



# FCC TEST REPORT

According to

## FCC Rules and Regulations Part 15 Subpart C

Applicant	: NETGEAR, INC.
Address	: 4500 Great America Parkway, Santa Clara, CA 95054
Equipment	: RangeMax 150 Wireless Router
Model No.	: WNR1000
FCC ID	: PY308400094
Trade Name	: NETGEAR

Laboratory Accreditation



Testing Laboratory  
1332

- The test result refers exclusively to the test presented test model / sample.,
- Without written approval of **CerpPASS Technology Corp.** the test report shall not be reproduced except in full.
- The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



## Contents

<b>1. Report of Measurements and Examinations</b>	<b>5</b>
1.1 List of Measurements and Examinations	5
<b>2. Test Configuration of Equipment under Test</b>	<b>6</b>
2.1 Feature of Equipment under Test	6
2.2 Carrier Frequency of Channels	7
2.3 Test Mode and Test Software	8
2.4 Description of Test System	8
2.5 Connection Diagram of Test System	9
2.6 General Information of Test	10
2.7 Measurement Uncertainty	10
2.8 History of this test report	11
<b>3. Antenna Requirements</b>	<b>12</b>
3.1 Standard Applicable	12
3.2 Antenna Construction and Directional Gain	12
<b>4. Test of Conducted Emission</b>	<b>13</b>
4.1 Test Limit	13
4.2 Test Procedures	13
4.3 Typical Test Setup	14
4.4 Measurement equipment	14
4.5 Test Result and Data	15
4.6 Test Photographs	27
<b>5. Test of Radiated Emission</b>	<b>28</b>
5.1 Test Limit	28
5.2 Test Procedures	28
5.3 Typical Test Setup	29
5.4 Measurement equipment	29
5.5 Test Result and Data	30
5.6 Test Photographs	102
<b>6. 6dB Bandwidth Measurement Data</b>	<b>103</b>
6.1 Test Limit	103
6.2 Test Procedures	103
6.3 Test Setup Layout	103
6.4 Measurement equipment	103
6.5 Test Result and Data	103
<b>7. Maximum Peak Output Power</b>	<b>116</b>
7.1 Test Limit	116
7.2 Test Procedures	116
7.3 Test Setup Layout	116
7.4 Measurement equipment	116
7.5 Test Result and Data	116
<b>8. Band Edges Measurement</b>	<b>129</b>
8.1 Test Limit	129
8.2 Test Procedure	129



8.3 Test Setup Layout ..... 129

8.4 Measurement equipment ..... 129

8.5 Test Result and Data ..... 129

8.6 Restrict Band Emission Measurement Data ..... 146

**9. Power Spectral Density ..... 150**

9.1 Test Limit ..... 150

9.2 Test Procedures ..... 150

9.3 Test Setup Layout ..... 150

9.4 Measurement equipment ..... 150

9.5 Test Result and Data ..... 150

**10. Restricted Bands of Operation ..... 163**

10.1 Labeling Requirement ..... 163

**Appendix A. Photographs of EUT.....A1 ~ A7**



# CERTIFICATE OF COMPLIANCE

According to

## FCC Rules and Regulations Part 15 Subpart C

Applicant : NETGEAR, INC.  
Address : 4500 Great America Parkway, Santa Clara,  
CA 95054  
Equipment : RangeMax 150 Wireless Router  
Model No. : WNR1000  
FCC ID : PY308400094

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4** The equipment was **passed** the test performed according to **FCC Rules and Regulations Part 15 Subpart C (2007)**.

The test was carried out on Jan. 09, 2009 at **CerpPASS Technology Corp.**

Signature

  
Anson Chou  
EMC/RF B.U. Vice General Manager



# 1. Report of Measurements and Examinations

## 1.1 List of Measurements and Examinations

FCC Rule	Description of Test	Result
15.203	. Antenna Requirement	Pass
15.207	. Conducted Emission	Pass
15.209 15.247(d)	. Radiated Emission	Pass
15.247(a)(2)	. 6dB Bandwidth	Pass
15.247(b)	. Maximum Peak Output Power	Pass
15.247(d)	. 100kHz Bandwidth of Frequency Band Edges	Pass
15.247(e)	. Power Spectral Density	Pass
1.1307 1.1310 2.1091 2.1093	. RF Exposure Compliance	Pass



## 2. Test Configuration of Equipment under Test

### 2.1 Feature of Equipment under Test

Internet Connection	
WAN MAC Address	Default hardware address (on label)
MTU Size	1500
Local Network	
Router LAN IP address printed on product label (also known as Gateway IP address)	192.168.1.1
Router Subnet	255.255.255.0
DHCP Server	Enabled
DHCP range	192.168.1.2 to 192.168.1.254
Time Zone	GMT
Time Zone Adjusted for Daylight Saving Time	Disabled
Allow a Registrar to configure this router	Enabled
Wireless	
Wireless Communication	Enabled
SSID Name	NETGEAR
Security	Disabled
Wireless Access List (MAC Filtering)	All wireless stations allowed
Broadcast SSID	Enabled
Transmission Speed	Auto
Country/Region	United States (North America only ; otherwise varies by country and region)
RF Channel	6 unit region selected
Operating Mode	150 Mbps
Data Rate	Best
Output Power	Full
Firewall	
Inbound (communications coming in from the Internet)	Disabled (bars all unsolicited requests except for traffic on port 80, the http port)
Outbound (communications going out to the Internet)	Enabled (all)
Network Protocol and Standards Compatibility	
Data and Routing Protocols	TCP/IP, RIP-1, RIP-2, DHCP, PPPoE, PPTP, Bigpond, Dynamic DNS, and UPnP
Power Adapter	MT12-Y120100-A1 T012LF1209
Physical	
Dimensions	28 x 175 x 119 mm (1.1 x 6.89 x 4.685 in.)
Weight	0.26 kg (0.57 lb)
Interface Specifications	
LAN	10BASE-T or 100BASE-Tx, RJ-45
WAN	10BASE-T or 100BASE-Tx, RJ-45



## 2.2 Carrier Frequency of Channels

802.11b, 802.11g, 802.11n, HT20

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437	12	---

802.11n, HT40

Channel	Frequency(MHz)	Channel	Frequency(MHz)
---	---	07	2442
---	---	08	2447
03	2422	09	2452
04	2427	---	---
05	2432	---	---
06	2437	---	---



## 2.3 Test Mode and Test Software

- a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
- b. The complete test system included remote workstation, PC, Monitor, Keyboard, Mouse, Printer, Modem and EUT for EMI test. The remote workstation included Notebook.
- c. An executive program, "Ping.exe" under WIN XP, which transmits and receives data to the remote workstation through LAN (100M) and Wireless.
- d. The following test mode and test software was performed for conduction and radiation test:
  - 802.11b/g/n HT20: CH01: 2412MHz, CH06: 2437MHz, CH11: 2462MHz
  - 802.11n HT40: CH03: 2422MHz, CH06: 2437MHz, CH09: 2452MHz
- e. The following test modes included two kinds of power adapter:

Test Mode	Modulation Type	Antenna Number	Adapter Model
Test Mode 1	802.11b+g	ANT R	MT12-Y120100-A1
Test Mode 2	802.11b+g	ANT L	
Test Mode 3	802.11n HT20	ANT R + L	
Test Mode 4	802.11n HT40	ANT R + L	
Test Mode 5	802.11b+g	ANT R	T012LF1209
Test Mode 6	802.11b+g	ANT L	
Test Mode 7	802.11n HT20	ANT R + L	
Test Mode 8	802.11n HT40	ANT R + L	

For Conducted and Radiated emission test, Test Mode 1, 3, 4, 5, 7, 8 would be chosen to do final test.

## 2.4 Description of Test System

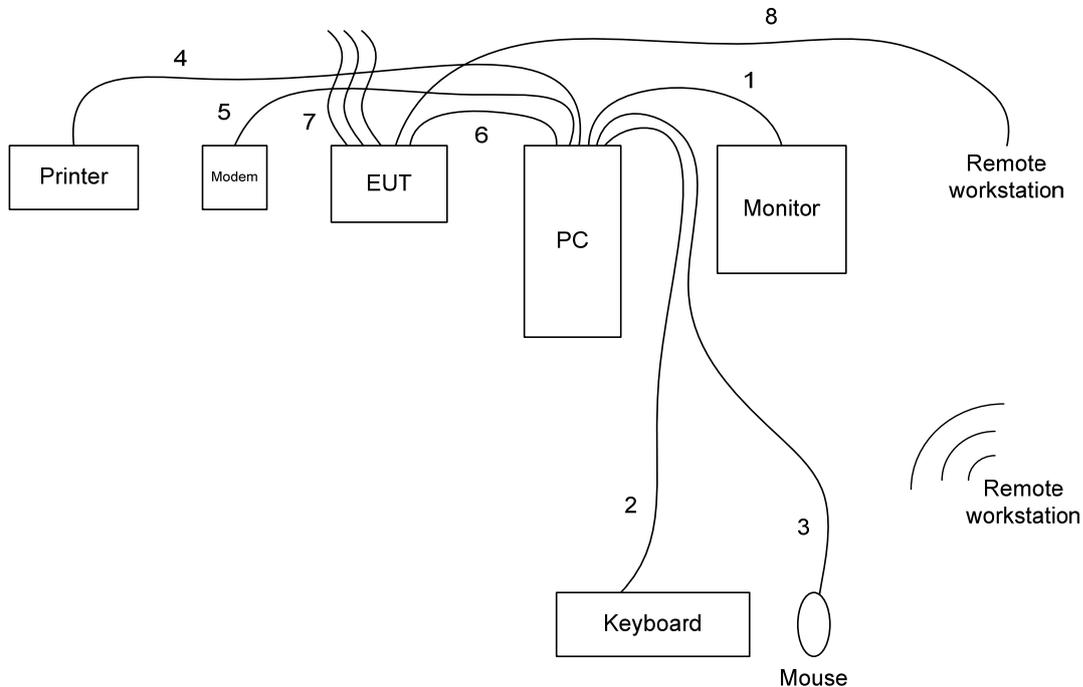
Device	Manufacturer	Model No.	Description
PC	IBM	IGV	Power Cable, Adapter Unshielding 1.8 m
Monitor	SlimAGE	510A	Power Cable, Adapter Unshielding 1.8 m Data Cable, VGA Shielding 1.35 m
Keyboard	IBM	KB-0225	Data Cable, PS/2 Shielding 1.85 m
Mouse	IBM	MO28VO	Data Cable, USB Shielding 1.85 m
Modem	ACEXX	DM-1414	Power Cable, Adapter Unshielding 1.8 m Data Cable, RS232 Shielding 1.35 m
Printer	hp	Desk Jet 400	Power Cable, Adapter Unshielding 1.8 m Data Cable, Print Shielding 1.6 m
Notebook (Remote Workstation)	DELL	PP10L	Power Cable, Adapter Unshielding 1.8 m
Notebook (Remote Workstation)	TOSHIBA	PSA50T-05M 00C	Power Cable, Adapter Unshielding 1.8 m

Use Cable:

Cable	Quantity	Description
RJ45	3	Unshielding, 3.0m
RJ45	1	Unshielding, 1.0m
RJ45	1	Unshielding, 5.0m



## 2.5 Connection Diagram of Test System



1. The VGA cable is connected from PC to the Monitor.
  2. The PS/2 cable is connected from PC to the Keyboard.
  3. The USB cable is connected from PC to the Mouse.
  4. The Print cable is connected from PC to the Printer.
  5. The RS232 cable is connected from PC to the Modem.
  6. The RJ45 cable is connected from PC to the EUT.
  7. These RJ45 cables (\*3) are floating.
  8. The RJ45 cable is connected from EUT to the remote workstation.
- \* The EUT keeps to transmit and receive data via Notebook by Wireless.



## 2.6 General Information of Test

Test Site :	CerpPASS Technology Corp. 4F-2, No. 28, Lane 78, Xing-Ai Rd. Nei-hu, Taipei City 114 Taiwan R.O.C.
Test Site Location (OATS1-SD):	No.68-1, Shihbachongsi, shihding Township, Taipei City 223, Taiwan, R.O.C. Registration Number: 632249.
FCC Registration Number :	632249
IC Registration Number :	4934B-1
VCCI Registration Number :	T-182 for Telecommunication Test C-2188 for Conducted emission test R-1902 for Radiated emission test
Test Voltage:	AC 120V
Test in Compliance with:	ANSI C63.4-2003 FCC Part 15 Subpart C
Frequency Range Investigated:	Conducted: from 150kHz to 30MHz Radiation: from 30MHz to 24620MHz
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.

## 2.7 Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	LINE/NEUTRAL	2.71 dB
Radiated Emission	30 MHz ~ 25GHz	Vertical	4.11 dB
		Horizontal	4.10 dB
6 dB Bandwidth	---	---	7500 Hz
Maximum Peak Output Power	---	---	1.4 dB
100kHz Bandwidth of Frequency Band Edges	---	---	2.2 dB
Power Spectral Density	---	---	2.2 dB





### 3. Antenna Requirements

#### 3.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

#### 3.2 Antenna Construction and Directional Gain

Antenna type: Printed Antenna

Antenna Gain: 1.922 dBi (Ant R), 4.062 dBi (Ant L)



## 4. Test of Conducted Emission

### 4.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB $\mu$ V)	Average (dB $\mu$ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

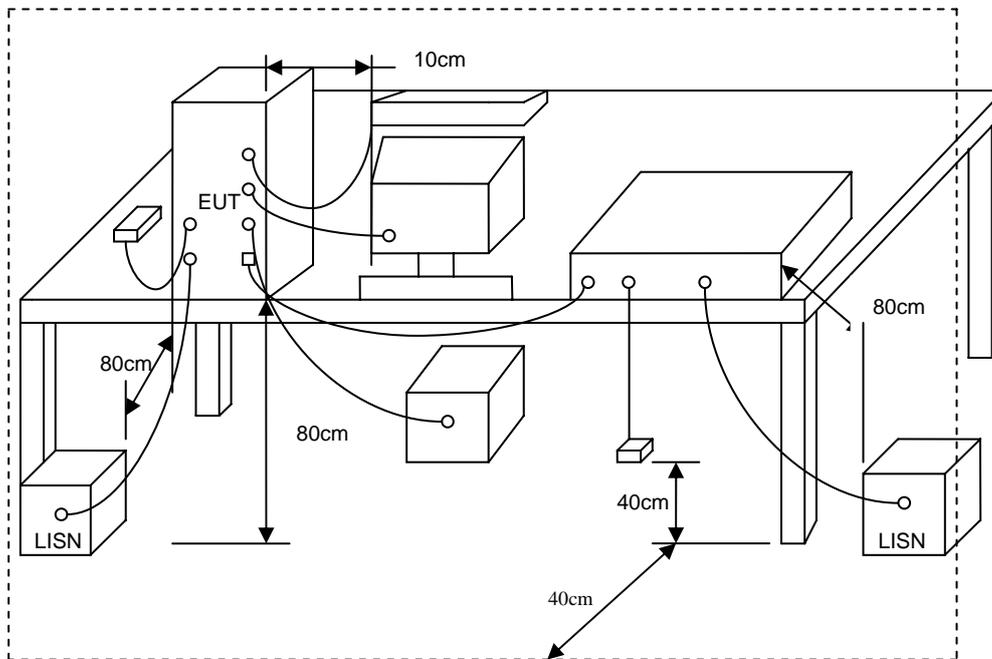
\*Decreases with the logarithm of the frequency.

### 4.2 Test Procedures

- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connecting to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 kHz to 30 MHz was searched.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



### 4.3 Typical Test Setup



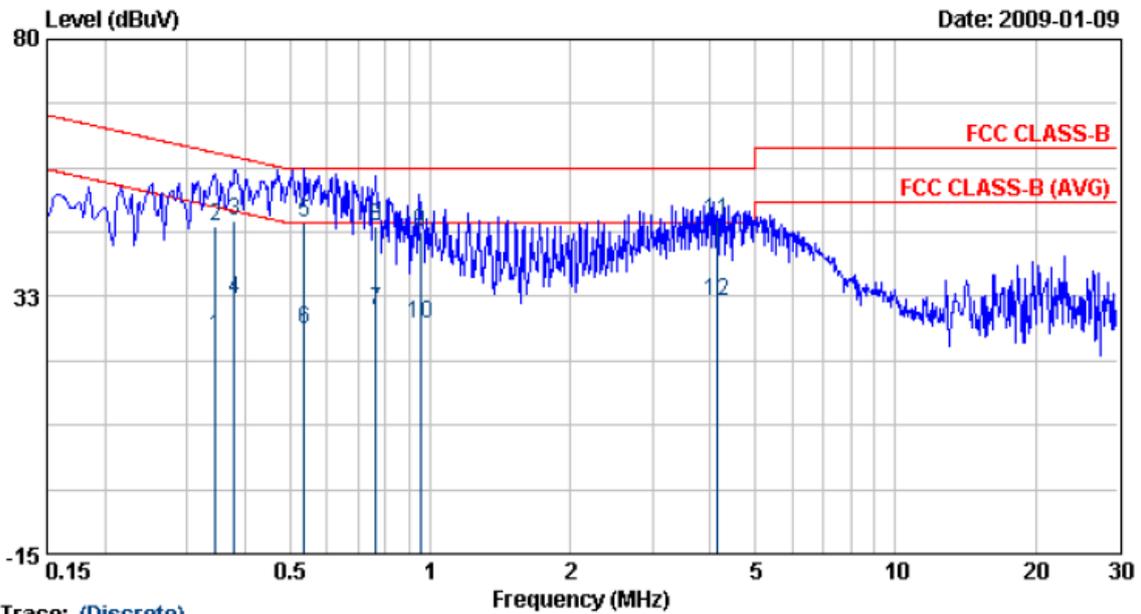
### 4.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date.
EMI Receiver	R&S	ESCI	100443	2008/09/27	2009/09/26
LISN	MESS TEC	NNB-2/16Z	02/10191	2008/05/14	2009/05/13
LISN	ROLF HEINE	NNB-2/16Z	03/10058	2008/04/19	2009/04/18



### 4.5 Test Result and Data

Power	: AC 120V	Pol/Phase	: LINE
Test Mode 1	: 802.11g CH1	Temperature	: 24 °C
Memo	: Adapter: MT12-Y120100-A1	Humidity	: 52 %



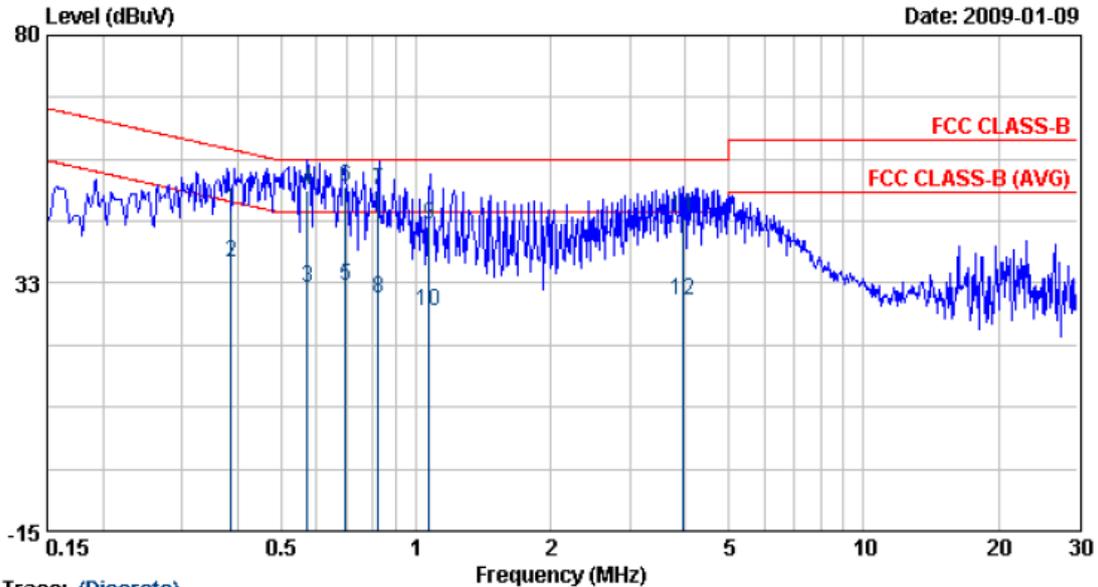
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
1	0.34	25.03	0.12	25.15	49.09	-23.94	AVERAGE
2	0.34	45.49	0.12	45.61	59.09	-13.48	QP
3	0.38	46.26	0.12	46.38	58.30	-11.92	QP
4	0.38	32.02	0.12	32.14	48.30	-16.16	AVERAGE
5	0.53	46.03	0.13	46.17	56.00	-9.83	QP
6	0.53	26.21	0.13	26.35	46.00	-19.65	AVERAGE
7	0.76	29.88	0.15	30.03	46.00	-15.97	AVERAGE
8	0.76	45.27	0.15	45.41	56.00	-10.59	QP
9	0.95	44.43	0.16	44.58	56.00	-11.42	QP
10	0.95	27.44	0.16	27.59	46.00	-18.41	AVERAGE
11	4.13	46.17	0.32	46.49	56.00	-9.51	QP
12	4.13	31.16	0.32	31.48	46.00	-14.52	AVERAGE

- Remarks:
1. Level = Read Level + Factor
  2. Factor = LISN(ISN) Factor + Cable Loss
  3. All emission below 1GHz at 802.11g mode are all the same,so the 802.11g mode chosen as representative in final test.
  4. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
  5. The data is worse case.



Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode 1	: 802.11g CH1	Temperature	: 24 °C
Memo	: Adapter: MT12-Y120100-A1	Humidity	: 52 %



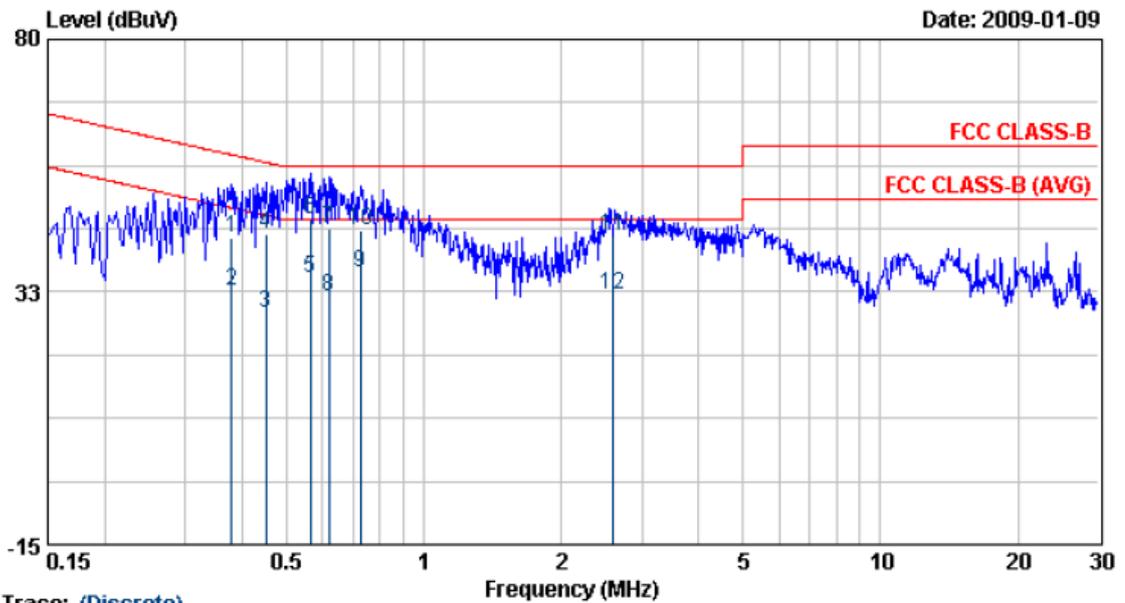
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
1	0.39	46.29	0.15	46.44	58.15	-11.71	QP
2	0.39	36.19	0.15	36.34	48.15	-11.81	AVERAGE
3	0.57	31.44	0.16	31.60	46.00	-14.40	AVERAGE
4	0.57	50.17	0.16	50.33	56.00	-5.67	QP
5	0.70	31.80	0.17	31.96	46.00	-14.04	AVERAGE
6	0.70	50.66	0.17	50.83	56.00	-5.17	QP
7	0.82	50.07	0.17	50.24	56.00	-5.76	QP
8	0.82	29.56	0.17	29.73	46.00	-16.27	AVERAGE
9	1.07	43.51	0.18	43.69	56.00	-12.31	QP
10	1.07	26.86	0.18	27.04	46.00	-18.96	AVERAGE
11	3.94	44.76	0.30	45.06	56.00	-10.94	QP
12	3.94	29.05	0.30	29.35	46.00	-16.65	AVERAGE

- Remarks:
1. Level = Read Level + Factor
  2. Factor = LISN(ISN) Factor + Cable Loss
  3. All emission below 1GHz at 802.11b/g mode are all the same, so the 802.11g mode chosen as representative in final test.
  4. According to technical experiences, all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
  5. The data is worse case.



Power	: AC 120V	Pol/Phase	: LINE
Test Mode 3	: 802.11n HT20 CH1	Temperature	: 24 °C
Memo	: Adapter: MT12-Y120100-A1	Humidity	: 52 %



Trace: (Discrete)

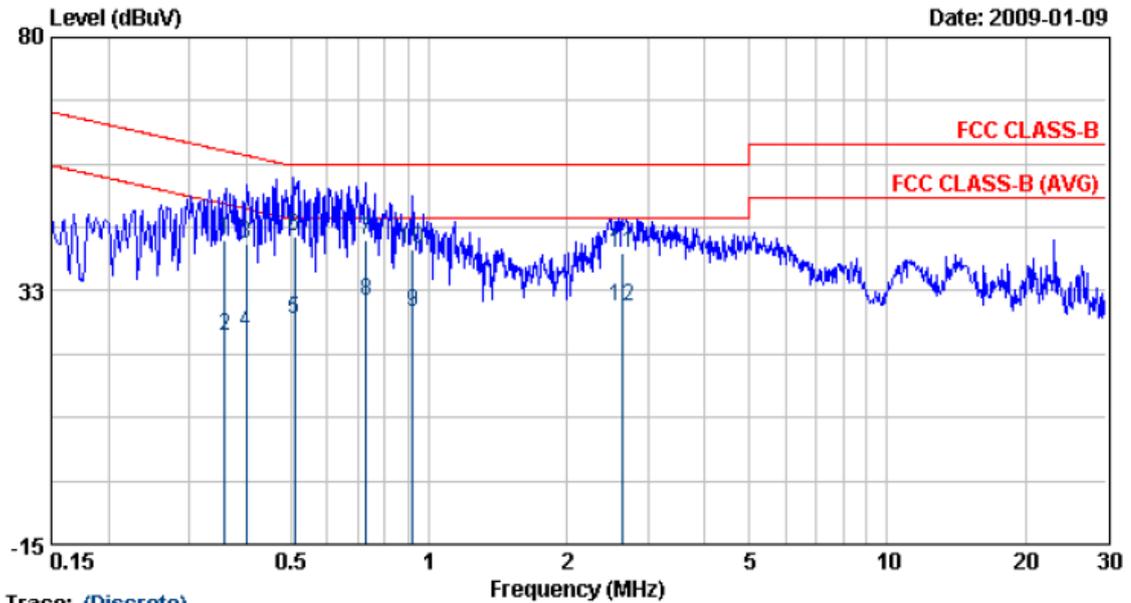
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
1	0.38	42.56	0.12	42.68	58.30	-15.62	QP
2	0.38	32.59	0.12	32.71	48.30	-15.59	AVERAGE
3	0.45	28.54	0.13	28.67	46.85	-18.18	AVERAGE
4	0.45	43.41	0.13	43.53	56.85	-13.31	QP
5	0.56	34.96	0.13	35.10	46.00	-10.90	AVERAGE
6	0.56	46.10	0.13	46.24	56.00	-9.76	QP
7	0.62	44.34	0.14	44.48	56.00	-11.52	QP
8	0.62	31.54	0.14	31.68	46.00	-14.32	AVERAGE
9	0.73	36.14	0.15	36.28	46.00	-9.72	AVERAGE
10	0.73	43.93	0.15	44.07	56.00	-11.93	QP
11	2.59	42.78	0.26	43.04	56.00	-12.96	QP
12	2.59	31.70	0.26	31.97	46.00	-14.03	AVERAGE

Remarks:

1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss
3. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
4. The data is worse case.



Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode 3	: 802.11n HT20 CH1	Temperature	: 24 °C
Memo	: Adapter: MT12-Y120100-A1	Humidity	: 52 %



Trace: (Discrete)

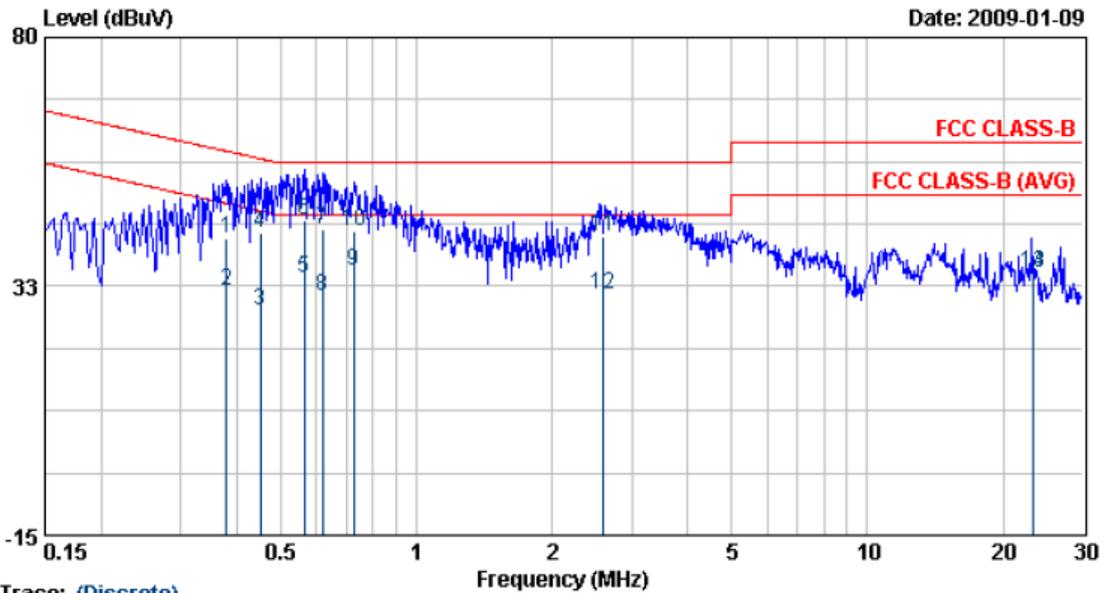
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
1	0.36	42.02	0.15	42.17	58.75	-16.58	QP
2	0.36	23.89	0.15	24.03	48.75	-24.71	AVERAGE
3	0.40	41.25	0.15	41.40	57.86	-16.47	QP
4	0.40	24.45	0.15	24.60	47.86	-23.26	AVERAGE
5	0.51	26.88	0.16	27.04	46.00	-18.96	AVERAGE
6	0.51	42.50	0.16	42.66	56.00	-13.34	QP
7	0.73	41.80	0.17	41.97	56.00	-14.03	QP
8	0.73	30.43	0.17	30.60	46.00	-15.40	AVERAGE
9	0.92	28.29	0.18	28.47	46.00	-17.53	AVERAGE
10	0.92	39.97	0.18	40.15	56.00	-15.85	QP
11	2.64	39.25	0.26	39.50	56.00	-16.50	QP
12	2.64	29.45	0.26	29.71	46.00	-16.29	AVERAGE

Remarks:

1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss
3. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
4. The data is worse case.



Power	: AC 120V	Pol/Phase	: LINE
Test Mode 4	: 802.11n HT40 CH3	Temperature	: 24 °C
Memo	: Adapter: MT12-Y120100-A1	Humidity	: 52 %



Trace: (Discrete)

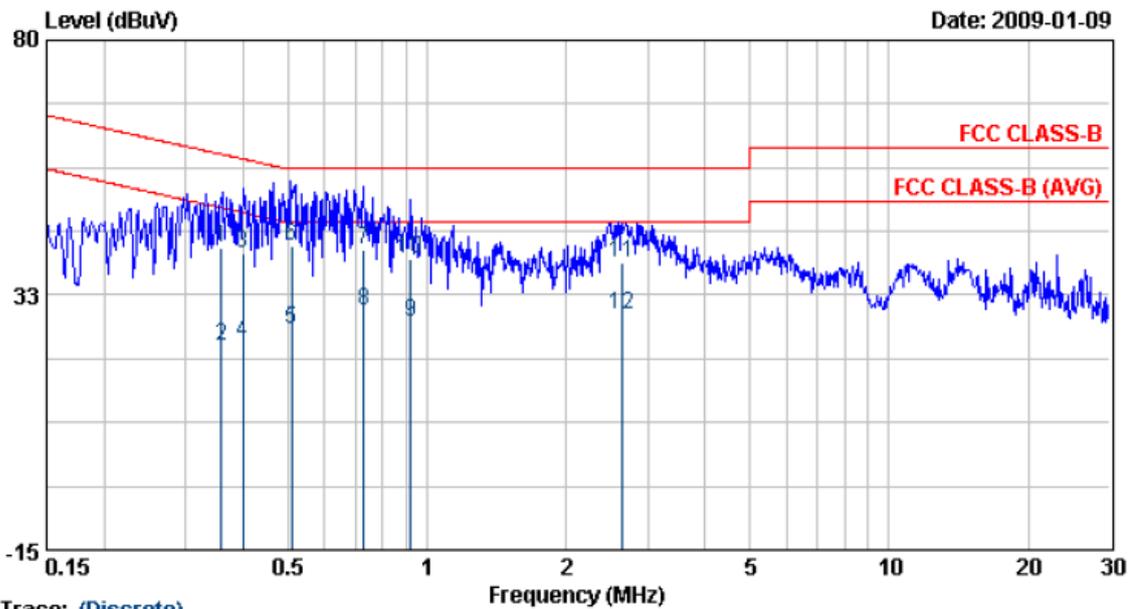
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
1	0.38	41.56	0.12	41.68	58.30	-16.62	QP
2	0.38	31.59	0.12	31.71	48.30	-16.59	AVERAGE
3	0.45	27.54	0.13	27.67	46.85	-19.18	AVERAGE
4	0.45	42.41	0.13	42.53	56.85	-14.31	QP
5	0.56	33.96	0.13	34.10	46.00	-11.90	AVERAGE
6	0.56	45.10	0.13	45.24	56.00	-10.76	QP
7	0.62	43.34	0.14	43.48	56.00	-12.52	QP
8	0.62	30.54	0.14	30.68	46.00	-15.32	AVERAGE
9	0.73	35.14	0.15	35.28	46.00	-10.72	AVERAGE
10	0.73	42.93	0.15	43.07	56.00	-12.93	QP
11	2.59	41.78	0.26	42.04	56.00	-13.96	QP
12	2.59	30.70	0.26	30.97	46.00	-15.03	AVERAGE
13	23.39	34.65	0.43	35.08	60.00	-24.92	Peak
14	23.39	34.65	0.43	35.08	60.00	-24.92	Peak

Remarks:

1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss
3. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 3,6,9 are almost the same below 1GHz, so that the channel 3 was chosen as representative in final test.
4. The data is worse case.



Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode 4	: 802.11n HT40 CH3	Temperature	: 24 °C
Memo	: Adapter: MT12-Y120100-A1	Humidity	: 52 %



Trace: (Discrete)

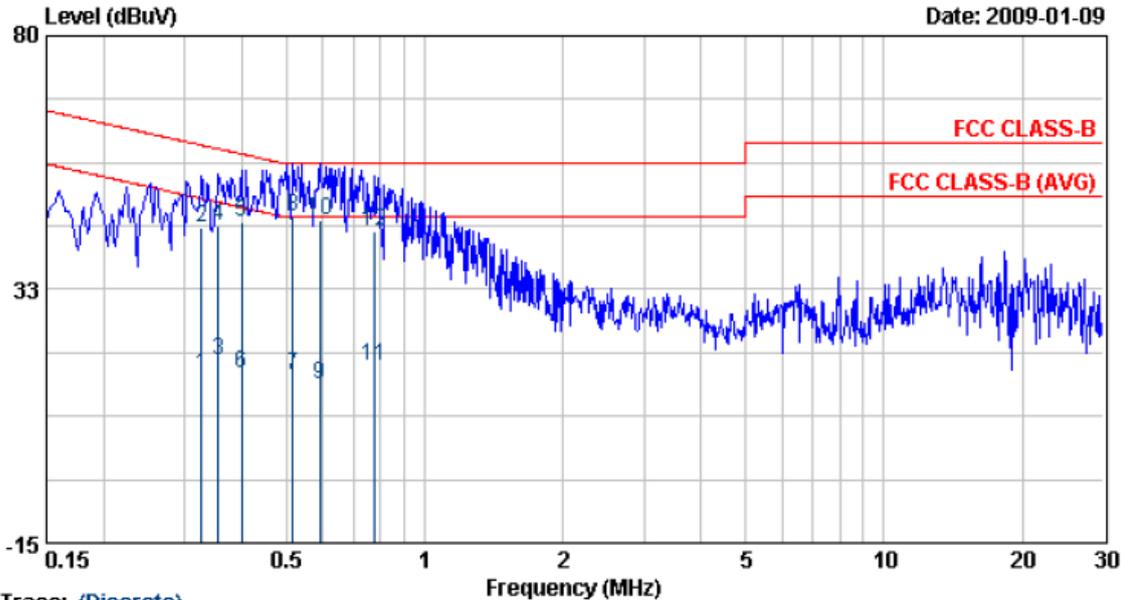
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
1	0.36	41.02	0.15	41.17	58.75	-17.58	QP
2	0.36	22.89	0.15	23.03	48.75	-25.71	AVERAGE
3	0.40	40.25	0.15	40.40	57.86	-17.47	QP
4	0.40	23.45	0.15	23.60	47.86	-24.26	AVERAGE
5	0.51	25.88	0.16	26.04	46.00	-19.96	AVERAGE
6	0.51	41.50	0.16	41.66	56.00	-14.34	QP
7	0.73	40.80	0.17	40.97	56.00	-15.03	QP
8	0.73	29.43	0.17	29.60	46.00	-16.40	AVERAGE
9	0.92	27.29	0.18	27.47	46.00	-18.53	AVERAGE
10	0.92	38.97	0.18	39.15	56.00	-16.85	QP
11	2.64	38.25	0.26	38.50	56.00	-17.50	QP
12	2.64	28.45	0.26	28.71	46.00	-17.29	AVERAGE

Remarks:

1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss
3. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 3,6,9 are almost the same below 1GHz, so that the channel 3 was chosen as representative in final test.
4. The data is worse case.



Power	: AC 120V	Pol/Phase	: LINE
Test Mode 5	: 802.11g CH1	Temperature	: 24 °C
Memo	: Adapter: T012LF1209	Humidity	: 52 %



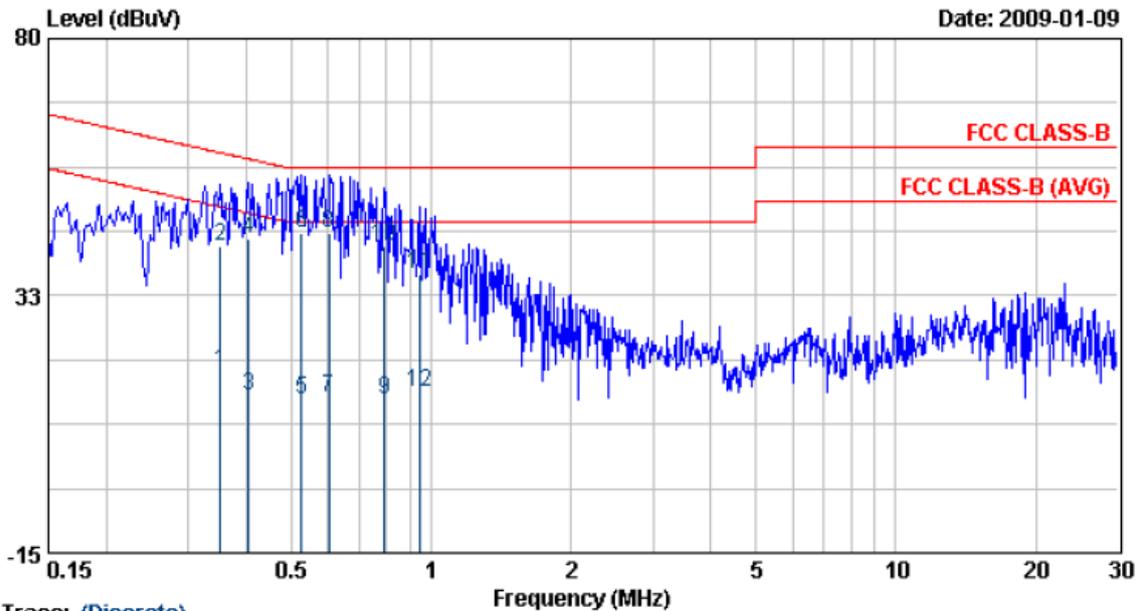
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
1	0.33	16.28	0.12	16.40	49.53	-33.13	AVERAGE
2	0.33	43.83	0.12	43.95	59.53	-15.58	QP
3	0.36	18.98	0.12	19.10	48.83	-29.72	AVERAGE
4	0.36	44.26	0.12	44.38	58.83	-14.45	QP
5	0.40	44.99	0.12	45.11	57.86	-12.75	QP
6	0.40	16.52	0.12	16.64	47.86	-31.22	AVERAGE
7	0.52	16.24	0.13	16.38	46.00	-29.62	AVERAGE
8	0.52	46.04	0.13	46.18	56.00	-9.82	QP
9	0.59	14.69	0.14	14.83	46.00	-31.17	AVERAGE
10	0.59	45.30	0.14	45.43	56.00	-10.57	QP
11	0.78	17.86	0.15	18.01	46.00	-27.99	AVERAGE
12	0.78	43.07	0.15	43.22	56.00	-12.78	QP

- Remarks:
1. Level = Read Level + Factor
  2. Factor = LISN(ISN) Factor + Cable Loss
  3. All emission below 1GHz at 802.11g mode are all the same,so the 802.11g mode chosen as representative in final test.
  4. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
  5. The data is worse case.



Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode 5	: 802.11g CH1	Temperature	: 24 °C
Memo	: Adapter: T012LF1209	Humidity	: 52 %



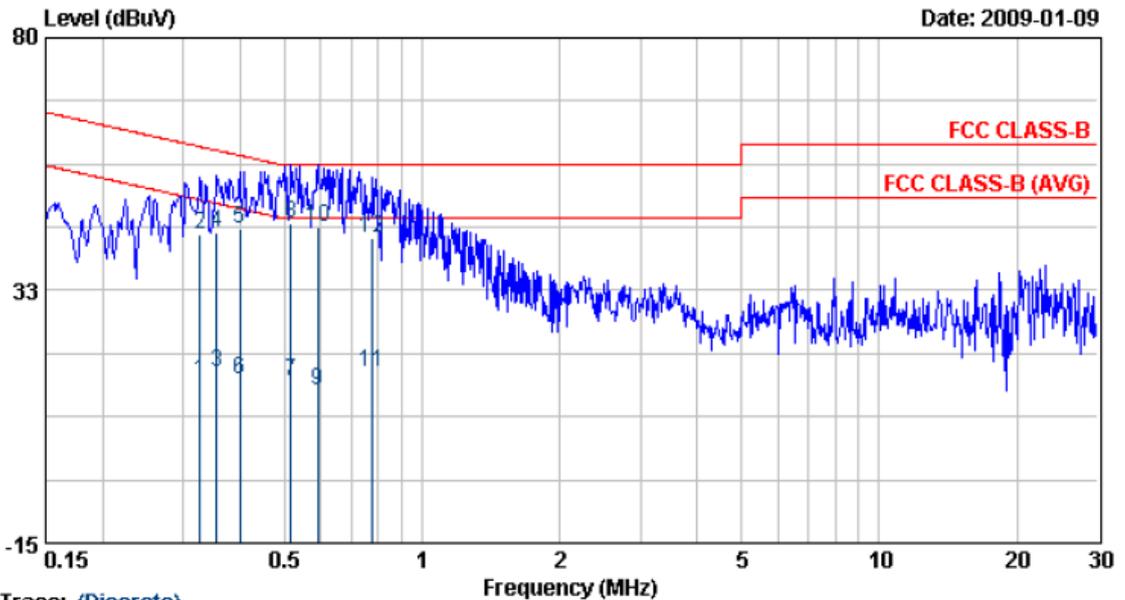
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
1	0.35	18.33	0.15	18.47	48.91	-30.44	AVERAGE
2	0.35	41.68	0.15	41.82	58.91	-17.09	QP
3	0.40	13.76	0.15	13.91	47.77	-33.86	AVERAGE
4	0.40	43.05	0.15	43.20	57.77	-14.57	QP
5	0.53	13.17	0.16	13.33	46.00	-32.67	AVERAGE
6	0.53	43.80	0.16	43.96	56.00	-12.04	QP
7	0.60	13.46	0.16	13.62	46.00	-32.38	AVERAGE
8	0.60	44.02	0.16	44.19	56.00	-11.81	QP
9	0.79	13.00	0.17	13.18	46.00	-32.82	AVERAGE
10	0.79	41.38	0.17	41.55	56.00	-14.45	QP
11	0.94	36.28	0.18	36.46	56.00	-19.54	QP
12	0.94	14.57	0.18	14.75	46.00	-31.25	AVERAGE

- Remarks:
1. Level = Read Level + Factor
  2. Factor = LISN(ISN) Factor + Cable Loss
  3. All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
  4. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
  5. The data is worse case.



Power	: AC 120V	Pol/Phase	: LINE
Test Mode 7	: 802.11n HT20 CH1	Temperature	: 24 °C
Memo	: Adapter: T012LF1209	Humidity	: 52 %



Trace: (Discrete)

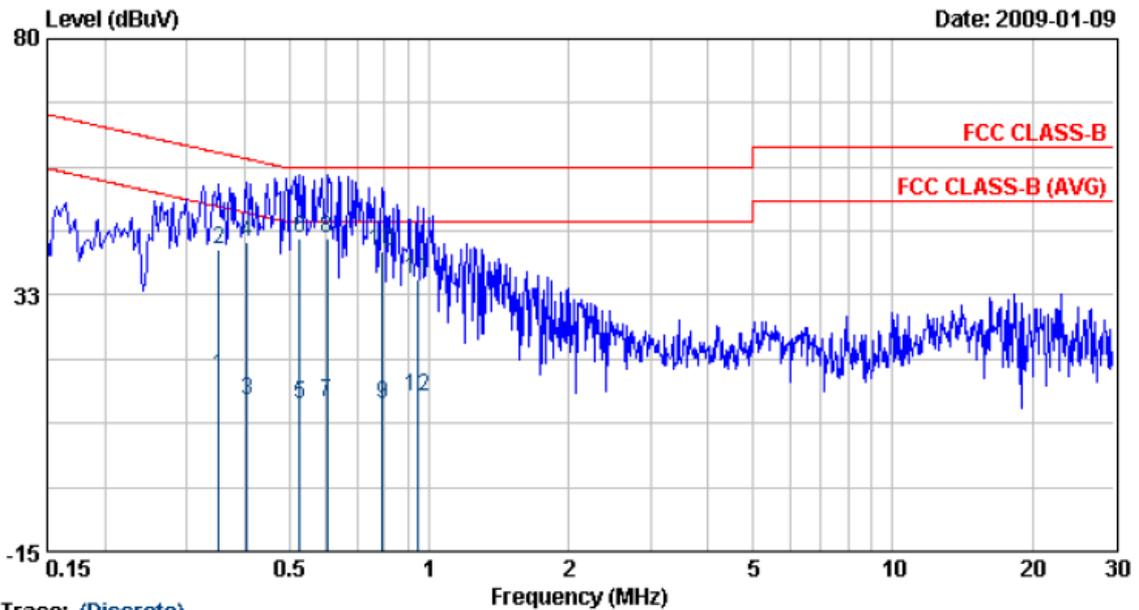
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
1	0.33	15.28	0.12	15.40	49.53	-34.13	AVERAGE
2	0.33	42.83	0.12	42.95	59.53	-16.58	QP
3	0.36	16.98	0.12	17.10	48.83	-31.72	AVERAGE
4	0.36	43.26	0.12	43.38	58.83	-15.45	QP
5	0.40	43.99	0.12	44.11	57.86	-13.75	QP
6	0.40	15.52	0.12	15.64	47.86	-32.22	AVERAGE
7	0.52	15.24	0.13	15.38	46.00	-30.62	AVERAGE
8	0.52	45.04	0.13	45.18	56.00	-10.82	QP
9	0.59	13.69	0.14	13.83	46.00	-32.17	AVERAGE
10	0.59	44.30	0.14	44.43	56.00	-11.57	QP
11	0.78	16.86	0.15	17.01	46.00	-28.99	AVERAGE
12	0.78	42.07	0.15	42.22	56.00	-13.78	QP

Remarks:

1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss
3. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
4. The data is worse case.



Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode 7	: 802.11n HT20 CH1	Temperature	: 24 °C
Memo	: Adapter: T012LF1209	Humidity	: 52 %



Trace: (Discrete)

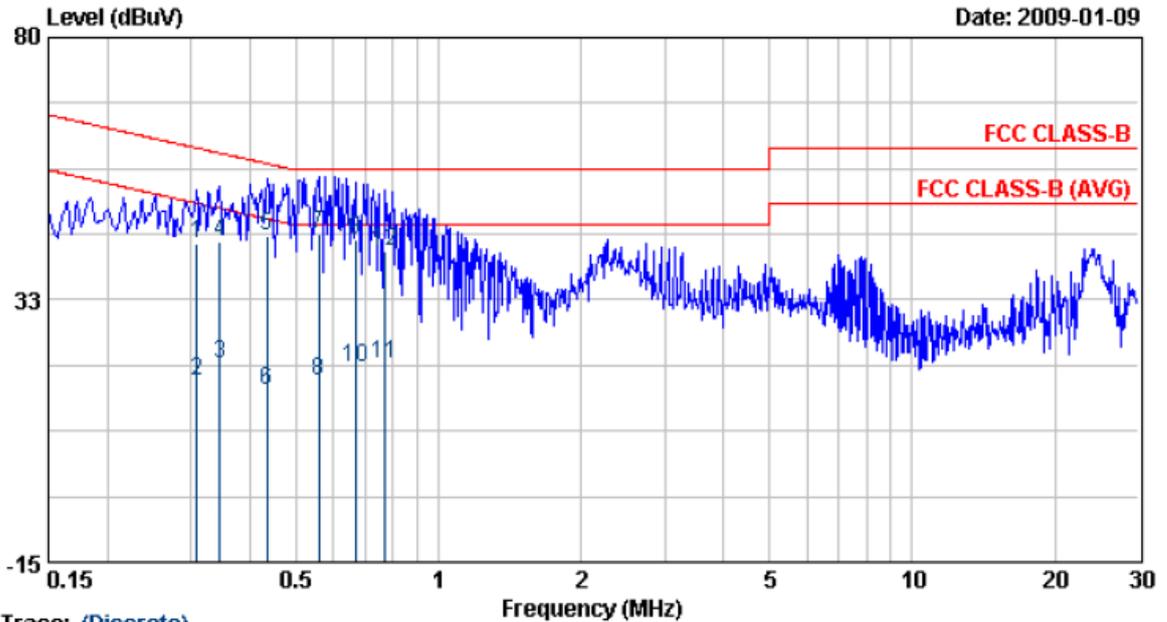
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
1	0.35	17.33	0.15	17.47	48.91	-31.44	AVERAGE
2	0.35	40.68	0.15	40.82	58.91	-18.09	QP
3	0.40	12.76	0.15	12.91	47.77	-34.86	AVERAGE
4	0.40	42.05	0.15	42.20	57.77	-15.57	QP
5	0.53	12.17	0.16	12.33	46.00	-33.67	AVERAGE
6	0.53	42.80	0.16	42.96	56.00	-13.04	QP
7	0.60	12.46	0.16	12.62	46.00	-33.38	AVERAGE
8	0.60	43.02	0.16	43.19	56.00	-12.81	QP
9	0.79	12.00	0.17	12.18	46.00	-33.82	AVERAGE
10	0.79	40.38	0.17	40.55	56.00	-15.45	QP
11	0.94	35.28	0.18	35.46	56.00	-20.54	QP
12	0.94	13.57	0.18	13.75	46.00	-32.25	AVERAGE

Remarks:

1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss
3. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
4. The data is worse case.



Power	: AC 120V	Pol/Phase	: LINE
Test Mode 8	: 802.11n HT40 CH3	Temperature	: 24 °C
Memo	: Adapter: T012LF1209	Humidity	: 52 %



Trace: (Discrete)

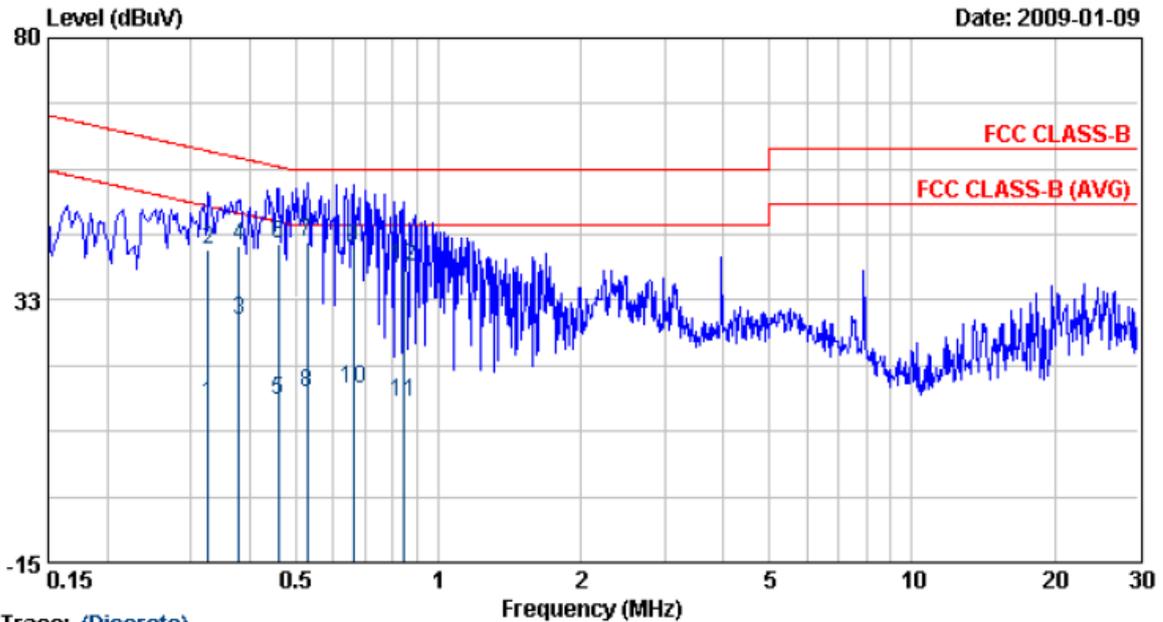
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
1	0.31	42.62	0.12	42.74	60.02	-17.28	QP
2	0.31	17.55	0.12	17.67	50.02	-32.35	AVERAGE
3	0.34	20.90	0.12	21.02	49.09	-28.07	AVERAGE
4	0.34	42.95	0.12	43.07	59.09	-16.02	QP
5	0.44	43.91	0.12	44.03	57.15	-13.12	QP
6	0.44	16.05	0.12	16.18	47.15	-30.98	AVERAGE
7	0.56	44.39	0.13	44.52	56.00	-11.48	QP
8	0.56	17.75	0.13	17.88	46.00	-28.12	AVERAGE
9	0.67	43.25	0.14	43.39	56.00	-12.61	QP
10	0.67	20.25	0.14	20.39	46.00	-25.61	AVERAGE
11	0.77	20.66	0.15	20.81	46.00	-25.19	AVERAGE
12	0.77	41.06	0.15	41.21	56.00	-14.79	QP

Remarks:

1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss
3. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 3,6,9 are almost the same below 1GHz, so that the channel 3 was chosen as representative in final test.
4. The data is worse case.



Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode 8	: 802.11n HT40 CH3	Temperature	: 24 °C
Memo	: Adapter: T012LF1209	Humidity	: 52 %



Trace: (Discrete)

Item	Freq MHz	Read Value dBuV	Factor dB	Result dBuV	Limit dBuV	Margin dBuV	Remark
1	0.33	13.53	0.14	13.67	49.53	-35.86	AVERAGE
2	0.33	41.47	0.14	41.61	59.53	-17.92	QP
3	0.38	28.74	0.15	28.88	48.30	-19.41	AVERAGE
4	0.38	42.13	0.15	42.28	58.30	-16.02	QP
5	0.46	14.30	0.15	14.46	46.71	-32.26	AVERAGE
6	0.46	42.49	0.15	42.65	56.71	-14.07	QP
7	0.53	42.75	0.16	42.91	56.00	-13.09	QP
8	0.53	15.43	0.16	15.58	46.00	-30.42	AVERAGE
9	0.66	41.98	0.17	42.15	56.00	-13.85	QP
10	0.66	16.24	0.17	16.41	46.00	-29.59	AVERAGE
11	0.84	13.75	0.17	13.92	46.00	-32.08	AVERAGE
12	0.84	38.25	0.17	38.42	56.00	-17.58	QP

Remarks:

1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss
3. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 3,6,9 are almost the same below 1GHz, so that the channel 3 was chosen as representative in final test.
4. The data is worse case.

Test engineer: Ben



## 5. Test of Radiated Emission

### 5.1 Test Limit

Radiated emissions from 30 MHz to 25 GHz were measured according to the methods defines in ANSI C63.4-2003. The EUT was placed, 0.8 meter above the ground plane, as shown in section 5.6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance Meters	Radiated ( $\mu$ V / M)	Radiated (dB $\mu$ V/ M)
30-88	3	100	40.0
88-216	3	150	43.5
216-960	3	200	46.0
Above 960	3	500	54.0

For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the below table.

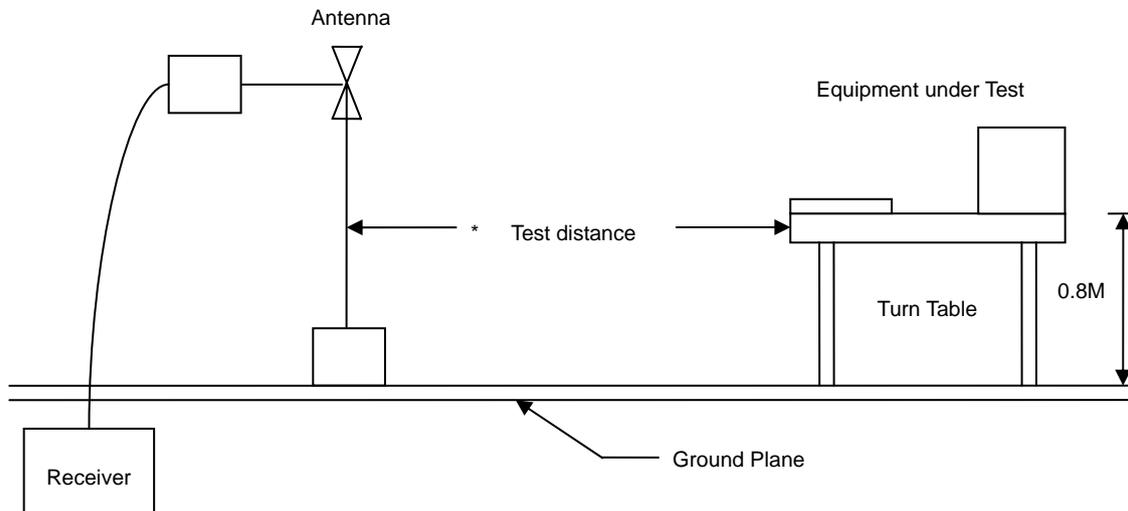
Frequency (MHz)	Distance Meters	Radiated (dB $\mu$ V/ M)
30-230	10	30
230-1000	10	37

### 5.2 Test Procedures

- The EUT was placed on a rotatable table top 0.8 meter above ground.
- The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- The table was rotated 360 degrees to determine the position of the highest radiation.
- The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.



### 5.3 Typical Test Setup



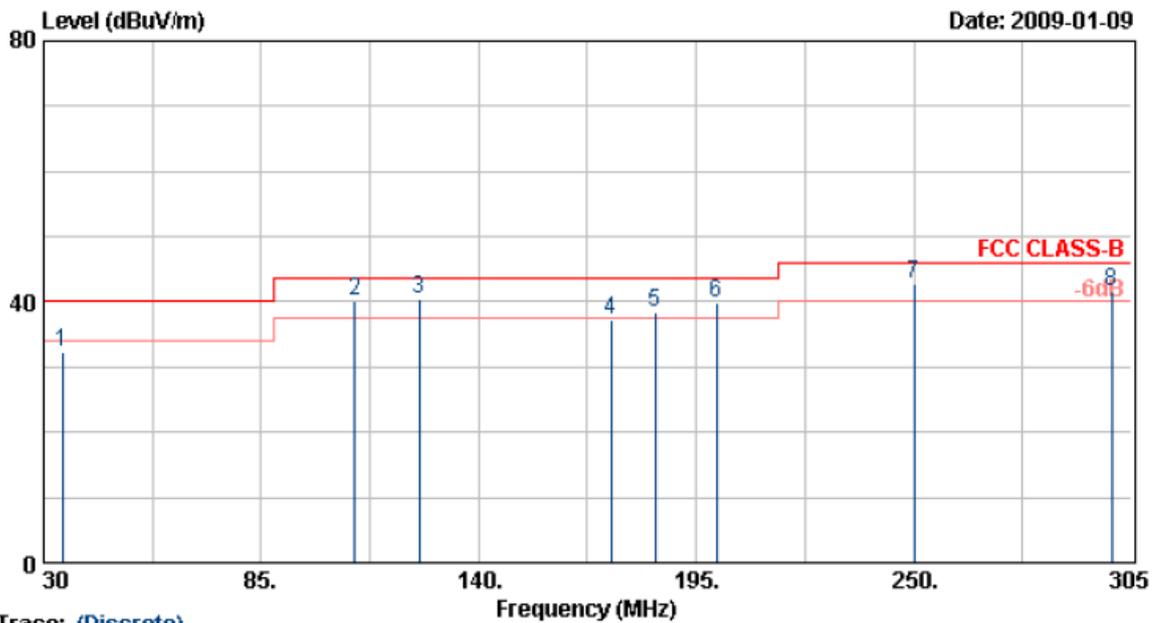
### 5.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Bilog Antenna	CBL6112B	Schaffner	2840	2008/05/15	2009/05/14
Signal Generator	8648B	HP	3629U00612	2008/10/08	2009/10/07
Amplifier	8447D	Agilent	2944A10593	2008/05/26	2009/05/25
EMI Receiver	8546A	HP	3807A00454	2008/08/07	2009/08/06
RF Filter Section	85460A	HP	3704A00386	2008/08/07	2009/08/06
AC Power Converter	AFC-11005	APC	F103120008	N/A	N/A



5.5 Test Result and Data

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11g	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6 Mbps



Trace: (Discrete)

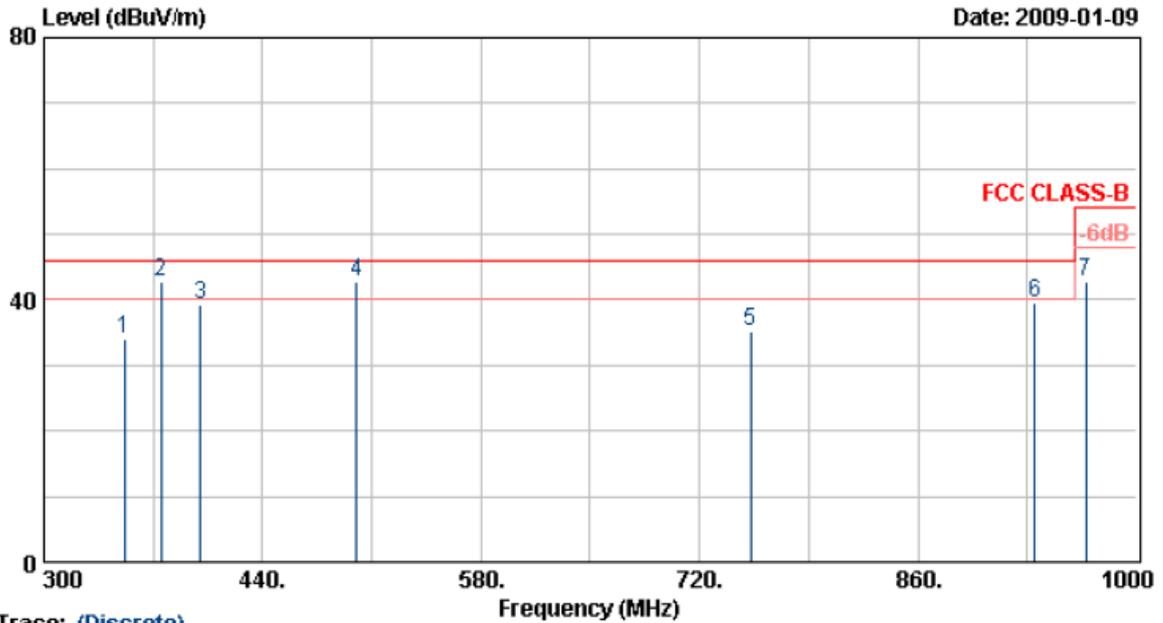
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	34.67	40.50	-8.08	32.42	40.00	-7.58	Peak	100	52
2	108.80	53.56	-13.49	40.07	43.50	-3.43	QP	100	52
3	125.01	53.63	-13.29	40.34	43.50	-3.16	QP	100	85
4	173.55	47.82	-10.51	37.31	43.50	-6.19	Peak	100	85
5	184.60	47.88	-9.51	38.37	43.50	-5.13	QP	100	152
6	200.00	51.62	-11.75	39.87	43.50	-3.63	QP	100	0
7	250.00	55.70	-13.04	42.66	46.00	-3.34	QP	100	0
8	300.00	51.17	-9.50	41.67	46.00	-4.33	QP	100	50

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. All emission below 1GHz at 802.11b/g mode are all the same, so the 802.11g mode chosen as representative in final test.
5. According to technical experiences, all spurious emission of 802.11g mode at channel 1, 6, 11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
6. The data is worse case.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11g	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6 Mbps



Trace: (Discrete)

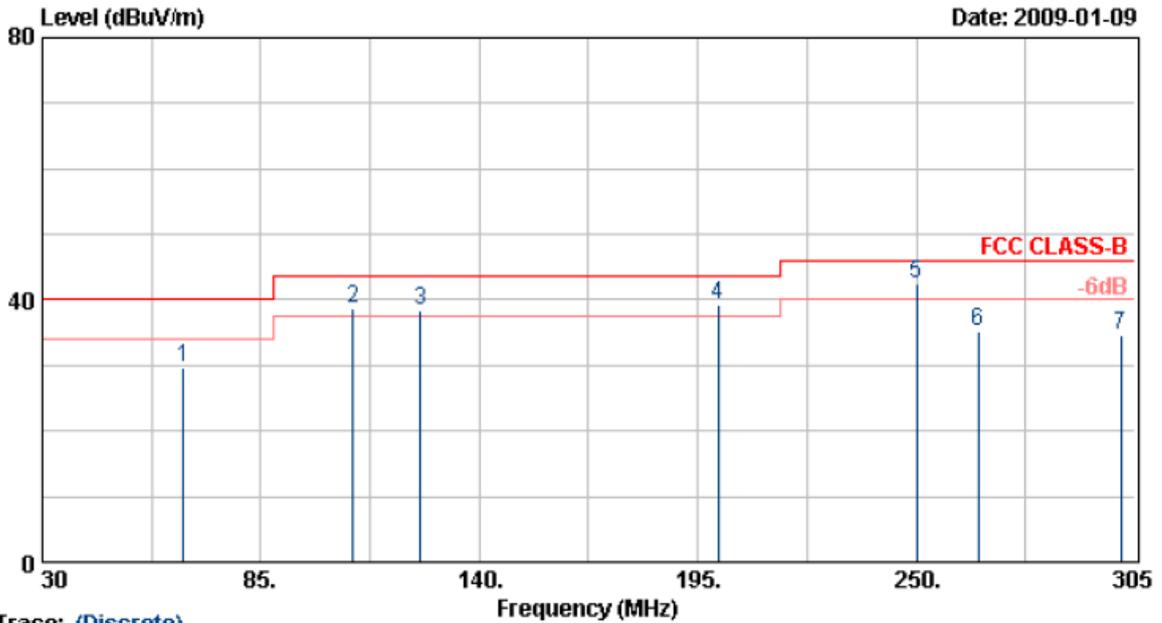
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBUV/m	dB	dBUV/m	dBUV/m	dB		cm	Deg
1	351.80	44.82	-10.65	34.17	46.00	-11.83	Peak	100	88
2	375.00	51.47	-8.84	42.63	46.00	-3.37	QP	100	52
3	400.00	48.20	-8.86	39.34	46.00	-6.66	Peak	100	112
4	500.05	47.73	-4.86	42.87	46.00	-3.13	QP	100	89
5	752.90	34.82	0.38	35.20	46.00	-10.80	Peak	100	89
6	934.90	40.61	-1.06	39.55	46.00	-6.45	Peak	100	188
7	967.80	39.66	3.25	42.91	54.00	-11.09	Peak	100	188

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
5. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
6. The data is worse case.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11g	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6 Mbps



Trace: (Discrete)

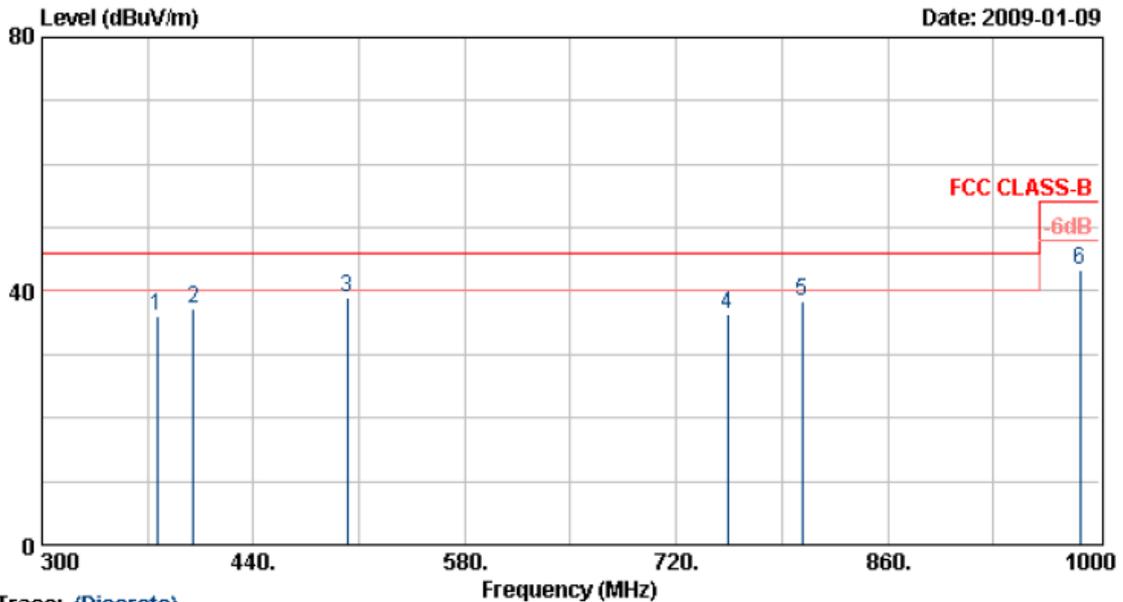
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	65.50	54.82	-25.11	29.71	40.00	-10.29	Peak	200	86
2	108.25	57.82	-19.20	38.62	43.50	-4.88	QP	200	99
3	125.25	57.89	-19.56	38.33	43.50	-5.17	QP	200	99
4	200.00	53.71	-14.49	39.22	43.50	-4.28	QP	200	99
5	250.00	60.15	-17.68	42.47	46.00	-3.53	QP	200	100
6	265.68	50.66	-15.50	35.16	46.00	-10.84	Peak	200	152
7	301.50	49.00	-14.32	34.68	46.00	-11.32	Peak	200	152

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. All emission below 1GHz at 802.11b/g mode are all the same, so the 802.11g mode chosen as representative in final test.
5. According to technical experiences, all spurious emission of 802.11g mode at channel 1, 6, 11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
6. The data is worse case.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11g	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6 Mbps



Trace: (Discrete)

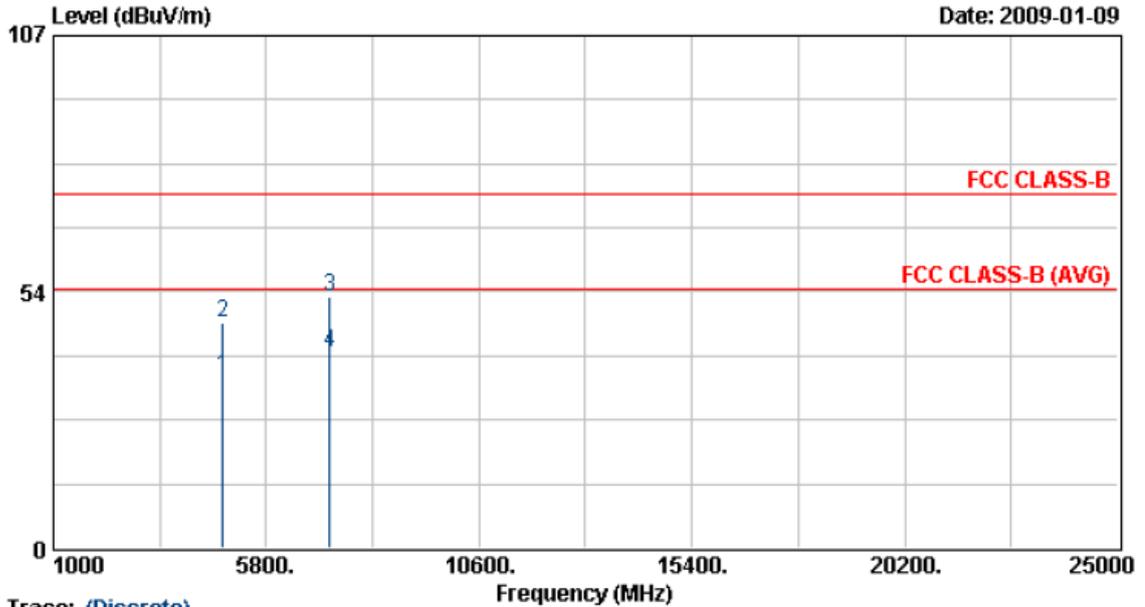
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	376.30	46.82	-10.87	35.95	46.00	-10.05	Peak	200	144
2	400.03	48.45	-11.30	37.15	46.00	-8.85	Peak	200	144
3	502.30	43.96	-5.03	38.93	46.00	-7.07	Peak	200	144
4	754.30	36.62	-0.20	36.42	46.00	-9.58	Peak	200	88
5	803.30	38.63	-0.29	38.34	46.00	-7.66	Peak	200	66
6	987.40	37.58	5.81	43.39	54.00	-10.61	Peak	200	185

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
5. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
6. The data is worse case.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 11 Mbps



Trace: (Discrete)

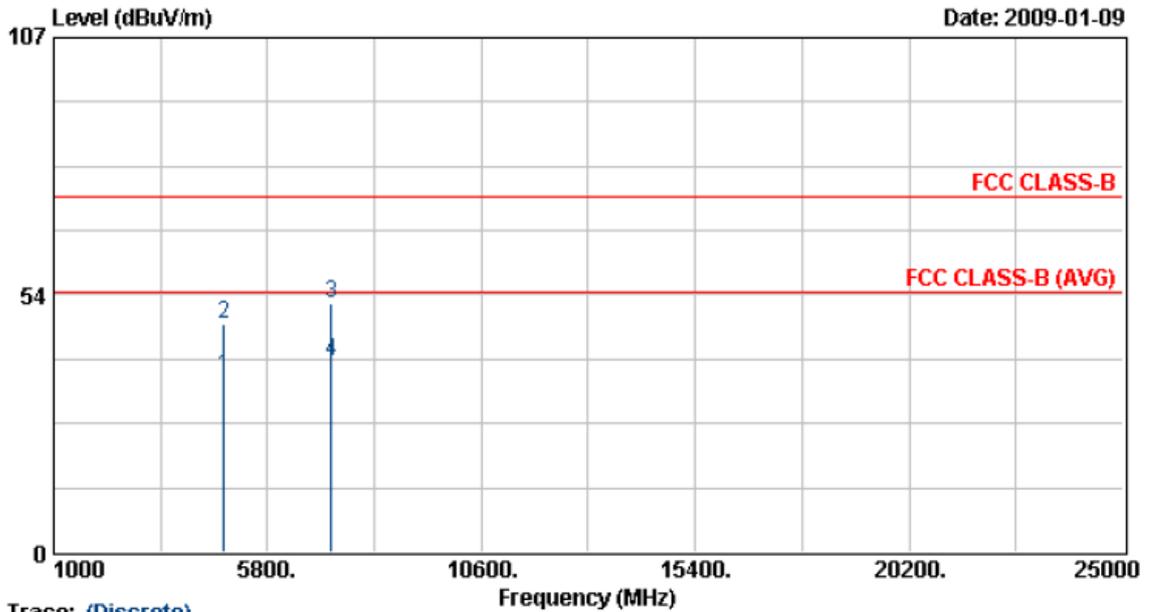
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4824.00	30.02	5.67	35.70	54.00	-18.30	Average	138	192
2	4824.00	41.30	5.67	46.97	74.00	-27.03	Peak	138	192
3	7237.63	43.22	9.15	52.37	74.00	-21.63	Peak	138	192
4	7237.63	31.70	9.15	40.85	54.00	-13.15	Average	138	192

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 11 Mbps



Trace: (Discrete)

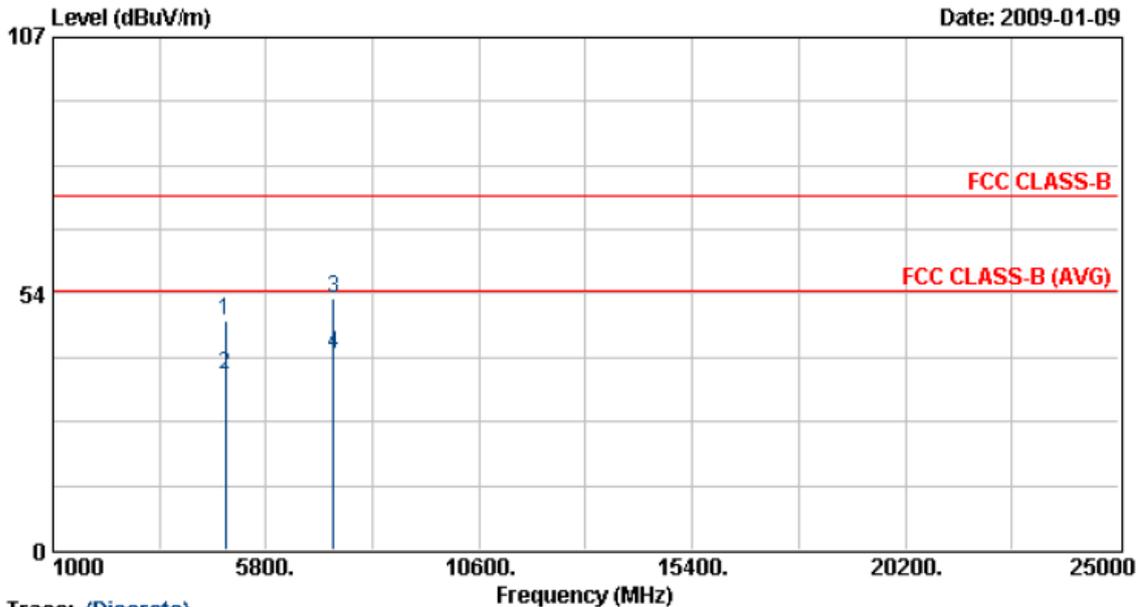
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4824.00	31.01	5.67	36.69	54.00	-17.31	Average	133	165
2	4824.00	41.65	5.67	47.33	74.00	-26.67	Peak	133	165
3	7235.63	42.54	9.14	51.68	74.00	-22.32	Peak	133	165
4	7235.63	30.50	9.14	39.64	54.00	-14.36	Average	133	165

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 6	Humidity	: 70 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 11 Mbps



Trace: (Discrete)

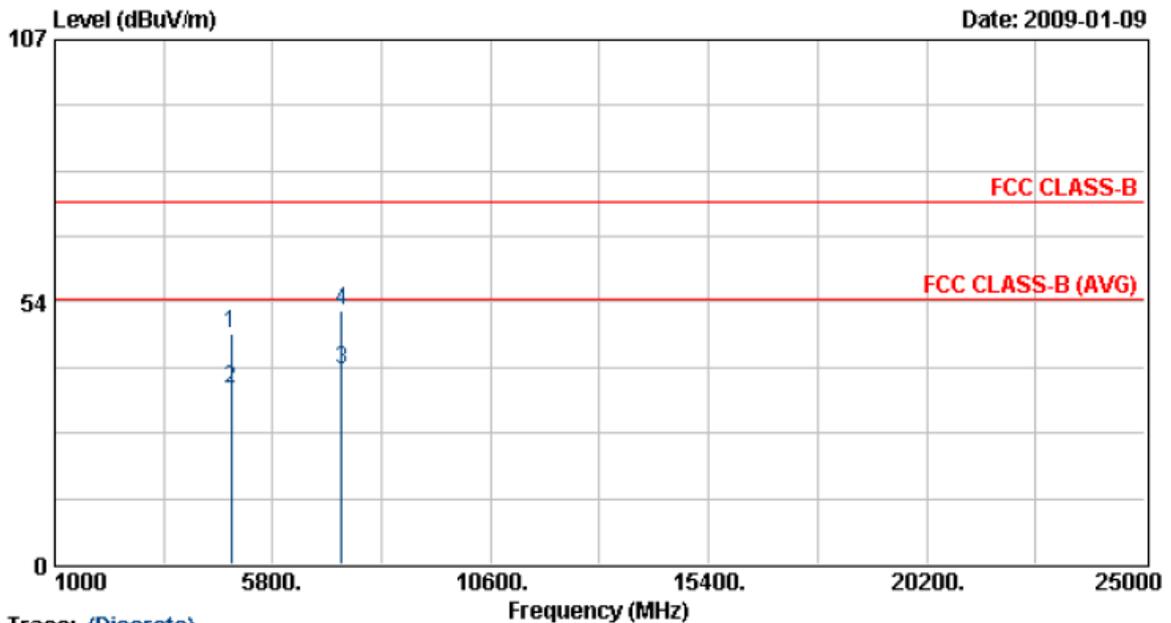
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4874.00	41.99	5.80	47.80	74.00	-26.20	Peak	138	192
2	4874.00	30.86	5.80	36.67	54.00	-17.33	Average	138	192
3	7312.75	43.23	9.48	52.71	74.00	-21.29	Peak	138	192
4	7312.75	31.22	9.48	40.70	54.00	-13.30	Average	138	192

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 6	Humidity	: 70 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 11 Mbps



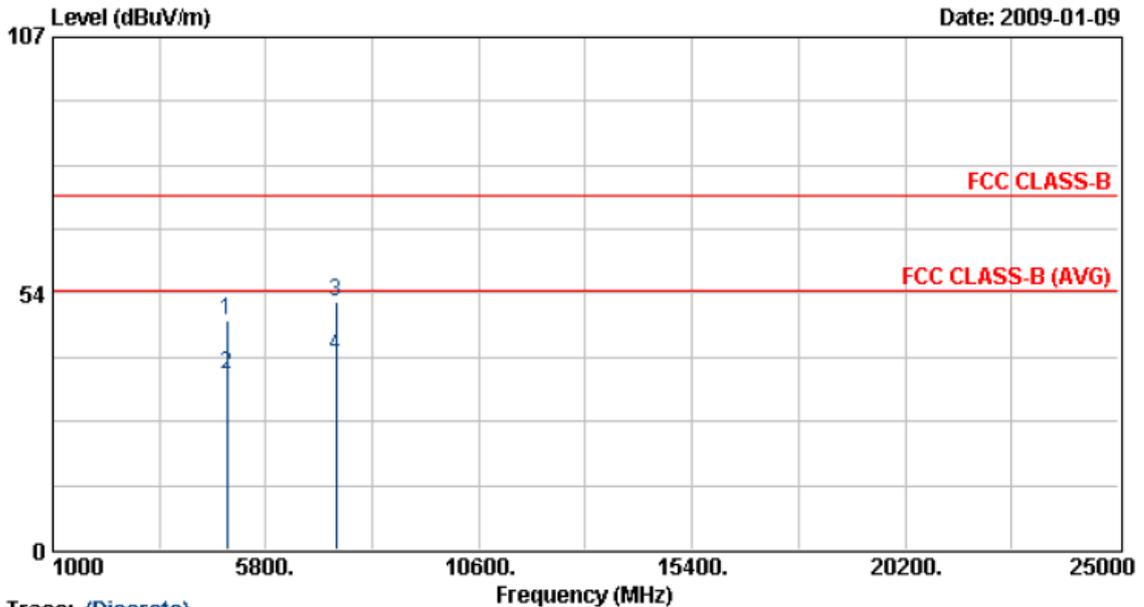
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4874.00	41.43	5.80	47.23	74.00	-26.77	Peak	133	165
2	4874.00	30.09	5.80	35.89	54.00	-18.11	Average	133	165
3	7310.38	30.36	9.47	39.83	54.00	-14.17	Average	133	165
4	7310.38	42.18	9.47	51.65	74.00	-22.35	Peak	133	165

- Notes:
1. Result = Read Value + Factor
  2. Factor = Antenna Factor + Cable Loss - Amplifier
  3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
  4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
  5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
  6. The other emissions is too low to be measured.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 11	Humidity	: 70 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 11 Mbps



Trace: (Discrete)

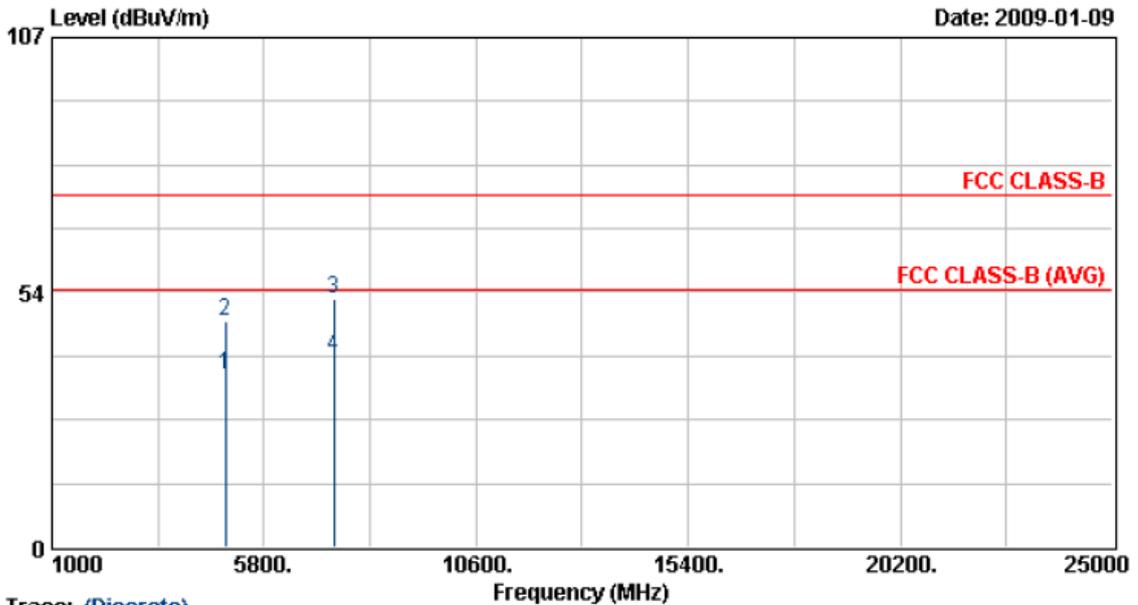
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4924.00	42.01	5.93	47.94	74.00	-26.06	Peak	138	192
2	4924.00	30.48	5.93	36.42	54.00	-17.58	Average	138	192
3	7388.38	41.90	9.81	51.71	74.00	-22.29	Peak	138	192
4	7388.38	30.75	9.81	40.56	54.00	-13.44	Average	138	192

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 11	Humidity	: 70 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 11 Mbps



Trace: (Discrete)

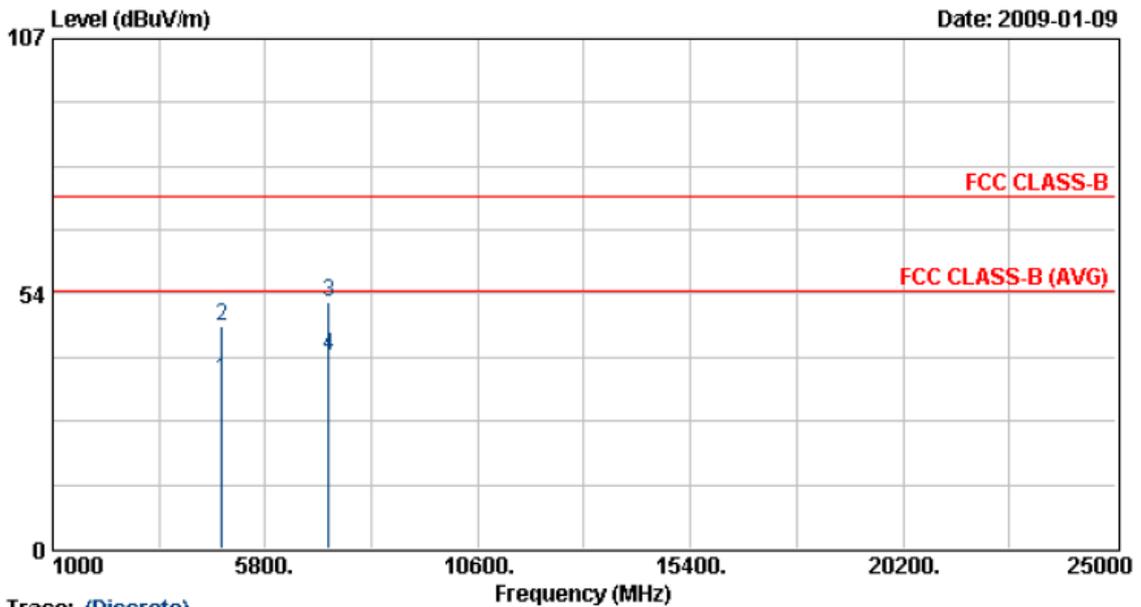
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4924.00	30.10	5.93	36.03	54.00	-17.97	Average	133	165
2	4924.00	41.44	5.93	47.38	74.00	-26.62	Peak	133	165
3	7387.00	42.17	9.81	51.98	74.00	-22.02	Peak	133	165
4	7387.00	30.35	9.81	40.15	54.00	-13.85	Average	133	165

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11g	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6 Mbps



Trace: (Discrete)

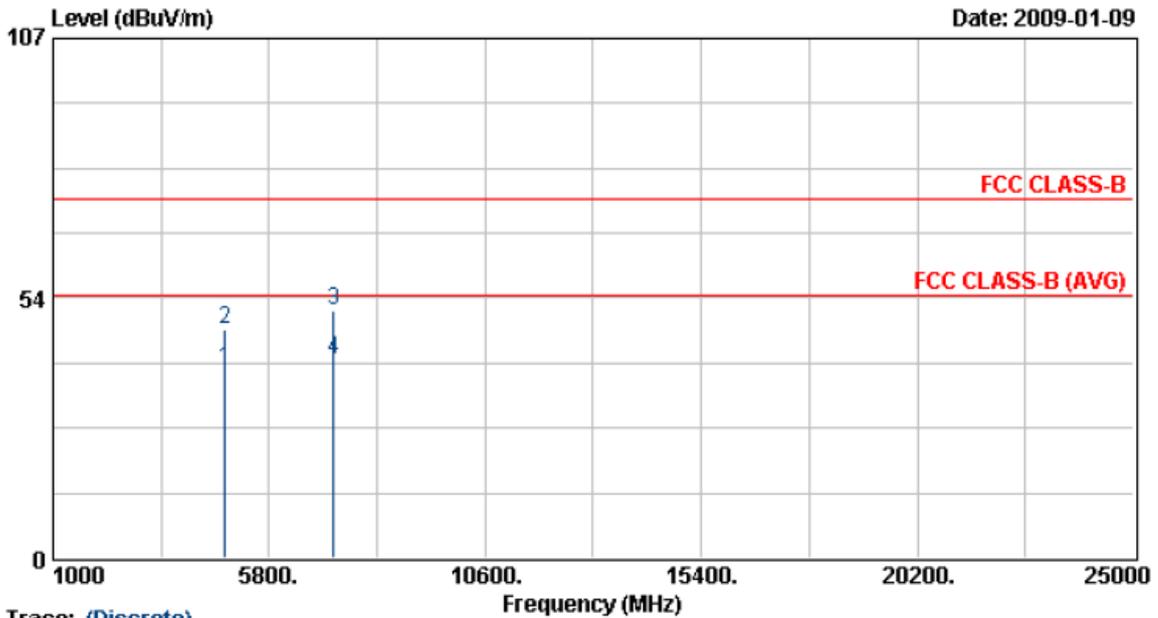
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4824.00	29.73	5.67	35.41	54.00	-18.59	Average	138	192
2	4824.00	41.13	5.67	46.80	74.00	-27.20	Peak	138	192
3	7235.38	42.63	9.14	51.77	74.00	-22.23	Peak	138	192
4	7235.38	31.16	9.14	40.30	54.00	-13.70	Average	138	192

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11g	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6 Mbps



Trace: (Discrete)

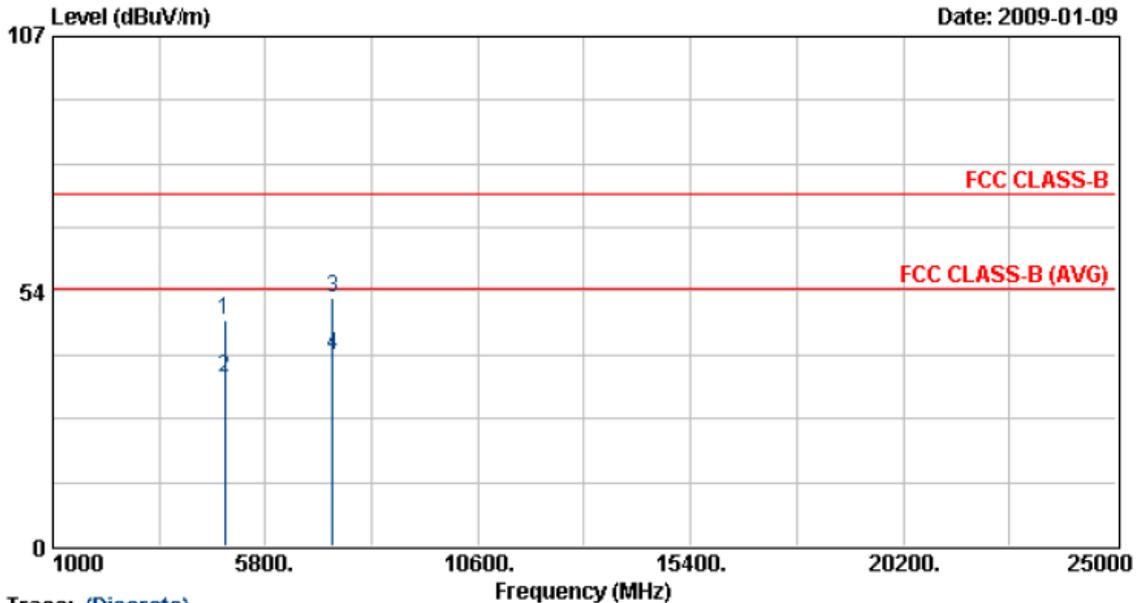
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4824.13	33.41	5.67	39.08	54.00	-14.92	Average	133	165
2	4824.13	41.32	5.67	46.99	74.00	-27.01	Peak	133	165
3	7235.88	41.72	9.14	50.86	74.00	-23.14	Peak	133	165
4	7235.88	31.61	9.14	40.75	54.00	-13.25	Average	133	165

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 6	Humidity	: 70 %
Modulation Type	: 802.11g	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6 Mbps



Trace: (Discrete)

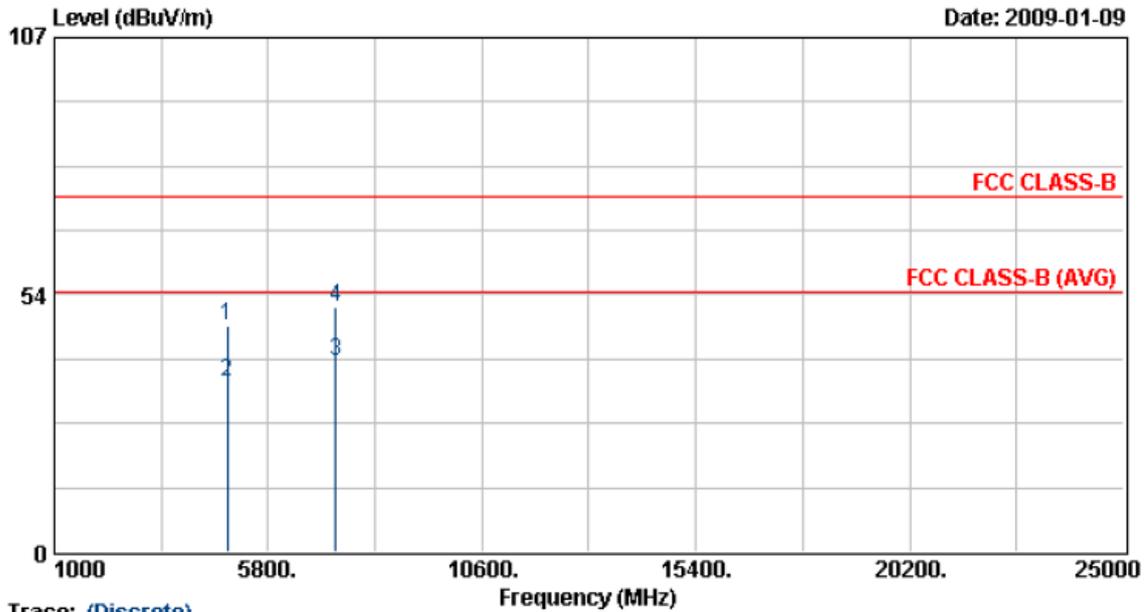
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4874.25	41.57	5.80	47.37	74.00	-26.63	Peak	138	192
2	4874.25	29.73	5.80	35.53	54.00	-18.47	Average	138	192
3	7311.00	42.77	9.47	52.24	74.00	-21.76	Peak	138	192
4	7311.00	30.67	9.47	40.14	54.00	-13.86	Average	138	192

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 6	Humidity	: 70 %
Modulation Type	: 802.11g	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6 Mbps



Trace: (Discrete)

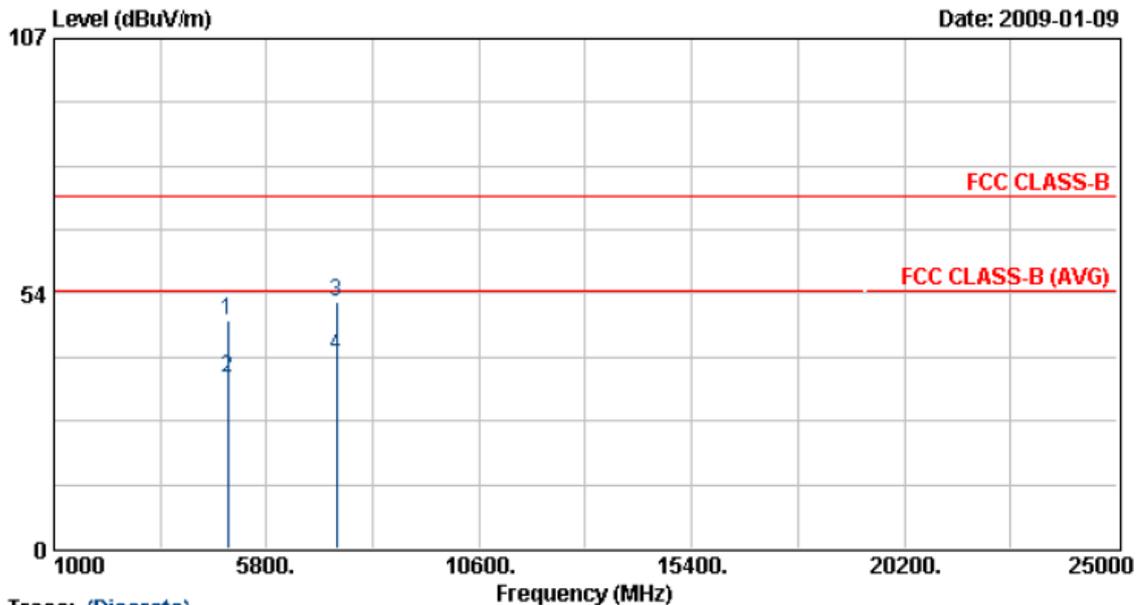
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4873.63	41.34	5.80	47.14	74.00	-26.86	Peak	133	165
2	4873.63	29.71	5.80	35.52	54.00	-18.48	Average	133	165
3	7309.88	30.28	9.47	39.74	54.00	-14.26	Average	133	165
4	7309.88	41.47	9.47	50.93	74.00	-23.07	Peak	133	165

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 11	Humidity	: 70 %
Modulation Type	: 802.11g	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6 Mbps



Trace: (Discrete)

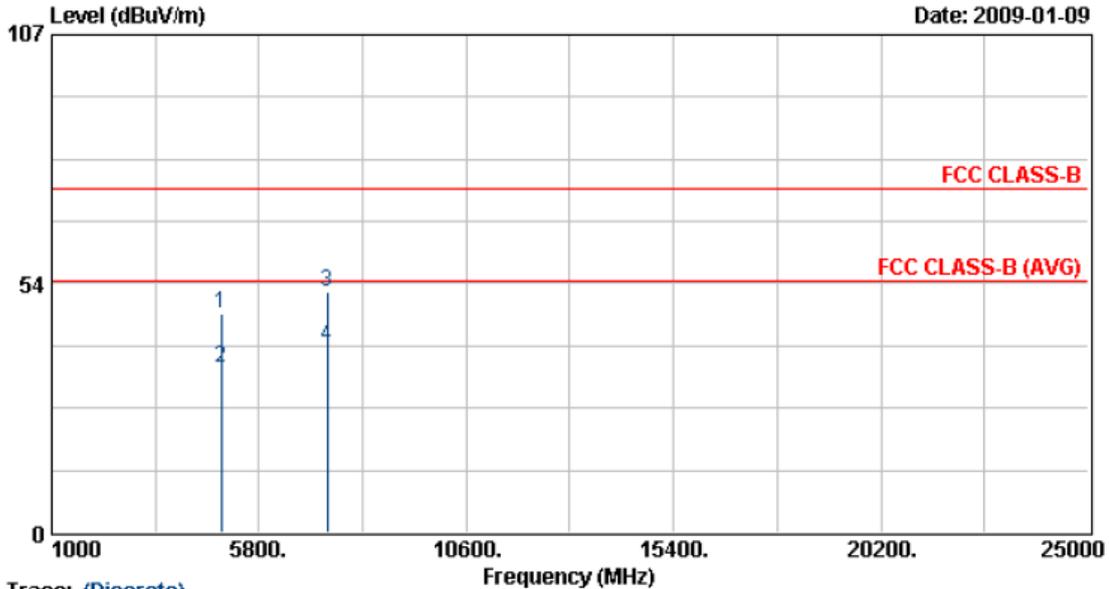
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4924.63	41.74	5.93	47.67	74.00	-26.33	Peak	138	192
2	4924.63	29.69	5.93	35.62	54.00	-18.38	Average	138	192
3	7385.88	42.05	9.80	51.85	74.00	-22.15	Peak	138	192
4	7385.88	30.54	9.80	40.34	54.00	-13.66	Average	138	192

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 11	Humidity	: 70 %
Modulation Type	: 802.11g	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6 Mbps



Trace: (Discrete)

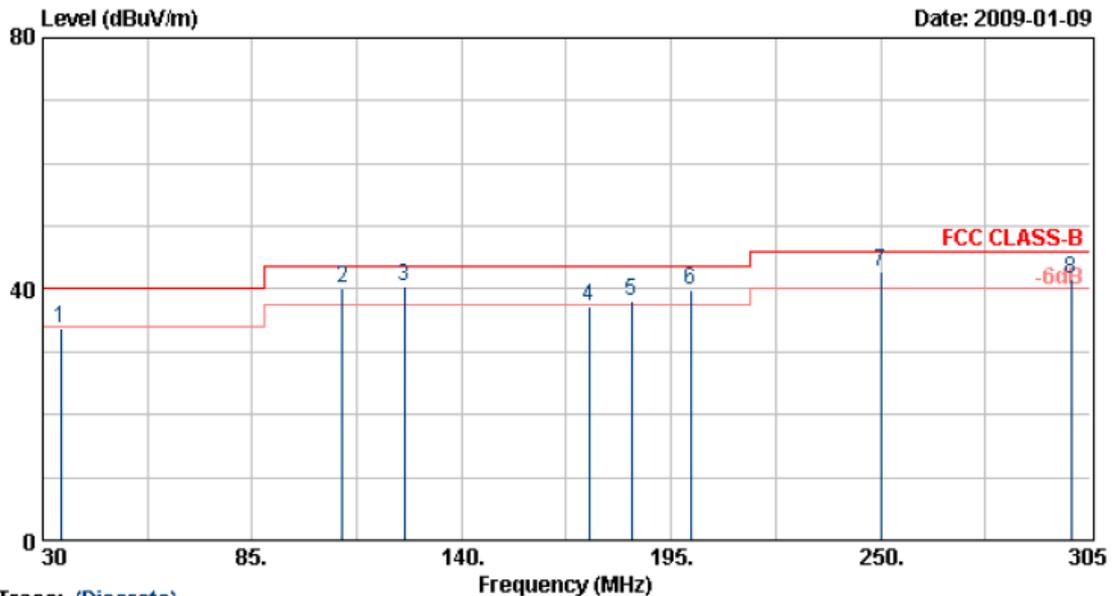
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4923.88	40.99	5.93	46.92	74.00	-27.08	Peak	133	165
2	4923.88	29.64	5.93	35.58	54.00	-18.42	Average	133	165
3	7386.00	41.86	9.80	51.66	74.00	-22.34	Peak	133	165
4	7386.00	30.23	9.80	40.03	54.00	-13.97	Average	133	165

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 3	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11n HT20	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6.5 Mbps



Trace: (Discrete)

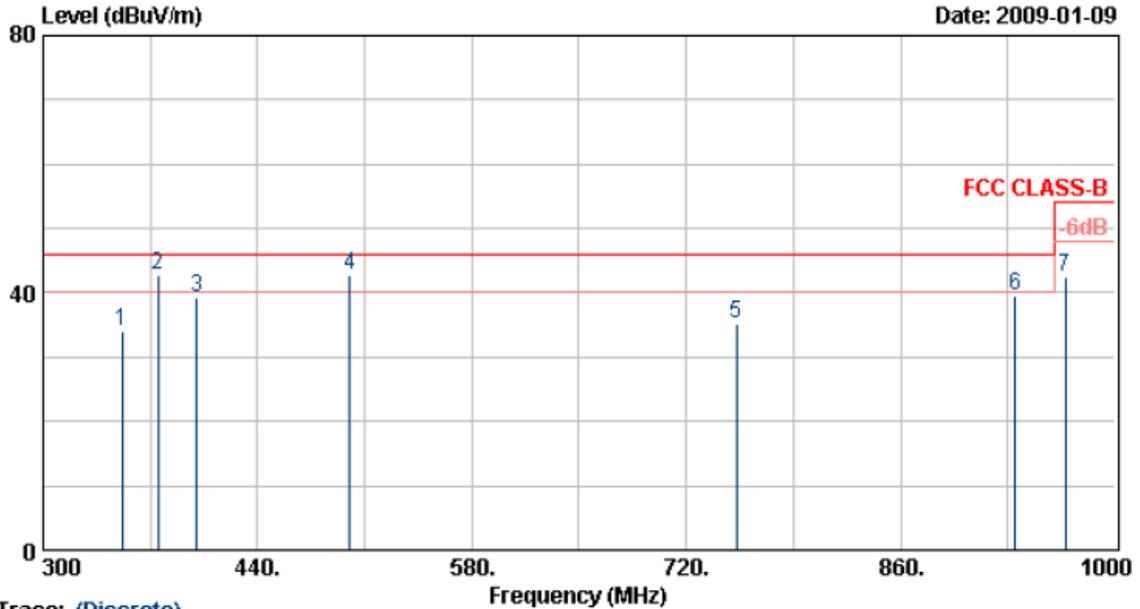
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	34.67	41.88	-8.08	33.80	40.00	-6.20	Peak	100	52
2	108.80	53.50	-13.49	40.01	43.50	-3.49	QP	100	52
3	125.01	53.74	-13.29	40.45	43.50	-3.05	QP	100	85
4	173.55	47.82	-10.51	37.31	43.50	-6.19	Peak	100	85
5	184.60	47.63	-9.51	38.12	43.50	-5.38	QP	100	152
6	200.00	51.62	-11.75	39.87	43.50	-3.63	QP	100	0
7	250.00	55.78	-13.04	42.74	46.00	-3.26	QP	100	0
8	300.00	51.17	-9.50	41.67	46.00	-4.33	QP	100	50

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
5. The data is worse case.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 3	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11n HT20	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6.5 Mbps



Trace: (Discrete)

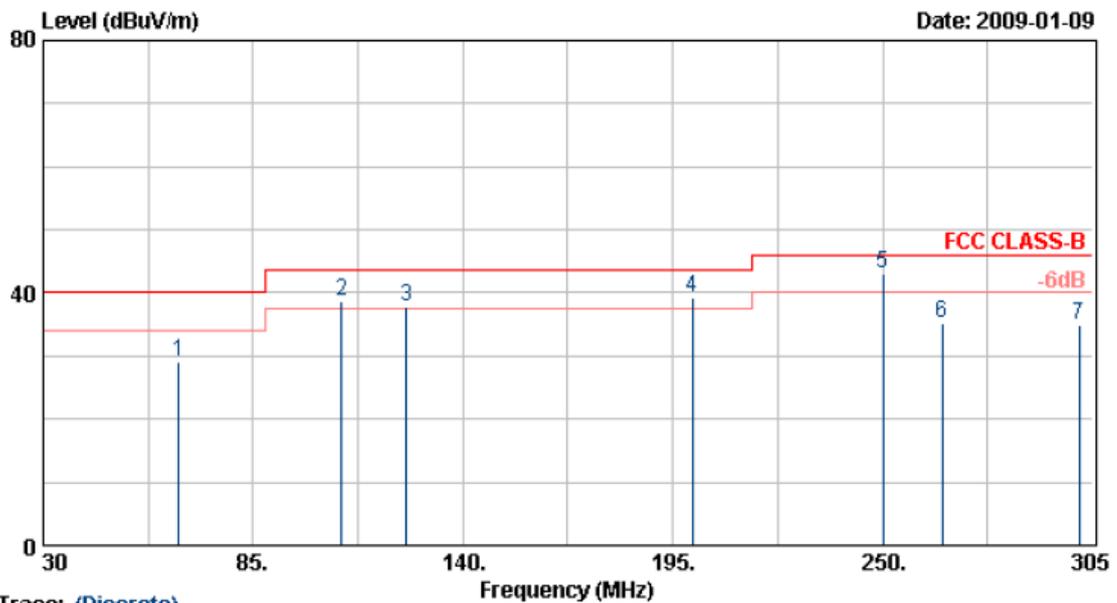
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	351.80	44.66	-10.65	34.01	46.00	-11.99	Peak	100	88
2	375.00	51.47	-8.84	42.63	46.00	-3.37	QP	100	52
3	400.00	48.23	-8.86	39.37	46.00	-6.63	Peak	100	112
4	500.05	47.73	-4.86	42.87	46.00	-3.13	QP	100	89
5	752.90	34.71	0.38	35.09	46.00	-10.91	Peak	100	89
6	934.90	40.61	-1.06	39.55	46.00	-6.45	Peak	100	188
7	967.80	39.32	3.25	42.57	54.00	-11.43	Peak	100	188

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
5. The data is worse case.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 3	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11n HT20	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6.5 Mbps



Trace: (Discrete)

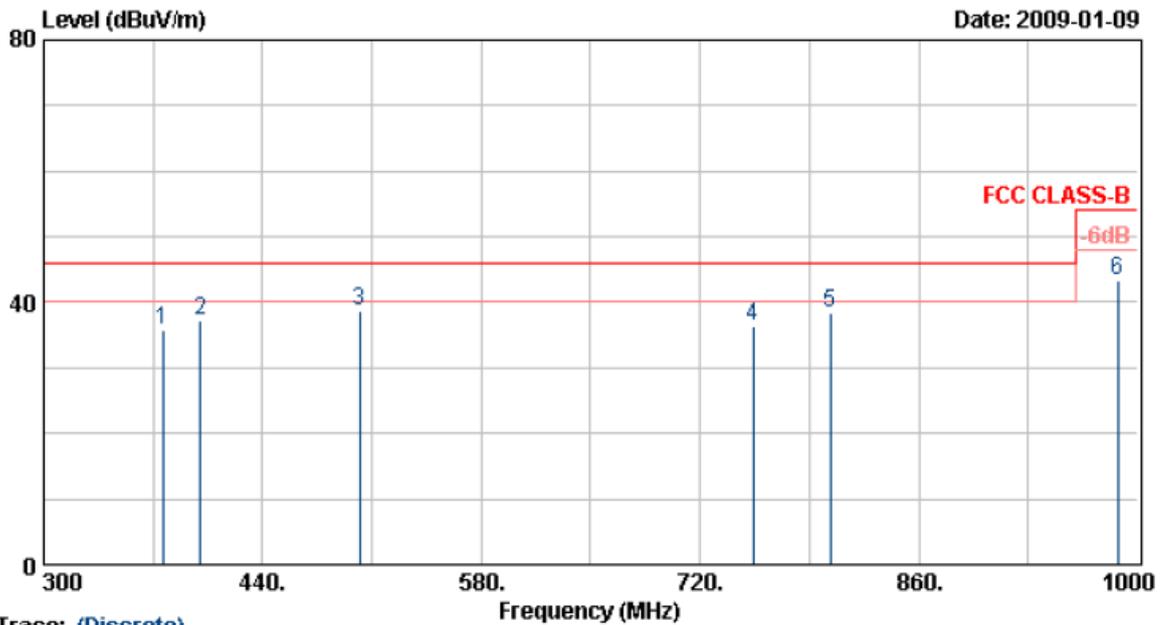
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	65.50	54.26	-25.11	29.15	40.00	-10.85	Peak	200	86
2	108.25	57.82	-19.20	38.62	43.50	-4.88	QP	200	99
3	125.25	57.44	-19.56	37.88	43.50	-5.62	QP	200	99
4	200.00	53.71	-14.49	39.22	43.50	-4.28	QP	200	99
5	250.00	60.66	-17.68	42.98	46.00	-3.02	QP	200	100
6	265.68	50.66	-15.50	35.16	46.00	-10.84	Peak	200	152
7	301.50	49.10	-14.32	34.78	46.00	-11.22	Peak	200	152

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
5. The data is worse case.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 3	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11n HT20	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6.5 Mbps



Trace: (Discrete)

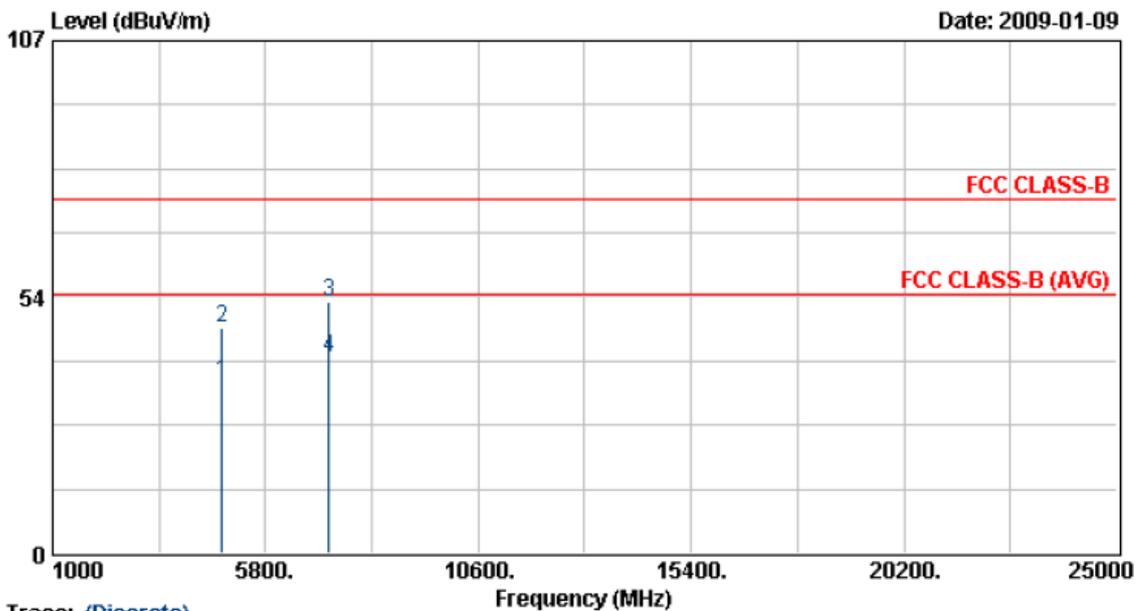
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	376.30	46.63	-10.87	35.76	46.00	-10.24	Peak	200	144
2	400.03	48.45	-11.30	37.15	46.00	-8.85	Peak	200	144
3	502.30	43.78	-5.03	38.75	46.00	-7.25	Peak	200	144
4	754.30	36.62	-0.20	36.42	46.00	-9.58	Peak	200	88
5	803.30	38.69	-0.29	38.40	46.00	-7.60	Peak	200	66
6	987.40	37.58	5.81	43.39	54.00	-10.61	Peak	200	185

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11MIMO mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
5. The data is worse case.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 3	: Transmit / Receive	Temperature	: 22 °C
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11n HT20	Atmospheric Pressure	: 1010 hPa
Memo	: Adapter: MT12-Y120100-A1	Rate	: 6.5 Mbps



Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4824.00	30.02	5.67	35.70	54.00	-18.30	Average	138	192
2	4824.00	41.30	5.67	46.97	74.00	-27.03	Peak	138	192
3	7237.63	43.22	9.15	52.37	74.00	-21.63	Peak	138	192
4	7237.63	31.70	9.15	40.85	54.00	-13.15	Average	138	192

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.