

47 CFR PART 15 SUBPART C TEST REPORT

for

Smart Home Alarm System

Model No.: HSGW_x-xxxxx-xxxxx Series

(x=0~9, A~Z or blank)

FCC ID: GX9HSGWCATM1ZB

of

Applicant: CLIMAX TECHNOLOGY CO., LTD.

Address: No. 258, Sinhu 2nd Rd., Neihu District, Taipei City 114,
Taiwan (R.O.C.)

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: TW1072, TW1140, TW1146, TW1477, TW0037

Industry Canada filed test laboratory Reg. No.: 20037, 31634



Report No.: W6M22407-23644-C-2

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C.
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Registration number: W6M22407-23644-C-2
FCC ID: GX9HSGWCATM1ZB

TABLE OF CONTENTS

1 General Information.....2
1.1 Notes2
1.2 Testing laboratory3
 1.2.1 Location3
 1.2.2 Details of accreditation status3
1.3 Details of approval holder.....3
1.4 Application details4
1.5 Test item4
1.6 Test standards4
2 Technical test5
2.1 Summary of test results.....5
2.2 Test environment5
2.3 Test Mode5
2.4 Test equipment utilized.....6
2.5 General Test Procedure.....7
3 Test results (enclosure)8
3.1 Transmission Requirements.....9
 3.1.1 Limit of Transmission Time9
 3.1.2 Active Time9
3.2 Output Power (Field Strength).....10
3.3 Out of Band Radiated Emissions12
3.4 Transmitter Radiated Emissions in restricted Bands13
3.5 Spurious Emission radiated, Transmitter.....14
3.6 Channel Bandwidth.....15
3.7 Antenna requirement.....16
3.8 Duty Cycle17
3.9 Conducted Measurement at (AC) Power Line.....18

Appendix: Photos



Registration number: W6M22407-23644-C-2

FCC ID: GX9HSGWCATM1ZB

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.

Laboratory disclaimer-

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

Tester:

October 25, 2024

Sora Kuo

Date

WTS-Lab.

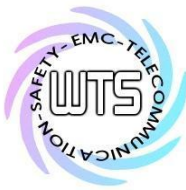
Name

Signature

Technical responsibility for area of testing:

October 25, 2024

Kevin Wang



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22407-23644-C-2
FCC ID: GX9HSGWCATM1ZB

1.2 Testing laboratory

1.2.1 Location

10m OATS

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

3 meter semi-anechoic chamber

No. 99, Sec. 1, Balian Rd., Xizhi Dist.,
New Taipei City 221032, Taiwan (R.O.C.)

Worldwide Testing Services (Taiwan) Co., Ltd.
6F., No. 58, Ln. 188, Ruiguang Rd., Neihu Dist.,
Taipei City 114, Taiwan (R.O.C.)
Tel: 886-2-6606-8877

1.2.2 Details of accreditation status

Accredited testing laboratory

FCC filed test laboratory Reg. No.: TW1072, TW1140, TW1146, TW1477, TW0037

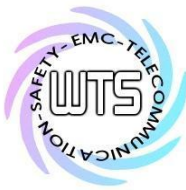
Industry Canada filed test laboratory Reg. No.: 20037, 31634

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

Name: ./.
Accredited number: ./.
Street: ./.
Town: ./.
Country: ./.

1.3 Details of approval holder

Name: CLIMAX TECHNOLOGY CO., LTD.
Street: No. 258, Sinhu 2nd Rd., Neihu District,
Town: Taipei City 114,
Country: Taiwan (R.O.C.)



Registration number: W6M22407-23644-C-2
FCC ID: GX9HSGWCATM1ZB

1.4 Application details

Date of receipt of test item: July 31, 2024
Date of test: from August 01, 2024 to October 24, 2024

1.5 Test item

Description of test item: Smart Home Alarm System
Type identification: HSGW_x-xxxxx-xxxxx Series(x=0~9, A~Z or blank)
Brand name: ./.
Multi-listing model number: ./.
Transmitting frequency: 433.82 MHz
Operation mode: simplex
Voltage supply: Adapter (I/P: 100-240V~50/60Hz 0.30A
O/P: 12.0V=1.0A 12W)
Battery 7.2V, 1100mAh
Antenna type: Monopole antenna
Sample no.: #01

Manufacturer (if applicable)

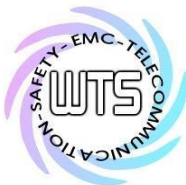
Name: ./.
Street: ./.
Town: ./.
Country: ./.

1.6 Test standards

47 CFR PART 15 SUBPART C § 15.231 (a) (2023-10)

Special statement:

1. This test report is valid in connection to the model has been tested, any modification to the product which is different from the test model will avoid the certification of the test report.
2. This test report shall always be duplicated in full pages unless the written approval of the testing.
3. The x in model number is representing different case shape, case colors, led mask color, and control ID.
4. The model number of EUT is HSGW-MAX8-DT32. This model does not contain logo.



Registration number: W6M22407-23644-C-2
 FCC ID: GX9HSGWCATM1ZB

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 were ascertained in the course of the tests performed.

2.2 Test environment

Relative humidity content: 20 ... 75 %

Air pressure: 86 ... 103 kPa

Test item Name	Uncertainty
Estimation Result of Uncertainty of Conducted Emission (Conducted Measurement at (AC) Power Line)	Expanded Uncertainty : AMN : 0.94 dB Voltage probe : 0.96 dB Include Pulse Limiter : 1.5 dB
Estimation Result of Uncertainty of Radiated Emission(3M-966A) (Output Power (Field Strength), Out of Band Radiated Emissions, Transmitter Radiated Emissions in restricted Bands, Spurious Emission radiated)	Expanded Uncertainty : 0.009-30 MHz : 1.88 dB 30-1000 MHz : 3.20 dB 1-18 GHz : 3.56 dB 18-40 GHz : 2.94 dB
Estimation Result of Uncertainty of Bandwidth Measurement (Channel Bandwidth)	Expanded Uncertainty : 0.45 kHz
Estimation Result of Uncertainty of Frequency Drift Measurement (Frequency Tolerance)	Expanded Uncertainty : 6.11 Hz
Estimation Result of Uncertainty of Duty Cycle Measurement (Active Time)	Expanded Uncertainty : 0.1 ms

The decision rule is: Measurement uncertainty is not included in the calculation of test results.

2.3 Test Mode

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



Registration number: W6M22407-23644-C-2

FCC ID: GX9HSGWCATM1ZB

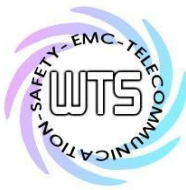
2.4 Test equipment utilized

Power & spurious emission

Code No.	Test equipment	Mode No.	Serial No.	Brand	Cal. Date	Next Cal. Date
ETSTW-RE 153	Signal Analyzer	FSV40	101929	R&S	2024/9/11	2025/9/10
ETSTW-RE 154	EMI Test Receiver	ESR3	102829	R&S	2024/4/10	2025/4/9
ETSTW-RE 160	Amplifier Module	CHC 3	None	WTS	2024/7/12	2025/7/11
ETSTW-RE 176	Loop Antenna	FMZB 1513-60	39	SCHWARZBECK	2024/8/21	2025/8/20
ETSTW-RE 177	TRILOG Broadband Antenna	VULB 9168&EMCI-N-6-06	01380&AT-06007	SCHWARZBECK&EMC	2024/3/4	2025/3/3
ETSTW-Cable 077	SMA type cable (10m)	EMC104-SM-SM-10000	230511	EMCI	2024/7/12	2025/7/11
ETSTW-Cable 084	SMA type cable (1m)	SF104-11SMA-1000	816477/4	HONOVA	2024/7/12	2025/7/11
ETSTW-Cable 089	SMA type cable (2m)	SF104-11SMA-2000	SN 811889/4	HUBER+SUHNER	2024/7/12	2025/7/11
ETSTW-Cable 090	N type Cable (15m)	EMCCFD400-NM-NM-15000	230732	EMCI	2024/8/3	2025/8/2

Duration Time & Duty cycle & 20dB Bandwidth

Code No.	Test equipment	Mode No.	Serial No.	Brand	Cal. Date	Next Cal. Date
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2024/3/7	2025/3/6



Registration number: W6M22407-23644-C-2
FCC ID: GX9HSGWCATM1ZB

2.5 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 ANSI STANDARD C63.10-2013 6.3 using a spectrum analyzer. The bandwidth of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was the 100 kHz and the video bandwidth was 300 kHz.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dB μ 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 μ V + 10.36 dB/m + 6 dB = 36.36 dB μ V/m @3m

ANSI STANDARD C63.10-2013 6.2.2 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table). The EUT was placed in the center of the table. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

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

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 C63.10-2013 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: W6M22407-23644-C-2

FCC ID: GX9HSGWCATM1ZB

3 Test results (enclosure)

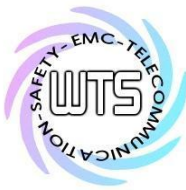
1st test

test after modification

production test

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

The following is intentionally left blank.



Registration number: W6M22407-23644-C-2
FCC ID: GX9HSGWCATM1ZB

3.1 Transmission Requirements

FCC 15.231(a)

Test date: August 06, 2020
Temperature: 24.9 °C
Humidity: 52.1 %
Tester: Sora

3.1.1 Limit of Transmission Time

According to 15.231(a)(1), a manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

According to 15.231(a)(2), a transmitter activated automatically shall cease transmission within 5 seconds after activation.

3.1.2 Active Time

Test date: August 06, 2020
Temperature: 24.9 °C
Humidity: 52.1 %
Tester: Sora

This manually operated transmitter employs a switch that automatically deactivate the transmitter within 336.54 ms of being released.

This transmitter is operated by automatic activation and active will cease transmission in __ ms after activation.

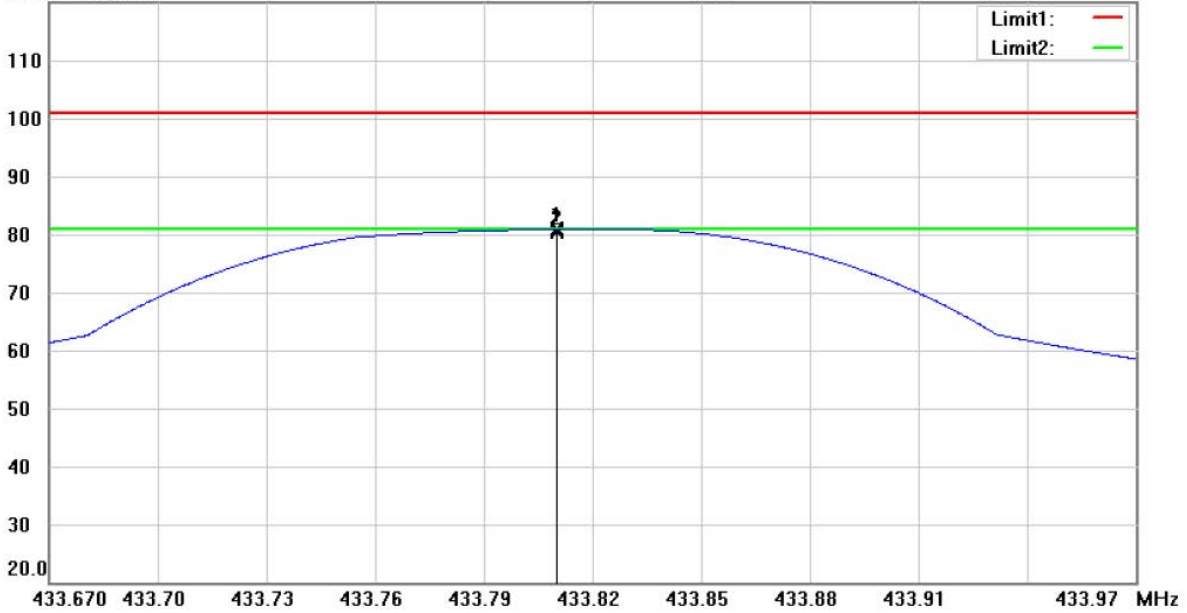
Explanation: See attached diagrams in appendix.



Registration number: W6M22407-23644-C-2
 FCC ID: GX9HSGWCATM1ZB

3.2 Output Power (Field Strength)

File :Power
 120.0 dBuV/m
 Radiated Emission Measurement
 Data :#1
 Date: 2024/10/17
 Time: 上午 10:16:28
 Operator: Jeff
 Temperature:23.3 °C
 Humidity:51.9 %



Site : Chamber_01
 Condition : FCC 15.231 Power(PK)
 EUT : W6M22407-23644
 M/N:
 Test Mode : TX 433.82MHz
 Note :
 Polarization: *Horizontal*
 Power : 120 Vac.
 Distance: 3m

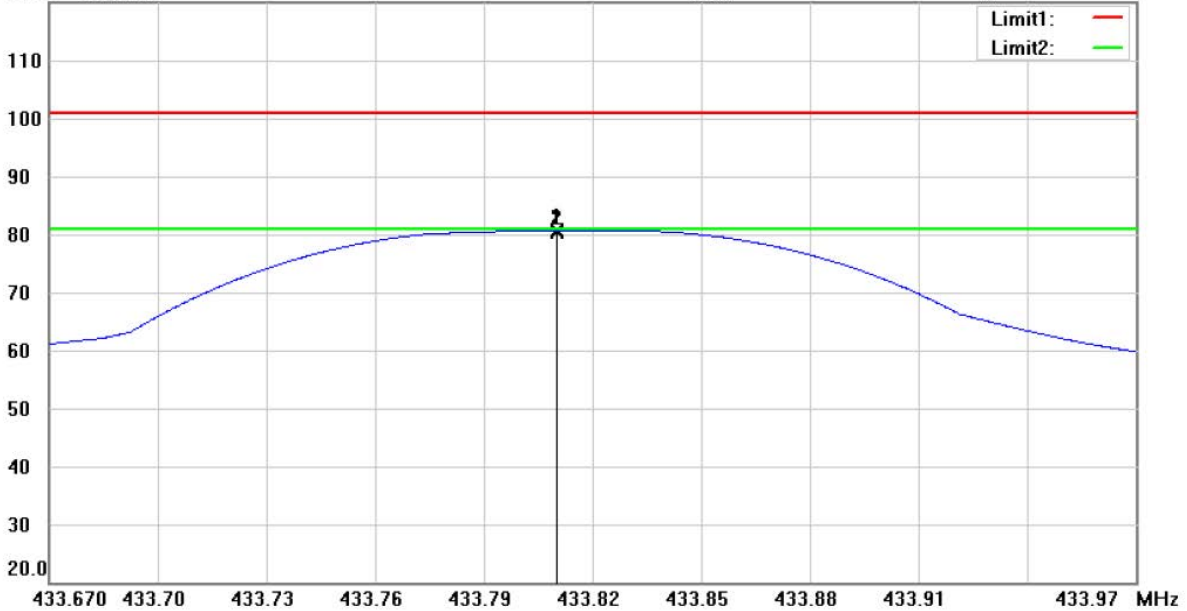
Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	433.8100	56.11	peak	24.73	80.84	100.80	150	228	-19.96	
*	433.8100	55.77	AVG	24.73	80.50	80.80	150	228	-0.30	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22407-23644-C-2
 FCC ID: GX9HSGWCATM1ZB

Radiated Emission Measurement Operator: Jeff
 File :Power Data :#2 Date: 2024/10/17 Temperature:23.3 °C
 120.0 dBuV/m Time: 上午 10:31:23 Humidity:51.9 %



Site : Chamber_01
 Condition : FCC 15.231 Power(PK) Polarization: **Vertical**
 EUT : W6M22407-23644 Power : 120 Va.c.
 M/N:
 Test Mode : TX 433.82MHz Distance: 3m
 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
	433.8100	55.92	peak	24.73	80.65	100.80	150	152	-20.15	
*	433.8100	55.58	AVG	24.73	80.31	80.80	150	152	-0.49	

Limit 15.231(b)

Fundamental Frequency (MHz)	Field strength of fundamental, limit $\mu\text{V/m}$
40.66 – 40.70	2,250
70 – 130	1,250
130 – 174	1,250 to 3,750
174 – 260	3,750
260 – 470	3,750 to 12,500** (433.82 MHz: 80.8 dB $\mu\text{V/m}$ = 10,995 $\mu\text{V/m}$)
Above 470	12,500

** linear interpolation

Explanation: ./.



Registration number: W6M22407-23644-C-2

FCC ID: GX9HSGWCATM1ZB

3.3 Out of Band Radiated Emissions

FCC Rule: 15.231(b) , 15.35

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

Guidance on Measurement of pulsed emission: 15.35(c)

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

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

Limits:

For frequencies (Average measurements)

Correction factor conform 15.35 (c) (Average measurements)

Duty cycle correction :

Max. Peak reading – duty cycle correction

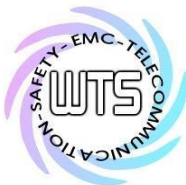
Max permitted average Limits = Max permitted Fundamental limit – 20 dB

For example for 433.82 fundamental carrier:

Max permitted average Limit: $80.8 \text{ dB}\mu\text{V/m} - 20 \text{ dB} = 60.8 \text{ dB}\mu\text{V/m}$

For frequencies above 1GHz (Peak measurements).

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



Registration number: W6M22407-23644-C-2
FCC ID: GX9HSGWCATM1ZB

3.4 Transmitter Radiated Emissions in restricted Bands

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

Radiated emission measurements were performed from 30 MHz to 8000 MHz.

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

RES BW VID BW

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

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

1 MHz 1 MHz (Average measurements)

Limits:

For frequencies below 1GHz :

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

For frequencies above 1GHz (Average measurements).

Guidance on Measurement of pulsed emission:

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

For frequencies above 1GHz (Average measurements).

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

Duty cycle correction = 20 log (dwell time/100ms)

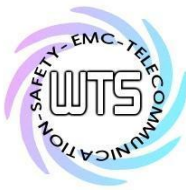
No duty cycle correction was added to the reading

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

Above 960 MHz

For mode DSSS CW: 54 dBμV/m + 20 dB = 74 dBμV/m

Explanation: See attached diagrams in appendix.



Registration number: W6M22407-23644-C-2

FCC ID: GX9HSGWCATM1ZB

3.5 Spurious Emission radiated, Transmitter

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

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

In addition, radiated emission which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

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

Calculation of test results:

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

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

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

Summary table with radiated data of the test plots

- 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. 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 results: The unit meet the FCC requirements.

Explanation: See attached diagrams in appendix.



Registration number: W6M22407-23644-C-2
FCC ID: GX9HSGWCATM1ZB

3.6 Channel Bandwidth

Measurement of Necessary Bandwidth (BN)

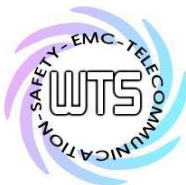
Test date: August 06, 2020
Temperature: 24.9 °C
Humidity: 52.1 %
Tester: Sora

Used frequency	Bandwidth	Limit
433.82 MHz	51.28 kHz	1.0848 MHz

Limits:

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

Explanation: See attached diagrams in appendix.



Registration number: W6M22407-23644-C-2

FCC ID: GX9HSGWCATM1ZB

3.7 Antenna requirement

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

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

The equipment meets the requirements	yes <input checked="" type="checkbox"/>	no <input type="checkbox"/>
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Registration number: W6M22407-23644-C-2
FCC ID: GX9HSGWCATM1ZB

3.8 Duty Cycle

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

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

Test date: August 06, 2020

Temperature: 24.9 °C

Humidity: 52.1 %

Tester: Sora

Duty Cycle Correction = 20 log (Cycle)

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

Testing Mode	T period (ms)	T on (ms)	Duty Cycle	Duty Cycle Correction 20*log(Duty Cycle)
Transmitting mode	100	96.15	0.9615	-0.34

Explanation: See attached diagrams in appendix.

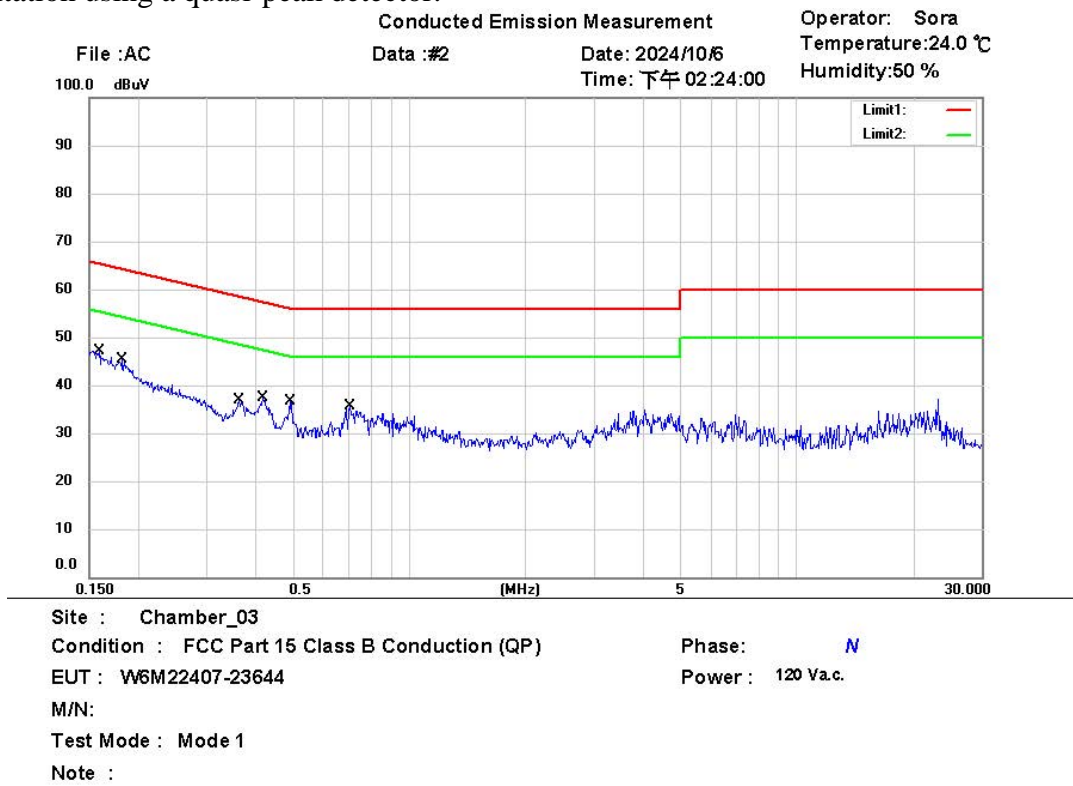


Registration number: W6M22407-23644-C-2
 FCC ID: GX9HSGWCATM1ZB

3.9 Conducted Measurement at (AC) Power Line

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

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



IVk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1584	29.93	QP	9.64	39.57	65.55	-25.98	
	0.1584	18.41	AVG	9.64	28.05	55.55	-27.50	
	0.1817	28.68	QP	9.64	38.32	64.41	-26.09	
	0.1817	19.46	AVG	9.64	29.10	54.41	-25.31	
	0.3628	18.18	QP	9.66	27.84	58.66	-30.82	
	0.3628	11.30	AVG	9.66	20.96	48.66	-27.70	
	0.4191	21.60	QP	9.66	31.26	57.47	-26.21	
*	0.4191	13.27	AVG	9.66	22.93	47.47	-24.54	
	0.4898	16.91	QP	9.66	26.57	56.17	-29.60	
	0.4898	11.80	AVG	9.66	21.46	46.17	-24.71	
	0.7047	13.99	QP	9.67	23.66	56.00	-32.34	
	0.7047	7.66	AVG	9.67	17.33	46.00	-28.67	

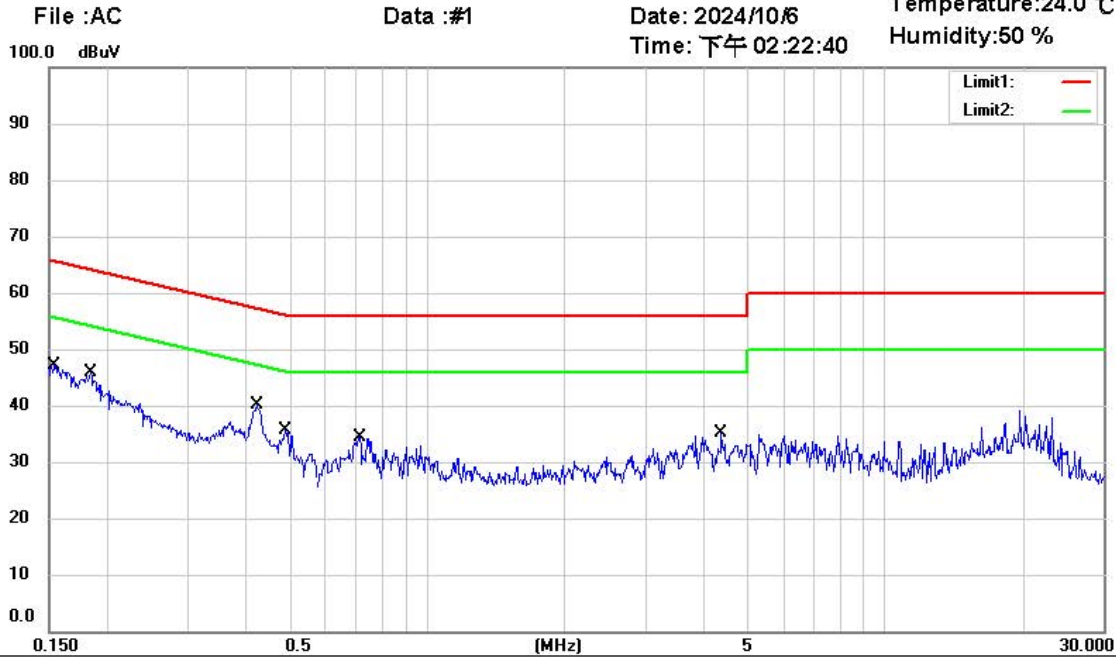


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22407-23644-C-2
 FCC ID: GX9HSGWCATM1ZB

Conducted Emission Measurement

Operator: Sora
 Temperature: 24.0 °C
 Humidity: 50 %



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: L1

EUT : W6M22407-23644

Power : 120 Vac.

M/N:

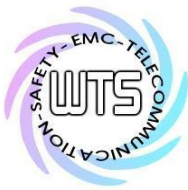
Test Mode : Mode 1

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1540	31.31	QP	9.66	40.97	65.78	-24.81	
	0.1540	18.97	AVG	9.66	28.63	55.78	-27.15	
	0.1843	28.31	QP	9.65	37.96	64.29	-26.33	
	0.1843	18.63	AVG	9.65	28.28	54.29	-26.01	
*	0.4220	24.73	QP	9.66	34.39	57.41	-23.02	
	0.4220	13.35	AVG	9.66	23.01	47.41	-24.40	
	0.4888	17.84	QP	9.66	27.50	56.19	-28.69	
	0.4888	10.70	AVG	9.66	20.36	46.19	-25.83	
	0.7137	18.27	QP	9.67	27.94	56.00	-28.06	
	0.7137	7.36	AVG	9.67	17.03	46.00	-28.97	
	4.3835	16.53	QP	9.73	26.26	56.00	-29.74	
	4.3835	8.62	AVG	9.73	18.35	46.00	-27.65	

Note

1. The formula of measured value as: Test Result = Reading + Correction Factor
2. The Correction Factor = Cable Loss + LISN Insertion Loss + Pulse Limit Loss
3. Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average
4. All not in the table noted test results are more than 20 dB below the relevant limits.
5. Up Line: QP Limit Line, Down Line: Ave Limit Line.



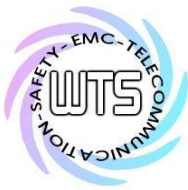
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22407-23644-C-2

FCC ID: GX9HSGWCATM1ZB

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



Appendix

Measurement diagrams

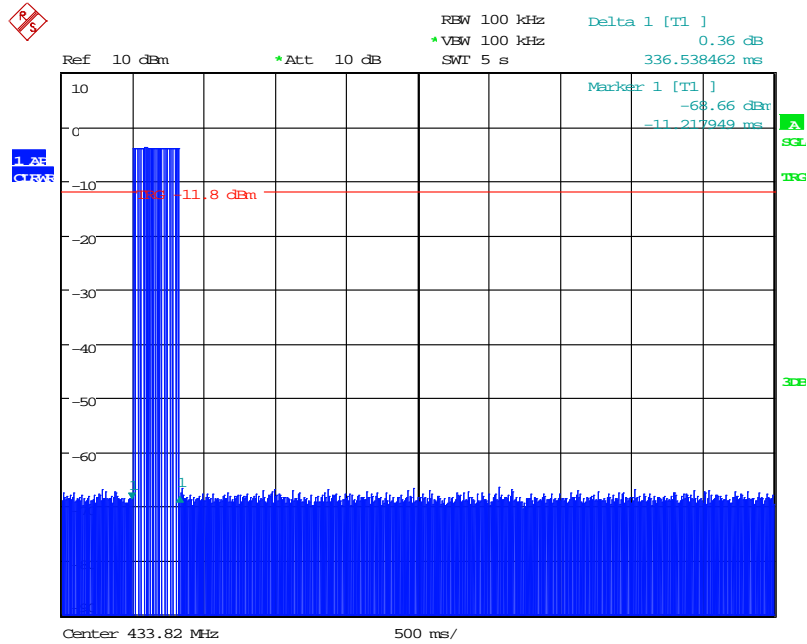
1. Active Time
2. Duty Cycle
3. Bandwidth
4. Spurious Emissions radiated



Registration number: W6M22407-23644-C-2

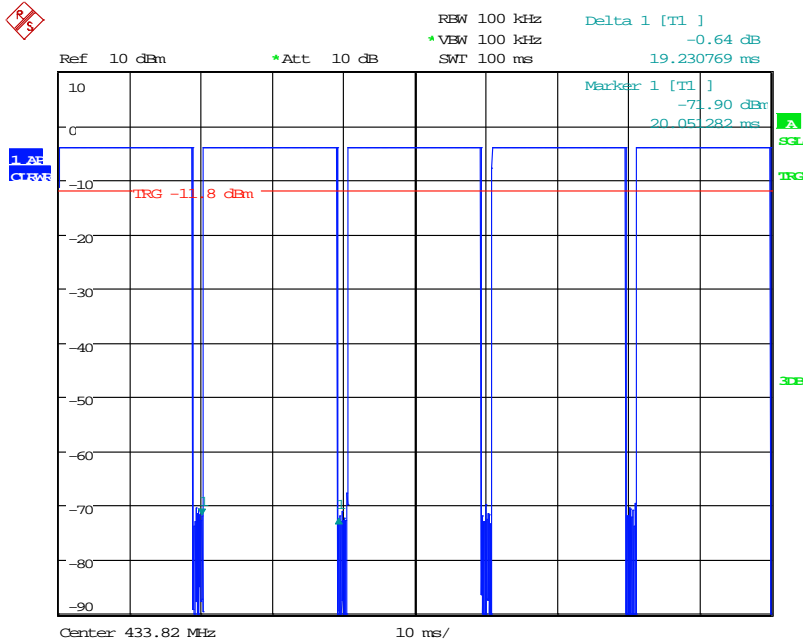
FCC ID: GX9HSGWCATM1ZB

Active Time

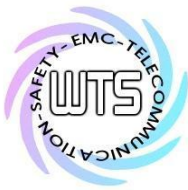


Date: 6.AUG.2024 09:38:02

Duty Cycle



Date: 6.AUG.2024 09:40:16

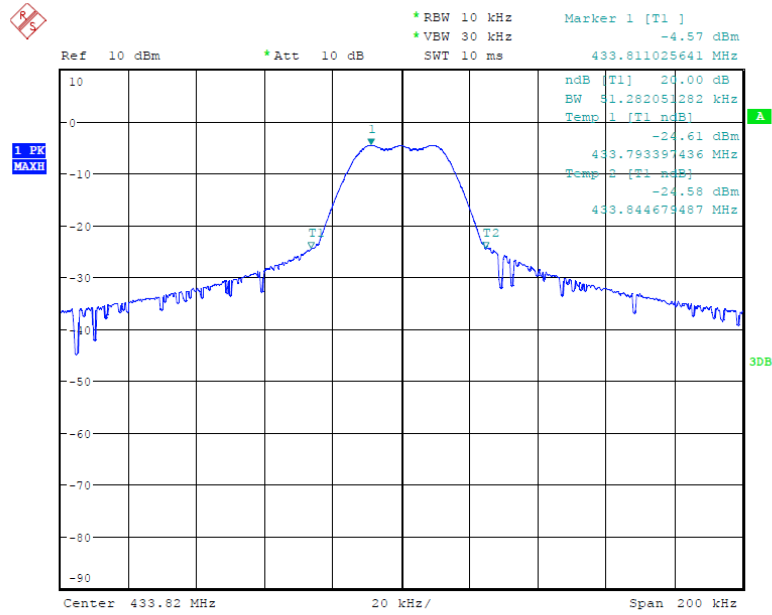


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22407-23644-C-2

FCC ID: GX9HSGWCATM1ZB

Bandwidth

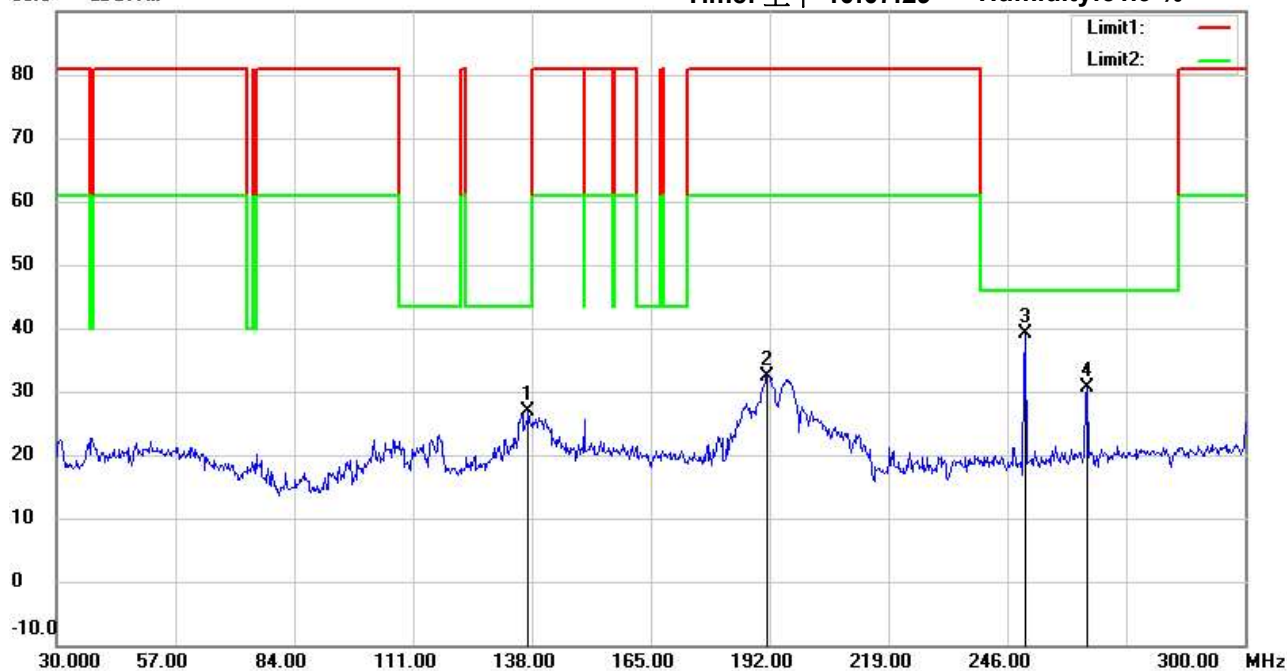


Date: 6.AUG.2024 10:12:50



Address: No.99, Sec.1, Balian Rd., Xizhi Dist., New Taipei City
 Tel: +886-2-2646-1508
 Fax: +886-2-2646-1533

File :1
 90.0 dBuV/m
 Radiated Emission Measurement
 Data :#1
 Date: 2024/10/17
 Time: 上午 10:07:29
 Operator: Kai
 Temperature: 23.3 °C
 Humidity: 51.9 %



Site : 966A Chamber
 Condition : FCC 15.231(433MHz) 30-300(PK)
 EUT : W6M22407-23644
 M/N:
 Test Mode : TX 433.82MHz
 Note :

Polarization: **Horizontal**
 Power : 120 Va.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
	137.1900	40.02	peak	-13.10	26.92	43.50	100	112	-16.58	
	191.3250	47.89	peak	-15.40	32.49	80.80	100	25	-48.31	
*	250.0500	52.83	peak	-13.72	39.11	46.00	100	216	-6.89	
	264.0900	43.83	peak	-13.25	30.58	46.00	100	99	-15.42	

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



Radiated Emission Measurement

Operator: Kai

File :1

Data :#2

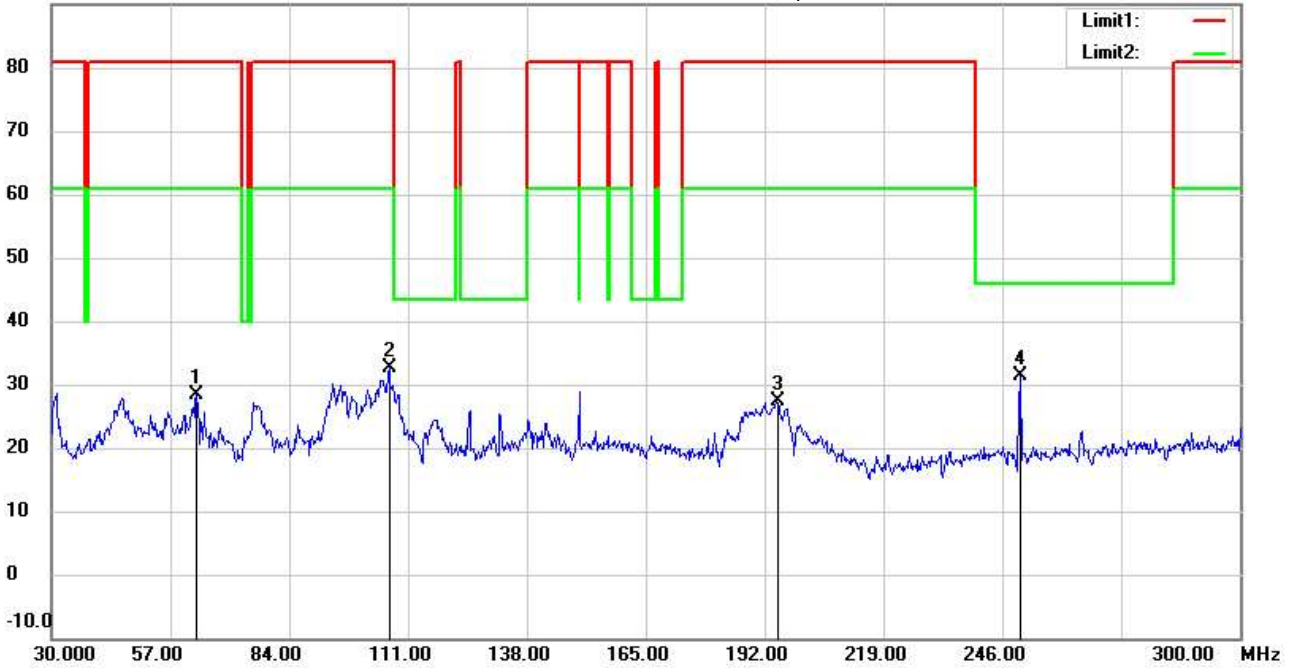
Date: 2024/10/17

Temperature: 23.3 °C

90.0 dBuV/m

Time: 上午 10:08:13

Humidity: 51.9 %



Site : 966A Chamber
 Condition : FCC 15.231(433MHz) 30-300(PK)
 EUT : W6M22407-23644
 M/N:
 Test Mode : TX 433.82MHz
 Note :

Polarization: *Vertical*
 Power : 120 Va.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
	62.9400	42.02	peak	-13.54	28.48	80.80	100	25	-52.32	
	106.6800	48.87	peak	-16.14	32.73	80.80	100	166	-48.07	
	194.8350	42.96	peak	-15.54	27.42	80.80	100	31	-53.38	
*	250.0500	45.11	peak	-13.72	31.39	46.00	100	150	-14.61	



Radiated Emission Measurement

Operator: Kai

File :2

Data :#1

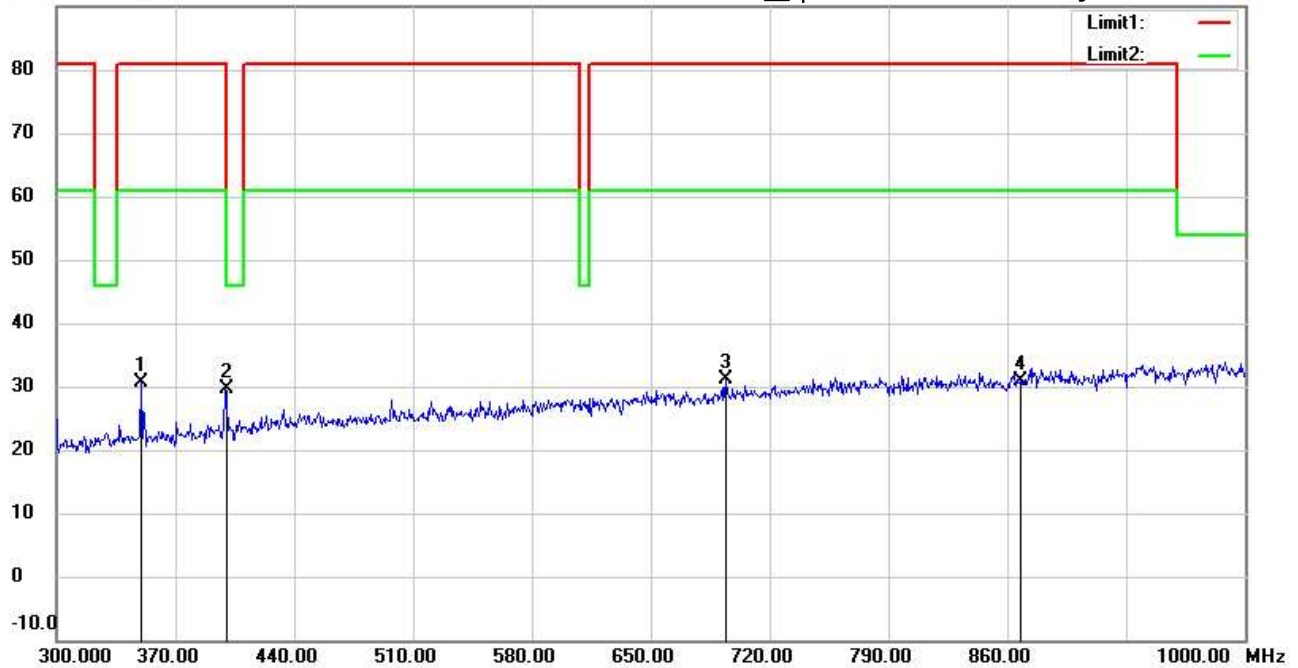
Date: 2024/10/17

Temperature: 23.3 °C

90.0 dBuV/m

Time: 上午 10:08:58

Humidity: 51.9 %



Site : 966A Chamber

Condition : FCC 15.231(433MHz) 300-1000(PK)

Polarization: *Horizontal*

EUT : W6M22407-23644

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 433.82MHz

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
	349.7000	41.73	peak	-11.15	30.58	80.80	100	221	-50.22	
	399.7500	39.52	peak	-9.84	29.68	80.80	100	228	-51.12	
*	694.1000	34.66	peak	-3.56	31.10	80.80	100	341	-49.70	
	867.6400	32.34	peak	-1.44	30.90	80.80	100	42	-49.90	



Radiated Emission Measurement

Operator: Kai

File :2

Data :#2

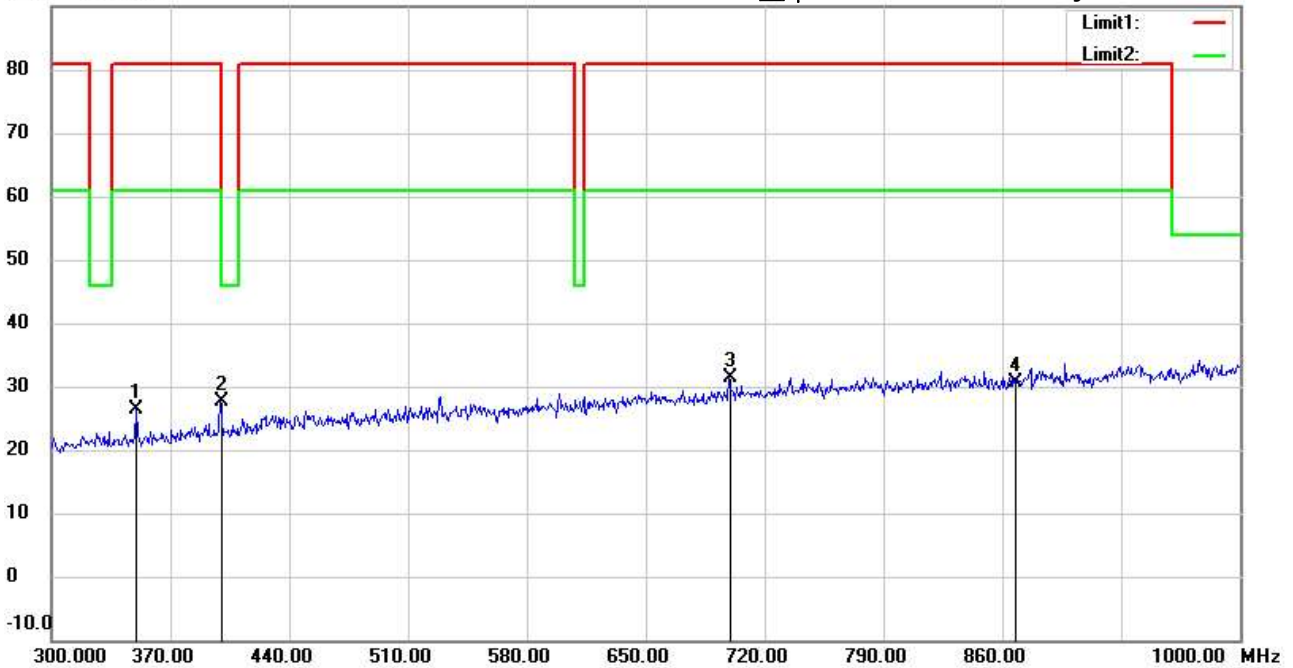
Date: 2024/10/17

Temperature: 23.3 °C

90.0 dBuV/m

Time: 上午 10:09:42

Humidity: 51.9 %



Site : 966A Chamber

Condition : FCC 15.231(433MHz) 300-1000(PK)

Polarization: **Vertical**

EUT : W6M22407-23644

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 433.82MHz

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
	349.7000	37.48	peak	-11.15	26.33	80.80	100	58	-54.47	
	399.7500	37.54	peak	-9.84	27.70	80.80	100	197	-53.10	
*	699.3500	34.75	peak	-3.49	31.26	80.80	100	297	-49.54	
	867.6400	31.96	peak	-1.44	30.52	80.80	100	218	-50.28	



Radiated Emission Measurement

Operator: Kai

File :3

Data :#1

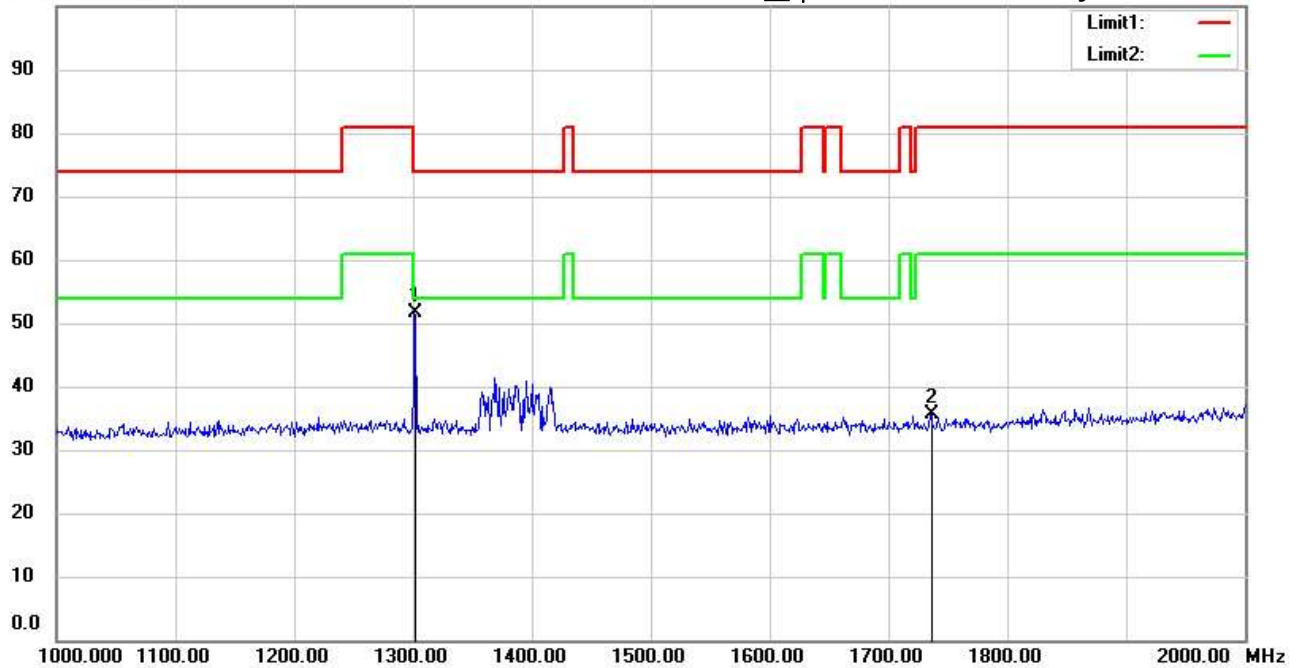
Date: 2024/10/17

Temperature: 23.3 °C

100.0 dBuV/m

Time: 上午 09:39:02

Humidity: 51.9 %



Site : 966A Chamber

Condition : FCC 15.231(433MHz) 1000-2000(PK)

Polarization: *Horizontal*

EUT : W6M22407-23644

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 433.82MHz

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
*	1301.500	59.65	peak	-8.02	51.63	74.00	150	110	-22.37	
	1735.280	43.16	peak	-7.50	35.66	80.80	150	241	-45.14	



Radiated Emission Measurement

Operator: Kai

File :3

Data :#4

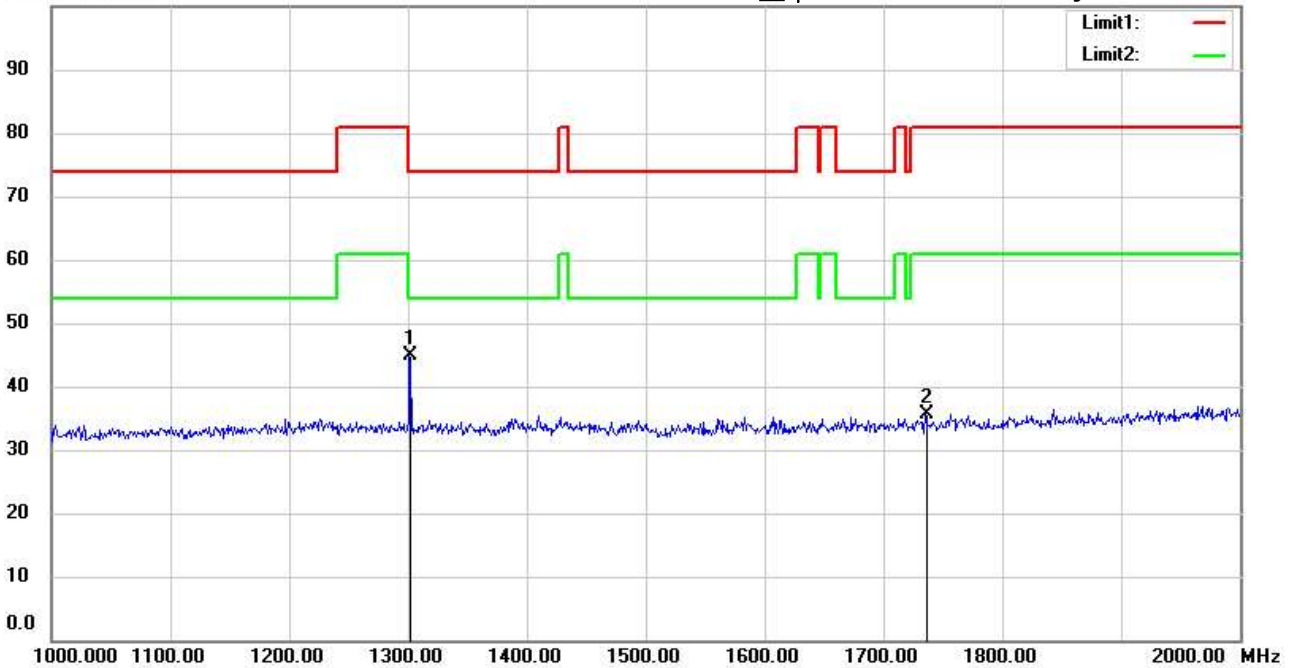
Date: 2024/10/17

Temperature: 23.3 °C

100.0 dBuV/m

Time: 上午 09:41:09

Humidity: 51.9 %



Site : 966A Chamber

Condition : FCC 15.231(433MHz) 1000-2000(PK)

Polarization: **Vertical**

EUT : W6M22407-23644

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 433.82MHz

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
*	1301.500	52.83	peak	-8.02	44.81	74.00	150	2	-29.19	
	1735.280	43.10	peak	-7.50	35.60	80.80	150	52	-45.20	



Radiated Emission Measurement

Operator: Kai

File :3

Data :#2

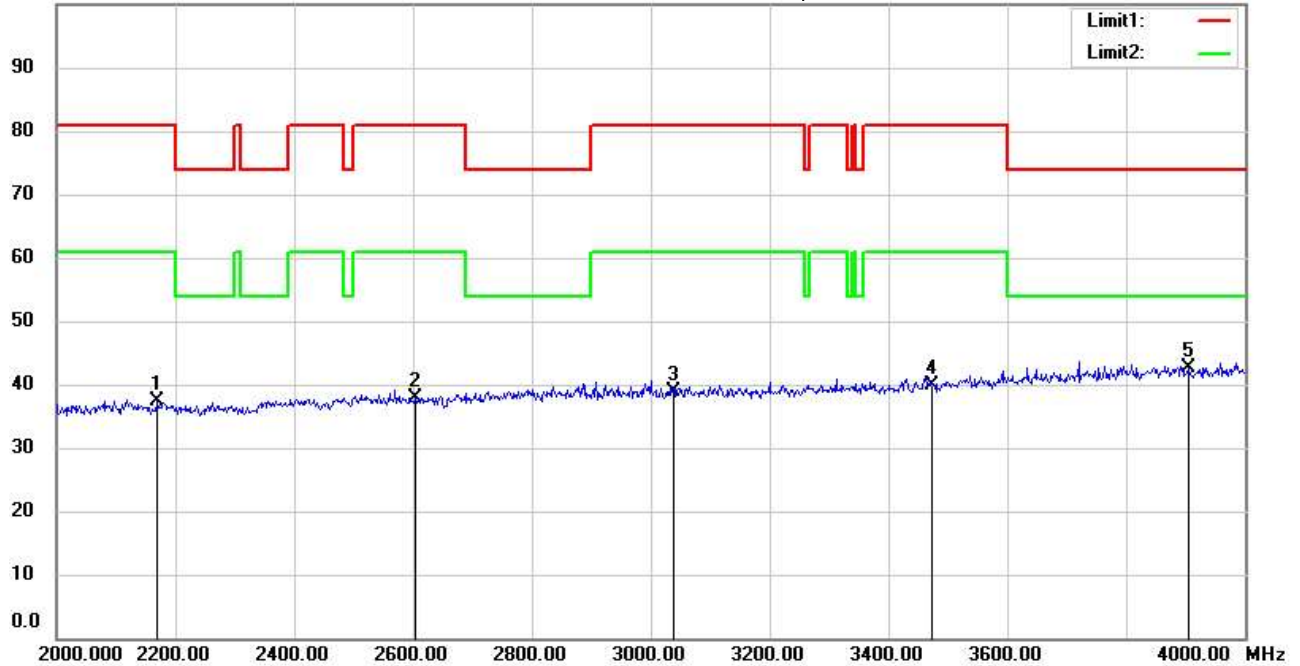
Date: 2024/10/17

Temperature: 23.3 °C

100.0 dBuV/m

Time: 上午 09:39:43

Humidity: 51.9 %



Site : 966A Chamber

Condition : FCC 15.231(433MHz) 2000-4000(PK)

Polarization: **Horizontal**

EUT : W6M22407-23644

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 433.82MHz

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
	2169.100	42.25	peak	-4.84	37.41	80.80	150	5	-43.39	
	2602.920	41.81	peak	-3.92	37.89	80.80	150	233	-42.91	
	3036.740	41.22	peak	-2.40	38.82	80.80	150	41	-41.98	
	3470.560	41.36	peak	-1.36	40.00	80.80	150	188	-40.80	
*	3904.380	41.51	peak	1.24	42.75	74.00	150	5	-31.25	



Radiated Emission Measurement

Operator: Kai

File :3

Data :#5

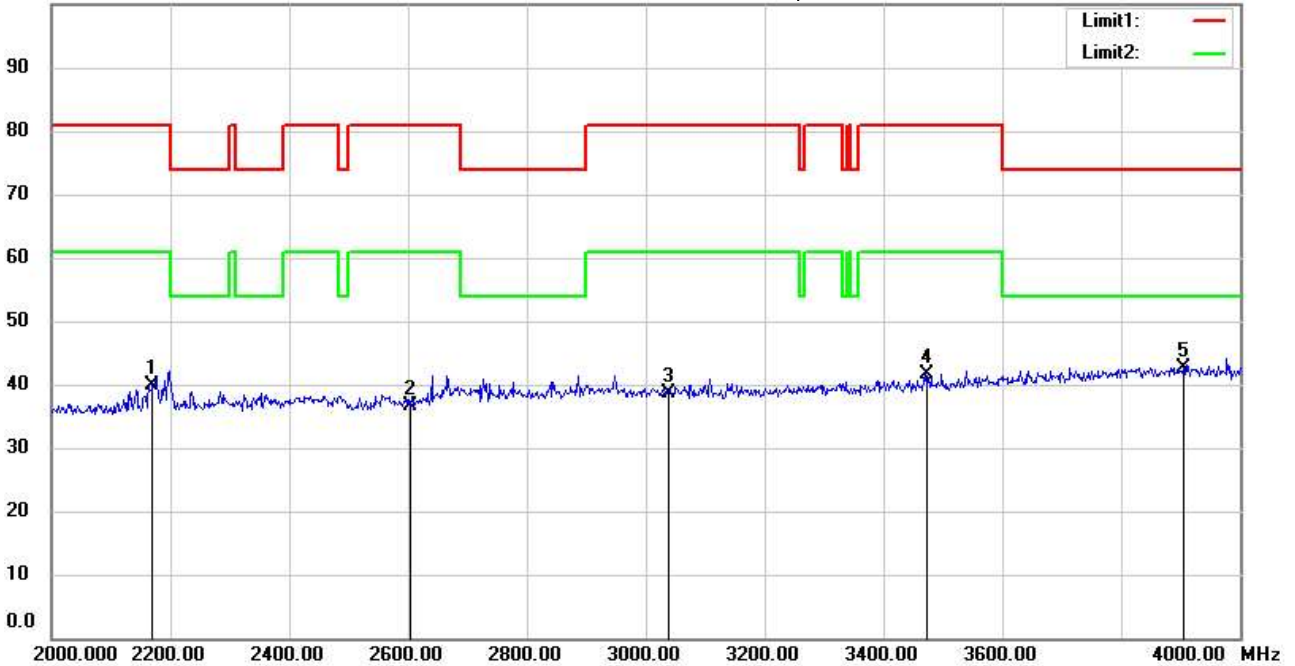
Date: 2024/10/17

Temperature: 23.3 °C

100.0 dBuV/m

Time: 上午 09:41:52

Humidity: 51.9 %



Site : 966A Chamber

Condition : FCC 15.231(433MHz) 2000-4000(PK)

Polarization: **Vertical**

EUT : W6M22407-23644

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 433.82MHz

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
	2169.100	44.60	peak	-4.84	39.76	80.80	150	102	-41.04	
	2602.920	40.59	peak	-3.92	36.67	80.80	150	341	-44.13	
	3036.740	41.06	peak	-2.40	38.66	80.80	150	88	-42.14	
	3470.560	43.03	peak	-1.36	41.67	80.80	150	259	-39.13	
*	3904.380	41.38	peak	1.24	42.62	74.00	150	22	-31.38	



Radiated Emission Measurement

Operator: Kai

File :3

Data :#3

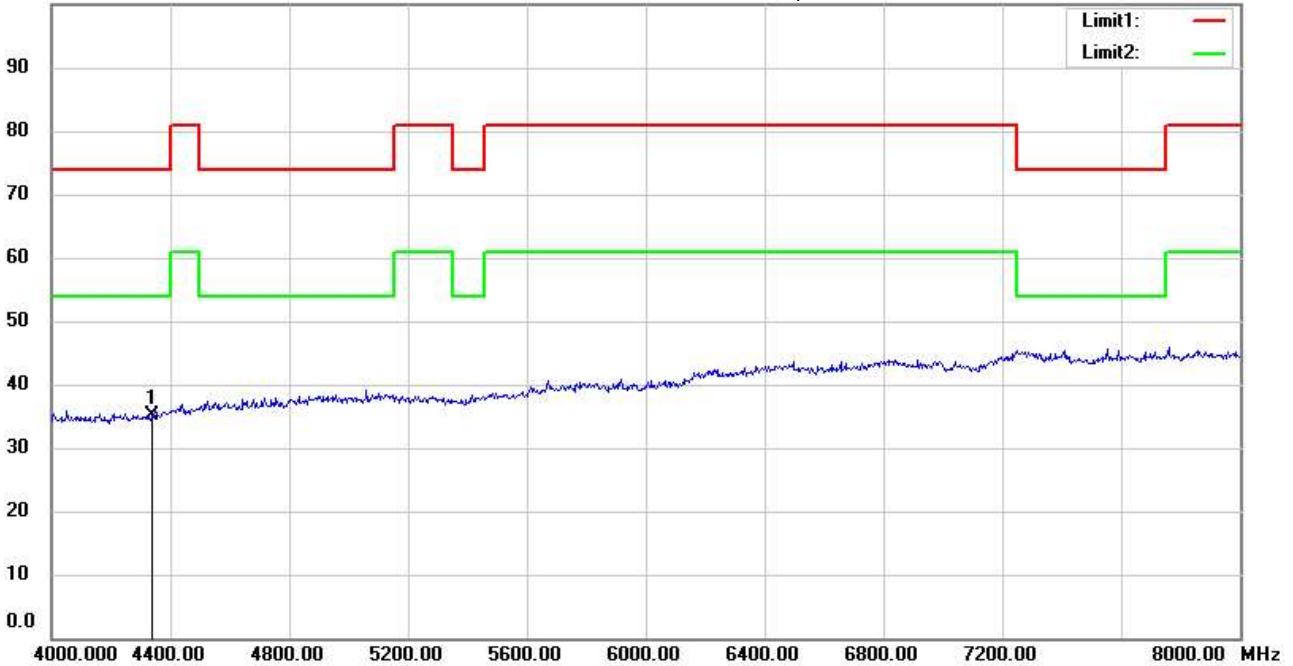
Date: 2024/10/17

Temperature:23.3 °C

100.0 dBuV/m

Time: 上午 09:40:25

Humidity:51.9 %



Site : 966A Chamber

Condition : FCC 15.231(433MHz) 4000-8000(PK)

Polarization: *Horizontal*

EUT : W6M22407-23644

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 433.82MHz

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
*	4338.200	33.18	peak	2.00	35.18	74.00	150	296	-38.82	



Address: No.99, Sec.1, Balian Rd., Xizhi Dist., New Taipei City
 Tel: +886-2-2646-1508
 Fax: +886-2-2646-1533

Radiated Emission Measurement

Operator: Kai

File :3

Data :#6

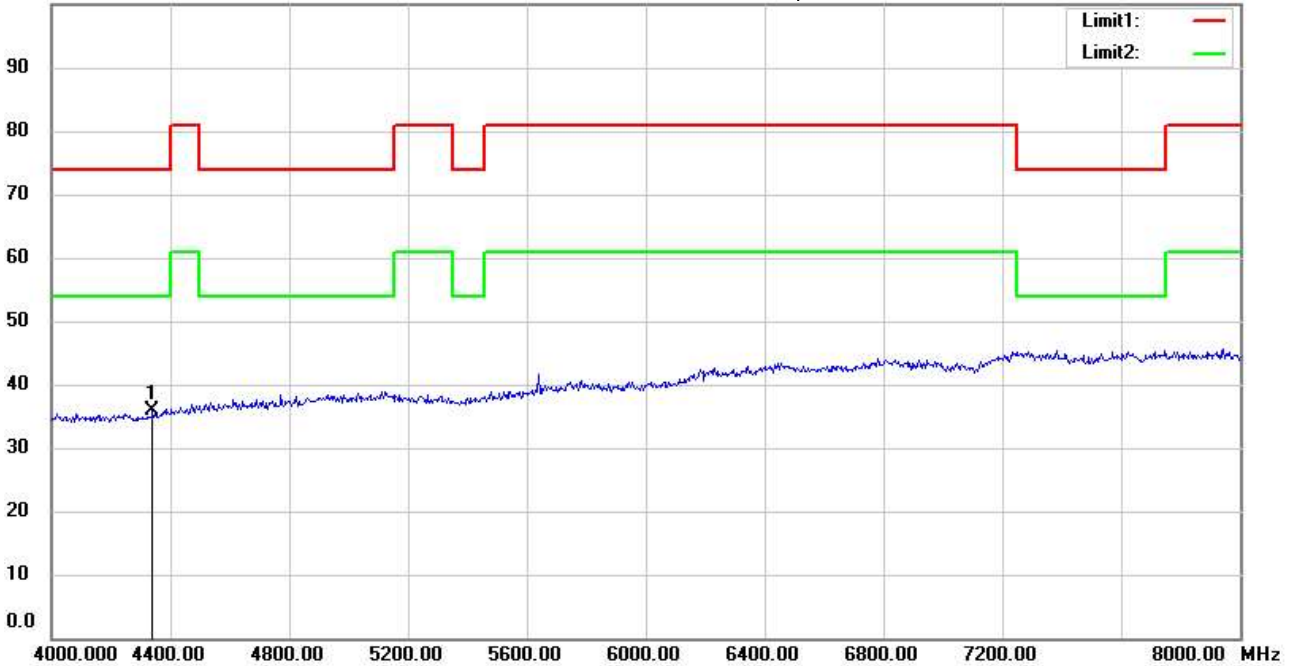
Date: 2024/10/17

Temperature: 23.3 °C

100.0 dBuV/m

Time: 上午 09:42:34

Humidity: 51.9 %



Site : 966A Chamber

Condition : FCC 15.231(433MHz) 4000-8000(PK)

Polarization: *Vertical*

EUT : W6M22407-23644

Power : 120 Va.c.

M/N:

Distance: 3m

Test Mode : TX 433.82MHz

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
*	4338.200	33.90	peak	2.00	35.90	74.00	150	66	-38.10	

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