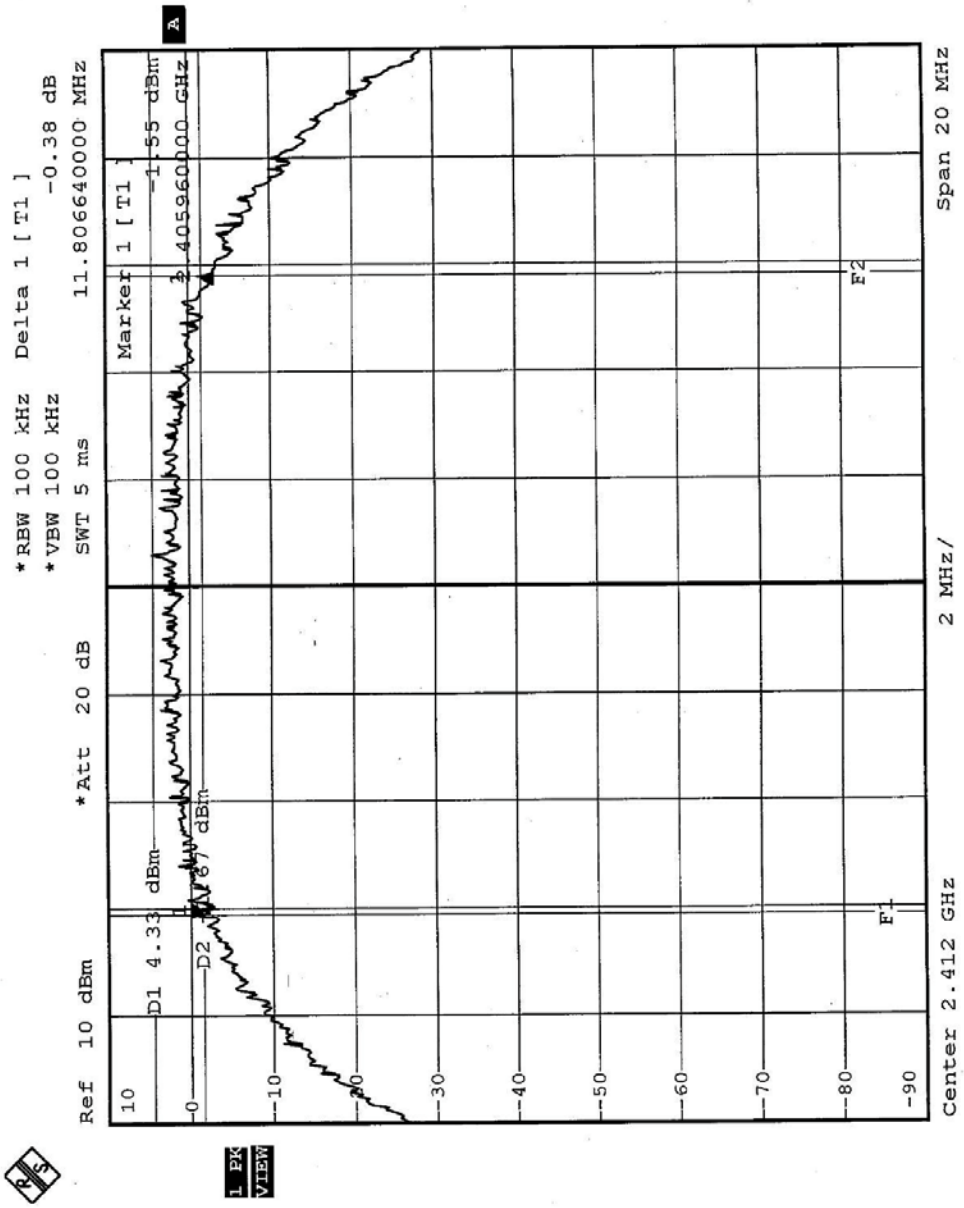
4.3.7 TEST RESULTS

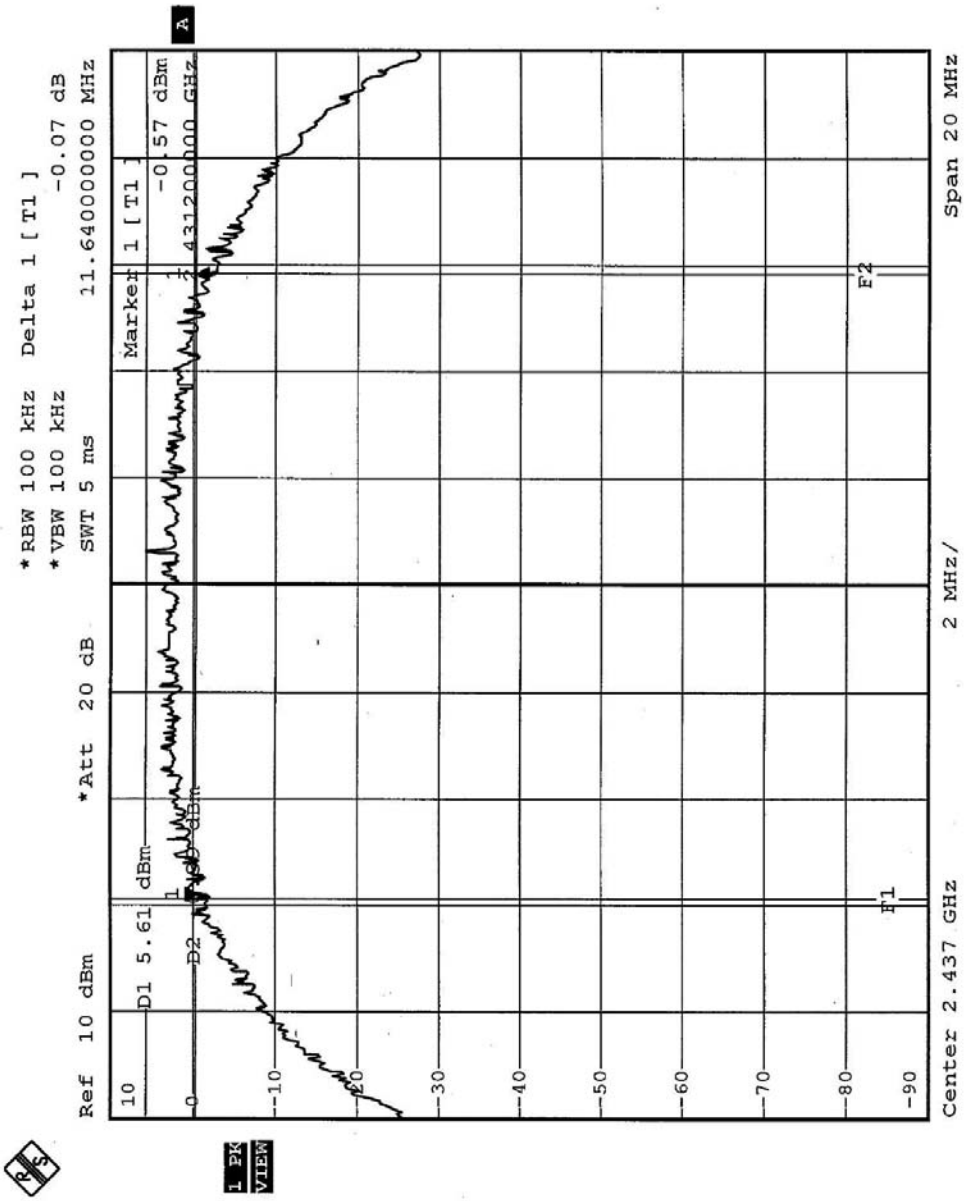
EUT	2.4GHz Wireless Access Point	**MODEL**	DWL-2000AP
MODE	CCK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH, 991hPa	**TESTED BY**	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	11.81	0.5	PASS
6	2437	11.64	0.5	PASS
11	2462	11.36	0.5	PASS

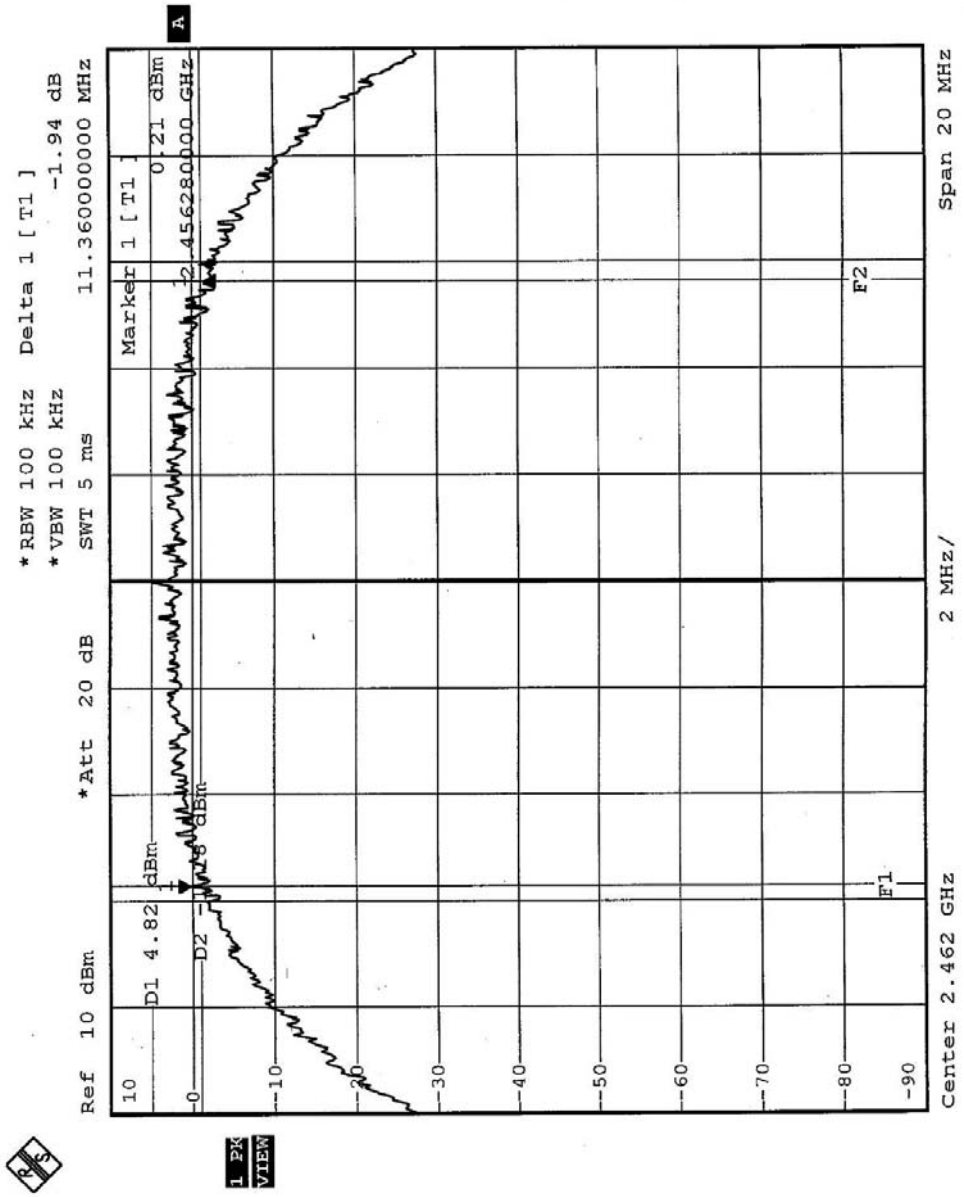
CH1


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
Delta 1 [T1]
-0.38 dB
11.80664000 MHz
Marker 1 [T1]
-1.55 dBm
2.405960000 GHz
Att 20 dB
Ref 10 dBm
D1 4.33 dBm
D2 dBm
Center 2.412 GHz
2 MHz/
Span 20 MHz
F1
F2
1 PK VIEW

CH6


*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
*Att 20 dB
Ref 10 dBm
Delta 1 [T1]
-0.07 dB
11.640000000 MHz
Marker 1 [T1]
-0.57 dBm
2.431200000 GHz
D1 5.61 dBm
D2 dBm
Center 2.437 GHz
2 MHz/
Span 20 MHz
F1
F2
1 PK VIEW

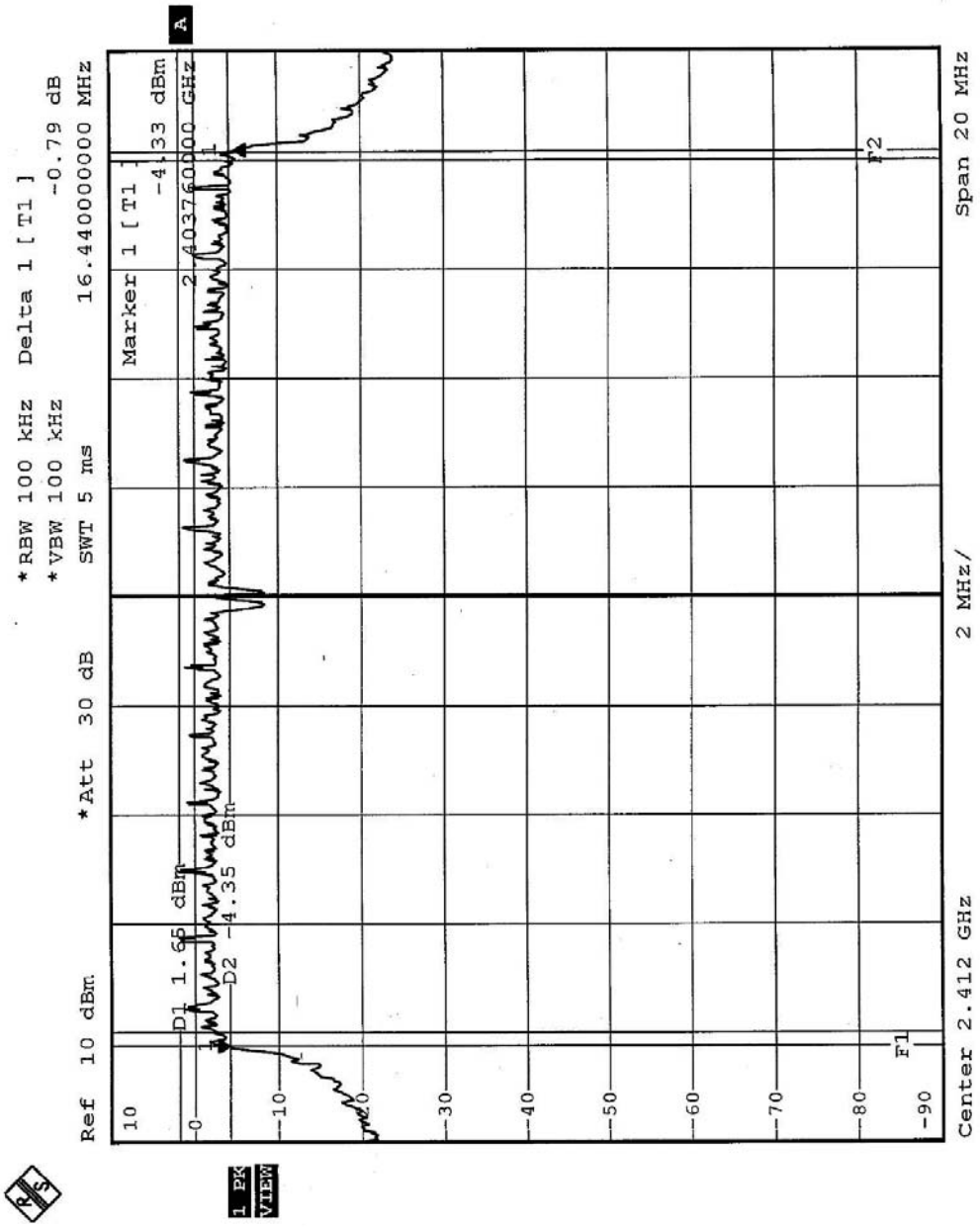
CH11


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
Delta 1 [T1]
-1.94 dB
11.360000000 MHz
Marker 1 [T1]
0.21 dBm
2.456280000 GHz
Ref 10 dBm
Att 20 dB
D1 4.82 dBm
D2 -5.18 dBm
Center 2.462 GHz
2 MHz/
Span 20 MHz
F1
F2
1 PK VIEW

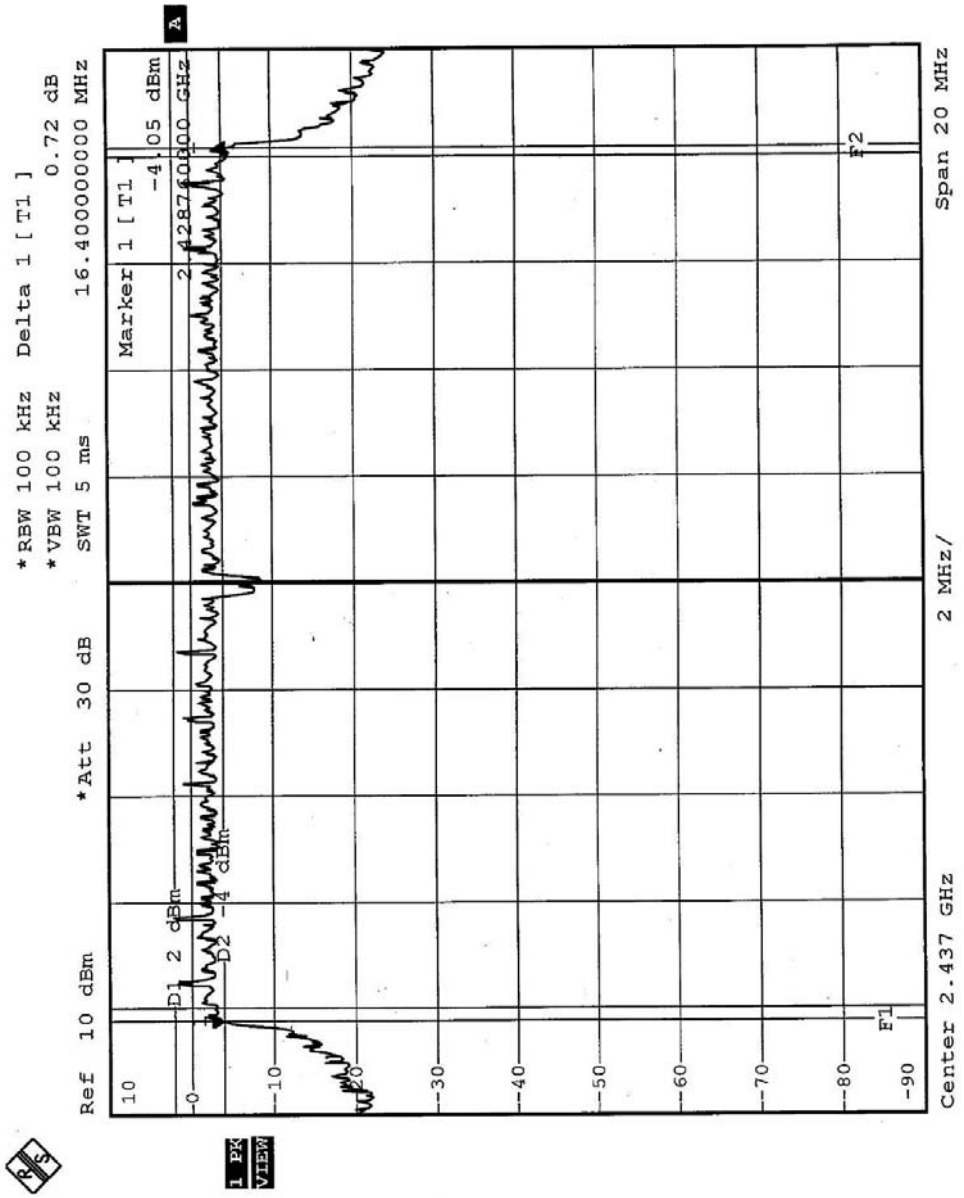
EUT	2.4GHz Wireless Access Point	**MODEL**	DWL-2000AP
MODE	OFDM	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH, 991hPa	**TESTED BY**	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.44	0.5	PASS
6	2437	16.40	0.5	PASS
11	2462	16.52	0.5	PASS

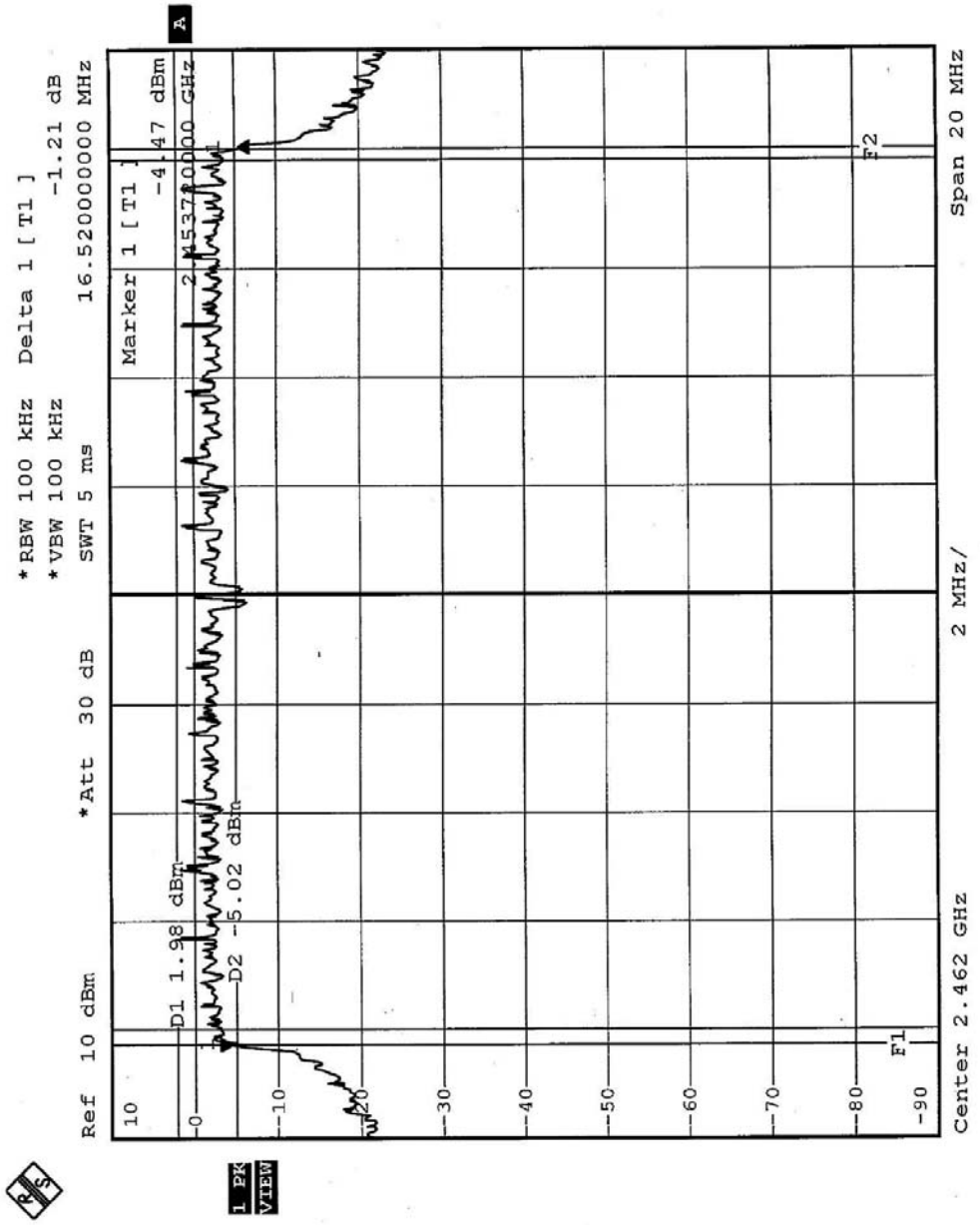
CH1


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
Delta 1 [T1]
-0.79 dB
16.440000000 MHz
Marker 1 [T1]
-4.33 dBm
2.403760000 GHz
Ref 10 dBm
Att 30 dB
D1 1.65 dBm
D2 -4.35 dBm
Center 2.412 GHz
2 MHz/
Span 20 MHz
1 PK
VIEW

CH6


Ref 10 dBm
*Att 30 dB
*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
Delta 1 [T1]
0.72 dB
16.400000000 MHz
Marker 1 [T1]
-4.05 dBm
2.42870000 GHz
D1 2 dBm
D2 -4 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
1 PK
VIEW

CH11


*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
Delta 1 [T1]
-1.21 dB
16.520000000 MHz
Marker 1 [T1]
-4.47 dBm
2.453780000 GHz
Ref 10 dBm
*Att 30 dB
D1 1.98 dBm
D2 -5.02 dBm
Center 2.462 GHz
2 MHz/
Span 20 MHz
F1
F2
1 PK
VIEW

4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2004
R&S SIGNAL GENERATOR	SMP04	100011	May 28, 2004
TEKTRONIX OSCILLOSCOPE	TDS 220	B048470	Mar. 05, 2004
NARDA DETECTOR	4503A	FSCM99899	NA

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA..

4.4.3 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
2. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same reading on oscilloscope. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP

4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

4.4.7 TEST RESULTS

EUT	2.4GHz Wireless Access Point	**MODEL**	DWL-2000AP
MODE	CCK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH, 991hPa	**TESTED BY**	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	16.94	30	PASS
6	2437	16.96	30	PASS
11	2462	16.92	30	PASS

EUT	2.4GHz Wireless Access Point	**MODEL**	DWL-2000AP
MODE	OFDM	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH, 991hPa	**TESTED BY**	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	16.24	30	PASS
6	2437	16.32	30	PASS
11	2462	16.44	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2004

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

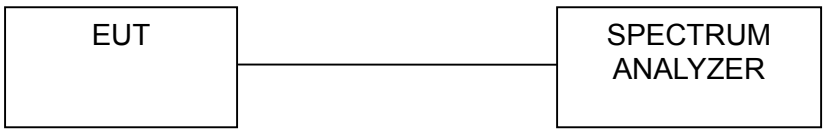
4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time=span/3kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

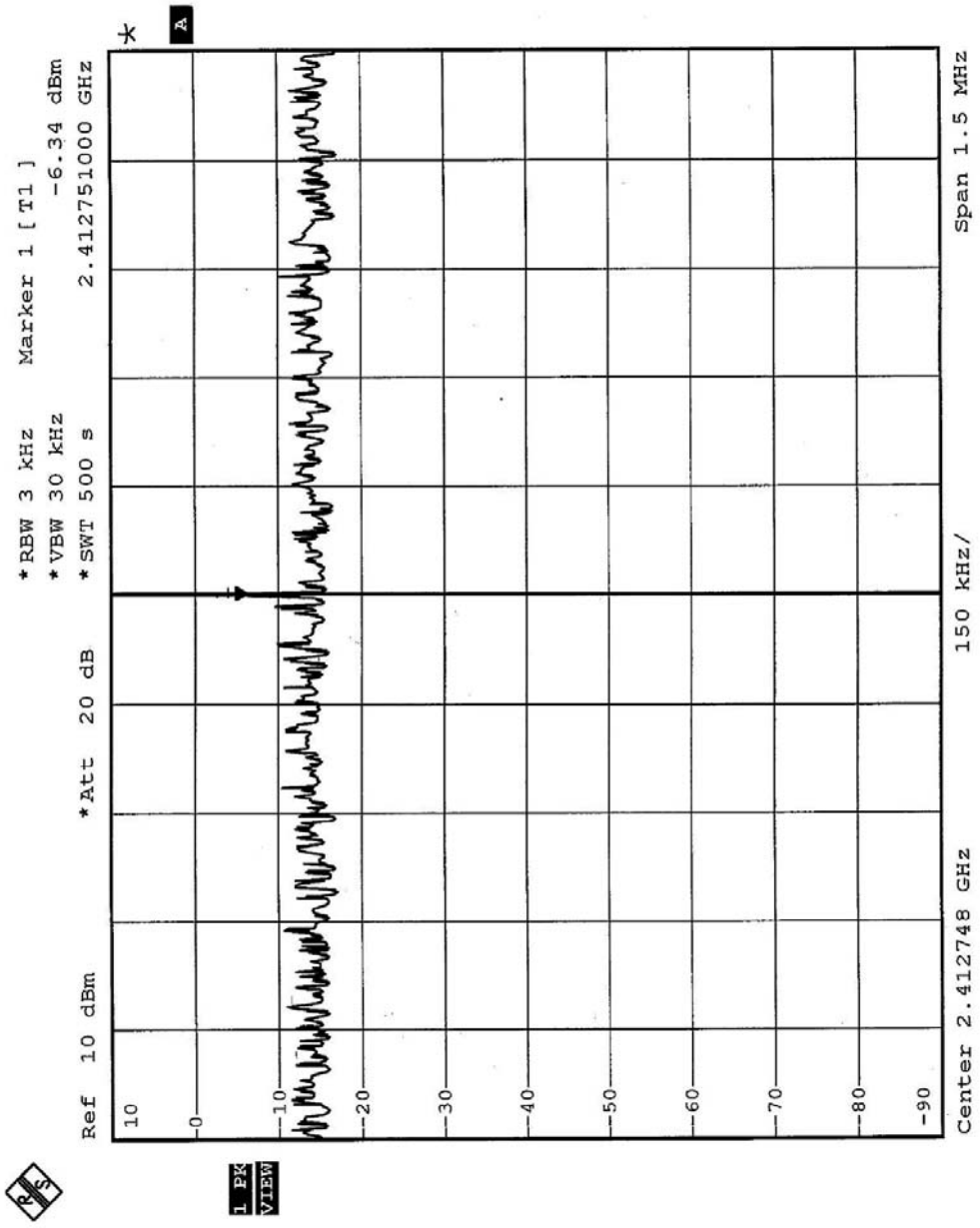
Same as 4.3.6

4.5.7 TEST RESULTS

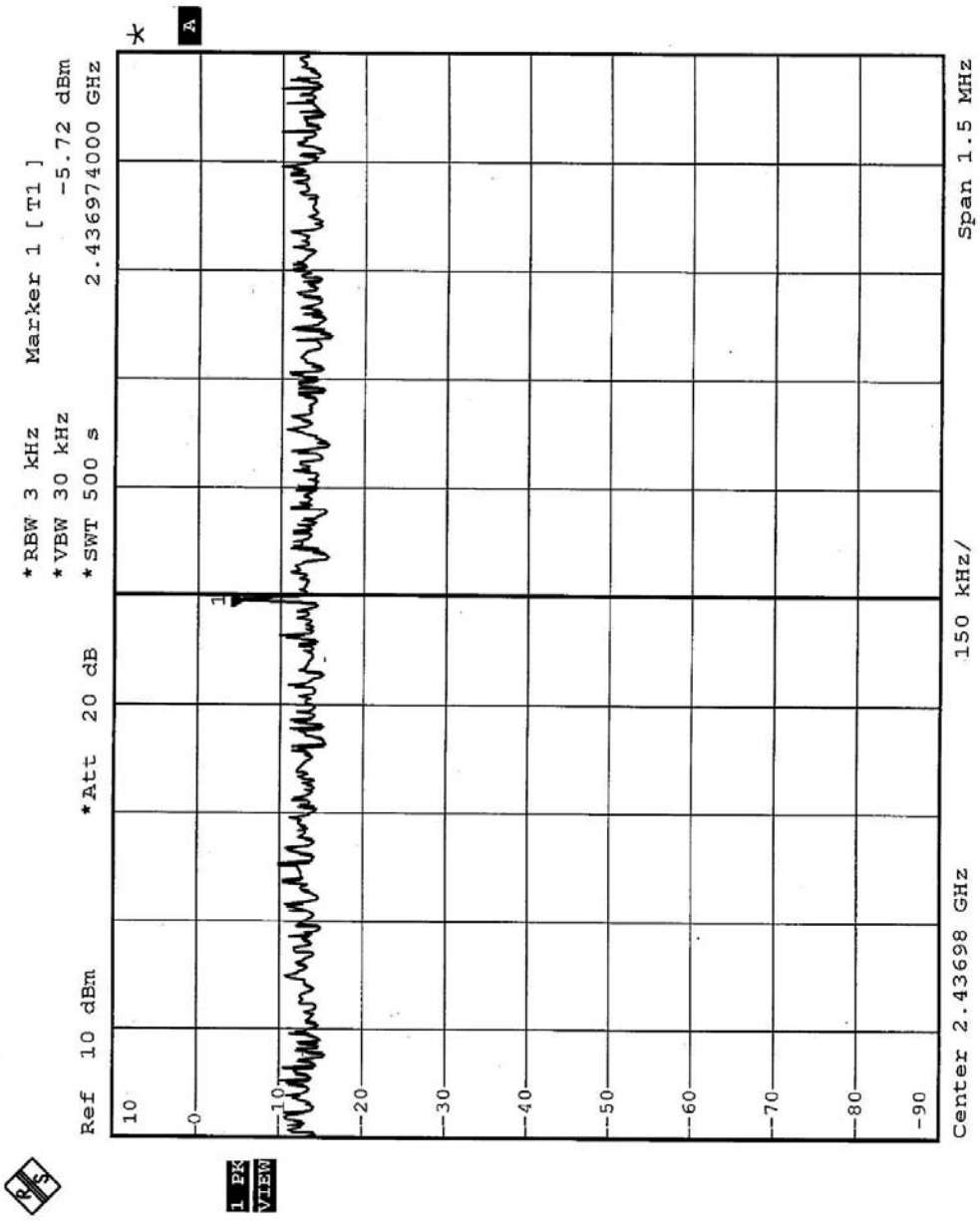
EUT	2.4GHz Wireless Access Point	**MODEL**	DWL-2000AP
MODE	CCK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH, 991hPa	**TESTED BY**	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-6.34	8	PASS
6	2437	-5.72	8	PASS
11	2462	-2.53	8	PASS

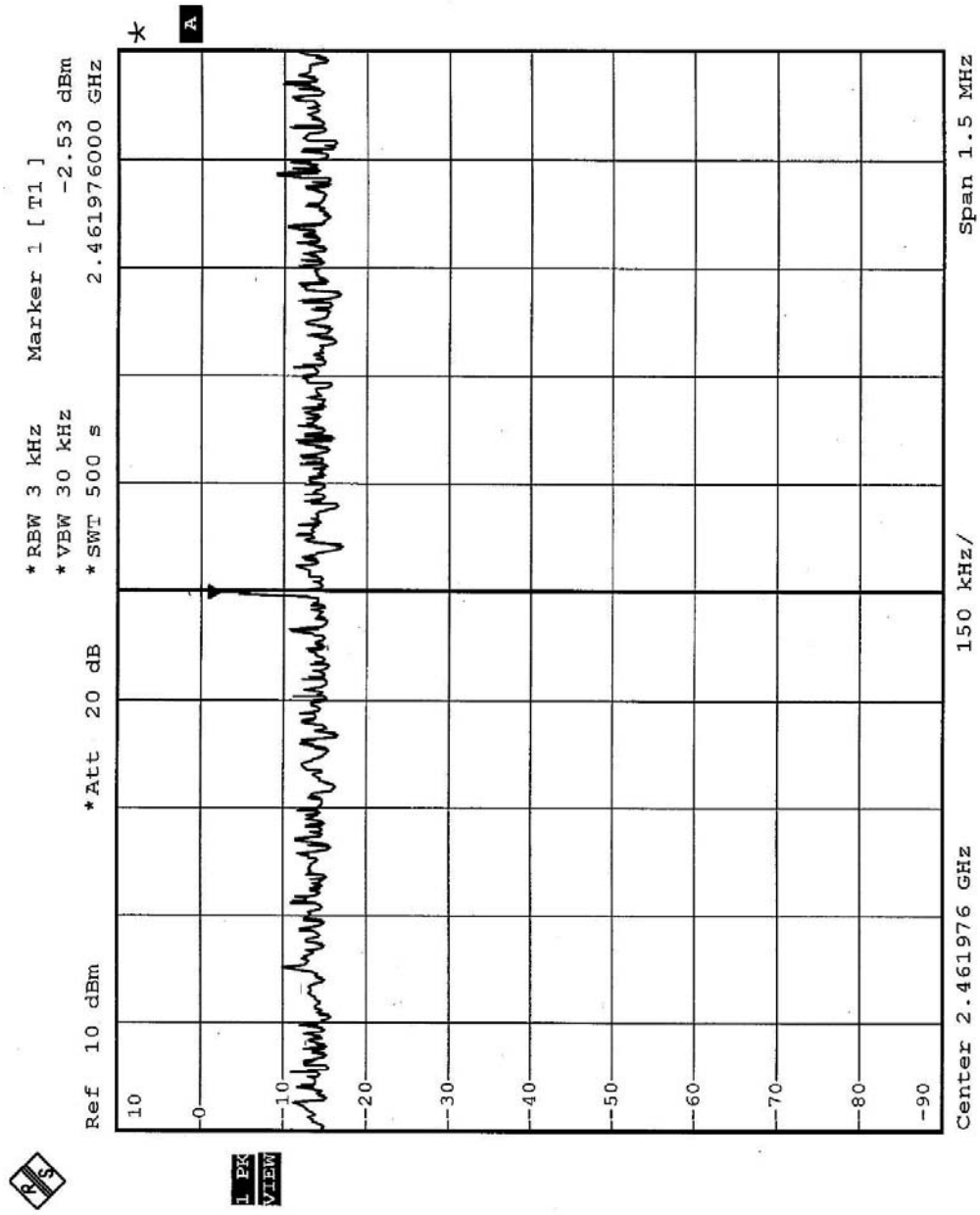
CH1


Ref 10 dBm
*Att 20 dB
*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-6.34 dBm
2.412751000 GHz
Center 2.412748 GHz
150 kHz/
Span 1.5 MHz
1 PK VIEW
A

CH6


A
Marker 1 [T1]
-5.72 dBm
2.43697400 GHz
*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
*Att 20 dB
Ref 10 dBm
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
Center 2.43698 GHz
150 kHz/
Span 1.5 MHz
1 PK
VIEW

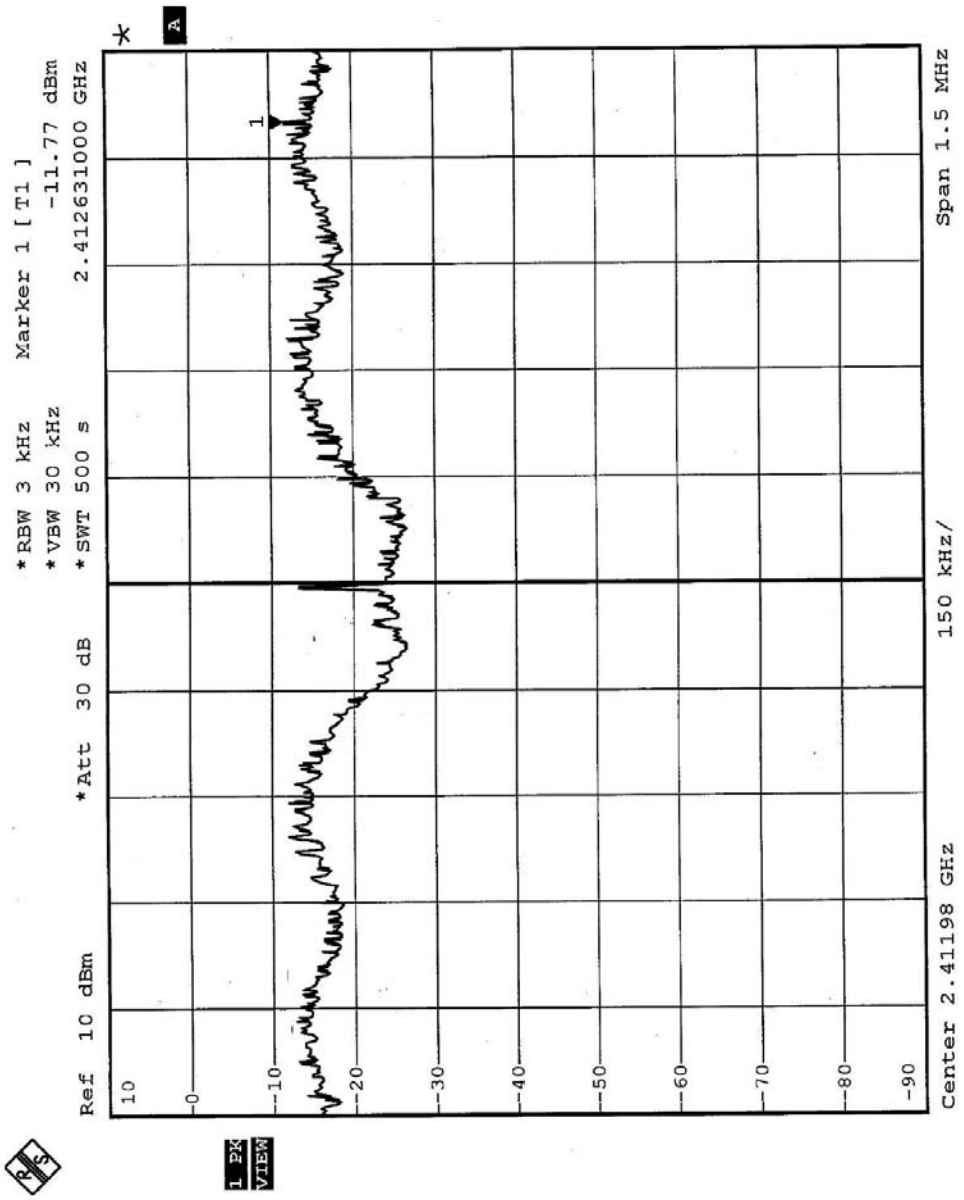
CH11


Ref 10 dBm
*Att 20 dB
*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-2.53 dBm
2.461976000 GHz
Center 2.461976 GHz
150 kHz/
Span 1.5 MHz
1 PK
VIEW

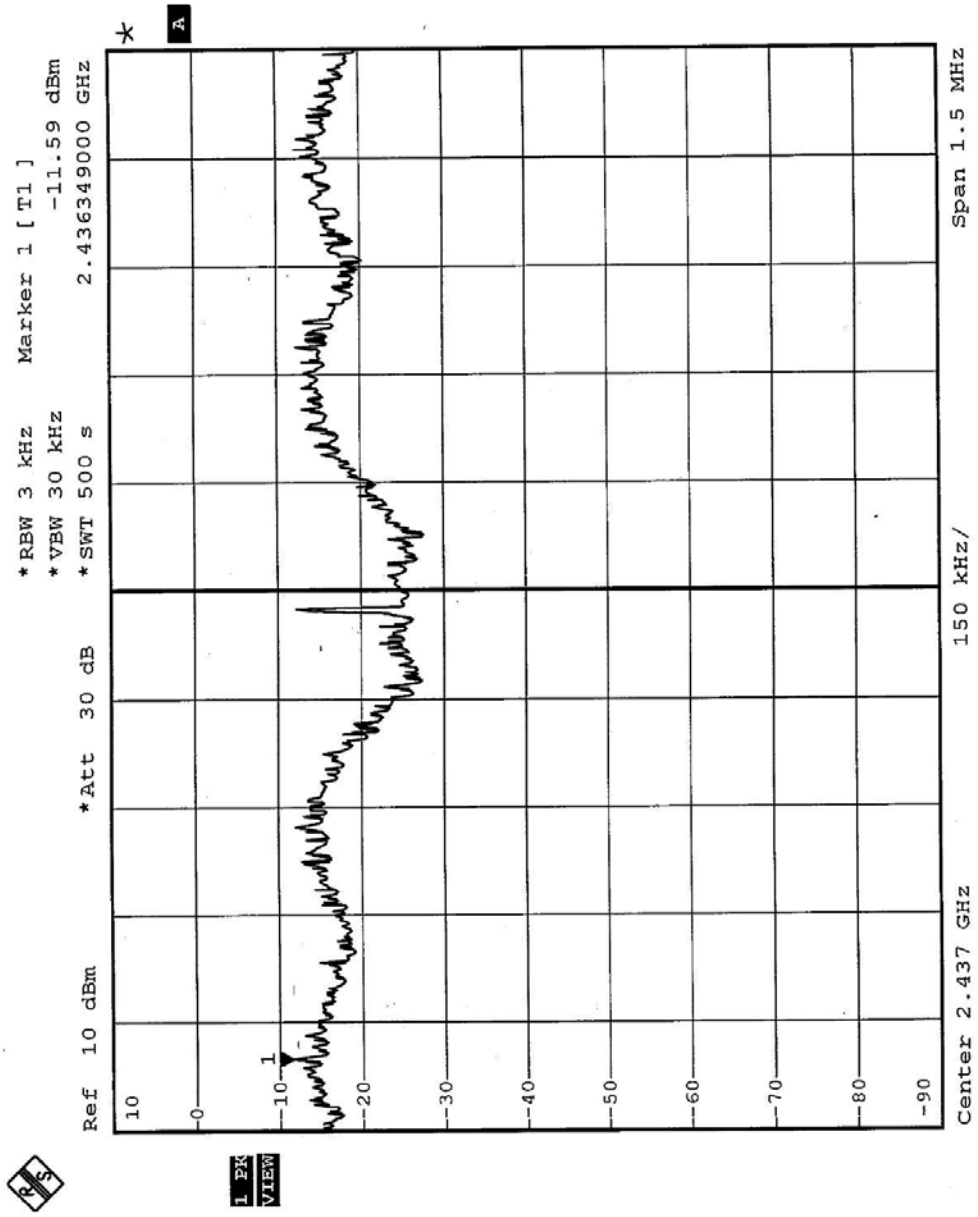
EUT	2.4GHz Wireless Access Point	**MODEL**	DWL-2000AP
MODE	OFDM	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH, 991hPa	**TESTED BY**	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-11.77	8	PASS
6	2437	-11.59	8	PASS
11	2462	-2.35	8	PASS

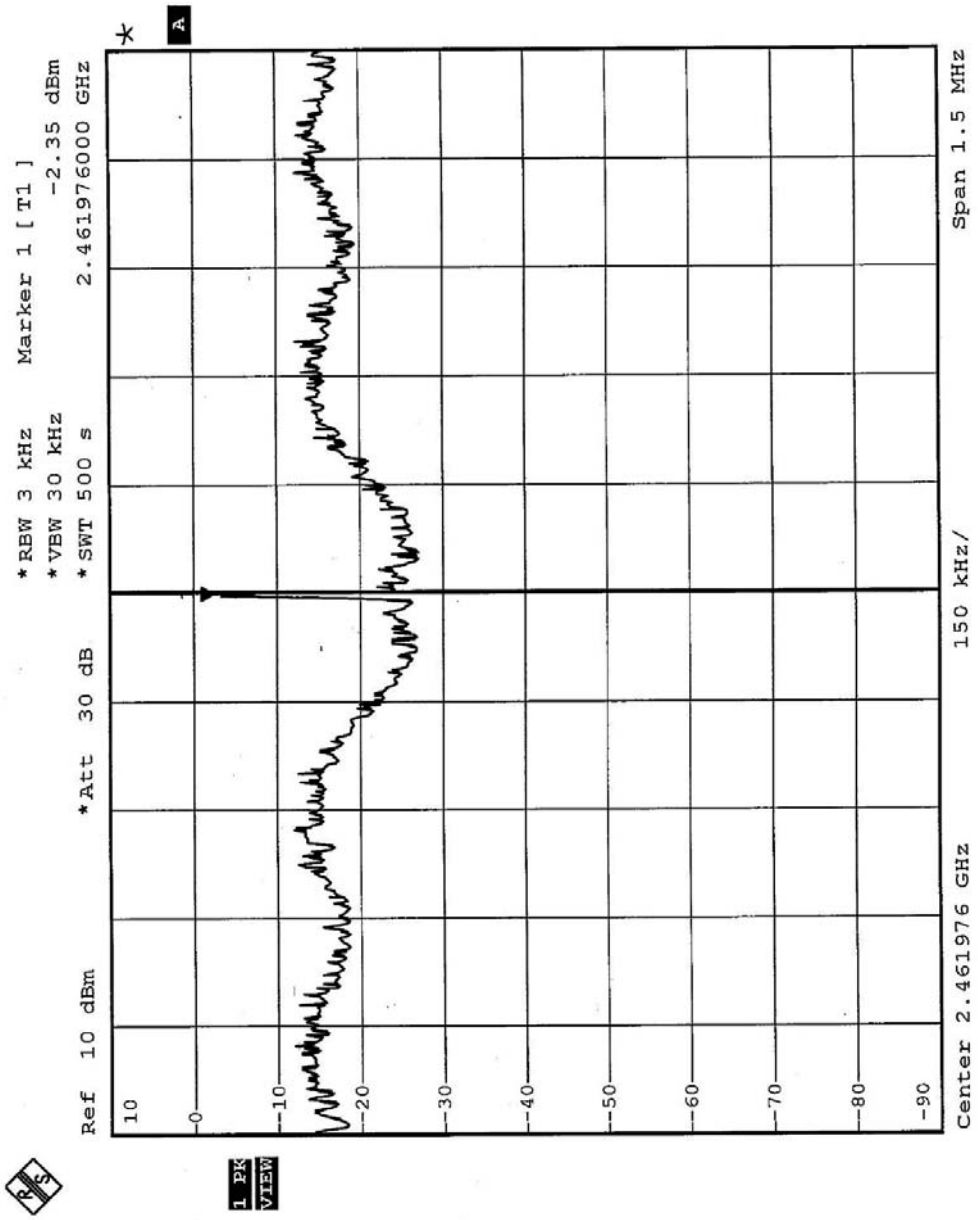
CH1


A
Marker 1 [T1]
-11.77 dBm
2.412631000 GHz
*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
*Att 30 dB
Ref 10 dBm
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
1
Span 1.5 MHz
150 kHz/
Center 2.41198 GHz
1 PK
VIEW

CH6


A
Marker 1 [T1]
-11.59 dBm
2.436349000 GHz
*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
*Att 30 dB
Ref 10 dBm
Span 1.5 MHz
150 kHz/
Center 2.437 GHz
1 PK
VIEW

CH11


Ref 10 dBm
*Att 30 dB
*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-2.35 dBm
2.46197600 GHz
Center 2.461976 GHz
150 kHz/
Span 1.5 MHz
1 PK
VIEW

4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100KHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2004

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100kHz for CCK technique and RBW = 1MHz and VBW = 300Hz for OFDM technique with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

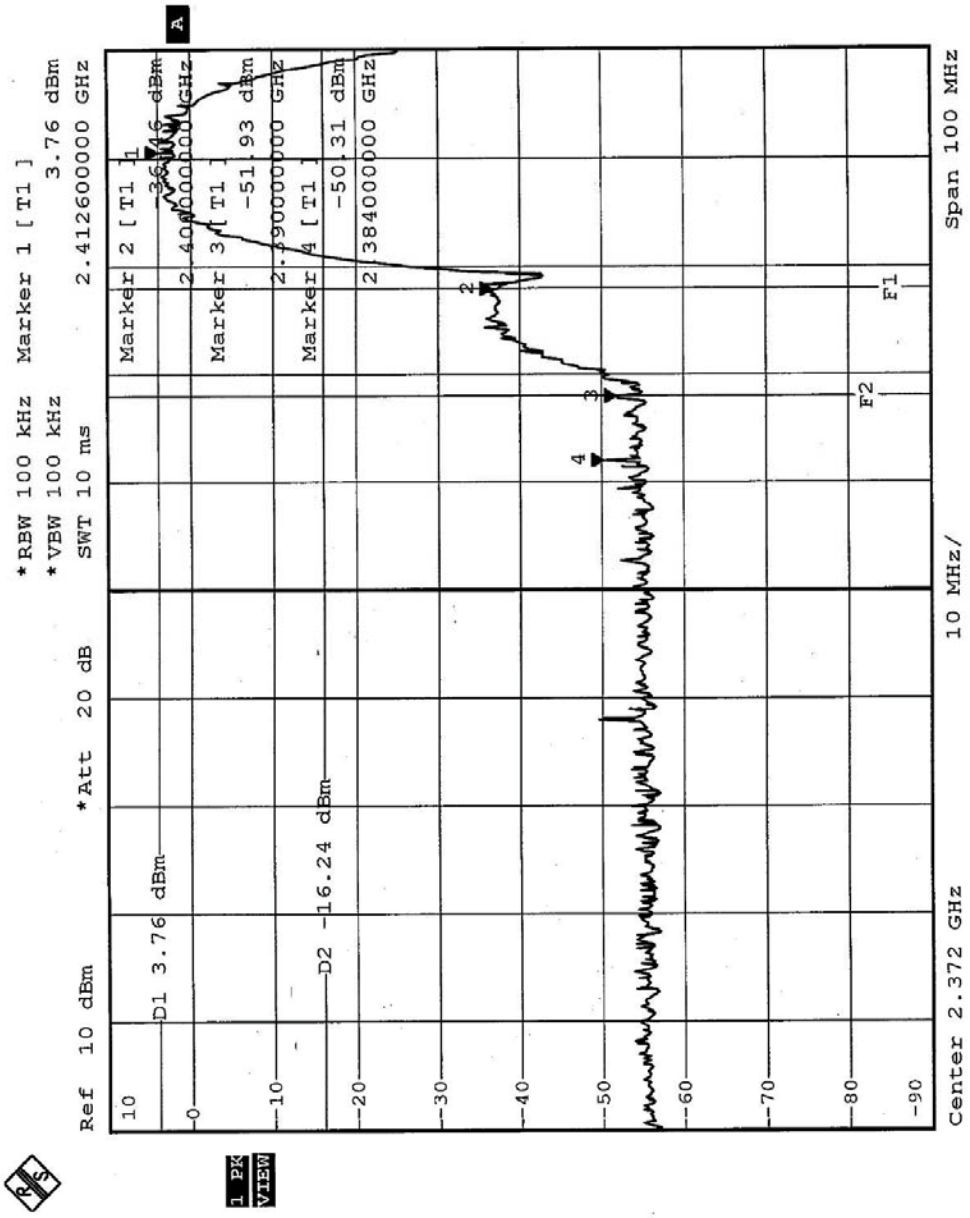
4.6.5 EUT OPERATING CONDITION

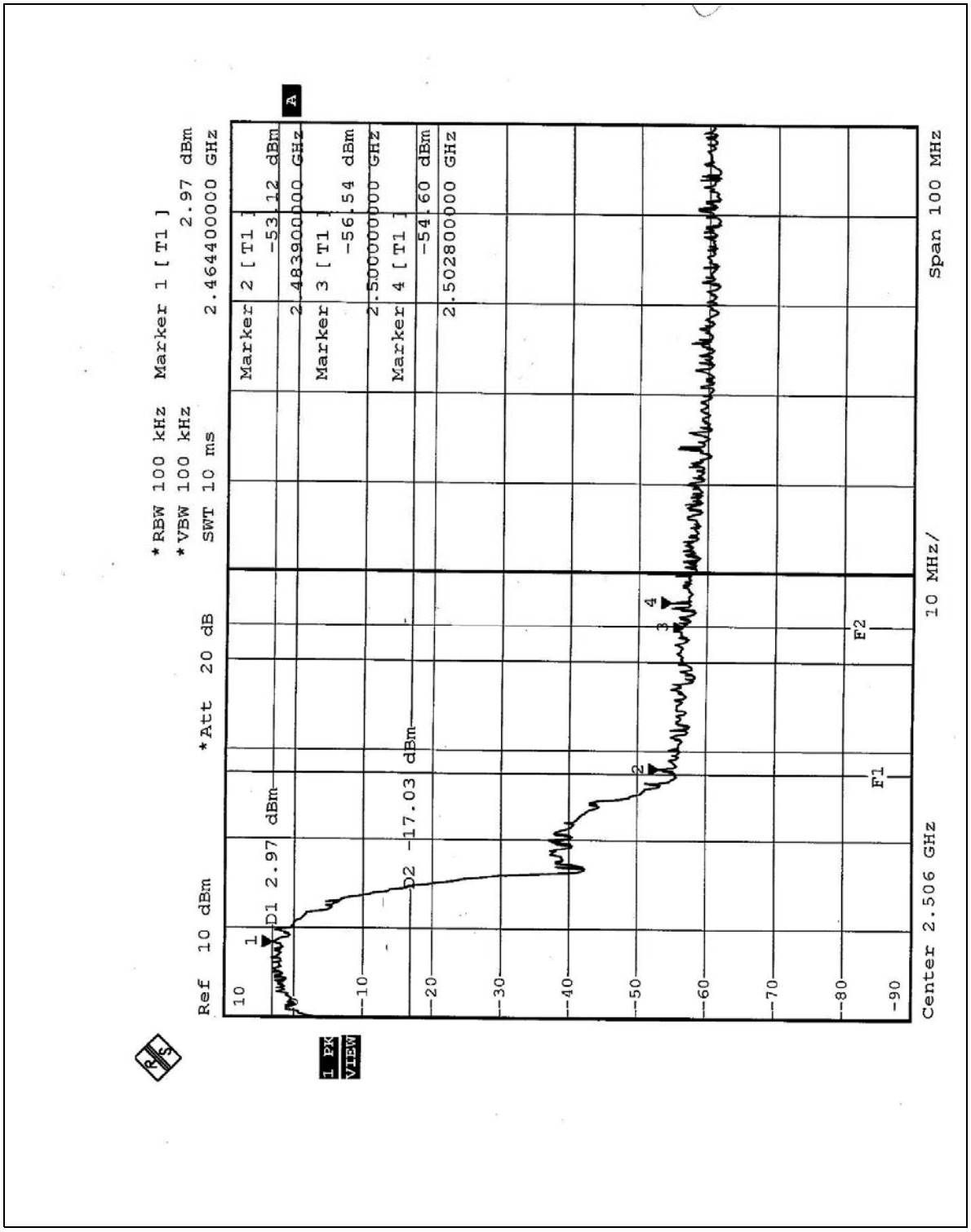
Same as Item 4.3.6

4.6.6 TEST RESULTS

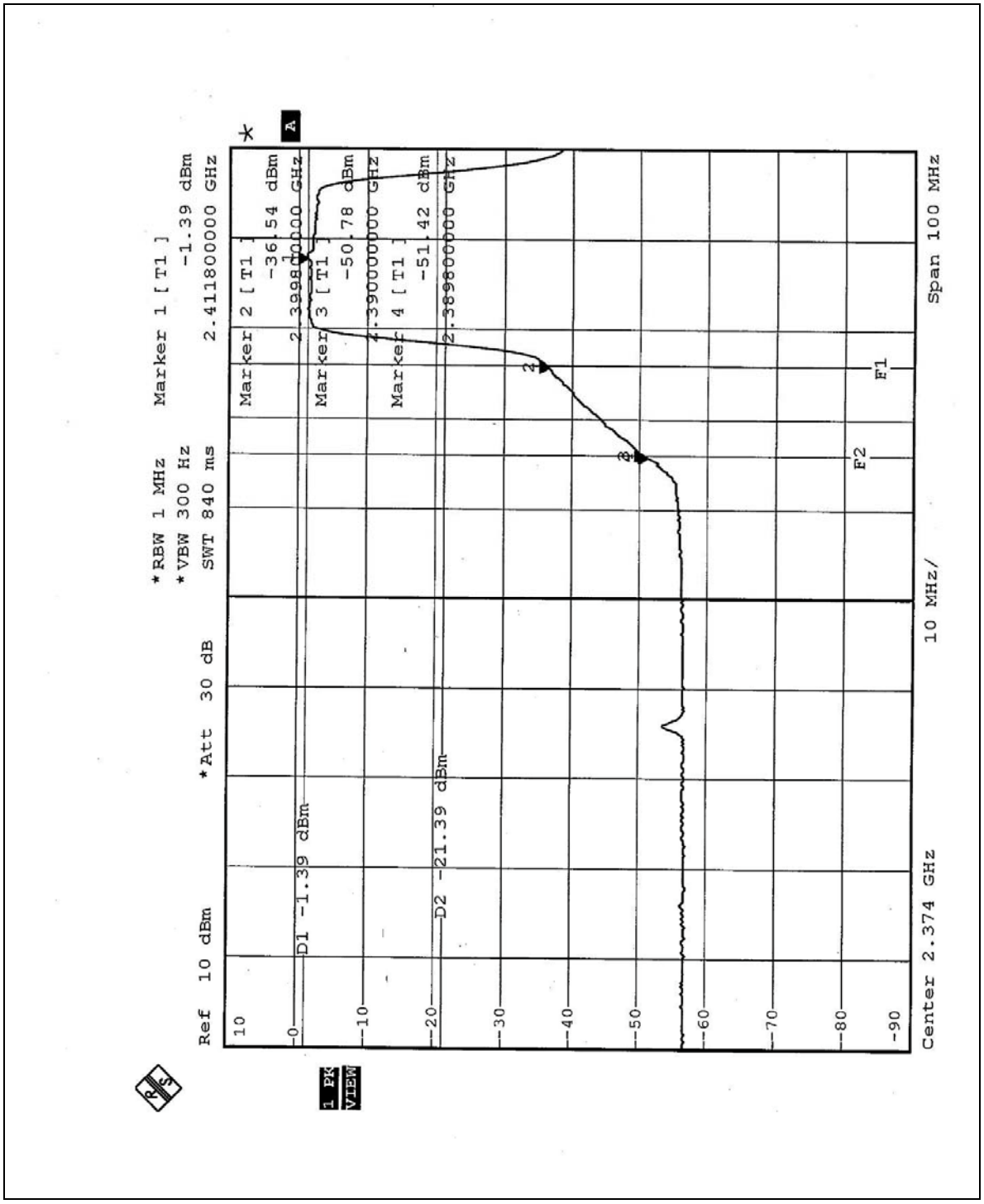
The spectrum plots are attached on the following 2 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(C).

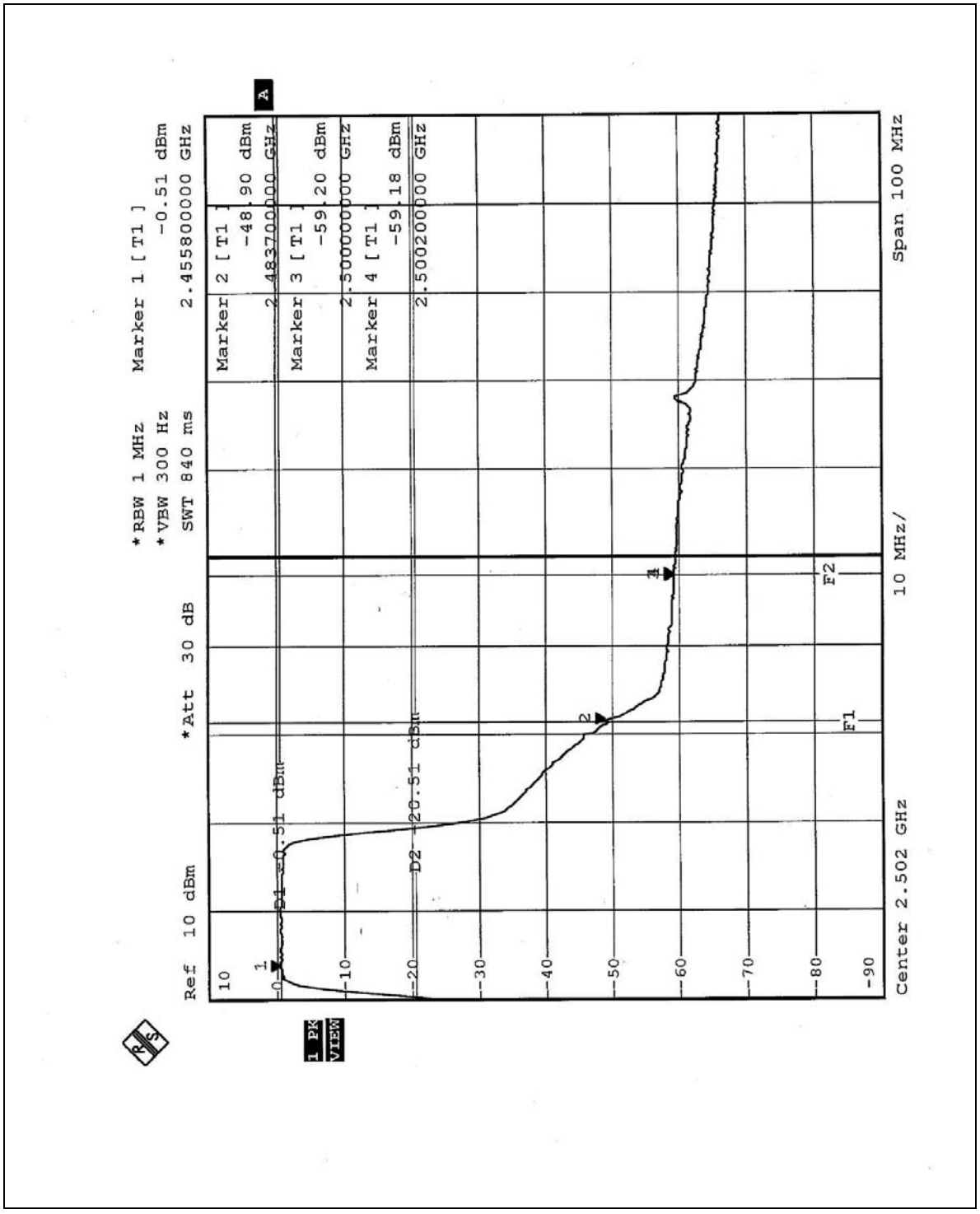
NOTE 1: The band edge emission plot of the CCK technique on the following two pages show 54.07dB/56.09dB delta between carrier maximum power and local maximum emission in restrict band (2.3840GHz/2.4839GHz). The emission of carrier strength list in the test result of channel 1 and 11 at the item 4.2.7 are 101.70dBuV/m and 101.20dBuV/m, so the maximum field strength in restrict band is 101.70-54.07=47.63dBuV/m which is under 54dBuV/m limit.


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 1 [T1]
3.76 dBm
2.412600000 GHz
Ref 10 dBm
*Att 20 dB
D1 3.76 dBm
D2 -16.24 dBm
Marker 2 [T1]
Marker 3 [T1]
-51.93 dBm
Marker 4 [T1]
-50.31 dBm
2.384000000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz
F1
F2
1 PK VIEW


RBW 100 kHz
VBW 100 kHz
SWT 10 ms
Marker 1 [T1]
2.97 dBm
2.464400000 GHz
Marker 2 [T1]
-53.12 dBm
2.483900000 GHz
Marker 3 [T1]
-56.54 dBm
2.500000000 GHz
Marker 4 [T1]
-54.60 dBm
2.502800000 GHz
Ref 10 dBm
Att 20 dB
D1 2.97 dBm
D2 -17.03 dBm
Center 2.506 GHz
10 MHz/
Span 100 MHz
F1
F2
1 PK
VBW

NOTE 2: The band edge emission plot of the OFDM technique on the following two pages show 49.39dB/48.39dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz/2.4837GHz). The emission of carrier strength list in the test result of channel 1 and 11 at the item 4.2.7 are 99.80dBuV/m and 100.30dBuV/m, so the maximum field strength in restrict band is 100.3-48.39=51.91dBuV/m which is under 54dBuV/m limit.




*RBW 1 MHz
*VBW 300 Hz
SWT 840 ms
Marker 1 [T1]
-0.51 dBm
2.455800000 GHz
Marker 2 [T1]
-48.90 dBm
2.483700000 GHz
Marker 3 [T1]
-59.20 dBm
2.500000000 GHz
Marker 4 [T1]
-59.18 dBm
2.500200000 GHz
Ref 10 dBm
*Att 30 dB
D1 -0.51 dBm
D2 -20.51 dBm
Center 2.502 GHz
10 MHz/
Span 100 MHz
F1
F2
1 PK
VIEW

4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 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 FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna type used in this product is Dipole Antenna without antenna connector.
The maximum Gain of this antenna is only 2dBi.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST

RADIATED EMISSION TEST

6 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025, Guide 25 or EN 45001:

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
New Zealand	MoC
Norway	NEMKO
R.O.C.	BSMI, DGT, CNLA

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.

If you have any comments, please feel free to contact us at the following:

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Fax: 886-2-26093184

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Tel: 886-3-3270910
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The address and road map of all our labs can be found in our web site also.