

EMC Test Report
Application for Grant of Equipment Authorization
FCC Part 15 Subpart C
Model: C41

FCC ID: PGRC41

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REVISION HISTORY

Rev#	Date	Comments	Modified By
-	11-13-2012	First release	
1.0	11-26-2012	Updated TX radiated spurious results	MEH

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SCOPE

An electromagnetic emissions test has been performed on the Pace model C41, 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 NTS Silicon Valley test procedures:

ANSI C63.4:2003

FCC DTS Measurement Procedure KDB558074, March 2005

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.

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 Pace model C41 complied with the requirements of the following regulations:

FCC Part 15 Subpart C

Maintenance of compliance is the responsibility of the manufacturer. Any modifications to the product should be assessed to determine their potential impact on the compliance status of the device with respect to the standards detailed in this test report.

The test results recorded herein are based on a single type test of Pace model C41 and therefore apply only to the tested sample. The sample was selected and prepared by Mark Rieger of Pace.

DEVIATIONS FROM THE STANDARDS

No deviations were made from the published requirements listed in the scope of this report.

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

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.247(a)	RSS 210 A8.2	Digital Modulation	Systems uses DSSS techniques	System must utilize a digital transmission technology	Complies
15.247 (a) (2)	RSS 210 A8.2 (1)	6dB Bandwidth	1207 kHz	>500kHz	Complies
15.247 (b) (3)	RSS 210 A8.2 (4)	Output Power (multipoint systems)	2.9 dBm (0.0019 Watts) EIRP = 0.006 W ^{Note 1}	1 Watt, EIRP limited to 4 Watts.	Complies
15.247(d)	RSS 210 A8.2 (2)	Power Spectral Density	-12.0 dBm/3kHz	8dBm/3kHz	Complies
15.247(c)	RSS 210 A8.5	Antenna Port Spurious Emissions 30MHz – 25 GHz	All emissions below -20 dBc	< -20dBc	Complies
15.247(c) / 15.209	RSS 210 A8.5	Radiated Spurious Emissions 30MHz – 25 GHz	52.9 dBμV/m @ 4809.08 MHz (-1.1 dB)	15.207 in restricted bands, all others < -20dBc	Complies
Note 1: EIRP calculated using antenna gain of 4.55 dBi for the highest EIRP system.					

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Antennas are internal and integral to the device	Unique or integral antenna required	Complies
15.207	RSS GEN Table 2	AC Conducted Emissions	50.8 dBμV @ 0.153 MHz ((- 15.0 dB)	Refer to page 18	Complies
15.109	RSS GEN 7.2.3 Table 1	Receiver spurious emissions	N/A – Tunes above 960MHz	Not applicable	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	Antennas are internal and integral to the device	Statement for products with detachable antenna	N/A
-	RSP 100 RSS GEN 4.4.1	99% Bandwidth	2.316 MHz	Information only	N/A

MEASUREMENT UNCERTAINTIES

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

Measurement Type	Measurement Unit	Frequency Range	Expanded Uncertainty
RF power, conducted (power meter)	dBm	25 to 7000 MHz	± 0.52 dB
RF power, conducted (Spectrum analyzer)	dBm	25 to 7000 MHz	± 0.7 dB
Conducted emission of transmitter	dBm	25 to 26500 MHz	± 0.7 dB
Conducted emission of receiver	dBm	25 to 26500 MHz	± 0.7 dB
Radiated emission (substitution method)	dBm	25 to 26500 MHz	± 2.5 dB
Radiated emission (field strength)	dB μ V/m	25 to 1000 MHz	± 3.6 dB
		1000 to 40000 MHz	± 6.0 dB
Conducted Emissions (AC Power)	dB μ V	0.15 to 30 MHz	± 2.4 dB

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

The Pace model C41 is a TV set top box. 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 October 26, 2012 and tested on October 26, 29 and 30 and November 6 and 8, 2012. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
Pace	C41NC-700	Home Media Center Client	G34DA2NG000 061	PGRC41
Pace	EPS10R1-15	12 VDC external power supply	CL10F1235D21 78	N/A

ANTENNA SYSTEM

The peak gain for the 802.15.4 antennas: 4.55dBi.

ENCLOSURE

The EUT enclosure is primarily constructed of plastic. It measures approximately 15 cm wide by 9 cm deep by 2.5 cm high.

MODIFICATIONS

No modifications were made to the EUT during the time the product was at NTS Silicon Valley.

SUPPORT EQUIPMENT

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

Radiated spurious emissions and antenna port measurements

Company	Model	Description	Serial Number	FCC ID
HP-Compaq	-	PC	-	-

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

AC Conducted emissions

Company	Model	Description	Serial Number	FCC ID
HP-Compaq	-	PC	-	-
Dell	-	keyboard	-	-
Direct TV	-	HD DVR	-	-
Radyn	DM-240	digital modulator	-	-
Dell	-	monitor	-	-
Toshiba	24Sl415U	HD LCD TV	-	-
SWM	MSPLIT8R1-03	splitter	-	-
Direct TV	P1-28	switching PS	-	-
8 Ch. SWM	-	-	816900 823652	-

EUT INTERFACE PORTS

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

Radiated spurious emissions and antenna port measurements

Port		Description	Cable(s)	
From	To		Shielded/Unshielded	Length(m)
Serial	Laptop computer	ribbon cable	Unshielded	5m
DC Power	External supply	2 wire	Unshielded	-
AC Power (external supply)	AC mains	2 wire	Unshielded	-

AC Conducted emissions

Port		Description	Cable(s)	
From	To		Shielded/Unshielded	Length(m)
MoCA	Splitter	Coax	Shielded	10
HDMI	TV	HDMI	Shielded	10
SPDIF	75ohm	RCA	Shielded	2.5
A/V out	Not connected	-	-	-
USB	Not connected	-	-	-
DC Power	External supply	2 wire	Unshielded	-
AC Power (external supply)	AC mains	2 wire	Unshielded	-

EUT OPERATION

During radiated spurious emissions and antenna port measurements, the 802.15.4 radio was configured to transmit continuously, modulated, at the noted channel.

During AC conducted emissions, the EUT (C41) was setup supporting a pre-recorded video test stream supply from an HR44 HD/DVR IRD STB and in turn displayed on a TV over the HDMI at 1080i output. A 75 ohm splitter was used between the head-end simulator, HR44, and the C41 to split out the MoCA communications from the HR44 to the C41 (MOCA communications operating in the band 475MHz to 625MHz). SPDIF was terminated into a 75 ohm load. In addition, the 802.15.4 radio was transmitting.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken at the test sites listed below. 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 and with industry Canada.

Site	Registration Numbers		Location
	FCC	Canada	
Chamber 4	211948	2845B-4	41039 Boyce Road Fremont, CA 94538-2435
Chamber 5	211948	2845B-5	

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. The test site(s) contain 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.

CONDUCTED EMISSIONS CONSIDERATIONS

Conducted emissions testing is performed in conformance with ANSI C63.4:2003. 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.

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

An EMI receiver as specified in CISPR 16-1-1 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 specifies 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.

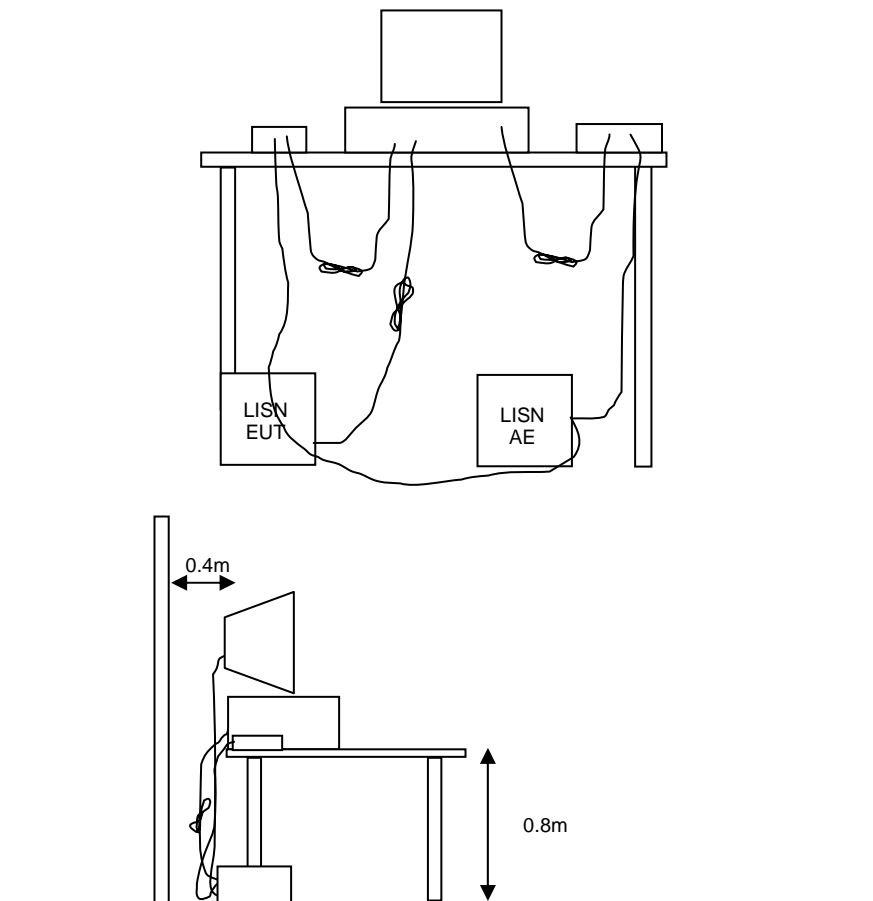


Figure 1 Typical Conducted Emissions Test Configuration

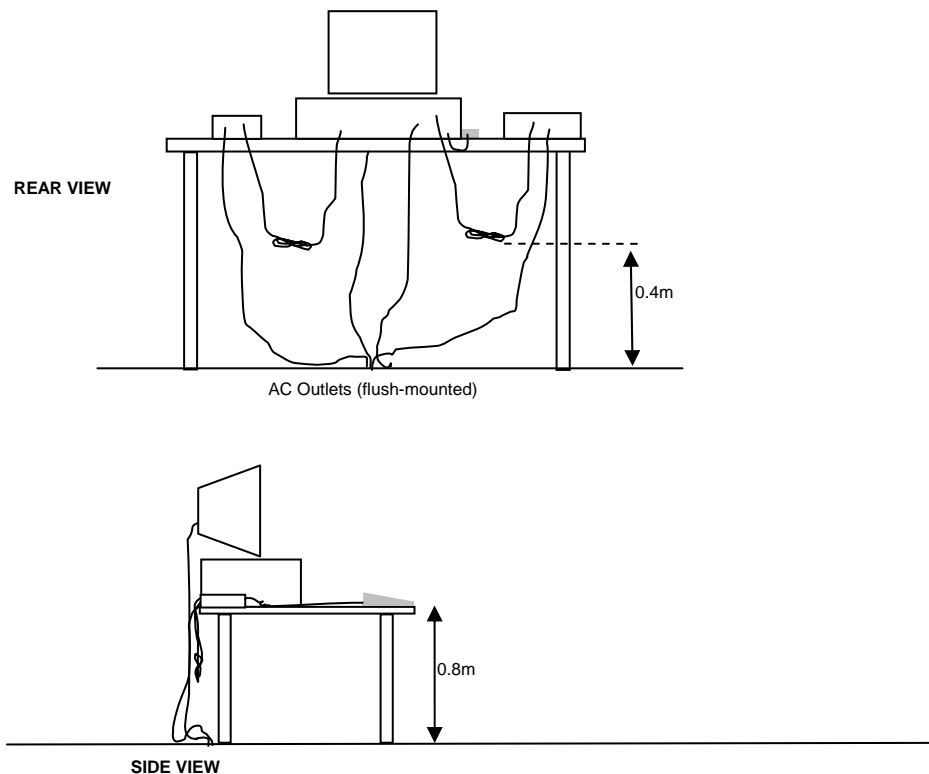
RADIATED EMISSIONS

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.

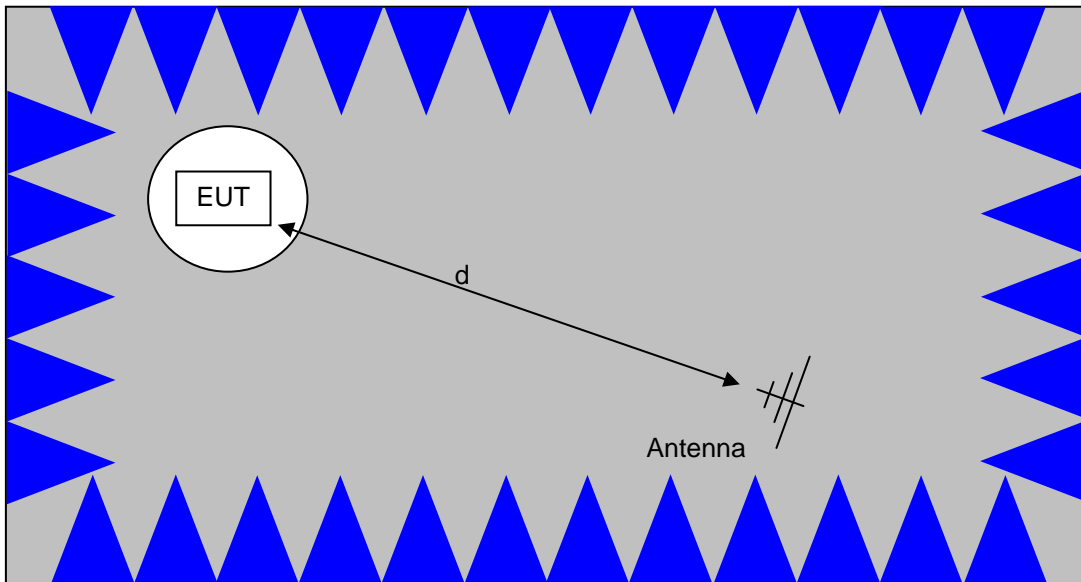
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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 1 meter from the EUT and the antenna height is restricted to a maximum of 2.5 meters.

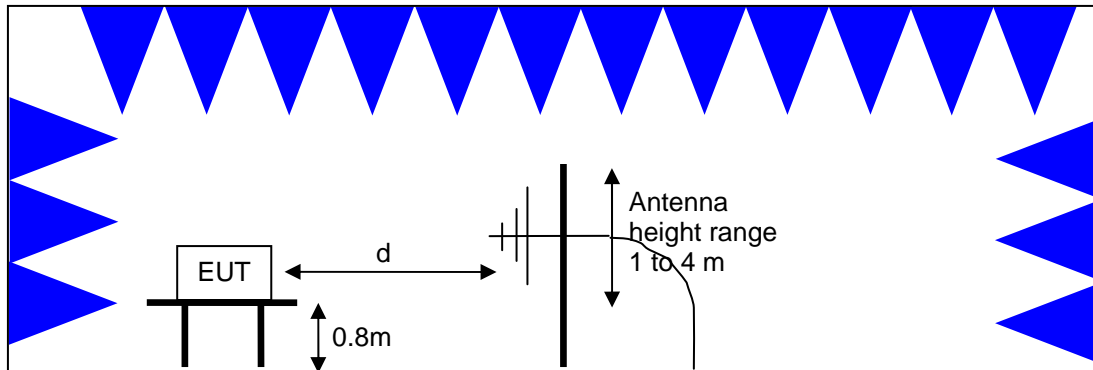


Typical Test Configuration for Radiated Field Strength Measurements



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.

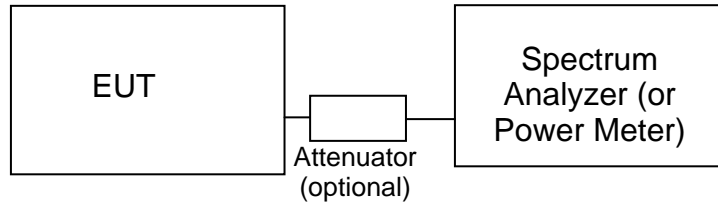
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



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

CONDUCTED EMISSIONS FROM ANTENNA PORT

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

**Test Configuration for Antenna Port Measurements**

Measurement bandwidths (video and resolution) are set in accordance with the relevant standards and NTS Silicon Valley's test procedures for the type of radio being tested. When power measurements are made using a resolution bandwidth less than the signal bandwidth the power is calculated by summing the power across the signal bandwidth using either the analyzer channel power function or by capturing the trace data and calculating the power using software. In both cases the summed power is corrected to account for the equivalent noise bandwidth (ENBW) of the resolution bandwidth used.

If power averaging is used (typically for certain digital modulation techniques), the EUT is configured to transmit continuously. Power averaging is performed using either the built-in function of the analyzer or, if the analyzer does not feature power averaging, using external software. In both cases the average power is calculated over a number of sweeps (typically 100). When the EUT cannot be configured to continuously transmit then either the analyzer is configured to perform a gated sweep to ensure that the power is averaged over periods that the device is transmitting or power averaging is disabled and a max-hold feature is used.

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

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:

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

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

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

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

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

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

OUTPUT POWER LIMITS – DIGITAL TRANSMISSION SYSTEMS

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

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

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

TRANSMIT MODE SPURIOUS RADIATED EMISSIONS LIMITS – FHSS and DTS SYSTEMS

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

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

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

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

$$R_r - S = M$$

where:

R_r = Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

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

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

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

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 d (meters) from the equipment under test:

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

where P is the eirp (Watts)

For a measurement at 3m the conversion from a logarithmic value for field strength (dBuV/m) to an eirp power (dBm) is -95.3dB.

Appendix A Test Equipment Calibration Data

<u>Manufacturer</u>	<u>Description</u>	<u>Model</u>	<u>Asset #</u>	<u>Cal Due</u>
Radio Antenna Port (Power and Spurious Emissions), 26-Oct-12				
Agilent	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	2/23/2013
Radiated Emissions, Band edge , 29-Oct-12				
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/19/2014
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	12/9/2012
Radiated Emissions, 30 - 1,000 MHz, 29-Oct-12				
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	2197	2/7/2014
Hewlett Packard	9KHz-1300MHz pre-amp	8447F	2328	5/2/2013
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	12/9/2012
Conducted Emissions - AC Power Ports, 29-Oct-12				
Rohde & Schwarz	Pulse Limiter	ESH3 Z2	1401	5/15/2013
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	12/9/2012
Com-Power	9KHz-30MHz, 50uH, 15Aac, 10Adc, max	LI-215A	2671	5/25/2013
Radiated Spurious Emissions, 1000 - 25,000 MHz, 30-Oct-12				
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/19/2014
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	9/14/2013
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1683	8/2/2013
Hewlett Packard	Microwave Preamplifier, 1- 26.5GHz	8449B	1780	11/22/2012
Radiated Spurious Emissions, 1000 - 18,000 MHz, 06-Nov-12				
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/19/2014
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	9/14/2013
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1683	8/2/2013
Hewlett Packard	Microwave Preamplifier, 1- 26.5GHz	8449B	1780	11/22/2012
Radiated Emissions, 11,000 - 26,500 MHz, 08-Nov-12				
Hewlett Packard	Microwave Preamplifier, 1- 26.5GHz	8449B	263	3/29/2013
Narda West	High Pass Filter, 8 GHz	HPF 180	821	3/22/2013
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/19/2014
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	5/1/2013

Appendix B Test Data

T89772 Pages 24 - 44

Client:	Pace	Job Number:	J89599
Product:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
		Account Manager:	Michelle Kim
Contact:	Mark Rieger		
Emissions Standard(s):	FCC 15B, FCC 15.247, RSS-210	Class:	B
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Pace

Product

C41NC-700 Home Media Center Client

Date of Last Test: 11/14/2012



EMC Test Data

Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	B

Conducted Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

Test Specific Details

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

Date of Test: 10/29/2012
Test Engineer: Vishal Narayan
Test Location: Fremont Chamber #5

Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

For tabletop equipment, the EUT was located on a wooden table inside the semi-anechoic chamber, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment. Remote support equipment was located outside of the semi-anechoic chamber. Any cables running to remote support equipment were routed through metal conduit and when possible passed through a ferrite clamp upon exiting the chamber.

Ambient Conditions:
Temperature: 25 °C
Rel. Humidity: 45 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power, 120V/60Hz	Class B	Pass	50.8 dB μ V @ 0.153 MHz (-15.0 dB)

Modifications Made During Testing

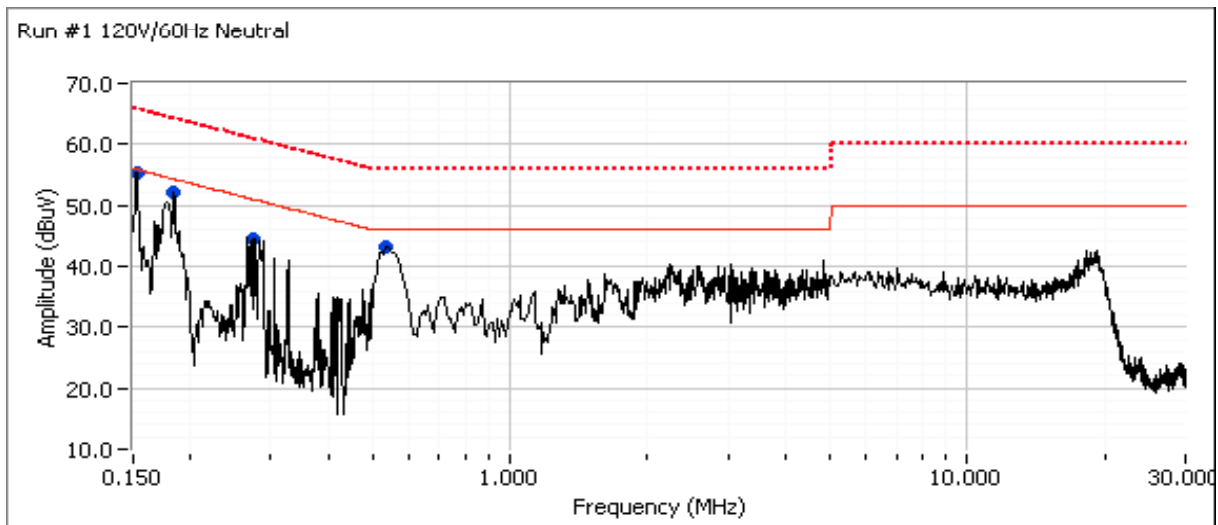
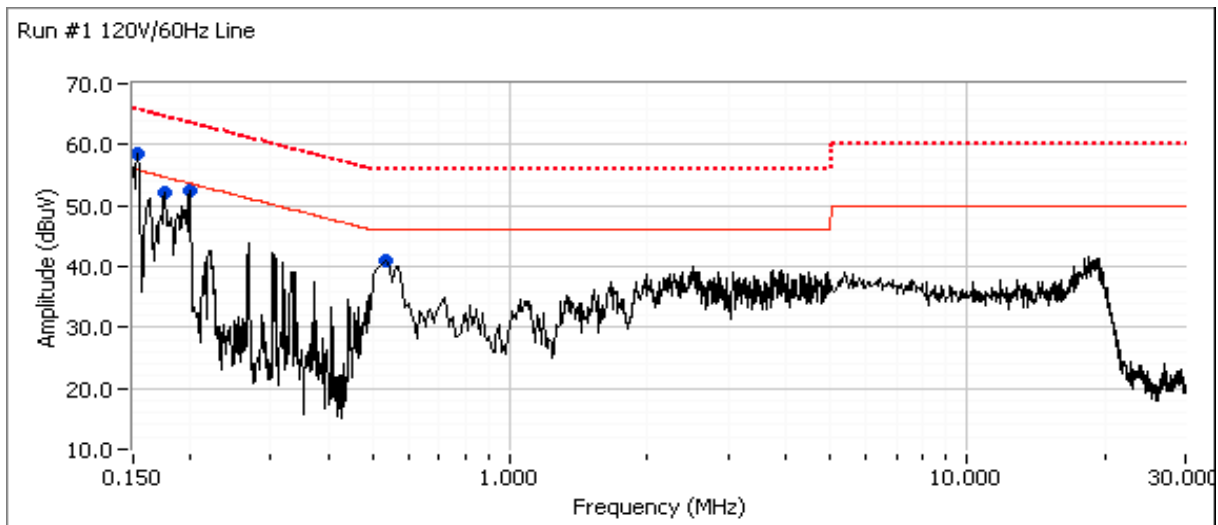
No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client: Pace	Job Number: J89599
Model: C41NC-700 Home Media Center Client	T-Log Number: T89772
Contact: Mark Rieger	Account Manager: Michelle Kim
Standard: FCC 15B, FCC 15.247, RSS-210	Class: B

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





EMC Test Data

Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	B

Continuation of Run #1

Preliminary peak readings captured during pre-scan (peak readings vs. average limit)

Frequency MHz	Level dB μ V	AC Line	Class B		Detector QP/Ave	Comments
			Limit	Margin		
0.153	58.5	Line	55.8	2.7	Peak	
0.153	55.4	Neutral	55.8	-0.4	Peak	
0.199	52.5	Line	53.6	-1.1	Peak	
0.184	52.2	Neutral	54.3	-2.1	Peak	
0.175	52.1	Line	54.7	-2.6	Peak	
0.536	43.2	Neutral	46.0	-2.8	Peak	
0.536	40.8	Line	46.0	-5.2	Peak	
0.273	44.6	Neutral	51.0	-6.4	Peak	

Final quasi-peak and average readings

Frequency MHz	Level dB μ V	AC Line	Class B		Detector QP/Ave	Comments
			Limit	Margin		
0.153	50.8	Neutral	65.8	-15.0	QP	QP (1.00s)
0.153	50.7	Line	65.8	-15.1	QP	QP (1.00s)
0.536	30.8	Neutral	46.0	-15.2	AVG	AVG (0.10s)
0.536	40.7	Neutral	56.0	-15.3	QP	QP (1.00s)
0.536	30.4	Line	46.0	-15.6	AVG	AVG (0.10s)
0.536	40.2	Line	56.0	-15.8	QP	QP (1.00s)
0.175	48.8	Line	64.7	-15.9	QP	QP (1.00s)
0.184	46.3	Neutral	64.3	-18.0	QP	QP (1.00s)
0.199	44.4	Line	63.7	-19.3	QP	QP (1.00s)
0.175	33.7	Line	54.7	-21.0	AVG	AVG (0.10s)
0.273	37.5	Neutral	61.0	-23.5	QP	QP (1.00s)
0.153	30.6	Neutral	55.8	-25.2	AVG	AVG (0.10s)
0.184	28.8	Neutral	54.3	-25.5	AVG	AVG (0.10s)
0.153	29.7	Line	55.8	-26.1	AVG	AVG (0.10s)
0.199	25.0	Line	53.7	-28.7	AVG	AVG (0.10s)
0.273	18.3	Neutral	51.0	-32.7	AVG	AVG (0.10s)



EMC Test Data

Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) 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.

General Test Configuration

The EUT and power supply were located on the turntable, The support equipment were located outside of the chamber for radiated spurious emissions testing.

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

Ambient Conditions:

Temperature: 23 °C
Rel. Humidity: 34 %

Summary of Results - Device Operating in the 2400-2483.5 MHz Band

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
1a	ZigBee	low	W3	-	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247 (c)	39.6 dBµV/m @ 2390.0 MHz (-14.4 dB)
1b		high	W3	-	Restricted Band Edge (2483.5 MHz)		47.2 dBµV/m @ 2484.0 MHz (-6.8 dB)
2a		low	W3	-	Radiated Spurious Emissions (1-25 GHz)		52.9 dBµV/m @ 4809.08 MHz (-1.1 dB)
2b		mid	W3	-			50.6 dBµV/m @ 4879.1 MHz (-3.4 dB)
2c		high	W3	-			49.9 dBµV/m @ 9200.0 MHz (-4.1 dB)

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.

Notes

No spurious emissions below 1GHz or above 18GHz were observed in preliminary testing.

Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	N/A

Run #1: Radiated Spurious Emissions, 1000 - 25,000 MHz.

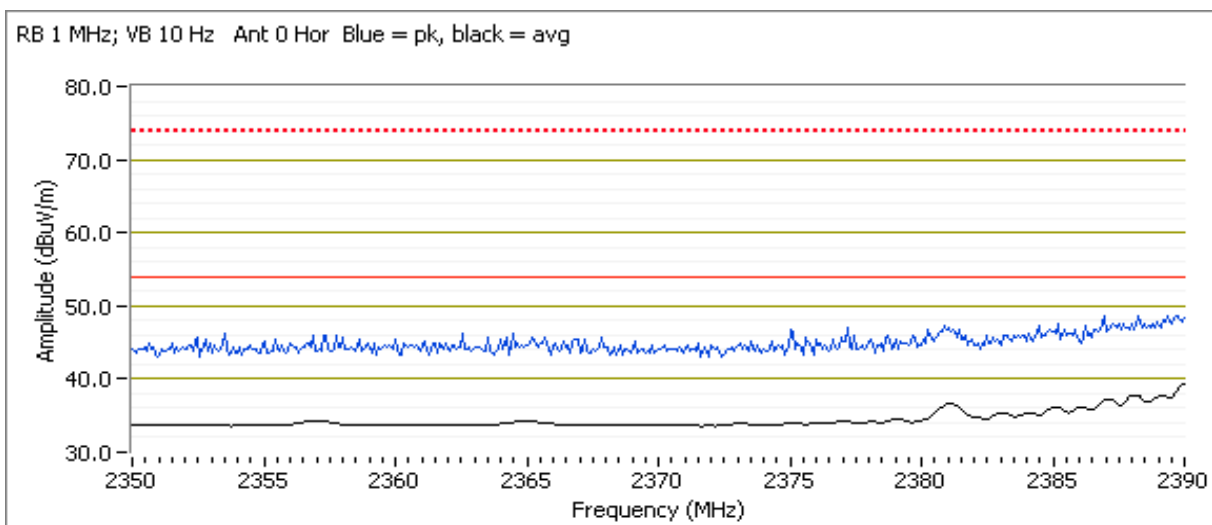
Date of Test: 10/30/2012 & 11/6/12
 Test Engineer: John Caizzi
 Test Location: FT Ch# 5

Run #1a: Low Channel @ 2405 MHz, power set to W3.

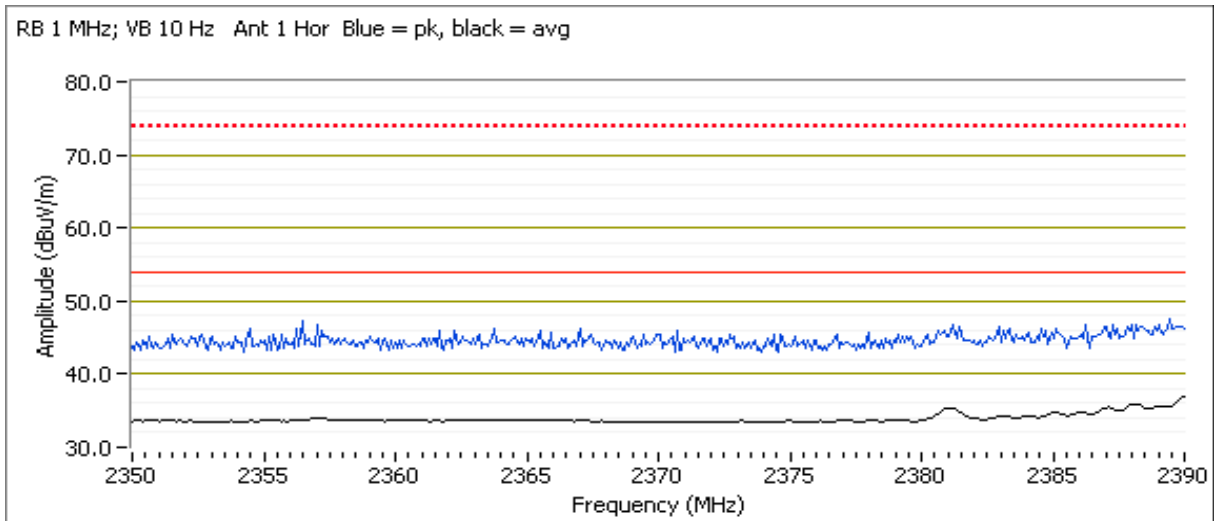
Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	39.6	H	54.0	-14.4	AVG	294	1.11	Ant 0
2389.760	47.5	H	74.0	-26.5	PK	294	1.11	Ant 0
2390.000	37.2	H	54.0	-16.8	AVG	130	1.09	Ant 1
2389.600	47.9	H	74.0	-26.1	PK	130	1.09	Ant 1

Note 1: The bandedge measurements of 10/29/12 determined that horizontal polarization was worst case.



Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	N/A



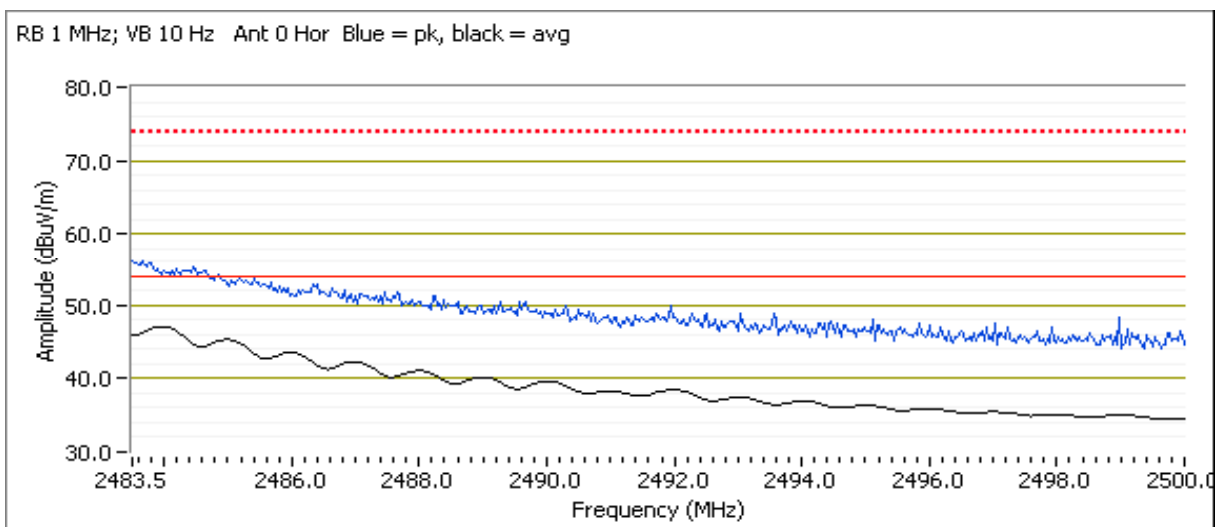
Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	N/A

Run #1b: High Channel @ 2475 MHz, power set to W3.

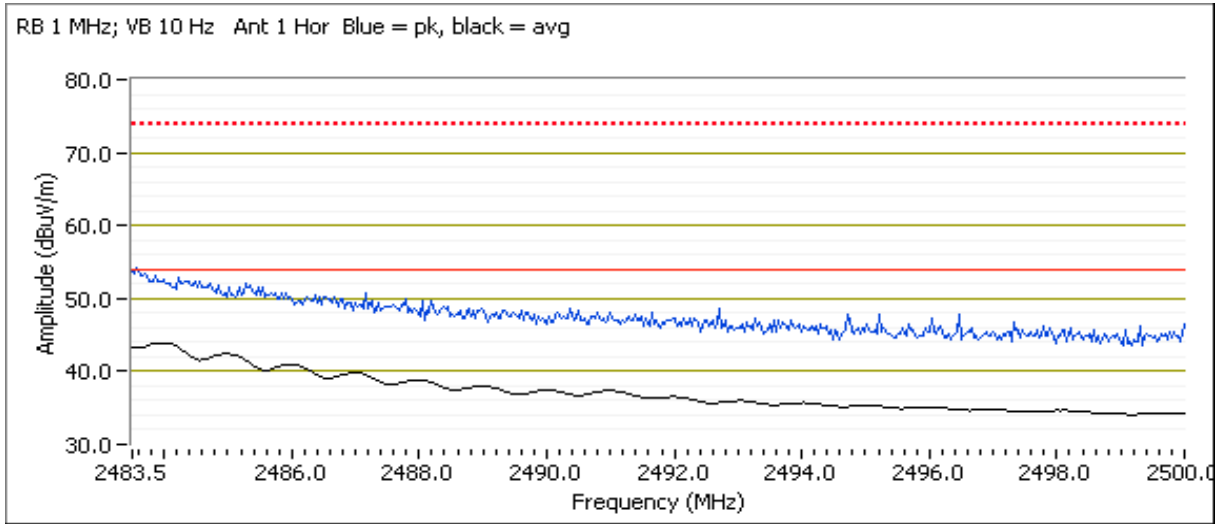
Band Edge Signal Field Strength - Direct measurement of field strength (Power setting W 3)

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.960	47.2	H	54.0	-6.8	AVG	306	1.34	Ant 0
2483.630	56.0	H	74.0	-18.0	PK	306	1.34	Ant 0
2483.960	44.2	H	54.0	-9.8	AVG	129	1.07	Ant 1
2483.630	52.4	H	74.0	-21.6	PK	129	1.07	Ant 1

Note 1: The bandedge measurements of 10/29/12 determined that horizontal polarization was worst case.



Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	N/A





EMC Test Data

Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	N/A

Run #2: Radiated Spurious Emissions, 1000 - 25,000 MHz.

Date of Test: 30-Oct-12
 Test Engineer: John Caizzi
 Test Location: FT Ch# 5

Run #2a: Low Channel @ 2405 MHz, power set to W3.

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4809.080	52.9	V	54.0	-1.1	AVG	235	1.08	Ant 0
9199.990	49.5	V	54.0	-4.5	AVG	165	1.68	Ant 0
4809.010	49.2	V	54.0	-4.8	AVG	221	1.42	Ant 1
1323.200	44.0	H	54.0	-10.0	AVG	169	1.08	Ant 0
11490.000	41.8	V	54.0	-12.2	Peak	197	1.30	Peak reading with average limit
11000.000	41.5	V	54.0	-12.5	Peak	157	1.30	Peak reading with average limit
11991.670	39.4	V	54.0	-14.6	Peak	237	1.60	Peak reading with average limit
4811.200	58.6	V	74.0	-15.4	PK	235	1.08	Ant 0
1324.170	56.1	H	74.0	-17.9	PK	169	1.08	Ant 0
4808.930	55.7	V	74.0	-18.3	PK	221	1.42	Ant 1
9198.780	54.6	V	74.0	-19.4	PK	165	1.68	Ant 0
8799.820	53.5	V	-	-	PK	75	1.11	Ant 0, Note 5
1984.610	54.2	H	-	-	PK	161	1.03	Ant 0, Note 1

Note 1:	Emission in non-restricted band, refer to antenna conducted measurements.
Note 2:	Emission in non-restricted band, 15.209 limit used. Peak measurement vs average limit.
Note 3:	Worst case antenna was determined by measuring the 2nd harmonic for both antenna 0 & antenna 1. Antenna 0 was higher, & subsequent testing was done on it only.
Note 4:	18-26.5GHz scan was done with near field scan of 30cm away from the unit. No significant signal was observed.
Note 5:	Emission not related to the radio. Refer to the 15.B results.

Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	N/A

Run #2b: Mid Channel @ 2440 MHz, power set to W3.

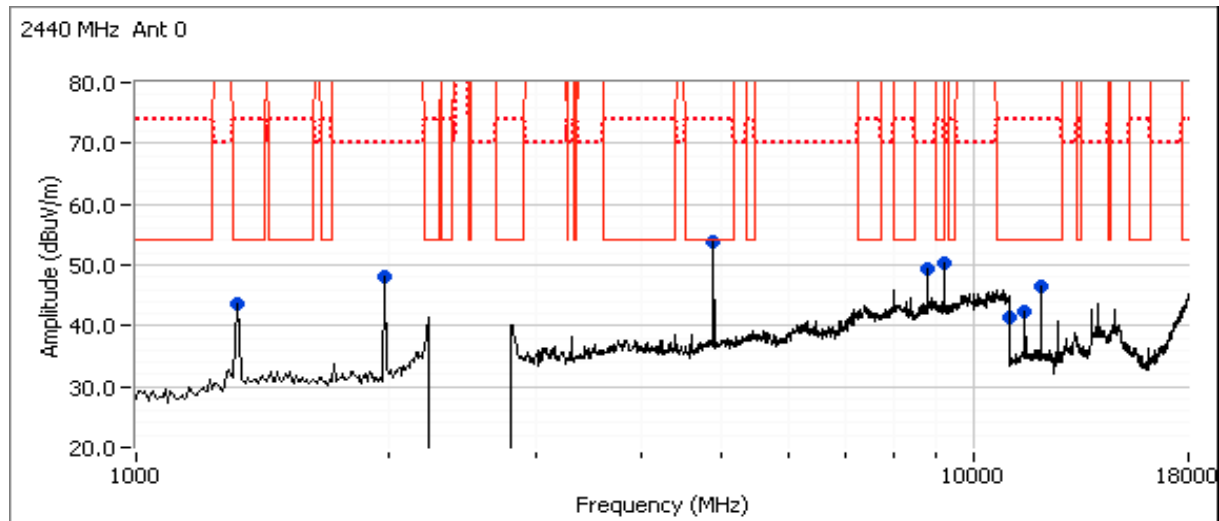
Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4879.050	50.6	V	54.0	-3.4	AVG	46	1.51	
9200.000	50.3	V	54.0	-3.7	Peak	22	1.0	Note 1
12000.070	44.0	V	54.0	-10.0	AVG	79	0.98	RB 1 MHz;VB 10 Hz;Peak
1316.670	43.7	H	54.0	-10.3	Peak	22	1.0	Note 1
11490.000	42.5	V	54.0	-11.5	Peak	200	1.29	Peak reading with average limit
11000.000	41.5	V	54.0	-12.5	Peak	163	1.29	Peak reading with average limit
11002.770	40.8	V	54.0	-13.2	AVG	341	1.01	RB 1 MHz;VB 10 Hz;Peak
4881.100	57.0	V	74.0	-17.0	PK	46	1.51	
12001.540	54.2	V	74.0	-19.8	PK	79	0.98	RB 1 MHz;VB 3 MHz;Peak
10995.670	51.2	V	74.0	-22.8	PK	341	1.01	RB 1 MHz;VB 3 MHz;Peak
1983.330	48.2	V	-	-	Peak	96	1.5	Note 1
8800.000	49.3	V	-	-	Peak	1	1.0	Note 5

Note 1: Emission does not change with channel, measured in run 2a.

Note 4: 18-26.5GHz scan was done with near field scan of 30cm away from the unit. No significant signal was observed.

Note 5: Emission not related to the radio. Refer to the 15.B results.



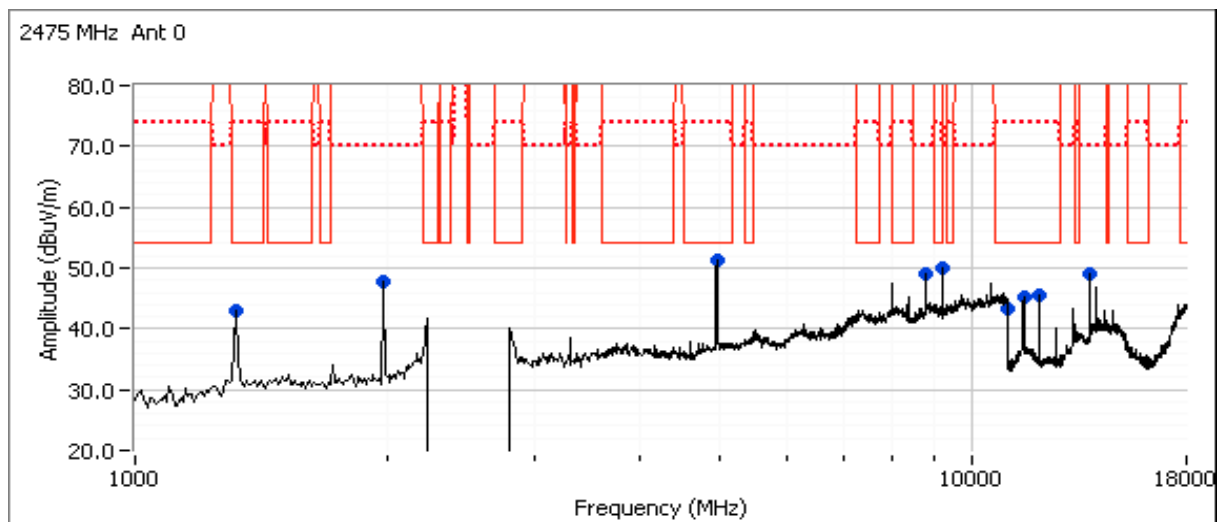
Client: Pace	Job Number: J89599
Model: C41NC-700 Home Media Center Client	T-Log Number: T89772
Contact: Mark Rieger	Account Manager: Michelle Kim
Standard: FCC 15B, FCC 15.247, RSS-210	Class: N/A

Run #2c: High Channel @ 2475 MHz, power set to W3.

Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
9200.000	49.9	V	54.0	-4.1	Peak	0	1.5	Note 1
11499.180	49.5	V	54.0	-4.5	AVG	48	1.37	
4949.120	49.2	V	54.0	-4.8	AVG	48	1.36	
11000.000	43.4	V	54.0	-10.6	Peak	357	1.00	Note 2
1316.670	43.1	H	54.0	-10.9	Peak	15	1.0	Note 1
12000.640	41.7	V	54.0	-12.3	AVG	32	1.76	
4949.020	55.8	V	74.0	-18.2	PK	48	1.36	
11498.580	54.1	V	74.0	-19.9	PK	48	1.37	
8800.000	48.9	V	-	-	Peak	275	1.0	Note 5
1983.330	47.7	V	-	-	Peak	95	1.5	Note 1
11998.970	51.0	V	74.0	-23.0	PK	32	1.76	
13800.830	55.2	V	-	-	PK	5	1.48	

Note 1:	Emission does not change with channel, measured in run 2a.
Note 2:	Emission does not change with channel, measured in run 2b.
Note 4:	18-26.5GHz scan was done with near field scan of 30cm away from the unit. No significant signal was observed.
Note 5:	Emission not related to the radio. Refer to the 15.B results.





EMC Test Data

Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements Power, PSD, 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: 10/26/2012
Test Engineer: John Caizzi
Test Location: Fremont EMC Lab #4

Config. Used: NA
Config Change: NA
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. The sample tested was Elliott # 2012-2916.

Ambient Conditions:

Temperature: 22 °C
Rel. Humidity: 45 %

Summary of Results

Run #	Pwr setting	Avg Pwr	Test Performed	Limit	Pass / Fail	Result / Margin
1	3	-	Output Power	15.247(b)	Pass	2.9 dBm (0.002)
2		-	Power spectral Density (PSD)	15.247(d)	Pass	-12.0 dBm/3kHz
3		-	Minimum 6dB Bandwidth	15.247(a)	Pass	1207 kHz
3		-	99% Bandwidth	RSS GEN	-	2.316 MHz
4		-	Spurious emissions	15.247(b)	Pass	All emissions below -20 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:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	N/A

Run #1: Output Power

Ant 0

Power Setting ²	Frequency (MHz)	Output Power		Antenna Gain (dBi)	Result	EIRP ^{Note 2}		Output Power	
		(dBm) ¹	mW			dBm	W	(dBm) ³	mW
3	2405	2.9	1.9	4.6	Pass	7.5	0.006		
3	2440	2.6	1.8	4.6	Pass	7.2	0.005		
3	2475	2.5	1.8	4.6	Pass	7.1	0.005		

Ant 1

Power Setting ²	Frequency (MHz)	Output Power		Antenna Gain (dBi)	Result	EIRP ^{Note 2}		Output Power	
		(dBm) ¹	mW			dBm	W	(dBm) ³	mW
3	2405	2.0	1.6	4.6	Pass	6.6	0.005		
3	2440	1.8	1.5	4.6	Pass	6.4	0.004		
3	2475	1.7	1.5	4.6	Pass	6.3	0.004		

Note 1:	Output power measured using a peak power meter, spurious limit is -20dBc.
Note 2:	Power setting - the software power setting used during testing, included for reference only.
Note 3:	Power measured using average power meter and is included for reference only.

Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	N/A

Run #2: Power spectral Density

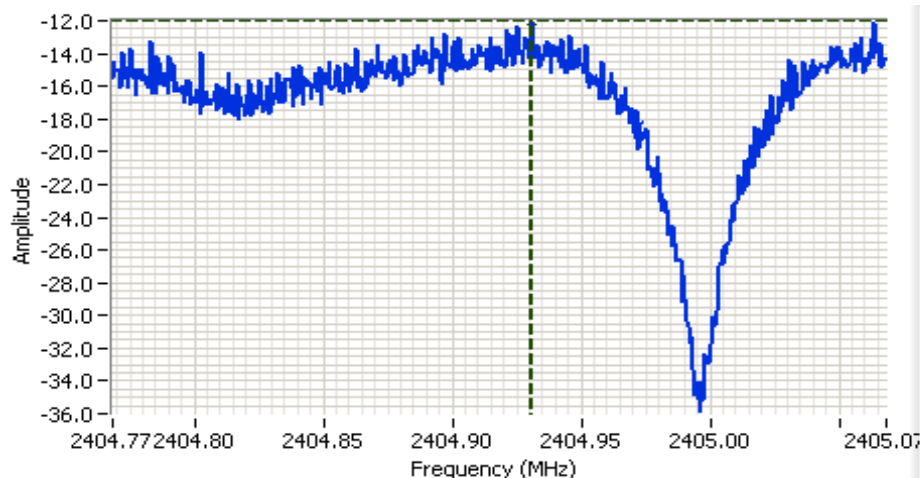
Ant 0

Power Setting	Frequency (MHz)	PSD (dBm/3kHz) ^{Note 1}	Limit dBm/3kHz	Result
3	2405	-12.0	8.0	Pass
3	2440	-12.1	8.0	Pass
3	2475	-12.5	8.0	Pass

Ant 0

Power Setting	Frequency (MHz)	PSD (dBm/3kHz) ^{Note 1}	Limit dBm/3kHz	Result
3	2405	-13.0	8.0	Pass
3	2440	-14.0	8.0	Pass
3	2475	-13.4	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.



Analyzer Settings

Agilent Technologies, E4446A
 CF: 2404.918 MHz
 SPAN: 300 kHz
 RB: 3.00 kHz
 VB: 10.0 kHz
 Detector: POS
 Attn: 10 DB
 RL Offset: 10.6 DB
 Sweep Time: 100.0s
 Ref Lvl: 0.6 DBM

Comments

PSD Antenna 0

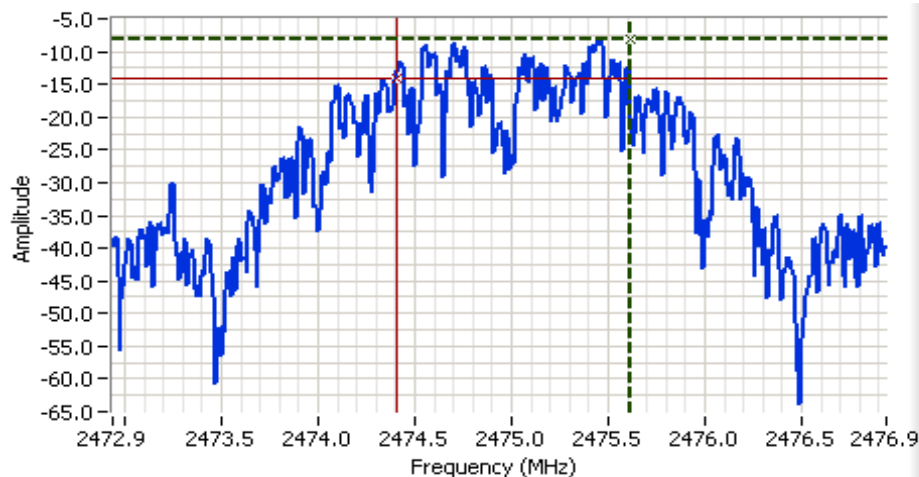
Cursor 1	2404.9308	-12.03	
	0.0000	0.00	

Client: Pace	Job Number: J89599
Model: C41NC-700 Home Media Center Client	T-Log Number: T89772
Contact: Mark Rieger	Account Manager: Michelle Kim
Standard: FCC 15B, FCC 15.247, RSS-210	Class: N/A

Run #3: Signal Bandwidth

Power Setting	Frequency (MHz)	Resolution Bandwidth	Bandwidth (MHz)	
			6dB	99%
3	2405	30 kHz	1.480	2.316
3	2440	30 kHz	1.467	2.289
3	2475	30 kHz	1.207	2.289

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









Analyzer Settings

Agilent Technologies, E4446A
 CF: 2474.938 MHz
 SPAN: 4.000 MHz
 RB: 30.0 kHz
 VB: 91.0 kHz
 Detector: POS
 Attn: 10 DB
 RL Offset: 10.6 DB
 Sweep Time: 4.3ms
 Ref Lvl: 0.6 DBM

Comments

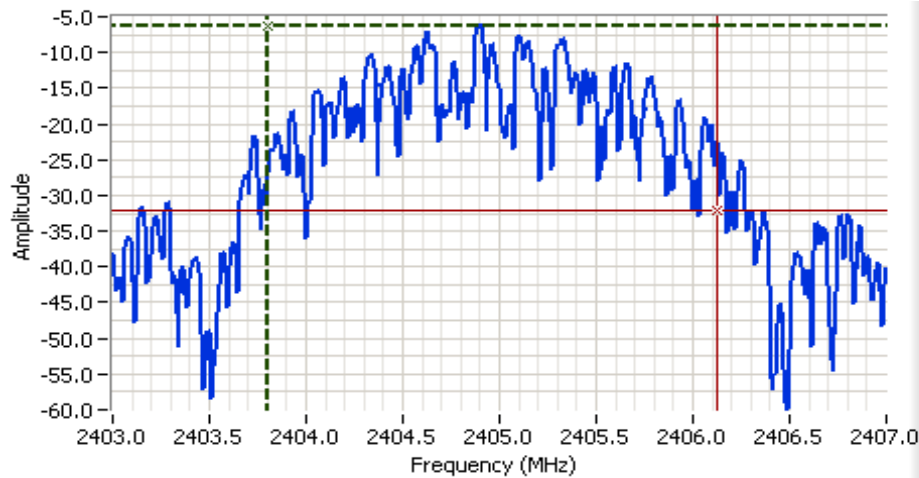
6dB BW: 1.207 MHz
 Antenna 1

Cursor 1	2475.6118	-8.04			
Cursor 2	2474.4051	-14.04			

Delta Freq. 1.207

Delta Amplitude 6.00

Client: Pace	Job Number: J89599
Model: C41NC-700 Home Media Center Client	T-Log Number: T89772
Contact: Mark Rieger	Account Manager: Michelle Kim
Standard: FCC 15B, FCC 15.247, RSS-210	Class: N/A



Analyzer Settings

Agilent Technologies, E4446A
 CF: 2405.000 MHz
 SPAN: 4.000 MHz
 RB: 43.0 kHz
 VB: 130 kHz
 Detector: POS
 Attn: 10 DB
 RL Offset: 10.6 DB
 Sweep Time: 2.1ms
 Ref Lvl: 0.6 DBM

Comments

99% power BW: 2.316 MHz
 Antenna 1

Cursor 1	2403.8054	-6.20	
Cursor 2	2406.1214	-32.20	

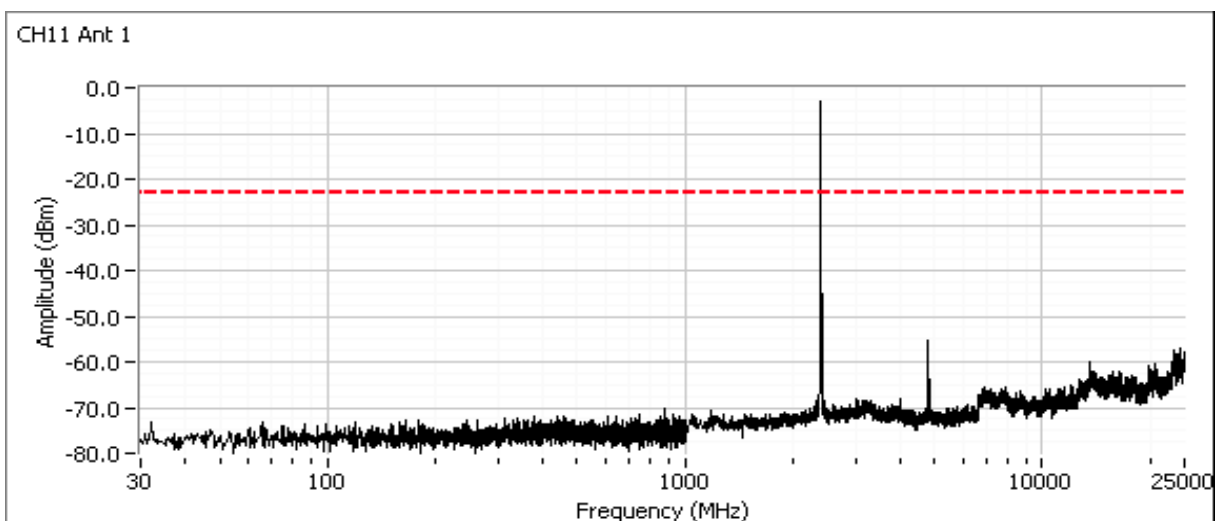
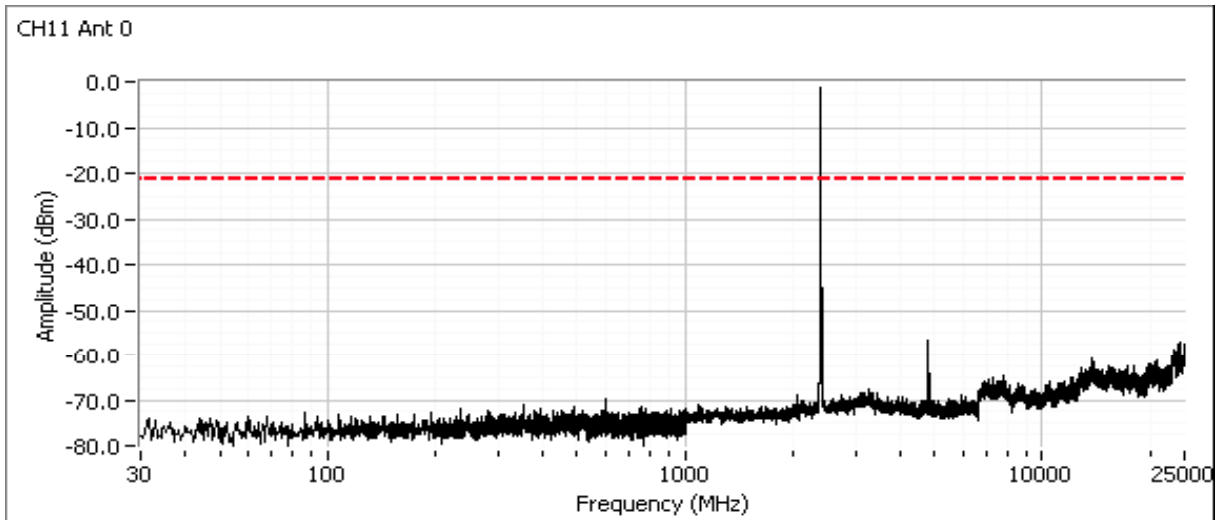
Delta Freq. 2.316
 Delta Amplitude 26.00

Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	N/A

Run #4: Out of Band Spurious Emissions

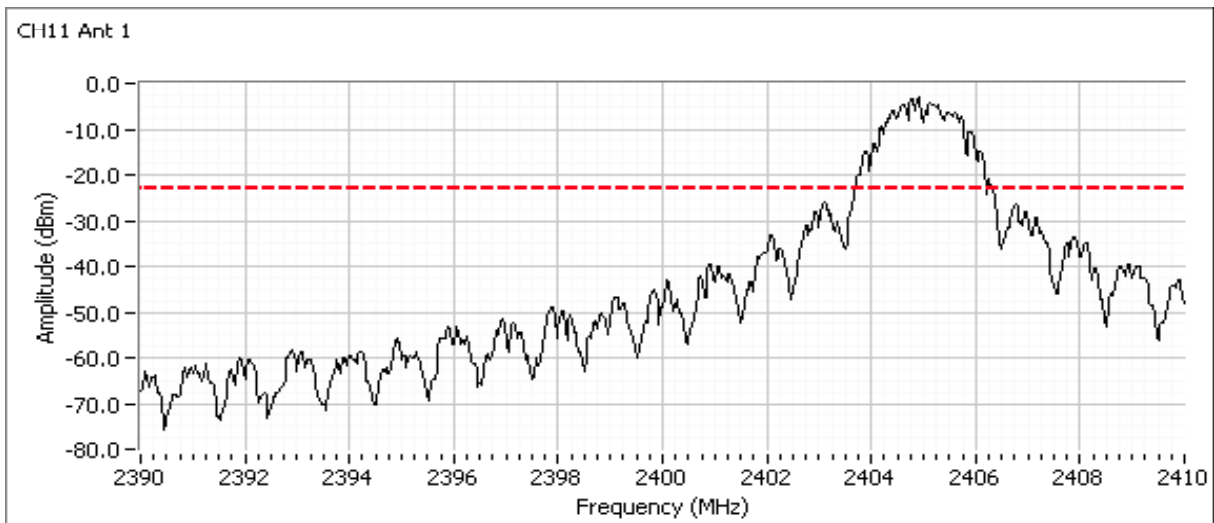
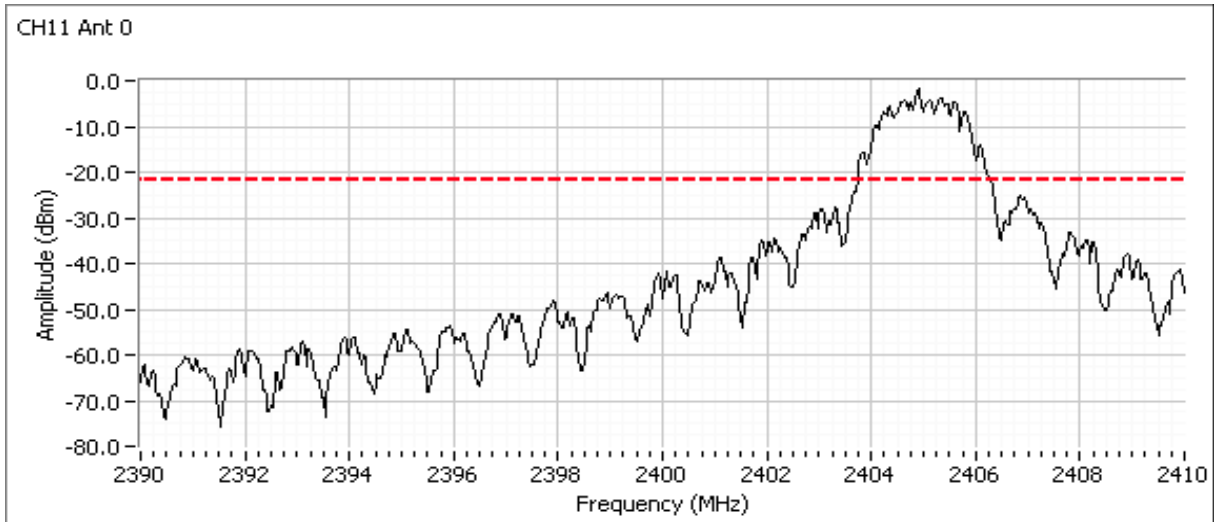
Frequency (MHz)	Limit	Result
2405	-20dBc	Pass
2440	-20dBc	Pass
2475	-20dBc	Pass

Plots for low channel, power setting = 3



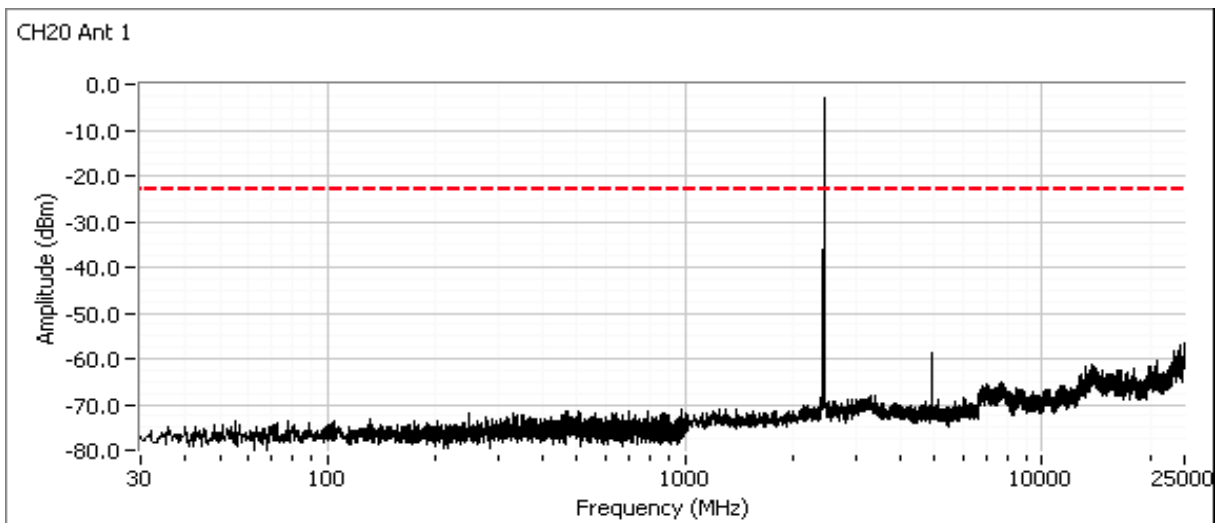
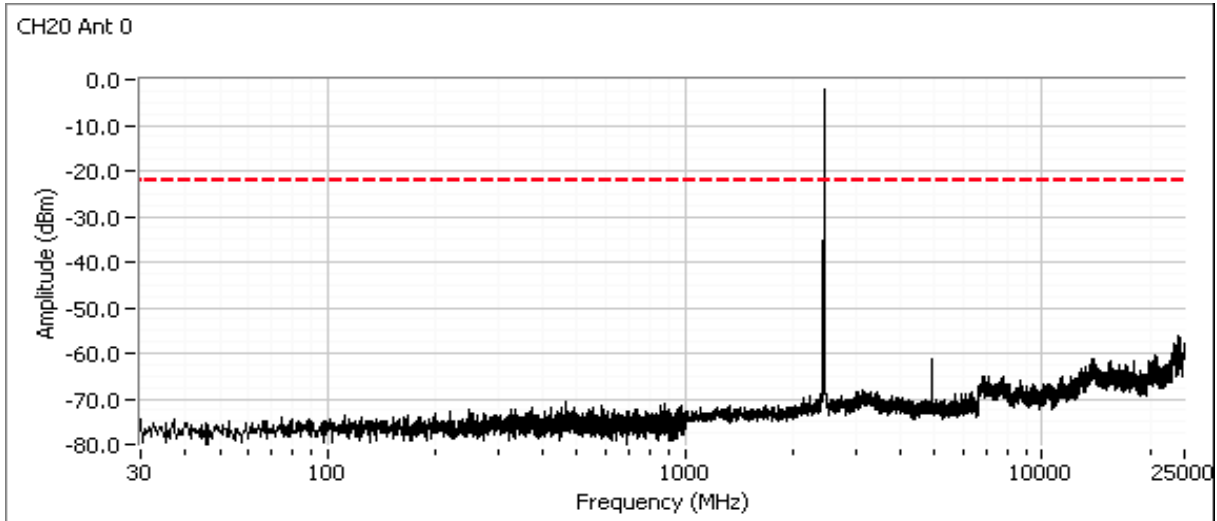
Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	N/A

Additional plot showing compliance with -20dBc limit from 2390 MHz to 2400 MHz. Radiated measurements used to show compliance with the limits in the restricted band below 2390 MHz.



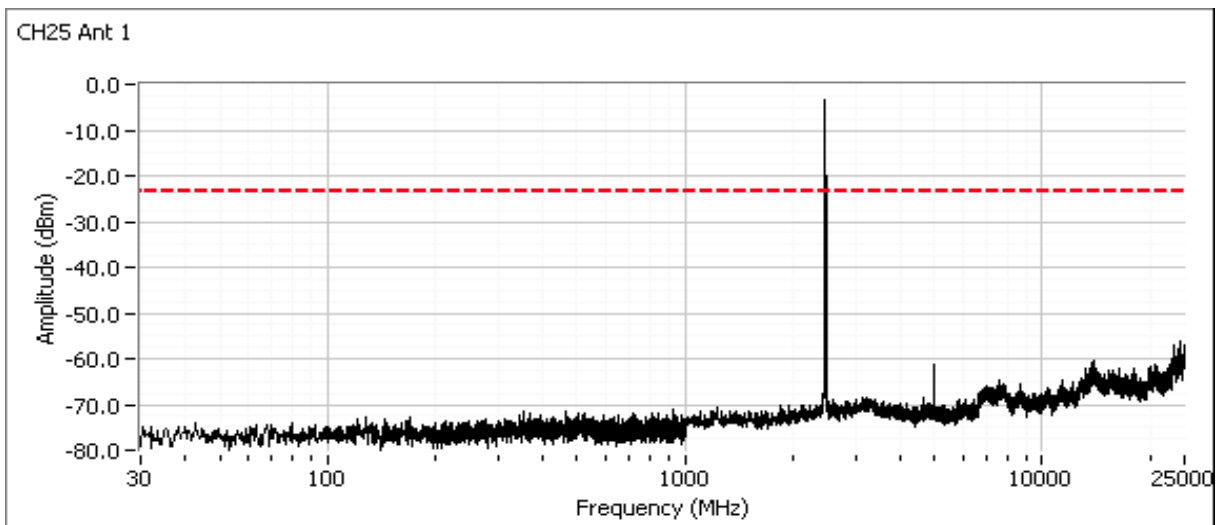
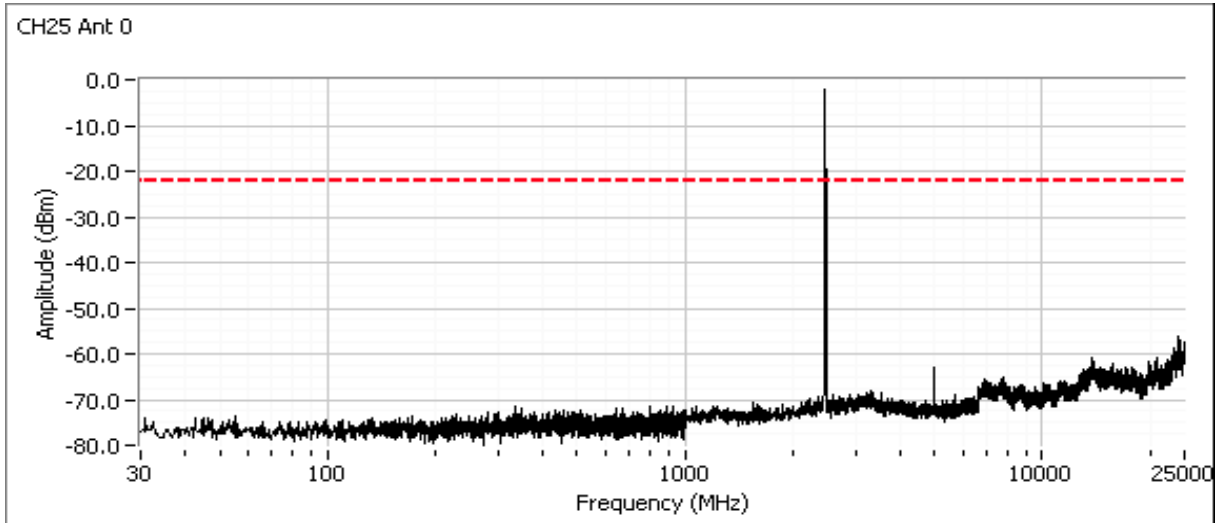
Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	N/A

Plots for center channel, power setting = 3



Client:	Pace	Job Number:	J89599
Model:	C41NC-700 Home Media Center Client	T-Log Number:	T89772
Contact:	Mark Rieger	Account Manager:	Michelle Kim
Standard:	FCC 15B, FCC 15.247, RSS-210	Class:	N/A

Plots for high channel, power setting = 3



End of Report

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