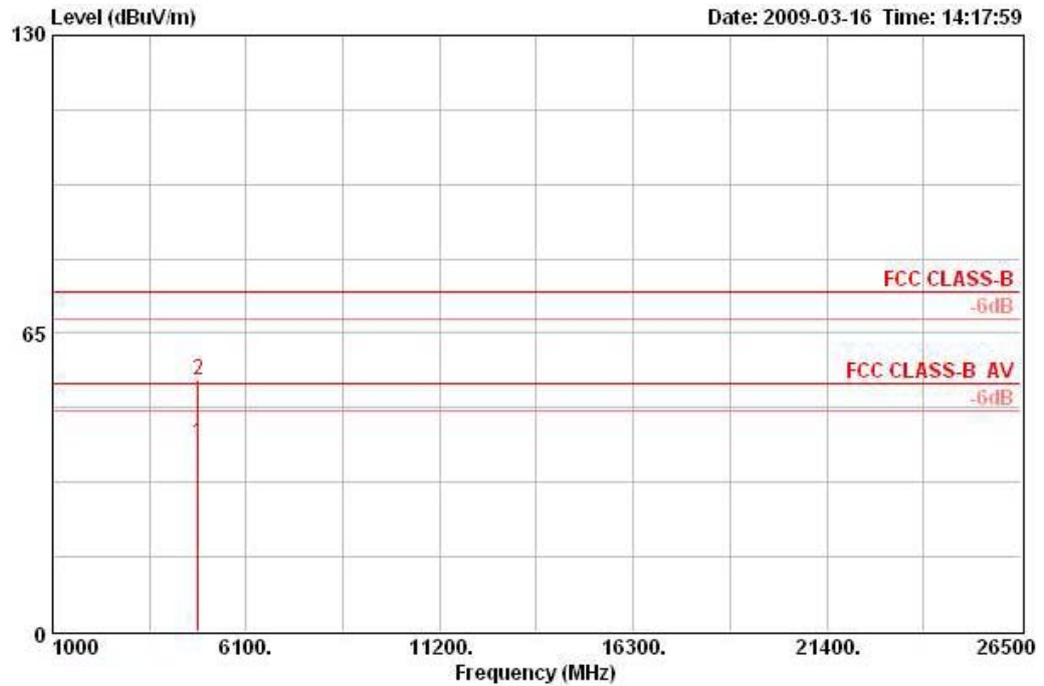


4.5.9. Results for Radiated Emissions (1GHz~10<sup>th</sup> Harmonic)

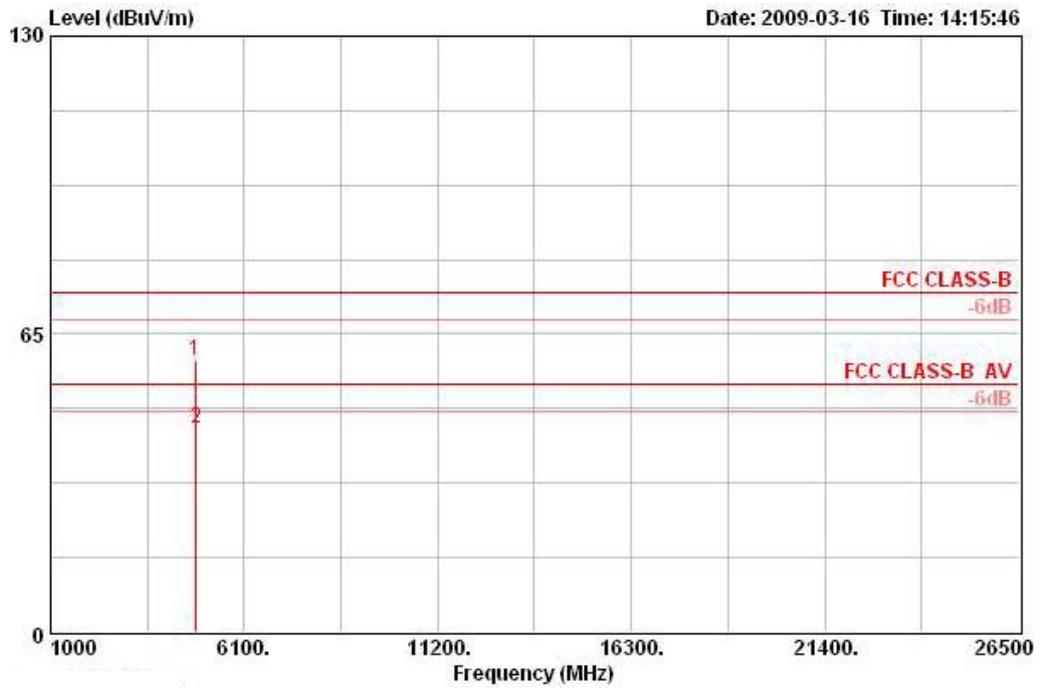
Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	Draft n MCS0 20MHz Ch 1 Ant. A

## Horizontal



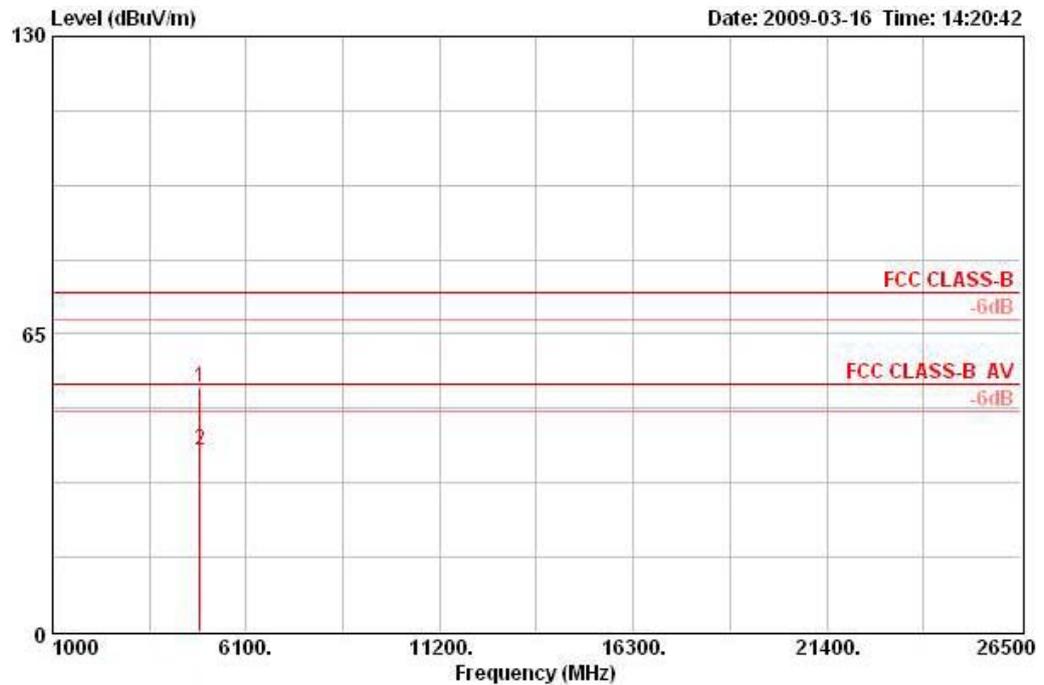
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	4824.280	41.17	-12.83	54.00	39.19	33.06	35.04	3.96	AVERAGE	HORIZONTAL	181	129
2	4825.920	54.71	-19.29	74.00	52.73	33.06	35.04	3.96	PEAK	HORIZONTAL	181	129

Vertical



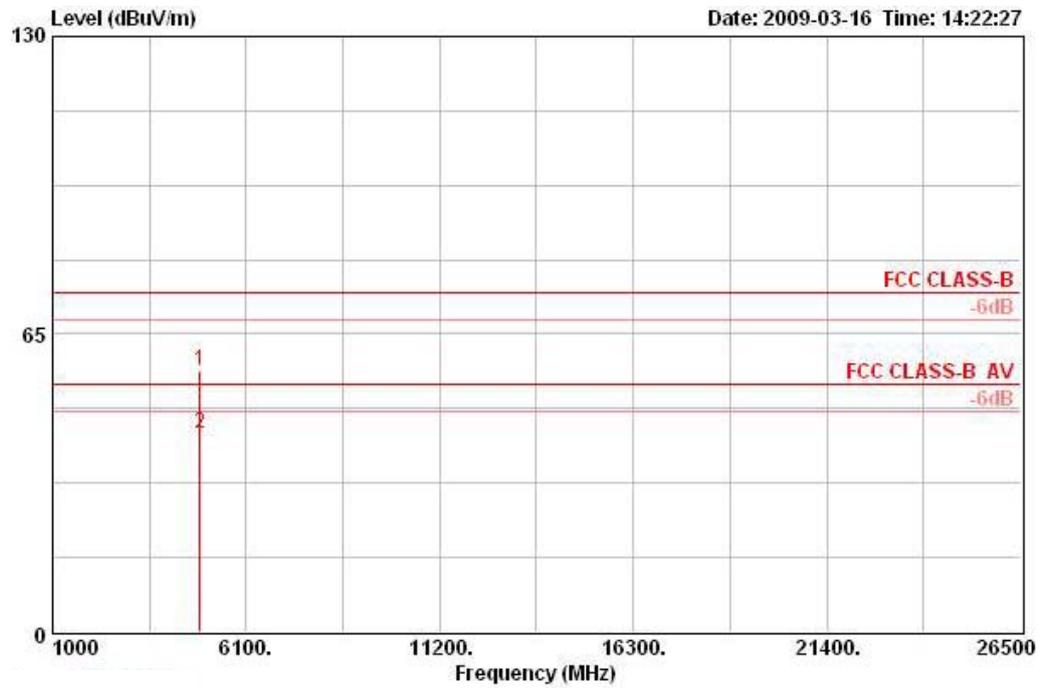
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	4820.360	59.21	-14.79	74.00	57.23	33.06	35.04	3.96	PEAK	VERTICAL	117	100
2	4824.200	44.45	-9.55	54.00	42.47	33.06	35.04	3.96	AVERAGE	VERTICAL	117	100

Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	Draft n MCS0 20MHz Ch 6 Ant. A

**Horizontal**


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB			deg	cm
1	4870.320	53.23	-20.77	74.00	51.17	33.12	35.03	3.97 PEAK	HORIZONTAL	186	100
2	4874.160	39.79	-14.21	54.00	37.69	33.16	35.03	3.97 AVERAGE	HORIZONTAL	186	100

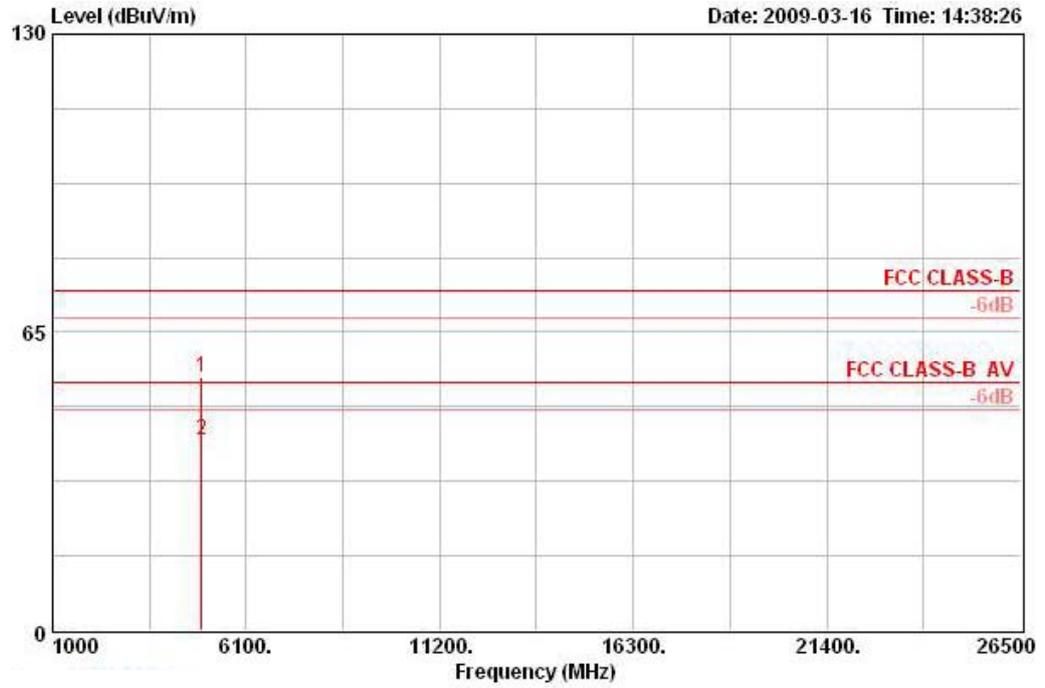
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB	dB			deg	cm
1	4870.360	57.19	-16.81	74.00	55.13	33.12	35.03	3.97	PEAK	VERTICAL	55	100
2	4874.240	43.37	-10.63	54.00	41.27	33.16	35.03	3.97	AVERAGE	VERTICAL	55	100

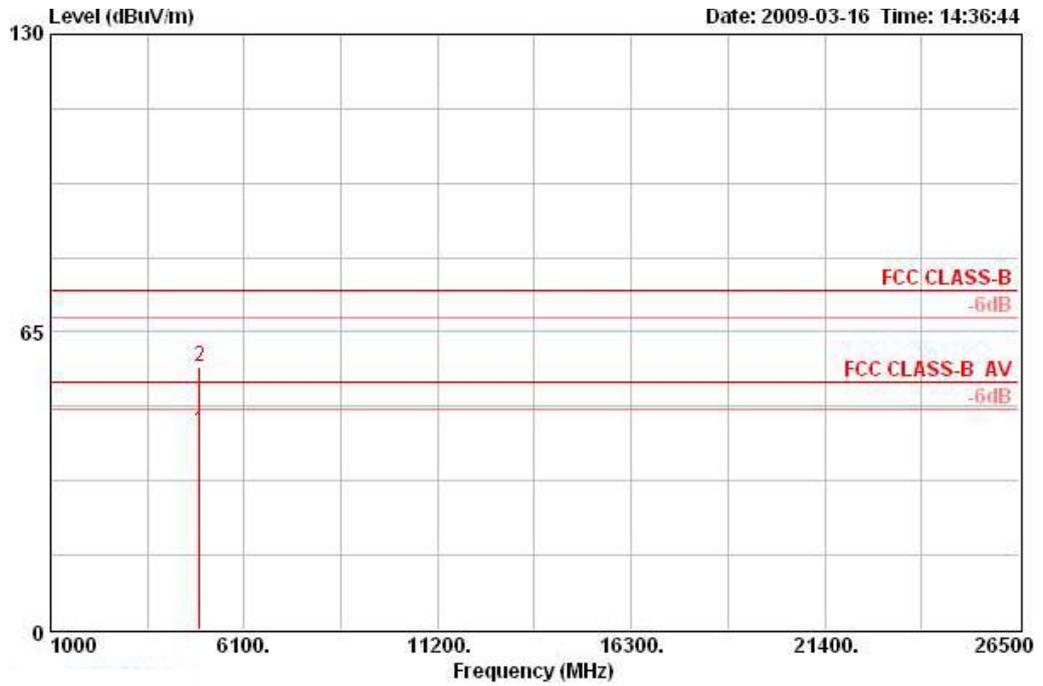
Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	Draft n MCS0 20MHz Ch11 Ant. A

**Horizontal**



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 @	4926.040	55.08	-18.92	74.00	52.86	33.26	35.02	3.97	PEAK	HORIZONTAL	191	173
2 @	4926.160	41.49	-12.51	54.00	39.27	33.26	35.02	3.97	AVERAGE	HORIZONTAL	191	173

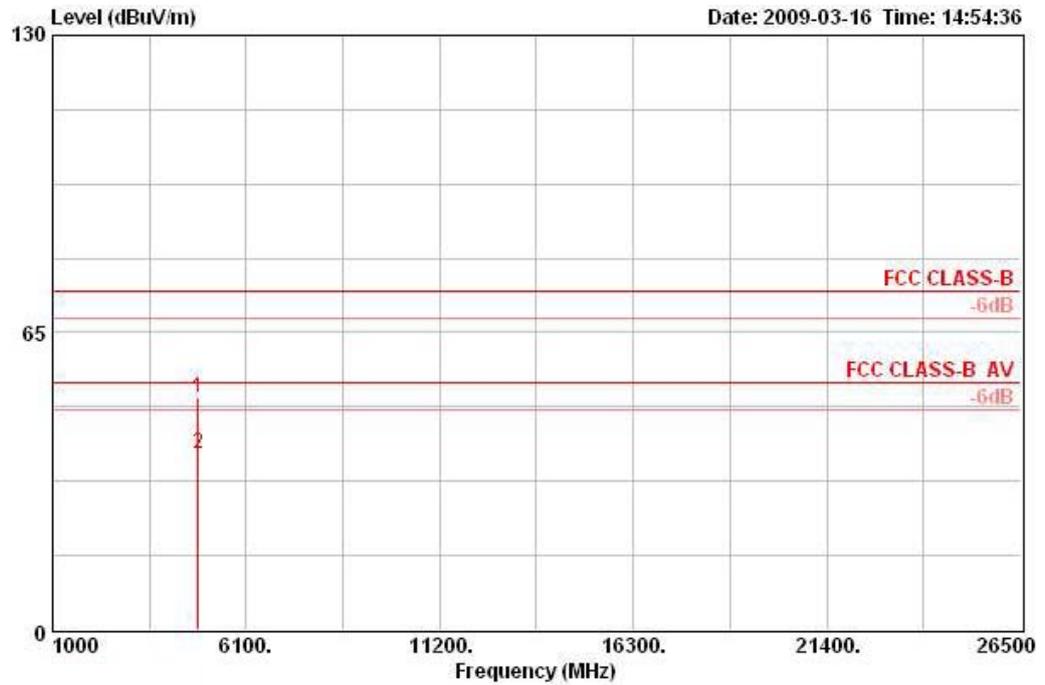
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB	dB			deg	cm
1	4924.180	43.50	-10.50	54.00	41.29	33.26	35.02	3.97	AVERAGE	VERTICAL	177	100
2	4926.140	57.27	-16.73	74.00	55.05	33.26	35.02	3.97	PEAK	VERTICAL	177	100

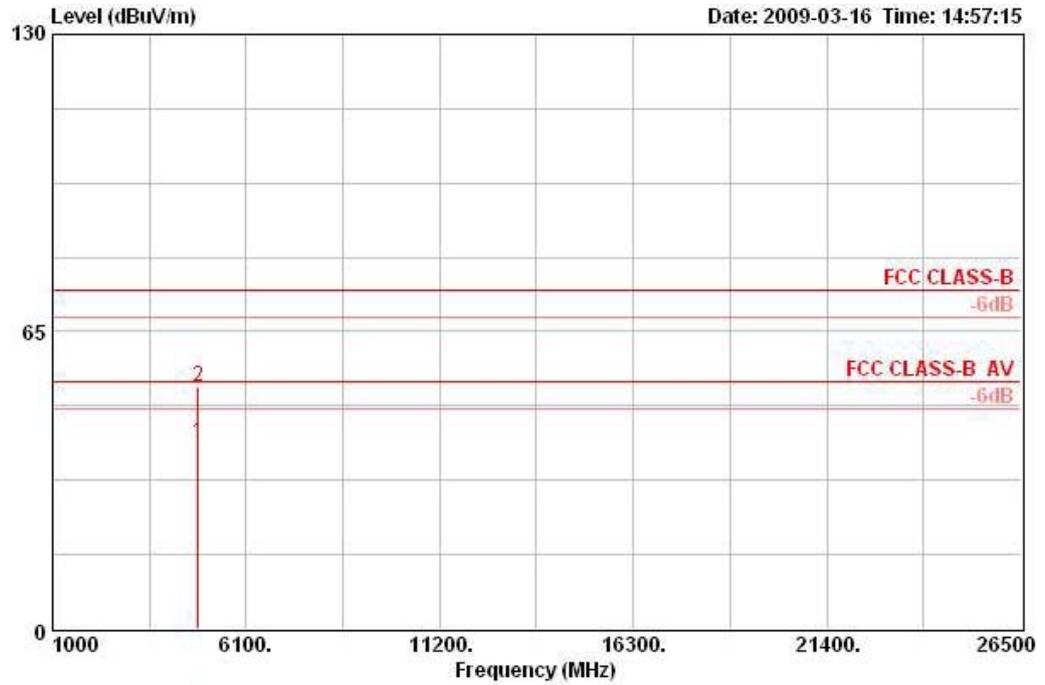
Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	Draft n MCS0 40MHz Ch 3 Ant. A

**Horizontal**



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	4843.000	50.70	-23.30	74.00	48.68	33.09	35.04	3.96	PEAK	HORIZONTAL	185	100
2	4844.300	38.37	-15.63	54.00	36.35	33.09	35.03	3.96	AVERAGE	HORIZONTAL	185	100

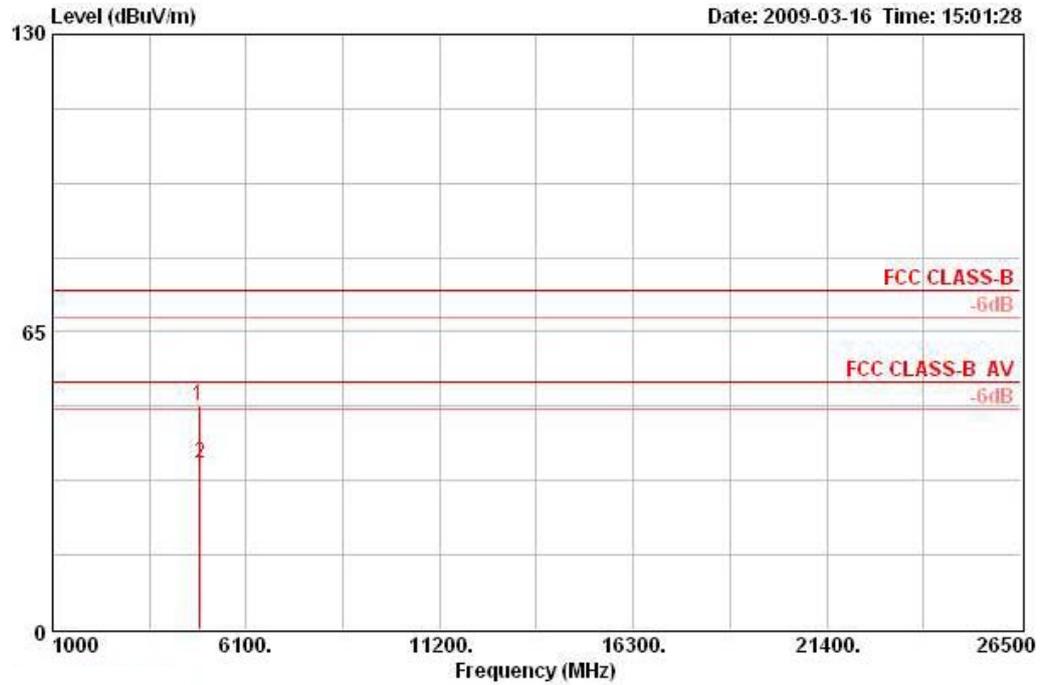
Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	4844.100	40.56	-13.44	54.00	38.54	33.09	35.03	3.96	AVERAGE	VERTICAL	111	100
2	4844.500	53.09	-20.91	74.00	51.07	33.09	35.03	3.96	PEAK	VERTICAL	111	100

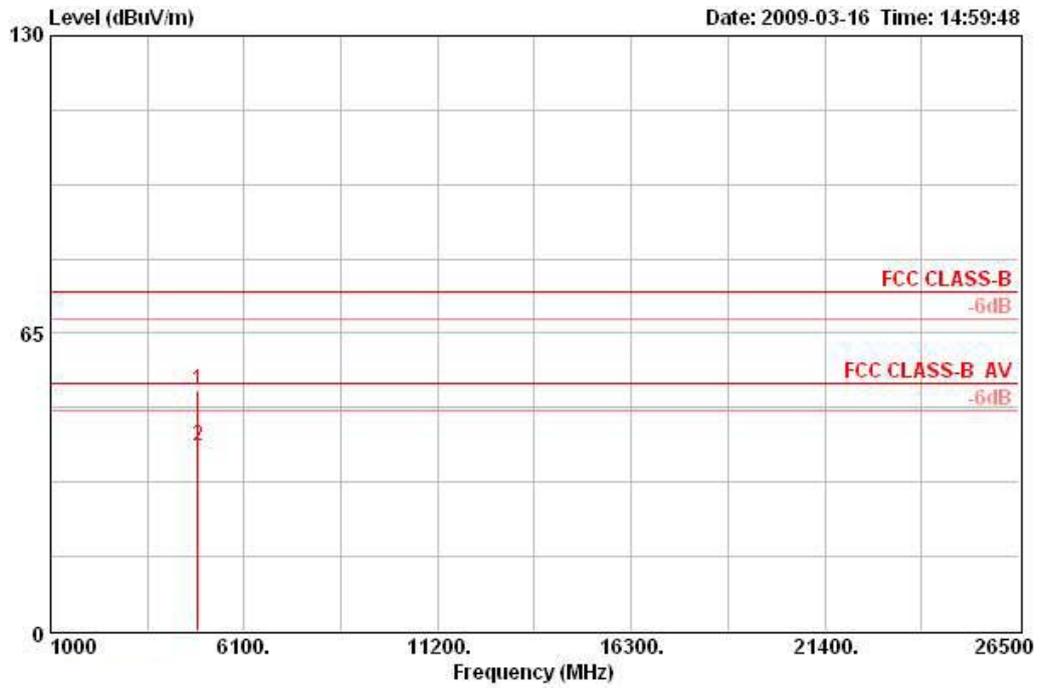
Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	Draft n MCS0 40MHz Ch 6 Ant. A

**Horizontal**



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	4860.900	48.87	-25.13	74.00	46.81	33.12	35.03	3.97	PEAK	HORIZONTAL	185	100
2	4874.300	36.16	-17.84	54.00	34.06	33.16	35.03	3.97	AVERAGE	HORIZONTAL	185	100

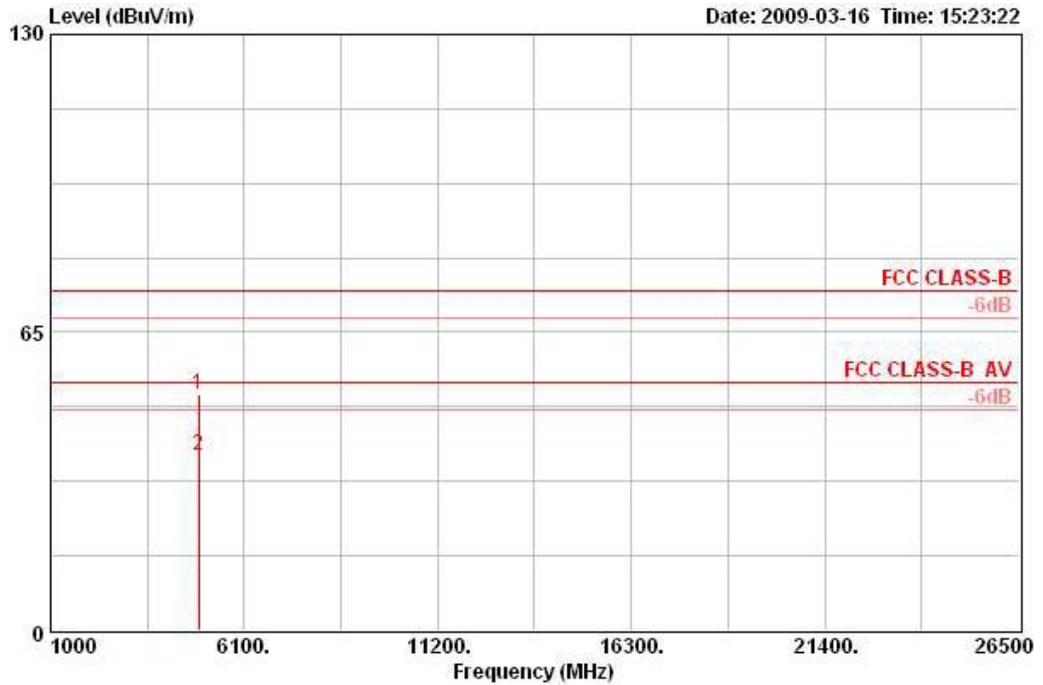
**Vertical**



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	4873.800	52.45	-21.55	74.00	50.35	33.16	35.03	3.97	PEAK	VERTICAL	115	100
2	4874.000	40.21	-13.79	54.00	38.11	33.16	35.03	3.97	AVERAGE	VERTICAL	115	100

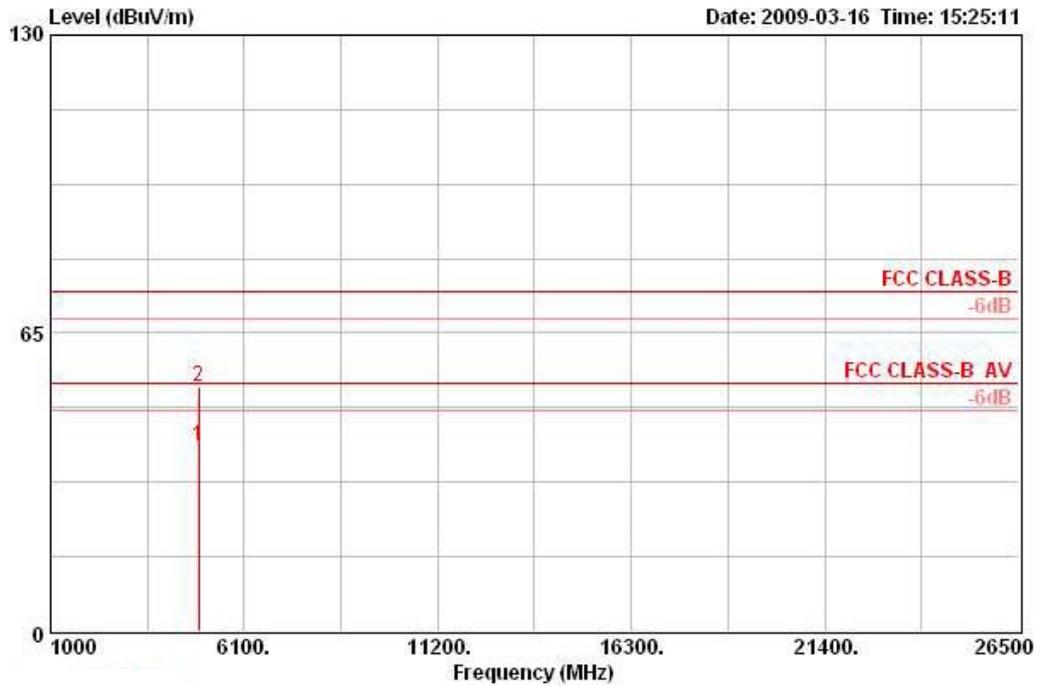
Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	Draft n MCS0 40MHz Ch 9 Ant. A

**Horizontal**



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	4902.600	51.34	-22.66	74.00	49.20	33.19	35.02	3.97	PEAK	HORIZONTAL	182	143
2	4904.000	38.19	-15.81	54.00	36.05	33.19	35.02	3.97	AVERAGE	HORIZONTAL	182	143

**Vertical**



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	4904.100	40.55	-13.45	54.00	38.41	33.19	35.02	3.97	AVERAGE	VERTICAL	176	100
2	4904.500	53.19	-20.81	74.00	51.05	33.19	35.02	3.97	PEAK	VERTICAL	176	100

**Note:**

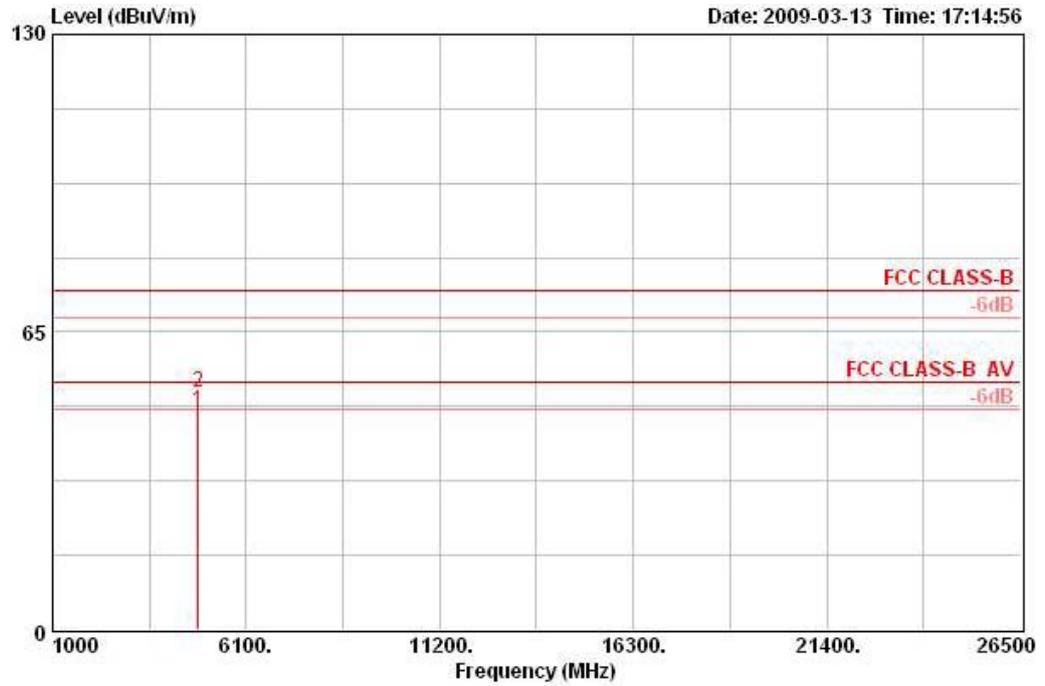
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Emission level (dBUV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

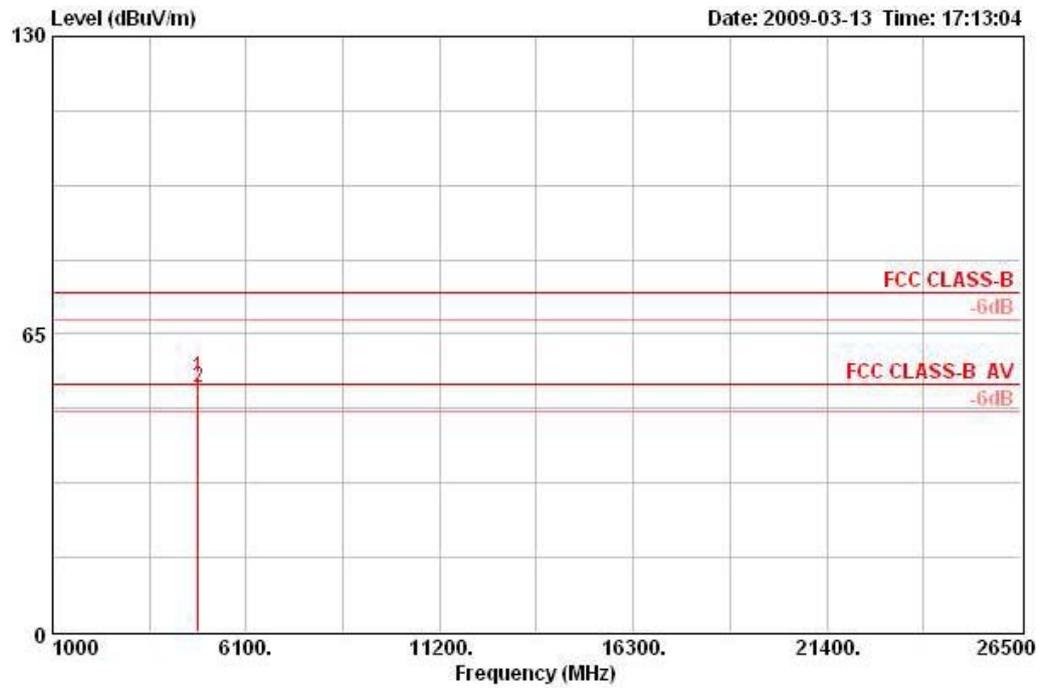
Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	802.11b CH 1 Ant. A

**Horizontal**



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB			deg	cm
1	4824.070	47.62	-6.38	54.00	45.64	33.06	35.04	3.96 AVERAGE	HORIZONTAL	188	100
2	4824.080	51.79	-22.21	74.00	49.81	33.06	35.04	3.96 PEAK	HORIZONTAL	188	100

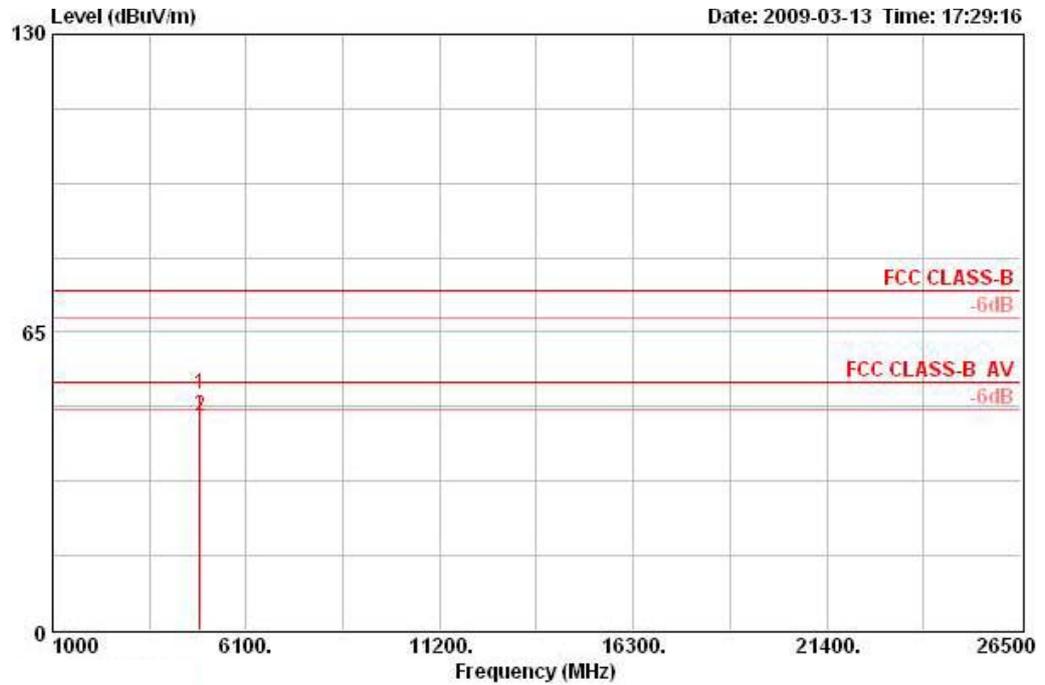
Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	4823.990	55.54	-18.46	74.00	53.56	33.06	35.04	3.96	PEAK	VERTICAL	231	112
2	4824.070	53.33	-0.67	54.00	51.35	33.06	35.04	3.96	AVERAGE	VERTICAL	231	112

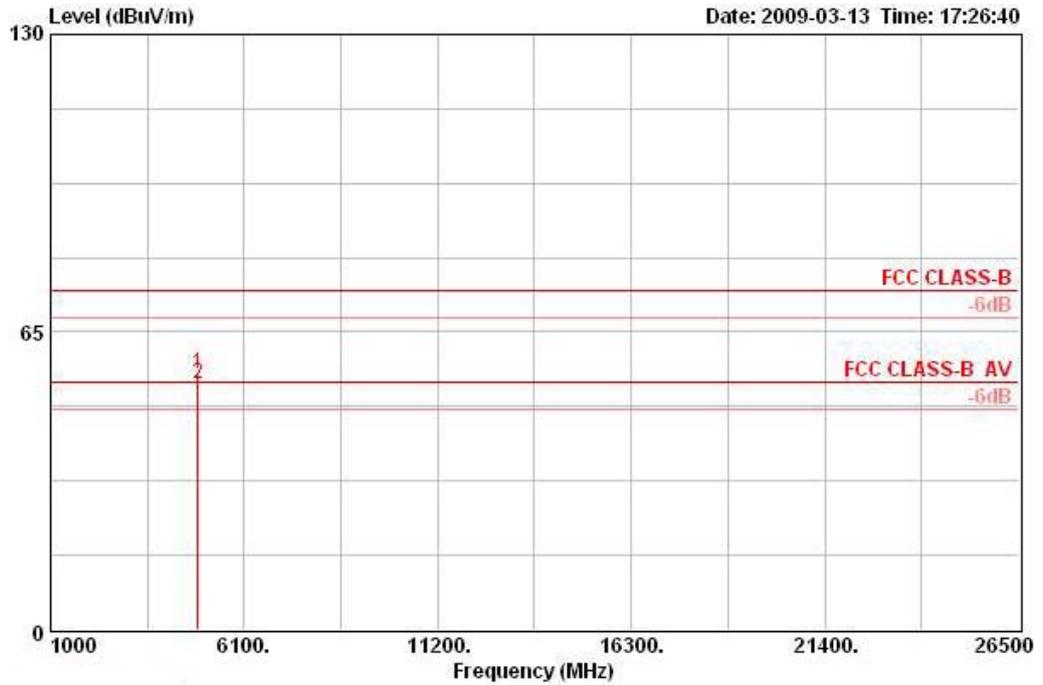
Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	802.11b CH 6 Ant. A

**Horizontal**



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	4874.030	51.56	-22.44	74.00	49.46	33.16	35.03	3.97	PEAK	HORIZONTAL	8	100
2	4874.070	46.85	-7.15	54.00	44.75	33.16	35.03	3.97	AVERAGE	HORIZONTAL	8	100

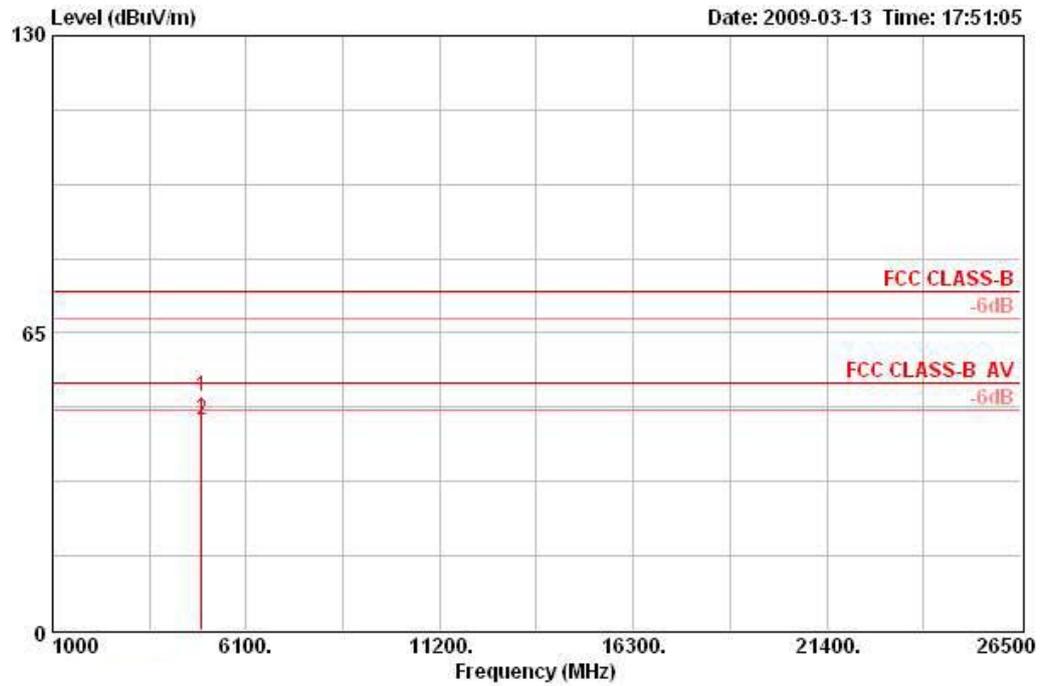
**Vertical**



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	4874.050	56.03	-17.97	74.00	53.93	33.16	35.03	3.97	PEAK	VERTICAL	221	100
2	4874.070	53.71	-0.29	54.00	51.62	33.16	35.03	3.97	AVERAGE	VERTICAL	221	100

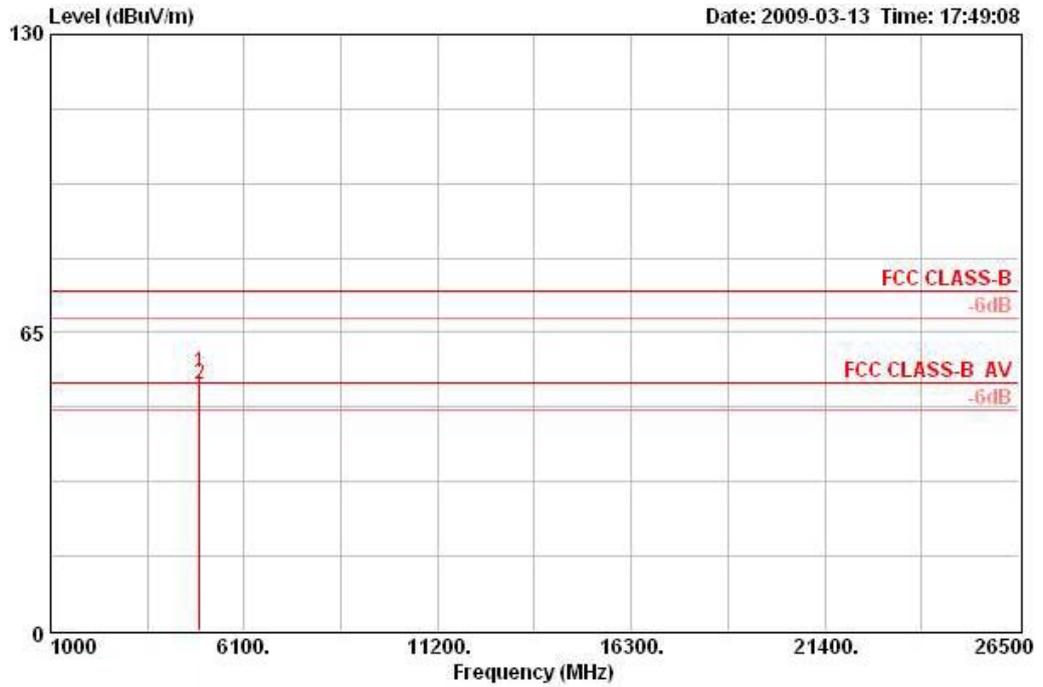
Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	802.11b CH 11 Ant. A

**Horizontal**



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB			deg	cm
1	4924.020	51.25	-22.75	74.00	49.03	33.26	35.02	3.97 PEAK	HORIZONTAL	209	100
2	4924.070	45.87	-8.13	54.00	43.65	33.26	35.02	3.97 AVERAGE	HORIZONTAL	209	100

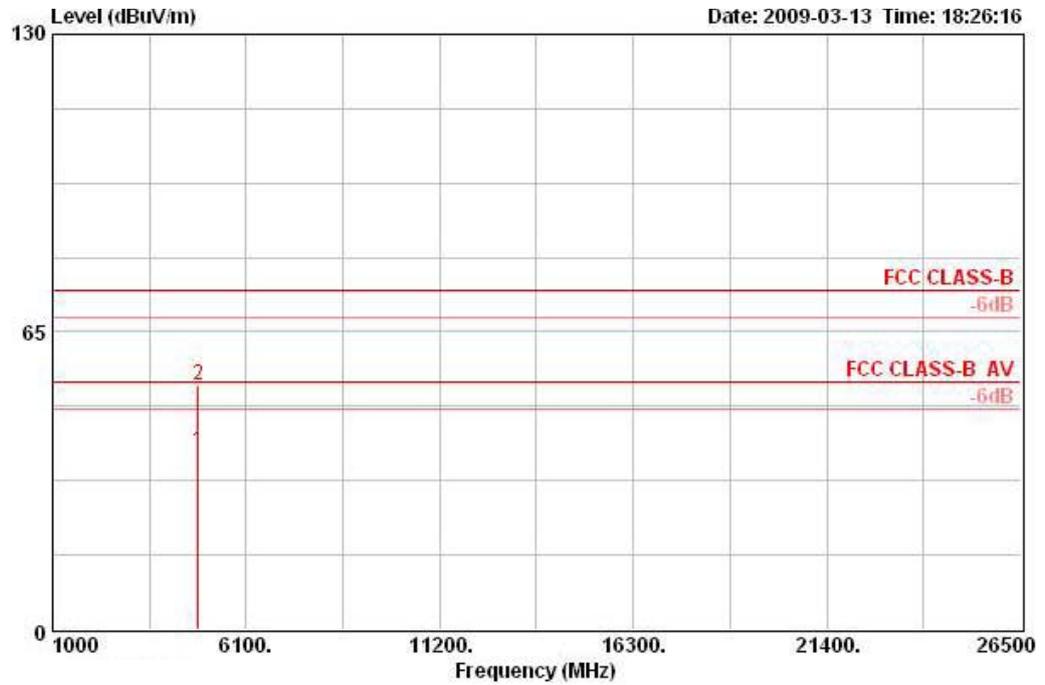
**Vertical**



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB			deg	cm
1	4924.060	56.17	-17.83	74.00	53.95	33.26	35.02	3.97 PEAK	VERTICAL	213	100
2	4924.070	53.73	-0.27	54.00	51.52	33.26	35.02	3.97 AVERAGE	VERTICAL	213	100

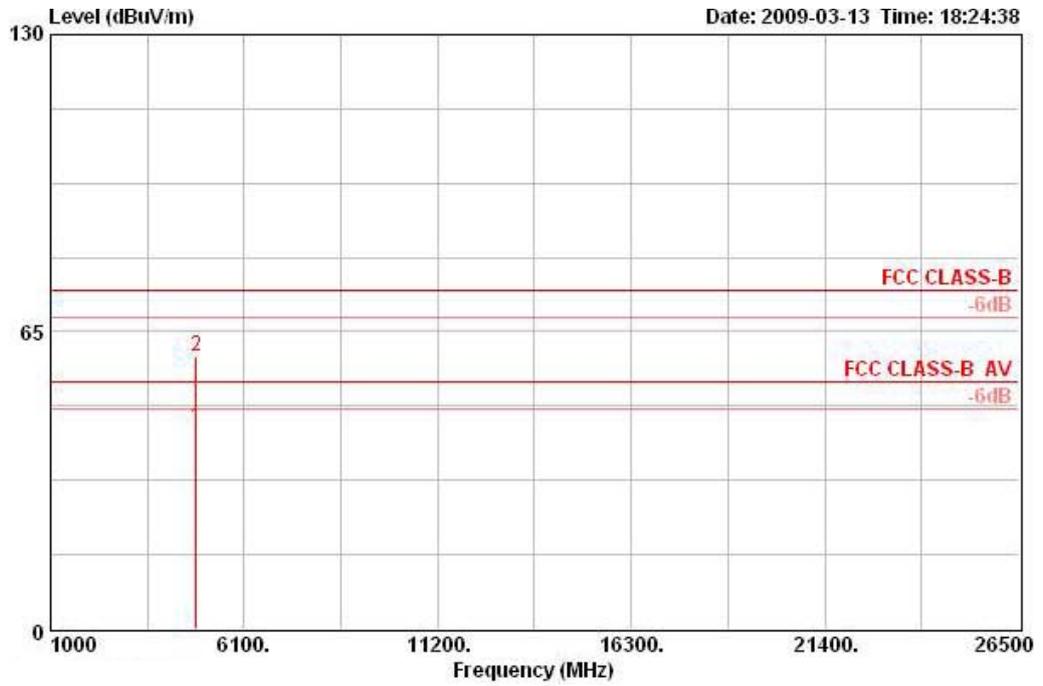
<b>Temperature</b>	22°C	<b>Humidity</b>	56%
<b>Test Engineer</b>	Alan Huang	<b>Configurations</b>	802.11g CH 1 Ant. A

**Horizontal**



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 ☒	4824.080	38.82	-15.18	54.00	36.84	33.06	35.04	3.96	AVERAGE	HORIZONTAL	189	113
2 ☒	4826.280	53.52	-20.48	74.00	51.54	33.06	35.04	3.96	PEAK	HORIZONTAL	189	113

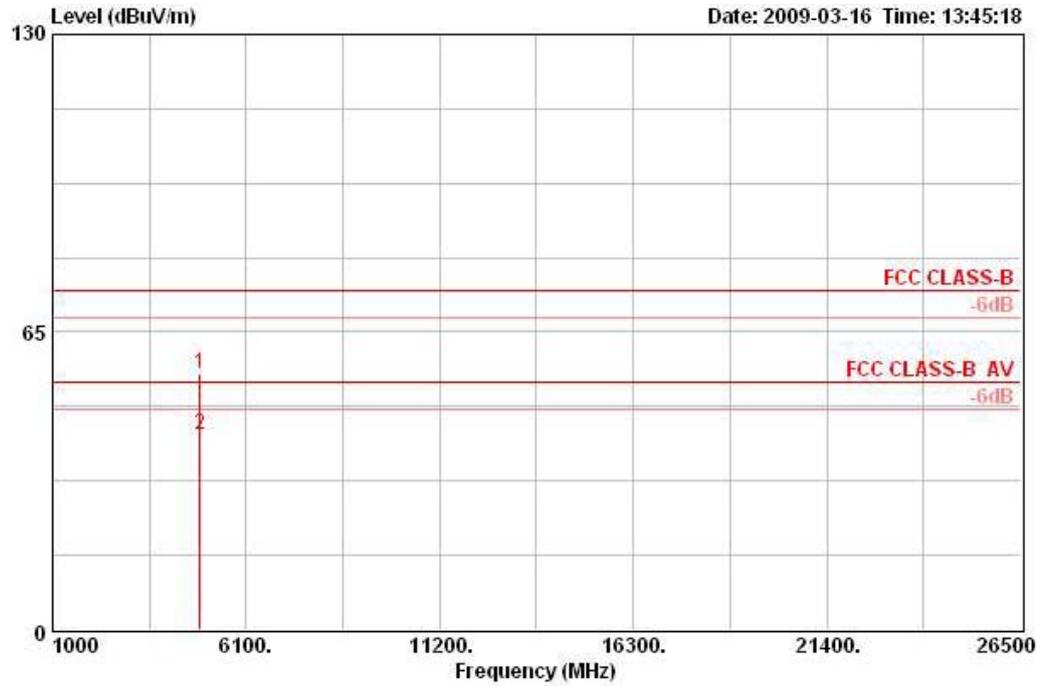
Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB			deg	cm
1 ☒	4826.040	44.22	-9.78	54.00	42.24	33.06	35.04	3.96 AVERAGE	VERTICAL	234	100
2 ☒	4826.360	59.70	-14.30	74.00	57.72	33.06	35.04	3.96 PEAK	VERTICAL	234	100

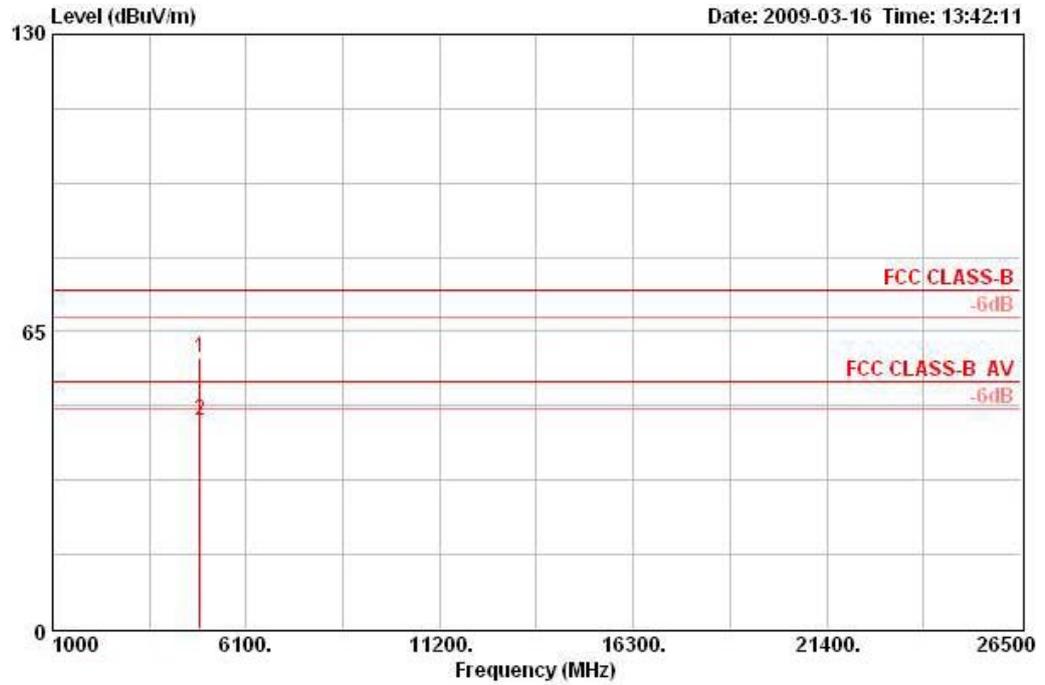
Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	802.11g CH 6 Ant. A

**Horizontal**



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB			deg	cm
1	4870.120	56.02	-17.98	74.00	53.96	33.12	35.03	3.97 PEAK	HORIZONTAL	185	147
2	4874.240	42.60	-11.40	54.00	40.50	33.16	35.03	3.97 AVERAGE	HORIZONTAL	185	147

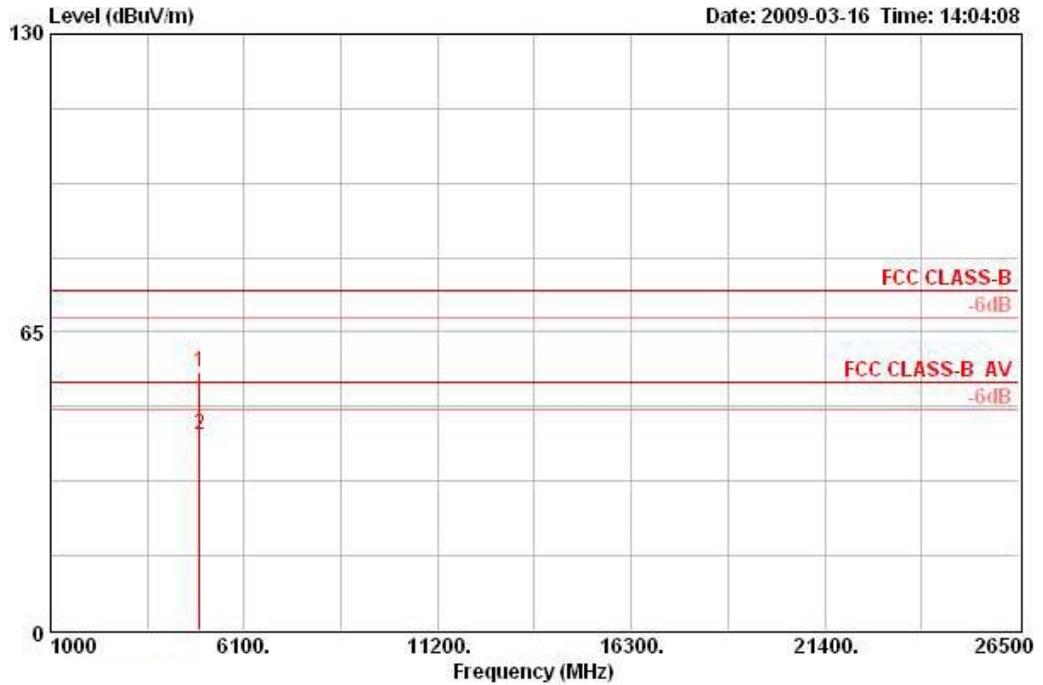
Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB			deg	cm
1	4870.200	59.36	-14.64	74.00	57.30	33.12	35.03	3.97 PEAK	VERTICAL	55	100
2	4874.200	45.49	-8.51	54.00	43.39	33.16	35.03	3.97 AVERAGE	VERTICAL	55	100

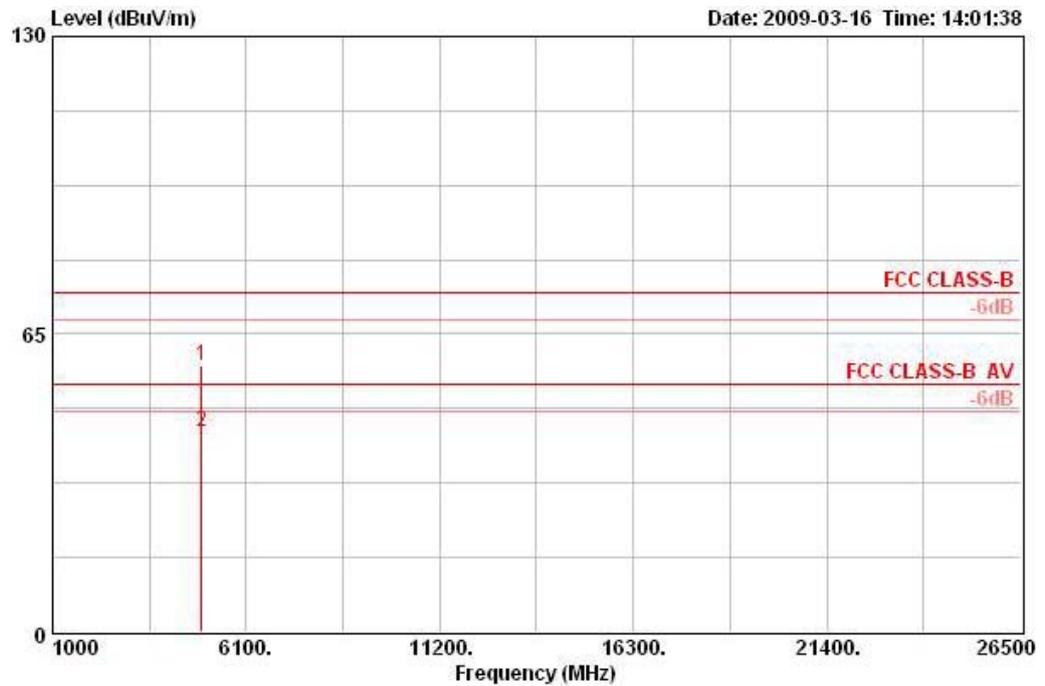
Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	802.11g CH 11 Ant. A

**Horizontal**



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	4920.360	56.13	-17.87	74.00	53.95	33.23	35.02	3.97	PEAK	HORIZONTAL	188	200
2	4924.240	42.69	-11.31	54.00	40.47	33.26	35.02	3.97	AVERAGE	HORIZONTAL	188	200

**Vertical**



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB	dB			deg	cm
1	4920.280	58.07	-15.93	74.00	55.88	33.23	35.02	3.97	PEAK	VERTICAL	173	100
2	4924.160	43.86	-10.14	54.00	41.64	33.26	35.02	3.97	AVERAGE	VERTICAL	173	100

**Note:**

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBUV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

## 4.6. Band Edge Emissions Measurement

### 4.6.1. Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micovolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

### 4.6.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RB / VB (Emission in restricted band)	1 MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	100 KHz /100 KHz for Peak

### 4.6.3. Test Procedures

1. The test procedure is the same as section 4.5.3, only the frequency range investigated is limited to 100MHz around bandedges.
2. In case the emission is fail due to the used RB/VB is too wide, marker-delta method of FCC Public Notice DA00-705 will be followed.

### 4.6.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.5.4.

### 4.6.5. Test Deviation

There is no deviation with the original standard.

### 4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

## 4.6.7. Test Result of Band Edge and Fundamental Emissions

Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	Draft n MCS0 20MHz Ch 1, 6, 11 Ant. A
Test Date	Mar. 16, 2009		

## Channel 1

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 ☒	2389.000	57.04	-16.96	74.00	26.11	28.17	0.00	2.76	PEAK	VERTICAL	49	100
2 ☒	2390.000	44.50	-9.50	54.00	13.57	28.17	0.00	2.76	AVERAGE	VERTICAL	49	100
3 ☒	2413.400	86.54			55.56	28.21	0.00	2.77	AVERAGE	VERTICAL	49	100
4 ☒	2414.200	95.70			64.72	28.21	0.00	2.77	PEAK	VERTICAL	49	100

Item 3, 4 are the fundamental frequency at 2412 MHz

## Channel 6

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 ☒	2388.800	55.94	-18.06	74.00	25.01	28.17	0.00	2.76	PEAK	VERTICAL	49	100
2 ☒	2390.000	44.16	-9.84	54.00	13.23	28.17	0.00	2.76	AVERAGE	VERTICAL	49	100
3 ☒	2434.000	95.58			64.50	28.29	0.00	2.78	PEAK	VERTICAL	49	100
4 ☒	2435.000	86.36			55.28	28.29	0.00	2.78	AVERAGE	VERTICAL	49	100
5 ☒	2483.500	44.28	-9.72	54.00	13.10	28.37	0.00	2.81	AVERAGE	VERTICAL	49	100
6 ☒	2484.300	55.13	-18.87	74.00	23.95	28.37	0.00	2.81	PEAK	VERTICAL	49	100

Item 3, 4 are the fundamental frequency at 2437MHz.

## Channel 11

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 ☒	2463.600	87.87			56.74	28.33	0.00	2.80	AVERAGE	VERTICAL	151	105
2 ☒	2465.000	96.95			65.82	28.33	0.00	2.80	PEAK	VERTICAL	151	105
3 ☒	2483.500	44.77	-9.23	54.00	13.59	28.37	0.00	2.81	AVERAGE	VERTICAL	151	105
4 ☒	2493.300	55.33	-18.67	74.00	24.10	28.41	0.00	2.81	PEAK	VERTICAL	151	105

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	Draft n MCS0 40MHz Ch 3, 6, 9 Ant. A
Test Date	Mar. 16, 2009		

**Channel 3**

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 ☐	2388.400	58.40	-15.60	74.00	27.47	28.17	0.00	2.76	PEAK	HORIZONTAL	52	100
2 ☐	2390.000	45.78	-8.22	54.00	14.85	28.17	0.00	2.76	AVERAGE	HORIZONTAL	52	100
3 ☐	2425.200	82.27			51.25	28.25	0.00	2.77	AVERAGE	HORIZONTAL	52	100
4 ☐	2425.600	91.45			60.43	28.25	0.00	2.77	PEAK	HORIZONTAL	52	100

Item 3, 4 are the fundamental frequency at 2422 MHz.

**Channel 6**

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 ☐	2374.000	57.03	-16.97	74.00	26.15	28.13	0.00	2.75	PEAK	HORIZONTAL	304	107
2 ☐	2390.000	44.33	-9.67	54.00	13.40	28.17	0.00	2.76	AVERAGE	HORIZONTAL	304	107
3 ☐	2433.400	84.18			53.15	28.25	0.00	2.78	AVERAGE	HORIZONTAL	304	107
4 ☐	2433.800	93.34			62.31	28.25	0.00	2.78	PEAK	HORIZONTAL	304	107
5 ☐	2483.500	44.47	-9.53	54.00	13.29	28.38	0.00	2.81	AVERAGE	HORIZONTAL	304	107
6 ☐	2509.100	56.15	-17.85	74.00	24.86	28.47	0.00	2.82	PEAK	HORIZONTAL	304	107

Item 3, 4 are the fundamental frequency at 2437MHz.

**Channel 9**

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 ☐	2444.400	94.35			63.28	28.29	0.00	2.78	PEAK	VERTICAL	342	110
2 ☐	2446.400	84.63			53.55	28.29	0.00	2.78	AVERAGE	VERTICAL	342	110
3 ☐	2483.500	46.60	-7.40	54.00	15.42	28.37	0.00	2.81	AVERAGE	VERTICAL	342	110
4 ☐	2483.500	58.50	-15.50	74.00	27.32	28.37	0.00	2.81	PEAK	VERTICAL	342	110

Item 1, 2 are the fundamental frequency at 2452 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	802.11b CH 1, 6, 11 Ant. A
Test Date	Mar. 16, 2009		

**Channel 1**

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 ☒	2385.600	55.84	-18.16	74.00	24.91	28.17	0.00	2.76	PEAK	VERTICAL	164	117
2 ☒	2390.000	44.37	-9.63	54.00	13.44	28.17	0.00	2.76	AVERAGE	VERTICAL	164	117
3 ☒	2409.400	92.48			61.50	28.21	0.00	2.77	AVERAGE	VERTICAL	164	117
4 ☒	2410.800	96.18			65.19	28.21	0.00	2.77	PEAK	VERTICAL	164	117

Item 3, 4 are the fundamental frequency at 2412 MHz.

**Channel 6**

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 ☒	2388.600	54.63	-19.37	74.00	23.70	28.17	0.00	2.76	PEAK	HORIZONTAL	124	135
2 ☒	2390.000	44.31	-9.69	54.00	13.38	28.17	0.00	2.76	AVERAGE	HORIZONTAL	124	135
3 ☒	2434.400	87.95			56.88	28.29	0.00	2.78	AVERAGE	HORIZONTAL	124	135
4 ☒	2436.200	91.56			60.49	28.29	0.00	2.78	PEAK	HORIZONTAL	124	135
5 ☒	2483.500	44.51	-9.49	54.00	13.32	28.38	0.00	2.81	AVERAGE	HORIZONTAL	124	135
6 ☒	2485.900	54.49	-19.51	74.00	23.26	28.42	0.00	2.81	PEAK	HORIZONTAL	124	135

Item 3, 4 are the fundamental frequency at 2437MHz.

**Channel 11**

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 ☒	2461.400	91.11			59.98	28.33	0.00	2.80	AVERAGE	VERTICAL	332	107
2 ☒	2463.200	94.88			63.75	28.33	0.00	2.80	PEAK	VERTICAL	332	107
3 ☒	2483.500	44.65	-9.35	54.00	13.47	28.37	0.00	2.81	AVERAGE	VERTICAL	332	107
4 ☒	2484.700	55.85	-18.15	74.00	24.67	28.37	0.00	2.81	PEAK	VERTICAL	332	107

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	22°C	Humidity	56%
Test Engineer	Alan Huang	Configurations	802.11g CH 1, 6, 11 Ant. A
Test Date	Mar. 16, 2009		

**Channel 1**

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 ☒	2390.000	44.97	-9.03	54.00	14.04	28.17	0.00	2.76	AVERAGE	HORIZONTAL	209	118
2 ☒	2390.000	55.74	-18.26	74.00	24.81	28.17	0.00	2.76	PEAK	HORIZONTAL	209	118
3 ☒	2413.200	89.85			58.87	28.21	0.00	2.77	AVERAGE	HORIZONTAL	209	118
4 ☒	2413.400	96.84			65.86	28.21	0.00	2.77	PEAK	HORIZONTAL	209	118

Item 3, 4 are the fundamental frequency at 2412 MHz.

**Channel 6**

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 ☒	2389.400	54.95	-19.05	74.00	24.02	28.17	0.00	2.76	PEAK	HORIZONTAL	71	127
2 ☒	2390.000	44.42	-9.58	54.00	13.49	28.17	0.00	2.76	AVERAGE	HORIZONTAL	71	127
3 ☒	2435.200	89.93			58.86	28.29	0.00	2.78	AVERAGE	HORIZONTAL	71	127
4 ☒	2439.400	99.01			67.94	28.29	0.00	2.78	PEAK	HORIZONTAL	71	127
5 ☒	2483.500	44.41	-9.59	54.00	13.22	28.38	0.00	2.81	AVERAGE	HORIZONTAL	71	127
6 ☒	2486.500	55.36	-18.64	74.00	24.13	28.42	0.00	2.81	PEAK	HORIZONTAL	71	127

Item 3, 4 are the fundamental frequency at 2437 MHz.

**Channel 11**

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 ☒	2463.200	87.79			56.66	28.33	0.00	2.80	AVERAGE	HORIZONTAL	52	125
2 ☒	2464.400	95.36			64.23	28.33	0.00	2.80	PEAK	HORIZONTAL	52	125
3 ☒	2483.500	45.12	-8.88	54.00	13.93	28.38	0.00	2.81	AVERAGE	HORIZONTAL	52	125
4 ☒	2483.500	57.32	-16.68	74.00	26.14	28.38	0.00	2.81	PEAK	HORIZONTAL	52	125

Item 1, 2 are the fundamental frequency at 2462 MHz.

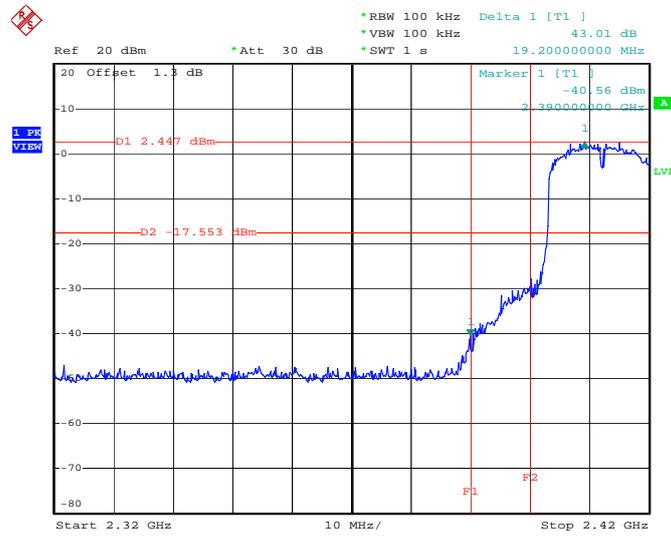
Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

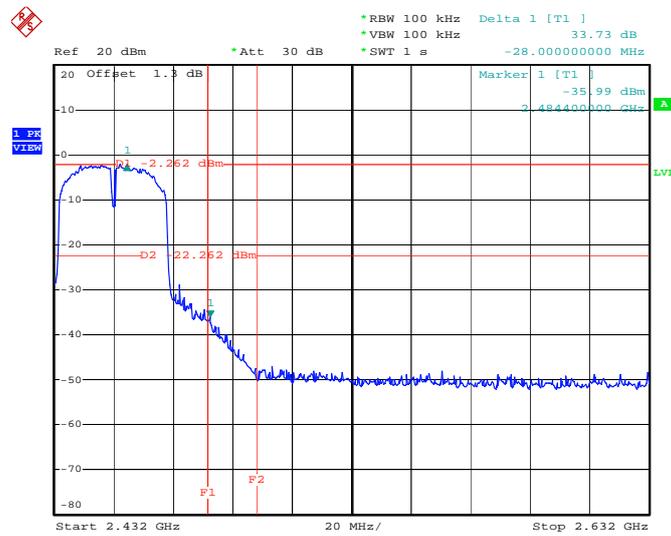
**For Emission not in Restricted Band**

**Low Band Edge Plot on Configuration Drafft n MCS0 20MHz Ant. A / 2412 MHz**



Date: 16.MAR.2009 18:13:11

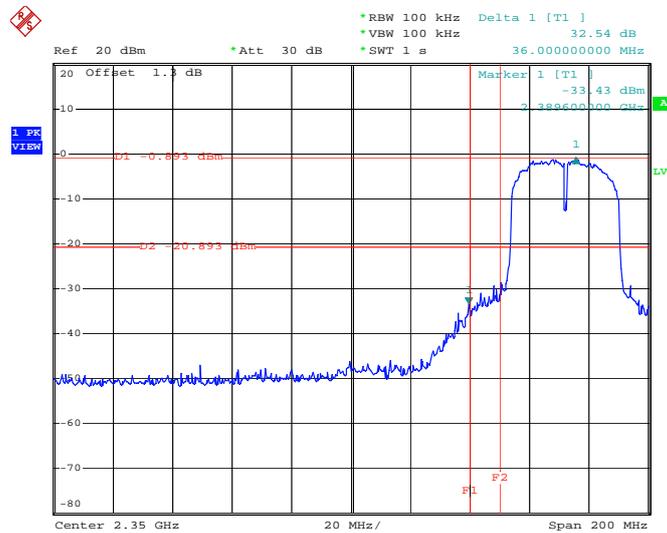
**High Band Edge Plot on Configuration Drafft n MCS0 20MHz Ant. A / 2462 MHz**



Date: 16.MAR.2009 18:26:38

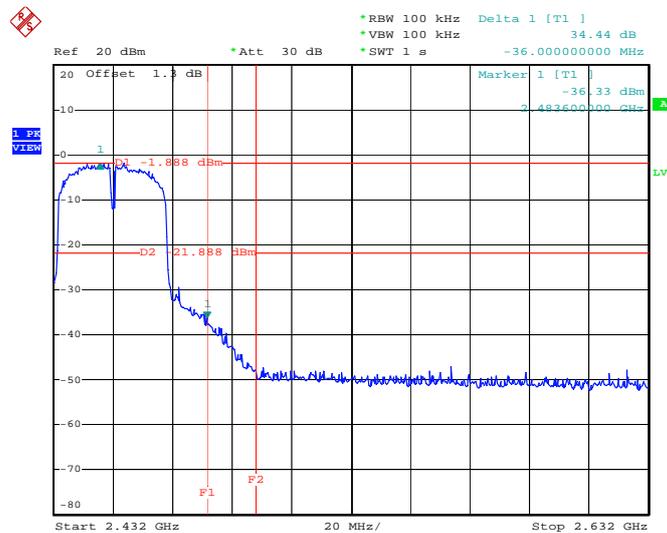
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**Low Band Edge Plot on Configuration Drafft n MCS0 40MHz Ant. A / 2422 MHz**



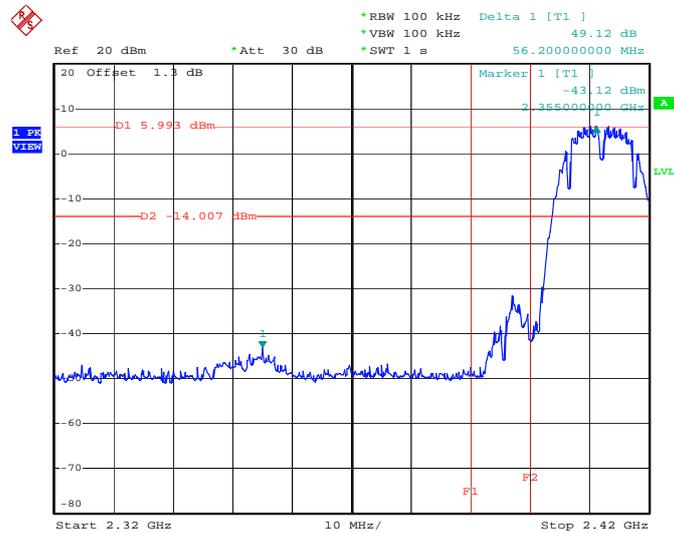
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**High Band Edge Plot on Configuration Drafft n MCS0 40MHz Ant. A / 2452 MHz**



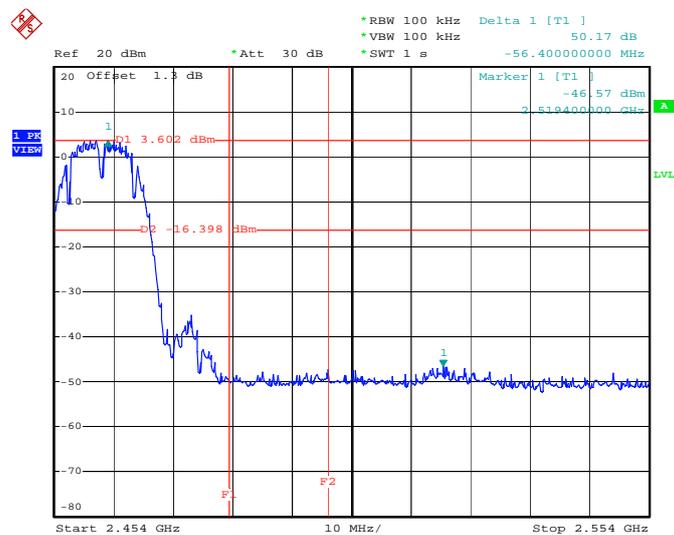
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### Low Band Edge Plot on Configuration IEEE 802.11b Ant. A / 2412 MHz



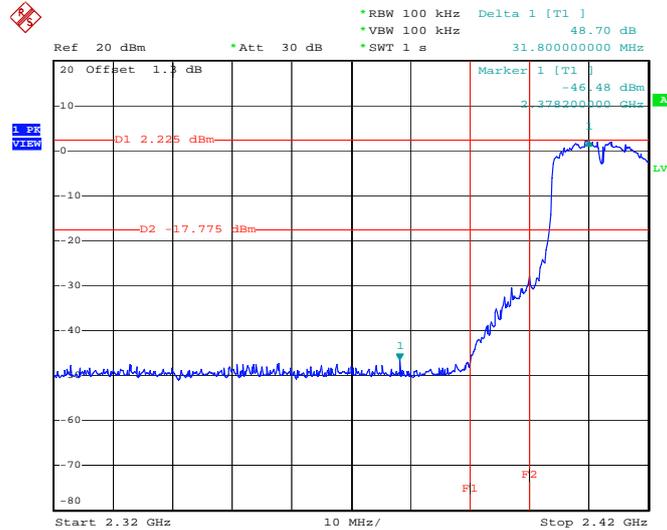
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### High Band Edge Plot on Configuration IEEE 802.11b Ant. A / 2462 MHz



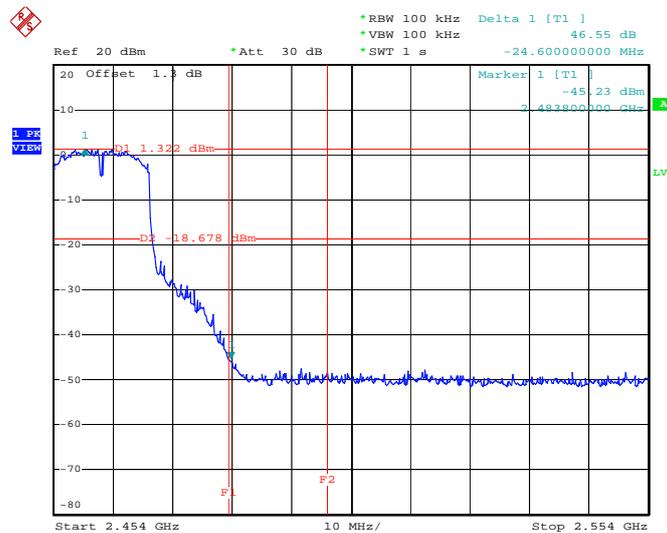
Date: 16.MAR.2009 18:00:34

**Low Band Edge Plot on Configuration IEEE 802.11g Ant. A / 2412 MHz**



Date: 16.MAR.2009 18:03:15

**High Band Edge Plot on Configuration IEEE 802.11g Ant. A / 2462 MHz**



Date: 16.MAR.2009 18:10:19

## 4.7. Antenna Requirements

### 4.7.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

### 4.7.2. Antenna Connector Construction

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

## 5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	Apr. 16, 2008	Conduction (CO04-HY)
LISN	MessTec	NNB-2/16Z	99079	9kHz – 30MHz	Mar. 31, 2008	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz – 30MHz	Mar. 22, 2008	Conduction (CO04-HY)
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9kHz – 30MHz	Apr. 20, 2008	Conduction (CO04-HY)
ISN	SCHAFFNER	ISN ST08	21653	9kHz – 30MHz	Mar. 27, 2008	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30 MHz - 1 GHz 3m	Jun. 14, 2008	Radiation (03CH03-HY)
Amplifier	SCHAFFNER	COA9231A	18667	9 kHz - 2 GHz	Jan. 23, 2009	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02120	1 GHz - 26.5 GHz	Jul. 21, 2008	Radiation (03CH03-HY)
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5 GHz - 40 GHz	Jan. 22, 2008*	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP40	100004	9 kHz - 30 GHz	Oct. 06, 2008	Radiation (03CH03-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz - 30 MHz	Jul. 28, 2008*	Radiation (03CH03-HY)
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30 MHz – 1 GHz	Jul. 12, 2008	Radiation (03CH03-HY)
Horn Antenna	EMCO	3115	6741	1GHz ~ 18GHz	Apr. 29, 2008	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15 GHz - 40 GHz	Jan.16, 2009	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30 MHz - 1 GHz	Jan. 05, 2009	Radiation (03CH03-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1 GHz - 40 GHz	Jan. 05, 2009	Radiation (03CH03-HY)
Turn Table	HD	DS 420	420/650/00	0 – 360 degree	N/A	Radiation (03CH03-HY)
Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP30	100023	9kHz ~ 30GHz	Jan. 09, 2009	Conducted (TH01-HY)
Power Meter	R&S	NRVS	100444	DC ~ 40GHz	Jul. 11, 2008	Conducted (TH01-HY)
Power Sensor	R&S	NRV-Z51	100458	DC ~ 30GHz	Jul. 11, 2008	Conducted (TH01-HY)
Power Sensor	R&S	NRV-Z32	100057	30MHz ~ 6GHz	Jul. 11, 2008	Conducted (TH01-HY)
AC Power Source	HPC	HPA-500W	HPA-9100024	AC 0 ~ 300V	May 30, 2008*	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Mar. 13, 2009	Conducted (TH01-HY)
Temp. and Humidity Chamber	Giant Force	GTH-225-20-S	MAB0103-001	N/A	Jul. 18, 2008	Conducted (TH01-HY)
RF CABLE-1m	Jye Bao	RG142	CB034-1m	20MHz ~ 7GHz	Dec. 01, 2008	Conducted (TH01-HY)
RF CABLE-2m	Jye Bao	RG142	CB035-2m	20MHz ~ 1GHz	Dec. 01, 2008	Conducted (TH01-HY)
Vector Signal Generator	R&S	SMU200A	102098	100kHz ~ 6GHz	Dec. 14, 2008	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Mar. 10, 2009	Conducted (TH01-HY)
Oscilloscope	Tektonix	TDS380	B016197	400MHz/ 2GS/s	Jun. 27, 2008	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is one year.

Note: \*Calibration Interval of instruments listed above is two year.

## 6. TEST LOCATION

SHIJR	ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C. TEL : 886-2-2696-2468 FAX : 886-2-2696-2255
HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055
LINKOU	ADD : No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C TEL : 886-2-2601-1640 FAX : 886-2-2601-1695
DUNGHU	ADD : No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C. TEL : 886-2-2631-4739 FAX : 886-2-2631-9740
JUNGHE	ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C. TEL : 886-2-8227-2020 FAX : 886-2-8227-2626
NEIHU	ADD : 4Fl., No. 339, Hsin Hu 2 <sup>nd</sup> Rd., Taipei 114, Taiwan, R.O.C. TEL : 886-2-2794-8886 FAX : 886-2-2794-9777
JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

## 7. TAF CERTIFICATE OF ACCREDITATION



Certificate No. : L1190-070110

財團法人全國認證基金會  
Taiwan Accreditation Foundation

### Certificate of Accreditation

This is to certify that

**Sporton International Inc.**

**EMC & Wireless Communications Laboratory**

No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,  
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	: ISO/IEC 17025:2005
Accreditation Number	: 1190
Originally Accredited	: December 15, 2003
Effective Period	: January 10, 2007 to January 09, 2010
Accredited Scope	: Testing Field, see described in the Appendix
Specific Accreditation Program	: Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory



Jay-San Chen  
President, Taiwan Accreditation Foundation  
Date : January 10, 2007

P1, total 9 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when used without the Appendix.