

FCC TEST REPORT

REPORT NO.: RF930503L04J

MODEL NO.: AP431W

RECEIVED: Feb. 07, 2007

TESTED: Feb. 12 to 14, 2007

APPLICANT: Alpha Networks Inc.

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Park, Hsinchu, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

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1 CERTIFICATION

PRODUCT : Super G™ Wireless Access Point
BRAND NAME : AirLink101
MODEL NO. : AP431W
TESTED: Feb. 12 to 14, 2007
APPLICANT : Alpha Networks Inc.
TEST ITEM: ENGINEERING SAMPLE
STANDARDS : 47 CFR Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment (Model: AP431W) has been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Carol Liao , **DATE:** Feb. 27, 2007
(Carol Liao)

TECHNICAL
ACCEPTANCE : Moris Lin , **DATE:** Feb. 27, 2007
Responsible for RF (Moris Lin)

APPROVED BY : Hank Chung , **DATE:** Feb. 27, 2007
(Hank Chung, Deputy Manager)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit Minimum passing margin is -10.14 dB at 0.177 MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit
15.247(c)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is -1.10 dB at 2483.5 MHz
15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit
15.247(c)	Band Edge Measurement Limit: 20 dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Measurement	Value
Conducted emissions	2.26 dB
Radiated emissions (30MHz-1GHz)	2.98 dB
Radiated emissions (1GHz ~18GHz)	2.21 dB
Radiated emissions (18GHz ~40GHz)	1.88 dB

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Super G™ Wireless Access Point
MODEL NO.	AP431W
FCC ID	RRK-AP431W
POWER SUPPLY	5VDC from Power adapter
MODULATION TYPE	CCK, OFDM, DBPSK, DQPSK
RADIO TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	1/2/5.5/6/9/11/12/18/24/36/48/54Mbps (Turbo mode at channel 6: up to 108Mbps)
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	802.11b: 112.202mW 802.11g: 120.226mW
ANTENNA TYPE	Please see note 1
DATA CABLE	Ethernet cable (1.8m) x 1
I/O PORTS	RJ45 port x 1
ASSOCIATED DEVICES	Ethernet cable (1.8m) x 1

NOTE:

1. There are two antennas provided to this EUT, please refer to the following table:

No.	Gain (dBi)	Antenna Type	Antenna Connector
1	2 dBi	Dipole antenna	R-SMA connector
2	-1.0 dBi	Printed antenna on PCB board (only for RX function)	NA

2. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 54Mbps. (Turbo mode up to 108Mbps)
3. The EUT complies with IEEE 802.11g standards, and backwards compatible with IEEE 802.11b products.

4. The EUT was powered by following power adapters:

Adapter 1:	
Brand:	AMIGO
Model No.:	AM-0502000D
Input power :	120VAC, 60Hz, 30W
Output power :	5.0VDC===2000mA
Adapter 2:	
Brand:	D-Link
Model No.:	JTA0302A
Input power :	100-120V ~ 0.5A, 50-60Hz
Output power :	DC 5V===2A

5. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

For 802.11b/g: Eleven channels are provided to this EUT.

Channel	Frequency	Channel	Frequency
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

For 802.11g turbo mode: One channel is provided to this EUT

Channel	Frequency
6	2437 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT configure mode	Applicable to				Description
	PLC	RE<1G	RE≥1G	APCM	
-	√	√	√	√	NA

Where PLC: Power Line Conducted Emission

RE<1G RE: Radiated Emission below 1GHz

RE≥1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

Power Line Conducted Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11g	1 to 11	1	OFDM	BPSK	6

- ☒ The EUT was tested with the following modes:

Test Mode	Description
Mode 1	With Adapter 1
Mode 2	With Adapter 2

Radiated Emission Test (Below 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11b	1 to 11	1	DSSS	CCK	11

- ☒ The EUT was tested with the following modes:

Test Mode	Description
Mode 1	With Adapter 1
Mode 2	With Adapter 2

Radiated Emission Test (Above 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	CCK	11
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11g turbo	6	6	OFDM	BPSK	12

☒ For spurious emissions (Above 1GHz), the EUT was pre-tested in chamber as the following test modes:

Test Mode	Description
Mode 1	With Adapter 1
Mode 2	With Adapter 2

Mode 1, the worse case one, was chosen for final test.

Bandedge Measurement:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11b	1 to 11	1, 11	DSSS	CCK	11
802.11g	1 to 11	1, 11	OFDM	BPSK	6
802.11g turbo	6	6	OFDM	BPSK	12

Antenna Port Conducted Measurement:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	CCK	11
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11g turbo	6	6	OFDM	BPSK	12

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Super G™ Wireless Access Point. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C. (15.247)
ANSI C63.4 : 2003

All tests have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of 47 CFR Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

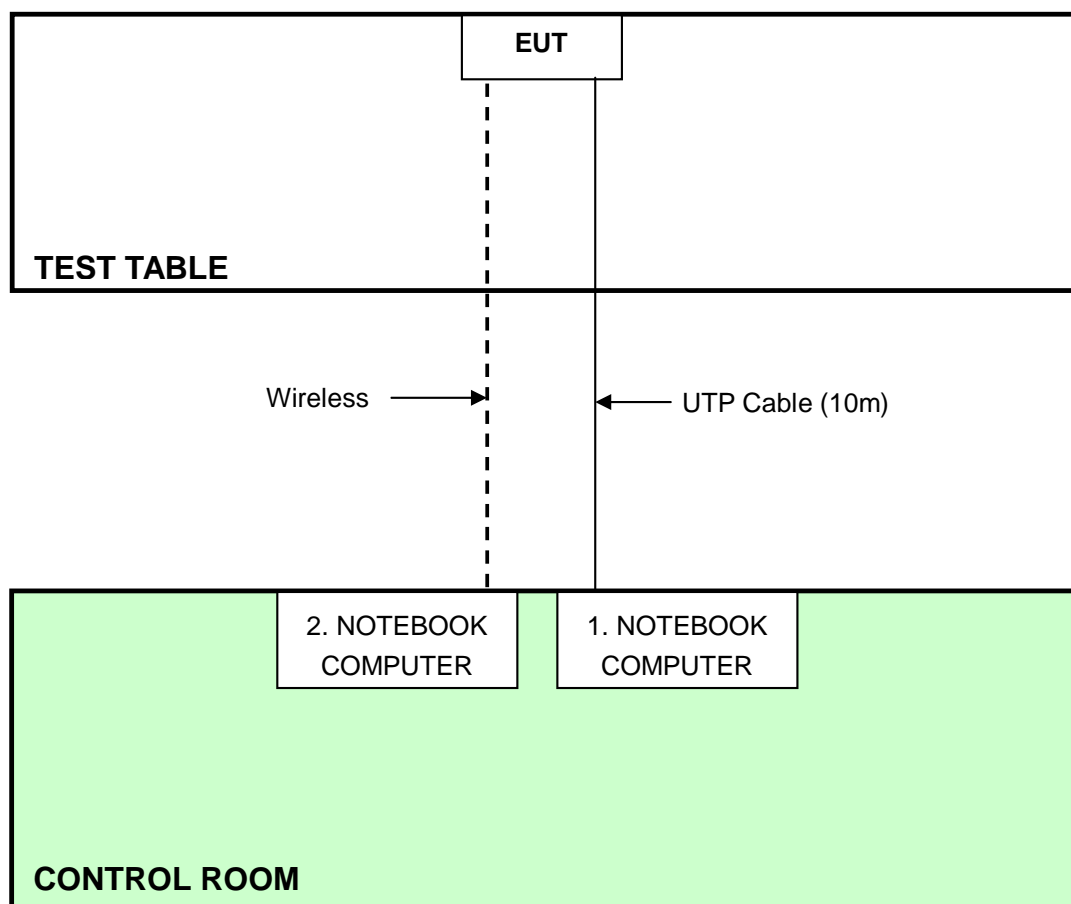
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP19L	CN-OHC416-70166- 5CA-0448	PIW632500516610
2	NOTEBOOK COMPUTER	DELL	PP21L	CN-0GD366-70166-5 B3-09ZX	QDS-BRCM1016

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA

NOTE: All power cords of the above support units are non-shielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST



NOTE: 1. Support unit 1 and 2 were kept in the control room during the test.
2. Please refer to the photos of test configuration

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. All emanations from a class B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

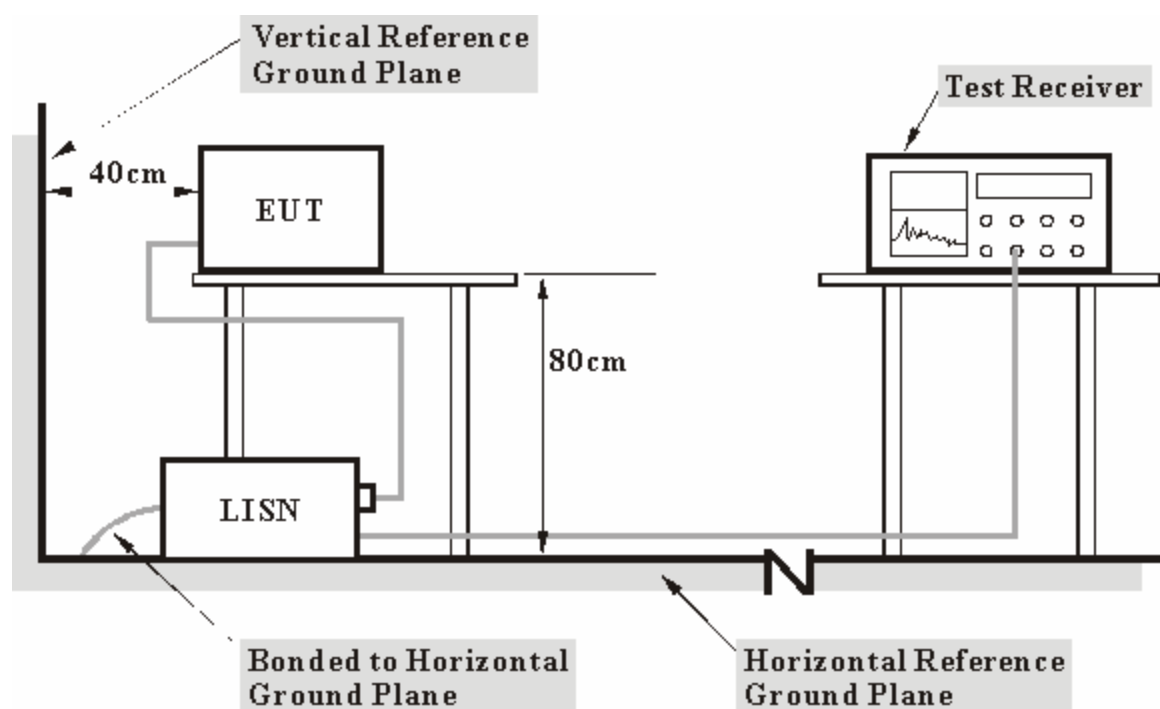
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver	ESCS 30	847124/029	Dec. 14, 2007
Line-Impedance Stabilization Network(for EUT)	ENV-216	100071	Nov. 26, 2007
Line-Impedance Stabilization Network(for Peripheral)	KNW-407	8/1395/12	Aug. 15, 2007
RF Cable (JETBAO)	RG233/U	Cable_CB_01	Dec. 09, 2007
Terminator	50	2	Oct. 30, 2007
Software	ADT_Cond_V7.3.2	NA	NA

- 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. The test was performed in ADT Shielded Room No. B.
3. The VCCI Con B Registration No. is C-2193.

4.1.3 TEST PROCEDURES

- The EUT/HOST was placed 0.4 meters from the conducting wall of the shielded room with EUT/HOST 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.
- Both lines of the power mains connected to the EUT/HOST were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

4.1.4 TEST SETUP



- Note:**
- Support units were connected to second LISN.
 - 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.

4.1.5 EUT OPERATING CONDITIONS

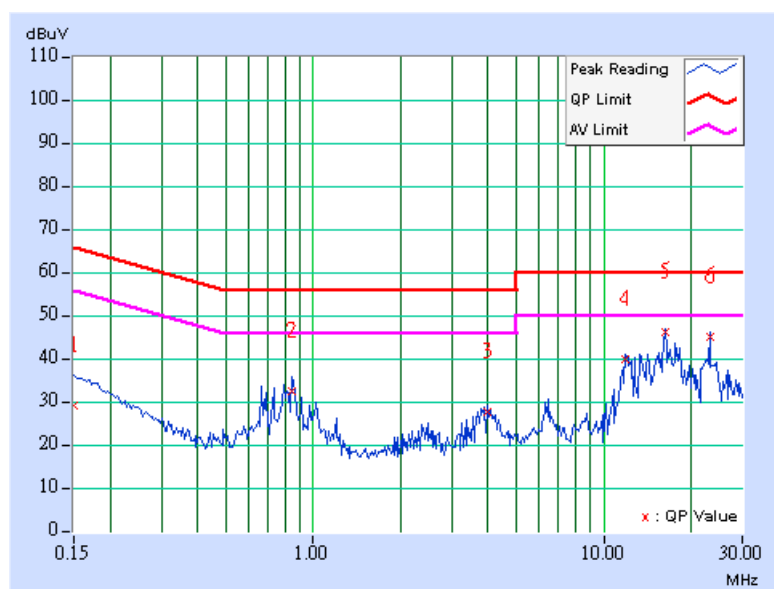
- a. Placed the EUT on the testing table.
- b. Prepared other computer systems to act as communication partners and placed them outside of testing area.
- c. The communication partner run “Art 485” test program to enable EUT under transmission/receiving condition continuously at specific channel frequency via UTP cable and wireless.

4.1.6 TEST RESULTS

TEST MODE	Mode 1	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 970 hPa	TESTED BY	Rex Huang

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	9.60	19.29	-	28.89	-	66.00	56.00	-37.11	-
2	0.849	9.60	22.60	-	32.20	-	56.00	46.00	-23.80	-
3	3.961	9.70	17.62	-	27.32	-	56.00	46.00	-28.68	-
4	11.891	9.98	29.97	-	39.95	-	60.00	50.00	-20.05	-
5	16.227	10.10	36.16	-	46.26	-	60.00	50.00	-13.74	-
6	23.129	10.10	35.25	-	45.35	-	60.00	50.00	-14.65	-

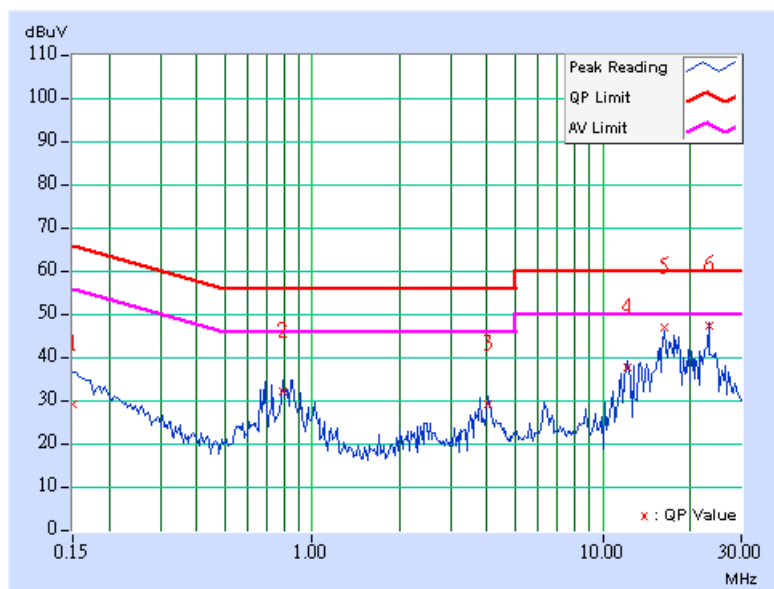
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



TEST MODE	Mode 1	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 970 hPa	TESTED BY	Rex Huang

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	9.60	19.34	-	28.94	-	66.00	56.00	-37.06	-
2	0.791	9.60	22.09	-	31.69	-	56.00	46.00	-24.31	-
3	4.016	9.70	19.12	-	28.82	-	56.00	46.00	-27.18	-
4	12.199	9.94	27.67	-	37.61	-	60.00	50.00	-22.39	-
5	16.227	10.02	36.98	-	47.00	-	60.00	50.00	-13.00	-
6	23.129	10.10	37.25	-	47.35	-	60.00	50.00	-12.65	-

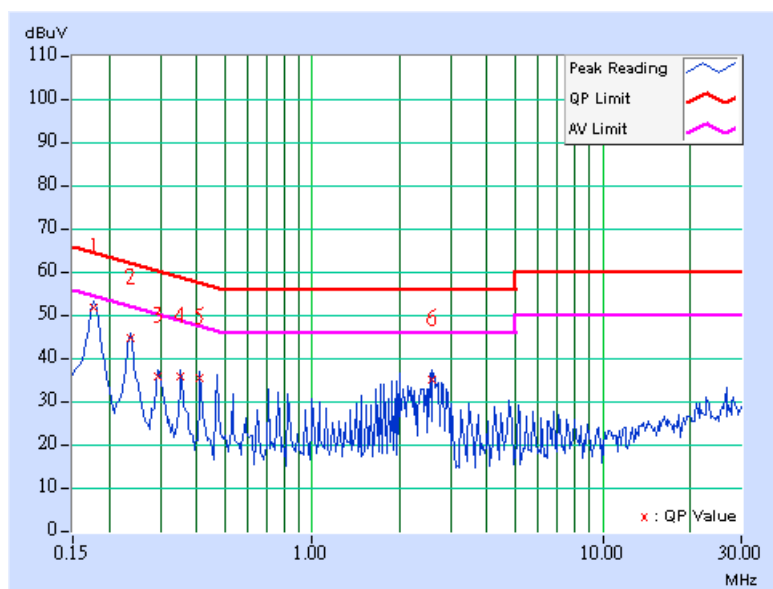
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



TEST MODE	Mode 2	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 970 hPa	TESTED BY	Rex Huang

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	9.33	42.60	-	51.93	-	64.61	54.61	-12.67	-
2	0.236	9.21	35.46	-	44.67	-	62.24	52.24	-17.57	-
3	0.295	9.20	26.62	-	35.82	-	60.40	50.40	-24.57	-
4	0.353	9.20	26.70	-	35.90	-	58.89	48.89	-22.99	-
5	0.412	9.20	26.40	-	35.60	-	57.61	47.61	-22.02	-
6	2.595	9.27	25.96	-	35.23	-	56.00	46.00	-20.77	-

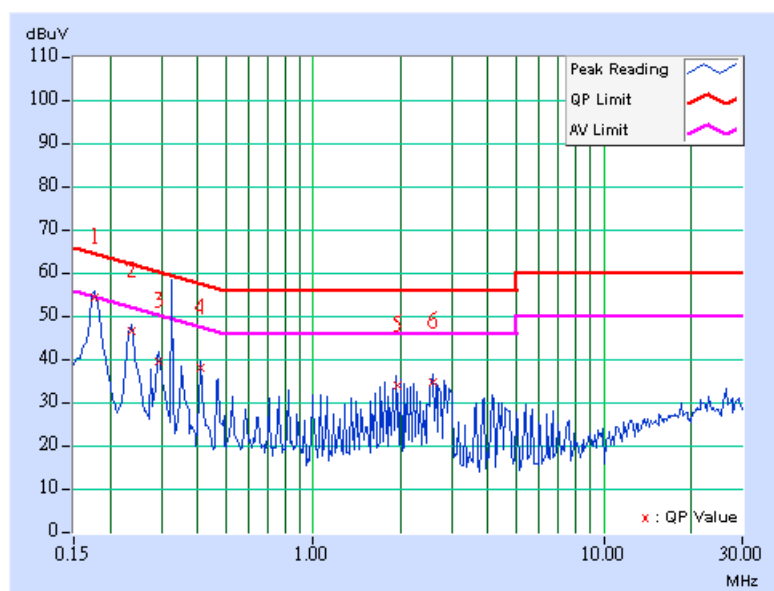
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



TEST MODE	Mode 2	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 970 hPa	TESTED BY	Rex Huang

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	9.19	45.28	-	54.47	-	64.61	54.61	-10.14	-
2	0.236	9.20	37.42	-	46.62	-	62.24	52.24	-15.62	-
3	0.295	9.21	30.26	-	39.47	-	60.40	50.40	-20.93	-
4	0.412	9.23	28.70	-	37.93	-	57.61	47.61	-19.68	-
5	1.942	9.29	24.76	-	34.05	-	56.00	46.00	-21.95	-
6	2.590	9.34	25.39	-	34.73	-	56.00	46.00	-21.27	-

- 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.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Field strength limits are at the distance of 3 meters, 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.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 03, 2007
HP Pre_Amplifier	8449B	3008A01922	Sep. 18, 2007
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	Sep. 20, 2007
CHASE Broadband Antenna	VULB 9168	138	Dec. 10, 2007
Schwarzbeck Horn_Antenna	BBHA9120	D124	Jan. 01, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 04, 2008
SCHWARZBECK Biconical Antenna	VHBA9123	459	Jun. 08, 2009
SCHWARZBECK Periodic Antenna	UPA6108	1148	Jun. 08, 2009
R&S Loop Antenna	HFH2-Z2	881058/15	Nov. 29, 2007
RF Switches (ARNITSU)	CS-201	1565157	NA
RF CABLE (Chaintek)	SF102	22054-2	Nov. 14, 2007
RF Cable(RICHTEC)	9913-30M N-N Cable	STCCAB-30M-1 GHz	Jul. 15, 2007
Software	ADT_Radiated_V 5.14	NA	NA
CHANCE MOST Antenna Tower	AT-100	0203	NA
CHANCE MOST Turn Table	TT-100	0203	NA

- Note: 1. The calibration interval of the above test instruments is 12 months (36 months for Biconical and Periodic Antenna) and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in ADT Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 4824A-3.
7. Loop antenna was used for all emissions below 30 MHz.

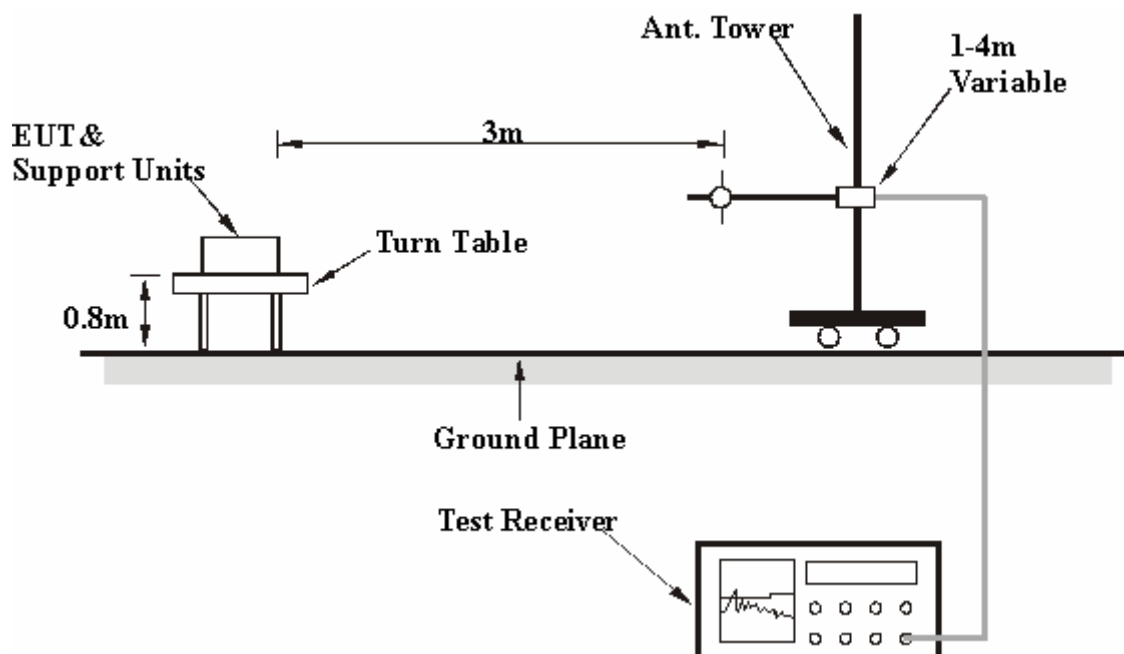
4.2.3 TEST PROCEDURES

- 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 300 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 TEST SETUP



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

4.2.5 EUT OPERATING CONDITIONS

Same as 4.1.5.

4.2.6 TEST RESULTS

TEST MODE	Mode 1	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 63%RH, 970 hPa	TESTED BY	Tony Chen

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	125.00	33.30 QP	43.50	-10.20	1.18 H	287	21.00	12.20
2	368.00	33.20 QP	46.00	-12.80	1.11 H	163	15.20	18.00
3	460.00	37.00 QP	46.00	-9.00	1.56 H	242	16.20	20.70
4	552.00	40.80 QP	46.00	-5.20	1.61 H	19	17.50	23.30
5	828.00	34.30 QP	46.00	-11.70	1.05 H	154	6.20	28.00
6	920.00	33.60 QP	46.00	-12.40	1.19 H	306	4.30	29.30

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	33.15	36.80 QP	40.00	-3.20	1.23 V	82	24.50	12.30
2	55.57	37.80 QP	40.00	-2.20	1.25 V	48	23.40	14.30
3	125.00	35.40 QP	43.50	-8.10	1.11 V	201	23.20	12.20
4	368.00	34.00 QP	46.00	-12.00	1.30 V	127	16.00	18.00
5	459.99	31.80 QP	46.00	-14.20	1.30 V	263	11.10	20.70
6	552.00	33.40 QP	46.00	-12.60	1.26 V	198	10.10	23.30
7	828.00	34.10 QP	46.00	-11.90	1.06 V	236	6.10	28.00
8	920.00	38.00 QP	46.00	-8.00	1.12 V	219	8.70	29.30

- 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.

TEST MODE	Mode 2	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 63%RH, 970 hPa	TESTED BY	Tony Chen

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	125.01	31.50 QP	43.50	-12.00	1.25 H	9	22.20	9.30
2	140.00	28.60 QP	43.50	-14.90	1.05 H	32	19.90	8.70
3	249.96	29.90 QP	46.00	-16.10	1.43 H	42	17.60	12.30
4	280.00	32.60 QP	46.00	-13.40	1.11 H	65	18.30	14.30
5	288.94	29.60 QP	46.00	-16.40	1.11 H	54	14.40	15.20
6	369.98	28.90 QP	46.00	-17.10	3.71 H	9	8.20	20.70
7	460.10	23.20 QP	46.00	-22.80	1.54 H	161	-1.50	24.70
8	639.99	30.90 QP	46.00	-15.10	2.00 H	108	1.20	29.70
9	680.01	29.90 QP	46.00	-16.10	2.86 H	95	0.20	29.70
10	919.97	34.60 QP	46.00	-11.40	1.74 H	147	-1.10	35.60

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	125.01	34.30 QP	43.50	-9.20	1.01 V	249	19.70	14.60
2	249.98	31.40 QP	46.00	-14.60	1.07 V	6	14.30	17.10
3	250.00	29.70 QP	46.00	-16.30	1.10 V	54	12.60	17.10
4	280.01	32.50 QP	46.00	-13.50	1.25 V	54	13.60	18.90
5	320.00	25.20 QP	46.00	-20.80	1.00 V	87	7.80	17.40
6	368.94	29.20 QP	46.00	-16.80	1.43 V	9	11.70	17.60
7	375.01	26.40 QP	46.00	-19.60	1.73 V	35	9.00	17.30
8	375.01	30.80 QP	46.00	-15.20	1.52 V	248	13.50	17.30
9	460.02	32.70 QP	46.00	-13.30	1.32 V	65	12.50	20.20
10	680.02	32.50 QP	46.00	-13.50	2.35 V	24	2.30	30.20

- 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.

4.2.7 TEST RESULTS – DSSS

MODE	Channel 1	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	30 deg. C, 55%RH, 968 hPa	TESTED BY	Tony Chen

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	1.42 H	25	15.40	30.40
2	*2412.00	99.60 PK			1.14 H	0	69.10	30.50
2	*2412.00	93.40 AV			1.14 H	0	62.80	30.50
3	4824.00	43.70 PK	74.00	-30.30	1.57 H	331	7.40	36.20
4	7236.00	45.50 PK	74.00	-28.50	1.18 H	337	3.80	41.70
5	9648.00	47.50 PK	74.00	-26.50	1.44 H	310	2.60	44.90

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	59.40 PK	74.00	-14.60	1.09 V	2	29.00	30.40
1	2390.00	50.20 AV	54.00	-3.80	1.09 V	2	19.80	30.40
2	*2412.00	114.80 PK			1.07 V	3	84.30	30.50
2	*2412.00	107.50 AV			1.07 V	3	77.00	30.50
3	4824.00	47.80 PK	74.00	-26.20	1.70 V	312	11.60	36.20
4	7236.00	50.70 PK	74.00	-23.30	1.60 V	306	9.10	41.70
5	9648.00	51.60 PK	74.00	-22.40	1.64 V	264	6.70	44.90
5	9648.00	43.20 AV	54.00	-10.80	1.64 V	264	-1.70	44.90

- 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. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

MODE	Channel 6	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	30 deg. C, 55%RH, 968 hPa	TESTED BY	Tony Chen

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	*2437.00	100.30 PK			1.08 H	3	69.60	30.70
1	*2437.00	93.40 AV			1.08 H	3	62.70	30.70
2	4874.00	40.50 PK	74.00	-33.50	1.58 H	49	4.10	36.50
3	7311.00	47.20 PK	74.00	-26.80	1.36 H	134	5.40	41.80
4	9748.00	46.40 PK	74.00	-27.60	1.29 H	360	1.80	44.60

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	*2437.00	115.20 PK			1.16 V	17	84.60	30.70
1	*2437.00	107.70 AV			1.16 V	17	77.00	30.70
2	4874.00	49.20 PK	74.00	-24.80	1.37 V	334	12.80	36.50
3	7311.00	49.60 PK	74.00	-24.40	1.78 V	334	7.90	41.80
4	9748.00	49.60 PK	74.00	-24.40	1.52 V	315	4.90	44.60

- 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. The limit value is defined as per 15.247
 6. “ * “ : Fundamental frequency

MODE	Channel 11	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	30 deg. C, 55%RH, 968 hPa	TESTED BY	Tony Chen

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	*2462.00	98.50 PK			1.85 H	25	67.70	30.80
1	*2462.00	91.90 AV			1.85 H	25	61.10	30.80
2	2483.50	43.80 PK	74.00	-30.20	1.27 H	27	12.80	31.00
3	4924.00	45.60 PK	74.00	-28.40	1.24 H	69	8.90	36.70
4	7386.00	52.60 PK	74.00	-21.40	1.30 H	131	10.80	41.80
4	7386.00	45.20 AV	54.00	-8.80	1.30 H	131	3.40	41.80
5	9848.00	48.30 PK	74.00	-25.70	1.45 H	217	4.00	44.40

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	*2462.00	116.10 PK			1.12 V	353	85.30	30.80
1	*2462.00	108.80 AV			1.12 V	353	78.00	30.80
2	2483.50	61.30 PK	74.00	-12.70	1.24 V	325	30.30	31.00
2	2483.50	51.00 AV	54.00	-3.00	1.24 V	325	20.00	31.00
3	4924.00	48.00 PK	74.00	-26.00	1.15 V	208	11.30	36.70
4	7386.00	52.60 PK	74.00	-21.40	1.48 V	360	10.80	41.80
4	7386.00	44.90 AV	54.00	-9.10	1.48 V	360	3.00	41.80
5	9848.00	51.20 PK	74.00	-22.80	1.65 V	247	6.80	44.40
5	9848.00	42.10 AV	54.00	-11.90	1.65 V	247	-2.20	44.40

- 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. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

4.2.8 TEST RESULTS -OFDM

MODE	Channel 1	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	30 deg. C, 55%RH, 968 hPa	TESTED BY	Tony Chen

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	48.70 PK	74.00	-25.30	1.24 H	231	18.30	30.40
2	*2412.00	96.70 PK			1.50 H	85	66.20	30.50
2	*2412.00	88.90 AV			1.50 H	85	58.30	30.50
3	4824.00	39.80 PK	74.00	-34.20	1.69 H	41	3.50	36.20
4	7236.00	46.20 PK	74.00	-27.80	1.80 H	16	4.50	41.70
5	9648.00	48.20 PK	74.00	-25.80	1.45 H	93	3.30	44.90

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	60.40 PK	74.00	-13.60	1.47 V	251	30.00	30.40
1	2390.00	51.90 AV	54.00	-2.10	1.47 V	251	21.50	30.40
2	*2412.00	110.70 PK			1.11 V	360	80.20	30.50
2	*2412.00	102.60 AV			1.11 V	360	72.10	30.50
3	4824.00	40.90 PK	74.00	-33.10	1.53 V	316	4.70	36.20
4	7236.00	47.80 PK	74.00	-26.20	1.40 V	328	6.20	41.70
5	9648.00	48.50 PK	74.00	-25.50	1.25 V	78	3.60	44.90

- 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. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

MODE	Channel 6	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	30 deg. C, 55%RH, 968 hPa	TESTED BY	Tony Chen

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	*2437.00	99.50 PK			1.61 H	101	68.80	30.70
1	*2437.00	91.80 AV			1.61 H	101	61.10	30.70
2	4874.00	41.10 PK	74.00	-32.90	1.88 H	41	4.70	36.50
3	7311.00	53.20 PK	74.00	-20.80	1.05 H	107	11.50	41.80
3	7311.00	42.00 AV	54.00	-12.00	1.05 H	107	0.20	41.80
4	9746.00	46.30 PK	74.00	-27.70	1.17 H	111	1.70	44.60

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	*2437.00	110.50 PK			1.20 V	325	79.80	30.70
1	*2437.00	102.60 AV			1.20 V	325	71.90	30.70
2	4874.00	45.60 PK	74.00	-28.40	1.06 V	337	9.10	36.50
3	7311.00	55.80 PK	74.00	-18.20	1.32 V	140	14.10	41.80
3	7311.00	43.50 AV	54.00	-10.50	1.32 V	140	1.80	41.80
4	9746.00	46.00 PK	74.00	-28.00	1.38 V	62	1.40	44.60

- 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. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

MODE	Channel 11	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	30 deg. C, 55%RH, 968 hPa	TESTED BY	Tony Chen

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	*2462.00	96.20 PK			1.93 H	29	65.30	30.80
1	*2462.00	88.70 AV			1.93 H	29	57.80	30.80
2	2483.50	47.60 PK	74.00	-26.40	1.27 H	360	16.60	31.00
3	4924.00	41.30 PK	74.00	-32.70	1.64 H	86	4.60	36.70
4	7386.00	46.10 PK	74.00	-27.90	1.50 H	64	4.20	41.80
5	9848.00	46.40 PK	74.00	-27.60	1.13 H	147	2.00	44.40

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	*2462.00	110.80 PK			1.07 V	3	80.00	30.80
1	*2462.00	102.80 AV			1.07 V	3	72.00	30.80
2	2483.50	61.30 PK	74.00	-12.70	1.04 V	31	30.30	31.00
2	2483.50	52.90 AV	54.00	-1.10	1.04 V	31	21.90	31.00
3	4924.00	40.40 PK	74.00	-33.60	1.77 V	41	3.70	36.70
4	7386.00	47.70 PK	74.00	-26.30	1.18 V	43	5.80	41.80
5	9848.00	48.40 PK	74.00	-25.60	1.57 V	6	4.00	44.40

- 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. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

MODE	Turbo Channel 6	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 968 hPa	TESTED BY	Tony Chen

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	*2437.00	95.30 PK			1.17 H	41	65.30	30.00
1	*2437.00	87.30 AV			1.17 H	41	57.30	30.00
2	4874.00	43.90 PK	74.00	-30.10	1.08 H	50	7.40	36.50
3	7311.00	45.80 PK	74.00	-28.20	1.75 H	74	4.00	41.80
4	9746.00	49.10 PK	74.00	-24.90	1.36 H	172	4.40	44.60

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	*2437.00	110.00 PK			1.15 V	360	80.00	30.00
1	*2437.00	101.20 AV			1.15 V	360	71.20	30.00
2	2969.00	40.60 PK	74.00	-33.40	1.06 V	20	9.10	31.50
3	4864.00	48.70 PK	74.00	-25.30	1.24 V	40	12.30	36.40
4	7311.00	50.10 PK	74.00	-23.90	1.93 V	46	8.30	41.80
5	9746.00	50.00 PK	74.00	-24.00	1.08 V	143	5.40	44.60

- 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. The limit value is defined as per 15.247
 6. “ * “ : Fundamental frequency

4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 15, 2007

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 kHz RBW and 100 kHz VBW. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

4.3.4 TEST SETUP



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

4.3.5 EUT OPERATING CONDITIONS

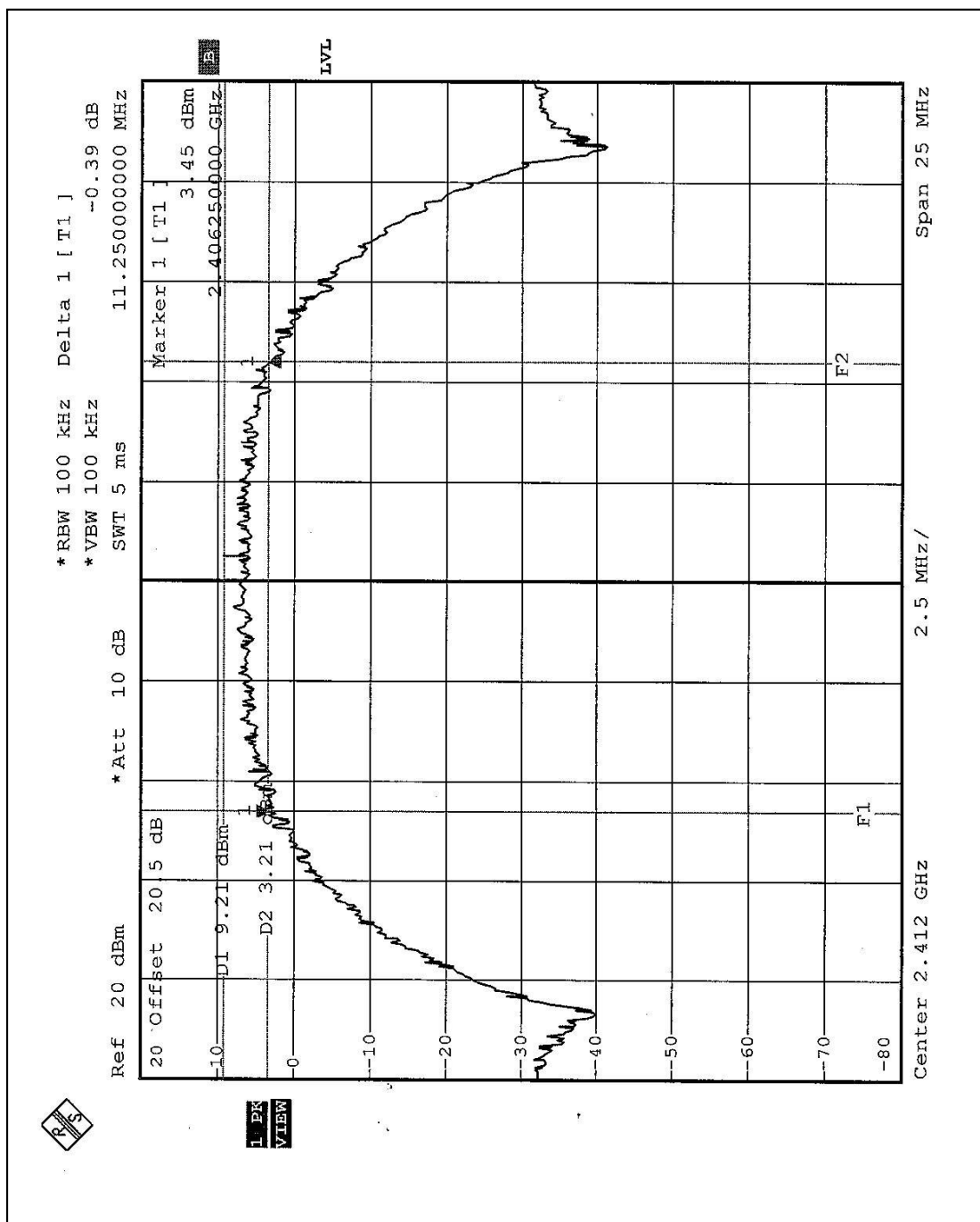
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.6 TEST RESULTS - DSSS

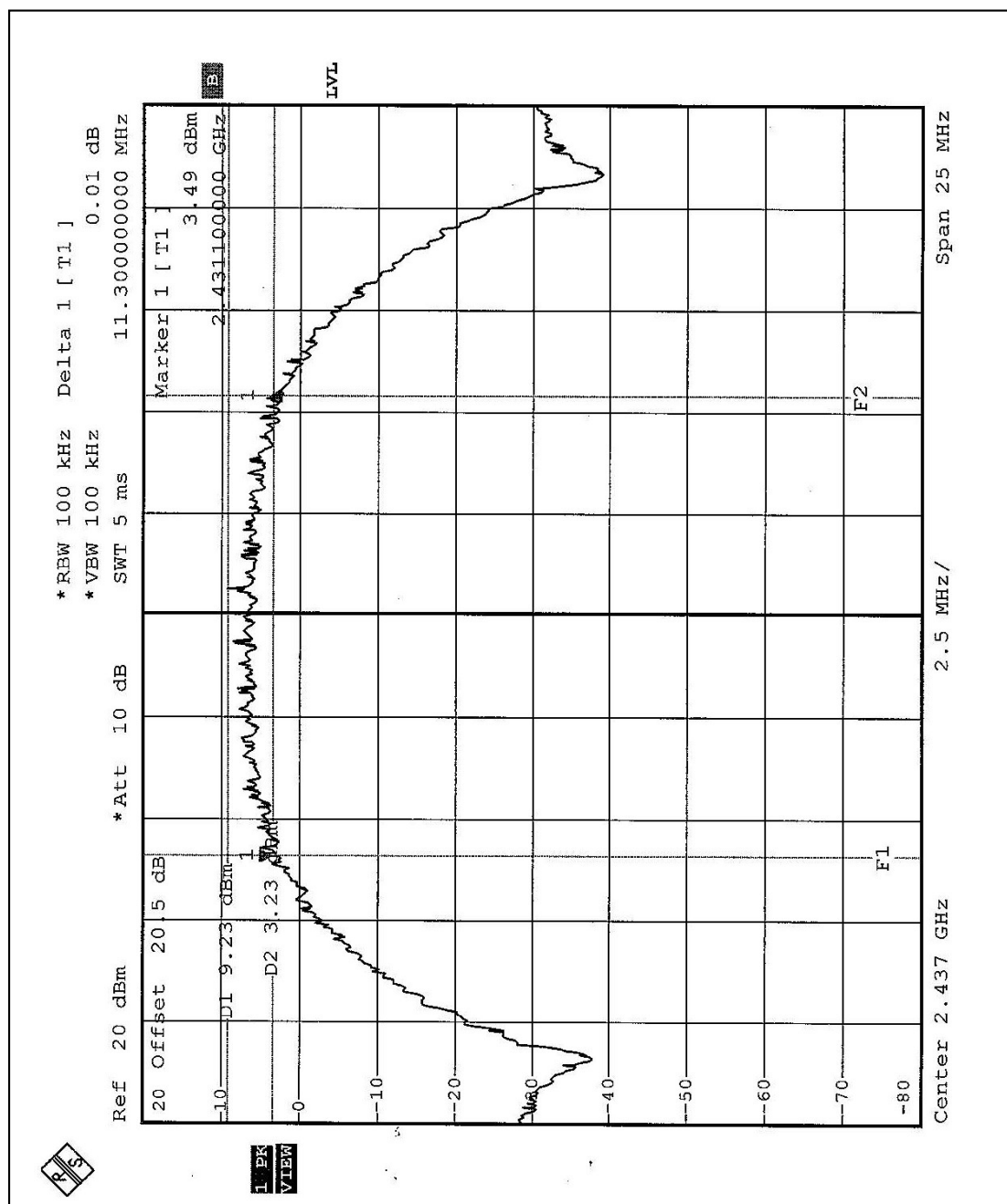
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 968 hPa
TESTED BY	Tony Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	11.25	0.5	PASS
6	2437	11.30	0.5	PASS
11	2462	11.50	0.5	PASS

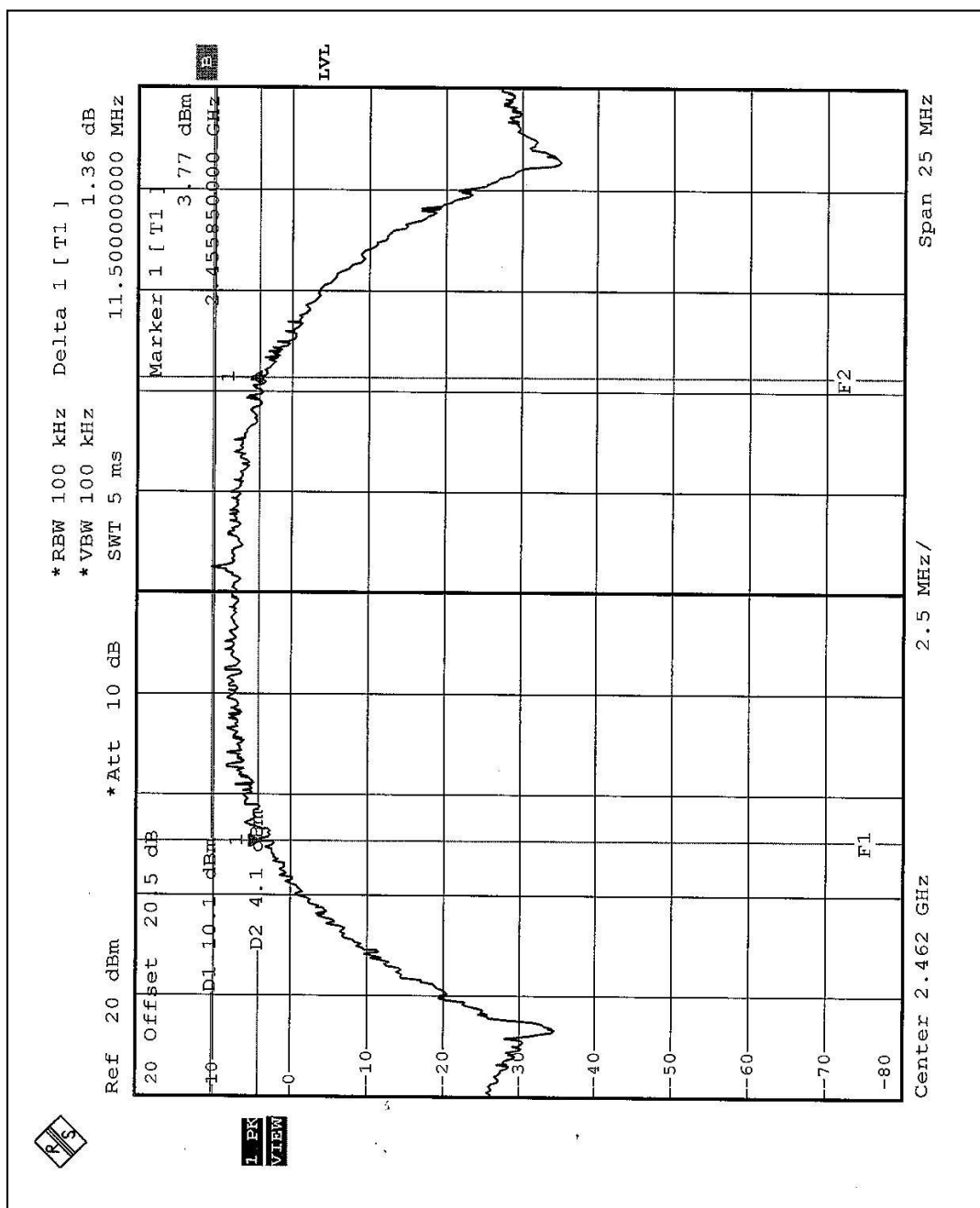
CH1



CH6



CH11

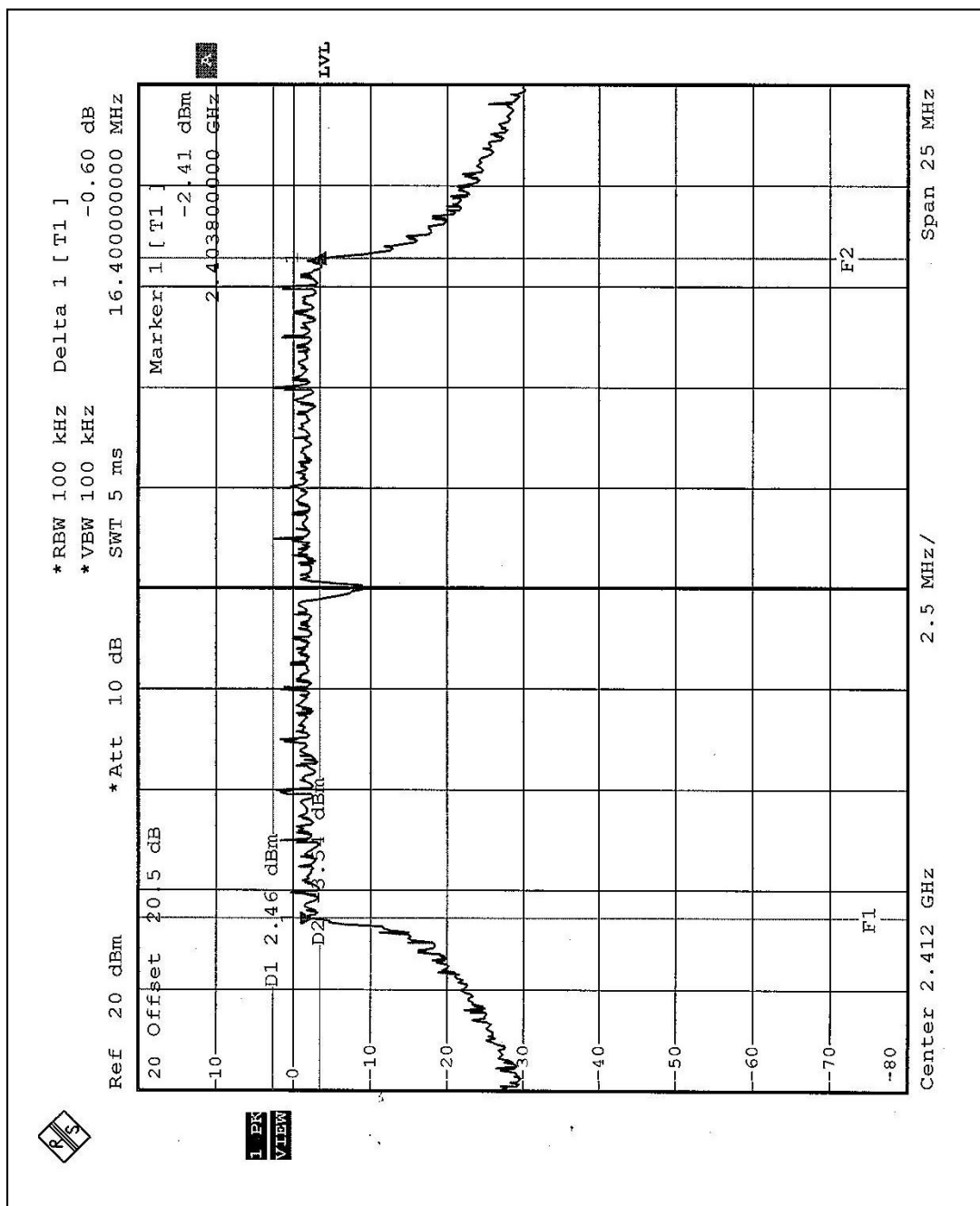


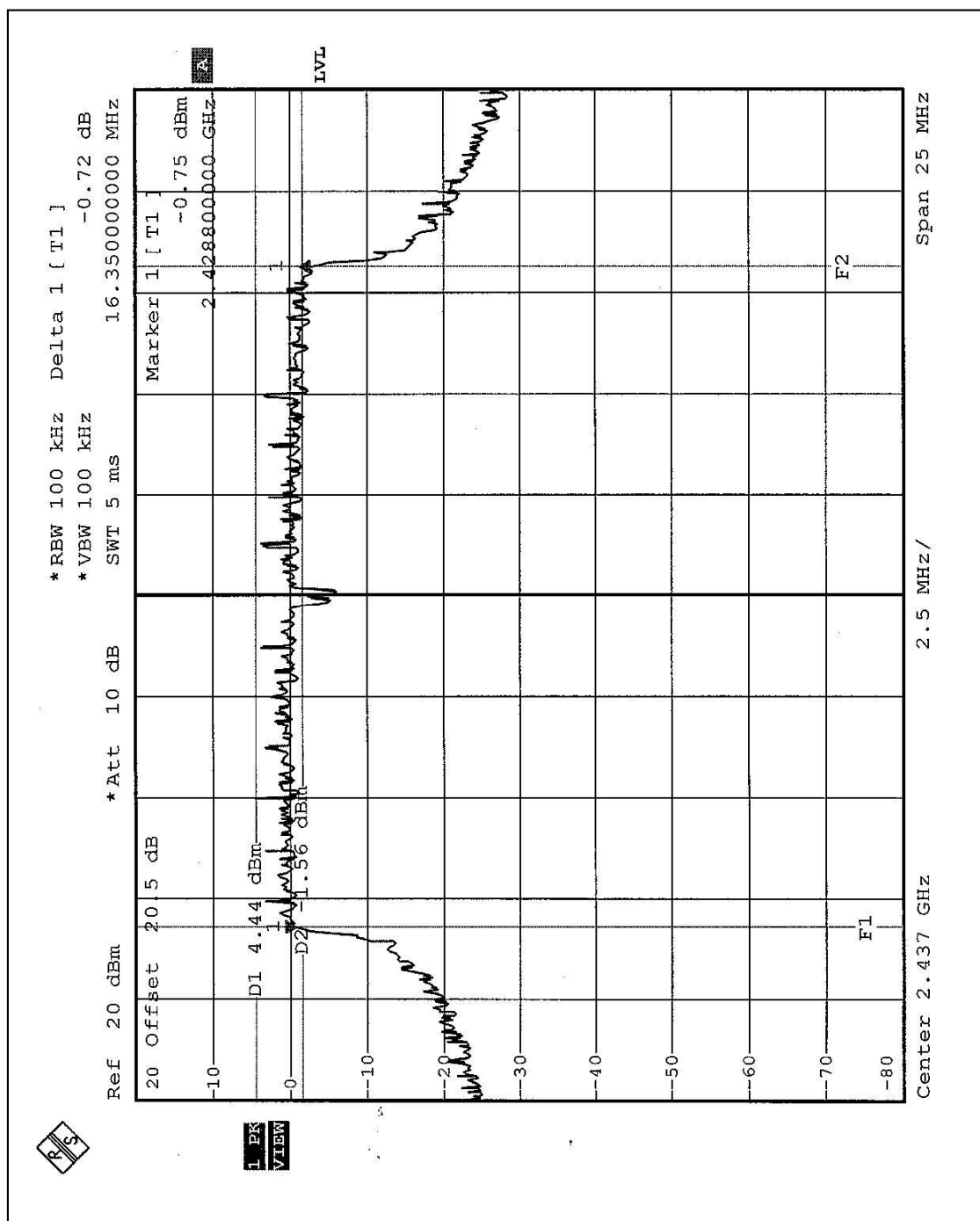
4.3.7 TEST RESULTS - OFDM

INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 968 hPa
TESTED BY	Tony Chen		

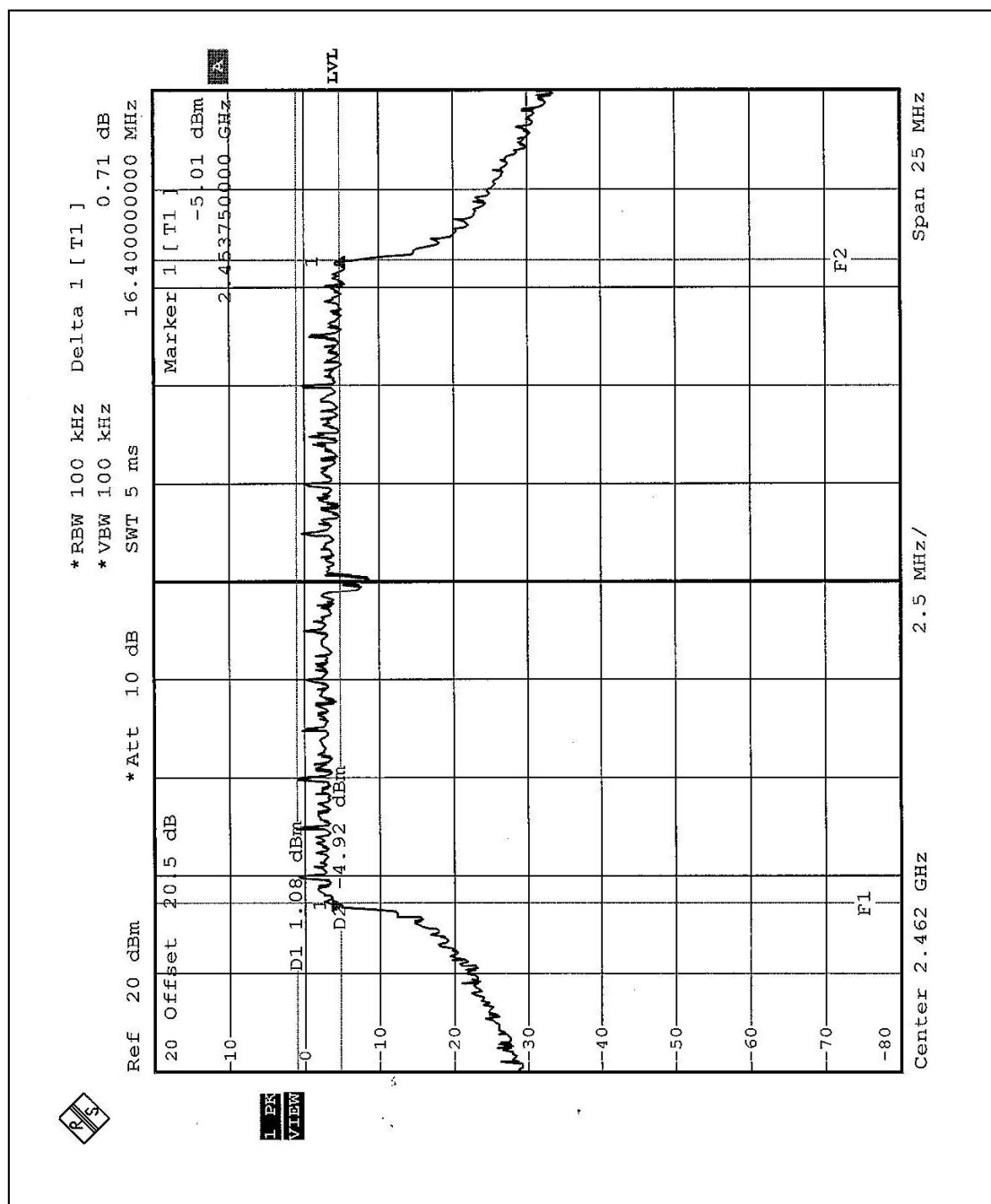
CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.40	0.5	PASS
6	2437	16.35	0.5	PASS
11	2462	16.40	0.5	PASS
Turbo 6	2437	31.30	0.5	PASS

CH1

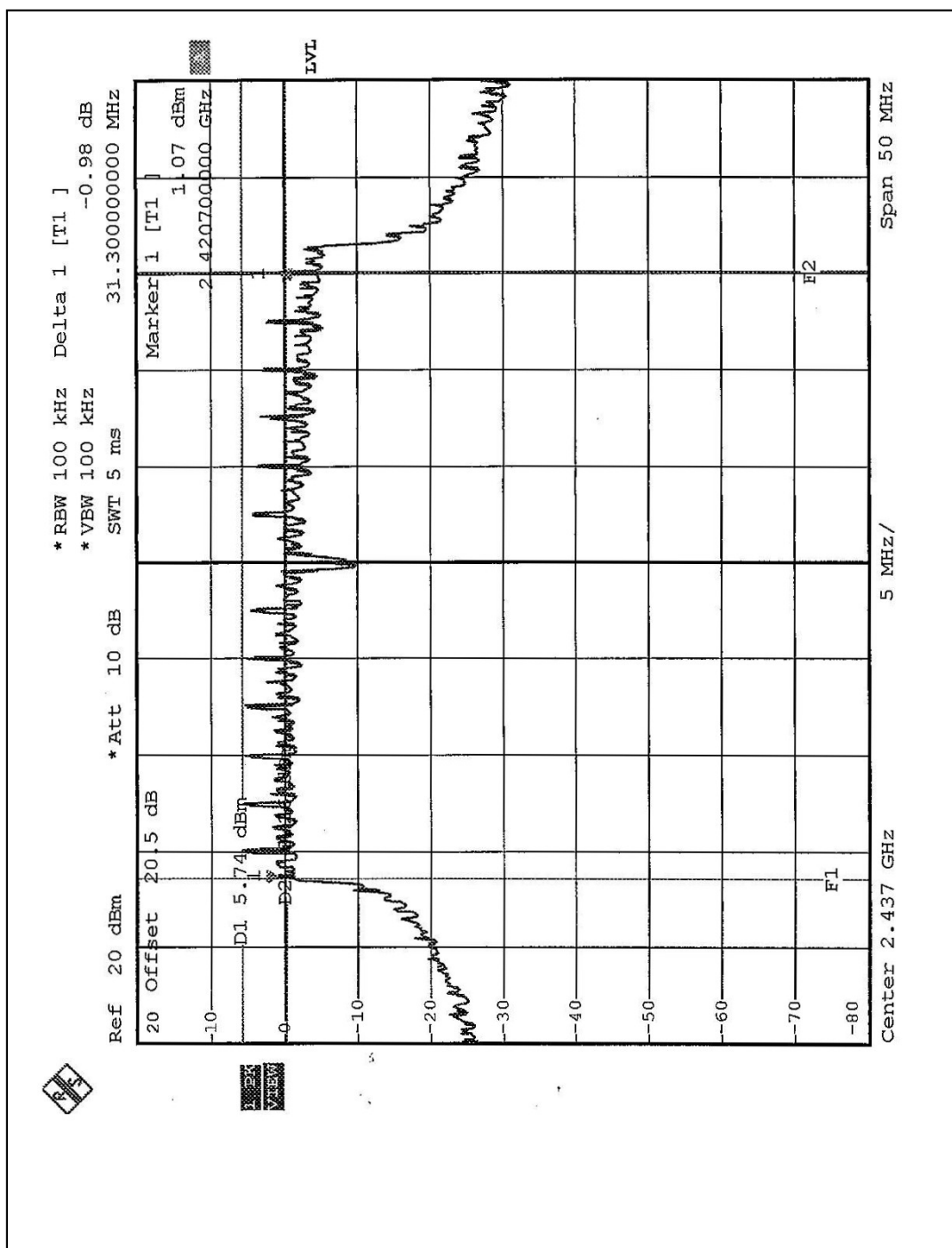




CH11



Turbo CH6



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	FSP40	100037	Aug. 15, 2007
Agilent SIGNAL GENERATOR	E8257C	MY43321031	July 26, 2007
TEKTRONIX OSCILLOSCOPE	TDS380	B016335	Jun. 21, 2007
NARDA DETECTOR	4503A	FSCM99899	NA

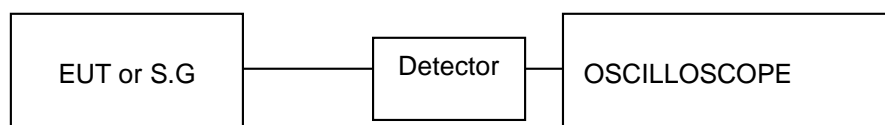
NOTE:

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 peak 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 peak reading on oscilloscope. Record the power level.

4.4.4 TEST SETUP



4.4.5 EUT OPERATING CONDITIONS

Same as Item 4.3.5

4.4.6 TEST RESULTS- DSSS

INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 968 hPa
TESTED BY	Tony Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	102.094	20.09	30	PASS
6	2437	102.802	20.12	30	PASS
11	2462	112.202	20.50	30	PASS

4.4.7 TEST RESULTS- OFDM

INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 968 hPa
TESTED BY	Tony Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	91.201	19.60	30	PASS
6	2437	120.226	20.80	30	PASS
11	2462	83.176	19.20	30	PASS
Turbo 6	2437	115.345	20.62	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	FSP40	100037	Aug. 15, 2007

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.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 3 kHz RBW and 30 kHz 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 TEST SETUP



4.5.5 EUT OPERATING CONDITIONS

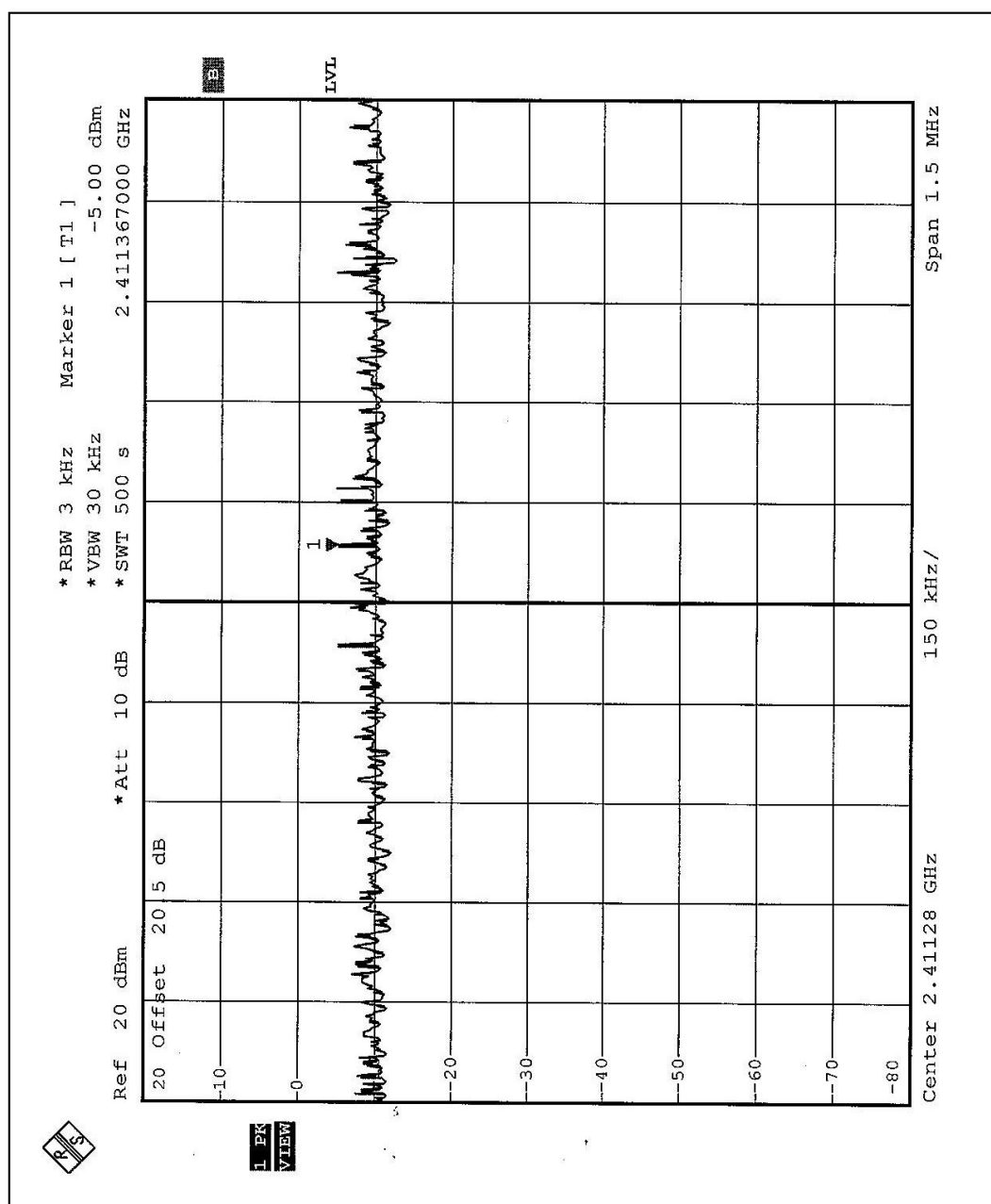
Same as 4.3.5

4.5.6 TEST RESULTS - DSSS

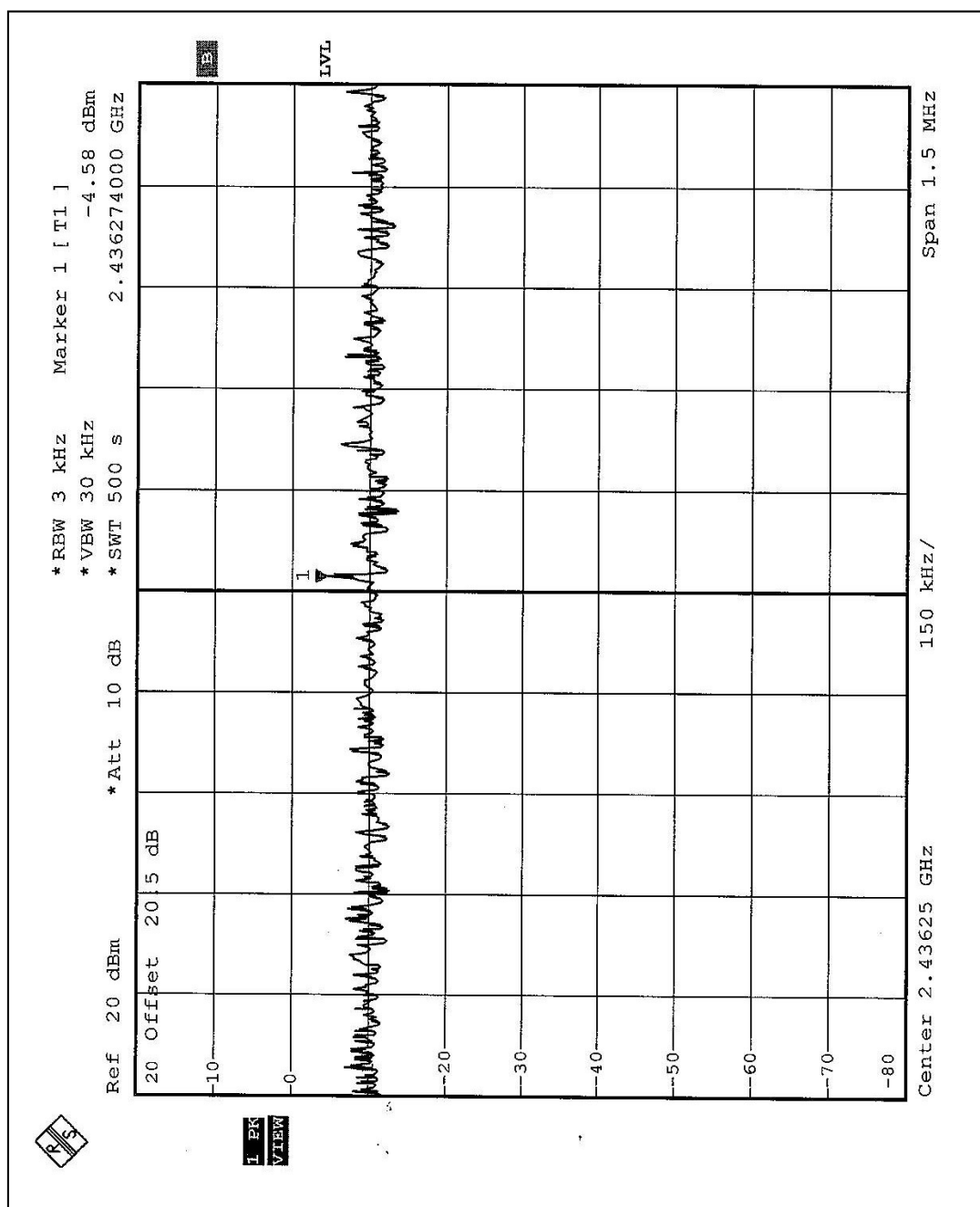
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 968 hPa
TESTED BY	Tony Chen		

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-5.0	8	PASS
6	2437	-4.58	8	PASS
11	2462	-4.8	8	PASS

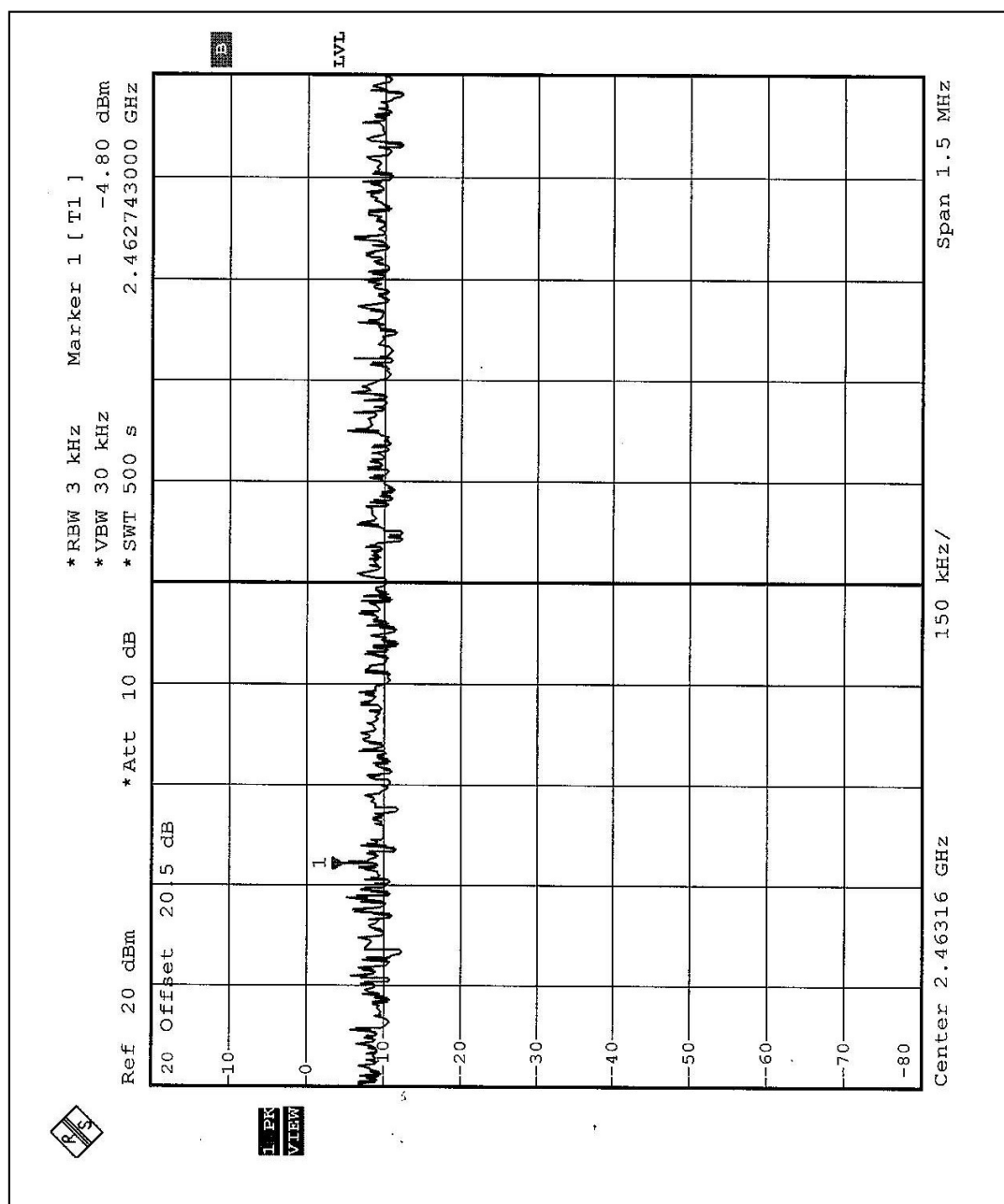
CH1



CH6



CH11

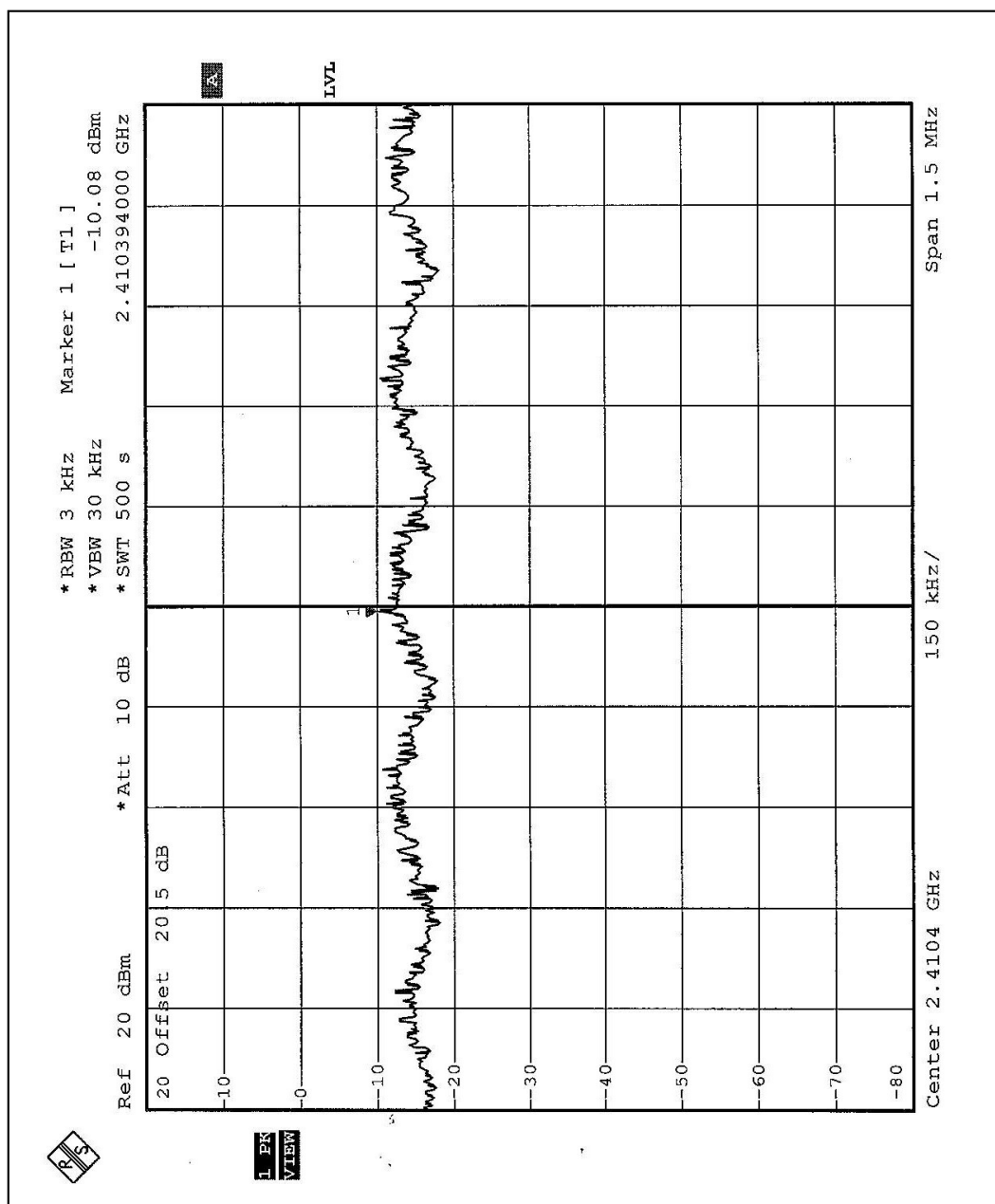


4.5.7 TEST RESULTS - OFDM

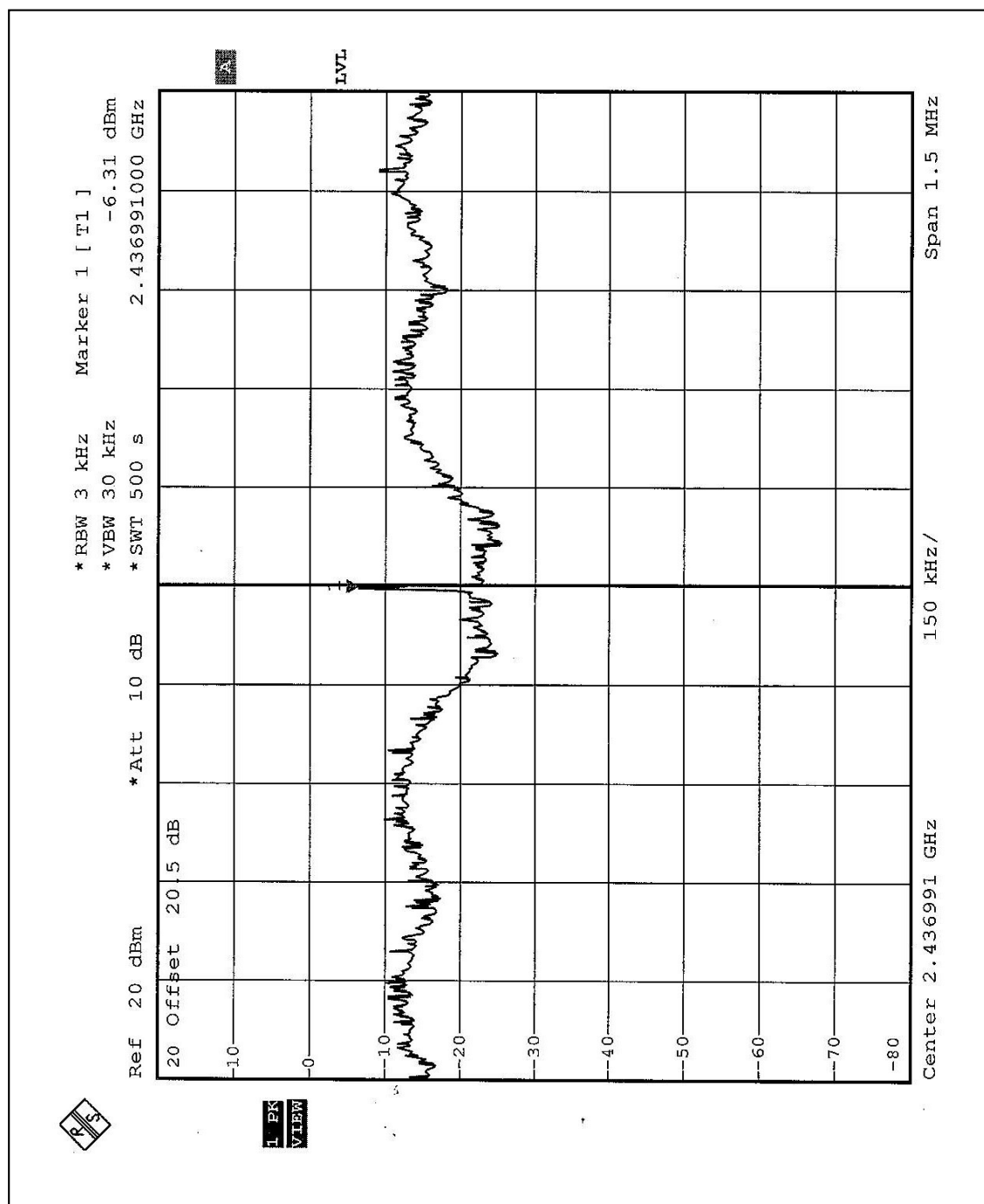
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 968 hPa
TESTED BY	Tony Chen		

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-10.08	8	PASS
6	2437	-6.31	8	PASS
11	2462	-9.58	8	PASS
Turbo 6	2437	-10.35	8	PASS

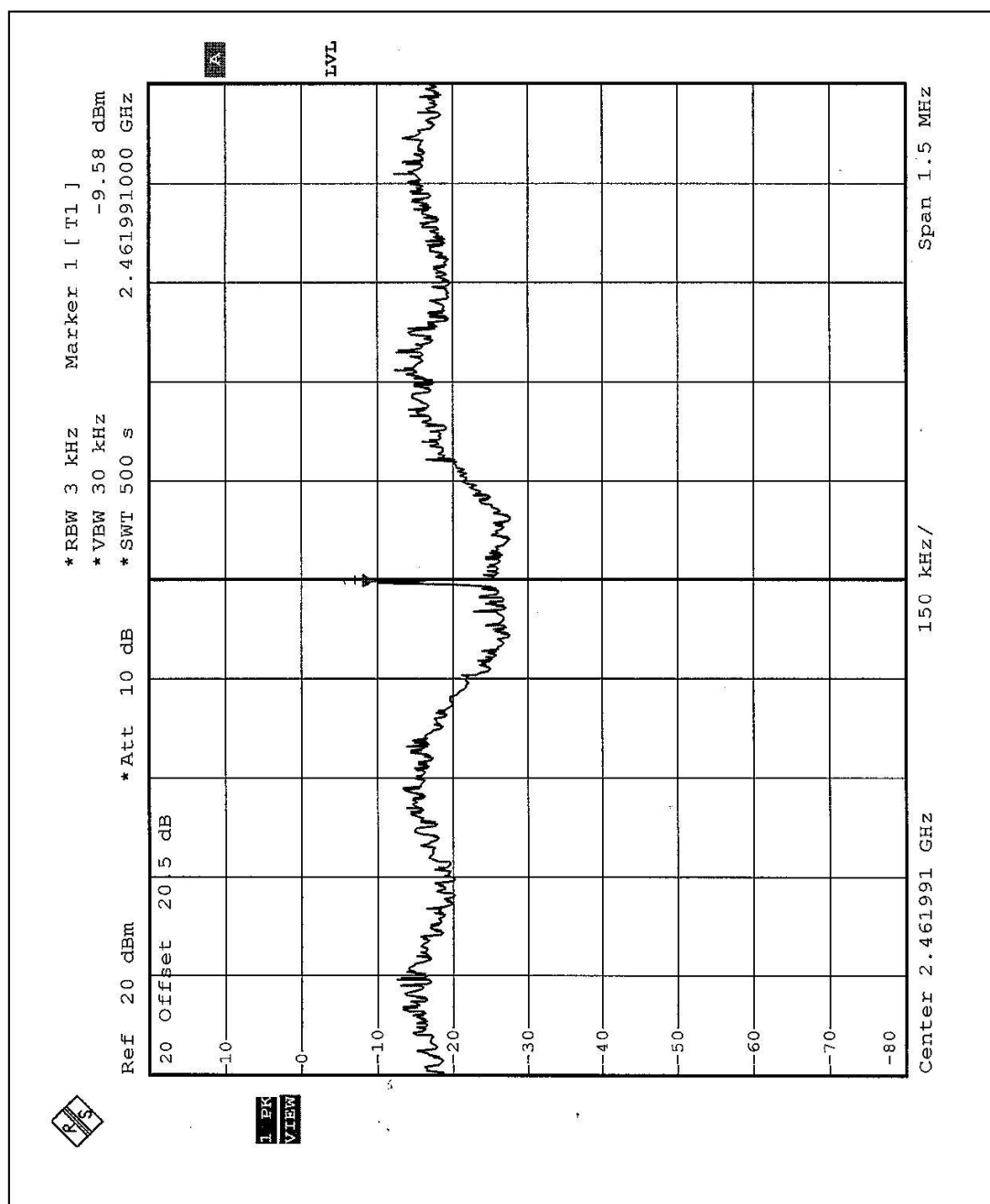
CH1



CH6



CH11



Turbo CH6

