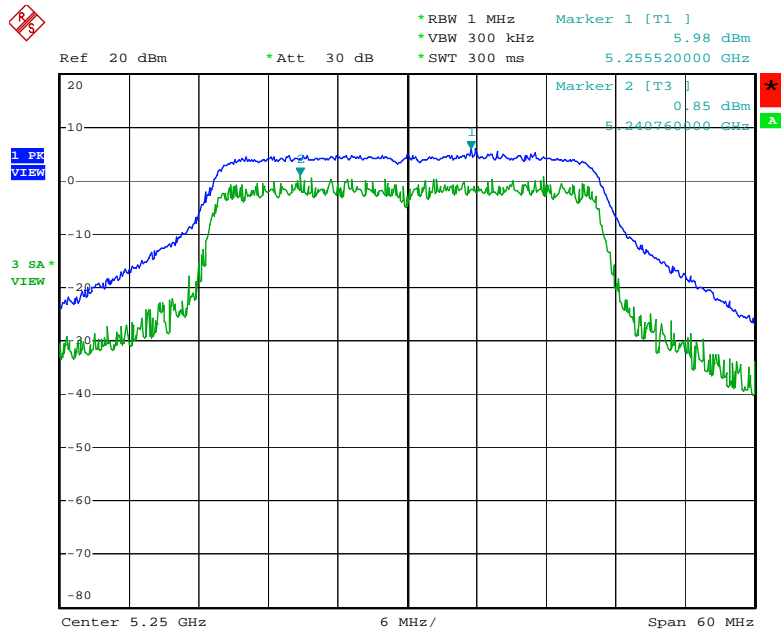
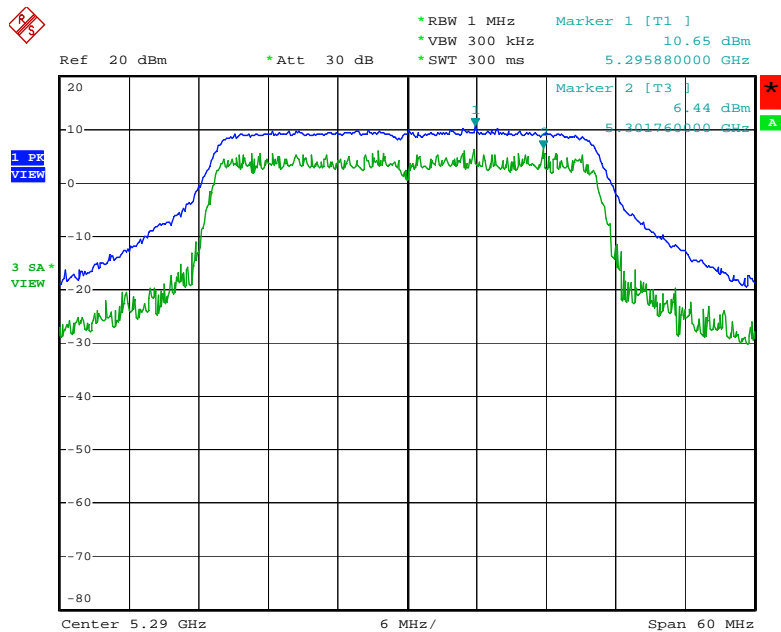


**Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5250 MHz**



Date: 4.MAY.2006 21:48:03

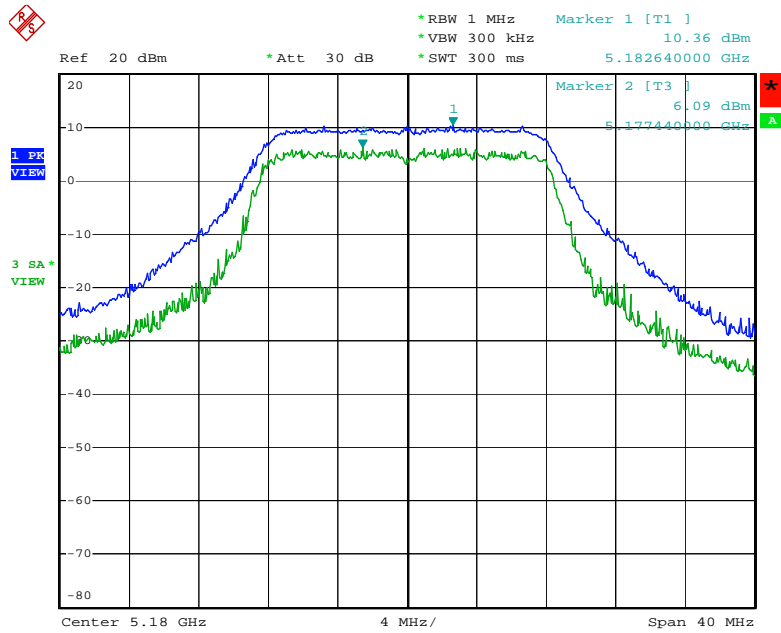
**Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5290 MHz**



Date: 4.MAY.2006 21:49:08

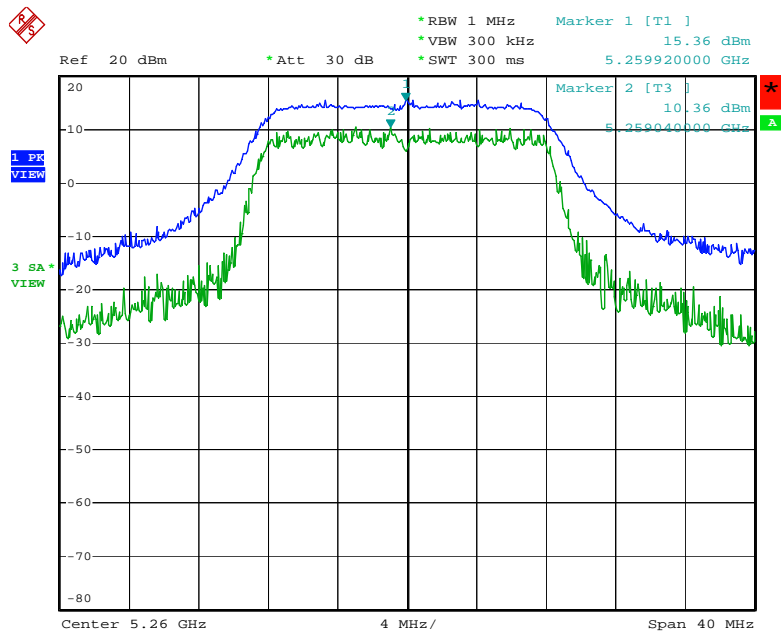
For Ant. 2

Peak Excursion Plot on Configuration IEEE 802.11a / 5180 MHz



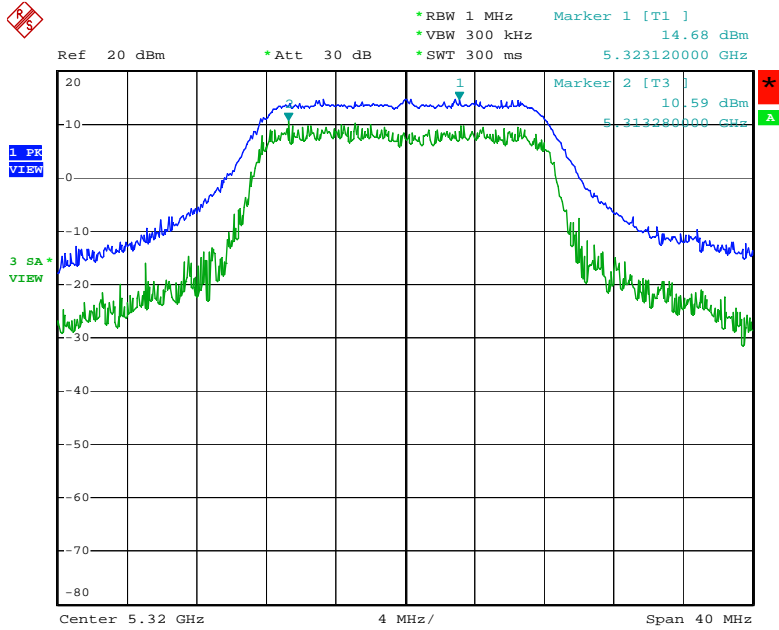
Date: 4.MAY.2006 20:32:31

Peak Excursion Plot on Configuration IEEE 802.11a / 5260 MHz



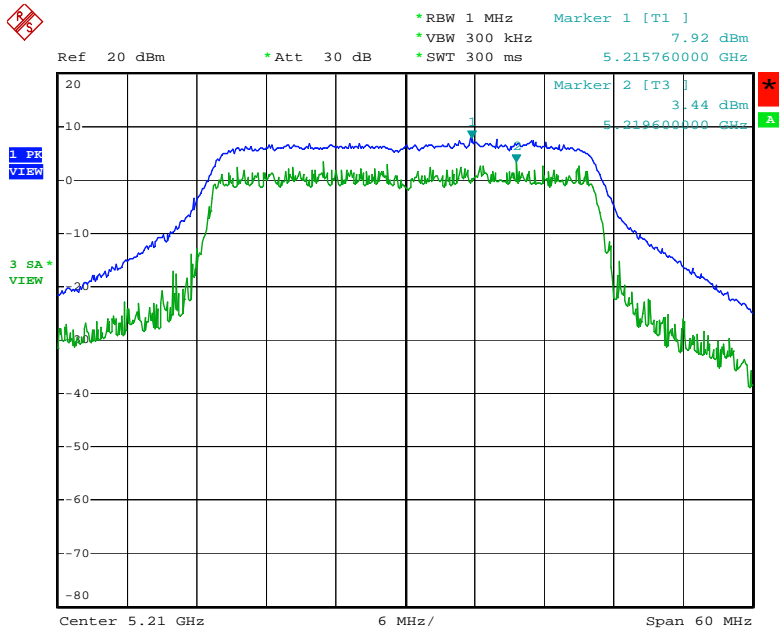
Date: 27.APR.2006 22:16:29

### Peak Excursion Plot on Configuration IEEE 802.11 a / 5320 MHz



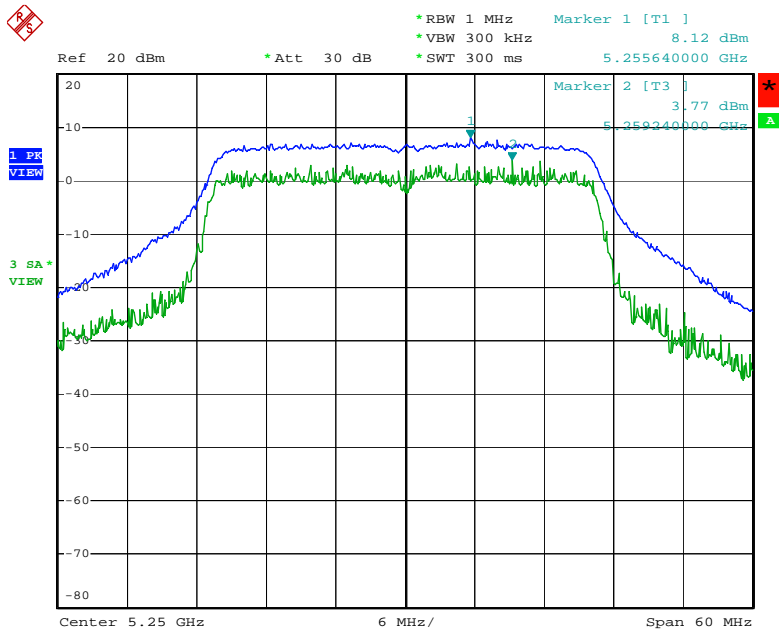
Date: 27.APR.2006 22:17:22

### Peak Excursion Plot on Configuration IEEE 802.11 a Turbo / 5210 MHz



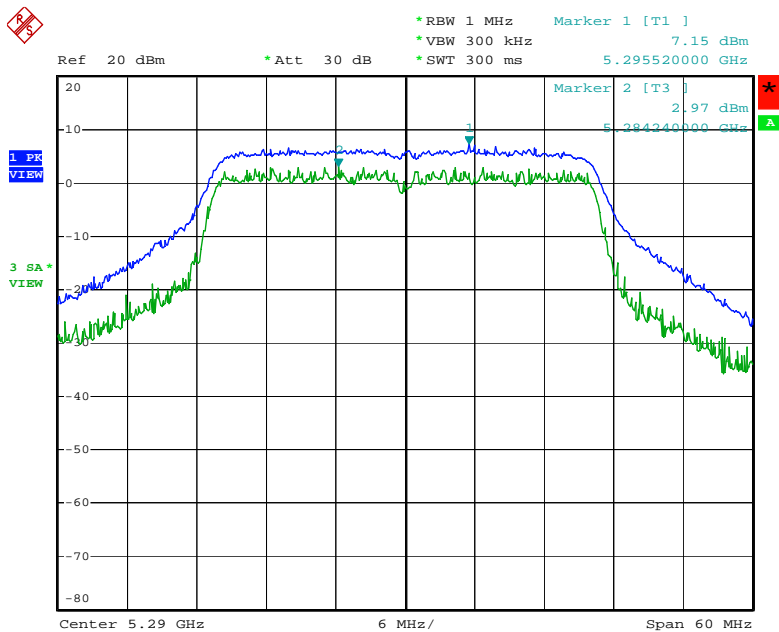
Date: 4.MAY.2006 22:13:12

Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5250 MHz



Date: 4.MAY.2006 22:12:09

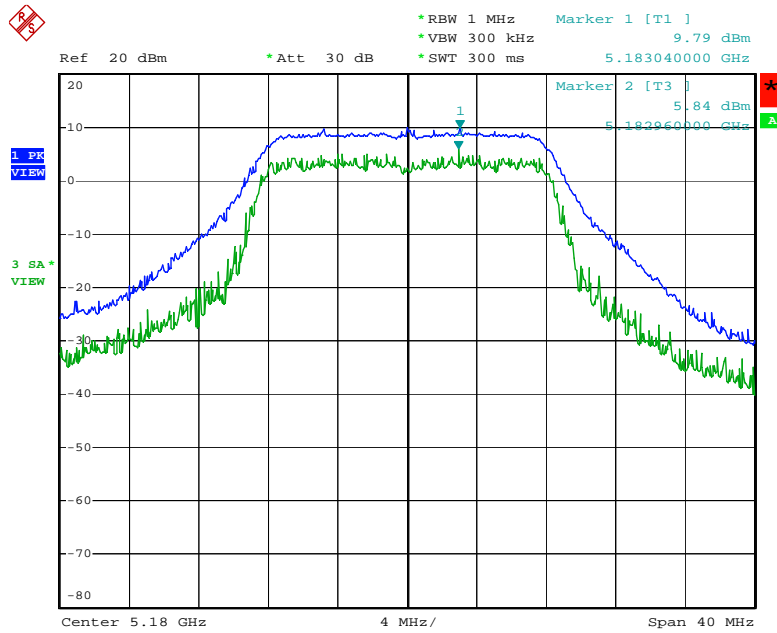
Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5290 MHz



Date: 4.MAY.2006 22:11:05

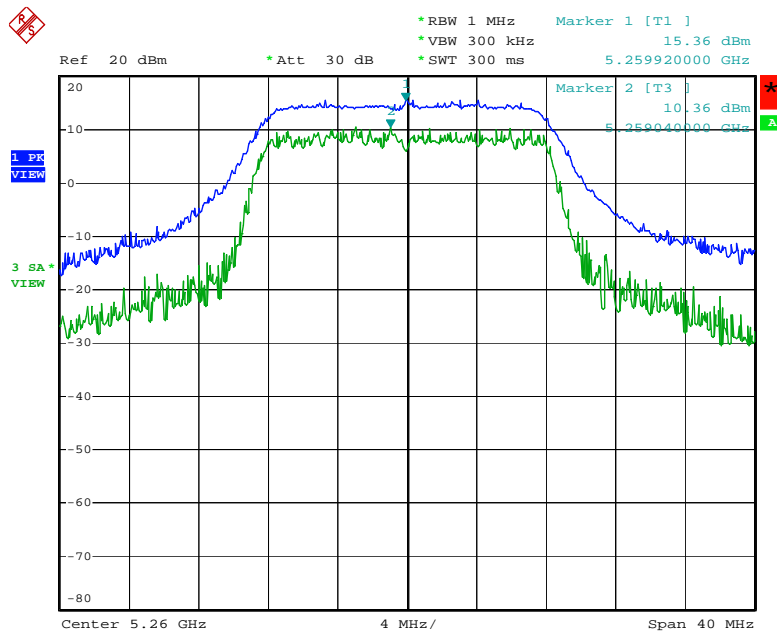
For Ant. 4

Peak Excursion Plot on Configuration IEEE 802.11a / 5180 MHz



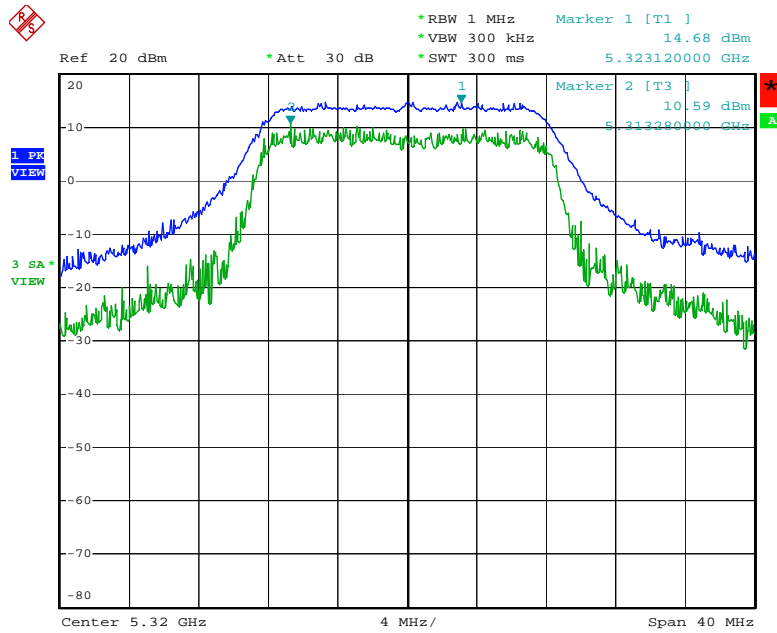
Date: 27.APR.2006 22:15:08

Peak Excursion Plot on Configuration IEEE 802.11a / 5260 MHz



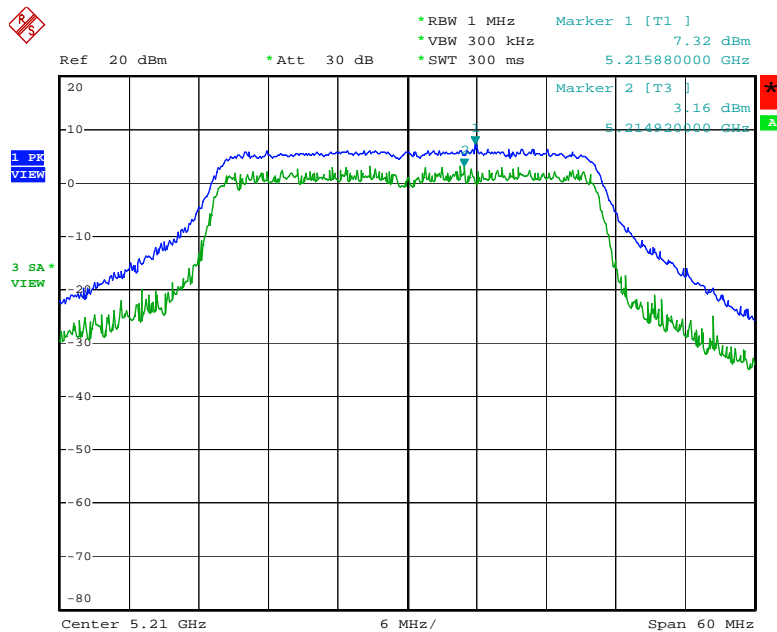
Date: 27.APR.2006 22:16:29

### Peak Excursion Plot on Configuration IEEE 802.11 a / 5320 MHz



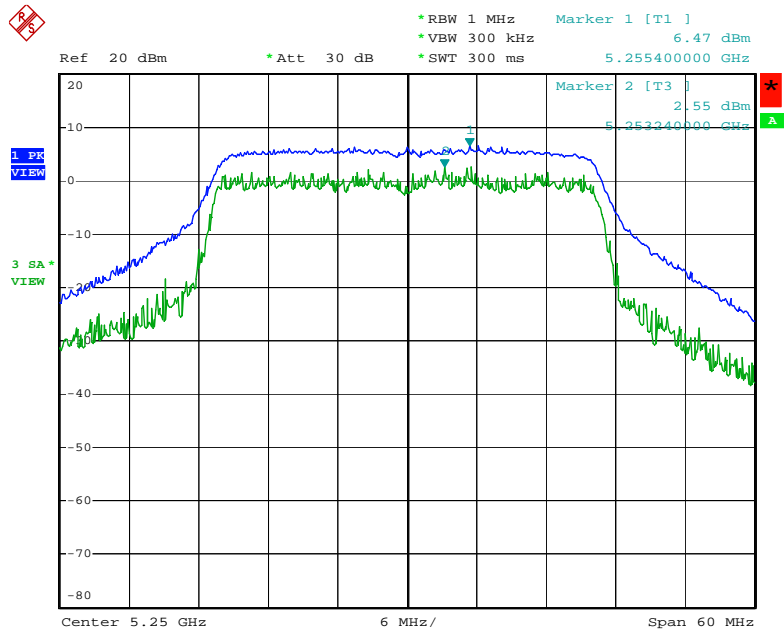
Date: 27.APR.2006 22:17:22

### Peak Excursion Plot on Configuration IEEE 802.11 a Turbo / 5210 MHz



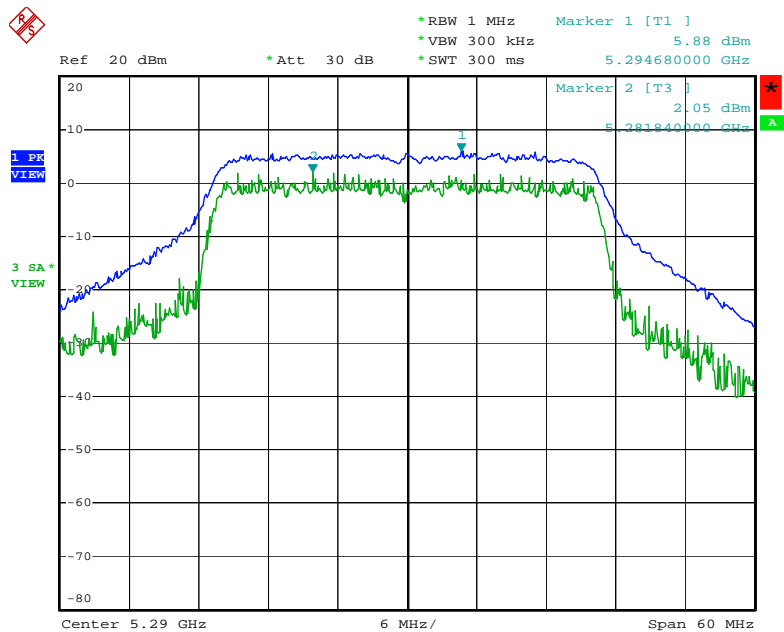
Date: 27.APR.2006 22:59:13

### Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5250 MHz



Date: 27.APR.2006 23:00:05

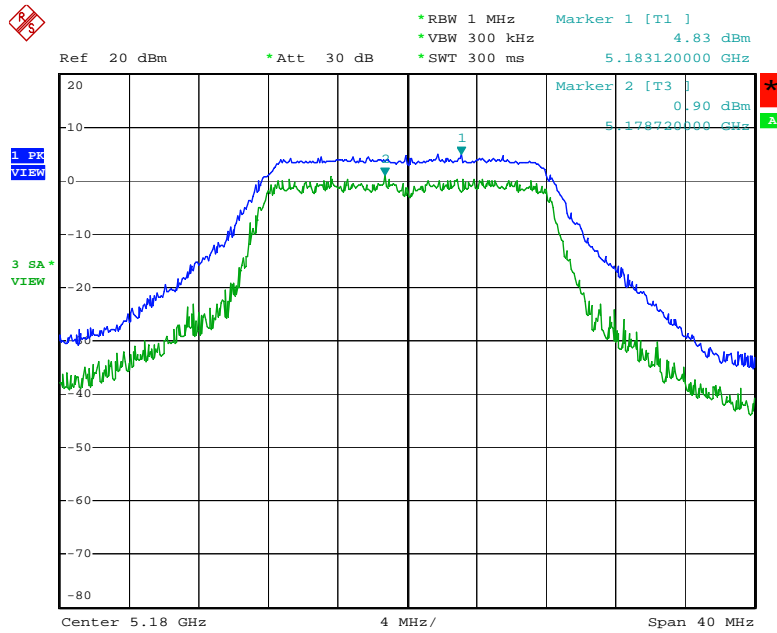
### Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5290 MHz



Date: 27.APR.2006 23:00:57

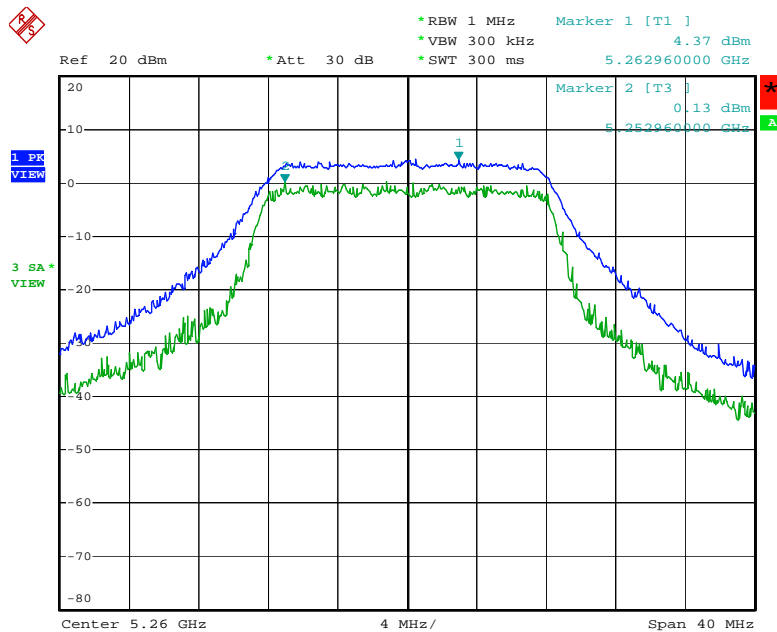
For Ant. 5

Peak Excursion Plot on Configuration IEEE 802.11a / 5180 MHz



Date: 5.MAY.2006 21:34:58

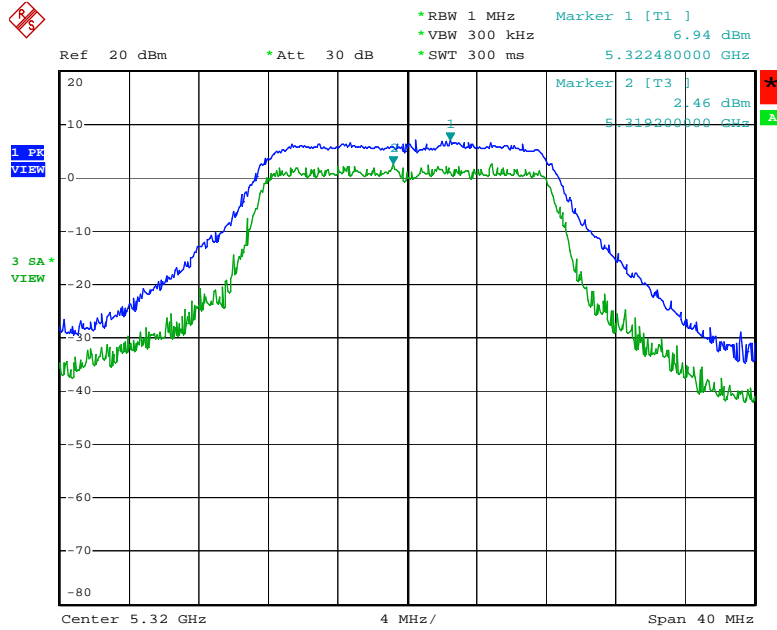
Peak Excursion Plot on Configuration IEEE 802.11a / 5260 MHz



Date: 5.MAY.2006 22:20:23

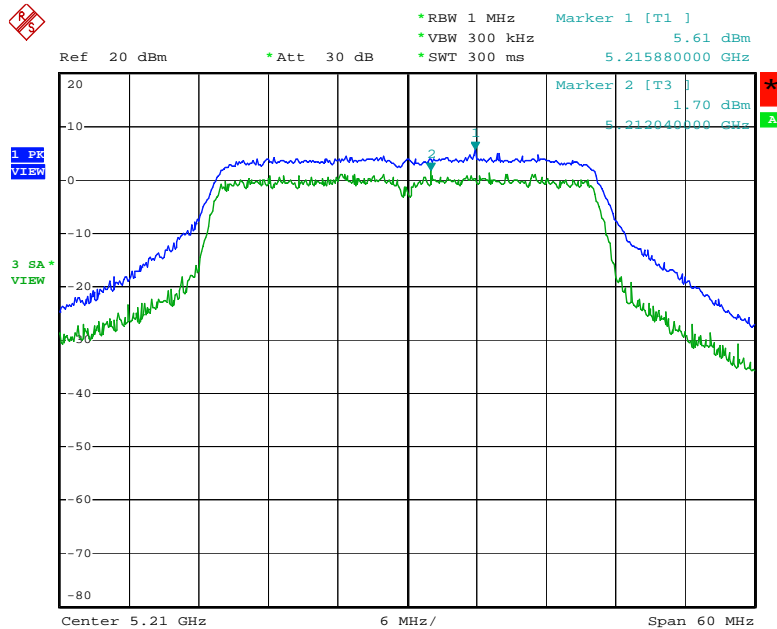


### Peak Excursion Plot on Configuration IEEE 802.11 a / 5320 MHz



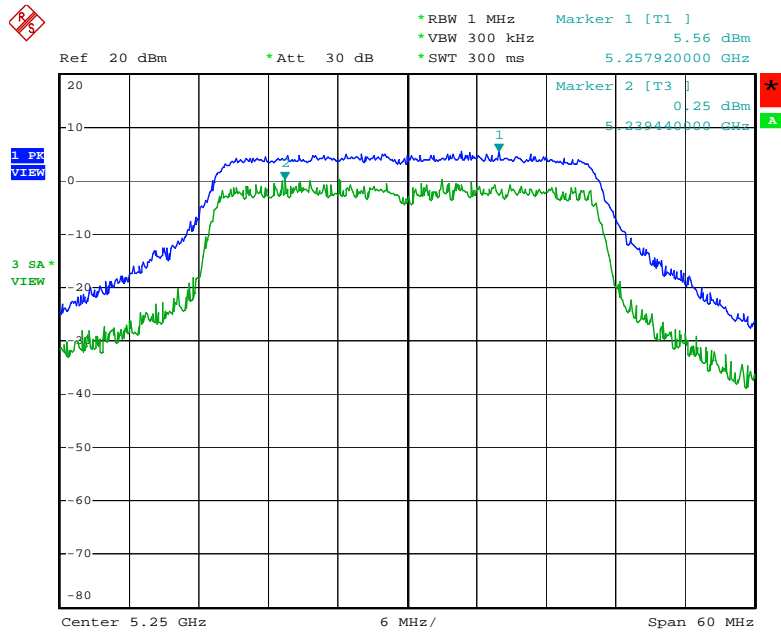
Date: 5.MAY.2006 21:36:43

### Peak Excursion Plot on Configuration IEEE 802.11 a Turbo / 5210 MHz



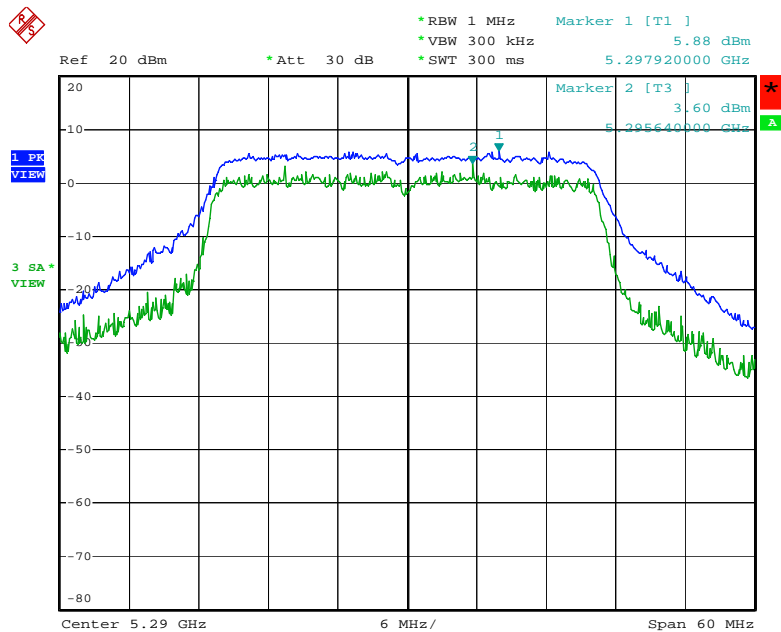
Date: 5.MAY.2006 22:28:52

Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5250 MHz



Date: 5.MAY.2006 21:49:37

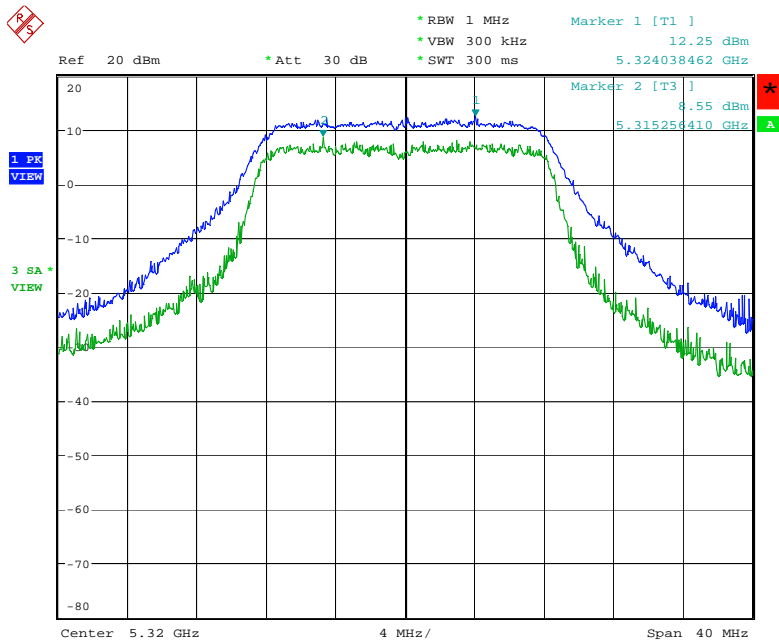
Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5290 MHz



Date: 5.MAY.2006 21:48:48

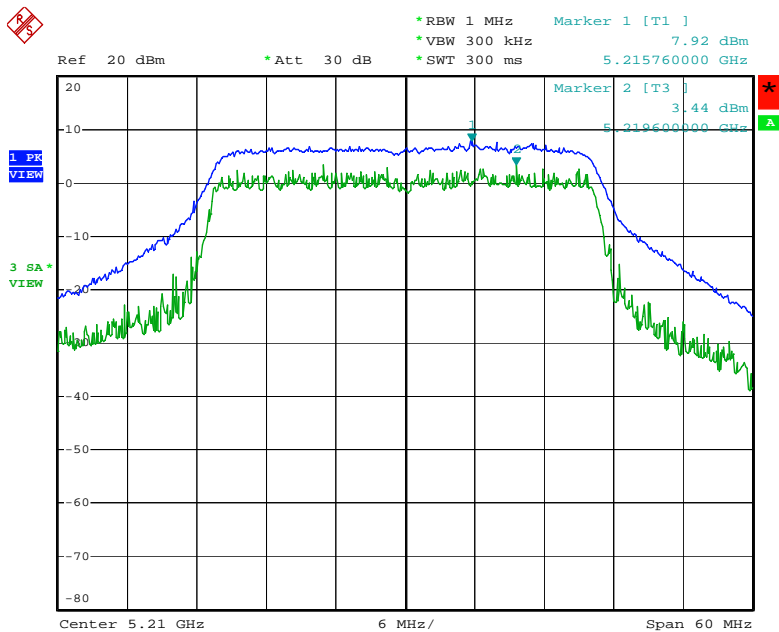


### Peak Excursion Plot on Configuration IEEE 802.11 a / 5320 MHz



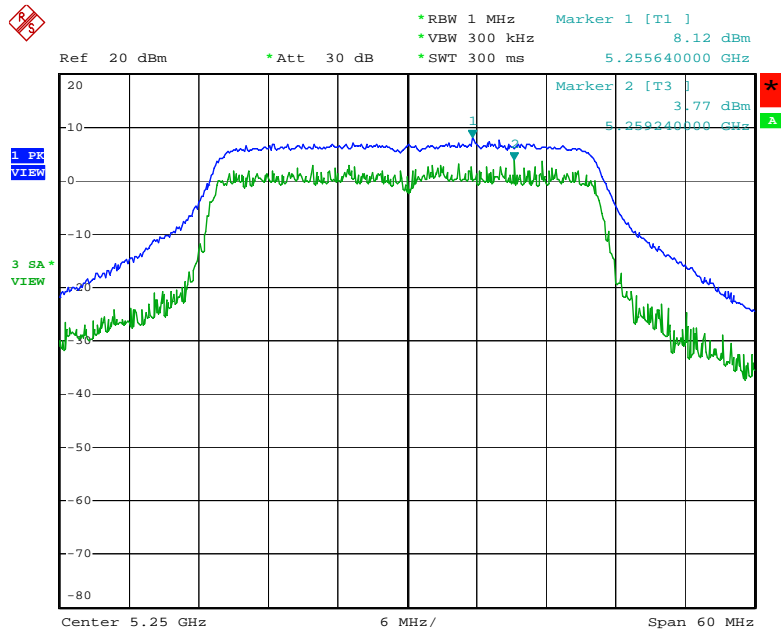
Date: 8.MAY.2006 15:58:59

### Peak Excursion Plot on Configuration IEEE 802.11 a Turbo / 5210 MHz



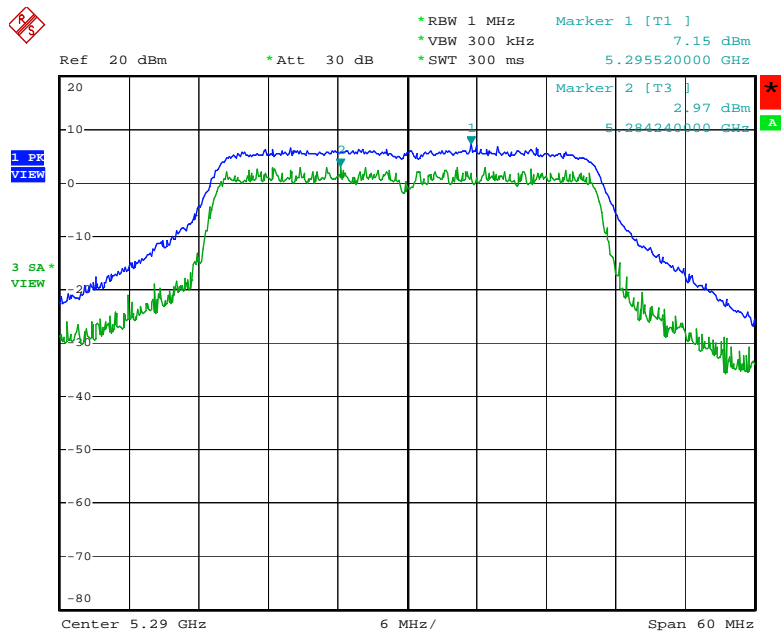
Date: 4.MAY.2006 22:13:12

### Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5250 MHz



Date: 4.MAY.2006 22:12:09

### Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5290 MHz



Date: 4.MAY.2006 22:11:05

## 4.6. Radiated Emissions Measurement

### 4.6.1. Limit

For transmitters operating in the 5.15-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). In addition, 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 (micorvolts/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 in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100KHz / 100KHz for peak

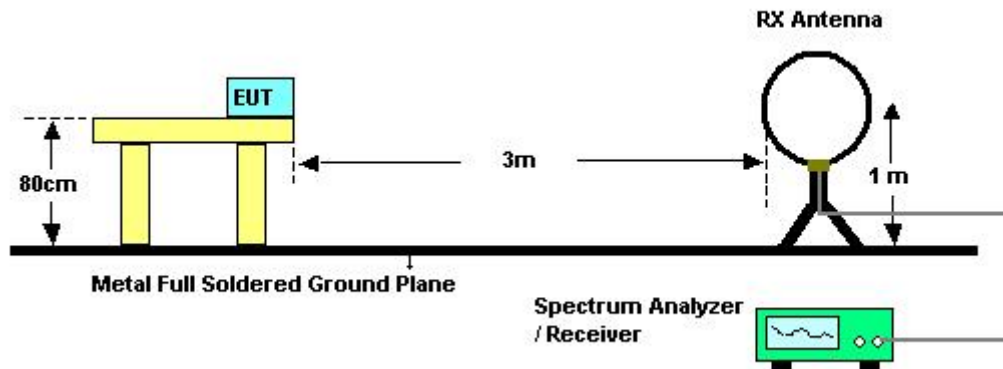
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

#### 4.6.3. Test Procedures

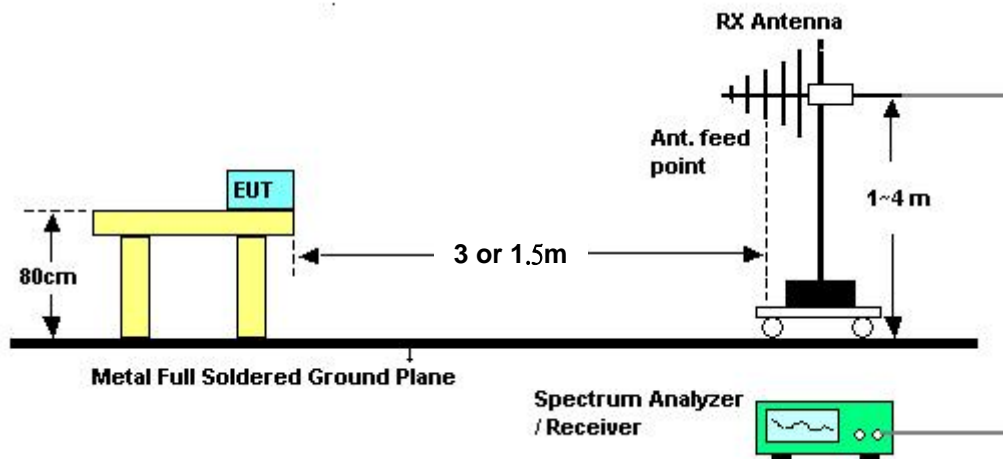
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average 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 for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions 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.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

#### 4.6.4. Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1.5m

Distance extrapolation factor =  $20 \log (\text{specific distance [3m]} / \text{test distance [1.5]})$  (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6dB].

#### 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. Results of Radiated Emissions (9kHz~30MHz)

<b>Temperature</b>	24°C	<b>Humidity</b>	63%
<b>Test Engineer</b>	Leo Hung	<b>Configurations</b>	802.11a Channel 64

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

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

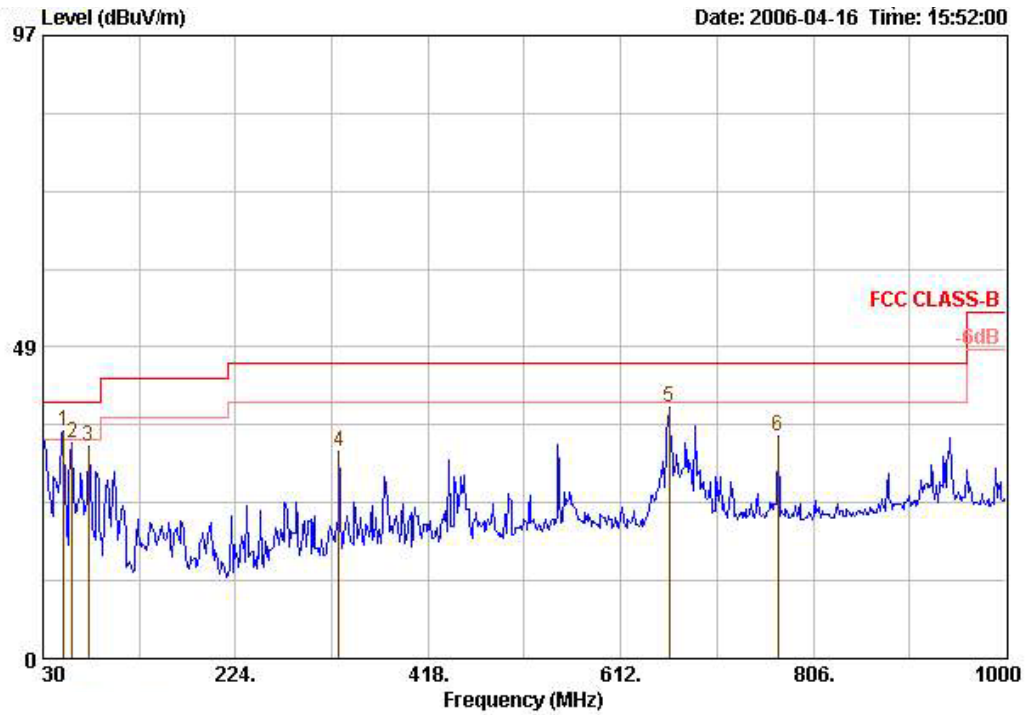
Distance extrapolation factor =  $40 \log(\text{specific distance} / \text{test distance})$  (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

4.6.8. Results of Radiated Emissions (30MHz~1GHz)

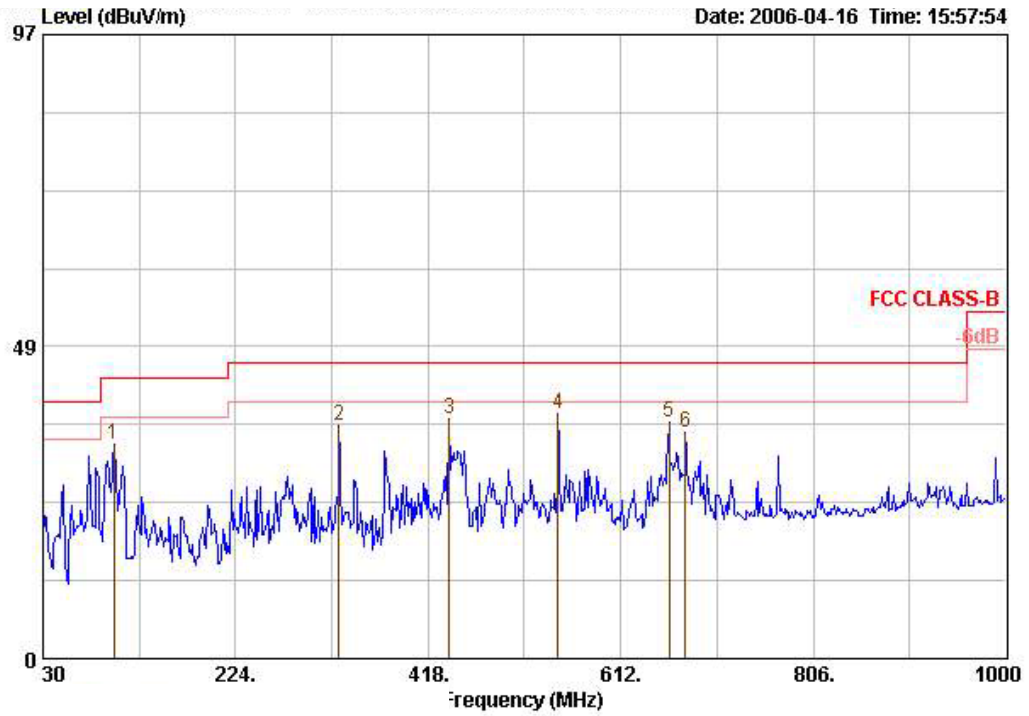
Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 64 / Ant. 1

Vertical



	Freq	Level	Over Limit	Limit	Antenna Line	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBUV/m	dB	dBUV/m	dB/m	dB	dB	dBUV		cm	deg
1 @	51.340	35.52	-4.48	40.00	7.35	0.61	29.83	57.39	Peak	---	---
2 @	59.100	33.45	-6.55	40.00	5.45	0.65	29.86	57.21	Peak	---	---
3 @	75.590	33.06	-6.94	40.00	6.20	0.70	29.97	56.12	Peak	---	---
4 @	327.790	32.32	-13.68	46.00	13.82	1.43	30.48	47.55	Peak	---	---
5 @	660.500	39.11	-6.89	46.00	18.90	2.05	30.34	48.51	Peak	---	---
6 @	770.110	34.60	-11.40	46.00	19.92	2.19	30.09	42.58	Peak	---	---

Horizontal



	Freq	Level	Over Limit	Limit	Antenna Line	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1 @	101.780	33.30	-10.20	43.50	10.76	0.81	30.09	51.82	Peak	---	---
2 @	327.790	36.17	-9.83	46.00	13.82	1.43	30.48	51.40	Peak	---	---
3 @	439.340	37.33	-8.67	46.00	16.31	1.65	30.46	49.83	Peak	---	---
4 @	548.950	37.94	-8.06	46.00	18.28	1.87	30.63	48.41	Peak	---	---
5 @	660.500	36.78	-9.22	46.00	18.90	2.05	30.34	46.18	Peak	---	---
6 @	676.990	35.28	-10.72	46.00	18.94	2.08	30.37	44.63	Peak	---	---

Note:

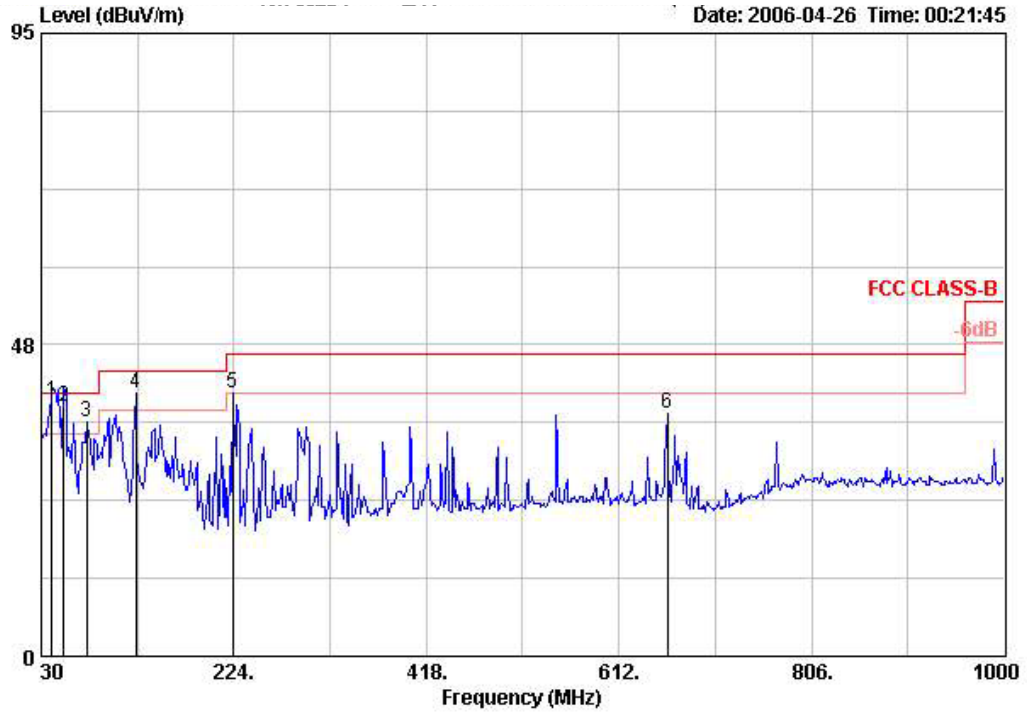
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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

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

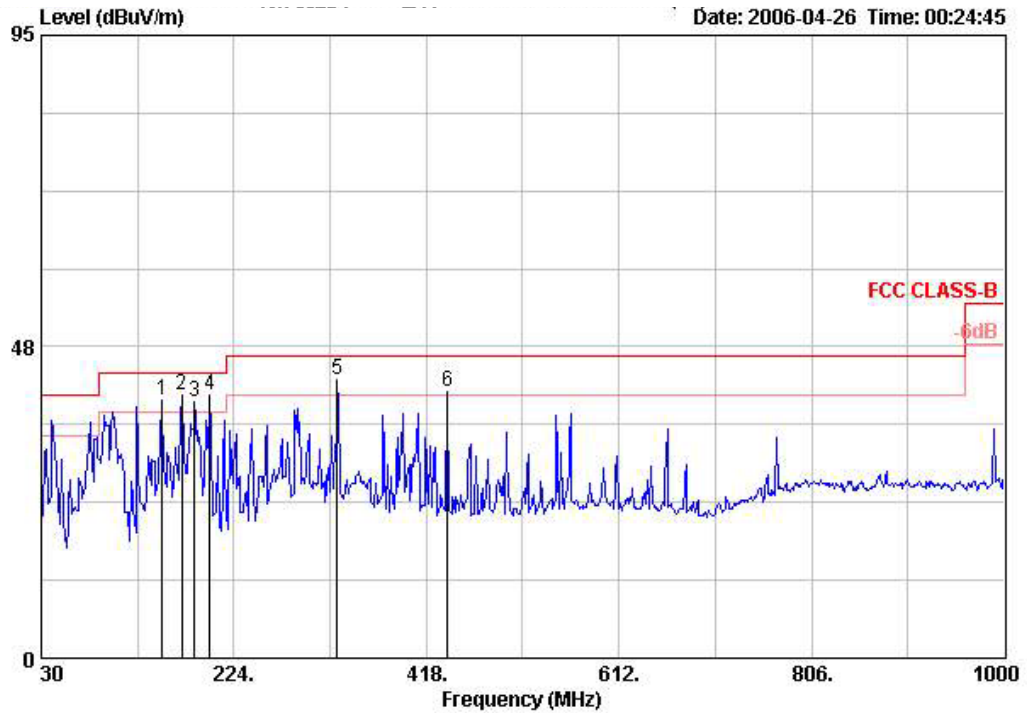
Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 64 / Ant. 2

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Pol/Phase	Distance
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB	dB			m
1 @	40.670	38.88	-1.12	40.00	55.64	13.91	1.10	31.77	QP	VERTICAL	3
2 @	52.310	37.99	-2.01	40.00	58.98	9.63	1.17	31.78	QP	VERTICAL	3
3 @	75.590	35.78	-4.22	40.00	58.63	7.40	1.30	31.55	Peak	VERTICAL	3
4 @	125.060	40.12	-3.38	43.50	56.77	13.36	1.70	31.71	Peak	VERTICAL	3
5 @	223.030	40.15	-5.85	46.00	58.12	11.29	2.14	31.40	Peak	VERTICAL	3
6 @	660.500	37.05	-8.95	46.00	46.33	17.55	3.52	30.35	Peak	VERTICAL	3

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Pol/Phase	Distance
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB	dB			m
1	152.220	39.38	-4.12	43.50	57.48	11.54	1.90	31.53	Peak	HORIZONTAL	3
2	171.620	40.05	-3.45	43.50	59.57	10.19	1.87	31.58	Peak	HORIZONTAL	3
3	184.230	39.05	-4.45	43.50	58.94	9.71	2.00	31.60	Peak	HORIZONTAL	3
4	199.750	40.02	-3.48	43.50	59.86	9.60	2.00	31.44	Peak	HORIZONTAL	3
5	327.790	42.49	-3.51	46.00	56.44	15.02	2.31	31.28	Peak	HORIZONTAL	3
6	439.340	40.72	-5.28	46.00	51.31	17.50	2.86	30.94	Peak	HORIZONTAL	3

Note:

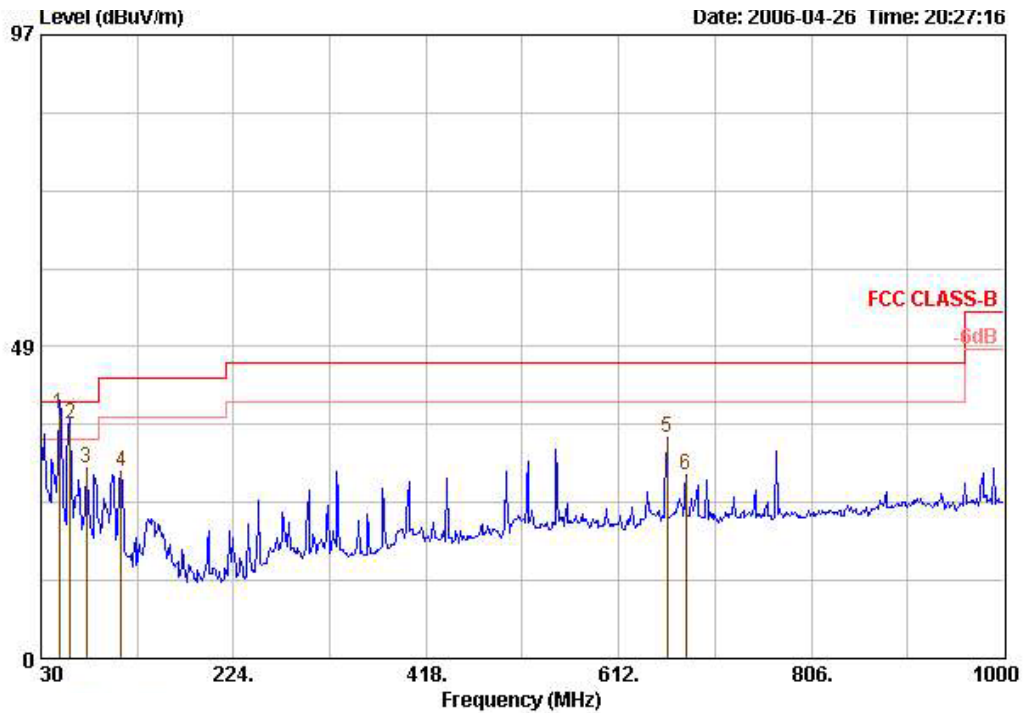
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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

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

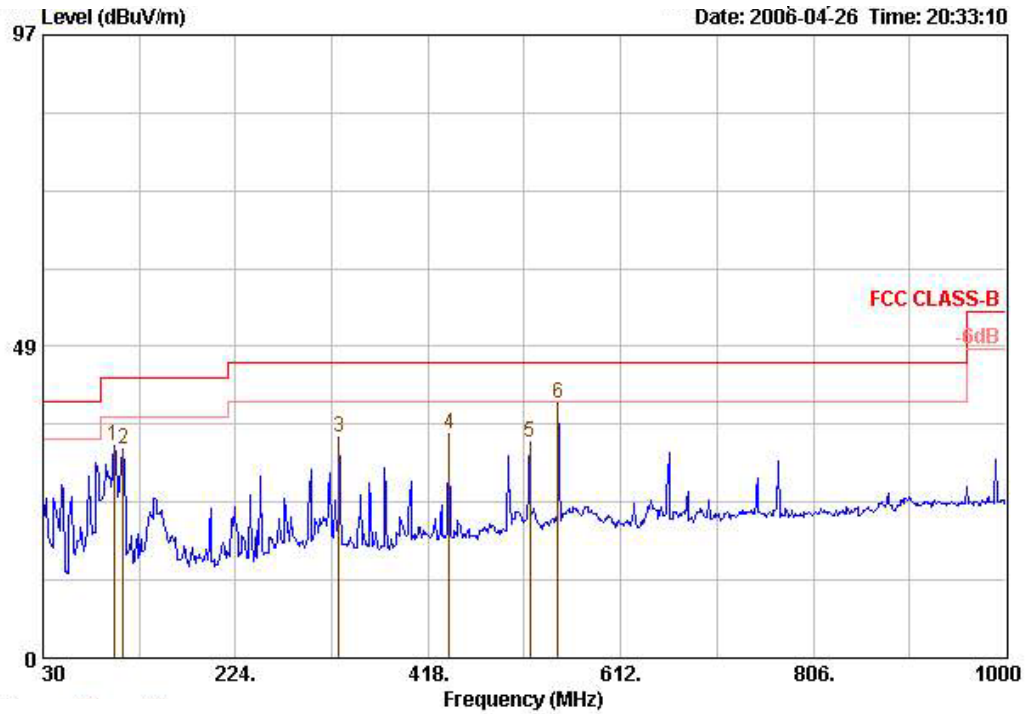
Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 64 / Ant. 4

Vertical



	Freq	Level	Over Limit	Limit	Antenna Line Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBUV/m	dB	dBUV/m	dB/m	dB	dB	dBUV		cm	deg
1 !	48.430	38.16	-1.84	40.00	8.50	0.59	29.83	58.90	QP	---	---
2 !	59.100	36.56	-3.44	40.00	5.45	0.65	29.86	60.32	QP	---	---
3	75.590	29.53	-10.47	40.00	6.20	0.70	29.97	52.59	Peak	---	---
4	110.510	29.00	-14.50	43.50	11.50	0.84	30.07	46.72	Peak	---	---
5	660.500	34.27	-11.73	46.00	18.90	2.05	30.34	43.67	Peak	---	---
6	679.900	28.54	-17.46	46.00	18.95	2.09	30.38	37.88	Peak	---	---

Horizontal



	Freq	Level	Over Limit	Limit	Antenna Line	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1	101.780	33.16	-10.34	43.50	10.76	0.81	30.09	51.68	Peak	---	---
2	110.510	32.63	-10.87	43.50	11.50	0.84	30.07	50.36	Peak	---	---
3	327.790	34.42	-11.58	46.00	13.82	1.43	30.48	49.65	Peak	---	---
4	439.340	34.86	-11.14	46.00	16.31	1.65	30.46	47.36	Peak	---	---
5	520.820	33.48	-12.52	46.00	17.70	1.81	30.57	44.53	Peak	---	---
6	548.950	39.68	-6.32	46.00	18.28	1.87	30.63	50.15	Peak	---	---

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).

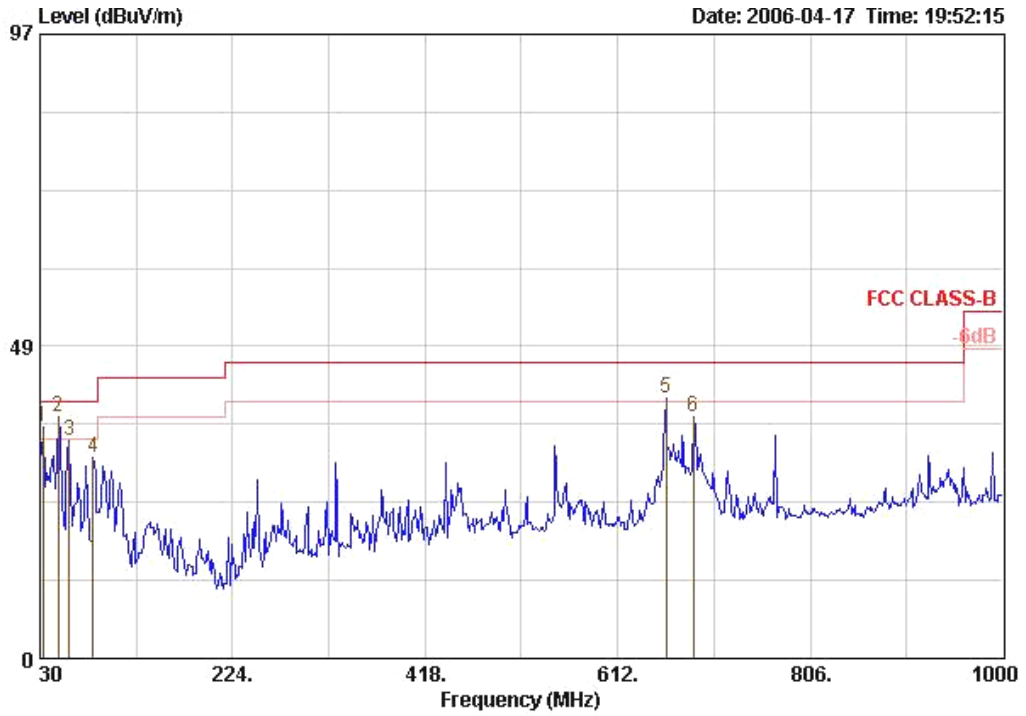
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.



4.6.9.

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 64 / Ant. 5

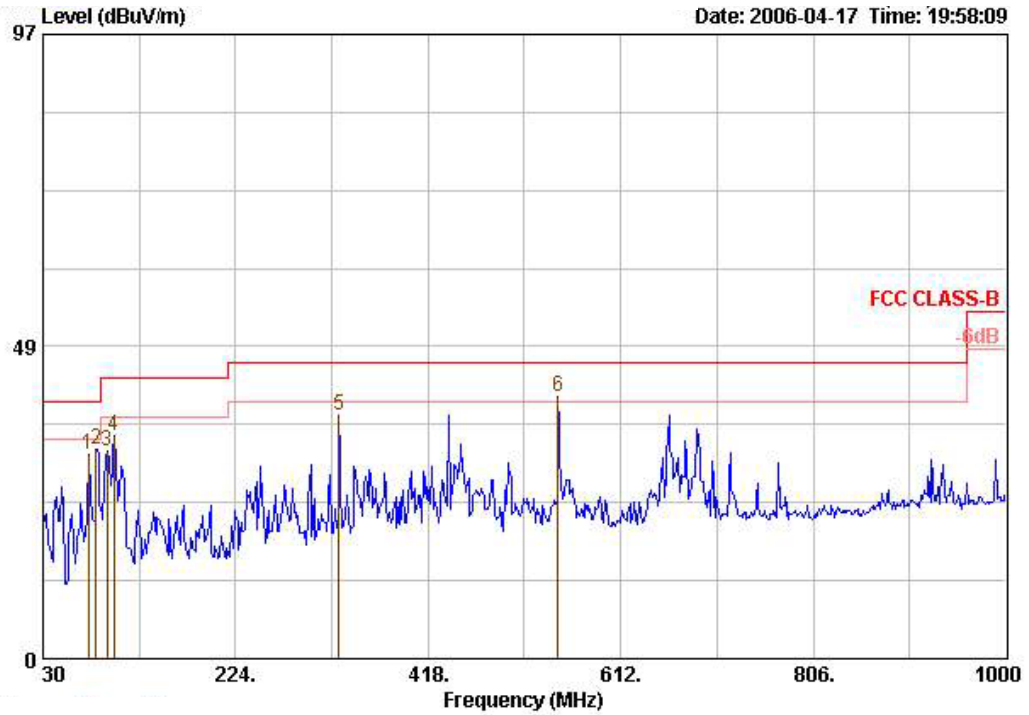
Vertical



	Over	Limit	Antenna	Cable	Preamp	Read	Ant	Table		
Freq	Level	Limit	Line	Loss	Factor	Level	Pos	Pos		
MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dBuV	cm	deg		
1 !	32.910	35.94	-4.06	40.00	16.45	0.49	29.78	48.78 Peak	---	---
2 @	48.430	37.42	-2.58	40.00	8.50	0.59	29.83	58.16 QP	---	---
3	59.100	33.73	-6.27	40.00	5.45	0.65	29.86	57.49 Peak	---	---
4	83.350	31.23	-8.77	40.00	7.40	0.73	29.97	53.07 Peak	---	---
5 !	660.500	40.34	-5.66	46.00	18.90	2.05	30.34	49.74 Peak	---	---
6	688.630	37.47	-8.53	46.00	18.91	2.11	30.40	46.85 Peak	---	---



Horizontal



	Freq	Level	Over Limit	Limit	Antenna Line Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBUV/m	dB	dBUV/m	dB/m	dB	dB	dBUV		cm	deg
1	75.590	31.77	-8.23	40.00	6.20	0.70	29.97	54.83	Peak	---	---
2	83.350	32.55	-7.45	40.00	7.40	0.73	29.97	54.38	Peak	---	---
3	94.990	32.29	-11.21	43.50	9.75	0.79	30.12	51.87	Peak	---	---
4	101.780	34.70	-8.80	43.50	10.76	0.81	30.09	53.22	Peak	---	---
5	327.790	37.77	-8.23	46.00	13.82	1.43	30.48	53.00	Peak	---	---
6 !	548.950	40.80	-5.20	46.00	18.28	1.87	30.63	51.28	Peak	---	---

Note:

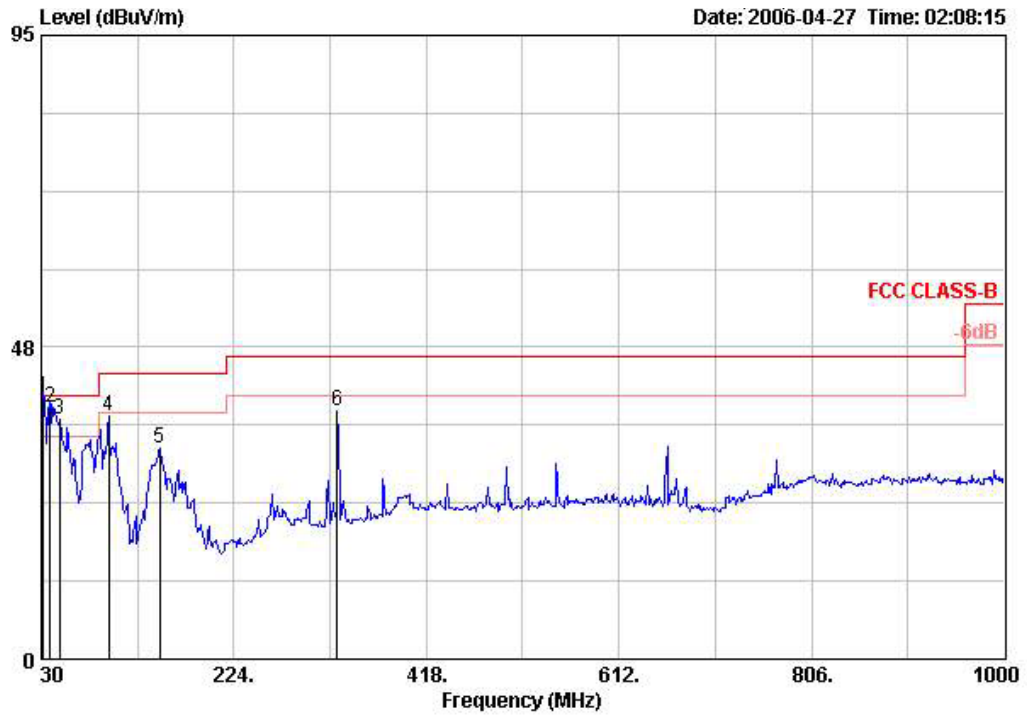
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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

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

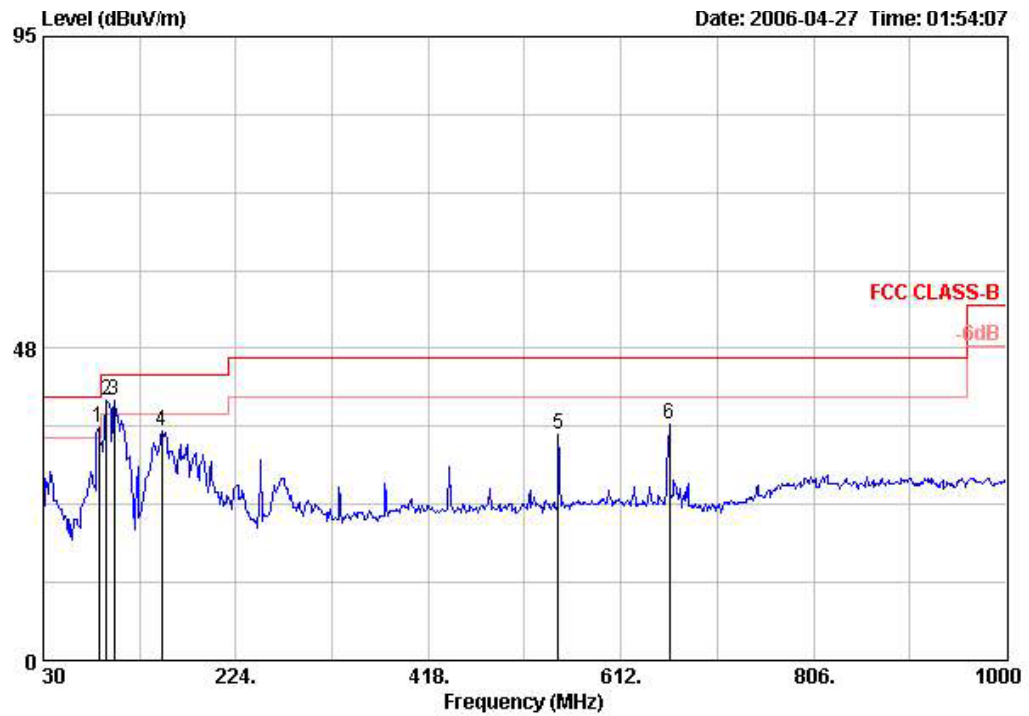
Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 64 / Ant. 6

Vertical



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Remark	Pol/Phase	Distance	
	MHz	dBUV/m	Limit	Line	Level	Factor	Loss	Factor		m	
			dB	dBUV/m	dBuV	dB/m	dB	dB			
1 @	31.940	39.75	-0.25	40.00	54.15	16.34	0.93	31.67	QP	HORIZONTAL	3
2 @	38.730	38.23	-1.77	40.00	54.09	14.74	1.15	31.75	QP	HORIZONTAL	3
3 @	48.430	36.48	-3.52	40.00	56.42	10.79	1.10	31.83	Peak	HORIZONTAL	3
4	97.900	37.12	-6.38	43.50	56.51	10.84	1.50	31.73	Peak	HORIZONTAL	3
5	149.310	32.08	-11.42	43.50	50.10	11.63	1.90	31.54	Peak	HORIZONTAL	3
6	327.790	37.89	-8.11	46.00	51.84	15.02	2.31	31.28	Peak	HORIZONTAL	3

Horizontal



	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			m
1	86.260	35.55	-4.45	40.00	56.87	8.89	1.45	31.65	Peak	VERTICAL	3
2	94.020	39.66	-3.84	43.50	59.78	10.13	1.47	31.72	Peak	VERTICAL	3
3	101.780	39.61	-3.89	43.50	58.45	11.37	1.50	31.71	Peak	VERTICAL	3
4	149.310	34.97	-8.53	43.50	52.99	11.63	1.90	31.54	Peak	VERTICAL	3
5	548.950	34.55	-11.45	46.00	44.14	17.95	3.20	30.75	Peak	VERTICAL	3
6	660.500	36.08	-9.92	46.00	45.36	17.55	3.52	30.35	Peak	VERTICAL	3

Note:

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

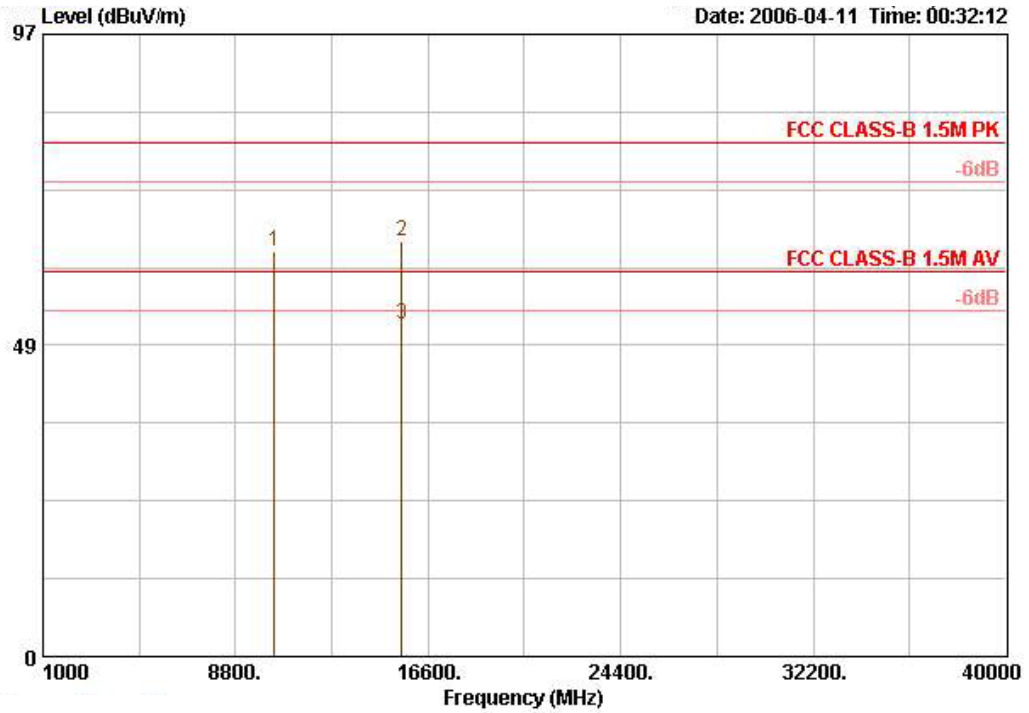
Emission level (dBUV/m) = 20 log Emission level (uV/m).

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

4.6.10. Results for Radiated Emissions (1GHz~40GHz)

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 36 / Ant. 1

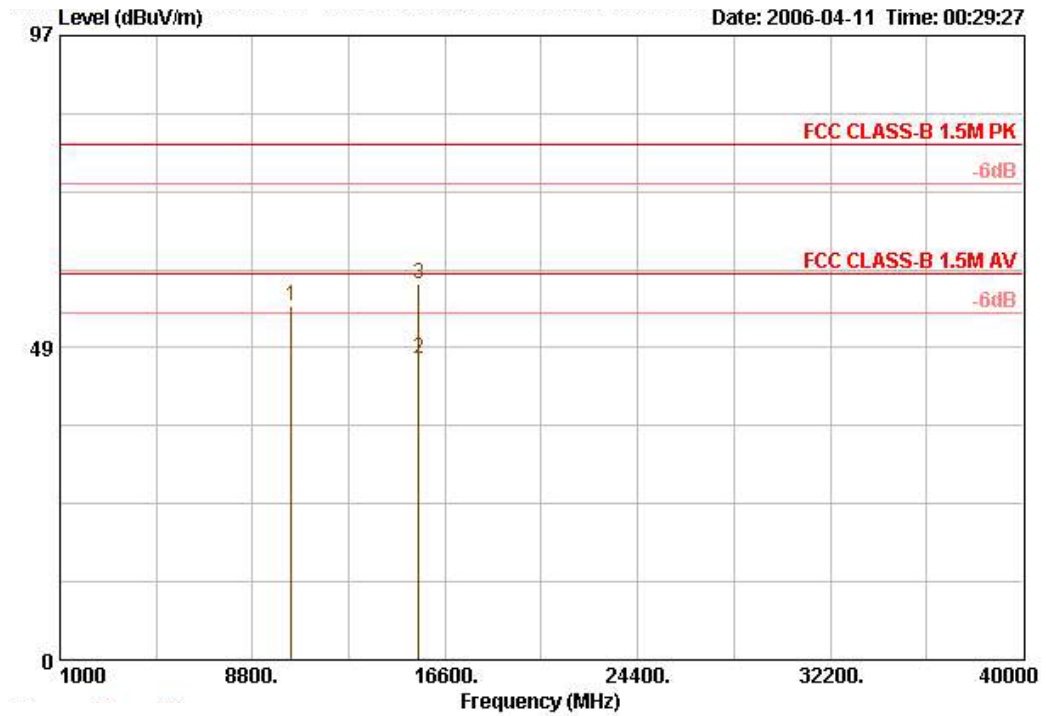
Vertical



	Freq	Level	Over Limit	Limit	Antenna Line	Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBUV/m	dB	dBUV/m	dB/m		dB	dB	dBUV		cm	deg
1 @	10360.240	63.14			39.34		5.80	35.55	53.56	PEAK	109	298
2 @	15541.040	64.69	-15.31	80.00	38.15		9.26	35.68	52.97	PEAK	115	304
3 @	15544.360	51.84	-8.16	60.00	38.13		9.26	35.68	40.14	AVERAGE	115	304

Note: Item 1 is on un-restricted band, so the limit is the EIRP of -27dBm/MHz ( 74.25 dBUV/m at 1.5m).

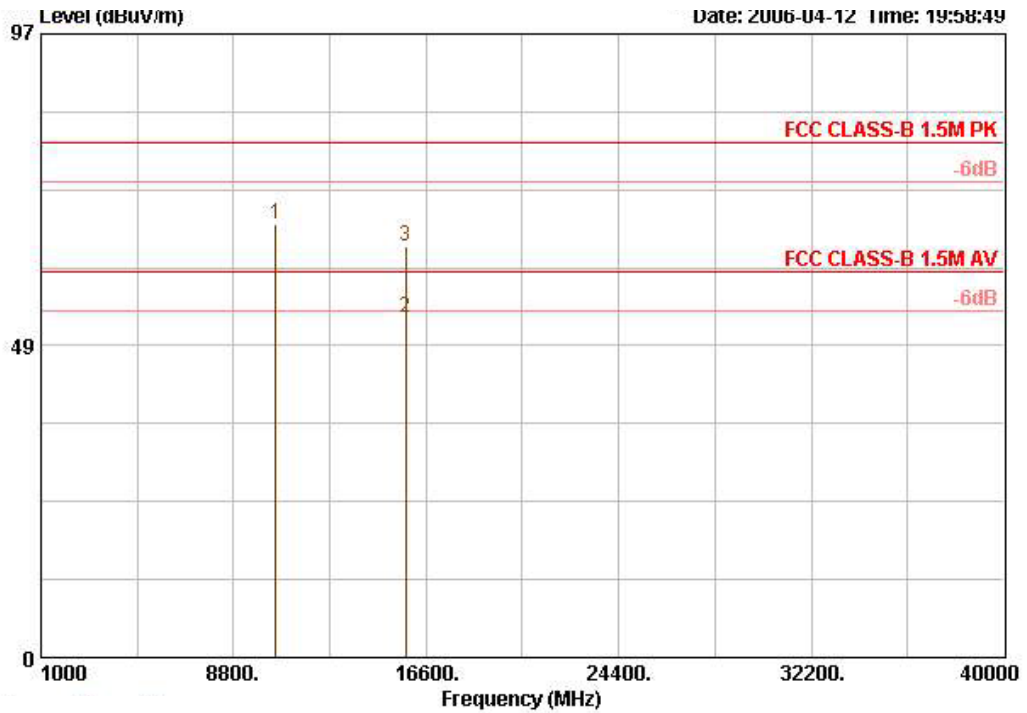
Horizontal



	Freq	Level	Over Limit	Limit	Antenna Line	Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBUV/m	dB	dBUV/m	dB/m		dB	dB	dBUV		cm	deg
1 @	10359.160	54.92	-25.08	80.00	39.34		5.80	35.55	45.33	PEAK	109	4
2 @	15541.280	46.89	-13.11	60.00	38.15		9.26	35.68	35.16	AVERAGE	119	303
3 @	15541.280	58.31	-21.69	80.00	38.15		9.26	35.68	46.59	PEAK	119	303

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 52 / Ant. 1

Vertical



	Over	Limit	Antenna	Cable	Preamp	Read	Ant	Table			
Freq	Level	Limit	Line Factor	Loss	Factor	Level	Pos	Pos			
MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dBuV	cm	deg			
1 @	10519.180	67.36	-12.64	80.00	39.49	5.93	35.40	57.34	PEAK	100	266
2 @	15778.600	52.92	-7.08	60.00	37.81	9.45	35.53	41.18	AVERAGE	103	240
3 @	15778.600	63.84	-16.16	80.00	37.81	9.45	35.53	52.10	PEAK	103	240

Note: Item 1 is on un-restricted band, so the limit is the EIRP of -27dBm/MHz ( 74.25 dBuV/m at 1.5m).