

**FCC PART 15 SUBPART C TEST REPORT**

**for**

**TRE937FB**

**Model No.: CATMLED**

**FCC ID: H5OTR72**

**of**

**Applicant: Advance Security Inc.**

**Address: 3F, 48, Ta An Street, Hsi Chih, Taipei, Taiwan**

**Tested and Prepared**

**by**

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

**FCC Registration No.: 930600**

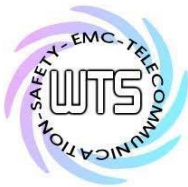
**Industry Canada filed test laboratory Reg. No. IC 5679A-1, IC 5107A-1**

**A2LA Accredited No.: 2732.01**



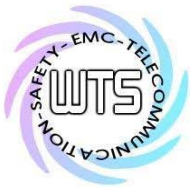
**Report No.: W6M21706-17071-C-1**

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: [wts@wts-lab.com](mailto:wts@wts-lab.com)



## TABLE OF CONTENTS

1	GENERAL INFORMATION .....	2
1.1	Notes .....	2
1.2	Testing laboratory .....	3
1.2.1	Location .....	3
1.2.2	Details of accreditation status .....	3
1.3	Details of approval holder .....	3
1.4	Application details .....	4
1.5	General information of Test item .....	4
1.6	Test standards .....	5
2	TECHNICAL TEST .....	6
2.1	Summary of test results .....	6
2.2	Test environment .....	6
2.3	Test Equipment List .....	7
2.4	General Test Procedure .....	9
3	TEST RESULTS (ENCLOSURE) .....	11
3.1	Peak Output Power (transmitter) .....	12
3.2	RF Exposure Compliance Requirements .....	15
3.3	Out of Band Radiated Emissions .....	15
3.4	Transmitter Radiated Emissions in restricted Bands .....	16
3.5	Spurious emissions (tx) .....	17
3.6	Carrier Frequency Separation .....	19
3.7	Number of Hopping Frequencies .....	23
3.7.1	Pseudorandom Frequency Hopping Sequence .....	24
3.7.2	Coordination of hopping sequences to other transmitters .....	24
3.7.3	System Receiver Hopping Capability .....	25
3.7.4	Equal Hopping Frequency Use .....	25
3.8	Time of Occupancy (Dwell Time) .....	26
3.9	20dB Bandwidth .....	30
3.10	Band-edge Compliance of RF Emissions .....	33
3.11	Radiated Emissions from Receiver Section of Transceiver .....	36
3.12	Power Line Conducted Emission .....	37



Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

## 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.

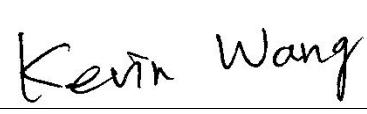
The test report may only be reproduced or published in full.

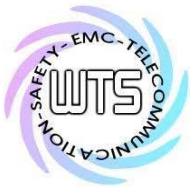
Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.

### **Tester:**

June 30, 2017		Kent Lin	
Date	WTS-Lab.	Name	Signature

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

June 30, 2017		Kevin Wang	
Date	WTS	Name	Signature



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

Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

## **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: 2732.01

FCC filed test laboratory Reg. No. 930600

Industry Canada filed test laboratory Reg. No. IC 5679A-1, IC 5107A-1

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

Name: ./.

Accredited number: ./.

Street: ./.

Town: ./.

Country: ./.

Telephone: ./.

Fax: ./.

## **1.3 Details of approval holder**

Name : Advance Security Inc.

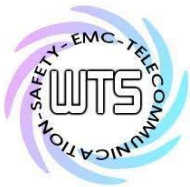
Street : 3F, 48, Ta An Street, Hsi Chih,

Town : Taipei,

Country : Taiwan

Telephone : +886-2-86481688

Fax : +886-2-86481689



Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

**1.4 Application details**

Date of receipt of test item : June 21, 2017  
Date of test : from June 22, 2017 to June 30, 2017

**1.5 General information of Test item**

Type of test item : TRE937FB  
Model Number : CATMLED  
Multi-listing model number : ./.  
Photos : see Appendix

**Technical data**

Frequency band : 908.3-923.783 MHz  
Frequency ( ch A) : 908.3 MHz  
Frequency ( ch B) : 915.444 MHz  
Frequency ( ch C) : 923.783 MHz

**Transmitter                      Unom**

Power ( ch A or ch 1) : Conducted: 3.41 dBm  
Power ( ch B or ch 13) : Conducted: 3.28 dBm  
Power ( ch C or ch 25) : Conducted: 3.21 dBm

Power supply : Battery 3 Vd.c. (CR2450)

Operation modes : Half-duplex

Modulation Type : FHSS

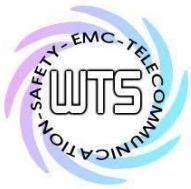
Antenna Type : Helical antenna

Antenna gain : 0 dBi

Host device : none

Classification :

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



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

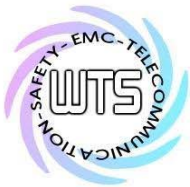
Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

**Manufacturer:**  
(if applicable)

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

## 1.6 Test standards

Technical standard : FCC RULES PART 15 SUBPART C § 15.247 (2016-10)



Registration number: W6M21706-17071-C-1  
 FCC ID: H50TR72

**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 3 Vd.c. (CR2450)
- Extreme conditions parameters : test voltage : -- extreme  
 min :-- V  
 max :-- V
- Description of Tested System : ./.

Test item Name	Uncertainty
Estimation Result of Uncertainty of Conducted Emission	Expanded Uncertainty : 0.74 dB
Estimation Result of Uncertainty of Radiated Emission(3M)	Expanded Uncertainty : 0.009-30 MHz : 2.17 dB 30-1000 MHz : 3.30 dB 1-18 GHz : 2.28 dB 18-40 GHz : 2.19 dB
Estimation Result of Uncertainty of Bandwidth Measurement 20 dB Bandwidth, Occupied bandwidth, Channel bandwidth, Necessary Bandwidth	Expanded Uncertainty : 0.45 kHz
Estimation Result of Uncertainty of Conducted Output Power Measurement Output power	Expanded Uncertainty : 1.01 dB
Estimation Result of Uncertainty of Band Edge Measurement	Expanded Uncertainty : 0.98 dBc
Estimation Result of Uncertainty of Frequency Separation Measurement Hopping channel separation	Expanded Uncertainty : 552.91 Hz
Estimation Result of Uncertainty of Duty Cycle Measurement Dwell time	Expanded Uncertainty : 0.074 ms



Registration number: W6M21706-17071-C-1  
 FCC ID: H50TR72

## 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	2017/5/26	2018/5/25
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 008	HF-EICHLITUNG 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	2016/7/15	2017/7/14
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2016/9/12	2017/9/11
ETSTW-CE 028	MXE EMI Receiver	N9038A	MY53220110	Agilent	2016/8/26	2017/8/25
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2017/5/26	2018/5/25
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2017/5/17	2018/5/16
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2016/7/4	2017/7/3
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	2017/6/23	2018/6/22
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2017/6/23	2018/6/22
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	ETS-Lindgren	2017/3/22	2018/3/21
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2017/2/7	2018/2/6
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2017/4/10	2018/4/9
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2017/4/27	2018/4/26
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use	
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2017/3/1	2018/2/28
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2017/3/1	2018/2/28
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2017/4/12	2018/4/11
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 069	Double-Ridged Guide Horn Antenna	3117	00069377	ETS-Lindgren	Function Test	
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2016/9/8	2017/9/7
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2016/9/20	2017/9/19
ETSTW-RE 091	Match Pad	MDCS1500	None	WOKEN	2017/4/6	2018/4/5
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2017/3/1	2018/2/28
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	T-0A023536	T-Power	Function test	
ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2017/1/12	2018/1/11
ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	Function test	
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2017/5/26	2018/5/25
ETSTW-RE 125	5GHz Notch filter	5NSL11-5200/E221.3-O/O	1	K&L Microwave	2016/8/10	2017/8/9
ETSTW-RE 126	5GHz Notch filter	5NSL12-5800/E221.3-O/O	1	K&L Microwave	2016/8/10	2017/8/9
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2017/3/1	2018/2/28

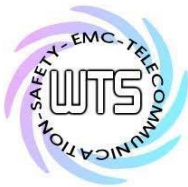




# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

ETSTW-RE 128	5.3GHz Notch filter	N0153001	SN487233	Microwave Circuits	2016/8/10	2017/8/9
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circuits	2016/8/10	2017/8/9
ETSTW-RE 130	Handheld RF Spectrum Analyzer	N9340A	CN0147000204	Agilent	Pre-test Use	
ETSTW-RE 142	Amplifier	8447D	2805A03378	Agilent	2017/4/12	2018/4/11
ETSTW-RE 143	Humidity Temperature Meter	TES-1260	110104623	TES	2016/8/19	2017/8/18
ETSTW-RE 147	Bi-log Hybrid Antenna	MCTD 2786B	BLB16M04005	ETC	2017/3/22	2018/3/21
ETSTW-EMI 011	USB Compact Modulator	SFC-U	101689	R&S	2017/5/10	2018/5/9
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2017/2/24	2018/2/23
ETSTW-GSM 003	Radio Communication Analyzer	MT8820C	6201342073	Anritsu	2017/2/10	2018/2/9
ETSTW-GSM 004	Wideband Radio Communication Tester	CMW500	128092	R&S	2016/12/15	2017/12/14
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40 /12+9SS	3	WI	2017/1/12	2018/1/11
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2017/1/12	2018/1/11
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2017/1/12	2018/1/11
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2017/1/12	2018/1/11
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2016/9/14	2017/9/13
ETSTW-Cable 010	BNC Cable	RGS-142	None	THERMAX	2016/9/12	2017/9/11
ETSTW-Cable 011	SMA to N type Cable	RGU-400	None	THERMAX	Pre-test Use NCR	
ETSTW-Cable 012	BNC Cable	RGS-400	None	THERMAX	2016/9/12	2017/9/11
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2017/2/23	2018/2/22
ETSTW-Cable 020	N TYPE Cable	OATS Cable 1	N30N30-L335-15M	JYE BAO CO.,LTD.	2017/4/21	2018/4/20
ETSTW-Cable 022	N TYPE Cable	5006	0002	JYE BAO CO.,LTD.	2017/4/6	2018/4/5
ETSTW-Cable 026	Microwave Cable	SUCOFLEX 104	279075	HUBER+SUHNER	2017/3/1	2018/2/28
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2017/5/12	2018/5/11
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2016/9/20	2017/9/19
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2016/9/20	2017/9/19
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S Cable 9)	279067	HUBER+SUHNER	2017/3/1	2018/2/28
ETSTW-Cable 031	Microwave Cable	SUCOFLEX 104 (S Cable 10)	238092	HUBER+SUHNER	2017/4/12	2018/4/11
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2017/4/12	2018/4/11
ETSTW-Cable 048	Microwave Cable	SUCOFLEX 104	325519	HUBER+SUHNER	2017/4/12	2018/4/11
ETSTW-Cable 058	Microwave Cable	SUCOFLEX 104	none	HUBER+SUHNER	2017/2/20	2018/2/19
ETSTW-Cable 064	Microwave Cable	SUCOFLEX 104	MY28891	HUBER+SUHNER	2017/4/12	2018/4/11
ETSTW-Cable 066	SMA type cable	32022	None	ASTROLAB	2016/9/12	2017/9/11
ETSTW-Cable 071	N TYPE CABLE	EMCCFD400-NM-NM-25000	170239	EMCI	2017/2/20	2018/2/19
WTSTW-SW 002	EMI TEST SOFTWARE	EZ EMC	None	Farad	Version ETS-03A1	
WTSTW-SW 006	EMI TEST SOFTWARE	e3	None	AUDIX	Version 9.161014	
WTSTW-SW 008	Signal studio	Agilent	None	AUDIX	Version 2.0.0.1	



Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

## 2.4 General Test Procedure

**POWER LINE CONDUCTED INTERFERENCE:** The procedure used was ANSI STANDARD C63.10-2013 6.2 using a 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 C63.10-2013 6.3 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. The ambient temperature of the UUT was 23°C with a humidity of 40 %.

**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 dBμV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

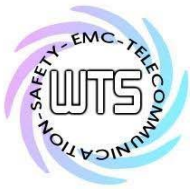
Freq (MHz)	METER READING + ACF + CABLE LOSS (to the receiver) = FS
33	20 dBμV + 10.36 dB + 6 dB = 36.36 dBμV/m @3m

The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table) and arranged according to ANSI C63.10-2013 6.2.2. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to the frequency specified as follows:

- (1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- (2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
- (3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.
- (4) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1)-(a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this Section, whichever is the higher frequency range of investigation.

For hand-held devices, a exploratory test was performed with three (3) orthogonal planes to determine the highest emissions.

Measurements were made by Worldwide Testing Services(Taiwan) Co., Ltd. at the registered open field test site located No.5-1, Lishui, Shuang Sing Village, Wanli Dist., New Taipei City 207, Taiwan (R.O.C.). The Registration Number: **930600**.



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

Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

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

When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

The formula is as follows:

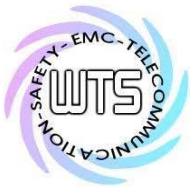
Average = Peak + Duty Factor

Duty Factor =  $20 \log(\text{dwell time}/T)$

T = 100ms when the pulse train period is over 100 ms or the period of the pulse train.

Modified Limits for peak according to 15.35 (b) = Max Permitted average Limits + 20dB

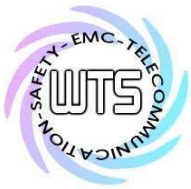
ANSI STANDARD C63.10-2013 B.2.7: Any measurements that utilize special test software shall be indicated and referenced in the test report. During testing, test software 'EZ EMC' was used for setting up different operation modes.



Registration number: W6M21706-17071-C-1  
 FCC ID: H50TR72

**3 Test results (enclosure)**

TEST CASE	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.247(b)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Equivalent isotropically radiated Power	15.247(b)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions radiated – Transmitter operating	15.247(c)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions conducted – Transmitter operating	15.247	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carrier Frequency Separation	15.247(a) (1)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Number of Hopping Frequencies	15.247(a) (1)(i)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Time of Occupancy (Dwell Time)	15.247(a) (1)(i)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20 dB Bandwidth	15.247(a) (1)(i)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Band-edge Compliance of RF Emission	15.247(c)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated Emission from Receiver L.O.	15.109	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Power Line Conducted Emission	15.207(a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



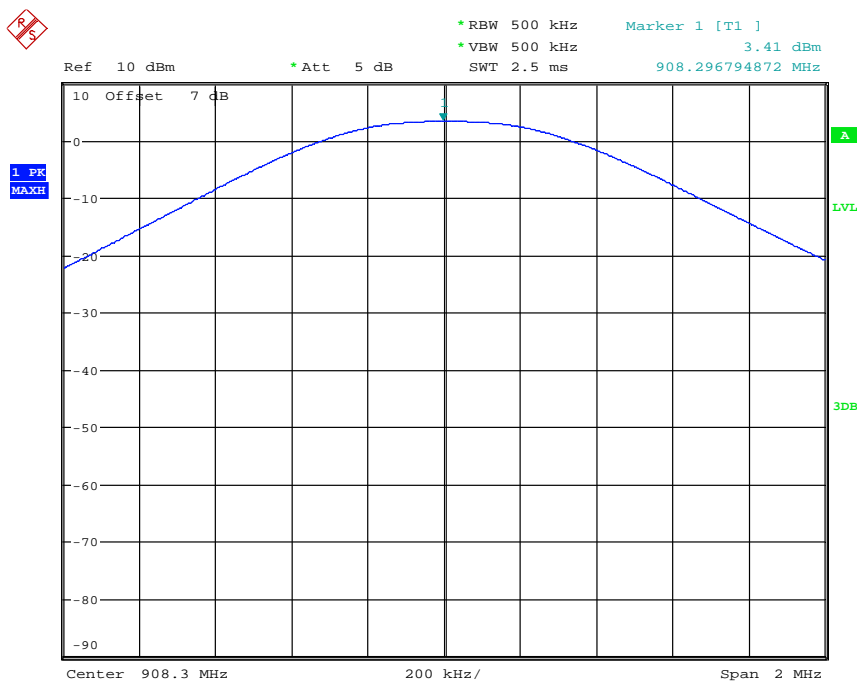
Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

## 3.1 Peak Output Power (transmitter)

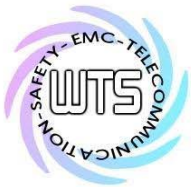
FCC Rule: 15.247

This measurement applies to equipment with an integral antenna and to equipment with an antenna connector and equipped with an antenna as declared by the applicant.

The power was measured with modulation (declared by the applicant).

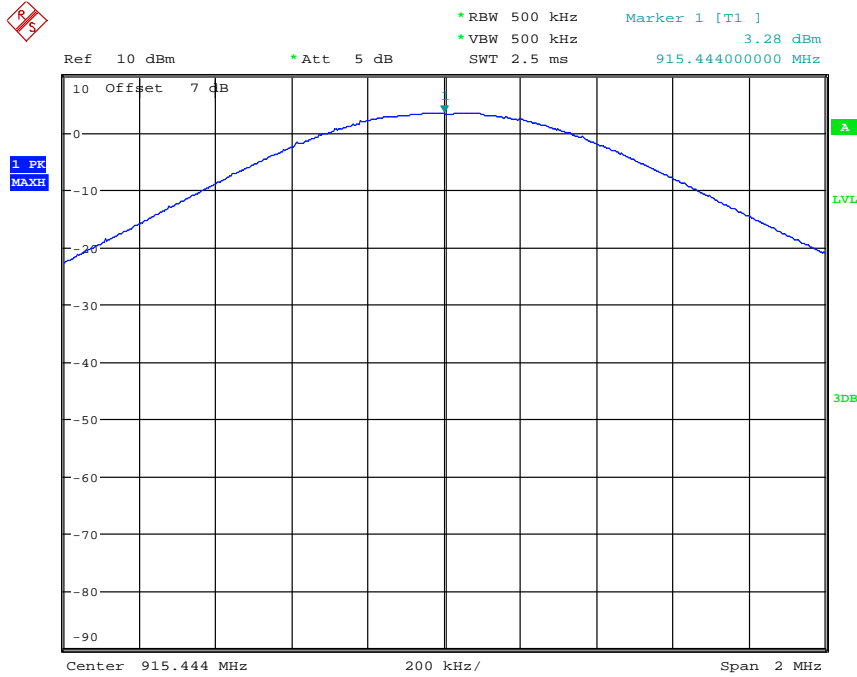


MAX OUT POWER 908.3MHz  
Date: 29.JUN.2017 13:59:10

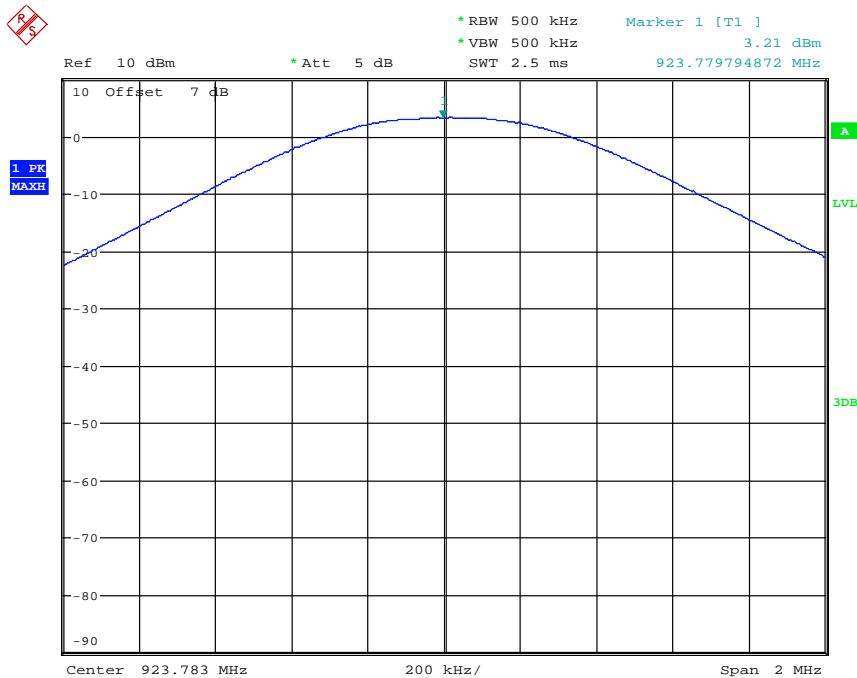


# Worldwide Testing Services(Taiwan) Co., Ltd.

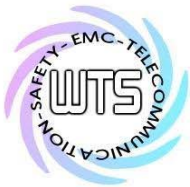
Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72



MAX OUT POWER 915.444MHz  
Date: 29.JUN.2017 13:59:48



MAX OUT POWER 923.783MHz  
Date: 29.JUN.2017 14:00:29



Registration number: W6M21706-17071-C-1  
 FCC ID: H50TR72

Test conditions $T_{nom} = \text{--}^{\circ}\text{C}$ , $V_{nom} = \text{--} \text{V}$ Frequency[MHz]	Signal Field strength TX highest power mode  dB $\mu$ V/m
--	--
Measurement uncertainty	$<\pm 2.05 \text{ dB}$

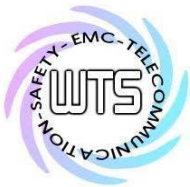
### Maximum Peak Output Power

Limits:

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

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

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



Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

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

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

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

FCC Rule: 15.247(c) , 15.35

For out of band emissions that are close to or that exceed the 20 dB attenuation requirement described in the specification, radiated measurements were performed at a 3 m separation distance to determine whether these emissions complied with the general radiated emission requirement.

Limits:

For frequencies below 1GHz :

Max. reading – 20 dB

Guidance on Measurement of FHSS Systems:

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

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

For frequencies above 1GHz (Peak measurements).

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

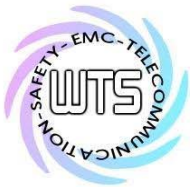
For frequencies above 1GHz (Average measurements).

Max. reading – 20 dB - duty cycle correction:

No duty cycle correction was added to the reading

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 042,  
ETSTW-RE 043, ETSTW-RE 044, ETSTW-RE 064





Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

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

FCC Rules: 15.247 (c), 15.205, 15.209, 15.35

Radiated emission measurements were performed from 30 MHz to 26000 MHz.

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

RES BW VID BW

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

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

1 MHz 1 MHz (Average measurements)

Limits:

For frequencies below 1GHz :

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

For frequencies above 1GHz (Average measurements).

Guidance on Measurement of FHSS Systems:

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

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

For frequencies above 1GHz (Average measurements).

Limit – duty cycle correction

No duty cycle correction was added to the reading.

54.0dB $\mu$ V/m

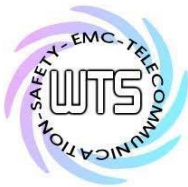
For frequencies above 1GHz (Peak measurements).

Limit + 20dB

54.0dB $\mu$ V/m + 20 dB= 74 dB $\mu$ V/m

Note: See attached diagrams.

Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 042,  
ETSTW-RE 043, ETSTW-RE 044, ETSTW-RE 064



Registration number: W6M21706-17071-C-1  
 FCC ID: H50TR72

### 3.5 Spurious emissions (tx)

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

In any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c))

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

Calculation of test results:

Such factors like antenna correction, cable loss, external attenuation etc. are already included in the provided measurement results. This is done by using validated test software and calibrated test system according the accreditation requirements.

The peak and average spurious emission plots was measured with the average limits.

In the Table being listed the critical peak and average value an exhibit the compliance with the above calculated Limits.

If in the column's correction factor states a value then the max. Field strength in the same row is corrected by a value gained from the "Marker-Delta-Method" or the „Duty-Cycle Correction Factor“.

Model: CATMLED Date: --  
 Mode: TX 908.3MHz Temperature: -- °C Engineer: --  
 Polarization: Horizontal Humidity: -- %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

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.			
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--



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

Registration number: W6M21706-17071-C-1  
 FCC ID: H50TR72

Polarization: Vertical

Frequency (MHz)	Reading (dBUV)	Detector	Factor (dB)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

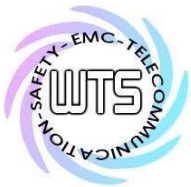
Frequency (MHz)	Reading (dBUV)		Factor (dB) Corr.	Result (dBUV/m)		Limit (dBUV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--

- Note**
1. Correction Factor = Antenna factor + Cable loss - Pre-amplifier
  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 above 1GHz: 30-1000 MHz = ± 3.30 dB, 1-18 GHz = ± 2.28 dB, 18-40 GHz = ± 2.19 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.

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

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

Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043, ETSTW-RE 044, ETSTW-RE 064

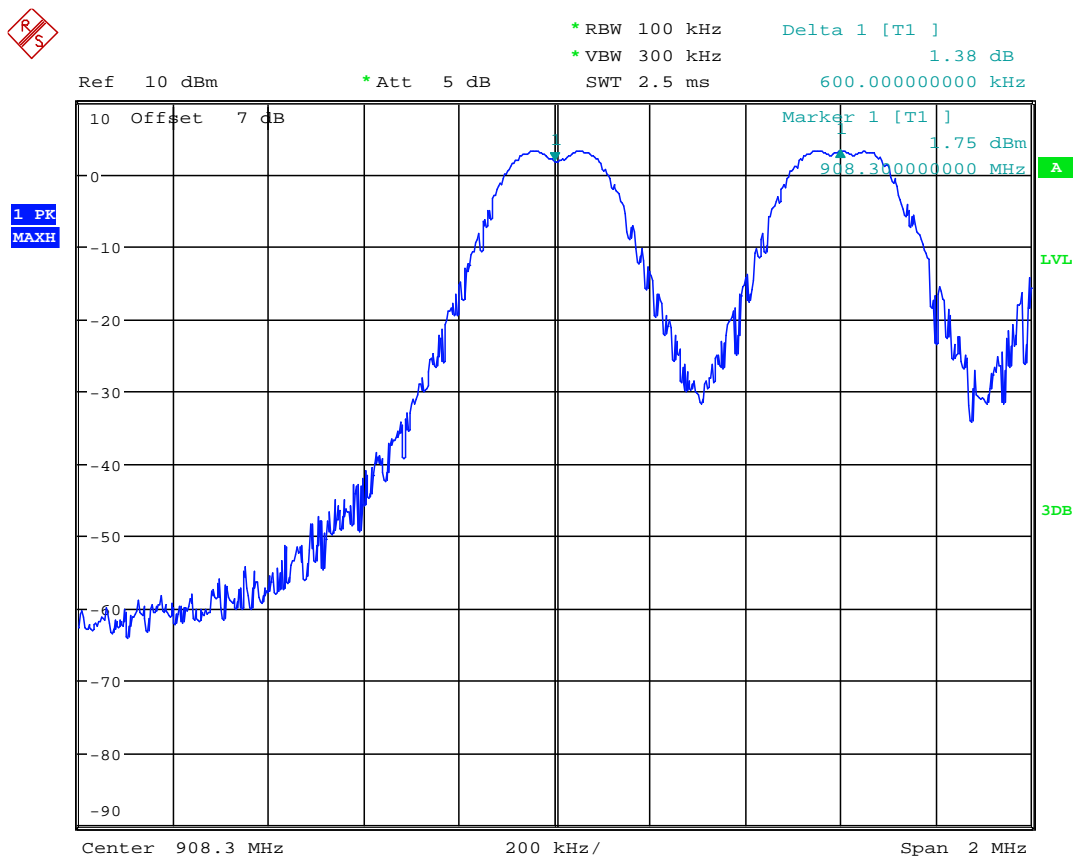


Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

### 3.6 Carrier Frequency Separation

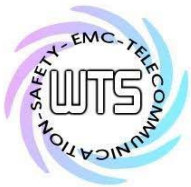
Carrier Frequency Separation was measured with modulation (declared by manufacturer).

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



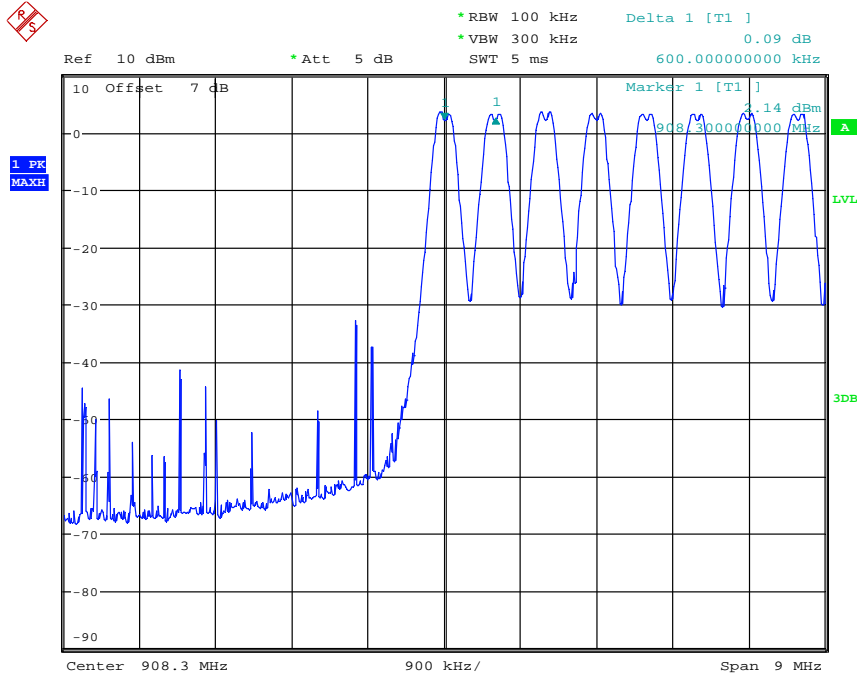
FREQUENCY SEPARATION

Date: 29.JUN.2017 14:29:25

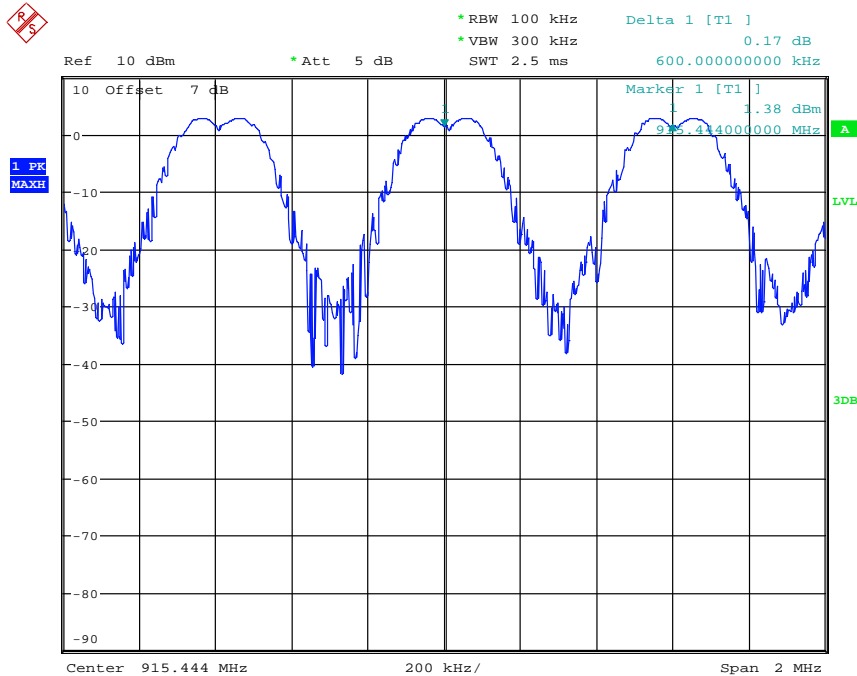


# Worldwide Testing Services(Taiwan) Co., Ltd.

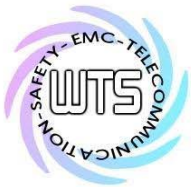
Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72



FREQUENCY SEPARATION  
Date: 29.JUN.2017 14:27:20

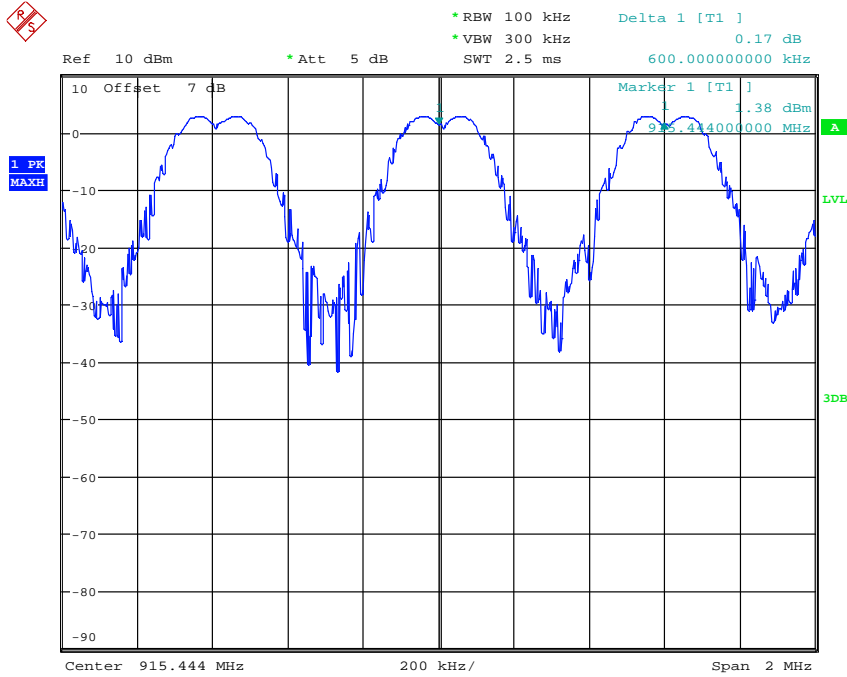


FREQUENCY SEPARATION  
Date: 29.JUN.2017 14:35:51

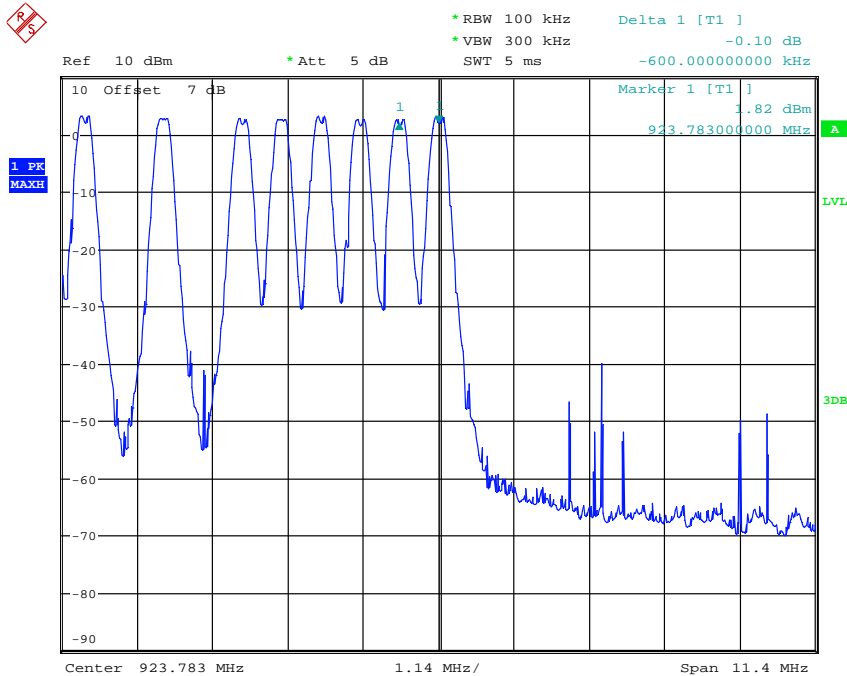


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72



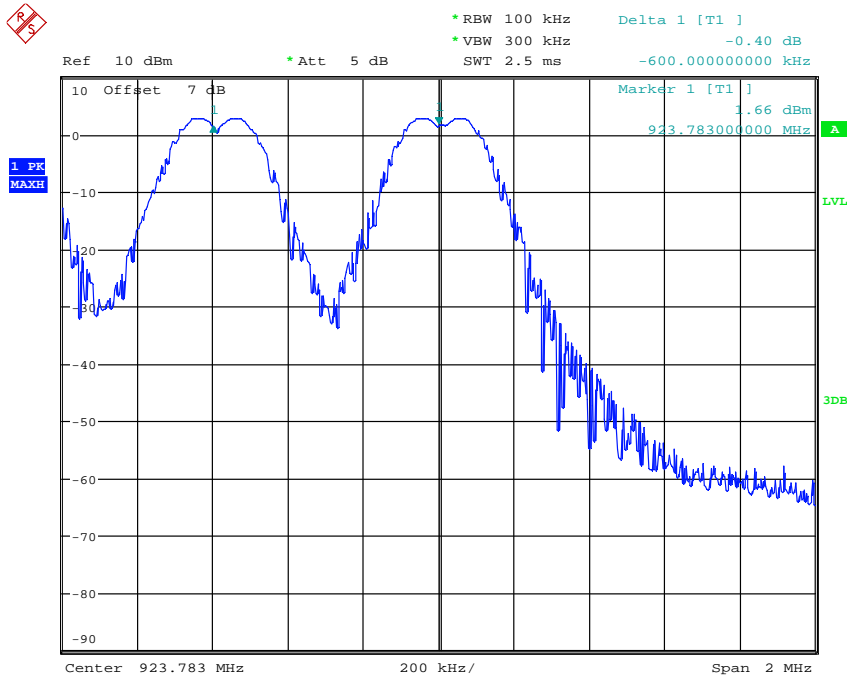
FREQUENCY SEPARATION  
Date: 29.JUN.2017 14:35:51



FREQUENCY SEPARATION  
Date: 29.JUN.2017 14:43:20



Registration number: W6M21706-17071-C-1  
 FCC ID: H50TR72

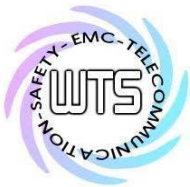


FREQUENCY SEPARATION  
 Date: 29.JUN.2017 14:44:13

**Limits:**

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

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

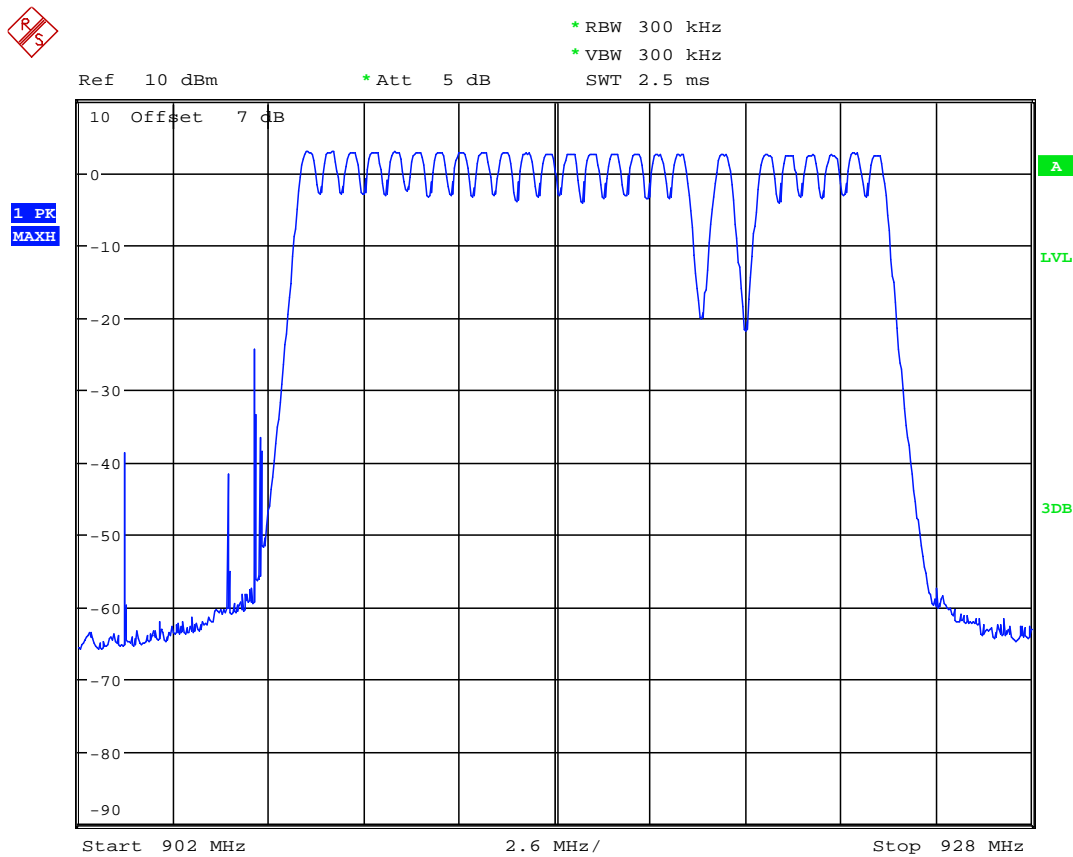


Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

### 3.7 Number of Hopping Frequencies

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

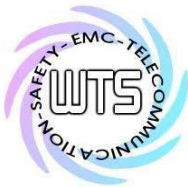
For frequency hopping systems operating in the 902-928 MHz band: if the 20dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies; if the 20dB bandwidth of the hopping channel 250 kHz or greater, the system shall use at least 25 hopping frequencies.



NUMBER OF HOPPING

Date: 29.JUN.2017 14:46:11





Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

**Limits:**

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

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

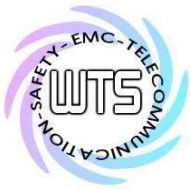
**3.7.1 Pseudorandom Frequency Hopping Sequence**

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

908.300, 908.895, 909.490, 910.085, 910.680, 911.277, 911.872, 912.467, 913.063, 913.658, 914.255, 914.850, 915.444, 916.040, 916.635, 917.233, 917.825, 918.422, 919.612, 920.805, 921.400, 921.995, 922.590, 923.188, 923.783MHz

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

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



Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

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

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

First, the Transmitter will emit a preamble signal of 150 ms and the receiver will scan this signal by 2ms sweeping until the preamble signal is caught. Second, the preamble signal is coded with the information of hopping sequence and the next transmitting frequency

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

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

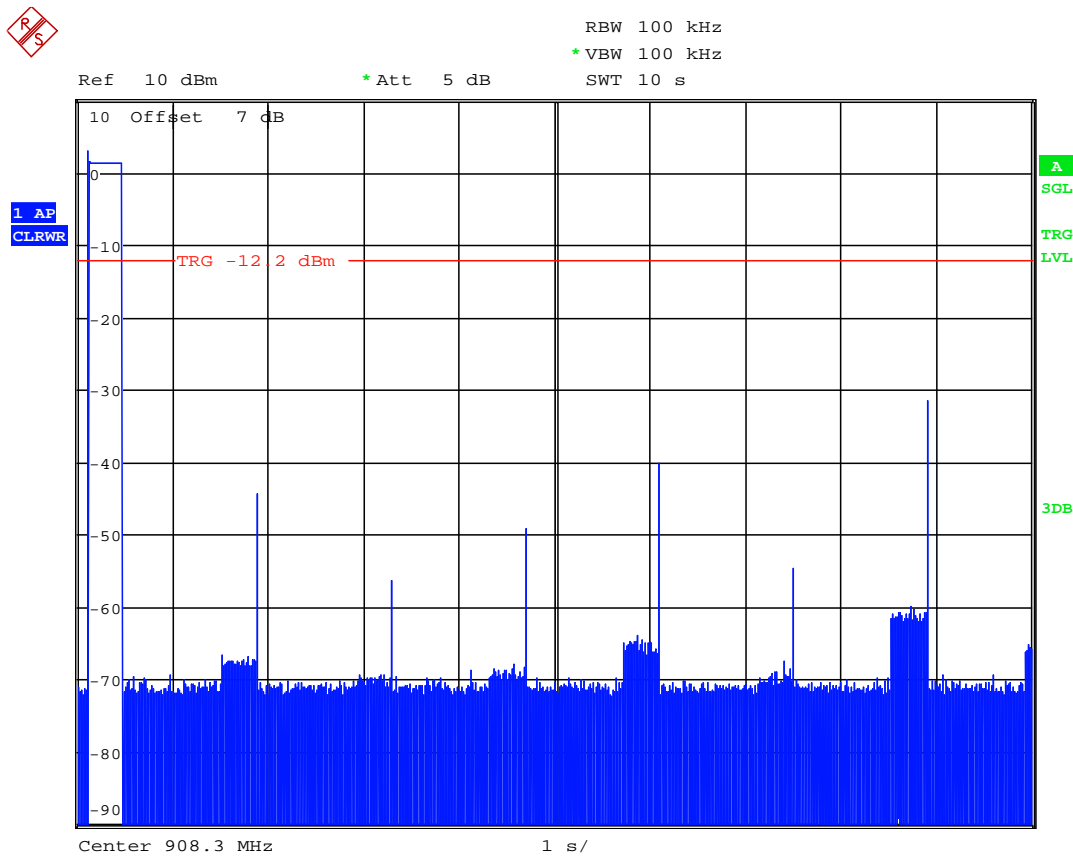


Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

### 3.8 Time of Occupancy (Dwell Time)

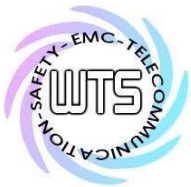
Frequency hopping systems operating in the 5725-5850 MHz band shall use an average time of occupancy on any frequency not greater than 0.4 seconds within a 30 second period.  
In 2400-2483.5 MHz band the average time of occupancy on any channel shall not be greater than 0.4 seconds multiplied by the number of hopping channels employed.

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



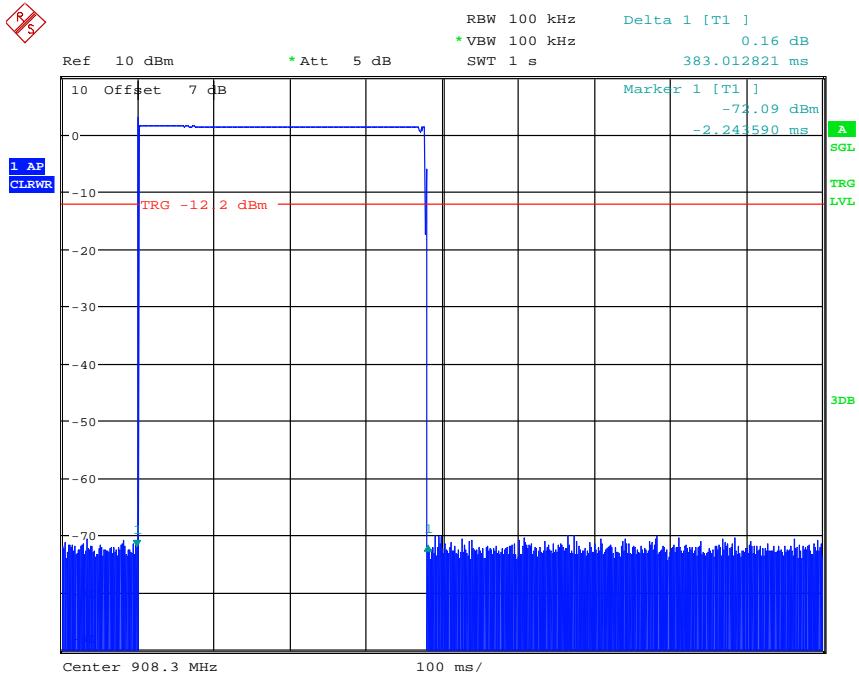
DWELL TIME 908.3MHz

Date: 29.JUN.2017 15:19:12

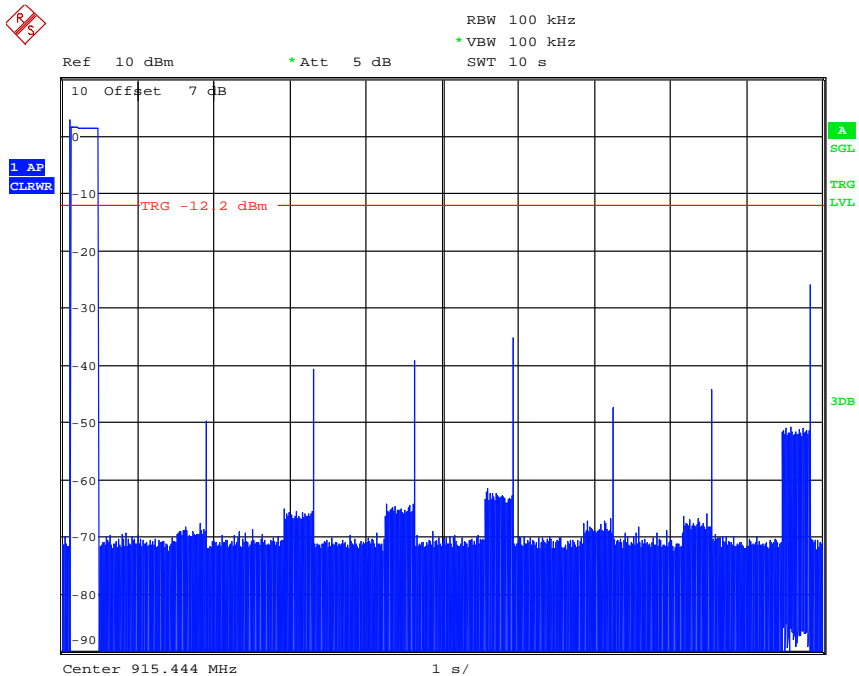


# Worldwide Testing Services(Taiwan) Co., Ltd.

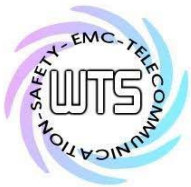
Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72



DWELL TIME 908.3MHz ( 383.012ms \* 1 = 383.012ms )  
Date: 29.JUN.2017 15:09:03

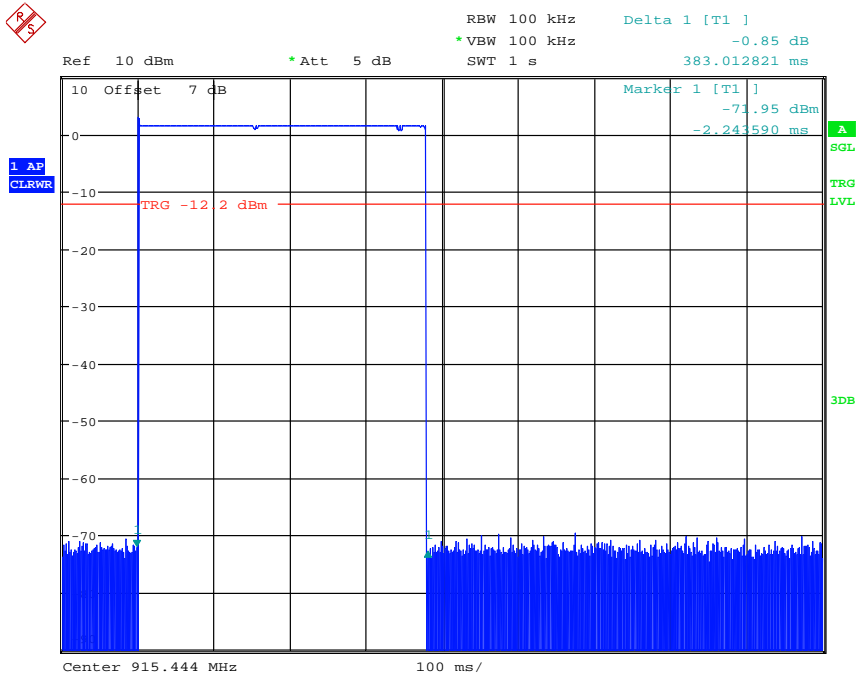


DWELL TIME 915.444MHz  
Date: 29.JUN.2017 15:16:55

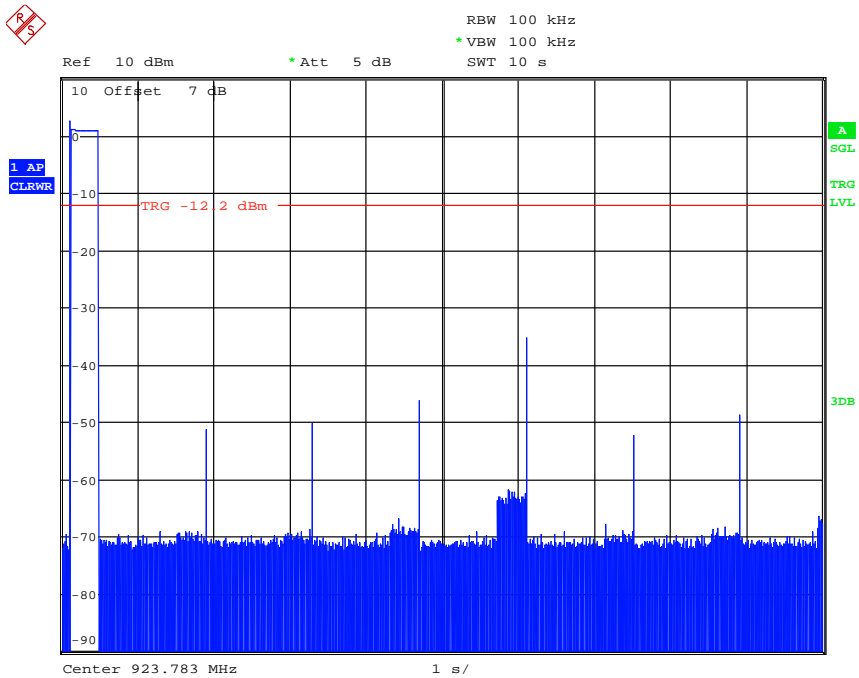


# Worldwide Testing Services(Taiwan) Co., Ltd.

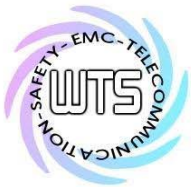
Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72



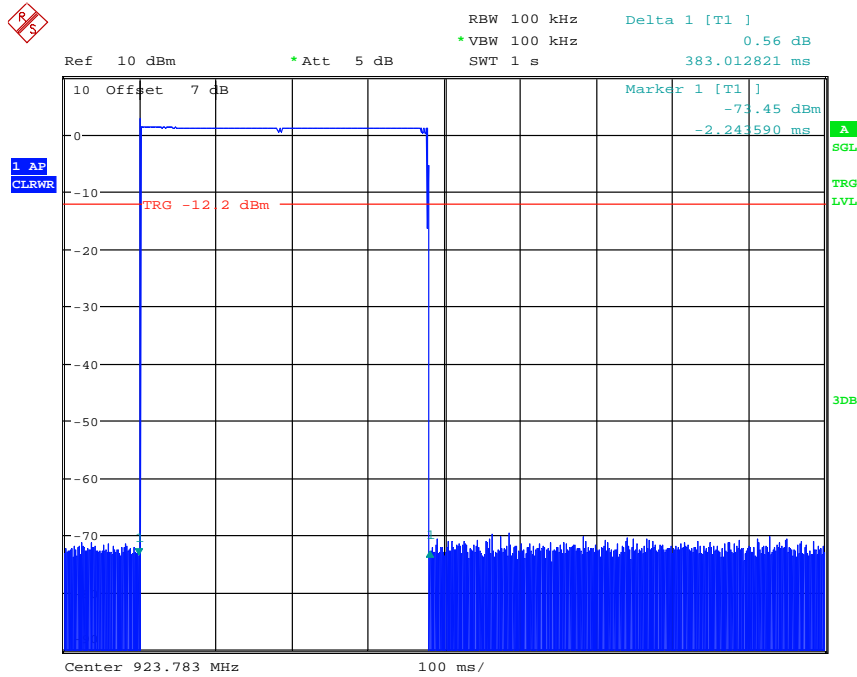
DWELL TIME 915.444MHz ( 383.012ms \* 1 = 383.012ms )  
Date: 29.JUN.2017 15:11:52



DWELL TIME 923.783MHz  
Date: 29.JUN.2017 15:15:14



Registration number: W6M21706-17071-C-1  
 FCC ID: H50TR72

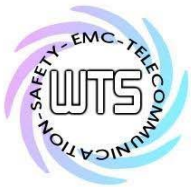


DWELL TIME 923.783MHz ( 383.012ms \* 1 = 383.012ms )  
 Date: 29.JUN.2017 15:13:51

### Limits and measurement periods:

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

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



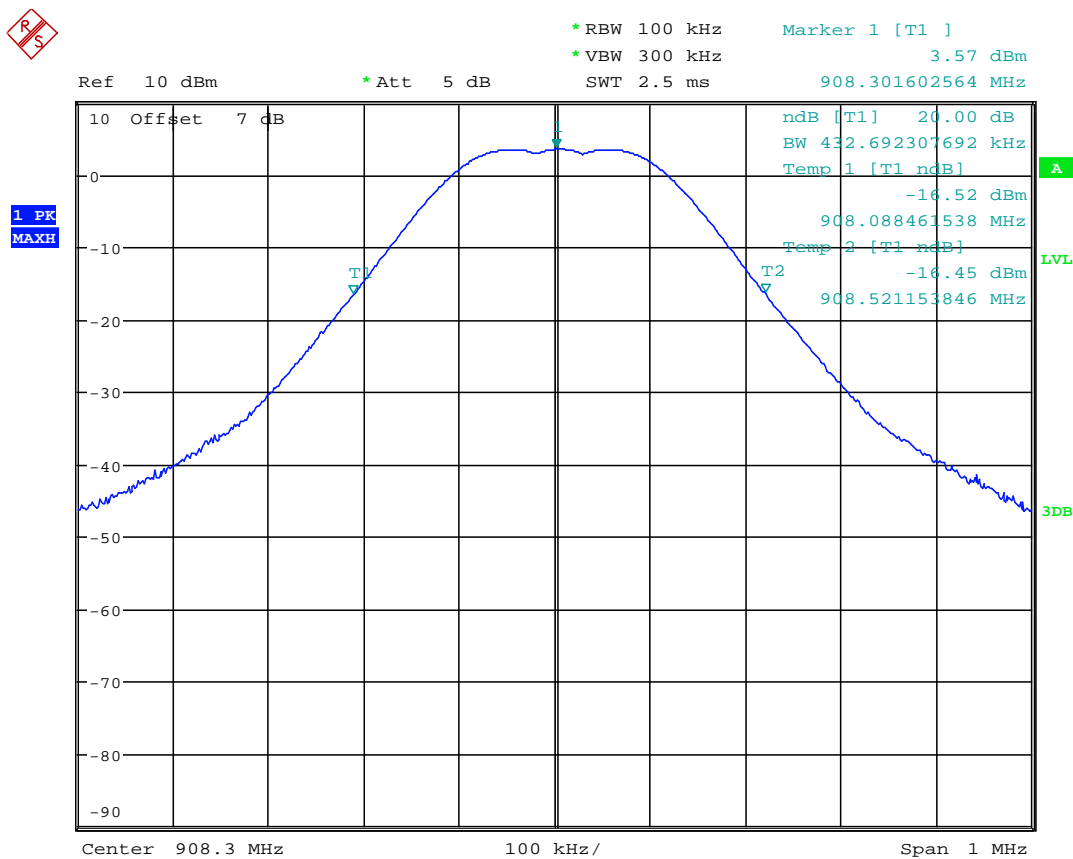
Registration number: W6M21706-17071-C-1  
 FCC ID: H50TR72

### 3.9 20dB Bandwidth

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

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

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



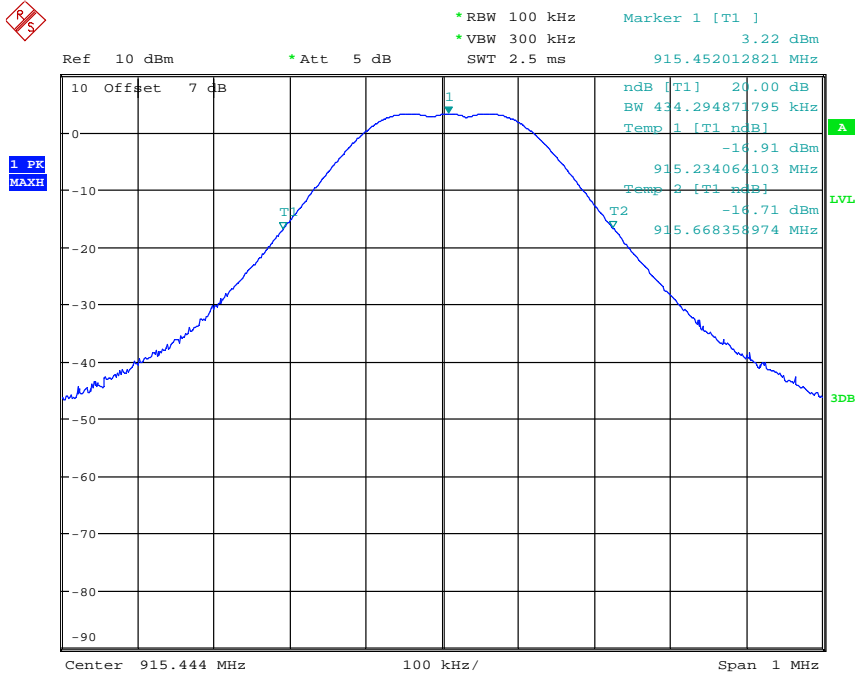
20DB BANDWIDTH 908.3MHz

Date: 29.JUN.2017 15:33:22

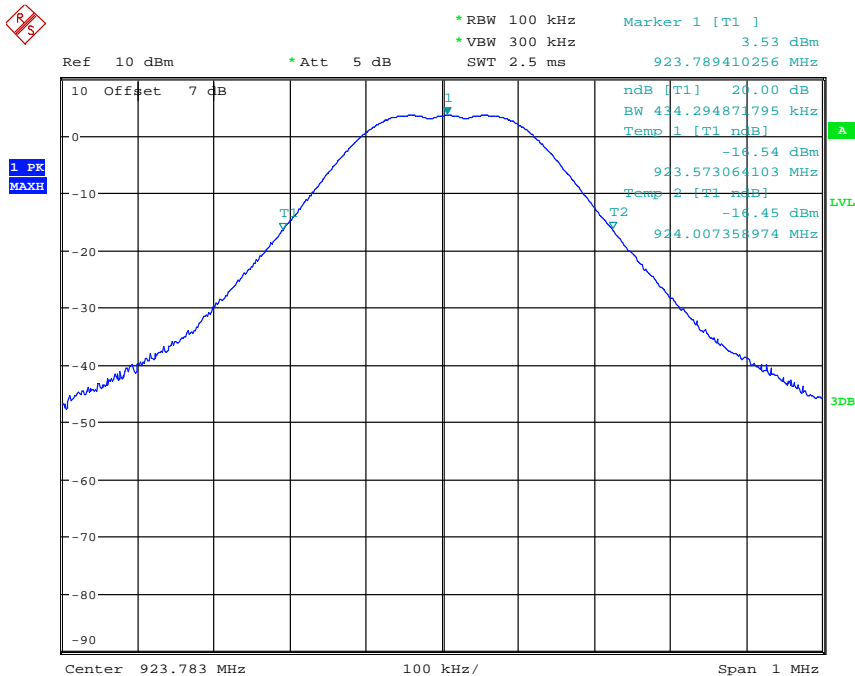


# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21706-17071-C-1  
 FCC ID: H50TR72

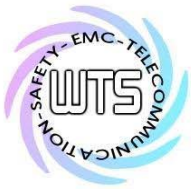


20DB BANDWIDTH 915.444MHz  
 Date: 29.JUN.2017 13:49:33



20DB BANDWIDTH 923.783MHz  
 Date: 29.JUN.2017 13:50:13





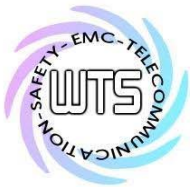
# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

## Limits:

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

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

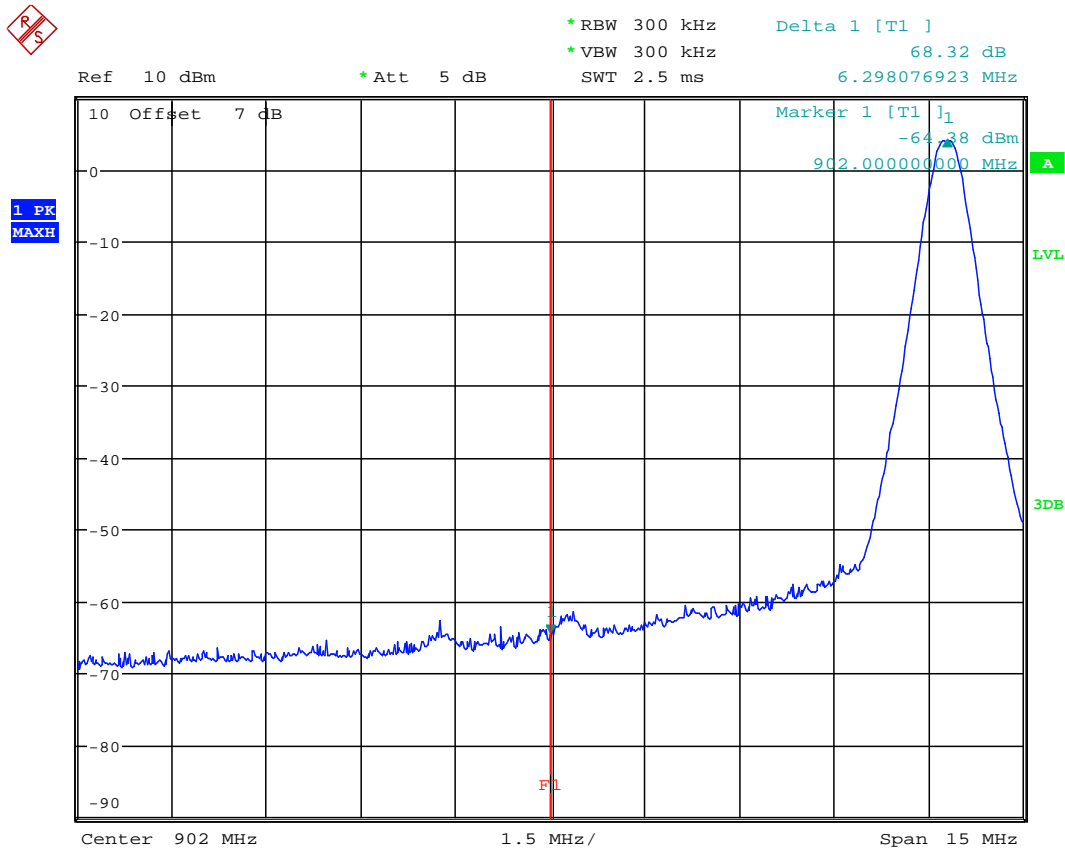


Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

### 3.10 Band-edge Compliance of RF Emissions

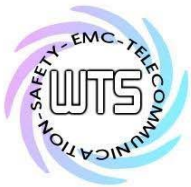
According to FCC rules part 15 subpart C §15.247(c) in any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required.

In addition radiated emission which fall in the restricted bands, as defined in section 15.205(a), must also with the radiated emission limits.



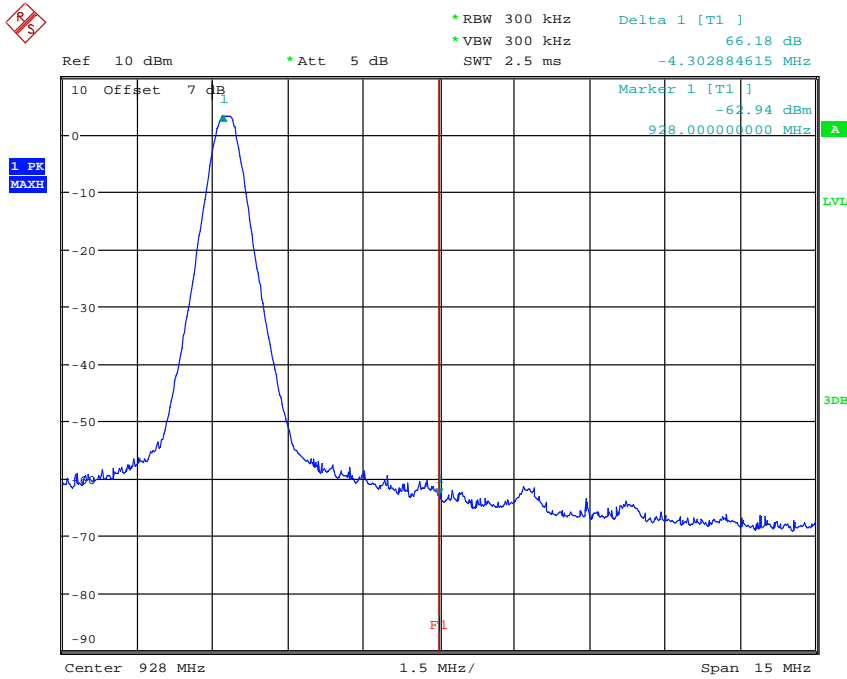
BANDEDGE 908.3MHz

Date: 29.JUN.2017 14:12:48

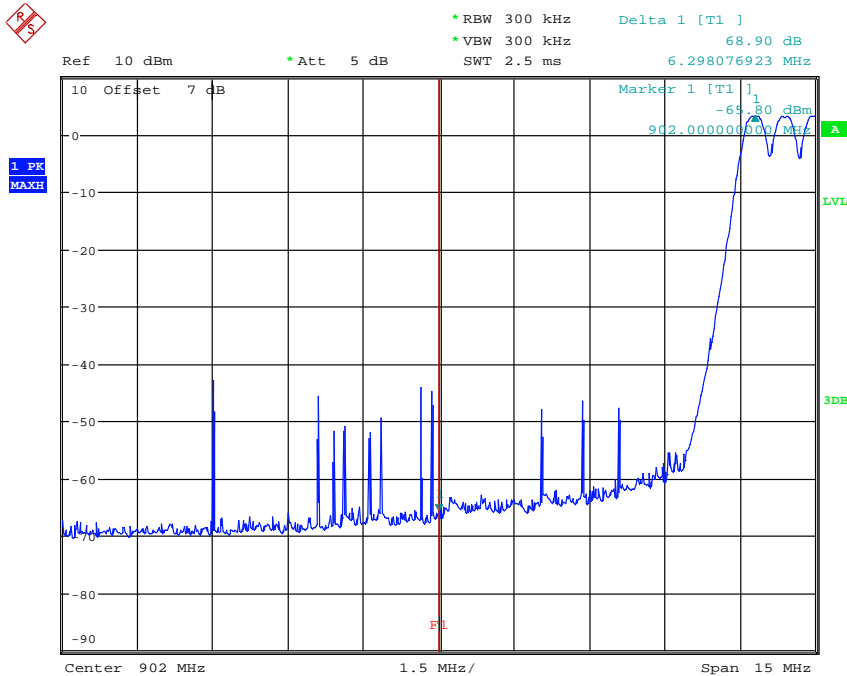


# Worldwide Testing Services(Taiwan) Co., Ltd.

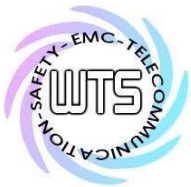
Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72



BANDEDGE 923.783MHz  
Date: 29.JUN.2017 14:20:40

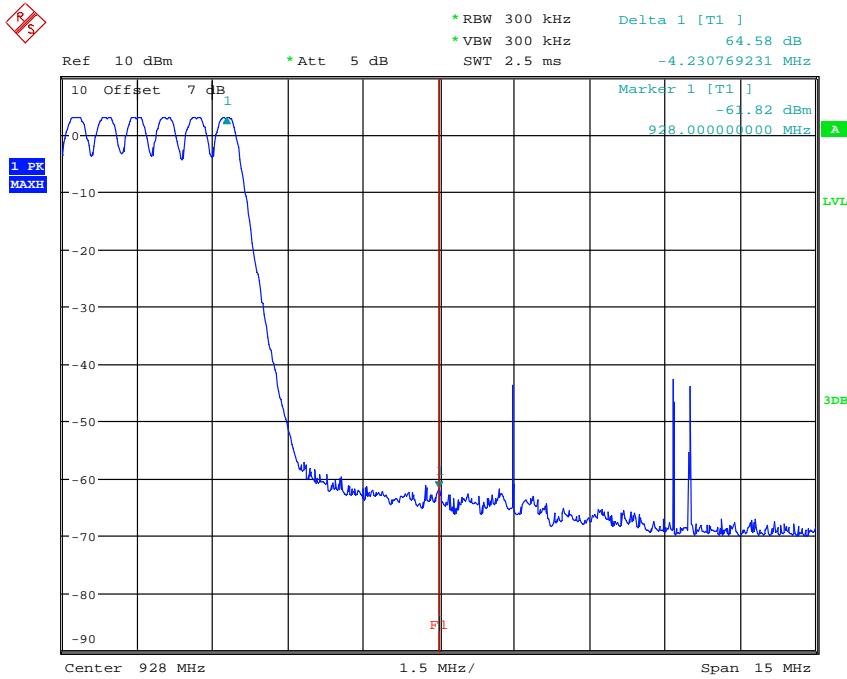


BANDEDGE HOPPING MODE 908.3MHz  
Date: 29.JUN.2017 14:11:42



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

Registration number: W6M21706-17071-C-1  
 FCC ID: H50TR72



BANDEDGE HOPPING MODE 923.783MHz  
 Date: 29.JUN.2017 14:19:44

## Limits:

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

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



Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

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

FCC Rule: 15.109

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

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

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

Explanation: The test results are listed in the separated test report no.: W6M21706-17071-P-15B.

Test equipment used: ETSTW-RE 055, ETSTW-RE 064, ETSTW-RE 004, ETSTW-RE 030  
ETSTW-RE 062, ETSTW-RE 142, ETSTW-RE 147



Registration number: W6M21706-17071-C-1  
 FCC ID: H50TR72

**3.12 Power Line Conducted Emission**

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the table bellows with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

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

Model: CATMLED Date: --  
 Mode: Temperature: -- °C Engineer: --  
 Polarization: N Humidity: -- %

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV)		Limit (dBuV)		Margin (dB)
	QP	Ave.		QP	Ave.	QP	Ave.	
--	--	--	--	--	--	--	--	--

Polarization: L1

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV)		Limit (dBuV)		Margin (dB)
	QP	Ave.		QP	Ave.	QP	Ave.	
--	--	--	--	--	--	--	--	--

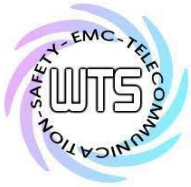
**Note**

- The formula of measured value as: Test Result = Reading + Correction Factor**
- The Correction Factor = Cable Loss + LISN Insertion Loss + Pulse Limit Loss**
- Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average**
- All not in the table noted test results are more than 20 dB below the relevant limits.**
- Measurement uncertainty = ±0.74dB; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.**
- Up Line: QP Limit Line, Down Line: Ave Limit Line.**
- This test is not required because the EUT is battery-used.**

**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 016, ETSTW-CE 028



Registration number: W6M21706-17071-C-1  
FCC ID: H50TR72

## **Appendix**

Measurement diagrams

Spurious Emissions radiated\_TX



Radiated Emission Measurement

Operator: Leon

File :1

Data :#1

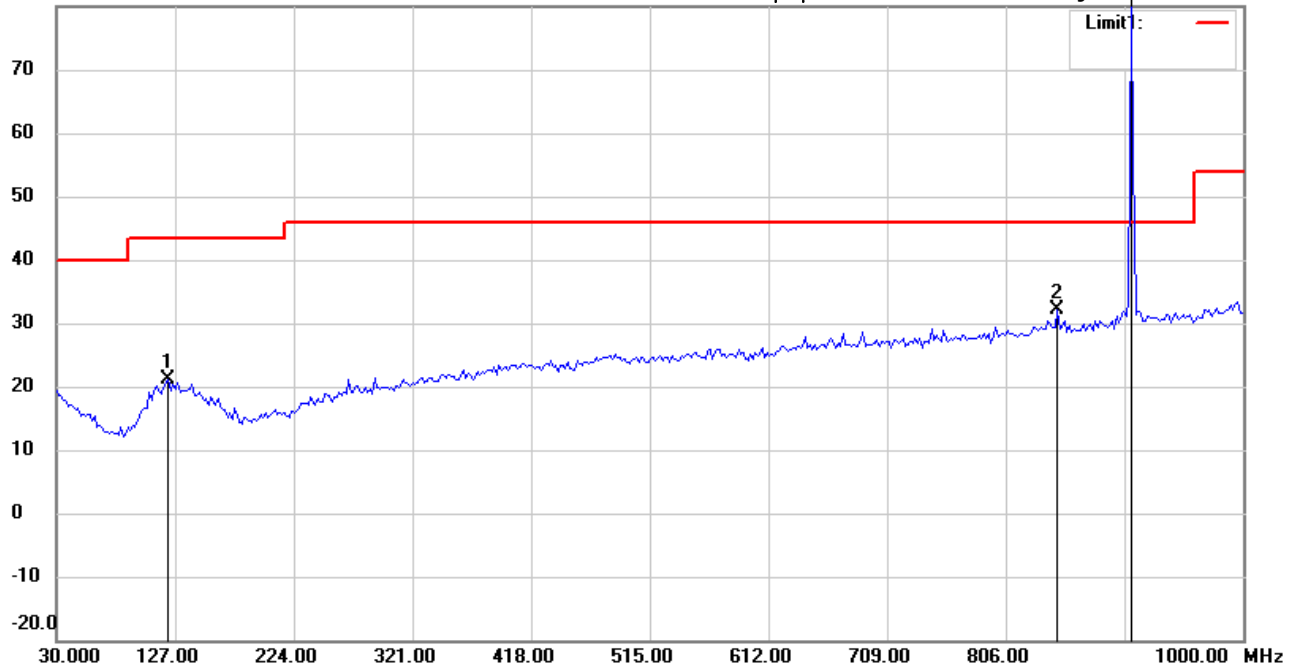
Date: 2017/6/23

Temperature:24 °C

80.0 dBuV/m

Time: 下午 10:19:16

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_30-1000MHz

Polarization: *Horizontal*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 908.3MHz

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
	121.3627	27.97	peak	-6.82	21.15	43.50	100	85	-22.35	
	848.3768	29.79	peak	2.43	32.22	46.00	100	210	-13.78	
*	908.6373	86.54	peak	3.46	90.00	46.00			44.00	RF





Radiated Emission Measurement

Operator: Leon

File :1

Data :#2

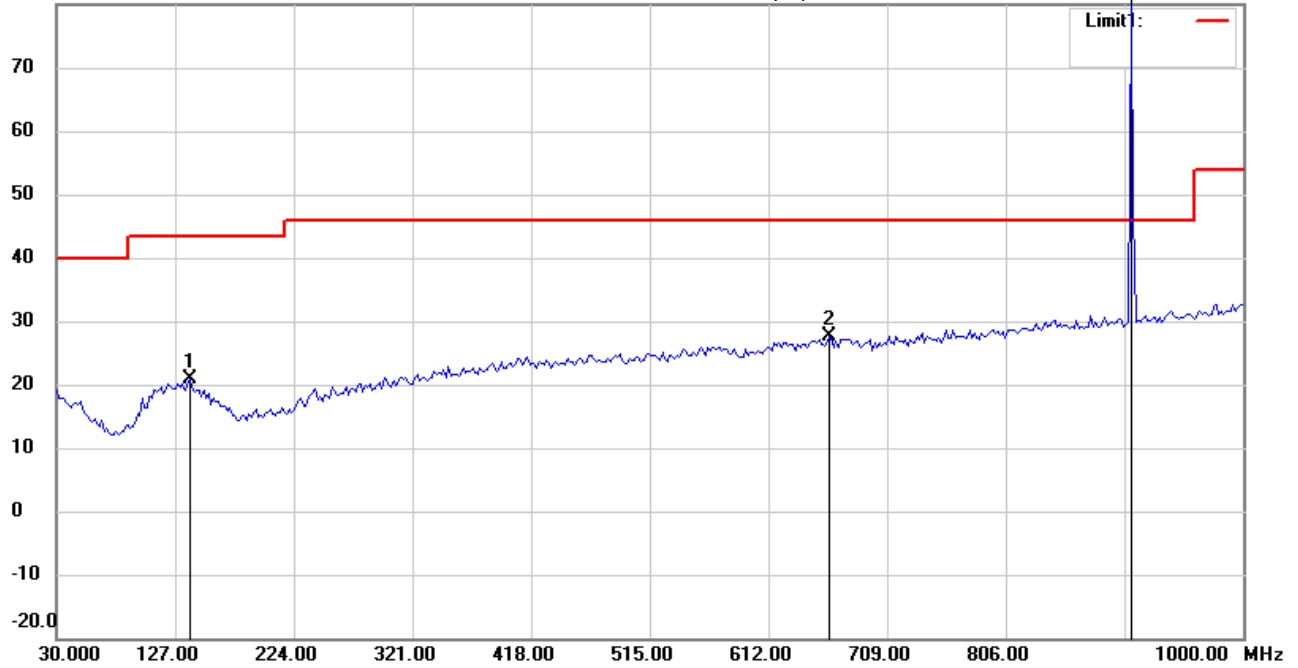
Date: 2017/6/23

Temperature:24 °C

80.0 dBuV/m

Time: 下午 10:20:10

Humidity:60%



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_30-1000MHz

Polarization: *Vertical*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 908.3MHz

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
	138.8577	27.79	peak	-6.84	20.95	43.50	100	95	-22.55	
	661.7635	27.88	peak	-0.25	27.63	46.00	100	60	-18.37	
*	908.6373	80.27	peak	3.46	83.73	46.00			37.73	RF



Radiated Emission Measurement

Operator: Leon

File :3

Data :#1

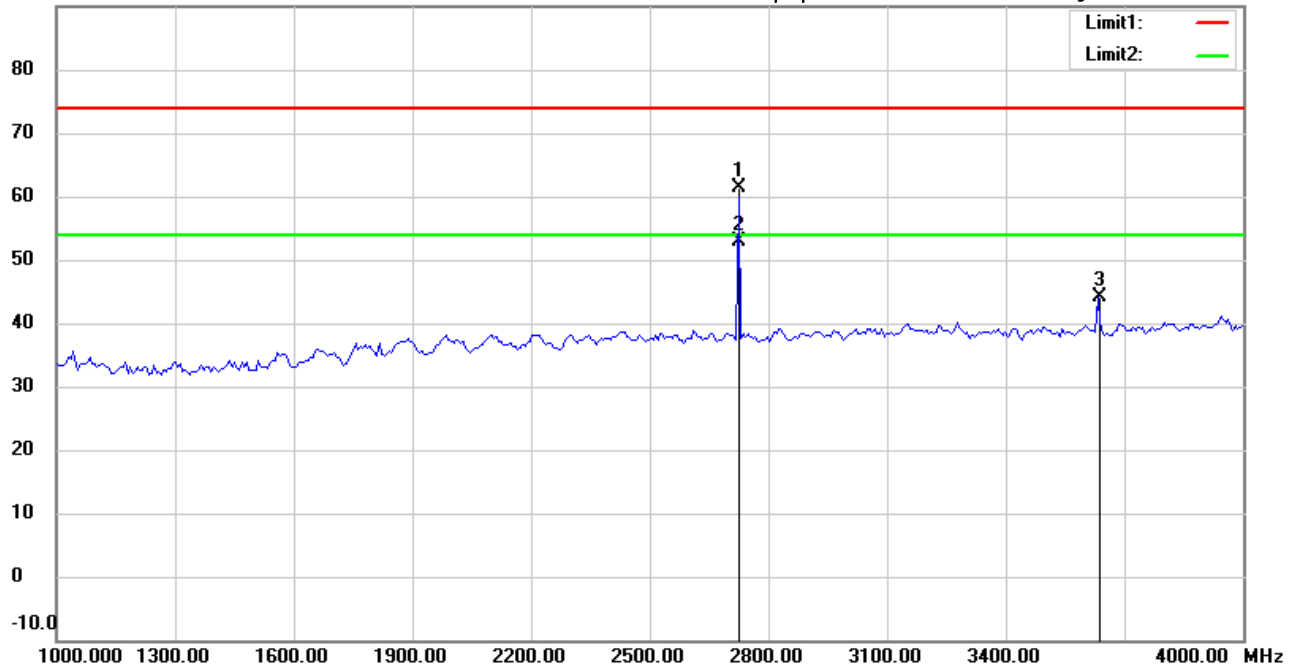
Date: 2017/6/22

Temperature:24 °C

90.0 dBuV/m

Time: 下午 08:41:12

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

Polarization: *Horizontal*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 908.3MHz

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
	2724.900	65.22	peak	-3.94	61.28	74.00	155	70	-12.72	
*	2724.900	56.85	AVG	-3.94	52.91	54.00	155	70	-1.09	
	3633.267	45.98	peak	-1.86	44.12	74.00	150	230	-29.88	



Radiated Emission Measurement

Operator: Leon

File :3

Data :#4

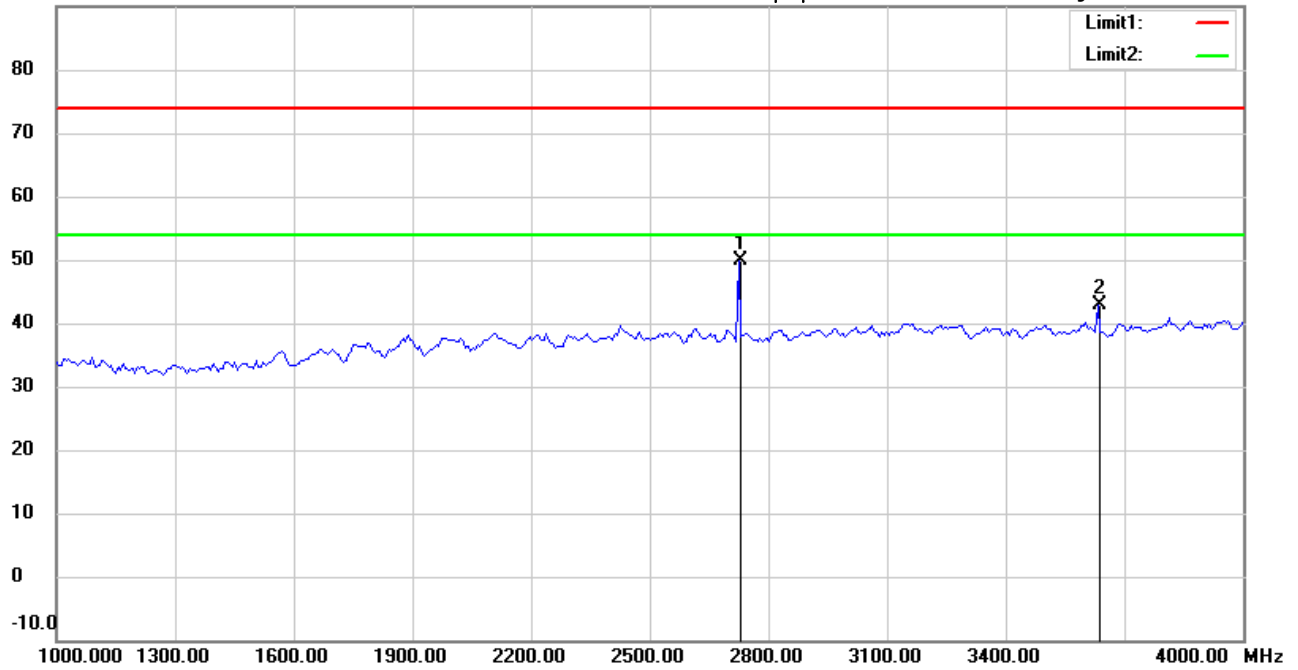
Date: 2017/6/22

Temperature:24 °C

90.0 dBuV/m

Time: 下午 08:43:02

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

EUT : W6M21706-17071

M/N:

Test Mode : TX 908.3MHz

Note :

Polarization: *Vertical*

Power : 3 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
*	2725.451	53.76	peak	-3.94	49.82	74.00	150	95	-24.18	
	3633.267	44.84	peak	-1.86	42.98	74.00	150	240	-31.02	



Radiated Emission Measurement

Operator: Leon

File :3

Data :#2

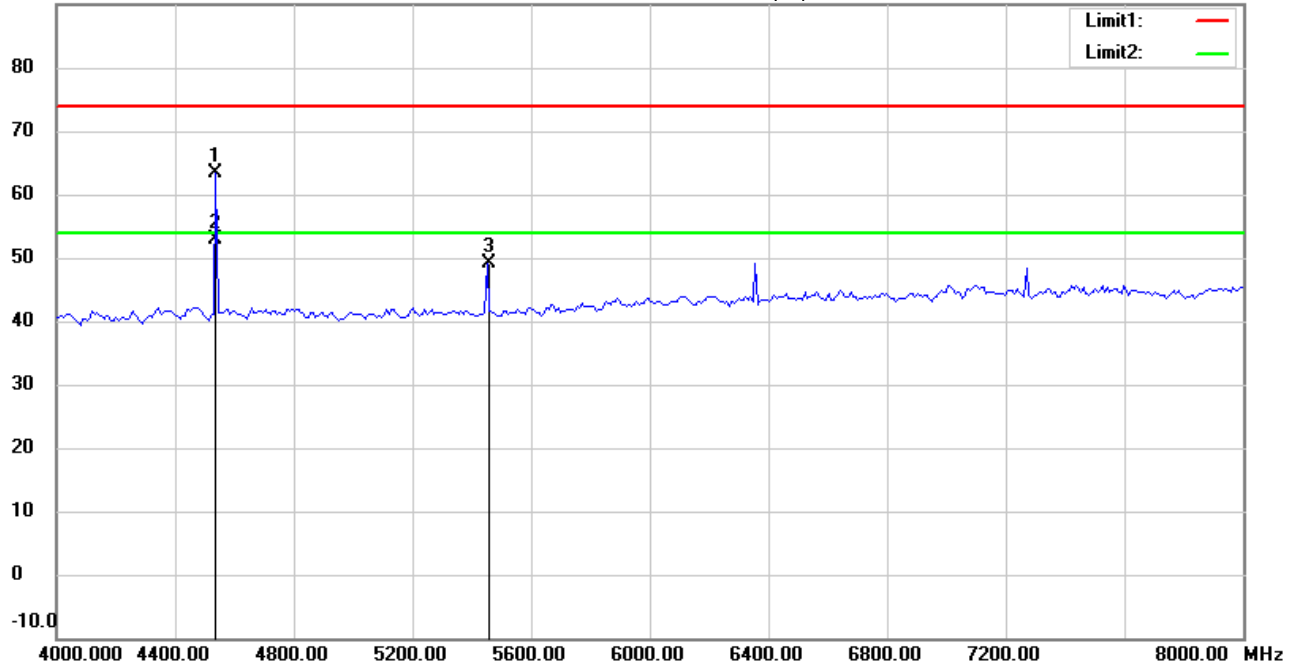
Date: 2017/6/22

Temperature:24 °C

90.0 dBuV/m

Time: 下午 08:47:35

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

Polarization: *Horizontal*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 908.3MHz

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
	4537.074	63.42	peak	0.00	63.42	74.00	150	210	-10.58	
*	4537.074	52.99	AVG	0.00	52.99	54.00	150	210	-1.01	
	5450.902	47.84	peak	1.30	49.14	74.00	150	80	-24.86	



Radiated Emission Measurement

Operator: Leon

File :3

Data :#5

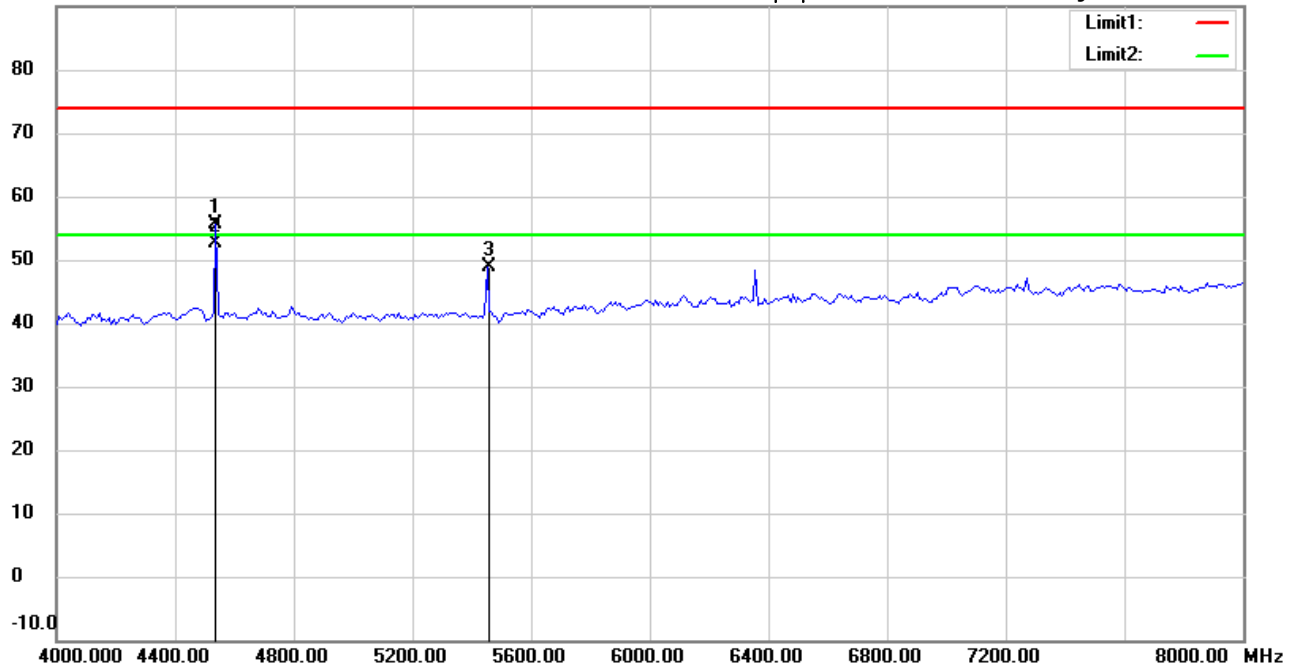
Date: 2017/6/22

Temperature:24 °C

90.0 dBuV/m

Time: 下午 08:48:55

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

Polarization: *Vertical*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 908.3MHz

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
	4537.074	55.66	peak	0.00	55.66	74.00	150	65	-18.34	
*	4537.074	52.69	AVG	0.00	52.69	54.00	150	65	-1.31	
	5450.902	47.55	peak	1.30	48.85	74.00	150	225	-25.15	



Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei  
 Tel:+886-2-6606-8877  
 Fax:+886-2-6606-8875

Radiated Emission Measurement

Operator: Leon

File :3

Data :#3

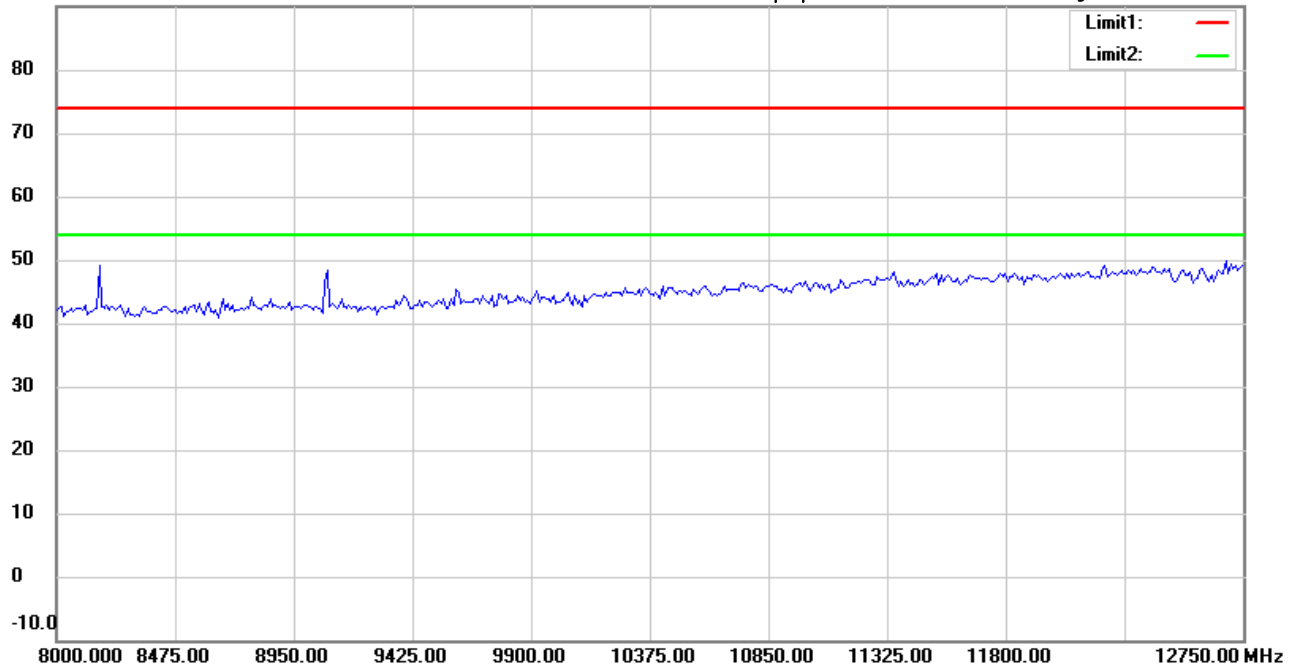
Date: 2017/6/23

Temperature:24 °C

90.0 dBuV/m

Time: 下午 05:55:55

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

Polarization: *Horizontal*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 908.3MHz

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
-----	-----------------	----------------	----------	---------------------	-----------------	----------------	--------------	----------------	-------------	---------

\*:Maximum data    x:Over limit    !:over margin



Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei  
 Tel:+886-2-6606-8877  
 Fax:+886-2-6606-8875

Radiated Emission Measurement

Operator: Leon

File :3

Data :#6

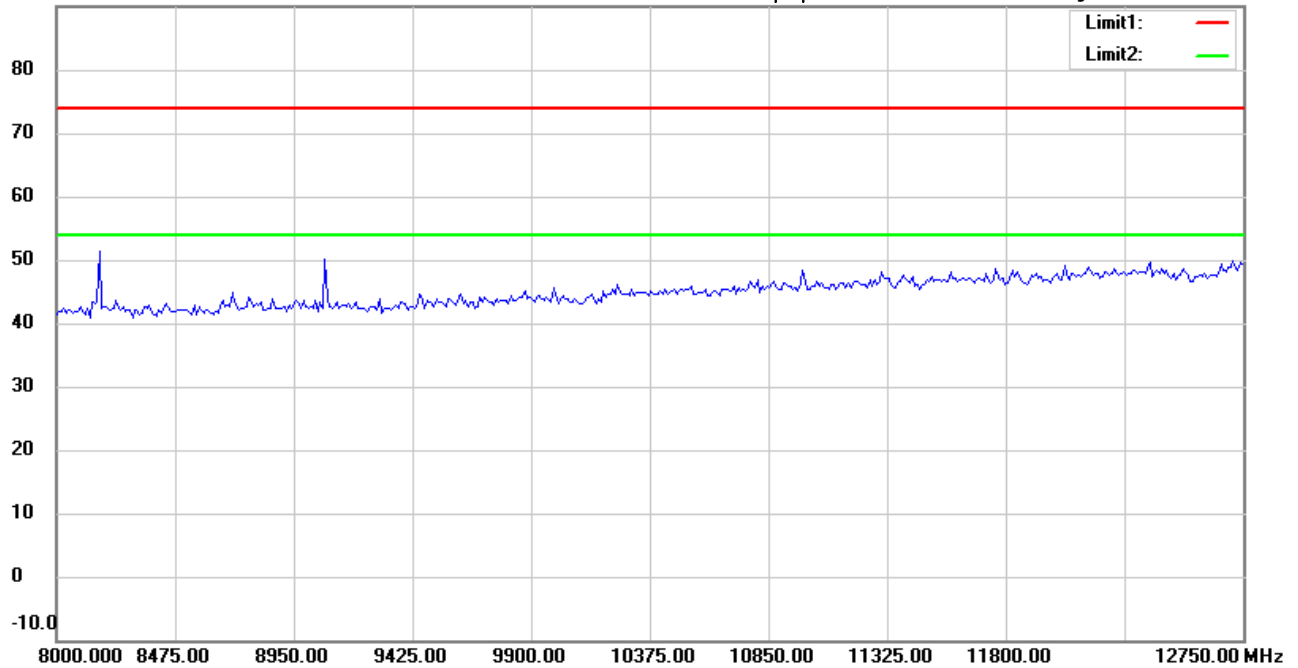
Date: 2017/6/23

Temperature:24 °C

90.0 dBuV/m

Time: 下午 05:56:52

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

Polarization: *Vertical*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 908.3MHz

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
-----	-----------------	----------------	----------	---------------------	-----------------	----------------	--------------	----------------	-------------	---------

\*:Maximum data    x:Over limit    !:over margin



Radiated Emission Measurement

Operator: Leon

File :1

Data :#1

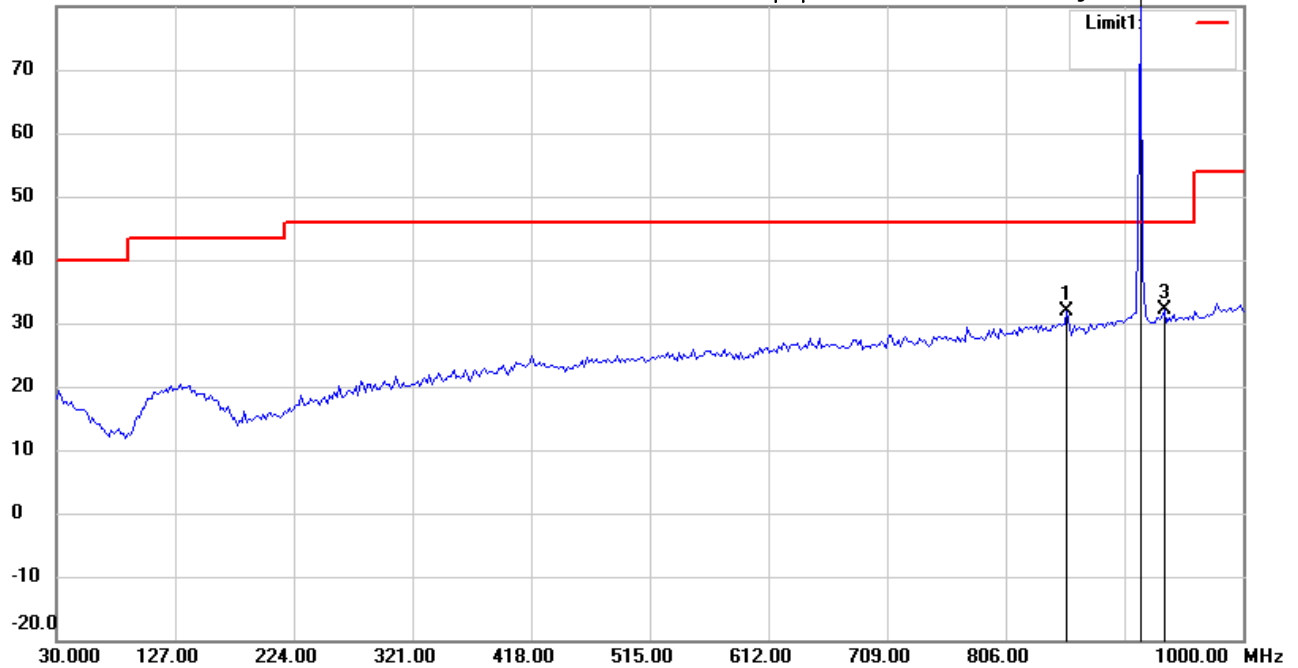
Date: 2017/6/23

Temperature:24 °C

80.0 dBuV/m

Time: 下午 10:22:33

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_30-1000MHz

Polarization: *Horizontal*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 915.44MHz

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
	856.1522	29.33	peak	2.56	31.89	46.00	100	95	-14.11	
*	916.4128	86.58	peak	3.67	90.25	46.00			44.25	RF
	935.8517	28.05	peak	4.20	32.25	46.00	100	170	-13.75	





Radiated Emission Measurement

Operator: Leon

File :1

Data :#2

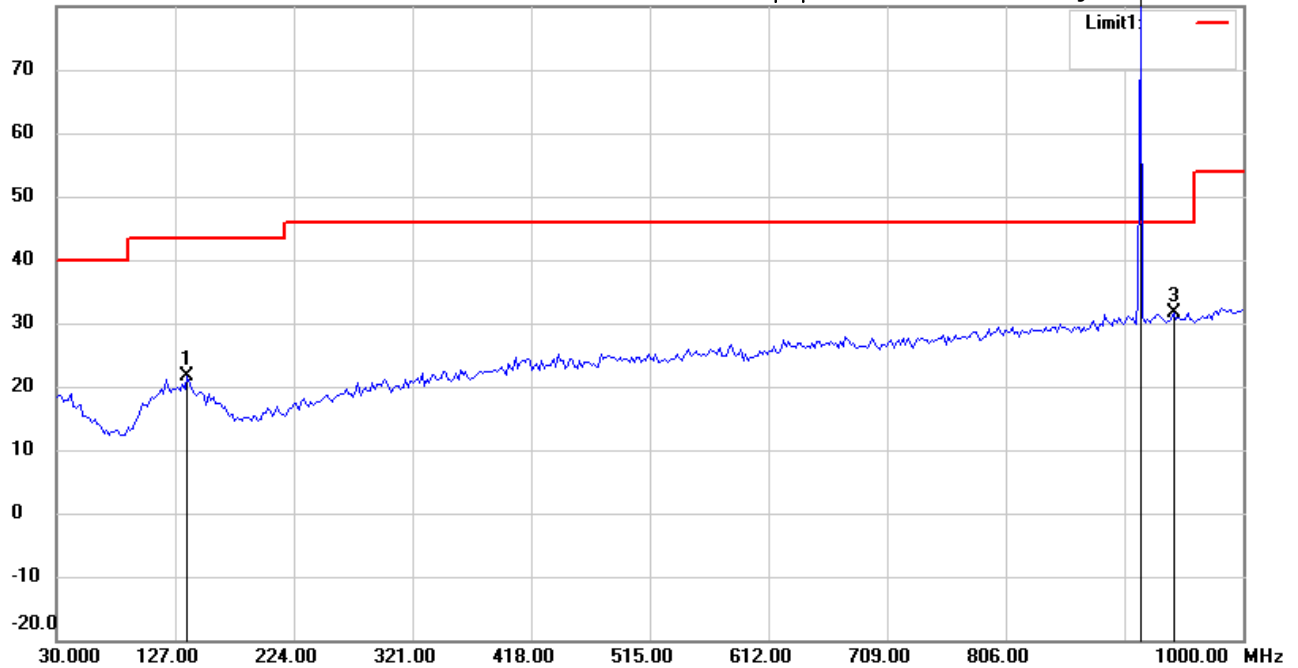
Date: 2017/6/23

Temperature:24 °C

80.0 dBuV/m

Time: 下午 10:23:27

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_30-1000MHz

Polarization: **Vertical**

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 915.44MHz

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
	136.9138	28.32	peak	-6.80	21.52	43.50	100	175	-21.98	
*	916.4128	80.14	peak	3.67	83.81	46.00			37.81	RF
	943.6273	27.16	peak	4.42	31.58	46.00	100	200	-14.42	



Radiated Emission Measurement

Operator: Leon

File :3

Data :#1

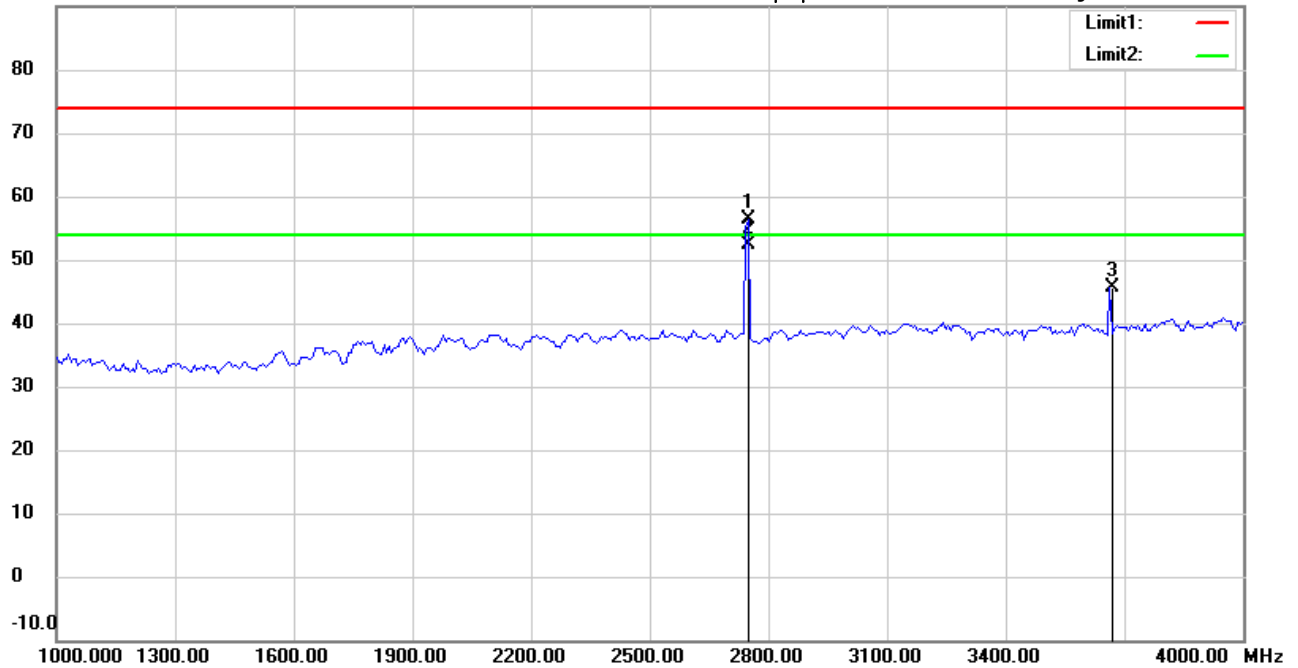
Date: 2017/6/23

Temperature:24 °C

90.0 dBuV/m

Time: 下午 06:47:37

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

EUT : W6M21706-17071

M/N:

Test Mode : TX 915.44MHz

Note :

Polarization: *Horizontal*

Power : 3 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
	2749.499	60.23	peak	-3.89	56.34	74.00	150	175	-17.66	
*	2749.499	56.39	AVG	-3.89	52.50	54.00	150	175	-1.50	
	3663.327	47.39	peak	-1.88	45.51	74.00	150	250	-28.49	



Radiated Emission Measurement

Operator: Leon

File :3

Data :#4

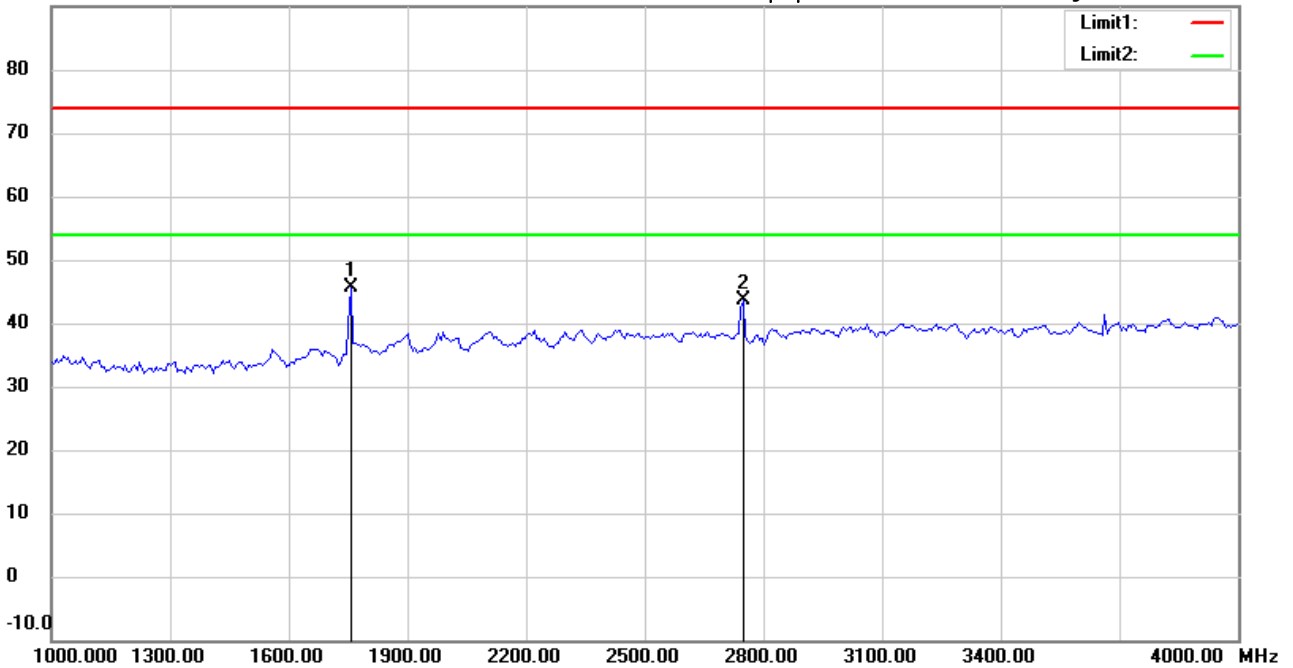
Date: 2017/6/23

Temperature:24 °C

90.0 dBuV/m

Time: 下午 06:41:42

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

Polarization: *Vertical*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 915.44MHz

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
*	1757.515	52.74	peak	-7.03	45.71	74.00	150	95	-28.29	
	2749.499	47.43	peak	-3.89	43.54	74.00	150	80	-30.46	



Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei  
 Tel:+886-2-6606-8877  
 Fax:+886-2-6606-8875

Radiated Emission Measurement

Operator: Leon

File :3

Data :#2

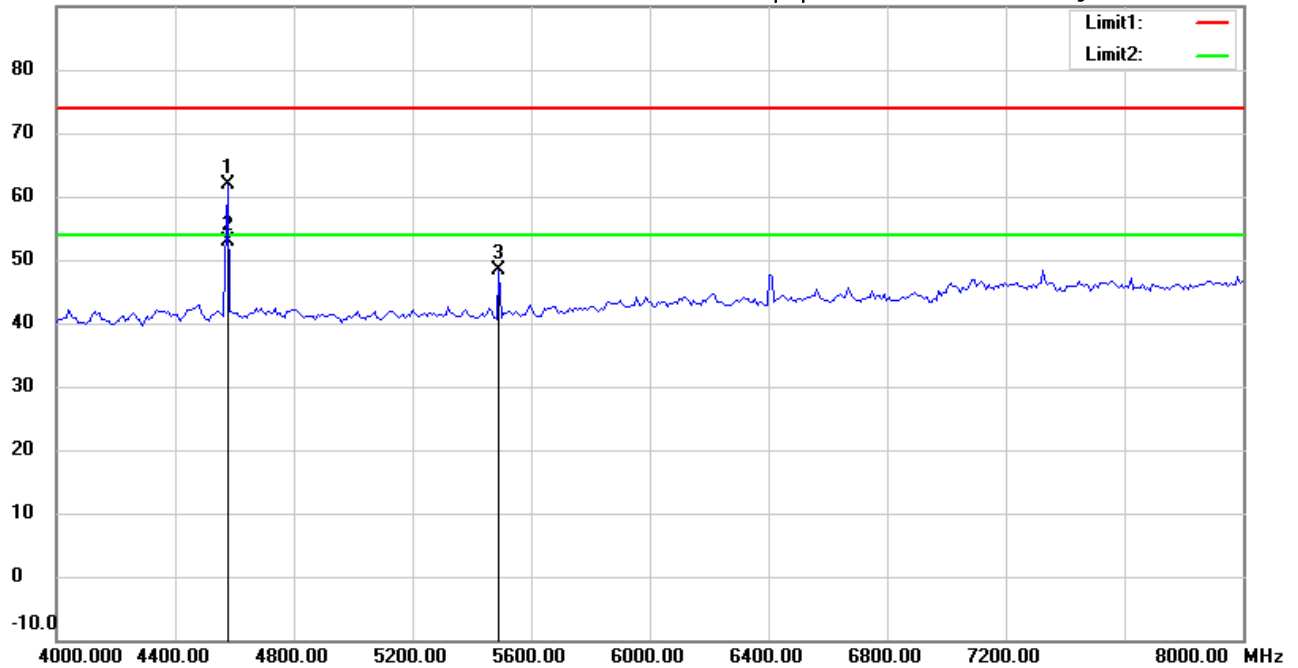
Date: 2017/6/23

Temperature:24 °C

90.0 dBuV/m

Time: 下午 06:46:21

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

Polarization: *Horizontal*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 915.44MHz

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
	4577.154	61.88	peak	-0.05	61.83	74.00	150	35	-12.17	
*	4577.154	52.95	AVG	-0.05	52.90	54.00	150	35	-1.10	
	5490.982	46.96	peak	1.41	48.37	74.00	150	160	-25.63	

\*:Maximum data x:Over limit !:over margin



Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei  
 Tel:+886-2-6606-8877  
 Fax:+886-2-6606-8875

Radiated Emission Measurement

Operator: Leon

File :3

Data :#5

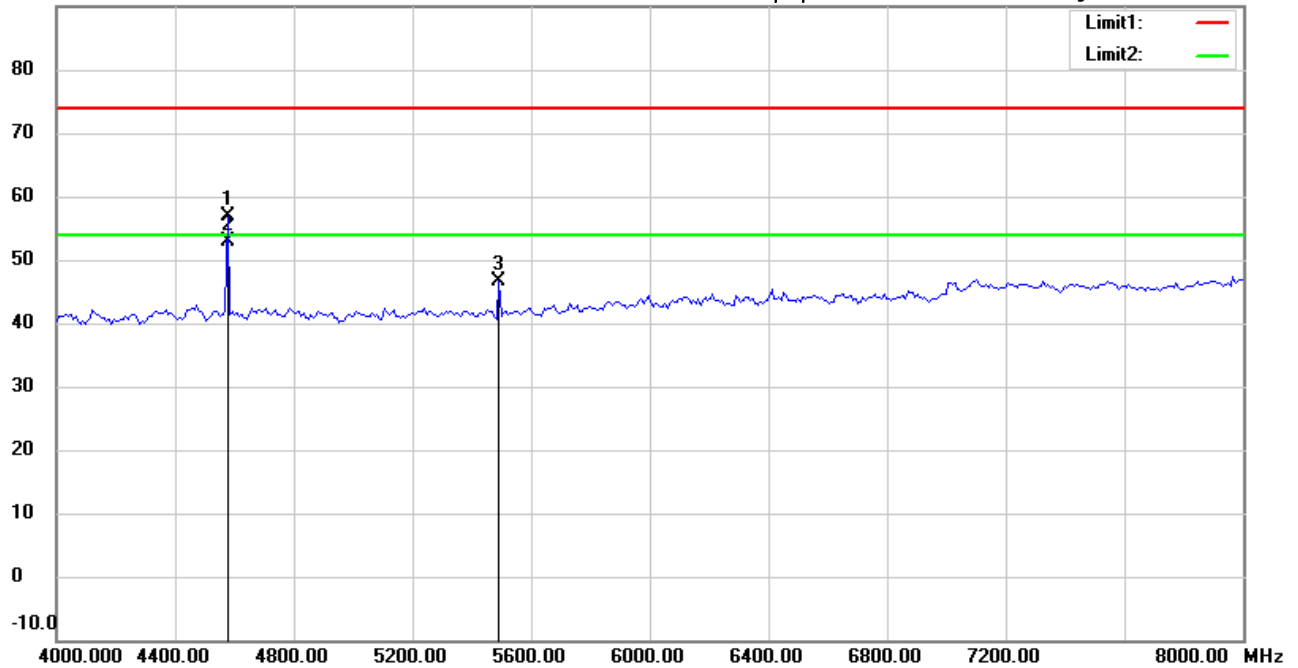
Date: 2017/6/23

Temperature:24 °C

90.0 dBuV/m

Time: 下午 06:43:48

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

Polarization: *Vertical*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 915.44MHz

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
	4577.154	56.99	peak	-0.05	56.94	74.00	150	175	-17.06	
*	4577.154	52.96	AVG	-0.05	52.91	54.00	150	175	-1.09	
	5490.982	45.34	peak	1.41	46.75	74.00	150	90	-27.25	

\*:Maximum data    x:Over limit    !:over margin



Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei  
 Tel:+886-2-6606-8877  
 Fax:+886-2-6606-8875

Radiated Emission Measurement

Operator: Leon

File :3

Data :#3

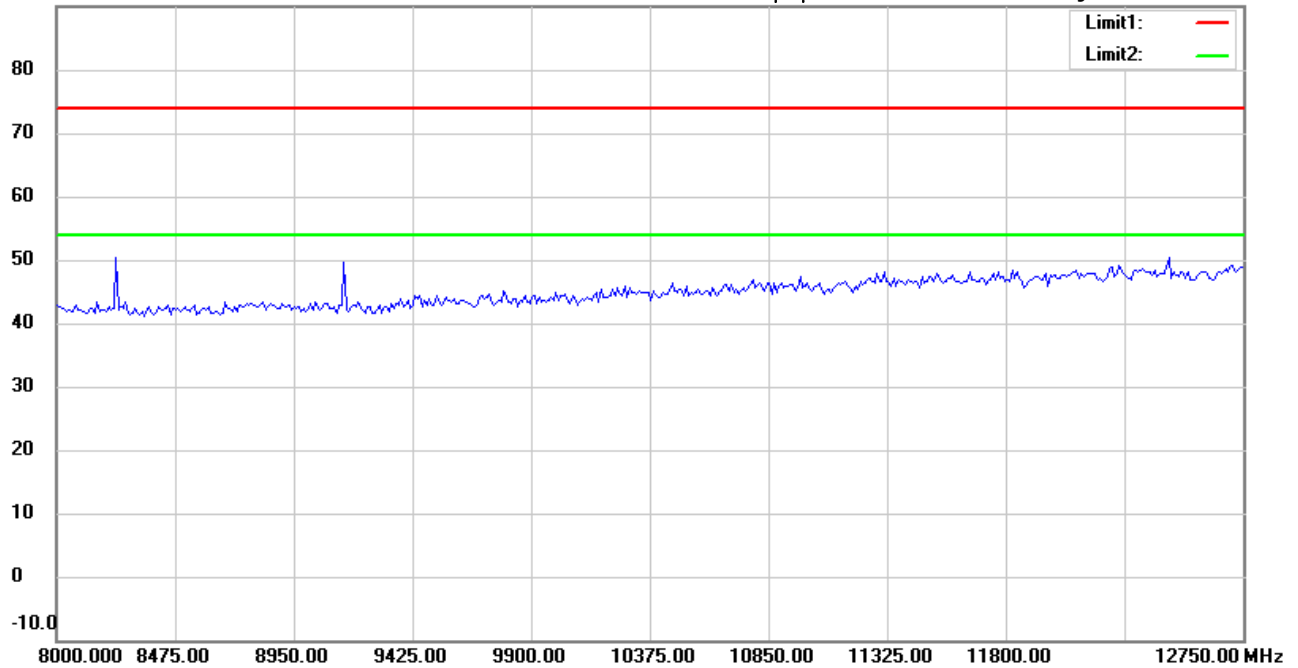
Date: 2017/6/23

Temperature:24 °C

90.0 dBuV/m

Time: 下午 06:38:13

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

Polarization: *Horizontal*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 915.44MHz

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
-----	-----------------	----------------	----------	---------------------	-----------------	----------------	--------------	----------------	-------------	---------

\*:Maximum data    x:Over limit    !:over margin



Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei  
 Tel:+886-2-6606-8877  
 Fax:+886-2-6606-8875

Radiated Emission Measurement

Operator: Leon

File :3

Data :#6

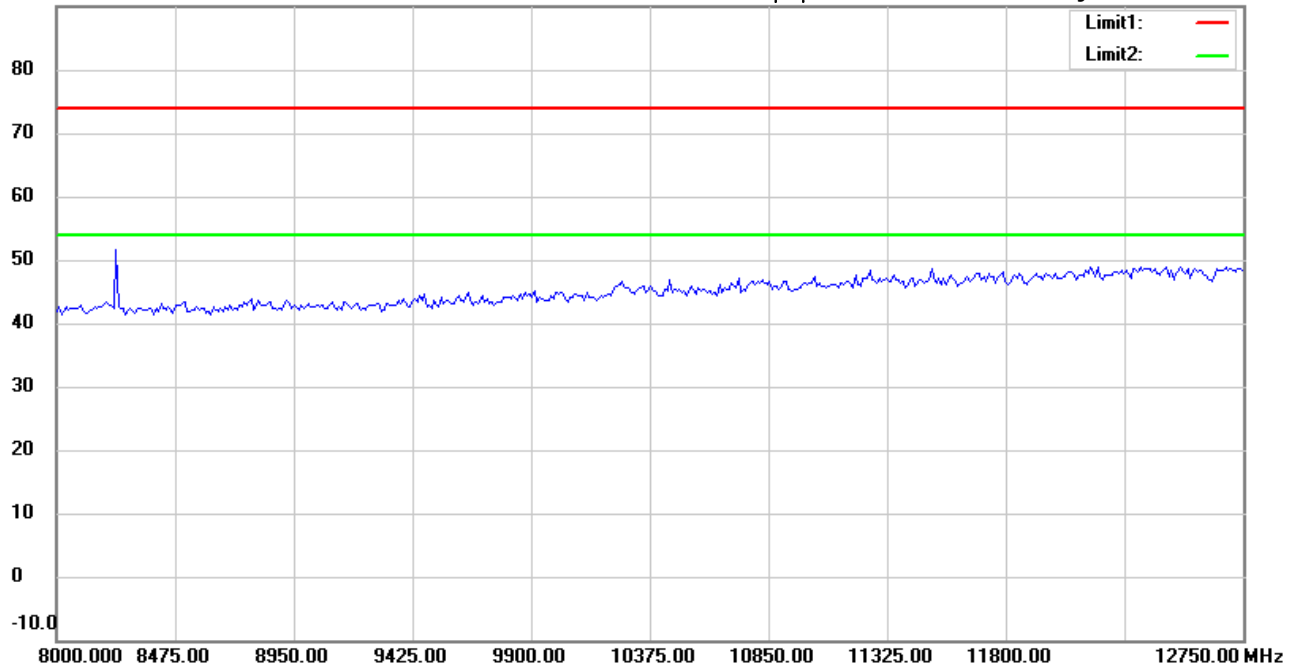
Date: 2017/6/23

Temperature:24 °C

90.0 dBuV/m

Time: 下午 06:39:48

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

Polarization: *Vertical*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 915.44MHz

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
-----	-----------------	----------------	----------	---------------------	-----------------	----------------	--------------	----------------	-------------	---------

\*:Maximum data    x:Over limit    !:over margin



Radiated Emission Measurement

Operator: Leon

File :1

Data :#1

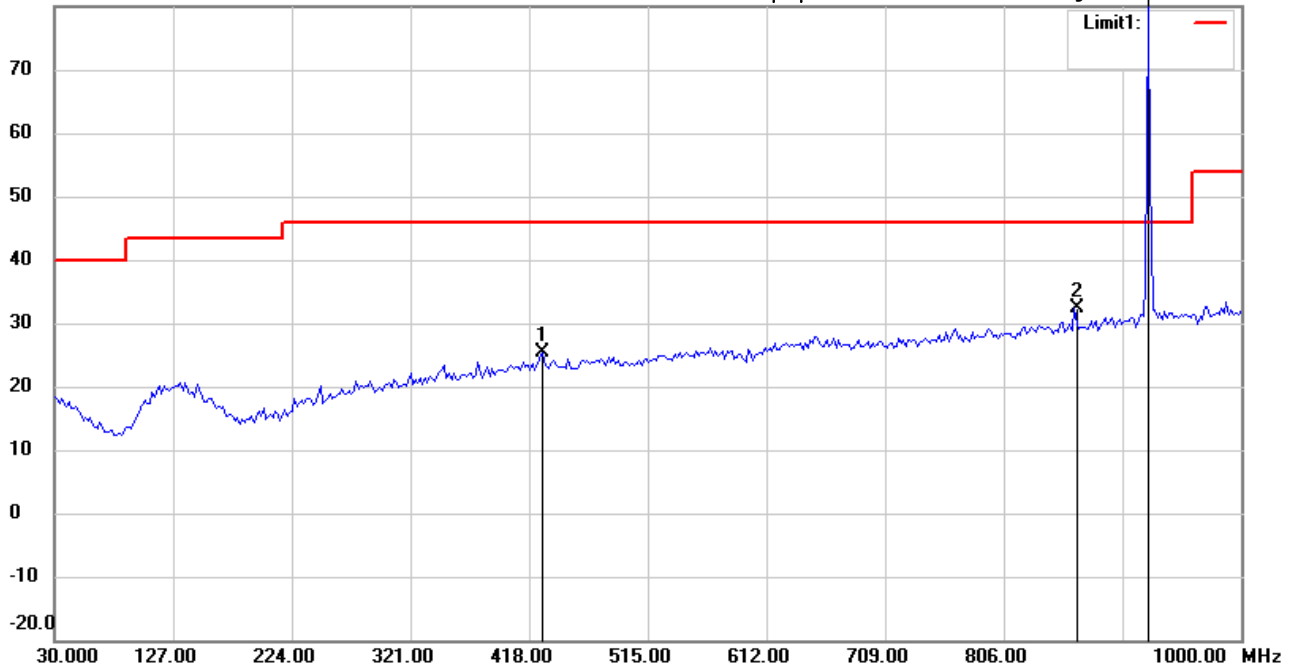
Date: 2017/6/23

Temperature:24 °C

80.0 dBuV/m

Time: 下午 10:25:58

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_30-1000MHz

Polarization: *Horizontal*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 923.783MHz

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
	428.4970	28.64	peak	-3.31	25.33	46.00	100	210	-20.67	
	863.9280	29.76	peak	2.68	32.44	46.00	100	155	-13.56	
*	924.1884	86.55	peak	3.88	90.43	46.00			44.43	RF





Radiated Emission Measurement

Operator: Leon

File :1

Data :#2

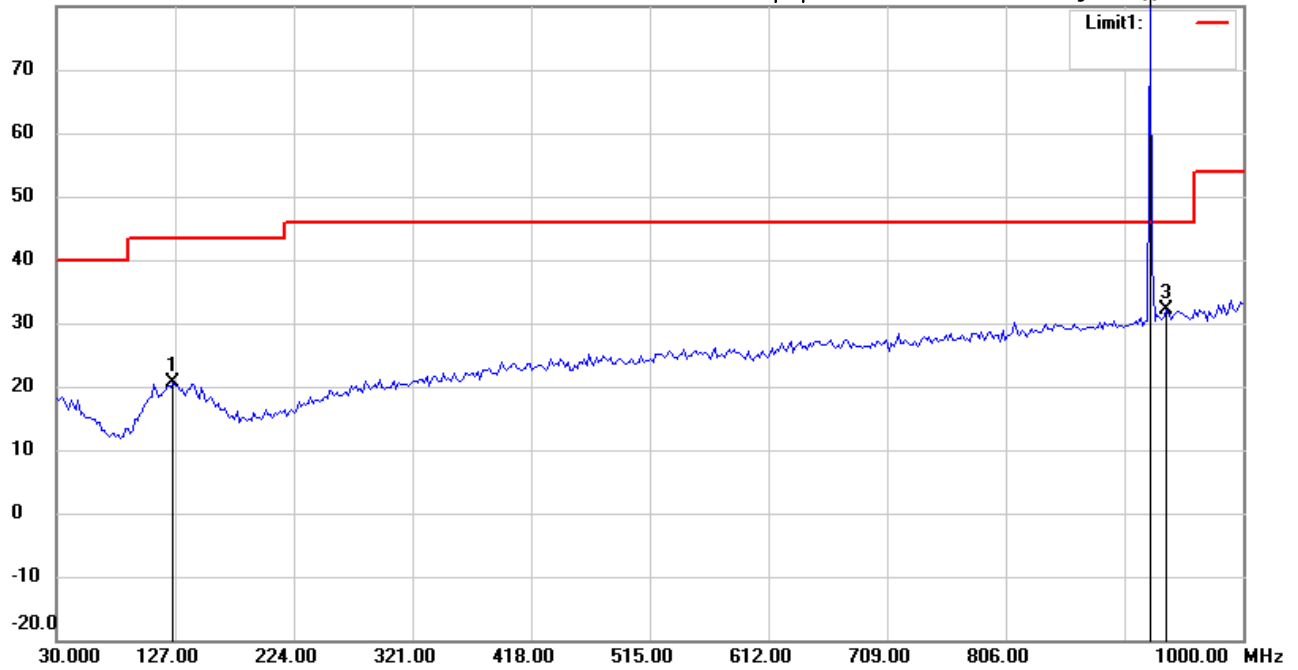
Date: 2017/6/23

Temperature:24 °C

80.0 dBuV/m

Time: 下午 10:26:52

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_30-1000MHz

Polarization: *Vertical*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 923.783MHz

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
	125.2505	27.27	peak	-6.74	20.53	43.50	100	175	-22.97	
*	924.1884	77.82	peak	3.88	81.70	46.00			35.70	RF
	937.7956	27.87	peak	4.26	32.13	46.00	100	40	-13.87	



Radiated Emission Measurement

Operator: Leon

File :3

Data :#1

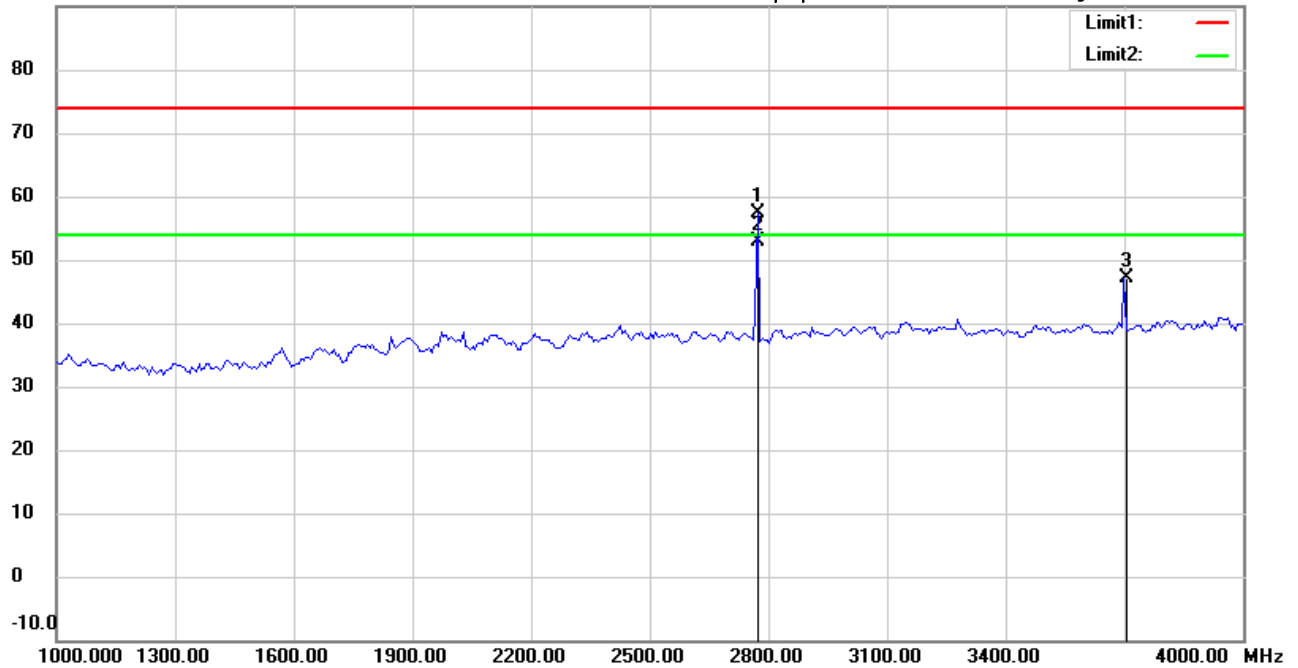
Date: 2017/6/23

Temperature:24 °C

90.0 dBuV/m

Time: 下午 06:55:20

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

EUT : W6M21706-17071

M/N:

Test Mode : TX 923.783MHz

Note :

Polarization: *Horizontal*

Power : 3 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
	2773.547	61.16	peak	-3.84	57.32	74.00	160	235	-16.68	
*	2773.547	56.79	AVG	-3.84	52.95	54.00	160	235	-1.05	
	3699.399	49.13	peak	-1.91	47.22	74.00	150	90	-26.78	



Radiated Emission Measurement

Operator: Leon

File :3

Data :#4

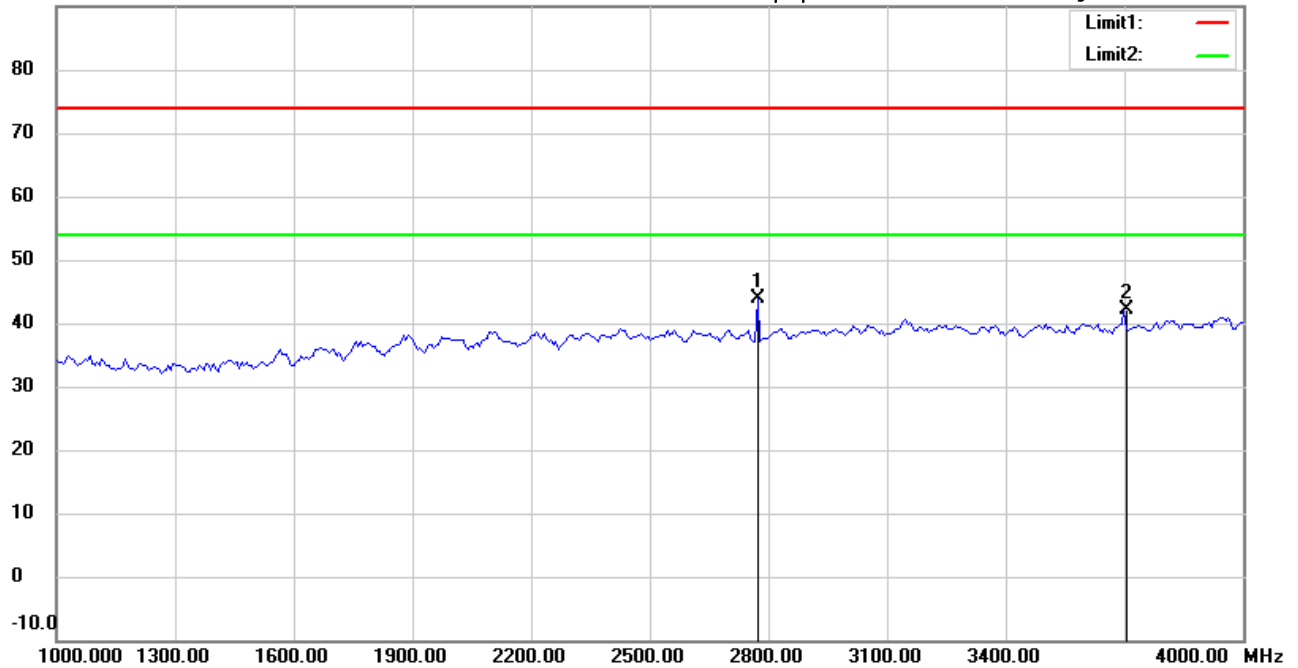
Date: 2017/6/23

Temperature:24 °C

90.0 dBuV/m

Time: 下午 07:01:57

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

Polarization: *Vertical*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 923.783MHz

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
*	2773.547	47.84	peak	-3.84	44.00	74.00	150	245	-30.00	
	3699.399	43.96	peak	-1.91	42.05	74.00	150	195	-31.95	



Radiated Emission Measurement

Operator: Leon

File :3

Data :#2

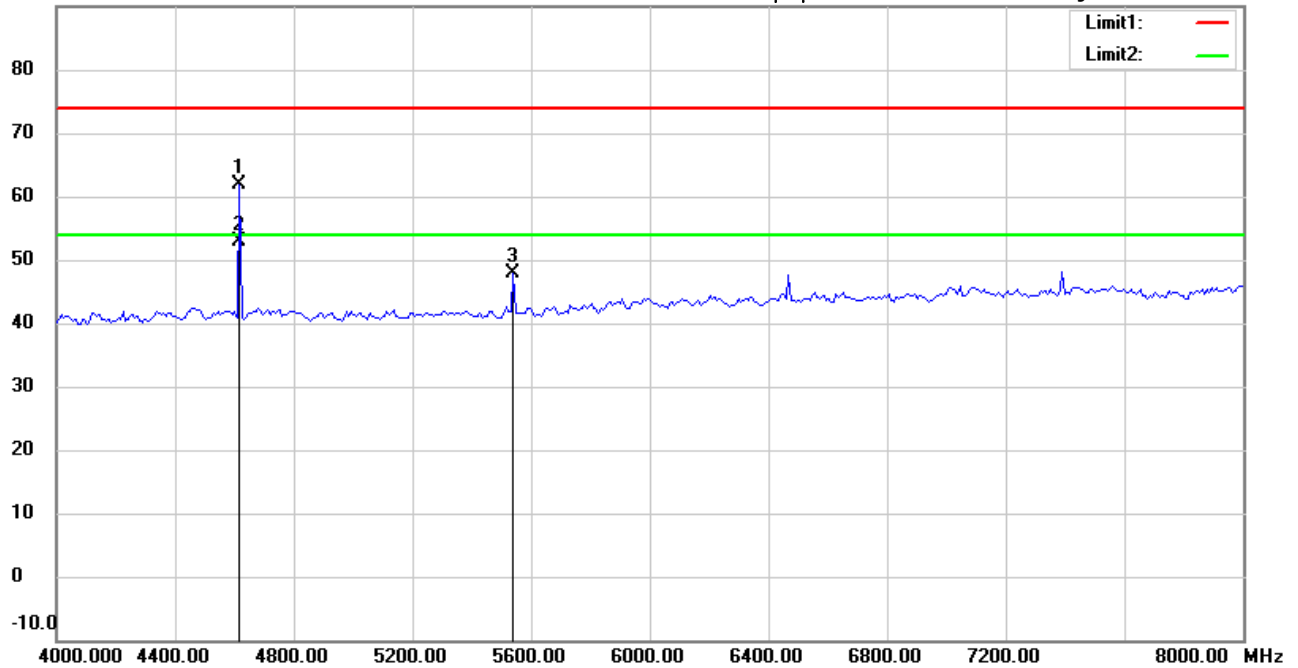
Date: 2017/6/23

Temperature:24 °C

90.0 dBuV/m

Time: 下午 06:56:55

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

Polarization: *Horizontal*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 923.783MHz

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
	4617.234	62.11	peak	-0.11	62.00	74.00	150	175	-12.00	
*	4617.234	52.89	AVG	-0.11	52.78	54.00	150	175	-1.22	
	5539.078	46.28	peak	1.52	47.80	74.00	150	260	-26.20	



Radiated Emission Measurement

Operator: Leon

File :3

Data :#5

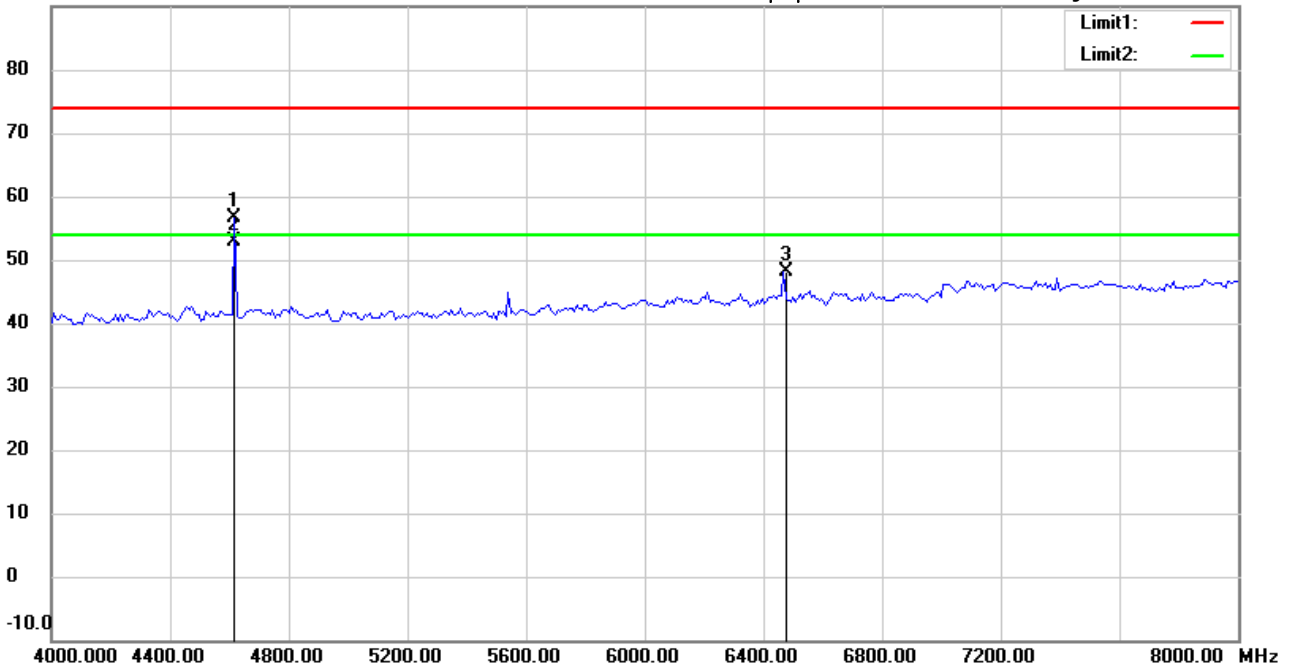
Date: 2017/6/23

Temperature:24 °C

90.0 dBuV/m

Time: 下午 07:03:11

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

EUT : W6M21706-17071

M/N:

Test Mode : TX 923.783MHz

Note :

Polarization: **Vertical**

Power : 3 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
	4617.234	56.62	peak	-0.11	56.51	74.00	150	55	-17.49	
*	4617.234	52.96	AVG	-0.11	52.85	54.00	150	55	-1.15	
	6468.938	44.32	peak	3.88	48.20	74.00	150	220	-25.80	



Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei  
 Tel:+886-2-6606-8877  
 Fax:+886-2-6606-8875

Radiated Emission Measurement

Operator: Leon

File :3

Data :#3

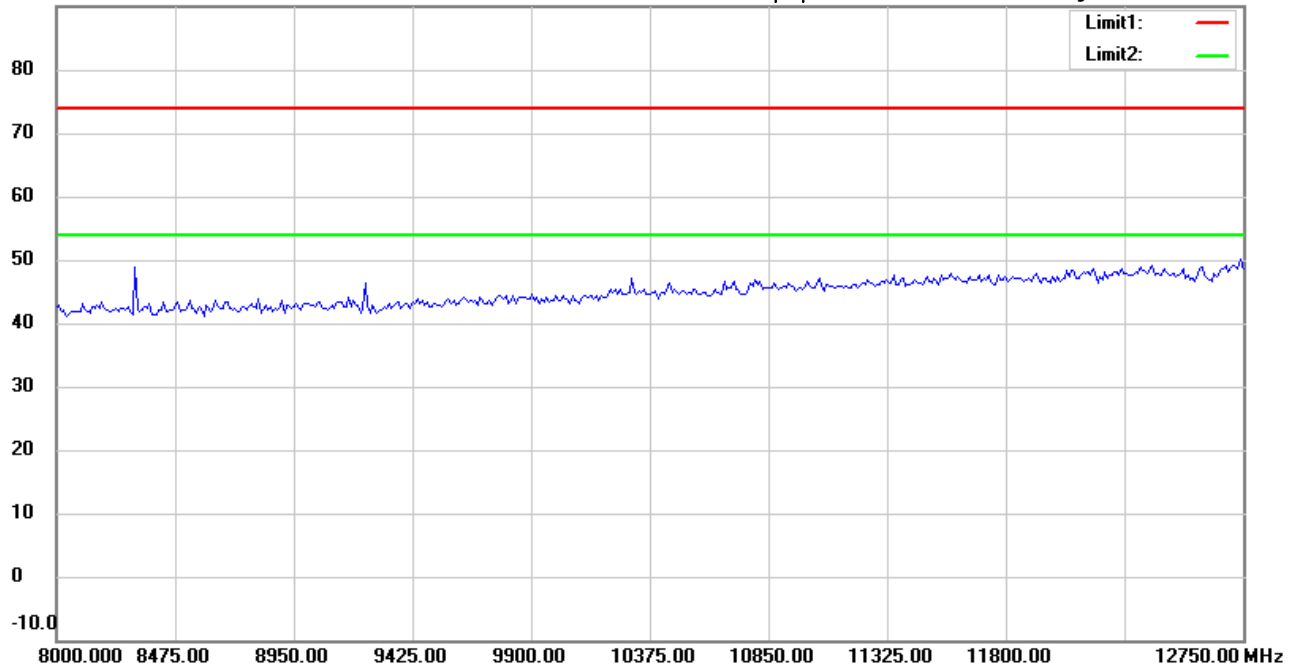
Date: 2017/6/23

Temperature:24 °C

90.0 dBuV/m

Time: 下午 06:58:06

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

Polarization: *Horizontal*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 923.783MHz

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
-----	-----------------	----------------	----------	---------------------	-----------------	----------------	--------------	----------------	-------------	---------

\*:Maximum data    x:Over limit    !:over margin



Address:6F.,No.58,Ln 188,Ruey Kuang Rd,Neihu,Taipei  
 Tel:+886-2-6606-8877  
 Fax:+886-2-6606-8875

Radiated Emission Measurement

Operator: Leon

File :3

Data :#6

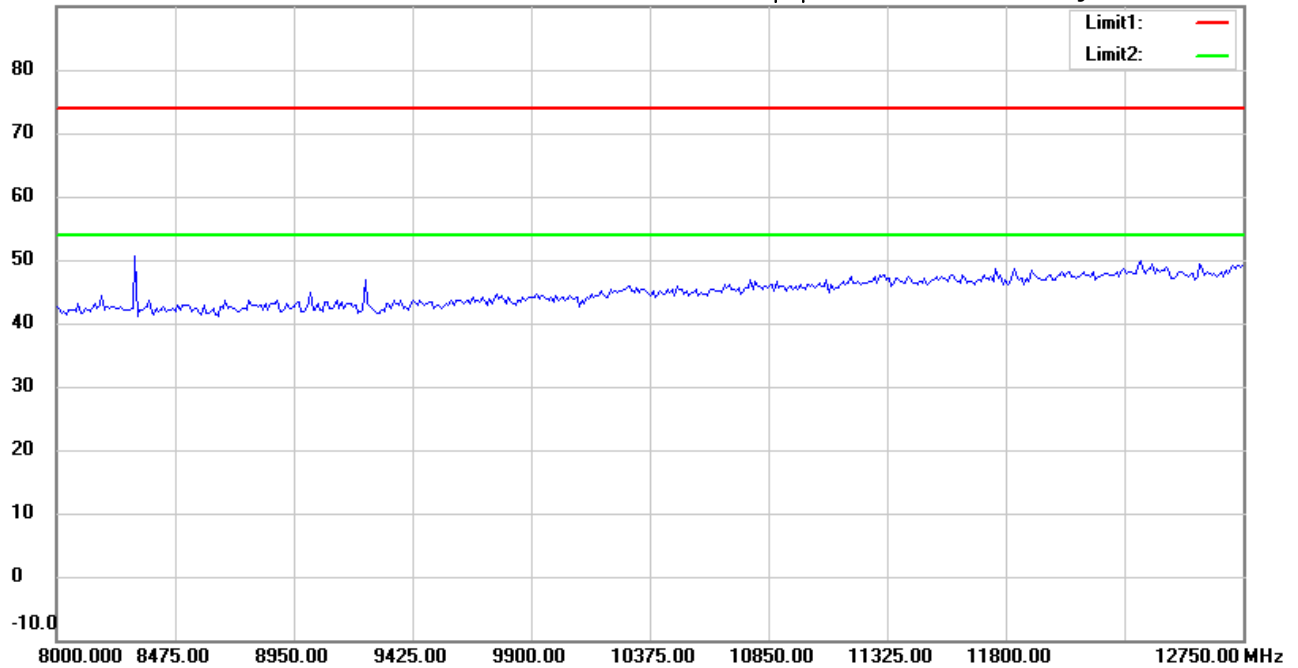
Date: 2017/6/23

Temperature:24 °C

90.0 dBuV/m

Time: 下午 07:04:29

Humidity:60 %



Site : Chamber

Condition : FCC\_part 15 RE-Class C\_Above 1GHz\_PK

Polarization: *Vertical*

EUT : W6M21706-17071

Power : 3 Vd.c.

M/N:

Distance: 3m

Test Mode : TX 923.783MHz

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
-----	-----------------	----------------	----------	---------------------	-----------------	----------------	--------------	----------------	-------------	---------

\*:Maximum data    x:Over limit    !:over margin