FCC TEST REPORT

according to

FCC Rules and Regulations

Part 15 Subpart C

Applicant	:	SerComm Corporation
Address	:	8F, No. 3-1, YuanQu St., NanKang, Taipei 115 Taiwan, R.O.C.
Equipment	:	802.11a+g Wireless Access Point
Model No.	:	AP51DA
FCC ID	:	P27AP51DAR
Trade Name	:	SerComm

Laboratory Accreditation

Testing Laboratory
1332

- The test result refers exclusively to the test presented test model / sample.,
- Without written approval of ***E**xclusive **C**ertification **C**orp.* 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

CERTIFICATE OF COMPLIANCE

according to

FCC Rules and Regulations

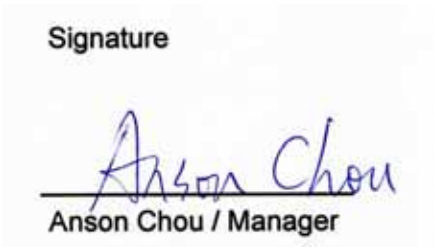
Part 15 Subpart C

Applicant	SerComm Corporation
Address	8F, No. 3-1, YuanQu St., NanKang, Taipei 115 Taiwan, R.O.C.
Equipment	802.11a+g Wireless Access Point
Model No.	AP51DA
FCC ID	P27AP51DAR

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 (2003).**

The test was carried out on Oct. 22, 2005 at ***E**xclusive **C**ertification **C**orp.*



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	. Radiated Emission	Pass
15.247(a)(2)	. 6dB Bandwidth	Pass
15.247(b)	. Maximum Peak Output Power	Pass
15.247(c)	. 100kHz Bandwidth of Frequency Band Edges	Pass
15.247(d)	. 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

CPU	AR5312
Radio-on-Chip	AR2112+AR5112
DRAM	16 Mbyes
Flash ROM	4 Mbytes
LAN port	1 x Auto-MDIX RJ45 for 10/100Mbps PoE port IEEE 802.3af compliance
Operating temperature	0 ~ 45°C
Storage temperature	-20°C ~ 70°C
Power Adapter	DC 12V/1000mA
Dimensions	189mm(W) x 125mm(D) x 34mm(H)

2.2 RF Specifications

802.11a Data Rates	6, 9, 12, 18, 24, 36, 48, 54 Mbps
802.11a Operating Frequencies	FCC: 5.15 ~ 5.25 GHz, 5.725 ~ 5.825 GHz CE: 5.15 ~ 5.35 GHz, 5.47 ~ 5725 GHz, 5.725 ~ 5.825 GHz
802.11a Encryption	40-bit (also called 64-bit), 128- and 152-bit WEP data encryption
802.11g Data Rates	1, 2, 5.5, 11, 12, 18, 24, 36, 38, 54 Mbps
802.11g Operating Frequencies	2.412 ~ 2.462 GHz (US) 2.457 ~ 2.462 GHz (Spain) 2.412 ~ 2.484 GHz (Japan)2.457 ~ 2.472 GHz (France) 2.412 ~ 2.472 GHz (Europe ETSI)
802.11g Encryption	40-bit (also called 64-bit), 128- and 152-bits WEP data encryption
Network Management	Web-based configuration and status monitoring
Maximum Clients	Limited by the amount of wireless network traffic generated by each node; Typically 15 to 20 nodes.
Status LEDs	Power/Ethernet LAN/Wireless LAN/Test
Power Adapter	12V DC, 1 A

2.3 Test Mode and Test Software

The following test mode and test software was performed for conduction and radiation test:

- 802.11b (CH LO: 2412MHz)
- 802.11b (CH MID: 2437MHz)
- 802.11b (CH HI: 2462MHz)
- 802.11g (CH LO: 2412MHz)
- 802.11g (CH MID: 2437MHz)
- 802.11g (CH HI: 2462MHz)
- 802.11a (CH LO: 5745MHz)
- 802.11a (CH MID: 5785MHz)
- 802.11a (CH HI: 5825MHz)
- An executive programs, “ART.exe” Application under WIN XP.

The following test mode included two kind of test:

- Test Mode 1: Test by power adapter (DSA-15P-12 US 120120)
- Test Mode 2: Test by POE.

2.4 Description of Test System

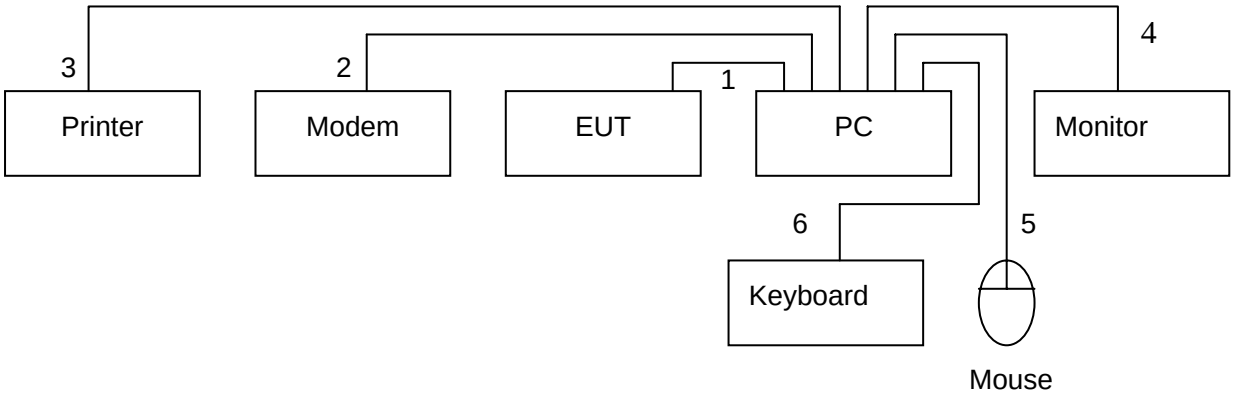
Device	Manufacturer	Model No.	Description
PC	IBM	IGV	Power Cable, Unshielding 1.8 m
Monitor	SlimAGE	510A	Power Cable, Adapter Unshielding 1.8 m Data Cable, VGA shielding 1.35 m
Keyboard	IBM	KB-0225	Data Cable, PS2 shielding 1.85 m
Mouse	IBM	MO28VO	Data Cable, USB shielding 1.85 m
Modem	ACEXX	DM-1414	Power Cable, Adapter Unshielding 1.8 m Data Cable, RS232 shielding 1.35 m
Printer	HP	Desk Jet400	Power Cable, Adapter Unshielding 1.8 m Data Cable, PRINT shielding 1.6 m
POE (Remote site)	Sercomm	FS108P	Power Cable, Adapter Unshielding 1.8 m

Use Cable:

Cable	Description
RJ 45*1	Unshielding, 1.5m
RJ 45*1	Unshielding, 5m

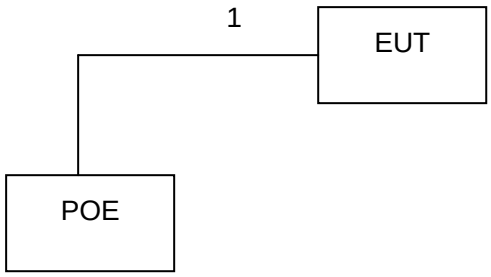
2.5 Connection Diagram of Test System

Test mode 1:



1. The RJ 45 cable is connected from PC to the EUT.
2. The I/O cable is connected from PC to the Modem.
3. The I/O cable is connected from PC to the Printer.
4. The I/O cable is connected from PC to the Monitor.
5. The I/O cable is connected from PC to the Mouse.
6. The I/O cable is connected from PC to the Keyboard.

Test model 2:



1. The RJ 45 cable is connected from POE to the EUT.

2.6 General Information of Test

Test Site:	Exclusive Certification 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.
FCC Registration Number :	632249
IC Registration Number :	6597A-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/ 60Hz
Test in Compliance with:	ANSI C63.4-2003 FCC Part 15 Subpart C
Frequency Range Investigated:	Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 24620MHz
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.

2.7 History of this test report

☐ ORIGINAL.

■ Additional attachment as following record:

Attachment No.	Issue Date	Description
FI05080301-C	Nov.28,2007	The Report No: FI05080301-C and Report No: FI05080301-A are the same and they only differ from the outside cosmetic, Trade name and Model No.. The function and specifications are the same.

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: Reverse SMA connect, Dipole antenna

Antenna Gain: 5dBi.

4. Test of Conducted Emission (For 802.11b/g device)

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.

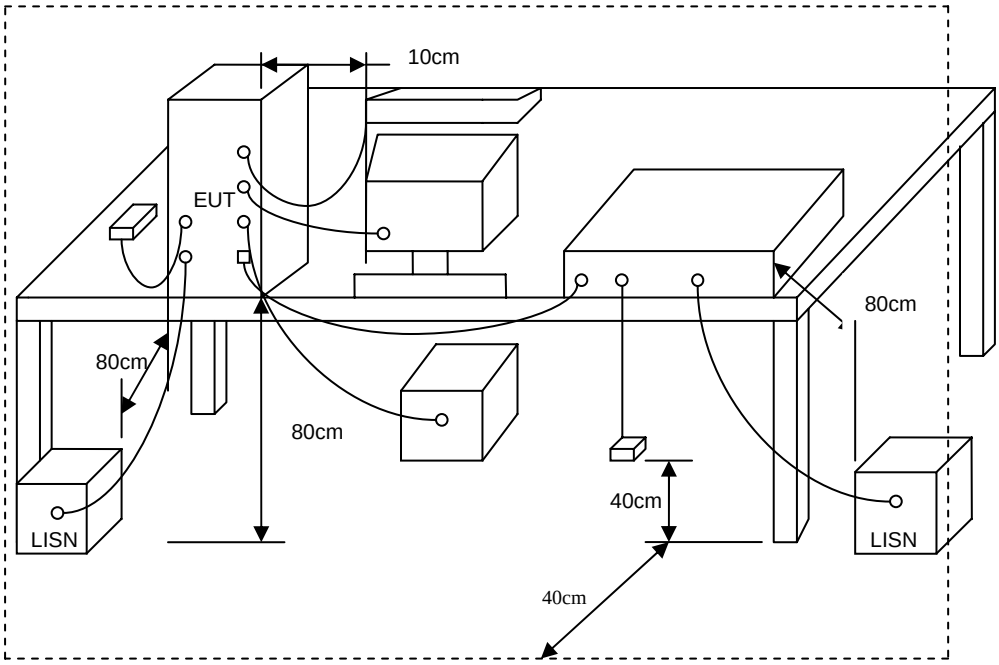
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*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.
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

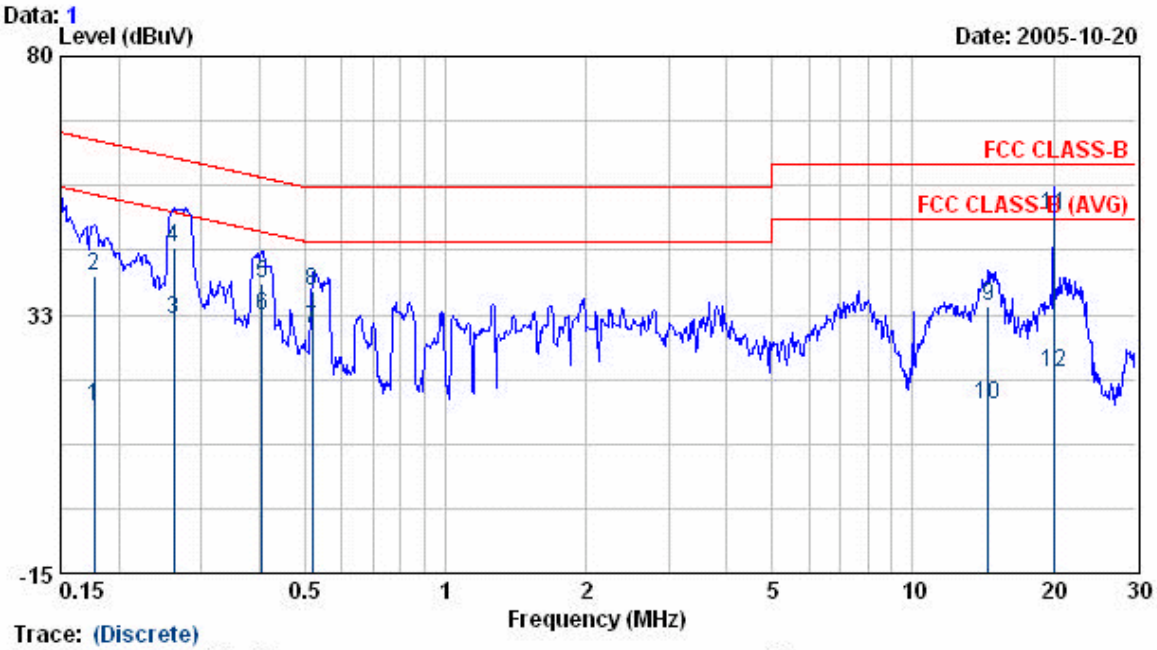


4.4 Measurement equipment

Instrument/Ancillary	Type	Manufacturer	Next Cal. Dat
Receiver	SCR3501	Schaffner	2005/11/03
LISN	NNB-2/16Z	MESS TEC	2006/03/30
LISN	NNB-2/16Z	ROLF HEINE	2006/05/01

4.5 Test Result and Data

Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode	: 802.11b CH1	Temperature	: 25 ℃
Memo	:	Humidity	: 57 %



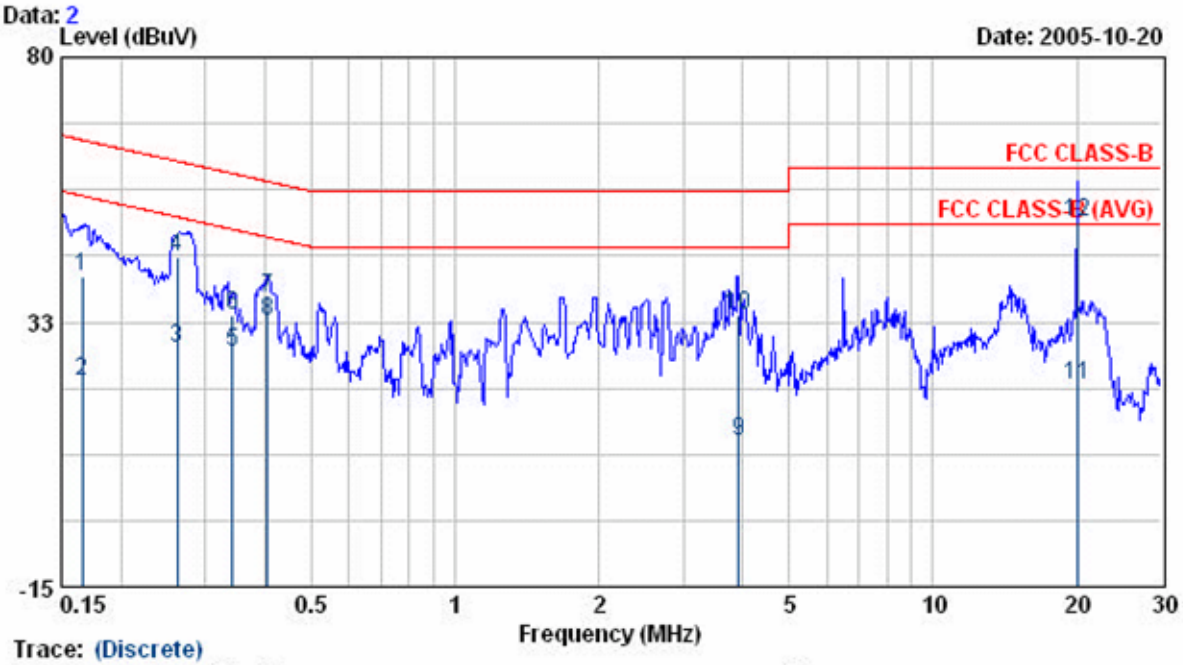
Trace: (Discrete)

Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.18	15.32	0.25	15.57	54.63	-39.06	AVERAGE
0.18	39.26	0.25	39.51	64.63	-25.12	QP
0.26	31.39	0.32	31.71	51.37	-19.66	AVERAGE
0.26	44.47	0.32	44.79	61.37	-16.58	QP
0.40	37.79	0.50	38.29	57.77	-19.48	QP
0.40	31.73	0.50	32.23	47.77	-15.54	AVERAGE
0.52	29.48	0.50	29.98	46.00	-16.02	AVERAGE
0.52	36.37	0.50	36.87	56.00	-19.13	QP
14.53	33.26	0.88	34.14	60.00	-25.86	QP
14.53	15.05	0.88	15.93	50.00	-34.07	AVERAGE
20.00	49.81	0.80	50.61	60.00	-9.39	QP
20.00	21.13	0.80	21.93	50.00	-28.07	AVERAGE

Remarks: 1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss

Power : AC 120V
Test Mode : 802.11b CH1
Memo :

Pol/Phase : LINE
Temperature : 25 ℃
Humidity : 57 %

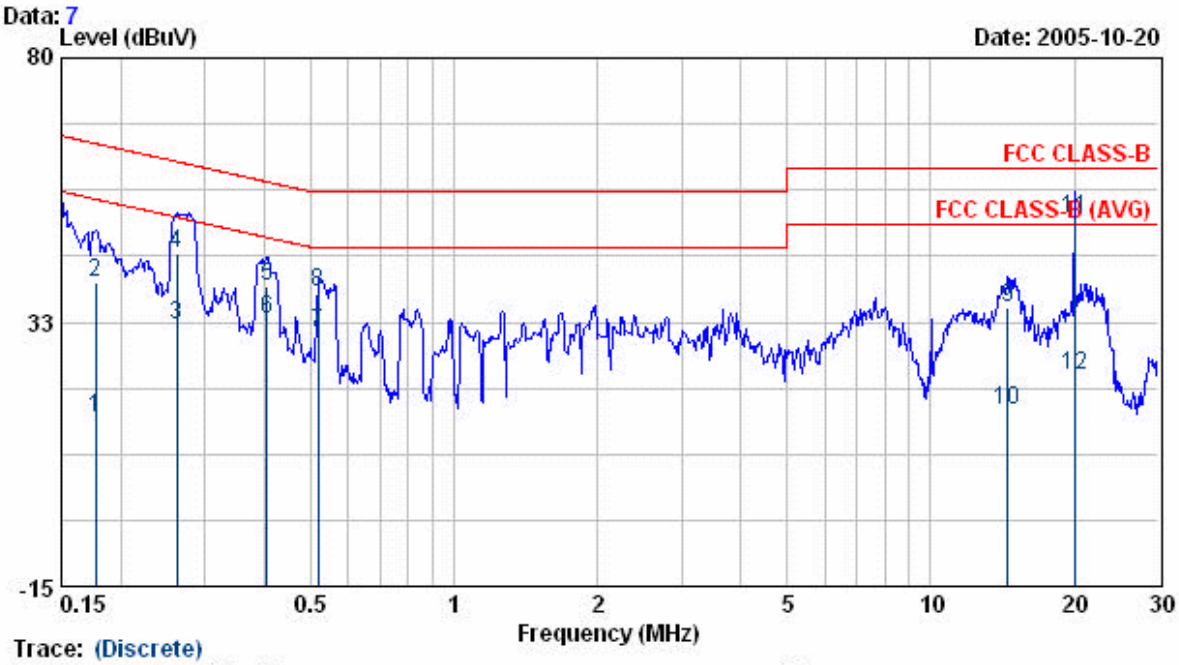


Trace: (Discrete)

Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.17	40.17	0.35	40.52	65.18	-24.66	QP
0.17	21.39	0.35	21.74	55.18	-33.44	AVERAGE
0.26	27.54	0.42	27.96	51.36	-23.40	AVERAGE
0.26	43.65	0.42	44.07	61.36	-17.29	QP
0.34	26.44	0.53	26.97	49.15	-22.18	AVERAGE
0.34	33.25	0.53	33.78	59.15	-25.37	QP
0.40	36.30	0.60	36.90	57.77	-20.87	QP
0.40	32.08	0.60	32.68	47.77	-15.09	AVERAGE
3.92	10.46	0.70	11.16	46.00	-34.84	AVERAGE
3.92	32.85	0.70	33.55	56.00	-22.45	QP
20.00	20.43	0.60	21.03	50.00	-28.97	AVERAGE
20.00	49.83	0.60	50.43	60.00	-9.57	QP

Remarks: 1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss

Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode	: 802.11b CH6	Temperature	: 25 ℃
Memo	:	Humidity	: 57 %

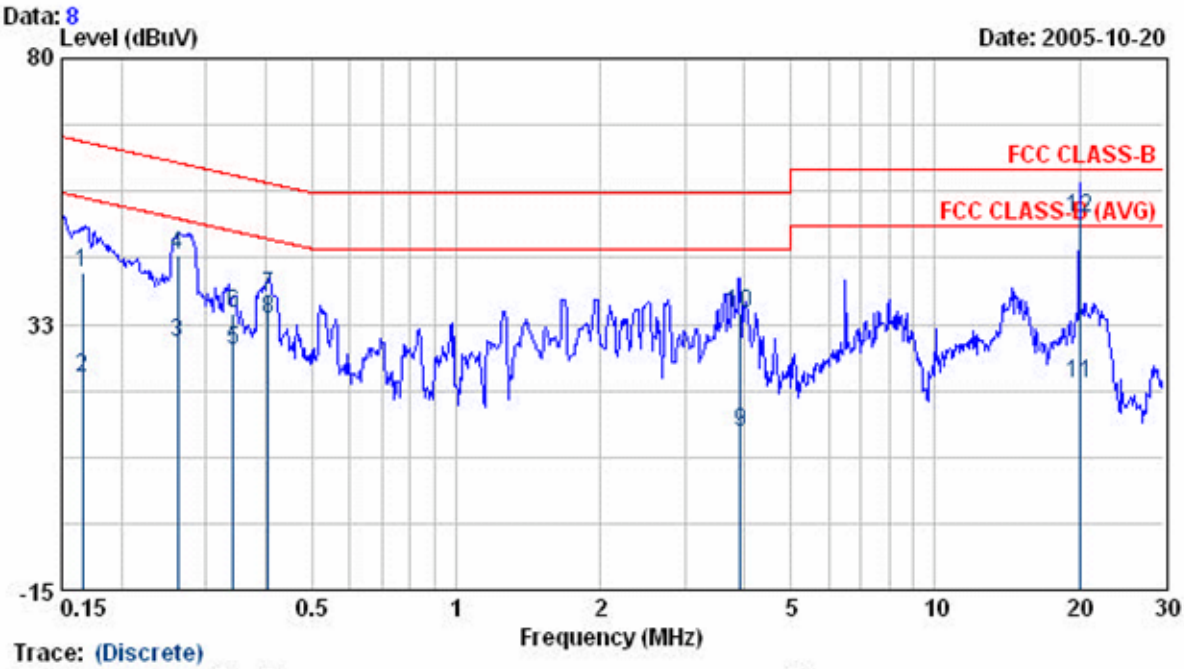


Trace: (Discrete)

Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.18	15.18	0.25	15.43	54.63	-39.20	AVERAGE
0.18	39.49	0.25	39.74	64.63	-24.89	QP
0.26	31.64	0.32	31.96	51.37	-19.41	AVERAGE
0.26	44.61	0.32	44.93	61.37	-16.44	QP
0.40	38.61	0.50	39.11	57.77	-18.66	QP
0.40	32.43	0.50	32.93	47.77	-14.84	AVERAGE
0.52	30.14	0.50	30.64	46.00	-15.36	AVERAGE
0.52	37.44	0.50	37.94	56.00	-18.06	QP
14.53	34.11	0.88	34.99	60.00	-25.01	QP
14.53	15.77	0.88	16.65	50.00	-33.35	AVERAGE
20.00	50.16	0.80	50.96	60.00	-9.04	QP
20.00	22.19	0.80	22.99	50.00	-27.01	AVERAGE

Remarks: 1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss

Power	: AC 120V	Pol/Phase	: LINE
Test Mode	: 802.11b CH6	Temperature	: 25 ℃
Memo	:	Humidity	: 57 %



Trace: (Discrete)

Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.17	41.28	0.35	41.63	65.18	-23.55	QP
0.17	22.61	0.35	22.96	55.18	-32.22	AVERAGE
0.26	28.61	0.42	29.03	51.36	-22.33	AVERAGE
0.26	44.54	0.42	44.96	61.36	-16.40	QP
0.34	27.19	0.53	27.72	49.15	-21.43	AVERAGE
0.34	33.87	0.53	34.40	59.15	-24.75	QP
0.40	36.87	0.60	37.47	57.77	-20.30	QP
0.40	32.77	0.60	33.37	47.77	-14.40	AVERAGE
3.92	12.46	0.70	13.16	46.00	-32.84	AVERAGE
3.92	33.64	0.70	34.34	56.00	-21.66	QP
20.00	21.43	0.60	22.03	50.00	-27.97	AVERAGE
20.00	50.83	0.60	51.43	60.00	-8.57	QP

Remarks: 1. Level = Read Level + Factor
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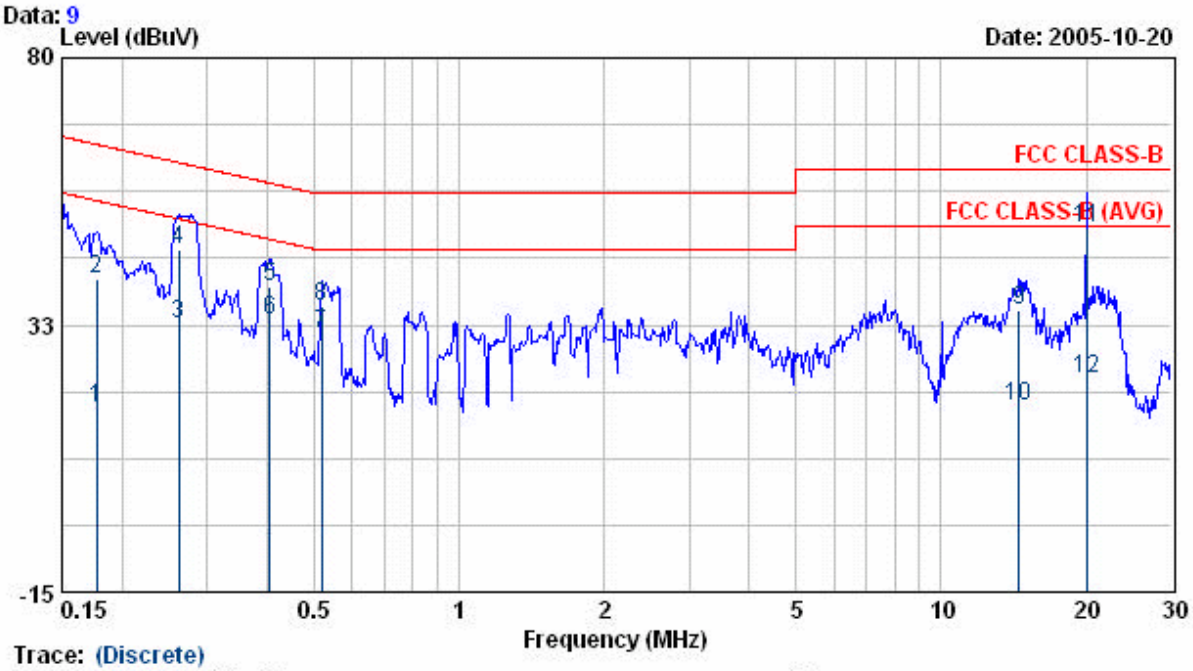
Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode	: 802.11b CH11	Temperature	: 25 ℃
Memo	:	Humidity	: 57 %



Trace: (Discrete)

Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.18	17.32	0.25	17.57	54.63	-37.06	AVERAGE
0.18	40.26	0.25	40.51	64.63	-24.12	QP
0.26	32.39	0.32	32.71	51.37	-18.66	AVERAGE
0.26	45.47	0.32	45.79	61.37	-15.58	QP
0.40	38.79	0.50	39.29	57.77	-18.48	QP
0.40	32.73	0.50	33.23	47.77	-14.54	AVERAGE
0.52	30.48	0.50	30.98	46.00	-15.02	AVERAGE
0.52	35.37	0.50	35.87	56.00	-20.13	QP
14.53	34.26	0.88	35.14	60.00	-24.86	QP
14.53	17.05	0.88	17.93	50.00	-32.07	AVERAGE
20.00	48.81	0.80	49.61	60.00	-10.39	QP
20.00	22.13	0.80	22.93	50.00	-27.07	AVERAGE

Remarks: 1. Level = Read Level + Factor
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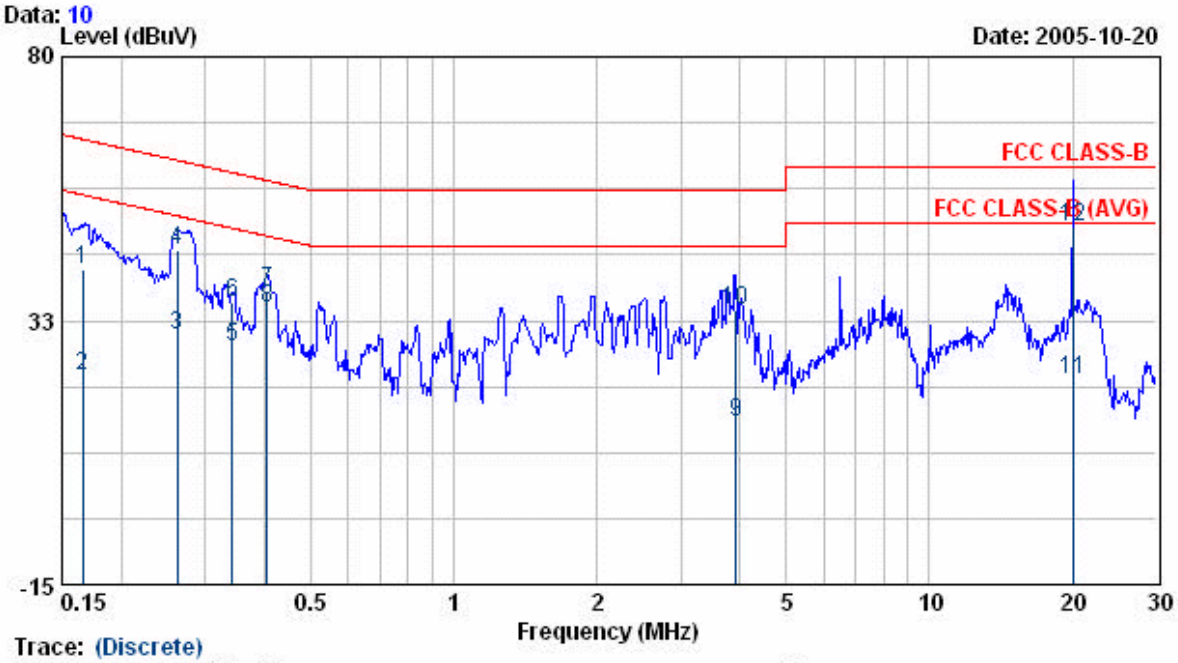
Power : AC 120V
Test Mode : 802.11b CH11
Memo :

Pol/Phase : LINE
Temperature : 25 ℃
Humidity : 57 %



Trace: (Discrete)

Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.17	41.24	0.35	41.59	65.18	-23.59	QP
0.17	22.39	0.35	22.74	55.18	-32.44	AVERAGE
0.26	29.54	0.42	29.96	51.36	-21.40	AVERAGE
0.26	44.65	0.42	45.07	61.36	-16.29	QP
0.34	27.44	0.53	27.97	49.15	-21.18	AVERAGE
0.34	35.25	0.53	35.78	59.15	-23.37	QP
0.40	37.30	0.60	37.90	57.77	-19.87	QP
0.40	34.08	0.60	34.68	47.77	-13.09	AVERAGE
3.92	13.46	0.70	14.16	46.00	-31.84	AVERAGE
3.92	33.85	0.70	34.55	56.00	-21.45	QP
20.00	21.43	0.60	22.03	50.00	-27.97	AVERAGE
20.00	48.83	0.60	49.43	60.00	-10.57	QP

Remarks: 1. Level = Read Level + Factor
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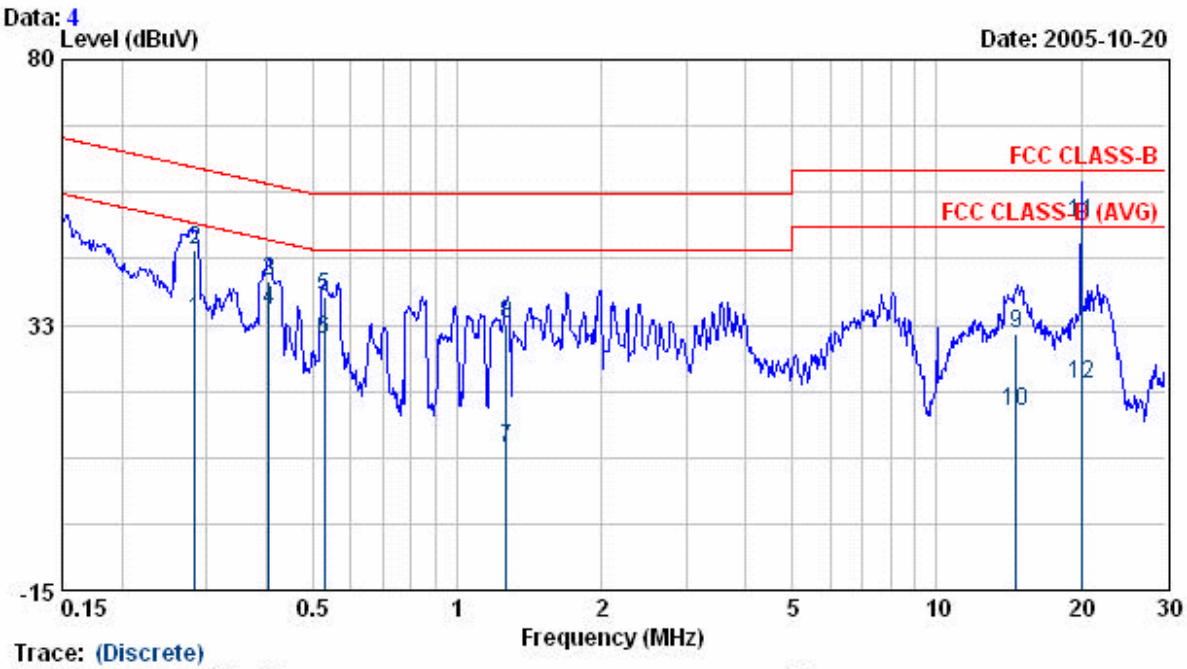
Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode	: 802.11g CH1	Temperature	: 25 ℃
Memo	:	Humidity	: 57 %

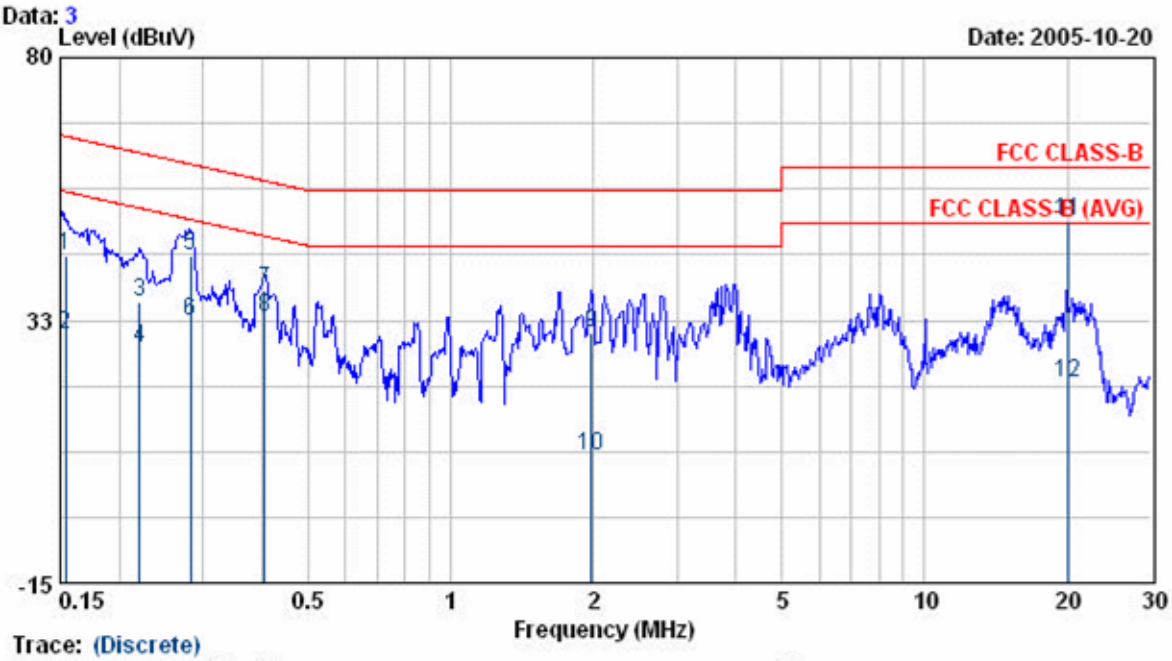


Trace: (Discrete)

Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.28	33.14	0.35	33.49	50.70	-17.21	AVERAGE
0.28	45.49	0.35	45.84	60.70	-14.86	QP
0.41	39.74	0.50	40.24	57.74	-17.50	QP
0.41	34.75	0.50	35.25	47.74	-12.49	AVERAGE
0.53	36.91	0.50	37.41	56.00	-18.59	QP
0.53	29.44	0.50	29.94	46.00	-16.06	AVERAGE
1.27	10.01	0.53	10.54	46.00	-35.46	AVERAGE
1.27	32.29	0.53	32.82	56.00	-23.18	QP
14.63	30.15	0.88	31.03	60.00	-28.97	QP
14.63	16.15	0.88	17.03	50.00	-32.97	AVERAGE
20.00	50.04	0.80	50.84	60.00	-9.16	QP
20.00	21.11	0.80	21.91	50.00	-28.09	AVERAGE

Remarks: 1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss

Power	: AC 120V	Pol/Phase	: LINE
Test Mode	: 802.11g CH1	Temperature	: 25 ℃
Memo	:	Humidity	: 57 %



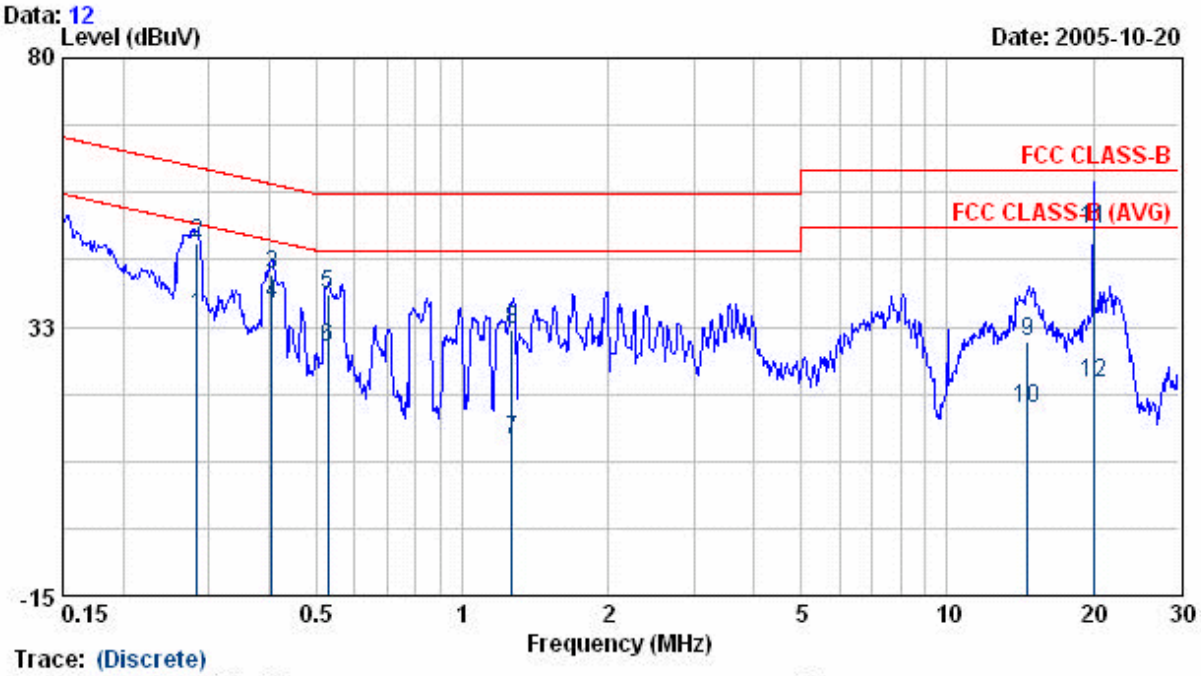
Trace: (Discrete)

Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.15	43.67	0.38	44.05	65.78	-21.74	QP
0.15	29.67	0.38	30.05	55.78	-25.74	AVERAGE
0.22	35.41	0.34	35.75	62.79	-27.04	QP
0.22	27.08	0.34	27.42	52.79	-25.37	AVERAGE
0.28	43.56	0.45	44.01	60.74	-16.74	QP
0.28	31.99	0.45	32.44	50.74	-18.31	AVERAGE
0.41	37.23	0.60	37.83	57.75	-19.92	QP
0.41	32.48	0.60	33.08	47.75	-14.67	AVERAGE
1.98	29.67	0.70	30.37	56.00	-25.63	QP
1.98	7.39	0.70	8.09	46.00	-37.91	AVERAGE
20.00	49.80	0.60	50.40	60.00	-9.60	QP
20.00	20.50	0.60	21.10	50.00	-28.90	AVERAGE

Remarks: 1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss

Power : AC 120V
Test Mode : 802.11g CH6
Memo :

Pol/Phase : NEUTRAL
Temperature : 25 ℃
Humidity : 57 %

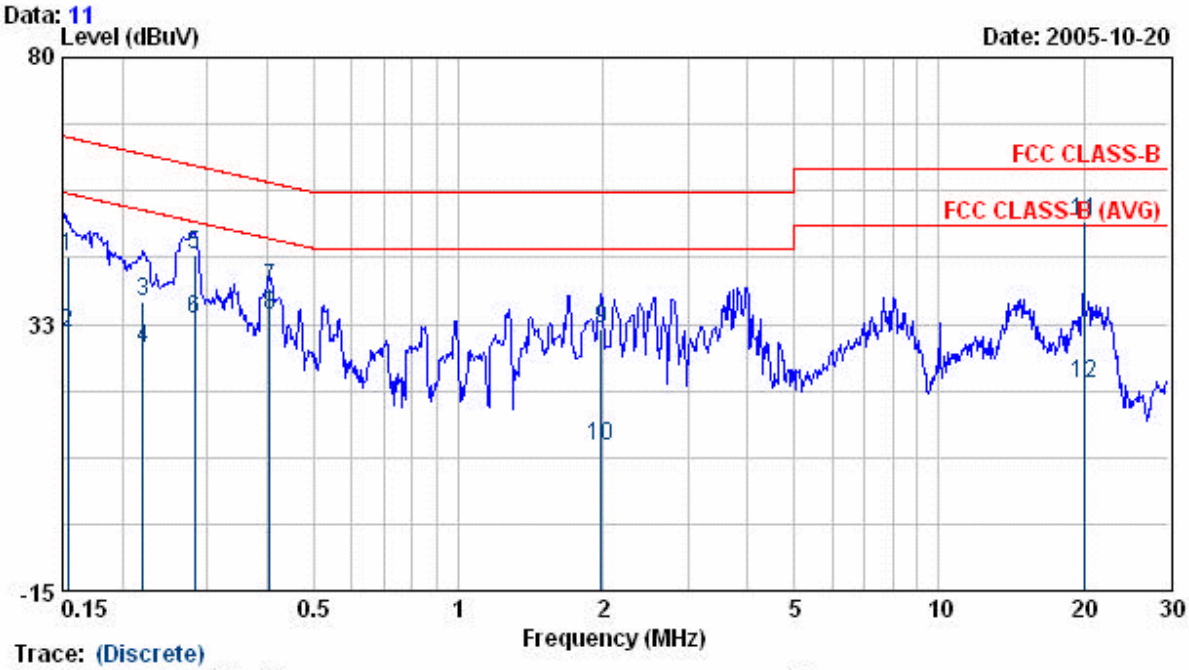


Trace: (Discrete)

Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.28	34.14	0.35	34.49	50.70	-16.21	AVERAGE
0.28	46.77	0.35	47.12	60.70	-13.58	QP
0.41	41.22	0.50	41.72	57.74	-16.02	QP
0.41	35.97	0.50	36.47	47.74	-11.27	AVERAGE
0.53	37.91	0.50	38.41	56.00	-17.59	QP
0.53	28.44	0.50	28.94	46.00	-17.06	AVERAGE
1.27	12.01	0.53	12.54	46.00	-33.46	AVERAGE
1.27	31.29	0.53	31.82	56.00	-24.18	QP
14.63	29.15	0.88	30.03	60.00	-29.97	QP
14.63	17.15	0.88	18.03	50.00	-31.97	AVERAGE
20.00	48.87	0.80	49.67	60.00	-10.33	QP
20.00	21.84	0.80	22.64	50.00	-27.36	AVERAGE

Remarks: 1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss

Power	: AC 120V	Pol/Phase	: LINE
Test Mode	: 802.11g CH6	Temperature	: 25 ℃
Memo	:	Humidity	: 57 %



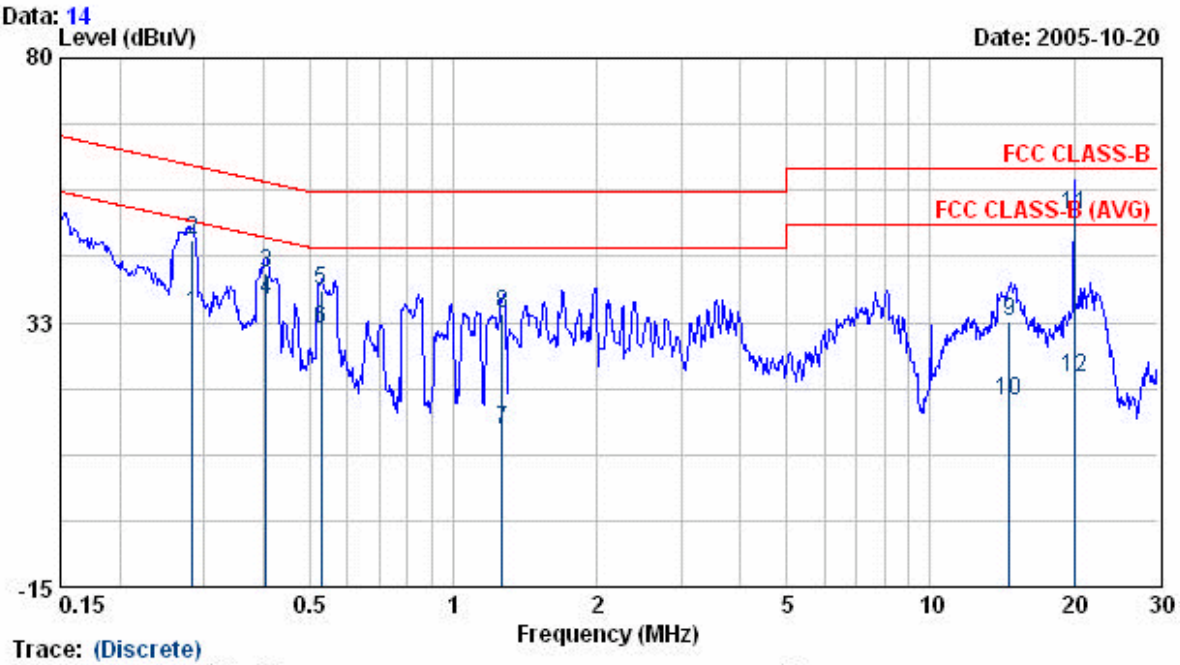
Trace: (Discrete)

Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.15	44.24	0.38	44.62	65.78	-21.17	QP
0.15	30.63	0.38	31.01	55.78	-24.78	AVERAGE
0.22	36.19	0.34	36.53	62.79	-26.26	QP
0.22	27.87	0.34	28.21	52.79	-24.58	AVERAGE
0.28	44.56	0.45	45.01	60.74	-15.74	QP
0.28	32.99	0.45	33.44	50.74	-17.31	AVERAGE
0.41	38.23	0.60	38.83	57.75	-18.92	QP
0.41	33.48	0.60	34.08	47.75	-13.67	AVERAGE
1.98	30.77	0.70	31.47	56.00	-24.53	QP
1.98	10.11	0.70	10.81	46.00	-35.19	AVERAGE
20.00	50.31	0.60	50.91	60.00	-9.09	QP
20.00	21.22	0.60	21.82	50.00	-28.18	AVERAGE

Remarks: 1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss

Power : AC 120V
Test Mode : 802.11g CH11
Memo :

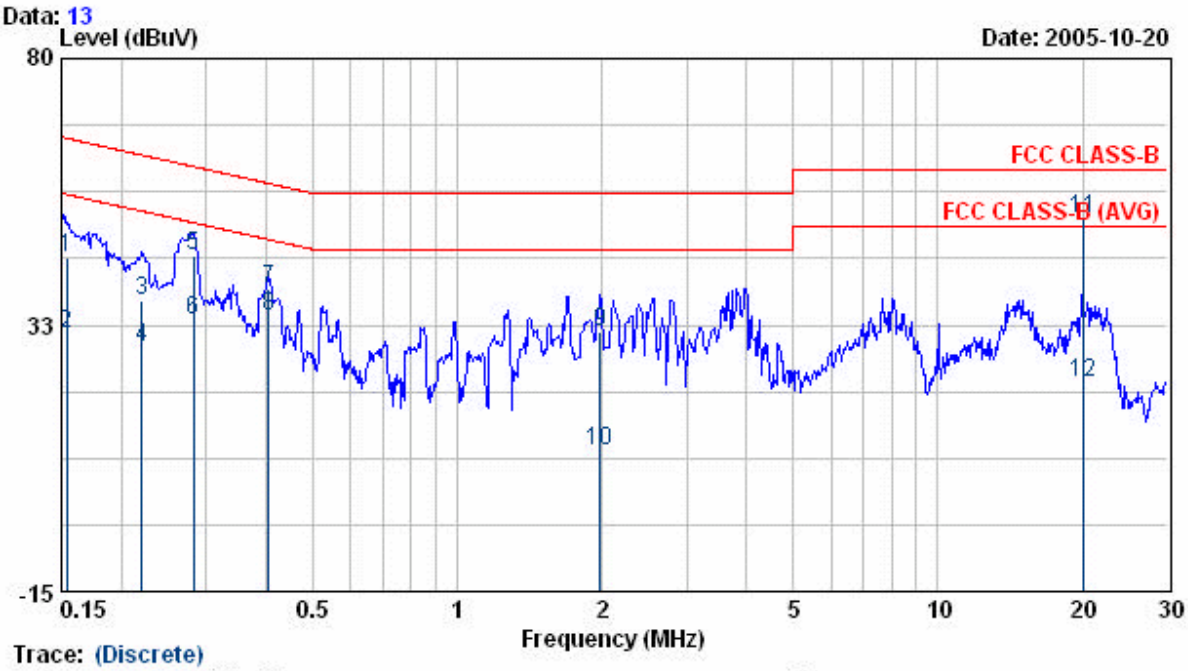
Pol/Phase : NEUTRAL
Temperature : 25 ℃
Humidity : 57 %



Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.28	33.67	0.35	34.02	50.70	-16.68	AVERAGE
0.28	46.79	0.35	47.14	60.70	-13.56	QP
0.41	41.02	0.50	41.52	57.74	-16.22	QP
0.41	35.99	0.50	36.49	47.74	-11.25	AVERAGE
0.53	37.77	0.50	38.27	56.00	-17.73	QP
0.53	30.79	0.50	31.29	46.00	-14.71	AVERAGE
1.27	12.63	0.53	13.16	46.00	-32.84	AVERAGE
1.27	33.61	0.53	34.14	56.00	-21.86	QP
14.63	31.64	0.88	32.52	60.00	-27.48	QP
14.63	17.64	0.88	18.52	50.00	-31.48	AVERAGE
20.00	51.06	0.80	51.86	60.00	-8.14	QP
20.00	21.67	0.80	22.47	50.00	-27.53	AVERAGE

Remarks: 1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss

Power	: AC 120V	Pol/Phase	: LINE
Test Mode	: 802.11g CH11	Temperature	: 25 ℃
Memo	:	Humidity	: 57 %



Trace: (Discrete)

Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.15	44.03	0.38	44.41	65.78	-21.38	QP
0.15	30.66	0.38	31.04	55.78	-24.75	AVERAGE
0.22	36.41	0.34	36.75	62.79	-26.04	QP
0.22	28.08	0.34	28.42	52.79	-24.37	AVERAGE
0.28	44.56	0.45	45.01	60.74	-15.74	QP
0.28	32.99	0.45	33.44	50.74	-17.31	AVERAGE
0.41	38.23	0.60	38.83	57.75	-18.92	QP
0.41	33.48	0.60	34.08	47.75	-13.67	AVERAGE
1.98	30.67	0.70	31.37	56.00	-24.63	QP
1.98	9.39	0.70	10.09	46.00	-35.91	AVERAGE
20.00	50.80	0.60	51.40	60.00	-8.60	QP
20.00	21.50	0.60	22.10	50.00	-27.90	AVERAGE

Remarks: 1. Level = Read Level + Factor
2. Factor = LISN(ISN) Factor + Cable Loss

Test engineer: Jerry

5. Test of Radiated Emission (For 802.11b/g device)

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 (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

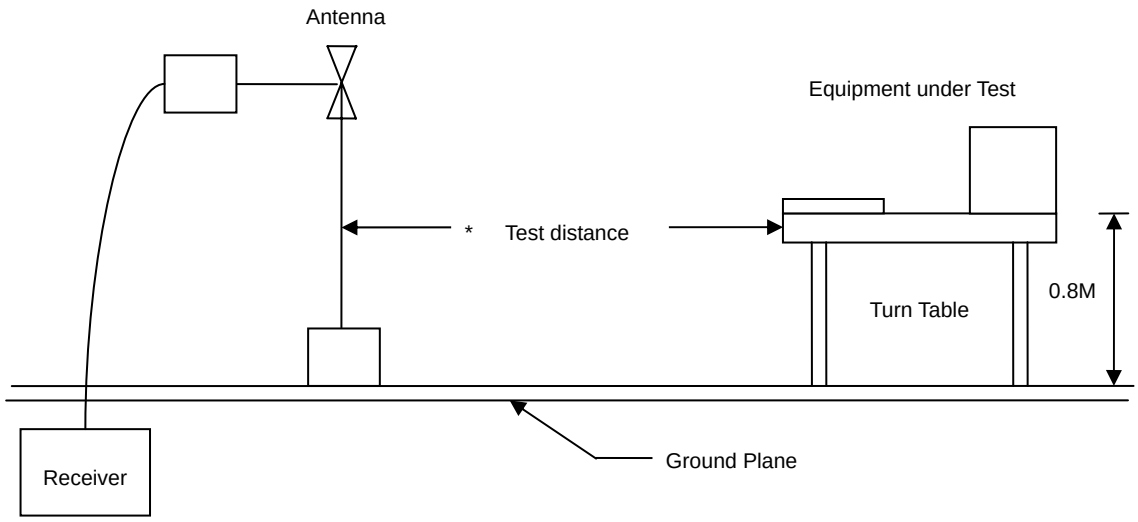
For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the above table.

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

5.2 Test Procedures

1. The EUT was placed on a rotatable table top 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. 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.
5. 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.
6. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. 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.
8. 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



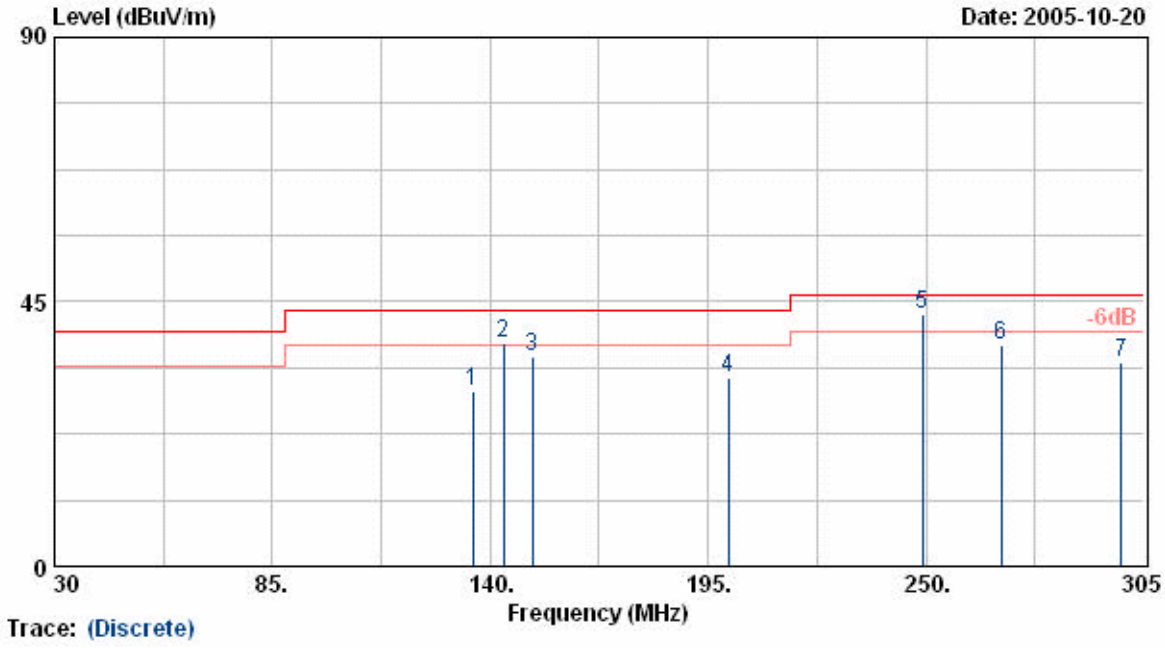
5.4 Measurement equipment

Instrument/Ancillary	Type	Manufacturer	Valid Date
EMI Receiver	8546A	HP	2006/04/13
Spectrum Analyzer	FSP40	R&S	2005/12/28
Horn Antenna	3115	EMCO	2006/02/21
Horn Antenna	3116	EMCO	2006/02/21
Bilog Antenna	CBL6112B	Schaffner	2006/04/12
Amplifier	8447D	Agilent	2006/02/14
Amplifier	8449B	Agilent	2006/02/22

5.5 Test Result and Data

Test mode 1:

Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Transmit/Receive	Temperature	: 22 ℃
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11b/g	Atmospheric Pressure	: 1020 mmHg
Rate	: 11/54 Mbps		
Memo	:		

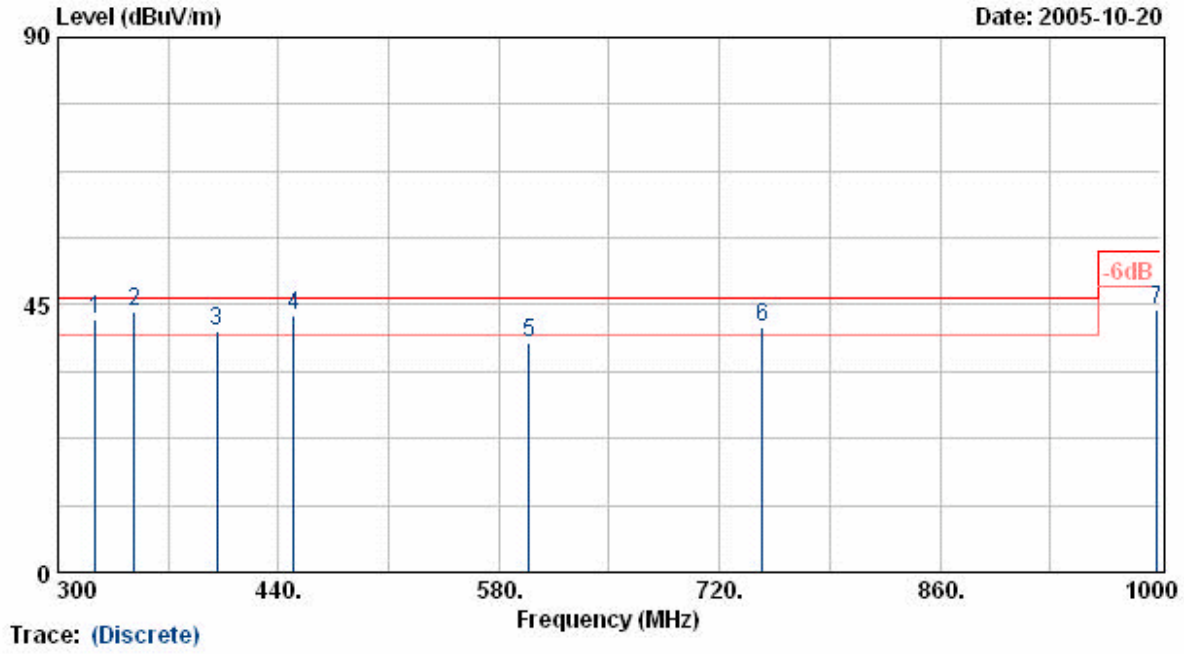


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
135.60	44.54	-14.79	29.75	43.50	-13.75	Peak	0	100
143.30	52.41	-14.44	37.97	43.50	-5.53	QP	0	100
150.73	50.25	-14.53	35.72	43.50	-7.78	Peak	0	100
200.23	49.16	-17.09	32.08	43.50	-11.42	Peak	100	100
249.18	56.41	-13.47	42.94	46.00	-3.06	QP	100	100
268.98	49.68	-12.02	37.66	46.00	-8.34	Peak	0	100
299.23	45.97	-11.32	34.65	46.00	-11.35	Peak	0	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected 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 below to be measured.

Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Transmit/Receive	Temperature	: 22 ℃
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11b/g	Atmospheric Pressure	: 1020 mmHg
Rate	: 11/54 Mbps		
Memo	:		

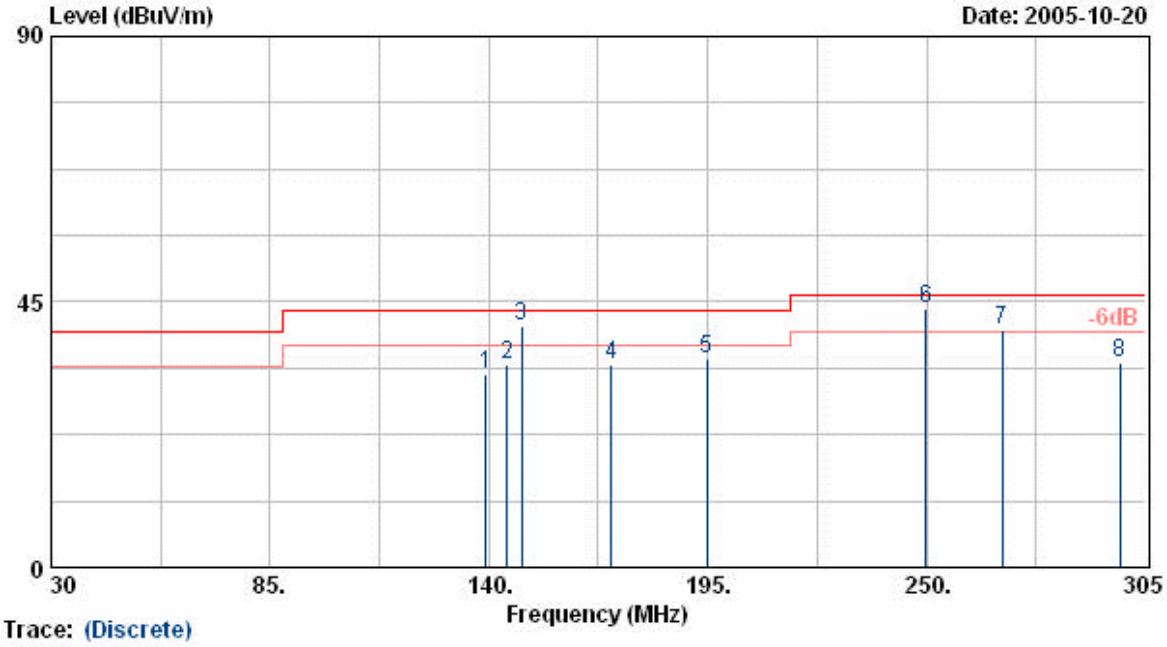


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
323.80	53.39	-10.89	42.50	46.00	-3.50	QP	0	100
348.30	54.28	-10.47	43.81	46.00	-2.19	QP	0	100
400.80	49.40	-8.87	40.53	46.00	-5.47	QP	50	100
449.80	52.04	-8.81	43.23	46.00	-2.77	QP	80	100
598.90	43.05	-4.55	38.50	46.00	-7.50	Peak	50	100
747.30	42.91	-1.52	41.39	46.00	-4.61	QP	80	100
997.90	41.44	2.78	44.22	54.00	-9.78	Peak	0	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected 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 below to be measured.

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Transmit/Receive	Temperature	: 22 ℃
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11b/g	Atmospheric Pressure	: 1020 mmHg
Rate	: 11/54 Mbps		
Memo	:		

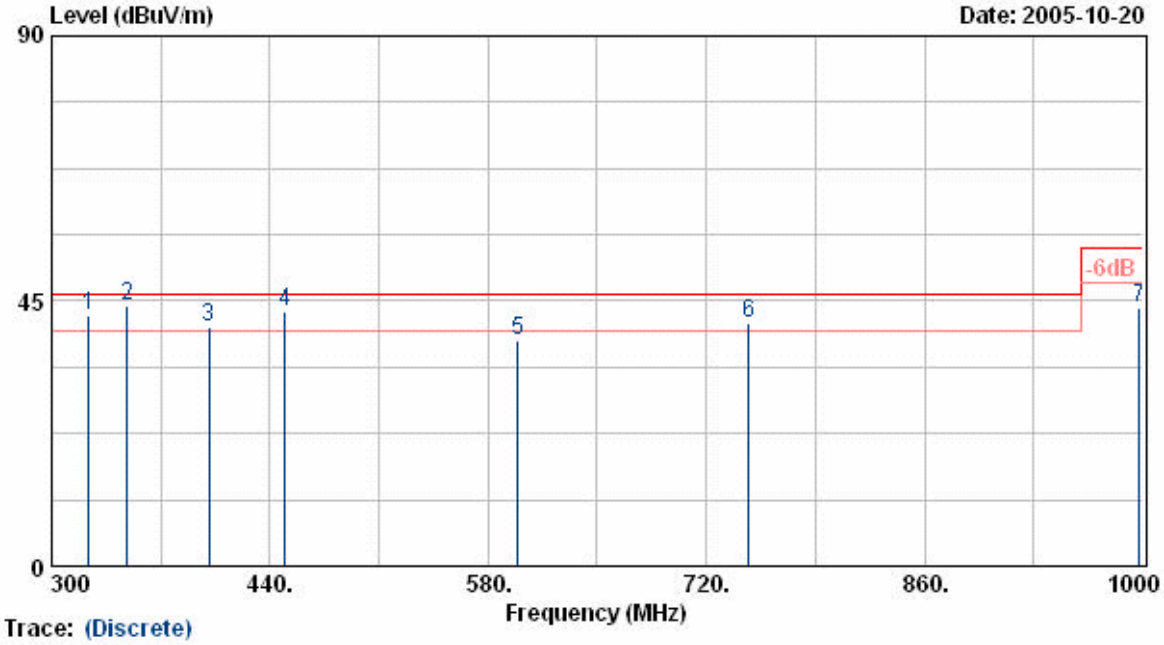


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
139.20	47.32	-14.53	32.79	43.50	-10.71	Peak	0	100
144.60	48.68	-14.43	34.25	43.50	-9.25	Peak	0	100
148.11	55.47	-14.43	41.04	43.50	-2.46	QP	60	100
170.80	51.23	-16.83	34.40	43.50	-9.10	Peak	60	100
194.73	52.26	-17.06	35.20	43.50	-8.30	Peak	60	100
249.73	57.18	-13.36	43.82	46.00	-2.18	QP	60	100
268.98	52.31	-12.02	40.29	46.00	-5.71	QP	0	100
298.68	46.12	-11.32	34.80	46.00	-11.20	Peak	0	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected 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 below to be measured.

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Transmit/Receive	Temperature	: 22 ℃
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11b/g	Atmospheric Pressure	: 1020 mmHg
Rate	: 11/54 Mbps		
Memo	:		

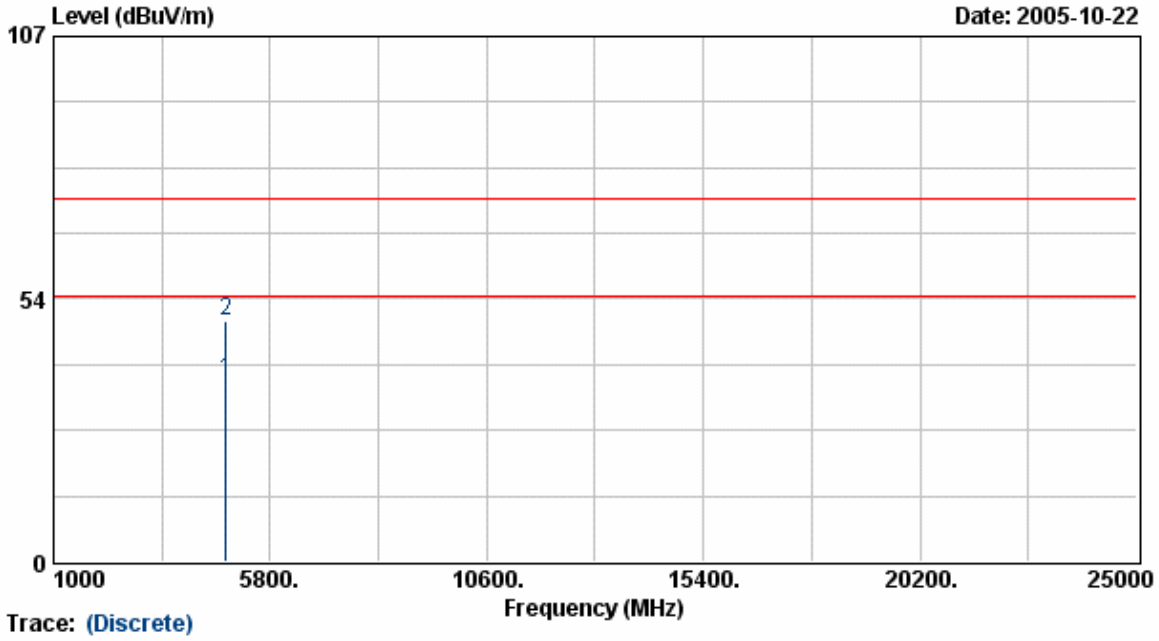


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
323.80	53.30	-10.89	42.42	46.00	-3.58	QP	0	100
348.30	54.62	-10.47	44.15	46.00	-1.85	QP	0	100
400.80	49.30	-8.87	40.43	46.00	-5.57	QP	80	100
449.80	51.92	-8.81	43.11	46.00	-2.89	QP	80	100
598.90	42.96	-4.55	38.40	46.00	-7.60	Peak	80	100
747.30	42.74	-1.52	41.22	46.00	-4.78	QP	80	100
997.90	41.22	2.78	44.00	54.00	-10.00	Peak	0	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected 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 below to be measured.

Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Transmit/Receive	Temperature	: 22 ℃
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1020 mmHg
Rate	: 11 Mbps		
Memo	:		

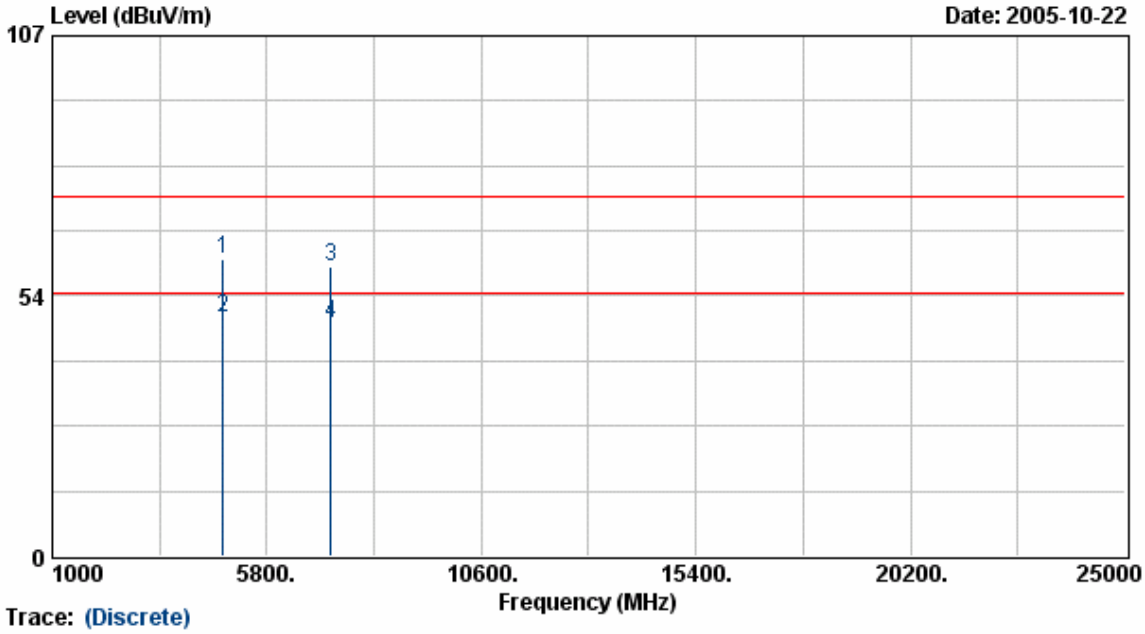


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
4823.93	28.94	8.12	37.06	54.00	-16.94	Average	81	100
4823.93	40.84	8.12	48.96	74.00	-25.04	Peak	81	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected 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 below to be measured.

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Transmit/Receive	Temperature	: 22 ℃
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1020 mmHg
Rate	: 11 Mbps		
Memo	:		

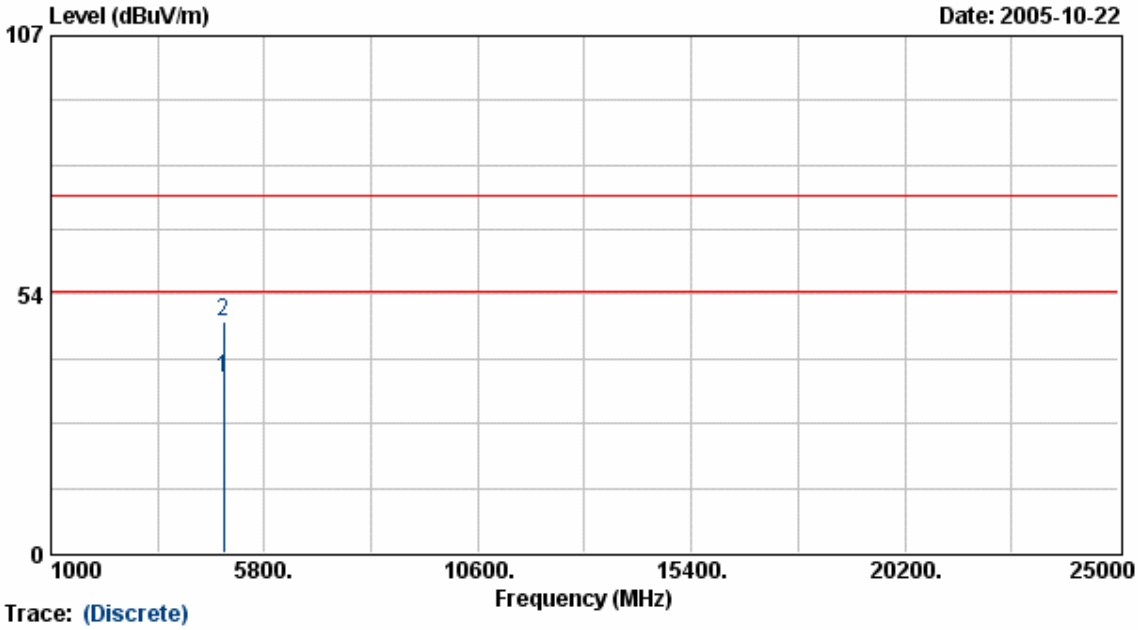


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
4823.41	53.56	7.36	60.91	74.00	-13.09	Peak	231	100
4823.41	41.77	7.36	49.13	54.00	-4.87	Average	231	100
7237.69	48.64	11.06	59.70	74.00	-14.30	Peak	231	100
7237.69	36.72	11.06	47.78	54.00	-6.22	Average	231	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected 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 below to be measured.

Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Transmit/Receive	Temperature	: 22 ℃
Operation Channel	: 6	Humidity	: 70 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1020 mmHg
Rate	: 11 Mbps		
Memo	:		

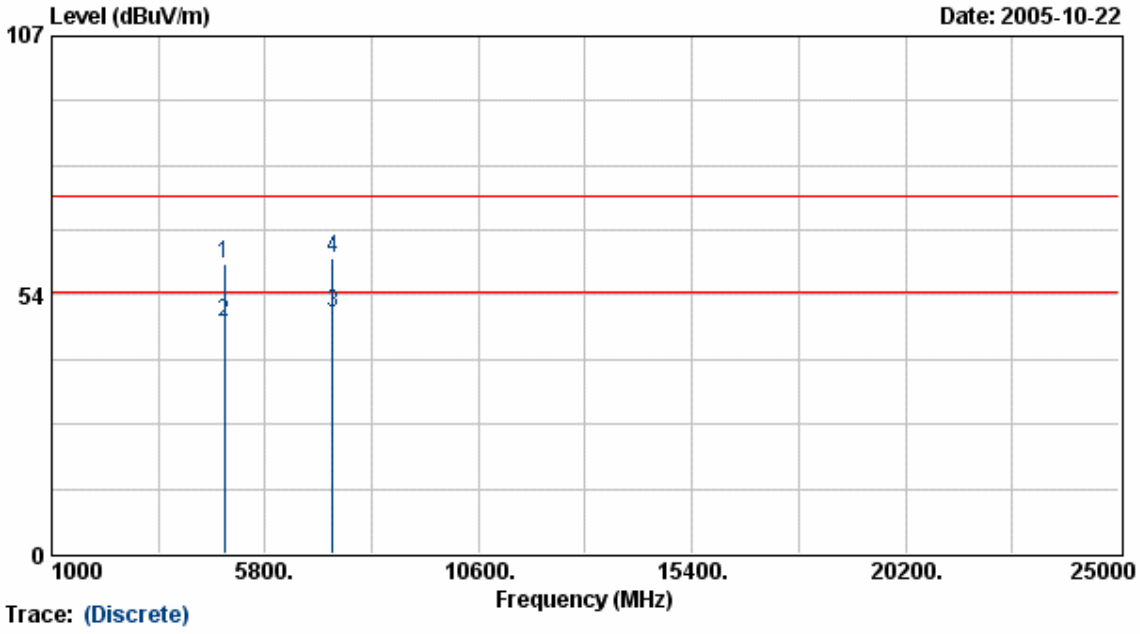


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
4873.99	27.83	8.32	36.14	54.00	-17.86	Average	81	100
4873.99	39.67	8.32	47.99	74.00	-26.01	Peak	81	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected 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 below to be measured.

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Transmit/Receive	Temperature	: 22 ℃
Operation Channel	: 6	Humidity	: 70 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1020 mmHg
Rate	: 11 Mbps		
Memo	:		

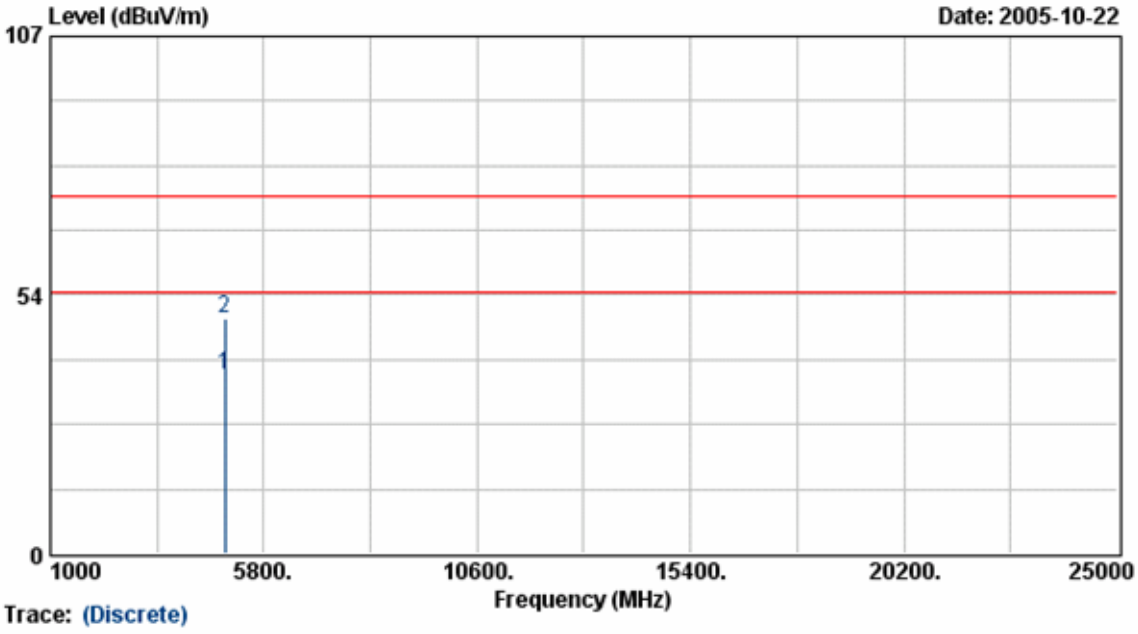


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
4874.76	52.36	7.54	59.90	74.00	-14.10	Peak	231	100
4874.76	40.31	7.54	47.85	54.00	-6.15	Average	231	100
7309.79	38.76	11.14	49.89	54.00	-4.11	Average	231	100
7309.79	50.02	11.14	61.16	74.00	-12.84	Peak	231	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected 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 below to be measured.

Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Transmit/Receive	Temperature	: 22 ℃
Operation Channel	: 11	Humidity	: 70 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1020 mmHg
Rate	: 11 Mbps		
Memo	:		

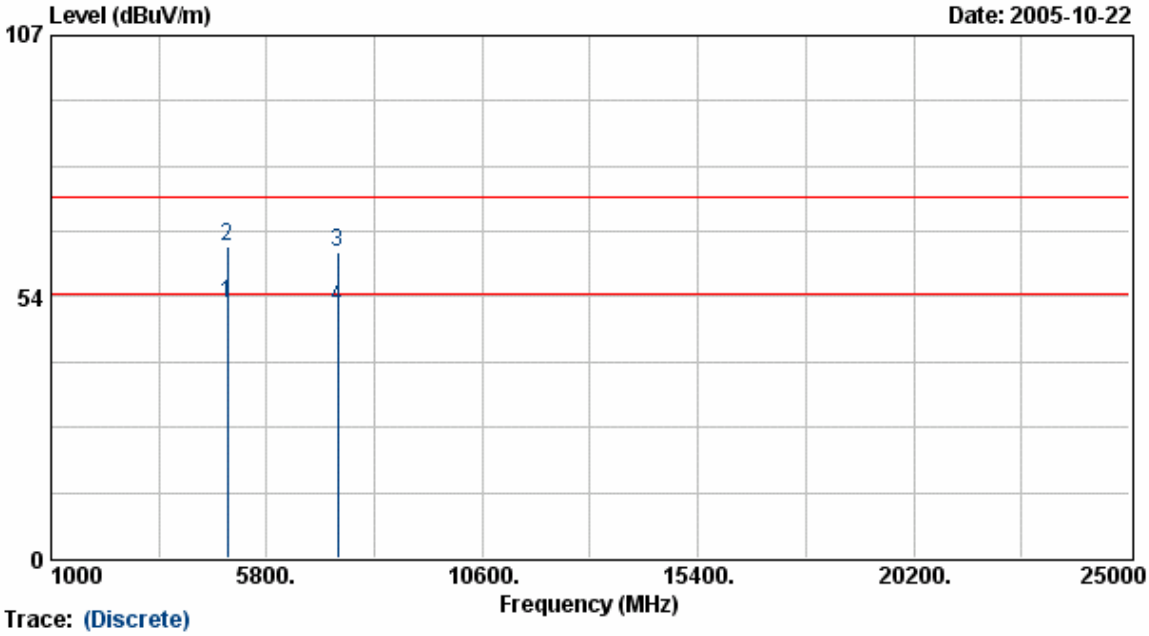


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
4923.96	28.29	8.51	36.80	54.00	-17.20	Average	81	100
4923.96	40.19	8.51	48.70	74.00	-25.30	Peak	81	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected 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 below to be measured.

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Transmit/Receive	Temperature	: 22 ℃
Operation Channel	: 11	Humidity	: 70 %
Modulation Type	: 802.11b	Atmospheric Pressure	: 1020 mmHg
Rate	: 11 Mbps		
Memo	:		

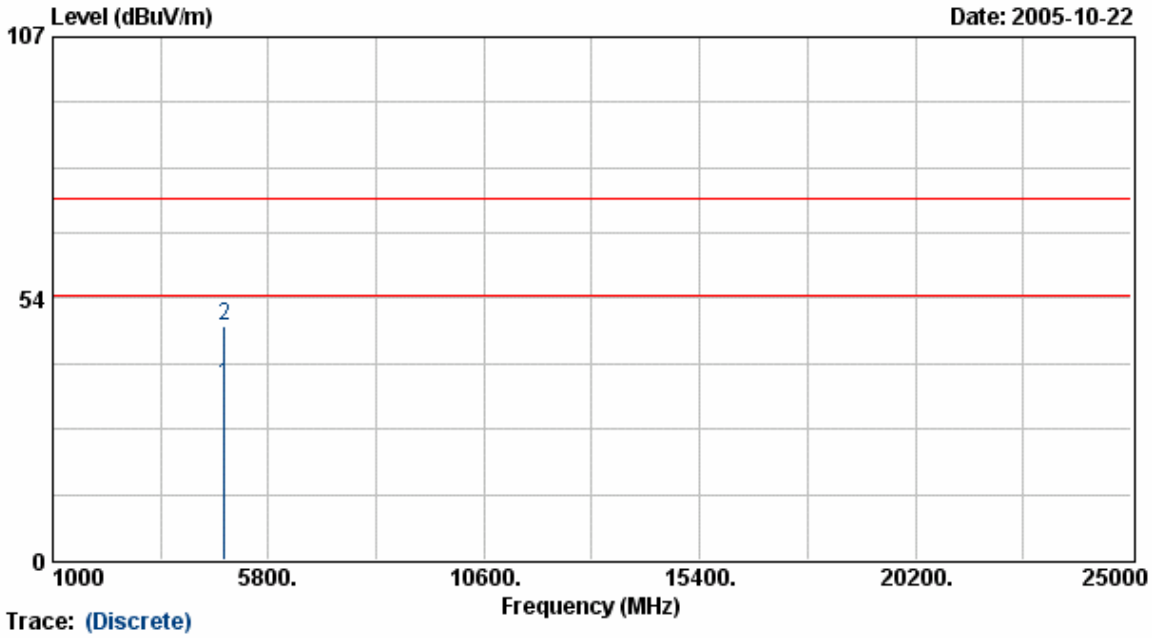


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
4923.23	44.23	7.72	51.95	54.00	-2.05	Average	231	100
4923.23	56.20	7.72	63.92	74.00	-10.08	Peak	231	100
7385.25	51.27	11.22	62.49	74.00	-11.51	Peak	231	100
7385.25	39.96	11.22	51.18	54.00	-2.82	Average	231	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected 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 below to be measured.

Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Transmit/Receive	Temperature	: 22 ℃
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11g	Atmospheric Pressure	: 1020 mmHg
Rate	: 54 Mbps		
Memo	:		

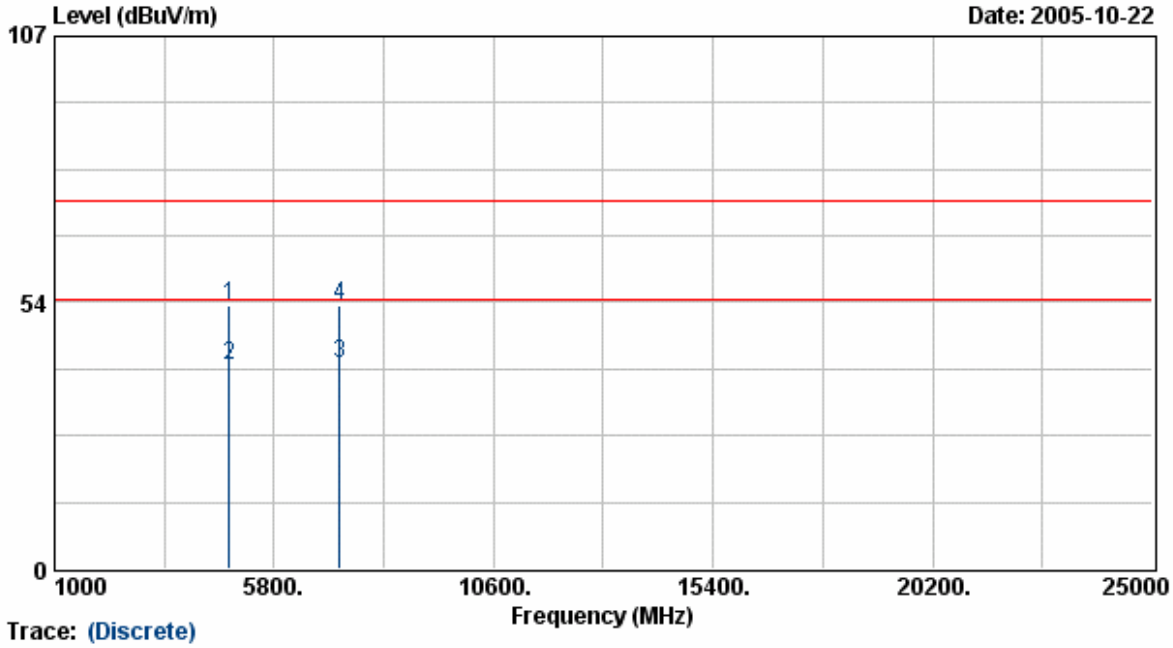


Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
4828.10	27.70	8.14	35.84	54.00	-18.16	Average	81	100
4828.10	39.67	8.14	47.81	74.00	-26.19	Peak	81	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected 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 below to be measured.

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Transmit/Receive	Temperature	: 22 ℃
Operation Channel	: 1	Humidity	: 70 %
Modulation Type	: 802.11g	Atmospheric Pressure	: 1020 mmHg
Rate	: 54 Mbps		
Memo	:		



Frequency (MHz)	Meter Reading (dBuV)	Corrected Factor (dBuV/m)	Result (dBuV/m)	Limit (dB)	Margin (dB)	Remark	Table Deg.	Ant High (cm)
4822.89	45.57	7.36	52.93	74.00	-21.07	Peak	231	100
4822.89	33.62	7.36	40.97	54.00	-13.03	Average	231	100
7238.72	30.03	11.06	41.09	54.00	-12.91	Average	231	100
7238.72	41.94	11.06	52.99	74.00	-21.01	Peak	231	100

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected 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 below to be measured.