

**FCC PART 15 SUBPART C TEST REPORT**  
**for**  
**Remote Control**  
**Model No.: 303-3**  
**FCC ID: V2S-CMGLO-303-3**

of

Applicant: **C-M GLO, LLC**  
Address: **301 W Spaulding St., Watertown, WI 53098 USA**

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.: W6M20802-8864-C-1**



## **TABLE OF CONTENTS**

<b>1</b>	<b>GENERAL INFORMATION</b>	<b>2</b>
<b>1.1</b>	<b>NOTES</b>	<b>2</b>
<b>1.2</b>	<b>TESTING LABORATORY</b>	<b>3</b>
<b>1.2.1</b>	<b>Location</b>	<b>3</b>
<b>1.2.2</b>	<b>Details of accreditation status</b>	<b>3</b>
<b>1.3</b>	<b>DETAILS OF APPROVAL HOLDER</b>	<b>3</b>
<b>1.4</b>	<b>APPLICATION DETAILS</b>	<b>4</b>
<b>1.5</b>	<b>TEST ITEM</b>	<b>4</b>
<b>1.6</b>	<b>TEST STANDARDS</b>	<b>4</b>
<b>2</b>	<b>TECHNICAL TEST</b>	<b>5</b>
<b>2.1</b>	<b>SUMMARY OF TEST RESULTS</b>	<b>5</b>
<b>2.2</b>	<b>TEST ENVIRONMENT</b>	<b>5</b>
<b>2.3</b>	<b>TEST MODE</b>	<b>5</b>
<b>2.4</b>	<b>TEST EQUIPMENT UTILIZED</b>	<b>6</b>
<b>2.5</b>	<b>GENERAL TEST PROCEDURE</b>	<b>8</b>
<b>3</b>	<b>TEST RESULTS (ENCLOSURE)</b>	<b>9</b>
<b>3.1</b>	<b>TRANSMISSION REQUIREMENTS</b>	<b>10</b>
<b>3.1.1</b>	<b>Limit of Transmission Time</b>	<b>10</b>
<b>3.1.2</b>	<b>Active Time</b>	<b>10</b>
<b>3.2</b>	<b>OUTPUT POWER (FIELD STRENGTH)</b>	<b>11</b>
<b>3.3</b>	<b>OUT OF BAND RADIATED EMISSIONS</b>	<b>12</b>
<b>3.4</b>	<b>TRANSMITTER RADIATED EMISSIONS IN RESTRICTED BANDS</b>	<b>13</b>
<b>3.5</b>	<b>SPURIOUS EMISSION RADIATED, TRANSMITTER</b>	<b>14</b>
<b>3.6</b>	<b>CHANNEL BANDWIDTH</b>	<b>16</b>
<b>3.7</b>	<b>ANTENNA REQUIREMENT</b>	<b>17</b>
<b>3.8</b>	<b>DUTY CYCLE</b>	<b>18</b>
<b>3.9</b>	<b>CONDUCTED MEASUREMENT AT (AC) POWER LINE</b>	<b>19</b>
	<b>APPENDIX</b>	<b>20</b>



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

Registration number: W6M20802-8864-C-1  
FCC ID: V2S-CMGLO-303-3

## **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:**

February 14, 2008

Jay Chaing

Date

ETS-Lab.

Name

Signature

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

February 14, 2008

Steven Chuang

Date

ETS

Name

Signature



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

Registration number: W6M20802-8864-C-1  
FCC ID: V2S-CMGLO-303-3

## **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**

#### **PTCRB Accredited Type Certification Test House**

Town: ./.

Country: ./.

Telephone: ./.

Fax: ./.

## **1.3 Details of approval holder**

Name: C-M GLO, LLC

Street: 301 W Spaulding St., Watertown, WI 53098

Town: ./.

Country: USA

Telephone: 920-261-1000

Fax: 920-261-4500



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

Registration number: W6M20802-8864-C-1  
FCC ID: V2S-CMGLO-303-3

## **1.4 Application details**

Date of receipt of test item: February 05, 2008  
Date of test: from February 06, 2008 to February 13, 2008

## **1.5 Test item**

Description of test item: Remote Control  
Type identification: 303-3  
Brand name: ./.  
Multi-listing model number: without  
Transmitting frequency: 303.875 MHz  
Operation mode: simplex  
Voltage supply: Battery (DC 12V)  
(The device is tested under fresh battery condition.)  
Highest clock frequency: 303.875 MHz  
Antenna type: Loop antenna  
Photos: see Appendix

### **Manufacturer (if applicable)**

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

Additional information: ./.

## **1.6 Test standards**

Technical standard : FCC RULES PART 15 SUBPART C § 15.231 (a) (2007-10)



Registration number: W6M20802-8864-C-1  
FCC ID: V2S-CMGLO-303-3

## **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 (DC 12V)

### **2.3 Test Mode**

This EUT is the portable device. So the EUT was tested on three different axes. Please see assessment test results as section 3 of this test report.



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

Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3

## **2.4 Test equipment utilized**

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 Dipole Array 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
ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2007/10/9	2008/10/8
ETSTW-RE 033	WaveRunner 6000A Serie	WAVERUNNER	LCRY0604P14508	LeCroy	2007/7/9	2008/7/8



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

Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3

	Oscilloscope	6100A				
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





## **2.5 General Test Procedure**

**POWER LINE CONDUCTED INTERFERENCE:** The procedure used was ANSI STANDARD C63.4-2003 5.2 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 ANSI STANDARD C63.4-2003 6.4 using a spectrum analyzer. The bandwidth of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was the 100 kHz and the video bandwidth was 300 kHz.

**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/m + 6 dB = 36.36 dB $\mu$ V/m @3m

**ANSI STANDARD C63.4-2003 6.2.1 MEASUREMENT PROCEDURES:** The UUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table). The UUT was placed in the center of the table. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10<sup>th</sup> harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings.

Measurements were made by Taiwan ETS Product Service Co., Ltd. at the registered open field test site located at. The Registration Number: **930600**

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.



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

Registration number: W6M20802-8864-C-1  
FCC ID: V2S-CMGLO-303-3

### **3 Test results (enclosure)**

☒ 1st test

☐ test after modification

☐ production test

TEST CASE	Para. Number	Required	Test passed	Test failed
Transmission Requirements	FCC 15.231(a)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated Emission	FCC 15.231(b)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Bandwidth of Emission	FCC 15.231(c)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Frequency Tolerance	FCC 15.231(d)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Period Alternate Field Strength Requirements	FCC 15.231(e)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antenna Requirement	FCC 15.203	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Conducted Measurement at (AC) Power Line	FCC 15.207	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**The follows is intended to leave blank.**



Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3

## **3.1 Transmission Requirements**

FCC 15.231(a)

### **3.1.1 Limit of Transmission Time**

- ☒ According to 15.231(a)(1), a manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.
- ☐ According to 15.231(a)(2), a transmitter activated automatically shall cease transmission within 5 seconds after activation.

### **3.1.2 Active Time**

- ☒ This manually operated transmitter employs a switch that automatically deactivate the transmitter within 538.461538 ms of being released.
- ☐ This transmitter is operated by automatic activation and active will cease transmission in \_\_\_\_\_ s after activation.

Explanation: See attached appendix.

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



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

Registration number: W6M20802-8864-C-1  
FCC ID: V2S-CMGLO-303-3

## **3.2 Output Power (Field Strength)**

Model: 303-3 Date: 2008/2/12  
Mode: Temperature: 26 °C Engineer: Danny  
Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBuV) Peak	Factor (dB) Corr. Duty		Result @3m (dBuV/m) Peak Ave.		Limit @3m (dBuV/m) Peak Ave.		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
303.882	54.32	15.36	-9.66	69.68	60.02	94.94	74.94	-14.92	30	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV) Peak	Factor (dB) Corr. Duty		Result @3m (dBuV/m) Peak Ave.		Limit @3m (dBuV/m) Peak Ave.		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
303.886	64.60	15.36	-9.66	79.96	70.30	94.94	74.94	-4.64	30	150

Limit 15.231(b)

Fundamental Frequency (MHz)	Field strength of fundamental, limit $\mu\text{V/m}$
40.66 – 40.70	2,250
70 – 130	1,250
130 – 174	1,250 to 3,750
174 – 260	3,750
260 – 470	3,750 to 12,500** (303.875 MHz: 94.94 dB $\mu\text{V/m}$ = 5578.13546 $\mu\text{V/m}$ )
Above 470	12,500

\*\* linear interpolation

Explanation: See attached appendix.

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



Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3

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

FCC Rule: 15.231(b) , 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.

Guidance on Measurement of pulsed emission: 15.35(c)

“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.”

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

Limits:

For frequencies (Average measurements)

Correction factor conform 15.35 (c) (Average measurements)

Duty cycle correction :

Max. Peak reading – duty cycle correction

Max permitted average Limits = Max permitted Fundamental limit – 20 dB

For example for 303.875 fundamental carrier:

Max permitted average Limit:  $94.94 \text{ dB}\mu\text{V/m} - 20 \text{ dB} = 74.94 \text{ dB}\mu\text{V/m}$

For frequencies above 1GHz (Peak measurements).

Modified Limits for peak conform 15.35 (b) = Max Permitted average Limits + 20dB (because Peak detector is used)



Registration number: W6M20802-8864-C-1  
FCC ID: V2S-CMGLO-303-3

## **3.4 Transmitter Radiated Emissions in restricted Bands**

FCC Rules: 15.231 (b), 15.205, 15.209, 15.35

Radiated emission measurements were performed from 30 MHz to 8000 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 pulsed emission:

“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.

For frequencies above 1GHz (Average measurements).

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

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

No duty cycle correction was added to the reading

Modified Limits for peak conform 15.35 (b) = Max Permitted average Limits + 20dB (because Peak detector is used)

Above 960 MHz

For mode DSSS CW:  $54 \text{ dB}\mu\text{V/m} + 20 \text{ dB} = 74 \text{ dB}\mu\text{V/m}$



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

Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3

## **3.5 Spurious Emission radiated, Transmitter**

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

The limits on the field strength of the spurious emission in the table § 15.231(b) are based on the fundamental frequency of the intentional radiator. Spurious emission shall be attenuated to the average (or alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in § 15.209, whichever limit permits a higher field strength.

In addition, radiated emission 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.

Summary table with radiated data of the test plots

Model:	303-3	Date:	2008/2/13							
Mode:		Temperature:	26 °C						Engineer: Danny	
Polarization:	Horizontal	Humidity:	60 %							
Frequency (MHz)	Reading (dBuV) Peak	Factor (dB) Corr. Duty		Result @3m (dBuV/m) Peak Ave.		Limit @3m (dBuV/m) Peak Ave.		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
274.028	11.77	14.61	-9.66	26.38	16.72	46.00	46.00	-19.62	190	150
607.214	28.06	22.21	-9.66	50.27	40.61	74.94	54.94	-14.33	35	150
911.623	16.92	26.50	-9.66	43.42	33.76	74.94	54.94	-21.18	30	150
1214.429	56.60	-11.84	-9.66	44.76	35.10	74.00	54.00	-18.90	35	150
1519.038	62.66	-11.77	-9.66	50.89	41.23	74.00	54.00	-12.77	30	150
1823.647	55.32	-9.70	-9.66	45.62	35.96	74.94	54.94	-18.98	30	150
2428.858	53.88	-7.47	-9.66	46.41	36.75	74.94	54.94	-18.19	25	150
2733.467	58.91	-6.74	-9.66	52.17	42.51	74.00	54.00	-11.49	25	150
3342.685	52.02	-5.55	-9.66	46.47	36.81	74.94	54.94	-18.13	20	150



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

Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3

Polarization: Vertical

Frequency (MHz)	Reading (dBuV) Peak	Factor (dB)		Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
		Corr.	Duty	Peak	Ave.	Peak	Ave.			
270.782	10.67	14.49	-9.66	25.16	15.50	46.00	46.00	-20.84	245	150
607.214	36.27	22.21	-9.66	58.48	48.82	74.94	54.94	-6.12	30	150
911.623	22.87	26.50	-9.66	49.37	39.71	74.94	54.94	-15.23	35	150
1214.429	54.32	-11.84	-9.66	42.48	32.819	74.00	54.00	-21.18	35	150
1519.038	66.86	-11.77	-9.66	55.09	45.429	74.00	54.00	-8.571	30	150
1823.647	60.11	-9.70	-9.66	50.41	40.749	74.94	54.94	-14.19	25	150
2428.858	55.94	-7.47	-9.66	48.47	38.809	74.94	54.94	-16.13	25	150
2733.467	57.86	-6.74	-9.66	51.12	41.459	74.00	54.00	-12.54	30	150
3342.685	51.55	-5.55	-9.66	46.00	36.339	74.94	54.94	-18.60	25	150

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

All other not noted test plots do not contain significant test results in relation to the limits  
Test results: The unit meets 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





Registration number: W6M20802-8864-C-1  
FCC ID: V2S-CMGLO-303-3

## **3.6 Channel Bandwidth**

Measurement of Necessary Bandwidth (BN)

Used frequency	Bandwidth	Limit
303.875 MHz	75 kHz	0.7596 MHz

Explanation: The bandwidth fulfills the requirements of FCC § 15.231,  
See attached appendix.

Limits:

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

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



Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3

## **3.7 Antenna requirement**

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

Explanation: This Loop antenna is integral antenna which passes antenna requirement.

The equipment meets the requirements	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>
--------------------------------------	--	--------------------------------



Registration number: W6M20802-8864-C-1  
FCC ID: V2S-CMGLO-303-3

## **3.8 Duty Cycle**

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

Average Reading = Peak Reading (dBuV/m) + Duty Cycle Correction

Duty Cycle Correction =  $20 \log (\text{Cycle})$

In order to determine the Duty Cycle, the EUT is measured as:

Testing Mode	T period (ms)	T on (ms)	Duty Cycle	Duty Cycle Correction $20*\log(\text{Duty Cycle})$
Transmitting mode	31.551	10.374	0.328800989	-9.661

Explanation: See attached appendix.

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



### **3.9 Conducted Measurement at (AC) Power Line**

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	
	quasi-peak (dB $\mu$ V/m)	average (dB $\mu$ V/m)
-- kHz	--	--

#### **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

Explanation: This test is not required because the sample uses battery.

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



## **Appendix**

### **A Measurement diagrams**

1. Active Time
2. Output Power
3. Spurious Emissions radiated
4. Bandwidth
5. Duty Cycle

### **B Photos**

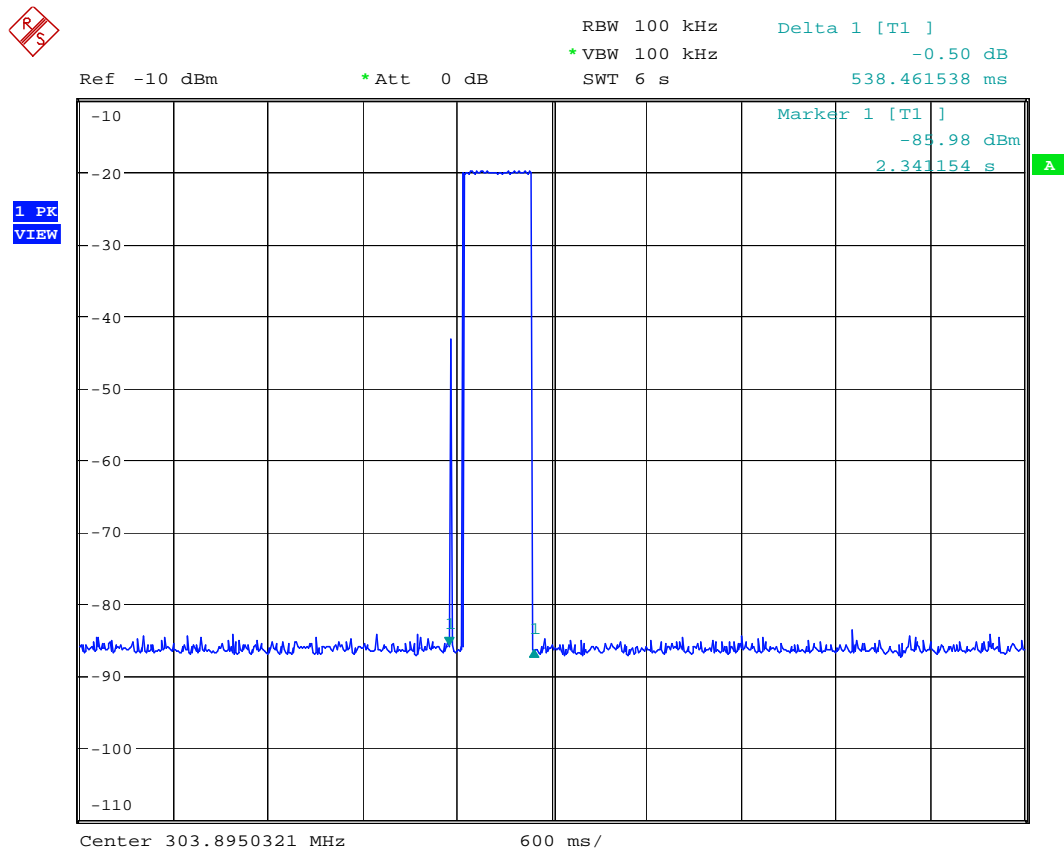
1. External Photos
2. Internal Photos
3. Set Up Photos



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20802-8864-C-1  
FCC ID: V2S-CMGLO-303-3

## Active Time



DURATION TIME

Date: 12.FEB.2008 07:58:17



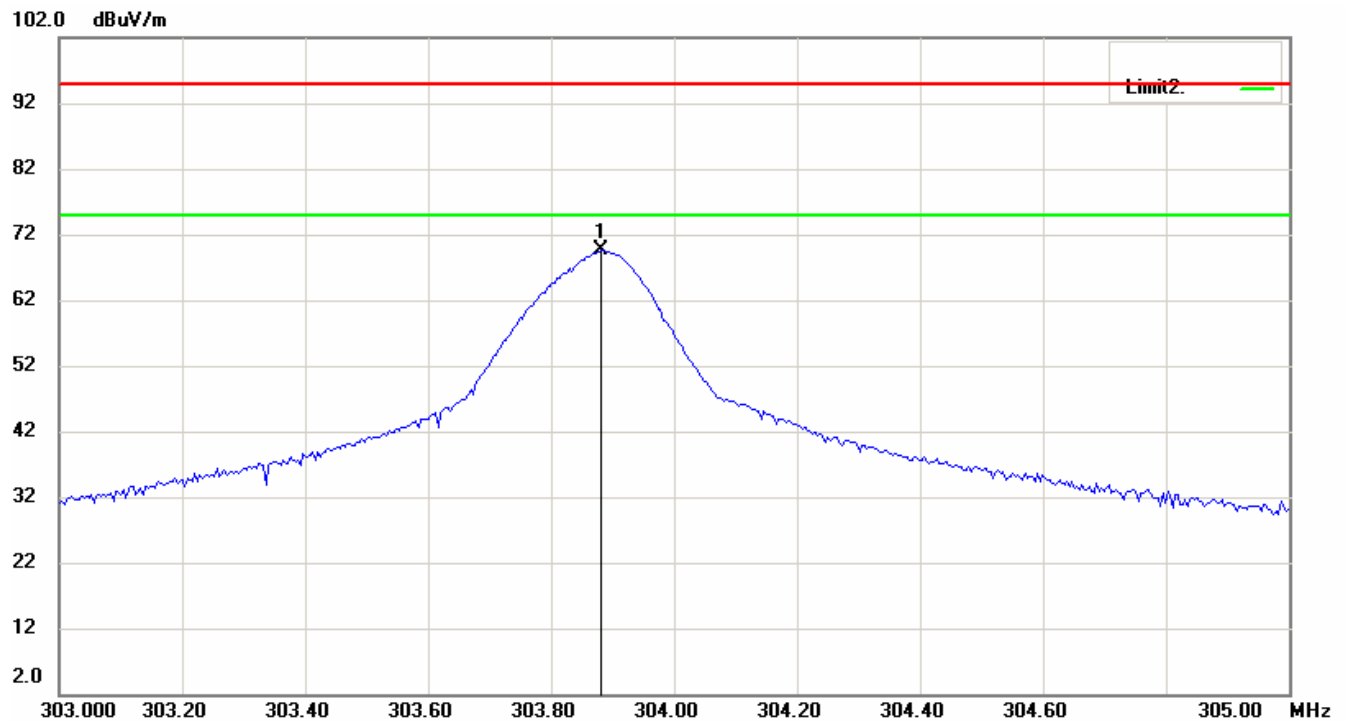
# ***Taiwan ETS Product Service Co., Ltd.***

Registration number: W6M20802-8864-C-1

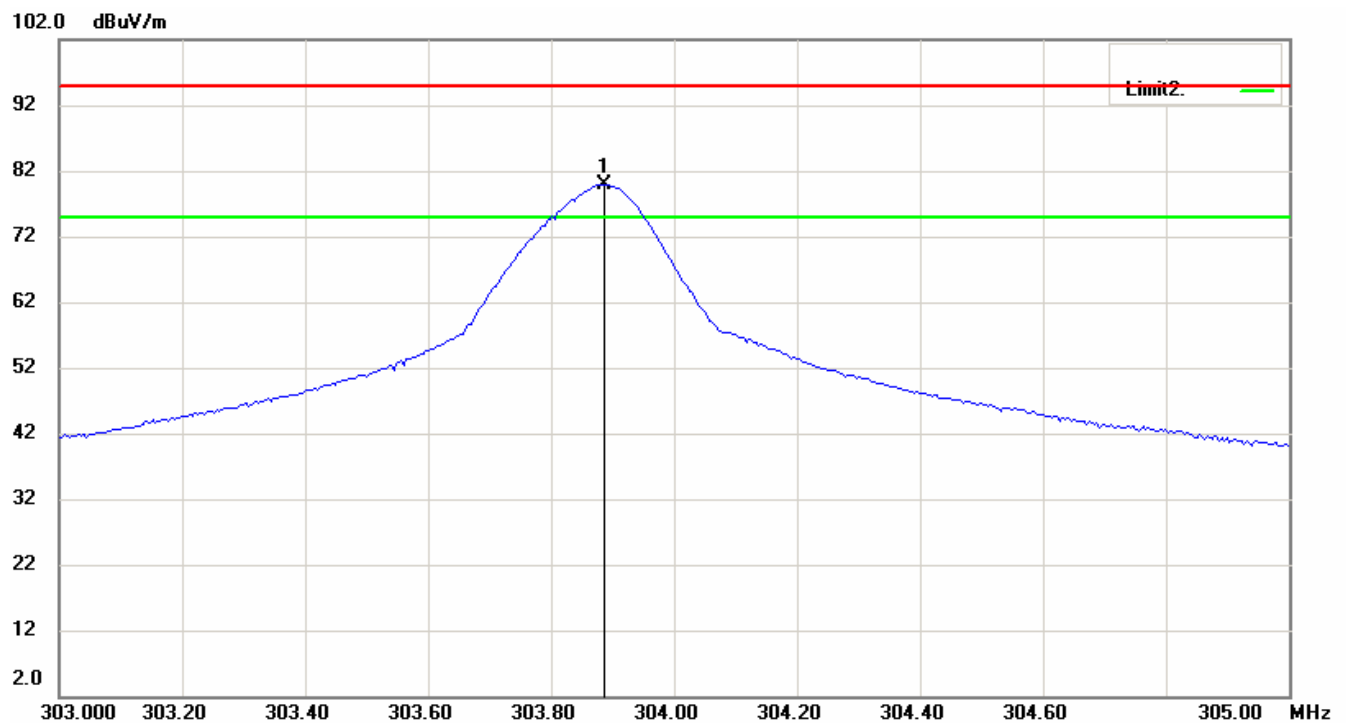
FCC ID: V2S-CMGLO-303-3

## **Output Power**

### **Antenna Polarization H**



### **Antenna Polarization V**



**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 Output Power of this test report.



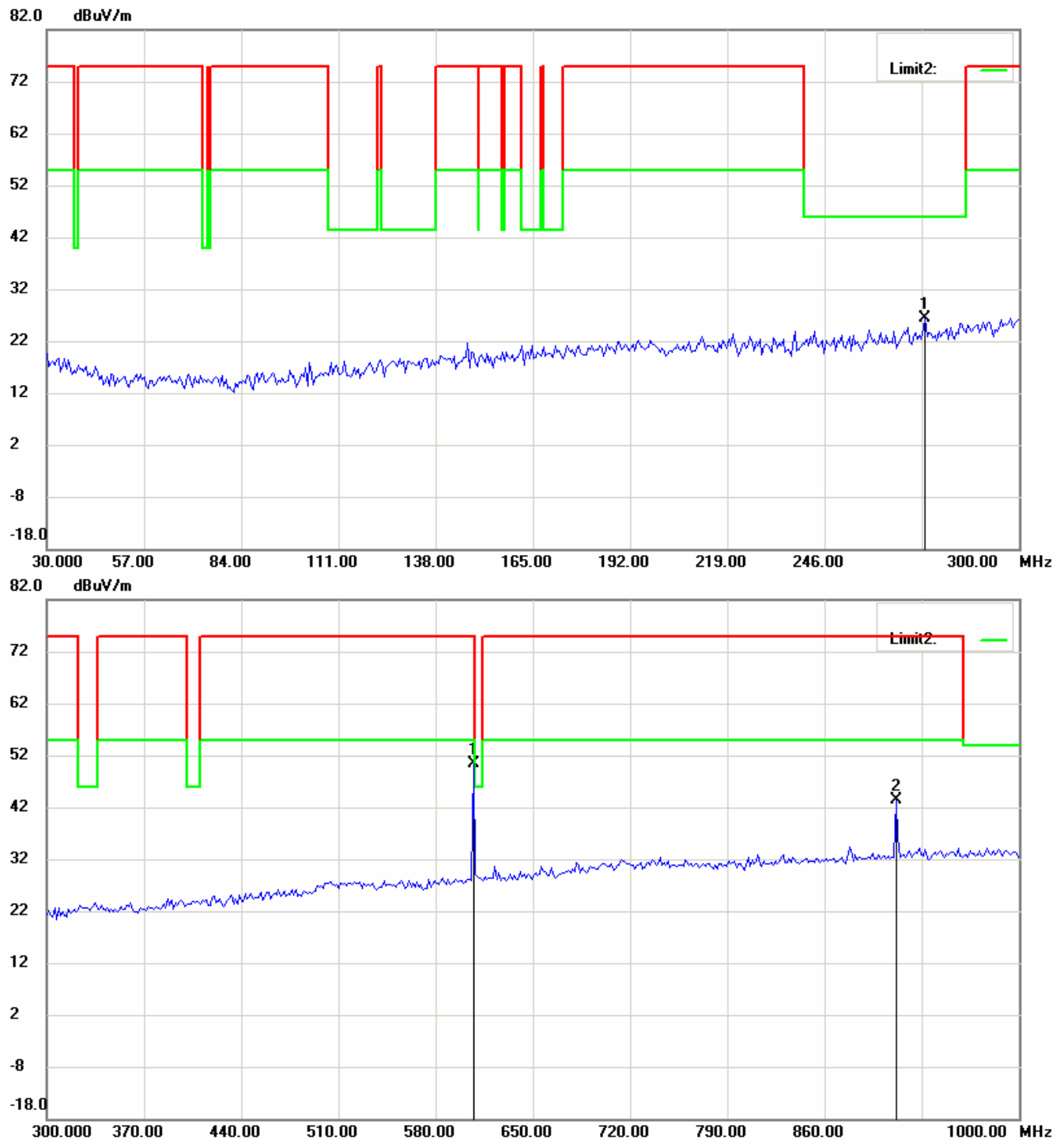
# ***Taiwan ETS Product Service Co., Ltd.***

Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3

## Spurious Emissions radiated

### Antenna Polarization H





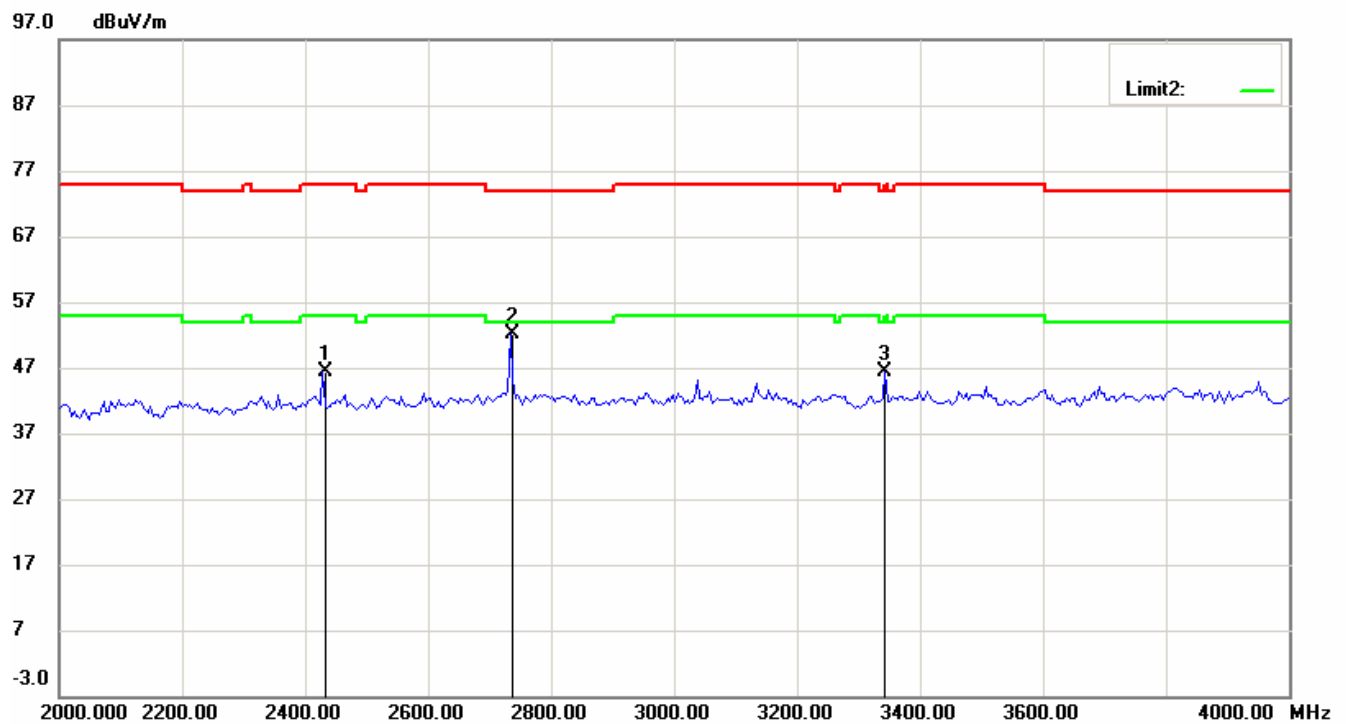
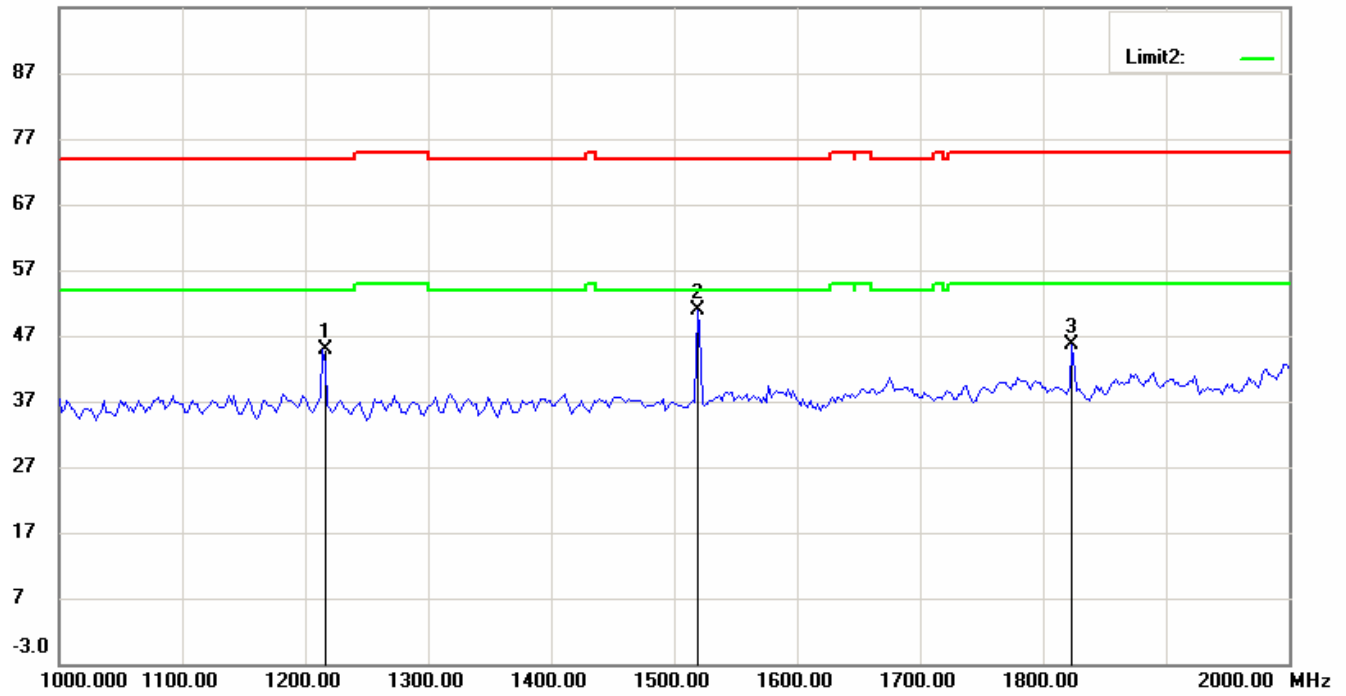


# ***Taiwan ETS Product Service Co., Ltd.***

Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3

97.0 dBuV/m

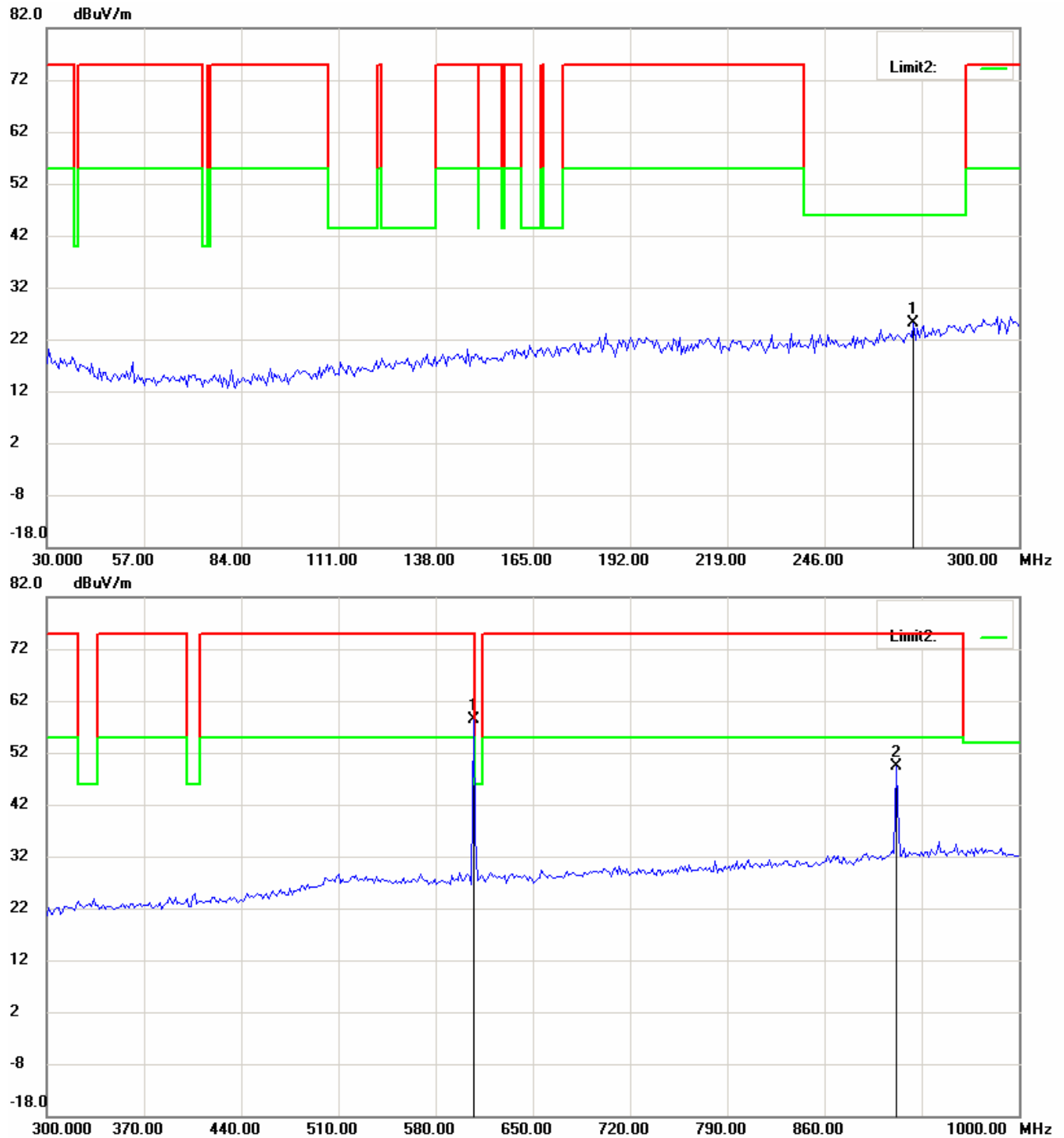




Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3

## Antenna Polarization V



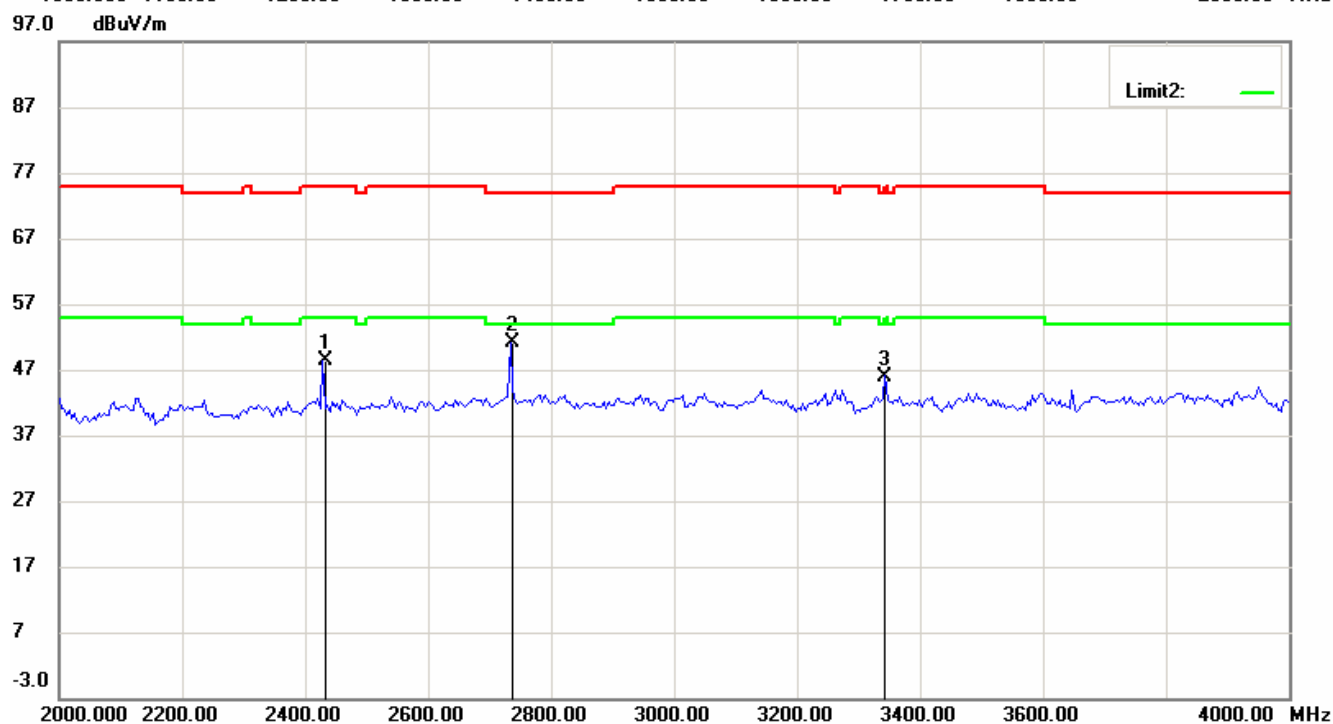
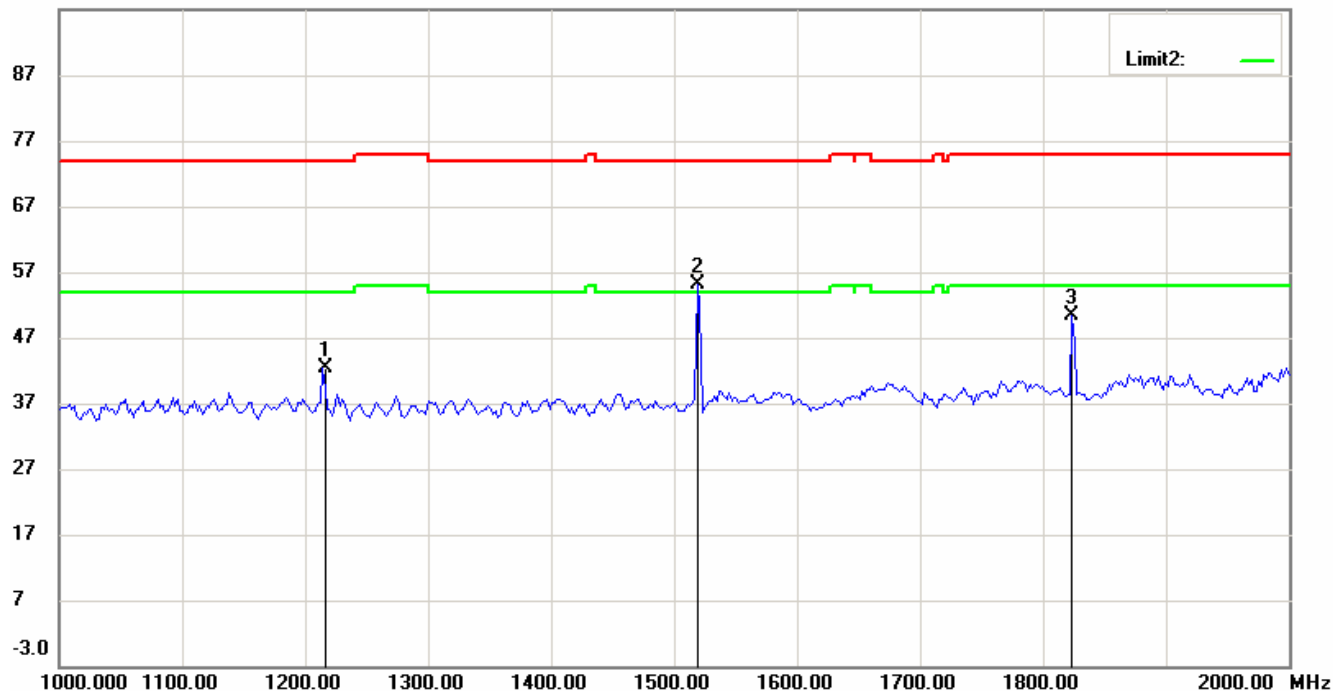


# ***Taiwan ETS Product Service Co., Ltd.***

Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3

97.0 dBuV/m



**Up Line: Peak Limit Line**

**Down Line: Ave Limit Line**

**Note:**

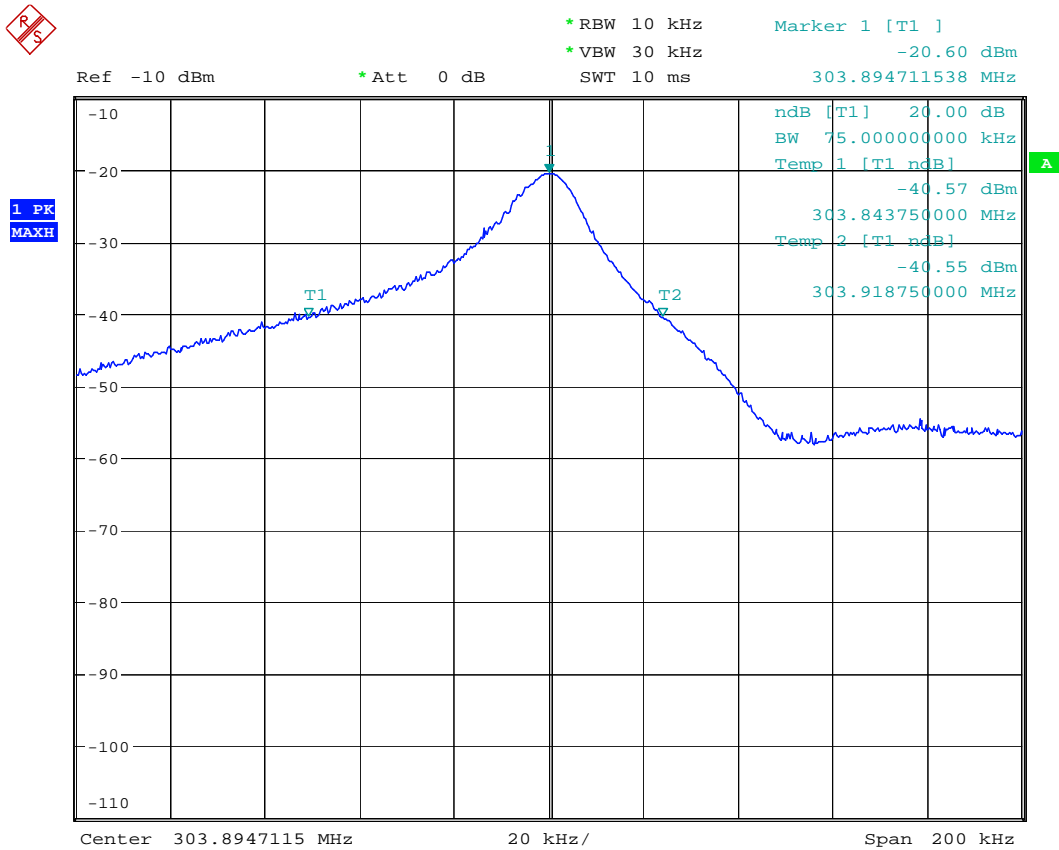
1. The plots are pre-scanned data for determining the tested points and for reference only.
2. The exact test result is shown in the data table of Radiated emission test of this test report.



Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3

## Bandwidth



20dB BANDWIDTH

Date: 12.FEB.2008 07:55:03

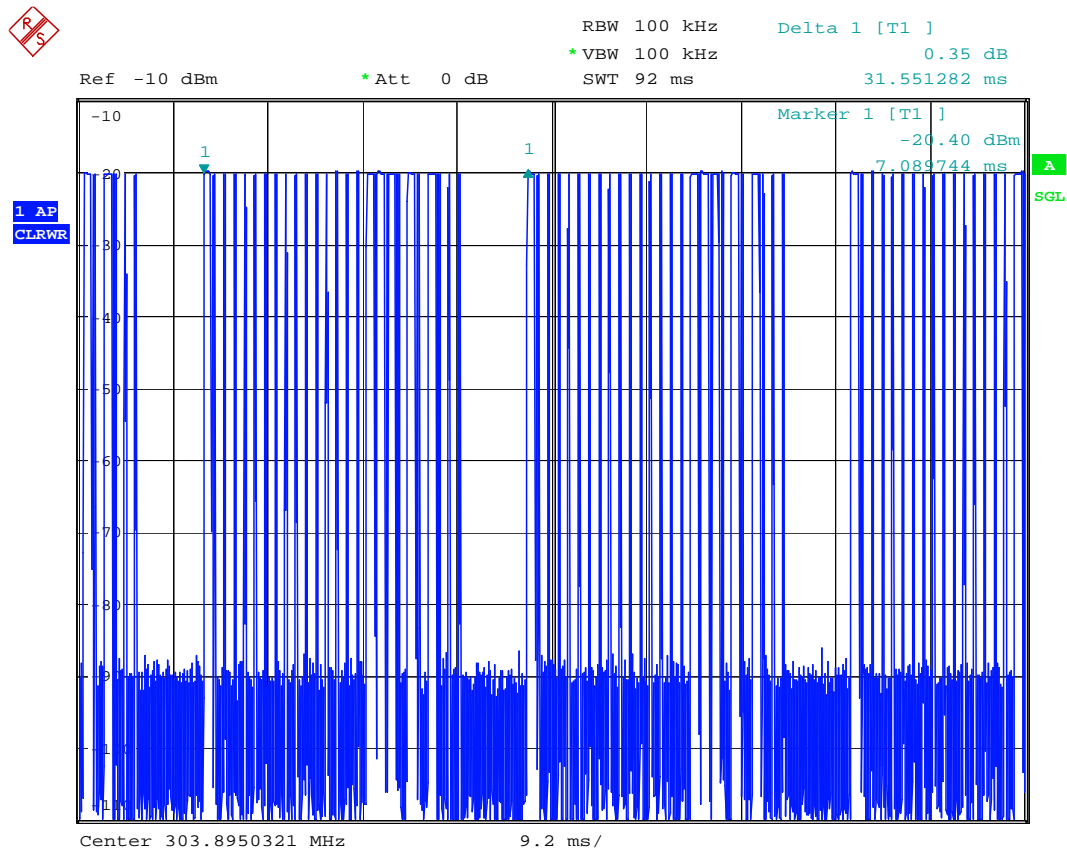


# ***Taiwan ETS Product Service Co., Ltd.***

Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3

## Duty Cycle



DUTY CYCLE

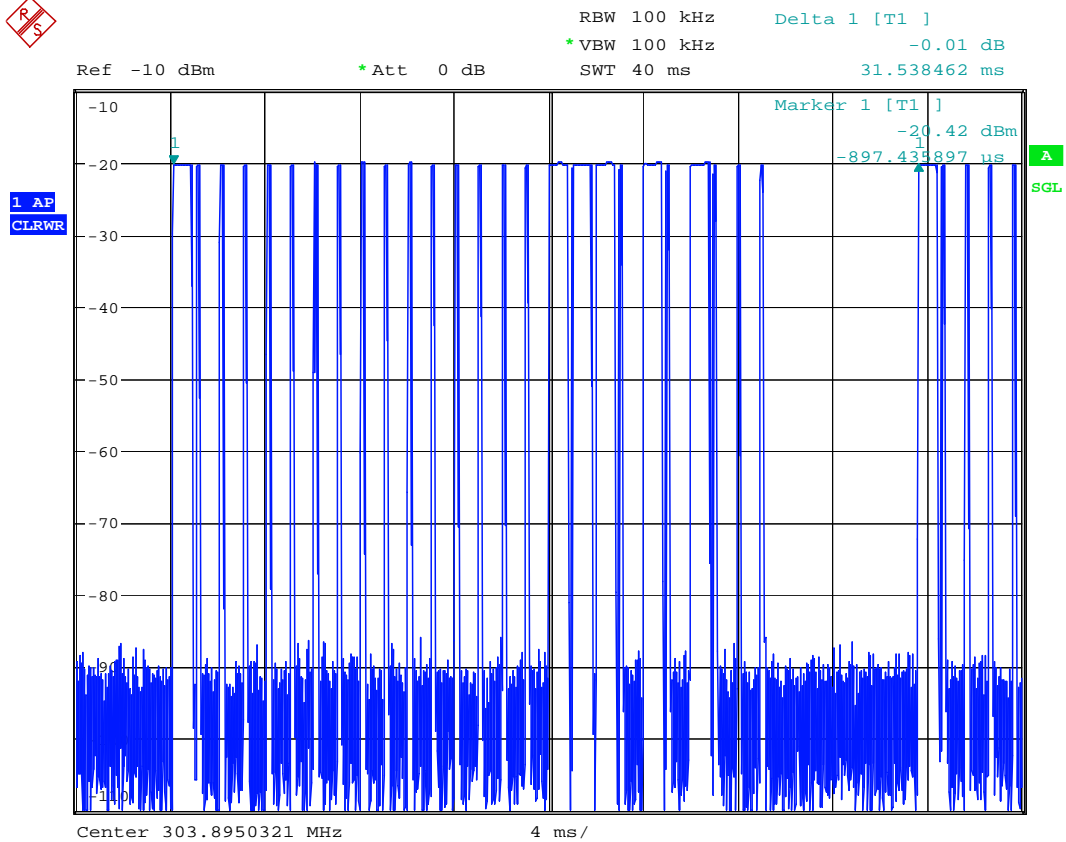
Date: 12.FEB.2008 07:59:59



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3



DUTY CYCLE

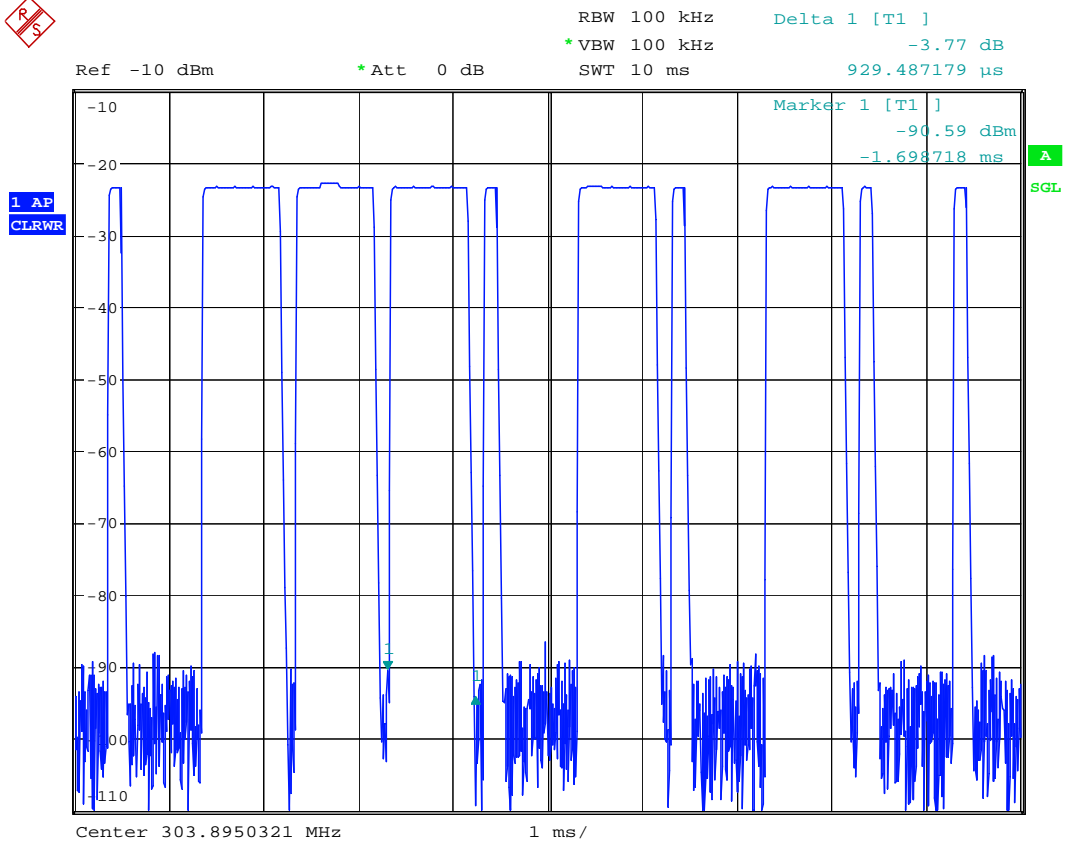
Date: 12.FEB.2008 08:01:34



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3



DUTY CYCLE

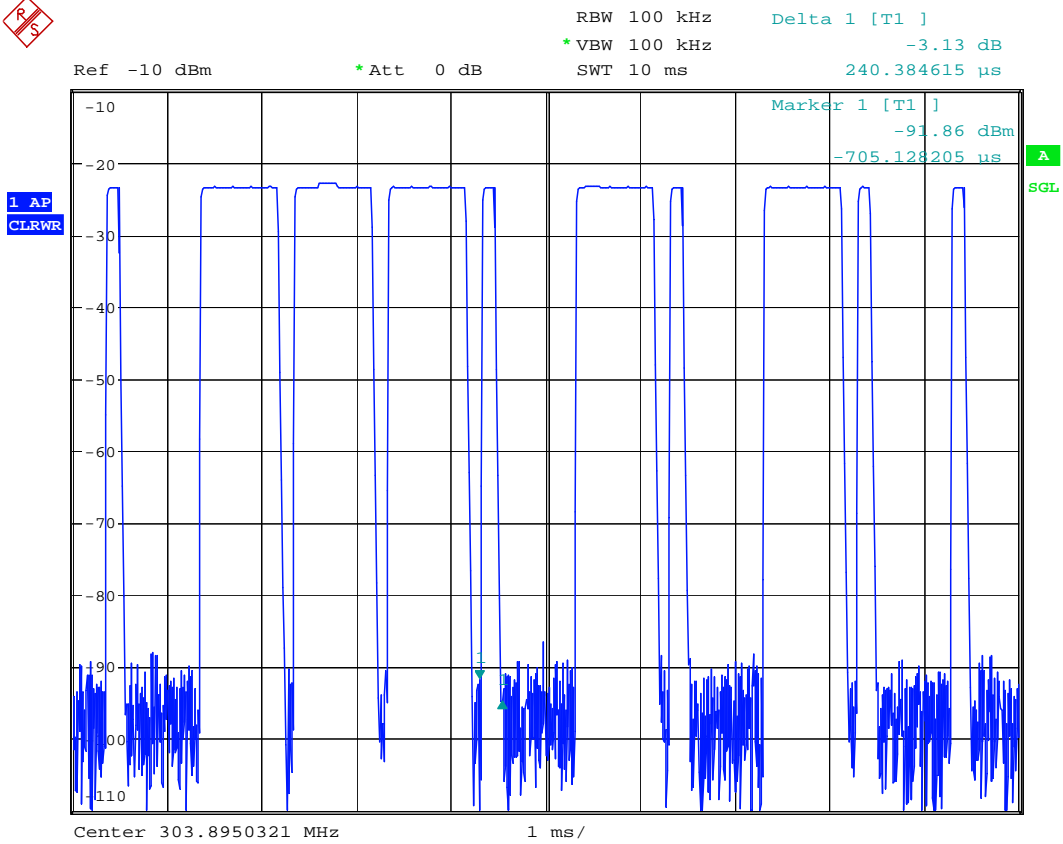
Date: 12.FEB.2008 08:02:43



# Taiwan ETS Product Service Co., Ltd.

Registration number: W6M20802-8864-C-1

FCC ID: V2S-CMGLO-303-3



DUTY CYCLE

Date: 12.FEB.2008 08:03:15