

FCC TEST REPORT

According to

FCC Rules and Regulations Part 15 Subpart C

Applicant : HDI Dune Limited

Address Room 1101-1104, 11/F., Nan Fung Tower,

173 Des Voeux Road, Central, Hong Kong

Equipment : IEEE 802.11 b/g/n WiFi Module

Model No. : GWF-3M05

FCC ID. : Z8P-KTTV301W

- The test result refers exclusively to the test presented test model / sample.,
- Without written approval of **Cerpass 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.

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Issued date : May 03, 2012

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History of this test report

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 $\hfill\square$ Additional attachment as following record:

Attachment No.	Issue Date	Description

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CERTIFICATE OF COMPLIANCE

According to

FCC Rules and Regulations Part 15 Subpart C

Applicant **HDI Dune Limited**

Room 1101-1104, 11/F., Nan Fung Tower, Address

173 Des Voeux Road, Central, Hong Kong

Equipment IEEE 802.11 b/g/n WiFi Module

Model No. GWF-3M05

FCC ID. Z8P-KTTV301W

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 (2010).

The test was carried out on Apr. 26, 2012 at Cerpass Technology Corp.

Signature

EMC/RF B.U. Assistant Manager

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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

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2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

- The newest Sigma Designs 8670/8671 media processor: enjoy excellent playback and performance of interactive features.
- HDD player: connect an HDD to the player and play content directly from the HDD.
- Network player: connect the player to a local network and play content directly from PC or NAS (UPnP, SMB, NFS).
- MKV player: play HD and SD video in a popular MKV format and other modern video file formats, including top quality HD video with very high bitrate.
- 2 USB ports: conveniently connect HDDs, USB flash drives, USB card readers and other USB storage devices.
- HDD rack with hot swap function: easily and quickly insert and exchange internal 2.5" SATA HDD.
- USB 3.0 Slave port: easily and guickly transfer files between the HDD in the player and a PC.
- SD card slot: easily play media files on SD memory cards from your camera or other devices, or use an SD memory card as a local or system storage (required for BD Live function).
- HDMI 1.3: ensure the best possible quality of HD video and HD audio.
- Video output flexibility: output video in any resolution and format (from SD to 1080p, 24p/PAL/NTSC).
- Upscaling: high quality upscaling of DVD and any other SD video content to Full HD (1080p) or other HD resolution.
- File browser: convenient file browser with powerful file management (copy, move, delete, rename, organize, sort).
- High-quality music playback: play very high-quality (up to 192 Khz / 24-bit) music files in various formats (FLAC, Monkey's Audio APE, WAV/PCM, DTS, etc).
- Playlists: build playlists from your folders, use your own playlists, use repeat and shuffle functions.
- NAS function: access files on storage devices (HDD, optical drive, etc) attached to the player from the local network (using SMB or FTP).
- BitTorrent: use built-in BitTorrent client to download files from P2P networks.
- Customizable user interface: work with media collections using cover art and icon browsing (with Full HD graphics).
- Internet radio: playback and record various Internet radio stations (HTTP/MP3 and other formats).
- IPTV: playback and record IPTV streams (multicast UDP/RTP) from your Internet provider.

2.2 Wireless Specifications

Standards	IEEE802.11b/g &802.11n(1T1R mode)
Operating Frequency	USA (FCC): 2.412GHz ~2.462GHz(channel 1-11) ISM band
Operating Frequency	Europe (CE): 2.412GHz ~ 2.472GHz (channel 1 – 13) ISM band
Protocols	802.11b: CCK, QPSK, BPSK, 802.11g/n: OFDM
Antenna	External 50ohm antenna via an I-PEX receptacle
Security	WPA/WP2, 64/128/152-bit WEP, WPS
T "0 1 1 D	11b: 19±1.0dBm@11Mbps
Transmit Output Power (Typical)	11g: 16±1.0dBm@54Mbps
(Typical)	802.11n:(HT20), 15±1.0dBm
Receive Sensitivity	11b: -84dBm@11Mbps; 11g: -70dBm@54Mbps
(Typical)	802.11n: (HT20), -66dBm@MSC7
Operating Voltage	5.0VDC±5%V DC input

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2.3 Carrier Frequency of Channels

802.11b, 802.11g, 802.11n HT 20

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		

2.4 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 Notebook and EUT for the RF test.
- c. An executive program, "QA Test.exe" under WIN XP was executed to transmit and receive data to the notebook through WLAN.
- d. The following test modes were performed for test:
 - 802.11b/g/n HT20: CH01: 2412MHz, CH06: 2437MHz, CH11: 2462MHz
- e. The following data rates were the worst cases of power output and be performed for test:
 - 802.11b: 11Mbps
 - 802.11g: 54Mbps
 - 802.11n HT20: 65Mbps
 - * Power output of data rate:

·				
802	2.11b	802.11g		
Data Rate (Mbps)	Power output (dBm)	Data Rate (Mbps)	Power output (dBm)	
11	19.03	54	16.23	
5.5	18.88	48	16.20	
2	18.85	36	16.16	
1	18.92	24	16.14	
		18	16.15	
		12	16.21	
		9	16.16	
		6	16.17	

802.11n HT20				
Data Rate (Mbps)	Power output (dBm)	Data Rate (Mbps)	Power output (dBm)	
130/15		65/7	15.25	
117/14		58.5/6	15.17	
104/13		52/5	15.15	
78/12		39/4	15.16	
52/11		26/3	15.16	
39/10		19.5/2	15.15	
26/9		13/1	15.20	
13/8		6.5/0	15.21	

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2.5 Description of Test System

Device	Manufacturer	Model No.	Description
Notebook	DELL	INSPIRON 510m	Power Cable, Unshielding 1.8m

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2.6 General Information of Test

Test Site :	Cerpass Technology Corp. 2F-11, No. 3, Yuan Qu St., (Nankang Software Park), Taipei, Taiwan 115, R.O.C.
Test Site Location (OATS2-SD) :	No.68-1, Shihbachongsi, Shihding Township, Taipei City 223, Taiwan, R.O.C.
FCC Registration Number :	TW1049, TW1061, 488071, 390316
IC Registration Number :	4934B-1, 4934D-1
VCCI Registration Number :	T-1173 for Telecommunication Test C-4139 for Conducted emission test R-3428 for Radiated emission test G-97 for Radiated emission test above 1GHz
Frequency Range Investigated:	Conducted: from 150kHz to 30MHz Radiation: from 30MHz to 25,000MHz
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.
Laboratory Accreditation	Testing Laboratory 1439

2.7 Measurement Uncertainty

Measurement Item	Uncertainty
Radiated emission	±4.11dB
Peak Output Power(conducted)	±1.38dB
Peak Output Power(Radiated)	±1.70dB
Power Spectral Density	±1.39dB
Radiated emission(3m)	±4.11dB
Radiated emission(10m)	±3.89dB

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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: Dipole antenna

Antenna Gain: 2 dBi

Connector: SMA (Reverse Polarity meets FCC part 15. 203 Requirement)

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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 C63.4-2009 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 µ V)	Average (dB μ 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.
- 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.

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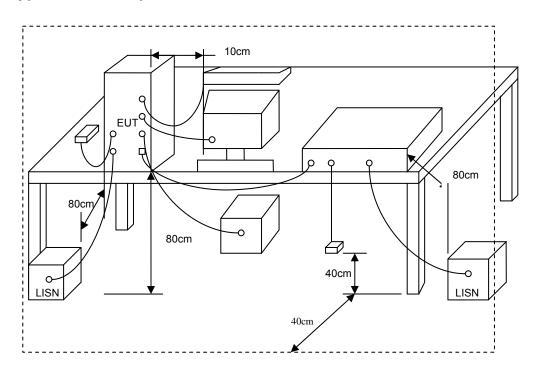
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4.3 Typical Test Setup



4.4 Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
EMI Receiver	R&S	ESCI	100443	2012/01/12	2013/01/11
LISN	Schwarzbeck	NSLK 8127	8127-516	2011/05/05	2012/05/04
LISN	Schwarzbeck	NSLK 8127	8127-568	2011/08/24	2012/08/23

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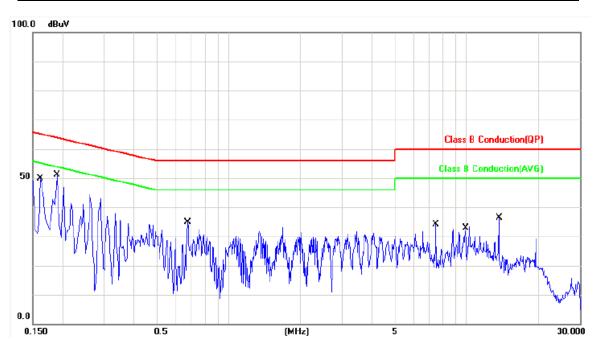
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4.5 Test Result and Data

Power :	AC 120V	Pol/Phase :	LINE
Test Mode 1 :	802.11g, CH1	Temperature :	26 °C
Test Date :	Apr. 26, 2012	Humidity :	60 %



No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1620	0.12	46.72	46.84	65.36	-18.52	QP	Р
2	0.1620	0.12	36.49	36.61	55.36	-18.75	AVG	Р
3	0.1900	0.12	46.29	46.41	64.03	-17.62	QP	Р
4	0.1900	0.12	36.86	36.98	54.03	-17.05	AVG	Р
5	0.6740	0.15	35.66	35.81	56.00	-20.19	QP	Р
6	0.6740	0.15	33.11	33.26	46.00	-12.74	AVG	Р
7	7.4820	0.48	30.10	30.58	60.00	-29.42	QP	Р
8	7.4820	0.48	16.39	16.87	50.00	-33.13	AVG	Р
9	9.9140	0.58	17.86	18.44	60.00	-41.56	QP	Р
10	9.9140	0.58	9.71	10.29	50.00	-39.71	AVG	Р
11	13.7140	0.74	29.10	29.84	60.00	-30.16	QP	Р
12	13.7140	0.74	14.72	15.46	50.00	-34.54	AVG	Р

Note: Level = Reading + Factor Margin = Level – Limit

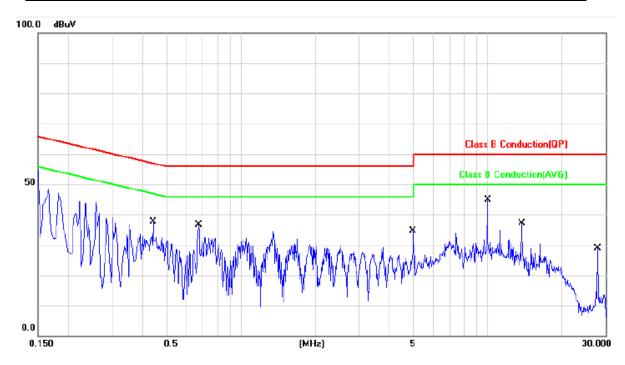
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Power :	AC 120V	Pol/Phase :	NEUTRAL
Test Mode 1 :	802.11g, CH1	Temperature :	26 °C
Test Date :	Apr. 26, 2012	Humidity :	60 %



No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.4420	0.13	32.53	32.66	57.02	-24.36	QP	Р
2	0.4420	0.13	22.03	22.16	47.02	-24.86	AVG	Р
3	0.6740	0.15	36.71	36.86	56.00	-19.14	QP	Р
4	0.6740	0.15	33.01	33.16	46.00	-12.84	AVG	Р
5	5.0020	0.39	28.18	28.57	60.00	-31.43	QP	Р
6	5.0020	0.39	23.15	23.54	50.00	-26.46	AVG	Р
7	10.0020	0.58	39.67	40.25	60.00	-19.75	QP	Р
8	10.0020	0.58	27.43	28.01	50.00	-21.99	AVG	Р
9	13.7540	0.74	23.04	23.78	60.00	-36.22	QP	Р
10	13.7540	0.74	19.54	20.28	50.00	-29.72	AVG	Р
11	27.9580	1.28	9.28	10.56	60.00	-49.44	QP	Р
12	27.9580	1.28	4.35	5.63	50.00	-44.37	AVG	Р

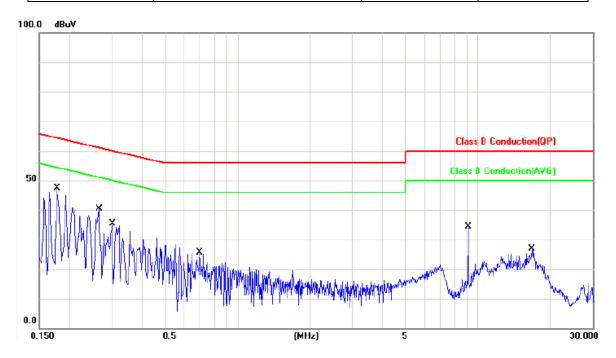
Note: Level = Reading + Factor Margin = Level – Limit

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Power	:	AC 120V	Pol/Phase :	LINE
Test Mode 2		802.11n HT20, CH1	Temperature :	26 °C
Test Date		Apr. 26, 2012	Humidity :	60 %



No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1780	0.12	40.00	40.12	64.57	-24.45	QP	Р
2	0.1780	0.12	23.53	23.65	54.57	-30.92	AVG	Р
3	0.2660	0.12	42.57	42.69	61.24	-18.55	QP	Р
4	0.2660	0.12	36.72	36.84	51.24	-14.40	AVG	Р
5	0.3020	0.12	28.82	28.94	60.19	-31.25	QP	Р
6	0.3020	0.12	15.53	15.65	50.19	-34.54	AVG	Р
7	0.6980	0.16	26.20	26.36	56.00	-29.64	QP	Р
8	0.6980	0.16	21.25	21.41	46.00	-24.59	AVG	Р
9	9.1220	0.55	15.33	15.88	60.00	-44.12	QP	Р
10	9.1220	0.55	11.14	11.69	50.00	-38.31	AVG	Р
11	16.7860	0.86	21.61	22.47	60.00	-37.53	QP	Р
12	16.7860	0.86	15.98	16.84	50.00	-33.16	AVG	Р

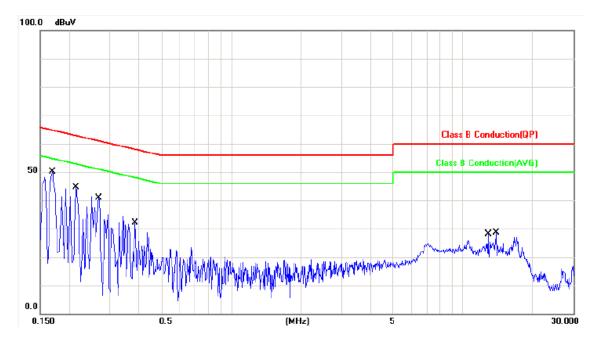
Note: Level = Reading + Factor Margin = Level – Limit

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Power :	AC 120V	Pol/Phase :	NEUTRAL
Test Mode 2 :	802.11n HT20, CH1	Temperature :	26 °C
Test Date :	Apr. 26, 2012	Humidity :	60 %



No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1700	0.12	48.52	48.64	64.96	-16.32	QP	Р
2	0.1700	0.12	32.05	32.17	54.96	-22.79	AVG	Р
3	0.2140	0.12	40.12	40.24	63.04	-22.80	QP	Р
4	0.2140	0.12	28.53	28.65	53.04	-24.39	AVG	Р
5	0.2700	0.12	35.52	35.64	61.12	-25.48	QP	Р
6	0.2700	0.12	23.11	23.23	51.12	-27.89	AVG	Р
7	0.3860	0.13	26.54	26.67	58.15	-31.48	QP	Р
8	0.3860	0.13	19.53	19.66	48.15	-28.49	AVG	Р
9	12.8940	0.70	19.78	20.48	60.00	-39.52	QP	Р
10	12.8940	0.70	14.96	15.66	50.00	-34.34	AVG	Р
11	13.9580	0.74	19.76	20.50	60.00	-39.50	QP	Р
12	13.9580	0.74	14.73	15.47	50.00	-34.53	AVG	Р

Note: Level = Reading + Factor Margin = Level – Limit

Test engineer:

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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 C63.4-2009. 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 (μ V / M)	Radiated (dB µ 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 µ V/ M)
30-230	10	30
230-1000	10	37

5.2 Test Procedures

- b. The EUT was placed on a rotatable table top 0.8 meter above ground.
- c. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- d. The table was rotated 360 degrees to determine the position of the highest radiation.
- e. 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.
- f. 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.
- g. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- h. 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.
- i. 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.
- j. "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.

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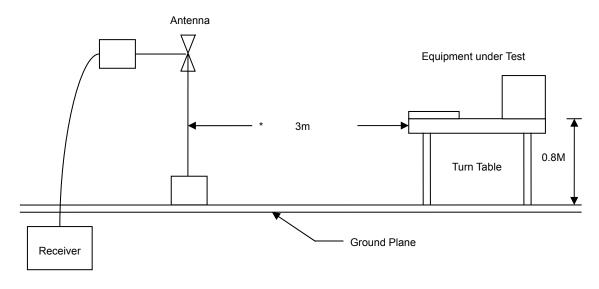
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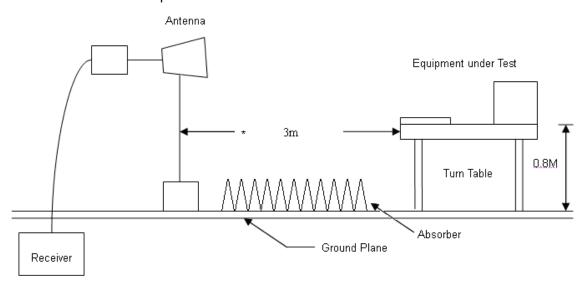


5.3 Typical Test Setup

Below 1GHz Test Setup



Above 1GHz Test Setup



5.4 Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Amplifier	Agilent	8447D	2944A10531	2012/01/13	2013/01/12
Bilog Antenna	Schaffner	CBL6112D	22242	2012/01/12	2013/01/11
EMI Receiver	R&S	ESCI	101200	2011/07/26	2012/07/25
Spectrum Analyzer	R&S	FSP40	100047	2011/05/05	2012/05/04
Horn Antenna	EMCO	3115	31589	2011/05/02	2012/05/01
Preamplifier	Agilent	8449B	3008A01954	2012/02/29	2013/02/28

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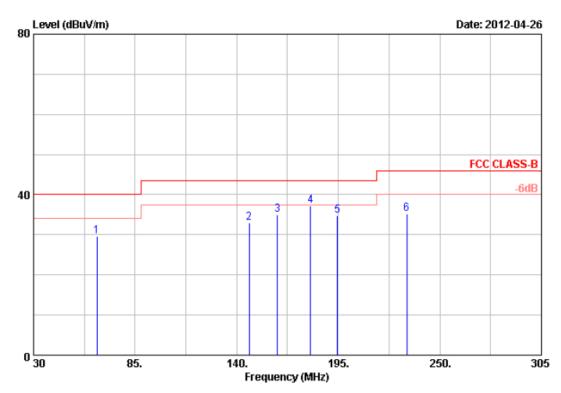
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5.5 Test Result and Data

Power	AC 120V	Pol/Phase :	VERTICAL
Test Mode 1	802.11g, CH1	Temperature :	23 °C
Memo		Humidity :	65 %



		Read						Ant	Tab
Item	Freq	Value	Factor	Result	Limit	Margin	Remark	Pos	Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	64.38	38.16	-8.63	29.53	40.00	-10.47	Peak	100	360
2	146.88	31.17	1.91	33.08	43.50	-10.42	Peak	100	360
3	162.00	36.06	-1.07	34.99	43.50	-8.51	Peak	100	360
4	179.88	39.17	-1.97	37.20	43.50	-6.30	Peak	100	360
5	194.45	34.31	0.43	34.74	43.50	-8.76	Peak	100	360
6	232.13	37.84	-2.66	35.18	46.00	-10.82	Peak	100	360

Notes:

- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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/n mode are all the same, so the 802.11g/n mode chosen as representative in final test.
- 5. According to technical experiences, all spurious emission of 802.11g/n mode at channel 1,6,11 or 3,6,9(for HT40) are almost the same below 1GHz, so that the channel 1 or 3(for HT40) was chosen as representative in final test.
- 6. The data is worse case.

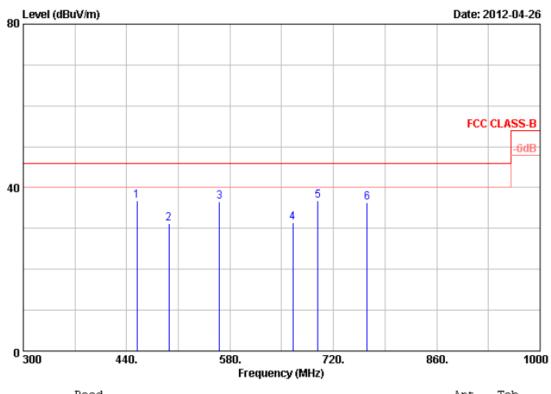
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Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode 1 :	802.11g, CH1	Temperature :	23 °C
Memo :		Humidity :	65 %



		Read						Ant	Tab	
Item	Freq	Value	Factor	Result	Limit	Margin	Remark	Pos	Pos	
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg	
1	454.00	40.42	-3.71	36.71	46.00	-9.29	Peak	100	0	
2	497.40	31.98	-0.68	31.30	46.00	-14.70	Peak	100	0	
3	566.00	28.00	8.58	36.58	46.00	-9.42	Peak	100	0	
4	665.40	27.56	3.89	31.45	46.00	-14.55	Peak	100	0	
5	699.00	30.63	6.10	36.73	46.00	-9.27	Peak	100	0	
6	765.50	31.69	4.66	36.35	46.00	-9.65	Peak	100	0	

- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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/n mode are all the same, so the 802.11g/n mode chosen as representative in final test.
- 5. According to technical experiences, all spurious emission of 802.11g/n mode at channel 1,6,11 or 3,6,9(for HT40) are almost the same below 1GHz, so that the channel 1 or 3(for HT40) was chosen as representative in final test.
- 6. The data is worse case.

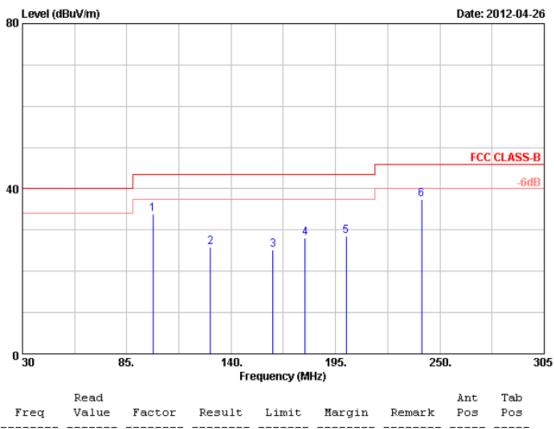
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Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode 1 :	802.11g, CH1	Temperature :	23 °C
Memo :		Humidity :	65 %



		Read						Ant	Tab	
Item	Freq	Value	Factor	Result	Limit	Margin	Remark	Pos	Pos	
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg	
1	98.75	42.54	-8.62	33.92	43.50	-9.58	Peak	100	360	
2	129.00	34.57	-8.77	25.80	43.50	-17.70	Peak	100	360	
3	162.00	35.00	-9.77	25.23	43.50	-18.27	Peak	100	360	
4	179.05	40.19	-12.11	28.08	43.50	-15.42	Peak	100	360	
5	200.50	39.68	-11.13	28.55	43.50	-14.95	Peak	100	360	
6	240.38	43.47	-6.01	37.46	46.00	-8.54	Peak	100	360	

- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- All emission below 1GHz at 802.11b/g/n mode are all the same, so the 802.11g/n mode chosen as representative in final test.
- According to technical experiences, all spurious emission of 802.11g/n mode at channel 1,6,11 or 3,6,9(for HT40) are almost the same below 1GHz, so that the channel 1 or 3(for HT40) was chosen as representative in final test.
- 6. The data is worse case.

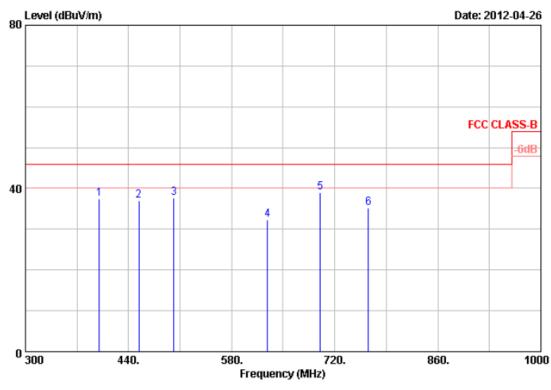
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Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode 1 :	802.11g, CH1	Temperature :	23 °C
Memo :		Humidity :	65 %



		Read						Ant	Tab
Item	Freq	Value	Factor	Result	Limit	Margin	Remark	Pos	Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	400.10	37.80	-0.27	37.53	46.00	-8.47	Peak	100	0
2	454.00	36.10	0.86	36.96	46.00	-9.04	Peak	100	0
3	501.60	35.04	2.59	37.63	46.00	-8.37	Peak	100	0
4	629.00	25.53	6.68	32.21	46.00	-13.79	Peak	100	0
5	700.40	32.71	6.31	39.02	46.00	-6.98	Peak	100	0
6	765.50	26.60	8.55	35.15	46.00	-10.85	Peak	100	0

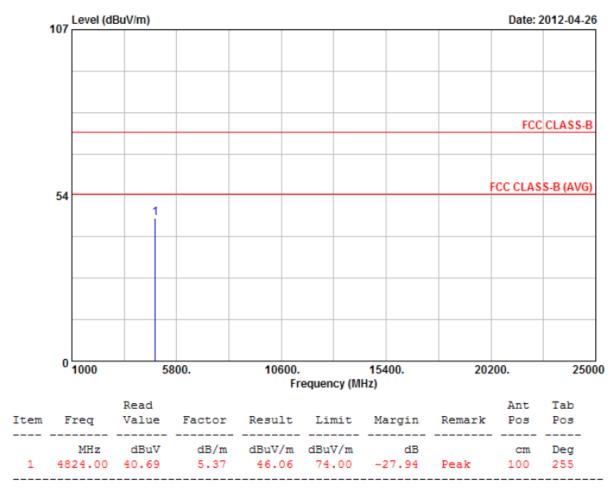
- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. All emission below 1GHz at 802.11b/g/n mode are all the same, so the 802.11g/n mode chosen as representative in final test.
- 5. According to technical experiences, all spurious emission of 802.11g/n mode at channel 1,6,11 or 3,6,9(for HT40) are almost the same below 1GHz, so that the channel 1 or 3 (for HT40) was chosen as representative in final test.
- 6. The data is worse case.

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Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 1	:	802.11b, CH1	Temperature		23 °C
Memo	:		Humidity		65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

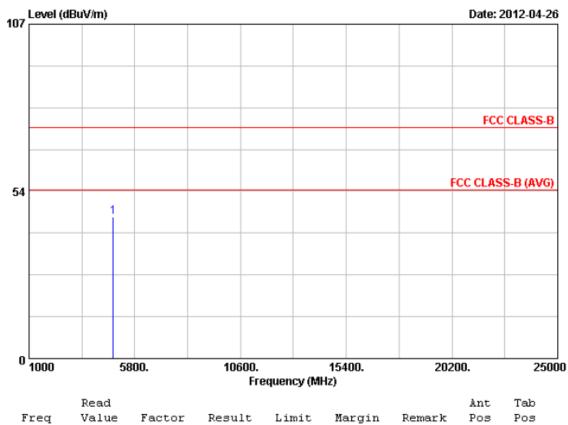
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Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode 1	802.11b, CH1	Temperature :	23 °C
Memo :		Humidity :	65 %



		112000							1 000	
Item	Freq	Value	Factor	Result	Limit	Margin	Remark	Pos	Pos	
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg	
1	4824.00	41.64	3.71	45.35	74.00	-28.65	Peak	100	157	

- 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
- 5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above
- 6. The other emissions is too low to be measured.
- 7. The data is worse case.

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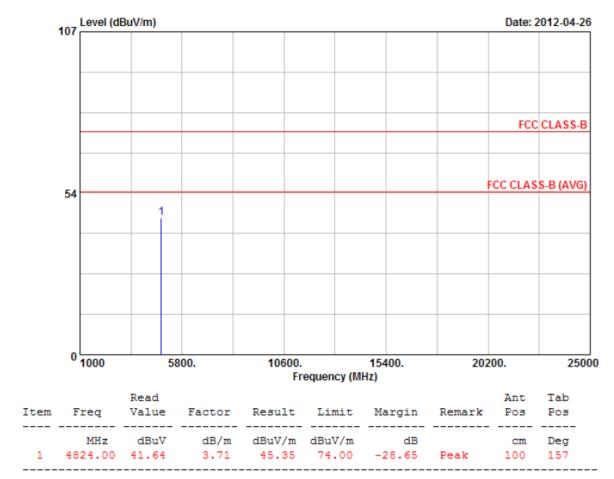
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Power	:	AC 120V	Pol/Phase :	VERTICAL
Test Mode 1	:	802.11b, CH6	Temperature :	23 °C
Memo	:		Humidity :	65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

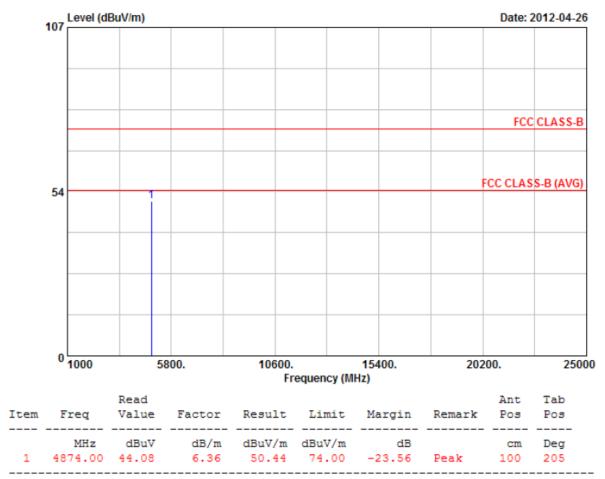
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Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode 1 :	802.11b, CH6	Temperature :	23 °C
Memo :		Humidity :	65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

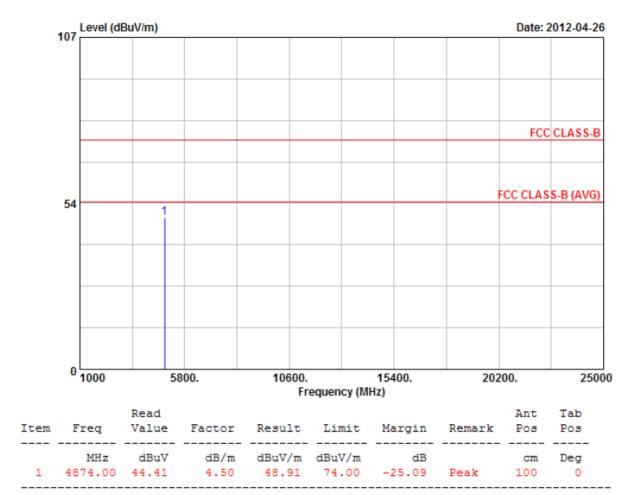
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Power	:	AC 120V	F	Pol/Phase	:	VERTICAL
Test Mode 1	:	802.11b, CH11	Т	emperature	:	23 °C
Memo	:		F	Humidity	:	65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

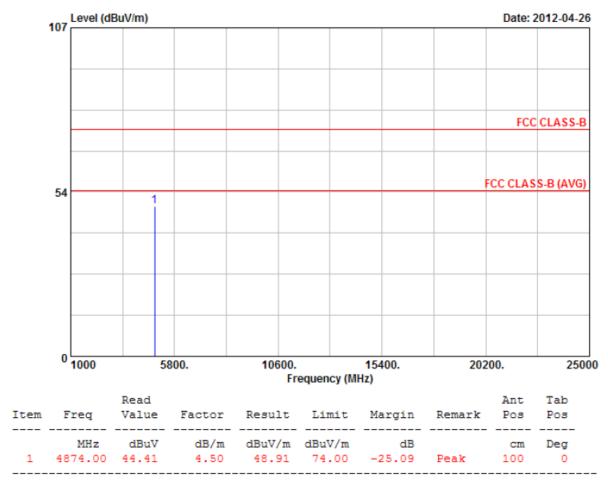
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Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode 1 :	802.11b, CH11	Temperature :	23 °C
Memo :		Humidity :	65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

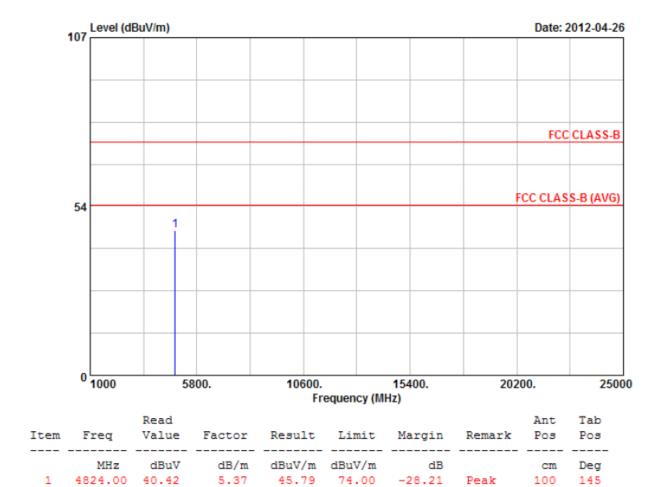
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Power	AC 120V	Pol/Phase :	VERTICAL
Test Mode 1	802.11g, CH1	Temperature :	23 °C
Memo		Humidity :	65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

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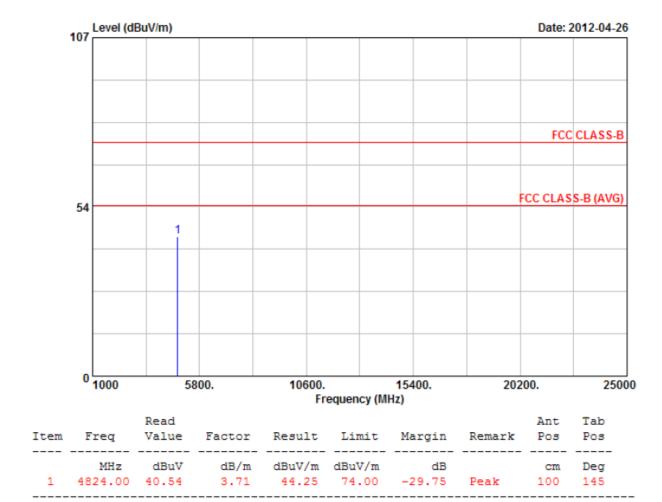
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Power	:	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode 1	:	802.11g, CH1	Temperature :	23 °C
Memo	:		Humidity :	65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

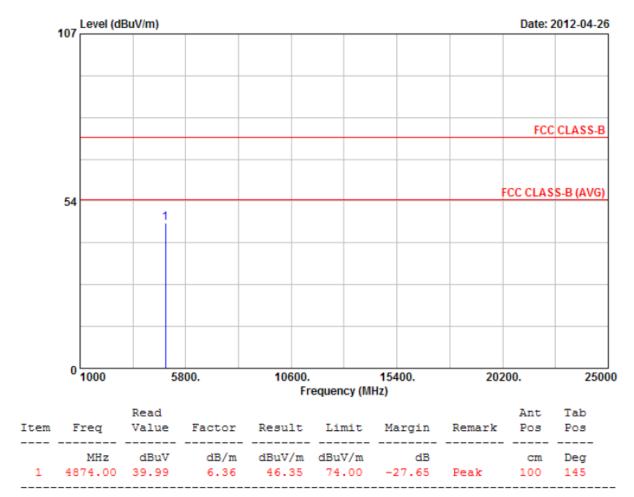
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Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 1	:	802.11g, CH6	Temperature	:	23 °C
Memo	:		Humidity	:	65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

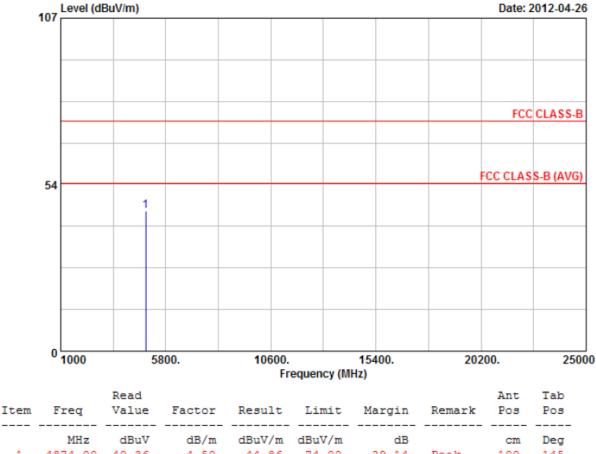
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Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 1		802.11g, CH6	Temperature		23 °C
Memo			Humidity		65 %



100111	1100	Value	LUCCOL	NEDGIO	LIMILO	nargin	INCINCI II	105	105	
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg	
1	4874.00	40.36	4.50	44.86	74.00	-29.14	Peak	100	145	

- 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 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- 6. The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

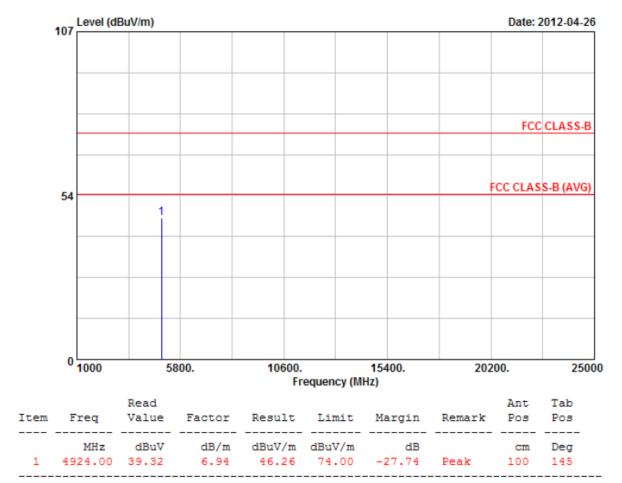
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Power	:	AC 120V	Pol/Phase :	VERTICAL
Test Mode 1	:	802.11g, CH11	Temperature :	23 °C
Memo	:		Humidity :	65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

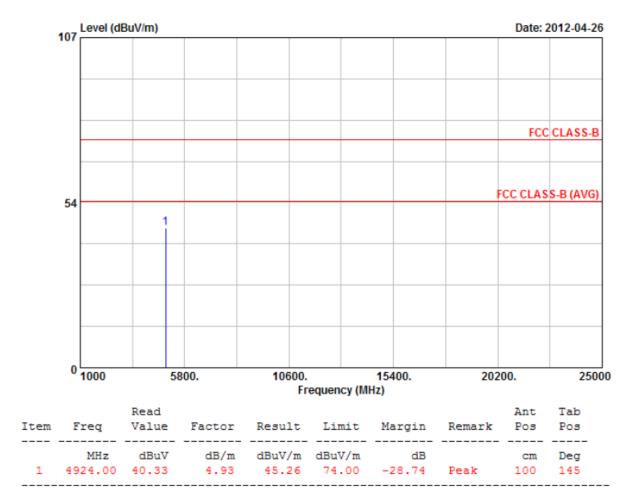
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Power	:	AC 120V	Pol/P	hase :	HORIZONTAL
Test Mode 1	:	802.11g, CH11	Temp	erature :	23 °C
Memo	:		Humi	dity :	65 %



- 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
- 5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- 6. The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

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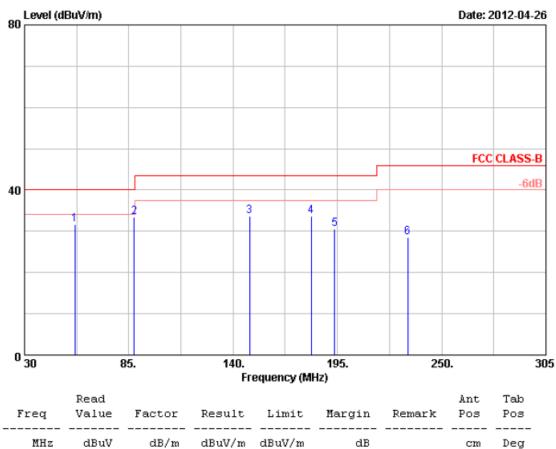
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Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode 2	802.11n HT20, CH1	Temperatur :	23 °C
Memo :		Humidity :	65 %



		Read						Ant	Taub	
Item	Freq	Value	Factor	Result	Limit	Margin	Remark	Pos	Pos	
	\mathtt{MHz}	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg	
1	56.68	35.36	-3.73	31.63	40.00	-8.37	Peak	100	360	
2	87.75	36.27	-2.77	33.50	40.00	-6.50	Peak	100	360	
3	148.80	32.06	1.49	33.55	43.50	-9.95	Peak	100	360	
4	181.25	35.35	-1.68	33.67	43.50	-9.83	Peak	100	360	
5	193.63	30.19	0.43	30.62	43.50	-12.88	Peak	100	360	
6	232.13	31.22	-2.66	28.56	46.00	-17.44	Peak	100	360	

- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- All emission below 1GHz at 802.11b/g/n mode are all the same, so the 802.11g/n mode chosen as representative in final test.
- 5. According to technical experiences, all spurious emission of 802.11g/n mode at channel 1,6,11 or 3,6,9(for HT40) are almost the same below 1GHz, so that the channel 1 or 3(for HT40) was chosen as representative in final test.
- 6. The data is worse case.

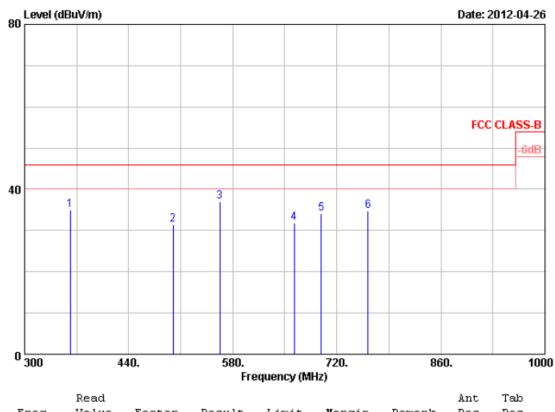
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Power	:	AC 120V	Pol/Phase :	VERTICAL
Test Mode 2		802.11n HT20, CH1	Temperature :	23 °C
Memo			Humidity :	65 %



		Read						Ant	Tab
Item	Freq	Value	Factor	Result	Limit	Margin	Remark	Pos	Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	361.60	39.04	-4.03	35.01	46.00	-10.99	Peak	100	0
2	499.50	32.27	-0.90	31.37	46.00	-14.63	Peak	100	0
3	562.50	28.32	8.67	36.99	46.00	-9.01	Peak	100	0
4	662.60	27.98	4.00	31.98	46.00	-14.02	Peak	100	0
5	699.00	28.02	6.10	34.12	46.00	-11.88	Peak	100	0
6	762.00	30.01	4.78	34.79	46.00	-11.21	Peak	100	0

- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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/n mode are all the same, so the 802.11g/n mode chosen as representative in final test.
- 5. According to technical experiences, all spurious emission of 802.11g/n mode at channel 1,6,11 or 3,6,9(for HT40) are almost the same below 1GHz, so that the channel 1 or 3(for HT40) was chosen as representative in final test.
- 6. The data is worse case.

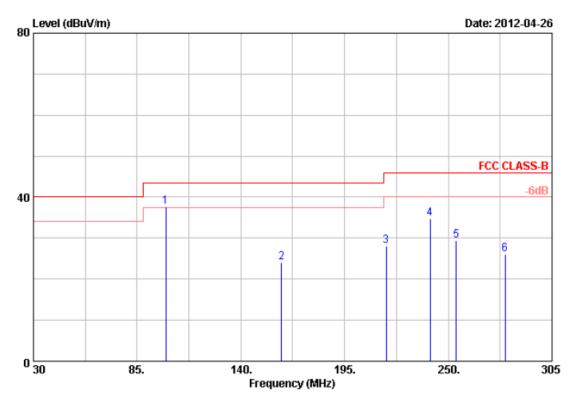
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Power	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 2	802.11n HT20, CH1	Temperature	:	23 °C
Memo		Humidity	:	65 %



		Read						Ant	Tab	
Item	Freq	Value	Factor	Result	Limit	Margin	Remark	Pos	Pos	
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg	
1	100.13	45.78	-8.02	37.76	43.50	-5.74	Peak	100	360	
2	161.45	33.64	-9.50	24.14	43.50	-19.36	Peak	100	360	
3	217.00	36.69	-8.69	28.00	46.00	-18.00	Peak	100	360	
4	240.38	40.81	-6.01	34.80	46.00	-11.20	Peak	100	360	
5	254.13	35.05	-5.73	29.32	46.00	-16.68	Peak	100	360	
6	280.25	33.43	-7.29	26.14	46.00	-19.86	Peak	100	360	

- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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/n mode are all the same, so the 802.11g/n mode chosen as representative in final test.
- 5. According to technical experiences, all spurious emission of 802.11g/n mode at channel 1,6,11 or 3,6,9(for HT40) are almost the same below 1GHz, so that the channel 1 or 3(for HT40) was chosen as representative in final test.
- 6. The data is worse case.

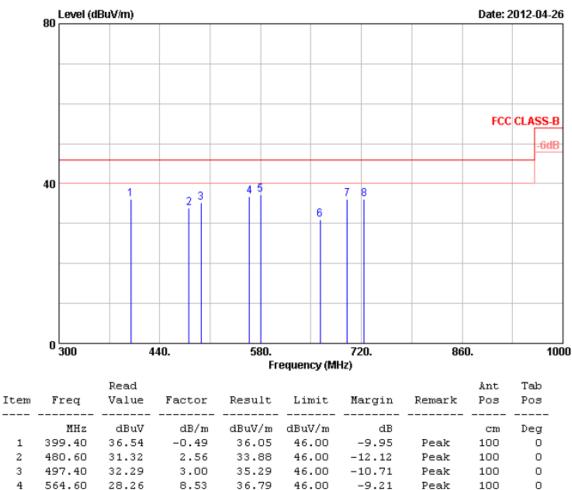
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Power	:	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode 2	:	802.11n HT20, CH1	Temperature :	23 °C
Memo			Humidity :	65 %



						_				
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg	
1	399.40	36.54	-0.49	36.05	46.00	-9.95	Peak	100	0	
2	480.60	31.32	2.56	33.88	46.00	-12.12	Peak	100	0	
3	497.40	32.29	3.00	35.29	46.00	-10.71	Peak	100	0	
4	564.60	28.26	8.53	36.79	46.00	-9.21	Peak	100	0	
5	580.00	27.72	9.59	37.31	46.00	-8.69	Peak	100	0	
6	662.60	27.61	3.42	31.03	46.00	-14.97	Peak	100	0	
7	700.40	29.76	6.31	36.07	46.00	-9.93	Peak	100	0	
8	723.50	30.20	5.83	36.03	46.00	-9.97	Peak	100	0	

- 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/n mode are all the same, so the 802.11g/n mode chosen as representative in final test.
- 5. According to technical experiences, all spurious emission of 802.11g/n mode at channel 1,6,11 or 3,6,9(for HT40) are almost the same below 1GHz, so that the channel 1 or 3(for HT40) was chosen as representative in final test.
- 6. The data is worse case.

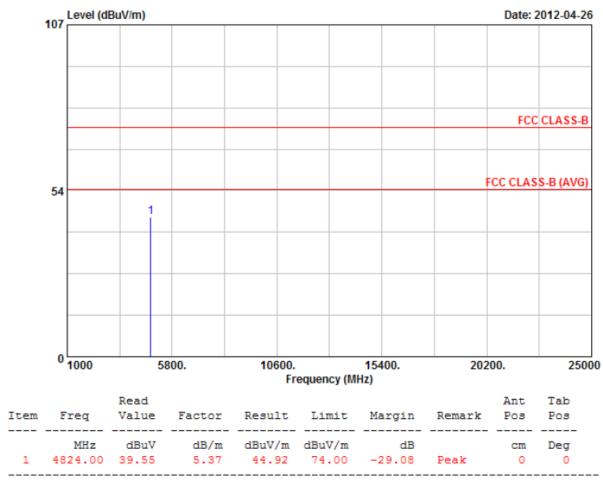
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Power	:	AC 120V	Pol/Phase :	VERTICAL
Test Mode 2	:	802.11n HT20, CH1	Temperature :	23 °C
Memo	:		Humidity :	65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

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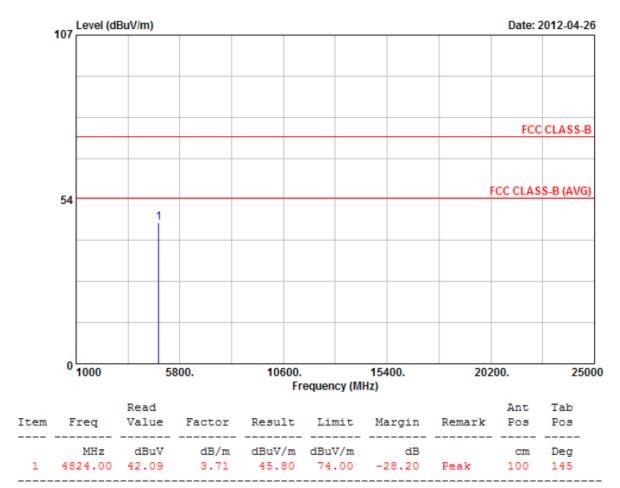
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Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 2	:	802.11n HT20, CH1	Temperature	:	23 °C
Memo	:		Humidity	:	65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

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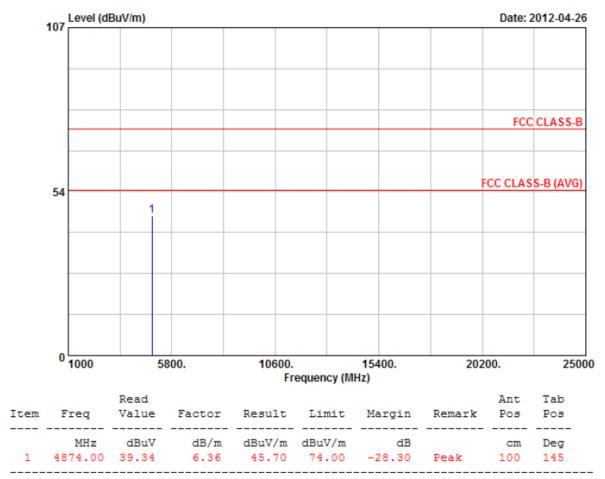
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Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 2	:	802.11n HT20, CH6	Temperature	:	23 °C
Memo	:		Humidity	:	65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

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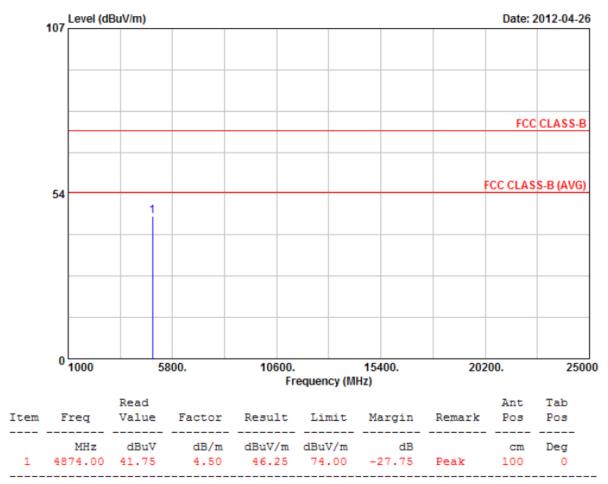
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Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 2	:	802.11n HT20, CH6	Temperature		23 °C
Memo	:		Humidity	:	65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

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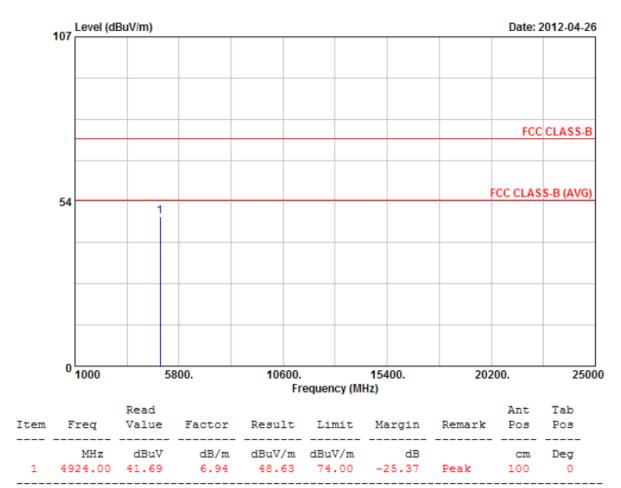
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Power	:	AC 120V	Pol/Phase :	VERTICAL
Test Mode 2	:	802.11n HT20, CH11	Temperature :	23 °C
Memo	:		Humidity :	65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

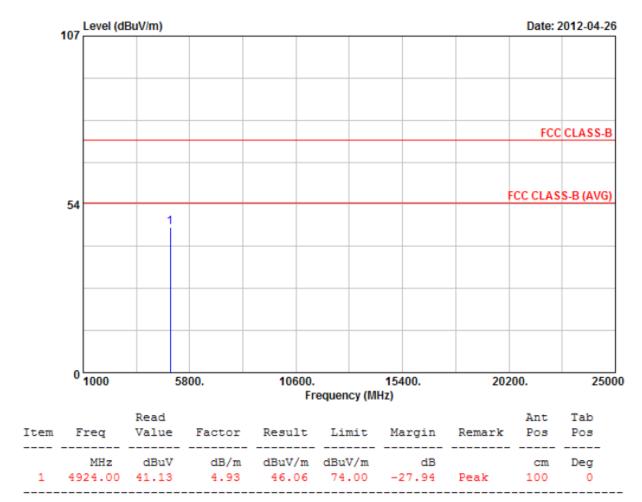
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Power	:	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode 2		802.11n HT20, CH11	Temperature :	23 °C
Memo			Humidity :	65 %



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 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.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz (detector sample mode) for Average detection at frequency above 1GHz.
- The other emissions is too low to be measured. (The worst case noise floor measurements value is 47.93 dBuV at 16.10GHz)
- 7. The data is worse case.

Test engineer: Ben

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6. 6dB Bandwidth Measurement Data

6.1 Test Limit

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

6.2 Test Procedures

- a. The transmitter output was connected to the spectrum analyzer.
- b. Set RBW of spectrum analyzer to 1~5% of the emission bandwidth and VBW ≥ 3x RBW.
- c. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.
- d. The 6dB Bandwidth was measured and recorded.

6.3 Test Setup Layout



6.4 Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	R&S	FSP40	100219	2011/11/24	2012/11/23

6.5 Test Result and Data

Test Date: Apr. 26, 2012 Temperature: 24°C Atmospheric pressure: 1020 hPa Humidity: 65%

Modulation Standard	Channel	Frequency (MHz)	6dB Bandwidth (MHz)
	01	2412	11.6
802.11b (11Mbps)	06	2437	11.7
	11	2462	11.8
	01	2412	16.7
802.11g (54Mbps)	06	2437	16.9
	11	2462	16.8
000 44 - 11700	01	2412	17.7
802.11n HT20 (65Mbps)	06	2437	17.7
(OSIVIDPS)	11	2462	17.6

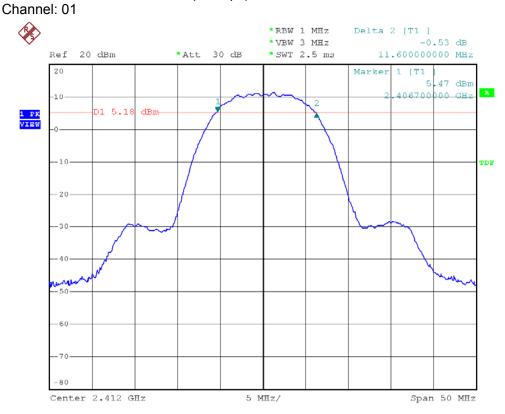
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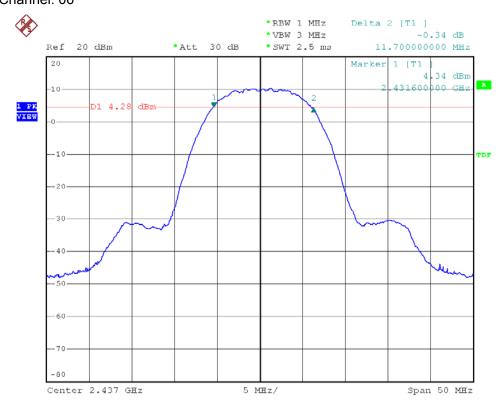
Issued date : May 03, 2012



Modulation Standard: 802.11b (11Mbps)



Modulation Standard: 802.11b (11Mbps) Channel: 06



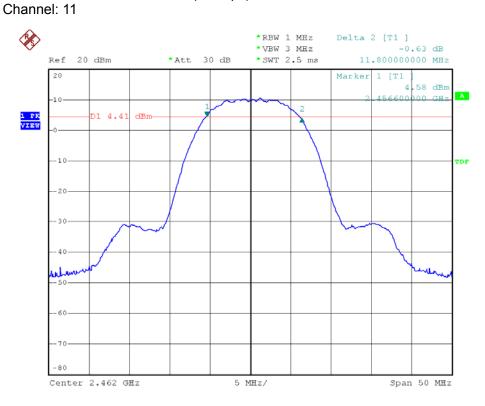
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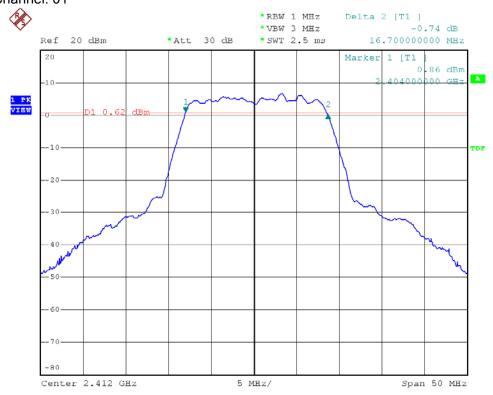
FCC ID : Z8P-KTTV301W



Modulation Standard: 802.11b (11Mbps)



Modulation Standard: 802.11g (54Mbps) Channel: 01



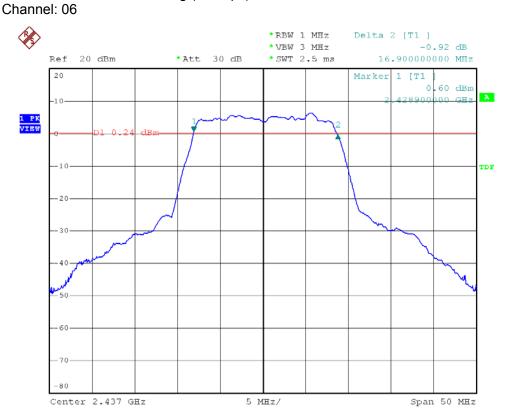
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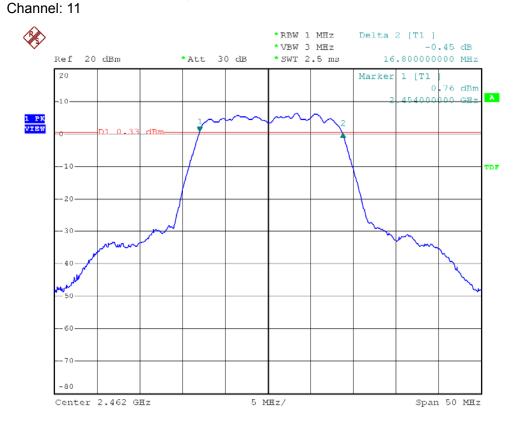
Report No.: TEFI1201038



Modulation Standard: 802.11g (54Mbps)



Modulation Standard: 802.11g (54Mbps)



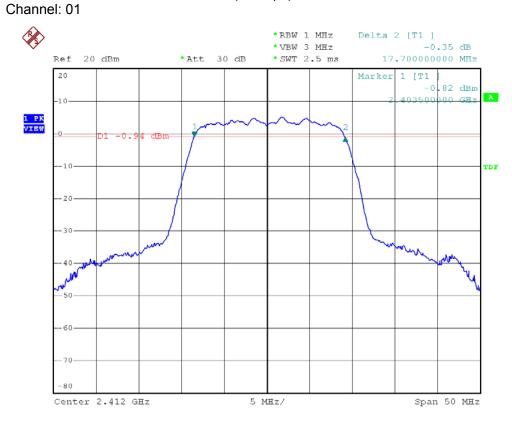
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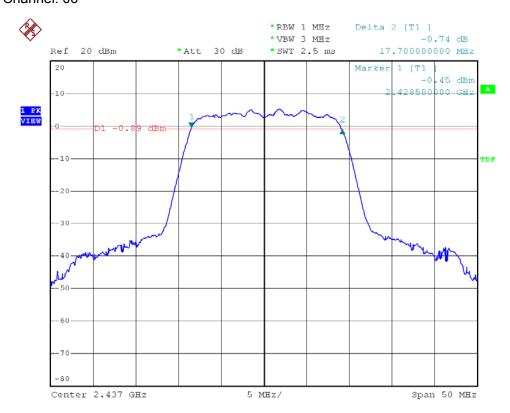
Report No.: TEFI1201038



Modulation Standard: 802.11n HT20 (65Mbps)



Modulation Standard: 802.11n HT20 (65Mbps) Channel: 06



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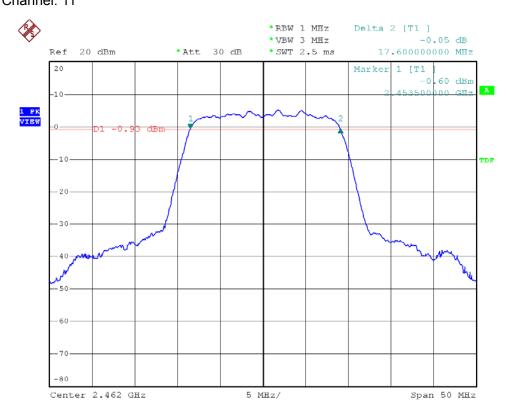
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Modulation Standard: 802.11n HT20 (65Mbps) Channel: 11



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7. Maximum Peak and Average Output Power

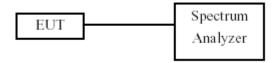
7.1 Test Limit

The Maximum Output Power Measurement is 30dBm.

7.2 Test Procedures

- a. The transmitter output was connected to the spectrum analyzer.
- b. Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz.
- c. Set detector mode to peak (for peak output power) or set detector mode to RMS (for average output power). Trace averaging in power averaging (RMS) mode must be performed over a minimum of 100 traces.
- d. Use the spectrum analyzer's integrated band power measurement function with band limits set equal to the EBW band edges.
- e. The maximum peak and average output power was measured and recorded.

7.3 Test Setup Layout



7.4 Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	R&S	FSP40	100219	2011/11/24	2012/11/23

7.5 Test Result and Data

Test Date: Apr. 26, 2012 Temperature: 24°C Atmospheric pressure: 1020 hPa Humidity: 65%

Modulation	Channel	Frequency	Peak Power (Output (dBm)	Peak Power Output (mW)		
Standard	Chamilei	(MHz)	Peak	Average	Peak	Average	
000 441	01	2412	19.03	15.33	80.0	34.1	
802.11b (11Mbps)	06	2437	19.15	15.37	82.2	34.4	
(Trivibps)	11	2462	19.10	15.35	81.3	34.3	
000.44	01	2412	16.23	10.92	42.0	12.4	
802.11g (54Mbps)	06	2437	16.21	10.97	41.8	12.5	
(34101003)	11	2462	16.29	10.88	42.6	12.2	
000 44 11700	01	2412	15.25	9.56	33.5	9.0	
802.11n HT20 (65Mbps)	06	2437	15.34	9.66	34.2	9.2	
(OSIVIDPS)	11	2462	15.28	9.43	33.7	8.8	

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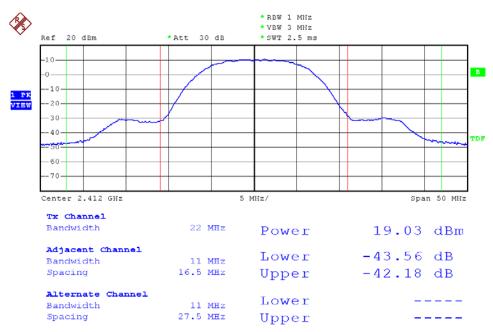
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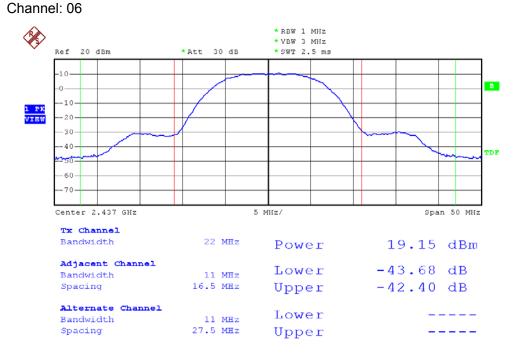
Peak:

Modulation Standard: 802.11b (11Mbps)

Channel: 01



Modulation Standard: 802.11b (11Mbps)



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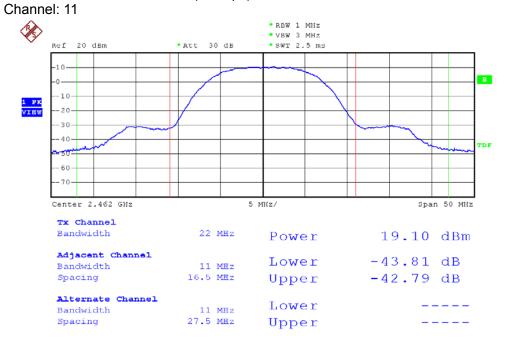
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FCC ID

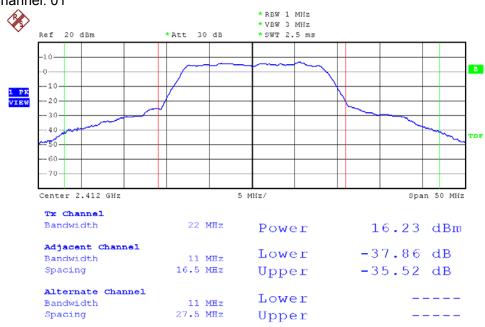


Report No.: TEFI1201038 CERPASS TECHNOLOGY CORP.

Modulation Standard: 802.11b (11Mbps)



Modulation Standard: 802.11g (54Mbps) Channel: 01

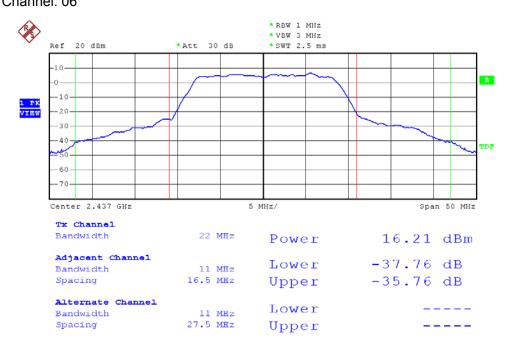


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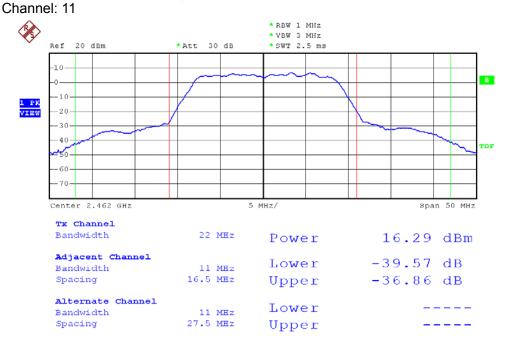
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Modulation Standard: 802.11g (54Mbps) Channel: 06



Modulation Standard: 802.11g (54Mbps)



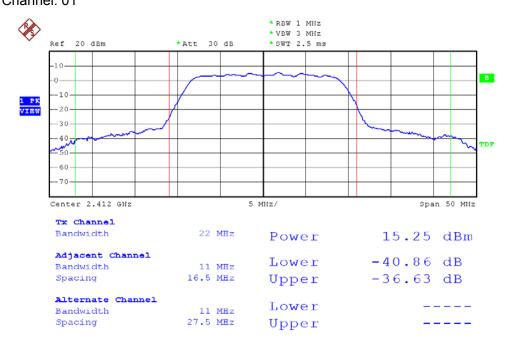
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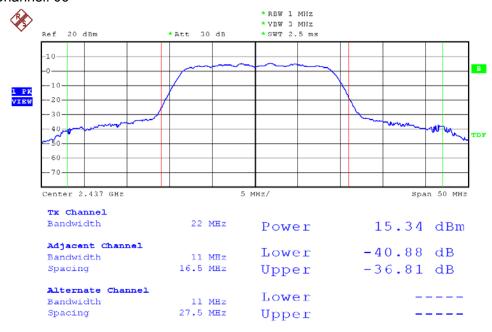
FCC ID : Z8P-KTTV301W



Modulation Standard: 802.11n HT20 (65Mbps) Channel: 01



Modulation Standard: 802.11n HT20 (65Mbps) Channel: 06



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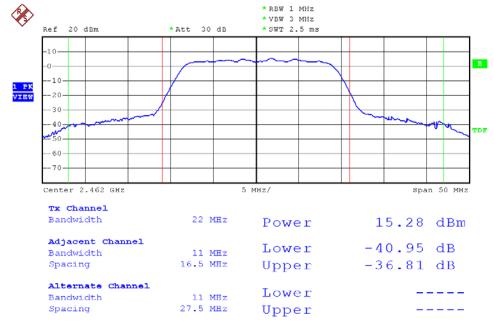
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Modulation Standard: 802.11n HT20 (65Mbps)

Channel: 11



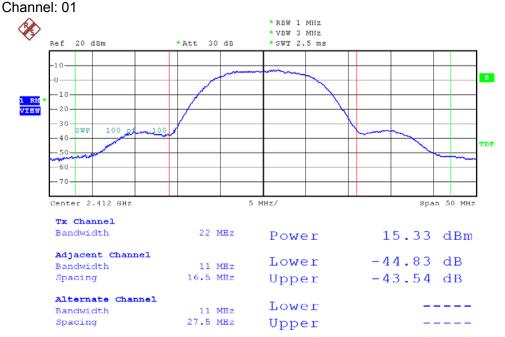
Tel:886-2-2655-8100 Fax:886-2-2655-8200

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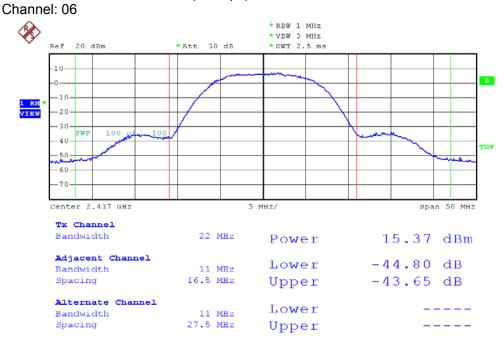


Average:

Modulation Standard: 802.11b (11Mbps)



Modulation Standard: 802.11b (11Mbps)



Tel:886-2-2655-8100 Fax:886-2-2655-8200

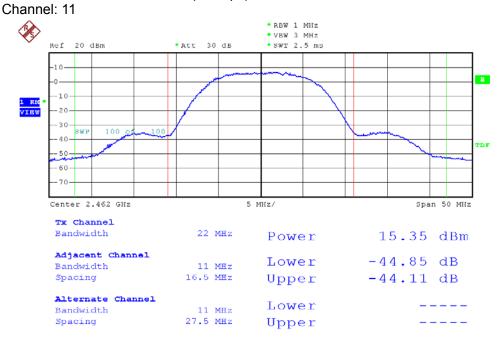
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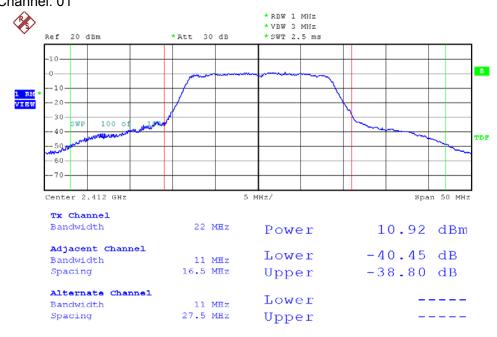
Report No.: TEFI1201038



Modulation Standard: 802.11b (11Mbps)

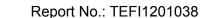


Modulation Standard: 802.11g (54Mbps) Channel: 01



Tel:886-2-2655-8100 Fax:886-2-2655-8200

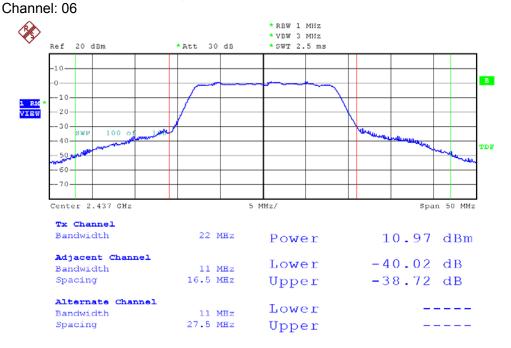
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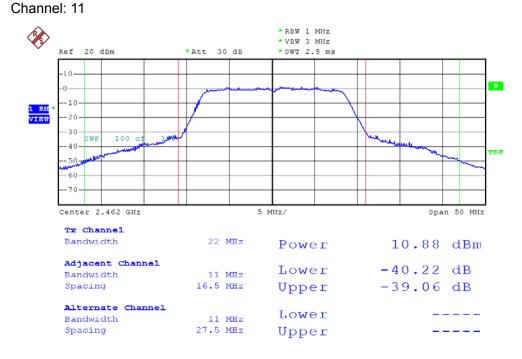


Modulation Standard: 802.11g (54Mbps)

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Modulation Standard: 802.11g (54Mbps)



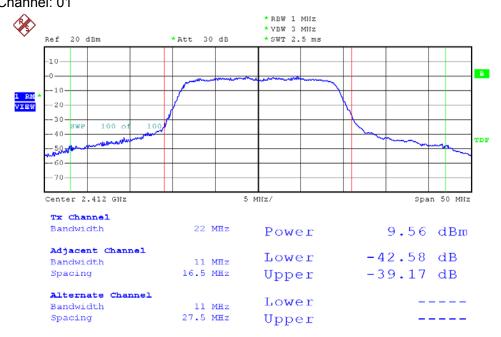
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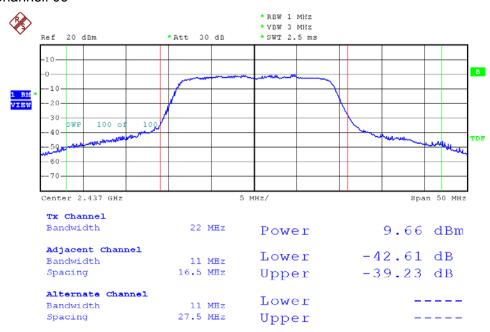


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Modulation Standard: 802.11n HT20 (65Mbps) Channel: 01



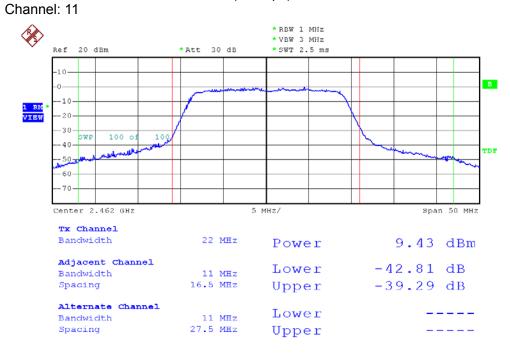
Modulation Standard: 802.11n HT20 (65Mbps) Channel: 06



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Modulation Standard: 802.11n HT20 (65Mbps)



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8. Power Spectral Density

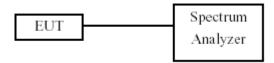
8.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8dBm.

8.2 Test Procedures

- a. The transmitter output was connected to spectrum analyzer.
- b. The spectrum analyzer's resolution bandwidth were set at 100KHz RBW and 300KHz VBW as that of the fundamental frequency. Set the sweep time=auto couple.
- c. Scale the observed power level to an equivalent value in 3 kHz by adjusting the measured power by a bandwidth correction factor (BWCF) where BWCF= 10log (3 kHz/100 = -15.2 dB).
- d. The Sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

8.3 Test Setup Layout



8.4 Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	R&S	FSP40	100219	2011/11/24	2012/11/23

8.5 Test Result and Data

Test Date: Apr. 26, 2012 Temperature: 24°C Atmospheric pressure: 1020 hPa Humidity: 65%

Modulation Standard	Channel	Frequency (MHz)	Measured Power Density (dBm)	BWCF (dB)	Maximum Power Density of 3 kHz Bandwidth (dBm)
802.11b (11Mbps)	01	2412	3.15	-15.2	-12.05
	06	2437	2.55	-15.2	-12.65
	11	2462	2.43	-15.2	-12.77
000 44	01	2412	-3.51	-15.2	-18.71
802.11g (54Mbps)	06	2437	-4.23	-15.2	-19.43
(04111000)	11	2462	-4.35	-15.2	-19.55
802.11n	01	2412	-5.39	-15.2	-20.59
HT20	06	2437	-5.50	-15.2	-20.70
(65Mbps)	11	2462	-5.50	-15.2	-20.70

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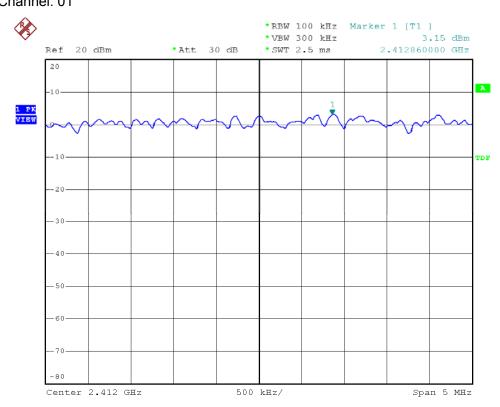
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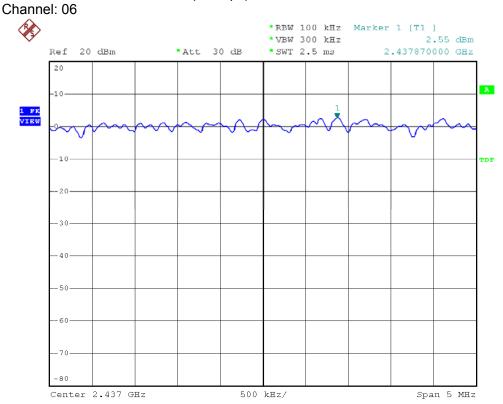
FCC ID : Z8P-KTTV301W

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Modulation Standard: 802.11b (11Mbps) Channel: 01



Modulation Standard: 802.11b (11Mbps)



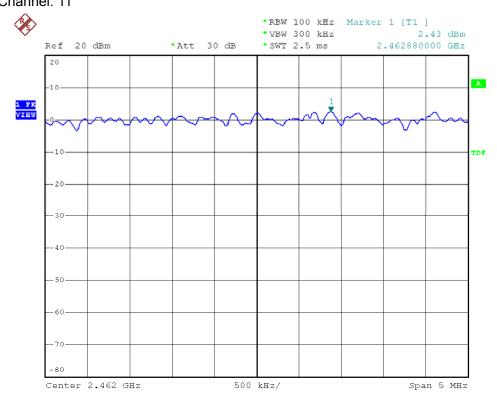
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Modulation Standard: 802.11g (54Mbps) Channel: 01



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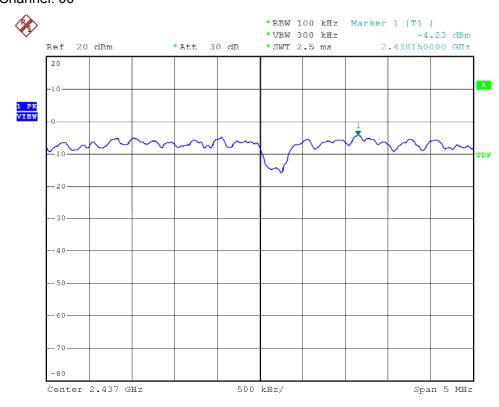
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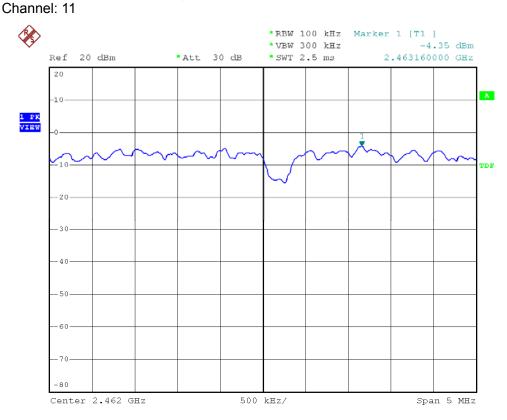
FCC ID

Report No.: TEFI1201038

Modulation Standard: 802.11g (54Mbps) Channel: 06



Modulation Standard: 802.11g (54Mbps)

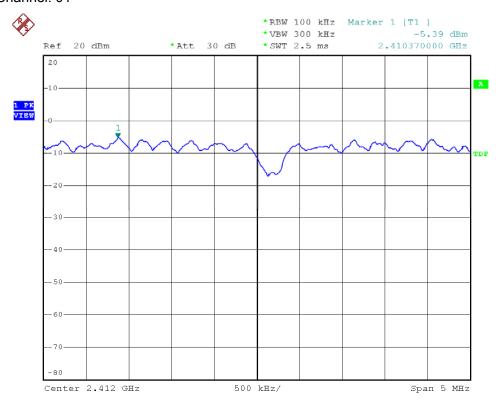


Tel:886-2-2655-8100 Fax:886-2-2655-8200

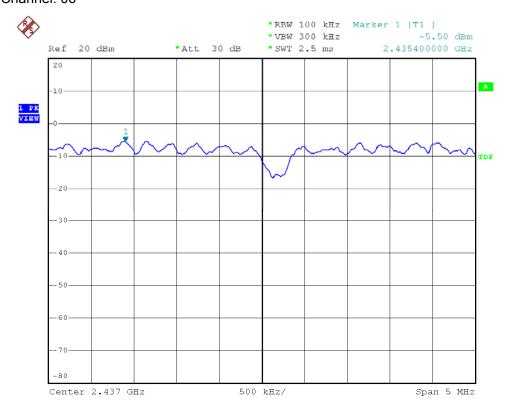
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Modulation Standard: 802.11n HT20 (65Mbps) Channel: 01



Modulation Standard: 802.11n HT20 (65Mbps) Channel: 06



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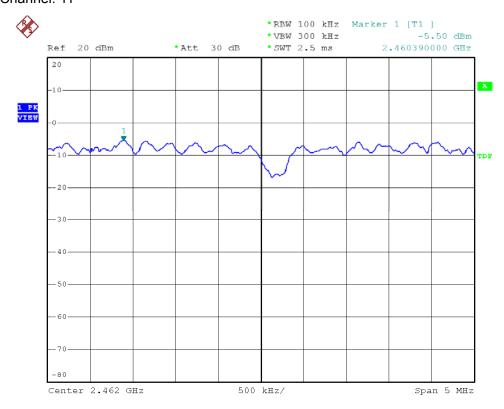
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9. Band Edges Measurement

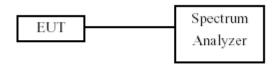
9.1 **Test Limit**

Below –20dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

9.2 Test Procedure

- a. The transmitter output was connected to the spectrum analyzer via a low lose cable.
- b. Set RBW of spectrum analyzer to 100 KHz and VBW of spectrum analyzer to 300 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
- c. Peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20dB relative to the maximum measured in-band peak PSD level.
- d. The band edges was measured and recorded.

9.3 Test Setup Layout



9.4 Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	R&S	FSP40	100219	2011/11/24	2012/11/23

9.5 Test Result and Data

Test Date: Apr. 26, 2012 Temperature: 24°C Atmospheric pressure: 1020 hPa Humidity: 65%

Modulation Standard	Channel	Frequency (MHz)	maximum value in frequency (MHz)	maximum value (dBm)	Limit (dBm)
802.11b	01	2412	2399.80	-46.84	-32.05
(11Mbps)	11	2462	2487.90	-53.17	-32.77
802.11g	01	2412	2400.00	-44.14	-38.71
(54Mbps)	11	2462	2486.10	-54.77	-39.55
802.11n HT20	01	2412	2399.80	-47.65	-40.59
(65Mbps)	11	2462	2514.50	-55.88	-40.70

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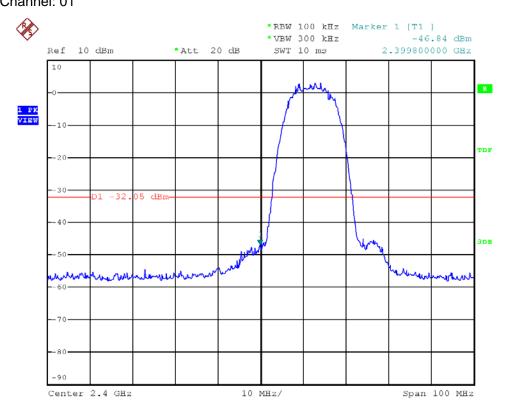
Tel:886-2-2655-8100 Fax:886-2-2655-8200 Page No. : 72 of 81 FCC ID

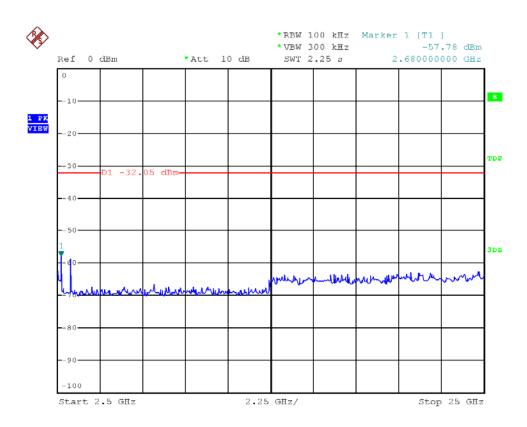
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Modulation Standard: 802.11b (11Mbps) Channel: 01





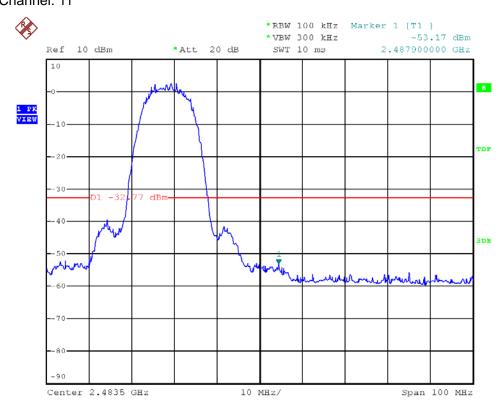
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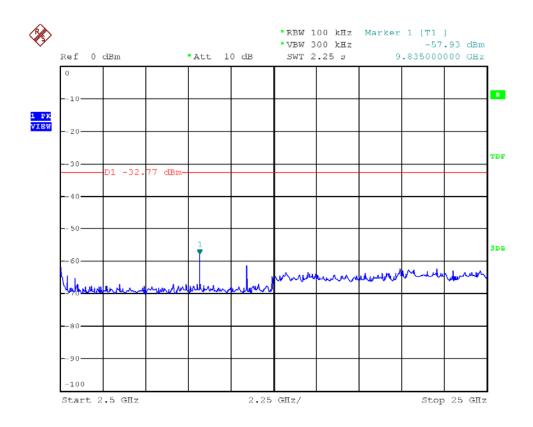
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Modulation Standard: 802.11b (11Mbps) Channel: 11





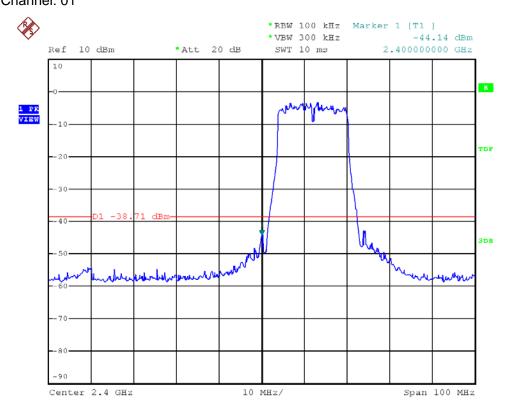
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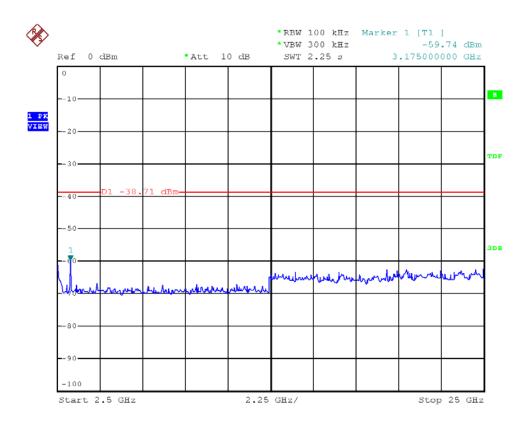
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Modulation Standard: 802.11g (54Mbps) Channel: 01





Tel:886-2-2655-8100 Fax:886-2-2655-8200

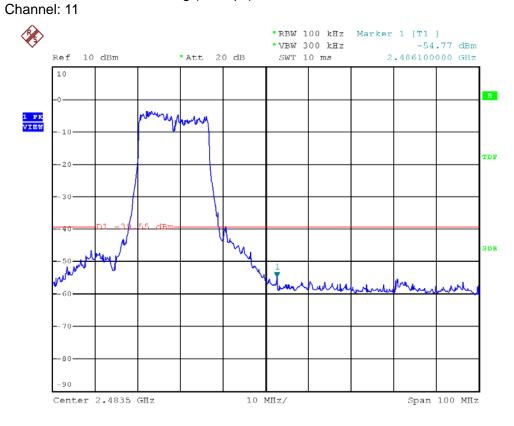
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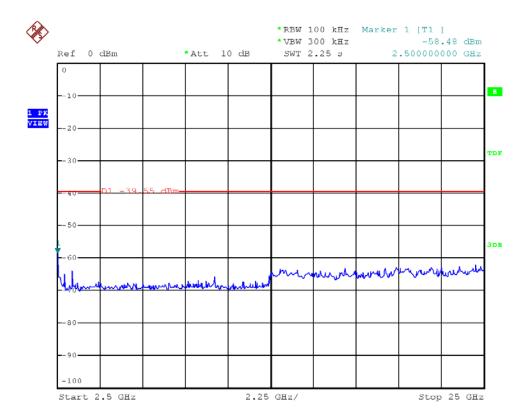
: Z8P-KTTV301W

FCC ID



Modulation Standard: 802.11g (54Mbps)





Tel:886-2-2655-8100 Fax:886-2-2655-8200

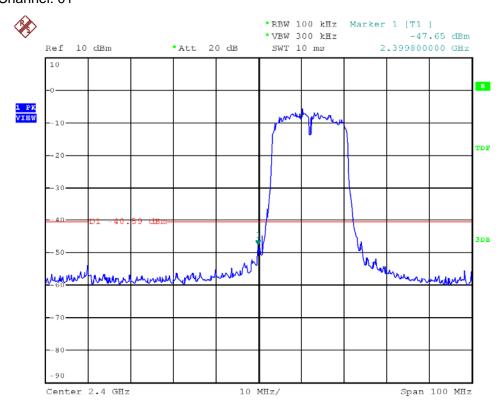
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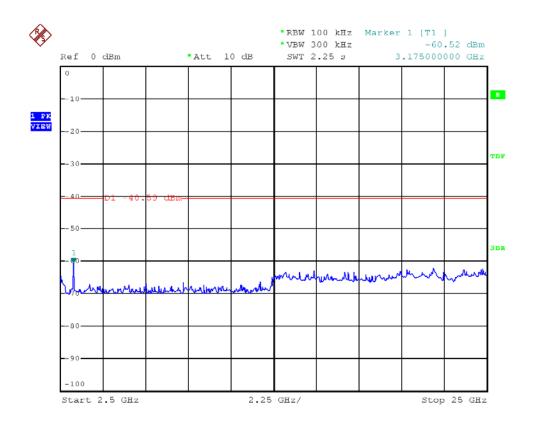
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Modulation Standard: 802.11n HT20 (65Mbps) Channel: 01





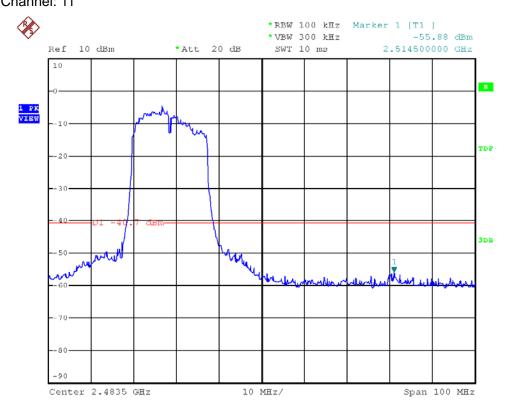
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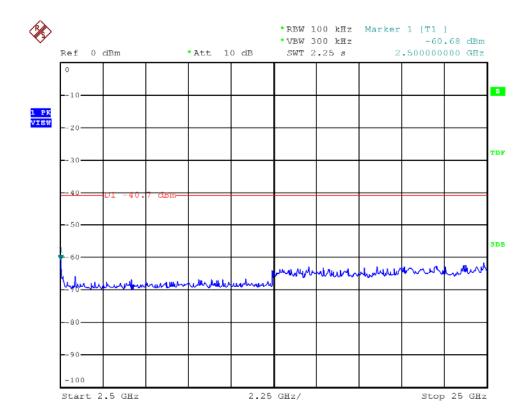
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Modulation Standard: 802.11n HT20 (65Mbps) Channel: 11





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9.6 Restrict Band Emission Measurement Data

Test Date: Apr. 26, 2012 Temperature: 24°C Atmospheric pressure: 1020 hPa Humidity: 65%

Modulation Standard: IEEE 802.11b (11Mbps)

Channel 1						Fu	ndamen	tal Frequ	ency: 24	412 MHz
Frequency	Ant-Pol	Meter Reading	Corrected	Result	Remark	`	BuV/m)	Margin	Table	Ant High
(MHz)	H/V	(dBuV)	Factor (dB)	(dBuV/m)	Remark	Peak	Ave	(dB)	Deg.	(m)
2389.05	Ι	50.20	1.44	51.64	Peak	74	54	-22.36	72	100
	Н				Ave	74	54			
2389.56	V	51.83	2.08	53.91	Peak	74	54	-20.09	360	100
	V				Ave	74	54			
Channel 1	1					Fu	ndamen	tal Frequ	ency: 24	462 MHz
Frequency	Ant-Pol	Meter Reading	Corrected	Result	Remark	`	BuV/m)	Margin	Table	Ant High
(MHz)	H/V	(dBuV)	Factor (dB)	(dBuV/m)	Remark	Peak	Ave	(dB)	Deg.	(m)
2487.08	Ι	50.07	0.04	50.11	Peak	74	54	-23.89	0	100
	Н				Ave	74	54			
2483.58	V	51.02	-2.54	48.48	Peak	74	54	-25.52	360	100
	V				Ave	74	54			

Modulation Standard: IEEE 802.11g (54Mbps)

Channel 1	Channel 1 Fundamental Frequency: 2412 MHz									
Frequency Ant-Po	Ant-Pol	Pol Reading Cor		Result	Remark	Limit (d	Limit (dBuV/m)		Table	Ant High
(MHz)	H/V	(dBuV)	Factor (dB)	(dBuV/m)	rtemant	Peak	Ave	(dB)	Deg.	(m)
2385.68	Н	51.84	1.45	53.29	Peak	74	54	-20.71	360	100
	Н				Ave	74	54		-	
2389.76	V	54.29	2.07	56.36	Peak	74	54	-17.64	360	100
2389.76	V	42.60	2.07	44.67	Ave	74	54	-9.33	0	100
Channel 1	1					Fu	ndamen	tal Frequ	ency: 24	462 MHz
Frequency	Ant-Pol	Ant-Pol Meter Corrected		Result	Remark	Limit (d	BuV/m)	Margin	Table	Ant High
(MHz)	H/V	Reading (dBuV)	Factor (dB)	(dBuV/m)	Remark	Peak	Ave	(dB)	Deg.	(m)
2484.12	Н	51.58	0.10	51.68	Peak	74	54	-22.32	329	100
	Н				Ave	74	54			
2484.34	V	54.20	-2.59	51.61	Peak	74	54	-22.39	0	100
	V				Ave	74	54			

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Modulation Standard: IEEE 802.11n HT20 (65Mbps)

			•	. ,						
Channel 1						Fu	ndamen	tal Frequ	ency: 24	112 MHz
Frequency		I Reading I I I I Remark I		BuV/m)		Table	Ant High			
(MHz)	H/V	(dBuV)	Factor (dB)	(dBuV/m)		Peak	Ave	(dB)	Deg.	(m)
2357.94	Н	51.13	1.58	52.71	Peak	74	54	-21.29	0	100
	Н				Ave	74	54			
2357.43	V	51.72	2.61	54.33	Peak	74	54	-19.67	0	100
2357.43	V	40.13	2.61	42.74	Ave	74	54	-11.26	277	100
Channel 1	1					Fu	ndamen	tal Frequ	ency: 24	162 MHz
Frequency	Ant-Pol	Meter	Corrected	Result	Domark	Limit (d	BuV/m)	Margin	Table	Ant High
(MHz)	H/V	Reading (dBuV)	Factor (dB)	(dBuV/m)	Remark	Peak	Ave	(dB)	Deg.	(m)
2483.66	Н	50.73	0.10	50.83	Peak	74	54	-23.17	0	100
	Н				Ave	74	54			
2483.74	V	54.06	-2.55	51.51	Peak	74	54	-22.49	360	100
	V				Ave	74	54			

Notes:

- 1. Result = Meter Reading + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3 MHz (detector peak mode) for Peak detection at frequency above 1GHz.
- 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3 MHz (detector sample mode) for Average detection at frequency above 1GHz.

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10. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 - 0.11000	16.42000 - 16.42300	399.9 – 410.0	4.500 - 5.250
0.49500 - 0.505**	16.69475 – 16.69525	608.0 - 614.0	5.350 - 5.460
2.17350 - 2.19050	16.80425 - 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 - 25.67000	1300.0 – 1427.0	8.025 - 8.500
4.17725 – 4.17775	37.50000 - 38.25000	1435.0 – 1626.5	9.000 - 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 - 9.500
6.21500 - 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 - 6.26825	108.00000 - 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 - 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 - 8.29400	149.90000 - 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 - 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 - 8.38675	156.70000 - 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 - 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 - 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

^{**:} Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

10.1 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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