

**FCC PART 15 SUBPART C TEST REPORT**

**for**

**NX-6510**

**Model No.: GM-140003**

**FCC ID: FSUGMZL9**

**of**

**Applicant: KYE SYSTEMS CORP.**

**Address: No. 492, Sec. 5, Chongxin Rd., Sanchong Dist.,  
New Taipei City 24160, 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, IC 5107A**

**A2LA Accredited No.: 2732.01**



**Report No.: W6M21407-14364-C-1**

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

### **Tester:**

August 12, 2014

Kent Lin

Date

WTS-Lab.

Name

Signature

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

August 12, 2014

Kevin Wang

Date

WTS

Name

Signature



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

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## **1.2 Testing laboratory**

### **1.2.1 Location**

OATS

No.5-1, Lishui, Shuang Sing Village,  
Wanli Dist., New Taipei City 207,  
Taiwan (R.O.C.)

3 meter semi-anechoic chamber

No.35, Aly. 21, Ln. 228, Ankang Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

TEL:886-2-6613-0228

FAX:886-2-2791-5046

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, IC 5107A**



**Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd. :**

Name: ./.

Accredited number: ./.

Street: ./.

Town: ./.

Country: ./.

Telephone: ./.

Fax: ./.



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## **1.3 Details of approval holder**

Name: KYE SYSTEMS CORP.  
Street: No. 492, Sec. 5, Chongxin Rd., Sanchong Dist.,  
Town: New Taipei City 24160,  
Country: Taiwan (R.O.C)  
Telephone: 886-2-2995-6645  
Fax: 886-2-2995-6649  
Teletex: ./.

## **1.4 Application details**

Date of receipt of test item: July 04, 2014  
Date of test: From July 04, 2014 to August 11, 2014

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

Type of test item: NX-6510  
Model Number: GM-140003  
Multi-listing model number: ./.  
Photos: see Annex

## **Technical data**

Frequency band: 2.400-2.4835GHz  
Operation Frequency: 2402-2480 MHz  
Frequency 1: 2402 MHz  
Frequency 2: 2448 MHz  
Frequency 3: 2480 MHz

Operation modes: Duplex  
Modulation Type: GFSK  
Antenna type: PCB antenna  
Power supply: Battery 1.5 VDC

## **Manufacturer: (if different from applicant)**

Name: Dongguan Kunying Computer Products Co., Ltd.  
Street: Baodun Industrial District,  
Town: Houjie Town, Dongguan City, Guangdong Province, 523961  
Country: China  
Additional information: ./.

## **1.6 Test standards**

Technical standard : FCC RULES PART 15 SUBPART C § 15.249 (2013-10)



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**2 Technical test**

**2.1 Summary of test results**

No deviations from the technical specification(s) were ascertained in the course of the tests performed.

**or**

The deviations as specified in 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 1.5 VDC
Extreme conditions parameters:	Not required



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

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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	2013/9/2	2014/9/1
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 008	HF-EICHLLEITUNG RF STEP ATTENUATOR 139dB DPSP	334.6010.02	844581/024	R&S	Function Test	
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2014/7/8	2015/7/7
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2013/10/28	2014/10/27
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2013/9/2	2014/9/1
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2013/9/2	2014/9/1
ETSTW-RE 012	TUNABLE BANDREJECT FILTER	D.C 0309	146	K&L	Function Test	
ETSTW-RE 013	TUNABLE BANDREJECT FILTER	D.C 0336	397	K&L	Function Test	
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2013/10/15	2014/10/14
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2014/7/01	2015/6/30
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	2014/2/25	2015/2/24
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use	
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2014/2/18	2015/2/17
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2014/3/3	2015/3/2
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2014/3/3	2015/3/2
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2014/3/3	2015/3/2
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2014/6/05	2015/6/04
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2014/3/3	2015/3/2
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2013/11/27	2014/11/26
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 069	Double-Ridged Guide Horn Antenna	3117	00069377	EMCO	Function Test	
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2013/10/7	2014/10/6
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2013/10/11	2014/10/10
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2014/3/3	2015/3/2
ETSTW-RE 106	Humidity Temperature Meter	TES-1366	091011113	TES	2013/12/04	2014/12/03
ETSTW-RE 111	TRILOG Super Broadband test Antenna	VULB 9160	9160-3309	Schwarz beck	2013/12/27	2014/12/26
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	None	T-Power	Function test	
ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2014/1/10	2015/1/09
ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	Function test	
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2014/6/11	2015/6/10
ETSTW-RE 125	5GHz Notch filter	5NSL11-5200/E221.3-O/O	1	K&L Microwave	2014/8/12	2015/8/11



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ETSTW-RE 126	5GHz Notch filter	5NSL11-5800/E221.3-O/O	1	K&L Microwave	2014/8/12	2015/8/11
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2014/3/3	2015/3/2
ETSTW-RE 128	5.3GHz Notch filter	N0153001	SN487233	Microwave Circuits	2014/8/12	2015/8/11
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circuits	2014/8/12	2015/8/11
ETSTW-RE 130	Handheld RF Spectrum Analyzer	N9340A	CN0147000204	Agilent	Pre-test Use	
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2013/10/7	2014/10/6
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40 /12+9SS	3	WI	2014/1/10	2015/1/09
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2014/1/10	2015/1/09
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2014/1/10	2015/1/09
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2014/1/10	2015/1/09
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2013/9/18	2014/9/17
ETSTW-Cable 010	BNC Cable	5 M BNC Cable	None	JYE BAO CO.,LTD.	2014/2/27	2015/2/26
ETSTW-Cable 011	BNC Cable	BNC Cable 1	None	JYE BAO CO.,LTD.	Pre-test Use NCR	
ETSTW-Cable 012	N TYPE To SMA Cable	Cable 012	None	JYE BAO CO.,LTD.	2014/2/27	2015/2/26
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2014/2/27	2015/2/26
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2014/2/27	2015/2/26
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2014/2/27	2015/2/26
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2014/2/27	2015/2/26
ETSTW-Cable 022	N TYPE Cable	5006	0002	JYE BAO CO.,LTD.	2014/2/19	2015/2/18
ETSTW-Cable 026	Microwave Cable	SUCOFLEX 104	279075	HUBER+SUHNER	2014/3/3	2015/3/2
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2014/3/3	2015/3/2
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2013/10/11	2014/10/10
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2013/10/11	2014/10/10
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S Cable 9)	279067	HUBER+SUHNER	2014/3/3	2015/3/2
ETSTW-Cable 031	Microwave Cable	SUCOFLEX 104 (S Cable 10)	238092	HUBER+SUHNER	2013/11/27	2014/11/26
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2013/11/27	2014/11/26
ETSTW-Cable 047	Microwave Cable	SUCOFLEX 104	325518	HUBER+SUHNER	2013/11/27	2014/11/26
ETSTW-Cable 053	N TYPE To SMA Cable	RG142	None	JYE BAO CO.,LTD.	2014/2/19	2015/2/18
ETSTW-Cable 058	Microwave Cable	SUCOFLEX 104	none	HUBER+SUHNER	2014/2/19	2015/2/18
WTSTW-SW 002	EMI TEST SOFTWARE	EZ EMC	None	Farad	Version ETS-03A1	



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## **2.4 General Test Procedure**

**POWER LINE CONDUCTED INTERFERENCE:** The procedure used was ANSI STANDARD C63.4-2009 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 according to ANSI STANDARD C63.4-2009 6.4 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

**ANSI STANDARD C63.4-2009 6.3.1 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 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 Worldwide Testing Services(Taiwan) Co., Ltd. at the registered open field test site located at No.5-1, Lishui, Shuang Sing Village, Wanli Dist., New Taipei City 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.

**ANSI STANDARD C63.4-2009 10.2.7:** Any measurements that utilize special test software shall be indicated and referenced in the test report. During testing, test software 'EZ EMC' was used for setting up different operation modes.



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**3 Test results (enclosure)**

Test case	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.249 (a)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions radiated – Transmitter operating	15.249 (e)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions conducted – Transmitter operating	15.249 (e)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated Emission from Receiver Part	15.109	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Out of Band Spurious Emission, Band edge-Transmitter operating	15.249 (e)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Power Line Conducted Emission	15.207	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following is intentionally left blank.



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## 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: GM-140003 Date: 2014/7/4

Mode: TX\_2402 MHz Temperature: 24 °C

Engineer: Leon

Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
2402.0250	57.44	29.50	36.93	94.37	66.43	114.00	94.00	-27.57	318	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
2402.0180	57.93	29.99	36.93	94.86	66.92	114.00	94.00	-27.08	277	100

Mode: TX\_2448 MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
2448.0220	56.89	28.95	37.20	94.09	66.15	114.00	94.00	-27.85	96	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
2448.0340	58.68	30.74	37.20	95.88	67.94	114.00	94.00	-26.06	280	100

Mode: TX\_2480 MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
2480.0260	56.23	28.29	37.38	93.61	65.67	114.00	94.00	-28.33	94	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
2480.0340	56.75	28.81	37.38	94.13	66.19	114.00	94.00	-27.81	280	100



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Test equipment used: ETSTW-RE 004, ETSTW-RE 030, 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 EUT 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 (MHz)	Field strength (microvolts/meter)	Field Strength (dB microvolts/meter)
30 - 88	100	40.0
88 – 216	150	43.5
216 – 960	200	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 004, ETSTW-RE 111, ETSTW-RE 030, ETSTW-RE 044

Explanation: Please see attached diagram as appendix.



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## 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: GM-140003 Date: 2014/7/7  
 Mode: TX\_2402 MHz Temperature: 24 °C Engineer: Leon  
 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)
150.5210	21.09	peak	15.31	36.40	43.50	-7.10	15	100
175.7915	14.36	peak	14.14	28.50	43.50	-15.00	130	100

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4801.6030	50.68	---	0.27	50.95	---	74.00	54.00	-23.05	155	100
7206.0000	40.70	---	3.85	44.55	---	74.00	54.00	-29.45	130	100
9608.0000	34.30	---	7.93	42.23	---	74.00	54.00	-31.77	235	100
12010.0000	33.61	---	12.65	46.26	---	74.00	54.00	-27.74	90	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
179.6793	7.75	peak	13.71	21.46	43.50	-22.04	210	100
438.2164	2.75	peak	19.91	22.66	46.00	-23.34	90	100



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

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FCC ID: FSUGMZL9

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4801.6030	48.37	---	0.27	48.64	---	74.00	54.00	-25.36	245	100
7206.4130	42.64	---	3.85	46.49	---	74.00	54.00	-27.51	160	100
9608.0000	34.41	---	7.93	42.34	---	74.00	54.00	-31.66	215	100
12010.0000	33.88	---	12.65	46.53	---	74.00	54.00	-27.47	177	100

Mode: TX 2448 MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
185.5110	15.67	peak	12.99	28.66	43.50	-14.84	110	100
323.5271	7.57	peak	16.59	24.16	46.00	-21.84	165	100

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4897.7960	49.95	---	0.51	50.46	---	74.00	54.00	-23.54	245	100
7344.0000	39.99	---	3.72	43.71	---	74.00	54.00	-30.29	110	100
9792.0000	35.26	---	8.55	43.81	---	74.00	54.00	-30.19	235	100
12240.0000	32.83	---	14.00	46.83	---	74.00	54.00	-27.17	170	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
185.5110	8.41	peak	12.99	21.40	43.50	-22.10	30	100
576.2325	2.53	peak	22.79	25.32	46.00	-20.68	140	100

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4889.7790	48.34	---	0.49	48.83	---	74.00	54.00	-25.17	85	100
7344.0000	41.61	---	3.72	45.33	---	74.00	54.00	-28.67	210	100
9792.0000	35.51	---	8.55	44.06	---	74.00	54.00	-29.94	210	100
12240.0000	33.75	---	14.00	47.75	---	74.00	54.00	-26.25	175	100



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Registration number: W6M21407-14364-C-1

FCC ID: FSUGMZL9

Mode: TX\_2480 MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
177.7355	14.56	peak	13.92	28.48	43.50	-15.02	50	100
337.1342	7.49	peak	16.96	24.45	46.00	-21.55	125	100

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4961.9240	51.18	---	0.89	52.07	---	74.00	54.00	-21.93	250	100
7440.0000	40.12	---	3.93	44.05	---	74.00	54.00	-29.95	140	100
9920.0000	34.50	---	8.50	43.00	---	74.00	54.00	-31.00	210	100
12400.0000	33.37	---	14.46	47.83	---	74.00	54.00	-26.17	140	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
183.5671	7.47	peak	13.23	20.70	43.50	-22.80	160	100
578.1764	2.98	peak	22.87	25.85	46.00	-20.15	140	100

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4953.9080	48.70	---	0.84	49.54	---	74.00	54.00	-24.46	155	100
7440.0000	40.69	---	3.93	44.62	---	74.00	54.00	-29.38	220	100
9920.0000	34.52	---	8.50	43.02	---	74.00	54.00	-30.98	85	100
12400.0000	33.22	---	14.46	47.68	---	74.00	54.00	-26.32	230	100

- 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. Measurement uncertainty for 3m measurement: 30-1000 MHz = ± 3.68 dB, 1-18 GHz = ± 5.37 dB, 18-40 GHz = ± 3.43 dB ; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.
  6. Up Line: PK Limit Line, Down Line: Ave Limit Line.
  7. See attached diagrams in appendix.

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

Test equipment used: ETSTW-RE 004, ETSTW-RE 111, ETSTW-RE 030,  
ETSTW-RE 044, ETSTW-RE 088, ETSTW-RE 018



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

Registration number: W6M21407-14364-C-1

FCC ID: FSUGMZL9

## 3.6 Radiated Emissions from Receiver Part

### Summary table with radiated data of the test plots

Model: GM-140003 Date: 2014/7/7  
 Mode: RX\_2402 MHz Temperature: 24 °C Engineer: Leon  
 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)
177.7355	14.14	peak	13.92	28.06	43.50	-15.44	85	100
342.9658	5.98	peak	17.09	23.07	46.00	-22.93	130	100
502.3647	3.47	peak	20.96	24.43	46.00	-21.57	235	100
696.7535	3.30	peak	24.38	27.68	46.00	-18.32	170	100

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
1028.0560	42.24	---	-7.73	34.51	---	74.00	54.00	-39.49	90	100
1294.5890	42.58	---	-9.16	33.42	---	74.00	54.00	-40.58	185	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
181.6231	7.97	peak	13.47	21.44	43.50	-22.06	115	100
401.2826	2.22	peak	18.72	20.94	46.00	-25.06	120	100
615.1100	2.64	peak	23.32	25.96	46.00	-20.04	75	100
722.0240	3.57	peak	24.85	28.42	46.00	-17.58	110	100

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
1294.5890	42.92	---	-9.16	33.76	---	74.00	54.00	-40.24	110	100
1547.0940	43.68	---	-8.71	34.97	---	74.00	54.00	-39.03	75	100

Mode: RX\_2448 MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
179.6793	15.25	peak	13.71	28.96	43.50	-14.54	60	100
288.5371	8.11	peak	15.75	23.86	46.00	-22.14	95	100
379.8998	4.16	peak	18.16	22.32	46.00	-23.68	145	100
618.9980	3.74	peak	23.35	27.09	46.00	-18.91	110	100



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Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
1168.3370	43.16	---	-9.33	33.83	---	74.00	54.00	-40.17	170	100
1561.1220	43.64	---	-8.61	35.03	---	74.00	54.00	-38.97	135	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
181.6232	7.30	peak	13.47	20.77	43.50	-22.73	120	100
342.9660	1.82	peak	17.09	18.91	46.00	-27.09	90	100
576.2325	3.32	peak	22.79	26.11	46.00	-19.89	145	100
760.9018	3.39	peak	25.44	28.83	46.00	-17.17	160	100

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
1561.1220	43.61	---	-8.61	35.00	---	74.00	54.00	-39.00	55	100
1869.7390	43.66	---	-6.31	37.35	---	74.00	54.00	-36.65	140	100

Mode: RX\_2480 MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
171.9037	13.54	peak	14.58	28.12	43.50	-15.38	85	100
317.6954	6.97	peak	16.43	23.40	46.00	-22.60	40	100
344.9098	7.26	peak	17.12	24.38	46.00	-21.62	110	100
504.3086	2.98	peak	21.00	23.98	46.00	-22.02	175	100

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
1420.8420	42.81	---	-9.29	33.52	---	74.00	54.00	-40.48	90	100
1561.1220	43.32	---	-8.61	34.71	---	74.00	54.00	-39.29	125	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
177.7355	7.58	peak	13.92	21.50	43.50	-22.00	75	100
342.9660	2.29	peak	17.09	19.38	46.00	-26.62	130	100
543.1864	2.50	peak	21.77	24.27	46.00	-21.73	110	100
657.8758	2.63	peak	23.72	26.35	46.00	-19.65	60	100



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

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Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
1210.4210	42.90	---	-9.48	33.42	---	74.00	54.00	-40.58	80	100
1561.1220	43.89	---	-8.61	35.28	---	74.00	54.00	-38.72	105	100

**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. **Measurement uncertainty for 3m measurement : 30-1000 MHz = ± 3.68 dB, 1-18 GHz = ±5.37 dB, 18-40 GHz= ±3.43 dB ; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.**
6. **Up Line: PK Limit Line, Down Line: Ave Limit Line.**
7. **See attached diagrams in appendix.**

Test equipment used: ETSTW-RE 004, ETSTW-RE 111, ETSTW-RE 030,  
 ETSTW-RE 044

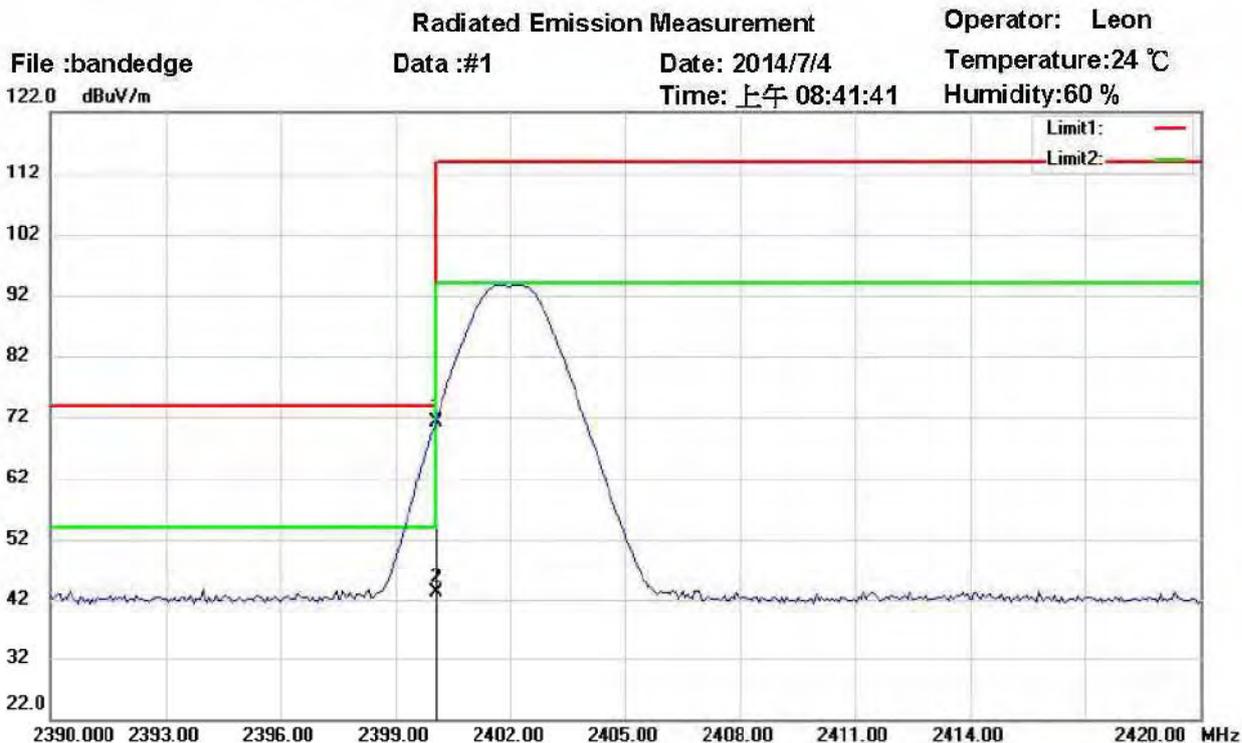


Registration number: W6M21407-14364-C-1

FCC ID: FSUGMZL9

### 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 they are 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).



Site : Chamber

Condition : FCC 15.249 PK (Bandedge)

EUT : W6M21407-14364

M/N: GM-140003

Test Mode : Bandedge

Note :

Polarization: *Horizontal*

Power : 1.5 Vd.c.

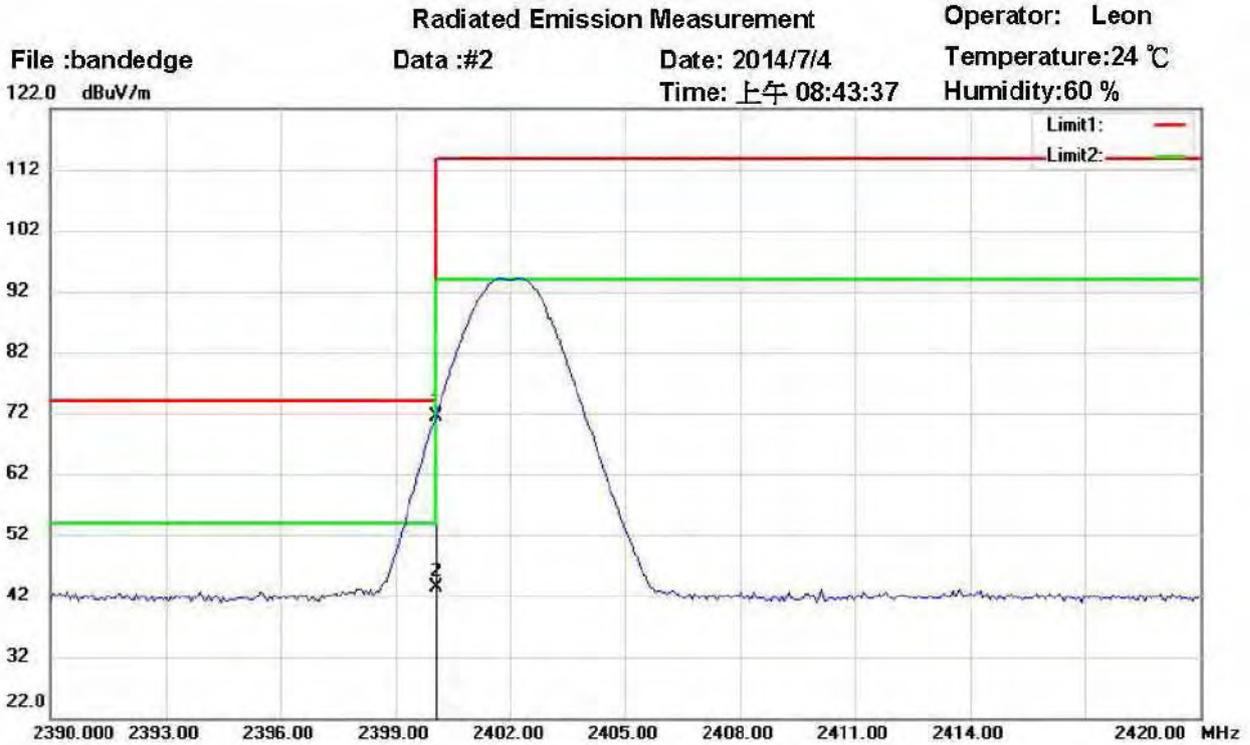
Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	2400.000	34.16	peak	36.92	71.08	74.00	100	318	-2.92	
	2400.000	6.22	AVG	36.92	43.14	54.00	100	318	-10.86	



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

Registration number: W6M21407-14364-C-1  
 FCC ID: FSUGMZL9



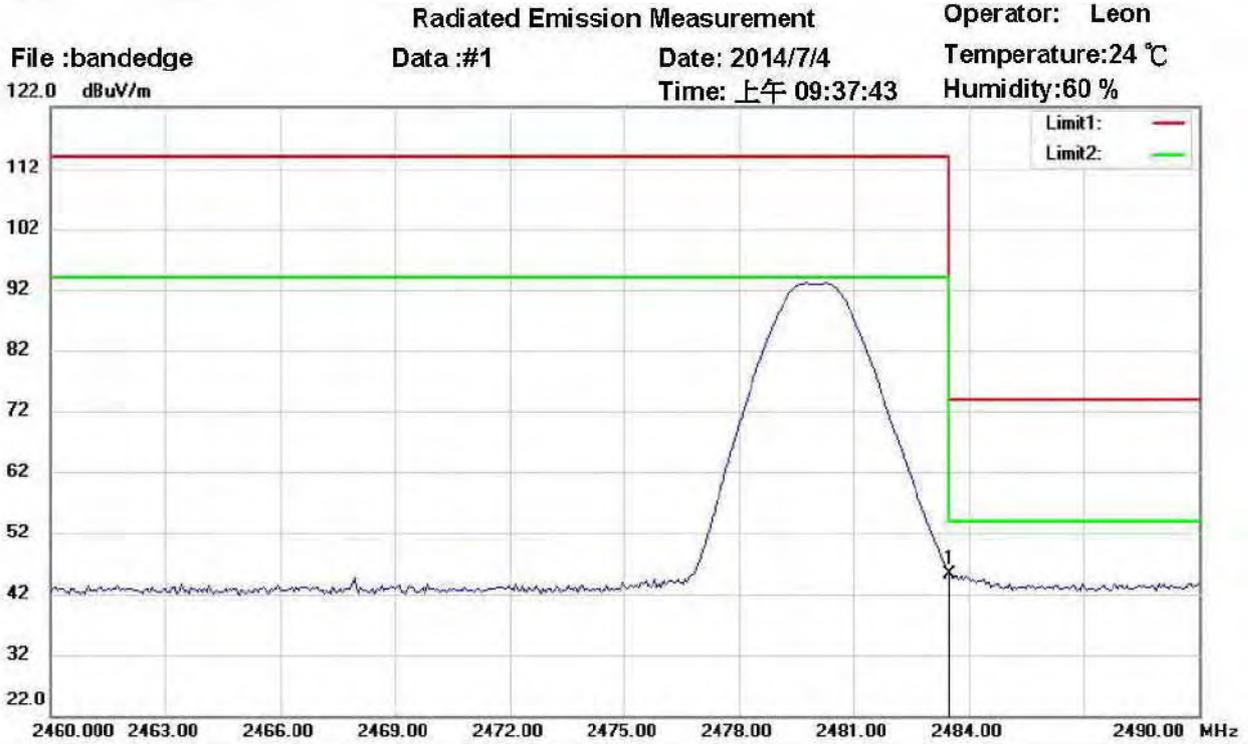
Site : Chamber  
 Condition : FCC 15.249 PK (Bandedge)      Polarization: *Vertical*  
 EUT : W6M21407-14364      Power : 1.5 Vd.c.  
 M/N : GM-140003      Distance: 3m  
 Test Mode : Bandedge  
 Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	2400.000	34.35	peak	36.92	71.27	74.00	100	277	-2.73	
	2400.000	6.41	AVG	36.92	43.33	54.00	100	277	-10.67	



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

Registration number: W6M21407-14364-C-1  
 FCC ID: FSUGMZL9



Site : Chamber  
 Condition : FCC 15.249 PK (Bandedge)  
 EUT : W6M21407-14364  
 M/N : GM-140003  
 Test Mode : Bandedge  
 Note :

Polarization: *Horizontal*  
 Power : 1.5 Vd.c.  
 Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	2483.500	7.80	peak	37.40	45.20	74.00	100	94	-28.80	



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

Registration number: W6M21407-14364-C-1  
 FCC ID: FSUGMZL9

## Radiated Emission Measurement

Operator: Leon

File :bandedge  
 122.0 dBuV/m

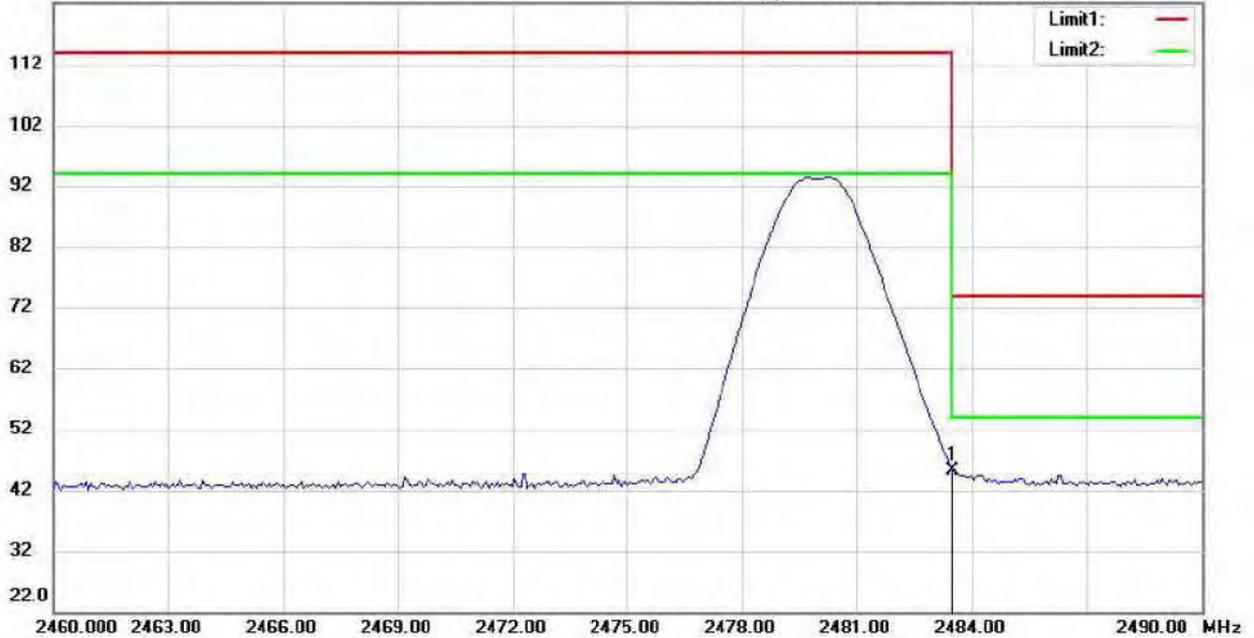
Data :#2

Date: 2014/7/4

Temperature:24 °C

Time: 上午 09:38:39

Humidity:60 %



Site : Chamber

Condition : FCC 15.249 PK (Bandedge)

EUT : W6M21407-14364

M/N: GM-140003

Test Mode : Bandedge

Note :

Polarization: *Vertical*

Power : 1.5 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	2483.500	7.80	peak	37.40	45.20	74.00	100	280	-28.80	

Limit:

Frequency Range (MHz)	Limit (dB $\mu$ V/m)	
	Peak	Average
902 – 928	114	94
2400 – 2483.5	74	54
5725 – 5875	74	54

Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 044



Registration number: W6M21407-14364-C-1

FCC ID: FSUGMZL9

**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.

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

- Note:**
1. The formula of measured value as: **Test Result = Reading + Correction Factor**
  2. The **Correction Factor = Cable Loss + LISN Insertion Loss**
  3. **Detector function in the form : PK = Peak, QP = Qusai Peak, AV = Average**
  4. **All not in the table noted test results are more than 20 dB below the relevant limits.**
  5. **Measurement uncertainty =  $\pm 1.41$  dB; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .**
  6. **Up Line: QP Limit Line, Down Line: Ave Limit Line.**
  7. **The EUT is battery-used, so this test item is not required.**

**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 016, ETSTW-CE 006, ETSTW-RE 045