FCC PART 15 SUBPART C TEST REPORT

for

2.4G Mouse

Model No.: RF-7600L

FCC ID: UJ97600

of

Applicant: I-ROCKS TECHNOLOGY CO., LTD.

Address: 12F, No. 190, Chung-hsin Rd., Sec. 2, Hsin-tien City, Taipei,

23146 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.: W6M20910-10116-P-15

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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20910-10116-P-15 FCC ID: UJ97600

TABLE OF CONTENTS

1	GEI	NERAL INFORMATION2
	1.1	NOTES2
	1.2	TESTING LABORATORY
	1.2.1	1 Location
	1.2.2	2 Details of accreditation status
	1.3	DETAILS OF APPROVAL HOLDER
	1.4	APPLICATION DETAILS
	1.5	GENERAL INFORMATION OF TEST ITEM4
	1.6	TEST STANDARDS
2	TEC	CHNICAL TEST
	2.1	SUMMARY OF TEST RESULTS
	2.2	TEST ENVIRONMENT
	2.3	TEST EQUIPMENT LIST
	2.4	GENERAL TEST PROCEDURE
3	TES	ST RESULTS (ENCLOSURE)9
	3.1	PEAK OUTPUT POWER (TRANSMITTER)
	3.2	EQUIVALENT ISOTROPIC RADIATED POWER
	3.3	RF Exposure Compliance Requirements
	3.4	OUT OF BAND RADIATED EMISSIONS
	3.5	SPURIOUS EMISSION (TX)
	3.6	RADIATED EMISSIONS FROM DIGITAL PART
	3.7	RADIATED EMISSION ON THE BAND EDGE
	3.8	Power Line Conducted Emission
AF	PENDI	x20



1 General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems. The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that is performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.

Tester:

October 16, 2009		Kevin Wang	Keion Wong		
Date	WTS-Lab.	Name	Signature		

Technical responsibility for area of testing:

October 16, 2009		Chang Tse-Ming	Chang Tse-ring		
Date	WTS	Name	Signature		



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20910-10116-P-15 FCC ID: UJ97600

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: 2730.01

FCC filed test laboratory Reg. No. 930600

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

1.3 Details of approval holder

Name: Street: Town: Country: Telephone: Fax: Teletex: I-ROCKS TECHNOLOGY CO., LTD. 12F, No. 190, Chung-hsin Rd., Sec. 2, Hsin-tien City, 23146 Taiwan, R.O.C. +886-2-2911-3080 +886-2-2914-1712 ./.



Worldwide Testing Services(Taiwan) Co., Ltd.

Application details 1.4

Date of receipt of test item:	October 08, 2009
Date of test:	From October 09, 2009 to October 15, 2009

1.5 **General information of Test item**

Type of test item:	2.4G Mouse
Model Number:	RF-7600L
Multi-listing model number:	RF-7560L
Photos:	see Annex

Technical data

Frequency band:	2.400-2.483 GHz
Operation Frequency:	2.410-2.472 GHz
Frequency 1:	2.410 GHz
Frequency 2:	2.436 GHz
Frequency 3:	2.472 GHz
Operation modes:	Duplex
Modulation Type:	MSK
Antenna type:	PCB antenna
Power supply:	Battery (1.5VDC)

Manufacturer: (if different from applicant)

Name:	I-ROCKS TECHNOLOGY CO., LTD.
Street:	Zhen Hua Rd, Tie Lu Keng Village,
Town:	Qi Shi Town, Dong Gang City, Guang Dong Province,
Country:	China
Additional information:	./.

Additional information:

1.6 **Test standards**

Technical standard : FCC RULES PART 15 SUBPART C § 15.249 (2008-10)



2 Technical test

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed.	×
or	
The deviations as specified in 2.5 were ascertained in the course of the tests	

The deviations as specified in 2.5 were ascertained in the course of the tests performed.

2.2 Test environment

Temperature:	23 °C
Relative humidity content:	20 75 %
Air pressure:	86 103 kPa
Details Power supply:	Battery (1.5VDC)
Extreme conditions parameters:	Not required



2.3 Test Equipment List

No.	Test equipment	Туре	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2009/9/10	2010/9/9
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function	on 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	2009/9/9	2010/9/8
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2009/5/9	2010/5/8
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2009/7/21	2010/7/20
ETSTW-CE 015	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T8-02	20307	FCC	2009/9/12	2010/9/11
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2009/9/9	2010/9/8
ETSTW-RE 002	Function Generator	33220A	MY43004982	Agilent	Function	on Test
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2009/10/1	2010/9/30
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2009/9/18	2010/9/17
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2009/9/11	2010/9/10
ETSTW-RE 010	ABSORBING CLAMP	MDS 21	3469	Schwarzbeck	2009/9/11	2010/9/10
ETSTW-RE 011	PROGRAMMABLE LINEAR POWER SUPPLY	LPS-305	30503070165	MOTECH	Function	on 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	2009/10/1	2010/9/30
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	Function	on Test
ETSTW-RE 021	SWEEP GENERATOR	SWM05	835130/010	R&S	2009/8/19	2010/8/18
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	EMCO	2009/8/14	2011/8/13
ETSTW-RE 028	Log-Periodic Dipole Array Antenna	3148	34429	EMCO	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	2009/8/23	2010/8/22
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	2009/8/23	2010/8/22
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2009/1/8	2010/1/7
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	PSA SERIES SPECTRUM ANALYZER	E4445A	MY46181369	Agilent	2009/6/15	2010/6/14
ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2009/8/31	2010/8/30
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2009/4/14	2010/4/13
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	Function	on Test
ETSTW-RE 065	Amplifier	AMF-6F- 18002650-25-10P	941608	MITEQ	2009/4/21	2010/4/20



TCC ID. 0397	000					
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2009/10/2	2010/10/1
ETSTW-RE 073	Power Meter	N1911A	MY45100769	Agilent	2009/1/13	2010/1/12
ETSTW-RE 074	Power Sensor	N1921A	MY45241198	Agilent	2009/1/13	2010/1/12
ETSTW-RE 091	Match Pad	MDCS1500	None	WOKEN	2008/10/9	2010/10/8
ETSTW-RE 092	Match Pad	MDCS1510	None	WOKEN	2008/10/9	2010/10/8
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-RE 097	GPS SIGNAL GENERATOR	GSG-L1	06-0507-0311	Naviva	Function	on Test
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2009/9/22	2010/9/21
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2009/9/21	2010/9/20
ETSTW-Cable 001	Microwave Cable	SUCOFLEX 104 (S Cable 1)	238094	HUBER+SUHNER	2009/9/16	2010/9/15
ETSTW-Cable 002	Microwave Cable	SUCOFLEX 104 (S_Cable 7)	238093	HUBER+SUHNER	2009/9/16	2010/9/15
ETSTW-Cable 003	Microwave Cable	SUCOFLEX 104 (S_Cable 11)	209953	HUBER+SUHNER	2009/9/16	2010/9/15
ETSTW-Cable 006	Microwave Cable	SUCOFLEX 104 (S_Cable 8)	238095	HUBER+SUHNER	2009/3/6	2010/3/5
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.	2009/8/20	2010/8/19
ETSTW-Cable 012	BNC Cable	BNC Cable 2	None	JYE BAO CO.,LTD.	2009/8/20	2010/8/19
ETSTW-Cable 013	Microwave Cable	SUCOFLEX 104 (S_Cable 5)	232345	HUBER+SUHNER	2009/3/6	2010/3/5
ETSTW-Cable 022	N TYPE Cable	OATS Cable 3	0002	JYE BAO CO.,LTD.	2009/3/6	2010/3/5



2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-2003 using a 50μ 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) = FS33 $20 \text{ dB}\mu\text{V} + 10.36 \text{ dB} + 6 \text{ dB} = 36.36 \text{ dB}\mu\text{V/m @3m}$

ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm height and with dimensions of 1m by 1.5m (non metallic table). The EUT was placed in the centre of the table. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings. Measurements were made by Worldwide Testing Services(Taiwan) Co., Ltd. at the registered open field test site located at No.5-1, Shuang Sing Village, LiShuei Rd., Wanli Township, Taipei County 207, Taiwan (R.O.C.) The Registration Number: 930600.

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



<u>3 Test results (enclosure)</u>

Test case	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.249 (a)	×	×	
Spurious Emissions radiated – Transmitter operating	15.249 (e)	×	X	
Spurious Emissions conducted – Transmitter operating	15.249 (e)			
Radiated Emission from Digital Part	15.109			
Out of Band Spurious Emission, Band edge-Transmitter operating	15.249 (e)	×	×	
Power Line Conducted Emission	15.207	X	×	

The follows is intended to leave blank.



3.1 Peak Output Power (transmitter)

FCC Rule: 15.249 (b)

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).

Model: Mode: Polarization:	RF-7 2410 Horizo	MHz		Date: Temperature: Humidity:		/10/12 °C %			Engineer:	Kevin
Frequency	Rea	ding	Factor Result @		t@3m	Limit @3m		Margin	Table	Ant.
	(dB	uV)	(dB)	(dBu	V/m)	(dBu\	//m)	_	Degree	High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)
2409.7490	47.22		32.23	79.45		114.00	94.00	-34.55	55	150

Polarization: Vertical

ſ	Frequency	Reading		Factor	Result @3m		Limit @3m		Margin	Table	Ant.
		(dBuV)		(dB)	(dBu	V/m)	(dBuV/m)		_	Degree	High
	(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)
	2409.9500	50.80		32.23	83.03		114.00	94.00	-30.97	15	150

Mode: 2436 MHz Polarization: Horizontal

Frequency	Reading		Factor	Result @3m		Limit @3m		Margin	Table	Ant.
1 3	(dBuV)		(dB)	(dBu	IV/m)	(dBu\	//m)	Ũ	Degree	High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)
2436.1900	46.18		32.25	78.43		114.00	94.00	-35.57	55	150

Polarization: Vertical

Frequency	Reading I		Factor	Result @3m		Limit (@3m	Margin	Table	Ant.
	(dBuV)		(dB)	(dBuV/m)		(dBuV/m)			Degree	High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)
2435.8100	50.77		32.25	83.02		114.00	94.00	-30.98	15	150

Mode:	2472 MHz
Polarization:	Horizontal

1 elanEatiern	Eorman									
Frequency	Reading		Factor	Result @3m		Limit @3m		Margin	Table	Ant.
	(dBuV)		(dB)	(dBuV/m)		(dBuV/m)		_	Degree	High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)
2471.7700	44.98		32.28	77.26		114.00	94.00	-36.74	15	150



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20910-10116-P-15 FCC ID: UJ97600

Polarization: Vertical

Frequency	Reading		Factor	Resul	t @3m	Limit @3m		Margin	Table	Ant.
	(dBuV)		(dB)	(dBu	ıV/m)	(dBuV/m)		_	Degree	High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)
2471.7300	48.23		32.28	80.51		114.00	94.00	-33.49	55	150

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

Explanation: The diagrams for the field strength measurements are included in appendix.



3.2 Equivalent isotropic radiated power

Because using an permanent antenna there are no deviations from the radiated test results according 3.1.

3.3 RF Exposure Compliance Requirements

Not applicable for this 2.4G Mouse for the low power level.

3.4 Out of Band Radiated Emissions

FCC Rule: 15.249 (d)(e), 15.35(b)

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

For frequency above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

Limits: Frequency of Emission Field strength Field Strength (MHz) (microvolts/meter) (dB microvolts/meter) 30 - 88 100 40.0 88 - 216150 43.5 216 - 960200 46.5 Above 960 500 54.0

For frequencies above 1 GHz (Peak measurements).

Limit + 20 dB $54.0 \text{ dB}\mu\text{V/m} + 20 \text{ dB} = 74 \text{dB}\mu\text{V/m}$ Or Must be attenuated at least 50dB below the level of fundament

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

Explanation: Please see attached diagram as appendix.



3.5 Spurious emission (tx)

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

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

For frequencies above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

SAMPLE CALCULATION OF LIMIT. ALL results will be updated by an automatic measuring system in accordance with point 2.3.

The peak and average spurious emission plots was measured with the average limits. The critical peak value listed in the table agree with the above calculated limits.

Summary table with radiated data of the test plots

Model: Mode: Polarization:	ΤX	RF-7600L 2410 MH:	Ζ	Date: Temperature: Humidity:	2009/1 24 51	°C	Engineer:	Kevin
Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
282.6854	15.41	peak	14.89	30.30	46.00	-15.70	120	150
879.3586	6.67	peak	25.82	32.49	46.00	-13.51	110	150

Frequency	J		Factor	Result @3m		Limit @3m		Margin	Table	Ant.
	(dBuV)		(dB)	(dBu	(dBuV/m)		(dBuV/m)		Degree	High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)
4820.0000	47.93		-4.67	43.26		74.00	54.00	-30.74	120	150
7230.0000	47.37		-0.10	47.27		74.00	54.00	-26.73	210	150
9640.0000	30.16		15.02	45.18		74.00	54.00	-28.82	170	150
12050.0000	31.51		17.82	49.33		74.00	54.00	-24.67	140	150

Polarization: Vertical

Frequer (MHz		Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
280.52	10	16.11	peak	14.85	30.96	46.00	-15.04	120	150
920.04	01	7.23	peak	26.71	33.94	46.00	-12.06	250	150



Frequency	Reading		Factor	Result	Result @3m		Limit @3m		Table	Ant.
	(dBuV)		(dB)	(dBuV/m)		(dBuV/m)		_	Degree	High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)
4820.0000	46.08		-4.67	41.41		74.00	54.00	-32.59	120	150
7230.0000	46.95		-0.10	46.85		74.00	54.00	-27.15	250	150
9640.0000	30.56		15.02	45.58		74.00	54.00	-28.42	130	150
12050.0000	31.57		17.82	49.39		74.00	54.00	-24.61	340	150

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
205.8514	13.57	peak	12.25	25.82	43.50	-17.68	110	150
826.0520	6.61	peak	25.53	32.14	46.00	-13.86	170	150

Frequency		ding	Factor		@3m	Limit		Margin		Ant.
	(dB	uV)	(dB)	(dBu	V/m)	(dBu	V/m)		Degree	High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)
4827.0000	47.19		-4.63	42.56		74.00	54.00	-31.44	210	150
7308.0000	47.88		-0.23	47.65		74.00	54.00	-26.35	310	150
9744.0000	31.52		15.56	47.08		74.00	54.00	-26.92	250	150
12180.0000	31.64		18.00	49.64		74.00	54.00	-24.36	340	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
72.7455	13.26	peak	11.51	24.77	40.00	-15.23	120	150
887.7756	8.79	peak	25.99	34.78	46.00	-11.22	110	150

Frequency	Rea	ding	Factor	Result	:@3m	Limit	@3m	Margin	Table	Ant.
	(dB	uV)	(dB)	(dBu	V/m)	(dBu	V/m)		Degree	High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)
4827.0000	46.59		-4.63	41.96		74.00	54.00	-32.04	270	150
7308.0000	48.27		-0.23	48.04		74.00	54.00	-25.96	260	150
9744.0000	30.71		15.56	46.27		74.00	54.00	-27.73	170	150
12180.0000	30.77		18.00	48.77		74.00	54.00	-25.23	280	150



	Mode: Polarization:		2472 MH	Z					
	Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	198.8173	13.48	peak	12.21	25.69	43.50	-17.81	130	150
	876.5530	6.28	peak	25.77	32.05	46.00	-13.95	170	150
_									
	Frequency	Reading (dBuV)	5		ult @3m 3uV/m)	Limit @3n (dBuV/m)		gin Table	

Frequency	Rea	aing	Factor	Result	@3M	LIMIL	@3M	wargin	Table	Ant.
	(dB	uV)	(dB)	(dBu	V/m)	(dBu	V/m)		Degree	High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)
4944.0000	47.20		-4.15	43.05		74.00	54.00	-30.95	120	150
7416.0000	47.90		-0.14	47.76		74.00	54.00	-26.24	170	150
9888.0000	30.89		16.16	47.05		74.00	54.00	-26.95	280	150
12360.0000	31.61		17.92	49.53		74.00	54.00	-24.47	310	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
263.7475	13.99	peak	14.22	28.21	46.00	-17.79	120	150
879.3586	8.08	peak	25.82	33.90	46.00	-12.10	100	150

Frequency		ding uV)	Factor (dB)		t @3m V/m)		@3m V/m)	Margin	Table Degree	Ant. High
(MHz)	Peak	Áve.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)
4944.0000	49.21		-4.15	45.06		74.00	54.00	-28.94	130	150
7416.0000	48.64		-0.14	48.50		74.00	54.00	-25.50	240	150
9888.0000	30.81		16.16	46.97		74.00	54.00	-27.03	280	150
12360.0000	31.94		17.92	49.86		74.00	54.00	-24.14	350	150

Note 1. Correction Factor = Antenna factor + Cable loss - Preamplifier

2. The formula of measured value as: Test Result = Reading + Correction Factor

- **3.** Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average
- 4. All not in the table noted test results are more than 20 dB below the relevant limits.

5. See the attached diagram as appendix.

TEST RESULT (Transmitter): The unit DOES meet the FCC requirements. Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 055



3.6 Radiated Emissions from Digital Part

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	Field Strength	Field Strength
(MHz)	(microvolts/meter)	(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

Explanation: The test results are listed in the separated test report no.: W6M20910-10116-P-15B.



3.7 Radiated Emission on the band edge

From the following plots, they show that the fundamental emissions are confined in the specified band and hey at least 50 dB below the carrier level at band edge (2400 and 2483.5 MHz). It meets the requirement of section 15.249(d).

Test conditions	Transmitter field strength of	Transmitter field strength of
$Tnom = 26^{\circ}C, Vnom = 1.5V$	Radiated Emission	Radiated Emission
Frequency [MHz]	(Peak Detector)	(Average Detector)
	[dBµV	V/m]
2400	60.23	47.48
2483.5	48.77	35.58

Limit:

Frequency Range (MHz)	Limit (dBµV/m)				
902 - 928	Peak	Average			
2400 - 2483.5					
5725 - 5875	74	54			
24000 - 24250					

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

Explanation: Please see attached diagram as appendix.



3.8 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.

English	Level (dBµV)					
Frequency	quasi-peak	average				
150 kHz	lower limit line	Lower limit line				

Model: Mode: Polarization:	RF-7600L N		Temperature: 26		2009/10 26 °0 60 %	°C Engineer:		Kevin
Frequency	Reading (dBuV)		Factor (dB)	Result (dBuV)		Limit (dBuV)		Margin
(MHz)	QP	Áve.	Corr.	QP	Áve.	QP	Áve.	(dB)
0.2025	37.40	28.01	10.10	47.50	38.11	63.51	53.51	-15.40
0.2663	31.85	25.73	10.10	41.95	35.83	61.23	51.23	-15.40
0.7350	21.79	19.94	10.10	31.89	30.04	56.00	46.00	-15.96
1.7400	21.33	18.85	10.10	31.43	28.95	56.00	46.00	-17.05
5.4722	19.20	6.10	10.10	29.30	16.20	60.00	50.00	-30.70
15.2500	21.22	6.74	10.10	31.32	16.84	60.00	50.00	-28.68

Polarization: L1

Frequency	Reading		Factor	Result		Limit		Margin
	(dBuV)		(dB)	(dBuV)		(dBuV)		
(MHz)	QP	Ave.	Corr.	QP	Ave.	QP	Ave.	(dB)
0.1982	36.94	26.03	10.10	47.04	36.13	63.69	53.69	-16.65
0.2667	33.69	25.85	10.10	43.79	35.95	61.22	51.22	-15.27
0.5350	26.14	22.16	10.10	36.24	32.26	56.00	46.00	-13.74
1.5400	20.00	16.98	10.10	30.10	27.08	56.00	46.00	-18.92
5.2222	17.63	8.94	10.10	27.73	19.04	60.00	50.00	-30.96
14.9444	22.50	11.10	10.10	32.60	21.20	60.00	50.00	-27.40
-								

Note 1. The formula of measured value as: Test Result = Reading + Correction Factor

2. The Correction Factor = Cable Loss + LISN Insertion Loss + Pulse Limit Loss

3. Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average

4. All not in the table noted test results are more than 20 dB below the relevant limits.

5. See attached diagrams as appendix.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20910-10116-P-15 FCC ID: UJ97600

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

Explanation: Please see attached diagram as appendix.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20910-10116-P-15 FCC ID: UJ97600

Appendix

Measurement diagrams

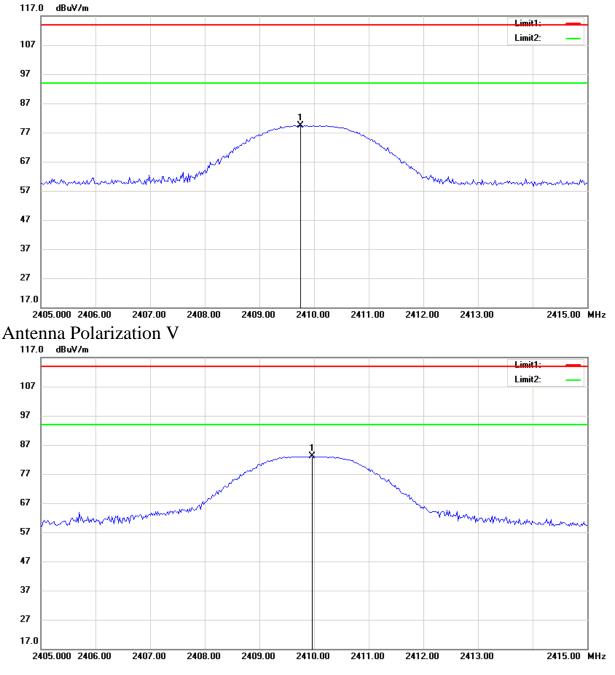
- 1. Fundamental Field Strength
- 2. Spurious Emissions radiated
- 3. Radiated Emission on the band edge
- 4. Power Line Conducted Emission



Fundamental Field Strength

2410 MHz

Antenna Polarization H



- 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 fundamental field strength test data of this test report.



Registration number: W6M20910-10116-P-15 FCC ID: UJ97600 2436 MHz Antenna Polarization H 117.0 dBu¥/m Limit1 Limit2: 107 97 87 77 67 North 57 47 37 27 17.0 2434.00 2431.000 2432.00 2433.00 2435.00 2441.00 MHz 2436.00 2437.00 2438.00 2439.00 Antenna Polarization V 117.0 dBuV/m Limit1 Limit2: 107 97 87 77 67 57 47 37 27 17.0 2431.000 2432.00 2433.00 2434.00 2435.00 2436.00 2437.00 2438.00 2439.00 2441.00 MHz

- 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 fundamental field strength test data of this test report.



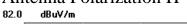
Registration number: W6M20910-10116-P-15 FCC ID: UJ97600 2472 MHz Antenna Polarization H 117.0 dBu¥/m Limit1 Limit2: 107 97 87 77 67 57 47 37 27 17.0 2467.000 2468.00 2470.00 2469.00 2471.00 2474.00 2477.00 MHz 2472.00 2473.00 2475.00 Antenna Polarization V 117.0 dBuV/m Limit1 Limit2: 107 97 87 1 77 67 mount Aur 57 47 37 27 17.0 2467.000 2468.00 2469.00 2470.00 2471.00 2472.00 2473.00 2474.00 2475.00 2477.00 MHz

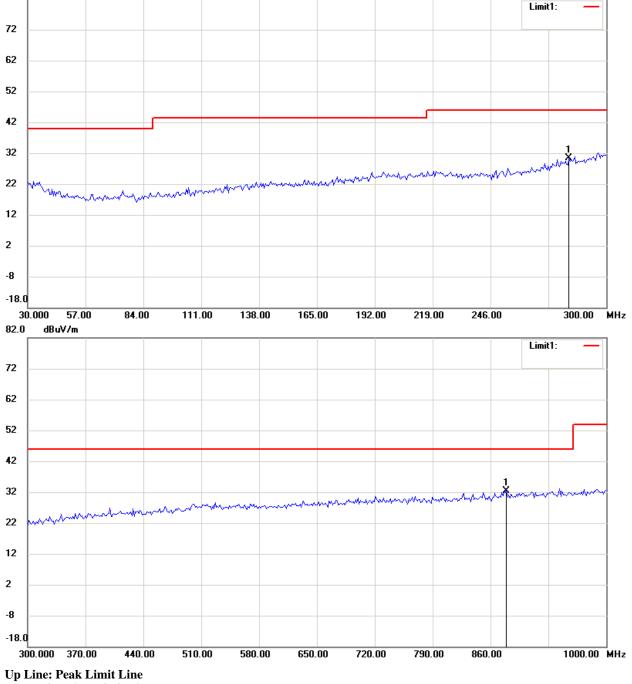
- 1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
- 2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Spurious Emissions radiated

Transmitter_2410 MHz Antenna Polarization H





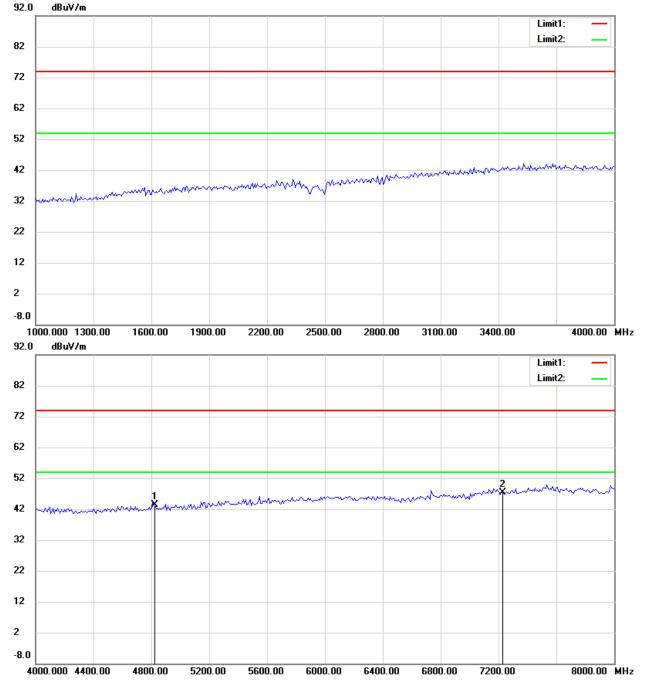
Down Line: Ave Limit Line

Note:

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



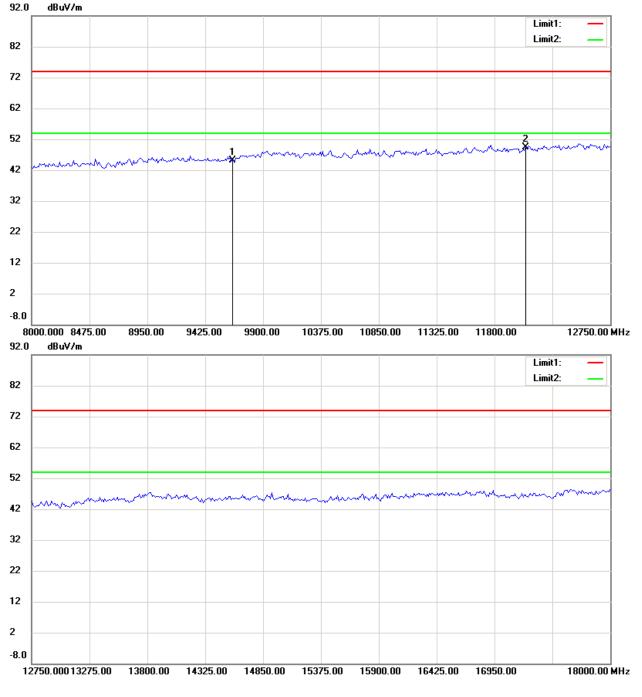
Registration number: W6M20910-10116-P-15 FCC ID: UJ97600



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



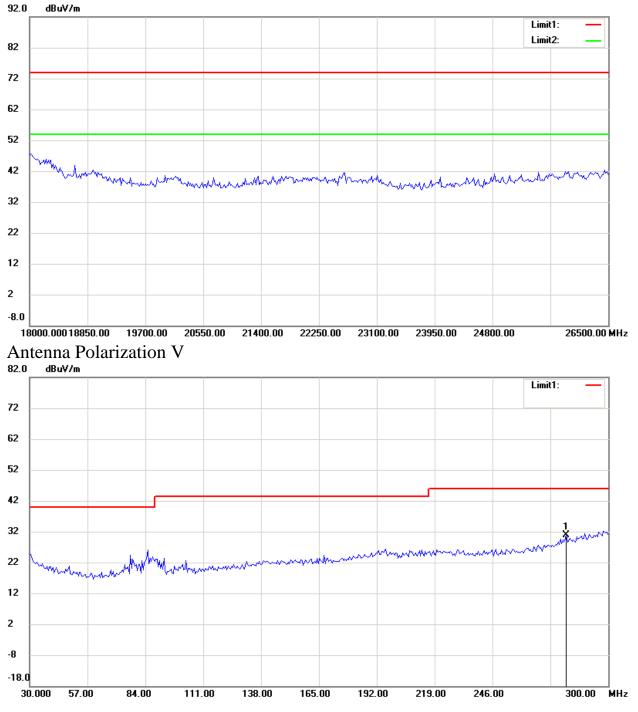
Registration number: W6M20910-10116-P-15 FCC ID: UJ97600



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



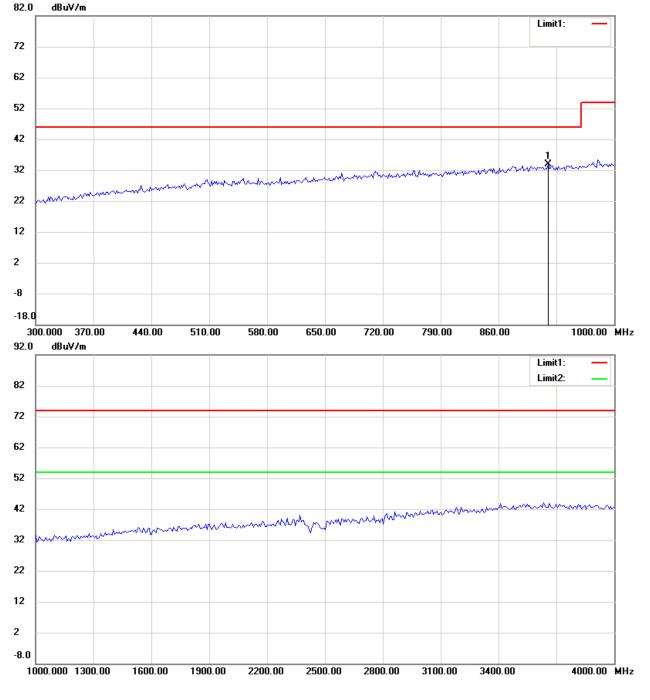
Registration number: W6M20910-10116-P-15 FCC ID: UJ97600



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



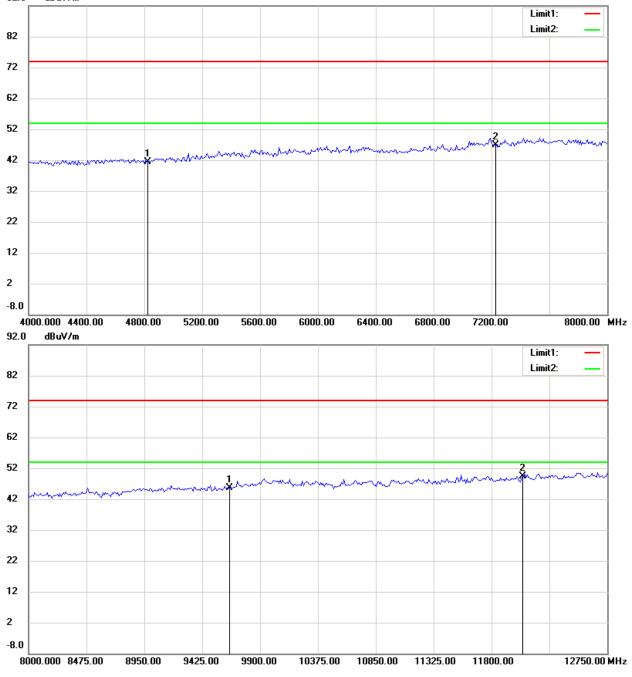
Registration number: W6M20910-10116-P-15 FCC ID: UJ97600



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





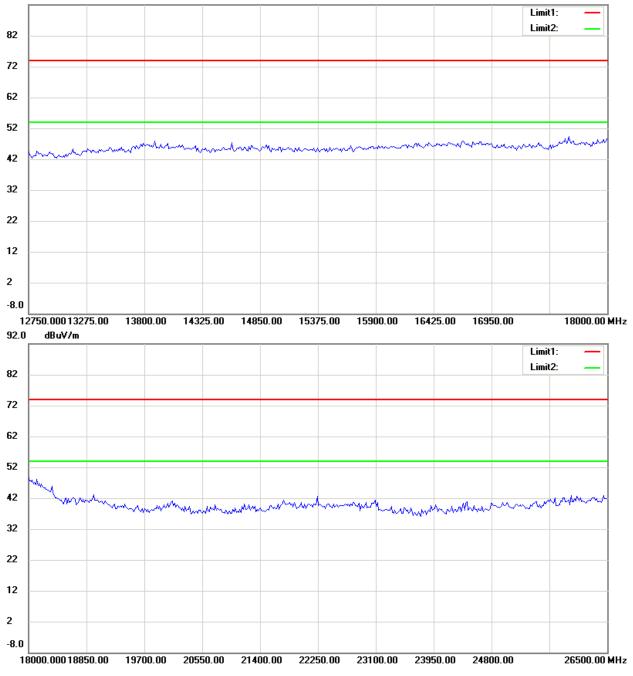


- 4. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
- 5. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Registration number: W6M20910-10116-P-15 FCC ID: UJ97600



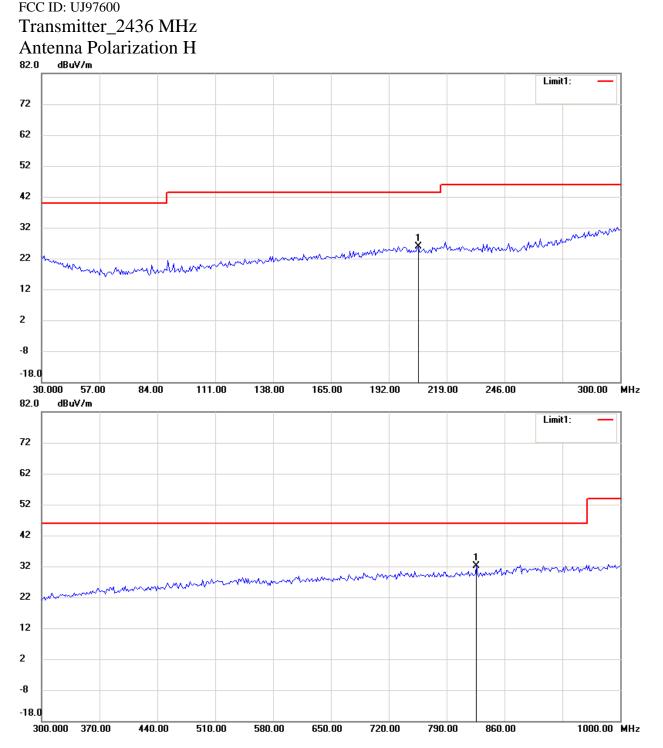


- 4. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
- 5. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20910-10116-P-15



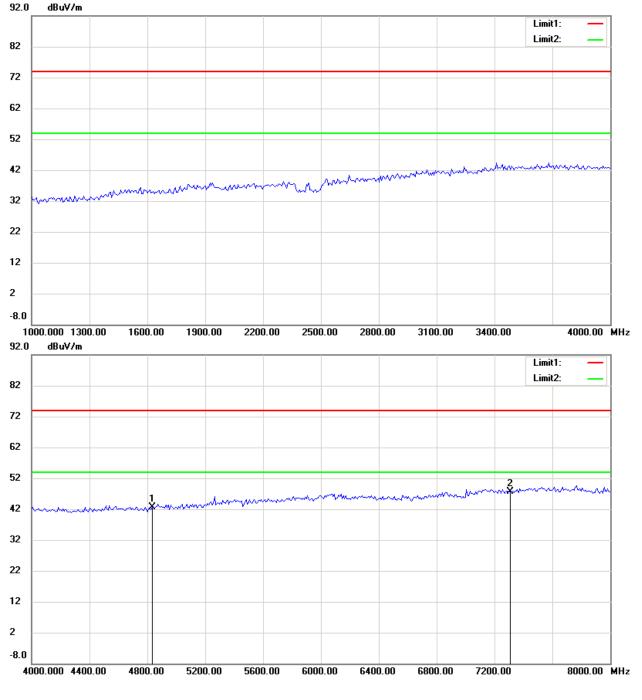
Up Line: Peak Limit Line Down Line: Ave Limit Line

Note:

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



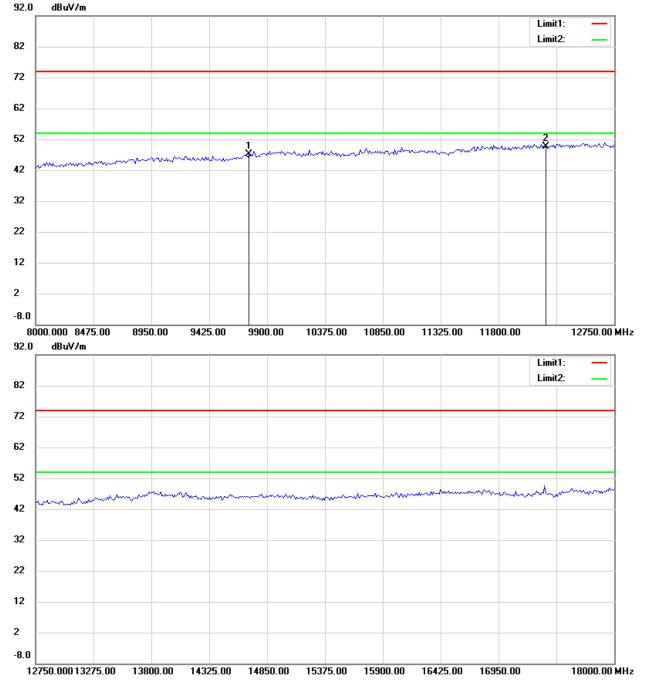
Registration number: W6M20910-10116-P-15 FCC ID: UJ97600



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



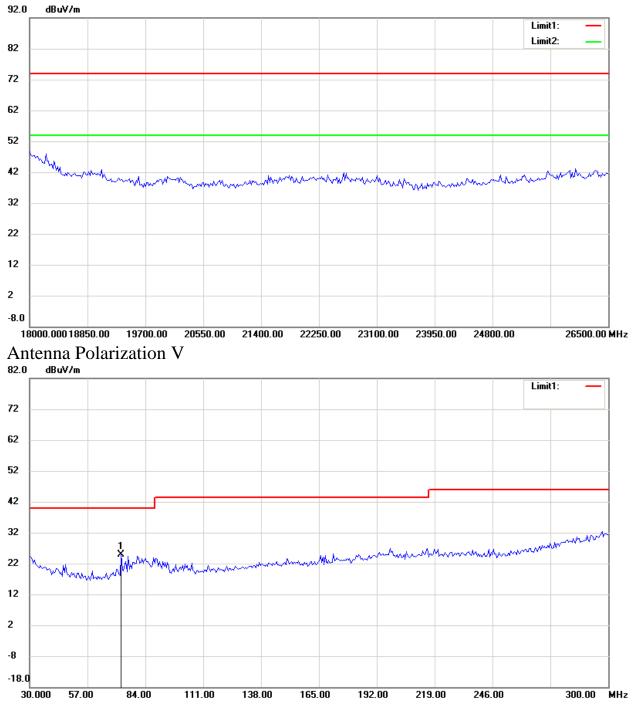
Registration number: W6M20910-10116-P-15 FCC ID: UJ97600



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



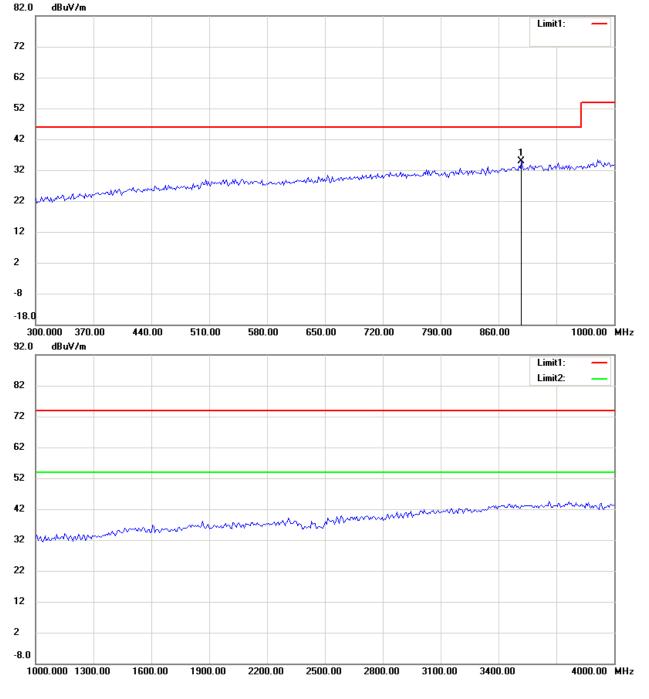
Registration number: W6M20910-10116-P-15 FCC ID: UJ97600



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



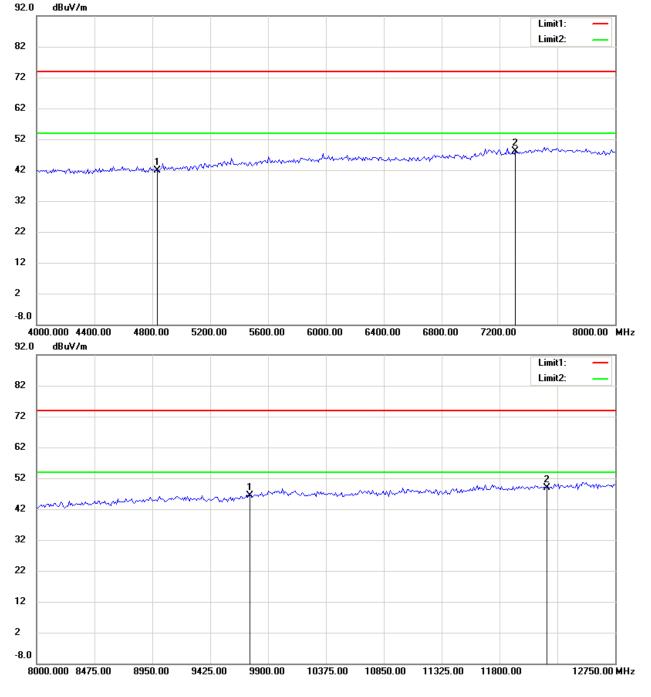
Registration number: W6M20910-10116-P-15 FCC ID: UJ97600



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



Registration number: W6M20910-10116-P-15 FCC ID: UJ97600

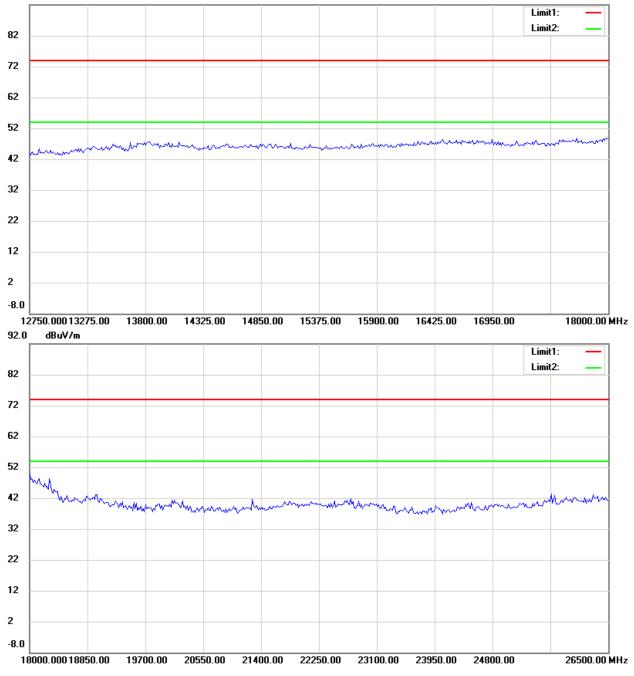


- 4. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
- 5. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Registration number: W6M20910-10116-P-15 FCC ID: UJ97600



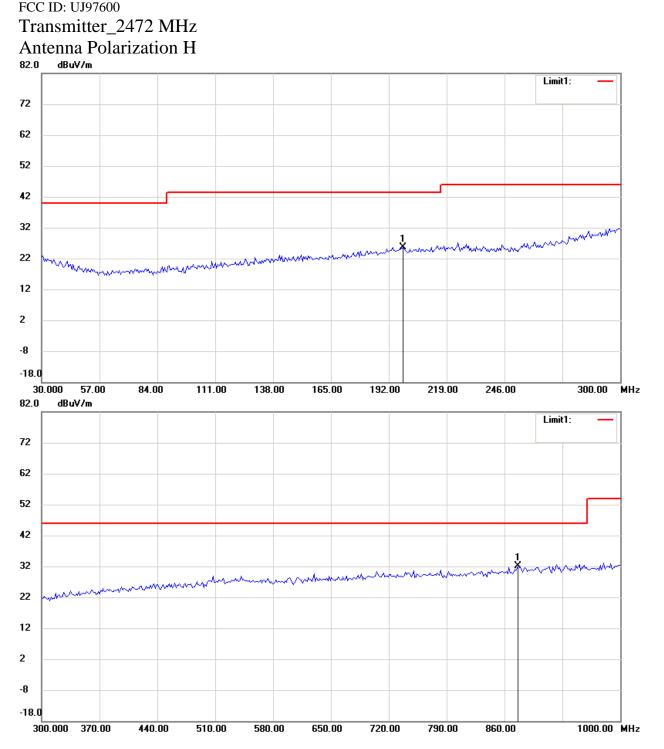


- 4. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
- 5. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20910-10116-P-15



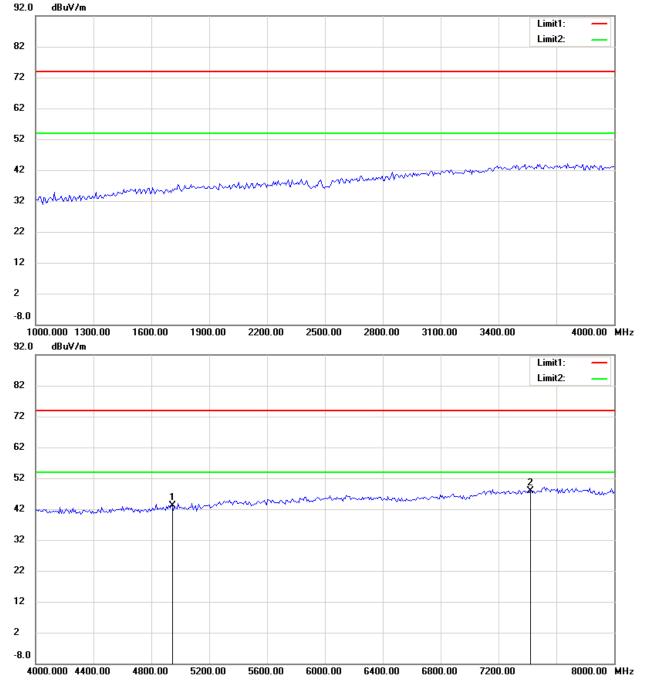
Up Line: Peak Limit Line Down Line: Ave Limit Line

Note:

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



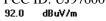
Registration number: W6M20910-10116-P-15 FCC ID: UJ97600

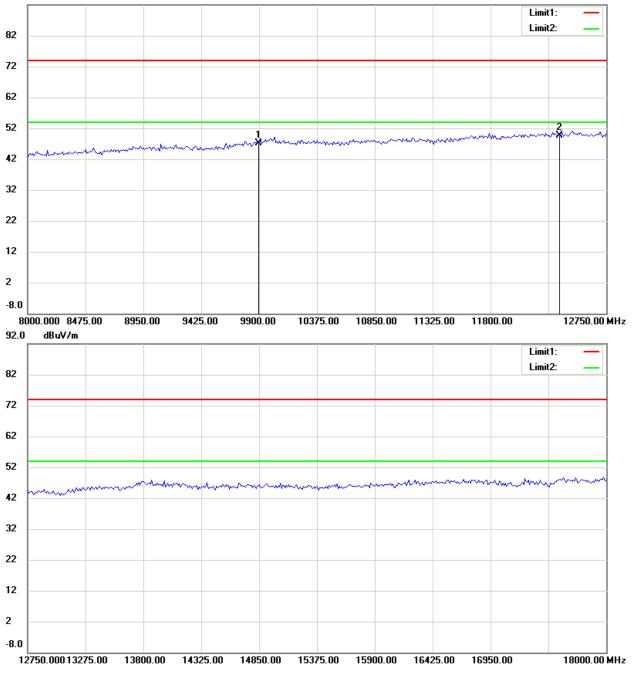


- 4. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
- 5. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Registration number: W6M20910-10116-P-15 FCC ID: UJ97600

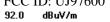


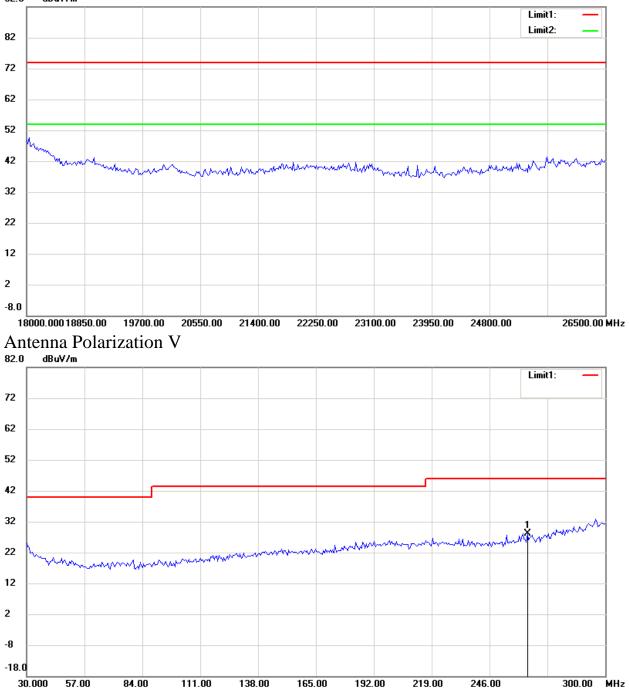


- 4. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
- 5. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Registration number: W6M20910-10116-P-15 FCC ID: UJ97600

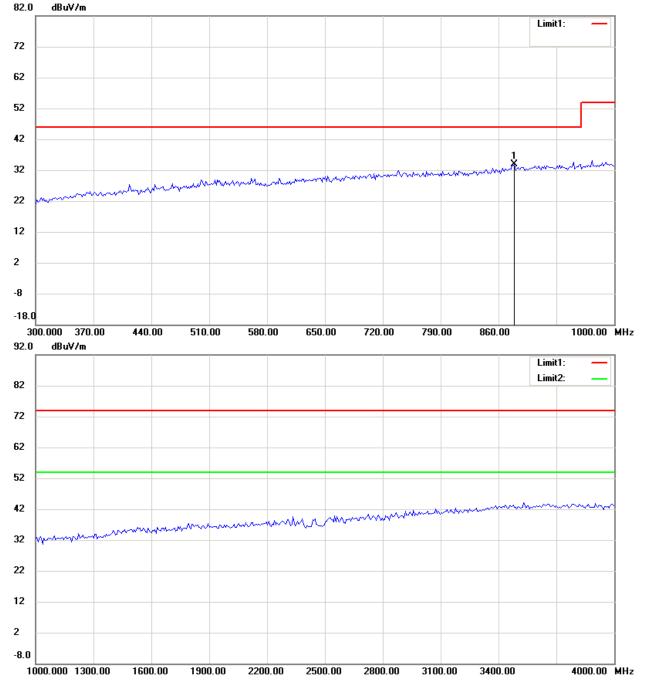




- 4. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
- 5. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



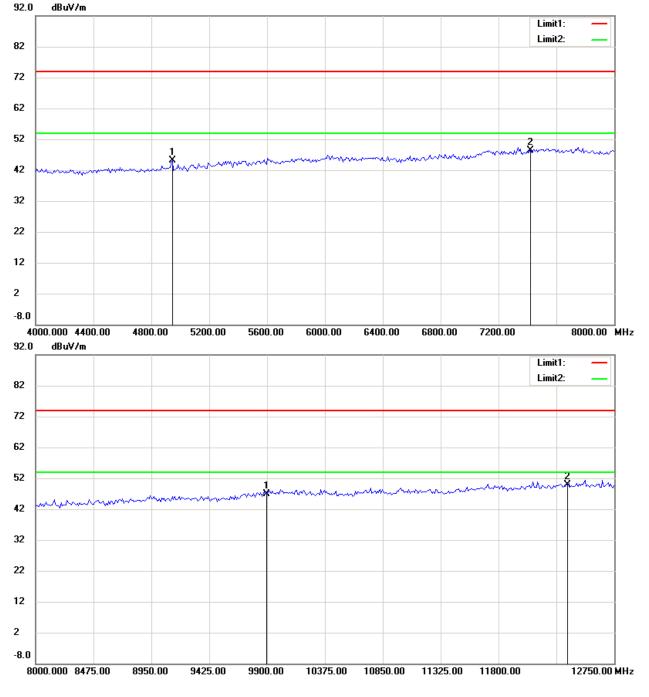
Registration number: W6M20910-10116-P-15 FCC ID: UJ97600



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



Registration number: W6M20910-10116-P-15 FCC ID: UJ97600

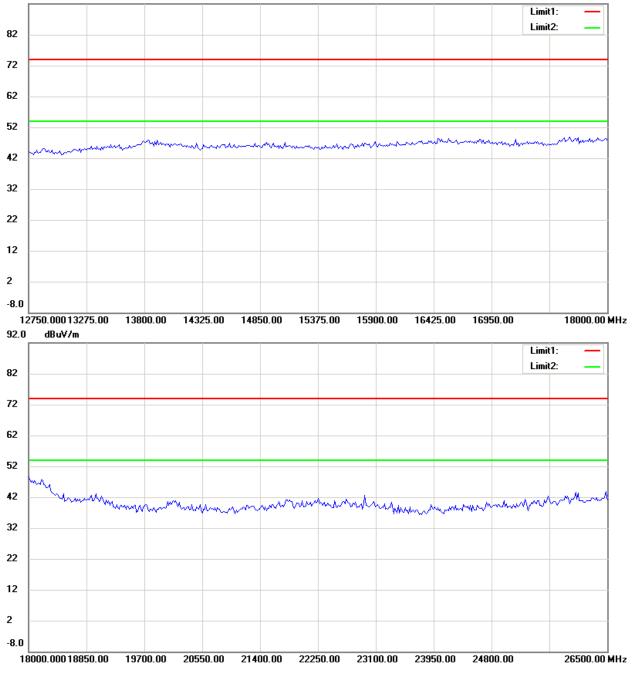


- 4. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
- 5. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



Registration number: W6M20910-10116-P-15 FCC ID: UJ97600

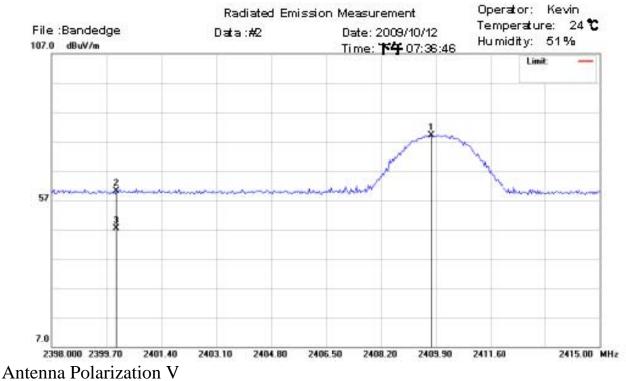


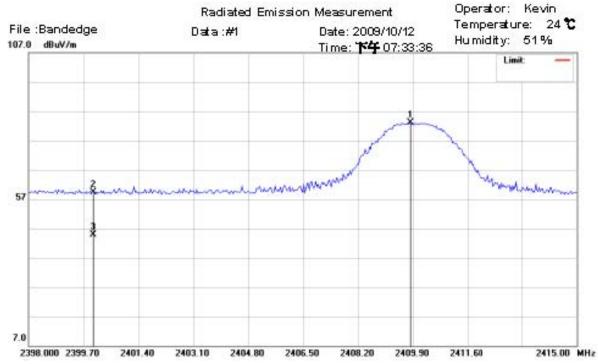


- 4. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
- 5. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



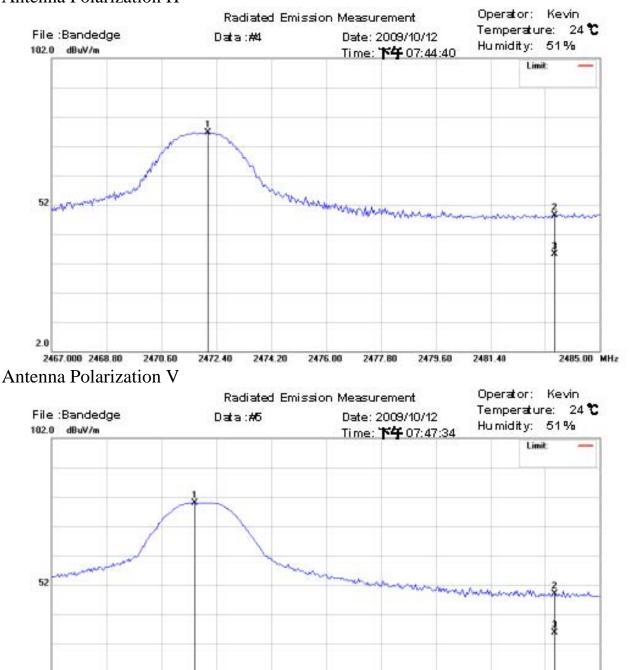
Registration number: W6M20910-10116-P-15 FCC ID: UJ97600 Radiated Emission on the band edge 2410 MHz Antenna Polarization H







Registration number: W6M20910-10116-P-15 FCC ID: UJ97600 2472 MHz Antenna Polarization H



2470.60

2472.40

2474.20

2476.00

2477.80

2479,60

2481.40

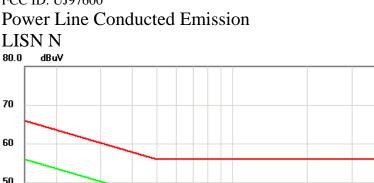
2.0

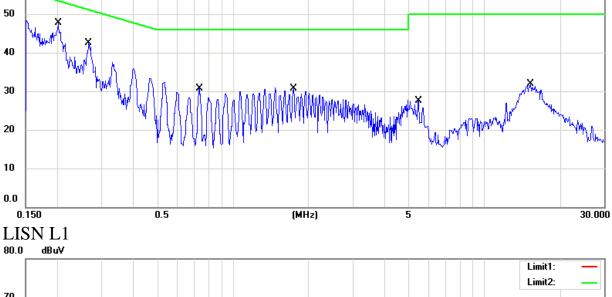
2467.000 2468.80

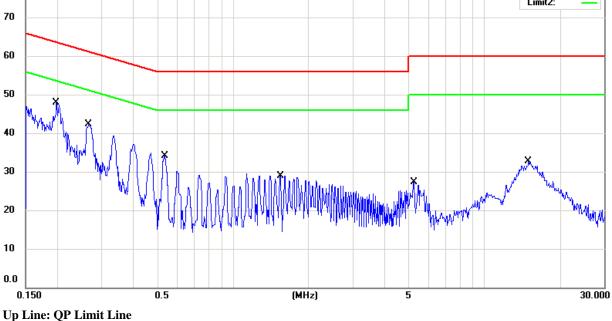
2485.00 MHz



Registration number: W6M20910-10116-P-15 FCC ID: UJ97600







Down Line: Ave Limit Line

Note:

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

Limit1: Limit2: