

**FCC PART 15 SUBPART C TEST REPORT**

**for**

**Remote Control**

**Model No.: X11RF-LCD**

**FCC ID: H5OTR26**

**of**

**Applicant: Advance Security Inc.**

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

**Tested and Prepared**

**by**

**Taiwan ETS Product Service Co., Ltd.**

**FCC Registration No.: 930600**

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

**A2LA Accredited No.: 1983.02**

**PTCRB Accredited Type Certification Test House**

**Report No.: W6M20801-8817-P-15**



Registration number: W6M20801-8817-P-15

FCC ID: H50TR26

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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.

Reproduction or publication of extracts from the report requires the prior written approval of the Taiwan ETS Product Service Co., Ltd.

### **Tester:**

January 25, 2008

Jay Chaing

Date

ETS-Lab.

Name

Signature

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

January 25, 2008

Steven Chuang

Date

ETS

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  
Taiwan ETS Product Service 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: 1983.02**

**FCC filed test laboratory Reg. No. 930600**

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

**PCTRB Accredited Type Certification Test House**

## **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 : January 11, 2008

Date of test : from January 12, 2008 to January 25, 2008

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

Type of test item : Remote Control

Model Number : X11RF-LCD

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: 18.93 dBm

Power ( ch B or ch 13) : Conducted: 18.95 dBm

Power ( ch C or ch 25) : Conducted: 18.94 dBm

Power supply : 1.5 VDC ( battery )

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 (2007-09)



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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 : 1.5 VDC ( battery )

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



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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	2007/10/15	2008/10/14
ETSTW-CE 002	PREREULATOR MODE DC POWER SUPPLY	None	None		Function Test	
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2007/10/15	2008/10/14
ETSTW-CE 005	Line-Impedance Stabilisation Network	NNBM 8126D	137	Schwarzbeck	2007/10/15	2008/10/14
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2007/5/11	2008/5/10
ETSTW-CE 008	ABSORBING CLAMP	MDS 21	3469	Schwarzbeck	2007/10/23	2009/10/22
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2007/8/2	2008/8/1
ETSTW-CE 013	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T4-02	20242	FCC	2007/11/2	2009/11/1
ETSTW-CE 014	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T2-02	20241	FCC	2005/12/7	2008/12/6
ETSTW-CE 015	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T8-02	20307	FCC	2006/11/7	2008/11/6
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2007/10/29	2008/10/28
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	2007/12/3	2008/12/2
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2007/10/29	2008/10/28
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2007/10/11	2008/10/12
ETSTW-RE 010	PROGRAMMABLE LINEAR POWER SUPPLY	LPS-305	30503070181	MOTECH	Function Test	
ETSTW-RE 011	PROGRAMMABLE LINEAR POWER SUPPLY	LPS-305	30503070165	MOTECH	Function Test	
ETSTW-RE 017	Log-Periodic Antenna	HL025	352886/001	R&S	2006/5/4	2008/5/3
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2007/11/7	2010/11/6
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	Function Test	
ETSTW-RE 021	SWEEP GENERATOR	SWM05	835130/010	R&S	2007/10/9	2008/10/8
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	EMCO	2007/6/29	2008/6/28
ETSTW-RE 028	Log-Periodic DipoleArray Antenna	3148	34429	EMCO	2006/5/26	2008/5/25
ETSTW-RE 029	Biconical Antenna	3109	33524	EMCO	2006/5/26	2008/5/25
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	2006/5/3	2008/5/2





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ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2007/10/9	2008/10/8
ETSTW-RE 033	WaveRunner 6000A Serie Oscilloscope	WAVERUNNER 6100A	LCRY0604P14508	LeCroy	2007/7/9	2008/7/8
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2007/10/16	2009/10/15
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2007/1/11	2009/1/10
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2006/5/8	2008/5/7
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2006/5/29	2008/5/28
ETSTW-RE 047	ESA-E SERIES SPECTRUM ANALYZER	E4445A	MY46181369	Agilent	2007/7/19	2008/7/18
ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2005/3/22	2008/3/21
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2007/5/2	2009/5/1
ETSTW-RE 055	SPECTRUM ANALYZER	FSU-26	200074	R&S	2007/7/16	2008/7/15
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2007/7/2	2009/7/1



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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 Taiwan ETS Product Service 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)**

<b>TEST CASE</b>	<b>Para. Number</b>	<b>Required</b>	<b>Test passed</b>	<b>Test failed</b>
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 type="checkbox"/>	<input 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]
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 1.5\text{ V}$	18.93	18.95	18.94

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 003 ETSTW-RE 004 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 021

ETSTW-RE 028 ETSTW-RE 030 ETSTW-RE 043 ETSTW-RE 044

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

For frequencies above 1GHz (Average measurements).

Limit – duty cycle correction

No duty cycle correction was added to the reading.

54.0dB $\mu$ V/m

For frequencies above 1GHz (Peak measurements).

Limit + 20dB

54.0dB $\mu$ V/m + 20 dB= 74 dB $\mu$ V/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 044 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:	X11RF-LCD	Date:	2008/1/18	
Mode:	909MHz	Temperature:	26 °C	Engineer: Brian
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)
208.557	12.72	peak	12.31	25.03	74.00	-48.97	130	150
523.046	15.05	peak	20.16	35.21	74.00	-38.79	240	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.			
1817.635	64.87	--	-8.43	56.44	--	94.00	74.00	-17.56	200	150
2727.335	59.52	51.63	-3.96	55.56	47.67	74.00	54.00	-6.33	210	150
3636.123	60.70	49.41	-0.50	60.20	48.91	74.00	54.00	-5.09	160	150
4545.090	47.43	---	-1.92	45.51	---	74.00	54.00	-8.49	210	150
5450.902	46.04	---	2.21	48.25	---	74.00	54.00	-5.75	260	150
6364.730	45.01	---	4.05	49.06	---	74.00	54.00	-4.94	310	150
7270.541	48.1	---	1.83	49.93	---	74.00	54.00	-4.07	280	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)
46.774	10.39	peak	13.63	24.02	74.00	-49.98	200	150
635.271	13.93	peak	22.49	36.42	74.00	-37.58	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.			
1819.639	70.02	---	-8.42	61.60	---	94.00	74.00	-12.40	120	150
2725.451	55.28	---	-3.97	51.31	---	74.00	54.00	-2.69	120	150
3636.113	58.97	51.82	-0.50	58.47	51.32	74.00	54.00	-2.68	140	150
4545.090	46.09	---	-1.92	44.17	---	74.00	54.00	-9.83	210	150
5450.902	44.7	---	2.21	46.91	---	74.00	54.00	-7.09	240	150
6364.730	45.28	---	4.05	49.33	---	74.00	54.00	-4.67	150	150

Mode: 915.5MHz      Temperature: 26 °C      Engineer: Brian  
 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)
32.705	13.05	peak	13.06	26.11	74.00	-47.89	210	150
468.337	7.93	peak	19.31	27.24	74.00	-46.76	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.			
1831.663	62.81	---	-8.37	54.44	---	94.00	74.00	-19.56	210	150
2746.566	60.49	53.91	-3.87	56.62	50.04	74.00	54.00	-3.96	140	150
3662.292	60.00	52.68	-0.21	59.79	52.47	74.00	54.00	-1.53	220	150
4577.154	50.96	---	-1.79	49.17	---	74.00	54.00	-4.83	220	150
5490.982	50.18	---	2.61	52.79	---	74.00	54.00	-1.21	260	150
6412.826	46.82	---	3.89	50.71	---	74.00	54.00	-3.29	260	150
7326.653	47.14	---	1.85	48.99	---	74.00	54.00	-5.01	200	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
199.359	13.25	peak	12.18	25.43	74.00	-48.57	220	150
643.687	13.33	peak	22.66	35.99	74.00	-38.01	250	150



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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.			
1831.663	68.62	---	-8.37	60.25	---	94.00	74.00	-13.75	160	150
2745.491	55.79	---	-3.87	51.92	---	74.00	54.00	-2.08	130	150
3662.037	55.90	49.36	-0.22	55.68	49.14	74.00	54.00	-4.86	150	150
4577.154	49.44	---	-1.79	47.65	---	74.00	54.00	-6.35	260	150
5490.982	45.13	---	2.61	47.74	---	74.00	54.00	-6.26	230	150
6412.826	42.38	---	3.89	46.27	---	74.00	54.00	-7.73	230	150

Mode: 921.778MHz Temperature: 26 °C Engineer: Brian

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)
46.233	7.80	peak	13.65	21.45	74.00	-52.55	220	150
476.754	7.84	peak	19.51	27.35	74.00	-46.65	220	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.			
1843.687	60.93	---	-8.33	52.60	---	94.00	74.00	-21.40	140	150
2765.658	61.31	54.34	-3.77	57.54	50.57	74.00	54.00	-3.43	210	150
3687.222	60.92	52.38	0.06	60.98	52.44	74.00	54.00	-1.56	160	150
4609.218	50.16	---	-1.68	48.48	---	74.00	54.00	-5.52	150	150
5531.062	45.06	---	2.76	47.82	---	74.00	54.00	-6.18	130	150
6452.906	45.82	---	4.17	49.99	---	74.00	54.00	-4.01	350	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
46.233	9.70	peak	13.65	23.35	74.00	-50.65	180	150
638.076	13.52	peak	22.55	36.07	74.00	-37.93	250	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.			
1843.687	65.27	---	-8.33	56.94	---	94.00	74.00	-17.06	120	150
2765.531	56.21	---	-3.77	52.44	---	74.00	54.00	-1.56	320	150
3687.230	57.59	50.28	0.06	57.65	50.34	74.00	54.00	-3.66	300	150
4609.218	48.52	---	-1.68	46.84	---	74.00	54.00	-7.16	130	150
5531.062	46.27	---	2.76	49.03	---	74.00	54.00	-4.97	160	150
6492.906	43.75	---	4.45	48.20	---	74.00	54.00	-5.80	320	150



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- 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.**

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 028  
ETSTW-RE 029 ETSTW-RE 030 ETSTW-RE 042 ETSTW-RE 043  
ETSTW-RE 044 ETSTW-RE 064



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**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
$T_{nom} = 23^{\circ}C$	$V_{nom} = 1.5 V$	500 kHz	

Test conditions		Channel Separation	
		Channel 12	Channel 12+1
$T_{nom} = 23^{\circ}C$	$V_{nom} = 1.5 V$	500 kHz	

Test conditions		Channel Separation	
		Channel 24	Channel 24+1
$T_{nom} = 23^{\circ}C$	$V_{nom} = 1.5 V$	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 003 ETSTW-RE 004 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
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 1.5\text{ V}$	normal transmitting	25
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 1.5\text{ V}$	inquiry mode	--

#### Limits:

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

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 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
$T_{nom} = 23^{\circ}\text{C}$ $V_{nom} = 1.5 \text{ V}$ 909MHz	normal transmitting	10 s	238.48 ms

Test conditions	Operating mode	Measurement period	Time of Occupancy
$T_{nom} = 23^{\circ}\text{C}$ $V_{nom} = 1.5 \text{ V}$ 915.5MHz	normal transmitting	10 s	237.16 ms

Test conditions	Operating mode	Measurement period	Time of Occupancy
$T_{nom} = 23^{\circ}\text{C}$ $V_{nom} = 1.5 \text{ V}$ 921.778MHz	normal transmitting	10 s	239.76 ms

#### Limits and measurement periods:

Frequency MHz	Number of channels	Measurement Period	Limit
902 – 928	$\geq 50$	20 s	0,4 s
	$49 \geq 25$	10 s	0,4 s
2400 – 2483,5	$\geq 15$	0,4 s * number of used channels	0,4 s
5725- 5850	$\geq 75$	30 s	0,4s

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 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
$T_{nom} = 23^{\circ}C$	$V_{nom} = 1.5 V$	368.589743590 kHz	364.235910587 kHz	362.179487179 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 003 ETSTW-RE 004 ETSTW-RE 055 ETSTW-RE 064

Note: See attached diagram as appendix.

**3.9.1 System Receiver Input Bandwidth**

The receiver's bandwidth is 420kHz and transmitter's signal is about 380kHz, so the receiver's bandwidth can match the bandwidth of the transmitter.



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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
$T_{nom} = 23^{\circ}C$	$V_{nom} = 1.5 V$	66.26 dB	63.04 dB

Test conditions		Attenuation at or outside band-edges Hopping Frequency	
		Lower Band-edge	Upper Band-edge
$T_{nom} = 23^{\circ}C$	$V_{nom} = 1.5 V$	60.16 dB	60.94 dB

**Limits:**

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

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 017ETSTW-RE 028  
 ETSTW-RE 030 ETSTW-RE 043 ETSTW-RE 044 ETSTW-RE 064

Note: See attached diagrams as appendix.



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## 3.11 Radiated Emissions from Receiver Section of Transceiver

FCC Rule: 15.109

Model: X11RF-LCD Date: 2008/1/24  
 Mode: 909MHz Temperature: 26 °C Engineer: Brian  
 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)
141.463	6.59	peak	14.90	21.49	43.50	-22.01	250	150
247.515	10.89	peak	13.76	24.65	46.00	-21.35	340	150
541.283	6.69	peak	20.54	27.23	46.00	-18.77	130	150
849.900	5.42	peak	25.60	31.02	46.00	-14.98	230	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.			
1829.659	44.63	---	-8.38	36.25	---	74.00	54.00	-17.75	130	150
3092.184	43.49	---	-2.42	41.07	---	74.00	54.00	-12.93	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)
127.395	6.98	peak	13.92	20.90	43.50	-22.60	130	150
260.501	11.32	peak	14.10	25.42	46.00	-20.58	330	150
523.046	7.55	peak	20.16	27.71	46.00	-18.29	310	150
800.802	6.67	peak	25.15	31.82	46.00	-14.18	260	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.			
2058.116	43.40	---	-7.18	36.22	---	74.00	54.00	-17.78	320	150
3531.062	43.33	---	-0.76	42.57	---	74.00	54.00	-11.43	330	150



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Mode: 915.5MHz Temperature: 26 °C Engineer: Brian  
 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)
145.792	6.60	peak	15.15	21.75	43.50	-21.75	220	150
262.665	11.65	peak	14.18	25.83	46.00	-20.17	200	150
608.617	6.95	peak	22.22	29.17	46.00	-16.83	160	150
785.371	5.27	peak	24.92	30.19	46.00	-15.81	190	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.			
2154.309	42.61	---	-6.31	36.30	---	74.00	54.00	-17.70	130	150
3428.858	42.03	---	-0.84	41.19	---	74.00	54.00	-12.81	150	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
152.285	7.33	peak	15.41	22.74	43.50	-20.76	240	150
238.317	11.93	peak	13.48	25.41	46.00	-20.59	250	150
500.601	8.44	peak	19.82	28.26	46.00	-17.74	160	150
800.802	7.72	peak	25.15	32.87	46.00	-13.13	160	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.			
2058.116	43.50	---	-7.18	36.32	---	74.00	54.00	-17.68	150	150
3344.689	43.30	---	-1.29	42.01	---	74.00	54.00	-11.99	180	150

Mode: 921.778MHz Temperature: 26 °C Engineer: Brian  
 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)
134.429	8.02	peak	14.41	22.43	43.50	-21.07	140	150
211.263	12.77	peak	12.36	25.13	43.50	-18.37	160	150
494.990	8.03	peak	19.75	27.78	46.00	-18.22	120	150
877.956	6.63	peak	25.80	32.43	46.00	-13.57	250	150



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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.			
2316.633	44.70	---	-5.52	39.18	---	74.00	54.00	-14.82	230	150
3308.617	42.60	---	-1.54	41.06	---	74.00	54.00	-12.94	230	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
131.182	6.61	peak	14.18	20.79	43.50	-22.71	220	150
254.549	11.42	peak	13.94	25.36	46.00	-20.64	220	150
531.463	6.57	peak	20.33	26.90	46.00	-19.10	130	150
861.122	7.82	peak	25.66	33.48	46.00	-12.52	210	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.			
2130.261	43.99	---	-6.53	37.46	---	74.00	54.00	-16.54	160	150
3380.762	43.30	---	-1.03	42.27	---	74.00	54.00	-11.73	220	150

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

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

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 017 ETSTW-RE 028  
 ETSTW-RE 029 ETSTW-RE 030 ETSTW-RE 042 ETSTW-RE 043  
 ETSTW-RE 044 ETSTW-RE 064

Note: This test is not required.



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**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 (dB $\mu$ V)	
	quasi-peak	average
150 kHz	lower limit line	Lower limit line

**Limits:**

Frequency of Emission (MHz)	Conducted Limit (dB $\mu$ V)	
	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: This test is not required because EUT is battery used.



Registration number: W6M20801-8817-P-15  
FCC ID: H5OTR26

## **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

### B Photos

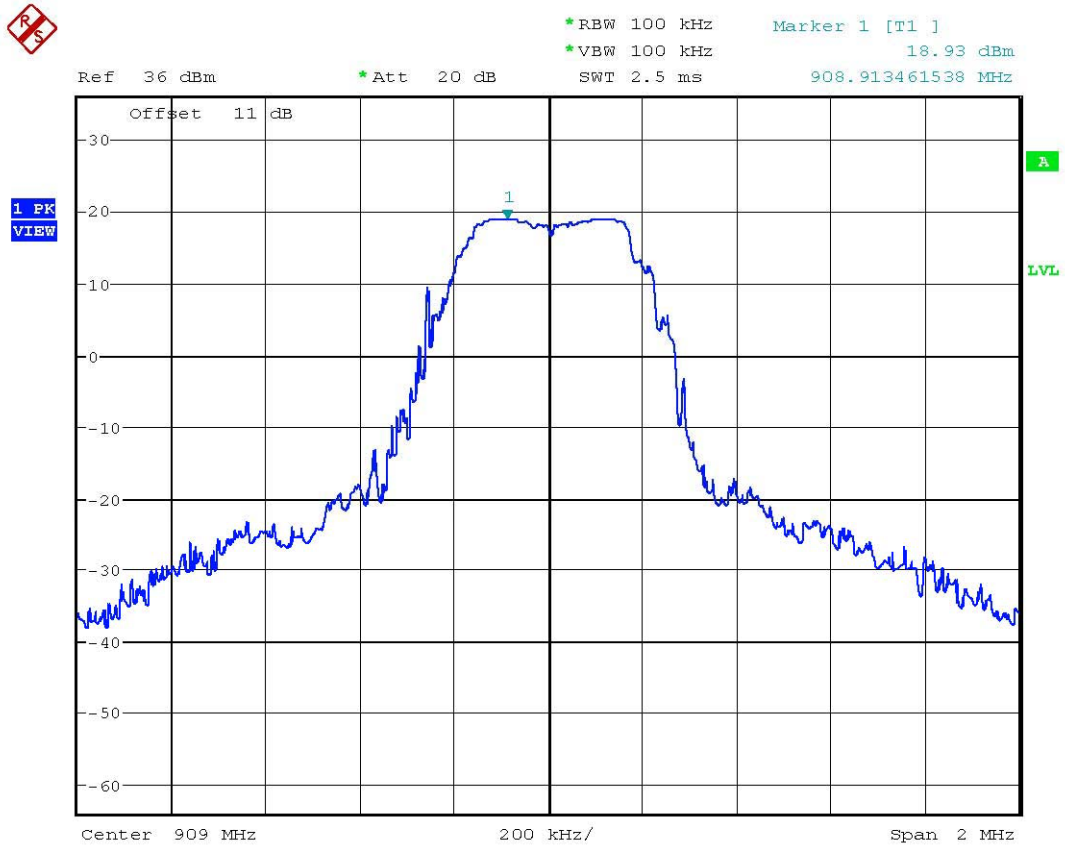
1. External Photos
2. Internal Photos
3. Set Up Photo of Radiated Emission



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H5OTR26

## Peak Output Power



Max output power 909MHz  
Date: 18.JAN.2008 08:52:12



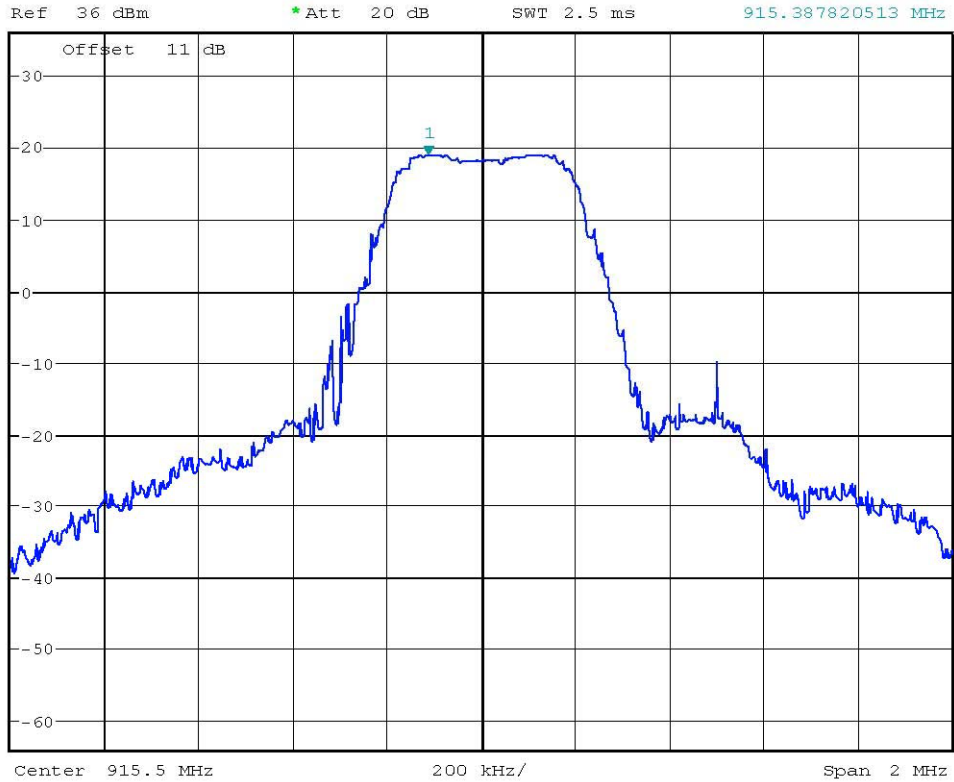


# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
 FCC ID: H5OTR26



\*RBW 100 kHz      Marker 1 [T1 ]  
 \*VBW 100 kHz      18.95 dBm  
 SWT 2.5 ms      915.387820513 MHz

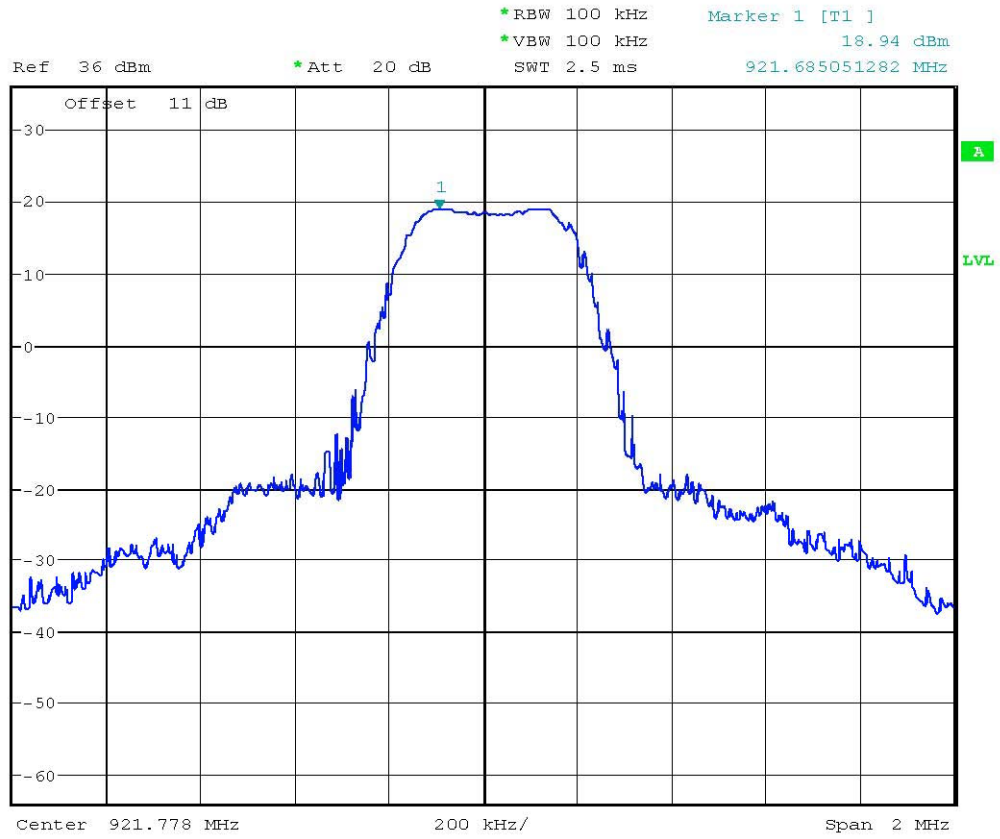


Max output power 915.5MHz  
 Date: 18.JAN.2008 08:54:14



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H50TR26



Max output power 921.778MHz  
Date: 18.JAN.2008 09:01:03

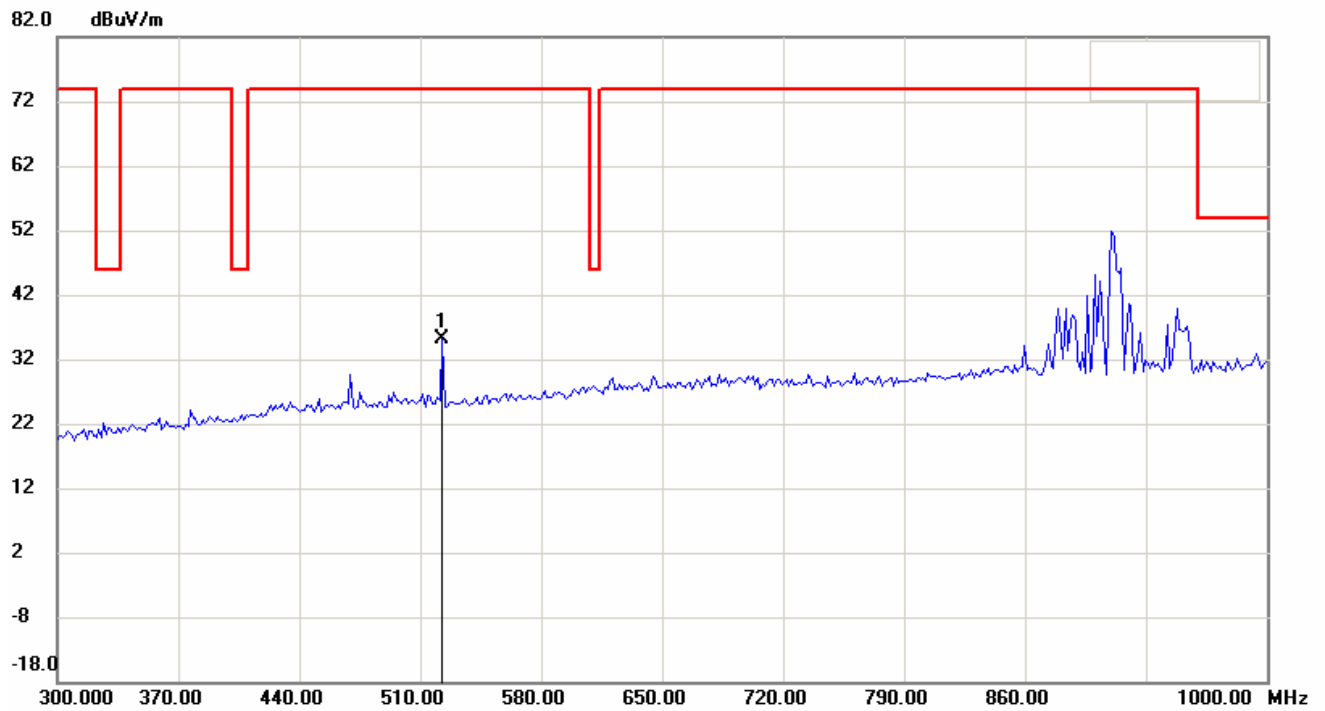
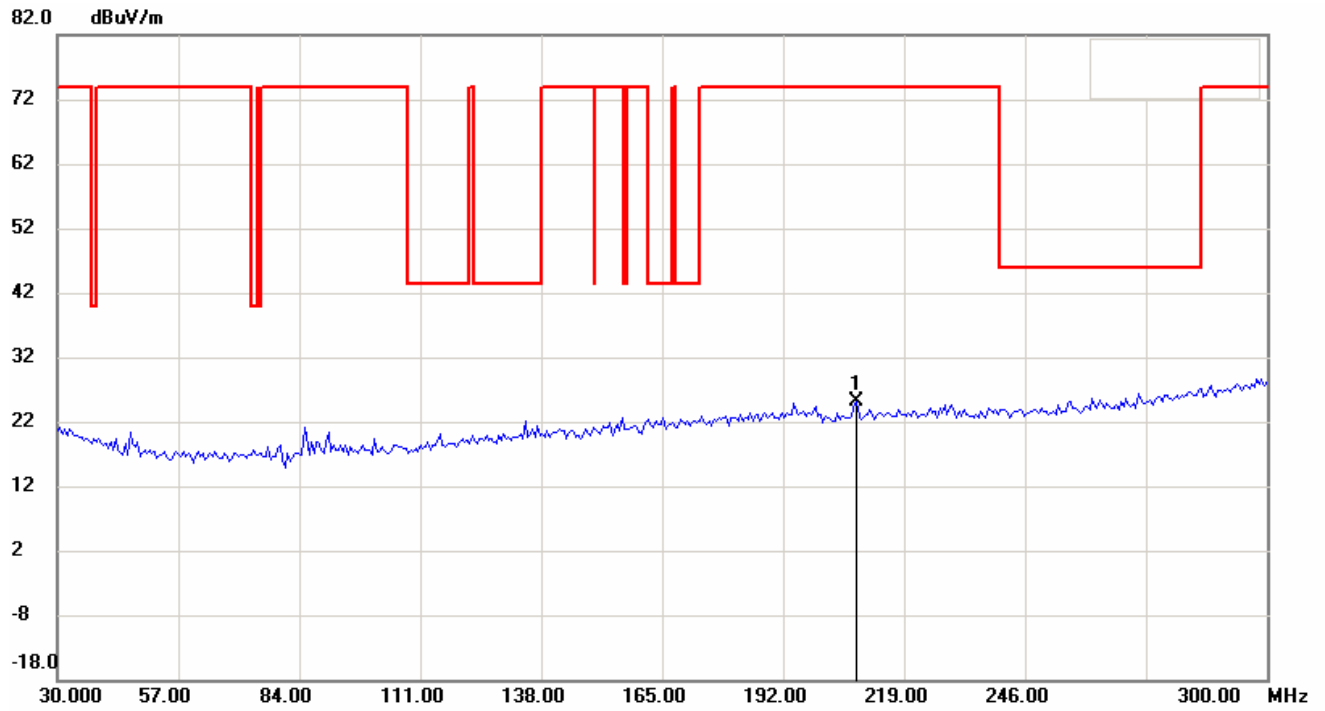


# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H5OTR26

## Spurious Emission Radiated ch 1

Antenna Polarization H



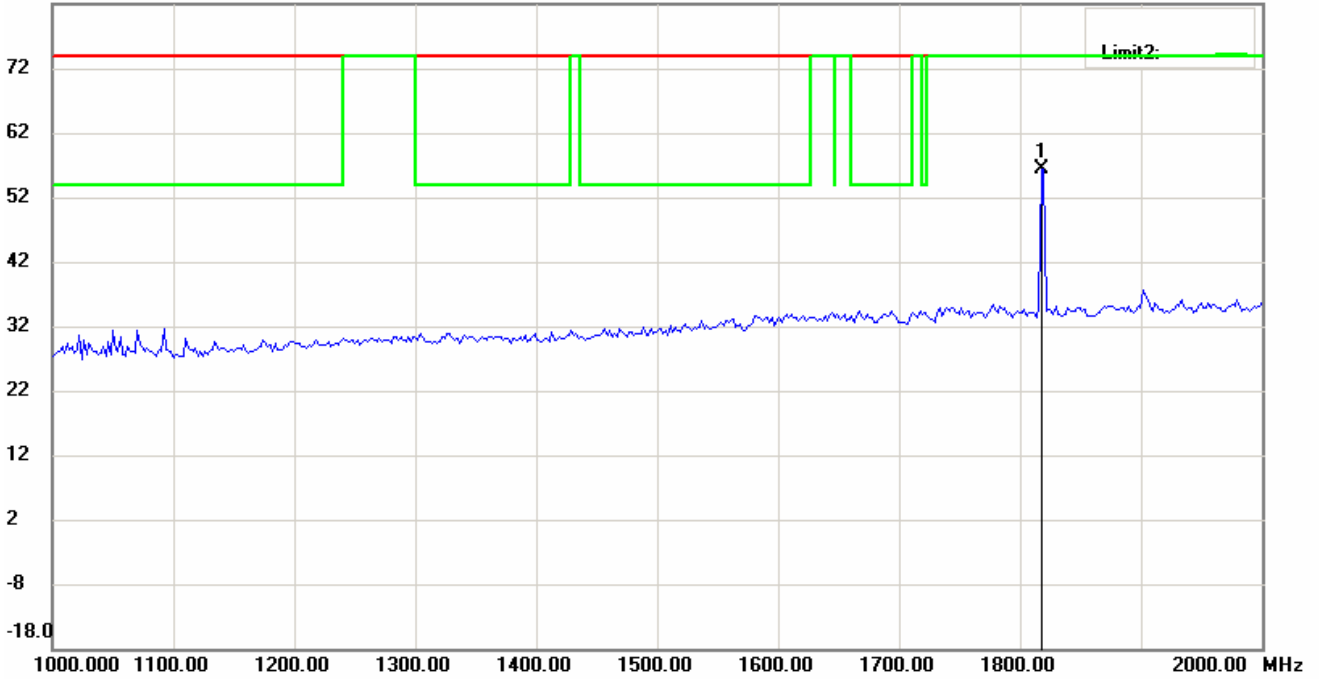


# Taiwan ETS Product Service Co., Ltd.

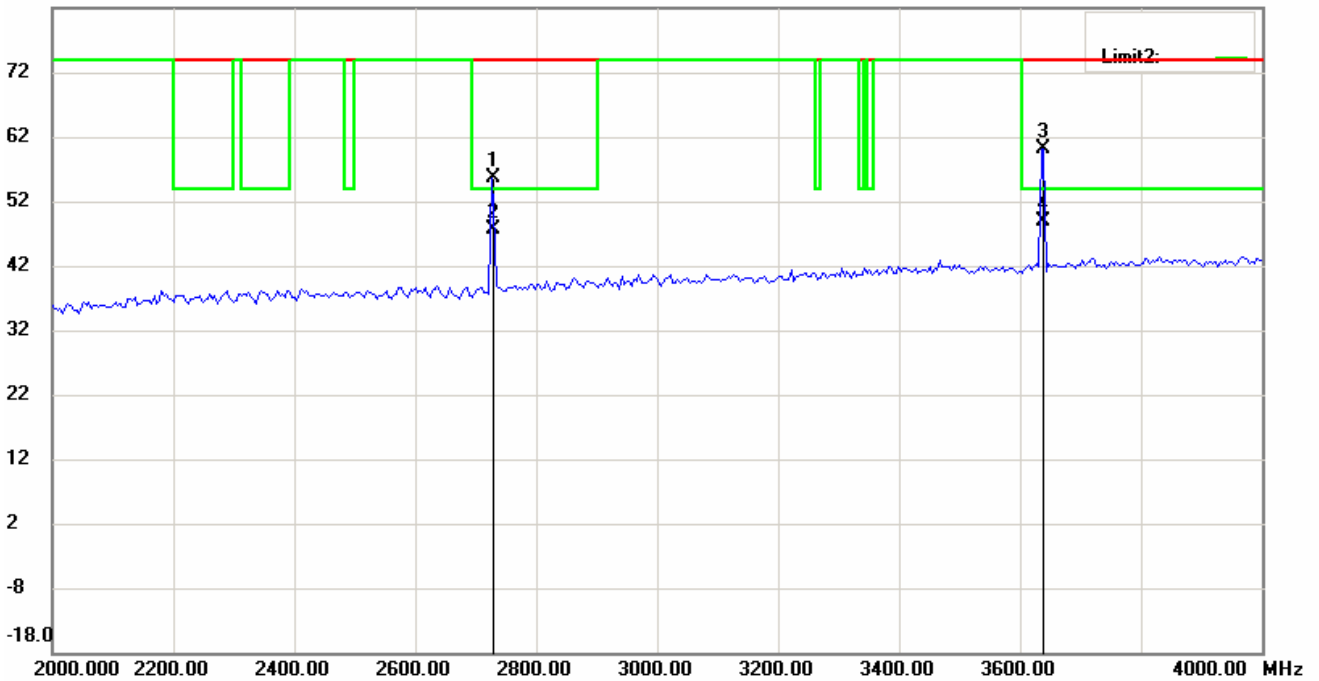
Registration number: W6M20801-8817-P-15

FCC ID: H5OTR26

82.0 dBuV/m



82.0 dBuV/m



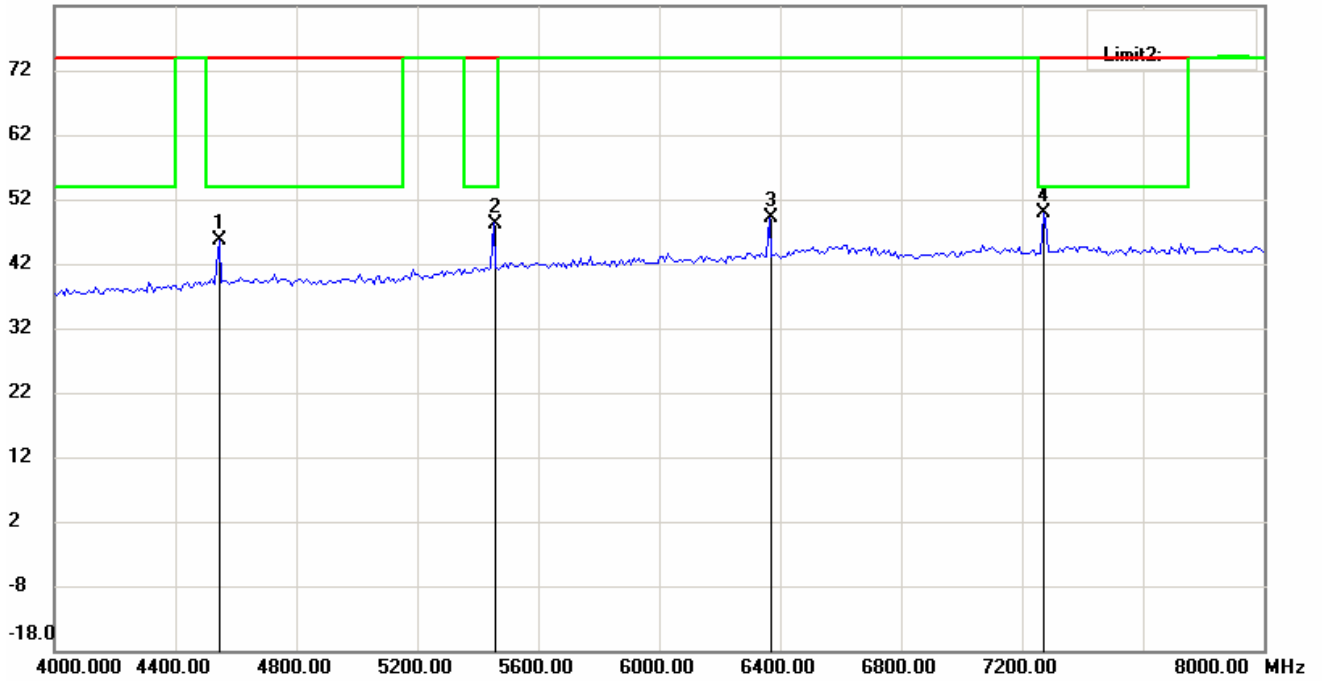


# Taiwan ETS Product Service Co., Ltd.

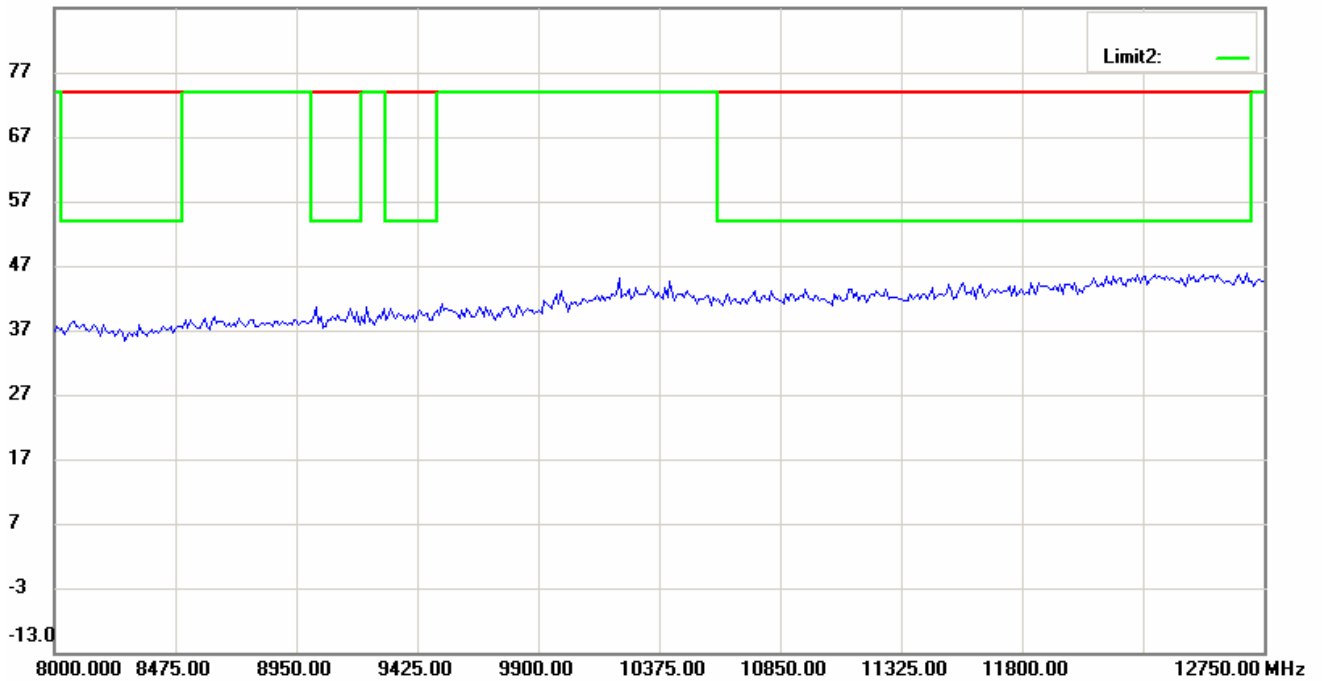
Registration number: W6M20801-8817-P-15

FCC ID: H5OTR26

82.0 dBuV/m



87.0 dBuV/m

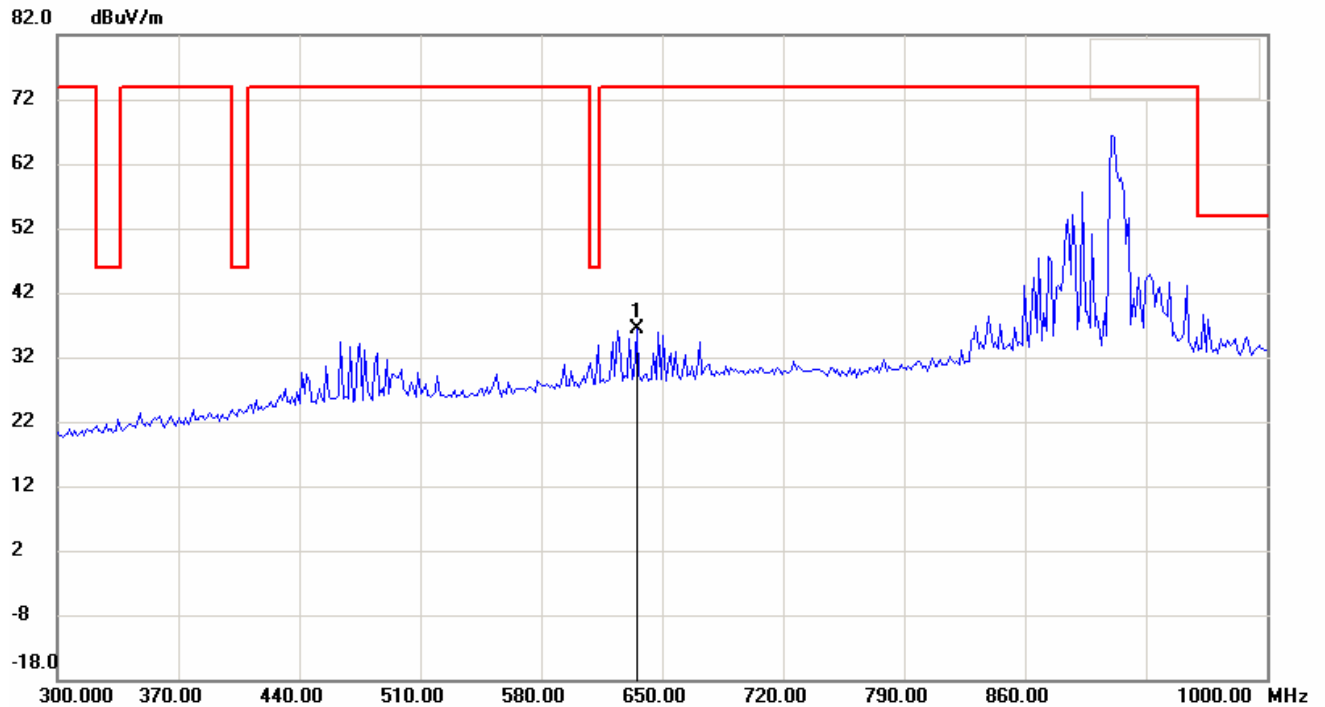
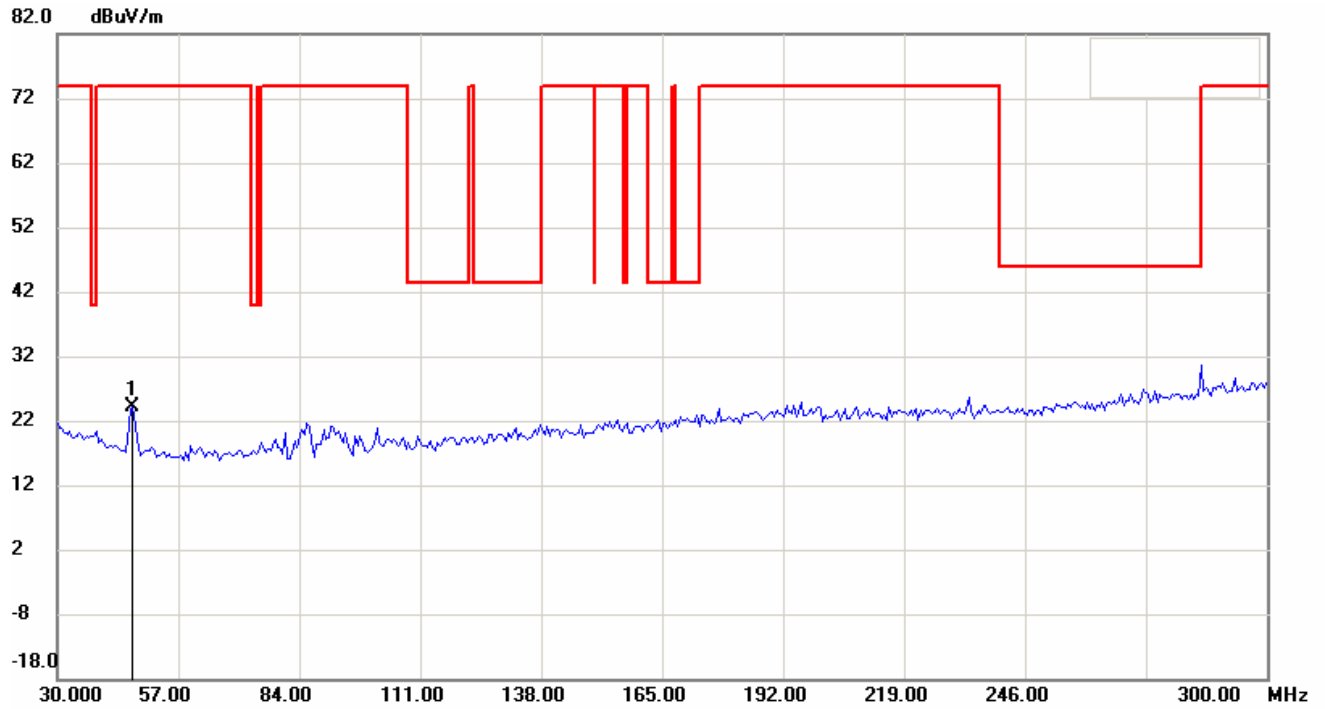




# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H5OTR26

## Antenna Polarization V



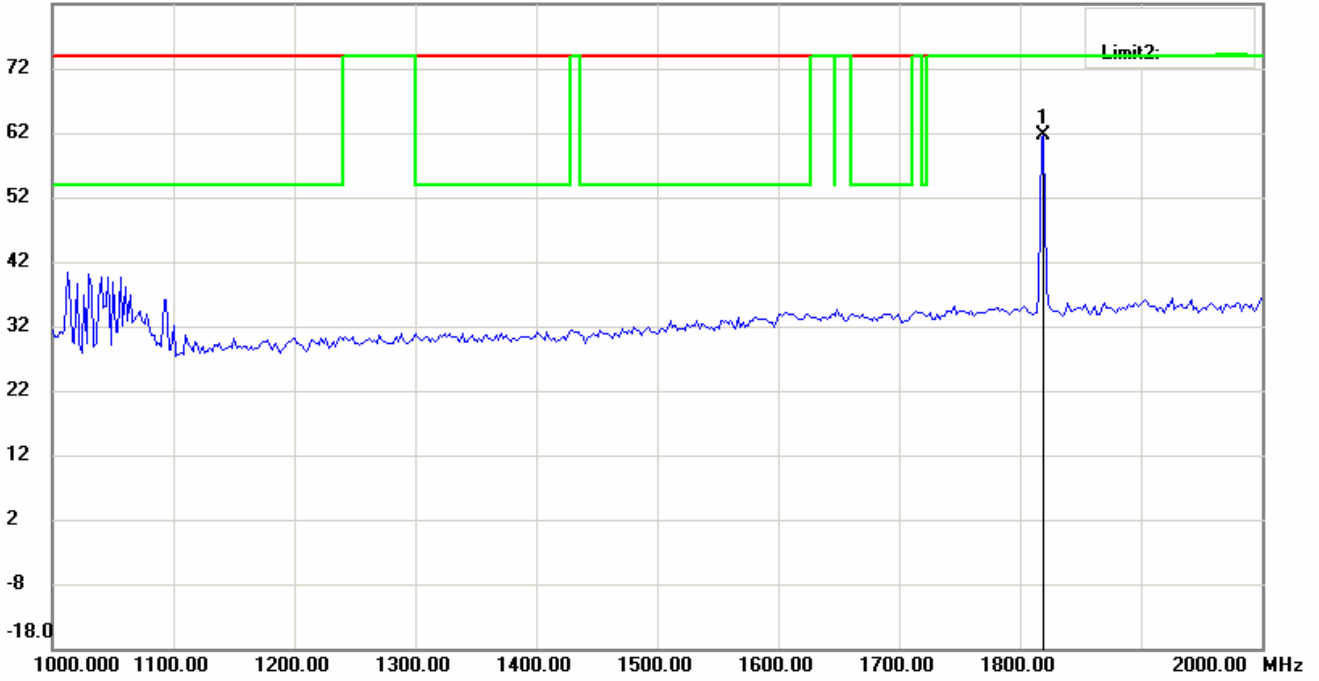


# Taiwan ETS Product Service Co., Ltd.

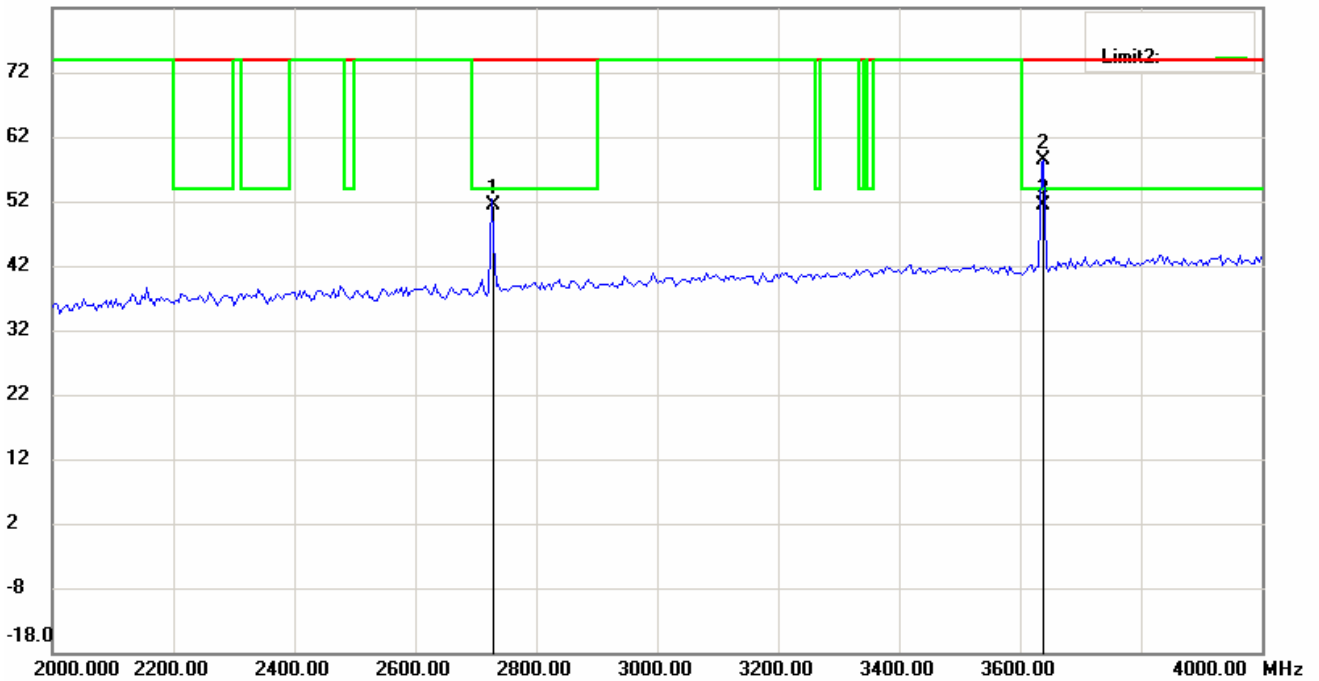
Registration number: W6M20801-8817-P-15

FCC ID: H5OTR26

82.0 dBuV/m



82.0 dBuV/m



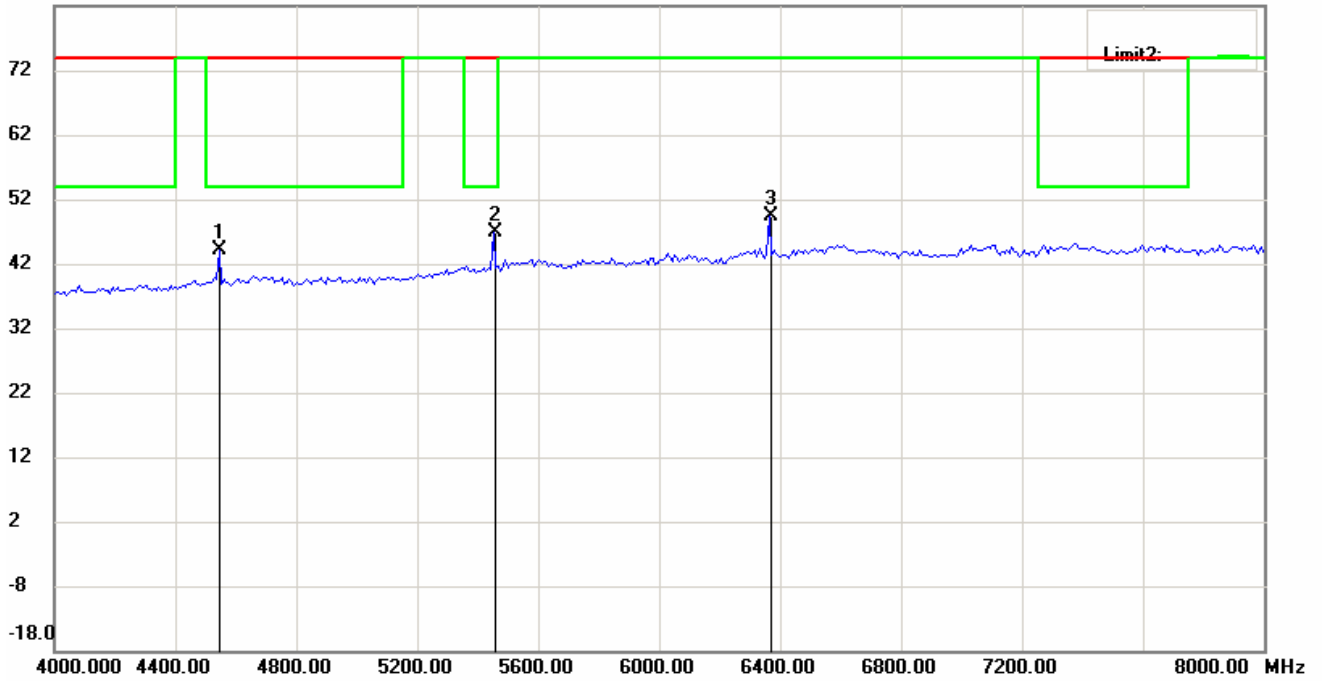


# Taiwan ETS Product Service Co., Ltd.

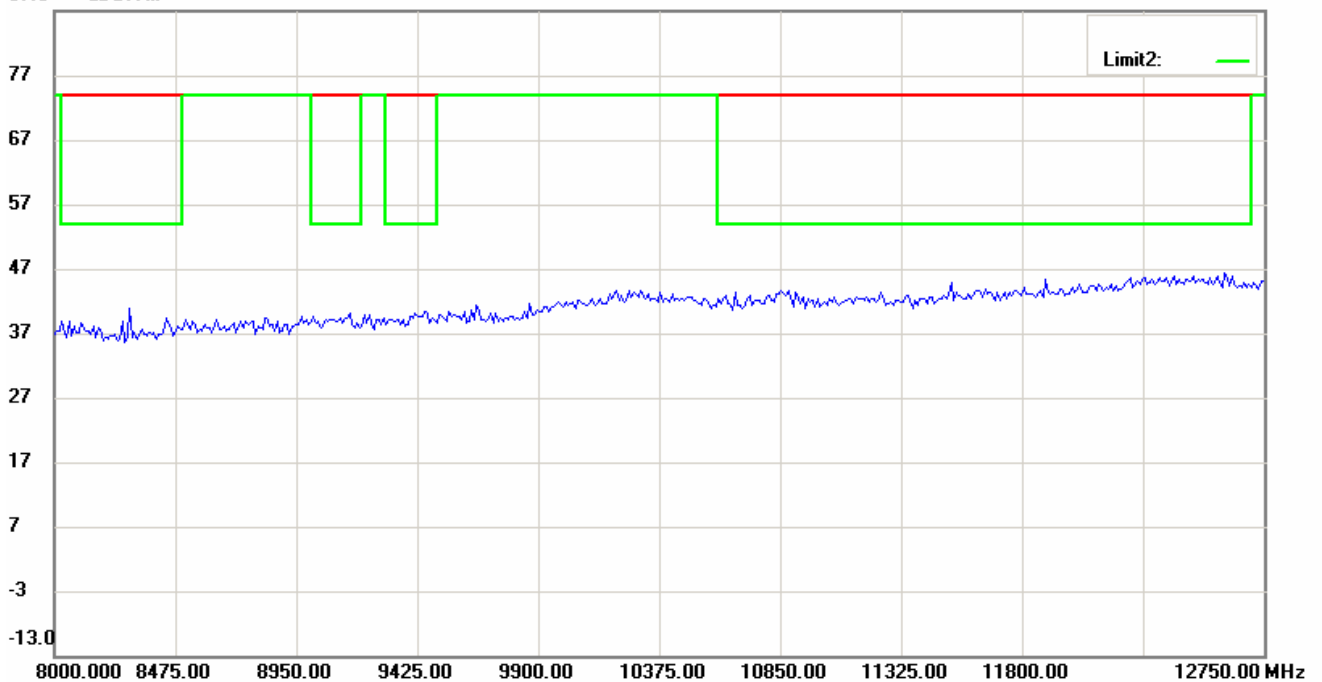
Registration number: W6M20801-8817-P-15

FCC ID: H5OTR26

82.0 dBuV/m



87.0 dBuV/m







# Taiwan ETS Product Service Co., Ltd.

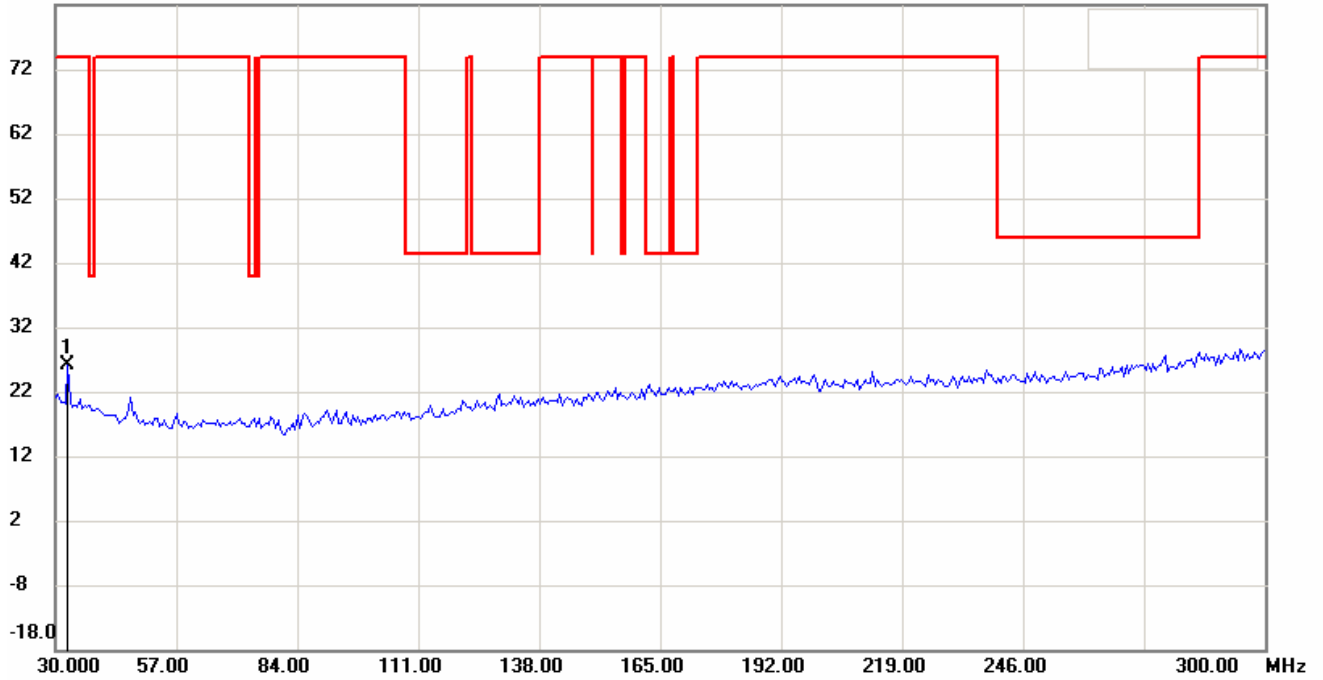
Registration number: W6M20801-8817-P-15

FCC ID: H5OTR26

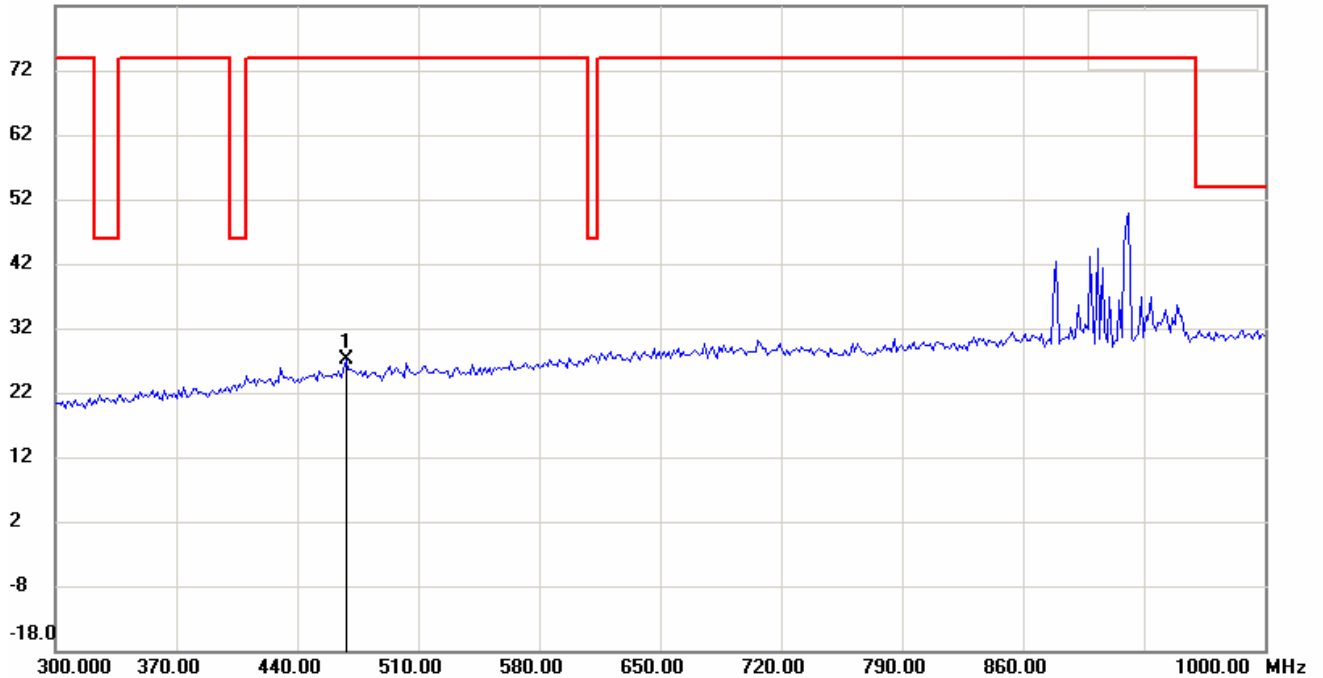
ch 13

Antenna Polarization H

82.0 dBuV/m



82.0 dBuV/m



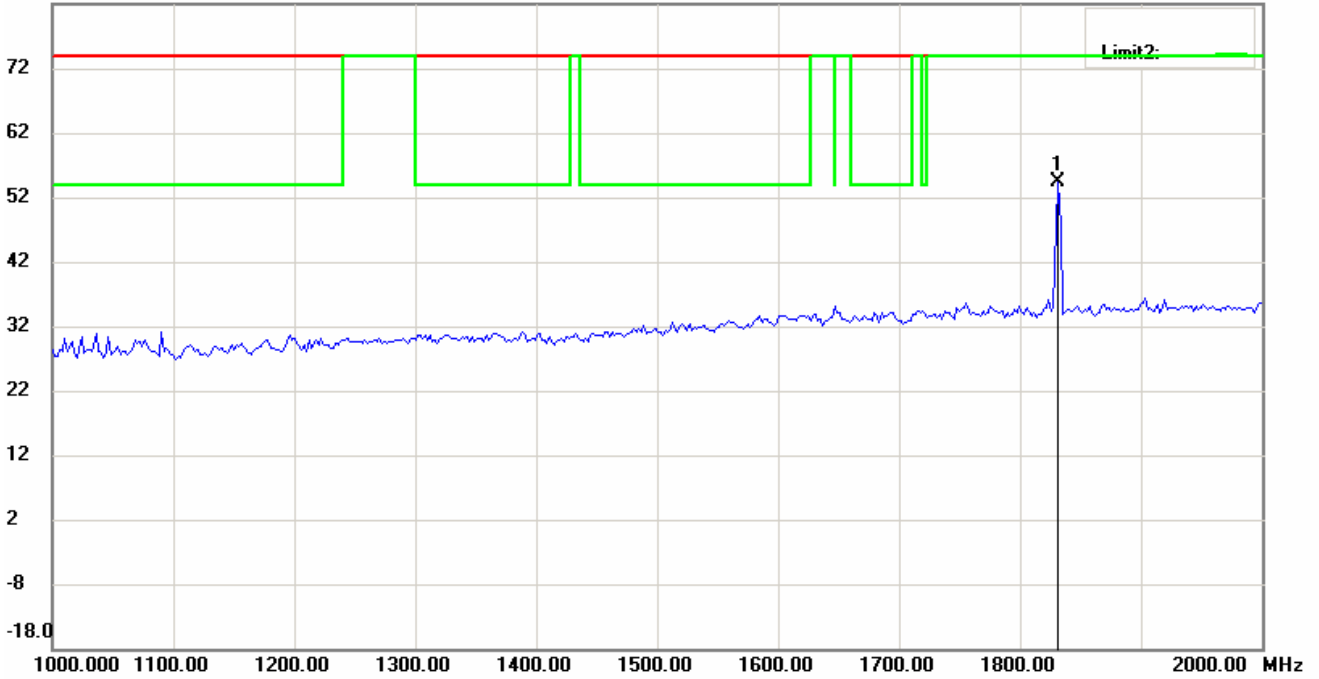


# Taiwan ETS Product Service Co., Ltd.

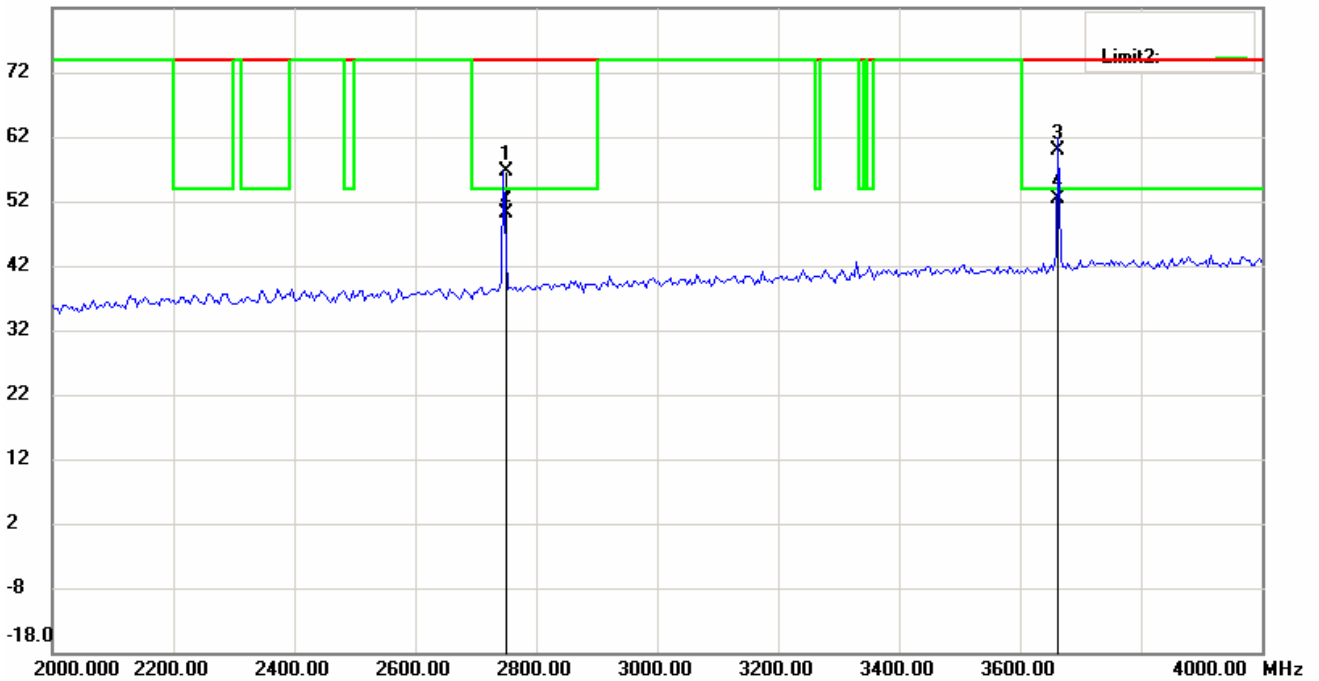
Registration number: W6M20801-8817-P-15

FCC ID: H5OTR26

82.0 dBuV/m



82.0 dBuV/m



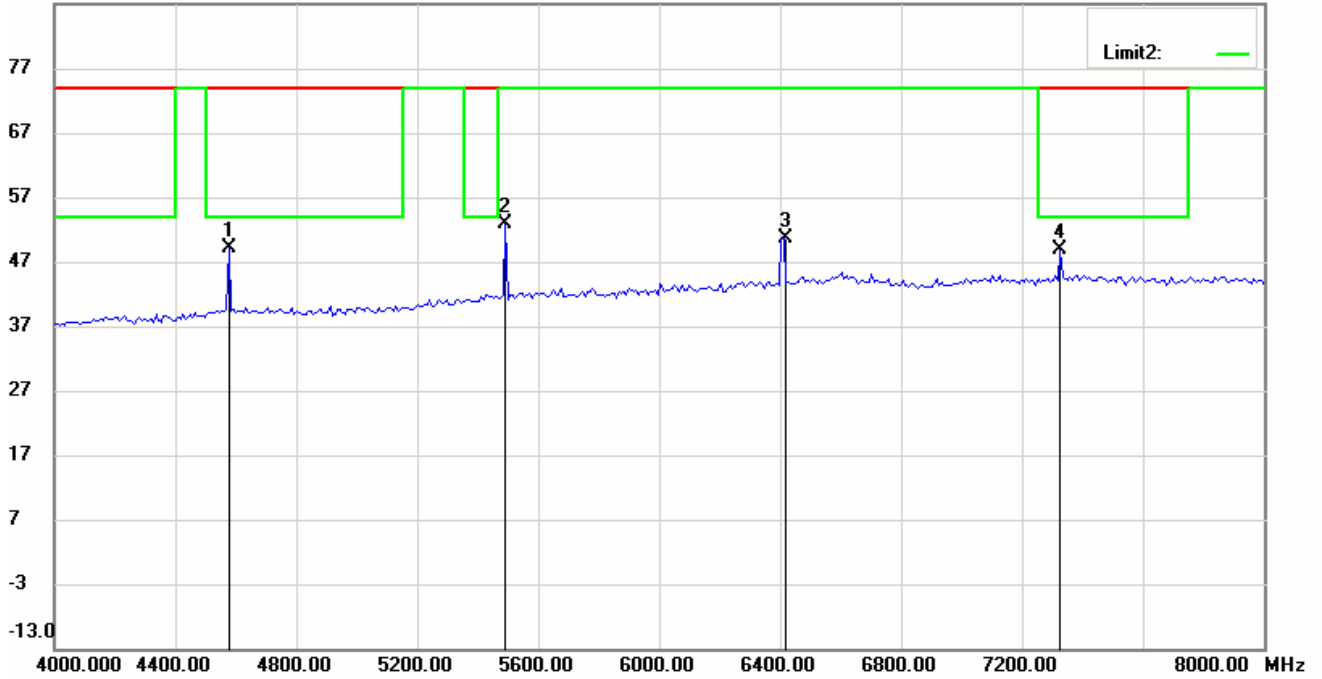


# Taiwan ETS Product Service Co., Ltd.

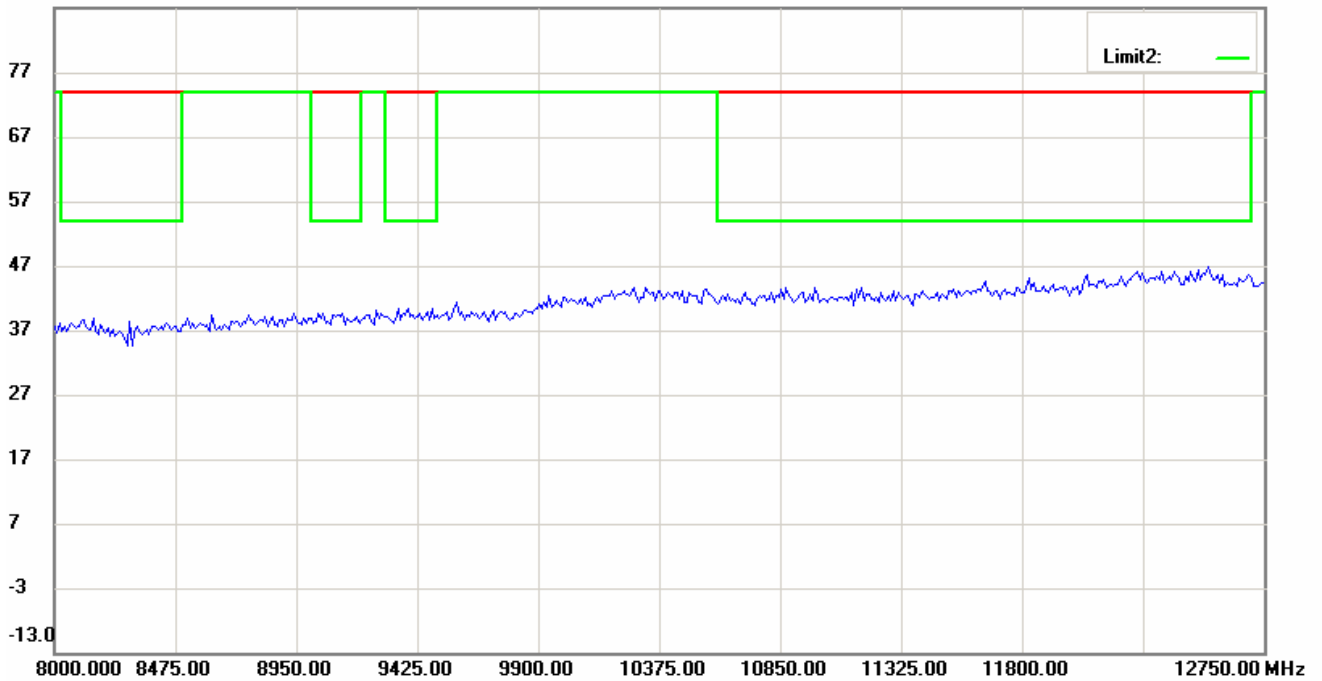
Registration number: W6M20801-8817-P-15

FCC ID: H5OTR26

87.0 dBuV/m



87.0 dBuV/m

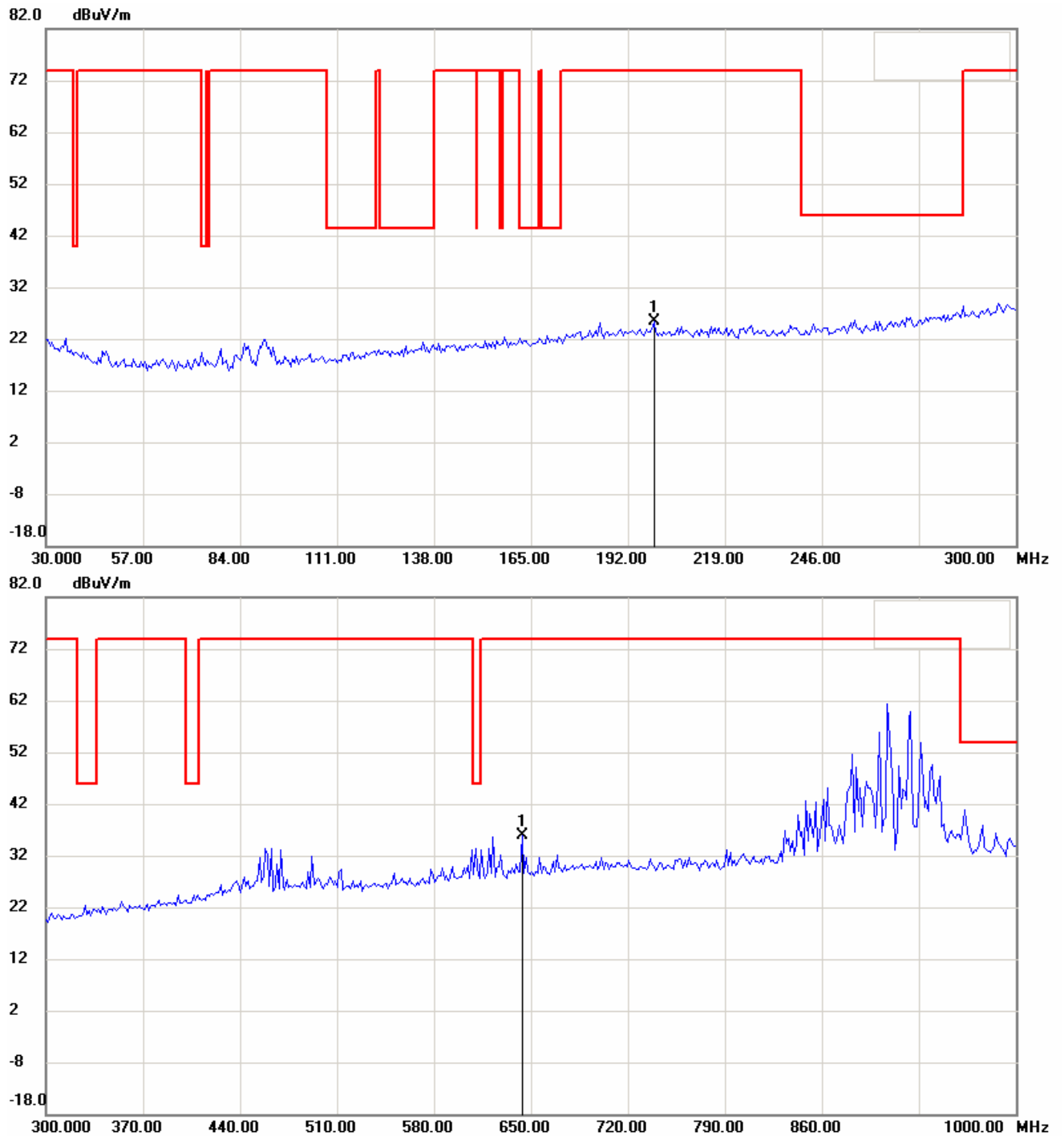




# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H5OTR26

## Antenna Polarization V



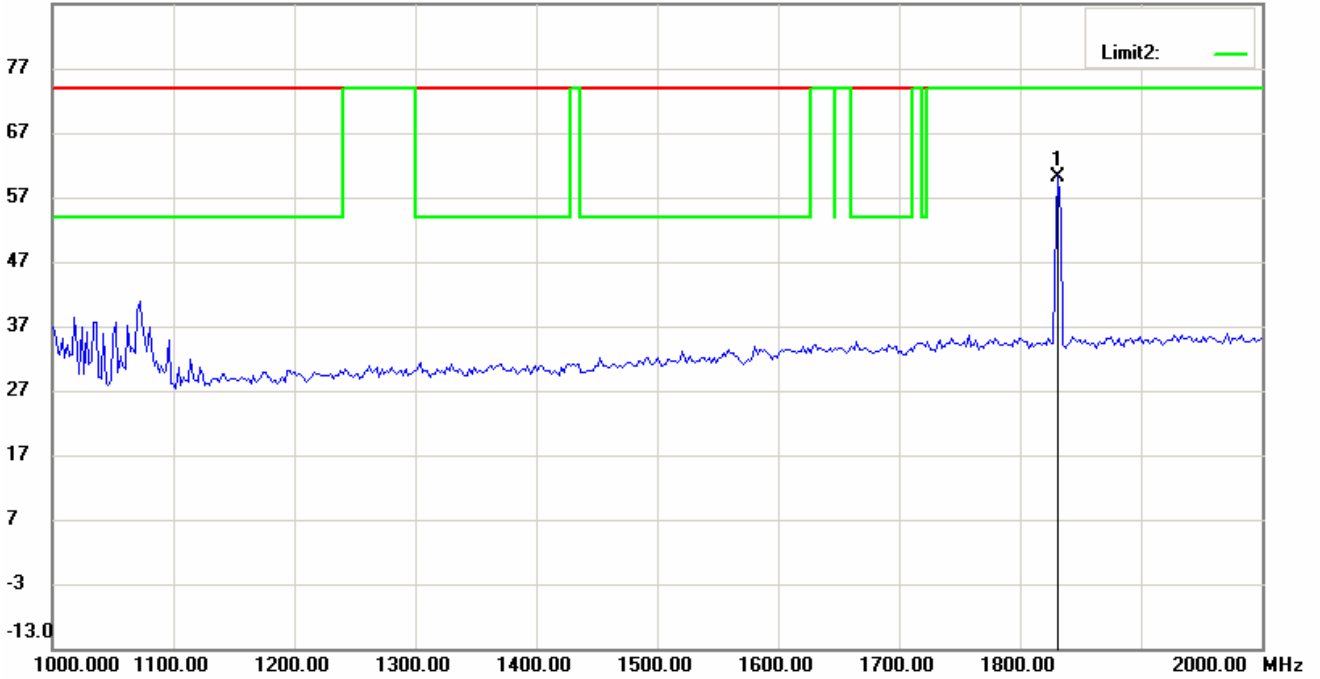


# Taiwan ETS Product Service Co., Ltd.

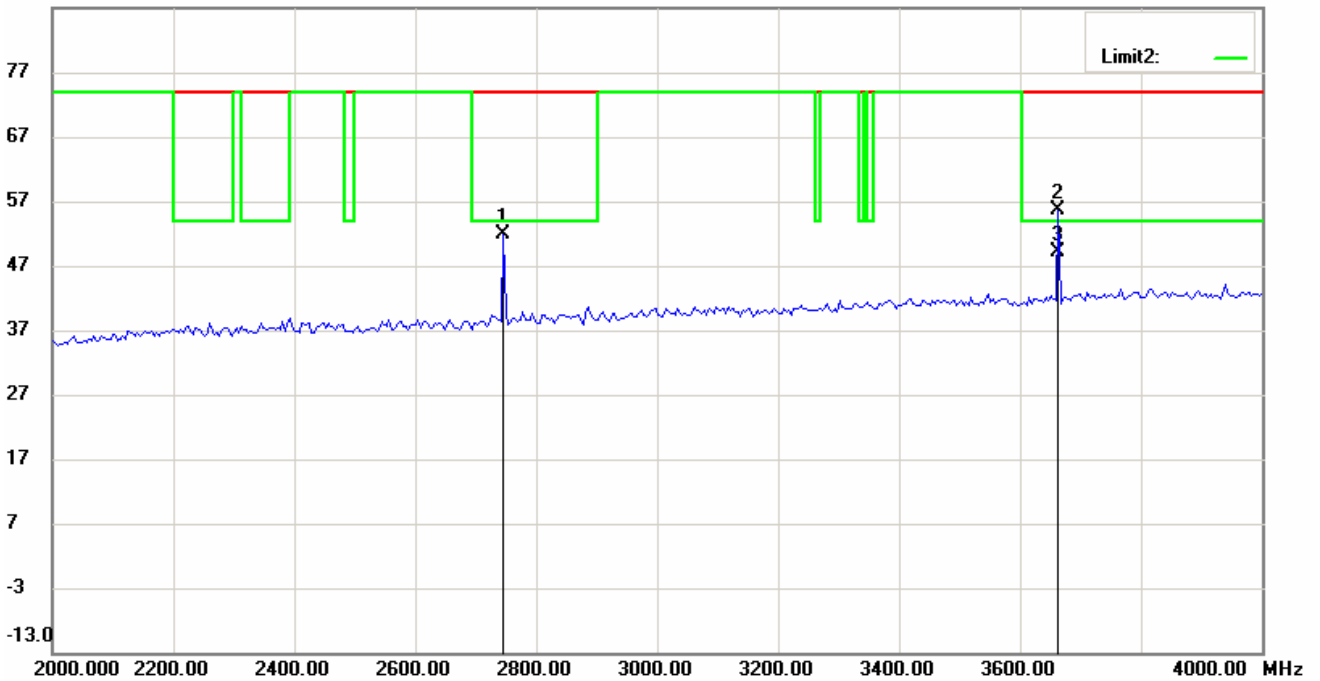
Registration number: W6M20801-8817-P-15

FCC ID: H50TR26

87.0 dBuV/m



87.0 dBuV/m



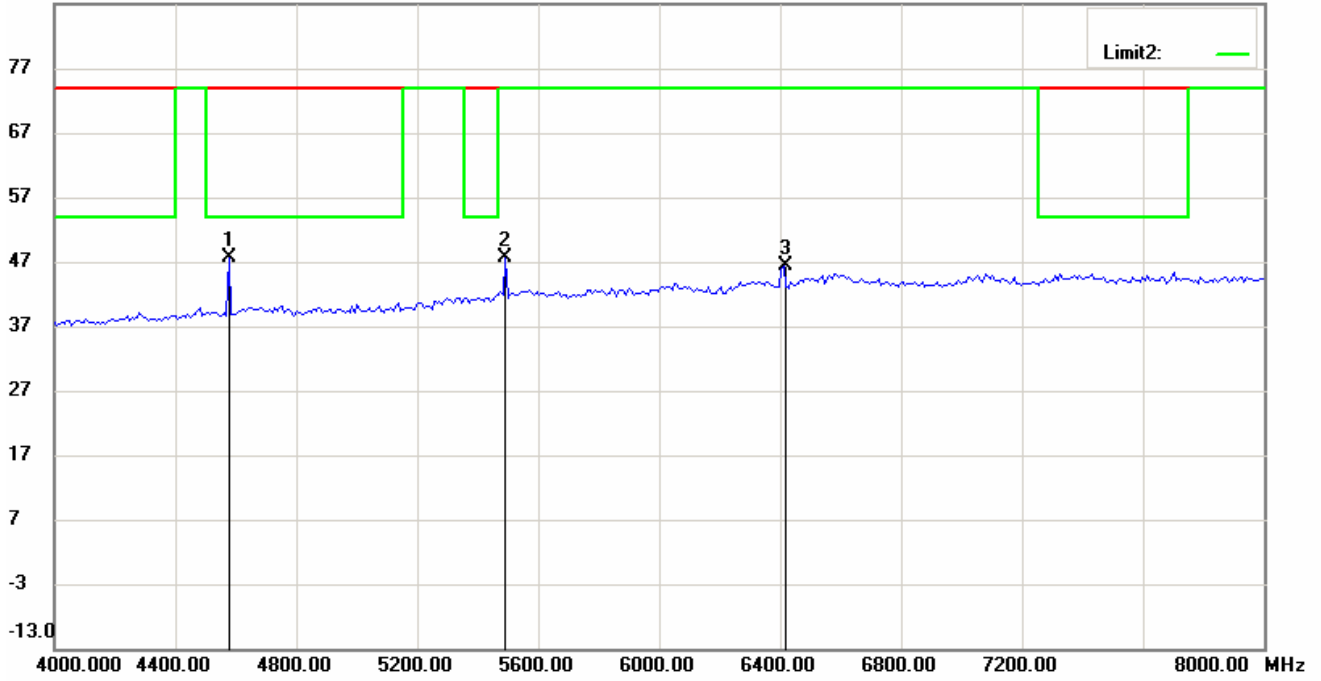


# Taiwan ETS Product Service Co., Ltd.

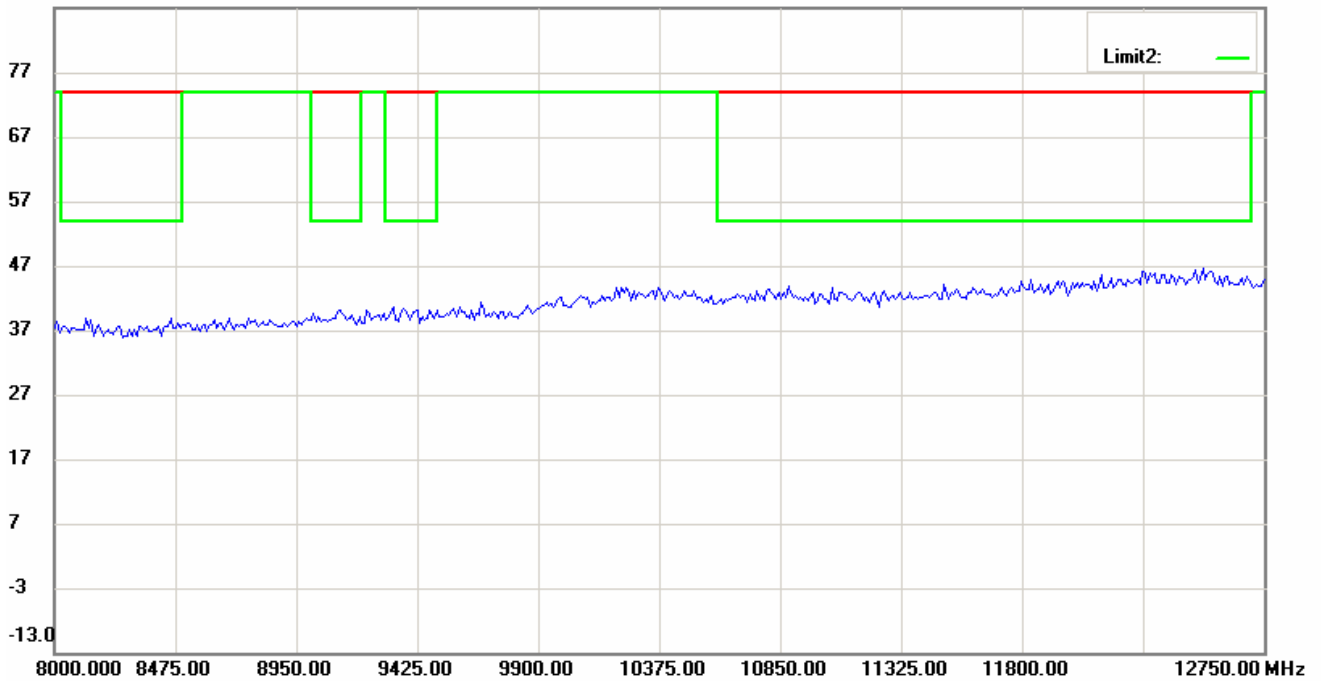
Registration number: W6M20801-8817-P-15

FCC ID: H5OTR26

87.0 dBuV/m



87.0 dBuV/m





# Taiwan ETS Product Service Co., Ltd.

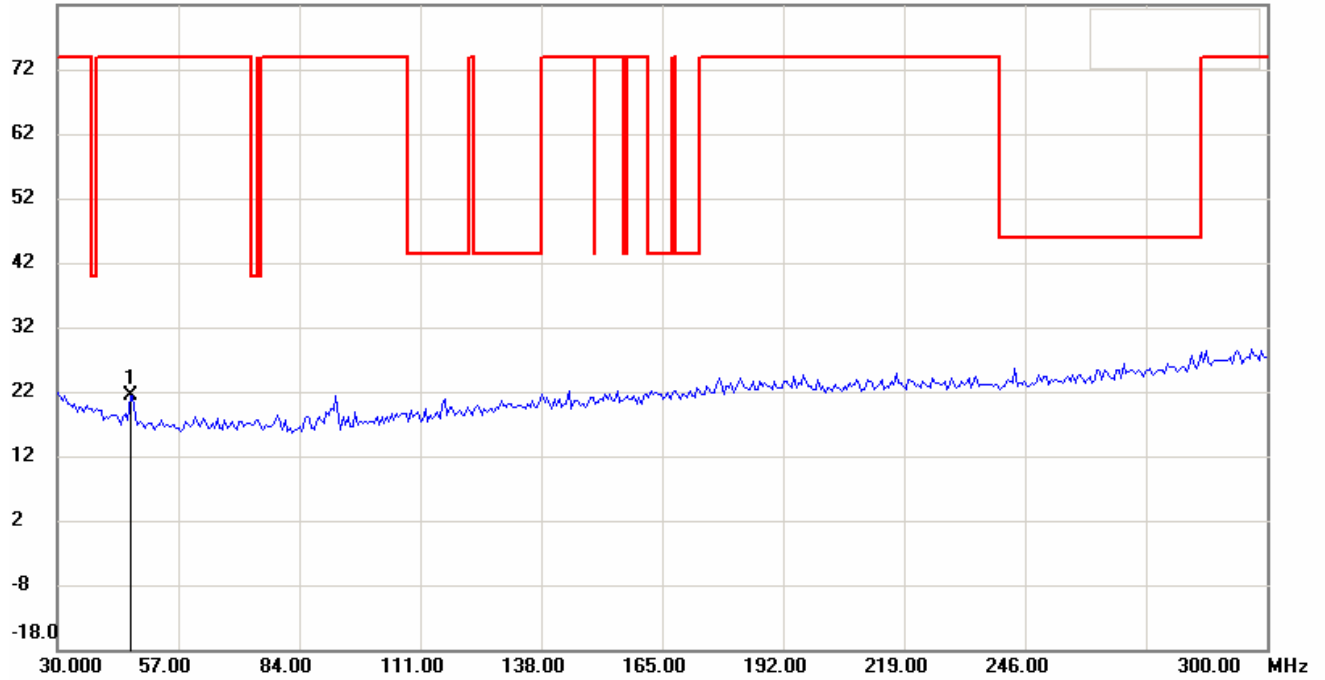
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FCC ID: H5OTR26

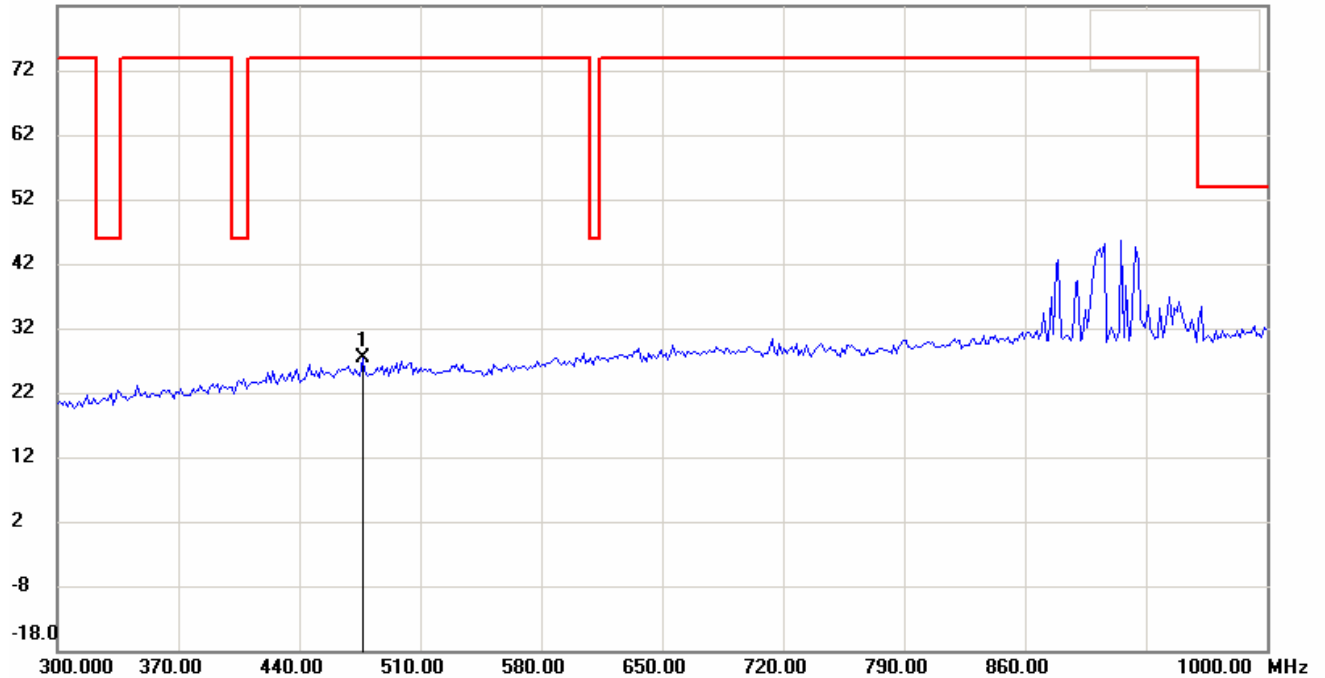
ch 25

Antenna Polarization H

82.0 dBuV/m



82.0 dBuV/m



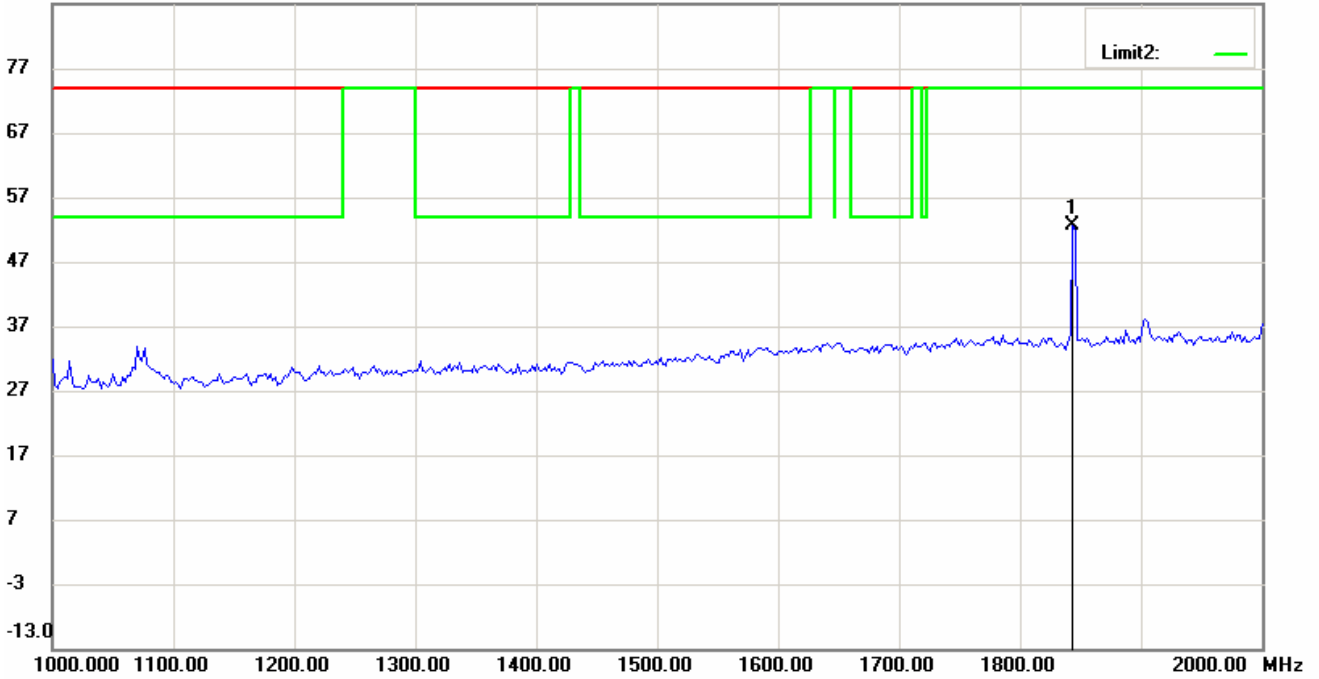


# Taiwan ETS Product Service Co., Ltd.

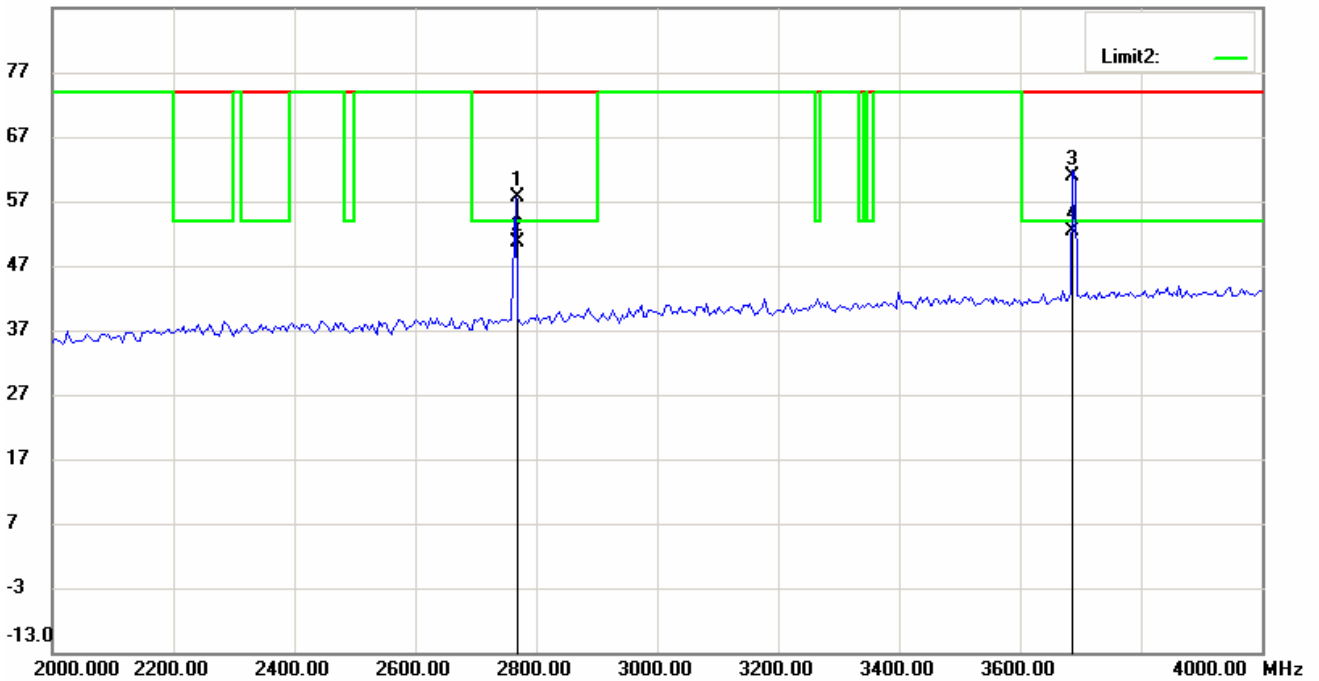
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FCC ID: H50TR26

87.0 dBuV/m



87.0 dBuV/m





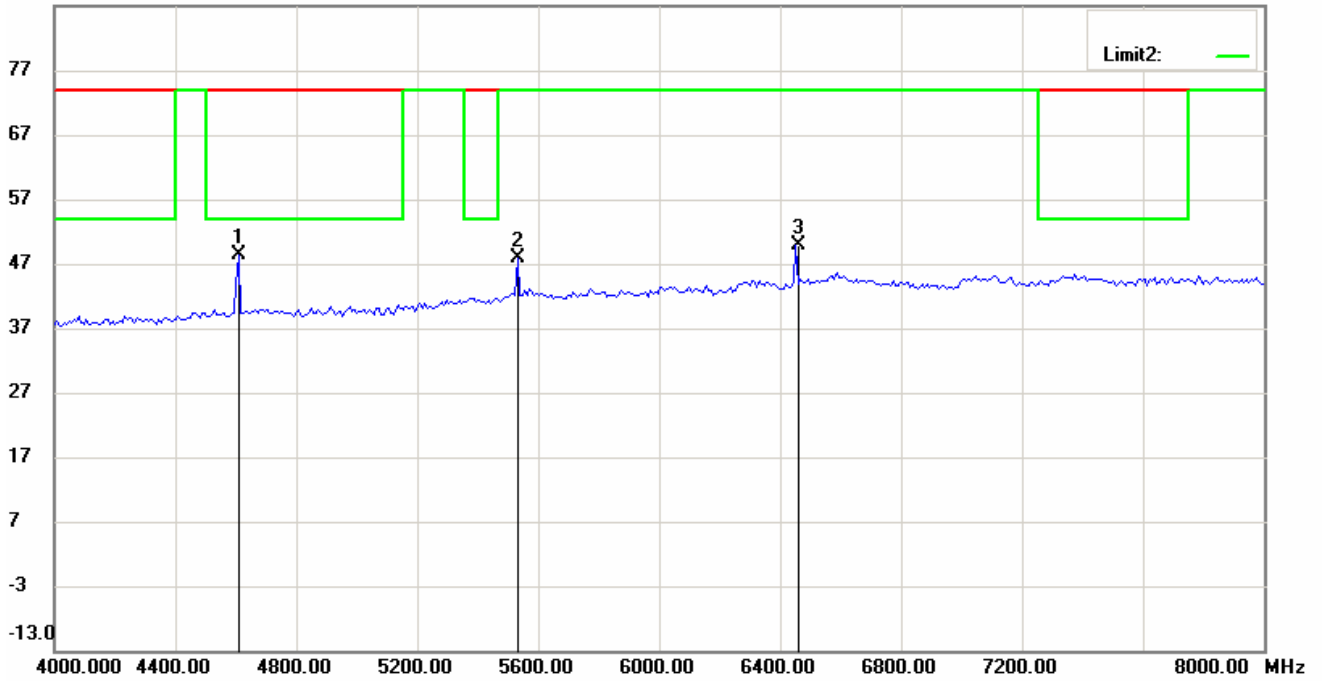


# Taiwan ETS Product Service Co., Ltd.

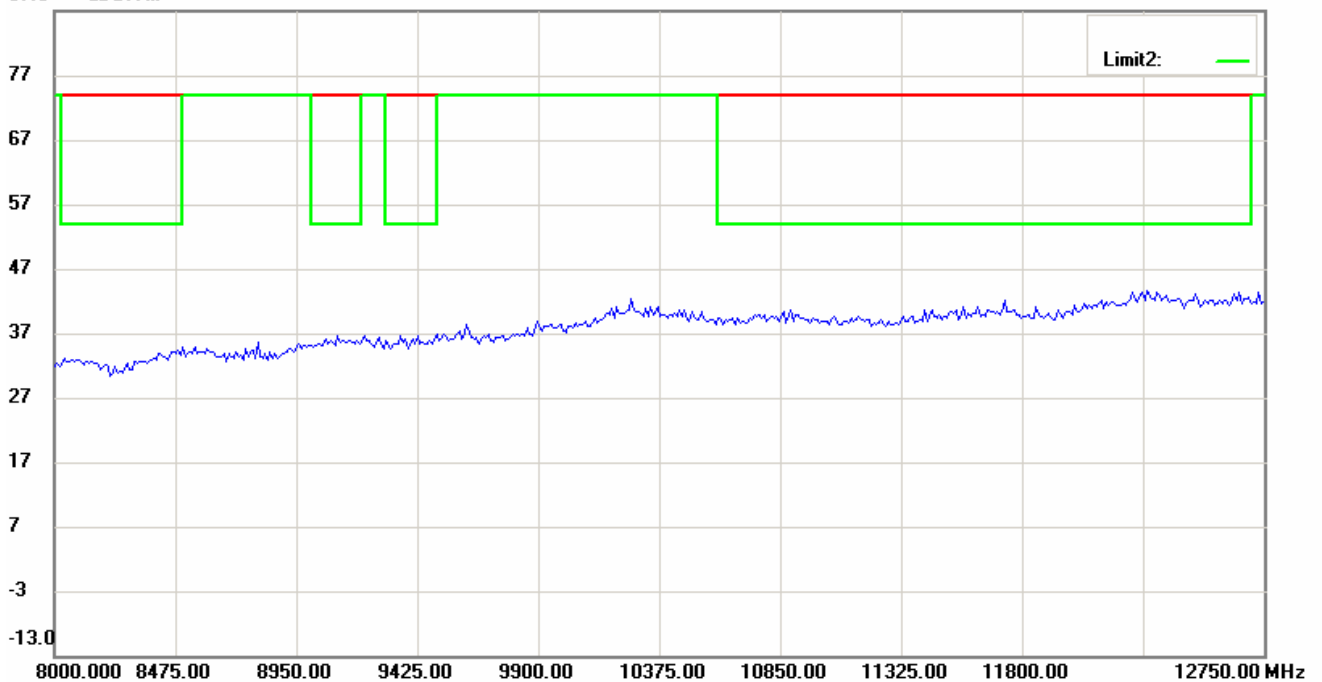
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FCC ID: H5OTR26

87.0 dBuV/m



87.0 dBuV/m

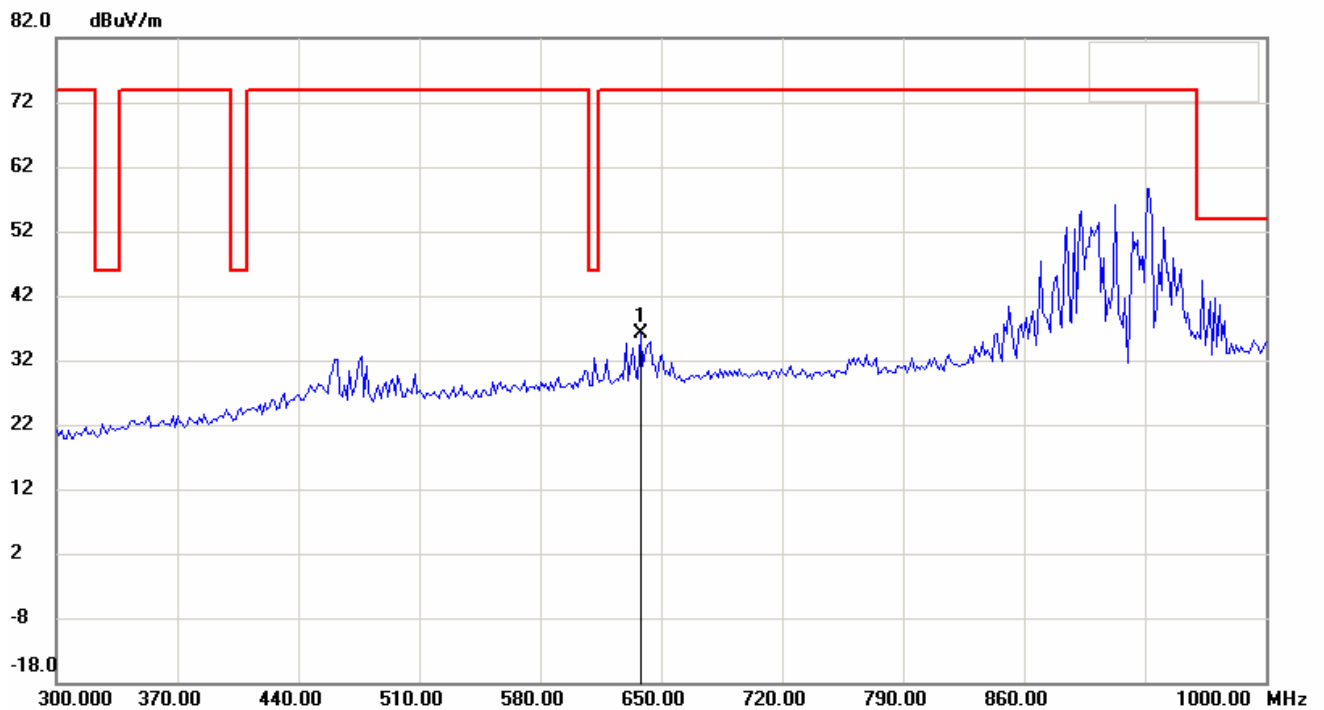
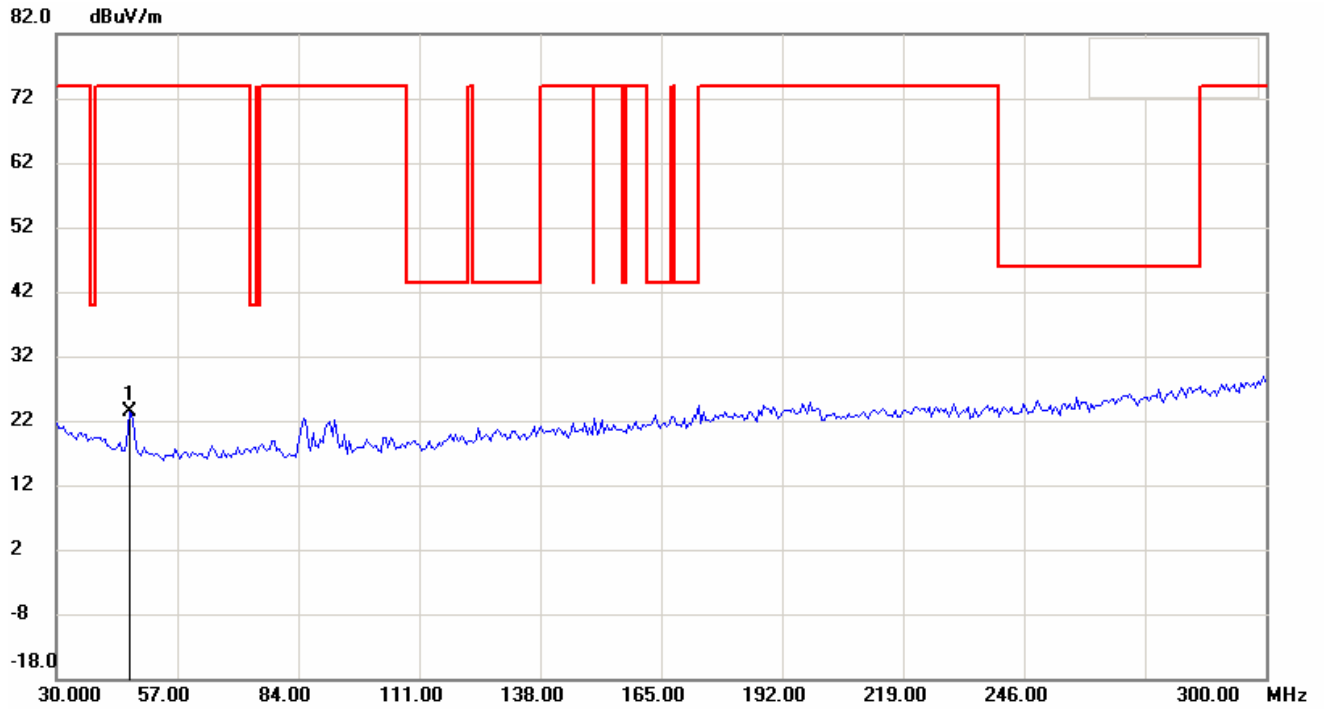




# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H5OTR26

## Antenna Polarization V



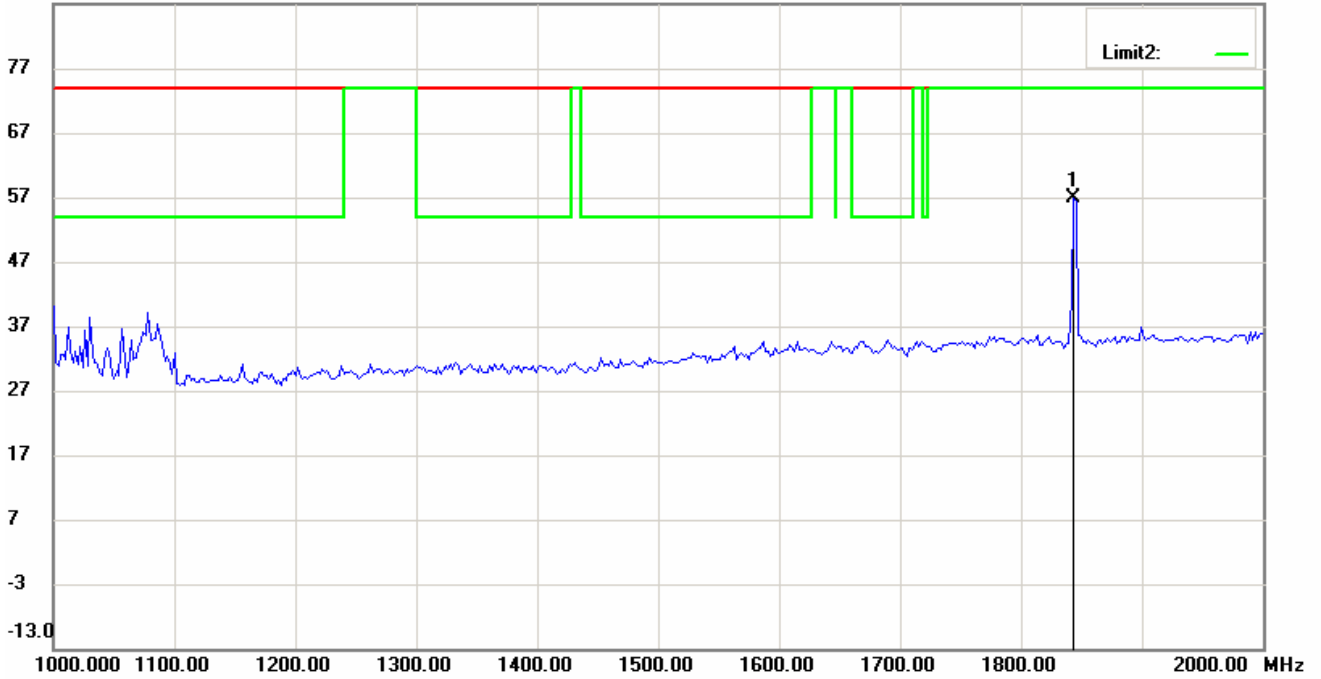


# Taiwan ETS Product Service Co., Ltd.

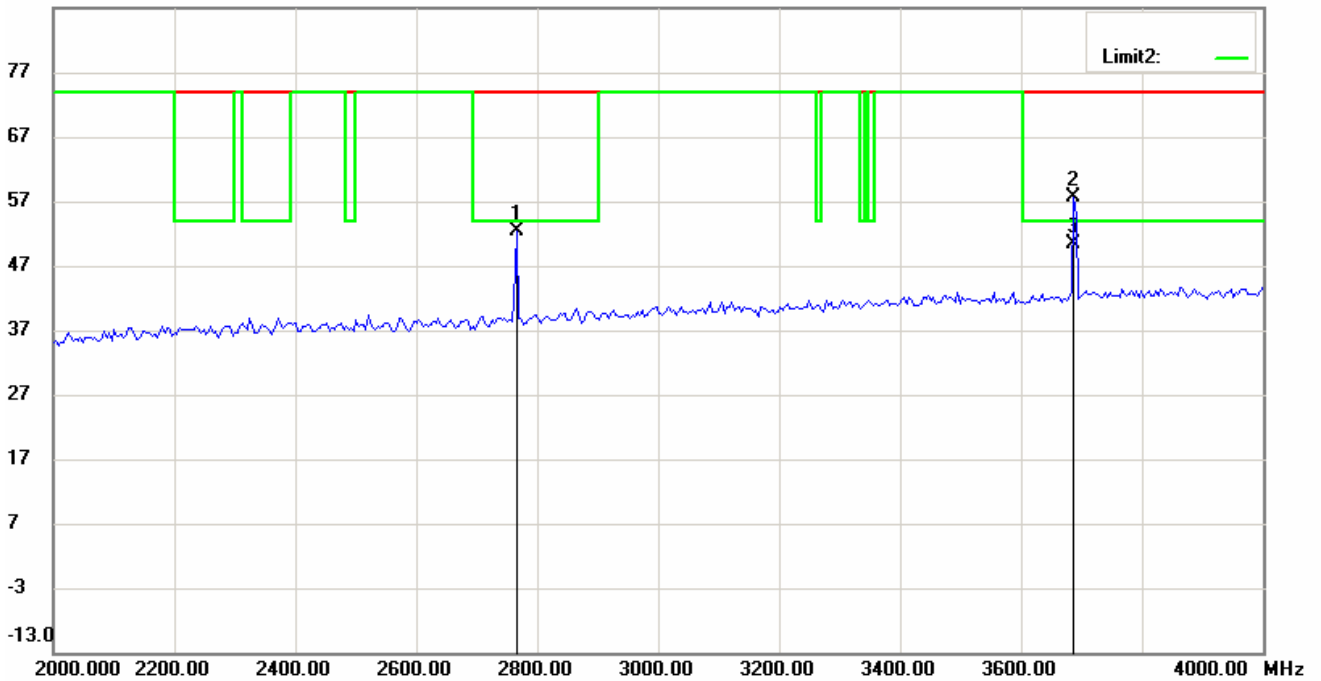
Registration number: W6M20801-8817-P-15

FCC ID: H50TR26

87.0 dBuV/m



87.0 dBuV/m



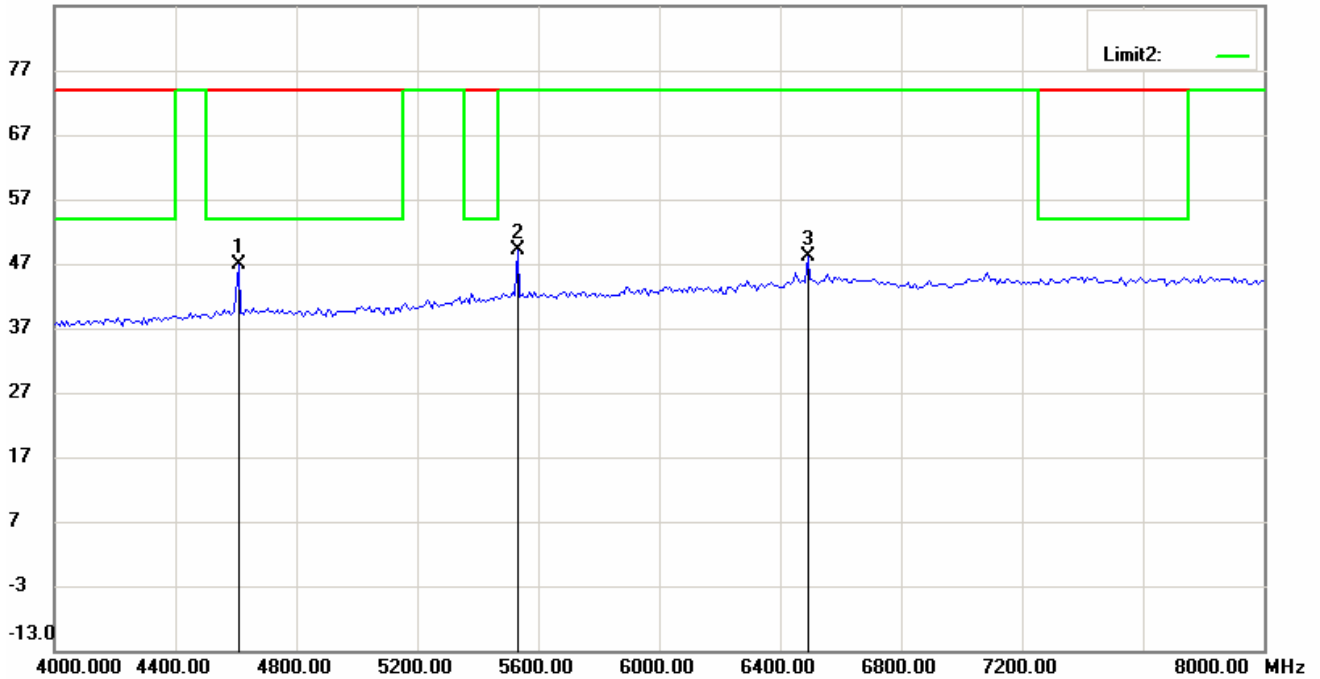


# Taiwan ETS Product Service Co., Ltd.

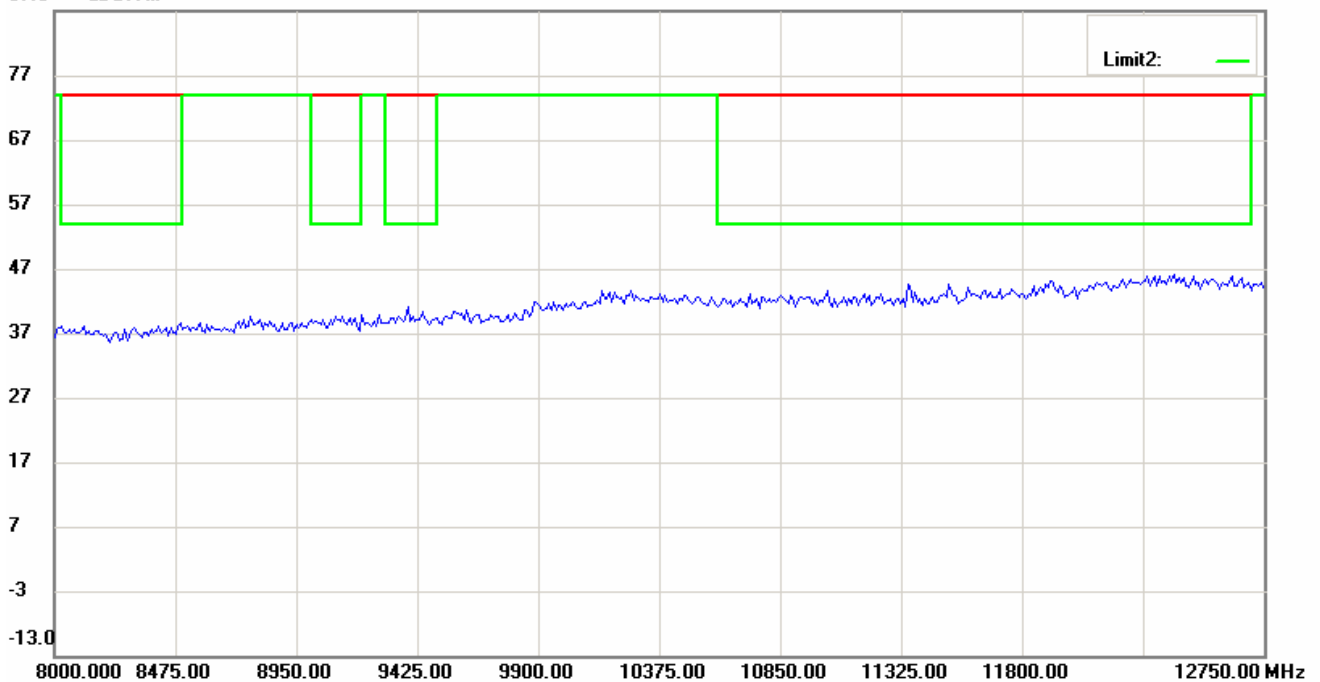
Registration number: W6M20801-8817-P-15

FCC ID: H5OTR26

87.0 dBuV/m



87.0 dBuV/m



Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

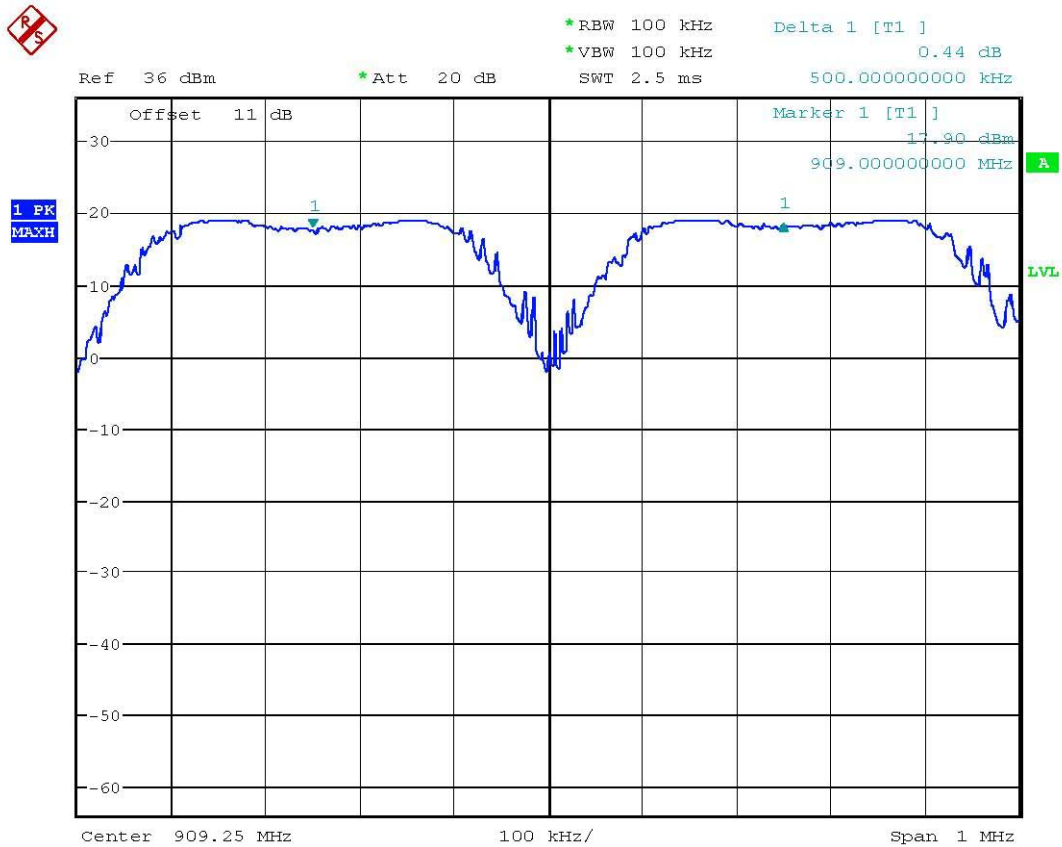
1. The plots are pre-scanned data for determining the tested points and for reference only.
2. The exact test result is shown in the data table of Radiated emission test of this test report.



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H5OTR26

## Carrier Frequency Separation

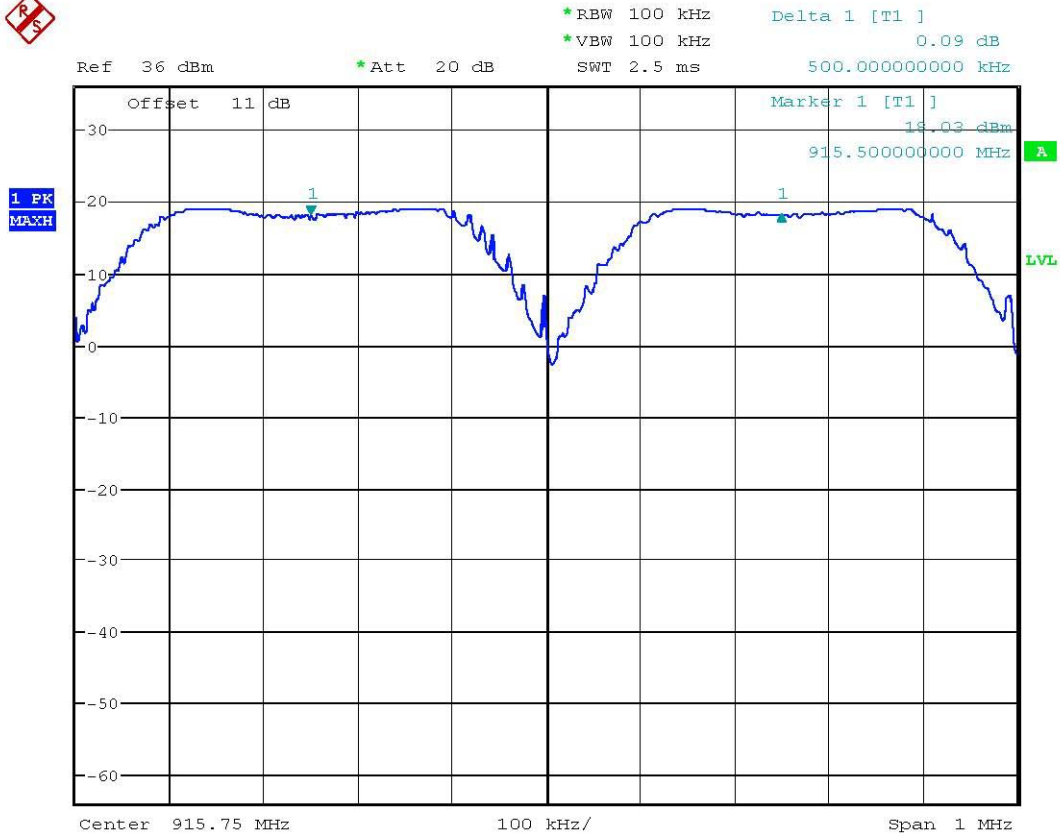


Frequency Separation 909MHz  
Date: 18.JAN.2008 11:32:53



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H5OTR26



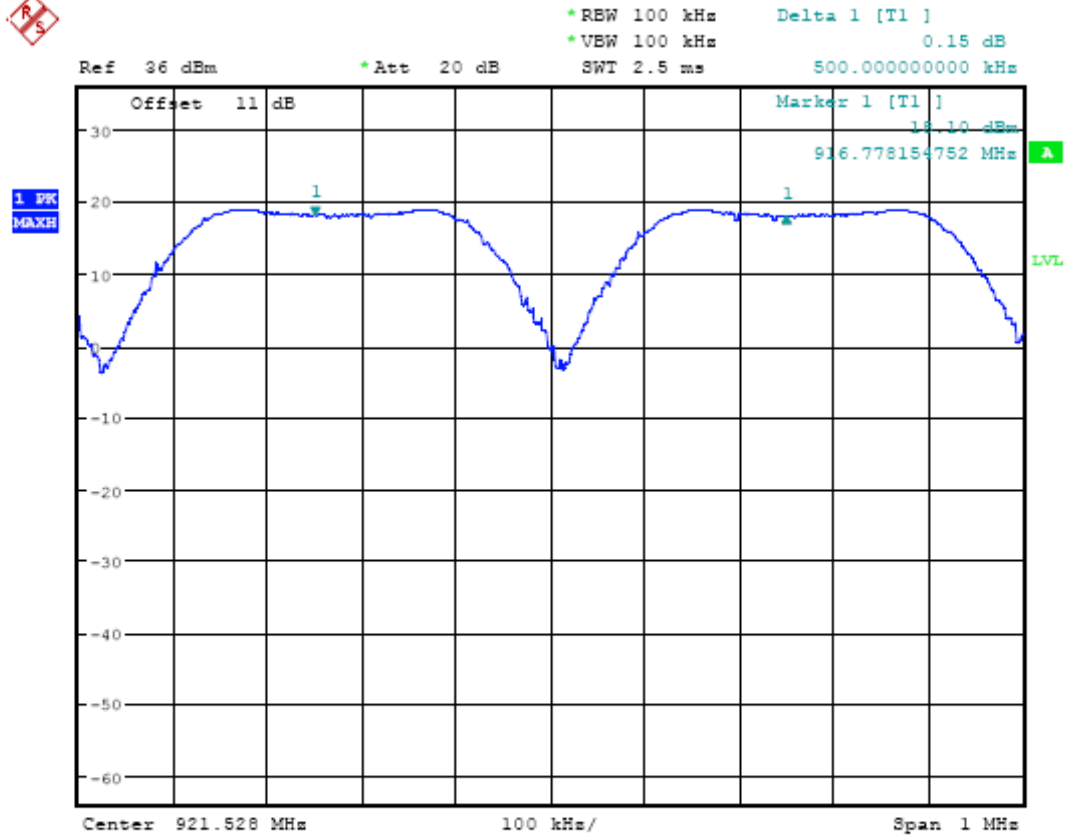
Frequency Separation 915.5MHz

Date: 18.JAN.2008 11:38:32



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H50TR26



Frequency Separation 921.778MHz

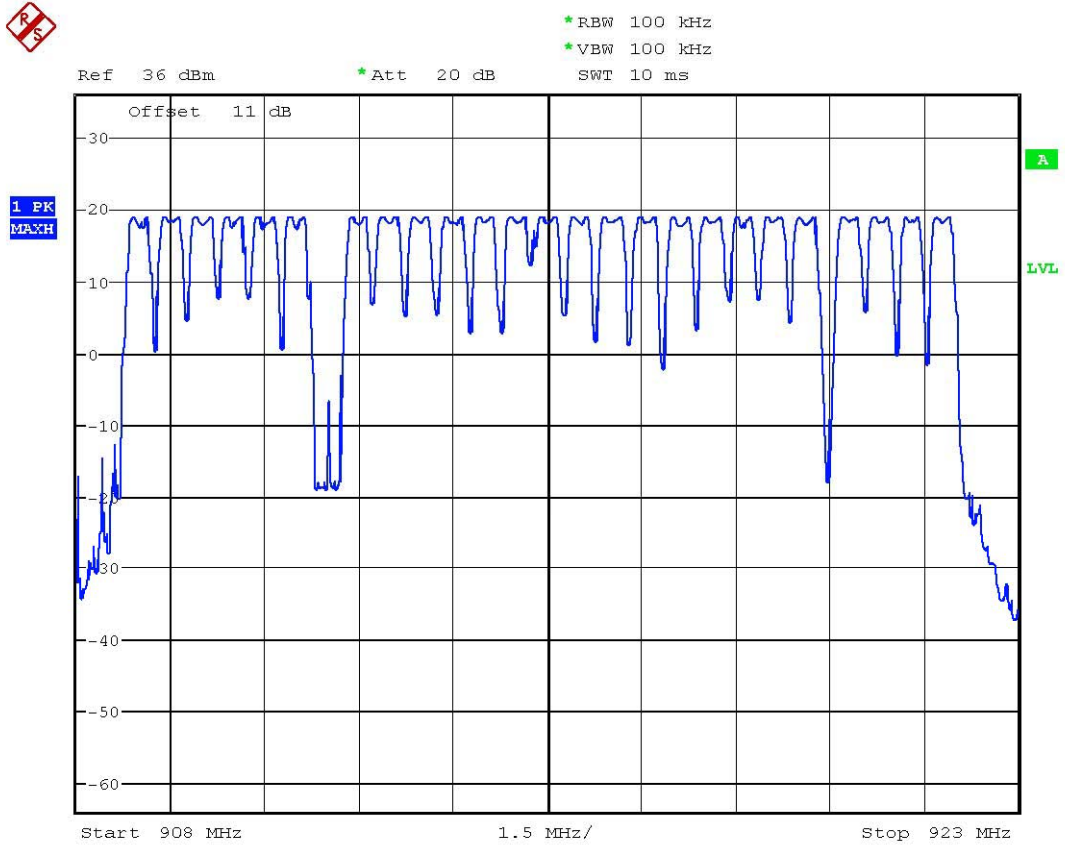
Date: 18.JAN.2008 11:45:31



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H5OTR26

## Number of Hopping Frequencies



Number Of Hopping  
Date: 18.JAN.2008 11:21:50

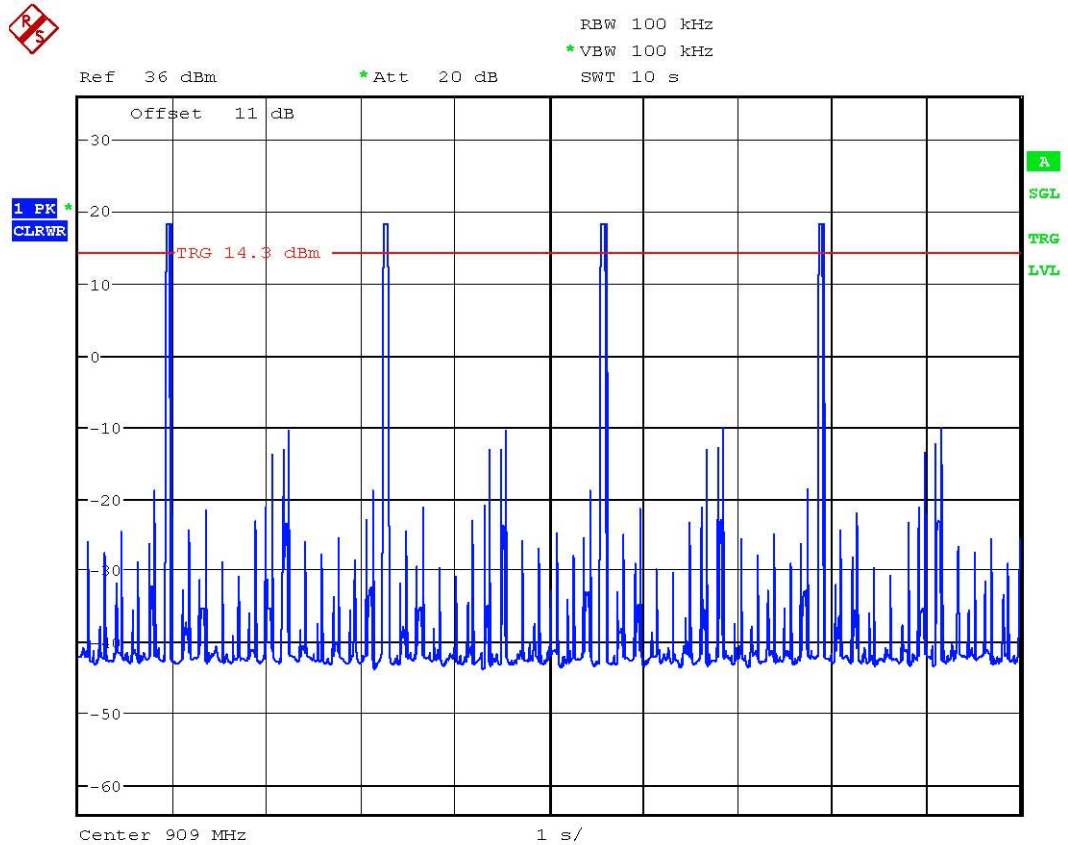




# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H50TR26

## Time of Occupancy (Dwell Time)

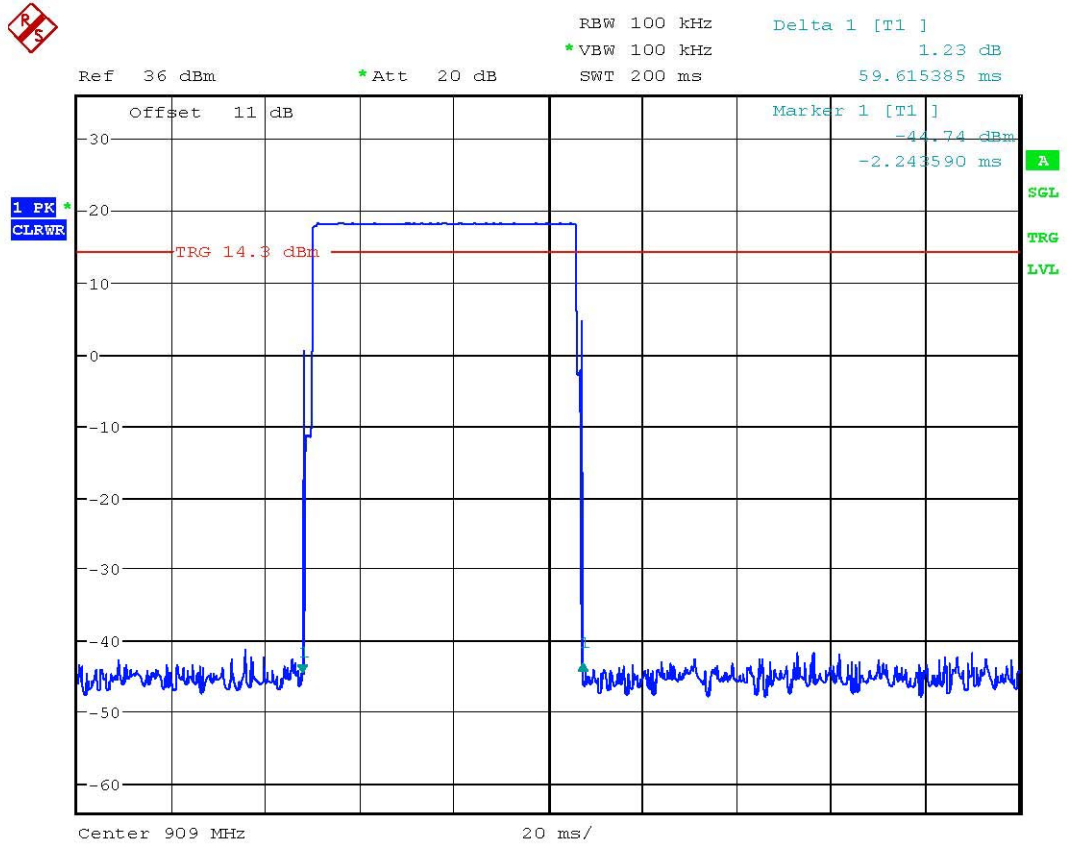


Dwell Time 909MHz 59.62 ms \* 4 =238.48 ms  
Date: 18.JAN.2008 12:23:51



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H5OTR26

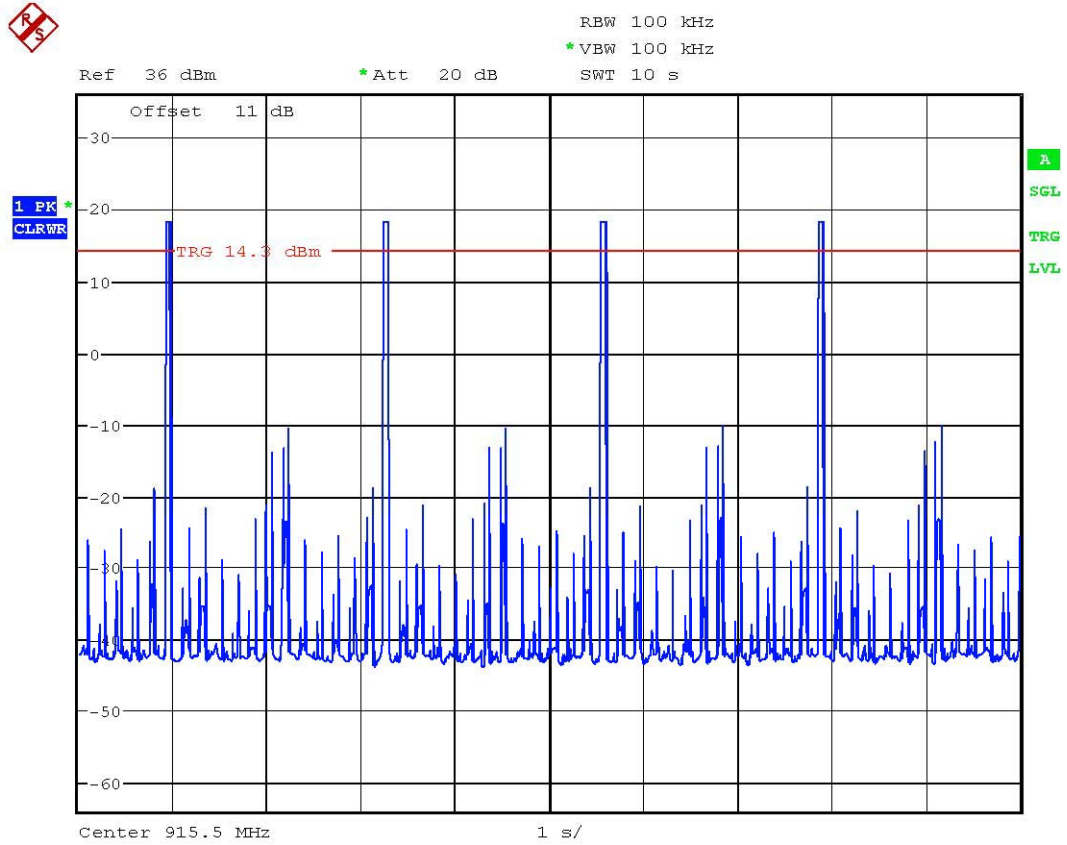


Dwell Time 909MHz 59.62 ms \* 4 =238.48 ms  
Date: 18.JAN.2008 12:32:06



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H5OTR26



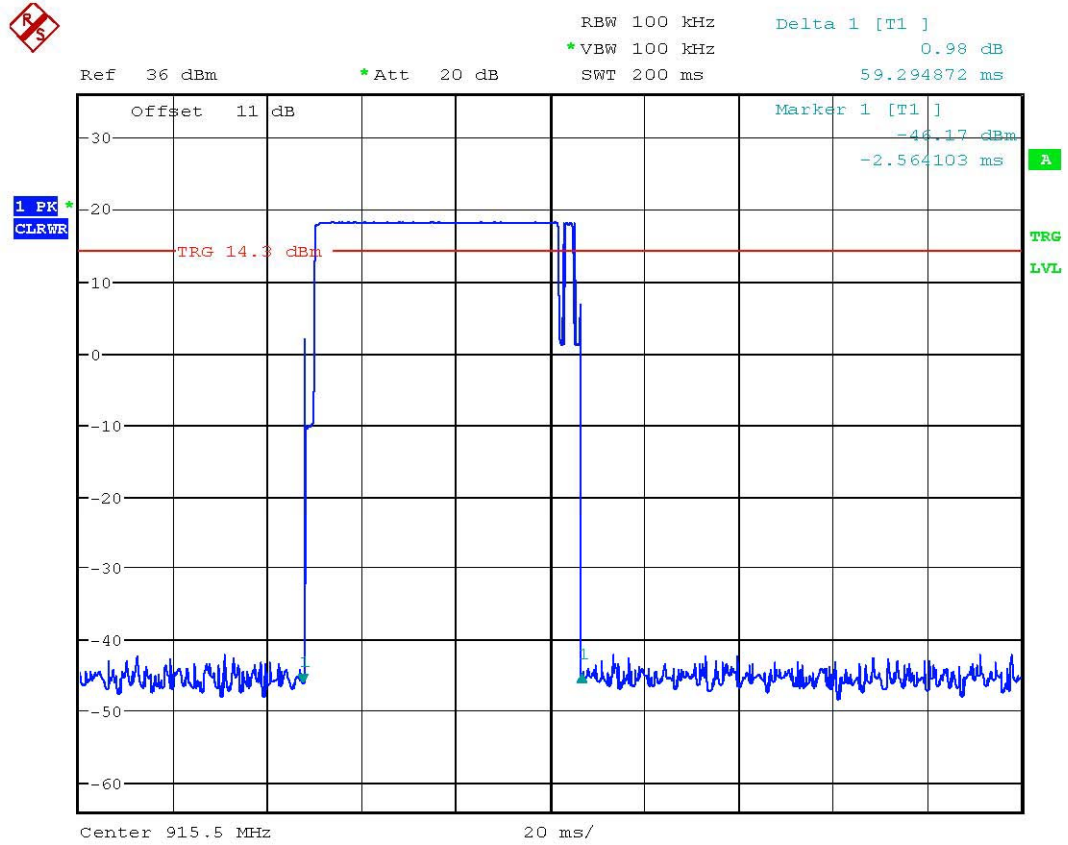
Dwell Time 915.5MHz 59.29 ms \* 4 =237.16 ms

Date: 18.JAN.2008 12:23:51



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H5OTR26

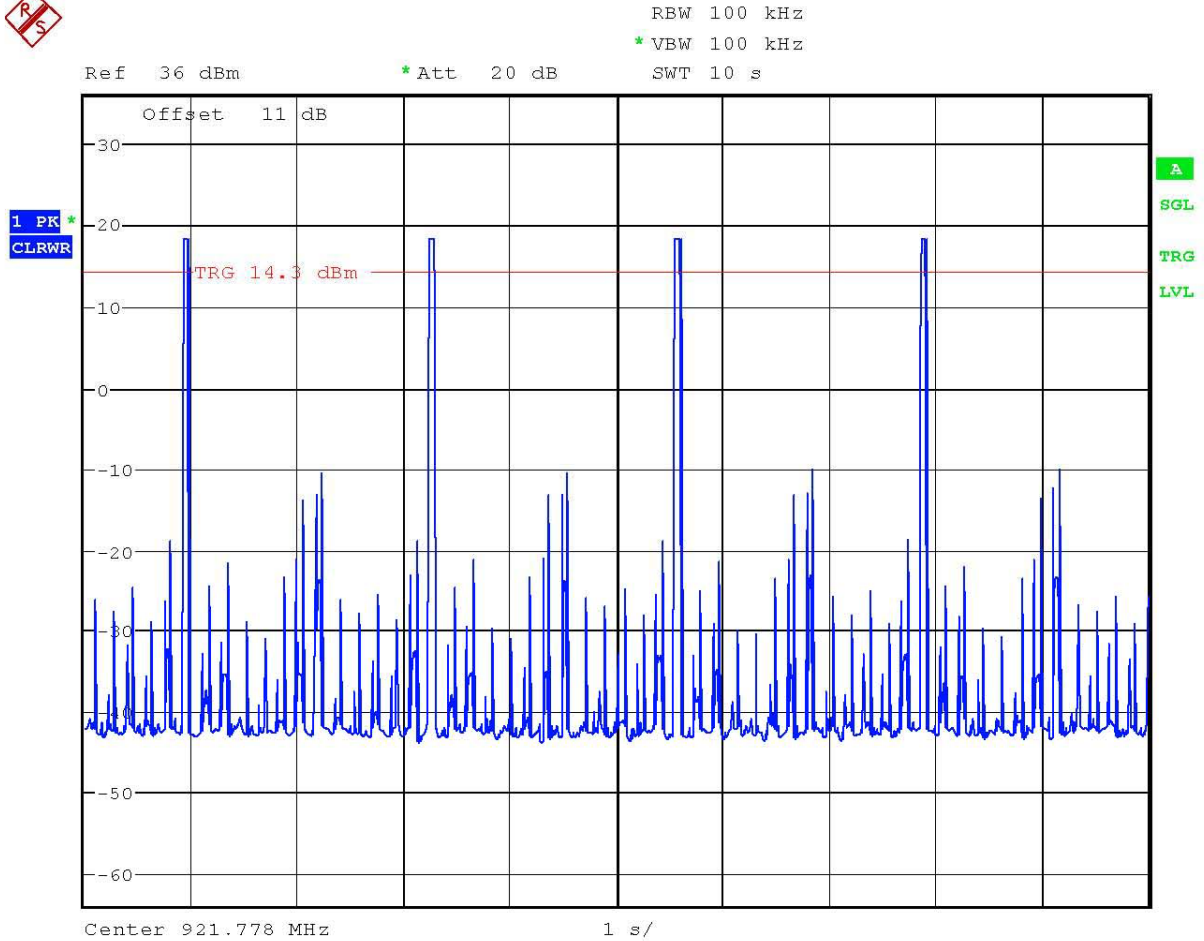


Dwell Time 915.5MHz 59.29 ms \* 4 =237.16 ms  
Date: 18.JAN.2008 12:27:10



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H50TR26



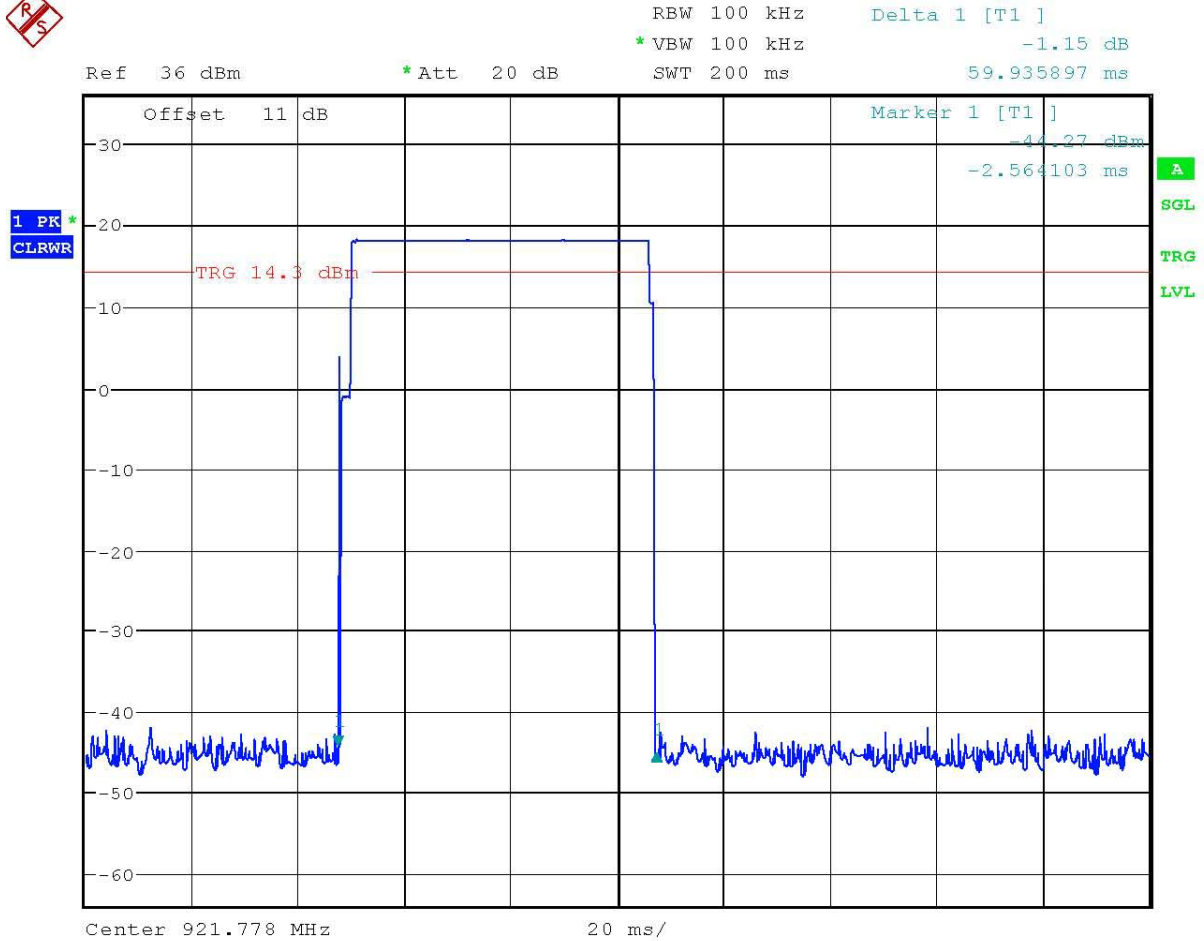
Dwell Time 921.778MHz 59.94 ms \* 4 =239.76 ms

Date: 18.JAN.2008 12:23:51



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H50TR26



Dwell Time 921.778MHz 59.94 ms \* 4 =239.76 ms

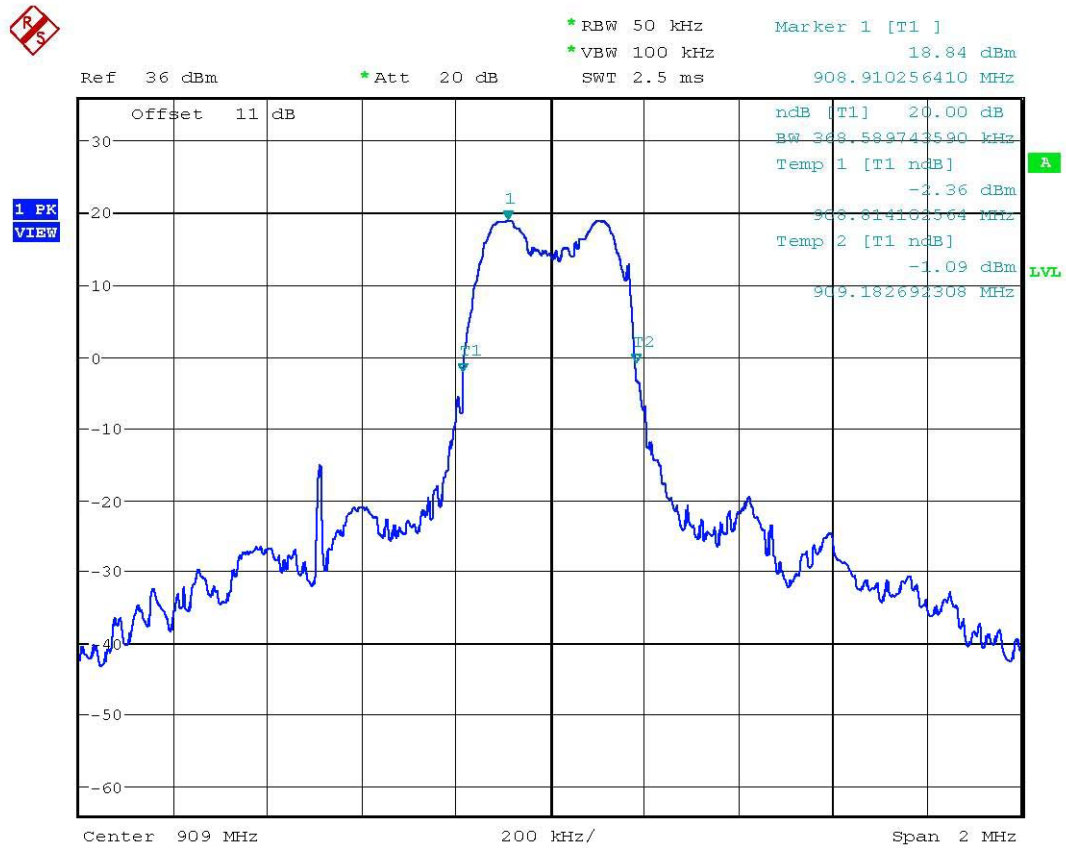
Date: 18.JAN.2008 12:28:32



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
FCC ID: H5OTR26

## 20dB Bandwidth



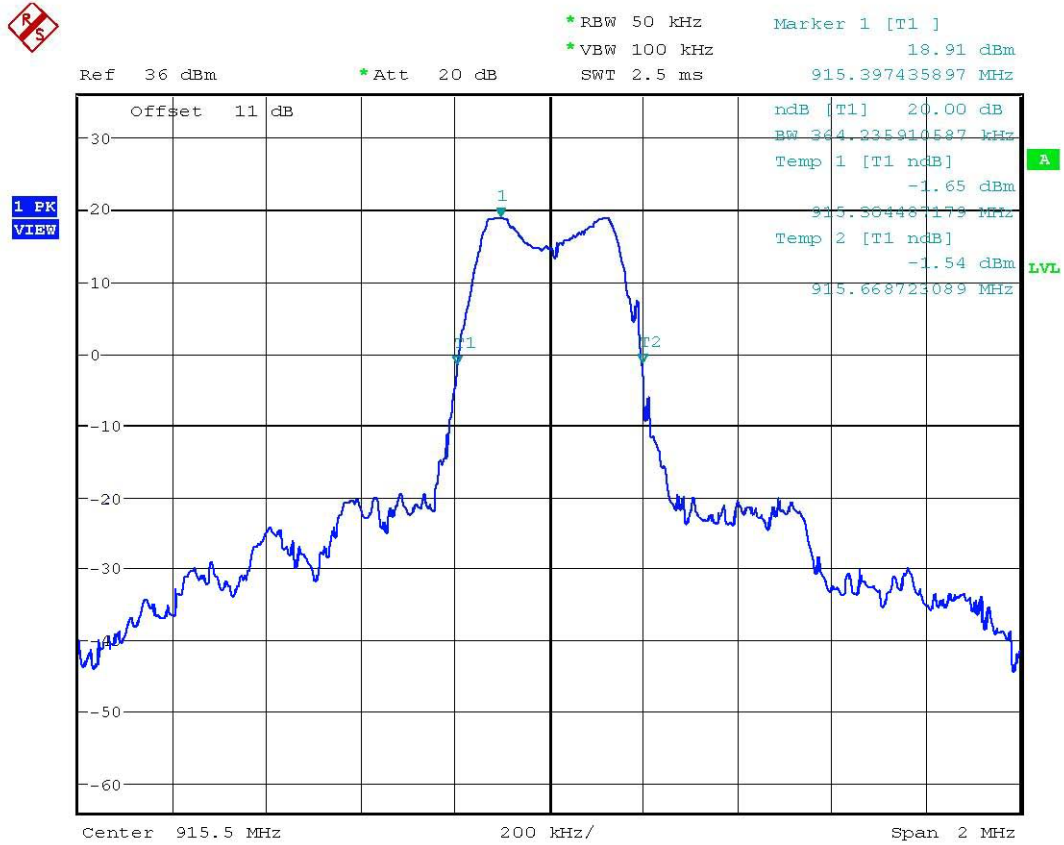
20dB Bandwidth 909MHz

Date: 18.JAN.2008 09:14:19



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
 FCC ID: H50TR26



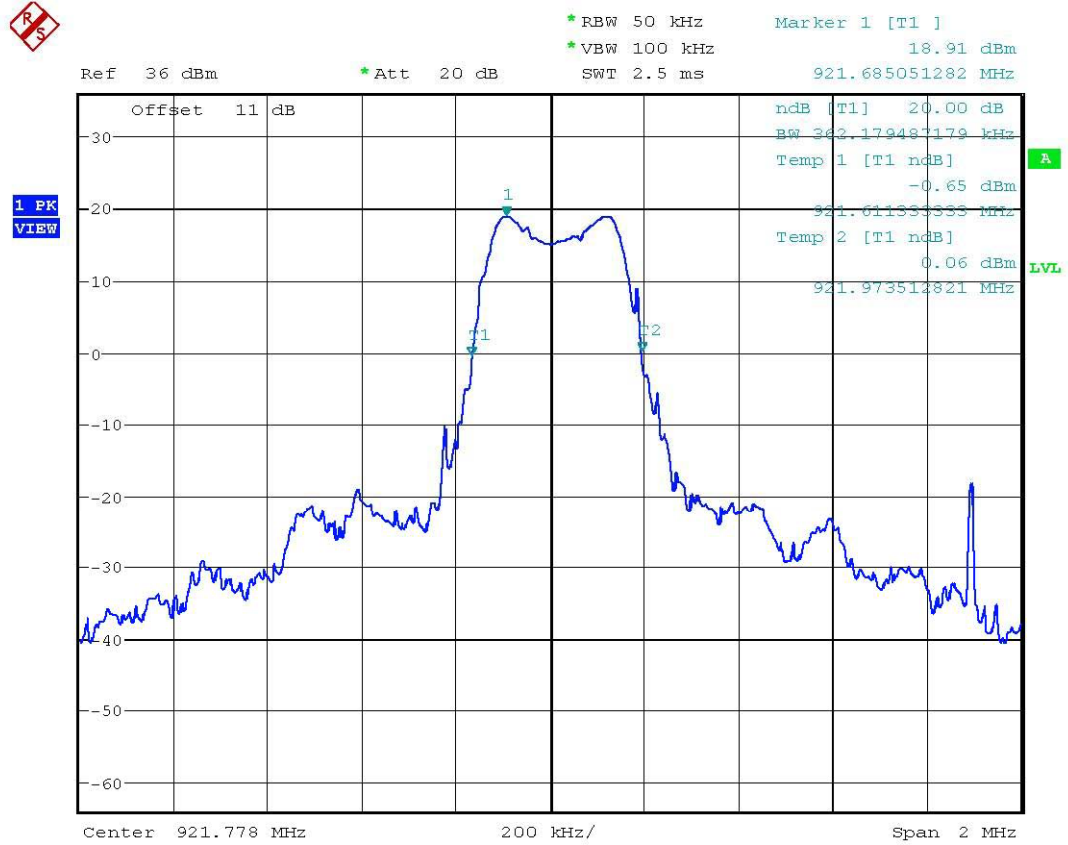
20dB Bandwidth 915.5MHz  
 Date: 18.JAN.2008 09:12:30





# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20801-8817-P-15  
 FCC ID: H50TR26



20dB Bandwidth 921.778MHz  
 Date: 18.JAN.2008 09:10:17