

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

FCC ID: PY306200045

GRANTEE: Netgear

4500 Great America Parkway

Santa Clara, CA 95054

TEST SITE: Elliott Laboratories, Inc.

> 41039 Boyce Road Fremont, CA 94538

REPORT DATE: April 28, 2006

FINAL TEST DATE: April 25 and April 26, 2006

AUTHORIZED SIGNATORY:

Senior EMC Engineer



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Equipment Name and Model:

Transceiver, WNCRDBSB

Manufacturer:

Netgear 4500 Great America Parkway Santa Clara, CA 95054

Tested to applicable standard:

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

Test Report Prepared For:

Mark Gandler Netgear 4500 Great America Parkway Santa Clara, CA 95054

Measurement Facility Description Filed With Department of Industry:

Departmental Acknowledgement Number: IC4549-3 Dated March 10, 2009

Declaration of Compliance

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

Signature

Name Juan Martinez

Title Senior EMC Engineer

Elliott Laboratories Inc.

Address 684 W. Maude Ave

Sunnyvale, CA 94086

USA

Date: April 28, 2006

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SCOPE

An electromagnetic emissions test has been performed on the Netgear model WNCRDBSB pursuant to the following rules:

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

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

ANSI C63.4:2003 RSS-212 Issue 1 Test Facilities and Test Methods for Radio Equipment

The intentional radiator above has been tested in a simulated typical installation to demonstrate compliance with the relevant Industry Canada performance and procedural standards.

Final system data was gathered in a mode that tended to maximize emissions by varying orientation of EUT, orientation of power and I/O cabling, antenna search height, and antenna polarization.

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

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

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OBJECTIVE

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

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

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

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

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STATEMENT OF COMPLIANCE

The tested sample of Netgear model WNCRDBSB complied with the requirements of the following regulations:

Industry Canada RSS-Gen Issue 1
RSS 210 Issue 6 "Low-power Licence-exempt Radi

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

FCC Part 15, Subpart C requirements for DTS devices

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

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TEST RESULTS SUMMARY

DIGITAL TRANSMISSION SYSTEMS (2400 – 2483.5MHz)

FCC Part 15 Reference	RSS Reference	Description	Measured Value / Comments	Limit / Requirement	Result
15.247(a)	RSS 210 A8.2	Digital Modulation	Systems uses MIMO / OFDM / DSSS techniques -		Complies
15.247 (a) (2)	RSS 210 A8.2 (1)	6dB Bandwidth	10MHz Legacy 802.11b	>500kHz	Complies
15.247 (b) (3) Legacy 802.11b	RSS 210 A8.2 (4)	Output Power (multipoint systems)	18.7 dBm (0.073 Watts) EIRP = 0.098W Note 1	1Watt, EIRP limited to 4 Watts.	Complies
15.247(d) Legacy 802.11b	RSS 210 A8.2 (2)	Power Spectral Density	-1.2 dBm / 3kHz	8dBm/3kHz	Complies
15.247 (b) (3) Legacy 802.11g	RSS 210 A8.2 (4)	Output Power (multipoint systems)	18.5 dBm (0.07 Watts) EIRP = 0.94W Note 1	1Watt, EIRP limited to 4 Watts.	Complies
15.247(d) Legacy 802.11g	RSS 210 A8.2 (2)	Power Spectral Density	-2.4 dBm / 3kHz	8dBm/3kHz	Complies
15.247 (b) (3) MIMO 20MHz	RSS 210 A8.2 (4)	Output Power (multipoint systems)	21.1 dBm (0.130 Watts) EIRP = 0.342W Note 1	1Watt, EIRP limited to 4 Watts.	Complies
15.247(d) MIMO 20MHz	RSS 210 A8.2 (2)	Power Spectral Density	5.0 dBm / 3kHz	8dBm/3kHz	Complies
15.247 (b) (3) MIMO 40MHz	RSS 210 A8.2 (4)	Output Power (multipoint systems)	17.7 dBm (0.058 Watts) EIRP = 0.154W Note 1	1Watt, EIRP limited to 4 Watts.	Complies
15.247(d) MIMO 40MHz	RSS 210 A8.2 (2)	Power Spectral Density	-1.2 dBm / 3kHz	8dBm/3kHz	Complies
15.247(c)	RSS 210 A8.5	Antenna Port Spurious Emissions 30MHz – 25 GHz	<-30dBc	< -30dBc Note 2	Complies
15.247(c) / 15.209	RSS 210 A8.5	Radiated Spurious Emissions 30MHz – 25 GHz	53.94 dBuV/m @ 2484.8 MHz (-0.06 dB)	15.209 in restricted bands, all others <-30dBc Note 2	Complies

Note 1: EIRP calculated using antenna gain of dBi (1.2) for the highest EIRP multi-point system.

Note 2: Limit of -30dBc used because the power was measured using the UNII test procedure (maximum power averaged over a transmission burst) / RMS averaging over a time interval, as permitted under RSS 210 section A8.4(4).

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GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Part 15	RSS 210	Description	Measured Value /	Limit /	Result	
Section	Section	Description	Comments	Requirement	(margin)	
15.203	-	RF Connector	Hiroshe External antenna		Complies	
15.109		Receiver spurious	N/A for FCC		N/A	
13.109	emissions	requirements		N/A		
15.207		AC Conducted	49.1dBµV @ 0.161MHz	15.207	Complies	
15.207	-	Emissions	Emissions	(-6.3dB)	13.207	(- 6.3 dB)
15.247 (b) (5)		DE Exposure	Refer to MPE	Refer to OET		
15.407 (f)	RSS 102 RF Exposure Requirements	calculations in Exhibit 11	65, FCC Part 1	Complies		
13.407 (1)		Requirements	calculations in Exhibit 11	and RSS 102		

Note 1: Per Canada receiver emissions is required for certification. This report or application was not submitted to Canada for certification.

MEASUREMENT UNCERTAINTIES

ISO Guide 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below were calculated using the approach described in CISPR 16-4-2:2003 using a coverage factor of k=2, which gives a level of confidence of approximately 95%. The levels were found to be below levels of *U*cispr and therefore no adjustment of the data for measurement uncertainty is required.

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

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EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Netgear model WNCRDBSB is a RangeMax NEXT wireless CB module that is designed to provide high speed wireless internet access. 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 EUT receives its power from the host computer. The electrical rating of the Host is 120 - 240 Volts, 50/60 Hz, 1 Amps.

The sample was received on April 11, 2006 and tested on April 11, April 12, April 13 and April 21, 2006. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
Netgear	WNCRDBSB	RangeMax	-	PY306200045
		NEXT wireless		
		CB module		

ANTENNA SYSTEM

The antenna system used with the Netgear model WNCRDBSB consists of 1 pair of dipole antennas with a gain of 1.2dBi.

ENCLOSURE

The EUT does not have an enclosure as it is designed to be installed within the enclosure of a final product.

MODIFICATIONS

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

SUPPORT EQUIPMENT

No support equipment was used during emissions testing.

EUT INTERFACE PORTS

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

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Port	Connected To	Cable(s)		
		Description Shielded or Unshielded Length(m)		
Laptop Power	AC Adapter	2 wire	Unshielded	2.0

EUT OPERATION

During MIMO testing the EUT was transmitting simultaneously on two RF chains at either the low, 2412MHZ, the middle, 2437MHz, or the high, 2462MHz in the 20MHz and 2422, 2437, and 2453 MHz in the 40MHz signaling mode.

During legacy testing the EUT was transmitting on a single chain at the low, 2412MHZ, the middle, 2437MHz, or the high, 2462MHz in either the 802.11b or 802.11g modes.

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TEST SITE

GENERAL INFORMATION

Final test measurements were taken on April 25 and April 26, 2006at the Elliott Laboratories Open Area Test Site #Chamber 3 and 4 located at 684 West Maude Avenue, Sunnyvale, California or 41039 Boyce Road, Fremont, California Pursuant to section 2.948 of the FCC's Rules and section 3.3 of RSP-100, construction, calibration, and equipment data has been filed with the Commission.

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

CONDUCTED EMISSIONS CONSIDERATIONS

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

RADIATED EMISSIONS CONSIDERATIONS

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

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MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

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

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

INSTRUMENT CONTROL COMPUTER

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

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

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

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

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POWER METER

Power measurements are made using either a power meter (typically with a peak power sensor) or as detailed in FCC KDB558074 using a spectrum analyzer and either the built-in channel power measurement function or software to integrate the power over the displayed spectrum.

When using the integration method the analyzer's internal function or software account for the equivalent noise bandwidth of the resolution bandwidth used when performing the integration. The bandwidths, detector (peak or sample) and trace data (max held or power averaging) are detailed in the test data. When using a power averaging function the device is either in a continuous transmit mode or the analyzer is configured to only sweep when the transmitter is active to ensure that the averaging is performed over a transmit burst and not over quiet periods.

FILTERS/ATTENUATORS

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

ANTENNAS

A biconical antenna is used to cover the range from 30 MHz to 300 MHz and a log periodic antenna is utilized from 300 MHz to 1000 MHz. Narrowband tuned dipole antennas are used over the entire 30 to 1000 MHz range for precision measurements of field strength. Above 1000 MHz, a horn antenna is used. The antenna calibration factors are included in site factors programmed into the test receivers or incorporated into the test software.

ANTENNA MAST AND EQUIPMENT TURNTABLE

The antennas used to measure the radiated electric field strength are mounted on a non-conductive antenna mast equipped with a motor-drive to vary the antenna height.

ANSI C63.4:2003 and RSS 212 secify 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.

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TEST PROCEDURES

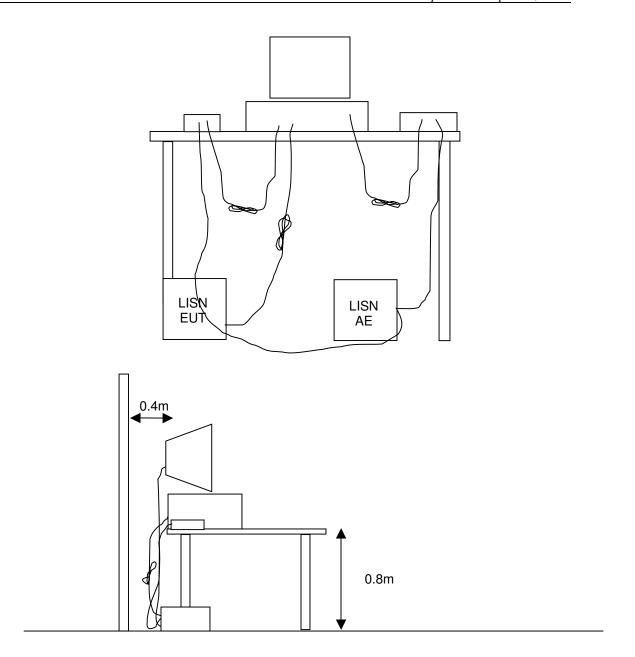
EUT AND CABLE PLACEMENT

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.

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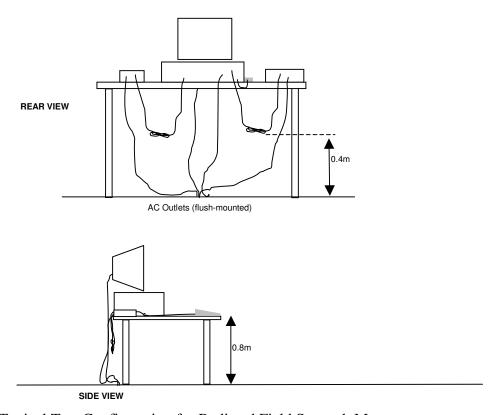
RADIATED EMISSIONS

Radiated emissions measurements are performed in two phases as well. A preliminary scan of emissions is conducted in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed from 30 MHz up to the frequency required by the regulation specified on page 1. One or more of these is with the antenna polarized vertically while the one or more of these is with the antenna polarized horizontally. During the preliminary scans, the EUT is rotated through 360°, the antenna height is varied and cable positions are varied to determine the highest emission relative to the limit. Preliminary scans may be performed in a fully anechoic chamber for the purposes of identifying the frequencies of the highest emissions from the EUT.

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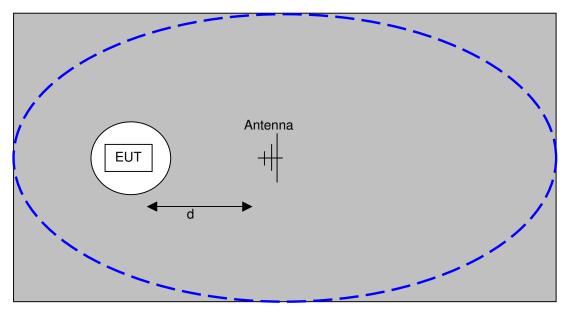
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

Final maximization is a phase in which the highest amplitude emissions identified in the spectral search are viewed while the EUT azimuth angle is varied from 0 to 360 degrees relative to the receiving antenna. The azimuth, which results in the highest emission is then maintained while varying the antenna height from one to four meters. The result is the identification of the highest amplitude for each of the highest peaks. Each recorded level is corrected in the receiver using appropriate factors for cables, connectors, antennas, and preamplifier gain. Emissions, which have values close to the specification limit may also be measured with a tuned dipole antenna to determine compliance.

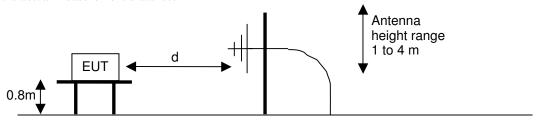


Typical Test Configuration for Radiated Field Strength Measurements

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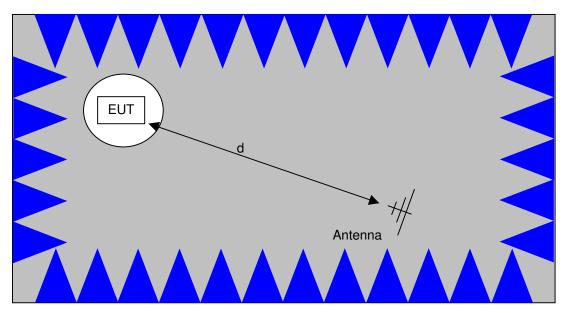


The ground plane extends beyond the ellipse defined in CISPR 16 / CISPR 22 / ANSI C63.4 and is large enough to accommodate test distances (d) of 3m and 10m. Refer to the test data tables for the actual measurement distance.



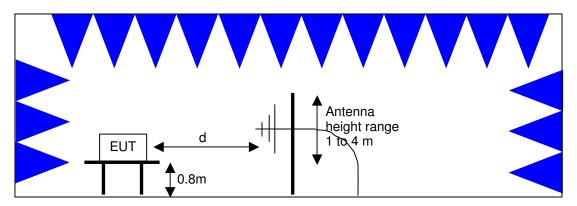
<u>Test Configuration for Radiated Field Strength Measurements</u>
<u>OATS- Plan and Side Views</u>

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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.

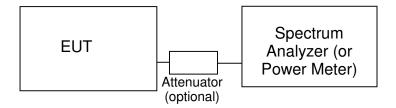


<u>Test Configuration for Radiated Field Strength Measurements</u> <u>Semi-Anechoic Chamber, Plan and Side Views</u>

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CONDUCTED EMISSIONS FROM ANTENNA PORT

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



Test Configuration for Antenna Port Measurements

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

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

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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

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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).

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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

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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.

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

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

 R_r = Receiver Reading in dBuV/m

 F_d = Distance Factor in dB

 R_c = Corrected Reading in dBuV/m

 L_S = Specification Limit in dBuV/m

M = Margin in dB Relative to Spec

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

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

E =
$$\frac{1000000 \sqrt{30 P}}{3}$$
 microvolts per meter
3
where P is the eirp (Watts)

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EXHIBIT 1: Test Equipment Calibration Data

2 Pages

File: R63793 Exhibit Page 1 of 10

Radiated Emissions, 30 - 1,000 MHz, 13-Apr-06

Engineer: Chris Byleckie Manufacturer Model # PA-103 Asset # Cal Due 1632 07-Jun-06 **Description** Com-Power Corp. Pre Amplifier , 30-1000MHz Rohde & Schwarz EMI Test Receiver, 20Hz-7GHz ESIB7 1630 28-Dec-06 Sunol Sciences Biconilog, 30-3000MHz JB3 1549 26-Apr-06

Conducted Emissions - AC Power Ports, 21-Apr-06

Engineer: Juan Martinez

<u>Manufacturer</u>	<u>Description</u>	Model #	Asset #	Cal Due
Elliott Laboratories	FCC / CISPR LISN	LISN-3, OATS	304	08-Jul-06
Rohde & Schwarz	Pulse Limiter	ESH3 Z2	372	06-Sep-06
Solar Electronics	LISN	8028-50-TS-24-BNC support	904	08-Jul-06
Hewlett Packard	EMC Spectrum Analyzer, 9KHz - 22GHz	8593EM	1319	17-Apr-07
Rohde & Schwarz	Test Receiver, 0.009-2750 MHz	ESN	1332	23-May-06

1000 - 26,500 MHz, 28-Apr-06 Engineer: Juan Martinez Manufacturer	Description	Model #	Asset #	Cal Due		
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	16-Jan-07		
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	487	13-May-06		
EMCO/Hewlett Packard/CMT	Horn Antenna, 18-26.5GHz (SA40)	84125C80008/RA42-K-F-4B-C (84125C)	1387	11-Nov-06		
Hewlett Packard EMC Spectrum Analyzer 9kHz - 40 GHz, Fremont (SA40) Blue		8564E (84125C)	1393	10-Nov-06		
Power Measurements, 28-Ap Engineer: Juan Martinez						
Manufacturer	<u>Description</u>	Model #	Asset #	Cal Due		
Rohde & Schwarz	EMI Test Receiver, 20Hz-7GHz	ESIB7	1630	28-Dec-06		
Radiated Emissions, 1000 - 26,500 MHz, 03-May-06 Engineer: Chris Byleckie						
Manufacturer Hewlett Packard	<u>Description</u> Microwave Preamplifier, 1-26.5GHz	Model # 8449B	Asset # 785	<u>Cal Due</u> 24-Apr-07		
Hewlett Packard	EMC Spectrum Analyzer, 9KHz-26.5GHz	8593EM	1141	10-Jun-06		
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115		04-May-06		
Rohde & Schwarz	EMI Test Receiver, 20Hz-7GHz	ESIB7	1630	28-Dec-06		
Micro-Tronics	Band Reject Filter, 2400-2500MHz	BRM50702-02	1731	09-Jun-06		

Radio Antenna Port (Power),	03-May-06		
Engineer: Chris Byleckie			
<u>Manufacturer</u>	<u>Description</u>	Model #	Asset # Cal Due
Rohde & Schwarz	EMI Test Receiver, 20Hz-7GHz	ESIB7	1630 28-Dec-06

Engineer: Juan Martinez						
<u>Manufacturer</u>	<u>Description</u>	Model #	Asset #	Cal Due		
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	16-Jan-07		
Hewlett Packard	EMC Spectrum Analyzer 9KHz-26.5GHz, non programmable	8563E	284	22-Apr-06		
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	868	20-Apr-06		
Rohde & Schwarz	EMI Test Receiver, 20Hz-7GHz	ESIB7	1630	28-Dec-06		
Micro-Tronics	Band Reject Filter, 2400-2500MHz	BRM50702-02	1731	09-Jun-06		

Engineer: Juan Martinez				
<u>Manufacturer</u>	<u>Description</u>	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	26-Apr-06
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	786	28-Nov-06
Hewlett Packard	EMC Spectrum Analyzer 9kHz - 40 GHz, Purple (SA40)	8564E (84125C)	1771	02-Aug-06
Hewlett Packard	Microwave EMI test system head lincludes W1 - W4 Purple	84125C	1772	04-Nov-06
EMCO	Horn antenna, 18-26.5 GHz (SA40 9kHz), Purple	3160-09 (84125C)	1773	16-Nov-06

Radiated Emissions, 16,000 - 26,500 MHz, 21-Apr-06

Antenna Conducted Emissions, 21-Apr-06 Engineer: Juan Martinez					
<u>Manufacturer</u>	<u>Description</u>	Model #	Asset # Cal Due		
Hewlett Packard	EMC Spectrum Analyzer 30Hz -40GHz, Sunnyvale (SA40) Red	8564E (84125C)	1148 09-Sep-06		
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1534 01-Mar-07		
Rohde & Schwarz	Power Sensor 100uW - 10 Watts	NRV-Z53	1796 31-Jan-07		

Manufacturer	<u>Description</u>	Model #	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	16-Jan-07
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	487	13-May-06
EMCO/Hewlett Packard/CMT	Horn Antenna, 18-26.5GHz (SA40)	84125C80008/RA42-K-F-4B-C (84125C)	1387	11-Nov-06
Hewlett Packard	EMC Spectrum Analyzer 9kHz - 40 GHz, Fremont (SA40) Blue	8564E (84125C)	1393	10-Nov-06

Engineer: Juan Martinez			
<u>Manufacturer</u>	<u>Description</u>	Model #	Asset # Cal Due
Rohde & Schwarz	EMI Test Receiver, 20Hz-7GHz	ESIB7	1630 28-Dec-06

EXHIBIT 2: Test Measurement Data

T63589 8 Pages T63764 114 Pages

File: R63793 Exhibit Page 2 of 10

Elliott EMC Test D			C Test Data
Client:	Netgear	Job Number:	J63498
Model:	WNCRDBSB	Test-Log Number:	T63589
		Project Manager:	Esther Zhu
Contact:	Mark Gandler		
Emissions Spec:	FCC 15.247, EN55022	Class:	Radio
Immunity Spec:	-	Environment:	-

EMC Test Data

For The

Netgear

Model

WNCRDBSB

Date of Last Test: 4/24/2006

Elliot	t	EM	C Test Data
Client:	Netgear	Job Number:	J63498
Model:	WNCRDBSB	Test-Log Number:	T63589
		Project Manager:	Esther Zhu
Contact:	Mark Gandler		
Emissions Spec:	FCC 15.247, EN55022	Class:	Radio

EUT INFORMATION

Environment:

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

General Description

The EUT is a MIMO and legacy cardbus card that is designed to provide high speed wireless internet access. 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 enduser environment. The EUT receives it power from the host computer system. The electrical rating of the host computer is 120 -

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Broadcom	BCM94321CB2	MIMO cardbus	•	TBD

Other EUT Details

The Broadcom model BCM94321CB2 was considered representative of the Netgear WNCRDBSB. They are identical in all respects except for cosmetic changes necessary for rebranding.

EUT Antenna (Intentional Radiators Only)

The antenna is integral to the device.

Immunity Spec:

EUT Enclosure

The EUT has no enclosure. It is designed to be installed within the enclosure of a host computer.

Modification History

Mod.#	Test	Date	Modification
1	-	-	None
2			
3			

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

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EMC Test Data

Client:	Netgear	Job Number:	J63498
Model:	WNCRDBSB	T-Log Number:	T63589
		Project Manager:	Esther Zhu
Contact:	Mark Gandler		
Emissions Spec:	FCC 15.247, EN55022	Class:	Radio
Immunity Spec:	-	Environment:	-

Test Configuration #1

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

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Hewlett Packard	zv6000	Laptop	CND52904S1	DoC
Hewlett Packard	Deskjet 3820	Printer	CN2451B1	DoC
Hewlett Packard	F3-0507013399C	AC/DC adaptor	CN2451B1	-

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Netgear	EN104	Hub	ENT4B06271953	-

Cabling and Ports

Port	Connected To		Cable(s)	
		Description	Shielded or Unshielded	Length(m)
Laptop USB	Printer	Multiwire	Shielded	1.5
Laptop Ethernet	Hub	CAT 5	Unshielded	10.0
Laptop Power	AC Adapter	2 wire	Unshielded	2.0
AC adpater	AC Mains	3 wire	Unshielded	1.5

EUT Operation During Transmitter Tests

During MIMO testing the EUT was transmitting simultaneously on two RF chains at either the low, 2412MHz, the middle, 2437MHz, or the high, 2462MHz in the 20MHz and 2422, 2437, and 2453 MHz in the 40MHz signaling mode. During legacy testing the EUT was transmitting on a single chain at the low, 2412MHZ, the middle, 2437MHz, or the high, 2462MHz in either the 802.11b or 802.11g modes.

EUT Operation During Emissions Tests

During emissions testing the EUT was transmitting at full power on channel #6, 2437MHz in either MIMO, multiple transmitters, mode or 802.11b legacy mode, single transmitter

	El	liott
-		

EMC Test Data

Client:	Netgear	Job Number:	J63498
Model	WNCRDBSB	T-Log Number:	T63589
wodei.	WINCRUBOB	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247, EN55022	Class:	Radio

Conducted Emissions - Power Ports

Test Specifics

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

specification listed above.

Date of Test: 4/21/2006 Config. Used: 1
Test Engineer: Juan Martinez Config Change: None

Test Location: SVOATS #2 EUT Voltage: Refer to individual run

General Test Configuration

The EUT was located on a wooden table, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment.

Ambient Conditions: Temperature: 12 °C

Rel. Humidity: 80 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power,120V/60Hz	EN55022 B	Pass	49.1dBµV @ 0.161MHz (-6.3dB)
2	CE, AC Power,120V/60Hz	EN55022 B	Pass	49.2dBµV @ 0.154MHz (-6.6dB)

Modifications Made During Testing:

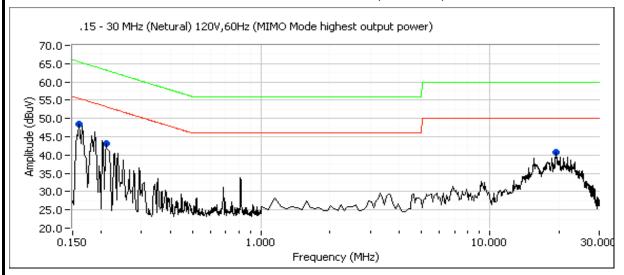
No modifications were made to the EUT during testing

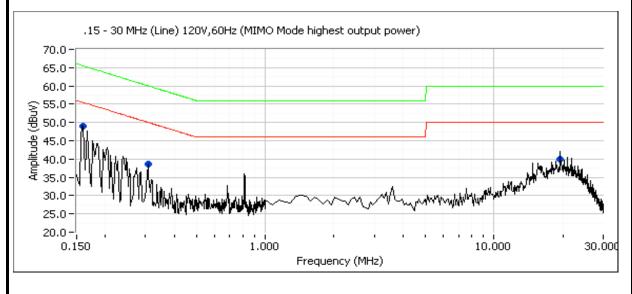
Deviations From The Standard

No deviations were made from the requirements of the standard.

Elliott EMC Test Data Client: Netgear Job Number: J63498 Model: WNCRDBSB T-Log Number: T63589 Account Manager: Esther Zhu Contact: Mark Gandler Class: Radio

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





_		ott					EM	C Test Data
	Netgear						Job Number:	J63498
		200					T-Log Number:	T63589
Model:	WNCRDE	BSB					Account Manager:	
	Mark Gar							
Spec:	FCC 15.2	47, EN550)22				Class:	Radio
equency		AC	EN55		Detector	Comments		
MHz	dBμV	Line	Limit	Margin	QP/Ave	NI. L. A		
0.1606	49.1	Line 1	55.4	-6.3	Peak	Note 1		
0.1606	48.4	Neutral	55.4	-7.1	Peak	Note 1		
19.488	40.6	Neutral	50.0	-9.4	Peak	Note 1		
0.210	43.1	Neutral	53.2	-10.1	Peak	Note 1		
19.488	39.9	Line 1	50.0	-10.1	Peak	Note 1		
0.307	38.7	Line 1	50.0	-11.4	Peak	Note 1		
ote 1:	No QP re	adings tak	en. Peak r	eadings are	more then	6-dB below th	e average limit.	

OP (M.C.)	11.11.1.100.400
Client: Netgear	Job Number: J63498 T-Log Number: T63589
Model: WNCRDBSB	Account Manager: Esther Zhu
contact: Mark Gandler	
Spec: FCC 15.247, EN55022	Class: Radio
#2: AC Power Port Conducted Emissions, 0.15 - 30MHz,	120V/60Hz (802.11b)
.15 - 30 MHz (Line) 120V,60Hz (802.11b Mode h	nighest output power)
70.0 -	
65.0 - 60.0 -	
50.0-	
55.0 - 50.0 - 8 45.0 - 40.0 - 40.0 - 35.0 -	• 11
35.0	
30.0 - Y W W W W W W W W W W W W W W W W W W	
25.0	, , ,
20.0 -	10.000 30.0
Frequ	uency (MHz)
.15 - 30 MHz (Line) 120V,60Hz (802.11b Mode h	nighest output power)
70.0 -	
65.0	
60 0 -	
60.0	
55.0	
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55.0 - 50.0 - 9 45.0 - 35.0 - 30.0 -	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
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55.0	many was the
55.0	10.000 30.0

		ott					EM	C Test Da
Client:	Netgear						Job Number:	J63498
M 1 - 1 -	MAIODDI	DOD					T-Log Number:	T63589
	WNCRD						Account Manager:	Esther Zhu
	Mark Gar		200				01	D. II
Spec:	FCC 15.2	247, EN550)22				Class:	Radio
quency	Level	AC	EN55	022 B	Detector	Comments		
MHz	dΒμV	Line	Limit	Margin	QP/Ave			
).154	49.2	Line 1	55.8	-6.6	Peak	Note 1		
.152	48.8	Neutral	55.9	-7.1	Peak	Note 1		
.167	46.8	Line 1	55.1	-8.3	Peak	Note 1		
5.573	41.4	Line 1	50.0	-8.6	Peak	Note 1		
9.488	40.7	Neutral	50.0	-9.3	Peak	Note 1		
).193	43.2	Neutral	53.9	-10.8	Peak	Note 1		
	1							
e 1:	No QP re	adings tak	en. Peak	readings are	e more then	6-dB below th	e average limit.	

t	ЕМ	C Test Data
Netgear	Job Number:	J63790
WNCRDBSB	T-Log Number:	T63764
	Account Manager:	Esther Zhu
Mark Gandler		
FCC 15.247	Class:	Radio
-	Environment:	-
	Netgear WNCRDBSB Mark Gandler FCC 15.247	Netgear Job Number: WNCRDBSB T-Log Number: Account Manager: Account Manager: Mark Gandler Class:

EMC Test Data

For The

Netgear

Model

WNCRDBSB

Date of Last Test:

Elliot	t	EM	C Test Data
Client:	Netgear	Job Number:	J63790
Model:	WNCRDBSB	T-Log Number:	T63764
	WINCRUBSB	Account Manger:	Esther Zhu
Contact:	Mark Gandler		
Emissions Spec:	FCC 15.247	Class:	Radio
Immunity Spec:	-	Environment:	-

EUT INFORMATION

General Description

The EUT is a RangeMax NEXT wireless CB module that is designed to provide high speed wireless internet access. 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 EUT receives its power from the host computer. The electrical rating of the Host is 120 - 240 Volts, 50/60 Hz, 1 Amps.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Netgear	WNCRDBSB	RangeMax NEXT	-	PY306200045
		wireless CB module		

EUT Antenna

The EUT has 2Tx/Rx antennas that are automatically selected for use per the MCS index and STF mode selections. Each antenna has a gain of 1.2dBi. The antennas are external, but integral to the final product device.

EUT Enclosure

The EUT does not have an enclosure as it is designed to be installed within the enclosure of a host computer.

Modification History

Mod.#	Test	Date	Modification
1	-	-	None
2			
3			

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

Elliot	t		EM	C Test Data
Client:	Netgear		Job Number:	J63790
Model:	WNCRDBSB		T-Log Number:	
			Account Manger:	Esther Zhu
	Mark Gandler			
Emissions Spec:			Class:	
Immunity Spec:	-		Environment:	-
	Lo	ocal Support Equipm	ent	
	Lc	ocal Support Equipm	en <u>t</u>	
Manufacturer Hewlett Packard	Model zv6000	Description Laptop	Serial Number CND52904S1	FCC ID DoC
Hewlett Packard	Model zv6000	Description Laptop mote Support Equipr	Serial Number CND52904S1	DoC
Hewlett Packard Manufacturer	Model zv6000	Description Laptop	Serial Number CND52904S1	
Hewlett Packard	Model zv6000	Description Laptop mote Support Equipr	Serial Number CND52904S1	DoC
Hewlett Packard Manufacturer	Model zv6000	Description Laptop mote Support Equipr	Serial Number CND52904S1	DoC
Hewlett Packard Manufacturer	Model zv6000	Description Laptop mote Support Equipr Description	Serial Number CND52904S1	DoC

EUT Operation During Transmitter Tests

2 wire

Unshielded

During MIMO testing the EUT was transmitting simultaneously on two RF chains at either the low, 2412MHz, the middle, 2437MHz, or the high, 2462MHz in the 20MHz and 2422, 2437, and 2453 MHz in the 40MHz signaling mode. During legacy testing the EUT was transmitting on a single chain at the low, 2412MHZ, the middle, 2437MHz, or the high, 2462MHz in either the 802.11b or 802.11g modes.

Laptop Power

AC Adapter

2.0

Elliott	EMC Test Data
Client: Netgear	Job Number: J63790
Model: WNCRDBSB	T-Log Number: T63764
WINCRDOOD	Account Manager: Esther Zhu
Contact: Mark Gandler	
Spec: FCC 15.247	Class: N/A

RSS 210 and FCC 15.247 Antenna Port Power, Bandwitdh, & **Spurious Emissions (802.11g)**

Test Specifics

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

specification listed above.

Date of Test: 4/21/2006 Config. Used: 1 Test Engineer: Jmartinez Config Change: None Test Location: Chamber #2 EUT Voltage: 120V, 60Hz

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. For the spurious emissions all transmit chains were connected simultaneously to the analyzer via a combiner. All other measurements were made on a single chain.

All measurements are corrected to allow for the external attenuators used.

Ambient Conditions: Temperature: 17 °C

> Rel. Humidity: 57 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power	15.247(b)	Pass	Refer to run
2	Power Spectral Density (PSD)	15.247(d)	Pass	Refer to run
3	6dB Bandwidth	15.247(a)	Pass	Refer to run
4	Spurious emissions	15.247(b)	Pass	Refer to run

Modifications Made During Testing:

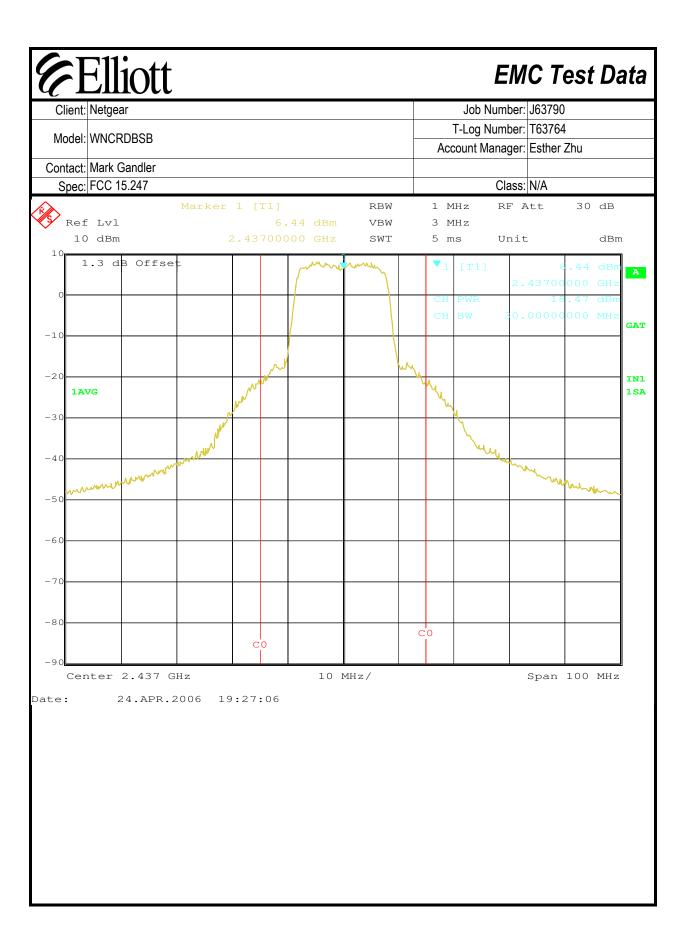
No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Elliott EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #1: Output Power Transmitted signal on chain is coherent? No Regulatory Power Measurements: Output Power (dBm) Note 1 EIRP Note 2 Antenna Gain (dBi) Note 3 Power Frequency (MHz) Chain 2 Chain 2 Chain 1 Total Chain 1 Total dBm W 2412 17.4 17.4 1.2 18.7 0.073 2437 18.5 0.094 18.5 1.2 19.7 2457 17.0 17.0 1.2 18.3 0.067 2462 16.0 16.0 1.2 17.3 0.053 Output power measured using a spectrum analyzer (see plots below): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ESI Note 1: analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was tranmsitting) and power integration over 30 MHz EIRP - if transmit chains are coherent then the EIRP is calculated from the sum of the antenna gains plus the total power (i.e. beam-forming is assumed because of coherency on the chains). If the individual chains are incoherent Note 2: then the EIRP is calculated from the sum of the individual EIRPs for each chain. If the transmit chains are coherent then the total system antenna gain is the sum of the numeric gains for each Note 3: antenna. If the transmit chains are incoherent then the system antenna gain is not applicable as each transmit chain can be treated independently.

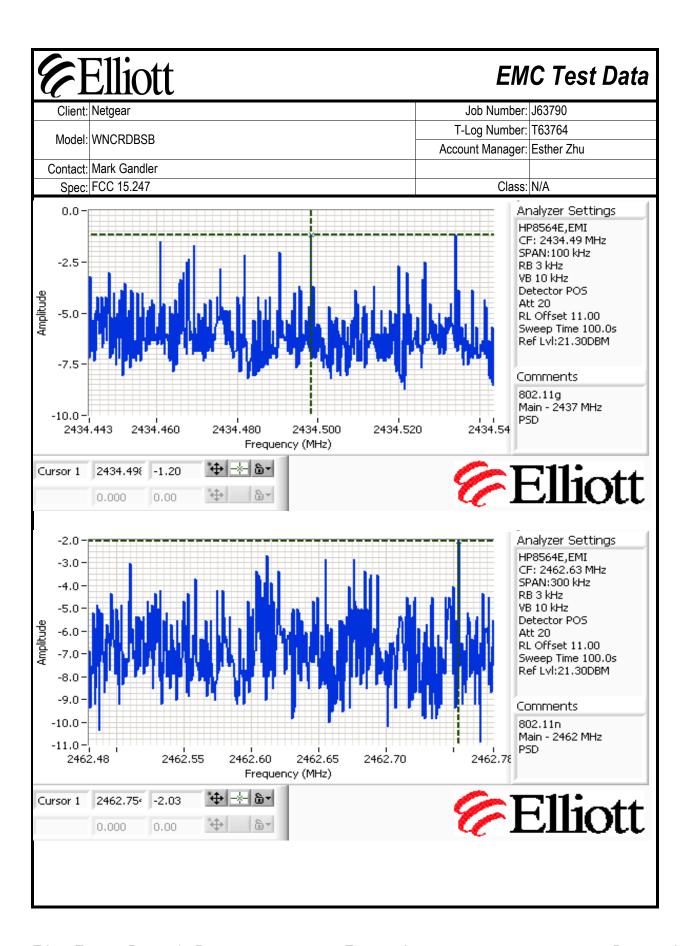
Client: Netgear	tt							J63790			
Model: WNCRDBSB						T-Log N					
ontact: Mark Gandler	,				ACC	count Ma	anager:	Estner	Znu		
Spec: FCC 15.247							Class:	N/A			
	Marker	1 [T1]		RBW	1 M	Ηz	RF A	tt	30	dВ	
Ref Lvl 10 dBm			.15 dBm 000 GHz	VBW SWT	3 M 5 m	Hz	Unit			dBm	
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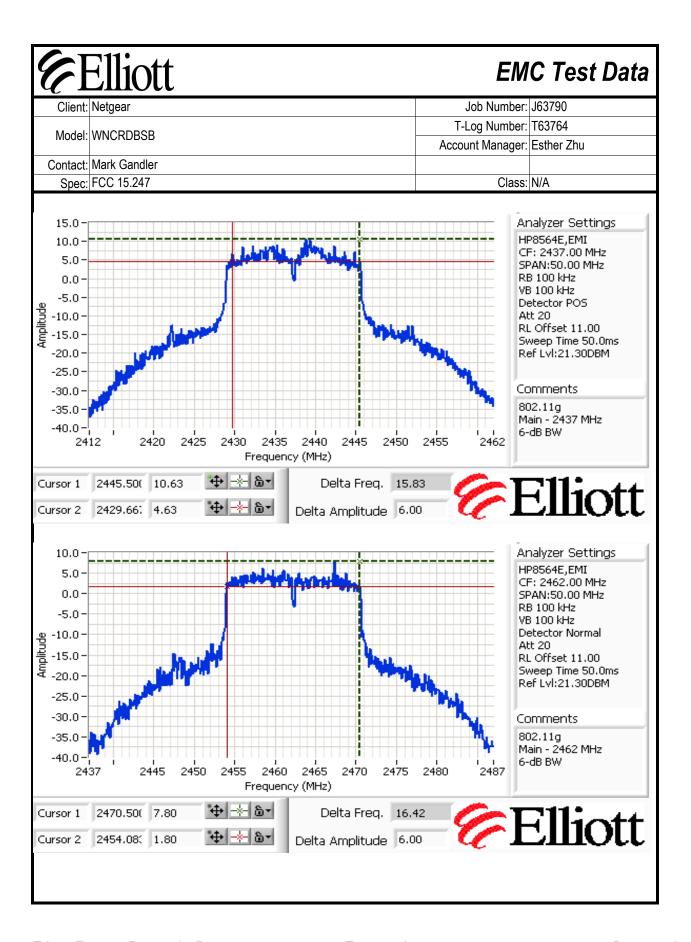
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		Mark (FCC 1	Gandler 5 247						(Class: I	N/A			
Ŕ	Ref	Lvl		Marker		.94 dBm	RBW VBW SWT	1 M 3 M 5 m	[Hz]	RF At		30	dB dBm	
16.4	0	.4 d	B Offse					v ₁	[T1]		-34	.94	dBm	A
10					mana	······································	,	CH CH	PWR BW	30.0	13700 16	.99	GHz dBm MHz	
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-50														
-60														
-70														
-80			C	0						C ₀				
-83.6	Cen	ter	2.457 G	Hz	<u> </u>	5 M	Hz/			<u> </u>	Span	50	MHz	
Date	:	2	27.APR.2	2006 18	3:55:07									

Account Manager: Esther Zhu	Eliot Client: Netgear lodel: WNCRDBSB						Job Numl T-Log Numl	ber: J63790 ber: T6376		
Spec FCC 15.247 Class N/A						Acc	ount Manag	ger: Esther	Zhu	
Ref Lv1							Cla	ass: N/A		
1AVG	16.4 dBm		-42.		VBW	3 M	IHz			
1AVG 16.01 dBm 20.000000000 MHz	0.4 dB Off	set				v ₁	[T1]	-41	2.97 d	lBm
			, more	www	m	M.				IHz
										G
	1AVG									1
			/			l	w^\			
)	10					100	humahne	4	
	Tall Post Mark								- Wang	m
C0		<u>C</u> 0						0		
Center 2.462 GHz 5 MHz/ Span 50 MHz		GHz	<u>I</u>	5 M	Hz/			Spar	n 50 M	Hz

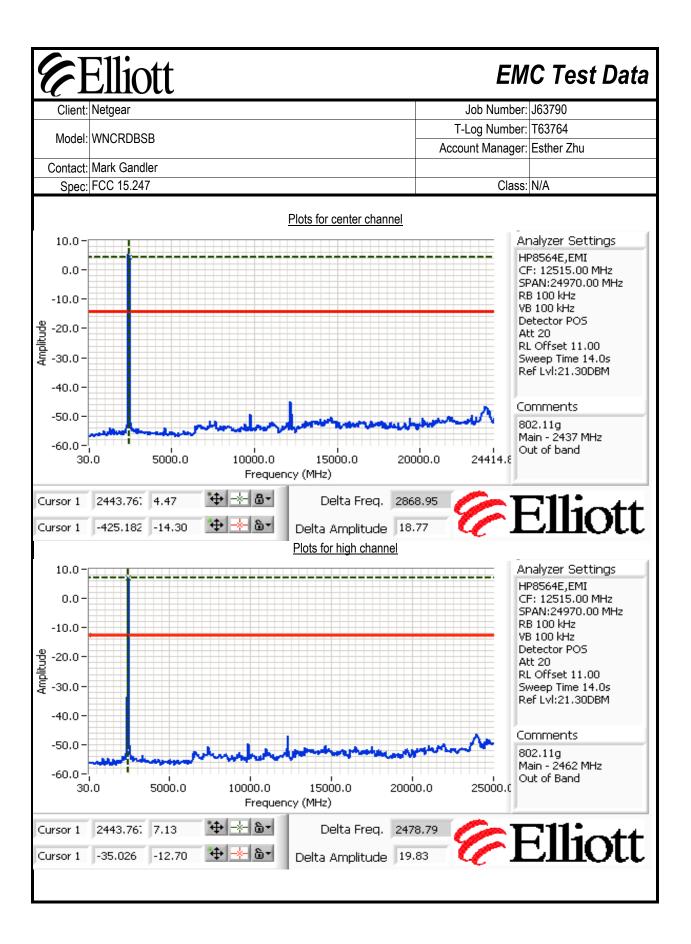
EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #2: Power Spectral Density Power PSD (dBm/3kHz) Note 1 Limit Result Frequency (MHz) Setting Chain 1 Chain 2 dBm/3kHz Total 2412 -2.4 8.0 Pass 2437 -1.2 8.0 Pass 2462 -2.0 8.0 Pass 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 Note 1: determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal. Analyzer Settings -2.0HP8564E,EMI -3.0 CF: 2414,46 MHz -4.0 SPAN:300 kHz RB 3 kHz -5.0 VB 10 kHz -6.0Detector POS Att 10 -7.0RL Offset 11.00 -8.0 Sweep Time 100.0s -9.0 Ref Lvl:11.30DBM -10.0Comments -11.0 802.11g -12.0 Main - 2412 MHz -13.0 PSD 2414.40 2414.31 2414.35 2414.45 2414.50 2414.55 2414.61 Frequency (MHz) **⊹-|6**-| Cursor 1 2414.56(-2.37 0.000 0.00



Elliott EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #3: Signal Bandwidth 6dB Signl Bandwidth Power Resolution Frequency (MHz) 99% Signal Bandwidth Setting Bandwidth (MHz) 15.83 2412 100kHz 2437 100kHz 15.83 2462 100kHz 16.42 Note 1: Measured on a single chain 10.0 Analyzer Settings HP8564E,EMI 5.0 CF: 2412.00 MHz 0.0 SPAN:50.00 MHz RB 100 kHz -5.0· VB 100 kHz -10.0 Detector POS -15.0 Att 10 RL Offset 11.00 -20.0 Sweep Time 50.0ms Ref Lvl:11.30DBM -25.0 -30.0 Comments -35.0 802.11g -40.0-Main - 2412 MHz -45.0 6-dB BW 2405 2410 2415 2420 2425 2400 2430 2395 Frequency (MHz) **♦** -*- 6-2420.50(8.30 Delta Freq. 15.83 Cursor 1 **Elliott** Cursor 2 2404.667 2.30 Delta Amplitude 6.00



EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #4: Out of Band Spurious Emissions Power Setting Per Chain Limit Result Frequency (MHz) 2412 -30dBc Refer to plot 2437 -30dBc Refer to plot 2462 -30dBc Refer to plot Plots for low channel Analyzer Settings 10.0 HP8564E,EMI 0.0 CF: 12515.00 MHz SPAN:24970.00 MHz -10.0 RB 100 kHz VB 100 kHz -20.0 Detector POS Att 10 -30.0 RL Offset 11.00 Sweep Time 14.0s -40.0 Ref Lvl:11.30DBM -50.0 Comments -60.0 802.11g Main - 2412 MHz -70.0 Out of Band Emission 25000.0 5000.0 10000.0 15000.0 20000.0 30.0 Frequency (MHz) **♦** -* 6• Cursor 1 2402.15(-15.20 Delta Freq. 0.00 MHz #**-**| -| **|**| -| -| 2402.15(4.80 Delta Amplitude 20.00 Cursor 2



EMC Test Data

_			
Client:	Netgear	Job Number:	J63790
Model	WNCRDBSB	T-Log Number:	T63764
Model.	WINCRUBSB	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247	Class:	N/A

FCC 15.247 DTS - Bandedge and Spurious Emissions (802.11g)

Test Specifics

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

specification listed above.

Date of Test: 4/25/2006 Config. Used: 1

Test Engineer: Rafael Varelas Config Change: None

Test Location: Fremont Chamber #3 EUT Voltage: 120V/60Hz

General Test Configuration

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

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

Ambient Conditions: Temperature: 20.2 °C

Rel. Humidity: 43 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Bandedges	FCC Part 15.209 / 15.247(c)	Pass	Refer to runs
2	Radiated Spurious Emissions 1,000-26,500MHz	FCC Part 15.209 / 15.247(c)	Pass	Refer to runs

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #1a: Radiated Fundamental and Bandedge. (Refer to 802.11b DTS data sheets (run# 1)) 6Mbps Antennas: Main (Channel 1 @ 2412 MHz), Vertical RBW 1 MHz RF Att 10 dB Ref Lvl 111.85 dB**y**V VBW 1 MHz 114 db**y**V SWT 5 ms Unit db**y**v 114 32 dB Offset A 100 90 80 ALWILL HAR IN1 D1 74 db**y**v-1MA 2AP P20 40 30 Center 2.39 GHz 7 MHz/ Span 70 MHz Date: 26.APR.2006 09:48:27

EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A (Refer to 802.11b DTS data sheets (run# 1)) 6Mbps Antennas: Main (Channel 2 @ 2417 MHz), Vertical RBW 500 kHz RF Att 10 dB VBW Ref Lvl 110.37 dB**y**V 1 MHz 114 db**y**V SWT db**y**v 5 ms Unit 114 32 dB Offset 110 100 90 80 IN1 D1 74 db**y**v-1MA 2MA Milabertaliage Vrymy 54 dB ע P20 50 30 20 10 Stop 2.43 GHz Start 2.37 GHz 6 MHz/ Date: 26.APR.2006 09:57:24



EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A (Refer to 802.11b DTS data sheets (run# 1)) 6Mbps Antennas: Main (Channel 9 @ 2452 MHz), Vertical RBW 1 MHz RF Att 10 dB Ref Lvl VBW 113.84 dB**y**V 1 MHz 114 dB**y**V SWT db**y**v 5 ms Unit 100 80 IN1 **-**D1 74 dB**y**V-1MA 60 Marchan Marchen P20 54 dB**y**V 50 40 30 20 10 Stop 2.5135 GHz Start 2.441996265 GHz 7.150373549 MHz/ Date: 26.APR.2006 10:27:28

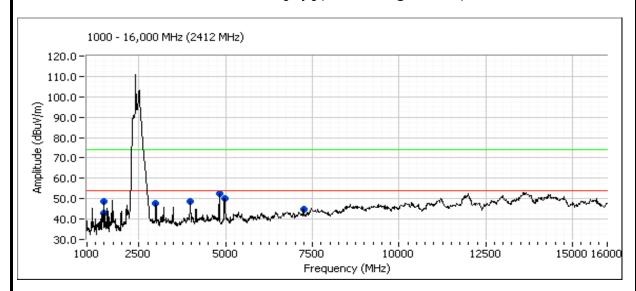
EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A (Refer to 802.11b DTS data sheets (run# 1)) 6Mbps Antennas: Main (Channel 11 @ 2462 MHz), Vertical 1 MHz RF Att 10 dB Ref Lvl 112.19 dB**y**V VBW 1 MHz 114 db**y**v SWT Unit dB**y**V dB Offset A 100 90 IN1 dB**y**V-1MA 2MA WHY WA mulumb P20 54 dB**y**7 40 30 10 Start 2.450766772 GHz 6.273322776 MHz/ Stop 2.5135 GHz 26.APR.2006 10:41:55 Date:

EMC Test Data

Client:	Netgear	Job Number:	J63790
Madal	WNCRDBSB	T-Log Number:	T63764
woder.	WINCRUBSB	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247	Class:	N/A

Run #2a: Radiated Spurious Emissions

Antennas: Main Legacy g (Low Channel @ 2412 MHz)



Other 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	
1500.000	48.8	V	54.0	-5.2	Peak	283	1.0	Restricted, Note 2
2980.000	47.7	Н	54.0	-6.3	Peak	159	1.2	Non-restricted, Note 2
3970.000	48.8	V	54.0	-5.2	Peak	187	1.0	Restricted, Note 2
7244.167	44.8	V	54.0	-9.2	Peak	273	1.2	Non-restricted, Note 2
4982.85	37.3	V	54.0	-16.8	AVG	168	1.0	Restricted
4982.85	53.0	V	54.0	-17.1	PK	168	1.0	Restricted
4823.72	39.8	Н	54.0	-14.2	AVG	301	1.4	Restricted
4823.72	49.4	Н	54.0	-17.1	PK	301	1.4	Restricted

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.

Note 2: Peak emssion below the average limit. No average readings taken.

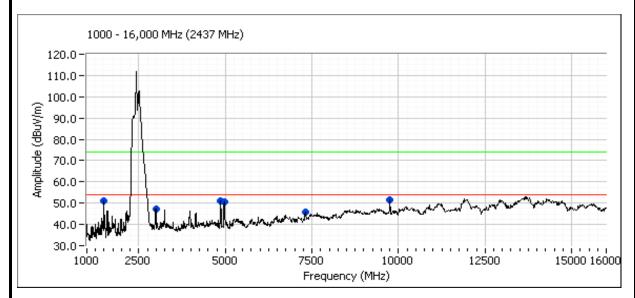
No emission detected 20-dB of the limit from 16 - 18 GHz and from 18 - 26.5 GHz. Measurements were performed on Chamber# 5 on April 25, 2006 by Juan Martinez

EMC Test Data

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Client:	Netgear	Job Number:	J63790
Model	WNCRDBSB	T-Log Number:	T63764
Model.	WINCRUBSB	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247	Class:	N/A

Run #2b: Radiated Spurious Emissions

Antennas: Main Legacy g (Middle Channel @ 2437 MHz)



Other 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	
9745.833	51.5	V	54.0	-2.5	Peak	315	1.2	Non-restricetd, Note 2
7307.500	45.9	V	54.0	-8.1	Peak	270	1.2	Restricted, Note 2
2989.167	47.4	Н	54.0	-6.6	Peak	163	1.2	Non-restriceted, Note 2
1500.425	47.6	V	54.0	-6.4	AVG	275	1.0	Restricted
1500.425	54.2	V	74.0	-19.8	PK	275	1.0	Restricted
4873.979	45.0	V	54.0	-9.1	AVG	253	1.6	Restricted
4873.979	50.1	V	74.0	-23.9	PK	253	1.6	Restricted
4980.912	36.9	V	54.0	-17.1	AVG	167	1.0	Restricted
4980.912	52.7	V	74.0	-21.3	PK	167	1.0	Restricted

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.

Note 2: Peak emssion below the average limit. No average readings taken.

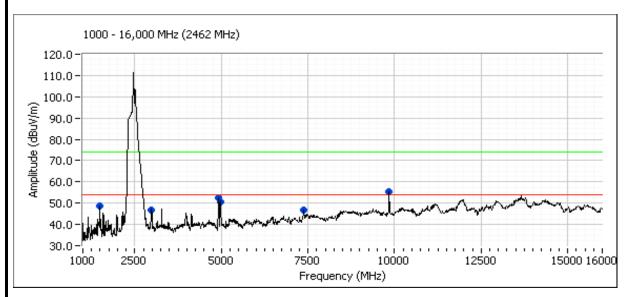
No emission detected 20-dB of the limit from 16 - 18 GHz and from 18 - 26.5 GHz. Measurements were performed on Chamber# 5 on April 25, 2006 by Juan Martinez

EMC Test Data

_			
Client:	Netgear	Job Number:	J63790
Model	WNCRDBSB	T-Log Number:	T63764
Model.	WINCRUBSB	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247	Class:	N/A

Run #2c: Radiated Spurious Emissions

Antennas: Main Legacy g (High Channel @ 2462MHz)



Other 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	
4986.480	36.4	V	54.0	-17.6	AVG	168	1.0	Restricted
4986.480	53.3	V	74.0	-20.7	PK	168	1.0	Restricted
4923.883	48.4	Н	54.0	-5.6	AVG	209	1.4	Restricted
4923.883	54.9	Н	74.0	-19.1	PK	209	1.4	Restricted
1500.170	48.7	V	54.0	-5.3	Peak	280	1.0	Restricted, Note 2
2992.098	46.9	Н	54.0	-7.1	Peak	171	1.2	Non-restricted, Note 2
7383.261	46.6	V	54.0	-7.4	Peak	260	1.0	Restricted, Note 2
9856.022	55.2	V	74.0	-18.8	Peak	305	1.2	Non-restricted

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.

Note 2: Peak emssion below the average limit. No average readings taken.

No emission detected 20-dB of the limit from 16 - 18 GHz and from 18 - 26.5 GHz. Measurements were performed on Chamber# 5 on April 25, 2006 by Juan Martinez

Eliott Client: Netgear

EMC Test Data

•			
Client:	Netgear	Job Number:	J63790
Model	WNCRDBSB	T-Log Number:	T63764
wodei.	WINCRUBOB	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247	Class:	N/A

RSS 210 and FCC 15.247 Antenna Port Power, Bandwitdh, & Spurious Emissions (802.11b)

Test Specifics

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

specification listed above.

Date of Test: 4/21/2006 Config. Used: 1
Test Engineer: Jmartinez Config Change: None
Test Location: Chamber #2 EUT Voltage: 120V, 60Hz

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. For the spurious emissions all transmit chains were connected simultaneously to the analyzer via a combiner. All other measurements were made on a single chain.

All measurements are corrected to allow for the external attenuators used.

Ambient Conditions: Temperature: 17 °C

Rel. Humidity: 57 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power	15.247(b)	Pass	Refer to run
2	Power Spectral Density (PSD)	15.247(d)	Pass	Refer to run
3	6dB Bandwidth	15.247(a)	Pass	Refer to run
4	Spurious emissions	15.247(b)	Pass	Refer to run

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

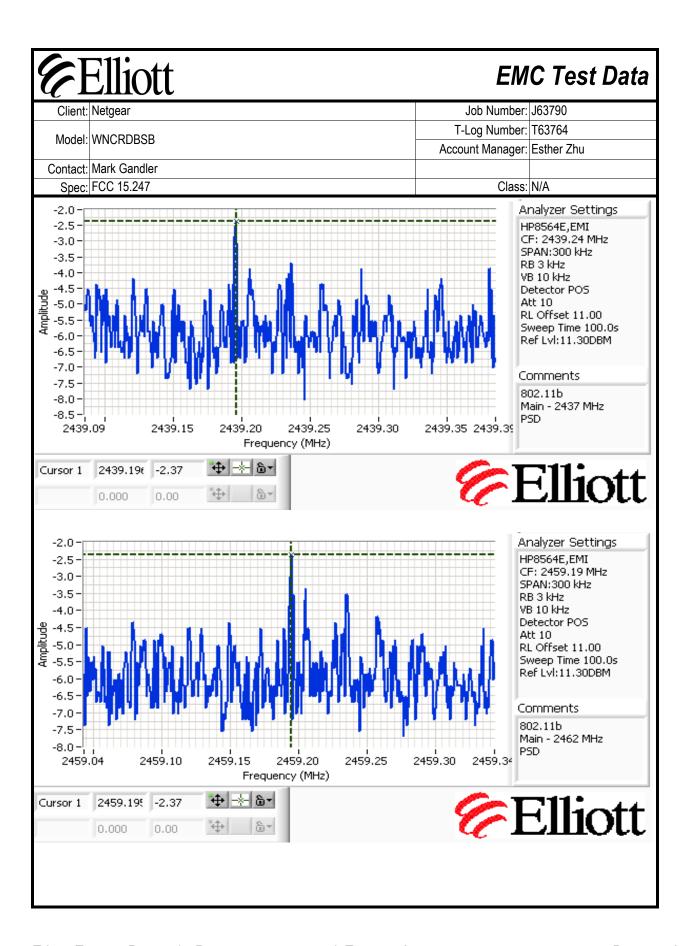
Elliott EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #1: Output Power Transmitted signal on chain is coherent? No Regulatory Power Measurements: Output Power (dBm) Note 1 EIRP Note 2 Antenna Gain (dBi) Note 3 Power Frequency (MHz) Chain 1 Chain 2 Chain 2 W Total Chain 1 Total dBm 2412 0.077 17.6 17.6 1.2 18.9 2437 18.7 0.098 18.7 1.2 19.9 2462 17.4 17.4 1.2 18.6 0.073 Output power measured using a spectrum analyzer (see plots below): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ESI Note 1: analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was tranmsitting) and power integration over 20 MHz EIRP - if transmit chains are coherent then the EIRP is calculated from the sum of the antenna gains plus the total power (i.e. beam-forming is assumed because of coherency on the chains). If the individual chains are incoherent Note 2: then the EIRP is calculated from the sum of the individual EIRPs for each chain. If the transmit chains are coherent then the total system antenna gain is the sum of the numeric gains for each Note 3: antenna. If the transmit chains are incoherent then the system antenna gain is not applicable as each transmit chain can be treated independently.

%	Elliott						EM	IC T	est l	Da	ta
Client:	Netgear WNCRDBSB						Job Number Log Number ount Manager	T63764	1		
	Mark Gandler FCC 15.247						Class				
Ref	Lvl 5.4 dBm	Marker 2		.38 dBm	RBW VBW SWT	1 MH 3 MH 5 ms	Iz RF I	Att	30 c	dB dBm	
16.4	0.4 dB Offset	5					[T1] 2.	-43 38700	000 G	lBm HZ	A
0 -10					\ <u>\</u>	CH I	BW 20.	00000	000 M	IHz	
-20 1A	vg										IN1 LSA
-30	كمم	\\\\\						^			
-40 -50								- June	$\sim \sim \sim$	h	
-60											
-70						C0					
-80 -83.6 Cer	nter 2.412 G	C Hz	0	5 M	Hz/			Span	50 M	IH z	
Date:	27.APR.2	2006 18	:38:32								

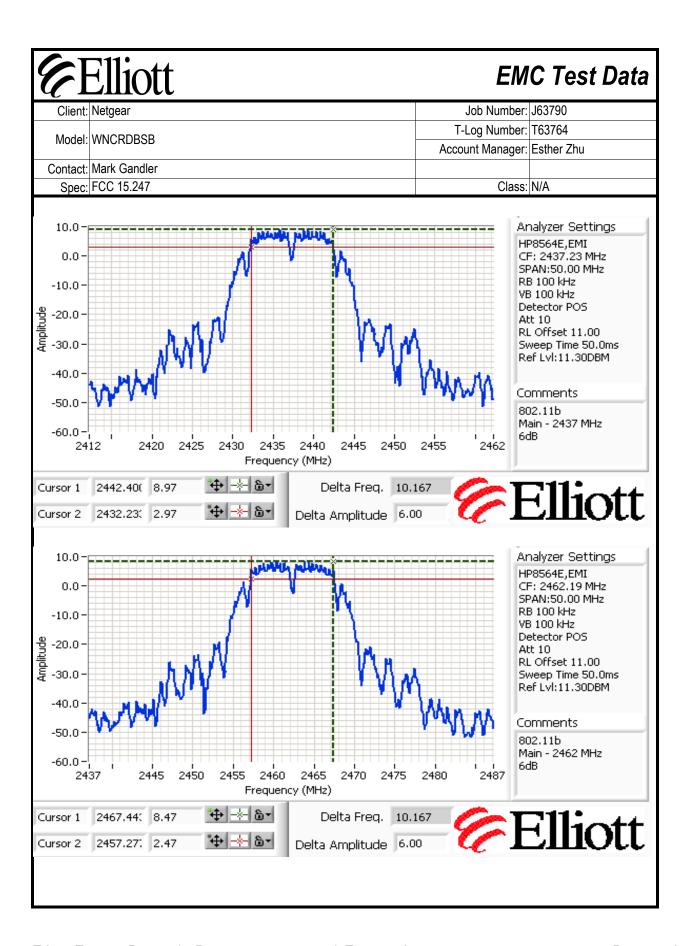
Spec: FCC 15.247 Marker 1 [T1] RBW 1 MHz RF Att 30 dB Ref Lv1 7.26 dBm VBW 3 MHz 10 dBm 2.43700000 GHz SWT 5 ms Unit dBm 1.3 dB Offset 2.43700000 GHz CH BW 20.00000000 MHz G 1.4 dBm 2.43700000 GHz CH BW 20.00000000 MHz G CH BW 20.000000000 MHz G Center 2.437 GHz 10 MHz/ Span 100 MHz	Ref Lvl 7.26 dBm VBW 3 MHz 10 dBm 2.43700000 GHz SWT 5 ms Unit dBm 2.43700000 GHz SWT 5 ms Unit dBm 2.43700000 GHz CH BW 20.00000000 MHz GWT SWT 5 ms Unit dBm 2.43700000 GHz CH BW 20.00000000 MHz GWT SWT SWT SWT SWT SWT SWT SWT SWT SWT S	Client: Netgear Model: WNCRDBSB					Ac	Job N T-Log N count M		T63764	1		
Ref Lvl 7.26 dBm VBW 3 MHz RF Att 30 dB Ref Lvl 7.26 dBm VBW 3 MHz 10 dBm 2.43700000 GHz SWT 5 ms Unit dBm 1.3 dB Offset	Ref Lvl 7.26 dBm VBW 3 MHz 10 dBm 2.43700000 GHz SWT 5 ms Unit dBm 2.43700000 GHz SWT 5 ms Unit dBm 2.43700000 GHz CH BW 20.00000000 MHz GI CH BW 20.000000000 MHz GI CH BW 20.0000000000 MHz GI CH BW 20.00000000000000000000000000000000000								Clace.	NI/A			
1.3 dB Offset	1.3 dB Offset 2.43700 000 GHz 2.43700 000 GHz 2.43700 000 GHz 3W 20.0000C000 MHz 3D 2.43700 000 GHz 3D 2.43700 GHz 3D 2.43700 000 GHz 3D 2.43700 GHz 3D 2.43700 000 G	Ref Lvl		7.		VBW	3 1	MHz	RF <i>P</i>	Att	30		
Center 2.437 GHz 10 MHz/ Span 100 MHz	Center 2.437 GHz 10 MHz/ Span 100 MHz	1.3 dB Offse			700 GHZ	SWI	▼ 1	[T1]		7	000	dBm GHz	
1avc	1avg 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0							20.	00000			Gi
Center 2.437 GHz 10 MHz/ Span 100 MHz	Center 2.437 GHz 10 MHz/ Span 100 MHz	1AVG		N		Y	$\sqrt{\Lambda}$						
Center 2.437 GHz 10 MHz/ Span 100 MHz	Center 2.437 GHz 10 MHz/ Span 100 MHz	0	<u> </u>	√ √			- _	M					
Center 2.437 GHz 10 MHz/ Span 100 MHz	Center 2.437 GHz 10 MHz/ Span 100 MHz	WWW. 00 - 10-								wy wy	Nom	~~	
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Center 2.437 GHz 10 MHz/ Span 100 MHz	Center 2.437 GHz 10 MHz/ Span 100 MHz			C	0	C)						
		Center 2.437 G		:09:32	10 1	MHz/			·	Span	100	MHz	į

6	Elliott						Ε	МС Т	est	Data	3
Client:	Netgear WNCRDBSB						T-Log Num	ber: J63790 ber: T63760 ger: Esther	4		
	Mark Gandler FCC 15.247						Cl	ass: N/A			
16	Lvl .4 dBm	Marker 2		.84 dBm	RBW VBW SWT	1 M 3 M 5 m	Hz	F Att	30	dB dBm	
16.4	.4 dB Offset	Ē				v ₁	[T1]	-46 2.43700	8.84	dBm A	ı
0						CH CH	PWR BW	17		dBm MHz	
-10 1AV	G									IN:	
-30	/						<u>\</u>	1			
-40									\sim	w	
-60											
-70			0			C	0				
	ter 2.462 GI		0	5 M	Hz/			Spar	n 50 I	MHz	
Date:	27.APR.2	006 18	:48:58								

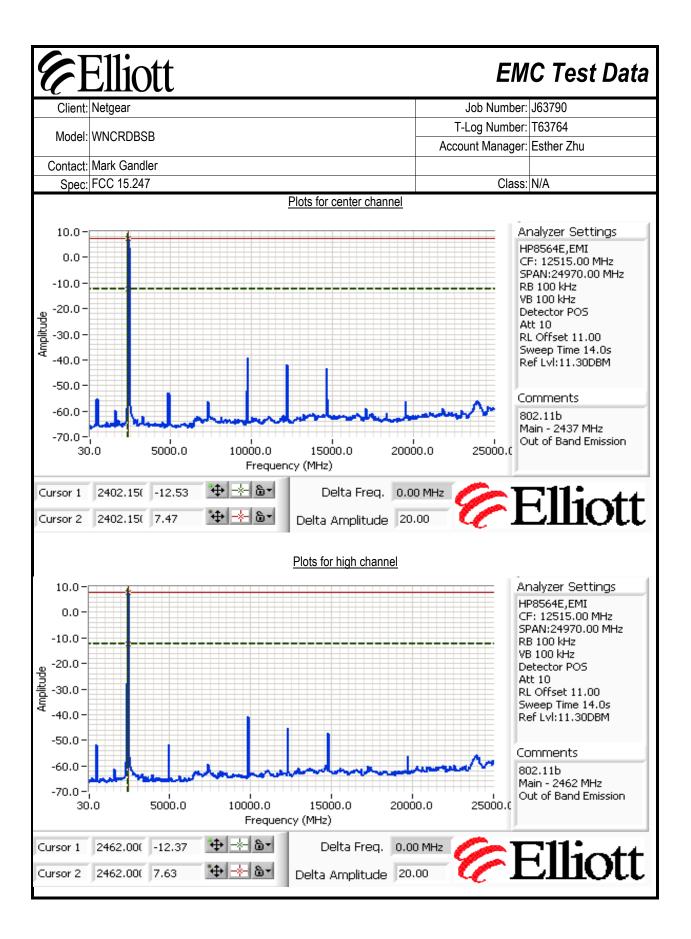
EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #3: Power Spectral Density Power PSD (dBm/3kHz) Limit Result Frequency (MHz) Setting Chain 1 dBm/3kHz Chain 2 Total 2412 -3.5 8.0 Pass 2437 -2.4 8.0 Pass 2462 8.0 -2.4 Pass 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 Note 1: determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal. Analyzer Settings -3.5 HP8564E,EMI -4.0 CF: 2409,72 MHz -4.5 SPAN:300 kHz RB 3 kHz -5.0 VB 10 kHz -5.5 Detector POS Att 10 -6.0 RL Offset 11.00 -6.5 Sweep Time 100.0s Ref Lvl:11.30DBM -7.0 -7.5 Comments -8.0 802.11b -8.5 Main - 2412 MHz -9.0 **PSD** 2409.70 2409.75 2409.65 2409.80 2409.57 2409.60 2409.87 Frequency (MHz) -3.53 Cursor 1 2409.75€ 0.000 0.00



EMC Test Data Client: Netgear Job Number: J63790 T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #3: Signal Bandwidth 6dB Signl Bandwidth Power Resolution 99% Signal Bandwidth Frequency (MHz) Setting Bandwidth (MHz) 10 2412 100 kHz 2437 100 kHz 10 10 2462 100 kHz Note 1: Measured on a single chain Analyzer Settings 10.0-HP8564E,EMI 0.0 CF: 2412.18 MHz SPAN:50.00 MHz RB 100 kHz -10.0 VB 100 kHz Detector POS -20.0 Att 10 RL Offset 11.00 Sweep Time 50.0ms -30.0 Ref Lvl:11.30DBM -40.0 Comments -50.0 6dB Bandwidth Main - 2412 MHz -60.0 2400 2405 2410 2415 2420 2425 2437 2387 Frequency (MHz) **♦** -∗- 6-2417.35(8.80 Delta Freq. 10.083 Cursor 1 Cursor 2 2407.26; 2.80 Delta Amplitude 6.00



EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #4: Out of Band Spurious Emissions Power Setting Per Chain Frequency (MHz) Limit Result 2412 -30dBc Refer to plot 2437 -30dBc Refer to plot 2462 -30dBc Refer to plot Plots for low channel 10.0 Analyzer Settings HP8564E,EMI 0.0 CF: 12515.00 MHz SPAN:24970.00 MHz -10.0 RB 100 kHz VB 100 kHz -20.0 Detector POS Att 10 -30.0 RL Offset 11.00 Sweep Time 14.0s -40.0 Ref Lvl:11.30DBM -50.0 Comments -60.0 802.11Ь Main - 2412 MHz Out of Band Emission -70.0 10000.0 25000.0 15000.0 20000.0 5000.0 30.0 Frequency (MHz) 2402.15(-12.87 Cursor 1 Delta Freq. 0.00 MHz Cursor 2 2402.15(8.63 Delta Amplitude 21.50



Elliott

EMC Test Data

Client:	Netgear	Job Number:	J63790
Model	WNCRDBSB	T-Log Number:	T63764
wodei.	WINCRUBOB	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247	Class:	N/A

FCC 15.247 DTS - Bandedge and Spurious Emissions (802.11b)

Test Specifics

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

specification listed above.

Date of Test: 4/25/2006 Config. Used: 1
Test Engineer: Rafael Varelas Config Change: None
Test Location: Fremont Chamber #3 EUT Voltage: 120V/60Hz

General Test Configuration

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

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

Ambient Conditions: Temperature: 20.2 °C

Rel. Humidity: 43 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Bandedges	FCC Part 15.209 / 15.247(c)	Pass	Refer to runs
2	Radiated Spurious Emissions 1,000-26,500MHz	FCC Part 15.209 / 15.247(c)	Pass	Refer to runs

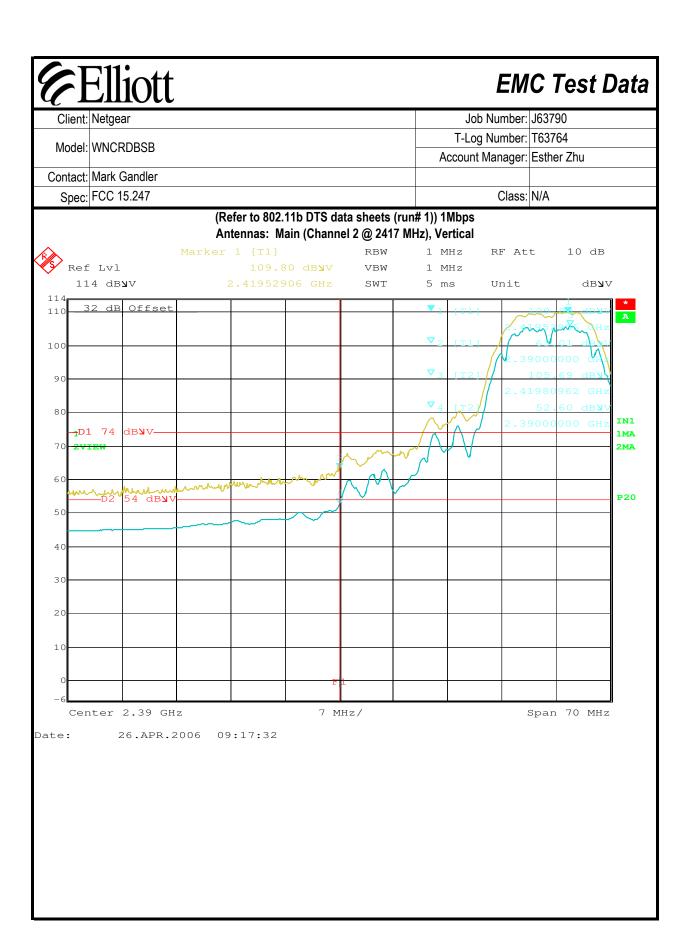
Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #1a: Radiated Fundamental and Bandedge. (Refer to 802.11b DTS data sheets (run# 1)) 1Mbps Antennas: Main (Channel 1 @ 2412 MHz), Vertical RBW 1 MHz RF Att 10 dB Ref Lvl 112.28 dB**y**V VBW 1 MHz 114 dB**y**V SWT dB**y**V 5 ms Unit 114 32 dB Offset A 100 90 IN1 dB**y**V-1MA 2MA 60 P20 54 dBי<mark>ע</mark> 50 40 30 20 Start 2.37 GHz 7 MHz/ Stop 2.44 GHz 26.APR.2006 08:39:05 Date:



ient: Netgear						Number: J6 Number: T6		
odel: WNCRDBSB				Α		Manager: Es		
tact: Mark Gandler								
pec: FCC 15.247						Class: N/	A	
lb: Radiated Fundamenta	and Bandedge.							
	(Refer to 802.1 Antennas: Mai							
Ma	arker 1 [T1]	()	RBW	1 M		RF Att	10 dB	
Ref Lvl		65 dB y V	VBW		1Hz			
114 dB y V	2.45439	L78 GHZ	SWT	5 m	ıs	Unit	db y v	.
110 32 dB OFFSet				<u> </u>	[T1]	2.4543	.65 dBWW 9178 GHz	A
100				∇2	[T1]	2.4343	9176 GHZ	
<mark>/</mark> /*				∇ 3		2.4867	2645 GHz	
90				<u> </u>	[T2]	2.4542	3.04 dB N V 5150 GHz	
80	1			∇4	[T2]	4.7	7.46 dB y V	
-₁D1 74 dB¥V	W/W					2.4835	0000 GHz	IN:
70 2VIEW	halm							2M
60		Mary 1	2 L.NMU-1-1-1	Almatha .		he i he i		
D2 54 dB y V	~~	\sim			www.	March	-Muli-Villum	P2
50								
40								
30								
20								
10								
0		F	1					
Center 2.4835 GH	z	7 M	Hz/			Spa	n 70 MHz	
Center 2.4835 GH		7 M	Hz/			Spa	n 70 MHz	

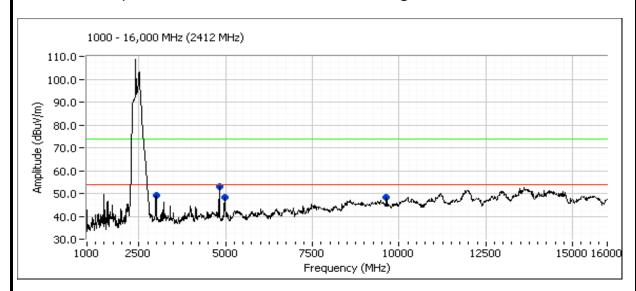
EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A (Refer to 802.11b DTS data sheets (run# 1) 1Mbps Antennas: Main (Channel 11 @ MHz), Vertical RBW 1 MHz RF Att 10 dB Ref Lvl 109.68 dB**y**V VBW 1 MHz 114 db**y**V SWT 5 ms Unit dB**y**V offset 110 Α 100 90 IN1 _D1 74 dB**y**V-1MA 70 2MA P20 54 dB**y**7 50 20 Center 2.4835 GHz 6.273322776 MHz/ Span 62.73322776 MHz 26.APR.2006 12:43:36 Date:

Elliott

EMC Test Data

Client:	Netgear	Job Number:	J63790
Modal:	WNCRDBSB	T-Log Number:	T63764
wodei.	WINCKDBOB	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247	Class:	N/A

Run #2a: Radiated Spurious Emissions, 1000 - 26,500 MHz. Low Channel @ 2412 MHz



Other 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	
4824.013	52.0	V	54.0	-2.0	AVG	265	1.2	Restricted
4824.013	53.2	V	74.0	-20.8	PK	265	1.2	Restricted
4965.179	33.1	V	54.0	-20.9	AVG	173	1.0	Restricted
4965.179	48.8	V	74.0	-25.2	PK	173	1.0	Restricted
2989.167	49.1	Н	54.0	-4.9	Peak	177	1.8	Non-restricted, Note 2
9635.000	48.3	V	54.0	-5.7	Peak	317	1.2	Non-restricted, 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.

Note 2: Peak emssion below the average limit. No average readings taken.

No emission detected 20-dB of the limit from 16 - 18 GHz and from 18 - 26.5 GHz. Measurements were performed on Chamber# 5 on April 25, 2006 by Juan Martinez

Elliott EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #2b: Radiated Spurious Emissions, 1000 - 26,500 MHz. Middle Channel @ 2437 MHz Other Spurious Emissions 15.209 / 15.247 Frequency Level Detector Azimuth Height Comments MHz dBμV/m Pk/QP/Avg v/h Limit Margin degrees meters 2980.000 47.7 54.0 -6.3 Peak 150 1.6 Non-restricted, Note 2 9745.833 51.6 ٧ 54.0 -2.4311 1.2 Peak Non-restricted, Note 2 4986.572 36.1 ٧ 54.0 -17.9 AVG 171 1.0 Restricted 53.3 74.0 -20.8 PK 171 4986.572 1.0 Restricted 1500.485 46.8 ٧ 54.0 -7.2 **AVG** 277 1.0 Restricted ٧ 74.0 -20.9 PK 277 1500.485 53.1 1.0 Restricted 4873.978 51.8 Η 54.0 -2.2**AVG** 210 1.4 Restricted 4873.978 52.9 Н 74.0 -21.1 PΚ 210 1.4 Restricted For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below Note 1: the level of the fundamental. Note 2: Peak emssion below the average limit. No average readings taken. No emission detected 20-dB of the limit from 16 - 18 GHz and from 18 - 26.5 GHz. Measurements were performed on

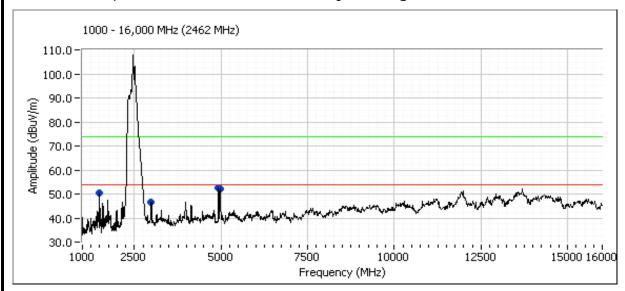
No emission detected 20-dB of the limit from 16 - 18 GHz and from 18 - 26.5 GHz. Measurements were performed on Chamber# 5 on April 25, 2006 by Juan Martinez

Elliott

EMC Test Data

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Client:	Netgear	Job Number:	J63790
Model	WNCRDBSB	T-Log Number:	T63764
Model.	WINCRUBSB	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247	Class:	N/A

Run #2c: Radiated Spurious Emissions, 1000 - 26,5600 MHz. High Channel @ 2462 MHz



Other Spurious Emissions

Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments
MHz	$dB\mu V/m$	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2980.000	46.7	V	54.0	-7.3	Peak	152	1.4	Non-restricted, Note 2
4924.065	52.1	V	54.0	-1.9	AVG	98	1.0	Restricted
4924.065	53.6	V	74.0	-20.4	PK	98	1.0	Restricted
4987.243	37.1	V	54.0	-16.9	AVG	167	1.0	Restricted
4987.243	54.2	V	74.0	-19.8	PK	167	1.0	Restricted
1500.340	44.6	V	54.0	-9.4	AVG	280	1.0	Restricted
1500.340	49.0	V	74.0	-25.0	PK	280	1.0	Restricted

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below Note 2: Peak emssion below the average limit. No average readings taken.

No emission detected 20-dB of the limit from 16 - 18 GHz and from 18 - 26.5 GHz. Measurements were performed on Chamber# 5 on April 25, 2006 by Juan Martinez

Elliott	EMC Test Data
Client: Netgear	Job Number: J63790
Model: WNCRDBSB	T-Log Number: T63764
WINCRDB3B	Account Manager: Esther Zhu
Contact: Mark Gandler	

RSS 210 and FCC 15.247 Antenna Port Power, Bandwitdh, & Spurious Emissions (802.11n, 20 MHz)

Class: N/A

Test Specifics

Spec: FCC 15.247

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: 4/21/2006 Config. Used: 1 Test Engineer: Jmartinez Config Change: None Test Location: Chamber #2 EUT Voltage: 120V, 60Hz

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. For the spurious emissions all transmit chains were connected simultaneously to the analyzer via a combiner. All other measurements were made on a single chain.

All measurements are corrected to allow for the external attenuators used.

Ambient Conditions: Temperature: 17 °C

> Rel. Humidity: 57 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power	15.247(b)	Pass	Refer to run
2	Power Spectral Density (PSD)	15.247(d)	Pass	Refer to run
3	6dB Bandwidth	15.247(a)	Pass	Refer to run
4	Spurious emissions	15.247(b)	Pass	Refer to run

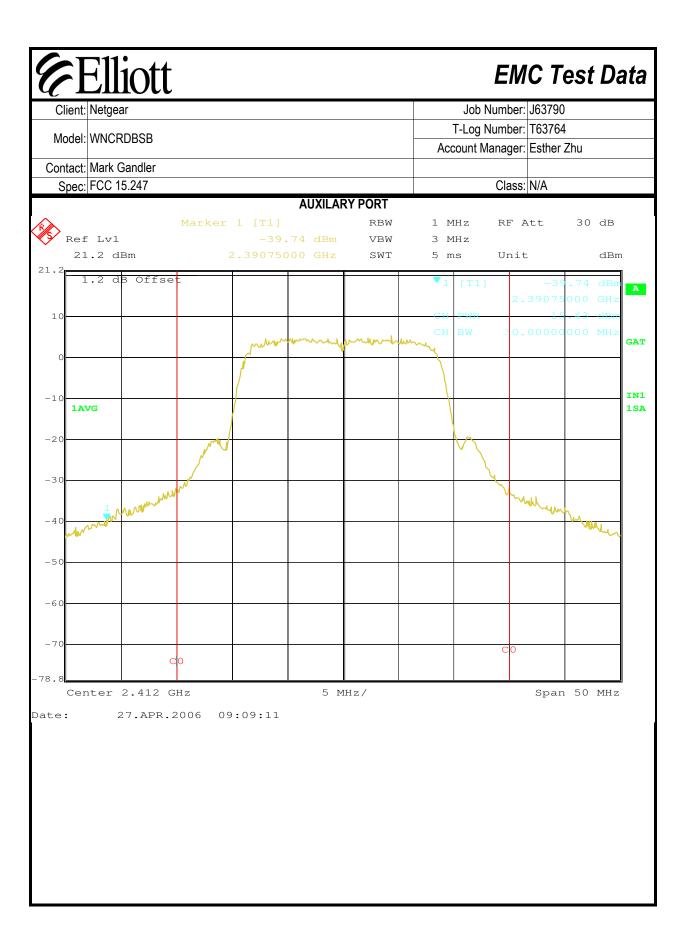
Modifications Made During Testing:

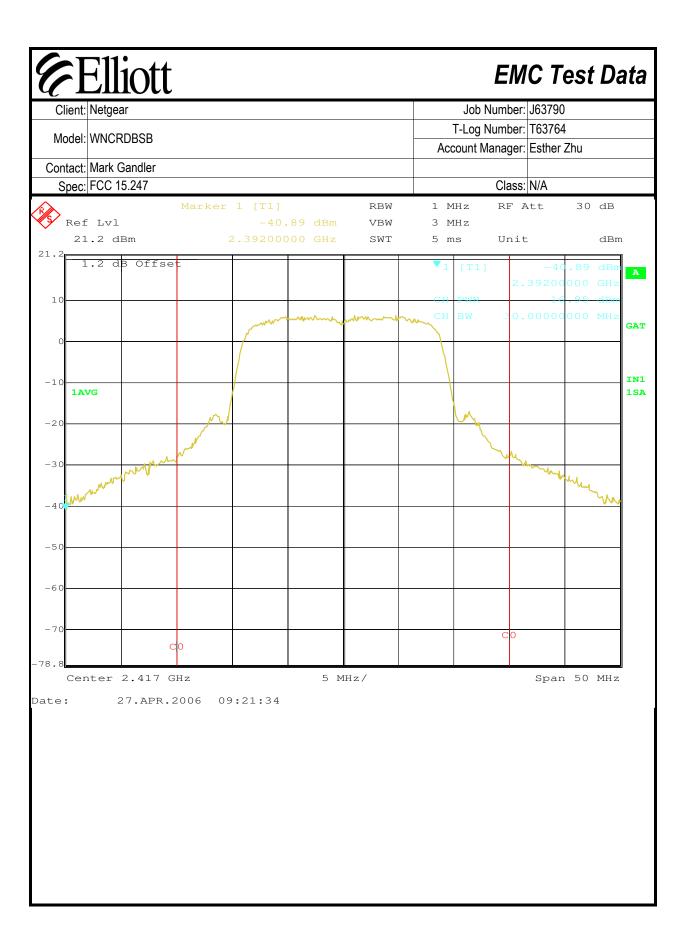
No modifications were made to the EUT during testing

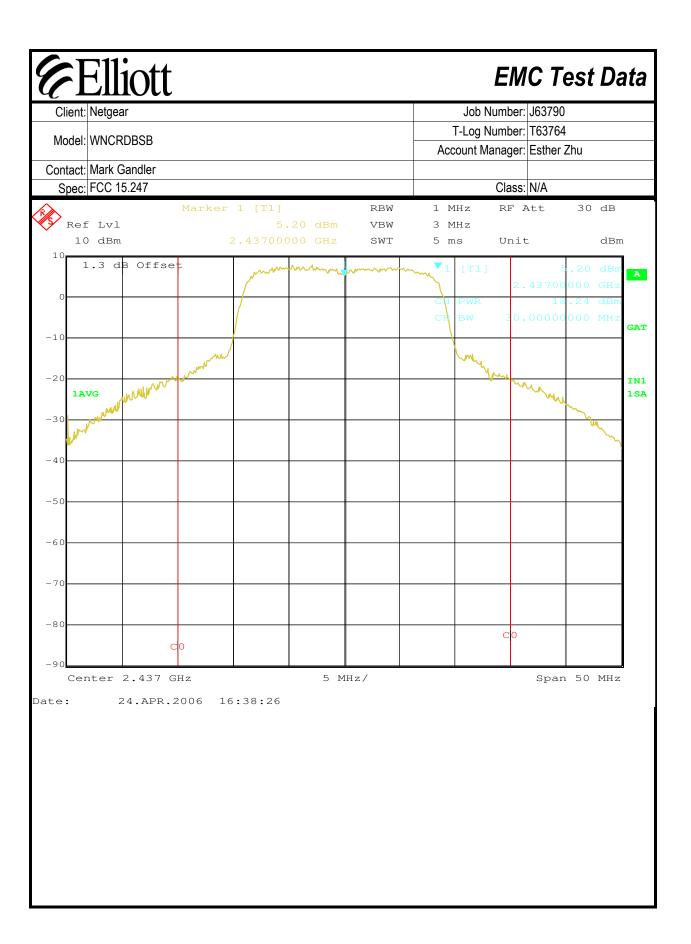
Deviations From The Standard

No deviations were made from the requirements of the standard.

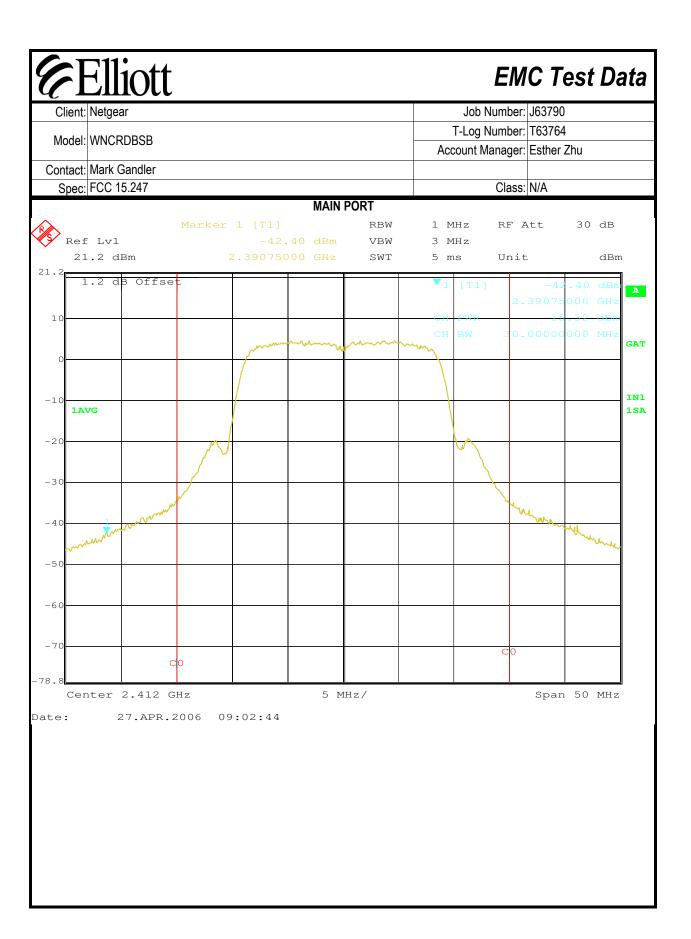
Model: WNCRDBSB T-Log Number: T63764 Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A MAIN & AUX PORTS un #1: Output Power (MCS 0, CDD) ransmitted signal on chain is coherent? Yes regulatory Power Measurements: Power - Frequency (MHz) - Main Aux Total Main Aux Total Main Aux Total dBm W 2412 15.3 15.4 18.4 1.2 1.2 4.2 22.6 0.18 2417 16.7 17.0 19.8 1.2 1.2 4.2 22.6 0.18 2437 18.0 18.2 21.1 1.2 1.2 4.2 24.1 0.25 2437 18.0 18.2 21.1 1.2 1.2 4.2 25.3 0.34 2462 14.8 14.9 17.9 1.2 1.2 1.2 4.2 22.1 0.16 Output power measured using a spectrum analyzer (see plots below): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ES analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 30 MHz EIRP - if transmit chains are coherent then the EIRP is calculated from the sum of the antenna gains plus the total power (i.e. beam-forming is assumed because of coherency on the chains). If the individual chains are incoherer then the EIRP is calculated from the sum of the numeric gains for each	Model: WNCRDBSB T-Log Number: T63764 Account Manager: Esther Zhu Mark Gandler Spec: FCC 15.247 MAIN & AUX PORTS Un #1: Output Power (MCS 0, CDD) Transmitted signal on chain is coherent? Yes equilatory Power Measurements: Power Frequency (MHz) Main Aux Total Aux Aux Total Au	_	Elliott Netgear					.1	ob Number:	J63790	
Contact: Mark Gandler Spec: FCC 15.247 Class: N/A MAIN & AUX PORTS un #1: Output Power (MCS 0, CDD) ransmitted signal on chain is coherent? Yes segulatory Power Measurements: Power - Frequency (MHz) Output Power (dBm) Note 1 Main Aux Total Main Aux Total Main Aux Total dBm W 2412 15.3 15.4 18.4 1.2 1.2 4.2 22.6 0.18 2417 16.7 17.0 19.8 1.2 1.2 4.2 24.1 0.25 2437 18.0 18.2 21.1 1.2 1.2 4.2 25.3 0.34 2462 14.8 14.9 17.9 1.2 1.2 1.2 4.2 22.1 0.16 Output power measured using a spectrum analyzer (see plots below): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ES analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 30 MHz EIRP - if transmit chains are coherent then the EIRP is calculated from the sum of the antenna gains plus the total power (i.e. beam-forming is assumed because of coherency on the chains). If the individual chains are incoherer then the EIRP is calculated from the sum of the numeric gains for each antenna. If the transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each	Contact: Mark Gandler Spec: FCC 15.247 Class: N/A MAIN & AUX PORTS un #1: Output Power (MCS 0, CDD) ransmitted signal on chain is coherent? Yes egulatory Power Measurements: Power Frequency (MHz) Main Aux Total Antenna Gain (dBi) Note 3 EIRP Note 2 4.2 22.6 0.18: 2412 15.3 15.4 18.4 1.2 1.2 1.2 4.2 22.6 0.18: 2417 16.7 17.0 19.8 1.2 1.2 1.2 4.2 24.1 0.254 2437 18.0 18.0 18.2 2411 1.2 1.2 1.2 1.2 4.2 25.3 0.342 2462 14.8 14.9 17.9 1.2 1.2 1.2 4.2 22.1 0.16: Note 1: RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ES analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 30 MHz EIRP - if transmit chains are coherent then the EIRP is calculated from the sum of the antenna gains plus the total power (i.e. beam-forming is assumed because of coherency on the chains). If the individual chains are incoherent then the EIRP is calculated from the sum of the numeric gains for each antenna. If the transmit chains are incoherent then the system antenna gain is the sum of the numeric gains for each antenna. If the transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are coherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain i										
MAIN & AUX PORTS un #1: Output Power (MCS 0, CDD) ransmitted signal on chain is coherent? Yes equilatory Power Measurements: Power Frequency (MHz) Output Power (dBm) Note 1 Antenna Gain (dBi) Note 3 EIRP Note 2 ## Main Aux Total Main Main Aux Total Main Aux Total Main Main Main Main Main Main Main Main	MAIN & AUX PORTS un #1: Output Power (MCS 0, CDD) ransmitted signal on chain is coherent? Yes egulatory Power Measurements: Power Frequency (MHz) Output Power (dBm) Note 1 Antenna Gain (dBi) Note 3 EIRP Note 2 ##1	Model:	WNCRDBSB								
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ransmitted signal on chain is coherent? Yes **egulatory Power Measurements:** Power	ransmitted signal on chain is coherent? Yes egulatory Power Measurements: Power - Frequency (MHz) - Output Power (dBm) - Main - Aux - Total - Main - Mux - Total - Mux - Total - Mux - Total - Mux - Total - Mux - 1.2 -				MA	IN & AU	X PORTS	3			
Power Frequency (MHz) Output Power (dBm) Note 1 Antenna Gain (dBi) Note 3 EIRP Note 2 Main Aux Total Main Aux Total dBm W 2412 15.3 15.4 18.4 1.2 1.2 4.2 22.6 0.18 2417 16.7 17.0 19.8 1.2 1.2 4.2 24.1 0.25 2437 18.0 18.2 21.1 1.2 1.2 4.2 25.3 0.34 2462 14.8 14.9 17.9 1.2 1.2 1.2 4.2 22.1 0.16 Output power measured using a spectrum analyzer (see plots below): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ES analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 30 MHz EIRP - if transmit chains are coherent then the EIRP is calculated from the sum of the antenna gains plus the total power (i.e. beam-forming is assumed because of coherency on the chains). If the individual chains are incoherer then the EIRP is calculated from the sum of the numeric gains for each Note 3: Note 3:	Power Frequency (MHz) Output Power (dBm) Note 1 Antenna Gain (dBi) Note 3 EIRP Note 2 Main Aux Total Main Aux Total dBm W 2412 15.3 15.4 18.4 1.2 1.2 4.2 22.6 0.183 2417 16.7 17.0 19.8 1.2 1.2 4.2 24.1 0.254 2437 18.0 18.2 21.1 1.2 1.2 4.2 25.3 0.342 2462 14.8 14.9 17.9 1.2 1.2 4.2 22.1 0.163 Output power measured using a spectrum analyzer (see plots below): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ES analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 30 MHz EIRP - if transmit chains are coherent then the EIRP is calculated from the sum of the antenna gains plus the total power (i.e. beam-forming is assumed because of coherency on the chains). If the individual chains are incoherent then the EIRPs for each chain. If the transmit chains are coherent then the total system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains.		•	. ,							
Power Frequency (MHz) Output Power (dBm) Note 1 Antenna Gain (dBi) Note 3 EIRP Note 2 Main Aux Total Main Aux Total Main Aux Total dBm W 2412 15.3 15.4 18.4 1.2 1.2 4.2 22.6 0.18 2417 16.7 17.0 19.8 1.2 1.2 4.2 24.1 0.25 2437 18.0 18.2 21.1 1.2 1.2 4.2 25.3 0.34 2462 14.8 14.9 17.9 1.2 1.2 1.2 4.2 22.1 0.16 Output power measured using a spectrum analyzer (see plots below): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ES analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 30 MHz EIRP - if transmit chains are coherent then the EIRP is calculated from the sum of the antenna gains plus the total power (i.e. beam-forming is assumed because of coherency on the chains). If the individual chains are incoherer then the EIRP is calculated from the sum of the numeric gains for each Note 3: If the transmit chains are coherent then the total system antenna gain is the sum of the numeric gains for each antenna. If the transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains are inc	Frequency (MHz) Output Power (dBm) Main Aux Total Main Mux Total Main Aux		•		Yes						
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Output power measured using a spectrum analyzer (see plots below): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ES analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 30 MHz EIRP - if transmit chains are coherent then the EIRP is calculated from the sum of the antenna gains plus the total power (i.e. beam-forming is assumed because of coherency on the chains). If the individual chains are incoherer then the EIRP is calculated from the sum of the individual EIRPs for each chain. If the transmit chains are coherent then the total system antenna gain is the sum of the numeric gains for each antenna. If the transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains.	Output power measured using a spectrum analyzer (see plots below): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ES analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 30 MHz EIRP - if transmit chains are coherent then the EIRP is calculated from the sum of the antenna gains plus the total power (i.e. beam-forming is assumed because of coherency on the chains). If the individual chains are incoherent then the EIRP is calculated from the sum of the individual EIRPs for each chain. If the transmit chains are coherent then the total system antenna gain is the sum of the numeric gains for each antenna. If the transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains.					21.1			4.2	25.3	0.342
RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ES analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 30 MHz EIRP - if transmit chains are coherent then the EIRP is calculated from the sum of the antenna gains plus the total power (i.e. beam-forming is assumed because of coherency on the chains). If the individual chains are incoherer then the EIRP is calculated from the sum of the individual EIRPs for each chain. If the transmit chains are coherent then the total system antenna gain is the sum of the numeric gains for each antenna. If the transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains.	RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was not continuous but the ES analyzer was configured with a gated sweep such that the analyzer was only sweeping when the device was transmitting) and power integration over 30 MHz EIRP - if transmit chains are coherent then the EIRP is calculated from the sum of the antenna gains plus the total power (i.e. beam-forming is assumed because of coherency on the chains). If the individual chains are incoherent then the EIRP is calculated from the sum of the individual EIRPs for each chain. If the transmit chains are coherent then the total system antenna gain is the sum of the numeric gains for each antenna. If the transmit chains are incoherent then the system antenna gain is not applicable as each transmit chains.		2462	14.8	14.9	17.9	1.2	1.2	4.2	22.1	0.161
can be treated independently.	can be treated independently.		RBW=1MHz, VB=3 analyzer was config tranmsitting) and po EIRP - if transmit ch power (i.e. beam-fo then the EIRP is cal	MHz, sam gured with a ower integr nains are c rming is as lculated fro	pple detector a gated swe ation over 3 oherent ther asumed beca om the sum	r, power ave ep such that 0 MHz n the EIRP is ause of cohe of the individ	raging on (tra t the analyzer s calculated fr erency on the dual EIRPs for	nsmitted sig was only so rom the sum chains). If r each chair	weeping when of the ante the individuant.	en the device nna gains plu al chains are i	was s the total incoheren
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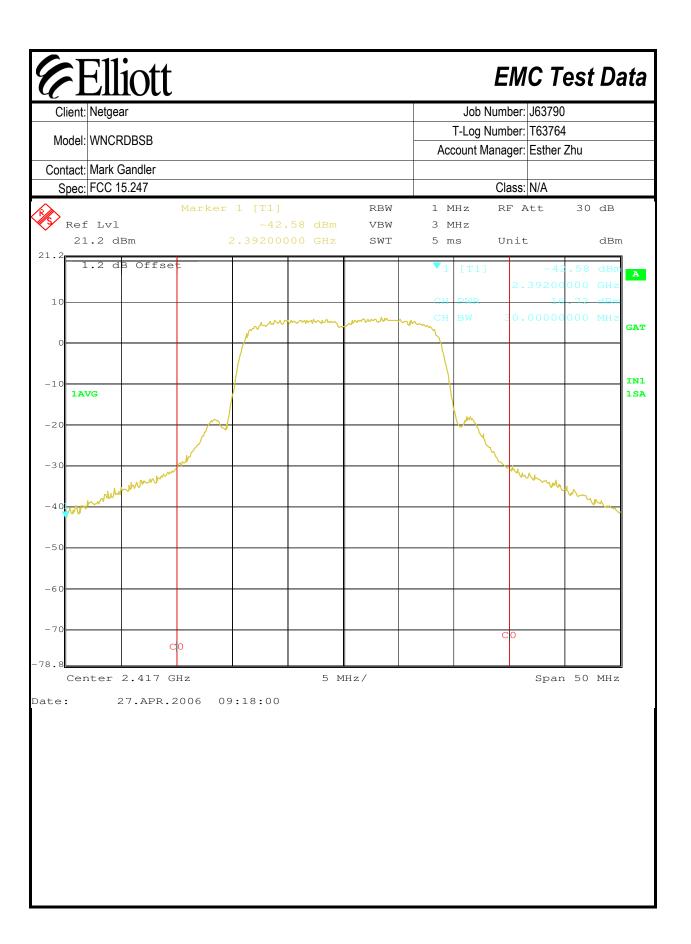


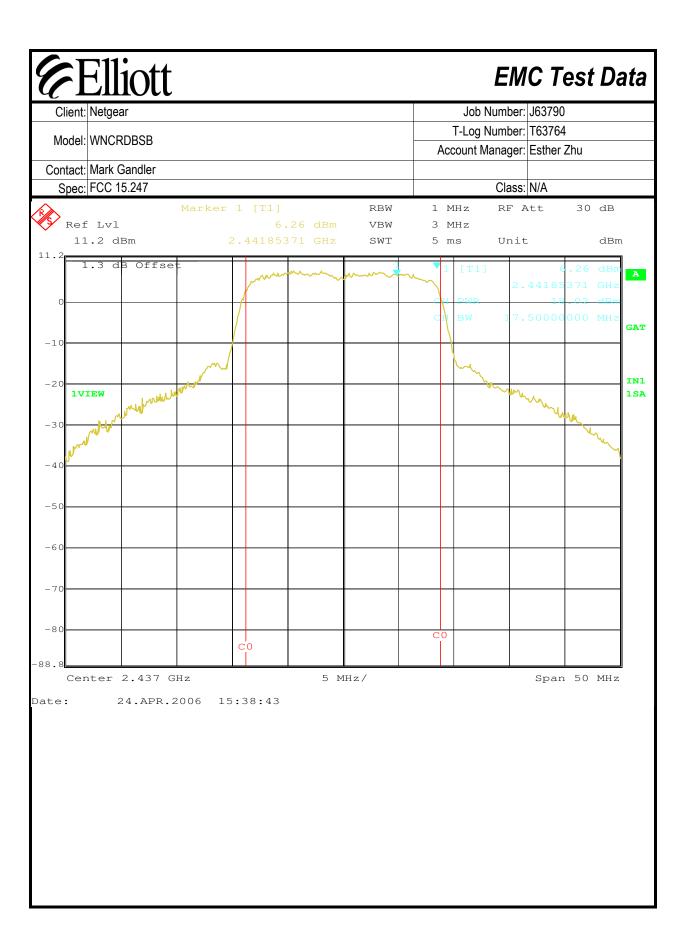




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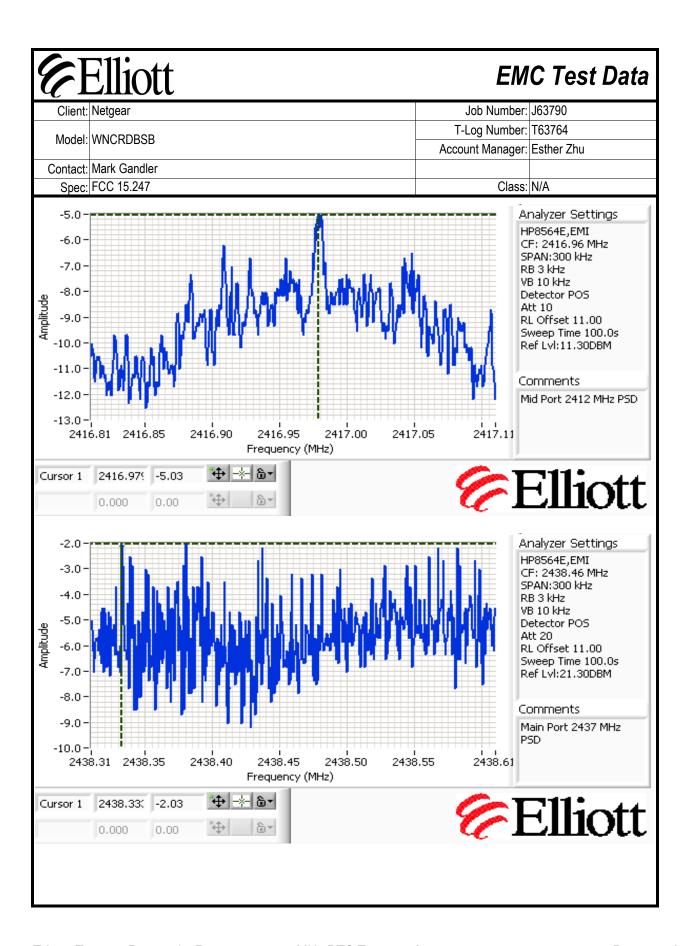


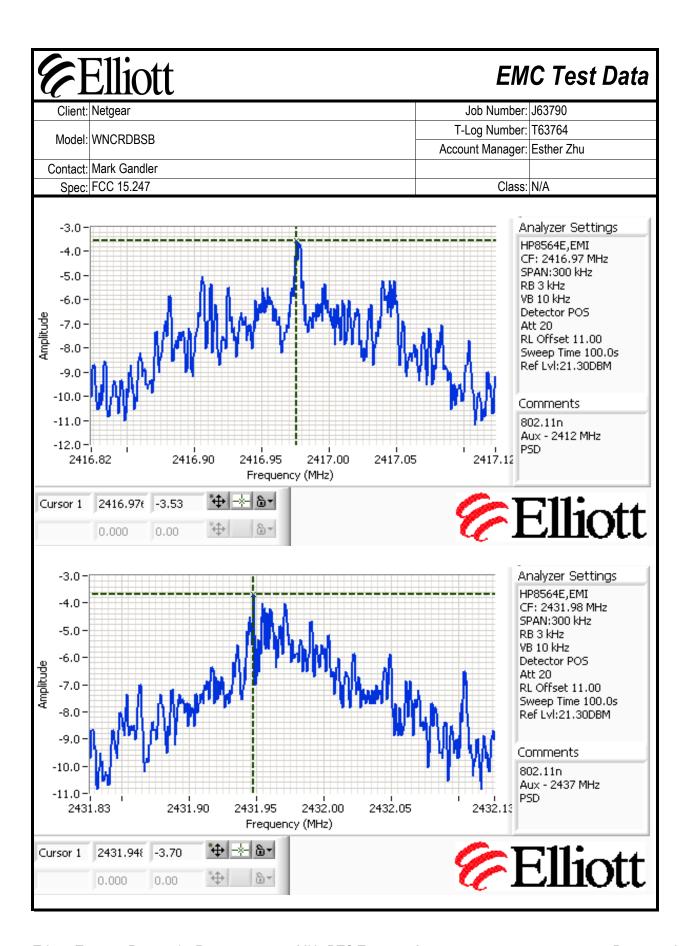


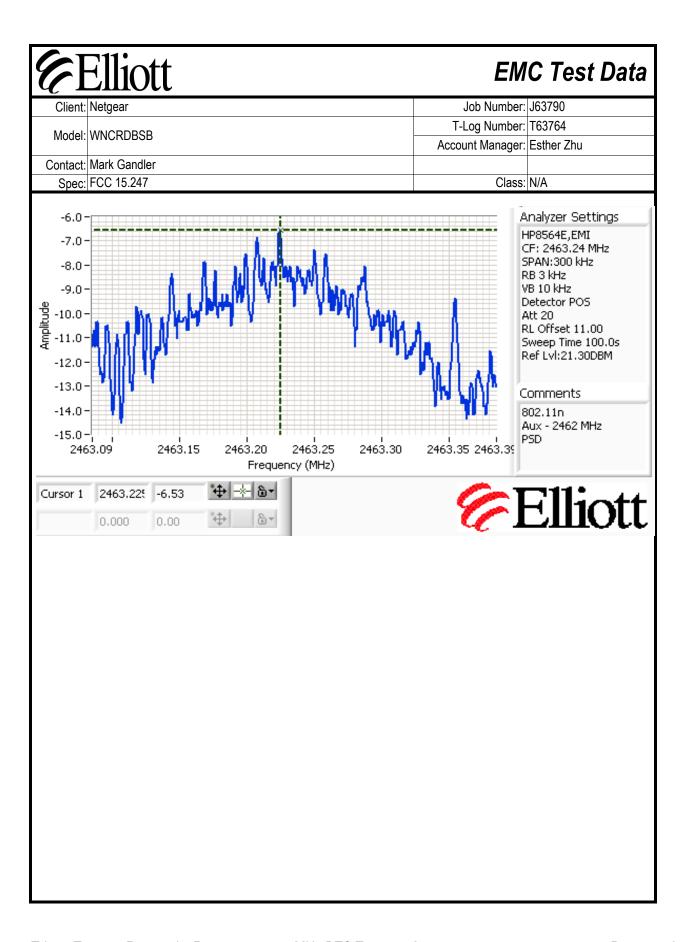


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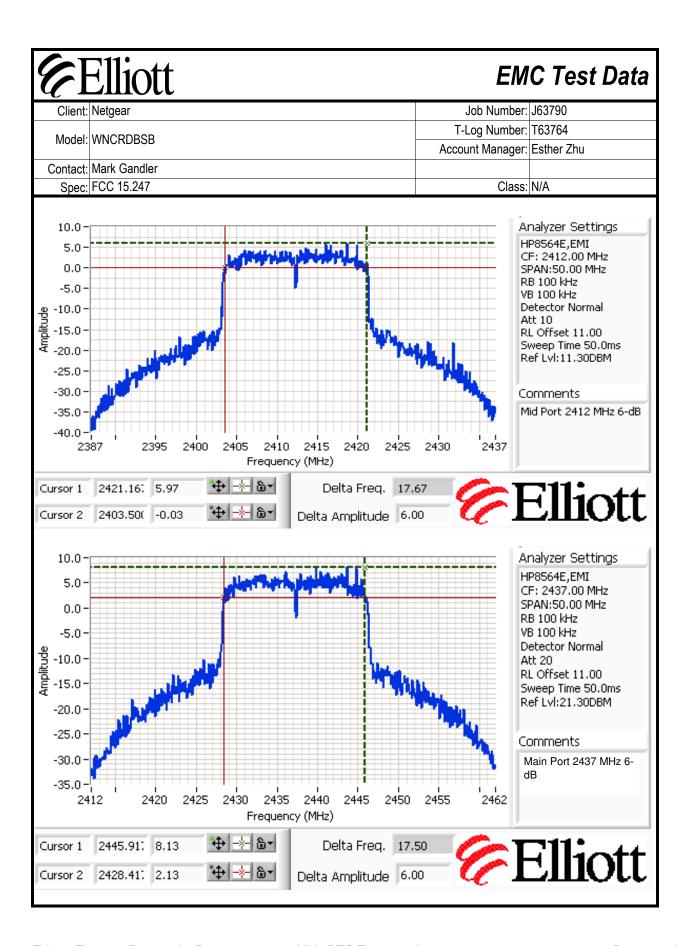
EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #2: Power Spectral Density Power PSD (dBm/3kHz) Limit Result Frequency (MHz) Setting dBm/3kHz Main Total Aux 2412 -0.7 -3.9 8.0 -3.5 Pass 2437 -2.0 -3.7 0.2 8.0 **Pass** 2462 -2.5 8.0 -4.7 -6.5 Pass 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 Note 1: determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal. Analyzer Settings -3.0 HP8564E,EMI -4.0 CF: 2413,19 MHz SPAN:300 kHz -5.0 RB 3 kHz VB 10 kHz -6.0 Detector POS -7.0 Att 20 -8.0 Sweep Time 100.0s Ref Lvl:21.30DBM Comments -11.0 Main port 2412 Mhz PSD -12.0 2413.30 2413.34 2413.10 2413.15 2413.20 2413.25 2413.04 Frequency (MHz) Cursor 1 2413.208 -3.87 Elliott 0.000 0.00

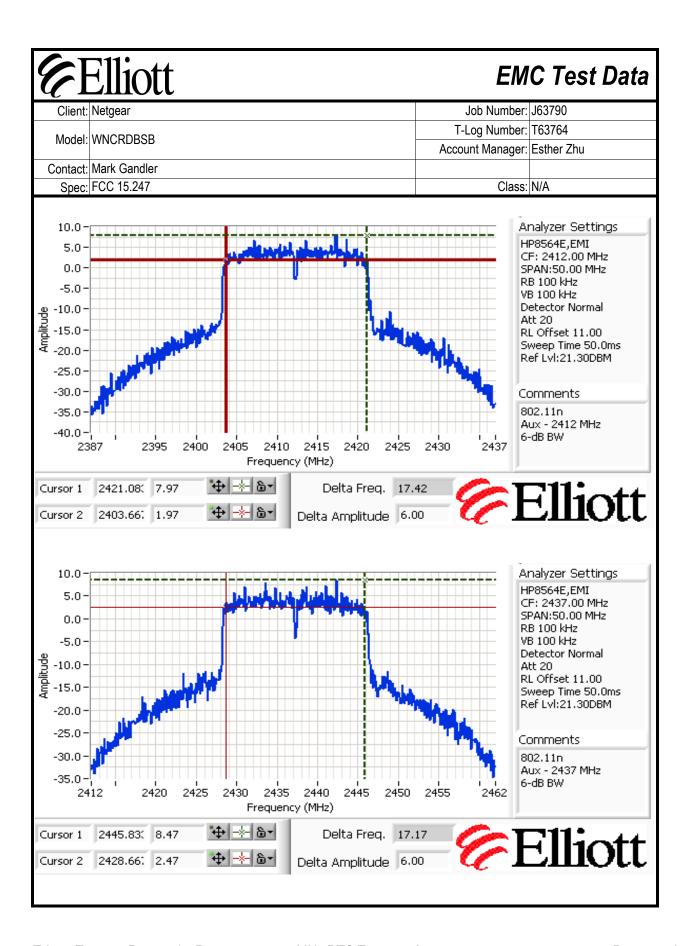


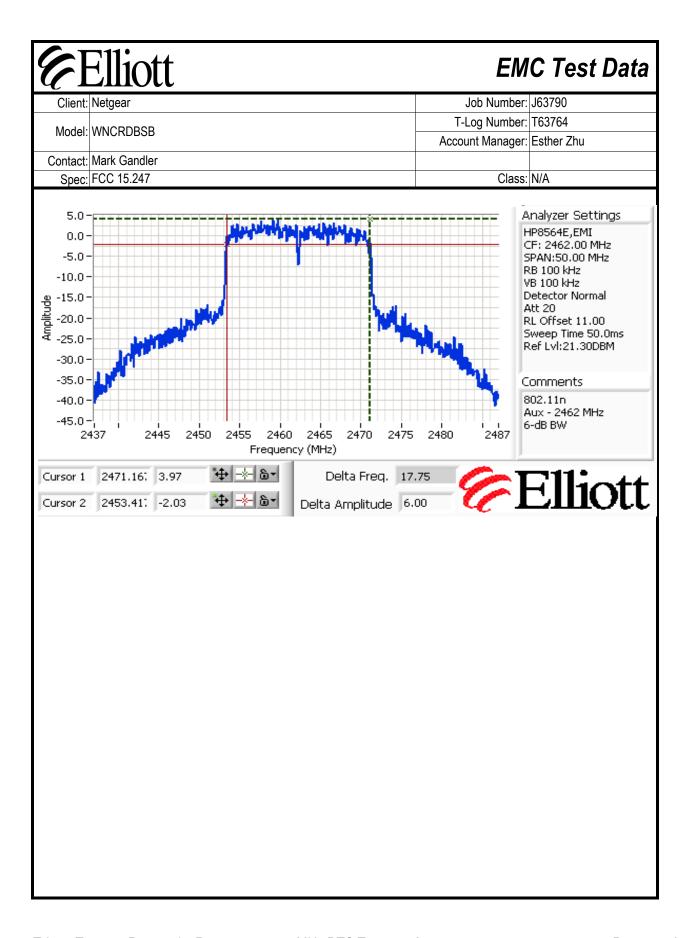




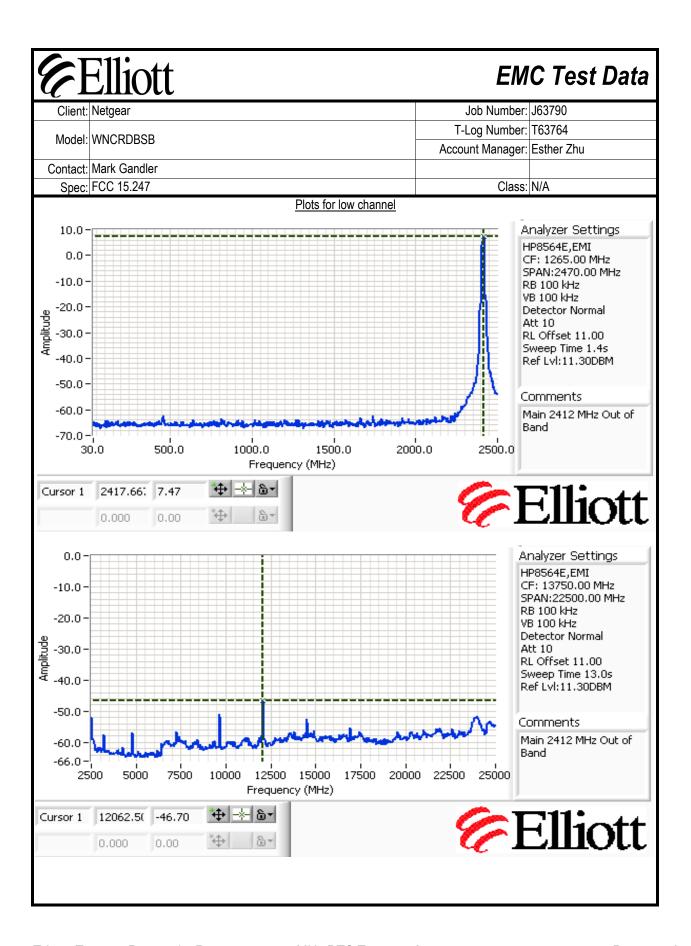
Elliott EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #3: Signal Bandwidth 6dB Signal Bandwidth Power Resolution 99% Signal Bandwidth Frequency (MHz) Setting Bandwidth (MHz) 17.42 2412 100 kHz 2437 100 kHz 17.5 17.17 2462 100 kHz Note 1: Measured on a single chain Analyzer Settings 10.0 HP8564E,EMI 5.0 CF: 2412.00 MHz 0.0 SPAN:50.00 MHz RB 100 kHz -5.0 VB 100 kHz -10.0 --15.0 --20.0 --10.0 Detector Normal Att 20 RL Offset 11.00 Sweep Time 50.0ms Ref Lvl:21.30DBM -25.0· -30.0 Comments Main port 2412 Mhz 6--35.0 -40.0 2410 2415 2425 2405 2420 2430 2400 2437 2395 Frequency (MHz) **↔** -*- 6-Cursor 1 2421.080 7.80 Delta Freq. 17.42 **Elliott** Cursor 2 2403.66; 1.80 Delta Amplitude 6.00

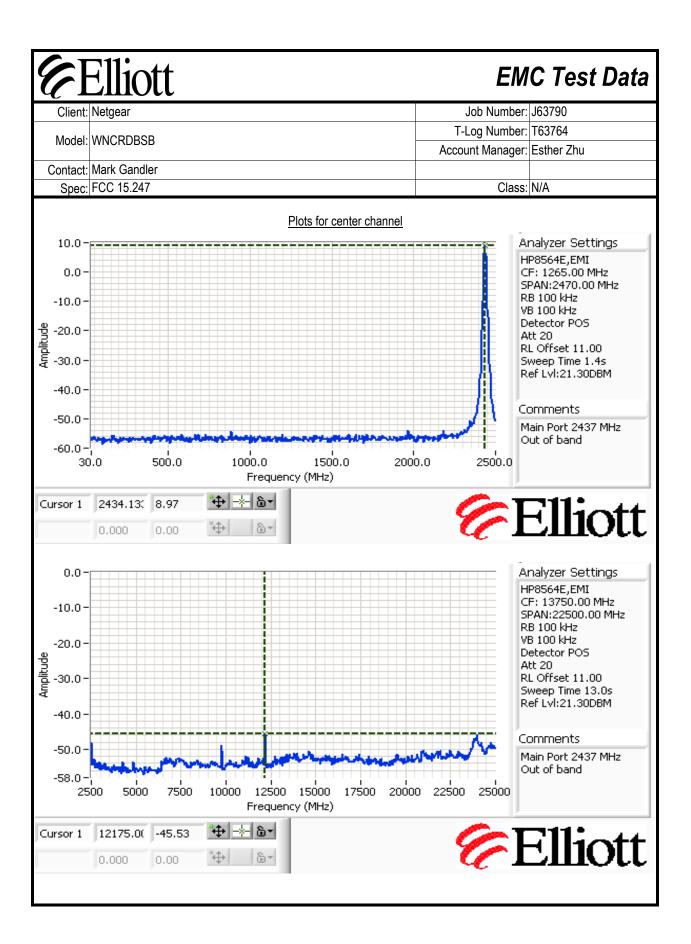


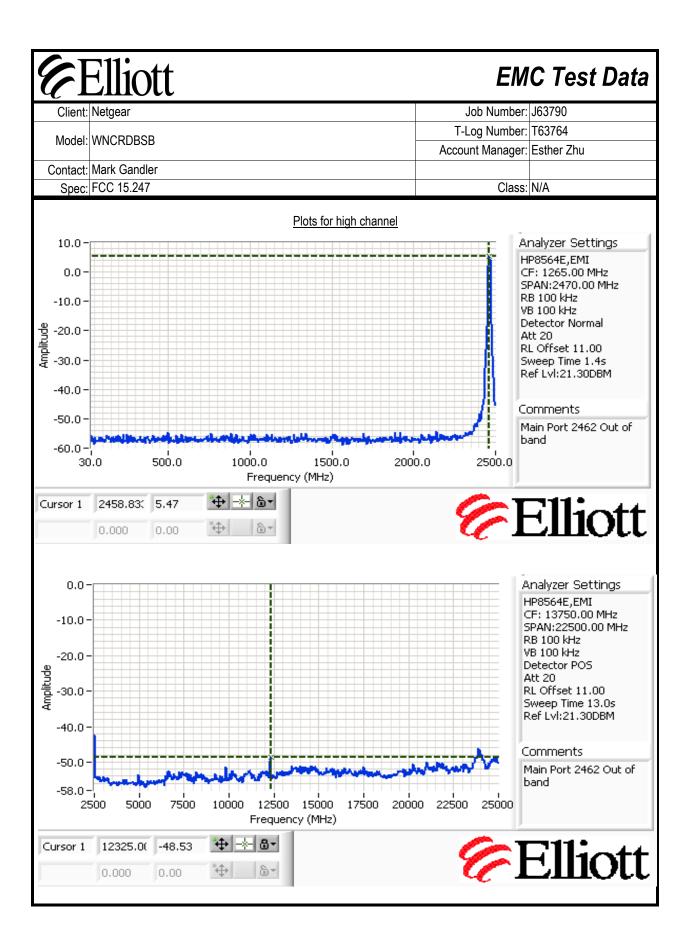


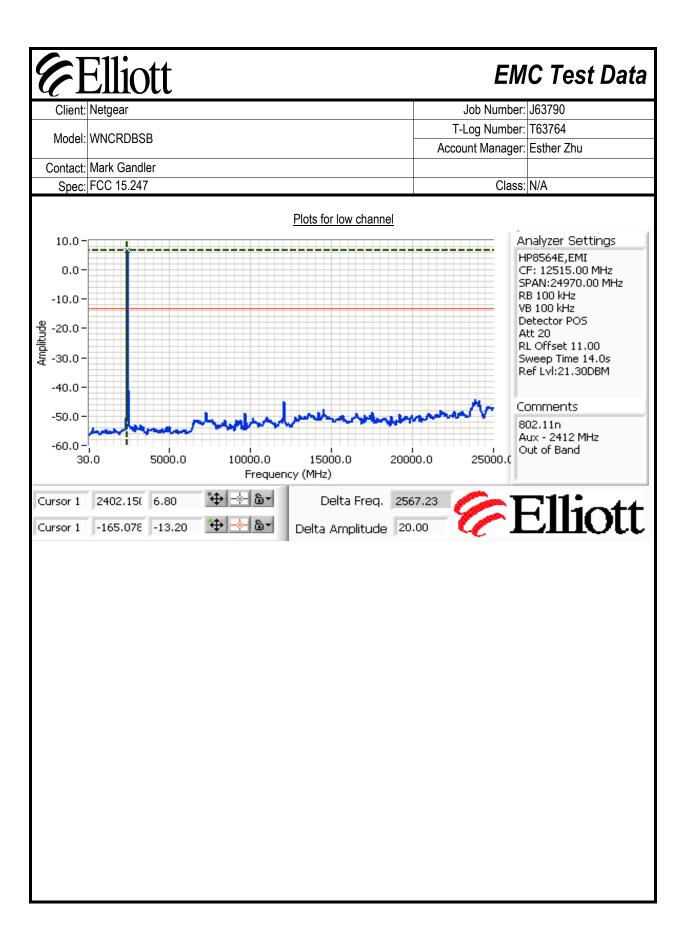


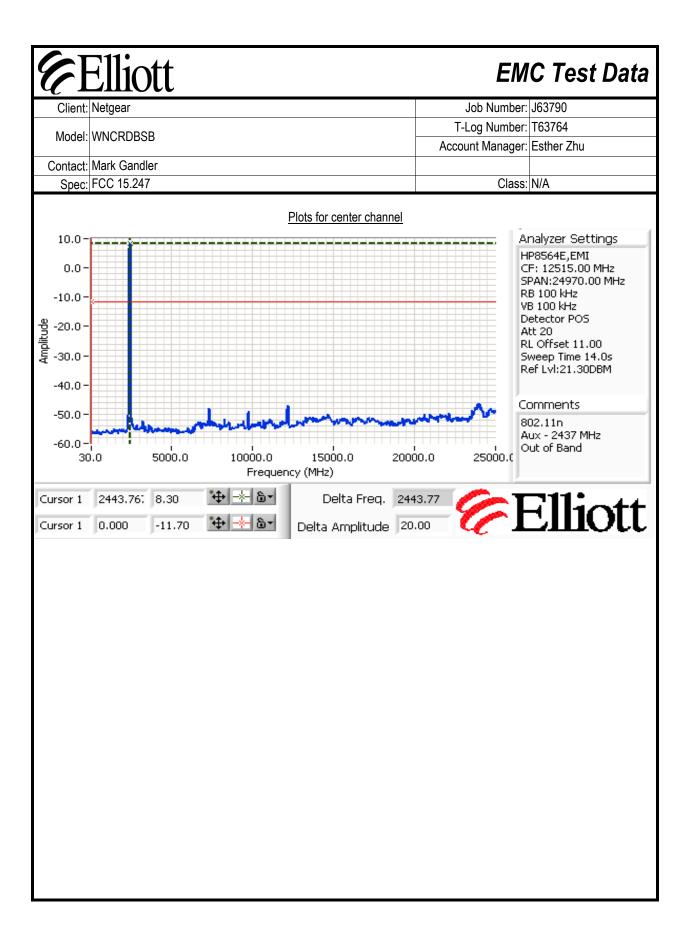
Elliott EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #4: Out of Band Spurious Emissions Power Setting Per Chain Frequency (MHz) Limit Result 2412 -30dBc Refer to plot -30dBc 2437 Refer to plot 2462 -30dBc Refer to plot Measured with all chains connected together through a combiner, unused ports on the combiner terminated in Note 1: 50ohms.

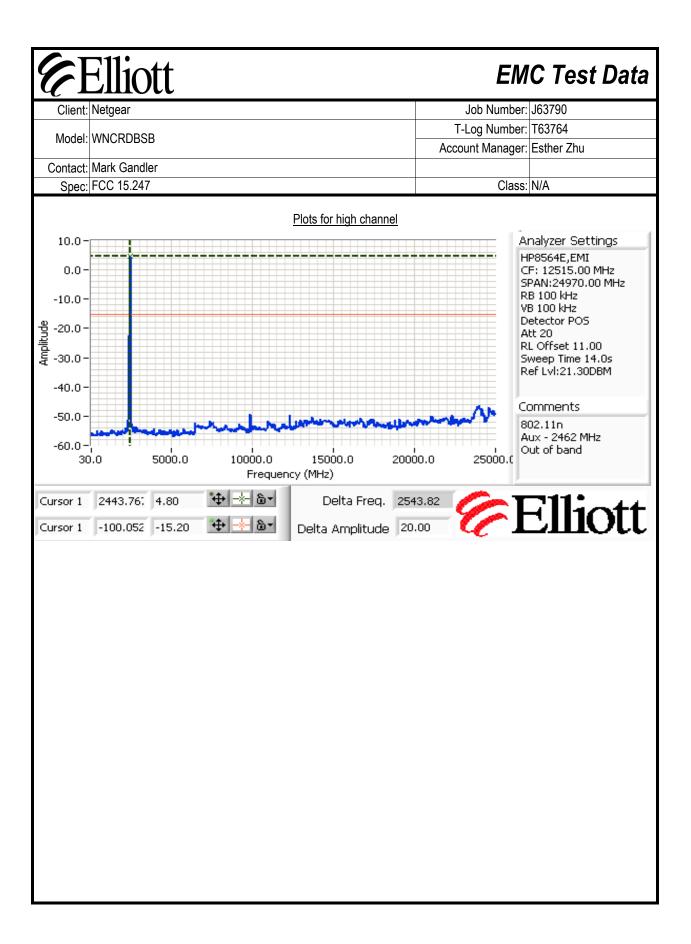












Elliott	EMC Test Data
Client: Netgear	Job Number: J63790
Model: WNCRDBSB	T-Log Number: T63764
	Account Manager: Esther Zhu
Contact: Mark Gandler	
Spec: FCC 15.247	Class: N/A

FCC 15.247 DTS - Bandedge and Spurious Emissions (802.11n, 20MHz)

Test Specifics

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

specification listed above.

Date of Test: 4/25/2006 Config. Used: 1

Test Engineer: Rafael Varelas Config Change: None

Test Location: Fremont Chamber #3 EUT Voltage: 120V/60Hz

General Test Configuration

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

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

Ambient Conditions: Temperature: 20.2 °C

Rel. Humidity: 43 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Bandedges	FCC Part 15.209 / 15.247(c)	Pass	Refer to runs
2	Radiated Spurious Emissions 1,000-26,500MHz	FCC Part 15.209 / 15.247(c)	Pass	Refer to runs

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #1a: Radiated Fundamental and Bandedge. 20MHz, CDD MCS 0(Refer to 20 MHz DTS data sheets (run# 1)) Vertical Antennas: Main and Auxiliary (Low Channel @ 2412 MHz) RBW 1 MHz RF Att 20 dB Ref Lvl 112.72 dB**y**V VBW 1 MHz 113 dB**y**V SWT 5 ms dbyv Unit 32 dB Offset A 100 90 IN1 80 1MA **2VIEW** -D1 74 2MA db**y**v 70 P20 60 50 4 (30 20 Start 2.372953137 GHz 5.104686252 MHz/ Stop 2.424 GHz 25.APR.2006 09:21:19 Date:

EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A 20MHz, CDD MCS 0((Refer to 20 MHz DTS data sheets (run# 1))) Vertical Antennas: Main and Auxiliary (Middle Channel @ 2417 MHz) RBW 1 MHz RF Att 20 dB Ref Lvl VBW 113.97 dB**y**V 1 MHz 115 dB**y**V SWT Unit dB**y**V 32 dB Offset 110 100 90 IN1 1MA 1VIEW 2VIEW 2MA -D1 74 dB**y**V-P20 54 dB**y** 50 Center 2.39 GHz 10 MHz/ Span 100 MHz Date: 25.APR.2006 09:50:35

EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A 20MHz, CDD MCS 0((Refer to 20 MHz DTS data sheets (run# 1))) Vertical Antennas: Main and Auxiliary (High Channel @ 2452 MHz) Marker 4 [T2] RBW 1 MHz RF Att 10 dB Ref Lvl 53.91 dB**y**V VBW 10 Hz 114 dB**y**V 2.48510018 GHz SWT db**y**v 17 s Unit 32 dB Offset 110 74 dB**X** 9(IN1 1MA 2VIEW 2AP dB**y**V P20 60 -D2 54 dB**y**V 50 4 (30 20 6.654063901 MHz/ Span 66.54063901 MHz Center 2.4835 GHz 25.APR.2006 16:48:41 Date:

EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A 20MHz, CDD MCS 0((Refer to 20 MHz DTS data sheets (run# 1))) Vertical Antennas: Main and Auxiliary (2462 MHz) 1 MHz RBW RF Att 10 dB Ref Lvl 111.66 dB**y**V VBW 1 MHz 114 dB**y**V SWT Unit db**y**v 32 d<mark>B</mark> Offset 110 100 **v**₃ 91 IN1 1MA 80 2VIEW 2MA dB**y**V 70 P20 60 54 dB**y**\ 50 4 (30 20 Center 2.4835 GHz 6.654063901 MHz/ Span 66.54063901 MHz Date: 25.APR.2006 16:33:30

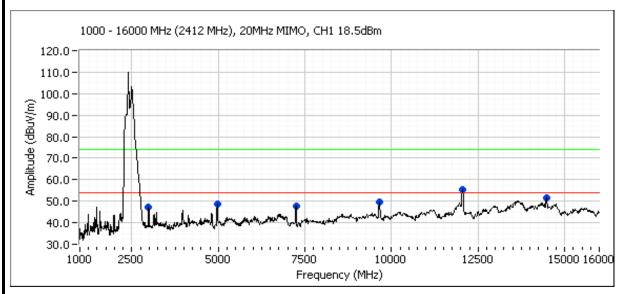
Elliott

EMC Test Data

_			
Client:	Netgear	Job Number:	J63790
Model	WNCRDBSB	T-Log Number:	T63764
Model.	WINCKUDSD	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247	Class:	N/A

Run #2a: Radiated Spurious Emissions

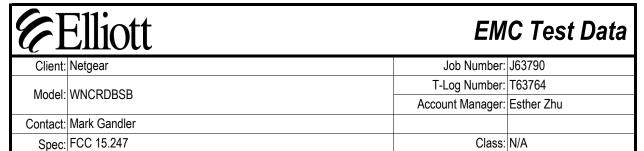
Antennas: Main and Auxiliary (Low Channel @ 2412 MHz)



Other Spurious Emissions

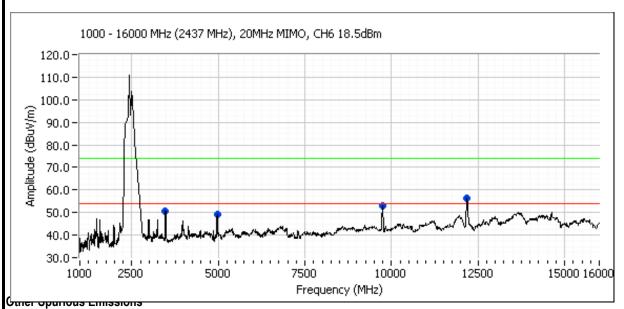
Frequency	Level	Pol	15.209 /	15.247	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
9649.679	42.3	Н	54.0	-11.7	AVG	244	1.2	Not restricted (with restricted limit)
9649.679	55.0	Н	74.0	-19.0	PK	244	1.2	Not restricted (with restricted limit)
12055.44	48.9	Н	54.0	-5.2	AVG	275	1.0	
12055.44	61.5	Н	74.0	-12.5	PK	275	1.0	
14476.24	39.7	V	54.0	-14.4	AVG	278	1.8	
14476.24	50.9	V	74.0	-23.1	PK	278	1.8	

No emission detected 20-dB of the limit from 16 - 18 GHz and from 18 - 26.5 GHz. Measurements were performed on Chamber# 5 on April 25, 2006 by Juan Martinez



Run #2b: Radiated Spurious Emissions

Antennas: Main and Auxiliary (Middle Channel @ 2437 MHz)



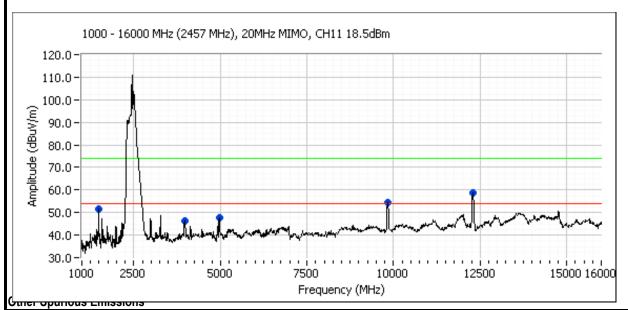
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
9748.996	44.8	V	54.0	-9.3	AVG	275	1.2	Not restricted (with restricted limit)
9748.996	57.7	V	74.0	-16.4	PK	275	1.2	Not restricted (with restricted limit)
12177.31	48.7	Н	54.0	-5.3	AVG	277	1.4	
12177.31	60.6	Н	74.0	-13.4	PK	277	1.4	

No emission detected 20-dB of the limit from 16 - 18 GHz and from 18 - 26.5 GHz. Measurements were performed on Chamber# 5 on April 25, 2006 by Juan Martinez

Elliott EMC Test Data Client: Netgear Job Number: J63790 Model: WNCRDBSB T-Log Number: T63764 Contact: Mark Gandler Account Manager: Esther Zhu Spec: FCC 15.247 Class: N/A

Run #2c: Radiated Spurious Emissions

Antennas: Main and Auxiliary (High Channel @ 2462 MHz)



Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1500.516	44.6	V	54.0	-9.4	AVG	174	1.0	
1500.516	52.9	V	74.0	-21.1	PK	174	1.0	
9848.813	46.0	Н	54.0	-8.0	AVG	240	1.2	Not restricted (with restricted limit)
9848.813	58.9	Н	74.0	-15.1	PK	240	1.2	Not restricted (with restricted limit)
12316.91	50.3	Н	54.0	-3.7	AVG	272	1.0	
12316.91	63.4	Н	74.0	-10.6	PK	272	1.0	

No emission detected 20-dB of the limit from 16 - 18 GHz and from 18 - 26.5 GHz. Measurements were performed on Chamber# 5 on April 25, 2006 by Juan Martinez

Elliott	EMC Test Data
Client: Netgear	Job Number: J63790
Model: WNCRDBSB	T-Log Number: T63764
IVIOUEI. WINCRDB3B	Account Manager: Esther Zhu
Contact: Mark Gandler	
Spec: FCC 15.247	Class: N/A

RSS 210 and FCC 15.247 Antenna Port Power, Bandwitdh, & Spurious Emissions (802.11n, 40 MHz)

Test Specifics

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

specification listed above.

Date of Test: 5/3/2006 Config. Used: 1

Test Engineer: Chris Byleckie Config Change: None

Test Location: Fremont Chamber #4 Host Unit Voltage 120V/60Hz

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. For the spurious emissions all transmit chains were connected simultaneously to the analyzer via a combiner. All other measurements were made on a single chain.

All measurements are corrected to allow for the external attenuators used.

Ambient Conditions: Temperature: 24 °C

Rel. Humidity: 48 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power	15.247(b)	Pass	Refer to run
2	Power Spectral Density (PSD)	15.247(d)	Pass	Refer to run
3	6dB Bandwidth	15.247(a)	Pass	Refer to run
4	Spurious emissions	15.247(b)	Pass	Refer to run

Modifications Made During Testing:

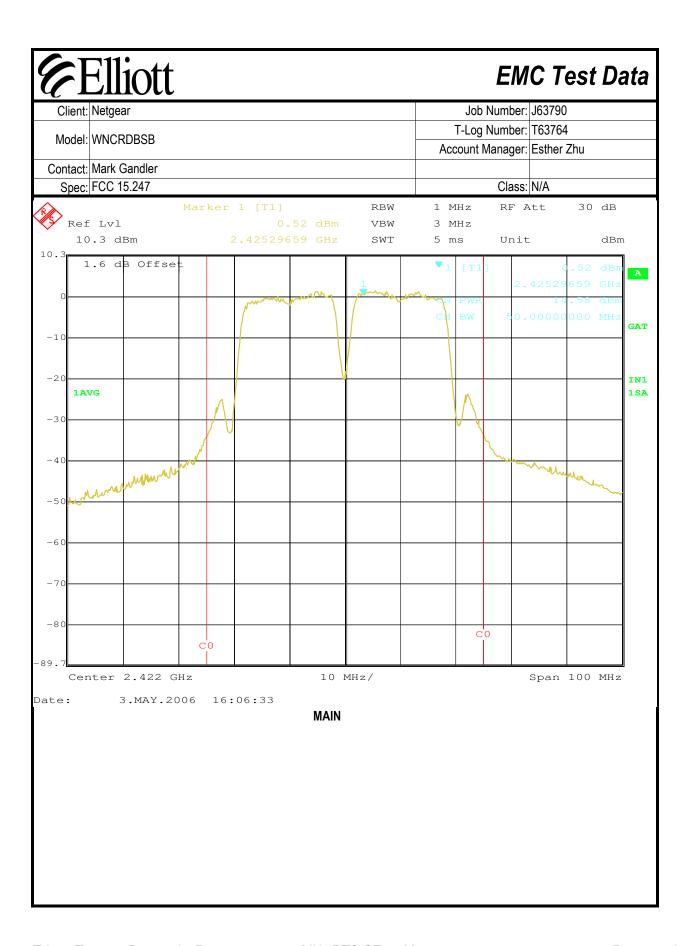
No modifications were made to the EUT during testing

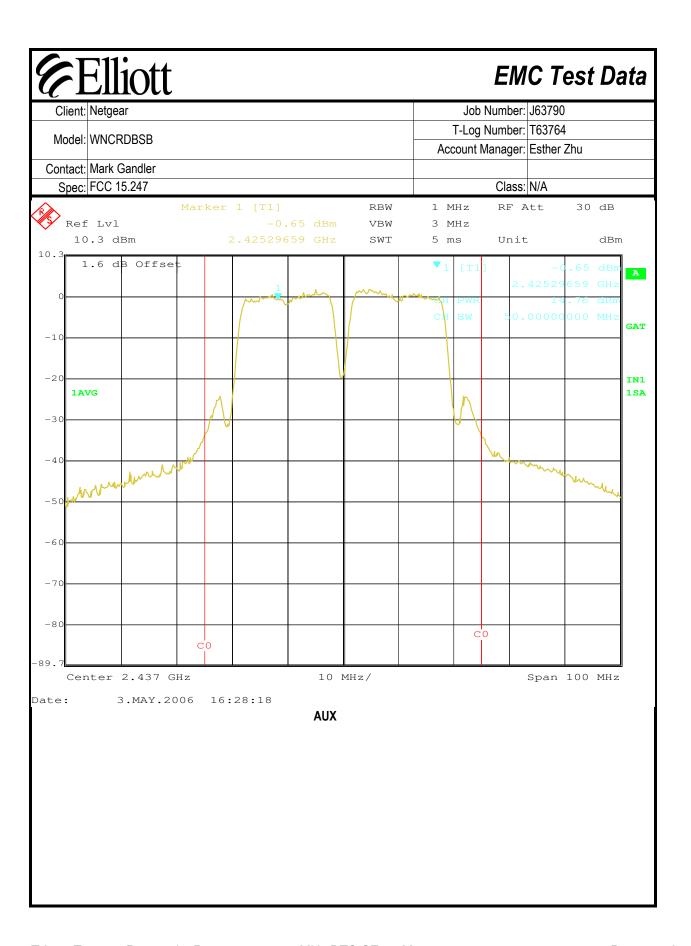
Deviations From The Standard

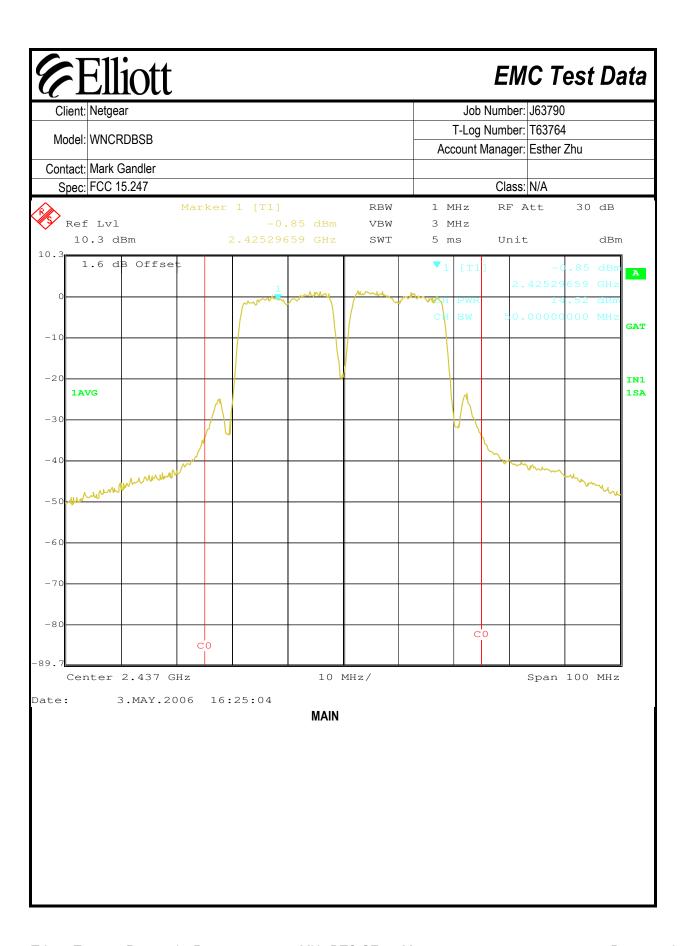
No deviations were made from the requirements of the standard.

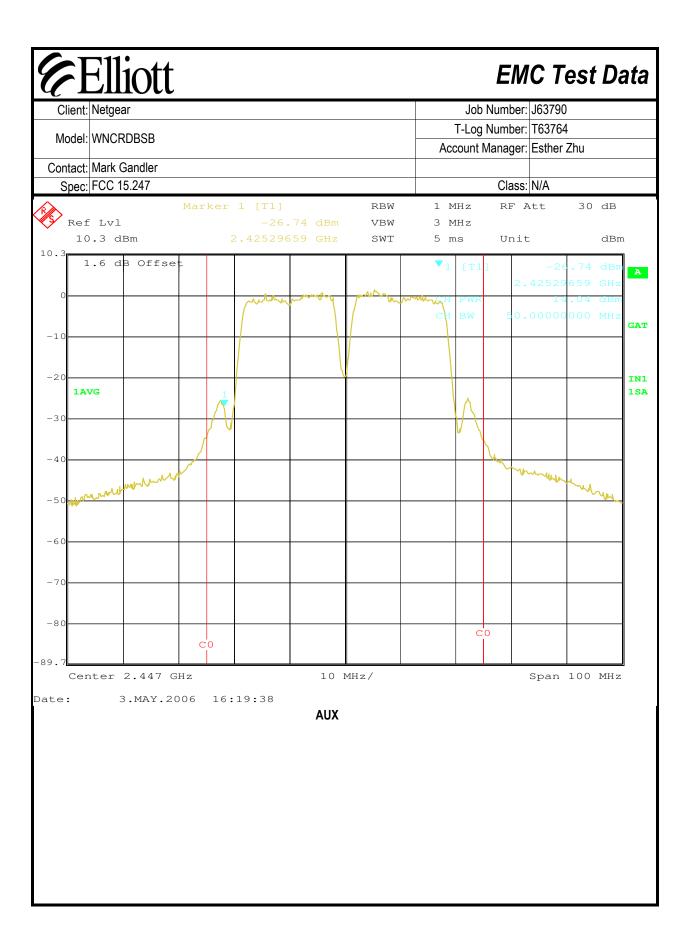
	Elliott					l,	b Number:	.163790		
Ollerit.	Neigeal						g Number:			
Model:	WNCRDBSB						<u> </u>	Esther Zhu		
Contact:	Mark Gandler					Accoun	it Manager.	Estrier Znu		
	FCC 15.247						Class:	N/A		
орсо.	1 00 10.211		МА	IN & AII	X PORTS	3	Glaco.	14/7		
n #1· ∩	utput Power		IVIZ	III & AU	A I OILI	,				
	d signal on chain is	coherent?	Yes							
	/ Power Measurem		. •••							
Power	Frequency (MHz)		Power (dBr	n) ^{Note 1}	Antenr	na Gain (dBi)	Note 3	EIRP	Note 2	
-		Main	Aux	Total	Main	Aux	Total	dBm	W	
	2422	14.6	14.5	17.6	1.2	1.2	4.2	21.8	0.150	
	2437	14.5	14.8	17.7	1.2	1.2	4.2	21.9	0.154	
	2447 2452	13.7 12.9	14.0 13.2	16.9 16.1	1.2 1.2	1.2 1.2	4.2 4.2	21.1 20.3	0.129 0.107	
	2402	12.3	13.2	10.1	1.2	1.2	4.2	20.5	0.107	
	analyzer was config tranmsitting) and po EIRP - if transmit cl power (i.e. beam-fo then the EIRP is ca	ower integra nains are co orming is as	ation over 5 oherent ther sumed beca	MHz the EIRP is ause of cohe	calculated f	rom the sum chains). If t	of the anter	nna gains plu	s the total	
Note 2:	tranmsitting) and po EIRP - if transmit cl power (i.e. beam-fo	ower integration in the property of the proper	ation over 50 oherent ther sumed became the sum of rent then the	OMHz the EIRP is ause of cohe of the individ to total system	calculated f rency on the ual EIRPs fo n antenna ga	rom the sum chains). If t r each chain ain is the sur	of the anter he individua n of the num	nna gains plus Il chains are in neric gains for	s the total ncoherent	
Note 2:	tranmsitting) and por EIRP - if transmit cl power (i.e. beam-fo then the EIRP is ca If the transmit chair	ower integration in the property of the proper	ation over 50 oherent there sumed became the sum of rent then the	OMHz the EIRP is ause of cohe of the individ to total system	calculated f rency on the ual EIRPs fo n antenna ga	rom the sum chains). If t r each chain ain is the sur	of the anter he individua n of the num	nna gains plus Il chains are in neric gains for	s the total	
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Note 2:	tranmsitting) and por EIRP - if transmit of power (i.e. beam-fo then the EIRP is ca If the transmit chair antenna. If the tran	ower integration in the property of the proper	ation over 50 oherent there sumed became the sum of rent then the	OMHz the EIRP is ause of cohe of the individ to total system	calculated f rency on the ual EIRPs fo n antenna ga	rom the sum chains). If t r each chain ain is the sur	of the anter he individua n of the num	nna gains plus Il chains are in neric gains for	s the total ncoherent	
Note 2:	tranmsitting) and por EIRP - if transmit of power (i.e. beam-fo then the EIRP is ca If the transmit chair antenna. If the tran	ower integration in the property of the proper	ation over 50 oherent there sumed became the sum of rent then the	OMHz the EIRP is ause of cohe of the individ to total system	calculated f rency on the ual EIRPs fo n antenna ga	rom the sum chains). If t r each chain ain is the sur	of the anter he individua n of the num	nna gains plus Il chains are in neric gains for	s the total ncoherent	
Note 2:	tranmsitting) and por EIRP - if transmit of power (i.e. beam-fo then the EIRP is ca If the transmit chair antenna. If the tran	ower integration in the property of the proper	ation over 50 oherent there sumed became the sum of rent then the	OMHz the EIRP is ause of cohe of the individ to total system	calculated f rency on the ual EIRPs fo n antenna ga	rom the sum chains). If t r each chain ain is the sur	of the anter he individua n of the num	nna gains plus Il chains are in neric gains for	s the total ncoherent	
Note 2:	tranmsitting) and por EIRP - if transmit of power (i.e. beam-fo then the EIRP is ca If the transmit chair antenna. If the tran	ower integration in the property of the proper	ation over 50 oherent there sumed became the sum of rent then the	OMHz the EIRP is ause of cohe of the individ to total system	calculated f rency on the ual EIRPs fo n antenna ga	rom the sum chains). If t r each chain ain is the sur	of the anter he individua n of the num	nna gains plus Il chains are in neric gains for	s the total ncoherent	
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Note 2:	tranmsitting) and por EIRP - if transmit of power (i.e. beam-fo then the EIRP is ca If the transmit chair antenna. If the tran	ower integration in the property of the proper	ation over 50 oherent there sumed became the sum of rent then the	OMHz the EIRP is ause of cohe of the individ to total system	calculated f rency on the ual EIRPs fo n antenna ga	rom the sum chains). If t r each chain ain is the sur	of the anter he individua n of the num	nna gains plus Il chains are in neric gains for	s the total	
Note 2:	tranmsitting) and por EIRP - if transmit of power (i.e. beam-fo then the EIRP is ca If the transmit chair antenna. If the tran	ower integration in the property of the proper	ation over 50 oherent there sumed became the sum of rent then the	OMHz the EIRP is ause of cohe of the individ to total system	calculated f rency on the ual EIRPs fo n antenna ga	rom the sum chains). If t r each chain ain is the sur	of the anter he individua n of the num	nna gains plus Il chains are in neric gains for	s the total ncoherent	
Note 2:	tranmsitting) and por EIRP - if transmit of power (i.e. beam-fo then the EIRP is ca If the transmit chair antenna. If the tran	ower integration in the property of the proper	ation over 50 oherent there sumed became the sum of rent then the	OMHz the EIRP is ause of cohe of the individ to total system	calculated f rency on the ual EIRPs fo n antenna ga	rom the sum chains). If t r each chain ain is the sur	of the anter he individua n of the num	nna gains plus Il chains are in neric gains for	s the total ncoherent	
Note 2:	tranmsitting) and por EIRP - if transmit of power (i.e. beam-fo then the EIRP is ca If the transmit chair antenna. If the tran	ower integration in the property of the proper	ation over 50 oherent there sumed became the sum of rent then the	OMHz the EIRP is ause of cohe of the individ to total system	calculated f rency on the ual EIRPs fo n antenna ga	rom the sum chains). If t r each chain ain is the sur	of the anter he individua n of the num	nna gains plus Il chains are in neric gains for	s the total ncoherent	
Note 2:	tranmsitting) and por EIRP - if transmit of power (i.e. beam-fo then the EIRP is ca If the transmit chair antenna. If the tran	ower integration in the property of the proper	ation over 50 oherent ther sumed became the sum of rent then the	OMHz the EIRP is ause of cohe of the individ to total system	calculated f rency on the ual EIRPs fo n antenna ga	rom the sum chains). If t r each chain ain is the sur	of the anter he individua n of the num	nna gains plus Il chains are in neric gains for	s the total ncoherent	
Note 2:	tranmsitting) and por EIRP - if transmit of power (i.e. beam-fo then the EIRP is ca If the transmit chair antenna. If the tran	ower integration in the property of the proper	ation over 50 oherent ther sumed became the sum of rent then the	OMHz the EIRP is ause of cohe of the individ to total system	calculated f rency on the ual EIRPs fo n antenna ga	rom the sum chains). If t r each chain ain is the sur	of the anter he individua n of the num	nna gains plus Il chains are in neric gains for	s the total ncoherent	
Note 1: Note 2: Note 3:	tranmsitting) and por EIRP - if transmit of power (i.e. beam-fo then the EIRP is ca If the transmit chair antenna. If the tran	ower integration in the property of the proper	ation over 50 oherent ther sumed became the sum of rent then the	OMHz the EIRP is ause of cohe of the individ to total system	calculated f rency on the ual EIRPs fo n antenna ga	rom the sum chains). If t r each chain ain is the sur	of the anter he individua n of the num	nna gains plus Il chains are in neric gains for	s the total ncoherent	

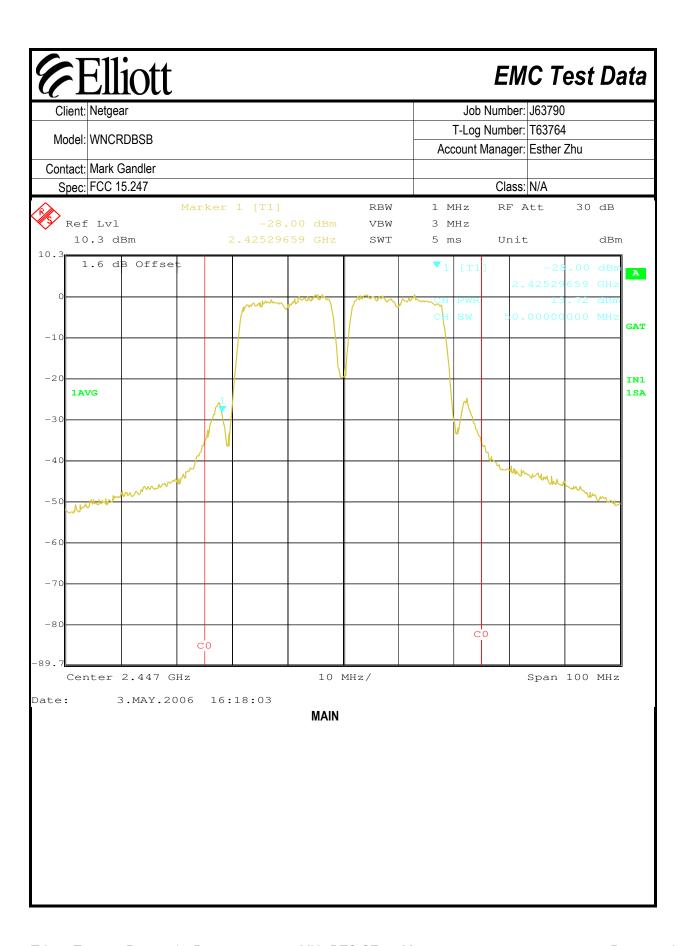
Model: WNCRDBSB			lumber: J63790 lumber: T63764			
	-		ger: 163764 ger: Esther Zhu	<u> </u>		
ontact: Mark Gandler Spec: FCC 15.247			ass: N/A			
Marker 1 [T1]	RBW		0 dB			
Ref Lvl 0.69 10.3 dBm 2.42529659	dBm VBW	3 MHz	F Att 3	dBm		
1.6 dB Offset	1	▼ 1 [T1]	C.6	9 dBm 9 GHz		
	- Aller Andrews	CH BW 5	14.4	9 dBm 0 MHz G		
1AVG				1		
		V	A .			
O March March World			and was the	~~~		
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7 Center 2.422 GHz	10 MHz/		Span 10	0 MHz		

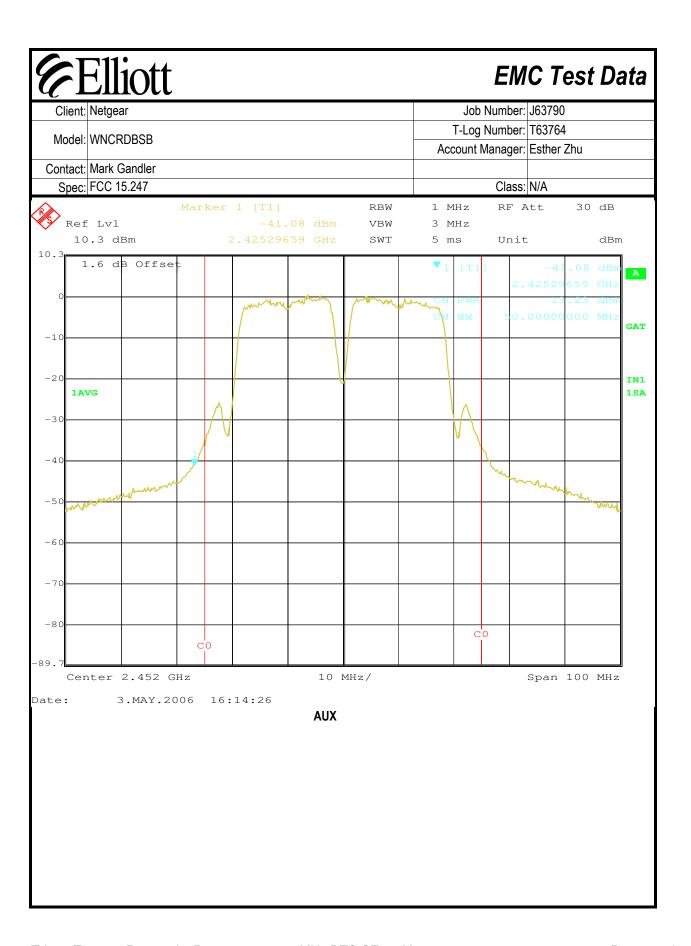


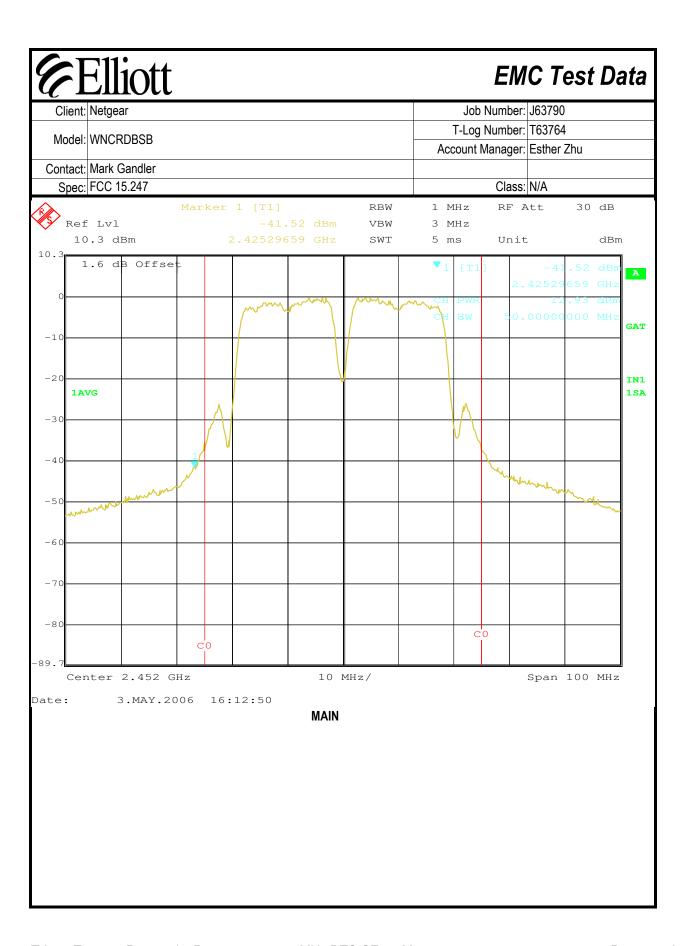




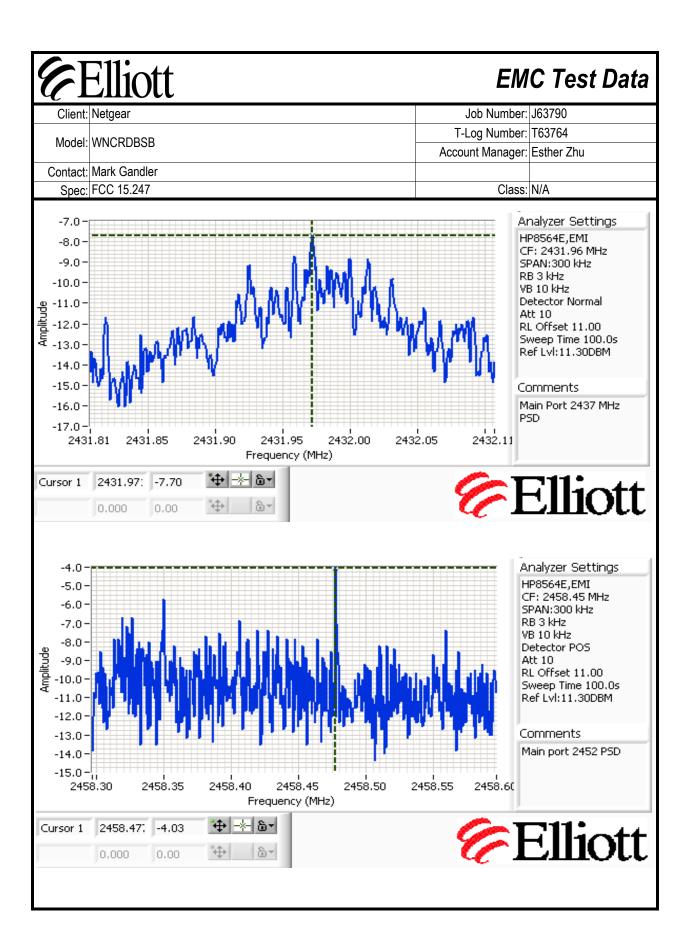


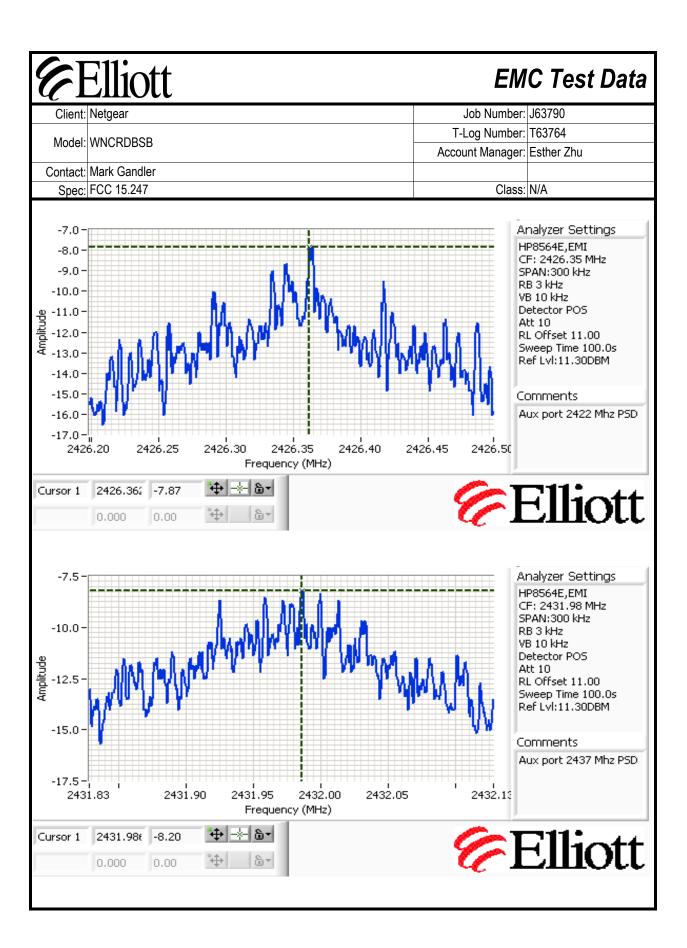


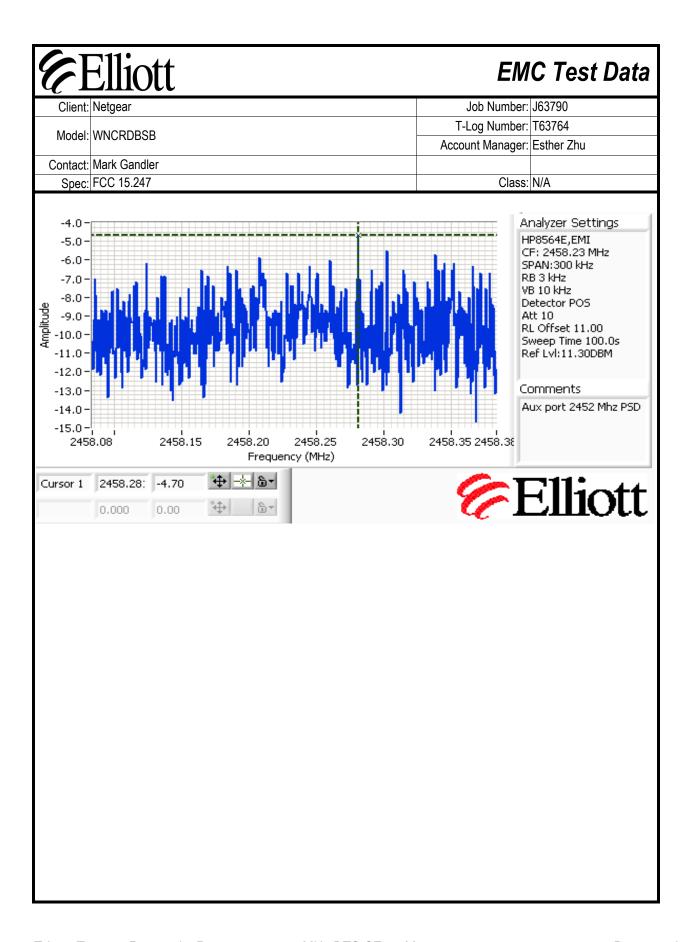




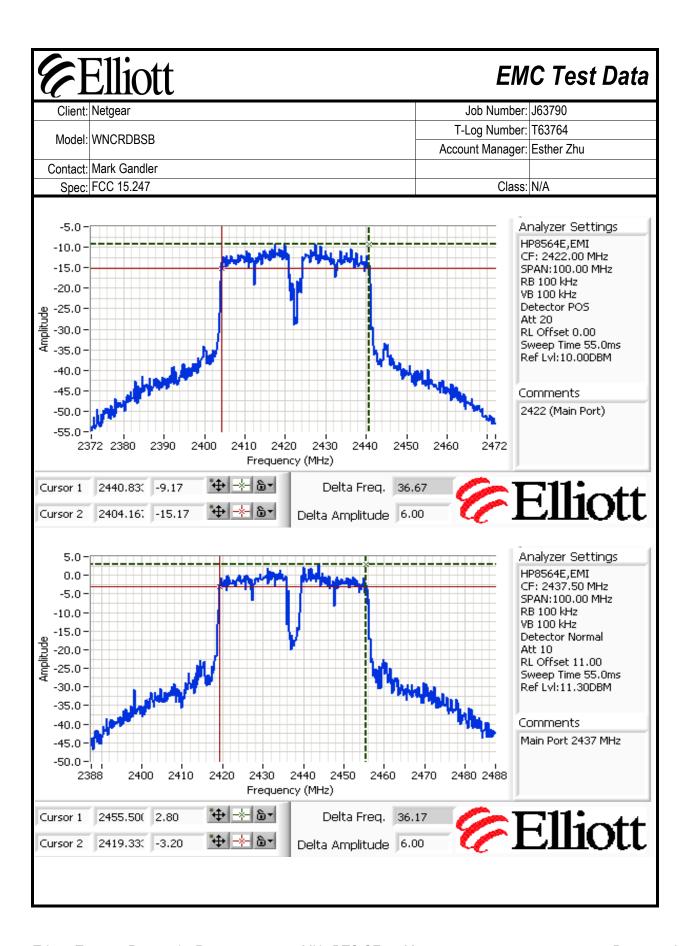
EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run# 2: Power Spectral Density Power PSD (dBm/3kHz) Limit Result Frequency (MHz) Setting dBm/3kHz Main Total Aux 2422 -5.0 -7.9 -3.2 8.0 Pass 2437 -7.7 -8.2 -4.9 8.0 **Pass** 2452 -1.3 8.0 -4.0 -4.7 Pass 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 Note 1: determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal. Analyzer Settings -5.0 HP8564E,EMI -6.0 CF: 2430,96 MHz -7.0 SPAN:300 kHz RB 3 kHz -8.0 VB 3 kHz Detector POS Att 20 -10.0 RL Offset 11.00 -11.0 Sweep Time 100.0s Ref Lvl:21.30DBM Comments -14.0-15.0 Main Port 2422 -16.0 MHz PSD 2430.90 2430.95 2431.00 2431.11 2430.81 2430.85 2431.05 Frequency (MHz) 2431.067 -5.03 Cursor 1 Elliott 0.000 0.00

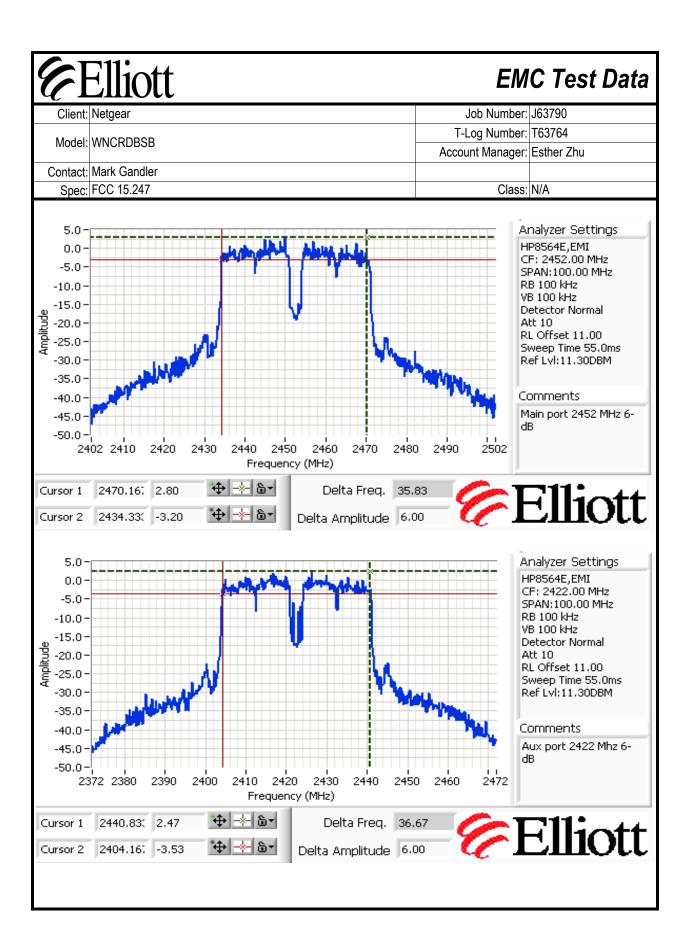


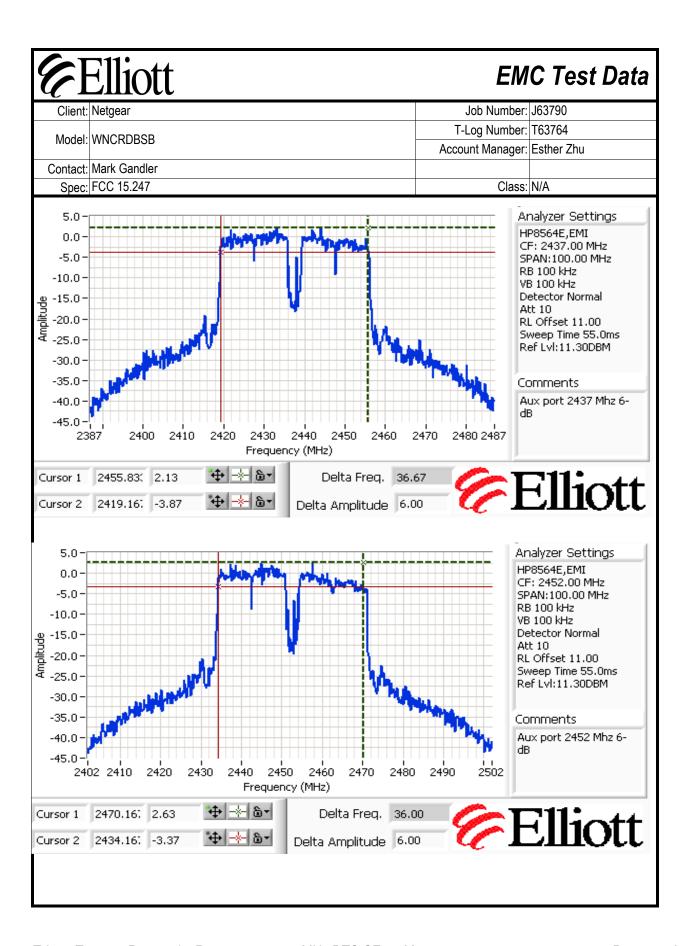




Elliott EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #3: Signal Bandwidth Power Resolution 6dB Signal Bandwidth Frequency (MHz) 99% Signal Bandwidth Bandwidth (MHz) Setting 36.67 2422 100 kHz 2437 36.17 100 kHz 2452 100 kHz 35.83 Note 1: Measured on a single chain

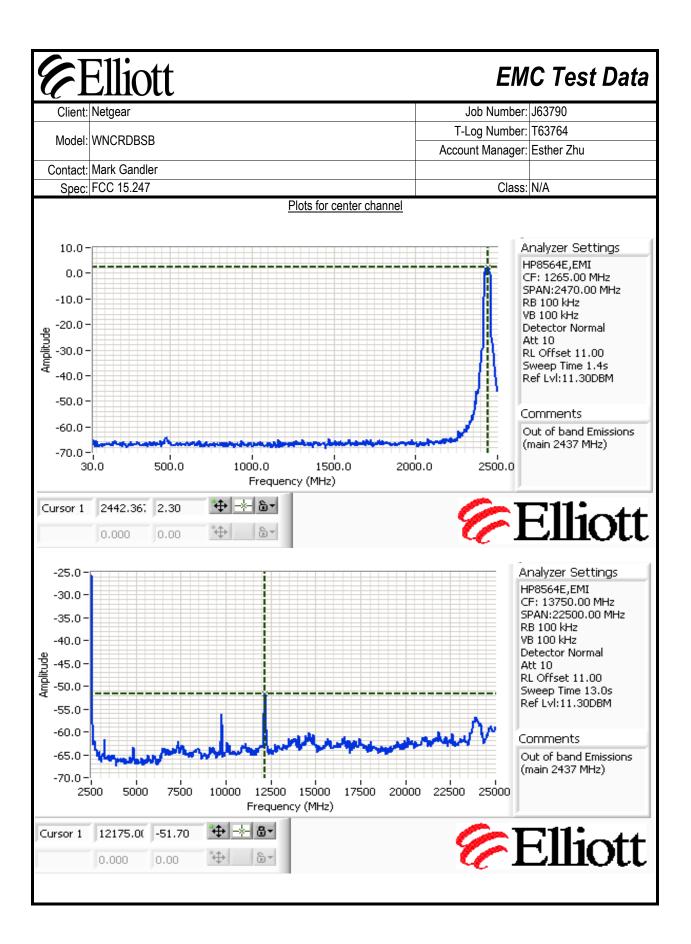


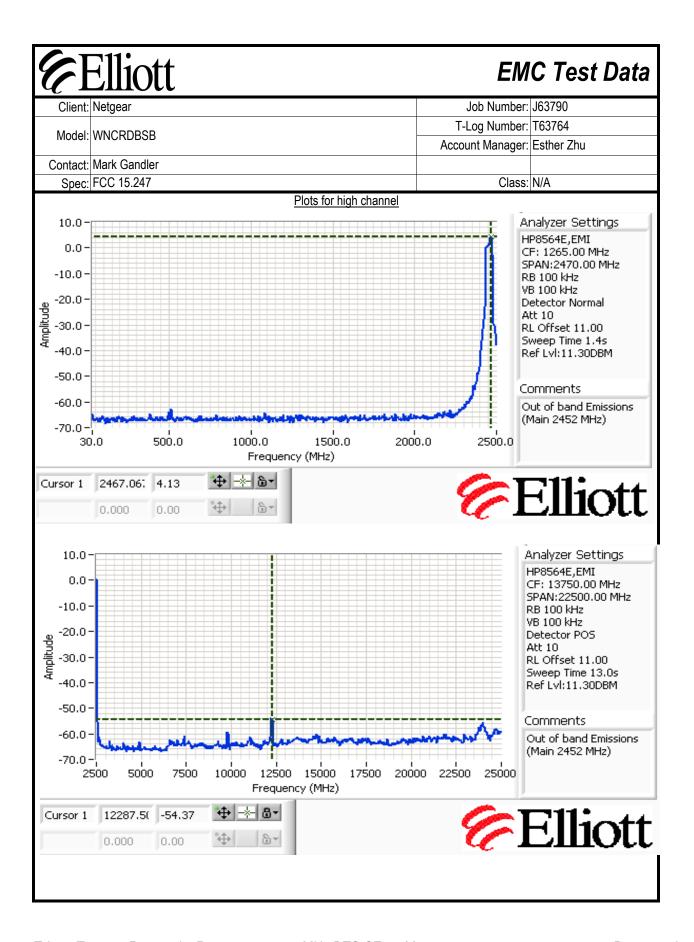


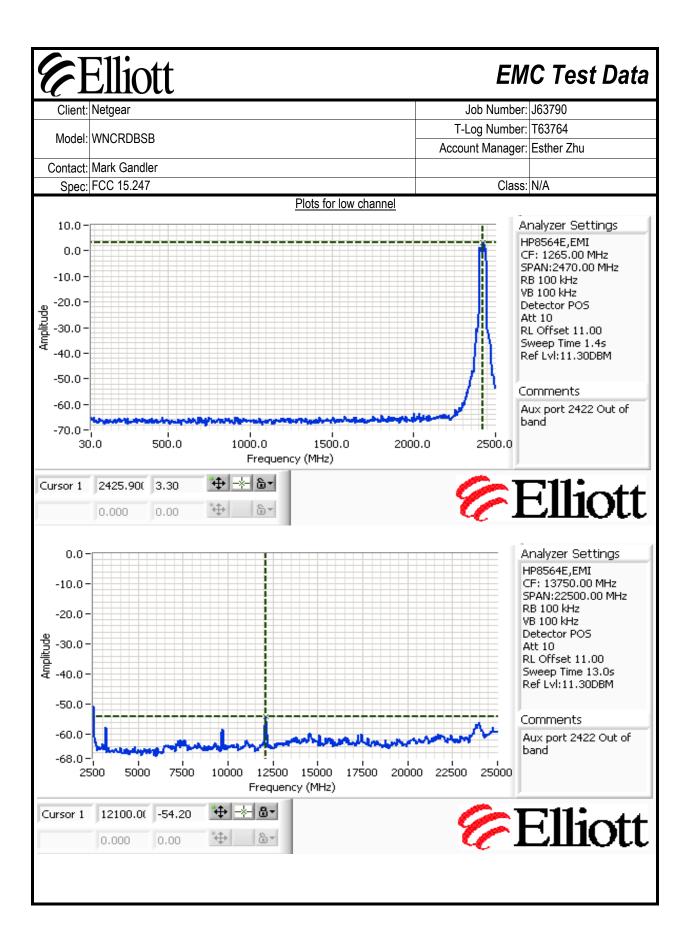


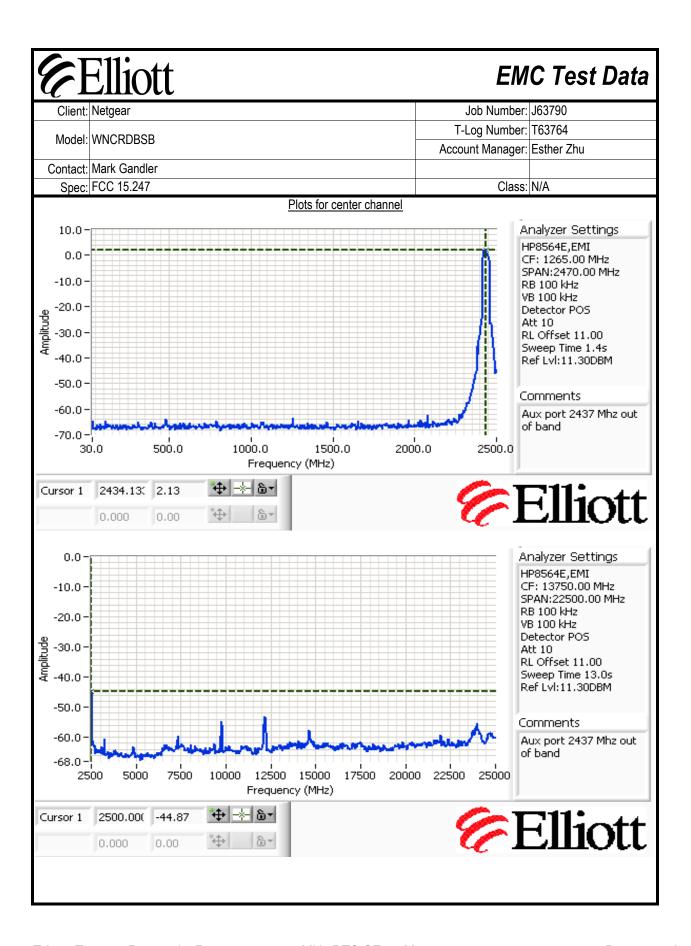
Elliott EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Run #4: Out of Band Spurious Emissions Power Setting Per Chain Frequency (MHz) Limit Result -30dBc 2422 Refer to plots -30dBc 2437 Refer to plots 2452 -30dBc Refer to plots Measured with all chains connected together through a combiner, unused ports on the combiner terminated in Note 1: 50ohms.

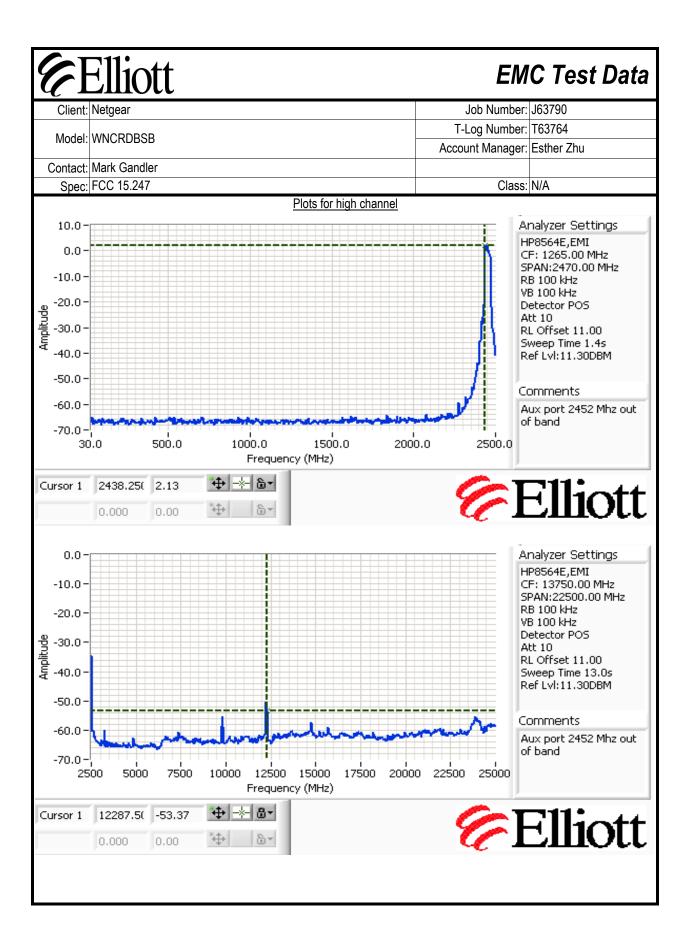
EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A Plots for low channel Main port 2422 MHz ATTEN 10dB RL 11.3dBm MKR 5.97dBm 2.434GHz 10dB/ R START 30MHz STOP 2.500GHz *RBW 100kHz *VBW 100kHz SWP 1.40sec ATTEN 10dB RL 11.3dBm MKR -47.37dBm 12.10GHz 10dB/ STOP 25.00GHz Hz SWP 13.0sec START 2.50GHz STO *RBW 100kHz *VBW 100kHz











E	Elliott	EM	C Test Data
Client:	Netgear	Job Number:	J63790
Model	WNCRDBSB	T-Log Number:	T63764
woder.	WNCNDB3B	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247	Class:	N/A

RSS 210 and FCC 15.247 Radiated Spurious Emissions (802.11n, 40 MHz)

Test Specifics

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

specification listed above.

Date of Test: 5/3/2006 Config. Used: 1

Test Engineer: Chris Byleckie Config Change: None

Test Location: Fremont Chamber #4 Host Unit Voltage 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing. All remote support equipment was located approximately 30 meters from the EUT with all I/O connections 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: 20 °C

Rel. Humidity: 48 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	RE, Fundamental and Bandedge	FCC Part 15.209 / 15.247(c)	Pass	Refer tor runs
2	RE, 1000 - 265000 MHz - Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	Refer tor runs

Modifications Made During Testing:

No modifications were made to the EUT during testing

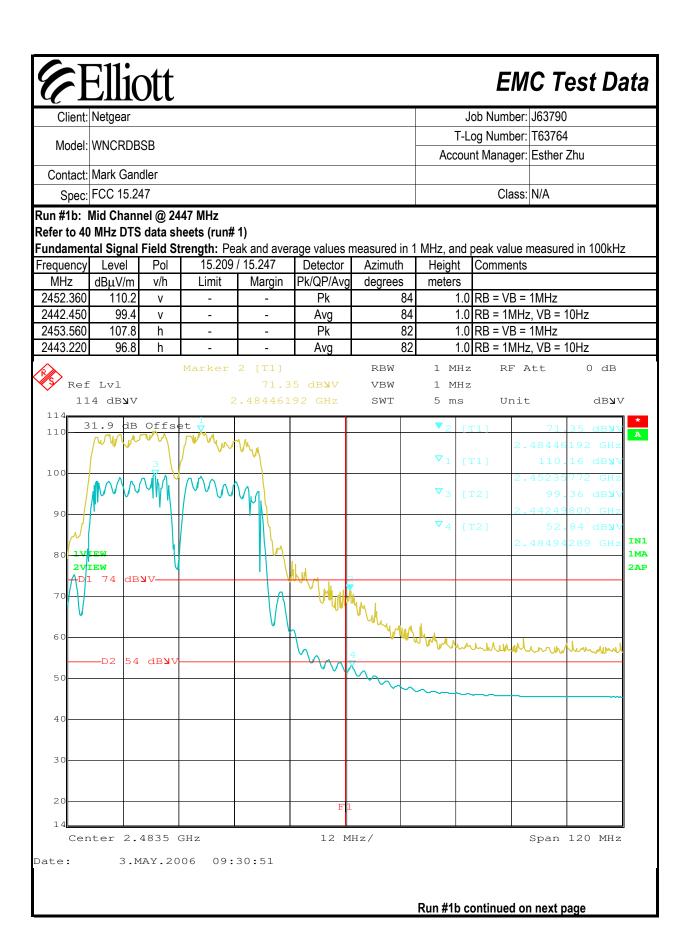
Deviations From The Standard

No deviations were made from the requirements of the standard.

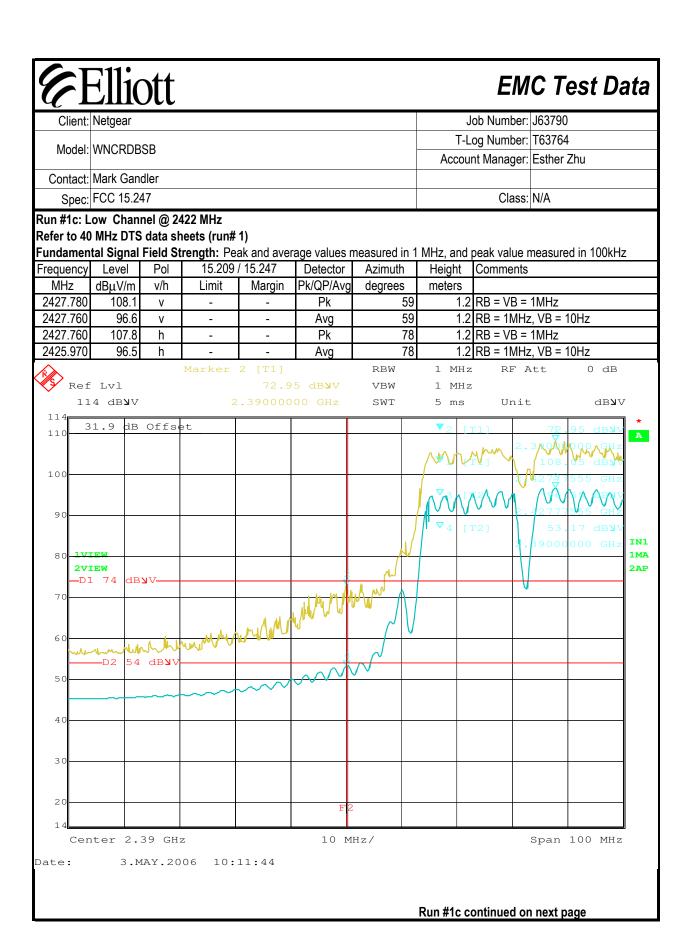
EMC Test Data Job Number: J63790 Client: Netgear T-Log Number: T63764 Model: WNCRDBSB Account Manager: Esther Zhu Contact: Mark Gandler Spec: FCC 15.247 Class: N/A **External Antenna** Run #1: Radiated Fundamental and Bandedge Run #1a: High Channel @ 2452 MHz Refer to 40 MHz DTS data sheets (run# 1) Fundamental Signal Field Strength: Peak and average values measured in 1 MHz, and peak value measured in 100kHz 15.209 / 15.247 Pol Detector Azimuth Height Comments Frequency Level MHz Pk/QP/Avg $dB\mu V/m$ v/h Limit Margin degrees meters 2455.140 111.5 Pk 1.2 RB = VB = 1MHz ٧ 1.2 RB = 1MHz, VB = 10Hz 2447.330 99.9 ٧ Avg 83 Pk 107.7 84 1.0 RB = VB = 1MHz 2458.350 h 2487.910 69.6 h Avg 1.0 RB = 1MHz, VB = 10Hz RF Att 10 dB RBW 1 MHz Ref Lvl 111.45 dB**y**V VBW 1 MHz 113.9 dB**y**V SWT Unit db**y**v 113 dB Offset 100 9 (IN1 1MA 2VIEW 2AP _D1 74 dB**y**v-P20 60 54 dB**y**\ 50 40 30 20 13.9 10 MHz/ Center 2.4835 GHz Span 100 MHz Date: 3.MAY.2006 08:47:13

Run #1a continued on next page

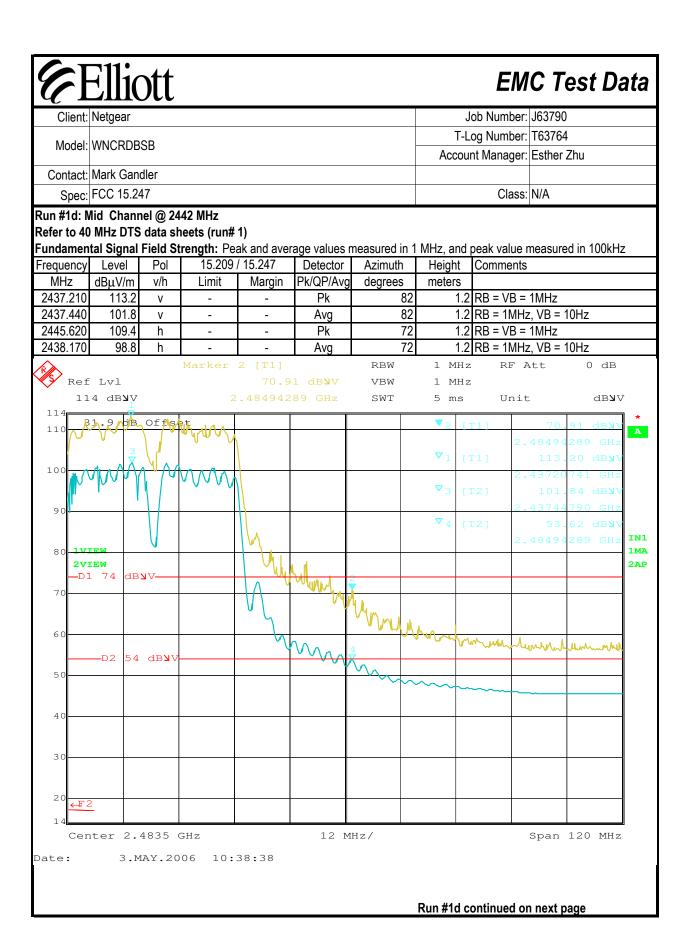
	Elli(Netgear								ob Nun				
Model:	WNCRD	BSB							og Num nt Mana				
Contact:	Mark Gar	ndler						Accou	iii iviaiie	agor. L	_30101	Ziiu	
	FCC 15.2								С	lass: N	N/A		
1 #1a co	ontinued									-			
>			Marker	4 [T1]		RBW	1	MHz	R	F At	t	0 0	dB
	Lvl				78 db y v	VBW		MHz					
11 14	4 dB y V			2.483500	000 GHz	SWT		ms		nit		dI	 ■
10 3	1.9 dB	Offse	et ₁					7 ₄ [г1]		53.	78 dE	BUV
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\bigwedge	VVVV	$\bigvee \Big $	\sqrt{V}	$\bigvee \bigvee$			· ·	2 [2 4		.56 dE	3 1 V
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ИНz 84.700	dBμV/m 72.5		Limit 74.0	Margin -1.6	Pk/QP/Avg Pk		3 m	eters 1.2					
84.700	53.9		54.0	-0.1	Avg		3	1.2					
83.500	69.6		74.0	-4.4	Ok		4	1.0					
83.500	53.8		54.0	-0.2	Avg	-	4	1.0					



Client:	Netgea	ott							Number:			
Model:	WNCRI	DBSB							Number: lanager:			
Contact:	Mark G	andler					٨٥٥	Journ IV	iaiiayei.	Louidi	_11U	
	FCC 15								Class:	N/A		
	ontinue											
Ref	Lvl 4 db y		Marker 2		75 dB y V)00 GHz	RBW VBW SWT	1 M 1 M 5 m	Ηz	RF A		0 dB	J
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60				V Υ	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		Awara	11. 1				
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quency				/ 15.247	Detector	Azimuth	Heigh	ıt ICo	mments			
ИНz	dBμV/r	_	Limit	Margin	Pk/QP/Avg		meter					
84.460			74.0	-2.7	Pk	8		1.0				
84.940	52		54.0	-1.2	Avg	8		1.0				
83.500	71	_	74.0	-2.3	Ok	8	2	1.0				
83.500	53		54.0	-0.1	Avg	8:	2	1.0				



2.3846[39] GH2 107.81 diff 1 [12] 107.81 diff 1277.555 GH2 V4 [T1] 2.38839679 GH2 12221EW 201EW 201 diff 201 diff 202 diff 203 diff 204 diff 205 diff 206 diff 207		Netgea	<u>iott</u>								ber: J63790		
Ontact Mark Gandler Spec: FCC 15.247 Class: N/A #1c continued Ref Lv1 71.77 dBNV VBW 1 MHz 114 dBNV 2.38869739 GHz SWT 5 ms Unit dBNV A 31.9 dB Offset 31.9 dB Offset Tell 107 dBN 1 M2	Model:	WNCR	DBSB										
Spec: FCC 15.247 #1c continued Marker 2 [T2] RBW 1 MHz RF Att 0 dB Ref Lv1 71.77 dBNV VBW 1 MHz 114 dBNV 2.38869739 GHz SWT 5 ms Unit dBNV 14 31.9 dB Offset 71 77 dBNV 10 277 555 GHz 10 297 555 GHz 20 1718		Marila C	\						Accou	nt Mana	ger: Esther	Zhu	
#1c continued Marker 2 [T2] RBW 1 MHz RF Att 0 dB Ref Lv1 71.77 dBNV VBW 1 MHz 114 dBNV 2.38869739 GHz SWT 5 ms Unit dBNV 31.9 dB Offset V2 [T2] 70 77 dBNV 2.388396739 GHz V4 [T1] 53.05 dBNV -D1 74 dBNV D2 54 dBNV 4 20 10 10 10 10 10 10 10 10 10										01	NI/A		
Marker 2 [T2] RBW 1 MHz RF Att 0 dB Ref Lv1 71.77 dBNV VBW 1 MHz 114 dBNV 2.38869739 GHz SWT 5 ms Unit dBNV 31.9 dB Offset	-									Uli	ass: IN/A		
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2.3 M 739 SH2 107 St 41M 2.377 555 GH2 200 201 201 201 202 203 203 204 204 2059 201 201 201 201 201 201 201 201 201 201	3	1.9	dB Offs	et					V 2 [[r 2 1	7-1	77 ARMS]
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e: 3.MAY.2006 09:55:50 d Edge Signal Field Strength uency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments				74.0	-1.1	Pk							
e: 3.MAY.2006 09:55:50 d Edge Signal Field Strength uency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments HZ dBμV/m v/h Limit Margin Pk/QP/Avg degrees meters 00.000 73.0 v 74.0 -1.1 Pk 59 1.2				54.0	-0.8	Avg	•		1.2				
e: 3.MAY.2006 09:55:50 d Edge Signal Field Strength quency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments MHz dBμV/m v/h Limit Margin Pk/QP/Avg degrees meters 90.000 73.0 v 74.0 -1.1 Pk 59 1.2 90.000 53.2 v 54.0 -0.8 Avg 59 1.2				74.0	-2.2	Pk							
e: 3.MAY.2006 09:55:50 d Edge Signal Field Strength Juency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments MHz dBμV/m v/h Limit Margin Pk/QP/Avg degrees meters 20.000 73.0 v 74.0 -1.1 Pk 59 1.2 20.000 53.2 v 54.0 -0.8 Avg 59 1.2 38.700 71.8 h 74.0 -2.2 Pk 78 1.2	88.400	53	3.1 h	54.0	-1.0	Avg	1	78	1.2				



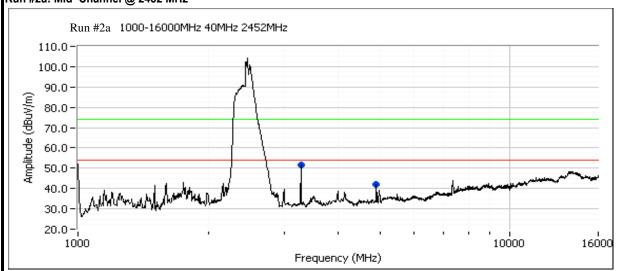
Client:	Ellio Netgear							,	Job Numbe	r: J63790)	
Model:	WNCRDBSI	В							_og Numbe			
								Accou	ınt Manage	r: Esther	Zhu	
	Mark Gandle								01	NI/A		
	FCC 15.247								Class	s: N/A		
1 #10 C	ontinued	Ма	rker 4	4 [T2]		RBW		1 MH2	z RF	Att	0 dB	
Ref	Lvl				9 dB y V	VBW		1 MH2	z			
1.1	4 dB y V		2	.483500	00 GHz	SWT		5 ms	Uni	t	dB y v	V
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/ ×	3	1	~ /					\triangledown_1 [T1]	109.	39 dB y v	l
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	Signal Fiel			.0.20								
quency		Pol	15.209 /	15.247	Detector	Azimuth	ıT	Height	Comment	S		
ИHz	dBμV/m		Limit	Margin	Pk/QP/Avg		_	meters				
84.940	70.9	V	74.0	-3.1	Pk		82	1.2	2			
84.940	53.6	V	54.0	-0.4	Avg		82	1.2				
33.740		h	74.0	-3.7	Pk		72	1.2	-			
83.500	53.8	h	54.0	-0.2	Avg	'	72	1.2	2			

EMC Test Data

Client:	Netgear	Job Number:	J63790
Madali	WNCRDBSB	T-Log Number:	T63764
Model.	WINCRUBOD	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247	Class:	N/A

Run #2 Radiated Spurious Emissions 1000-26500MHz

Run #2a: Mid Channel @ 2452 MHz



Pout = 15.0dBm

Other Spurious Emissions

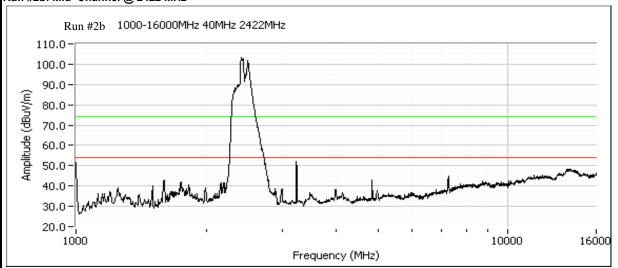
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1000.000	21.0	V	54.0	-33.0	AVG	140	2.0	Laptop
1000.000	33.2	V	74.0	-40.8	PK	140	2.0	Laptop
3269.343	50.4	Н	54.0	-3.6	AVG	86	1.5	
3269.343	51.9	Н	74.0	-22.1	PK	86	1.5	
4903.984	39.6	Н	54.0	-14.4	AVG	143	1.5	
4903.984	44.1	Н	74.0	-29.9	PK	143	1.5	

Note 1: No emission detected within 20-dB the limit from 16 - 26.5 GHz.

EMC Test Data

Client:	Netgear	Job Number:	J63790
Model	WNCRDBSB	T-Log Number:	T63764
Model.	WINCRDBOB	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247	Class:	N/A

Run #2b: Mid Channel @ 2422 MHz



Pout=15dBm

Other Spurious Emissions

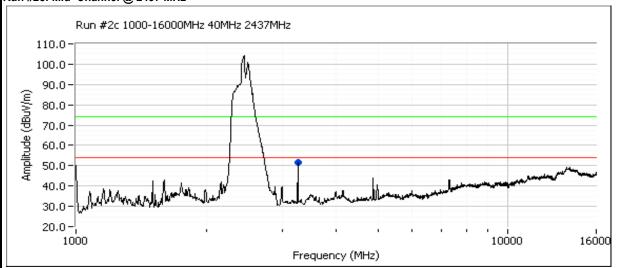
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1000.000	21.2	V	54.0	-32.8	AVG	141	2.0	Laptop
1000.000	33.3	V	74.0	-40.7	PK	141	2.0	Laptop
3229.350	51.7	Н	54.0	-2.3	AVG	72	1.5	
3229.350	53.4	Н	74.0	-20.6	PK	72	1.5	
4843.978	39.3	Н	54.0	-14.8	AVG	91	1.5	
4843.978	43.2	Н	74.0	-30.8	PK	91	1.5	

Note 1: No emission detected within 20-dB the limit from 16 - 26.5 GHz.

EMC Test Data

Client:	Netgear	Job Number:	J63790
Madali	WNCRDBSB	T-Log Number:	T63764
wouei.	WINCRUBSB	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247	Class:	N/A

Run #2c: Mid Channel @ 2437 MHz



Pout=15dBm

Other 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	
1000.000	23.4	V	54.0	-30.6	AVG	354	1.0	Laptop
1000.000	34.6	V	74.0	-39.4	PK	354	1.0	Laptop
3249.290	51.1	Н	54.0	-2.9	AVG	74	1.5	
3249.290	52.7	Н	74.0	-21.3	PK	74	1.5	
4894.623	25.3	Н	54.0	-28.7	AVG	143	1.5	
4894.623	36.4	Н	74.0	-37.6	PK	143	1.5	

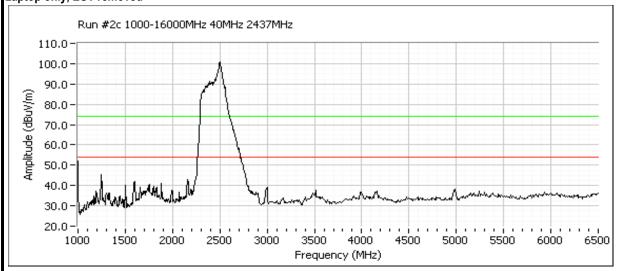
Note 1: No emission detected within 20-dB the limit from 16 - 26.5 GHz.

EMC Test Data

_			
Client:	Netgear	Job Number:	J63790
Model	WNCRDBSB	T-Log Number:	T63764
Model.	WINCKUDSD	Account Manager:	Esther Zhu
Contact:	Mark Gandler		
Spec:	FCC 15.247	Class:	N/A

Run #3: Radiated Spurious Emisssions 1000-6500MHz

Laptop only, EUT removed



Other Spurious Emissions

Other opa	Stilet Optitiods Etilissions											
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments				
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters					
1000.000	51.9	V	54.0	-2.2	Peak	21	1.1					

EXHIBIT 3: Photographs of Test Configurations

Pages

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EXHIBIT 4: Proposed FCC ID Label & Label Location

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EXHIBIT 5: Detailed Photographs of Netgear Model WNCRDBSBConstruction

Pages

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EXHIBIT 6: Operator's Manual for Netgear Model WNCRDBSB

Pages

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EXHIBIT 7: Block Diagram of Netgear Model WNCRDBSB

Pages

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EXHIBIT 8: Schematic Diagrams for Netgear Model WNCRDBSB

Pages

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EXHIBIT 9: Theory of Operation for Netgear Model WNCRDBSB

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