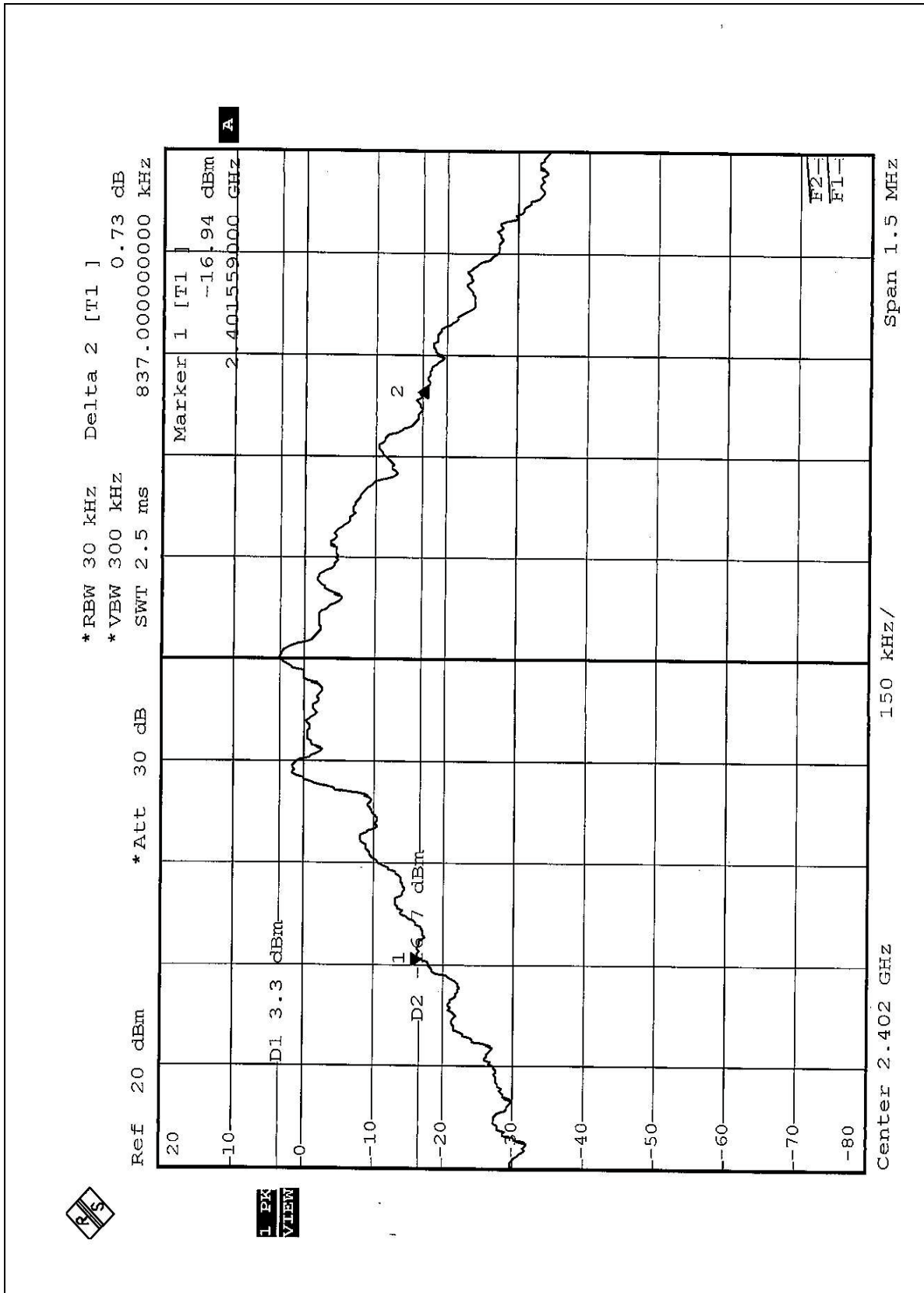
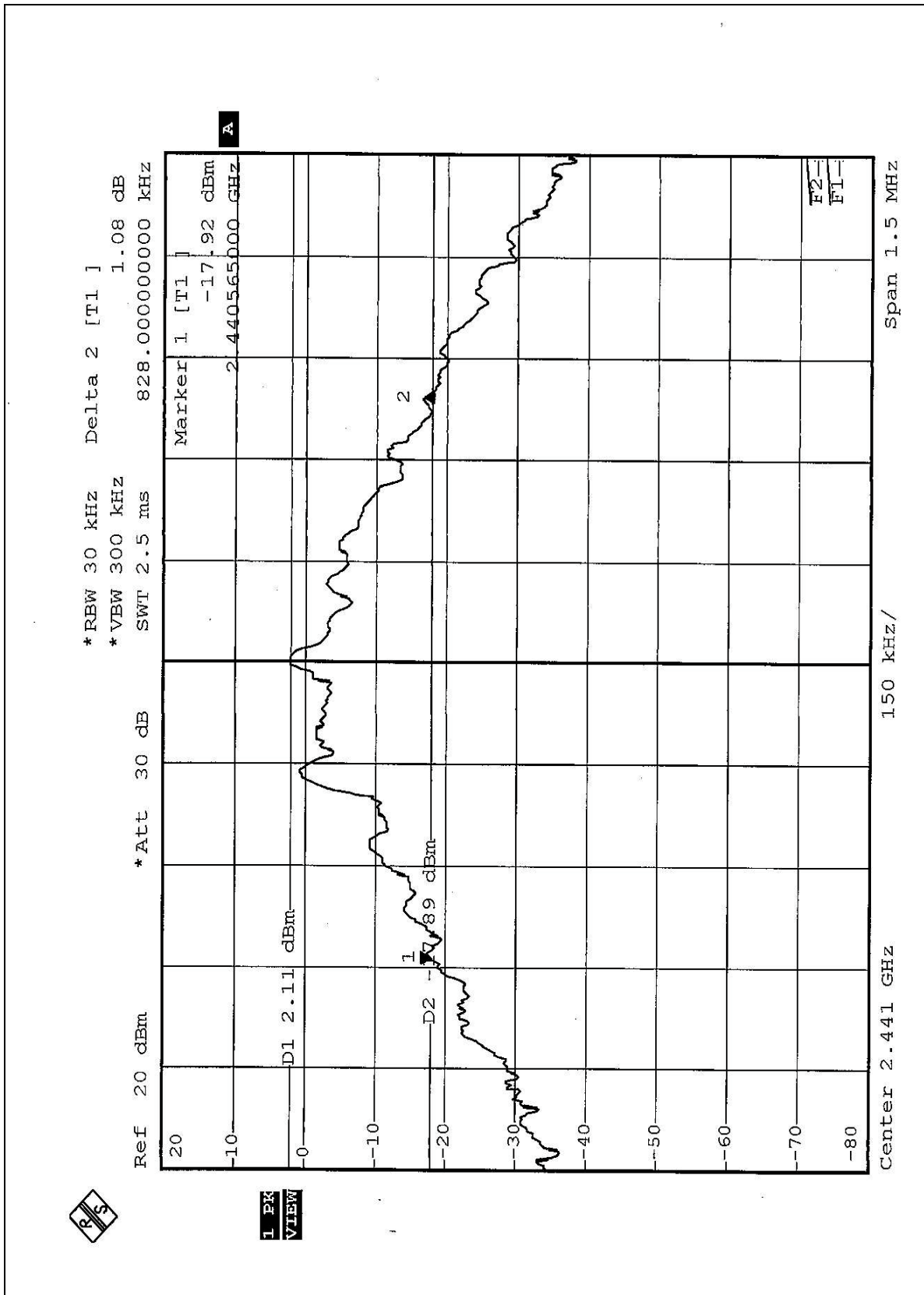


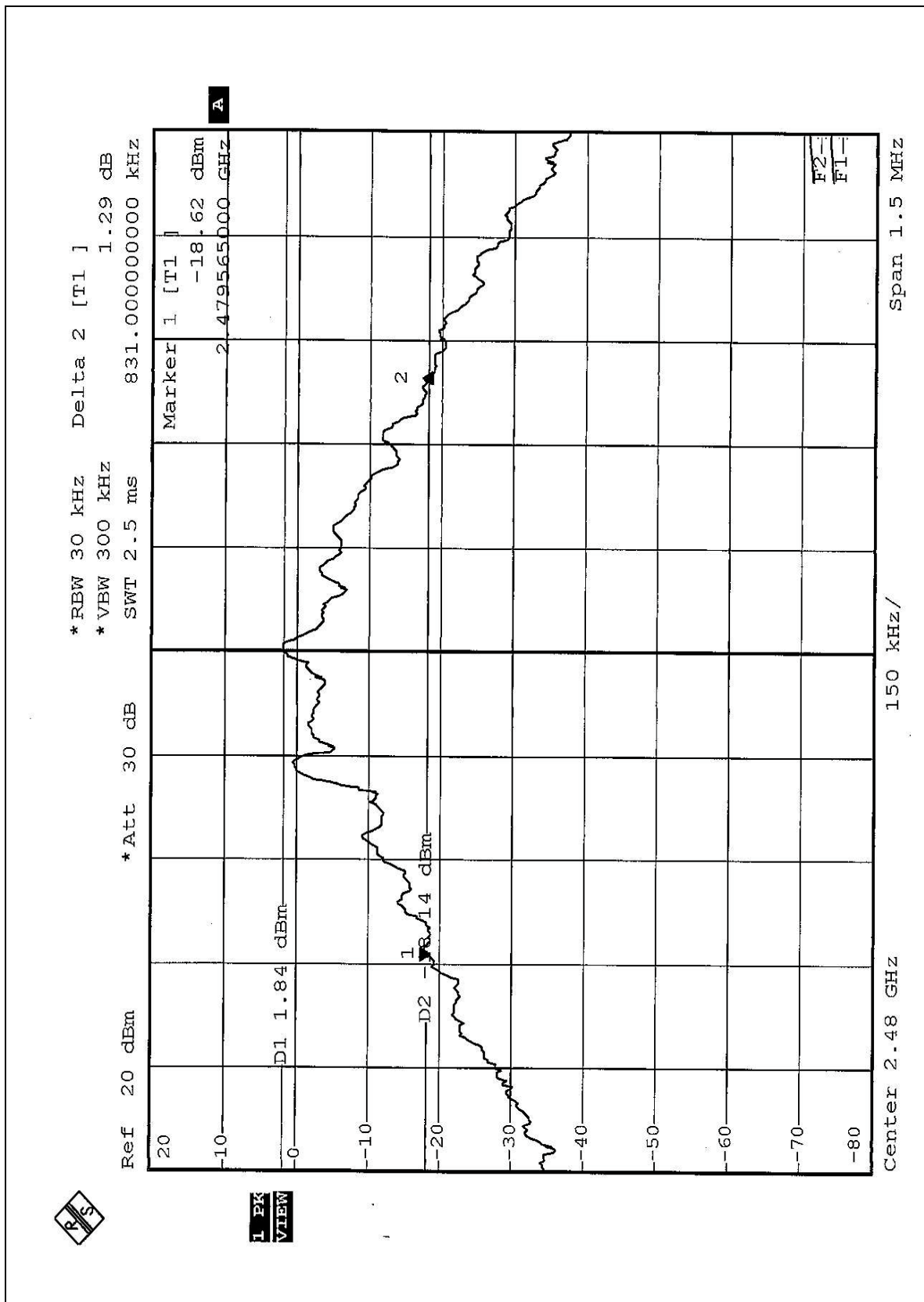
Channel 0



Channel 39



Channel 78



5.5 HOPPING CHANNEL SEPARATION

5.5.1 LIMIT OF HOPPING CHANNEL SEPARATION

At least 25KHz or 20dB bandwidth (whichever is greater).

5.5.2 TEST INSTRUMENTS

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

NOTES:

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

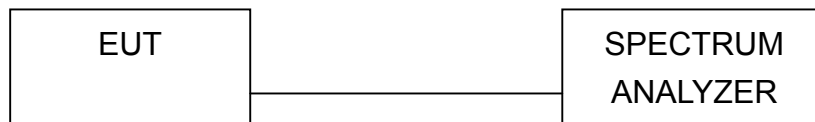
5.5.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. By using the MaxHold function record the separation of two adjacent channels.
4. Measure the frequency difference of these two adjacent channels by SA MARK function. And then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 TEST RESULTS

Channel	Frequency (MHz)	Adjacent Channel Separation	Minimum Limit (kHz)	Pass / Fail
0	2402	1.010MHz	837	PASS
39	2441	1.015MHz	828	PASS
78	2480	1.005MHz	831	PASS

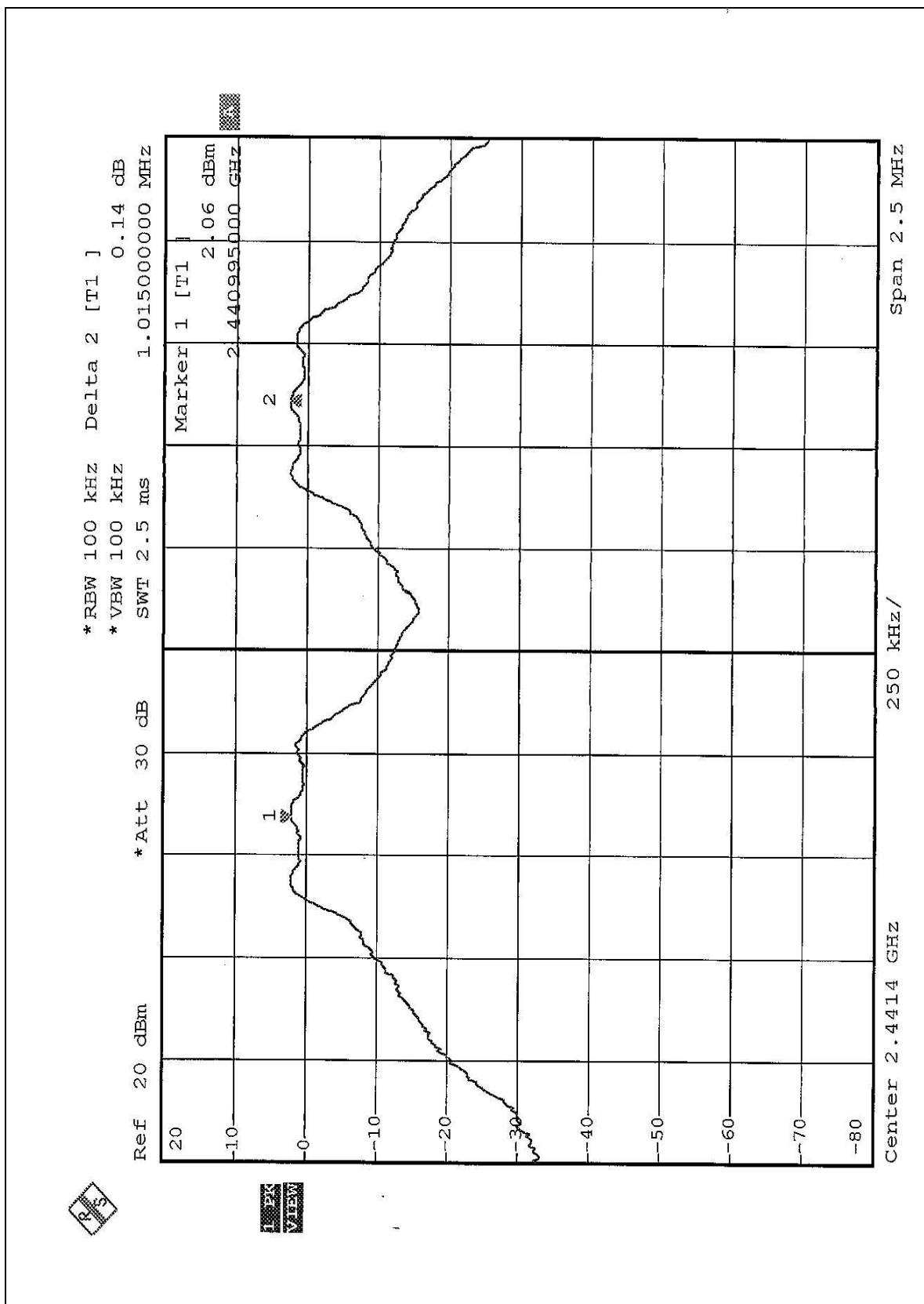
The minimum limit is 20dB bandwidth. Test results please refer to next three pages.

*RBW 100 kHz Delta 2 [T1] -0.03 dB
 *VBW 100 kHz SWT 2.5 ms
 *Att 30 dB Ref 20 dBm

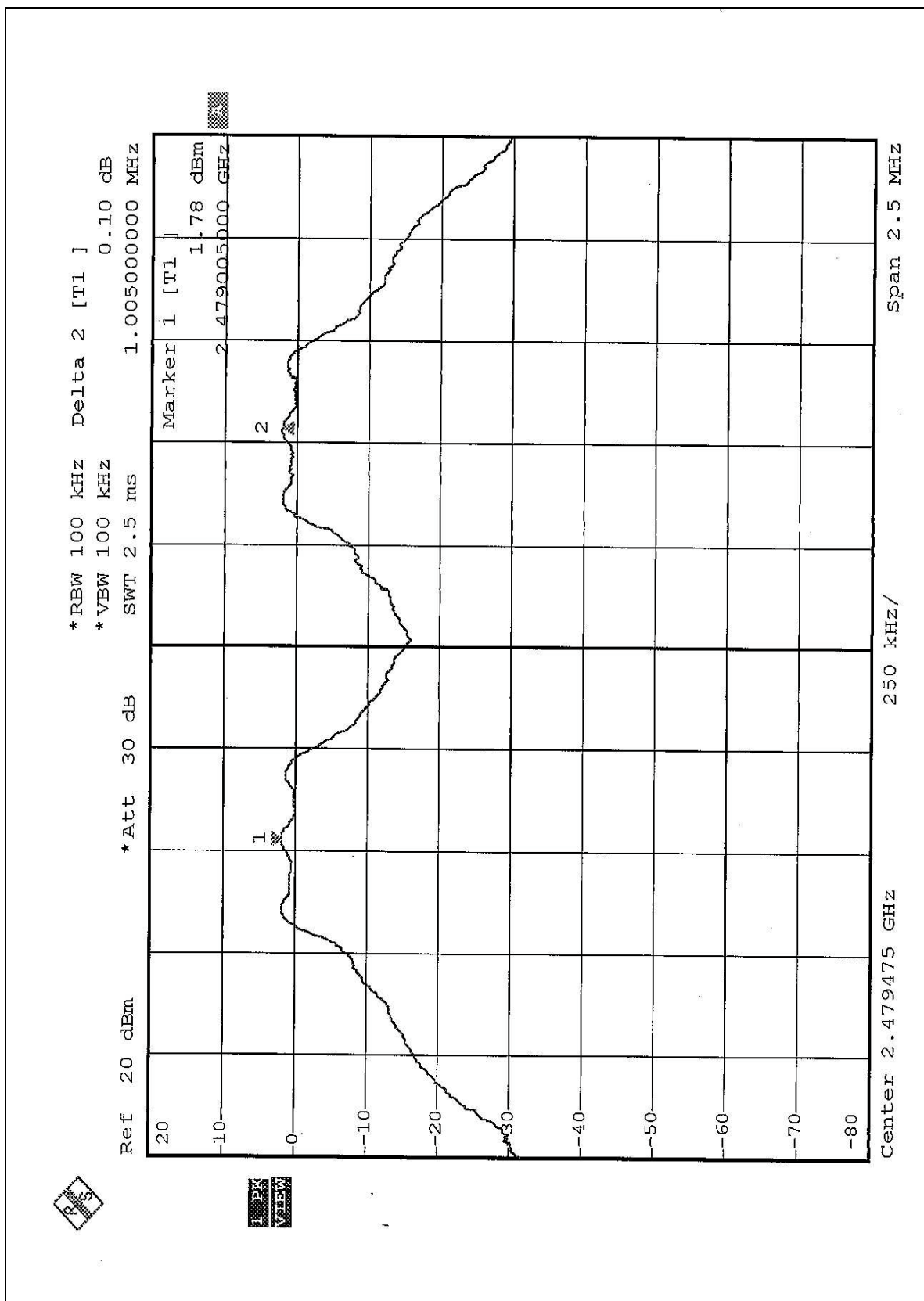
Marker 1 [T1]
 2.402000000 GHz 3.30 dBm

Center 2.402275 GHz Span 2.5 MHz

Channel 39



Channel 78





5.6 MAXIMUM PEAK OUTPUT POWER –USING SPECTRUM ANALYZER

5.6.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Limit of Maximum Peak Output Power Measurement is 30dBm.

5.6.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
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.

5.6.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. The center frequency of the spectrum analyzer is set to the fundamental frequency and using 1 MHz RBW and 3 MHz VBW.
4. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
5. Repeat above procedures until all frequencies measured were complete.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 TEST SETUP



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

5.6.6 EUT OPERATING CONDITION

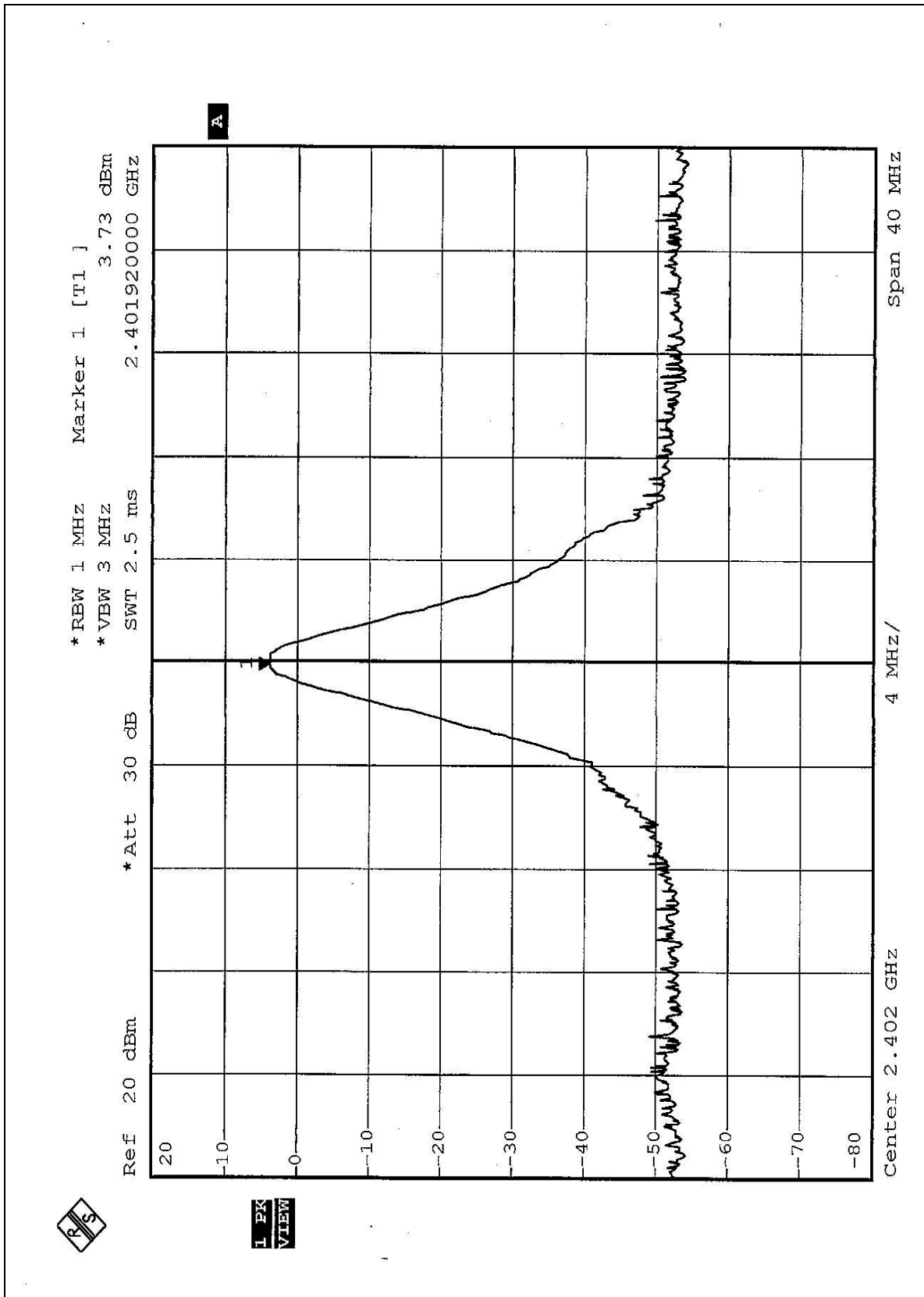
The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

5.6.7 TEST RESULTS

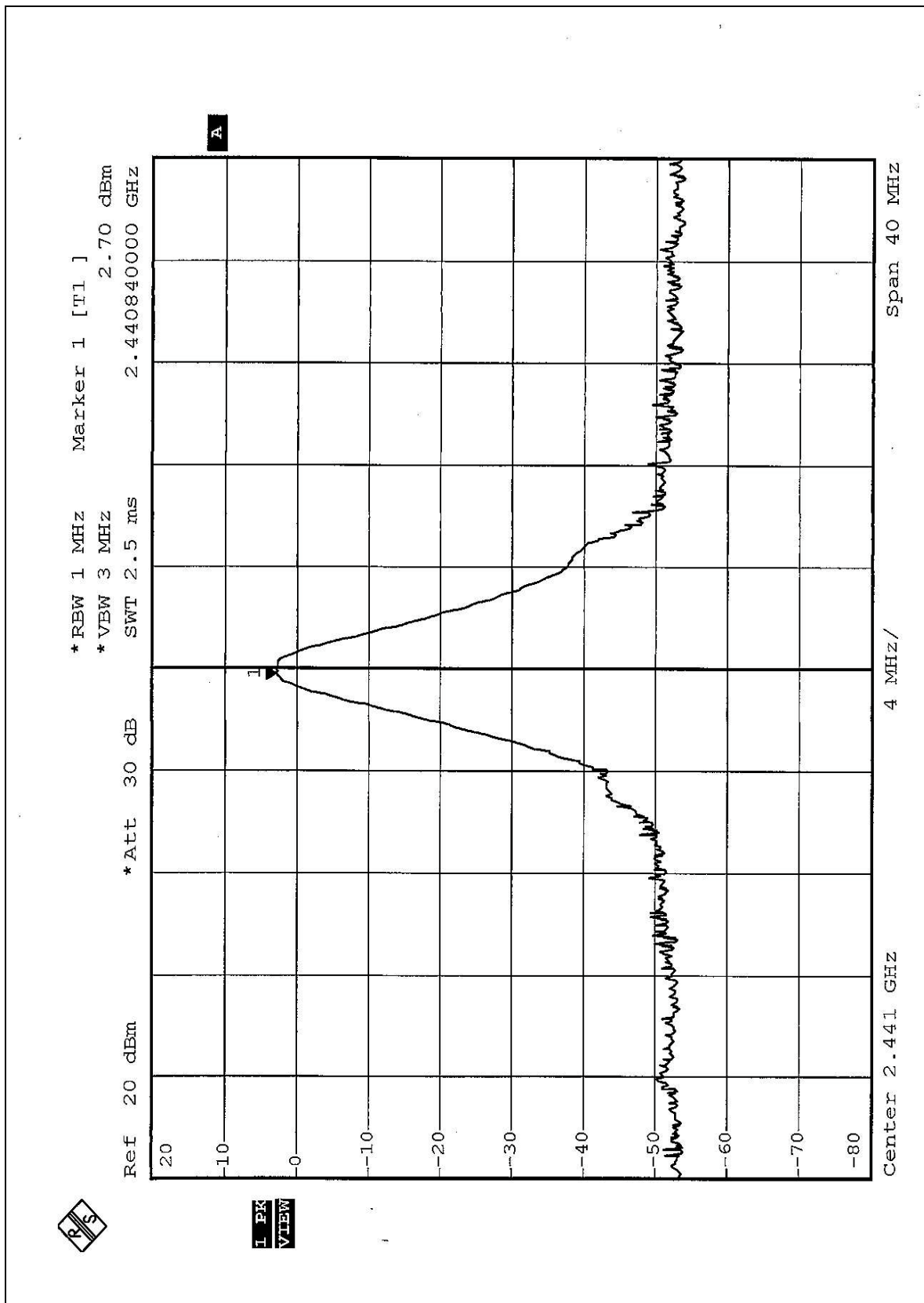
Output Power to Antenna:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
0	2402	3.73	30	PASS
39	2441	2.70	30	PASS
78	2480	2.31	30	PASS

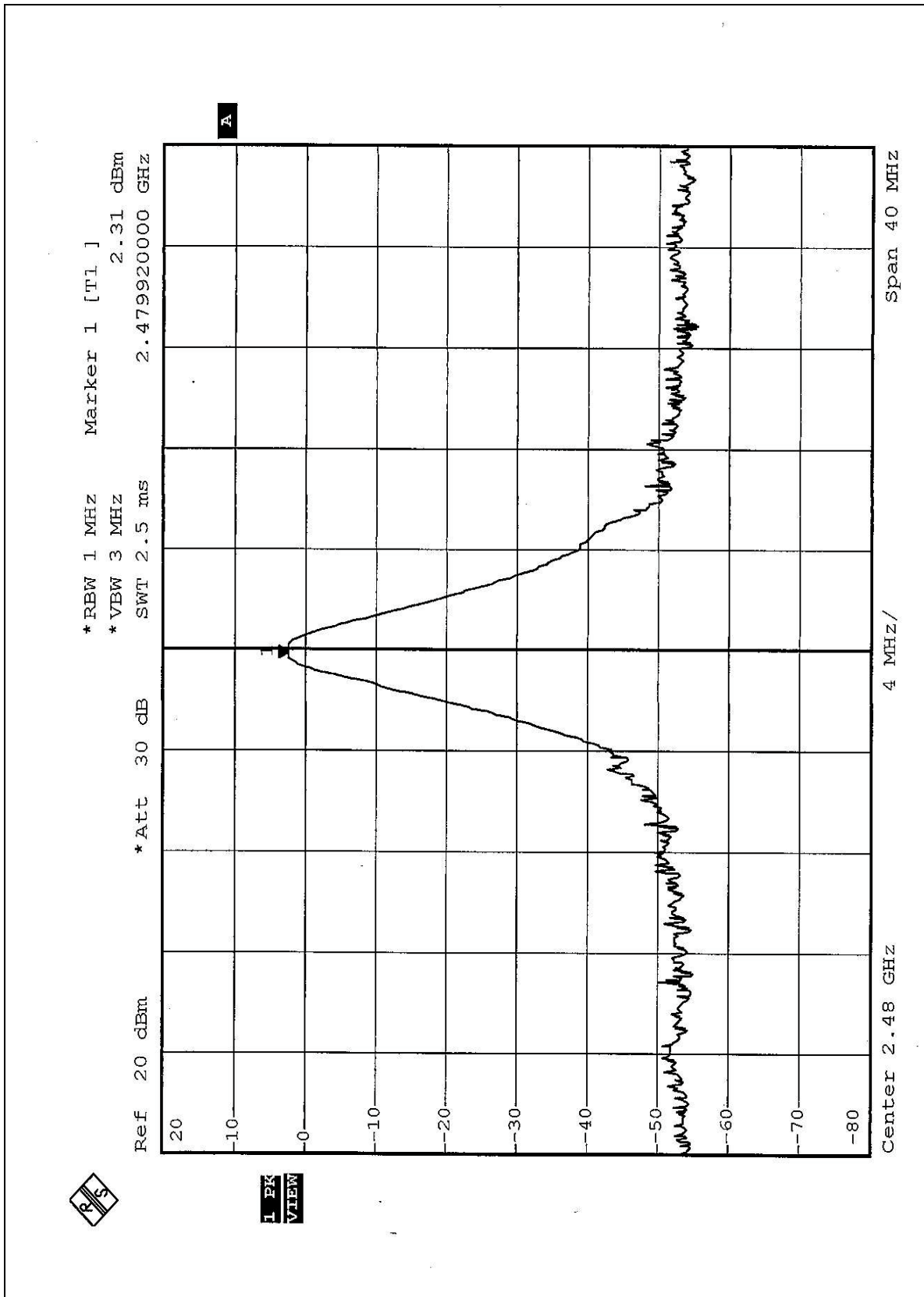
Channel 0



Channel 39



Channel 78



5.7 RADIATED EMISSION MEASUREMENT

5.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/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

As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

5.7.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
*HP Spectrum Analyzer	8593E	3911A07465	Jul. 07, 2004
*HP Preamplifier	8447D	2944A10386	Aug. 12, 2004
* HP Preamplifier	8449B	3008A01292	Aug. 11, 2004
SCHAFFNER Tunable Dipole Antenna	VHBA 9123	459	Jun. 26, 2004
SCHWARZBECK Tunable Dipole Antenna	UHA 9105	977	
*SCHAFFNER TEST RECEIVER	SCR 3501	409	Nov. 06, 2004
* SCHAFFNER BILOG Antenna	CBL6111C	2727	Jul. 15, 2004
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	Jun. 30, 2004
* ADT. Turn Table	TT100	0201	NA
* ADT. Tower	AT100	0201	NA
* Software	ADT_Radiated_V5.14	NA	NA
* ANRITSU RF Switches	MP59B	6100237246	Oct. 17, 2004
* TIMES RF cable	LMR-600	CABLE-ST10-01	Oct. 17, 2004

- NOTE:** 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. "*" = These equipment are used for the final measurement.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The test was performed in ADT Open Site No. 10.
5. The VCCI Site Registration No. is R-1625.



5.7.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

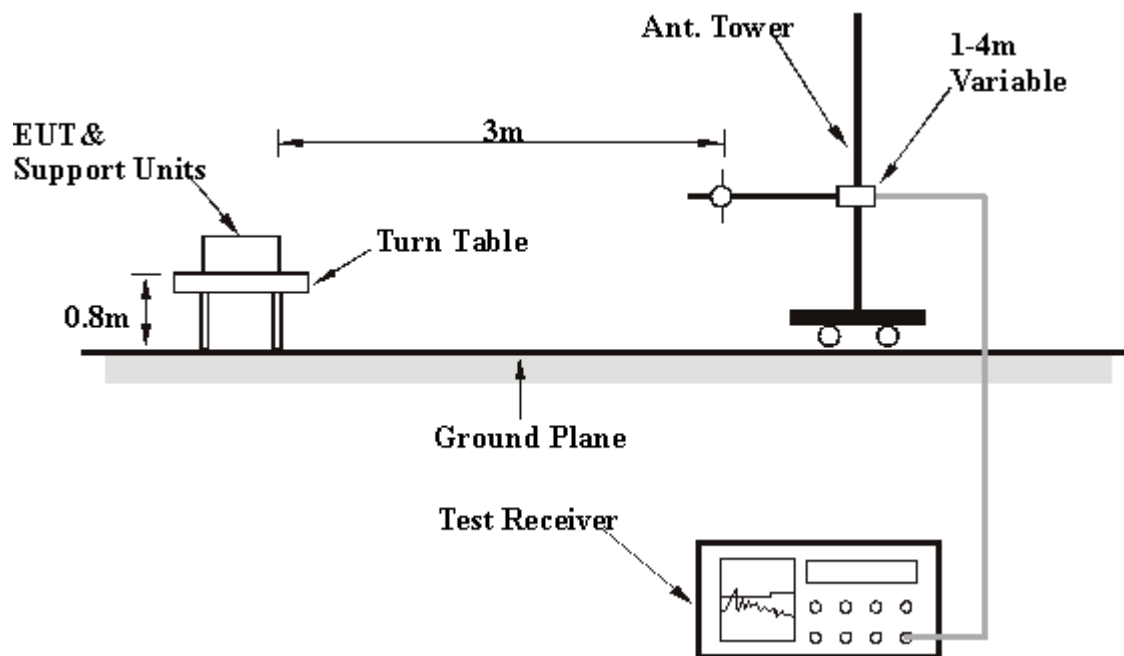
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

5.7.4 DEVIATION FROM TEST STANDARD

No deviation

5.7.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.7.6 TEST RESULTS

EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	0	FREQUENCY RANGE	1~25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY: Vincent Lin	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	45.80 PK	74.00	-28.20	1.37 H	45	12.93	32.87
2	*2402.00	97.20 PK			1.37 H	45	64.29	32.91
2	*2402.00	67.20 AV			1.37 H	45	34.29	32.91
3	4804.00	44.20 PK	74.00	-29.80	1.11 H	177	4.39	39.81

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	45.50 PK	74.00	-28.50	1.27 V	352	12.63	32.87
2	*2402.00	96.43 PK			1.27 V	352	63.52	32.91
2	*2402.00	66.43 AV			1.27 V	352	33.52	32.91
3	4804.00	45.10 PK	74.00	-28.90	1.27 V	352	5.29	39.81

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. Margin value = Emission level - Limit value
4. “ * ” : Fundamental frequency
5. The other emission levels were very low against the limit.
6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625*5 per 247 ms per channel.
Therefore, the duty cycle be equal to: $20\log(3.125/100) = -30\text{dB}$
7. Average value = peak reading $-20\log(\text{duty cycle})$

EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	39	FREQUENCY RANGE	1~25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY: Vincent Lin	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	95.30 PK			1.35 H	52	62.37	32.93
1	*2441.00	65.30 AV			1.35 H	52	32.37	32.93
2	4882.00	45.80 PK	74.00	-28.20	1.11 H	21	5.70	40.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	94.30 PK			1.00 V	351	61.37	32.93
1	*2441.00	64.30 AV			1.00 V	351	31.37	32.93
2	4882.00	46.70 PK	74.00	-27.30	1.04 V	222	6.60	40.10

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. Margin value = Emission level - Limit value
4. “ * ” : Fundamental frequency
5. The other emission levels were very low against the limit.
6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625*5 per 247 ms per channel.
Therefore, the duty cycle be equal to: $20\log(3.125/100) = -30\text{dB}$
7. Average value = peak reading $-20\log(\text{duty cycle})$

EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	78	FREQUENCY RANGE	1~25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY: Vincent Lin	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	95.20 PK			1.03 H	69	62.24	32.96
1	*2480.00	65.20 AV			1.03 H	69	32.24	32.96
2	2483.50	48.90 PK	74.00	-25.10	1.03 H	69	15.94	32.96
3	4960.00	44.57 PK	74.00	-29.43	1.05 H	241	4.39	40.18

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	94.80 PK			1.27 V	5	61.84	32.96
1	*2480.00	64.80 AV			1.27 V	5	31.84	32.96
2	2483.50	48.35 PK	74.00	-25.65	1.27 V	5	15.39	32.96
3	4960.00	44.58 PK	74.00	-29.42	1.12 V	178	4.40	40.18

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. Margin value = Emission level - Limit value
4. “ * ” : Fundamental frequency
5. The other emission levels were very low against the limit.
6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625*5 per 247 ms per channel.
Therefore, the duty cycle be equal to: $20\log(3.125/100) = -30\text{dB}$
7. Average value = peak reading $-20\log(\text{duty cycle})$

5.8 BAND EDGES MEASUREMENT

5.8.1 LIMITS OF BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100KHz RB).

5.8.2 TEST INSTRUMENTS

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

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

5.8.3 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 100 kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

5.8.4 DEVIATION FROM TEST STANDARD

No deviation



5.8.5 EUT OPERATING CONDITION

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

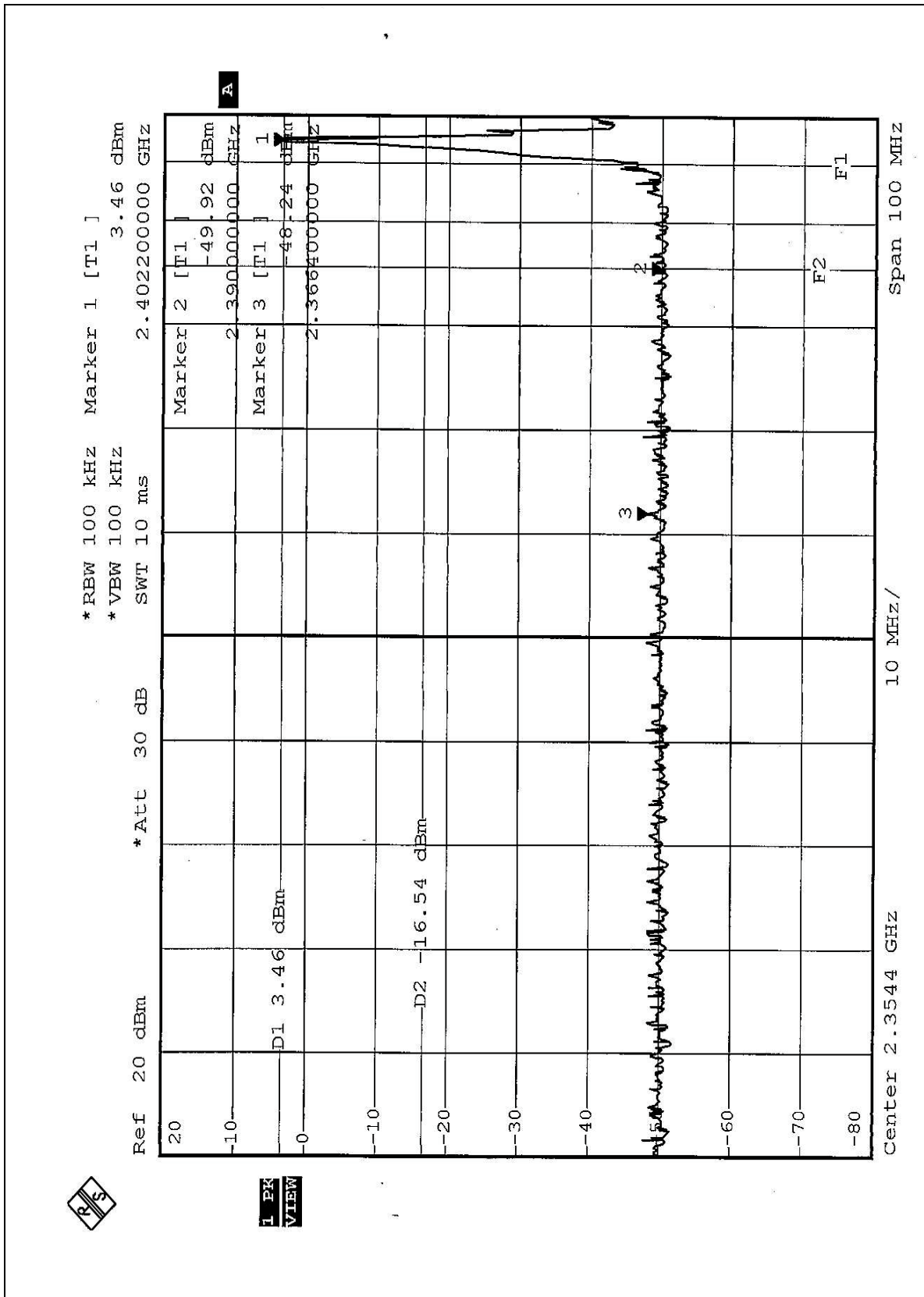
5.8.6 TEST RESULTS

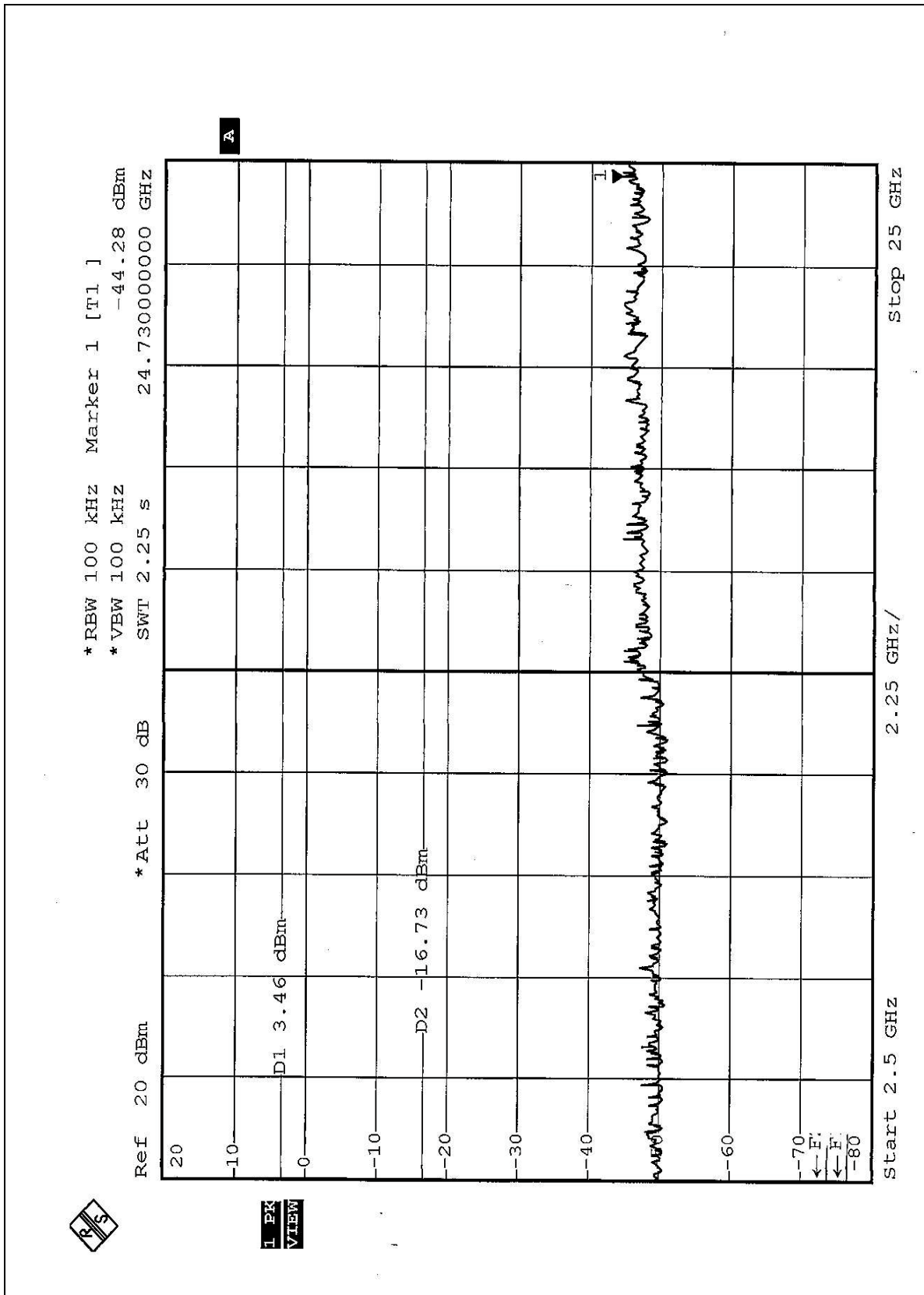
The spectrum plots are attached on the following 4 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(C).

NOTE 1: The band edge emission plot on the following 1~2 pages show 51.70dB delta between carrier maximum power and local maximum emission in restrict band (2.3664GHz). The emission of carrier strength list in the test result of channel 0 at the item 5.7.6 is 67.20dBuV/m, so the maximum field strength in restrict band is $67.20 - 51.70 = 15.50$ dBuV/m which is under 54 dBuV/m limit.

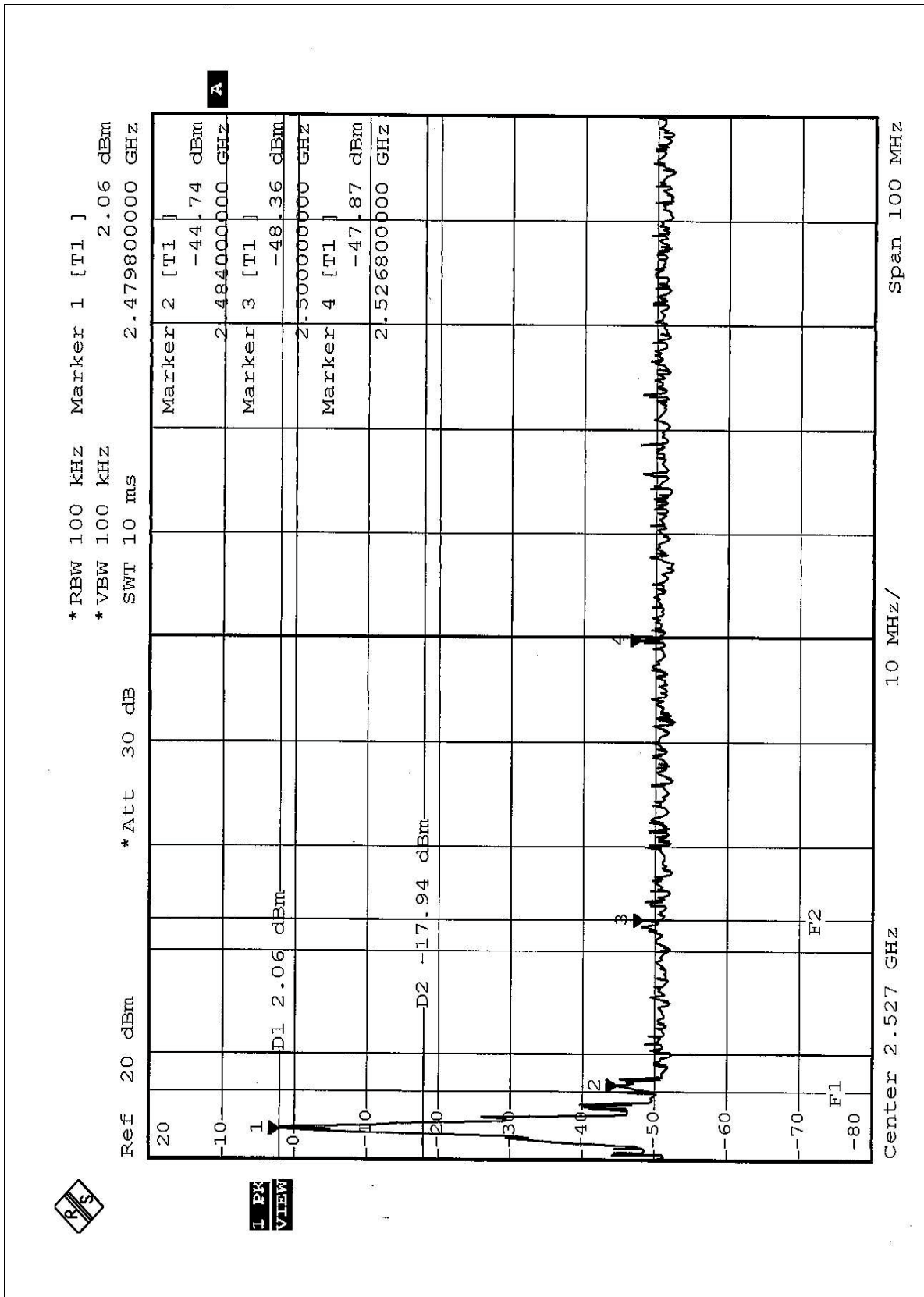
NOTE 2: The band edge emission plot on the following 3~4 pages show 46.80dB delta between carrier maximum power and local maximum emission in restrict band (2.4840GHz). The emission of carrier strength list in the test result of channel 78 at the item 5.7.6 is 65.20dBuV/m, so the maximum field strength in restrict band is $65.20 - 46.80 = 18.40$ dBuV/m which is under 54 dBuV/m limit.

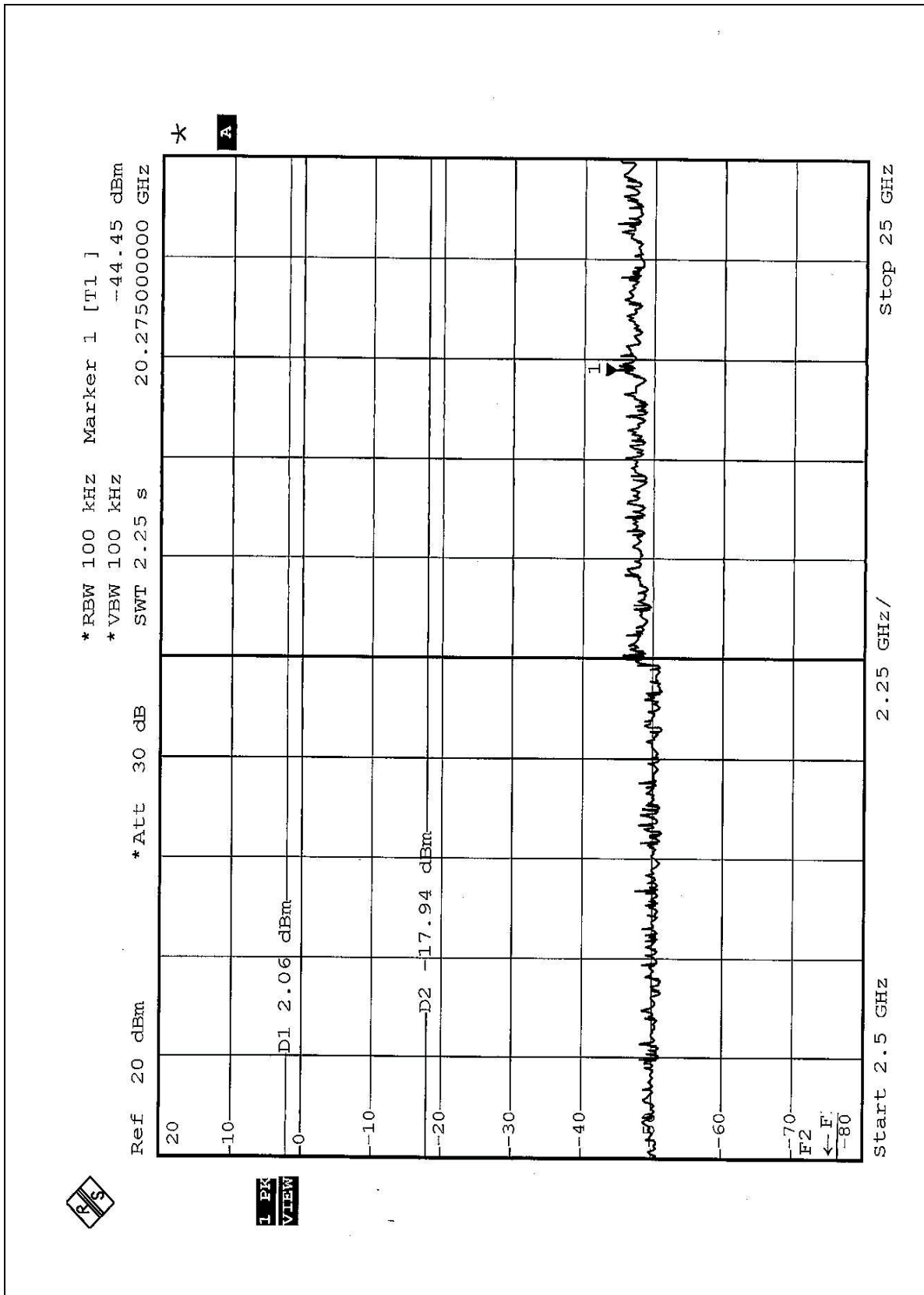
Channel 0





Channel 78





6. TEST TYPES AND RESULTS (FOR 5GHz BAND)

6.1 CONDUCTED EMISSION MEASUREMENT

6.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

6.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	838251/021	Jan. 04, 2005
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	100218	Dec. 09, 2004
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100219	Dec. 09, 2004
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100220	Dec. 09, 2004
*ROHDE & SCHWARZ 4-wire ISN	ENY41	837032/016	Nov. 19, 2004
*ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/016	Nov. 19, 2004
Software	Cond-V2M3	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C10.01	May 01, 2004
SUHNTER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010770	Mar. 24, 2004
SUHNTER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010773	Apr. 06, 2004

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. “*”: These equipment are used for conducted telecom port test only (if tested).
 3. The test was performed in ADT Shielded Room No. 10.
 4. The VCCI Site Registration No. is C-1312.



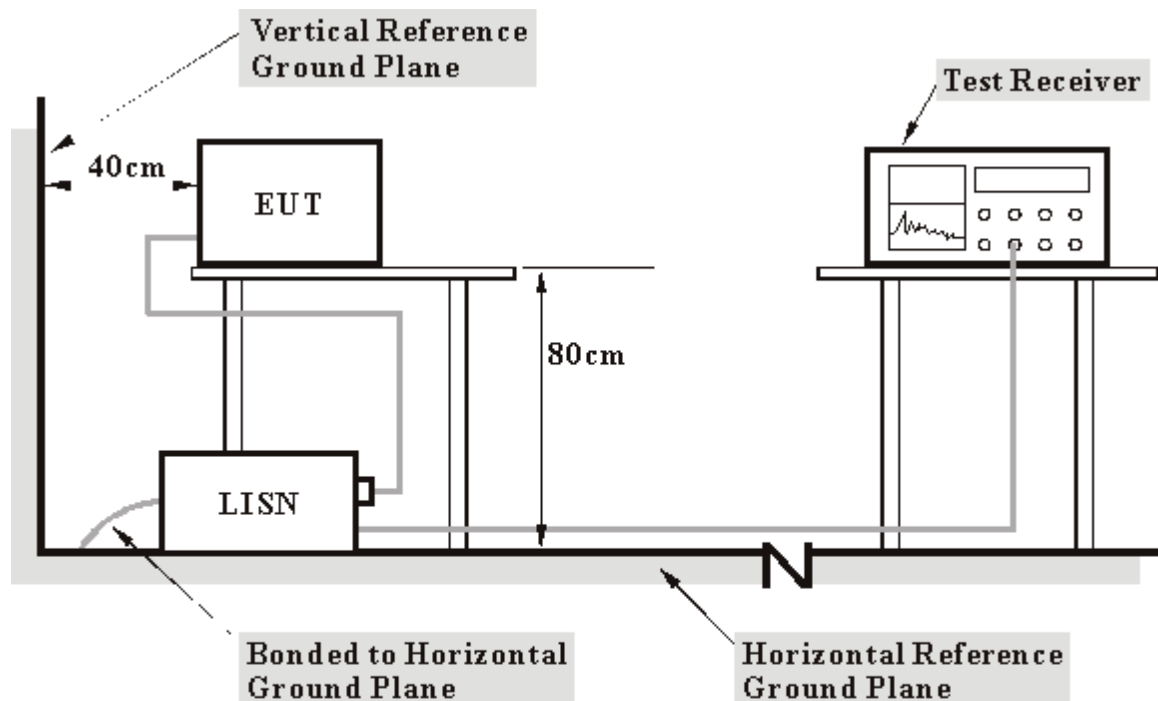
6.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

6.1.4 DEVIATION FROM TEST STANDARD

No deviation

6.1.5 TEST SETUP



- Note:** 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

6.1.6 EUT OPERATING CONDITIONS

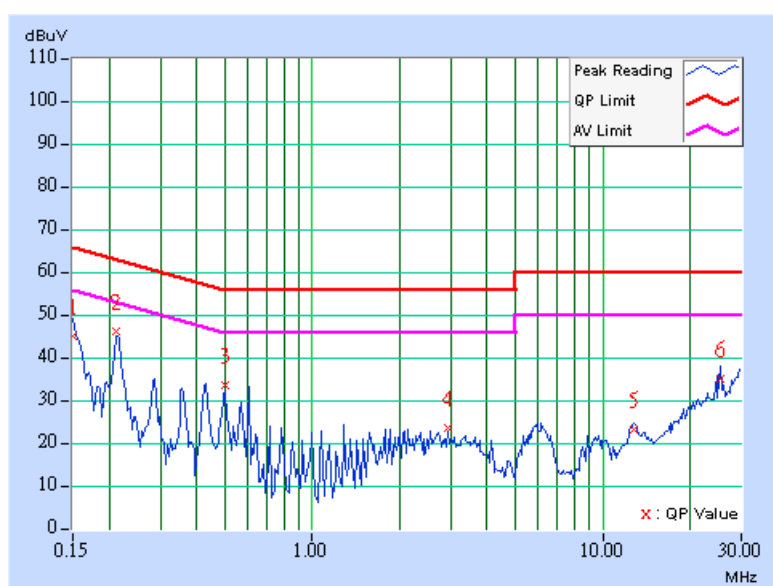
Same as 4.1.6

6.1.7 TEST RESULTS

EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
INPUT POWER (SYSTEM)	120Vac, 60 Hz	6dB BANDWIDTH	9 kHz
		PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	20deg.C, 70%RH, 991hPa	TESTED BY: Martin Lee	

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.10	43.96	-	44.06	-	66.00	56.00	-21.94	-
2	0.213	0.10	44.98	-	45.08	-	63.11	53.11	-18.03	-
3	0.502	0.12	32.58	-	32.70	-	56.00	46.00	-23.30	-
4	2.930	0.25	22.58	-	22.83	-	56.00	46.00	-33.17	-
5	12.859	0.71	22.22	-	22.93	-	60.00	50.00	-37.07	-
6	25.273	1.20	34.12	-	35.32	-	60.00	50.00	-24.68	-

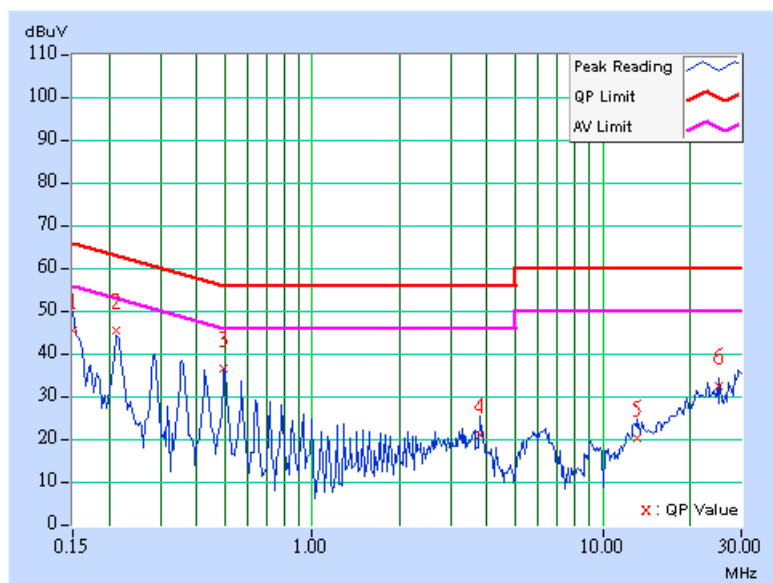
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
INPUT POWER (SYSTEM)	120Vac, 60 Hz	6dB BANDWIDTH	9 kHz
		PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	20deg.C, 70%RH, 991hPa	TESTED BY: Martin Lee	

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.10	44.70	-	44.80	-	66.00	56.00	-21.20	-
2	0.213	0.10	44.44	-	44.54	-	63.11	53.11	-18.57	-
3	0.498	0.12	35.80	-	35.92	-	56.04	46.04	-20.12	-
4	3.781	0.29	20.12	-	20.41	-	56.00	46.00	-35.59	-
5	13.213	0.63	19.44	-	20.07	-	60.00	50.00	-39.93	-
6	25.270	1.00	31.76	-	32.76	-	60.00	50.00	-27.24	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.





6.2 RADIATED EMISSION MEASUREMENT

6.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



6.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dBμV/m) *note 3
5150~5250	-27	68.3
5250~5350	-27	68.3
5725~5825	-27 *note 1	68.3
	-17 *note 2	78.3

NOTE:

1. For frequencies 10MHz or greater above or below the band edge.
2. All emissions within the frequency range from the band edge to 10MHz above or below the band edge.
3. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where } P \text{ is the eirp (Watts)}$$



6.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
*HP Spectrum Analyzer	8593E	3911A07465	Jul. 07, 2004
*HP Preamplifier	8447D	2944A10386	Aug. 12, 2004
* HP Preamplifier	8449B	3008A01292	Aug. 11, 2004
SCHAFFNER Tunable Dipole Antenna	VHBA 9123	459	Jun. 26, 2004
SCHWARZBECK Tunable Dipole Antenna	UHA 9105	977	
*SCHAFFNER TEST RECEIVER	SCR 3501	409	Nov. 06, 2004
* SCHAFFNER BILOG Antenna	CBL6111C	2727	Jul. 15, 2004
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	Jun. 30, 2004
* ADT. Turn Table	TT100	0201	NA
* ADT. Tower	AT100	0201	NA
* Software	ADT_Radiated_V5.14	NA	NA
* ANRITSU RF Switches	MP59B	6100237246	Oct. 17, 2004
* TIMES RF cable	LMR-600	CABLE-ST10-01	Oct. 17, 2004

- NOTE:** 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. "*" = These equipment are used for the final measurement.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The test was performed in ADT Open Site No. 10.
5. The VCCI Site Registration No. is R-1625.



6.2.4 TEST PROCEDURES

- g. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meters open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- h. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- i. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- j. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- k. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- l. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

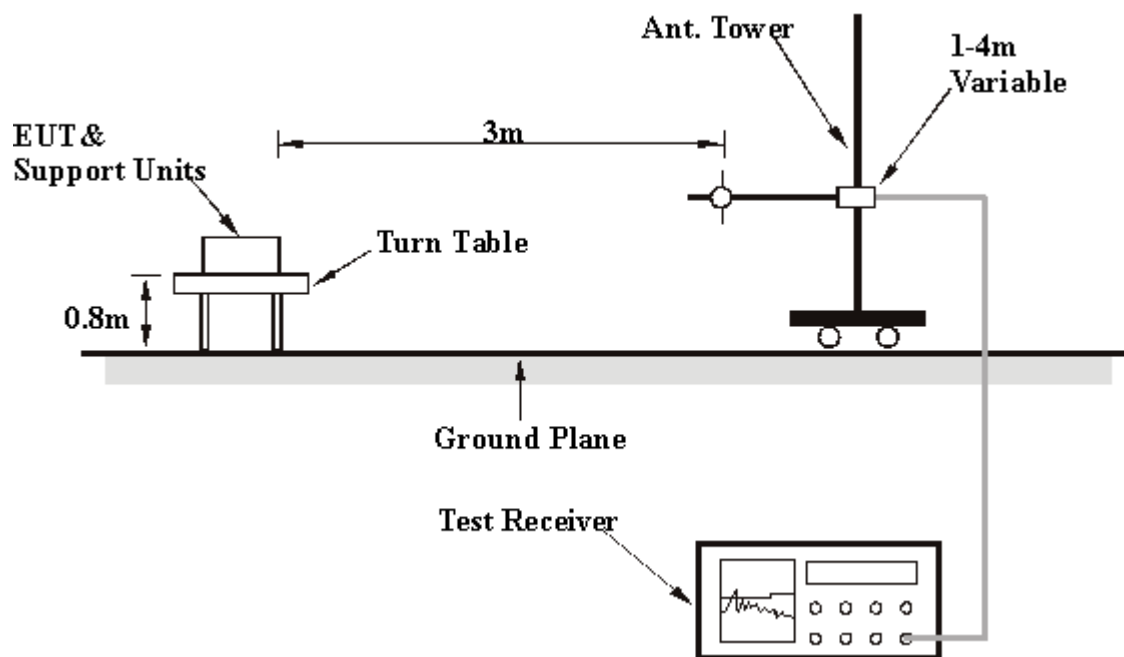
NOTE:

- 4. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
- 5. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
- 6. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

6.2.5 DEVIATION FROM TEST STANDARD

No deviation

6.2.6 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

6.2.7 EUT OPERATING CONDITIONS

Same as 4.1.6

6.2.8 TEST RESULTS

EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
FREQUENCY RANGE	Below 1000MHz	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	15deg.C, 85%RH, 991hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY	Jun Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.42	32.47 QP	40.00	-7.53	2.41 H	233	12.26	20.21
2	38.68	29.87 QP	40.00	-10.13	2.41 H	193	15.62	14.25
3	133.20	29.05 QP	43.50	-14.45	2.31 H	339	16.56	12.49
4	162.00	25.50 QP	43.50	-18.00	2.37 H	199	14.81	10.69
5	193.25	25.36 QP	43.50	-18.14	2.27 H	17	15.02	10.34
6	202.55	21.87 QP	43.50	-21.63	2.27 H	66	11.22	10.65
7	336.00	28.60 QP	46.00	-17.40	1.00 H	223	11.60	17.00
8	398.90	34.13 QP	46.00	-11.87	1.00 H	40	14.76	19.37
9	597.00	32.69 QP	46.00	-13.31	1.00 H	67	8.30	24.39
10	668.00	32.61 QP	46.00	-13.39	1.00 H	42	6.87	25.74
11	746.50	31.63 QP	46.00	-14.37	1.00 H	231	4.32	27.31

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.55	36.80 QP	40.00	-3.20	1.00 V	20	16.70	20.10
2	78.25	30.71 QP	40.00	-9.29	1.00 V	238	23.15	7.56
3	133.50	40.24 QP	43.50	-3.26	1.00 V	0	27.75	12.49
4	159.50	28.22 QP	43.50	-15.28	1.00 V	220	17.42	10.80
5	399.00	36.48 QP	46.00	-9.52	1.60 V	264	17.10	19.38
6	433.00	33.49 QP	46.00	-12.51	1.51 V	317	13.44	20.05
7	565.00	30.65 QP	46.00	-15.35	1.00 V	159	6.98	23.67
8	600.00	31.22 QP	46.00	-14.78	1.00 V	129	6.76	24.46
9	632.00	30.24 QP	46.00	-15.76	1.00 V	101	5.03	25.21
10	768.30	29.10 QP	46.00	-16.90	1.00 V	258	1.77	27.33

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	1	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	15deg.C, 85%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	Jun Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5150.00	48.13 PK	74.00	-25.87	1.15 H	66	10.09	38.05
2	*5180.00	98.85 PK			1.15 H	66	60.68	38.17
2	*5180.00	89.34 AV			1.15 H	66	51.17	38.17
3	10360.00	61.26 PK	68.30	-12.74	1.36 H	50	16.73	44.52

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5150.00	51.45 PK	74.00	-22.55	1.11 V	360	13.41	38.05
1	#5150.00	42.95 AV	54.00	-11.05	1.11 V	360	4.91	38.05
2	*5180.00	104.17 PK			1.05 V	81	66.00	38.17
2	*5180.00	94.67 AV			1.05 V	81	56.50	38.17
3	10360.00	60.93 PK	68.30	-13.07	1.02 V	80	16.40	44.52

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. "*" : Fundamental frequency.
 6. "# " : The radiated frequency falling in the restricted band.

EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	4	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	15deg.C, 85%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	Jun Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	96.85 PK			1.00 H	57	58.50	38.35
1	*5240.00	88.02 AV			1.00 H	57	49.67	38.35
2	10479.00	56.95 PK	68.30	-17.05	1.44 H	125	12.51	44.44
2	10479.00	44.25 AV	68.30	-9.75	1.44 H	125	-0.19	44.44

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	104.68 PK			1.00 V	84	66.33	38.35
1	*5240.00	95.02 AV			1.00 V	84	56.67	38.35
2	10479.00	61.25 PK	68.30	-12.75	1.38 V	87	16.81	44.44

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. "*" : Fundamental frequency.
 6. "# " : The radiated frequency falling in the restricted band.

EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	5	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	15deg.C, 85%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	Jun Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5260.00	94.19 PK			1.39 H	126	55.80	38.39
1	*5260.00	85.56 AV			1.39 H	126	47.17	38.39
2	10520.00	56.40 PK	68.30	-17.60	1.24 H	120	12.02	44.38
2	10520.00	46.80 AV	68.30	-7.20	1.24 H	120	2.42	44.38

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5260.00	104.06 PK			1.00 V	80	65.67	38.39
1	*5260.00	94.56 AV			1.00 V	80	56.17	38.39
2	10520.00	57.61 PK	68.30	-16.39	1.05 V	69	13.23	44.38

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. "*" : Fundamental frequency.
 6. "#" : The radiated frequency falling in the restricted band.

EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	8	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	15deg.C, 85%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	Jun Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	98.37 PK			1.03 H	55	59.83	38.54
1	*5320.00	89.04 AV			1.03 H	55	50.50	38.54
2	#5350.00	46.20 PK	74.00	-27.80	1.03 H	55	7.59	38.61
3	#10640.00	56.64 PK	74.00	-17.36	1.42 H	214	12.36	44.28
3	#10640.00	44.04 AV	54.00	-9.96	1.42 H	214	-0.24	44.28

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	104.04 PK			1.00 V	82	65.50	38.54
1	*5320.00	94.54 AV			1.00 V	82	56.00	38.54
2	#5350.00	51.87 PK	74.00	-22.13	1.00 V	82	13.26	38.61
2	#5350.00	42.37 AV	54.00	-11.63	1.00 V	82	3.76	38.61
3	#10640.00	58.61 PK	74.00	-15.39	1.45 V	89	14.33	44.28
3	#10640.00	46.94 AV	54.00	-7.06	1.45 V	89	2.66	44.28

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “*” : Fundamental frequency.
 6. “#” : The radiated frequency falling in the restricted band.

EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	9	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	15deg.C, 85%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	Jun Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5715.00	62.30 PK	68.30	-6.00	1.11 H	105	23.26	39.04
2	5725.00	67.40 PK	78.30	-10.90	1.11 H	105	28.35	39.05
3	*5745.00	96.76 PK			1.11 H	105	57.67	39.09
3	*5745.00	86.76 AV			1.11 H	105	47.67	39.09
4	#11487.00	62.42 PK	74.00	-11.58	1.39 H	99	16.65	45.77
4	#11487.00	48.42 AV	54.00	-5.58	1.39 H	99	2.65	45.77

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5715.00	62.30 PK	68.30	-6.00	1.03 V	80	23.26	39.04
2	5725.00	67.70 PK	78.30	-10.60	1.03 V	80	28.65	39.05
3	*5745.00	104.26 PK			1.03 V	80	65.17	39.09
3	*5745.00	91.26 AV			1.03 V	80	52.17	39.09
4	#11487.00	61.76 PK	74.00	-12.24	1.00 V	96	15.99	45.77
4	#11487.00	46.42 AV	54.00	-7.58	1.00 V	96	0.65	45.77

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “*” : Fundamental frequency.
 6. “#” : The radiated frequency falling in the restricted band.



EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	12	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	15deg.C, 85%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	Jun Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5805.00	99.36 PK			1.10 H	159	60.17	39.19
1	*5805.00	88.86 AV			1.10 H	159	49.67	39.19
2	5825.00	66.50 PK	78.30	-11.80	1.10 H	159	27.31	39.19
3	5835.00	66.30 PK	68.30	-2.00	1.10 H	159	27.10	39.20
4	#11607.00	65.54 PK	74.00	-8.46	1.00 H	109	19.45	46.09
4	#11607.00	50.70 AV	54.00	-3.30	1.00 H	109	4.61	46.09

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5805.00	104.69 PK			1.00 V	87	65.50	39.19
1	*5805.00	93.86 AV			1.00 V	87	54.67	39.19
2	5825.00	67.30 PK	78.30	-11.00	1.00 V	87	28.11	39.19
3	5835.00	64.20 PK	68.30	-4.10	1.00 V	87	25.00	39.20
4	#11607.00	64.37 PK	74.00	-9.63	1.42 V	87	18.28	46.09
4	#11607.00	49.54 AV	54.00	-4.46	1.42 V	87	3.45	46.09

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “*” : Fundamental frequency.
 6. “#” : The radiated frequency falling in the restricted band.

6.3 PEAK TRANSMIT POWER MEASUREMENT

6.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

FREQUENCY BAND	LIMIT
5.15 – 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

NOTE: Where B is the 26dB emission bandwidth in MHz.

6.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
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.

6.3.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth of the signal.
3. Set RBW to 1MHz, VBW to 300kHz.
4. Using the spectrum analyzer's channel power measurement function to measure the output power.

6.3.4 DEVIATION FROM TEST STANDARD

No deviation

6.3.5 TEST SETUP



6.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

6.3.7 TEST RESULTS

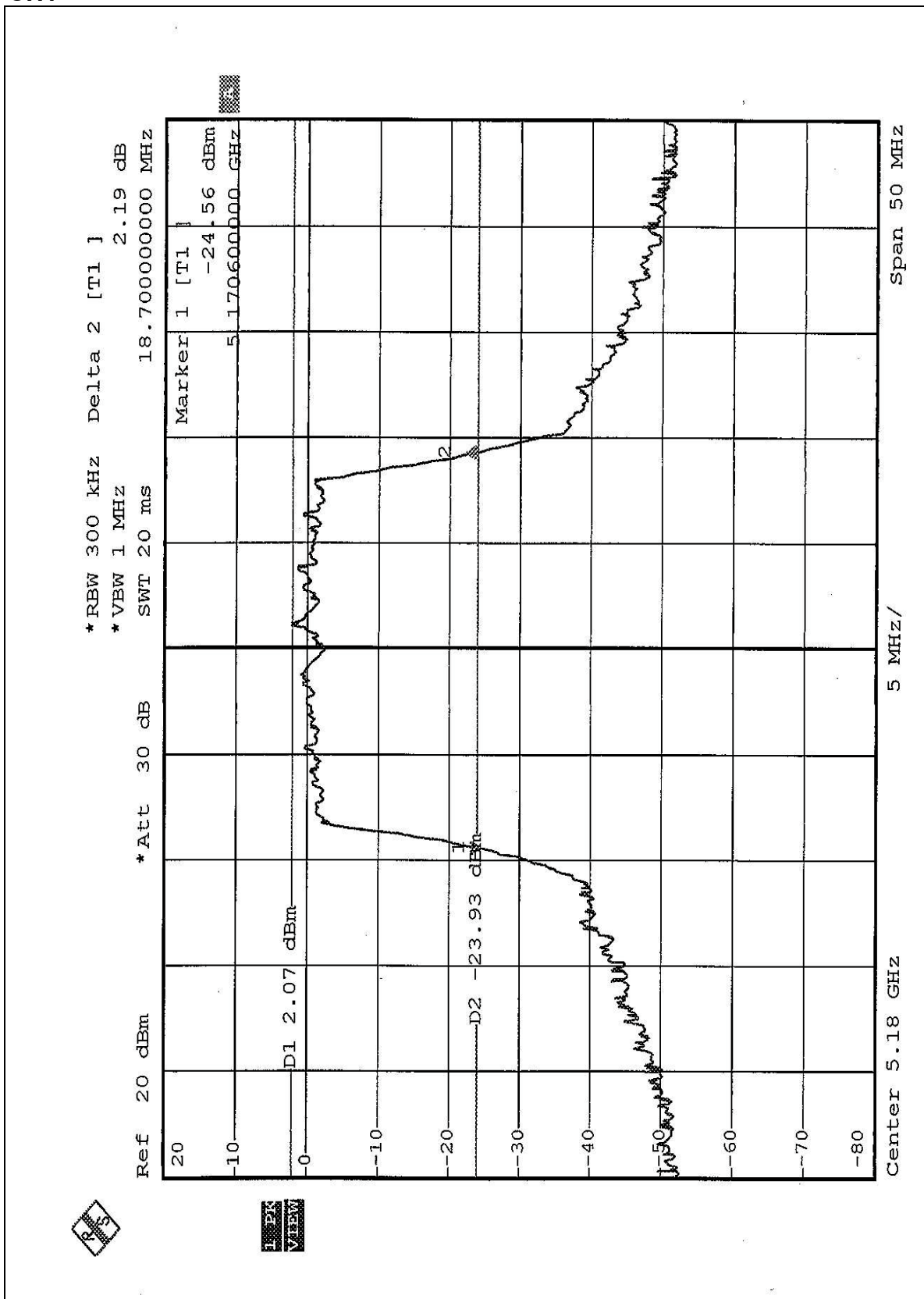
EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY: Steven Lu			

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5180	12.50	17	18.7	PASS
4	5240	12.51	17	18.9	PASS
5	5260	12.65	24	18.9	PASS
8	5320	12.51	24	18.7	PASS
9	5745	12.51	30	18.9	PASS
12	5805	12.51	30	19.0	PASS

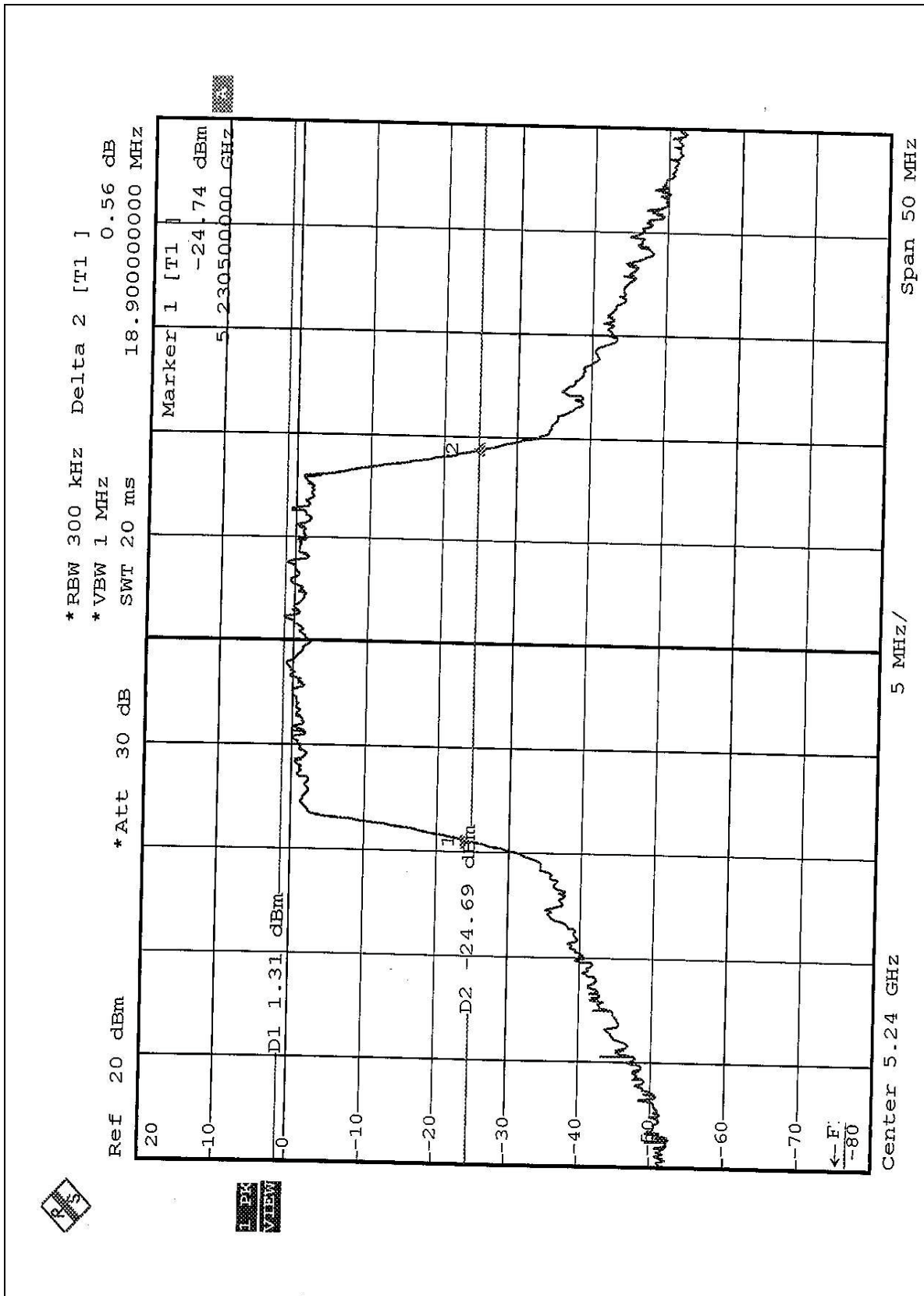
NOTE: For the plot of 26dBc Occupied Bandwidth and Peak Power Output value, please refer to the following pages.

Occupied Bandwidth

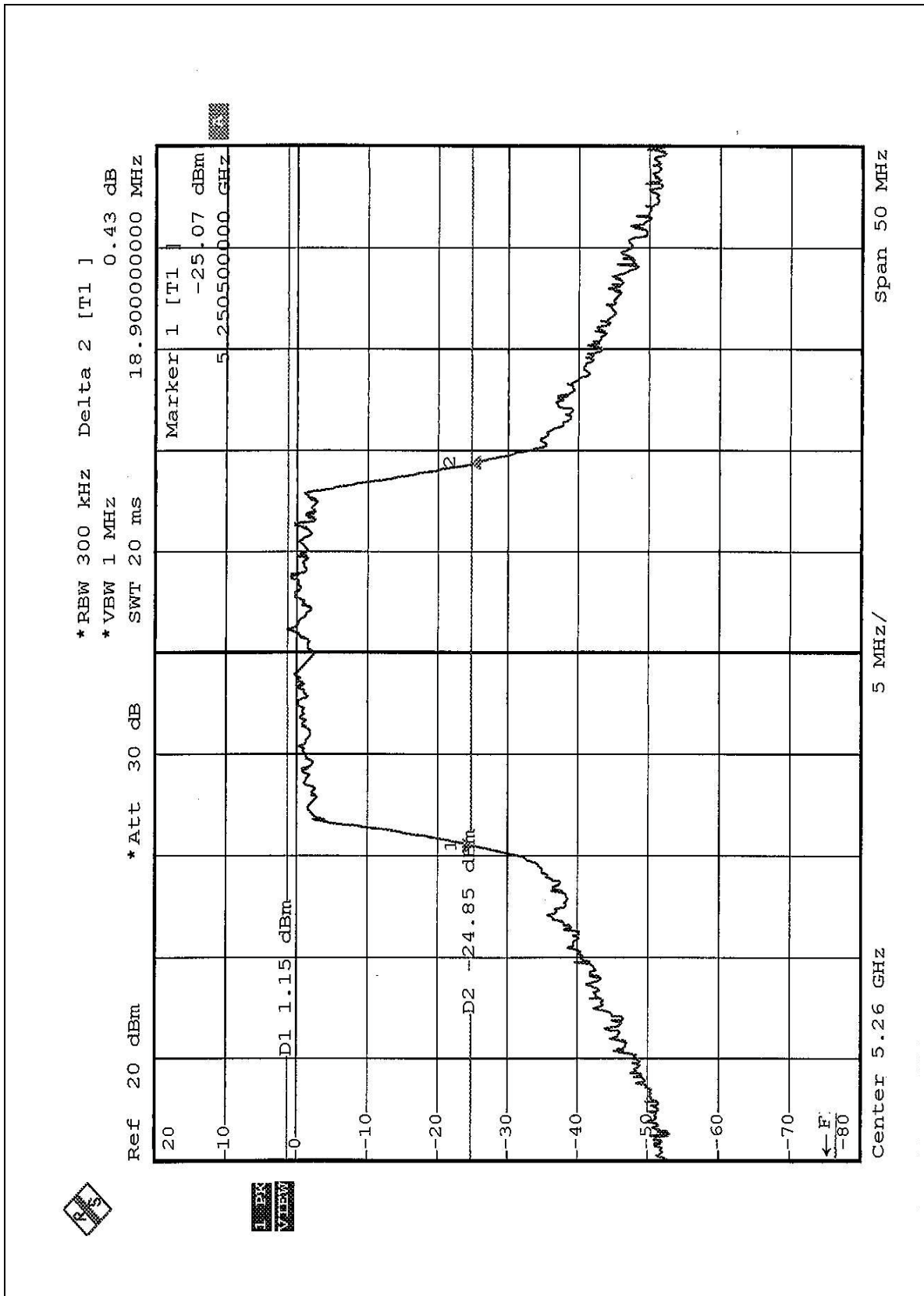
CH1



CH4



CH5



CH8

