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Electromagnetic Emissions Test Report and Application for Grant of Equipment Authorization pursuant to FCC Part 15 Subpart C on the Cisco-Linksys Transmitter Model: WRT600N

FCC ID:	Q87-WRT600NV1
GRANTEE:	Cisco-Linksys 121 Theory Drive Irvine, CA 92617
TEST SITE:	Elliott Laboratories, Inc. 41039 Boyce Road Fremont, CA 94538-2435
REPORT DATE:	September 7, 2007
FINAL TEST DATE:	August 19, August 24 and August 30, 2007
AUTHORIZED SIGNATORY:	Mark E. Hill Staff Engineer

ACCREDITED
2016-01

REVISION HISTORY

Revision #	Date	Comments	Modified By
1	September 7, 2007	Initial Release	David Guidotti

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SCOPE

An electromagnetic emissions test has been performed on the Cisco-Linksys LLC model WRT600N 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 Cisco-Linksys LLC model WRT600N and therefore apply only to the tested sample. The sample was selected and prepared by Jennifer Yu of Cisco-Linksys

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 Cisco-Linksys LLC model WRT600N 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 (5725 – 5850 MHz)

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.247(a)	RSS 210 A8.2	Digital Modulation	Systems uses OFDM techniques	-	Complies
15.247 (a) (2)	RSS 210 A8.2 (1)	6dB Bandwidth	802.11Siso = 35.6 MHz 802.11a Legacy = 16.3 MHz 802.11n 20MHz = 17.2 MHz 802.11n 40MHz = 36.4 MHz	>500kHz	Complies
	RSP100	99% Bandwidth	802.11Siso = 36.8 MHz 802.11a Legacy = 17.0 MHz 802.11n 20MHz = 18.0 MHz 802.11n 40MHz = 36.6MHz	Information only	Complies
15.247 (b) (3)	RSS 210 A8.2 (4)	Output Power (multipoint systems)	18.2 dBm (.0662 Watts) EIRP = 0.311 W Note 1	1Watt, EIRP limited to 4 Watts.	Complies
15.247(d)	RSS 210 A8.2 (2)	Power Spectral Density	-7.1 dBm/3kHz	8dBm/3kHz	Complies
15.247(c)	RSS 210 A8.5	Antenna Port Spurious Emissions 30MHz – 25 GHz	Refer to plots	< -30dBc Note 2	Complies
15.247(c) / 15.209	RSS 210 A8.5	Radiated Spurious Emissions 30MHz – 25 GHz	51.4dBµV/m (371.5µV/m) @ 1649.9MHz (-2.6dB)	15.207 in restricted bands, all others <-30dBc Note 2, 3	Complies

Note 1: EIRP calculated using antenna gain of 3.7 dBi 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 RSS 210 section A8.4(4).

Note 3: Preliminary testing showed no radio emissions below 1 GHz or above 18 GHz.

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Integral to the device. User will not have access or be able to open the device.		Complies
15.109	RSS GEN 7.2.3 Table 1	Receiver spurious emissions	49.5dBµV/m (298.5µV/m) @ 3856.6MHz	Refer to standard	Complies (- 4.5 dB)
15.207	RSS GEN Table 2	AC Conducted Emissions	Not Applicable to this permissive change	Refer to standard	N/A
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Refer to MPE calculations in Exhibit 11, RSS 102 declaration and User Manual statements.	Refer to OET 65, FCC Part 1 and RSS 102	Complies
	RSP 100 RSS GEN 7.1.5	User Manual		Statement required regarding non-interference	Complies

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	± 3.0
Radiated Emissions	30 to 1000	± 3.6
Radiated Emissions	1000 to 40000	± 6.0

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The EUT is a Dual-band Wireless-N Router that is designed to provide wireless internet and networking services. 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 is 120 Volts, 60 Hz, .5 Amps.

The sample was received on August 19, 2007 and tested on August 19, August 24 and August 30, 2007. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
Cisco-Linksys LLC	WRT600N	Dual-band Wireless-N Router	-	Q87-WRT600NV1

ANTENNA SYSTEM

The integral antenna system used with the Cisco-Linksys LLC model WRT600N consists of a diple antenna with a maximum gain of 3.6dBi, PiFA antenna maximum gain 2.5, and a PCB antenna maximum gain 1.9dBi.

ENCLOSURE

The EUT enclosure is primarily constructed of plastic. It measures approximately 30 cm wide by 5 cm deep by 25 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
-	-	-	-	-

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

Manufacturer	Model	Description	Serial Number	FCC ID
Hewlett Packard	Zv6000	Laptop	CBD52904S1	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	1.0
AC power	AC mains	-	-	-

EUT OPERATION

During emissions testing the EUT was set to either to transmit at maximum power or receive on appropriate channels.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on August 19, August 24 and August 30, 2007at the Elliott Laboratories Anechoic Chamber located at 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.

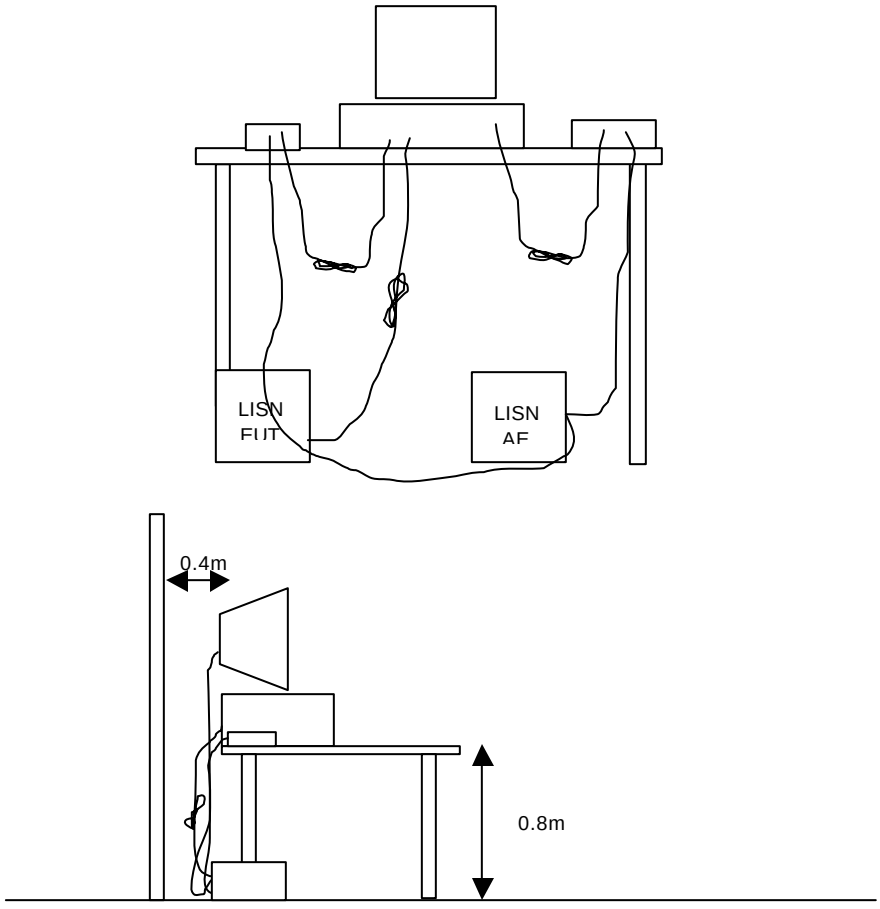
TEST PROCEDURES

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.



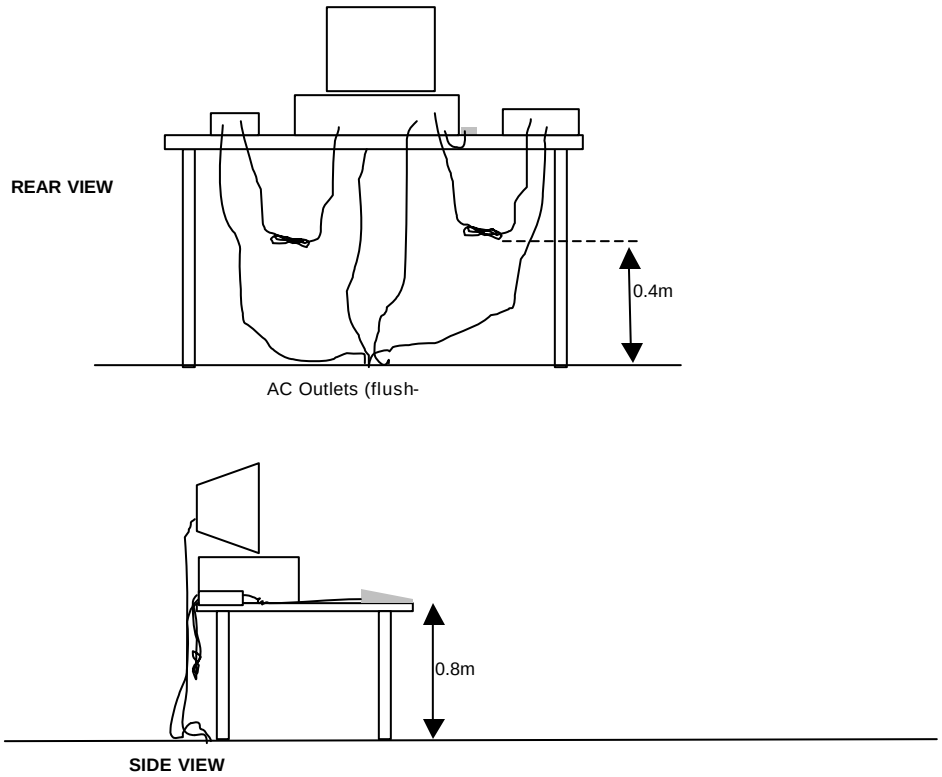
RADIATED EMISSIONS

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.

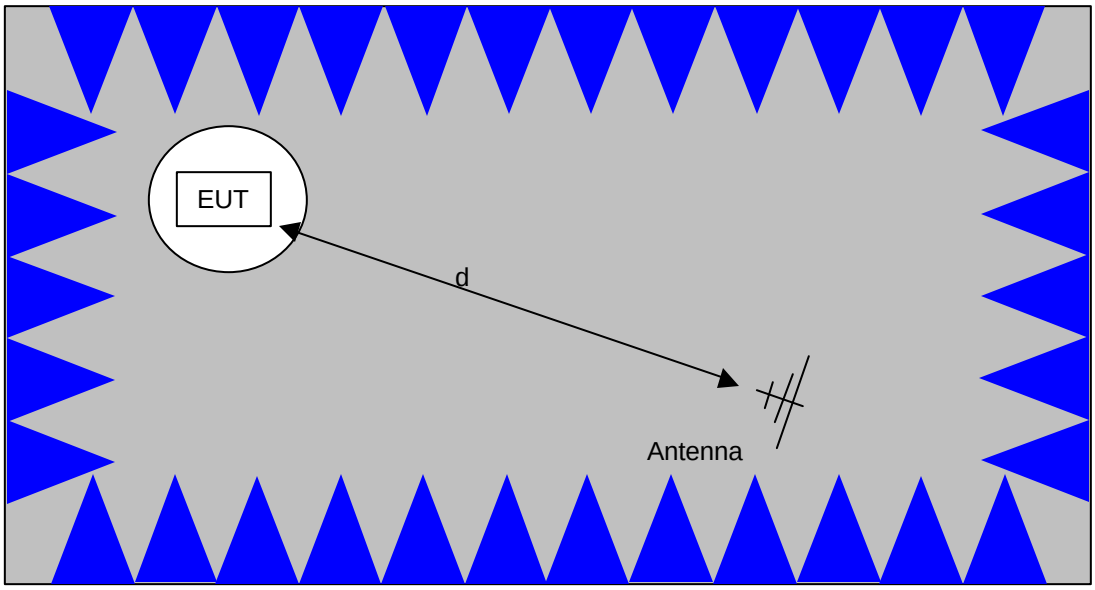
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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.

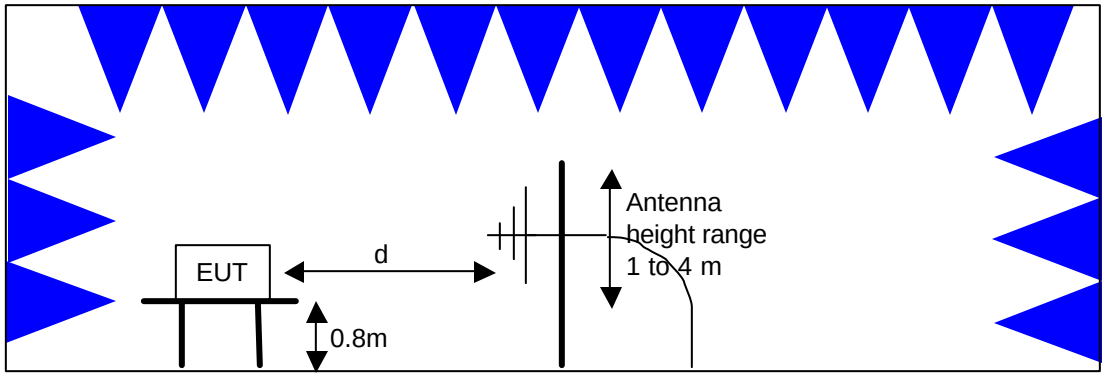


Typical Test Configuration for Radiated Field Strength Measurements



The 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

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 bands[1] (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

RECEIVER RADIATED SPURIOUS EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from receivers as detailed in FCC Part 15.109, RSS 210 Table 2, RSS GEN Table 1 and RSS 310 Table 3. Note that receivers operating outside of the frequency range 30 MHz – 960 MHz are exempt from the requirements of 15.109.

Frequency Range (MHz)	Limit (uV/m @ 3m)	Limit (dBuV/m @ 3m)
30 to 88	100	40
88 to 216	150	43.5
216 to 960	200	46.0
Above 960	500	54.0

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

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

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:

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

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

Radio Antenna Port (Power and Spurious Emissions), 28-Aug-07
Engineer: Mehran Birgani

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FMT (SA40) Blue	8564E (84125C)	1393	17-Jan-08

Radiated Emissions, 1000 - 18000 MHz, 30-Aug-07
Engineer: Rafael Varelas

Manufacturer	Description	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	16-Mar-08
EMCO	Antenna, Horn, 1-18 GHz	3115	786	28-Nov-07
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FMT (SA40) Blue	8564E (84125C)	1393	17-Jan-08

EXHIBIT 2: Test Measurement Data

105 Pages

Elliott

EMC Test Data

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		-
Emissions Standard(s):	FCC 15.247 & RSS-210	Class:	Radio
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Cisco-Lynksys

Model

WRT600N

Date of Last Test:

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manger:	-
Contact:	Kevin Lee		
Emissions Standard(s):	FCC 15.247 & RSS-210	Class:	Radio
Immunity Standard(s):	-	Environment:	-

EUT INFORMATION

The following information was collected during the test session(s).
The client agreed to provide the following information after the test session(s).

General Description

The EUT is a Dual-band Wireless-N Router that is designed to provide wireless internet and networking services. Since the EUT would be placed on a table top during operation, the EUT was treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 120 Volts , 60 Hz, .5 Amps.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Cisco-Linksys LLC	WRT600N	Dual-band Wireless-N	-	Q87-WRT600NV1

EUT Antenna (Intentional Radiators Only)

The antenna is integral to the device. A diple antenna with a maximum gain of 3.6dBi, PiFA antenna maximum gain 2.5, and a PCB antenna maximum gain 1.9dBi.

EUT Enclosure

The EUT enclosure is primarily constructed of plastic. It measures approximately 30 cm wide by 5 cm deep by 25 cm high.

Modification History

Mod. #	Test	Date	Modification
1	-	-	None

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

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manger:	-
Contact:	Kevin Lee		
Emissions Standard(s):	FCC 15.247 & RSS-210	Class:	Radio
Immunity Standard(s):	-	Environment:	-

Test Configuration #1

The following information was collected during the test session(s).
The client agreed to provide the following information after the test session(s).

Local Support Equipment

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

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Hewlett Packard	zv6000	Laptop	CND52904S1	DoC

Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Ethernet	Laptop	Cat5	Unshielded	1.0
AC Power	AC Mains	-	-	-

EUT Operation During Emissions Tests

During emissions testing the EUT was set to either to transmit at maximum power or receive on appropriate channels.

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

RSS 210 and FCC 15.247 Radiated 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: 8/30/2007
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #3
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated emissions testing.

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

Ambient Conditions:

Temperature: 22.4 °C
Rel. Humidity: 41 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1 (Legacy Mode)	RE, 1000 - 18000 MHz - Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	49.5dBµV/m (298.5µV/m) @ 3856.6MHz (-4.5dB)
2(20MHz CDD Mode)	RE, 1000 - 18000 MHz - Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	48.7dBµV/m (272.3µV/m) @ 3856.7MHz (-5.3dB)
3(40MHz SISO Mode)	RE, 1000 - 18000 MHz - Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	47.5dBµV/m (237.1µV/m) @ 3836.6MHz (-6.5dB)
4(40MHz CDD Mode)	RE, 1000 - 18000 MHz - Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	46.5dBµV/m (211.3µV/m) @ 4894.0MHz (-7.5dB)

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

Modifications Made During Testing

No modifications were made to the EUT during testing

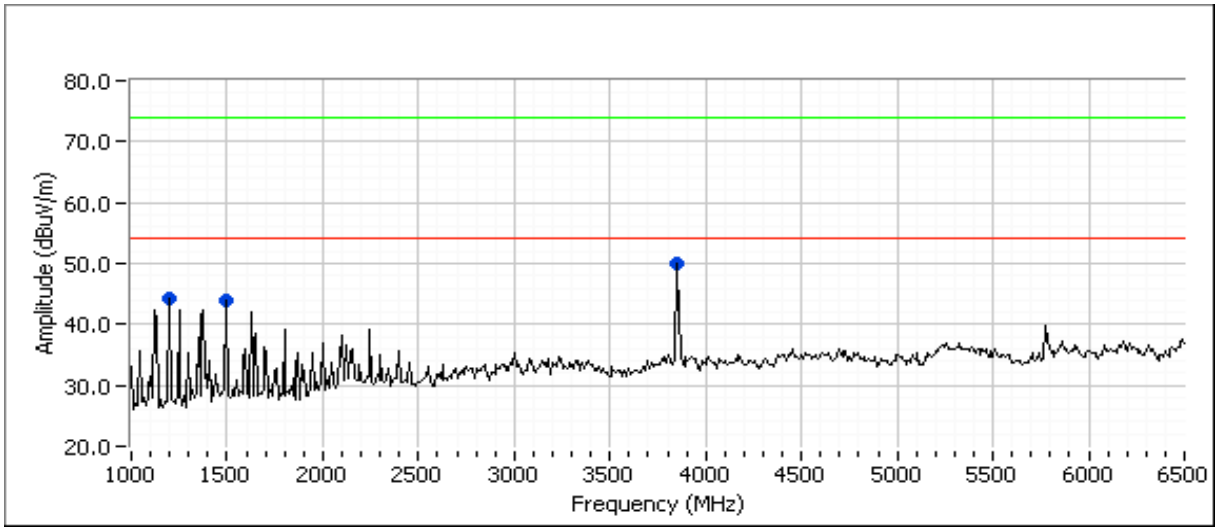
Deviations From The Standard

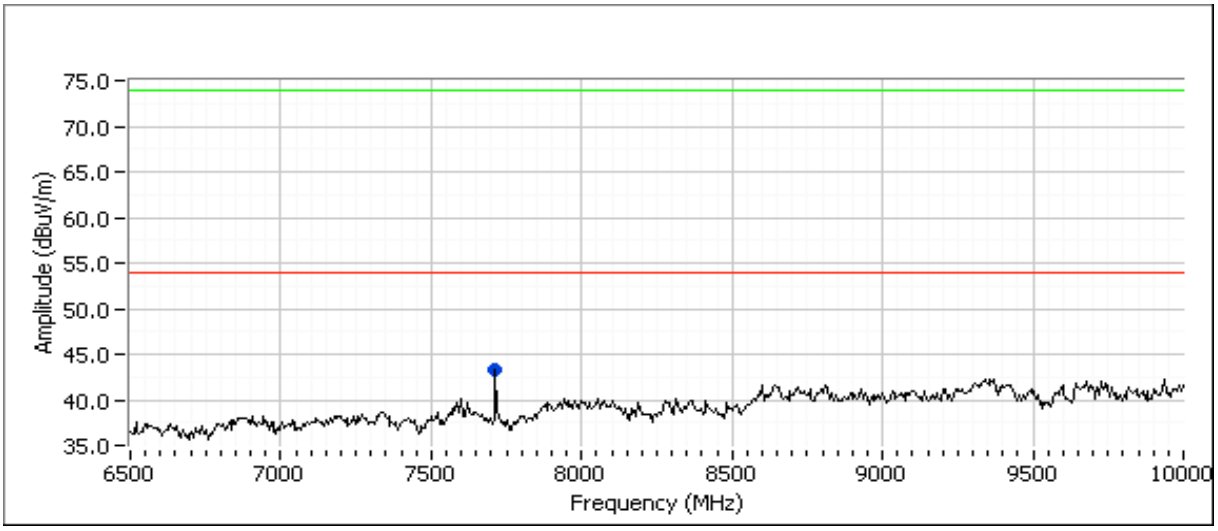
No deviations were made from the requirements of the standard.

Note: Preliminary testing showed no radio related emissions below 1 GHz, and no emissions above 18 GHz.

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

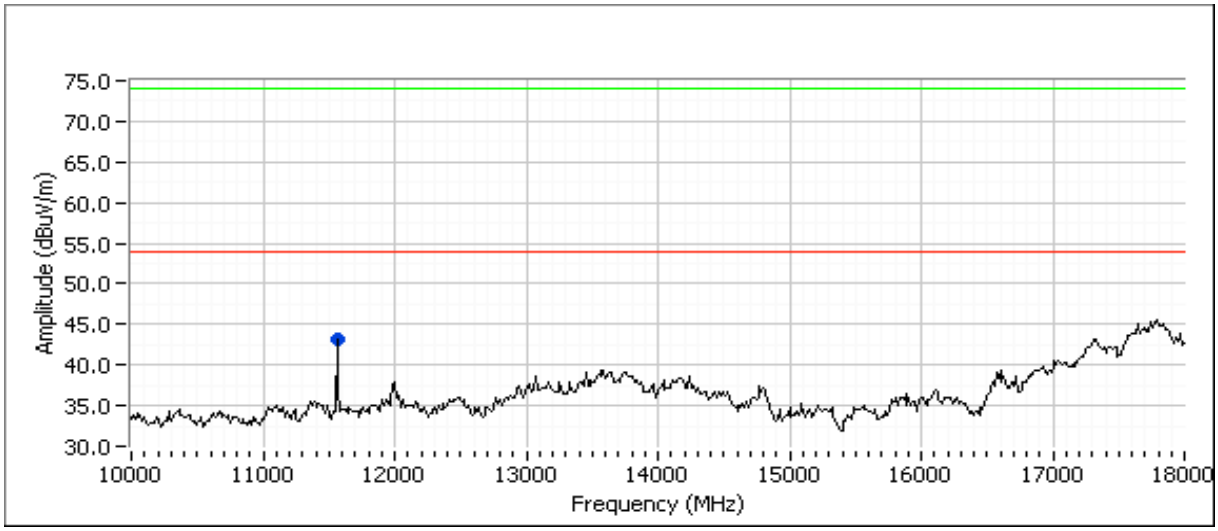
Run #1: Radiated Emissions, 1000 - 18000 MHz. Operating Mode: Legacy Mode
RX on Center Channel @ 5785 MHz





Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

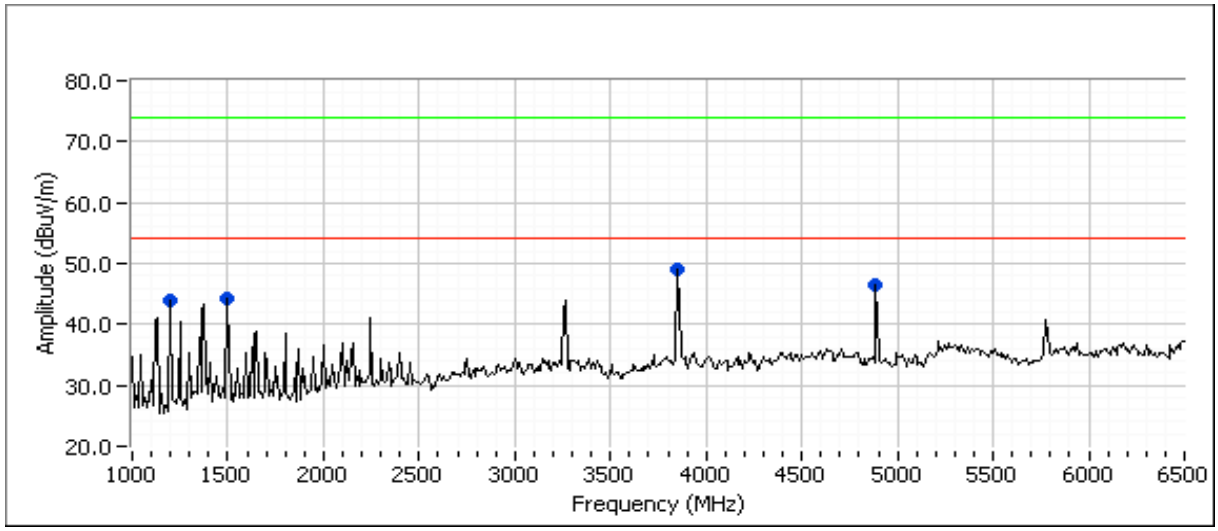
Run #1: Continued

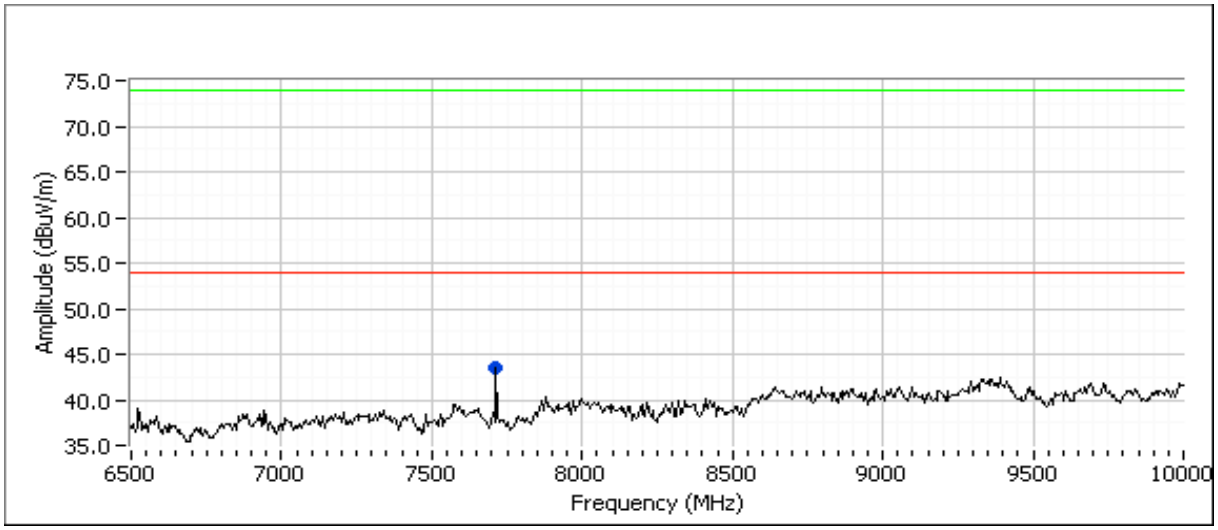


Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3856.640	49.5	V	54.0	-4.5	AVG	85	1.6	
1495.000	44.0	V	54.0	-10.0	Peak	197	1.0	
1199.960	43.8	V	54.0	-10.2	AVG	228	1.0	
7713.330	43.4	V	54.0	-10.6	Peak	133	1.6	
11560.00	43.2	V	54.0	-10.8	Peak	42	1.3	
3856.640	51.3	V	74.0	-22.7	PK	85	1.6	
1199.960	45.8	V	74.0	-28.2	PK	228	1.0	

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

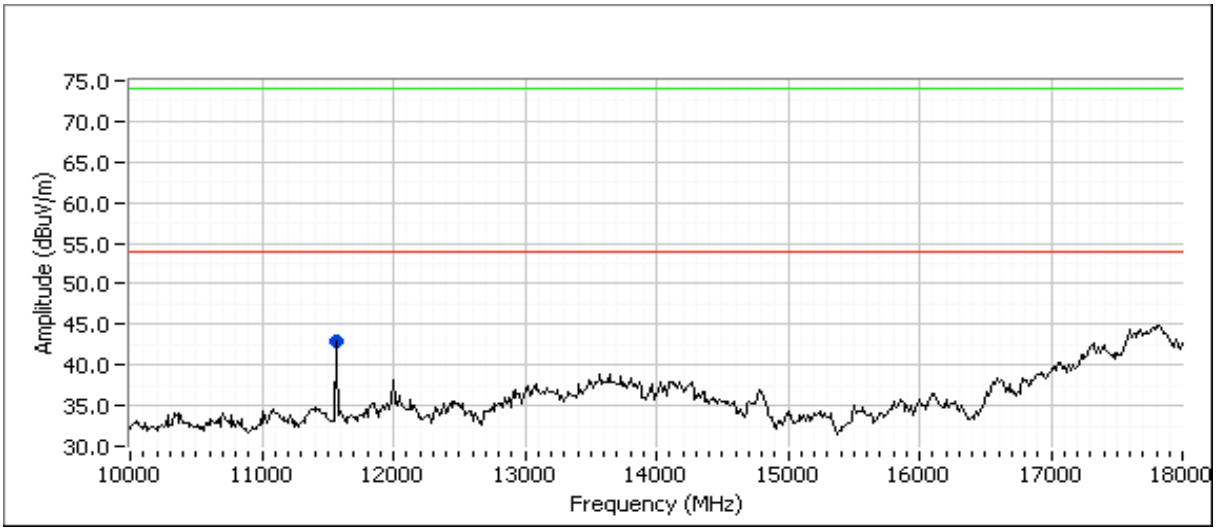
Run #2: Radiated Emissions, 1000 - 18000 MHz. Operating Mode: 20MHz CDD Mode
RX on Center Channel @ 5785 MHz





Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

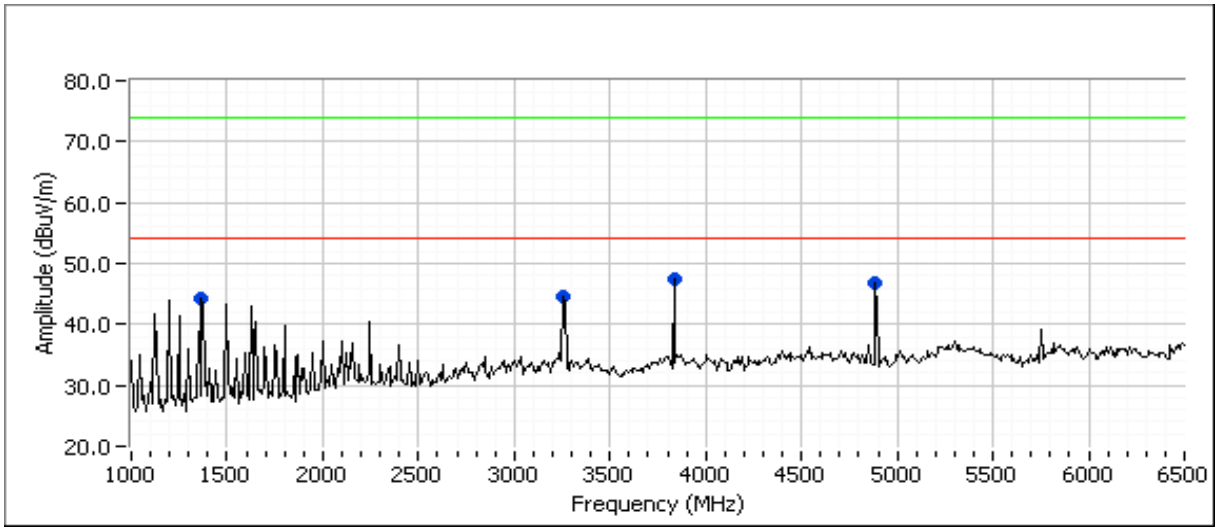
Run #2: Continued

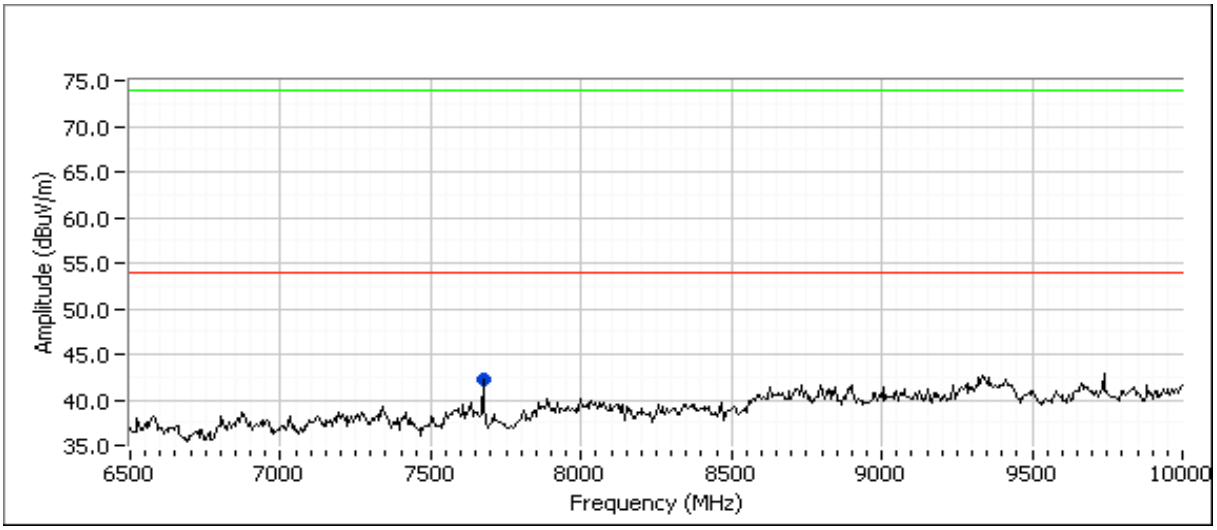


Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3856.65	48.7	V	54.0	-5.3	AVG	107	1.9	
4894.00	46.1	V	54.0	-7.9	AVG	201	1.6	
1192.500	43.9	V	54.0	-10.1	Peak	224	1.0	
7713.330	43.5	V	54.0	-10.5	Peak	128	1.6	
11560.00	42.9	V	54.0	-11.1	Peak	37	1.3	
1500.01	40.0	V	54.0	-14.0	AVG	200	2.0	
3856.65	50.8	V	74.0	-23.2	PK	107	1.9	
4894.00	48.5	V	74.0	-25.5	PK	201	1.6	
1500.01	45.5	V	74.0	-28.5	PK	200	2.0	

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

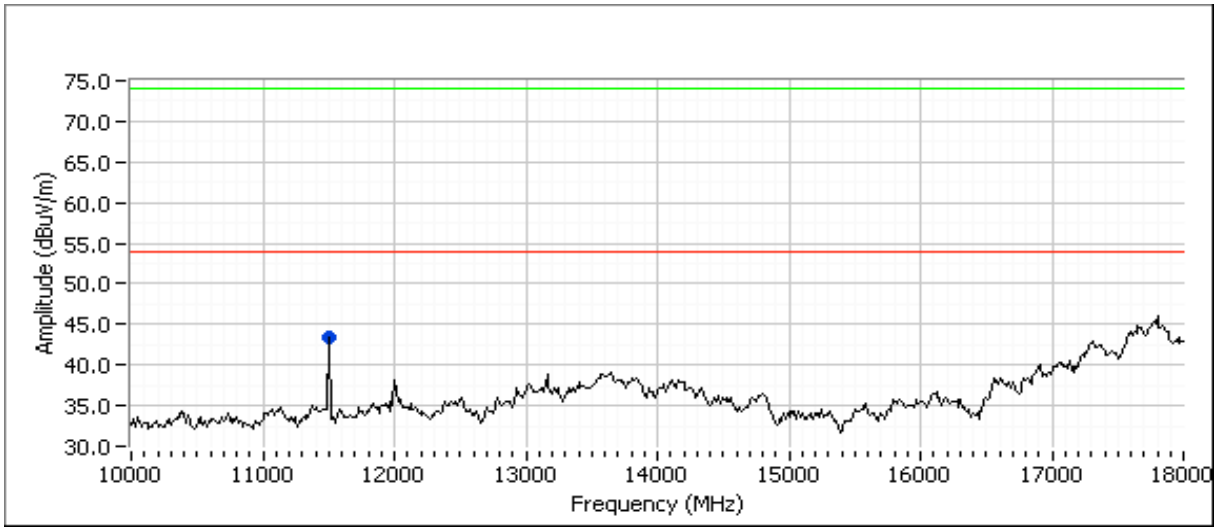
Run #3: Radiated Emissions, 1000 - 18000 MHz. Operating Mode: 40MHz SISO Mode
RX on Channel @ 5755 MHz





Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

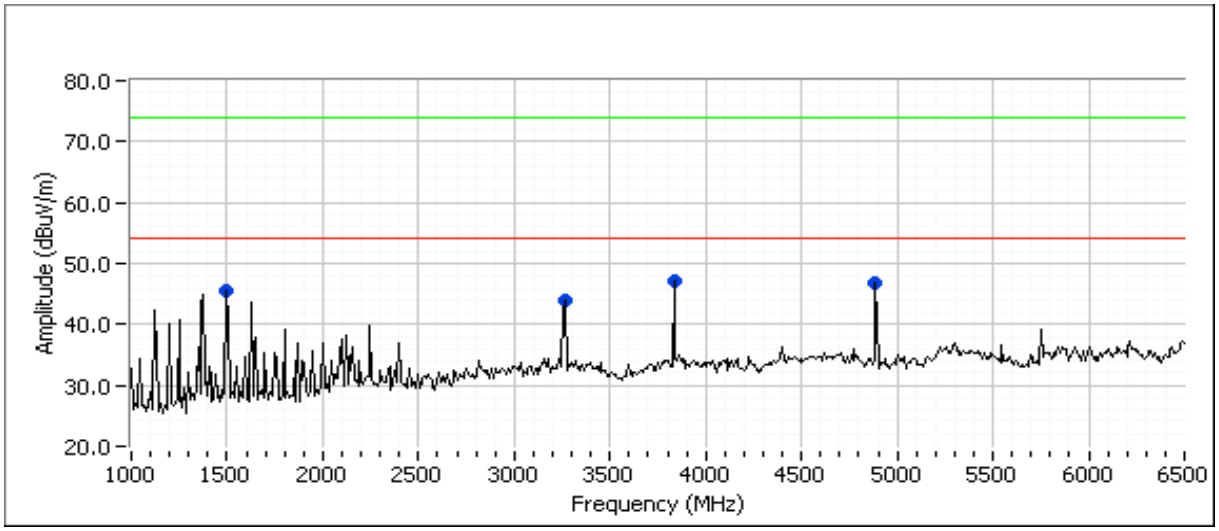
Run #3: Continued

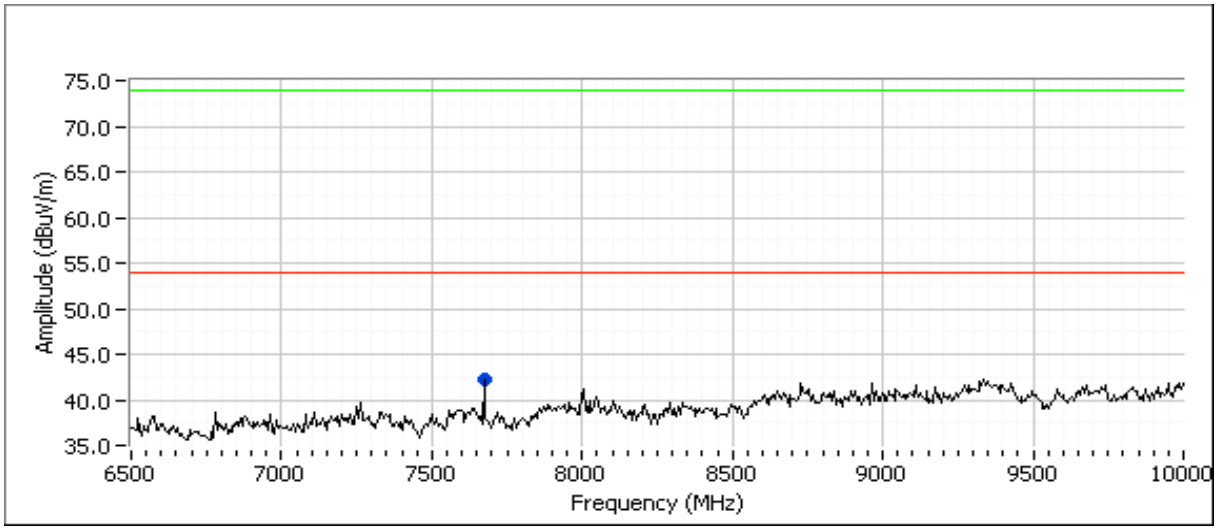


Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3836.600	47.5	V	54.0	-6.5	AVG	82	1.6	
4893.940	46.1	V	54.0	-7.9	AVG	202	1.6	
3262.650	43.8	V	54.0	-10.2	AVG	180	1.3	
11506.67	43.4	V	54.0	-10.6	Peak	35	1.3	
7672.500	42.3	V	54.0	-11.7	Peak	137	2.0	
3836.600	49.8	V	74.0	-24.2	PK	82	1.6	
4893.940	48.5	V	74.0	-25.5	PK	202	1.6	
3262.650	47.0	V	74.0	-27.0	PK	180	1.3	
1349.960	26.6	V	54.0	-27.4	AVG	180	1.3	
1349.960	35.4	V	74.0	-38.6	PK	180	1.3	

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

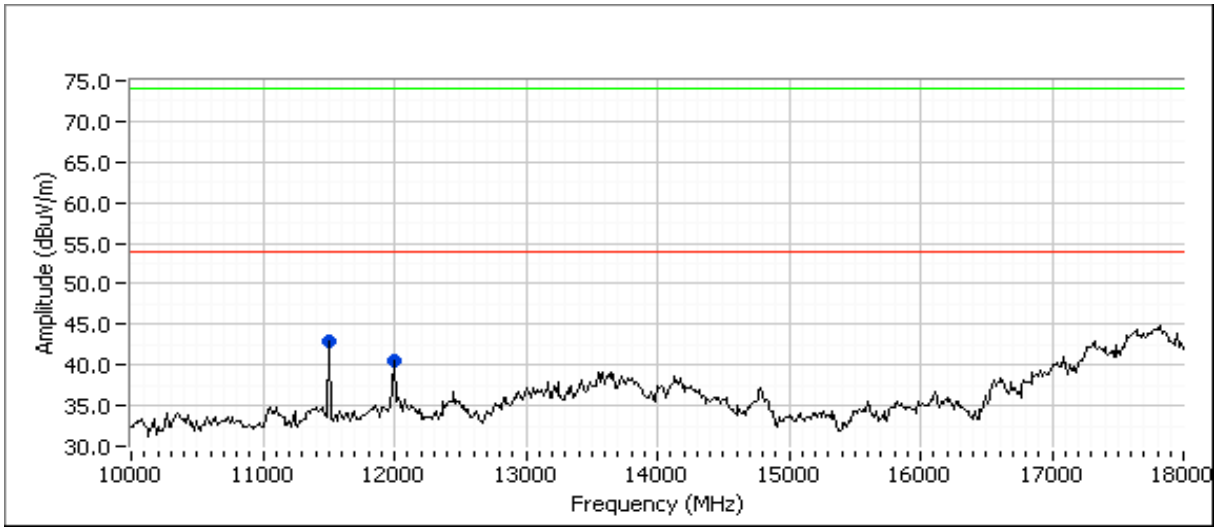
Run #4: Radiated Spurious Emissions, 1000 - 18000 MHz. Operating Mode: 40MHz CDD Mode
RX on Channel @ 5755 MHz





Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

Run #4: Continued



Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4893.950	46.5	V	54.0	-7.5	AVG	203	1.9	
3836.610	45.7	V	54.0	-8.3	AVG	83	1.6	
3264.170	43.9	V	54.0	-10.1	Peak	154	1.3	
11506.67	42.9	V	54.0	-11.1	Peak	34	1.3	
7672.500	42.3	V	54.0	-11.7	Peak	126	1.3	
12000.00	40.5	V	54.0	-13.5	Peak	16	1.3	
1500.040	39.3	V	54.0	-14.7	AVG	229	1.0	
4893.950	48.8	V	74.0	-25.2	PK	203	1.9	
3836.610	48.3	V	74.0	-25.7	PK	83	1.6	
1500.040	45.3	V	74.0	-28.7	PK	229	1.0	

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

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: 8/24/2007
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #4
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.

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

Ambient Conditions:

Temperature: 22.9 °C
Rel. Humidity: 45 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1 (40MHz SISO Mode)	RE, 30 - 18000 MHz - Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	49.5dBµV/m (298.5µV/m) @ 3832.8MHz (-4.5dB)

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.

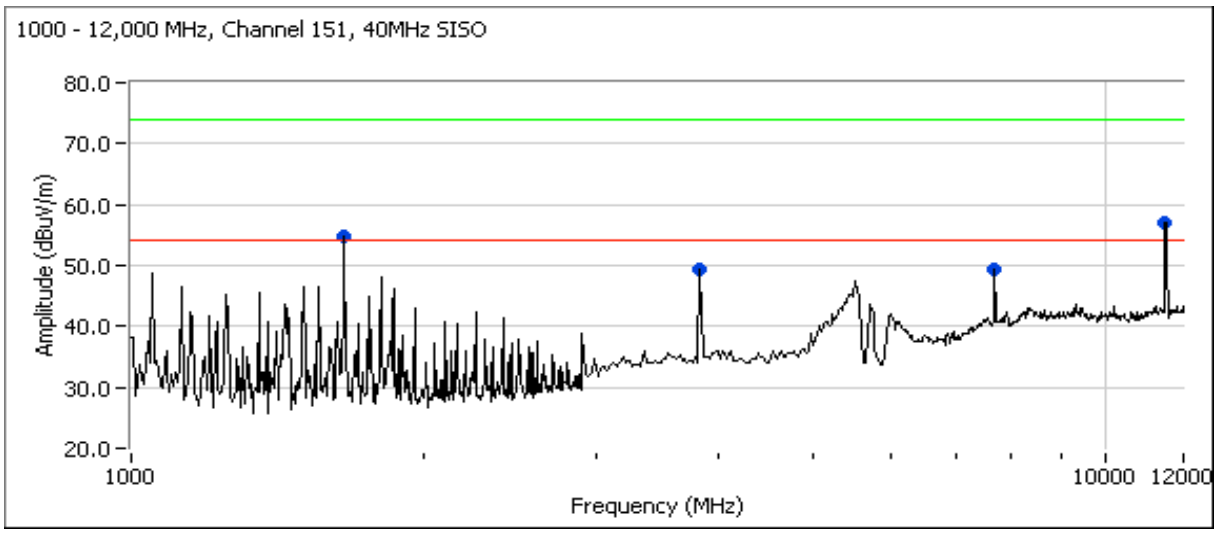
Note: Preliminary testing showed no radio related emissions below 1 GHz, and no emissions above 18 GHz.

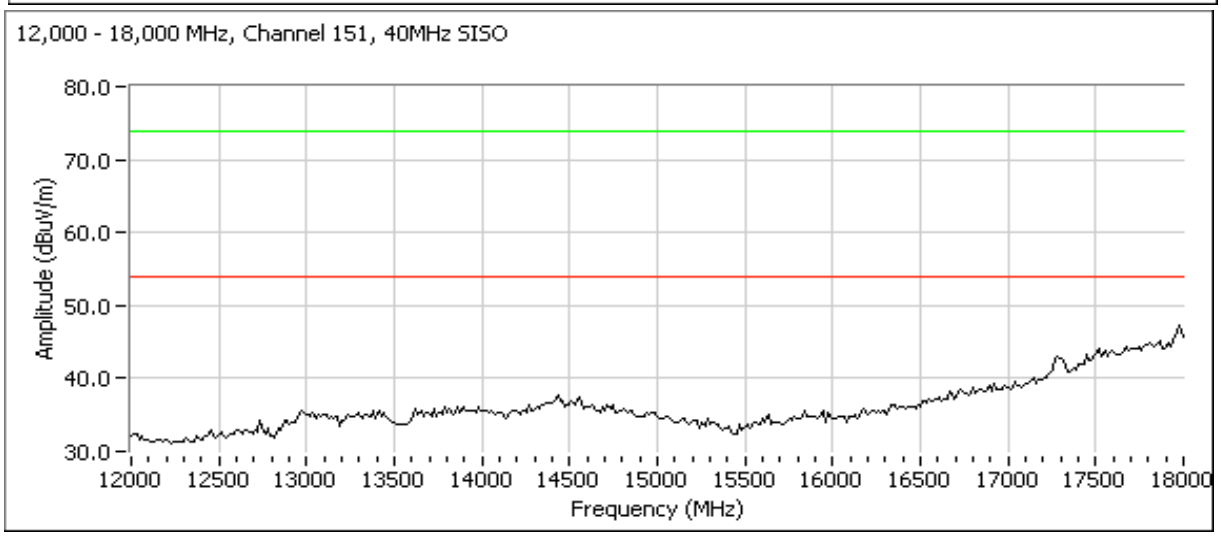
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1: Radiated Spurious Emissions, 1000 - 18000 MHz.

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000-12000	3	3	0.0
12000-18000	1	3	-9.5

Run #1a: Low Channel @ 5755 MHz





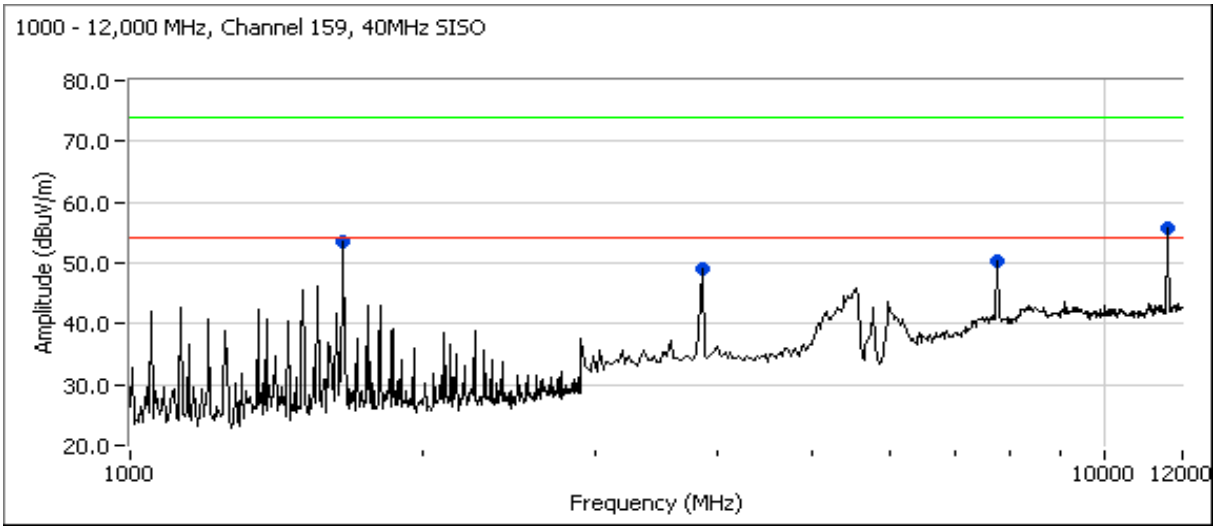
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1a: Continued

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3832.750	49.5	H	54.0	-4.5	Peak	334	2.0	
7677.500	49.3	V	54.0	-4.7	Peak	85	1.5	
11498.700	45.0	V	54.0	-9.0	AVG	265	1.0	
11498.700	58.5	V	74.0	-15.5	PK	265	1.0	
1649.880	50.1	V	54.0	-3.9	AVG	82	1.0	Non-restricted
1649.880	51.9	V	74.0	-22.1	PK	82	1.0	

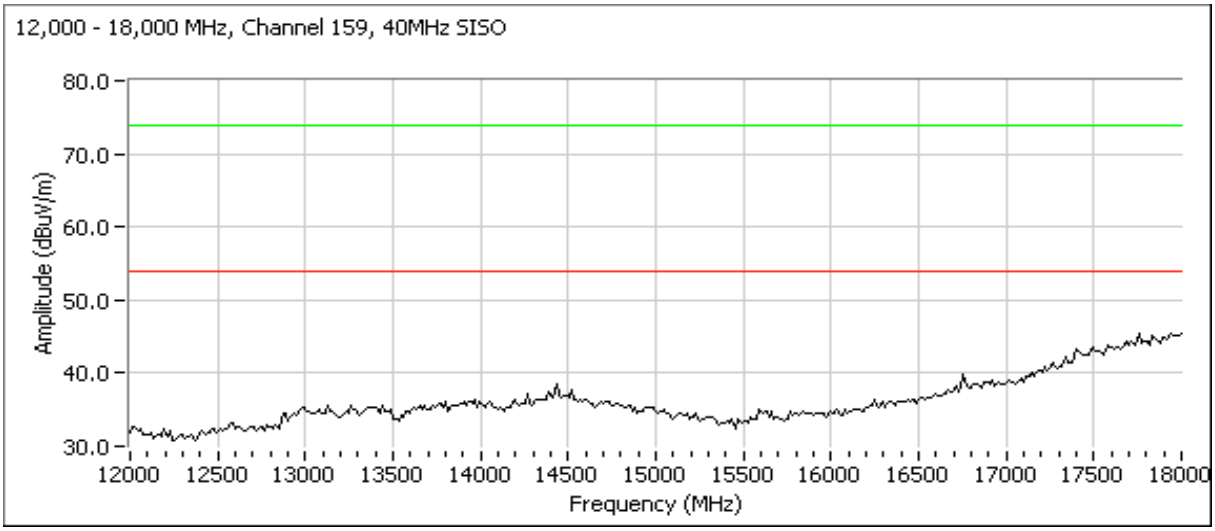
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.

Run #1b: High Channel @ 5795 MHz



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1b: Continued



Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3855.500	49.1	V	54.0	-4.9	Peak	128	2.0	
7745.750	49.3	V	54.0	-4.7	Peak	276	1.0	
11591.420	43.7	V	54.0	-10.3	AVG	239	1.0	
11591.420	59.8	V	74.0	-14.2	PK	239	1.0	
1649.920	49.4	V	54.0	-4.6	AVG	0	1.0	Non-restricted
1649.920	51.1	V	74.0	-22.9	PK	0	1.0	

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 and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	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: 8/19/2007
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #4
Config. Used: 1
Config Change: None
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: 22.1 °C
Rel. Humidity: 43 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power	15.247(b)	Pass	16.7 dBm
2	Power spectral Density (PSD)	15.247(d)	Pass	-10.5 dBm/3kHz
3	6dB Bandwidth	15.247(a)	Pass	35.6 MHz
3	99% Bandwidth	RSS GEN	-	36.8 MHz
4	Spurious emissions	15.247(b)	Pass	<30 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.

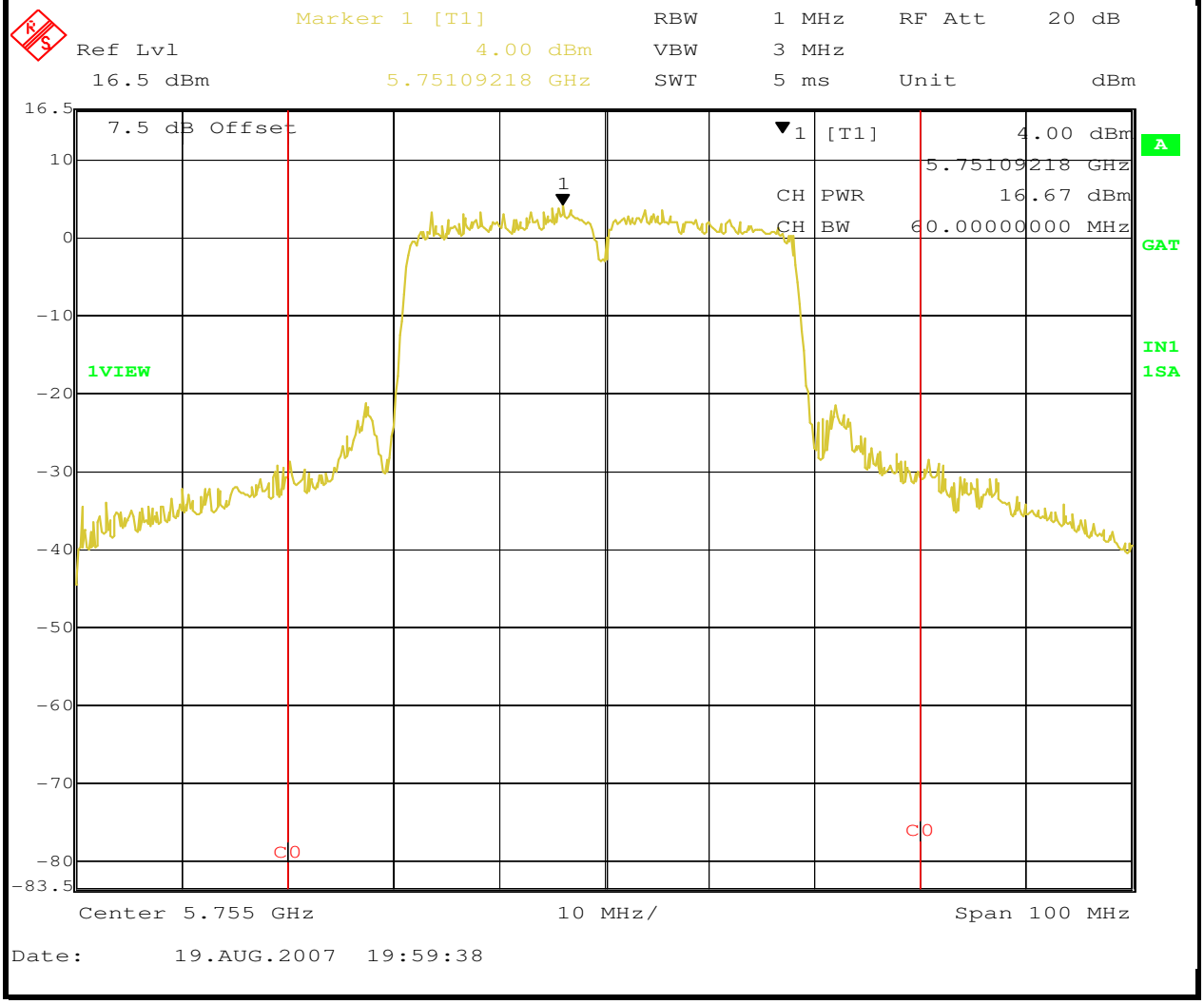
Elliott — EMC Test Data

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

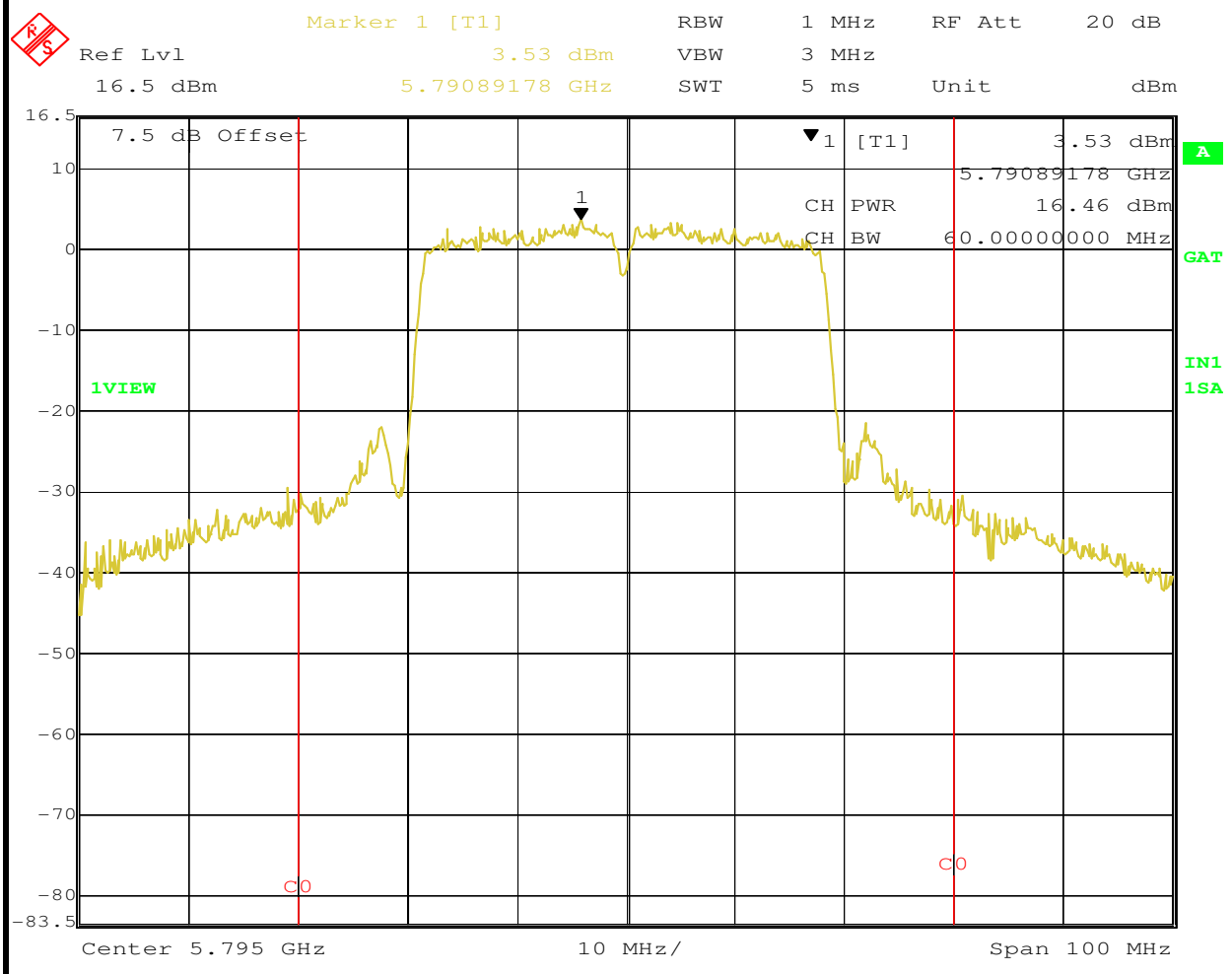
Run #1: Output Power

Power Setting[2]	Frequency (MHz)	Output Power (dBm)[1]	Output Power mW	Antenna Gain (dBi)	Result	EIRP dBm	EIRP W
	5755	16.7	46.5	3.7	Pass	20.4	0.109
	5795	16.5	44.3	3.7	Pass	20.2	0.104

Note 1:	RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ESI analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 100 MHz
Note 2:	Power setting - the software power setting used during testing, included for reference only.



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

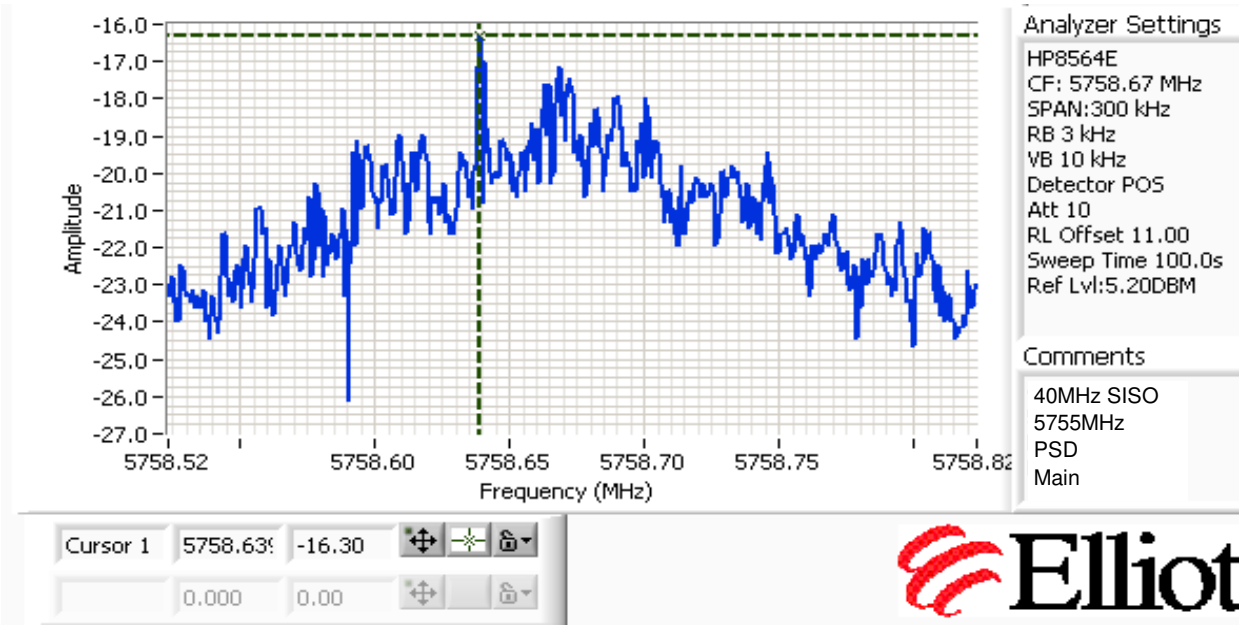


Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

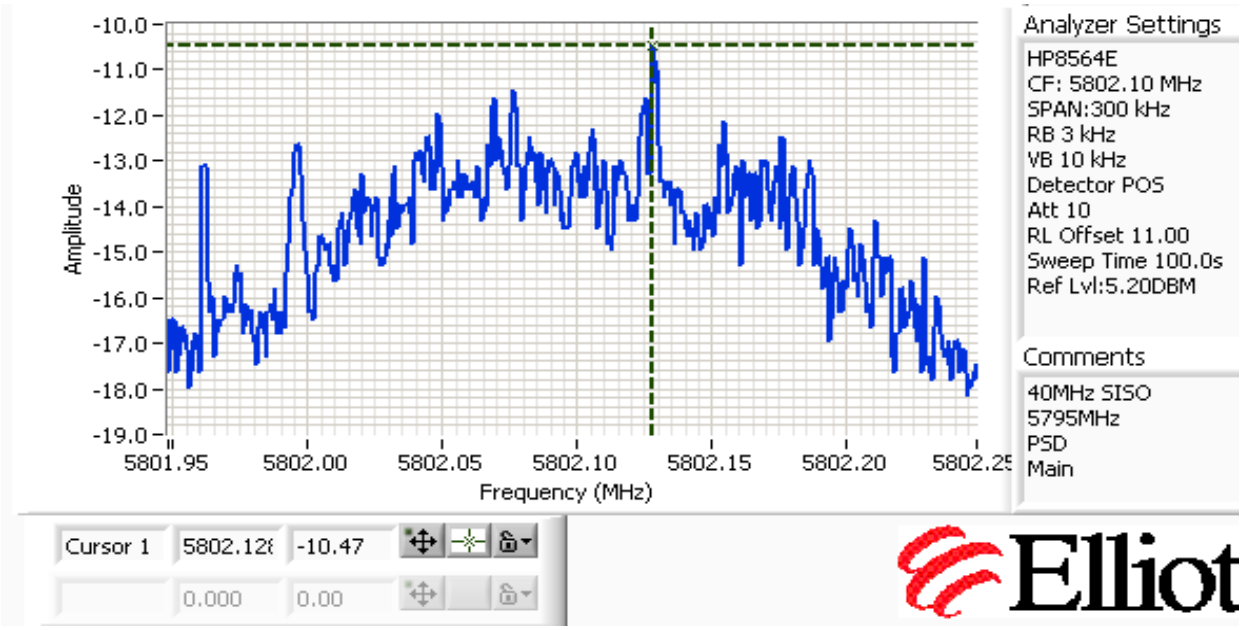
Run #2: Power spectral Density

Power Setting	Frequency (MHz)	PSD (dBm/3kHz) Note 1	Limit dBm/3kHz	Result
	5758.639	-16.3	8.0	Pass
	5802.128	-10.5	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.



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

Run #3: Signal Bandwidth

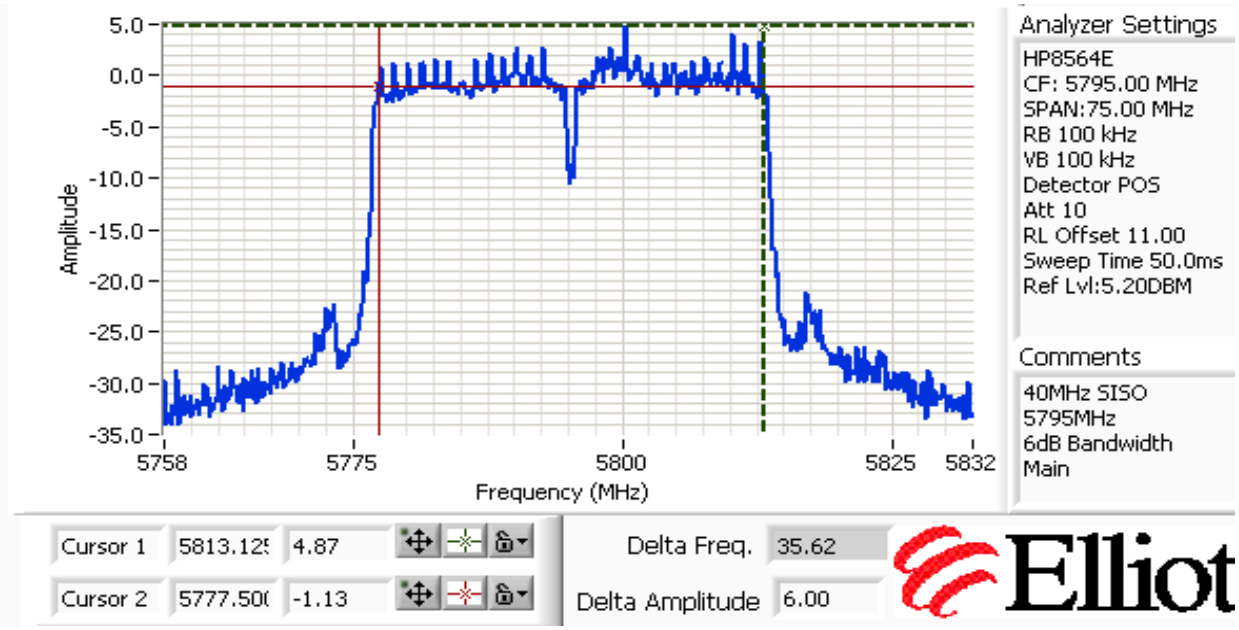
Power Setting	Frequency (MHz)	Resolution Bandwidth	Bandwidth (MHz) 6dB	99%
	5755	100kHz	36.1	36.8
	5795	100kHz	35.6	36.6

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

5755 MHz, 6dB BW

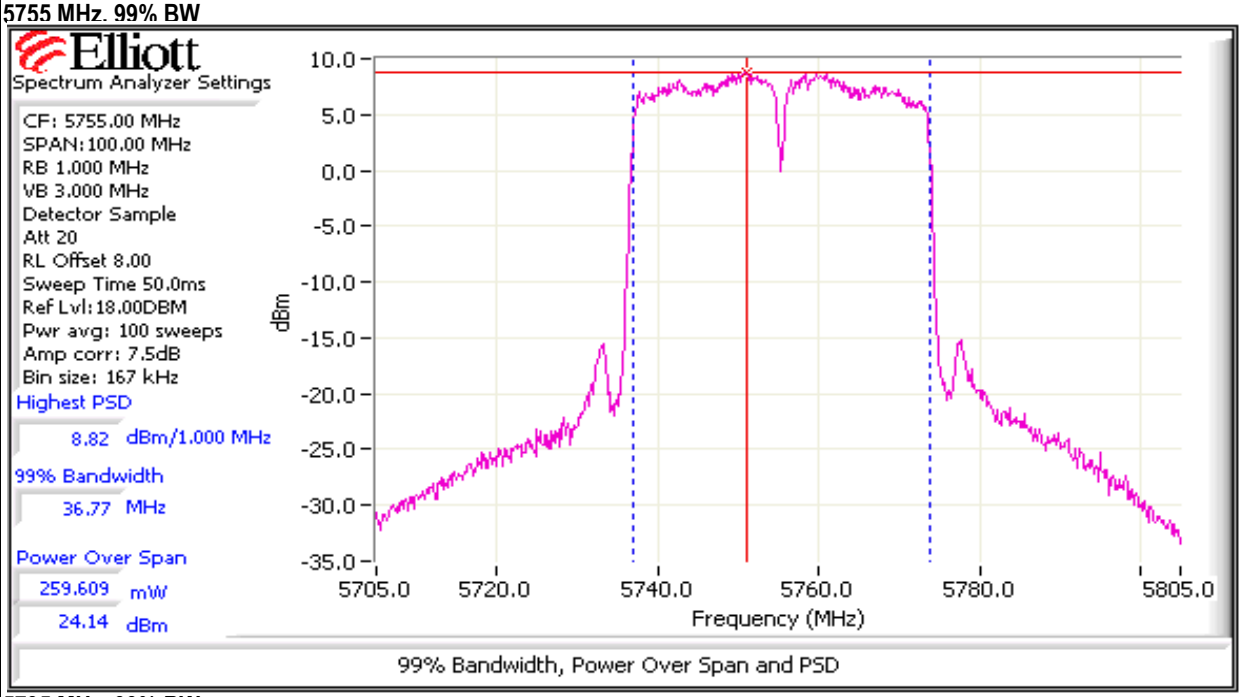
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5795 MHz, 6dB BW

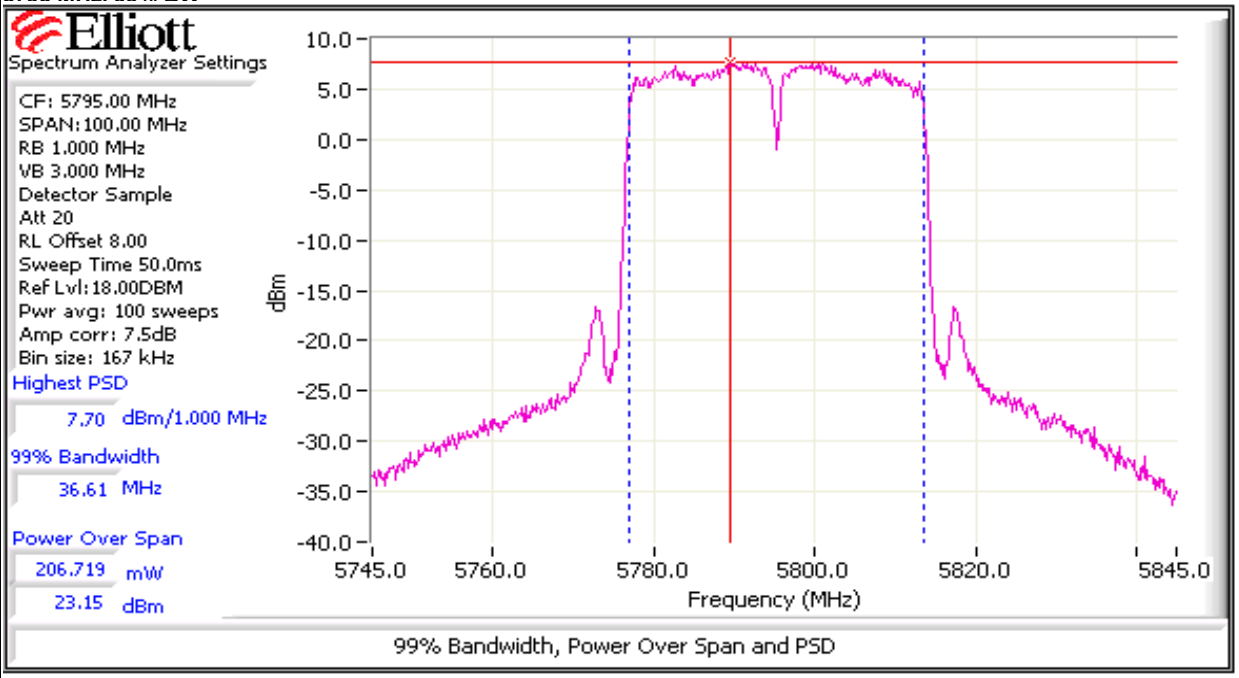


Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5755 MHz. 99% BW



5795 MHz. 99% BW

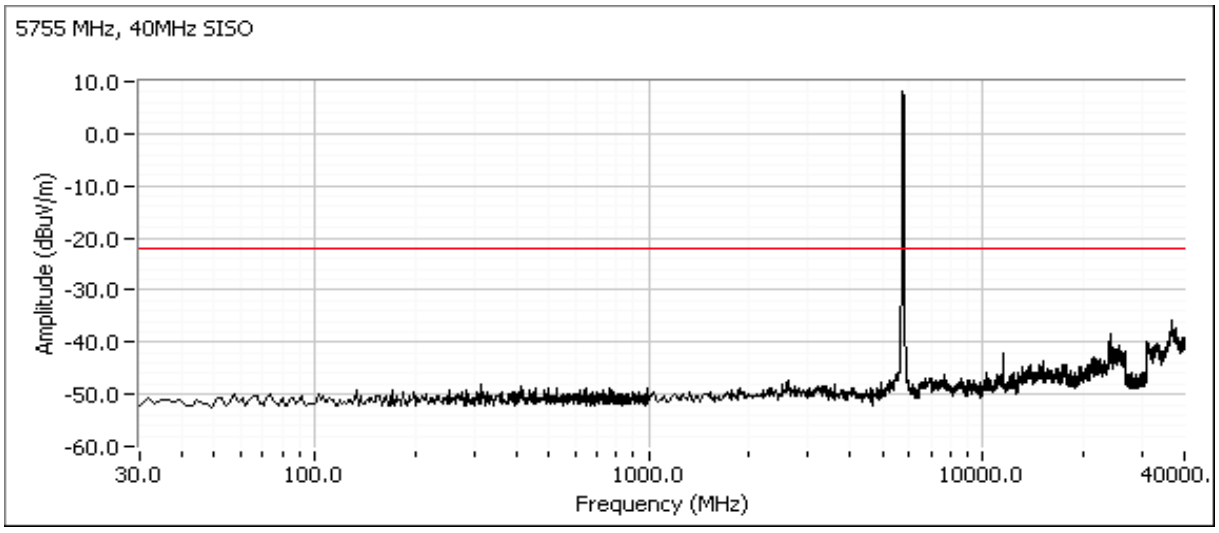


Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

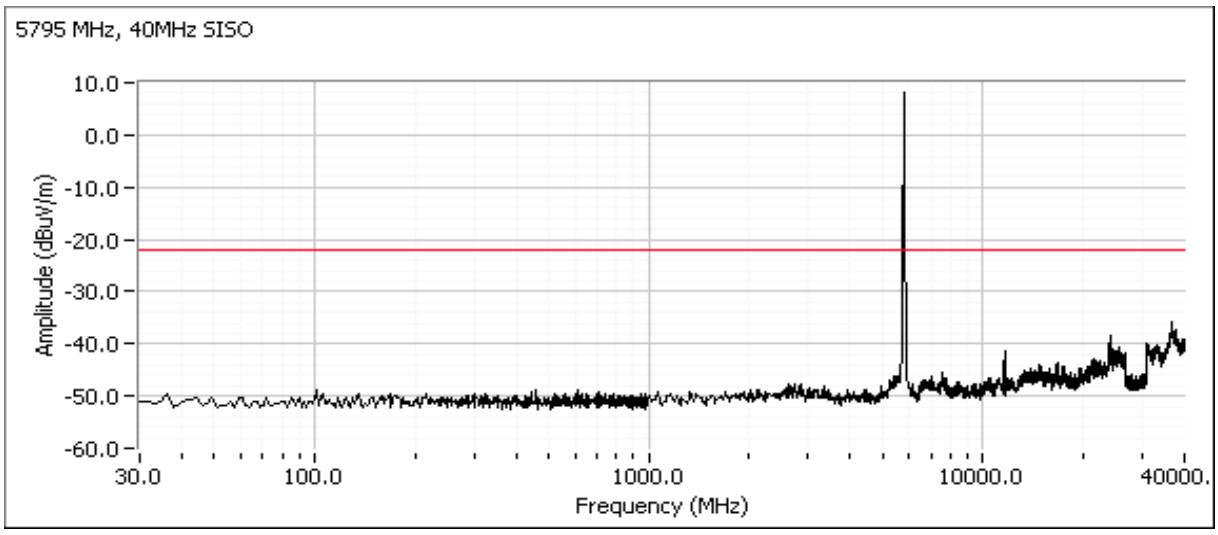
Run #4: Out of Band Spurious Emissions

Frequency (MHz)	Limit	Result
5755	-30dBc	>30 dBc
5795	-30dBc	>30 dBc

Plots for low channel



Plots for high channel



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

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: 8/24/2007
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #4
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.

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

Ambient Conditions:

Temperature: 22.9 °C
Rel. Humidity: 45 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1 (Legacy Mode)	RE, 30 - 18000 MHz - Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	51.3dBµV/m (367.3µV/m) @ 7723.0MHz (-2.7dB)

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.

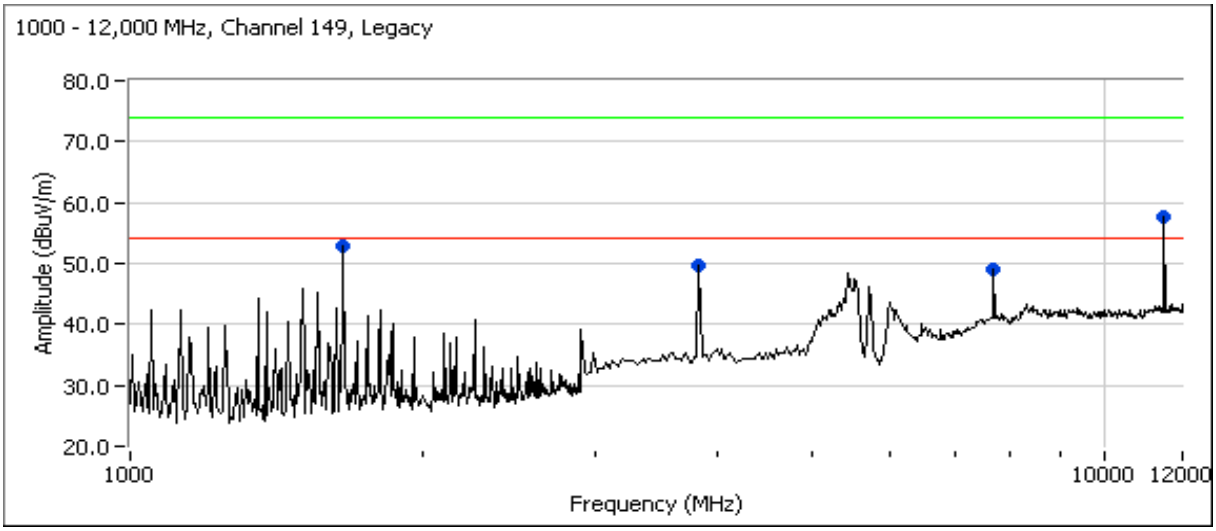
Note: Preliminary testing showed no radio related emissions below 1 GHz, and no emissions above 18 GHz.

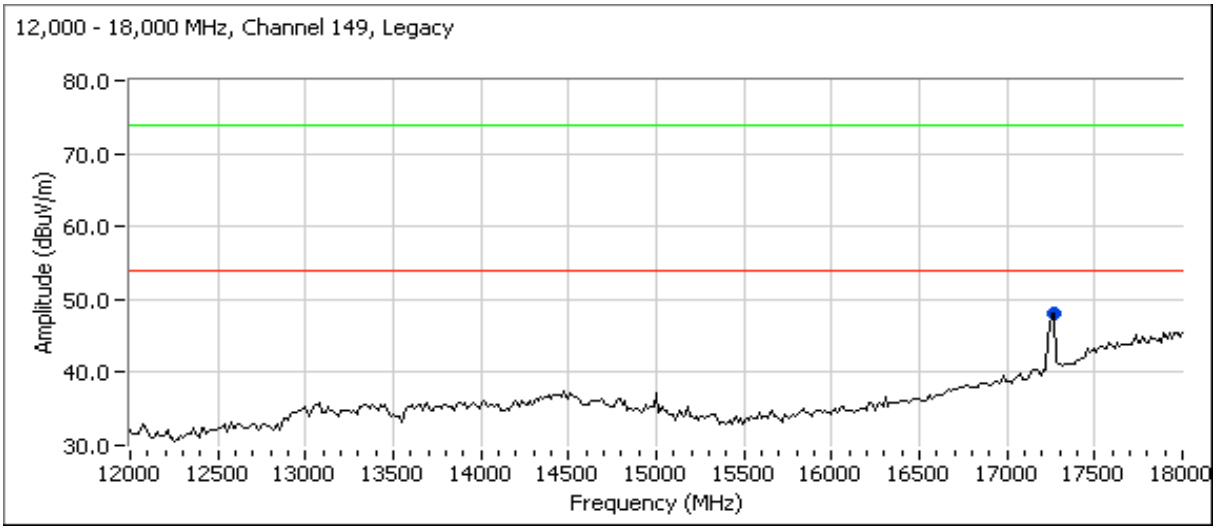
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1: Radiated Spurious Emissions, 1000 - 18000 MHz.

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000-12000	3	3	0.0
12000-18000	1	3	-9.5

Run #1a: Low Channel @ 5745 MHz





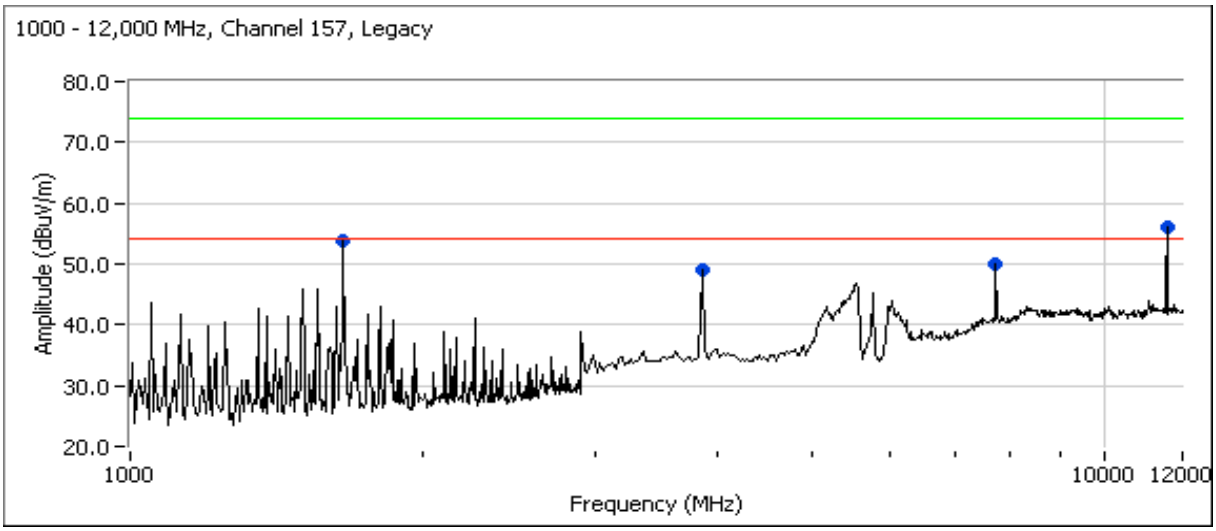
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1: Continued

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11490.450	50.5	V	54.0	-3.5	AVG	320	1.5	
1649.900	50.4	V	54.0	-3.6	AVG	17	1.0	Non-restricted
3832.750	49.7	V	54.0	-4.3	Peak	332	1.5	
7677.500	49.1	V	54.0	-4.9	Peak	234	1.5	
17265.000	48.1	V	54.0	-5.9	Peak	293	1.0	
11490.450	67.5	V	74.0	-6.5	PK	320	1.5	
1649.900	53.7	V	74.0	-20.3	PK	17	1.0	

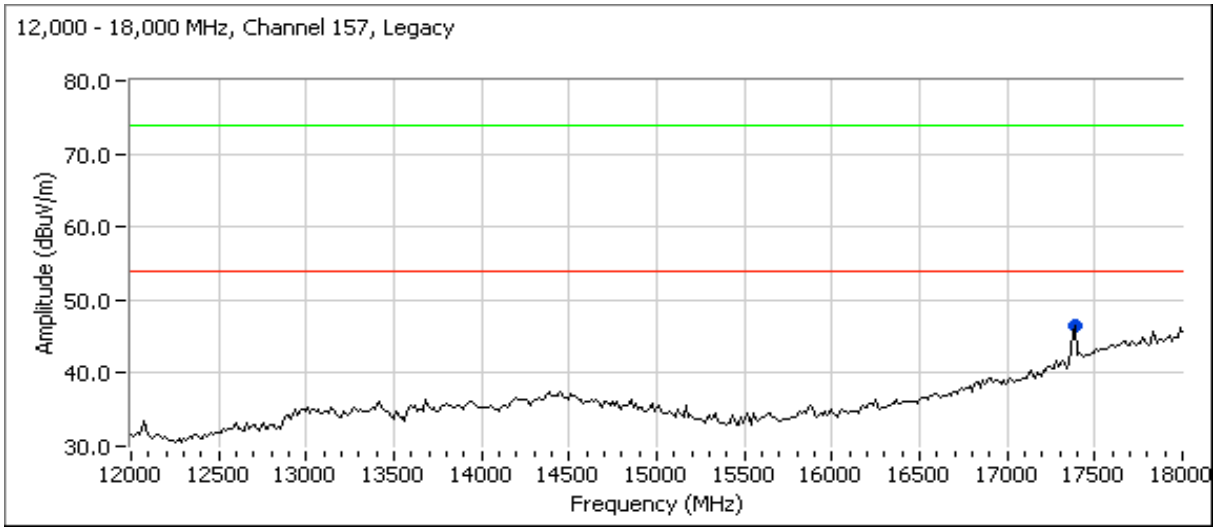
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.

Run #1b: Center Channel @ 5785 MHz



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1b: Continued

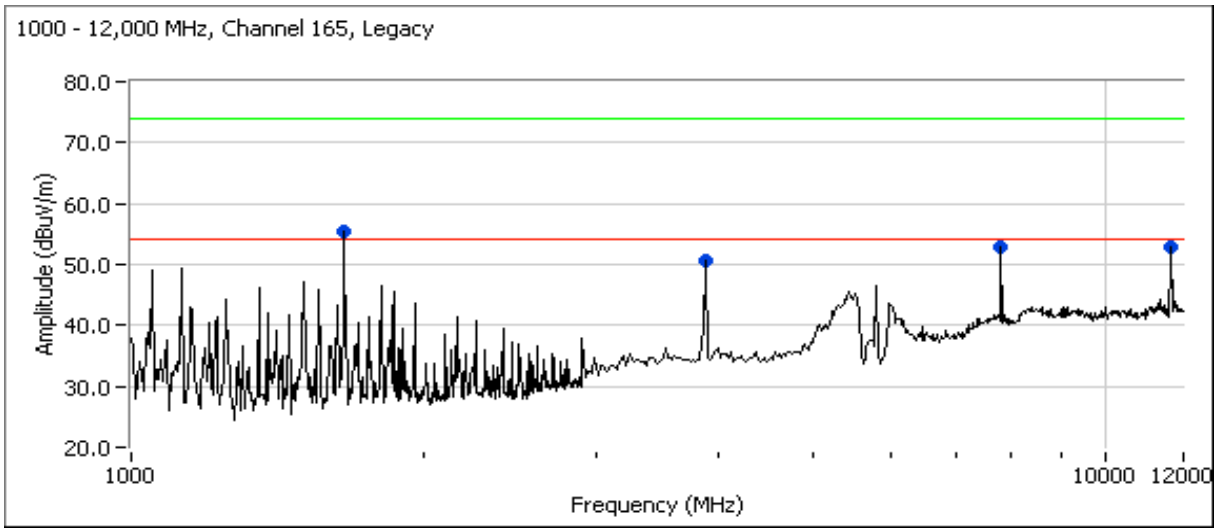


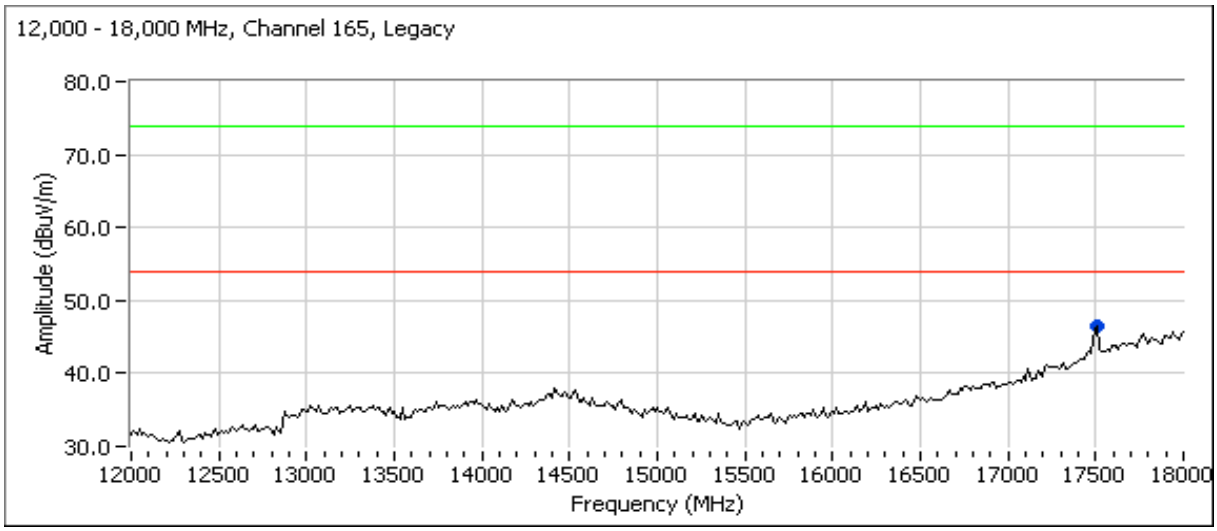
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7723.000	51.3	V	54.0	-2.7	Peak	243	1.5	
1649.930	50.1	V	54.0	-3.9	AVG	16	1.0	Non-restricted
3855.500	49.1	V	54.0	-4.9	Peak	8	2.0	
17385.000	46.4	V	54.0	-7.6	Peak	294	1.0	
11572.840	46.1	V	54.0	-7.9	AVG	350	1.5	
11572.840	58.3	V	74.0	-15.7	PK	350	1.5	
1649.930	53.5	V	74.0	-20.5	PK	16	1.0	

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 and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1c: High Channel @ 5825 MHz





Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1c: Continued

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1649.970	50.9	V	54.0	-3.1	AVG	85	1.0	Non-restricted
3878.250	50.5	V	54.0	-3.5	Peak	9	2.0	
17505.000	46.6	V	54.0	-7.4	Peak	293	1.0	
7766.510	46.2	V	54.0	-7.8	AVG	245	1.5	
11649.870	44.6	V	54.0	-9.4	AVG	178	1.0	
11649.870	58.2	V	74.0	-15.8	PK	178	1.0	
1649.970	55.4	V	74.0	-18.6	PK	85	1.0	
7766.510	50.5	V	74.0	-23.5	PK	245	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 and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	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: 8/19/2007
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #4
Config. Used: 1
Config Change: None
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: 22.1 °C
Rel. Humidity: 43 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power	15.247(b)	Pass	16.5 dBm
2	Power spectral Density (PSD)	15.247(d)	Pass	-7.1 dBm/3kHz
3	6dB Bandwidth	15.247(a)	Pass	16.3 MHz
3	99% Bandwidth	RSS GEN	-	17 MHz
4	Spurious emissions	15.247(b)	Pass	>30 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.

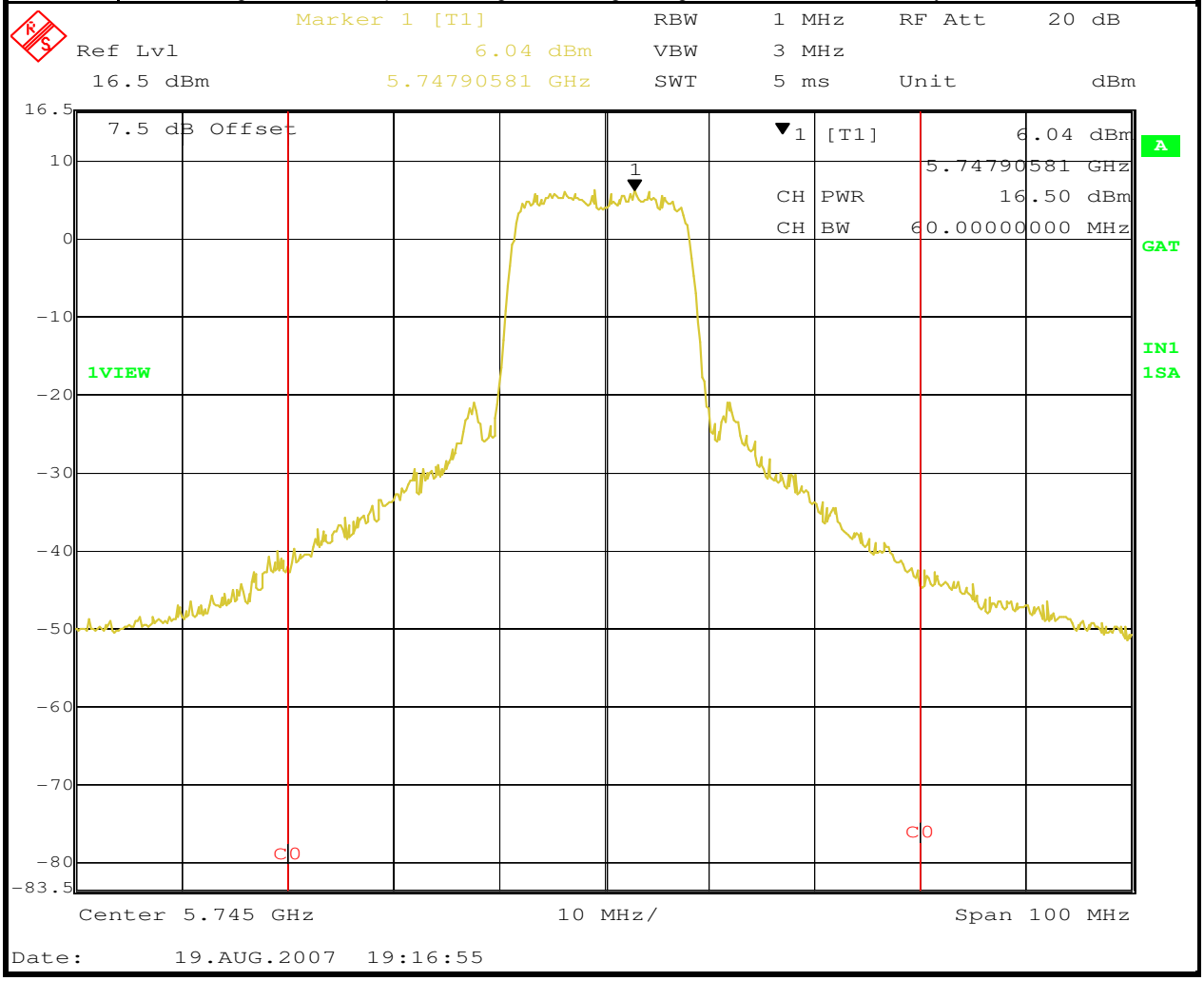
Elliott — EMC Test Data

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

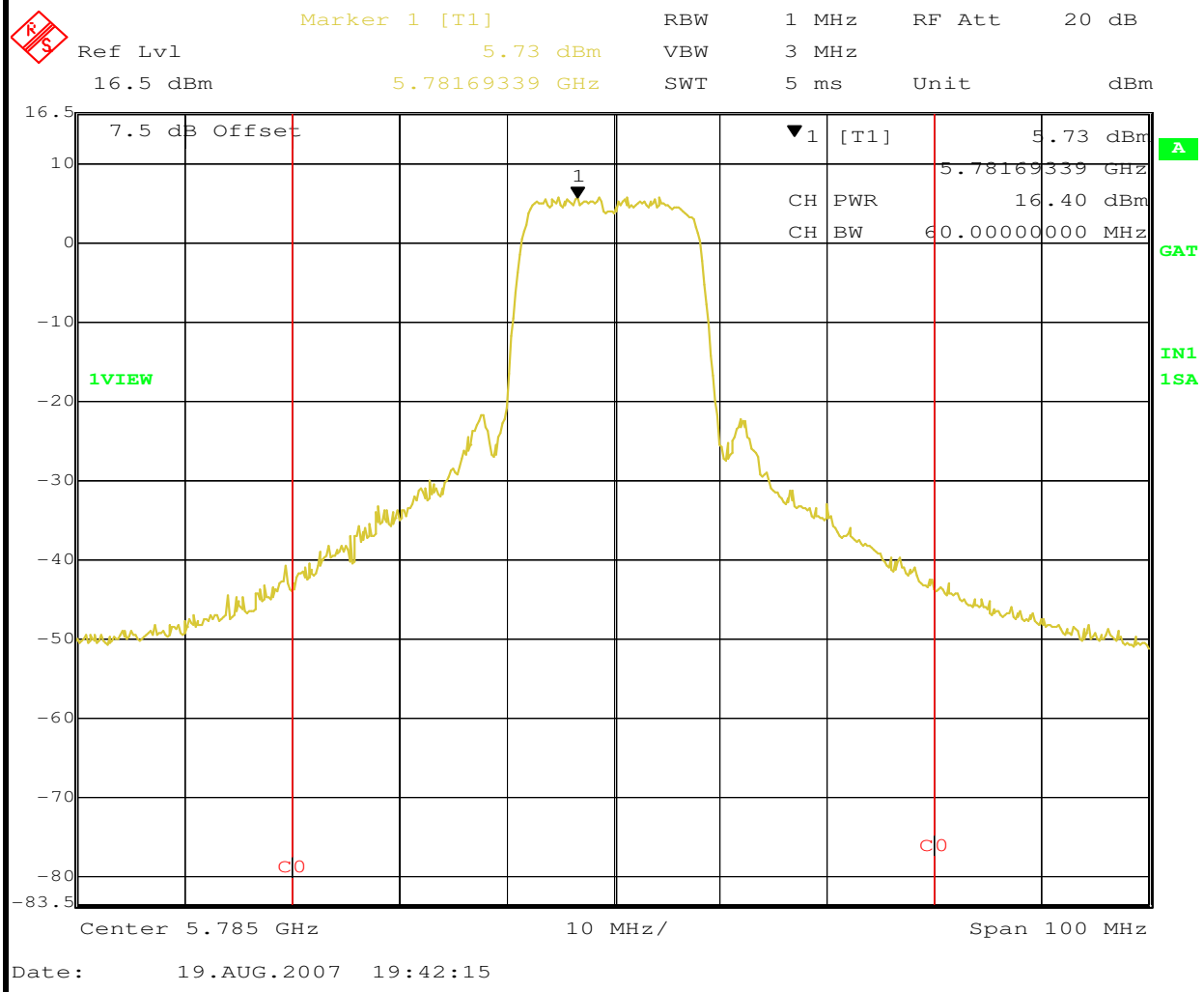
Run #1: Output Power

Power Setting[2]	Frequency (MHz)	Output Power (dBm)[1]	Output Power mW	Antenna Gain (dBi)	Result	EIRP[Note 2] dBm	EIRP[Note 2] W	Output Power (dBm)[3]	Output Power mW
	5745	16.5	44.7	3.7	Pass	20.2	0.105		
	5785	16.4	43.7	3.7	Pass	20.1	0.102		
	5825	16.1	40.7	3.7	Pass	19.8	0.095		

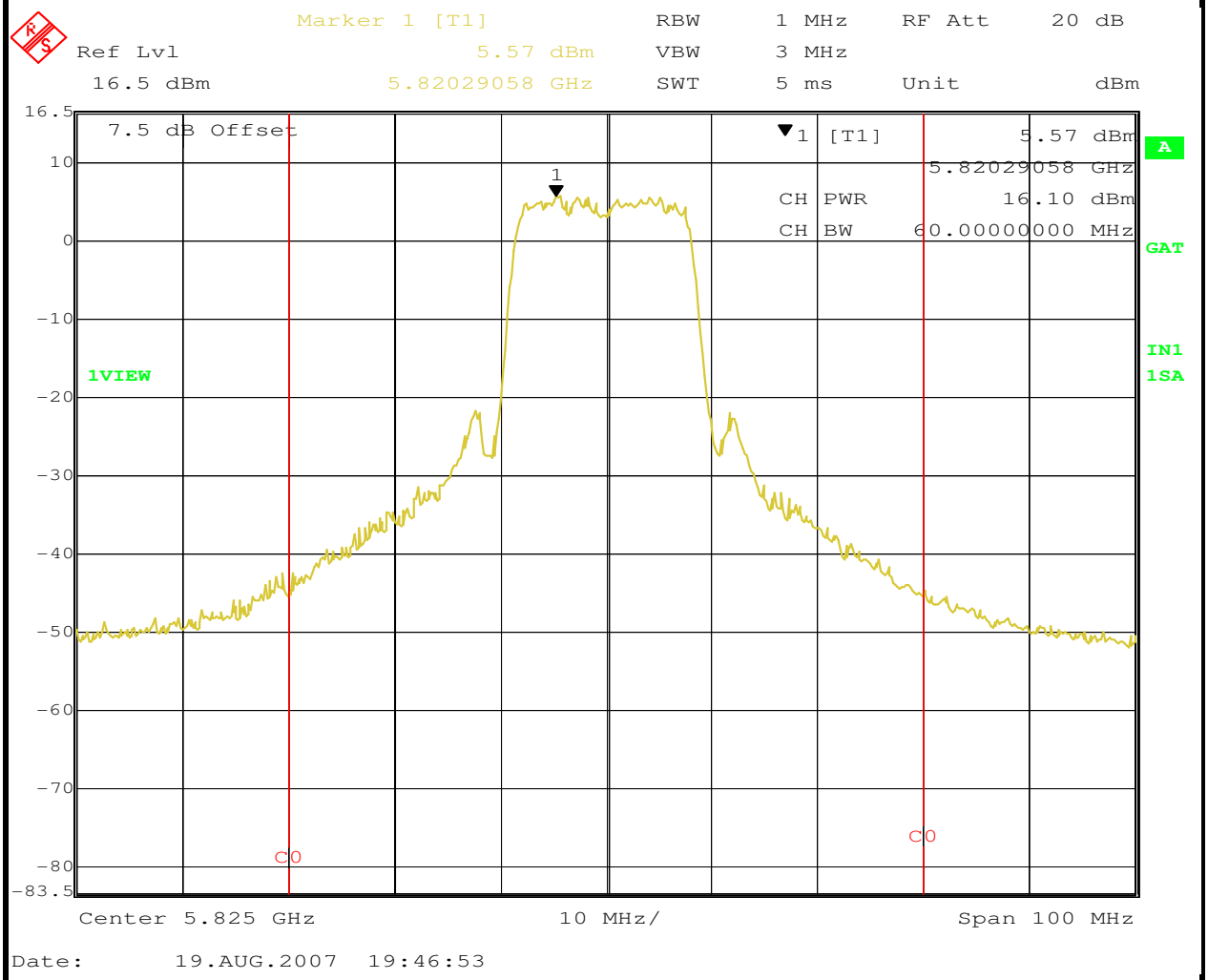
Note 1:	RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ESI analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 100 MHz
Note 2:	Power setting - the software power setting used during testing, included for reference only.



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

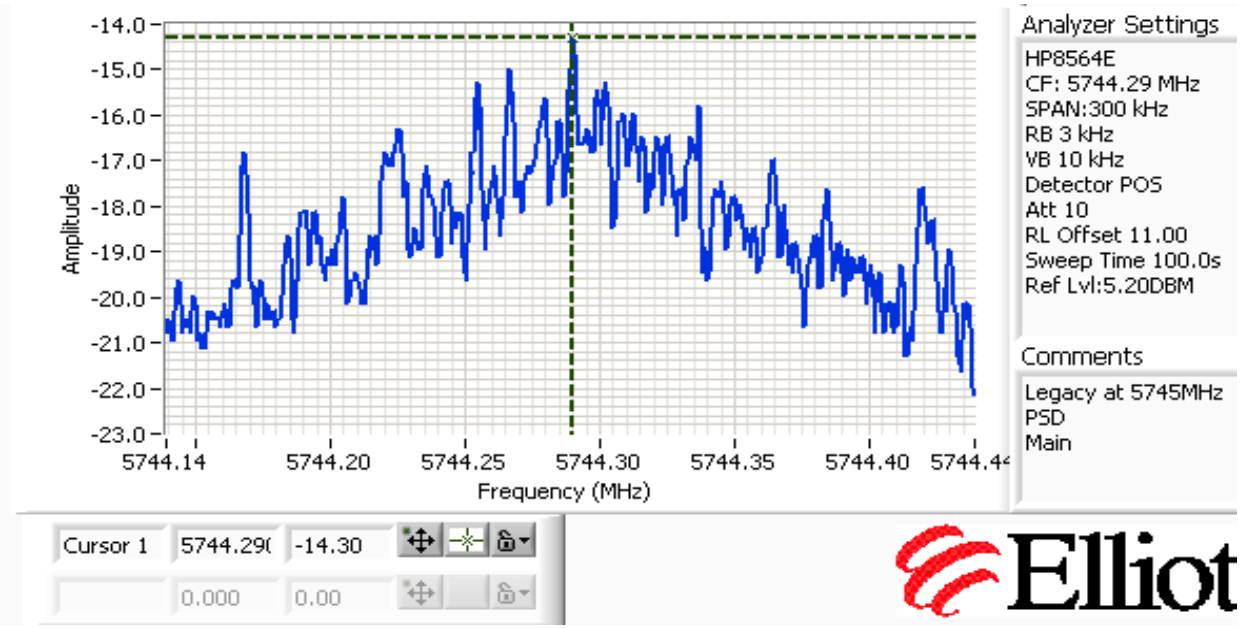


Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

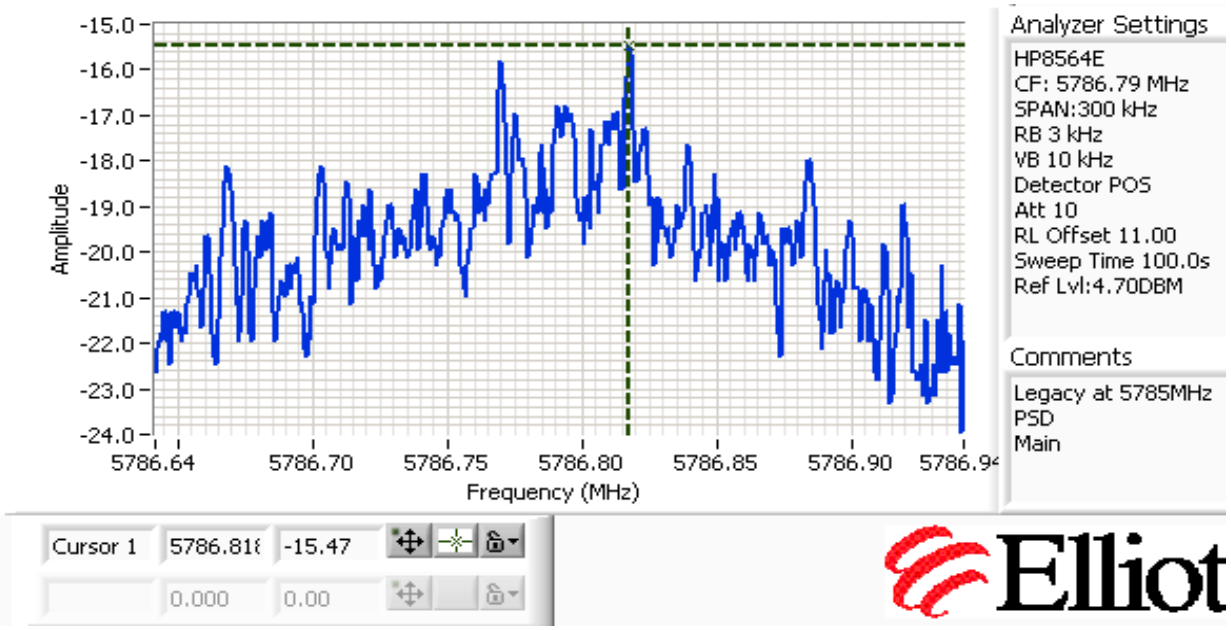
Run #2: Power spectral Density

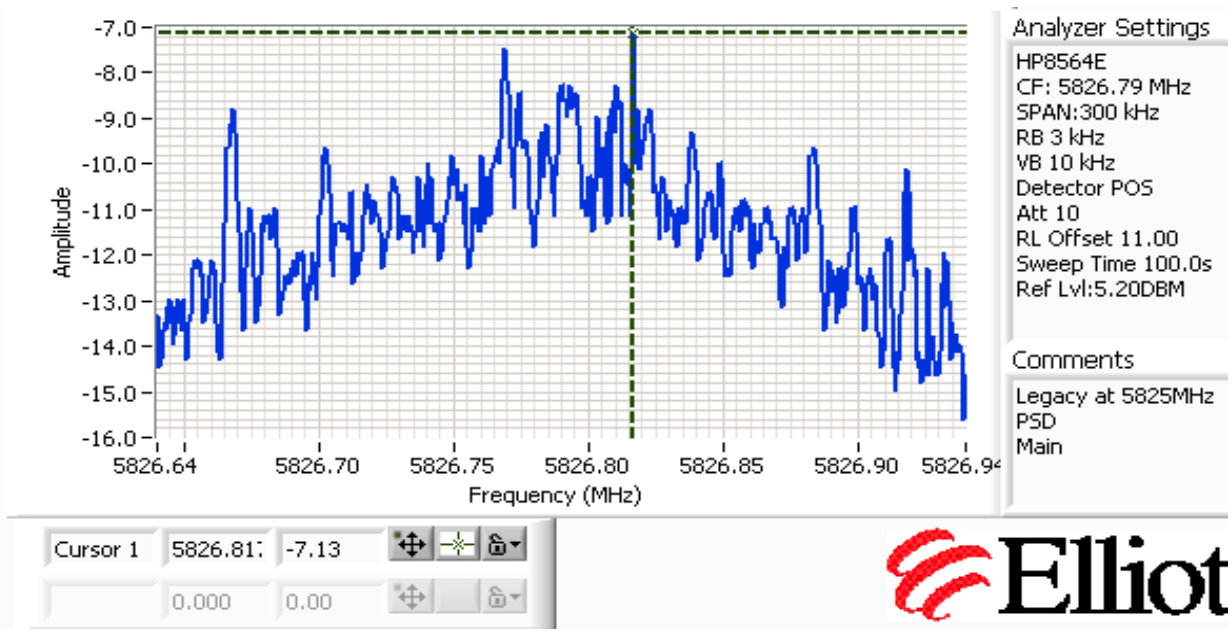
Power Setting	Frequency (MHz)	PSD (dBm/3kHz) Note 1	Limit dBm/3kHz	Result
	5744.29	-14.3	8.0	Pass
	5786.818	-15.5	8.0	Pass
	5826.817	-7.1	8.0	Pass

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.



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A





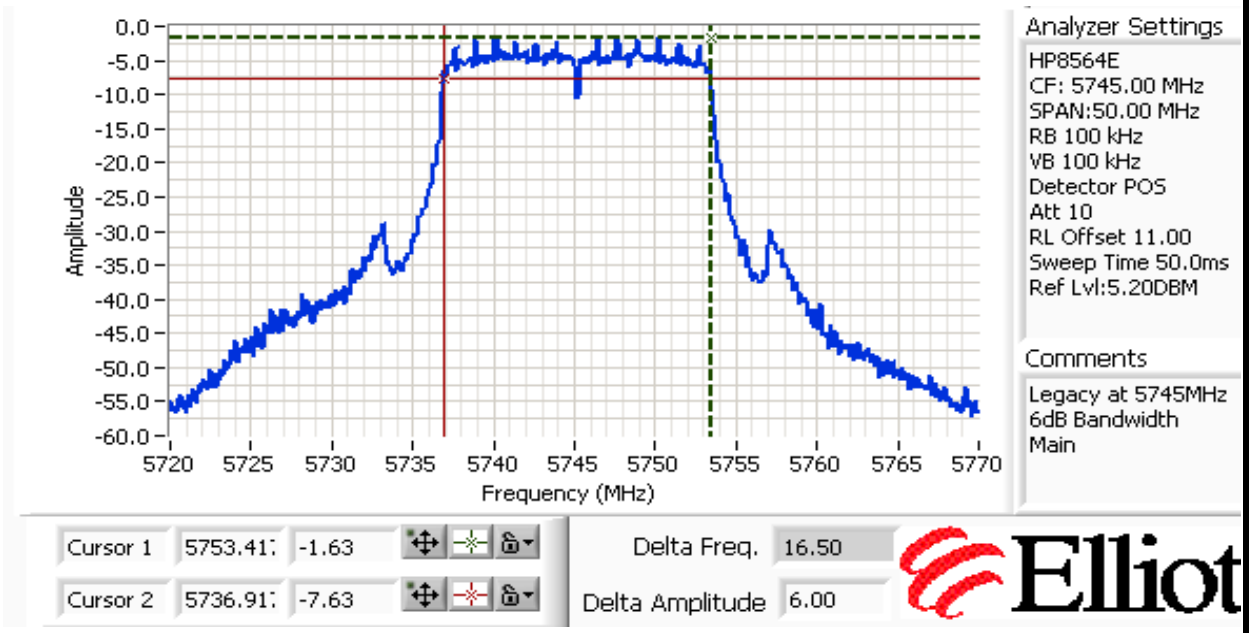
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

Run #3: Signal Bandwidth

Power Setting	Frequency (MHz)	Resolution Bandwidth	Bandwidth (MHz) 6dB	99%
	5745	100kHz	16.5	17.0
	5785	100kHz	16.4	17.0
	5825	100kHz	16.3	17.0

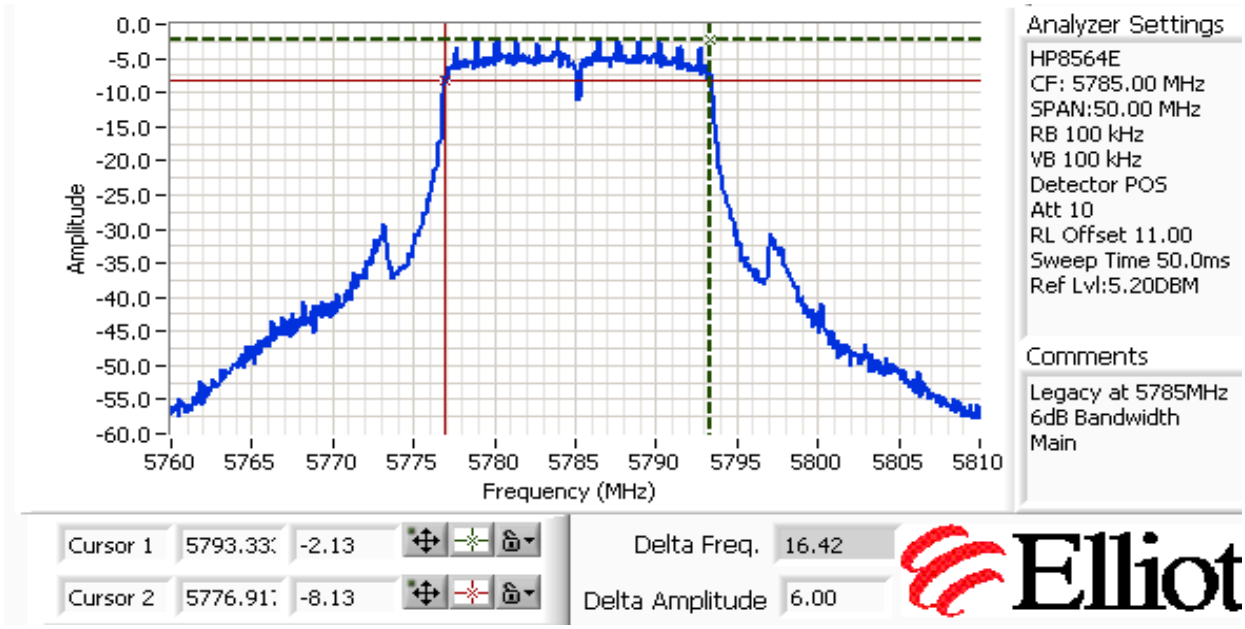
Note 1:	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB

5745 MHz, 6dB BW

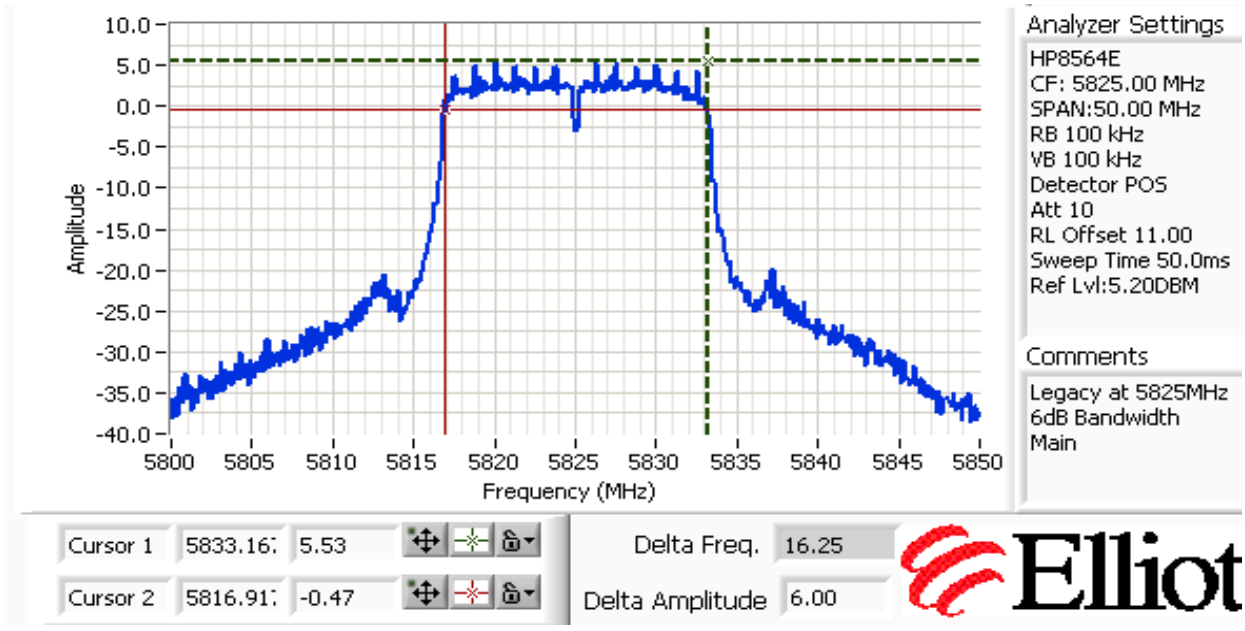


Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5785 MHz, 6dB BW

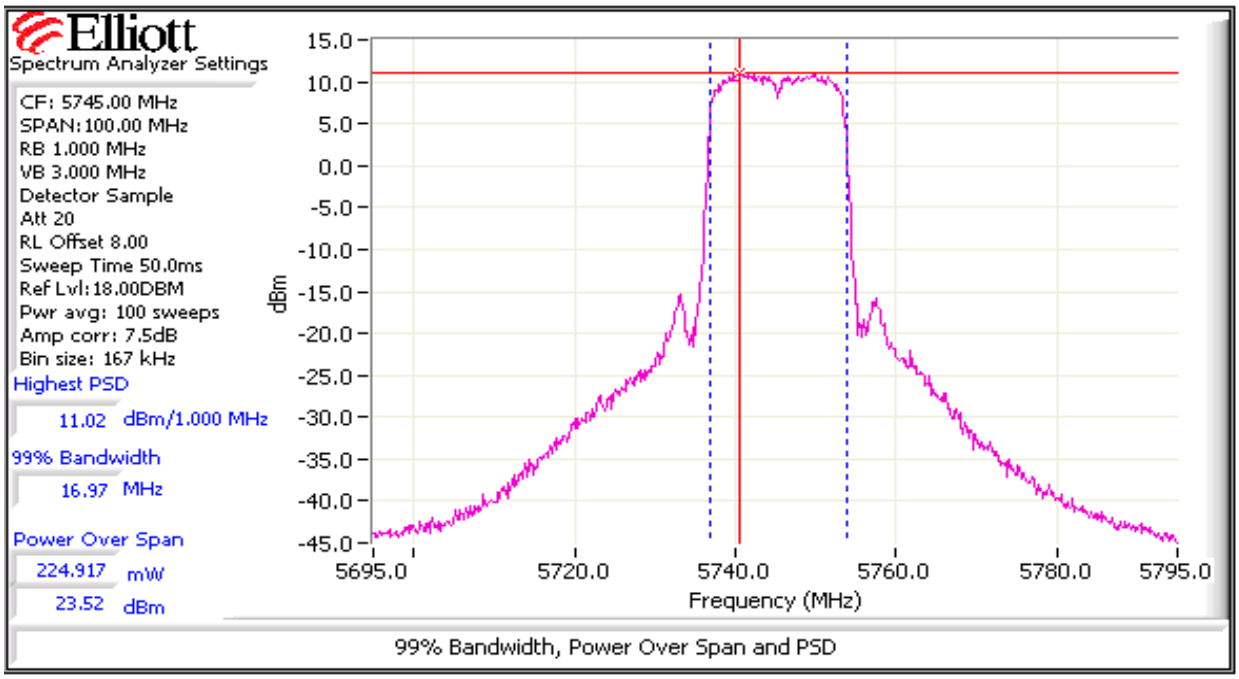


5825 MHz, 6dB BW



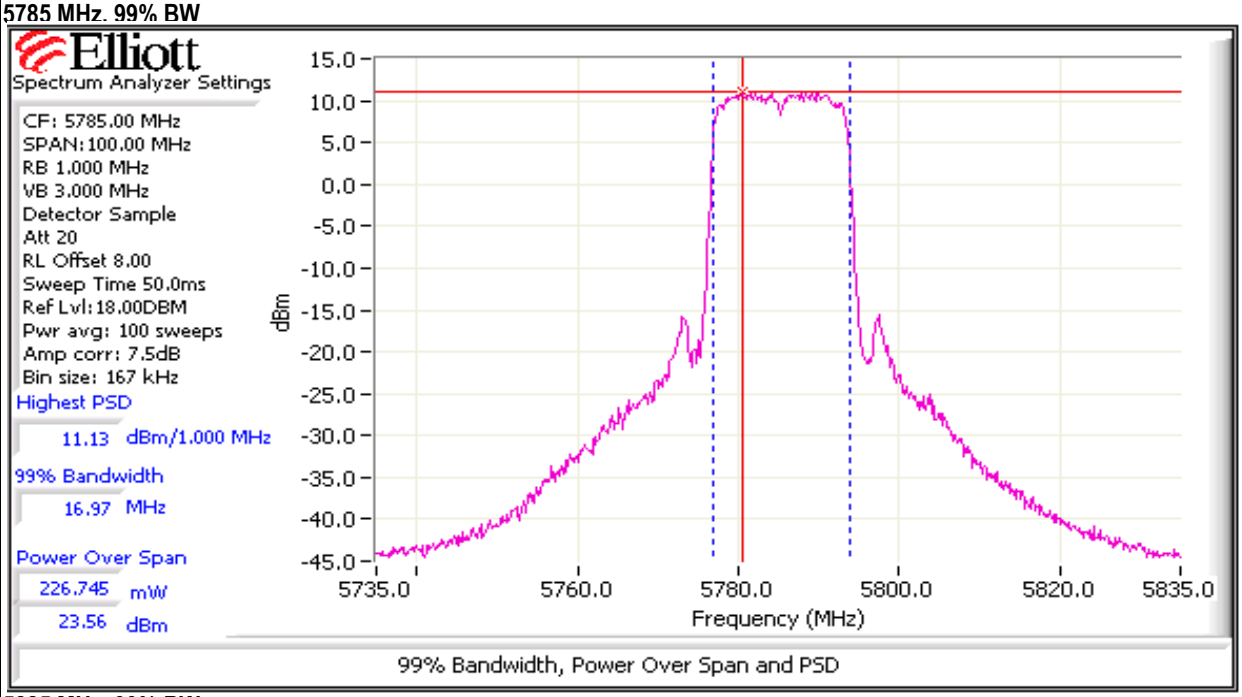
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5745 MHz, 99% BW

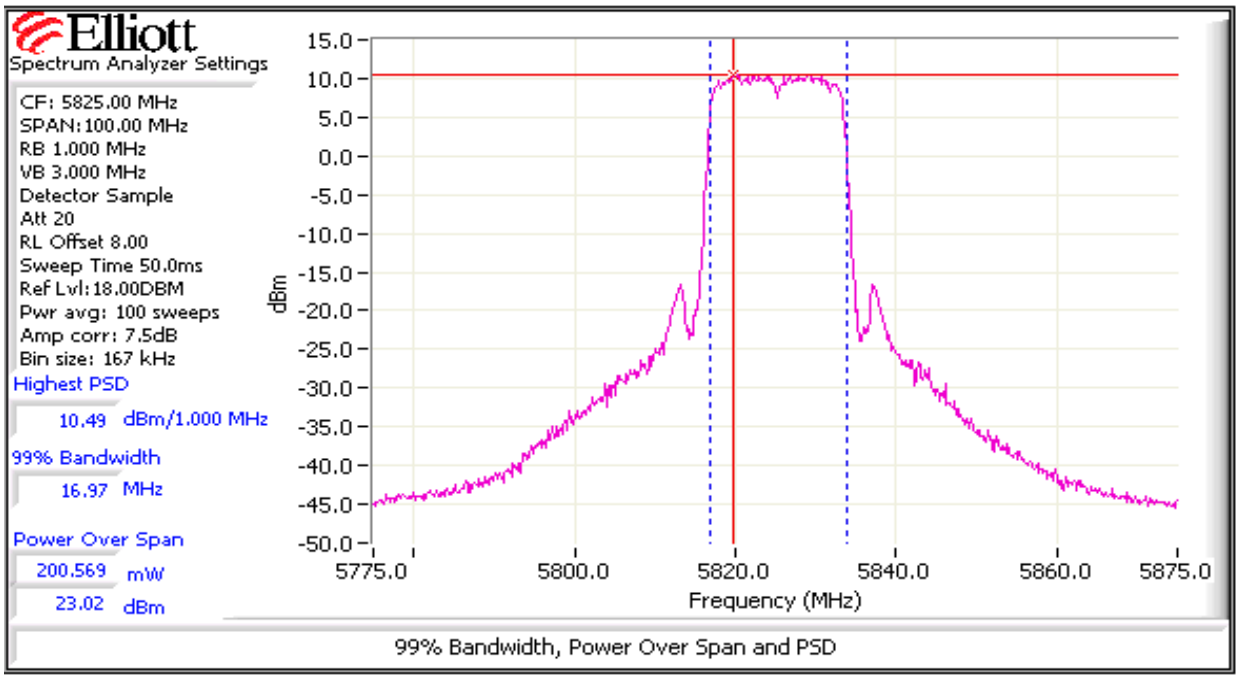


Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5785 MHz, 99% BW



5825 MHz, 99% BW

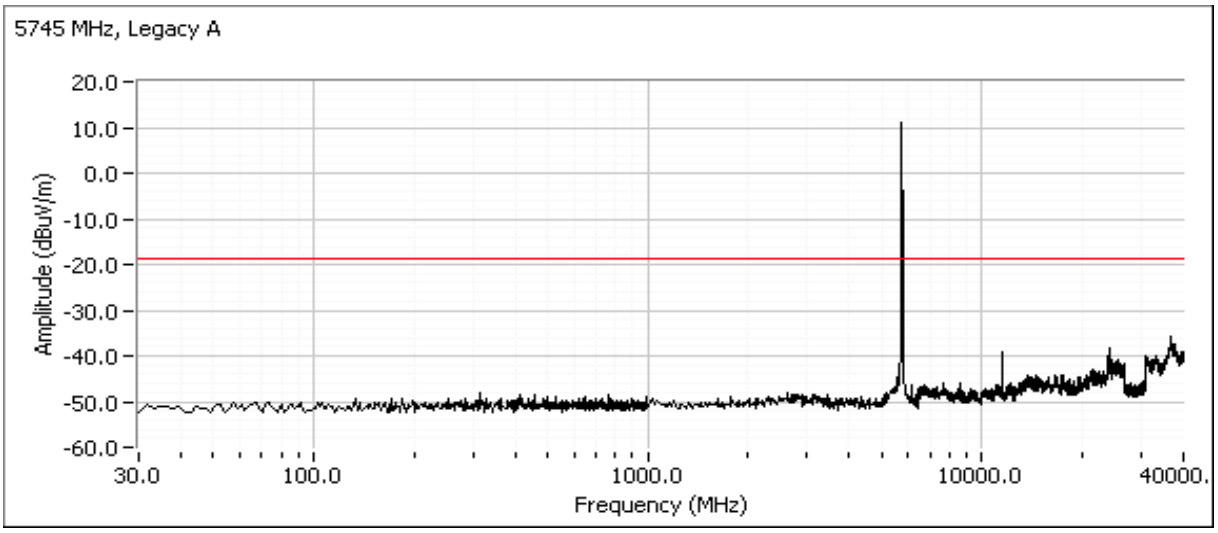


Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

Run #4: Out of Band Spurious Emissions

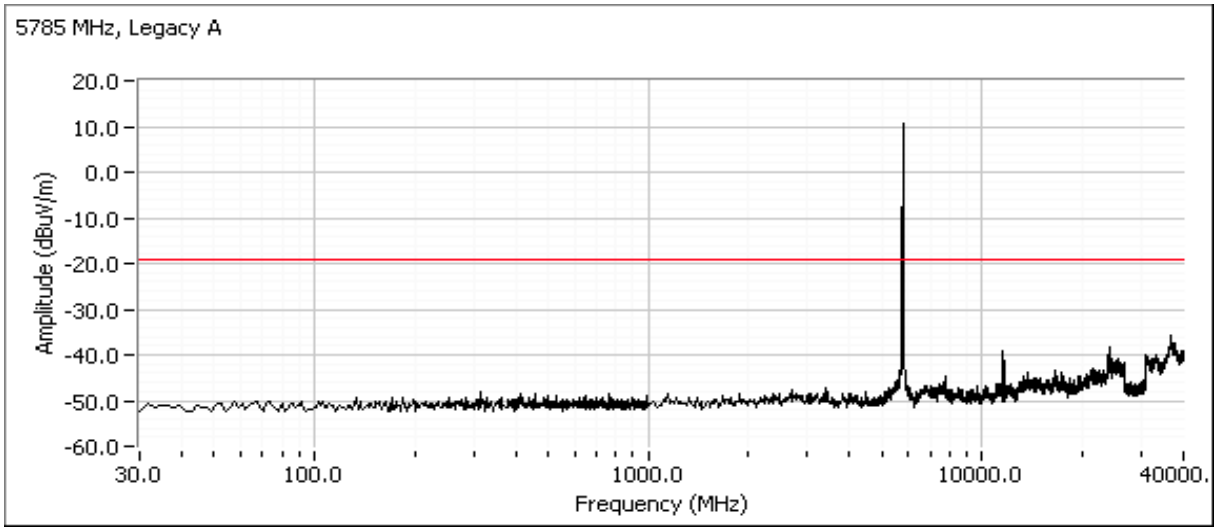
Frequency (MHz)	Limit	Result
5745	-30dBc	>30 dBc
5785	-30dBc	>30 dBc
5825	-30dBc	>30 dBc

Plots for low channel

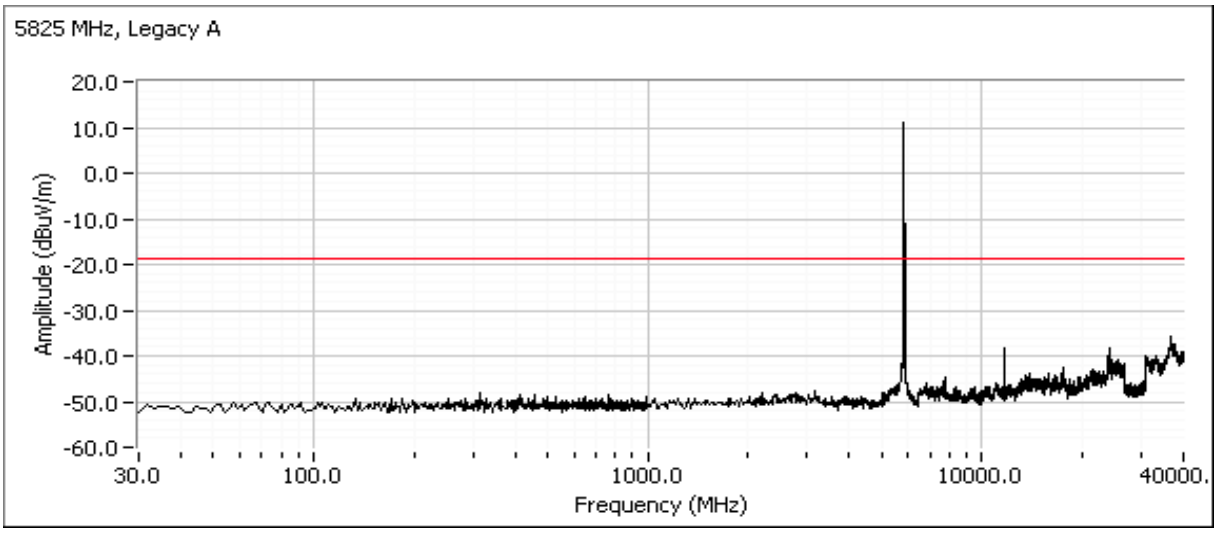


Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

Plots for center channel



Plots for high channel



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

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: 8/24/2007
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #4
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.

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

Ambient Conditions:

Temperature: 22.9 °C
Rel. Humidity: 45 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1 (40MHz CDD Mode)	RE, 30 - 18000 MHz - Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	51.4dBµV/m (371.5µV/m) @ 1649.9MHz (-2.6dB)

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.

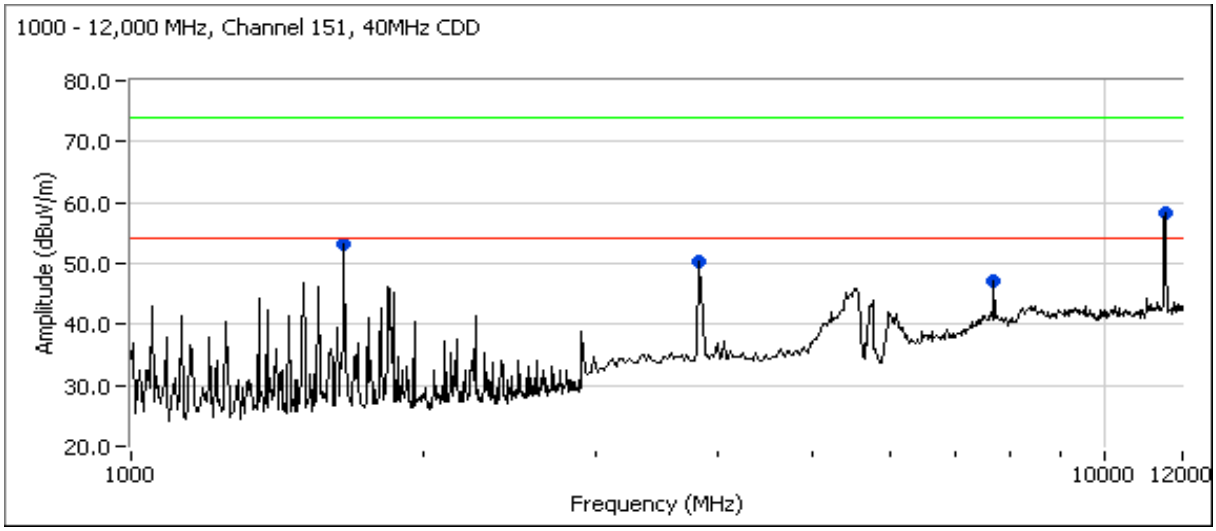
Note: Preliminary testing showed no radio related emissions below 1 GHz, and no emissions above 18 GHz.

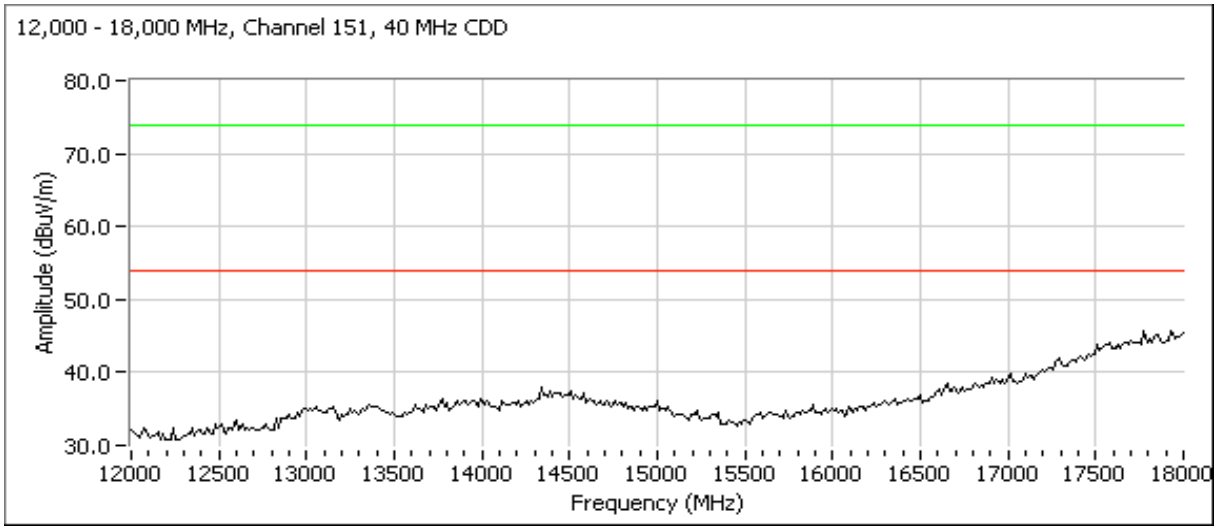
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1: Radiated Spurious Emissions, 1000 - 18000 MHz.

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000-12000	3	3	0.0
12000-18000	1	3	-9.5

Run #1a: Low Channel @ 5755 MHz





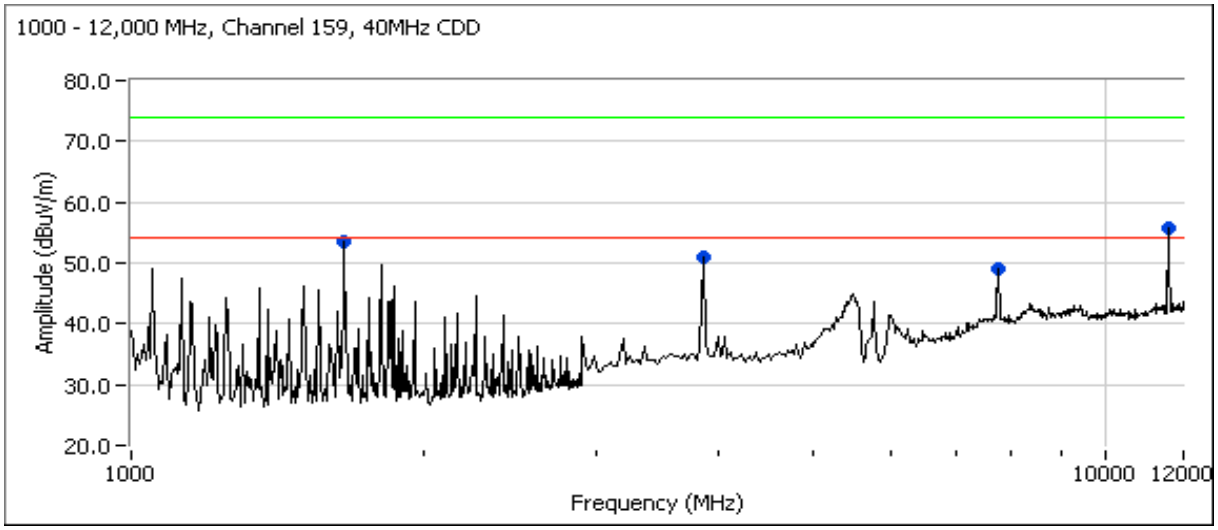
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1a: Continued

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1649.900	51.0	V	54.0	-3.0	AVG	16	1.0	
3832.750	50.4	V	54.0	-3.6	Peak	337	2.0	
11511.290	49.4	V	54.0	-4.6	AVG	324	1.5	Non-restricted
7677.500	47.2	V	54.0	-6.8	Peak	70	1.0	
11511.290	61.6	V	74.0	-12.4	PK	324	1.5	
1649.900	52.9	V	74.0	-21.1	PK	16	1.0	

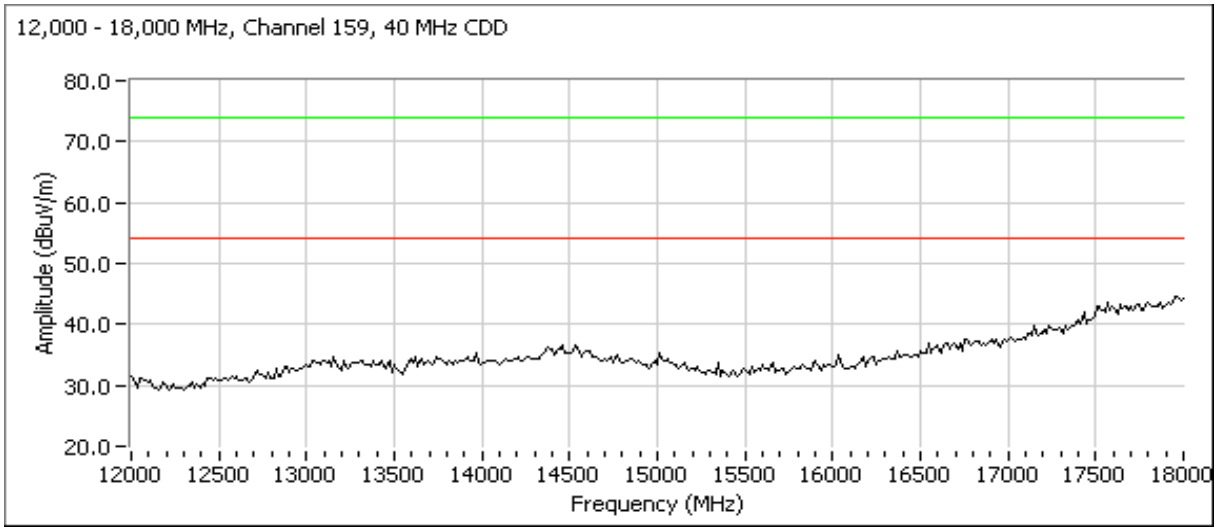
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.

Run #1b: High Channel @ 5795 MHz



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1b: Continued



Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1649.940	51.4	V	54.0	-2.6	AVG	85	1.0	Non-restricted
3855.500	51.1	H	54.0	-2.9	Peak	360	2.0	
7745.750	49.0	V	54.0	-5.0	Peak	242	1.5	
11589.160	47.5	V	54.0	-6.5	AVG	35	1.0	
11589.160	60.1	V	74.0	-13.9	PK	35	1.0	
1649.940	55.5	V	74.0	-18.5	PK	85	1.0	

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 and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements
MIMO and Smart Antenna Systems
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: 8/19/2007 23:38
Test Engineer: Rafael Varelas
Test Location: FT Chamber #4

Config. Used: 1
Config Change: None
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: 22.1 °C
Rel. Humidity: 43 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power	15.247(b)	Pass	18.1 dBm
2	Power spectral Density (PSD)	15.247(d)	Pass	-9.1 dBm/3kHz
3	6dB Bandwidth	15.247(a)	Pass	36.4 MHz
3	99% Bandwidth	RSS GEN	-	36.6 MHz
4	Spurious emissions	15.247(b)	Pass	>30 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:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

Run #1: Output Power

Transmitted signal on chain is coherent ? yes

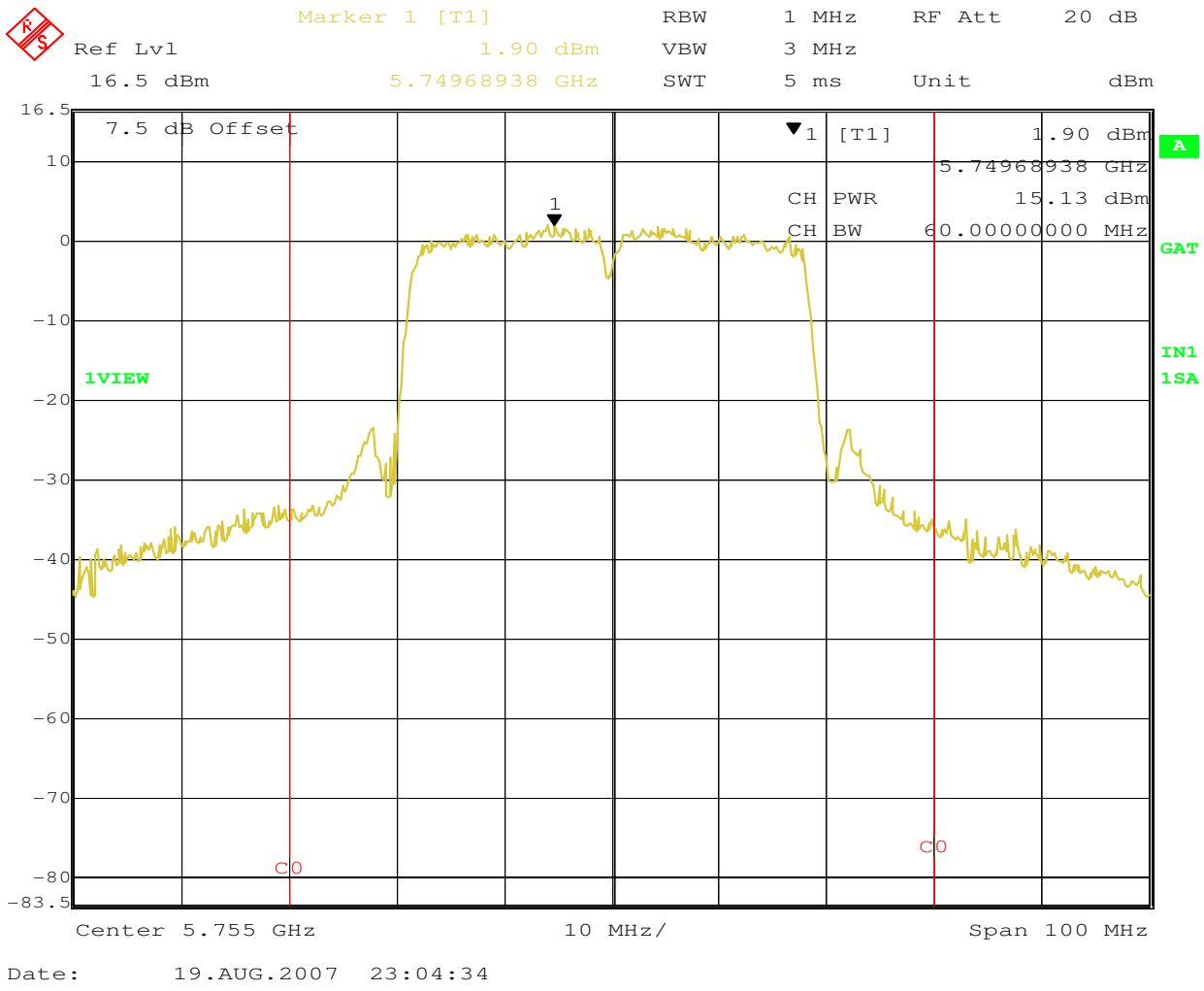
Regulatory Power Measurements:

Power Setting[4]	Frequency (MHz)	Output Power (dBm) Note 1			Antenna Gain (dBi) Note 3			EIRP Note 2	
		Chain 1	Chain 2	Total	Chain 1	Chain 2	Total	dBm	W
	5755	15.1	15.2	18.1	3.7	3.7	6.7	24.9	0.306
	5795	15.2	15.0	18.1	3.7	3.7	6.7	24.8	0.302

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 not continuous but the ESI analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 100 MHz
Note 2:	EIRP - if transmit chains are coherent then the EIRP is calculated from the sum of the antenna gains plus the total power (i.e. beam-forming is assumed because of coherency on the chains). If the individual chains are incoherent then the EIRP is calculated from the sum of the individual EIRPs for each chain.
Note 3:	If the transmit chains are coherent then the total system antenna gain is the sum of the numeric gains for each antenna. If the transmit chains are incoherent then the system antenna gain is not applicable as each transmit chain can be treated independently.
Note 4:	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting for each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.

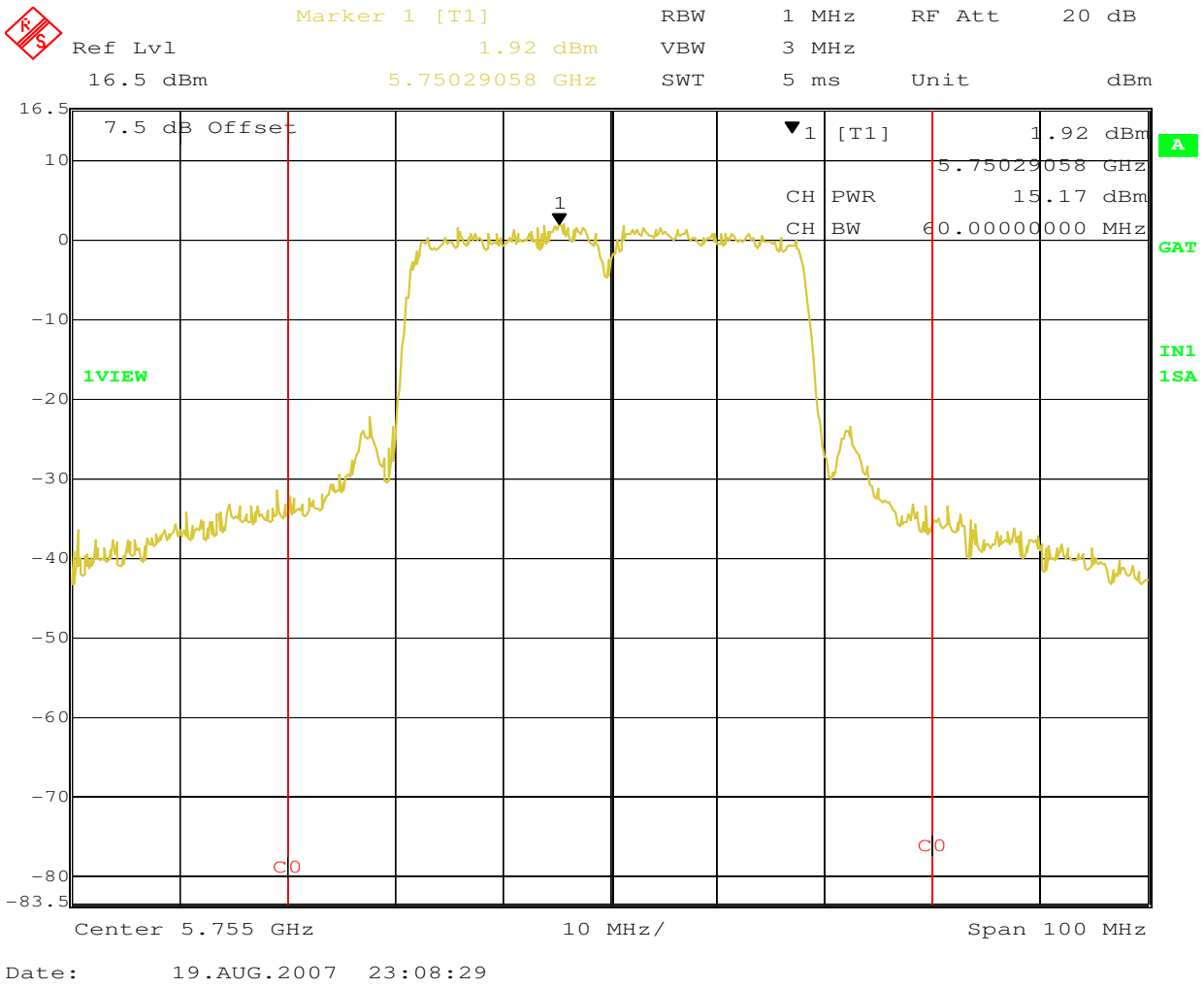
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5755 MHz, Power Plot, Chain 1



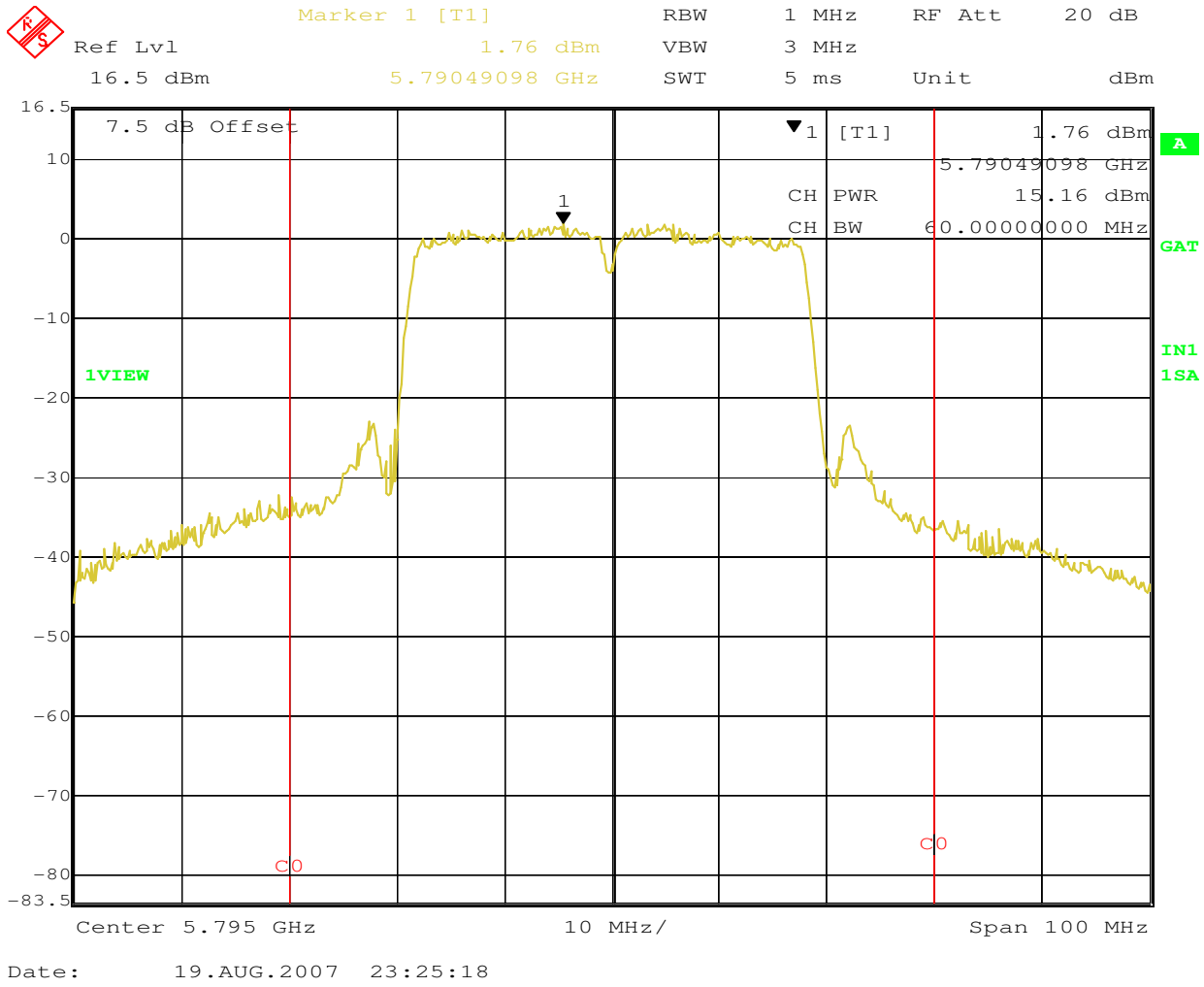
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5755 MHz, Power Plot, Chain 2



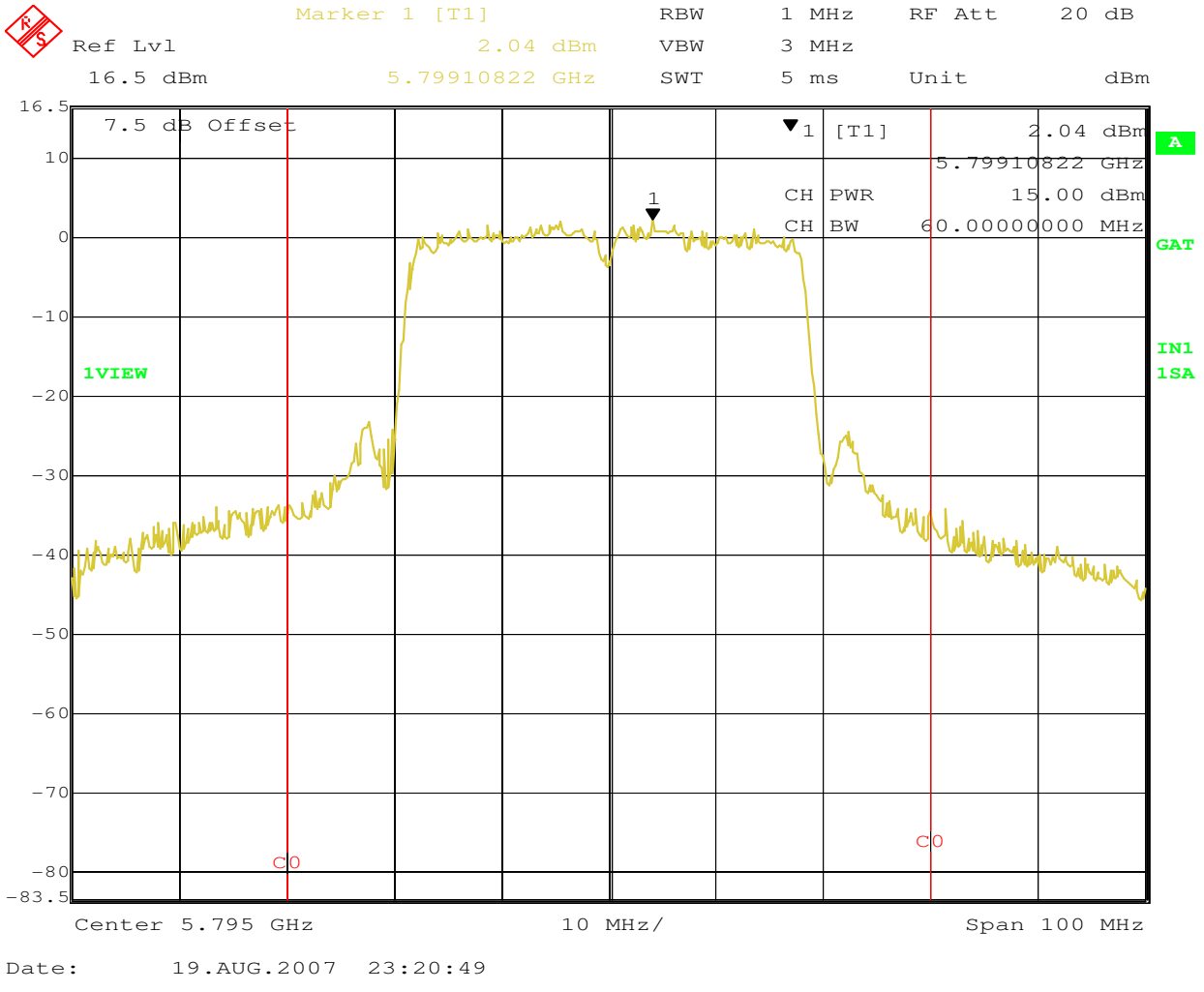
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5795 MHz, Power Plot, Chain 1



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5795 MHz, Power Plot, Chain 2



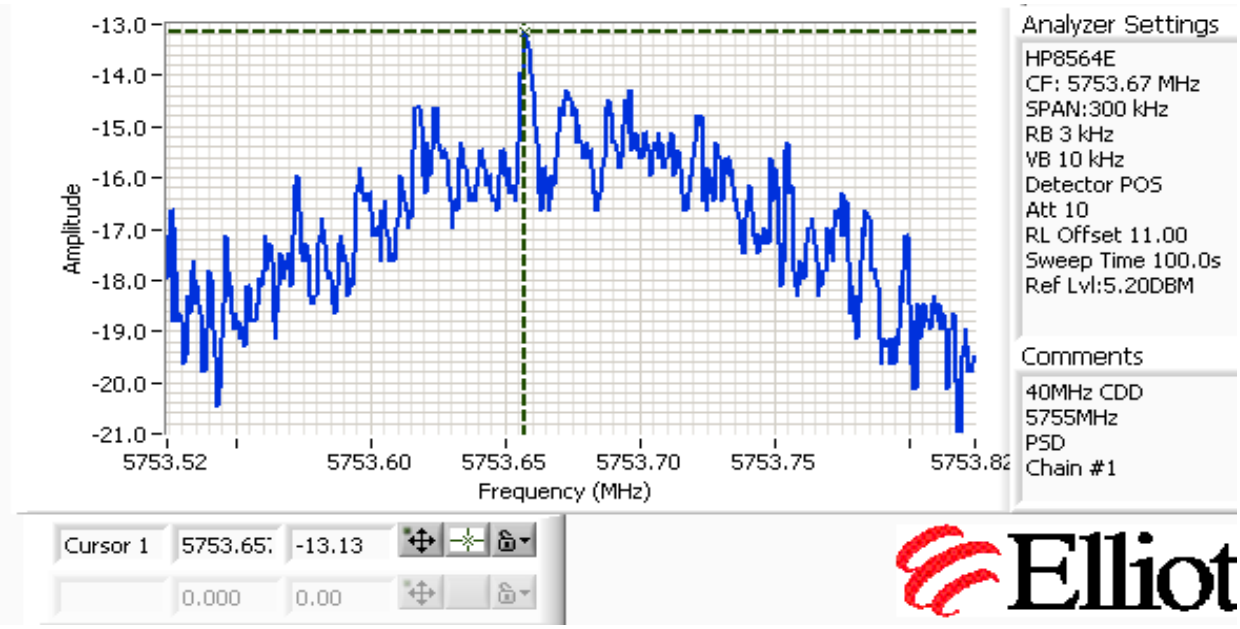
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

Run #2: Power spectral Density

Power Setting	Frequency (MHz)	PSD (dBm/3kHz) Note 1 Chain 1	Chain 2	Total	Limit dBm/3kHz	Result
	5753.652	-13.1	-13.5	-10.3	8.0	Pass
	5798.990	-12.0	-12.3	-9.1	8.0	Pass

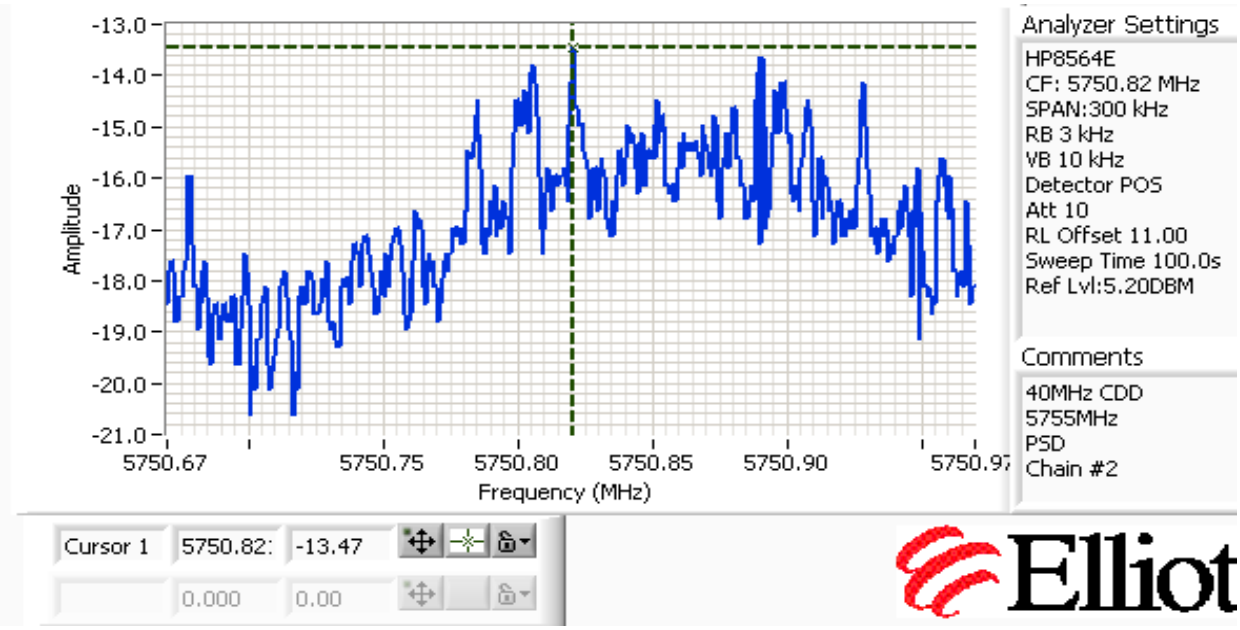
Note 1:	Power spectral density measured using RB=3 kHz, VB=10kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 1 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster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

5755 MHz, PSD Plot, Chain 1



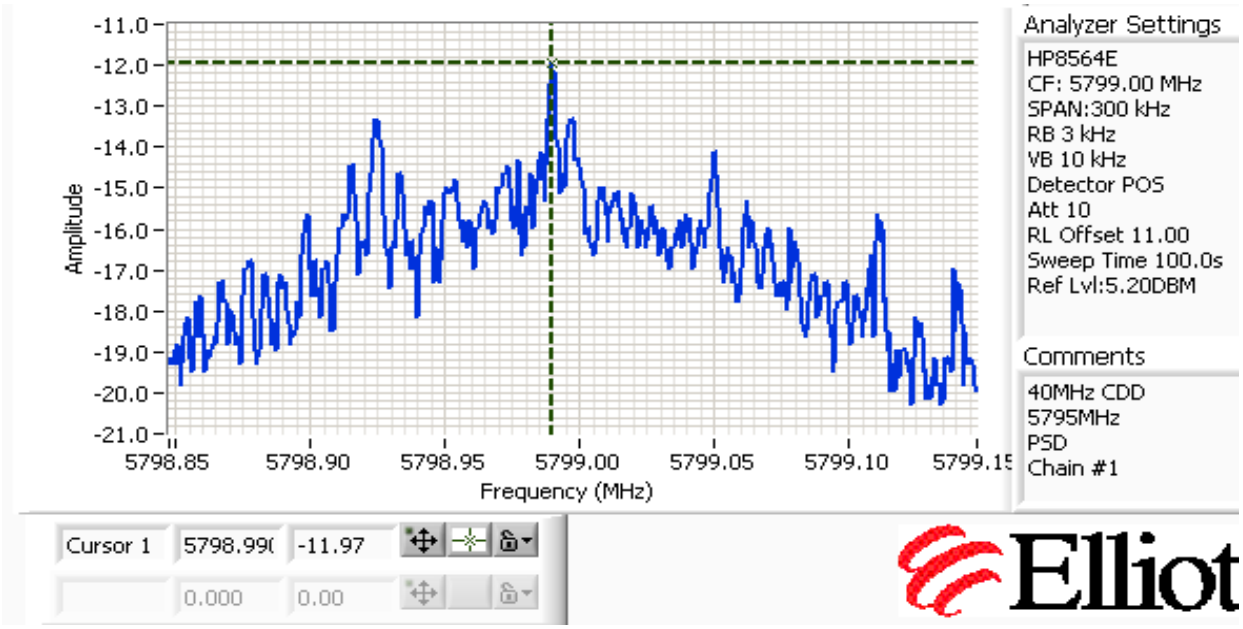
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5755 MHz, PSD Plot, Chain 2



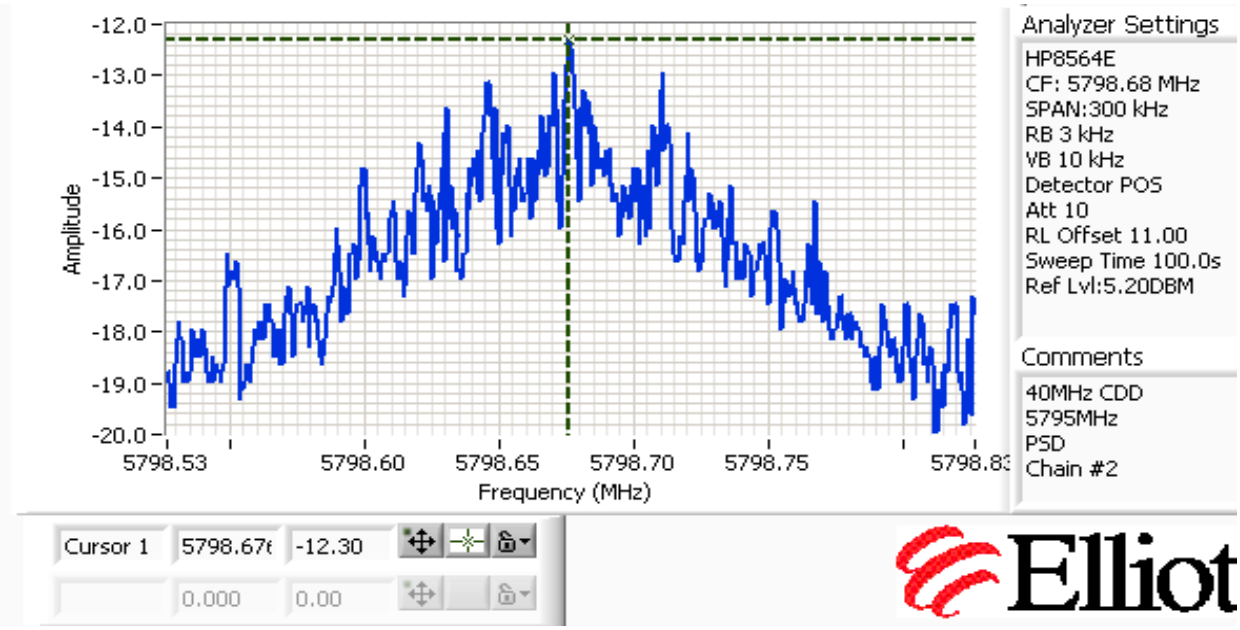
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5795 MHz, PSD Plot, Chain 1



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5795 MHz, PSD Plot, Chain 2



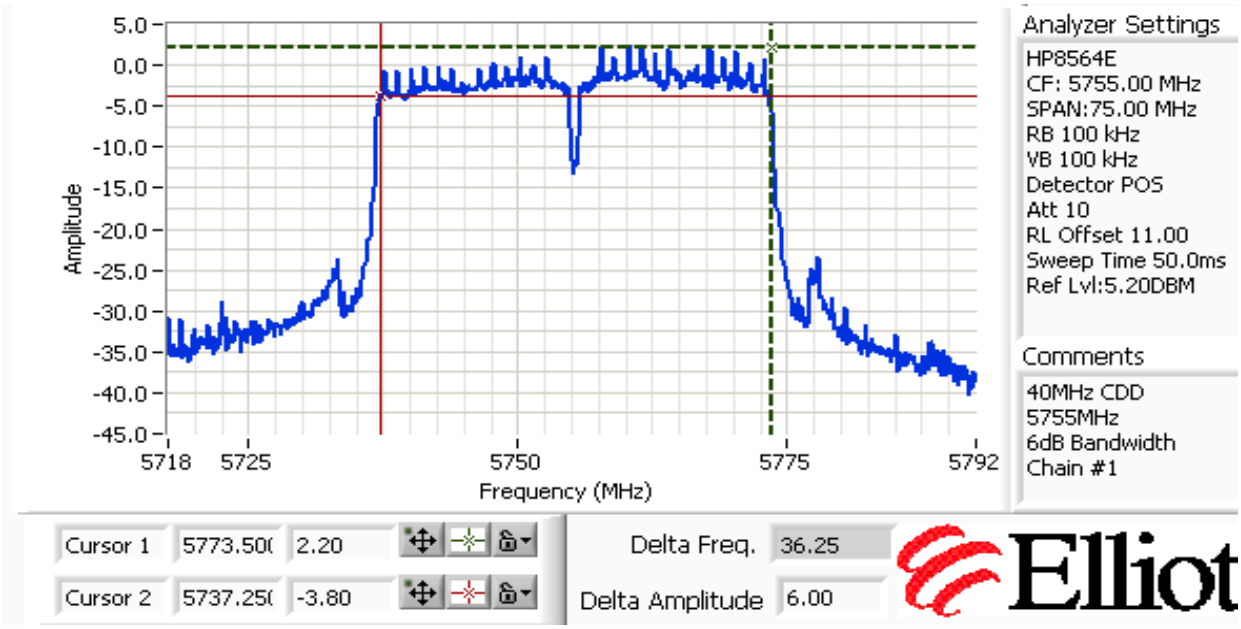
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

Run #3: Signal Bandwidth

Power Setting	Frequency (MHz)	Resolution Bandwidth	Bandwidth (MHz) 6dB	99%
	5755	100kHz	36.6	36.6
	5795	100kHz	36.4	36.6

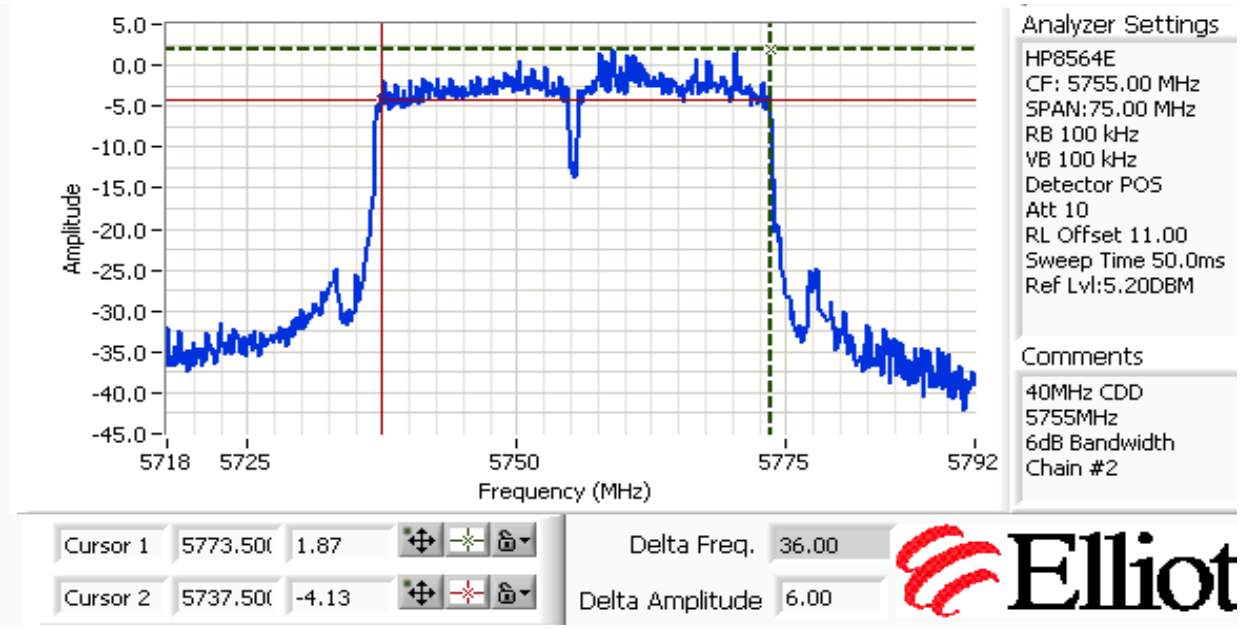
Note 1:	Measured on a single chain
Note 2:	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB

5755 MHz, 6 Bandwidth Plot, Chain 1



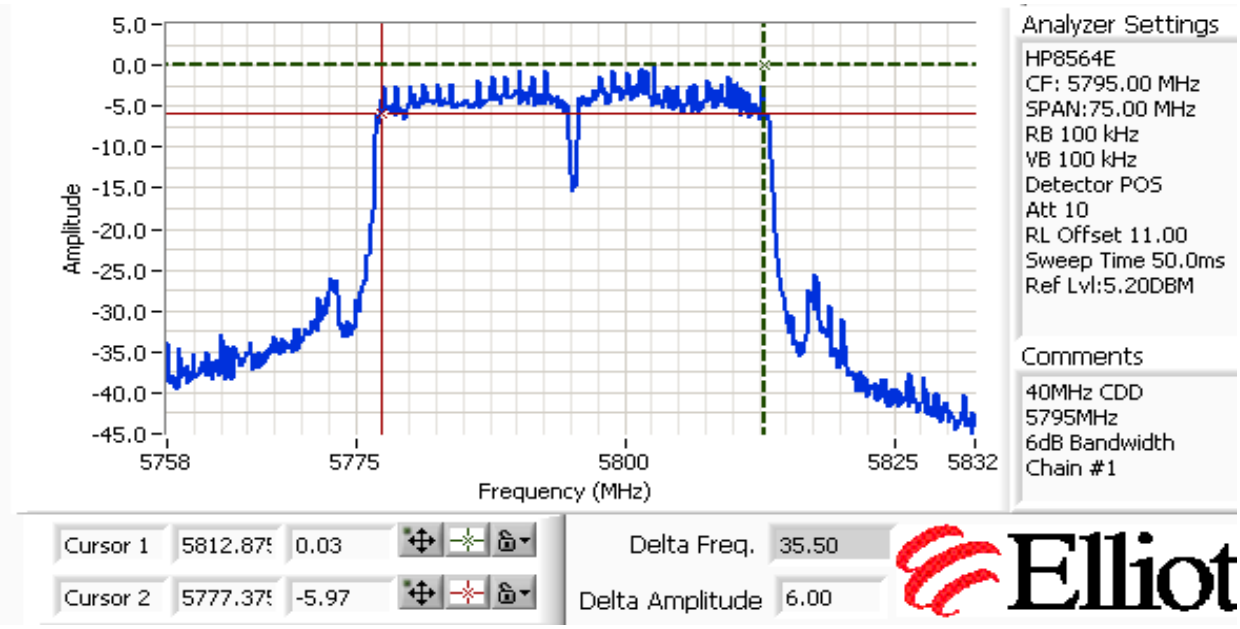
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5755 MHz, 6 Bandwidth Plot, Chain 2



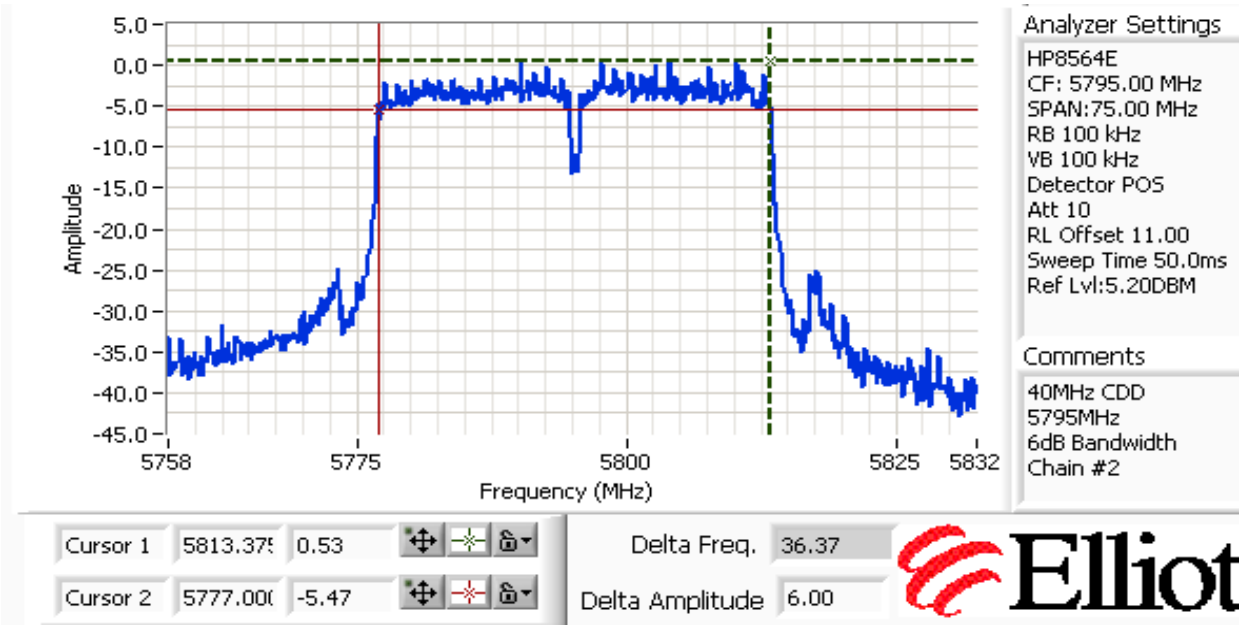
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5795 MHz, 6 Bandwidth Plot, Chain 1



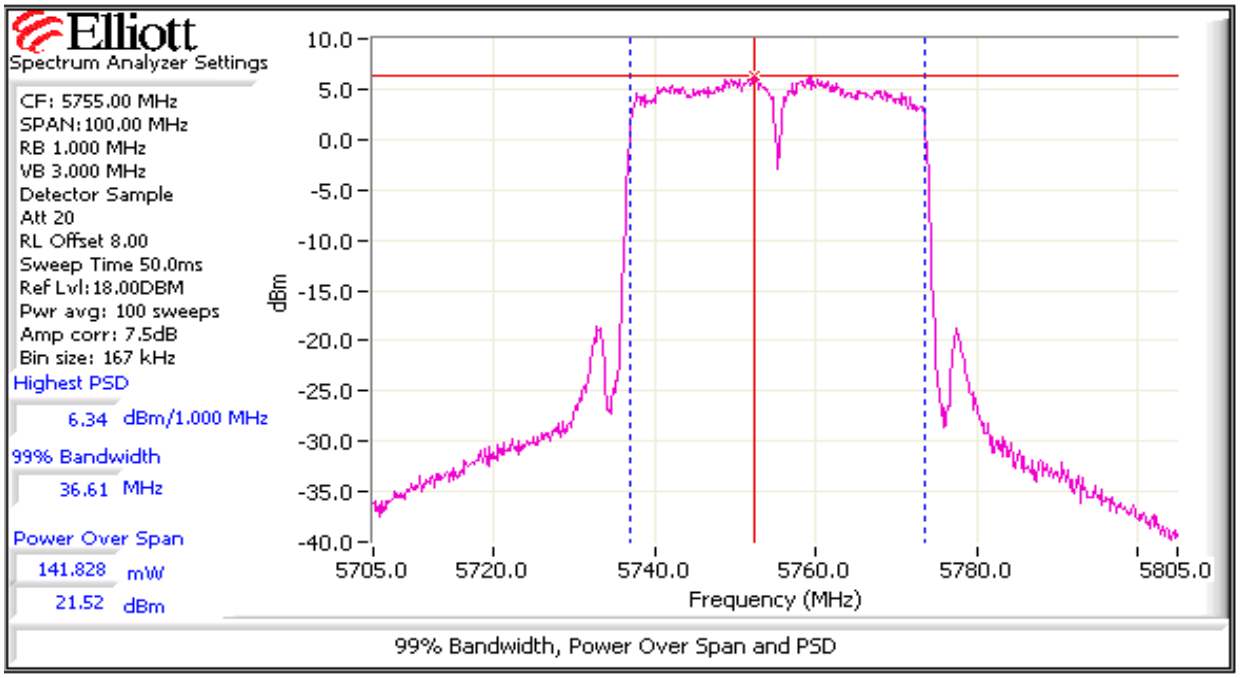
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5795 MHz, 6 Bandwidth Plot, Chain 2



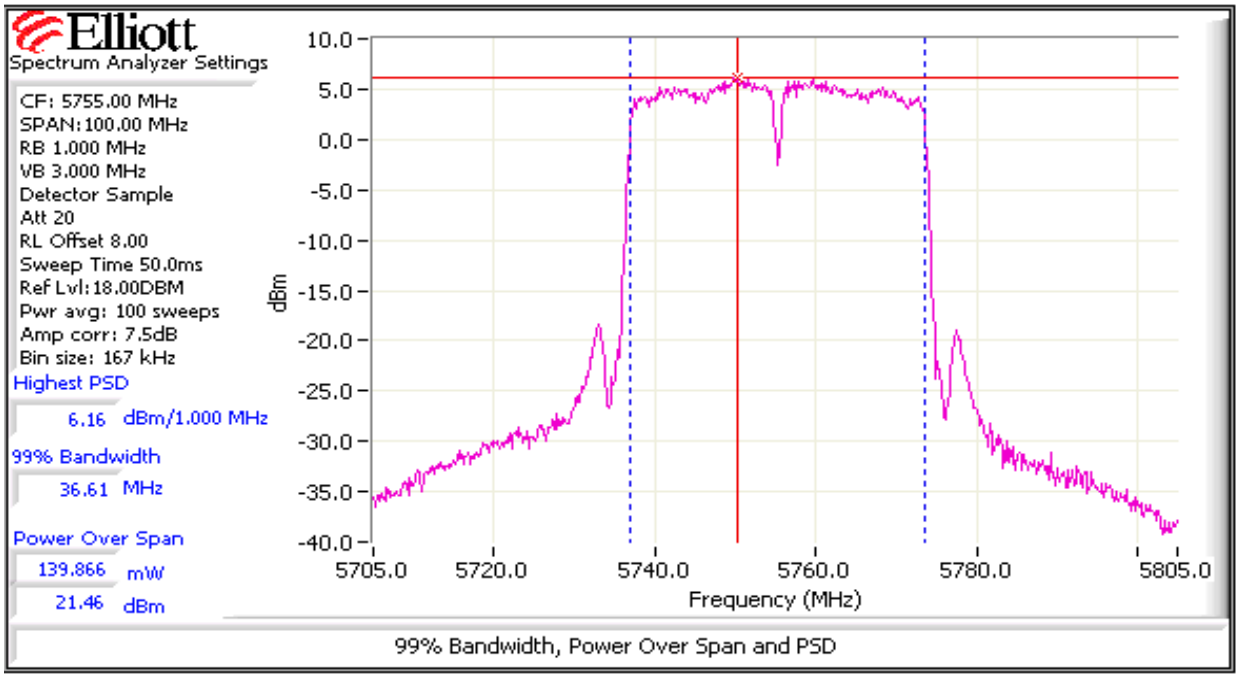
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5755 MHz, 99% Bandwidth Plot, Chain 1



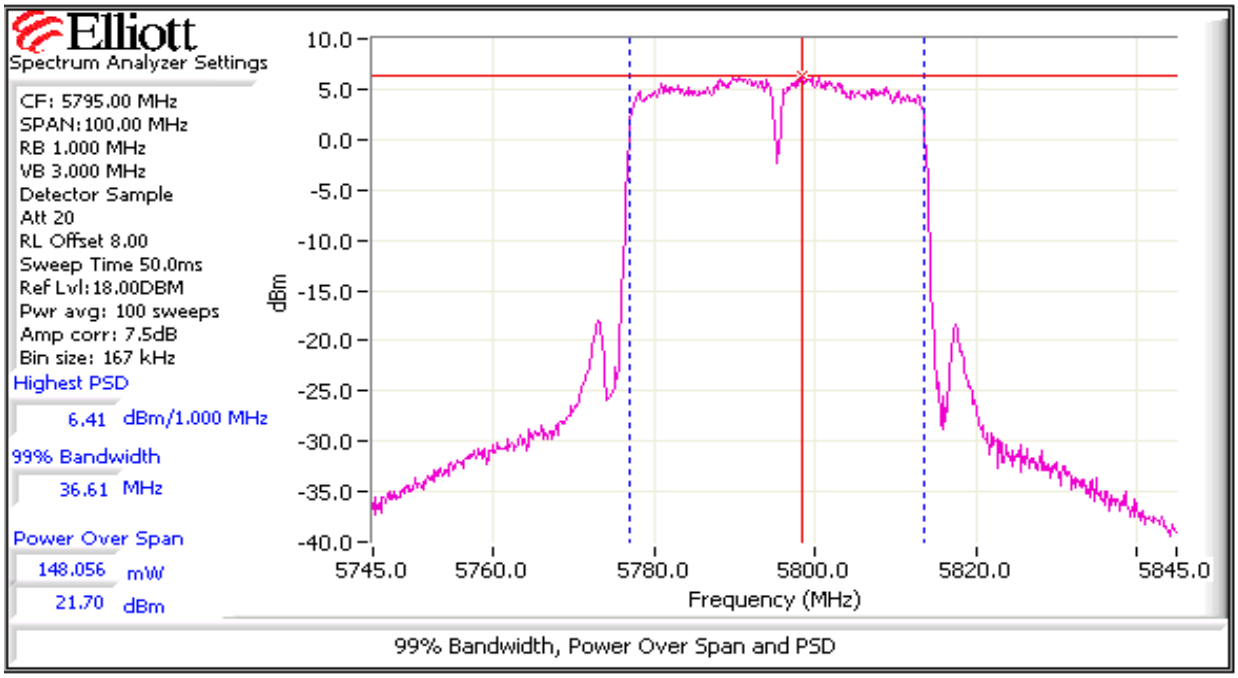
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5755 MHz, 99% Bandwidth Plot, Chain 2



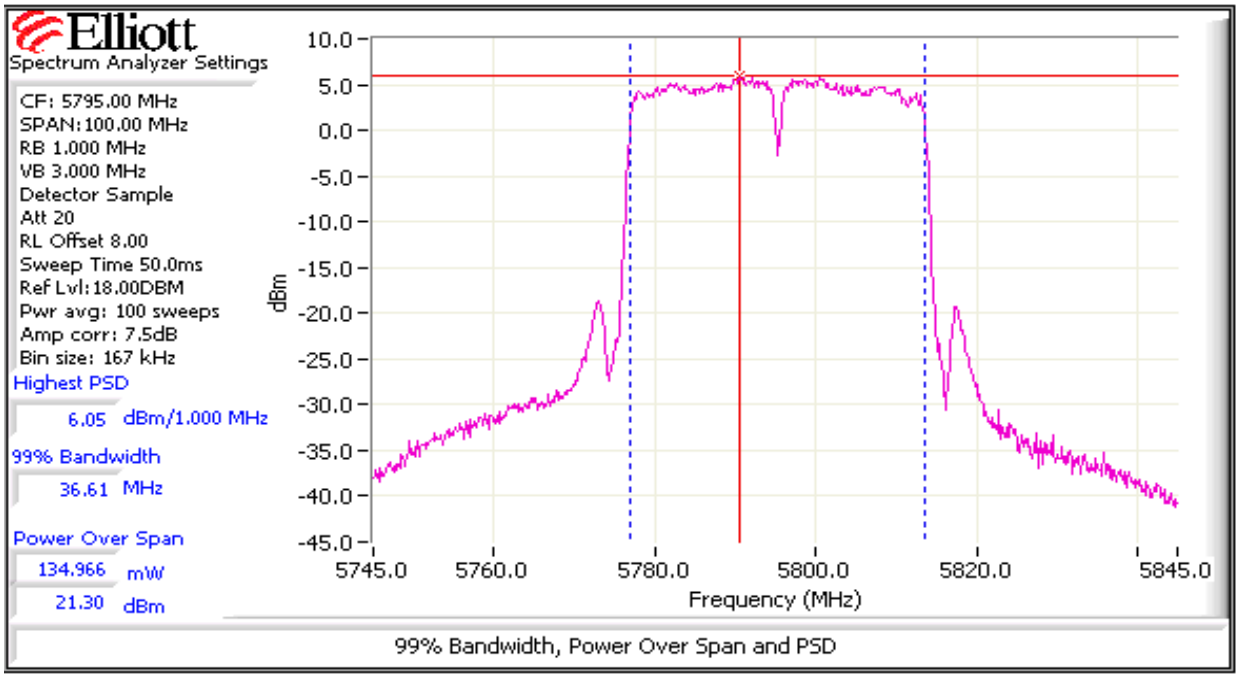
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5795 MHz, 99% Bandwidth Plot, Chain 1



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5795 MHz, 99% Bandwidth Plot, Chain 2



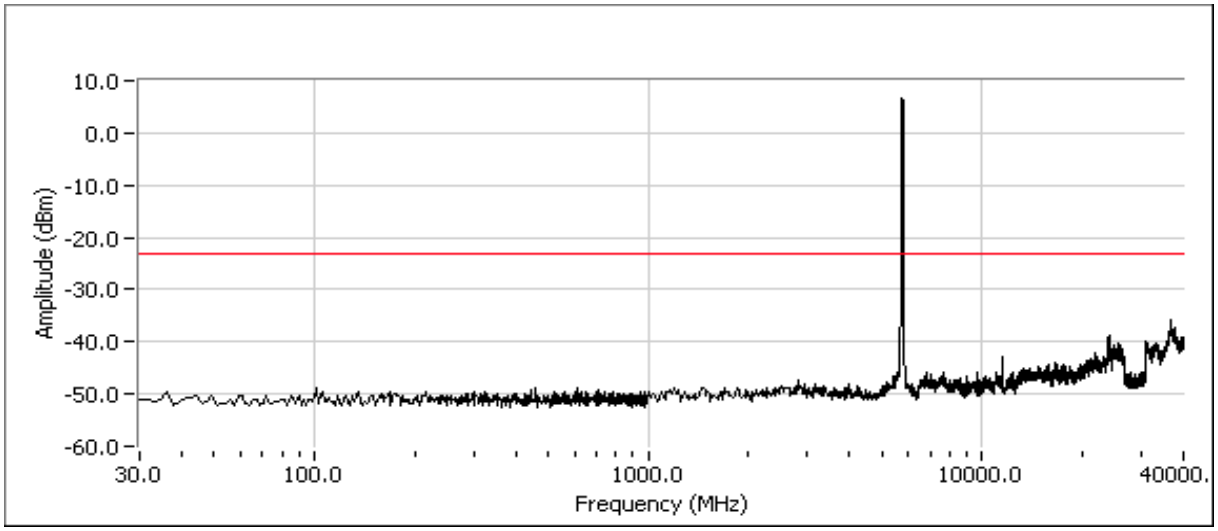
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

Run #4: Out of Band Spurious Emissions

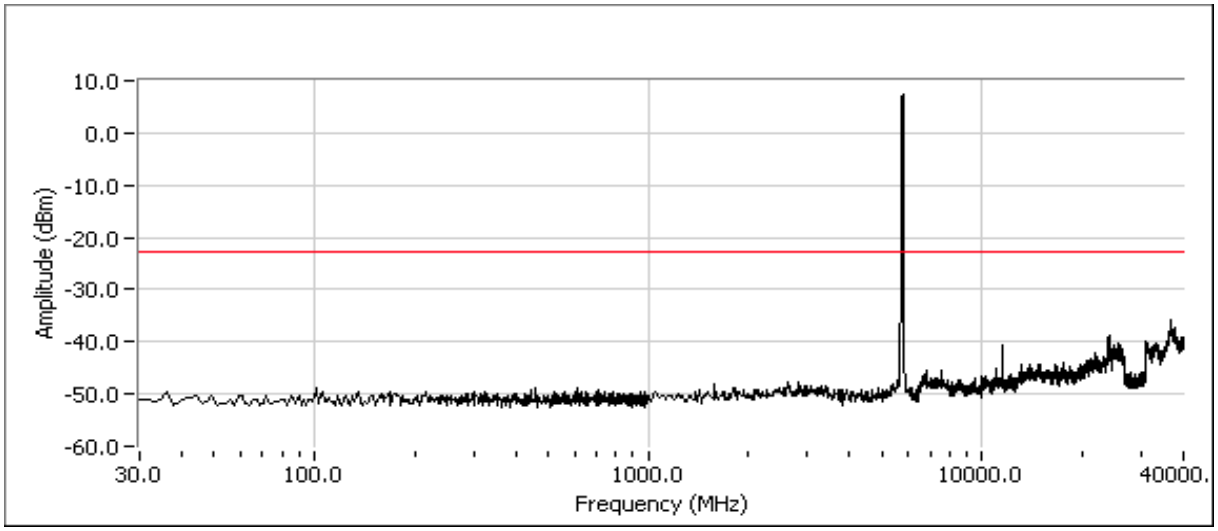
Power Setting Per Chain #1	#2	#3	Frequency (MHz)	Limit	Result
			5775	-30dBc	>30dBc
			5795	-30dBc	>30dBc

Note 1:	Measured on each chain individually

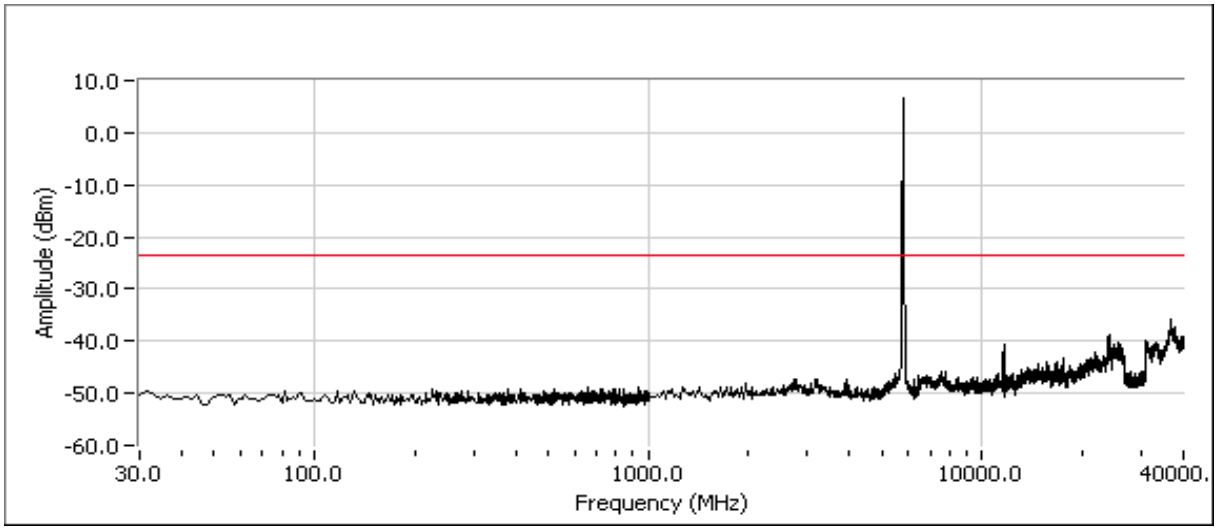
5755 MHz, Out-of-Band Plot, Chain 1



5755 MHz, Out-of-Band Plot, Chain 2

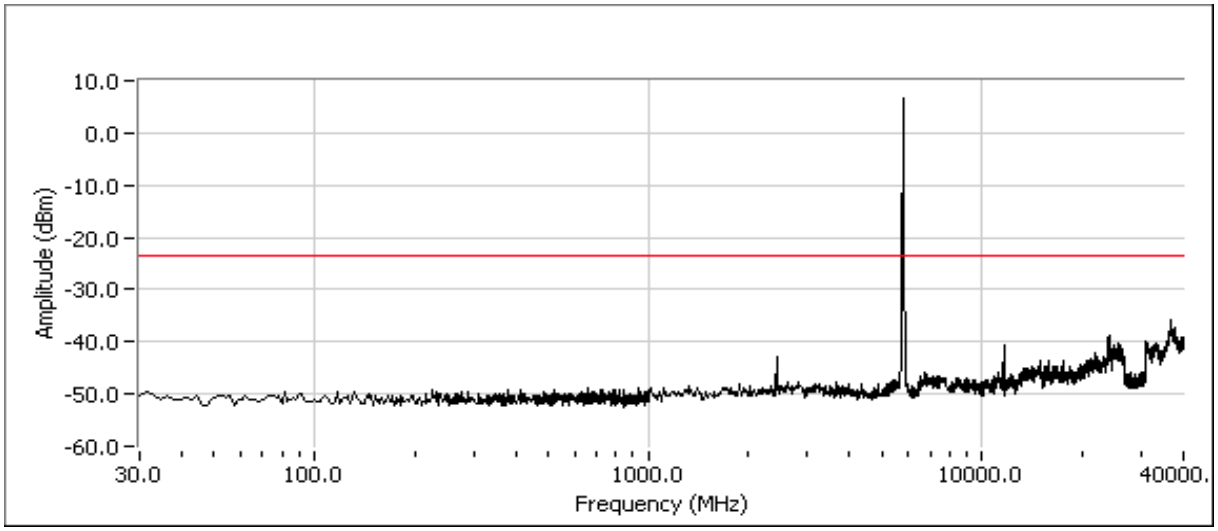


5795 MHz, Out-of-Band Plot, Chain 1



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5795 MHz, Out-of-Band Plot, Chain 2



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

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: 8/24/2007
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #4
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.

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

Ambient Conditions:

Temperature: 22.9 °C
Rel. Humidity: 45 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1 (20MHz CDD Mode)	RE, 30 - 18000 MHz - Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	51.3dBµV/m (367.3µV/m) @ 1649.9MHz (-2.7dB)

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.

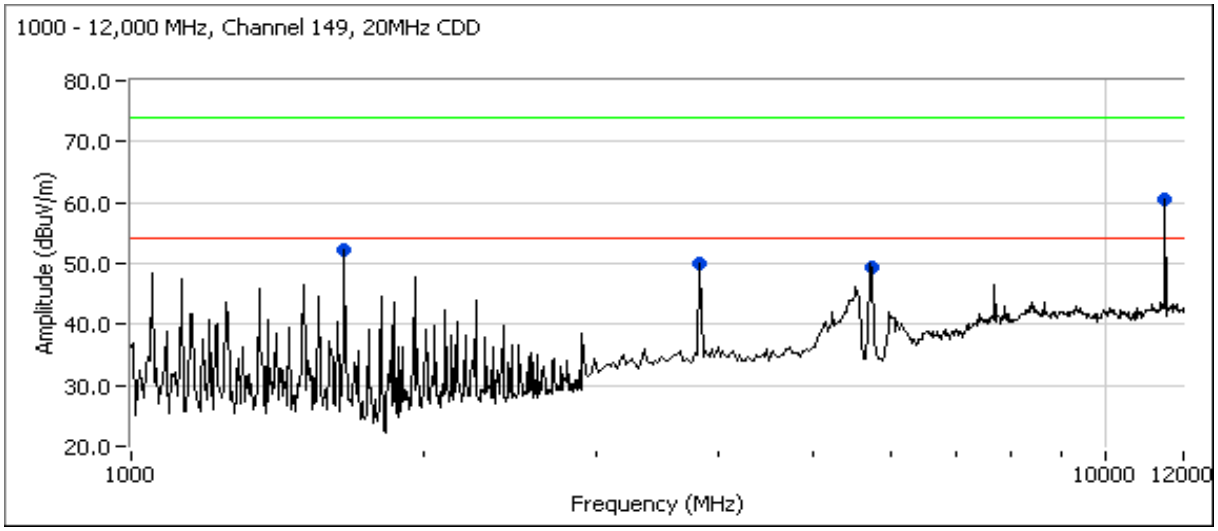
Note: Preliminary testing showed no radio related emissions below 1 GHz, and no emissions above 18 GHz.

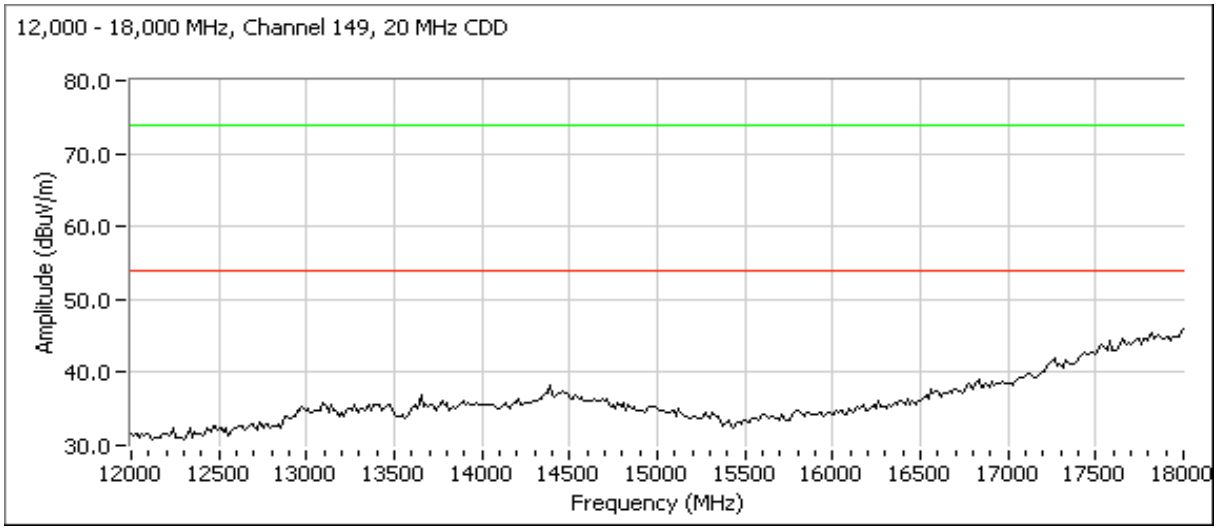
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1: Radiated Spurious Emissions, 1000 - 18000 MHz.

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000-12000	3	3	0.0
12000-18000	1	3	-9.5

Run #1a: Low Channel @ 5745 MHz





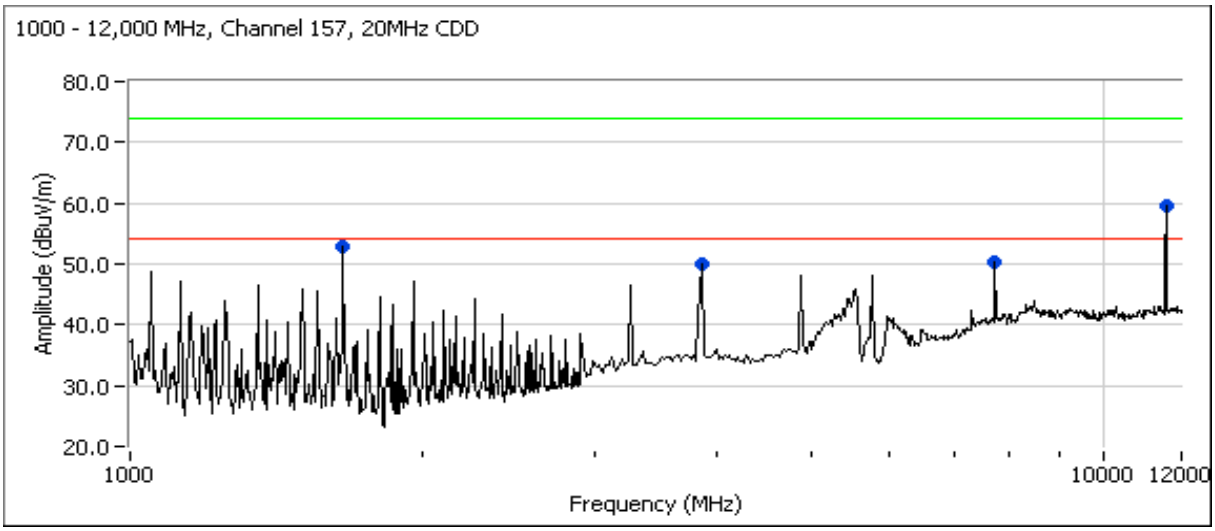
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1a: Continued

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3832.750	50.1	V	54.0	-3.9	Peak	88	1.0	
5745.000	49.3	V	-	-	Peak	157	1.0	Fundamental
1649.910	51.9	V	54.0	-2.1	AVG	88	1.0	Non-restricted
1649.910	53.2	V	74.0	-20.8	PK	88	1.0	
11491.120	50.9	V	54.0	-3.1	AVG	323	1.5	
11491.120	62.0	V	74.0	-12.0	PK	323	1.5	

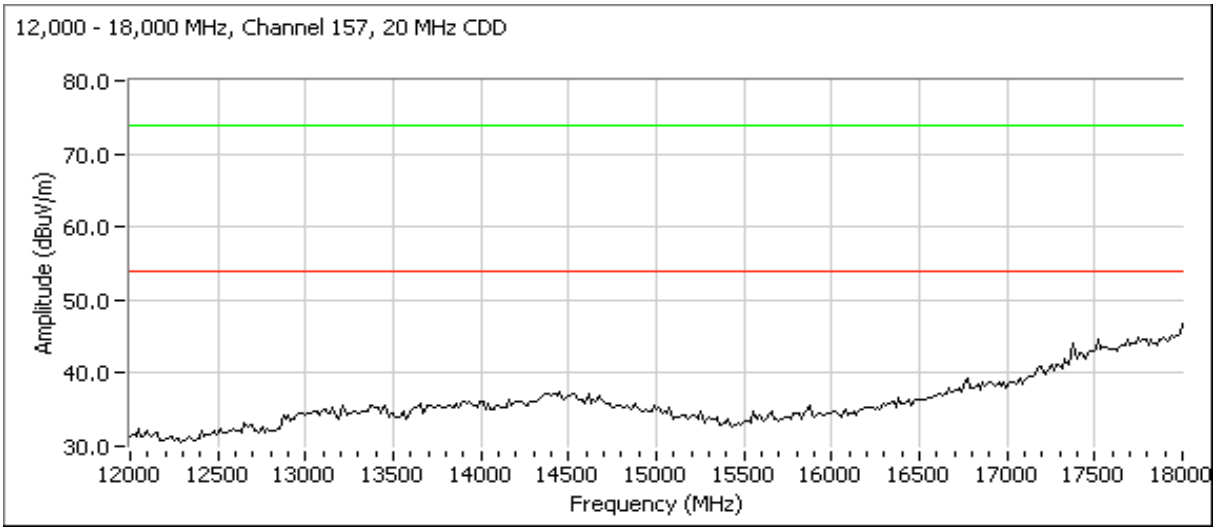
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.

Run #1b: Center Channel @ 5785 MHz



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1b: Continued

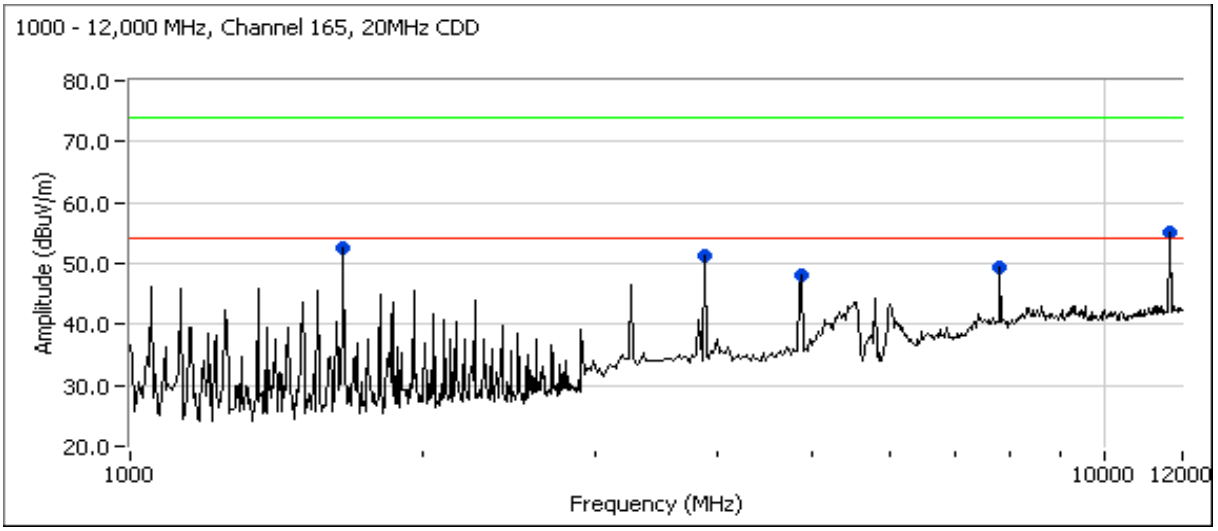


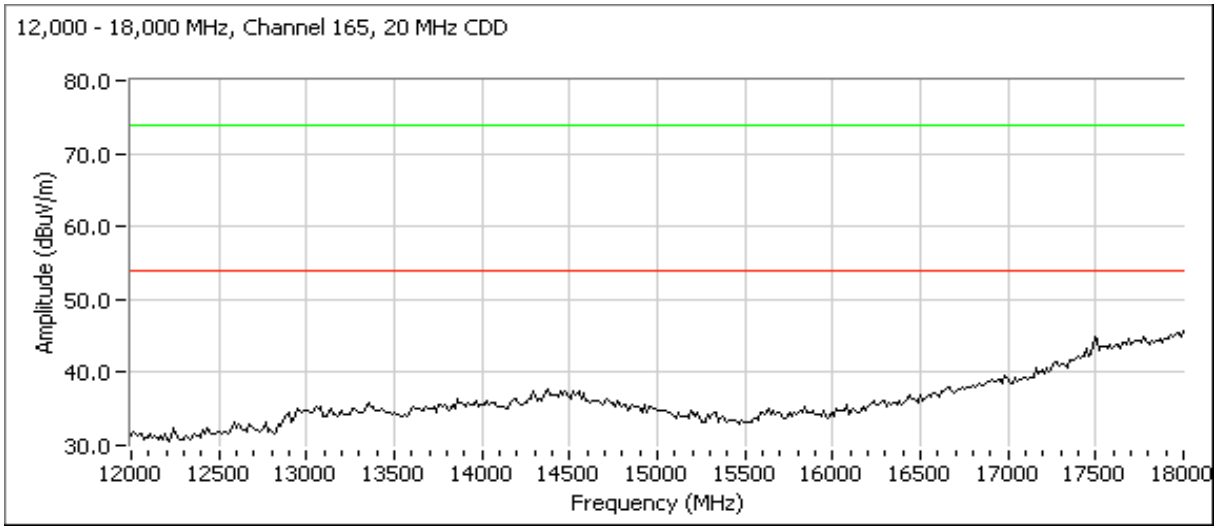
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
3855.500	50.1	H	54.0	-3.9	Peak	113	2.0	
7723.000	50.3	V	54.0	-3.7	Peak	242	1.5	
11571.220	50.8	V	54.0	-3.2	AVG	28	1.5	
11571.220	63.6	V	74.0	-10.4	PK	28	1.5	
1649.920	51.0	V	54.0	-3.0	AVG	88	1.0	Non-restricted
1649.920	52.5	V	74.0	-21.5	PK	88	1.0	

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 and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1c: High Channel @ 5825 MHz





Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	Radio

Run #1c: Continued

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1649.930	51.3	V	54.0	-2.7	AVG	88	1.0	Non-restricted
7791.250	49.4	V	54.0	-4.6	Peak	243	1.5	
11650.870	48.8	V	54.0	-5.2	AVG	317	1.5	
3883.210	48.1	V	54.0	-5.9	AVG	8	2.0	
4879.250	48.0	V	54.0	-6.0	Peak	82	1.0	
11650.870	60.2	V	74.0	-13.8	PK	317	1.5	
1649.930	52.7	V	74.0	-21.3	PK	88	1.0	
3883.210	51.6	V	74.0	-22.4	PK	8	2.0	

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 and measured in 100kHz.
Note 2:	Signal is not in a restricted band but the more stringent restricted band limit was used.

Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements
MIMO and Smart Antenna Systems
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: 8/19/2007
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #4
Config. Used: 1
Config Change: None
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: 22.1 °C
Rel. Humidity: 43 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power	15.247(b)	Pass	18.2 dBm
2	Power spectral Density (PSD)	15.247(d)	Pass	-7.9 dBm/3kHz
3	6dB Bandwidth	15.247(a)	Pass	17.2 MHz
3	99% Bandwidth	RSS GEN	-	18.0 MHz
4	Spurious emissions	15.247(b)	Pass	>30 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:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

Run #1: Output Power

Transmitted signal on chain is coherent ? Yes

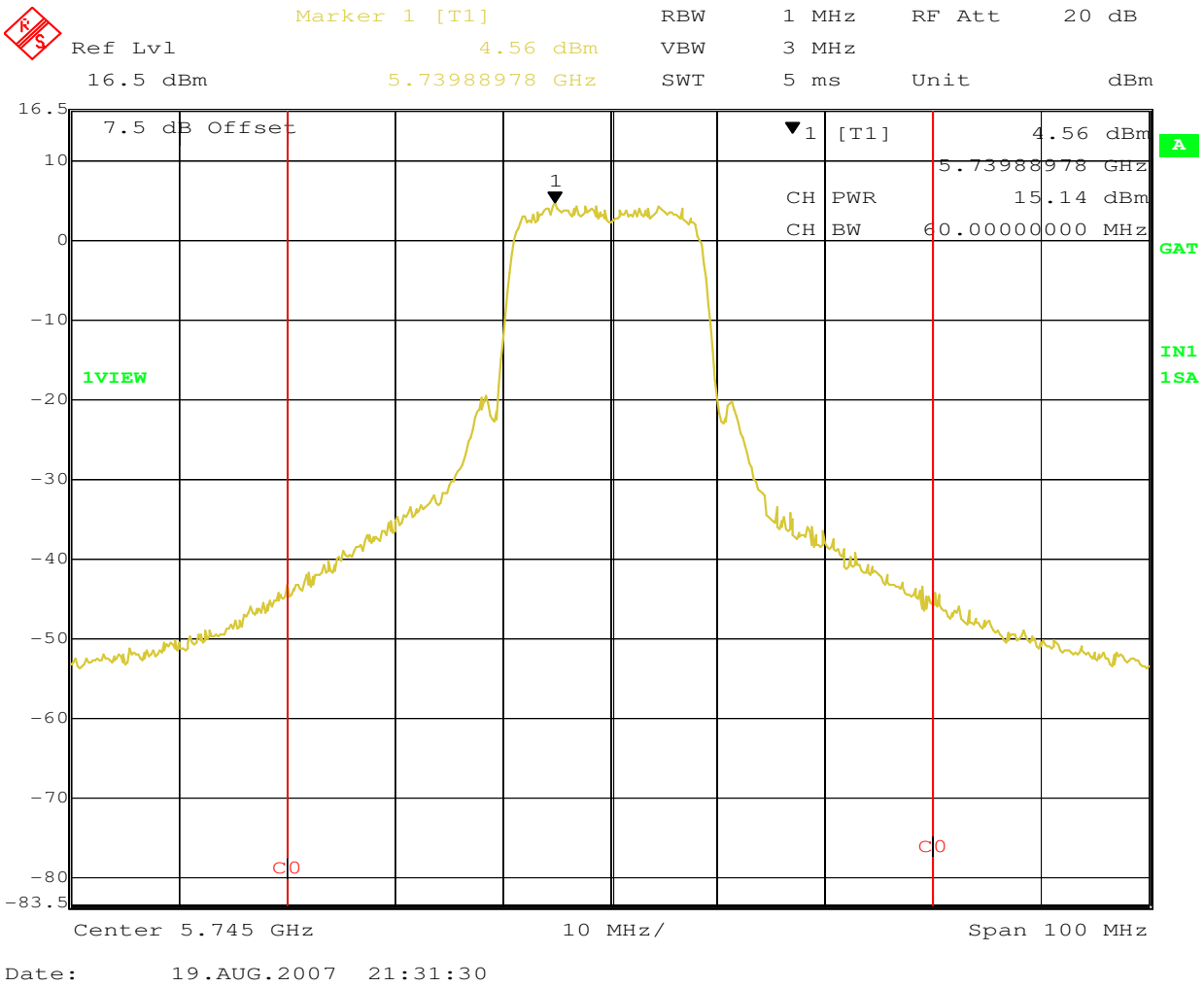
Regulatory Power Measurements:

Power Setting[4]	Frequency (MHz)	Output Power (dBm) Note 1			Antenna Gain (dBi) Note 3			EIRP Note 2	
		Chain 1	Chain 2	Total	Chain 1	Chain 2	Total	dBm	W
	5745	15.1	15.3	18.2	3.7	3.7	6.7	24.9	0.311
	5785	15.2	15.1	18.1	3.7	3.7	6.7	24.8	0.305
	5825	15.0	15.4	18.2	3.7	3.7	6.7	24.9	0.310

Note 1:	RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ESI analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 100 MHz
Note 2:	EIRP - if transmit chains are coherent then the EIRP is calculated from the sum of the antenna gains plus the total power (i.e. beam-forming is assumed because of coherency on the chains). If the individual chains are incoherent then the EIRP is calculated from the sum of the individual EIRPs for each chain.
Note 3:	If the transmit chains are coherent then the total system antenna gain is the sum of the numeric gains for each antenna. If the transmit chains are incoherent then the system antenna gain is not applicable as each transmit chain can be treated independently.
Note 4:	Power setting - if a single number the same power setting was used for each chain. If multiple numbers the power setting for each chain is separated by a comma (e.g. x,y would indicate power setting x for chain 1, power setting y for chain 2.

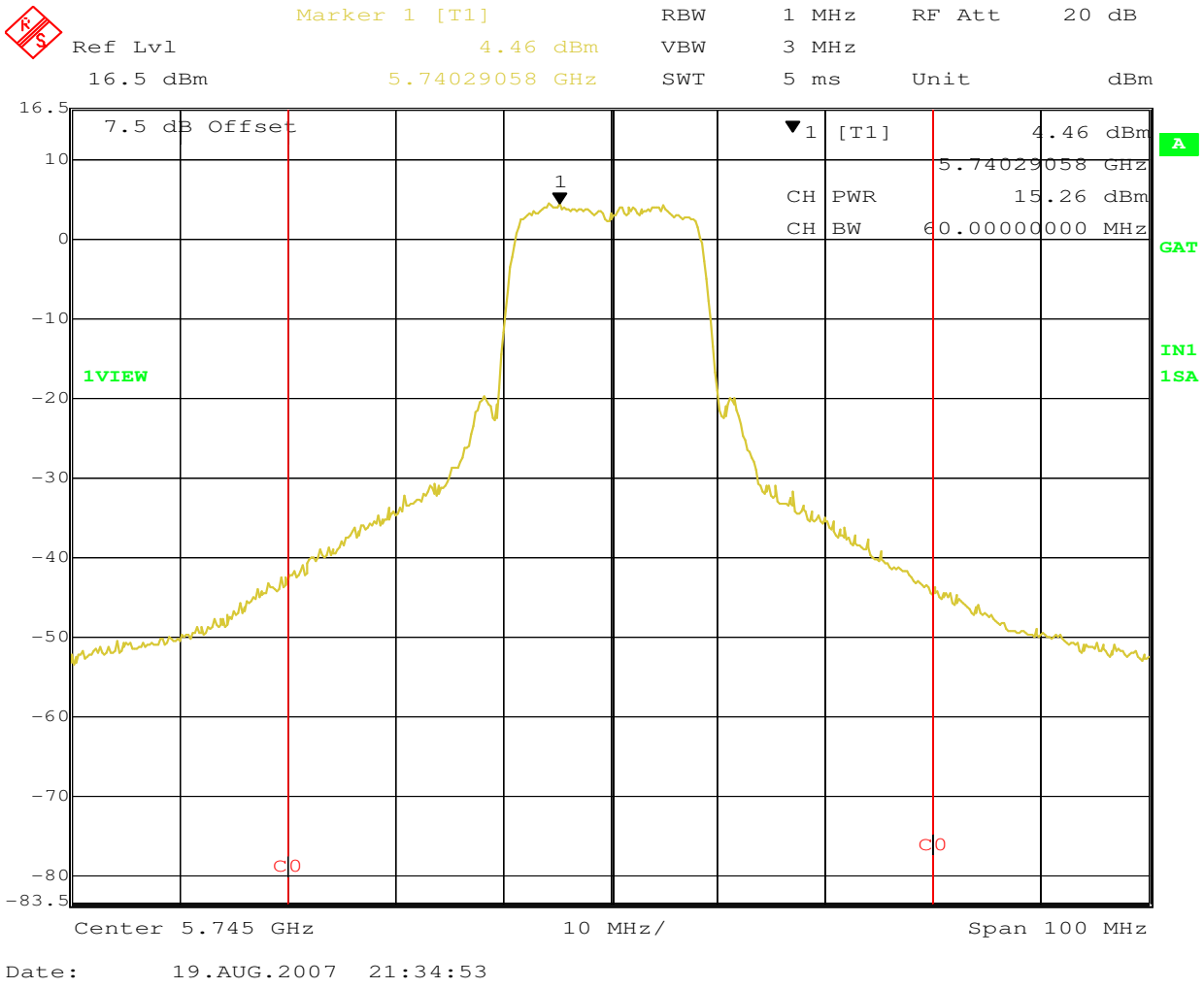
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5745 MHz, Power Plot, Chain 1



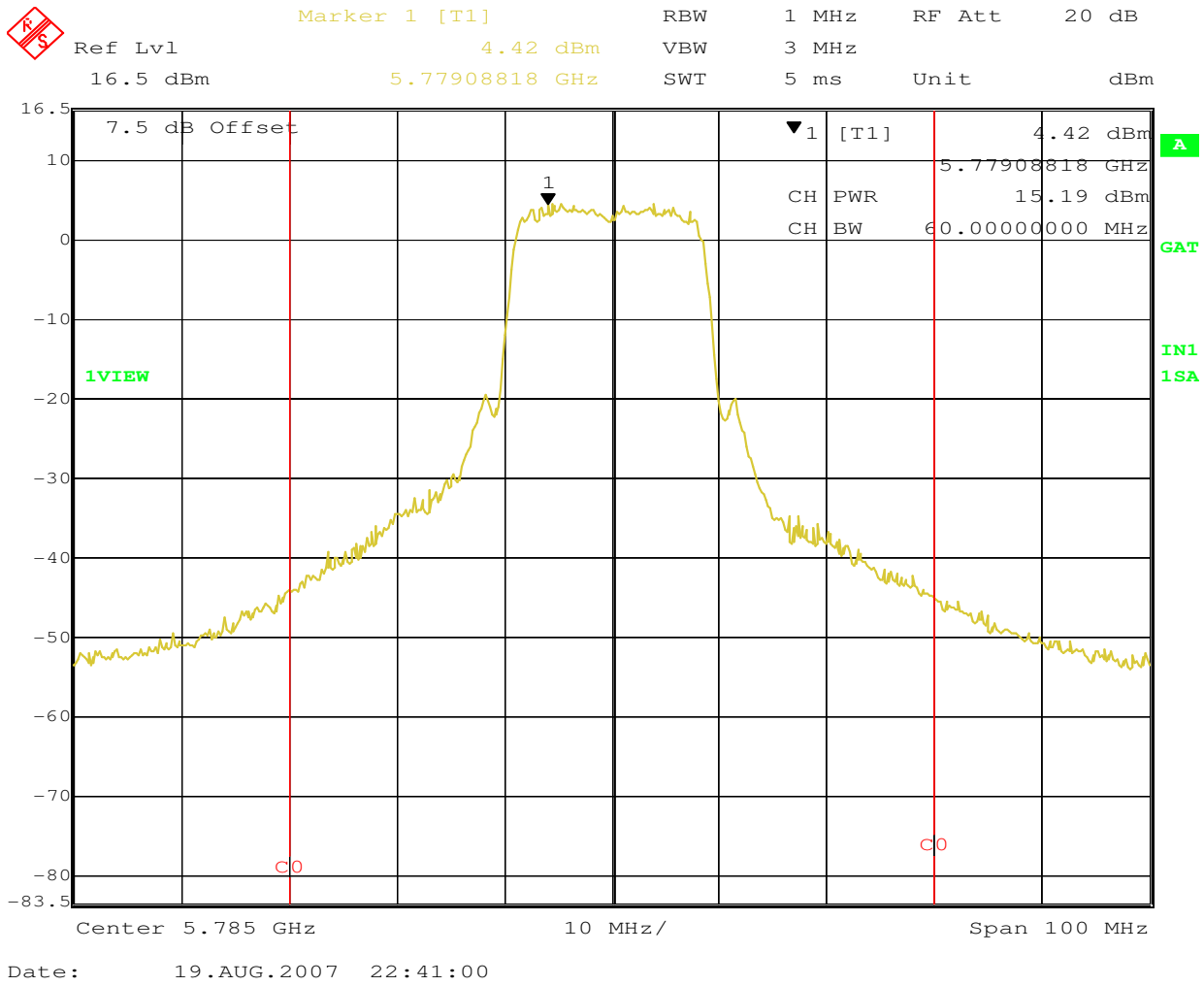
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5745 MHz, Power Plot, Chain 2



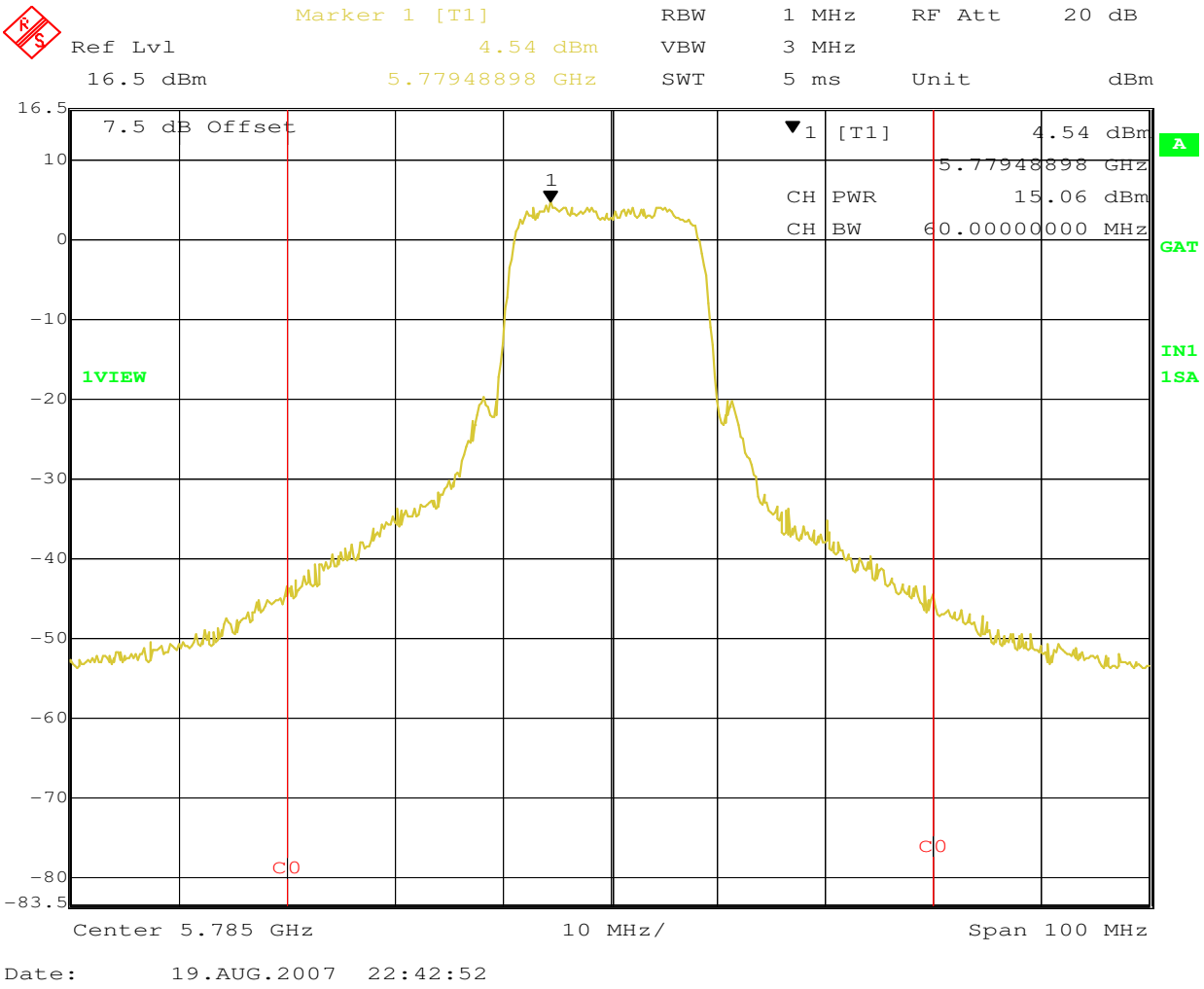
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5785 MHz, Power Plot, Chain 1



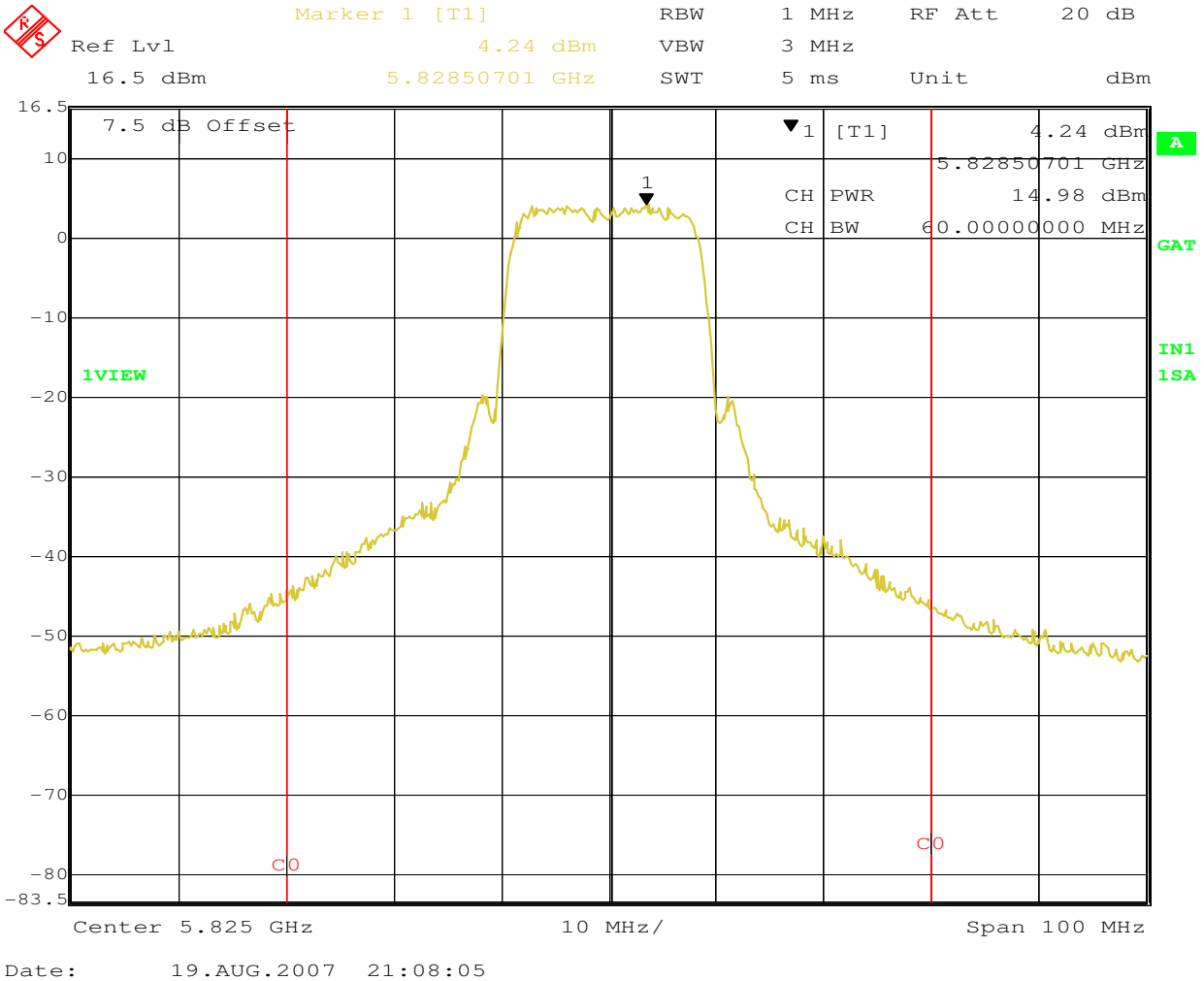
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5785 MHz, Power Plot, Chain 2



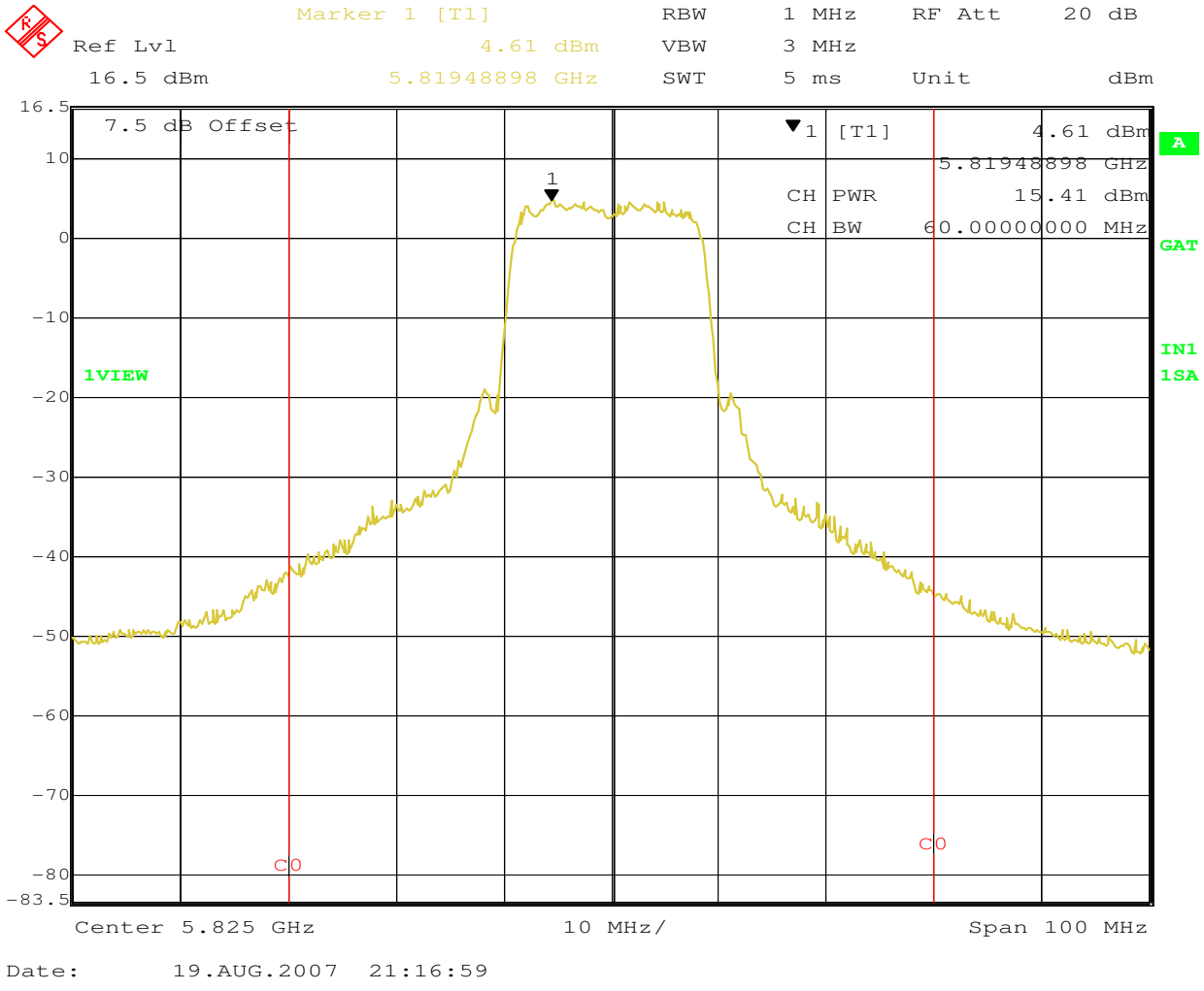
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5825 MHz, Power Plot, Chain 1



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5825 MHz, Power Plot, Chain 2



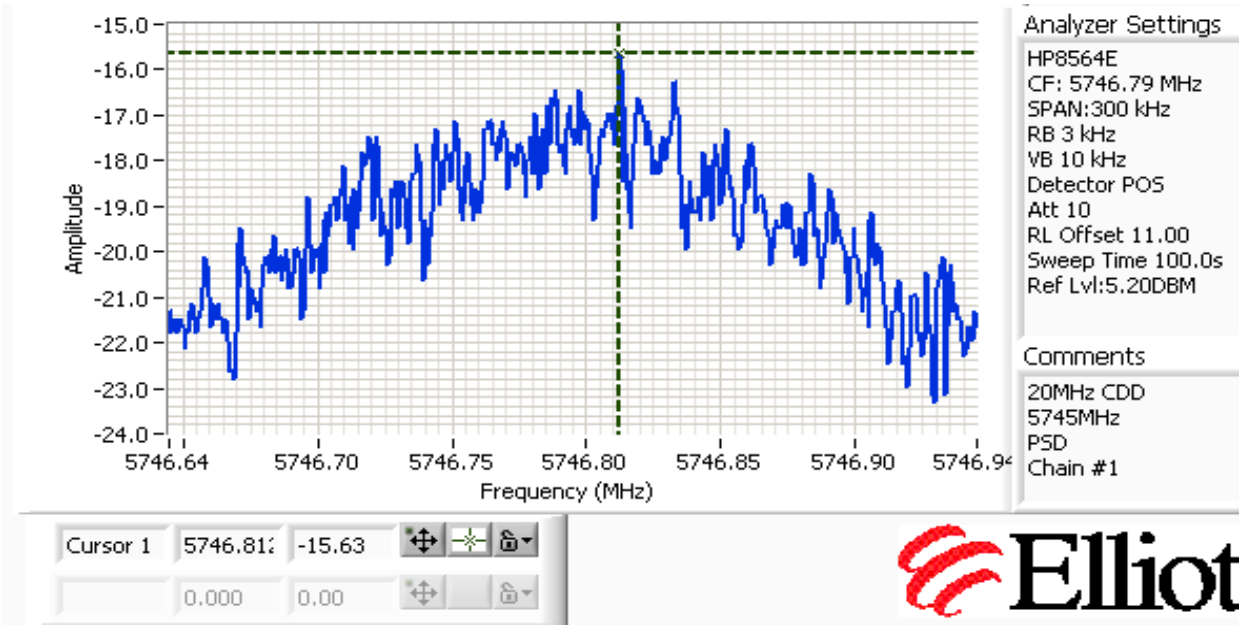
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

Run #4: Power spectral Density

Power Setting	Frequency (MHz)	PSD (dBm/3kHz) Note 1 Chain 1	Chain 2	Total	Limit dBm/3kHz	Result
	5744.298	-15.6	-13.5	-11.4	8.0	Pass
	5787.798	-10.8	-11.0	-7.9	8.0	Pass
	5829.295	-10.8	-12.1	-8.4	8.0	Pass

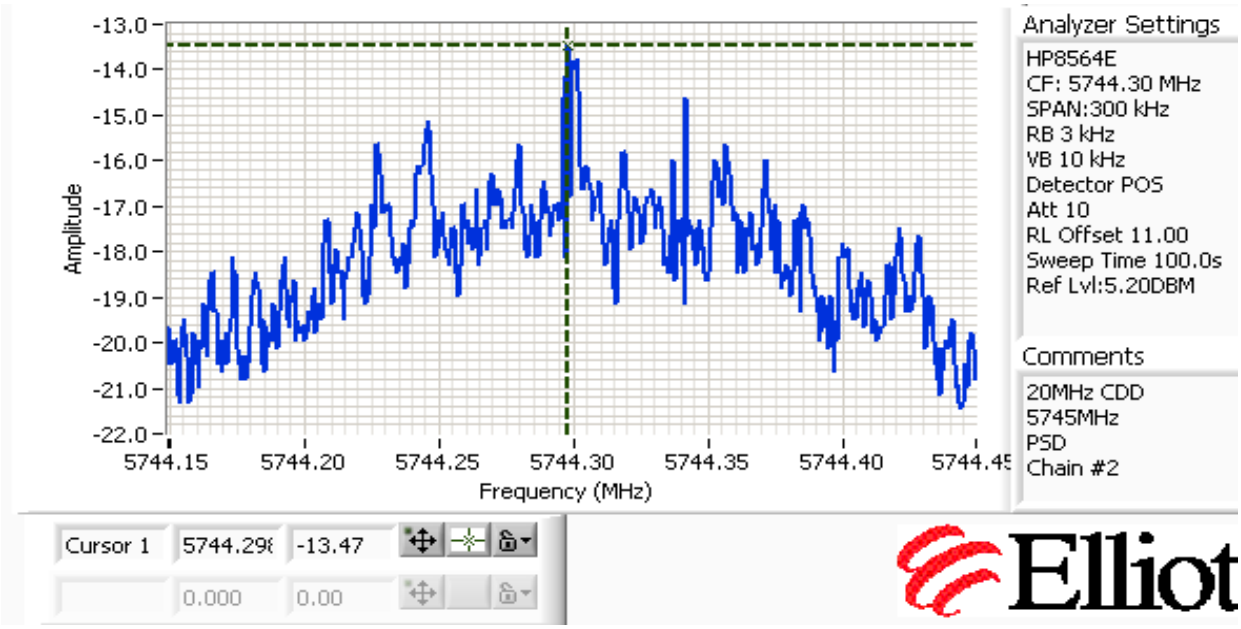
Note 1:	Power spectral density measured using RB=3 kHz, VB=10kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 1 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster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

5745 MHz, PSD Plot, Chain 1



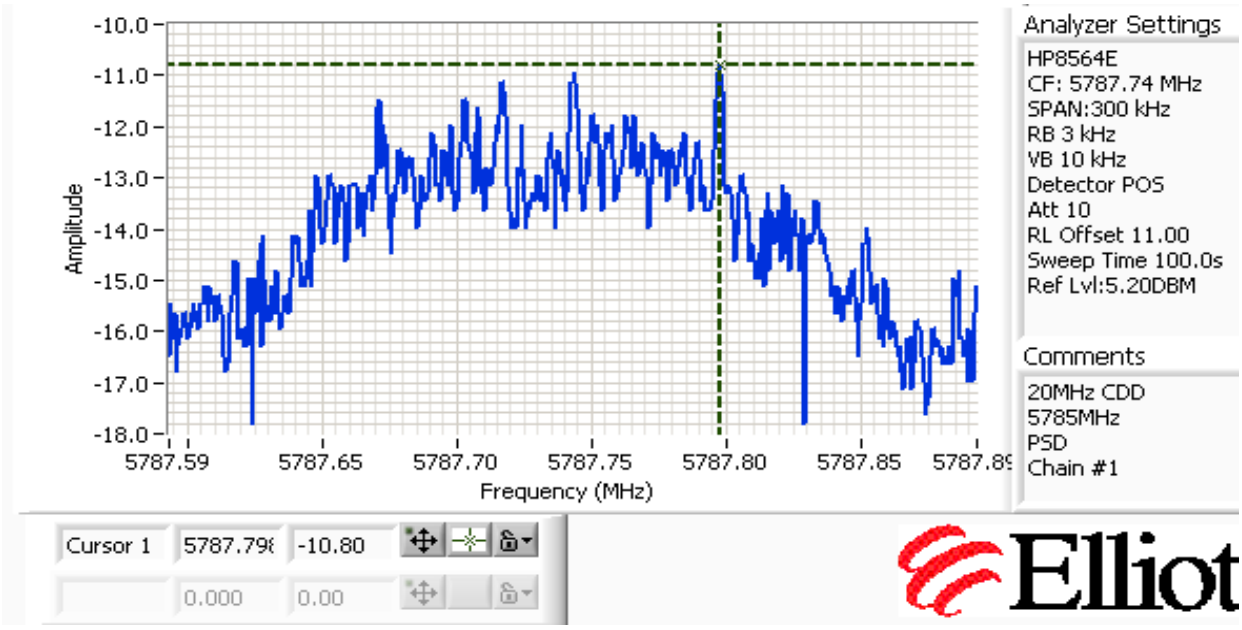
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5745 MHz, PSD Plot, Chain 2



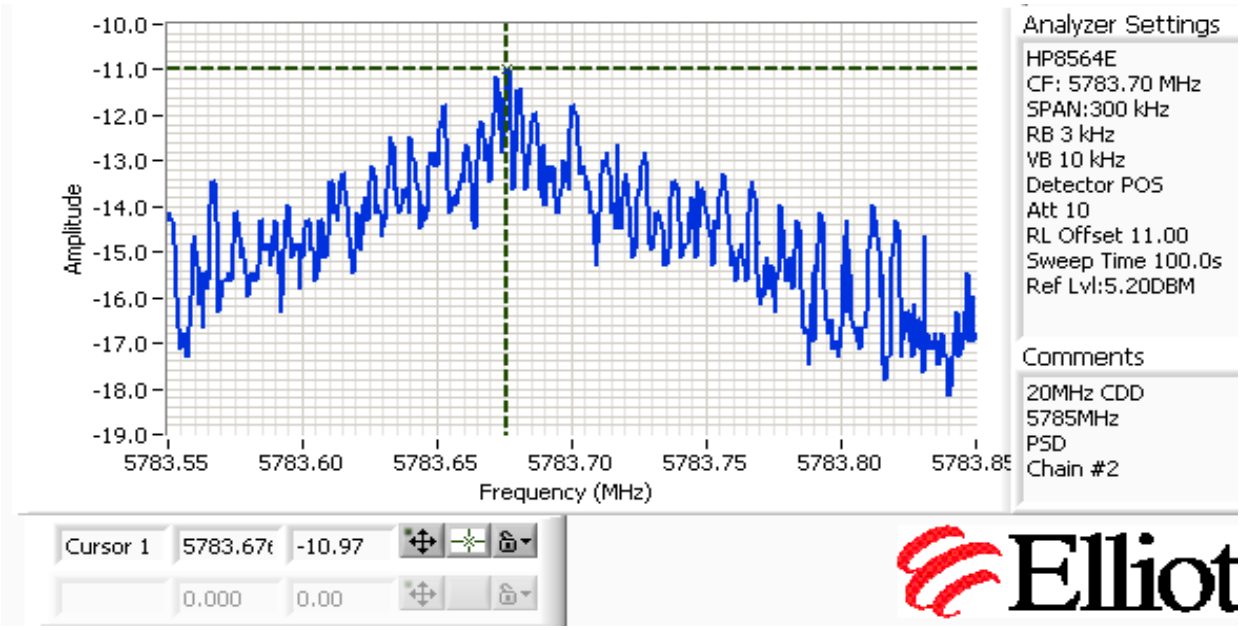
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5785 MHz, PSD Plot, Chain 1



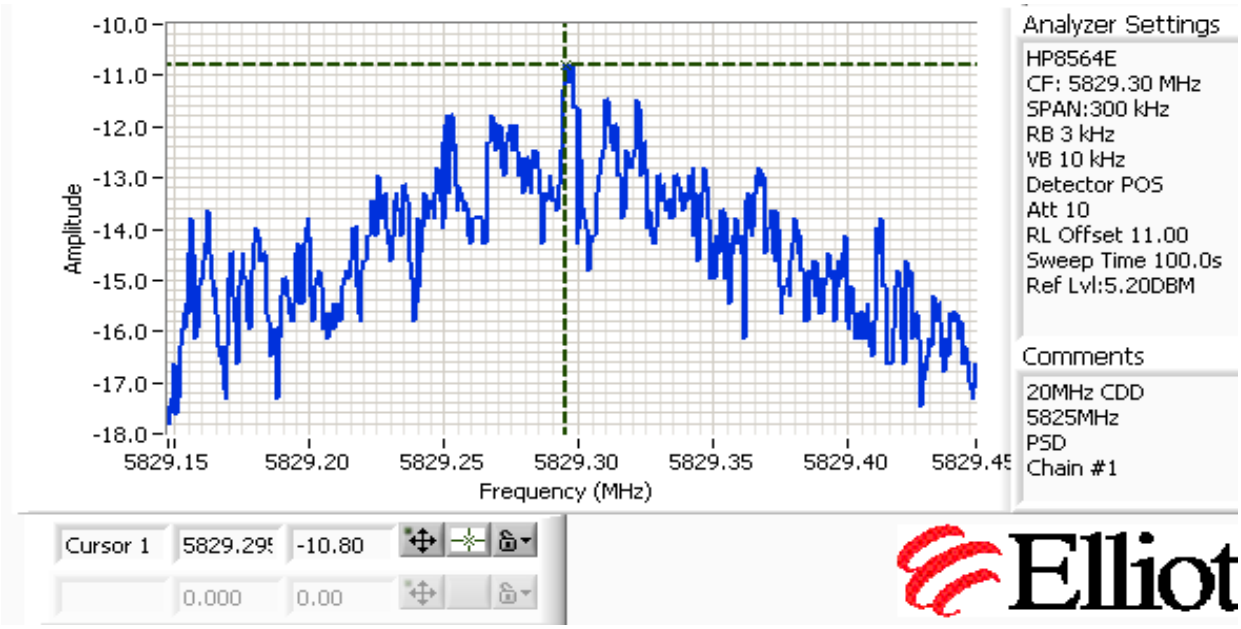
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5785 MHz, PSD Plot, Chain 2



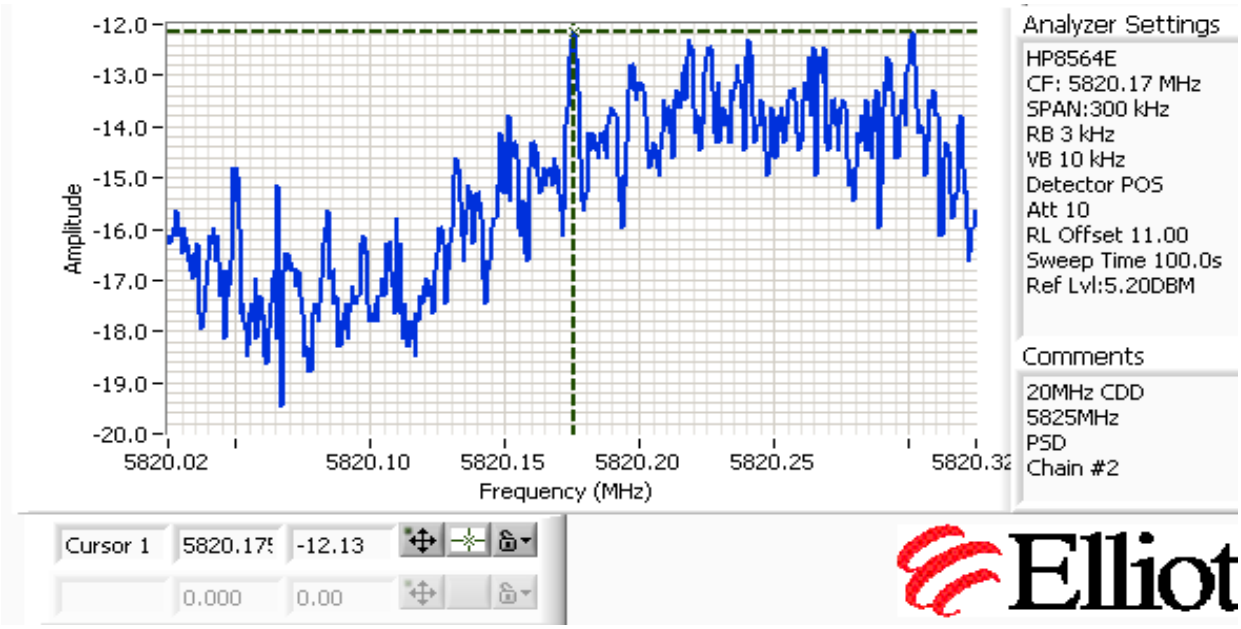
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5825 MHz, PSD Plot, Chain 1



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5825 MHz, PSD Plot, Chain 2



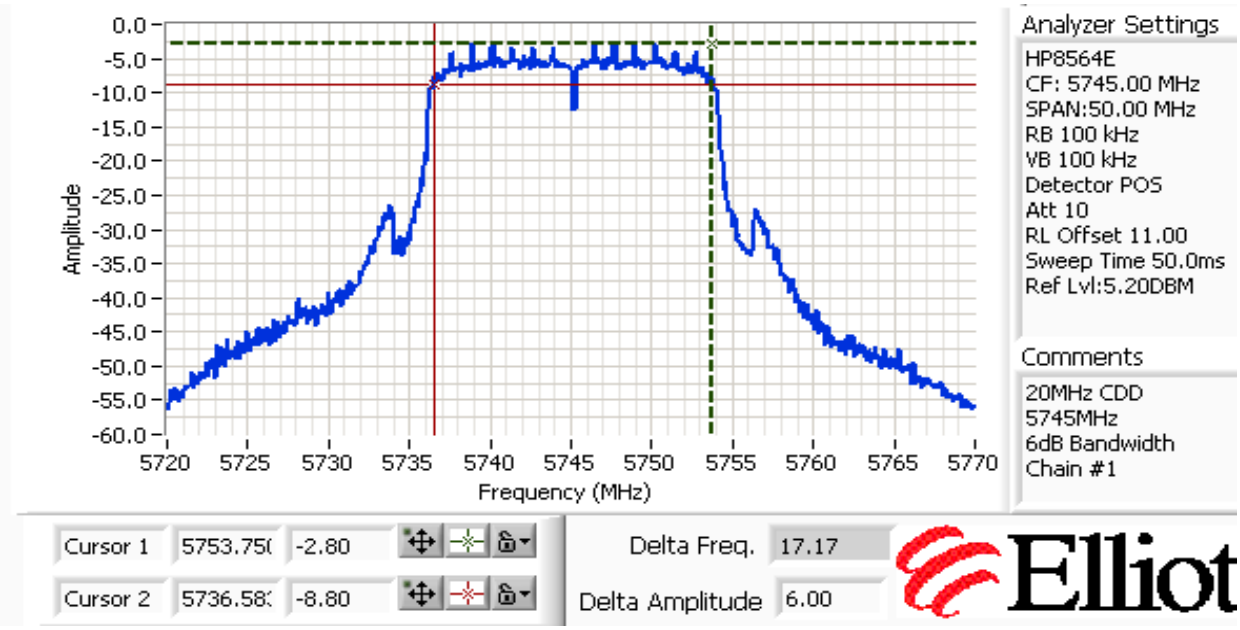
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

Run #3: Signal Bandwidth

Power Setting	Frequency (MHz)	Resolution Bandwidth	Bandwidth (MHz) 6dB	99%
	5745	100kHz	17.2	18.0
	5785	100kHz	17.7	18.0
	5825	100kHz	17.6	18.0

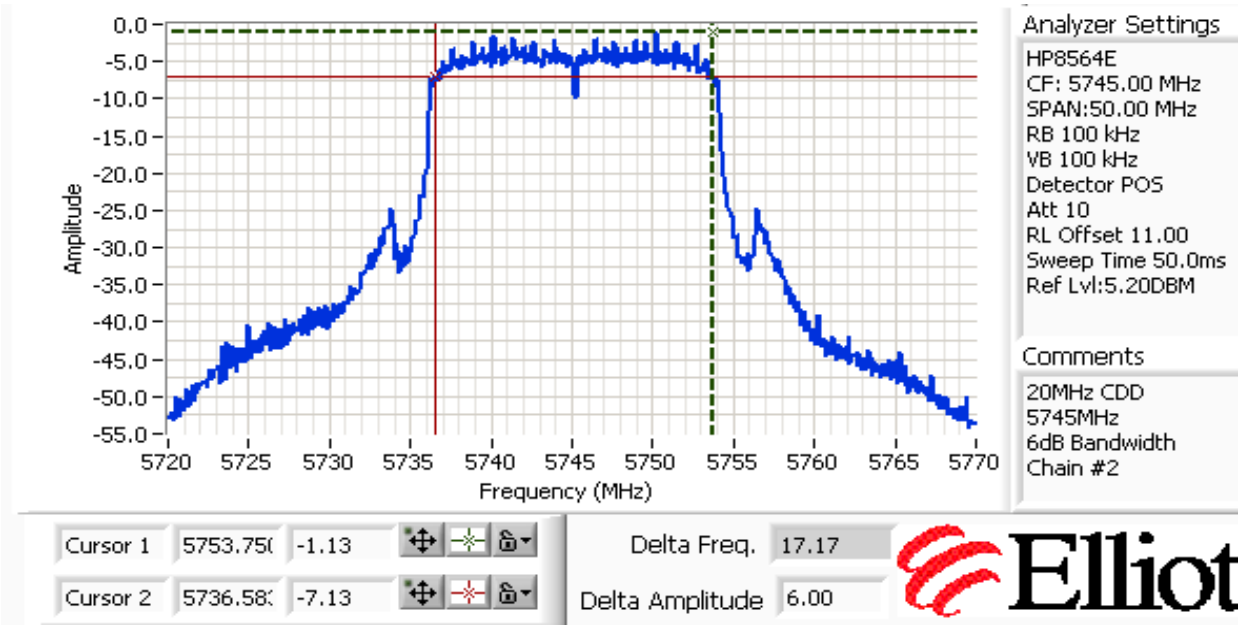
Note 1:	Measured on a single chain
Note 2:	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB

5745 MHz, 6dB Bandwidth Plot, Chain 1



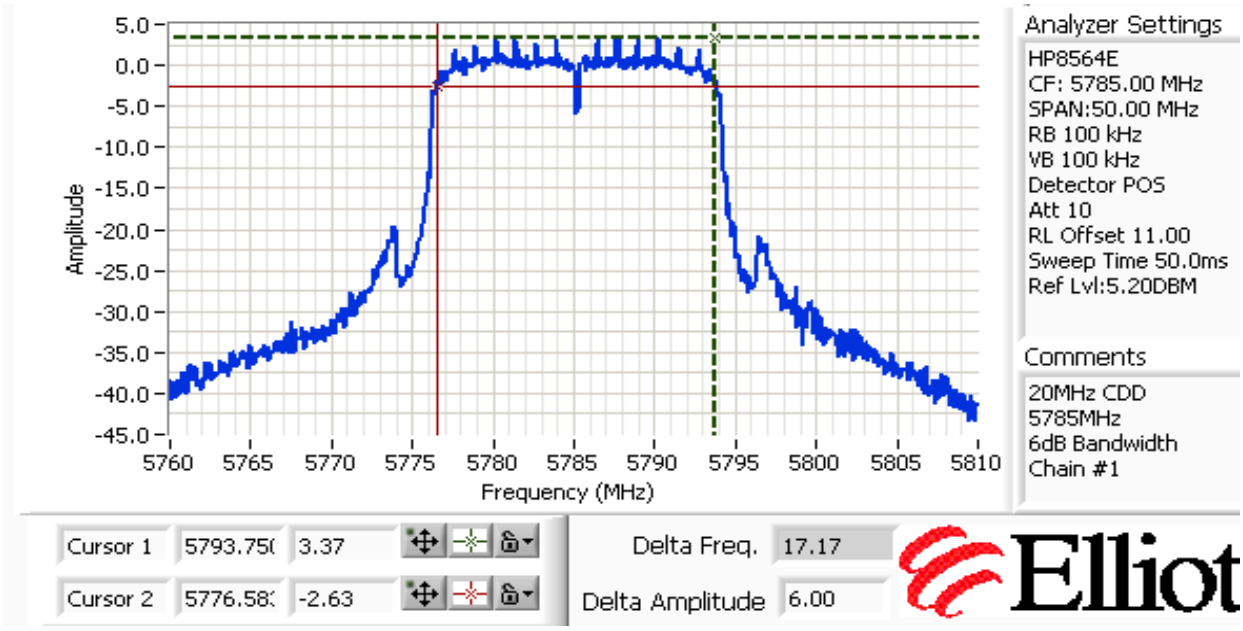
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5745 MHz, 6dB Bandwidth Plot, Chain 2



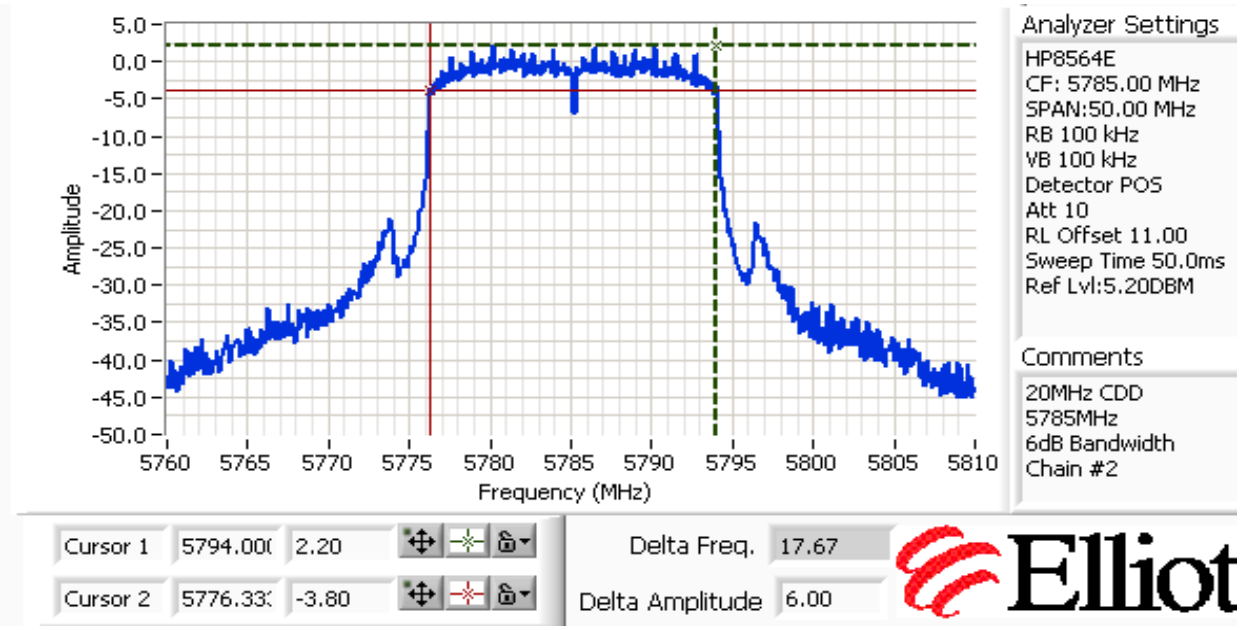
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5785 MHz, 6dB Bandwidth Plot, Chain 1



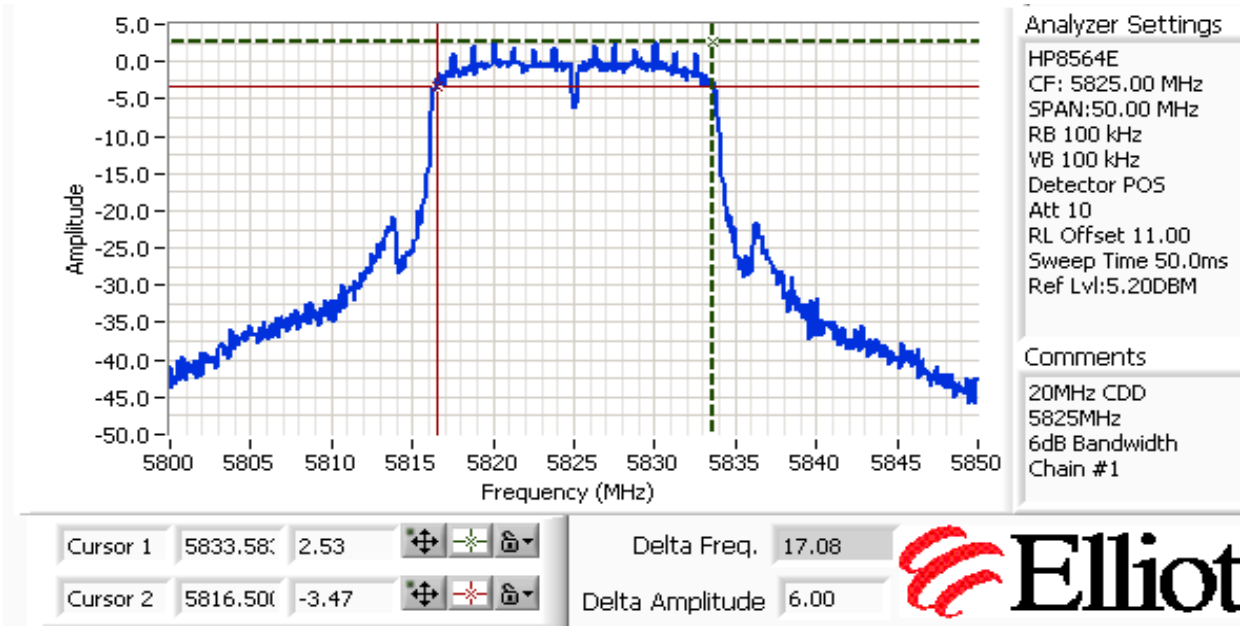
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5785 MHz, 6dB Bandwidth Plot, Chain 2



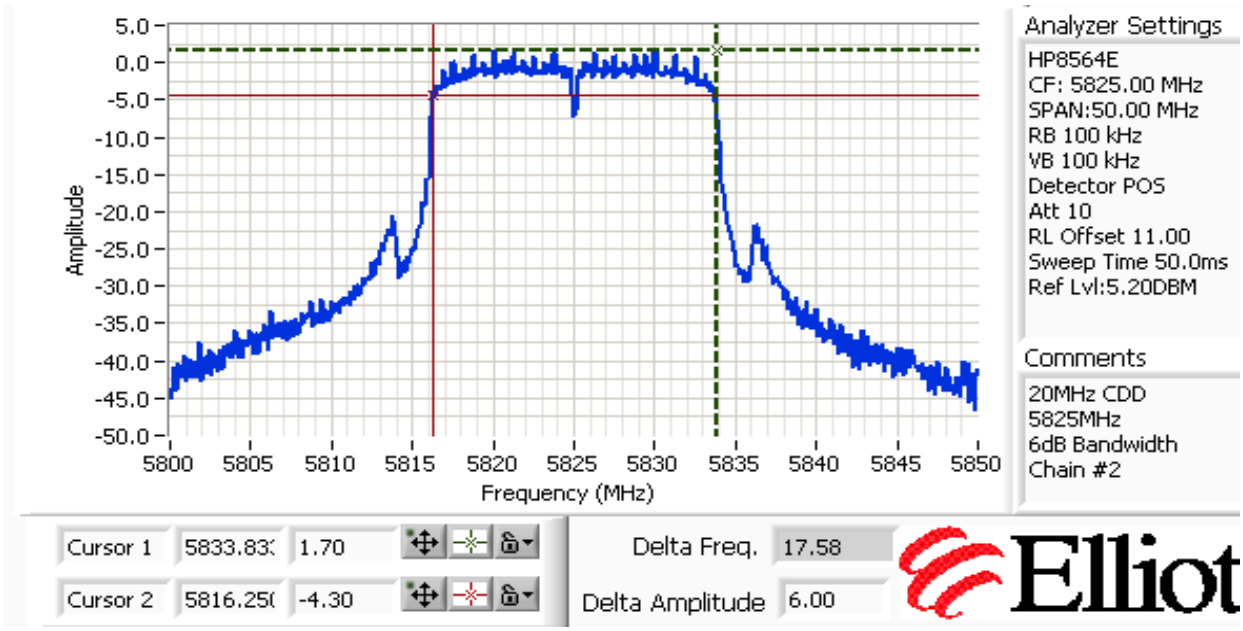
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5825 MHz, 6dB Bandwidth Plot, Chain 1



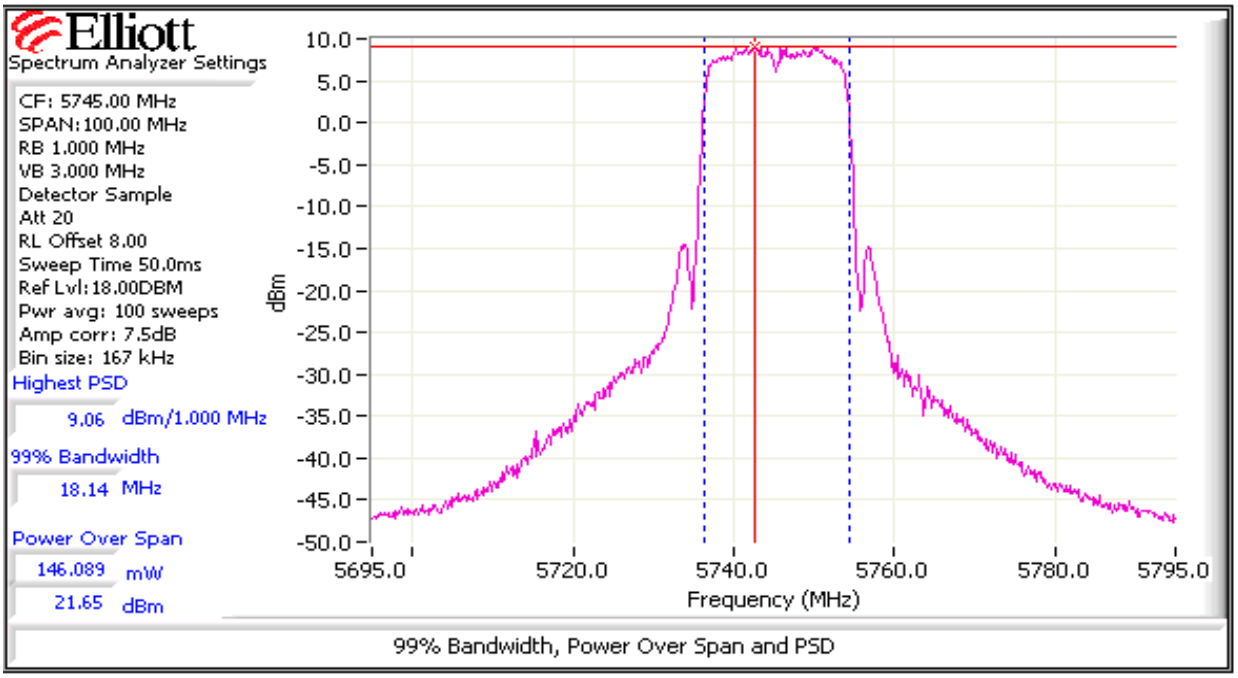
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5825 MHz, 6dB Bandwidth Plot, Chain 2



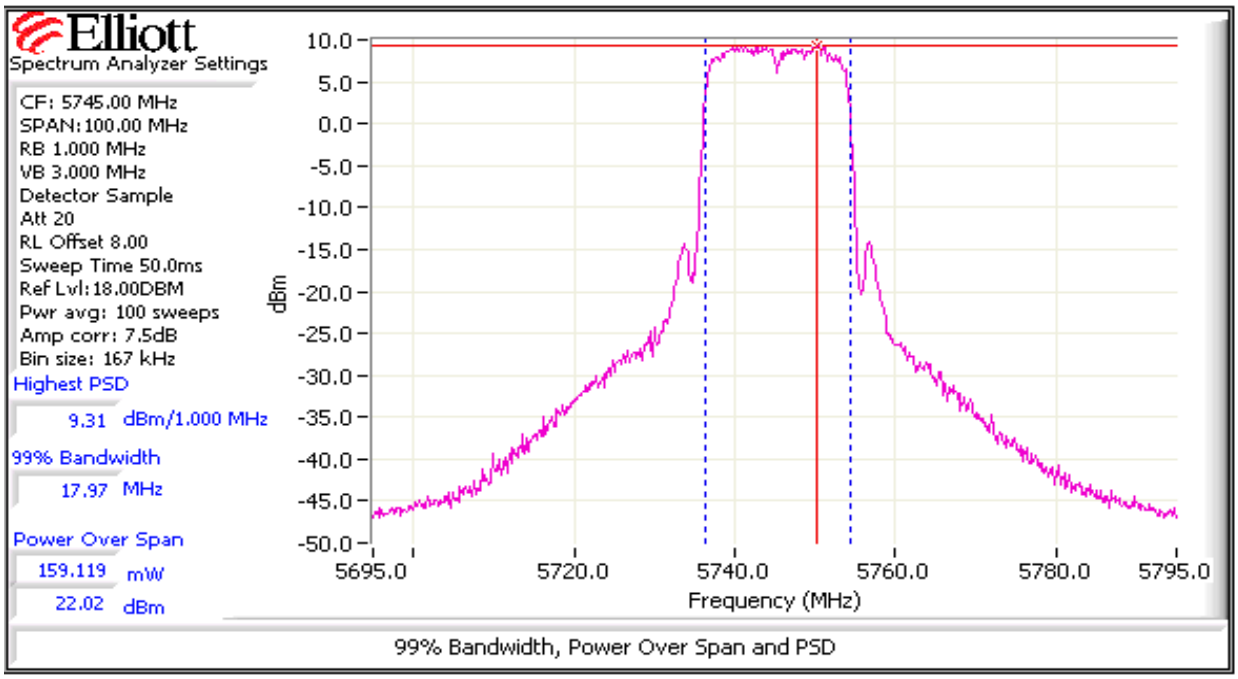
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5745 MHz, 99% Bandwidth Plot, Chain 1



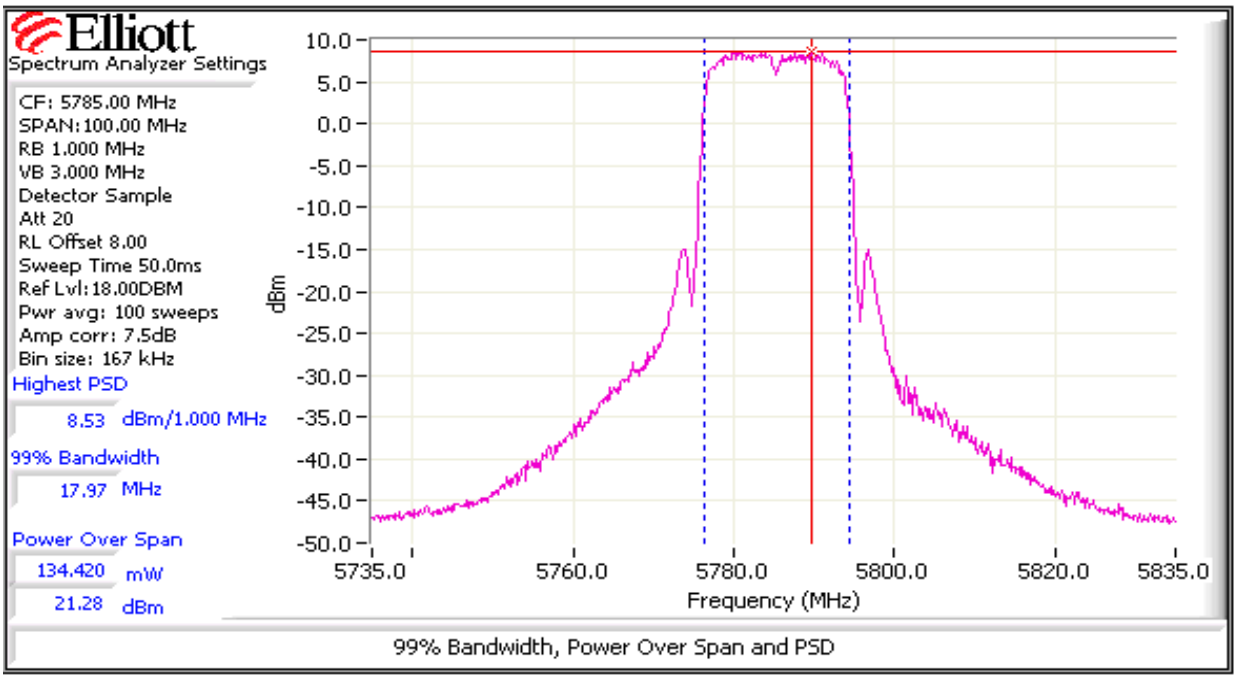
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5745 MHz, 99% Bandwidth Plot, Chain 2



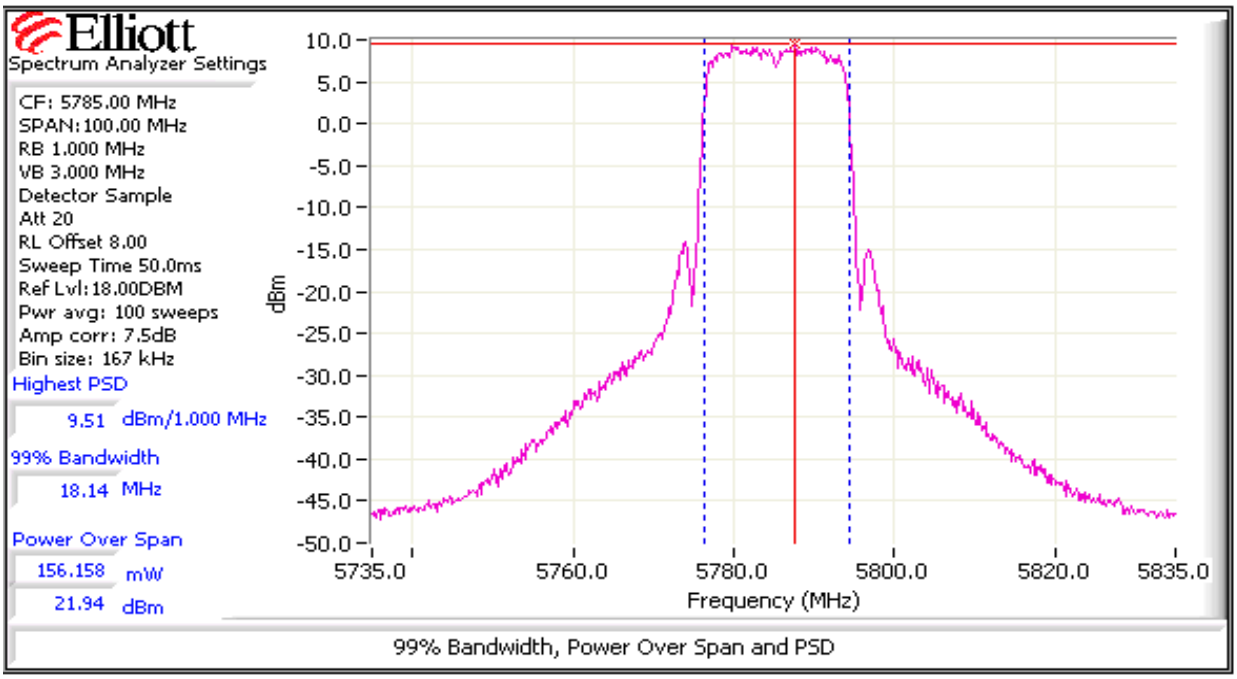
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5785 MHz, 99% Bandwidth Plot, Chain 1



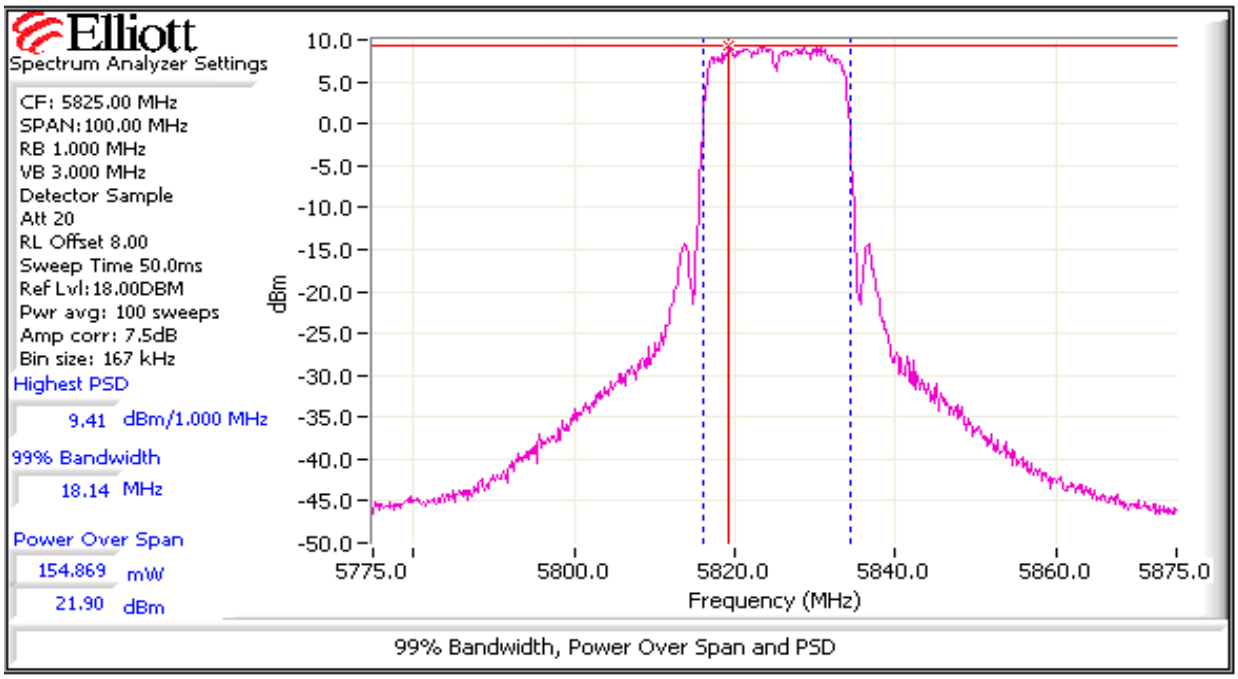
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5785 MHz, 99% Bandwidth Plot, Chain 2



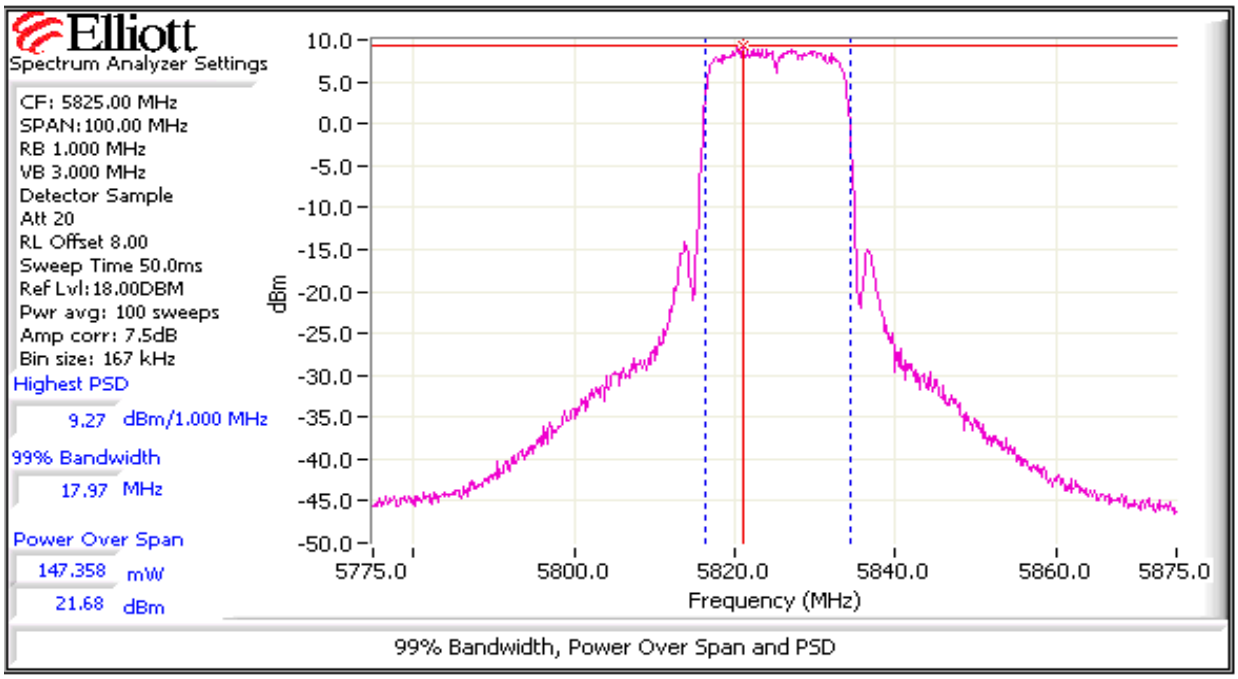
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5825 MHz, 99% Bandwidth Plot, Chain 1



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5825 MHz, 99% Bandwidth Plot, Chain 2



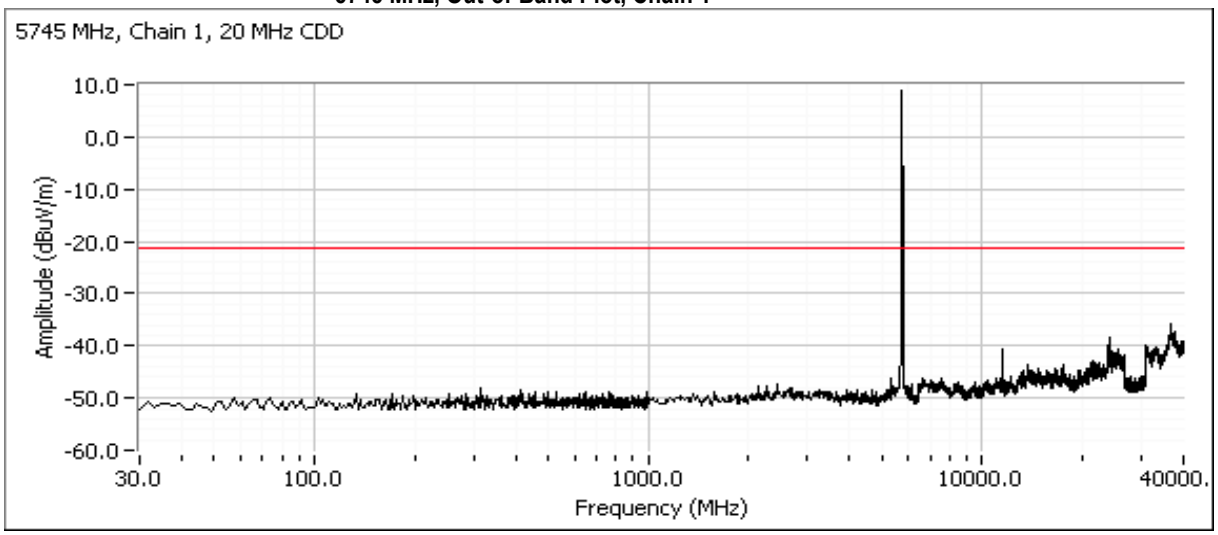
Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

Run #4: Out of Band Spurious Emissions

Power Setting Per Chain #1	#2	#3	Frequency (MHz)	Limit	Result
			5725	-30dBc	>30 dbC
			5785	-30dBc	>30 dbC
			5825	-30dBc	>30 dbC

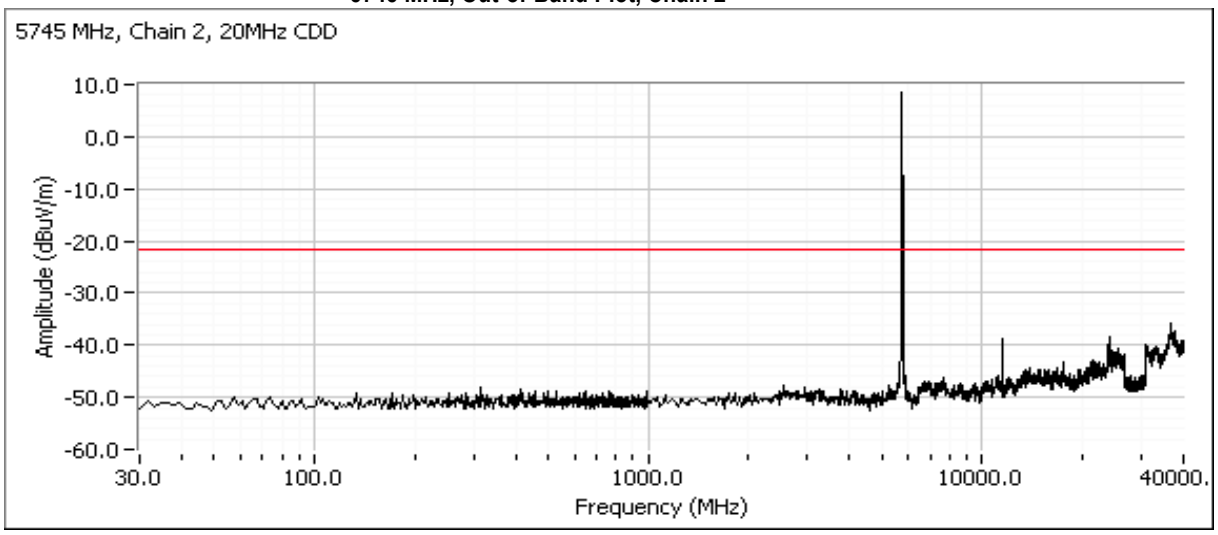
Note 1:	Measured on each chain individually

5745 MHz, Out-of-Band Plot, Chain 1

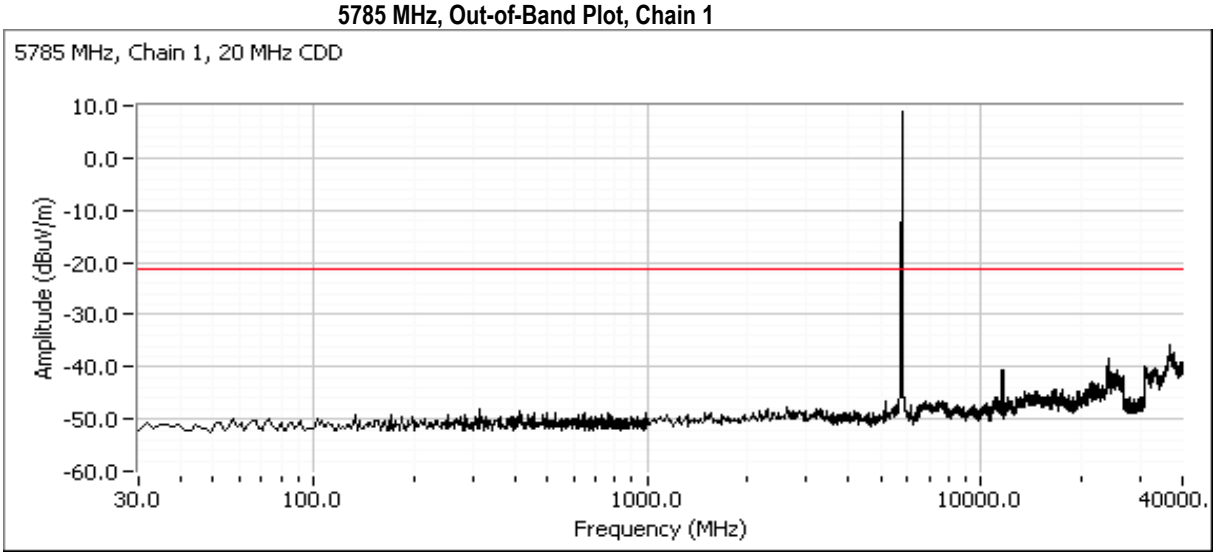


Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5745 MHz, Out-of-Band Plot, Chain 2

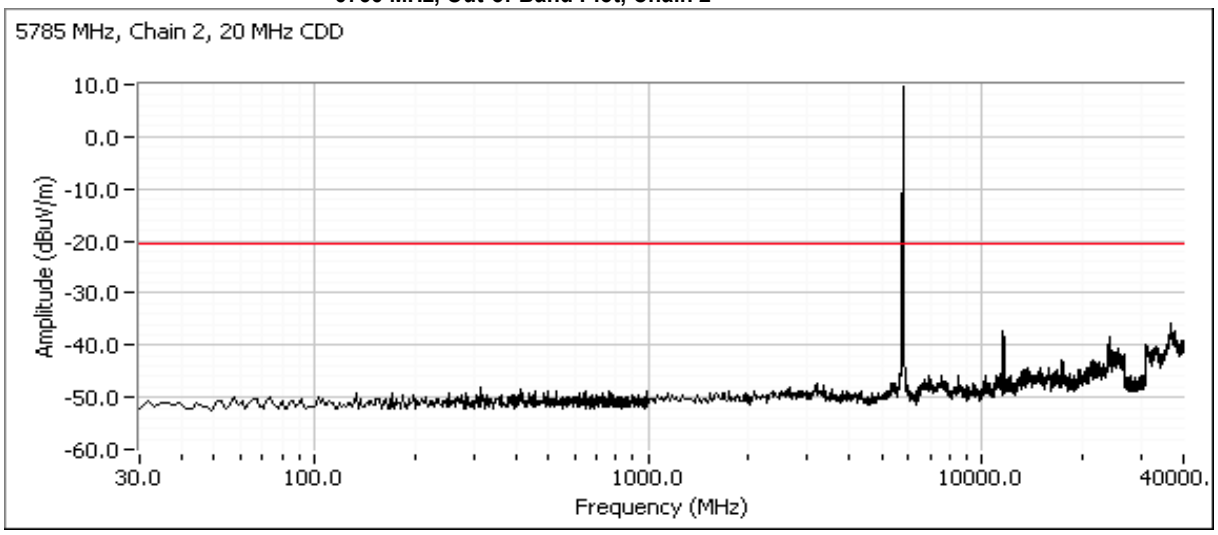


5785 MHz, Out-of-Band Plot, Chain 1

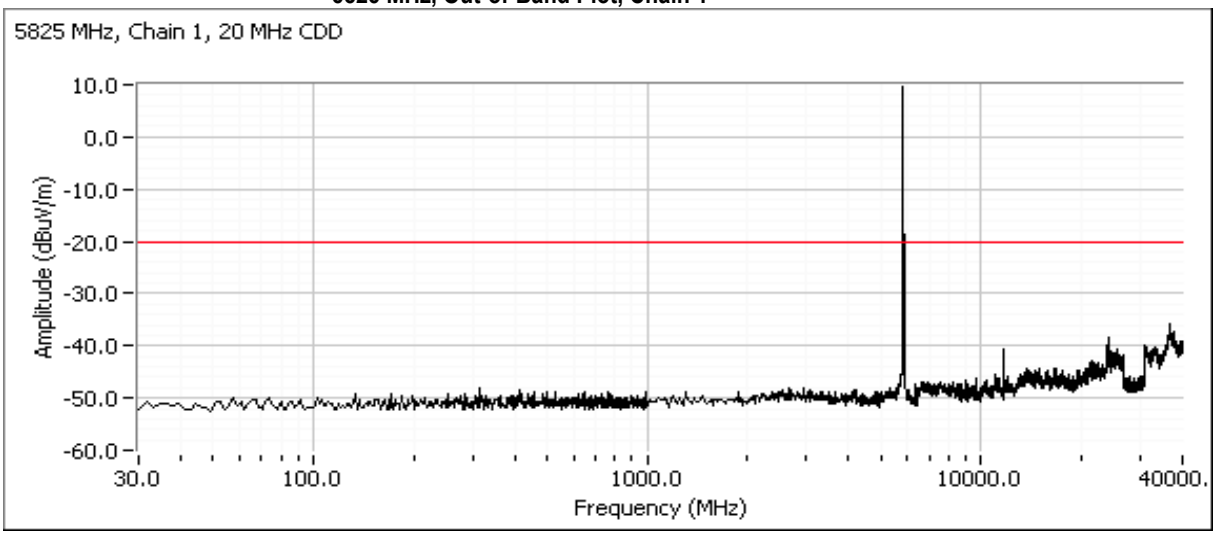


Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5785 MHz, Out-of-Band Plot, Chain 2



5825 MHz, Out-of-Band Plot, Chain 1



Client:	Cisco-Lynksys	Job Number:	J67313
Model:	WRT600N	T-Log Number:	T69026
		Account Manager:	-
Contact:	Kevin Lee		
Standard:	FCC 15.247 & RSS-210	Class:	N/A

5825 MHz, Out-of-Band Plot, Chain 2

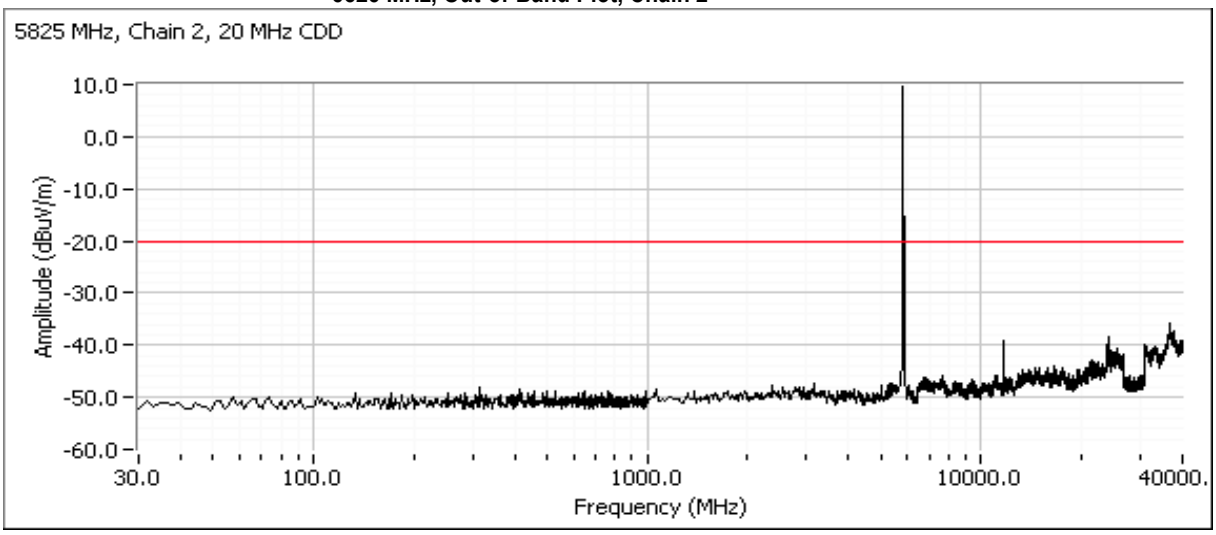


EXHIBIT 3: Photographs of Test Configurations

1 Page

EXHIBIT 4: Proposed FCC ID Label & Label Location

Unchanged from original application

EXHIBIT 5: Detailed Photographs of Cisco-Linksys Model WRT600NConstruction

Unchanged from original application

EXHIBIT 6: Operator's Manual for Cisco-Linksys Model WRT600N

Unchanged from original application

EXHIBIT 7: Block Diagram of Cisco-Linksys Model WRT600N

Unchanged from original application

EXHIBIT 8: Schematic Diagrams for Cisco-Linksys Model WRT600N

Unchanged from original application

EXHIBIT 9: Theory of Operation for Cisco-Linksys Model WRT600N

Unchanged from original application

EXHIBIT 10: RF Exposure Information

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