



**MOTOROLA**

**MOBILE DEVICES BUSINESS**

**PRODUCT SAFETY AND COMPLIANCE  
EMC LABORATORY**

**EMC TEST REPORT - Addendum**

**Test Report Number** -22140-2WLAN

Report Date – 2008-08-14

The test results contained herein relate only to the model(s) identified. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics.

Technician:

*Hans K.*

Name: Hans Kristian Kristensen  
Test: 2008-07-29 to 2008-08-07

As the responsible EMC Engineer, I hereby declare that the equipment tested as specified in this report conforms to the requirements indicated.

Signature:

*Per K. Nielsen*

Name: Per K. Nielsen

Title: Sr. Staff Engineer

Date: 2008-08-14

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FCC Registration Number: 863448  
IC Registration Number: 109AP-1

ADR Testing Service location ADR AL  
ISO/IEC-17025:2005 accredited by UKAS



2404

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## **Test Report Details**

Tests Performed By: Motorola A/S  
Product Safety and Compliance Group  
Lindholm Brygge 35  
9400 Nr.Sundby Fax (45) 7219-5002  
Phone: (45) 7219-5000  
Motorola PCS FRN: 0016105769  
FCC Registration Number: 863448  
Industry Canada Number: 109AP-1

Tests Requested By: Motorola Inc.  
Mobile Devices business  
600 North US Hwy 45  
Libertyville, IL 60048

Product Type: Cell phone with WLAN (WiFi)

Form factor: Bar

Signaling Capability: Quadra band 850/900/1800/1900 GSM with  
GPRS class 10, Dual band 800/1900 CDMA 1x  
with EV-DO Release A, Bluetooth class 2, WiFi  
band b/g, aGPS and sGPS.

Serial Numbers: 80C56D5D (WiFi test)

FCC ID: IHDP56JL1

Project number: 22140-2

Testing Complete Date: 2008-08-07

## Applicable Standards

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

- Part 15 Subpart C – Intentional Radiators
- Part 22 Subpart H - Public Mobile Services
- Part 24 - Personal Communications Services
- Part 27 - Wireless Communications Service
- Part 90 - Private Land Mobile Radio Service

Applicable Standards: ANSI 63.4-2003, RSS-GEN, RSS-210 (WLAN).

DA 00-705, "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems" published by the Federal Communications Commission was also used in the testing of this product.

The following tests were performed according to the regulations:

- The **spurious radiated emission** requirements of **§ 15.247 and § 15.249 of CFR47 Part 15 2006**, specifically" radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).
- Under this project only 30 to 1000MHz, 1 to 25GHz radiated and radiated band-edge measurements were performed.
- For frequencies  $\leq 1$  GHz a 100 KHz RBW (6 dB) is used and  $>1$  GHz a 1 MHz RBW (6 dB) is used.

**Summary of Testing**

Test	Test Name	Pass/Fail
1	Field Strength of Spurious Emissions	Pass
2	Band-edge Compliance of RF Radiated Emissions	Pass (*1)

Test	Test Name	Results
1	Field Strength of Spurious Emissions	See plots
2	Band-edge Compliance of RF Radiated Emissions	See plots

(\*1) The rules found in CFR47, FCC part 15.247(d) handled in appendix-1 were applied.

The margin with respect to the limit is the minimum margin for all modes and bands. ( ) indicates the margin at which the product exceeds the limit.

**General and Special Conditions**

The 22140-2 sample was tested using a fully charged battery when applicable. Where a battery could not be used due to the need for a controlled variation of input voltage, an external power supply was utilized.

Special test S/W was used for these tests. In all band (b) tests, the WLAN was transmitting at 11Mbps (DSSS) ~ 20 dBm (Typical 18 dBm) and in all band (g) tests, the WLAN was transmitting at 9 Mbps (OFDM) ~ 19 dBm (Typical 17 dBm).

802.11g Data Rates	
54/48 Mbps	15.0 dBm
36/24 Mbps	16.5 dBm
18/12 Mbps	17.5 dBm
9/6 Mbps	19.0 dBm

802.11b Data Rates	
11 Mbps	20.0 dBm

All testing was done in an indoor controlled environment with an average temperature of 22.8° C +- 1° C and relative humidity of 48.0% +-4% over the dates used for testing.

## Equipment and Cable Configurations

The EUT was tested in a stand-alone configuration that is representative of typical use.

## Measuring Equipment and Calibration Information

Equipment related to the semi-anechoic chamber testing:

Equipment	Model/type	Serial number	Operational range	Date of calibration
EMI analyzers	ESIB 26	100179	20 Hz – 26.5 GHz	26.05.2008
	ESU 40	100040	20 Hz – 40 GHz	07.02.2008
Pre Amplifiers	<del>EA PA 02</del> JCA12 300 JCA218 4003 JCA48 300 JCA1826 431 JCA1218 500)	<del>800002</del>	<del>(1 – 26 GHz)</del> 1 GHz – 2 GHz 2 GHz – 18 GHz 4 GHz – 8 GHz 18 GHz – 26 GHz 12 GHz – 18 GHz	<del>26.06.2007</del>
	Sonoma 310N	185680	9 kHz – 1 GHz	19.06.2007
	AFS4-02001800-35-ULN (Mounted on EMCO 3115)	805815	2 GHz – 18 GHz	13.03.2008
	JSA-18004000-30-5A (Mounted on EMCO 3116)	965195	18 GHz – 40 GHz	06.03.2008
	JCA 1840-4000 (Mounted on EMCO 3116)	101	18 – 40 GHz	06.03.2008
	JCA218-4003	104	1 GHz – 18 GHz	19.05.2008
Radio com. Tester	<del>MT8860B</del>	<del>6K00006368</del>	<del>WiFi band b/g</del>	<del>01.05.2007</del>
High pass filter	K&L 3DH1-3000/T13000-0/0 (Mounted on EMCO 3115)	8	(2700 - 20000 MHz)	13.03.2008
Attenuator	Weinschel 54A-6 (3dB) (Mounted on EMCO 3116)	T8929	DC – 40 GHz	06.03.2008
	H&S 6603.19AA (3dB) (Mounted on EMCO 3115)	na	DC-18 GHz	13.03.2008
Band reject filters	K&L 4N45-2412/T22-0/0	1	WiFi channel 1 reject (30 MHz – 3 GHz)	15.09.2007
	K&L 4N45-2442/T22-0/0	1	WiFi channel 6 reject (30 MHz – 3 GHz)	14.09.2007
	K&L 4N45-2472/T22-0/0	1	WiFi channel 11 reject (30 MHz – 3 GHz)	17.09.2007
Cable	C-ANT-FP1-4S (SMA)	na	30 MHz – 6 GHz 2.8 GHz – 18 GHz 18 GHz – 28 GHz	19.03.2008, 13.03.2008 19.03.2008
	C-ANT-FP1-10S (SK)	na	18 GHz – 40 GHz	06.03.2008
Filter	F-3S-2S (SK-Bypass)	na	30 MHz – 40 GHz	06.03.2008

Equipment related to carrier spectrum testing:

Equipment	Model/type	Serial number	Operational range	Date of calibration
Spectrum analysers	FSEA	845097/004	20 Hz – 3.5 GHz	23.04.07 (na)
Radio com. Tester	CMU 200	834639/003	GSM 850/900/1800/1900 IS95, UMTS, Bluetooth	14.11.07

The antennas used in the various tests are listed in the below table. All the log-periodic antennas are used as communication and link establishment antennas for (GSM, UMTS, CDMA, FM and/or Bluetooth).

Antenna	Type	Serial number	Operational range	Date of calibration
Hybrid-log periodic	HLP 3003C	060300	30 MHz – 3 GHz	07.12.2007
Log-periodic (link)	LPDA 8030	090200	800 MHz – 3 GHz	(na)
Log-periodic (link)	LPDA 8030	090100	800 MHz – 3 GHz	(na)
Log-periodic (link)	PLP 3003	021701	300 MHz – 3 GHz	(na)
Horn (link)	AT4002A	28548	800 MHz – 5 GHz	(na)
Horn (link)	AT4002A	28547	800 MHz – 5 GHz	(na)
Double ridged horn (w. 3 GHz HP-filter + 1x 2-18 GHz pre-amp+1x 3dB attenuator.)	EMCO 3115	71502	1 GHz – 18 GHz	21.05.2008
Double rigid horn (w. 2x 18-40 GHz pre-amp + 1x 3dB attenuator.)	EMCO 3116	2637	18 GHz – 40 GHz	20.12.2007

All equipment is on a one-year calibration cycle except for link antennas.

## **Description of WLAN (WiFi) Transmitter**

The 22140-2 cell phone offers WLAN as a feature. The WLAN direct sequence spread-spectrum transceiver is designed to operate between 2400 and 2483 MHz. The WLAN antenna is mounted on the PCB inside of the EUT. The antenna installation is permanent. For a more thorough description of the functionality please refer to Exhibit 12 of this package.

As a WLAN transmitter, it is designed operate with other WLAN devices as defined by industrial standard. In this application, the device is battery-operated.

There is a switch in the Bluetooth/WLAN (BT/WiFi) module that switches between BT and WiFi. They share the same antenna, and you are able to use a BT headset while in a WiFi VoIP call, however, they do not transmit and receive at the same time. There is a 20 ms delay (for switching between the two systems in time domain) using an intelligent multiplexing scheme. Even though they share the same antenna they are **NOT ON** at the same time. The WiFi is therefore tested as a standalone transmitter.

## **Measurement Procedures and Data**

### **FIELD STRENGTH OF SPURIOUS EMISSIONS**

CFR Part 2.1053, 15.249

#### **Measurement Procedure**

The Equipment-Under-Test is placed inside the semi-anechoic chamber on a wooden table at the turntable center. For each spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum reading on the spectrum analyzer. This is repeated for both horizontal and vertical polarizations of the receive antenna.

The field strength of each radiated emission is calculated by correcting the EMI receiver level for cable loss, amplifier gain, and antenna correction factors.

Field Strength (dB $\mu$ V/m) = EMI Receiver Level (dB $\mu$ V) + Cable Loss (dB) + Filter Loss (dB) - Amplifier Gain (dB) + Antenna Correction Factor (3/m)

A fully charged battery was used for the supply voltage.

The used battery type was BX5X with model number SNN5824A

#### **The test sample was operated during the measurements under the following conditions:**

- Tests were performed at low, mid and high channels.
- Tests were performed in both horizontal and vertical polarity.
- Tests were performed in both operational WiFi bands (b) and (g)
- Investigation of maximum radiation orientation and position of the product sample to determine test orientations angles.
  - Tests were performed with the sample orientated along X, Y and Z orthogonal axis based on findings.
  - Tests were performed with the test sample placed in worst case position either open or closed based on form factor. Verification tests were performed for the other position.

#### **Measurement Results**

Comments:

The band edge measurements crossing the corner for the low channel with respect to the average limit line is acceptable when applying the FCC rule specified in CFR 15.35(b) for the use of peak detector above 1 GHz. The peak detector limit line has been added to the graphical plots.

For peak emissions detected above 1 GHz, only those emissions that are higher than the AVG limit line plus 8 dB are selected for final emission analysis.

This data was taken at ADR Aalborg, see attached below.

**Maximum radiating position and orientation**

The test sample was placed on top of a none conductive pedestal and a WLAN link towards the communication test set was established. The test sample was scanned with a log periodic antenna connected to a spectrum analyzer over the whole sphere and the maximum radiation orientation was determined to be the Y orientation in horizontal polarity of the test antenna, see picture section.

A check of carrier on the WLAN channel 1, 6 and 11 was performed to determine the expected maximum radiation of any WLAN harmonics for the test sample placed in orientation Y at vertical and horizontal polarity.

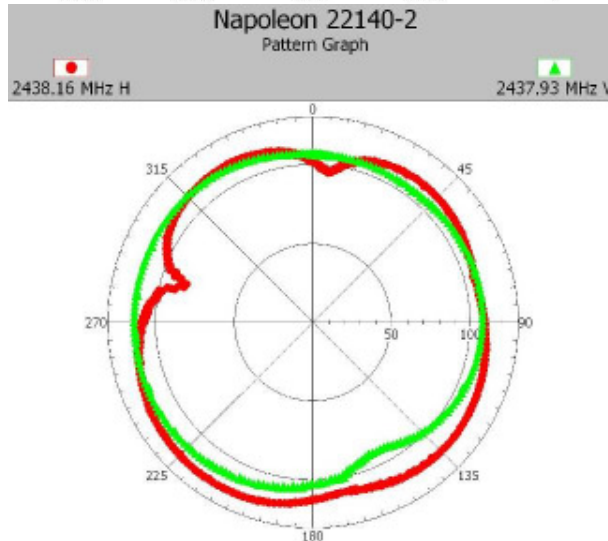
**Channel 6 WLAN band (b):**

Title: FCC 15.249  
 File: Napoleon 22140-2 (5.31) (ESIB) FCC15.249 WLAN 2400(b) Tch-mid\_Y 2008-07-31 -PK Carrier RBW=10MHz.set  
 Operator: ADR\_AAL EMC\_TL1, hkr001  
 EUT Type: Napoleon, FCC ID: IHDT56JL1, pESN: 80C56D5D  
 EUT Condition: Board Rev: P3.1  
 Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode  
 WLAN ch-6 (2437 MHz) TX mode @ 9Mbps/19dBm. Or:-Y  
 EMC0 3115 antenna (30Hz - 18GHz). Peak detector used, RBW=10MHz

04-08-2008 11:13:01  
 Sequence: Final Measurements

Napoleon 22140-2 - Table

Freq (MHz)	Freq (Max) (MHz)	(PEAK) EMI (dBμV/m)	(2) Limit (dBμV/m)	(PEAK) Margin Lim2 (dB)	Ttbl Agl (deg)	Pol
2437.00	2438.16	121.99	134.00	-12.01	215.20	H
2437.00	2437.93	113.52	134.00	-20.48	298.40	V



The WLAN band (b) radiated TX power is measured to 14.59 dBm on channel 6 for RBW = 1 MHz.

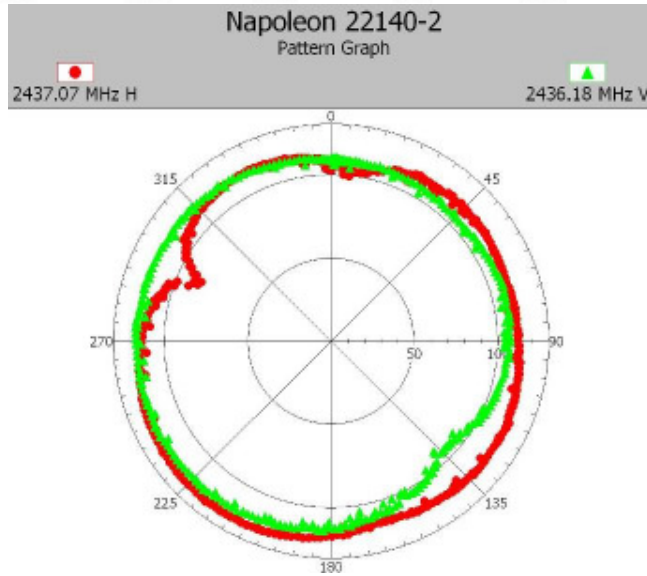
**Channel 6 WLAN band (g):**

Title: FCC 15.249  
 File: Napoleon 22140-2 (5.31)(ESIB) FCC15.249 WLAN 2400(g) Tch-mid\_Y 2008-07-31 -PK Carrier RBW=10MHz.set  
 Operator: ADR\_AAL\_EMC\_TL1, hkr001  
 EUT Type: Napoleon, FCC ID: IHDP56JL1, pESN: 6005605D  
 EUT Condition: Board Rev: P3.1  
 Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode  
 WLAN ch-6 (2437 MHz) TX mode @ 9Mbps/19dBm, Or.=Y  
 EMC0 3115 antenna (30Hz - 180Hz), Peak detector used, RBW=100Hz

31-07-2008 09:19:40  
 Sequence: Final Measurements

Napoleon 22140-2 - Table

Freq (MHz)	Freq (Max) (MHz)	(PEAK) EM (dBμV/m)	(2) Limit (dBμV/m)	(PEAK) Margin Lim2 (dB)	Tilt Ang (deg)	Pol
2437.00	2437.07	125.18	134.00	-8.82	218.00	H
2437.00	2436.18	118.63	134.00	-15.37	244.00	V



The WLAN band (g) radiated TX power is measured to 17.78 dBm on channel 6 with RBW = 1 MHz.

**WLAN Band (b):**

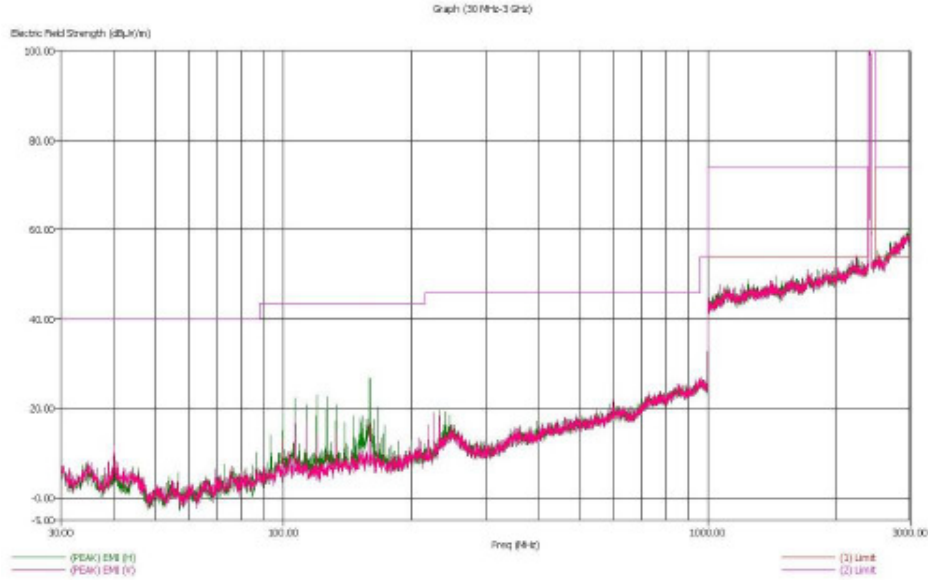
All data measured for WLAN band (b).

**There were no discernible emissions above the noise floor for 30-3000MHz for Low, Mid and High Channels and all polarizations in WLAN band (b)**

Only one worst case plot for each test frequency are shown in the below plots in the range from 30 MHz – 3000 MHz.

Title: FCC 15.249  
File: Reguleas 22149-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-low\_Y 2008-07-31 -3.set  
Operator: ABR\_AAL\_240\_TL1. bit001  
EUT Type: Napolcon, FCC ID: IHDP56JL1. pSN: 80C5605D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch-1 (2412 MHz) TX mode @ 12Mbps/250ba. 0r.-Y  
MLP 30E3C antenna (30MHz - 3 GHz). Peak detector used.  
Receiver attenuation int. -15dB from 10Hz to 3GHz.

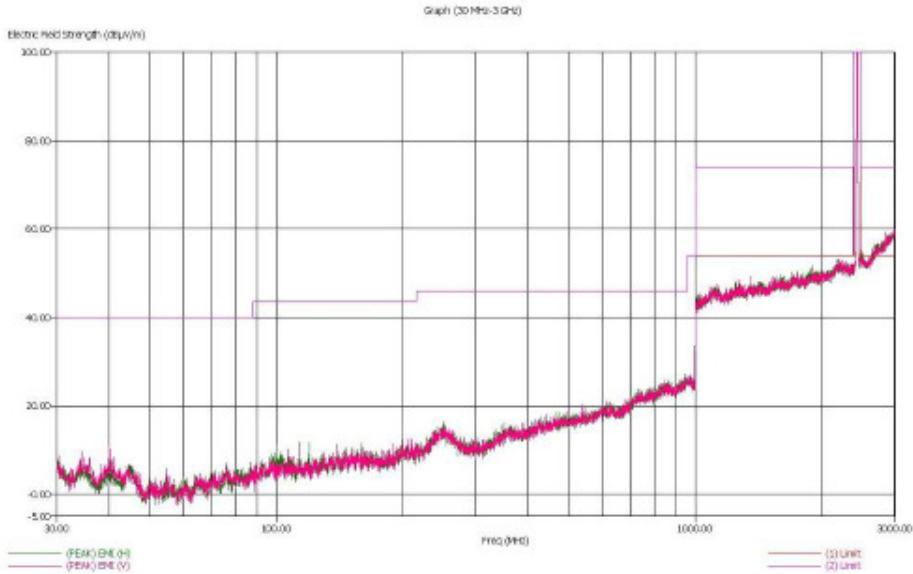
01-08-2008 13:37:58  
Sequence: Preliminary Scan



### 30 – 3000 MHz Low Channel Dual Polarization Y

Title: FCC 15.249  
File: Reguleas 22149-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-mid\_Y 2008-07-31 -3.set  
Operator: ABR\_AAL\_240\_TL1. bit001  
EUT Type: Napolcon, FCC ID: IHDP56JL1. pSN: 80C5605D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch-5 (2437 MHz) TX mode @ 12Mbps/250ba. 0r.-Y  
MLP 30E3C antenna (30MHz - 3 GHz). Peak detector used.  
Receiver attenuation int. -15dB from 10Hz to 3GHz.

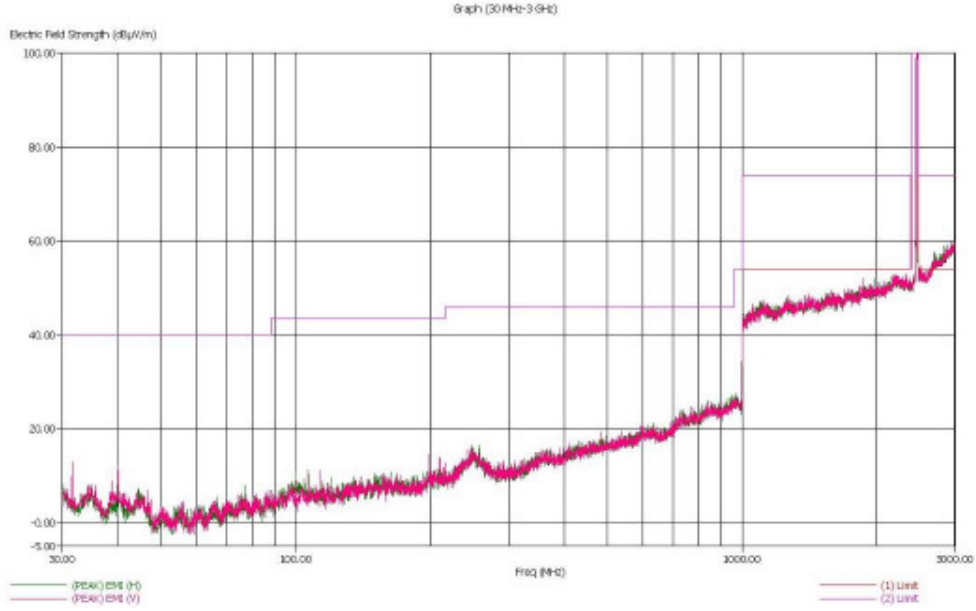
04-08-2008 11:46:18  
Sequence: Preliminary Scan



### 30 – 3000 MHz Middle Channel Dual Polarization Y

Title: FCC 15.249  
File: Napoleon 22140-2 (S.31)(ESU) FCC15.249 WLAN 2400(b) Tch-hgh\_Y 2008-07-31 -3.net  
Operator: ADR\_AAI\_EWC\_TLI. hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pE88: 8005605D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch-11 (2462 MHz) TX mode @ 11Mbps/20MHz, Or.+Y  
HLE 3000C antenna (30MHz - 3 GHz), Peak detector used.  
Receiver attenuation int. -10dB from 100Hz to 300Hz.

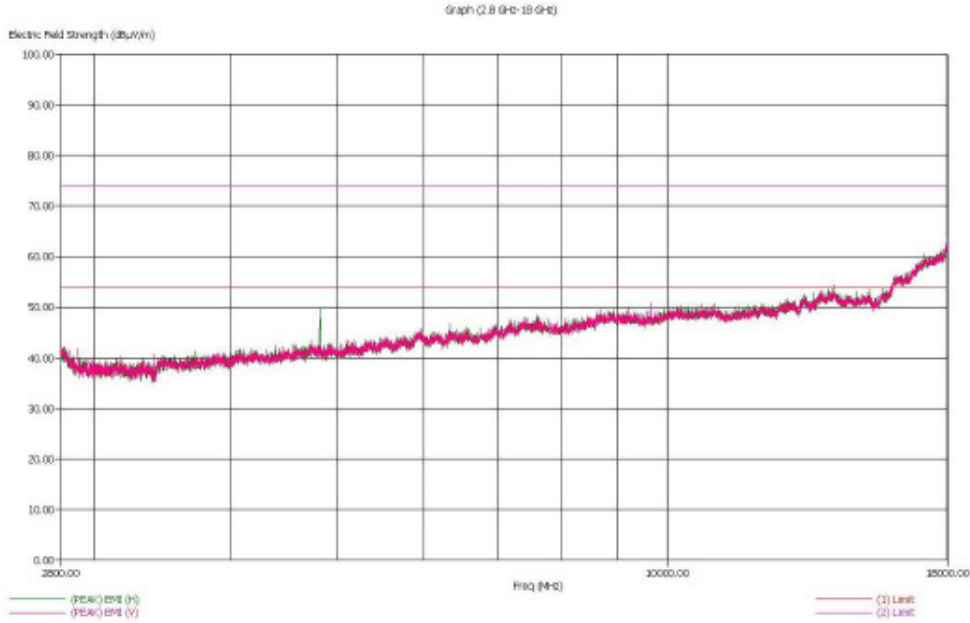
01-08-2008 14:57:57  
Sequence: Preliminary Scan



**30 – 3000 MHz High Channel Dual Polarization Y**

Title: FCC 15.249  
File: Napolcon 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tech-low\_X 2008-07-31 -3-18.net  
Operator: ADR\_AAL\_EMC\_TL1, hkr001  
EUT Type: Napolcon, FCC ID: IHDP56JL1, pEIR: 80056050  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch-1 (2412 MHz) TX mode @ 11Mbps/20dBm, Or.+V  
EMC0 3115 antenna (30Hz - 18GHz), Peak detector used.

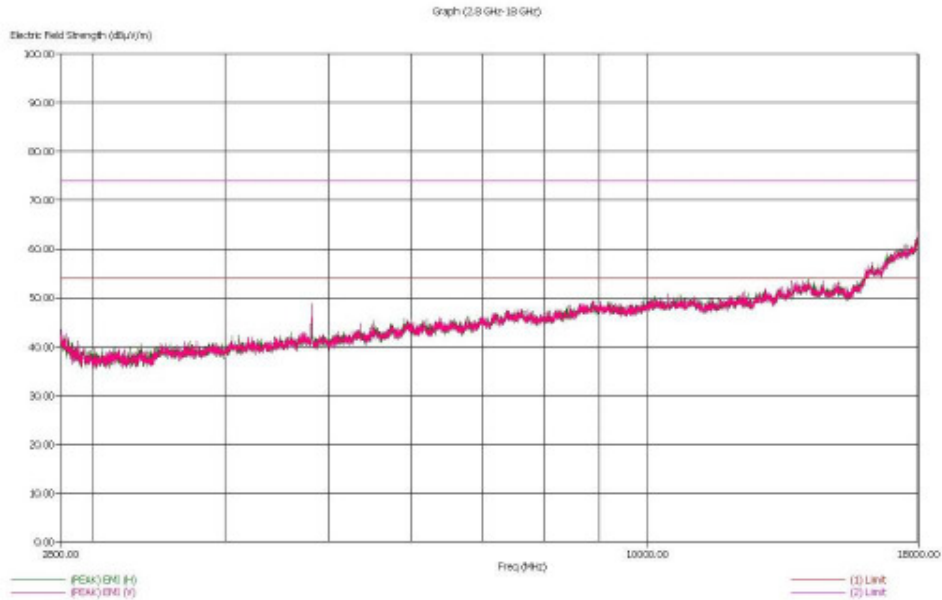
05-08-2008 12:09:14  
Sequence: Preliminary Scan



### 3-18GHz Low Channel X-Orientation

Title: FCC 15.249  
File: Napolcon 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tech-low\_Y 2008-07-31 -3-18.net  
Operator: ADR\_AAL\_EMC\_TL1, hkr001  
EUT Type: Napolcon, FCC ID: IHDP56JL1, pEIR: 80056050  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch-1 (2412 MHz) TX mode @ 11Mbps/20dBm, Or.+V  
EMC0 3115 antenna (30Hz - 18GHz), Peak detector used.

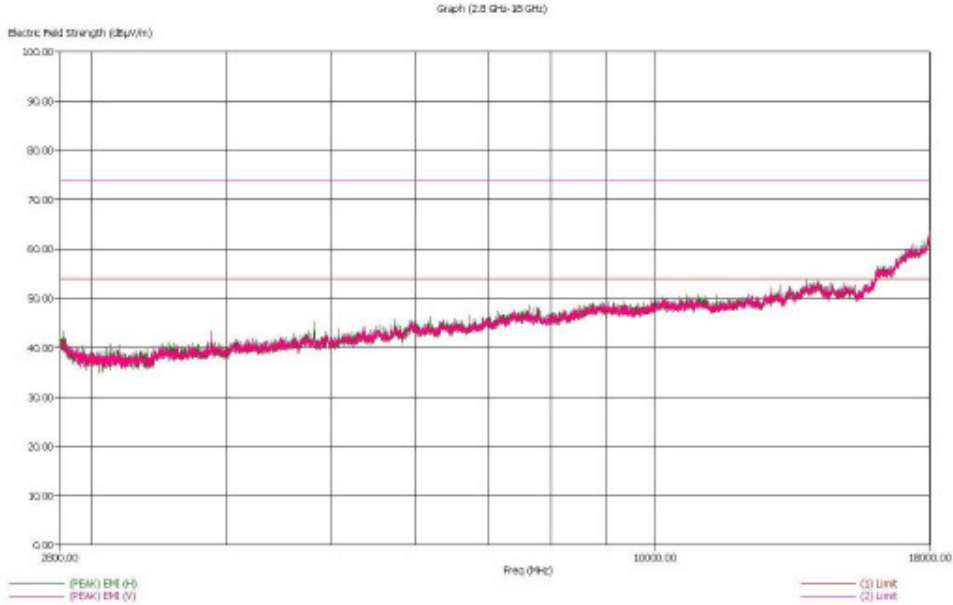
05-08-2008 12:26:20  
Sequence: Preliminary Scan



### 3-18GHz Low Channel Y-Orientation

Title: FCC 15.249  
File: Napolsem 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-Low\_2 2008-07-31 -3-18.set  
Operator: ADR\_AAC\_EMC\_TL1\_hkr001  
EUT Type: Napolsem, FCC ID: IHDP56JL1, p238: 80C56D5D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch-1 (2412 MHz) TX mode @ 11Mbps/20dBm, Or.-2  
EMC0 3115 antenna (3GHz - 18GHz), Peak detector used.

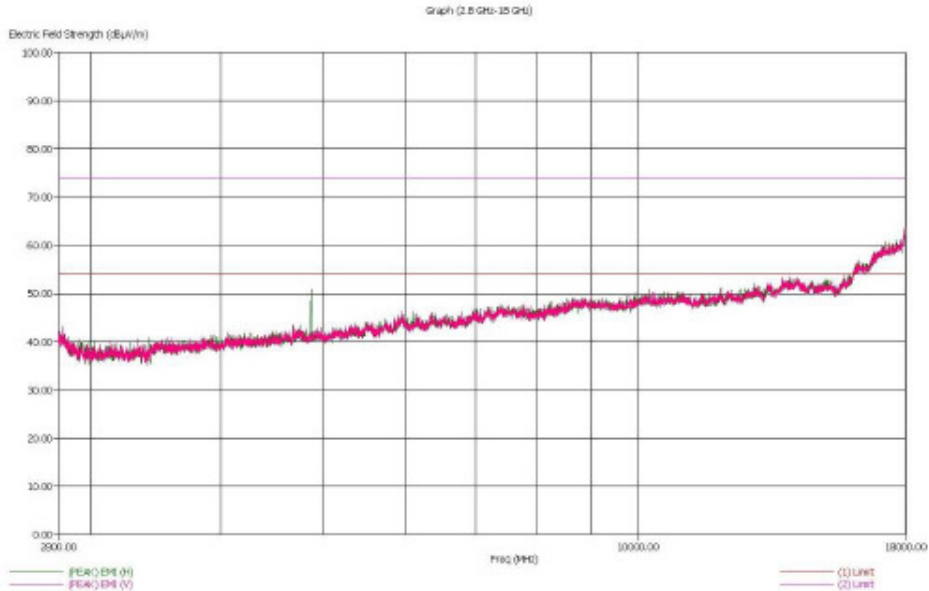
05-09-2008 11:52:34  
Sequence: Preliminary Scan



### 3-18GHz Low Channel Z-Orientation

Title: FCC 15.249  
File: Napolsem 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-mid\_X 2008-07-31 -3-18.set  
Operator: ADR\_AAC\_EMC\_TL1\_hkr001  
EUT Type: Napolsem, FCC ID: IHDP56JL1, p238: 80C56D5D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch-5 (2437 MHz) TX mode @ 11Mbps/20dBm, Or.-2  
EMC0 3115 antenna (3GHz - 18GHz), Peak detector used.

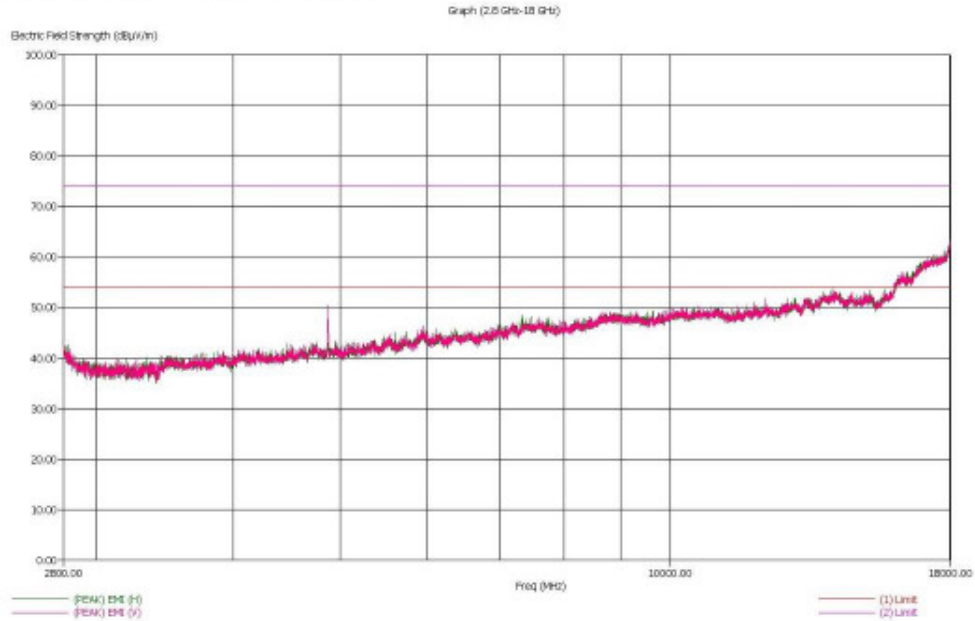
05-09-2008 10:49:52  
Sequence: Preliminary Scan



### 3-18GHz Middle Channel X-Orientation

Title: FCC 15.249  
File: Napoleoa 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tok-mid\_Y 2008-07-31 -3-18.set  
Operator: ADM\_AAL\_EMC\_TL1. hkr001  
EUT Type: Napoleoa, FCC ID: IHDP56JL1. pEIR: 80C56D5D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch=6 (2437 MHz) TX mode @ 13Mbps/204dm. Cr.-Y  
EMC0 3115 antenna (30Hz - 18GHz). Peak detector used.

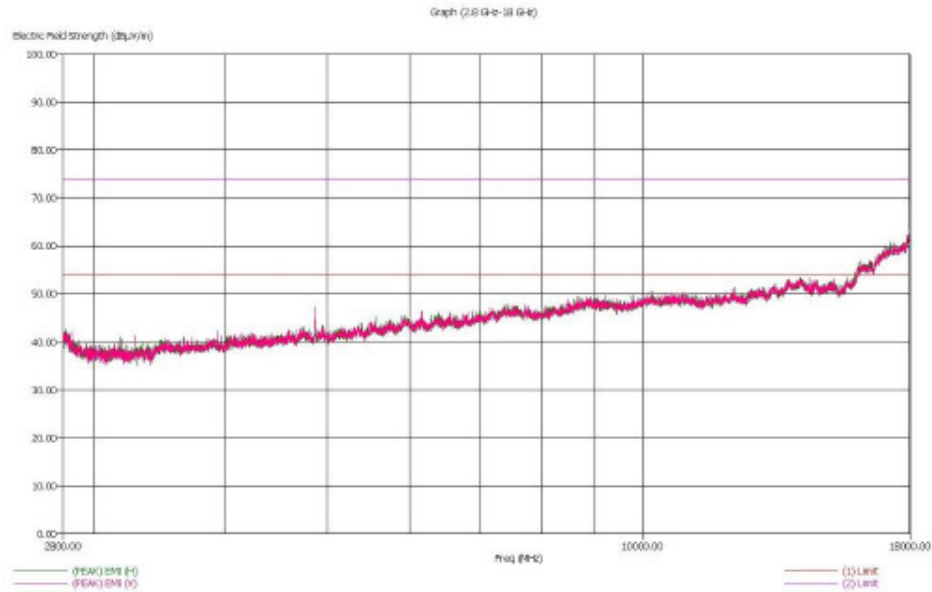
05-08-2008 11:08:12  
Sequence: Preliminary Scan



### 3-18GHz Middle Channel Y-Orientation

Title: FCC 15.249  
File: Napoleoa 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tok-mid\_Z 2008-07-31 -3-18.set  
Operator: ADM\_AAL\_EMC\_TL1. hkr001  
EUT Type: Napoleoa, FCC ID: IHDP56JL1. pEIR: 80C56D5D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch=4 (2437 MHz) TX mode @ 13Mbps/204dm. Cr.-Z  
EMC0 3115 antenna (30Hz - 18GHz). Peak detector used.

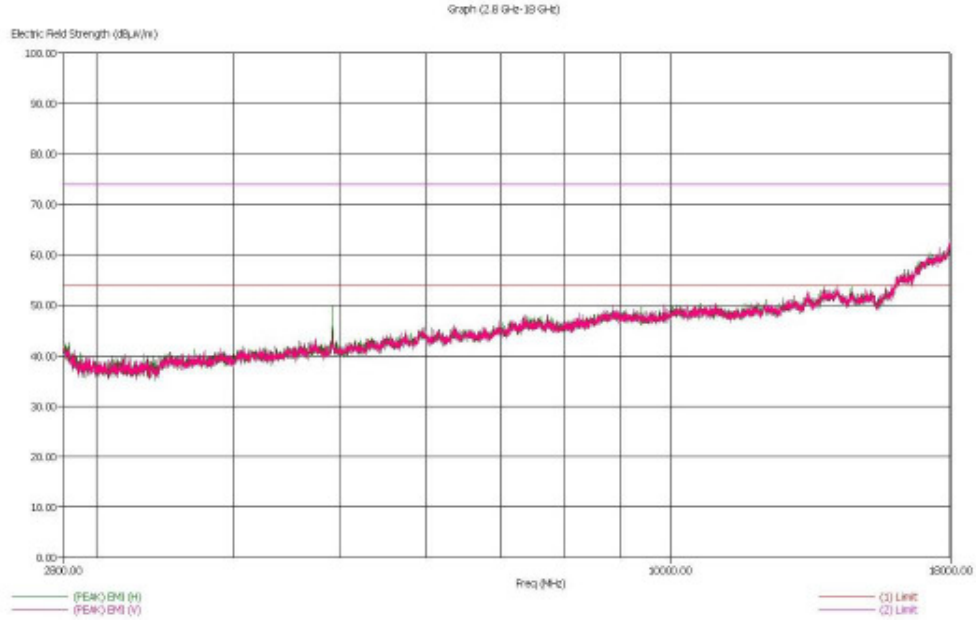
05-08-2008 11:24:42  
Sequence: Preliminary Scan



### 3-18GHz Middle Channel Z-Orientation

Title: FCC 15.249  
File: Napoleon 22140-2 (5.31)(EBC) FCC15.249 WLAN 2400(b) Tch-hgh\_X 2008-07-31 -3-18.wst  
Operator: ADR\_AAL\_EMC\_TL1, Mtr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEIR: 00056D5D  
EUT Condition: Board Rev: P3-1  
Comments: FCC 15.249 (IEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch-11 (2462 MHz) TX mode @ 13Mbps/20dbs. Cr.\*X  
EMCO 3115 extenna (3GHz - 18GHz). Peak detector used.

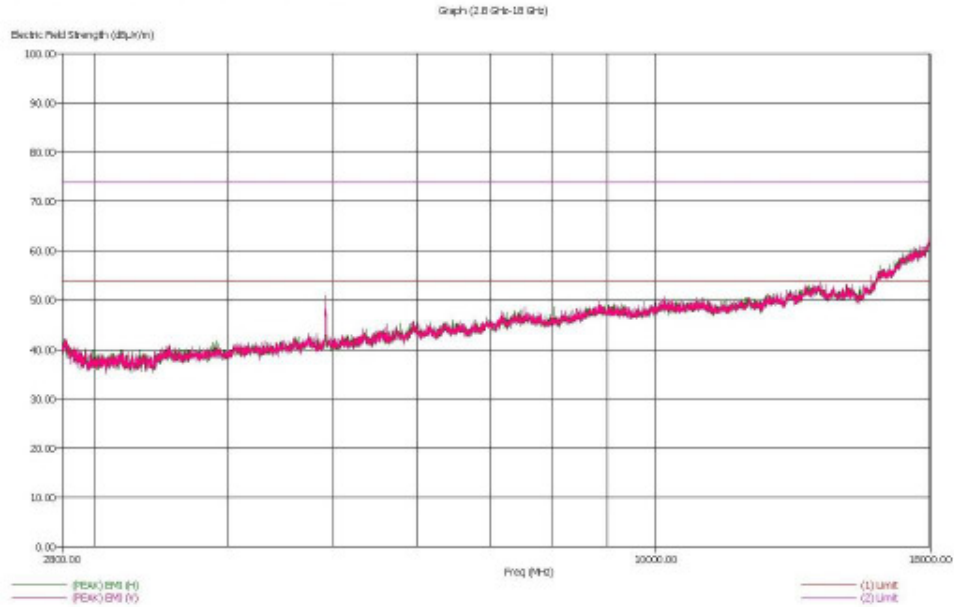
05-08-2008 09:52:26  
Sequence: Preliminary Scan



### 3-18GHz High Channel X-Orientation

Title: FCC 15.249  
 File: Napoleon 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-hgh\_Y 2008-07-31 -3-18.set  
 Operator: ADR\_AAL EMC\_TL1, hkr001  
 EUT Type: Napoleon, FCC ID: IHDP56JL1, pESN: 80C56D5D  
 EUT Condition: Board Rev: P3.1  
 Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
 WLAN ch-11 (2462 MHz) TX mode @ 11Mbps/20dBm. Or.-Y  
 EMC0 3115 antenna (3GHz - 18GHz). Peak detector used.

05-08-2008 09:17:44  
 Sequence: Preliminary Box



Title: FCC 15.249  
 File: Napoleon 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-hgh\_Y 2008-07-31 -3-18 -AV -2har.set  
 Operator: ADR\_AAL EMC\_TL1, hkr001  
 EUT Type: Napoleon, FCC ID: IHDP56JL1, pESN: 80C56D5D  
 EUT Condition: Board Rev: P3.1  
 Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
 WLAN ch-11 (2462 MHz) TX mode @ 11Mbps/20dBm. Or.=Y  
 EMC0 3115 antenna (3GHz - 18GHz). AV detector.

05-08-2008 09:44:51  
 Sequence: Final Measurements

Napoleon 22140-2, (b) hgh\_Y - Table

Freq (MHz)	Freq (Max) (MHz)	(AVG) EMI (dBµV/m)	(1) Limit (dBµV/m)	(AVG) Margin Lim1 (dB)	Ttbt Agl (deg)	Pol
4924.00	4925.07	38.45	54.00	-15.55	217.90	H
4924.00	4923.95	40.60	54.00	-13.40	245.80	V

Title: FCC 15.249  
 File: Napoleon 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-hgh\_Y 2008-07-31 -3-18 -AV -17,9750Hz.set  
 Operator: ADR\_AAL EMC\_TL1, hkr001  
 EUT Type: Napoleon, FCC ID: IHDP56JL1, pESN: 80C56D5D  
 EUT Condition: Board Rev: P3.1  
 Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
 WLAN ch-11 (2462 MHz) TX mode @ 11Mbps/20dBm. Or.=Y  
 EMC0 3115 antenna (3GHz - 18GHz). AV detector.

05-08-2008 13:07:38  
 Sequence: Final Measurements

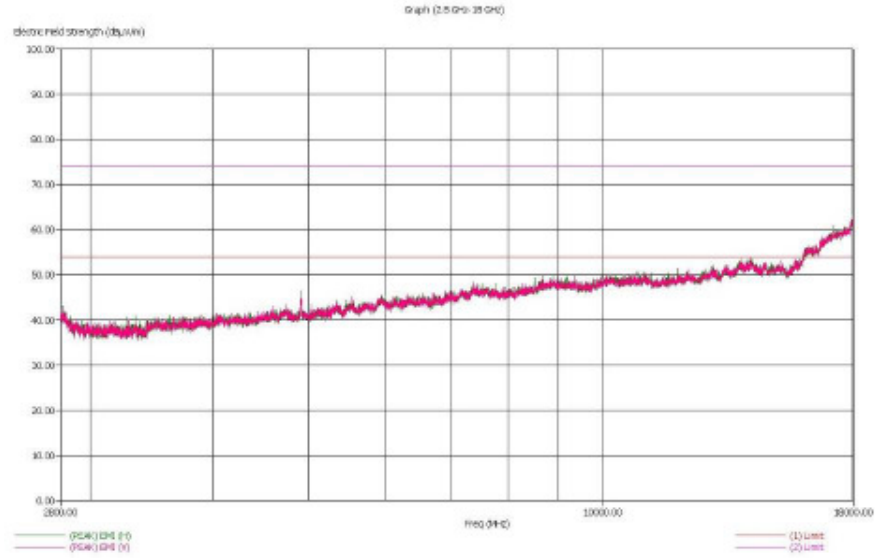
Napoleon 22140-2, (b) hgh\_Y - Table

Freq (MHz)	Freq (Max) (MHz)	(AVG) EMI (dBµV/m)	(1) Limit (dBµV/m)	(AVG) Margin Lim1 (dB)	Ttbt Agl (deg)	Pol
17975.00	17974.91	50.36	54.00	-3.64	0.10	H
17975.00	17967.48	50.19	54.00	-3.81	359.80	V

### 3-18GHz High Channel Y-Orientation

Title: FCC 15.248  
 File: Regisloc 22140-2 [S.31](EMI) FCC15.248 WLAN 2400(b) Tct-hgh\_z 2400-07-31 -3-18.net  
 Operator: ADR\_JAL\_EMC\_TL1. hkr001  
 EUT Type: Regisloc, FCC ID: IHDP56JL1, pEIR: 00C5603E  
 EUT Condition: Board Rev: P2.1  
 Comments: FCC 15.248/IEEE 802.11(b) WLAN emission in TX mode  
 WLAN ch-11 (2462 MHz) TX mode @ 130Mbps/20dBm. Or.-Z  
 EMC0 3115 antenna (30% - 100%). Peak detector used.

05-04-2018 10:09:32  
 Sequence: Preliminary Scan



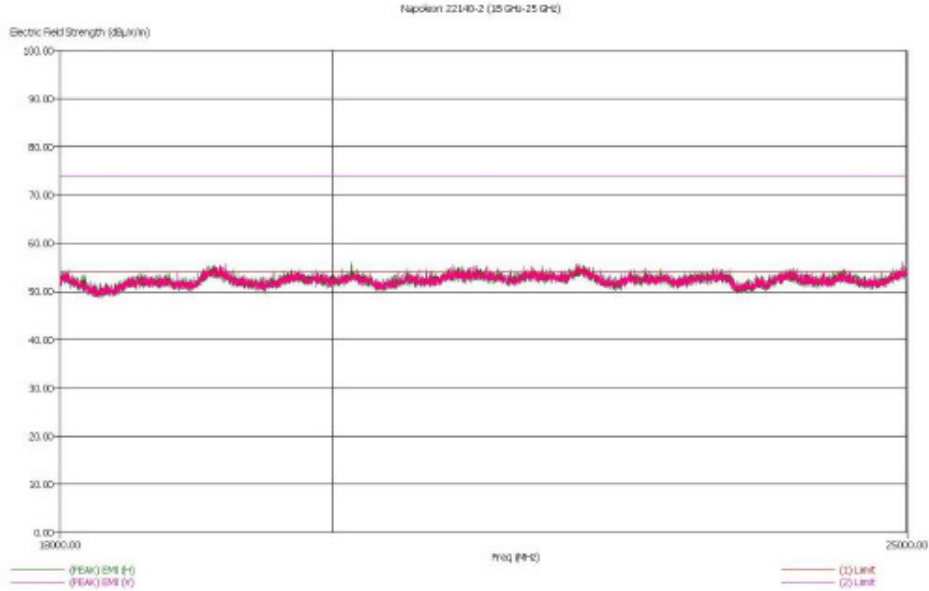
### 3-18GHz High Channel Z-Orientation

**There were no discernible emissions above the noise floor for 18-26 GHz for Low, Mid and High Channels and all polarizations in Bluetooth band**

Only one worst case plot for each test frequency are shown in the below plots in the range from 18 GHz – 26 GHz.

Title: FCC 15.249  
File: Napoleon 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-low\_Y 2008-07-31 -18-25.set  
Operator: ADR\_AAL\_EMC\_TL1, hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEIR: 81056050  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ JEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch-1 (2412 MHz) TX mode @ 11Mbps/20dBm, Or,-Y  
EMC 3116 antenna (18GHz - 25GHz), Peak detector used.

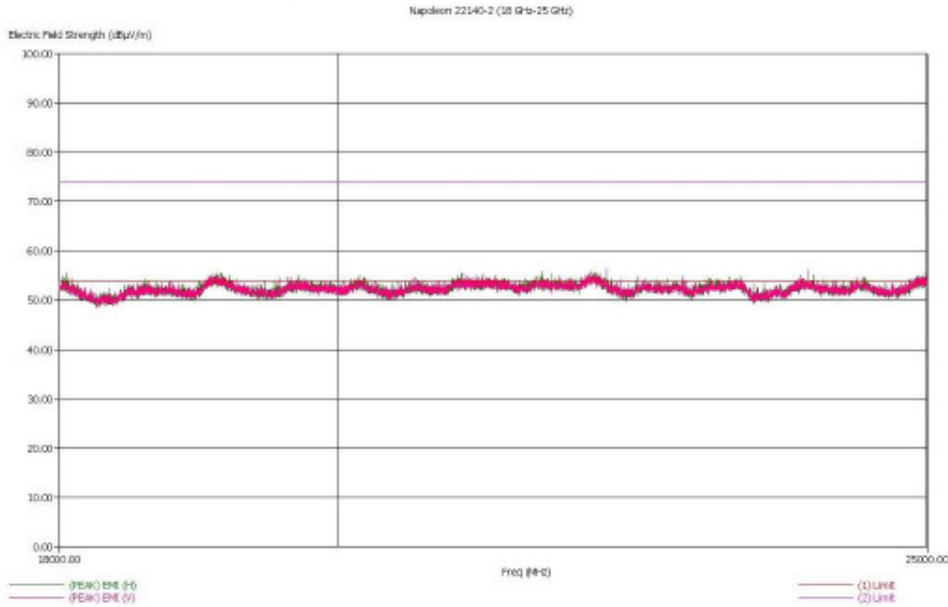
05-08-2008 15:41:08  
Sequence: Preliminary Scan



### 18-25GHz Low Channel Y-Orientation

Title: FCC 15.249  
File: Napoleon 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-mid\_Y 2008-07-31 -18-25.set  
Operator: ADR\_AAL\_EMC\_TL1, hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEIR: 81056050  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ JEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch-6 (2437 MHz) TX mode @ 11Mbps/20dBm, Or,-Y  
EMC 3116 antenna (18GHz - 25GHz), Peak detector used.

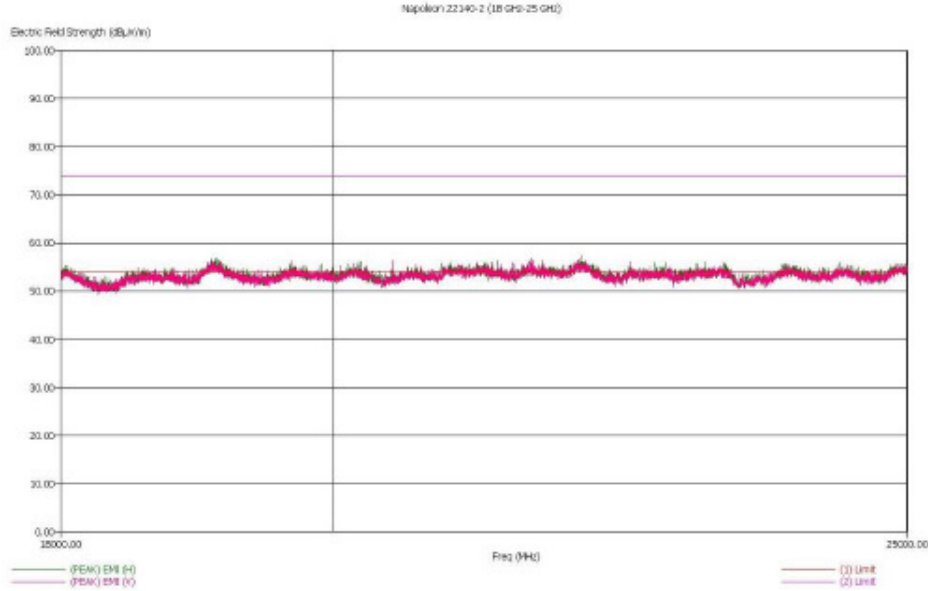
05-08-2008 15:31:21  
Sequence: Preliminary Scan



### 18-25GHz Middle Channel Y-Orientation

Title: FCC 15.249  
File: Nspolera 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tech-hgh\_Y 2008-07-31 -18-25.wet  
Operator: AMR\_AML\_EMC\_IL1, hkr303  
EUT Type: Nspolera, FCC ID: [H97956JL1, pE99: 80056050  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch-11 (2462 MHz) TX mode @ 11Mbps-2048s, Cr=-2  
EMC 3114 antenna (100Hz - 25GHz), Peak detector used.

05-08-2008 13:32:14  
Sequence: Preliminary Scan.



### 18-25GHz High Channel Y-Orientation

### WLAN Band (g)

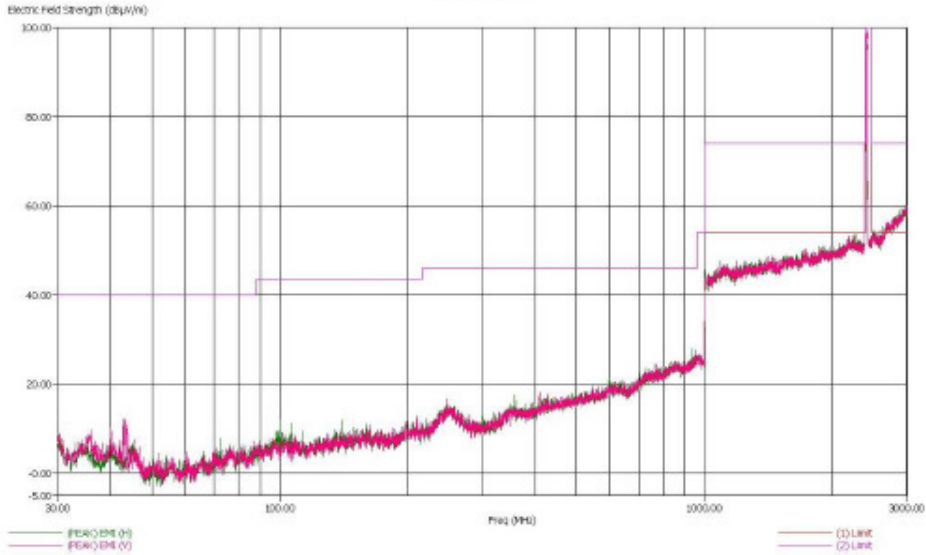
**There were no discernible emissions above the noise floor for 30-3000MHz for Low, Mid and High Channels and all polarizations in WLAN band (g).**

Only one worst case plot for each test frequency are shown in the below plots in the range from 30 MHz – 3000 MHz.

Title: FCC 15.249  
File: Napolean 22140-2 (5.31)(EIS) FCC15.249 WLAN 2400(g) Tch-Low\_Y 2008-07-31 -3.set  
Operator: ADP\_AAL\_SMC\_TLL\_hkr001  
EUT Type: Napolean, FCC ID: IHDP56JL1, pEIR: 80C56D6D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249- IEEE 802.11(g) WLAN emission in TCH mode  
WLAN ch-1 (2412 MHz) TX mode @ 9Mbps/14dBm, Cr=2  
HLP 3003C antenna (30MHz - 3 GHz), Peak detector used,  
Receiver attenuation int. -10dB from 1GHz to 3GHz.

31-07-2008 11:04:09  
Sequence: Preliminary Scan

Graph (30 MHz-3 GHz)

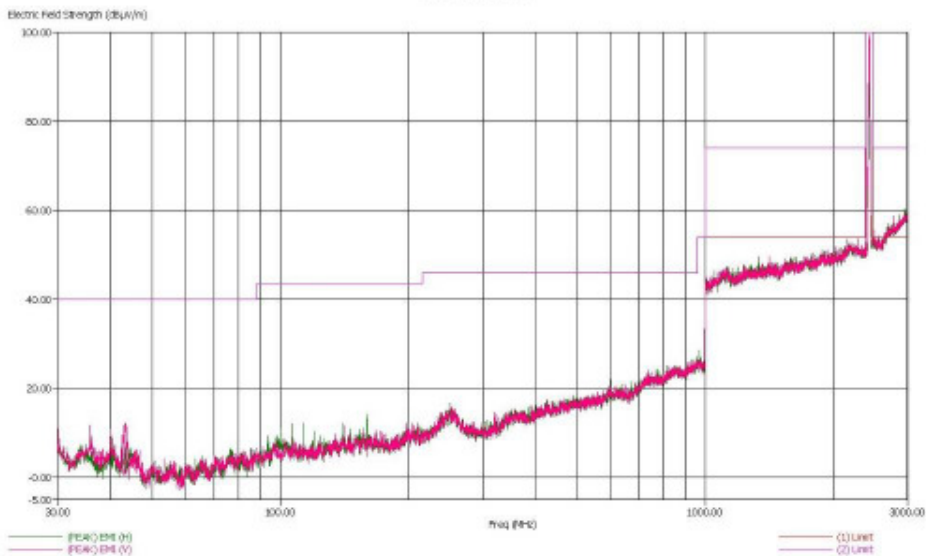


### 30 - 3000MHz Low Channel Dual Polarization Y

Title: FCC 15.249  
File: Napolean 22140-2 (5.31)(EIS) FCC15.249 WLAN 2400(g) Tch-mid\_Y 2008-07-31 -3.set  
Operator: ADP\_AAL\_SMC\_TLL\_hkr001  
EUT Type: Napolean, FCC ID: IHDP56JL1, pEIR: 80C56D6D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249- IEEE 802.11(g) WLAN emission in TCH mode  
WLAN ch-6 (2437 MHz) TX mode @ 9Mbps/14dBm, Cr=2  
HLP 3003C antenna (30MHz - 3 GHz), Peak detector used,  
Receiver attenuation int. -10dB from 1GHz to 3GHz.

31-07-2008 10:42:42  
Sequence: Preliminary Scan

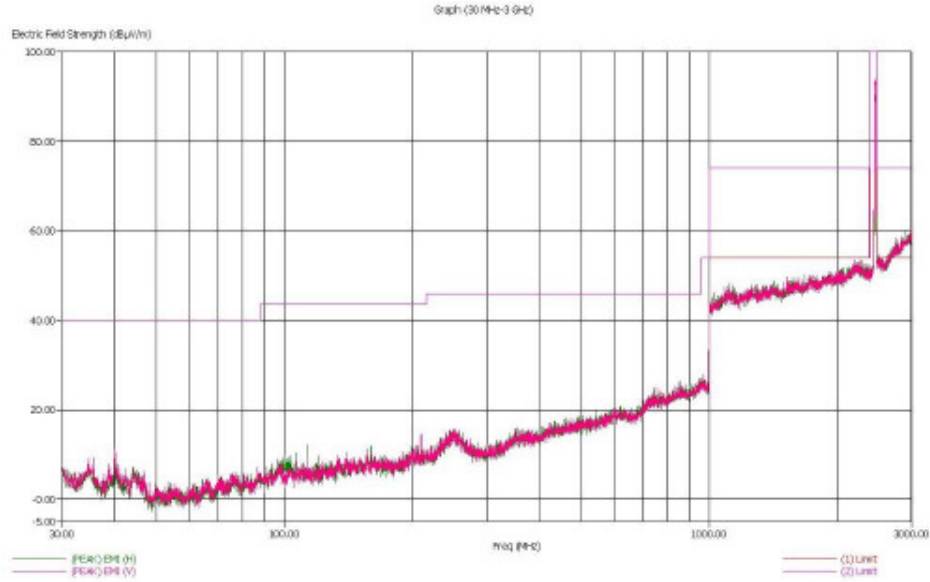
Graph (30 MHz-3 GHz)



### 30 - 3000MHz Middle Channel Dual Polarization Y

Title: FCC 15.249  
File: Hspolcom 22140-2 (5.31)(E8U) FCC15.249 WLAN 2400(g) Tch-hgh\_Y 2008-07-31 -3.swt  
Operator: ADR\_AAL\_GMC\_TL1, hkr001  
EUT Type: Hspolcom, FCC ID: IHDP56JL1, pSN: 8005616D  
EUT Conditions: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode  
WLAN ch-11 (2462 MHz) TX mode @ 5Mbps/19dBm, 0r.-Y  
HLP 3003C antenna (300MHz - 3 GHz). Peak detector used.  
Receiver attenuation int. -10dB from 10Hz to 30Hz.

04-08-2008 14:40:50  
Sequence: Preliminary Scan



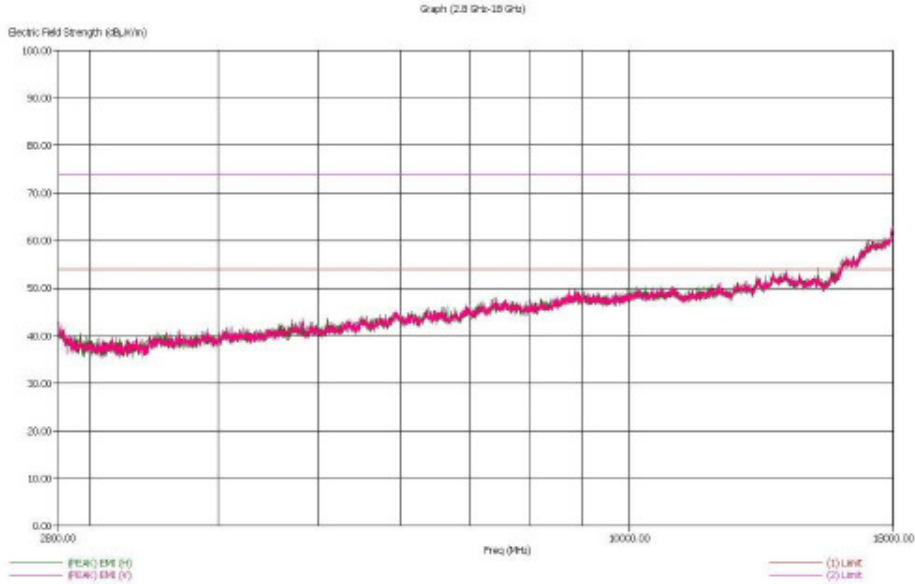
### 30 - 3000MHz High Channel Dual Polarization Y

**There were no discernible emissions above the noise floor for 3-18 GHz for Low, Mid and High Channels and all polarizations in WLAN band (g).**

Only one worst case plot for each test frequency are shown in the below plots in the range from 3 GHz – 18 GHz.

Title: FCC 15.249  
File: Mspolcom 22140-2 (5.31)(ES0) FCC15.249 WLAN 2400(g) Tech-low\_Y 2008-07-31 -3-18.net  
Operator: ADR\_AAL\_EMC\_TL1, hkr001  
EUT Type: Mspolcom, FCC ID: IHDP56JL1, pEIR: 80C5605D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode  
WLAN ch-1 (2412 MHz) TX mode @ 90Mbps/19dBm, Cr.=F  
EMC 3115 antenna (30Hz - 18GHz), Peak detector used.

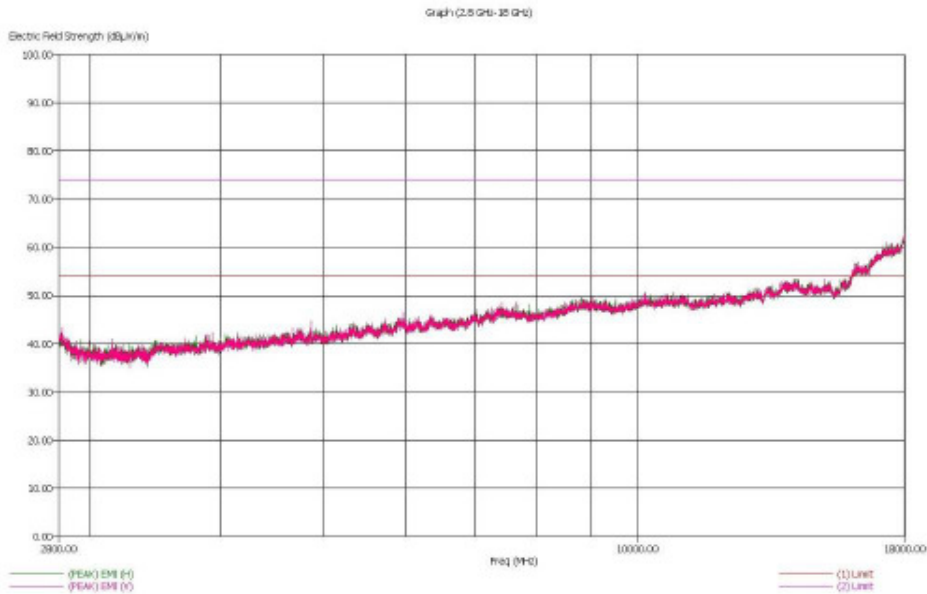
01-08-2008 18:00:47  
Sequence: Preliminary Scan



### 3-18GHz Low Channel Y-Orientation

Title: FCC 15.249  
File: Mspolcom 22140-2 (5.31)(ES0) FCC15.249 WLAN 2400(g) Tech-mid\_Y 2008-07-31 -3-18.net  
Operator: ADR\_AAL\_EMC\_TL1, hkr001  
EUT Type: Mspolcom, FCC ID: IHDP56JL1, pEIR: 80C5605D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode  
WLAN ch-5 (2437 MHz) TX mode @ 90Mbps/19dBm, Cr.=F  
EMC 3115 antenna (30Hz - 18GHz), Peak detector used.

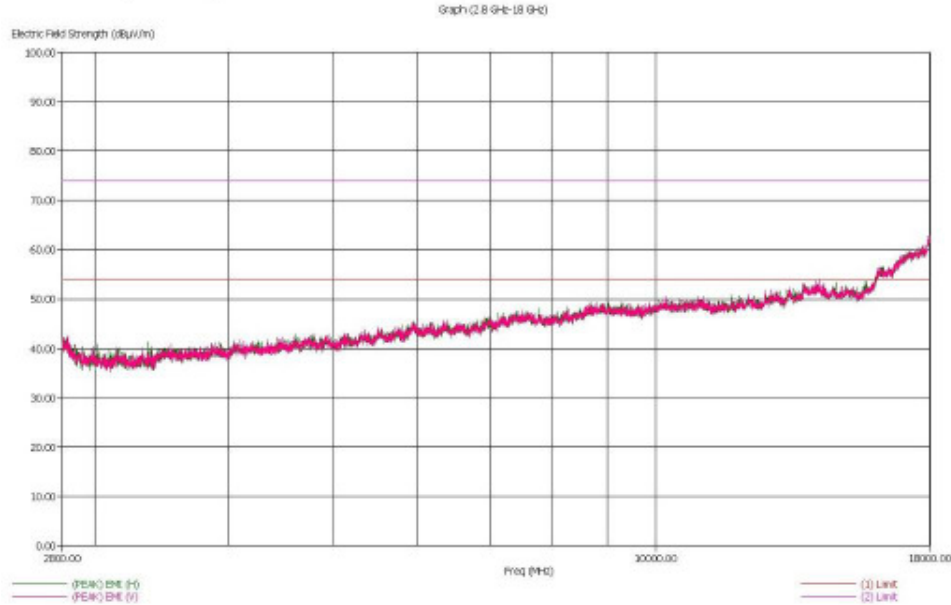
31-07-2008 12:46:51  
Sequence: Preliminary Scan



### 3-18GHz Middle Channel Y-Orientation

Title: FCC 15.249  
File: Napoleon 22140-2 (5.31)(EMI) FCC15.249 WLAN 2400(g) Tch-hgh\_X 2008-07-31 -3-18.net  
Operator: AIR\_JAL\_EMC\_TL1\_hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pERR: 00C5605D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode  
WLAN ch-11 (2462 MHz) TX mode @ 9Mbps/15dBm, 0r, -X  
EM03 3115 antenna (3GHz - 18GHz), Peak detector used.

31-07-2008 14:09:01  
Sequence: Preliminary Scan



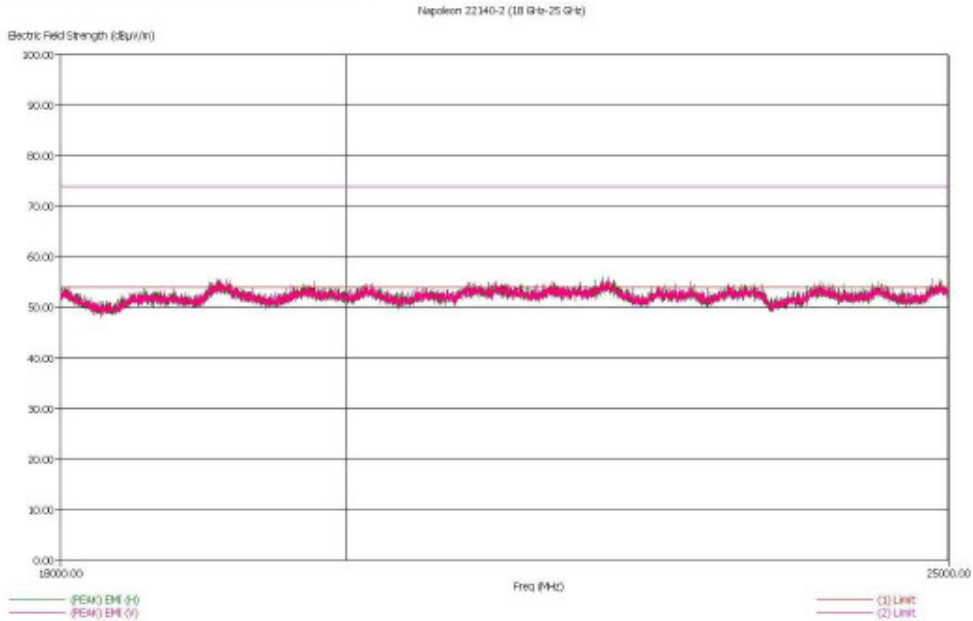
### 3-18GHz High Channel Y-Orientation

**There were no discernible emissions above the noise floor for 18-26 GHz for Low, Mid and High Channels and all polarizations in Bluetooth band**

Only one worst case plot for each test frequency are shown in the below plots in the range from 18 GHz – 26 GHz.

Title: FCC 15.249  
File: Napoleon 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Tch-low\_Y 2008-07-31 -18-25.set  
Operator: ADR\_AAC\_EMC\_TL1, hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEIR: 80C5605D  
EUT Condition: Board Rev: F3.1  
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode  
WLAN ch-1 (2412 MHz) TX mode @ 9Mbps/19dBm, Cr.=V  
EMC 3116 antenna (18GHz - 25GHz), Peak detector used.

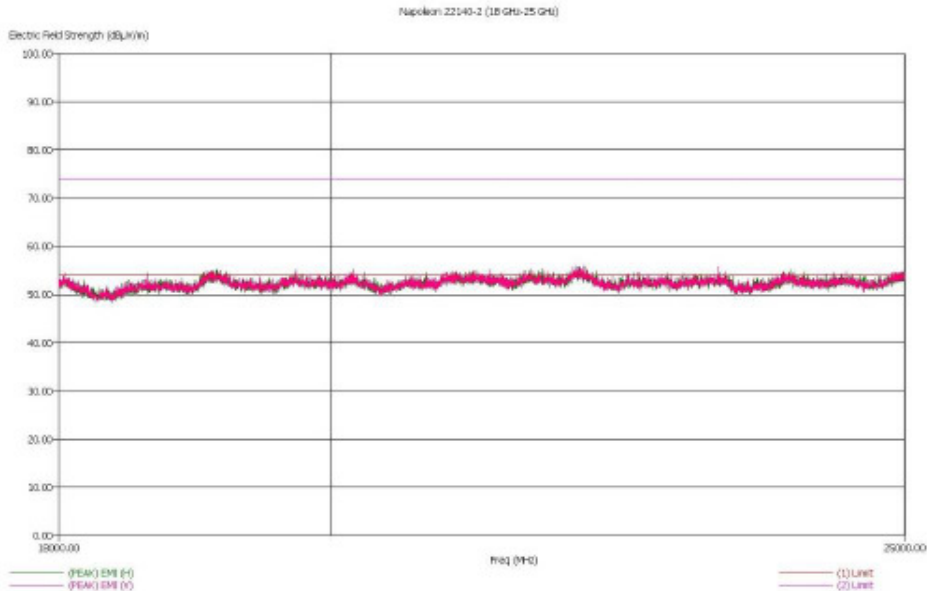
07-08-2008 14:12:03  
Sequence: Preliminary Scan



### 18-25 GHz Low Channel Y-Orientation

Title: FCC 15.249  
File: Napoleon 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Tch-mid\_Y 2008-07-31 -18-25.set  
Operator: ADR\_AAC\_EMC\_TL1, hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEIR: 80C5605D  
EUT Condition: Board Rev: F3.1  
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode  
WLAN ch-5 (2437 MHz) TX mode @ 9Mbps/19dBm, Cr.=V  
EMC 3116 antenna (18GHz - 25GHz), Peak detector used.

07-08-2008 13:24:14  
Sequence: Preliminary Scan

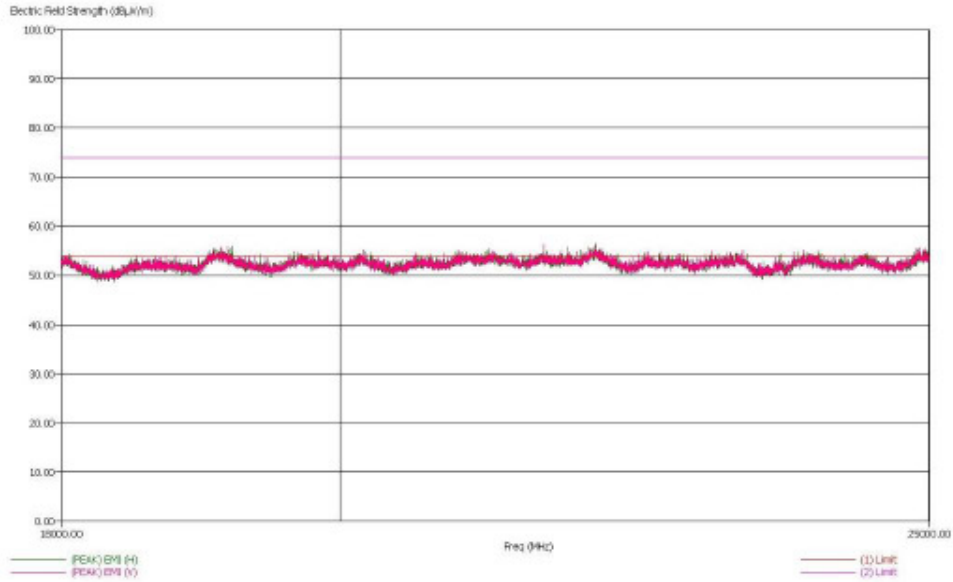


### 18-25 GHz Middle Channel Y-Orientation

Title: FCC 15.249  
File: Nopolon 22140-2 (S.31)ISSU) FCC15.249 WLAN 2400(g) Test-hgh\_Y 2009-07-31 -18-25.net  
Operator: ADR\_RAL\_BMC\_T11: Mar301  
EUT Type: Nopolon, FCC ID: IHDP56JL1, pE3N: 80C56050  
EUT Conditions: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in T3H mode  
WLAN ch-11 (2462 MHz) TX mode @ 54Mbps/19dBm, Cr.-7  
EMC0 3116 antenna (18GHz - 25GHz), Peak detector used.

05-08-2009 16:11:47  
Sequence: Preliminary Scan

Nopolon 22140-2 (18GHz-25 GHz)



**18-25 GHz High Channel Y-Orientation**

## **BAND-EDGE COMPLIANCE OF RF RADIATED EMISSIONS**

CFR 47 Part 15.247

### **Measurement Procedure**

The test sample is placed inside the semi-anechoic chamber on a wooden table at the turntable center. For each spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum reading on the spectrum analyzer. This is repeated for both horizontal and vertical polarizations of the receive antenna.

$$\text{Field Strength (dB}\mu\text{V/m)} = \text{EMI Receiver Level (dB}\mu\text{V)} + \text{Cable Loss (dB)} + \text{Filter Loss (dB)} - \text{Amplifier Gain (dB)} + \text{Antenna Correction Factor (3/m)}$$

The test sample WLAN transmitter was enabled using a test script.

A fully charged battery was used for the supply voltage.

### **Measurement Results**

Note: No WLAN band notch filters were used.

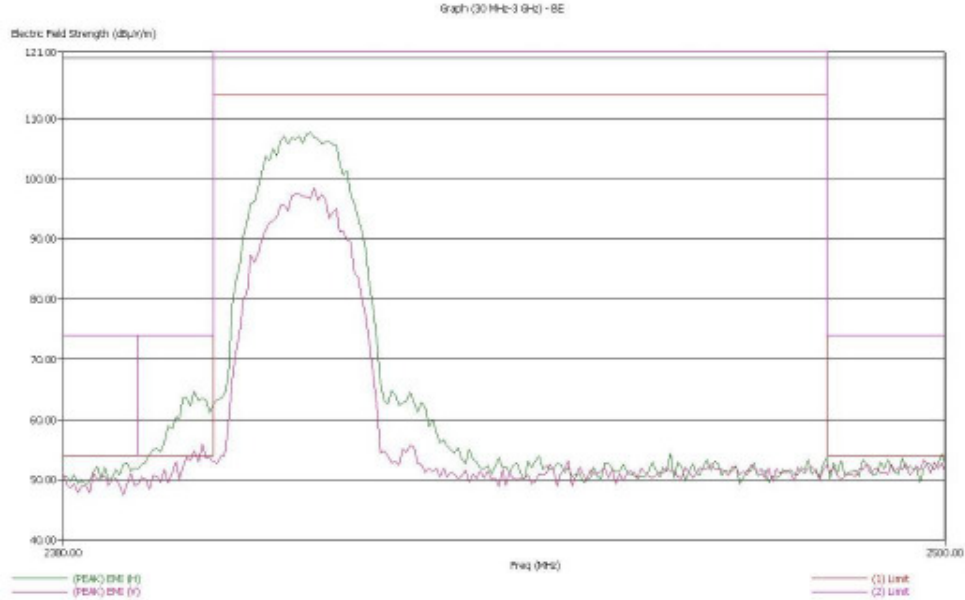
See Attached:

### **WLAN Band (b)**

Only the worst band edge is displayed for WLAN band (b).

Title: FCC 15.249  
File: Napoleon 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tek-low\_X 2008-07-31 -3.set  
Operator: ADL\_AAL\_ENC\_TL1, hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEIR: 80C5605D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TX mode  
WLAN ch-1 (2412 MHz) TX mode @ 11Mbps/20dBm, Or.-X  
HLP 3003C antenna (30MHz - 3 GHz), Peak detector used.  
Receiver attenuation int. -10dB from 1GHz to 3GHz.

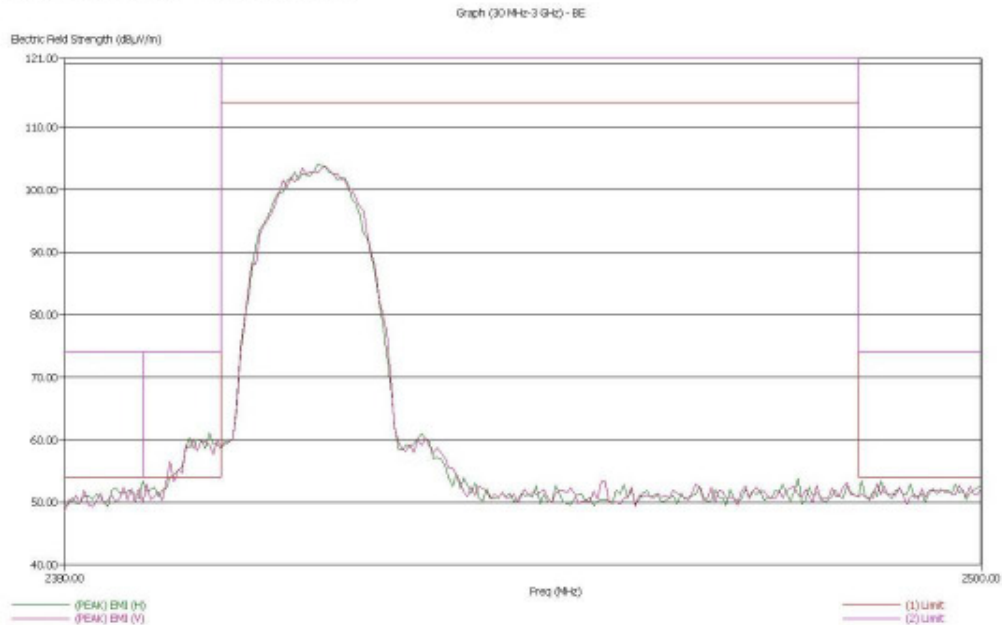
01-08-2008 13:55:59  
Sequence: Preliminary Scan



### Low Band Edge X-Orientation

Title: FCC 15.249  
File: Napoleon 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tek-low\_Y 2008-07-31 -3.set  
Operator: ADL\_AAL\_ENC\_TL1, hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEIR: 80C5605D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TX mode  
WLAN ch-1 (2412 MHz) TX mode @ 11Mbps/20dBm, Or.-Y  
HLP 3003C antenna (30MHz - 3 GHz), Peak detector used.  
Receiver attenuation int. -10dB from 1GHz to 3GHz.

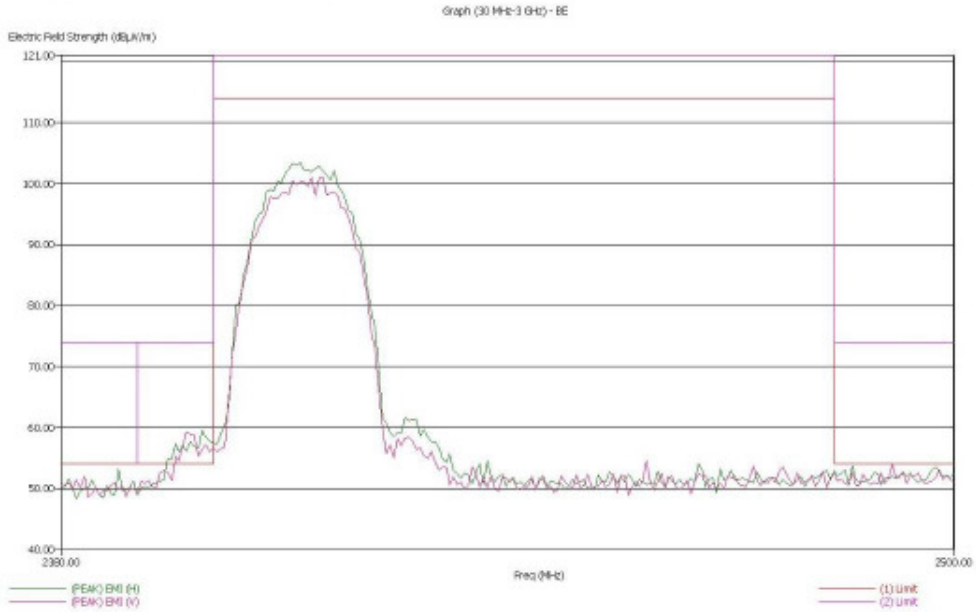
01-08-2008 13:37:58  
Sequence: Preliminary Scan



### Low Band Edge Y-Orientation

Title: FCC 15.249  
File: Napolean 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-low\_Z 2008-07-31 -3.net  
Operator: ADM\_AAI\_EMC\_TL1, hkr001  
EUT Type: Napolean, FCC ID: IHDP56JL1, pEIR: 60056050  
EUT Condition: Board Rev1 P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch-1 (2412 MHz) TX mode @ 11Mbps/20dBm, Or.-2  
HLP 3003C antenna (30MHz - 3 GHz), Peak detector used,  
Receiver attenuation int. -10dB from 1GHz to 3GHz.

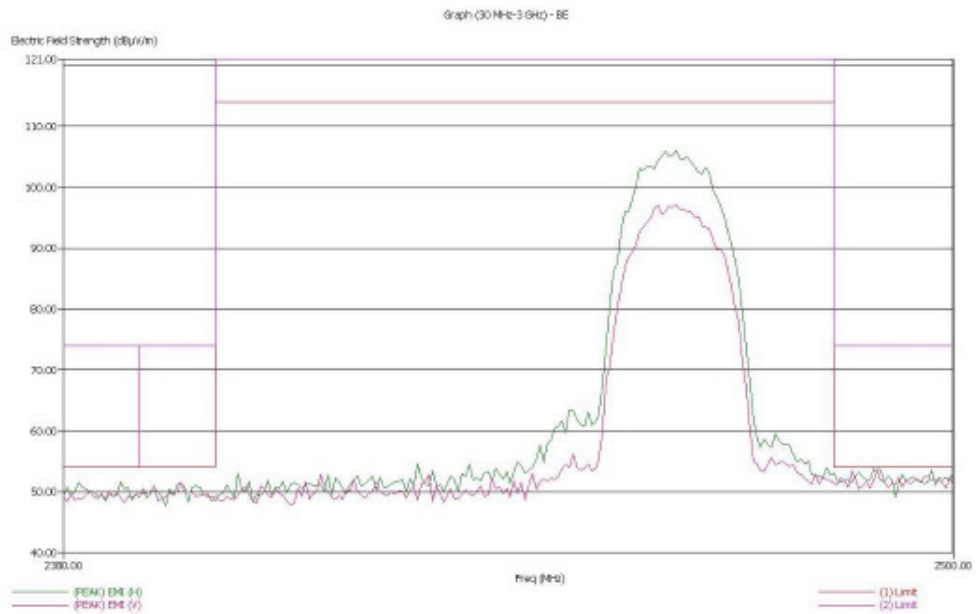
01-08-2008 14:10:21  
Sequence: Preliminary Scan



### Low Band Edge Z-Orientation

Title: FCC 15.249  
File: Napolean 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-hgh\_X 2008-07-31 -3.net  
Operator: ADM\_AAI\_EMC\_TL1, hkr001  
EUT Type: Napolean, FCC ID: IHDP56JL1, pEIR: 60056050  
EUT Condition: Board Rev1 P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode  
WLAN ch-11 (2462 MHz) TX mode @ 11Mbps/20dBm, Or.-2  
HLP 3003C antenna (30MHz - 3 GHz), Peak detector used,  
Receiver attenuation int. -10dB from 1GHz to 3GHz.

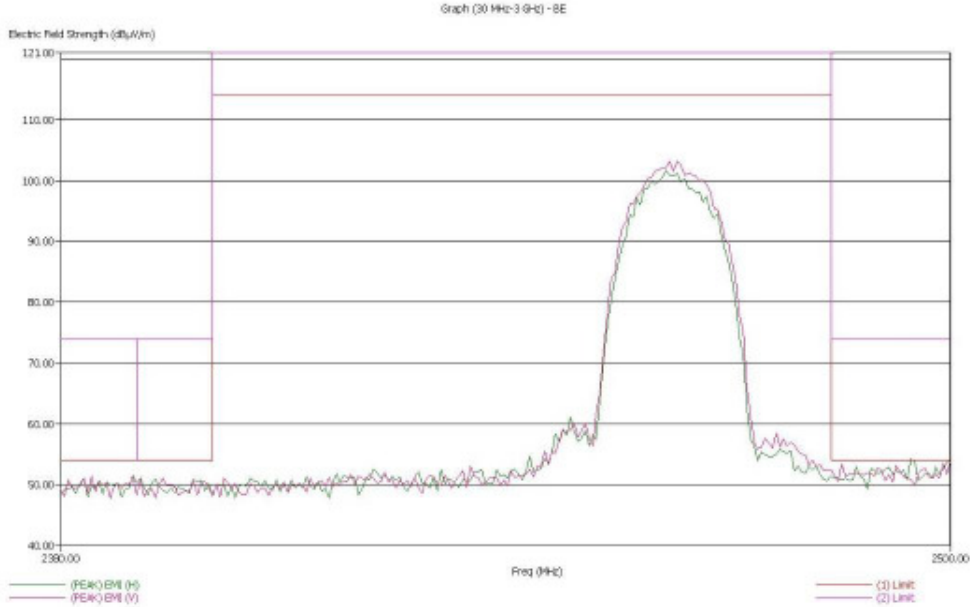
01-08-2008 14:38:10  
Sequence: Preliminary Scan



### High Band Edge X-Orientation

Title: FCC 15.249  
File: Napoleon 22140-2 (S.31)(ESU) FCC15.249 WLAN 2400(b) Tek-hgh\_Y 2008-07-31 -3.set  
Operator: ADR\_AM\_LMC\_TL1, hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEIN: 80256050  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCM mode  
WLAN ch-11 (2462 MHz) TX mode @ 11Mbps/20dBa, Or.+Y  
HP 3002C antenna (30MHz ~ 3 GHz), Peak detector used.  
Receiver attenuation int. -15dB from 1GHz to 3GHz.

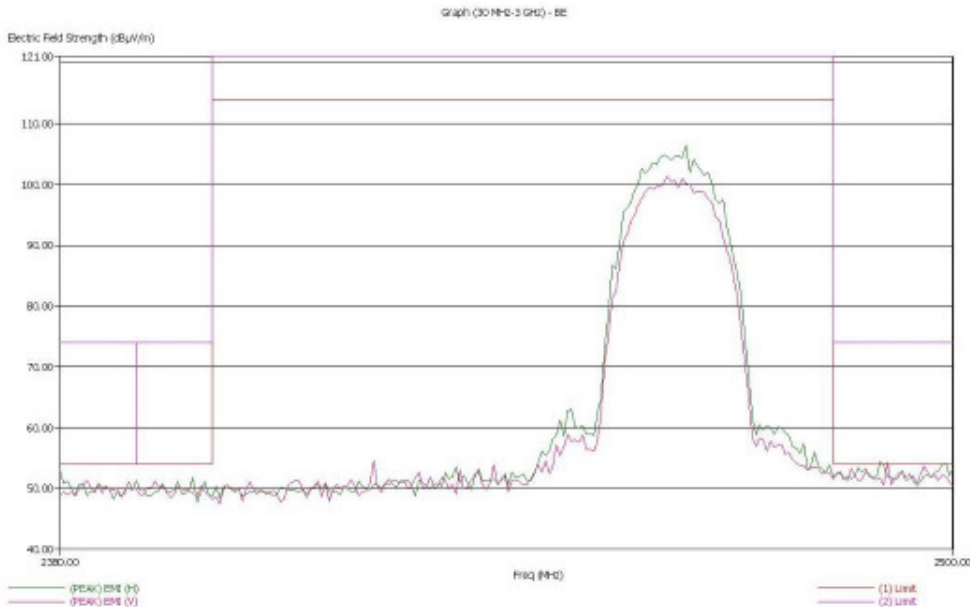
01-08-2008 14:57:57  
Sequence: Preliminary Scan



### High Band Edge Y-Orientation

Title: FCC 15.249  
File: Napoleon 22140-2 (S.31)(ESU) FCC15.249 WLAN 2400(b) Tek-hgh\_Z 2008-07-31 -3.set  
Operator: ADR\_AM\_LMC\_TL1, hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEIN: 80256050  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCM mode  
WLAN ch-11 (2462 MHz) TX mode @ 11Mbps/20dBa, Or.+Z  
HP 3002C antenna (30MHz ~ 3 GHz), Peak detector used.  
Receiver attenuation int. -10dB from 1GHz to 3GHz.

01-08-2008 14:27:40  
Sequence: Preliminary Scan



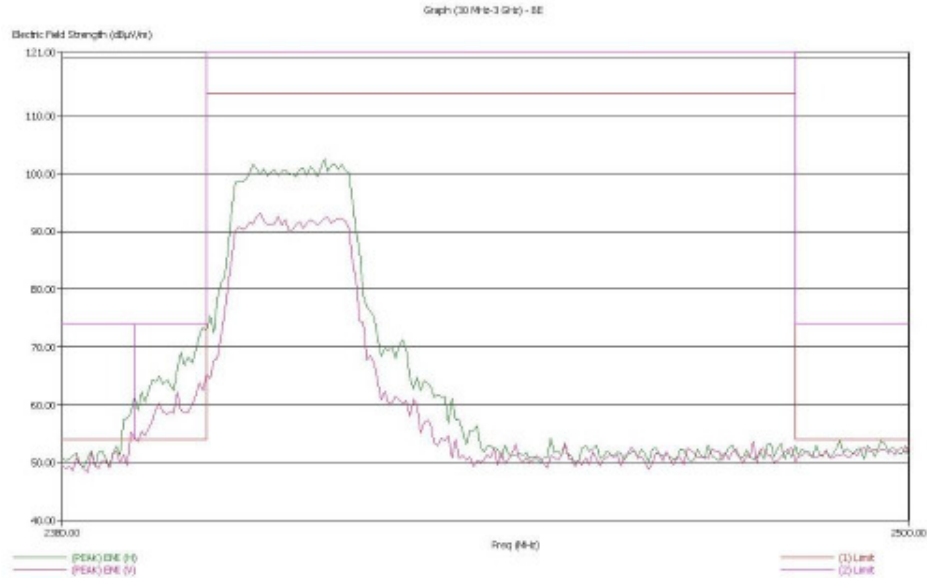
### High Band Edge Z-Orientation

### WLAN Band (g)

Only the worst band edge is displayed for WLAN band (g).

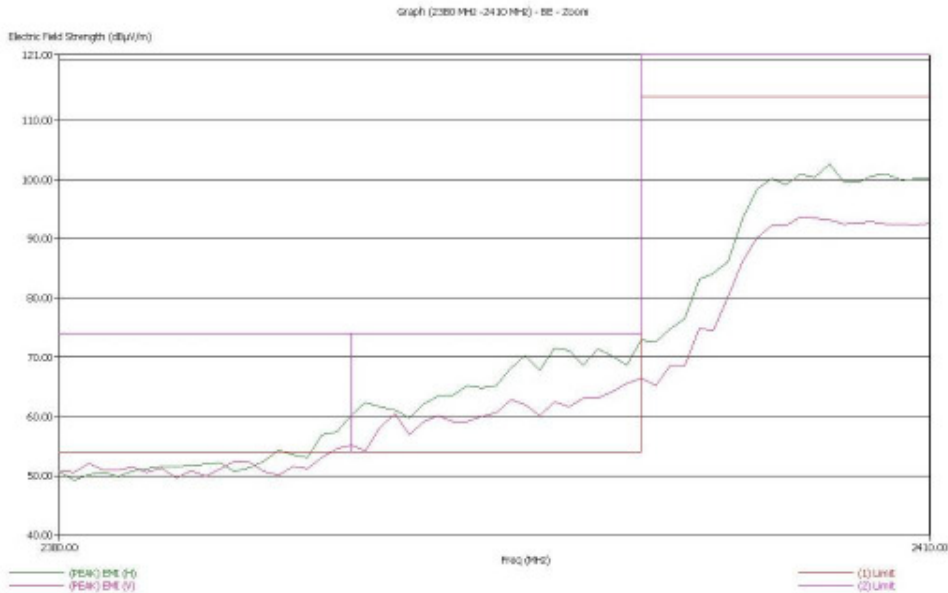
Title: FCC 15.249  
 File: Hapeleon 22140-2 (5.31)(E93) FCC15.249 WLAN 2400(g) Tch-low\_X 2008-07-31 -3.set  
 Operator: ADR\_AAL\_ENC\_TL1, hkr001  
 EUT Type: Hapeleon, FCC ID: IHDP56JL1, pSRN: 80C56D6D  
 EUT Condition: Board Rev: P3.1  
 Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode  
 WLAN ch-1 (2412 MHz) TX mode @ 20Mbps/14dBm, Cr=20  
 MLP 3003C antenna (30MHz - 3 GHz), Peak detector used.  
 Receiver attenuation int. -10dB from 10Hz to 30Hz.

04-08-2008 12:45:39  
Sequence: Preliminary Scan



Title: FCC 15.249  
 File: Hapeleon 22140-2 (5.31)(E93) FCC15.249 WLAN 2400(g) Tch-low\_X 2008-07-31 -3 -22.5deg.set  
 Operator: ADR\_AAL\_ENC\_TL1, hkr001  
 EUT Type: Hapeleon, FCC ID: IHDP56JL1, pSRN: 80C56D6D  
 EUT Condition: Board Rev: P3.1  
 Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode  
 WLAN ch-1 (2412 MHz) TX mode @ 20Mbps/14dBm, Cr=20  
 MLP 3003C antenna (30MHz - 3 GHz), Peak detector used.  
 Receiver attenuation int. -10dB from 10Hz to 30Hz.

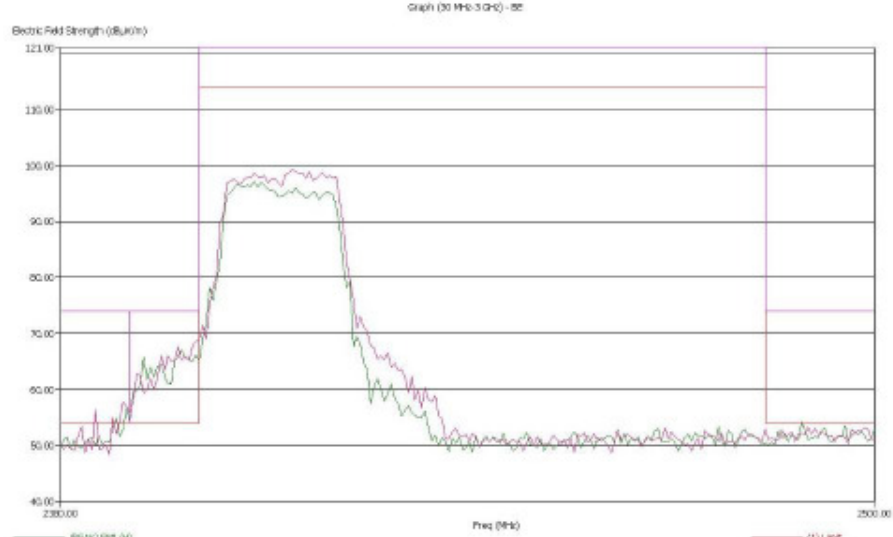
04-08-2008 13:00:24  
Sequence: Preliminary Scan



### Low Band Edge X-Orientation (See Appendix 1)

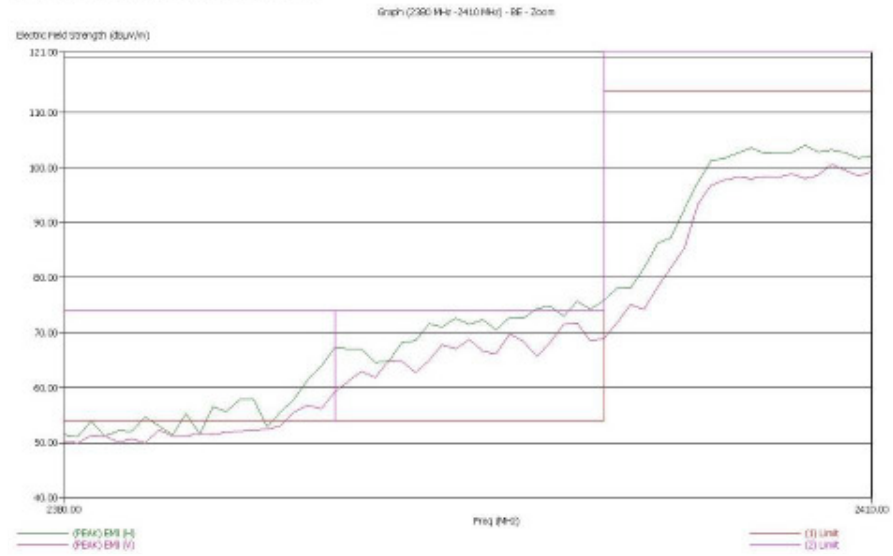
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File: Napoleon 22140-2 (5.21)(EMI) FCC15.249 WLAN 2400(g) Tch-low\_Y 2009-07-31 -3.set  
Operator: AFR\_AML\_EMC\_TLL\_hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEM: 69C5609E  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/IEEE 802.11(g) WLAN emission in TCH mode  
WLAN ch-1 (2412 MHz) TX mode @ 900m/1945m, Gr.-N  
HLP 3032C antenna (30MHz - 3 GHz), Peak detector used.  
Receiver attenuation int. -10dB from 10Hz to 3GHz.

31-07-2009 11:14:19  
Sequence: Preliminary Scan



Title: FCC 15.249  
File: Napoleon 22140-2 (5.31)(EMI) FCC15.249 WLAN 2400(g) Tch-low\_Y 2009-07-31 -3 -22.54eq.set  
Operator: AFR\_AML\_EMC\_TLL\_hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEM: 69C5619D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/IEEE 802.11(g) WLAN emission in TCH mode  
WLAN ch-1 (2412 MHz) TX mode @ 900m/1945m, Gr.-N  
HLP 3032C antenna (30MHz - 3 GHz), Peak detector used.  
Receiver attenuation int. -10dB from 10Hz to 3GHz.

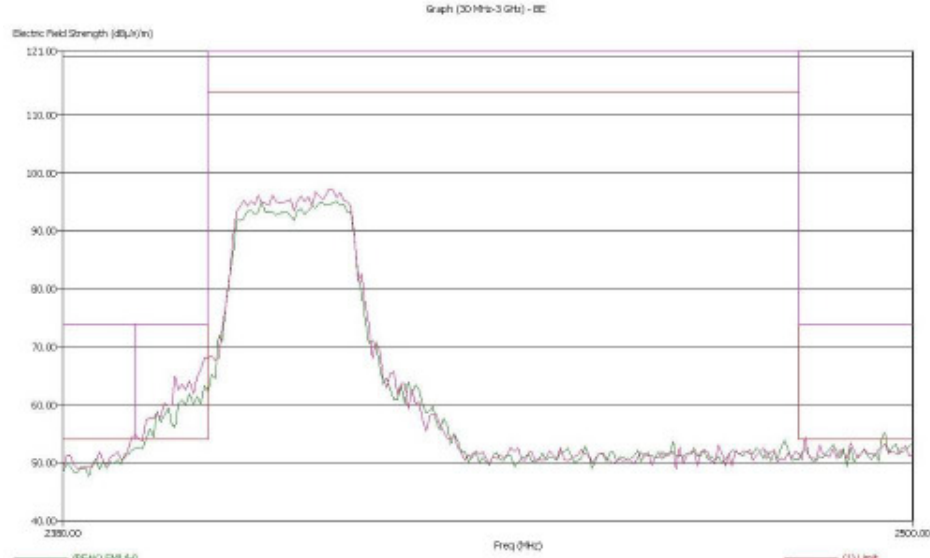
31-07-2009 11:14:27  
Sequence: Preliminary Scan



**Low Band Edge Y-Orientation**  
(See Appendix 1)

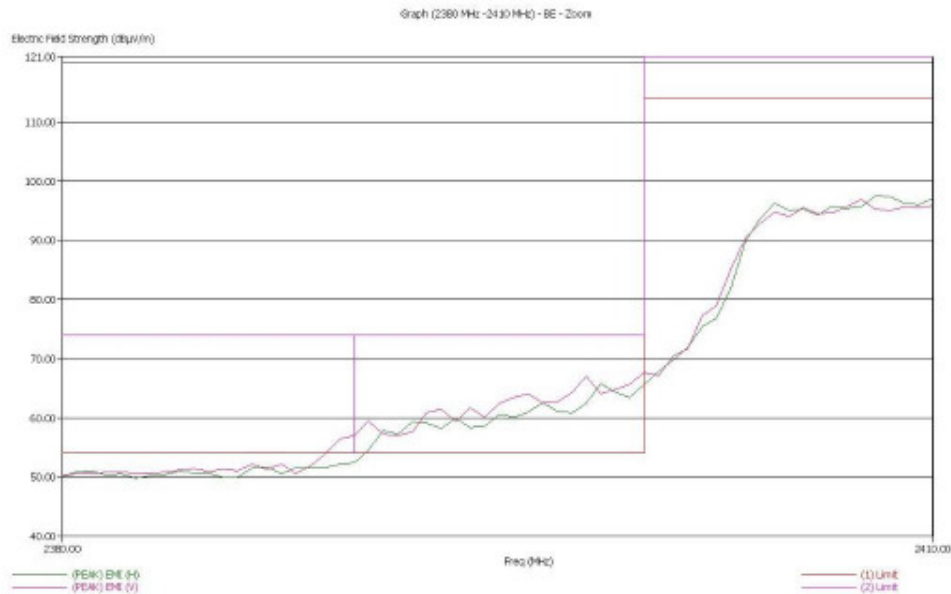
Title: FCC 15.249  
File: Napoleon 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Teh-low\_2 2008-07-31 -3.net  
Operator: ADL\_AAL\_EMC\_IL1\_bkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEIR: 81056050  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode  
WLAN ch-1 (2412 MHz) TX mode @ 900ps/19dBm, Cr=-2  
HLP 3003C antenna (30MHz - 3 GHz), Peak detector used.  
Receiver attenuation 1st, -10dB from 10Hz to 30Hz.

04-08-2008 12:19:33  
Sequence: Preliminary Scan



Title: FCC 15.249  
File: Napoleon 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Teh-low\_2 2008-07-31 -3 -22.5deg.net  
Operator: ADL\_AAL\_EMC\_IL1\_bkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEIR: 81056050  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode  
WLAN ch-1 (2412 MHz) TX mode @ 900ps/19dBm, Cr=-2  
HLP 3003C antenna (30MHz - 3 GHz), Peak detector used.  
Receiver attenuation 1st, -10dB from 10Hz to 30Hz.

04-08-2008 12:19:31  
Sequence: Preliminary Scan

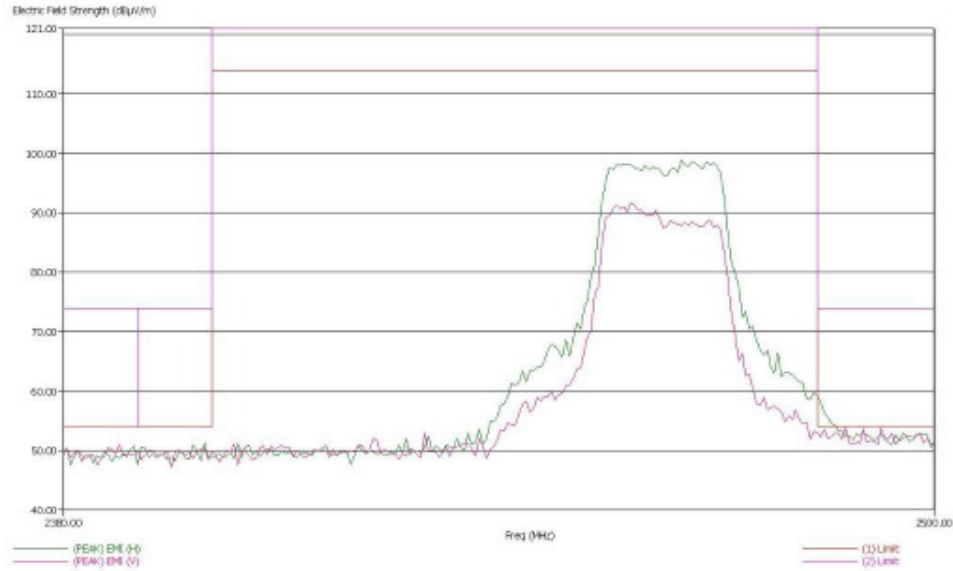


### Low Band Edge Z-Orientation

Title: FCC 15.249  
File: Napoleon 22140-2 (5.31)(EUI) FCC15.249 WLAN 2400(g) Tch-hgh\_X 2008-07-31 -3.gwt  
Operator: ARLAAL\_EMC\_TL1\_hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEIR: 80C5615D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TDS mode  
WLAN ch-11 (2462 MHz) TX mode @ 900ps/19dBm, Or-X  
MLP 3003C antenna (30MHz - 3 GHz), Peak detector used.  
Receiver attenuation int. -10dB from 10Hz to 30Hz.

04-08-2008 14:30:33  
Sequence: Preliminary Scan

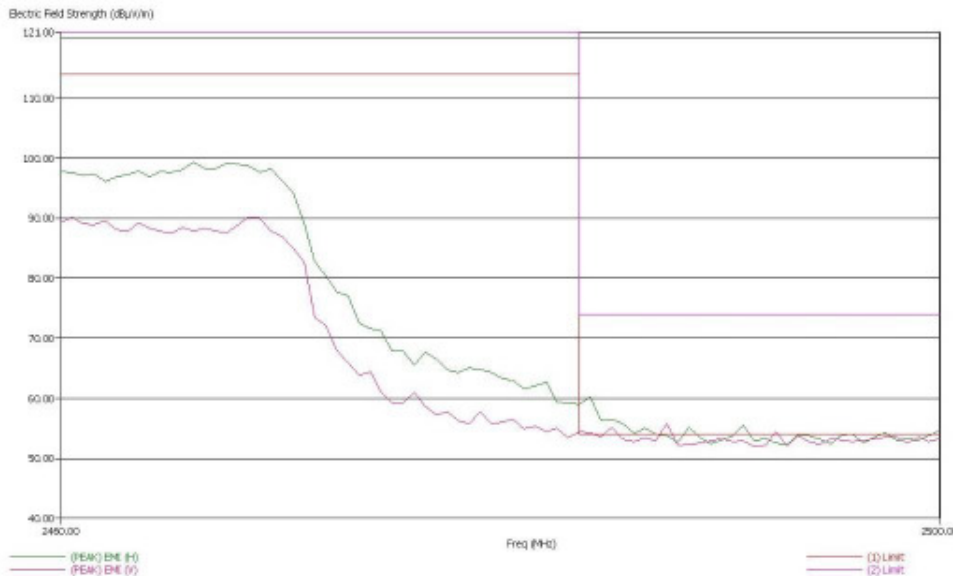
Graph (30MHz-3GHz) -EE



Title: FCC 15.249  
File: Napoleon 22140-2 (5.31)(EUI) FCC15.249 WLAN 2400(g) Tch-hgh\_X 2008-07-31 -3 -22.5deg.gwt  
Operator: ARLAAL\_EMC\_TL1\_hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEIR: 80C5615D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TDS mode  
WLAN ch-11 (2462 MHz) TX mode @ 900ps/19dBm, Or-X  
MLP 3003C antenna (30MHz - 3 GHz), Peak detector used.  
Receiver attenuation int. -10dB from 10Hz to 30Hz.

04-08-2008 15:01:01  
Sequence: Preliminary Scan

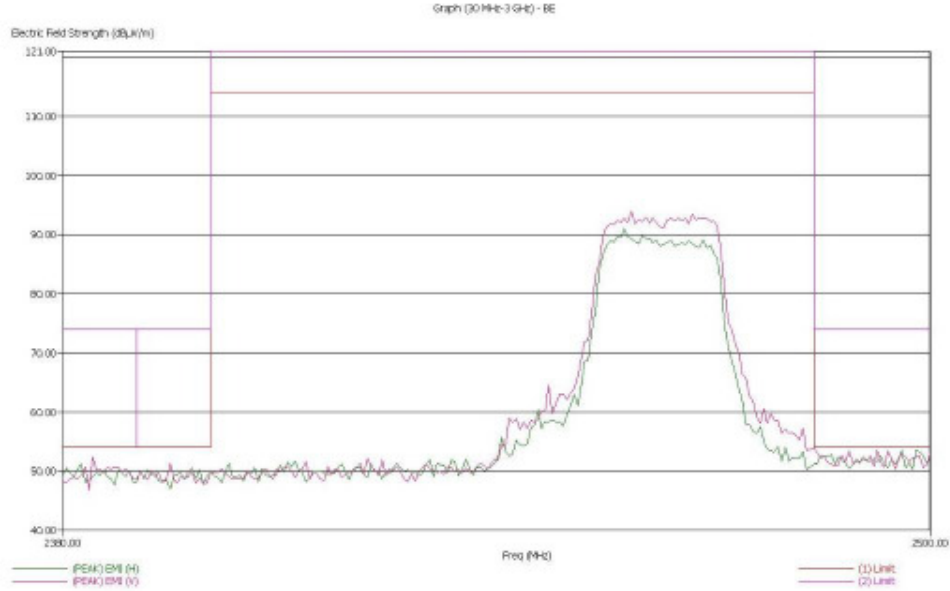
Graph (30MHz-3GHz) -EE -Zoom



### High Band Edge X-Orientation

Title: FCC 15.249  
File: Napoles 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Tch-hgh\_Y 2008-07-31 -3.set  
Operator: ADR\_AAL\_EMC\_TLI, hkr001  
EUT Type: Napoles, FCC ID: IHDP56JL1, pEIR: 00C5605D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TDM mode  
WLAN ch-11 (2462 MHz) TX mode @ 9Mbps/19dBm, Cr=-2  
HLP 3003C antenna (30MHz ~ 3 GHz), Peak detector used.  
Receiver attenuation int. -104dB from 1GHz to 3GHz.

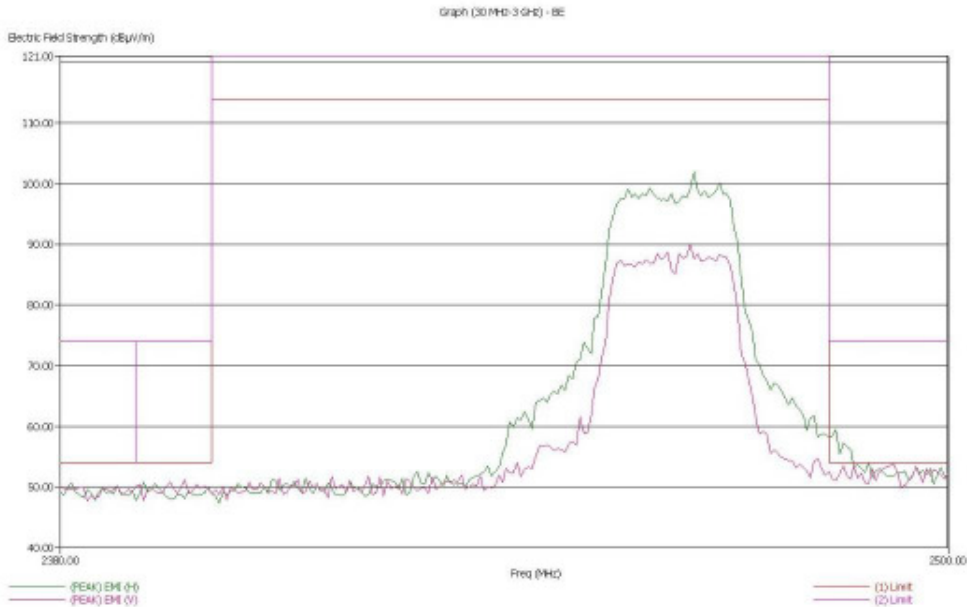
04-08-2008 14:40:50  
Sequence: Preliminary Scan



### High Band Edge Y-Orientation

Title: FCC 15.249  
File: Napoles 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Tch-hgh\_Z 2008-07-31 -3.set  
Operator: ADR\_AAL\_EMC\_TLI, hkr001  
EUT Type: Napoles, FCC ID: IHDP56JL1, pEIR: 00C5605D  
EUT Condition: Board Rev: P3.1  
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TDM mode  
WLAN ch-11 (2462 MHz) TX mode @ 9Mbps/19dBm, Cr=-2  
HLP 3003C antenna (30MHz ~ 3 GHz), Peak detector used.  
Receiver attenuation int. -104dB from 1GHz to 3GHz.

04-08-2008 14:20:19  
Sequence: Preliminary Scan



### High Band Edge Z-Orientation

**PICTURES**

The pictures related to the above test results are placed in the associated report denoted as EXHIBIT 7A2.

**APPENDIX**

**Appendix- 1 Out of band emission – band edge**

The WLAN band (g) low channel band edge performance is further evaluated using the described method in FCC part 15.247(d).

The carrier is measured using a 100 kHz RBW (6 dB).

**WLAN band (g):**

Title: FCC 15.249  
 File: Napoleon 22140-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Tch-low\_Y 2008-07-31 -PK Carrier RBW=100KHz -H.set  
 Operator: ADR\_AAL EMC\_TL1\_hkr001  
 EUT Type: Napoleon, FCC ID: IHDT56JL1, pESN: 80056D5D  
 EUT Condition: Board Rev: P3.1  
 Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode  
 WLAN ch-1 (2412 MHz) TX mode @ 9Mbps/19dBm. Or.=Y  
 EMC0 3115 antenna (30Hz - 18GHz). Peak detector used, RBW=100KHz, VBW=Auto

31-07-2008 11:40:05  
 Sequence: Final Measurements

Napoleon 22140-2 - Table 100KHz RBW

Freq (MHz)	Freq (Max) (MHz)	(PEAK) EMI (dBμV/m)	Ttbl Agl (deg)	Pol
2405.00	2405.73	98.21	131.60	H
2406.00	2405.75	98.24	216.80	H
2407.00	2405.98	98.37	213.40	H
2408.00	2405.99	98.36	215.20	H
2409.00	2409.51	96.23	215.00	H
2410.00	2409.50	96.11	211.70	H
2411.00	2410.73	96.94	214.90	H
2412.00	2413.00	94.75	216.70	H
2413.00	2413.30	95.82	215.20	H
2414.00	2413.25	95.95	208.50	H
2415.00	2414.49	96.78	211.90	H
2416.00	2417.00	96.52	208.50	H
2417.00	2416.98	96.19	218.40	H
2418.00	2417.01	96.23	208.70	H
2419.00	2419.49	95.93	210.50	H

**Carrier Low Channel X-Orientation-RBW = 100 kHz (6 dB)**

The peak value of the carrier field strength is measured to: 98.37 dBμV/m

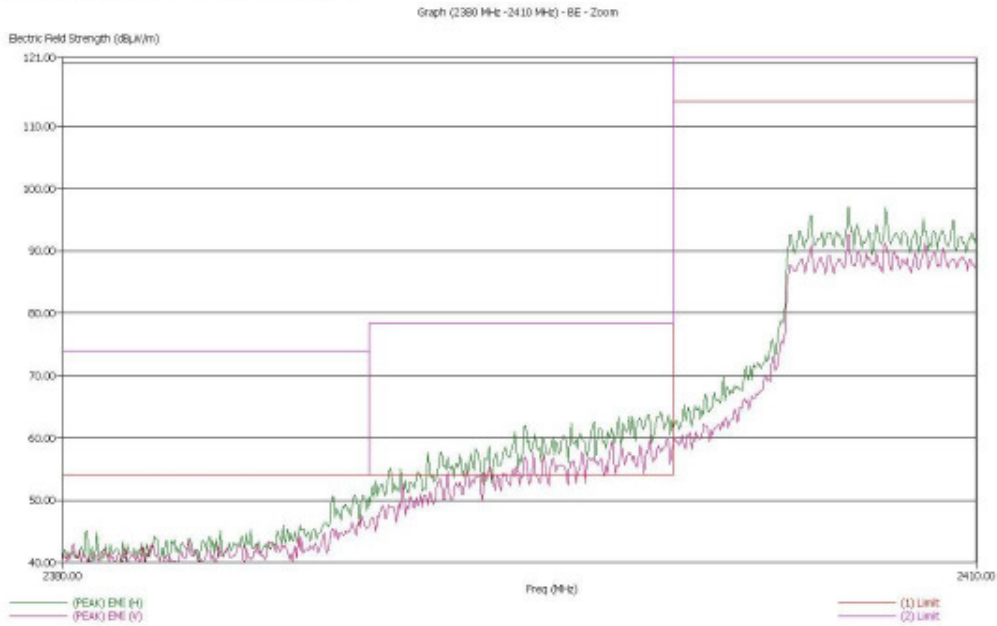
The new out of band emission limit line for emissions that does not fall inside any restricted band as defined in FCC part 15.205 and is limited to the frequency band 2390 MHz to 2400 MHz is:

98.37 dBμV/m – 20dB = 78.37 dBμV/m.

A test with this modified limit line included is performed.

Title: FCC 15.249  
File: Napoleon\_22140-2 (5.31) (ESU) FCC15.249 WLAN 2400(g) Tch-low\_V 2008-07-31 -3 -22.5deg -100MHz.net  
Operator: ADDR\_AAL\_EMC\_TL1, hkr001  
EUT Type: Napoleon, FCC ID: IHDP56JL1, pEIR: 00C56D5D  
EUT Conditions: Board Rev: P3.1  
Comments: FCC 15.249- IEEE 802.11(g) WLAN emission in TCH mode  
WLAN ch-1 (2412 MHz) TX mode @ 9Mbps/19dBm, Cr.-V  
HLP 3003C antenna (30MHz - 3 GHz), Peak detector used,  
Receiver attenuation int. -10dB from 10Hz to 30Hz.

31-07-2008 12:28:24  
Sequence: Preliminary Scan



### Band Edge Low Channel X-Orientation-RBW = 100 kHz (6 dB)

The band edge performance in the out of band emission frequency range from 2390 MHz to 2400 MHz is attenuated by more than 20 dB with respect to the carrier.

## End of Test Report