

FCC PART 15 SUBPART C TEST REPORT

for

PV-1005

Model No.: TROV-PV1005-001

FCC ID: Z54PV-1005

of

Applicant: Trovera Incorporated

Address: 800 Vinial Street Suite B403 Pittsburgh, PA 15212 USA

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.: W6D21109-11809-C-1

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C.
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Worldwide Testing Services(Taiwan) Co., Ltd.

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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 its 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.

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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/n.

This report is related to FCC Part 15 C (DSSS and OFDM device).

Tester:

September 29, 2011

Robert Ren

Date

WTS-Lab.

Name

Signature

Technical responsibility for area of testing:

September 29, 2011

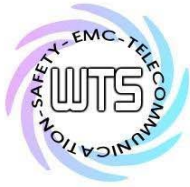
Chang Tse-Ming

Date

WTS

Name

Signature



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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: Trovera Incorporated

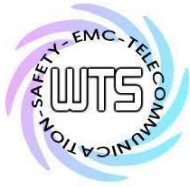
Street: 800 Vinial Street Suite B403 Pittsburgh,

Town: PA 15212

Country: USA

Telephone: 1-412-231-2111

Fax: 1-412-231-2113



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1.4 Application details

Date of receipt of test item: ./.

Date of test: from November 04, 2010 to December 01, 2010

1.5 General information of Test item

Type of test item: PV-1005
Model Number: TROV-PV1005-001
Brand Name: ./.
Multi-listing model number: ./.
Photos: see Appendix

Technical data

Frequency band: 2.412 GHz – 2.4835GHz

11b, 11g, 11n

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 channels

Operation modes: duplex
Modulation Type: DSSS / OFDM
Fixed point-to-point operation: ☐ Yes / ☒ No
Type of Antenna: Dipole Antenna
Antenna gain: 2 dBi
Power supply: Adapter (I/P: 100-240VAC, 50-60Hz, 0.4A
O/P: 5V, 2.5A, 12.5W)

Emission designator: 11b: DSSS: 17M4G1D
11g: OFDM: 17M8W7D
11n : OFDM: 18M2W7D

Host device: none



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Classification :

Fixed Device	<input checked="" type="checkbox"/>
Mobile Device (Human Body distance > 20cm)	<input type="checkbox"/>
Portable Device (Human Body distance < 20cm)	<input type="checkbox"/>
Modular Radio Device	<input type="checkbox"/>

Transmitter

Unom

Mode A (802.11b)

Power (ch 1 or A): Conducted: 22.79 dBm

Power (ch 6 or B): Conducted: 22.86 dBm

Power (ch 11 or C): Conducted: 23.46 dBm

Mode B (802.11g)

Power (ch 1 or A): Conducted: 20.77 dBm

Power (ch 6 or B): Conducted: 21.22 dBm

Power (ch 11 or C): Conducted: 21.35 dBm

Mode C (802.11n)

Power (ch 1 or A): Conducted: 21.00 dBm

Power (ch 6 or B): Conducted: 21.46 dBm

Power (ch 11 or C): Conducted: 21.50 dBm

Manufacturer: (if applicable)

Name: ./.

Street: ./.

Town: ./.

Country: ./.

1.6 Test standards

Technical standard : FCC RULES PART 15 SUBPART C § 15.247 (2009-10)

Special statement:

1. This test report is based on the original model no. MK-100.
2. The relevant Circuitry, PCB Layout, Inner element, Function and Appearance of this model number is exactly the same as the original model no. MK-100. The differences are the approval holder, the model number, the product name, the dealer, the trademark or logo. Therefore the test result is also based on the original test report no. W6M21011-10996-C-1 without re-testing.



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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

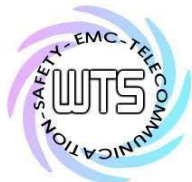
Temperature: 23 °C

Relative humidity content: 20 ... 75 %

Air pressure: 86 ... 103 kPa

Power supply: Adapter (I/P: 100-240VAC,50-60Hz, 0.4A
O/P: 5V, 2.5A, 12.5W)

Extreme conditions parameters: ./.



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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	2010/9/2	2011/9/1
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	2010/9/8	2011/9/7
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-EICHLITUNG 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	2010/7/21	2011/7/20
ETSTW-CE 013	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T4-02	20242	FCC	2010/10/21	2011/10/20
ETSTW-CE 015	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T8-02	20307	FCC	2010/9/6	2011/9/5
ETSTW-RE 002	Function Generator	33220A	MY43004982	Agilent	Function Test	
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2010/8/10	2011/8/9
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2010/9/14	2011/9/13
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2010/9/2	2011/9/1
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	2010/9/6	2011/9/5
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	2010/10/4	2011/10/3
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	Function Test	
ETSTW-RE 021	SWEEP GENERATOR	SWM05	835130/010	R&S	2010/8/20	2011/8/19
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	EMCO	2010/7/22	2011/7/21
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	2010/10/4	2011/10/3
ETSTW-RE 033	WaveRunner 6000A Serise Oscilloscope	WAVERUNNER 6100A	LCRY0604P14508	LeCroy	Function Test	
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2010/10/4	2011/10/3
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	2010/8/30	2011/8/29
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2010/4/13	2011/4/12
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2010/3/5	2011/3/4
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2010/3/5	2011/3/4



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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	2010/6/3	2011/6/2
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	Pre-test Use NCR	
ETSTW-RE 061	Amplifier Module	CHC 1	None	ETS	2010/9/27	2011/9/26
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2010/11/10	2011/11/9
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	2010/10/7	2011/10/6
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 096	SIGNAL GENERATOR	SMIQ 03B	102274	R&S	2010/5/31	2011/5/30
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	2010/10/7	2011/10/6
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	2010/9/20	2011/9/19
ETSTW-Cable 002	Microwave Cable	SUCOFLEX 104 (S_Cable 7)	238093	HUBER+SUHNER	2010/9/27	2011/9/26
ETSTW-Cable 003	Microwave Cable	SUCOFLEX 104 (S_Cable 11)	209953	HUBER+SUHNER	2010/9/27	2011/9/26
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.	2010/8/19	2011/8/18
ETSTW-Cable 012	BNC Cable	BNC Cable 2	None	JYE BAO CO.,LTD.	2010/8/19	2011/8/18
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 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2010/9/13	2011/9/12
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2010/9/13	2011/9/12
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 50 μ H 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 dB μ V) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

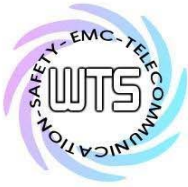
Freq (MHz)	METER READING + ACF + CABLE LOSS (to the receiver) = FS
33	20 dB μ V + 10.36 dB + 6 dB = 36.36 dB μ V/m @3m

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.



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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 = $20 \log (\text{dwell time}/T)$

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



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3 Test results (enclosure)

TEST CASE	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.247(b)(3)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Equivalent radiated Power	15.247(b)(3)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions radiated – Transmitter operating	15.247(c): 15.209	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Band Edge Measurement	15.247(c)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Minimum 6 dB Bandwidth	15.247(a)(2)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Peak Power Spectral Density	15.247(d)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated Emission from Digital Part	15.109	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Power Line Conducted Emission	15.207	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Note:

1. The Pre-test was performed to determine the worst case mode from all possible combinations between all available modulations, data rates, bandwidths, and spatial stream modes.
2. The worst case mode was base on the investigations by measuring the peak and average power according to the description above. The detail of chosen mode for full testing are as below:

Mode	Available channel	Chosen Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11b	1 to 11	1,6,11	DSSS	DBPSK	1
802.11g	1 to 11	1,6,11	OFDM	BPSK	6
Draft 802.11n (20MHz)	1 to 11	1,6,11	OFDM	BPSK	6.5



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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 802.11b

Test condition		Conducted Power		
		Channel A	Channel B	Channel C
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 120\text{ V}$	[dBm]	[dBm]	[dBm]
		22.79	22.86	23.46

Mode 802.11g

Test condition		Conducted Power		
		Channel A	Channel B	Channel C
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 120\text{ V}$	[dBm]	[dBm]	[dBm]
		20.77	21.22	21.35

Mode 802.11n

Test condition		Conducted Power		
		Channel A	Channel B	Channel C
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 120\text{ V}$	[dBm]	[dBm]	[dBm]
		21.00	21.46	21.50

Mode 802.11b

Test condition $T_{nom} = \text{--}^{\circ}\text{C}, V_{nom} = \text{--}\text{ V}$	Signal Field strength TX highest power mode dB $\mu\text{V/m}$
Frequency [MHz]	--
--	



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Mode 802.11g

Test condition $T_{nom} = \text{--}^{\circ}\text{C}$, $V_{nom} = \text{--} \text{ V}$	Signal Field strength TX highest power mode $\text{dB } \mu \text{ V/m}$
Frequency [MHz]	--
--	

Mode 802.11n 20MHz

Test condition $T_{nom} = \text{--}^{\circ}\text{C}$, $V_{nom} = \text{--} \text{ V}$	Signal Field strength TX highest power mode $\text{dB } \mu \text{ V/m}$
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 $> 6 \text{ dBi}$ 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.



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3.2 Equivalent isotropic radiated power

FCC Rule: 15.247(b)(3)

EIRP = max. conducted output power + antenna gain

EIRP = 23.46 dBm +2 dBi

= 25.46 dBm

Limit: EIRP = +36 dBm for Antenna gain < 6 dBi

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	221.8196	Peak value
D	dB		
AG	dBi	2	
G		1.58	Calculated Value
R	cm	20	Assumed value
S	mW/cm ²	0.0697	Calculated value

Limits:

Limit for General Population / Uncontrolled Exposure	
Frequency (MHz)	Power Density (mW/cm ²)
1500 – 100.000	1.0



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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 \leq 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 = $20 \log (\text{dwell time} / 100\text{ms})$

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

Explanation: see attached diagrams in Appendix.



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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 = $20 \log (\text{dwell time}/100\text{ms})$

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 018, ETSTW-RE 028,
ETSTW-RE 029, ETSTW-RE 030, ETSTW-RE 044

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



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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".

Model: TROV-PV1005-001 Date: 2010/11/24
 Mode: 802.11b CH1 Temperature: 21.6 °C Engineer: Robert
 Polarization: Horizontal Humidity: 54 %

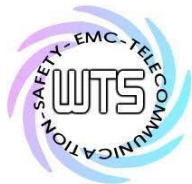
Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
166.3528	25.49	peak	15.11	40.60	43.50	-2.90	200	150
408.0161	10.65	peak	19.05	29.70	46.00	-16.30	130	150
997.1944	8.06	peak	29.18	37.24	54.00	-16.76	260	150

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4824.0000	48.06	---	-4.94	43.12	---	74.00	54.00	-30.88	130	150
7238.4770	50.30	---	-2.38	47.92	---	74.00	54.00	-26.08	140	150
9646.7940	35.34	---	12.84	48.18	---	74.00	54.00	-25.82	270	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
166.3528	26.67	peak	15.11	41.78	43.50	-1.72	100	150
409.4190	8.97	peak	19.09	28.06	46.00	-17.94	240	150
988.7776	7.17	peak	29.07	36.24	54.00	-17.76	130	150



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Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4824.0000	47.87	---	-4.94	42.93	---	74.00	54.00	-31.07	100	150
7238.4770	51.18	---	-2.38	48.80	---	74.00	54.00	-25.20	170	150
9646.7940	36.24	---	12.84	49.08	---	74.00	54.00	-24.92	130	150

Mode: 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)
166.3528	24.82	peak	15.11	39.93	43.50	-3.57	160	150
406.6133	9.66	peak	19.01	28.67	46.00	-17.33	100	150
998.5972	7.91	peak	29.20	37.11	54.00	-16.89	270	150

Polarization: Horizontal

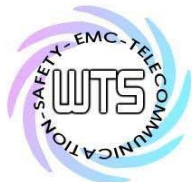
Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4873.7480	48.15	---	-4.86	43.29	---	74.00	54.00	-30.71	100	150
7318.6370	49.89	---	-2.79	47.10	---	74.00	54.00	-26.90	70	150
9751.5030	37.64	---	12.81	50.45	---	74.00	54.00	-23.55	100	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
166.3528	25.91	peak	15.11	41.02	43.50	-2.48	280	150
408.0161	8.93	peak	19.05	27.98	46.00	-18.02	270	150
980.3607	7.40	peak	28.96	36.36	54.00	-17.64	130	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4873.7480	49.41	---	-4.86	44.55	---	74.00	54.00	-29.45	210	150
7310.6210	50.89	---	-2.76	48.13	---	74.00	54.00	-25.87	310	150
9751.5030	37.65	---	12.81	50.46	---	74.00	54.00	-23.54	140	150



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Mode: 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)
166.3528	25.56	peak	15.11	40.67	43.50	-2.83	290	150
406.6133	11.98	peak	19.01	30.99	46.00	-15.01	140	150
988.7776	7.26	peak	29.07	36.33	54.00	-17.67	120	150

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4924.0000	45.11	---	-4.89	40.22	---	74.00	54.00	-33.78	130	150
7386.0000	47.30	---	-3.09	44.21	---	74.00	54.00	-29.79	230	150
9846.6930	36.19	---	13.02	49.21	---	74.00	54.00	-24.79	290	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
166.3528	26.38	peak	15.11	41.49	43.50	-2.01	210	150
406.6133	9.28	peak	19.01	28.29	46.00	-17.71	170	150
990.1804	7.69	peak	29.09	36.78	54.00	-17.22	340	150

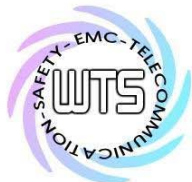
Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4921.8440	48.87	---	-4.89	43.98	---	74.00	54.00	-30.02	260	150
7390.7820	51.94	---	-3.11	48.83	---	74.00	54.00	-25.17	130	150
9846.6930	33.57	---	13.02	46.59	---	74.00	54.00	-27.41	130	150

Mode: 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)
166.3528	24.52	peak	15.11	39.63	43.50	-3.87	200	150
409.4190	10.39	peak	19.09	29.48	46.00	-16.52	120	150
984.5691	7.25	peak	29.02	36.27	54.00	-17.73	270	150



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Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4824.0000	45.89	---	-4.94	40.95	---	74.00	54.00	-33.05	100	150
7236.0000	48.47	---	-2.37	46.10	---	74.00	54.00	-27.90	170	150
9646.7940	32.99	---	12.84	45.83	---	74.00	54.00	-28.17	220	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
166.3528	26.36	peak	15.11	41.47	43.50	-2.03	210	150
409.4190	9.25	peak	19.09	28.34	46.00	-17.66	230	150
992.9860	7.48	peak	29.13	36.61	54.00	-17.39	210	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4824.0000	45.71	---	-4.94	40.77	---	74.00	54.00	-33.23	210	150
7246.4930	50.44	---	-2.43	48.01	---	74.00	54.00	-25.99	260	150
9646.7940	34.93	---	12.84	47.77	---	74.00	54.00	-26.23	170	150

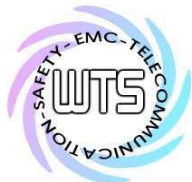
Mode: 802.11g CH6

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
166.3528	25.28	peak	15.11	40.39	43.50	-3.11	130	150
408.0161	9.90	peak	19.05	28.95	46.00	-17.05	130	150
988.7776	7.74	peak	29.07	36.81	54.00	-17.19	240	150

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4874.0000	46.80	---	-4.86	41.94	---	74.00	54.00	-32.06	140	150
7311.0000	48.36	---	-2.76	45.60	---	74.00	54.00	-28.40	320	150
9751.5030	33.11	---	12.81	45.92	---	74.00	54.00	-28.08	230	150



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Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
166.3528	21.05	peak	15.11	36.16	43.50	-7.34	190	150
406.6133	8.66	peak	19.01	27.67	46.00	-18.33	230	150
987.3748	7.38	peak	29.06	36.44	54.00	-17.56	100	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4874.0000	46.32	---	-4.86	41.46	---	74.00	54.00	-32.54	240	150
7318.6370	50.62	---	-2.79	47.83	---	74.00	54.00	-26.17	140	150
9751.5030	33.34	---	12.81	46.15	---	74.00	54.00	-27.85	100	150

Mode: 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)
166.3528	24.87	peak	15.11	39.98	43.50	-3.52	100	150
409.4190	9.99	peak	19.09	29.08	46.00	-16.92	100	150
984.5691	7.35	peak	29.02	36.37	54.00	-17.63	60	150

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4924.0000	45.71	---	-4.89	40.82	---	74.00	54.00	-33.18	210	150
7386.0000	49.48	---	-3.09	46.39	---	74.00	54.00	-27.61	260	150
9848.0000	31.93	---	13.02	44.95	---	74.00	54.00	-29.05	300	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
166.3528	26.87	peak	15.11	41.98	43.50	-1.52	230	150
405.2105	8.57	peak	18.97	27.54	46.00	-18.46	170	150
987.3748	7.12	peak	29.06	36.18	54.00	-17.82	210	150



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Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4924.0000	45.91	---	-4.89	41.02	---	74.00	54.00	-32.98	230	150
7382.7660	51.63	---	-3.07	48.56	---	74.00	54.00	-25.44	100	150
9846.6930	34.44	---	13.02	47.46	---	74.00	54.00	-26.54	280	150

Mode: 802.11n CH1

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
166.3528	25.20	peak	15.11	40.31	43.50	-3.19	200	150
408.0161	9.98	peak	19.05	29.03	46.00	-16.97	130	150
970.5411	7.47	peak	28.84	36.31	54.00	-17.69	100	150

Polarization: Horizontal

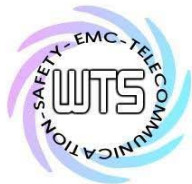
Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4824.0000	45.79	---	-4.94	40.85	---	74.00	54.00	-33.15	270	150
7236.0000	48.59	---	-2.37	46.22	---	74.00	54.00	-27.78	190	150
9646.7940	33.06	---	12.84	45.90	---	74.00	54.00	-28.10	110	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
166.3528	26.09	peak	15.11	41.20	43.50	-2.30	190	150
402.4050	8.68	peak	18.90	27.58	46.00	-18.42	210	150
985.9720	7.60	peak	29.04	36.64	54.00	-17.36	280	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4824.0000	45.87	---	-4.94	40.93	---	74.00	54.00	-33.07	230	150
7236.0000	48.31	---	-2.37	45.94	---	74.00	54.00	-28.06	140	150
9648.0000	30.85	---	12.83	43.68	---	74.00	54.00	-30.32	240	150



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Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Mode: 802.11n CH6

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
166.3528	24.89	peak	15.11	40.00	43.50	-3.50	290	150
406.6133	9.26	peak	19.01	28.27	46.00	-17.73	230	150
991.5832	7.53	peak	29.11	36.64	54.00	-17.36	100	150

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4874.0000	45.63	---	-4.86	40.77	---	74.00	54.00	-33.23	100	150
7311.0000	47.93	---	-2.76	45.17	---	74.00	54.00	-28.83	230	150
9748.0000	30.16	---	12.80	42.96	---	74.00	54.00	-31.04	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)
166.3528	21.32	peak	15.11	36.43	43.50	-7.07	130	150
405.2105	7.98	peak	18.97	26.95	46.00	-19.05	130	150
973.3467	7.15	peak	28.87	36.02	54.00	-17.98	180	150

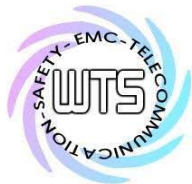
Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4889.7800	47.35	---	-4.84	42.51	---	74.00	54.00	-31.49	120	150
7310.6210	50.80	---	-2.76	48.04	---	74.00	54.00	-25.96	300	150
9748.0000	31.00	---	12.80	43.80	---	74.00	54.00	-30.20	270	150

Mode: 802.11n CH11

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
166.3528	24.69	peak	15.11	39.80	43.50	-3.70	280	150
403.8077	10.17	peak	18.93	29.10	46.00	-16.90	290	150
983.1663	7.73	peak	29.00	36.73	54.00	-17.27	240	150



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Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4924.0000	46.09	---	-4.89	41.20	---	74.00	54.00	-32.80	100	150
7386.0000	49.66	---	-3.09	46.57	---	74.00	54.00	-27.43	130	150
9848.0000	30.20	---	13.02	43.22	---	74.00	54.00	-30.78	170	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
166.3528	26.08	peak	15.11	41.19	43.50	-2.31	280	150
408.0161	9.19	peak	19.05	28.24	46.00	-17.76	210	150
991.5832	7.48	peak	29.11	36.59	54.00	-17.41	250	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4924.0000	45.47	---	-4.89	40.58	---	74.00	54.00	-33.42	130	150
7386.0000	49.21	---	-3.09	46.12	---	74.00	54.00	-27.88	280	150
9848.0000	30.66	---	13.02	43.68	---	74.00	54.00	-30.32	100	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 044



Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

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 802.11b

Test conditions		Attenuation at or outside band-edges	
		Lower Band-edge	Upper Band-edge
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 120\text{ V}$	45.39 dB	53.52 dB

Mode 802.11g

Test conditions		Attenuation at or outside band-edges	
		Lower Band-edge	Upper Band-edge
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 120\text{ V}$	41.21 dB	44.12 dB

Mode 802.11n

Test conditions		Attenuation at or outside band-edges	
		Lower Band-edge	Upper Band-edge
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 120\text{ V}$	37.77 dB	43.52 dB

Limit:

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

Test equipment used: ETSTW-RE 055

Explanation: Please see attached diagram as appendix.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

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 802.11b

Test conditions		6 dB Bandwidth		
		Channel 1	Channel 6	Channel 11
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 120\text{ V}$	9.647435897MHz	9.679487179MHz	9.807692308 MHz

Mode 802.11g

Test conditions		6 dB Bandwidth		
		Channel 1	Channel 6	Channel 11
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 120\text{ V}$	16.410256410MHz	16.410256410MHz	16.378205128MHz

Mode 802.11n

Test conditions		6 dB Bandwidth		
		Channel 1	Channel 6	Channel 11
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 120\text{ V}$	17.660256410MHz	17.596153846 MHz	17.660256410 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.



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FCC ID: Z54PV-1005

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 802.11b

Test conditions		Peak Power Spectral Density (3 kHz)		
		Channel 1 [dBm]	Channel 6 [dBm]	Channel 11 [dBm]
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 120\text{ V}$	5.84	5.38	4.57

Mode 802.11g

Test conditions		Peak Power Spectral Density (3 kHz)		
		Channel 1 [dBm]	Channel 6 [dBm]	Channel 11 [dBm]
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 120\text{ V}$	-14.48	-13.94	-12.05

Mode 802.11n

Test conditions		Peak Power Spectral Density (3 kHz)		
		Channel 1 [dBm]	Channel 6 [dBm]	Channel 11 [dBm]
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 120\text{ V}$	-15.08	-13.82	-14.38

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.



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FCC ID: Z54PV-1005

3.9 Radiated Emission from Digital Part

FCC Rule: 15.109

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 018, ETSTW-RE 028,
ETSTW-RE 029, ETSTW-RE 030, ETSTW-RE 044

Explanation: This test item is not required.



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3.9 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: TROV-PV1005-001 Date: 2010/11/17
 Mode: Temperature: 24 °C Engineer: Robert
 Polarization: N Humidity: 60 %

Frequency (MHz)	Reading (dBμV)		Factor (dB) Corr.	Result (dBμV)		Limit (dBμV)		Margin (dB)
	QP	Ave.		QP	Ave.	QP	Ave.	
0.1501	48.33	20.19	10.74	59.07	30.93	65.99	55.99	-6.92
0.1791	46.66	29.94	10.76	57.42	40.70	64.53	54.53	-7.11
0.2220	43.82	26.55	10.75	54.57	37.30	62.74	52.74	-8.17
0.3632	35.71	11.70	10.70	46.41	22.40	58.65	48.65	-12.24
0.5400	30.90	13.41	10.65	41.55	24.06	56.00	46.00	-14.45
1.0074	28.84	13.57	10.38	39.22	23.95	56.00	46.00	-16.78

Polarization: L1

Frequency (MHz)	Reading (dBμV)		Factor (dB) Corr.	Result (dBμV)		Limit (dBμV)		Margin (dB)
	QP	Ave.		QP	Ave.	QP	Ave.	
0.1511	48.29	19.73	10.75	59.04	30.48	65.94	55.94	-6.90
0.1833	46.22	25.61	10.77	56.99	36.38	64.33	54.33	-7.34
0.2311	43.66	31.09	10.75	54.41	41.84	62.41	52.41	-8.00
0.2710	40.60	24.12	10.73	51.33	34.85	61.09	51.09	-9.76
0.4018	38.44	31.42	10.63	49.07	42.05	57.82	47.82	-5.77
1.4500	39.10	30.29	10.26	49.36	40.55	56.00	46.00	-5.45

- 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.



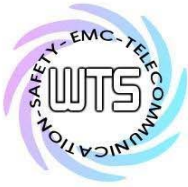
Registration number: W6D21109-11809-C-1
FCC ID: Z54PV-1005

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

Explanation: see attached diagrams in Appendix.



Appendix

1. 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

2. Photos

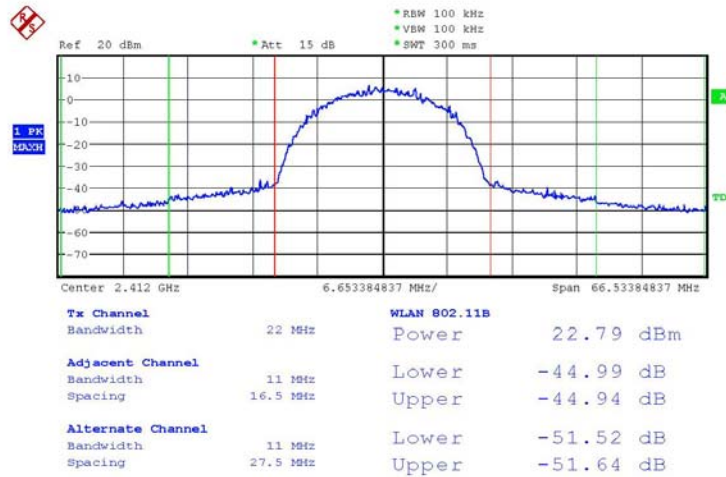
1. External Photos
2. Internal Photos
3. Set Up Photo of Radiated Emission
4. Set Up Photo of Conducted Emission



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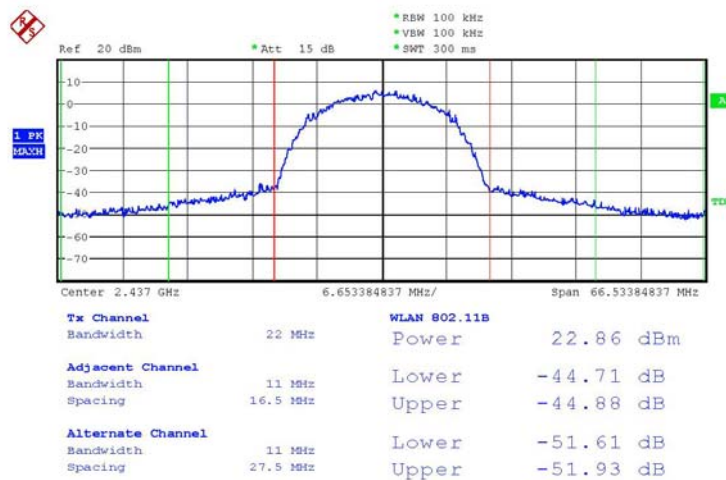
Registration number: W6D21109-11809-C-1
FCC ID: Z54PV-1005

Peak Output Power
802.11b
Channel 1



MAX OUTPUT POWER 802.11b CH1
Date: 16.NOV.2010 15:48:55

802.11b
Channel 6

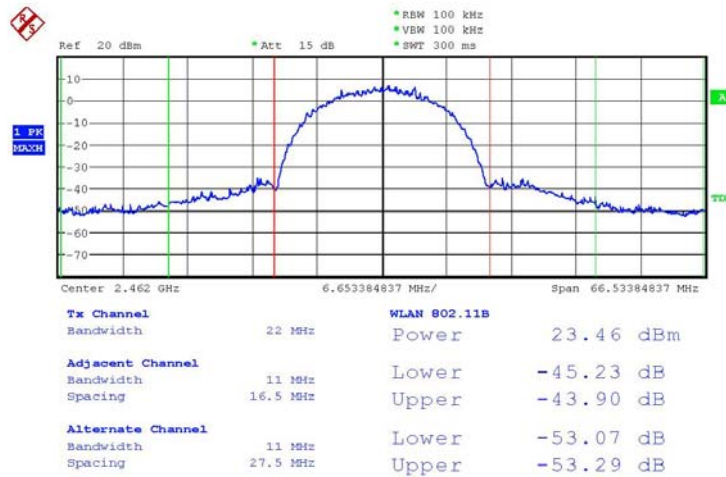


MAX OUTPUT POWER 802.11b CH6
Date: 16.NOV.2010 15:49:42



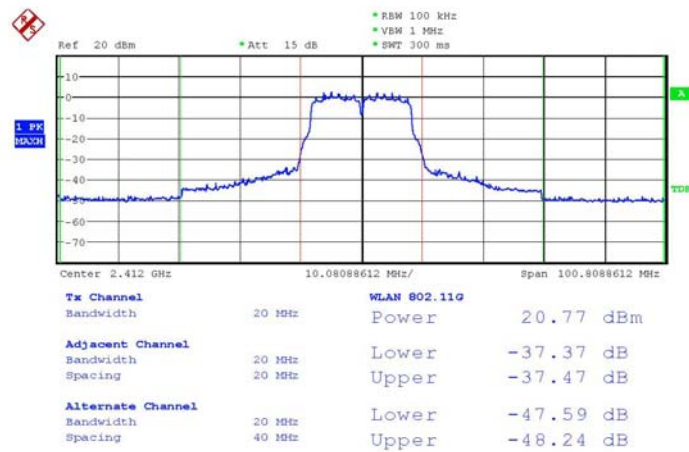
Registration number: W6D21109-11809-C-1
FCC ID: Z54PV-1005

802.11b
Channel 11



MAX OUTPUT POWER 802.11b CH11
Date: 16.NOV.2010 15:50:23

802.11g
Channel 1



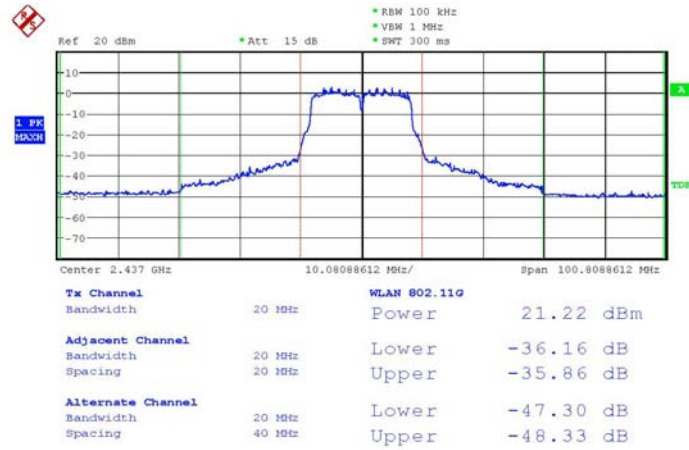
MAX OUTPUT POWER 802.11g CH1
Date: 16.NOV.2010 15:52:18



Registration number: W6D21109-11809-C-1

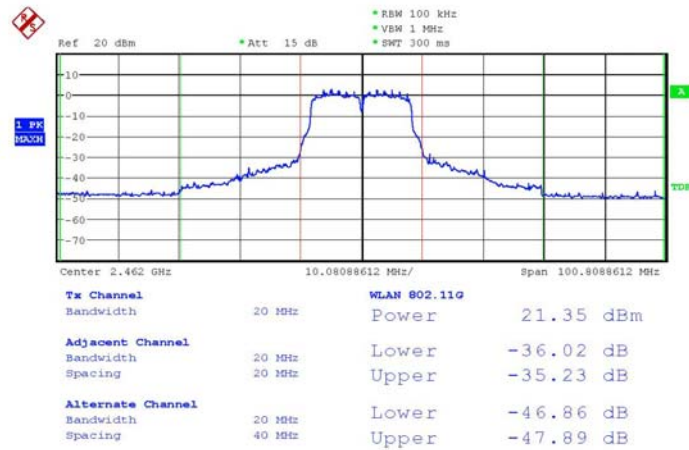
FCC ID: Z54PV-1005

Channel 6



MAX OUTPUT POWER 802.11g CH6
Date: 16.NOV.2010 15:51:47

Channel 11

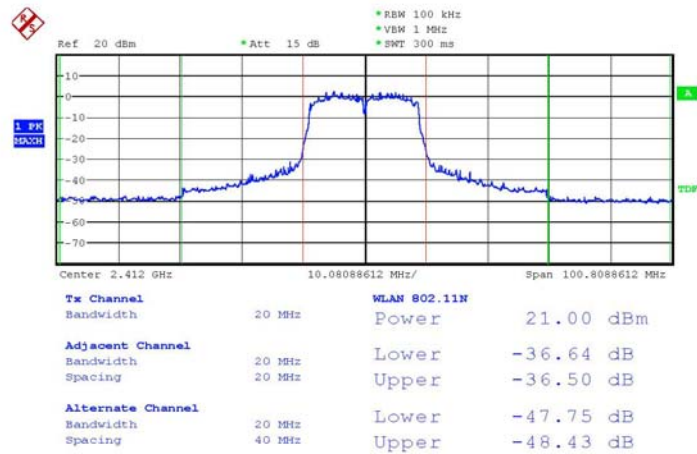


MAX OUTPUT POWER 802.11g CH11
Date: 16.NOV.2010 15:51:17



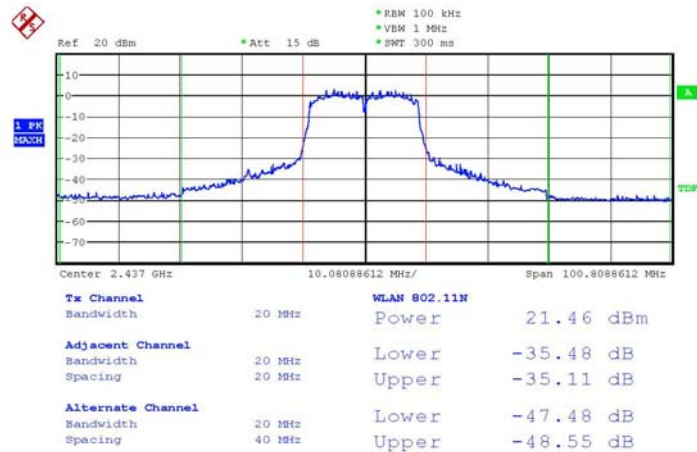
Registration number: W6D21109-11809-C-1
FCC ID: Z54PV-1005

802.11n Channel 1



MAX OUTPUT POWER 802.11n CH1
Date: 16.NOV.2010 15:52:48

Channel 6



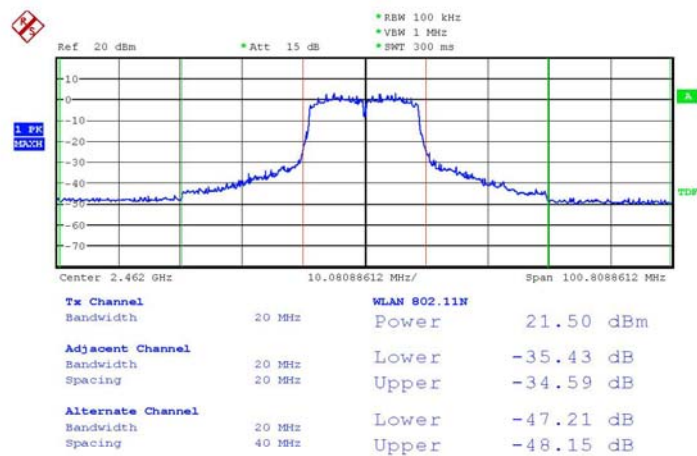
MAX OUTPUT POWER 802.11n CH6
Date: 16.NOV.2010 15:53:17



Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Channel 11



MAX OUTPUT POWER 802.11n CH11
Date: 16.NOV.2010 15:53:50



Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

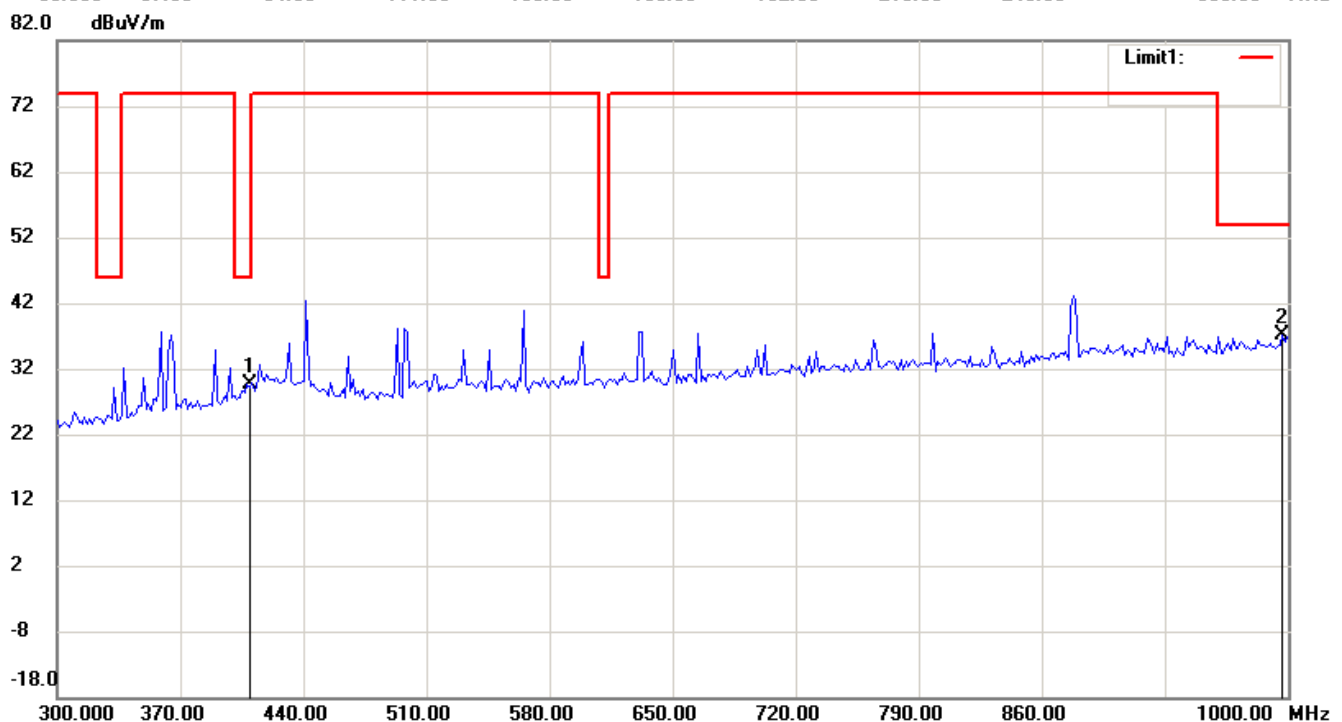
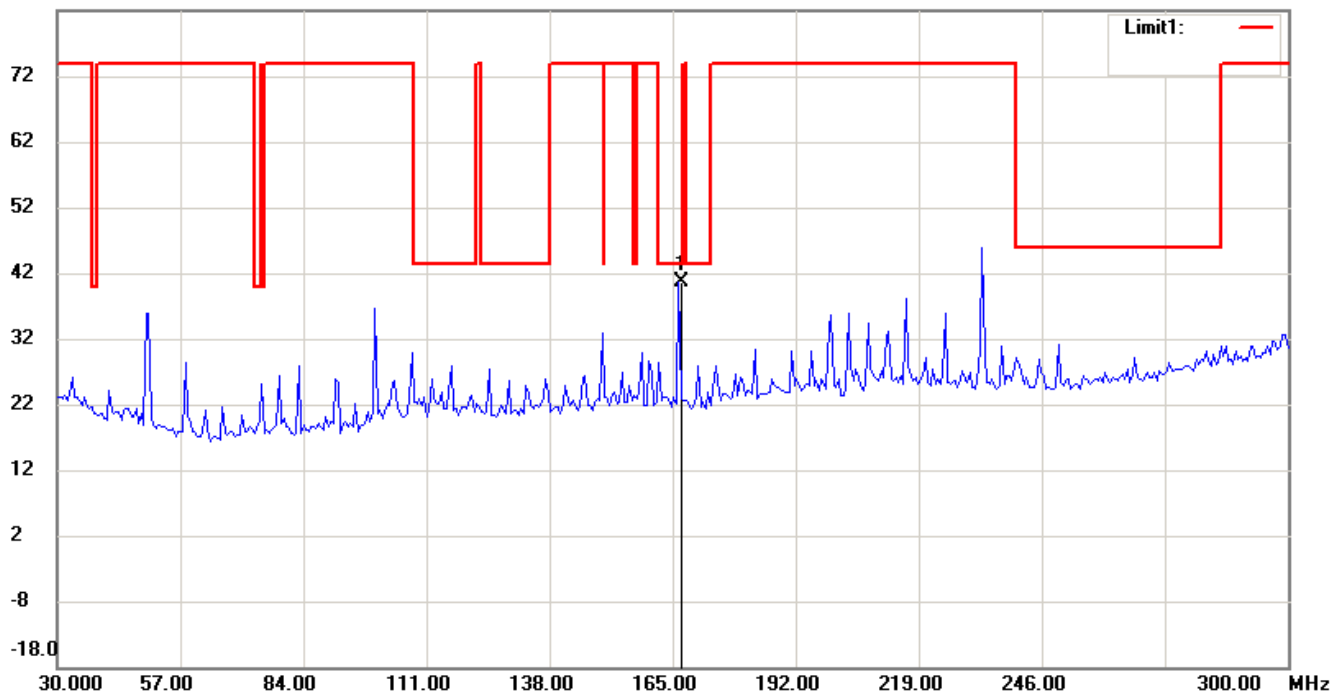
Spurious Emissions radiated

802.11b

Channel 1

Antenna Polarization H

82.0 dBuV/m



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

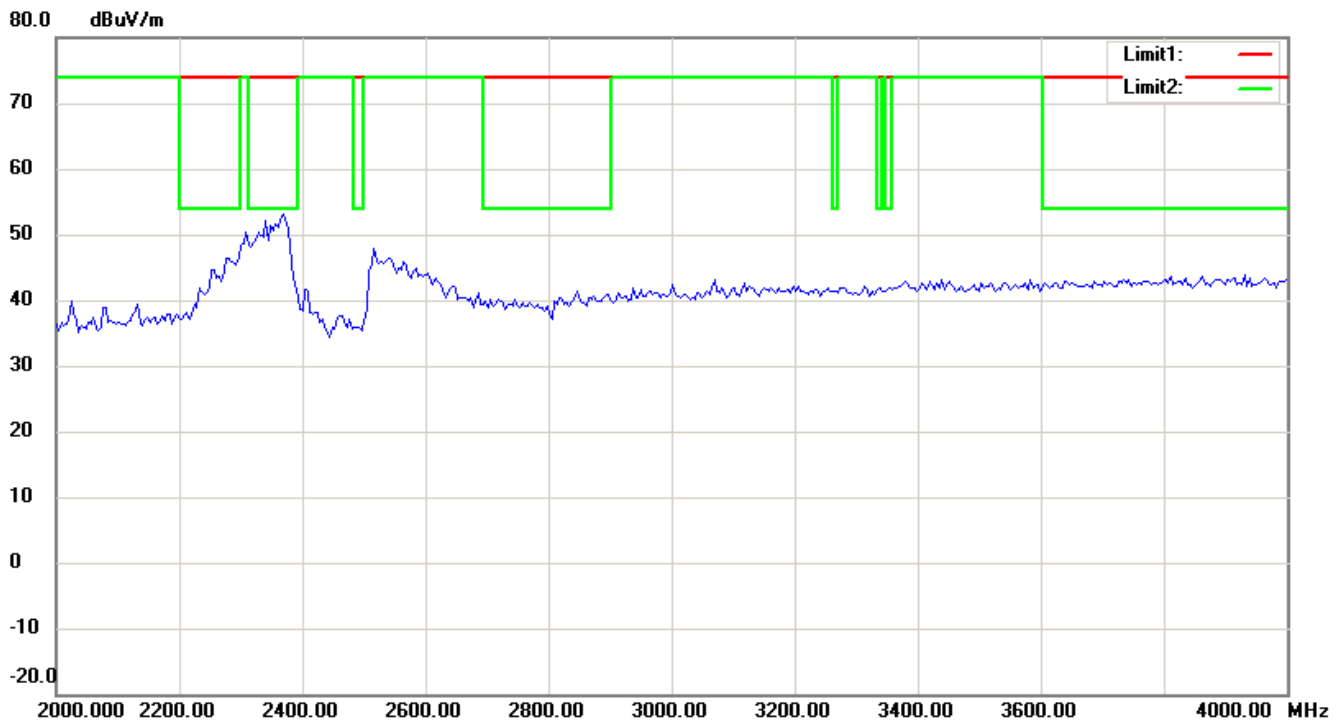
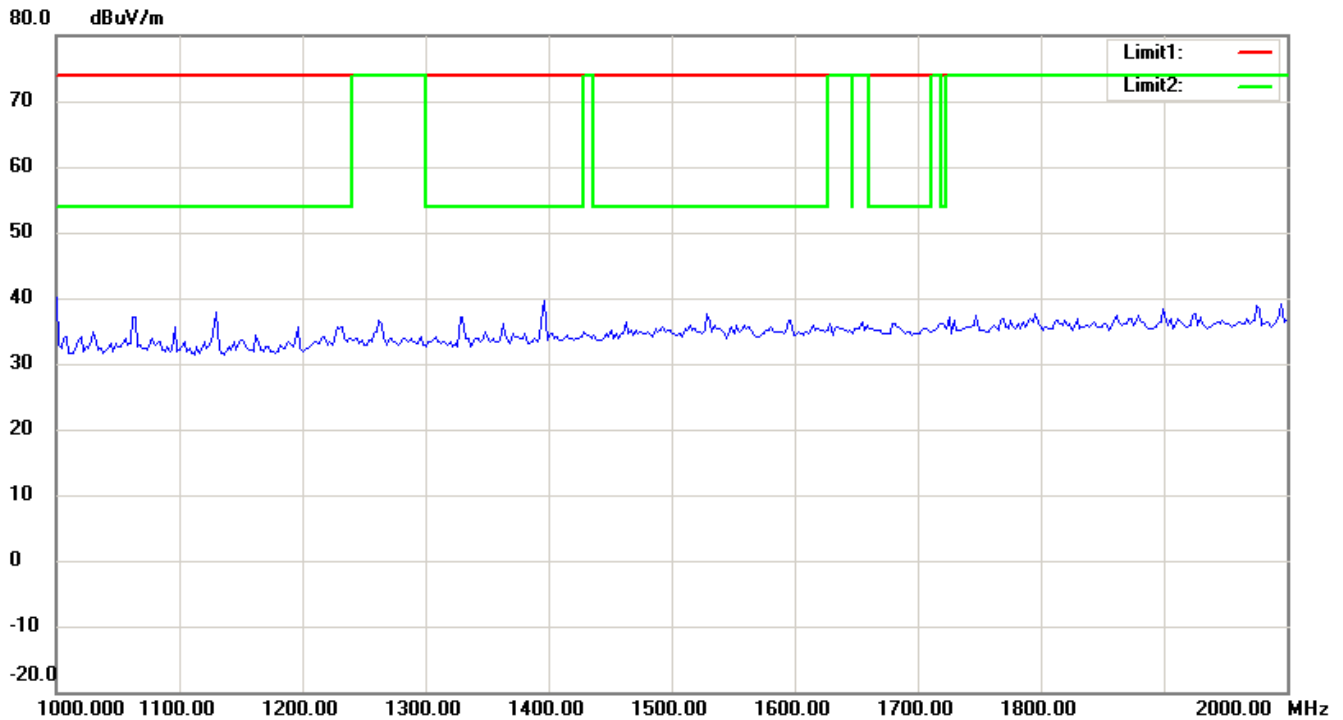
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



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Registration number: W6D21109-11809-C-1

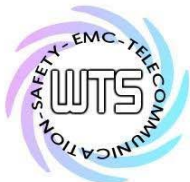
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Note:

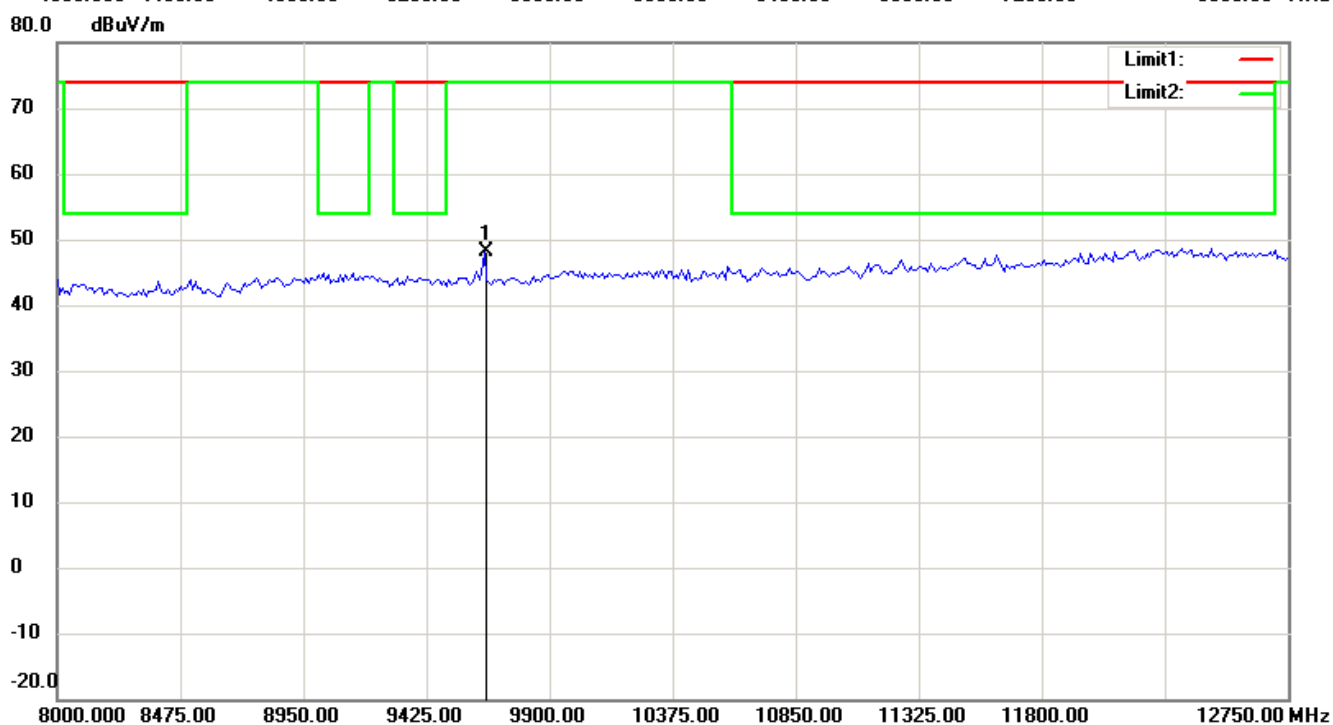
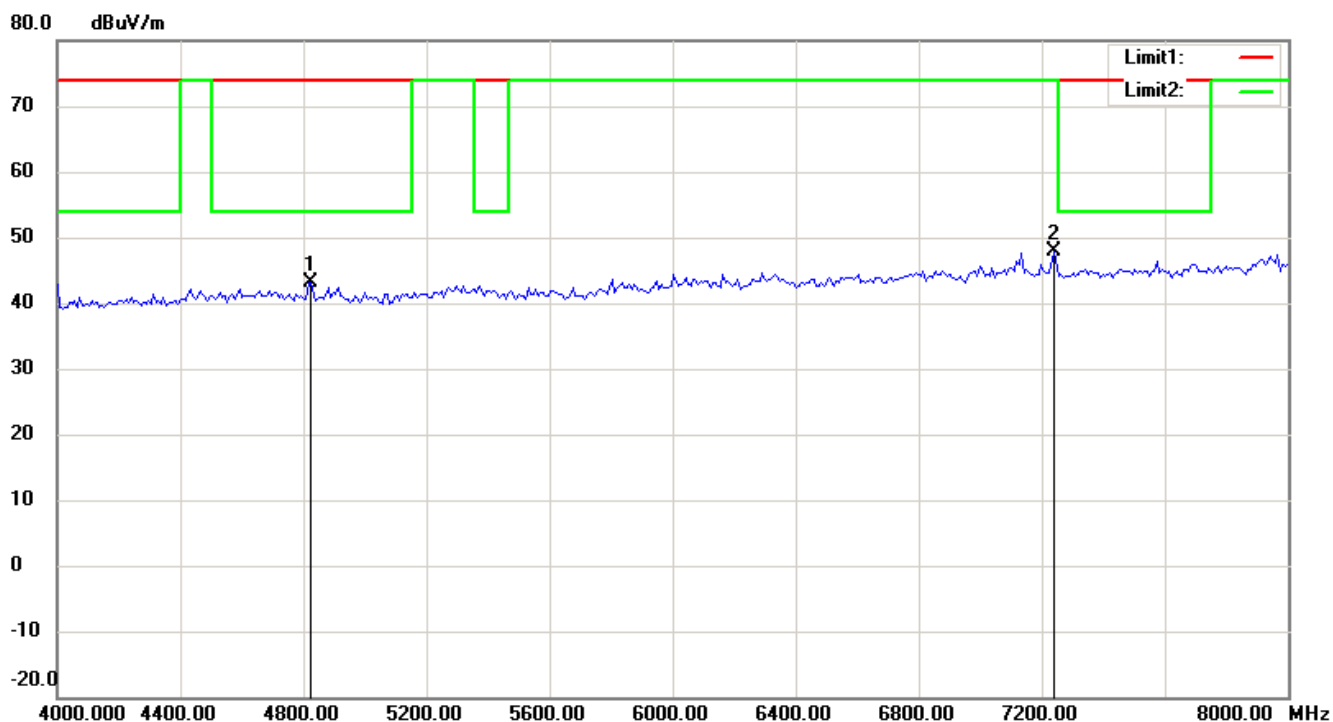
Up Line: Peak Limit Line, Down Line: Ave Limit Line

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: W6D21109-11809-C-1

FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

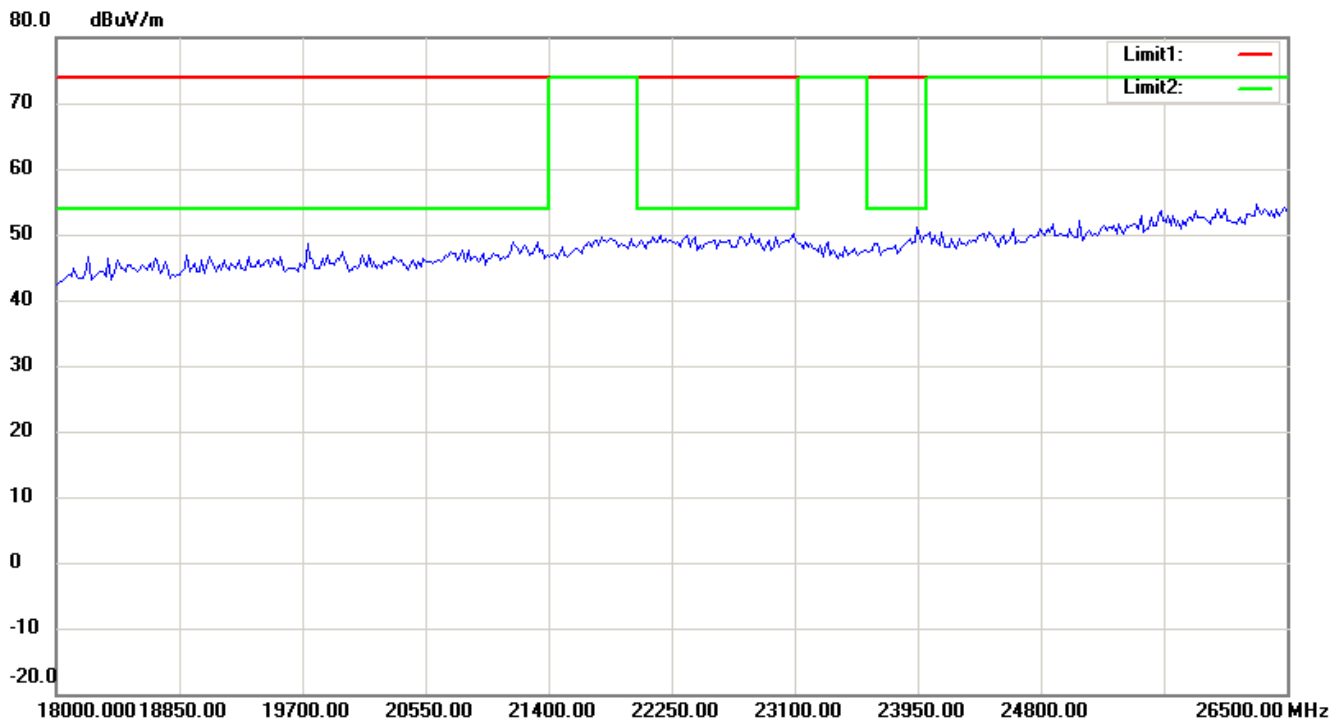
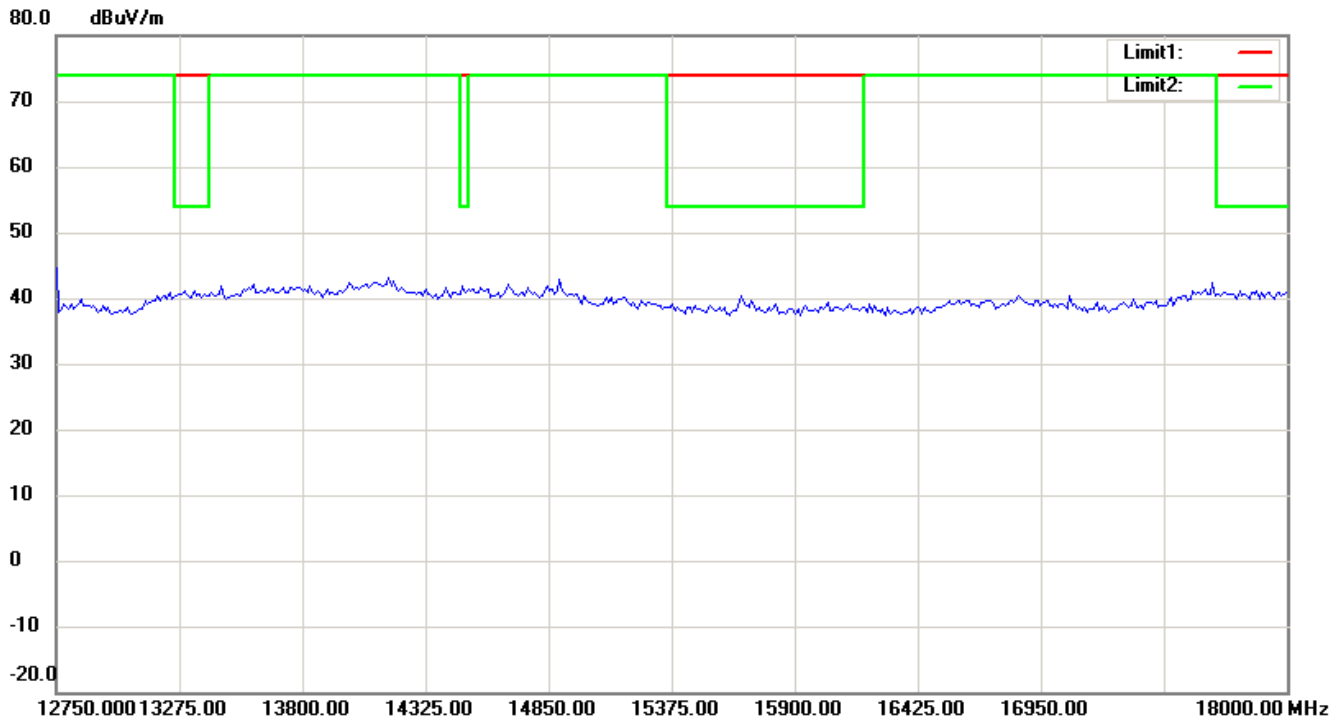
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



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.

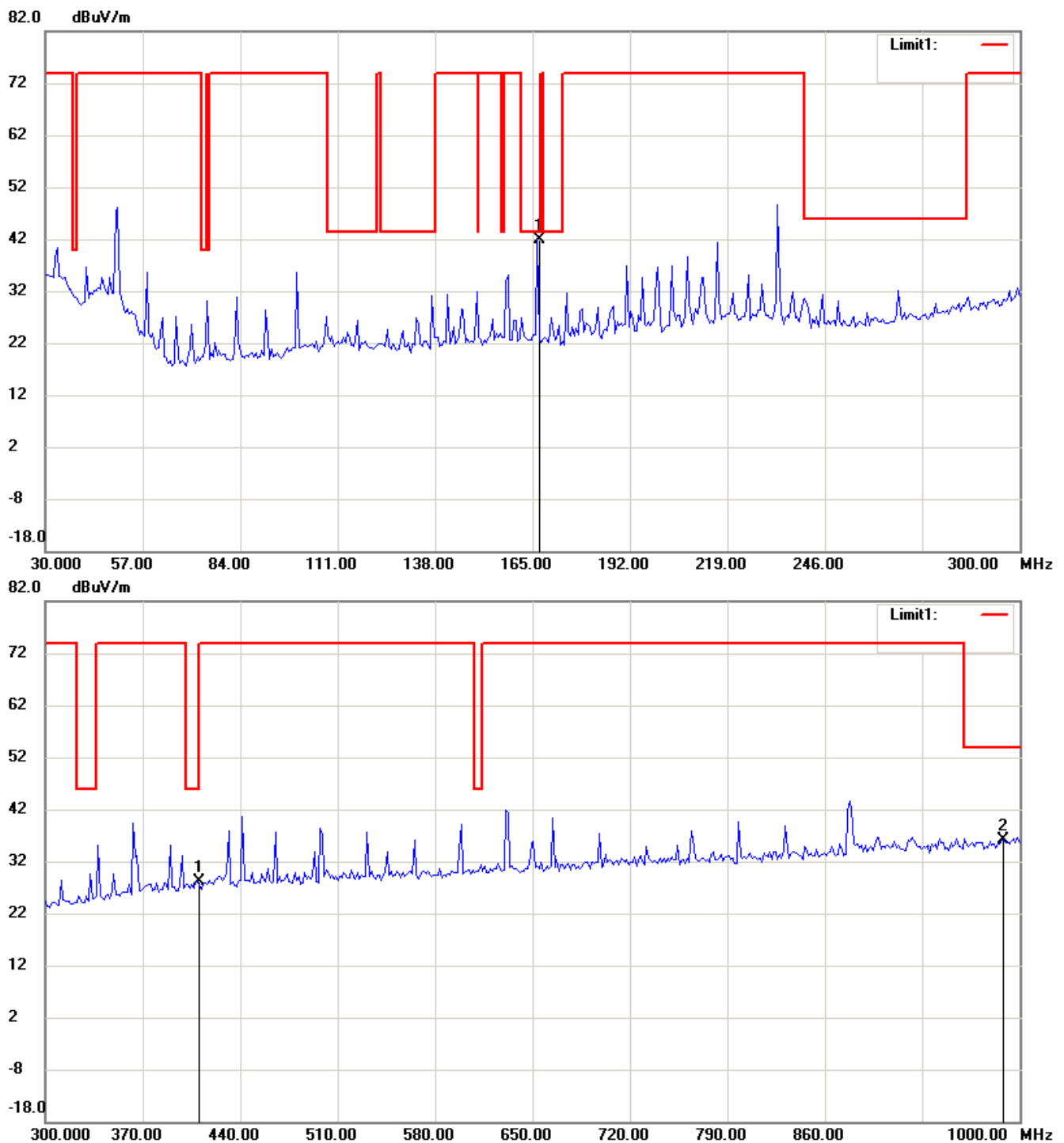


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Antenna Polarization V



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

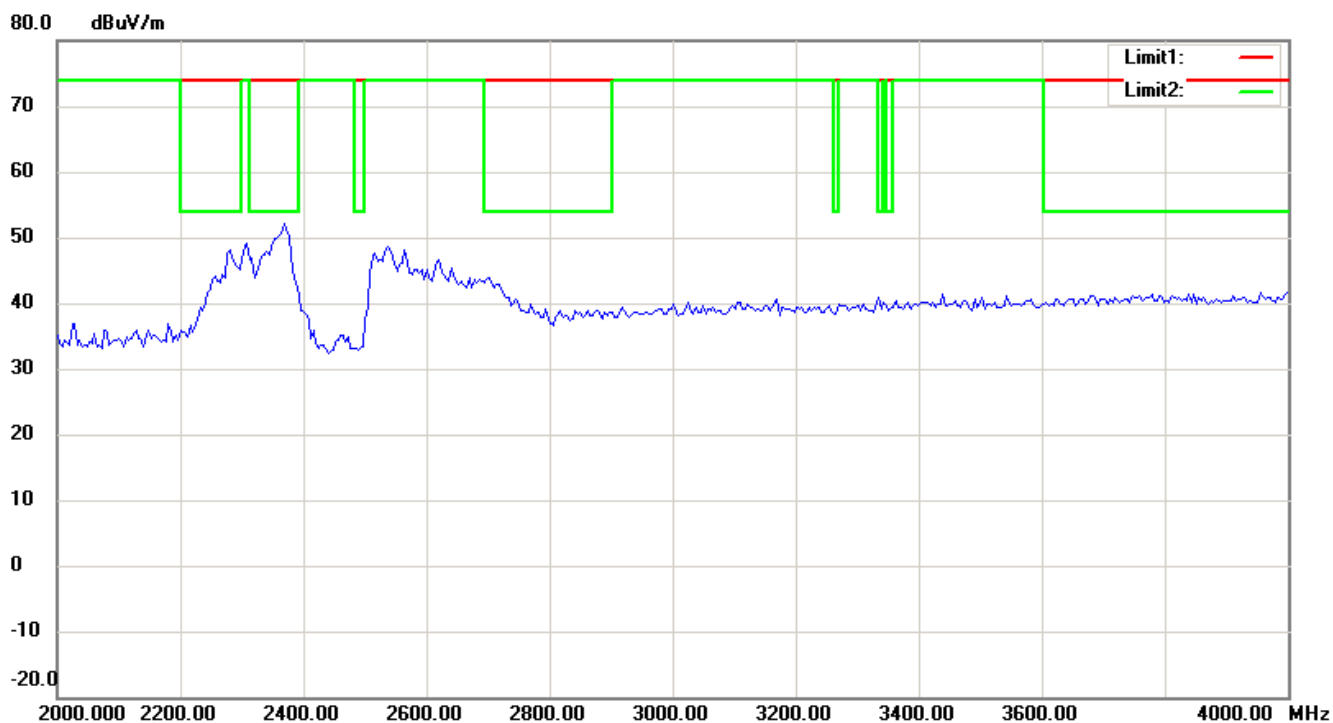
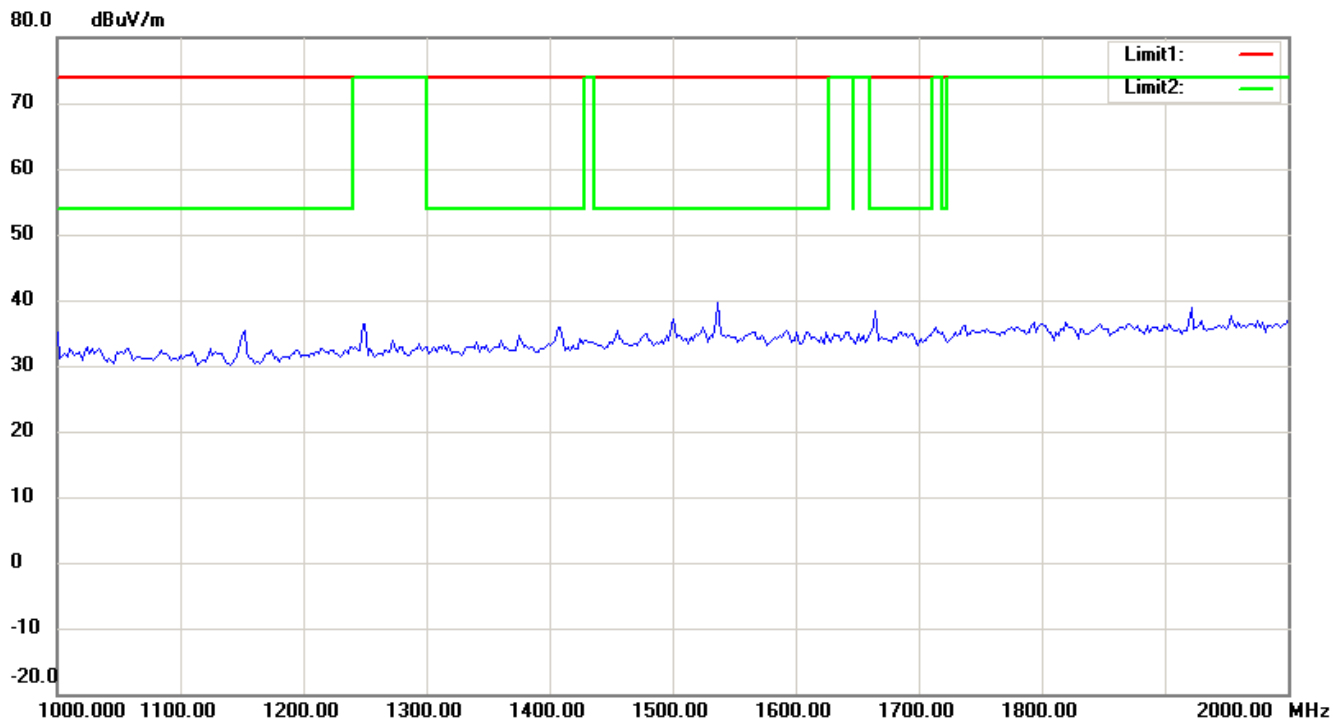
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

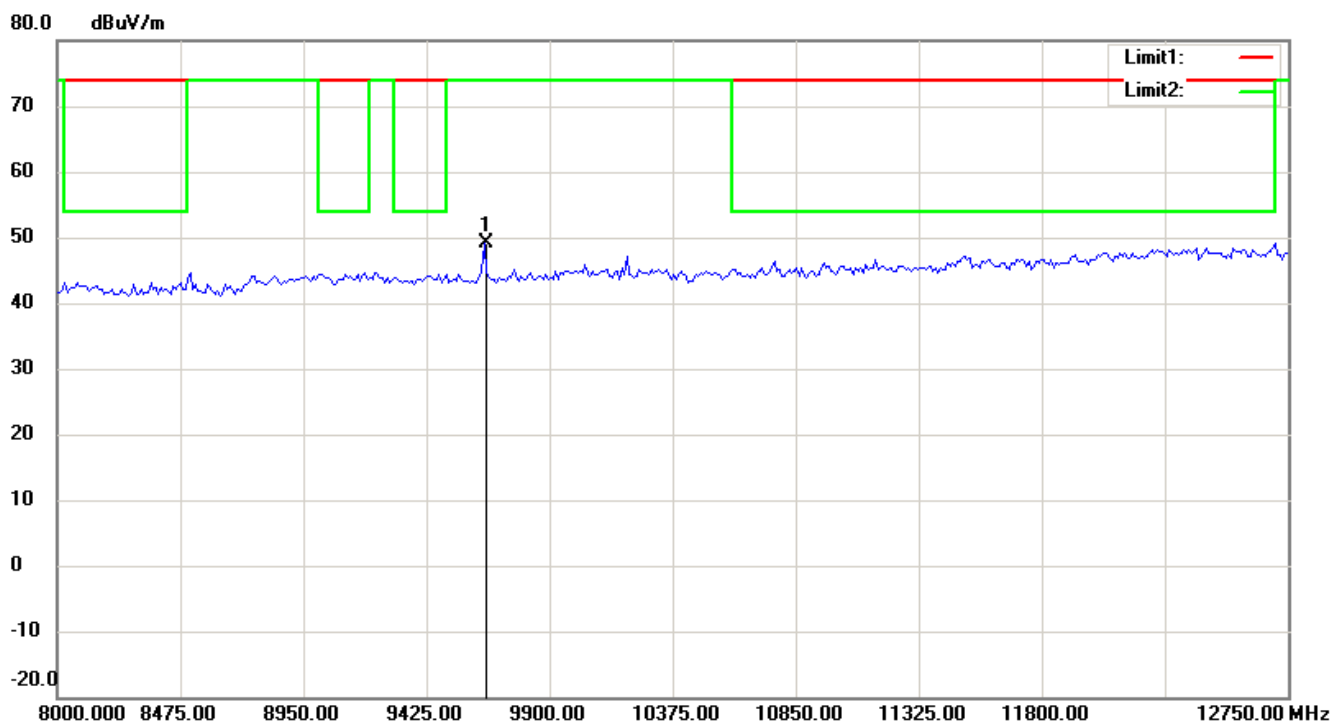
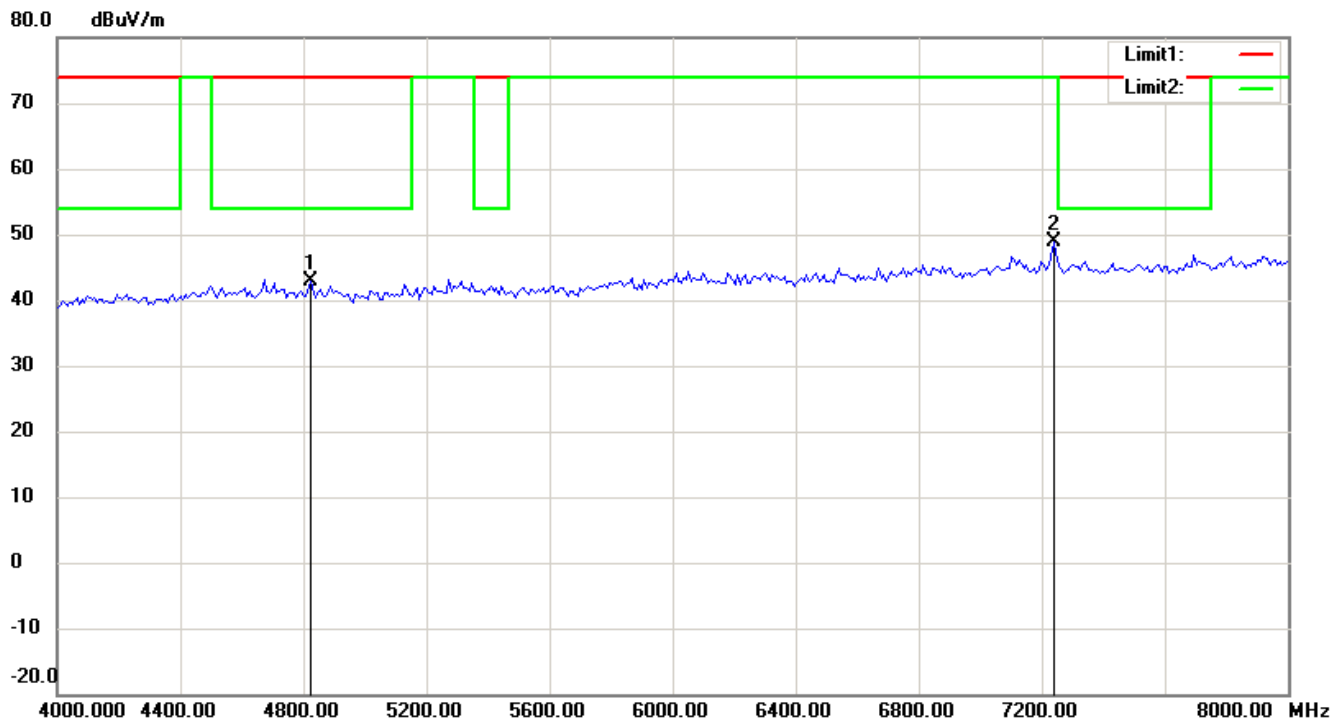
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

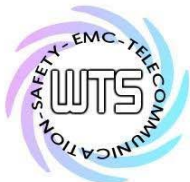
FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

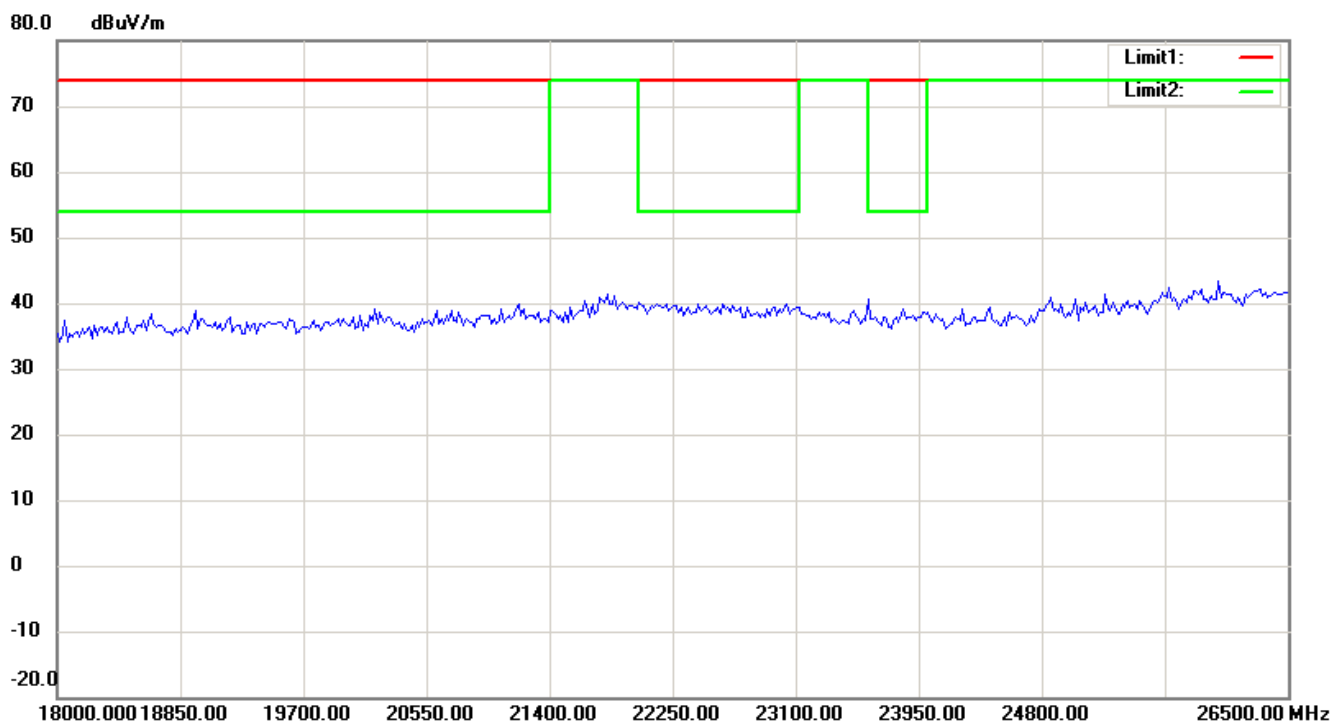
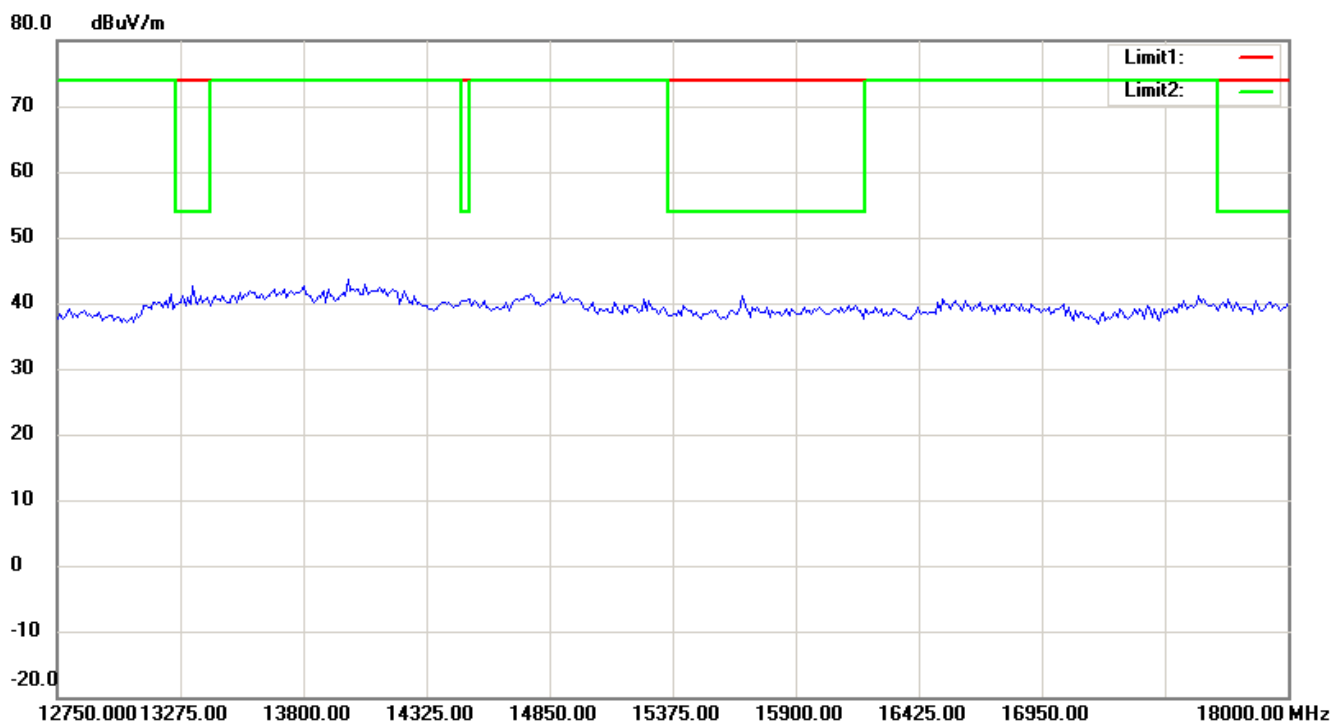
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



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Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



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.



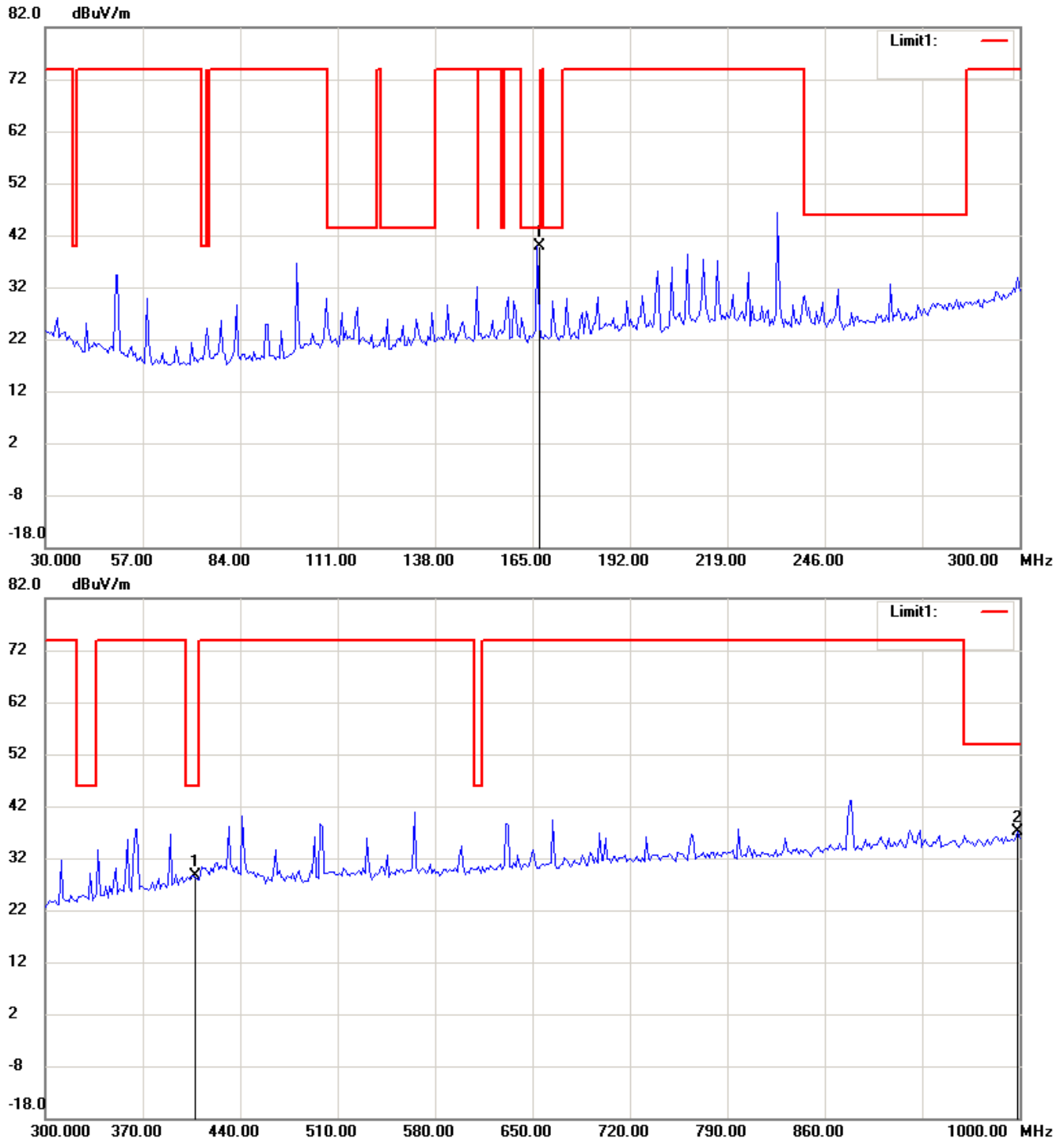
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Channel 6

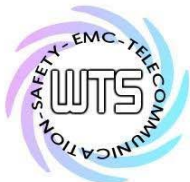
Antenna Polarization H



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

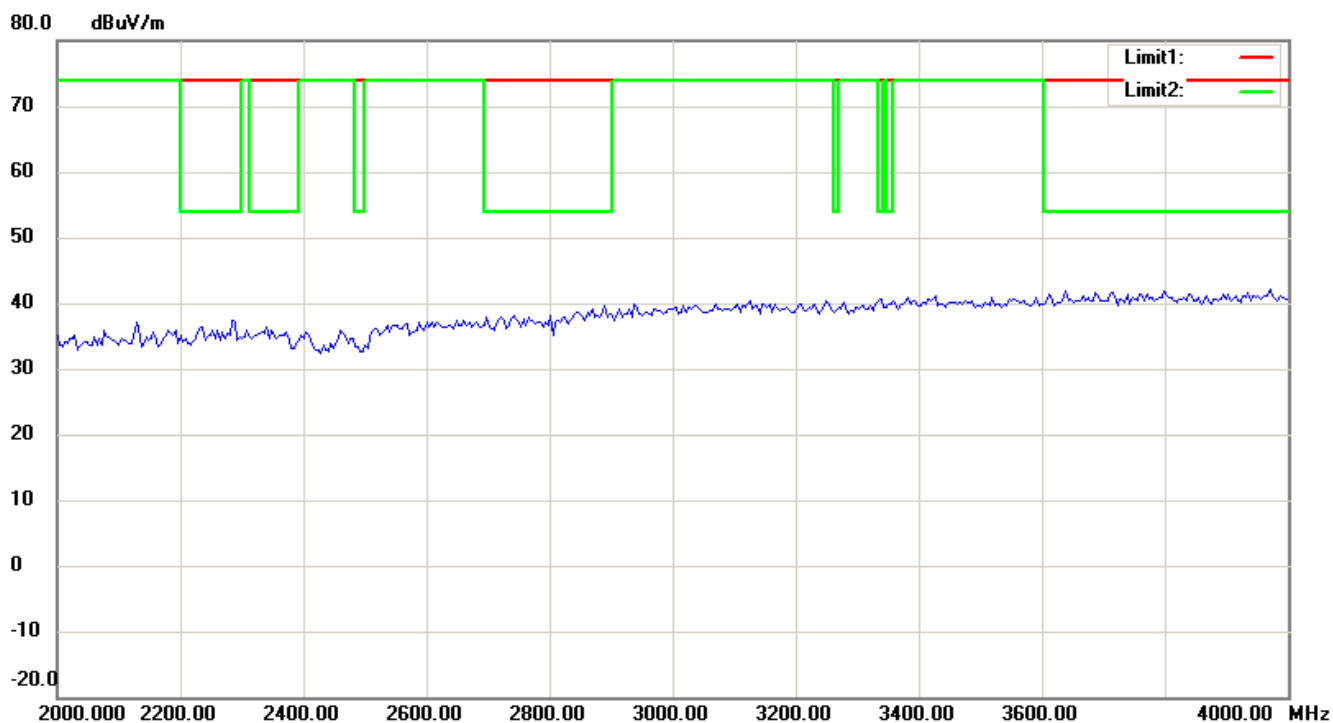
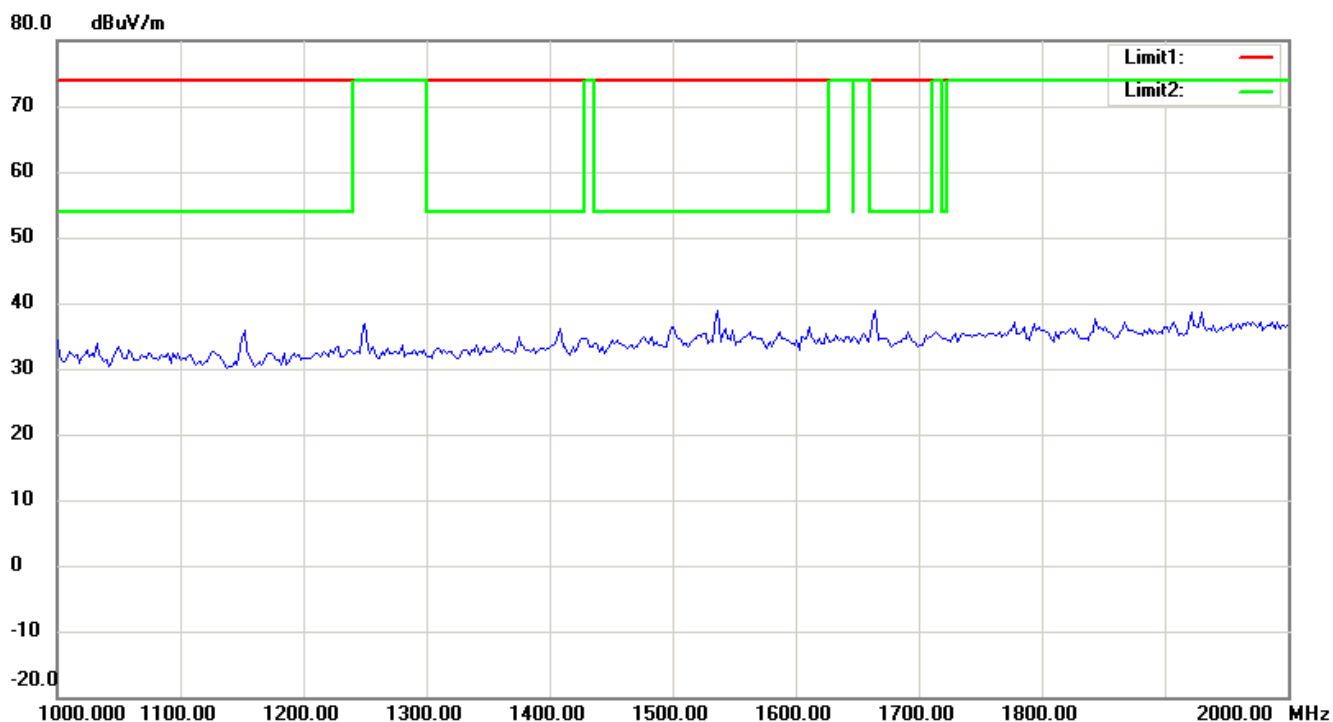
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

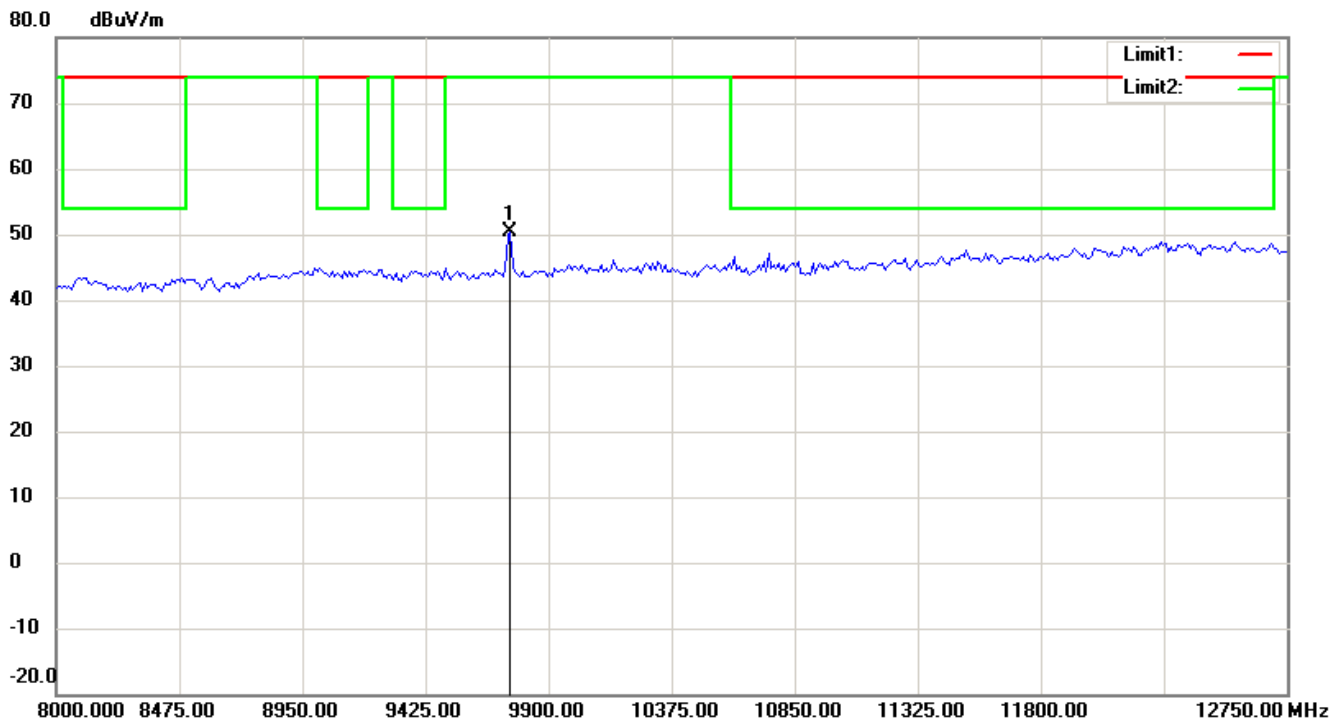
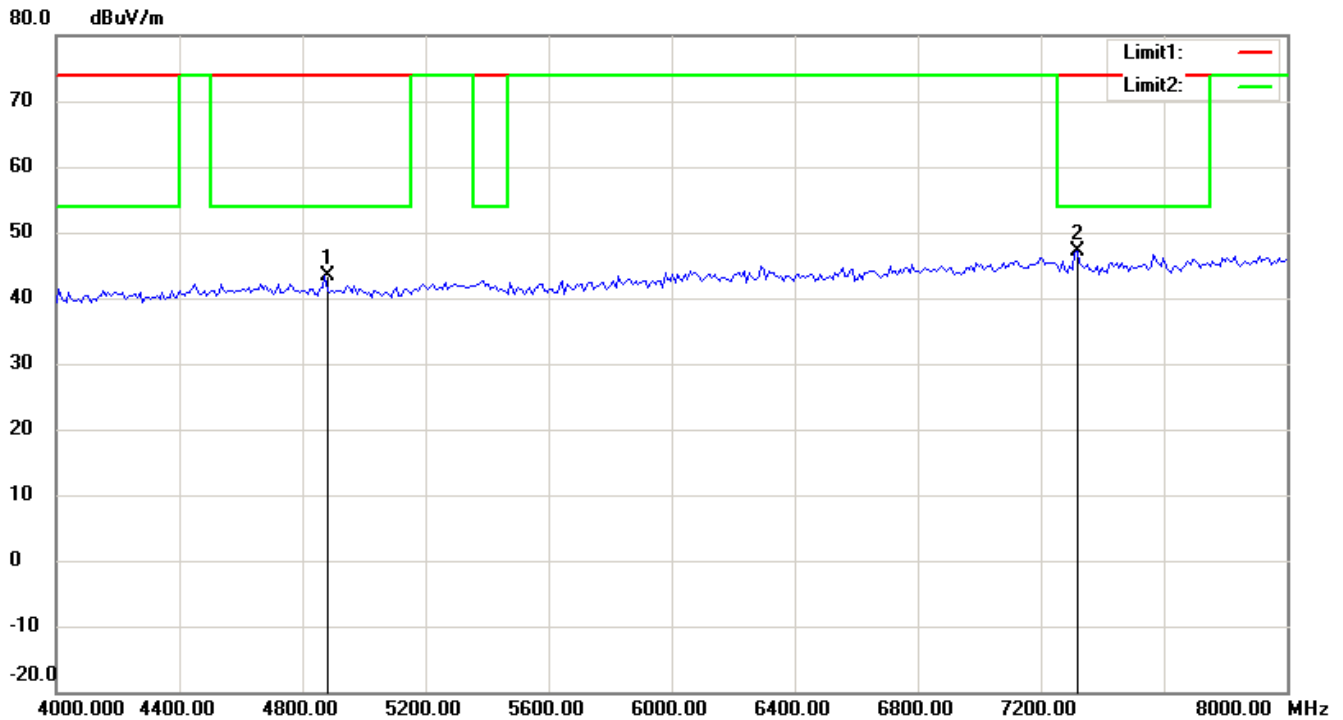
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FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

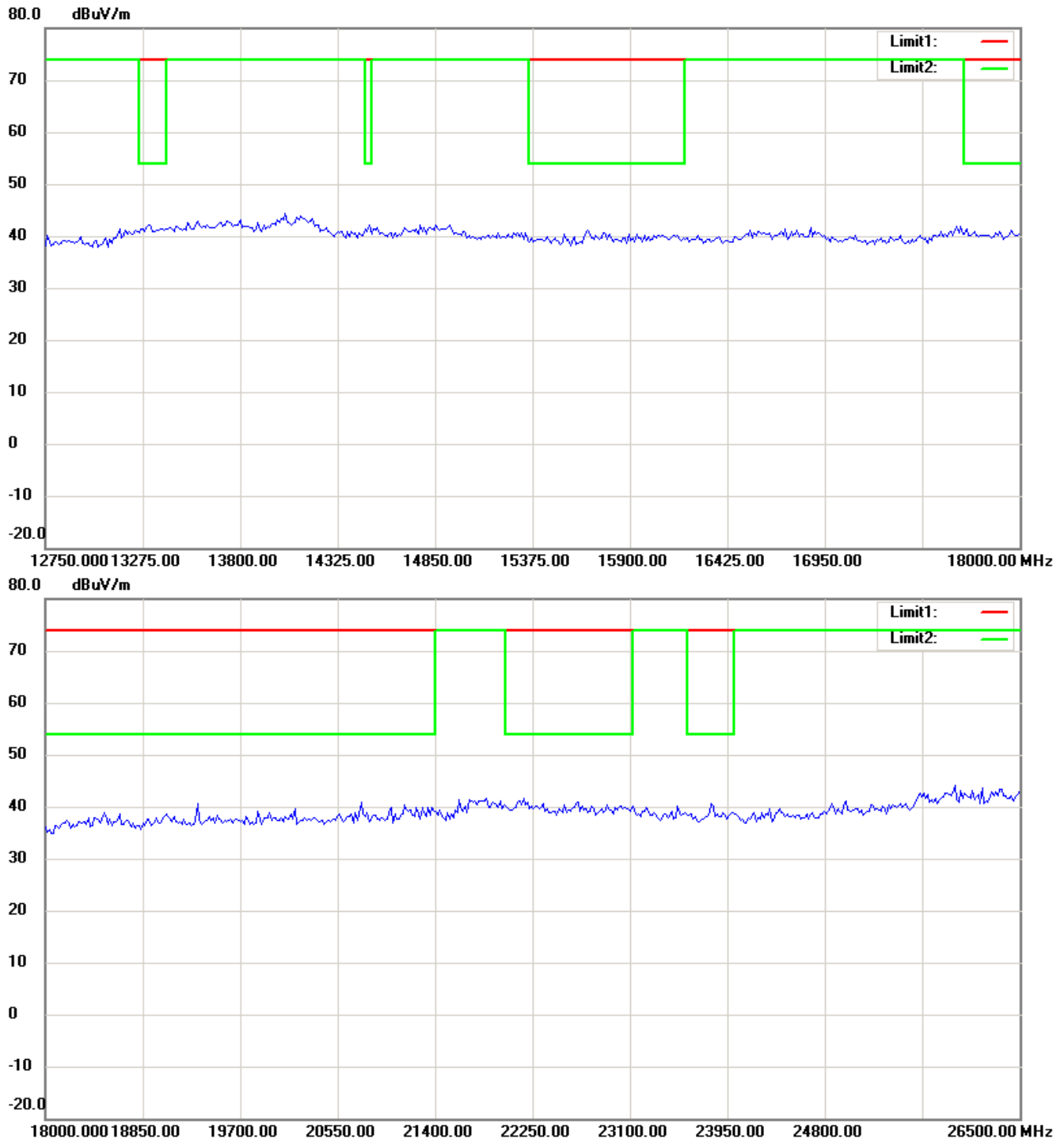
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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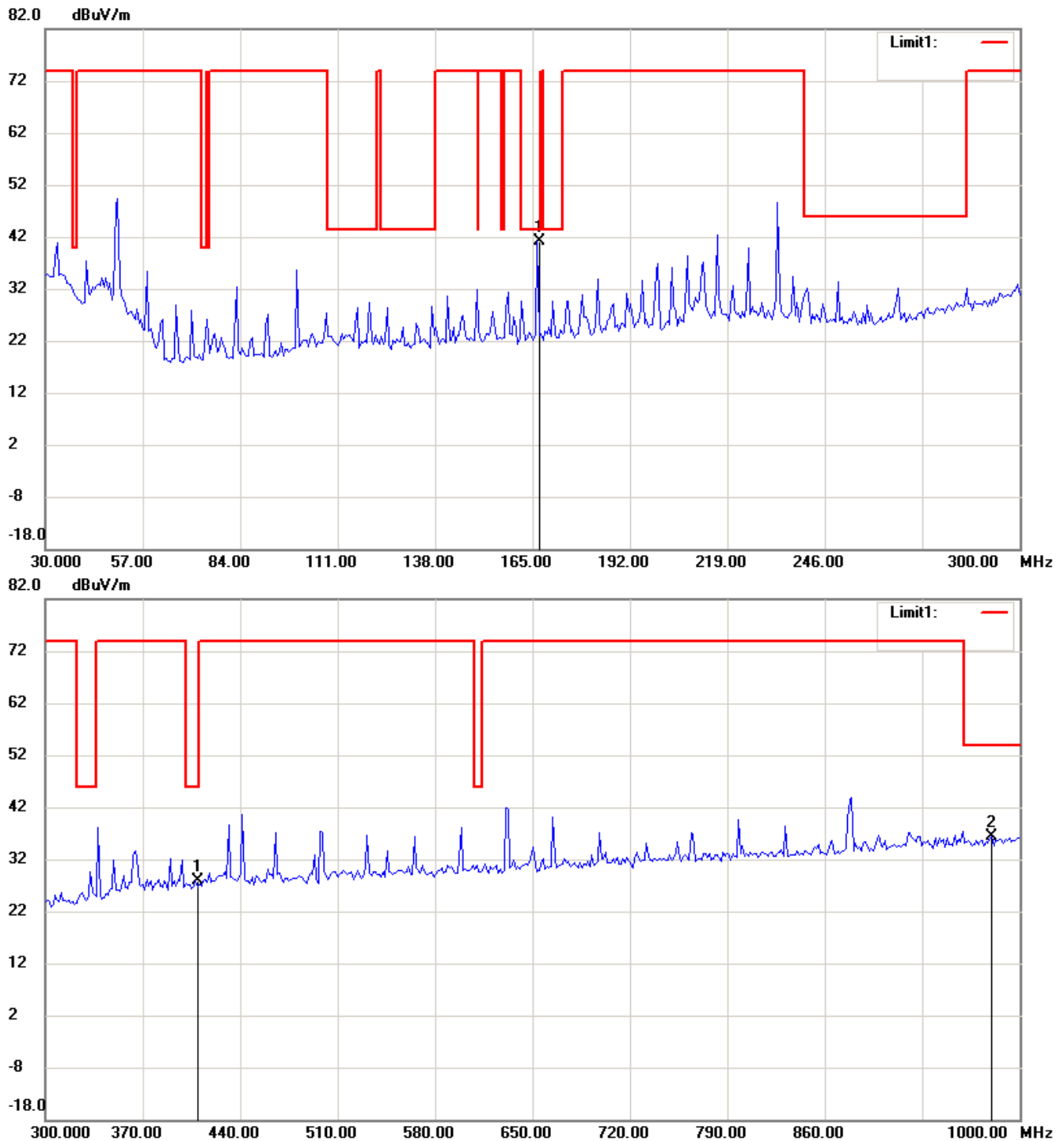


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Antenna Polarization V



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

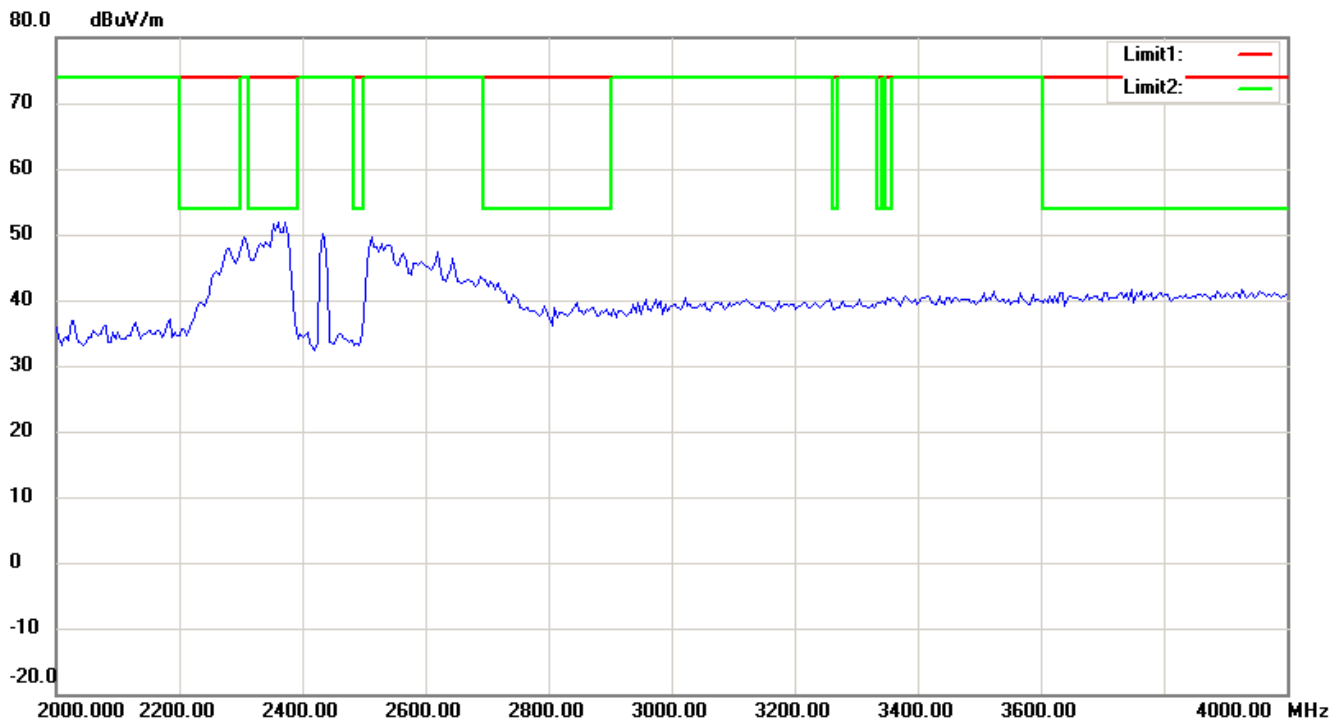
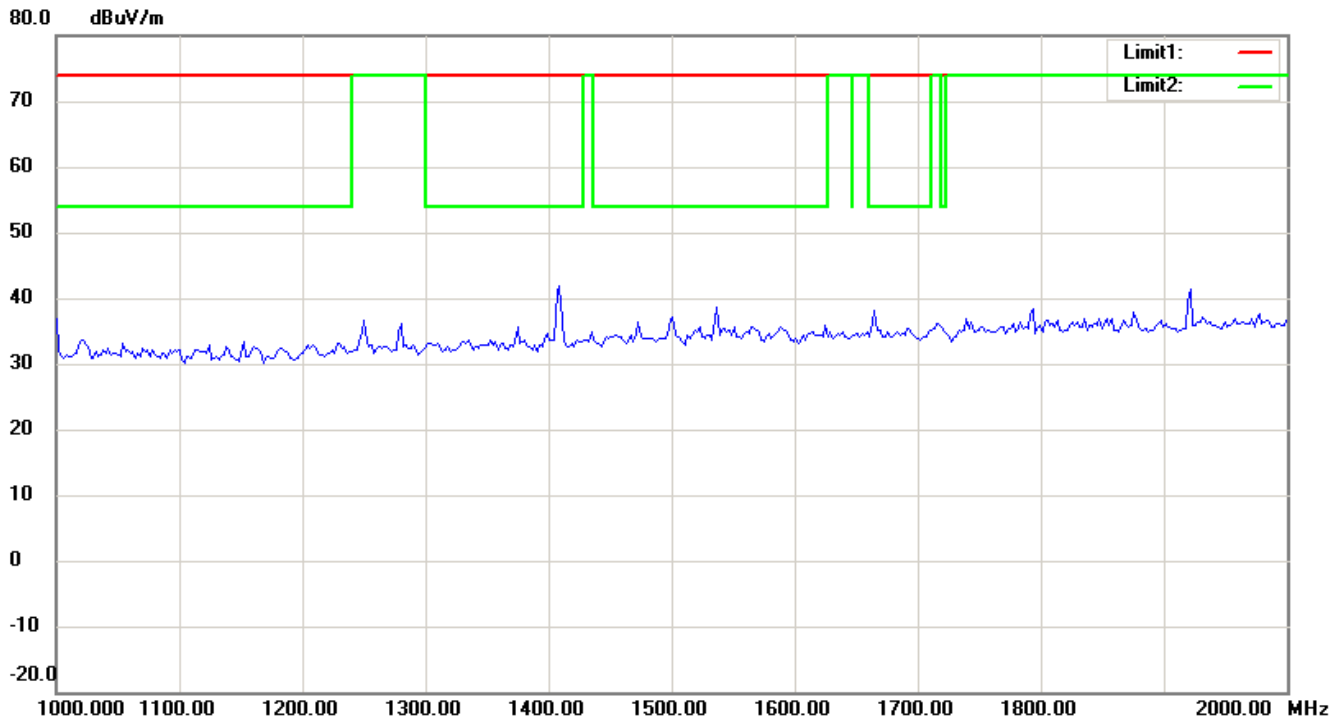
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FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

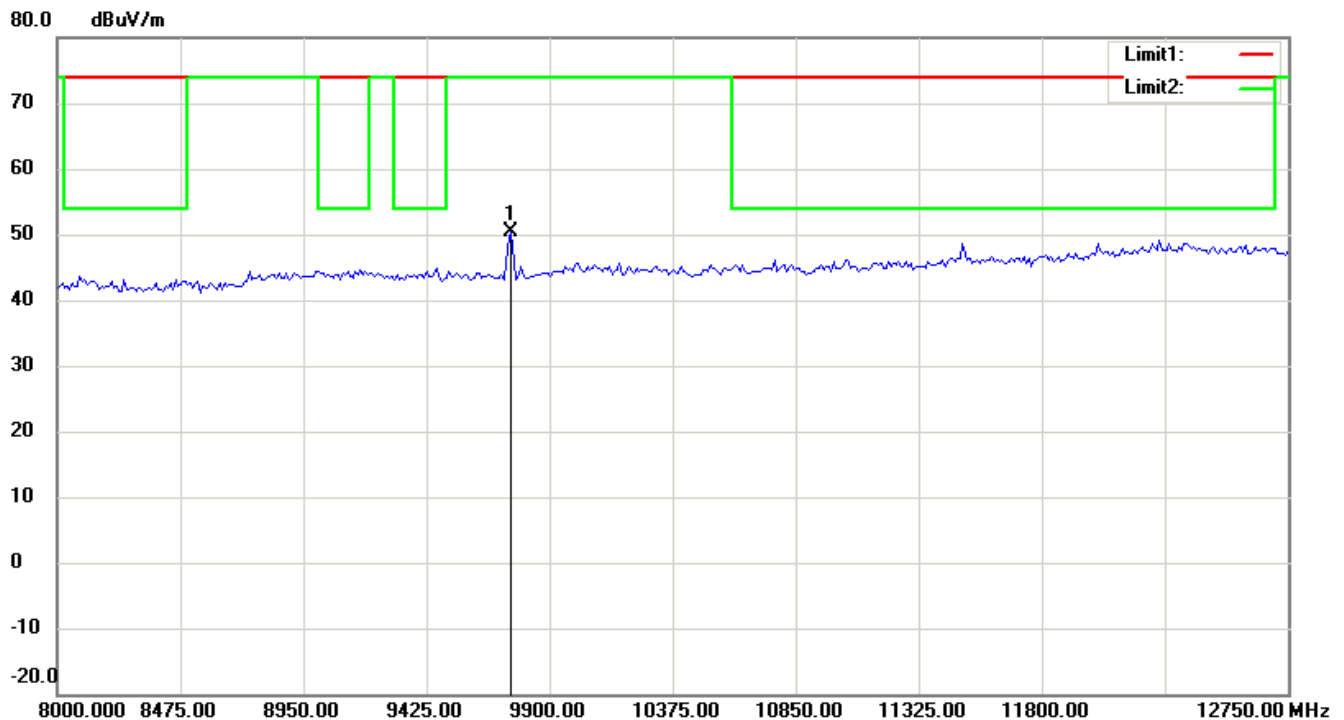
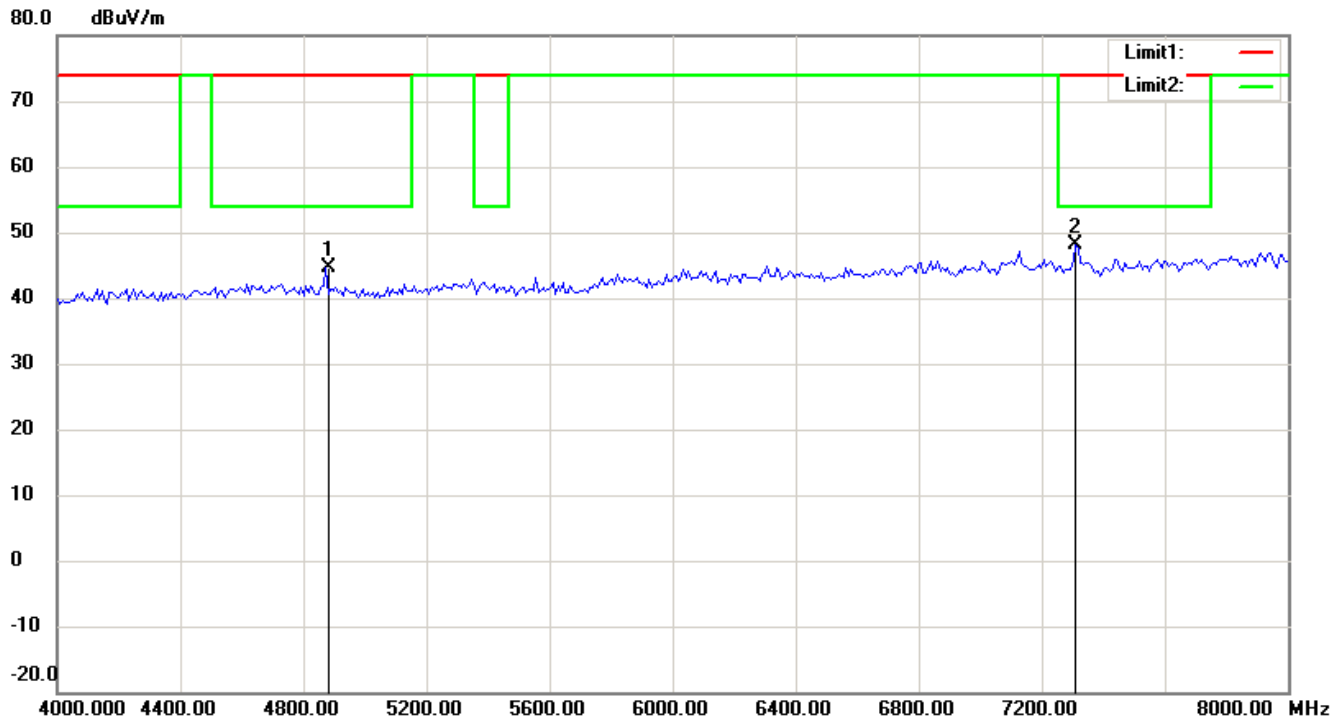
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Worldwide Testing Services(Taiwan) Co., Ltd.

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FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

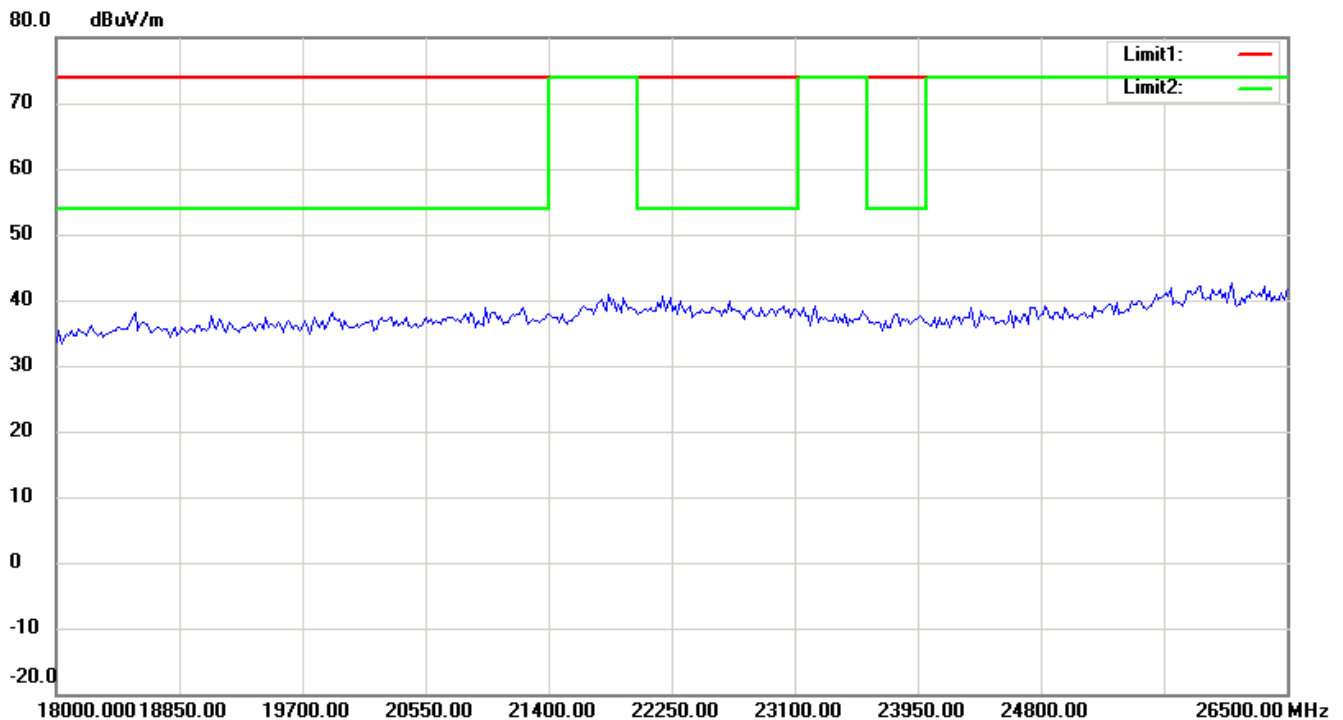
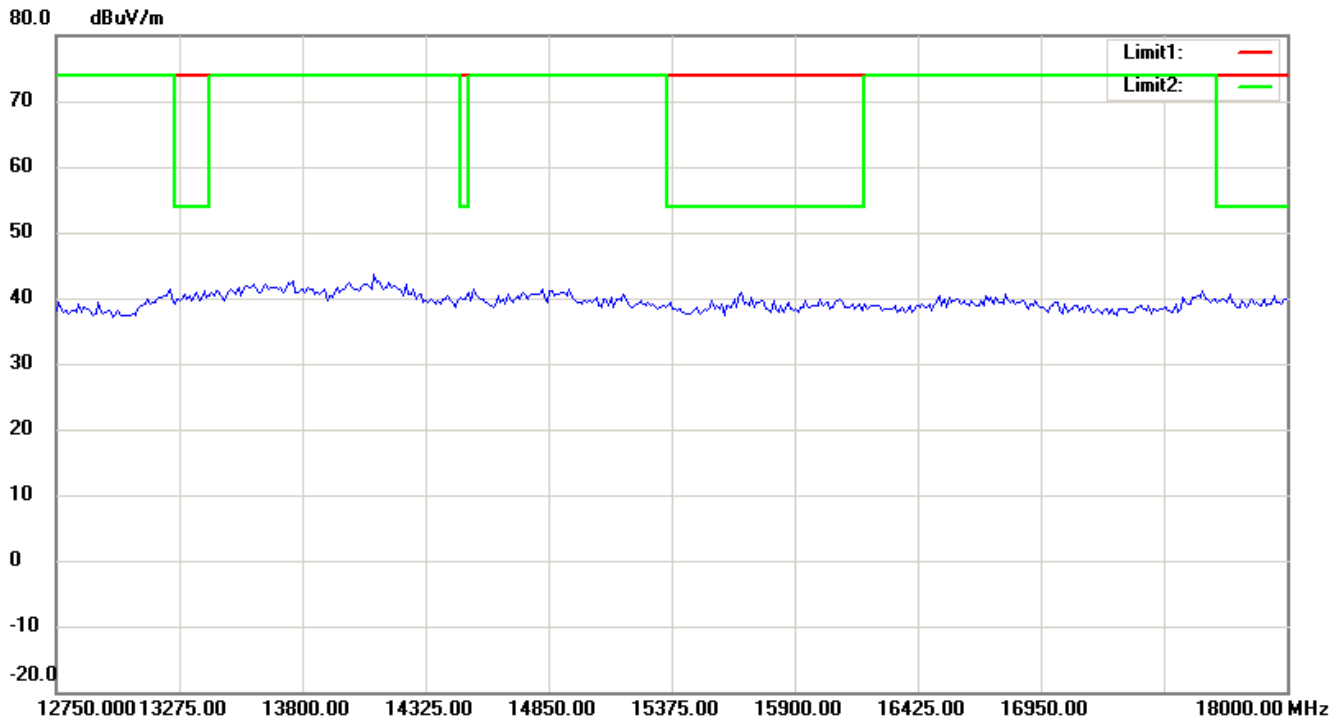
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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FCC ID: Z54PV-1005



Note:

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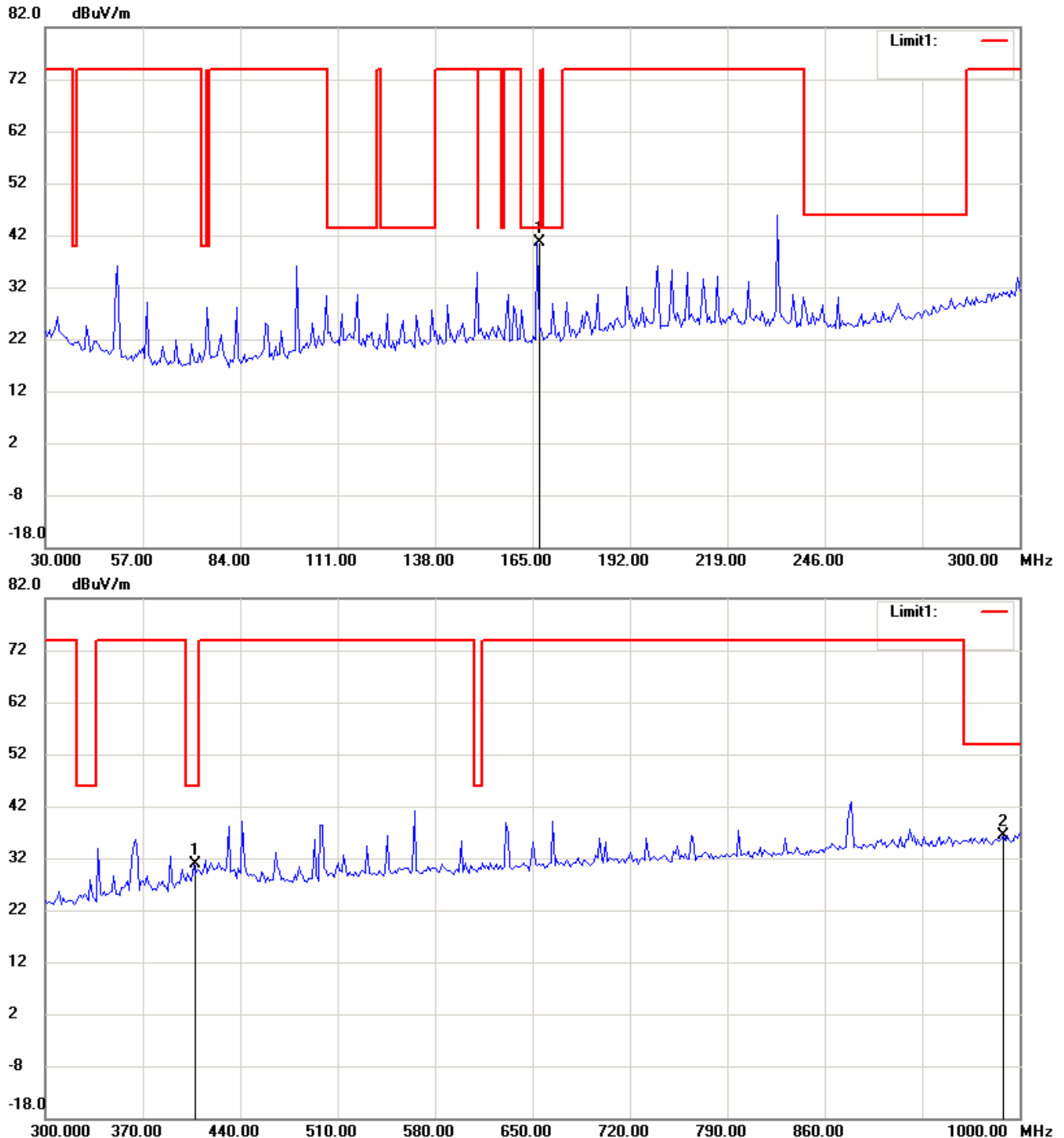
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Channel 11

Antenna Polarization H



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

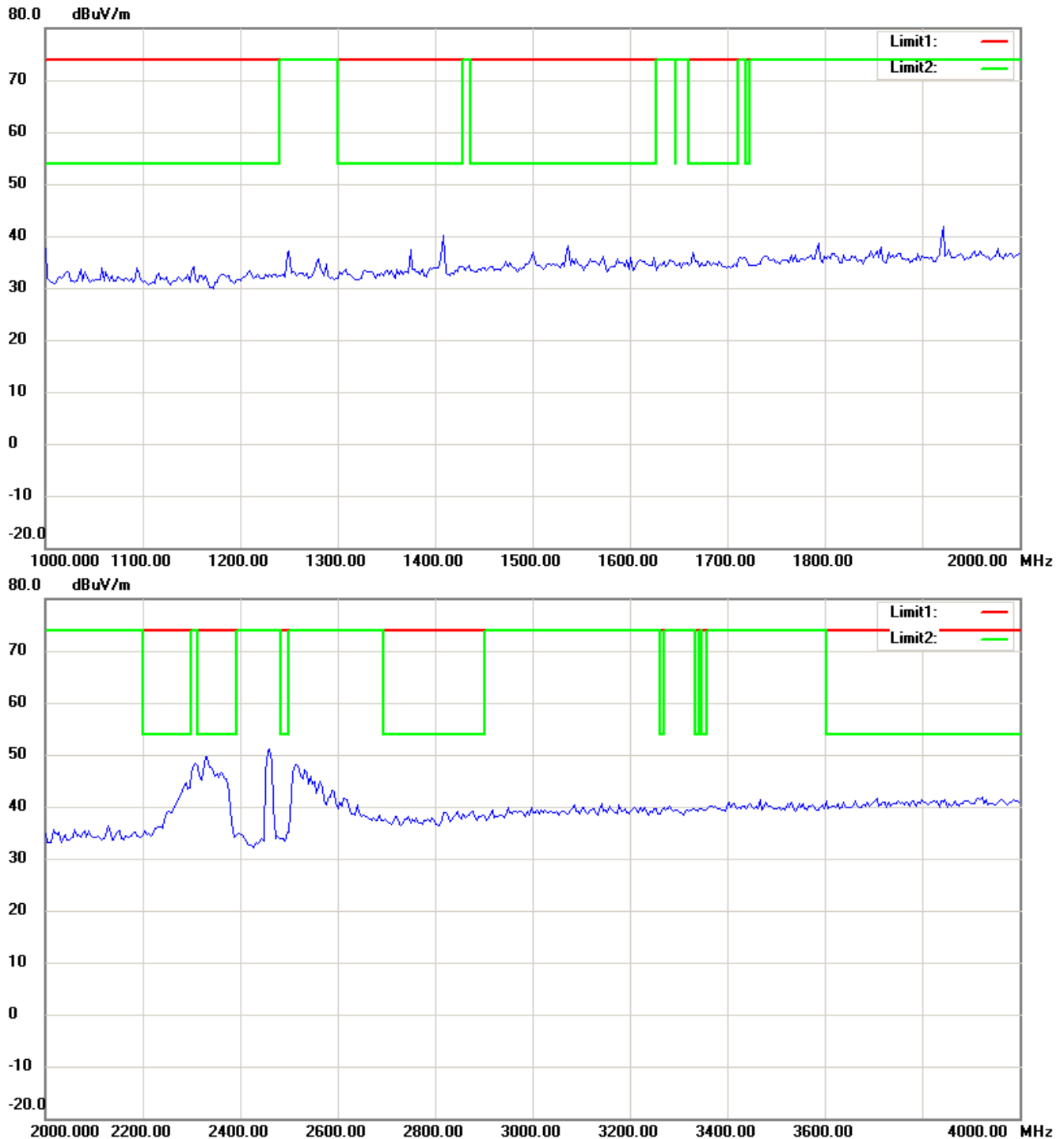
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

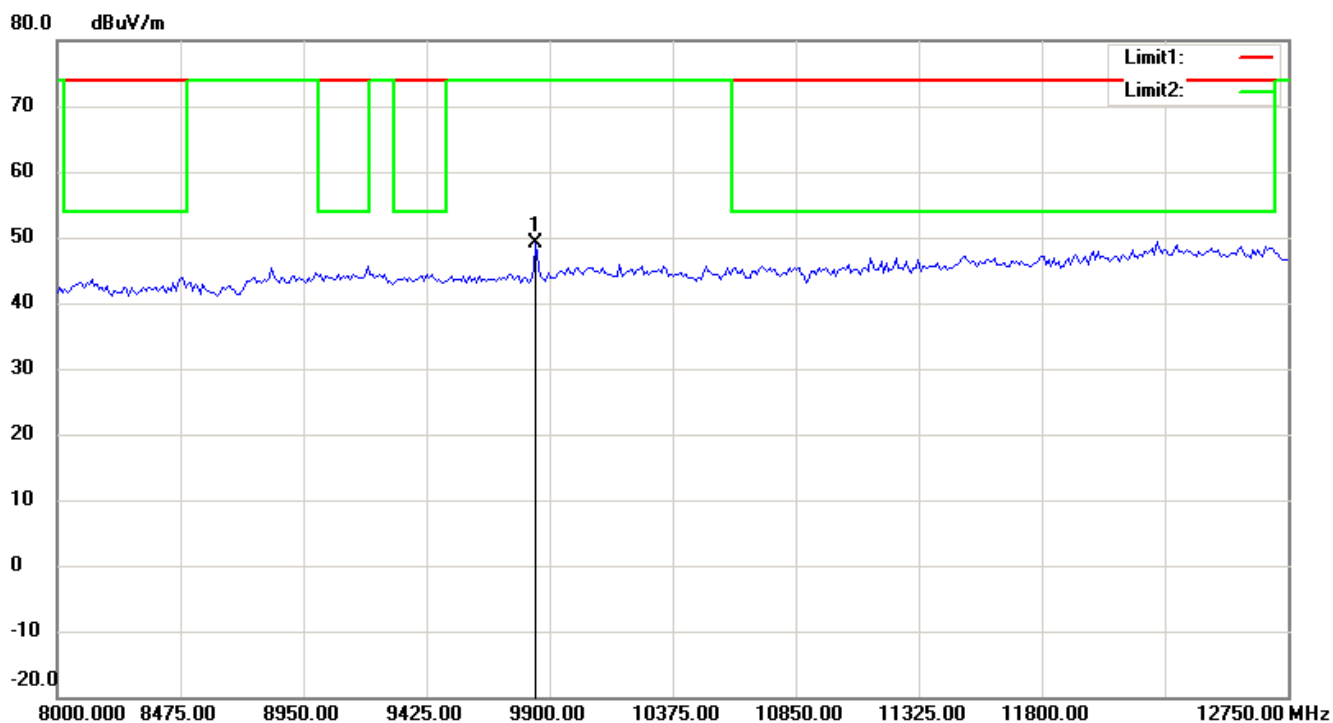
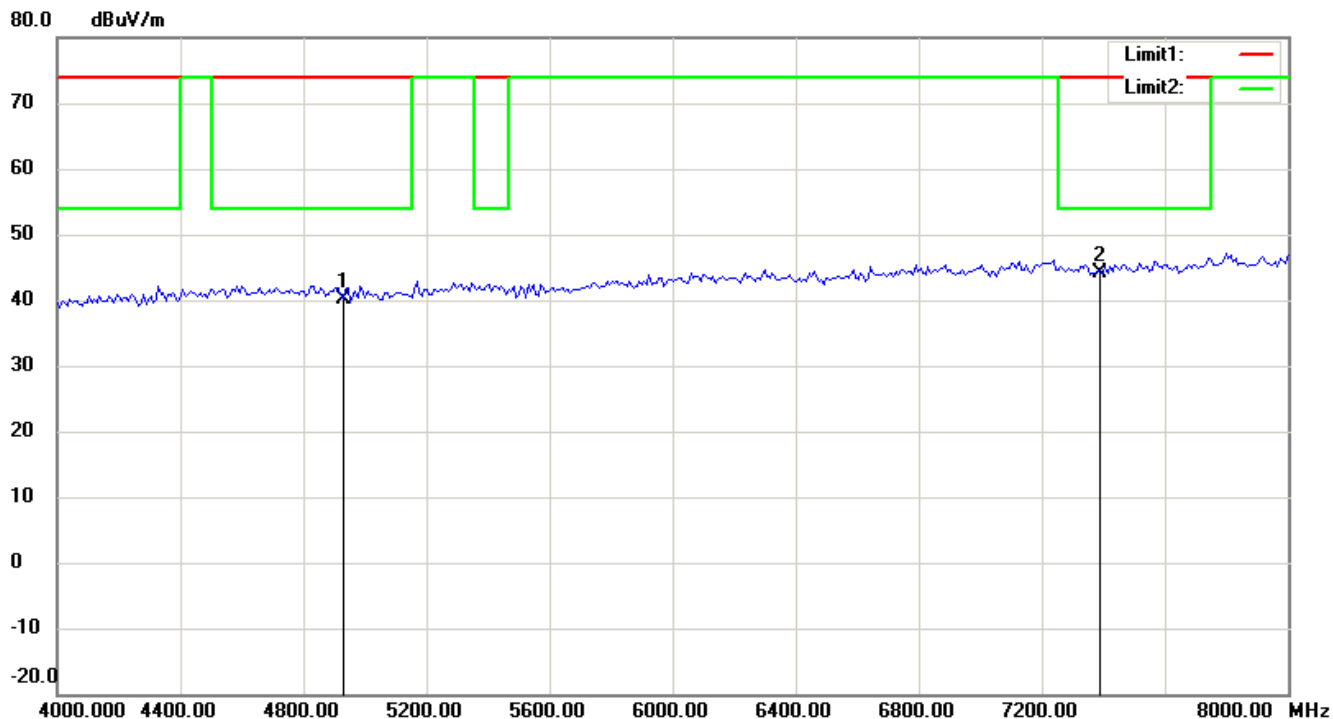
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Note:

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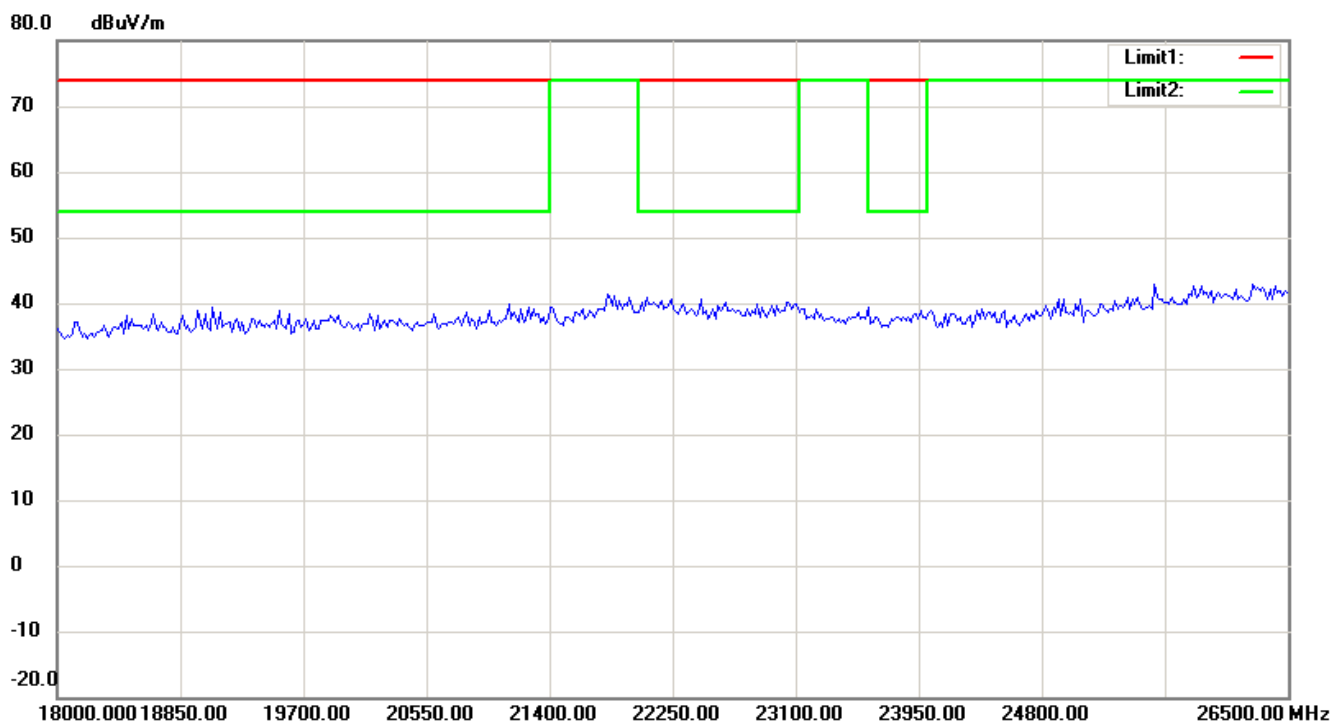
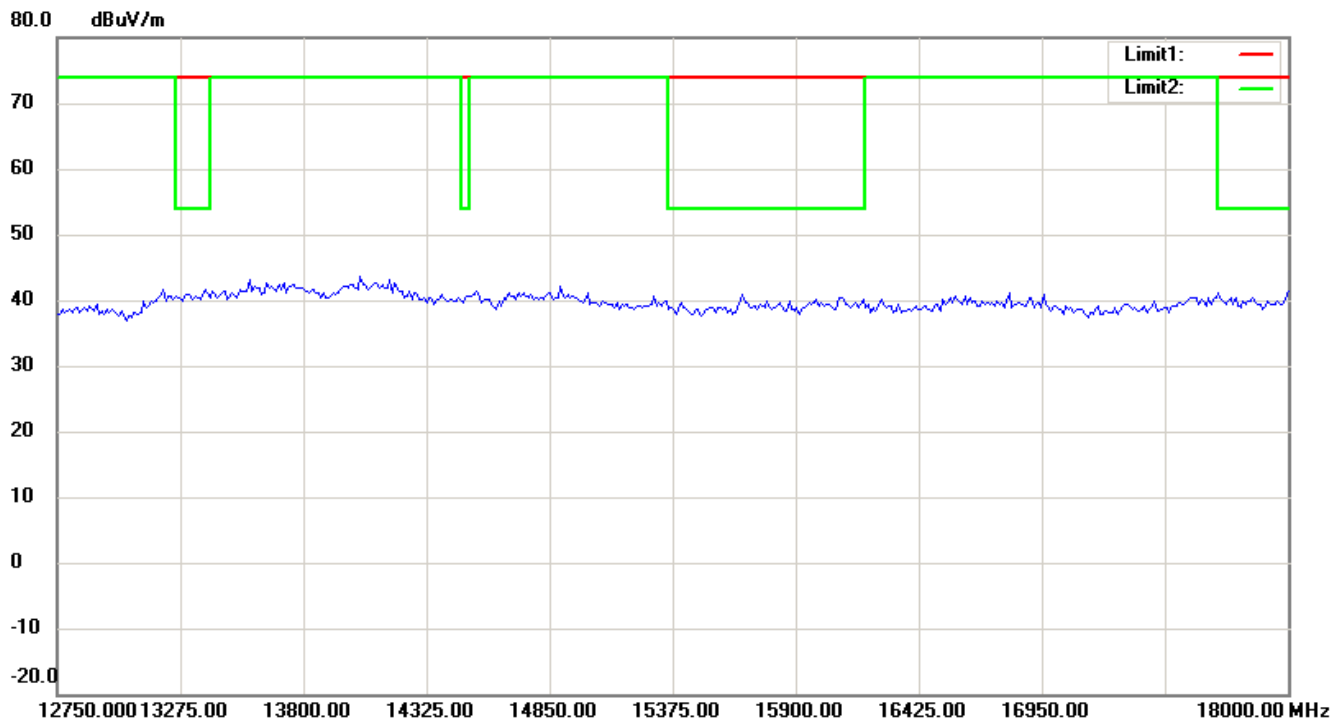
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Note:

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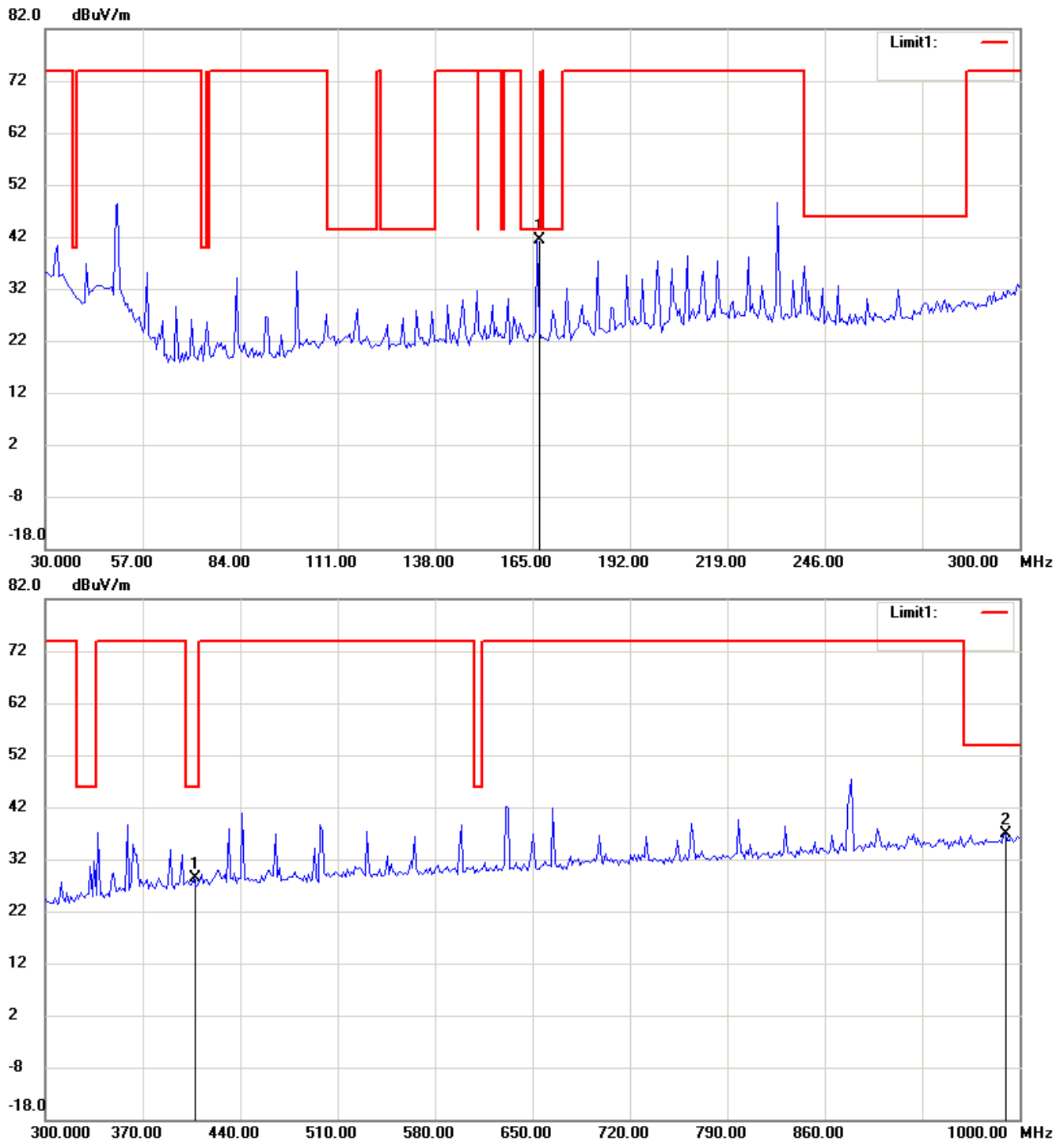


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Antenna Polarization V



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

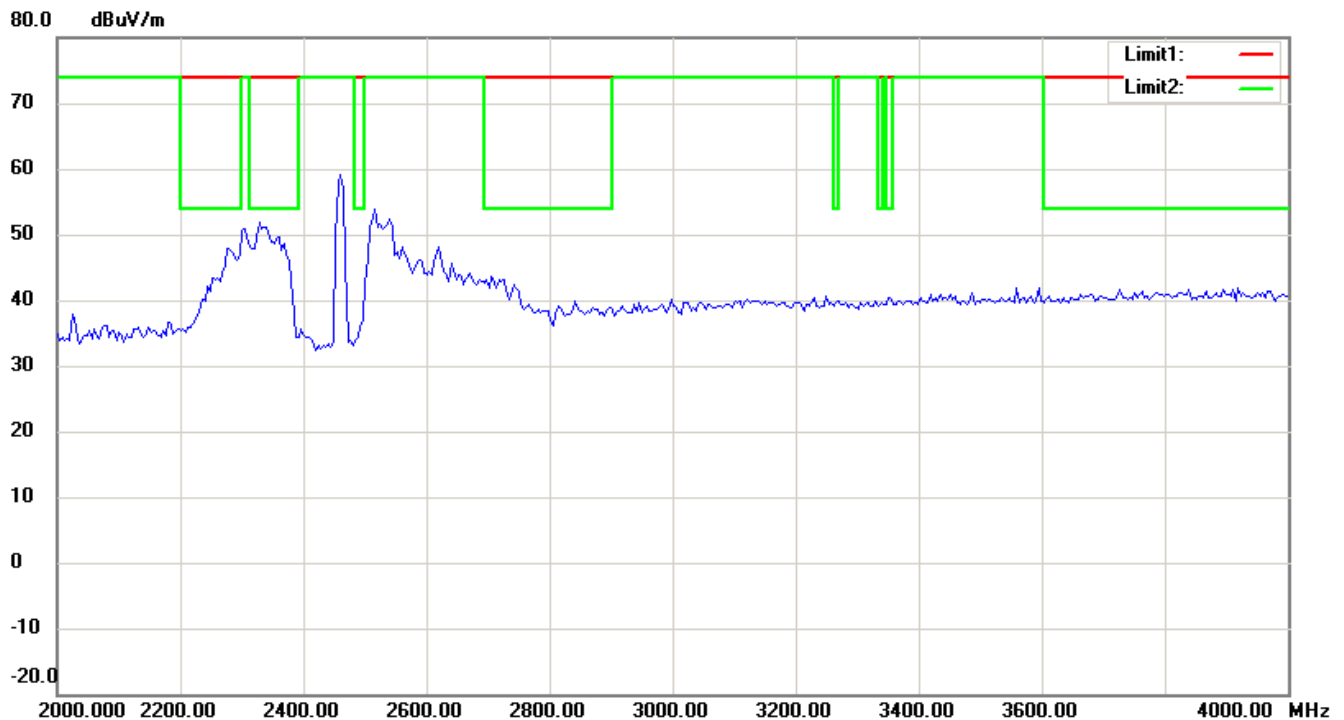
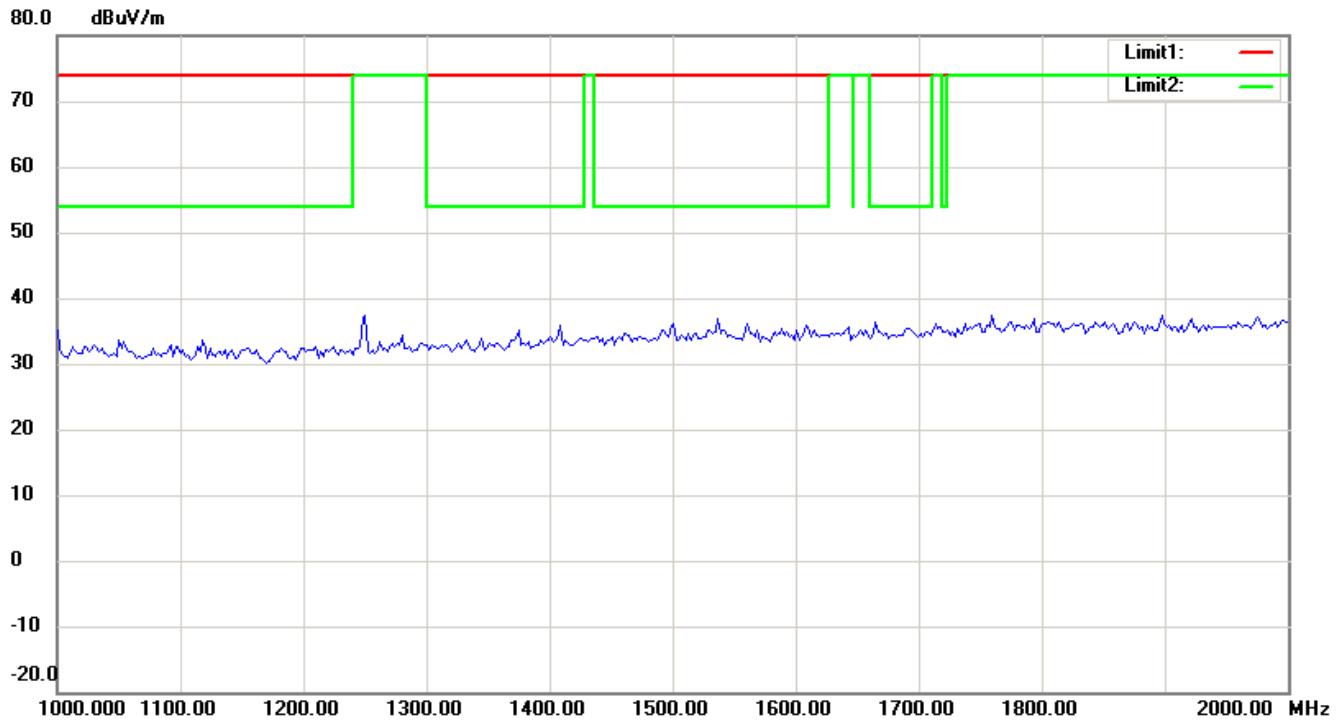
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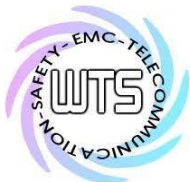
FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

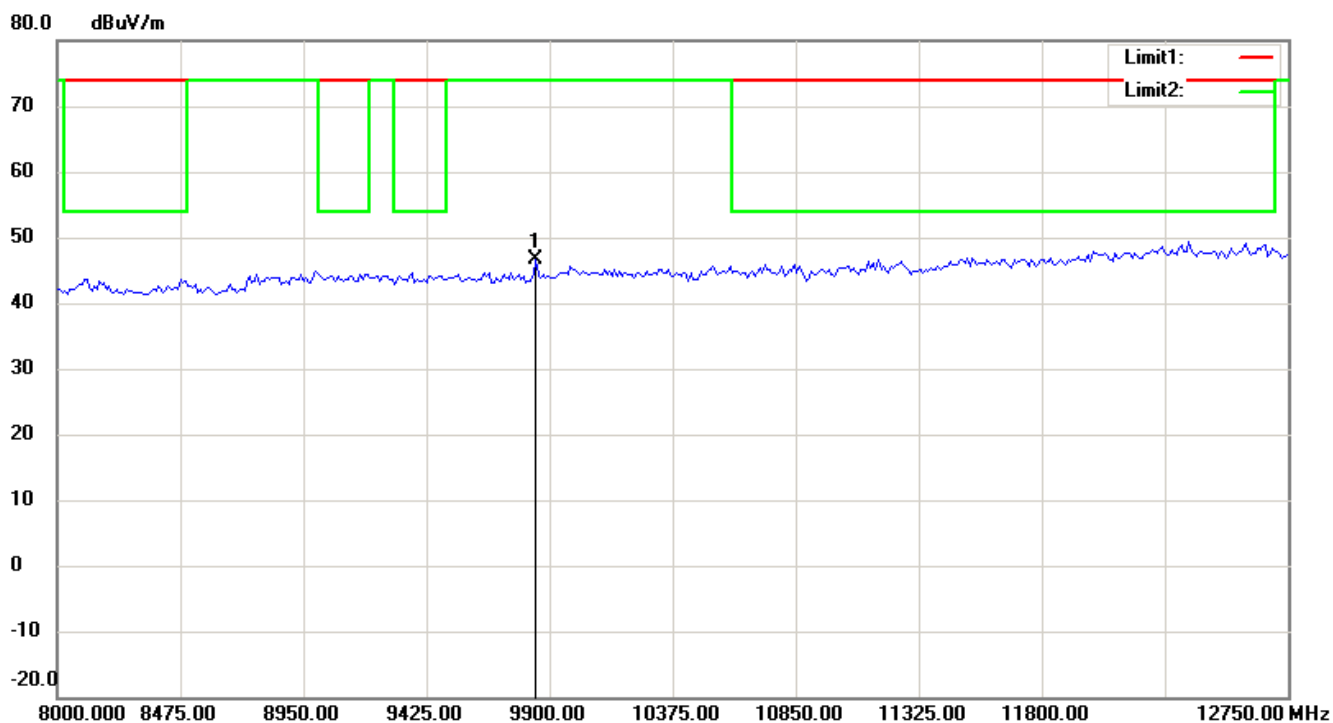
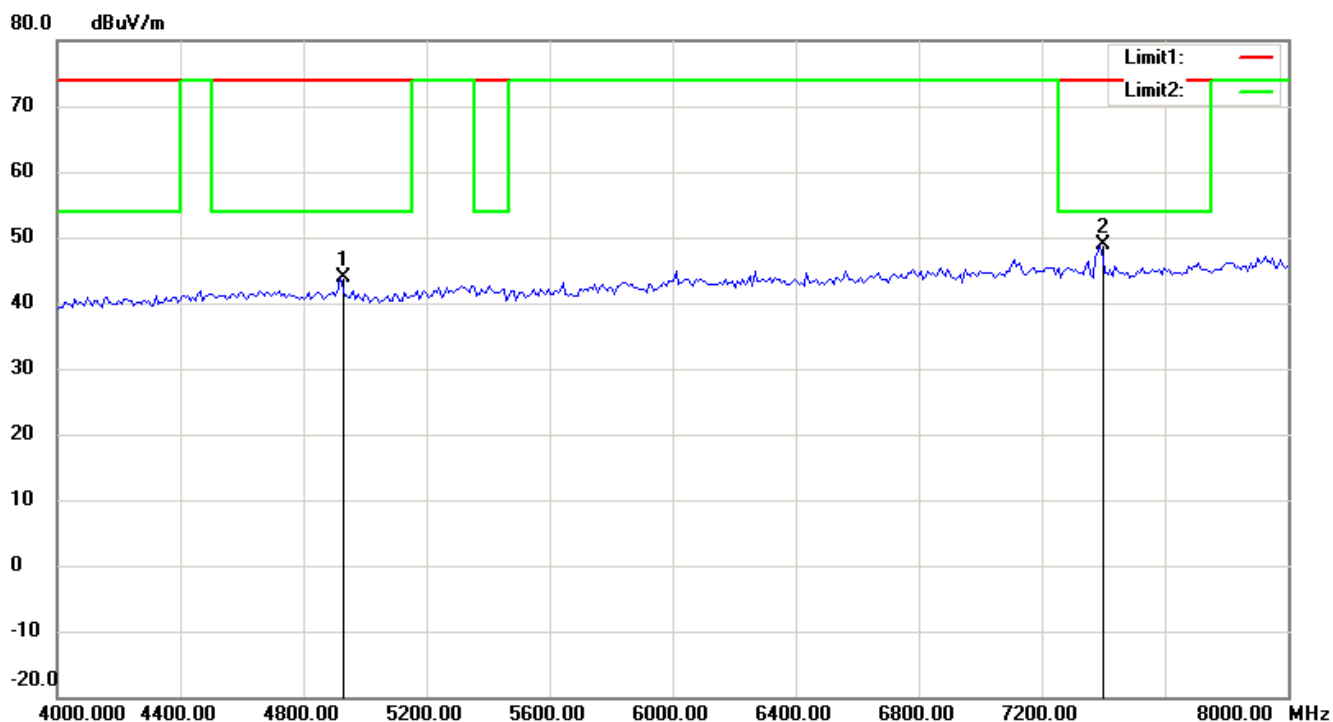
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FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

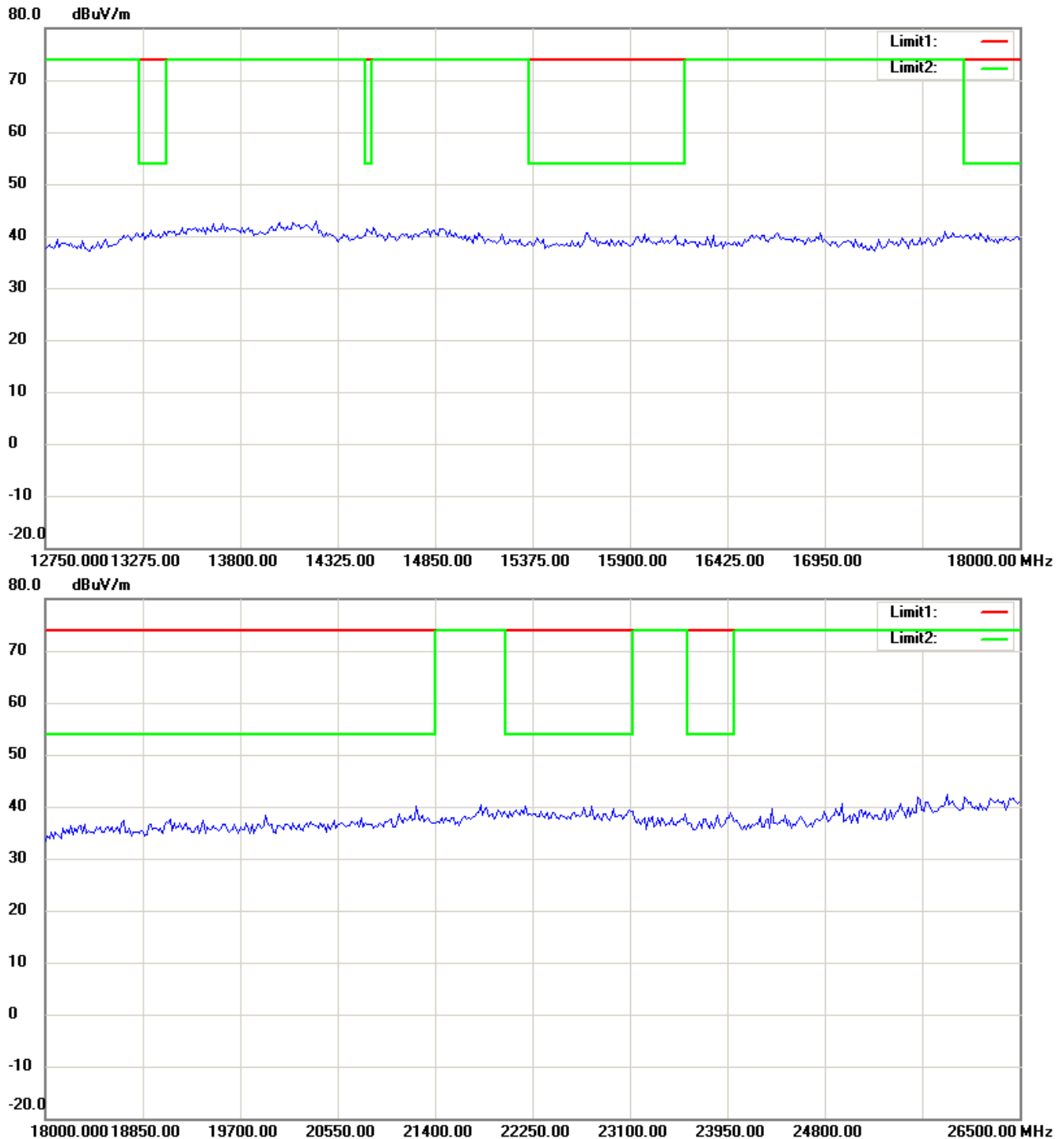
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Worldwide Testing Services(Taiwan) Co., Ltd.

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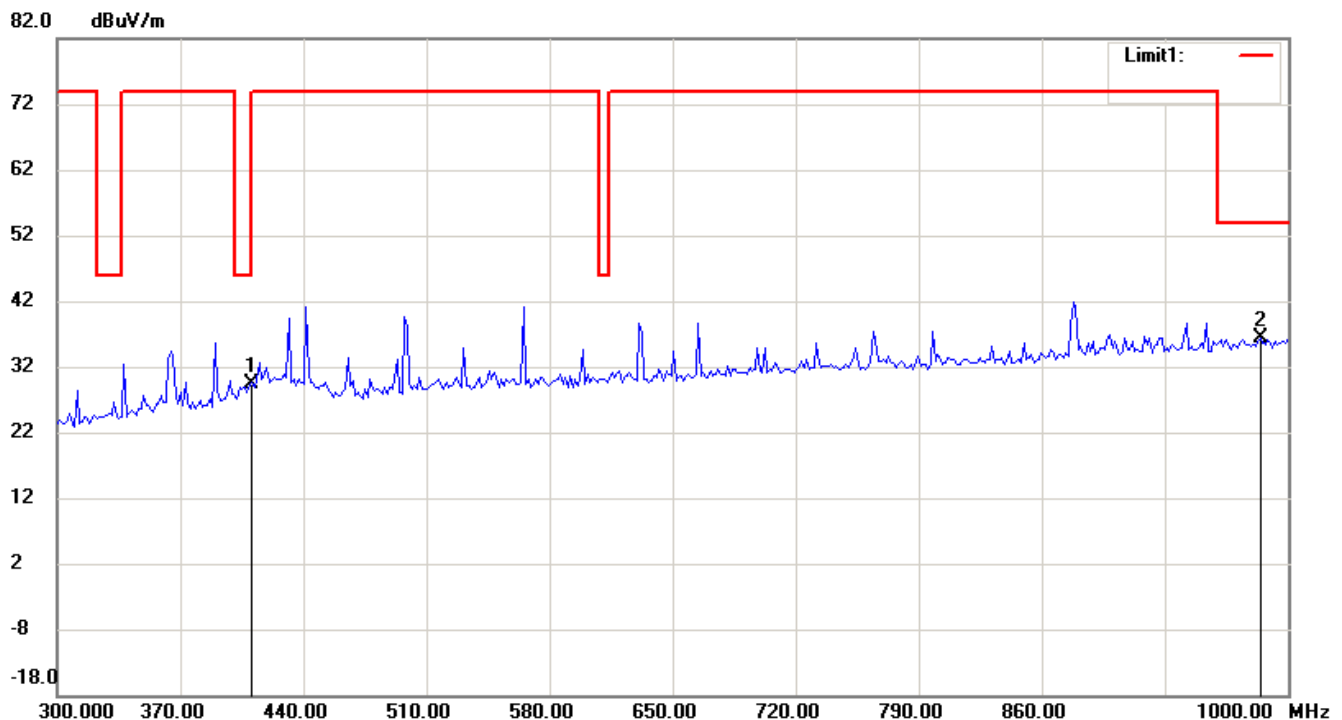
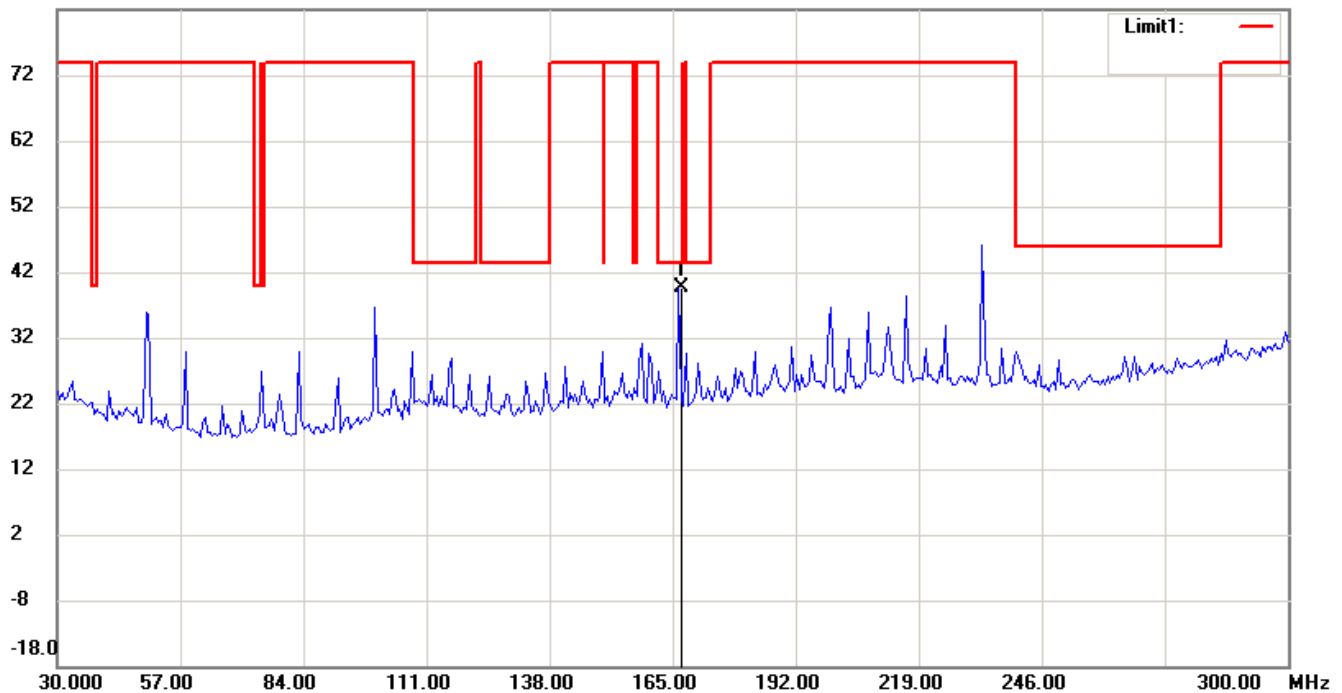
FCC ID: Z54PV-1005

802.11g

Channel 1

Antenna Polarization H

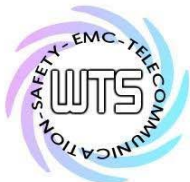
82.0 dBuV/m



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

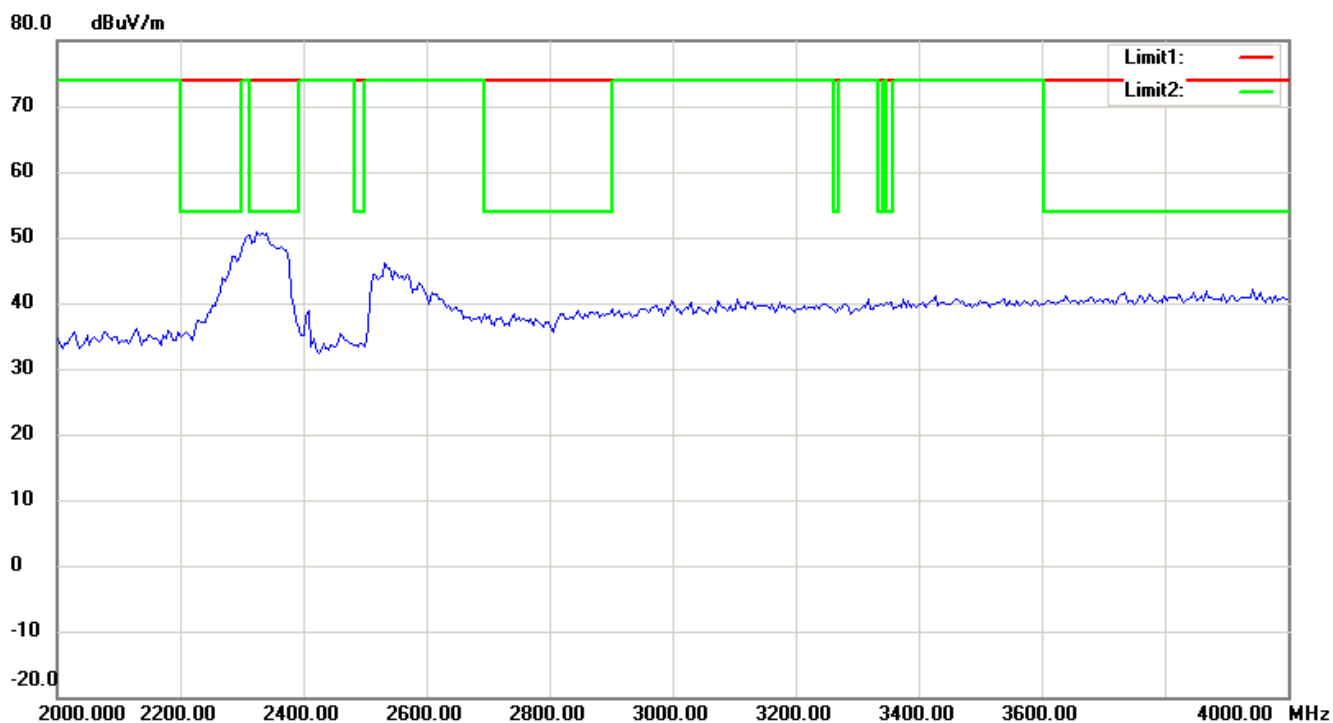
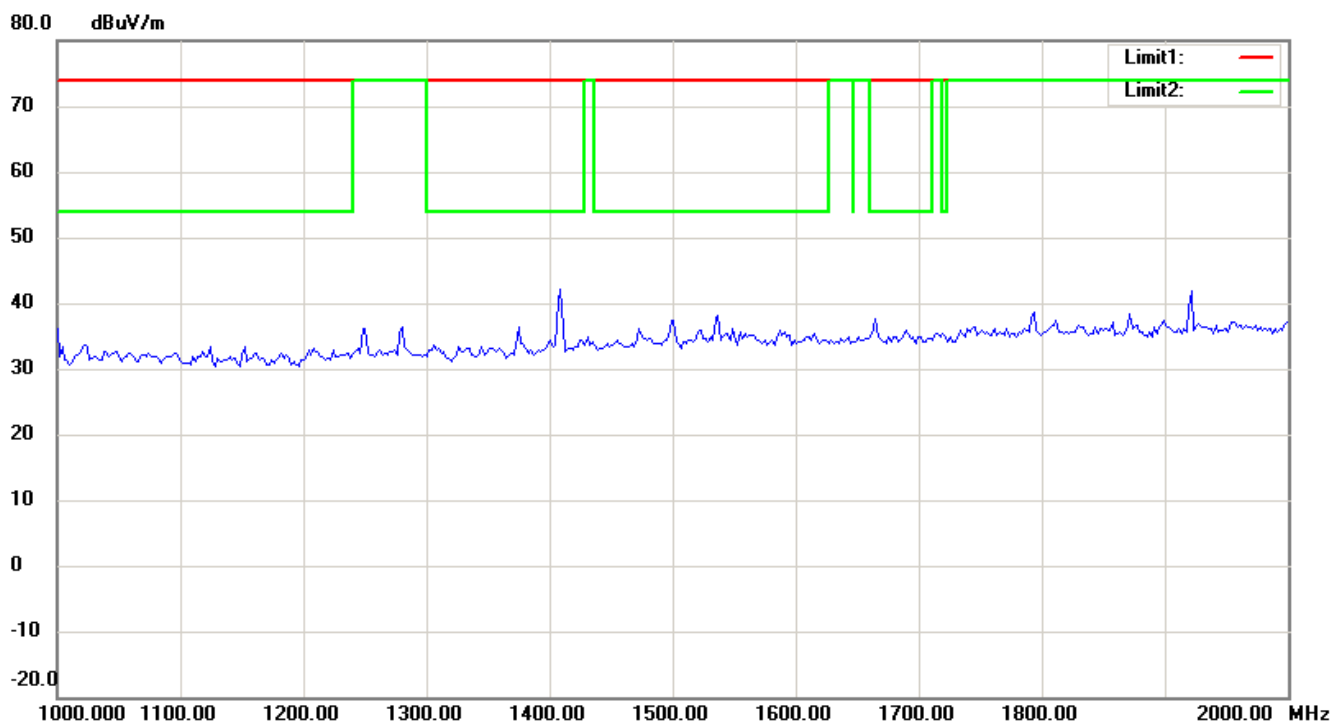
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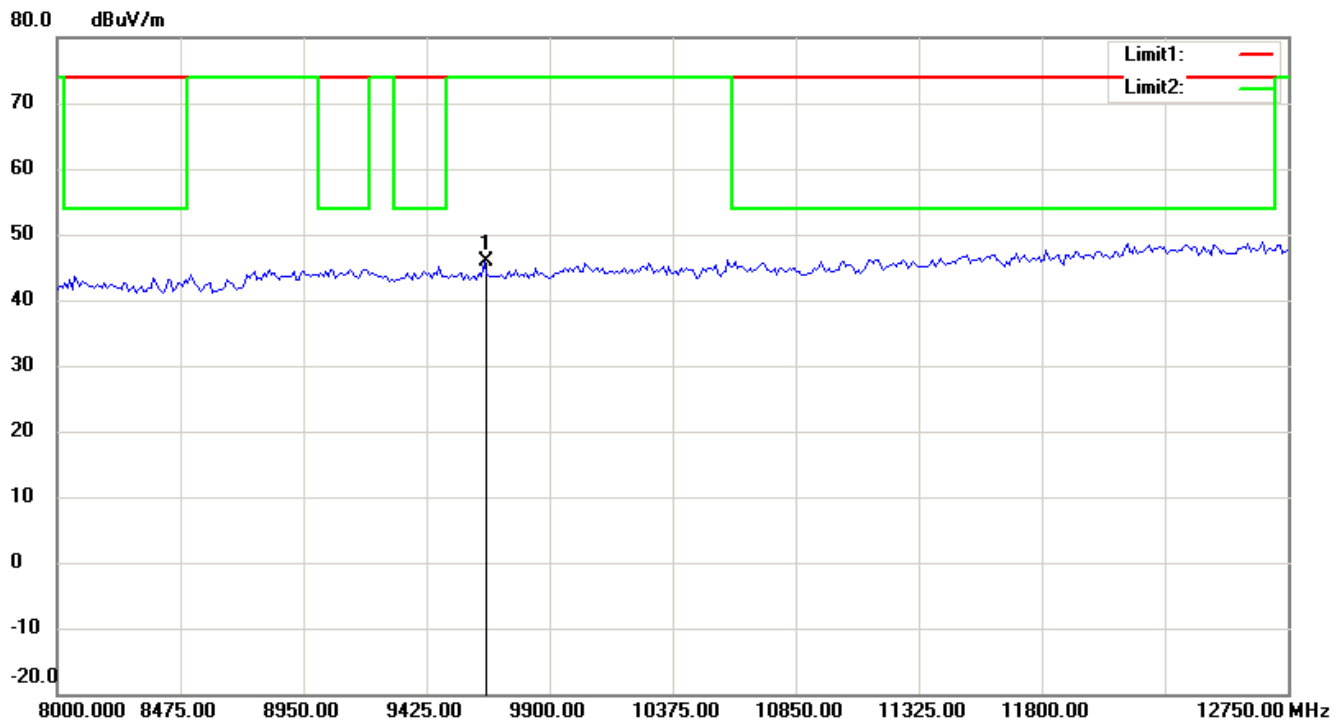
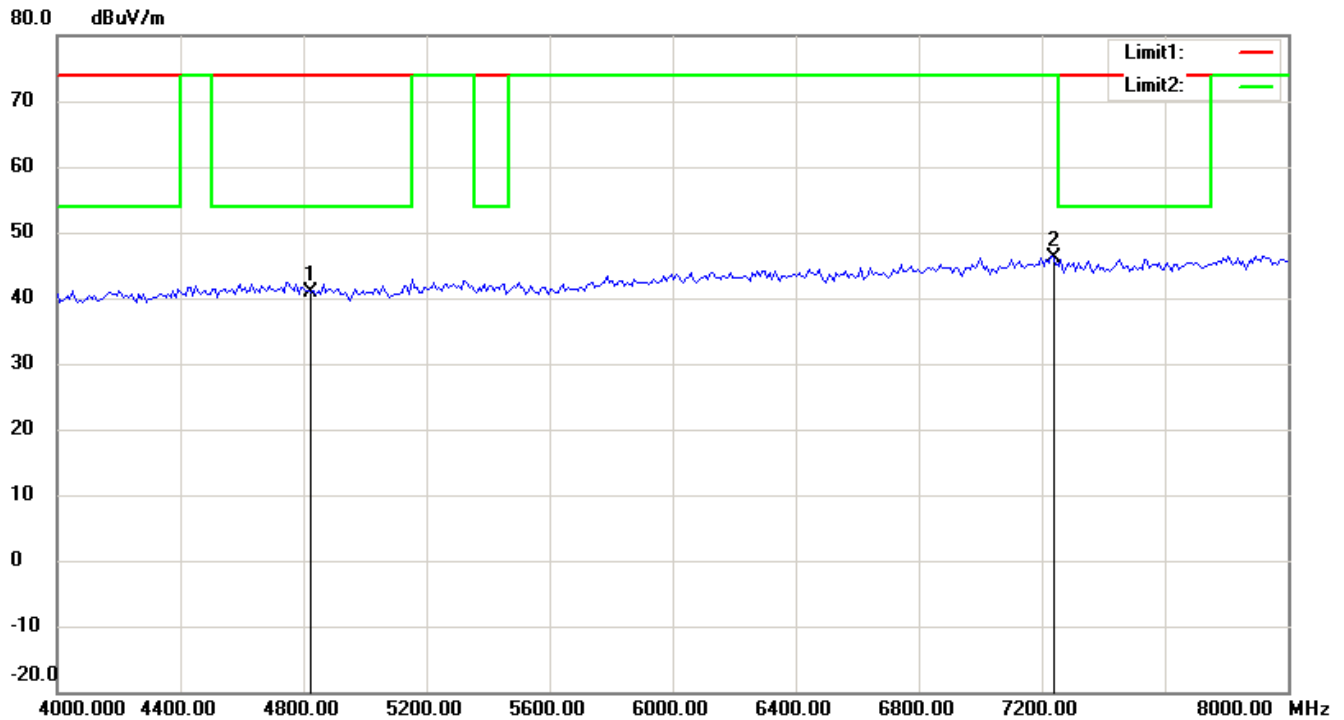
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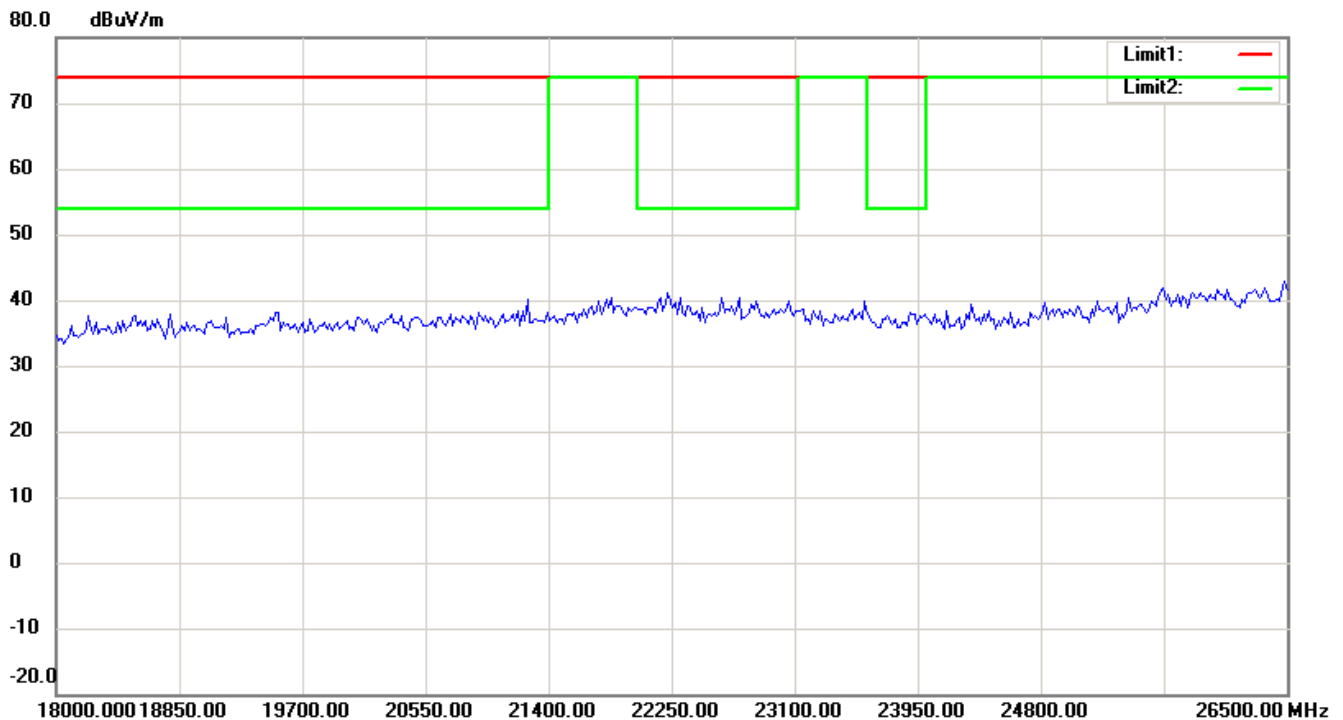
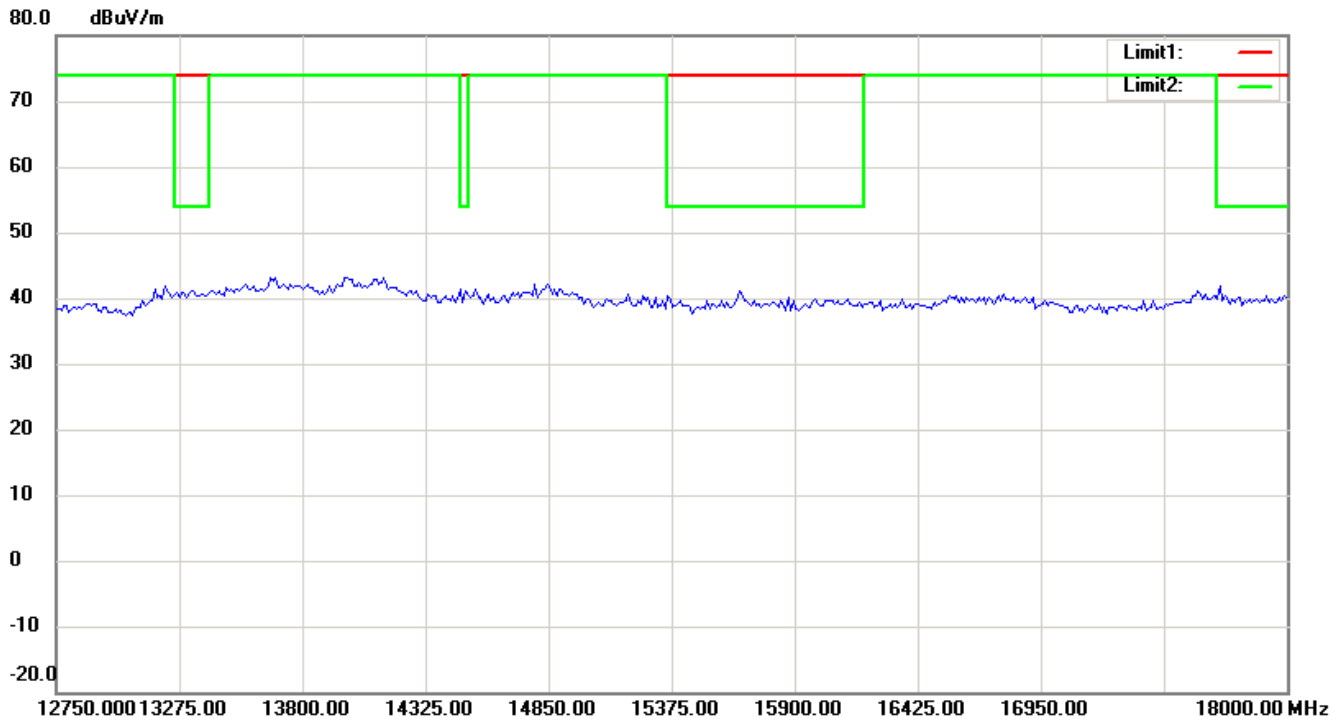
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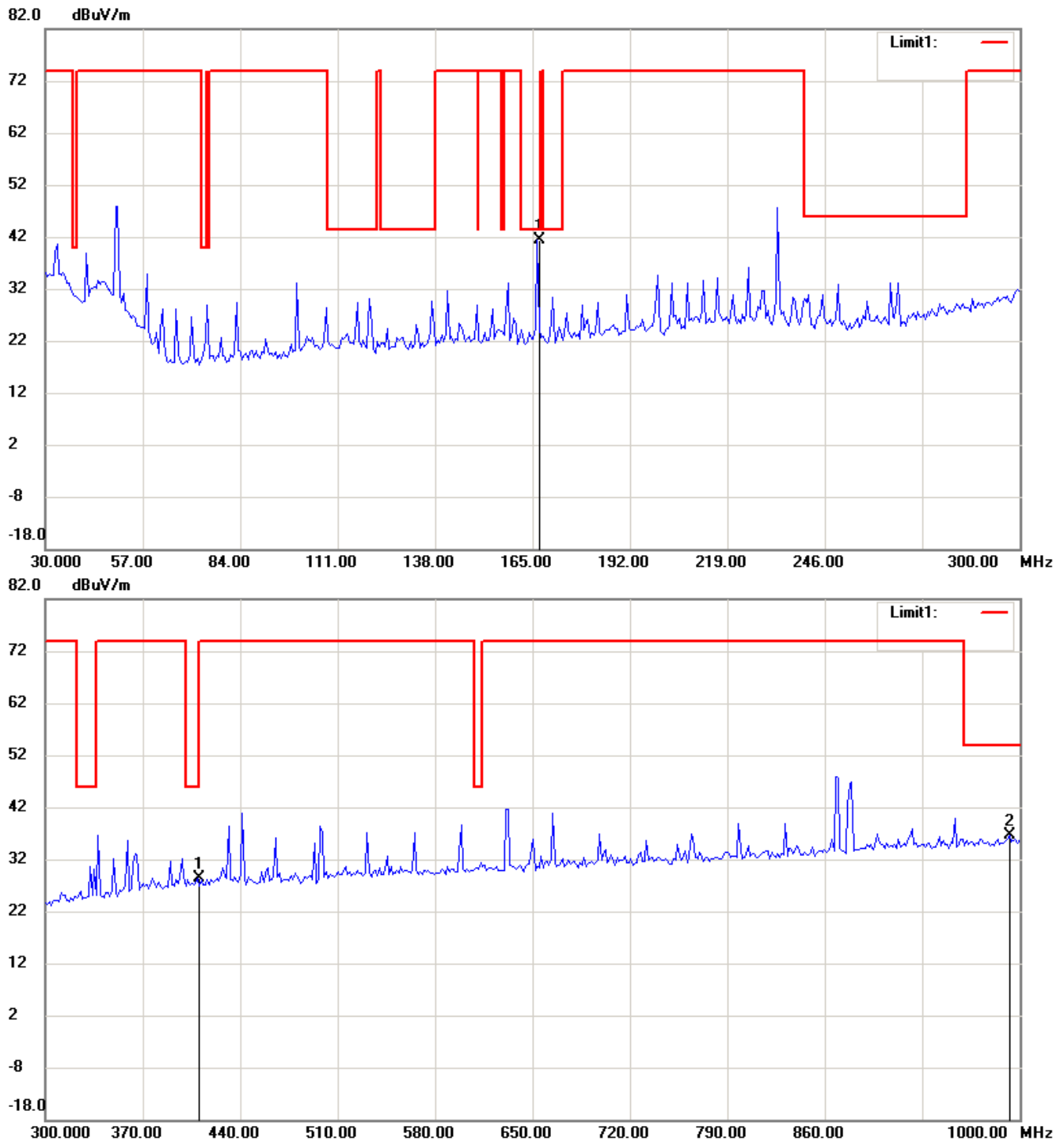


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Antenna Polarization V



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

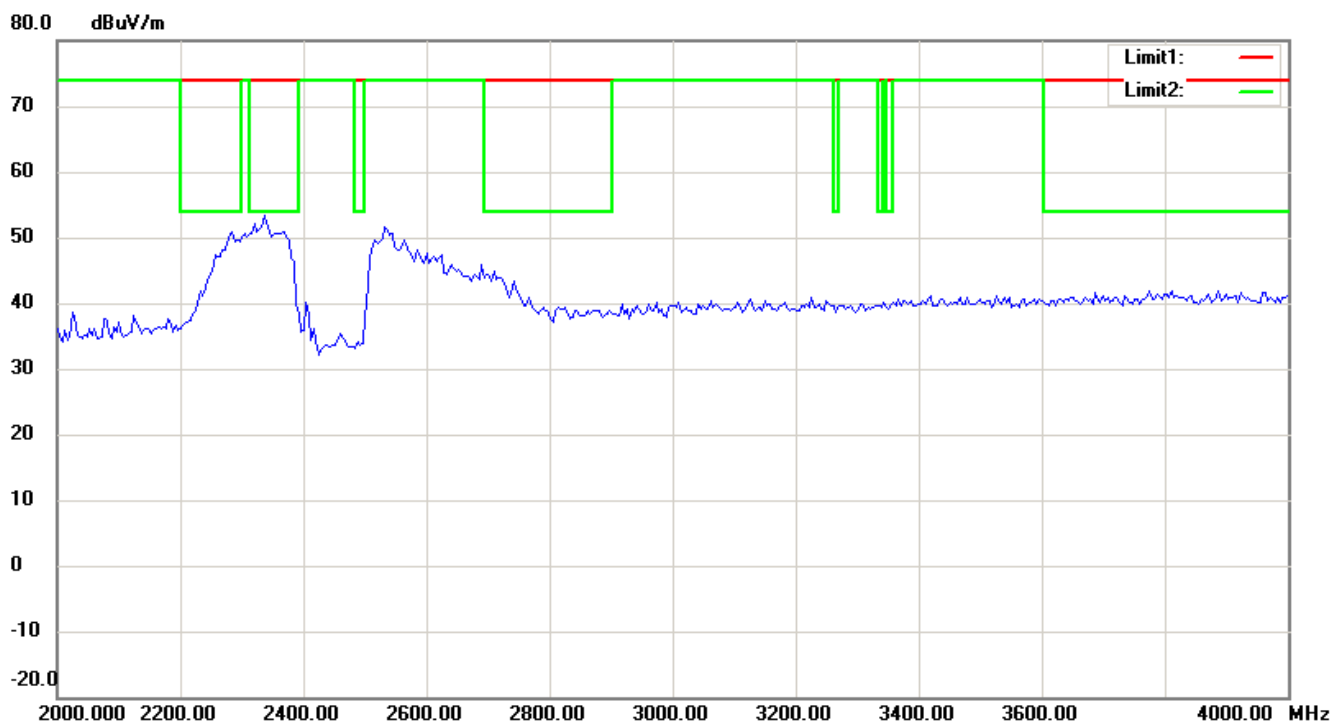
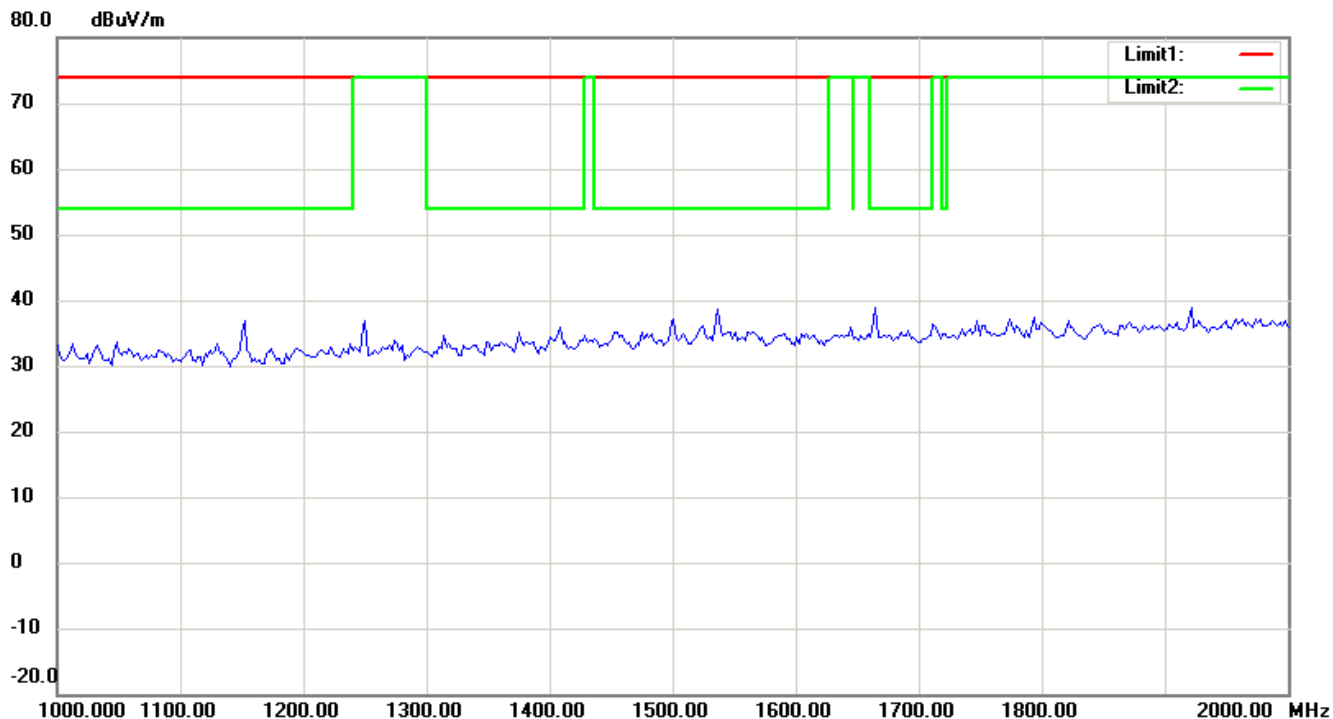
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FCC ID: Z54PV-1005



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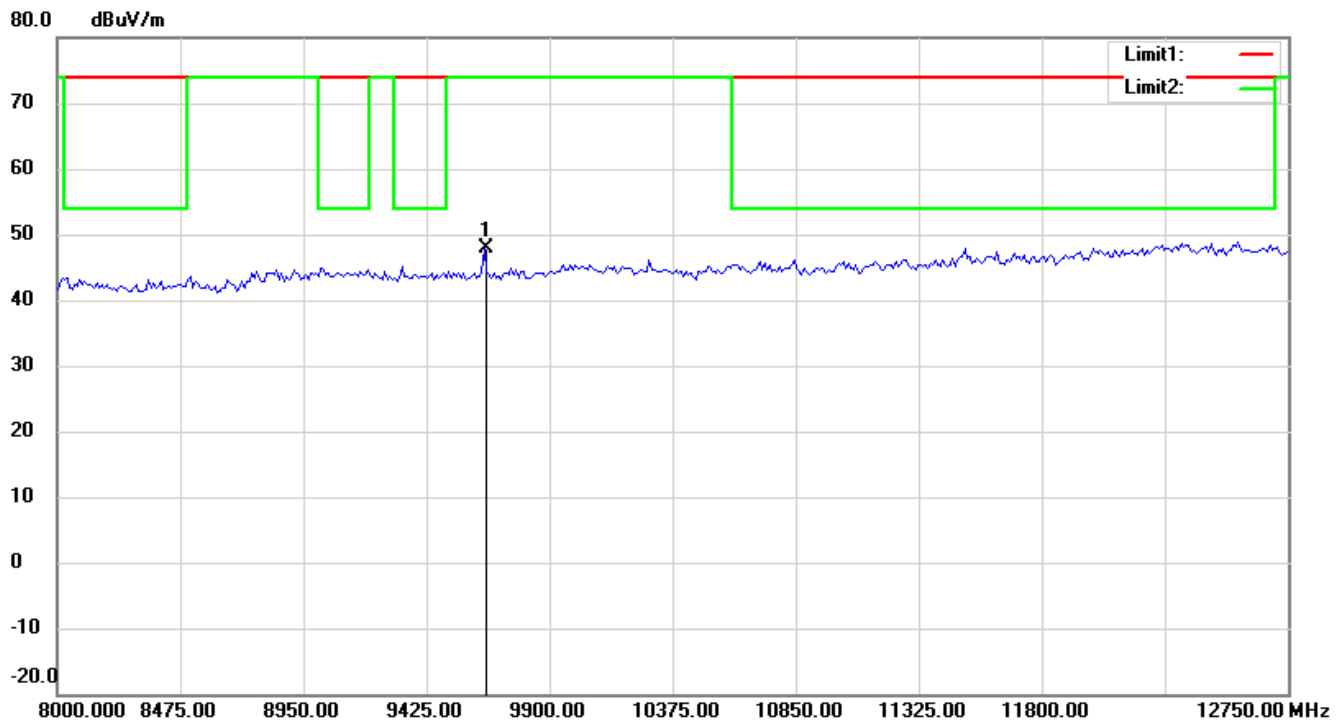
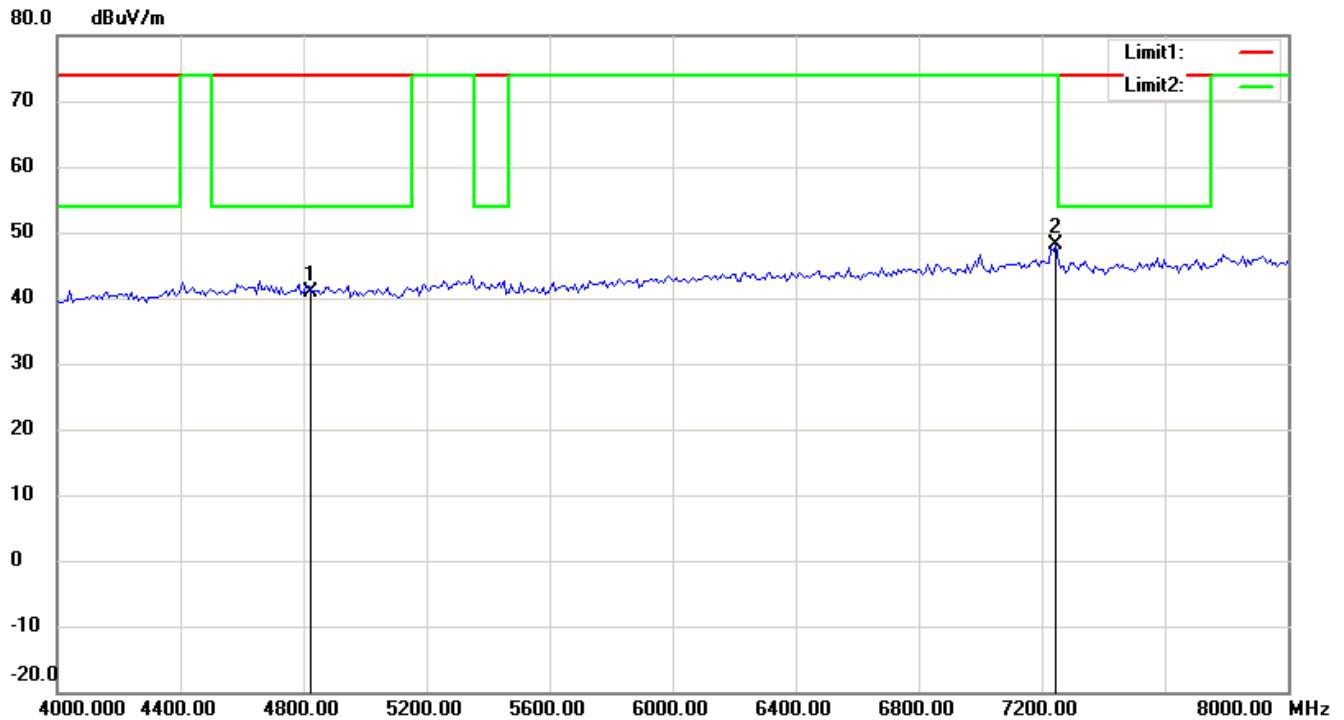
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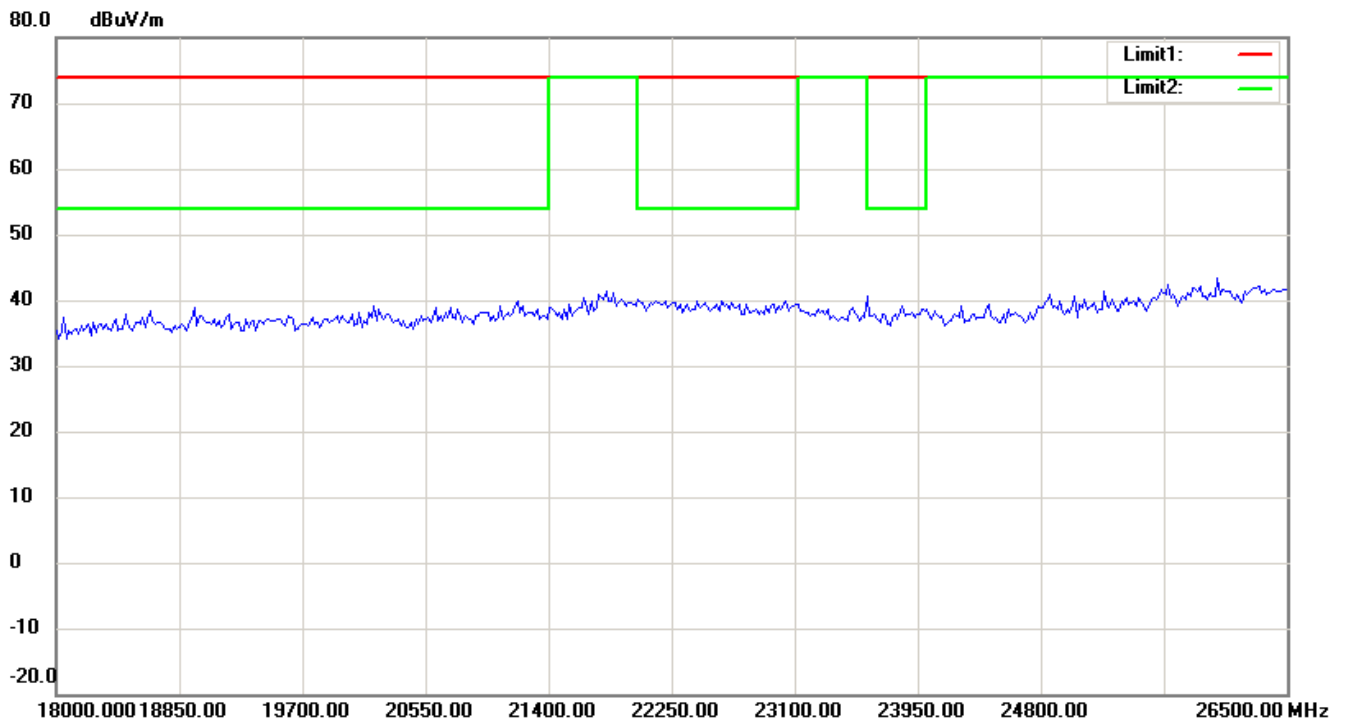
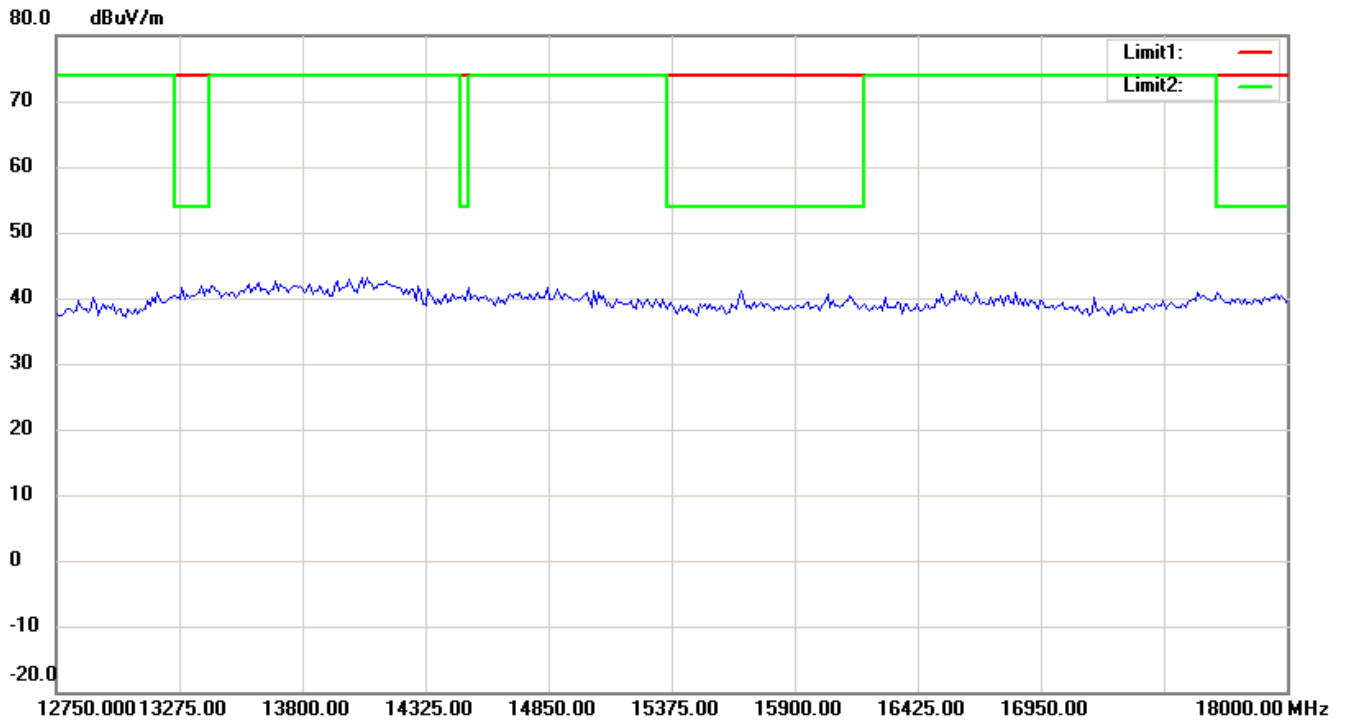
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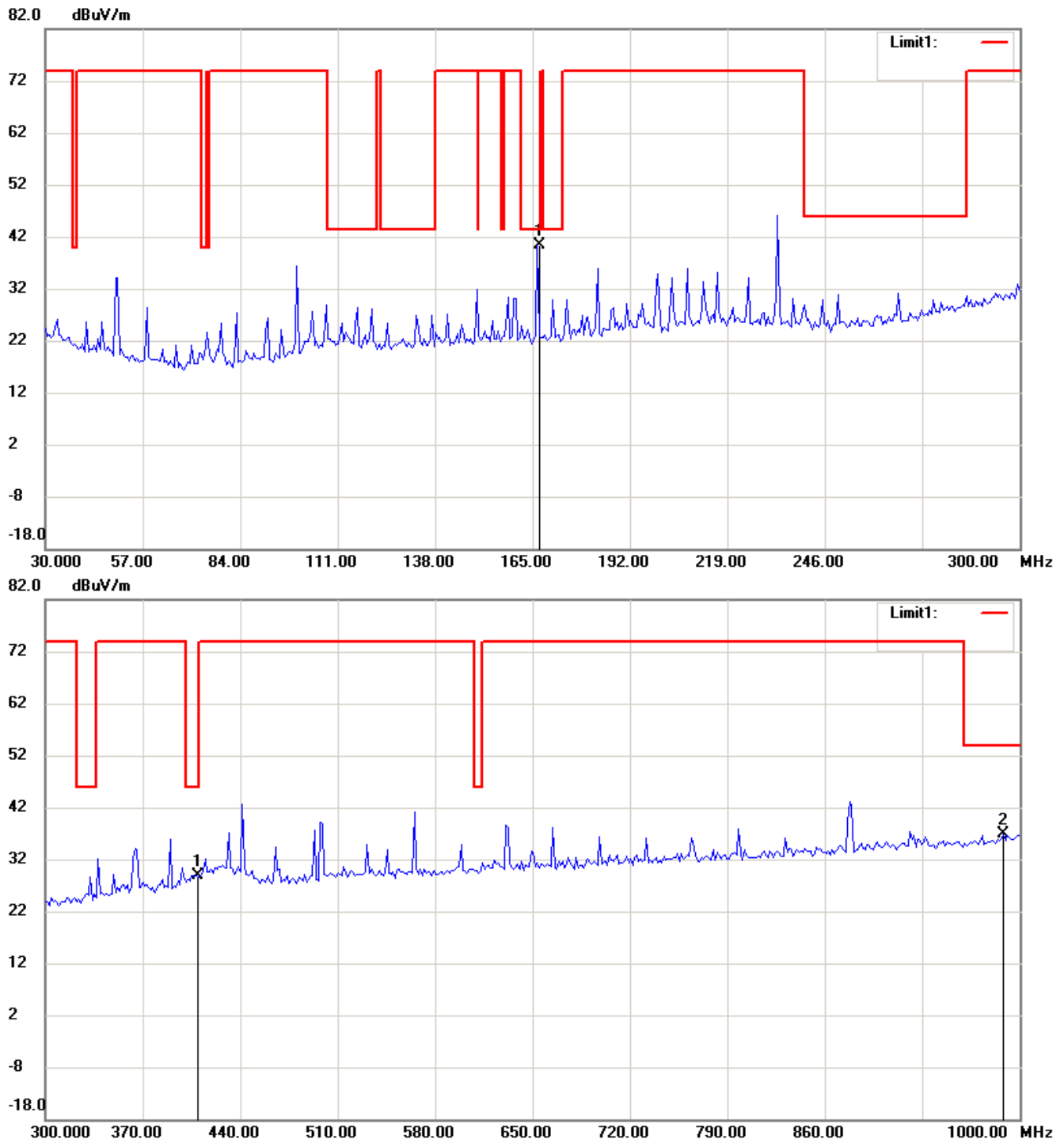
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Channel 6

Antenna Polarization H



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

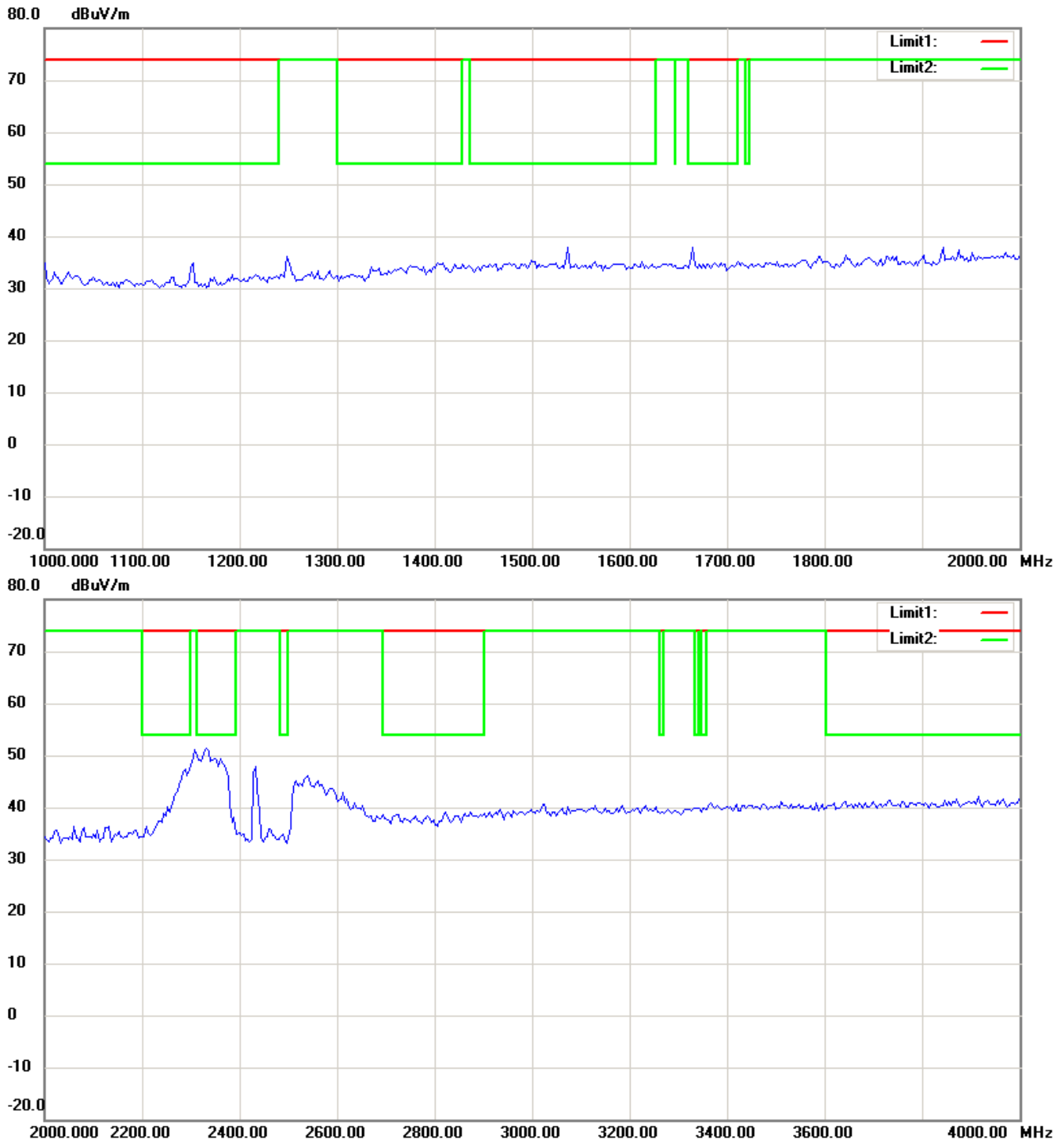
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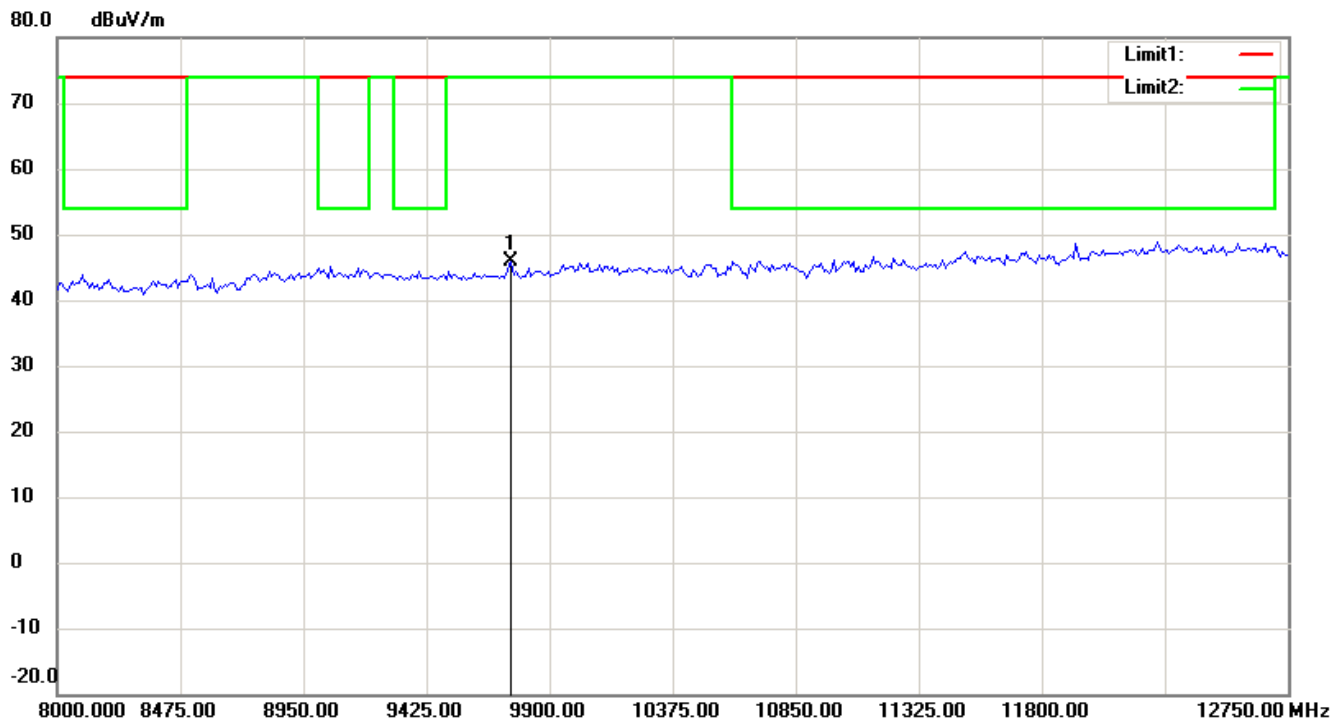
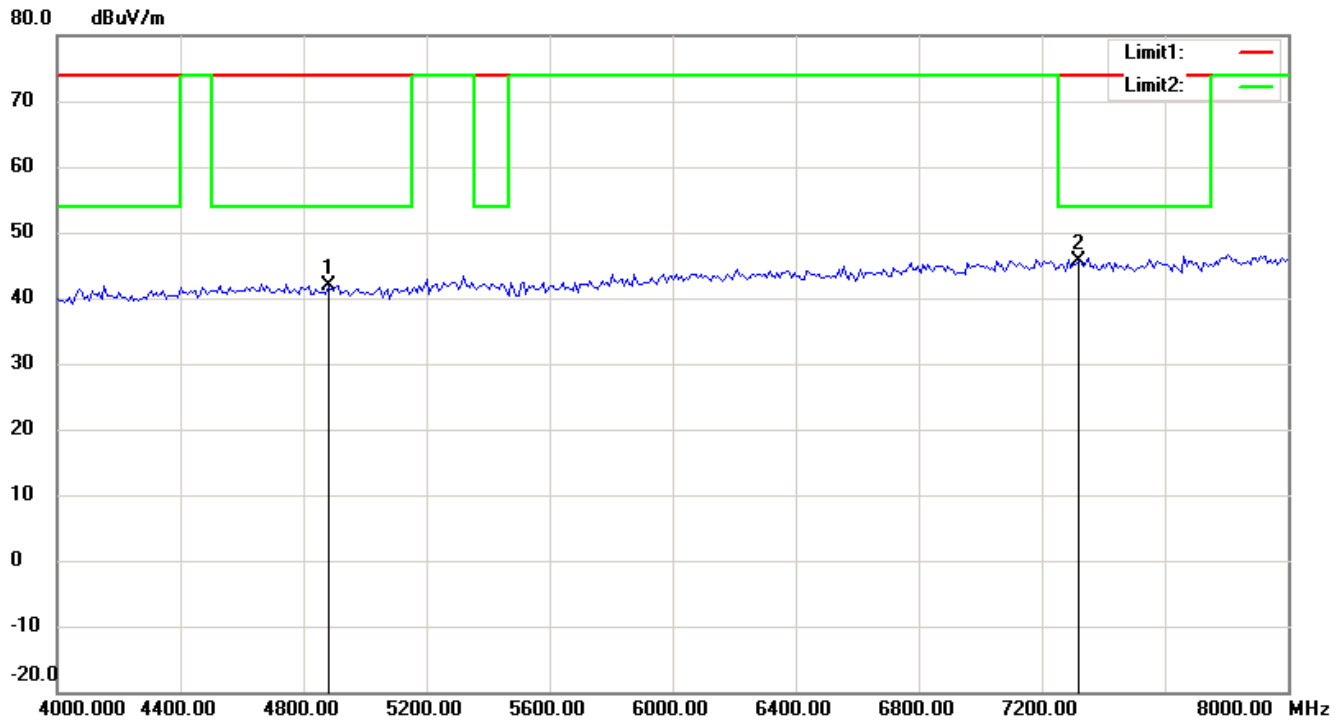
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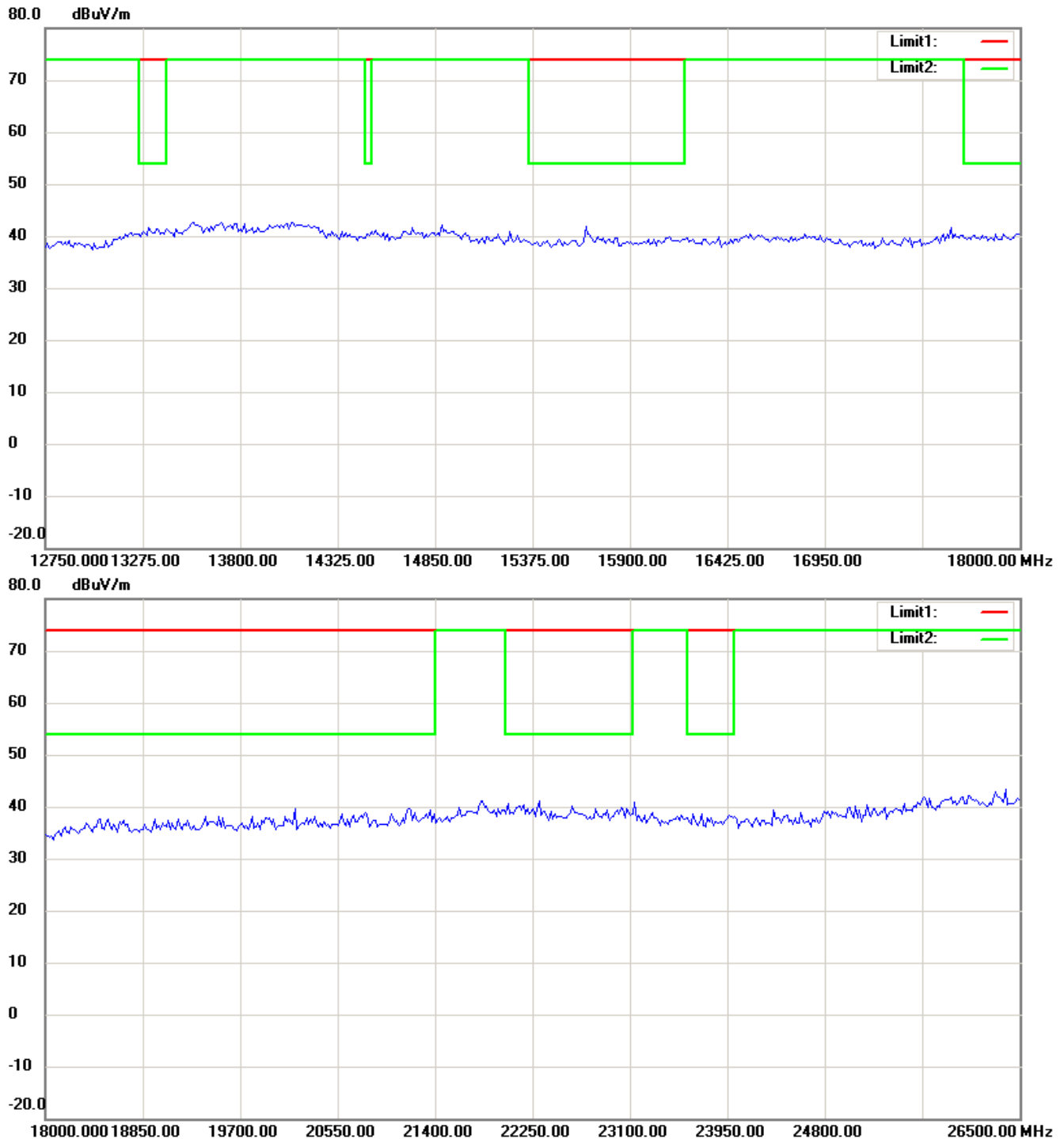
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



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.

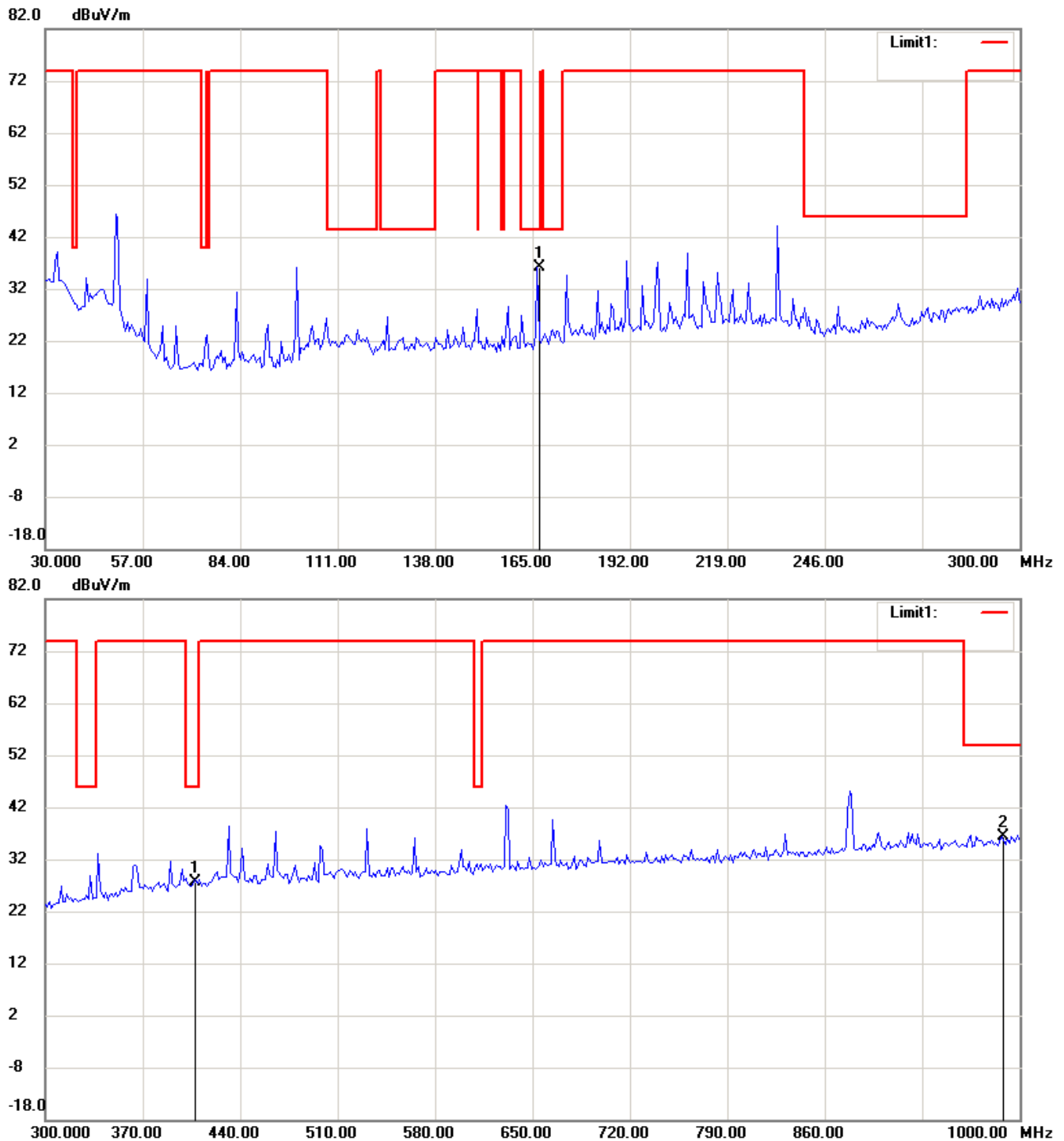


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Antenna Polarization V



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

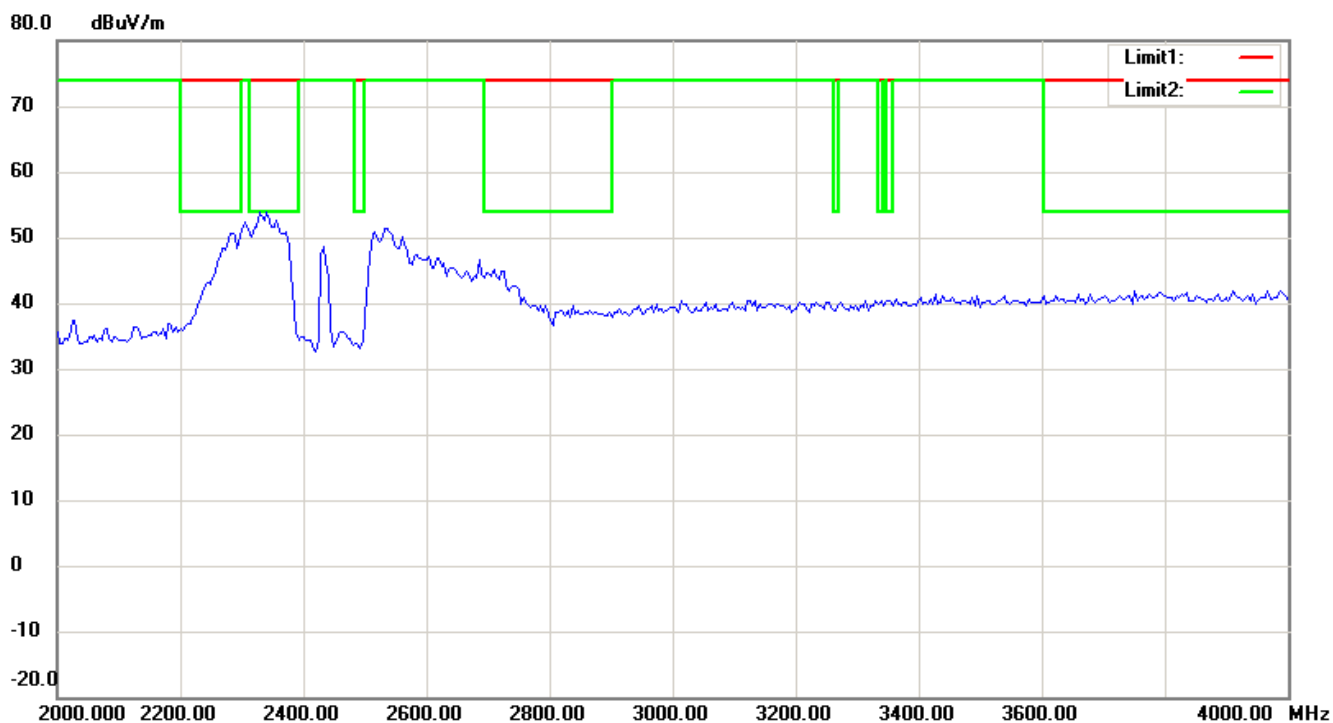
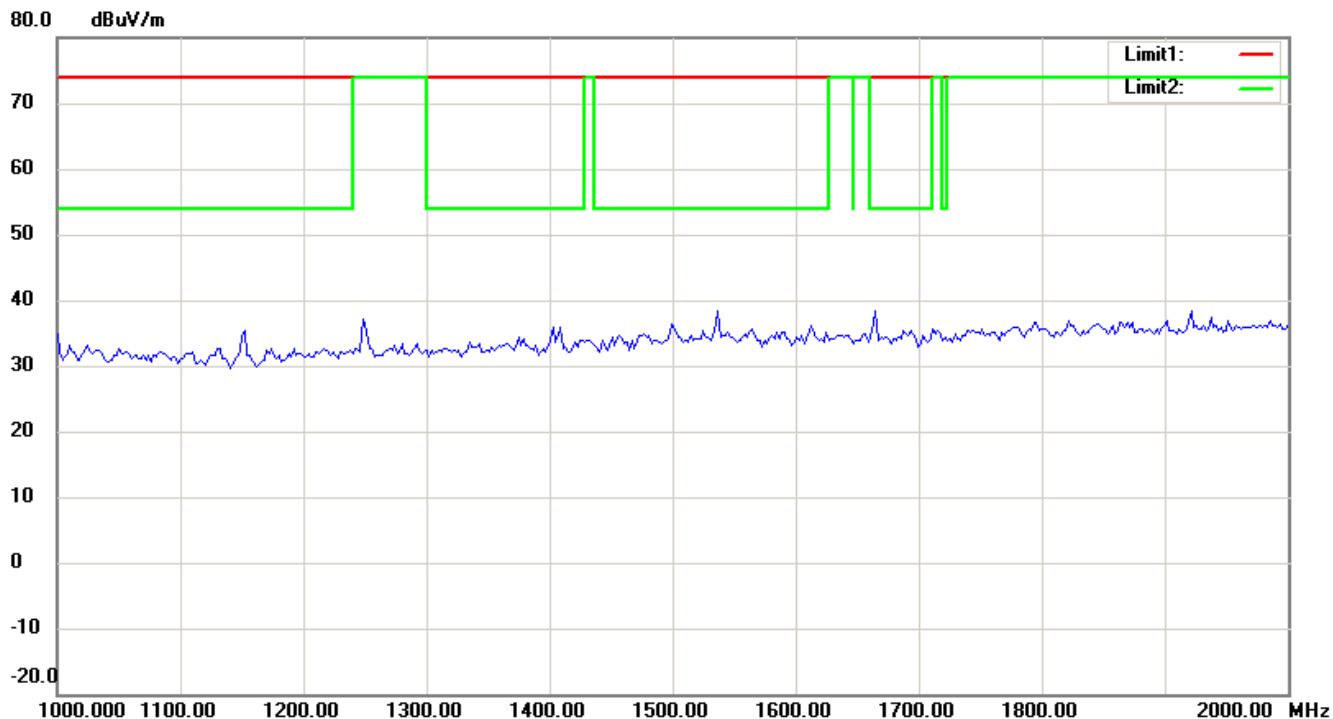
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

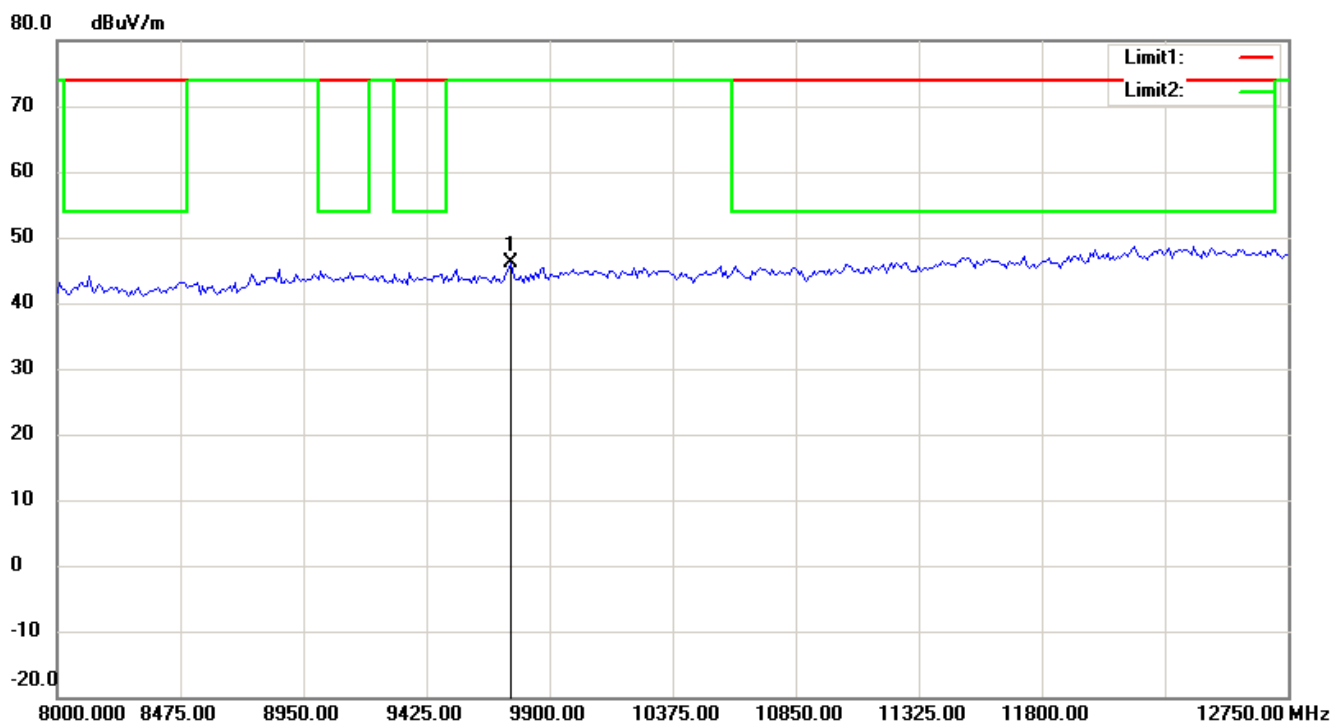
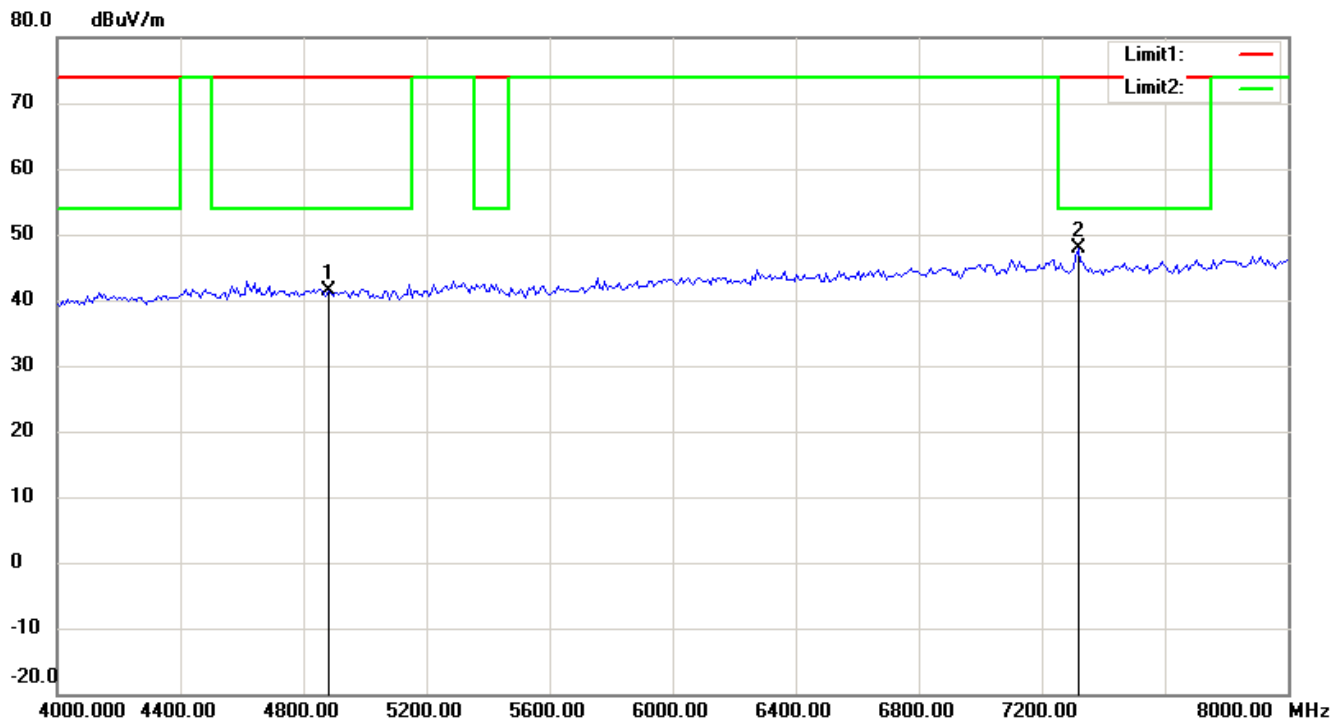
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

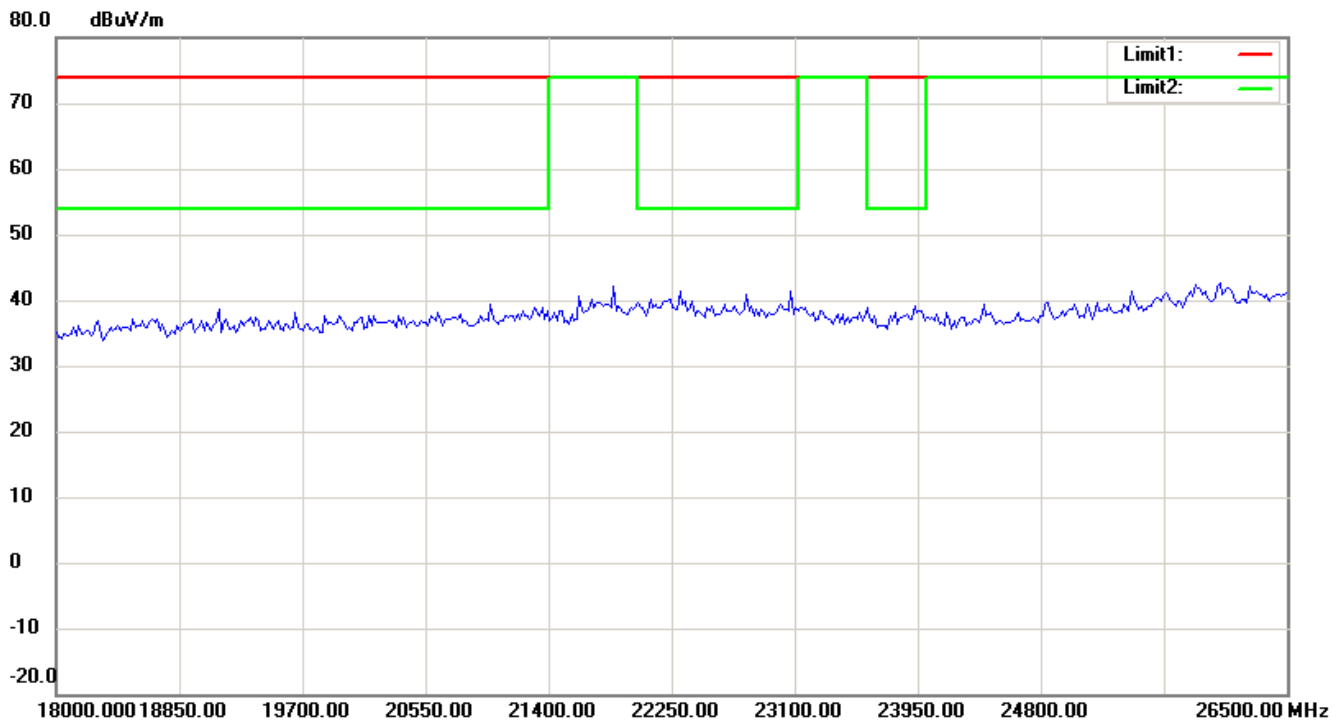
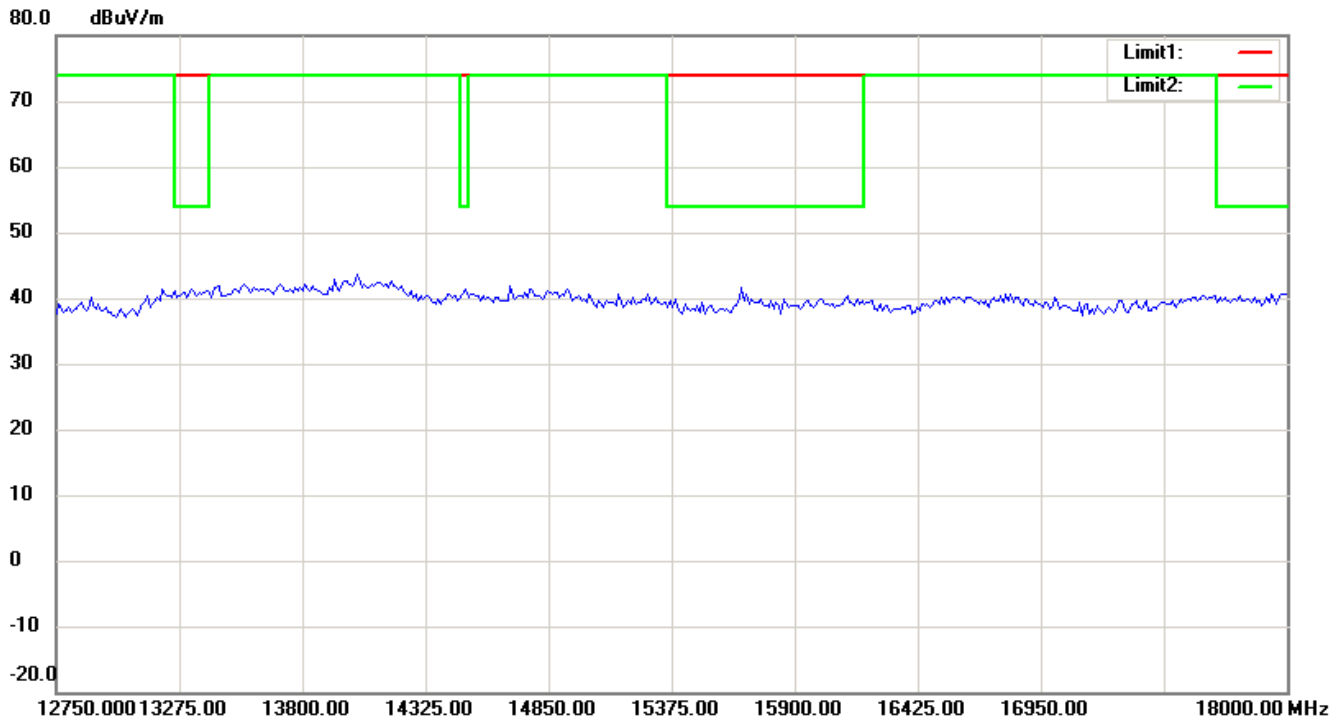
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

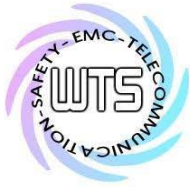
FCC ID: Z54PV-1005



Note:

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1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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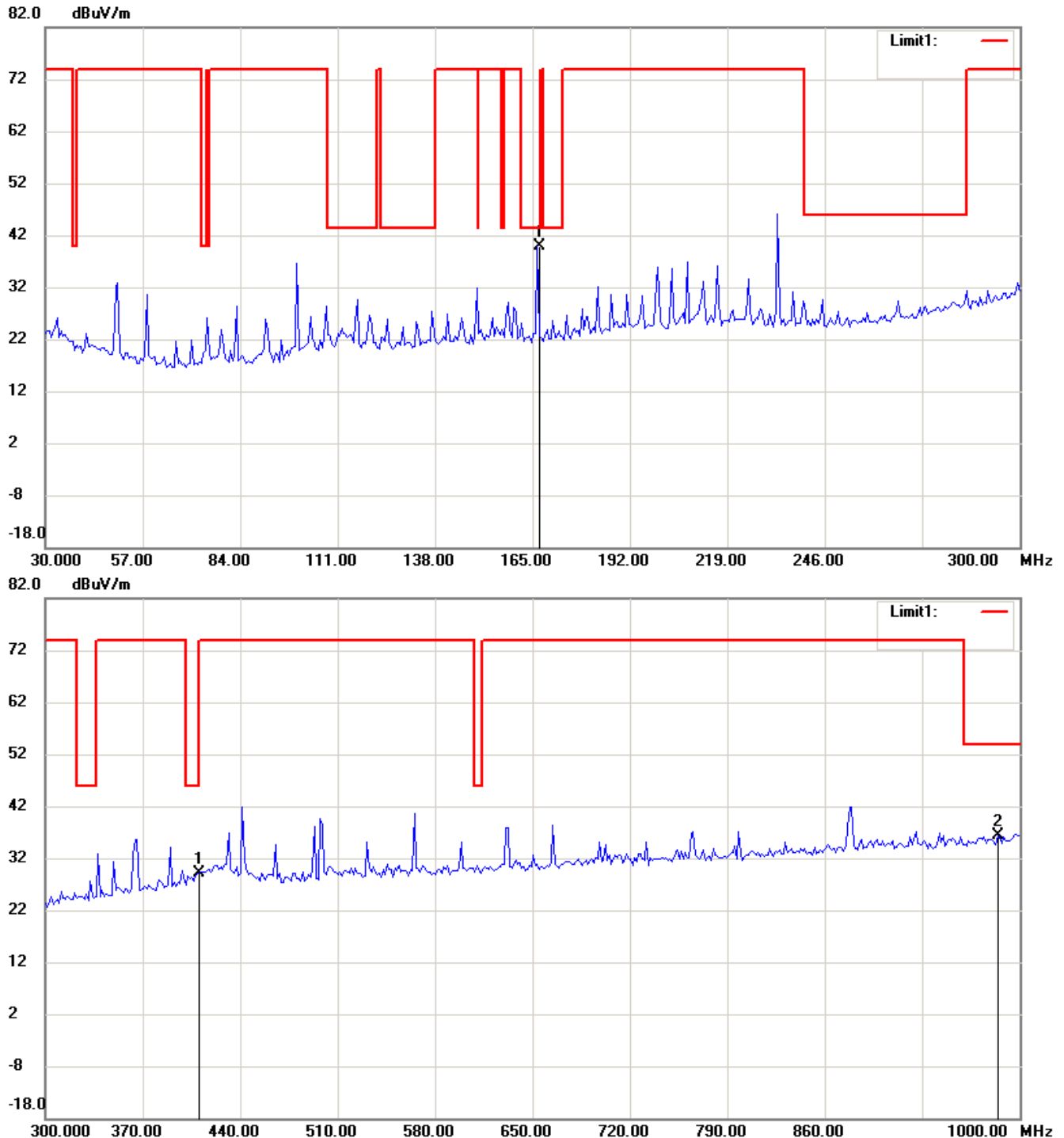
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Channel 11

Antenna Polarization H



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

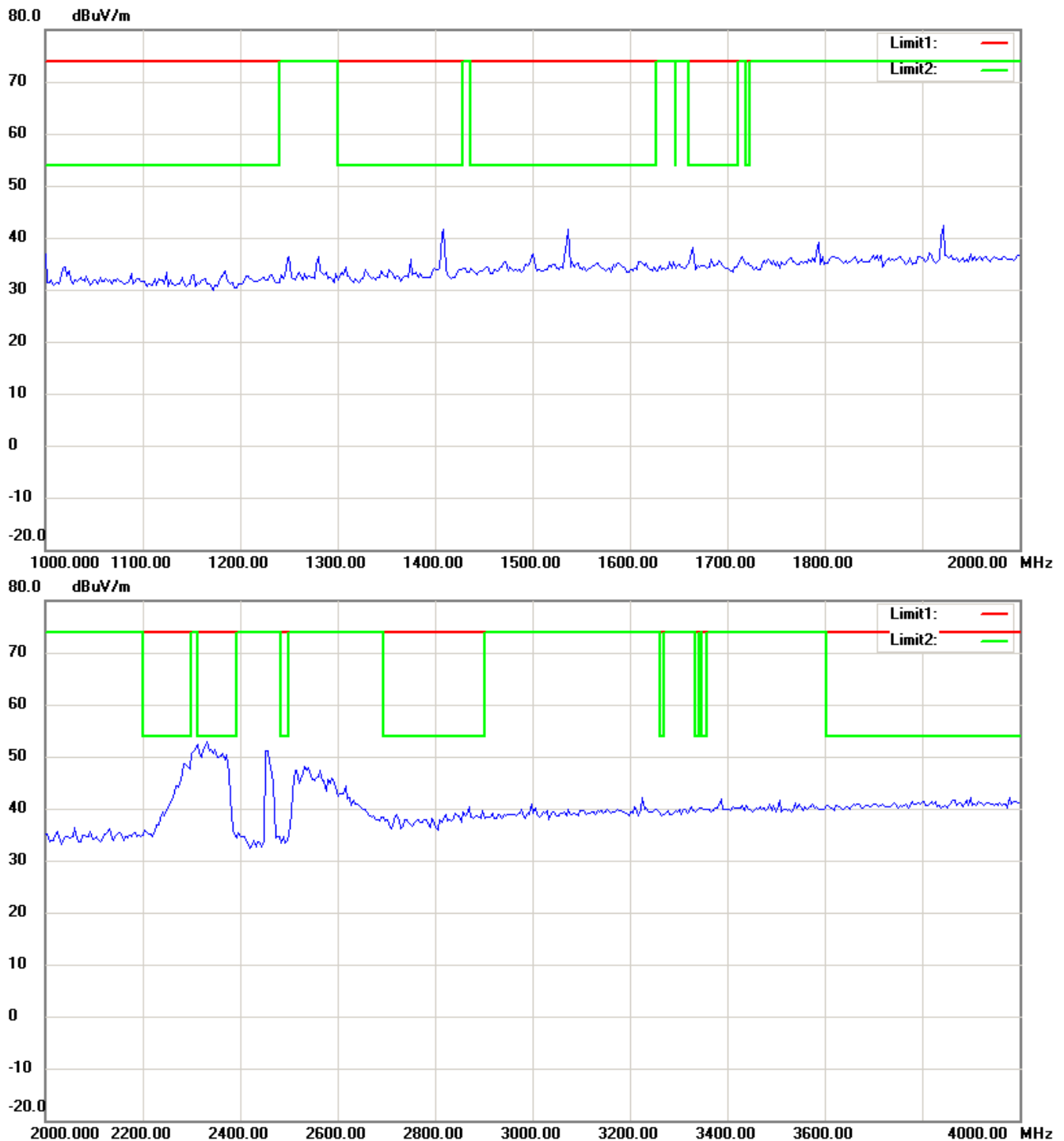
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

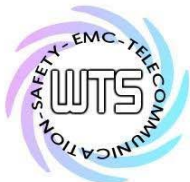
FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

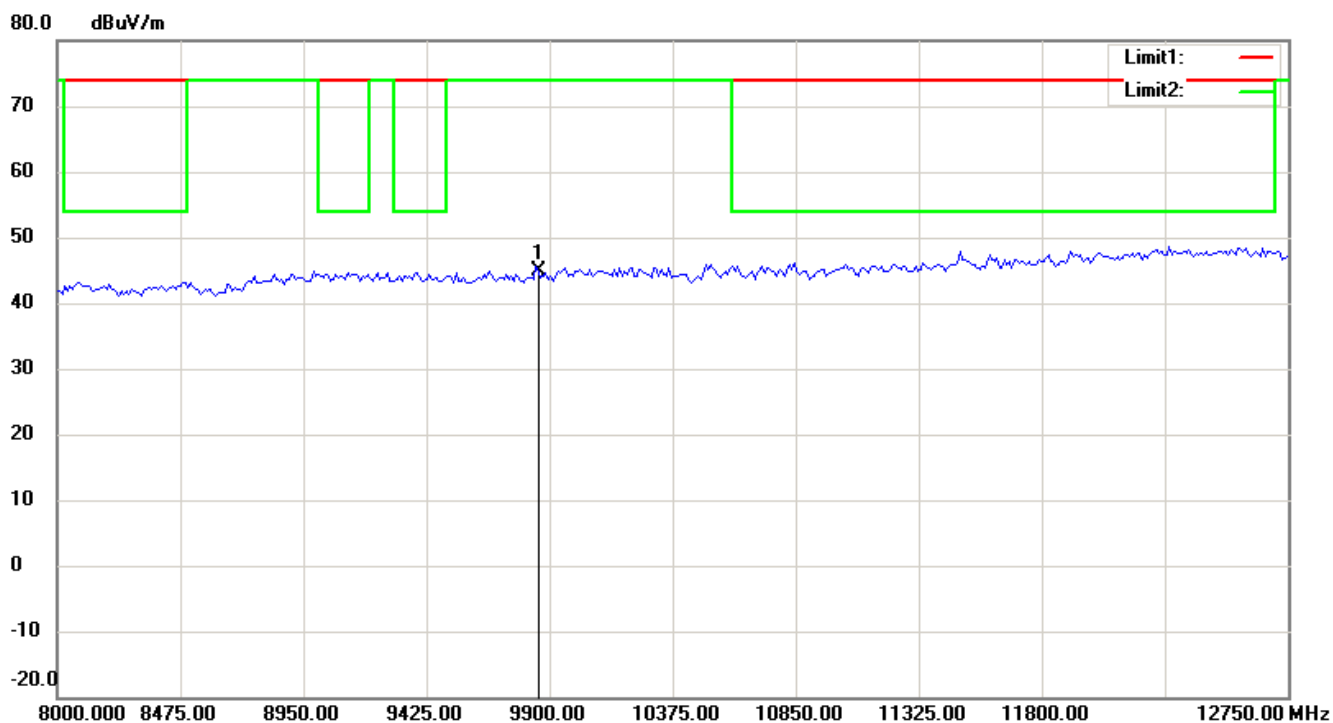
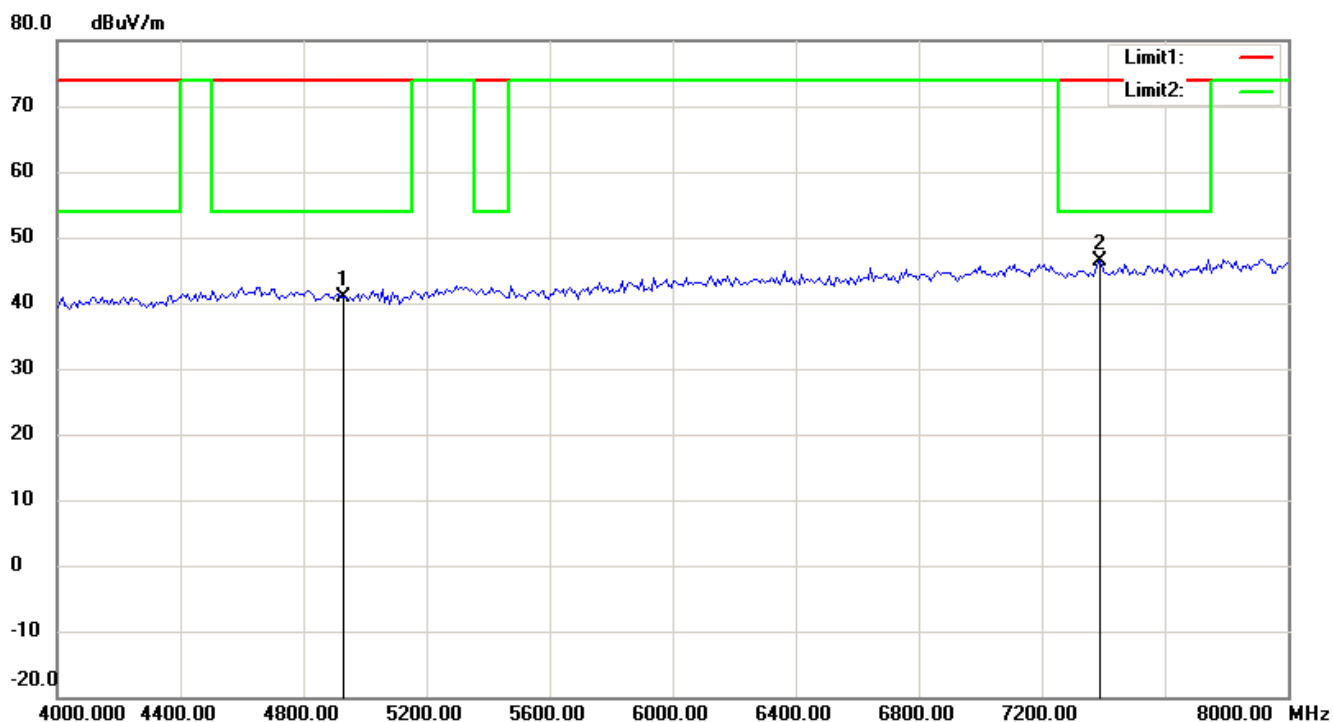
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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FCC ID: Z54PV-1005



Note:

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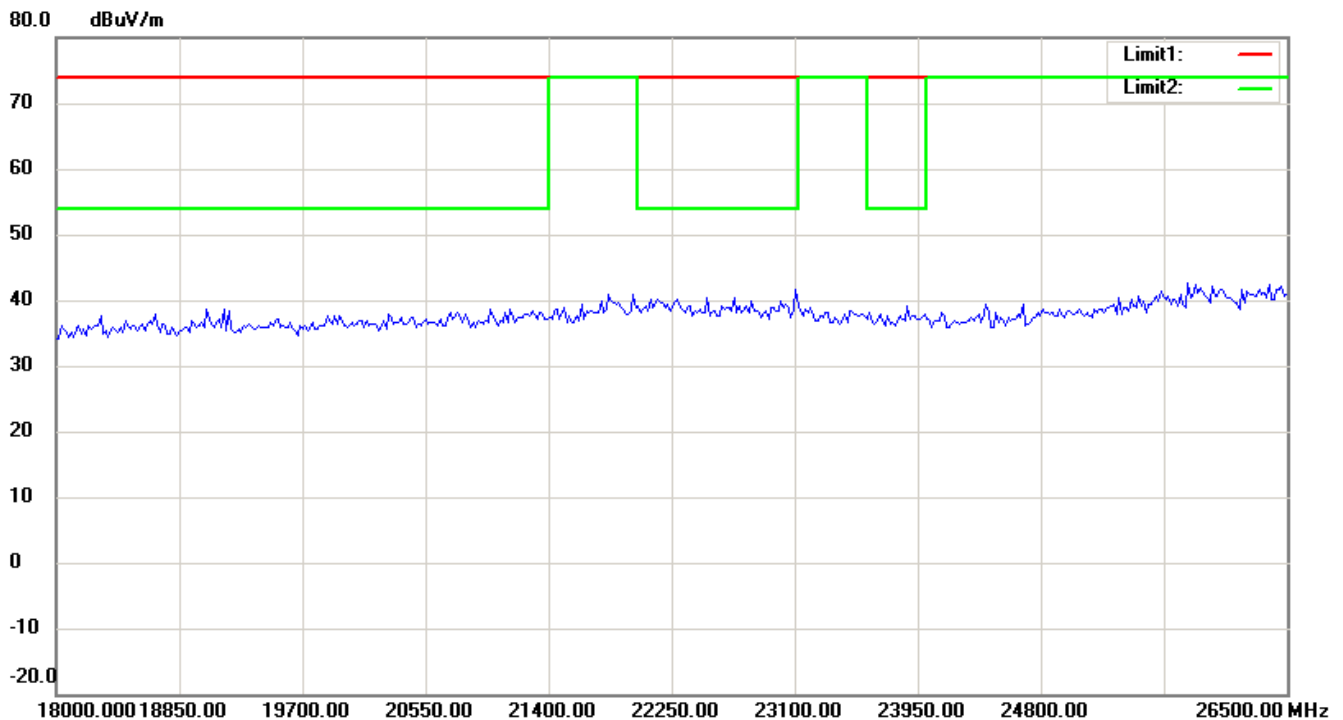
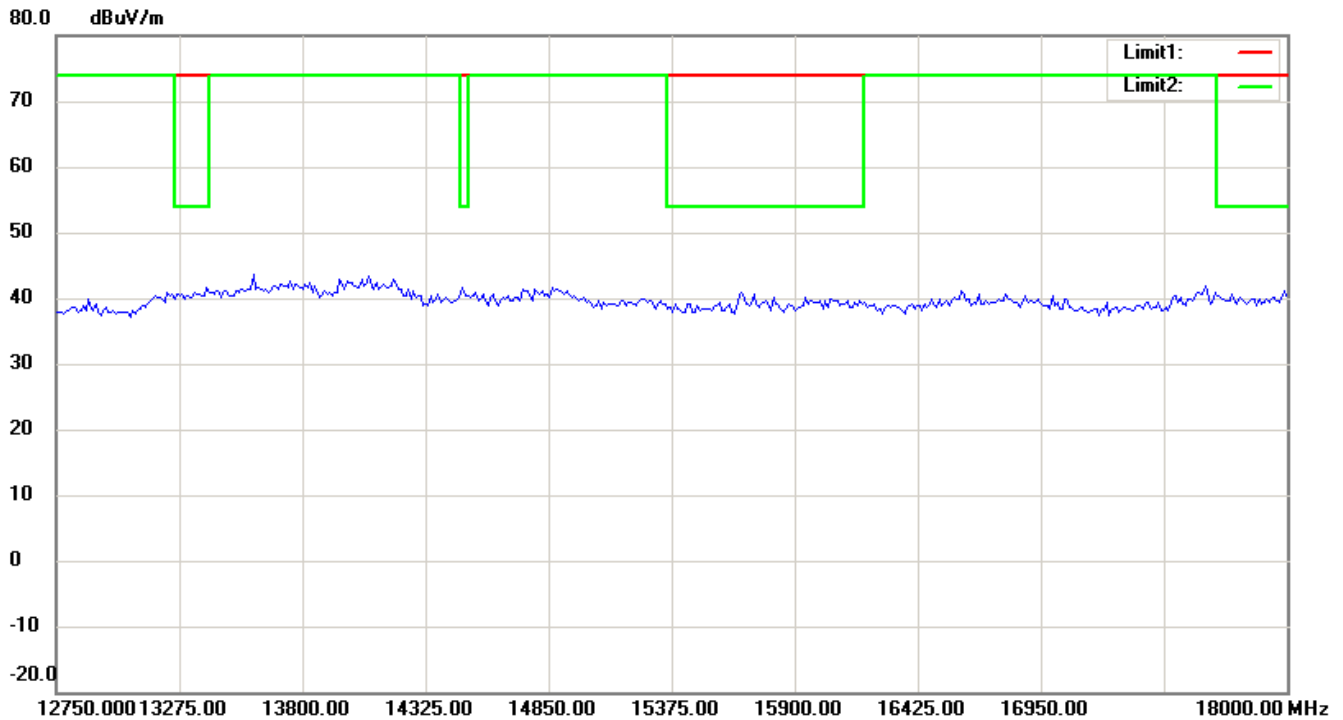
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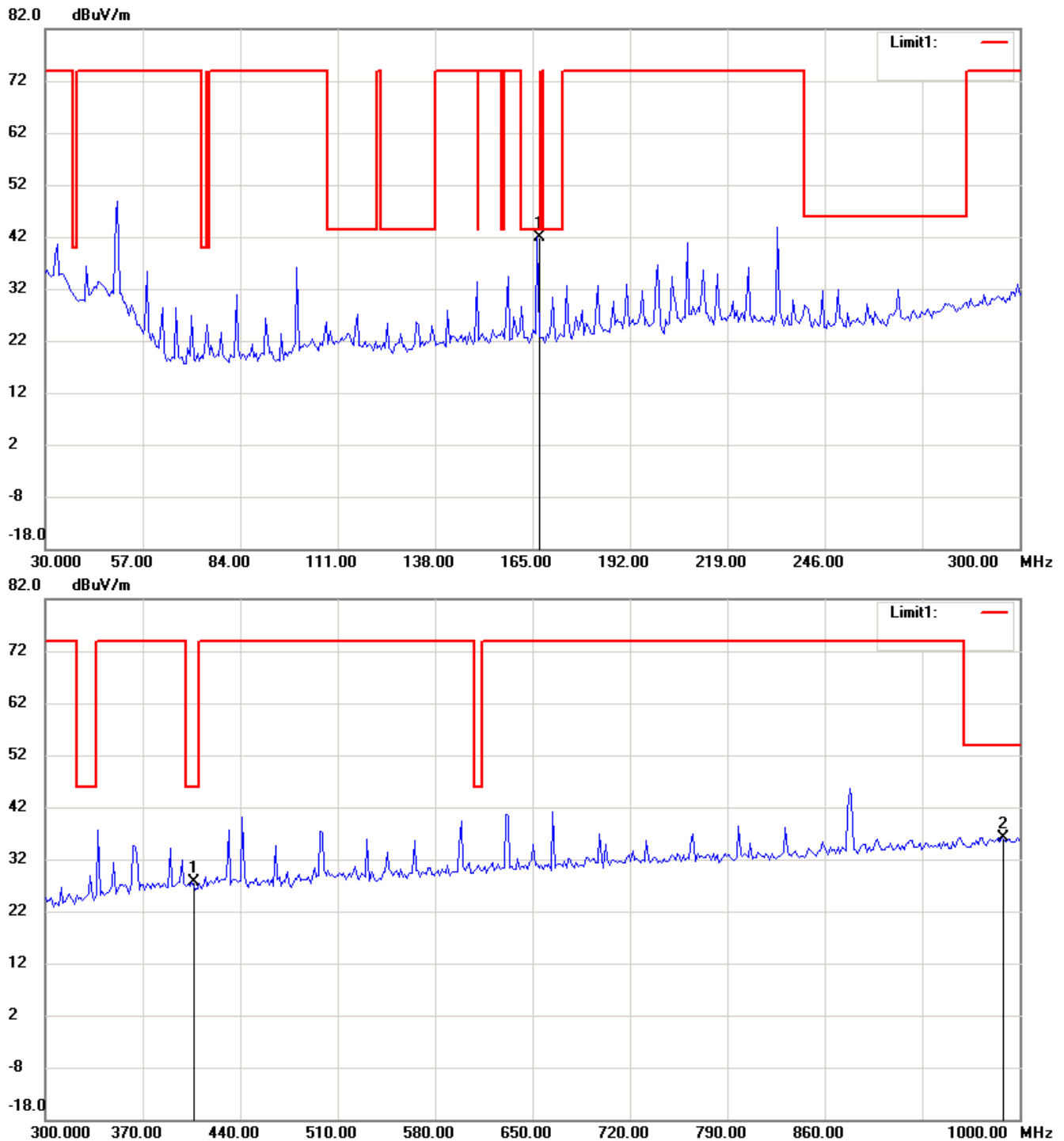


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Antenna Polarization V



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

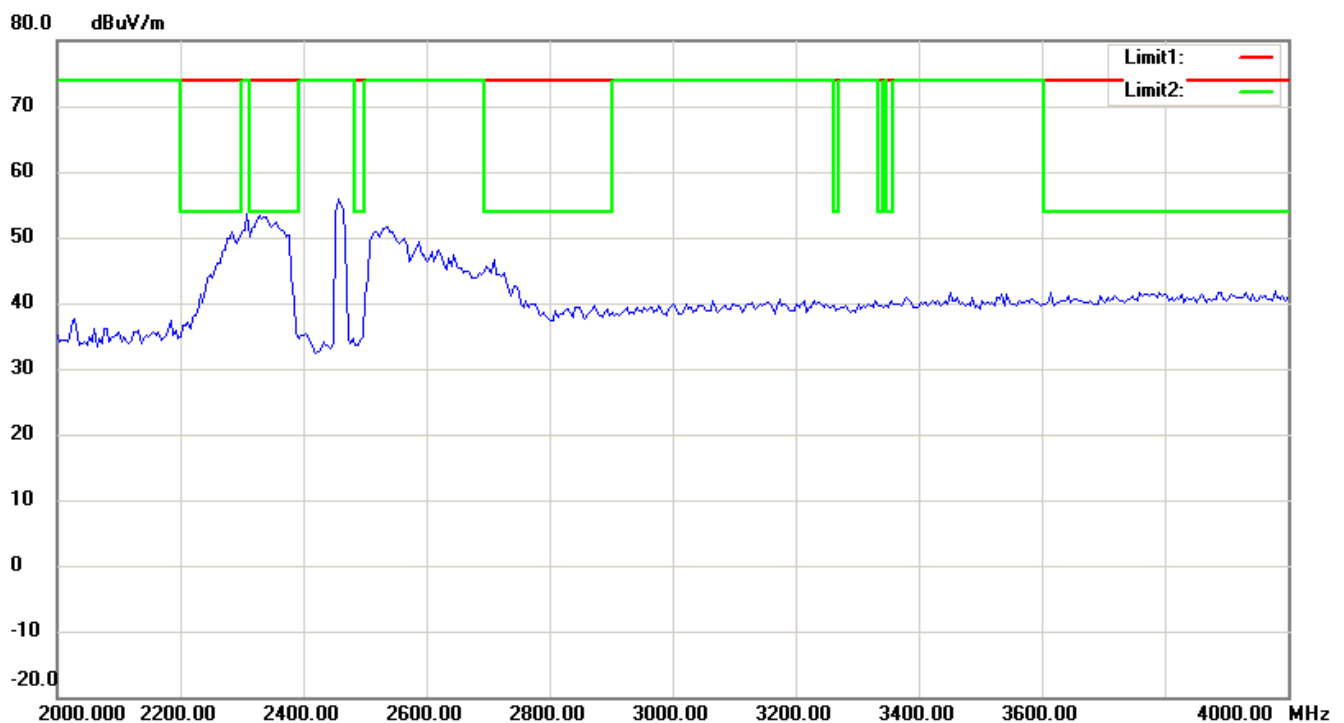
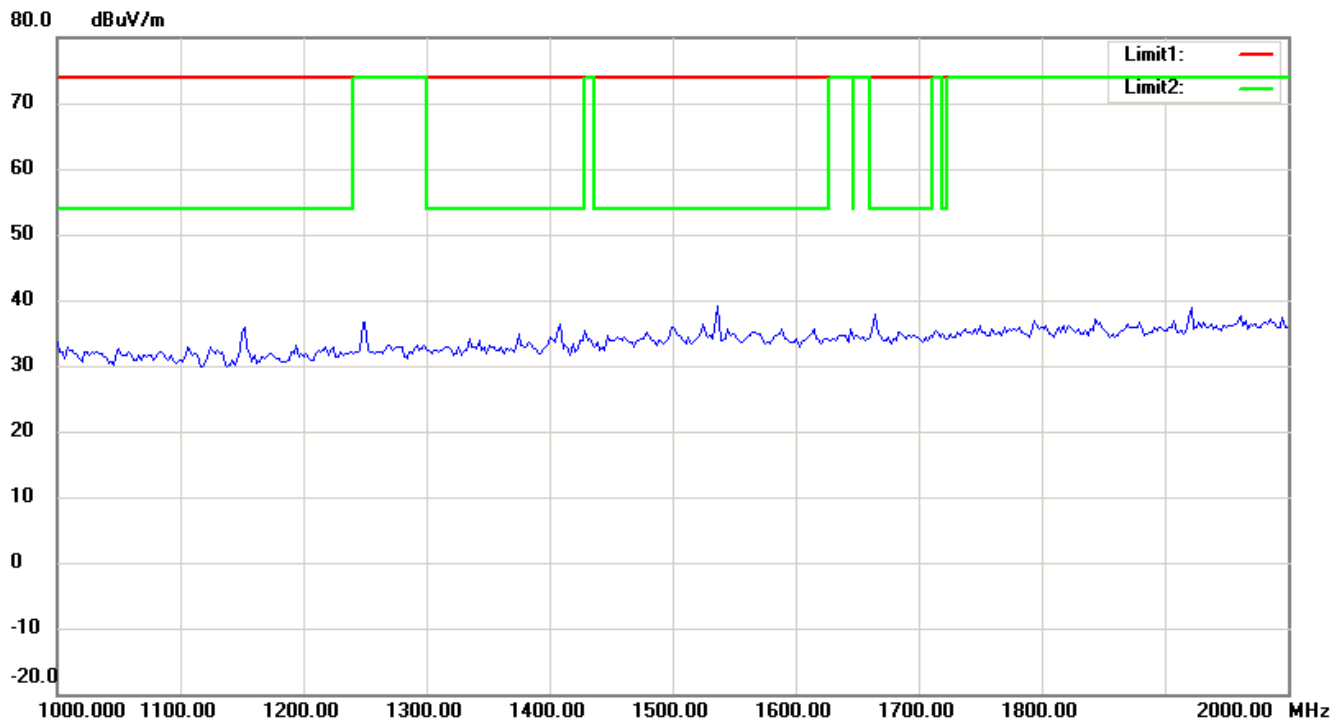
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Registration number: W6D21109-11809-C-1

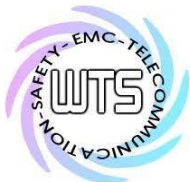
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Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

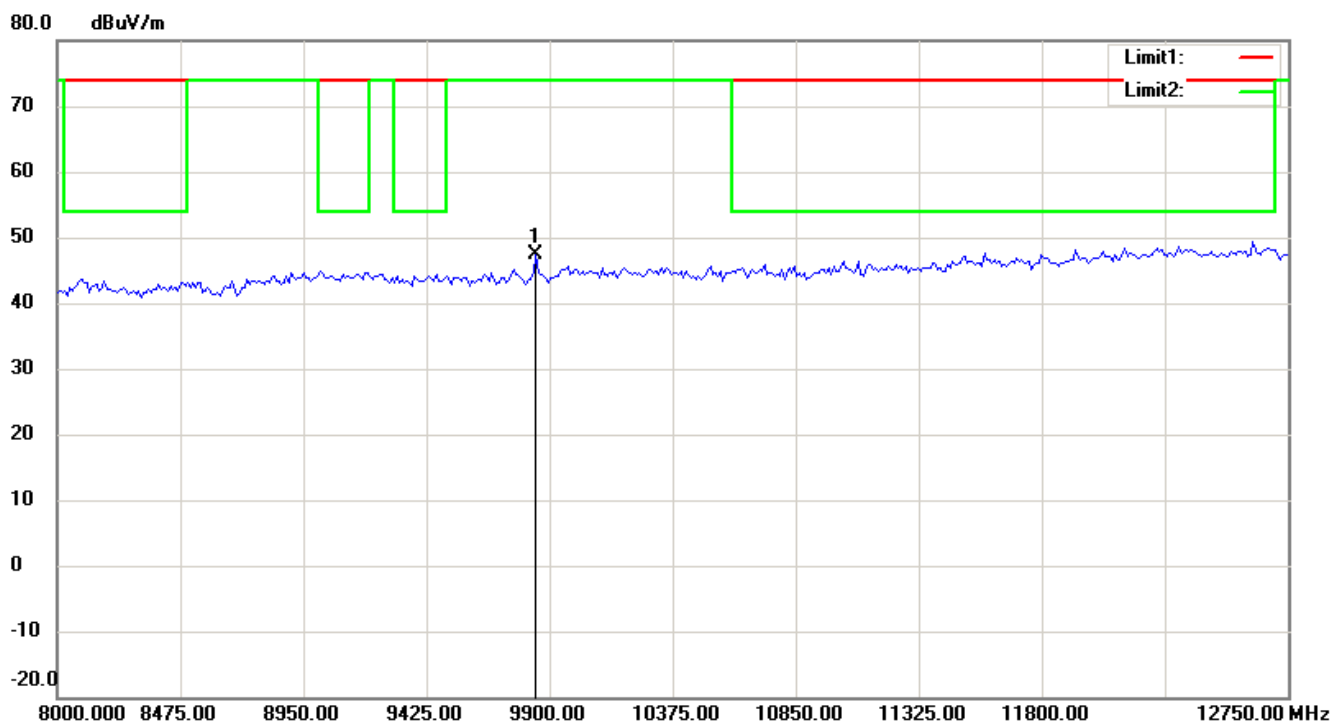
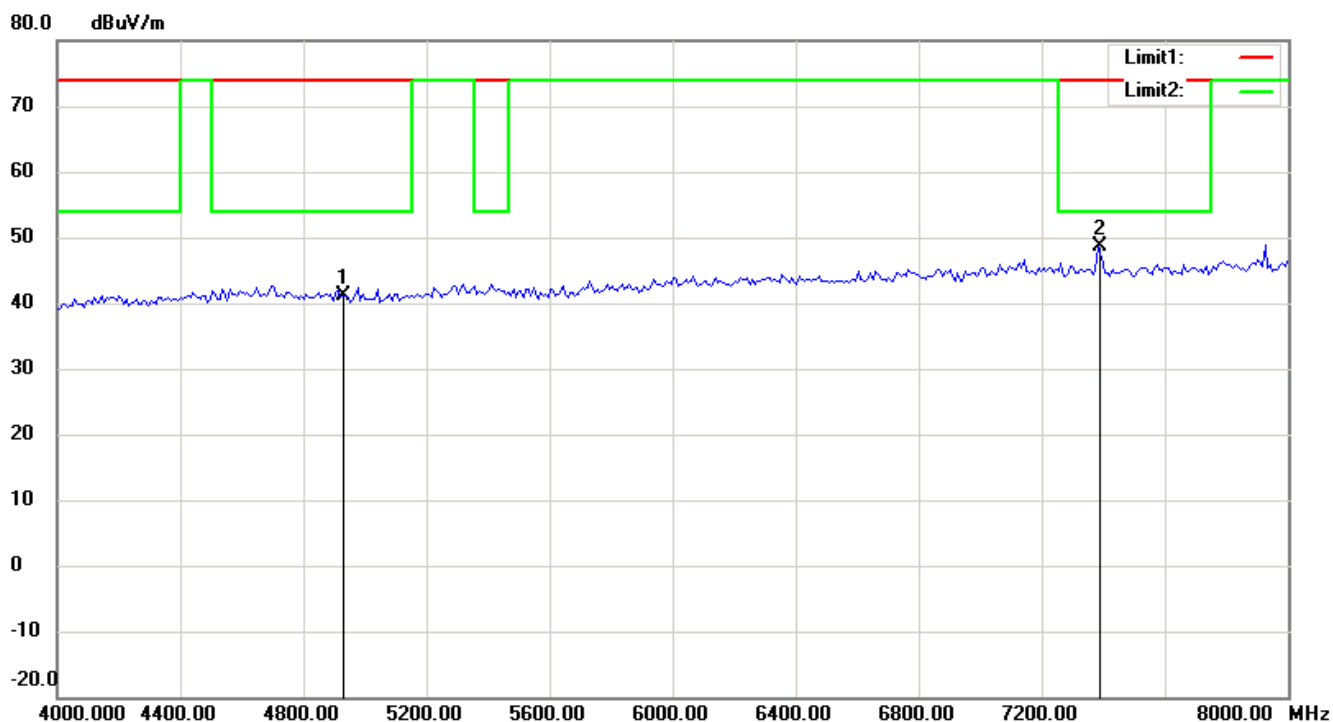
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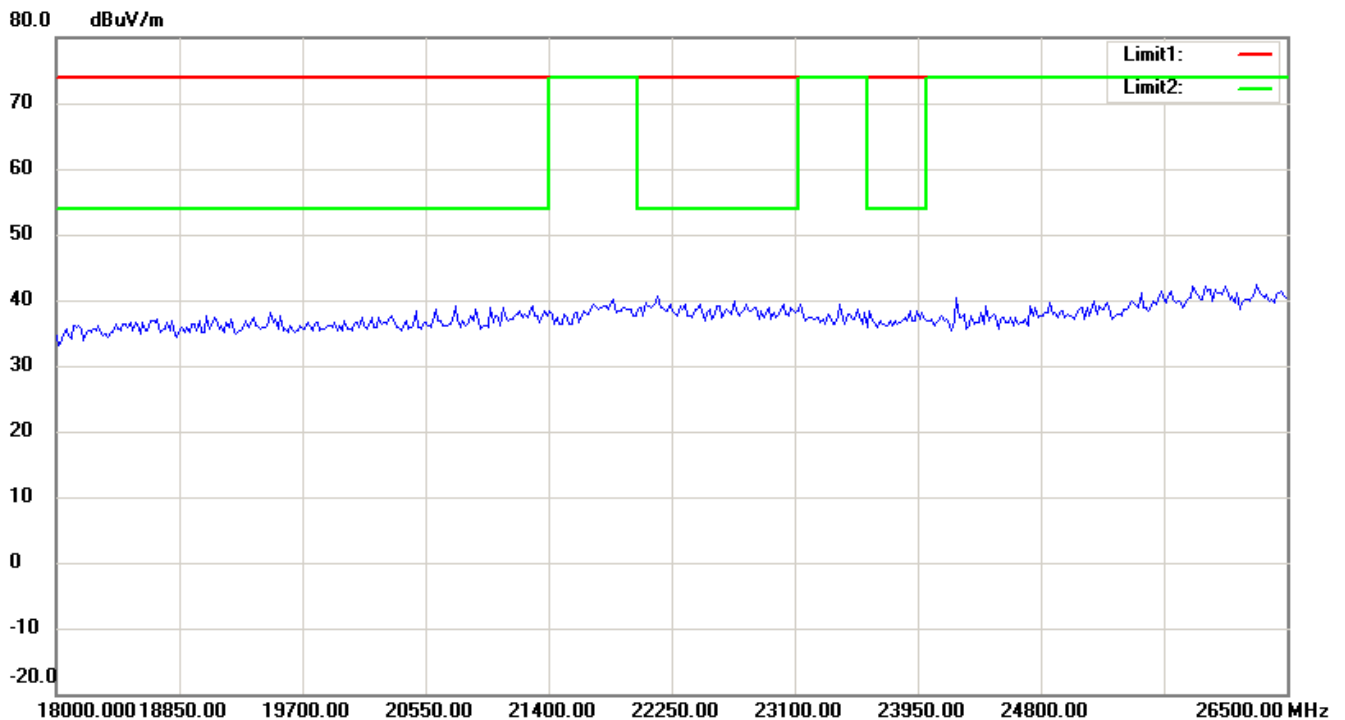
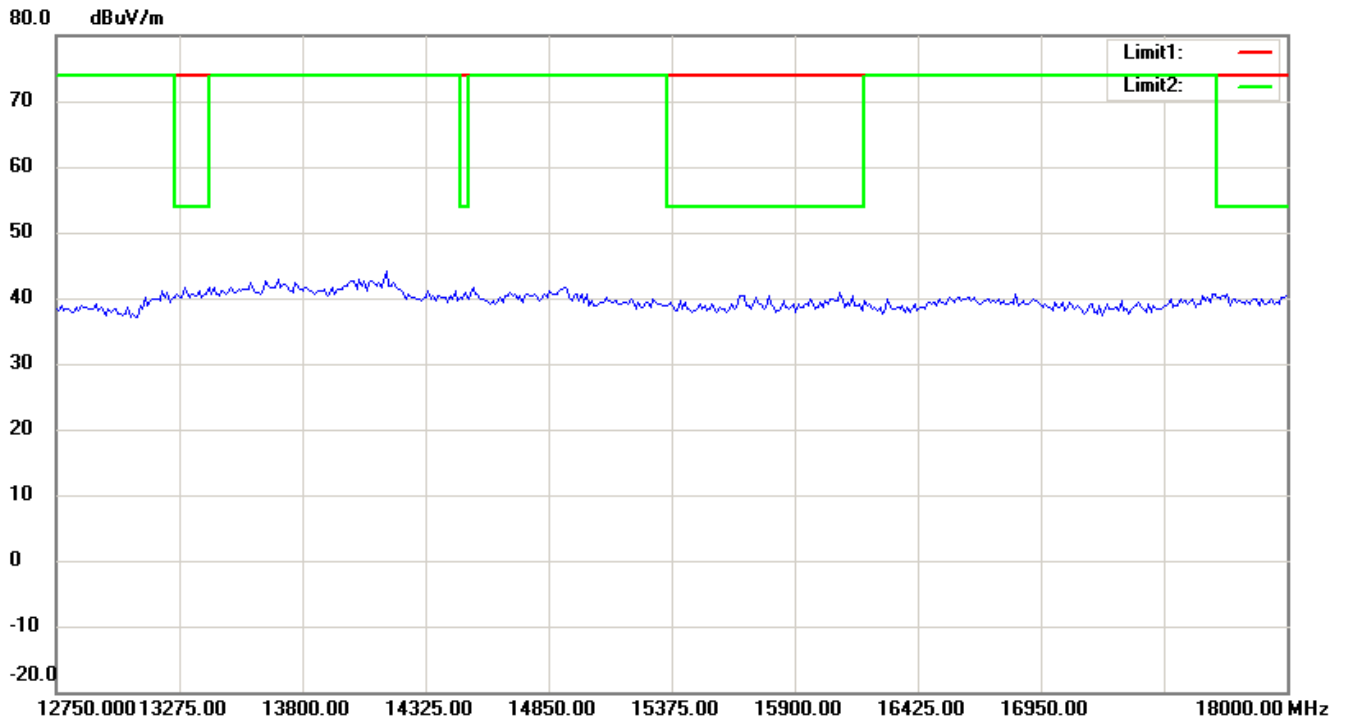
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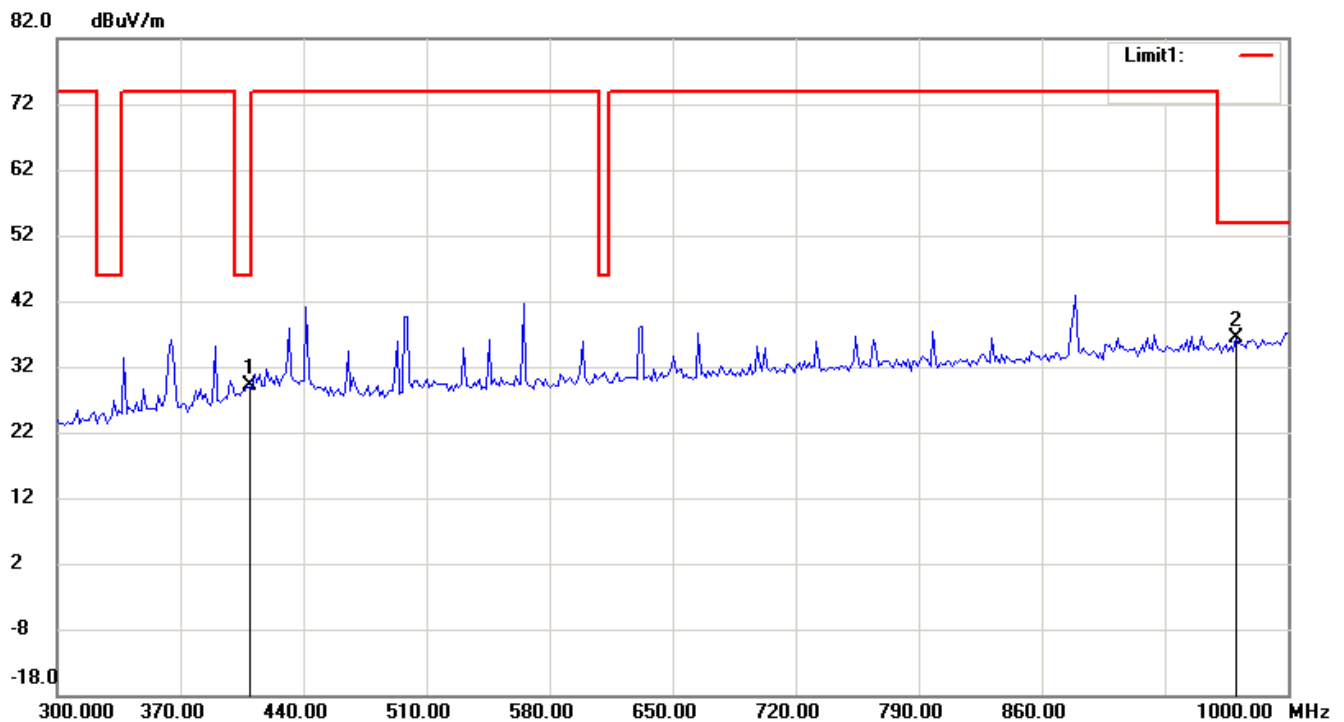
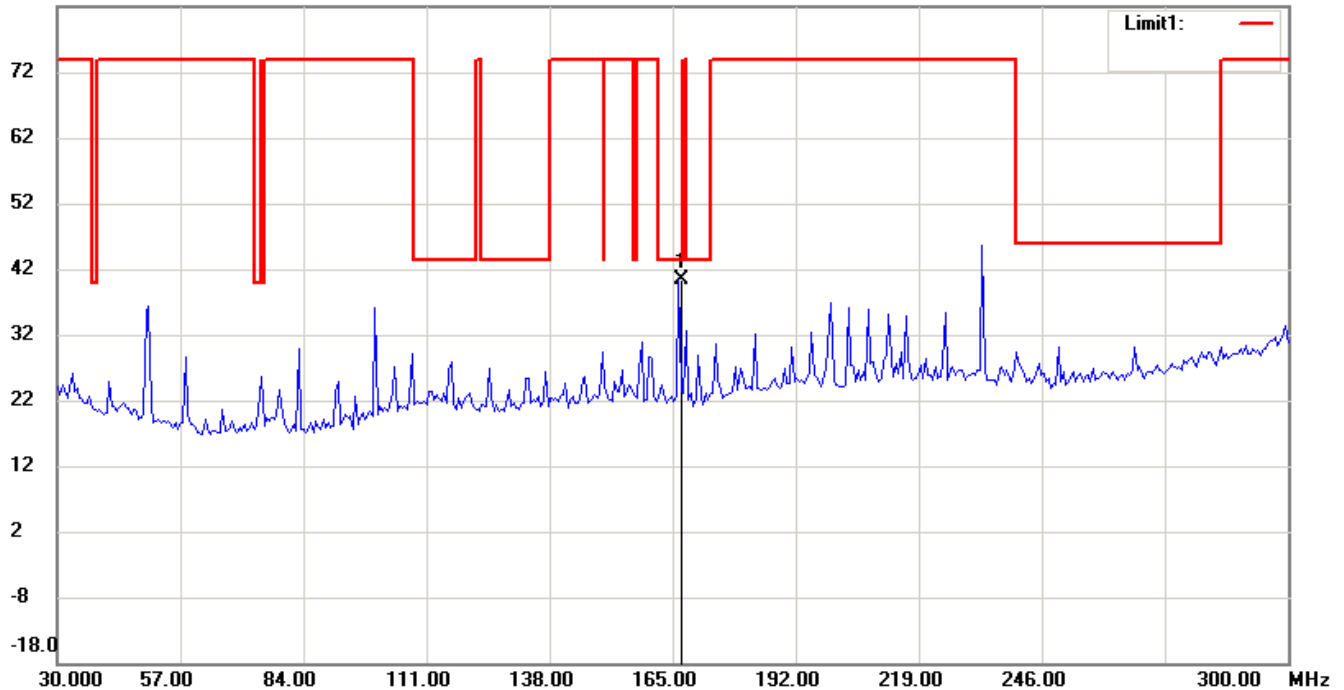
FCC ID: Z54PV-1005

802.11n

Channel 1

Antenna Polarization H

82.0 dBuV/m



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

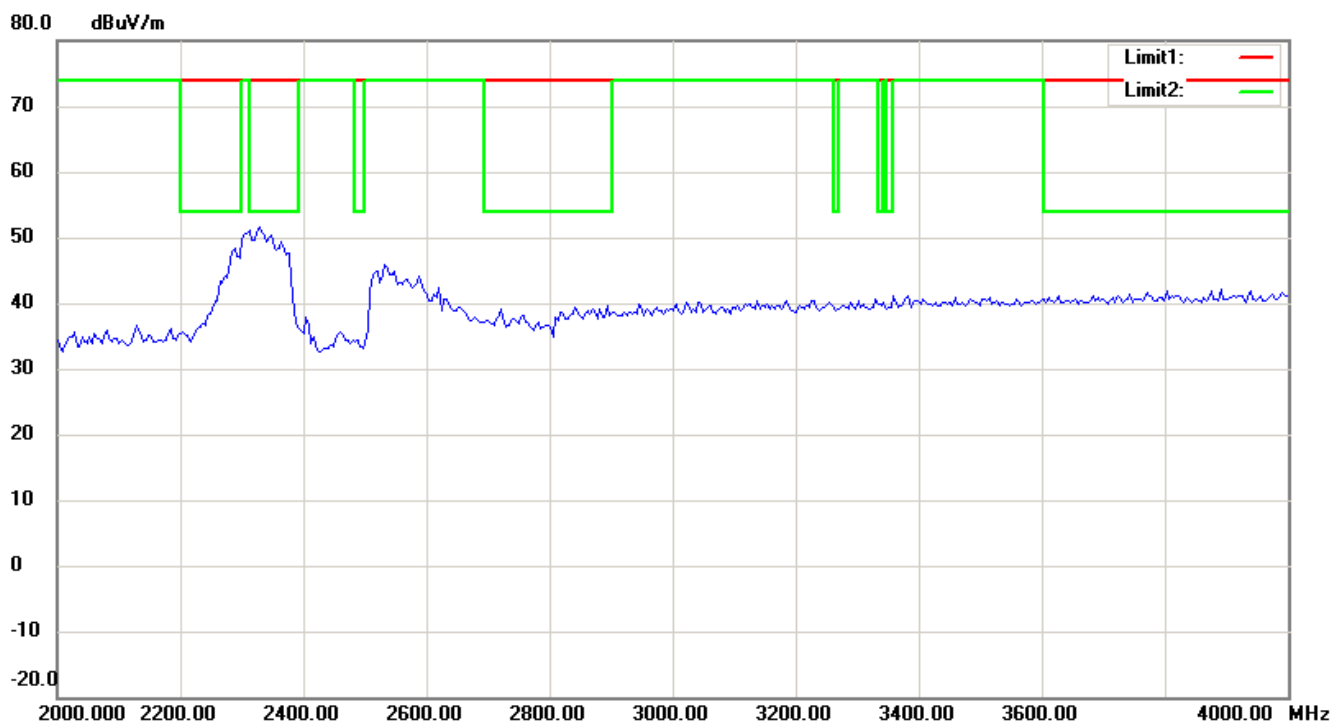
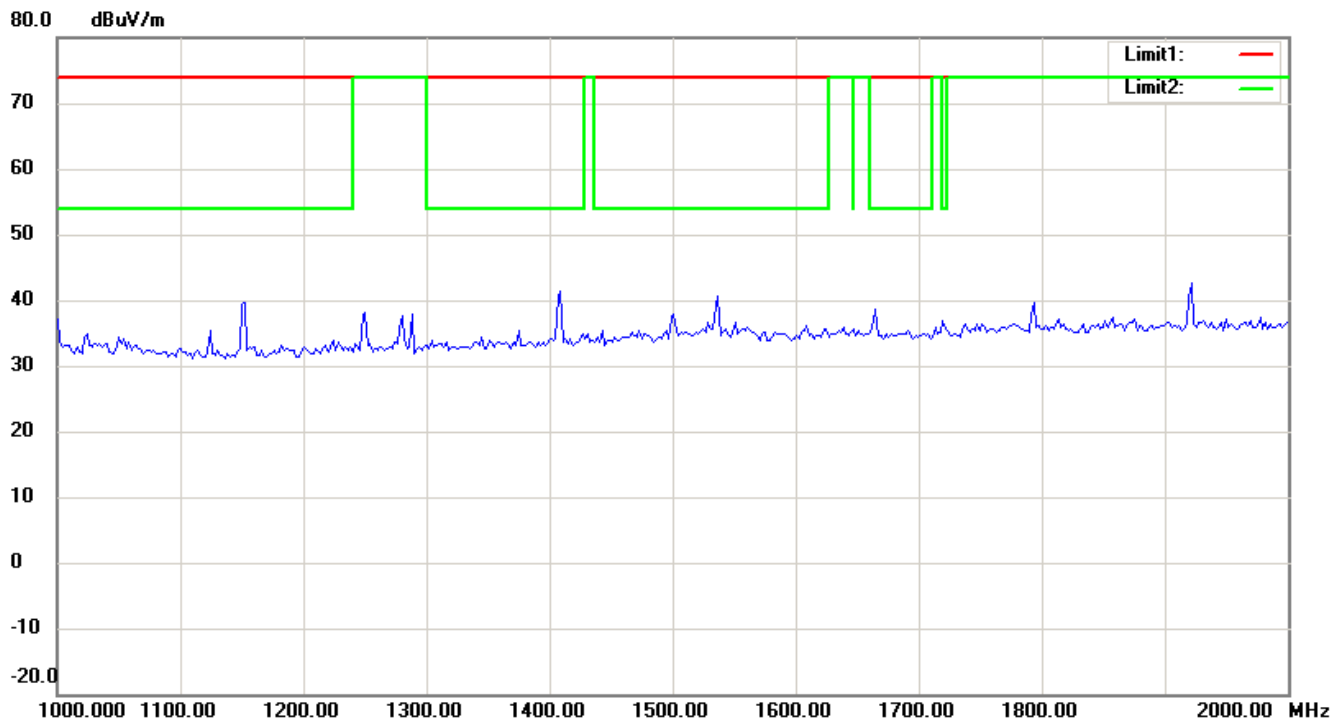
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



Note:

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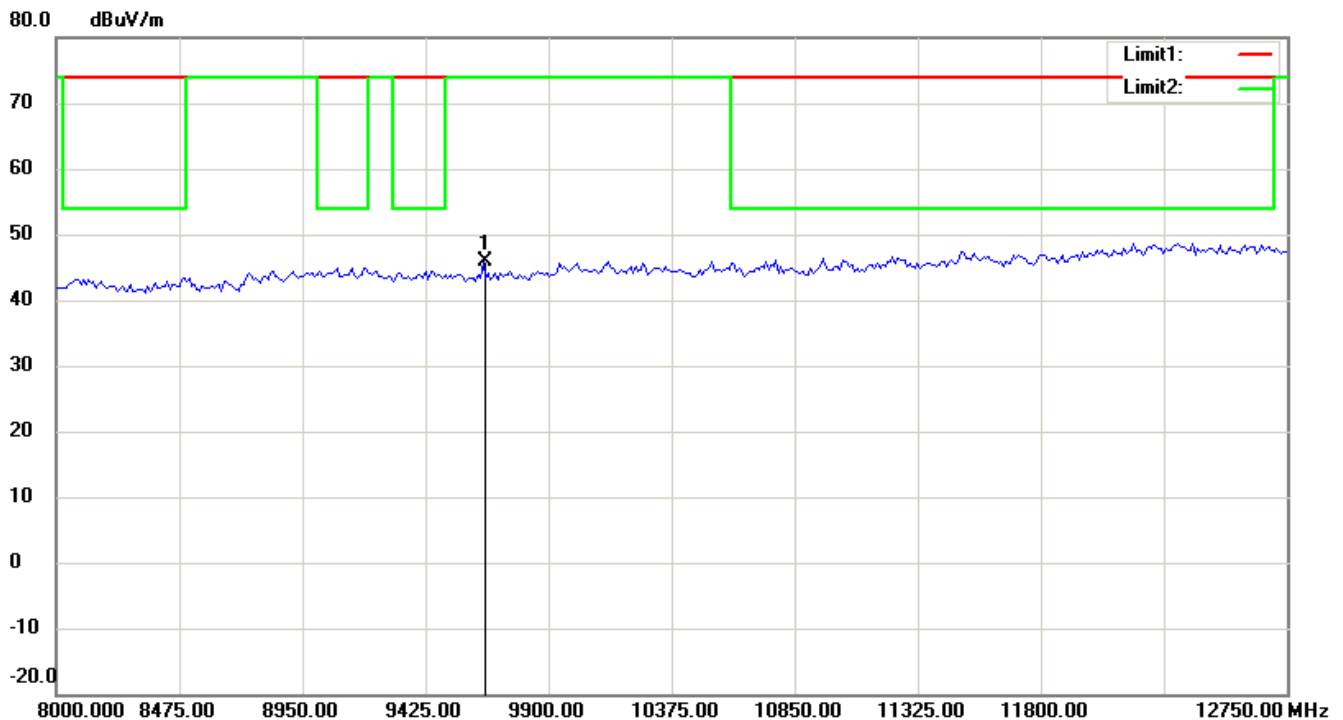
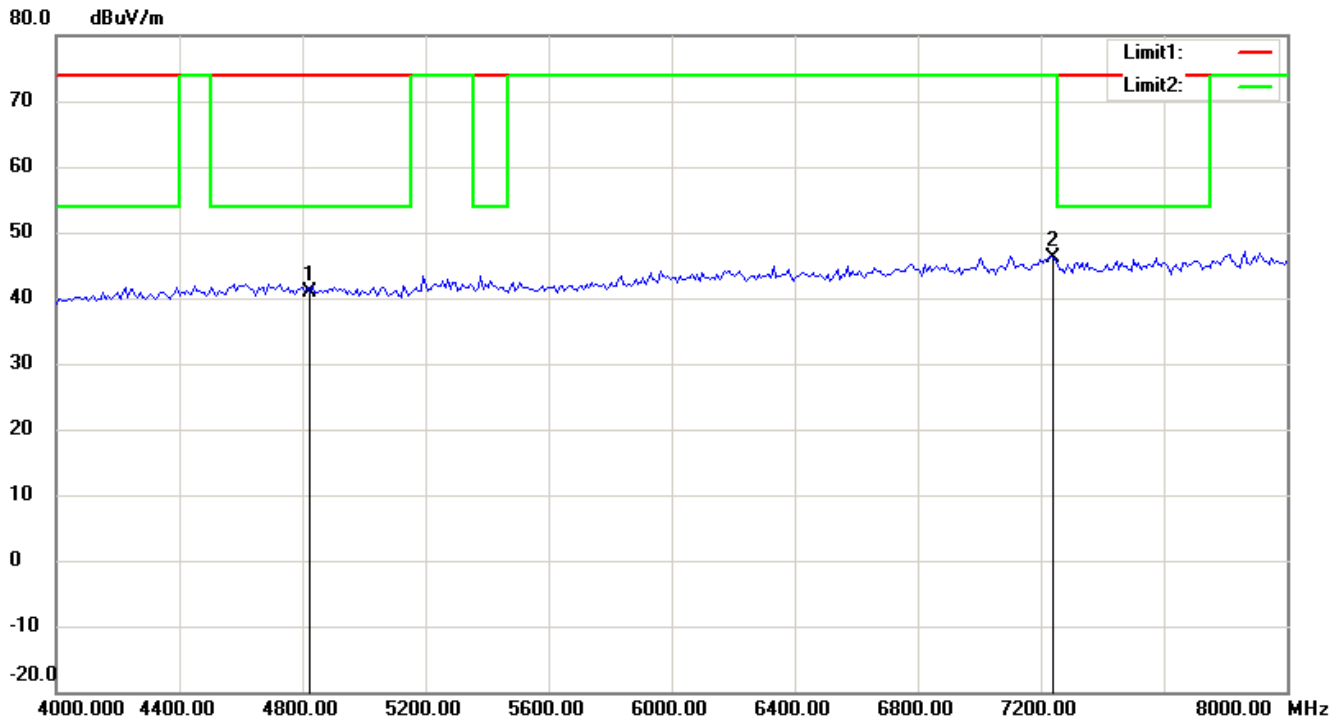
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Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



Note:

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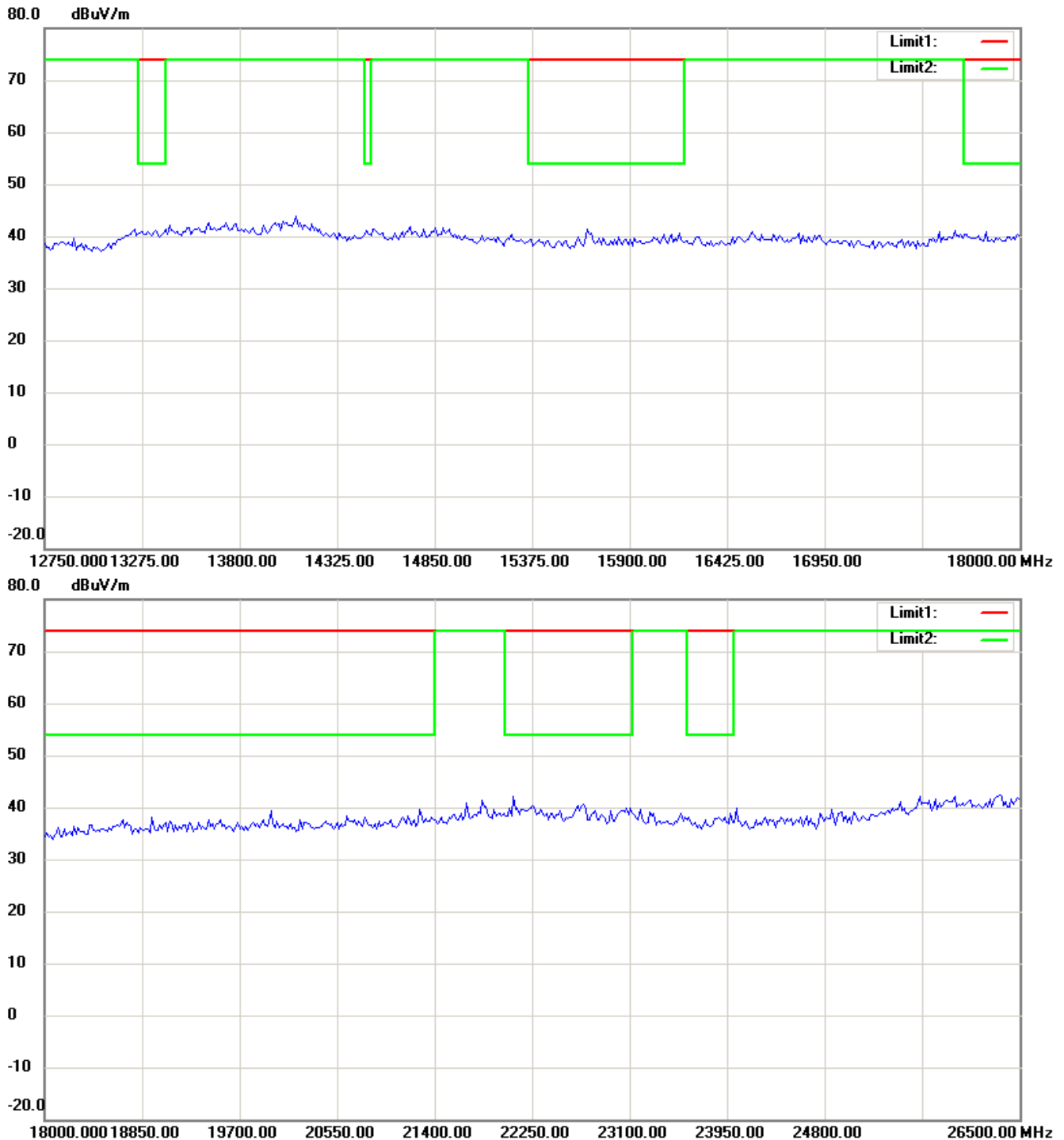
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FCC ID: Z54PV-1005



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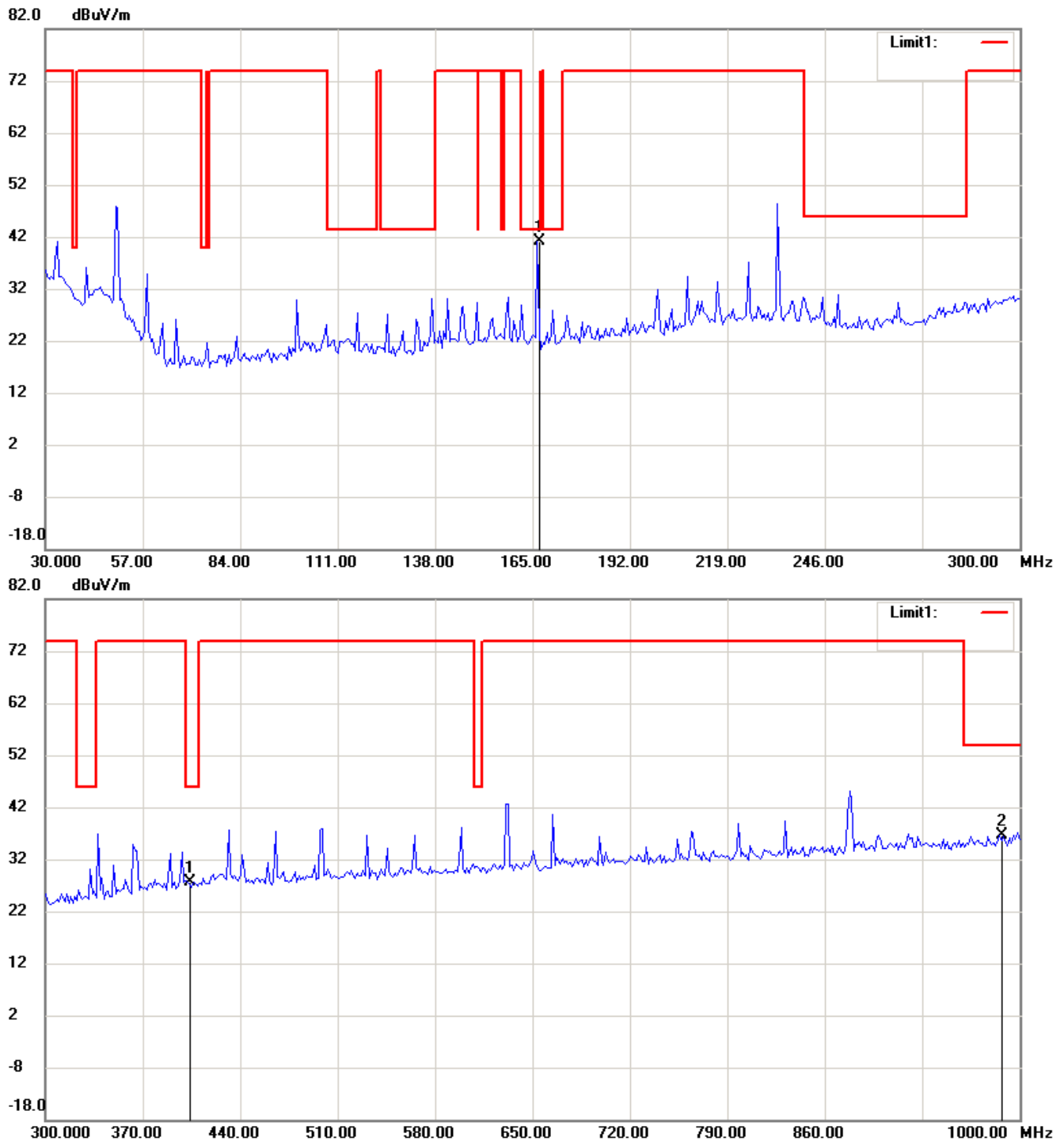


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Antenna Polarization V



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

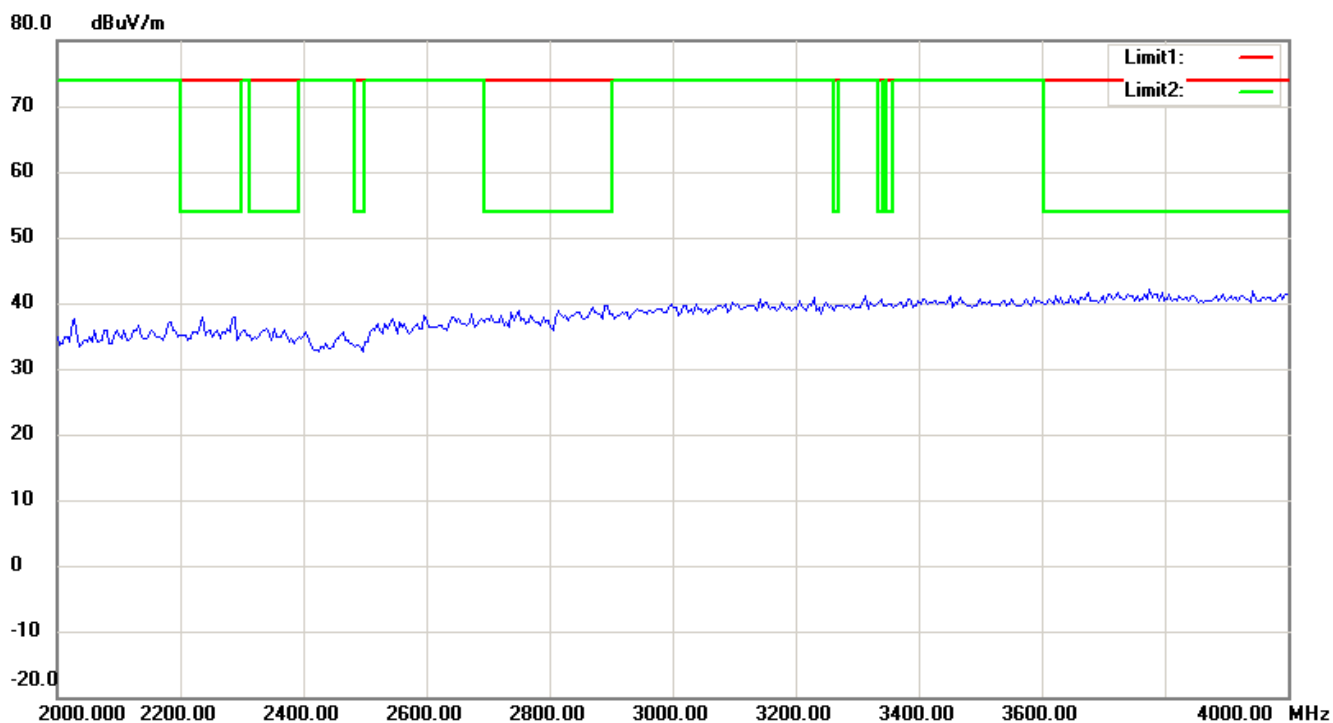
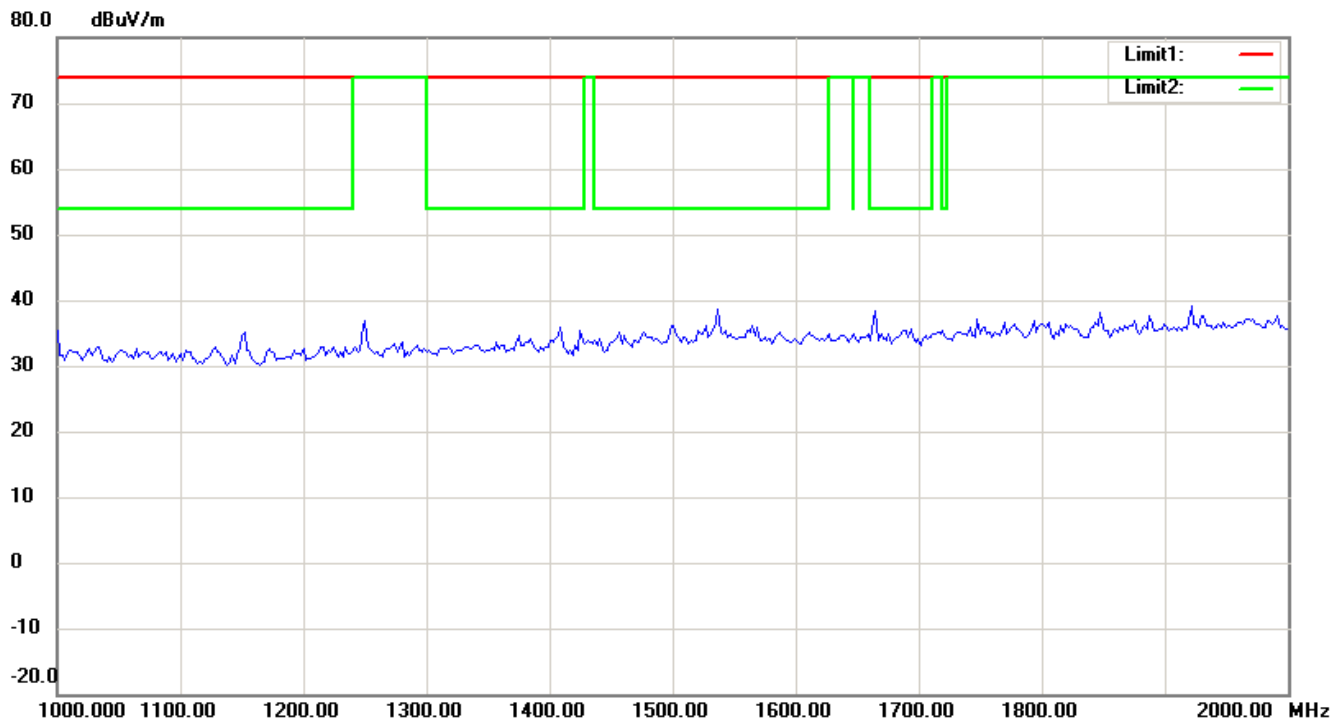
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FCC ID: Z54PV-1005



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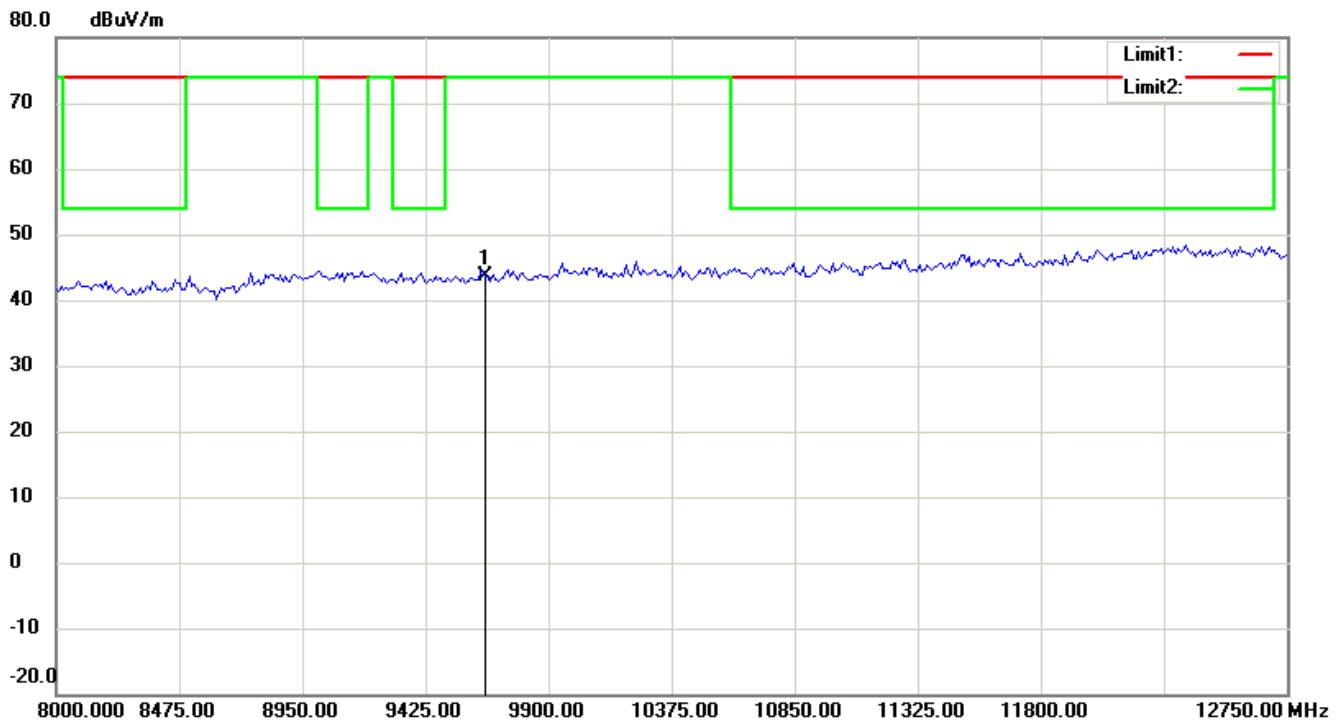
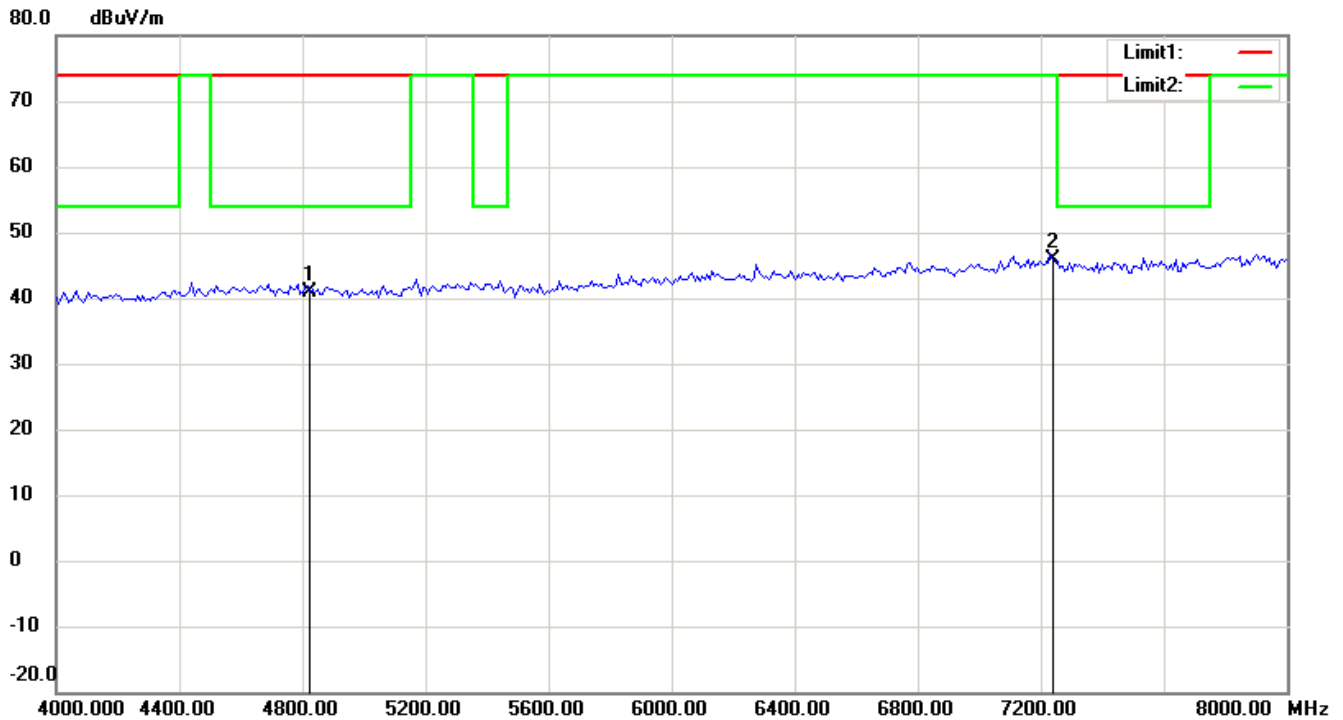
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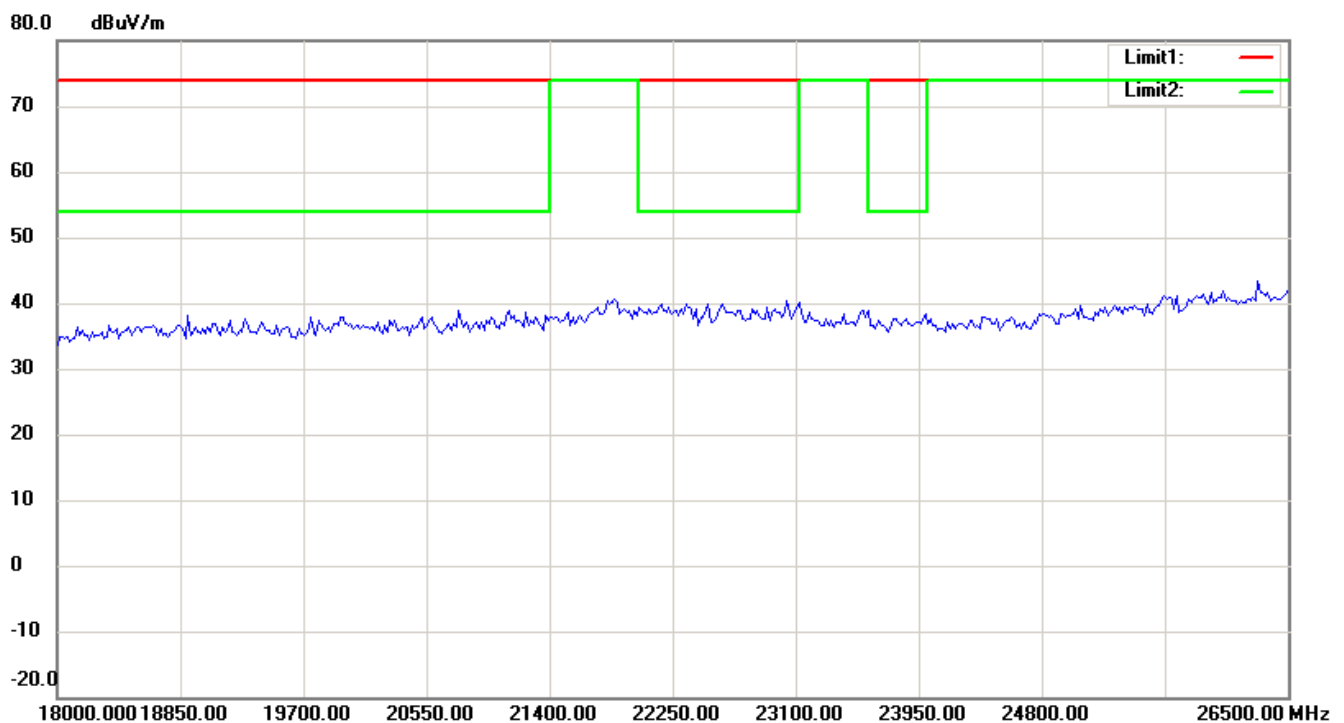
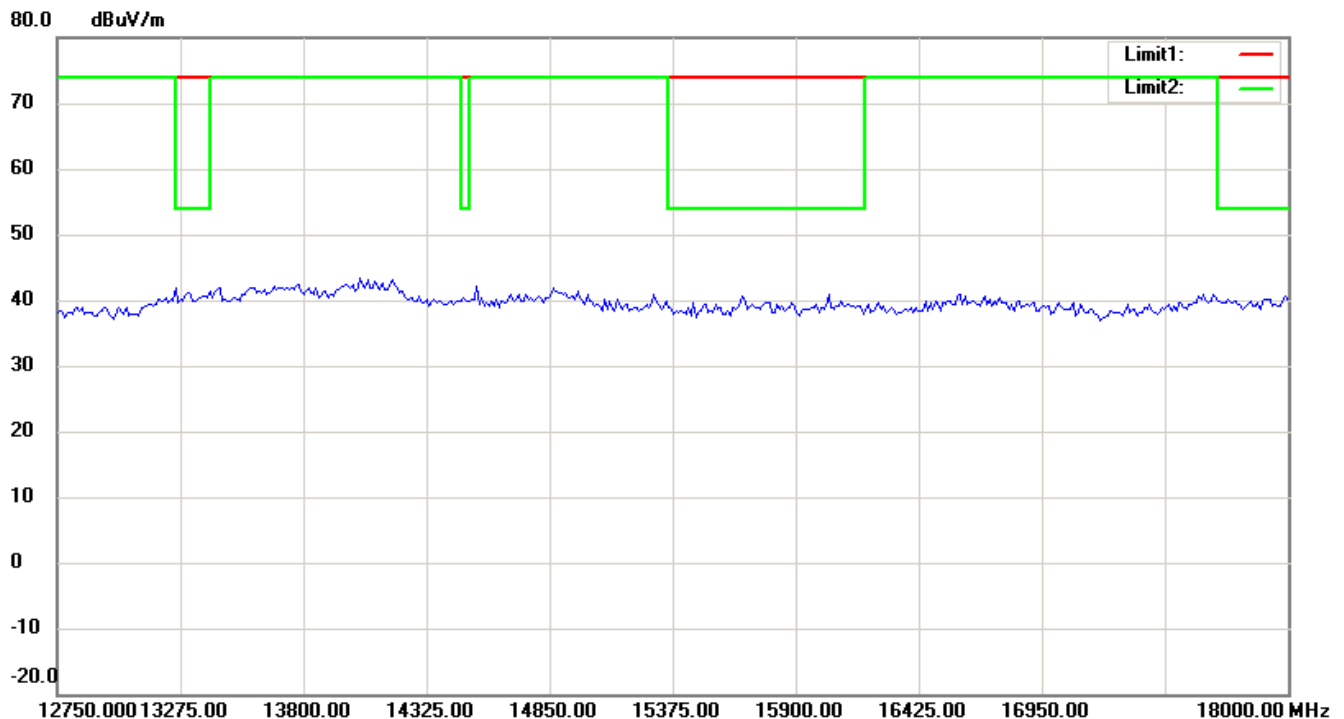
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Note:

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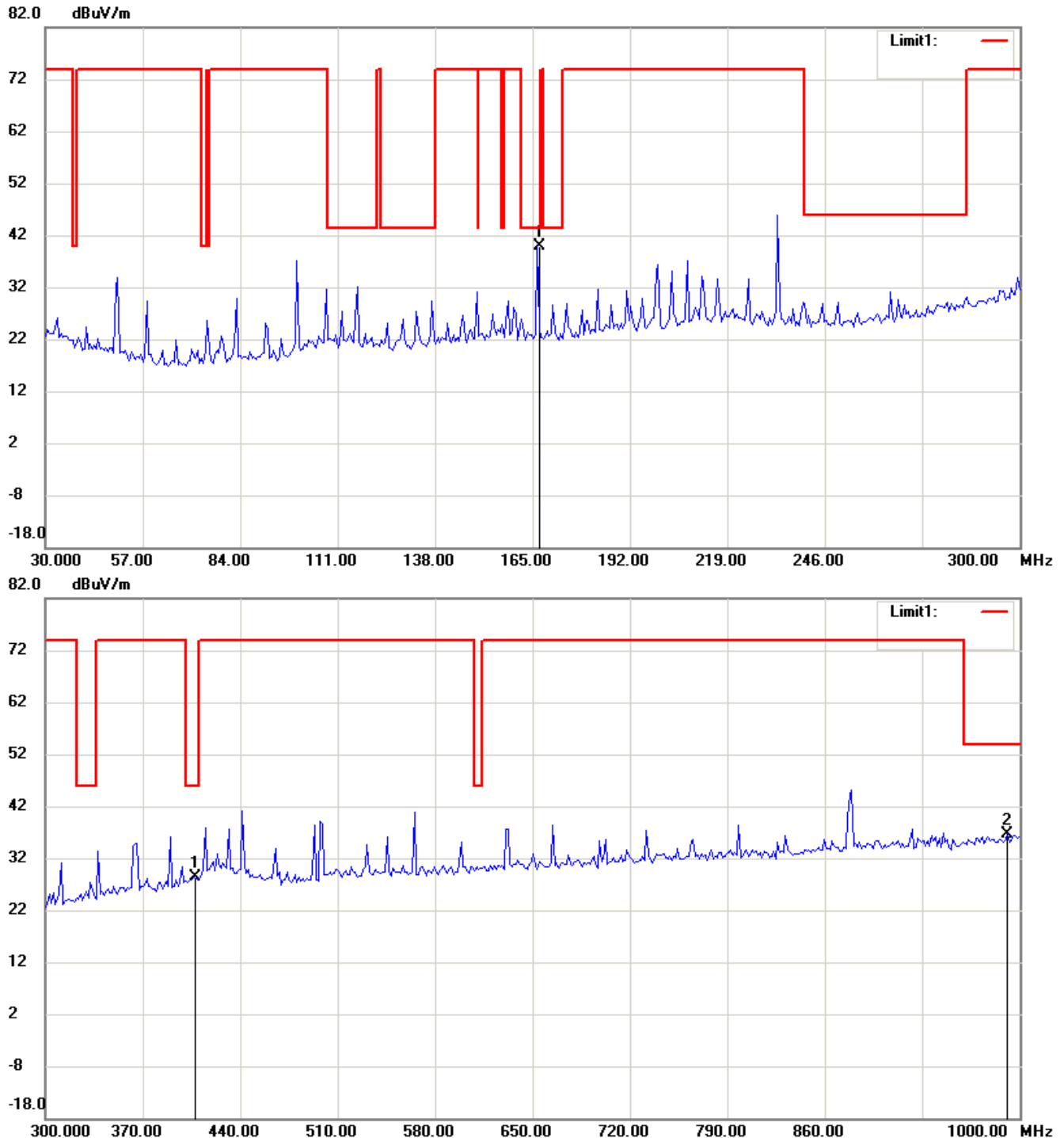
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Channel 6

Antenna Polarization H



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

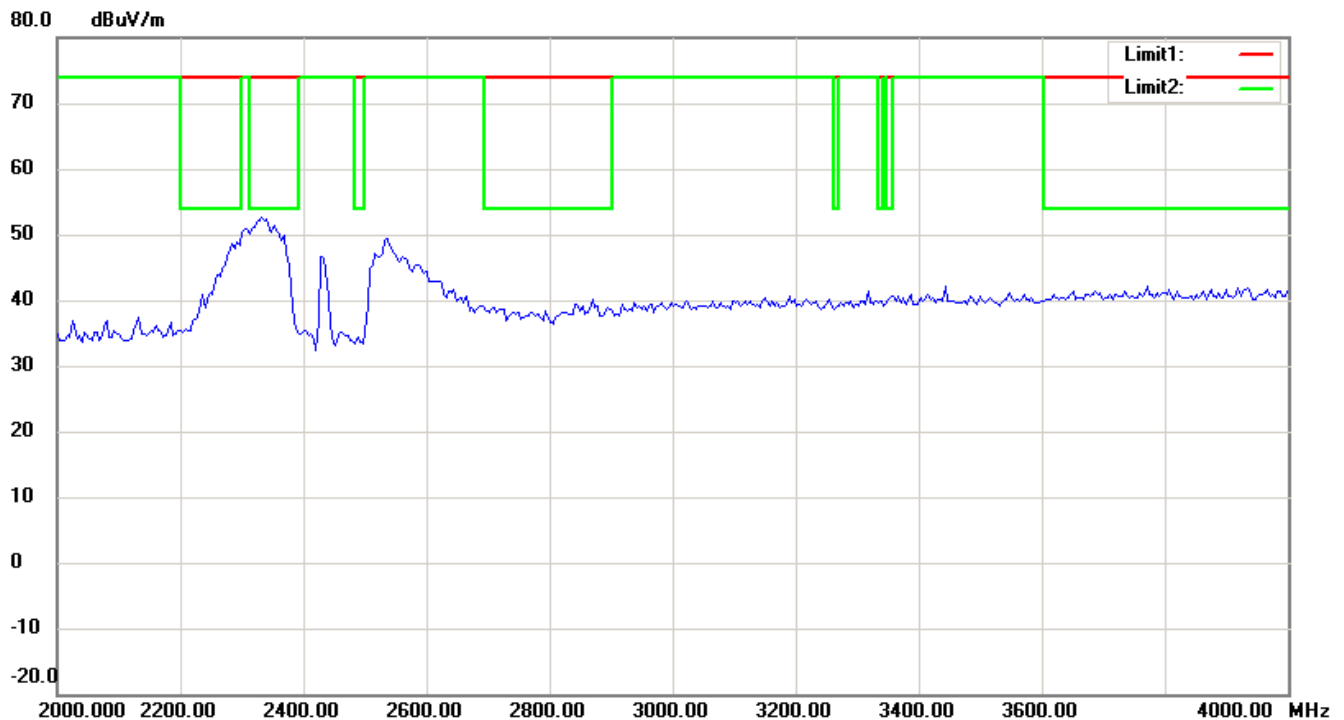
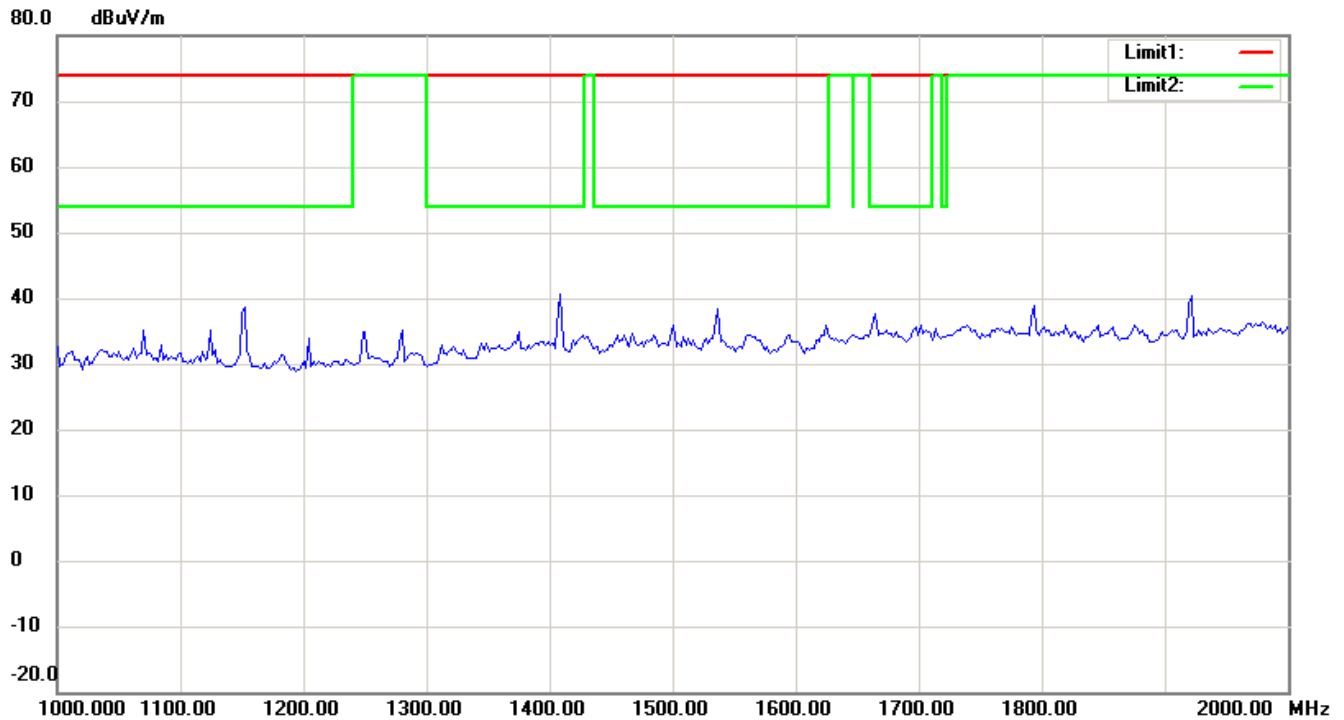
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FCC ID: Z54PV-1005



Note:

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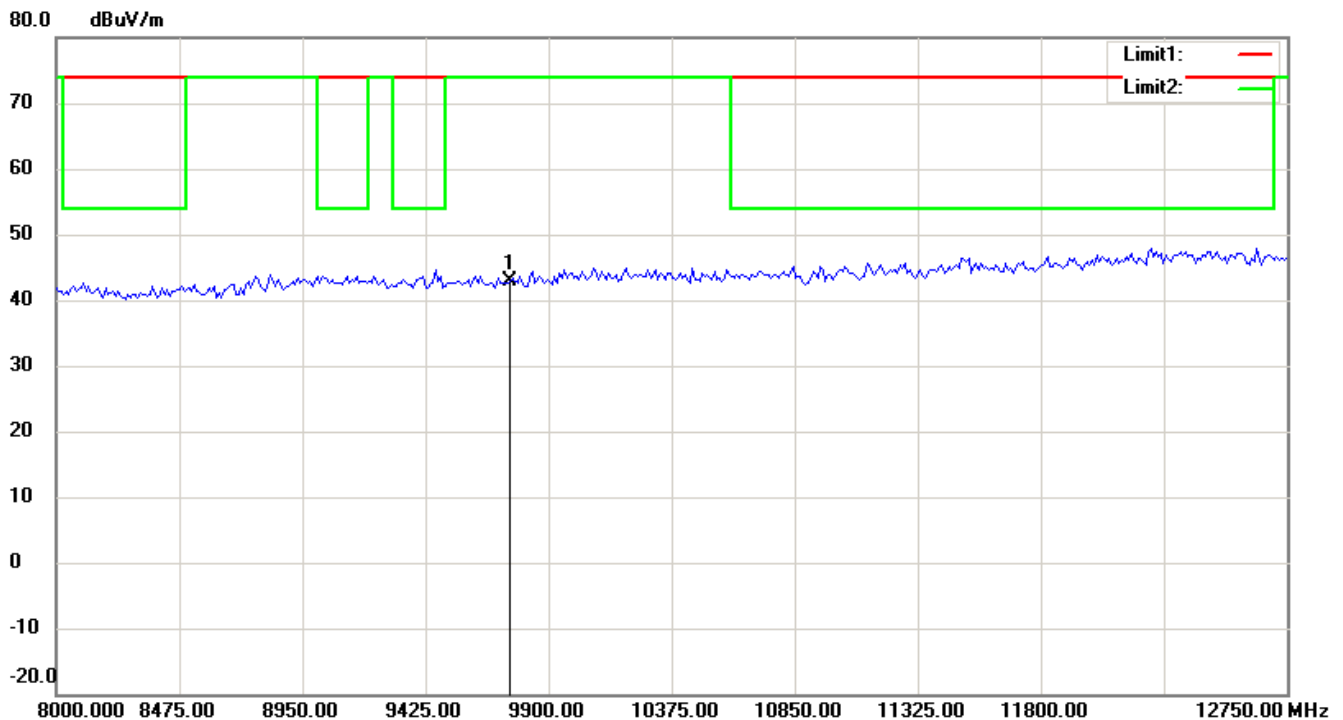
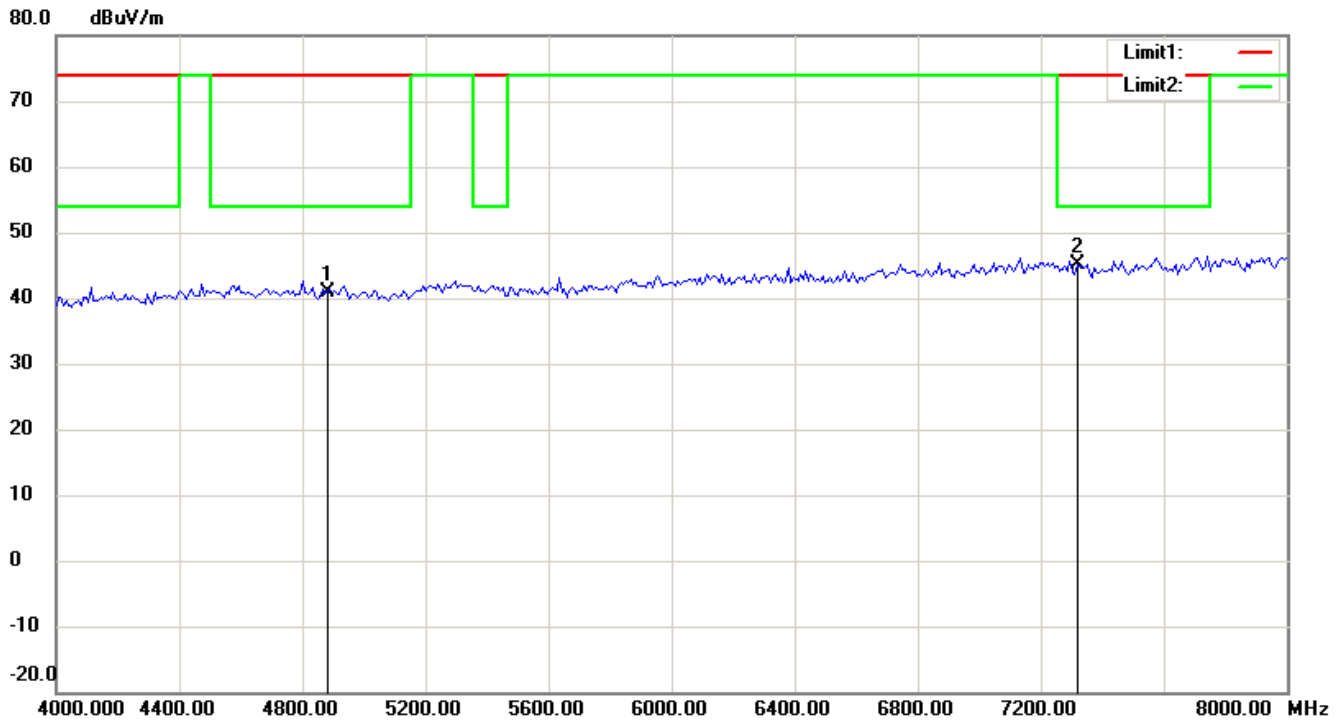
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Note:

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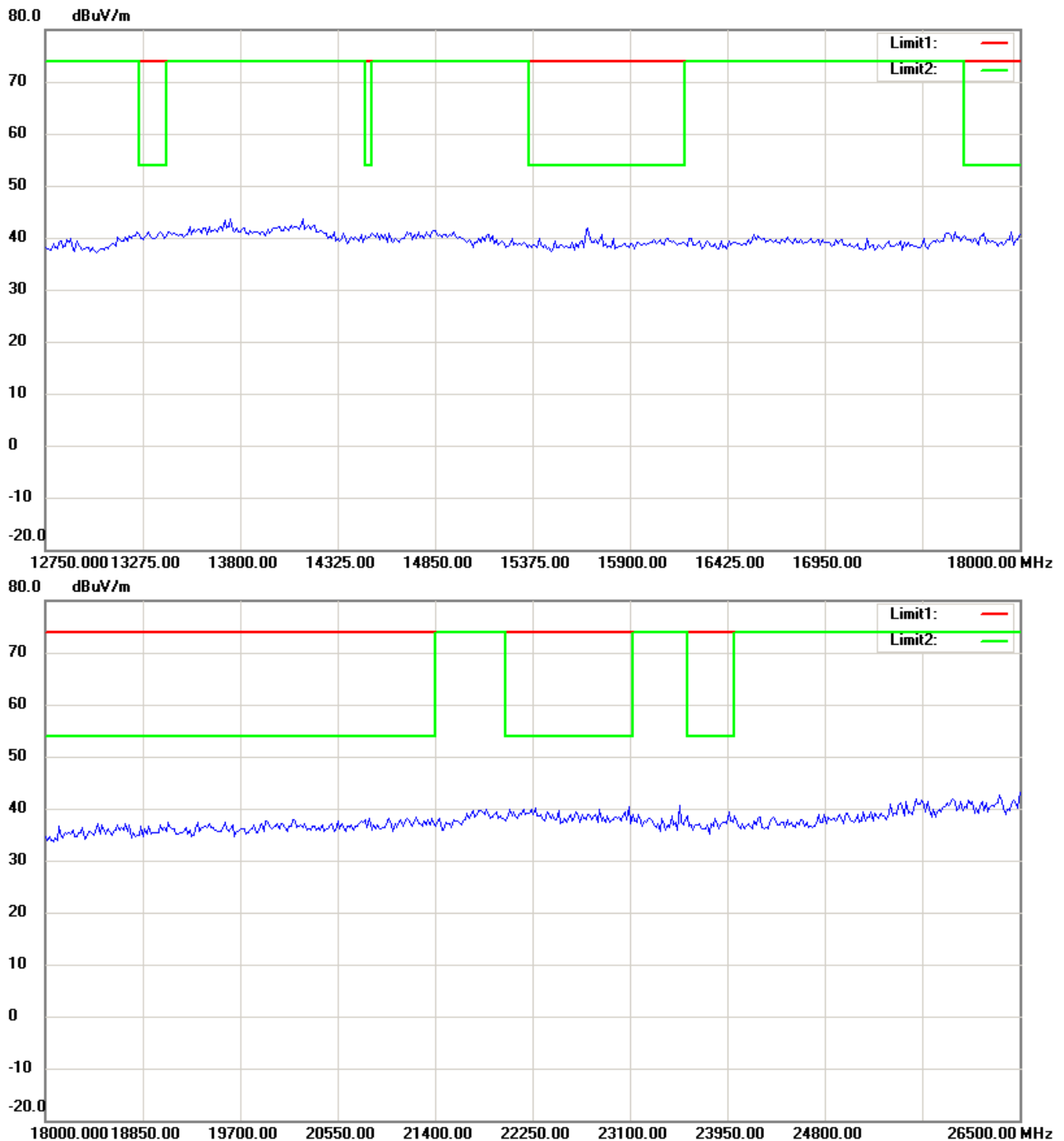
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Up Line: Peak Limit Line, Down Line: Ave Limit Line

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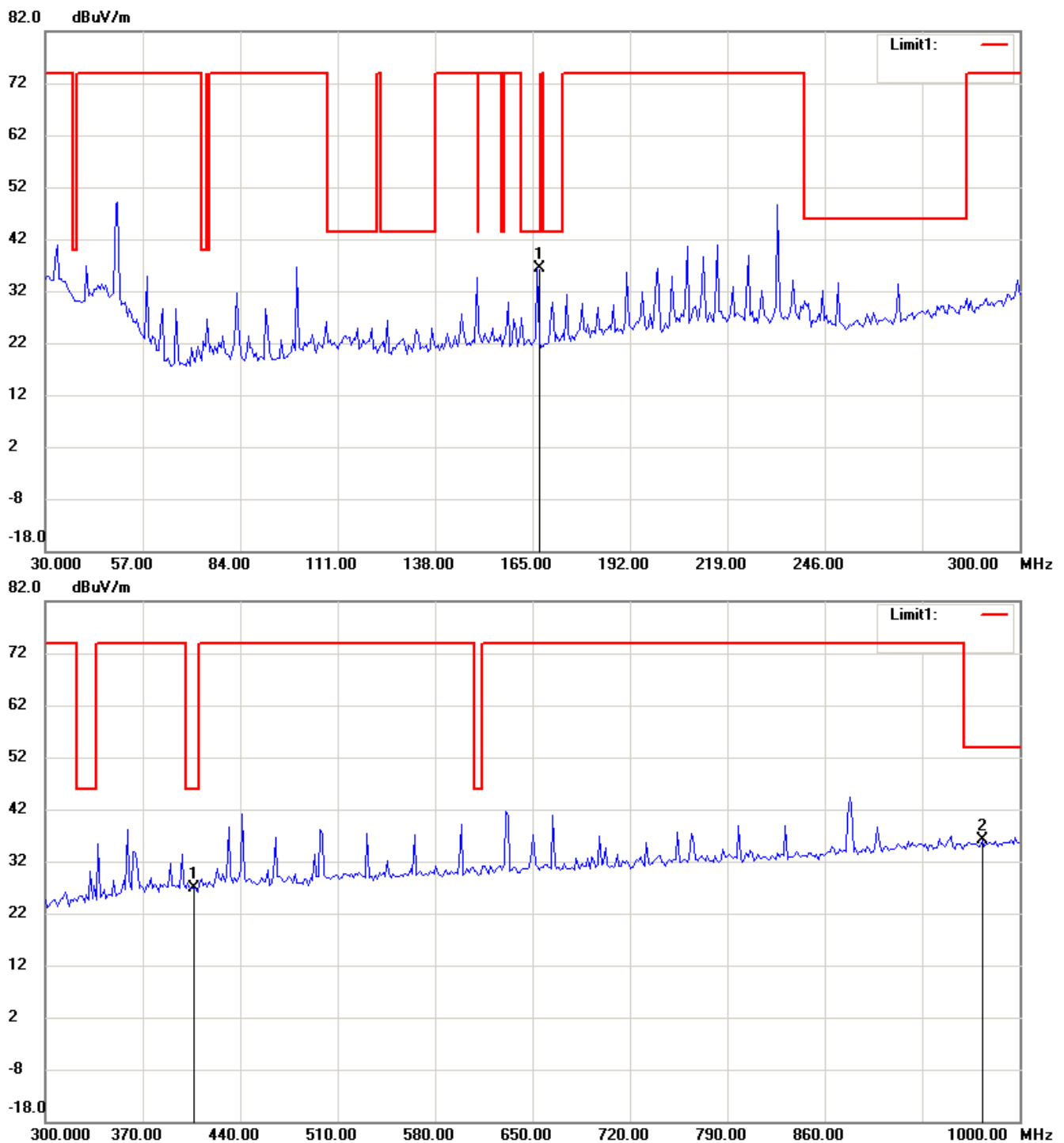


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Antenna Polarization V



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

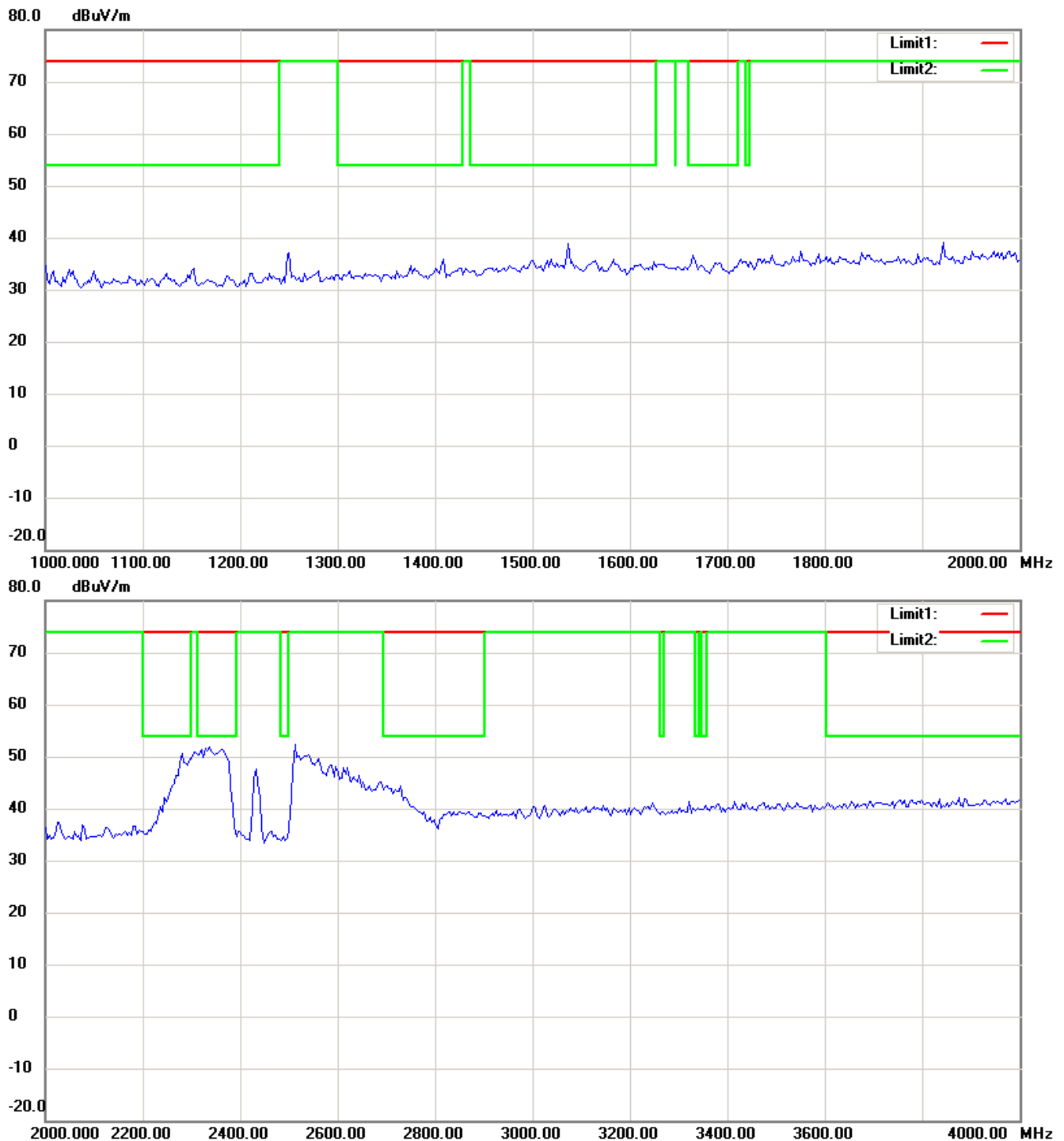
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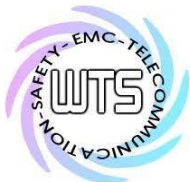
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Note:

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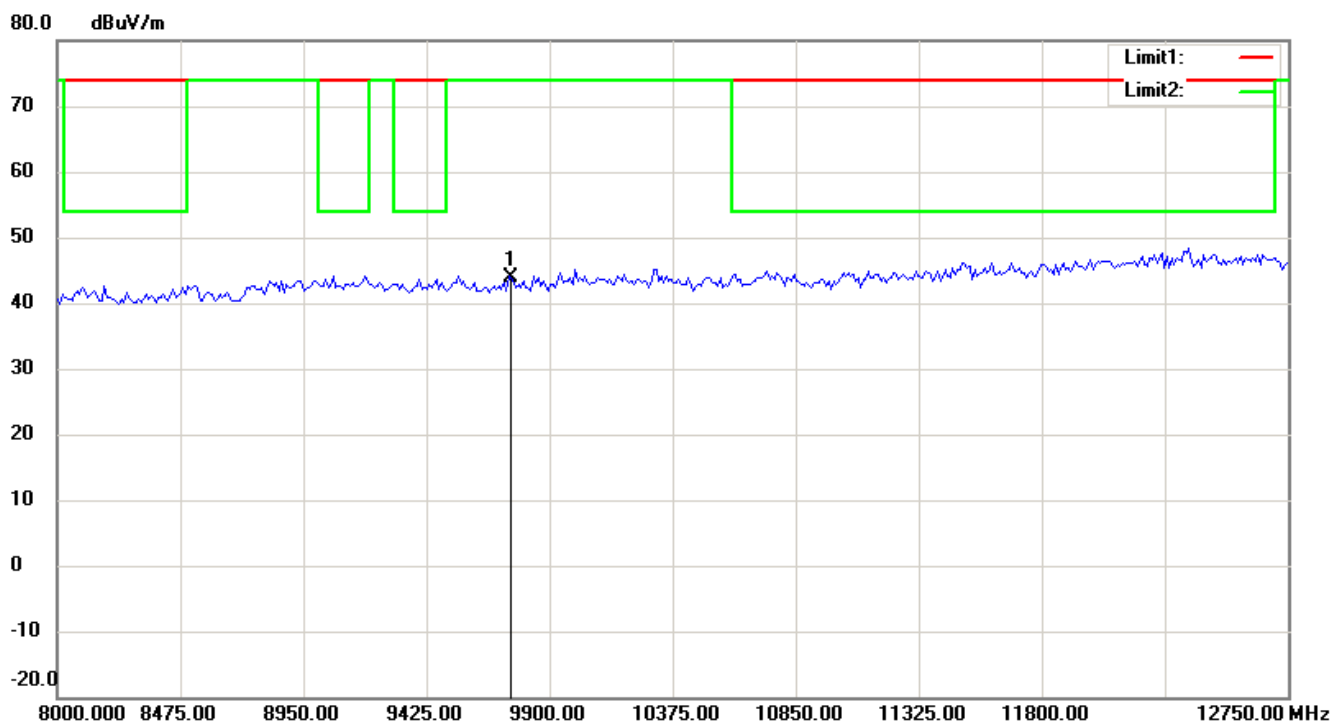
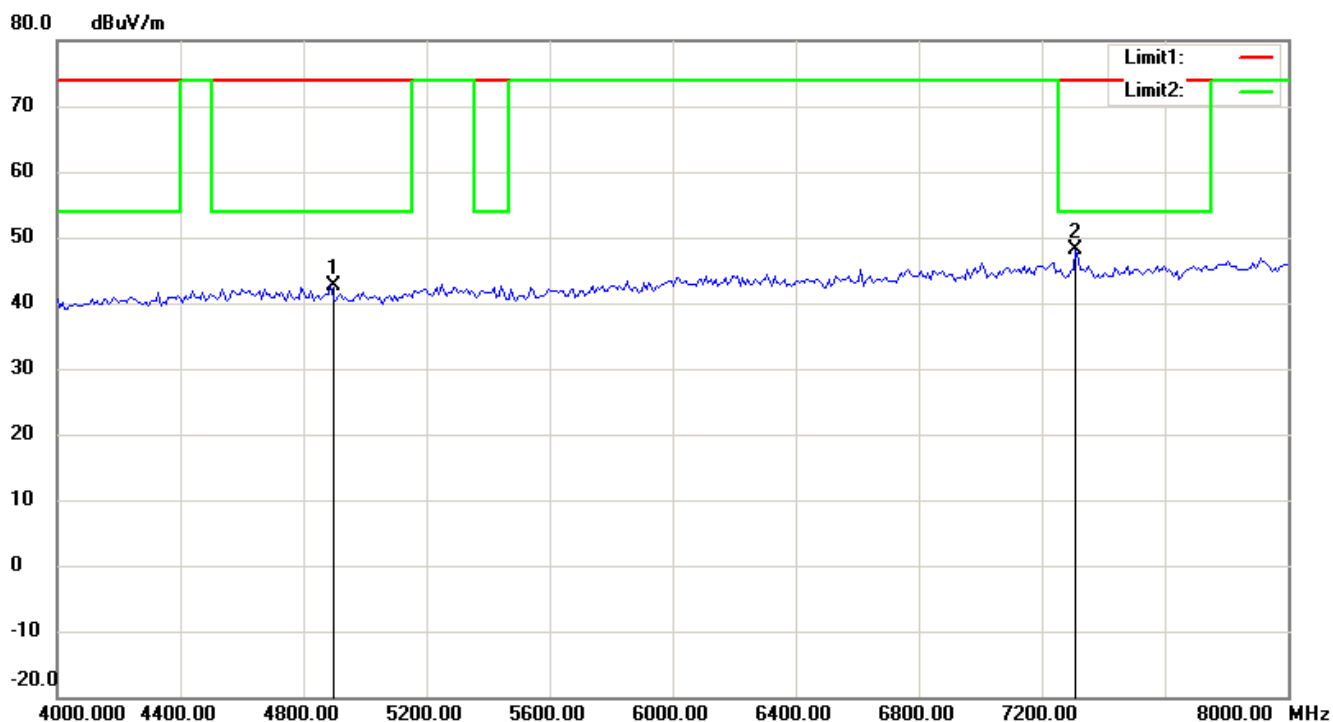
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FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

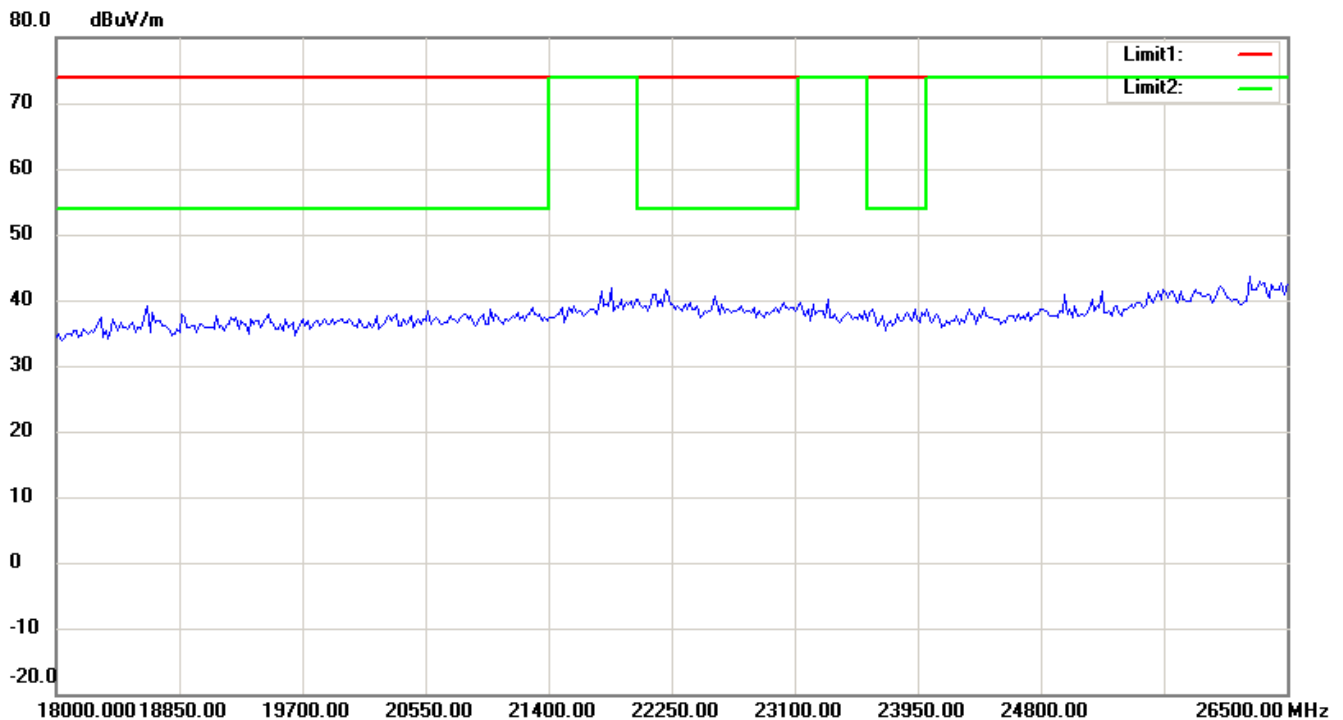
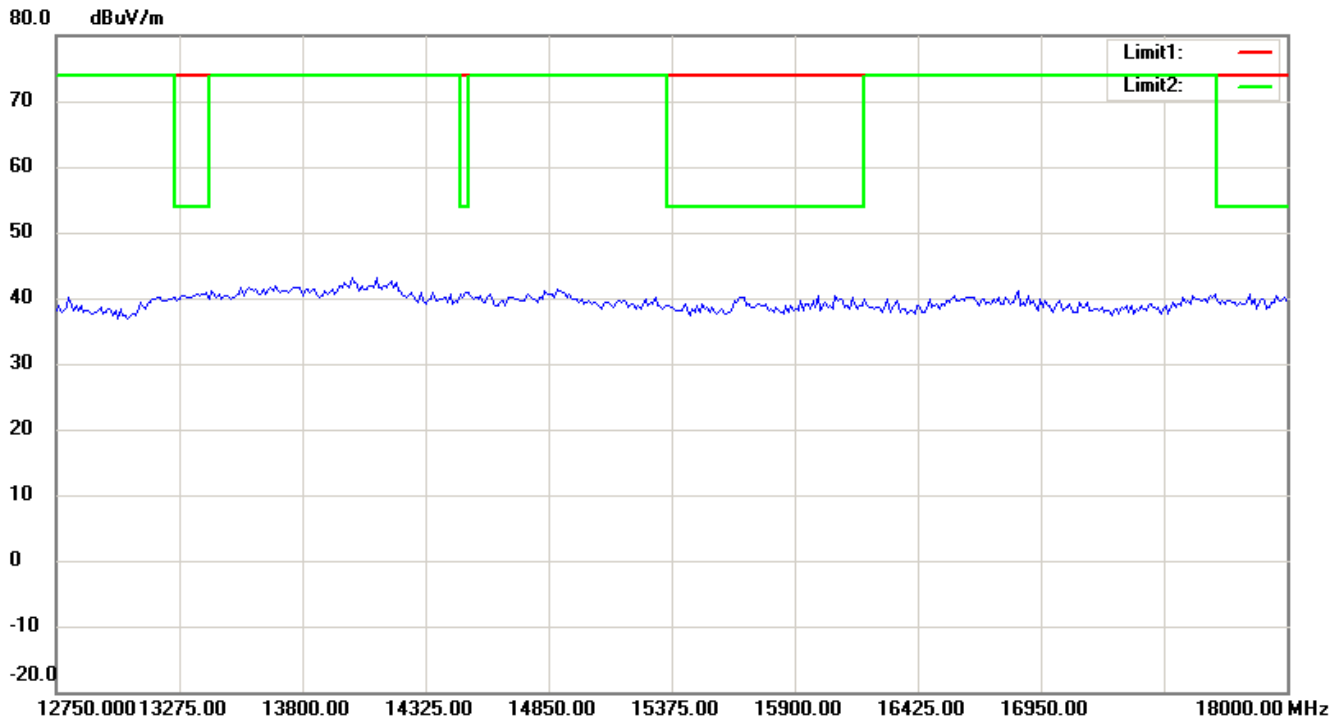
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



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.



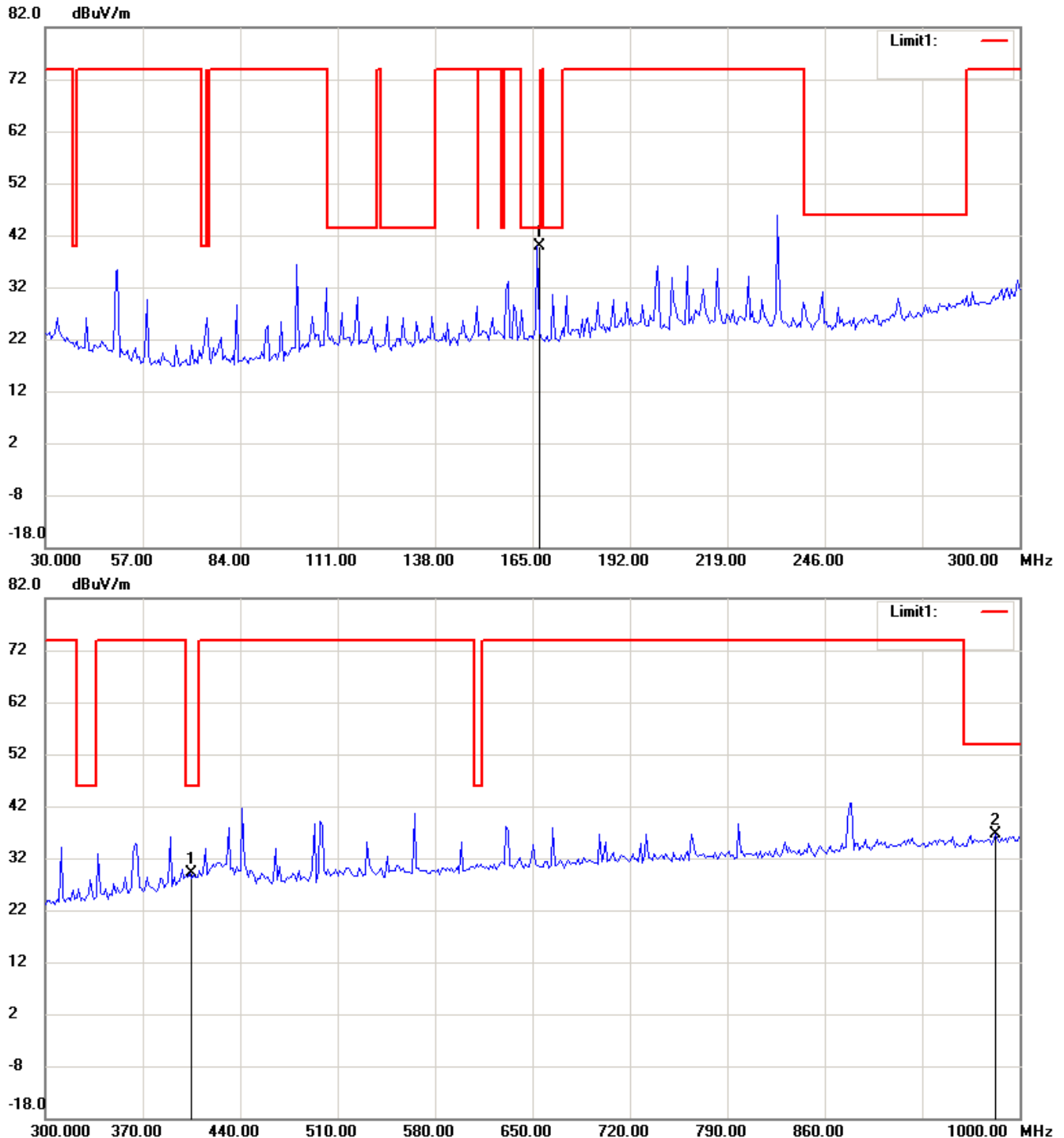
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Channel 11

Antenna Polarization H



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

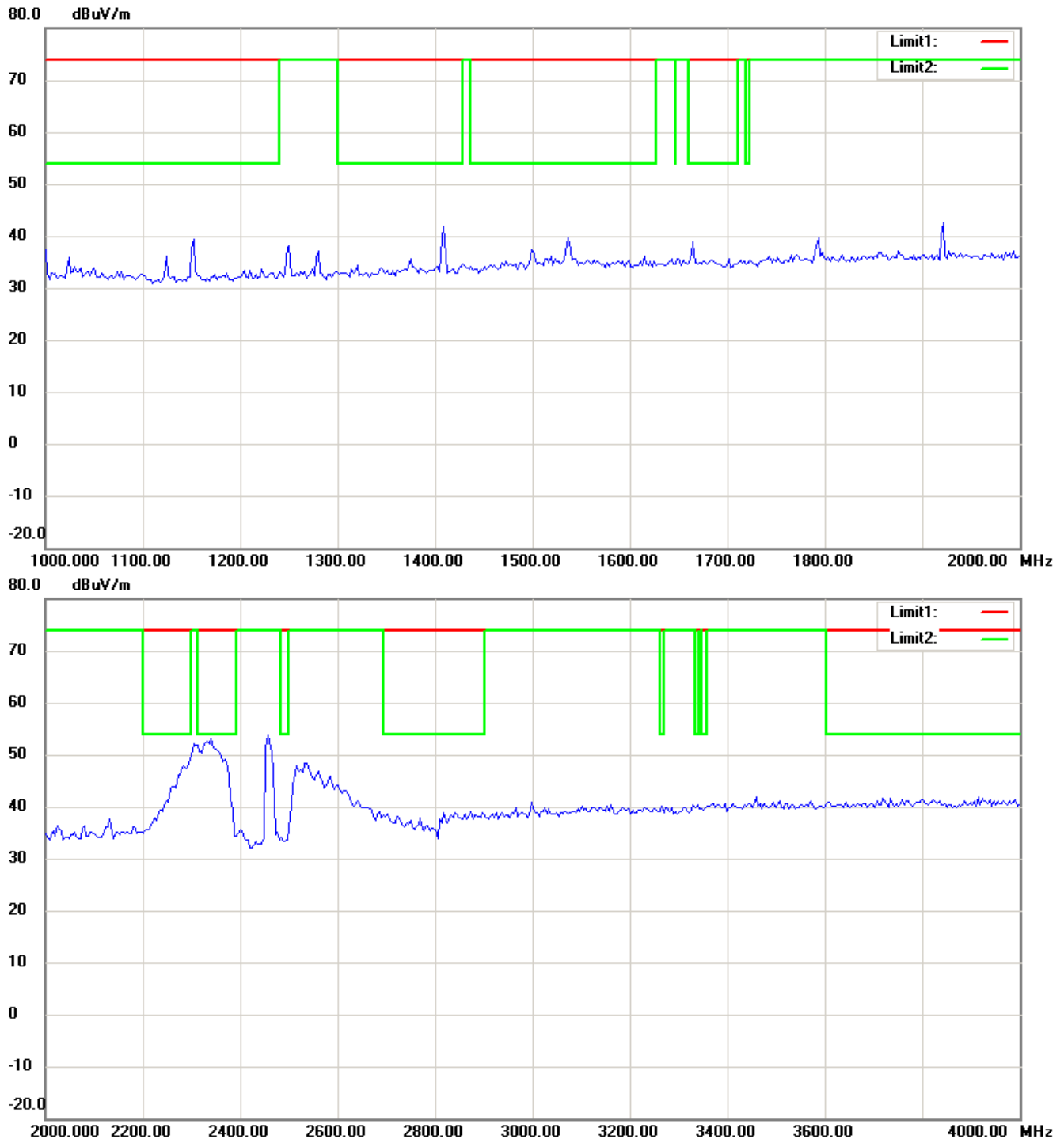
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

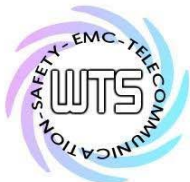
FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

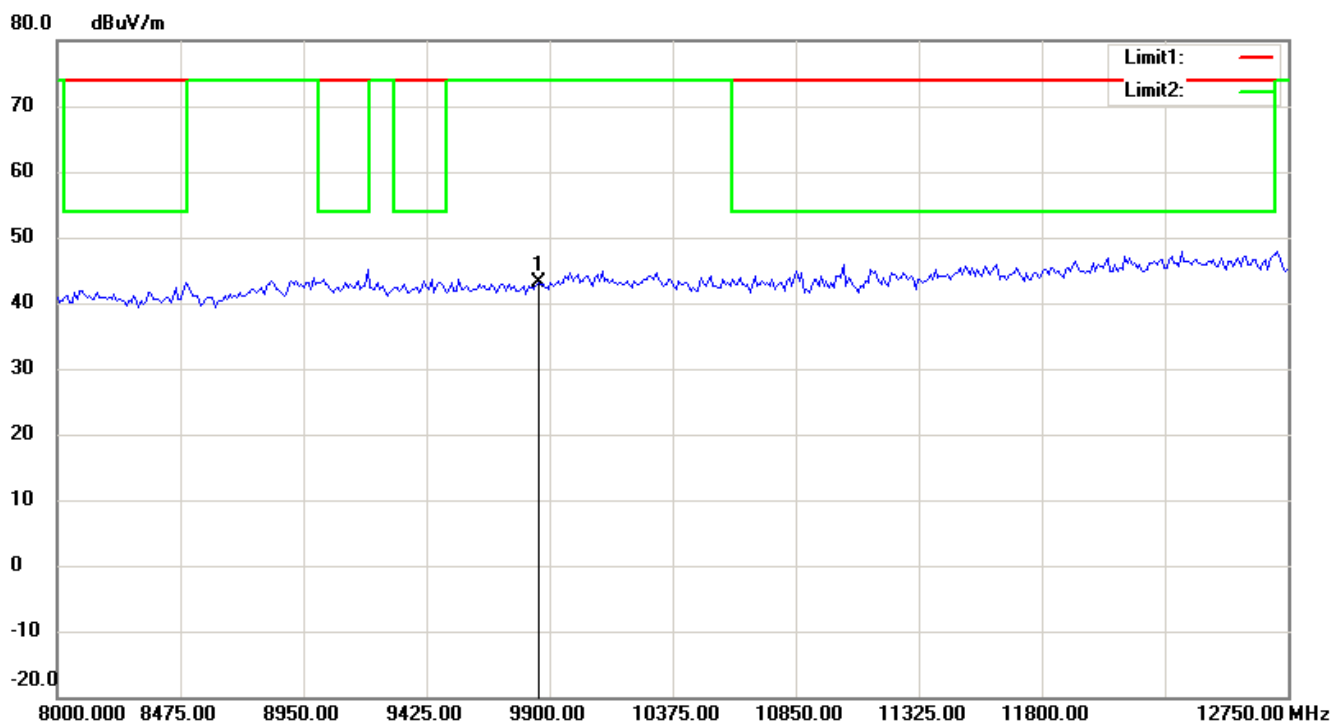
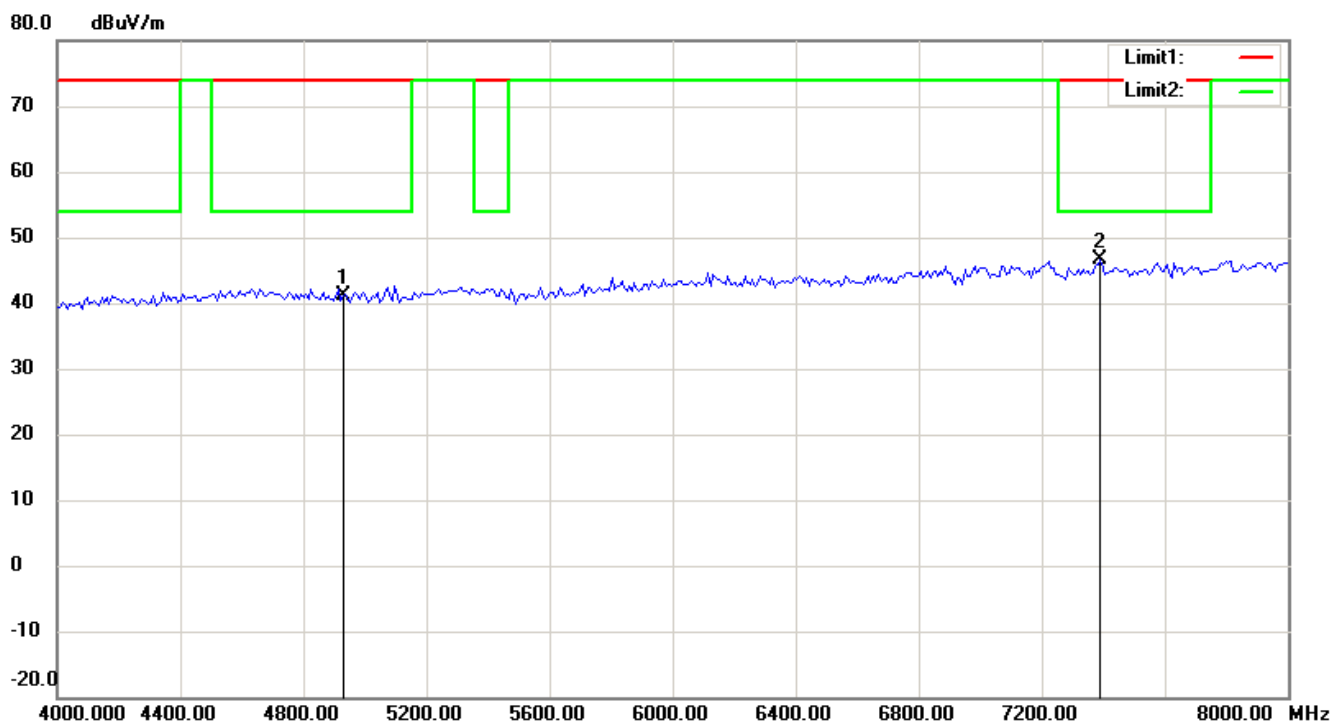
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

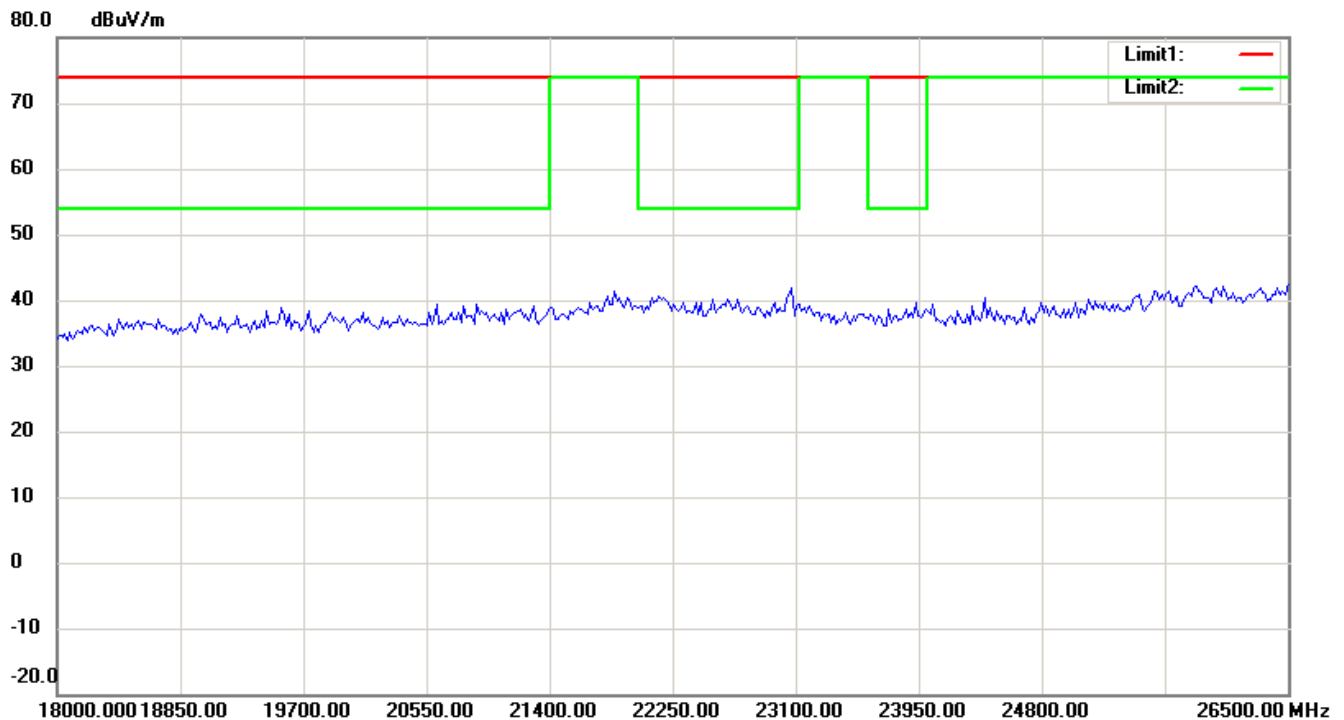
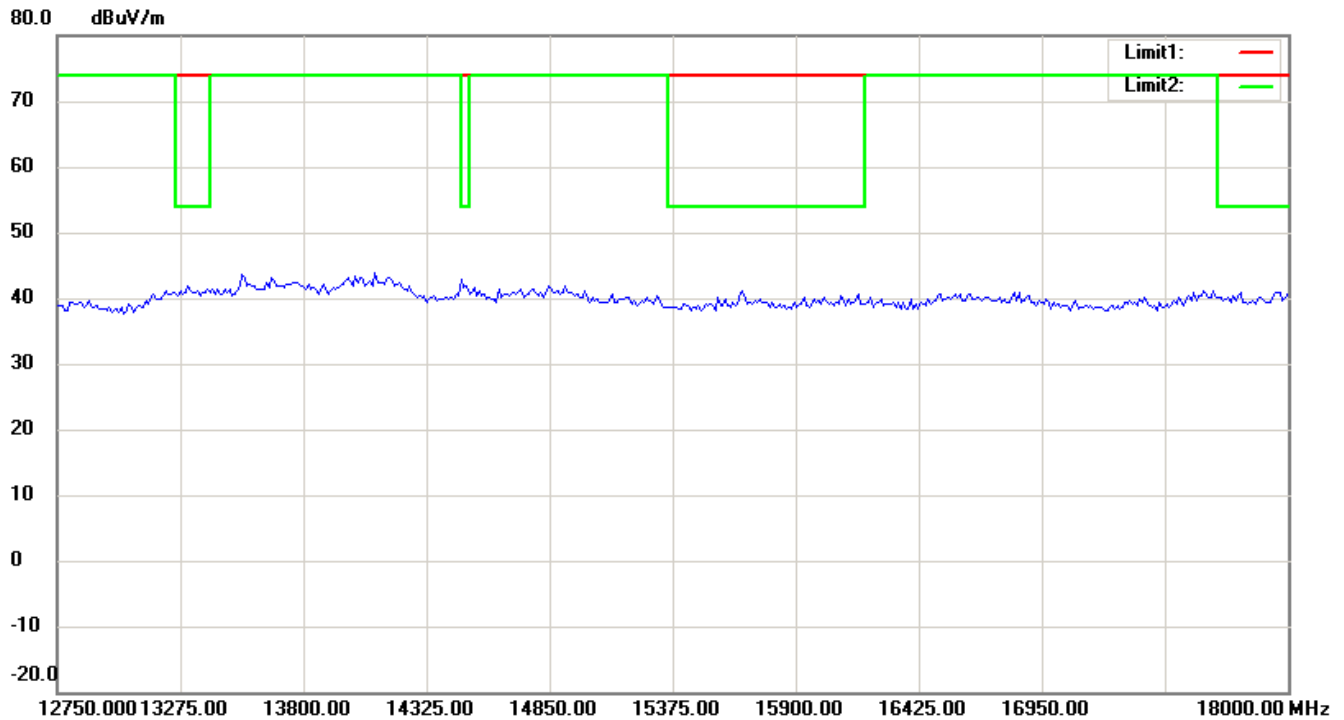
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

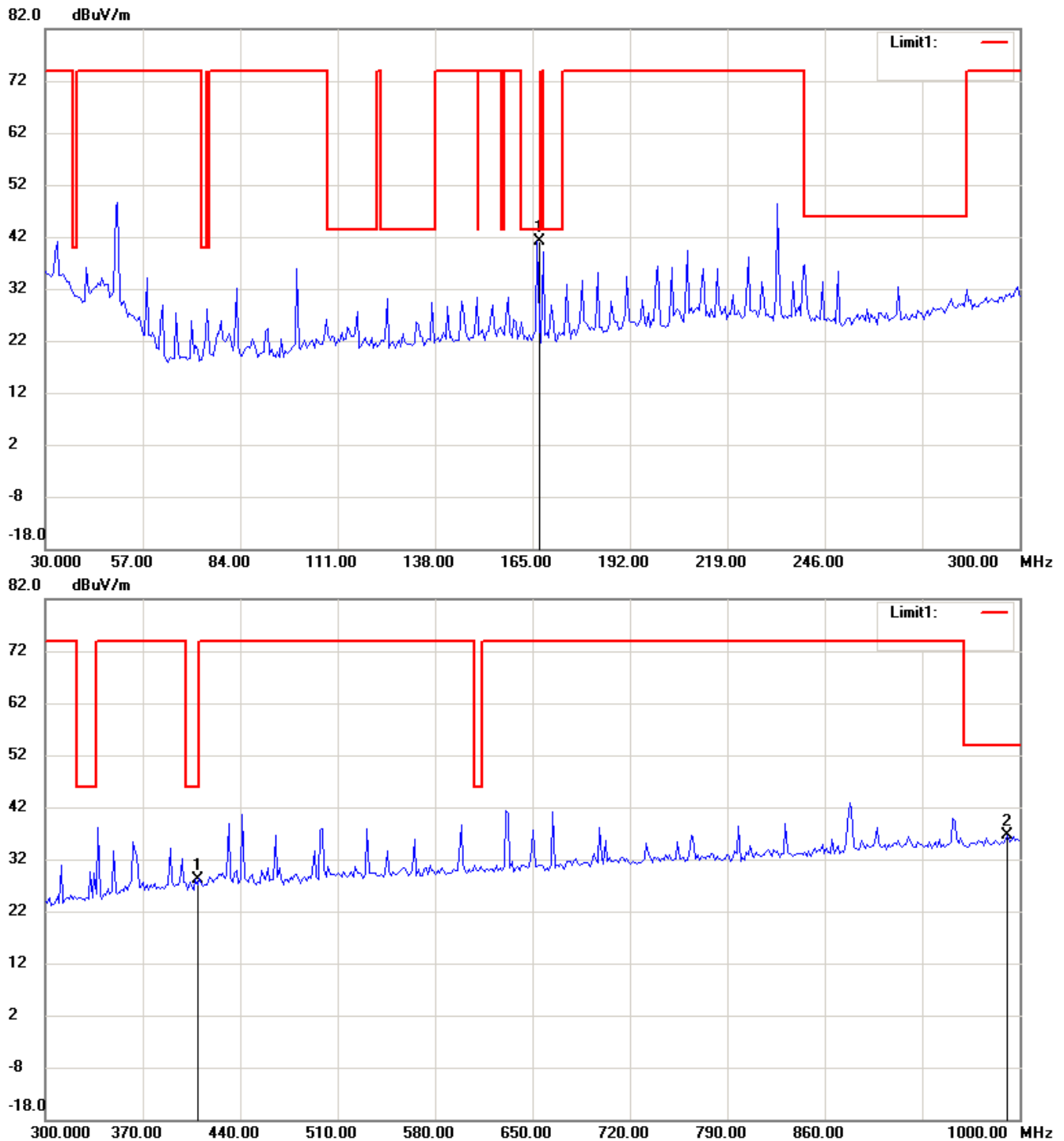
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Antenna Polarization V



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

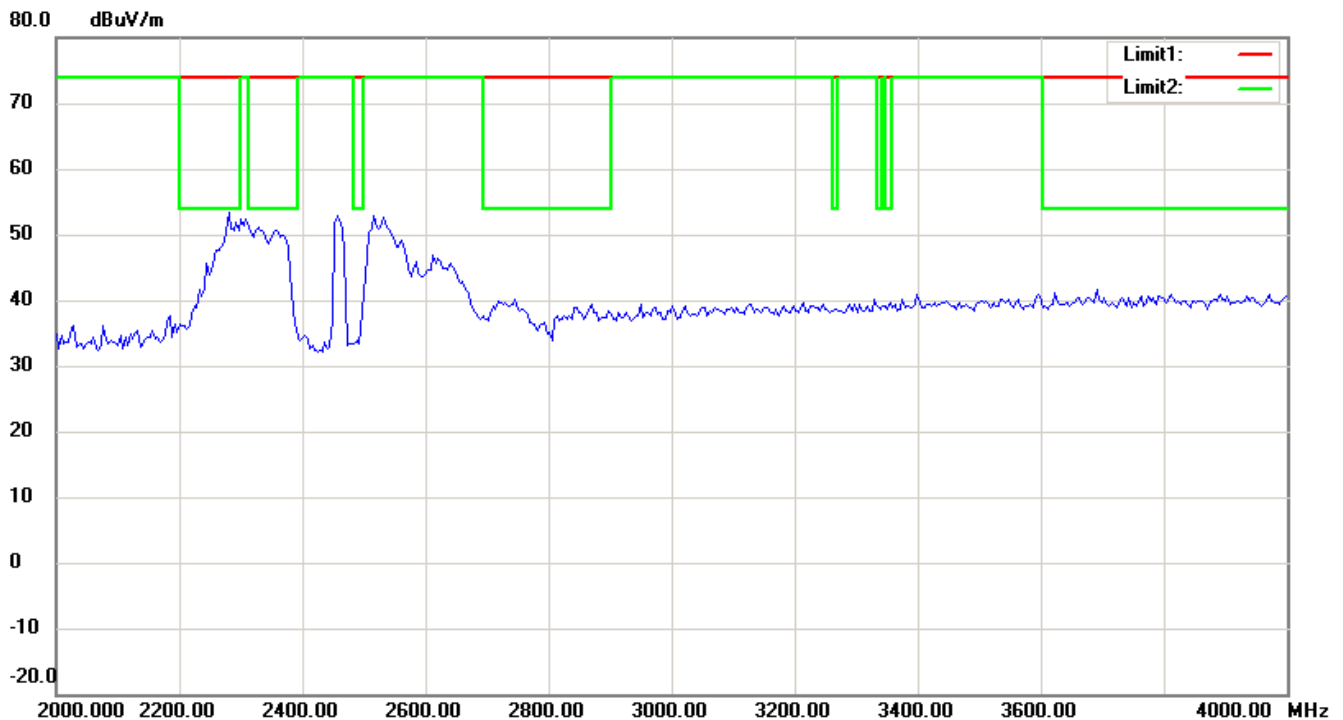
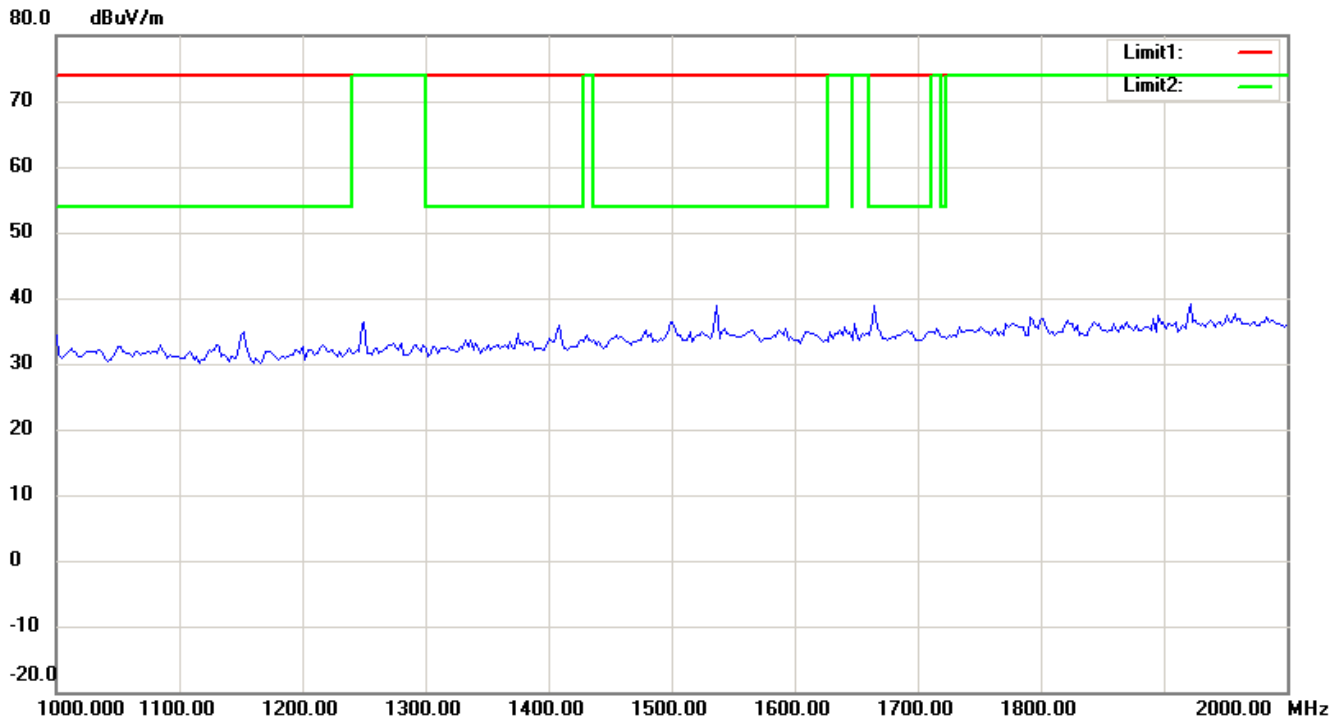
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

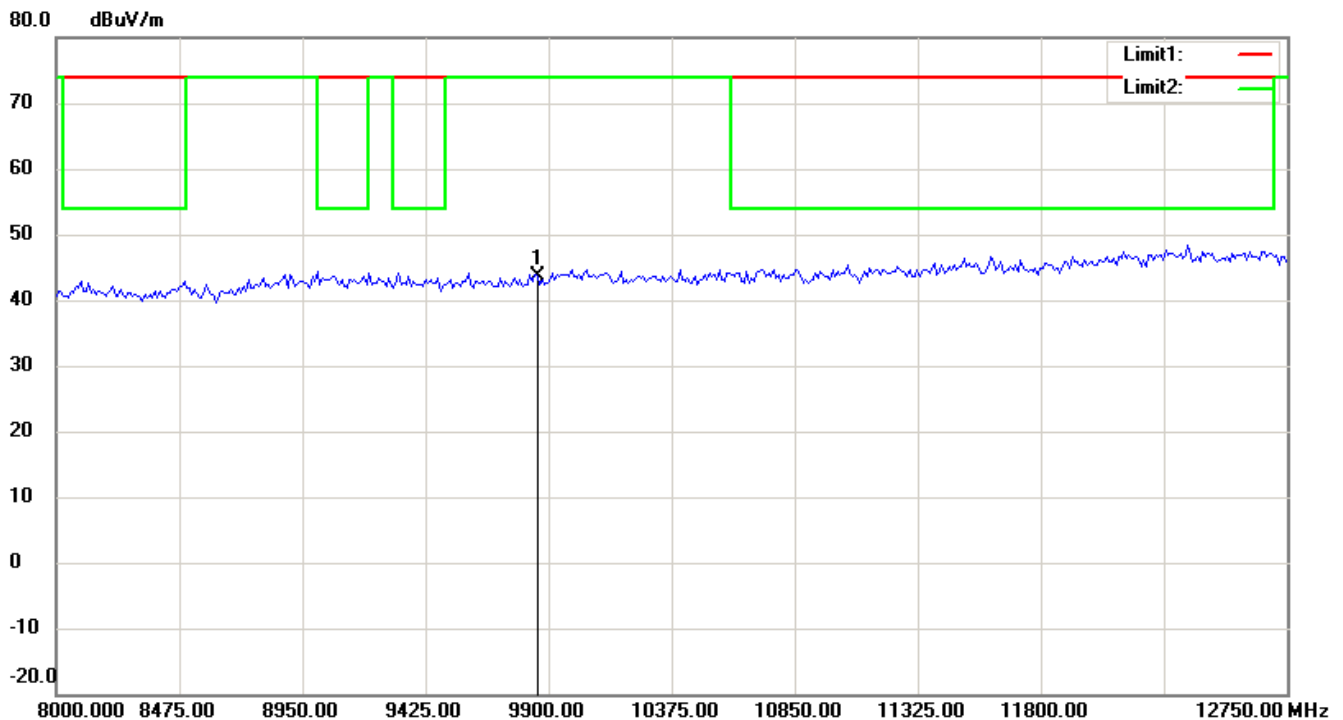
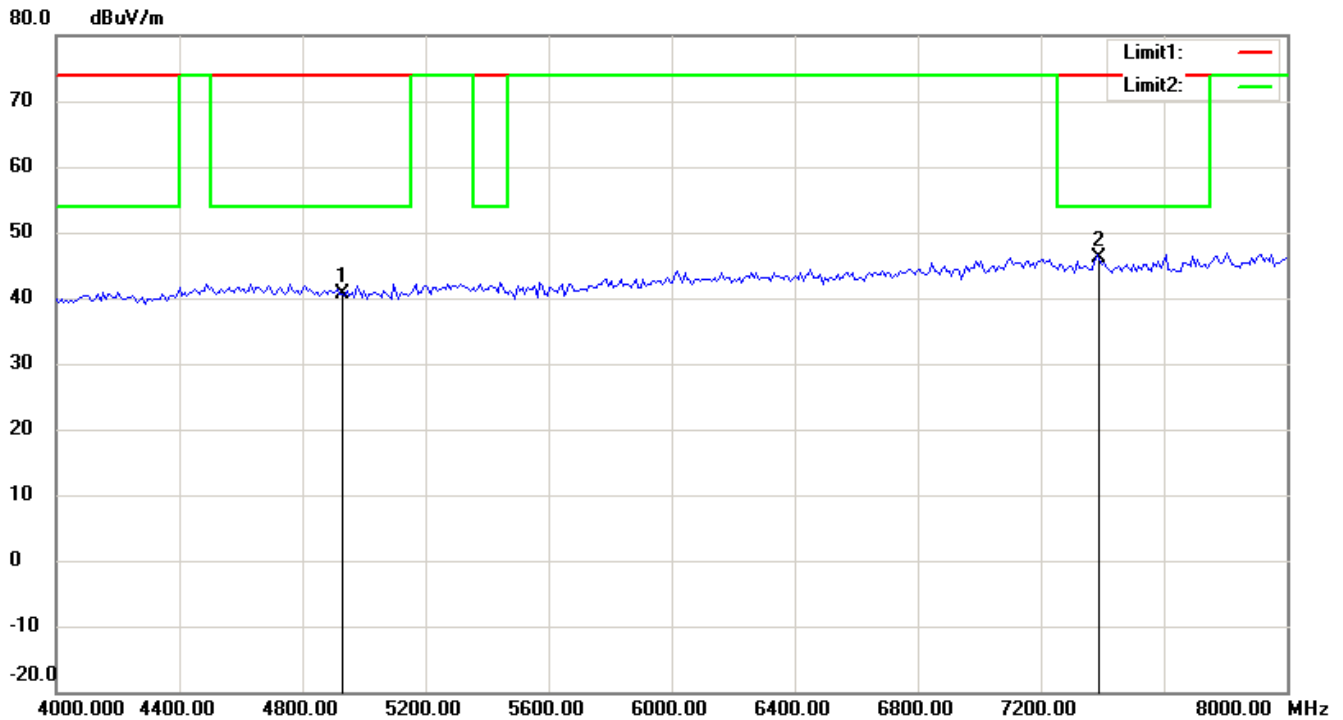
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



Note:

Up Line: Peak Limit Line, Down Line: Ave Limit Line

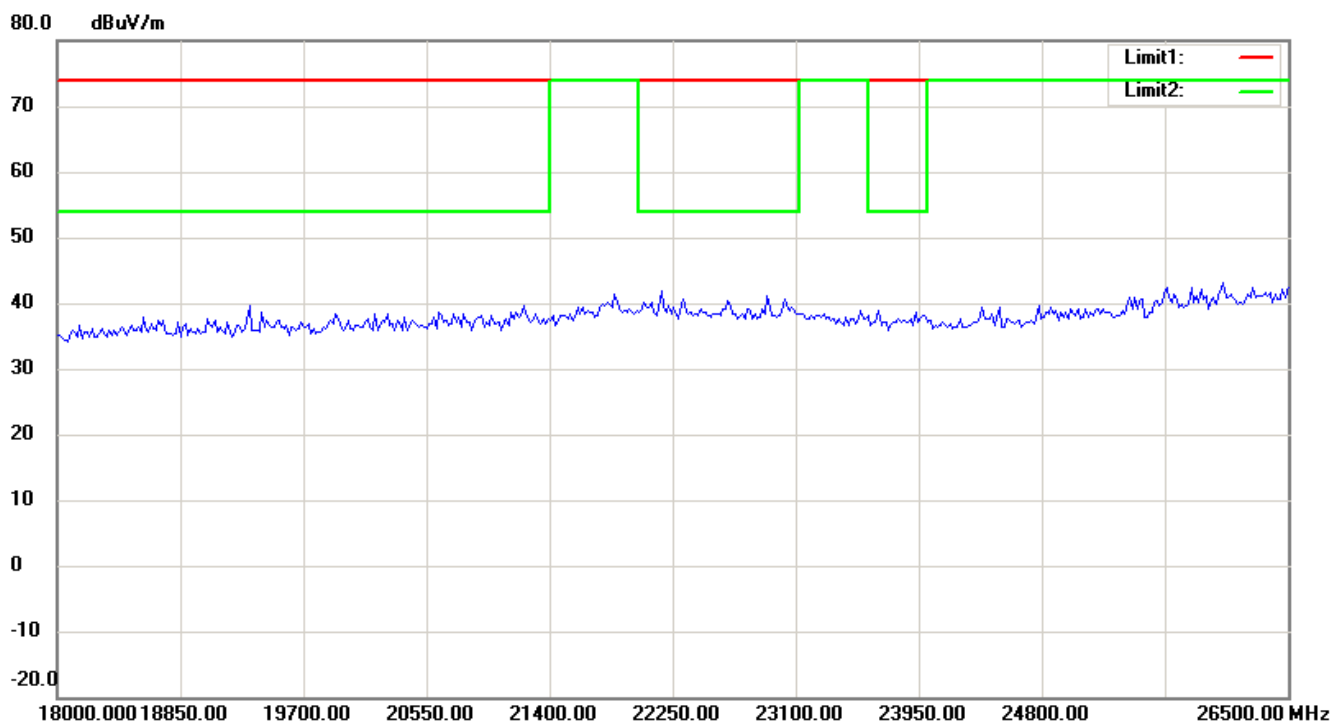
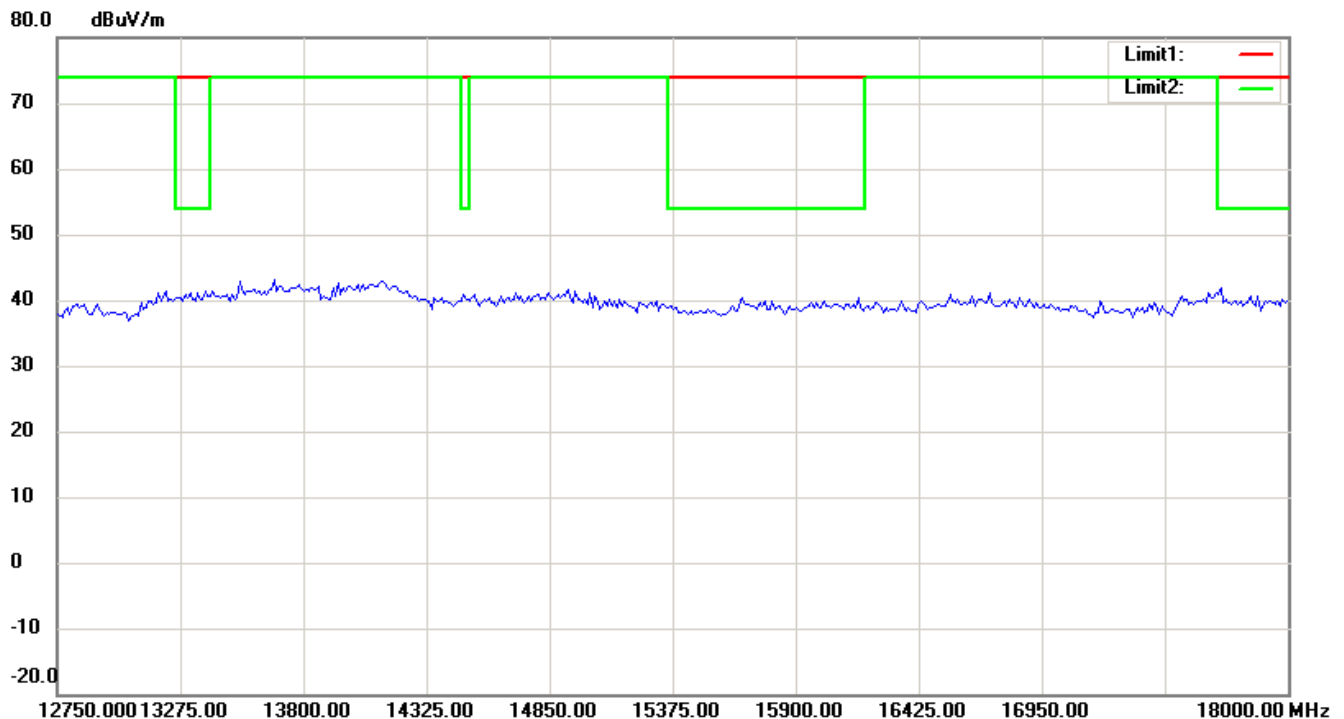
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005



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.



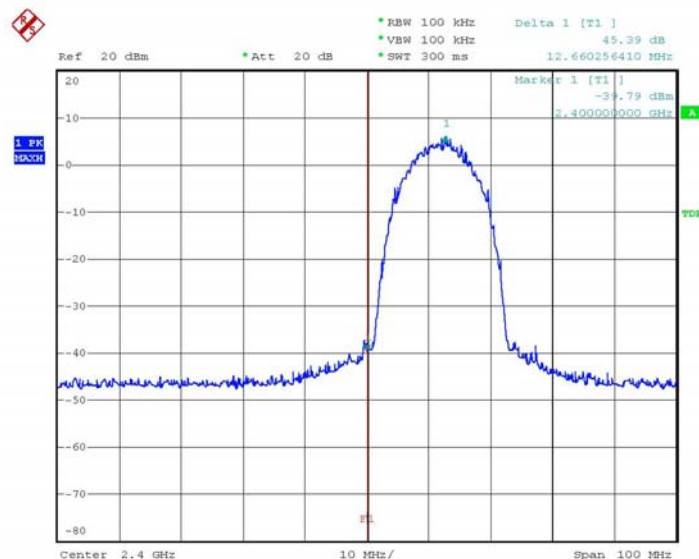
Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Band Edge Measurement

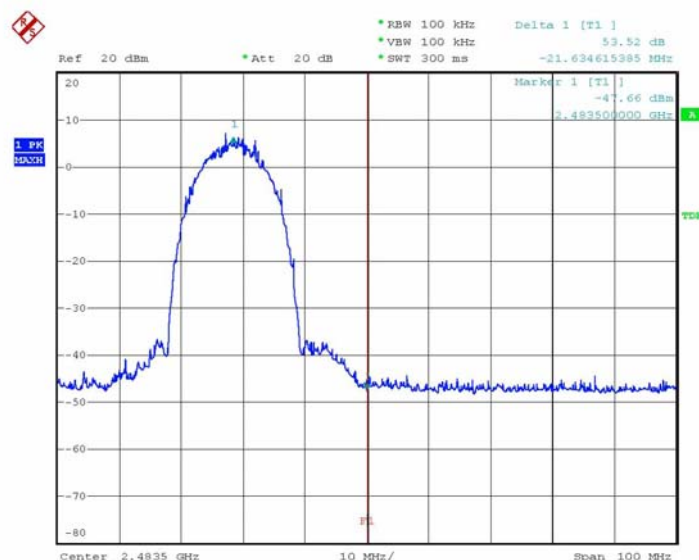
802.11b

Channel 1



BANDEDGE 802.11b CH1
Date: 16.NOV.2010 15:00:23

Channel 11



BANDEDGE 802.11b CH11
Date: 16.NOV.2010 15:04:34

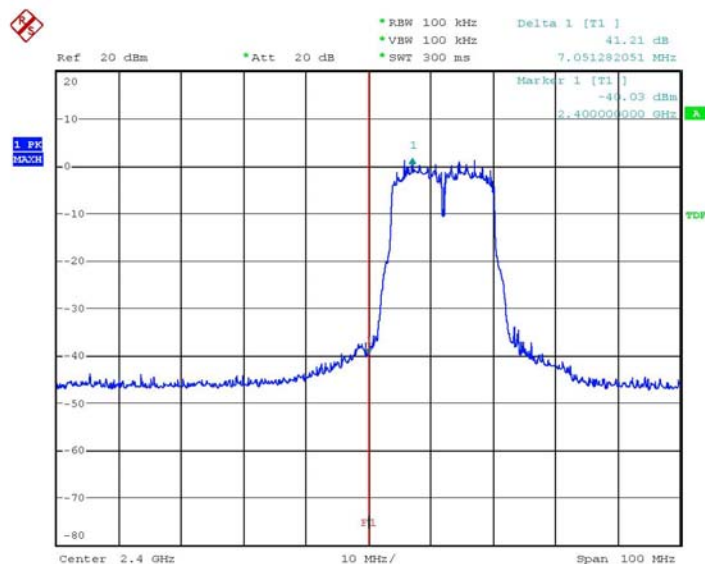


Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

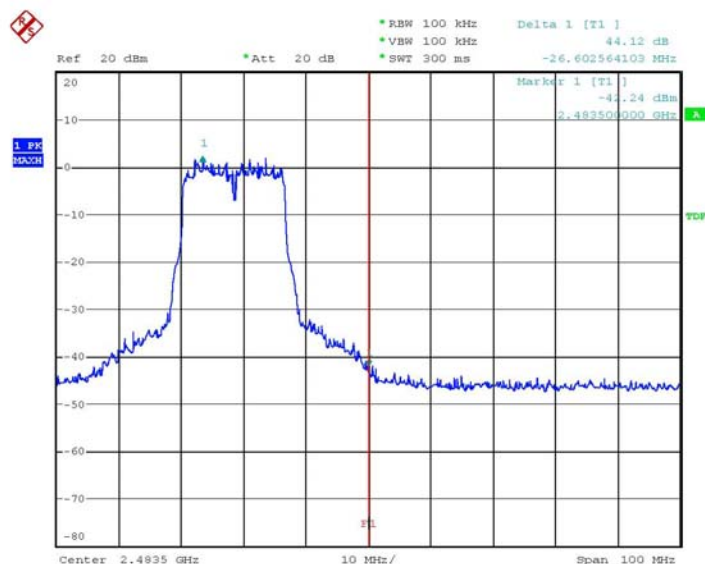
802.11g

Channel 1



BANDEDGE 802.11g CH1
Date: 16.NOV.2010 15:01:07

Channel 11



BANDEDGE 802.11g CH11
Date: 16.NOV.2010 15:03:54



FCC ID: Z54PV-1005

Channel 1

BANEDGE 802.11n CH1
Date: 16.NOV.2010 15:02:27

Channel 11

BANDEDGE 802.11n CH11
Date: 16.NOV.2010 15:03:14



FCC ID: Z54PV-1005

802.11b

Channel 1

6DB BANDWIDTH 802.11b CH1
Date: 16.NOV.2010 16:13:36

Channel 6

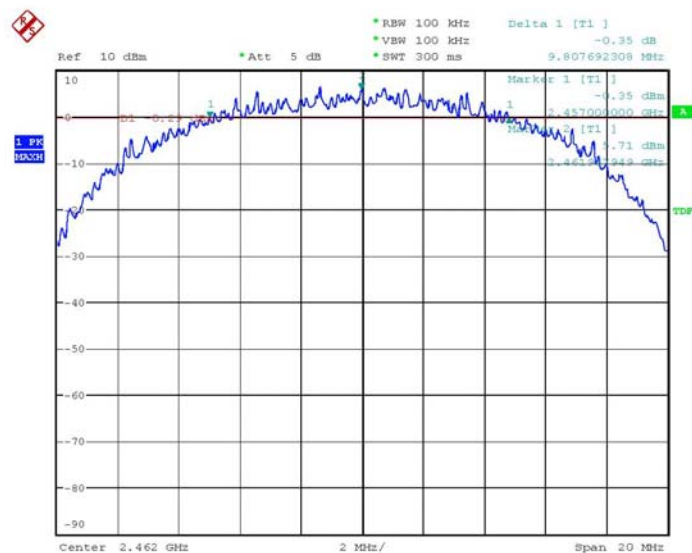
6DB BANDWIDTH 802.11b CH6
Date: 16.NOV.2010 16:12:44



Registration number: W6D21109-11809-C-1

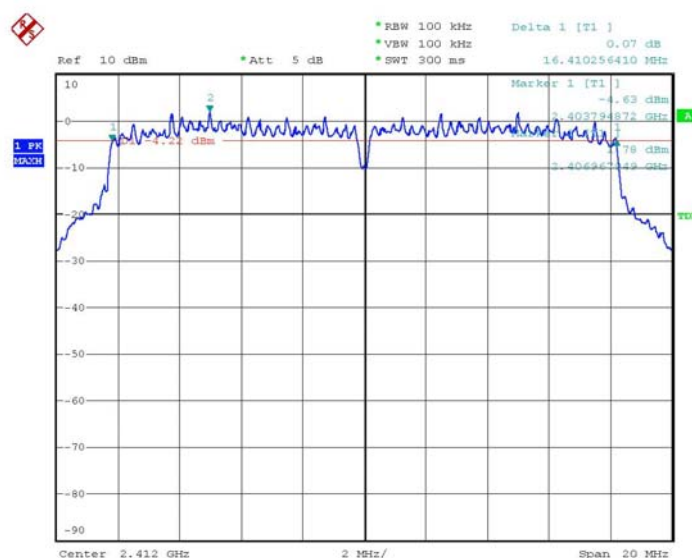
FCC ID: Z54PV-1005

Channel 11



6DB BANDWIDTH 802.11b CH11
Date: 16.NOV.2010 16:11:32

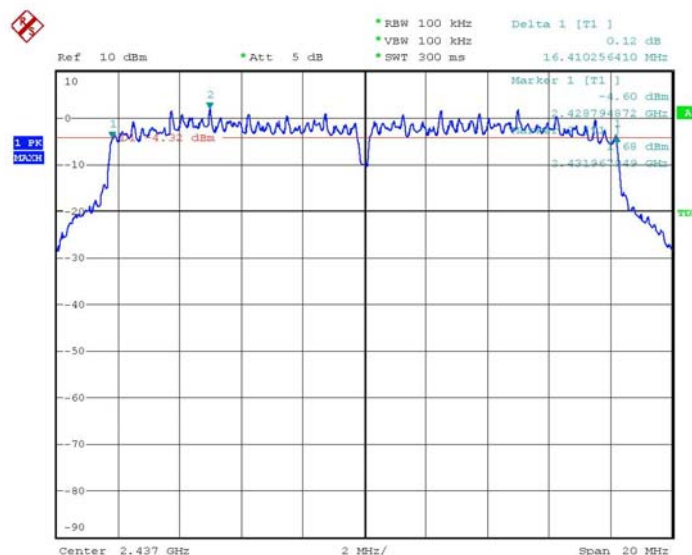
802.11g Channel 1



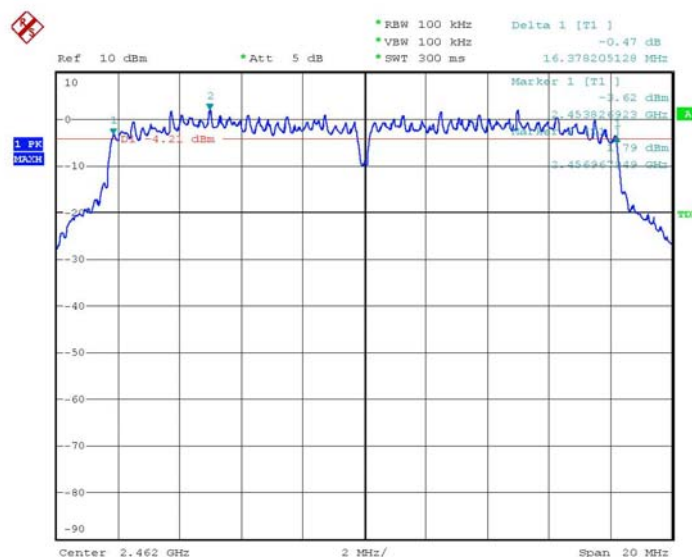
6DB BANDWIDTH 802.11g CH1
Date: 16.NOV.2010 16:02:51



FCC ID: Z54PV-1005



6DB BANDWIDTH 802.11g CH6
Date: 16.NOV.2010 16:08:36



6DB BANDWIDTH 802.11g CH11
Date: 16.NOV.2010 16:10:07



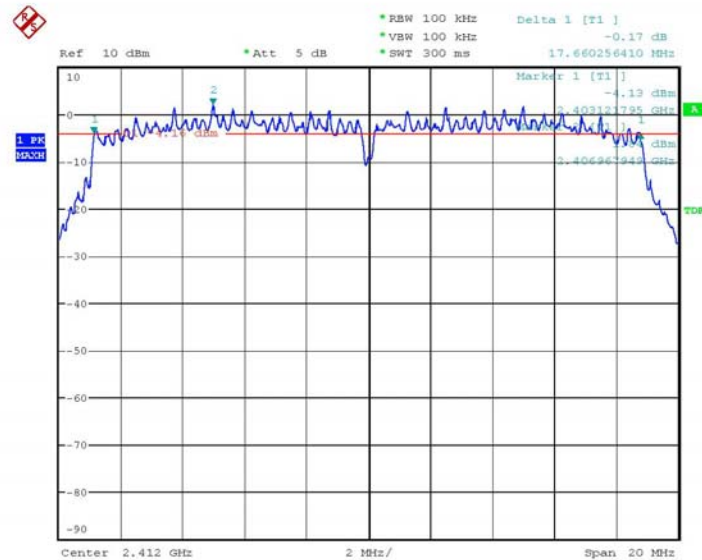
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

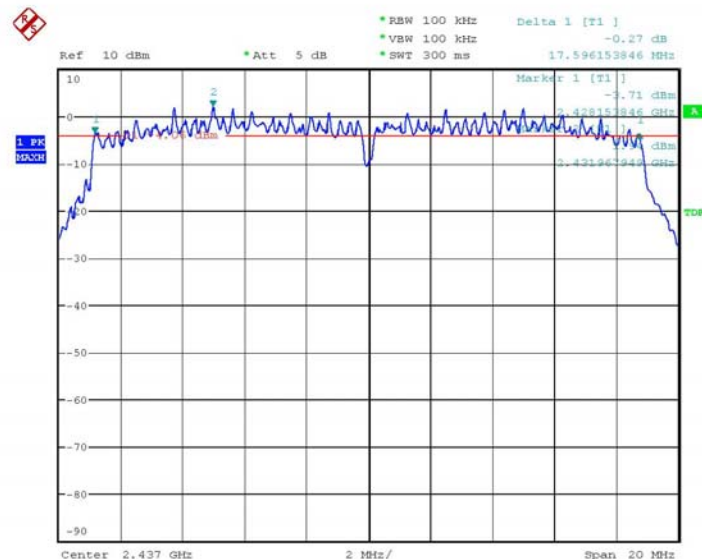
802.11n

Channel 1



6DB BANDWIDTH 802.11n CH1
Date: 16.NOV.2010 16:01:17

Channel 6



6DB BANDWIDTH 802.11n CH6
Date: 16.NOV.2010 16:00:19



Channel 11

6DB BANDWIDTH 802.11n CH1
Date: 16.NOV.2010 15:58:30



Worldwide Testing Services(Taiwan) Co., Ltd.

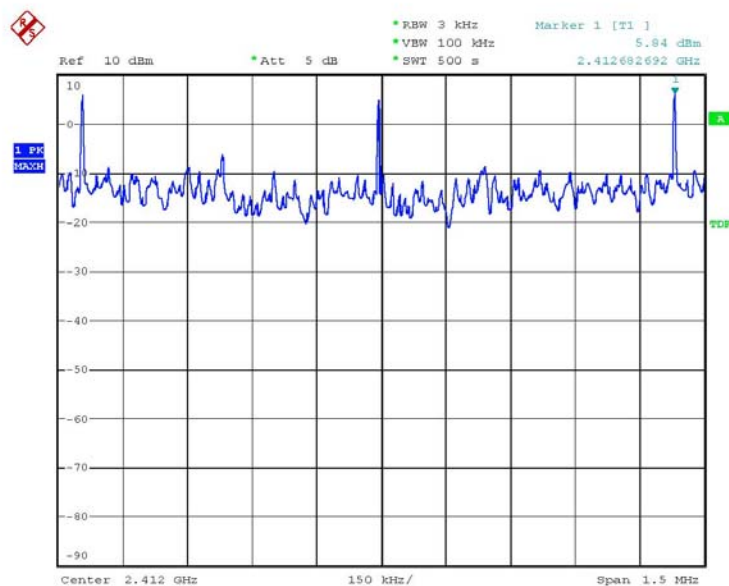
Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Peak Power Spectral Density

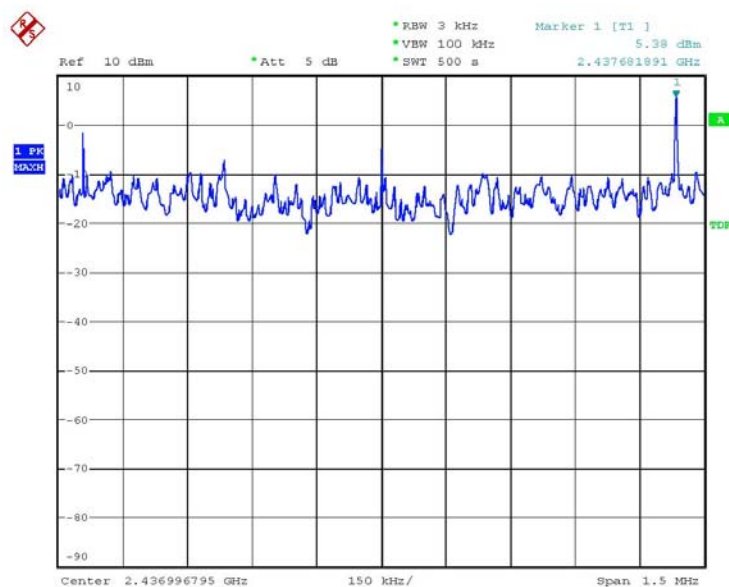
802.11b

Channel 1



POWER DENSITY 802.11b CH1
Date: 16.NOV.2010 16:19:44

Channel 6



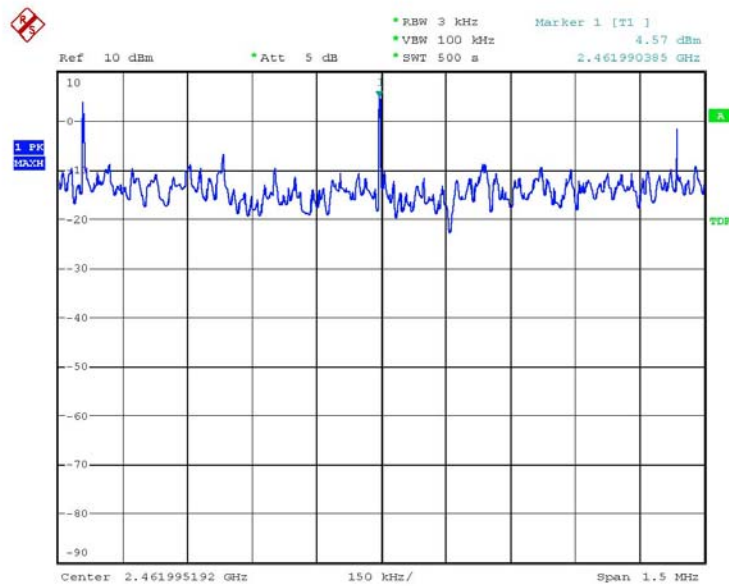
POWER DENSITY 802.11b CH6
Date: 16.NOV.2010 16:22:23



Registration number: W6D21109-11809-C-1

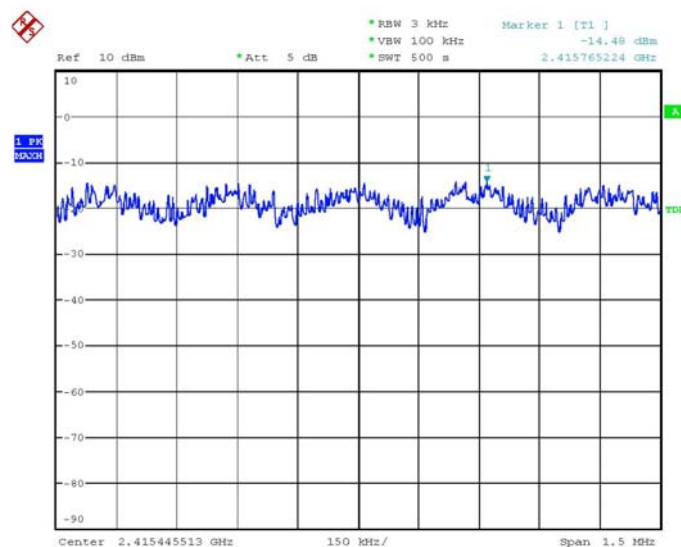
FCC ID: Z54PV-1005

Channel 11



POWER DENSITY 802.11b CH11
Date: 16.NOV.2010 16:23:50

802.11g Channel 1



POWER DENSITY 802.11g CH1
Date: 16.NOV.2010 16:28:52

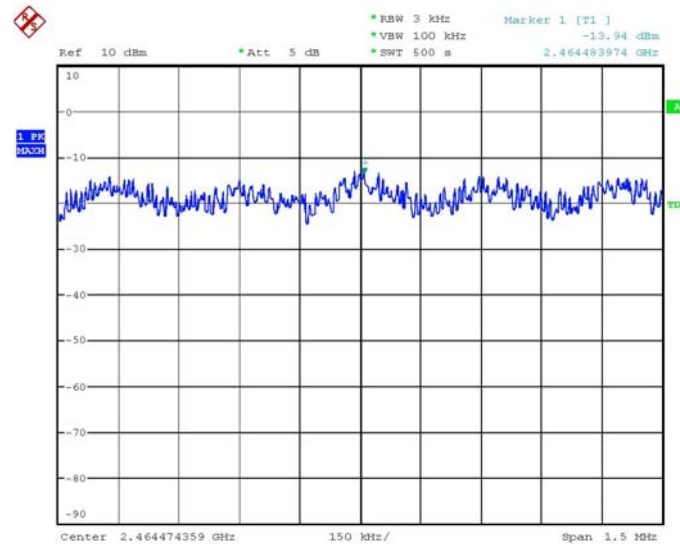


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

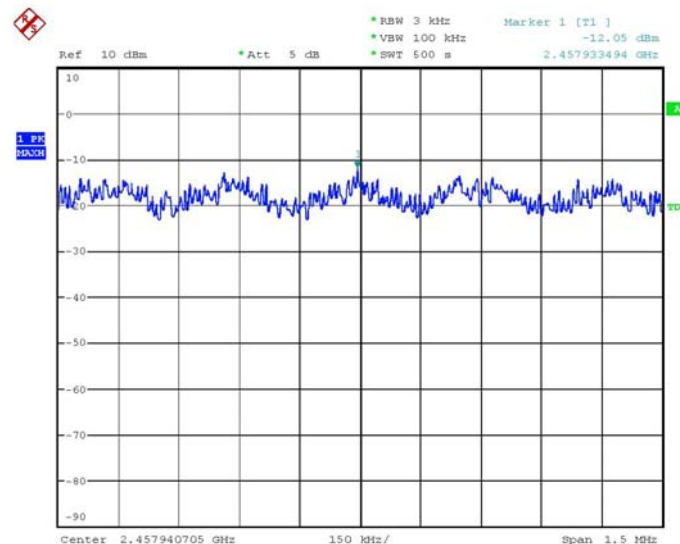
FCC ID: Z54PV-1005

Channel 6



POWER DENSITY 802.11g CH6
Date: 16.NOV.2010 16:26:17

Channel 11



POWER DENSITY 802.11g CH11
Date: 16.NOV.2010 16:25:11



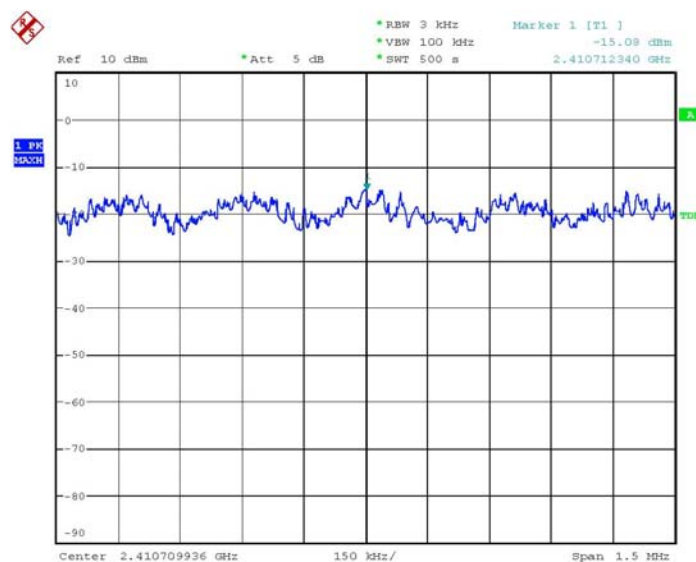
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

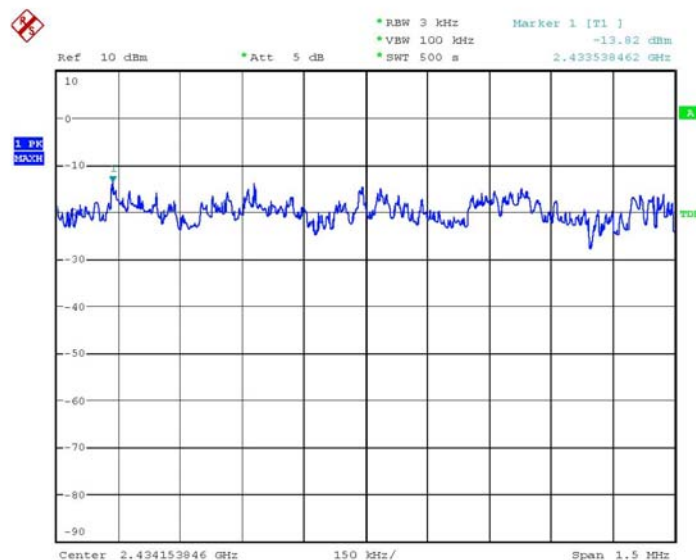
802.11n

Channel 1



POWER DENSITY 802.11n CH1
Date: 16.NOV.2010 16:30:35

Channel 6



POWER DENSITY 802.11n CH6
Date: 16.NOV.2010 16:31:57

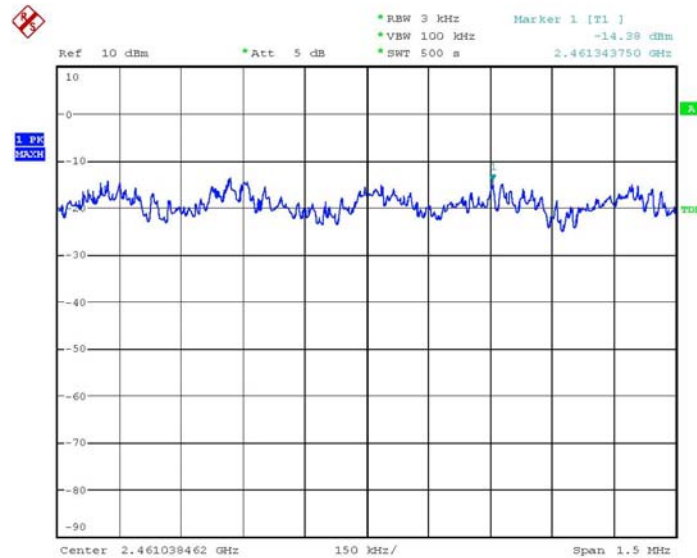


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Channel 11



POWER DENSITY 802.11n CH11
Date: 16.NOV.2010 16:32:52



Worldwide Testing Services(Taiwan) Co., Ltd.

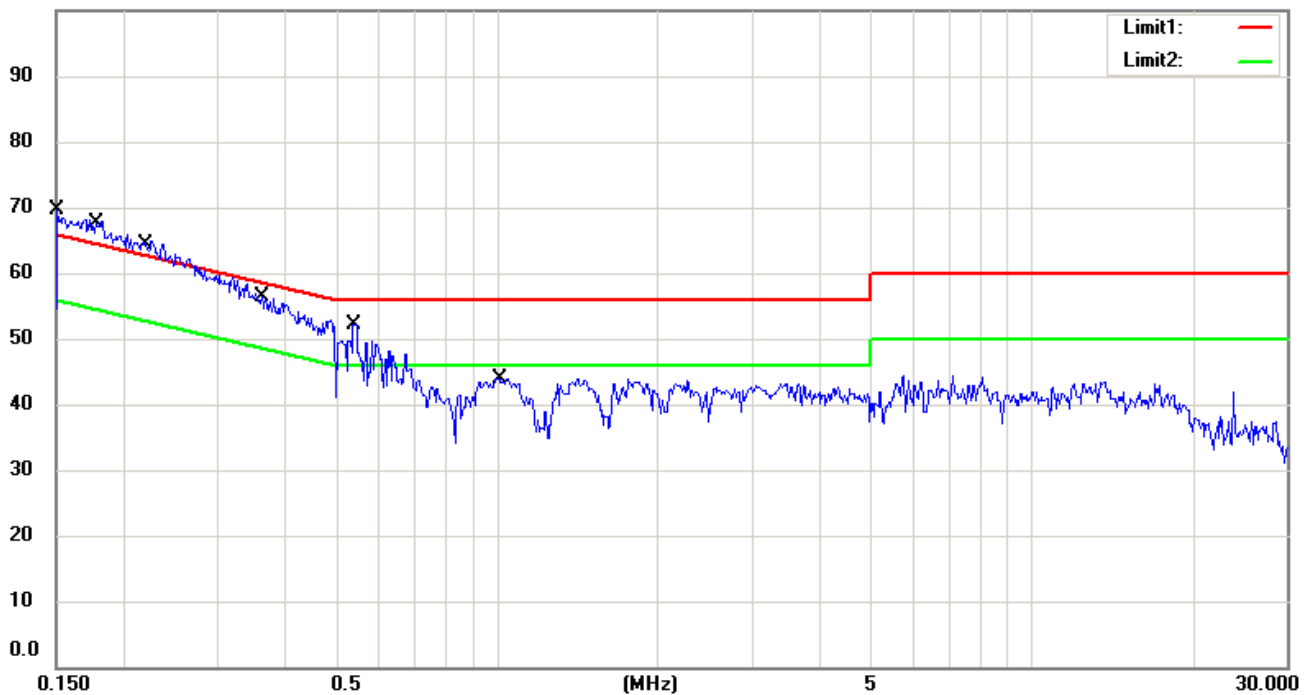
Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Power Line Conducted Emission

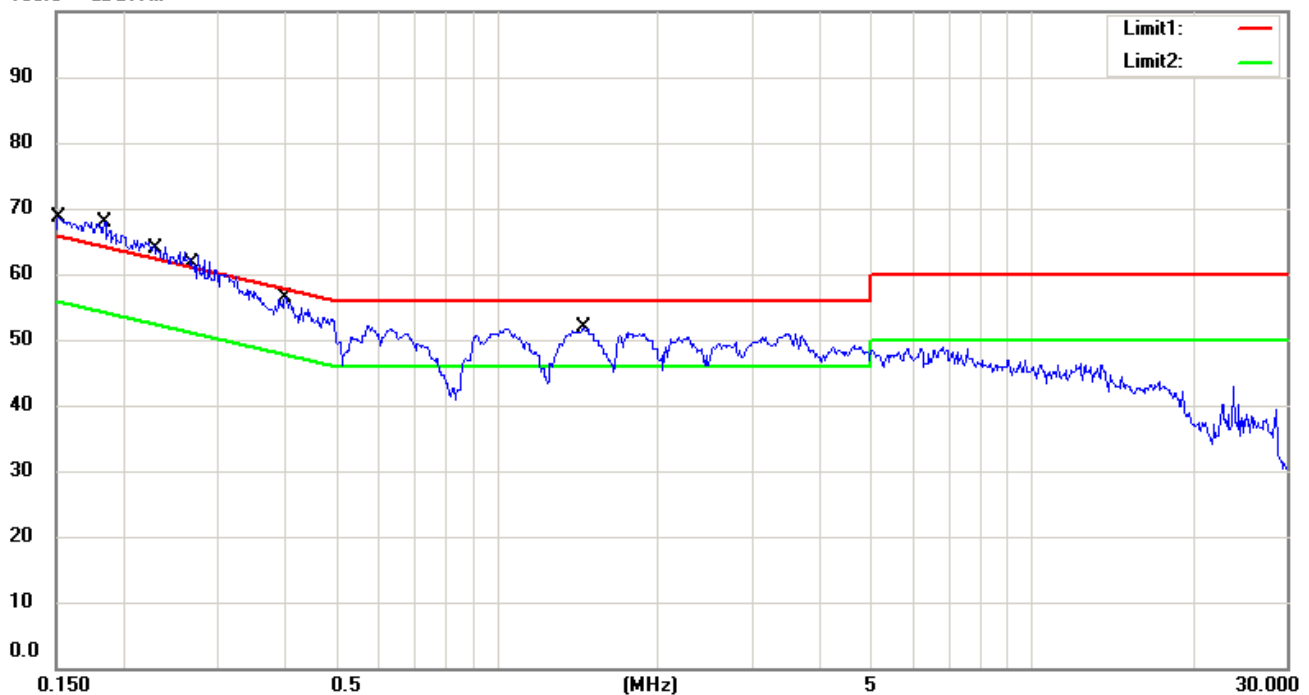
Polarization N

100.0 dBuV/m



Polarization L1

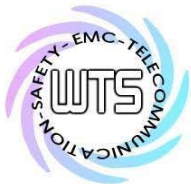
100.0 dBuV/m



Note:

Up Line: QP Limit Line, Down Line: Ave Limit Line

4. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
5. 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.
6. For corrected test results are listed in the relevant table of AC conducted test data of this test report.



Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

External Photos





Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

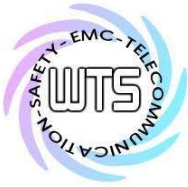




Registration number: W6D21109-11809-C-1

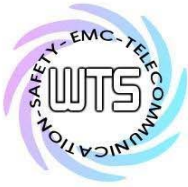
FCC ID: Z54PV-1005





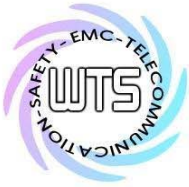
Registration number: W6D21109-11809-C-1
FCC ID: Z54PV-1005





Registration number: W6D21109-11809-C-1
FCC ID: Z54PV-1005





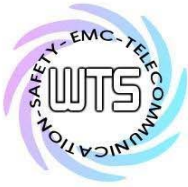
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FCC ID: Z54PV-1005





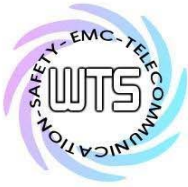
Registration number: W6D21109-11809-C-1
FCC ID: Z54PV-1005





Registration number: W6D21109-11809-C-1
FCC ID: Z54PV-1005





Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1
FCC ID: Z54PV-1005

Multi-listing



Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Internal Photos





Registration number: W6D21109-11809-C-1

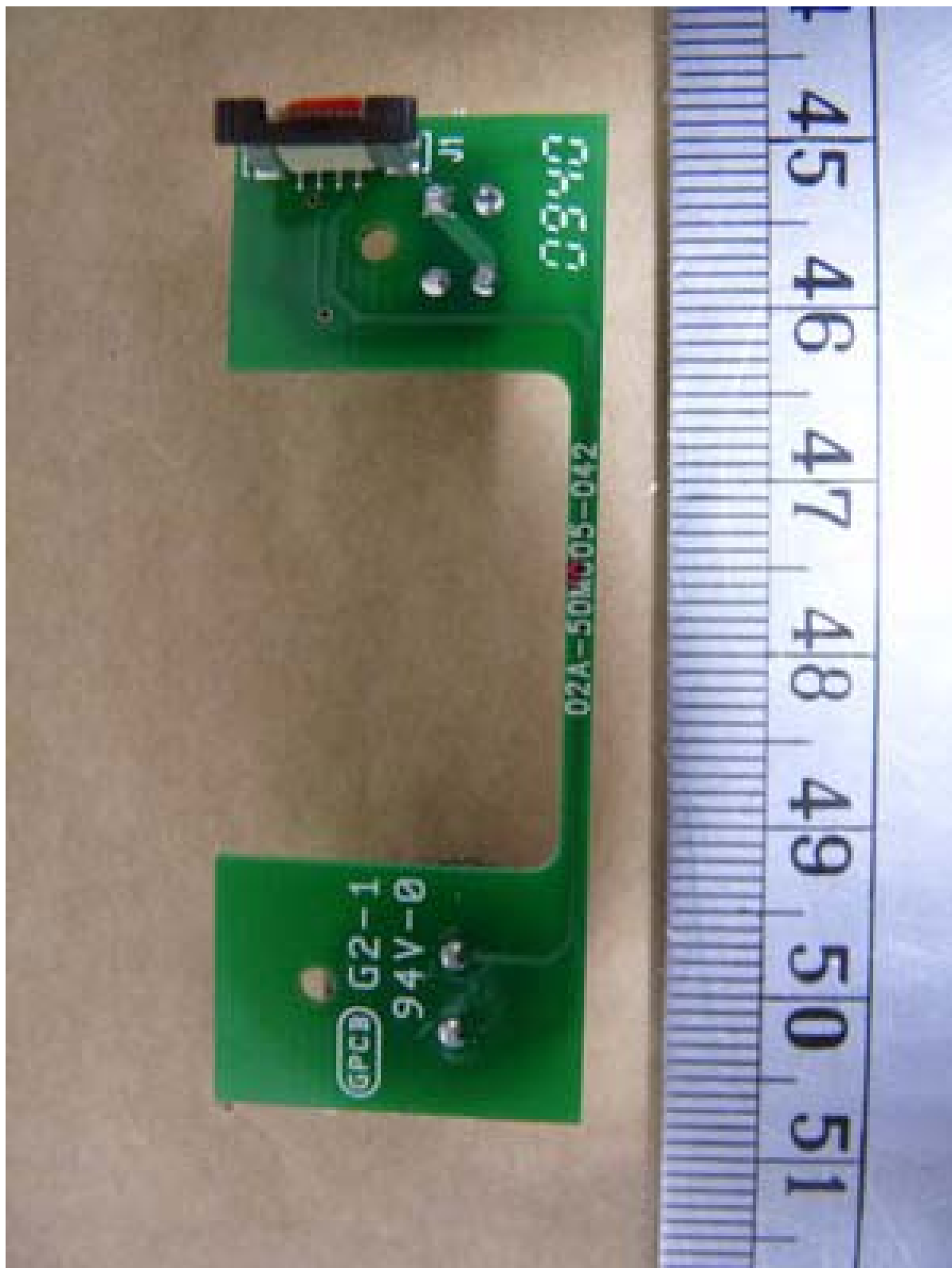
FCC ID: Z54PV-1005





Registration number: W6D21109-11809-C-1

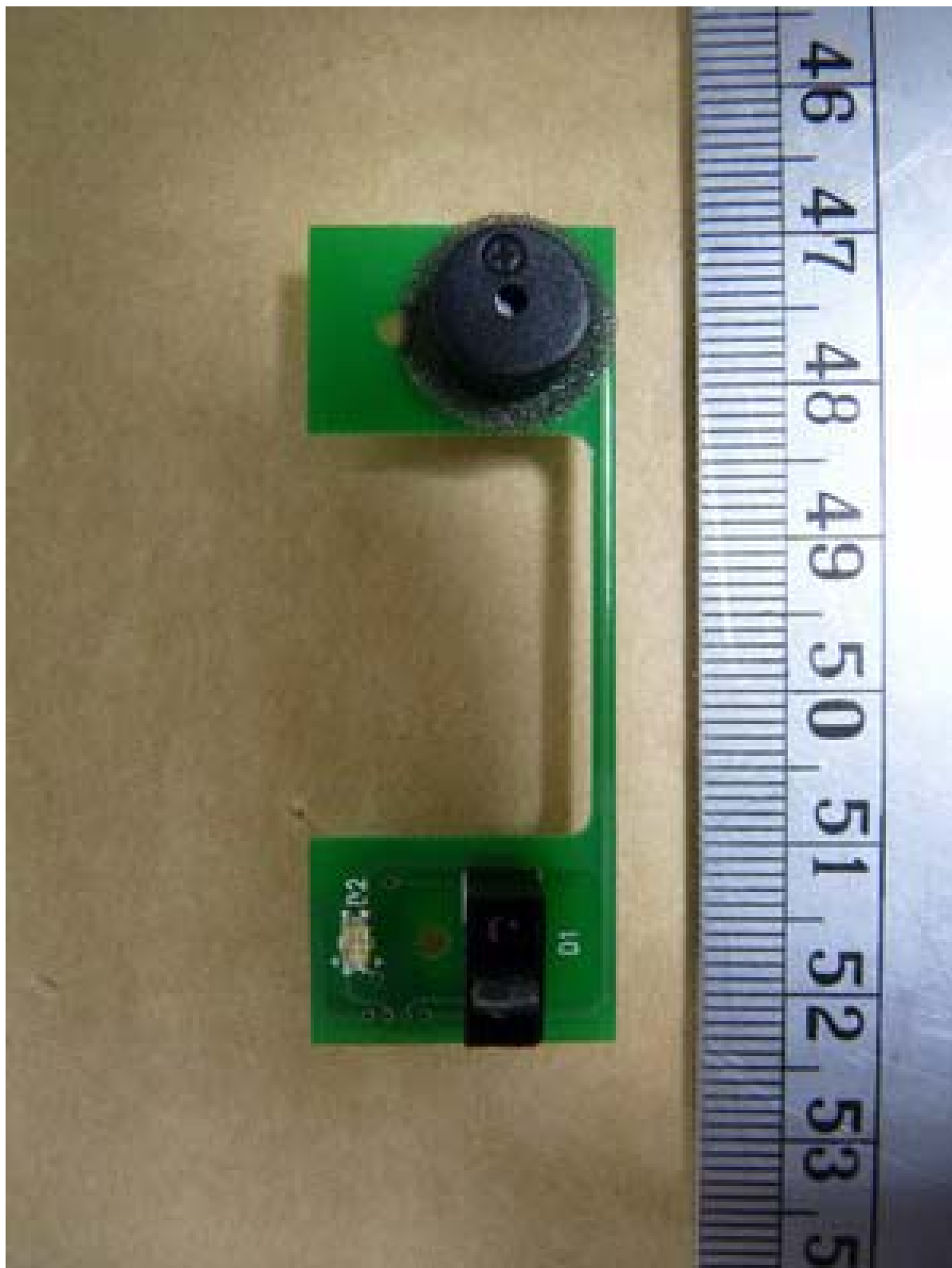
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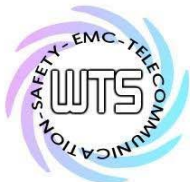




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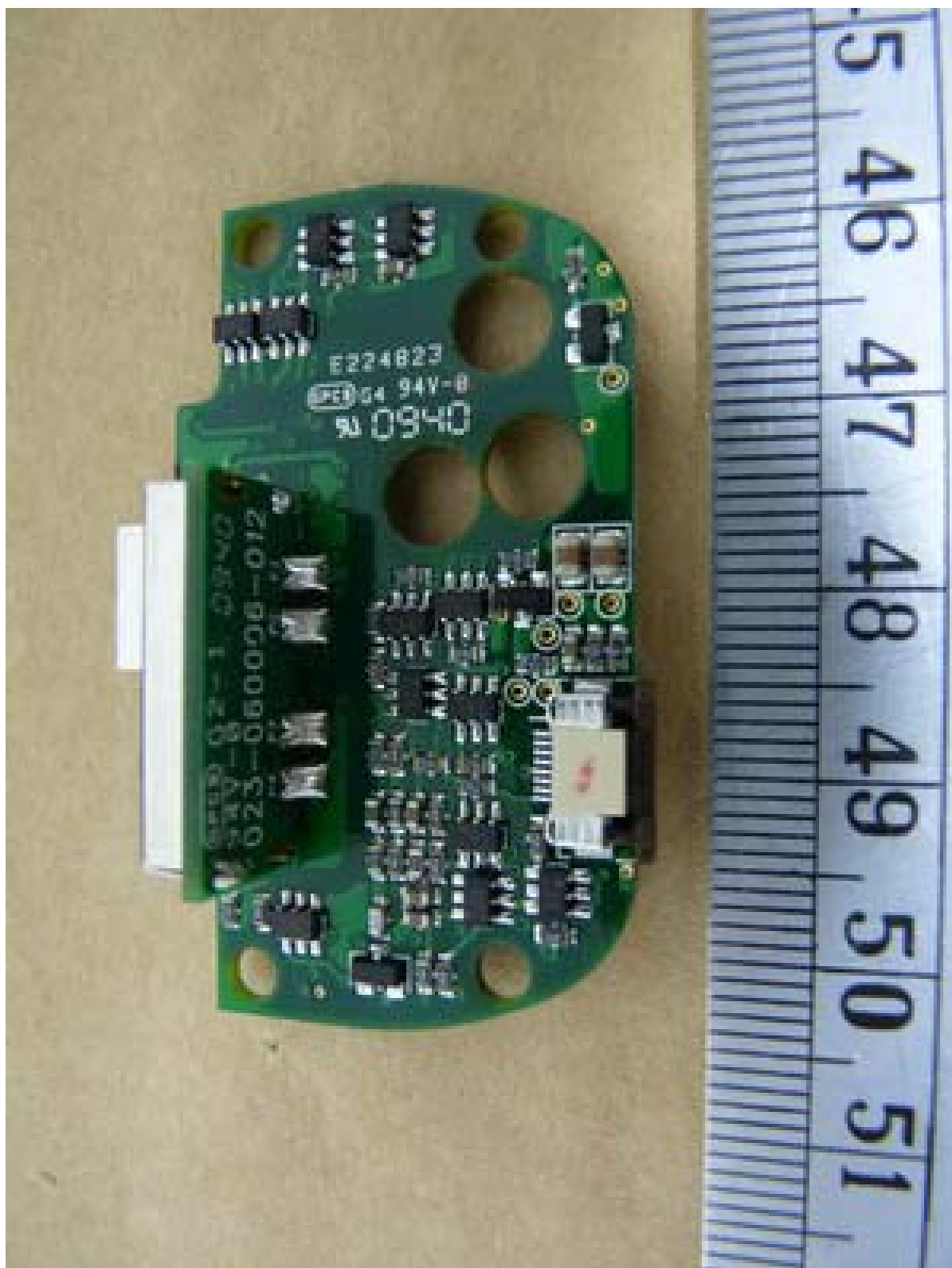
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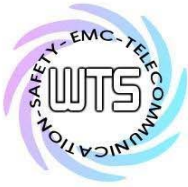




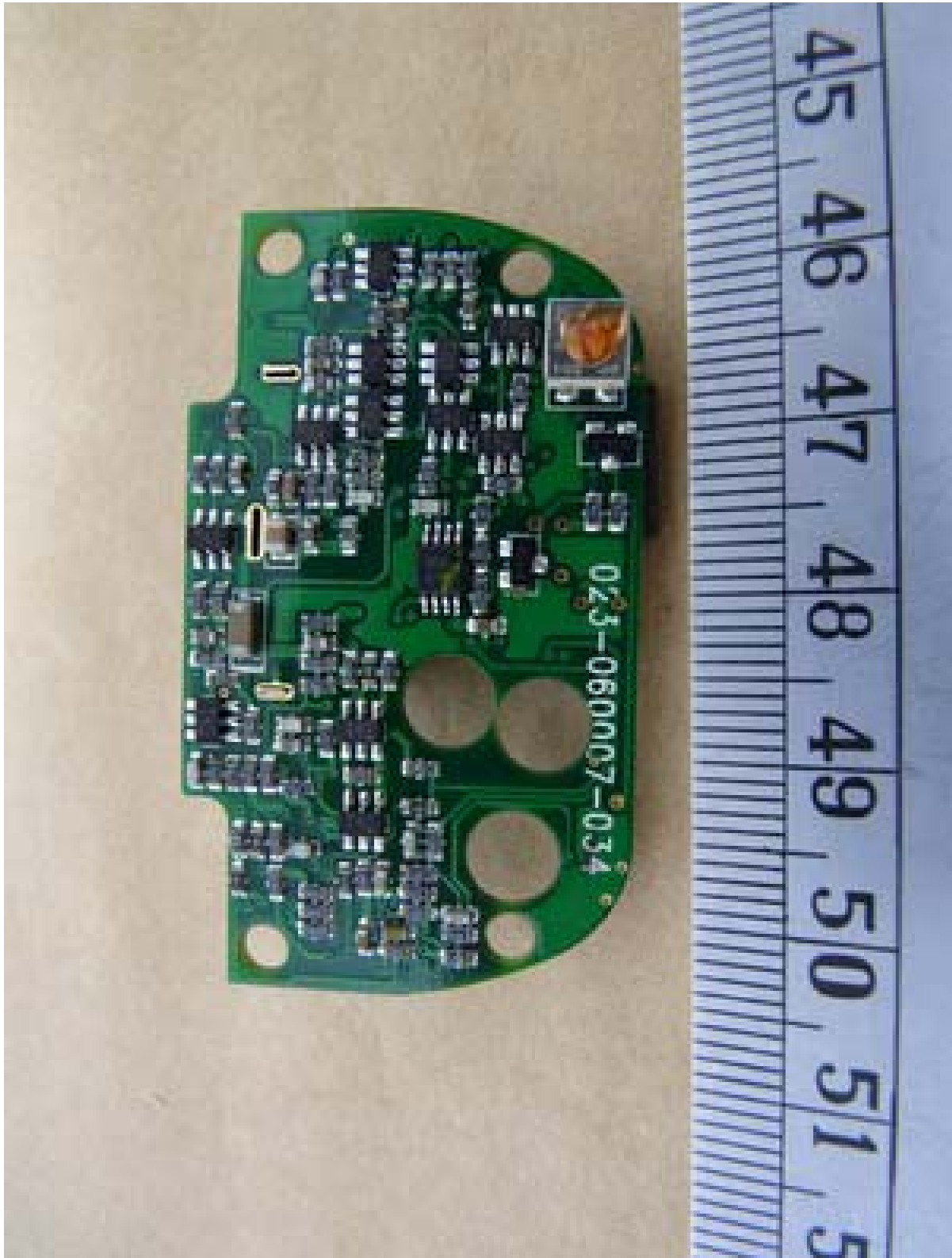
Registration number: W6D21109-11809-C-1

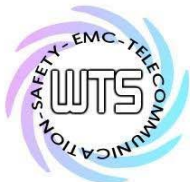
FCC ID: Z54PV-1005





Registration number: W6D21109-11809-C-1
FCC ID: Z54PV-1005



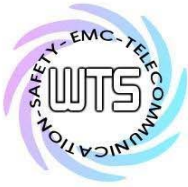


Worldwide Testing Services(Taiwan) Co., Ltd.

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Worldwide Testing Services(Taiwan) Co., Ltd.

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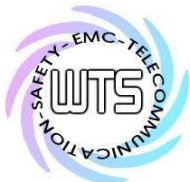
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Registration number: W6D21109-11809-C-1

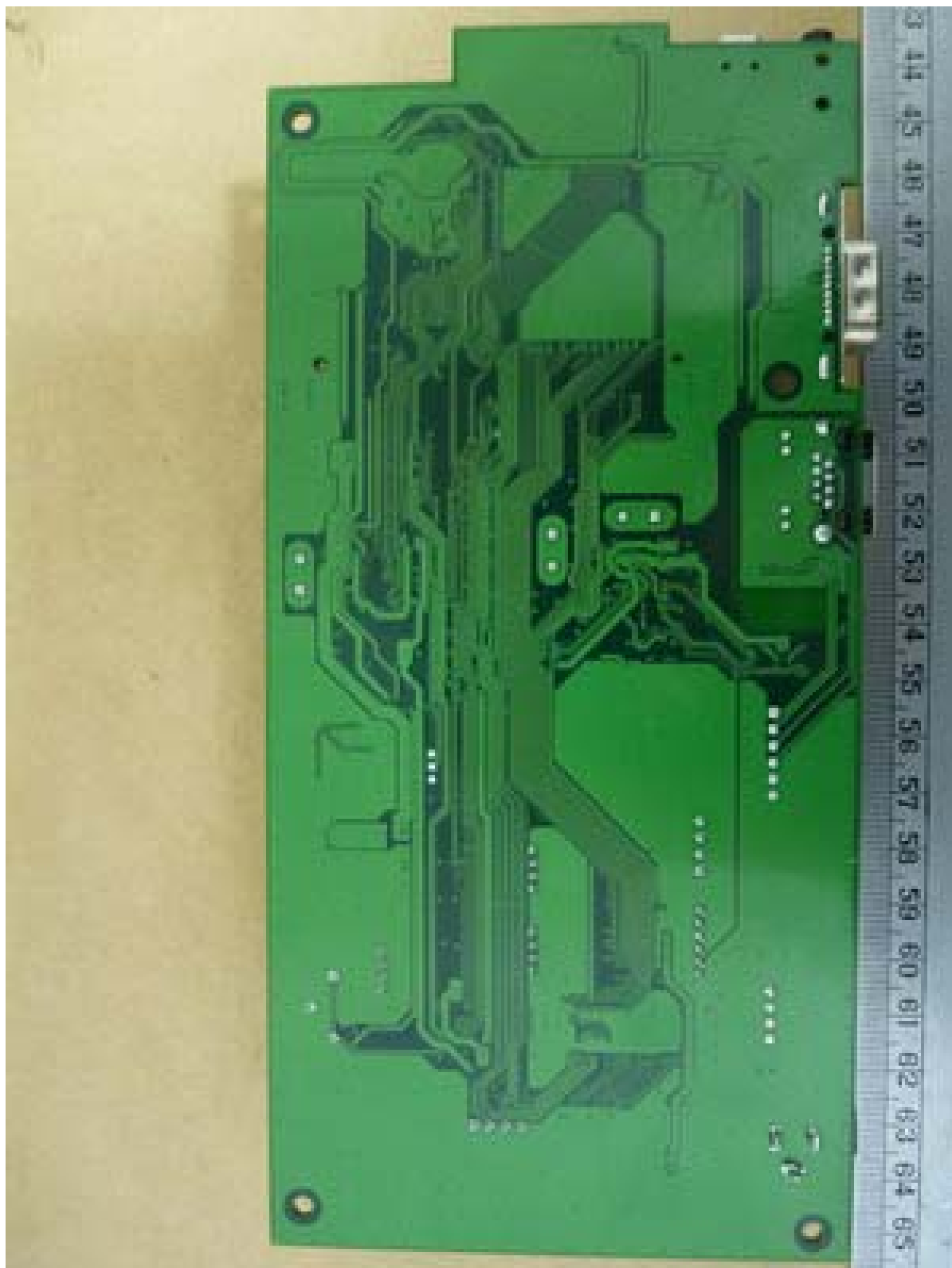
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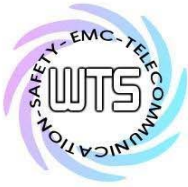




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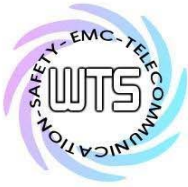
FCC ID: Z54PV-1005



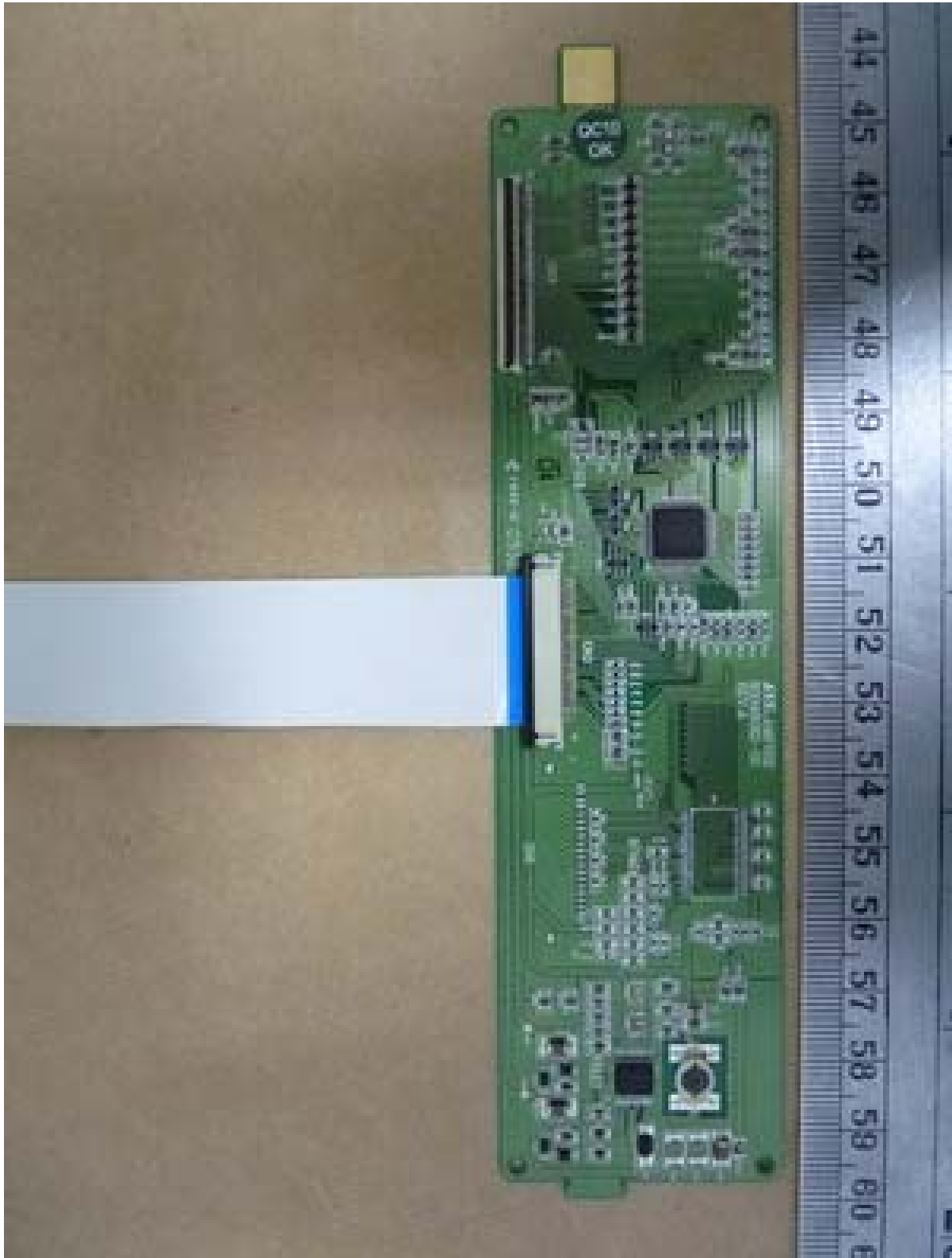


Registration number: W6D21109-11809-C-1
FCC ID: Z54PV-1005





Registration number: W6D21109-11809-C-1
FCC ID: Z54PV-1005





Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

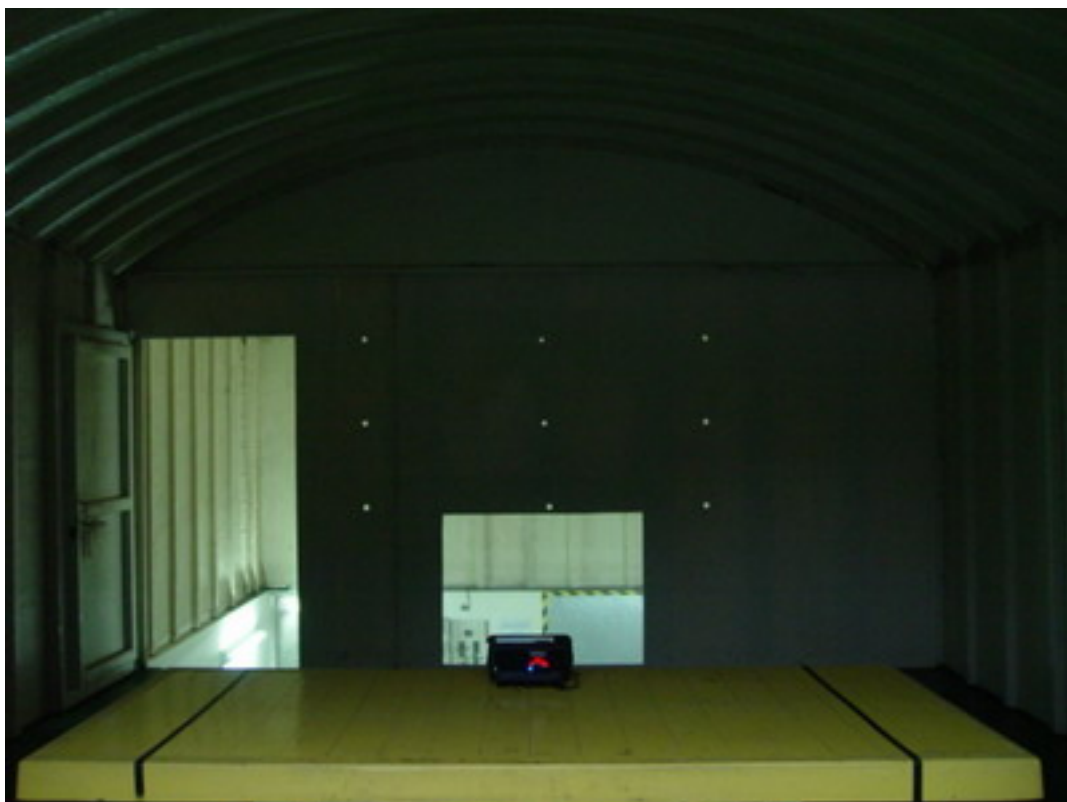
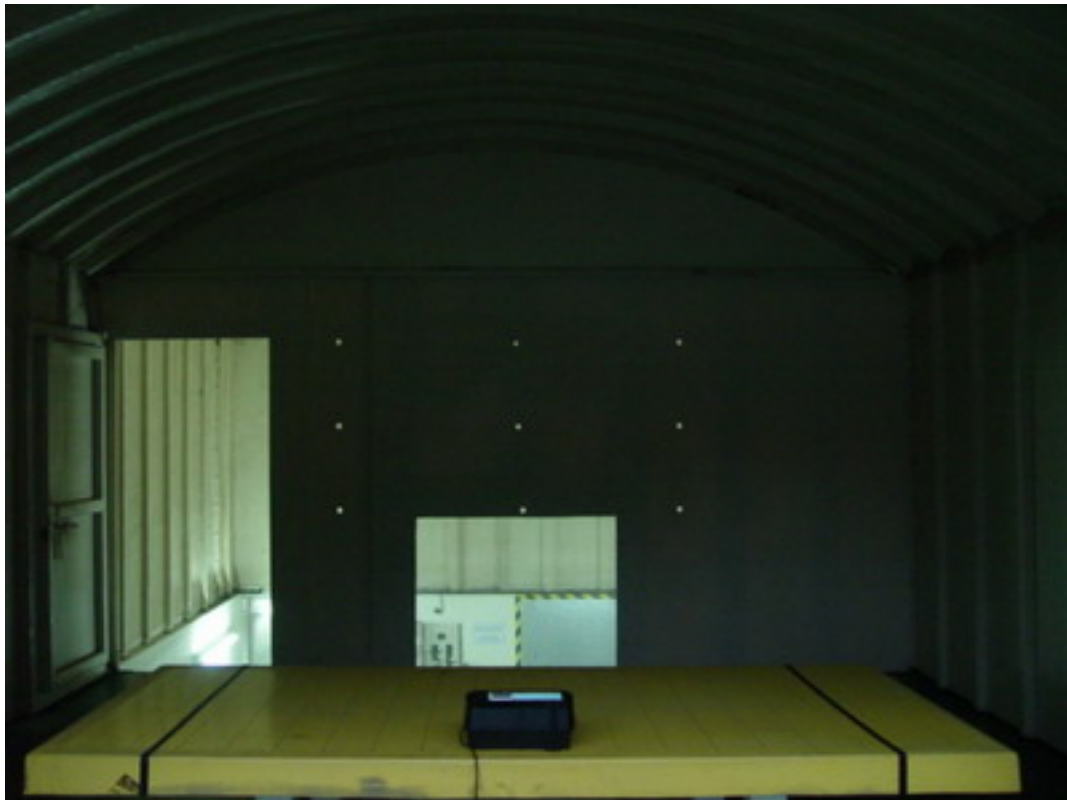


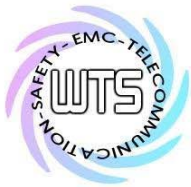


Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

**Set Up Photo of Radiated Emission
RF**





Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6D21109-11809-C-1

FCC ID: Z54PV-1005

Set Up Photo of Conducted Emission

