

47 CFR PART 15 SUBPART C TEST REPORT

for

TPMS Trigger

Model No.: TT03

FCC ID: HQXTT03

of

Applicant: Sysgration Ltd.

Address: 6F.,No.1,Sec.1,Tiding Blvd.,Neihu Dist. Taipei City 114 Taiwan

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

**FCC Registration No.: TW1072, TW1140, TW1141, TW1146,
TW1477, TW0200, TW0037**

Industry Canada filed test laboratory Reg. No.: 20037, 5107A, 31634



Report No.: W6M22404-23411-C-3

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

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1 General Information

1.1 Notes

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

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

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

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems.

The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications equipment.

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:

May 24, 2024

Rick Chen

Rick Chen.

Date

WTS-Lab.

Name

Signature

Technical responsibility for area of testing:

May 24, 2024

Kevin Wang

Kevin Wang

Date

WTS

Name

Signature



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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.35, Aly. 21, Ln. 228, Ankang Rd., Neihu Dist.,
Taipei City 114, Taiwan (R.O.C.)

Xizhi Lab

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, TW1141, TW1146, TW1477,
TW0200, TW0037

Industry Canada filed test laboratory Reg. No.: 20037, 5107A, 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: Sysgration Ltd.

Street: 6F.,No.1,Sec.1,Tiding Blvd.,Neihu Dist.

City: Taipei City 114

Country: Taiwan

1.4 Application details

Date of receipt of test item: May 02, 2024

Date of test: from May 03, 2024 to May 24, 2024



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1.5 General information of Test item

Type of test item:	TPMS Trigger
Model number:	TT03
Multi-listing model number:	./.
Brand name:	SYSGRATION
Transmitting frequency:	125 kHz
Operation modes:	ASK
Antenna type:	Induction Coil Antenna
Power supply:	USB 5Vd.c. Battery 7.2Vd.c., 3180mAh, 22.89Wh
Sample no.:	#10

Manufacturer: (if different from Approval Holder)

Name:	Sysgration Electronics Technology (HuiZhou) Company,Limited.
Street:	YuXin Science Park 3rd Floor, Long Shan 7 Rd., XiangShuiHe Industrial Zone, DaYaWan,
Town:	HuiZhou City, GuangDong Province,
Country:	China

1.6 Test standards

47 CFR PART 15 SUBPART C § 15.209 (2023-10)



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2 Technical test

2.1 Summary of test results

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

or

The deviations were ascertained in the course of the tests performed. ☐

2.2 Test environment

Relative humidity content: 20 ... 75 %

Air pressure: 86 ... 103 kPa

Details of power supply USB 5Vd.c.
Battery 7.2Vd.c., 3180mAh, 22.89Wh

Extreme conditions parameters: test voltage : -- extreme
min : -- V
max : -- V

Test item Name	Measurement Uncertainty
Estimation Result of Uncertainty of Conducted Emission (Power Line Conducted Emission)	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)(Peak Output Power, Spurious Emissions radiated – Transmitter operating, Radiated Emissions from Receiver Section of Receiver Part)	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 (Occupied Bandwidth)	Expanded Uncertainty : 0.45 kHz

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



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2.3 Test Equipment List

Peak Output Power, Spurious Emissions(Below 30MHz)(966A)

Code No.	Test equipment	Mode No.	Serial No.	Brand	Cal. Date	Next Cal. Date
ETSTW-RE 153	Signal Analyzer	FSV40	101929	R&S	2023/9/20	2024/9/19
ETSTW-RE 154	EMI Test Receiver	ESR3	102829	R&S	2024/4/10	2025/4/9
ETSTW-RE 176	Loop Antenna	FMZB 1513-60	39	SCHWARZBECK	2023/8/10	2024/8/9
ETSTW-Cable 090	N type Cable (15m)	EMCCFD400-NM-NM-15000	230732	EMCI	2023/8/4	2024/8/3

Spurious Emissions(30MHz-1000MHz)(966A)

Code No.	Test equipment	Mode No.	Serial No.	Brand	Cal. Date	Next Cal. Date
ETSTW-RE 153	Signal Analyzer	FSV40	101929	R&S	2023/9/20	2024/9/19
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	2023/7/14	2024/7/13
ETSTW-RE 176	Loop Antenna	FMZB 1513-60	39	SCHWARZBECK	2023/8/10	2024/8/9
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	2023/7/14	2024/7/13
ETSTW-Cable 084	SMA type cable (1m)	SF104-11SMA-1000	816477/4	HONOVA	2023/7/14	2024/7/13
ETSTW-Cable 089	SMA type cable (2m)	SF104-11SMA-2000	SN 811889/4	HUBER+SUHNER	2023/7/14	2024/7/13
ETSTW-Cable 090	N type Cable (15m)	EMCCFD400-NM-NM-15000	230732	EMCI	2023/8/4	2024/8/3

AC Conducted Emission

Code No.	Test equipment	Mode No.	Serial No.	Brand	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2023/6/12	2024/6/11
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2023/10/26	2024/10/25
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use	
ETSTW-Cable 093	BNC Cable (3m)	EMCCFD-300 - BM-BM-3000	240109	EMCI	2024/1/10	2025/1/9



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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.

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

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

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

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.



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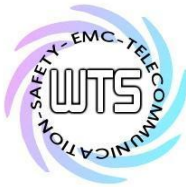
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3 Test results (enclosure)

Test case	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.209	☒	☒	☐
Spurious Emissions radiated – Transmitter operating	15.209	☒	☒	☐
Spurious Emissions radiated – Receiver operating	15.109	☐	☐	☐
Occupied bandwidth	2.1049	☐	☐	☐
Antenna Requirement	15.203	☒	☒	☐
Power Line Conducted Emission	15.207	☒	☒	☐

The following is intentionally left blank.



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3.1 Peak Output Power

FCC Rules: 15.209

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

Radiated Emission Measurement

Operator: Kai

File :Power

Data :#1

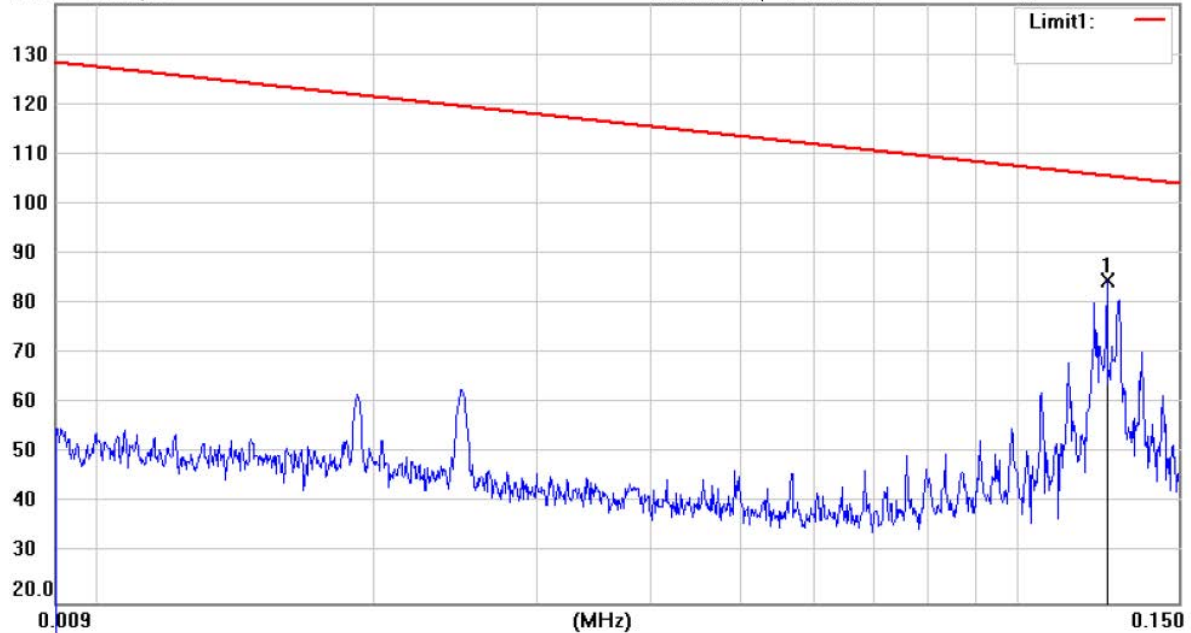
Date: 2024/5/17

Temperature:23.9 °C

140.0 dBuV/m

Time: 上午 11:07:03

Humidity:56.9 %



Site : 966A Chamber

Condition : FCC_15.209 RE (9k-30M) (3M)

EUT : W6M22404-23411

M/N:

Test Mode : TX 125kHz

Note :

Polarization:

Power : 5 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	0.1252	21.13	peak	63.66	84.79	105.58	100	0	-20.79	



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Limits: 15.209

Frequency of Emission (MHz)	Field Strength of Fundamental Limit uV/m	Measurement distance
0.009 – 0.490	2400 / f (KHz)	300
0.49 – 1.705	24000 / f (KHz)	30
1.705 – 30	30	30
30 – 88	100	3
88 – 216	150	3
216 – 960	200	3
Above 960	500	3

The test was performed in the anechoic chamber at 3 meter test distance, i.e. the distance between measuring antenna and EUT boundary. The results were extrapolated by using the square of an inverse linear distance factor DF:

DF (distance factor) = $40 \log (D_1/D_2) = 80 \text{ dB}$, where

D₁ is the 300 meter specified measurement distance,

D₂ is the 3 meter test measurement distance.

For 125 kHz frequency the calculated limit is:

Limit_{3m} = Limit_{300m} + DF = 25.58 dBuV/m + 80 dB = 105.58 dBuV/m



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3.2 Spurious Emissions radiated – Transmitter operating

FCC Rules: 15.209

The field strength of any emission appearing outside of the specific band shall not exceed the general radiated emission limits in 15.209.

Model: TT03 Date: --
 Mode: -- 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)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

Polarization: Vertical

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

Note

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

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.

Limits: 15.209

Frequency of Emission (MHz)	Field Strength of Fundamental Limit uV/m	Measurement distance
0.009 – 0.490	2400 / f (KHz)	300
0.49 – 1.705	24000 / f (KHz)	30
1.705 – 30	30	30
30 – 88	100	3
88 – 216	150	3
216 – 960	200	3
Above 960	500	3

* In the emission table above, the tighter limit applies at the band edges.

The test was performed in the anechoic chamber at 3 meter test distance, i.e. the distance between measuring antenna and EUT boundary. The results were extrapolated by using the square of an inverse linear distance factor DF:



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DF = 40 log (D₁/D₂) = 80 dB, where

For D₁ is the 300 meter specified measurement distance.

D₂ is the 3 meter test measurement distance.

The DF = 80 dB was applied for limit calculation at 3 meter test distance measurements.

For D₁ is the 30 meter specified measurement distance.

D₂ is the 3 meter test measurement distance.

The DF = 40 dB was applied for limit calculation at 3 meter test distance measurements.

If the frequency between 9 – 490 kHz,

Limit = 20log(2400/f(kHz)) + 80

If the frequency between 490 – 1705 kHz,

Limit = 20log(2400/f(kHz)) + 40

If the frequency between 1705 – 30000 kHz,

Limit = 20log30 + 40

For 11.75 kHz frequency the calculated limit is:

Limit_{3m} = Limit_{300m} + DF = 46.31 dBuV/m + 80 dB = 126.31 dBuV/m

For 12 kHz frequency the calculated limit is:

Limit_{3m} = Limit_{300m} + DF = 45.87 dBuV/m + 80 dB = 125.87 dBuV/m



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3.3 Occupied Bandwidth

FCC Rules: 2.1049

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated are each equal to 0.5% of the total mean power radiated by a given emission.

The resolution bandwidth of the spectrum analyzer shall be set to a value greater than 5.0% of the allowed bandwidth specifications are given, the following guidelines are used:

Fundamental frequency	Minimum resolution bandwidth
9 kHz to 30 MHz	1 kHz
30 MHz to 1000 MHz	10 kHz
1000 MHz to 40 GHz	100 kHz

Test date: --

Temperature: -- °C

Humidity: -- %

Tester: --

Explanation: This test is not required.



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3.4 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 antenna is Induction Coil Antenna which passes antenna requirement.

The equipment meets the requirements	yes ☒	no ☐
--------------------------------------	--	--------------------------------



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3.5 Radiated Emissions from Receiver Section of Receiver Part

For the frequency from 9 kHz to 30 MHz:

FCC Rule: 15.209

The field strength of any emission appearing outside of the specific band shall not exceed the general radiated emission limits in 15.209.

Frequency of Emission (MHz)	Field Strength of Fundamental Limit uV/m	Measurement distance
0.009 – 0.490	2400 / f (KHz)	300
0.49 – 1.705	24000 / f (KHz)	30
1.705 – 30	30	30
30 – 88	100	3
88 – 216	150	3
216 – 960	200	3
Above 960	500	3

* In the emission table above, the tighter limit applies at the band edges.

Note: The above field strength limits are specified at a distance of 3 meters.

The test was performed in the anechoic chamber at 3 meter test distance, i.e. the distance between measuring antenna and EUT boundary. The results were extrapolated by using the square of an inverse linear distance factor DF:

$DF = 40 \log (D_1/D_2) = 80 \text{ dB}$, where

For D_1 is the 300 meter specified measurement distance.

D_2 is the 3 meter test measurement distance.

The $DF = 80 \text{ dB}$ was applied for limit calculation at 3 meter test distance measurements.

For D_1 is the 30 meter specified measurement distance.

D_2 is the 3 meter test measurement distance.

The $DF = 40 \text{ dB}$ was applied for limit calculation at 3 meter test distance measurements.

If the frequency between 9 – 490 kHz, $\text{limit} = 20\log(2400/f(\text{kHz})) + 80$

If the frequency between 490 – 1705 kHz, $\text{limit} = 20\log(2400/f(\text{kHz})) + 40$

If the frequency between 1705 – 30000 kHz, $\text{limit} = 20\log 30 + 40$

For 125 kHz frequency the calculated limit is:

$\text{Limit}_{3m} = \text{Limit}_{300m} + DF = 25.59 \text{ dBuV/m} + 80 \text{ dB} = 105.59 \text{ dBuV/m}$

Explanation: This test is not required because the EUT is a transmitter only.



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For the frequency from 30 MHz to 1000 MHz.:

FCC Rule: 15.109

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

Model: TT03

Date: --

Mode: --

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)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

Polarization: Vertical

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

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. This test is not required because the EUT is a transmitter only.**



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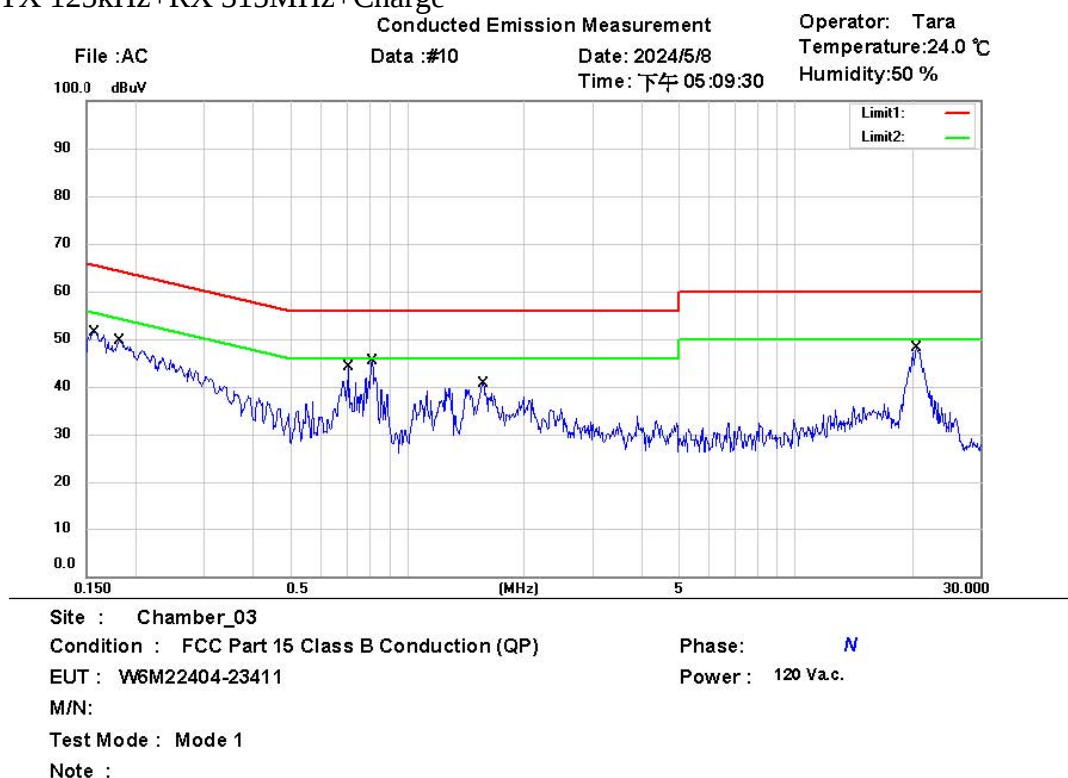
FCC ID: HQXTT03

3.6 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.

Mode 1: TX 125kHz+RX 315MHz+Charge



Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1573	36.02	QP	9.64	45.66	65.61	-19.95	
	0.1573	19.14	AVG	9.64	28.78	55.61	-26.83	
	0.1822	33.89	QP	9.64	43.53	64.38	-20.85	
	0.1822	17.81	AVG	9.64	27.45	54.38	-26.93	
	0.7070	21.53	QP	9.67	31.20	56.00	-24.80	
	0.7070	10.46	AVG	9.67	20.13	46.00	-25.87	
	0.8127	27.54	QP	9.67	37.21	56.00	-18.79	
*	0.8127	19.23	AVG	9.67	28.90	46.00	-17.10	
	1.5620	20.29	QP	9.69	29.98	56.00	-26.02	
	1.5620	5.41	AVG	9.69	15.10	46.00	-30.90	
	20.5500	31.68	QP	10.05	41.73	60.00	-18.27	
	20.5500	13.13	AVG	10.05	23.18	50.00	-26.82	



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Conducted Emission Measurement

Operator: Tara

Data :#9

Date: 2024/5/8

Temperature:24.0 °C

Time: 下午 05:07:09

Humidity:50 %



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: L1

EUT : W6M22404-23411

Power : 120 V.a.c.

M/N:

Test Mode : Mode 1

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1520	26.64	QP	9.66	36.30	65.89	-29.59	
	0.1520	14.06	AVG	9.66	23.72	55.89	-32.17	
	0.1808	23.87	QP	9.65	33.52	64.45	-30.93	
	0.1808	11.49	AVG	9.65	21.14	54.45	-33.31	
	0.2102	25.18	QP	9.65	34.83	63.20	-28.37	
	0.2102	3.36	AVG	9.65	13.01	53.20	-40.19	
	0.7227	26.32	QP	9.67	35.99	56.00	-20.01	
	0.7227	10.78	AVG	9.67	20.45	46.00	-25.55	
*	0.8037	28.20	QP	9.67	37.87	56.00	-18.13	
	0.8037	14.36	AVG	9.67	24.03	46.00	-21.97	
	20.6000	30.85	QP	9.89	40.74	60.00	-19.26	
	20.6000	11.87	AVG	9.89	21.76	50.00	-28.24	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23411-C-3

FCC ID: HQXTT03

Mode 2: TX 125kHz+RX 434MHz+Charge

Conducted Emission Measurement

Operator: Tara

Temperature: 24.0 °C

Humidity: 50 %

File : AC

Data : #8

Date: 2024/5/8

Time: 下午 05:04:00

100.0 dBuV



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: N

EUT : W6M22404-23411

Power : 120 V.a.c.

M/N:

Test Mode : Mode 2

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1724	27.33	QP	9.64	36.97	64.84	-27.87	
	0.1724	4.63	AVG	9.64	14.27	54.84	-40.57	
	0.7070	28.33	QP	9.67	38.00	56.00	-18.00	
*	0.7070	20.51	AVG	9.67	30.18	46.00	-15.82	
	0.8307	23.98	QP	9.67	33.65	56.00	-22.35	
	0.8307	15.17	AVG	9.67	24.84	46.00	-21.16	
	1.2808	25.07	QP	9.69	34.76	56.00	-21.24	
	1.2808	13.46	AVG	9.69	23.15	46.00	-22.85	
	1.5800	22.33	QP	9.69	32.02	56.00	-23.98	
	1.5800	4.89	AVG	9.69	14.58	46.00	-31.42	
	20.7000	31.44	QP	10.05	41.49	60.00	-18.51	
	20.7000	12.79	AVG	10.05	22.84	50.00	-27.16	

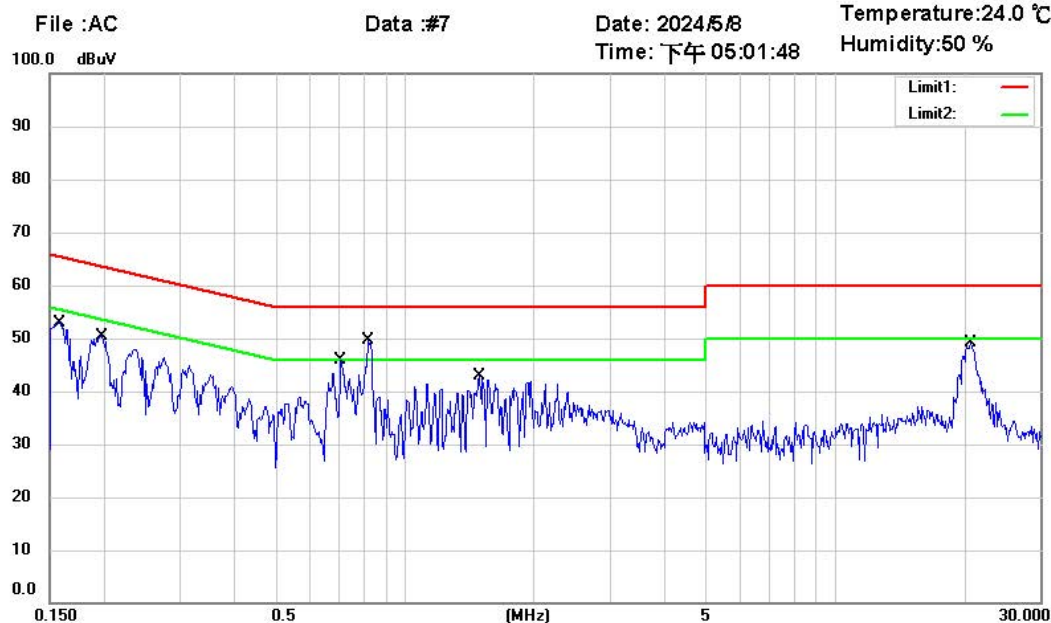


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23411-C-3
FCC ID: HQXTT03

Conducted Emission Measurement

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



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

EUT : W6M22404-23411

M/N:

Test Mode : Mode 2

Note :

Phase: L1

Power : 120 V.a.c.

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1575	26.22	QP	9.66	35.88	65.59	-29.71	
	0.1575	14.28	AVG	9.66	23.94	55.59	-31.65	
	0.1978	18.25	QP	9.65	27.90	63.70	-35.80	
	0.1978	-1.25	AVG	9.65	8.40	53.70	-45.30	
	0.7070	19.04	QP	9.67	28.71	56.00	-27.29	
	0.7070	4.13	AVG	9.67	13.80	46.00	-32.20	
	0.8195	26.45	QP	9.67	36.12	56.00	-19.88	
	0.8195	9.37	AVG	9.67	19.04	46.00	-26.96	
	1.4900	19.90	QP	9.69	29.59	56.00	-26.41	
	1.4900	0.69	AVG	9.69	10.38	46.00	-35.62	
*	20.6875	31.80	QP	9.89	41.69	60.00	-18.31	
	20.6875	13.52	AVG	9.89	23.41	50.00	-26.59	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23411-C-3

FCC ID: HQXTT03

Mode 3: TX 2440MHz+RX BLE+Charge

Conducted Emission Measurement

Operator: Tara

Temperature: 24.0 °C

Humidity: 50 %

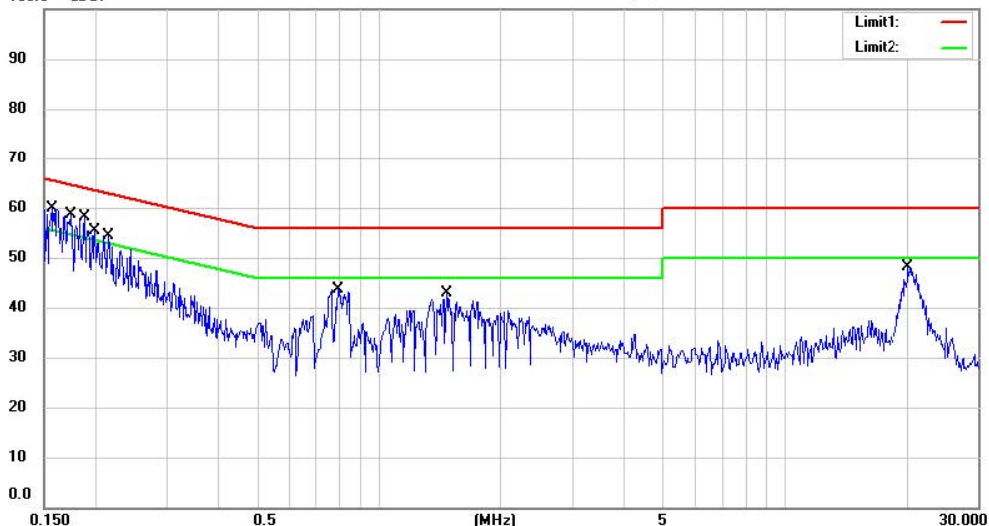
File : AC

Data : #6

Date: 2024/5/8

Time: 下午 04:57:21

100.0 dBuV



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: N

EUT : W6M22404-23411

Power : 120 V.a.c.

M/N:

Test Mode : Mode 3

Note :

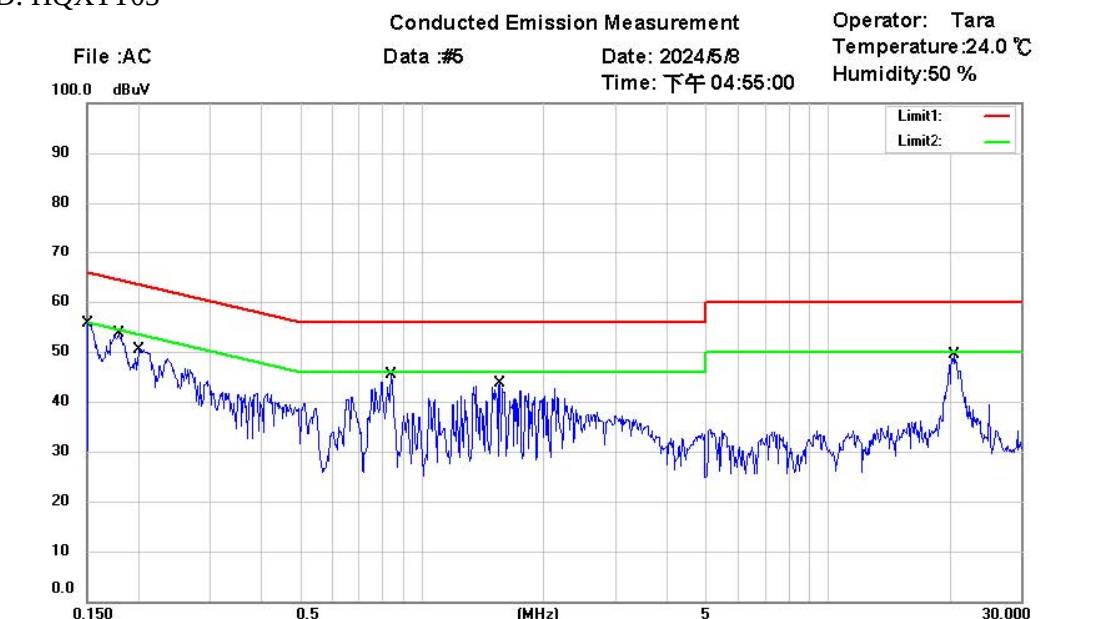
Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1565	28.35	QP	9.64	37.99	65.65	-27.66	
	0.1565	16.47	AVG	9.64	26.11	55.65	-29.54	
	0.1736	26.14	QP	9.64	35.78	64.79	-29.01	
	0.1736	5.60	AVG	9.64	15.24	54.79	-39.55	
*	0.1880	35.94	QP	9.64	45.58	64.12	-18.54	
	0.1880	18.41	AVG	9.64	28.05	54.12	-26.07	
	0.1988	19.55	QP	9.64	29.19	63.66	-34.47	
	0.1988	0.01	AVG	9.64	9.65	53.66	-44.01	
	0.2151	25.52	QP	9.64	35.16	63.01	-27.85	
	0.2151	9.49	AVG	9.64	19.13	53.01	-33.88	
	0.7947	22.79	QP	9.67	32.46	56.00	-23.54	
	0.7947	11.74	AVG	9.67	21.41	46.00	-24.59	
	1.4698	23.24	QP	9.69	32.93	56.00	-23.07	
	1.4698	9.35	AVG	9.69	19.04	46.00	-26.96	
	20.1000	29.92	QP	10.04	39.96	60.00	-20.04	
	20.1000	12.36	AVG	10.04	22.40	50.00	-27.60	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23411-C-3

FCC ID: HQXTT03



Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1507	35.50	QP	9.66	45.16	65.96	-20.80	
	0.1507	20.36	AVG	9.66	30.02	55.96	-25.94	
	0.1790	38.31	QP	9.65	47.96	64.53	-16.57	
	0.1790	21.54	AVG	9.65	31.19	54.53	-23.34	
	0.2004	32.91	QP	9.65	42.56	63.59	-21.03	
	0.2004	15.73	AVG	9.65	25.38	53.59	-28.21	
*	0.8420	31.38	QP	9.67	41.05	56.00	-14.95	
	0.8420	14.57	AVG	9.67	24.24	46.00	-21.76	
	1.5553	23.25	QP	9.69	32.94	56.00	-23.06	
	1.5553	6.87	AVG	9.69	16.56	46.00	-29.44	
	20.5000	31.17	QP	9.89	41.06	60.00	-18.94	
	20.5000	13.60	AVG	9.89	23.49	50.00	-26.51	

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: W6M22404-23411-C-3

FCC ID: HQXTT03

Limits:

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi Peak	Average
0.15-0.5 0.5-5 5-30	66 to 56	56 to 46
	56	46
	60	50



Registration number: W6M22404-23411-C-3
FCC ID: HQXTT03

Appendix

Measurement diagrams

Spurious Emissions Radiated



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 : 1

Data : #1

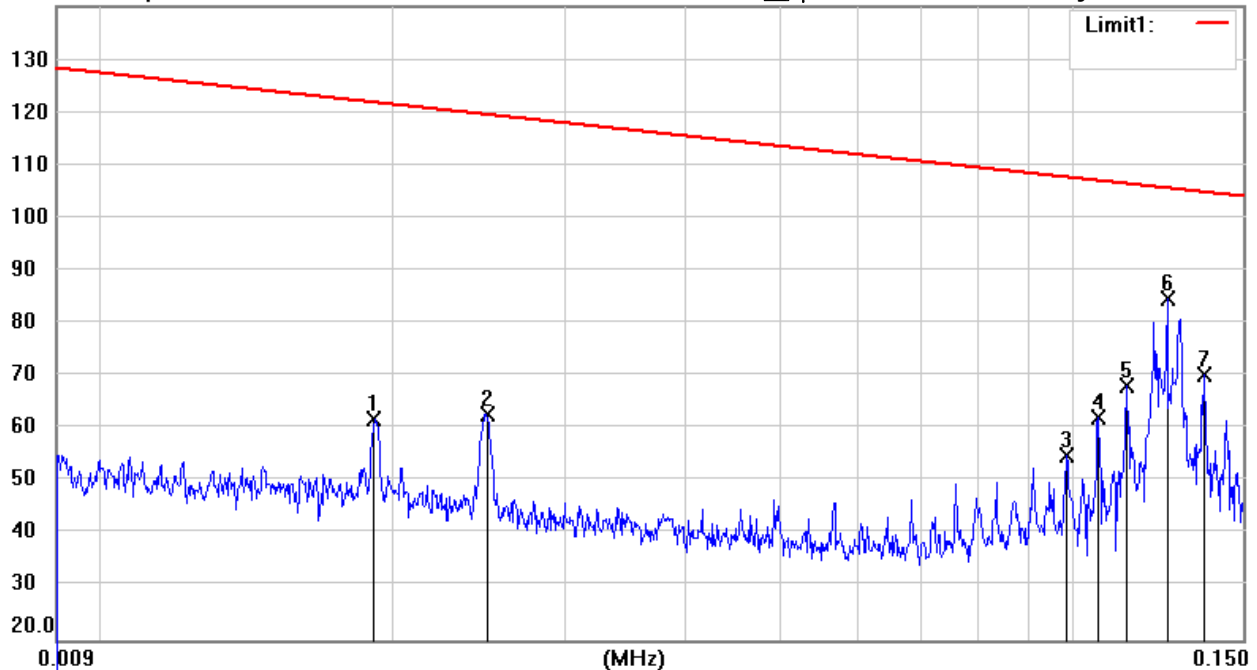
Date: 2024/5/17

Temperature: 23.9 °C

Time: 上午 11:07:03

Humidity: 56.9 %

140.0 dBuV/m



Site : 966A Chamber

Condition : FCC_15.209 RE (9k-30M) (3M)

EUT : W6M22404-23411

M/N:

Test Mode : TX 125kHz

Note :

Polarization:

Power : 5 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	0.0191	-18.41	peak	80.19	61.78	121.82	100	102	-60.04	
	0.0250	-15.36	peak	78.02	62.66	119.49	100	33	-56.83	
	0.0986	-10.08	peak	64.96	54.88	107.64	100	256	-52.76	
	0.1064	-2.48	peak	64.49	62.01	106.99	100	96	-44.98	
	0.1138	4.02	peak	64.16	68.18	106.41	100	61	-38.23	
*	0.1252	21.13	peak	63.66	84.79	105.58			-20.79	RF Power
	0.1367	7.00	peak	63.16	70.16	104.82	100	44	-34.66	

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



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 : 2

Data : #1

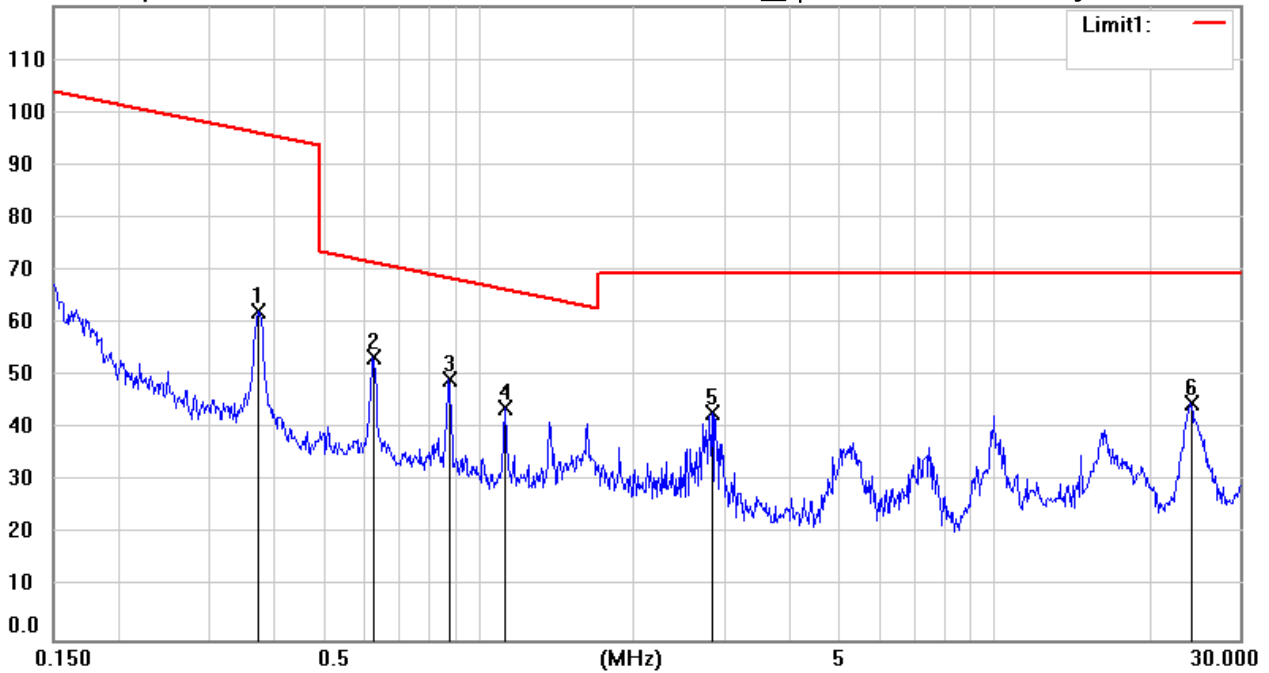
Date: 2024/5/17

Temperature: 23.9 °C

120.0 dBuV/m

Time: 上午 11:05:24

Humidity: 56.9 %



Site : 966A Chamber

Condition : FCC_15.209 RE (9k-30M) (3M)

EUT : W6M22404-23411

M/N:

Test Mode : TX 125kHz

Note :

Polarization:

Power : 5 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	0.3751	7.95	peak	54.32	62.27	96.11	100	28	-33.84	
*	0.6254	3.33	peak	50.18	53.51	71.68	100	155	-18.17	
	0.8780	1.84	peak	47.38	49.22	68.73	100	61	-19.51	
	1.1262	-1.44	peak	45.52	44.08	66.57	100	95	-22.49	
	2.8390	4.32	peak	38.61	42.93	69.54	100	47	-26.61	
	24.0783	11.40	peak	33.36	44.76	69.54	100	166	-24.78	

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



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 : #1

Date: 2024/5/17

Temperature: 23.9 °C

80.0 dBuV/m

Time: 上午 10:35:58

Humidity: 56.9 %



Site : 966A Chamber

Condition : FCC_part 15.209 RE_30-1000MHz

EUT : W6M22404-23411

M/N:

Test Mode : TX 125kHz

Note :

Polarization: **Horizontal**

Power : 5 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	80.9247	53.21	QP	-17.47	35.74	40.00	100	236	-4.26	
*	260.3750	55.40	peak	-13.48	41.92	46.00	100	45	-4.08	

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



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 : #2

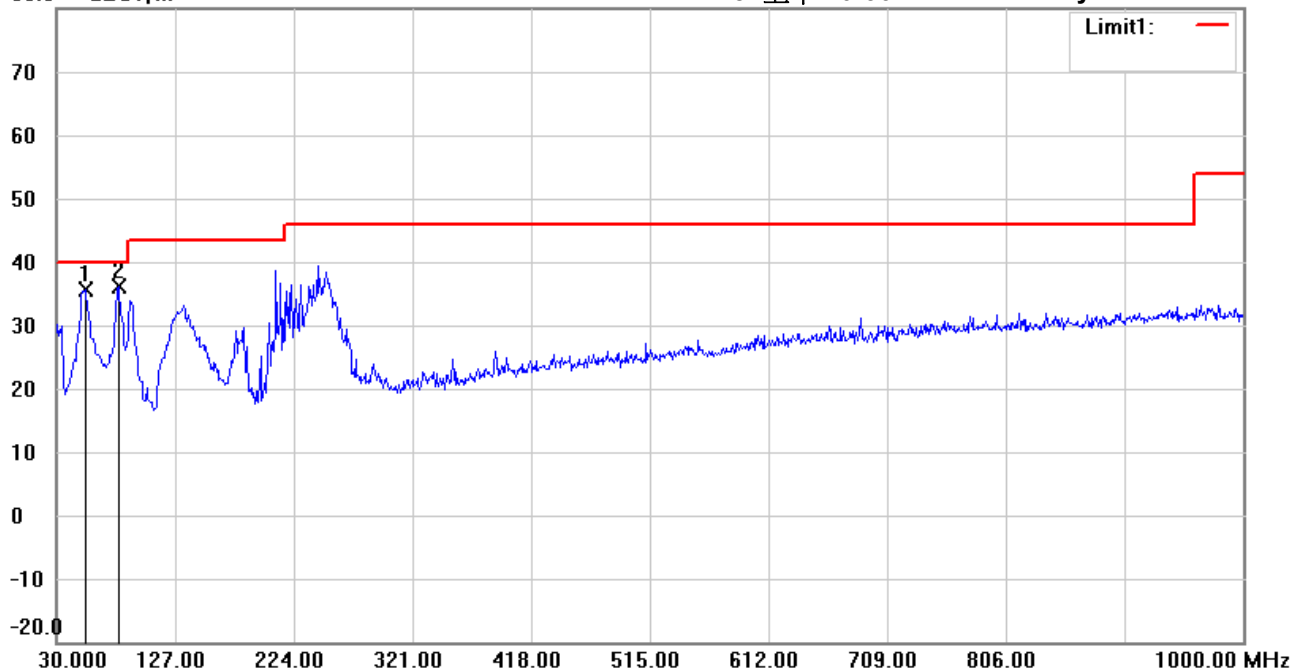
Date: 2024/5/17

Temperature: 23.9 °C

80.0 dBuV/m

Time: 上午 10:36:42

Humidity: 56.9 %



Site : 966A Chamber

Condition : FCC_part 15.209 RE_30-1000MHz

EUT : W6M22404-23411

M/N:

Test Mode : TX 125kHz

Note :

Polarization: *Vertical*

Power : 5 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	53.2800	48.40	peak	-12.71	35.69	40.00	100	336	-4.31	
*	80.9250	53.53	peak	-17.47	36.06	40.00	100	306	-3.94	

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