

**FCC PART 15 SUBPART C TEST REPORT**

**for**

**Remote Control**

**Model No.: TRX980**

**FCC ID: H5OTR33**

of

Applicant: Advance Security Inc.

Address: 3F, 48 Ta-An Street, Hsi-Chih Taipei Hsien, Taiwan R.O.C.

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.: W6M20907-9889-P-15**



Registration number: W6M20907-9889-P-15  
FCC ID: H50TR33

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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.

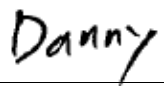
The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.

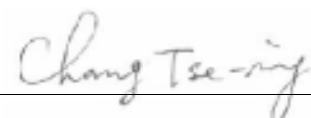
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### **Tester:**

July 15, 2009		Danny Sung	
Date	WTS-Lab.	Name	Signature

### **Technical responsibility for area of testing:**

July 15, 2009		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 : Advance Security Inc.  
Street : 3F, 48 Ta-An Street, Hsi-Chih  
Town : Taipei Hsien,  
Country : Taiwan R.O.C.  
Telephone : +886-2-86481688  
Fax : +886-2-86481689



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#### **1.4 Application details**

Date of receipt of test item : July 06, 2009  
Date of test : from July 07, 2009 to July 14, 2009

#### **1.5 General information of Test item**

Type of test item : Remote Control  
Model Number : TRX980  
Multi-listing model number : ./.  
Photos : see Appendix

#### **Technical data**

Frequency band : 909 - 921.778 MHz  
Frequency ( ch A) : 909.000 MHz  
Frequency ( ch B) : 915.500 MHz  
Frequency ( ch C) : 921.778 MHz

#### **Transmitter**

#### **Unom**

Power ( ch A or ch 1) : Conducted: 23.00 dBm  
Power ( ch B or ch 13) : Conducted: 20.18 dBm  
Power ( ch C or ch 25) : Conducted: 19.77 dBm

Power supply : Battery 4.2V, 580mAh

Operation modes : duplex

Modulation Type : FSK

Antenna Type : Helical antenna

Antenna gain : < 6 dBi



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Host device : none

Classification :

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

**Manufacturer:**  
(if applicable)

Name : ./.  
Street : ./.  
Town : ./.  
Country : ./.

## 1.6 Test standards

Technical standard : FCC RULES PART 15 Subpart B / SUBPART C § 15.247 (2008-10)



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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 3 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

Details of power supply : Battery 4.2V, 580mAh

Extreme conditions parameters : test voltage : -- extreme  
min :-- V  
max :-- V

Description of Tested System:

The EUT was tested with the Accessories or Peripherals Listed below:

Equipment	Model No.	Information
I.T.E power supply	HK-F104-A05	100-240V 50/60 Hz 0.15A 5V 0-1.0A



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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	2008/9/18	2009/9/17
ETSTW-CE 002	PREREGULATOR MODE DC POWER SUPPLY	None	None	None	Function Test	
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2009/3/27	2010/3/26
ETSTW-CE 005	Line-Impedance Stabilisation Network	NNBM 8126D	137	Schwarzbeck	2008/9/15	2009/9/14
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2009/5/9	2010/5/8
ETSTW-CE 008	ABSORBING CLAMP	MDS 21	3469	Schwarzbeck	2008/9/18	2009/9/17
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2008/7/25	2009/7/24
ETSTW-CE 015	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T8-02	20307	FCC	2008/9/22	2009/9/21
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2008/9/24	2009/9/23
ETSTW-RE 002	Function Generator	33220A	MY43004982	Agilent	2007/10/12	2009/10/11
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2008/10/8	2009/10/7
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2008/9/22	2009/9/21
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2008/9/18	2009/9/17
ETSTW-RE 011	PROGRAMMABLE LINEAR POWER SUPPLY	LPS-305	30503070165	MOTECH	Function Test	
ETSTW-RE 017	Log-Periodic Antenna	HL025	352886/001	R&S	2009/5/4	2010/5/3
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2008/10/27	2009/10/26
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	Function Test	
ETSTW-RE 021	SWEEP GENERATOR	SWM05	835130/010	R&S	2008/8/27	2009/8/26
ETSTW-RE 028	Log-Periodic Dipole Array Antenna	3148	34429	EMCO	2009/4/15	2010/4/14
ETSTW-RE 029	Biconical Antenna	3109	33524	EMCO	2009/4/15	2010/4/14
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	2009/3/23	2010/3/22
ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2008/9/1	2009/8/31
ETSTW-RE 033	WaveRunner 6000A Serise Oscilloscope	WAVERUNNER 6100A	LCRY0604P14508	LeCroy	2009/6/15	2010/6/14
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2008/9/1	2009/8/31
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2009/1/8	2011/1/7
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2009/5/5	2010/5/4
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2009/5/21	2010/5/20
ETSTW-RE 047	ESA-E SERIES SPECTRUM ANALYZER	E4445A	MY46181369	Agilent	2009/6/15	2010/6/14
ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2008/9/1	2009/8/31
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2009/4/14	2011/4/13
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2009/6/10	2010/6/09
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	2008/9/1	2009/8/31





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ETSTW-RE 065	Amplifier	AMF-6F-18002650-25-10P	941608	MITEQ	2009/4/21	2010/4/20
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2008/10/28	2009/10/27
ETSTW-RE 073	Power Meter	N1911A	MY45100769	Agilent	2009/1/9	2011/1/8
ETSTW-RE 074	Power Sensor	N1921A	MY45241198	Agilent	2009/1/9	2011/1/8
ETSTW-RE 091	Match Pad	MDCS1500	None	WOKEN	2008/10/9	2009/10/8
ETSTW-RE 092	Match Pad	MDCS1510	None	WOKEN	2008/10/9	2009/10/8
ETSTW-RE 093	LUMPED ELEMENT POWER DIVIDER	PL2-10	146	MCLI	2009/3/6	2010/3/5
ETSTW-RE 094	Precision Coaxial Termination	HP 909F	03941	Agilent	2008/12/19	2009/12/18
ETSTW-RE 095	Digital Thermo-Hygro Meter	0410	01	WISEWIND	2009/3/24	2010/3/23
ETSTW-RE 096	SIGNAL GENERATOR	SMIQ 03B	102274	R&S	2009/6/5	2010/6/4
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2008/9/23	2009/9/22
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2008/9/22	2009/9/21
ETSTW-Cable 001	Microwave Cable	SUCOFLEX 104	238094	HUBER+SUHNER	2008/9/22	2009/9/21
ETSTW-Cable 002	Microwave Cable	SUCOFLEX 104	238093	HUBER+SUHNER	2008/9/22	2009/9/21
ETSTW-Cable 003	Microwave Cable	SUCOFLEX 104	209953	HUBER+SUHNER	2008/9/22	2009/9/21
ETSTW-Cable 010	BNC Cable	5 M BNC Cable	None	JYE BAO CO.,LTD.	2009/3/6	2010/3/5
ETSTW-Cable 011	BNC Cable	BNC Cable 1	None	JYE BAO CO.,LTD.	2008/8/21	2009/8/20
ETSTW-Cable 012	BNC Cable	BNC Cable 2	None	JYE BAO CO.,LTD.	2008/8/21	2009/8/20
ETSTW-Cable 022	N TYPE Cable	OATS Cable 3	0002	JYE BAO CO.,LTD.	2009/3/6	2010/3/5
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	EMI TEST SOFTWARE	i2	None	AUDIX	Version 3.2007-8-17b	



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## **2.4 General Test Procedure**

**POWER LINE CONDUCTED INTERFERENCE:** The procedure used was ANSI STANDARD C63.4-2003 using a 50 $\mu$ 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 $\mu$ 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 $\mu$ V + 10.36 dB + 6 dB = 36.36 dB $\mu$ V/m @3m

The UUT 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 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)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Equivalent radiated Power	15.247(b)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions radiated – Transmitter operating	15.247(c)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions conducted – Transmitter operating	15.247	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carrier Frequency Separation	15.247(a) (1)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Number of Hopping Frequencies	15.247(a) (1)(i)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Time of Occupancy (Dwell Time)	15.247(a) (1)(i)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20 dB Bandwidth	15.247(a) (1)(i)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Band-edge Compliance of RF Emission	15.247(c)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated Emission from Digital Part And Receiver L.O.	15.109	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Power Line Conducted Emission	15.207(a)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The follows is intended to leave blank.



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**3.1 Peak Output Power (transmitter)**

FCC Rule: 15.247

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).

Test conditions		Conducted Power		
		Channel A [dBm]	Channel B [dBm]	Channel C [dBm]
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 4.2\text{ V}$	23.00	20.18	19.77

Test conditions		Radiated Power		
		Channel A [dBm]	Channel B [dBm]	Channel C [dBm]
$T_{nom} = \text{--}^{\circ}\text{C}$	$V_{nom} = \text{-- V}$	--	--	--

Test conditions	Signal Field strength TX highest power mode
$T_{nom} = \text{--}^{\circ}\text{C}, V_{nom} = \text{-- V}$	dB $\mu$ V/m
Frequency[MHz]	
--	--
Measurement uncertainty	< 3 dB

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



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## Maximum Peak Output Power

Limits:

Frequency MHz	Number of hopping channels			
	$\geq 75$	$\geq 50$	$49 \geq 25$	$74 \geq 15$
902-928		30 dBm	24 dBm	
2400-2483.5 MHz	30 dBm	-		21 dbm
5725-5850 MHz	30 dBm	-		

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

Test equipment used: ETSTW-RE 055, ETSTW-RE 064



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### **3.2 RF Exposure Compliance Requirements**

According to Supplement C, Edition 01-01 to OET Bulletin 65, Edition 97-01 this spread spectrum transmitter is categorically excluded from routine environmental evaluation because of the low power level, where there is a high likelihood of compliance with RF exposure standards.

### **3.3 Out of Band Radiated Emissions**

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 below 1GHz :

Max. reading – 20 dB

Guidance on Measurement of FHSS 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.” Here the correction was added to the limit instead subtracted from the reading.

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

For frequencies above 1GHz (Peak measurements).

Limit = max. aver. reading-20dB +20dB(because Peak detector is used)

For frequencies above 1GHz (Average measurements).

Max. reading – 20 dB - duty cycle correction:

No duty cycle correction was added to the reading

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 018,  
ETSTW-RE 021, ETSTW-RE 028, ETSTW-RE 030, ETSTW-RE 043,  
ETSTW-RE 064



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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 26000 MHz.

For radiated emission tests, the analyzer setting was as followings:

RES BW VID BW

Frequency <1 GHz 100 kHz 100 kHz (Peak measurements)

Frequency >1 GHz 1 MHz 1 MHz (Peak measurements)

1 MHz 1 MHz (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 960	500	54.0

For frequencies above 1GHz (Average measurements).

Guidance on Measurement of FHSS Systems:

“If the emission is pulsed, modify the unit for continues operation , use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.” Here the correction was added to the limit instead subtracted from the reading.

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

For frequencies above 1GHz (Average measurements).

Limit – duty cycle correction

No duty cycle correction was added to the reading.

54.0dBμV/m

For frequencies above 1GHz (Peak measurements).

Limit + 20dB

54.0dBμV/m + 20 dB= 74 dBμV/m

Note: See attached diagrams.

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 028,  
ETSTW-RE 029, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043,  
ETSTW-RE 064





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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))

SAMPLE CALCULATION OF LIMIT. All results will be updated by an automatic measuring system in accordance to 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 an 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 "Marker-Delta-Method" or the „Duty-Cycle Correction Factor“.

Model: TRX980 Date: 2009/7/9  
 Mode: 909MHz Temperature: 24 °C Engineer: Danny  
 Polarization: Horizontal Humidity: 51 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
284.850	15.58	peak	14.94	30.52	46.00	-15.48	110	150
977.555	22.09	peak	27.25	49.34	54.00	-4.66	130	150

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.			
1052.768	59.62	47.03	-11.95	47.67	35.08	74.00	54.00	-18.92	130	150
1817.635	74.23	---	-9.69	64.54	---	74.00	54.00	-9.46	140	150
2725.451	62.51	44.09	-6.59	55.92	37.50	74.00	54.00	-16.50	130	150
3639.279	58.03	43.50	-2.70	55.33	40.80	74.00	54.00	-13.20	135	150
4545.185	74.65	57.75	-5.91	68.74	51.84	74.00	54.00	-2.16	130	150
5450.902	51.9	---	-2.42	49.48	---	74.00	54.00	-24.52	135	150
6364.730	61.19	---	-0.54	60.65	---	74.00	54.00	-13.35	145	150
7278.557	56.26	43.5	-0.93	55.33	42.57	74.00	54.00	-11.43	150	150



# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15  
 FCC ID: H50TR33

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
281.603	15.39	peak	14.87	30.26	46.00	-15.74	110	150
998.597	21.34	peak	27.39	48.73	54.00	-5.27	125	150

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.			
1042.084	64.09	---	-11.90	52.19	---	74.00	54.00	-21.81	135	150
1817.635	67.57	---	-9.69	57.88	---	74.00	54.00	-16.12	130	150
2725.451	57.27	---	-6.59	50.68	---	74.00	54.00	-23.32	130	150
3639.279	52.62	---	-2.70	49.92	---	74.00	54.00	-24.08	135	150
4544.973	68.03	52.48	-5.91	62.12	46.57	74.00	54.00	-7.43	150	150
5450.902	53.08	---	-2.42	50.66	---	74.00	54.00	-23.34	145	150
6364.730	58.91	---	-0.54	58.37	---	74.00	54.00	-15.63	130	150
7272.057	59.17	40.8	-0.91	58.26	39.89	74.00	54.00	-14.11	135	150

Mode: 915.5MHz Temperature: 24 °C Engineer: Danny  
 Polarization: Horizontal Humidity: 51 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
283.767	15.49	peak	14.92	30.41	46.00	-15.59	105	150
963.527	22.53	peak	27.24	49.77	54.00	-4.23	125	150

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.			
1057.977	68.93	49.16	-11.97	56.96	37.19	74.00	54.00	-16.81	145	150
1831.663	72.55	---	-9.72	62.83	---	74.00	54.00	-11.17	135	150
2746.192	64.56	50.39	-6.63	57.93	43.76	74.00	54.00	-10.24	135	150
3662.045	57.77	42.98	-2.63	55.14	40.35	74.00	54.00	-13.65	140	150
4577.661	74.29	57.56	-5.74	68.55	51.82	74.00	54.00	-2.18	135	150
5490.982	53.38	---	-2.34	51.04	---	74.00	54.00	-22.96	140	150
6412.826	63.30	---	-0.73	62.57	---	74.00	54.00	-11.43	135	150
7324.574	58.76	39.79	-1.00	57.76	38.79	74.00	54.00	-15.21	145	150



# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15  
 FCC ID: H50TR33

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
280.521	15.90	peak	14.85	30.75	46.00	-15.25	100	150
994.389	20.49	peak	27.36	47.85	54.00	-6.15	120	150

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.			
1050.100	63.29	---	-11.94	51.35	---	74.00	54.00	-22.65	140	150
1831.663	69.04	---	-9.72	59.32	---	74.00	54.00	-14.68	135	150
2745.491	59.68	41.22	-6.63	53.05	34.59	74.00	54.00	-19.41	135	150
3663.327	56.76	42.31	-2.62	54.14	39.69	74.00	54.00	-14.31	135	150
4577.544	68.9	53.17	-5.74	63.16	47.43	74.00	54.00	-6.57	135	150
5490.982	51.65	---	-2.34	49.31	---	74.00	54.00	-24.69	130	150
6412.826	62.24	---	-0.73	61.51	---	74.00	54.00	-12.49	140	150
7323.884	63.89	45.47	-1.00	62.89	44.47	74.00	54.00	-9.53	145	150

Mode: 921.778MHz Temperature: 24 °C Engineer: Danny  
 Polarization: Horizontal Humidity: 51 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
280.521	15.28	peak	14.85	30.13	46.00	-15.87	110	150
983.166	23.01	peak	27.29	50.30	54.00	-3.70	125	150

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.			
1062.124	62.19	---	-11.99	50.20	---	74.00	54.00	-23.80	140	150
1843.687	72.17	---	-9.74	62.43	---	74.00	54.00	-11.57	130	150
2765.422	65.30	52.24	-6.67	58.63	45.57	74.00	54.00	-8.43	135	150
3687.286	58.35	43.56	-2.55	55.80	41.01	74.00	54.00	-12.99	140	150
4609.019	71.57	56.25	-5.68	65.89	50.57	74.00	54.00	-3.43	145	150
5531.062	56.22	---	-2.04	54.18	---	74.00	54.00	-19.82	135	150
6452.906	61.49	---	-0.86	60.63	---	74.00	54.00	-13.37	150	150
7374.061	62.05	45.28	-1.03	61.02	44.25	74.00	54.00	-9.75	130	150



# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15  
 FCC ID: H5OTR33

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
281.603	15.75	peak	14.87	30.62	46.00	-15.38	105	150
971.944	16.04	peak	27.23	43.27	54.00	-10.73	120	150

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.			
1012.024	63.90	---	-11.76	52.14	---	74.00	54.00	-21.86	140	150
1843.687	65.09	---	-9.74	55.35	---	74.00	54.00	-18.65	140	150
2765.531	59.39	40.89	-6.67	52.72	34.22	74.00	54.00	-19.78	135	150
3687.375	50.94	---	-2.55	48.39	---	74.00	54.00	-25.61	140	150
4609.005	68.11	53.07	-5.68	62.43	47.39	74.00	54.00	-6.61	130	150
5531.062	52.5	---	-2.04	50.46	---	74.00	54.00	-23.54	140	150
6452.906	64.79	---	-0.86	63.93	---	74.00	54.00	-10.07	145	150
7374.479	66.51	48.63	-1.03	65.48	47.60	74.00	54.00	-6.40	150	150

- Note**
1. Correction Factor = Antenna factor + Cable loss - Preamplifier
  2. The formula of measured value as: Test Result = Reading + Correction Factor
  3. All not in the table noted test results are more than 20 dB below the relevant limits.
  4. See attached diagrams in Appendix.
  5. See the attached diagram as appendix.

All other not noted test plots do not contain significant test results in relation to the limits.

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

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 018, ETSTW-RE 021, ETSTW-RE 028, ETSTW-RE 030, ETSTW-RE 043, ETSTW-RE 064



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 FCC ID: H50TR33

**3.6 Carrier Frequency Separation**

Carrier Frequency Separation was measured with modulation (declared by manufacturer).

According to FCC rules part 15 subpart C §15.247 frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or 20 dB bandwidth of the hopping channel, whichever is greater.

Test conditions		Channel Separation	
		Channel 0	Channel 0+1
T <sub>nom</sub> = 23°C	V <sub>nom</sub> = 4.2 V	500 kHz	

Test conditions		Channel Separation	
		Channel 12	Channel 12+1
T <sub>nom</sub> = 23°C	V <sub>nom</sub> = 4.2 V	500 kHz	

Test conditions		Channel Separation	
		Channel 24	Channel 24+1
T <sub>nom</sub> = 23°C	V <sub>nom</sub> = 4.2 V	500 kHz	

**Limits:**

Frequency Range MHz	Limits	
	20 dB bandwidth < 25 kHz	20 dB bandwidth > 25 kHz
902-928	25 kHz	20 dB bandwidth
2400-2483.5 5725-5850.0	25 kHz	20 dB bandwidth

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

Note: See attached diagram as appendix.



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**3.7 Number of Hopping Frequencies**

According to FCC rules part 15 subpart C §15.247 frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies. Frequency hopping systems in 5725-5850 MHz bands shall use least 75 hopping frequencies.

For frequency hopping systems operating in the 902-928 MHz band: if the 20dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies; if the 20dB bandwidth of the hopping channel 250 kHz or greater, the system shall use at least 25 hopping frequencies.

Test conditions		Operating Mode	Number of Channels
T <sub>nom</sub> = 23°C	V <sub>nom</sub> = 4.2 V	normal transmitting	25
T <sub>nom</sub> = 23°C	V <sub>nom</sub> = 4.2 V	inquiry mode	--

**Limits:**

Frequency Range MHz	Limit	
	20dB Bandwidth	Number of Channels
902-928 MHz	Bandwidth < 250 kHz	≥ 50
	Bandwidth ≥ 250 kHz	≥ 25
2400-2483.5	not defined	15
5725-5850.0 MHz	1 MHz	75

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

Note: See attached diagrams as appendix.



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### **3.7.1 Pseudorandom Frequency Hopping Sequence**

This FHSS transmitter is controlled by a microchip to generate the Pseudorandom Frequency Hopping Sequence. There are three hopping sequences listed below:

Sequence A : 915.5, 914, 912.47, 910.5, 913.45, 911.5, 910, 909, 909.5, 911, 912.96, 914.5, 916.51, 916, 915, 917.6, 919.6, 921.77, 920.29, 918.11, 919.11, 921.29, 920.8, 918.62, 917.05

Sequence B : 921.29, 919.11, 917.6, 919.6, 918.11, 916, 914.5, 912.96, 910.5, 909, 911, 909.5, 911.5, 910, 912.47, 914, 913.45, 915, 917.05, 915.5, 916.51, 918.62, 920.8, 921.77, 920.29

Sequence C : 913.45, 915.5, 918.11, 920.29, 920.8, 918.62, 916.51, 915, 912.96, 911, 910, 911.5, 909.5, 909, 910.5, 912.47, 914, 916, 917.6, 919.6, 921.77, 921.29, 919.11, 917.05, 914.5

### **3.7.2 Coordination of hopping sequences to other transmitters**

This transmitter does not have the ability of being coordinated with other FHSS system for as soon as the transmitter is in operation, the hopping frequency will follow the selected hopping sequence to transmit independently and no coordination is possible. Especially, this transmitter is used as a duplex car alarm system, so no coordination of hopping frequency is required.

### **3.7.3 System Receiver Hopping Capability**

There are two steps to make the receiver to shift the frequencies in synchronization with the transmitted signals:

First, the Transmitter will emit a preamble signal of 50 ms and the receiver will scan this signal by 2ms sweeping until the preamble signal is caught. Second, the preamble signal is coded with the information of hopping sequence and the next transmitting frequency, so the receiver will be able to shift the receiving frequencies in synchronization with the transmitted signals.

### **3.7.4 Equal Hopping Frequency Use**

Due to each hopping frequency will be transmitted in accordance to the frequency tables described above, there is no any frequency will be able to hop more times than others. Therefore each frequency will be used equally.





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**3.8 Time of Occupancy (Dwell Time)**

Frequency hopping systems operating in the 5725-5850 MHz band shall use an average time of occupancy on any frequency not greater than 0.4 seconds within a 30 second period.

In 2400-2483.5 MHz band the average time of occupancy on any channel shall not be greater than 0.4 seconds multiplied by the number of hopping channels employed.

For frequency hopping systems operating in the 902-928 MHz band: if the 20dB bandwidth of the hopping channel is less than 250 kHz, the average time of occupancy on any frequency shall not greater than 0.4 seconds within a 20 second period; if the 20dB bandwidth of the hopping channel is 250 kHz or greater, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.

Test conditions	Operating mode	Measurement period	Time of Occupancy
T <sub>nom</sub> = 23°C V <sub>nom</sub> = 4.2 V 909MHz	normal transmitting	10 s	170.190 ms

Test conditions	Operating mode	Measurement period	Time of Occupancy
T <sub>nom</sub> = 23°C V <sub>nom</sub> = 4.2 V 915.5MHz	normal transmitting	10 s	173.076 ms

Test conditions	Operating mode	Measurement period	Time of Occupancy
T <sub>nom</sub> = 23°C V <sub>nom</sub> = 4.2 V 921.778MHz	normal transmitting	10 s	172.113 ms

**Limits and measurement periods:**

Frequency MHz	Number of channels	Measurement Period	Limit
902 – 928	≥50	20 s	0.4 s
	49 ≥ 25	10 s	0.4 s
2400 – 2483.5	≥ 15	0.4 s * number of used channels	0.4 s
5725- 5850	≥ 75	30 s	0.4s

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

Note: See attached diagrams as appendix, which show the On-time and the number of counted events during the measurement period





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**3.9 20dB Bandwidth**

Frequency hopping systems operating in the 5725-5850 MHz bands shall use a maximum 20dB bandwidth of 1 MHz.

The 20dB bandwidth is measured on the lowest, middle and highest hopping channel.

For frequency hopping systems operating in the 902-928 MHz band the maximum 20dB bandwidth of the hopping channel is 500 kHz.

Test conditions		20 dB Bandwidth		
		Channel A	Channel B	Channel C
$T_{nom} = 23^{\circ}C$	$V_{nom} = 4.2 V$	368.589743590 kHz	378.205128205 kHz	358.974358974 kHz

**Limits:**

Frequency Range / MHz	Limit
902-928	$\leq 500$ kHz
2400-2483.5	not defined
5725-5850	$\leq 1$ MHz

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

Note: See attached diagram as appendix.



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**3.10 Band-edge Compliance of RF Emissions**

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.

Test conditions		Attenuation at or outside band-edges Single Frequency	
		Lower Band-edge	Upper Band-edge
$T_{nom} = 23^{\circ}C$	$V_{nom} = 4.2 V$	71.65 dB	66.64 dB

Test conditions		Attenuation at or outside band-edges Hopping Frequency	
		Lower Band-edge	Upper Band-edge
$T_{nom} = 23^{\circ}C$	$V_{nom} = 4.2 V$	50.87 dB	47.09 dB

**Limits:**

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

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

Note: See attached diagrams as appendix.



# **Worldwide Testing Services(Taiwan) Co., Ltd.**

Registration number: W6M20907-9889-P-15  
 FCC ID: H50TR33

### **3.11 Radiated Emissions from Receiver Section of Transceiver**

FCC Rule: 15.109

Receiver part

Model: TRX980                      Date: 2009/7/9  
 Mode: 909MHz                      Temperature: 24 °C      Engineer: Danny  
 Polarization: Horizontal           Humidity: 51 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
79.780	11.86	peak	10.01	21.87	40.00	-18.13	100	150
298.918	17.22	peak	15.22	32.44	46.00	-13.56	110	150
924.249	5.45	peak	26.81	32.26	46.00	-13.74	120	150
942.485	5.13	peak	27.12	32.25	46.00	-13.75	125	150

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.			
3729.459	45.15	---	-2.45	42.70	---	74.00	54.00	-31.30	130	150
7711.423	48.49	---	-0.66	47.83	---	74.00	54.00	-26.17	145	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
31.082	17.21	peak	13.03	30.24	40.00	-9.76	120	150
77.074	14.85	peak	10.57	25.42	40.00	-14.58	115	150
848.497	6.49	peak	25.60	32.09	46.00	-13.91	130	150
935.471	6.93	peak	27.01	33.94	46.00	-12.06	125	150

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.			
3789.579	45.39	---	-2.31	43.08	---	74.00	54.00	-30.92	140	150
7134.269	47.74	---	-0.54	47.20	---	74.00	54.00	-26.80	140	150



# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15  
 FCC ID: H5OTR33

Mode: 915.5MHz Temperature: 26 °C Engineer: Danny  
 Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
74.369	14.49	peak	11.15	25.64	40.00	-14.36	105	150
300.000	17.97	peak	15.24	33.21	46.00	-12.79	110	150
737.675	5.73	peak	24.40	30.13	46.00	-15.87	130	150
920.040	5.79	peak	26.71	32.50	46.00	-13.50	130	150

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.			
3867.736	45.43	---	-2.01	43.42	---	74.00	54.00	-30.58	135	150
7703.407	49.28	---	-0.67	48.61	---	74.00	54.00	-25.39	135	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
30.541	20.60	peak	13.03	33.63	40.00	-6.37	110	150
77.074	16.85	peak	10.57	27.42	40.00	-12.58	120	150
844.289	7.05	peak	25.58	32.63	46.00	-13.37	120	150
956.513	6.32	peak	27.24	33.56	46.00	-12.44	130	150

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.			
3915.832	44.60	---	-1.80	42.80	---	74.00	54.00	-31.20	135	150
7478.958	47.51	---	-0.99	46.52	---	74.00	54.00	-27.48	145	150

Mode: 921.778MHz Temperature: 26 °C Engineer: Danny  
 Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
79.238	14.67	peak	10.12	24.79	40.00	-15.21	115	150
299.459	17.33	peak	15.23	32.56	46.00	-13.44	105	150
671.744	6.76	peak	22.93	29.69	46.00	-16.31	130	150
922.846	5.04	peak	26.78	31.82	46.00	-14.18	120	150



# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

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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.			
3759.519	45.71	---	-2.38	43.33	---	74.00	54.00	-30.67	135	150
7118.237	48.65	---	-0.50	48.15	---	74.00	54.00	-25.85	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)
34.329	20.13	peak	13.20	33.33	40.00	-6.67	115	150
81.403	19.71	peak	9.94	29.65	40.00	-10.35	105	150
775.551	7.26	peak	24.77	32.03	46.00	-13.97	120	150
910.220	6.68	peak	26.47	33.15	46.00	-12.85	110	150

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.			
3909.820	44.93	---	-1.83	43.10	---	74.00	54.00	-30.90	140	150
7607.214	47.81	---	-0.62	47.19	---	74.00	54.00	-26.81	140	150

## Digital part

Model: TRX980

Date: 2009/7/10

Mode:

Temperature: 24 °C

Engineer: Danny

Polarization: Horizontal

Humidity: 51 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
79.780	11.86	peak	10.01	21.87	40.00	-18.13	200	375
199.900	14.24	peak	12.15	26.39	43.50	-17.11	220	305
298.918	17.22	peak	15.22	32.44	46.00	-13.56	245	255
680.160	7.49	peak	23.05	30.54	46.00	-15.46	170	170
837.274	6.10	peak	25.56	31.66	46.00	-14.34	300	135
924.249	5.45	peak	26.81	32.26	46.00	-13.74	255	120



# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15  
 FCC ID: H5OTR33

Polarization: Vertical Humidity: 51 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
31.082	17.21	peak	13.03	30.24	40.00	-9.76	145	105
77.074	14.85	peak	10.57	25.42	40.00	-14.58	165	125
300.000	17.57	peak	15.24	32.81	46.00	-13.19	220	250
785.371	6.33	peak	24.92	31.25	46.00	-14.75	145	350
848.497	6.49	peak	25.60	32.09	46.00	-13.91	160	365
935.471	6.93	peak	27.01	33.94	46.00	-12.06	275	385

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

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

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 028, ETSTW-RE 029, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043, ETSTW-RE 064

Note: See attached diagrams as appendix.



Registration number: W6M20907-9889-P-15  
 FCC ID: H5OTR33

**3.12 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: TRX980 Date: 2009/7/11  
 Mode: Temperature: 24 °C Engineer: Danny  
 Polarization: N Humidity: 51 %

Frequency (MHz)	Reading (dBµV)		Factor (dB) Corr.	Result (dBµV)		Limit (dBµV)		Margin (dB)
	QP	Ave.		QP	Ave.	QP	Ave.	
0.2212	36.12	--	10.07	46.19	--	62.77	--	-16.58
0.4401	29.50	--	10.14	39.64	--	57.06	--	-17.42
0.6600	34.90	--	10.15	45.05	--	56.00	--	-10.95
1.5400	34.01	--	10.08	44.09	--	56.00	--	-11.91
4.3649	27.26	--	10.14	37.40	--	56.00	--	-18.60
25.0556	15.75	--	10.60	26.35	--	60.00	--	-33.65

Polarization: L1

Frequency (MHz)	Reading (dBµV)		Factor (dB) Corr.	Result (dBµV)		Limit (dBµV)		Margin (dB)
	QP	Ave.		QP	Ave.	QP	Ave.	
0.2219	39.47	--	10.15	49.62	--	62.75	--	-13.13
0.4424	33.87	--	10.24	44.11	--	57.02	--	-12.91
0.6600	39.47	33.62	10.24	49.71	43.86	56.00	46.00	-2.14
0.8800	38.72	33.04	10.22	48.94	43.26	56.00	46.00	-2.74
1.1000	38.05	31.33	10.21	48.26	41.54	56.00	46.00	-4.46
1.7620	36.78	27.23	10.21	46.99	37.44	56.00	46.00	-8.56



# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

**Limits:**

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

Test equipment used: ETSTW-CE 001, ETSTW-CE 003, ETSTW-CE 004, ETSTW-CE 006,  
ETSTW-RE 064

Note: See attached diagrams as appendix.





## **Appendix**

### **A Measurement diagrams**

1. Peak Output Power
2. Spurious Emissions radiated
3. Carrier Frequency Separation
4. Number of Hopping Frequencies
5. Time of Occupancy (Dwell Time)
6. 20dB Bandwidth
7. Band-edge Compliance of RF Conducted Emissions
8. Radiated Emissions from Receiver Section of Transceiver
9. Conducted Emission

### **B Photos**

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

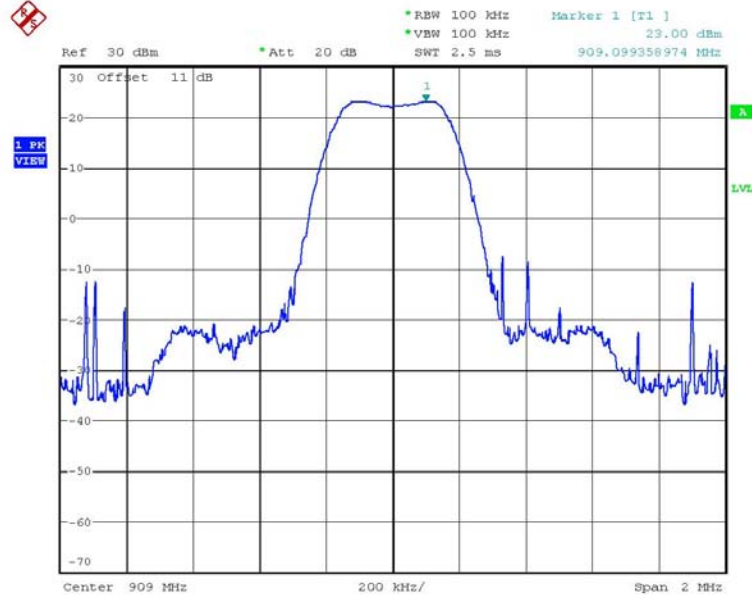


# Worldwide Testing Services(Taiwan) Co., Ltd.

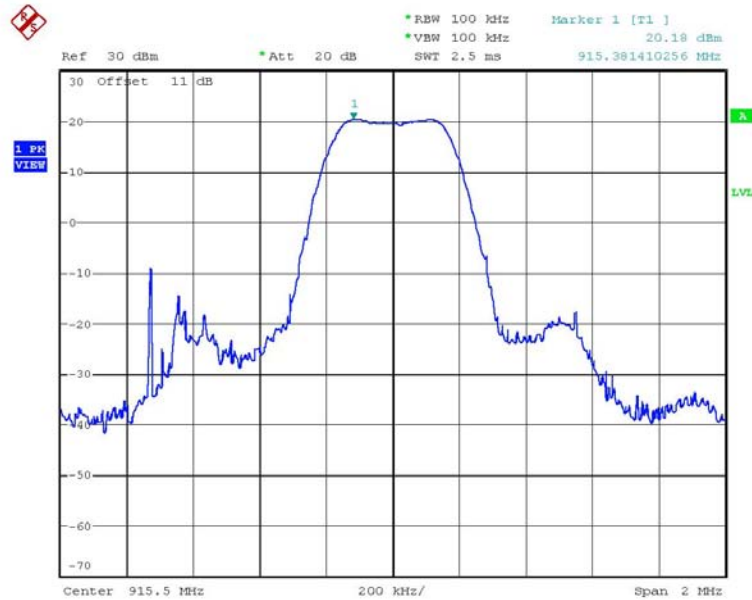
Registration number: W6M20907-9889-P-15

FCC ID: H50TR33

## Peak Output Power



MAX OUTPUT POWER 909MHz  
Date: 14.JUL.2009 09:21:39

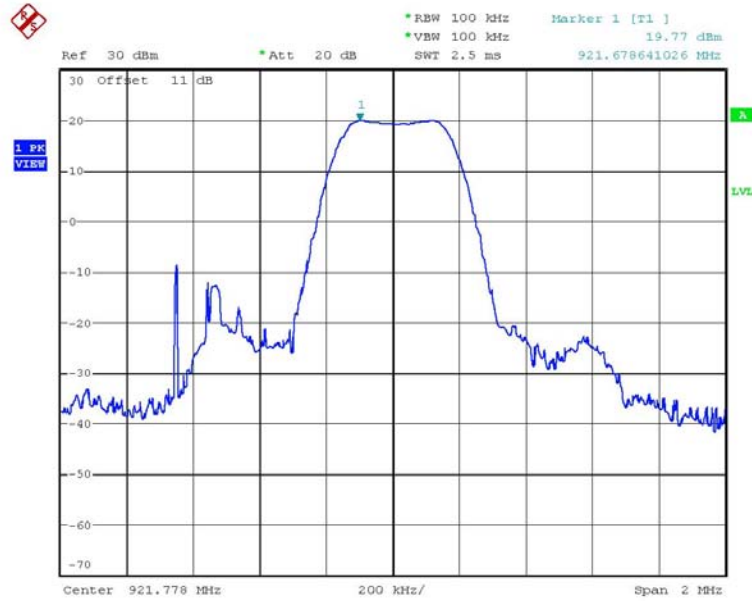


MAX OUTPUT POWER 915.5MHz  
Date: 14.JUL.2009 09:20:26



# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15  
FCC ID: H50TR33



MAX OUTPUT POWER 921.778MHz  
Date: 14.JUL.2009 09:20:48



Registration number: W6M20907-9889-P-15

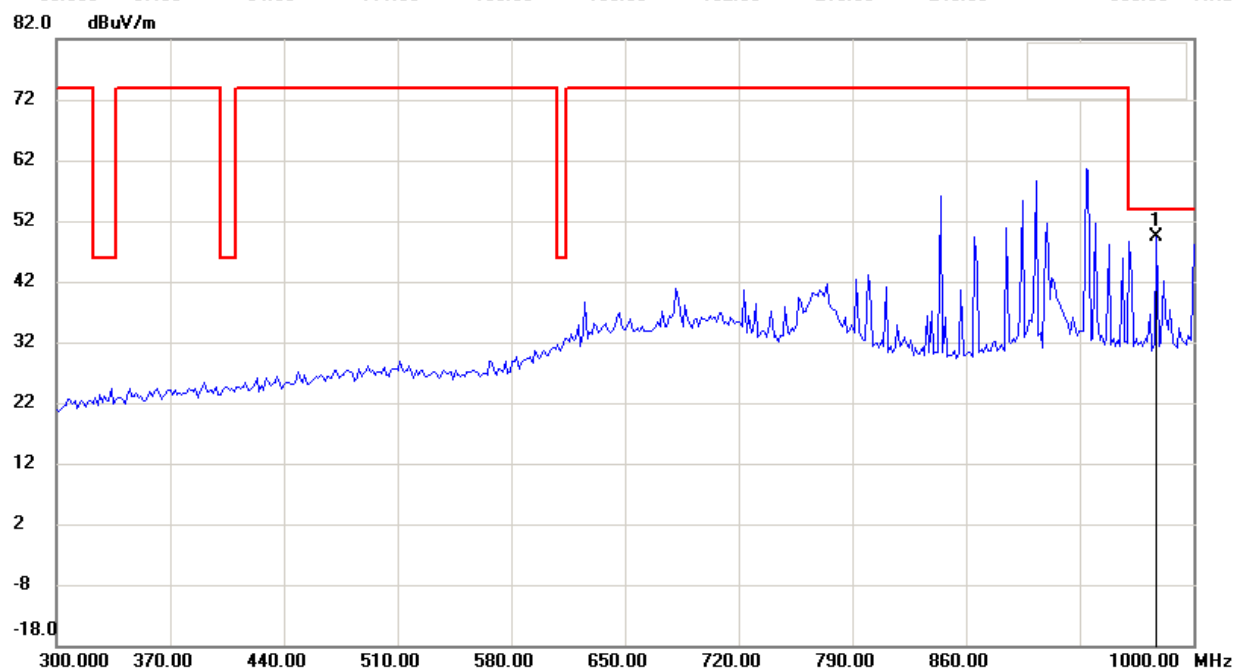
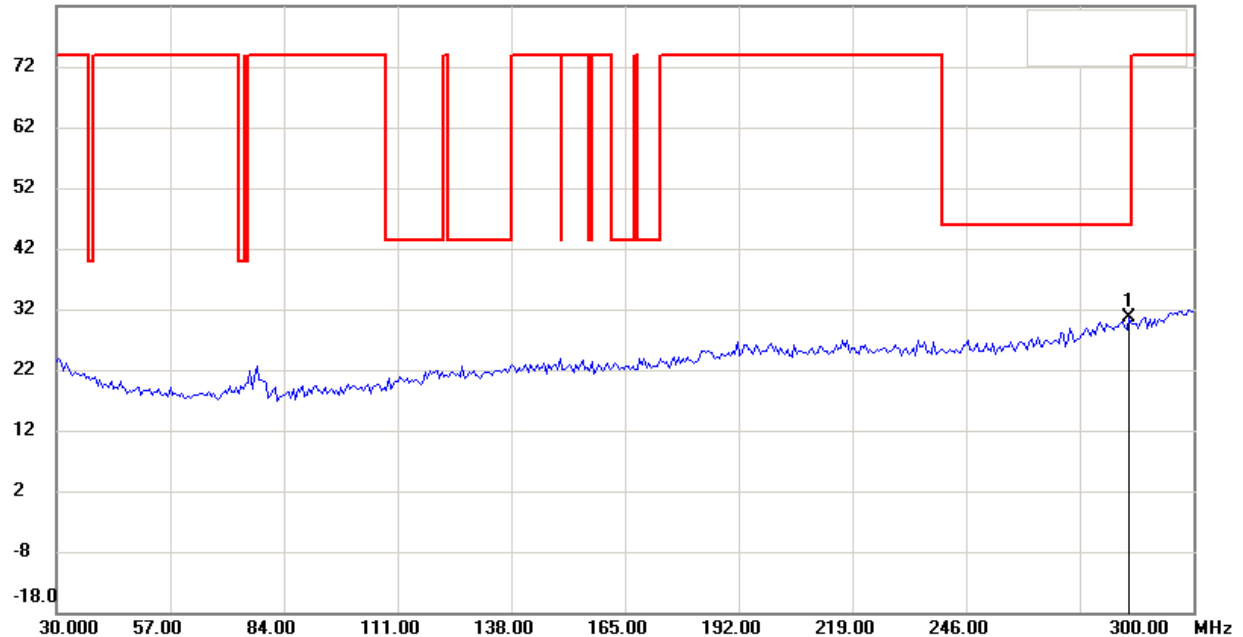
FCC ID: H5OTR33

Spurious Emission Radiated

ch 1

Antenna Polarization H

82.0 dBuV/m



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

Note:

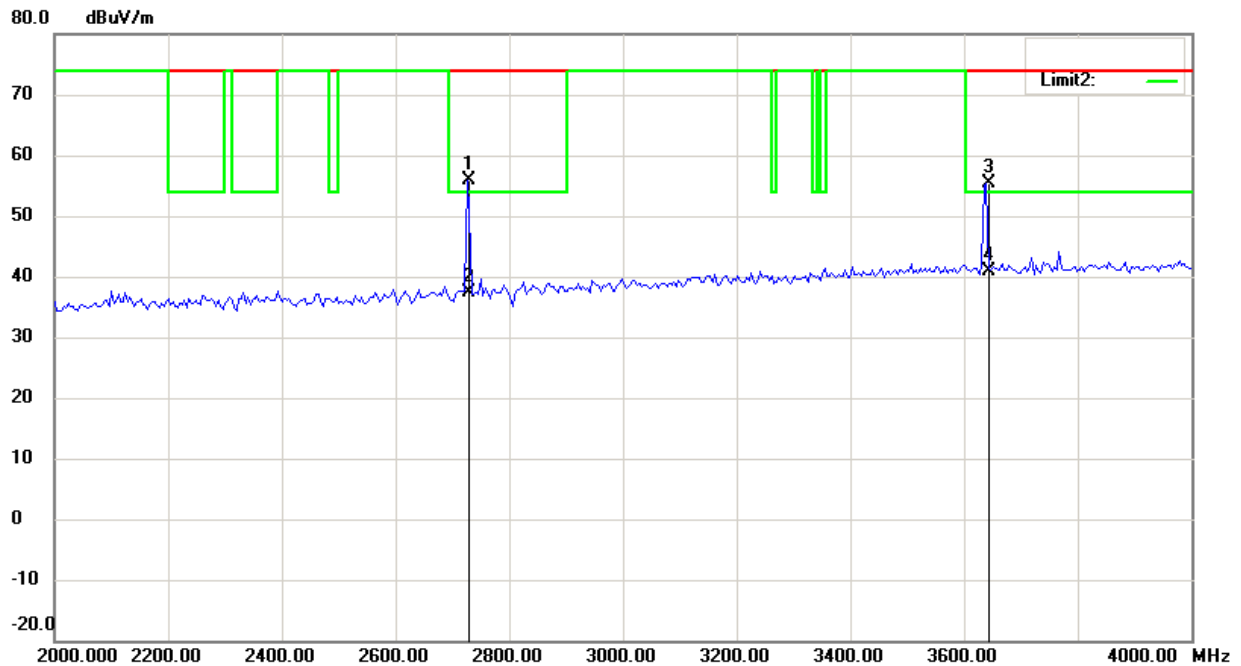
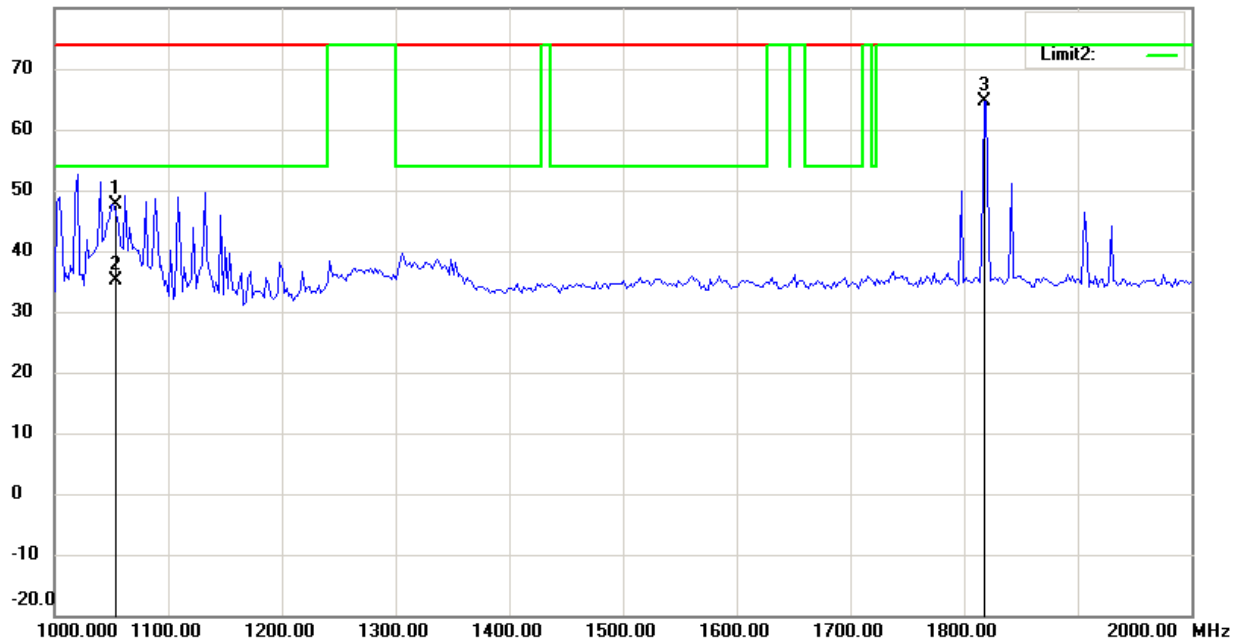
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

80.0 dBuV/m



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

Note:

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

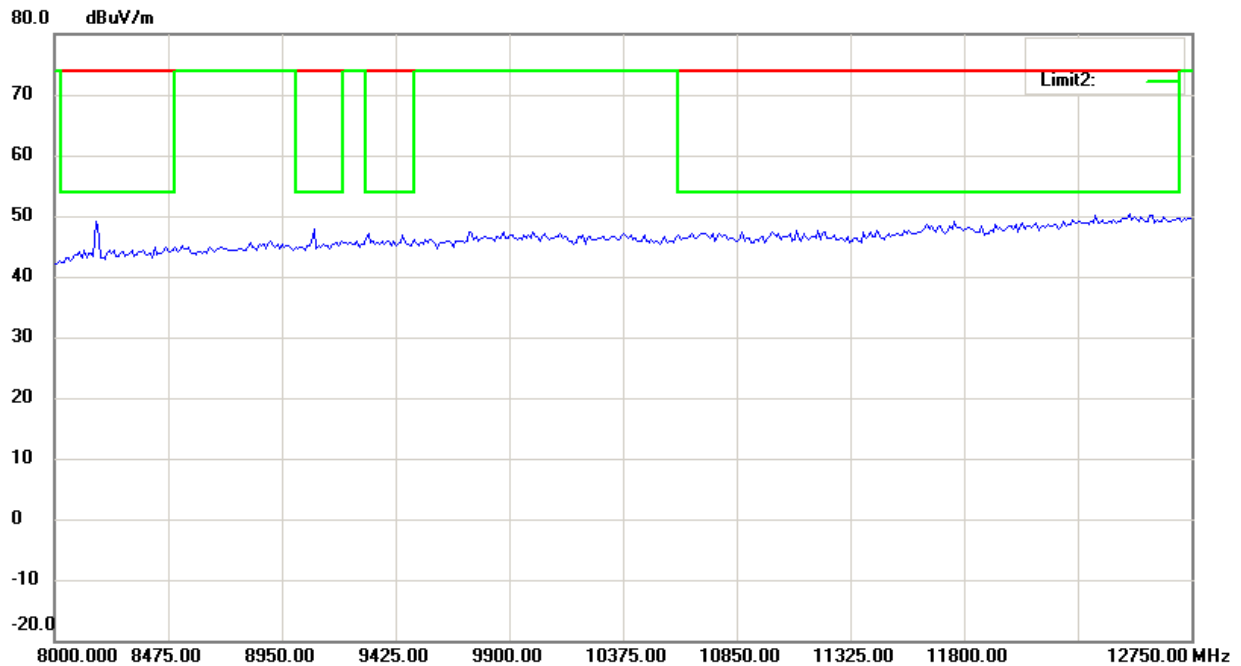
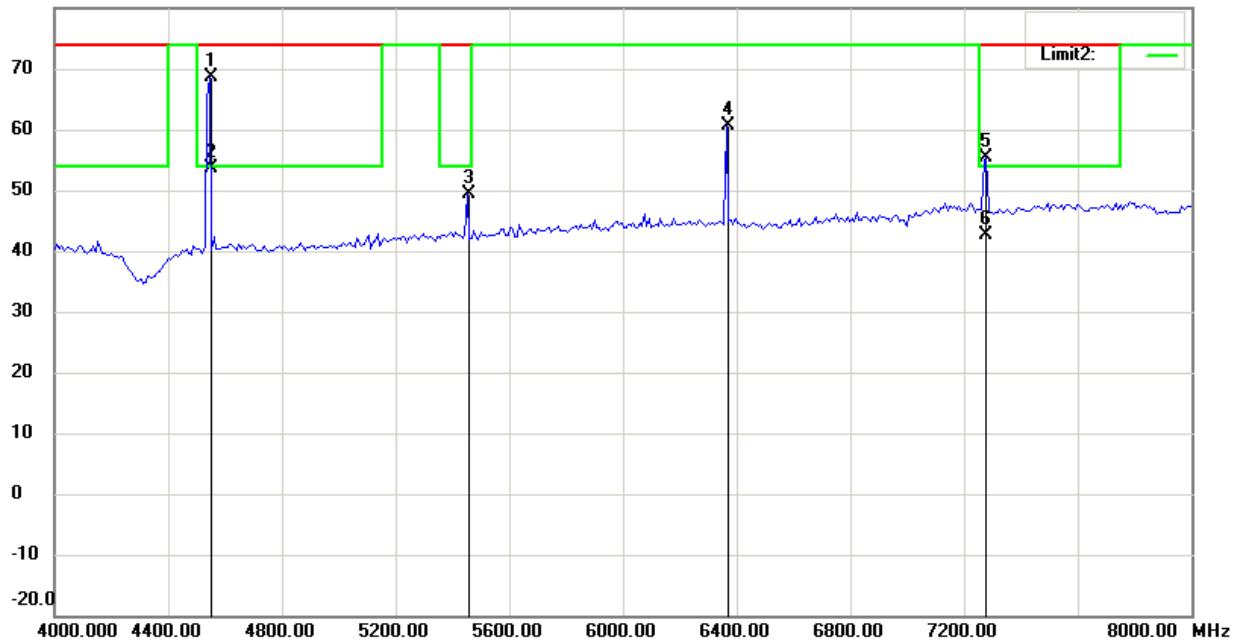


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H50TR33

80.0 dBuV/m



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

Note:

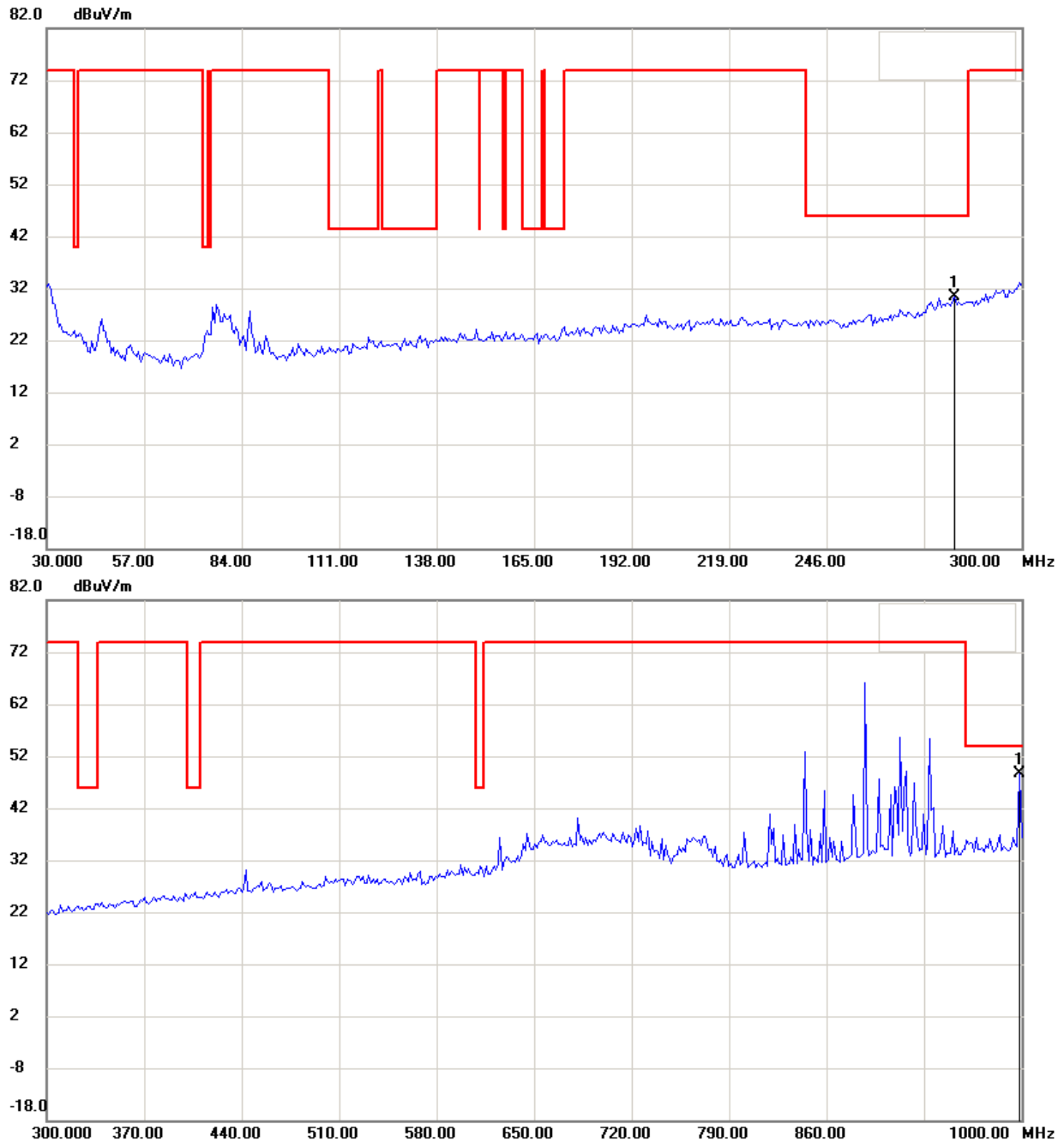
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

### Antenna Polarization V



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

Note:

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

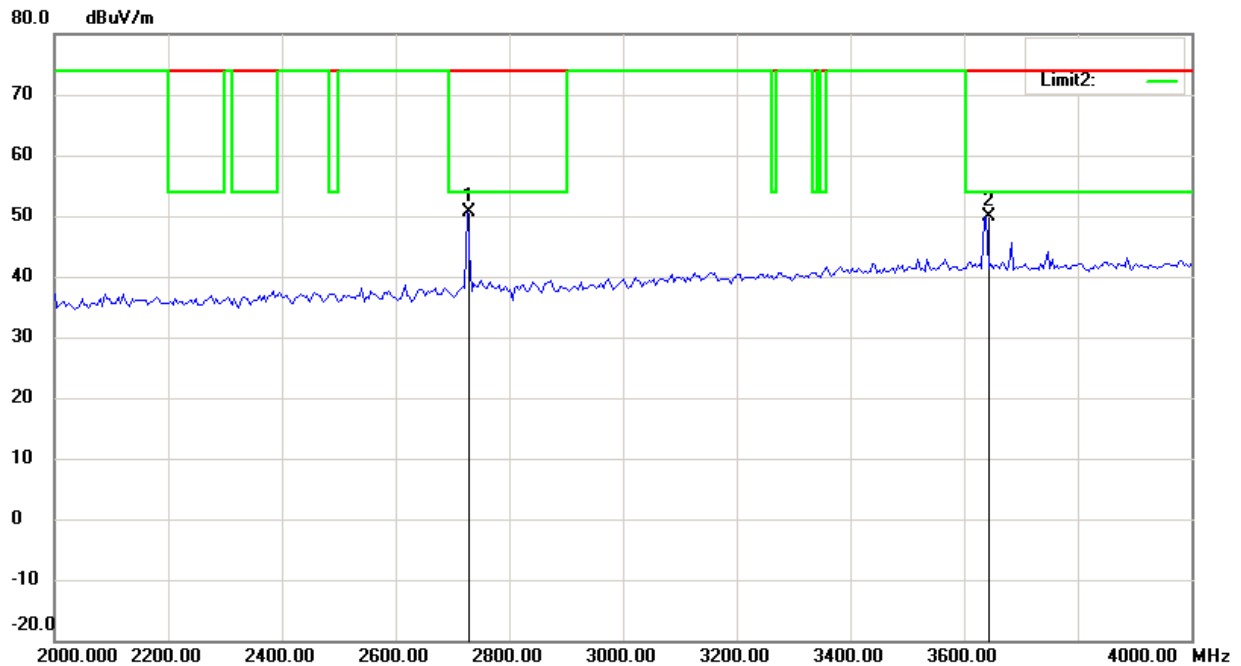
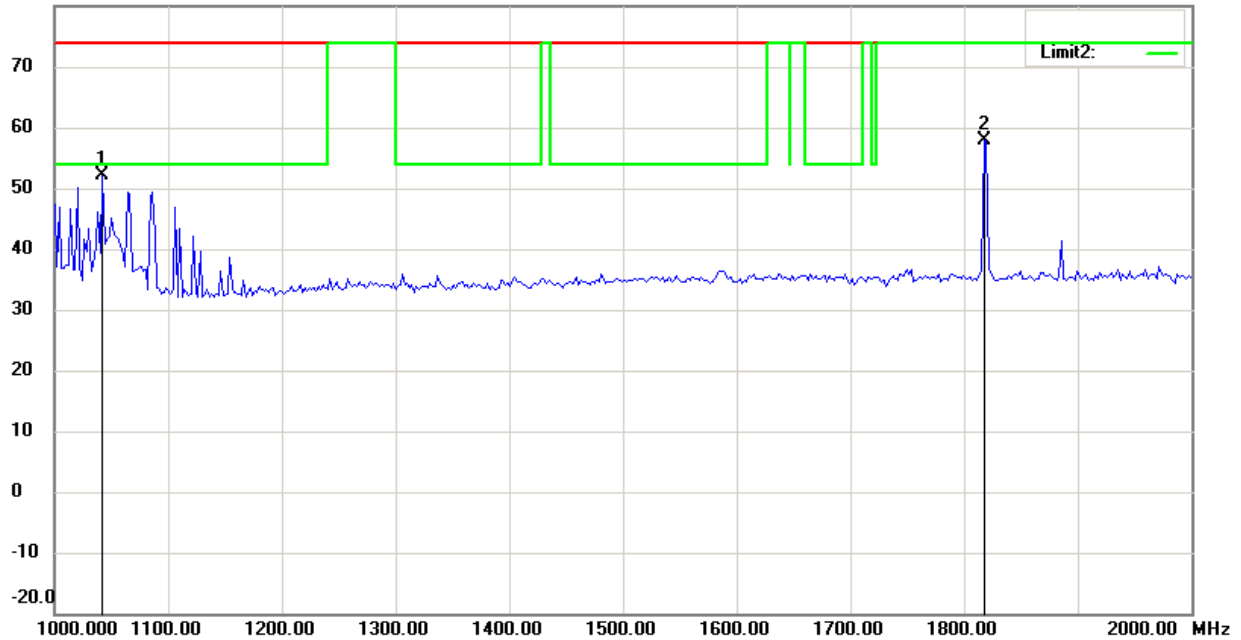


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

80.0 dBuV/m



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

Note:

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



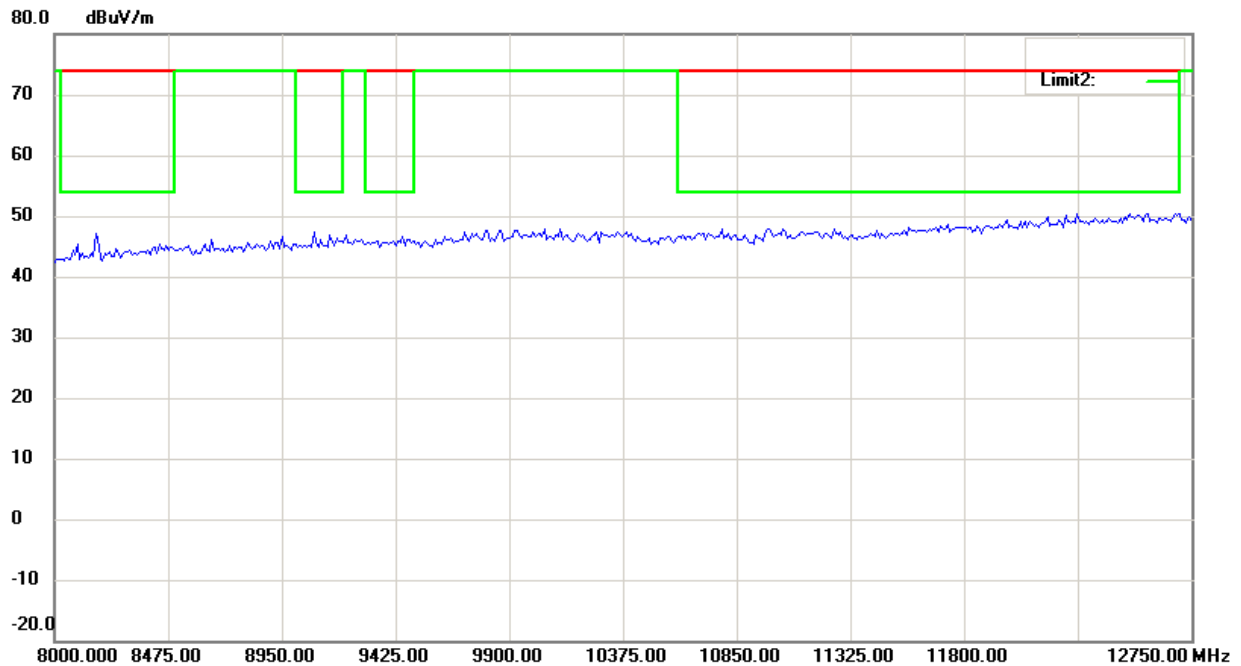
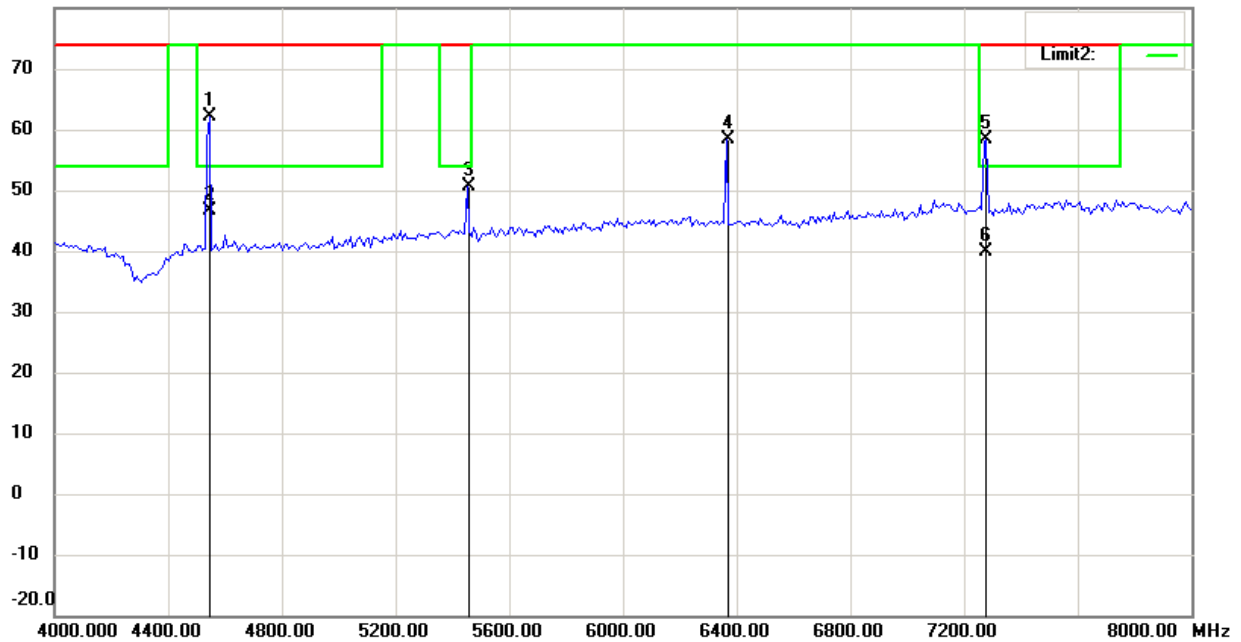


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H50TR33

80.0 dBuV/m



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

Note:

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

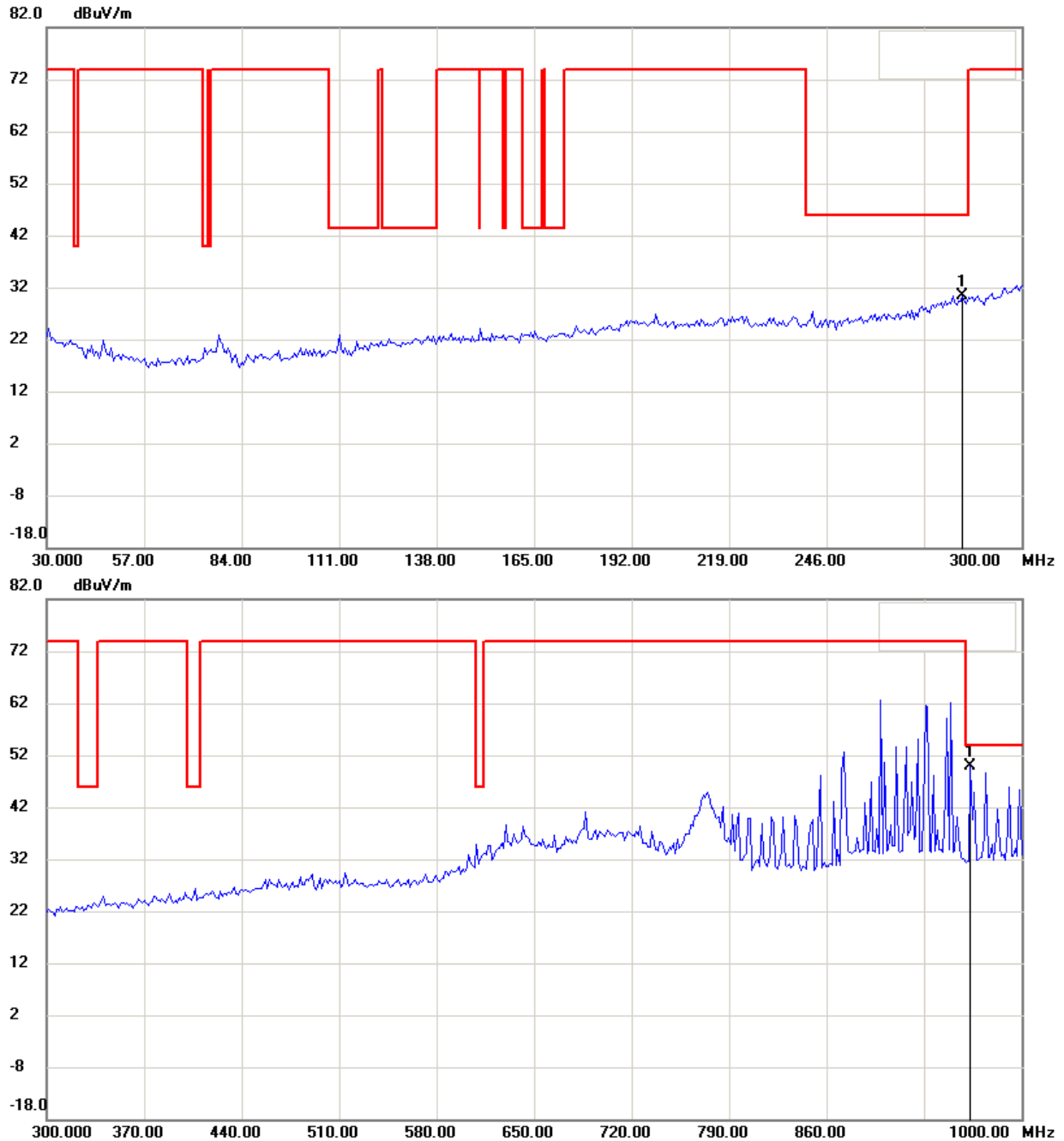


Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

ch 13

Antenna Polarization H



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

Note:

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

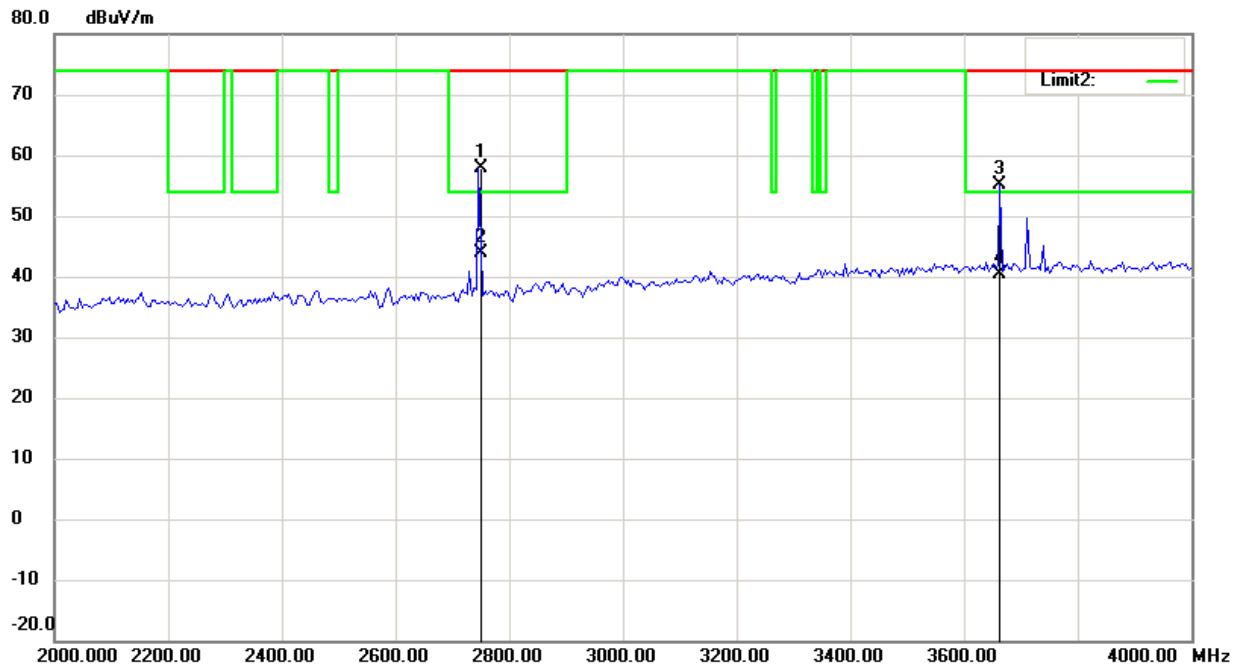
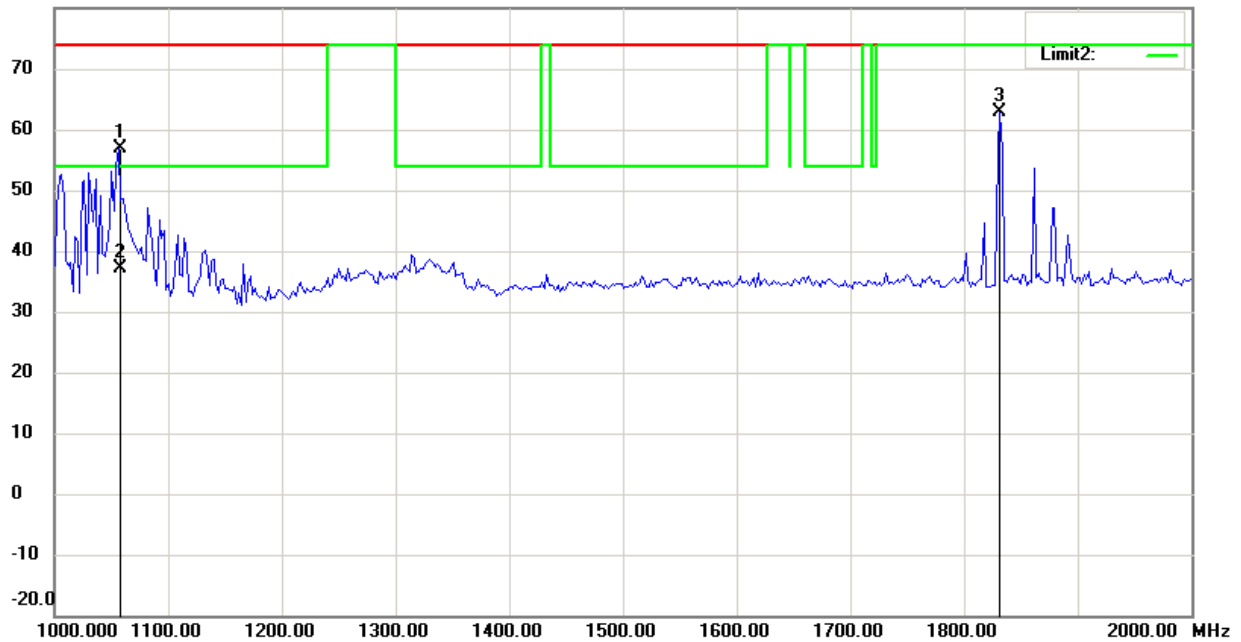


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

80.0 dBuV/m



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

Note:

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

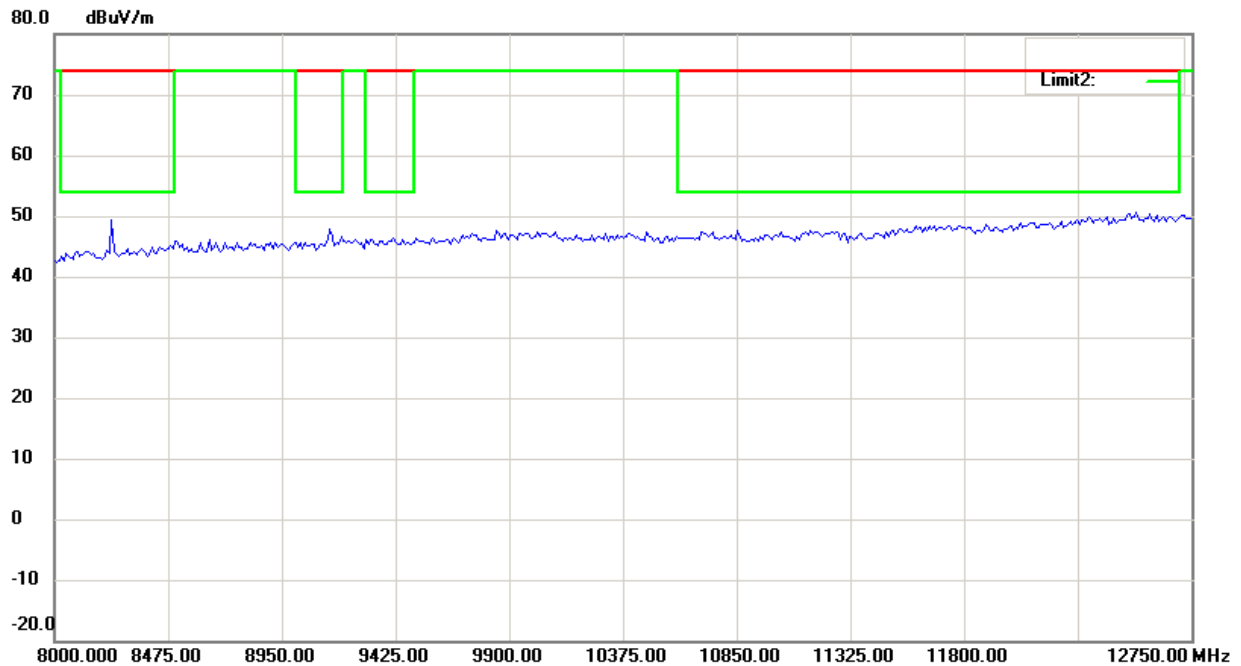
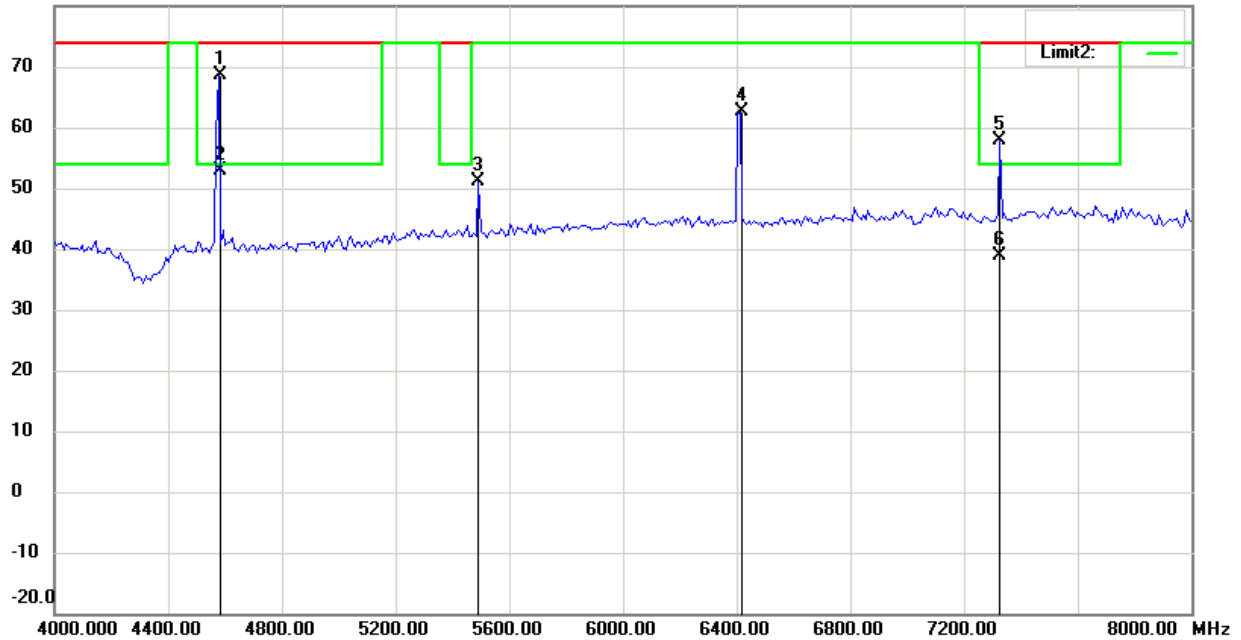


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H50TR33

80.0 dBuV/m



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

Note:

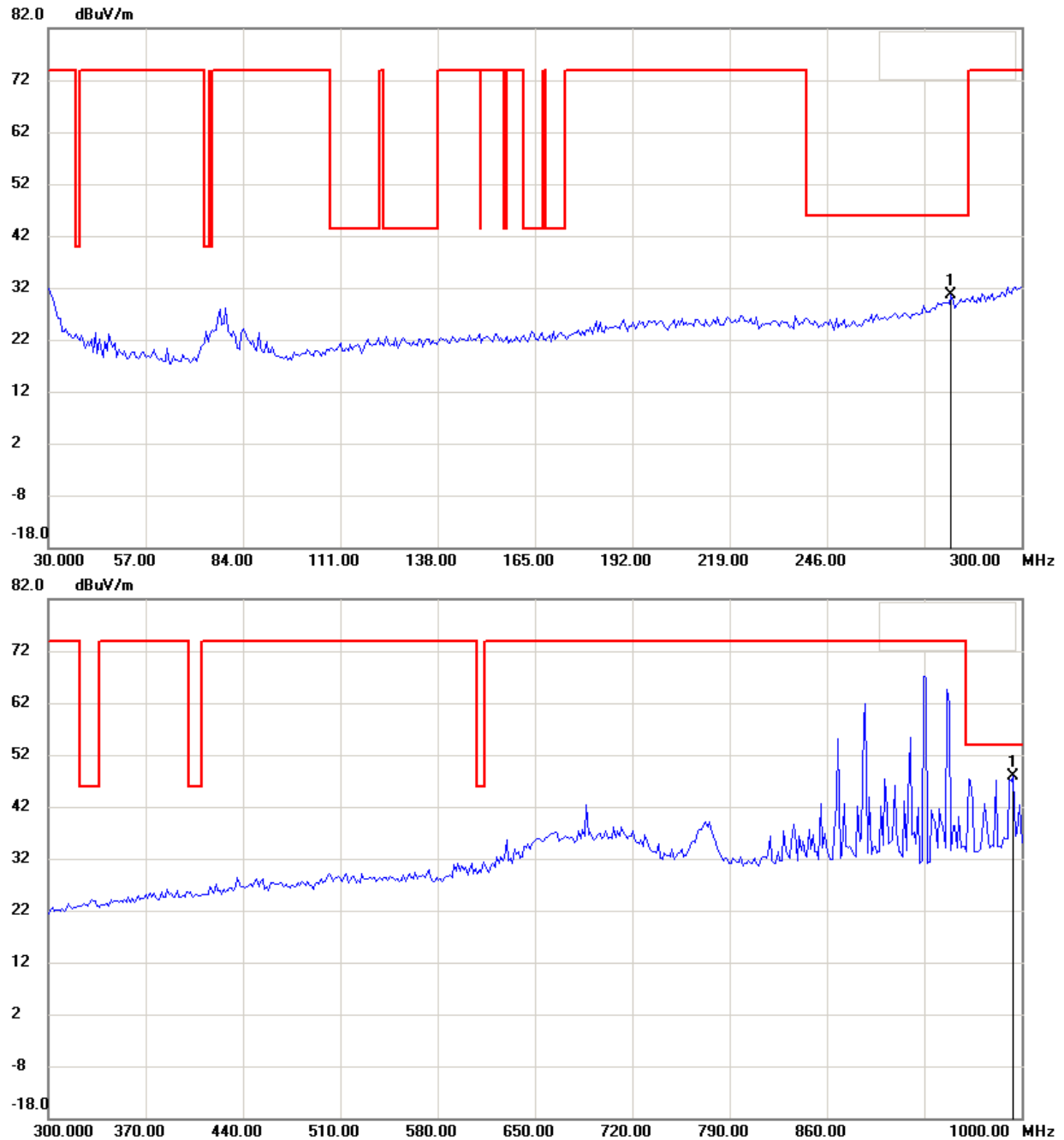
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

### Antenna Polarization V



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

Note:

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

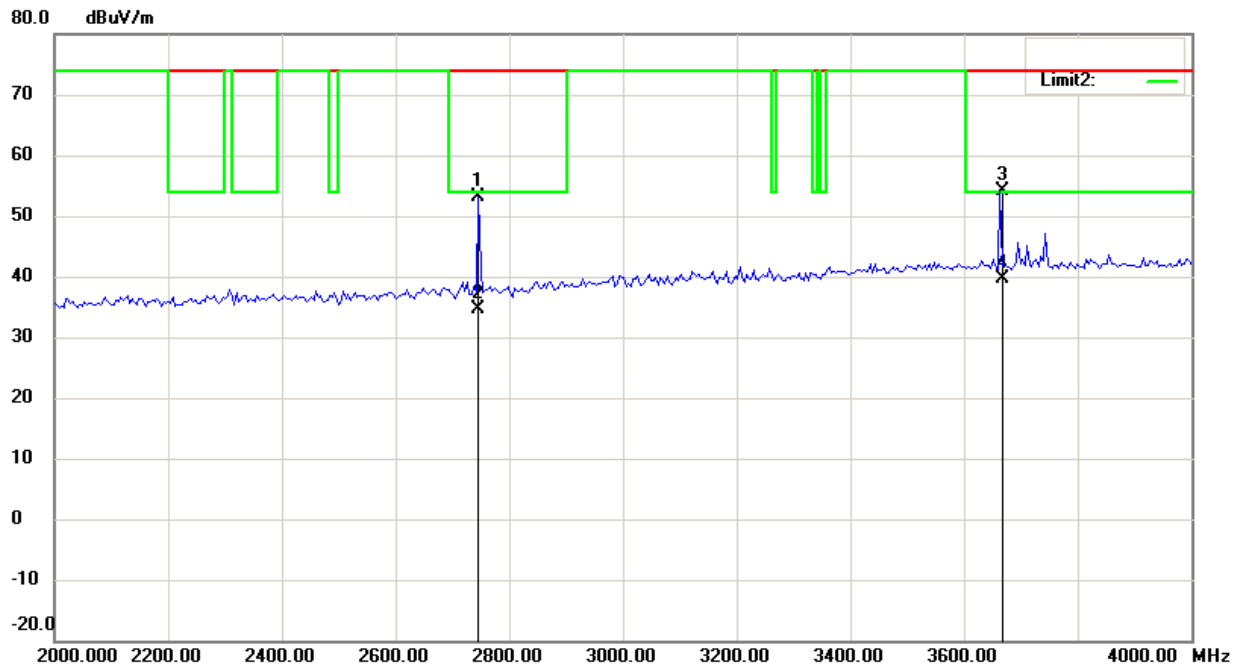
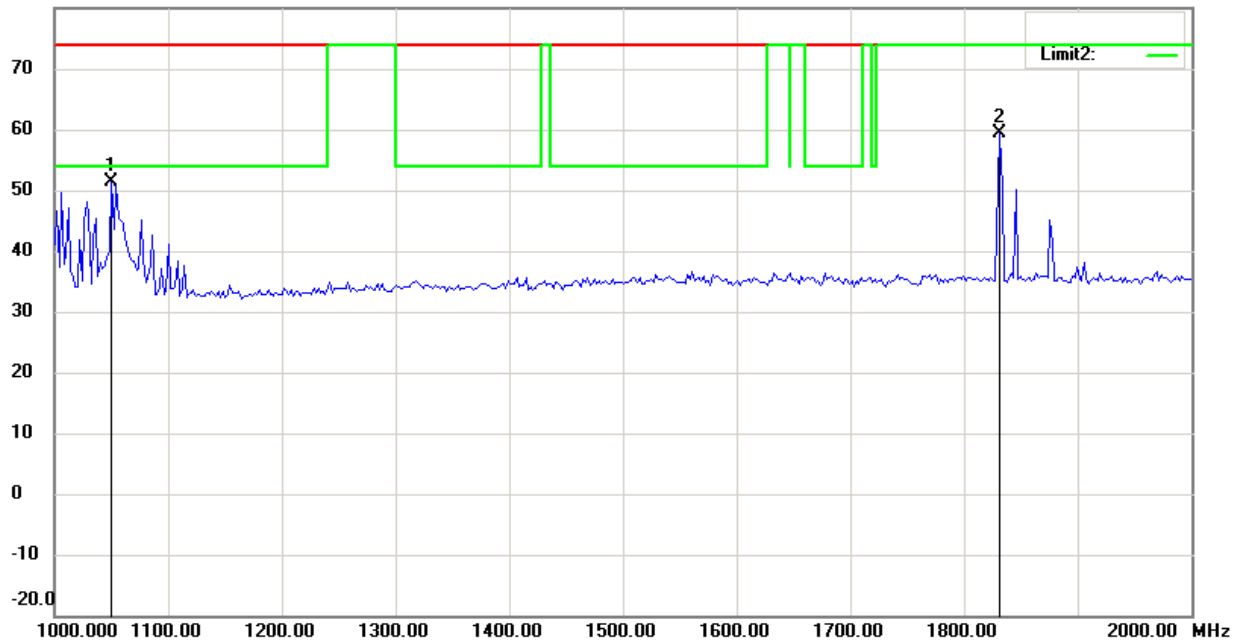


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

80.0 dBuV/m



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

Note:

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

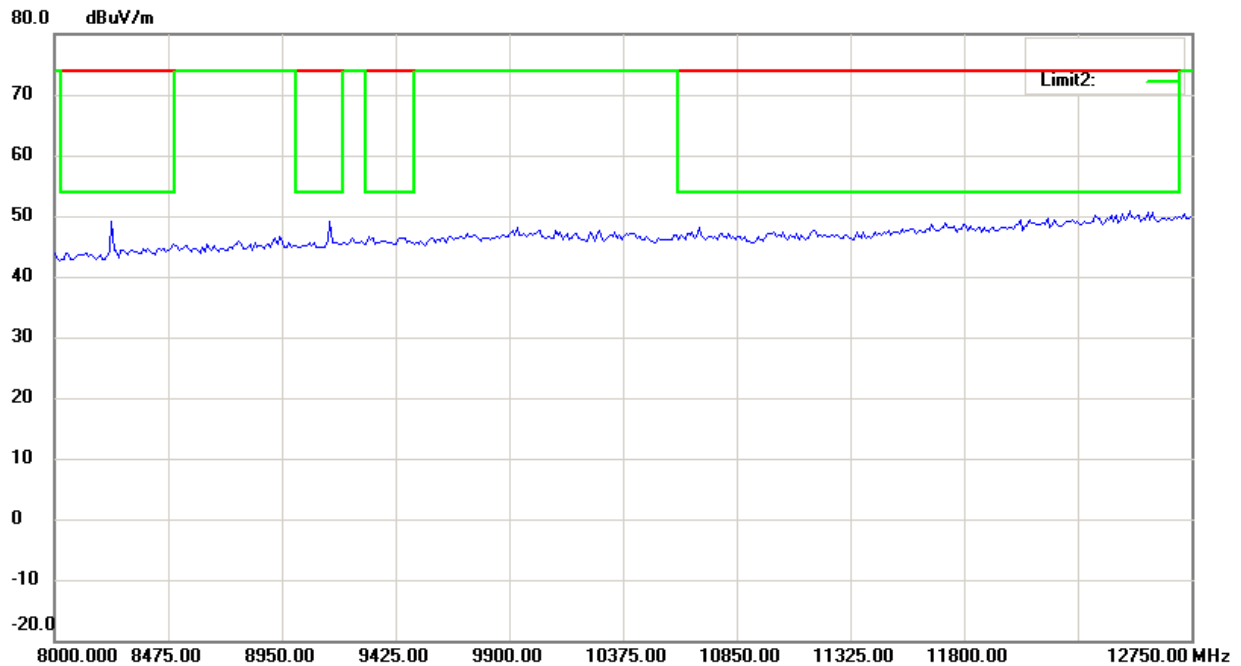
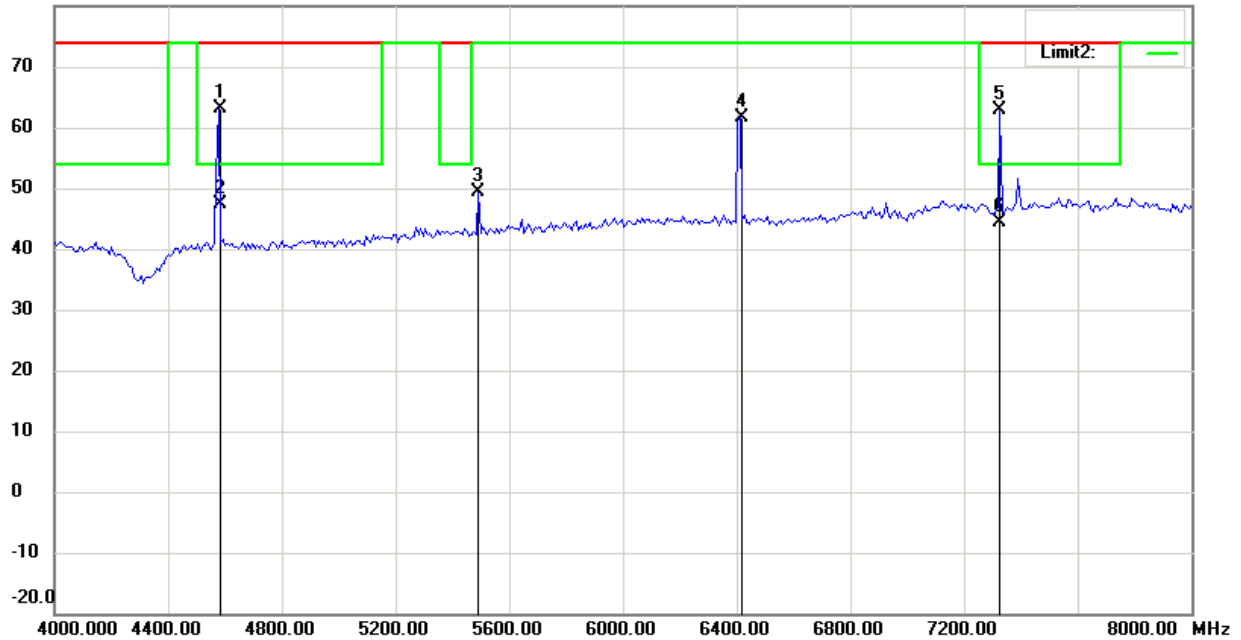


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H50TR33

80.0 dBuV/m



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

Note:

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

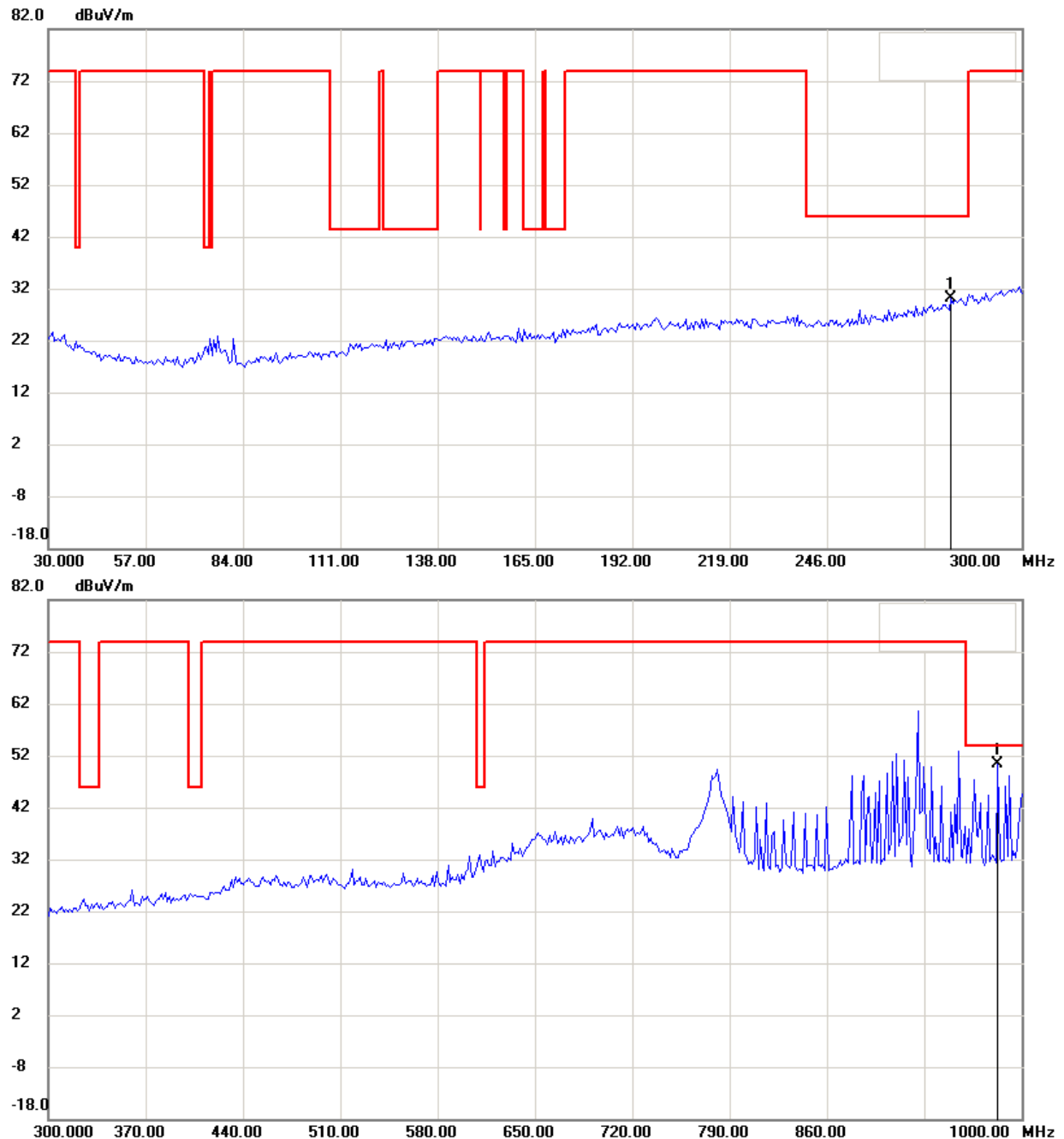


Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

ch 25

Antenna Polarization H



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

Note:

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

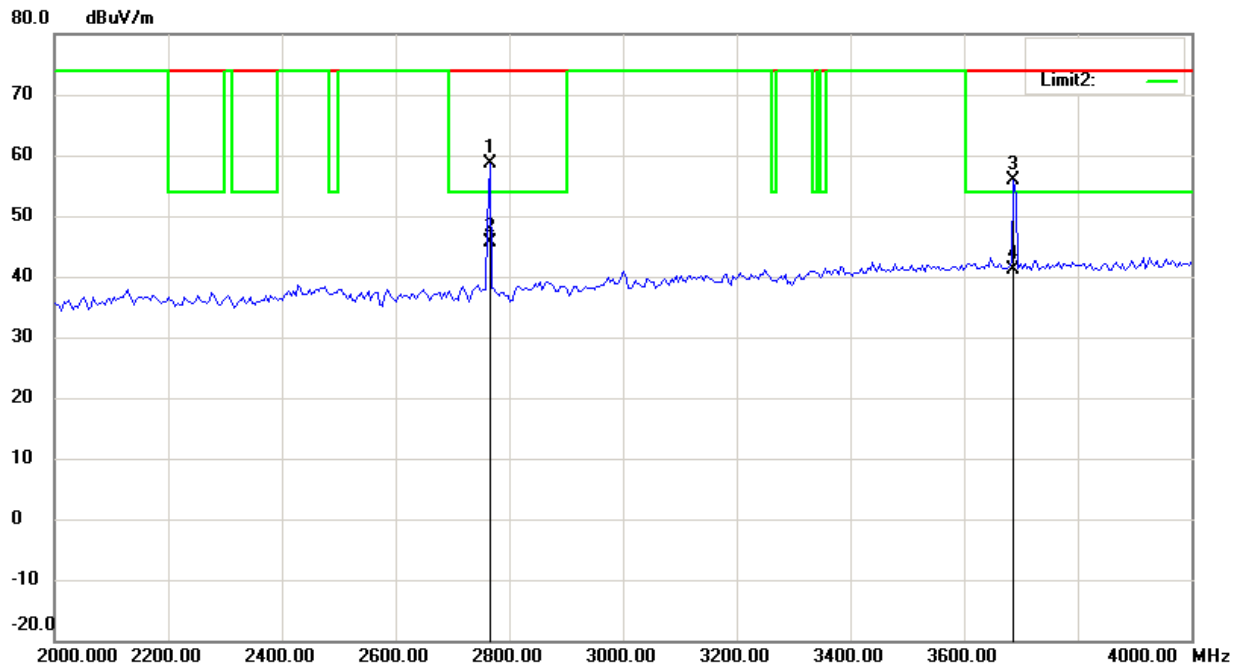
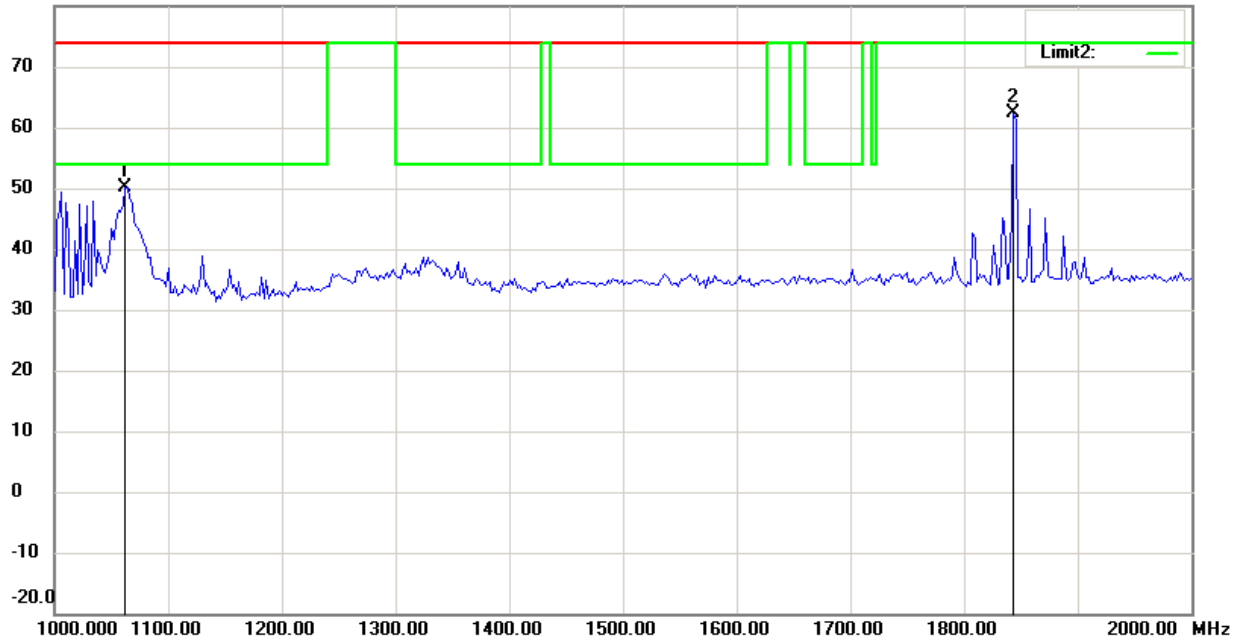




Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

80.0 dBuV/m



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

Note:

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

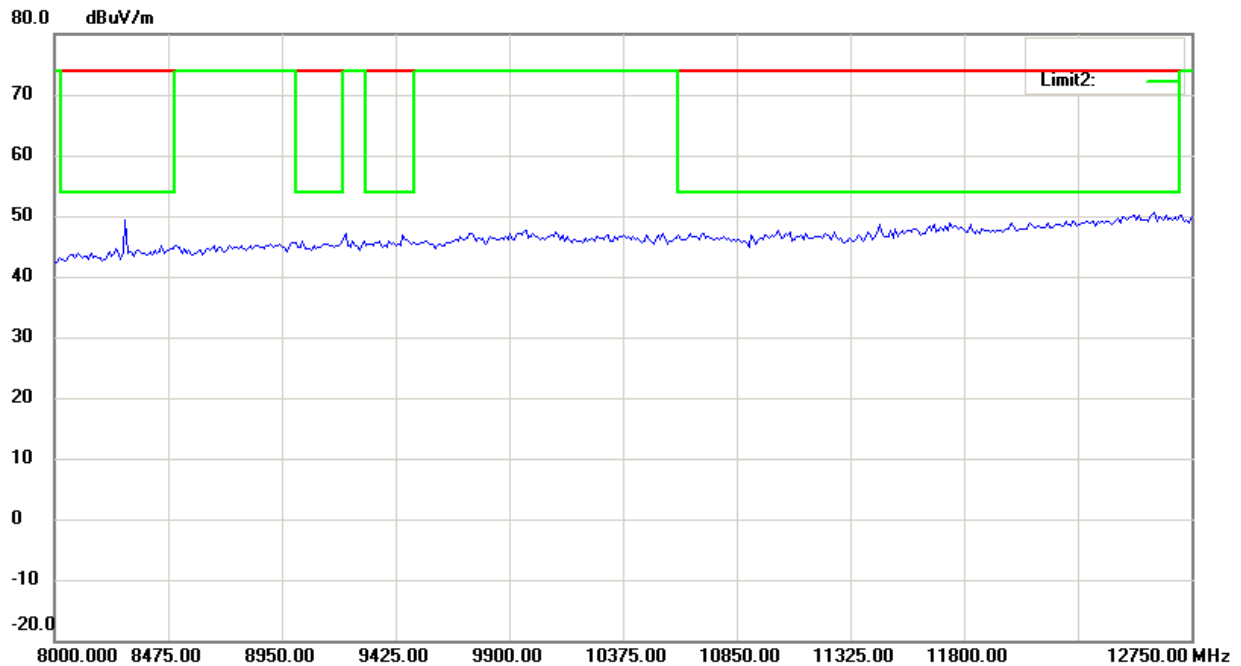
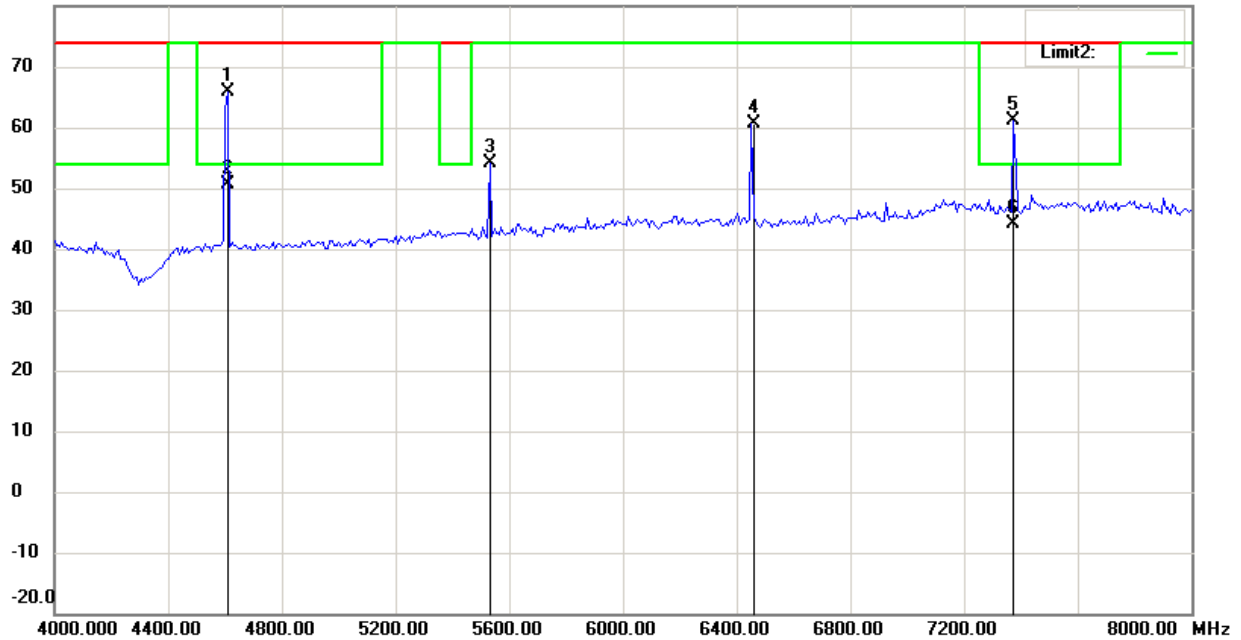


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H50TR33

80.0 dBuV/m



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

Note:

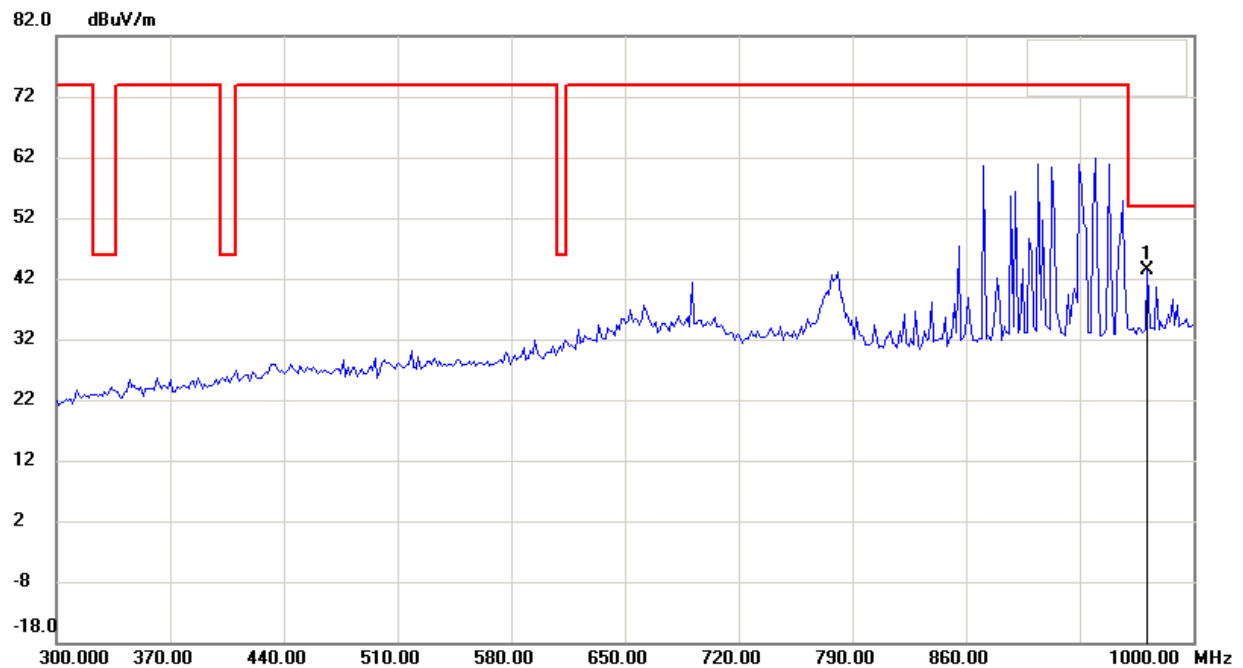
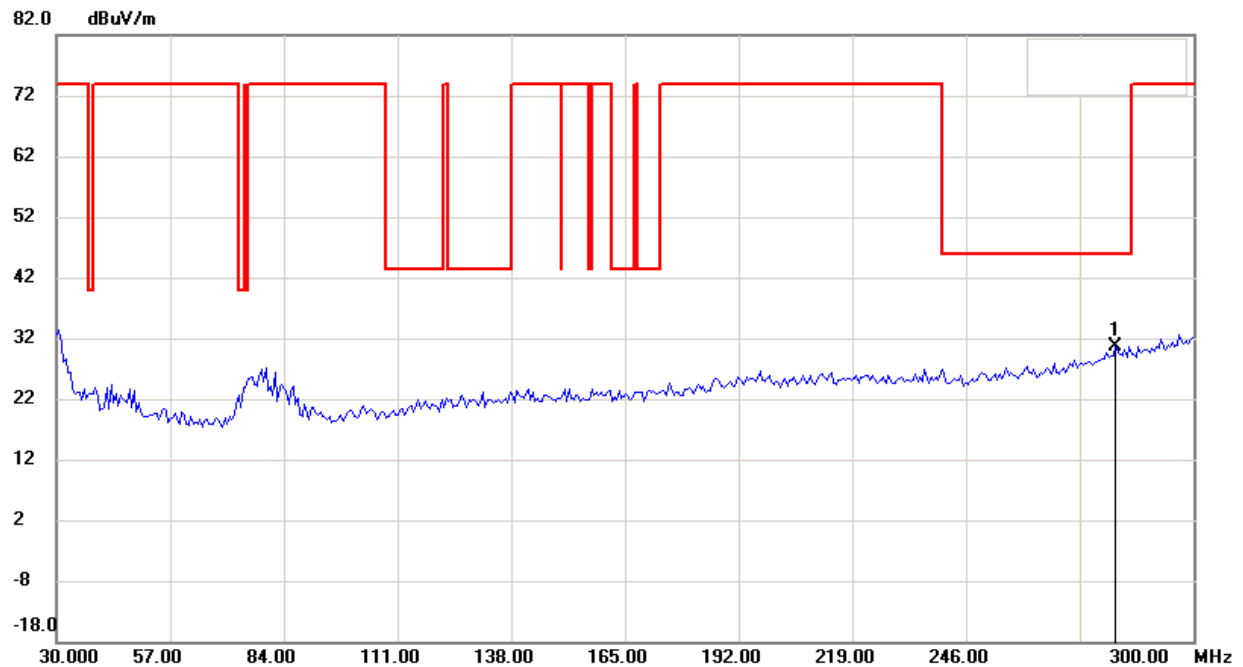
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

### Antenna Polarization V



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

Note:

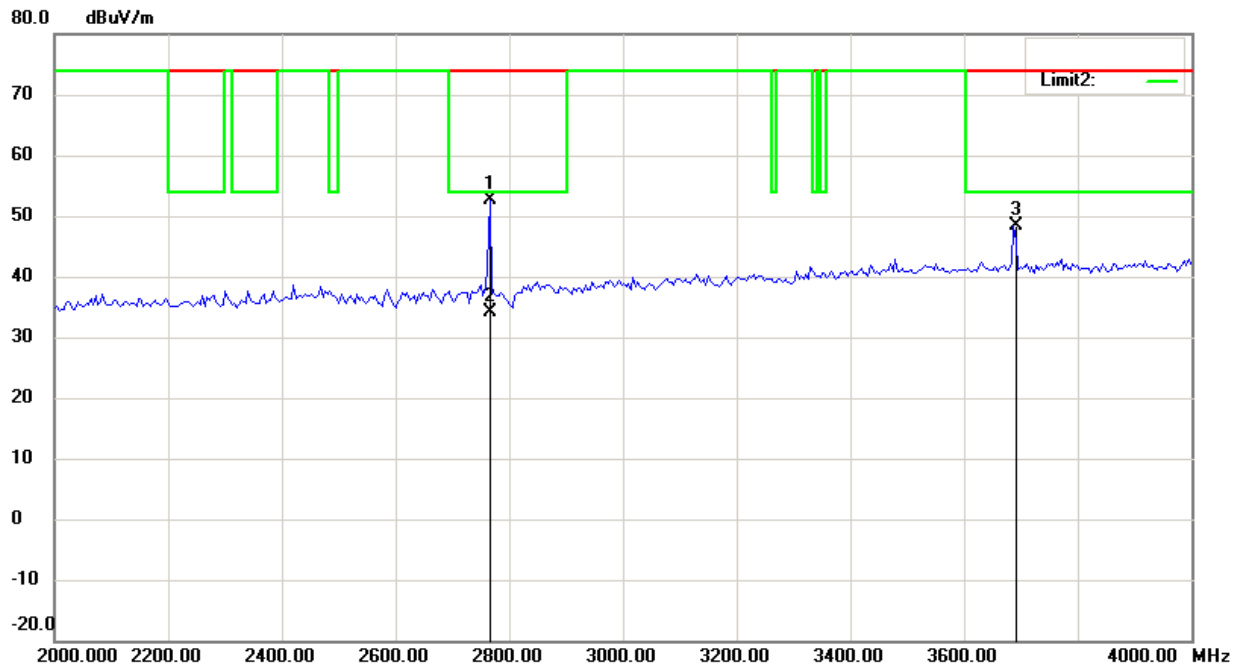
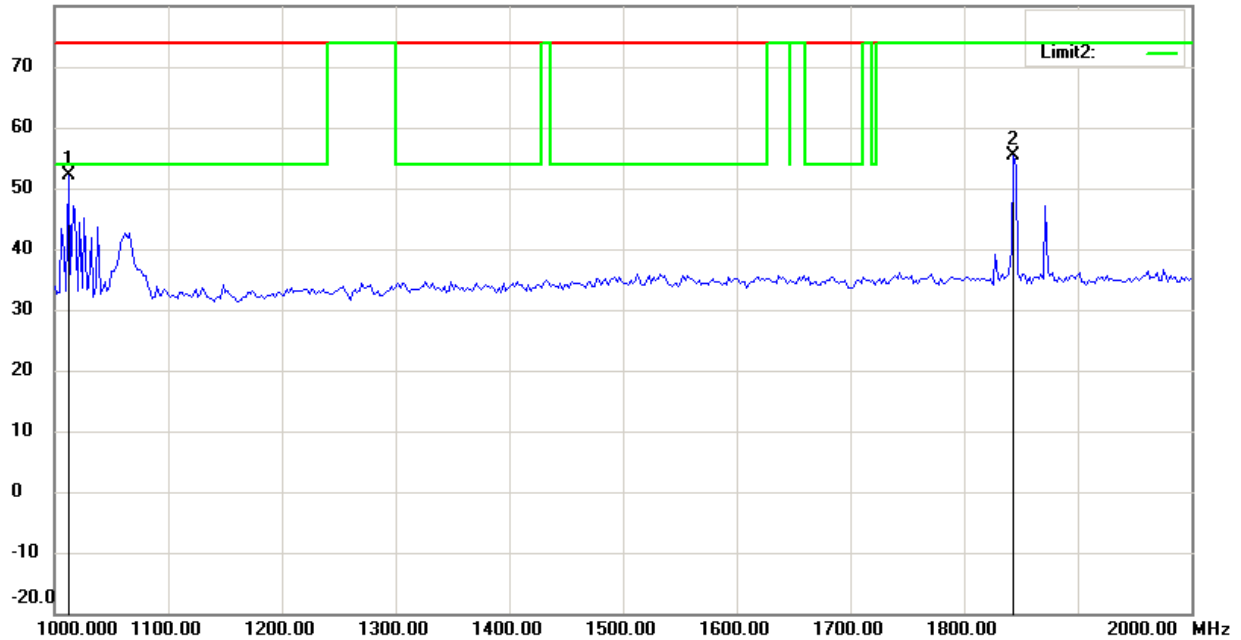
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

80.0 dBuV/m



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

Note:

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

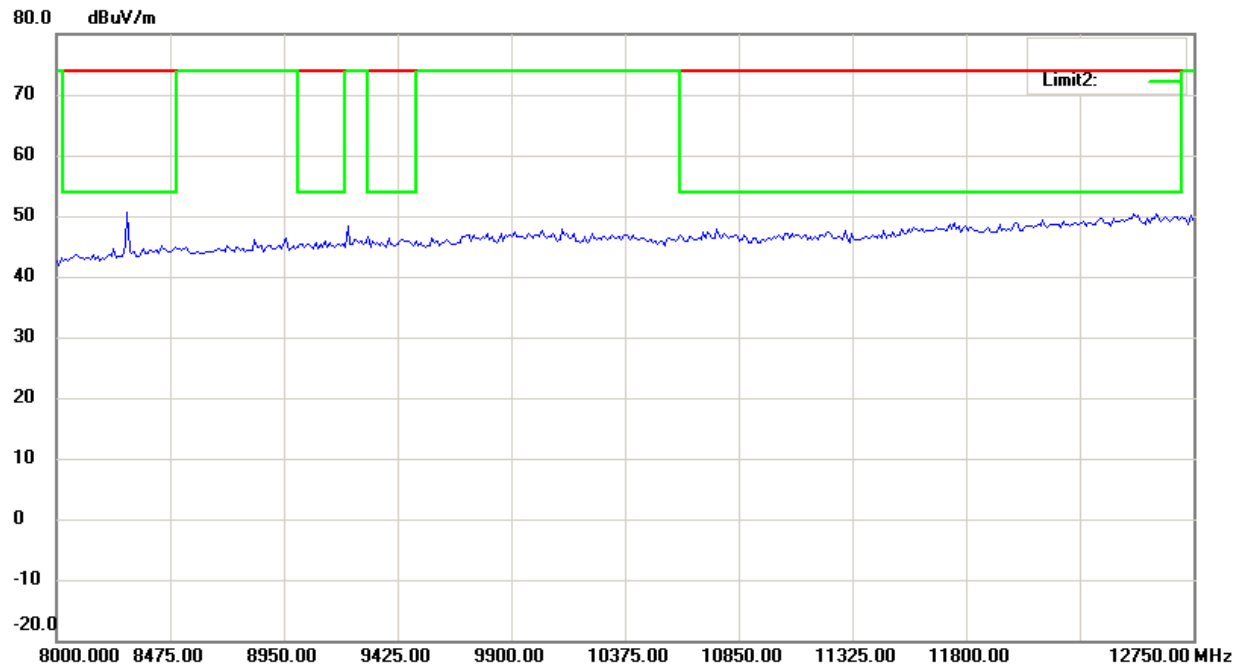
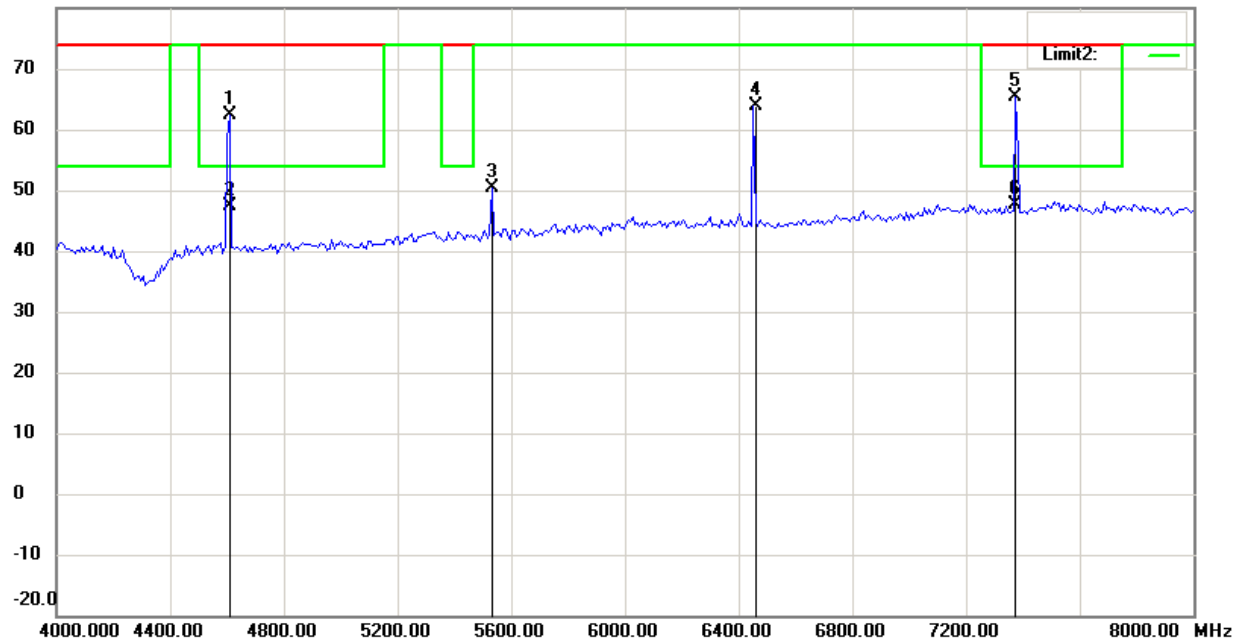


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H50TR33

80.0 dBuV/m



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

Note:

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

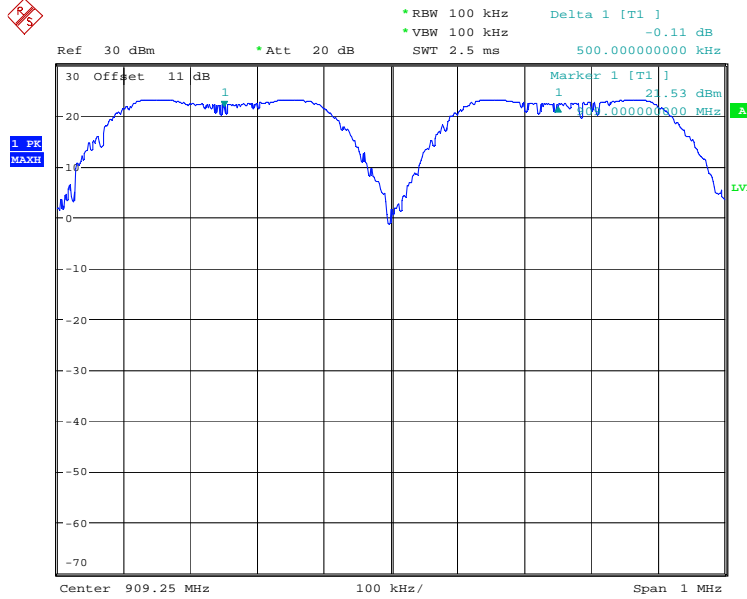


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

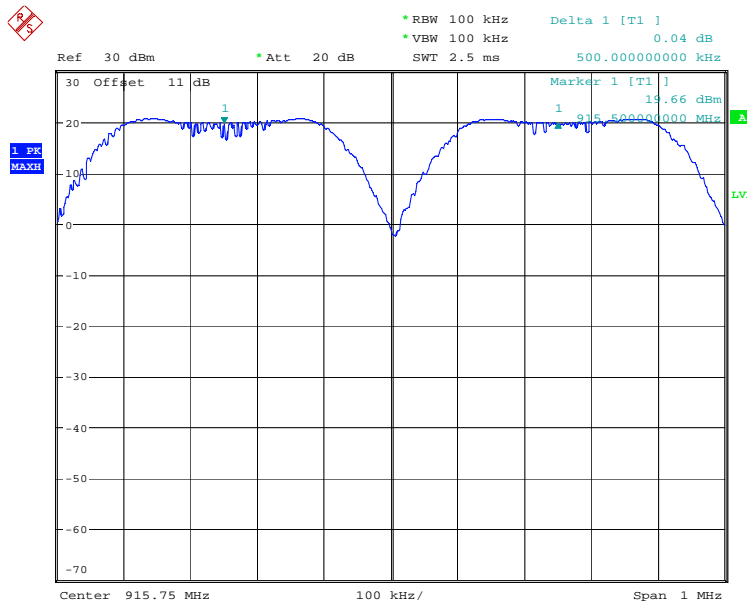
FCC ID: H50TR33

## Carrier Frequency Separation



FREQUENCY SEPARATION 909MHz

Date: 14.JUL.2009 09:44:55



FREQUENCY SEPARATION 915.5MHz

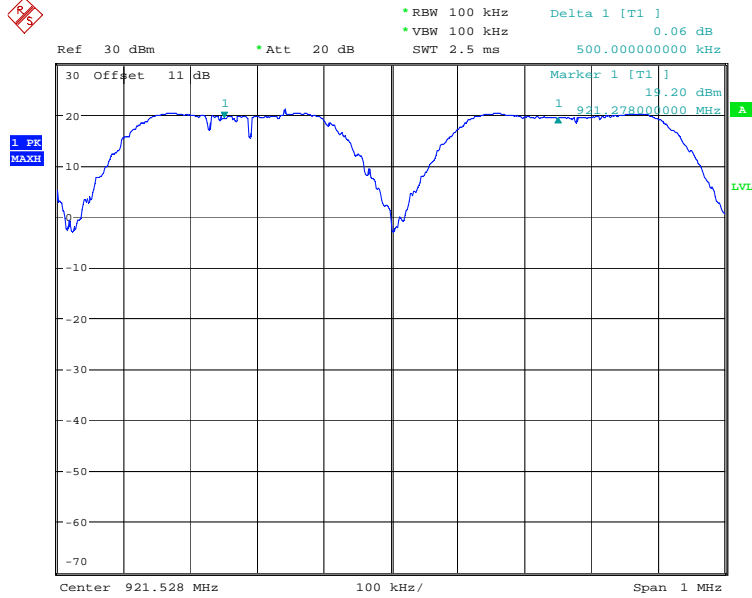
Date: 14.JUL.2009 09:46:05



# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H50TR33



FREQUENCY SEPARATION 921.778MHz

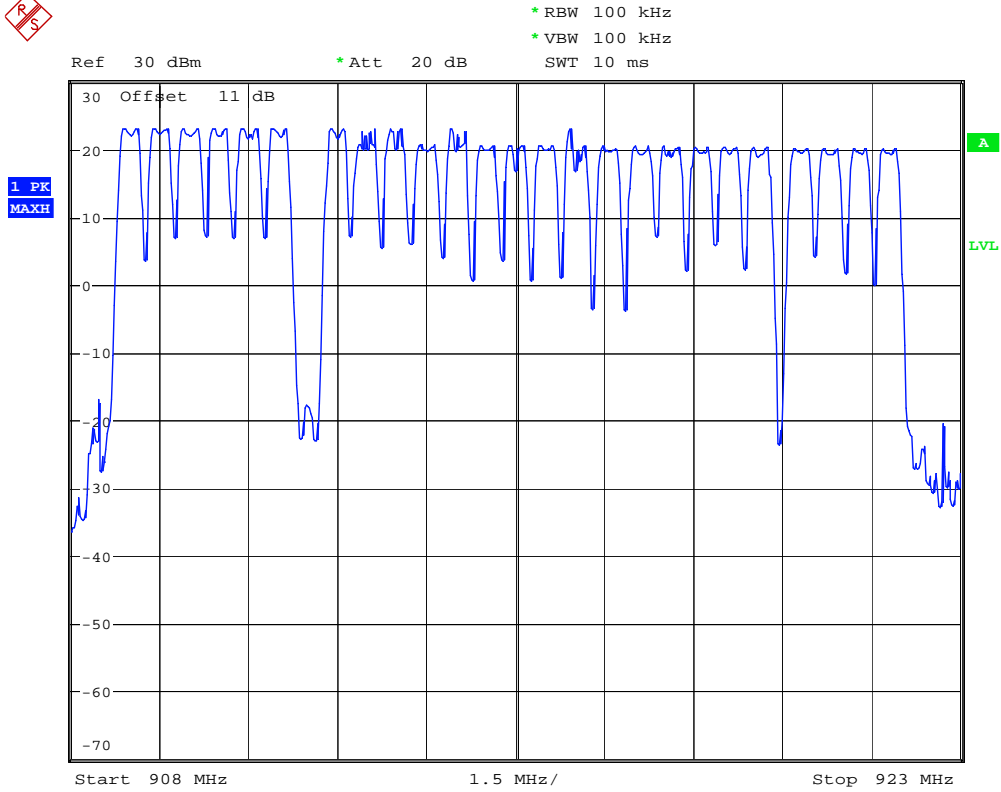
Date: 14.JUL.2009 09:47:05



Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

### Number of Hopping Frequencies



NUMBER OF HOPPING

Date: 14.JUL.2009 09:43:16

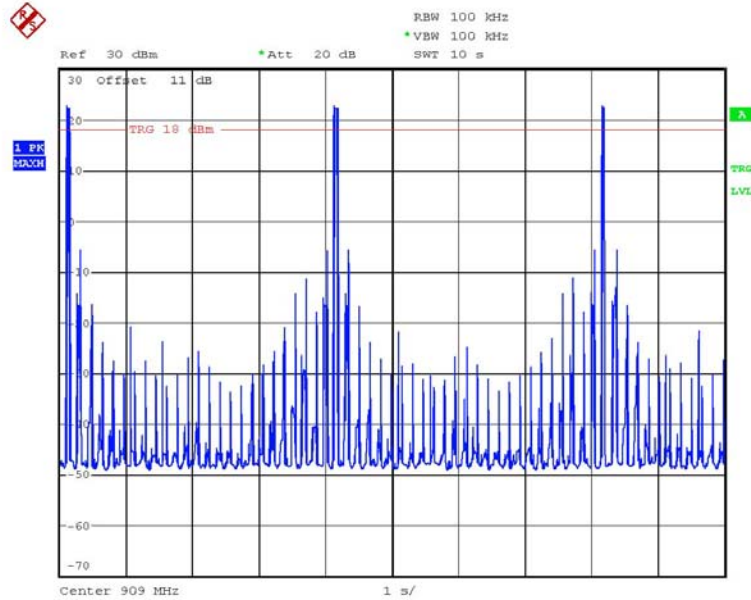




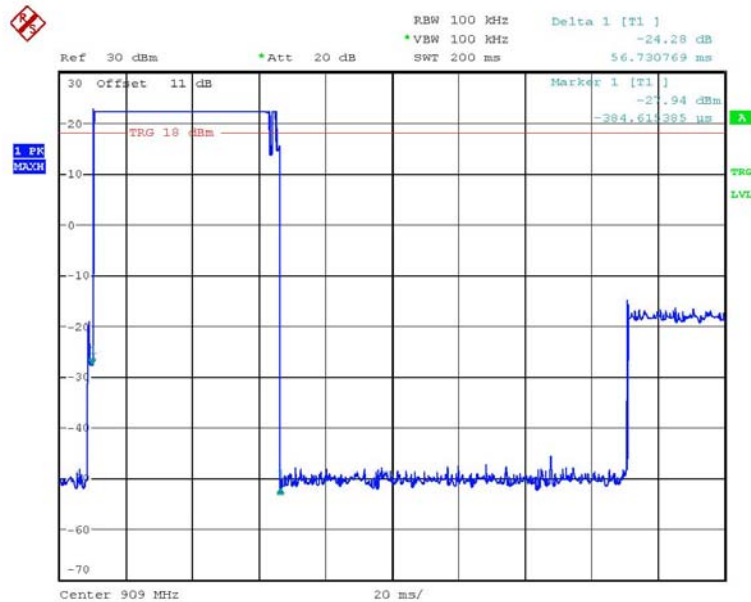
Registration number: W6M20907-9889-P-15

FCC ID: H50TR33

Time of Occupancy (Dwell Time)



DWELL TIME 909MHz (56.730ms \* 3events = 170.190ms)  
Date: 14.JUL.2009 09:54:12

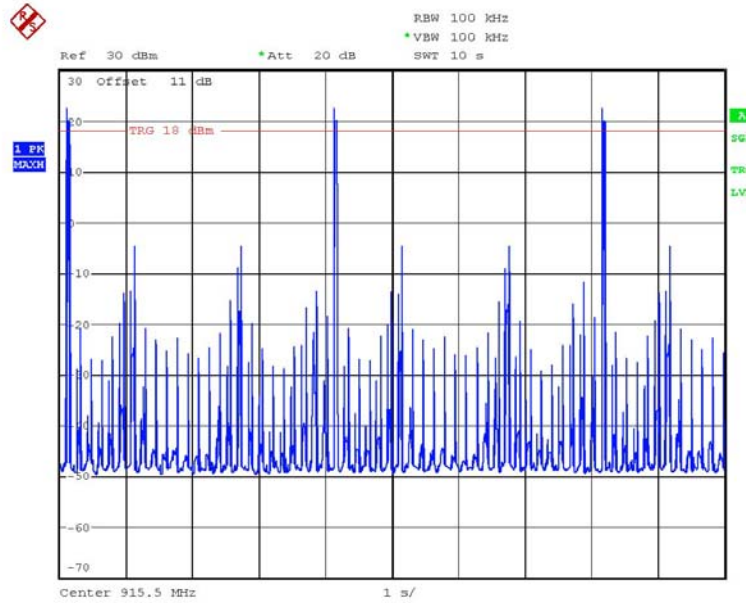


DWELL TIME 909MHz  
Date: 14.JUL.2009 09:53:15

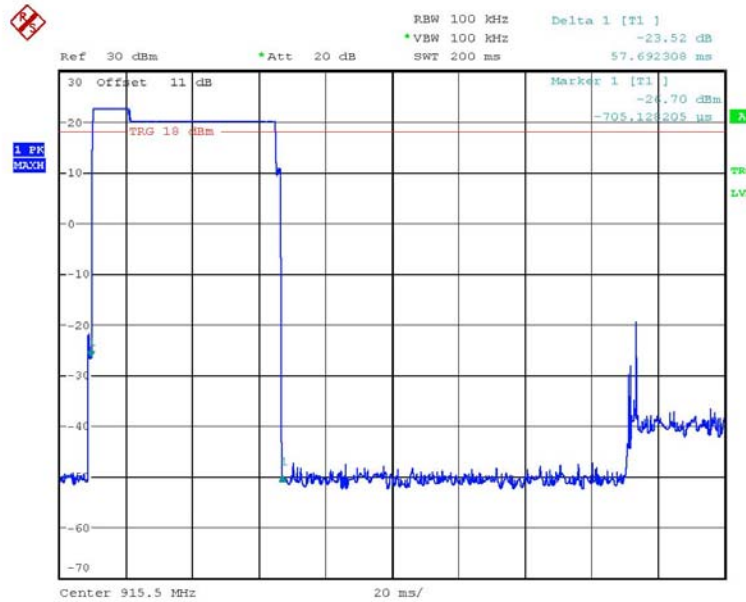


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15  
FCC ID: H50TR33



DWELL TIME 915.5MHz (57.692ms \* 3events = 173.076ms)  
Date: 14.JUL.2009 09:50:10

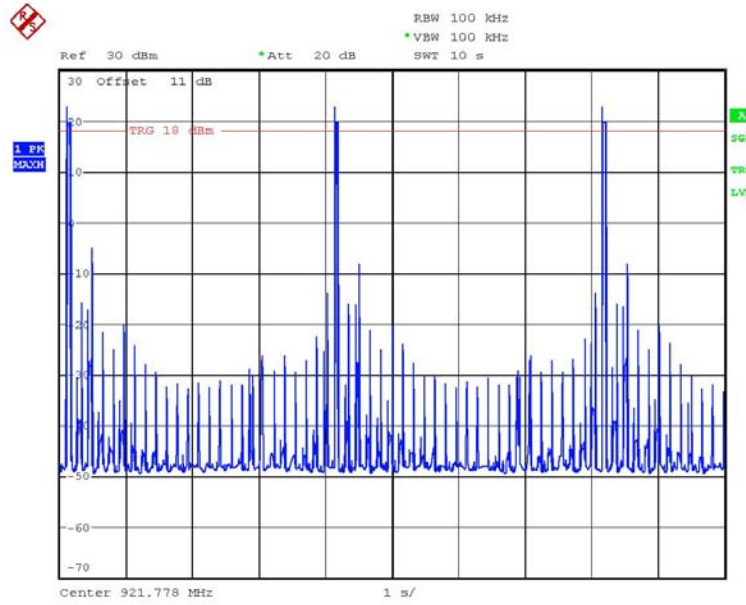


DWELL TIME 915.5MHz  
Date: 14.JUL.2009 09:52:34

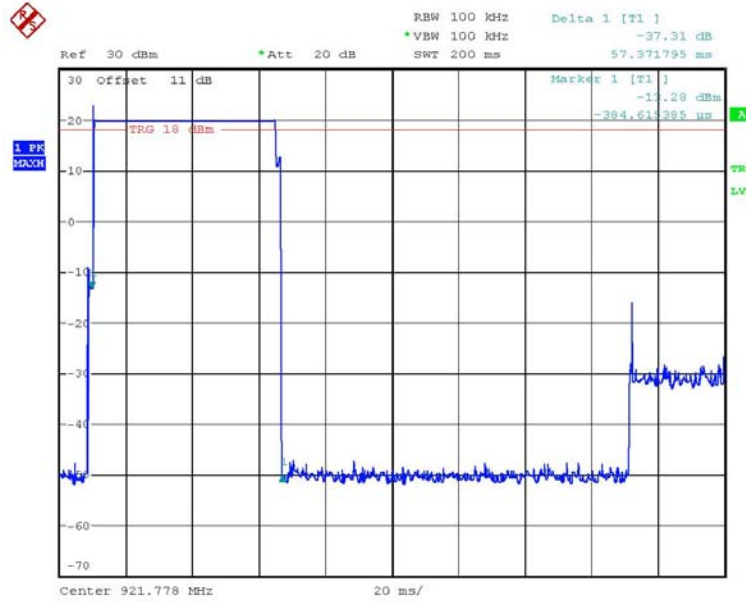


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15  
FCC ID: H50TR33



DWELL TIME 921.778MHz (57.371ms \* 3events = 172.113ms)  
Date: 14.JUL.2009 09:50:46



DWELL TIME 921.778MHz  
Date: 14.JUL.2009 09:52:02

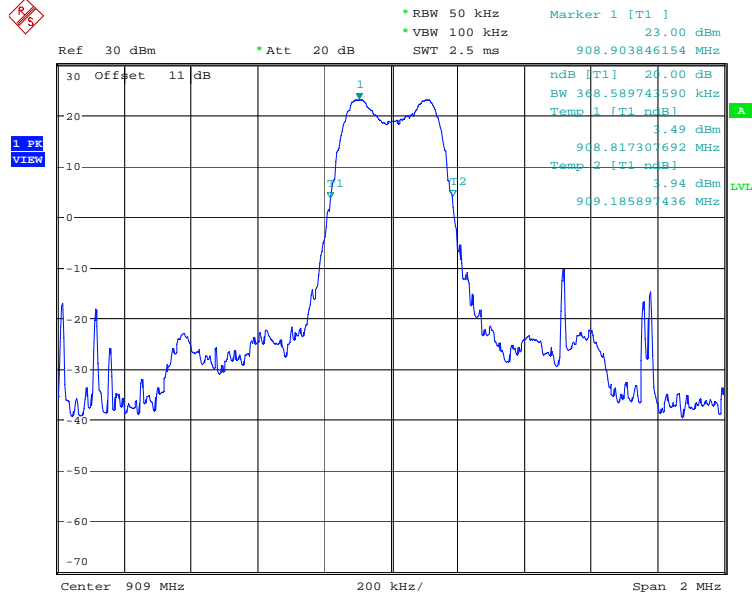


# Worldwide Testing Services(Taiwan) Co., Ltd.

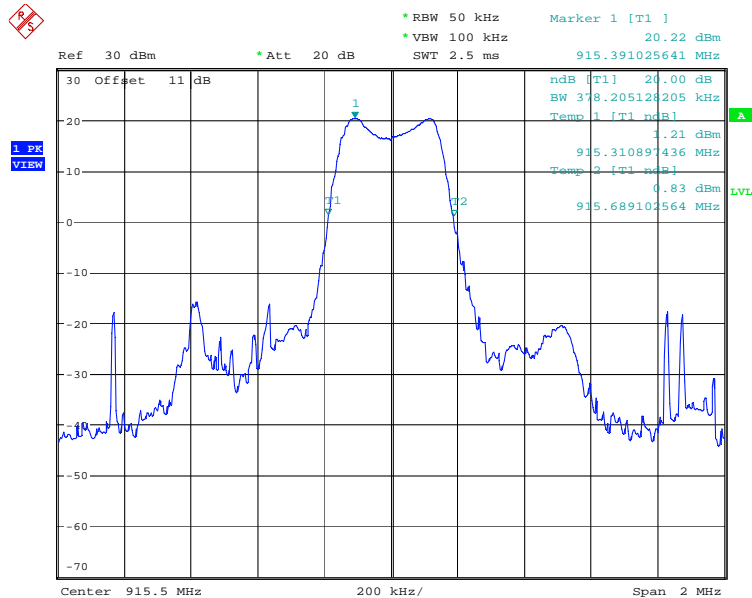
Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

20dB Bandwidth



20DB BANDWIDTH 909MHz  
Date: 14.JUL.2009 09:24:39



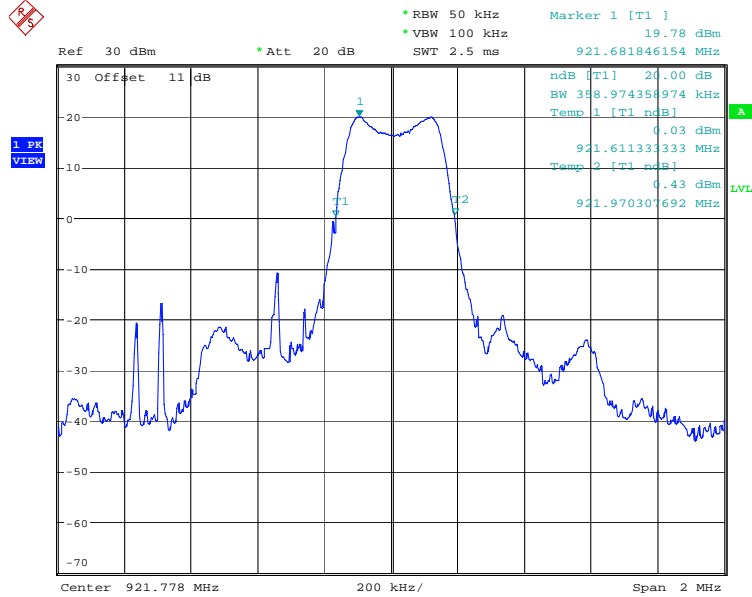
20DB BANDWIDTH 915.5MHz  
Date: 14.JUL.2009 09:24:15



# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H50TR33



20DB BANDWIDTH 921.778MHz  
Date: 14.JUL.2009 09:25:11

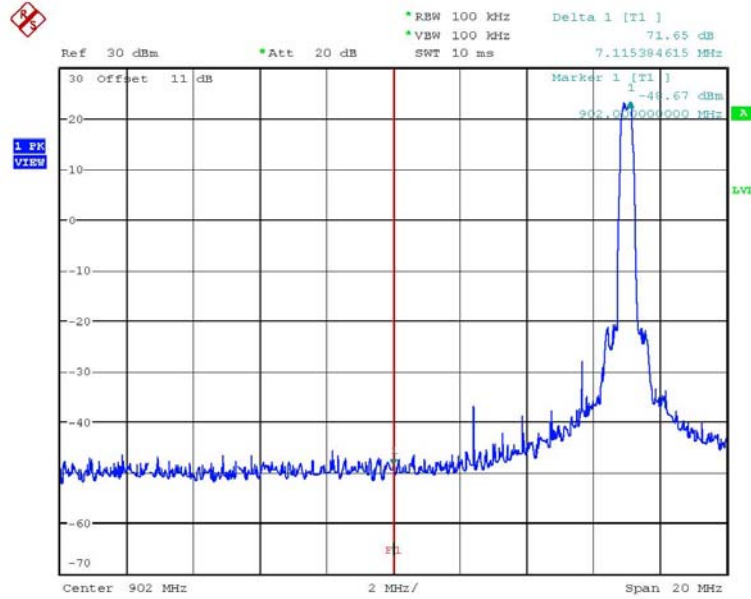


# Worldwide Testing Services(Taiwan) Co., Ltd.

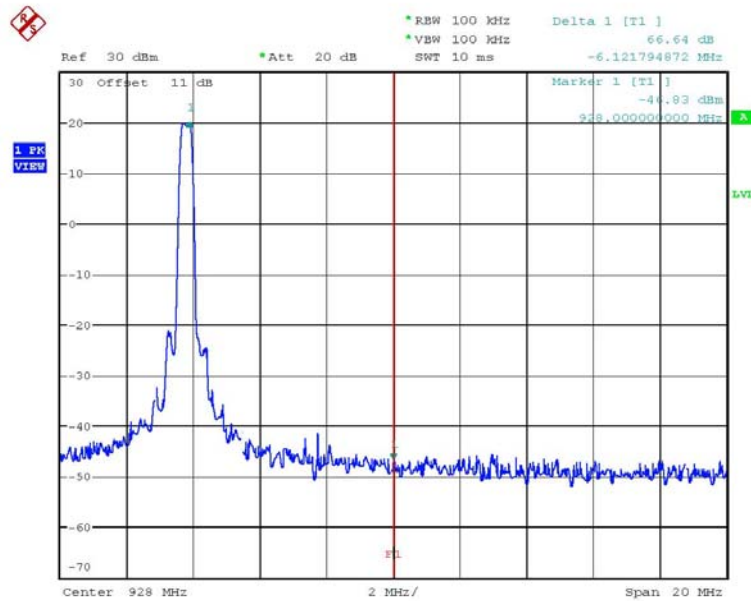
Registration number: W6M20907-9889-P-15

FCC ID: H50TR33

## Band-edge Compliance of RF Conducted Emissions



BAND EDGE 909MHz  
Date: 14.JUL.2009 09:34:41

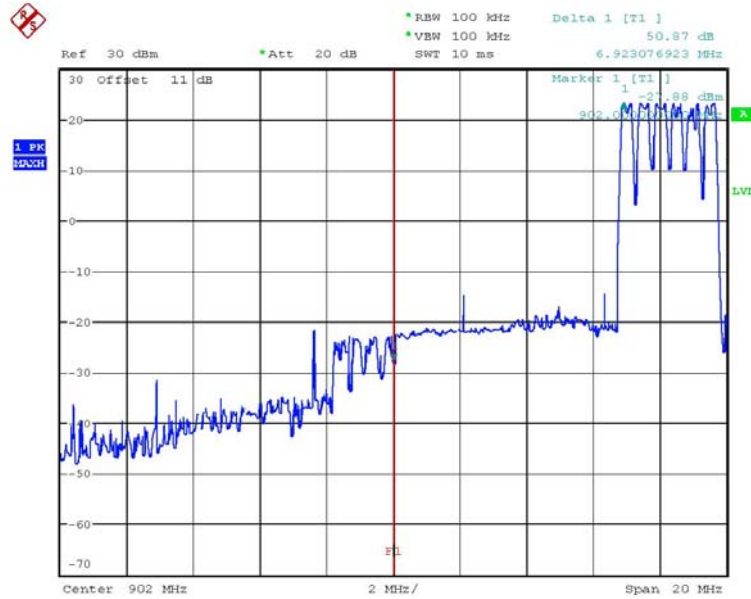


BAND EDGE 921.778MHz  
Date: 14.JUL.2009 09:33:25

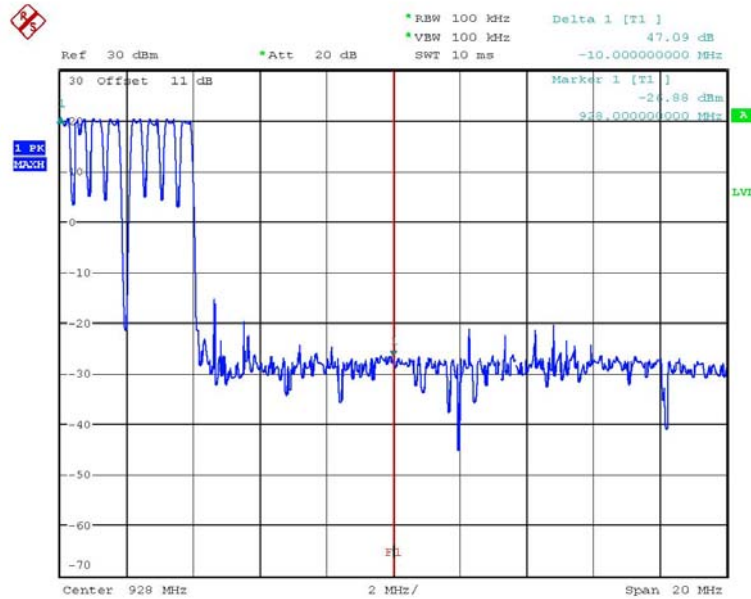


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15  
FCC ID: H50TR33



BAND EDGE 909MHz HOPPING MODE  
Date: 14.JUL.2009 09:37:38



BAND EDGE 921.778MHz HOPPING MODE  
Date: 14.JUL.2009 09:40:19



Registration number: W6M20907-9889-P-15

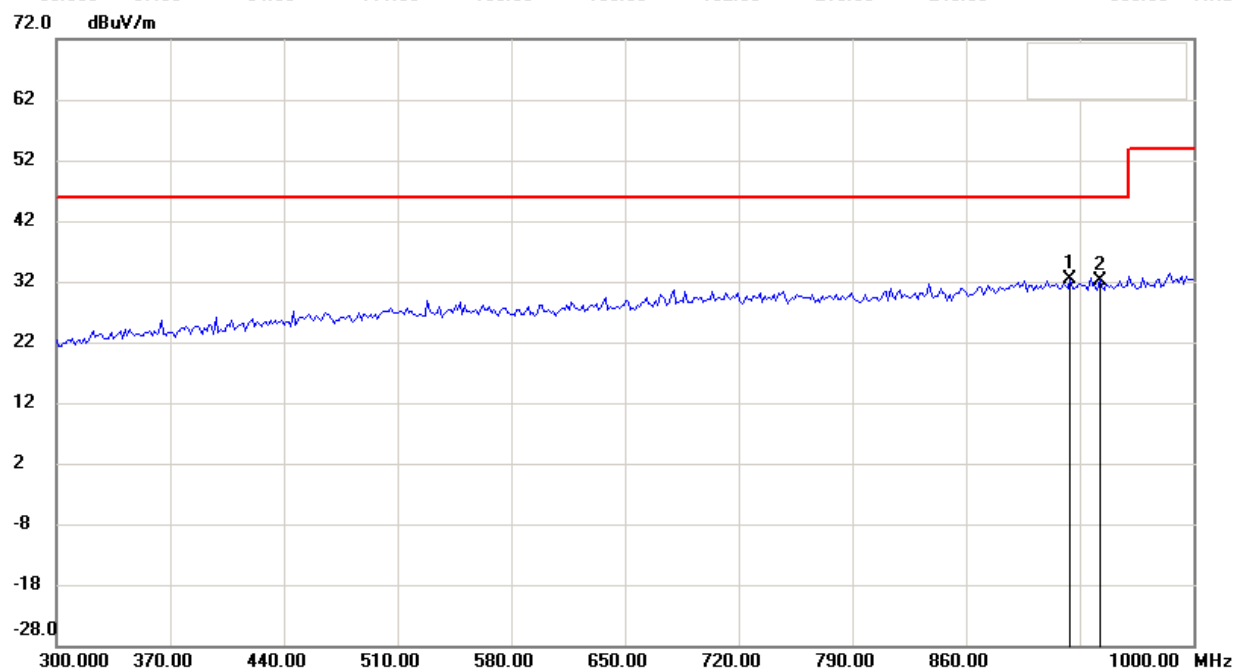
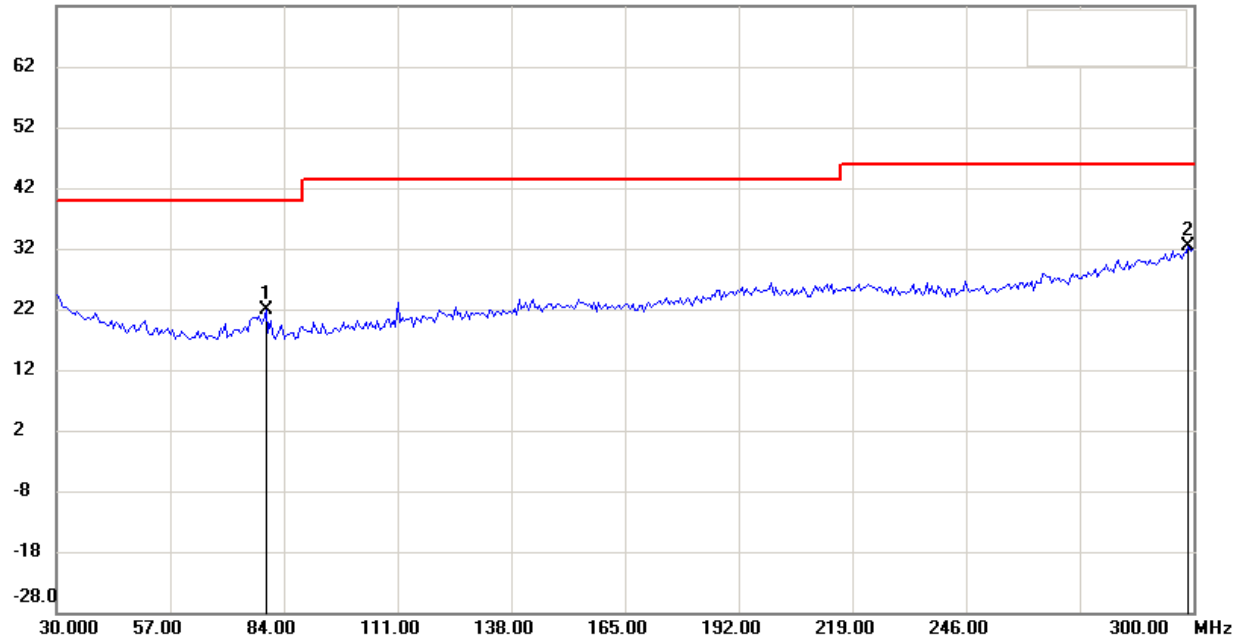
FCC ID: H50TR33

Radiated Emissions from Receiver Section of Transceiver

Receiver part ch 1

Antenna Polarization H

72.0 dBuV/m



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

Note:

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



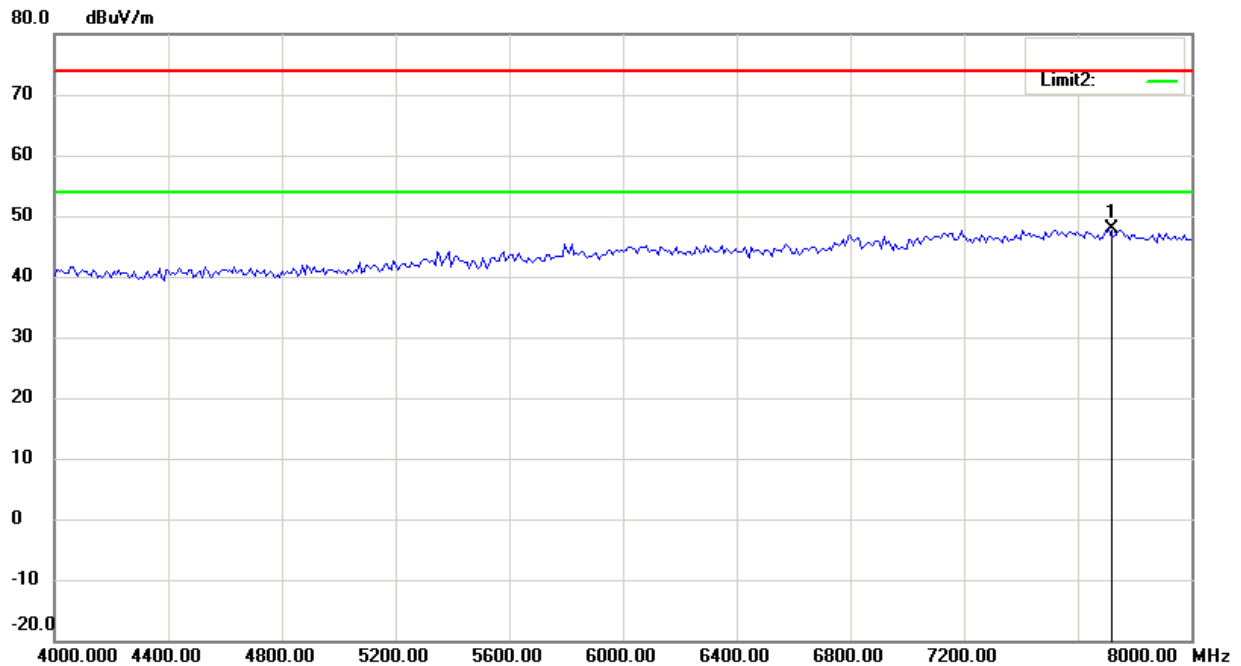
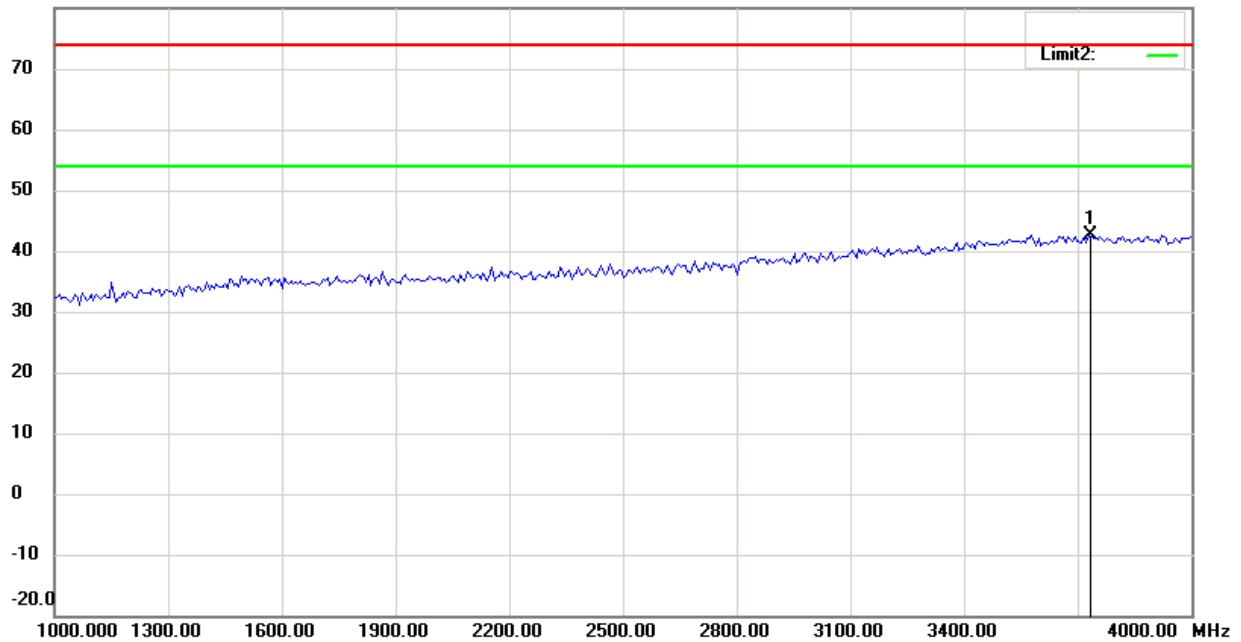


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

80.0 dBuV/m



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

Note:

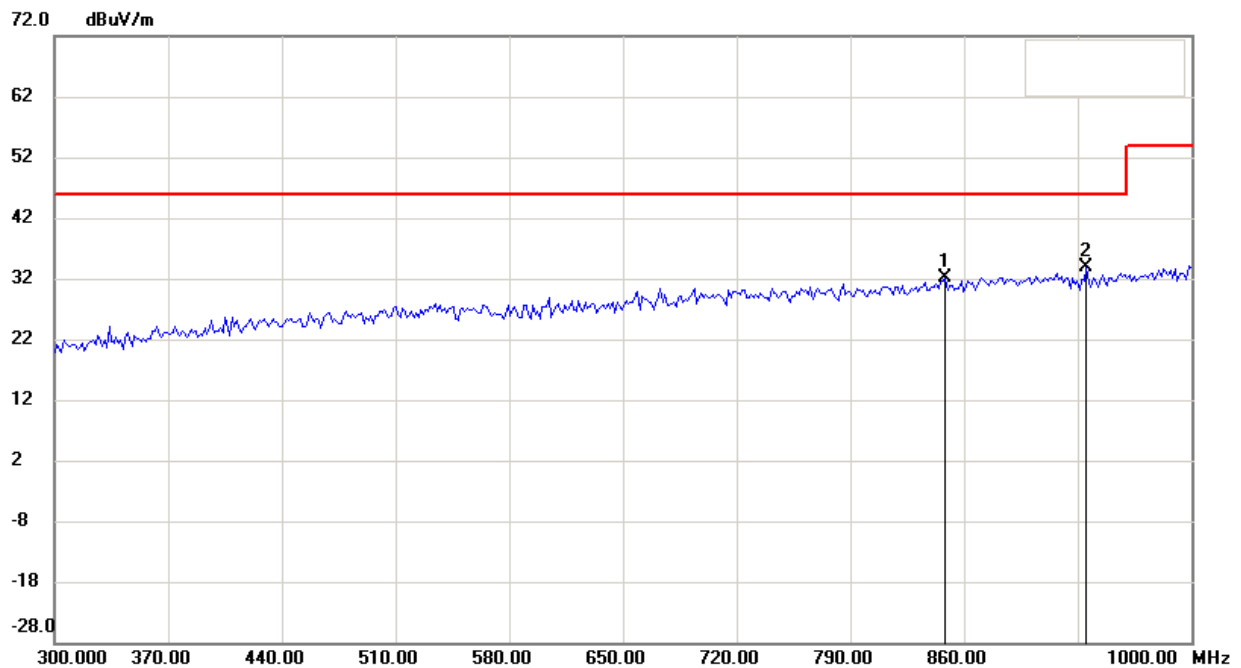
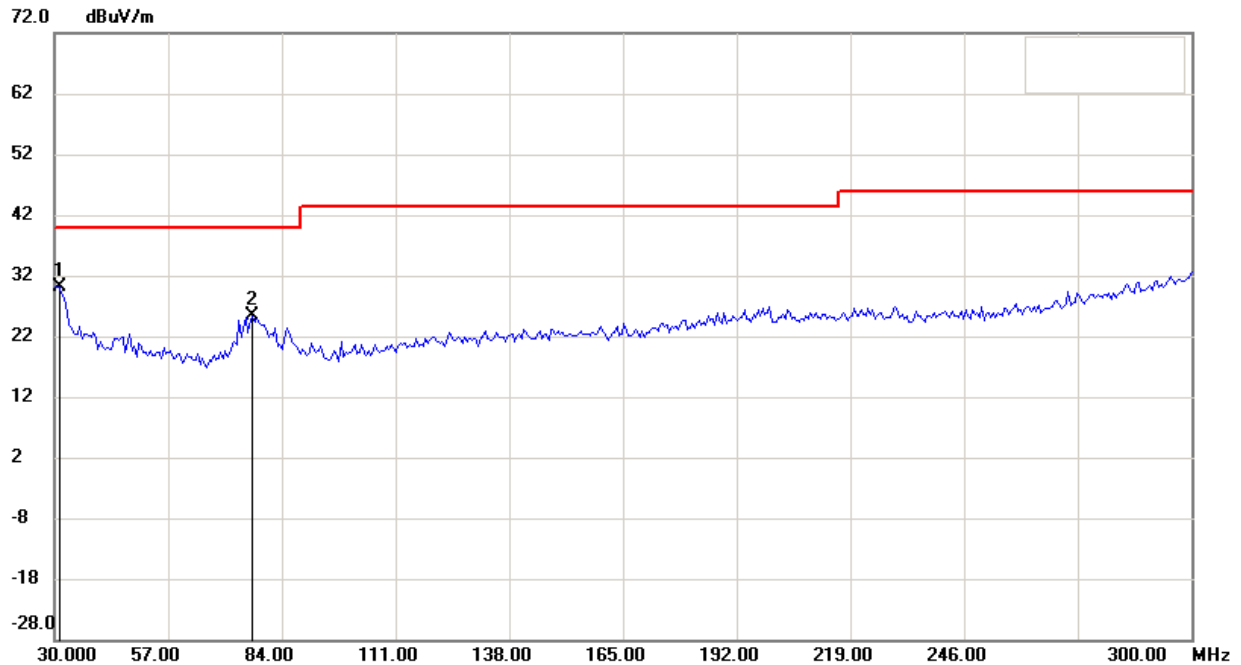
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

**Antenna Polarization V**



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

Note:

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

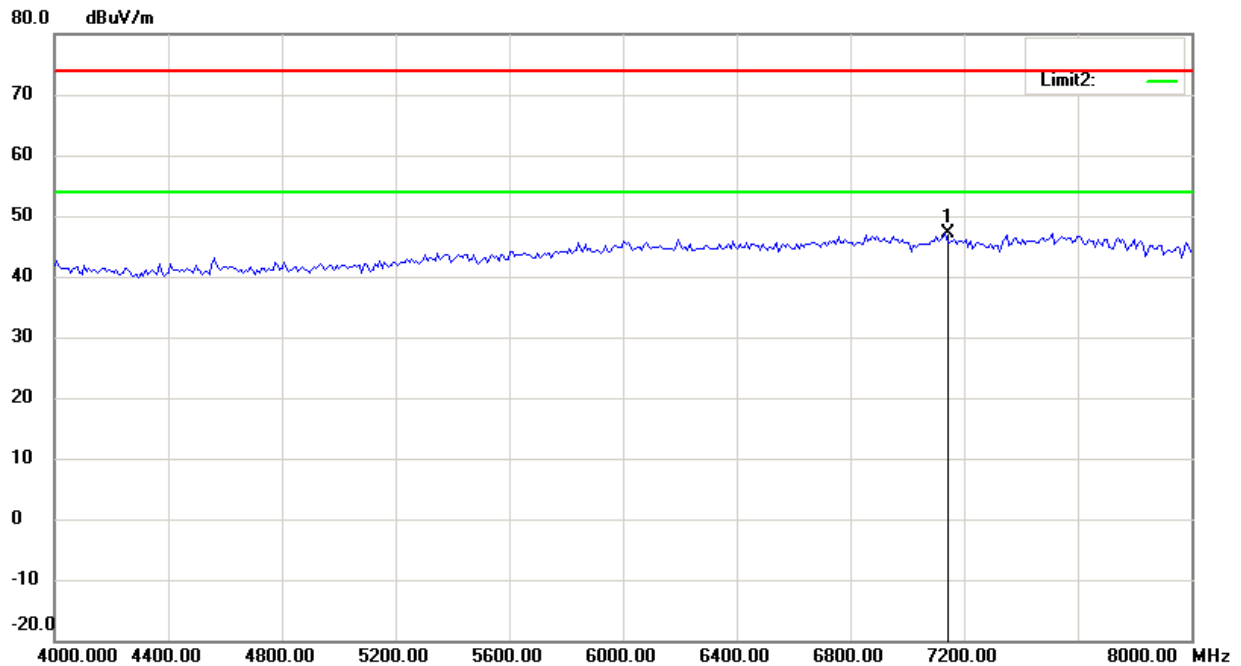
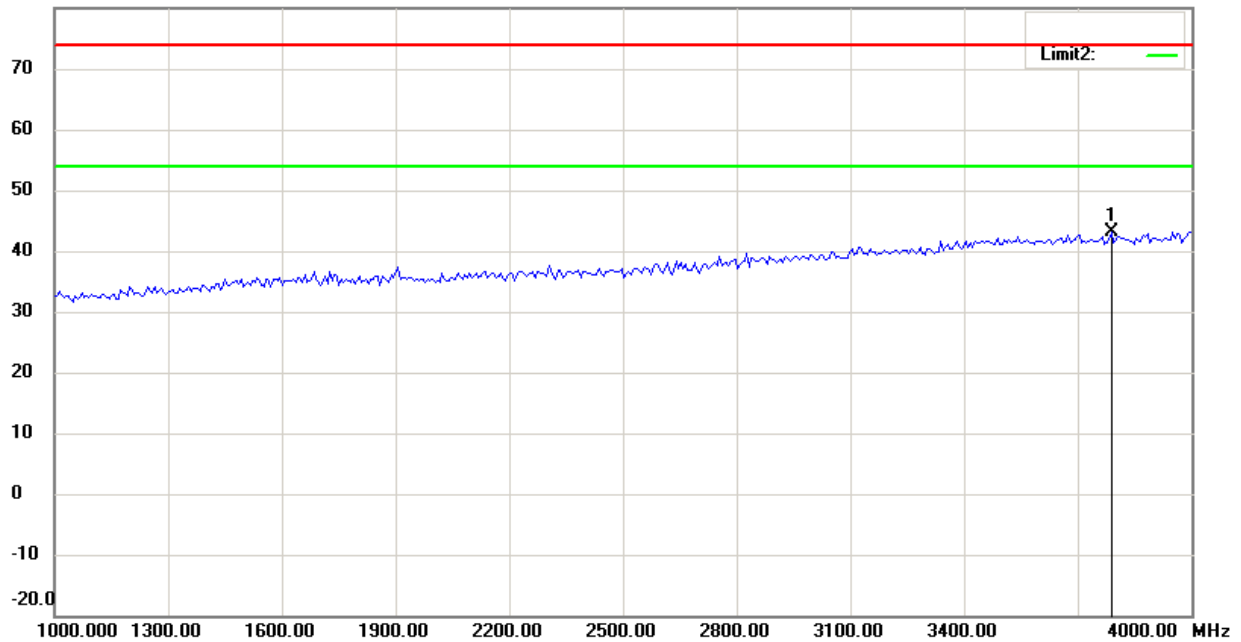


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

80.0 dBuV/m



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

Note:

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

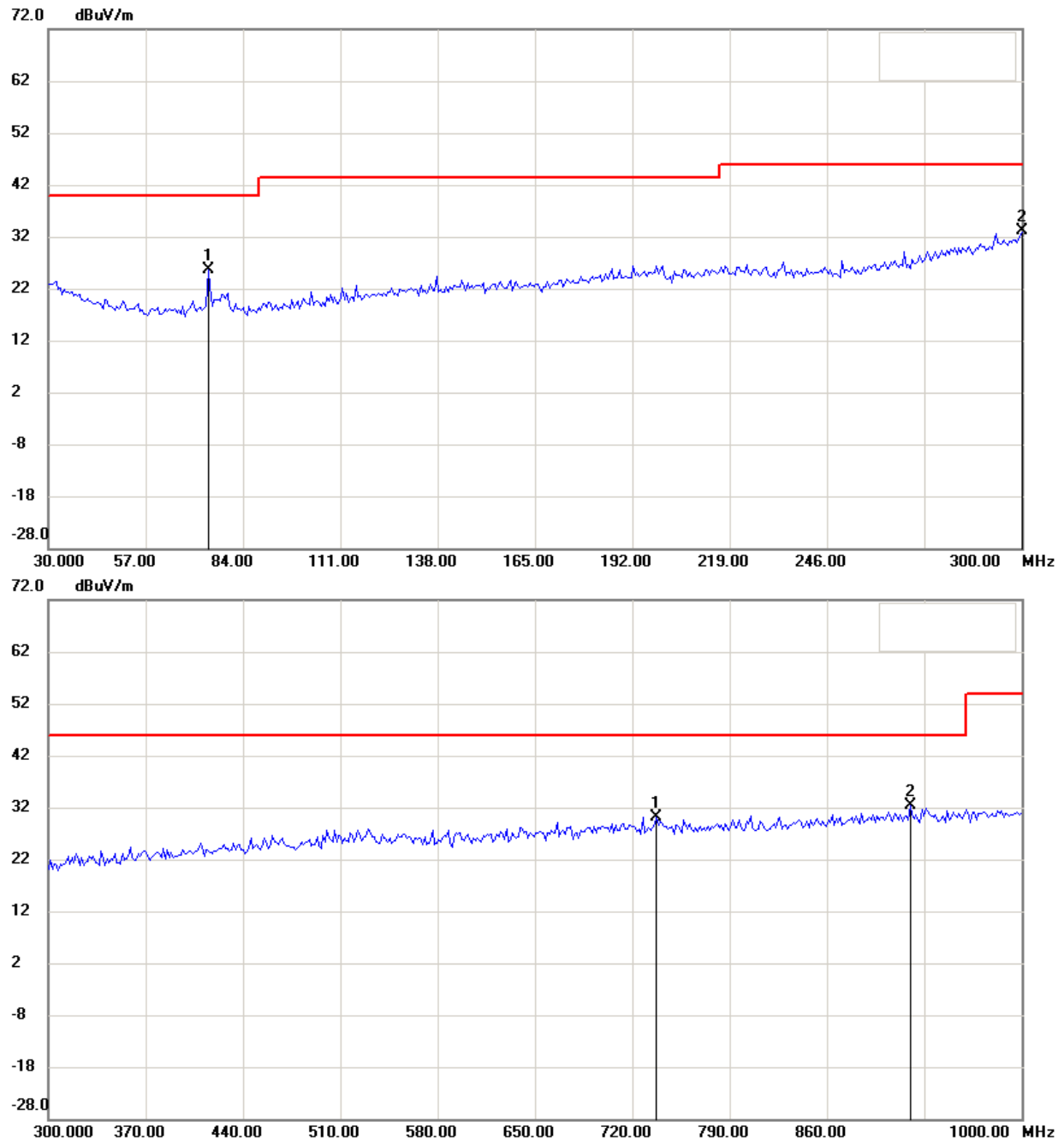


Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

ch 13

Antenna Polarization H



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

Note:

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

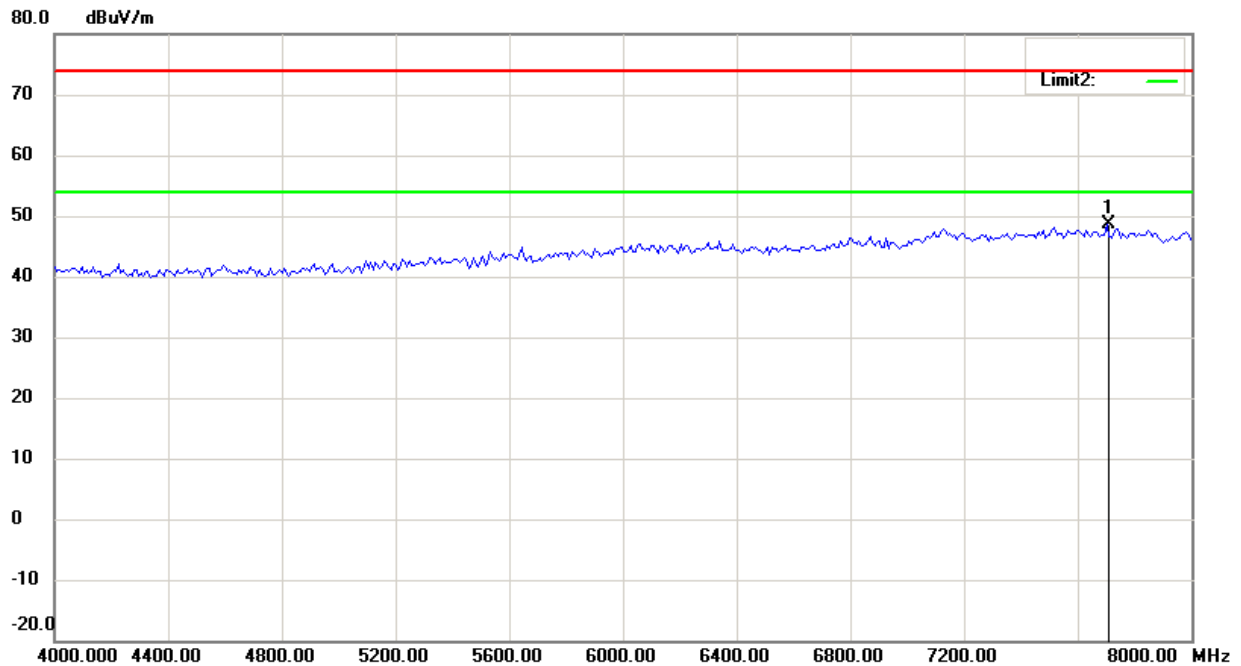
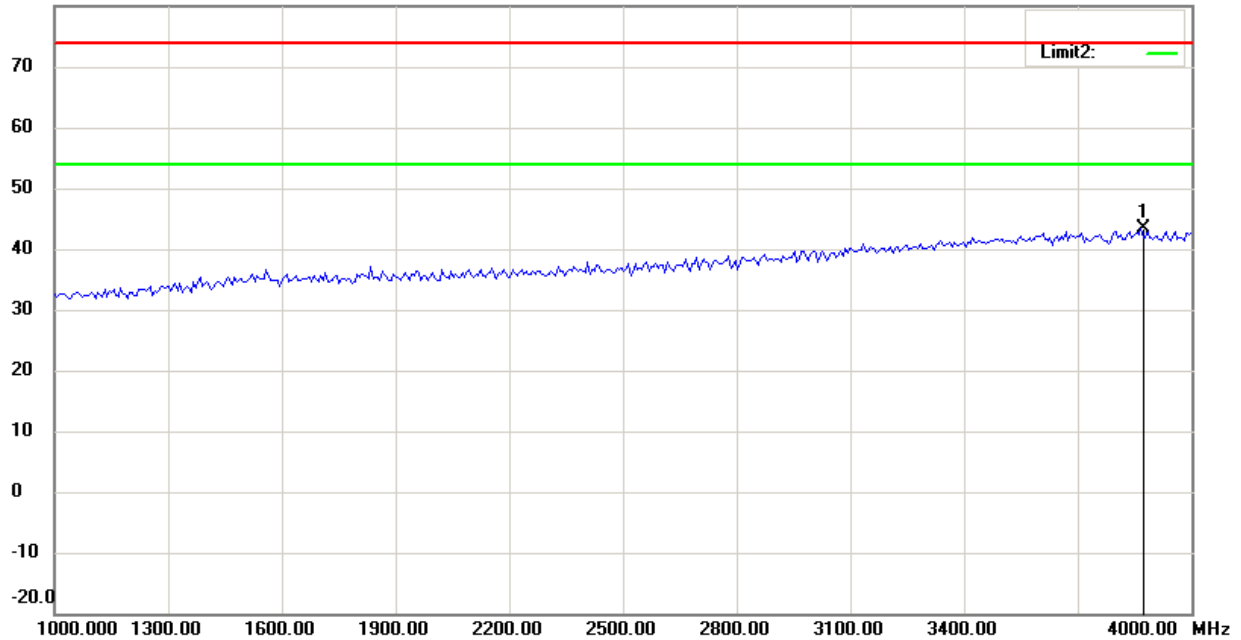


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

80.0 dBuV/m



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

Note:

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

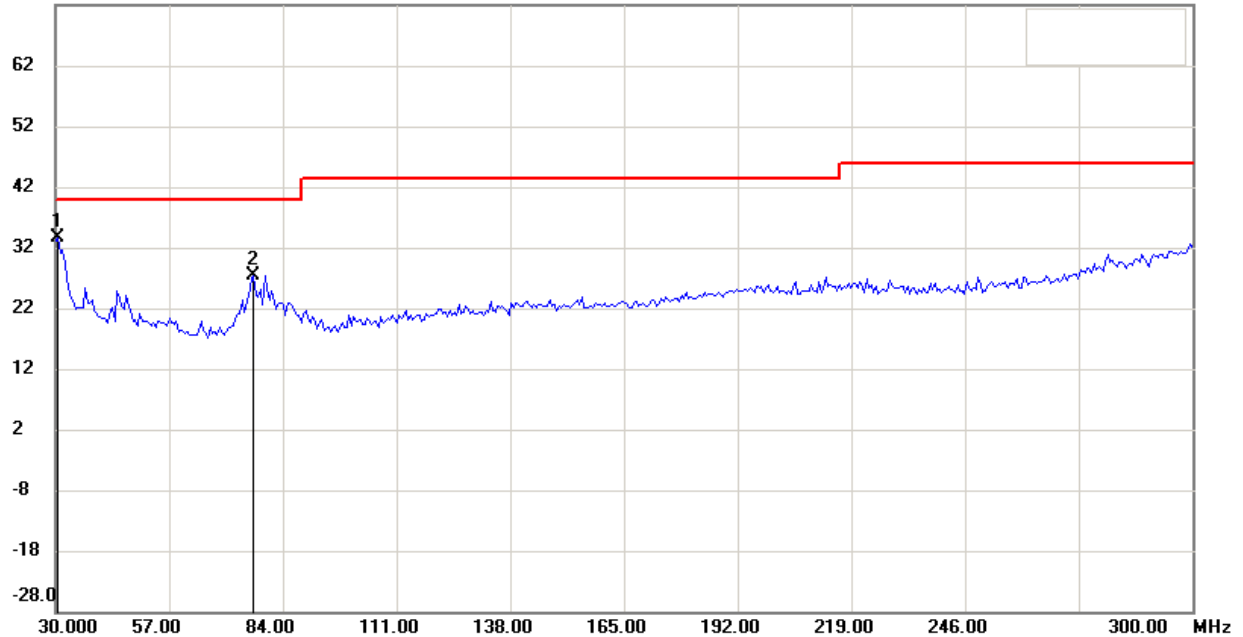


Registration number: W6M20907-9889-P-15

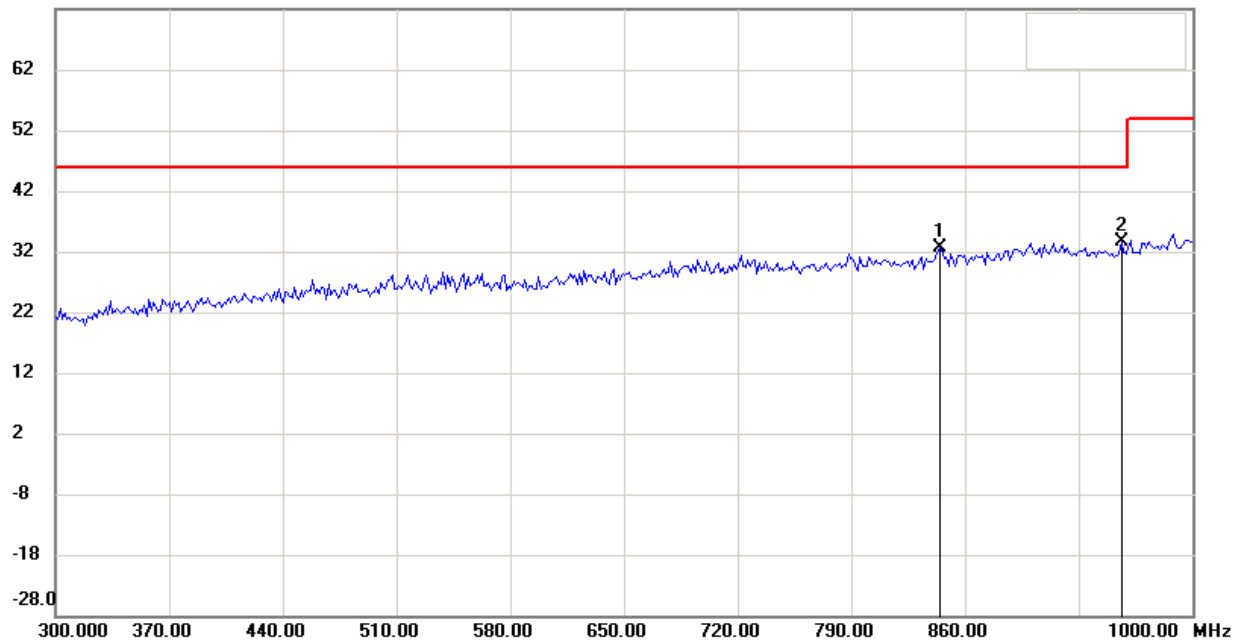
FCC ID: H5OTR33

**Antenna Polarization V**

72.0 dBuV/m



72.0 dBuV/m



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

Note:

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

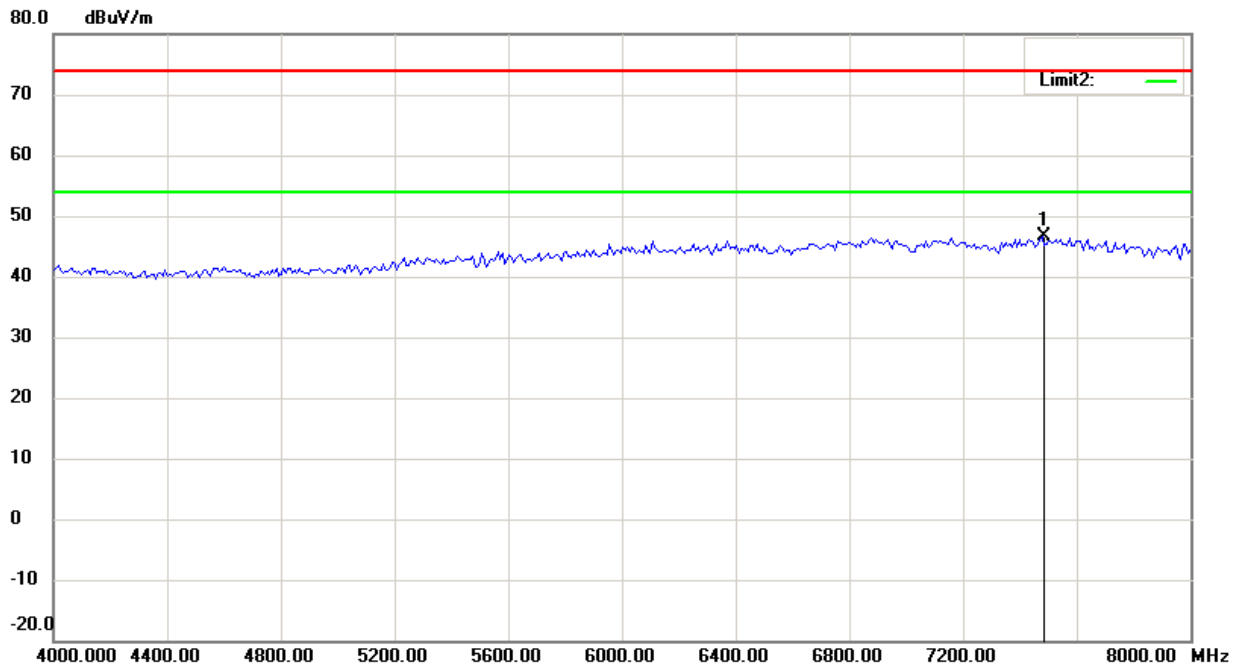
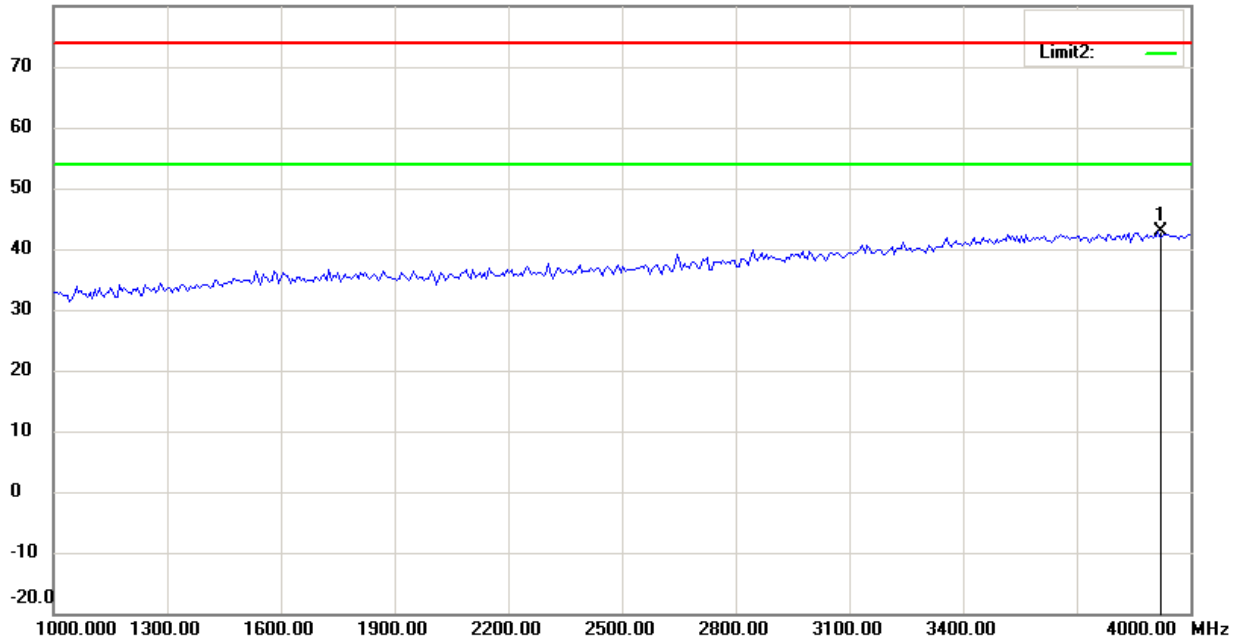


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

80.0 dBuV/m



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

Note:

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

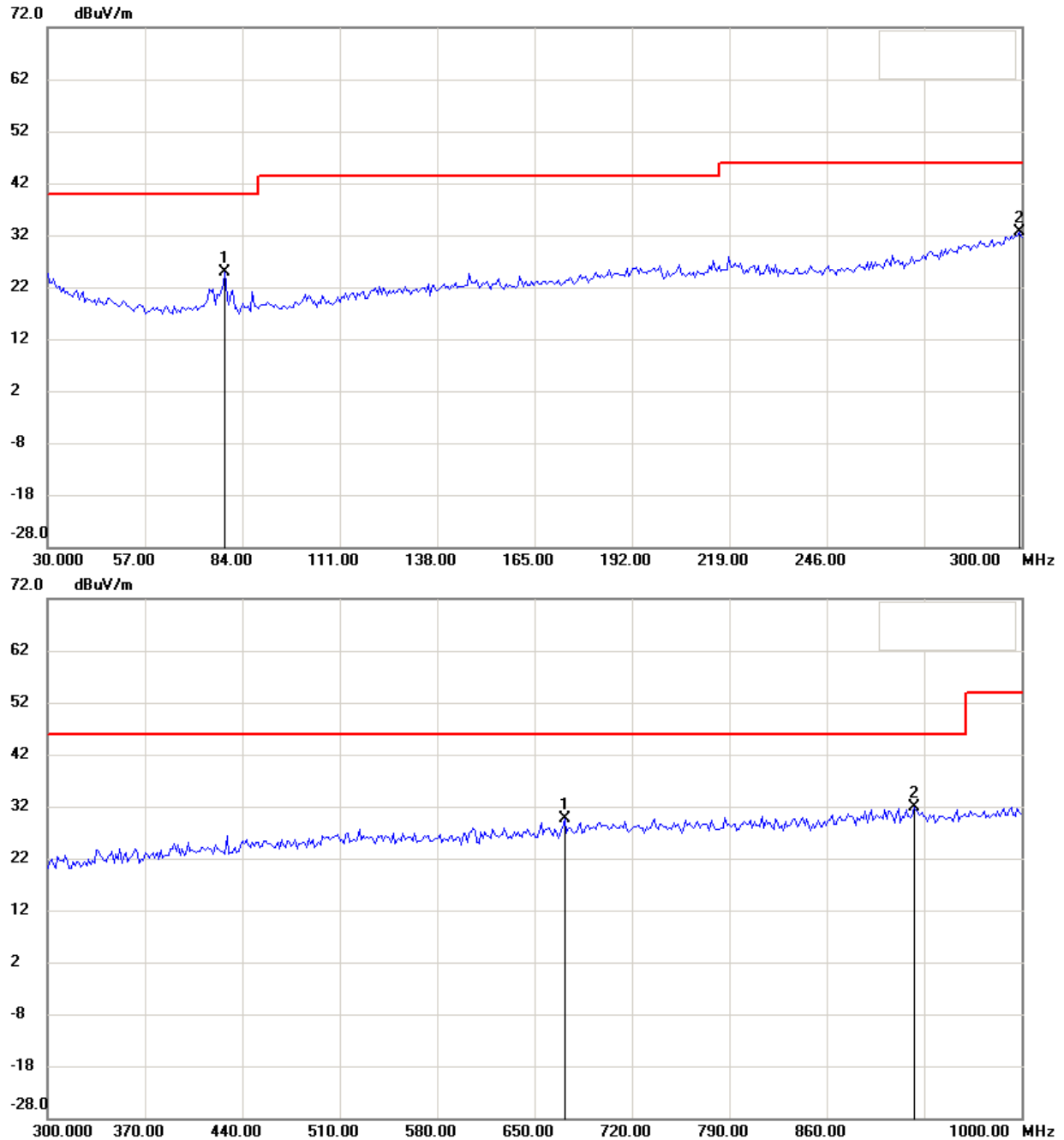


Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

ch 25

Antenna Polarization H



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

Note:

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

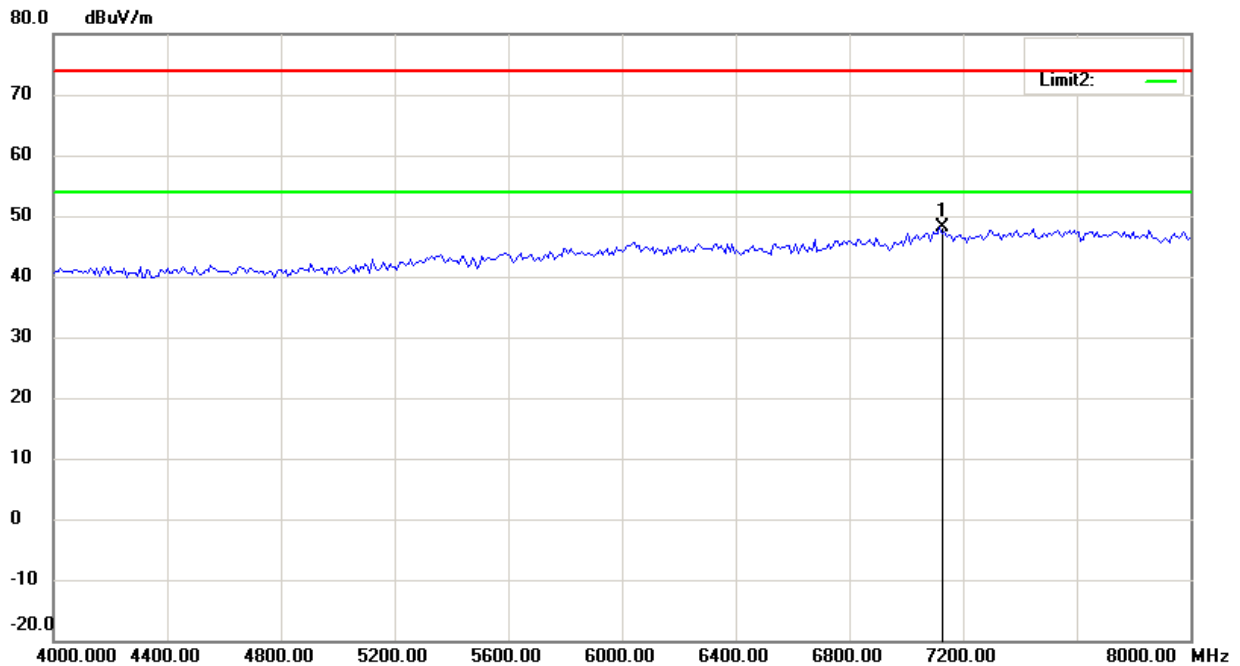
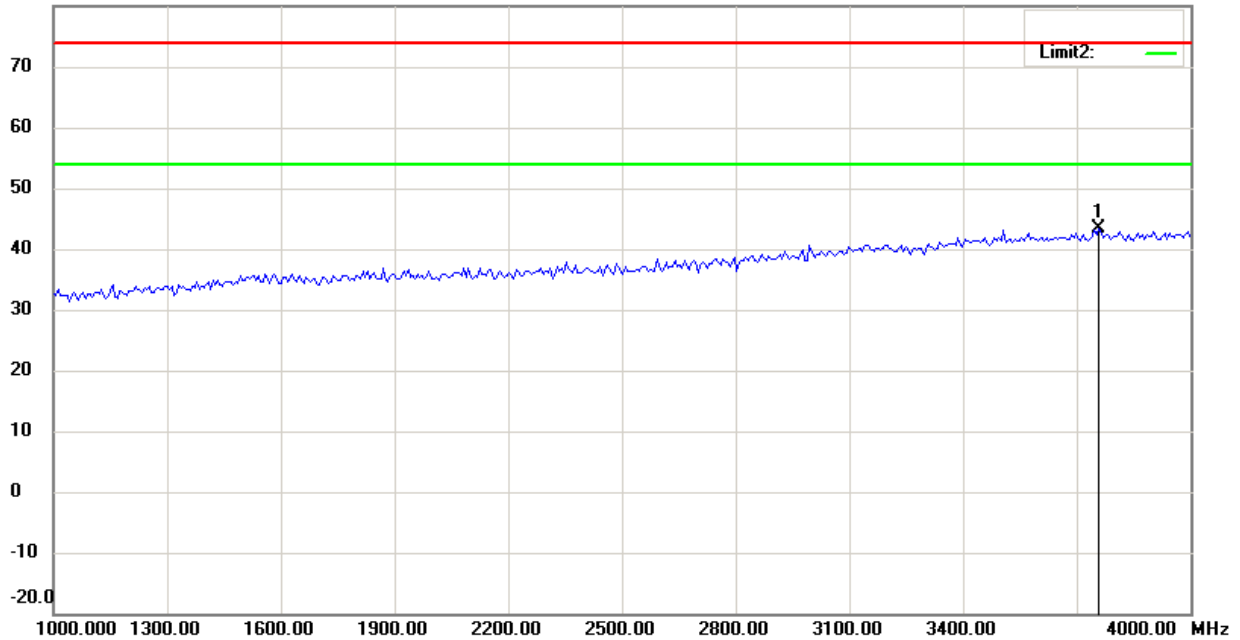




Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

80.0 dBuV/m



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

Note:

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

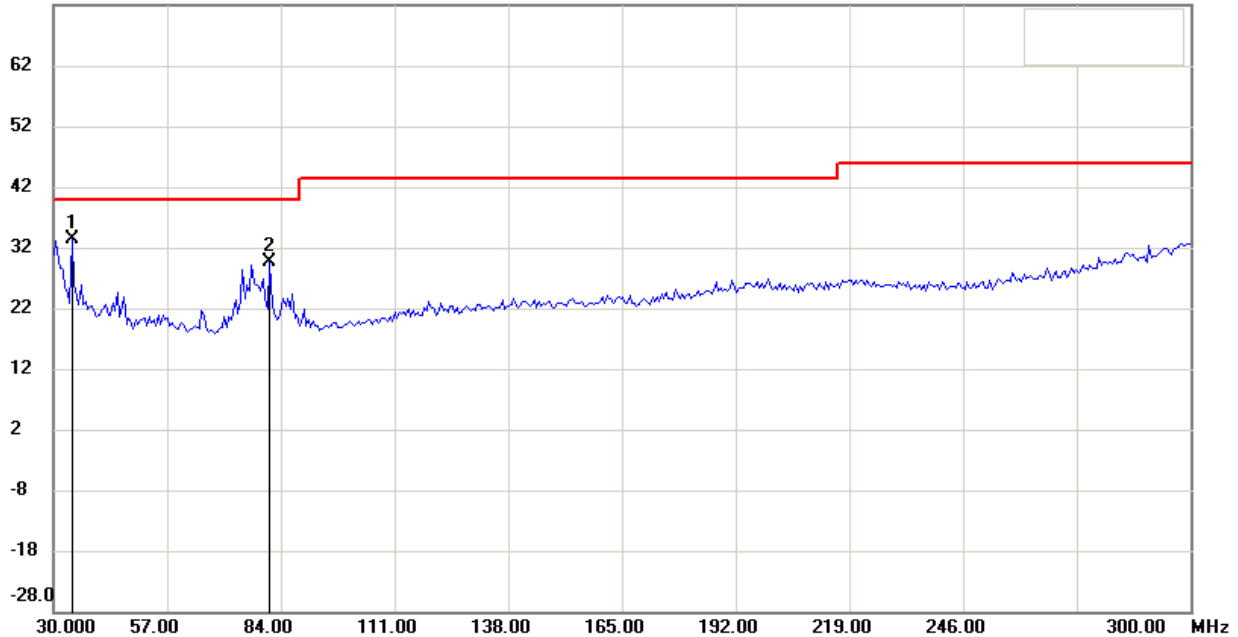


Registration number: W6M20907-9889-P-15

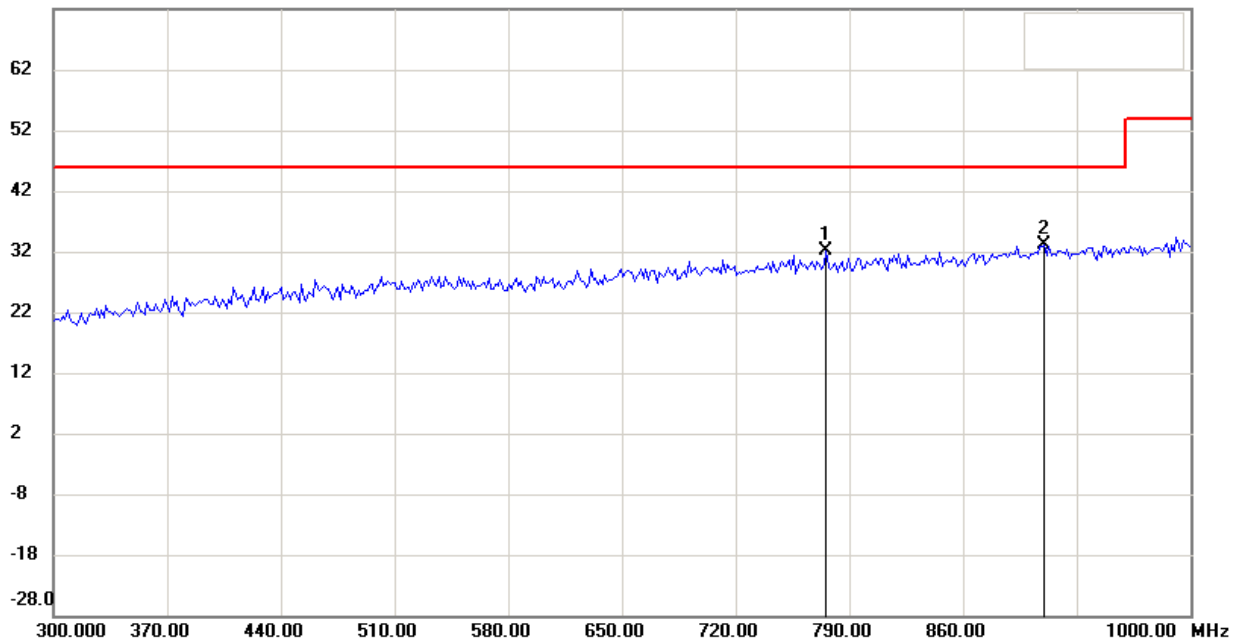
FCC ID: H5OTR33

### Antenna Polarization V

72.0 dBuV/m



72.0 dBuV/m



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

Note:

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

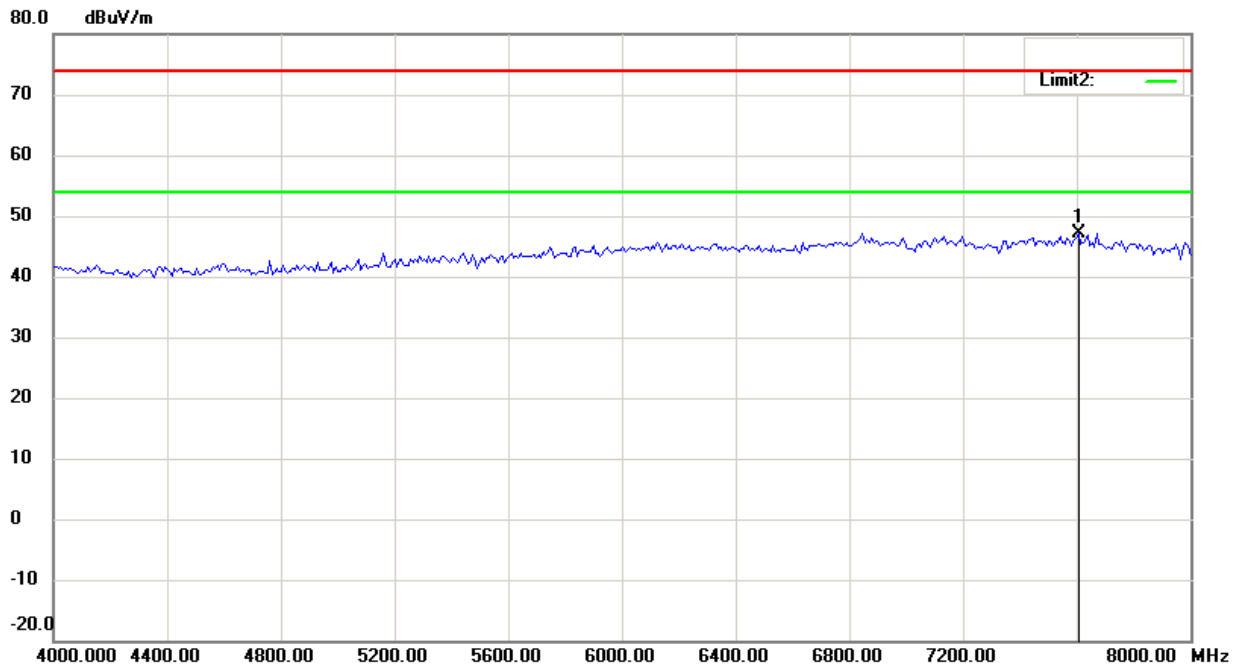
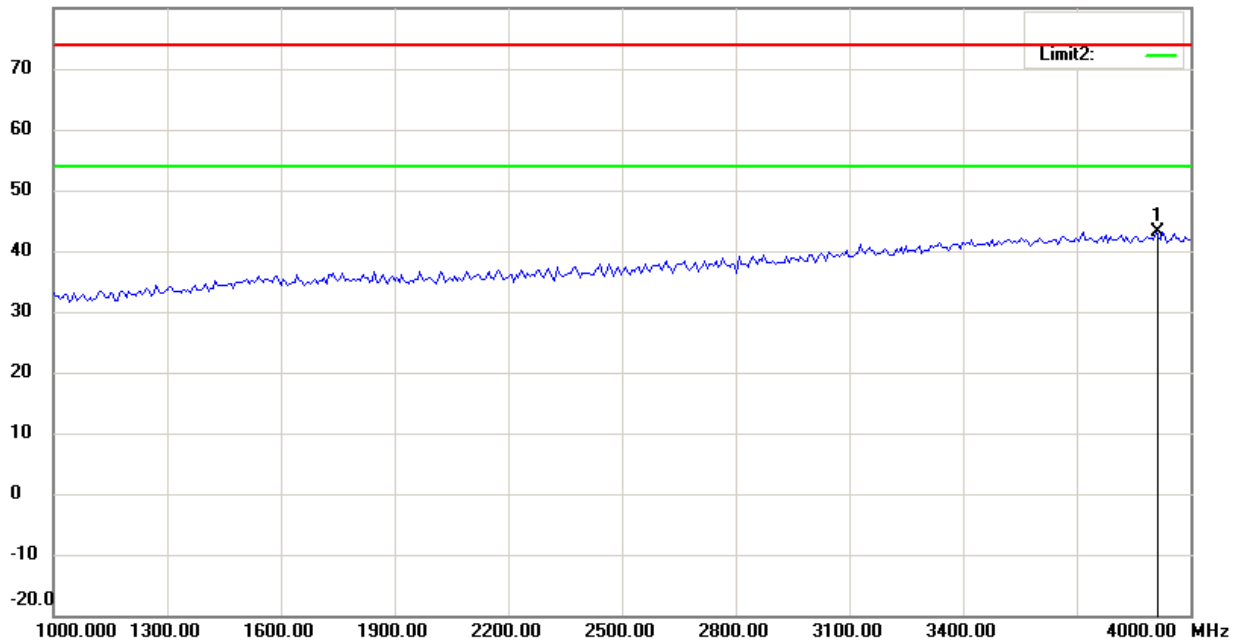


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

80.0 dBuV/m



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

Note:

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



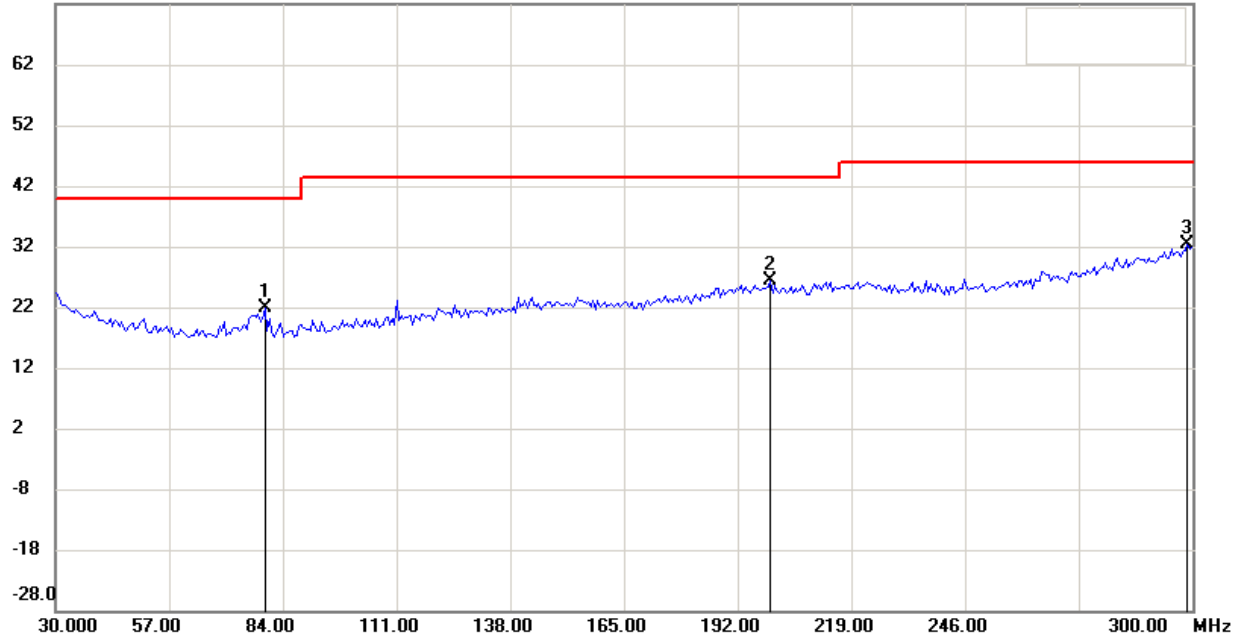
Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

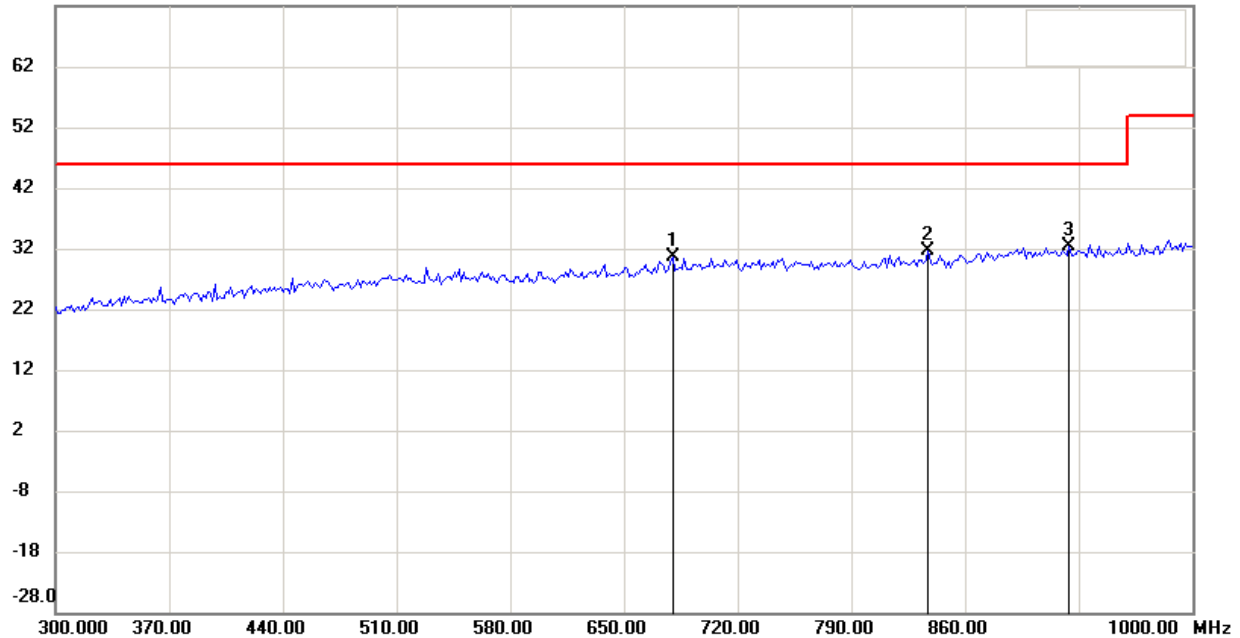
Digital part

Antenna Polarization H

72.0 dBuV/m



72.0 dBuV/m



**Note:**

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

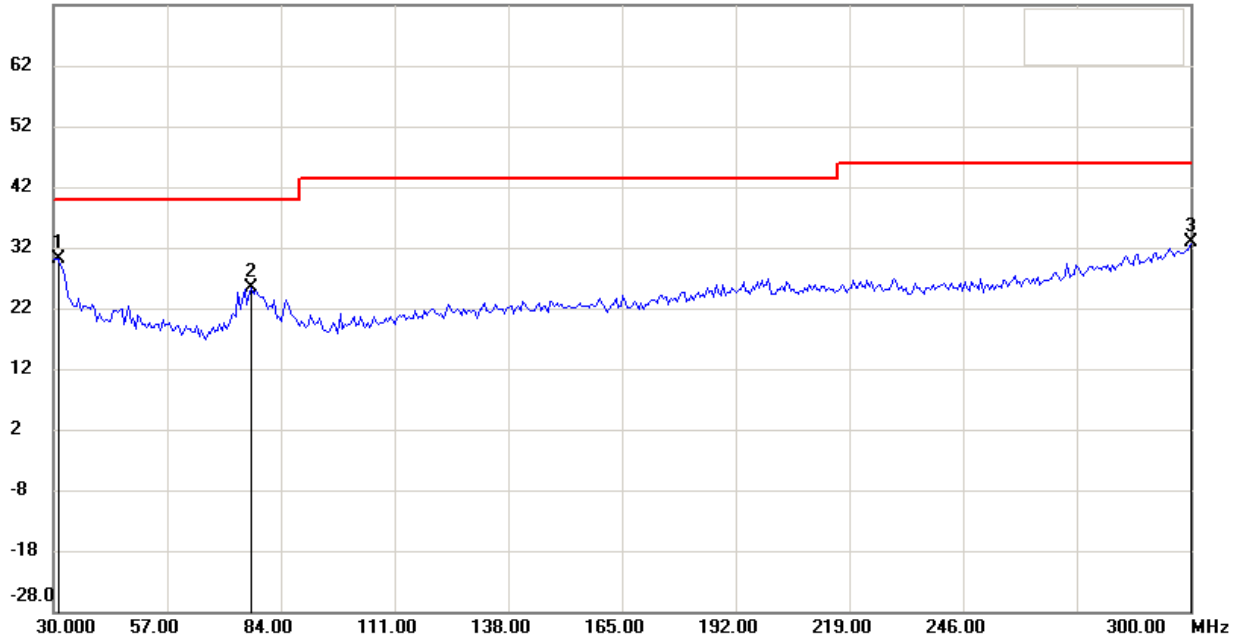


Registration number: W6M20907-9889-P-15

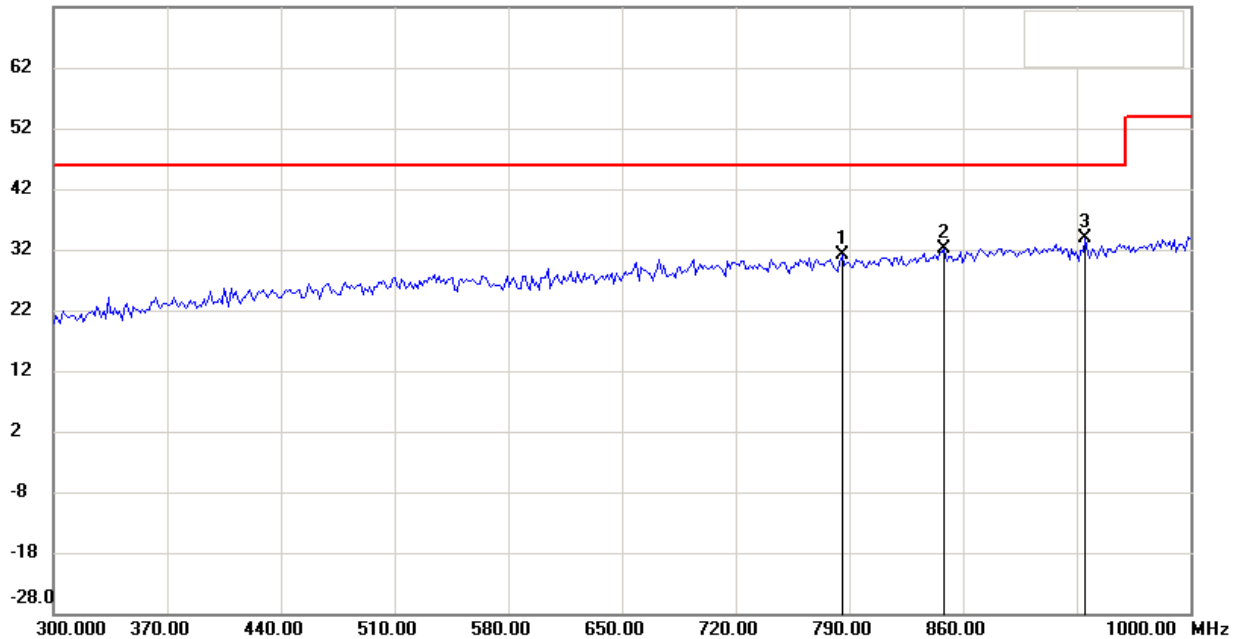
FCC ID: H5OTR33

### Antenna Polarization V

72.0 dBuV/m



72.0 dBuV/m



**Note:**

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



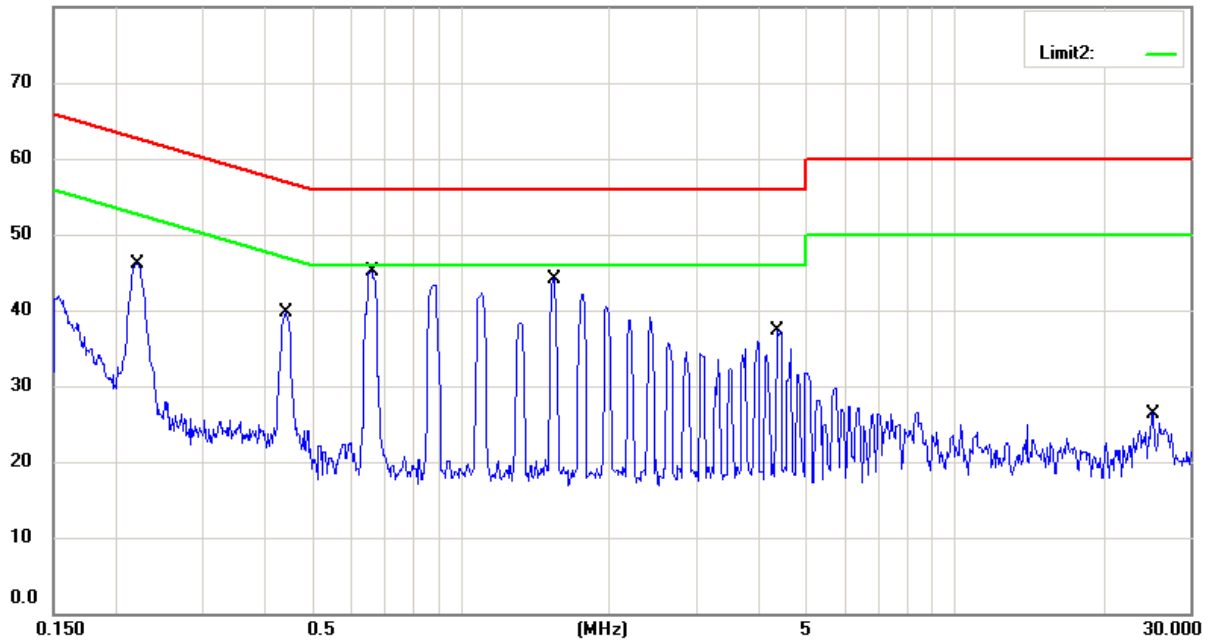
Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

Conducted Emission

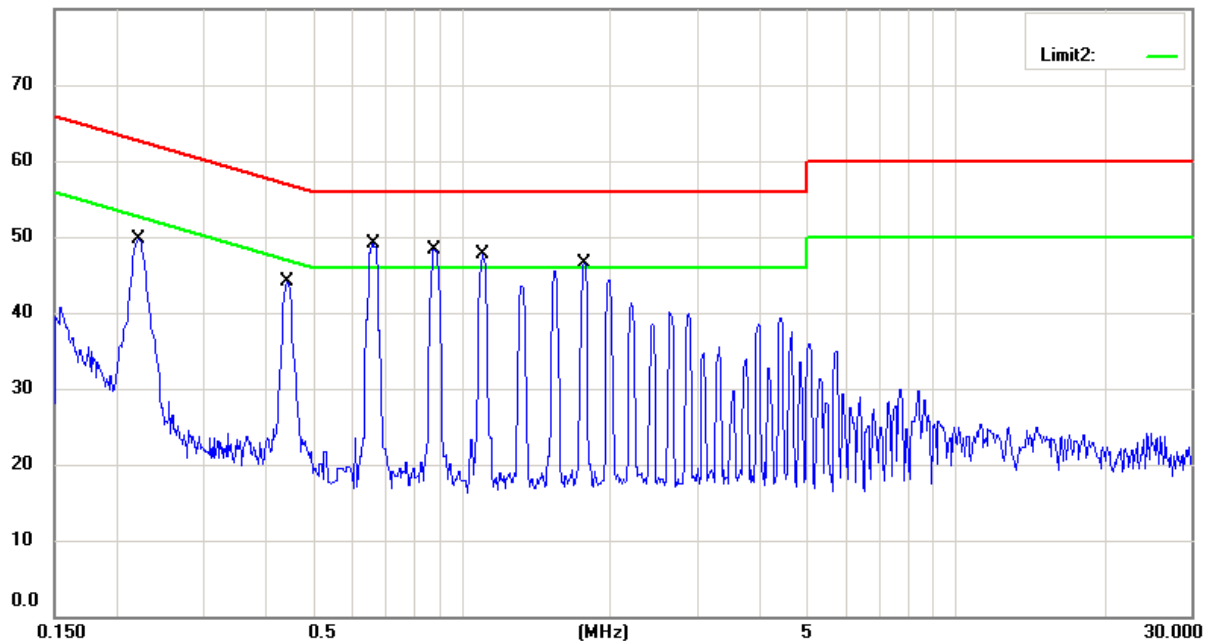
LISN N

80.0 dBuV



LISN L1

80.0 dBuV



Note: Up Line: QP 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 AC conducted test data of this test report.



Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

External Photos







Registration number: W6M20907-9889-P-15  
FCC ID: H50TR33







Registration number: W6M20907-9889-P-15  
FCC ID: H50TR33





**Worldwide Testing Services(Taiwan) Co., Ltd.**

Registration number: W6M20907-9889-P-15  
FCC ID: H50TR33





# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

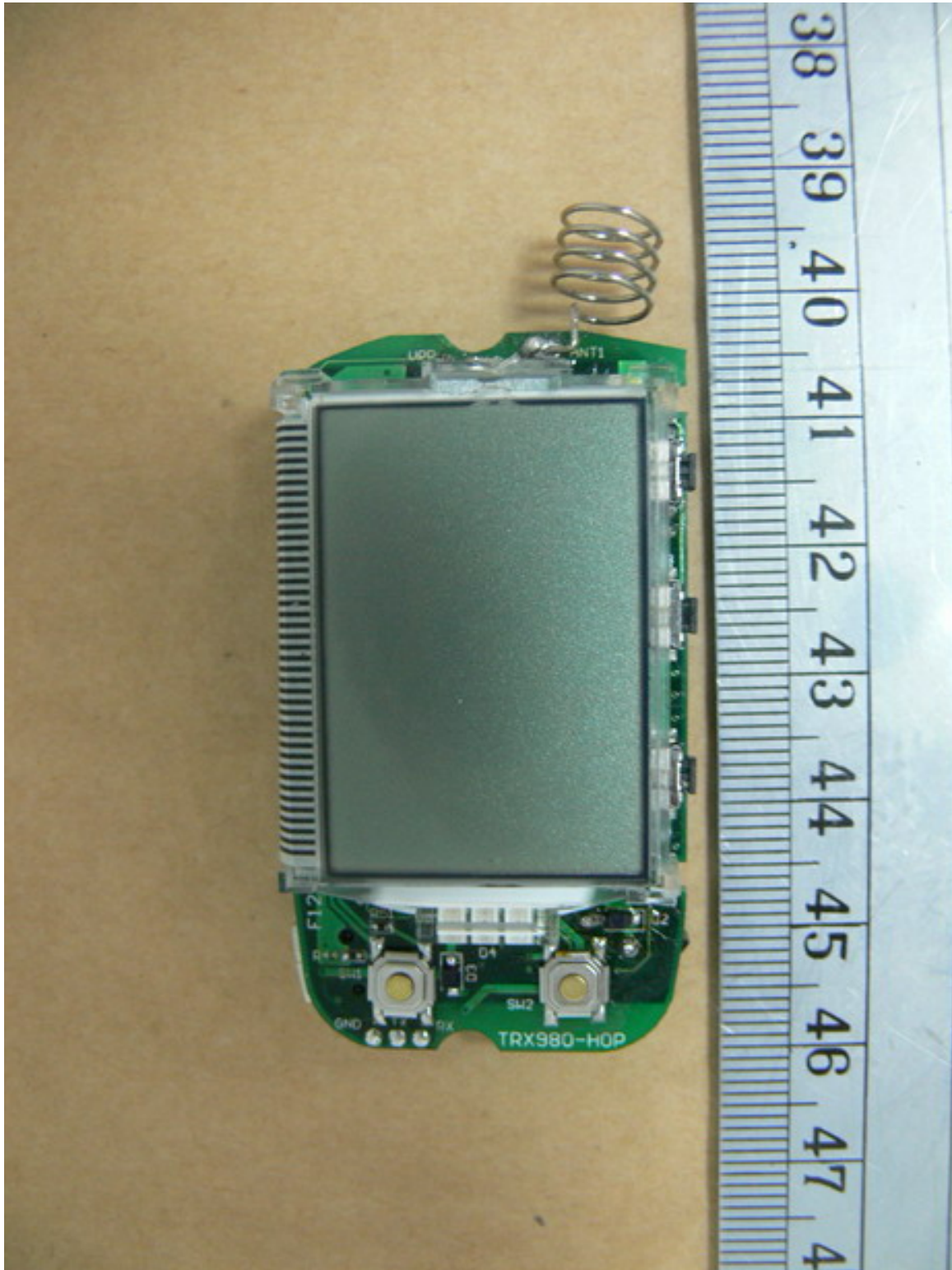
Internal Photos





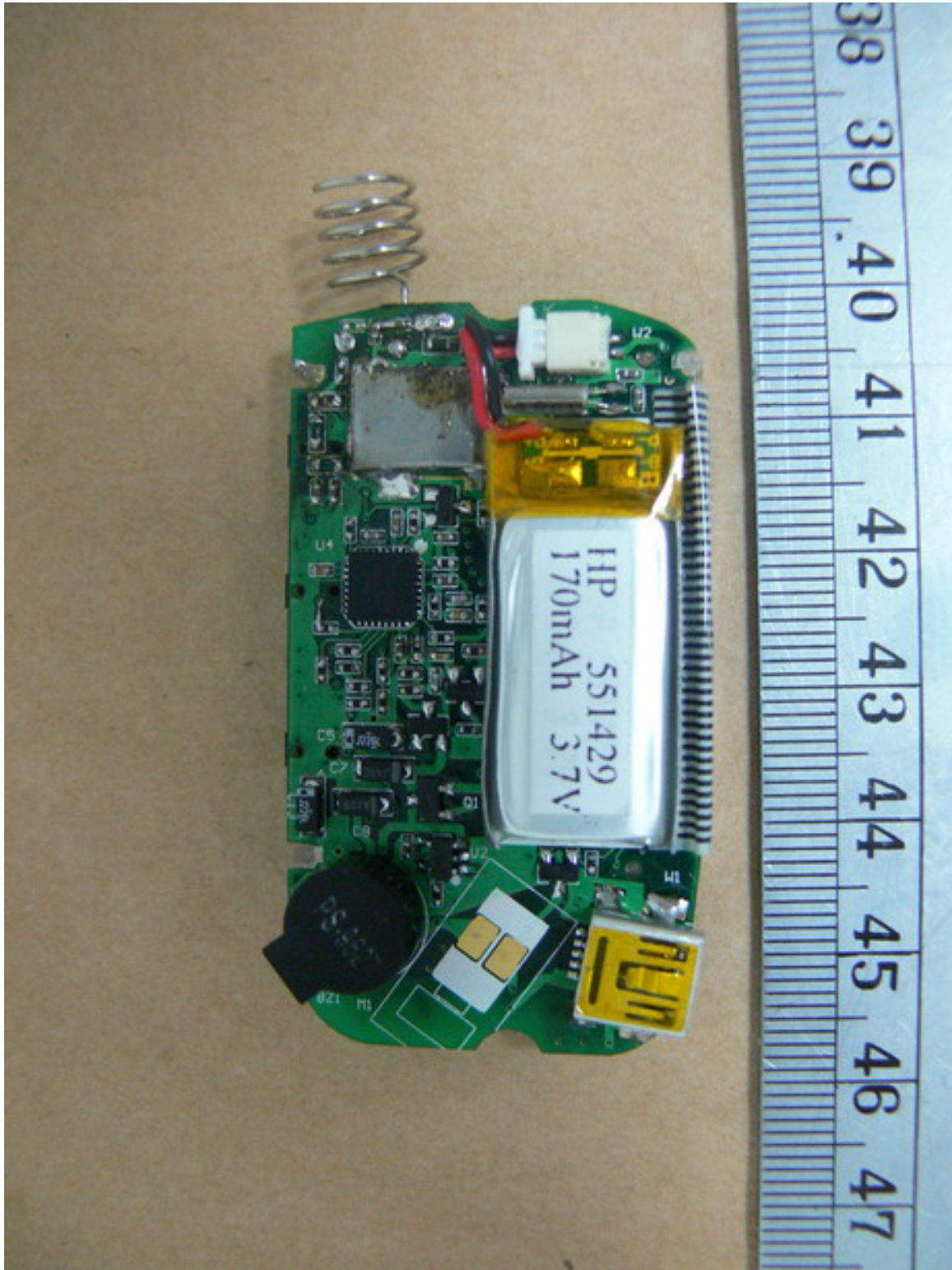


Registration number: W6M20907-9889-P-15  
FCC ID: H50TR33





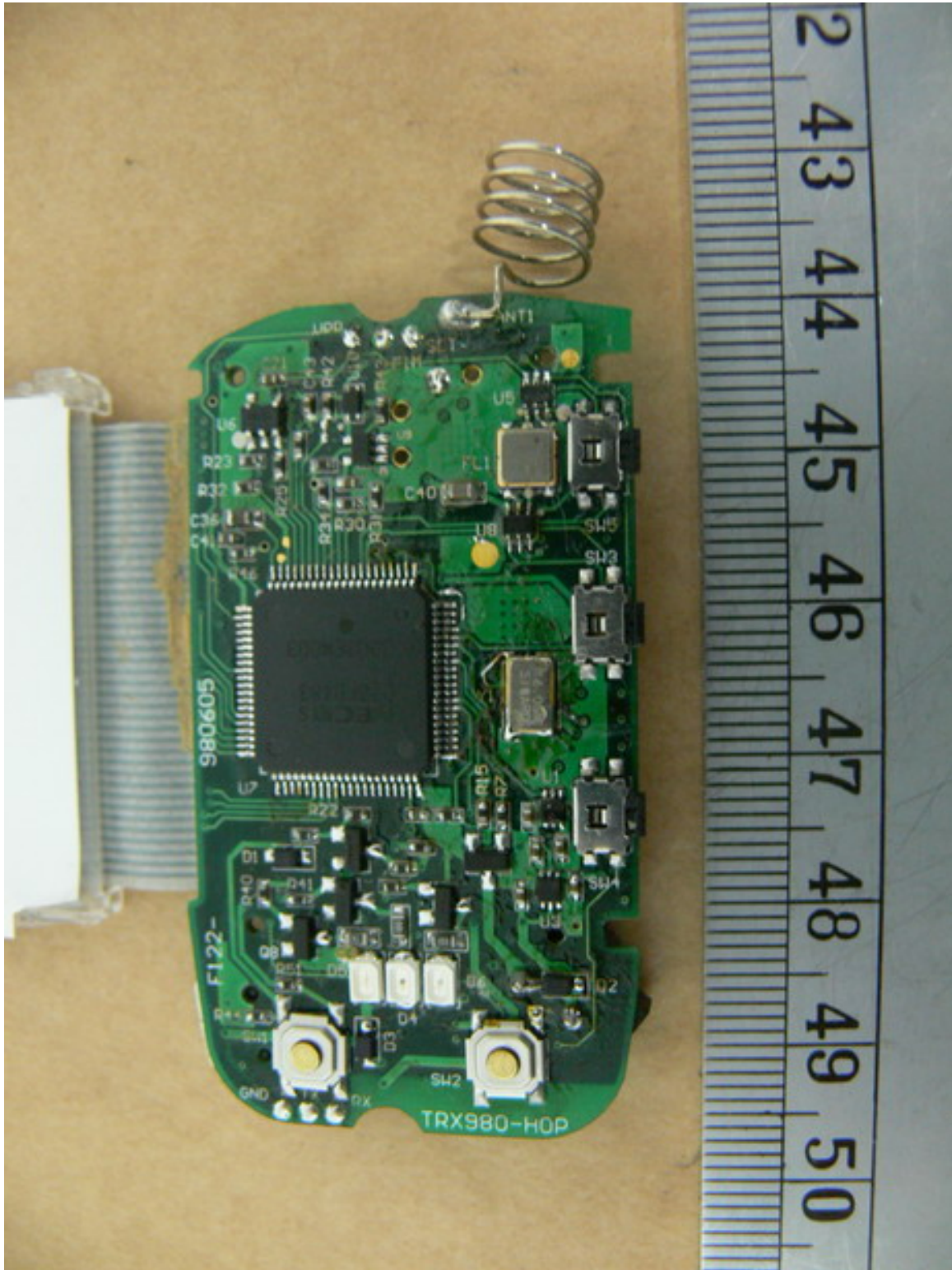
Registration number: W6M20907-9889-P-15  
FCC ID: H50TR33







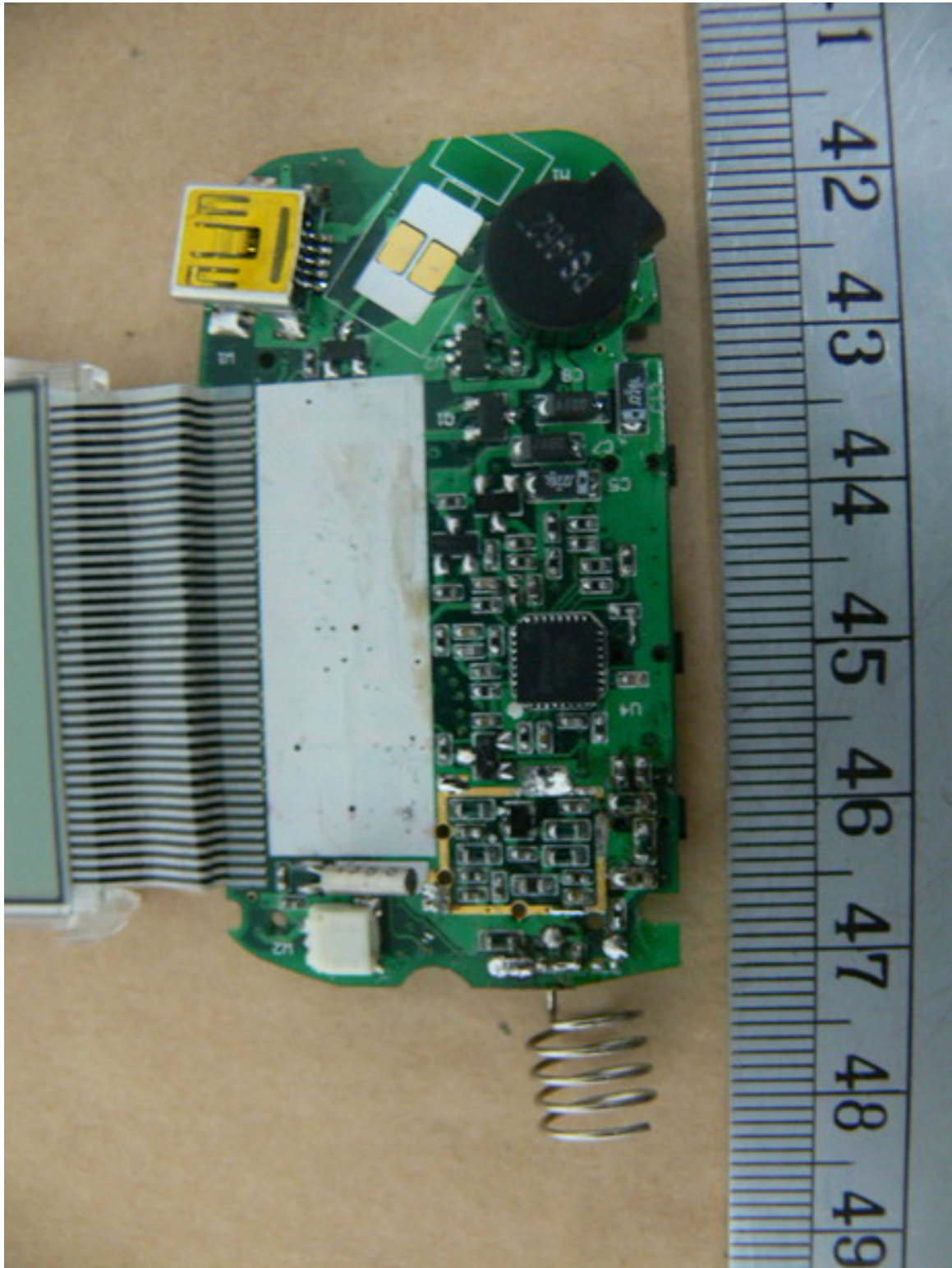
Registration number: W6M20907-9889-P-15  
FCC ID: H50TR33





***Worldwide Testing Services(Taiwan) Co., Ltd.***

Registration number: W6M20907-9889-P-15  
FCC ID: H50TR33







Registration number: W6M20907-9889-P-15

FCC ID: H50TR33

Set Up Photo of Radiated Emission

EMI mode







# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H5OTR33

RF mode





# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20907-9889-P-15

FCC ID: H50TR33

## Set Up Photo of Conducted Emission

