FCC PART 15 SUBPART C TEST REPORT

for

MiniNote Computer

Model No.: S210i

FCC ID: XSOS210I

of

Applicant: Lebro Industrial Co., Ltd.
Address: 11F-1, No. 185, Sung Chiang Road, Taipei, Taiwan 10485

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.: W6M21002-10407-P-15

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C.
TEL: 886-2-66068877 FAX: 886-2-66068879 E-mail: wts@wts-lab.com

TABLE OF CONTENTS

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:

March 08, 2010		Kevin Wang	Kevin Wang
Date	WTS-Lab.	Name	Signature

Technical responsibility for area of testing:

March 08, 2010		Chang Tse-Ming	Chang Tse-Ming
Date	WTS	Name	Signature

Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

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

Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd. :

Name:	./.
Accredited number:	./.
Street:	./.
Town:	./.
Country:	./.
Telephone:	./.
Fax:	./.

1.3 Details of approval holder

Name:	Lebro Industrial Co., Ltd.
Street:	11F-1, No. 185, Sung Chiang Road,
Town:	Taipei,
Country:	Taiwan 10485
Telephone:	02-2503-6357
Fax:	02-2501-7809

1.4 Application details

Date of receipt of test item:	February 06, 2010
Date of test:	from February 06, 2010 to February 25, 2010

1.5 General information of Test item

Type of test item:	MiniNote Computer
Model Number:	S210i
Brand Name:	e-BENTON
Multi-listing model number:	without
Photos:	See Appendix

Technical data

Frequency band:	2.4 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:	PIFA Antenna
Antenna gain:	2 dBi
Power supply:	Adaptor (I/P: AC 100-240 V / 50-60 Hz / 1.5 A, O/P: 19 Vdc / 3.42 A) Battery (10.8 V / 2250 mAh / 24.3 Wh)
Emission designator:	DSSS: 16M4G1D OFDM: 16M8W7D

Host device: none

Classification:

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

Transmitter **Unom**

Mode A (DSSS)	**Peak Output Power**	**Average Output Power**
Power (ch 1 or A):	Conducted: 24.56 dBm	Conducted: 16.17 dBm
Power (ch 6 or B):	Conducted: 24.62 dBm	Conducted: 16.23 dBm
Power (ch 11 or C):	Conducted: 24.82 dBm	Conducted: 16.43 dBm
Mode B (OFDM)		
Power (ch 1 or A):	Conducted: 20.52 dBm	Conducted: 12.24 dBm
Power (ch 6 or B):	Conducted: 20.95 dBm	Conducted: 12.67 dBm
Power (ch 11 or C):	Conducted: 21.16 dBm	Conducted: 12.88 dBm

Manufacturer: (if applicable)

Name: Winward Industrial Ltd. ,
Street: Rm 7, P FI., Tower A, Hunghom Commercial Centre 39,
Town: Ma Tau Wai Road, Kowloon,
Country: Hong Kong

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 C § 15.247 (2009-10)

2 Technical test

2.1 Summary of test results

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. ☐

2.2 Test environment

Temperature:	23 °C
Relative humidity content:	20 ... 75 %
Air pressure:	86 ... 103 kPa
Power supply:	Adaptor (I/P: AC 100-240 V / 50-60 Hz / 1.5 A, O/P: 19 Vdc / 3.42 A) Battery (10.8 V / 2250 mAh / 24.3 Wh)
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	2009/9/10	2010/9/9
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2010/3/2	2011/3/1
ETSTW-CE 005	Line-Impedance Stabilisation Network	NNBM 8126D	137	Schwarzbeck	2009/9/9	2010/9/8
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2010/5/8	2011/5/7
ETSTW-CE 007	SPECTRUM ANALYZER 5GHz	FSB	849670/001	R&S	Pre-test Use NCR	
ETSTW-CE 008	HF-EICHLEITUNG RF STEP ATTENUATOR 139dB DPSP	334.6010.02	844581/024	R&S	Function Test	
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2009/7/21	2010/7/20
ETSTW-CE 015	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T8-02	20307	FCC	2009/9/12	2010/9/11
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2009/9/9	2010/9/8
ETSTW-RE 002	Function Generator	33220A	MY43004982	Agilent	Function Test	
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2009/10/1	2010/9/30
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2009/9/18	2010/9/17
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2009/9/11	2010/9/10
ETSTW-RE 006	Attenuator 10dB	50HF-010-5N-1	None	STEP	2010/3/5	2011/3/4
ETSTW-RE 010	ABSORBING CLAMP	MDS 21	3469	Schwarzbeck	2009/9/11	2010/9/10
ETSTW-RE 012	TUNABLE BANDREJECT FILTER	D.C 0309	146	K&L	Function Test	
ETSTW-RE 013	TUNABLE BANDREJECT FILTER	D.C 0336	397	K&L	Function Test	
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2009/10/1	2010/9/30
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	Function Test	
ETSTW-RE 021	SWEEP GENERATOR	SWM05	835130/010	R&S	2009/8/19	2010/8/18
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	EMCO	2009/8/14	2011/8/13
ETSTW-RE 028	Log-Periodic Dipole Array Antenna	3148	34429	EMCO	2010/4/14	2011/4/13
ETSTW-RE 029	Biconical Antenna	3109	33524	EMCO	2010/4/14	2011/4/13
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	2010/3/2	2011/3/1
ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2009/8/23	2010/8/22
ETSTW-RE 033	WaveRunner 6000A Serise Oscilloscope	WAVERUNNER 6100A	LCRY0604P14508	LeCroy	Function Test	
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2009/8/23	2010/8/22
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2010/1/13	2011/1/12
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2010/4/29	2011/4/28
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2010/5/11	2011/5/10
ETSTW-RE 047	PSA SERIES SPECTRUM ANALYZER	E4445A	MY46181369	Agilent	Pre-test Use NCR	
ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2009/8/31	2010/8/30
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2010/4/13	2011/4/12

ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2010/3/5	2011/3/4
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2010/3/5	2011/3/4
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2009/6/10	2010/6/09
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	Pre-test Use NCR	
ETSTW-RE 061	Amplifier Module	CHC 1	None	ETS	2009/11/12	2010/11/11
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2009/11/12	2010/11/11
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 065	Amplifier	AMF-6F-18002650-25-10P	941608	MITEQ	2010/4/13	2011/4/12
ETSTW-RE 066	Highpass Filter	H1G013G1	206015	MICROWAVE CIRCUITS, INC.	2010/3/5	2011/3/4
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2009/10/2	2010/10/1
ETSTW-RE 073	Power Meter	N1911A	MY45100769	Agilent	2010/1/7	2011/1/6
ETSTW-RE 074	Power Sensor	N1921A	MY45241198	Agilent	2010/1/7	2011/1/6
ETSTW-RE 081	Highpass Filter	H03G13G1	4260-02 DC0428	MICROWAVE CIRCUITS, INC.	2010/3/5	2011/3/4
ETSTW-RE 091	Match Pad	MDCS1500	None	WOKEN	Function Test	
ETSTW-RE 092	Match Pad	MDCS1510	None	WOKEN	Function Test	
ETSTW-RE 096	SIGNAL GENERATOR	SMIQ 03B	102274	R&S	2009/6/5	2010/6/4
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2010/3/5	2011/3/4
ETSTW-RE 105	2.4GHz Notch Filter	NO124411	39555	MICROWAVE CIRCUITS, INC.	2010/3/25	2011/3/24
ETSTW-RE 106	Humidity Temperature Meter	TES-1366	091011113	TES	2010/3/25	2011/3/24
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2009/9/22	2010/9/21
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40/12+9SS	3	WI	Function Test	
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	Function Test	
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	Function Test	
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	Function Test	
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2009/9/21	2010/9/20
ETSTW-Cable 002	Microwave Cable	SUCOFLEX 104（S_Cable 7）	238093	HUBER+SUHNER	2009/9/16	2010/9/15
ETSTW-Cable 003	Microwave Cable	SUCOFLEX 104（S_Cable 11）	209953	HUBER+SUHNER	2009/9/16	2010/9/15
ETSTW-Cable 006	Microwave Cable	SUCOFLEX 104（S_Cable 8）	238095	HUBER+SUHNER	2010/3/5	2011/3/4
ETSTW-Cable 010	BNC Cable	5 M BNC Cable	None	JYE BAO CO.,LTD.	2010/3/5	2011/3/4
ETSTW-Cable 011	BNC Cable	BNC Cable 1	None	JYE BAO CO.,LTD.	2009/8/20	2010/8/19
ETSTW-Cable 012	BNC Cable	BNC Cable 2	None	JYE BAO CO.,LTD.	2009/8/20	2010/8/19
ETSTW-Cable 013	Microwave Cable	SUCOFLEX 104（S_Cable 5）	232345	HUBER+SUHNER	2010/3/5	2011/3/4
ETSTW-Cable 022	N TYPE Cable	OATS Cable 3	0002	JYE BAO CO.,LTD.	2010/3/5	2011/3/4
ETSTW-Cable 039	Microwave Cable	SUCOFLEX 104（S_Cable 19）	316739	HUBER+SUHNER	2010/3/5	2011/3/4
WTSTW-SW 001	EMI TEST SOFTWARE	Harmonics-1000	None	EMC PARTNER	HARCS Version 4.16 Firmware Version 2.18	

WTSTW-SW 002	EMI TEST SOFTWARE	EZ_EMC	None	Farad	Version ETS-03A1
WTSTW-SW 003	EMS TEST SOFTWARE	i2	None	AUDIX	Version 3.2007-8-17b
WTSTW-SW 005	GSM Fading Level Correction	GSMFadLevCor	None	R&S	Version 1.66

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 (enclosure)

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 Digital Part	15.109	☐	☐	☐
Power Line Conducted Emission	15.207	☒	☒	☐

The follows is intended to leave blank.

3.1 Peak Output 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}= 23°C	V_{nom} = 120 V	[dBm]	[dBm]	[dBm]
		24.56	24.62	24.82

Mode B

Test condition		Conducted Power		
		Channel A	Channel B	Channel C
T_{nom}= 23°C	V_{nom} = 120 V	[dBm]	[dBm]	[dBm]
		20.52	20.95	21.16

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 055

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

3.2 Equivalent isotropic radiated power

FCC Rule: 15.247(b)(3)

EIRP = max. conducted output power + antenna gain
EIRP = 24.82 dBm + 2dBi
= 26.82 dBm
Limit: EIRP = +36 dBm for Antenna gain <6dBi

Test equipment used: ETSTW-RE 055

3.3 RF Exposure Compliance Requirements

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	303.389	Peak value
D	dB		
AG	dBi	2	
G		1.585	Calculated Value
R	cm	20	Assumed value
S	mW/cm^2	0.09567	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 Spurious Emissions (tx)

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)

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

Model: S210i Date: 2010/2/11
Mode: TX 802.11b CH1 Temperature: 24 °C Engineer: Kevin
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)
112.2446	15.99	peak	12.90	28.89	43.50	-14.61	140	150
335.0702	22.78	peak	17.04	39.82	46.00	-6.18	135	150

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)
4824.0000	46.13	---	-4.70	41.43	---	74.00	54.00	-32.57	145	150
7236.0000	46.99	---	-0.77	46.22	---	74.00	54.00	-27.78	140	150
9648.0000	28.65	---	14.30	42.95	---	74.00	54.00	-31.05	155	150
12060.0000	30.34	---	17.09	47.43	---	74.00	54.00	-26.57	160	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
74.9100	24.61	peak	10.99	35.60	40.00	-4.40	120	150
335.0702	18.62	peak	17.04	35.66	46.00	-10.34	140	150

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)
4824.0000	47.03	---	-4.70	42.33	---	74.00	54.00	-31.67	150	150
7236.0000	47.02	---	-0.77	46.25	---	74.00	54.00	-27.75	135	150
9648.0000	29.90	---	14.30	44.20	---	74.00	54.00	-29.80	165	150
12060.0000	31.20	---	17.09	48.29	---	74.00	54.00	-25.71	150	150

Mode: TX 802.11b CH6
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
261.5832	19.91	peak	14.87	34.78	46.00	-11.22	120	150
335.0702	25.23	peak	17.04	42.27	46.00	-3.73	120	150

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)
4874.0000	45.92	---	-4.52	41.40	---	74.00	54.00	-32.60	165	150
7311.0000	47.43	---	-0.78	46.65	---	74.00	54.00	-27.35	170	150
9748.0000	29.57	---	14.77	44.34	---	74.00	54.00	-29.66	170	150
12185.0000	30.31	---	17.44	47.75	---	74.00	54.00	-26.25	160	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
74.3688	23.74	peak	11.10	34.84	40.00	-5.16	130	150
335.0702	18.75	peak	17.04	35.79	46.00	-10.21	110	150

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)
4874.0000	46.90	---	-4.52	42.38	---	74.00	54.00	-31.62	140	150
7311.0000	47.01	---	-0.78	46.23	---	74.00	54.00	-27.77	150	150
9748.0000	31.04	---	14.77	45.81	---	74.00	54.00	-28.19	150	150
12185.0000	31.47	---	17.44	48.91	---	74.00	54.00	-25.09	140	150

Mode: TX 802.11b CH11
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
261.5832	18.70	peak	14.87	33.57	46.00	-12.43	125	150
335.0702	21.82	peak	17.04	38.86	46.00	-7.14	150	150

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)
4924.0000	46.49	---	-4.45	42.04	---	74.00	54.00	-31.96	145	150
7386.0000	47.89	---	-0.91	46.98	---	74.00	54.00	-27.02	150	150
9848.0000	28.99	---	15.27	44.26	---	74.00	54.00	-29.74	150	150
12310.0000	30.19	---	17.17	47.36	---	74.00	54.00	-26.64	145	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
74.9100	26.11	peak	10.99	37.10	40.00	-2.90	110	150
971.9438	7.42	peak	28.86	36.28	54.00	-17.72	120	150

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)
4924.0000	46.72	---	-4.45	42.27	---	74.00	54.00	-31.73	135	150
7386.0000	47.35	---	-0.91	46.44	---	74.00	54.00	-27.56	145	150
9848.0000	31.65	---	15.27	46.92	---	74.00	54.00	-27.08	155	150
12310.0000	32.15	---	17.17	49.32	---	74.00	54.00	-24.68	160	150

Mode: TX 802.11g CH1
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
261.5832	19.57	peak	14.87	34.44	46.00	-11.56	140	150
335.0702	26.30	peak	17.04	43.34	46.00	-2.66	120	150

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)
4824.0000	45.63	---	-4.70	40.93	---	74.00	54.00	-33.07	150	150
7236.0000	46.54	---	-0.77	45.77	---	74.00	54.00	-28.23	145	150
9648.0000	29.56	---	14.30	43.86	---	74.00	54.00	-30.14	160	150
12060.0000	30.11	---	17.09	47.20	---	74.00	54.00	-26.80	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)
74.9100	22.98	peak	10.99	33.97	40.00	-6.03	125	150
335.0702	19.34	peak	17.04	36.38	46.00	-9.62	110	150

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)
4824.0000	45.53	---	-4.70	40.83	---	74.00	54.00	-33.17	155	150
7236.0000	45.89	---	-0.77	45.12	---	74.00	54.00	-28.88	150	150
9648.0000	29.41	---	14.30	43.71	---	74.00	54.00	-30.29	145	150
12060.0000	29.59	---	17.09	46.68	---	74.00	54.00	-27.32	150	150

Mode: TX 802.11g CH6
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
262.1243	20.78	peak	14.89	35.67	46.00	-10.33	155	150
977.5551	9.18	peak	28.93	38.11	54.00	-15.89	110	150

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)
4874.0000	46.54	---	-4.52	42.02	---	74.00	54.00	-31.98	145	150
7311.0000	47.33	---	-0.78	46.55	---	74.00	54.00	-27.45	140	150
9748.0000	29.25	---	14.77	44.02	---	74.00	54.00	-29.98	140	150
12185.0000	29.60	---	17.44	47.04	---	74.00	54.00	-26.96	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)
74.9100	24.62	peak	10.99	35.61	40.00	-4.39	120	150
984.5691	7.79	peak	29.02	36.81	54.00	-17.19	120	150

Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

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)
4874.0000	45.98	---	-4.52	41.46	---	74.00	54.00	-32.54	140	150
7311.0000	47.17	---	-0.78	46.39	---	74.00	54.00	-27.61	135	150
9748.0000	30.11	---	14.77	44.88	---	74.00	54.00	-29.12	140	150
12185.0000	31.39	---	17.44	48.83	---	74.00	54.00	-25.17	150	150

Mode: TX 802.11g CH11
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
261.5832	16.88	peak	14.87	31.75	46.00	-14.25	145	150
401.0021	17.86	peak	18.86	36.72	46.00	-9.28	100	150

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)
4924.0000	46.51	---	-4.45	42.06	---	74.00	54.00	-31.94	145	150
7386.0000	47.44	---	-0.91	46.53	---	74.00	54.00	-27.47	150	150
9848.0000	30.02	---	15.27	45.29	---	74.00	54.00	-28.71	150	150
12310.0000	30.13	---	17.17	47.30	---	74.00	54.00	-26.70	160	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
74.9100	24.10	peak	10.99	35.09	40.00	-4.91	140	150
335.0702	18.80	peak	17.04	35.84	46.00	-10.16	120	150

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)
4924.0000	46.62	---	-4.45	42.17	---	74.00	54.00	-31.83	140	150
7386.0000	47.14	---	-0.91	46.23	---	74.00	54.00	-27.77	145	150
9848.0000	31.72	---	15.27	46.99	---	74.00	54.00	-27.01	160	150
12310.0000	31.57	---	17.17	48.74	---	74.00	54.00	-25.26	175	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-RE 003, ETSTW-RE 004, ETSTW-RE 018, ETSTW-RE 028, ETSTW-RE 029, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043, ETSTW-RE 044

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}= 23°C	V_{nom} = 120 V	42.07 dB	60.74 dB

Mode B

Test conditions		Attenuation at or outside band-edges	
		Lower Band-edge	Upper Band-edge
T_{nom}= 23°C	V_{nom} = 120 V	32.79 dB	48.45 dB

Limit:

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

Test equipment used: ETSTW-RE 055

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}= 23°C	V_{nom} = 120 V	10.288461538 MHz	11.826923077 MHz	9.871794872 MHz

Mode B

Test conditions		6 dB Bandwidth		
		Channel 1	Channel 6	Channel 11
T_{nom}= 23°C	V_{nom} = 120 V	16.538461538 MHz	16.538461538 MHz	16.538461538 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 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}= 23°C	V_{nom} = 120 V	-6.53	-5.93	-4.01

Mode B

Test conditions		Peak Power Spectral Density (3 kHz)		
		Channel 1 [dBm]	Channel 6 [dBm]	Channel 11 [dBm]
T_{nom}= 23°C	V_{nom} = 120 V	-12.79	-12.35	-12.38

Limits:

Frequency Range MHz	dBm
902-928	8
2400-2483.5	8
5725-5850	8

Test equipment used: ETSTW-RE 055

Explanation: See attached diagrams in Appendix.

3.9 Radiated Emission from Digital Part

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”.

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 028, ETSTW-RE 029, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043, ETSTW-RE 044

Explanation: The test results are listed in the separated test report no.: W6M21002-10407-P-15B.

3.10 Power Line 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

Model: S210i Date: 2010/2/9
Mode: Temperature: 24 °C Engineer: Leon
Polarization: N Humidity: 60 %

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result (dBuV)		Limit (dBuV)		Margin (dB)
	QP	Ave.	Corr.	QP	Ave.	QP	Ave.	
0.1884	36.35	14.81	10.76	47.11	25.57	64.11	54.11	-17.00
0.2500	26.55	8.89	10.72	37.27	19.61	61.76	51.76	-24.49
0.3468	23.35	7.45	10.72	34.07	18.17	59.04	49.04	-24.97
1.7150	20.43	8.98	10.17	30.60	19.15	56.00	46.00	-25.40
11.8611	14.12	10.15	10.47	24.59	20.62	60.00	50.00	-29.38
20.0833	18.06	12.81	10.83	28.89	23.64	60.00	50.00	-26.36

Polarization: L1

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result (dBuV)		Limit (dBuV)		Margin (dB)
	QP	Ave.	Corr.	QP	Ave.	QP	Ave.	
0.1877	34.70	12.84	10.77	45.47	23.61	64.14	54.14	-18.67
0.2484	24.39	6.08	10.73	35.12	16.81	61.81	51.81	-26.69
1.8350	19.73	8.27	10.14	29.87	18.41	56.00	46.00	-26.13
6.0556	8.94	1.69	10.26	19.20	11.95	60.00	50.00	-38.05
12.2778	8.26	1.41	10.62	18.88	12.03	60.00	50.00	-37.97
20.3611	15.62	10.65	11.06	26.68	21.71	60.00	50.00	-28.29

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, AVG = Average
4. All not in the table noted test results are more than 20 dB below the relevant limits.
5. See attached diagrams in 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 004, ETSTW-CE 006

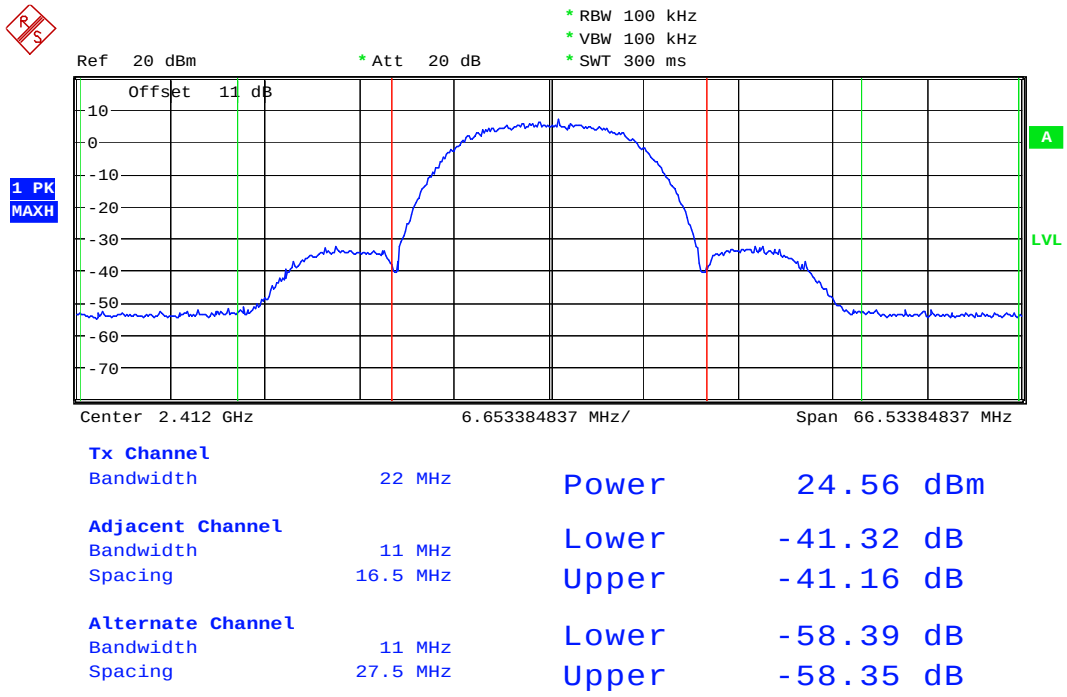
Appendix

Measurement diagrams

1. Peak Output Power
2. Spurious Emissions radiated
3. Band Edge Measurement
4. Minimum 6dB Bandwidth
5. Peak Power Spectral Density
6. Power Line Conducted Emission

Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

Peak Output Power
Mode A



Tx Channel
Bandwidth 22 MHz

Power 24.56 dBm

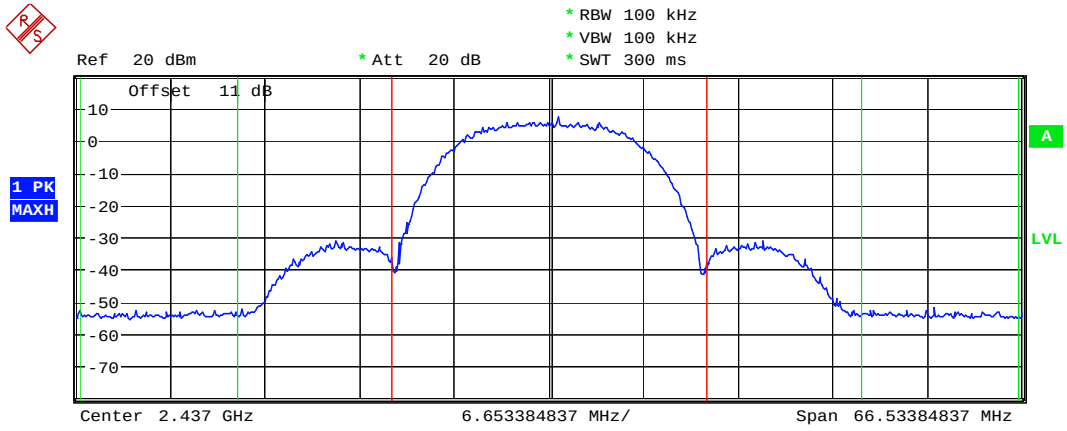
Adjacent Channel
Bandwidth 11 MHz
Spacing 16.5 MHz

Lower -41.32 dB
Upper -41.16 dB

Alternate Channel
Bandwidth 11 MHz
Spacing 27.5 MHz

Lower -58.39 dB
Upper -58.35 dB

MAX OUTPUT POWER 802.11b CH1
Date: 10.FEB.2010 14:58:12



Tx Channel
Bandwidth 22 MHz

Power 24.62 dBm

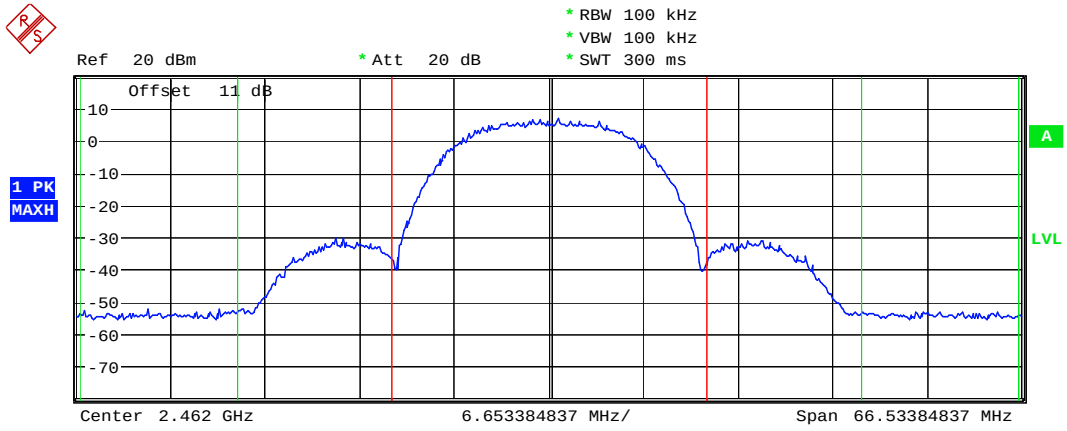
Adjacent Channel
Bandwidth 11 MHz
Spacing 16.5 MHz

Lower -40.59 dB
Upper -40.69 dB

Alternate Channel
Bandwidth 11 MHz
Spacing 27.5 MHz

Lower -58.83 dB
Upper -58.78 dB

MAX OUTPUT POWER 802.11b CH6
Date: 10.FEB.2010 14:58:43



Tx Channel
Bandwidth 22 MHz

Power 24.82 dBm

Adjacent Channel
Bandwidth 11 MHz
Spacing 16.5 MHz

Lower -40.11 dB
Upper -40.29 dB

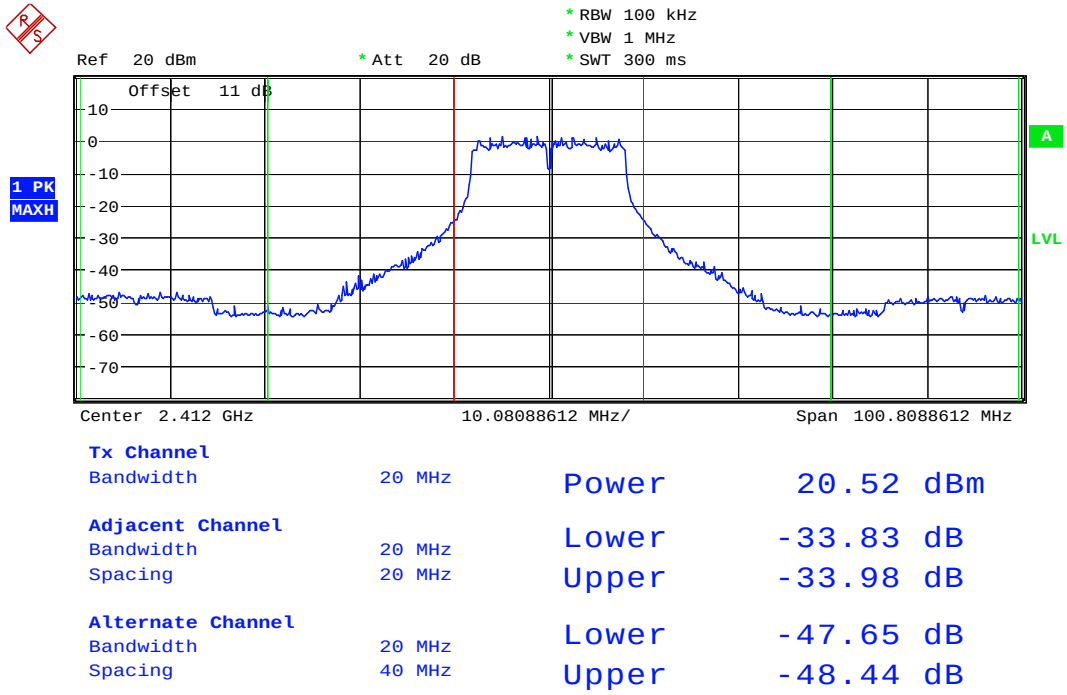
Alternate Channel
Bandwidth 11 MHz
Spacing 27.5 MHz

Lower -59.08 dB
Upper -59.12 dB

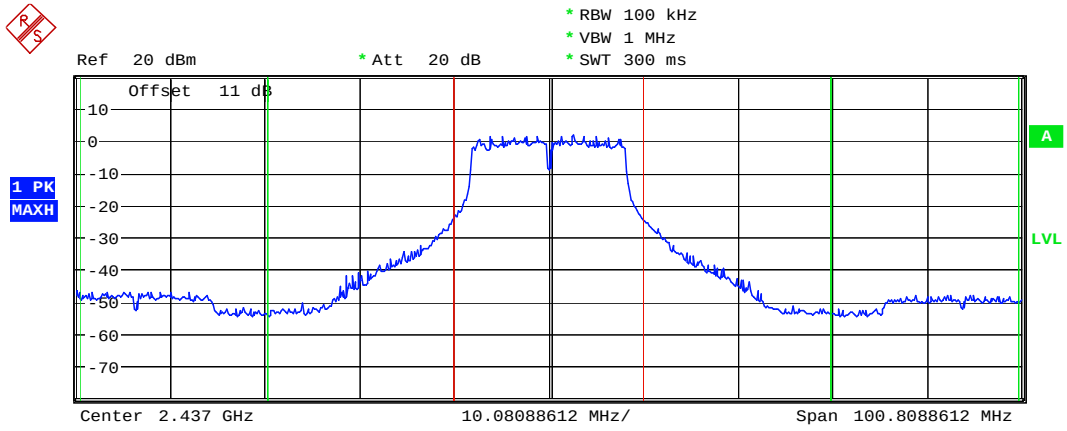
MAX OUTPUT POWER 802.11b CH11
Date: 10.FEB.2010 14:59:04

Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

Mode B



MAX OUTPUT POWER 802.11g CH1
Date: 10.FEB.2010 15:00:45



Tx Channel

Bandwidth	20 MHz	Power	20.95 dBm

Adjacent Channel

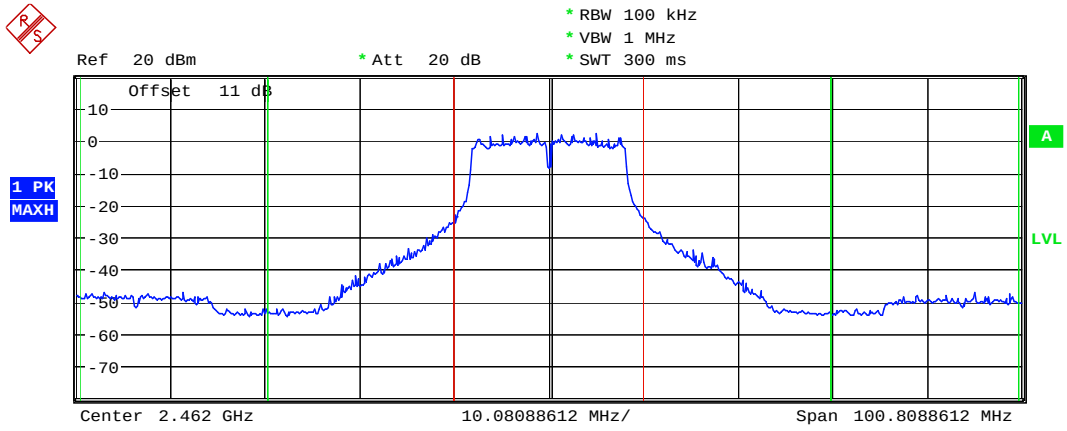
Bandwidth	20 MHz	Lower	-33.74 dB
Spacing	20 MHz	Upper	-33.68 dB

Alternate Channel

Bandwidth	20 MHz	Lower	-47.82 dB
Spacing	40 MHz	Upper	-48.74 dB

MAX OUTPUT POWER 802.11g CH6

Date: 10.FEB.2010 15:00:28



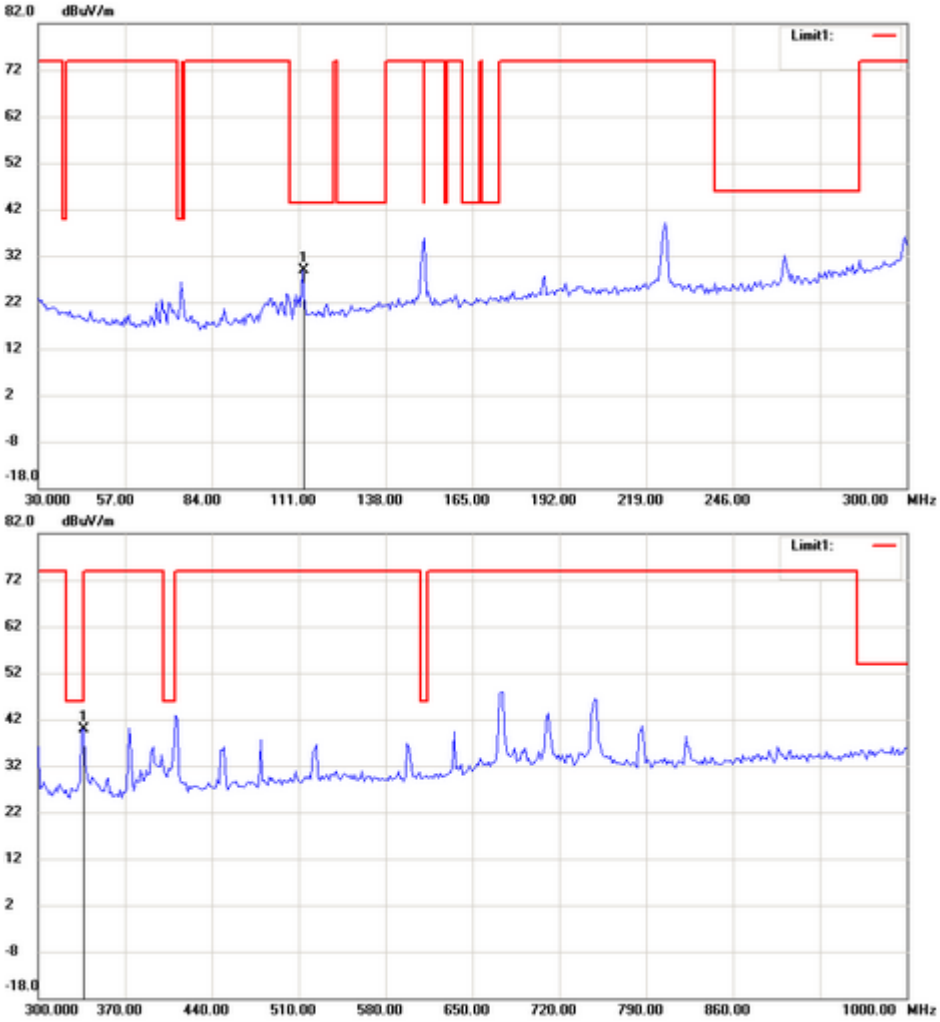
Tx Channel			
Bandwidth	20 MHz	Power	21.16 dBm
Adjacent Channel			
Bandwidth	20 MHz	Lower	-33.64 dB
Spacing	20 MHz	Upper	-33.60 dB
Alternate Channel			
Bandwidth	20 MHz	Lower	-48.34 dB
Spacing	40 MHz	Upper	-49.09 dB

MAX OUTPUT POWER 802.11g CH11

Date: 10.FEB.2010 15:00:08

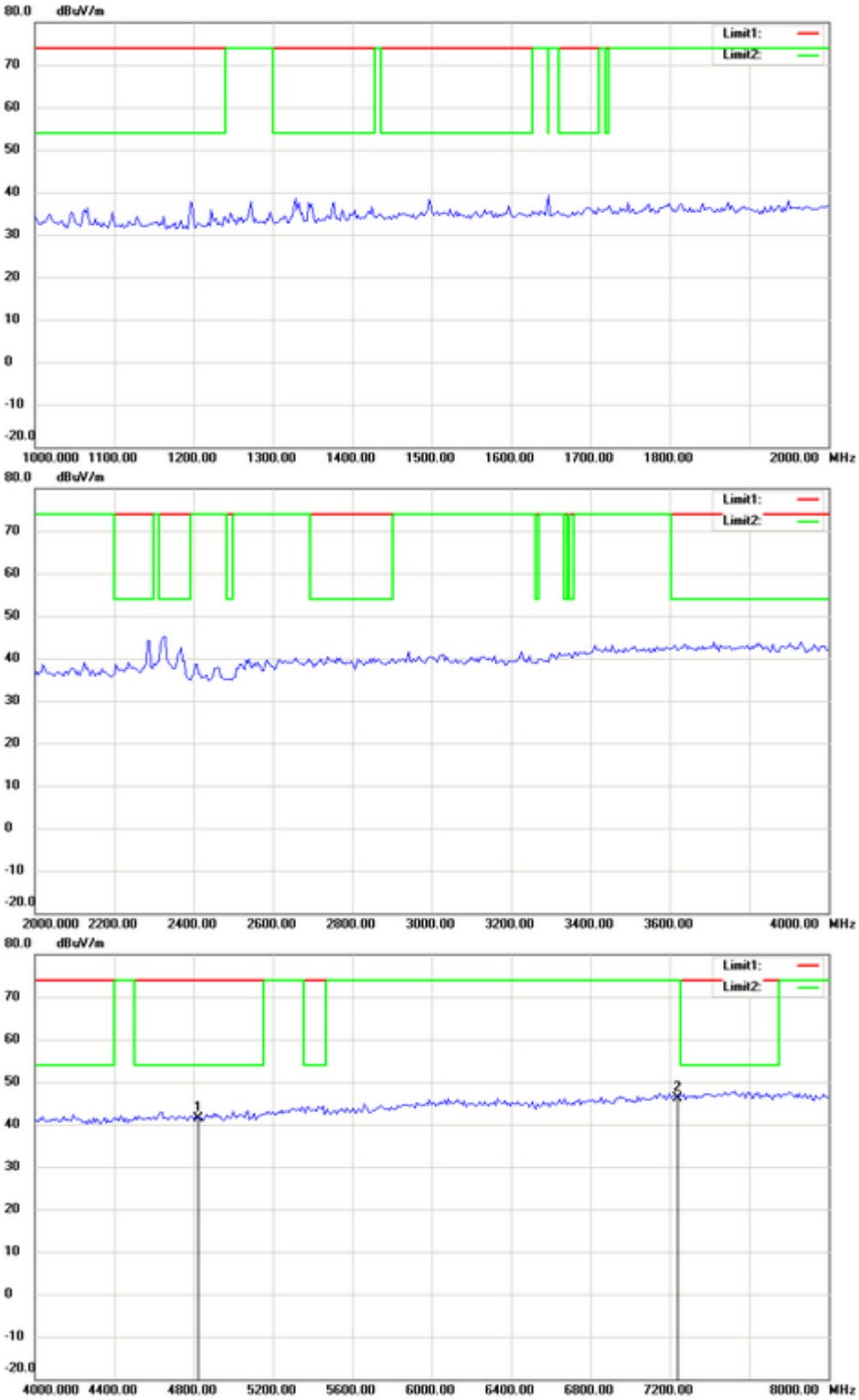
Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

Spurious Emissions radiated
TX 802.11b CH1
Antenna Polarization H



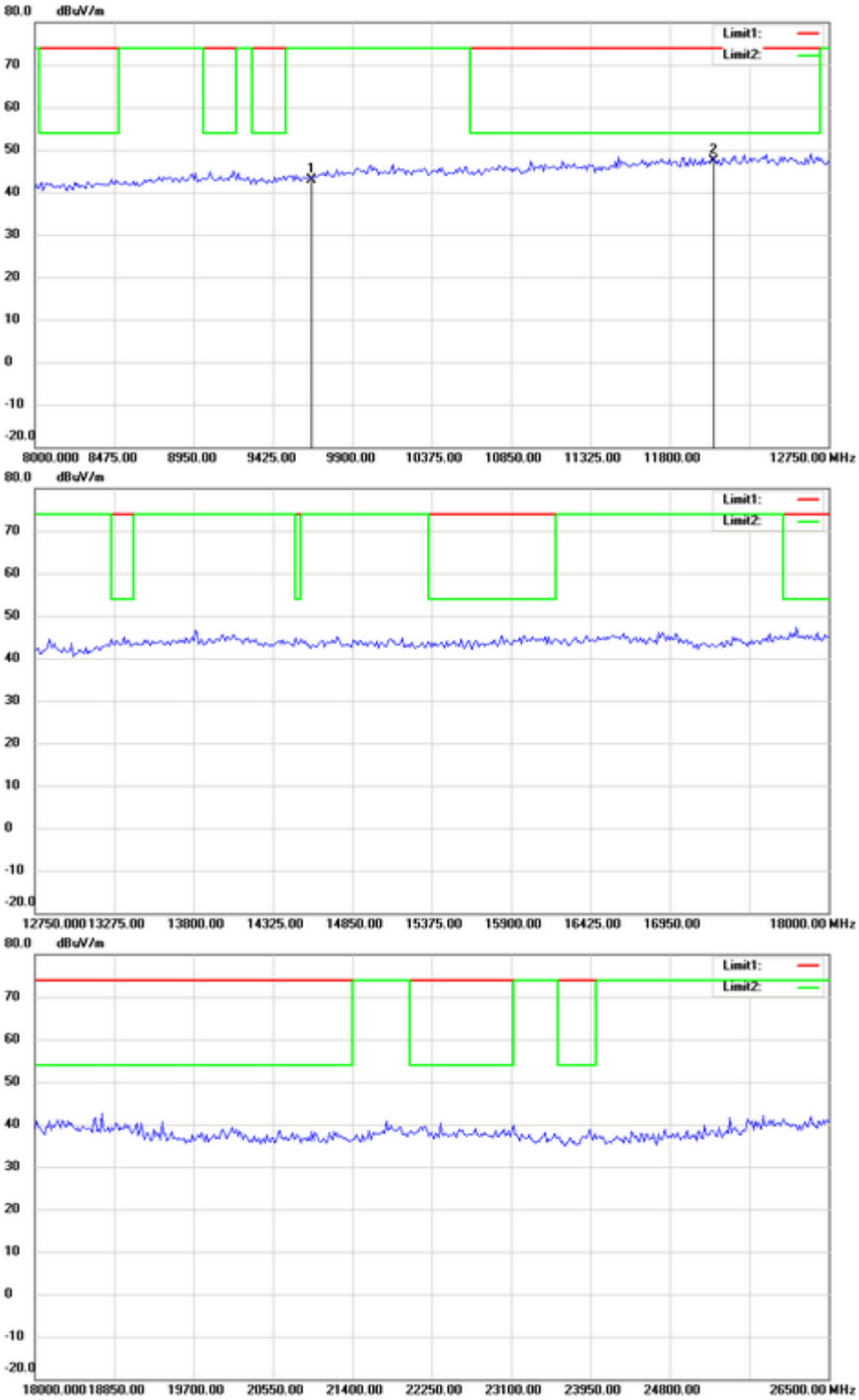
Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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.**



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

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.**

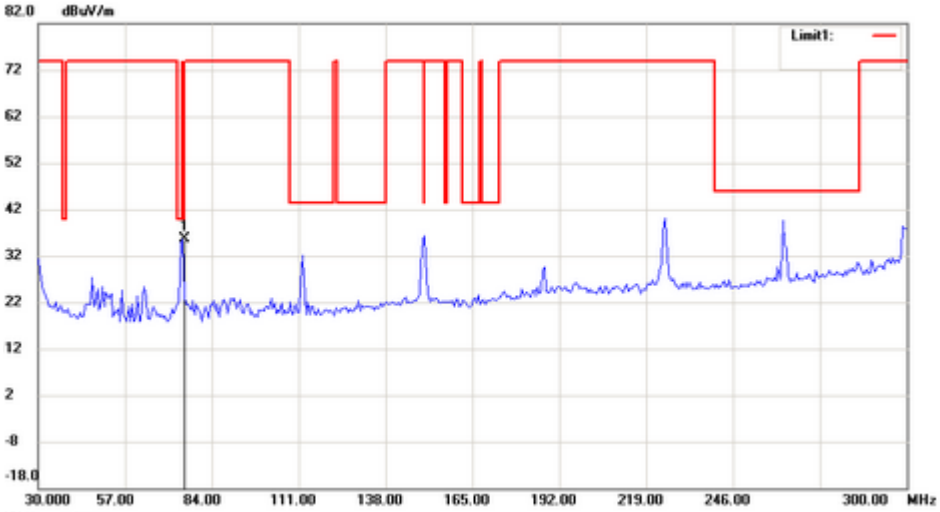


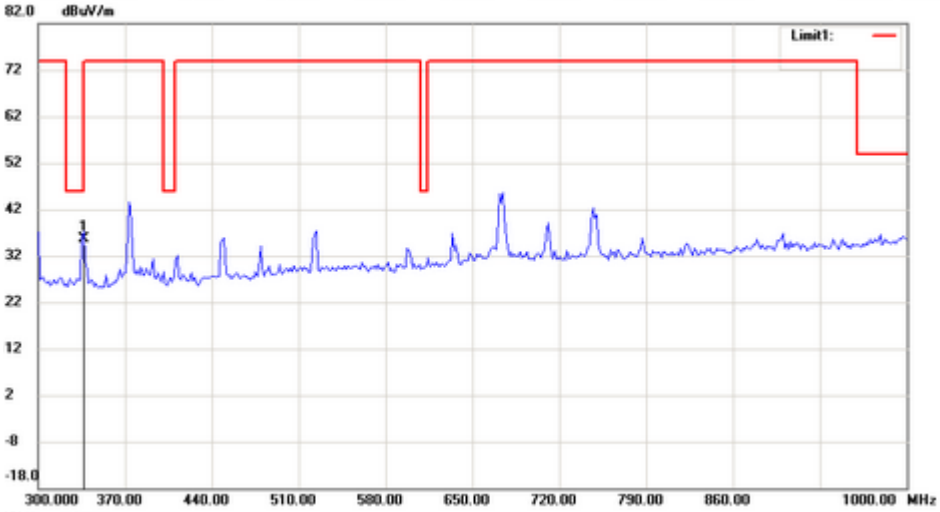
Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

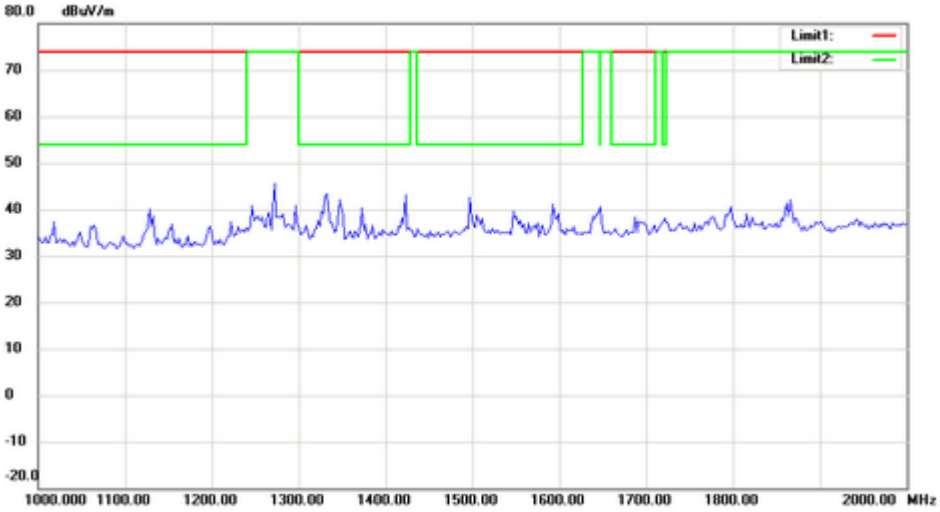
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the 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: W6M21002-10407-P-15
FCC ID: XSOS210I

Antenna Polarization V



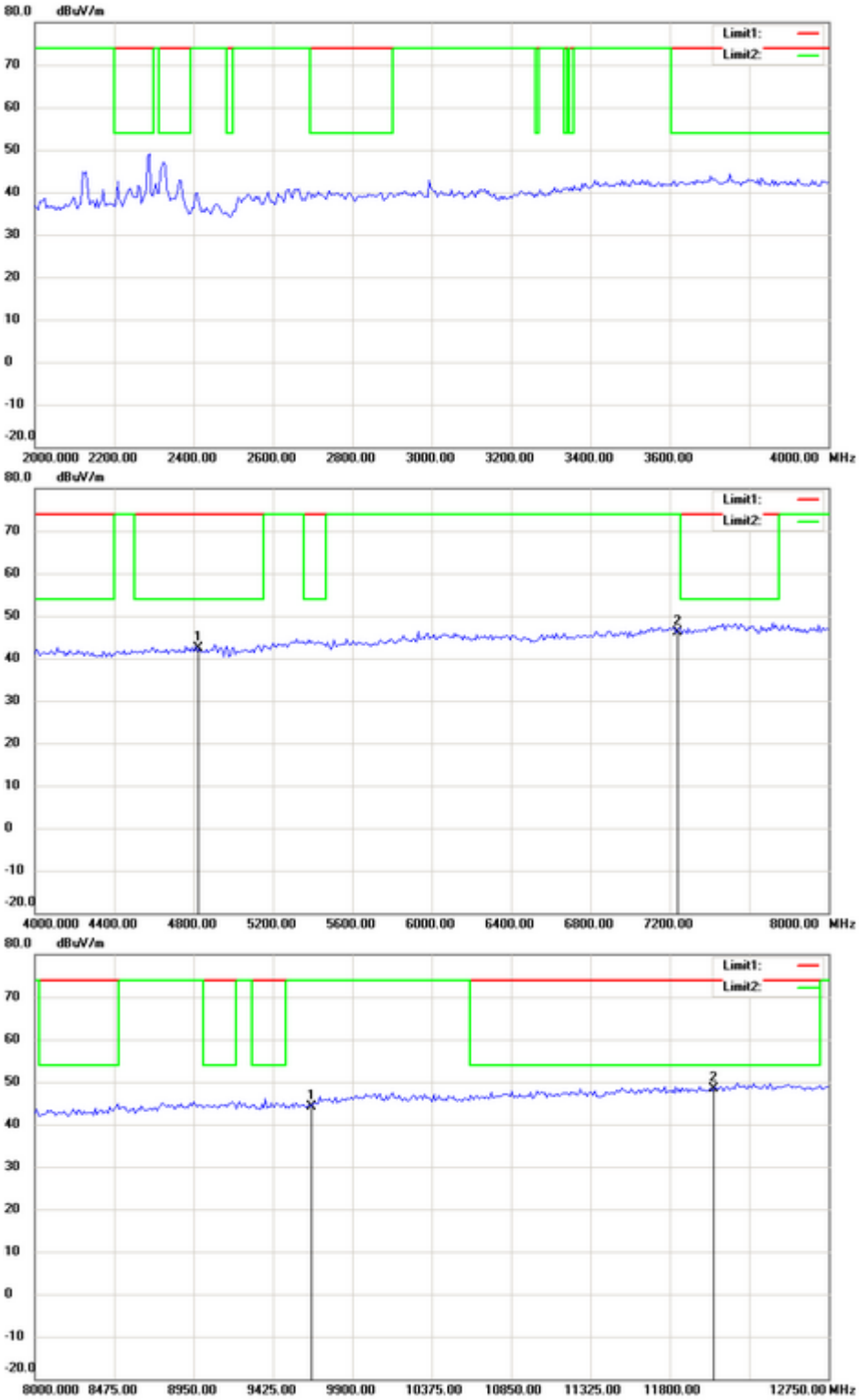




Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

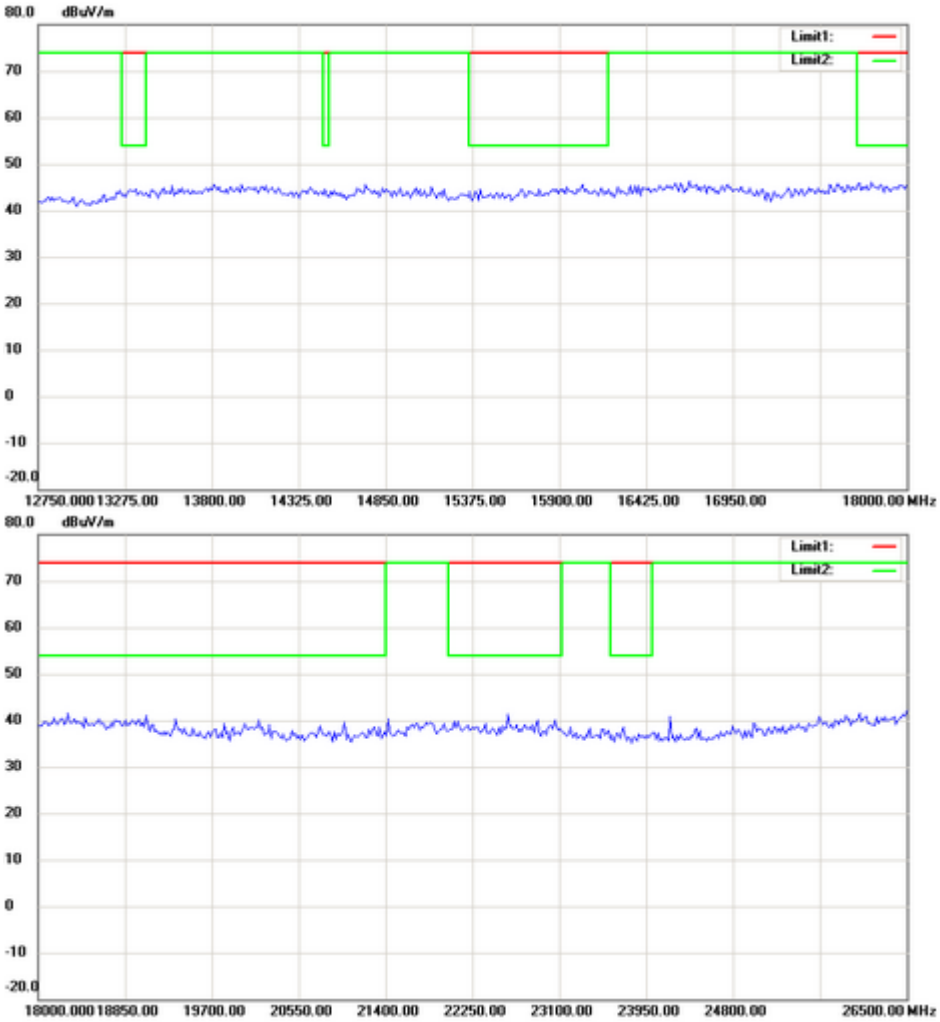
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the 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: W6M21002-10407-P-15
FCC ID: XSOS210I



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

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.**

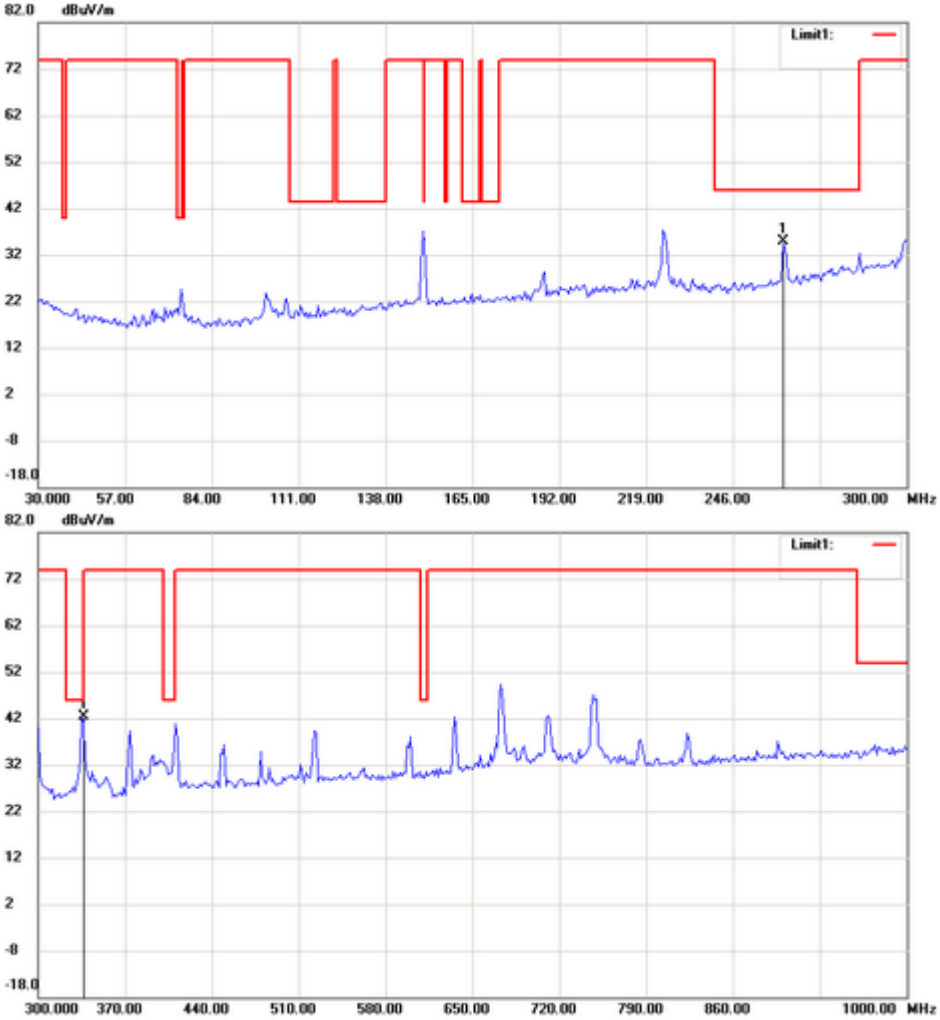


Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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.**

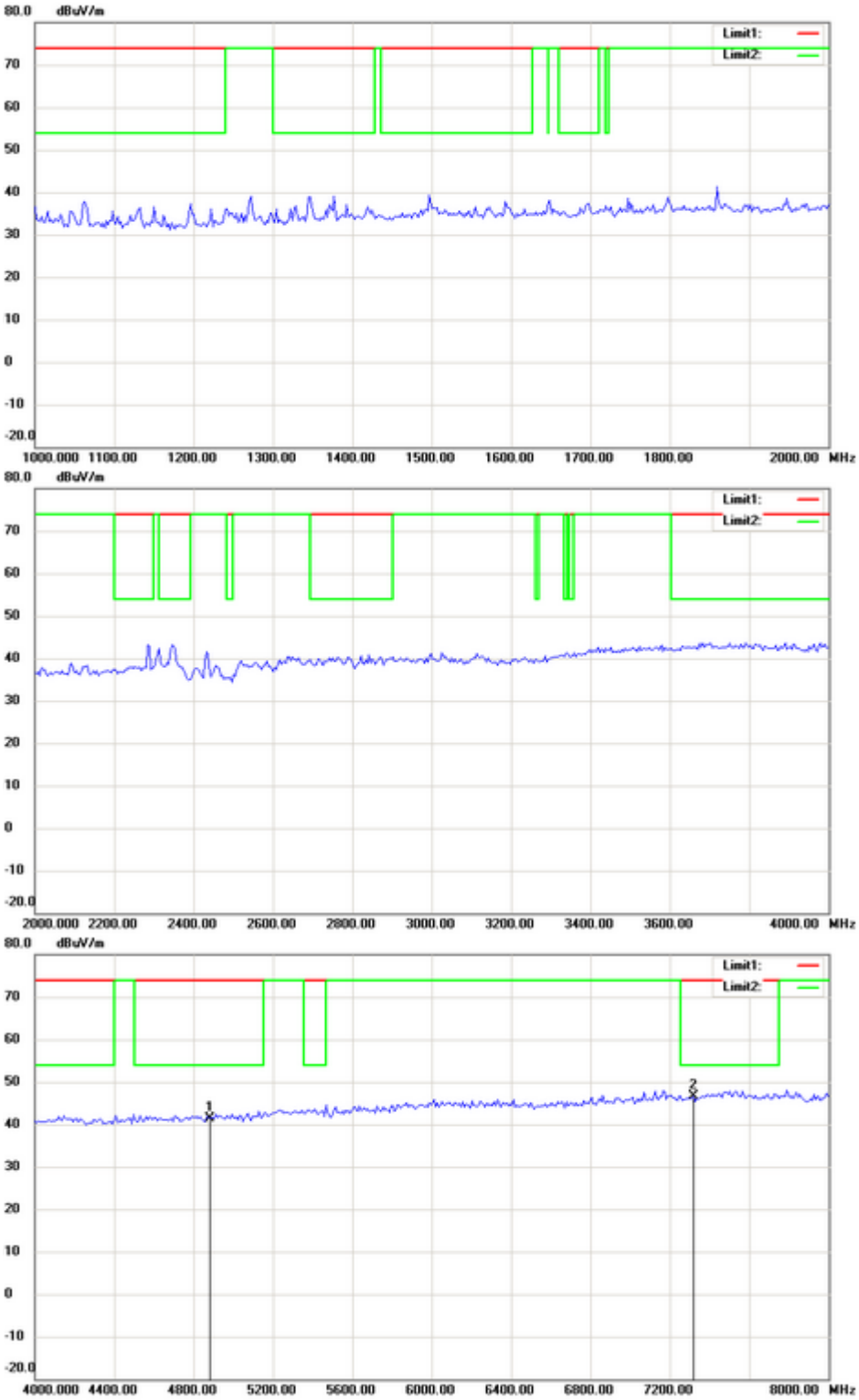
Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

TX 802.11b CH6
Antenna Polarization H



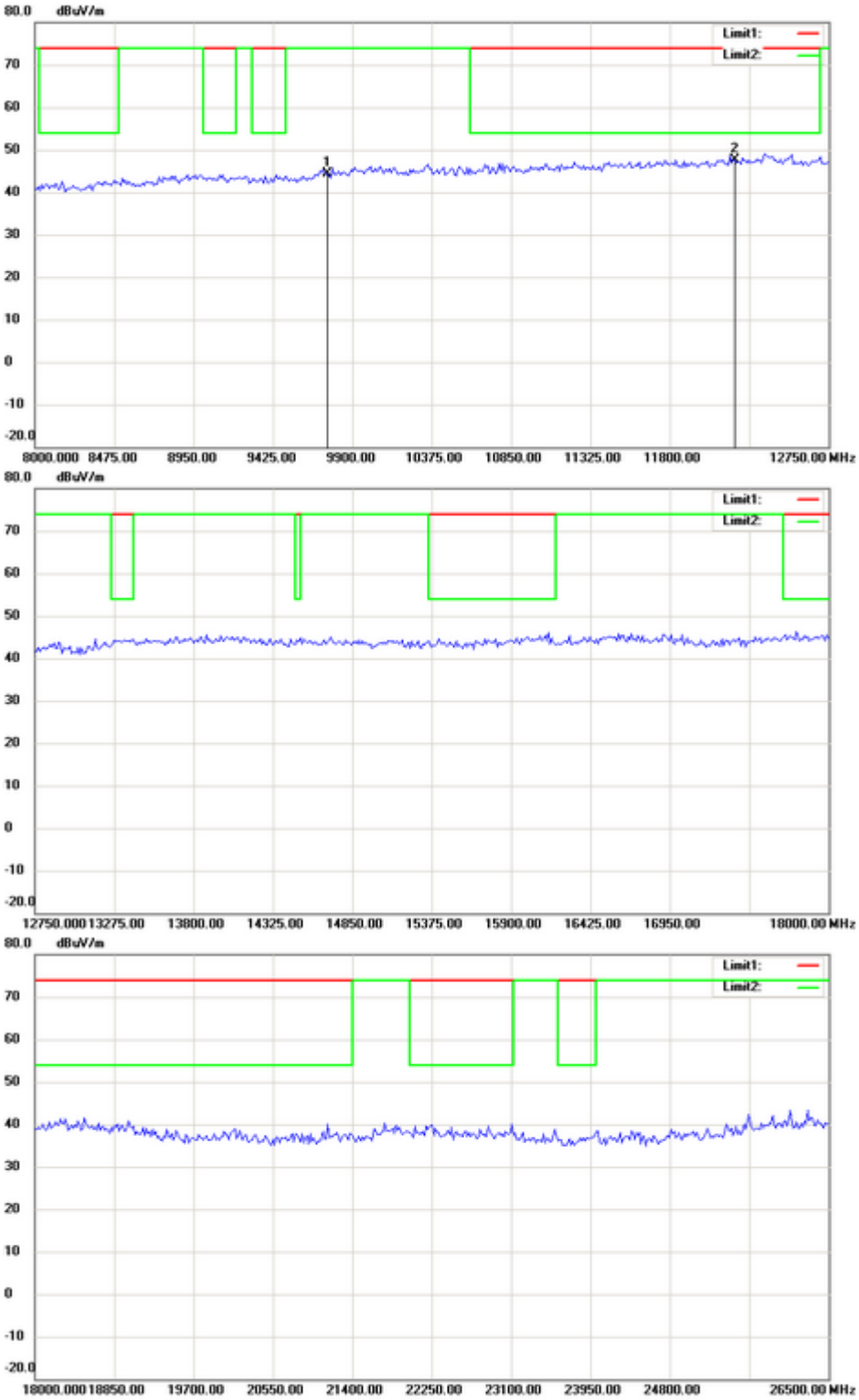
Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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.**



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

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.**

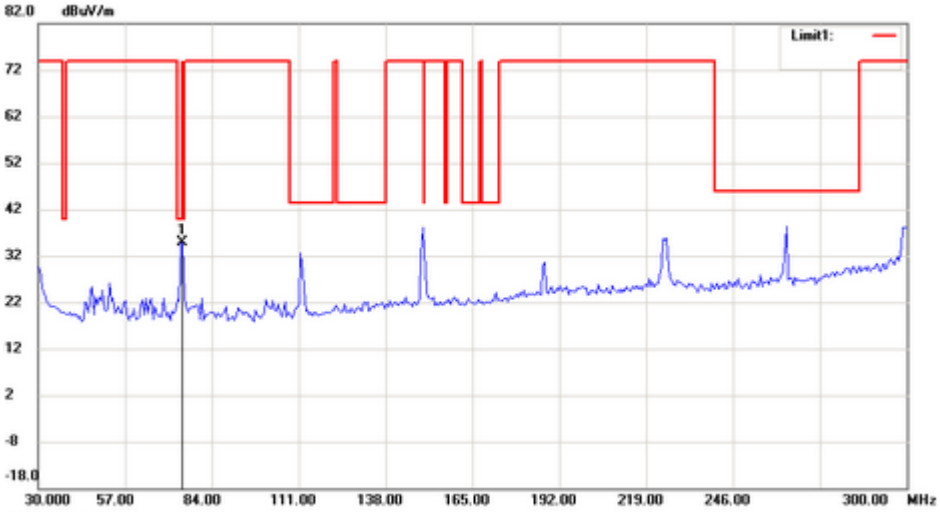


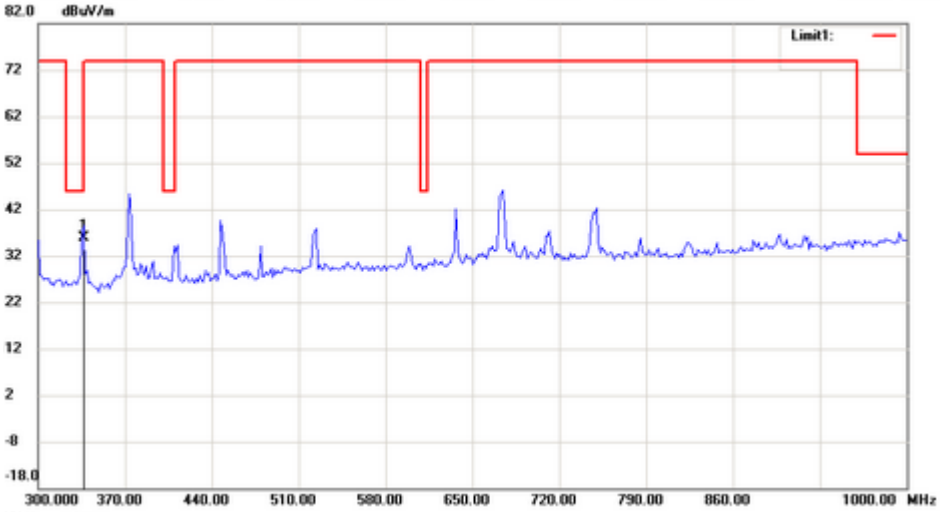
Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

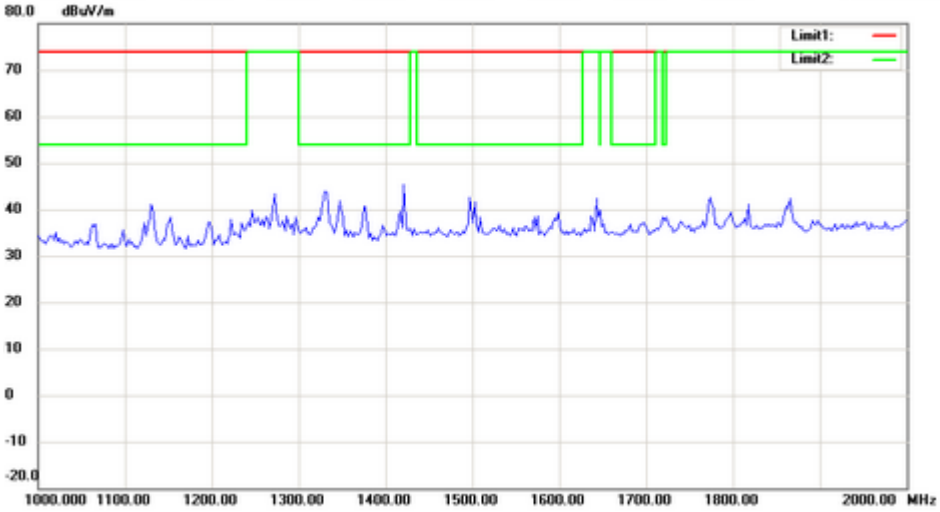
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the 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: W6M21002-10407-P-15
FCC ID: XSOS210I

Antenna Polarization V



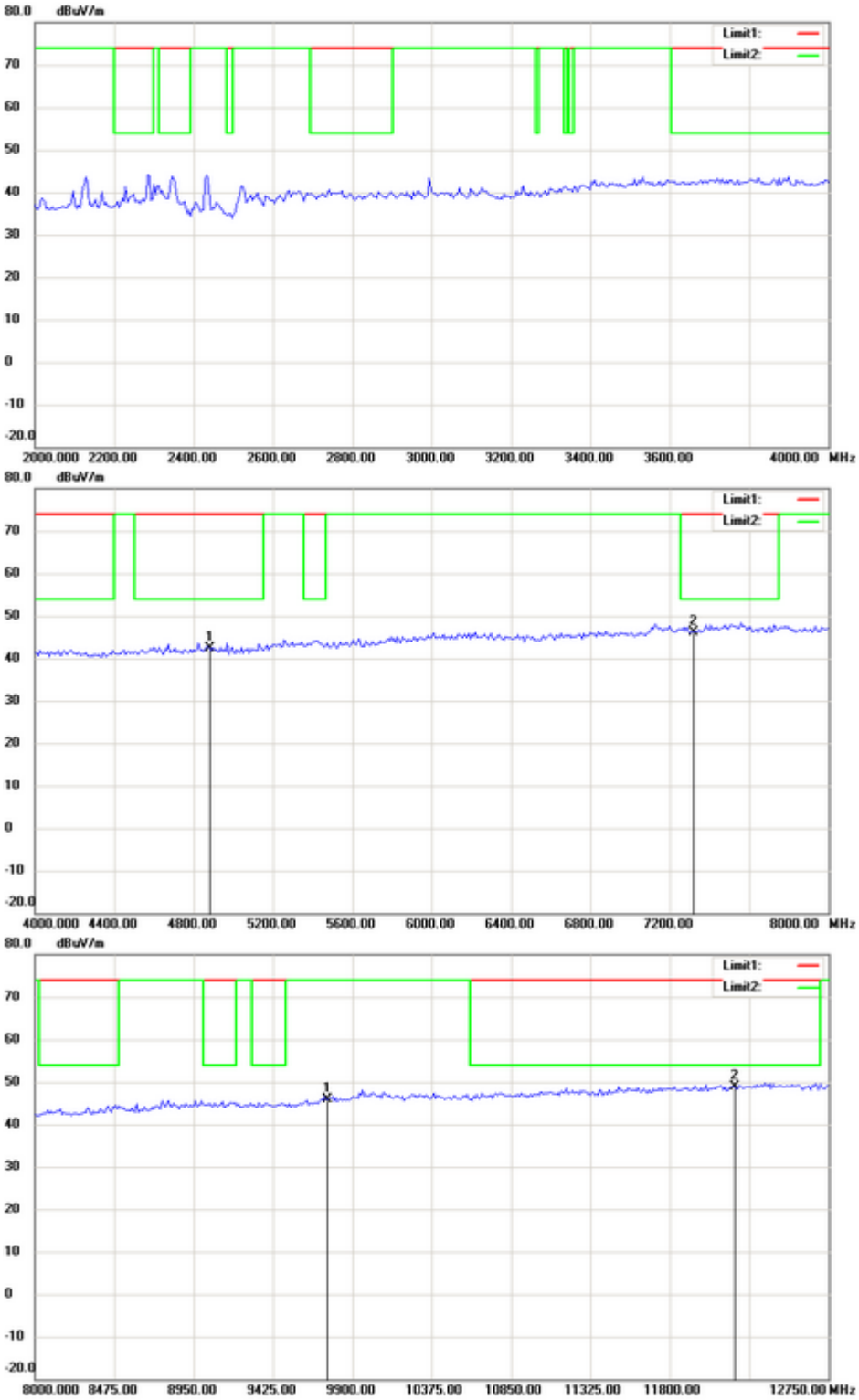




Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

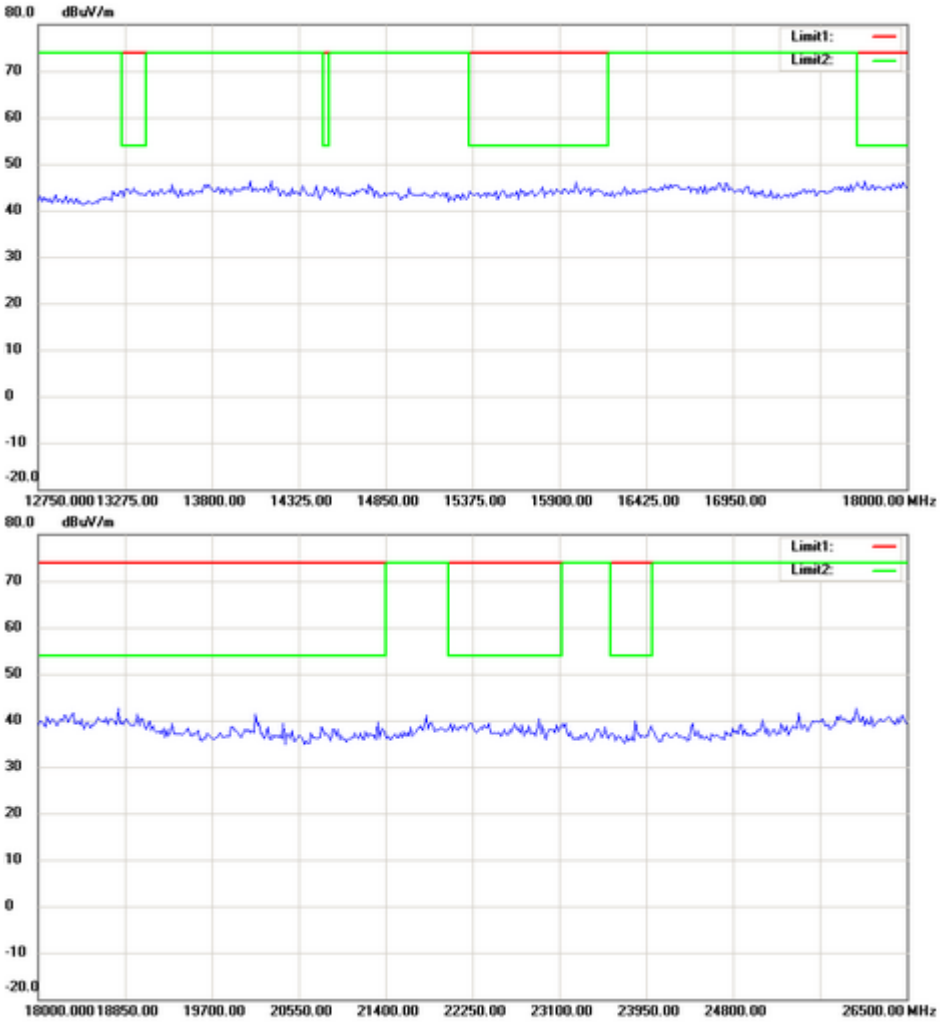
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the 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: W6M21002-10407-P-15
FCC ID: XSOS210I



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

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.**

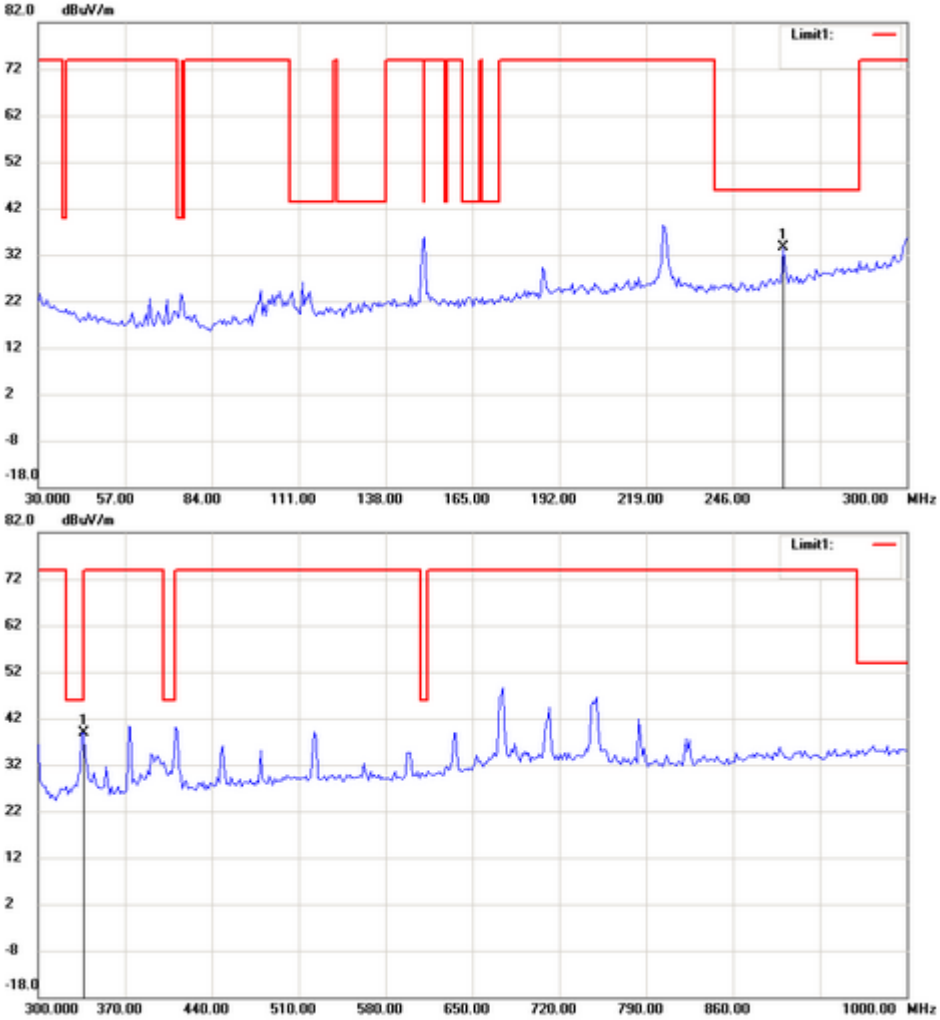


Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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.**

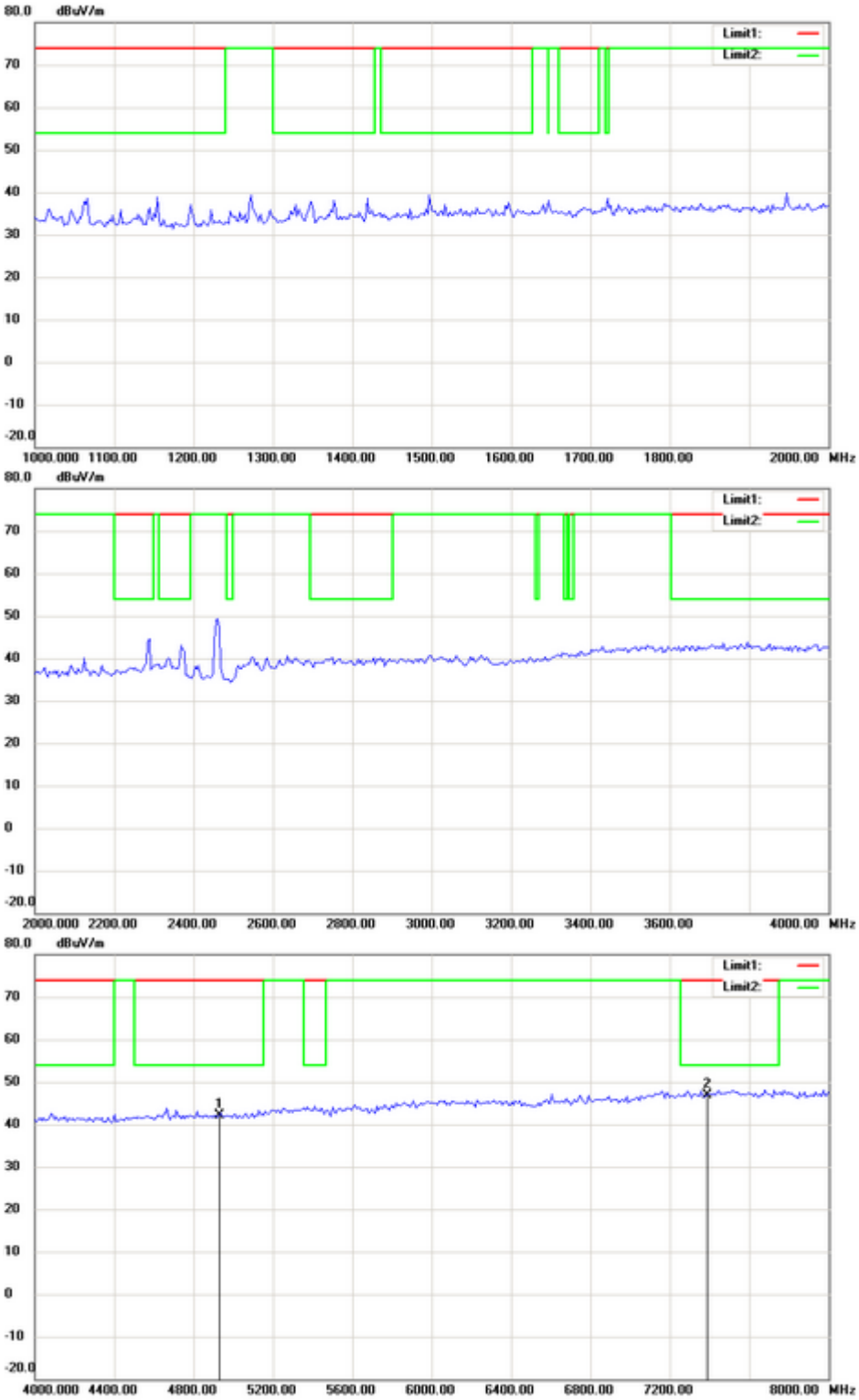
Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

TX 802.11b CH11
Antenna Polarization H



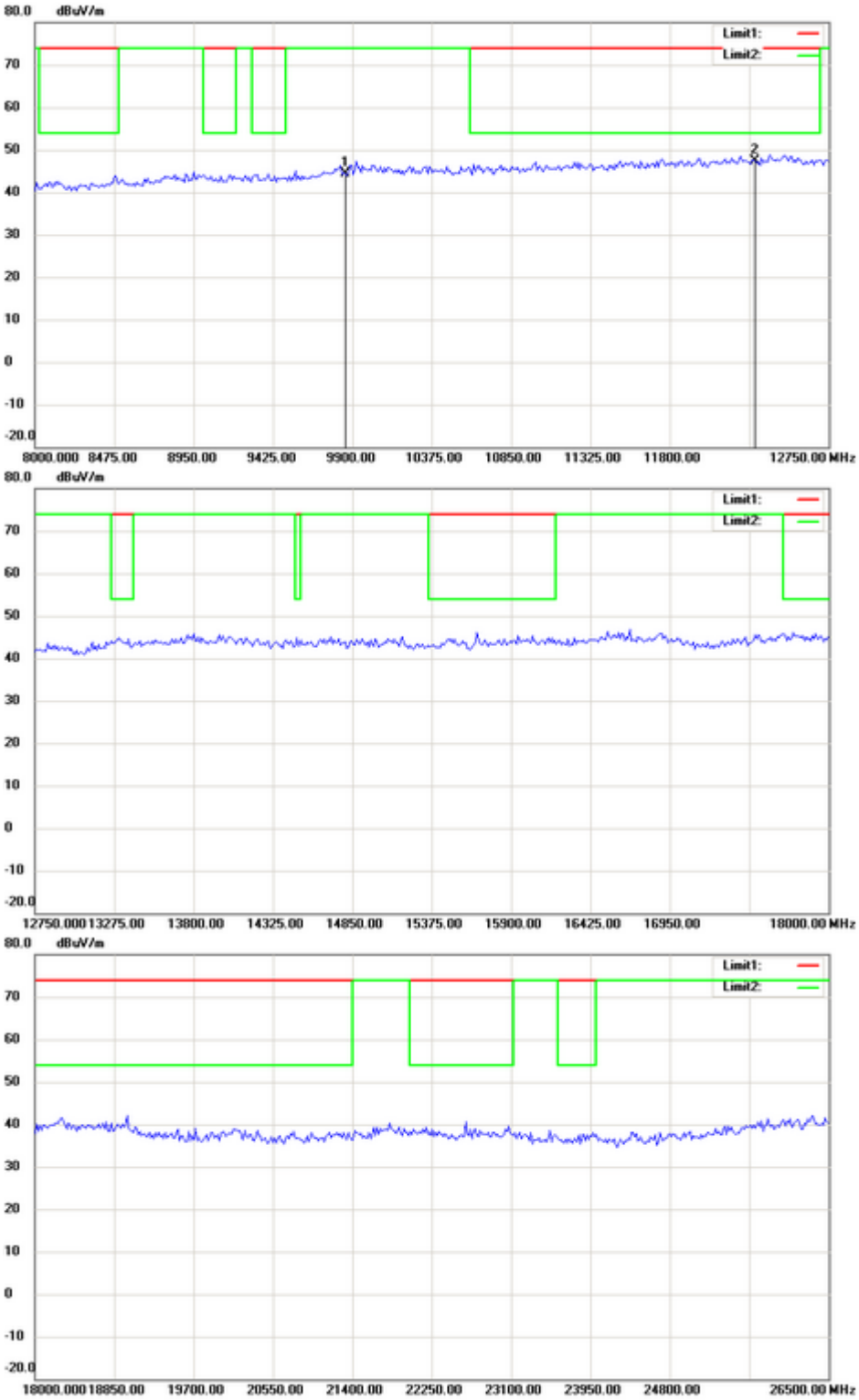
Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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.**



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

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.**

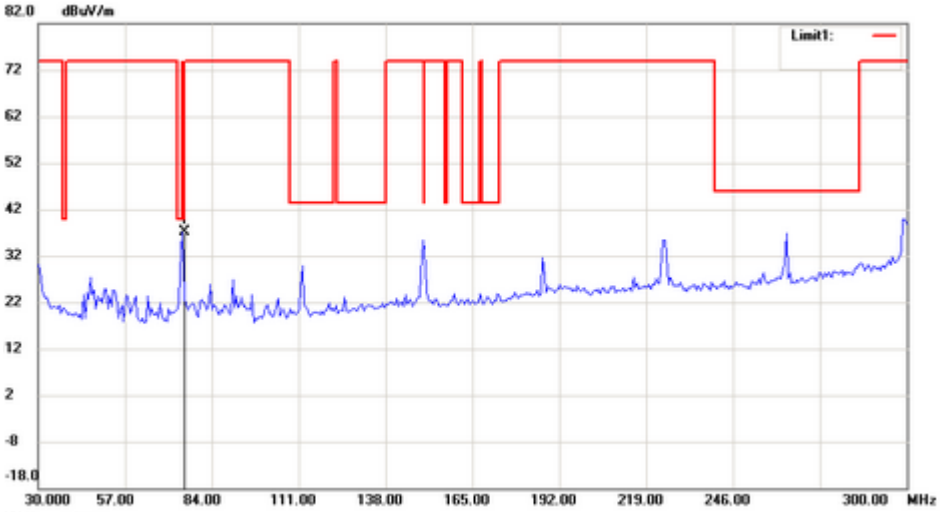


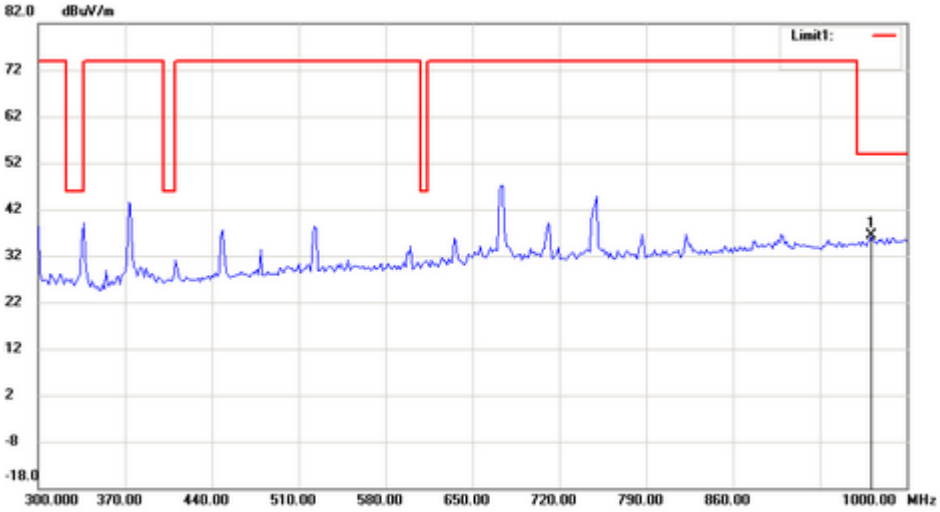
Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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: W6M21002-10407-P-15
FCC ID: XSOS210I

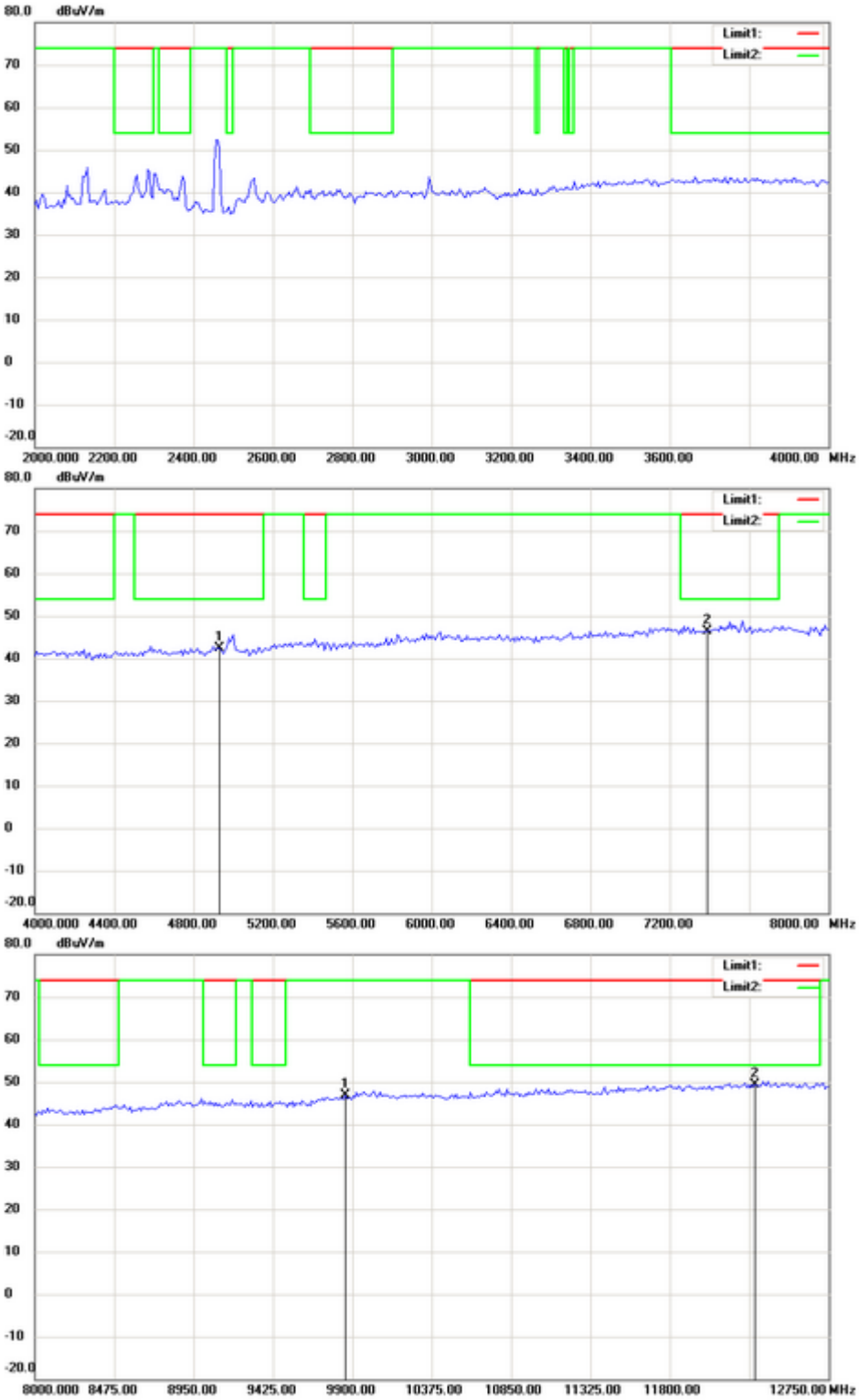
Antenna Polarization V





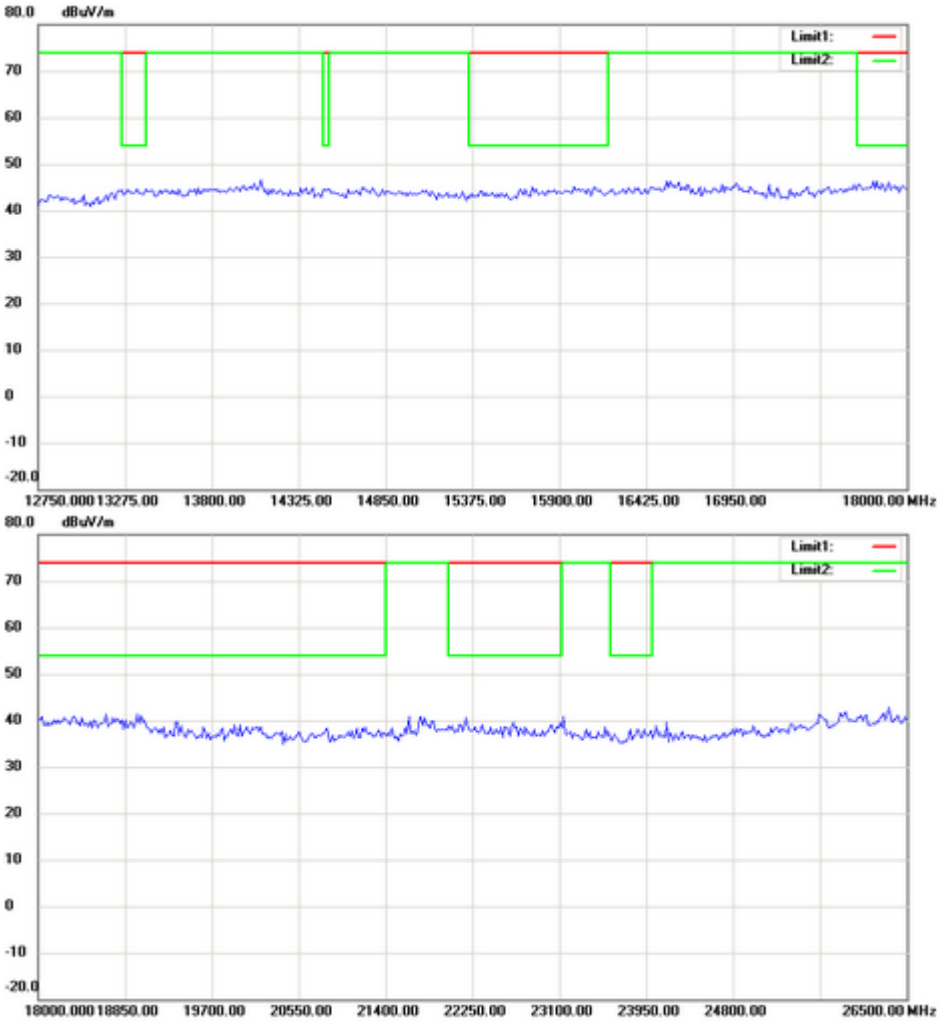
Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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.**



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

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.**

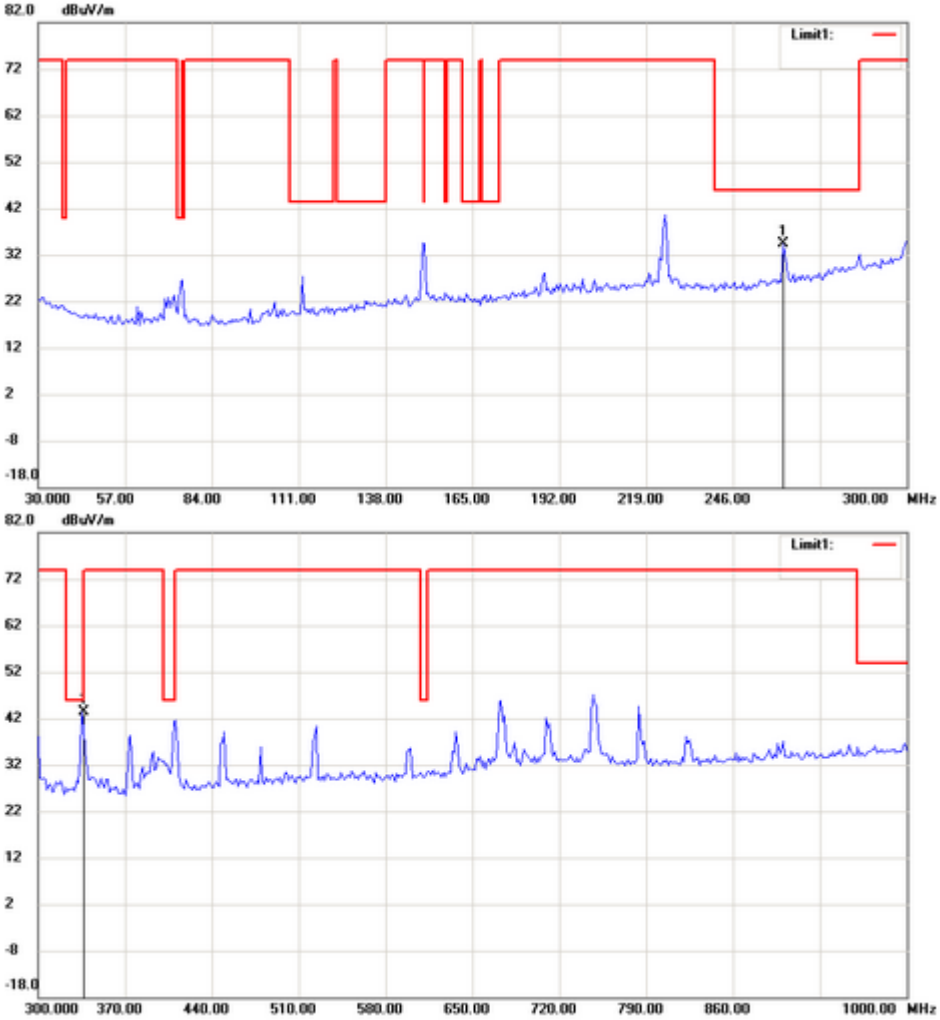


Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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.**

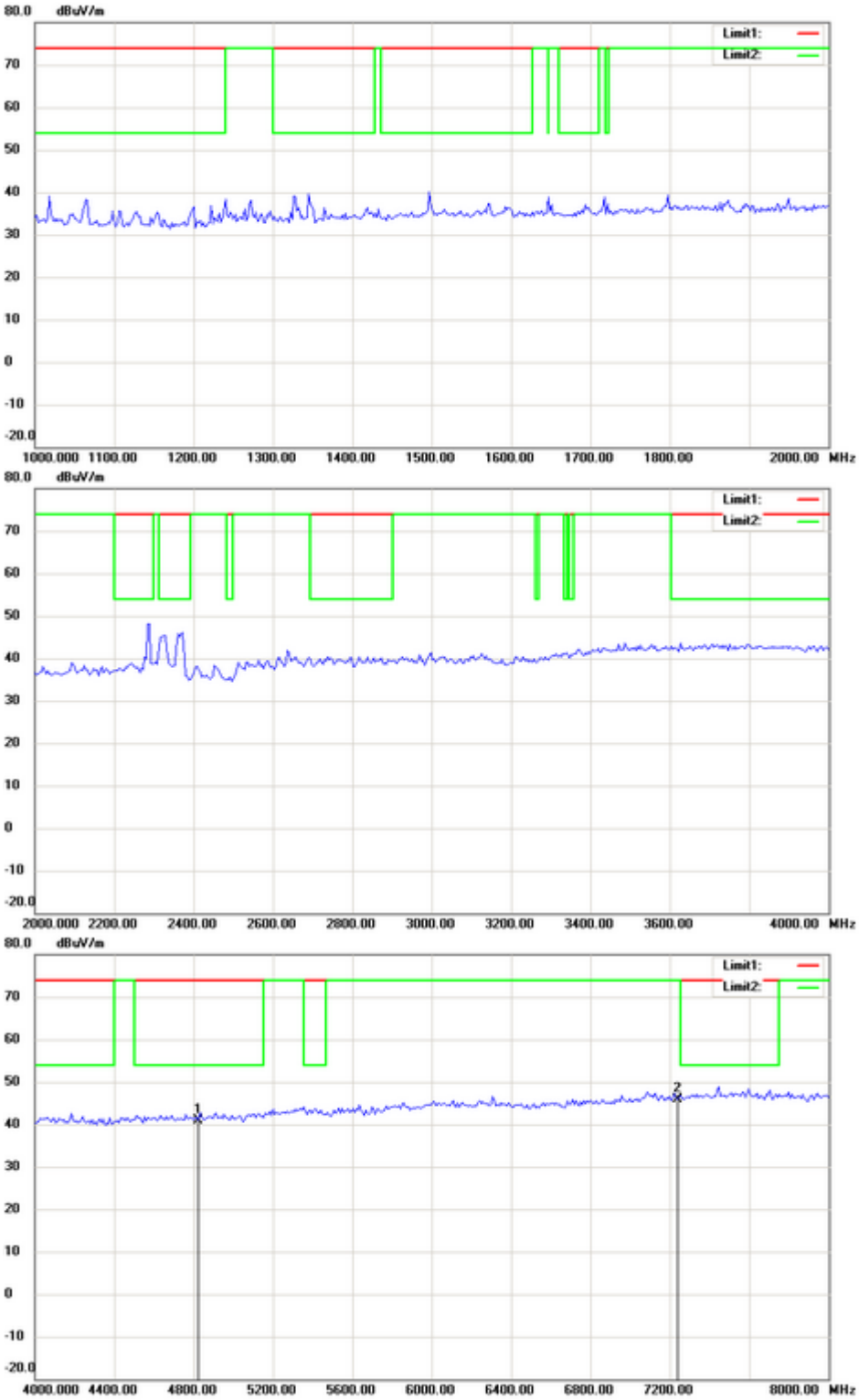
Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

TX 802.11g CH1
Antenna Polarization H



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

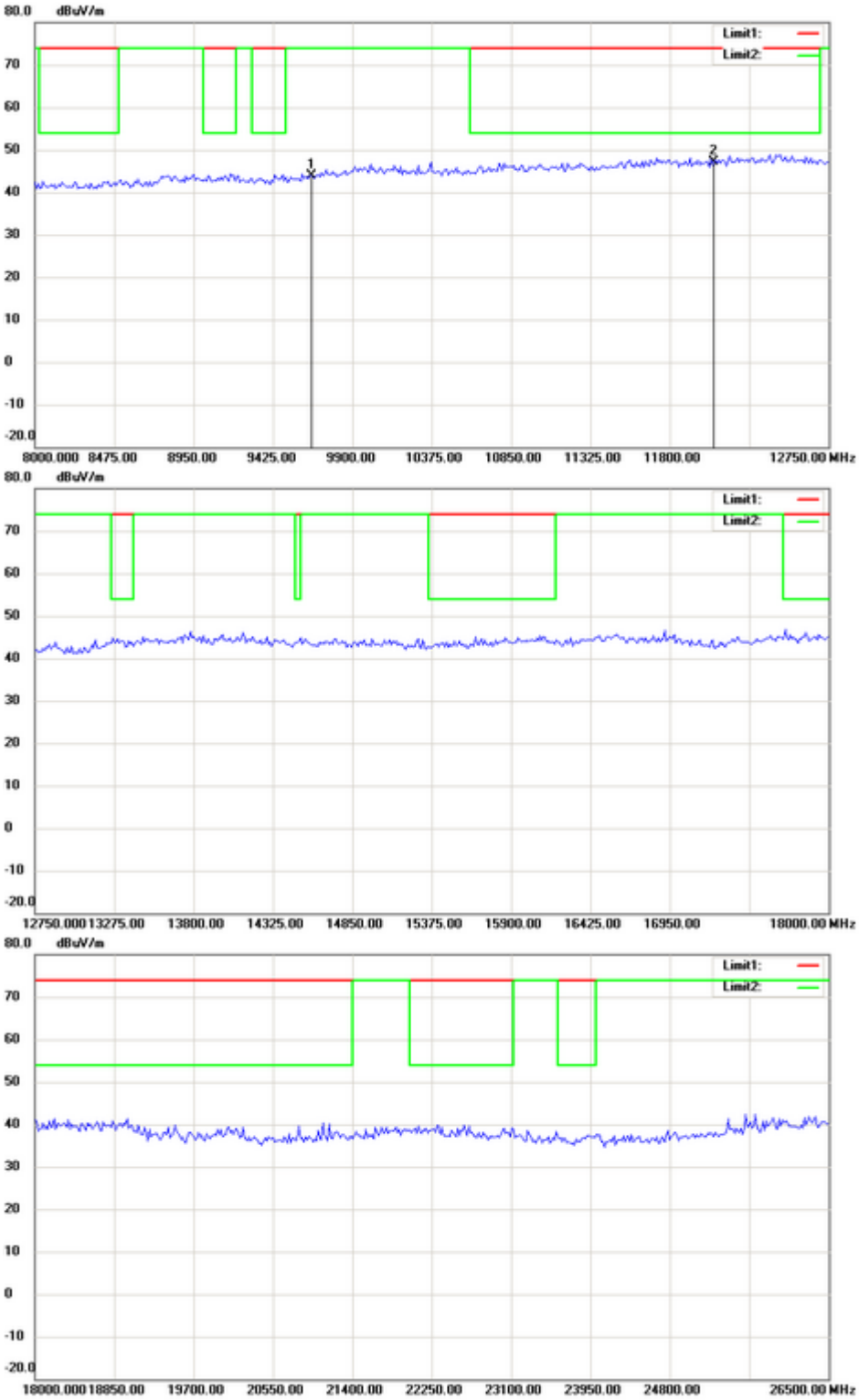
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the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



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

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: W6M21002-10407-P-15
FCC ID: XSOS210I

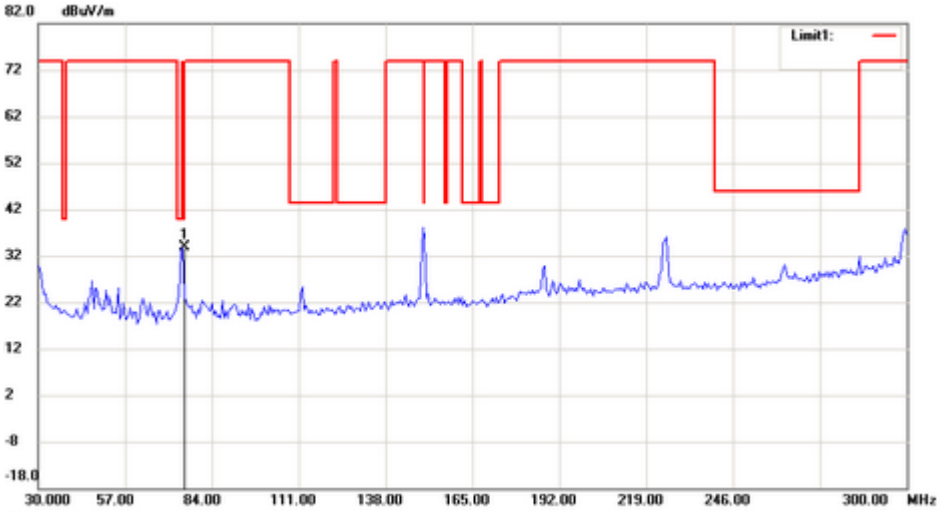


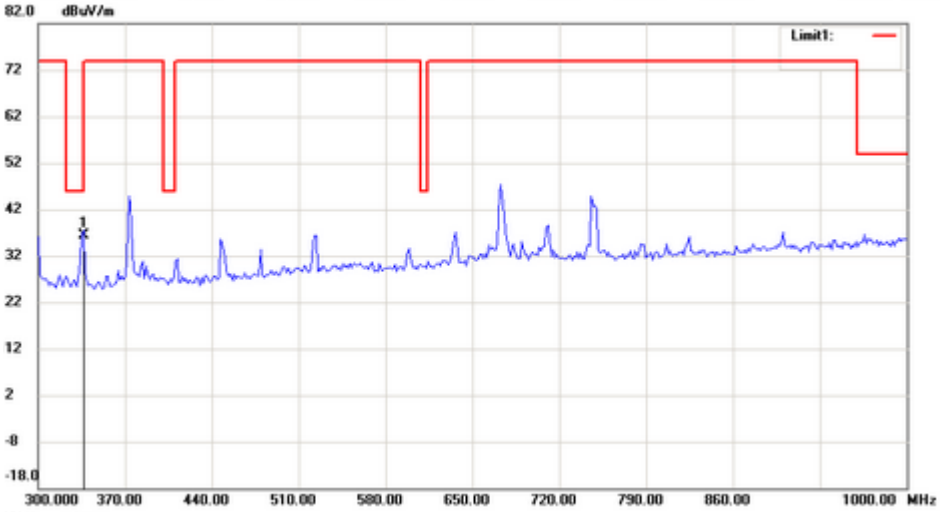
Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

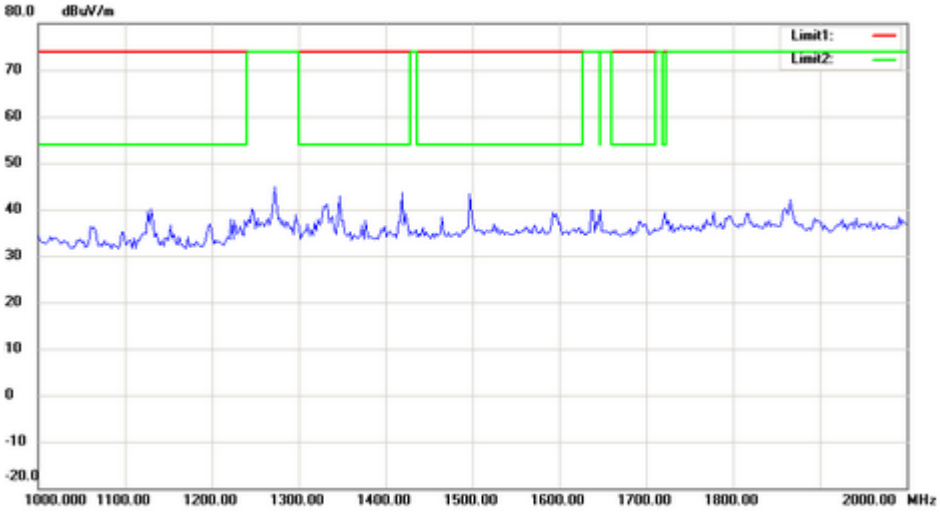
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the 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: W6M21002-10407-P-15
FCC ID: XSOS210I

Antenna Polarization V

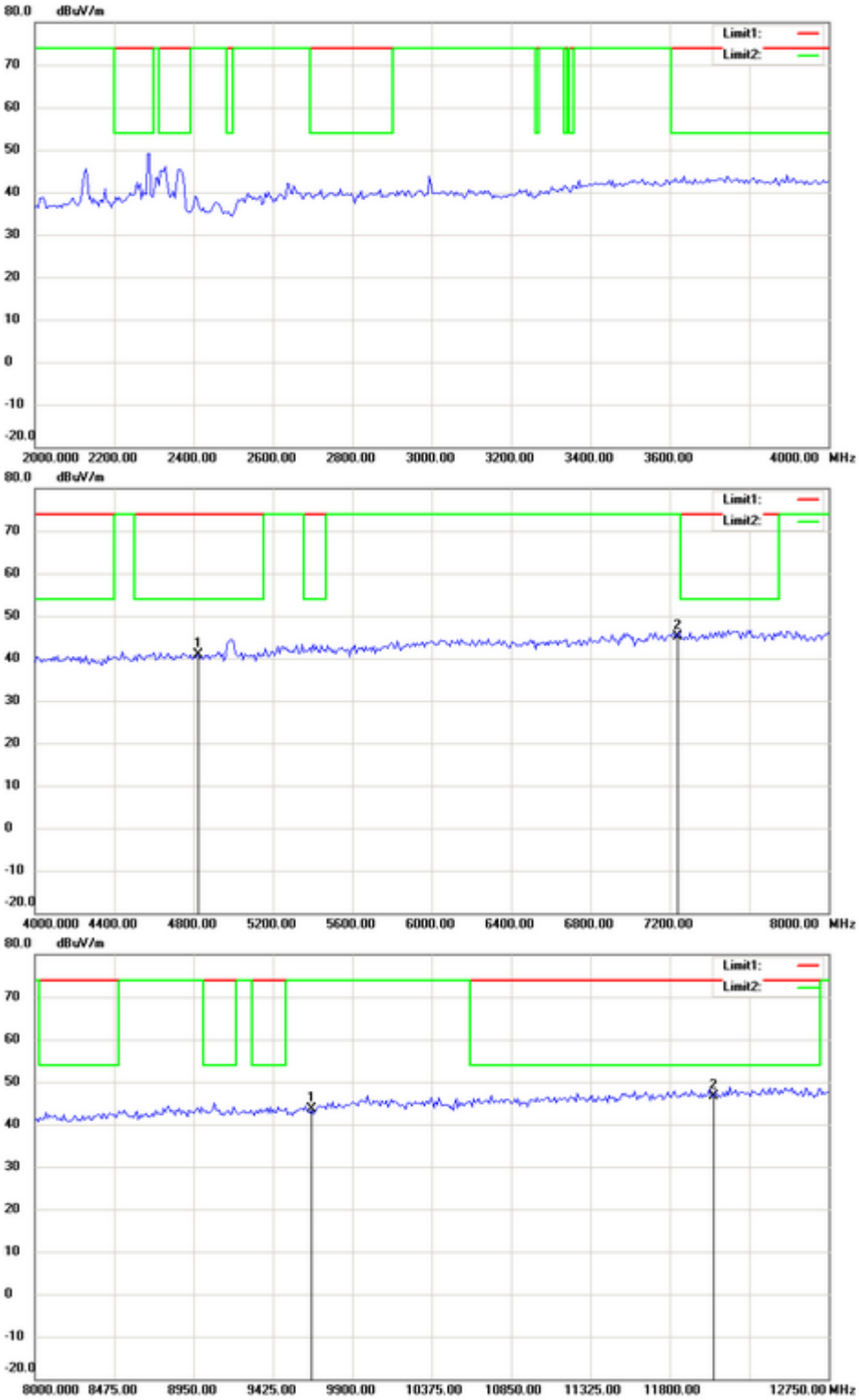






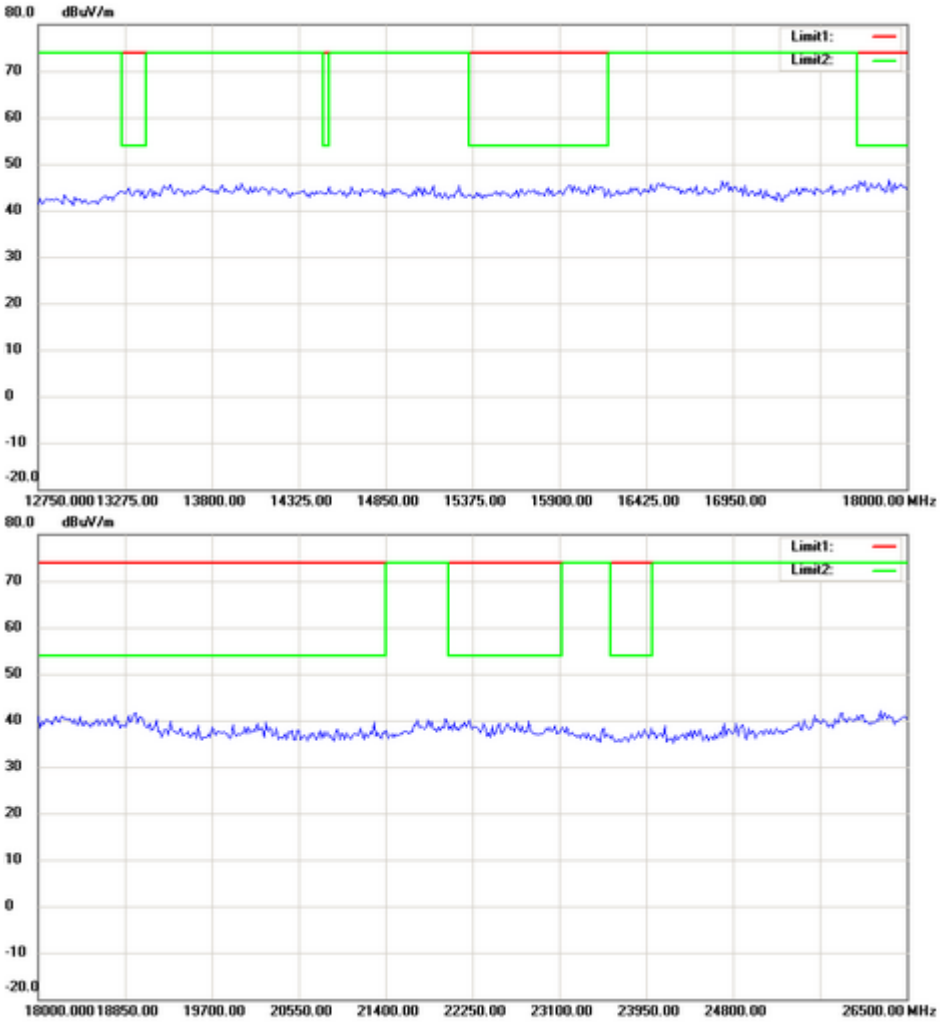
Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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.**



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

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.**

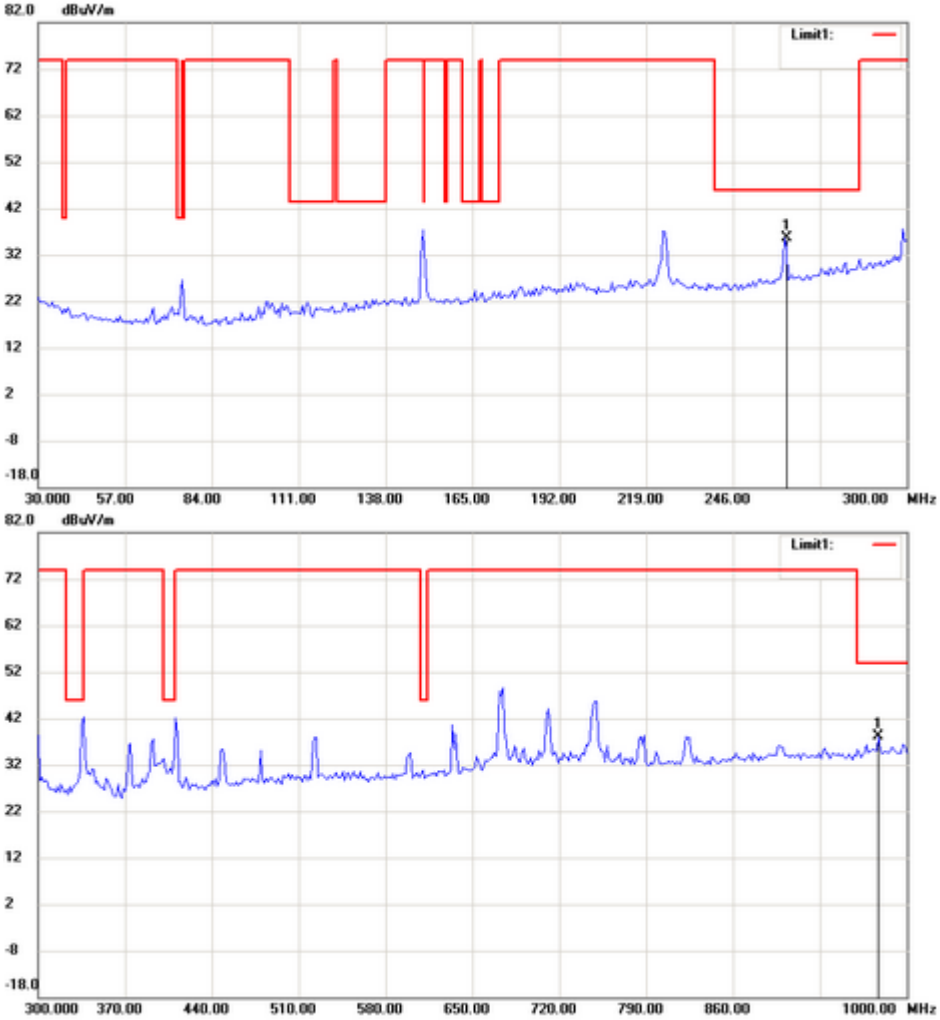


Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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.**

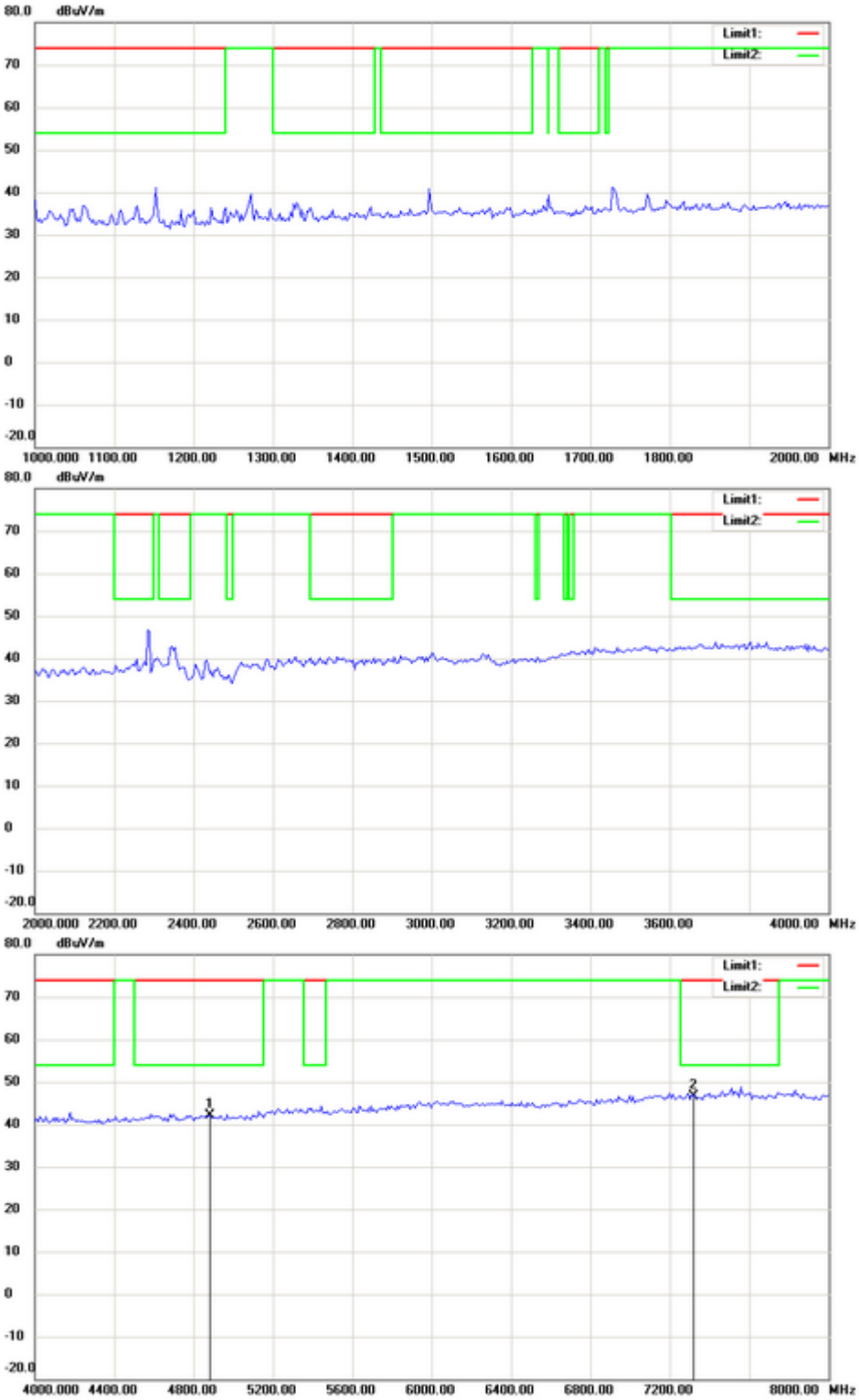
Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

TX 802.11g CH6
Antenna Polarization H



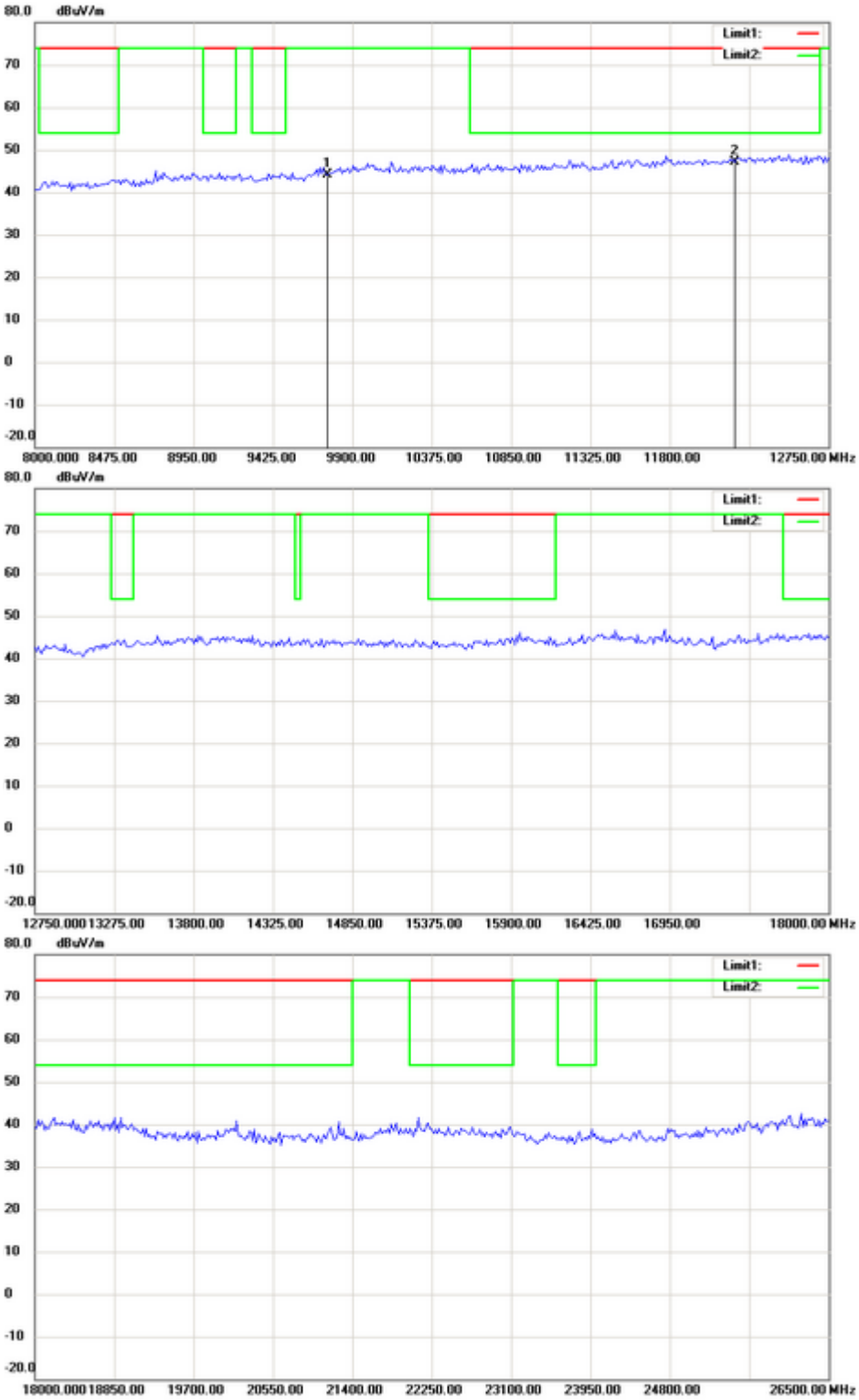
Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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.**



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

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.**

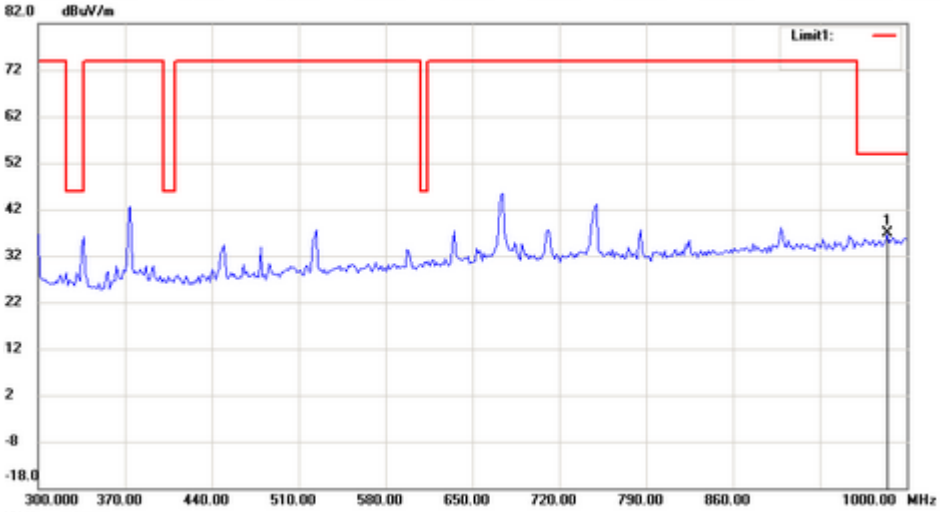


Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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.**

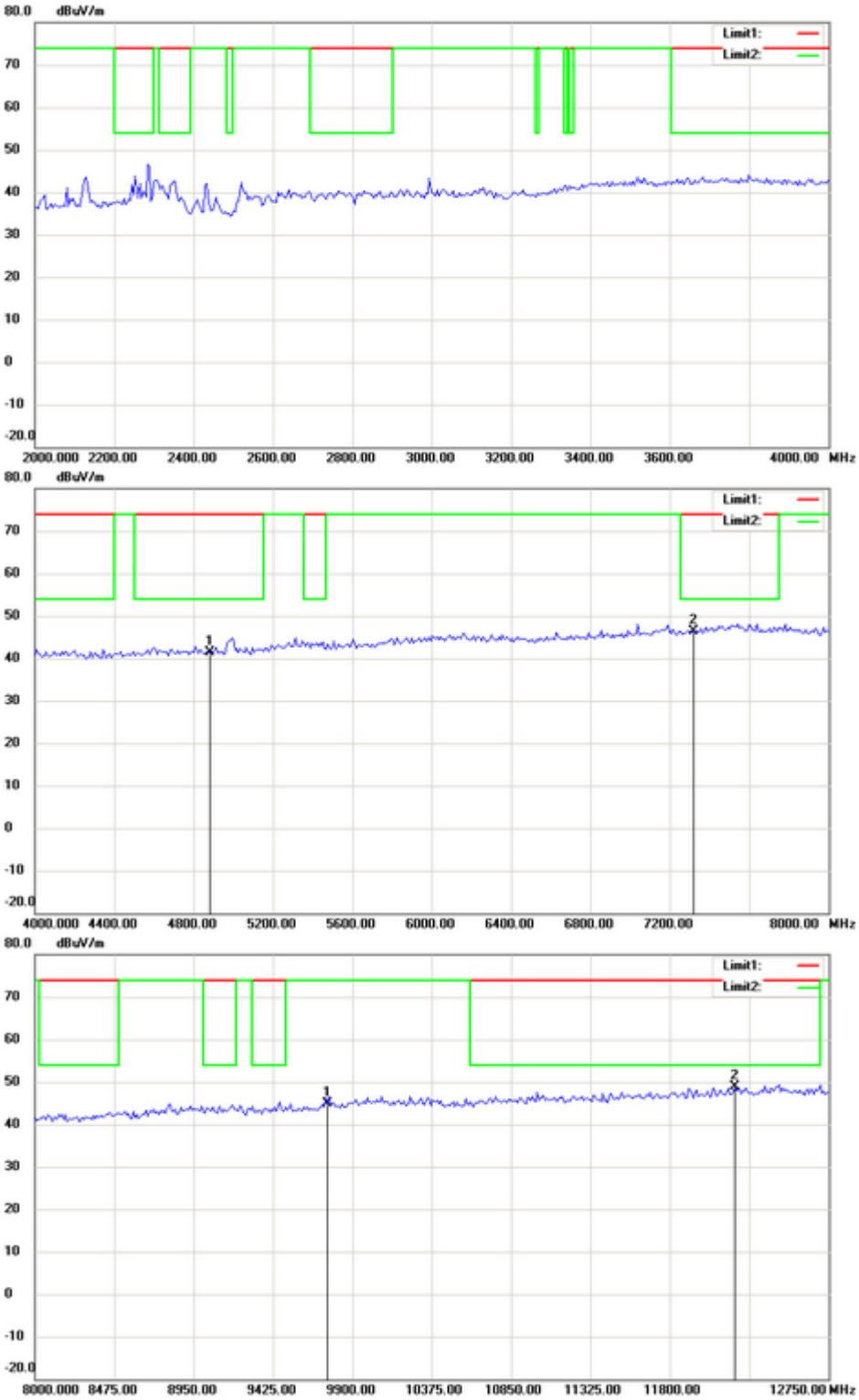
Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

Antenna Polarization V



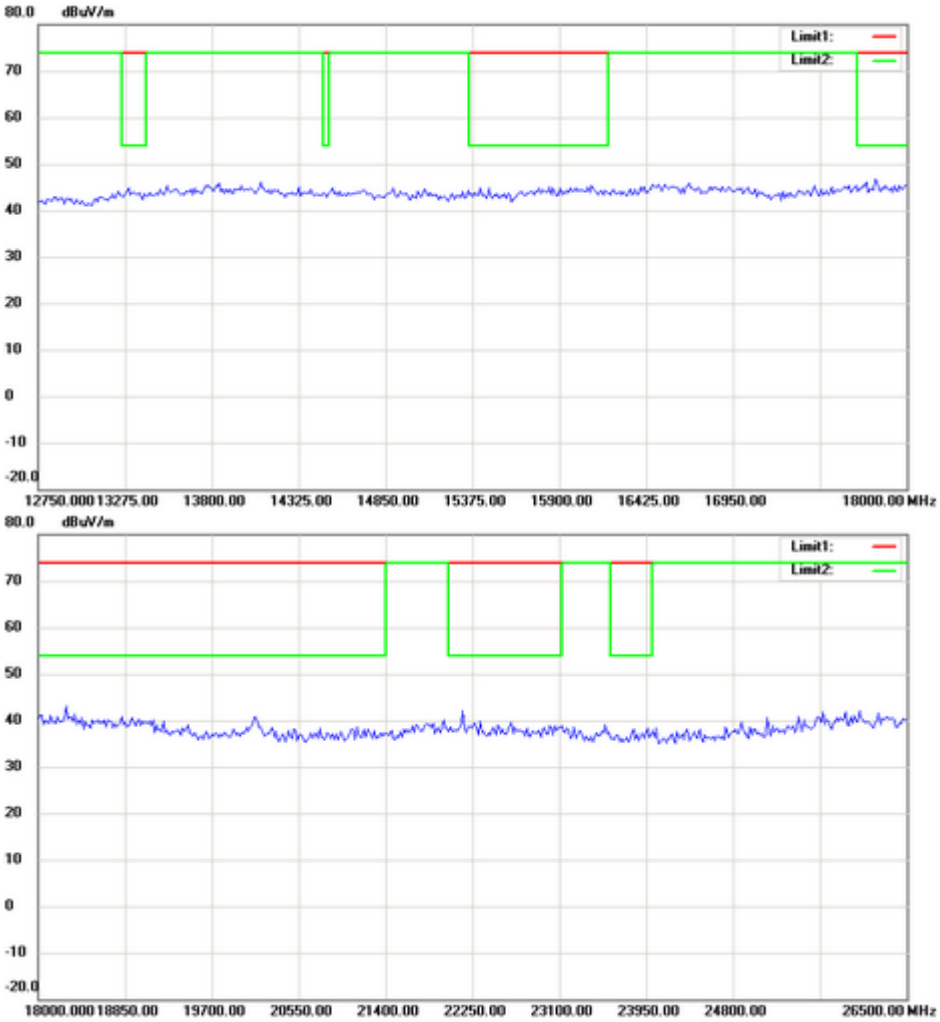
Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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.**



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

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.**

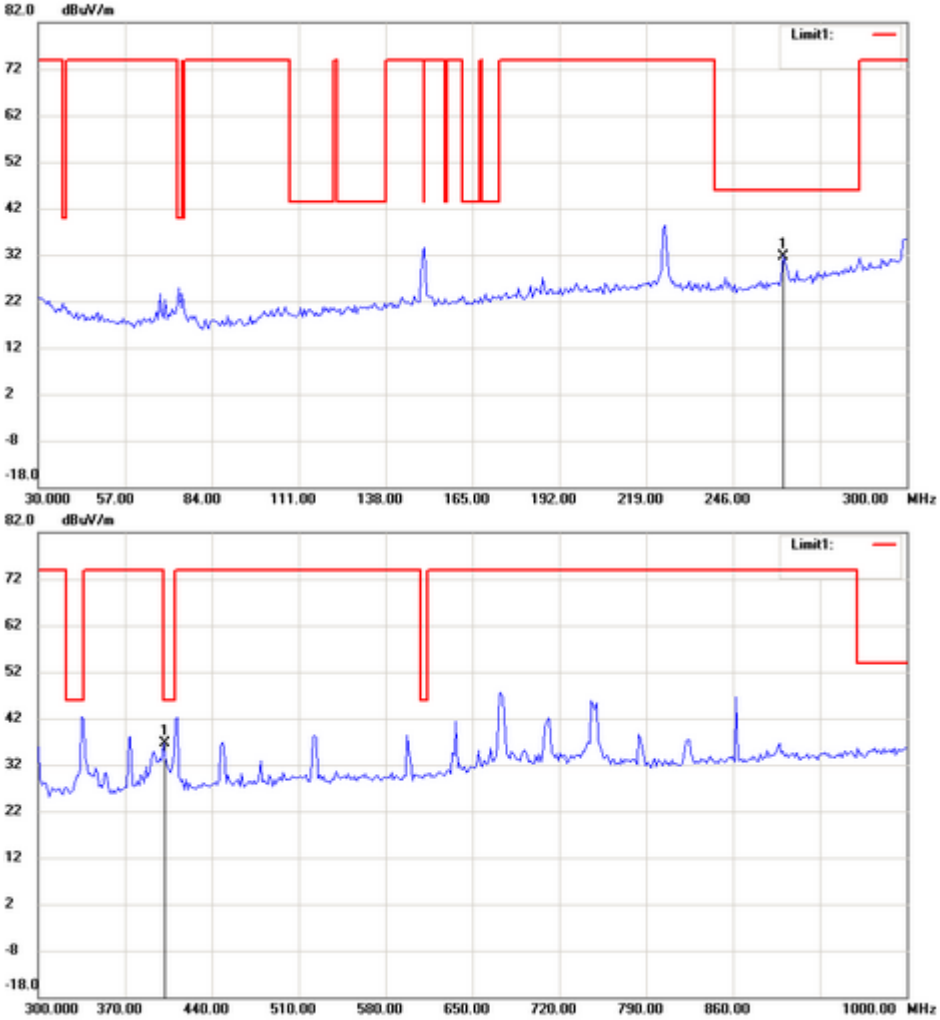


Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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.**

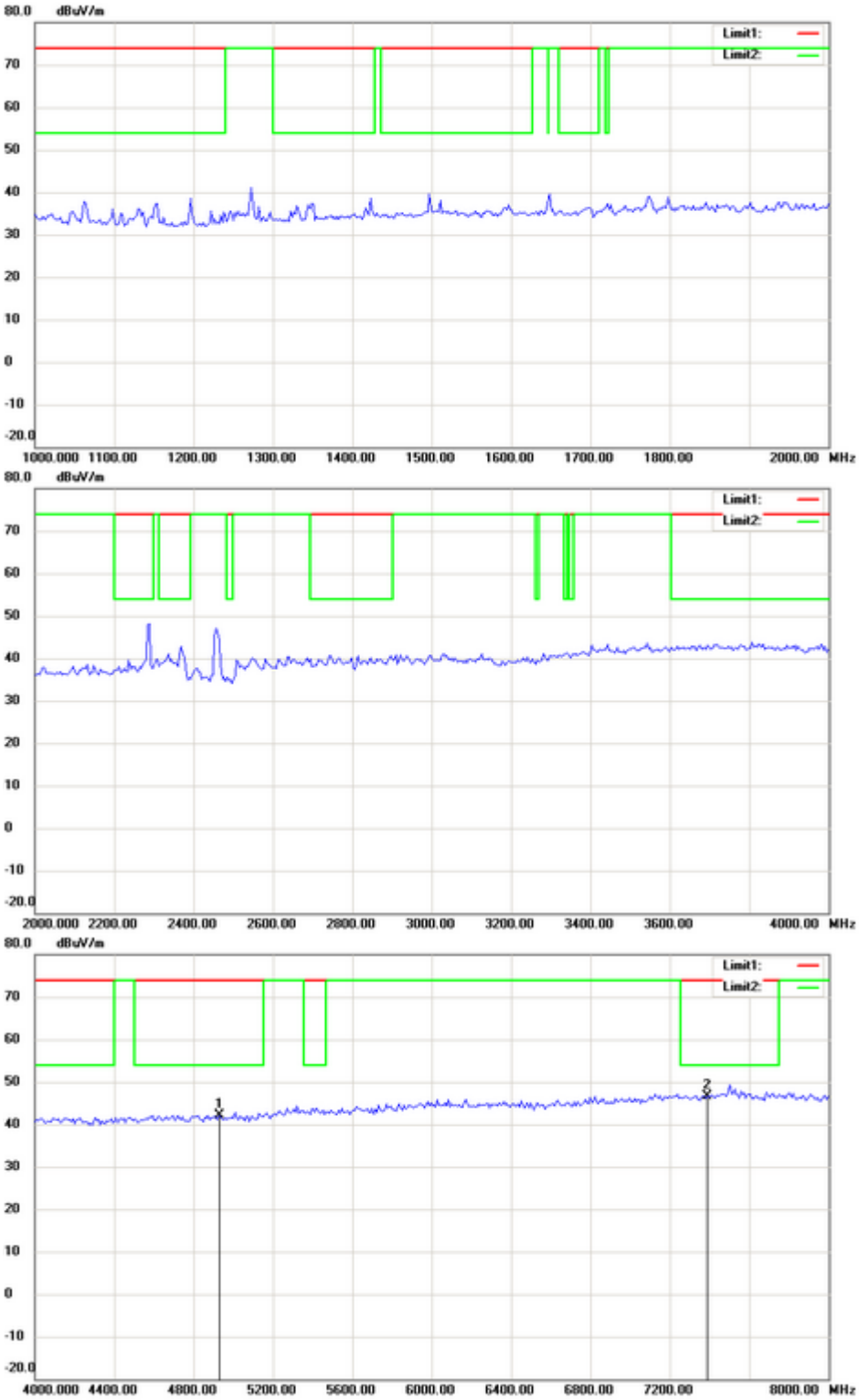
Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

TX 802.11g CH11
Antenna Polarization H



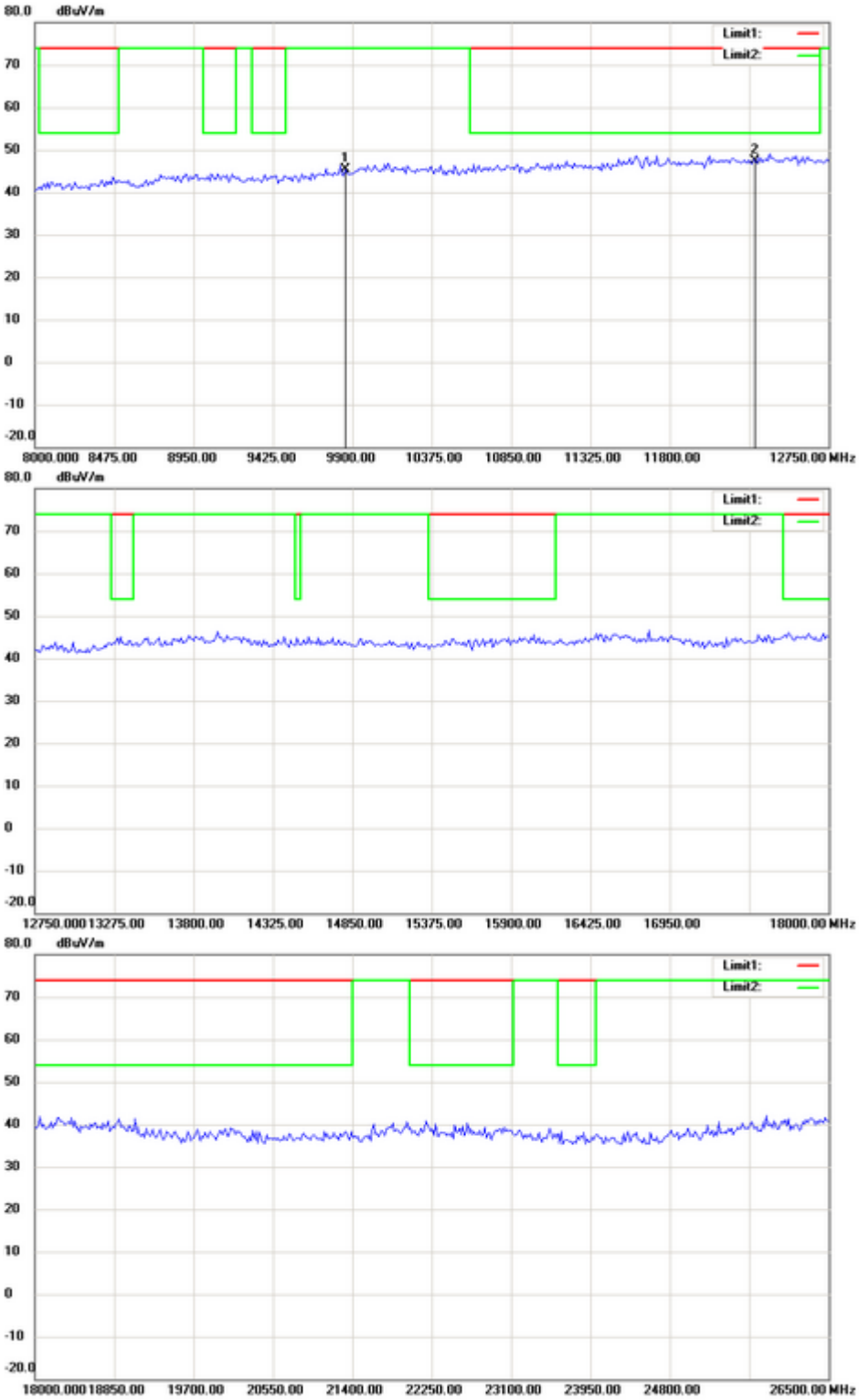
Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

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.**



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

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.**

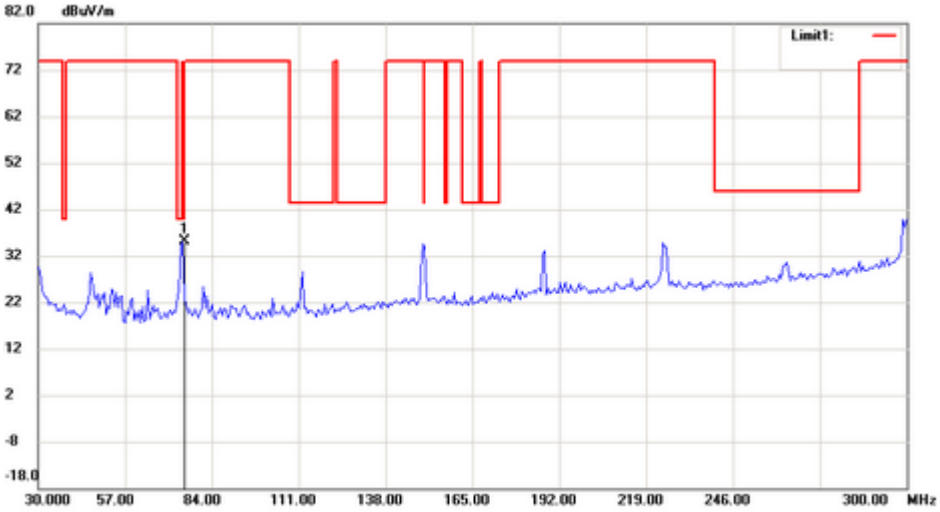


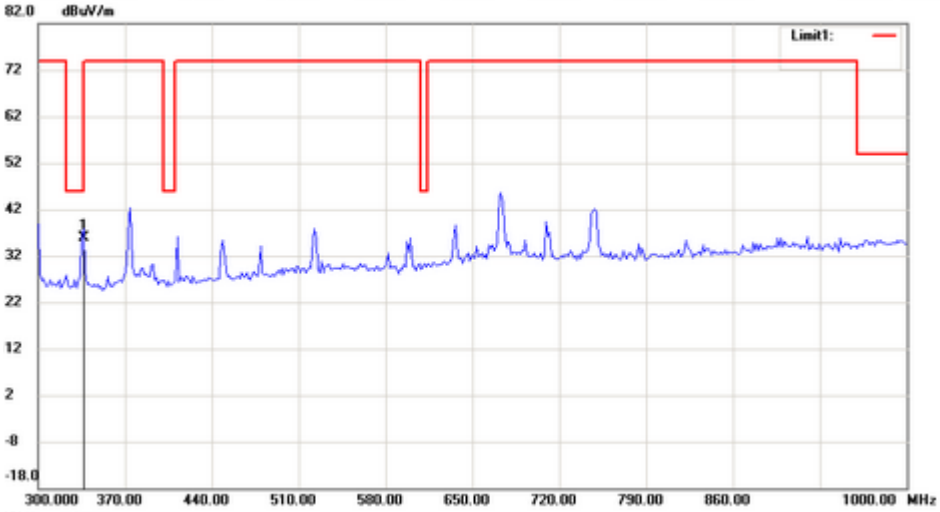
Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

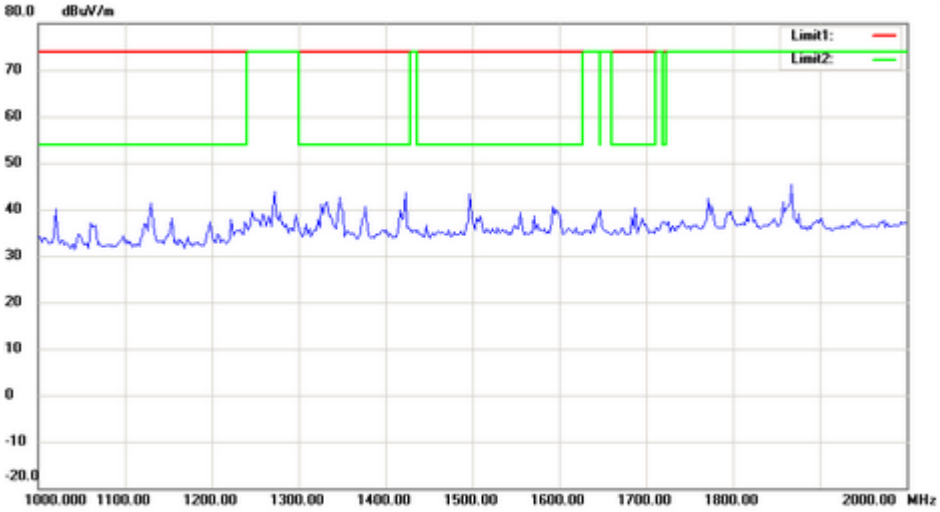
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the 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: W6M21002-10407-P-15
FCC ID: XSOS210I

Antenna Polarization V



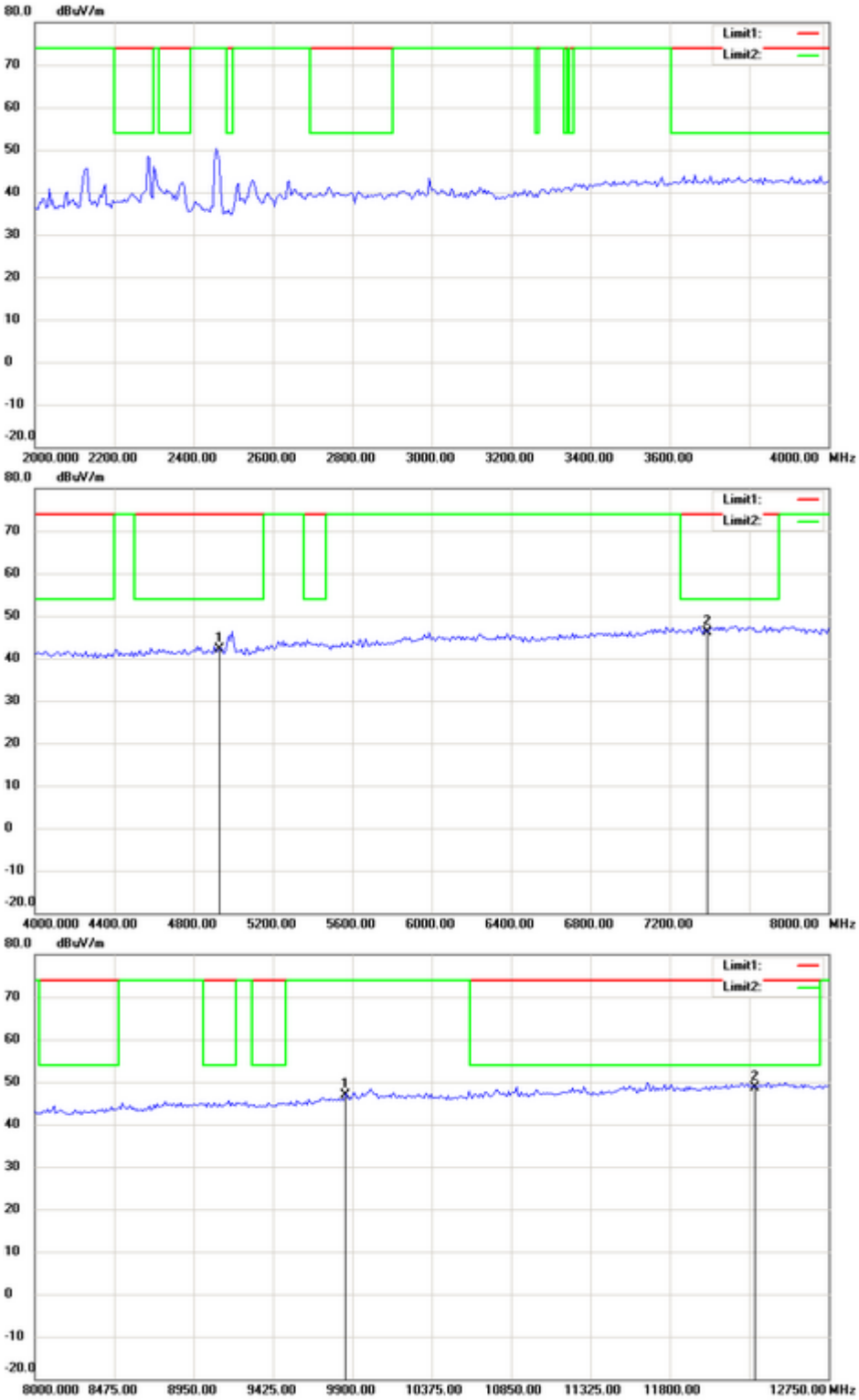




Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

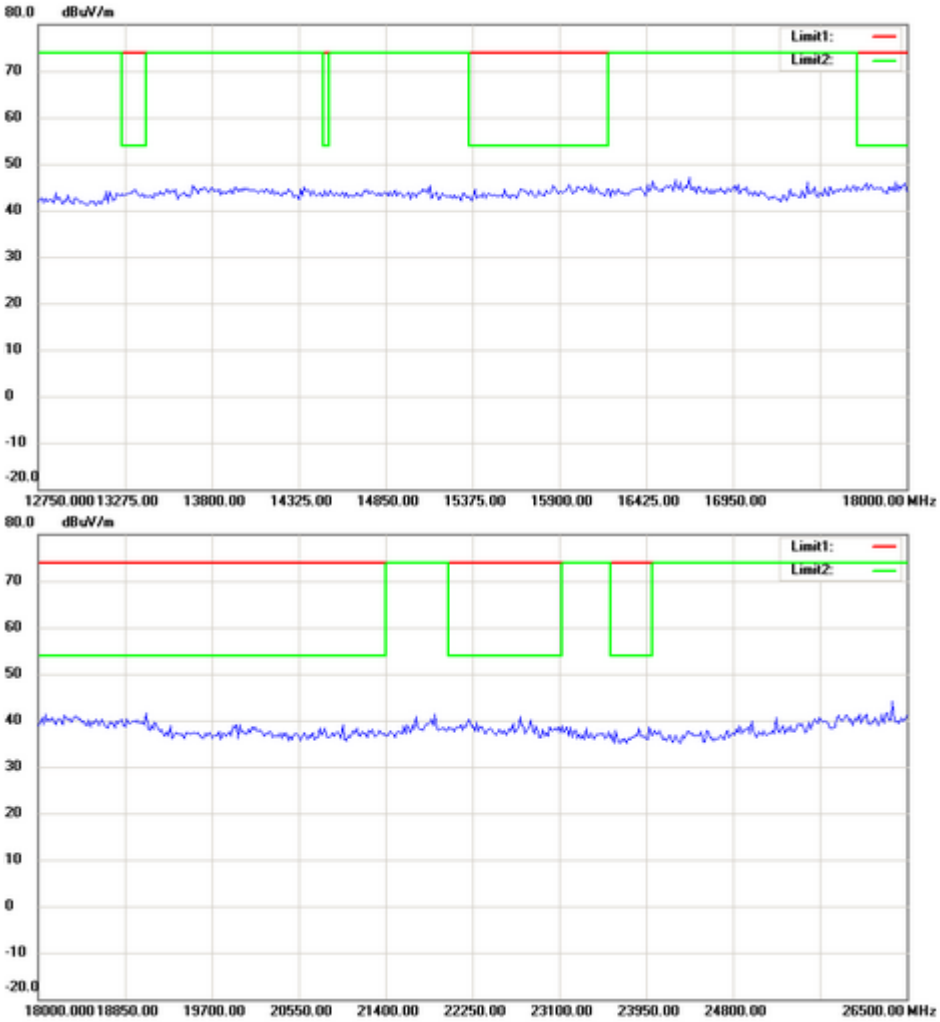
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the 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: W6M21002-10407-P-15
FCC ID: XSOS210I



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

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.**

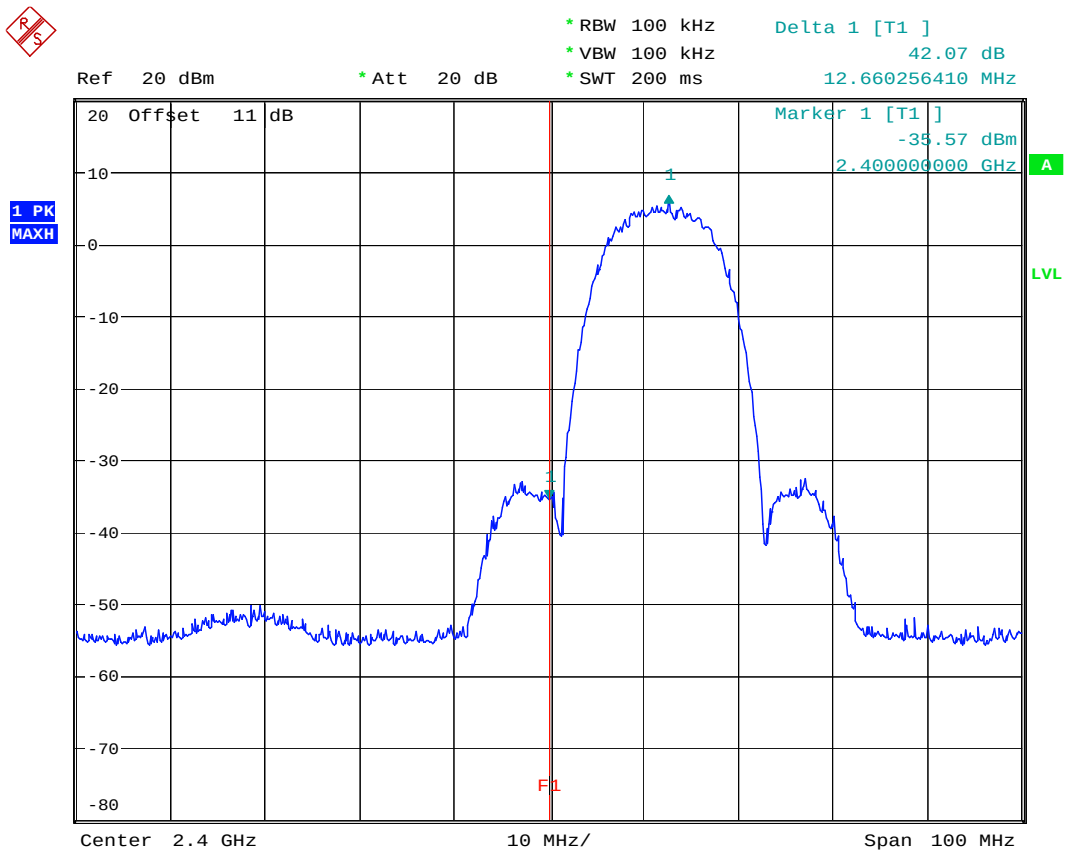


Up Line: Peak Limit Line
Down Line: Ave Limit Line
Note:

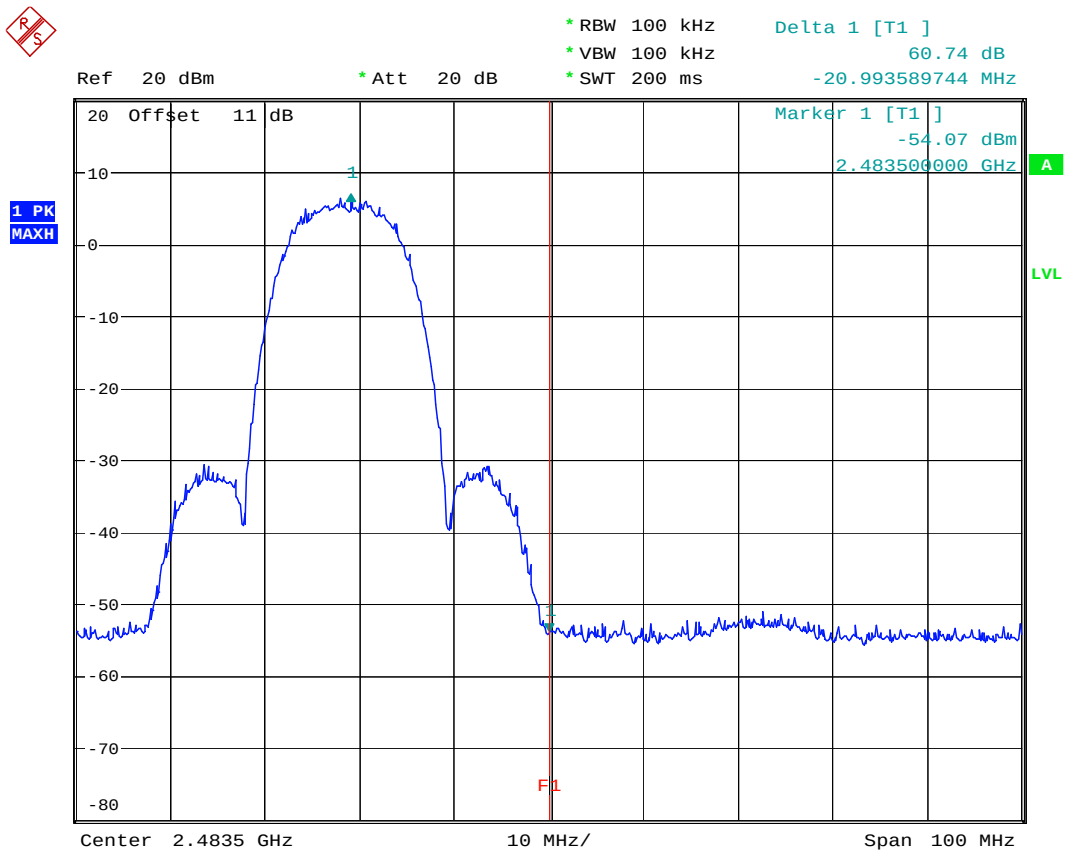
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the 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: W6M21002-10407-P-15
FCC ID: XSOS210I

Band Edge Measurement
Mode A



BAND EDGE 802.11b CH1
Date: 10.FEB.2010 15:03:21

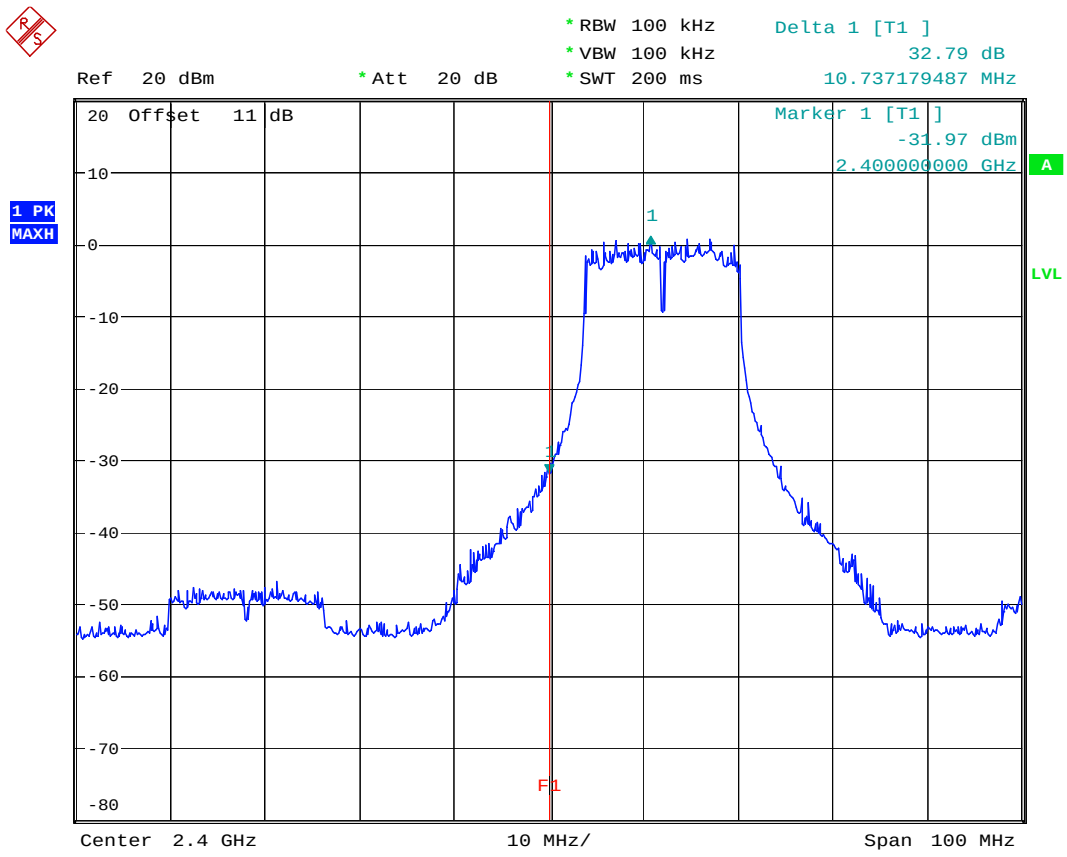


BAND EDGE 802.11b CH11

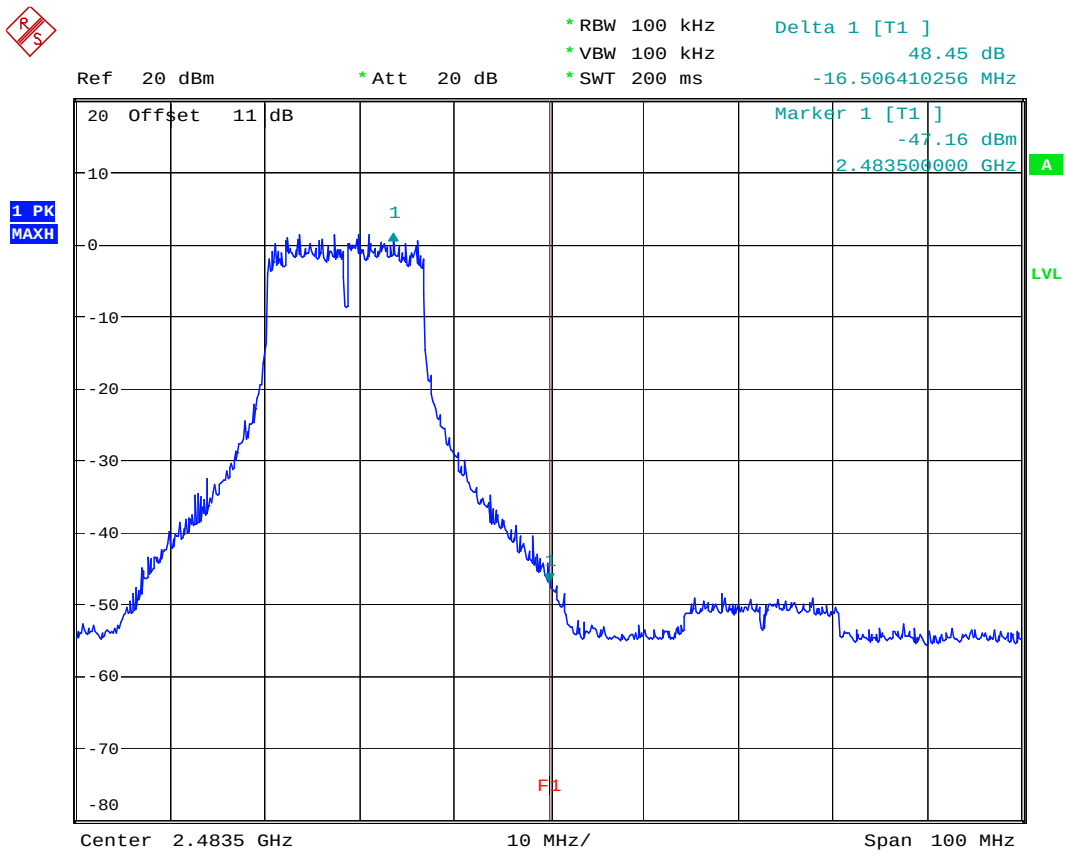
Date: 10.FEB.2010 15:03:54

Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

Mode B



BAND EDGE 802.11g CH1
Date: 10.FEB.2010 15:02:49

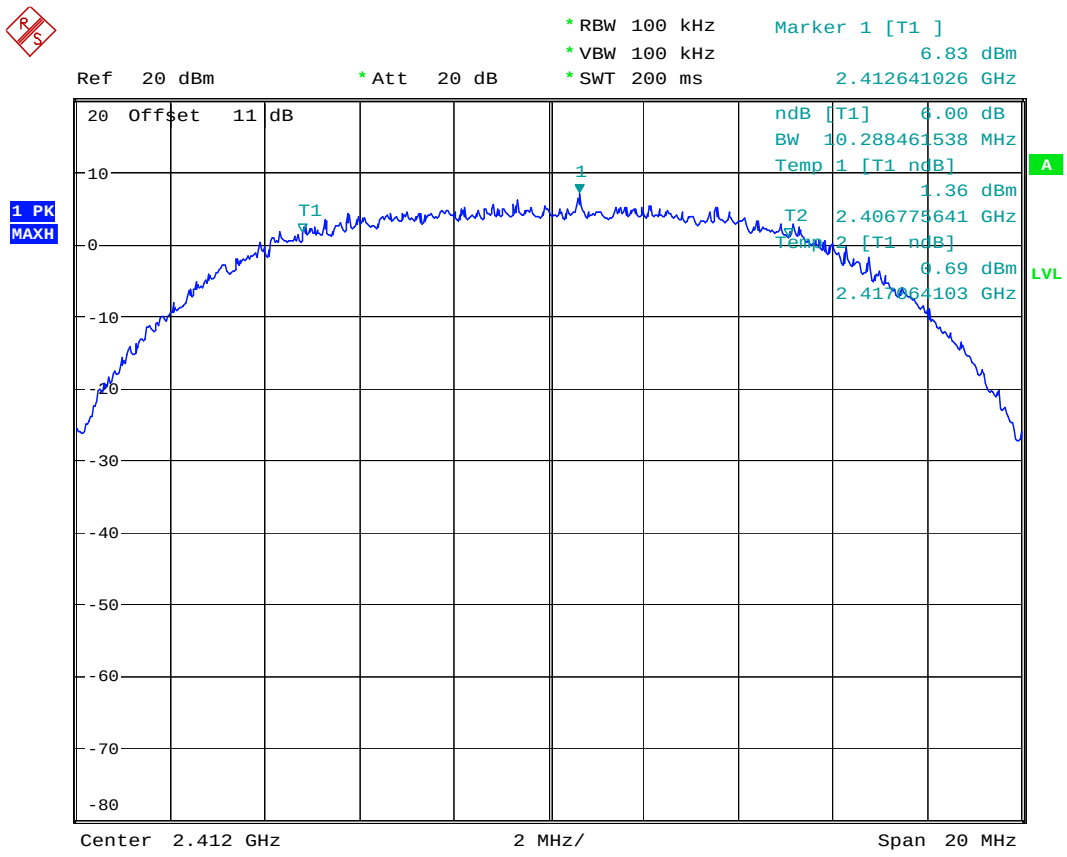


BAND EDGE 802.11g CH11

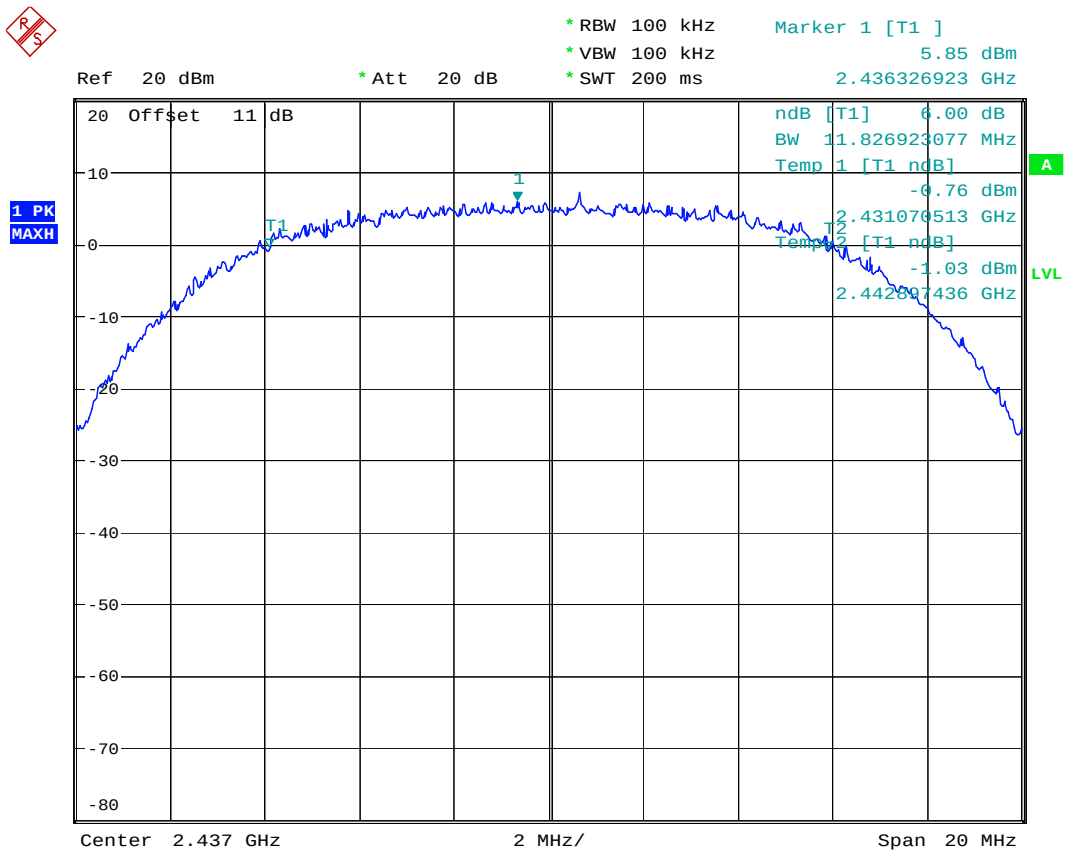
Date: 10.FEB.2010 15:04:19

Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

Minimum 6dB Bandwidth
Mode A

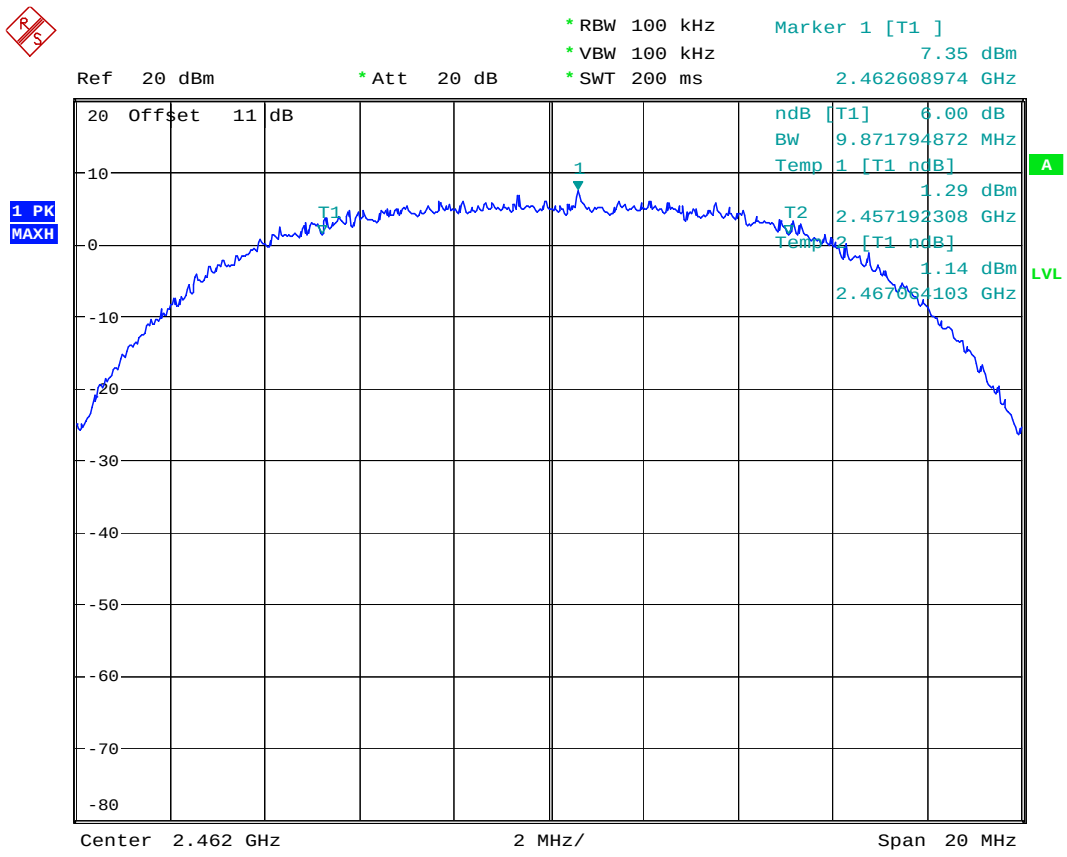


6DB BANDWIDTH 802.11b CH1
Date: 10.FEB.2010 15:10:07



6DB BANDWIDTH 802.11b CH6

Date: 10.FEB.2010 15:09:48

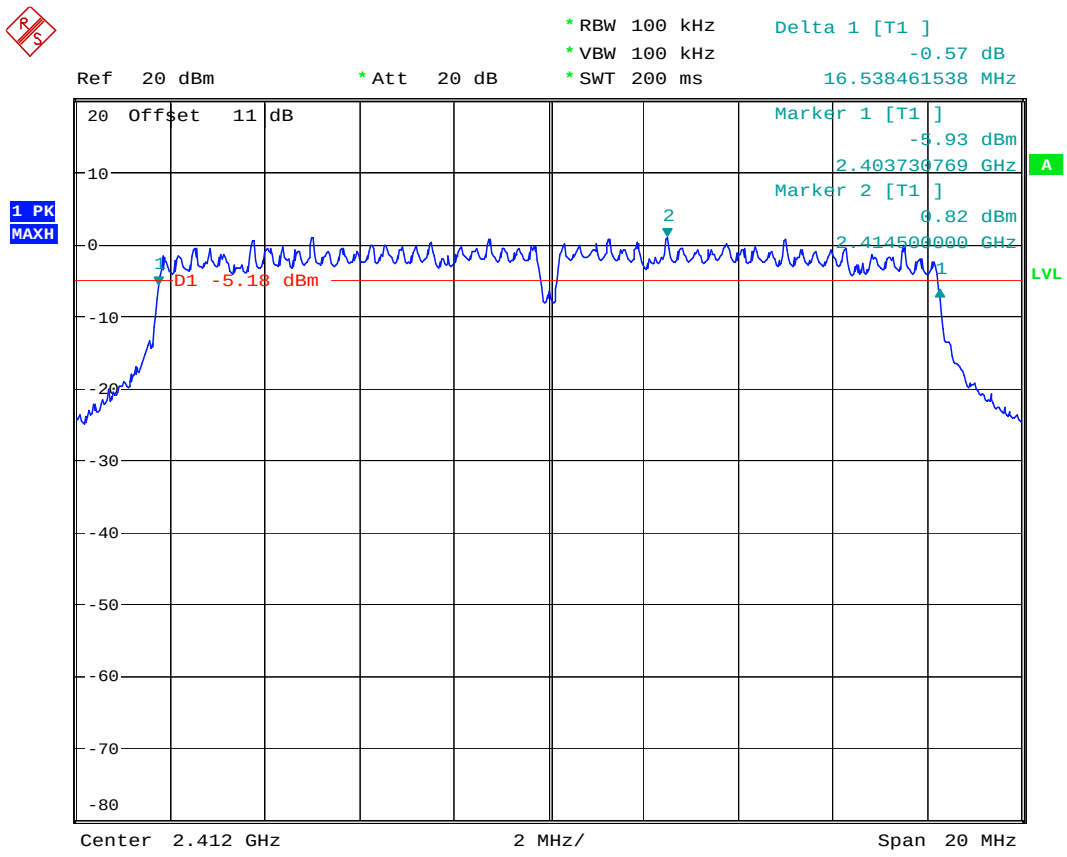


6DB BANDWIDTH 802.11b CH11

Date: 10.FEB.2010 15:09:17

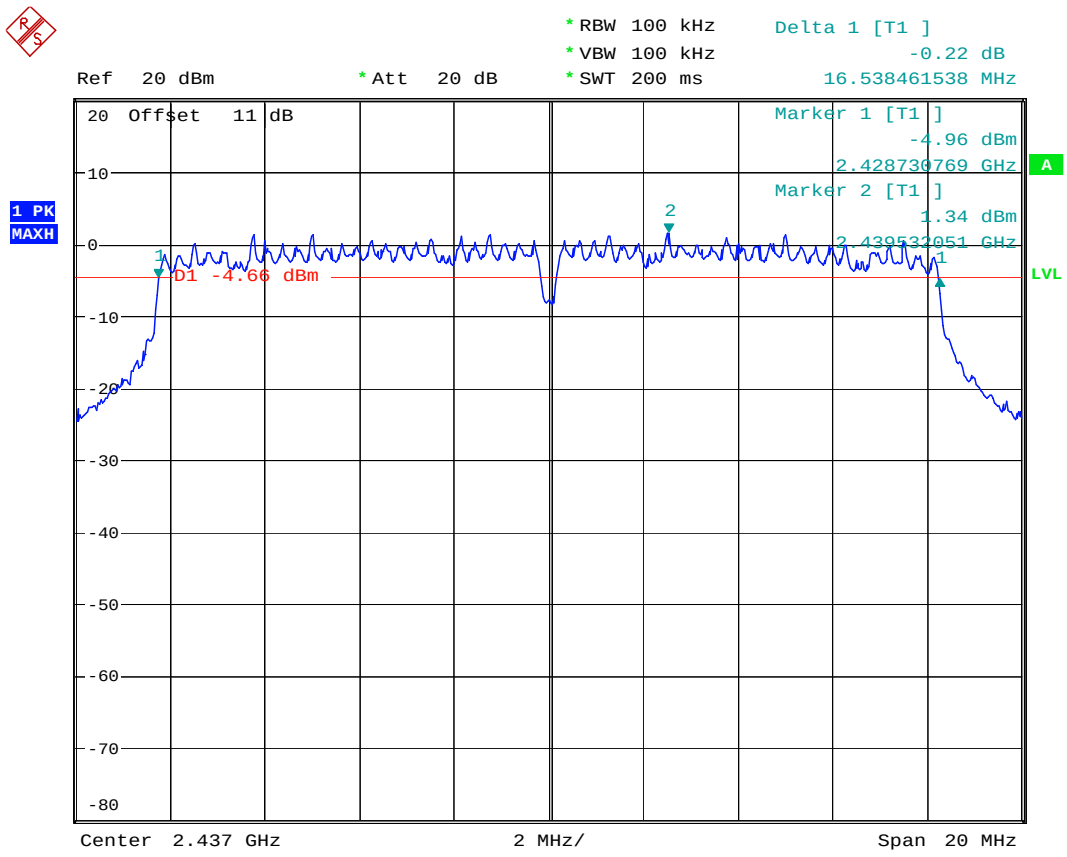
Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

Mode B



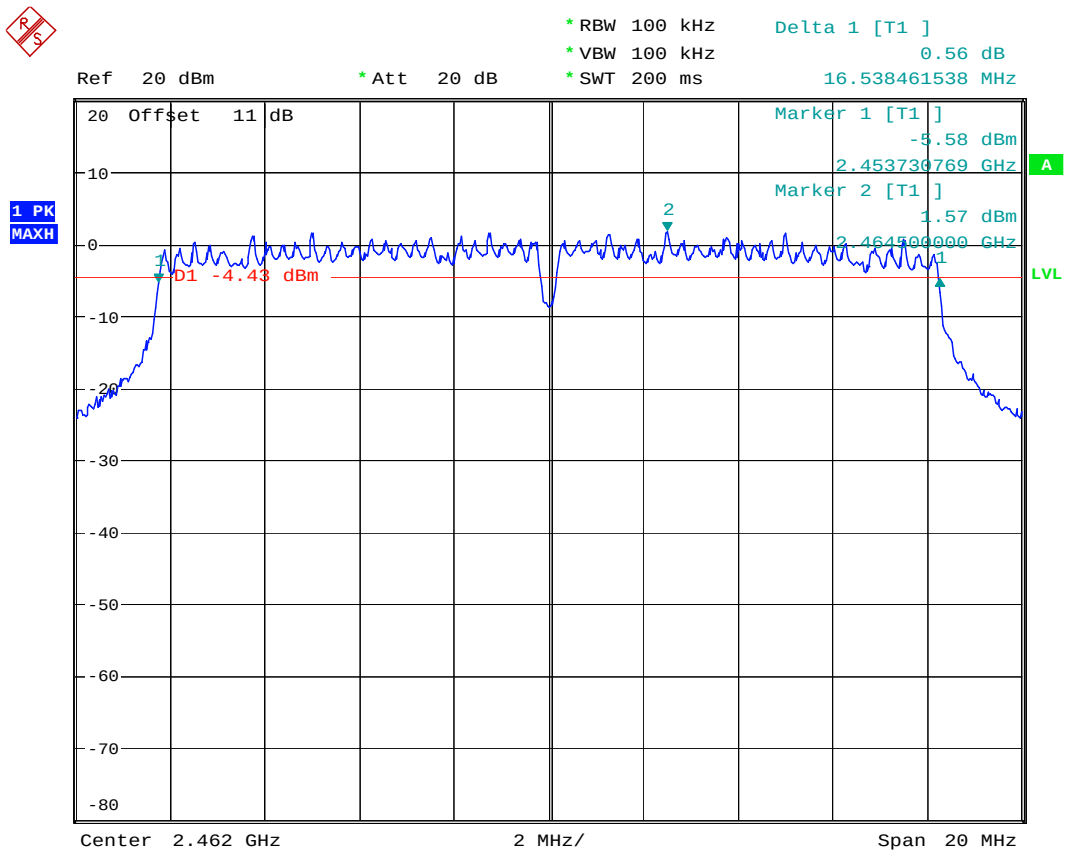
6DB BANDWIDTH 802.11g CH1

Date: 10.FEB.2010 15:11:01



6DB BANDWIDTH 802.11g CH6

Date: 10.FEB.2010 15:11:43

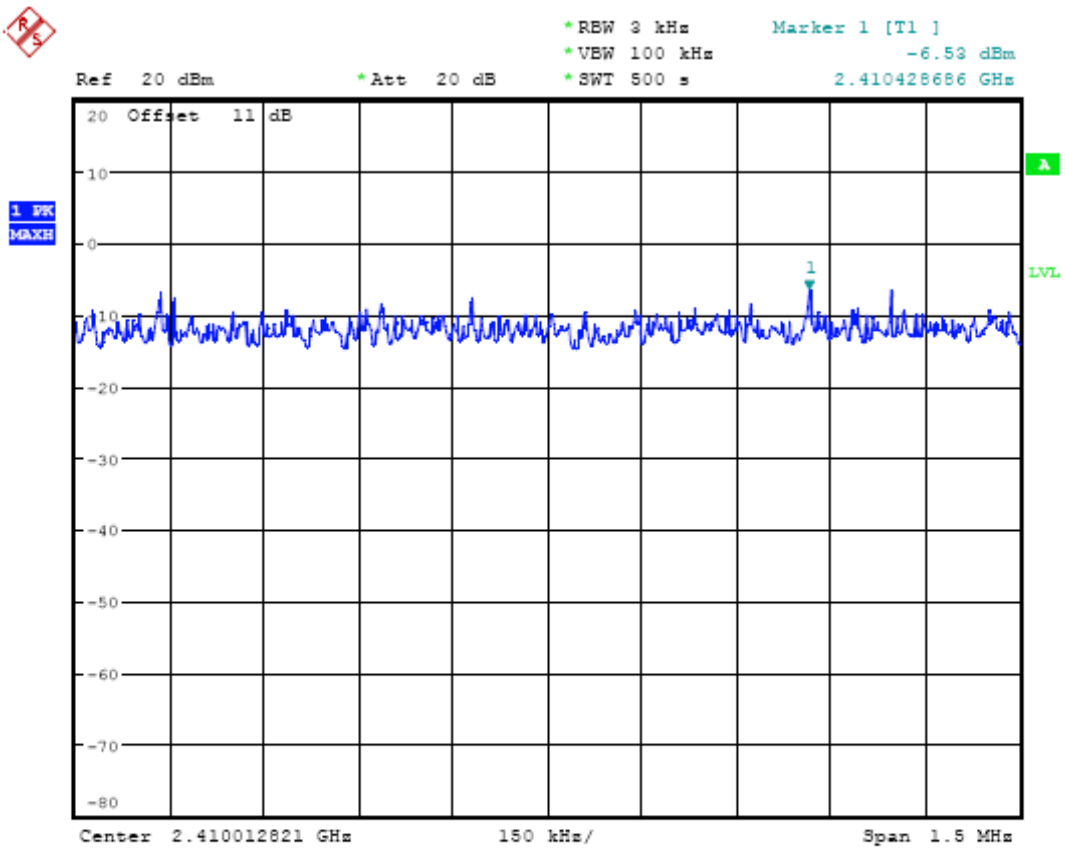


6DB BANDWIDTH 802.11g CH11

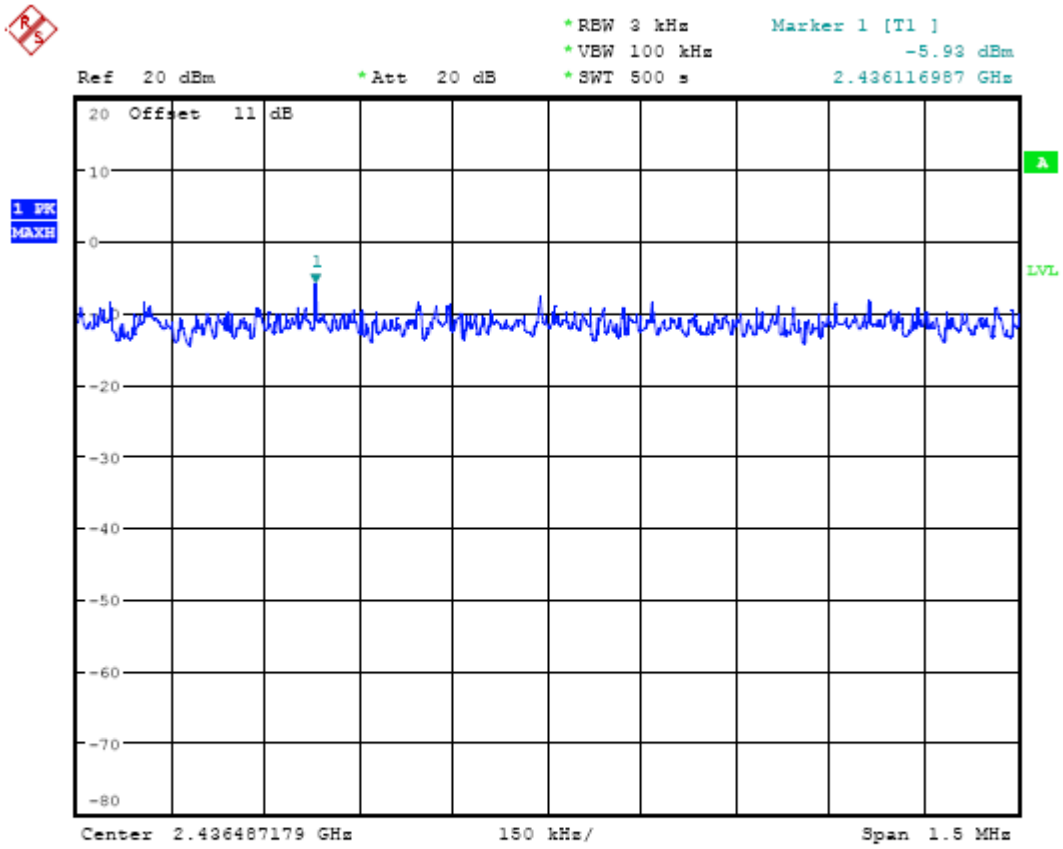
Date: 10.FEB.2010 15:12:29

Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

Peak Power Spectral Density
Mode A

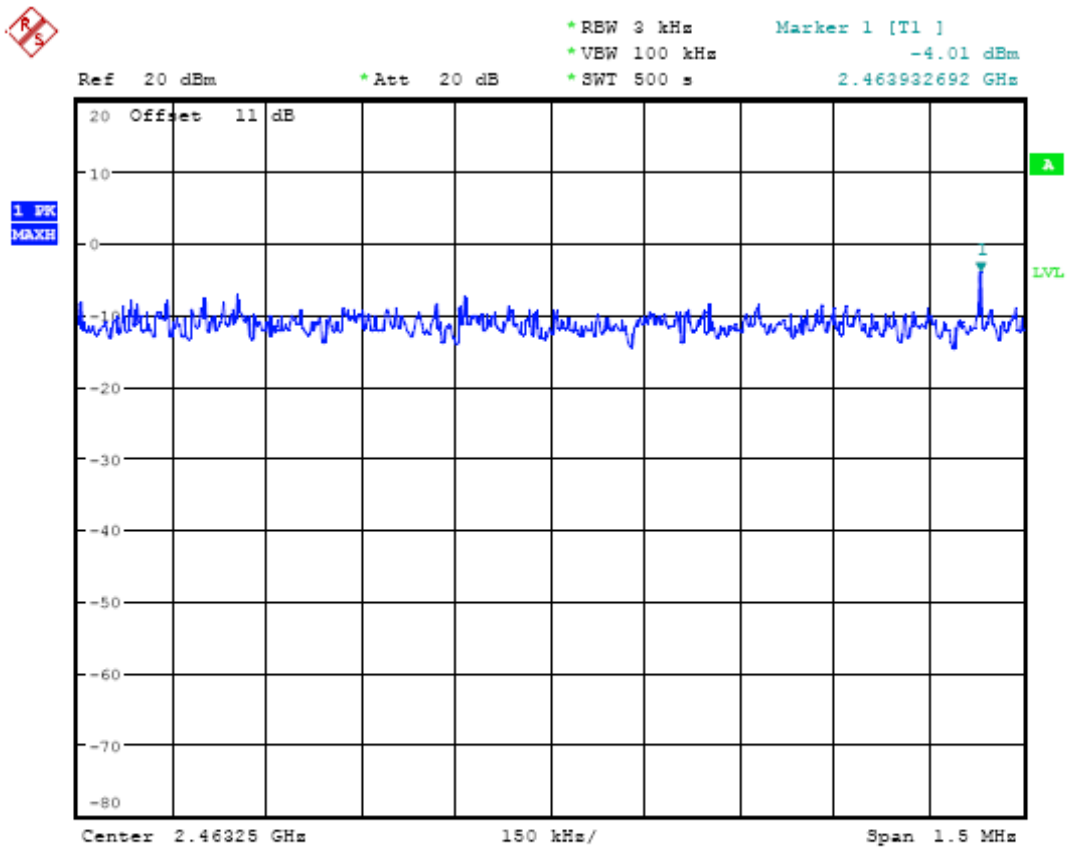


POWER DENSITY 802.11b CH1
Date: 10.FEB.2010 15:07:32



POWER DENSITY 802.11b CH6

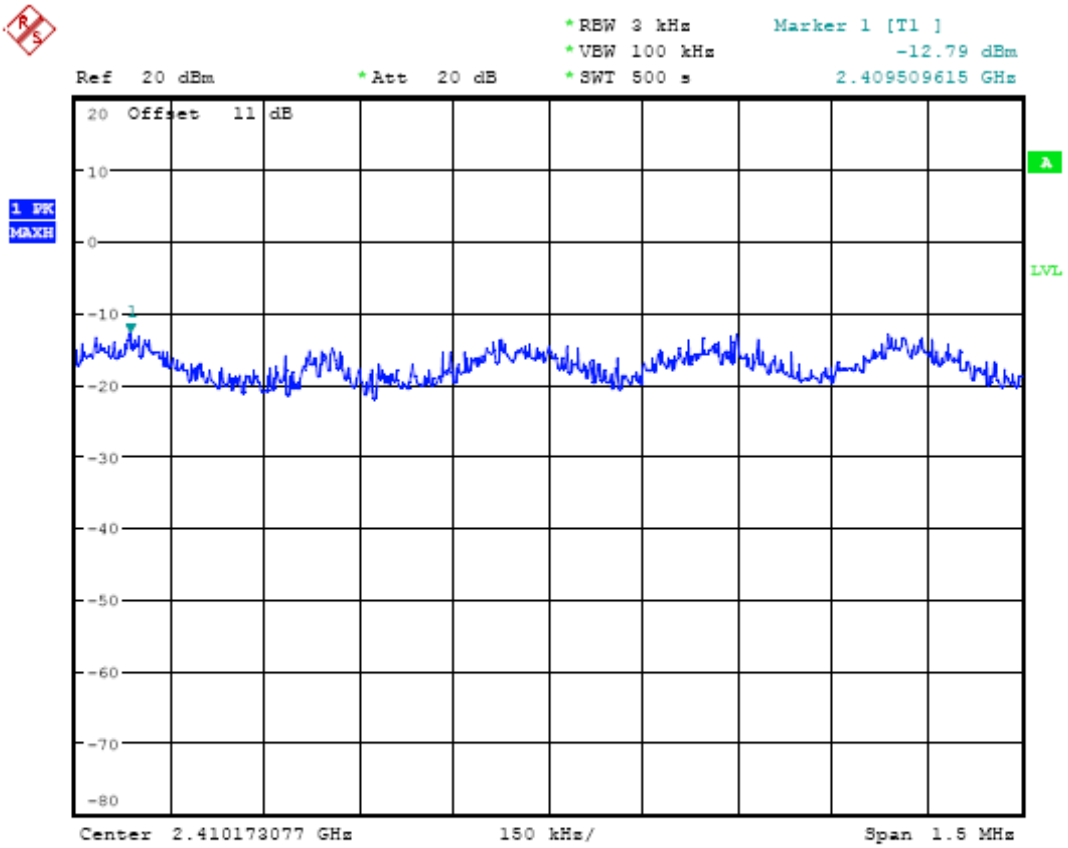
Date: 10.FEB.2010 15:07:59



POWER DENSITY 802.11b CH11

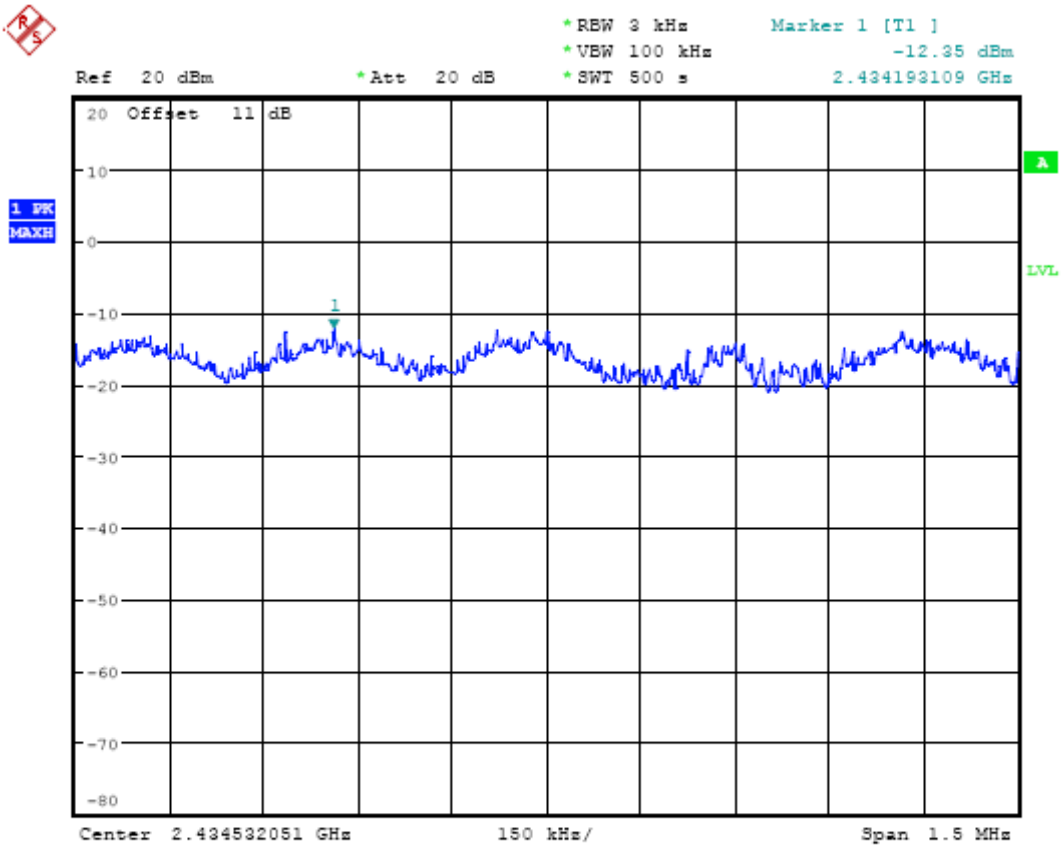
Date: 10.FEB.2010 15:08:25

Mode B



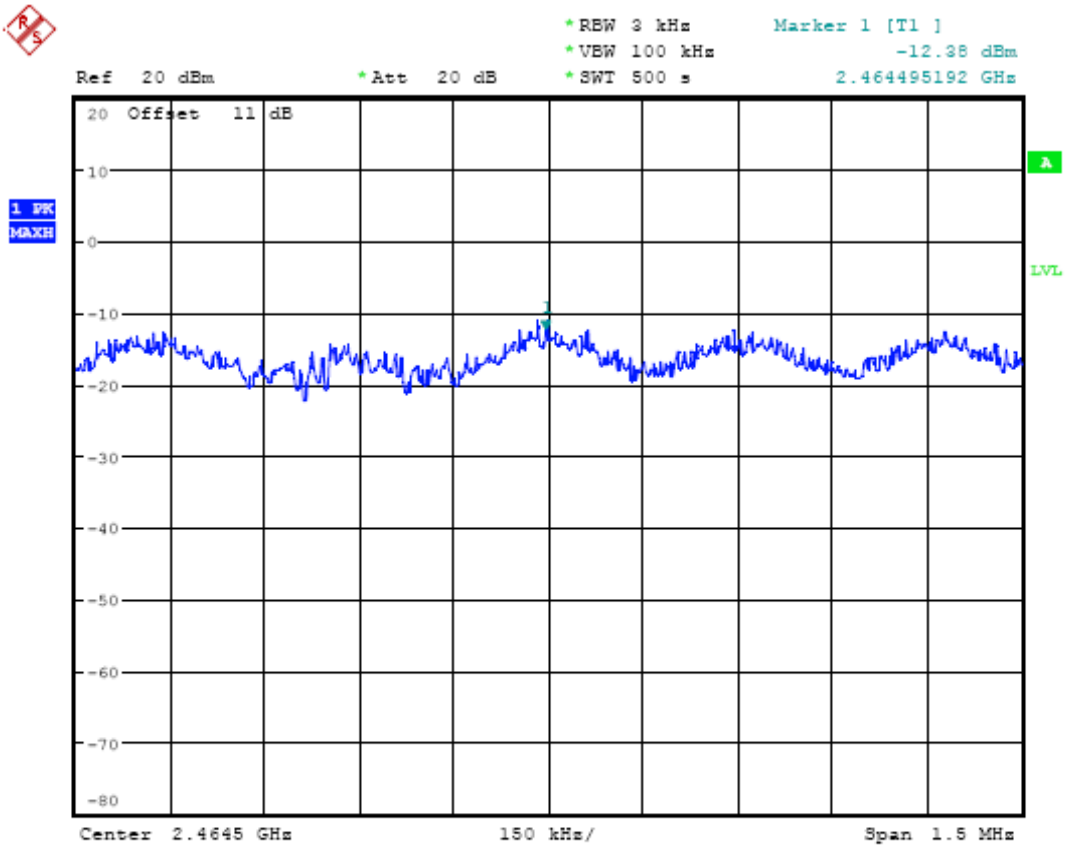
POWER DENSITY 802.11g CH1

Date: 10.FEB.2010 15:06:58



POWER DENSITY 802.11g CH6

Date: 10.FEB.2010 15:06:22



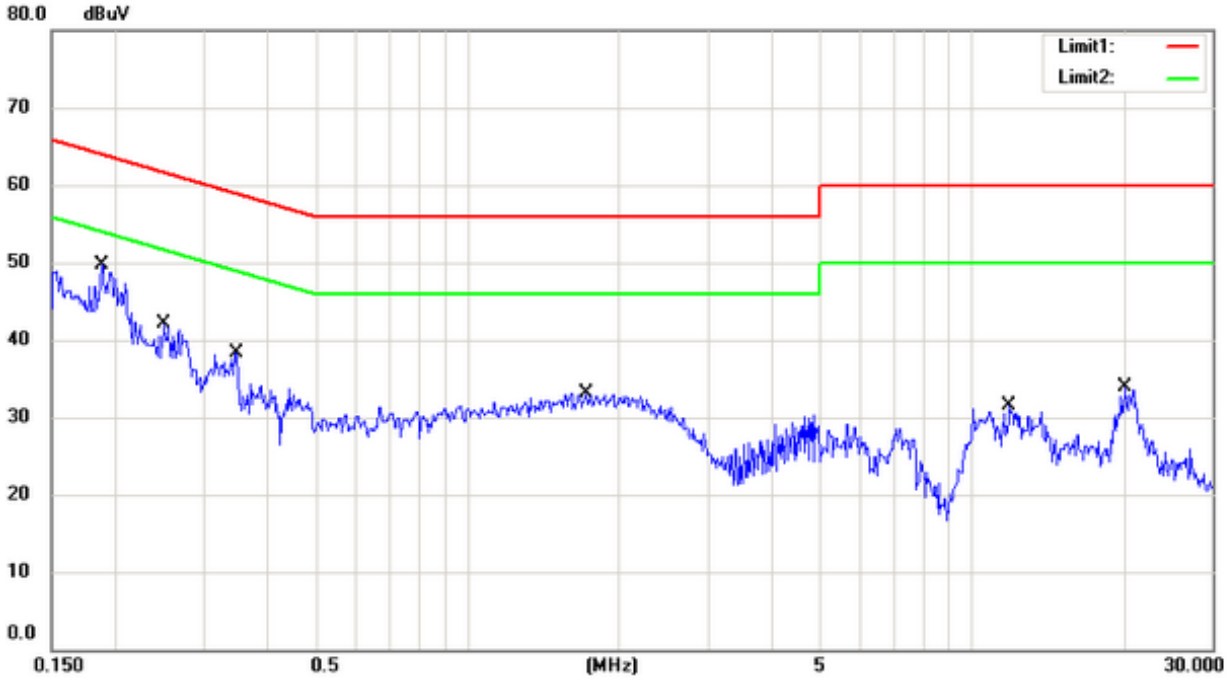
POWER DENSITY 802.11g CH11

Date: 10.FEB.2010 15:05:25

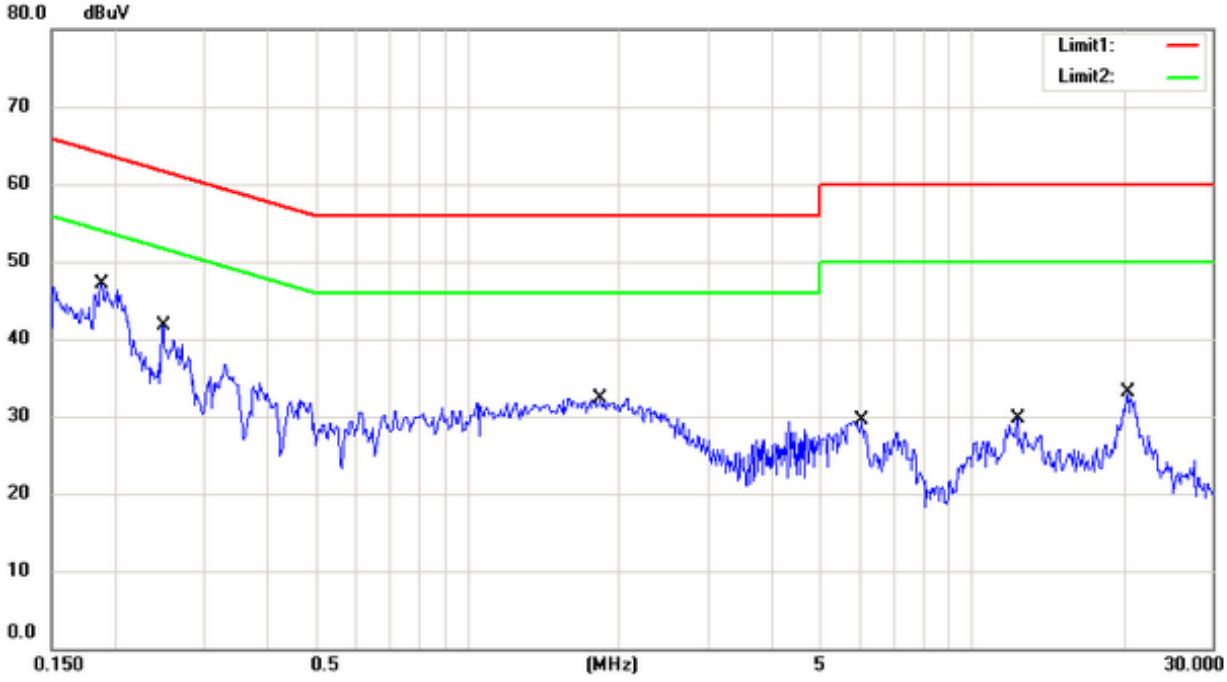
Registration number: W6M21002-10407-P-15
FCC ID: XSOS210I

Power Line Conducted Emission

LISN N



LISN L1



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

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 AC conducted test data of this test report.**