

EMC Test Report

***Application for Grant of Equipment Authorization
Class II Permissive Change/Reassessment***

***Industry Canada RSS-Gen Issue 3 / RSS 210 Issue 8
FCC Part 15 Subpart C***

Model: AP2620

IC CERTIFICATION #: 4702A-APXXXX
FCC ID: REB-APXXX1

APPLICANT: Enterasys Networks, Inc.
50 Minuteman Rd.
Andover, MA 1810

TEST SITE(S): Elliott Laboratories
41039 Boyce Road.
Fremont, CA. 94538-2435

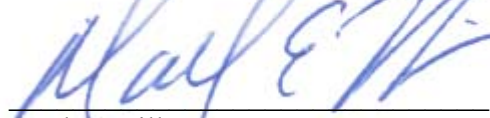
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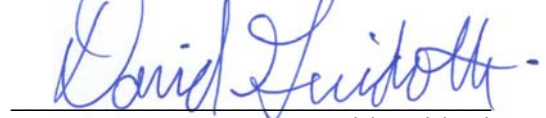
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Testing Cert #2016.01

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REVISION HISTORY

Rev#	Date	Comments	Modified By
-	11-30-2011	First release	
1	12-9-2011	Reissued to add power verification data	Dave Guidotti
2	12-22-2011	Reissued to remove radiated fundamental results as they are not needed.	Dave Guidotti

TABLE OF CONTENTS

REVISION HISTORY	2
TABLE OF CONTENTS	3
SCOPE.....	4
OBJECTIVE	4
STATEMENT OF COMPLIANCE.....	5
DEVIATIONS FROM THE STANDARDS.....	5
TEST RESULTS SUMMARY	6
DIGITAL TRANSMISSION SYSTEMS (2400 – 2483.5MHz)	6
DIGITAL TRANSMISSION SYSTEMS (5725 –5850 MHz)	6
GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS.....	7
MEASUREMENT UNCERTAINTIES.....	8
EQUIPMENT UNDER TEST (EUT) DETAILS.....	9
GENERAL.....	9
ANTENNA SYSTEM	9
ENCLOSURE.....	9
MODIFICATIONS.....	9
SUPPORT EQUIPMENT	9
EUT INTERFACE PORTS	10
EUT OPERATION	10
TEST SITE.....	11
GENERAL INFORMATION.....	11
RADIATED EMISSIONS CONSIDERATIONS	11
MEASUREMENT INSTRUMENTATION	12
RECEIVER SYSTEM	12
INSTRUMENT CONTROL COMPUTER	12
FILTERS/ATTENUATORS	13
ANTENNAS.....	13
ANTENNA MAST AND EQUIPMENT TURNTABLE.....	13
INSTRUMENT CALIBRATION.....	13
TEST PROCEDURES	14
EUT AND CABLE PLACEMENT	14
RADIATED EMISSIONS	14
RADIATED EMISSIONS	15
CONDUCTED EMISSIONS FROM ANTENNA PORT	17
BANDWIDTH MEASUREMENTS	17
SPECIFICATION LIMITS AND SAMPLE CALCULATIONS	18
CONDUCTED EMISSIONS SPECIFICATION LIMITS: FCC 15.207; FCC 15.107(A), RSS GEN	18
GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS	19
RECEIVER RADIATED SPURIOUS EMISSIONS SPECIFICATION LIMITS	19
OUTPUT POWER LIMITS – DIGITAL TRANSMISSION SYSTEMS	20
TRANSMIT MODE SPURIOUS RADIATED EMISSIONS LIMITS – FHSS AND DTS SYSTEMS.....	20
SAMPLE CALCULATIONS - CONDUCTED EMISSIONS	20
SAMPLE CALCULATIONS - RADIATED EMISSIONS.....	21
SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION.....	22
APPENDIX A TEST EQUIPMENT CALIBRATION DATA	23
APPENDIX B TEST DATA	24
END OF REPORT	47

SCOPE

An electromagnetic emissions test has been performed on the Enterasys Networks, Inc. model AP2620, pursuant to the following rules:

Industry Canada RSS-Gen Issue 3
RSS 210 Issue 8 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
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
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.

Prior to marketing in Canada, Class I transmitters, receivers and transceivers require certification. Class II devices are required to meet the appropriate technical requirements but are exempt from certification 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 Enterasys Networks, Inc. model AP2620 complied with the requirements of the following regulations:

Industry Canada RSS-Gen Issue 3
RSS 210 Issue 8 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
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 Enterasys Networks, Inc. model AP2620 and therefore apply only to the tested sample. The sample was selected and prepared by John Ballew of Enterasys Networks, Inc..

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	Testing not performed, not changes from the original filing. Output power of test sample confirmed to be with 0.5dB of the original filing.		
15.247 (a) (2)	RSS 210 A8.2 (1)	6dB Bandwidth			
15.247 (b) (3)	RSS 210 A8.2 (4)	Output Power (multipoint systems)			
15.247(d)	RSS 210 A8.2 (2)	Power Spectral Density			
15.247(c)	RSS 210 A8.5	Antenna Port Spurious Emissions 30MHz – 25 GHz			
15.247(c) / 15.209	RSS 210 A8.5	Radiated Spurious Emissions 30MHz – 25 GHz	53.1dB μ V/m @ 2389.9MHz (-0.9dB)	15.207 in restricted bands, all others <-30dBc ^{Note 2}	Complies
Note 2: Limit of -30dBc used because the power was measured using the UNII test procedure (maximum power averaged over a transmission burst).					

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	Testing not performed, not changes from the original filing. Output power of test sample confirmed to be with 0.5dB of the original filing.		
15.247 (a) (2)	RSS 210 A8.2 (1)	6dB Bandwidth			
15.247 (b)	RSS 210 A8.2 (4)	Output Power (multipoint systems)			
15.247(d)	RSS 210 A8.2 (2)	Power Spectral Density			
15.247(c)	RSS 210 A8.5	Antenna Port Spurious Emissions – 30MHz – 40 GHz			
15.247(c) / 15.209	RSS 210 A8.5 Table 2, 3	Radiated Spurious Emissions 30MHz – 40 GHz	52.5dB μ V/m @ 11489.9MHz (-1.5dB)	15.207 in restricted bands, all others <-30dBc ^{Note 2}	Complies
Note 2: Limit of -30dBc used because the power was measured using the UNII test procedure (maximum power averaged over a transmission burst).					

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Has not changed from original filing	Unique or integral antenna required	Complies
15.207	RSS GEN Table 2	AC Conducted Emissions	Testing not performed. Has not changed from original filing		
15.109	RSS GEN 7.2.3 Table 1	Receiver spurious emissions	2.4GHz: 36.9dB μ V/m @ 999.99MHz (-17.1dB) 5.7Gz: 32.5dB μ V/m @ 2125.0MHz (-21.5dB)	Refer to page 19	Complies
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	The antennas included in this filing are of lesser gain than previous filings. RF exposure covered by previous filings.		
-	RSP 100 RSS GEN 7.1.5	User Manual		Statement required regarding non-interference	Complies
-	RSP 100 RSS GEN 7.1.5	User Manual		Statement for products with detachable antenna	Complies
-	RSP 100 RSS GEN 4.4.1	99% Bandwidth	Testing not performed. Has not changed from original filing		

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 Enterasys Networks, Inc. model AP2620 is a 802.11a/b/g wireless Access point that is designed to provide enterprise level wireless networking. 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 6 Vdc , 1.5 Amps.

The sample was received on October 24, 2011 and tested on October 24, 25, 26 and 27, 2011. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
Enterasys Networks	AP2620	802.11 a/b/g wireless access point	-	REB-APXXX1

ANTENNA SYSTEM

The EUT antennas are the WS-AO-2S08360 8dBi omni (2.4GHz) and the WS-AO-5S10360 10dBi omni (5.7GHz band) antenna.

The antenna connects to the EUT via a non-standard reverse SMA antenna connector, thereby meeting the requirements of FCC 15.203.

ENCLOSURE

The EUT enclosure is primarily constructed of Plastic. It measures approximately 14 cm wide by 3.5 cm deep by 18cm high.

MODIFICATIONS

No modifications were made to the EUT during the time the product was at Elliott.

SUPPORT EQUIPMENT

The following equipment was used as support equipment for testing:

Company	Model	Description	Serial Number	FCC ID
DELL	PP18L	Lattitude D620 laptop	-	-

No remote support equipment was used during testing.

EUT INTERFACE PORTS

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

Port	Connected To	Description	Cable(s)	Length(m)
			Shielded or Unshielded	
Ethernet Port	Support laptop	RJ45 Cat5 ethernet cable	Unsheilded	1.5m
Serial Com Port	Support laptop	db9 serial cable	shielded	1.5m
AC Power	AC Mains	-	-	-
DC Power	WS-PS261020	Switching power adapter	Unshielded	1m

EUT OPERATION

During emissions testing the EUT was operating in a Continuous Transmit or Continuous Receive mode as required. Testing was performed at 1Mb/s for 802.11b and 6Mb/s for 802.11ag, as these rates had the highest output power.

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 5	211948	2845B-5	41039 Boyce Road Fremont, CA 94538-2435
Chamber 7	A2LA accreditation	2845B-7	

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.

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.

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.

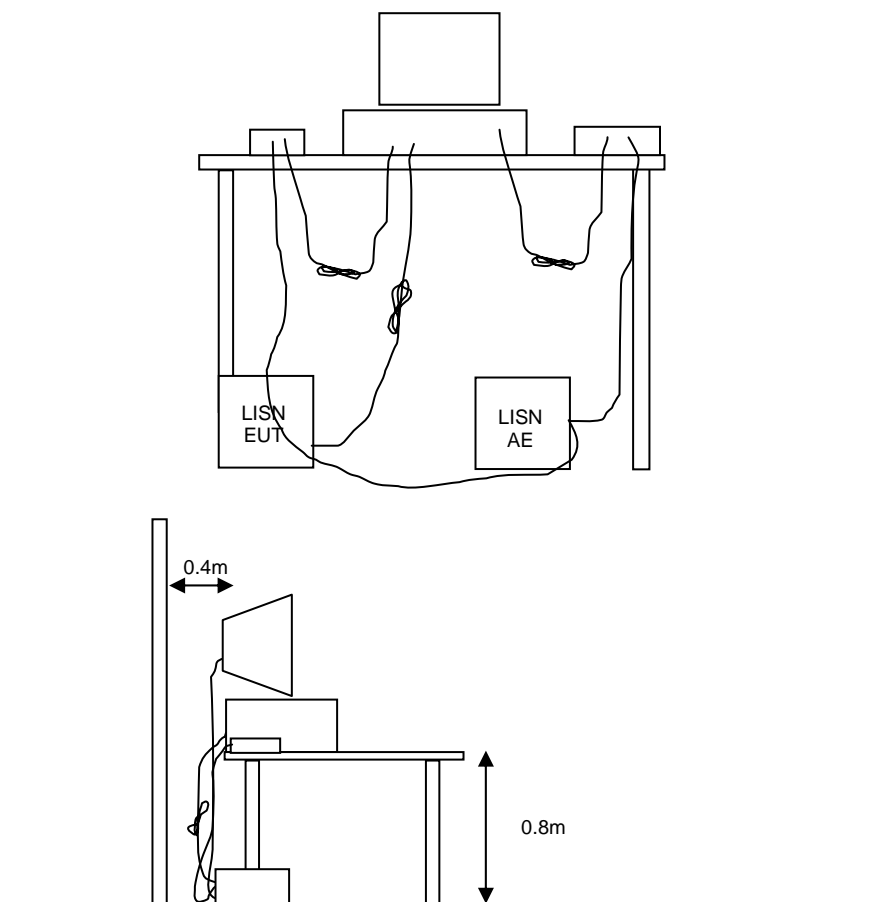


Figure 1 Typical Conducted Emissions Test Configuration

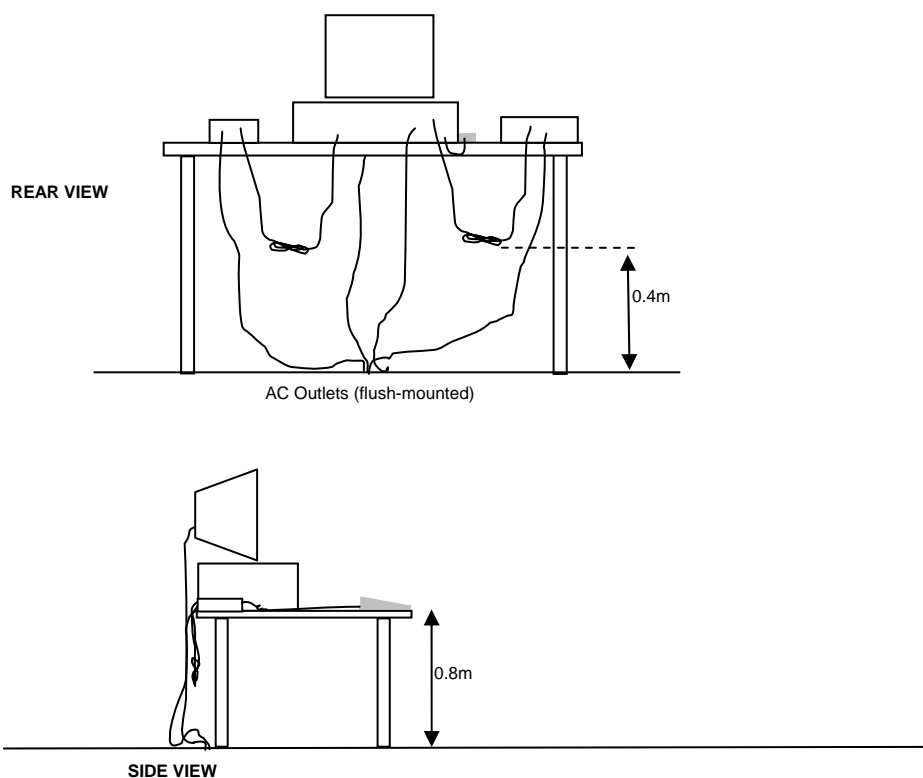
RADIATED EMISSIONS

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.

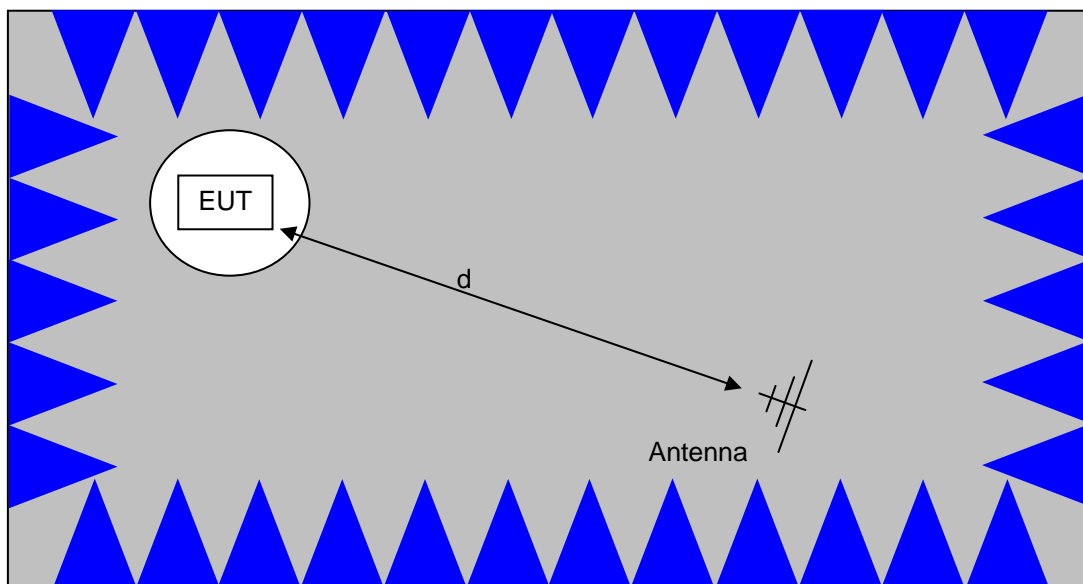
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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.

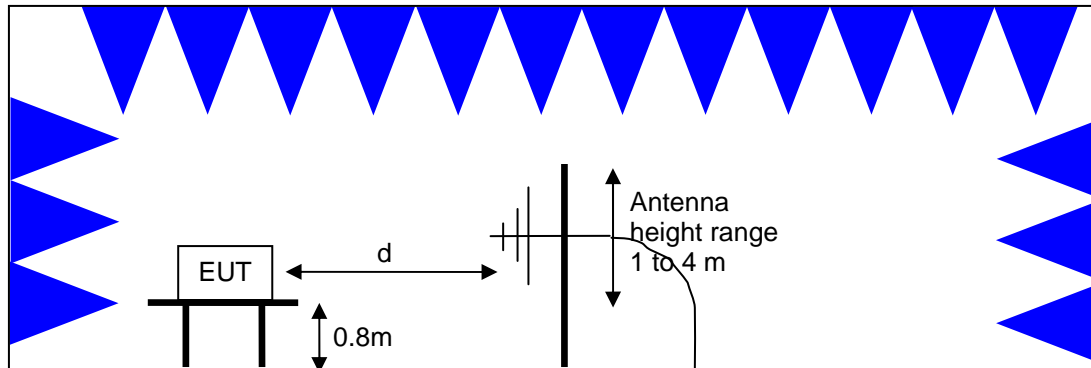


Typical Test Configuration for Radiated Field Strength Measurements



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.

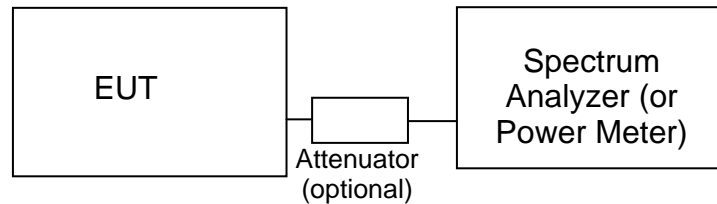
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



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 Elliott'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

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:

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

where:

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

$$D_m = \text{Measurement Distance in meters}$$

$$D_s = \text{Specification Distance in meters}$$

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

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

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

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

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

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

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

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

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

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

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

Where the radiated electric field strength is expressed in terms of the equivalent isotropic radiated power (eirp), or where a field strength measurement of output power is made in lieu of a direct measurement, the following formula is used to convert between eirp and field strength at a distance of 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**Radio Antenna Port (Power and Spurious Emissions), 25-Oct-11**

<u>Manufacturer</u>	<u>Description</u>	<u>Model</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	8/15/2012

Radiated Emissions, 30 - 26,500 MHz, 25-Oct-11

<u>Manufacturer</u>	<u>Description</u>	<u>Model</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	5/18/2012
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	8/9/2012
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/22/2012
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	2238	10/4/2012

Radiated Emissions, 30 - 26,500 MHz, 27-Oct-11

<u>Manufacturer</u>	<u>Description</u>	<u>Model</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	Antenna, Horn, 1-18 GHz	3115	487	7/6/2012
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	8/9/2012
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	2199	2/23/2012

Radiated Emissions, 1000 - 40,000 MHz, 27-Oct-11

<u>Manufacturer</u>	<u>Description</u>	<u>Model</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/8/2012
Hewlett Packard	Head (Inc W1-W4, 1946, 1947) Purple	84125C	1772	4/28/2012
A.H. Systems	Spare System Horn, 18-40GHz	SAS-574, p/n: 2581	2162	3/3/2012
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	2199	2/23/2012
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	2241	10/4/2012
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	2415	7/28/2012

Appendix B Test Data

T85081 Pages 25 – 46



EMC Test Data

Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
		Account Manager:	Sheareen Washington
Contact:	John Ballew		-
Emissions Standard(s):	FCC 15.247, RSS-210	Class:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Enterasys Networks

Model

AP2620

Date of Last Test: 12/22/2011

Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	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 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:	17-22 °C
Rel. Humidity:	30-50 %

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:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

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	b	low	-	-	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	39.4dBμV/m @ 2360.0MHz (-14.6dB)
			-	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	42.8dBμV/m @ 7233.7MHz (-11.2dB)
1b	b	center	-	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	47.3dBμV/m @ 7313.8MHz (-6.7dB)
1c	b	high	-	-	Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	43.2dBμV/m @ 2487.8MHz (-10.8dB)
			-	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	45.3dBμV/m @ 7383.2MHz (-8.7dB)
1a	g	low	-	-	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(c)	53.1dBμV/m @ 2389.9MHz (-0.9dB)
			-	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	43.0dBμV/m @ 7237.2MHz (-11.0dB)
1b	g	center	-	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	43.3dBμV/m @ 7310.4MHz (-10.7dB)
1c	g	high	-	-	Restricted Band Edge (2483.5 MHz)	FCC Part 15.209 / 15.247(c)	46.4dBμV/m @ 2483.5MHz (-7.6dB)
			-	-	Radiated Emissions, 1 - 26 GHz	FCC Part 15.209 / 15.247(c)	44.8dBμV/m @ 7388.3MHz (-9.2dB)

Notes -

Based on preliminary measurements all testing was done on Port A
No emissions from the radio were observed below 1 GHz or above 18GHz

Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Run #1: Radiated Spurious Emissions, 30 - 26500 MHz. Operating Mode: 802.11b

Date of Test: 10/25/2011 / 10/26/2011

Test Location: FT Chamber #7 / 5

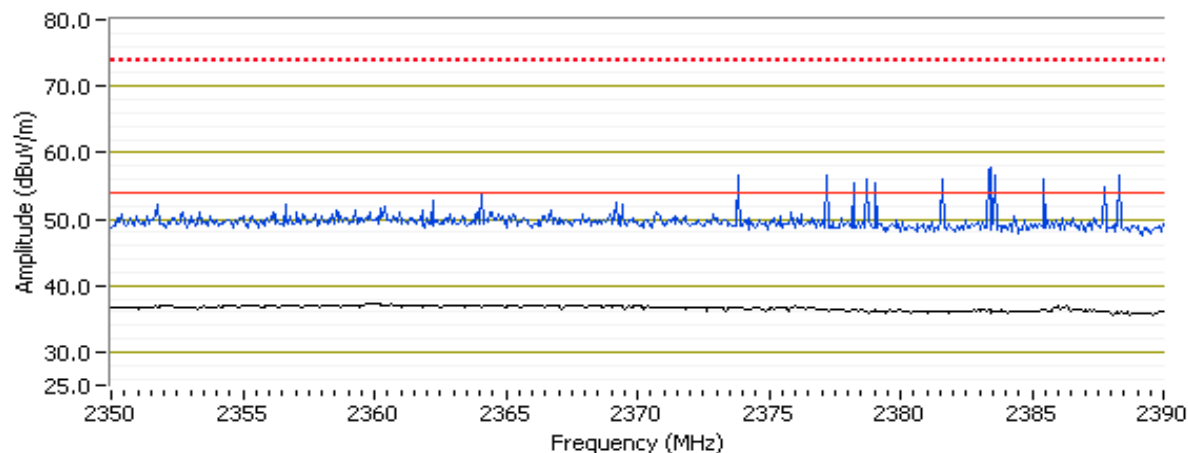
Test Engineer: M. Birgani / Joseph Cadigal

Run #1a: Low Channel @ 2412 MHz

Band Edge Signal Field Strength - Direct measurement of field strength

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	
2360.000	39.4	V	54.0	-14.6	AVG	9	1.0	
2350.070	38.2	H	54.0	-15.8	AVG	0	1.0	
2363.330	50.5	V	74.0	-23.5	PK	9	1.0	
2351.000	49.5	H	74.0	-24.5	PK	0	1.0	

RB 1 MHz; VB 10 Hz Average (Black trace); RB= 1MHz; VB= 3MHz Peak (Blue trace), Vertical



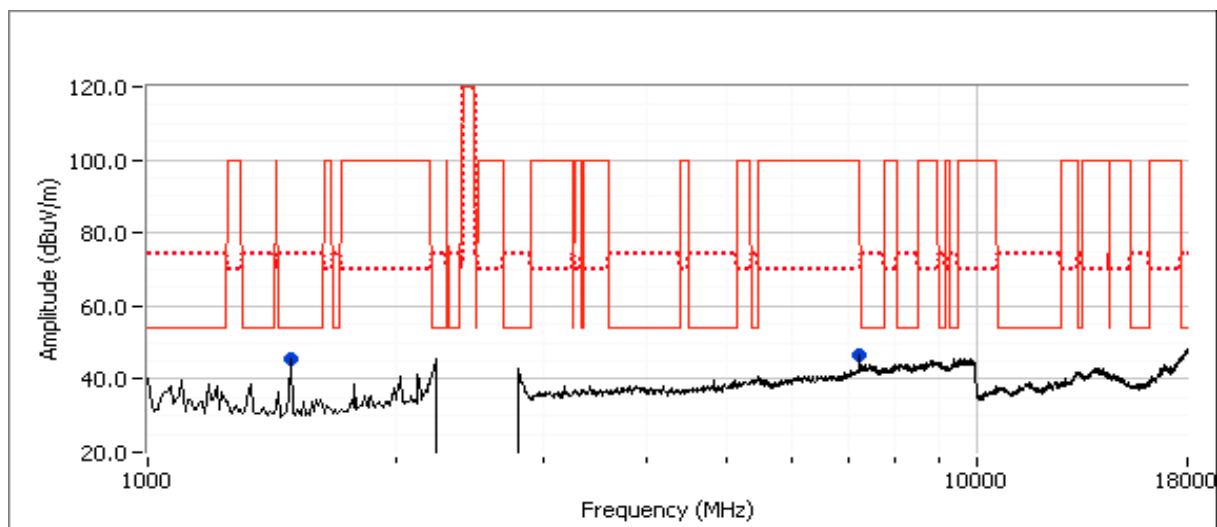
Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
7233.730	42.8	V	54.0	-11.2	AVG	263	1.9	Note 2
1485.070	38.6	V	54.0	-15.4	AVG	29	1.3	
7234.040	51.7	V	74.0	-22.3	PK	263	1.9	Note 2
1484.930	37.8	V	74.0	-36.2	PK	29	1.3	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental and measured in 100kHz.

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

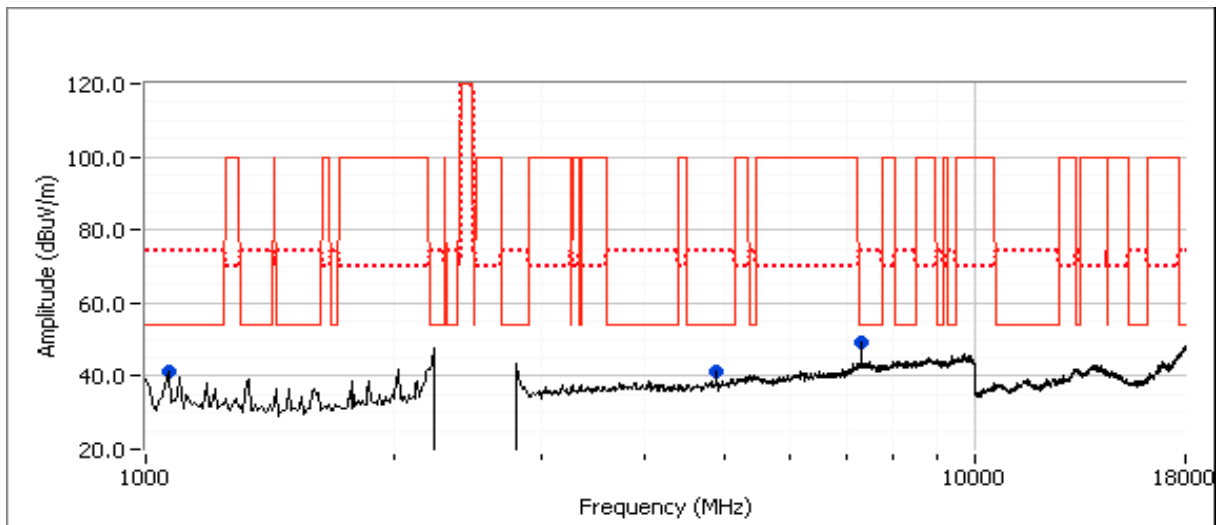


Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Run #1b: Center Channel @ 2437 MHz

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	
7313.820	47.3	V	54.0	-6.7	AVG	257	1.3	
7313.520	53.3	V	74.0	-20.7	PK	257	1.3	
1065.100	32.9	V	54.0	-21.1	AVG	118	1.3	
4879.360	32.2	V	54.0	-21.8	AVG	360	1.6	
1064.410	48.8	V	74.0	-25.2	PK	118	1.3	
4878.730	43.3	V	74.0	-30.7	PK	360	1.6	

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.



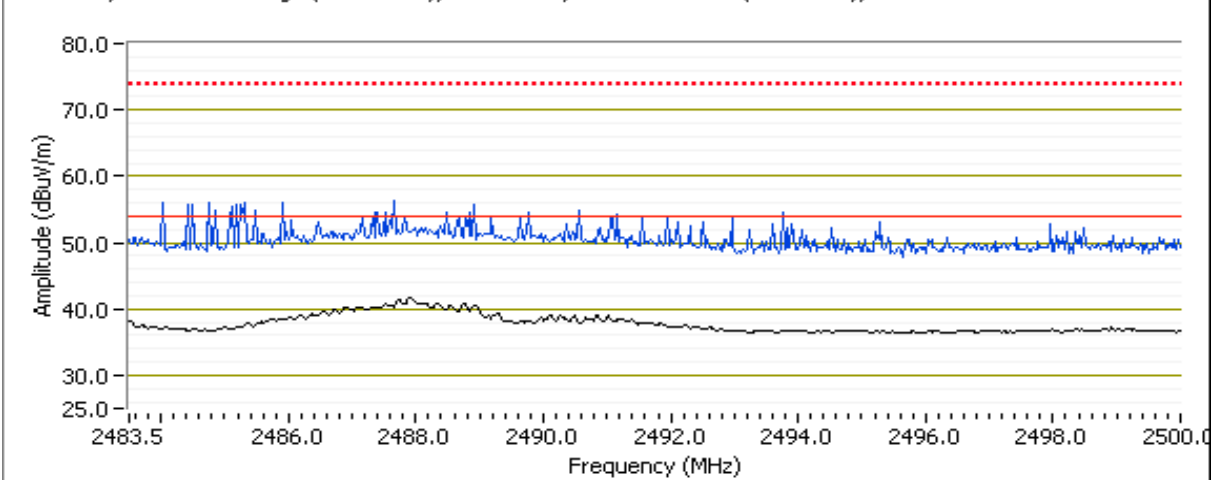
Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Run #1c: High Channel @ 2462 MHz

Band Edge Signal Field Strength - Direct measurement of field strength

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	
2487.790	43.2	V	54.0	-10.8	AVG	18	1.0	
2487.930	39.3	H	54.0	-14.7	AVG	299	1.0	
2495.520	54.7	V	74.0	-19.3	PK	18	1.0	
2483.830	50.4	H	74.0	-23.6	PK	299	1.0	

RB 1 MHz; VB 10 Hz Average (Black trace); RB= 1MHz; VB= 3MHz Peak (Blue trace), Vertical



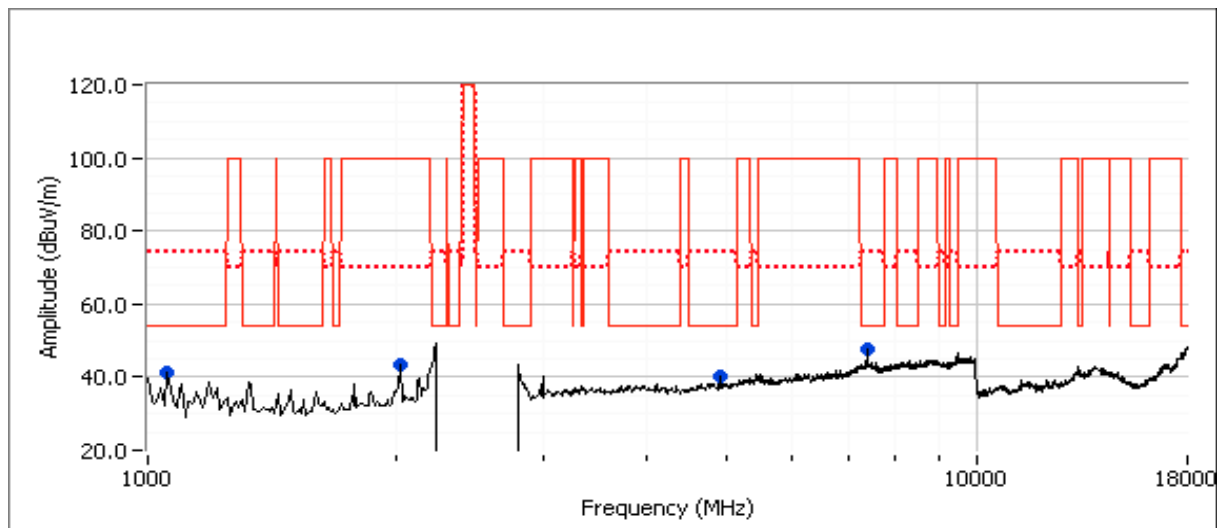
Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7383.150	45.3	V	54.0	-8.7	AVG	262	1.3	
4923.950	36.1	V	54.0	-17.9	AVG	207	1.0	
1046.120	33.2	V	54.0	-20.8	AVG	103	1.3	
7383.220	52.4	V	74.0	-21.6	PK	262	1.3	
2025.600	28.3	V	54.0	-25.7	AVG	334	1.3	Note 2
1046.870	45.6	V	74.0	-28.4	PK	103	1.3	
4924.290	44.4	V	74.0	-29.6	PK	207	1.0	
2024.660	39.1	V	74.0	-34.9	PK	334	1.3	Note 2

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental and measured in 100kHz.

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



Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Run #2: Radiated Spurious Emissions, 30 - 26500 MHz. Operating Mode: 802.11g

Date of Test: 10/25/2011/ 10/26/2011

Test Location: FT Chamber #7/ #5

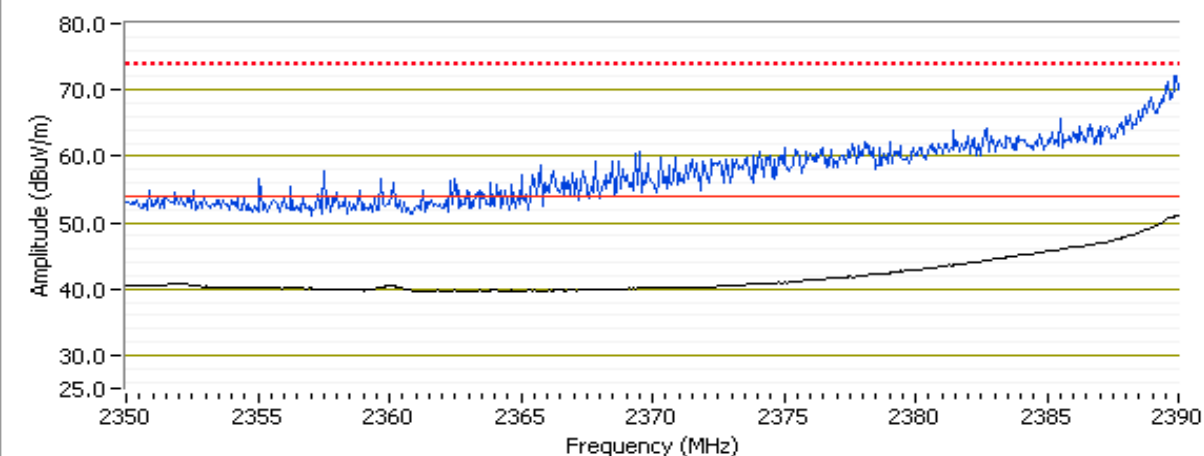
Test Engineer: M. Birgani / Joseph Cadigal

Run #2a: Low Channel @ 2412 MHz

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	Port
2389.930	53.1	V	54.0	-0.9	AVG	12	1.7	A
2390.000	49.1	V	54.0	-4.9	AVG	0	1.0	B
2389.670	67.5	V	74.0	-6.5	PK	12	1.7	A
2389.870	46.0	H	54.0	-8.0	AVG	266	1.0	A
2389.270	62.4	V	74.0	-11.6	PK	0	1.0	B
2389.600	61.5	H	74.0	-12.5	PK	266	1.0	A

RB 1 MHz; VB 10 Hz Average (Black trace); RB= 1MHz; VB= 3MHz Peak (Blue trace), Vertical



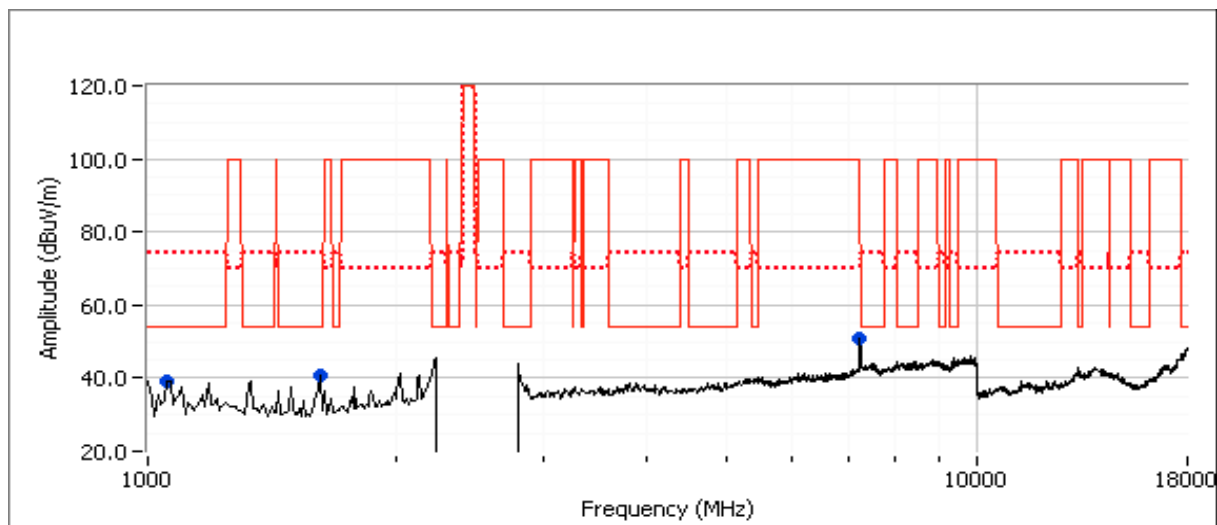
Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
7237.160	43.0	V	54.0	-11.0	AVG	267	1.3	
7236.600	57.4	V	74.0	-16.6	PK	267	1.3	
1063.280	34.7	V	54.0	-19.3	AVG	119	1.0	
1619.190	31.5	V	54.0	-22.5	AVG	174	1.3	
1063.260	46.6	V	74.0	-27.4	PK	119	1.0	
1621.290	40.1	V	74.0	-33.9	PK	174	1.3	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental and measured in 100kHz.

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



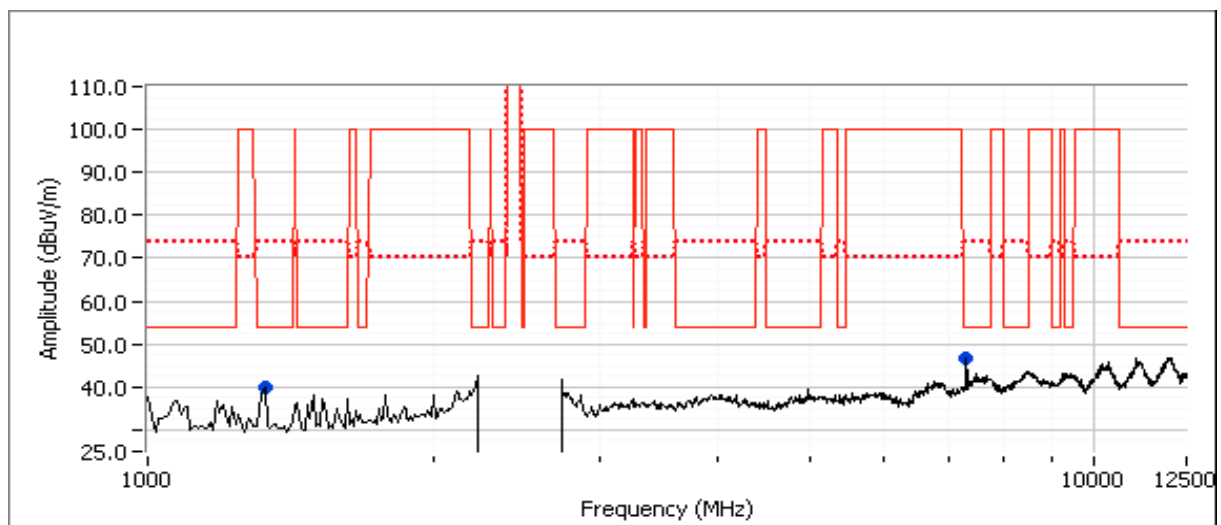
Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Run #2b: Center Channel @ 2437 MHz

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7310.440	43.3	V	54.0	-10.7	AVG	306	1.5	
7312.570	58.1	V	74.0	-15.9	PK	306	1.5	
1330.990	33.3	V	54.0	-20.7	AVG	101	1.5	
1328.650	45.6	V	74.0	-28.4	PK	101	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.

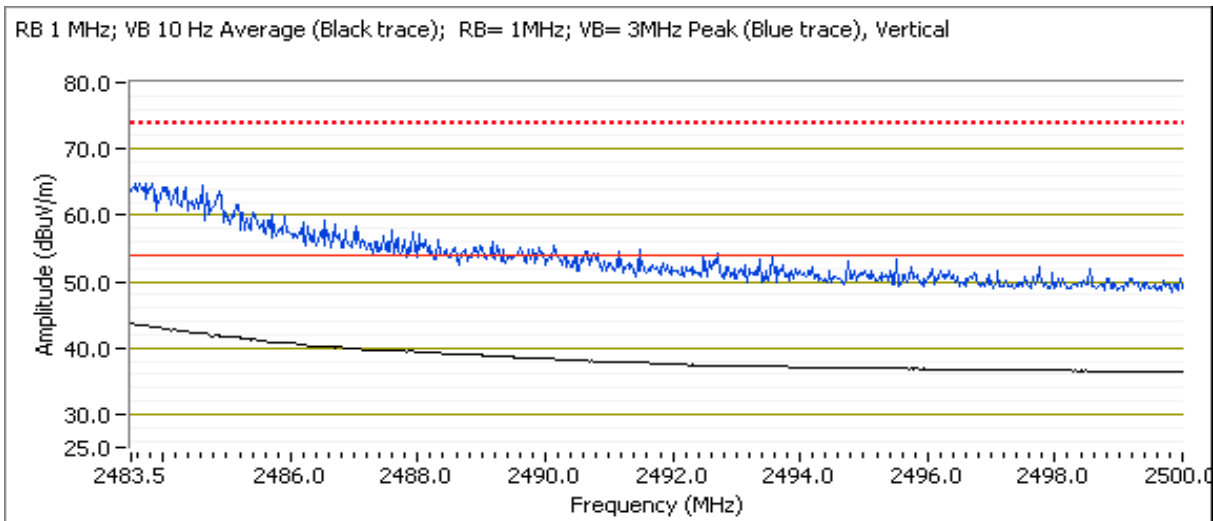


Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Run #2c: High Channel @ 2462 MHz

Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments	Port	Setting
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters			
2483.500	46.4	V	54.0	-7.6	AVG	156	1.0			
2483.550	44.7	H	54.0	-9.3	AVG	300	1.0			
2483.690	60.7	V	74.0	-13.3	PK	156	1.0			
2483.660	58.1	H	74.0	-15.9	PK	300	1.0			



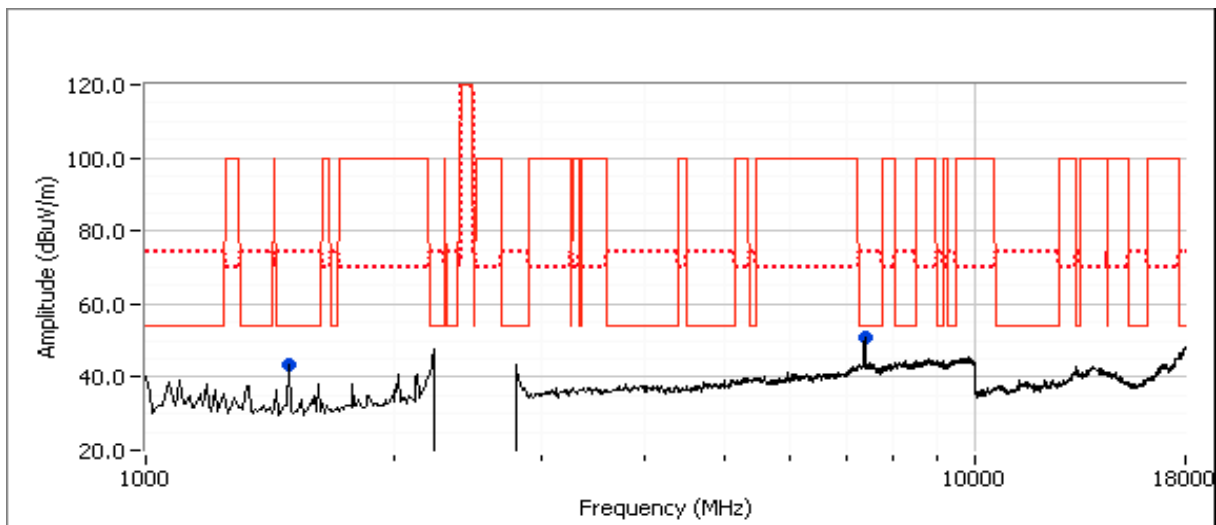
Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7388.260	44.8	V	54.0	-9.2	AVG	287	1.3	
7389.870	59.8	V	74.0	-14.2	PK	287	1.3	
1484.910	36.8	V	54.0	-17.2	AVG	170	1.0	
1484.590	43.7	V	74.0	-30.3	PK	170	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:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	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 all local support equipment were located on the turntable for radiated spurious emissions testing. All remote support equipment was located approximately 30 meters from the EUT with all I/O connections running on top of the groundplane or routed in overhead in the GR-1089 test configuration.

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

Ambient Conditions:

Temperature: 17-22 °C
Rel. Humidity: 30-50 %

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

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
Run # 3	RX Chain Ext	#6 2437MHz			Radiated Emissions, 1 - 8 GHz	RSS-GEN	36.9dBμV/m @ 999.99MHz (-17.1dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Run # 3, Radiated Spurious Emissions, 1-8GHz, RX, Chain Ext

Date of Test: 10/27/2011

Test Location: FT Chamber # 5

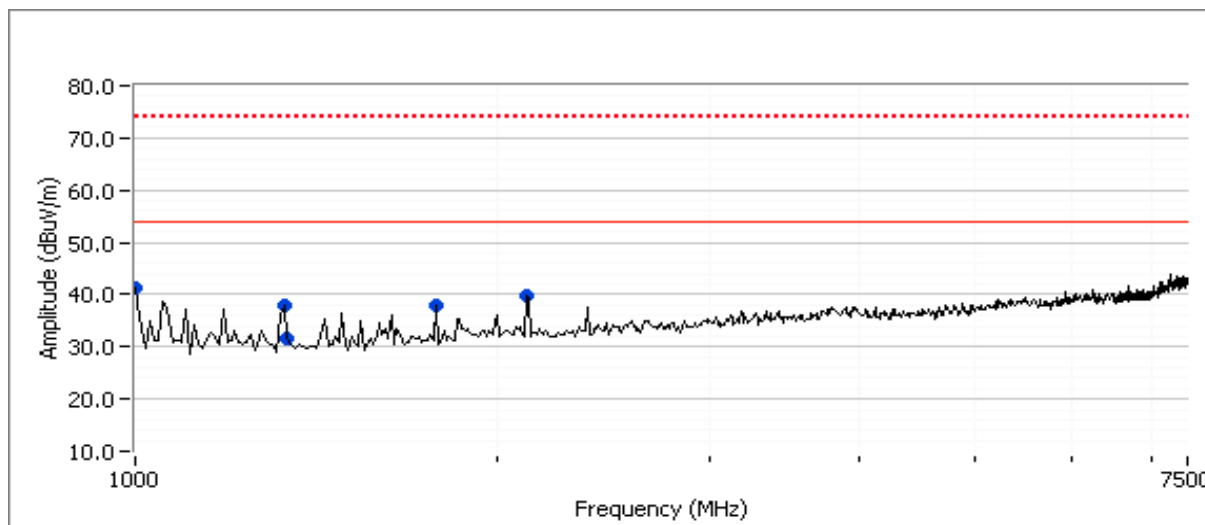
Test Engineer: Joseph Cadigal

Config Change: none

Run # 3a, EUT on Channel #6 2437MHz - RX, Chain Ext

Spurious Radiated Emissions:

Frequency	Level	Pol	RSS-GEN		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
999.985	36.9	V	54.0	-17.1	AVG	223	1.0	RB 1 MHz;VB 10 Hz;Pk
2124.960	32.8	V	54.0	-21.2	AVG	136	1.0	RB 1 MHz;VB 10 Hz;Pk
1331.140	30.1	V	54.0	-23.9	AVG	147	1.0	RB 1 MHz;VB 10 Hz;Pk
1332.050	28.5	V	54.0	-25.5	AVG	147	2.2	RB 1 MHz;VB 10 Hz;Pk
2126.330	46.8	V	74.0	-27.2	PK	136	1.0	RB 1 MHz;VB 3 MHz;Pk
1330.620	46.2	V	74.0	-27.8	PK	147	1.0	RB 1 MHz;VB 3 MHz;Pk
1779.040	26.0	V	54.0	-28.0	AVG	189	1.3	RB 1 MHz;VB 10 Hz;Pk
1330.980	43.6	V	74.0	-30.4	PK	147	2.2	RB 1 MHz;VB 3 MHz;Pk
1000.080	43.6	V	74.0	-30.4	PK	223	1.0	RB 1 MHz;VB 3 MHz;Pk
1779.080	36.9	V	74.0	-37.1	PK	189	1.3	RB 1 MHz;VB 3 MHz;Pk



Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	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 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: 22.1 °C
Rel. Humidity: 36 %

Summary of Results - Device Operating in the 5725 - 5850 MHz Band

Run #	Mode	Channel	Power Setting	Measured Power	Test Performed	Limit	Result / Margin
Run #1	802.11a Chain A	#149 5745MHz	-	-	Radiated Emissions, 1 - 40 GHz	FCC 15.209 / 15.247	52.5dBµV/m @ 11489.9MHz (-1.5dB)
		#157 5785MHz	-	-			50.6dBµV/m @ 11570.9MHz (-3.4dB)
		#165 5825MHz	-	-			49.1dBµV/m @ 11649.4MHz (-4.9dB)
Run # 2	RX Chain A	#157 5785MHz	-	-	Radiated Emissions, 1 - 18 GHz	RSS-GEN	32.5dBµV/m @ 2125.0MHz (-21.5dB)

Notes -

Based on preliminary measurements all testing was done on Port A
No emissions from the radio were observed below 1 GHz or above 18GHz

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:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Run #1, Radiated Spurious Emissions, 1-40GHz, 802.11a, Chain A

Date of Test: 10/27/2011

Test Location: FT Chamber #7

Test Engineer: Rafael Varelas

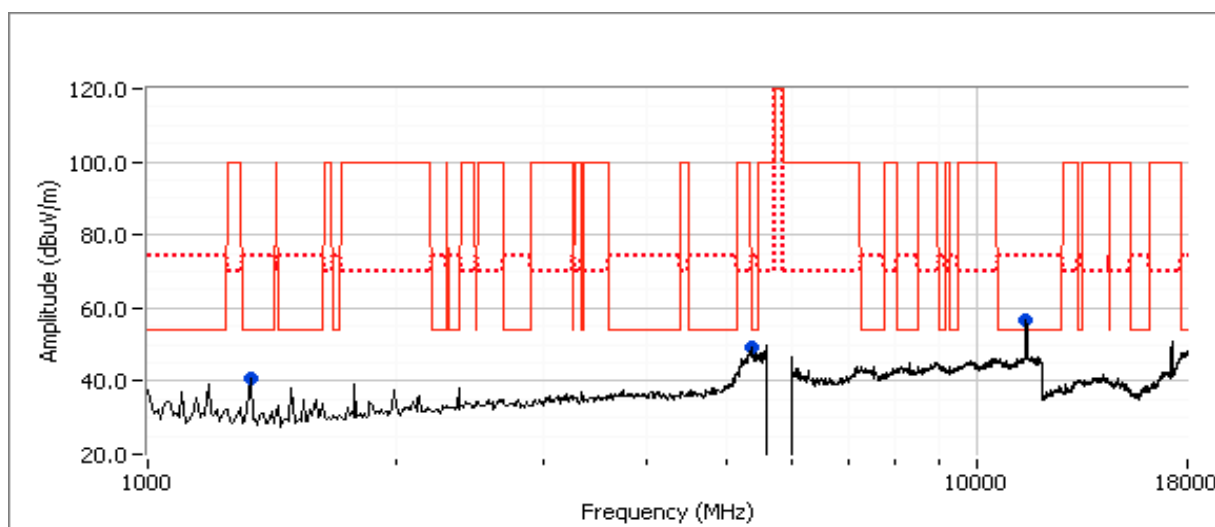
Config Change: None

Run #1a, EUT on Channel #149 5745MHz - 802.11a, Chain A

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11489.870	52.5	V	54.0	-1.5	AVG	158	1.1	RB 1 MHz;VB 10 Hz;Pk
11489.940	63.1	V	74.0	-10.9	PK	158	1.1	RB 1 MHz;VB 3 MHz;Pk
5359.920	48.8	V	54.0	-5.2	AVG	234	1.0	RB 1 MHz;VB 10 Hz;Pk
5364.720	58.8	V	74.0	-15.2	PK	234	1.0	RB 1 MHz;VB 3 MHz;Pk
1319.930	32.3	V	54.0	-21.7	AVG	61	1.0	RB 1 MHz;VB 10 Hz;Pk
1320.200	38.1	V	74.0	-35.9	PK	61	1.0	RB 1 MHz;VB 3 MHz;Pk

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -30dBc for peak measurements in a measurement bandwidth of 100kHz.



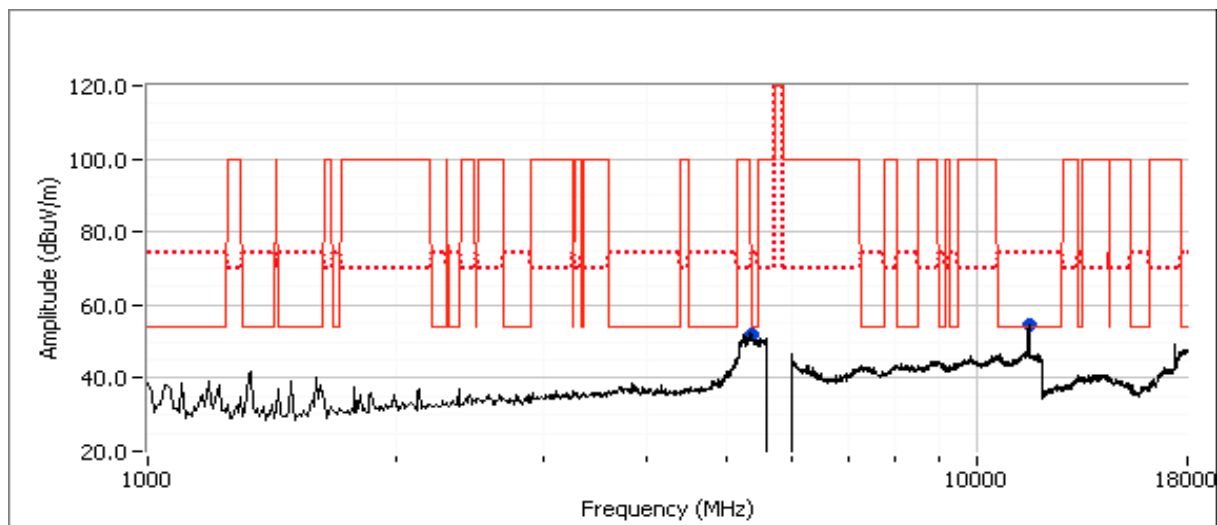
Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Run #1b: , EUT on Channel #157 5785MHz - 802.11a, Chain A

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11570.860	50.6	V	54.0	-3.4	AVG	156	1.0	RB 1 MHz;VB 10 Hz;Pk
11571.960	61.9	V	74.0	-12.1	PK	156	1.0	RB 1 MHz;VB 3 MHz;Pk
5351.650	49.3	V	54.0	-4.7	AVG	230	1.0	RB 1 MHz;VB 10 Hz;Pk
5350.750	61.2	V	74.0	-12.8	PK	230	1.0	RB 1 MHz;VB 3 MHz;Pk

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -30dBc for peak measurements in a measurement bandwidth of 100kHz.
Note 2:	Scans made between 18 - 40GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



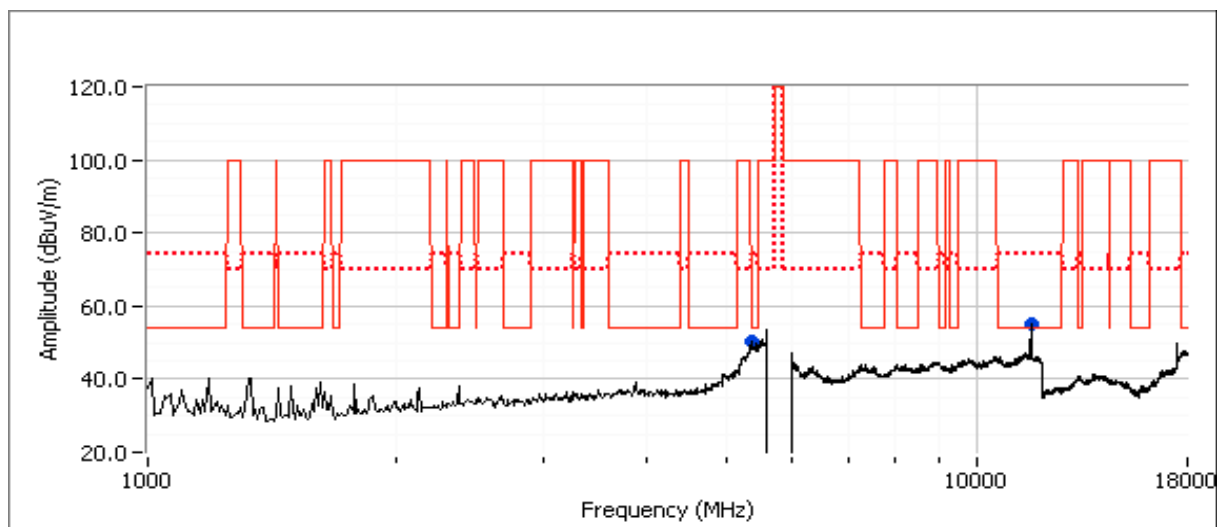
Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Run #1c: , EUT on Channel #165 5825MHz - 802.11a, Chain A

Spurious Radiated Emissions:

Frequency	Level	Pol	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	PK/QP/Avg	degrees	meters	
11649.420	49.1	V	54.0	-4.9	AVG	152	1.0	RB 1 MHz;VB 10 Hz;Pk
11641.350	60.1	V	74.0	-13.9	PK	152	1.0	RB 1 MHz;VB 3 MHz;Pk
5350.510	46.8	V	54.0	-7.2	AVG	180	1.0	RB 1 MHz;VB 10 Hz;Pk
5351.240	58.7	V	74.0	-15.3	PK	180	1.0	RB 1 MHz;VB 3 MHz;Pk

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit is -30dBc for peak measurements in a measurement bandwidth of 100kHz.



Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Run # 2, Radiated Spurious Emissions, 1-18GHz RX, Chain A

Date of Test: 10/27/2011

Test Location: FT Chamber #7

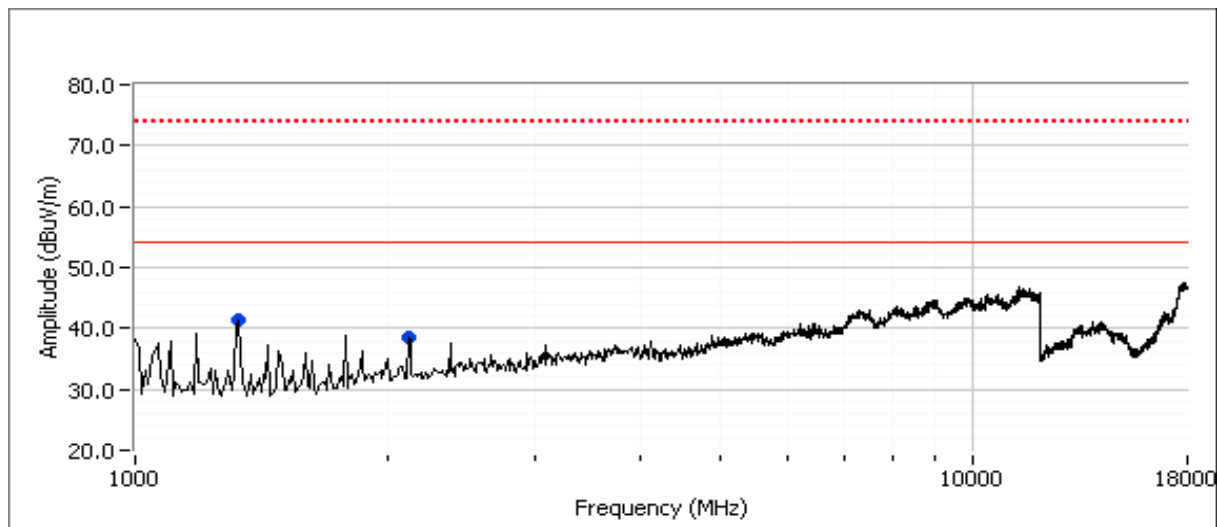
Test Engineer: Rafael Varelas

Config Change: None

Run # 2a, EUT on Channel #157 5785MHz - RX, Chain A

Spurious Radiated Emissions:

Frequency	Level	Pol	RSS-GEN		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2124.990	32.5	V	54.0	-21.5	AVG	151	1.0	RB 1 MHz;VB 10 Hz;Pk
2124.820	46.5	V	74.0	-27.5	PK	151	1.0	RB 1 MHz;VB 3 MHz;Pk
1331.790	31.3	V	54.0	-22.7	AVG	15	1.3	RB 1 MHz;VB 10 Hz;Pk
1327.790	47.8	V	74.0	-26.2	PK	15	1.3	RB 1 MHz;VB 3 MHz;Pk



Client:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	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: 10/24/2011
Test Engineer: Joseph Cadigal
Test Location: Fremont Chamber #5

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: 25 °C
Rel. Humidity: 38 %

Summary of Results

Run #	Pwr setting	Avg Pwr	Test Performed	Limit	Pass / Fail	Result / Margin
1	20	-	Output Power	15.247(b)	Pass	within 0.5db of original filing

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:	Enterasys Networks	Job Number:	J84799
Model:	AP2620	T-Log Number:	T85081
Contact:	John Ballew	Account Manager:	Sheareen Washington
Standard:	FCC 15.247, RSS-210	Class:	N/A

Note: Objective to confirm that the output power is within 0.5dB of the original testing/filing. If so, ok to proceed with radiated spurious emissions.

Run #1: Output Power

b mode - antenna A

Power Setting ²	Frequency (MHz)	Output Power (dBm) ¹	mW	Antenna Gain (dBi)	Result	EIRP ^{Note 2} dBm	W	Output Power (dBm) ³	mW
20	2412	21.0	125.9	8.0	Pass	29.0	0.794	20.7	117.5
20	2437			8.0	Pass				
20	2462			8.0	Pass				

g mode - antenna A

Power Setting ²	Frequency (MHz)	Output Power (dBm) ¹	mW	Antenna Gain (dBi)	Result	EIRP ^{Note 2} dBm	W	Output Power (dBm) ³	mW
20	2412	22.5	177.8	8.0	Pass	30.5	1.122	22.9	195.0
20	2437			8.0	Pass				
20	2462			8.0	Pass				

a mode - antenna A

Power Setting ²	Frequency (MHz)	Output Power (dBm) ¹	mW	Antenna Gain (dBi)	Result	EIRP ^{Note 2} dBm	W	Output Power (dBm) ³	mW
20	5745	22.3	169.8	10.0	Pass	32.3	1.698	22.6	182.0
20	5785			10.0	Pass				
20	5825			10.0	Pass				

Note 1:	Power measured using peak power meter, per the original filing. Worse case power reported. Confirmed on all three channels.
Note 2:	Power setting - the software power setting used during testing, included for reference only. Note, 20 represents the maximum output power setting.
Note 3:	Power from original certification.

End of Report

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