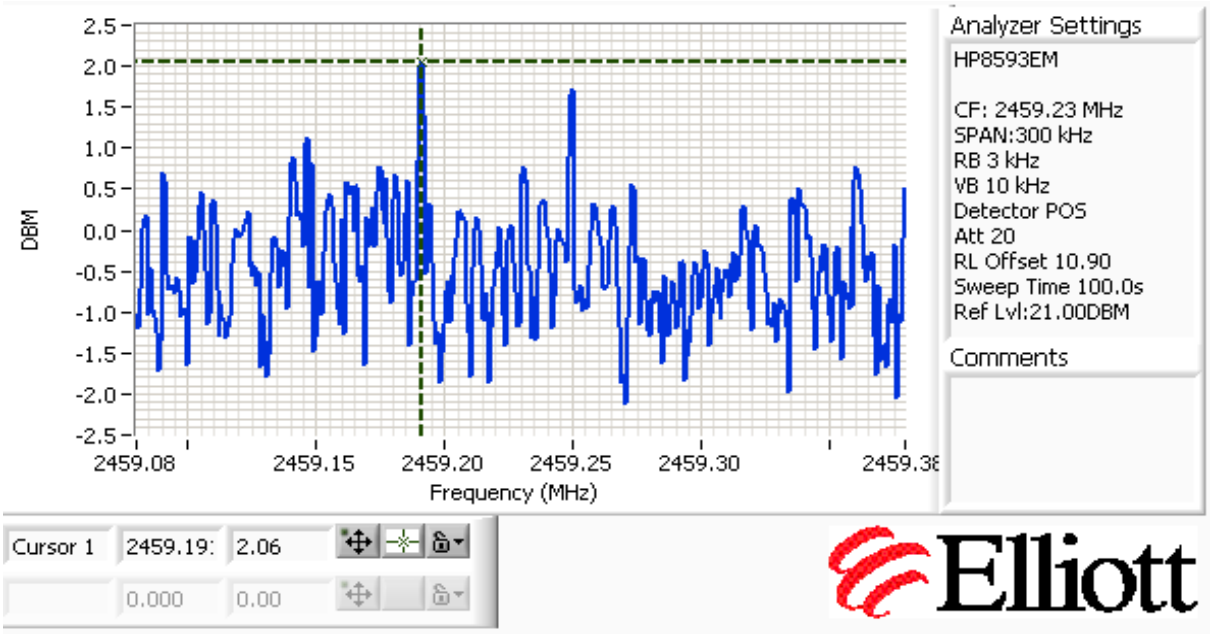
Power Setting	Operating Frequency (MHz)	Freq. @ PPSD	Res BW	P.S.D. (dBm/3kHz)
23.5	2412	-	3 kHz	3.02
25.5	2437	-	3 kHz	2.46
26	2462	-	3 kHz	2.06

Note 1:	Freq. @ PPSD: Frequency of the Peak Power Spectral Density (PPSD)
Note 2:	Power spectral density measured using RB=3 kHz, VB=10kHz 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.



Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A





Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

FCC 15.247 DTS - Spurious Emissions (802.11g)

Test Specifics

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: 11/19/2005 Config. Used: 4

Test Engineer: Juan Martinez Config Change: None

Test Location: SVOATS# 2 EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were 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 routed in overhead

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

Ambient Conditions:

Temperature: 17 °C

Rel. Humidity: 40 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	RE, .3 - 26 GHz - Spurious Emissions In Restricted Bands	FCC Part 15.209 / 15.247(c)	Pass	43.2dBµV/m (144.2µV/m) @ 4825.1MHz (-10.8dB)
1	RE, .3 - 26 GHz - Spurious Emissions In Restricted Bands	FCC Part 15.209 / 15.247(c)	Pass	39.1dBµV/m (89.6µV/m) @ 4872.9MHz (-15.0dB)
1	RE, .3 - 26 GHz - Spurious Emissions In Restricted Bands	FCC Part 15.209 / 15.247(c)	Pass	39.9dBµV/m (98.5µV/m) @ 4923.3MHz (-14.1dB)

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:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

Run #1a: Radiated Spurious Emissions, 30 - 26,000 MHz. Low Channel @ 2412 MHz

Other Spurious Emissions

Output = 26

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4825.100	43.2	H	54.0	-10.8	AVG	118	1.9	
4825.100	56.1	H	74.0	-18.0	PK	118	1.9	
7231.785	36.8	H	54.0	-17.2	AVG	157	1.8	
7231.785	49.5	H	74.0	-24.5	PK	157	1.8	
4824.383	40.0	V	54.0	-14.1	AVG	198	1.0	
4824.383	52.2	V	74.0	-21.8	PK	198	1.0	
7235.135	37.3	V	54.0	-16.7	AVG	266	1.1	
7235.135	50.3	V	74.0	-23.7	PK	266	1.1	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental.

Run #1b: Radiated Spurious Emissions, 30 - 26,000 MHz. Center Channel @ 2437 MHz

Output = 26

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4872.925	39.1	V	54.0	-15.0	AVG	204	1.0	
4872.925	51.2	V	74.0	-22.8	PK	204	1.0	
7309.540	39.0	V	54.0	-15.0	AVG	29	1.8	
7309.540	51.9	V	74.0	-22.1	PK	29	1.8	
4873.100	37.2	H	54.0	-16.8	AVG	287	1.5	
4873.100	49.3	H	74.0	-24.7	PK	287	1.5	
7310.315	35.6	H	54.0	-18.4	AVG	14	1.5	
7310.315	49.2	H	74.0	-24.8	PK	14	1.5	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental.

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

Run #1c: Radiated Spurious Emissions, 30 - 26,000 MHz. High Channel @ 2462 MHz

Other Spurious Emissions

Output = 26

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4923.284	39.9	H	54.0	-14.1	AVG	136	1.8	
4923.284	51.9	H	74.0	-22.1	PK	136	1.8	
7387.235	36.3	H	54.0	-17.7	AVG	14	1.5	
7387.235	49.3	H	74.0	-24.7	PK	14	1.5	
4922.840	39.4	V	54.0	-14.7	AVG	205	1.2	
4922.840	51.7	V	74.0	-22.3	PK	205	1.2	
7385.840	36.9	V	54.0	-17.1	AVG	162	1.2	
7385.840	49.1	V	74.0	-24.9	PK	162	1.2	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental.

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

FCC 15.247 DTS - Spurious Emissions (802.11b)

Test Specifics

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: 11/19/2005 Config. Used: 4

Test Engineer: Juan Martinez Config Change: None

Test Location: SVOATS# 2 EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were 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 routed in overhead

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

Ambient Conditions:

Temperature: 17 °C

Rel. Humidity: 40 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	RE, .3 - 26 GHz - Spurious Emissions In Restricted Bands	FCC Part 15.209 / 15.247(c)	Pass	53.1dBµV/m (451.3µV/m) @ 4823.8MHz (-0.9dB)
1	RE, .3 - 26 GHz - Spurious Emissions In Restricted Bands	FCC Part 15.209 / 15.247(c)	Pass	53.6dBµV/m (479.7µV/m) @ 4874.0MHz (-0.4dB)
1	RE, .3 - 26 GHz - Spurious Emissions In Restricted Bands	FCC Part 15.209 / 15.247(c)	Pass	52.7dBµV/m (432.5µV/m) @ 4924.0MHz (-1.3dB)

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:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

Run #1a: Radiated Spurious Emissions, 30 - 26,000 MHz. Low Channel @ 2412 MHz

Other Spurious Emissions

Output = 23.5

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4823.785	53.1	H	54.0	-0.9	AVG	119	1.9	
4823.785	53.8	H	74.0	-20.2	PK	119	1.9	
7237.050	35.9	H	54.0	-18.1	AVG	156	1.0	
7237.050	45.8	H	74.0	-28.3	PK	156	1.0	
4823.985	52.3	V	54.0	-1.7	AVG	181	1.1	
4823.985	53.4	V	74.0	-20.6	PK	181	1.1	
7236.545	40.2	V	54.0	-13.8	AVG	267	1.3	
7236.545	47.7	V	74.0	-26.3	PK	267	1.3	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental.

Run #1b: Radiated Spurious Emissions, 30 - 26,000 MHz. Center Channel @ 2437 MHz

Output = 25.5

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4873.980	53.6	H	54.0	-0.4	AVG	128	2.0	
4873.980	54.7	H	74.0	-19.3	PK	128	2.0	
7310.200	41.4	H	54.0	-12.6	AVG	181	1.7	
7310.200	47.8	H	74.0	-26.2	PK	181	1.7	
4873.970	50.4	V	54.0	-3.6	AVG	62	1.8	
4873.970	51.6	V	74.0	-22.4	PK	62	1.8	
7310.125	41.6	V	54.0	-12.4	AVG	183	1.2	
7310.125	48.6	V	74.0	-25.4	PK	183	1.2	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental.

Client:	2Wire	Job Number:	J61687
Model:	2700 HGV - Modified	T-Log Number:	T61804
		Account Manager:	Mark Hill
Contact:	Jeremy Muir		
Spec:	FCC 15.247, EN55022/FCC	Class:	N/A

Run #1c: Radiated Spurious Emissions, 30 - 26,000 MHz. High Channel @ 2462 MHz

Other Spurious Emissions

Output = 26

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4923.950	52.7	H	54.0	-1.3	AVG	138	1.9	
4923.950	53.9	H	74.0	-20.1	PK	138	1.9	
7387.085	36.1	H	54.0	-17.9	AVG	13	1.7	
7387.085	45.4	H	74.0	-28.6	PK	13	1.7	
4923.945	48.3	V	54.0	-5.7	AVG	180	1.6	
4923.945	49.8	V	74.0	-24.2	PK	180	1.6	
7384.750	38.2	V	54.0	-15.8	AVG	27	1.4	
7384.750	46.7	V	74.0	-27.3	PK	27	1.4	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental.

EXHIBIT 3: Photographs of Test Configurations

Pages

EXHIBIT 4: Proposed FCC ID Label & Label Location

EXHIBIT 5: Detailed Photographs of 2Wire, Inc. Model 2700 HGVConstruction

Pages

EXHIBIT 6: Operator's Manual for 2Wire, Inc. Model 2700 HGV

Pages

EXHIBIT 7: Block Diagram of 2Wire, Inc. Model 2700 HGV

Pages

EXHIBIT 8: Schematic Diagrams for 2Wire, Inc. Model 2700 HGV

Pages

EXHIBIT 9: Theory of Operation for 2Wire, Inc. Model 2700 HGV

Pages

EXHIBIT 10: RF Exposure Information

Pages