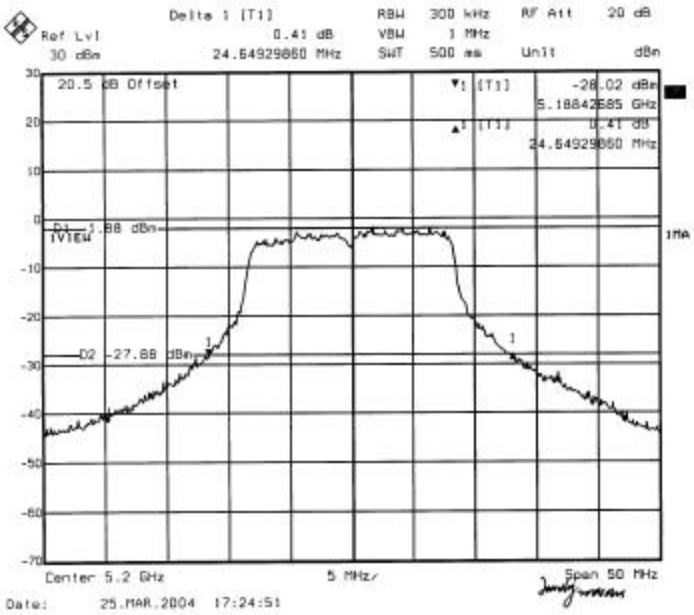
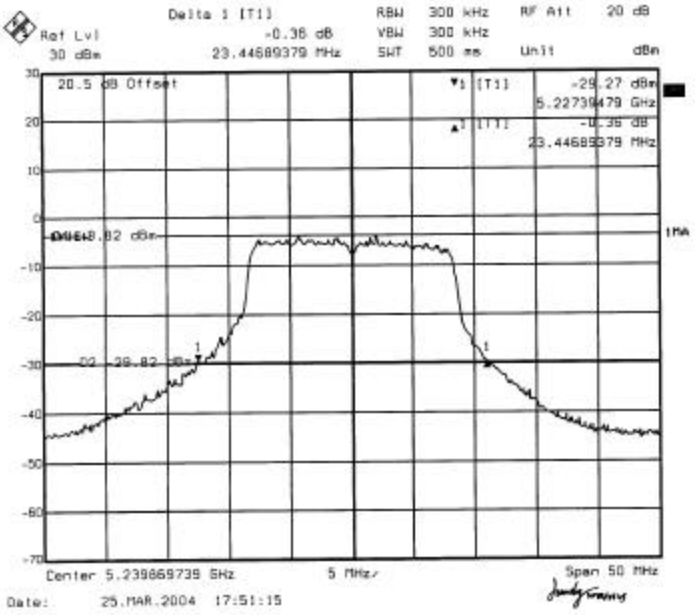
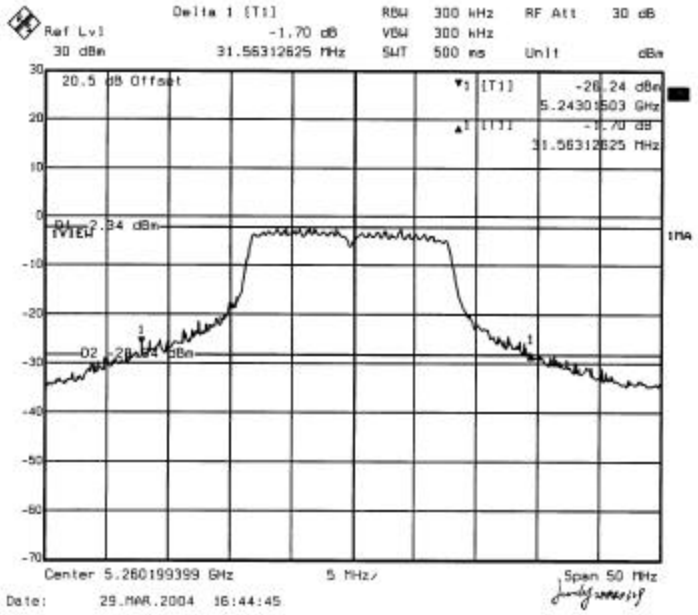
(5.15GHz-5.25GHz) Middle Channel BPSK 802.11a



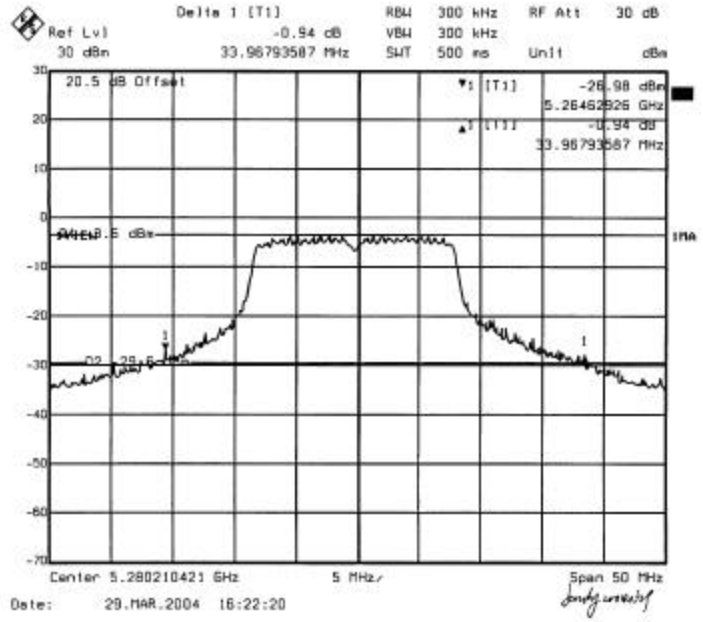
(5.15GHz-5.25GHz) High Channel BPSK 802.11a



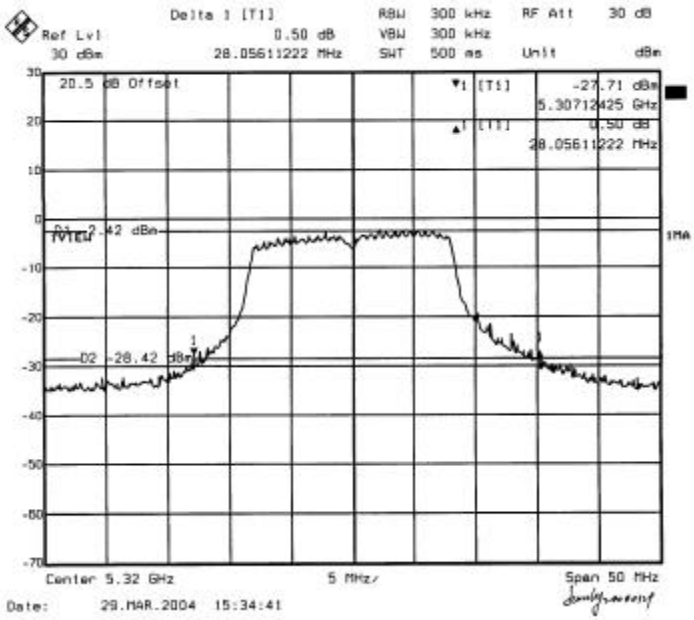
(5.25GHz-5.35GHz) Low Channel BPSK 802.11a



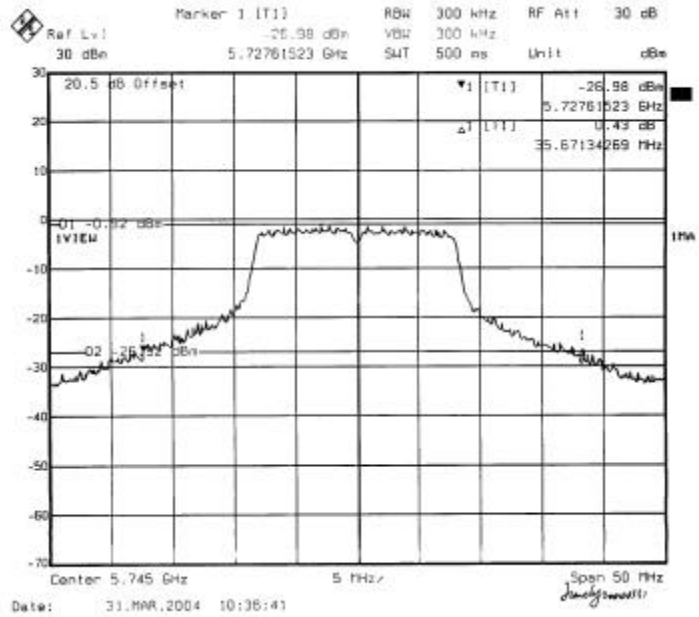
(5.25GHz-5.35GHz) Middle Channel BPSK 802.11a



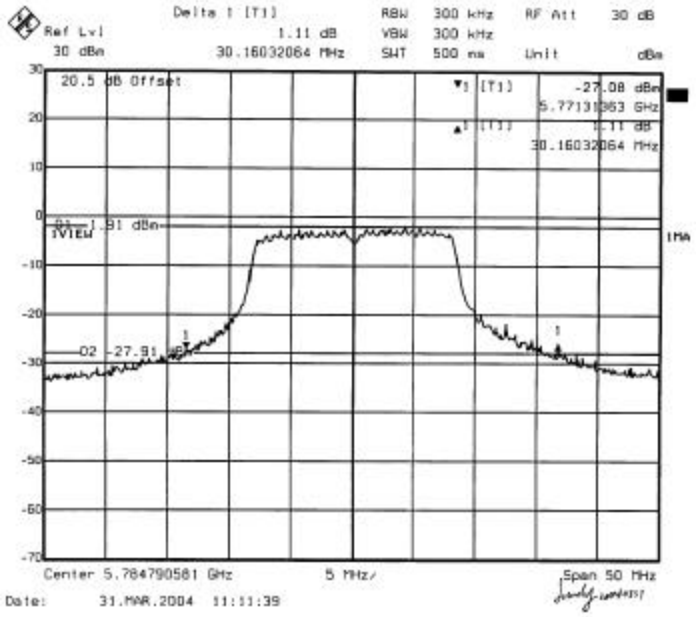
(5.25GHz-5.35GHz) High Channel BPSK 802.11a



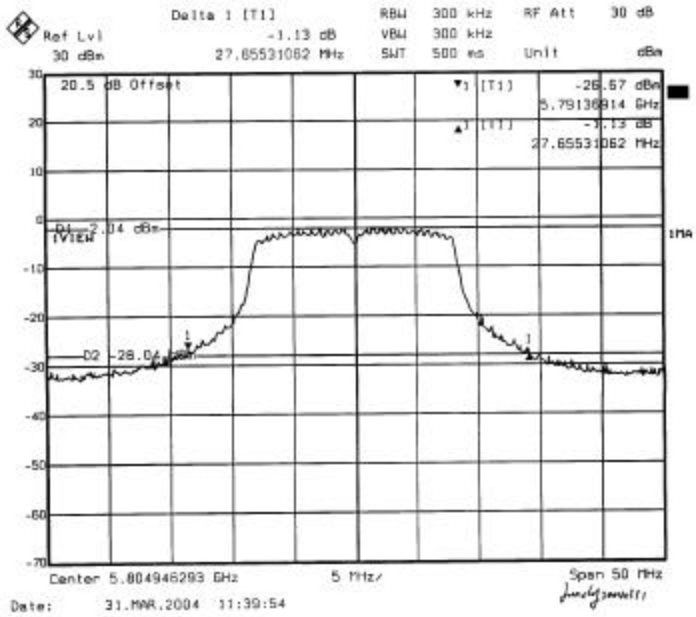
(5.725GHz-5.825GHz) Low Channel BPSK 802.11a



(5.725GHz-5.825GHz) Middle Channel BPSK 802.11a



(5.725GHz-5.825GHz) High Channel BPSK 802.11a



§15.247(d) & §15.407(a)(2) - POWER SPECTRAL DENSITY

Standard Applicable

According to §15.247 (d), for direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

According to §15.407(a) (1), for the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to §15.407(a) (2), for the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceed 6 dBi.

According to §15.407(a) (3), for the band 5.725-5.825 GHz, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of SA on any frequency be measured and set SA to 6MHz span mode. And then, set RBW and VBW of spectrum analyzer to proper value. (DTS)
4. Adjust the center frequency of SA on any frequency be measured and set SA to 50MHz span mode. And then, set RBW and VBW of spectrum analyzer to proper value. (UNII)
5. Repeat above procedures until all frequencies measured were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R/S	Spectrum Analyzer	FSEM	849720/019	2003-10-30	2004-10-29

Measurement Result

Environmental Conditions

Temperature:	24° C
Relative Humidity:	63%
ATM Pressure:	1100 mbar

2.4GHz-2.4835GHz Power Spectral Density BPSK 802.11b

Channel	Frequency (MHz)	Peak Power Spectral Density (dBm)	Standard (dBm)	Result
Low Channel	2412	-8.40	≤ 8	Pass
Middle Channel	2437	-7.50	≤ 8	Pass
High Channel	2462	-6.33	≤ 8	Pass

2.4GHz-2.4835GHz Power Spectral Density BPSK 802.11g

Channel	Frequency (MHz)	Peak Power Spectral Density (dBm)	Standard (dBm)	Result
Low Channel	2412	-10.92	≤ 8	Pass
Middle Channel	2437	-11.29	≤ 8	Pass
High Channel	2462	-9.91	≤ 8	Pass

5.15GHz-5.25GHz Power Spectral Density BPSK 802.11a

Channel	Frequency (MHz)	Peak Power Spectral Density (dBm)	Standard (dBm)	Result
Low Channel	5175	2.74	≤ 4	Pass
Middle Channel	5201	3.00	≤ 4	Pass
High Channel	5234	0.90	≤ 4	Pass

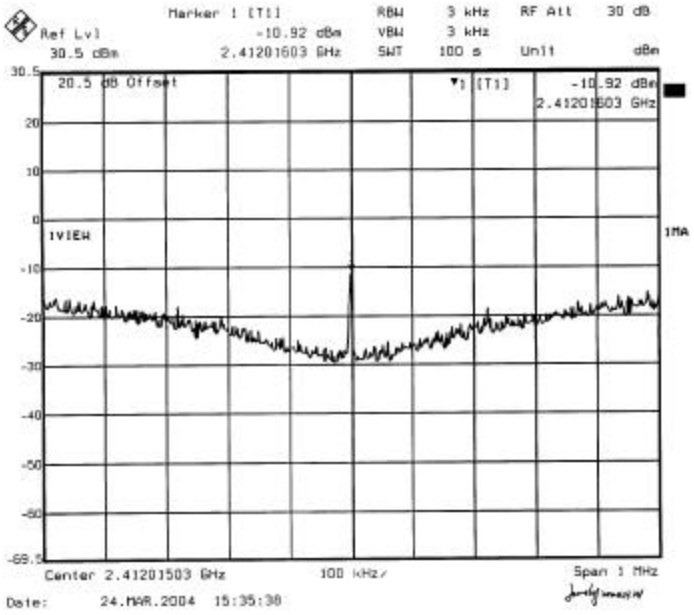
5.25GHz-5.35GHz Power Spectral Density BPSK 802.11a

Channel	Frequency (MHz)	Peak Power Spectral Density (dBm)	Standard (dBm)	Result
Low Channel	5258	3.52	≤ 11	Pass
Middle Channel	5284	1.92	≤ 11	Pass
High Channel	5320	3.43	≤ 11	Pass

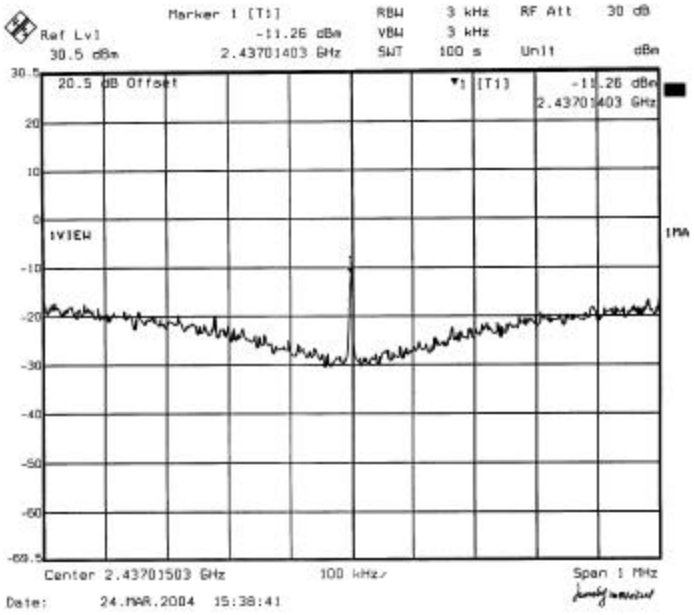
5.725GHz-5.825GHz Power Spectral Density BPSK 802.11a

Channel	Frequency (MHz)	Peak Power Spectral Density (dBm)	Standard (dBm)	Result
Low Channel	5746	3.55	≤ 17	Pass
Middle Channel	5785	3.56	≤ 17	Pass
High Channel	5806	3.29	≤ 17	Pass

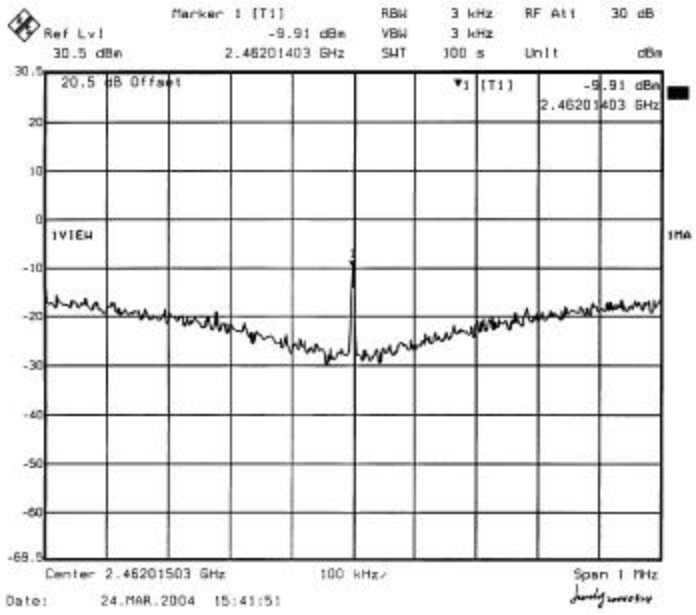
(2.4GHz-2.4835GHz) Low Channel BPSK 802.11g



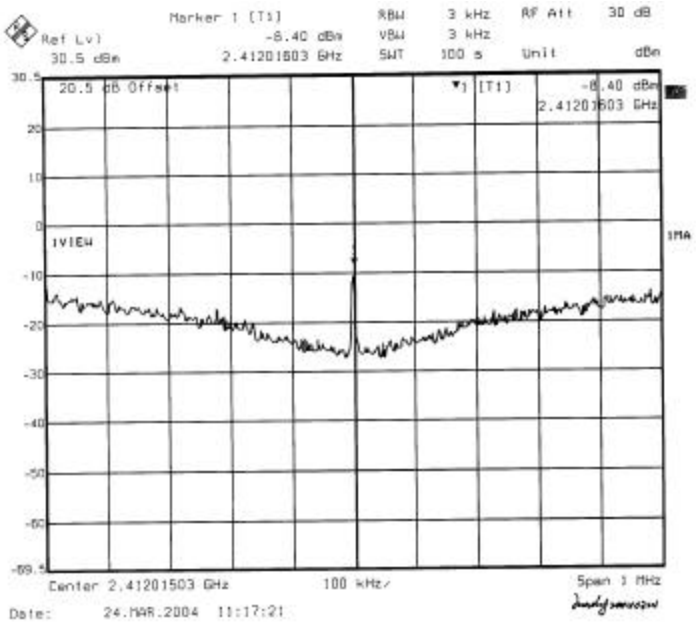
(2.4GHz-2.4835GHz) Middle Channel BPSK 802.11g



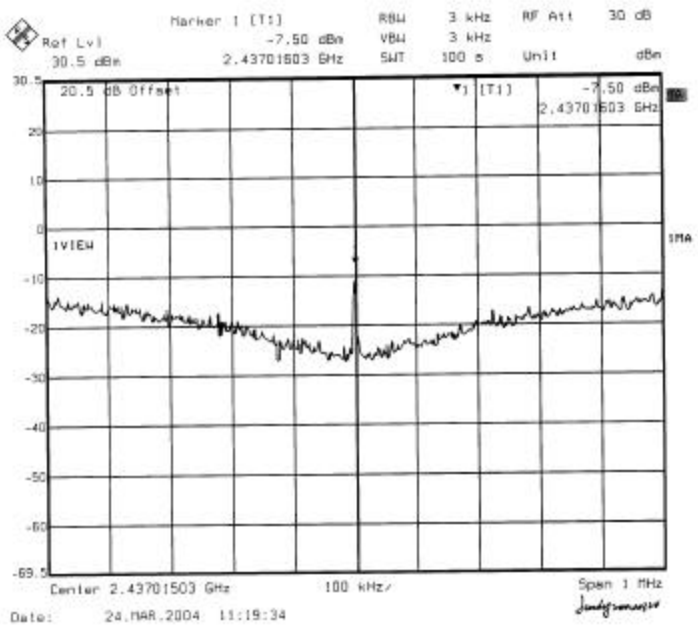
(2.4GHz-2.4835GHz) High Channel BPSK 802.11g



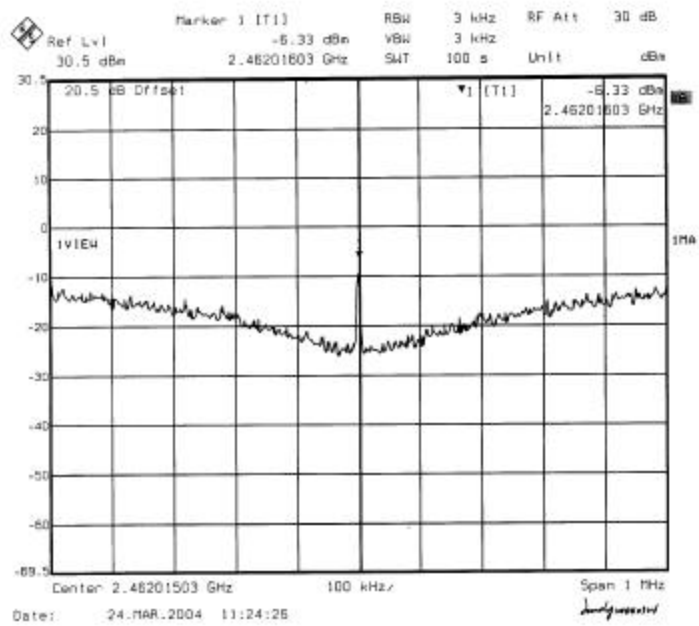
(2.4GHz-2.4835GHz) Low Channel BPSK 802.11b



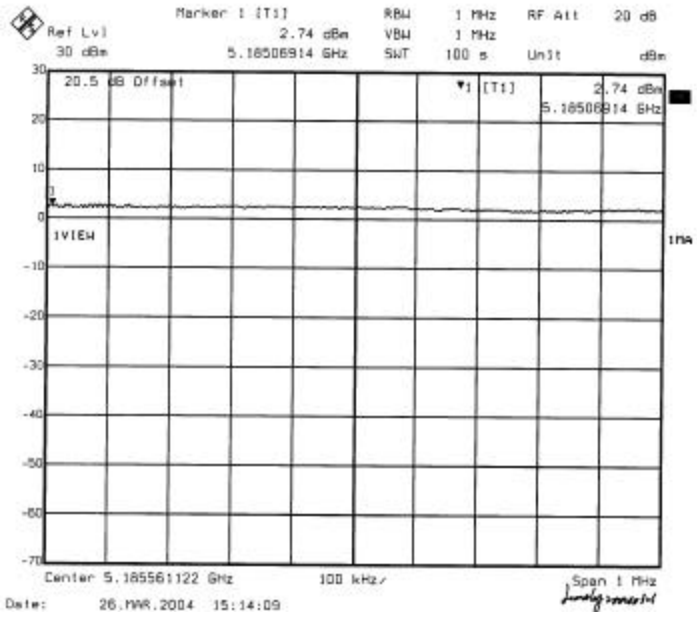
(2.4GHz-2.4835GHz) Middle Channel BPSK 802.11b



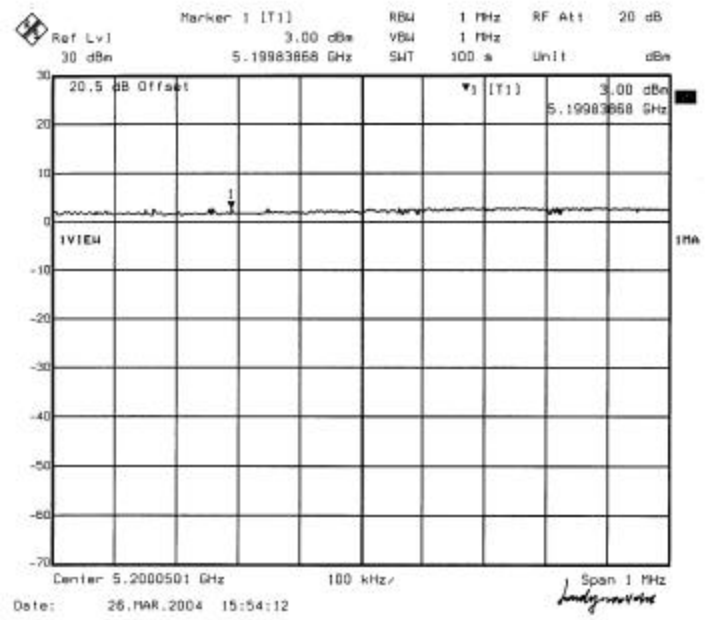
(2.4GHz-2.4835GHz) High Channel BPSK 802.11b



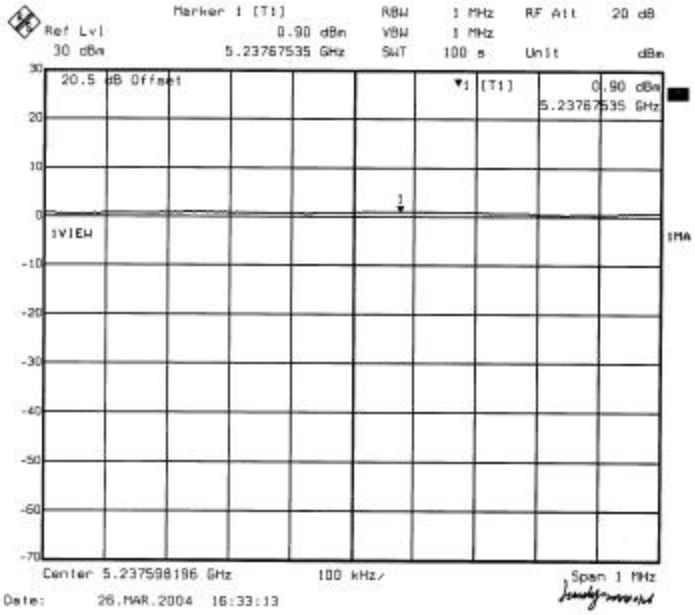
(5.15GHz-5.25GHz) Low Channel BPSK 802.11a



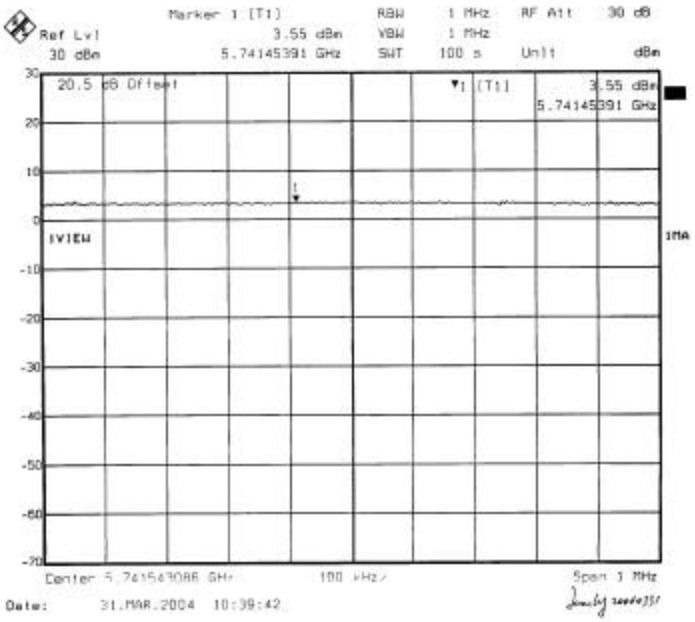
(5.15GHz-5.25GHz) Middle Channel BPSK 802.11a



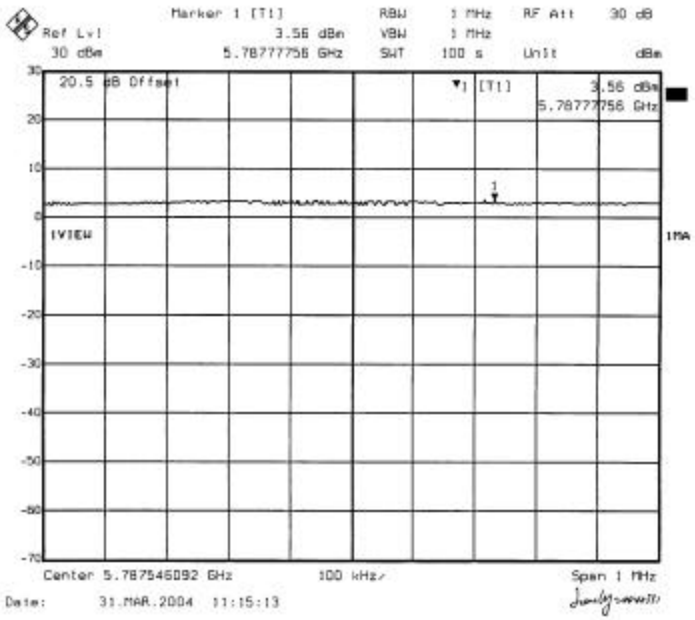
(5.15GHz-5.25GHz) High Channel BPSK 802.11a



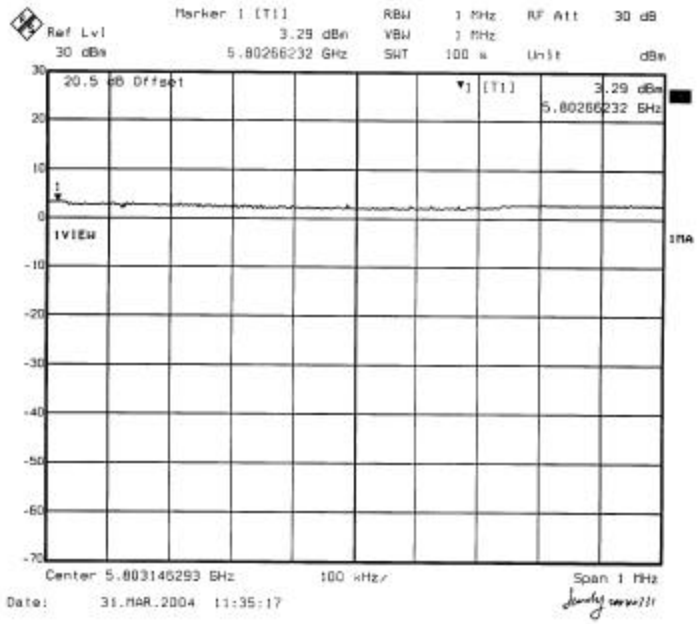
(5.725GHz-5.825GHz) Low Channel BPSK 802.11a



(5.725GHz-5.825GHz) Middle Channel BPSK 802.11a



(5.725GHz-5.825GHz) High Channel BPSK 802.11a



§15.247(c) - 100 KHZ BANDWIDTH OF BAND EDGES

Standard Applicable

According to §15.247(c), in *any* 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) see §15.205(c)).

Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Equipment List and Details

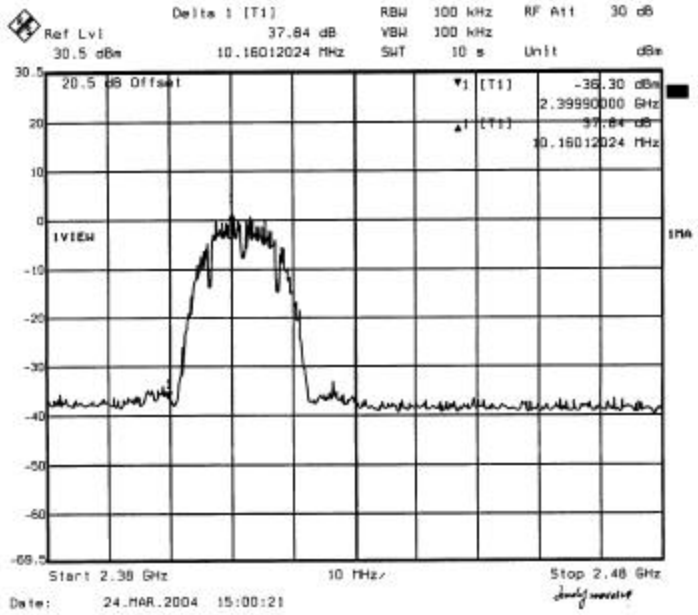
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R/S	Spectrum Analyzer	FSEM	849720/019	2003-10-30	2004-10-29

Measurement Result

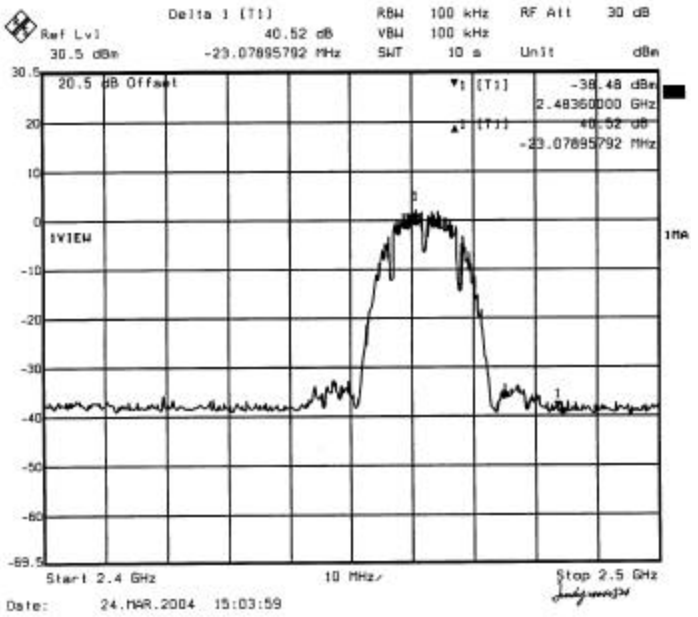
Environmental Conditions

Temperature:	24° C
Relative Humidity:	63%
ATM Pressure:	1100 mbar

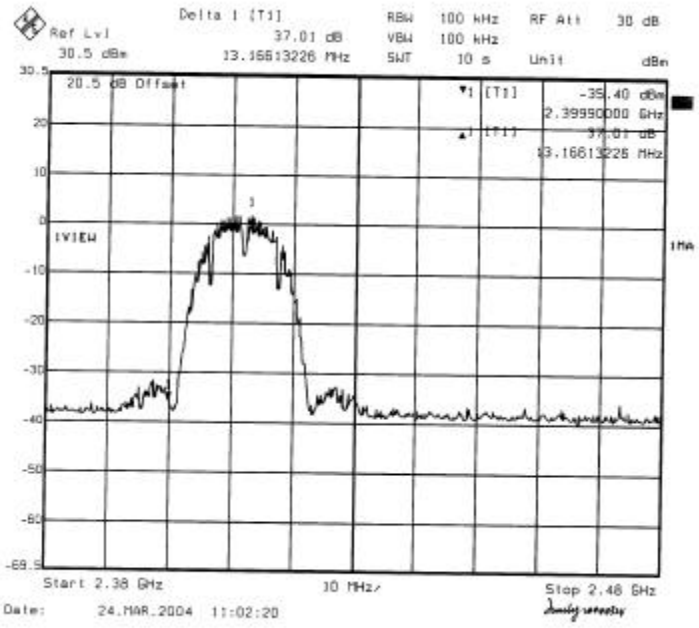
(2.4GHz-2.4835GHz) Low Channel BPSK 802.11g



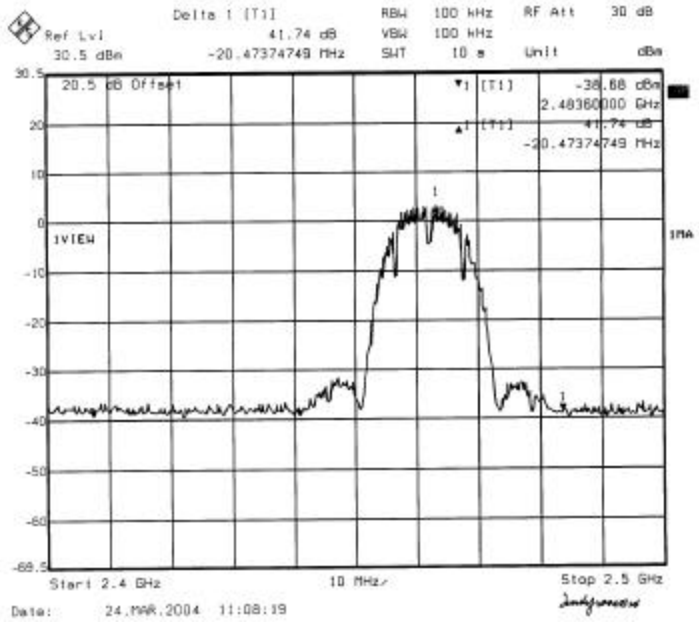
(2.4GHz-2.4835GHz) High Channel BPSK 802.11g



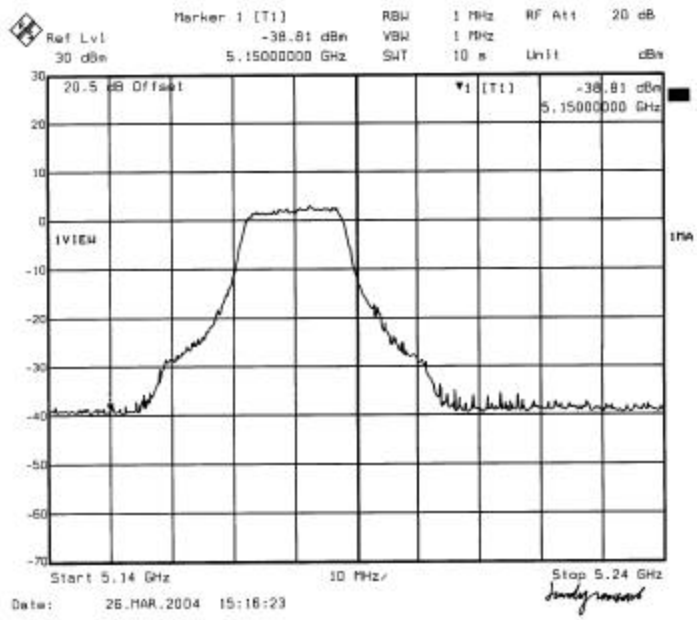
(2.4GHz-2.4835GHz) Low Channel BPSK 802.11b



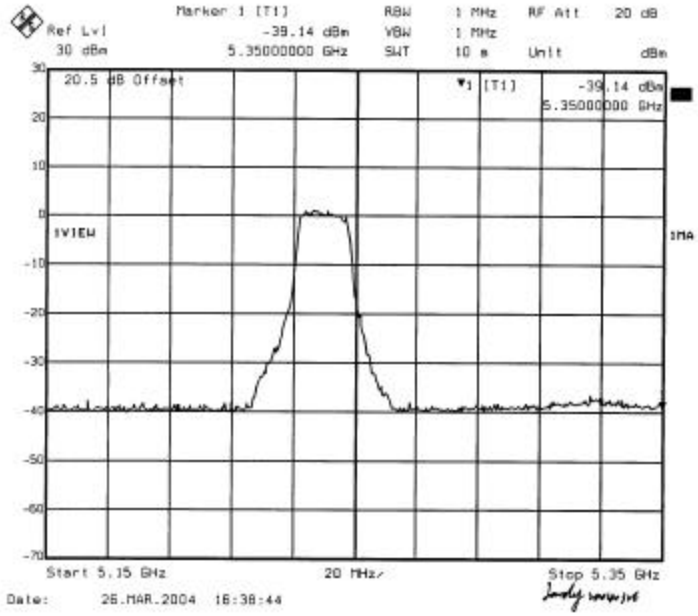
(2.4GHz-2.4835GHz) High Channel BPSK 802.11b



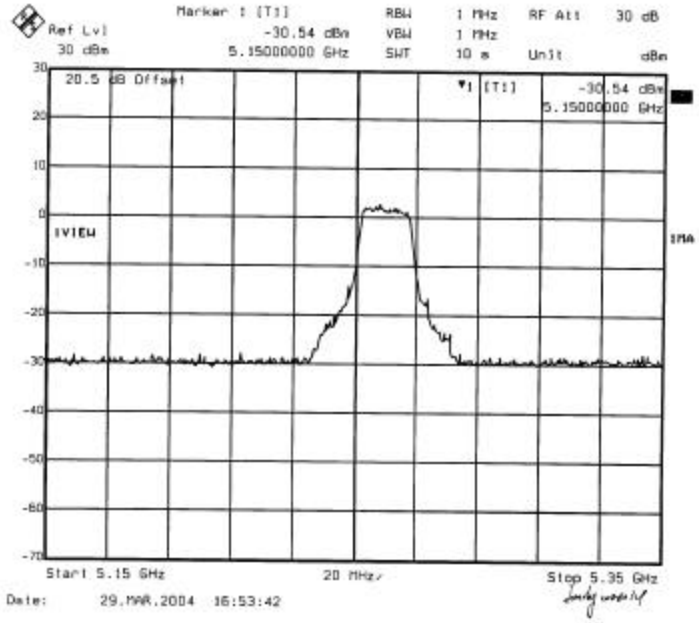
(5.15GHz-5.25GHz) Low Channel BPSK 802.11a



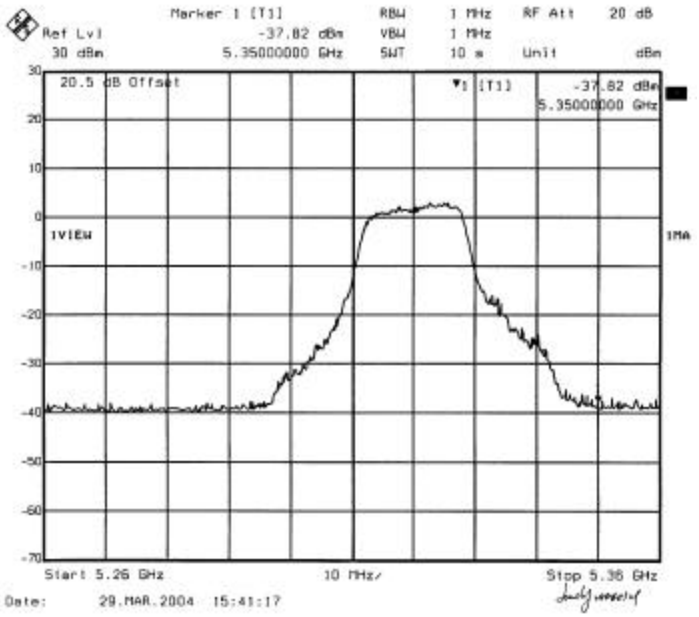
(5.15GHz-5.25GHz) High Channel BPSK 802.11a



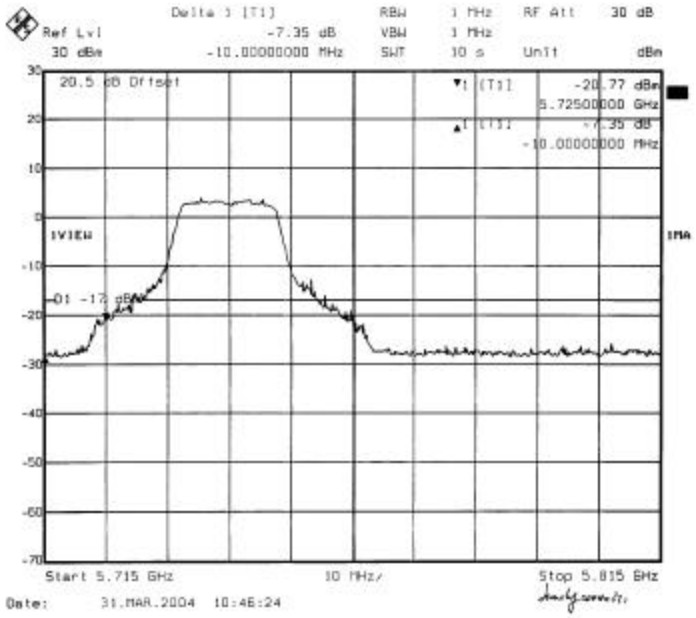
(5.25GHz-5.35GHz) Low Channel BPSK 802.11a



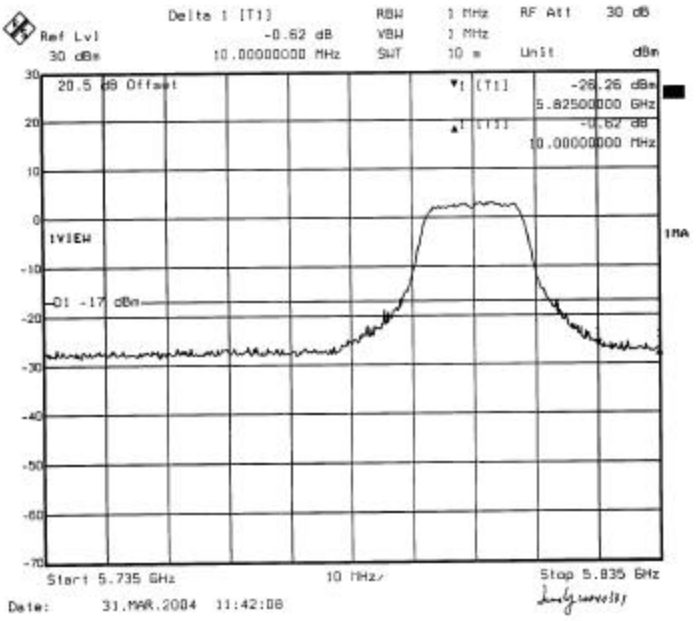
(5.25GHz-5.35GHz) High Channel BPSK 802.11a



(5.725GHz-5.825GHz) Low Channel BPSK 802.11a



(5.725GHz-5.825GHz) High Channel BPSK 802.11a



§15.407(a)(6) – The Ratio of the Peak Excursion of the Modulation Envelope to the Peak Transmit Power

Standard Applicable

According to §15.407(a)(6), the ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13dB across any 1MHz bandwidth or the emission bandwidth whichever is less.

Test Procedure

For this test, the EUT's antenna was removed and replaced with a SMA jack to UMP2.0 plug test cable, so output power levels were calculated from conducted emission levels.

The analyzer center frequency was set to the EUT carrier frequency. For the peak value trace A, the analyzer resolution and video bandwidth were set to 1MHz. Do a MAX HOLD, then VIEW. For the average value trace B, the analyzer resolution bandwidth was set to 1MHz, the video bandwidth was set to 30kHz. MAX HOLD then VIEW trace B also.

The delta from the peak value trace and the Average should not exceed 13dBm across any 1MHz bandwidth.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R/S	Spectrum Analyzer	FSEM	849720/019	2003-10-30	2004-10-29

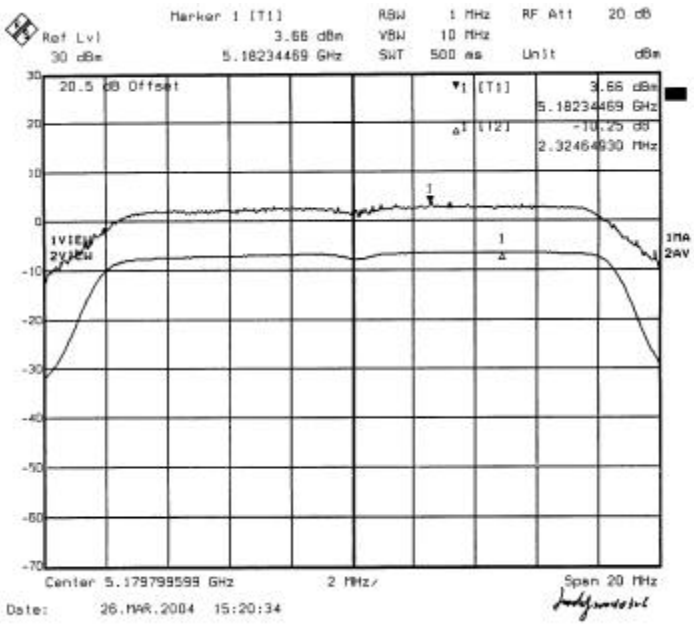
Measurement Result

Environmental Conditions

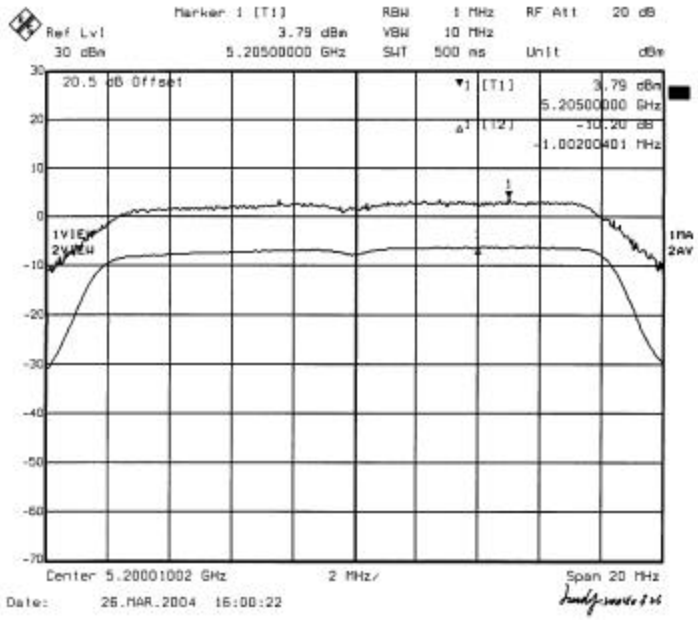
Temperature:	24° C
Relative Humidity:	63%
ATM Pressure:	1100 mbar

Please see the hereinafter plots for more detail.

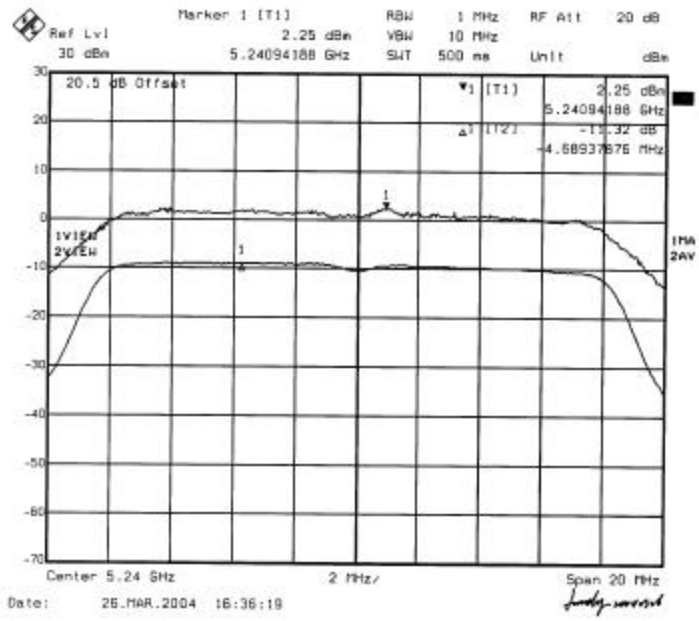
(5.15GHz-5.25GHz) Low Channel BPSK 802.11a



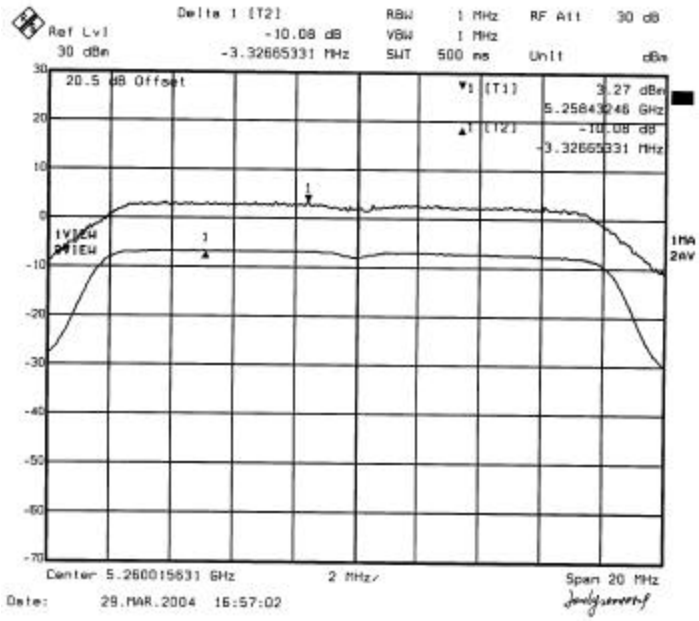
(5.15GHz-5.25GHz) Middle Channel BPSK 802.11a



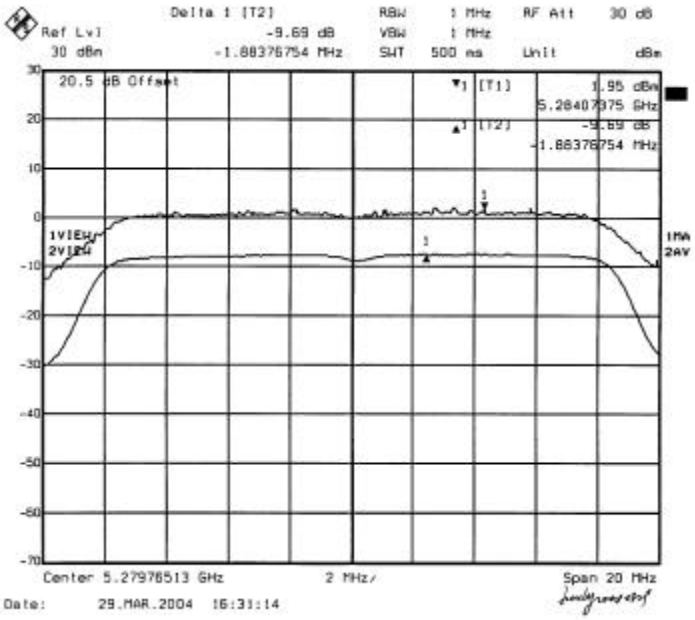
(5.15GHz-5.25GHz) High Channel BPSK 802.11a



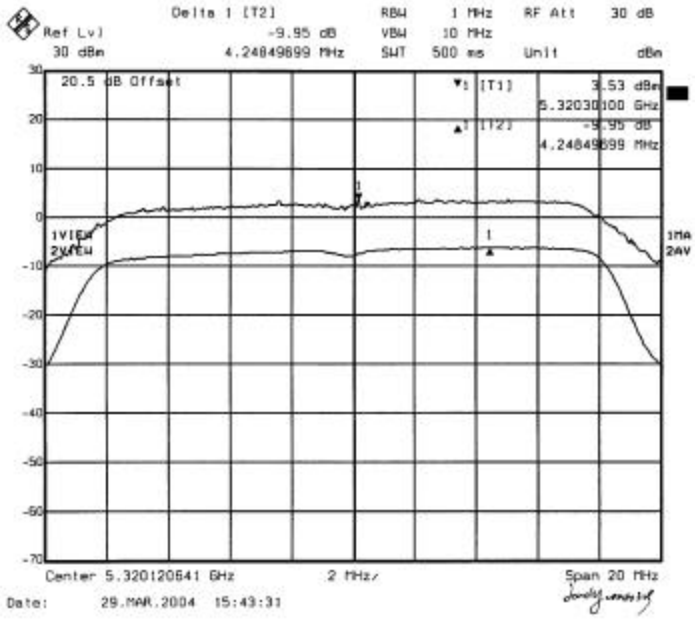
(5.25GHz-5.35GHz) Low Channel BPSK 802.11a



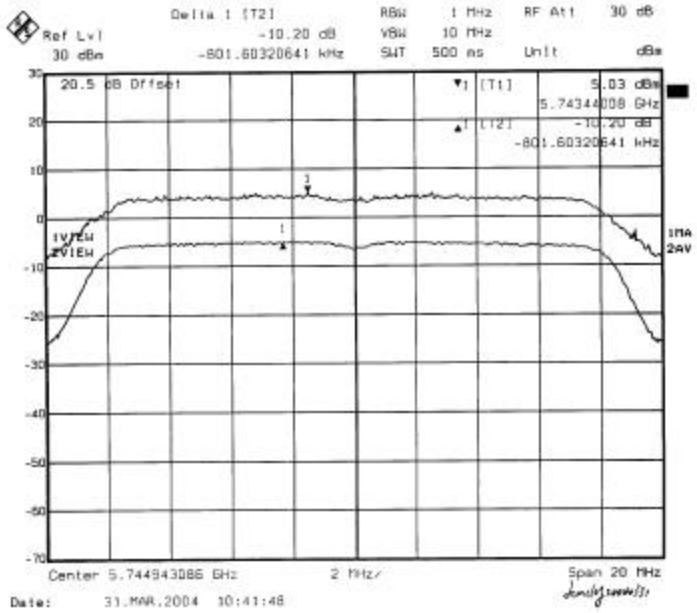
(5.25GHz-5.35GHz) Middle Channel BPSK 802.11a



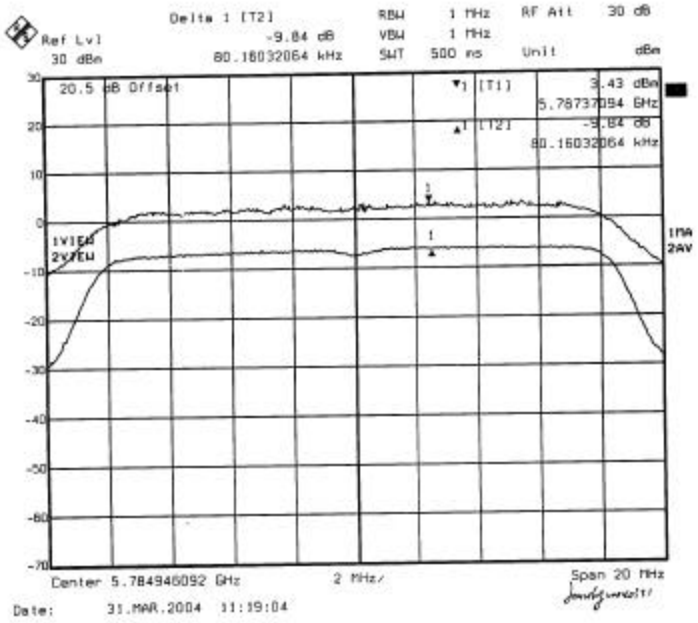
(5.25GHz-5.35GHz) High Channel BPSK 802.11a



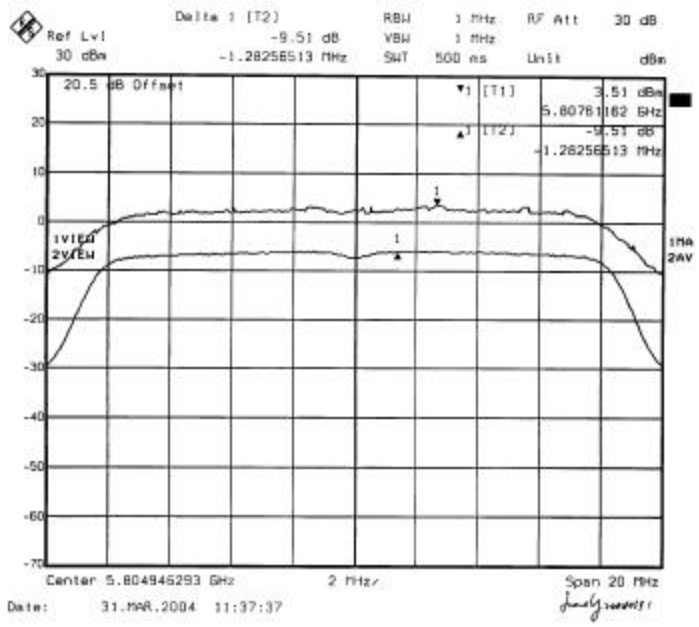
(5.725GHz-5.825GHz) Low Channel BPSK 802.11a



(5.725GHz-5.825GHz) Middle Channel BPSK 802.11a



(5.725GHz-5.825GHz) High Channel BPSK 802.11a



§15.203 - ANTENNA REQUIREMENT

Standard Applicable

For intentional device, according to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to § 15.247 (1), if transmitting antennas of directional gain greater than 6 dBi are used the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to § 15.407 (d), any U-NII device shall use a transmitting antenna that is an integral part of the device.

Antenna Connected Construction

The antenna connector is designed with permanent attachment and no consideration of replacement.

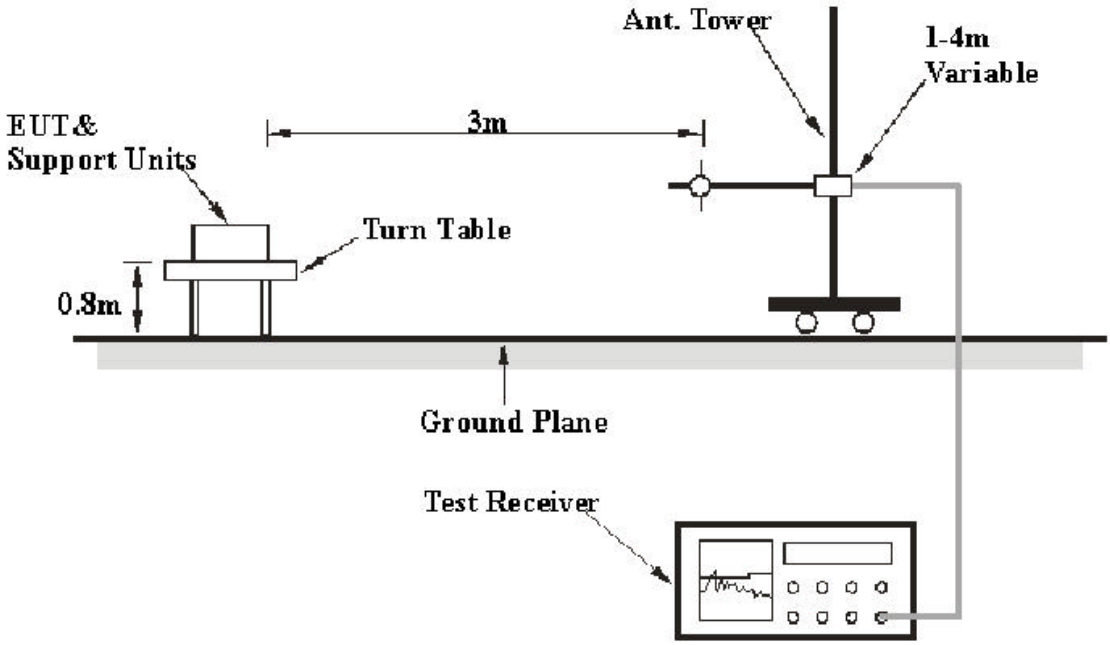
§15.205, §15.209(a), §15.407(b)(5), §15.407(b)(6) - SPURIOUS RADIATED EMISSION

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at BACL is ±4.0 dB.

EUT Setup



The radiated emission tests were performed in the open area 3-meter test site, using the setup accordance with the ANSI C63.4-2001. The specification used was the FCC Part 15 Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The Host PC was connected to a 120 VAC/ 60Hz power source.

Spectrum Analyzer Setup

The system was investigated from 30MHz to 1000MHz.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

Frequency Range	***RBW***	***Video B/W***
30 – 1000MHz	100KHz	100KHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R/S	Spectrum Analyzer	FSEM	849720/019	2003-10-30	2004-10-29
HP	Amplifier	8447D	2944A09795	2003-8-5	2004-8-4
ETS	Log Periodic Antenna	3146	9603-4421	2003-8-5	2004-8-4
ETS	Biconical Antenna	3110B	3360	2003-8-5	2004-8-4
FLUKE	True RMS Multimeter	187	78540402	2004-3-23	2005-3-22
HP	Amplifier (1-26.5GHz)	8449B	3147A00400	2003-11-5	2004-11-4
A.H.System	Horn Antenna (700MHz-18GHz)	SAS-200/571	261	2003-11-5	2004-11-4
YOKOROWA	Coaxial Cable 1#	N/A	NO: 001	2003-8-5	2004-8-4
YOKOROWA	Coaxial Cable 1#	N/A	NO: 002	2003-8-5	2004-8-4

*** Statement of Traceability: BACL Corp.** certifies that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

For the radiated emissions test, the Host PC, and all support equipment power cords was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detection mode.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Class B Limit

Test Data

Antenna M/N: R0322-025

Date of Test	:	April 2-9,2004	Temperature	:	25?
EUT	:	W800A Wireless Access Point	Humidity	:	70%
M/N	:	W800A	Operating Mode	:	Running
S/N	:	040360	Test Engineer:		Jandy SU

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/V	Antenna dBμV/m	Cable DB	Amp. DB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
(5.15GHz-5.25GHz) Low Channel											
5180	79.88	FUND/PEAK	45	1.0	v	33.9	5.2	30.6	88.3		
5180	83.38	FUND/PEAK	60	1.0	h	33.9	5.2	30.6	91.8		
5180	70.14	FUND/AVE	45	1.0	v	33.9	5.2	30.6	78.6		
5180	74.52	FUND/AVE	45	1.2	h	33.9	5.2	30.6	83.0		
15540	35.41	AVE	270	1.0	v	40.6	9.2	32.6	52.6	54	-1.4
10360	38.67	AVE	60	1.2	v	37.8	7.3	32	51.8	54	-2.2
15540	33.56	AVE	180	1.2	h	40.6	9.2	32.6	50.8	54	-3.2
10360	37.01	AVE	90	1.2	h	37.8	7.3	32	50.1	54	-3.9
10360	56.04	PEAK	45	1.2	h	37.8	7.3	32	69.1	74	-4.9
15540	47.96	PEAK	45	1.0	v	40.6	9.2	32.6	65.2	74	-8.8
15540	47.83	PEAK	180	1.2	h	40.6	9.2	32.6	65.1	74	-8.9
10360	48.82	PEAK	180	1.2	v	37.8	7.3	32	61.9	74	-12.1
(5.15GHz-5.25GHz) Middle Channel											
5200	77.33	FUND/PEAK	45	1.0	v	33.9	5.2	30.6	85.8		
5200	82.15	FUND/PEAK	60	1.0	h	33.9	5.2	30.6	90.6		
5200	68.98	FUND/AVE	45	1.0	v	33.9	5.2	30.6	77.4		
5200	73.86	FUND/AVE	45	1.2	h	33.9	5.2	30.6	82.3		
10401	39.21	AVE	90	1.2	h	37.8	7.3	32	52.3	54	-1.7
10401	38.78	AVE	60	1.2	v	37.8	7.3	32	51.9	54	-2.1
15600	33.35	AVE	180	1.2	h	40.6	9.2	32.6	50.6	54	-3.4
15600	33.25	AVE	270	1.0	v	40.6	9.2	32.6	50.5	54	-3.5
10401	55.19	PEAK	45	1.2	h	37.8	7.3	32	68.3	74	-5.7
15600	47.96	PEAK	45	1.0	v	40.6	9.2	32.6	65.2	74	-8.8
15600	47.56	PEAK	180	1.2	h	40.6	9.2	32.6	64.8	74	-9.2
10401	50.99	PEAK	180	1.2	v	37.8	7.3	32	64.1	74	-9.9

Continued:

(5.15GHz-5.25GHz) High Channel											
5240	75.61	FUND/PEAK	45	1.0	v	33.9	5.2	30.6	84.1		
5240	82.03	FUND/PEAK	60	1.0	h	33.9	5.2	30.6	90.5		
5240	67.18	FUND/AVE	45	1.0	v	33.9	5.2	30.6	75.6		
5240	72.44	FUND/AVE	45	1.2	h	33.9	5.2	30.6	80.9		
10480	38.58	AVE	90	1.2	h	37.8	7.3	32	51.7	54	-2.3
10480	38.34	AVE	60	1.2	v	37.8	7.3	32	51.4	54	-2.6
15720	33.56	AVE	270	1.0	v	40.6	9.2	32.6	50.8	54	-3.2
15720	33.56	AVE	180	1.2	h	40.6	9.2	32.6	50.8	54	-3.2
15720	48.08	PEAK	180	1.2	h	40.6	9.2	32.6	65.3	74	-8.7
15720	47.69	PEAK	45	1.0	v	40.6	9.2	32.6	64.9	74	-9.1
10480	50.25	PEAK	45	1.2	h	37.8	7.3	32	63.3	74	-10.7
10480	48.28	PEAK	180	1.2	v	37.8	7.3	32	61.4	74	-12.6

INDICATED		TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART B	
Frequency MHz	Ampl. dBµV/m	Angle Degree	Height Meter	Polar H/ V	Antenna dBµV/m	Cable dB	Amp. dB	Corr. Ampl. dBµV/m	Limit dBµV/m	Margin dB
(5.15GHz-5.25GHz) 30MHz-1000MHz										
528.01	48.95	45	1.2	v	18.5	1.8	25	44.3	46	-1.8
528.01	47.69	45	1.2	h	18.5	1.8	25	43.0	46	-3.0
132.06	50.54	45	1.0	v	12.6	1.0	25	39.1	43.5	-4.4
297.02	52.77	60	1.0	h	12.6	1.1	25	41.5	46	-4.5
66.02	50.29	45	1.0	h	9.7	0.4	25	35.4	40	-4.6
131.98	49.84	180	1.2	h	12.6	1.0	25	38.4	43.5	-5.1
66.02	48.87	180	1.2	v	9.7	0.4	25	34.0	40	-6.0
297.02	47.86	270	1.0	v	12.6	1.1	25	36.6	46	-9.4
231.17	44.42	60	1.2	v	11.3	1.0	25	31.7	46	-14.3
231.17	43.8	45	1.0	h	11.3	1.0	25	31.1	46	-14.9

Date of Test	:	April 2-9,2004	Temperature	:	25?
EUT	:	W800A Wireless Access Point	Humidity	:	70%
M/N	:	W800A	Operating Mode	:	Running
S/N	:	040360	Test Engineer:		Jandy SU

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/V	Antenna dBμV/m	Cable DB	Amp. DB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
(5.25GHz-5.35GHz) Low Channel											
5260	74.26	FUND/PEAK	45	1.0	v	33.9	5.2	30.6	82.7		
5260	79	FUND/PEAK	60	1.0	h	33.9	5.2	30.6	87.5		
5260	64.77	FUND/AVE	45	1.0	v	33.9	5.2	30.6	73.2		
5260	70.58	FUND/AVE	45	1.2	h	33.9	5.2	30.6	79.0		
10520	37.41	AVE	90	1.2	h	38.9	7.5	32	51.8	54	-2.2
10520	37.01	AVE	60	1.2	v	38.9	7.5	32	51.4	54	-2.6
15780	33.56	AVE	270	1.0	v	40.6	9.2	32.6	50.8	54	-3.2
15780	33.56	AVE	180	1.2	h	40.6	9.2	32.6	50.8	54	-3.2
10520	55.15	PEAK	45	1.2	h	38.9	7.5	32	69.5	74	-4.5
10520	54.42	PEAK	180	1.2	v	38.9	7.5	32	68.8	74	-5.2
15780	48.58	PEAK	180	1.2	h	40.6	9.2	32.6	65.8	74	-8.2
15780	47.96	PEAK	45	1.0	v	40.6	9.2	32.6	65.2	74	-8.8
(5.25GHz-5.35GHz) 5Middle Channel											
5280	72.53	FUND/PEAK	45	1.0	v	33.9	5.2	31.1	80.5		
5280	79.13	FUND/PEAK	60	1.0	h	33.9	5.2	31.1	87.1		
5280	64.59	FUND/AVE	45	1.0	v	33.9	5.2	31.1	72.5		
5280	70.25	FUND/AVE	45	1.2	h	33.9	5.2	31.1	78.2		
10560	37.01	AVE	45	1.2	h	38.9	7.5	32.2	51.2	54	-2.8
15840	33.23	AVE	45	1.2	h	40.6	9.2	32.6	50.5	54	-3.6
15840	33.01	AVE	270	1.0	v	40.6	9.2	32.6	50.2	54	-3.8
10560	35.41	AVE	60	1.2	v	38.9	7.5	32.2	49.6	54	-4.4
10560	51.78	PEAK	45	1.2	h	38.9	7.5	32.2	65.9	74	-8.1
15840	48.46	PEAK	45	1.0	v	40.6	9.2	32.6	65.7	74	-8.3
15840	48.08	PEAK	180	1.2	h	40.6	9.2	32.6	65.3	74	-8.7
10560	49.78	PEAK	180	1.2	v	38.9	7.5	32.2	63.9	74	-10.1

Continued:

(5.25GHz-5.35GHz) High Channel											
5320	67.79	FUND/PEAK	45	1.0	v	33.9	5.2	30.7	76.1		
5320	71.38	FUND/PEAK	60	1.0	h	33.9	5.2	30.7	79.7		
5320	58.24	FUND/AVE	45	1.0	v	33.9	5.2	30.7	66.6		
5320	62.04	FUND/AVE	45	1.2	h	33.9	5.2	30.7	70.4		
10640	36.54	AVE	60	1.2	v	38.9	7.5	32.1	50.8	54	-3.2
10640	35.41	AVE	90	1.2	h	38.9	7.5	32.1	49.7	54	-4.3
15960	30.25	AVE	270	1.0	v	40.6	9.2	32.7	47.4	54	-6.6
15960	30.12	AVE	180	1.2	h	40.6	9.2	32.7	47.2	54	-6.8
15960	49.28	PEAK	45	1.0	v	40.6	9.2	32.7	66.4	74	-7.6
15960	47.83	PEAK	180	1.2	h	40.6	9.2	32.7	65.0	74	-9.1
10640	48.84	PEAK	180	1.2	v	38.9	7.5	32.1	63.1	74	-10.9
10640	48.34	PEAK	45	1.2	h	38.9	7.5	32.1	62.6	74	-11.4

INDICATED		TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART B	
Frequency MHz	Ampl. dBμV/m	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable dB	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
(5.25GHz-5.35GHz) 30MHz-1000MHz										
528.01	49.15	45	1.2	v	18.5	1.8	25	44.5	46	-1.6
66.02	52.97	180	1.2	v	9.7	0.4	25	38.1	40	-1.9
528.01	48.35	45	1.2	h	18.5	1.8	25	43.7	46	-2.4
132.06	49.97	45	1.0	v	12.6	1.0	25	38.6	43.5	-4.9
131.98	49.81	180	1.2	h	12.6	1.0	25	38.4	43.5	-5.1
66.02	49.71	45	1.0	h	9.7	0.4	25	34.8	40	-5.2
297.02	52.03	60	1.0	h	12.6	1.1	25	40.7	46	-5.3
297.02	47.74	270	1.0	v	12.6	1.1	25	36.4	46	-9.6
231.17	45.57	60	1.2	v	11.3	1.0	25	32.9	46	-13.1
231.17	43.01	45	1.0	h	11.3	1.0	25	30.3	46	-15.7