FCC PART 15 SUBPART C TEST REPORT

for

Dedicated WiFi Router

Model No.: DWR,wifiRouter,wifiCAM Router.

FCC ID: TS8DWRWIFIROUTER

of

Applicant: **3JTech Co., Ltd**

Address: **342, Fusing N. Rd., 2F,Taipei, Taiwan**

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: 930600

Industry Canada filed test laboratory Reg. No. IC 5679A-1

A2LA Accredited No.: 2732.01

Report No.: W6M20809-9313-C-1

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1 General Information

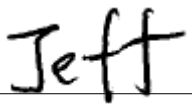
1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.
The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.
Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.
Neither is there any guarantee that such a test sample will interwork with other genuinely open systems.
The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that is performance generally conforms to representative cases of communications equipment.

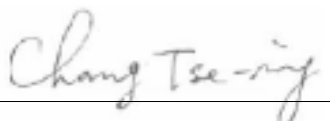
The test results of this test report relate exclusively to the item tested as specified in 1.5.
The test report may only be reproduced or published in full.
Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.

Specific Conditions:
Usage of the hereunder tested device in combination with other integrated or external antennas requires at least additional output power measurements, spurious emission measurements, conducted emission measurements (AC supply lines) and radio frequency exposure evaluations for each individual configuration performed, for certification by FCC.
The test sample is able to work according IEEE 802.11 b/g.
This report is related to FCC Part 15 C (DSSS and OFDM device).

Tester:

Date	WTS-Lab.	Name	Signature
October 22, 2008		Jeff	

Technical responsibility for area of testing:

Date	WTS	Name	Signature
October 22, 2008		Chang Tse-Ming	

1.2 Testing laboratory

1.2.1 Location

OATS
No.5-1, Shuang Sing Village,
LiShuei Rd., Wanli Township,
Taipei County 207, Taiwan (R.O.C.)

Company
Worldwide Testing Services(Taiwan) Co., Ltd.
6F, NO. 58, LANE 188, RUEY-KUANG RD.
NEIHU, TAIPEI 114, TAIWAN R.O.C.
Tel : 886-2-66068877
Fax : 886-2-66068879

1.2.2 Details of accreditation status

Accredited testing laboratory

A2LA accredited number: 2732.01

FCC filed test laboratory Reg. No. 930600

Industry Canada filed test laboratory Reg. No. IC 5679A-1

1.3 Details of approval holder

Name:	3JTech Co., Ltd
Street:	342, Fusing N. Rd., 2F,
Town:	Taipei,
Country:	Taiwan
Telephone:	+886-(0)2-2500-6916
Fax:	+886-(0)2-2506-9793

1.4 Application details

Date of receipt of test item:	September 18, 2008
Date of test:	from September 18, 2008 to October 20, 2008

1.5 General information of Test item

Type of test item:	Dedicated WiFi Router
Model Number:	DWR,wifiRouter,wifiCAM Router.
Brand Name:	./.
Multi-listing model number:	without
Photos:	See Appendix

Technical data

Frequency band:	2.400 GHz – 2.4835 GHz
Frequency (ch 1 or A):	2.412 GHz
Frequency (ch 6 or B):	2.437 GHZ
Frequency (ch 11 or C):	2.462 GHz
Number of Channels:	11
Operation modes:	duplex
Modulation Type:	DSSS / OFDM
Fixed point-to-point operation:	☐ Yes / ☒ No
Type of Antenna:	Monopole Antenna, RP-SMA
Antenna gain:	3.5 dBi
Power supply:	Adaptor (I/P: AC 100-240V/50-60Hz/0.35A, O/P:12Vdc/1.5A)
Emission designator:	DSSS: 16M2G1D OFDM: 16M5W7D

Host device: none

Classification:

Fixed Device	☒
Mobile Device (Human Body distance ＞ 20cm)	☐
Portable Device (Human Body distance ＜ 20cm)	☐

Transmitter **Unom**

Mode A (DSSS)

Power (ch 1 or A): Conducted: 15.77 dBm

Power (ch 6 or B): Conducted: 15.51 dBm

Power (ch 11 or C): Conducted: 15.31 dBm

Mode B (OFDM)

Power (ch 1 or A): Conducted: 15.62 dBm

Power (ch 6 or B): Conducted: 15.51 dBm

Power (ch 11 or C): Conducted: 15.41 dBm

Manufacturer: (if applicable)

Name: 3JTech Co., Ltd
Street: 7-2F, 29, 169 Lane, Kan-Ling St.,
Town: Shi-Tze, Taipei County,
Country: Taiwan

Additional information: The sample is using WLAN technology according IEEE 802.11 b/g.
There are two testing modes in the test report.
Mode A: IEEE 802.11b
Mode B: IEEE 802.11g
The scheme for frequency generation, spectrum spreading, receiver parameters, synchronization procedure, and other parameters are determined by the mentioned standard above.

1.6 Test standards

Technical standard : FCC RULES PART 15 SUBPART B / SUBPART C § 15.247 (2007-10)

2 Tebaltest

21 Sryftest rests

No deviations from the technical specification(s) were ascertained in the course of the tests performed. ☒

or

The deviations as specified in 2.5 were ascertained in the course of the tests performed. ☐

22 Test enivoemt

Temperature:	23 °C
Relative humidity content:	20 ... 75 %
Air pressure:	86 ... 103 kPa
Power supply:	Adaptor (I/P: AC 100-240V/50-60Hz/0.35A, O/P:12Vdc/1.5A)
Extreme conditions parameters:	./.

2.3 Test Equipment List

No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2008/9/18	2009/9/17
ETSTW-CE 002	PREREULATOR MODE DC POWER SUPPLY	None	None		Function Test	
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2008/9/15	2009/9/14
ETSTW-CE 005	Line-Impedance Stabilisation Network	NNBM 8126D	137	Schwarzbeck	2008/9/15	2009/9/14
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2008/5/10	2009/5/09
ETSTW-CE 008	ABSORBING CLAMP	MDS 21	3469	Schwarzbeck	2008/9/18	2009/9/17
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2008/7/25	2009/7/24
ETSTW-CE 015	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T8-02	20307	FCC	2008/9/22	2009/9/21
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2008/9/24	2009/9/23
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2007/12/3	2008/12/2
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2008/9/22	2009/9/21
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2008/9/18	2009/9/17
ETSTW-RE 011	PROGRAMMABLE LINEAR POWER SUPPLY	LPS-305	30503070165	MOTECH	Function Test	
ETSTW-RE 017	Log-Periodic Antenna	HL025	352886/001	R&S	2008/5/5	2009/5/4
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2007/11/7	2008/11/6
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	Function Test	
ETSTW-RE 021	SWEEP GENERATOR	SWM05	835130/010	R&S	2008/8/27	2009/8/26
ETSTW-RE 028	Log-Periodic DipoleArray Antenna	3148	34429	EMCO	2008/4/23	2009/4/22
ETSTW-RE 029	Biconical Antenna	3109	33524	EMCO	2008/4/23	2009/4/22
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	2008/3/26	2009/3/25
ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2008/9/1	2009/8/31
ETSTW-RE 033	WaveRunner 6000A Serise Oscilloscope	WAVERUNNER 6100A	LCRY0604P14508	LeCroy	2008/6/27	2009/6/26
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2008/9/1	2009/8/31
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2007/1/11	2009/1/10
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2008/5/2	2009/5/1
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2008/5/22	2009/5/21
ETSTW-RE 047	ESA-E SERIES SPECTRUM ANALYZER	E4445A	MY46181369	Agilent	2008/6/26	2009/6/25
ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2005/3/22	2009/3/21

ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2007/5/2	2009/5/1
ETSTW-RE 055	SPECTRUM ANALYZER	FSU-26	200074	R&S	2008/7/1	2009/6/30
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	2008/9/1	2009/8/31
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2007/7/2	2009/7/1
ETSTW-RE 105	Match Pad	MDC1500	None	WOKEN	2008/10/7	2009/10/6
ETSTW-RE 106	Match Pad	MDC1510	None	WOKEN	2008/10/7	2009/10/6
ETSTW-GSM 02	Universal Radio Communication Tester	CMU 200	109439	R&S	2008/9/23	2009/9/22
ETSTW-GSM 23	SPLITTER	4901.19.A	None	SUHNER	2008/9/22	2009/9/21

2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-2003 using a 50µH LISN (if necessary). Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

RADIATION INTERFERENCE: The test procedure used was according to ANSI STANDARD C63.4-2003 employing a spectrum analyzer. For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100kHz respectively with an appropriate sweep speed. For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBµV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

Freq (MHz)	METER READING + ACF + CABLE LOSS (to the receiver) = FS
33	20 dBµV + 10.36 dB + 6 dB = 36.36 dBµV/m @3m

The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table) and arranged according to ANSI C63.4-2003 Section 13.1.2. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to the frequency specified as follows:

(1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
(2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
(3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.
(4) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1)-(a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this Section, whichever is the higher frequency range of investigation.

For hand-held devices, a exploratory test was performed with three (3) orthogonal planes to determine the highest emissions.
Measurements were made by Worldwide Testing Services(Taiwan) Co., Ltd. at the registered open field test site located at No.5-1, Shuang Sing Village, LiShuei Rd., Wanli Township, Taipei County 207, Taiwan (R.O.C.) The Registration Number: 930600.
When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

The formula is as follows:
Average = Peak + Duty Factor
Duty Factor = 20 log (dwell time/T)
T = 100ms when the pulse train period is over 100 ms or the period of the pulse train.

Modified Limits for peak according to 15.35 (b) = Max Permitted average Limits + 20dB

3 Test results (enclose)

TEST CASE	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.247(b)(3)	☒	☒	☐
Equivalent radiated Power	15.247(b)(3)	☒	☒	☐
Spurious Emissions radiated – Transmitter operating	15.247(c): 15.209	☒	☒	☐
Band Edge Measurement	15.247(c)	☒	☒	☐
Minimum 6 dB Bandwidth	15.247(a)(2)	☒	☒	☐
Peak Power Spectral Density	15.247(d)	☒	☒	☐
Radiated Emission from Receiver	15.109	☒	☒	☐
Power Line Conducted Emission	15.207	☒	☒	☐

The follows is intended to leave blank.

3.1 Peak Power (Transmitter)

FCC Rule: 15.247(b)(3)
This measurement applies to equipment with an integral antenna and to equipment with an antenna connector and equipped with an antenna as declared by the applicant.

The power was measured with modulation (declared by the applicant).

Mode A

Test condition		Conducted Power		
		Channel A	Channel B	Channel C
T_{nom}= 25°C	V_{nom} = 120 V	[dBm]	[dBm]	[dBm]
		15.77	15.51	15.31

Mode B

Test condition		Conducted Power		
		Channel A	Channel B	Channel C
T_{nom}= 25°C	V_{nom} = 120 V	[dBm]	[dBm]	[dBm]
		15.62	15.51	15.41

Mode A

Test condition T_{nom}= --°C, V_{nom} = -- V	Signal Field strength TX highest power mode dB μ V/m
Frequency [MHz]	--
--	

Mode B

Test condition T_{nom}= --°C, V_{nom} = -- V	Signal Field strength TX highest power mode dB μ V/m
Frequency [MHz]	--
--	

Limits:

Frequency MHz	Power dBm
902 - 928	30
2400 – 2483.5	30
5725 – 5850	30

In case of employing transmitter antennas having antenna gain > 6 dBi and using fixed point-to point operation consider §15.247 (b)(4)

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 055

Explanation: The diagrams for the peak output power measurements are included in Appendix.

3.2 Equivalent isotropically radiated power

FCC Rule: 15.247(b)(3)

EIRP = max. conducted output power + antenna gain
EIRP = 15.77 dBm + 3.5 dBi
= 19.27 dBm
Limit: EIRP = +36 dBm for Antenna gain <6dBi

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 017 ETSTW-RE 021
ETSTW-RE 028 ETSTW-RE 030 ETSTW-RE 043 ETSTW-RE 044

3.3 Test Procedure and Test Setup

FCC OET Bulletin 65 Edition 97.01 determines the equations for predicting RF fields and applicable limits.
The prediction for power density in the far-field but will over-predict power density in the near field, where it could be used for walking a “worst case” or conservative prediction.

$$S = \frac{PG}{4\pi R^2}$$

S – Power Density
P – Output power ERP
R – Distance
D – Cable Loss
AG – Antenna Gain

Item	Unit	Value	Remarks
P	mW	37.75722	Peak value
D	dB		
AG	dBi	3.5	
G		2.3	Calculated Value
R	cm	20	Assumed value
S	mW/cm^2	0.0173	Calculated value

Limits:

Limit for General Population / Uncontrolled Exposure	
Frequency (MHz)	Power Density (mW/cm^2)
1500 – 100.000	1,0

3.4 Transmitter Radiated Emissions in Restricted Bands

FCC Rules: 15.247 (c), 15.205, 15.209, 15.35
Radiated emission measurements were performed from 30 MHz to 26500 MHz.
For radiated emission tests, the analyzer setting was as followings:

Frequency ≦ 1 GHz, RBW:100 kHz, VBW: 100 kHz (Peak measurements)
Frequency ＞1 GHz, RBW: 1 MHz, VBW: 1 MHz (Peak measurements)
Frequency ＞1 GHz , RBW:1 MHz , VBW: 10 Hz (Average measurements)

Limits.

For frequencies below 1GHz:

Frequency of Emission (MHz)	Field strength (microvolts/meter)	Field Strength (dB microvolts/meter)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above	500	54.0

For frequencies above 1GHz (Average measurements).

Guidance on Measurement of Digit Transmission Systems:
“If the emission is pulsed, modify the unit for continuous operation, use the setting shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.”

The correction factor, based on the total channel dwell time in a 100 ms period, may be mathematically applied to a measurement made with an average detector, to further reduce the value.

Duty cycle correction = 20 log (dwell time/ 100ms)

Note: No duty cycle correction was added to the reading of this EUT.

Explanation: See attached diagrams in Appendix.

3.5 Radiated Emissions (x)

Spurious emission was measured with modulation (declared by manufacturer).

In any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c))

FCC Rule: 15.247(c), 15.35
For out of band emissions that are close to or that exceed the 20 dB attenuation requirement described in the specification, radiated measurements were performed at a 3 m separation distance to determine whether these emissions complied with the general radiated emission requirement.

Limits:

For frequencies above 1GHz (Peak measurements).
Modified Limit for peak according to 15.35 (b) = Max Permitted average Limits + 20dB

For frequencies above 1GHz (Average measurements).
Max. reading – 20dB

Max. reading – 20 dB
Guidance on Measurement of Digit Transmission Systems:
“If the emission is pulsed, modify the unit for continuous operation, use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.”

The correction factor, based on the total channel dwell time in a 100 ms period, may be mathematically applied to a measurement made with an average detector, to further reduce the value.

Duty Cycle correction = 20 log (dwell time/100ms)

Test equipment used: ETSTW-RE 004 ETSTW-RE 017 ETSTW-RE 028 ETSTW-RE 029 ETSTW-RE 030 ETSTW-RE 042 ETSTW-RE 043 ETSTW-RE 044

Note: No duty cycle correction was added to the reading of EUT.

SAMPLE CALCULATION OF LIMIT. All results will be updated by an automatic measuring system in accordance with point 2.3.

Calculation of test results:
Such factors like antenna correction, cable loss, external attenuation etc. are already included in the provided measurement results. This is done by using validated test software and calibrated test system according the accreditation requirements.

The peak and average spurious emission plots was measured with the average limits.
In the Table being listed the critical peak and average value and exhibit the compliance with the above calculated Limits.

If in the column's correction factor states a value then the max. Field strength in the same row is corrected by a value gained from the "Correction Factor".

Summary table with radiated data of the test plots

DWR,wifiRouter,wifiCAM

Model: Router. Date: 2008/10/17
Mode: Mode A TX CH1 Temperature: 26 °C Engineer: Jeff
Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
162.024	26.34	peak	15.36	41.70	43.50	-1.80	241	150
539.880	26.82	peak	20.50	47.32	74.00	-26.68	200	150

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
3046.092	50.28	--	-6.03	44.25	--	74.00	--	-29.75	300	150
4824.000	40.62	--	-2.41	38.21	--	74.00	--	-35.79	220	150
7236.000	39.43	--	2.07	41.50	--	74.00	--	-32.50	162	150
9648.000	35.47	--	4.96	34.43	--	74.00	--	-39.57	223	150
12060.000	32.91	--	11.60	38.51	--	74.00	--	-35.49	176	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
118.737	28.57	peak	13.29	41.86	43.50	-1.64	37	150
356.112	24.87	peak	16.62	41.49	74.00	-32.51	245	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Ave.	Limit @3m (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4824.000	41.53	--	-2.41	39.12	--	74.00	--	-34.88	236	150
7236.000	40.24	--	2.07	42.31	--	74.00	--	-31.69	250	150
9648.000	33.36	--	4.96	32.32	--	74.00	--	-41.68	200	150
12060.000	35.14	--	11.60	40.74	--	74.00	--	-33.26	215	150

Mode: Mode A TX CH6

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
118.737	26.37	peak	13.29	39.66	43.50	-3.84	312	150
539.880	28.82	peak	20.50	49.32	74.00	-24.68	200	150

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Ave.	Limit @3m (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4874.000	40.44	--	-2.18	38.26	--	74.00	--	-35.74	300	150
7311.000	39.66	--	2.25	41.91	--	74.00	--	-32.09	255	150
9748.000	34.17	--	5.34	33.51	--	74.00	--	-40.49	200	150
12185.000	31.38	--	11.60	36.98	--	74.00	--	-37.02	185	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
130.100	27.86	peak	14.10	41.96	43.50	-1.54	297	150
377.154	23.11	peak	17.18	40.29	74.00	-33.71	154	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Ave.	Limit @3m (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4874.000	40.61	--	-2.18	38.43	--	74.00	--	-35.57	300	150
7311.000	40.08	--	2.25	42.33	--	74.00	--	-31.67	187	150
9748.000	33.99	--	5.34	33.33	--	74.00	--	-40.67	200	150
12185.000	31.88	--	11.60	37.48	--	74.00	--	-36.52	116	150

Mode: Mode A TX CH11
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
118.737	27.37	peak	13.29	40.66	43.50	-2.84	103	150
356.112	29.52	peak	16.62	46.14	74.00	-27.86	231	150

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
4874.000	40.71	--	-2.18	38.53	--	74.00	--	-35.47	200	150
7311.000	39.64	--	2.25	41.89	--	74.00	--	-32.11	165	150
9748.000	33.60	--	5.34	32.94	--	74.00	--	-41.06	225	150
12185.000	32.75	--	11.60	38.35	--	74.00	--	-35.65	165	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
130.100	27.86	peak	14.10	41.96	43.50	-1.54	197	150
344.890	24.19	peak	16.43	40.62	74.00	-33.38	200	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
4874.000	41.08	--	-2.18	38.90	--	74.00	--	-35.10	321	150
7311.000	39.92	--	2.25	42.17	--	74.00	--	-31.83	165	150
9748.000	33.51	--	5.34	32.85	--	74.00	--	-41.15	152	150
12185.000	32.36	--	11.60	37.96	--	74.00	--	-36.04	136	150

Mode: Mode B TX CH1
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
118.737	28.37	peak	13.29	41.66	43.50	-1.84	88	150
356.112	30.52	peak	16.62	47.14	74.00	-26.86	320	150

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Ave.	Limit @3m (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4824.000	40.43	--	-2.41	38.02	--	74.00	--	-35.98	97	150
7236.000	39.57	--	2.07	41.64	--	74.00	--	-32.36	310	150
9648.000	32.89	--	4.96	31.85	--	74.00	--	-42.15	214	150
12060.000	31.29	--	11.60	36.89	--	74.00	--	-37.11	331	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
129.559	27.14	peak	14.06	41.20	43.50	-2.30	324	150
344.890	26.19	peak	16.43	42.62	74.00	-31.38	200	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Ave.	Limit @3m (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4824.000	40.93	--	-2.41	38.52	--	74.00	--	-35.48	96	150
7236.000	39.57	--	2.07	41.64	--	74.00	--	-32.36	301	150
9648.000	33.62	--	4.96	32.58	--	74.00	--	-41.42	201	150
12060.000	33.88	--	11.60	39.48	--	74.00	--	-34.52	103	150

Mode: Mode B TX CH6

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
162.024	26.34	peak	15.36	41.70	43.50	-1.80	241	150
430.461	26.26	peak	18.48	44.74	74.00	-29.26	197	150

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Ave.	Limit @3m (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4874.000	40.66	--	-2.18	38.48	--	74.00	--	-35.52	234	150
7311.000	39.43	--	2.25	41.68	--	74.00	--	-32.32	112	150
9784.000	35.16	--	5.48	34.64	--	74.00	--	-39.36	347	150
12221.000	34.77	--	11.60	40.37	--	74.00	--	-33.63	109	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
118.737	28.57	peak	13.29	41.86	43.50	-1.64	107	150
431.864	23.40	peak	18.52	41.92	74.00	-32.08	314	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
4874.000	41.56	--	-2.18	39.38	--	74.00	--	-34.62	314	150
7311.000	39.78	--	2.25	42.03	--	74.00	--	-31.97	107	150
9748.000	34.50	--	5.34	33.84	--	74.00	--	-40.16	101	150
12185.000	31.87	--	11.60	37.47	--	74.00	--	-36.53	61	150

Mode: Mode B TX CH11
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
118.737	27.37	peak	13.29	40.66	43.50	-2.84	237	150
541.283	21.46	peak	20.54	42.00	74.00	-32.00	45	150

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
4924.000	40.89	--	-1.95	38.94	--	74.00	--	-35.06	127	150
7386.000	39.60	--	2.43	42.03	--	74.00	--	-31.97	357	150
9848.000	34.05	--	5.72	33.77	--	74.00	--	-40.23	297	150
12310.000	33.23	--	11.60	38.83	--	74.00	--	-35.17	345	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
129.559	27.14	peak	14.06	41.20	43.50	-2.30	331	150
377.154	27.11	peak	17.18	44.29	74.00	-29.71	20	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4924.000	41.36	--	-1.95	39.41	--	74.00	--	-34.59	67	150
7386.000	39.97	--	2.43	42.40	--	74.00	--	-31.60	88	150
9848.000	34.19	--	5.72	33.91	--	74.00	--	-40.09	217	150
12310.000	33.40	--	11.60	39.00	--	74.00	--	-35.00	114	150

Note

1. **Correction Factor = Antenna factor + Cable loss - Preamplifier**
2. **The formula of measured value as: Test Result = Reading + Correction Factor**
3. **Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average**
4. **All not in the table noted test results are more than 20 dB below the relevant limits.**
5. **See the attached diagram as appendix.**

TEST RESULT (Transmitter): The unit DOES meet the FCC requirements.

Test equipment used: ETSTW-RE003 ETSTW-RE 004 ETSTW-RE 017 ETSTW-RE 028 ETSTW-RE029 ETSTW-RE 030 ETSTW-RE 042 ETSTW-RE 043 ETSTW-RE044

3.6 Radiated Emission on the band edge

According to FCC rules part 15 subpart C §15.247(c) in any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required.

In addition radiated emission which fall in the restricted bands, as defined in section 15.205(a), must also with the radiated emission limits.

Mode A

Test conditions		Attenuation at or outside band-edges	
		Lower Band-edge	Upper Band-edge
T_{nom}= 25°C	V_{nom} = 120 V	38.77 dB	52.08 dB

Mode B

Test conditions		Attenuation at or outside band-edges	
		Lower Band-edge	Upper Band-edge
T_{nom}= 25°C	V_{nom} = 120 V	36.10 dB	43.55 dB

Limit:

Frequency Range / MHz	Limit
902 –928 2400 – 2483.5 5725 - 5850	- 20 dB

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 017 ETSTW-RE 028 ETSTW-RE 030 ETSTW-RE 043 ETSTW-RE 044

Explanation: Please see attached diagram as appendix.

3.7 Minimum 6 dB Bandwidth

The analyzer ResBW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK reading was taken, two markers were set 6 dB below the maximum level on the right and the left side of the emission.
The 6 dB bandwidth is the frequency difference between the two markers.

Mode A

Test conditions		6 dB Bandwidth		
		Channel 1	Channel 6	Channel 11
T_{nom}= 25°C	V_{nom} = 120 V	8.782051282 MHz	8.814102564 MHz	8.782051282 MHz

Mode B

Test conditions		6 dB Bandwidth		
		Channel 1	Channel 6	Channel 11
T_{nom}= 25°C	V_{nom} = 120 V	16.185897436 MHz	15.993589744 MHz	15.673076923 MHz

Limits:

Frequency Range MHz	**Limits**
902-928	min 500 kHz
2400-2483.5	min 500 kHz
5725-5850	min 500 kHz

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 055

Explanation: See attached diagrams in Appendix.

3.8 Peak Power Spectral Density

Peak Power Spectral density is a measured at low, middle and high channel.
The peak output power is measured with a measurement bandwidth of 10 MHz and displayed on diagram together with Peak Power Spectral Density result which was measured with a bandwidth of 3 kHz, appreciate frequency span and sweep time.

Mode A

Test conditions		Peak Power Spectral Density (3 kHz)		
		Channel 1 [dBm]	Channel 6 [dBm]	Channel 11 [dBm]
T_{nom}= 25°C	V_{nom} = 120 V	-15.14	-14.72	-14.69

Mode B

Test conditions		Peak Power Spectral Density (3 kHz)		
		Channel 1 [dBm]	Channel 6 [dBm]	Channel 11 [dBm]
T_{nom}= 25°C	V_{nom} = 120 V	-18.25	-18.79	-18.22

Limits:

Frequency Range MHz	dBm
902-928	8
2400-2483,5	8
5725-5850	8

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 055

Explanation: See attached diagrams in Appendix.

3 Radiated Emission Test for Receiver

According to FCC part 15.109 (g), digital devices may be shown to comply with the standards contained in Third Edition of the International Special Committee on Radio Interference (CISPR), Pub. 22, "Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement".

DWR,wifiRouter,wifiCAM

Model: Router. Date: 2008/10/14
Mode: Mode A RX CH1 Temperature: 26 °C Engineer: Jeff
Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
107.916	20.35	peak	12.18	32.53	43.50	-10.97	206	150
180.421	19.56	peak	13.96	33.52	43.50	-9.98	215	150
250.220	20.47	peak	13.83	34.30	46.00	-11.70	236	150
358.918	22.40	peak	16.67	39.07	46.00	-6.93	195	150
539.880	19.61	peak	20.50	40.11	46.00	-5.89	162	150
720.842	19.97	peak	24.01	43.98	46.00	-2.02	130	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
107.916	19.77	peak	12.18	31.95	43.50	-11.55	215	150
179.880	17.22	peak	14.02	31.24	43.50	-12.26	116	150
250.220	22.94	peak	13.83	36.77	46.00	-9.23	300	150
358.918	19.42	peak	16.67	36.09	46.00	-9.91	200	150
539.880	12.90	peak	20.50	33.40	46.00	-12.60	216	150
720.842	9.48	peak	24.01	33.49	46.00	-12.51	300	150

Mode: Mode A RX CH6
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
107.916	20.35	peak	12.18	32.53	43.50	-10.97	300	150
180.421	19.56	peak	13.96	33.52	43.50	-9.98	265	150
250.220	20.47	peak	13.83	34.30	46.00	-11.70	118	150
358.918	21.40	peak	16.67	38.07	46.00	-7.93	66	150
539.880	18.61	peak	20.50	39.11	46.00	-6.89	228	150
720.842	17.97	peak	24.01	41.98	46.00	-4.02	138	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
53.808	14.99	peak	13.42	28.41	40.00	-11.59	155	150
130.100	19.20	peak	14.10	33.30	43.50	-10.20	150	150
250.220	21.94	peak	13.83	35.77	46.00	-10.23	216	150
358.918	19.42	peak	16.67	36.09	46.00	-9.91	200	150
431.864	14.73	peak	18.52	33.25	46.00	-12.75	139	150
539.880	12.90	peak	20.50	33.40	46.00	-12.60	147	150

Mode: Mode A RX CH11
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
107.916	20.35	peak	12.18	32.53	43.50	-10.97	255	150
180.421	19.56	peak	13.96	33.52	43.50	-9.98	264	150
250.220	20.47	peak	13.83	34.30	46.00	-11.70	153	150
358.918	22.40	peak	16.67	39.07	46.00	-6.93	222	150
539.880	19.61	peak	20.50	40.11	46.00	-5.89	167	150
720.842	19.97	peak	24.01	43.98	46.00	-2.02	47	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
107.916	19.77	peak	12.18	31.95	43.50	-11.55	55	150
130.100	19.20	peak	14.10	33.30	43.50	-10.20	148	150
250.220	22.94	peak	13.83	36.77	46.00	-9.23	235	150
358.918	19.42	peak	16.67	36.09	46.00	-9.91	200	150
431.864	14.73	peak	18.52	33.25	46.00	-12.75	231	150
539.880	12.90	peak	20.50	33.40	46.00	-12.60	336	150

Mode: Mode B RX CH1
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
107.916	19.35	peak	12.18	31.53	43.50	-11.97	166	150
180.421	19.56	peak	13.96	33.52	43.50	-9.98	185	150
250.220	20.47	peak	13.83	34.30	46.00	-11.70	100	150
358.918	22.40	peak	16.67	39.07	46.00	-6.93	230	150
539.880	19.61	peak	20.50	40.11	46.00	-5.89	265	150
720.842	19.97	peak	24.01	43.98	46.00	-2.02	337	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
107.916	19.77	peak	12.18	31.95	43.50	-11.55	221	150
130.100	19.20	peak	14.10	33.30	43.50	-10.20	162	150
250.220	22.94	peak	13.83	36.77	46.00	-9.23	235	150
358.918	19.42	peak	16.67	36.09	46.00	-9.91	55	150
539.880	12.90	peak	20.50	33.40	46.00	-12.60	215	150
639.479	12.26	peak	22.57	34.83	46.00	-11.17	133	150

Mode: Mode B RX CH 6
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
107.916	20.35	peak	12.18	32.53	43.50	-10.97	266	150
180.421	19.56	peak	13.96	33.52	43.50	-9.98	150	150
250.220	20.47	peak	13.83	34.30	46.00	-11.70	203	150
358.918	22.40	peak	16.67	39.07	46.00	-6.93	320	150
539.880	19.61	peak	20.50	40.11	46.00	-5.89	260	150
720.842	19.97	peak	24.01	43.98	46.00	-2.02	150	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
107.916	19.77	peak	12.18	31.95	43.50	-11.55	200	150
130.100	19.20	peak	14.10	33.30	43.50	-10.20	151	150
250.220	21.94	peak	13.83	35.77	46.00	-10.23	245	150
358.918	19.42	peak	16.67	36.09	46.00	-9.91	212	150
431.864	14.73	peak	18.52	33.25	46.00	-12.75	115	150
699.800	10.44	peak	23.43	33.87	46.00	-12.13	138	150

Mode: Mode B RX CH11
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
107.916	20.35	peak	12.18	32.53	43.50	-10.97	300	150
180.421	19.56	peak	13.96	33.52	43.50	-9.98	315	150
216.132	21.48	peak	12.45	33.93	46.00	-12.07	226	150
358.918	22.40	peak	16.67	39.07	46.00	-6.93	148	150
539.880	19.61	peak	20.50	40.11	46.00	-5.89	321	150
720.842	19.97	peak	24.01	43.98	46.00	-2.02	119	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
107.916	19.77	peak	12.18	31.95	43.50	-11.55	230	150
216.132	22.88	peak	12.45	35.33	46.00	-10.67	215	150
250.220	21.44	peak	13.83	35.27	46.00	-10.73	226	150
358.918	19.42	peak	16.67	36.09	46.00	-9.91	233	150
539.880	12.90	peak	20.50	33.40	46.00	-12.60	118	150
720.842	9.48	peak	24.01	33.49	46.00	-12.51	87	150

Note

1. **Correction Factor = Antenna factor + Cable loss - Preamplifier**
2. **The formula of measured value as: Test Result = Reading + Correction Factor**
3. **Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average**
4. **All not in the table noted test results are more than 20 dB below the relevant limits.**
5. **See the attached diagram as appendix.**

Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (microvolts/meter)	Field Strength (dBmicrovolts/meter)
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 017 ETSTW-RE 028 ETSTW-RE 029 ETSTW-RE 030 ETSTW-RE 042 ETSTW-RE 043 ETSTW-RE 044

310 For be Conducted Emission

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the table bellows with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

Frequency	Level (dBμV)	
	quasi-peak	average
150 kHz	lower limit line	Lower limit line

DWR,wifiRouter,wifiCAM

Model: Router Date: 2008/9/30
Mode: Temperature: 26 °C Engineer: Jeff
Polarization: N Humidity: 60 %

Frequency (MHz)	Reading (dBuV) QP	Reading (dBuV) Ave.	Factor (dB) Corr.	Result (dBuV) QP	Result (dBuV) Ave.	Limit (dBuV) QP	Limit (dBuV) Ave.	Margin (dB)
0.1718	41.92	35.34	10.14	52.06	45.48	64.87	54.87	-9.39
0.3511	30.19	20.20	10.05	40.24	30.25	58.94	48.94	-18.69
0.8800	27.86	15.32	10.12	37.98	25.44	56.00	46.00	-18.02
3.3450	28.62	12.76	10.09	38.71	22.85	56.00	46.00	-17.29
11.7500	18.55	12.07	10.49	29.04	22.56	60.00	50.00	-27.44
18.2778	30.60	23.90	10.47	41.07	34.37	60.00	50.00	-15.63

Polarization: L1

Frequency (MHz)	Reading (dBuV) QP	Reading (dBuV) Ave.	Factor (dB) Corr.	Result (dBuV) QP	Result (dBuV) Ave.	Limit (dBuV) QP	Limit (dBuV) Ave.	Margin (dB)
0.1718	42.01	37.11	10.14	52.15	47.25	64.87	54.87	-7.62
0.3506	37.81	31.68	10.05	47.86	41.73	58.95	48.95	-7.22
0.8850	33.80	21.16	10.12	43.92	31.28	56.00	46.00	-12.08
2.0900	33.13	17.40	10.07	43.20	27.47	56.00	46.00	-12.80
10.3889	21.68	14.82	10.51	32.19	25.33	60.00	50.00	-24.67
16.1944	27.70	22.60	10.45	38.15	33.05	60.00	50.00	-16.95

Note

1. **The formula of measured value as: Test Result = Reading + Correction Factor**
2. **The Correction Factor = Cable Loss + LISN Insertion Loss + Pulse Limit Loss**
3. **Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average**
4. **All not in the table noted test results are more than 20 dB below the relevant limits.**
5. **See attached diagrams as appendix.**

Limits:

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Test equipment used:ETSTW-CE 001 ETSTW-CE 003 ETSTW-CE 004 ETSTW-CE 006

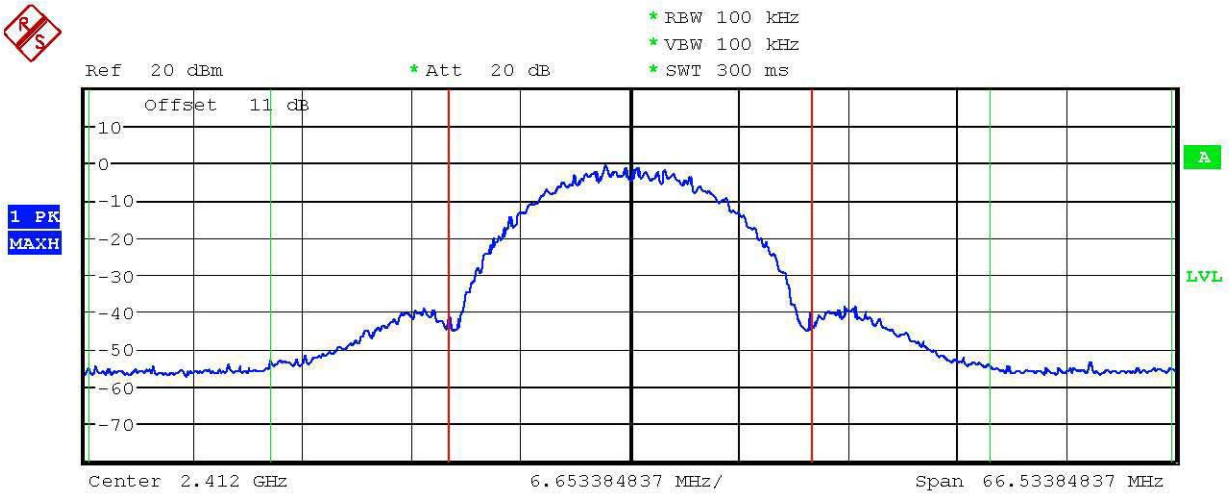
Appendix

Measurement diagrams

1. Peak Output Power
2. Band Edge Measurement
3. Minimum 6dB Bandwidth
4. Peak Power Spectral Density
5. Radiated spurious emission
6. Conducted emission

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

Peak Output Power

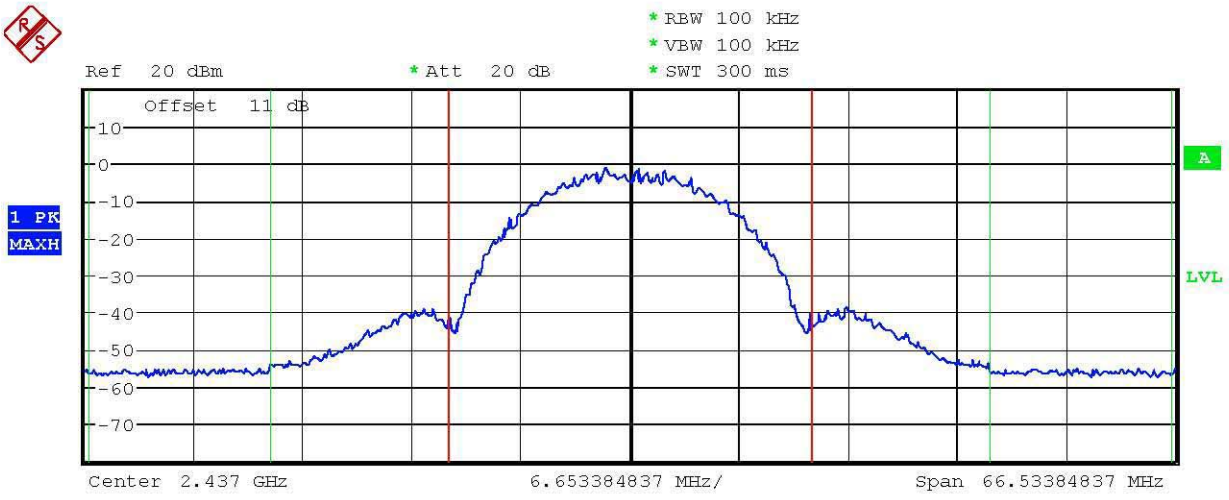


Tx Channel		**WLAN 802.11B**	
Bandwidth	22 MHz	Power	15.77 dBm
Adjacent Channel			
Bandwidth	11 MHz	Lower	-40.55 dB
Spacing	16.5 MHz	Upper	-39.90 dB
Alternate Channel			
Bandwidth	11 MHz	Lower	-51.97 dB
Spacing	27.5 MHz	Upper	-51.72 dB

MAX OUTPUT POWER 802.11b CH1

Date: 8.OCT.2008 09:14:13

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

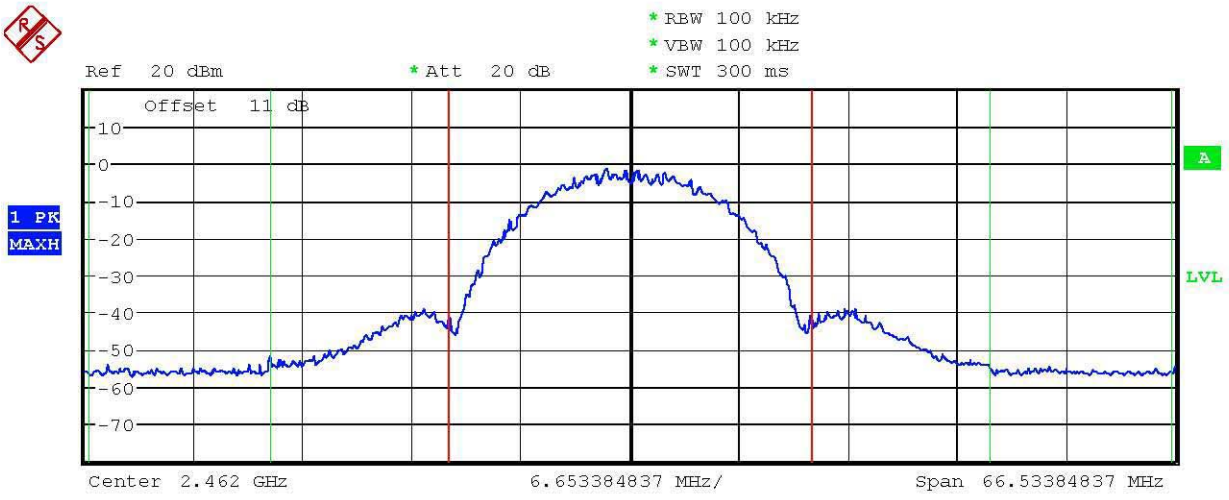


Tx Channel		**WLAN 802.11B**	
Bandwidth	22 MHz	Power	15.51 dBm
Adjacent Channel			
Bandwidth	11 MHz	Lower	-40.31 dB
Spacing	16.5 MHz	Upper	-39.83 dB
Alternate Channel			
Bandwidth	11 MHz	Lower	-51.78 dB
Spacing	27.5 MHz	Upper	-51.83 dB

MAX OUTPUT POWER 802.11b CH6

Date: 8.OCT.2008 09:15:06

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

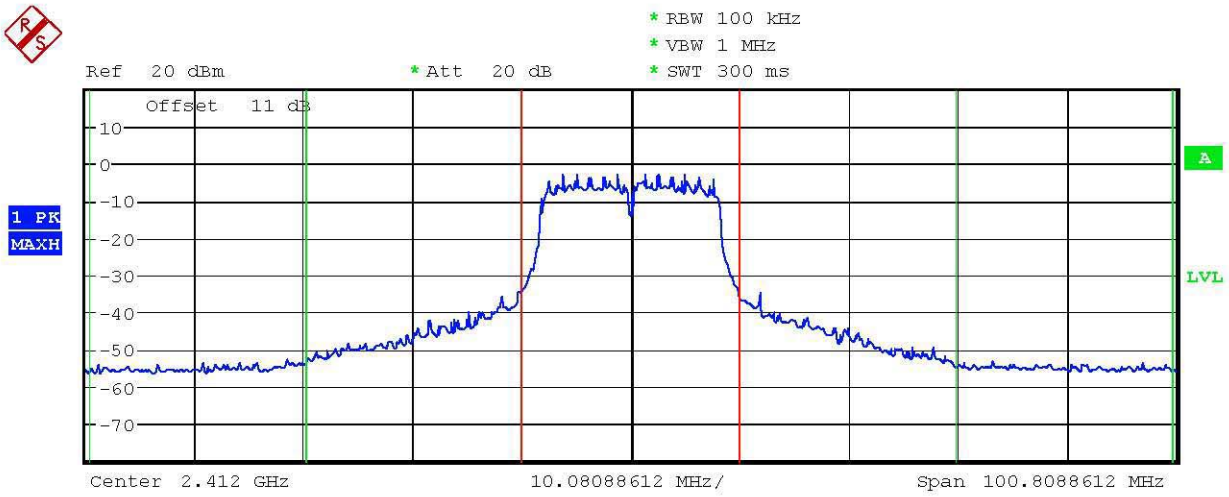


Tx Channel		**WLAN 802.11B**	
Bandwidth	22 MHz	Power	15.31 dBm
Adjacent Channel			
Bandwidth	11 MHz	Lower	-40.48 dB
Spacing	16.5 MHz	Upper	-40.01 dB
Alternate Channel			
Bandwidth	11 MHz	Lower	-51.40 dB
Spacing	27.5 MHz	Upper	-51.49 dB

MAX OUTPUT POWER 802.11b CH11

Date: 8.OCT.2008 09:16:03

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

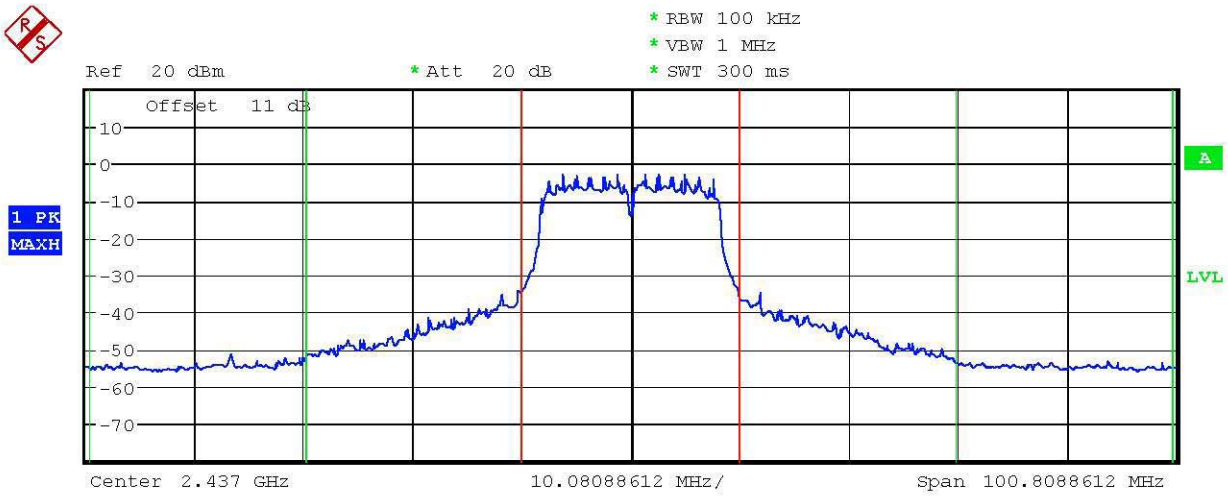


Tx Channel		**WLAN 802.11G**	
Bandwidth	20 MHz	Power	15.62 dBm
Adjacent Channel			
Bandwidth	20 MHz	Lower	-36.44 dB
Spacing	20 MHz	Upper	-36.66 dB
Alternate Channel			
Bandwidth	20 MHz	Lower	-48.27 dB
Spacing	40 MHz	Upper	-48.11 dB

MAX OUTPUT POWER 802.11g CH1

Date: 8.OCT.2008 09:26:51

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

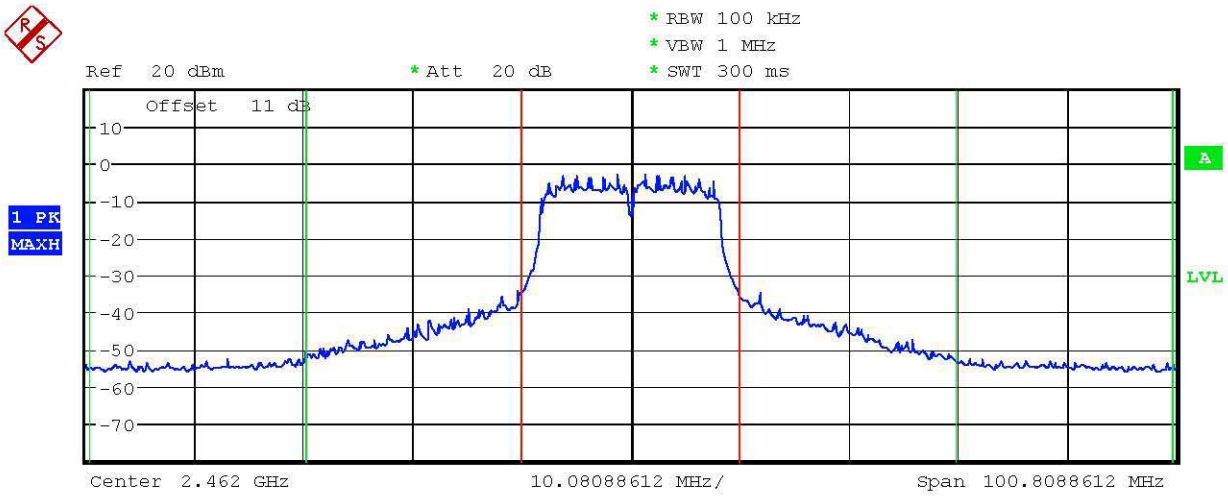


Tx Channel		**WLAN 802.11G**	
Bandwidth	20 MHz	Power	15.51 dBm
Adjacent Channel			
Bandwidth	20 MHz	Lower	-35.75 dB
Spacing	20 MHz	Upper	-35.94 dB
Alternate Channel			
Bandwidth	20 MHz	Lower	-47.53 dB
Spacing	40 MHz	Upper	-47.65 dB

MAX OUTPUT POWER 802.11g CH6

Date: 8.OCT.2008 09:28:05

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

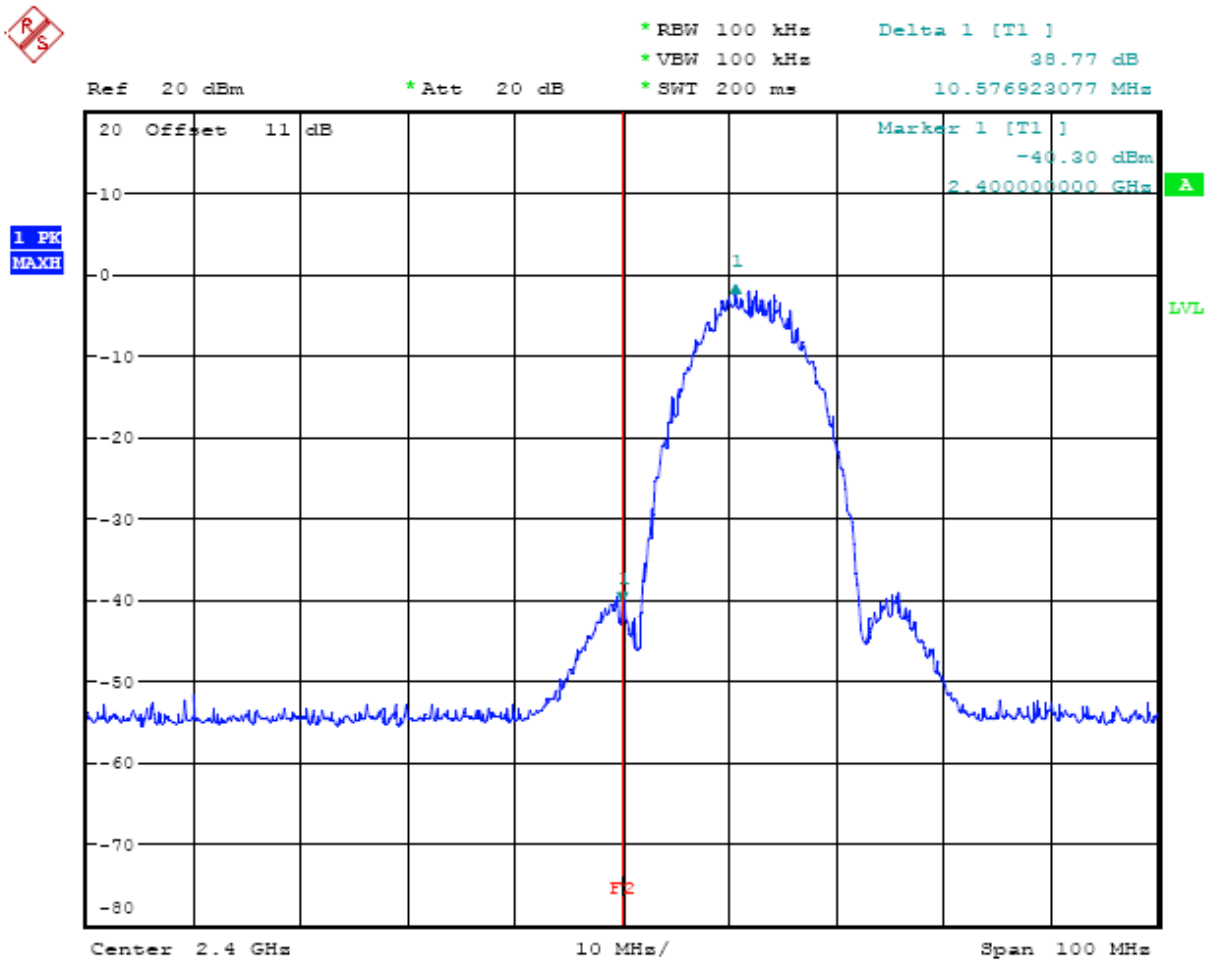


Tx Channel		**WLAN 802.11G**	
Bandwidth	20 MHz	Power	15.41 dBm
Adjacent Channel			
Bandwidth	20 MHz	Lower	-35.88 dB
Spacing	20 MHz	Upper	-35.74 dB
Alternate Channel			
Bandwidth	20 MHz	Lower	-47.52 dB
Spacing	40 MHz	Upper	-47.42 dB

MAX OUTPUT POWER 802.11g CH11

Date: 8.OCT.2008 09:29:01

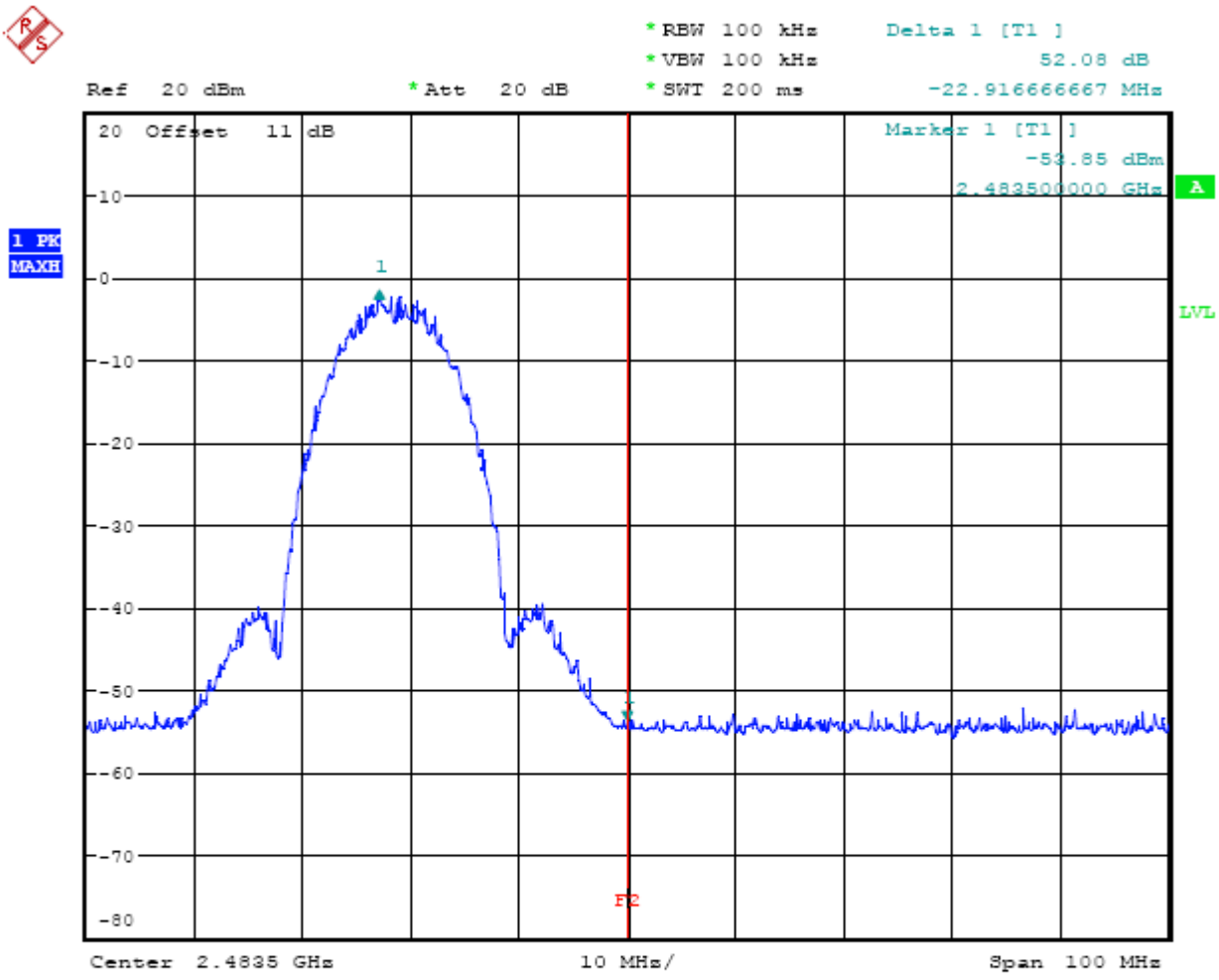
Band Edge Measurement



BANDEDGE 802.11b CH1

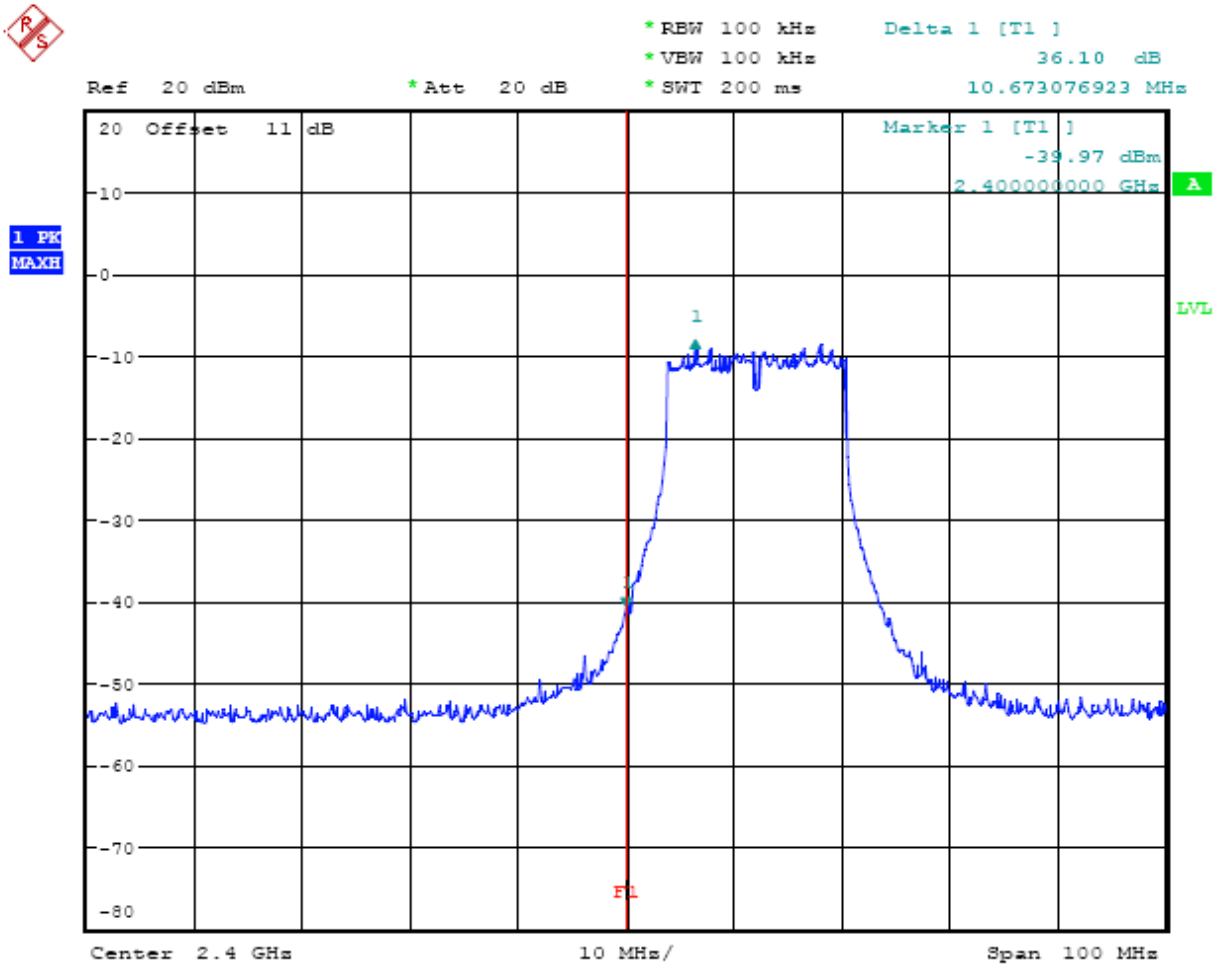
Date: 8.OCT.2008 11:36:22

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



BANDEDGE 802.11b CH11

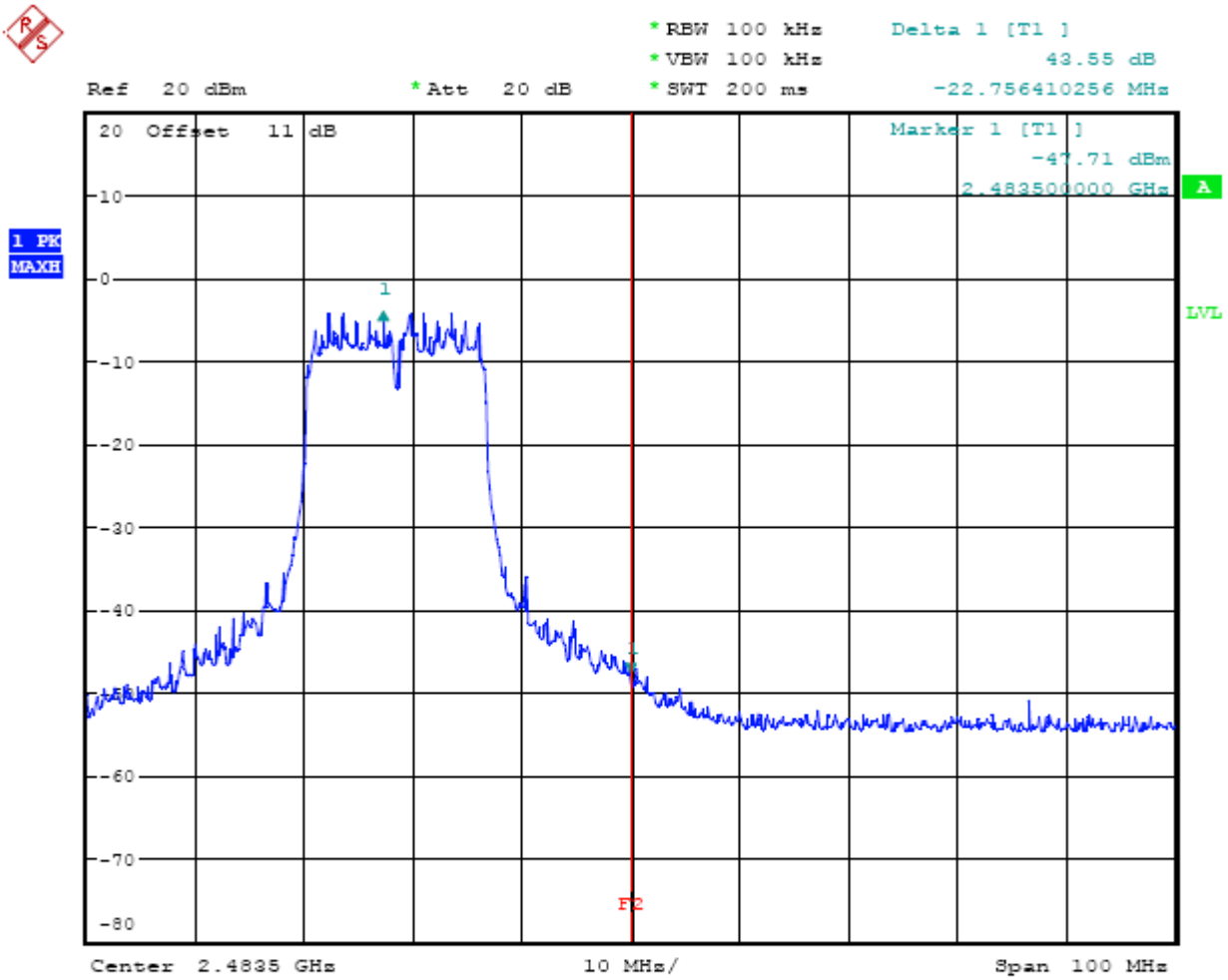
Date: 8.OCT.2008 11:41:48



BANDEDGE 802.11g CH1

Date: 8.OCT.2008 10:55:02

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

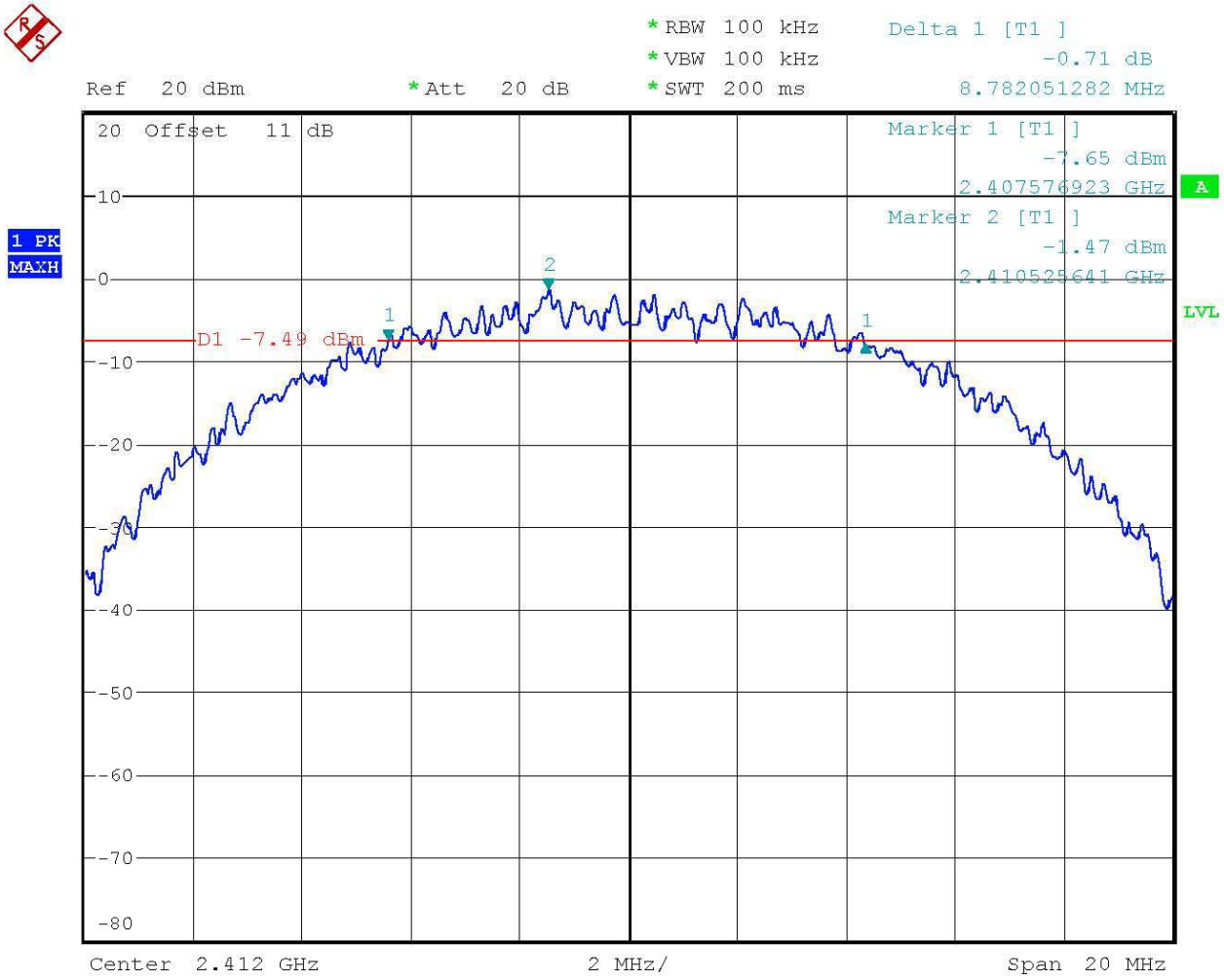


BANDEDGE 802.11g CH11

Date: 8.OCT.2008 11:40:21

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

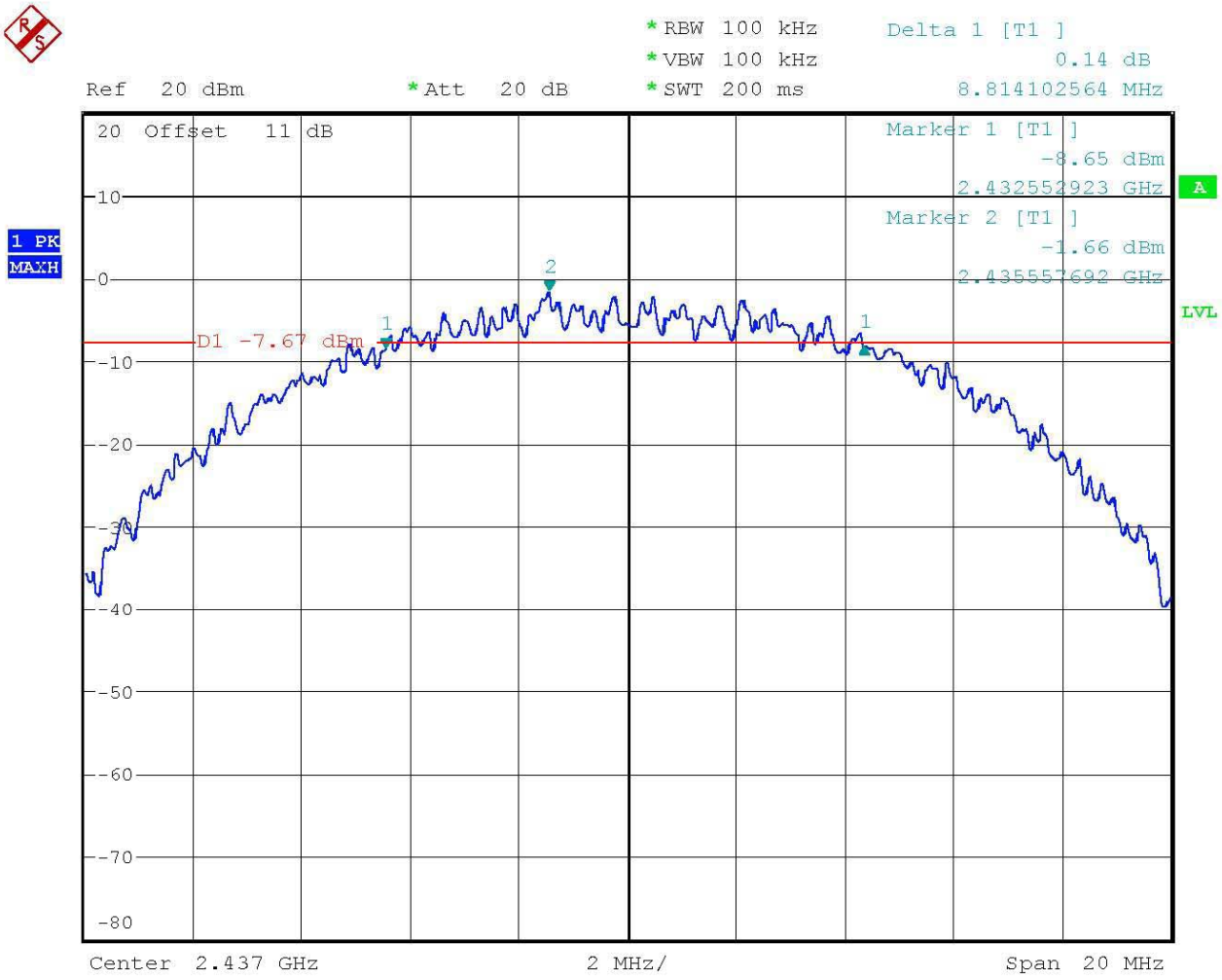
Minimum 6dB Bandwidth



6dB BANDWIDTH 802.11b CH1

Date: 8.OCT.2008 10:50:42

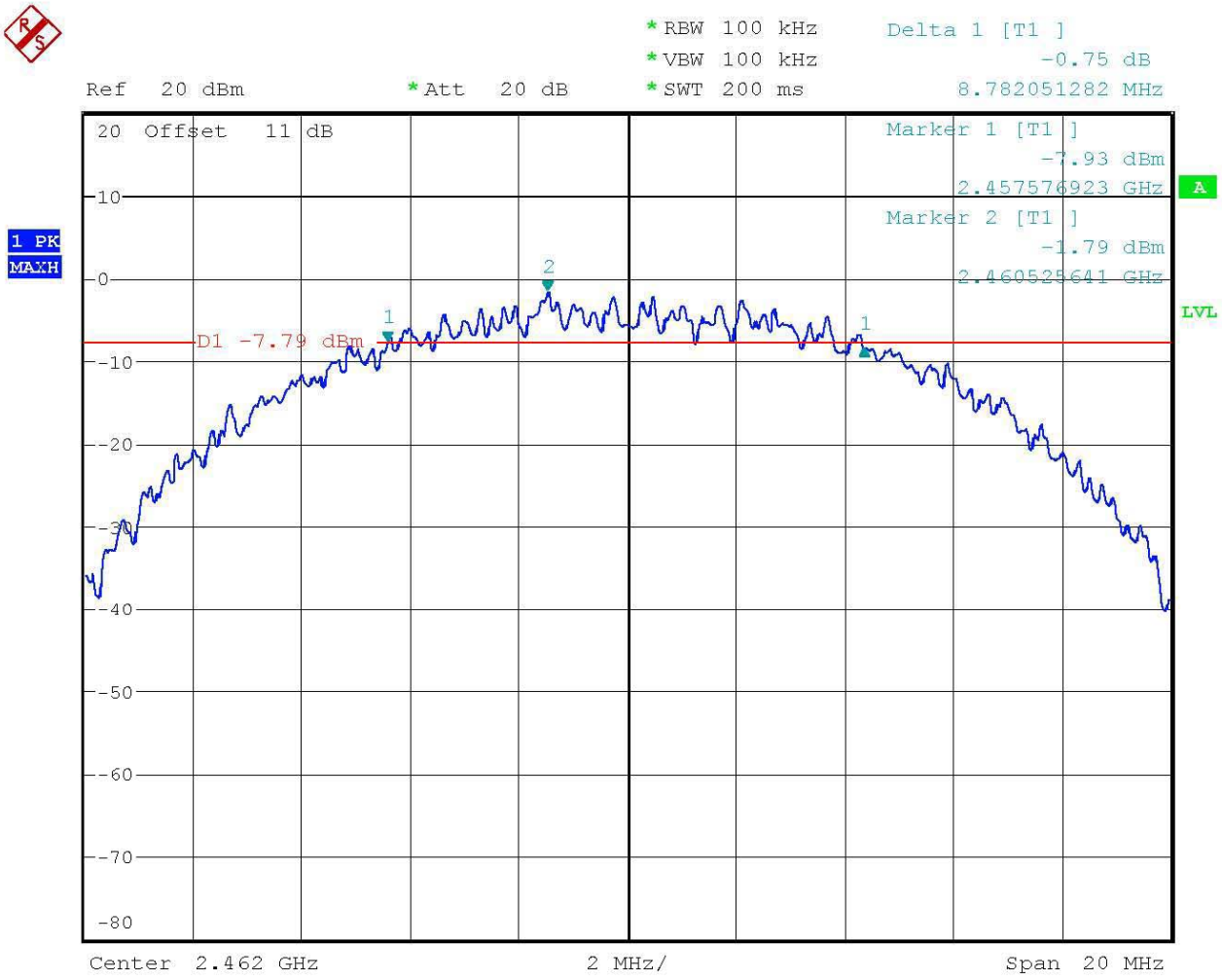
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



6dB BANDWIDTH 802.11b CH6

Date: 8.OCT.2008 10:47:38

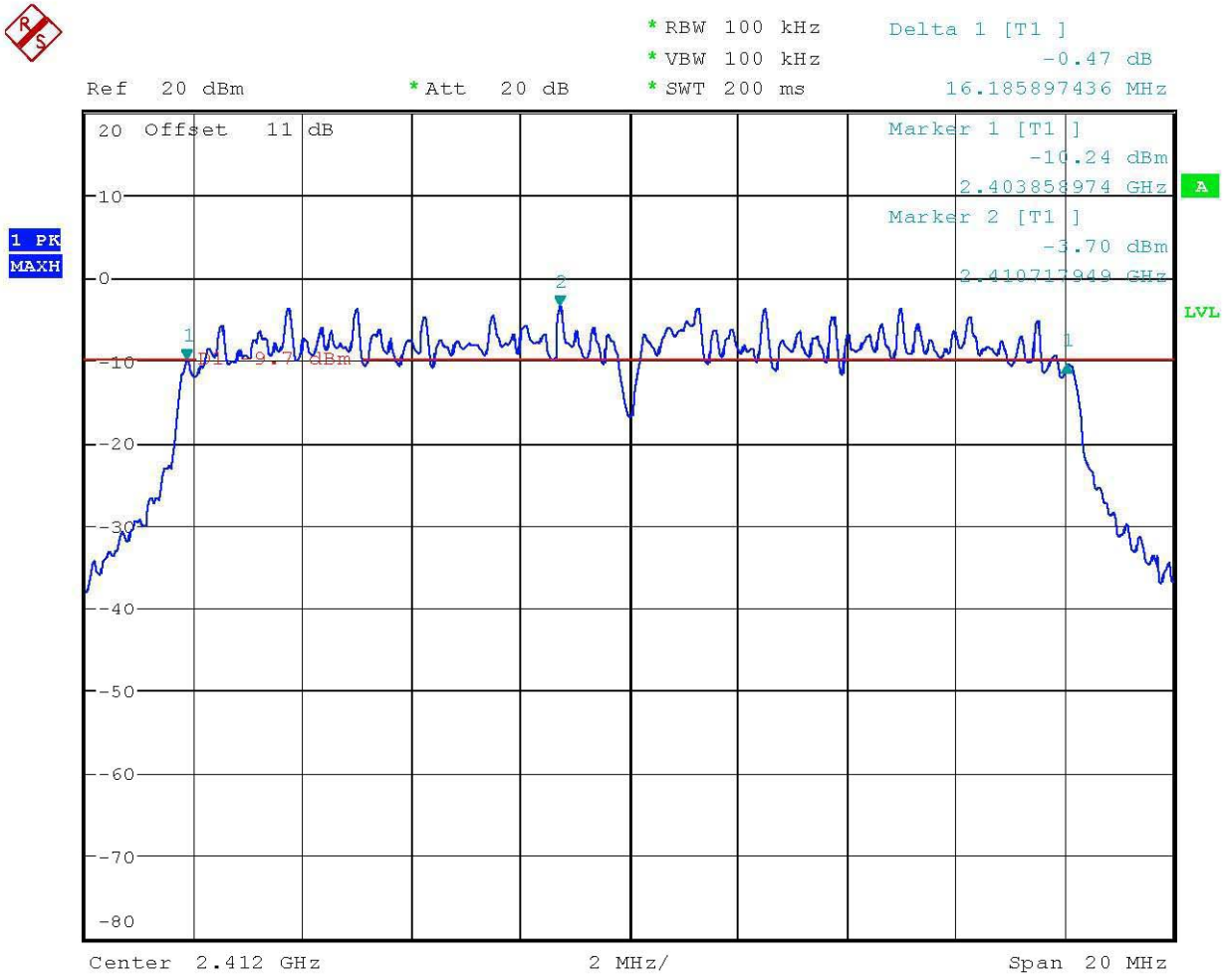
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



6dB BANDWIDTH 802.11b CH11

Date: 8.OCT.2008 10:49:07

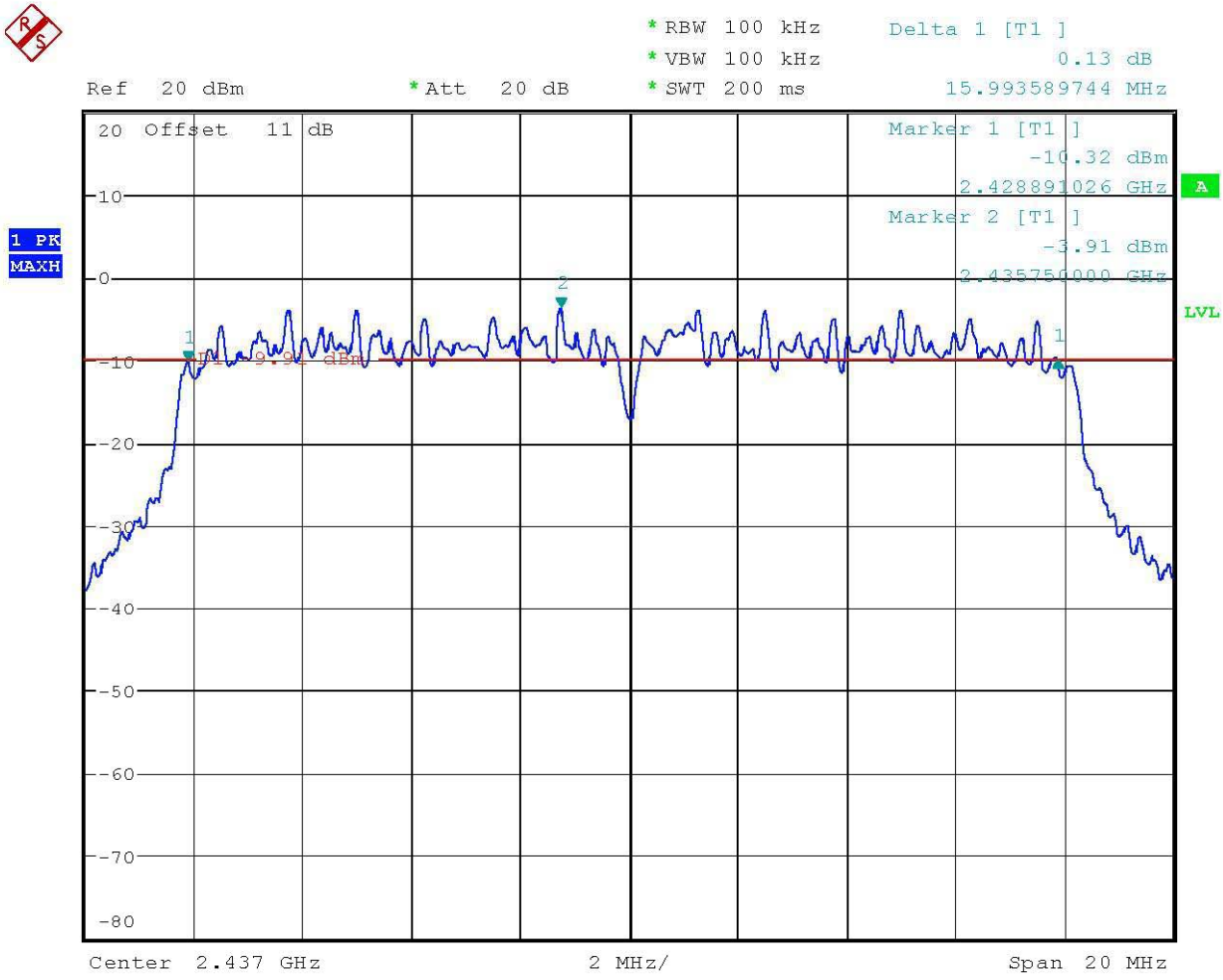
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



6dB BANDWIDTH 802.11g CH1

Date: 8.OCT.2008 10:41:39

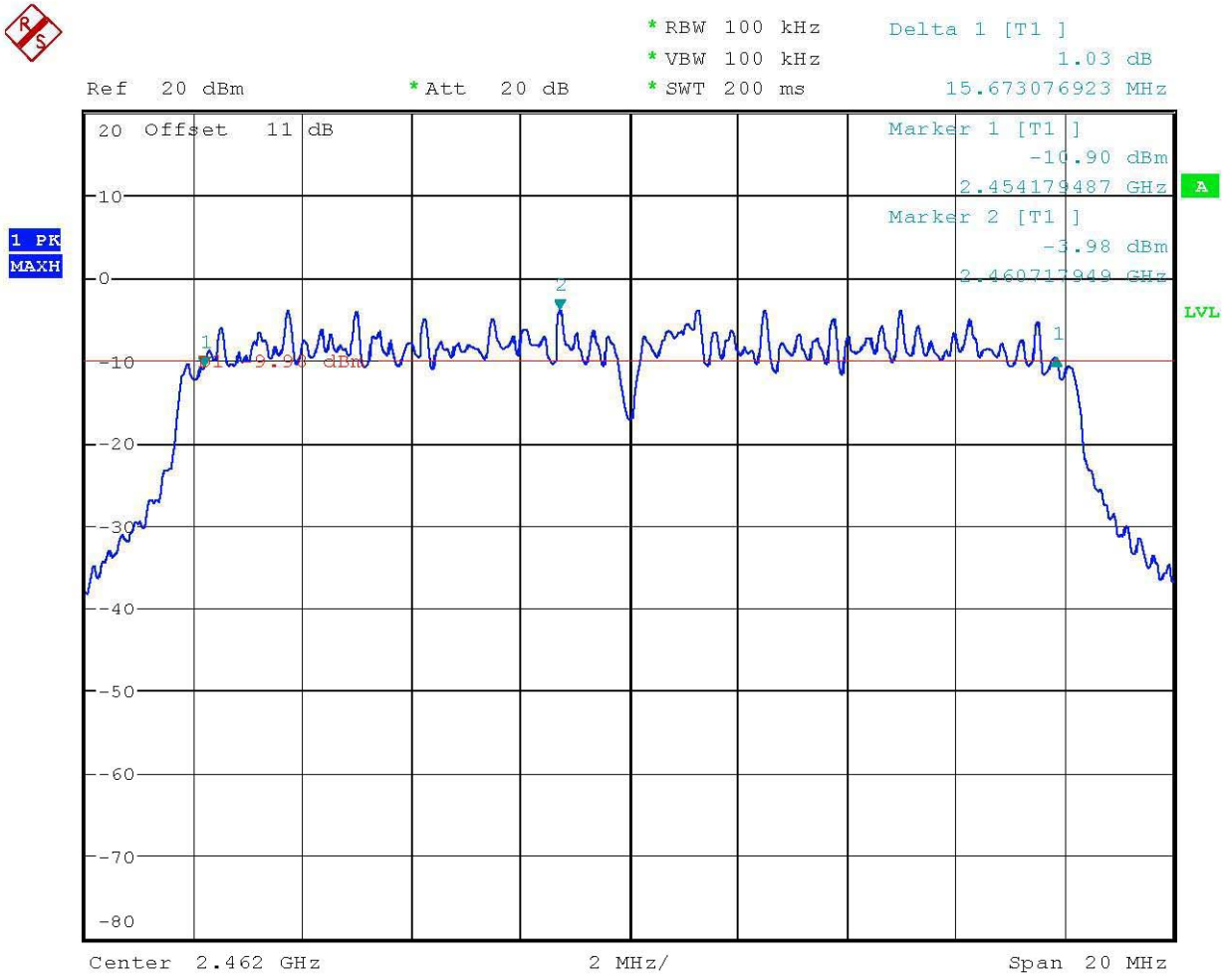
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



6dB BANDWIDTH 802.11g CH6

Date: 8.OCT.2008 10:40:09

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

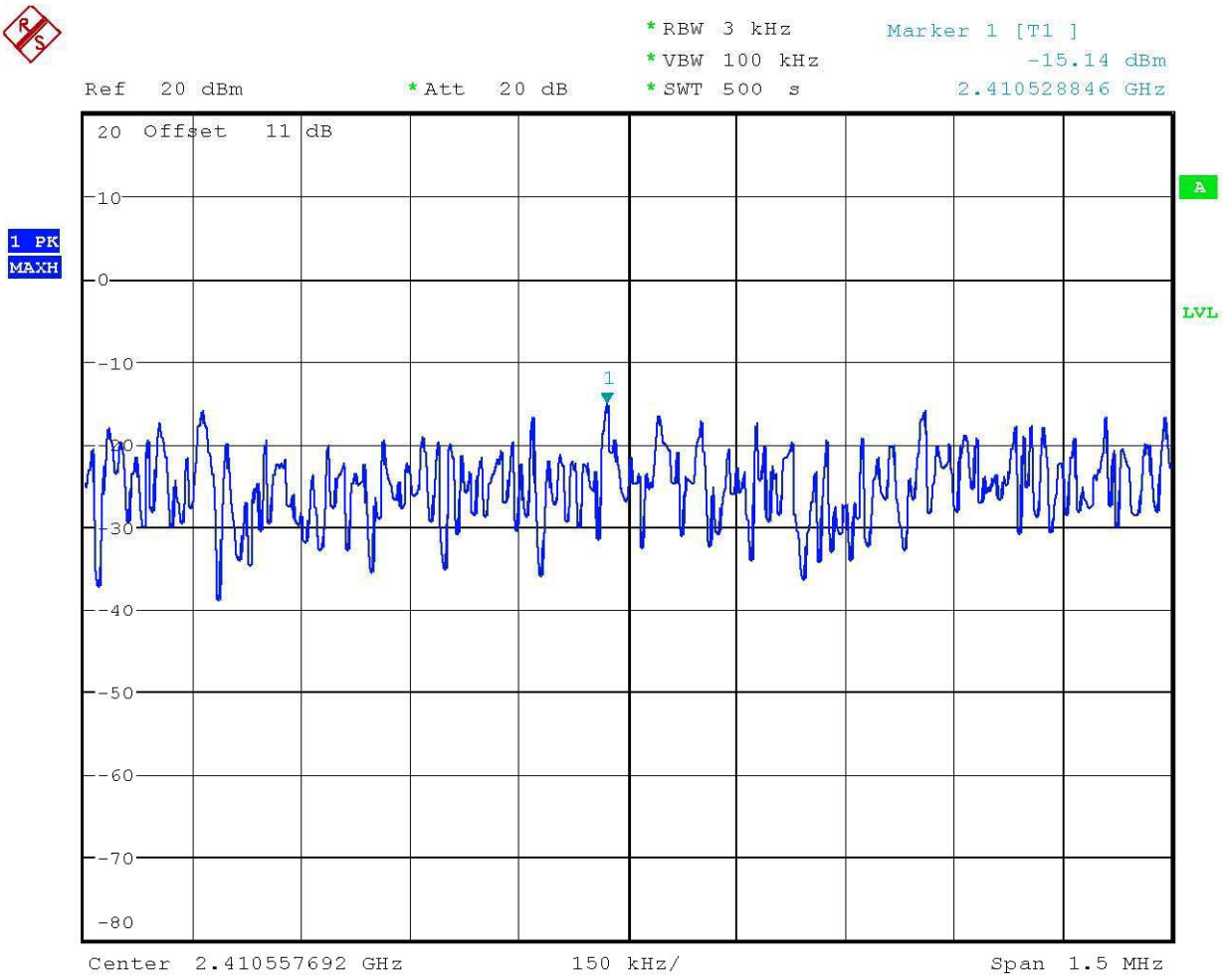


6dB BANDWIDTH 802.11g CH11

Date: 8.OCT.2008 10:38:00

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

Peak Power Spectral Density



POWER DENSITY 802.11b CH1

Date: 8.OCT.2008 11:52:07

Registration number: W6M20809-9313-C-1
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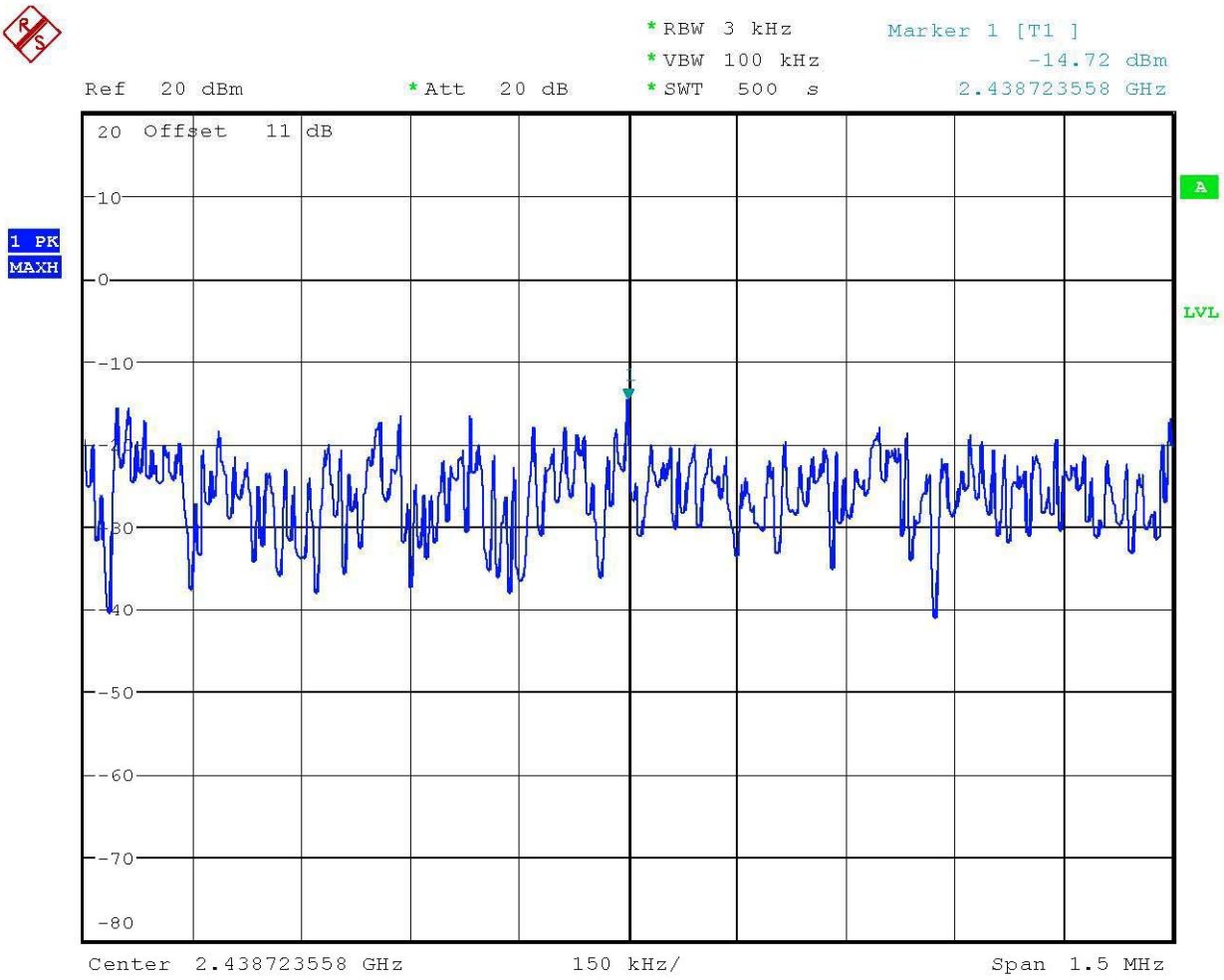

POWER DENSITY 802.11b CH6

Date: 8.OCT.2008 11:53:22

Registration number: W6M20809-9313-C-1
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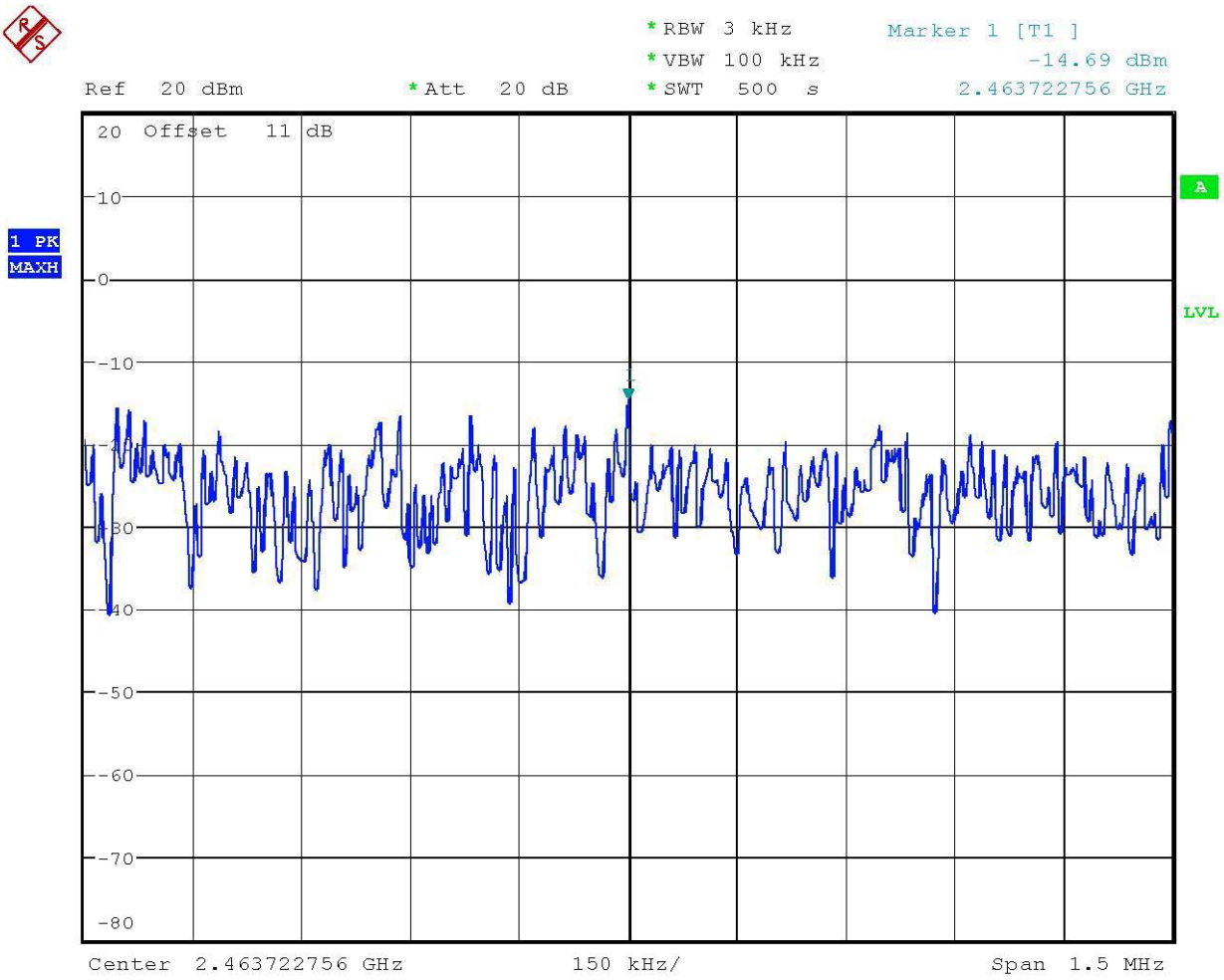
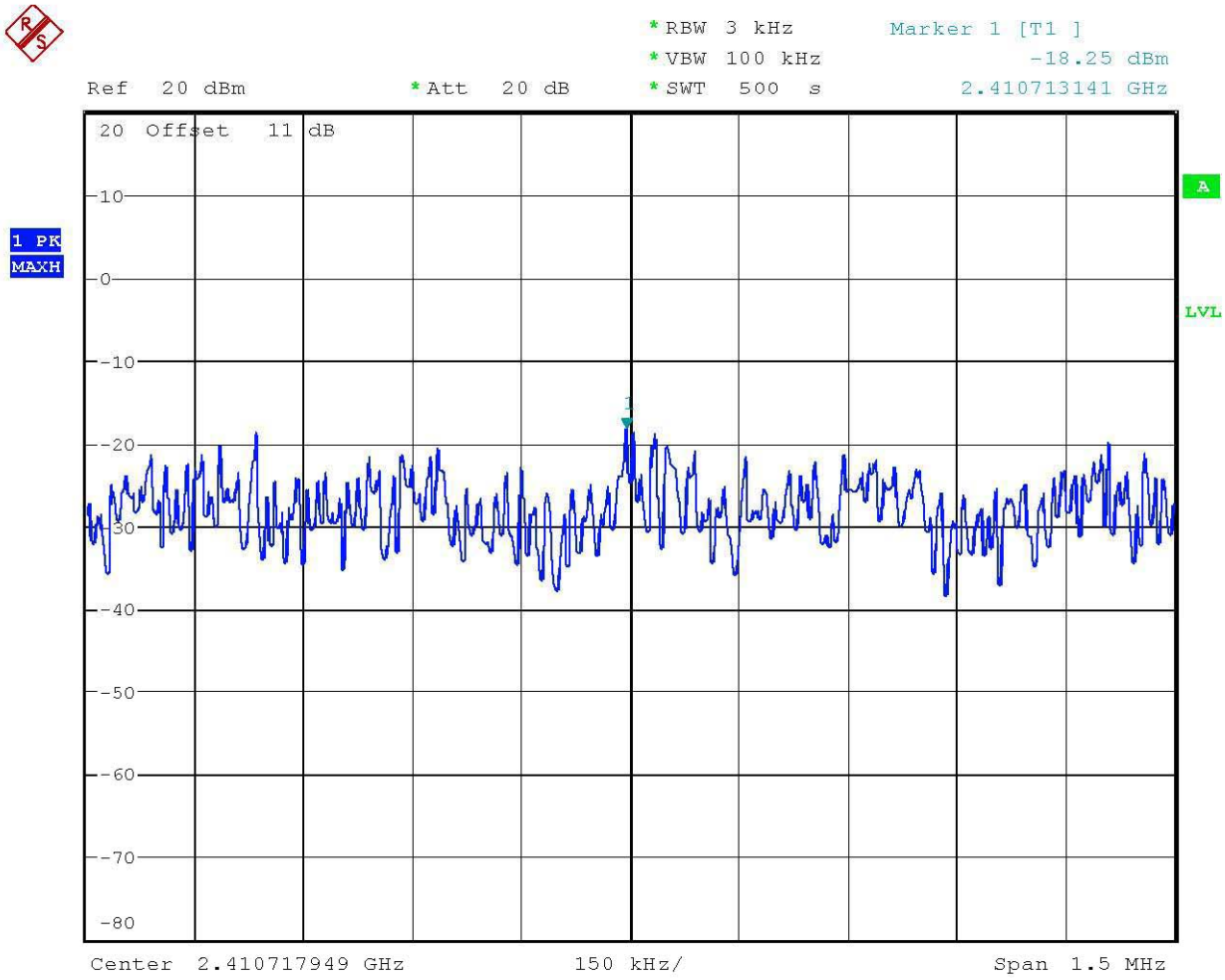


POWER DENSITY 802.11b CH11

Date: 8.OCT.2008 11:54:17

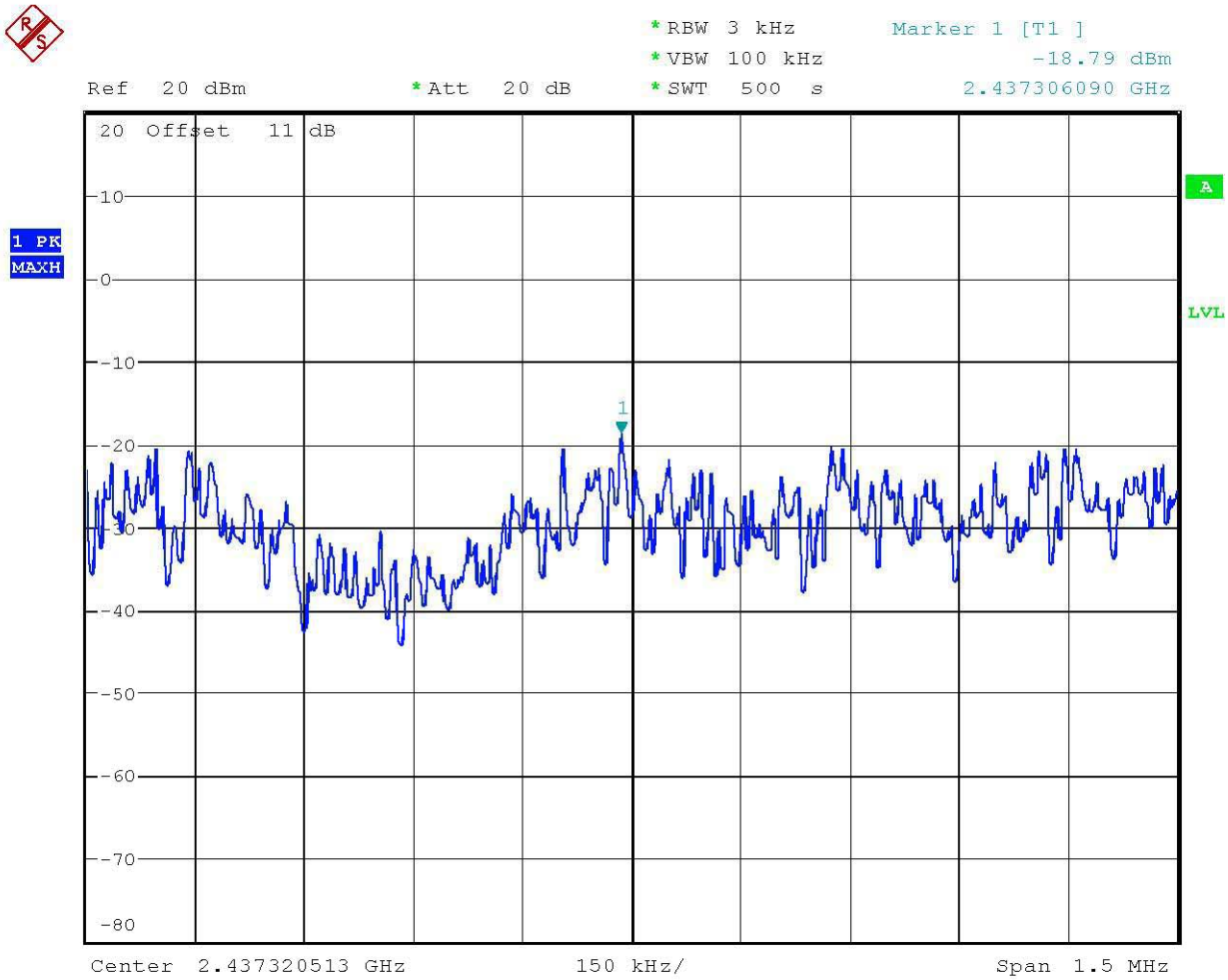
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



POWER DENSITY 802.11g CH1

Date: 8.OCT.2008 11:57:36

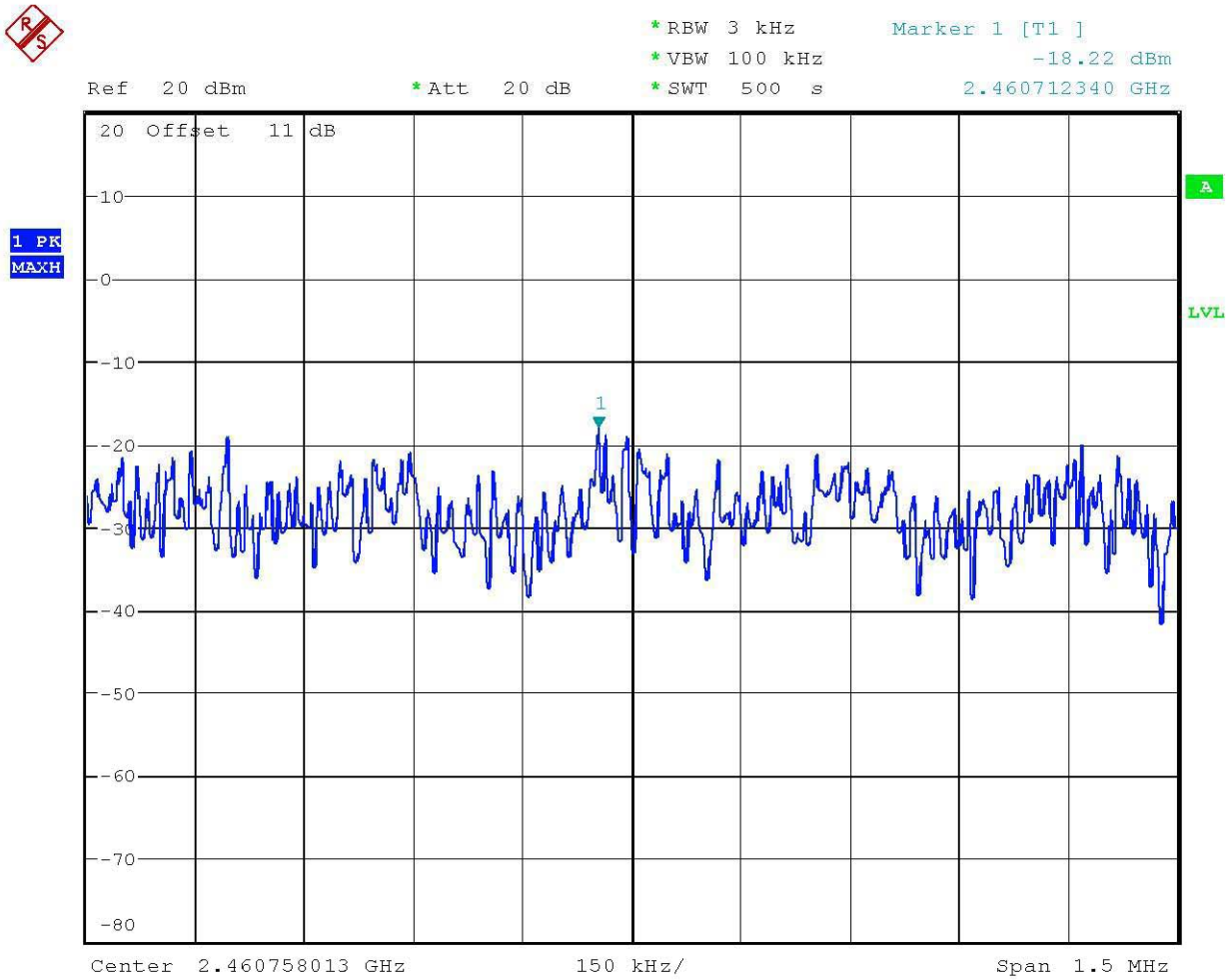
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



POWER DENSITY 802.11g CH6

Date: 8.OCT.2008 11:56:36

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

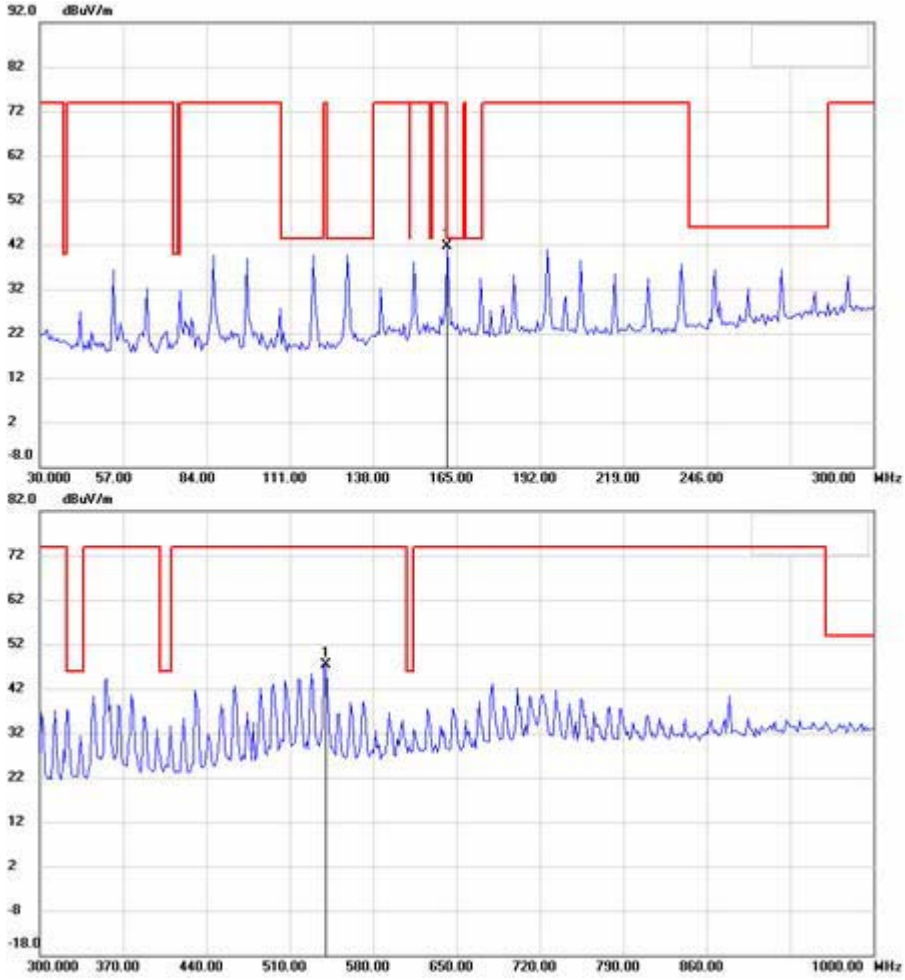


POWER DENSITY 802.11g CH11

Date: 8.OCT.2008 11:55:42

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

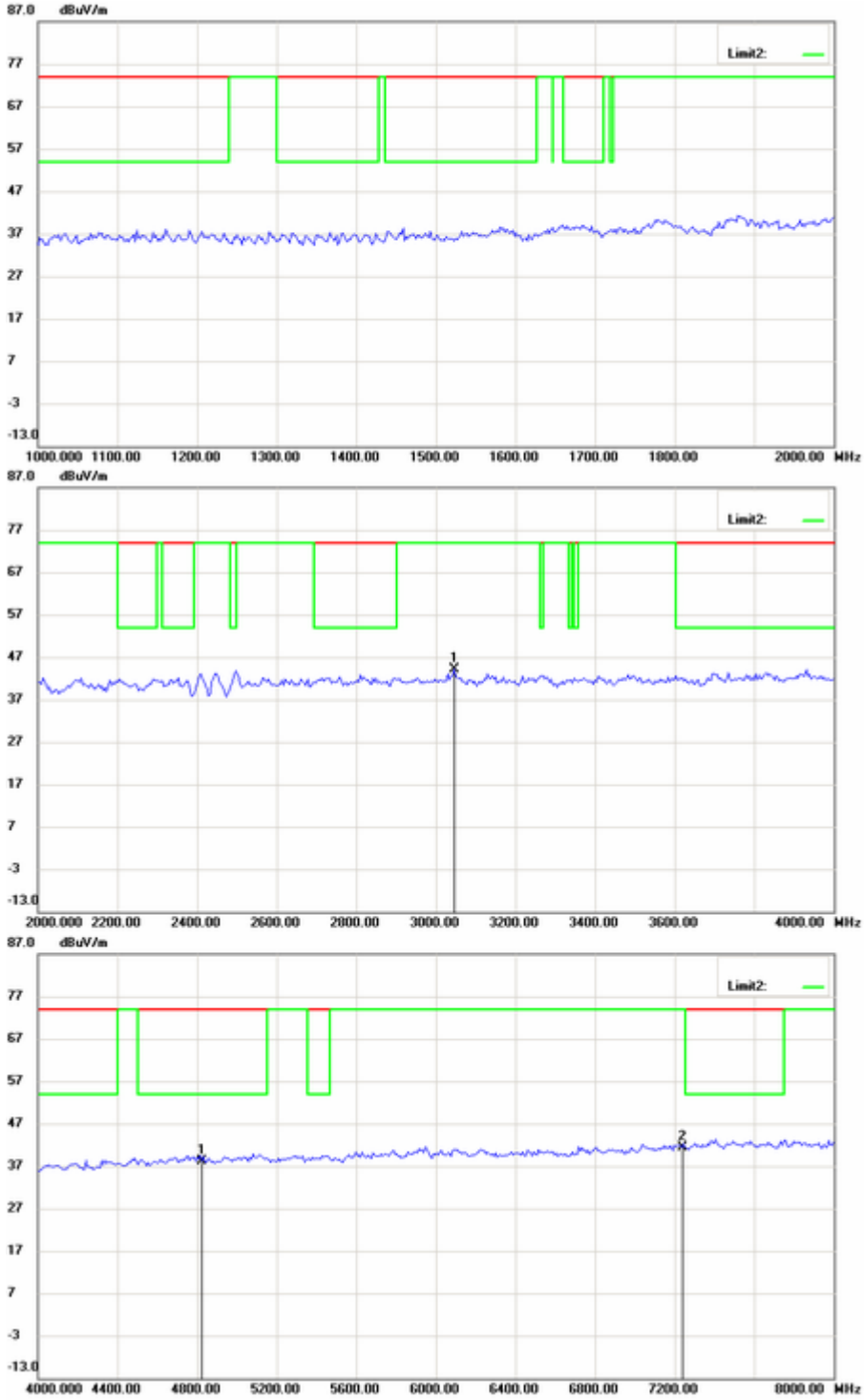
Radiated spurious emission
Transmitter
Mode A CH1
Antenna Polarization H



Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

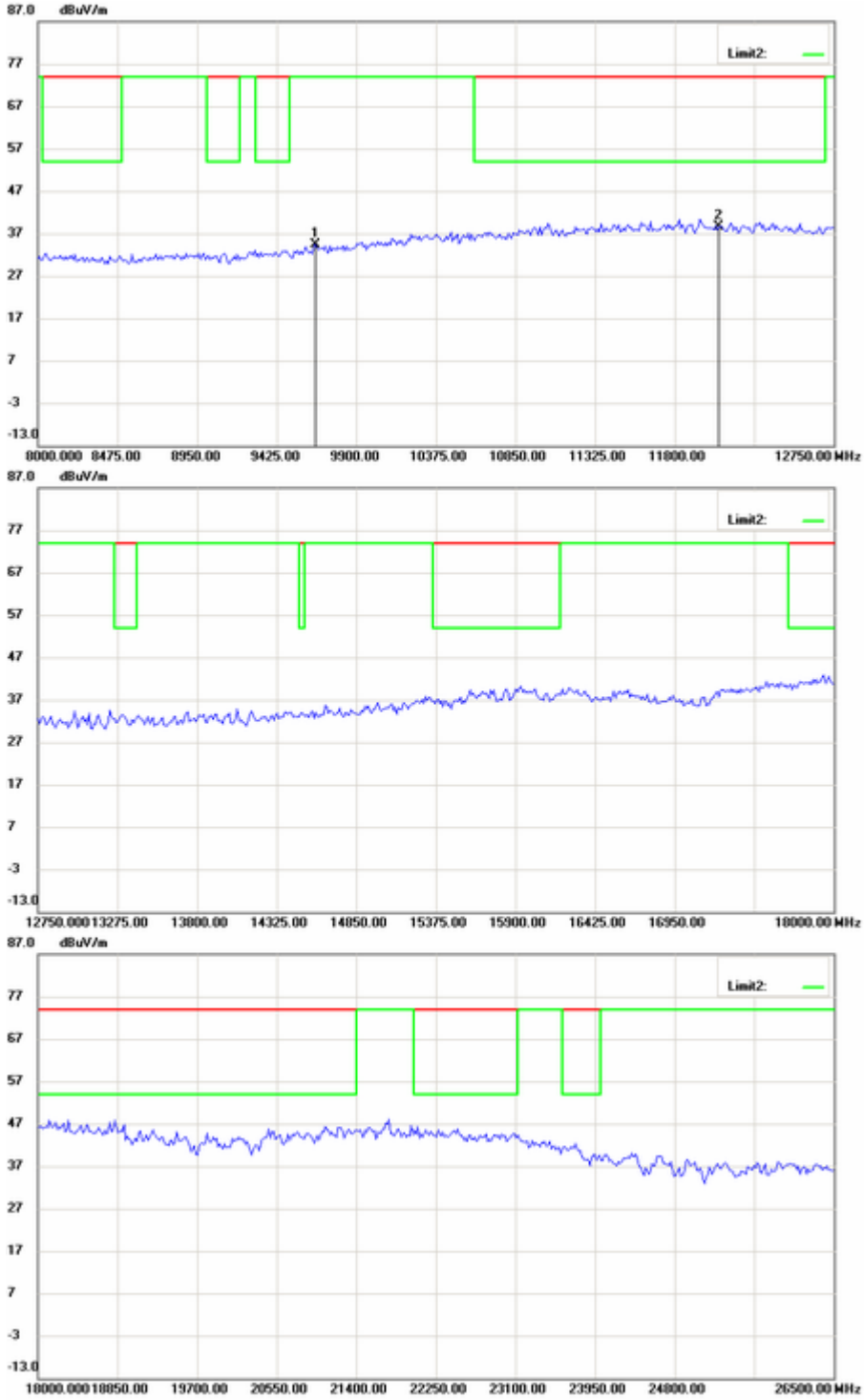
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

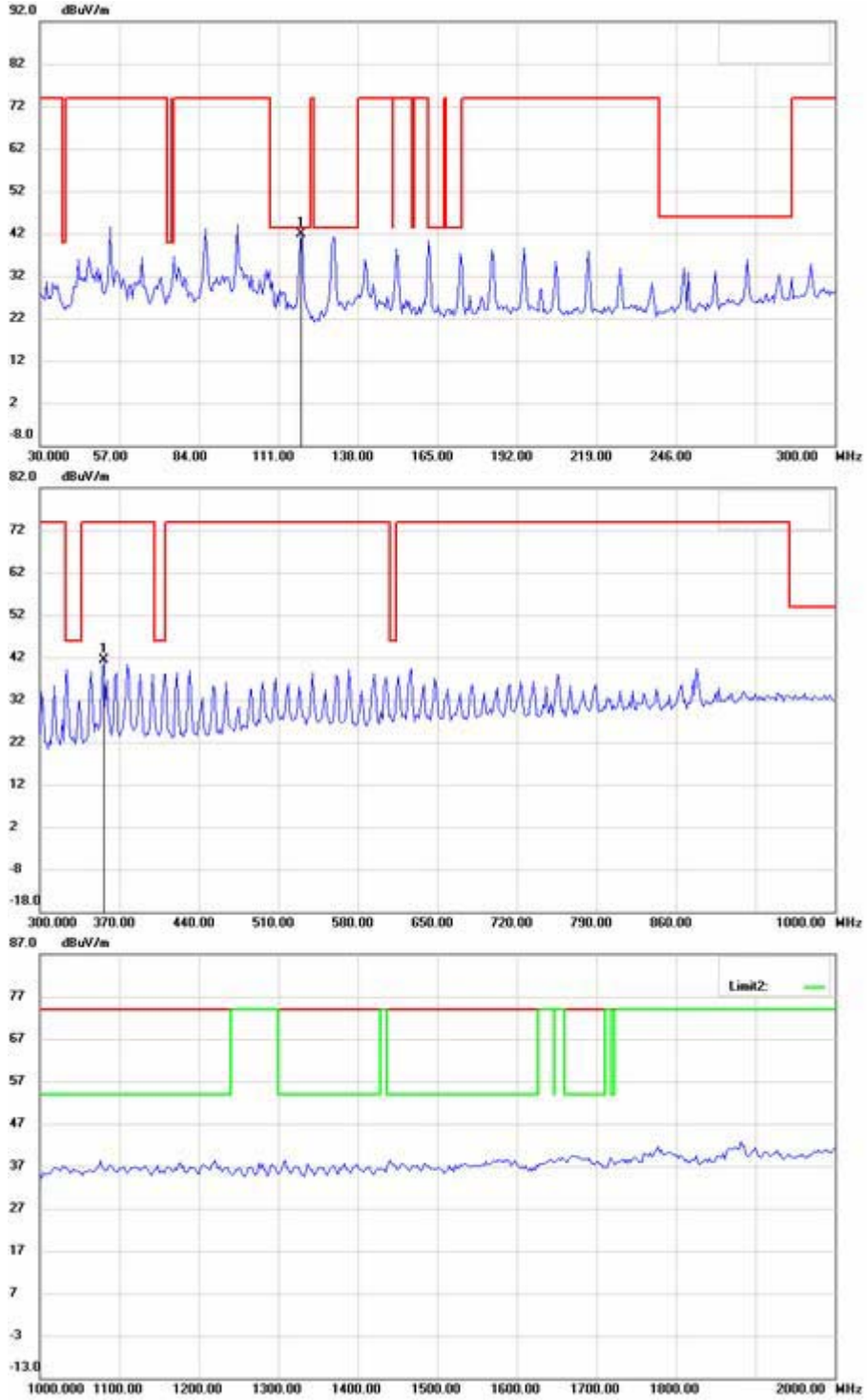
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**



Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**

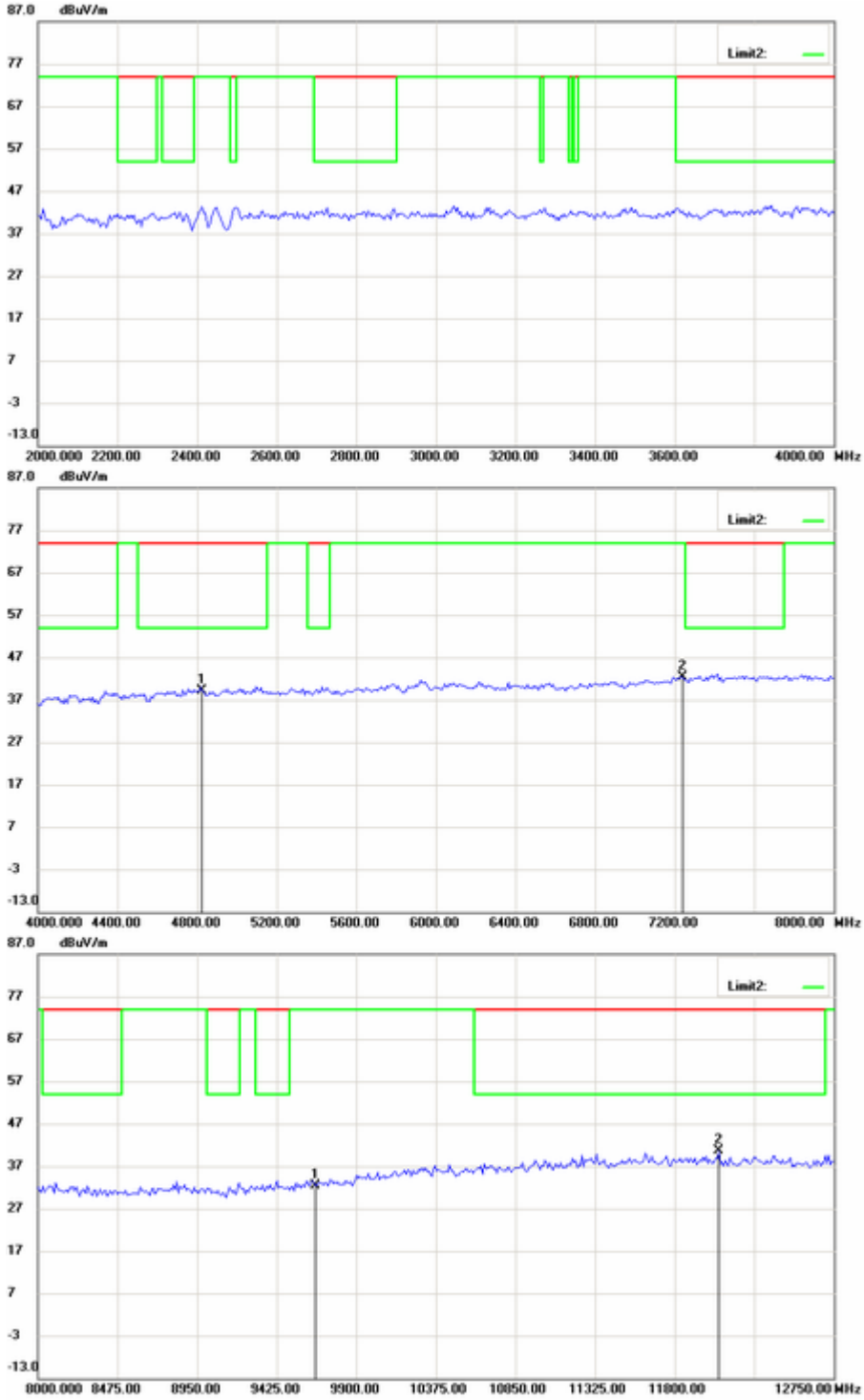
Antenna Polarization V



Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**

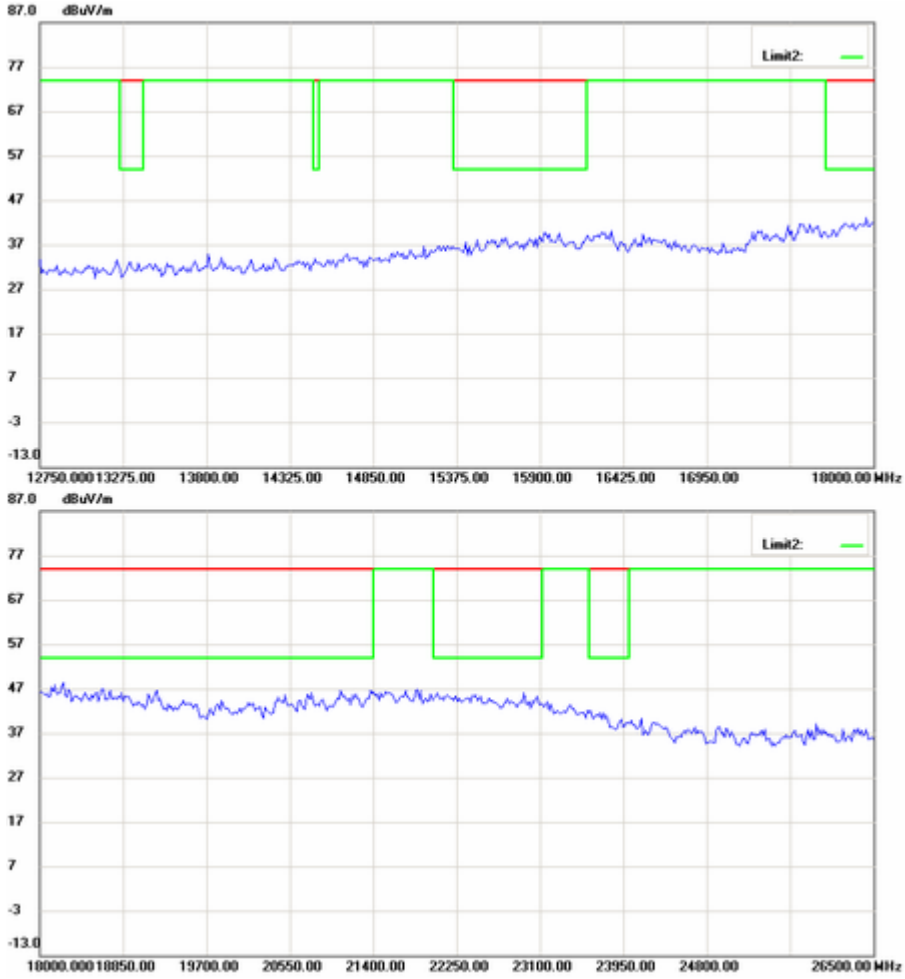
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



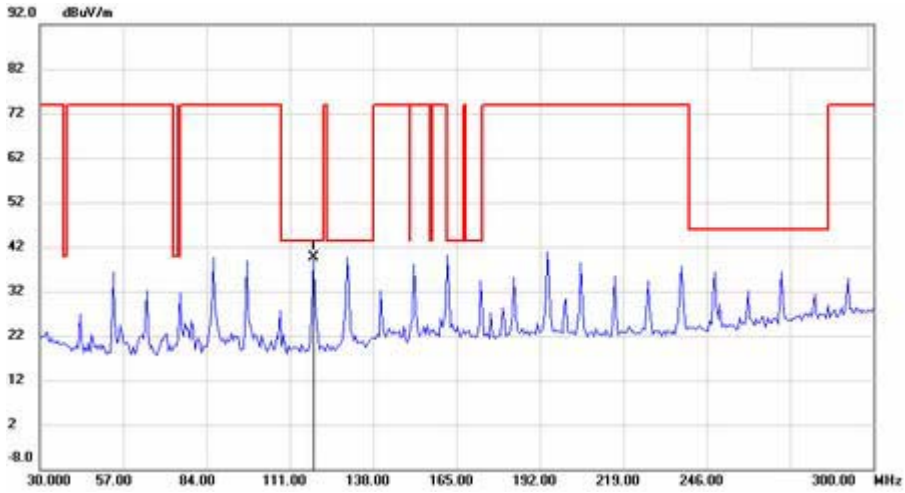
Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



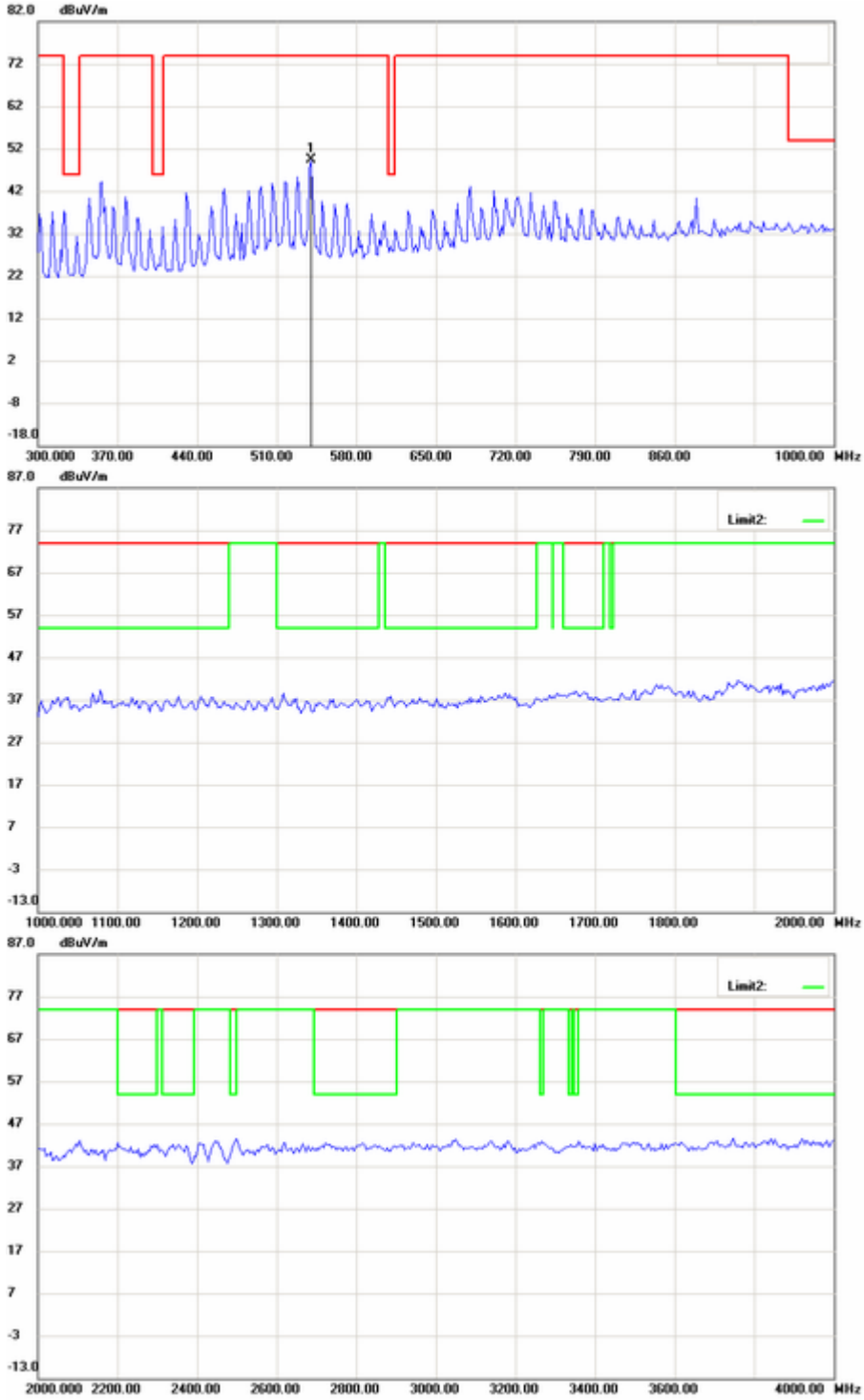
Mode A CH6
Antenna Polarization H



Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

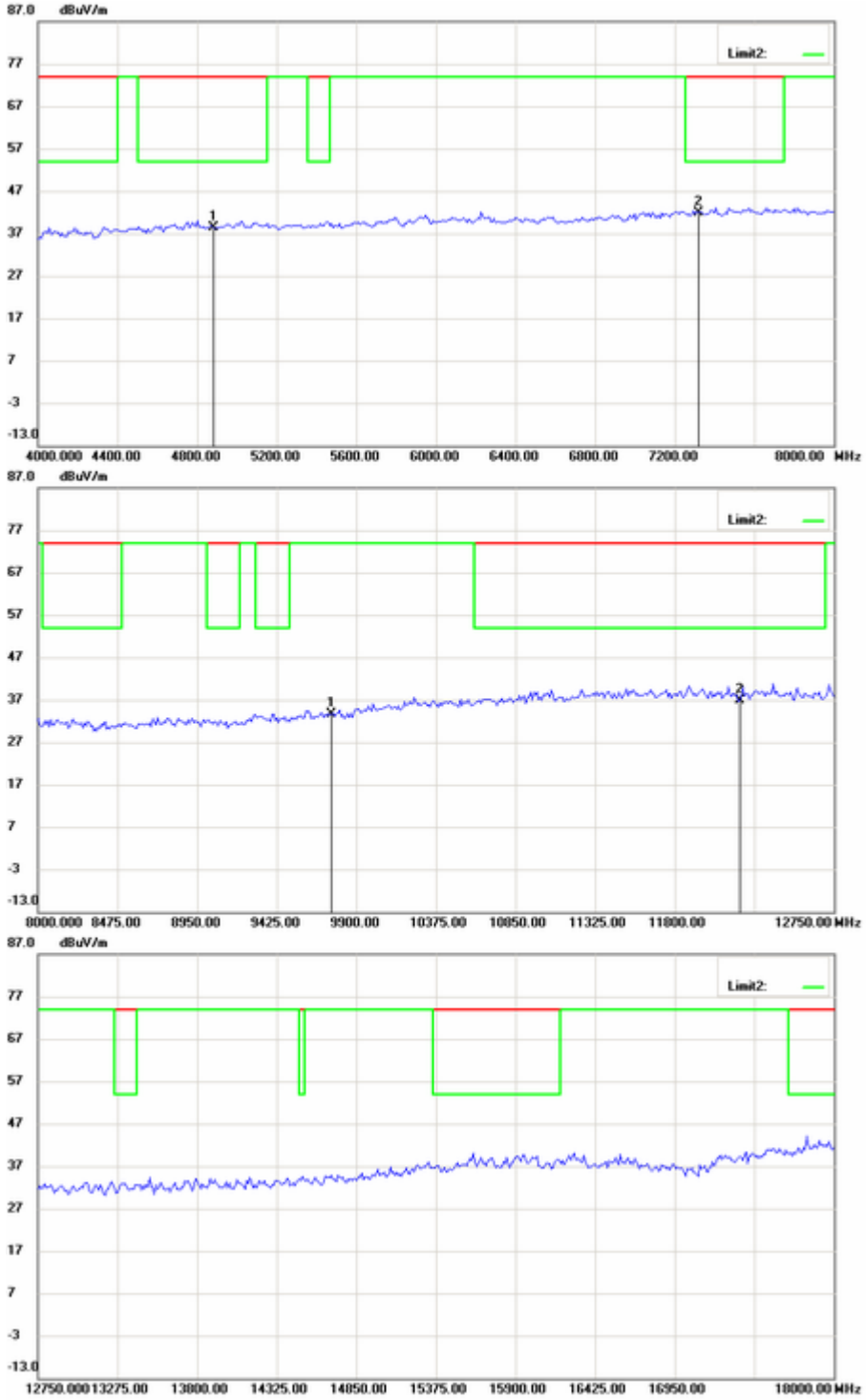
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**



Note:
Up Line: Peak Limit Line
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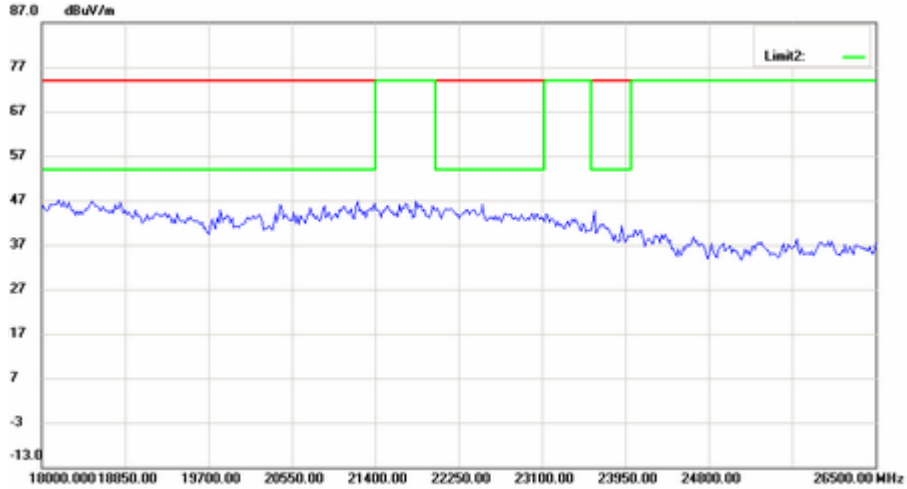
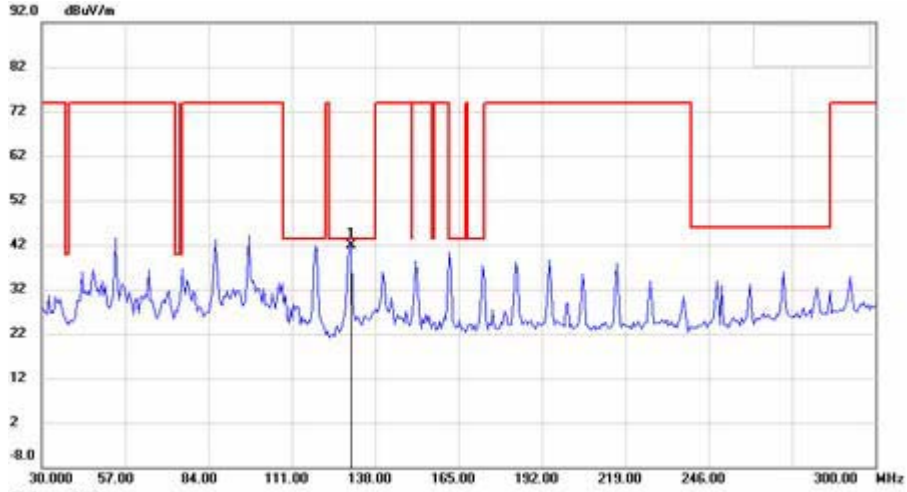
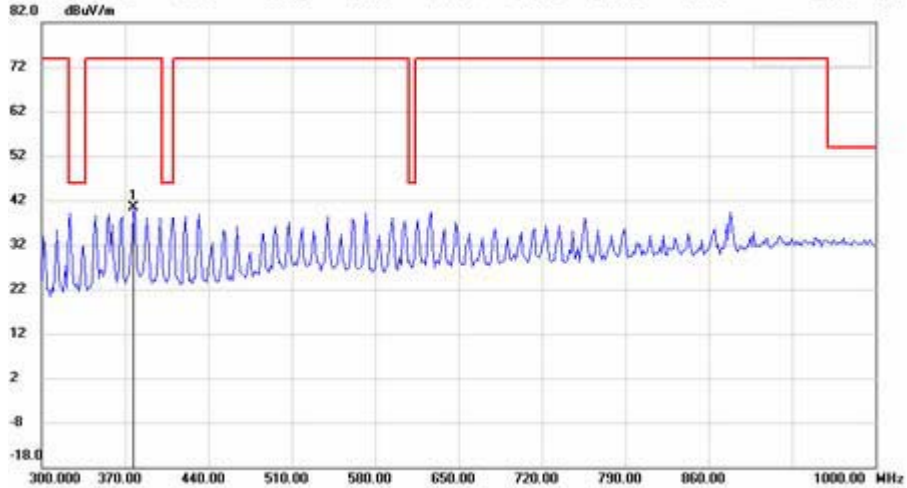
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



Antenna Polarization V





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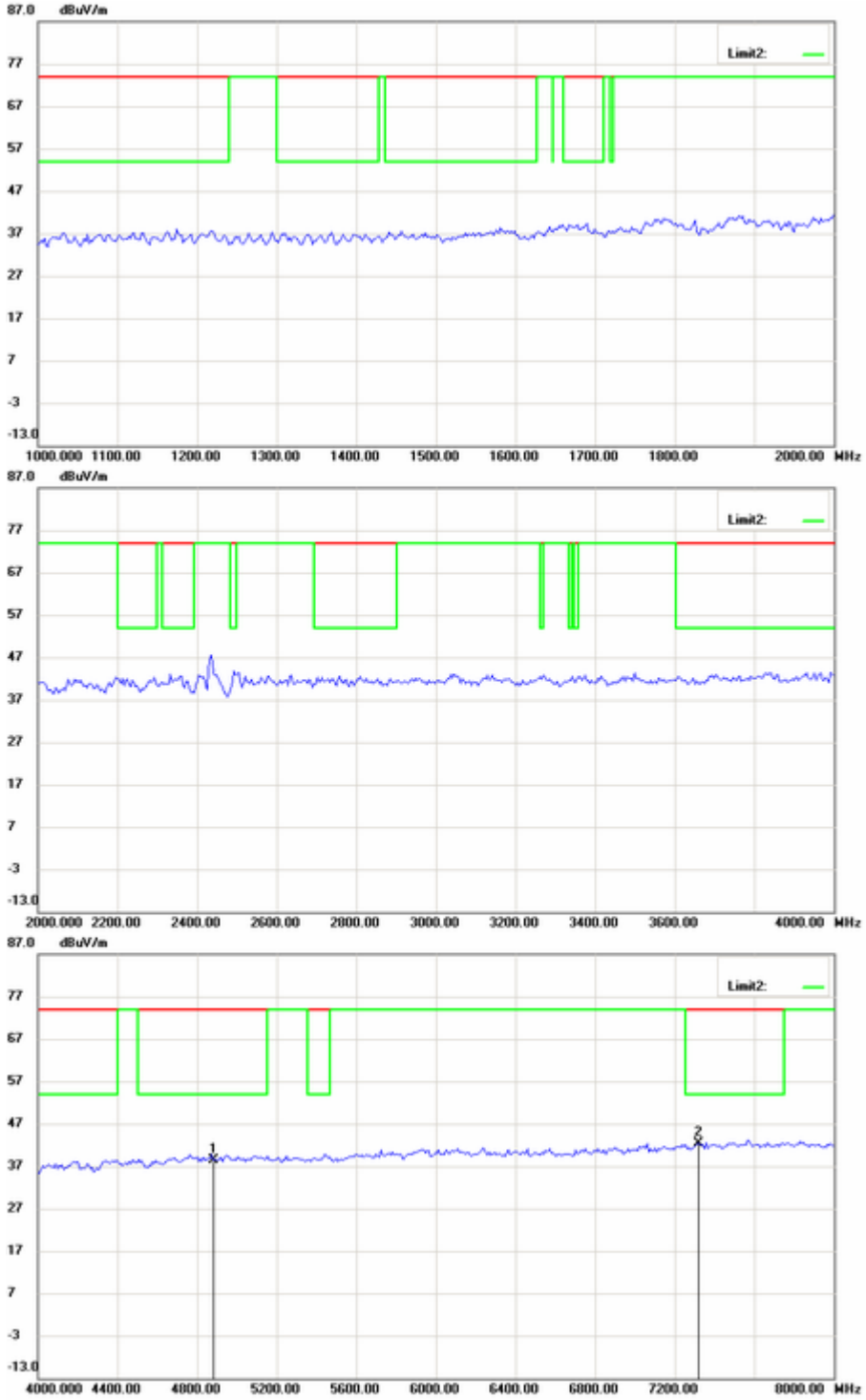
FCC ID: TS8DWRWIFIROUTER



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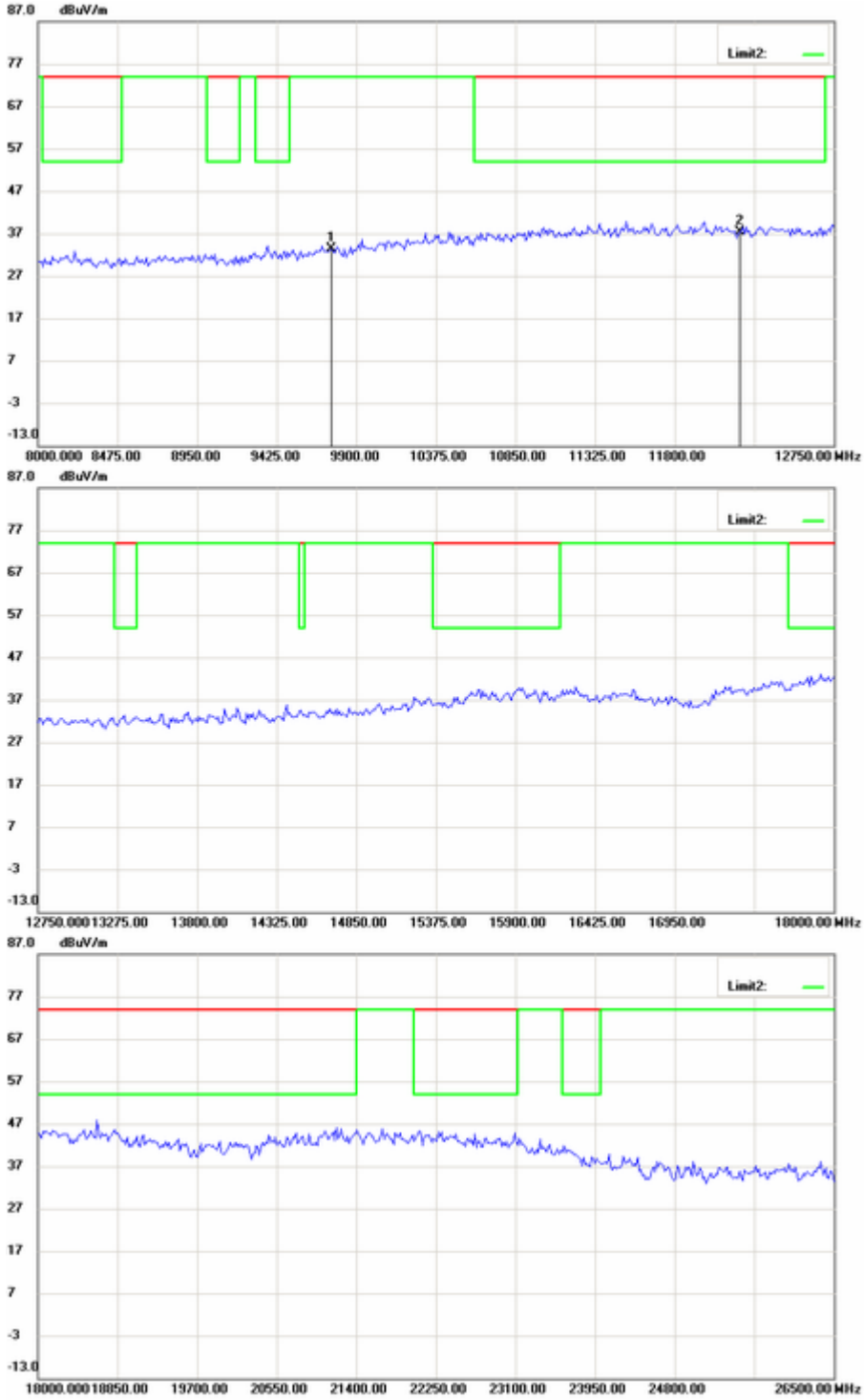

Note:
Up Line: Peak Limit Line
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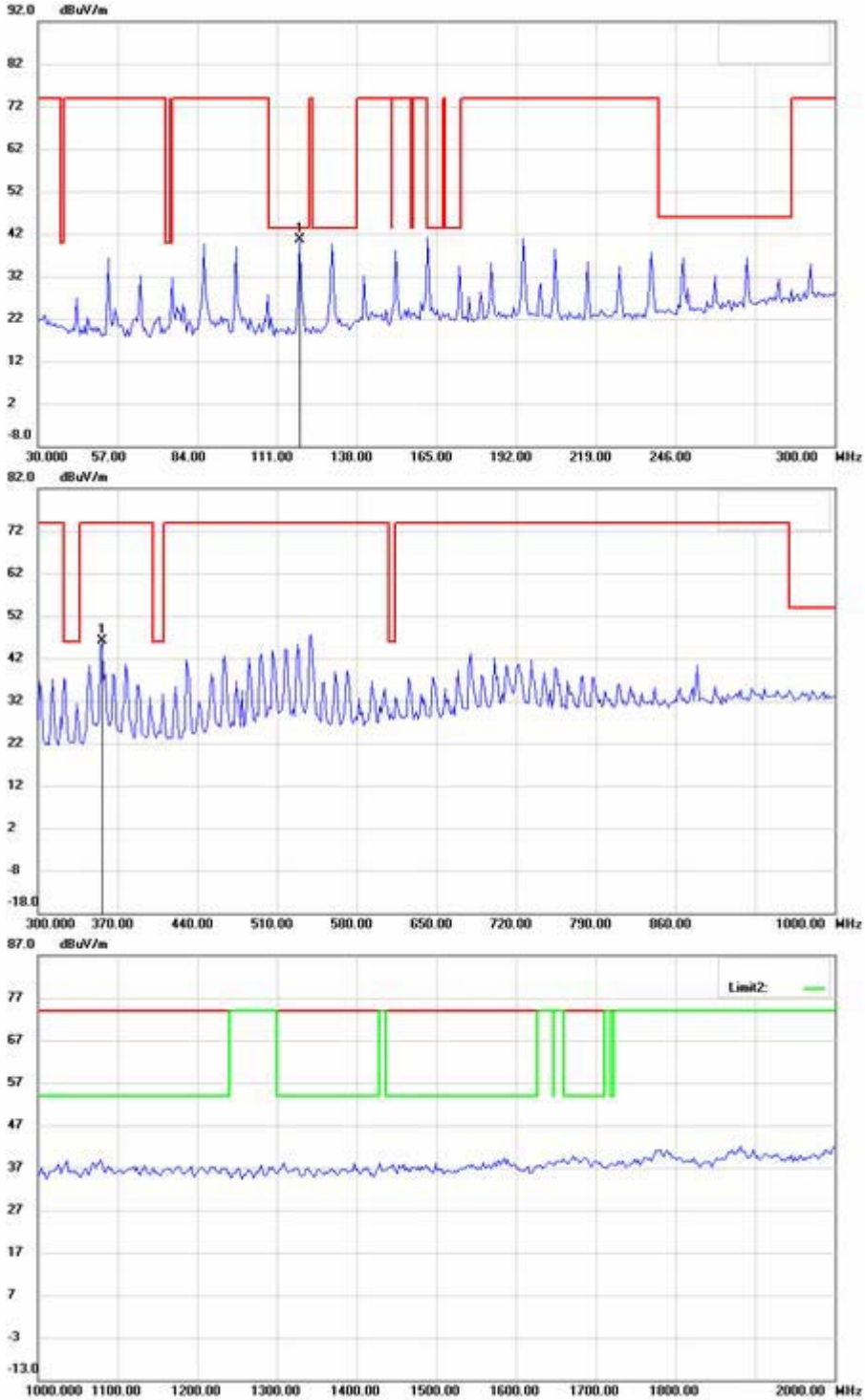
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

Mode A CH11

Antenna Polarization H



Note:
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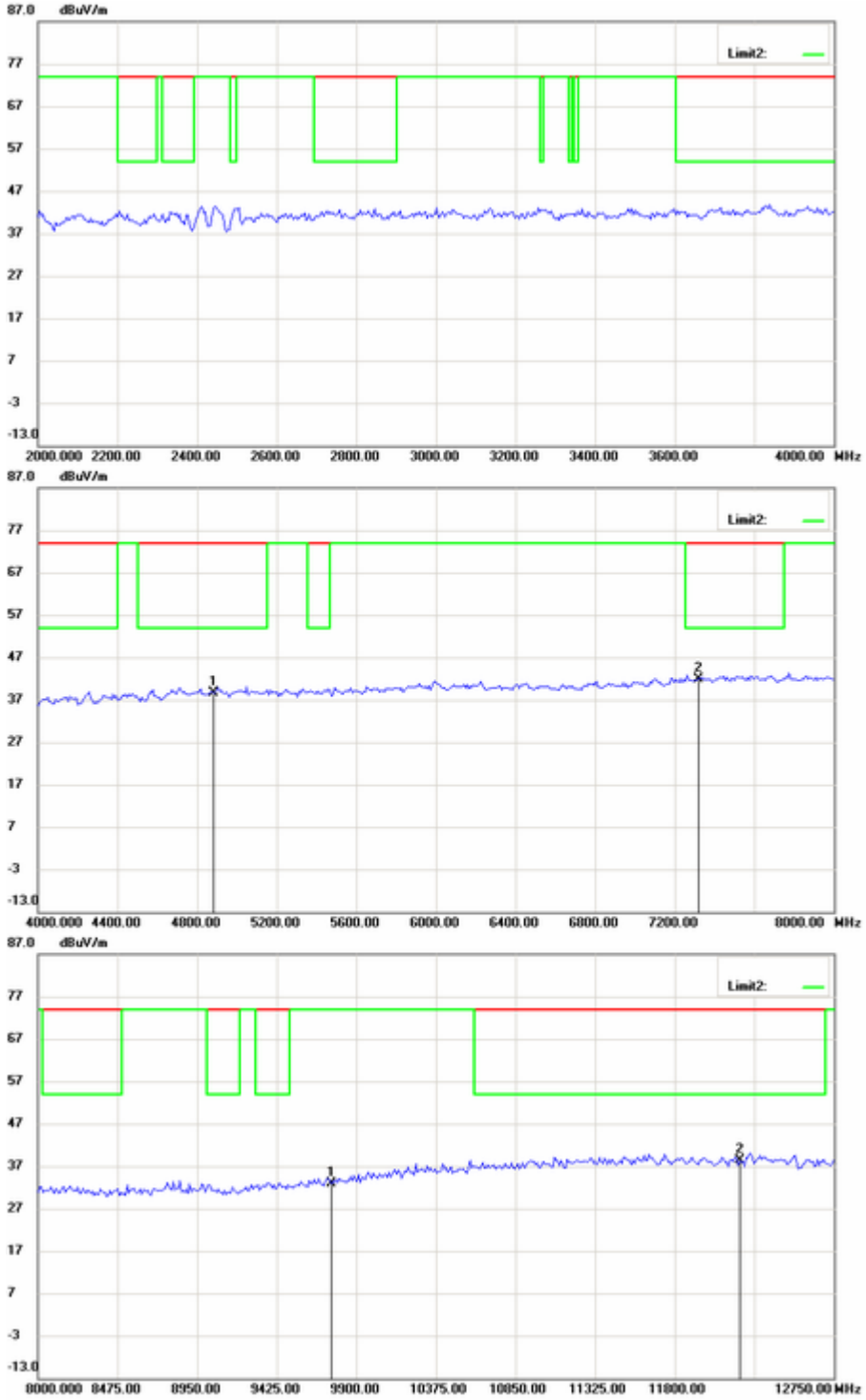
FCC ID: TS8DWRWIFIROUTER



Note:
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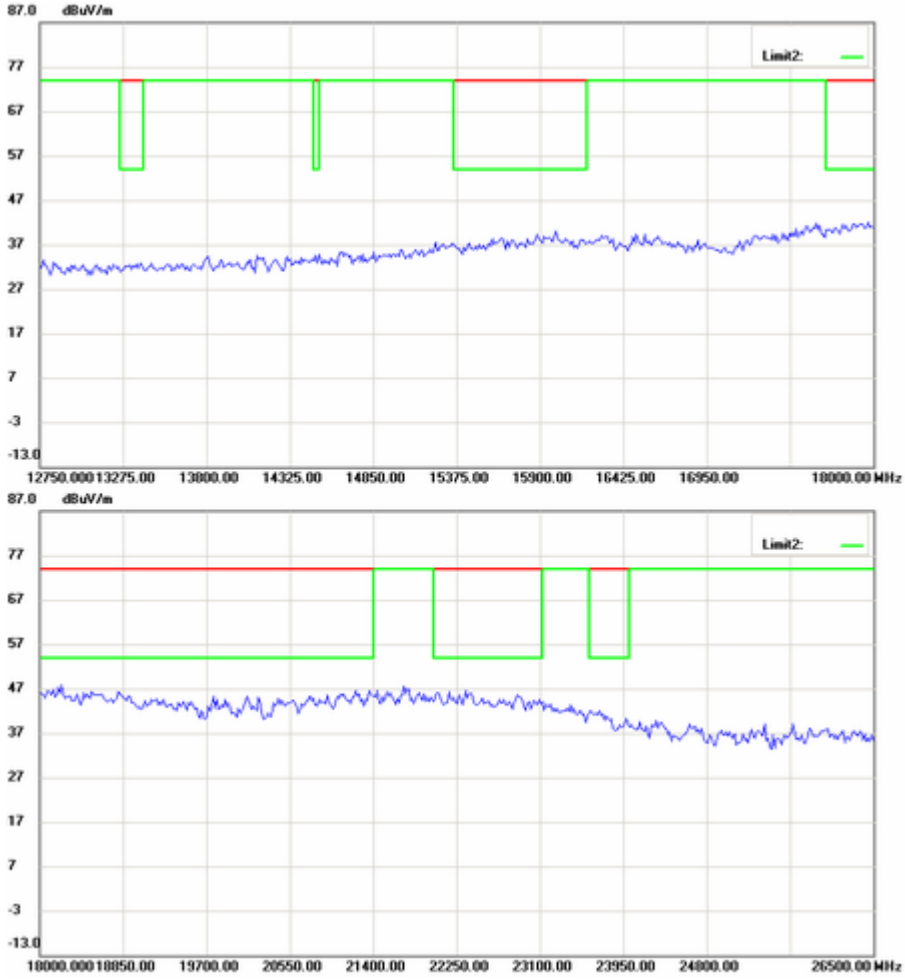
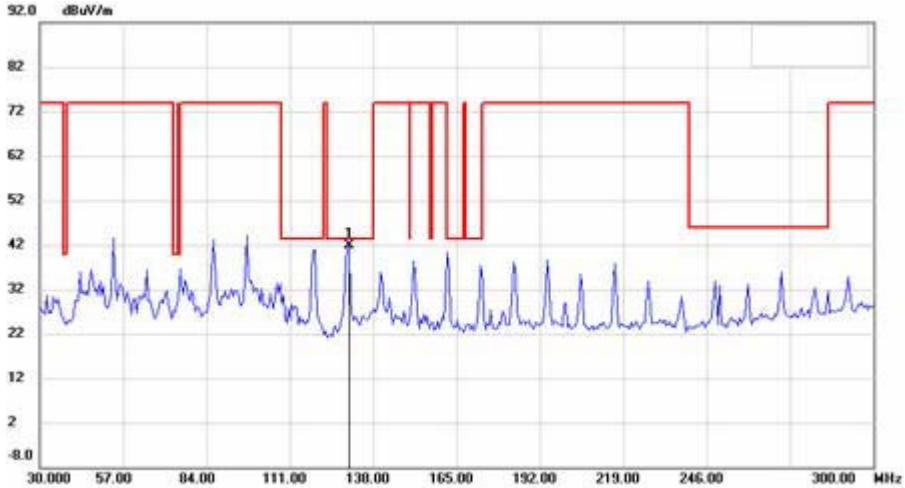


Antenna Polarization V



Note:
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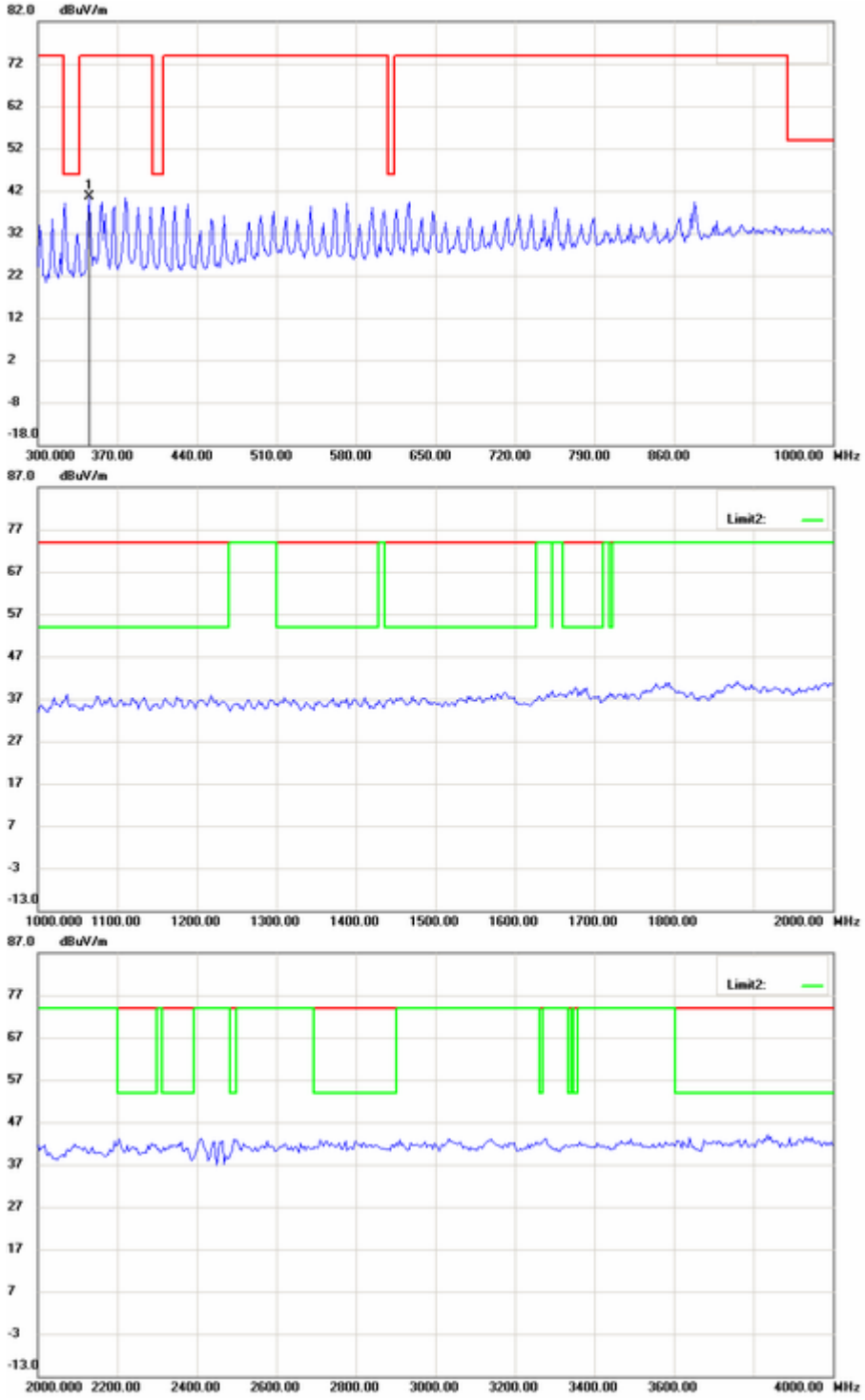

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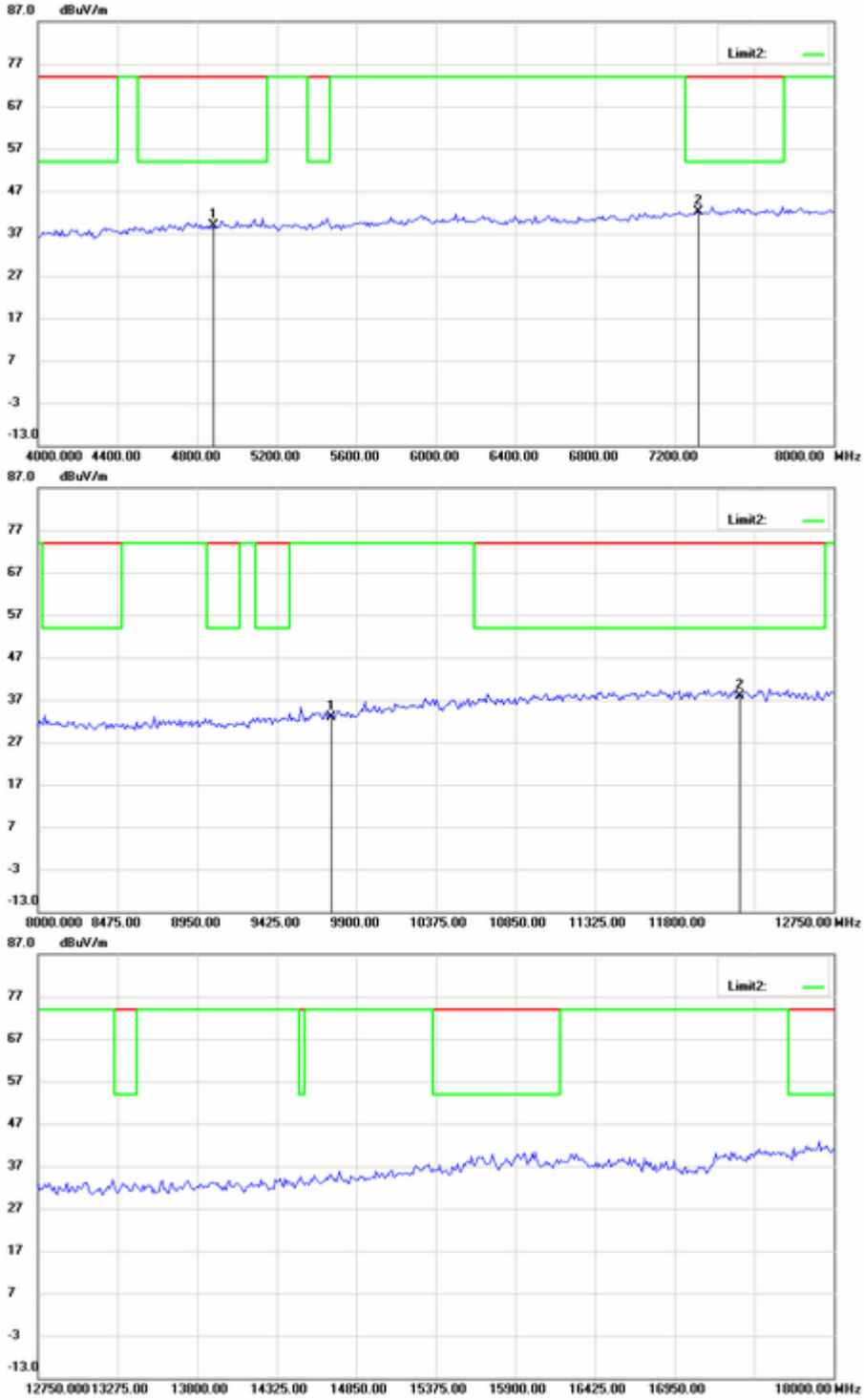

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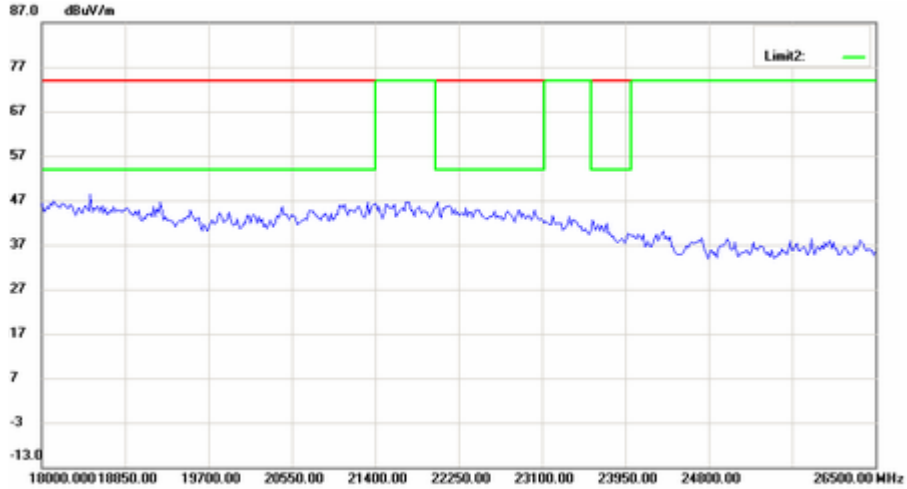
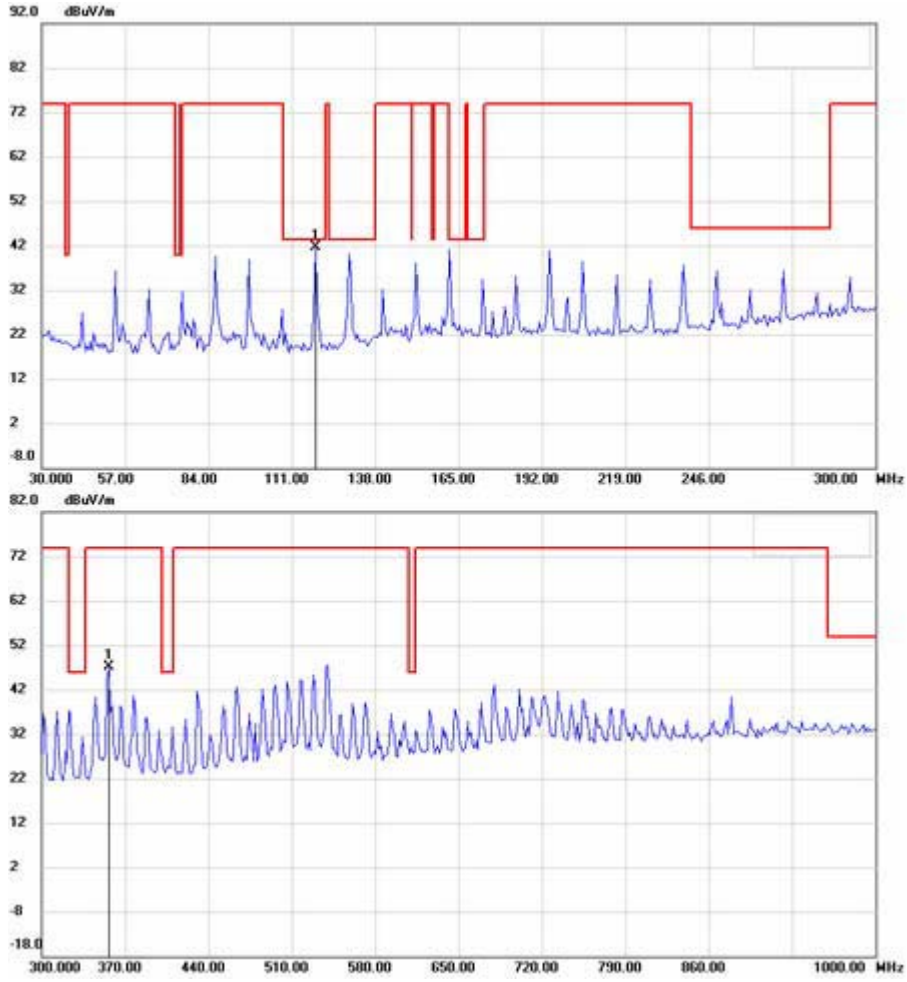


Mode B CH1
Antenna Polarization H



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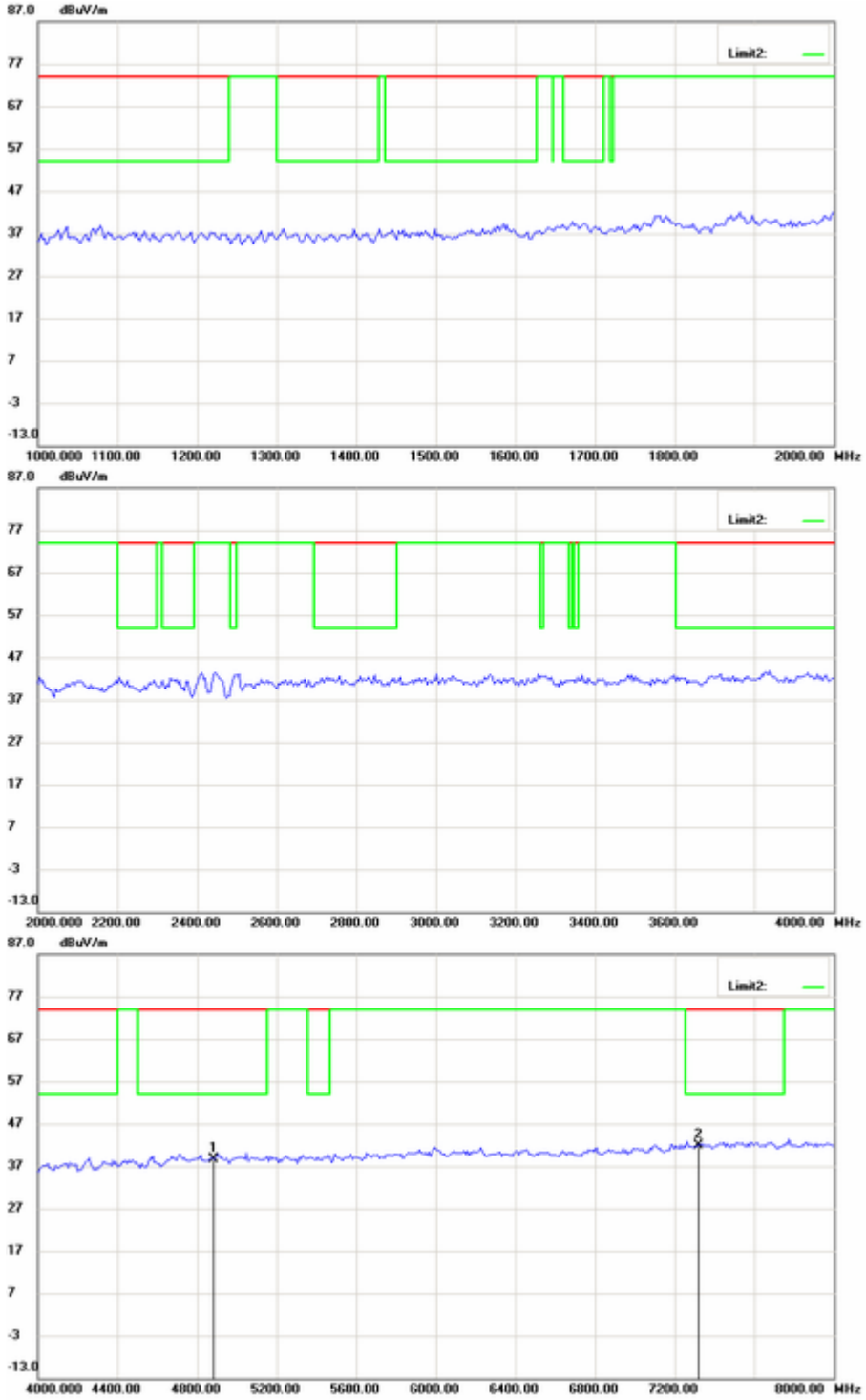
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



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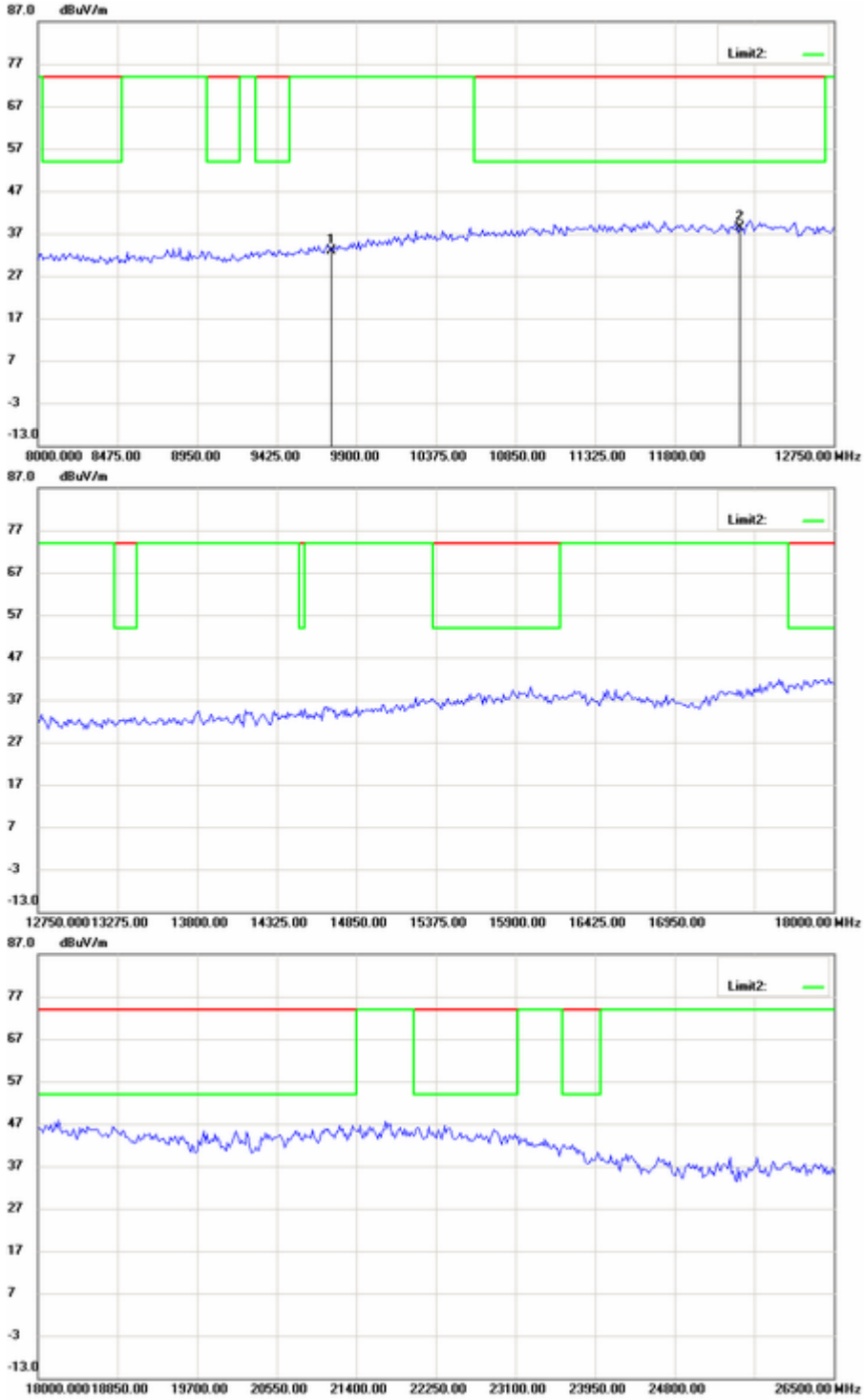

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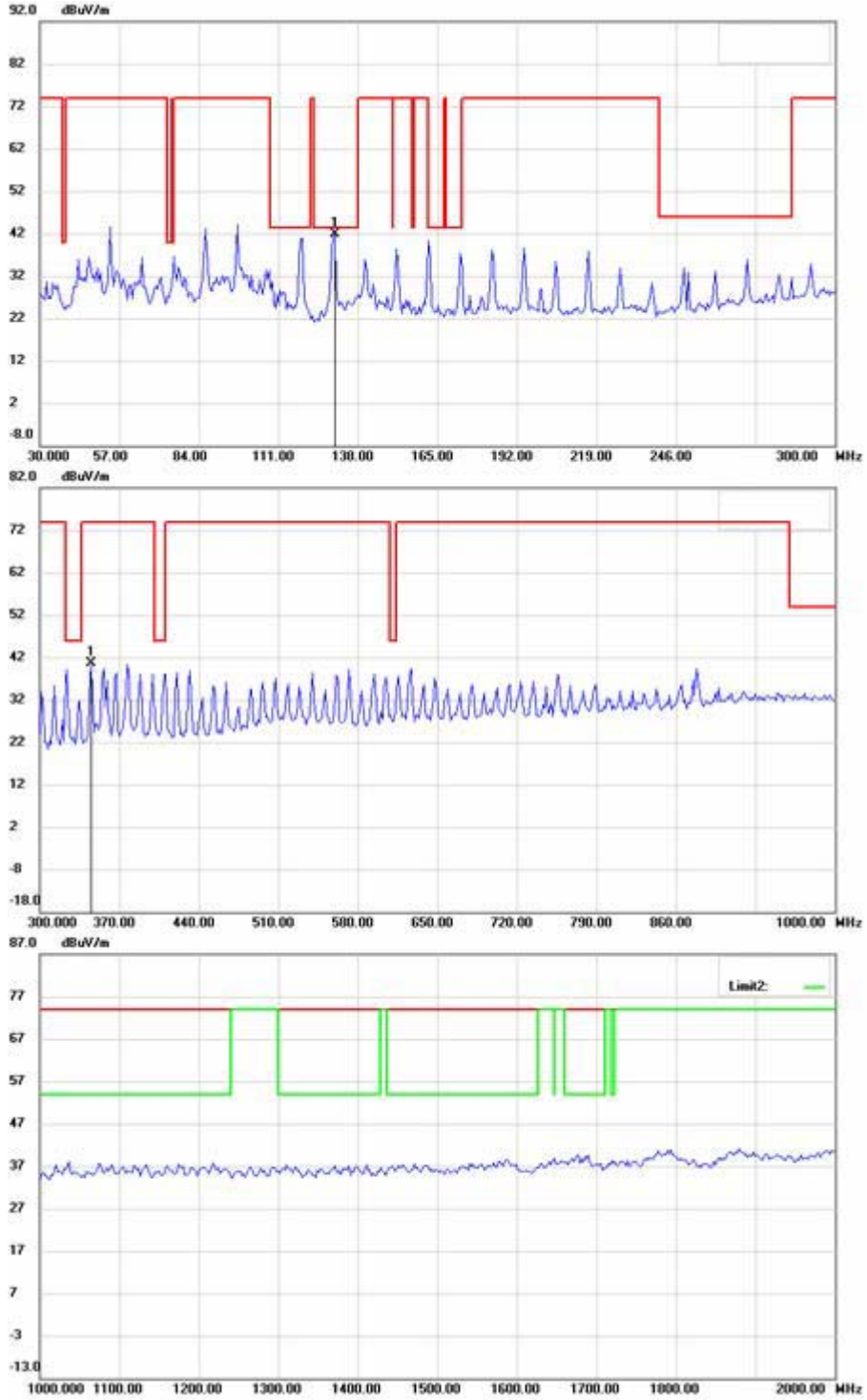
Antenna Polarization V



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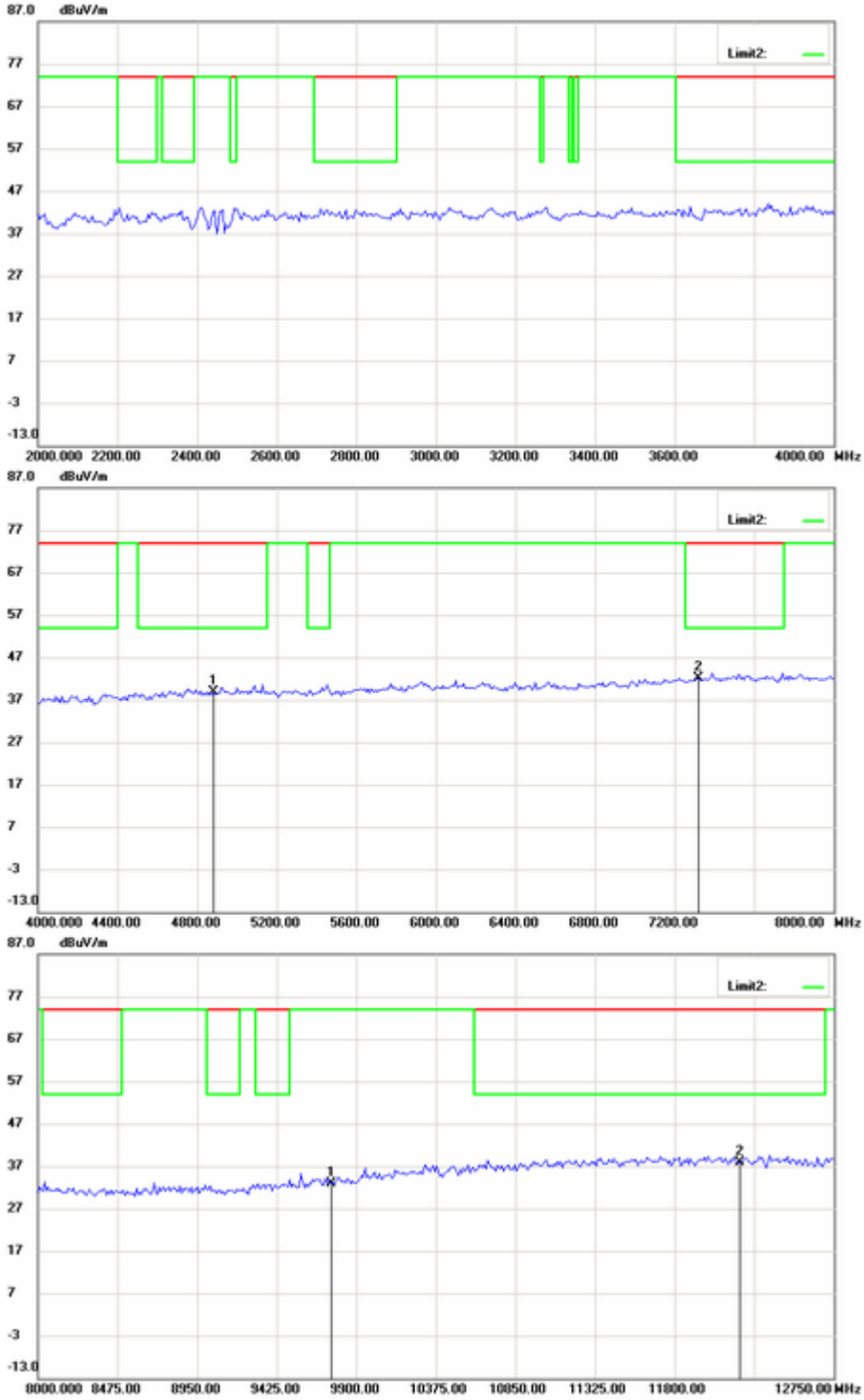

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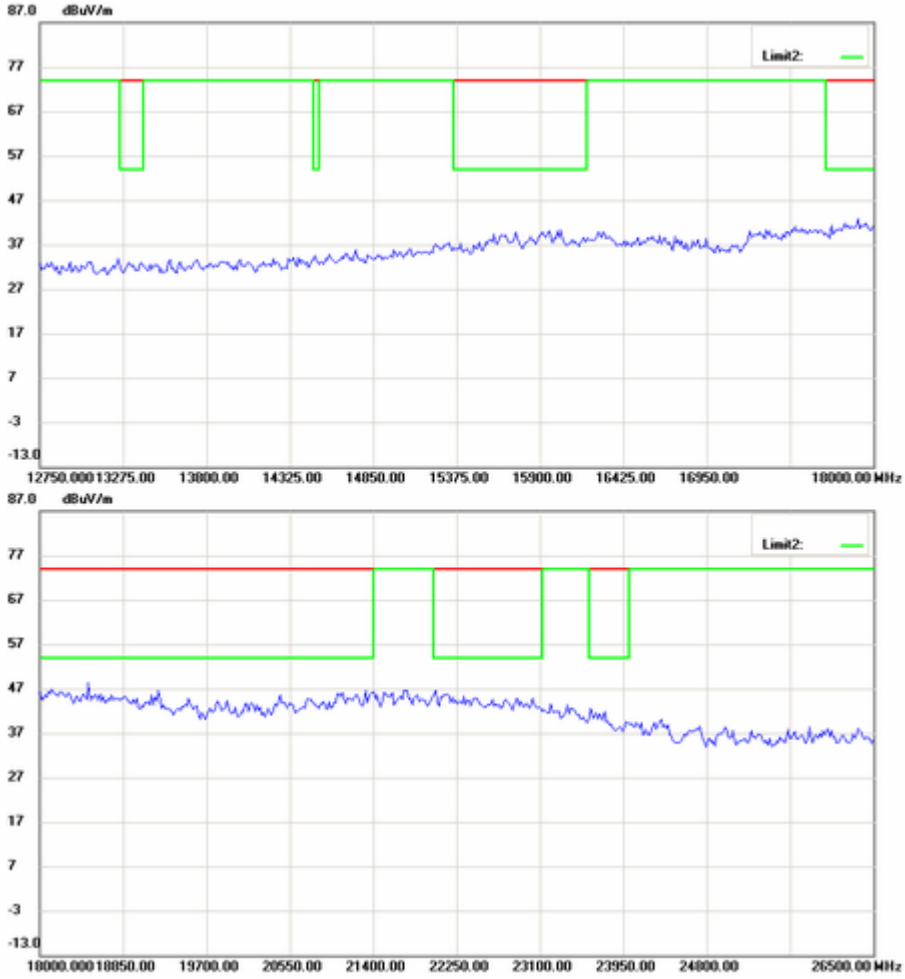
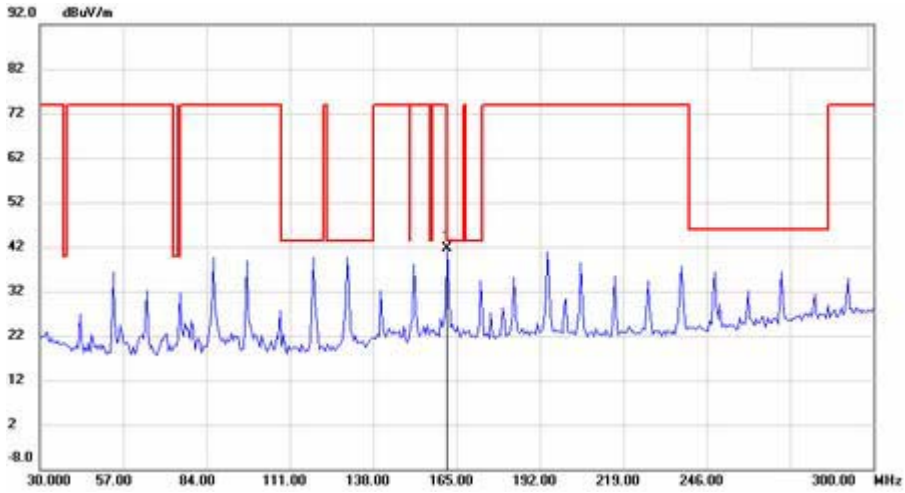


Mode B CH6
Antenna Polarization H



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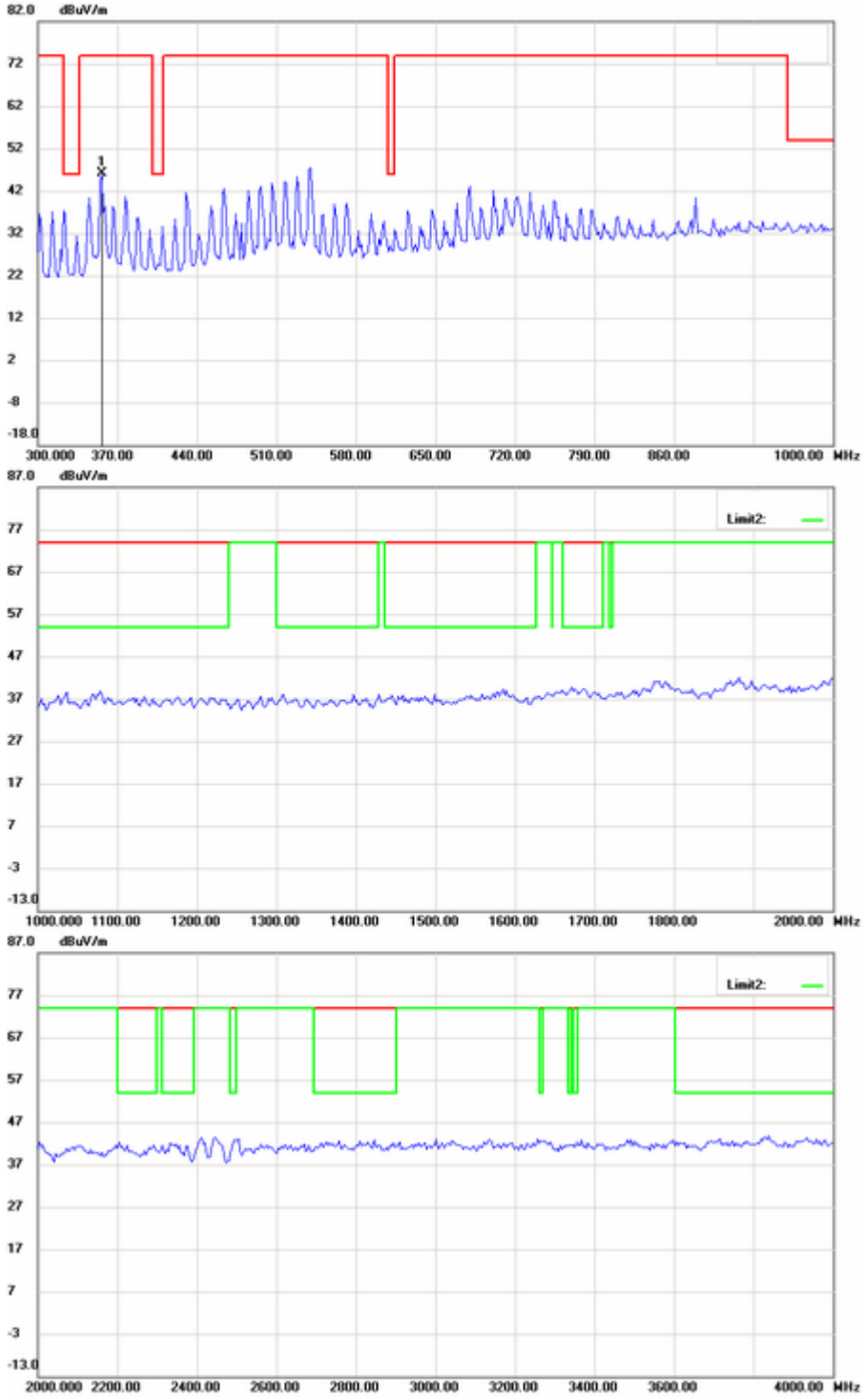
FCC ID: TS8DWRWIFIROUTER



Note:
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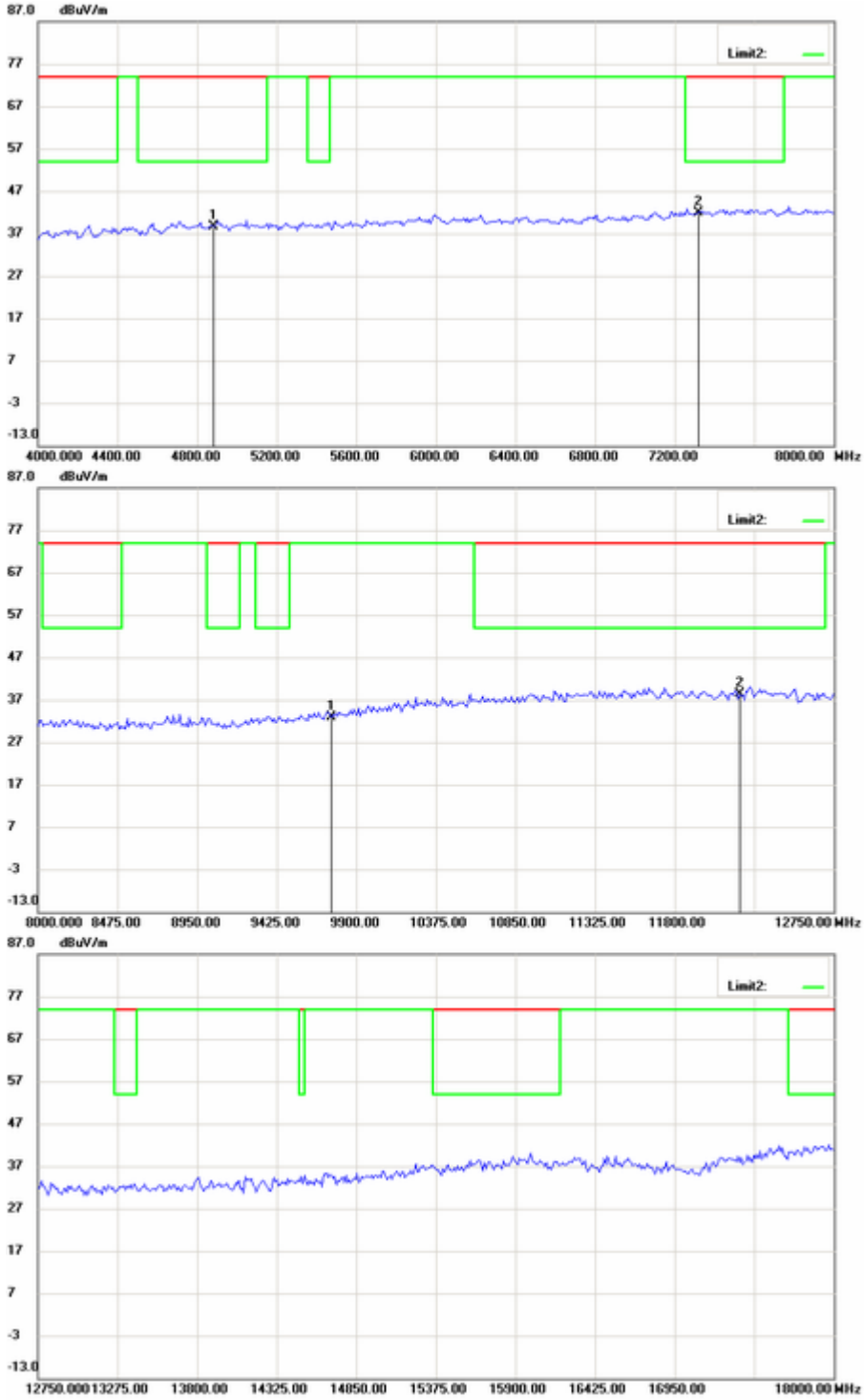

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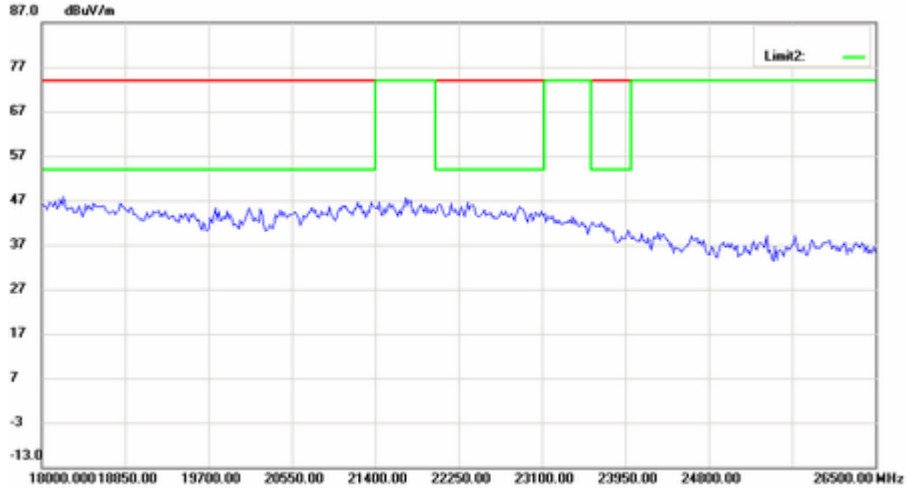
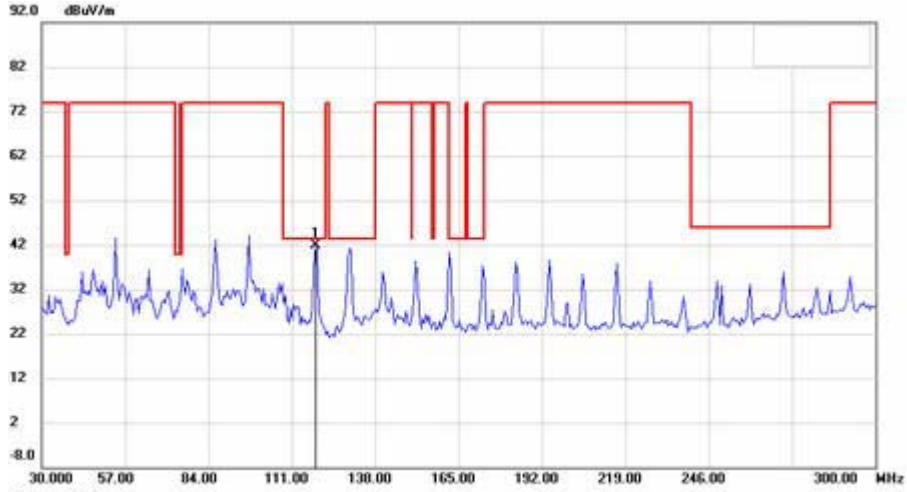
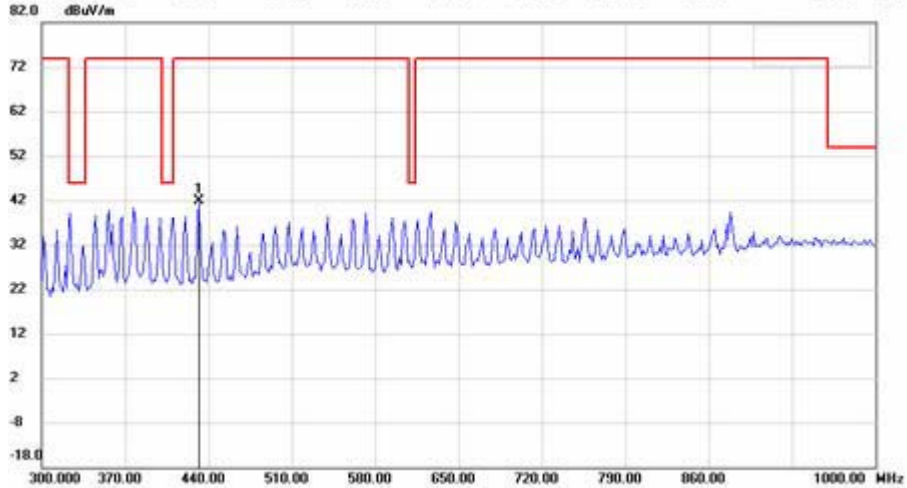


Antenna Polarization V





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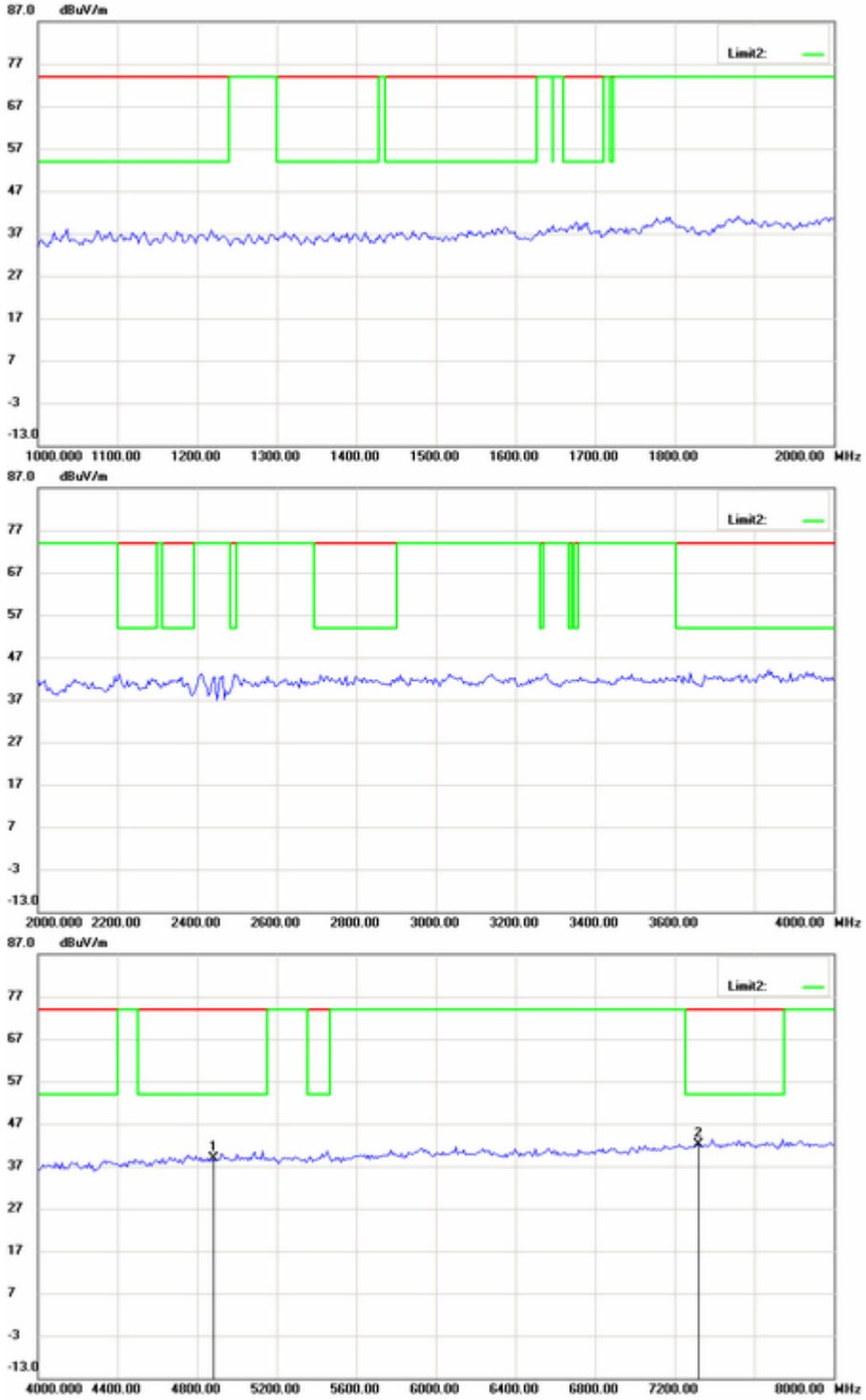

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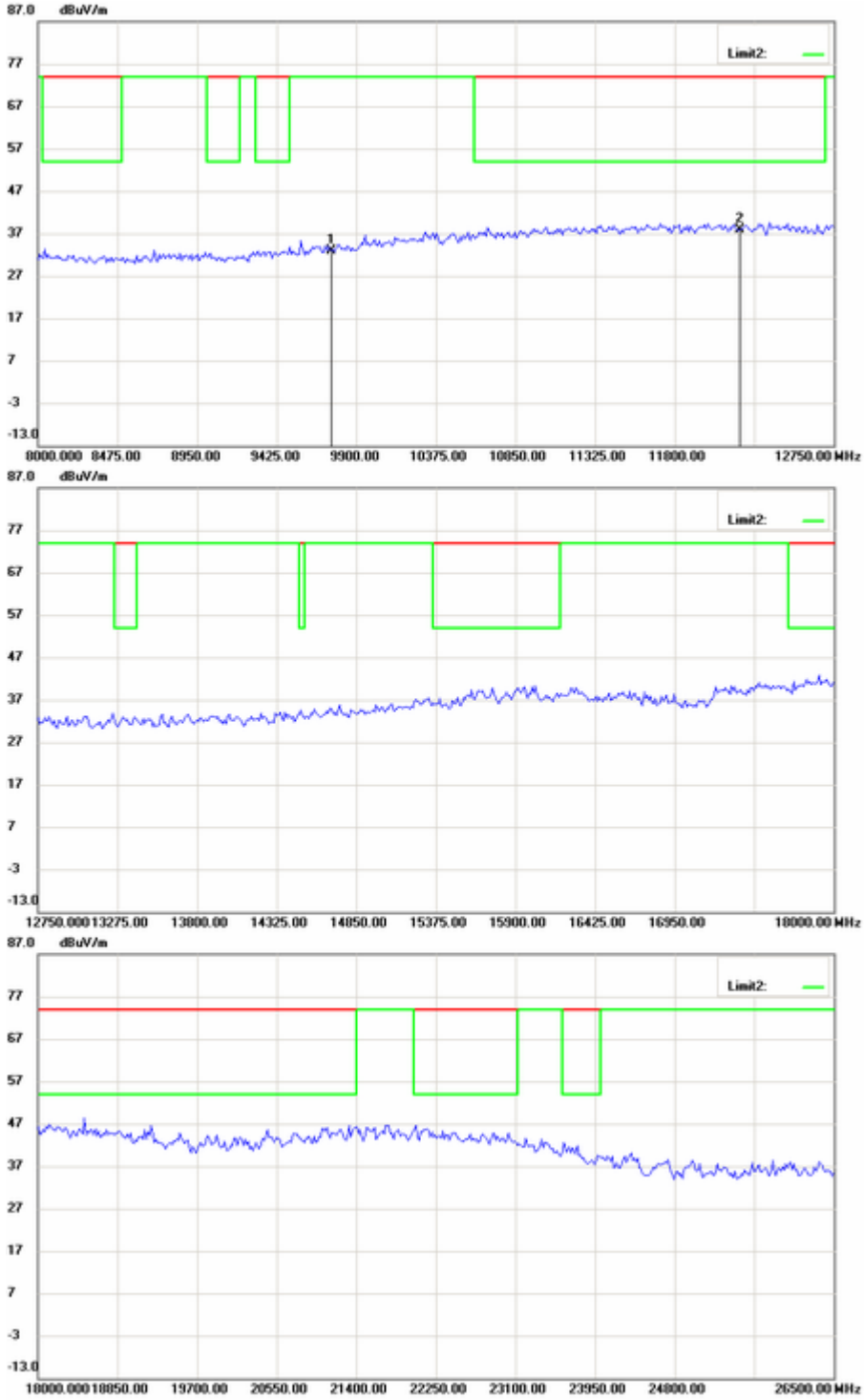

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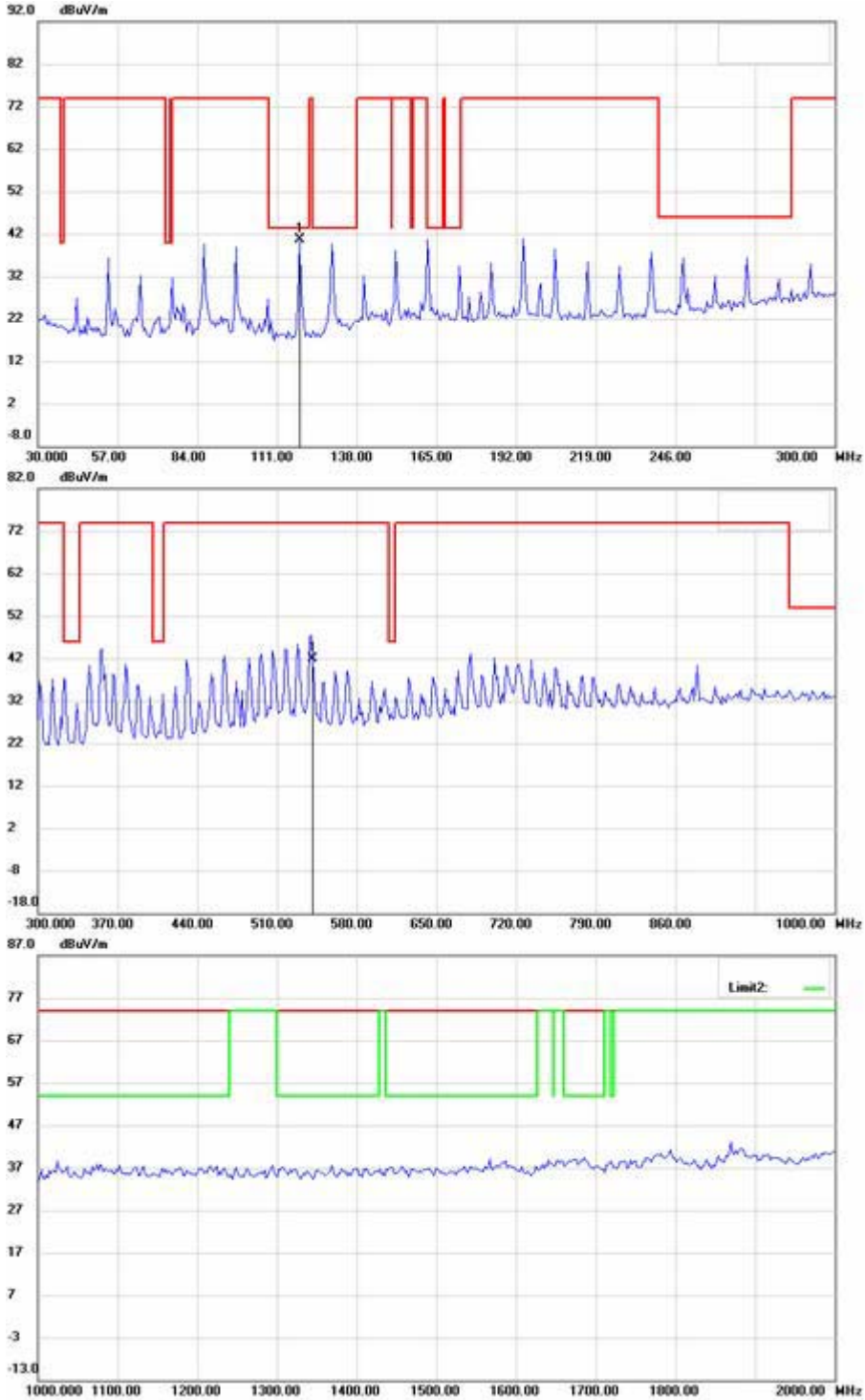
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

Mode B CH11

Antenna Polarization H



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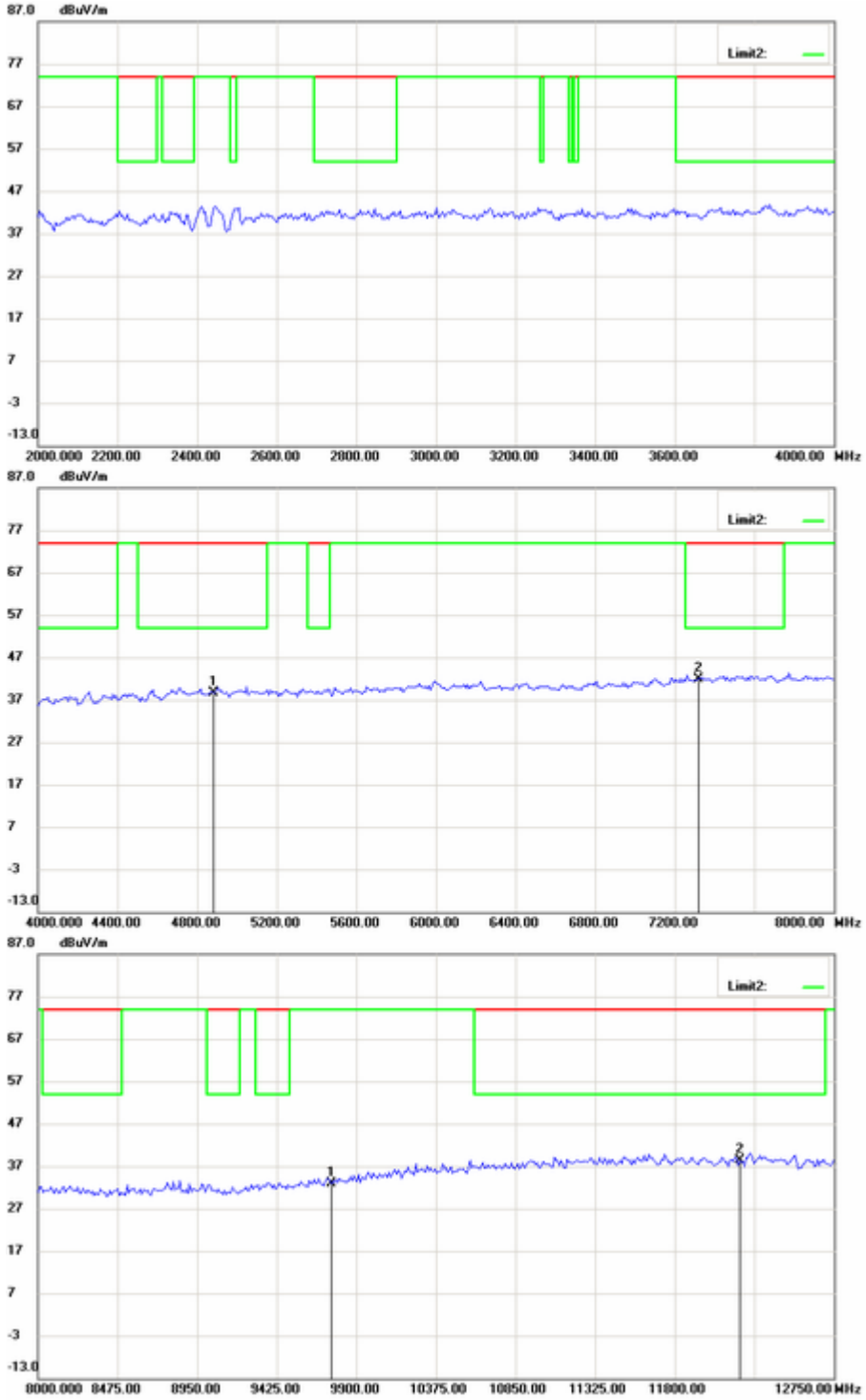

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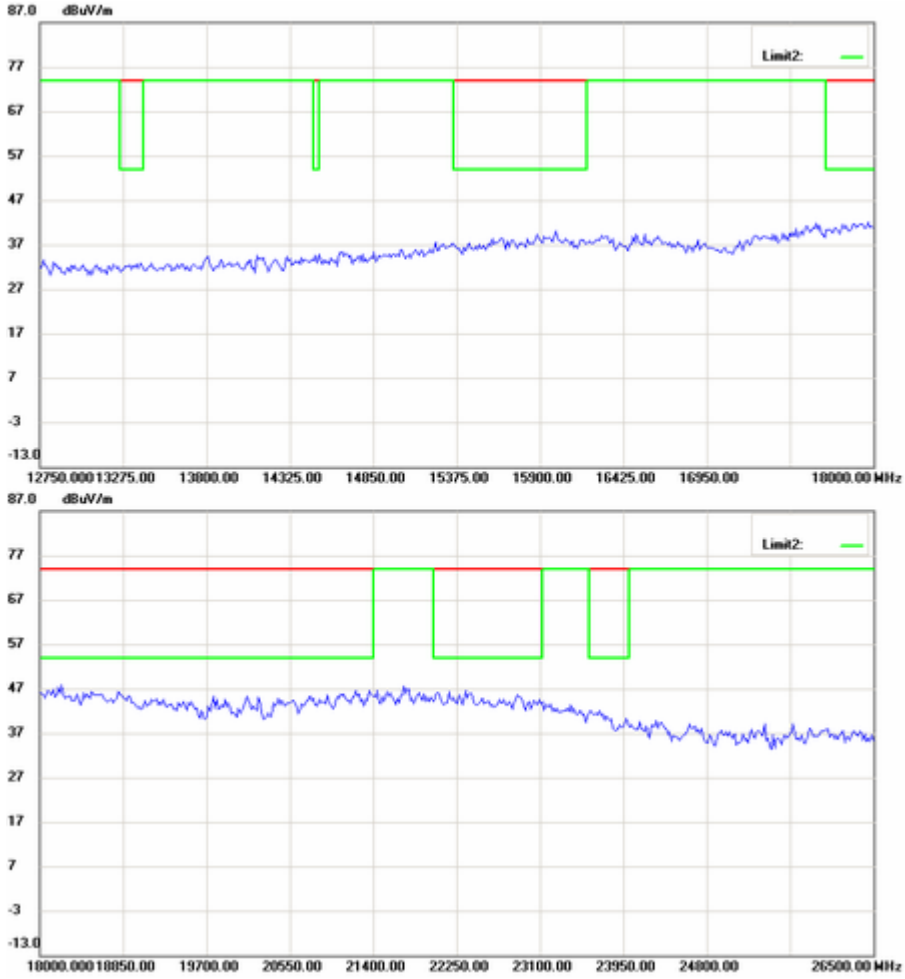
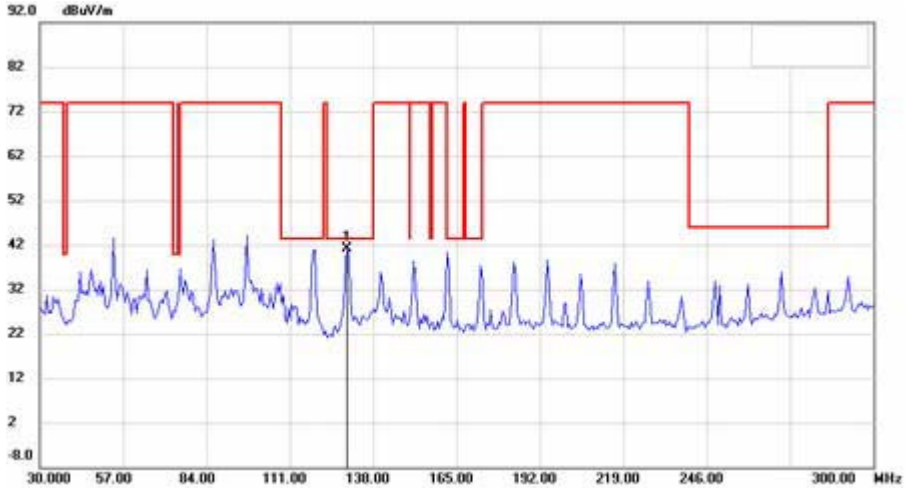


Antenna Polarization V



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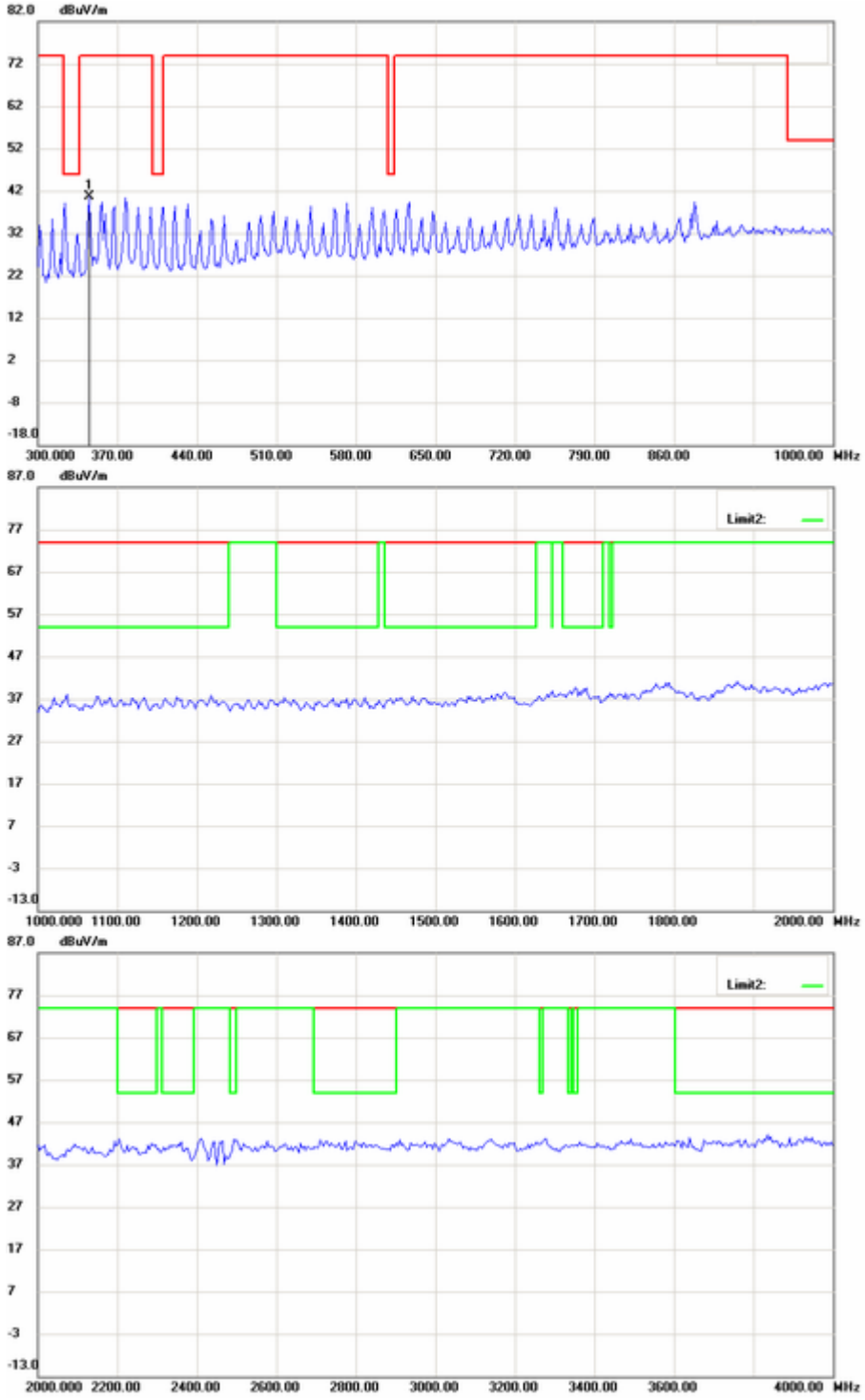

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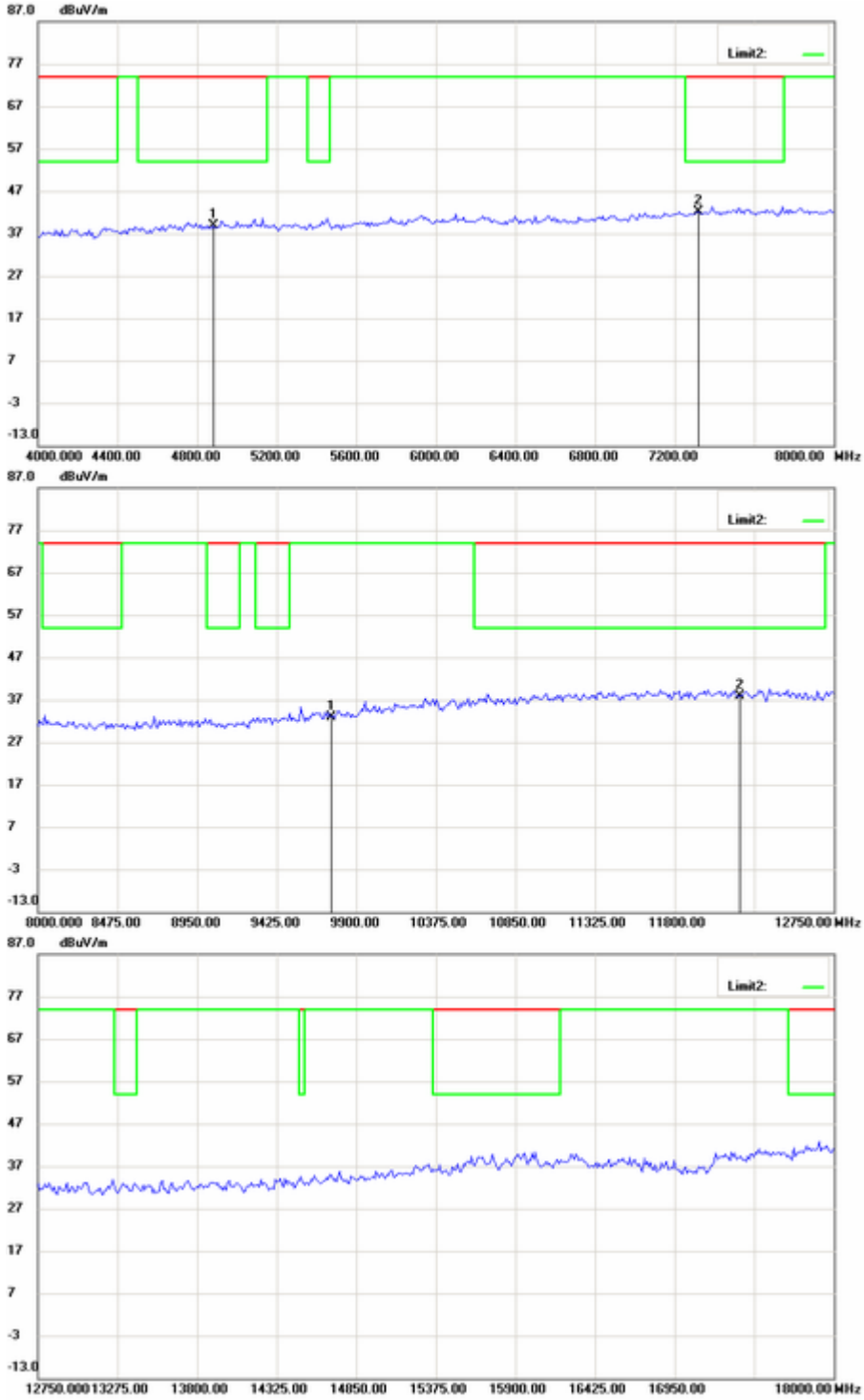

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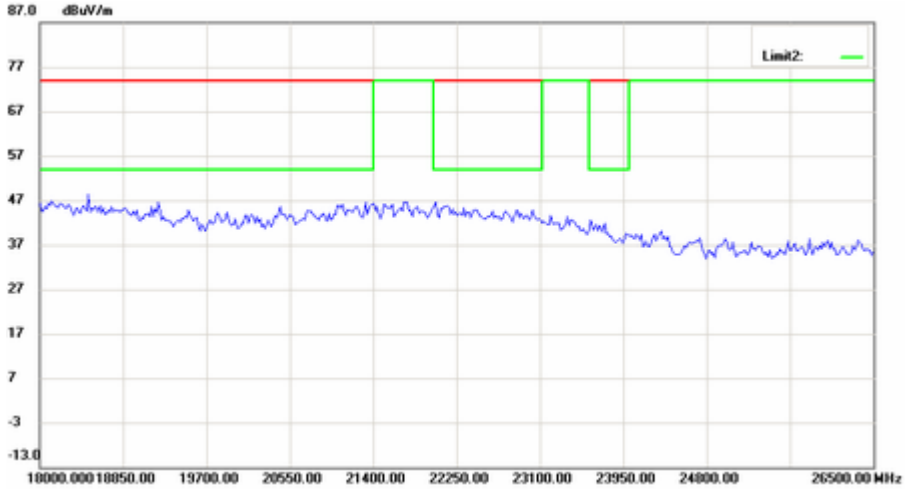

Receiver
Mode A CH1
Antenna Polarization H

Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

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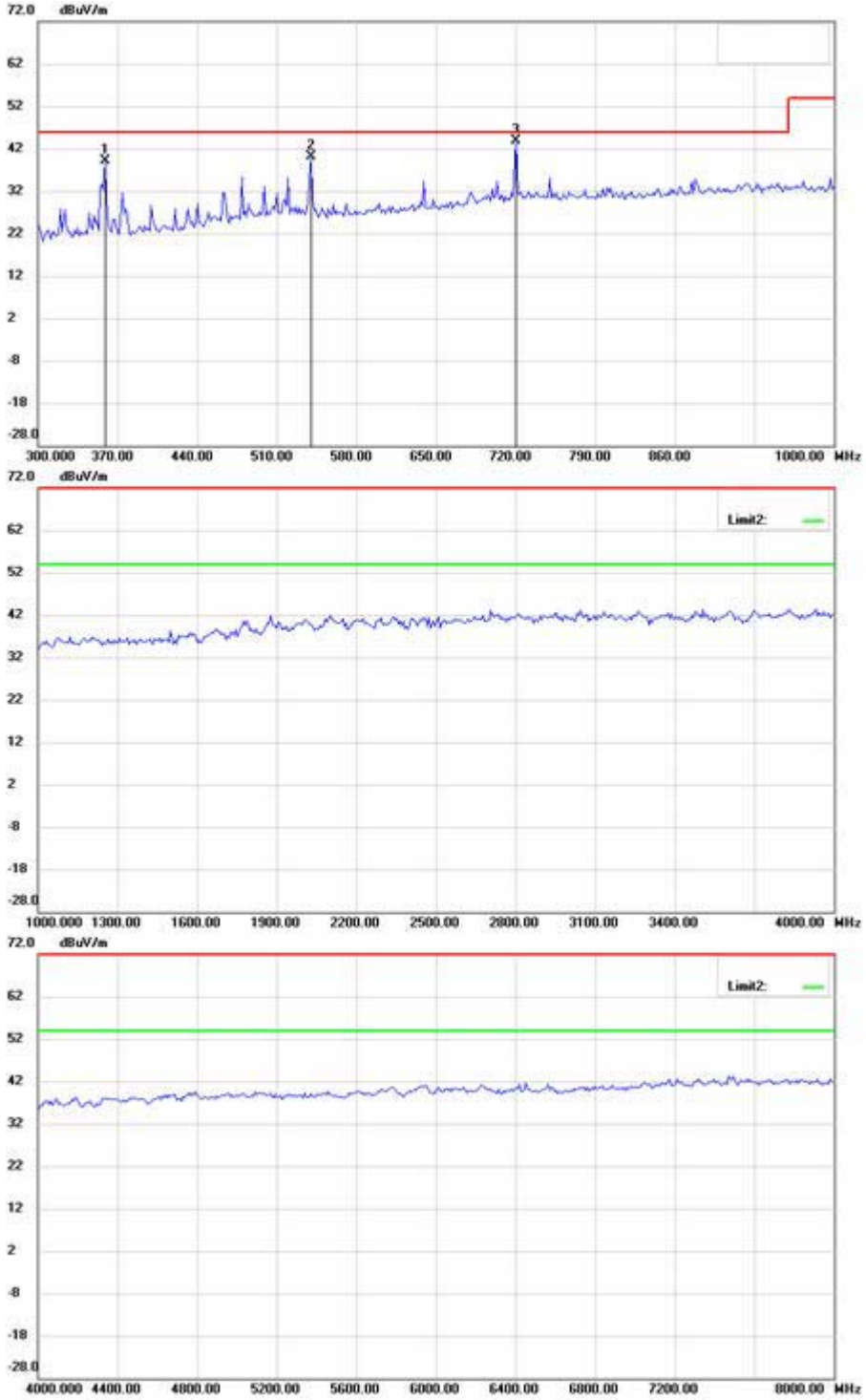

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Up Line: Peak Limit Line
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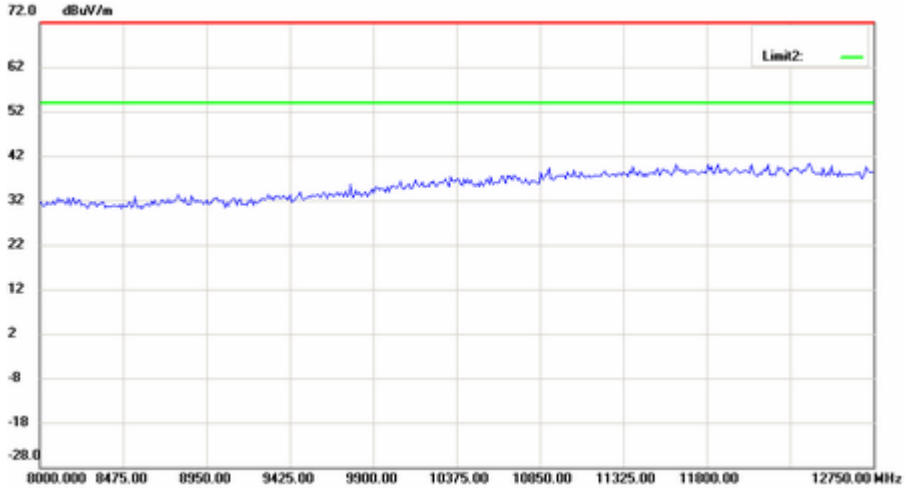
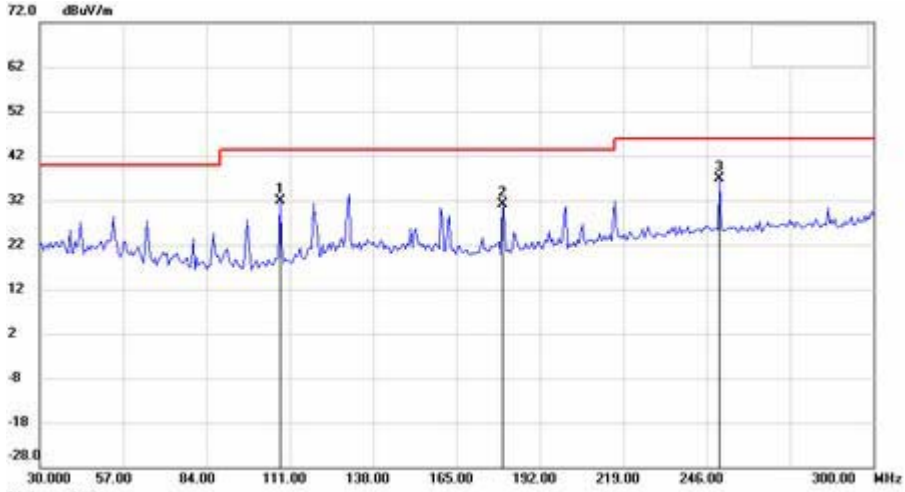
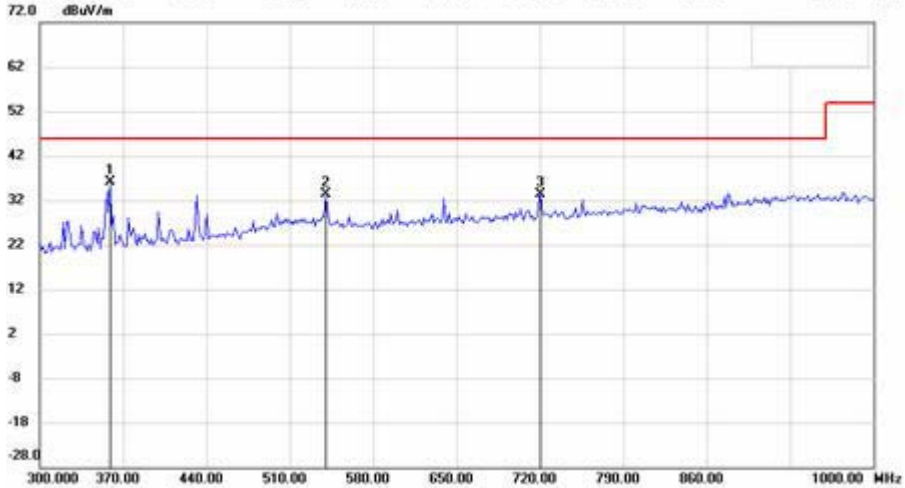
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**

Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



Antenna Polarization V





Note:
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Down Line: Ave Limit Line

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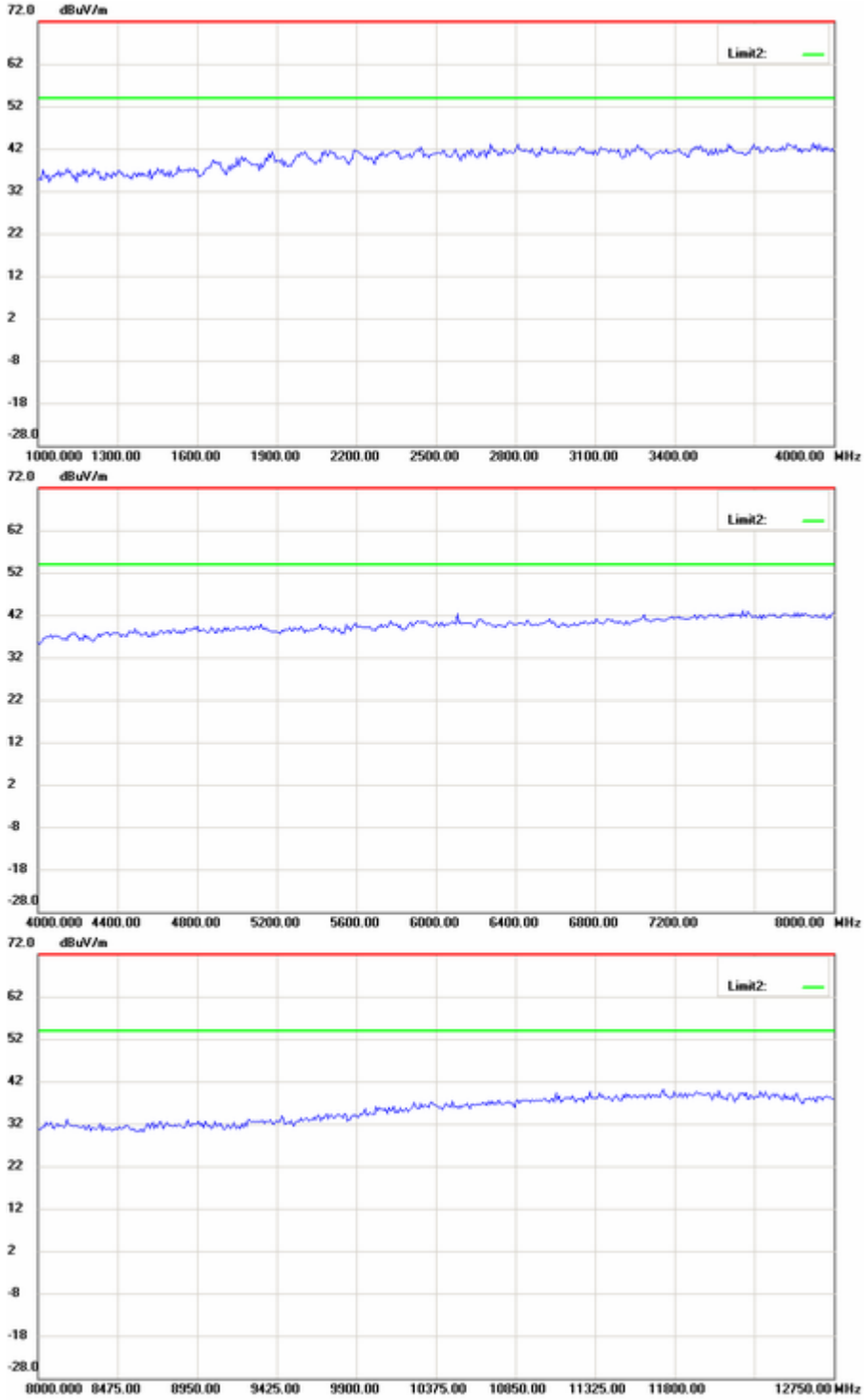

Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

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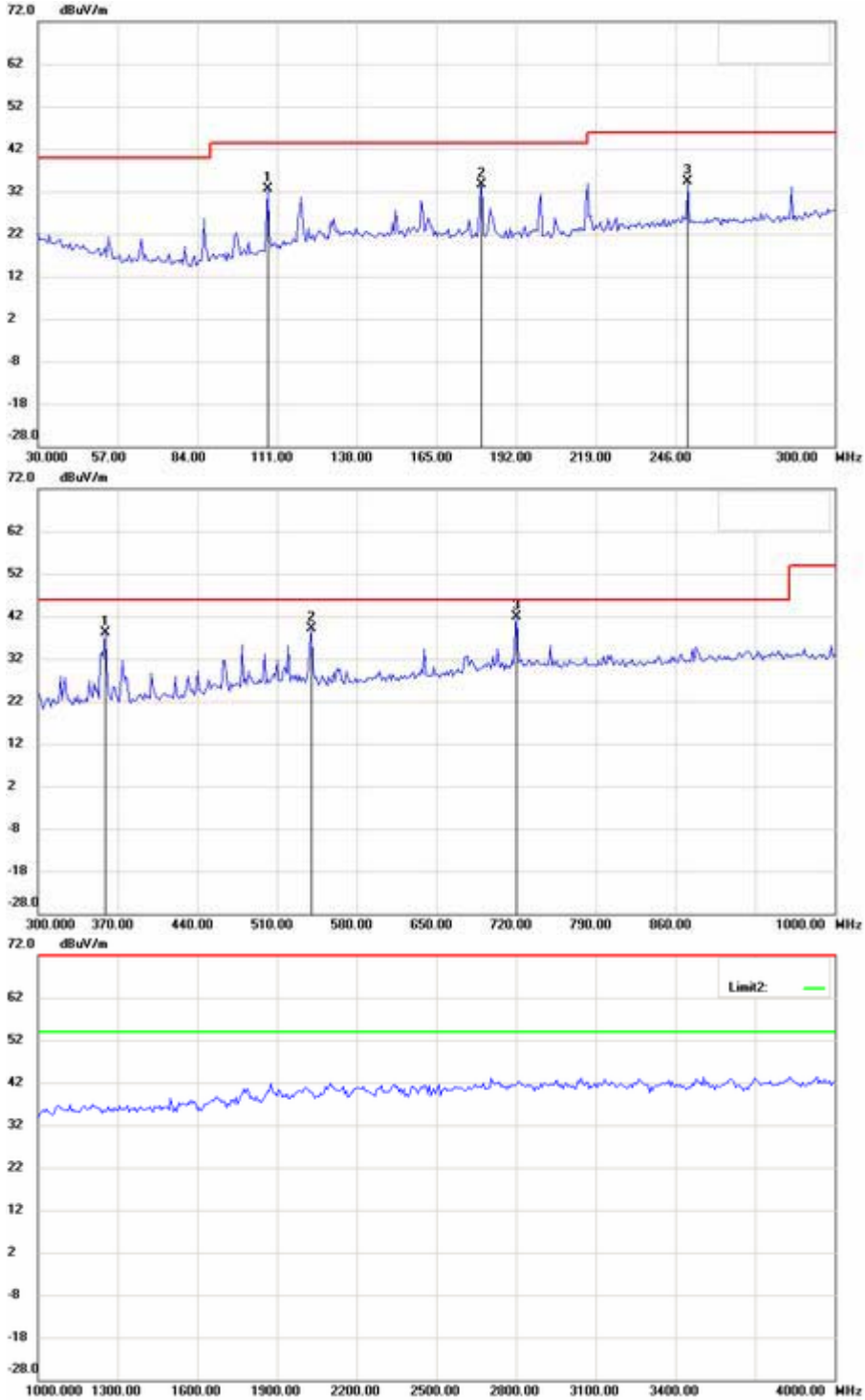
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

Mode A CH6

Antenna Polarization H



Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

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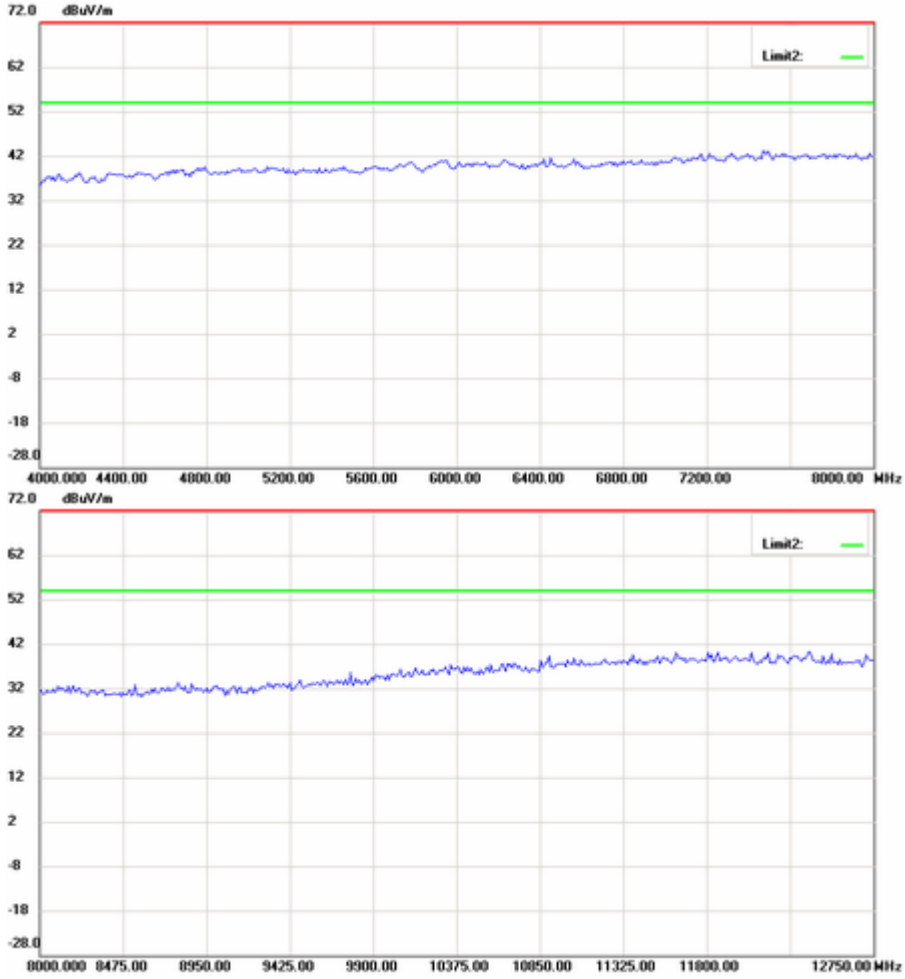
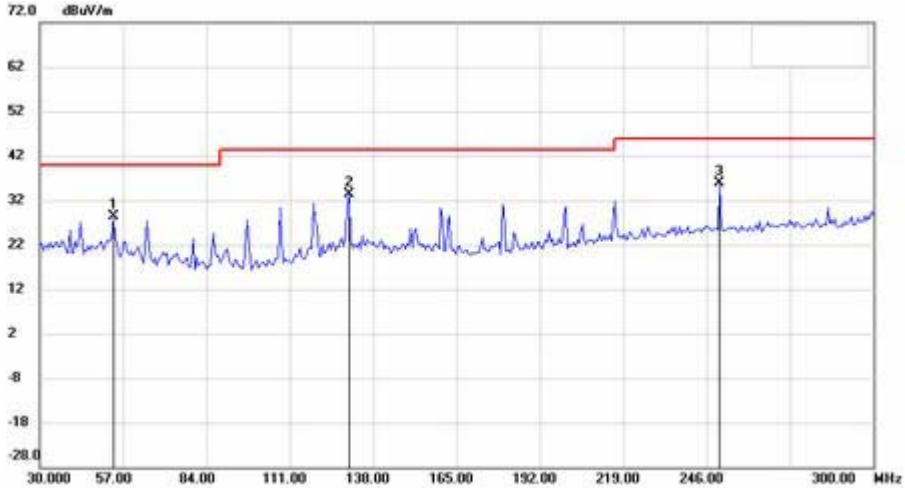
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



Antenna Polarization V



Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

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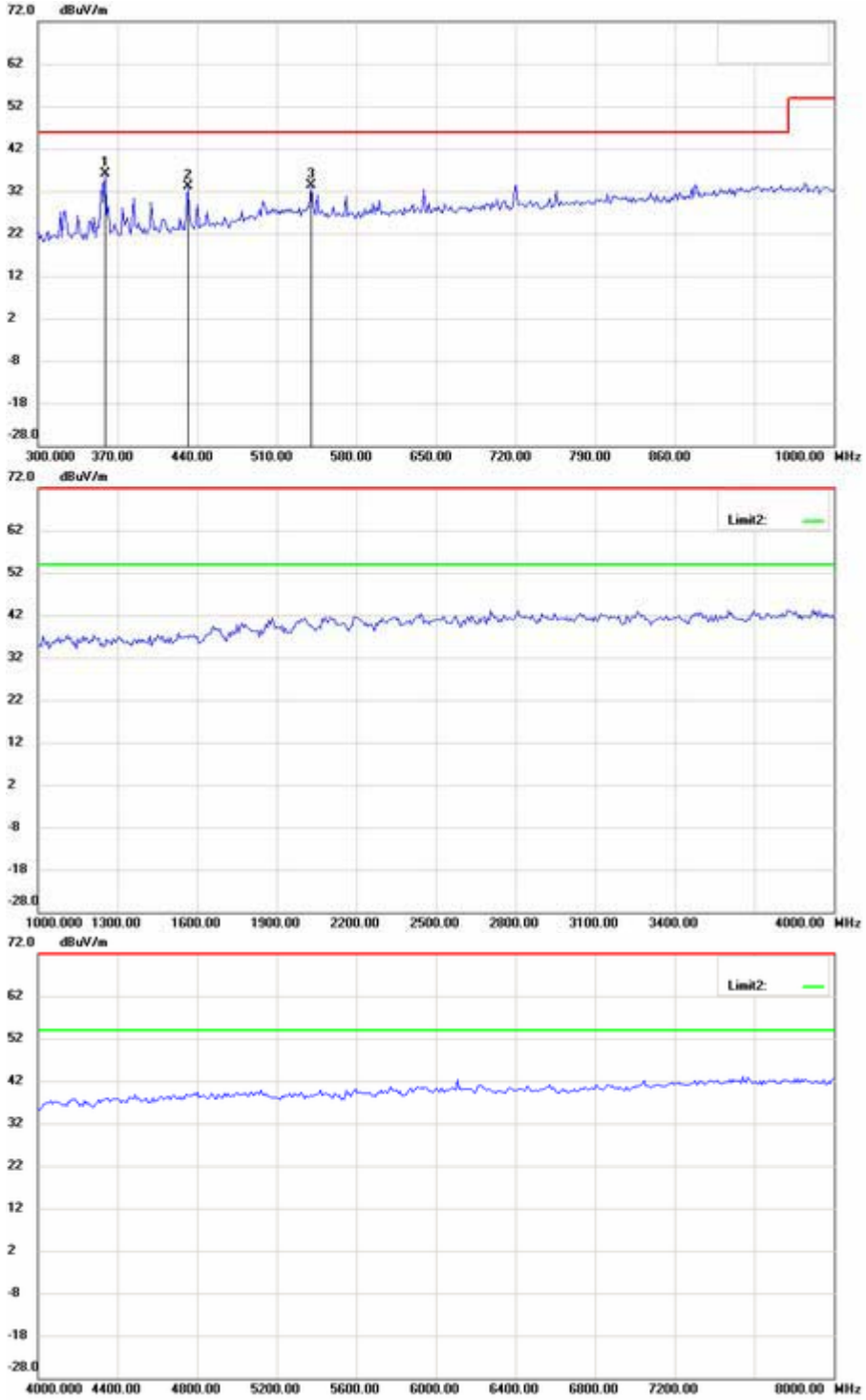
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

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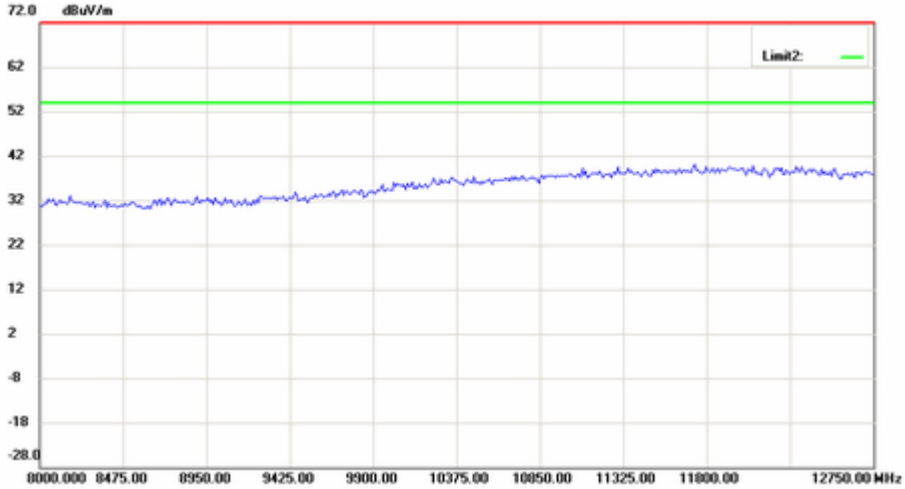
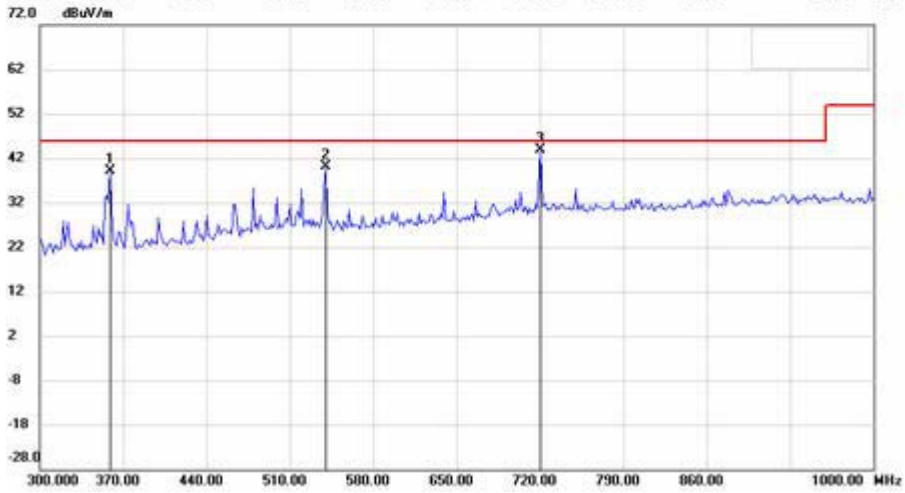


Mode A CH11

Antenna Polarization H



Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

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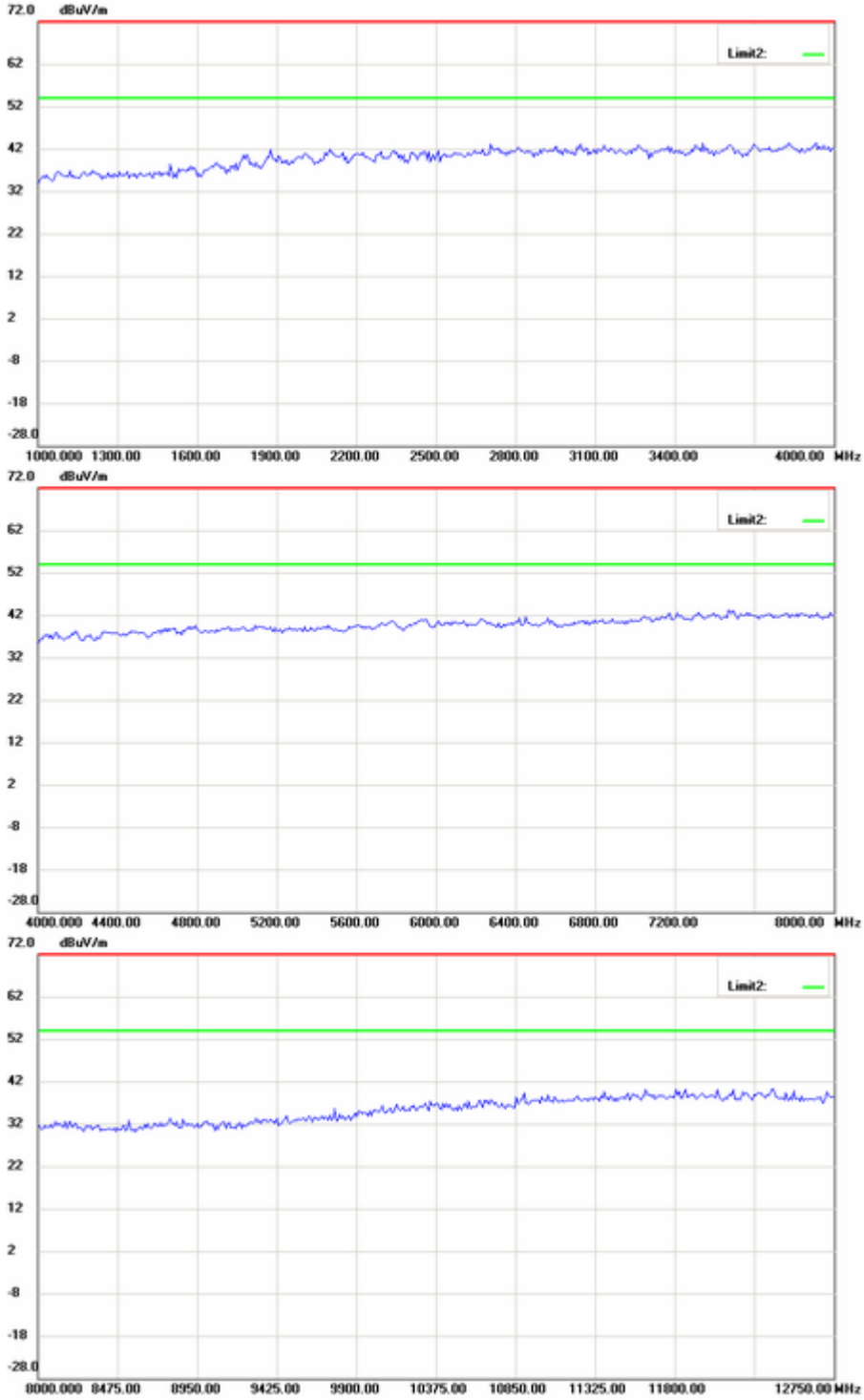

Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

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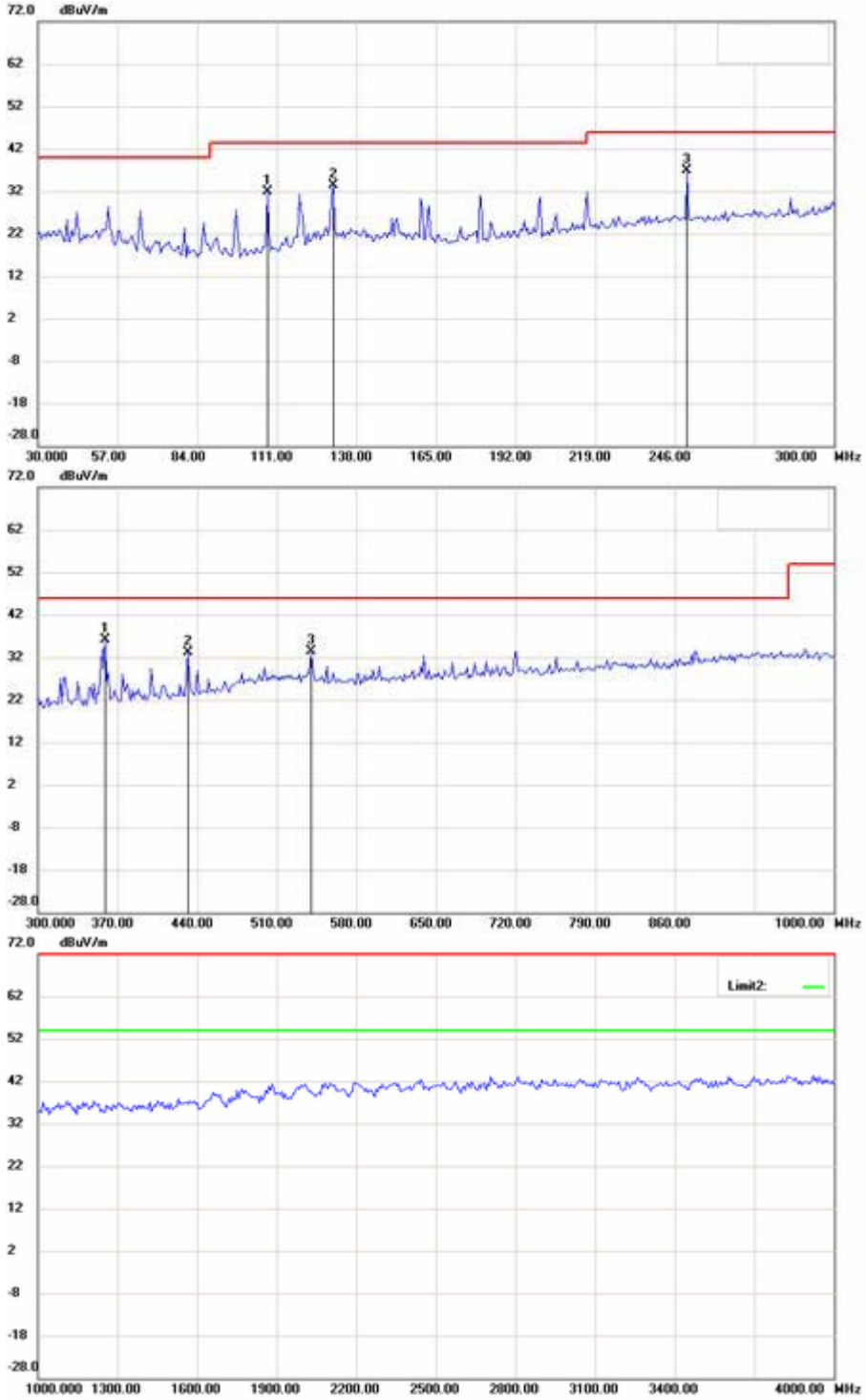
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

Antenna Polarization V



Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

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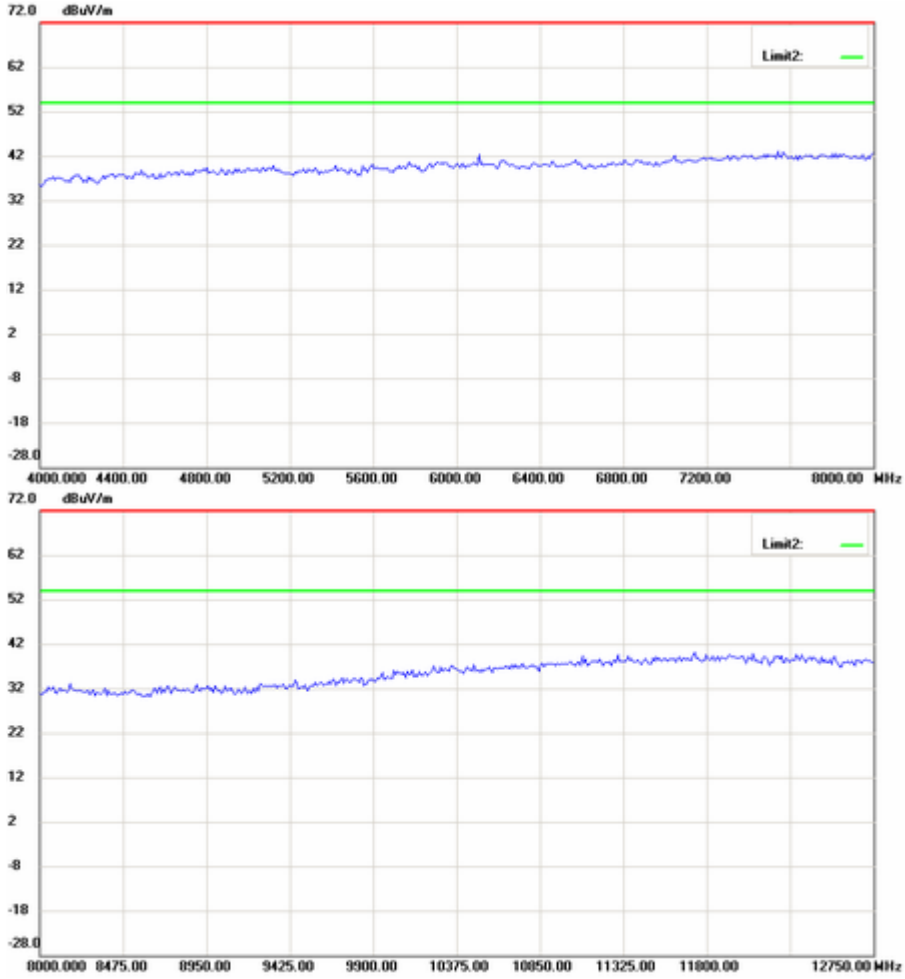
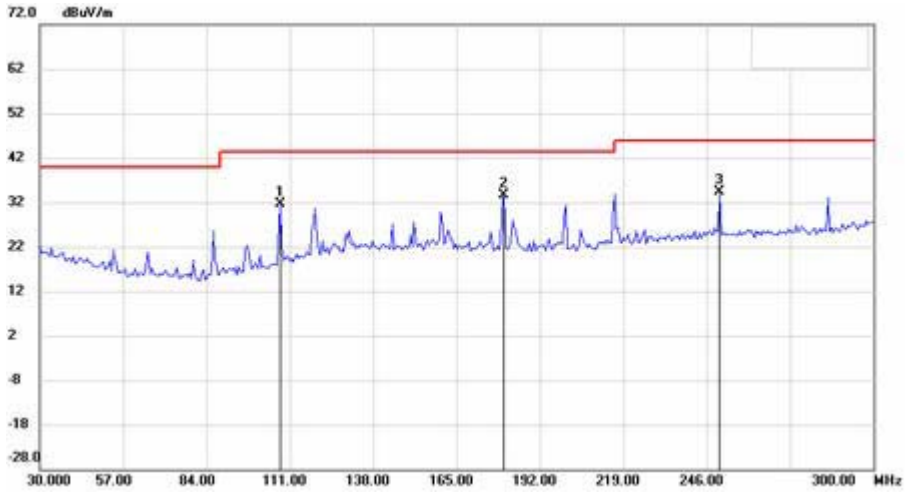


Mode B CH1

Antenna Polarization H



Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

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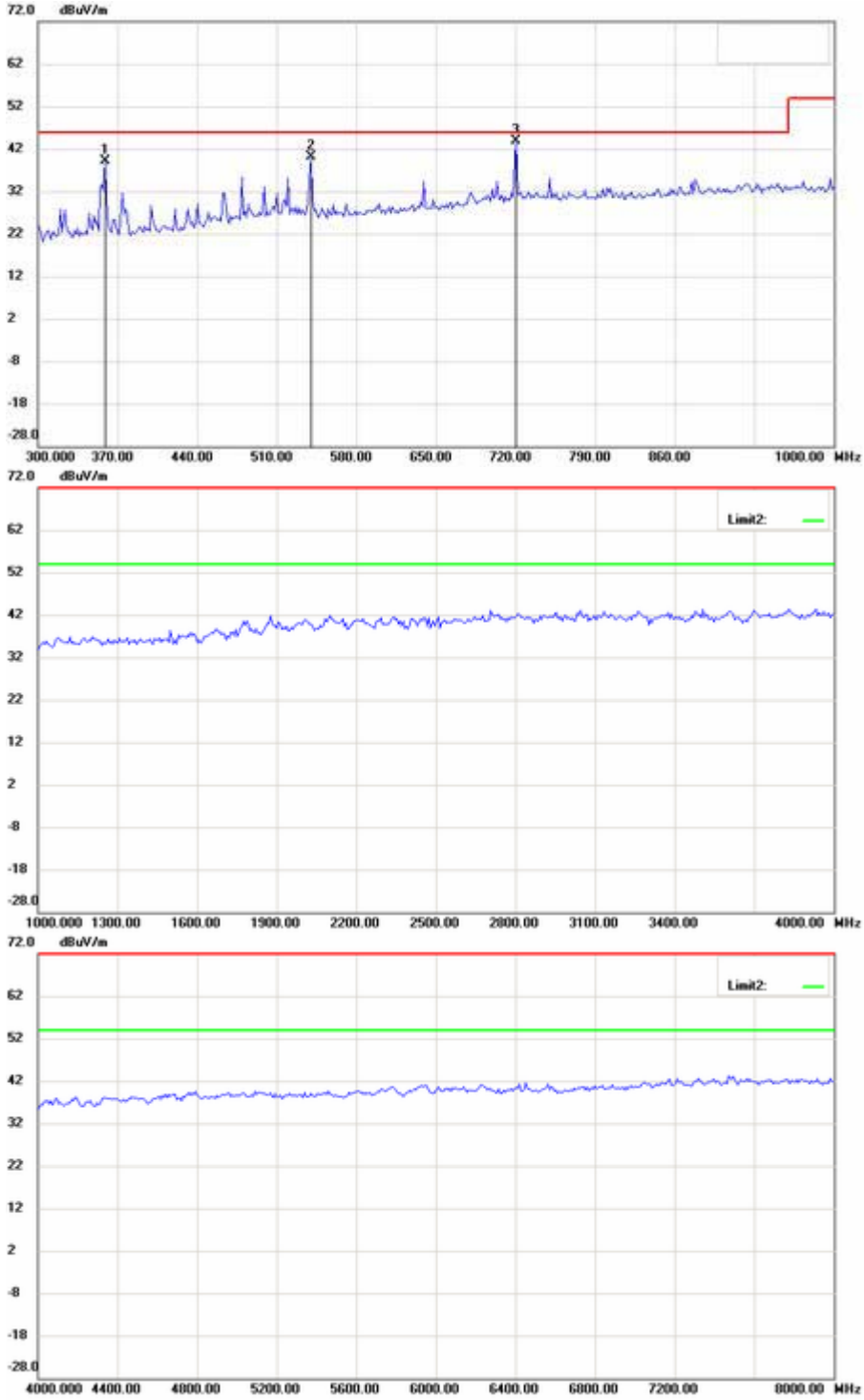
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER



Note:
Up Line: Peak Limit Line
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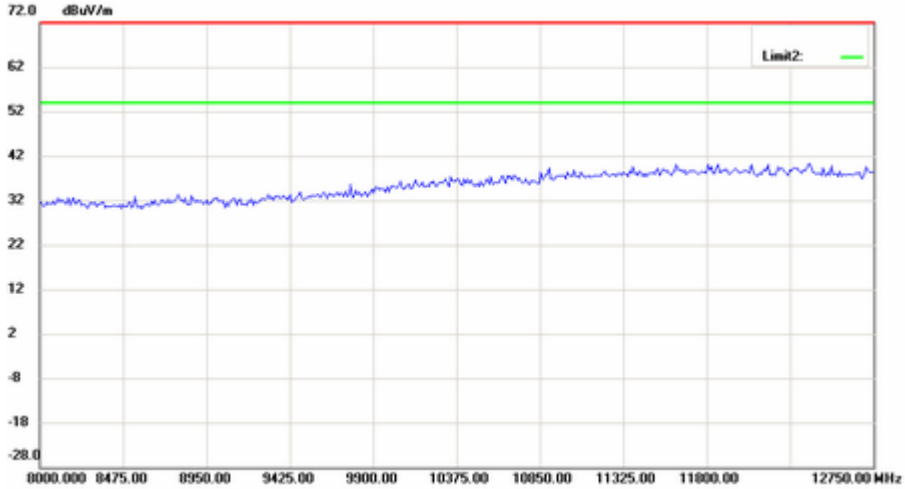
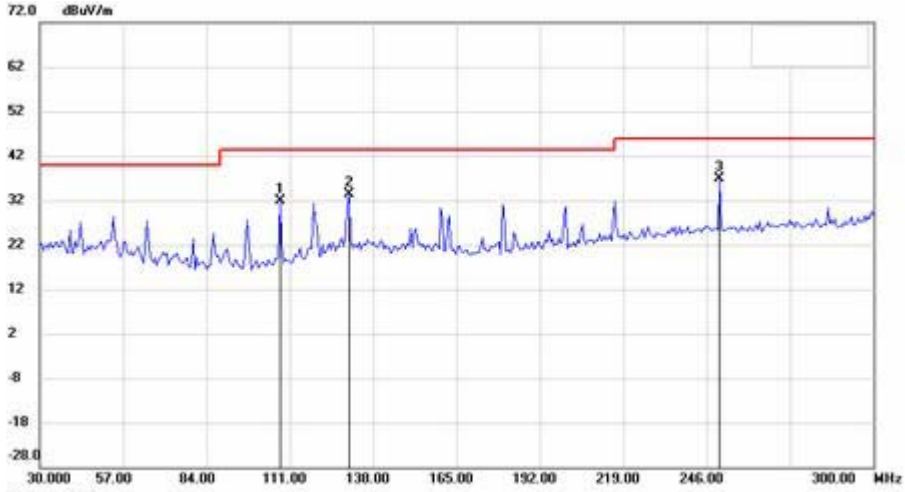
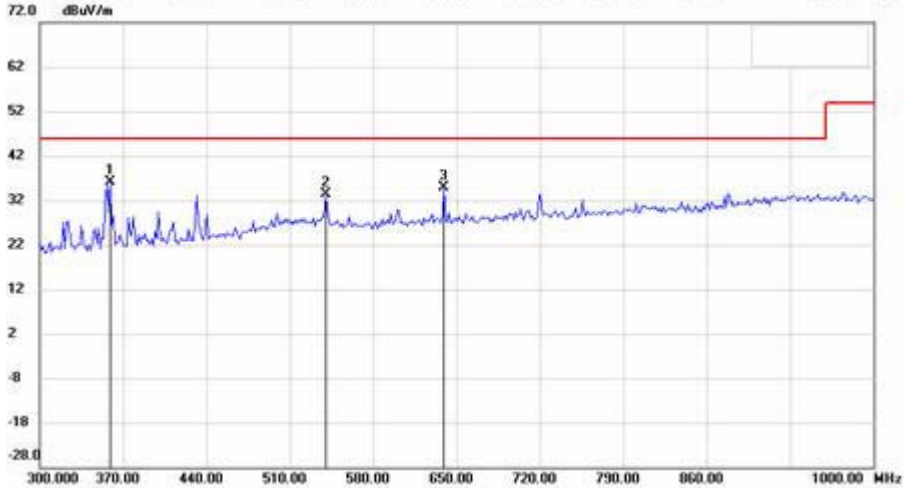


Antenna Polarization V





Note:
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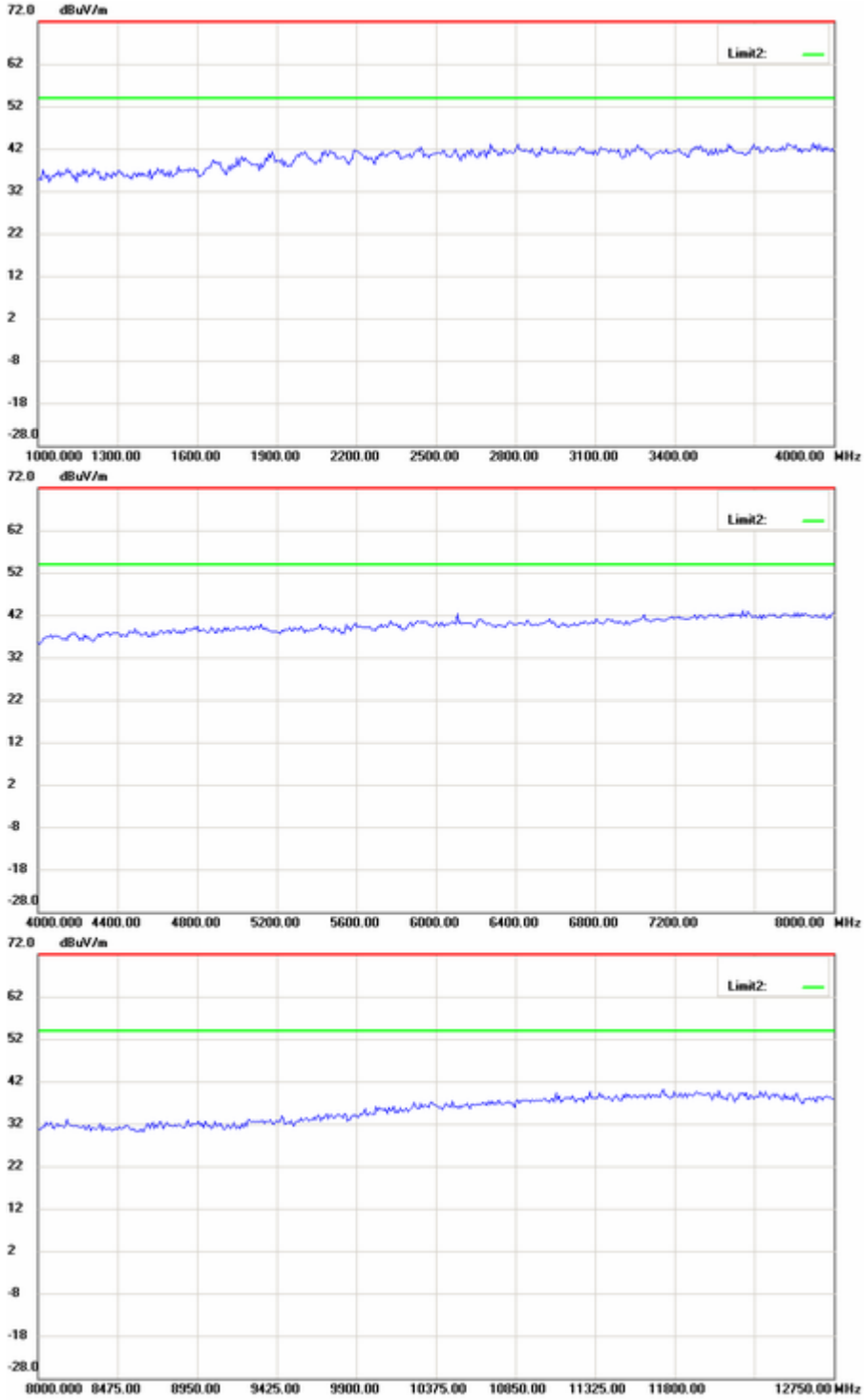

Note:
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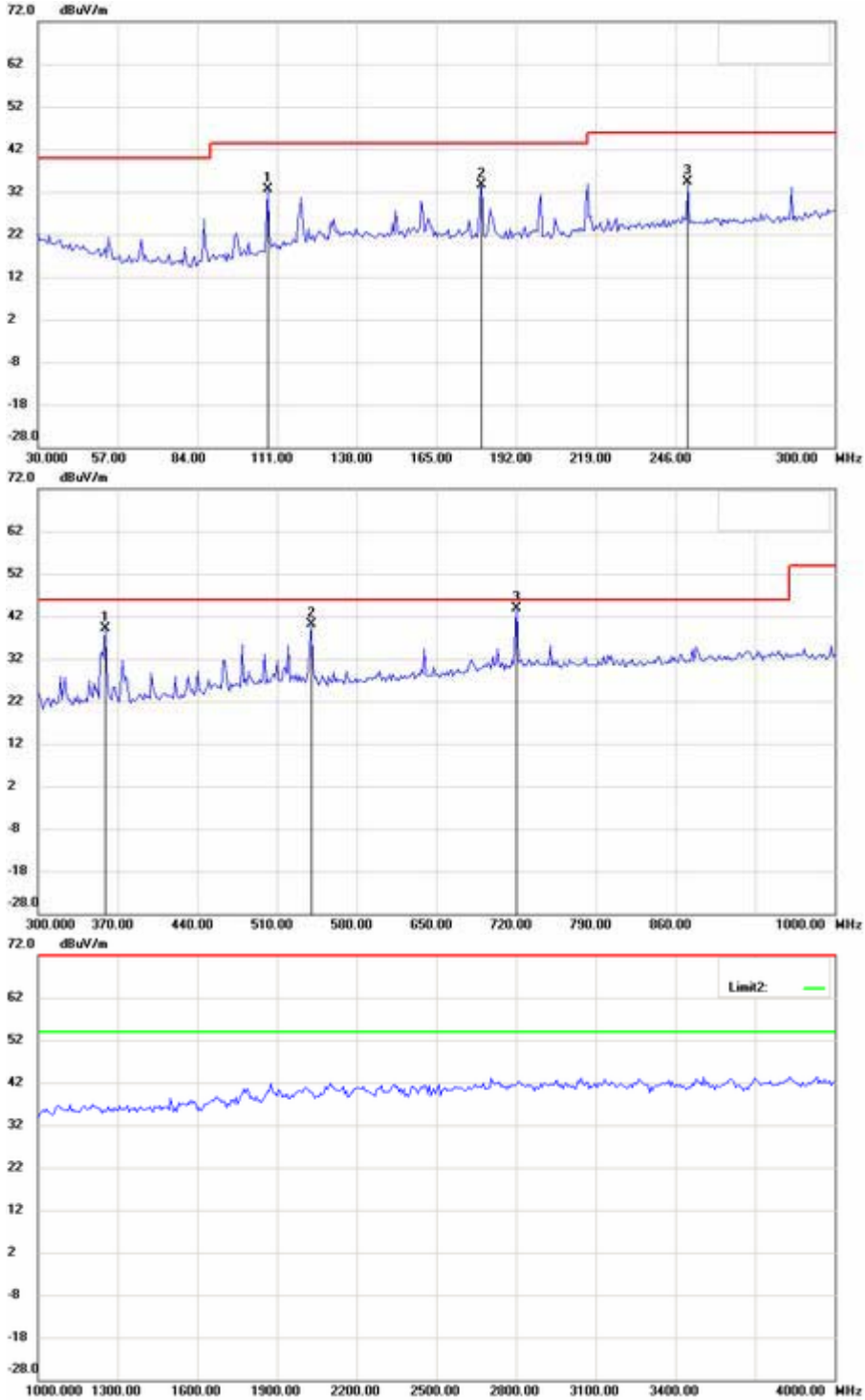
FCC ID: TS8DWRWIFIROUTER

Mode B CH6

Antenna Polarization H



Note:
Up Line: Peak Limit Line
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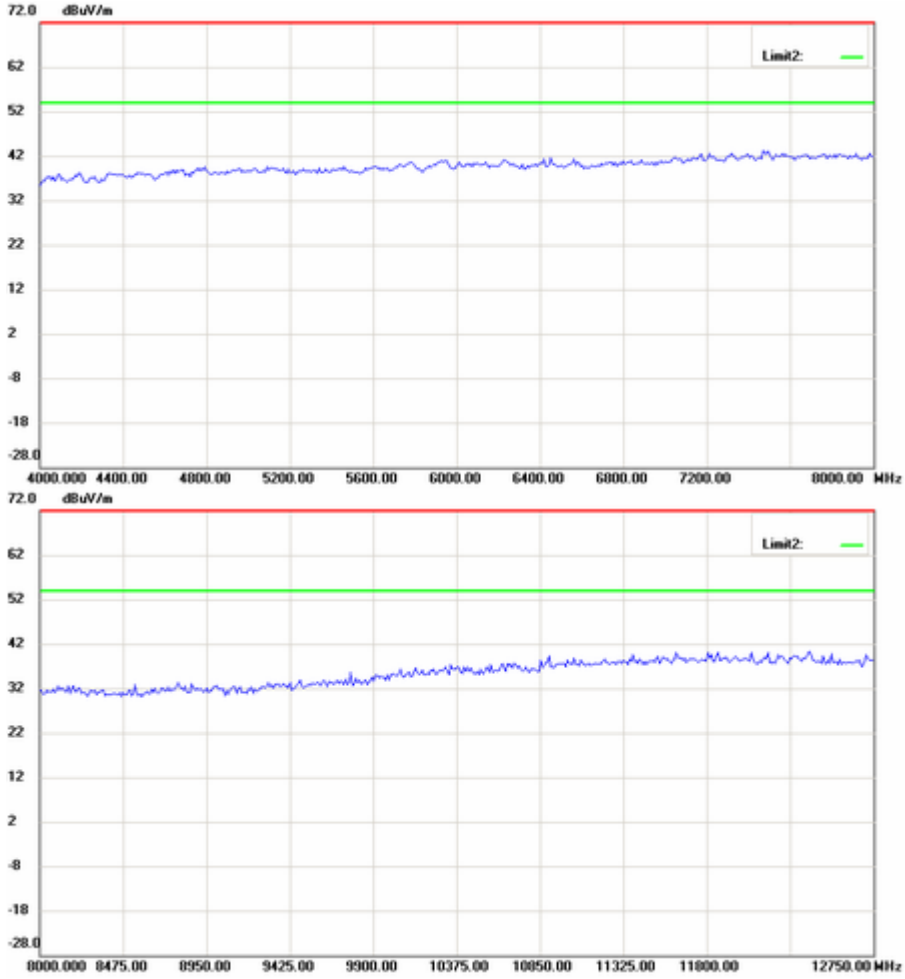
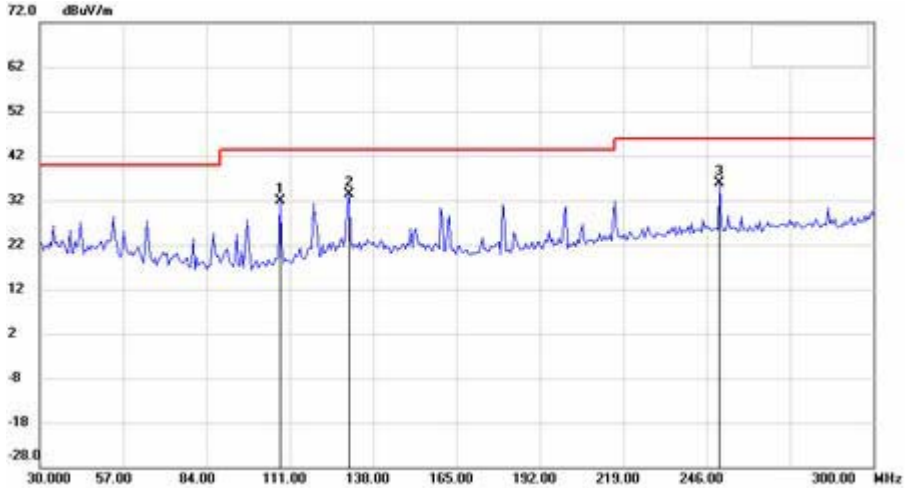


Antenna Polarization V



Note:
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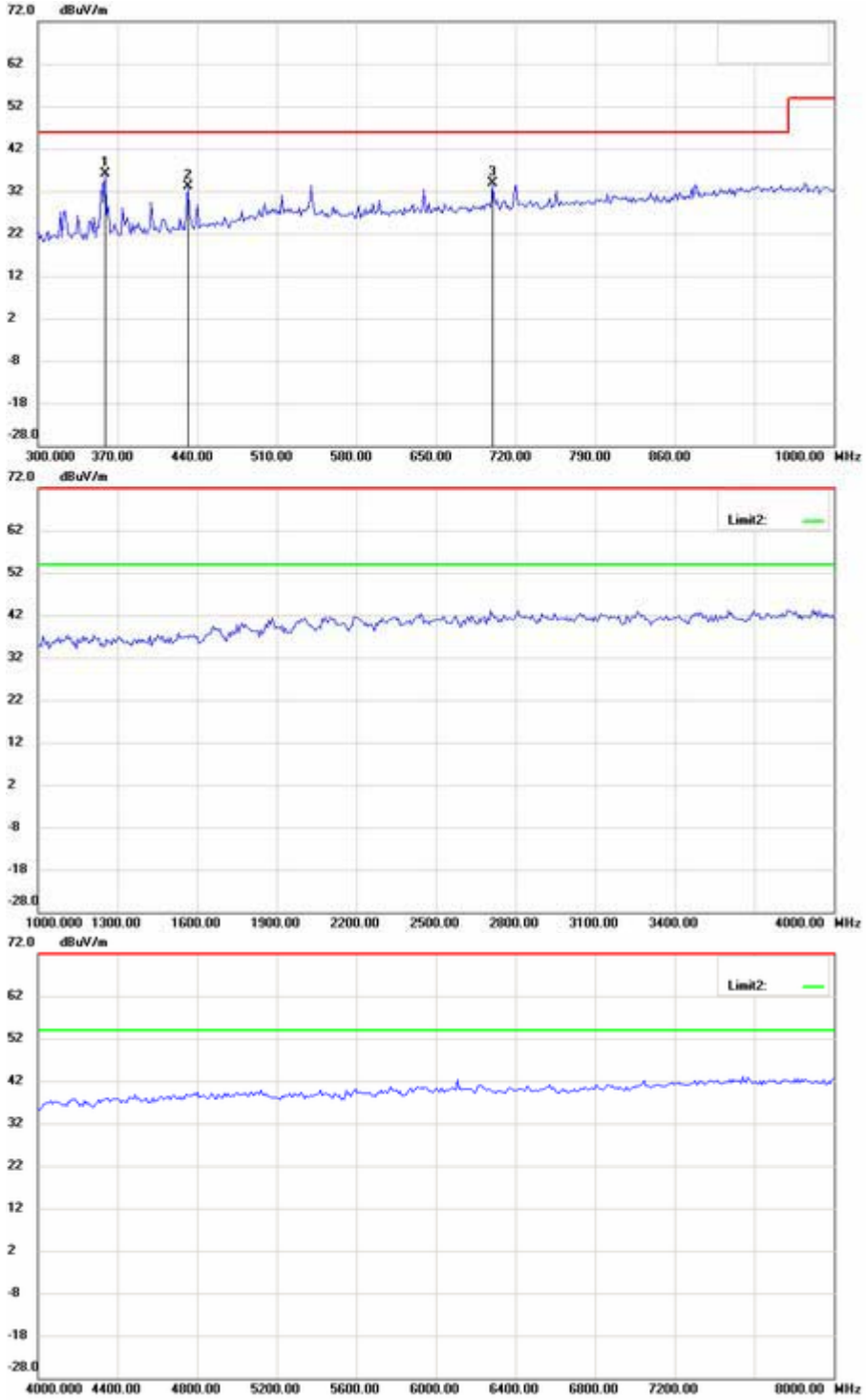

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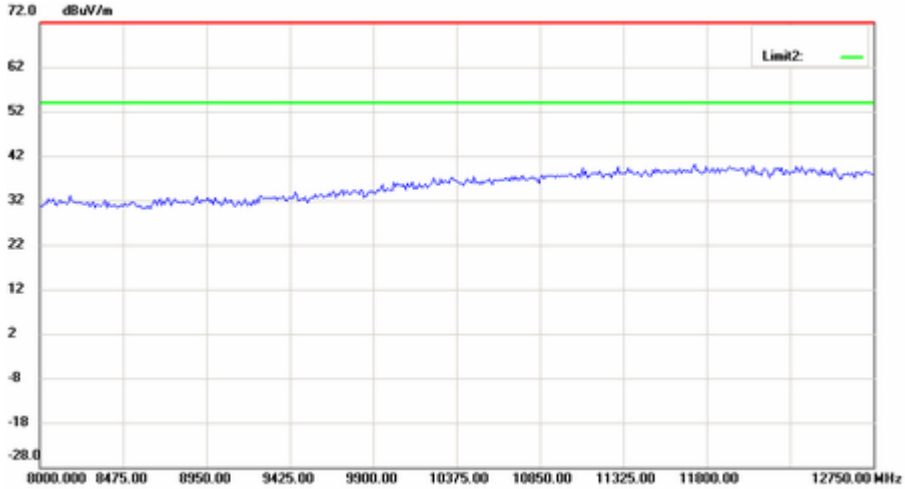
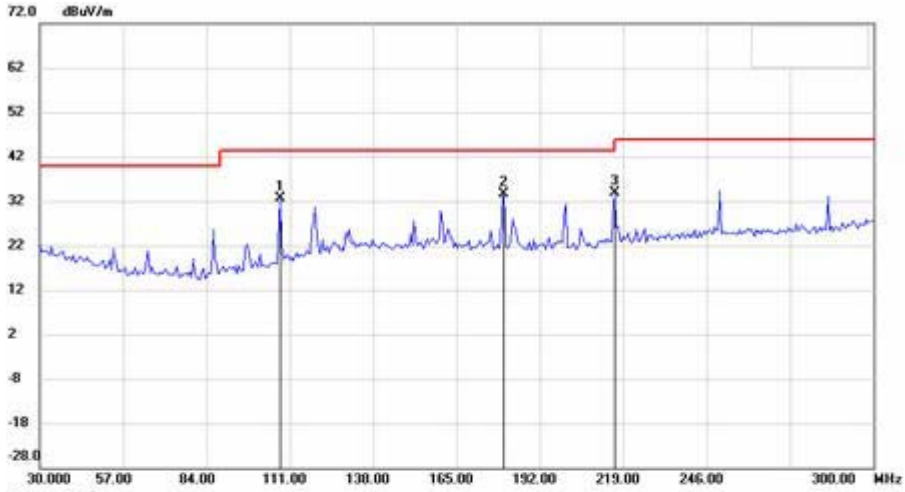
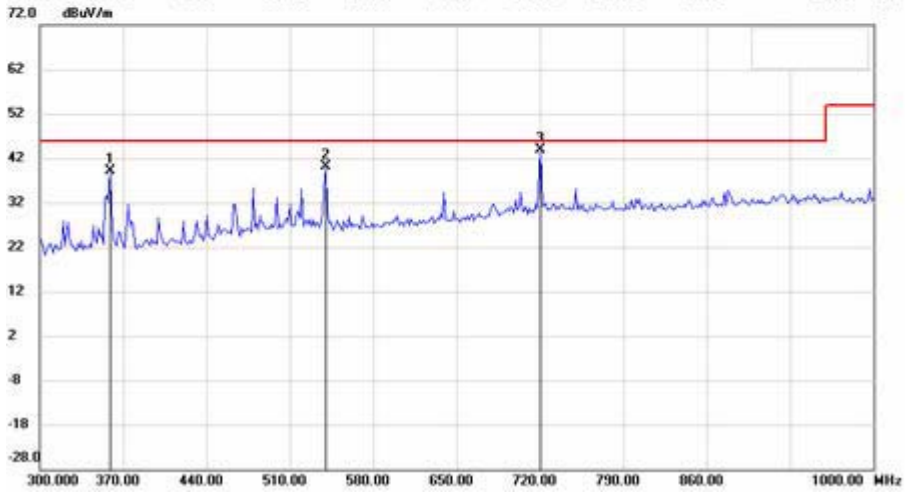


Mode B CH11
Antenna Polarization H





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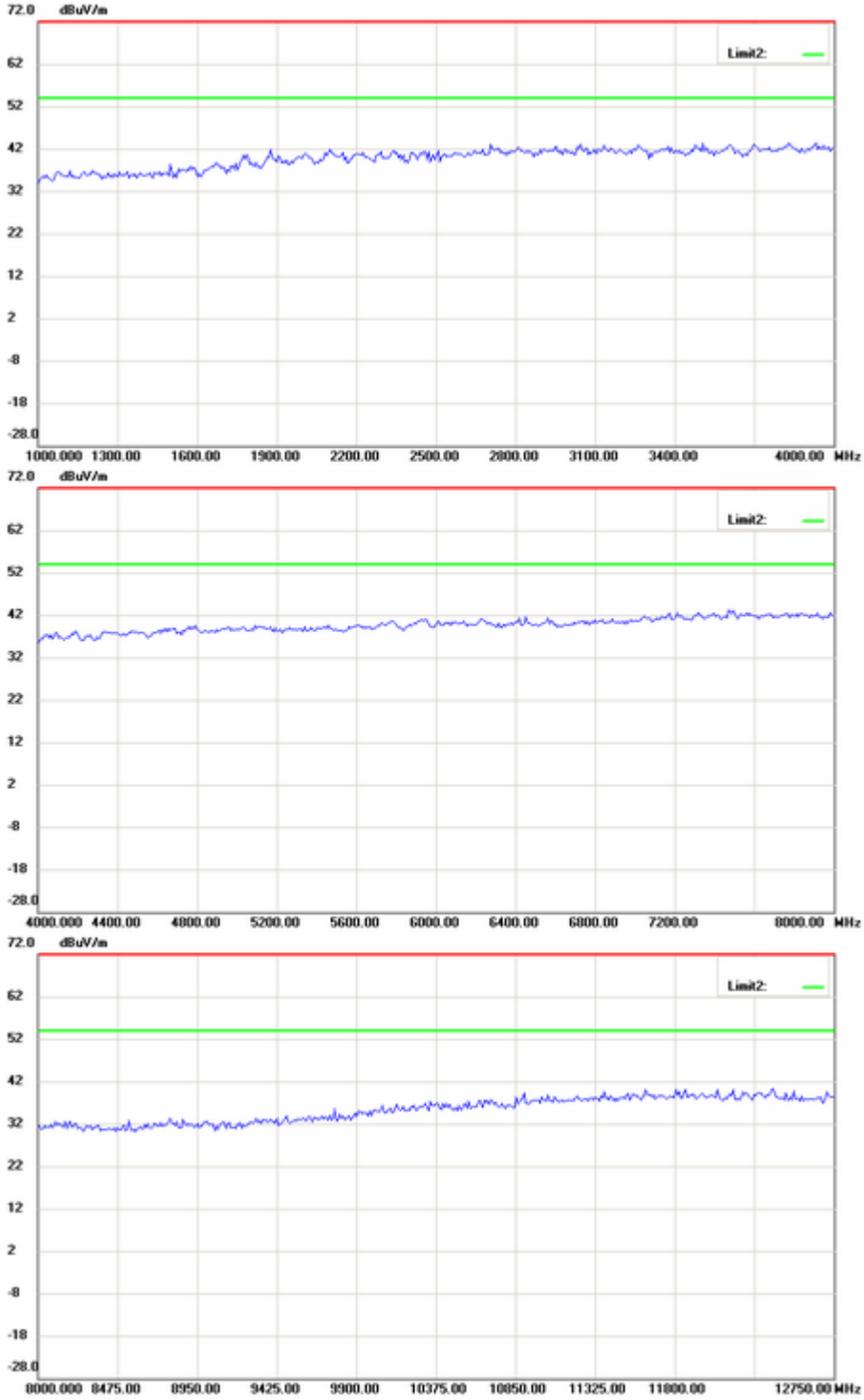

Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

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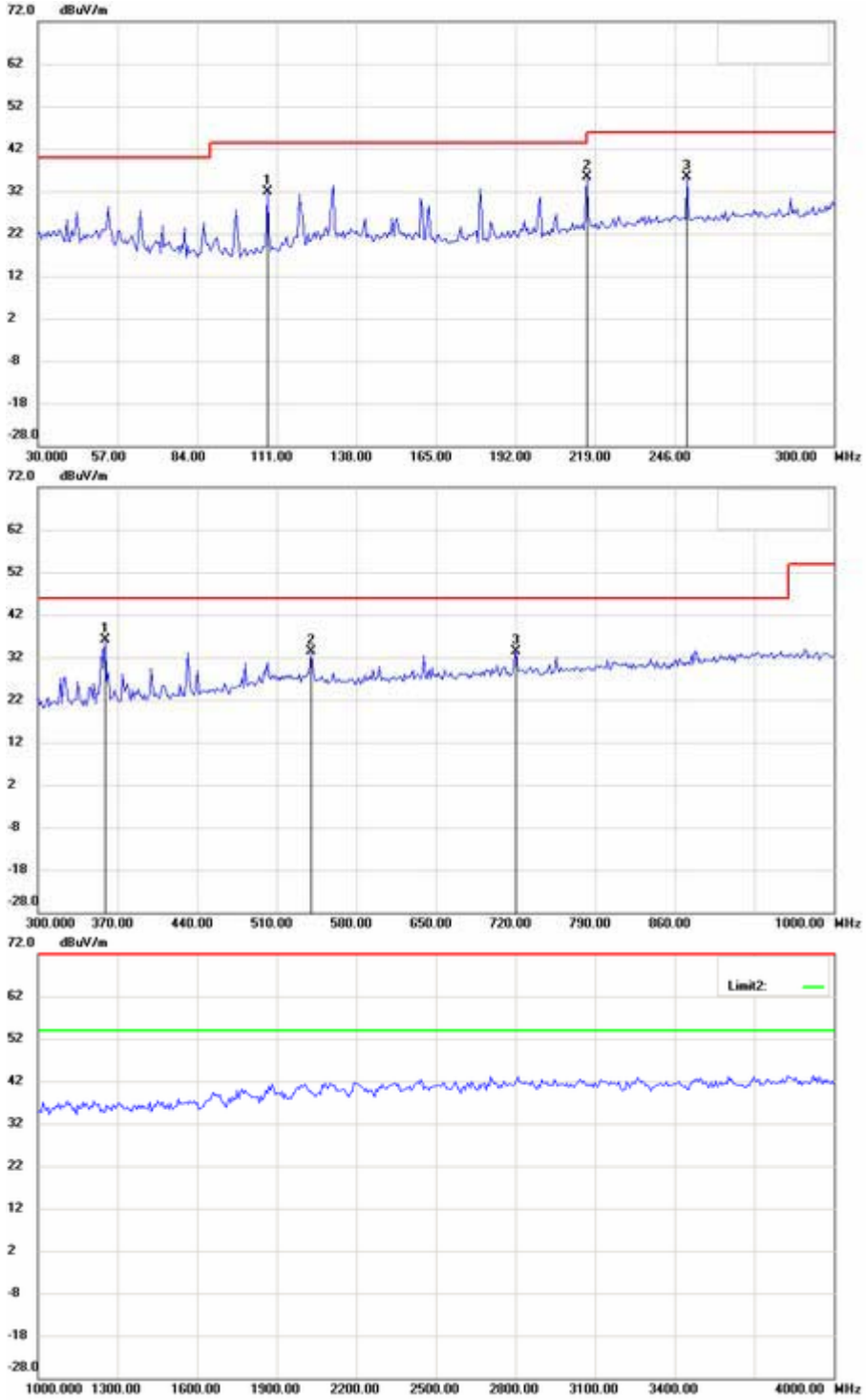
FCC ID: TS8DWRWIFIROUTER

Antenna Polarization V



Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

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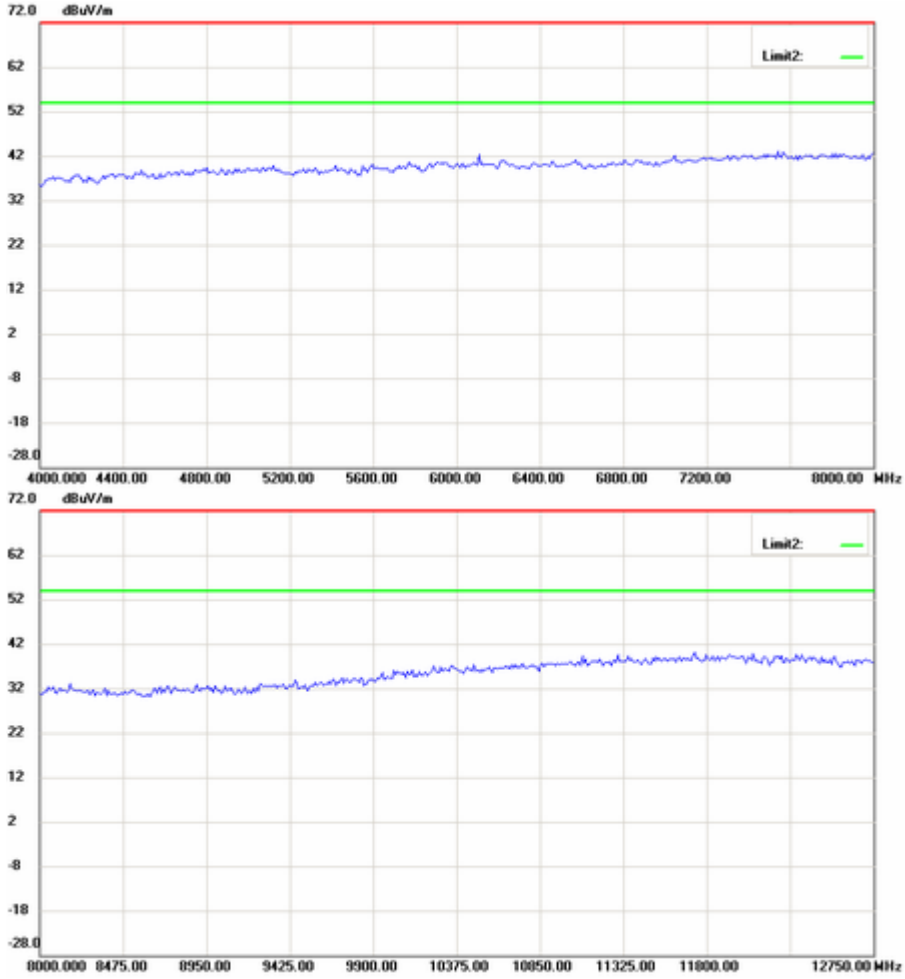

Note:
Up Line: Peak Limit Line
Down Line: Ave Limit Line

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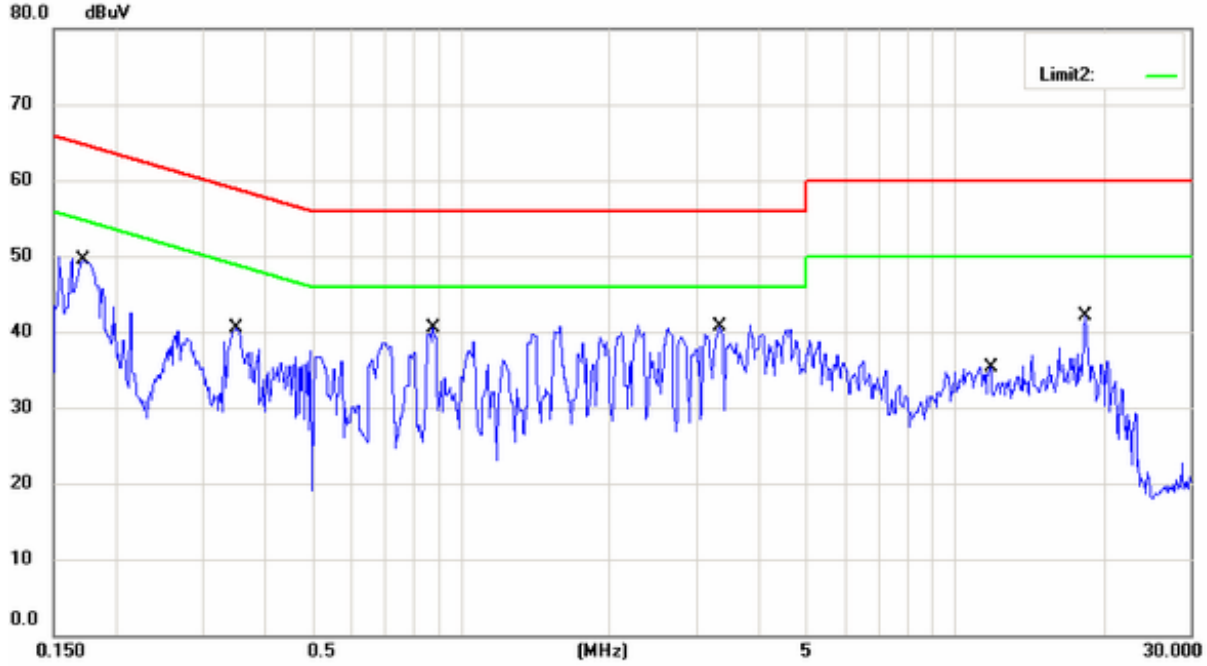
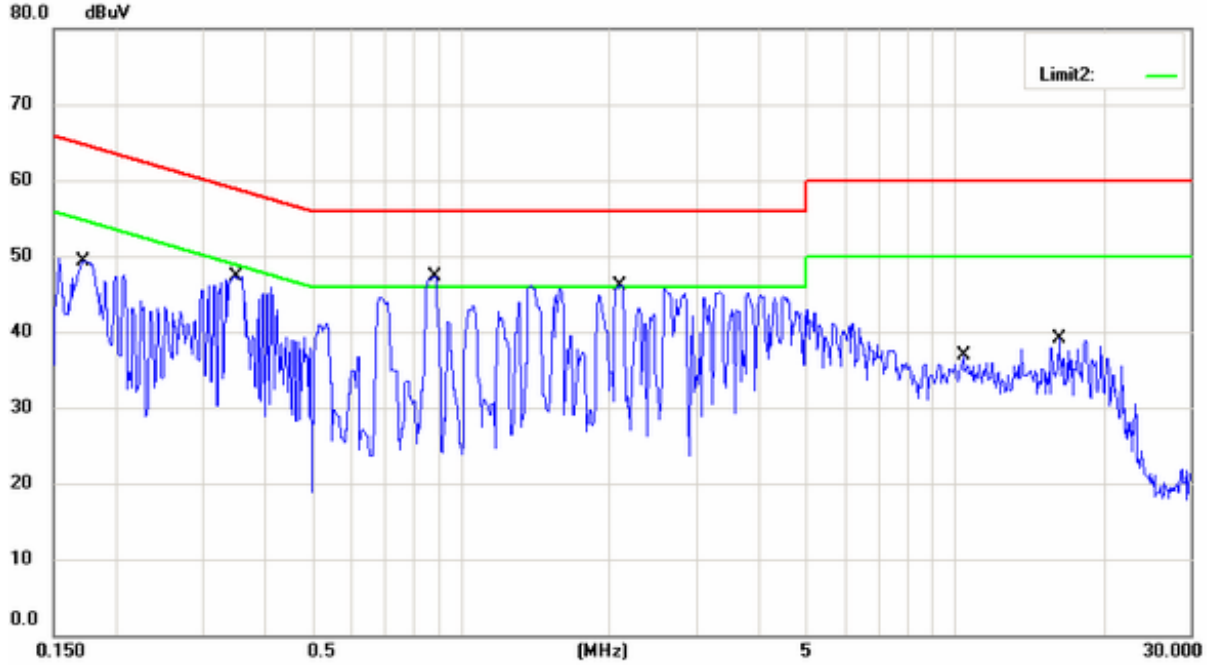
Registration number: W6M20809-9313-C-1
FCC ID: TS8DWRWIFIROUTER

Conducted Emission

LISN N



LISN L1



Up Line: QP Limit Line
Down Line: Ave Limit Line
Note:

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