

5.4. Power Spectral Density

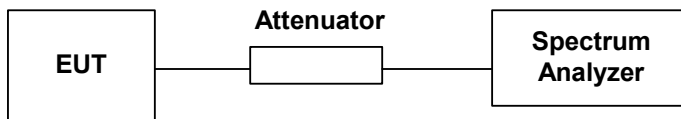
5.4.1. Measuring Instruments□

As described in chapter 7 of this test report.

5.4.2. Test Procedure□

1. The transmitter output was connected to spectrum analyzer through an attenuator.
2. The spectrum analyzer's resolution bandwidth were set at 3KHz RBW and 30KHz VBW as that of the fundamental frequency. Set the sweep time=span/3KHz.
3. The power spectral density was measured and recorded.
4. The Sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

5.4.3. Test Setup Layout□

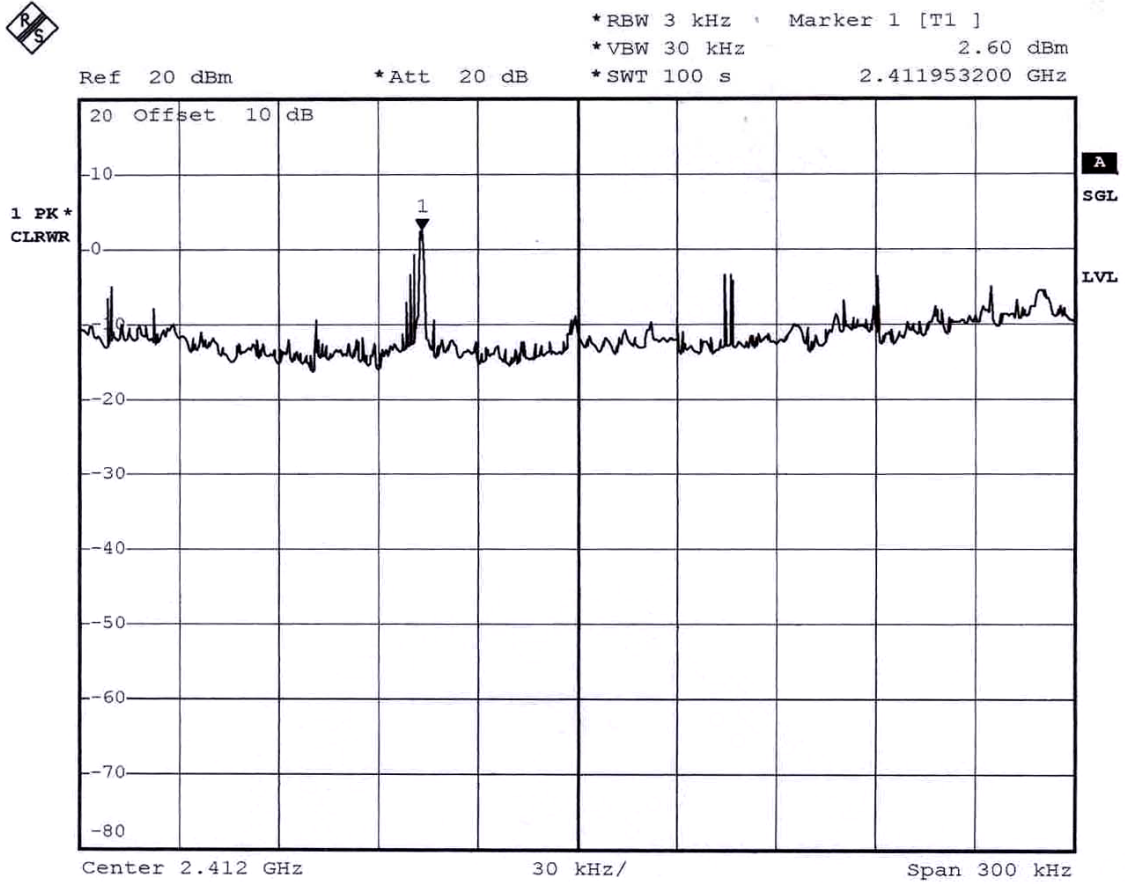


5.4.4. Test Result□ See spectrum analyzer plots below

- Temperature : 26°C
- Relative Humidity : 68 %

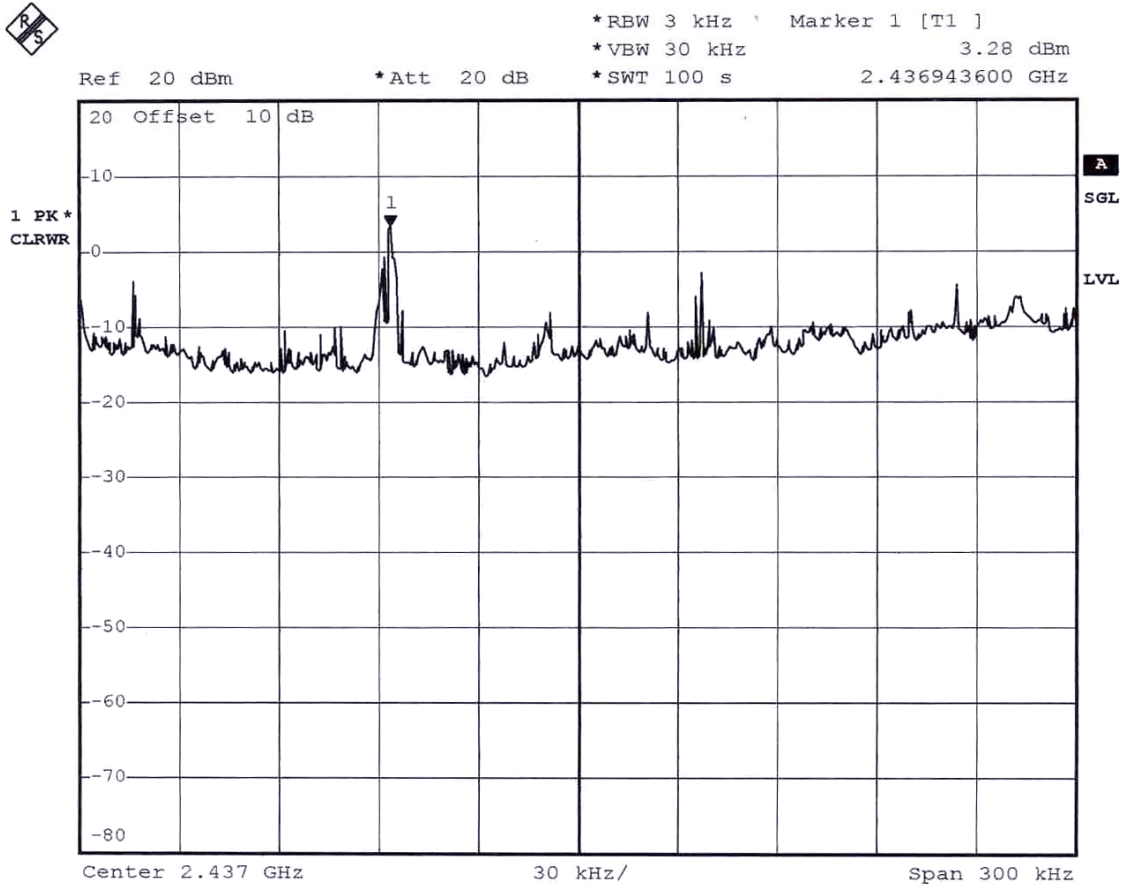
Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)	Plot Ref. No.
1	2412	2.60	8	1
6	2437	3.28	8	2
11	2462	2.64	8	3

Plot1(Channel 1):



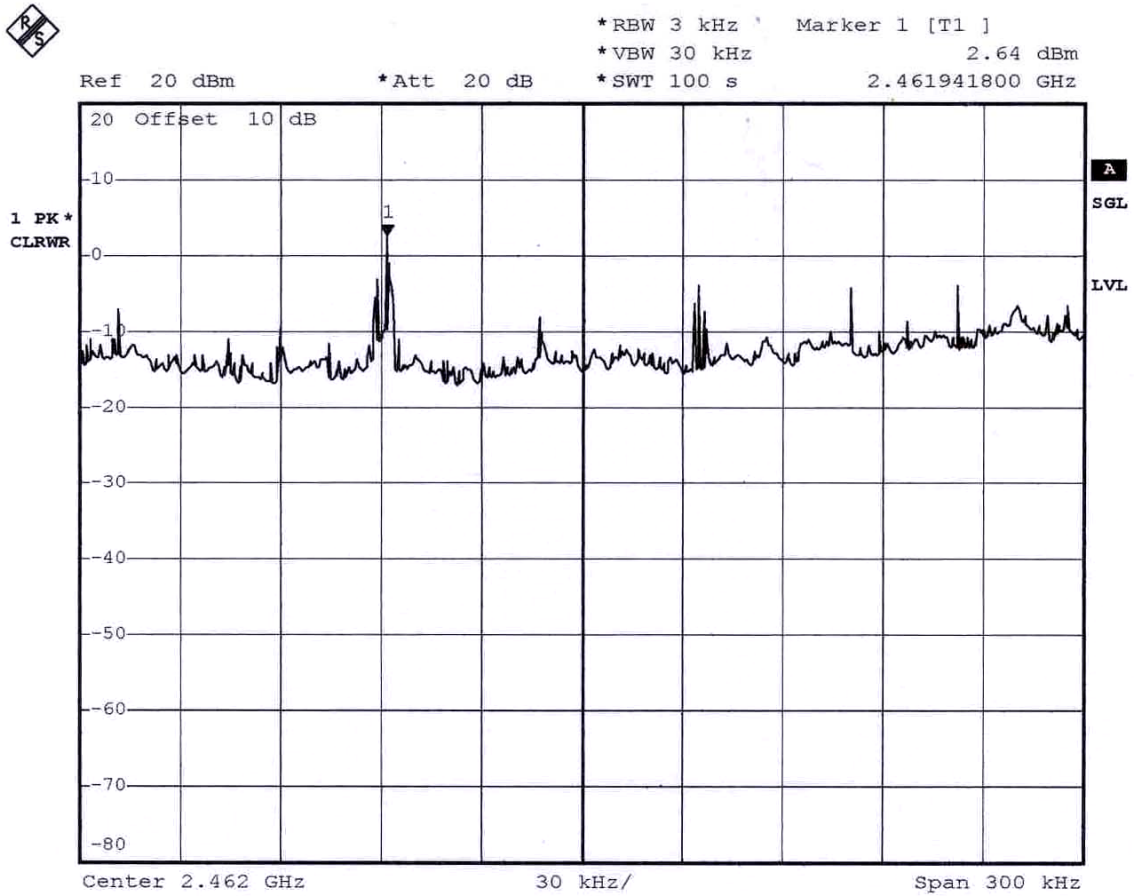
Date: 20.MAY.2003 17:43:49

Plot2(Channel 6):



Date: 20.MAY.2003 17:52:08

Plot3(Channel 11):



Date: 20.MAY.2003 17:56:16

5.5. Test of Conducted Emission

Conducted Emissions were measured from 150 KHz to 30 MHz with a bandwidth of 9 KHz and return leads of the EUT according to the methods defined in ANSI C63.4-2001 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

5.5.1. Major Measuring Instruments□

● Test Receiver	(R&S ESCS 30)
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

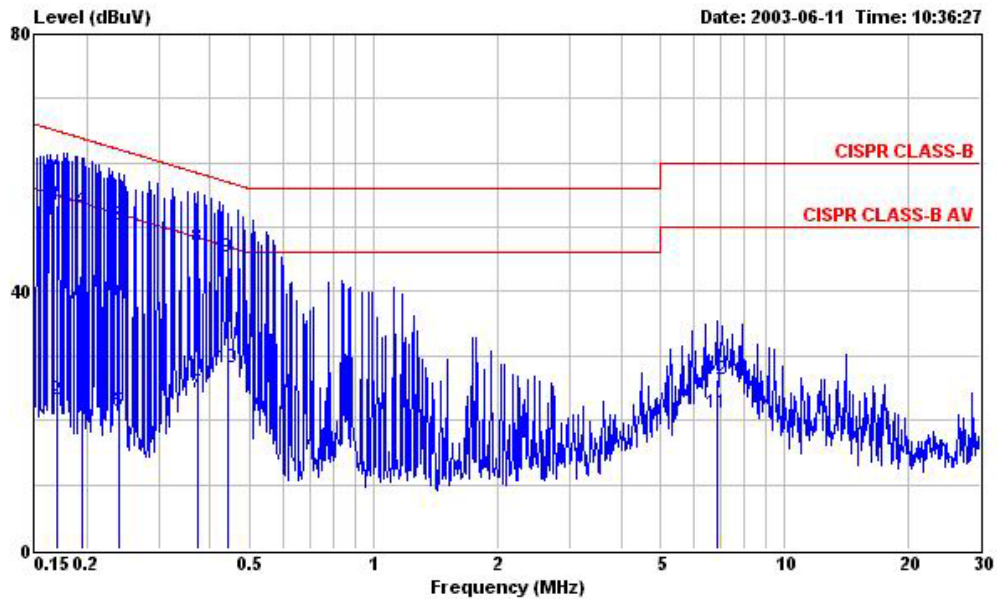
5.5.2. Test Procedures□

- 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 connect 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 microhenry 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.

5.5.3. Test Result of Conducted Emission□

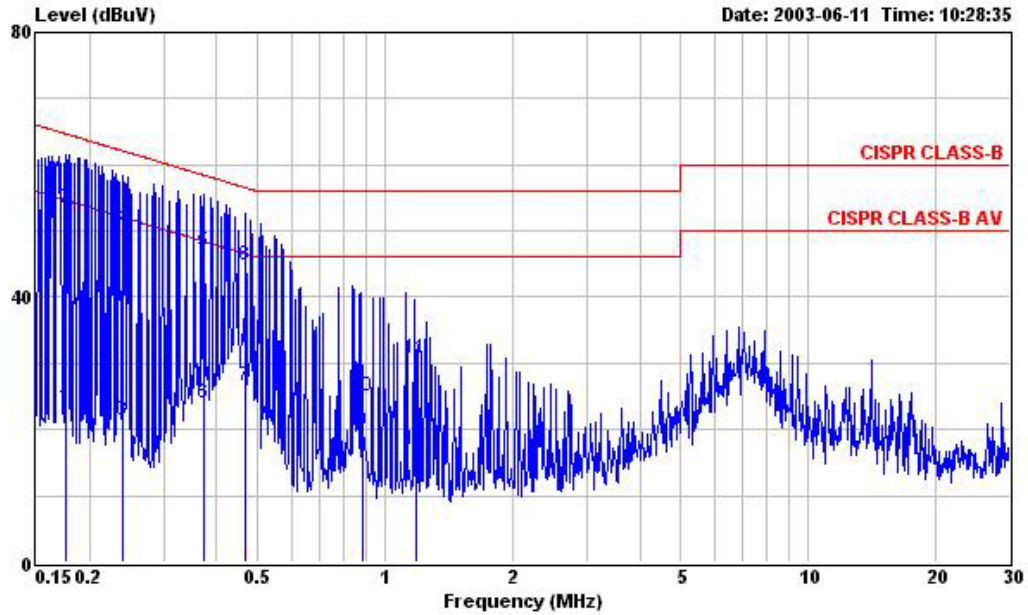
- Test Mode: Mode 1
- Frequency Range of Test: from 150KHz to 30 MHz
- 6dB Bandwidth: 9KHz
- Temperature: 24°C
- Relative Humidity: 60 %

■ The test was passed at the minimum margin that marked by a frame in the following data



Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 LINE
 EUT : Wireless 2.4G AP
 Power : 110V/60Hz
 Memo : TX CH01 2412MHz
 : F341402
 : AP ADAPTER

Freq	Level	Over	Limit	Read	Probe	Cable	
MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
		dB	dBuV	dBuV	dB	dB	
1	0.169	53.37	-11.64	65.01	53.20	0.10	0.07 QP
2	0.169	23.23	-31.78	55.01	23.06	0.10	0.07 Average
3	0.195	26.50	-27.32	53.82	26.36	0.10	0.04 Average
4	0.195	52.73	-11.09	63.82	52.59	0.10	0.04 QP
5	0.239	21.40	-30.73	52.13	21.25	0.10	0.05 Average
6	0.239	50.18	-11.95	62.13	50.03	0.10	0.05 QP
7	0.373	24.28	-24.15	48.43	24.12	0.10	0.06 Average
8	0.373	46.86	-11.57	58.43	46.70	0.10	0.06 QP
9	0.443	45.44	-11.57	57.01	45.28	0.10	0.06 QP
10	0.443	28.24	-18.77	47.01	28.08	0.10	0.06 Average
11	6.849	21.12	-28.88	50.00	20.78	0.16	0.18 Average
12	6.849	26.36	-33.64	60.00	26.02	0.16	0.18 QP



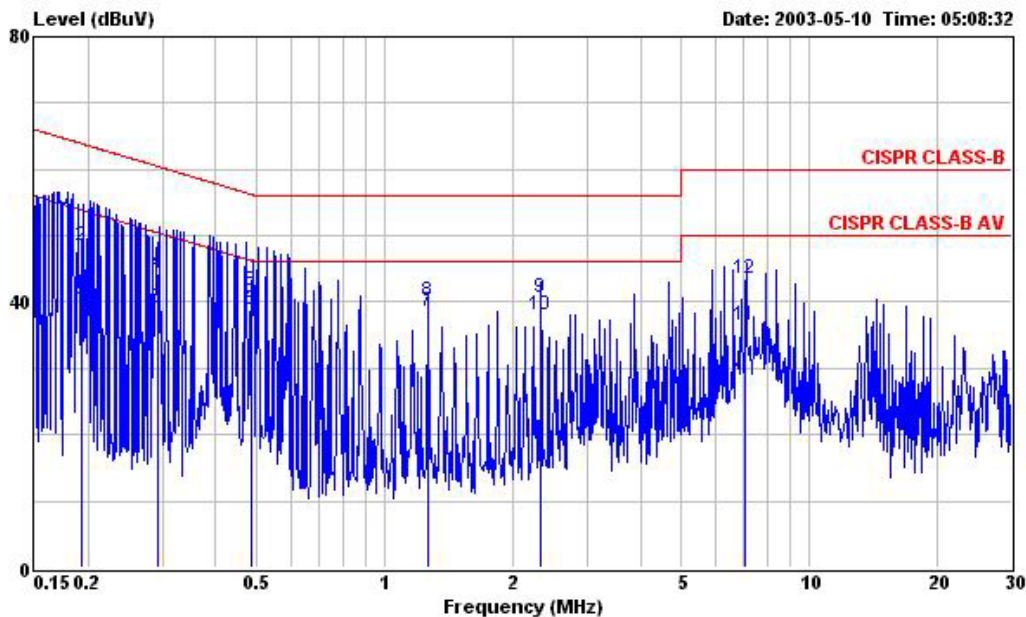
Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 NEUTRAL
 EUT : Wireless 2.4G AP
 Power : 110V/60Hz
 Memo : TX CH01 2412MHz
 : F341402
 : AP ADAPTER

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.176	23.47	-31.20	54.67	23.30	0.10	0.07	Average
2	0.176	53.32	-11.35	64.67	53.15	0.10	0.07	QP
3	0.239	21.34	-30.79	52.13	21.19	0.10	0.05	Average
4	0.239	50.18	-11.95	62.13	50.03	0.10	0.05	QP
5	0.373	46.82	-11.61	58.43	46.66	0.10	0.06	QP
6	0.373	23.96	-24.47	48.43	23.80	0.10	0.06	Average
7	0.469	26.68	-19.85	46.53	26.52	0.10	0.06	Average
8	0.469	44.84	-11.69	56.53	44.68	0.10	0.06	QP
9	0.888	19.85	-26.15	46.00	19.68	0.10	0.07	Average
10	0.888	24.91	-31.09	56.00	24.74	0.10	0.07	QP
11	1.180	30.68	-25.32	56.00	30.52	0.10	0.06	QP
12	1.180	16.98	-29.02	46.00	16.82	0.10	0.06	Average

Test Engineer: Jay
 Jay Zhong

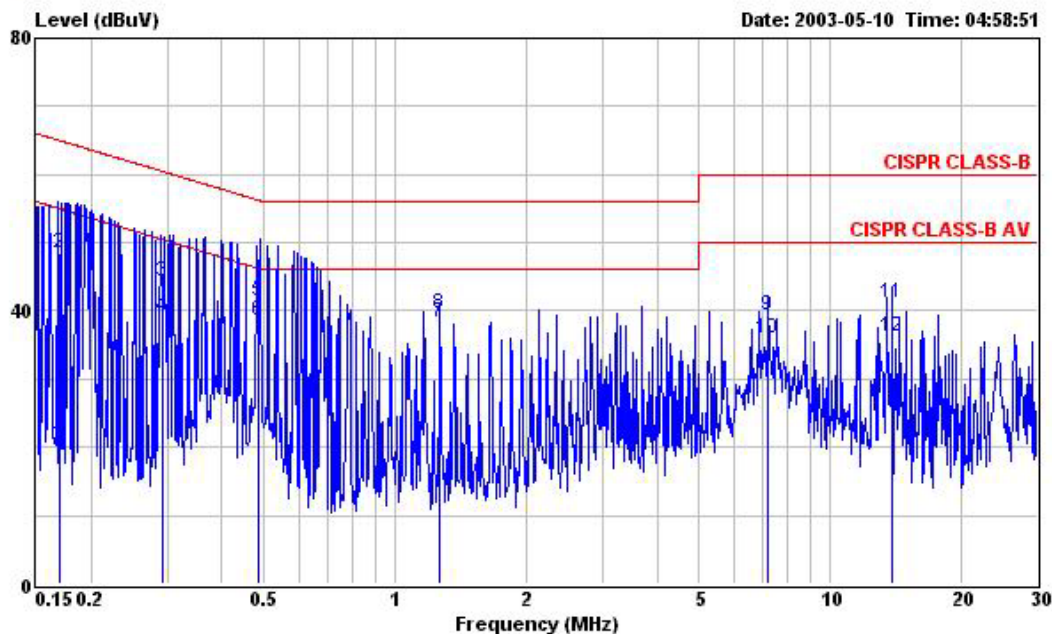
- Test Mode: Mode 2
- Frequency Range of Test: from 150KHz to 30 MHz
- 6dB Bandwidth: 9KHz
- Temperature: 24°C
- Relative Humidity: 60 %

■ The test was passed at the minimum margin that marked by a frame in the following data



Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 LINE
 EUT : Wireless 2.4G AP
 Power : 110V/60Hz
 Memo : TX CH01 2412MHz
 : F341402

	Freq	Level	Over	Limit	Read	Probe	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.193	38.90	-15.00	53.90	38.63	0.10	0.17	Average
2	0.193	48.43	-15.47	63.90	48.16	0.10	0.17	QP
3	0.291	39.01	-11.48	50.49	38.74	0.10	0.17	Average
4	0.291	44.28	-16.21	60.49	44.01	0.10	0.17	QP
5	0.485	38.85	-7.41	46.26	38.57	0.10	0.18	Average
6	0.485	41.77	-14.49	56.26	41.49	0.10	0.18	QP
7	1.262	38.69	-7.31	46.00	38.45	0.10	0.14	Average
8	1.262	40.16	-15.84	56.00	39.92	0.10	0.14	QP
9	2.332	40.59	-15.41	56.00	40.44	0.10	0.05	QP
10	2.332	38.06	-7.94	46.00	37.91	0.10	0.05	Average
11	7.090	36.58	-13.42	50.00	36.26	0.16	0.16	Average
12	7.090	43.59	-16.41	60.00	43.27	0.16	0.16	QP



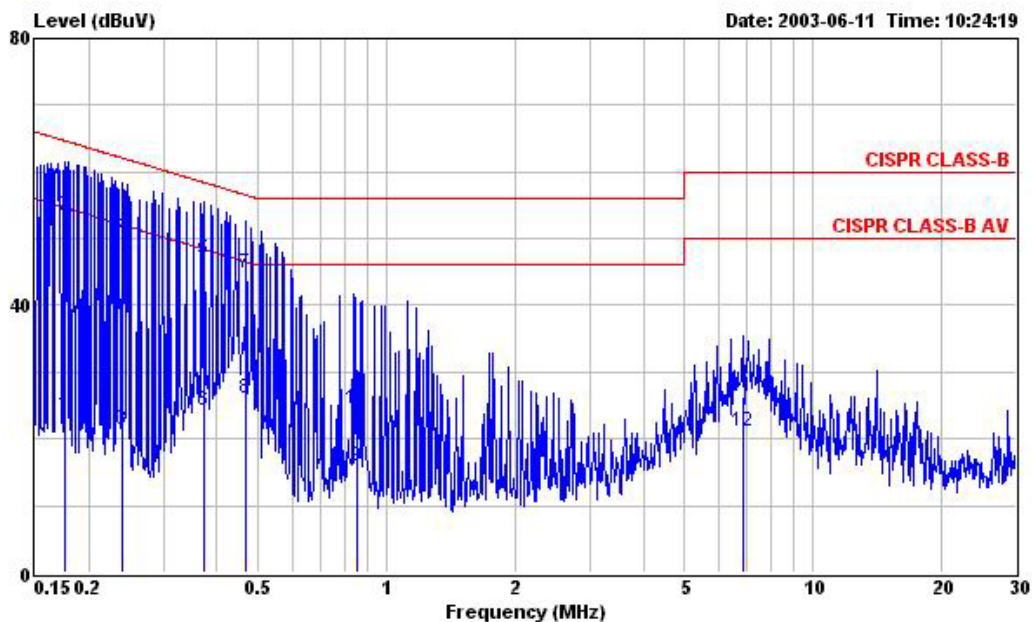
Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 NEUTRAL
 EUT : Wireless 2.4G AP
 Power : 110V/60Hz
 Memo : TX CH01 2412MHz
 : F341402

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.169	20.65	-34.35	55.00	20.36	0.10	0.19	Average
2	0.169	48.47	-16.53	65.00	48.18	0.10	0.19	QP
3	0.293	44.38	-16.06	60.44	44.11	0.10	0.17	QP
4	0.293	39.18	-11.26	50.44	38.91	0.10	0.17	Average
5	0.487	41.39	-14.83	56.22	41.11	0.10	0.18	QP
6	0.487	38.62	-7.60	46.22	38.34	0.10	0.18	Average
7	1.266	38.40	-7.60	46.00	38.16	0.10	0.14	Average
8	1.266	39.66	-16.34	56.00	39.42	0.10	0.14	QP
9	7.204	39.39	-20.61	60.00	39.03	0.20	0.16	QP
10	7.204	35.87	-14.13	50.00	35.51	0.20	0.16	Average
11	13.923	41.09	-18.91	60.00	40.51	0.28	0.30	QP
12	13.923	36.34	-13.66	50.00	35.76	0.28	0.30	Average

Test Engineer: Jay
 Jay Zhong

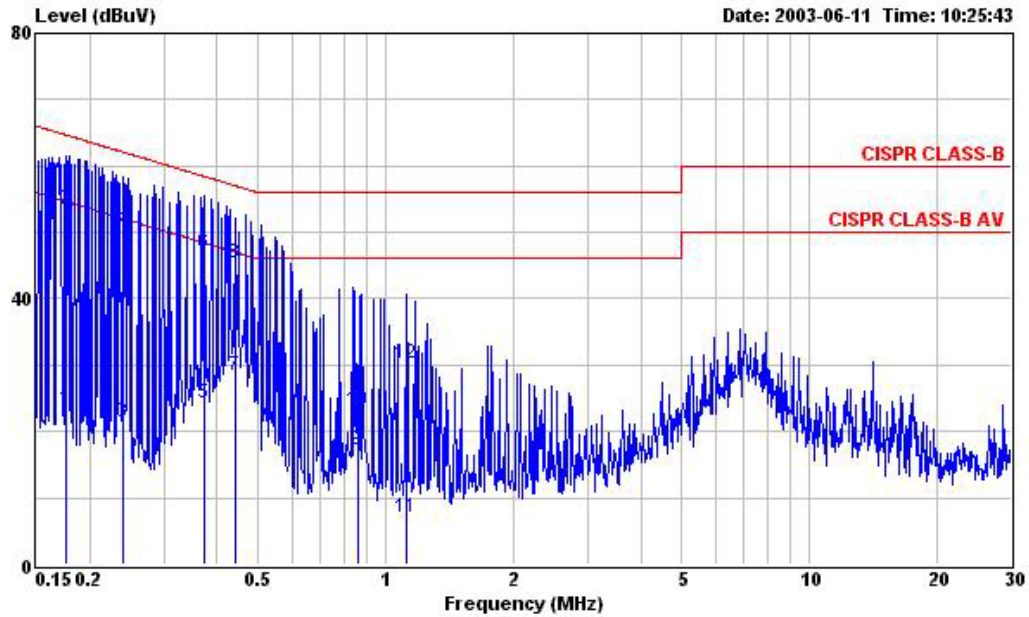
- Test Mode: Mode 3
- Frequency Range of Test: from 150KHz to 30 MHz
- 6dB Bandwidth: 9KHz
- Temperature: 24°C
- Relative Humidity: 60 %

■ The test was passed at the minimum margin that marked by a frame in the following data



Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 LINE
 EUT : Wireless 2.4G AP
 Power : 110V/60Hz
 Memo : TX CH06 2437MHz
 : F341402
 : AP ADAPTER

	Freq	Level	Over	Limit	Read	Probe	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.176	23.65	-31.02	54.67	23.48	0.10	0.07	Average
2	0.176	53.50	-11.17	64.67	53.33	0.10	0.07	QP
3	0.239	21.50	-30.63	52.13	21.35	0.10	0.05	Average
4	0.239	50.38	-11.75	62.13	50.23	0.10	0.05	QP
5	0.373	47.02	-11.41	58.43	46.86	0.10	0.06	QP
6	0.373	24.12	-24.31	48.43	23.96	0.10	0.06	Average
7	0.468	44.94	-11.61	56.55	44.78	0.10	0.06	QP
8	0.468	25.95	-20.60	46.55	25.79	0.10	0.06	Average
9	0.852	15.89	-30.11	46.00	15.72	0.10	0.07	Average
10	0.852	24.59	-31.41	56.00	24.42	0.10	0.07	QP
11	6.840	26.35	-33.65	60.00	26.01	0.16	0.18	QP
12	6.840	21.16	-28.84	50.00	20.82	0.16	0.18	Average



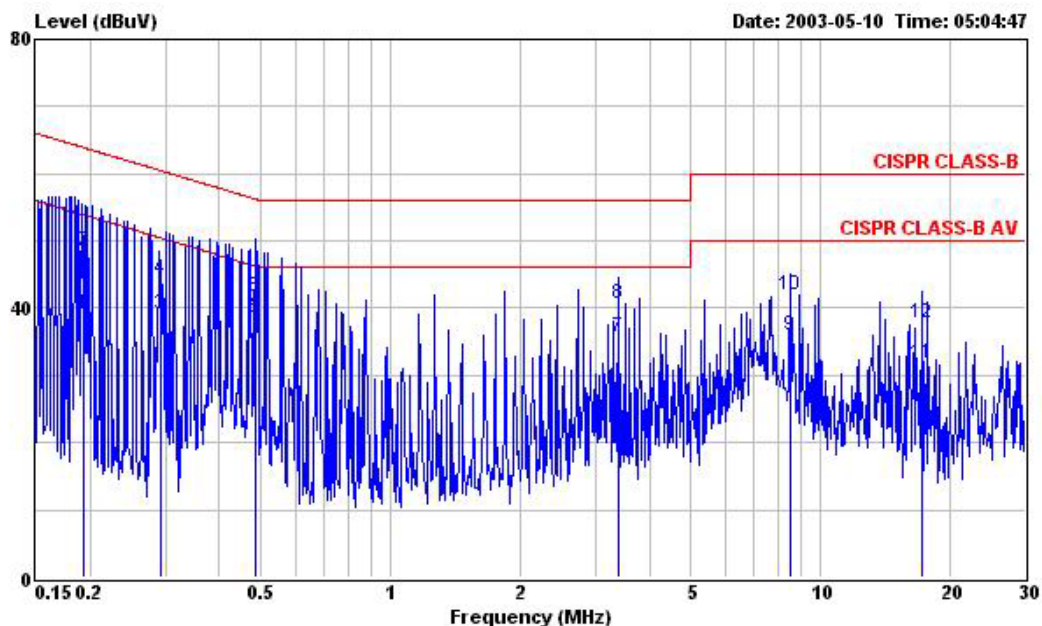
Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 NEUTRAL
 EUT : Wireless 2.4G AP
 Power : 110V/60Hz
 Memo : TX CH06 2437MHz
 : F341402
 : AP ADAPTER

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.176	23.47	-31.20	54.67	23.30	0.10	0.07	Average
2	0.176	53.42	-11.25	64.67	53.25	0.10	0.07	QP
3	0.239	21.34	-30.79	52.13	21.19	0.10	0.05	Average
4	0.239	50.18	-11.95	62.13	50.03	0.10	0.05	QP
5	0.373	24.20	-24.23	48.43	24.04	0.10	0.06	Average
6	0.373	46.90	-11.53	58.43	46.74	0.10	0.06	QP
7	0.442	28.48	-18.54	47.02	28.32	0.10	0.06	Average
8	0.442	45.46	-11.56	57.02	45.30	0.10	0.06	QP
9	0.858	17.23	-28.77	46.00	17.06	0.10	0.07	Average
10	0.858	23.29	-32.71	56.00	23.12	0.10	0.07	QP
11	1.120	6.93	-39.07	46.00	6.77	0.10	0.06	Average
12	1.120	30.26	-25.74	56.00	30.10	0.10	0.06	QP

Test Engineer: Jay
 Jay Zhong

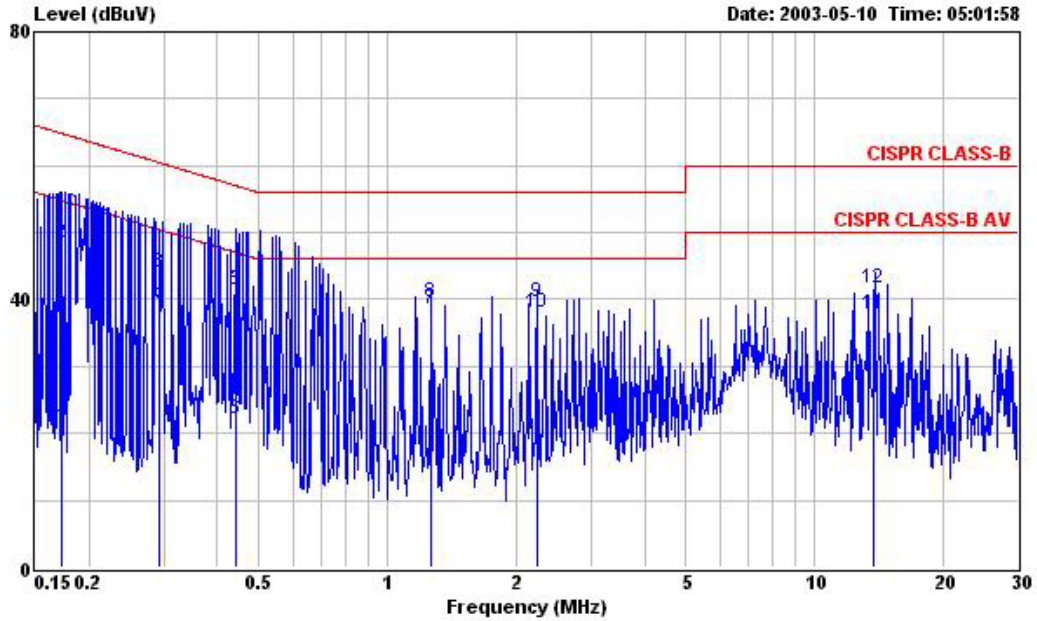
- Test Mode: Mode 4
- Frequency Range of Test: from 150KHz to 30 MHz
- 6dB Bandwidth: 9KHz
- Temperature: 24°C
- Relative Humidity: 60 %

■ The test was passed at the minimum margin that marked by a frame in the following data



Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 LINE
 EUT : Wireless 2.4G AP
 Power : 110V/60Hz
 Memo : TX CH06 2437MHz
 : F341402

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.194	39.04	-14.82	53.86	38.78	0.10	0.16	Average
2	0.194	48.57	-15.29	63.86	48.31	0.10	0.16	QP
3	0.291	39.07	-11.42	50.49	38.80	0.10	0.17	Average
4	0.291	44.42	-16.07	60.49	44.15	0.10	0.17	QP
5	0.487	38.62	-7.61	46.23	38.34	0.10	0.18	Average
6	0.487	41.65	-14.58	56.23	41.37	0.10	0.18	QP
7	3.403	35.69	-10.31	46.00	35.53	0.10	0.06	Average
8	3.403	40.65	-15.35	56.00	40.49	0.10	0.06	QP
9	8.553	35.88	-14.12	50.00	35.51	0.18	0.19	Average
10	8.553	41.98	-18.02	60.00	41.61	0.18	0.19	QP
11	17.203	31.91	-18.09	50.00	31.36	0.25	0.30	Average
12	17.203	37.90	-22.10	60.00	37.35	0.25	0.30	QP



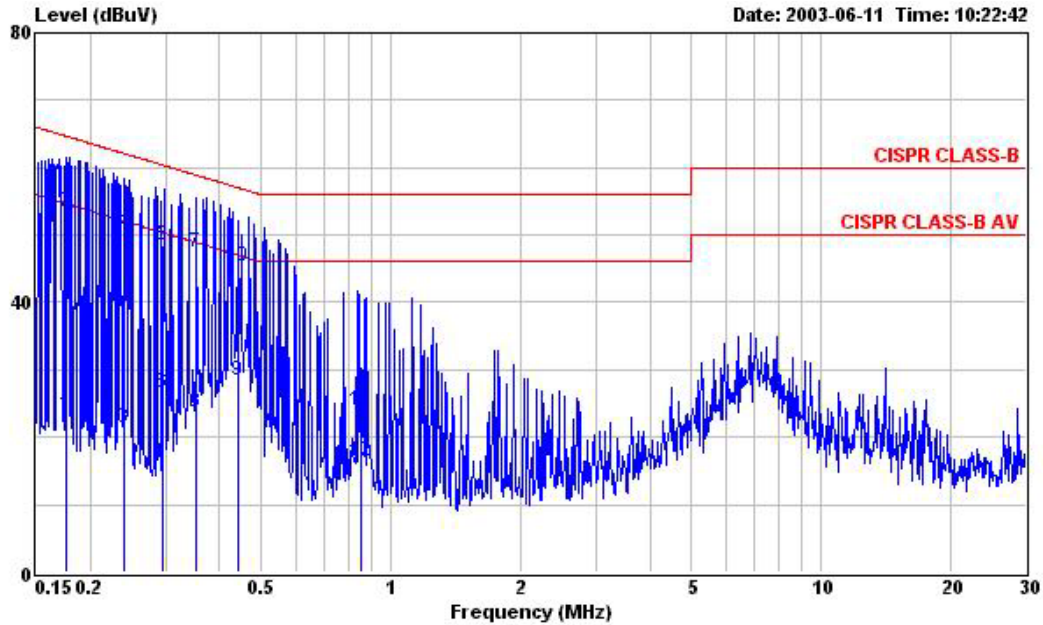
Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 NEUTRAL
 EUT : Wireless 2.4G AP
 Power : 110V/60Hz
 Memo : TX CH06 2437MHz
 : F341402

	Freq	Level	Over	Limit	Read	Probe	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.172	20.93	-33.93	54.86	20.64	0.10	0.19	Average
2	0.172	48.54	-16.32	64.86	48.25	0.10	0.19	QP
3	0.293	44.16	-16.29	60.45	43.89	0.10	0.17	QP
4	0.293	39.12	-11.33	50.45	38.85	0.10	0.17	Average
5	0.442	41.53	-15.49	57.02	41.25	0.10	0.18	QP
6	0.442	22.22	-24.80	47.02	21.94	0.10	0.18	Average
7	1.264	38.46	-7.54	46.00	38.22	0.10	0.14	Average
8	1.264	39.70	-16.30	56.00	39.46	0.10	0.14	QP
9	2.237	39.53	-16.47	56.00	39.36	0.12	0.05	QP
10	2.237	38.14	-7.86	46.00	37.97	0.12	0.05	Average
11	13.815	37.70	-12.30	50.00	37.12	0.28	0.30	Average
12	13.815	41.65	-18.35	60.00	41.07	0.28	0.30	QP

Test Engineer: Jay
 Jay Zhong

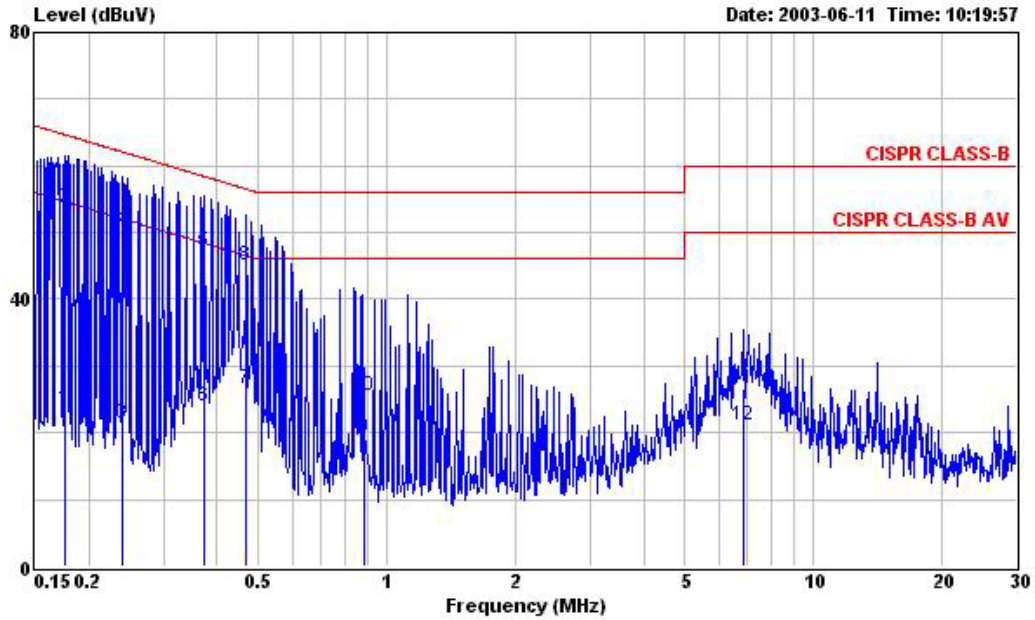
- Test Mode: Mode 5
- Frequency Range of Test: from 150KHz to 30 MHz
- 6dB Bandwidth: 9KHz
- Temperature: 24°C
- Relative Humidity: 60 %

■ The test was passed at the minimum margin that marked by a frame in the following data



Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 LINE
 EUT : Wireless 2.4G AP
 Power : 110V/60Hz
 Memo : TX CH11 2462MHz
 : F341402
 : AP ADAPTER

	Freq	Level	Over	Limit	Read	Probe	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.176	23.57	-31.10	54.67	23.40	0.10	0.07	Average
2	0.176	53.46	-11.21	64.67	53.29	0.10	0.07	QP
3	0.239	21.40	-30.73	52.13	21.25	0.10	0.05	Average
4	0.239	50.34	-11.79	62.13	50.19	0.10	0.05	QP
5	0.294	48.59	-11.83	60.42	48.44	0.10	0.05	QP
6	0.294	26.46	-23.96	50.42	26.31	0.10	0.05	Average
7	0.354	47.35	-11.52	58.87	47.19	0.10	0.06	QP
8	0.354	23.78	-25.09	48.87	23.62	0.10	0.06	Average
9	0.442	28.43	-18.59	47.02	28.27	0.10	0.06	Average
10	0.442	45.46	-11.56	57.02	45.30	0.10	0.06	QP
11	0.856	24.02	-31.98	56.00	23.85	0.10	0.07	QP
12	0.856	16.36	-29.64	46.00	16.19	0.10	0.07	Average



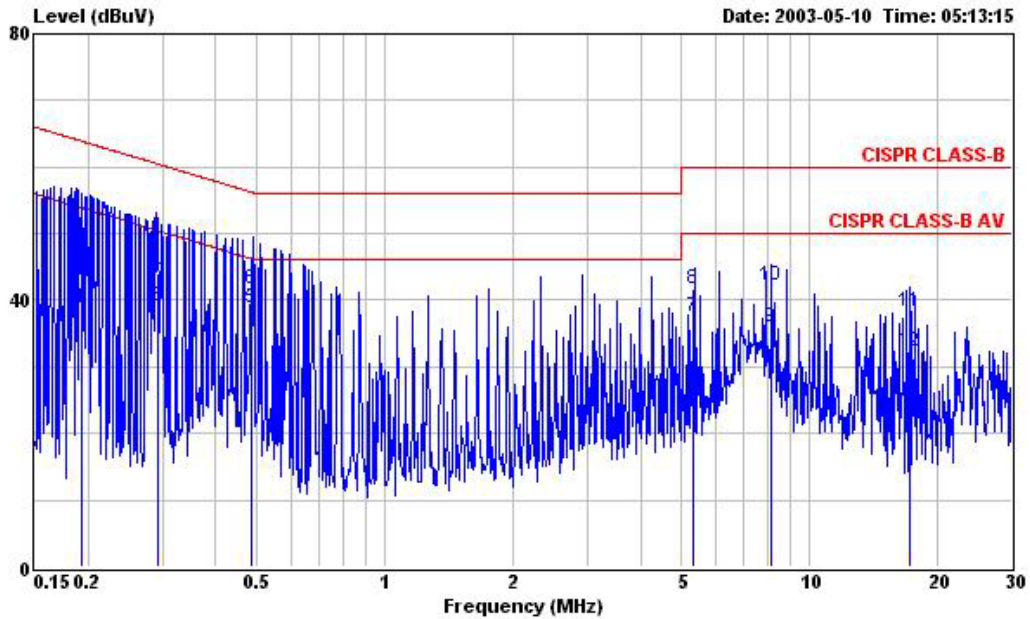
Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 NEUTRAL
 EUT : Wireless 2.4G AP
 Power : 110V/60Hz
 Memo : TX CH11 2462MHz
 : F341402
 : AP ADAPTER

	Over	Limit	Read	Probe	Cable		
Freq	Level	Limit	Line	Level	Factor	Loss	Remark
MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.176	23.73	-30.94	54.67	23.56	0.10	0.07 Average
2	0.176	53.56	-11.11	64.67	53.39	0.10	0.07 QP
3	0.239	21.50	-30.63	52.13	21.35	0.10	0.05 Average
4	0.239	50.36	-11.77	62.13	50.21	0.10	0.05
5	0.373	47.06	-11.37	58.43	46.90	0.10	0.06 QP
6	0.373	24.04	-24.39	48.43	23.88	0.10	0.06 Average
7	0.469	26.51	-20.02	46.53	26.35	0.10	0.06 Average
8	0.469	44.96	-11.57	56.53	44.80	0.10	0.06 QP
9	0.888	19.35	-26.65	46.00	19.18	0.10	0.07 Average
10	0.888	25.54	-30.46	56.00	25.37	0.10	0.07 QP
11	6.840	26.62	-33.38	60.00	26.24	0.20	0.18 QP
12	6.840	20.99	-29.01	50.00	20.61	0.20	0.18 Average

Test Engineer: Jay
 Jay Zhong

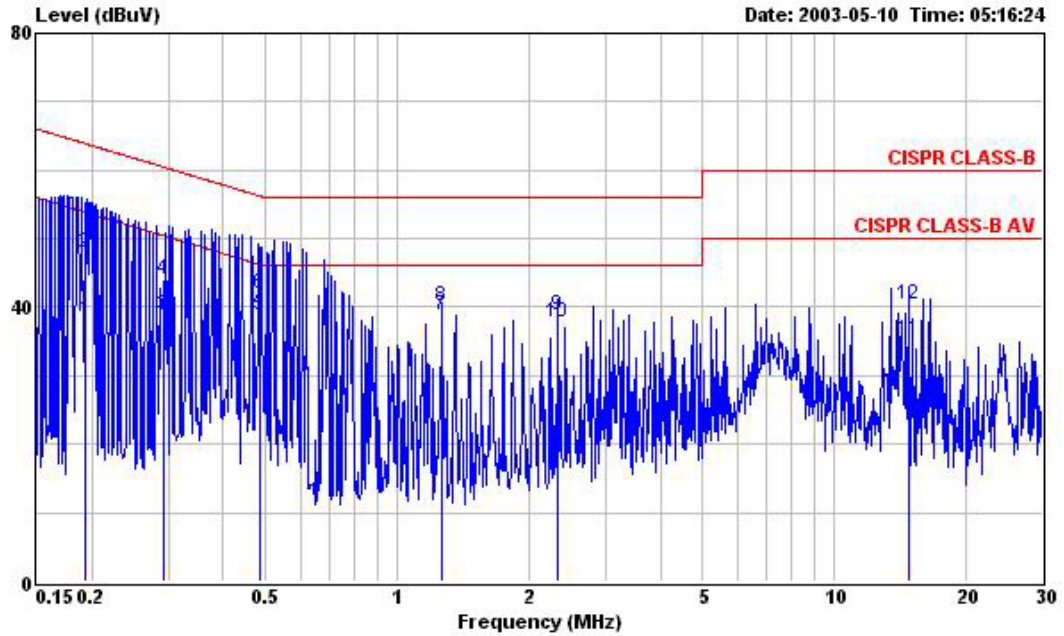
- Test Mode: Mode 6
- Frequency Range of Test: from 150KHz to 30 MHz
- 6dB Bandwidth: 9KHz
- Temperature: 24°C
- Relative Humidity: 60 %

■ The test was passed at the minimum margin that marked by a frame in the following data



Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 LINE
 EUT : Wireless 2.4G AP
 Power : 110V/60Hz
 Memo : TX CH11 2462MHz
 : F341402

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.194	38.89	-14.97	53.86	38.63	0.10	0.16	Average
2	0.194	48.32	-15.54	63.86	48.06	0.10	0.16	QP
3	0.292	38.96	-11.52	50.48	38.69	0.10	0.17	Average
4	0.292	44.12	-16.36	60.48	43.85	0.10	0.17	QP
5	0.486	38.79	-7.45	46.24	38.51	0.10	0.18	Average
6	0.486	41.71	-14.53	56.24	41.43	0.10	0.18	QP
7	5.338	37.52	-12.48	50.00	37.28	0.13	0.11	Average
8	5.338	41.71	-18.29	60.00	41.47	0.13	0.11	QP
9	8.153	35.96	-14.04	50.00	35.60	0.18	0.18	Average
10	8.153	42.27	-17.73	60.00	41.91	0.18	0.18	QP
11	17.276	38.34	-21.66	60.00	37.79	0.25	0.30	QP
12	17.276	32.19	-17.81	50.00	31.64	0.25	0.30	Average



Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 NEUTRAL
 EUT : Wireless 2.4G AP
 Power : 110V/60Hz
 Memo : TX CH11 2462MHz
 : F341402

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.193	38.02	-15.88	53.90	37.75	0.10	0.17	Average
2	0.193	48.05	-15.85	63.90	47.78	0.10	0.17	QP
3	0.292	38.80	-11.66	50.46	38.53	0.10	0.17	Average
4	0.292	44.14	-16.32	60.46	43.87	0.10	0.17	QP
5	0.485	38.79	-7.46	46.25	38.51	0.10	0.18	Average
6	0.485	42.01	-14.24	56.25	41.73	0.10	0.18	QP
7	1.260	38.74	-7.26	46.00	38.50	0.10	0.14	Average
8	1.260	40.10	-15.90	56.00	39.86	0.10	0.14	QP
9	2.327	38.79	-17.21	56.00	38.62	0.12	0.05	QP
10	2.327	37.83	-8.17	46.00	37.66	0.12	0.05	Average
11	14.844	35.29	-14.71	50.00	34.67	0.30	0.32	Average
12	14.844	40.42	-19.58	60.00	39.80	0.30	0.32	QP

Test Engineer: Jay
 Jay Zhong