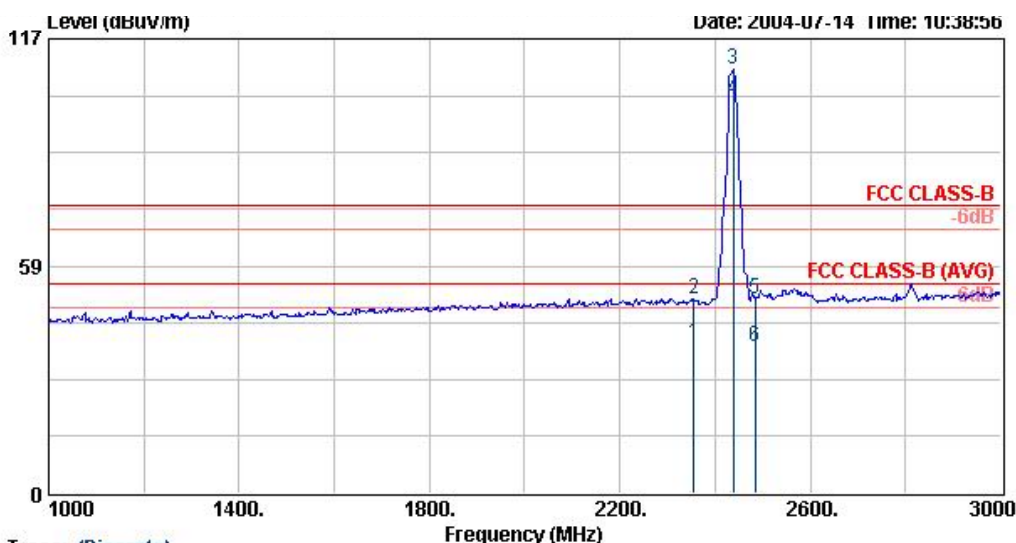


7.4.2 Test Mode: Mode 2 (11b TX CH06)

- Test Distance : 3 m
- Temperature : 26 °C
- Relative Humidity :53 %
- Emission level (dBUV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

■ The test that passed at minimum margin was marked by the frame in the following table.

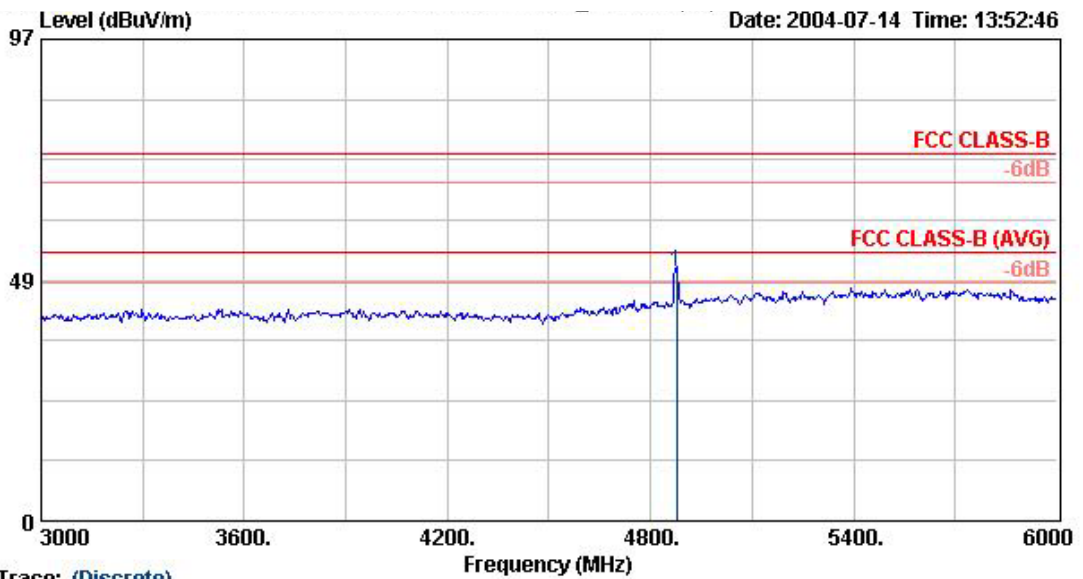


Trace: (Discrete)

Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11b TX CH06 2437MHz

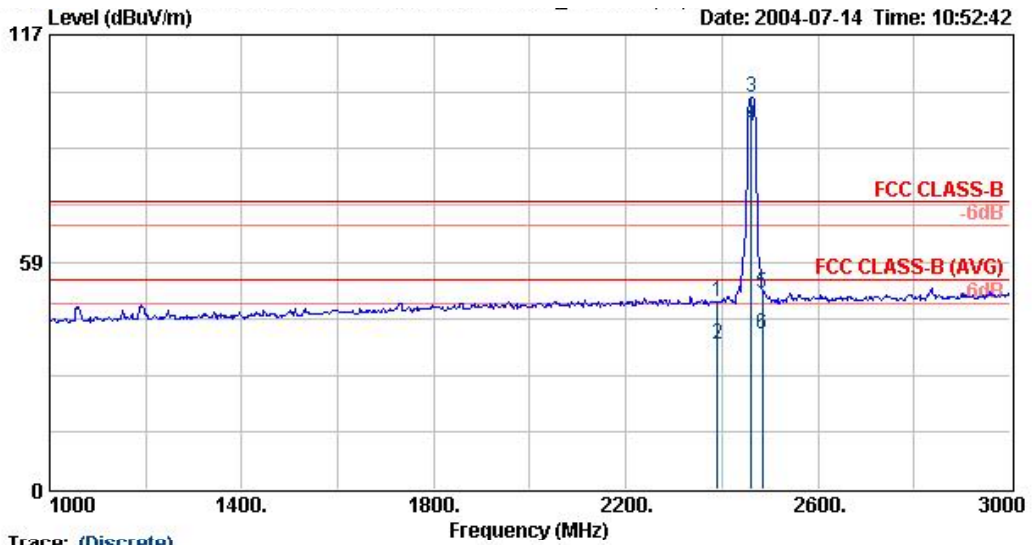
	Over	Limit		ReadAntenna	Preamp	Cable	
	Freq	Limit	Line	Level	Level	Factor	Loss
	MHz	dB	dBUV/m	dBUV/m	dBuV	dB/m	dB
1	2356.00	-15.38	54.00	38.62	51.31	28.36	44.36
2	2356.00	-23.95	74.00	50.05	62.74	28.36	44.36
3 @	2438.00			109.01	121.52	28.45	44.32
4 @	2438.00			101.17	113.68	28.45	44.32
5	2483.50	-24.05	74.00	49.95	62.38	28.48	44.31
6	2483.50	-16.04	54.00	37.96	50.39	28.48	44.31

Remark: #3 and 4 fundamental frequency.



Trace: (Discrete)
 Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11b TX CH06 2437MHz

	Over	Limit		ReadAntenna	Preamp	Cable	
	Limit	Line	Level	Level	Factor	Loss	Remark
	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	
1	-23.79	74.00	50.21	58.31	32.70	45.60	4.80 Peak

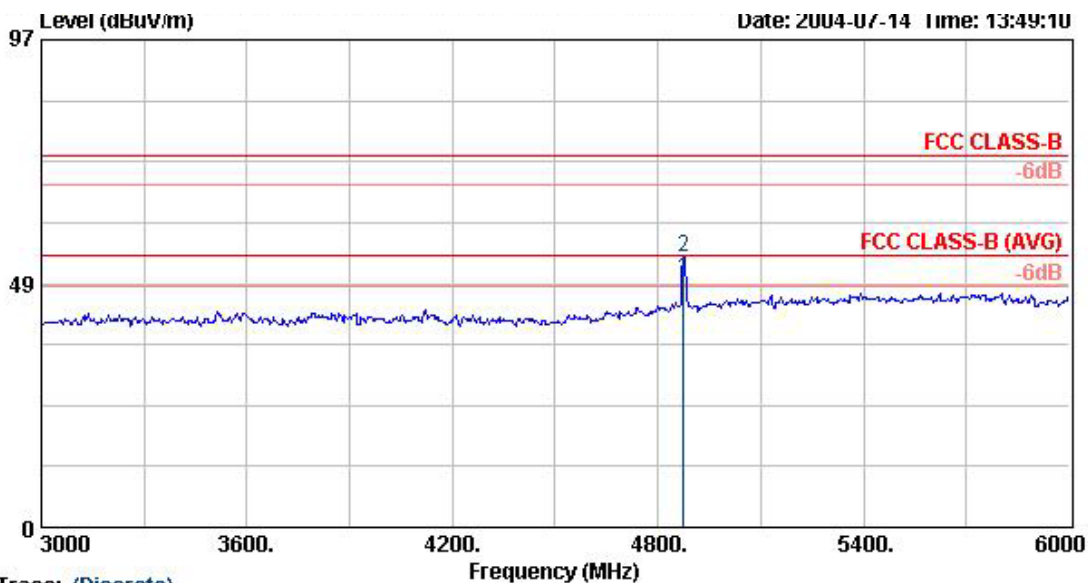


Trace: (Discrete)

Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11b TX CH06 2437MHz

	Freq	Over Limit	Limit Line	Level	ReadAntenna Level	Preamp Factor	Cable Loss	Remark
	MHz	dB	dBUV/m	dBUV/m	dBuV	dB/m	dB	
1	2390.00	-25.59	74.00	48.41	61.03	28.40	44.34	3.33 Peak
2	2390.00	-16.47	54.00	37.53	50.15	28.40	44.34	3.33 Average
3 @	2462.00			101.10	113.57	28.47	44.32	3.38 Peak
4 @	2462.00			93.48	105.95	28.47	44.32	3.38 Average
5	2483.50	-23.71	74.00	50.29	62.72	28.48	44.31	3.40 Peak
6	2483.50	-14.13	54.00	39.87	52.30	28.48	44.31	3.40 Average

Remark: #3 and 4 fundamental frequency.



Trace: (Discrete)

Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11b TX CH06 2437MHz

	Freq	Over Limit	Limit Line	Level	ReadAntenna Level	Preamp Factor	Cable Loss	Remark
	MHz	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	
1 @	4874.00	-4.44	54.00	49.56	57.66	32.70	4.80	Average
2	4874.00	-20.23	74.00	53.77	61.87	32.70	4.80	Peak


Remark: Frequency from 6000MHz to 25000MHz, the emission emitted by the EUT is too low to be measured.

■ Field strength of fundamental and harmonics

Frequency (MHz)	Antenna Polarity	Cable Factor (dB/m)	Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Limits (dBuV/m)	Emission (dBuV/m)	Margin (dB)	Detect Mode
2438.000	H	28.45	3.37	77.19	44.32	-	109.01	-	Peak
2438.000	H	28.45	3.37	69.35	44.32	-	101.17	-	AV
2438.000	V	28.47	3.38	69.25	44.32	-	101.10	-	Peak
2438.000	V	28.47	3.38	61.63	44.32	-	93.48	-	AV
4876.000	H	32.70	4.80	12.71	45.60	74.00	50.21	-23.79	Peak
4874.000	V	32.70	4.80	16.27	45.60	74.00	53.77	-20.23	Peak
4874.000	V	32.70	4.80	12.06	45.60	54.00	49.56	-4.44	AV
7311.000	V/H	-	-	-	-	-	-	-	AV/Peak
9748.000	V/H	-	-	-	-	-	-	-	AV/Peak
12185.000	V/H	-	-	-	-	-	-	-	AV/Peak
14622.000	V/H	-	-	-	-	-	-	-	AV/Peak
17059.000	V/H	-	-	-	-	-	-	-	AV/Peak
19496.000	V/H	-	-	-	-	-	-	-	AV/Peak
21933.000	V/H	-	-	-	-	-	-	-	AV/Peak
24370.000	V/H	-	-	-	-	-	-	-	AV/Peak

Remark:

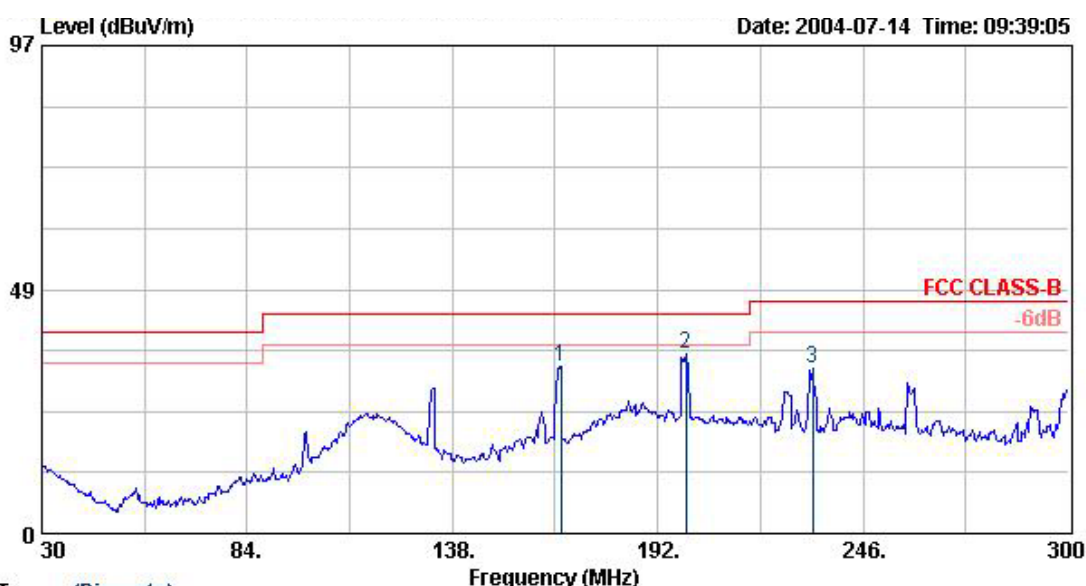
1. The emission emitted by the EUT is too low to be measured except the emission listed above,
2. Reading = Reading on SA-Preamp Factor

Test Engineer : 
Jay

7.4.3 Test Mode: Mode 3 (11b TX CH11)

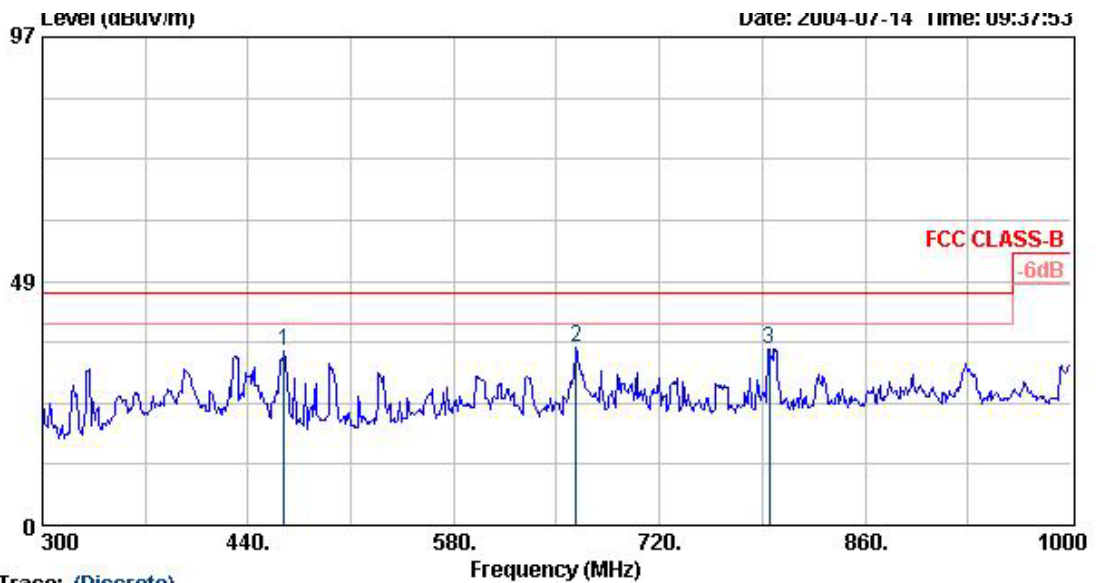
- Test Distance : 3 m
- Temperature : 26 °C
- Relative Humidity :53 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

■ The test that passed at minimum margin was marked by the frame in the following table.



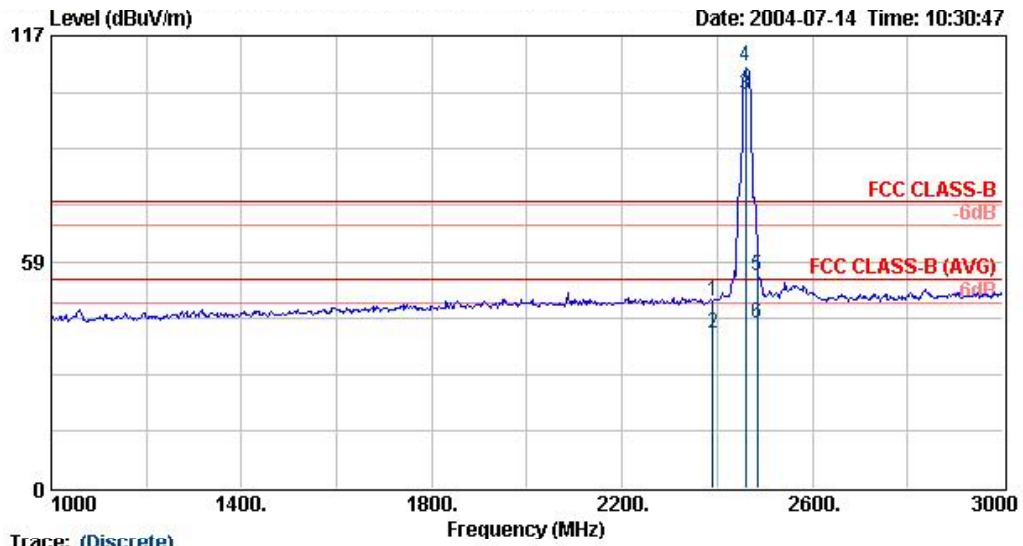
Trace: (Discrete)
 Site : 03CH06
 Condition : FCC CLASS-B 3m BI LOG 2004 0629 HORIZONTAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11b_Tx_CH11_2462MHz

	Freq	Over Limit	Limit Line	Level	ReadAntenna Level	Preamp Factor	Cable Loss	Remark
	MHz	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	
1	166.62	-10.30	43.50	33.20	54.97	9.15	32.04	1.12 Peak
2 @	199.29	-7.82	43.50	35.68	57.84	8.66	32.06	1.24 Peak
3	232.77	-13.11	46.00	32.89	53.37	9.96	31.78	1.34 Peak



Trace: (Discrete)
 Site : 03CH06
 Condition : FCC CLASS-B 3m BI LOG 2004 0629 HORIZONTAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11b_Tx_CH11,2462MHz

	Over	Limit		ReadAntenna	Preamp	Cable	
	Limit	Line	Level	Level	Factor	Factor	Loss
	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	dB
1	-11.44	46.00	34.56	47.39	16.75	31.55	1.97
2	-10.50	46.00	35.50	45.72	18.91	31.61	2.48
3	-10.85	46.00	35.15	43.58	20.17	31.46	2.86

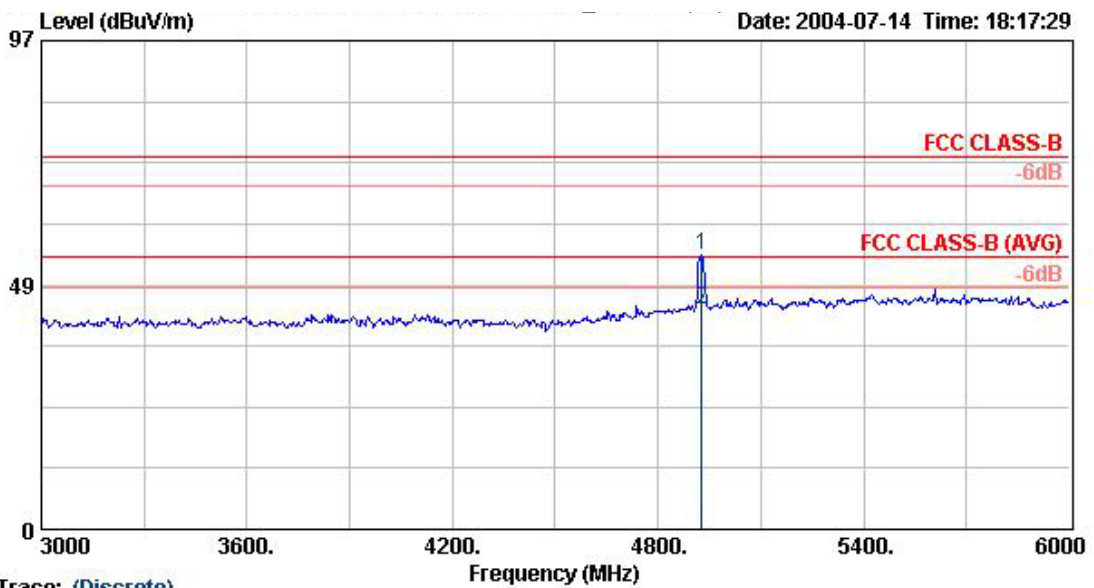


Trace: (Discrete)

Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11b TX CH11 2462MHz

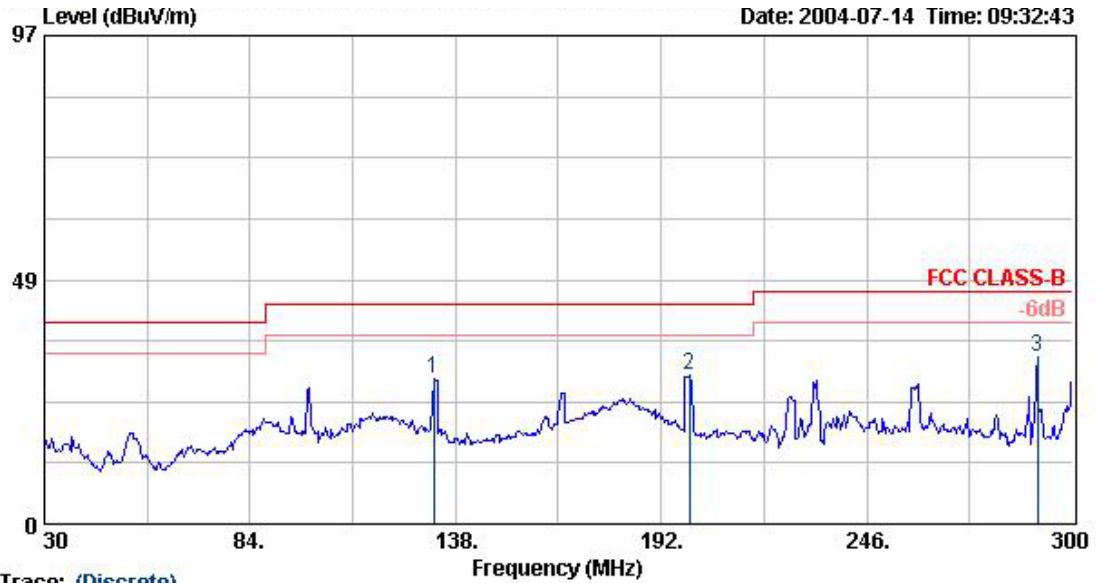
	Freq	Over Limit	Limit Line	Level	ReadAntenna Level	Preamp Factor	Cable Loss	Remark
	MHz	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	
1	2390.00	-25.54	74.00	48.46	61.08	28.40	44.34	3.33 Peak
2	2390.00	-13.92	54.00	40.08	52.70	28.40	44.34	3.33 Average
3 @	2460.12			101.60	114.07	28.47	44.32	3.38 Average 1
4 @	2460.12			109.13	121.60	28.47	44.32	3.38 Peak 2
5	2483.50	-19.40	74.00	54.60	67.03	28.48	44.31	3.40 Peak
6	2483.50	-11.53	54.00	42.47	54.90	28.48	44.31	3.40 Average

Remark: #3 and 4 fundamental frequency.



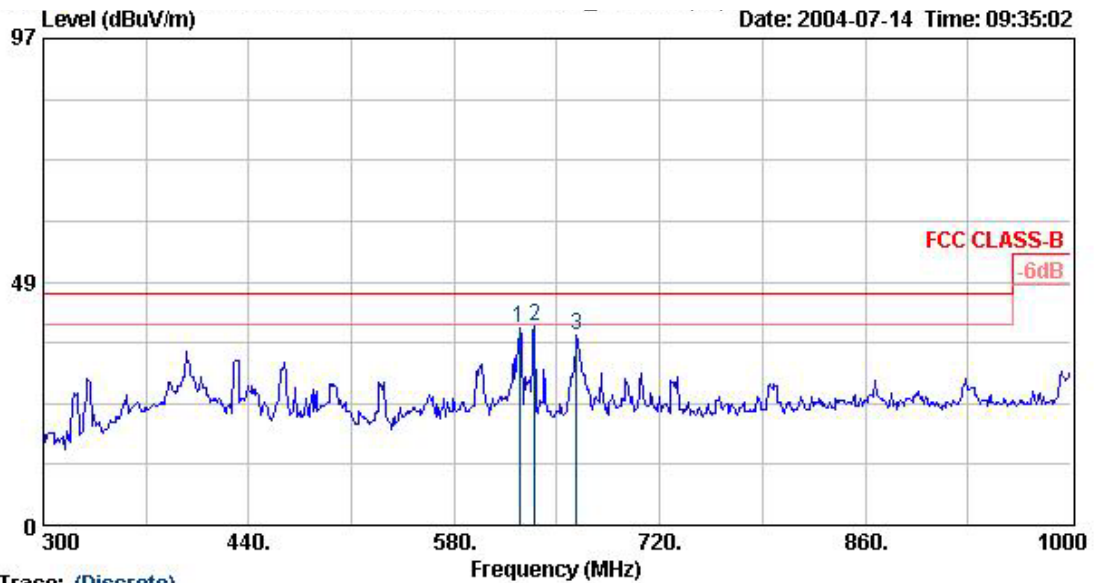
Trace: (Discrete)
 Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11b TX CH11 2462MHz

	Freq	Over Limit	Limit Line	Level	ReadAntenna Level	Preamp Factor	Cable Loss	Remark
	MHz	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	
1	4926.00	-19.48	74.00	54.52	62.28	33.04	45.64	4.85 Peak
2 @	4926.00	-10.20	54.00	43.80	51.55	33.04	45.64	4.85 Average



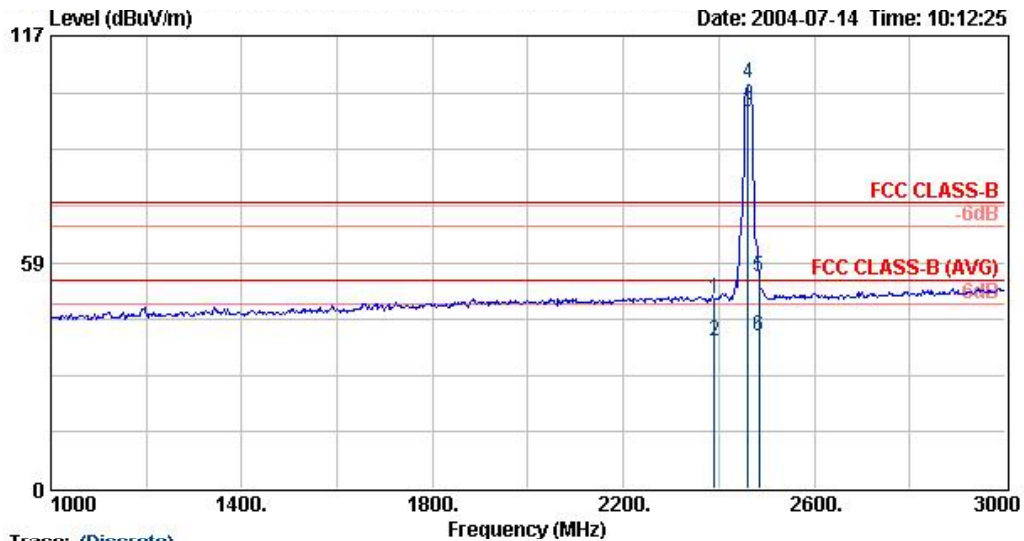
Trace: (Discrete)
 Site : 03CH06
 Condition : FCC CLASS-B 3m BI LOG 2004 0629 VERTICAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11b_Tx_CH11_2462MHz

	Freq	Over Limit	Limit Line	Level	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark
	MHz	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	dB	
1	132.33	-14.54	43.50	28.96	48.62	11.53	32.19	1.00	Peak
2	199.29	-13.96	43.50	29.54	51.70	8.66	32.06	1.24	Peak
3	290.82	-12.65	46.00	33.35	51.02	12.80	31.95	1.48	Peak



Trace: (Discrete)
 Site : 03CH06
 Condition : FCC CLASS-B 3m BI LOG 2004 0629 VERTICAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11b_Tx_CH11,2462MHz

	Over	Limit		ReadAntenna	Preamp	Cable	
	Limit	Line	Level	Level	Factor	Loss	Remark
	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	
1 @	-6.54	46.00	39.46	49.84	18.77	31.52	2.37 Peak
2 @	-6.19	46.00	39.81	50.10	18.80	31.48	2.40 Peak
3 @	-8.03	46.00	37.97	48.18	18.91	31.61	2.48 Peak

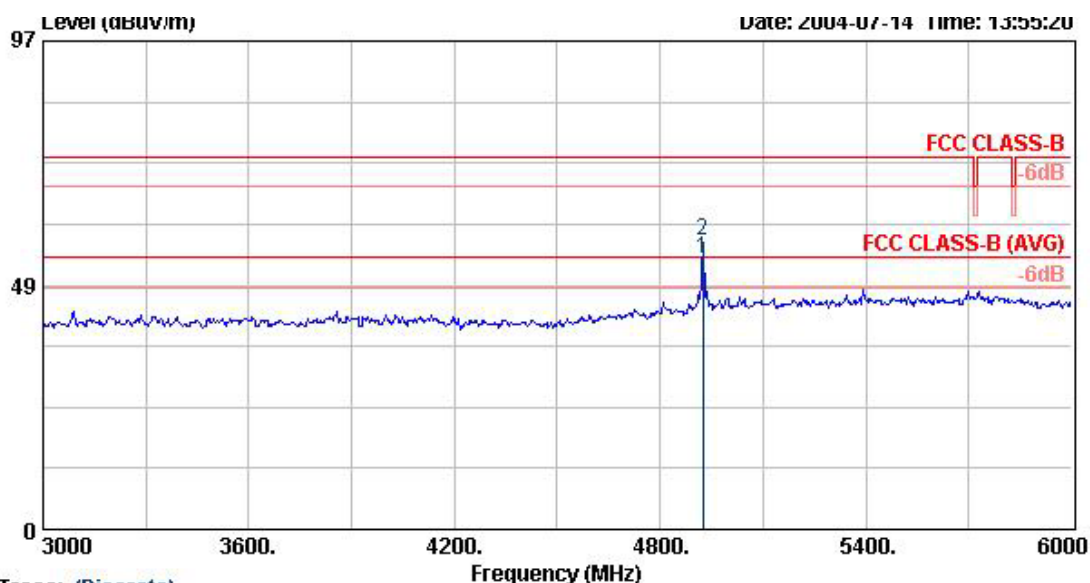


Trace: (Discrete)

Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11b TX CH11 2462MHz

	Over	Limit		ReadAntenna	Preamp	Cable			
	Limit	Line	Level	Level	Factor	Factor	Loss		
	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	dB		
1	2390.00	-24.66	74.00	49.34	61.95	28.40	44.34	3.33	Peak
2	2390.00	-15.52	54.00	38.48	51.10	28.40	44.34	3.33	Average
3 @	2462.00			97.45	109.92	28.47	44.32	3.38	Average
4 @	2462.00			104.88	117.35	28.47	44.32	3.38	Peak
5	2483.50	-19.14	74.00	54.86	67.29	28.48	44.31	3.40	Peak
6	2483.50	-14.44	54.00	39.56	51.99	28.48	44.31	3.40	Average

Remark: #3 and 4 a fundamental frequency.



Trace: (Discrete)
 Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11b TX CH11 2462MHz

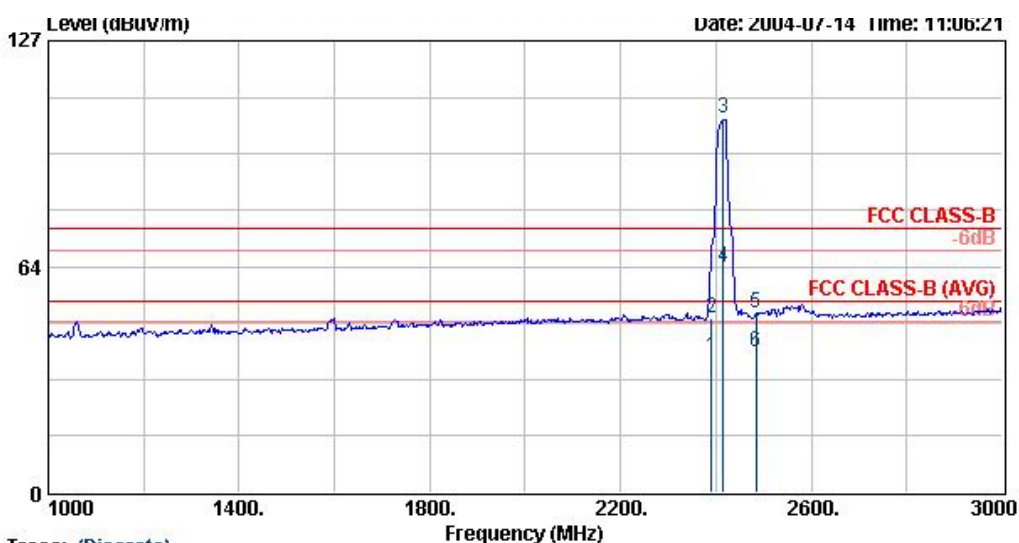
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Preamp Factor	Cable Loss	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	
1 @	4924.00	53.78	-0.22	54.00	61.54	33.04	45.64	4.85 Average
2	4924.00	57.27	-16.73	74.00	65.02	33.04	45.64	4.85 Peak

Remark: Frequency from 6000MHz to 25000MHz, the emission emitted by the EUT is too low to be measured.

7.4.4 Test Mode: Mode 4 (11g TX CH01)

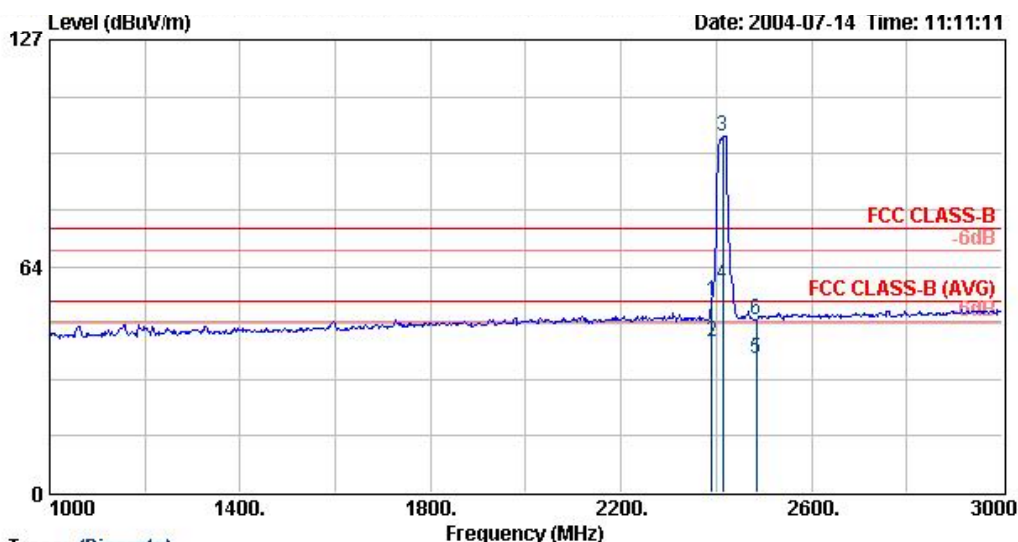
- Test Distance : 3 m
- Temperature : 26 °C
- Relative Humidity :53 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

■ The test that passed at minimum margin was marked by the frame in the following table.



Trace: (Discrete)
 Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11g TX CH01 2412MHz

	Freq	Over Limit	Limit Line	Level	ReadAntenna Level	Preamp Factor	Cable Loss	Remark
	MHz	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	
1 @	2390.00	-15.85	54.00	38.15	50.77	28.40	3.33	Average
2 @	2390.00	-25.14	74.00	48.86	61.48	28.40	3.33	Peak
3 @	2416.00			105.41	117.99	28.41	3.35	Peak
4 @	2416.00			63.44	76.02	28.41	3.35	Average
5 @	2483.50	-23.37	74.00	50.63	63.06	28.48	3.40	Peak
6 @	2483.50	-14.18	54.00	39.82	52.25	28.48	3.40	Average



Trace: (Discrete)

Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11g TX CH01 2412MHz

	Over	Limit		ReadAntenna	Preamp	Cable	
	Freq	Limit	Line	Level	Level	Factor	Loss
	MHz	dB	dBUV/m	dBUV/m	dBuV	dB/m	dB
1 @	2390.00	-20.12	74.00	53.88	66.49	28.40	44.34
2 @	2390.00	-11.33	54.00	42.67	55.29	28.40	44.34
3 @	2414.00			100.17	112.75	28.41	44.34
4 @	2414.00			58.45	71.03	28.41	44.34
5 @	2483.50	-16.12	54.00	37.88	50.31	28.48	44.31
6 @	2483.50	-25.32	74.00	48.68	61.11	28.48	44.31

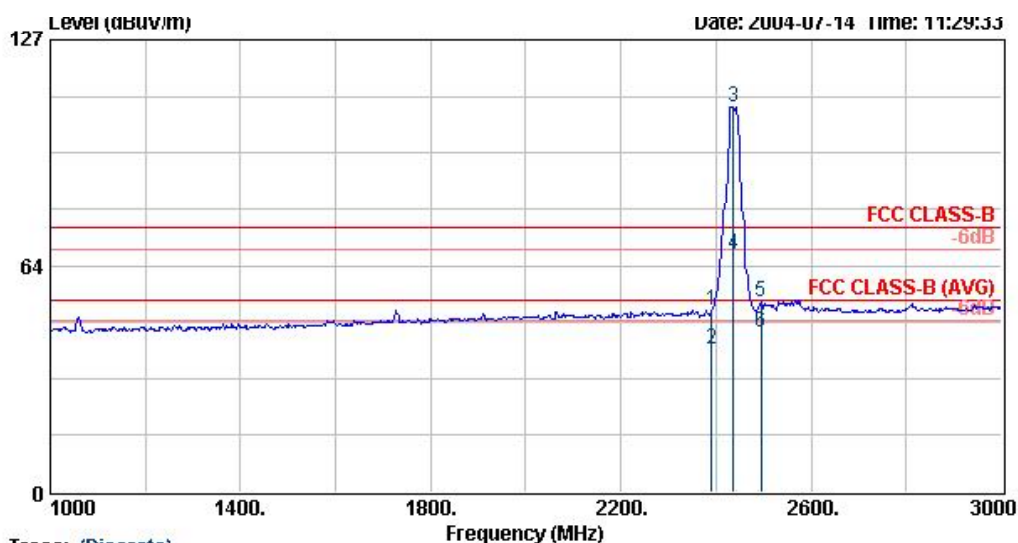
Remark: #3 and 4 fundamental frequency.

Frequency from 3000MHz to 25000MHz, the emission emitted by the EUT is too low to be measured.

7.4.5 Test Mode: Mode 5 (11g TX CH06)

- Test Distance : 3 m
- Temperature : 26 °C
- Relative Humidity :53 %
- Emission level (dBUV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

■ The test that passed at minimum margin was marked by the frame in the following table.

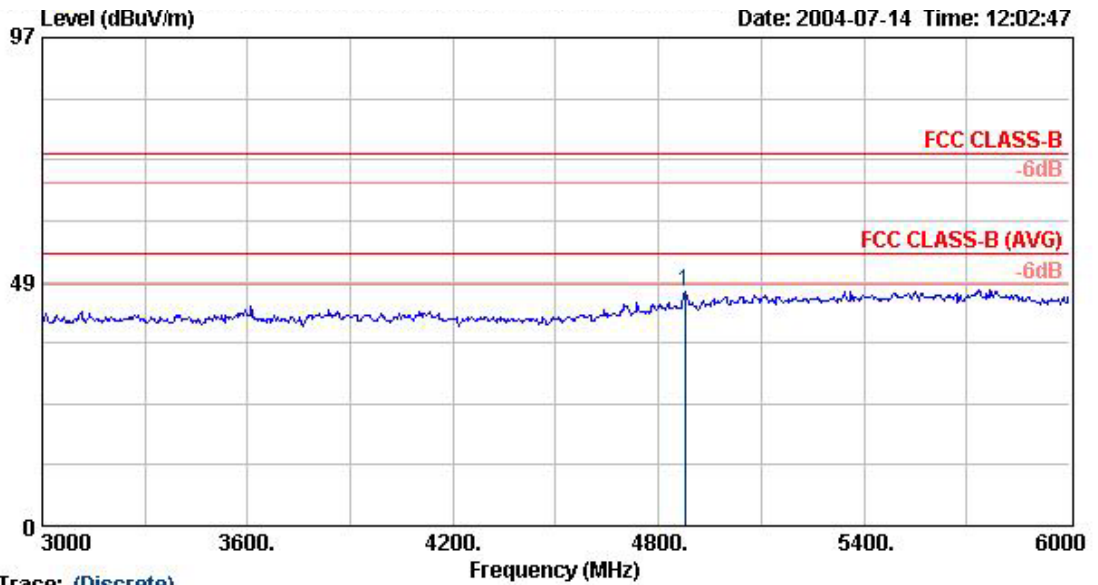


Trace: (Discrete)

Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11g TX CH06 2437MHz

	Over	Limit		ReadAntenna	Preamp	Cable			
	Freq	Limit	Line	Level	Level	Factor	Loss		
	MHz	dB	dBUV/m	dBUV/m	dBuV	dB/m	dB		
1 @	2390.00	-23.05	74.00	50.95	63.57	28.40	44.34	3.33	Peak
2 @	2390.00	-13.88	54.00	40.12	52.74	28.40	44.34	3.33	Average
3 @	2436.00			108.25	120.78	28.43	44.33	3.37	Peak
4 @	2436.00			66.43	78.96	28.43	44.33	3.37	Average
5 @	2494.00	-20.53	74.00	53.47	65.88	28.50	44.30	3.39	Peak
6 @	2494.00	-9.16	54.00	44.84	57.25	28.50	44.30	3.39	Average

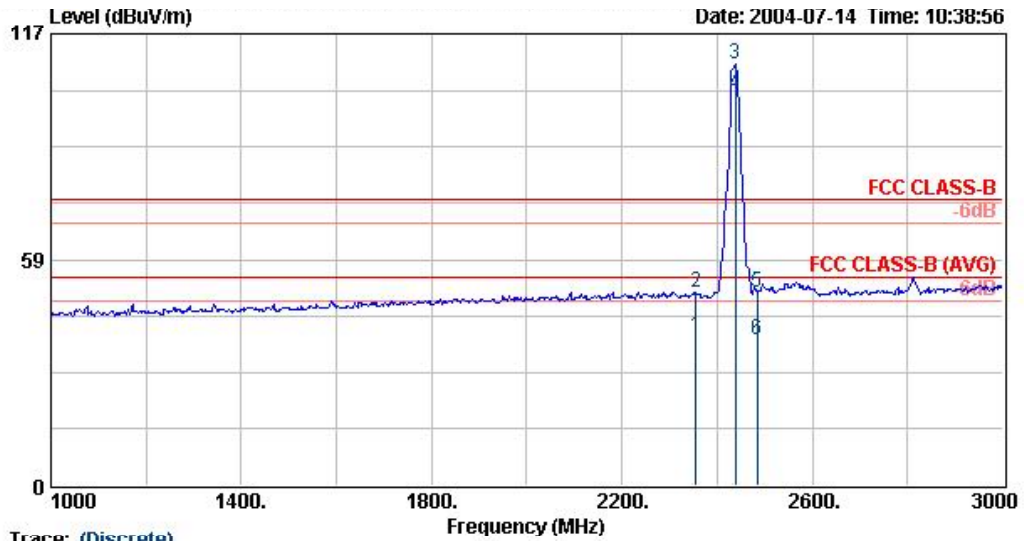
Remark: #3 and 4 fundamental frequency.



Trace: (Discrete)

Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11g TX CH06 2437MHz

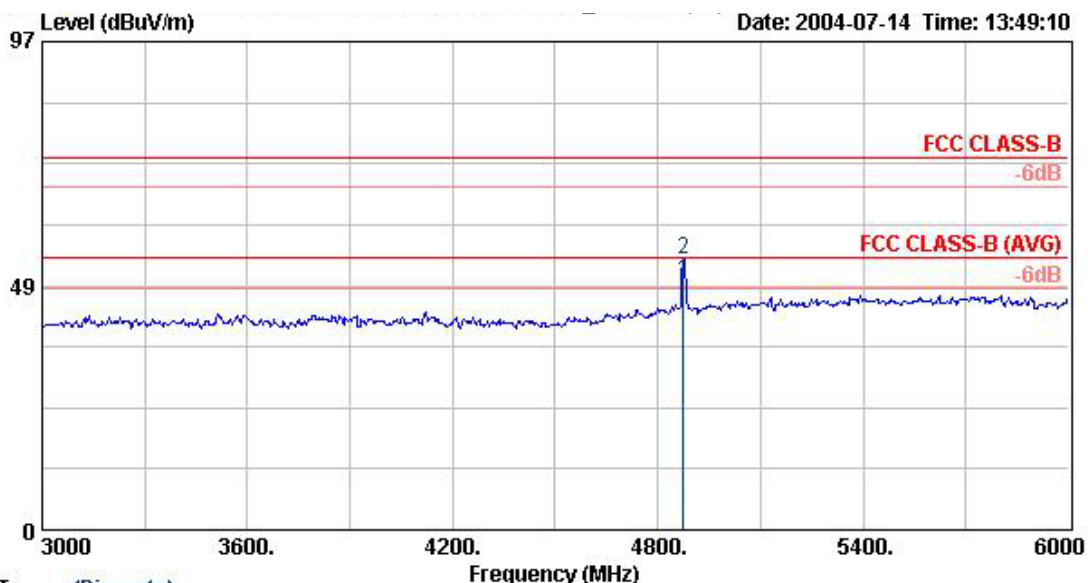
	Freq	Over Limit	Limit Line	Level	ReadAntenna Level	Preamp Factor	Cable Loss	Remark
	MHz	dB	dBUV/m	dBUV/m	dBuV	dB/m	dB	
1 @	4878.00	-27.45	74.00	46.55	54.65	32.70	45.60	4.80 Peak



Trace: (Discrete)
 Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11b TX CH06 2437MHz

	Freq	Over Limit	Limit Line	Level	ReadAntenna Level	Preamp Factor	Cable Loss	Remark
	MHz	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	
1	2356.00	-15.38	54.00	38.62	51.31	28.36	44.36	3.31 Average
2	2356.00	-23.95	74.00	50.05	62.74	28.36	44.36	3.31 Peak
3	2438.00			109.01	121.52	28.45	44.32	3.37 Peak 2
4 @	2438.00			101.17	113.68	28.45	44.32	3.37 Average 1
5	2483.50	-24.05	74.00	49.95	62.38	28.48	44.31	3.40 Peak
6	2483.50	-16.04	54.00	37.96	50.39	28.48	44.31	3.40 Average

Remark: #3 and 4 fundamental frequency.



Trace: (Discrete)
 Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11b TX CH06 2437MHz

	Freq	Over Limit	Limit Line	Level	ReadAntenna Level	Antenna Factor	Preamp Factor	Cable Loss	Remark
	MHz	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	dB	
1 @	4874.00	-4.44	54.00	49.56	57.66	32.70	45.60	4.80	Average
2	4874.00	-20.23	74.00	53.77	61.87	32.70	45.60	4.80	Peak

Remark: Frequency from 6000MHz to 25000MHz, the emission emitted by the EUT is too low to be measured

■ **Field strength of fundamental and harmonics**

Frequency (MHz)	Antenna Polarity	Cable Factor (dB/m)	Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Limits (dBuV/m)	Emission (dBuV/m)	Margin (dB)	Detect Mode
2416.000	H	28.43	3.37	76.45	44.33	-	108.25	-	Peak
2416.000	H	28.43	3.37	34.63	44.33	-	66.43	-	Av
2414.000	V	28.43	3.37	68.88	44.33	-	100.68	-	Peak
2414.000	V	28.43	3.37	26.74	44.33	-	58.54	-	Av
4878.000	H	32.70	4.80	9.05	45.60	74.00	46.55	-27.45	Peak
4881.000	V	32.70	4.82	10.38	45.60	74.00	47.90	-26.10	Peak
7311.000	V/H	-	-	-	-	-	-	-	AV/Peak
9748.000	V/H	-	-	-	-	-	-	-	AV/Peak
12185.000	V/H	-	-	-	-	-	-	-	AV/Peak
14622.000	V/H	-	-	-	-	-	-	-	AV/Peak
17059.000	V/H	-	-	-	-	-	-	-	AV/Peak
19496.000	V/H	-	-	-	-	-	-	-	AV/Peak
21933.000	V/H	-	-	-	-	-	-	-	AV/Peak
24370.000	V/H	-	-	-	-	-	-	-	AV/Peak

Remark:

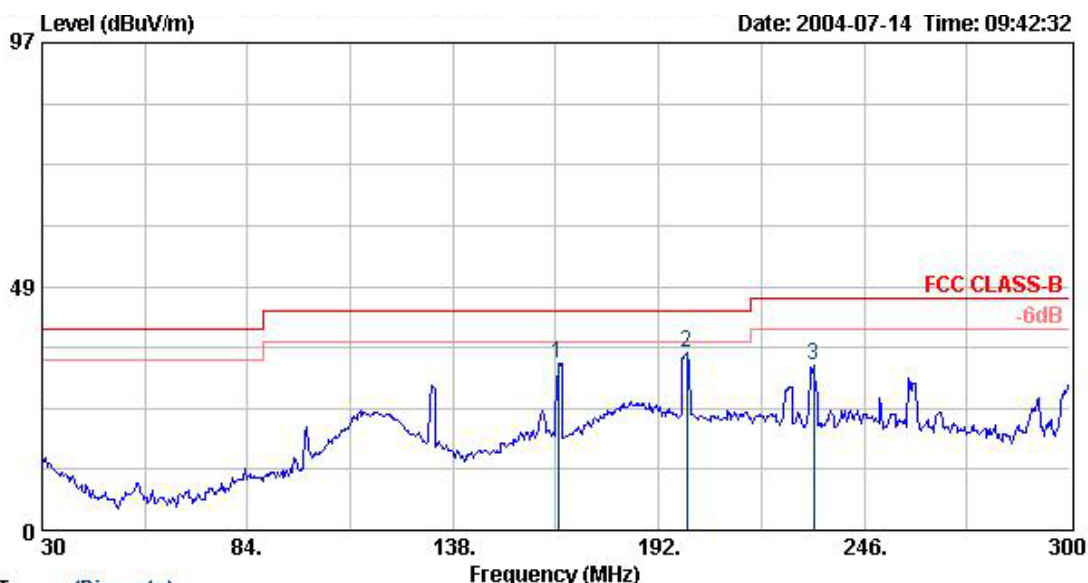
1. The emission emitted by the EUT is too low to be measured except the emission listed above,
2. Reading = Reading on SA-Preamp Factor

Test Engineer : Jay
Jay

7.4.6 Test Mode: Mode 6 (11g TX CH11)

- Test Distance : 3 m
- Temperature : 26°C
- Relative Humidity :53 %
- Emission level (dBUV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

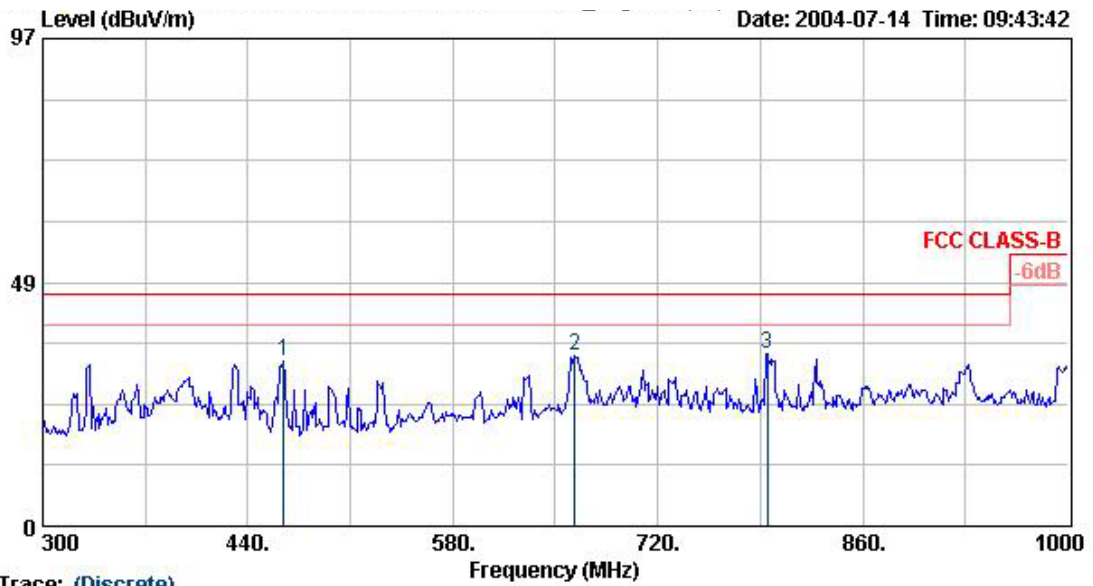
■ The test that passed at minimum margin was marked by the frame in the following table.



Trace: (Discrete)

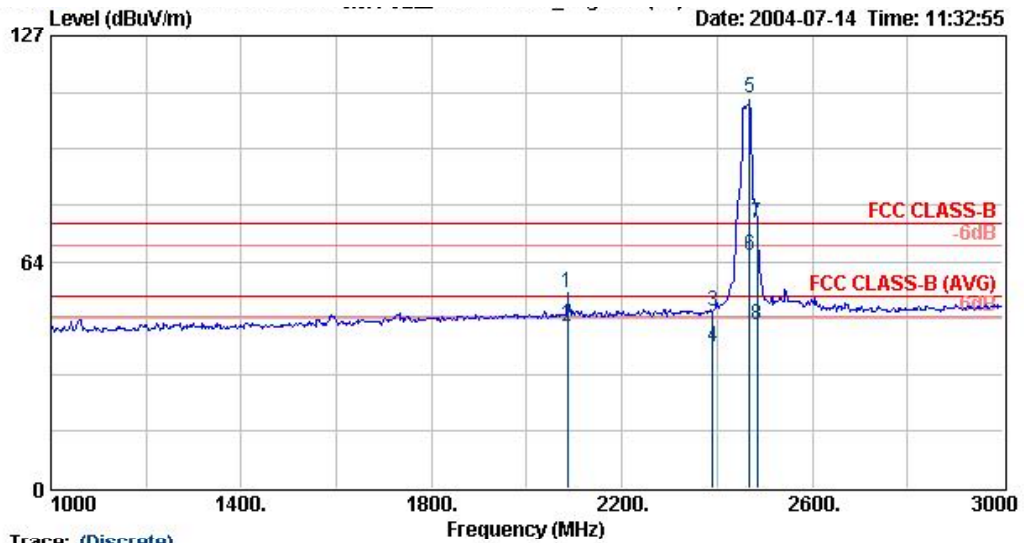
Site : 03CH06
 Condition : FCC CLASS-B 3m BI LOG 2004 0629 HORIZONTAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11g TX CH11 2462MHz

	Freq	Over Limit	Limit Line	Level	ReadAntenna Level	Preamp Factor	Cable Loss	Remark
	MHz	dB	dBUV/m	dBUV/m	dBuV	dB/m	dB	
1 @	165.54	-10.35	43.50	33.15	54.89	9.20	32.06	1.12 Peak
2 @	199.29	-8.30	43.50	35.20	57.36	8.66	32.06	1.24 Peak
3 @	232.77	-13.22	46.00	32.78	53.26	9.96	31.78	1.34 Peak



Trace: (Discrete)
 Site : 03CH06
 Condition : FCC CLASS-B 3m BI LOG 2004 0629 HORIZONTAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11g TX CH11 2462MHz

	Freq	Over Limit	Limit Line	Level	ReadAntenna Level	Preamp Factor	Cable Loss	Remark
	MHz	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	
1 @	464.50	-13.31	46.00	32.69	45.52	16.75	31.55	1.97 Peak
2 @	663.30	-12.16	46.00	33.84	44.06	18.91	31.61	2.48 Peak
3 @	794.90	-11.69	46.00	34.31	42.74	20.17	31.46	2.86 Peak

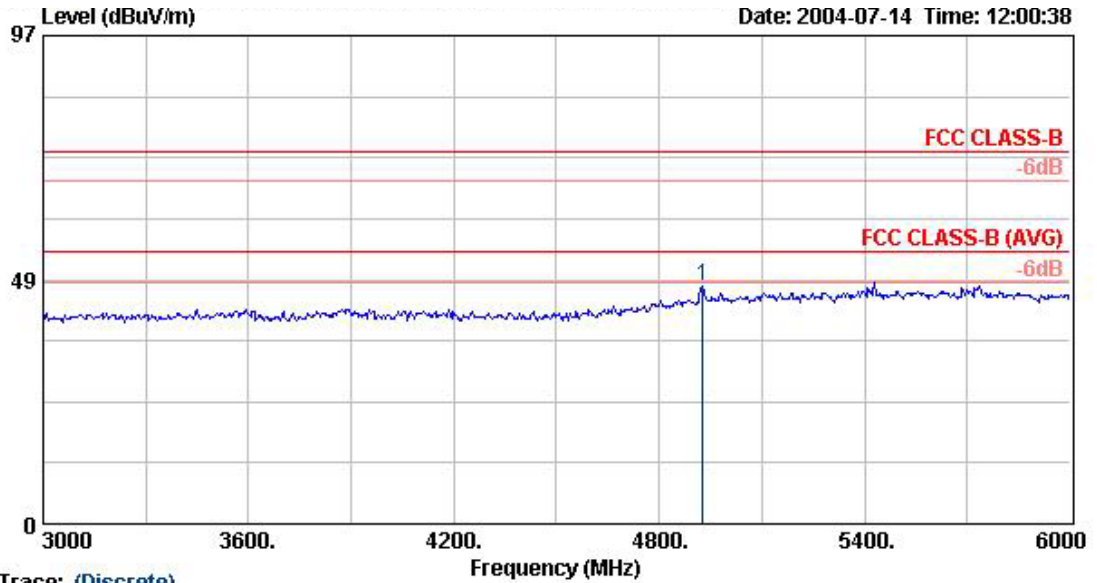


Trace: (Discrete)

Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11g TX CH11 2462MHz

	Over	Limit		ReadAntenna	Preamp	Cable		
	Limit	Line	Level	Level	Factor	Factor	Loss	Remark
	dB	dBUV/m	dBUV/m	dBuV	dB/m	dB	dB	
1 @	-19.23	74.00	54.77	68.04	28.09	44.47	3.11	Peak
2 @	-8.60	54.00	45.40	58.67	28.09	44.47	3.11	Average
3 @	-24.32	74.00	49.68	62.29	28.40	44.34	3.33	Peak
4 @	-14.12	54.00	39.88	52.50	28.40	44.34	3.33	Average
5 @			109.30	121.77	28.47	44.32	3.38	Peak
6 @			65.06	77.53	28.47	44.32	3.38	Average
7 @	0.10	74.00	74.10	86.53	28.48	44.31	3.40	Peak
8 @	-8.39	54.00	45.61	58.04	28.48	44.31	3.40	Average

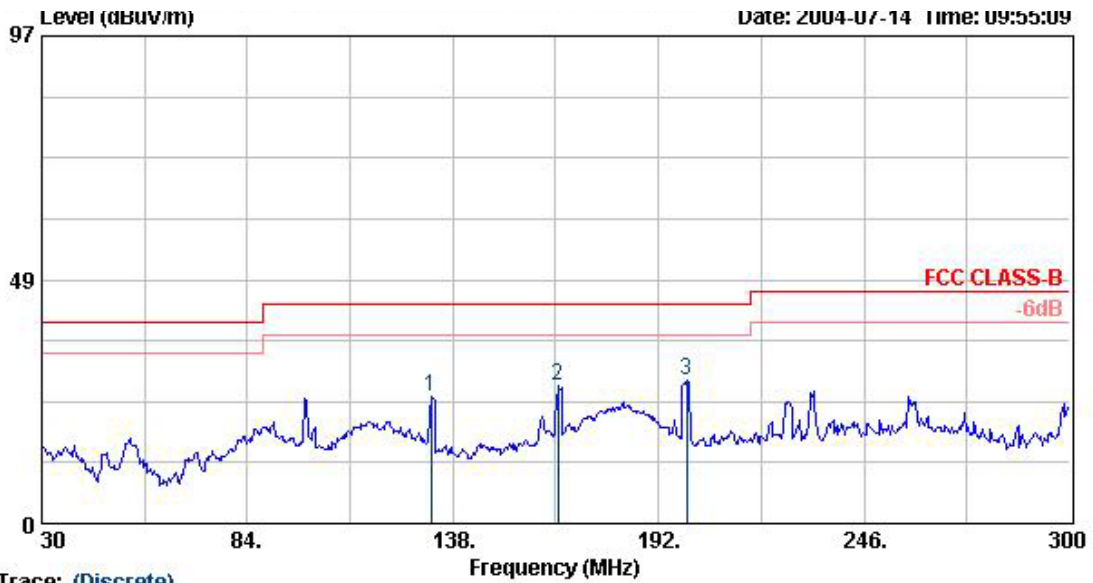
Remark: #5 and 6 fundamental frequency.



Trace: (Discrete)

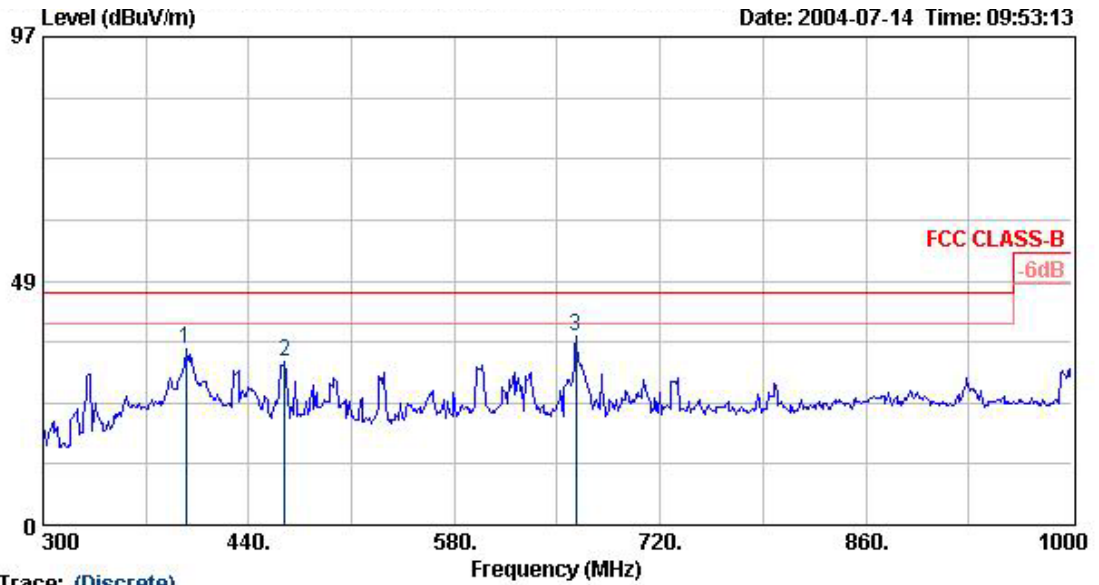
Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11g TX CH11 2462MHz

	Over	Limit		ReadAntenna	Preamp	Cable		
	Limit	Line	Level	Level	Factor	Factor	Loss	Remark
	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	dB	
		dB	dBuV/m	dBuV	dB/m	dB	dB	
1 @	-26.67	74.00	47.33	55.08	33.04	45.64	4.85	Peak



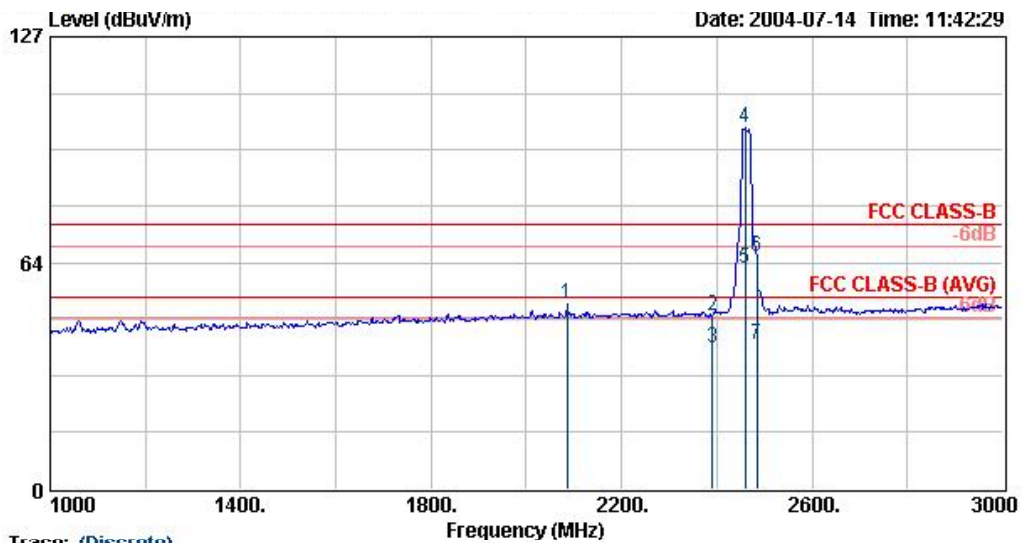
Trace: (Discrete)
 Site : 03CH06
 Condition : FCC CLASS-B 3m BI LOG 2004 0629 VERTICAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11g TX CH11 2462MHz

	Over	Limit		ReadAntenna	Preamp	Cable		
	Freq	Limit	Line	Level	Level	Factor	Loss	
	MHz	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	
1 @	132.33	-18.16	43.50	25.34	45.00	11.53	32.19	1.00 Peak
2 @	165.54	-16.23	43.50	27.27	49.01	9.20	32.06	1.12 Peak
3 @	199.29	-14.91	43.50	28.59	50.75	8.66	32.06	1.24 Peak



Trace: (Discrete)
 Site : 03CH06
 Condition : FCC CLASS-B 3m BI LOG 2004 0629 VERTICAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11g TX CH11 2462MHz

	Freq	Over Limit	Limit Line	Level	ReadAntenna Level	Preamp Factor	Cable Loss	Remark
	MHz	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	
1 @	397.30	-10.97	46.00	35.03	48.96	15.75	31.49	1.82 Peak
2 @	464.50	-13.51	46.00	32.49	45.31	16.75	31.55	1.97 Peak
3 @	662.60	-8.65	46.00	37.35	47.58	18.91	31.62	2.48 Peak

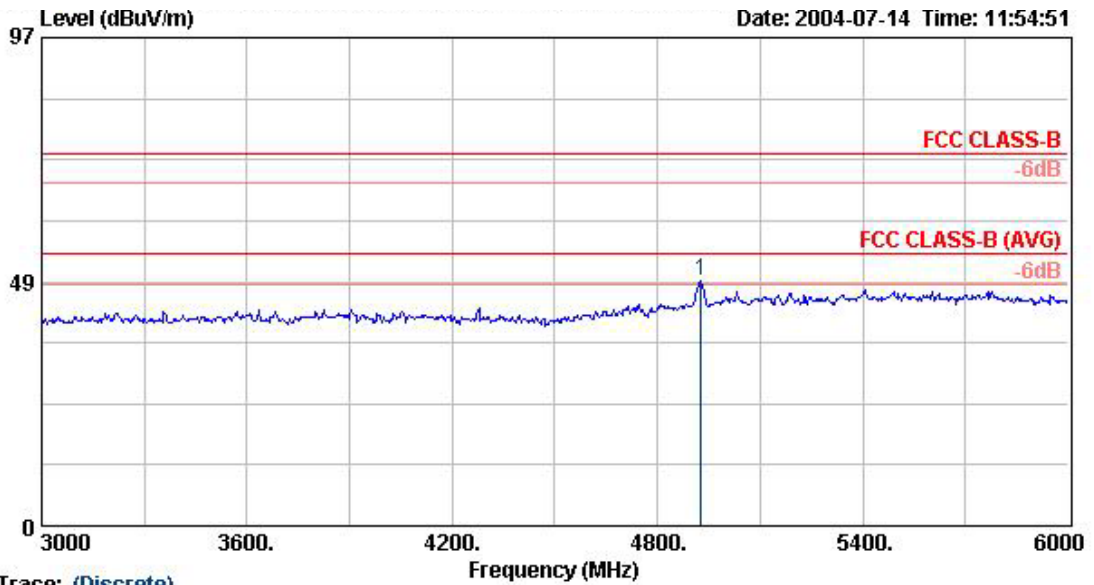


Trace: (Discrete)

Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11g TX CH11 2462MHz

	Freq	Over Limit	Limit Line	Level	ReadAntenna Level	Preamp Factor	Cable Loss	Remark
	MHz	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	
1 @	2086.00	-22.18	74.00	51.82	65.10	28.09	44.47	3.11 Peak
2 @	2390.00	-25.14	74.00	48.86	61.48	28.40	44.34	3.33 Peak
3 @	2390.00	-14.55	54.00	39.45	52.07	28.40	44.34	3.33 Average
4 @	2460.00			101.31	113.78	28.47	44.32	3.38 Peak
5 @	2460.00			61.98	74.45	28.47	44.32	3.38 Average
6 @	2483.50	-8.79	74.00	65.21	77.64	28.48	44.31	3.40 Peak
7 @	2483.50	-13.55	54.00	40.45	52.88	28.48	44.31	3.40 Average

Remark: #4 and 5 fundamental frequency.



Trace: (Discrete)
 Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
 EUT : IEEE802.11g Wireless CardBus
 Power : 120Vac/60Hz
 Model : ZWX-G160
 Memo : 11g TX CH11 2462MHz

	Over	Limit		ReadAntenna	Preamp	Cable		
Freq	Limit	Line	Level	Level	Factor	Factor	Loss	
MHz	dB	dBuV/m	dBuV/m	dBuV	dB/m	dB	dB	
1 @	4926.00	-25.23	74.00	48.77	56.52	33.04	45.64	4.85 Peak

Remark: Frequency from 6000MHz to 25000MHz, the emission emitted by the EUT is too low to be measured

■ Field strength of fundamental and harmonics

Frequency (MHz)	Antenna Polarity	Cable Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Limits (dBuV/m)	Emission (dBuV/m)	Margin (dB)	Detect Mode
2468.000	H	28.47	3.38	77.45	44.32	-	109.30	-	Peak
2468.000	H	28.47	3.38	33.21	44.32	-	65.06	-	Av
2460.000	V	28.47	3.38	69.46	44.32	-	101.31	-	Peak
2460.000	V	28.47	3.38	30.13	44.32	-	61.98	-	Av
4926.000	H	33.04	4.85	9.44	45.64	74.00	47.33	-26.67	Peak
4926.000	V	33.04	4.85	10.88	45.64	74.00	48.77	-25.23	Peak
7386.000	V/H	-	-	-	-	-	-	-	AV/Peak
9848.000	V/H	-	-	-	-	-	-	-	AV/Peak
12310.000	V/H	-	-	-	-	-	-	-	AV/Peak
14772.000	V/H	-	-	-	-	-	-	-	AV/Peak
17234.000	V/H	-	-	-	-	-	-	-	AV/Peak
19696.000	V/H	-	-	-	-	-	-	-	AV/Peak
22158.000	V/H	-	-	-	-	-	-	-	AV/Peak
24620.000	V/H	-	-	-	-	-	-	-	AV/Peak

Remark:

1. The emission emitted by the EUT is too low to be measured except the emission listed above,
2. Reading = Reading on SA-Preamp Factor

Test Engineer :



Jay

8. Antenna Requirements

The EUT use an integrated antenna without connector. It is considered to meet antenna requirement of FCC.

8.1. Standard Applicable

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

And according to FCC 47 CFR Section 15.247 (b), if directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi.

8.2. Antenna Connected Construction

The antenna used in this product is an integrated antenna without connector.

9. RF Exposure

FCC Rules and Regulations Part 1.1307,1.1310,2.1091,2.1093:

RF Exposure Compliance

9.1. Limit For Maximum Permissible Exposure (MPE)

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

F=frequency in MHz

*Plane-wave equivalent power density

9.2. MPE Calculations

Power Density =Pd (mW/cm²) = EIRP/4 π d²

EIRP = P · G

P=Peak output power (mW)

G=Antenna numeric gain (numeric)

d=Separation distance (cm)

Because the EUT belongs to General Population/ Uncontrolled Exposure, the limit of power density is 1.0 mW/cm².

802.11b

Channel NO.	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated RF Exposure at d=1.5 cm (mW/cm ²)	Limit (mW/cm ²)
Channel 01	0.00	1.00	11.08	12.82	0.4538	1.00
Channel 06	0.00	1.00	12.57	18.07	0.6395	1.00
Channel 11	0.00	1.00	13.30	21.38	0.7656	1.00

802.11g

Channel NO.	Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated RF Exposure at d=1.5cm (mW/cm ²)	Limit (mW/cm ²)
Channel 01	0.00	1.00	11.40	13.80	0.4885	1.00
Channel 06	0.00	1.00	13.06	20.23	0.7159	1.00
Channel 11	0.00	1.00	13.50	22.39	0.7922	1.00

9.3. FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 1.5cm during normal operation.

10. List of Measuring Equipments Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9 KHz – 2.75 GHz	Feb. 16, 2004	Conduction (CO04-HY)
LISN	MessTec	NNB-2/16Z	2001/004	9 KHz – 30 MHz	Jun. 09, 2004	Conduction (CO04-HY)
LISN (Support Unit)	MessTec	NNB-2/16Z	99041	9 KHz – 30 MHz	Apr. 27, 2004	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)
RF Cable-CON	UTIFLEX	3102-26886-4	CB044	9KHz~30MHz	Apr. 21, 2004	Conduction (CO04-HY)

※ Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum analyzer	R&S	FSP40	100057	9KHz-40GHz	Feb. 26, 2004	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Dec. 18, 2003	Radiation (03CH06-HY)
Horn Antenna	Com-Power	AH118	071025	1G-18G	Feb. 11, 2004	Radiation (03CH06-HY)
PreAmplifier	Com-Power	PA-103	161055	1MHz - 1000MHz	Apr. 26, 2004	Radiation (03CH06-HY)
HF Amplifier	MITEQ	AFS44	973248	0.1G - 26.5G	May. 20, 2004	Radiation (03CH06-HY)

※ Calibration Interval of instruments listed above is one year, except for Horn Antenna, BBHA9170.

※ Calibration Interval of Horn Antenna, BBHA9170, is three years.

11. Uncertainty Measurement

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.10	Normal(k=2)	0.05
Cable loss	0.10	Normal(k=2)	0.05
AMN insertion loss	2.50	Rectangular	0.63
Receiver Spec	1.50	Rectangular	0.43
Site imperfection	1.39	Rectangular	0.80
Mismatch Receiver VSWR Γ_1 = LISN VSWR Γ_2 = Uncertainty= $20\log(1-\Gamma_1*\Gamma_2)$	+0.34/-0.35	U-shape	0.24
combined standard uncertainty Uc(y)	1.13		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	2.26		

$U = \sqrt{\{(1/2)^2 + (0.3/2)^2 + (2^2 + 0.5^2 + 2^2 + 0.25^2 + 2^2)/3 + (0.54)^2/2\}} = 2.2$ for 10m test distance

$U = \sqrt{\{(1/2)^2 + (0.3/2)^2 + (2^2 + 3^2 + 2^2 + 0.25^2 + 2^2)/3 + (0.54)^2/2\}} = 2.7$ for 3m test distance

Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.15	Normal(k=2)	0.08
Antenna factor calibration	1.12	Normal(k=2)	0.56
Cable loss calibration	0.12	Normal(k=2)	0.06
Pre Amplifier Gain calibration	0.13	Normal(k=2)	0.07
RCV/SPA specification	2.5	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1	Rectangular	0.29
Site imperfection	2.1	Rectangular	1.21
Mismatch Receiver VSWR Γ_1 = 0.20 Antenna VSWR Γ_2 = 0.23 Uncertainty= $20\log(1-\Gamma_1*\Gamma_2)$	+0.39/-0.41	U-shaped	0.28
combined standard uncertainty Uc(y)	1.58		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	3.16		

Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Contribution	Uncertainty of x_i		$u(x_i)$	C_i	$C_i * u(x_i)$
	dB	Probability Distribution			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20 \log(1 - \Gamma_1 * \Gamma_2 * \Gamma_3)$	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty $U_c(y)$	2.36				
Measuring uncertainty for a level of confidence of 95% $U = 2U_c(y)$	4.72				

$$U = \sqrt{\{(0.3/2)^2 + (2^2 + 1.5^2 + 0.2^2)/3 + (0.2)^2/2\}} = 1.66$$