

47 CFR PART 15 SUBPART C TEST REPORT

for

Portable Sound System

Model No.: PA81

FCC ID: NTMPA558081

of

Applicant: OKAYO ELECTRONICS CO., LTD.

Address: No. 2, Gongye 10th Rd., Dali Dist., Taichung 41280, Taiwan

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.: W6M22404-23381-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: wtls@wtls-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.....	3
1.5	GENERAL INFORMATION OF TEST ITEM	4
1.6	TEST STANDARDS	4
2	TECHNICAL TEST.....	5
2.1	SUMMARY OF TEST RESULTS	5
2.2	TEST ENVIRONMENT	5
2.3	TEST EQUIPMENT LIST	6
2.4	GENERAL TEST PROCEDURE.....	7
3	TEST RESULTS (ENCLOSURE)	9
3.1	PEAK OUTPUT POWER (TRANSMITTER)	10
3.2	TRANSMITTER RADIATED EMISSIONS IN RESTRICTED BANDS	14
3.3	SPURIOUS EMISSIONS (TX).....	15
3.4	CARRIER FREQUENCY SEPARATION	17
3.5	NUMBER OF HOPPING FREQUENCIES.....	19
3.5.1	Pseudorandom Frequency Hopping Sequence	21
3.5.2	Coordination of hopping sequences to other transmitters	21
3.5.3	System Receiver Hopping Capability.....	21
3.6	TIME OF OCCUPANCY (DWELL TIME)	22
3.7	20dB BANDWIDTH.....	28
3.7.1	System Receiver Input Bandwidth	31
3.8	BAND-EDGE COMPLIANCE OF RF EMISSIONS.....	32
3.9	RADIATED EMISSIONS FROM DIGITAL PART	37
3.10	POWER LINE CONDUCTED EMISSION	38



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

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.
4. Antenna gain is provided by applicant and laboratory issue relevant data and results.

Tester:

September 19, 2024

Sora Kuo

Sora

Date

WTS-Lab.

Name

Signature

Technical responsibility for area of testing:

September 19, 2024

Kevin Wang

Kevin Wang

Date

WTS

Name

Signature



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

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.)

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, 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: OKAYO ELECTRONICS CO., LTD.
Street: No. 2, Gongye 10th Rd., Dali Dist.,
Town: Taichung 41280,
Country: Taiwan

1.4 Application details

Date of receipt of test item: June 17, 2024
Date of test: from June 18, 2024 to September 03, 2024



Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

1.5 General information of Test item

Type of test item: Portable Sound System

Model number: PA81

Multi-listing model number: PA80, PA55

Sample no.: #02

Technical data

Frequency band: 2402-2480MHz

Bluetooth		
Mode	Channel/Frequency	Power (dBm)
BR	Ch 0 : 2402 MHz	4.74
	Ch 39 : 2441 MHz	5.29
	Ch 78 : 2480 MHz	6.11
EDR	Ch 0 : 2402 MHz	2.34
	Ch 39 : 2441 MHz	3.29
	Ch 78 : 2480 MHz	4.41

Power supply: Adapter (I/P: 100-240V~50-60Hz 1.4A MAX.
O/P: 20.0V, 3.25A, 65.0W)

Operation modes: Duplex

Modulation type: GFSK、 $\pi/4$ QPSK、8DPSK

Antenna type: PCB antenna

Antenna gain: 1.54 dBi

Host device: none

Classification:

Fixed Device	☐
Mobile Device (Human Body distance > 20cm)	☒
Portable Device (Human Body distance < 20cm)	☐
Modular Radio Device	☐

Manufacturer: (if applicable)

Name: ./.

Street: ./.

Town: ./.

Country: ./.

1.6 Test standards

47 CFR PART 15 SUBPART C § 15.247 (2023-10)



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

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: Adapter (I/P: 100-240V~50-60Hz 1.4A MAX.
O/P: 20.0V, 3.25A, 65.0W)

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

Test item Name	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) (Transmitter Radiated Emissions in restricted Bands, Spurious emissions (tx), Radiated Emissions from Digital 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 (20 dB Bandwidth)	Expanded Uncertainty : 0.45 kHz
Estimation Result of Uncertainty of Conducted Output Power Measurement (Peak Output Power (transmitter))	Expanded Uncertainty : 1.64 dB
Estimation Result of Uncertainty of Band Edge Measurement (Band-edge Compliance of RF Emissions)	Expanded Uncertainty : 0.67 dBc
Estimation Result of Uncertainty of Frequency Separation Measurement (Carrier Frequency Separation, Number of Hopping Frequencies)	Expanded Uncertainty : 554.14 Hz
Estimation Result of Uncertainty of Duty Cycle Measurement (Time of Occupancy (Dwell Time))	Expanded Uncertainty : 0.1 ms

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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

2.3 Test Equipment List

Max Output Power&20DB BANDWIDTH&BANDEDGE

&FREQUENCY SEPARATION&NUMBER OF HOPPING&DWELL TIME

Code No.	Test equipment	Mode No.	Serial No.	Brand	Cal. Date	Next Cal. Date
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2024/2/16	2025/2/15
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2024/3/7	2025/3/6
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2024/2/16	2025/2/15
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S_Cable 9)	279067	HUBER+SUHNER	2024/2/16	2025/2/15

Spurious Emission (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	2024/2/16	2025/4/9
ETSTW-RE 160	Amplifier Module	CHC 3	None	WTS	2024/7/12	2025/7/11
ETSTW-RE 177	TRILOG Broadband Antenna	VULB 9168&EMCI-N-6-06	01380&AT-06007	SCHWARZBECK&EMC	2024/3/4	2025/3/3
ETSTW-RE 178	Double Ridged Guide Horn Antenna	DRH18-E	210505A18ES	RFSPIN	2024/2/29	2025/2/28
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
WTSTW-SW 002	EMI TEST SOFTWARE	EZ_EMC	None	Farad	Version ETS-03A1 Version EMEC-3A1+	



Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

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:

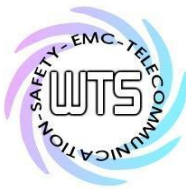
Freq (MHz)	METER READING + ACF + CABLE LOSS (to the receiver) = FS
33	20 dBμV + 10.36 dB + 6 dB = 36.36 dBμV/m @3m

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.

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.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

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

$T = 100\text{ms}$ 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.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

3 Test results (enclosure)

TEST CASE	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.247(b)	☒	☒	☐
Equivalent radiated Power	15.247(b)	☒	☒	☐
Spurious Emissions radiated – Transmitter operating	15.247(d):15.209	☒	☒	☐
Spurious Emissions conducted – Transmitter operating	15.247	☐	☐	☐
Carrier Frequency Separation	15.247(a) (1)	☒	☒	☐
Number of Hopping Frequencies	15.247(a) (1)(i)	☒	☒	☐
Time of Occupancy (Dwell Time)	15.247(a) (1)(i)	☒	☒	☐
20 dB Bandwidth	15.247(a) (1)(i)	☒	☒	☐
Band-edge Compliance of RF Emission	15.247(d)	☒	☒	☐
Radiated Emission from Digital Part	15.109	☐	☐	☐
Power Line Conducted Emission	15.207(a)	☒	☒	☐

The follows is intended to leave blank.



Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

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).

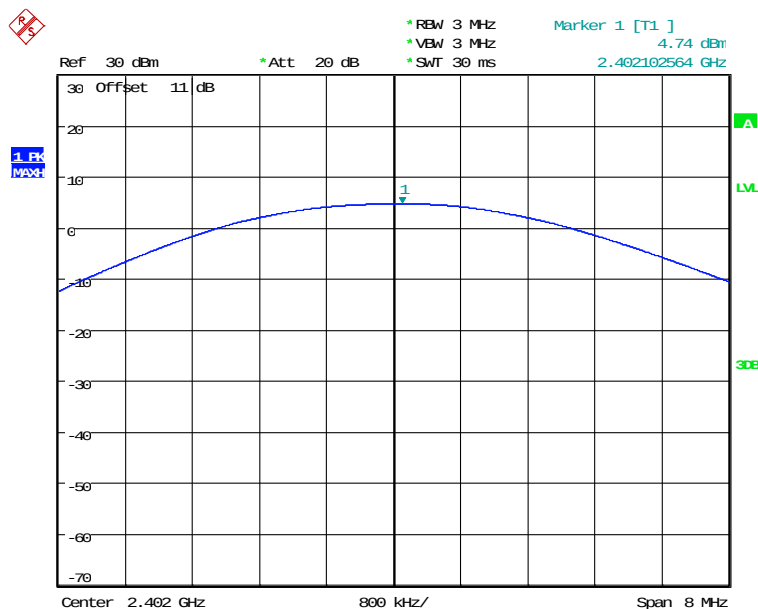
Test date: June 20, 2024

Temperature: 26.2°C

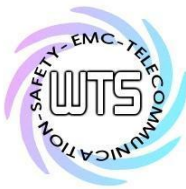
Humidity: 52.1%

Tester: Sora

Normal mode

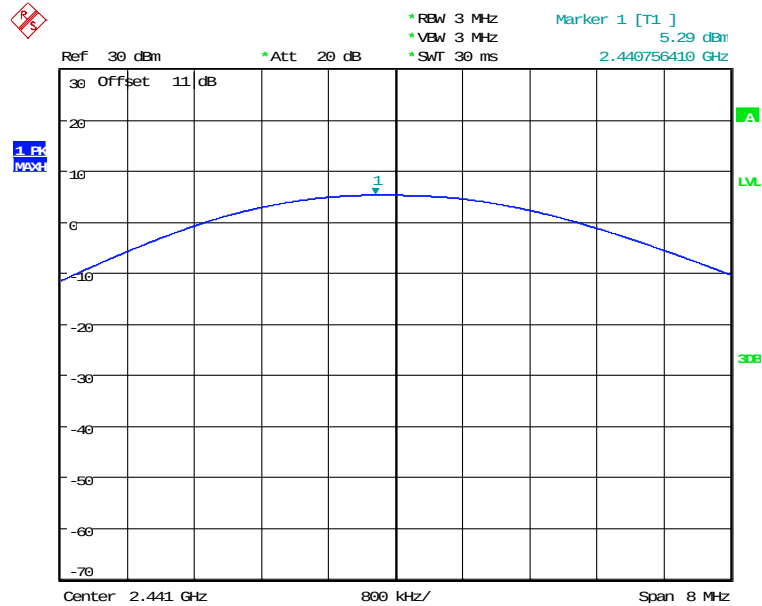


MAX OUTPUT POWER CH0
Date: 20.JUN.2024 15:06:29

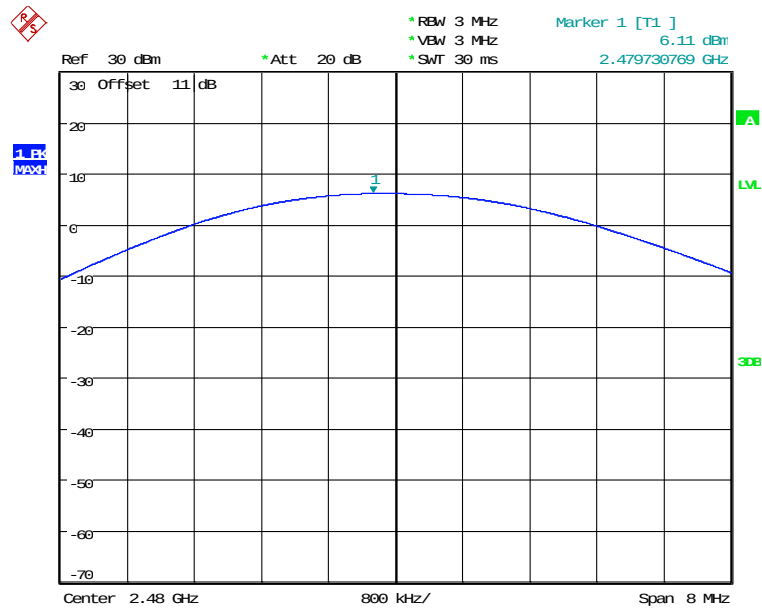


Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081



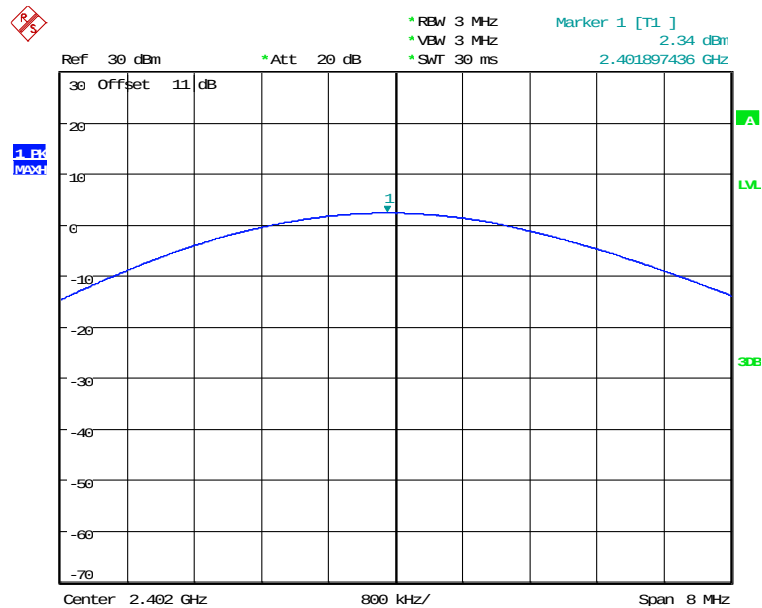
MAX OUTPUT POWER CH39
Date: 20.JUN.2024 15:08:05



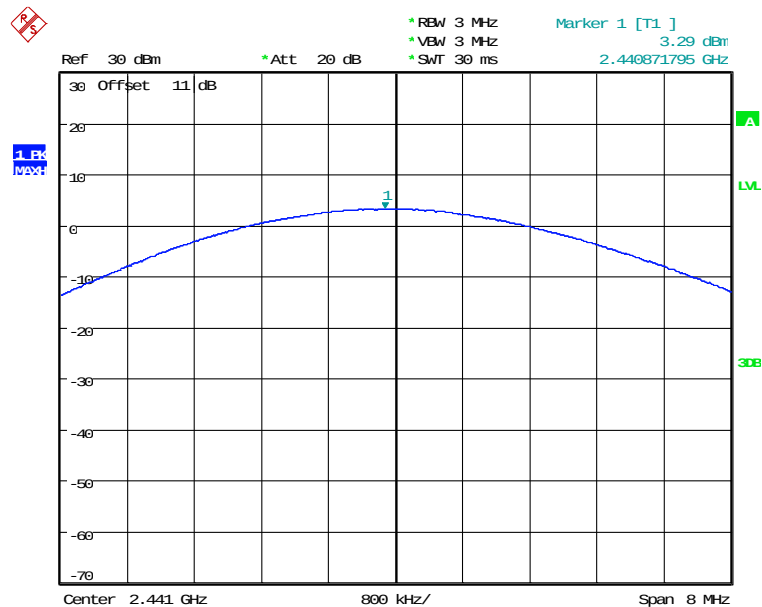
MAX OUTPUT POWER CH78
Date: 20.JUN.2024 15:08:41



Registration number: W6M22404-23381-C-1
FCC ID: NTMPA558081
EDR mode



MAX OUTPUT POWER CH0 EDR MODE
Date: 20.JUN.2024 15:15:37

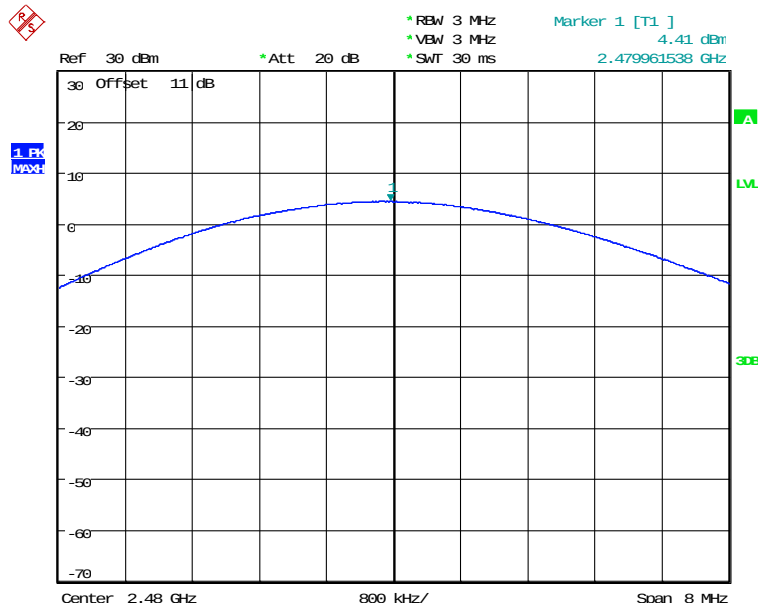


MAX OUTPUT POWER CH39 EDR MODE
Date: 20.JUN.2024 15:16:21



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1
FCC ID: NTMPA558081



MAX OUTPUT POWER CH78 EDR MODE
Date: 20.JUN.2024 15:16:53

Limits:

Frequency (MHz)	Number of hopping channels			
	≥ 75	≥ 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 point-to point operation consider §15.247 (b)(4).



Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

3.2 Transmitter Radiated Emissions in restricted Bands

FCC Rules: 15.247 (d), 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 μ V/m

For frequencies above 1GHz (Peak measurements).

Limit + 20dB

54.0dB μ V/m + 20 dB= 74 dB μ V/m

Explanation: See attached diagrams in appendix.



Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

3.3 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“.

Summary table with radiated data of the test plots

Model: PA81 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)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

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



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

Polarization: Vertical

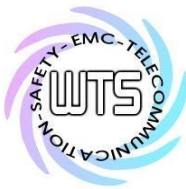
Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

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 - 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. After evaluated, the test result in this report adopt the worst case to measure, please see attached diagrams in 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.



Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

3.4 Carrier Frequency Separation

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

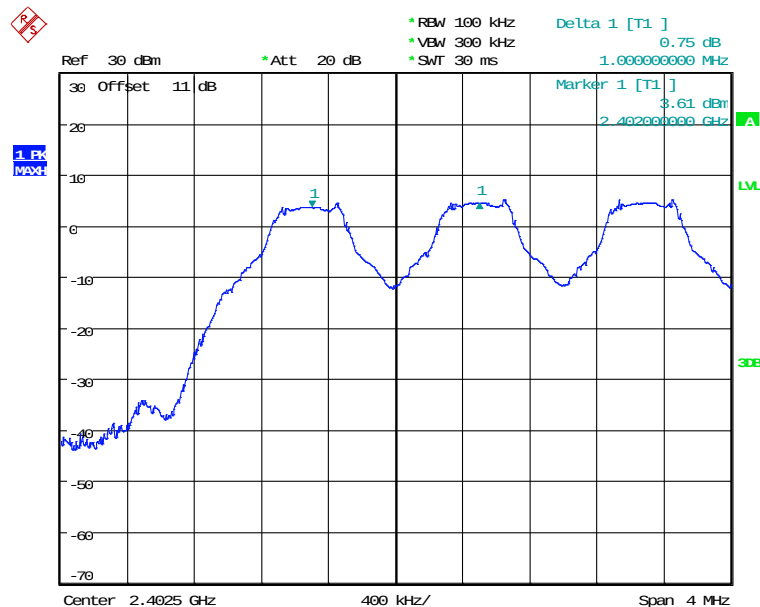
According to FCC rules part 15 subpart C §15.247 frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or 20 dB bandwidth of the hopping channel, whichever is greater.

Test date: June 20, 2024

Temperature: 26.2°C

Humidity: 52.1%

Tester: Sora

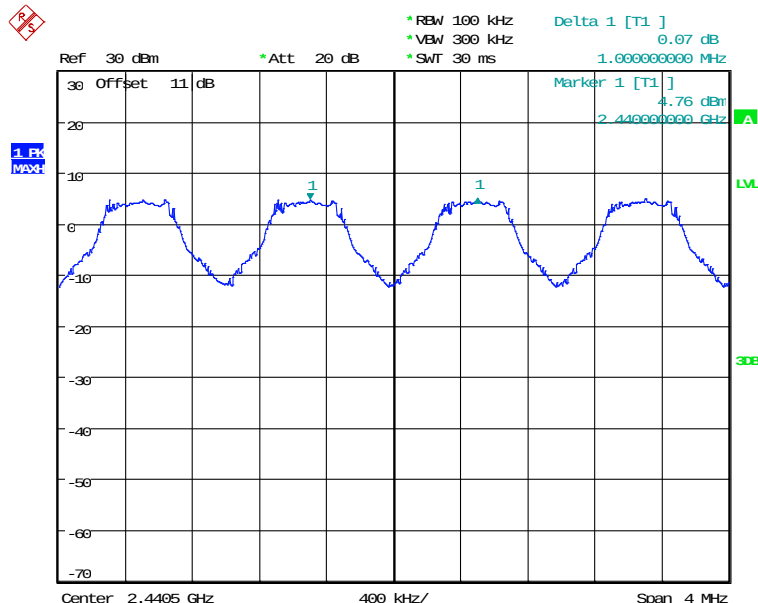


FREQUENCY SEPARATION CH0
Date: 20.JUN.2024 15:13:01

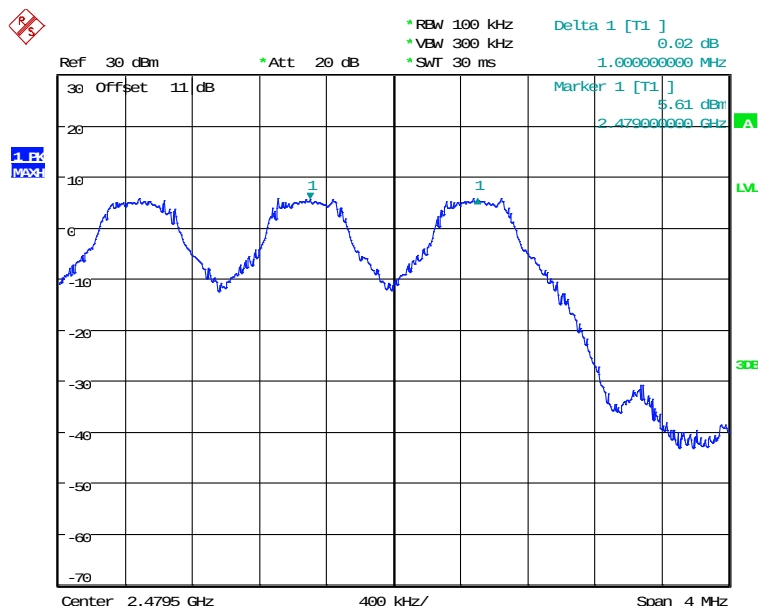


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1
FCC ID: NTMPA558081



FREQUENCY SEPARATION CH39
Date: 20.JUN.2024 15:13:53



FREQUENCY SEPARATION CH78
Date: 20.JUN.2024 15:14:49

Limits:

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



FCC ID: NTMPA558081

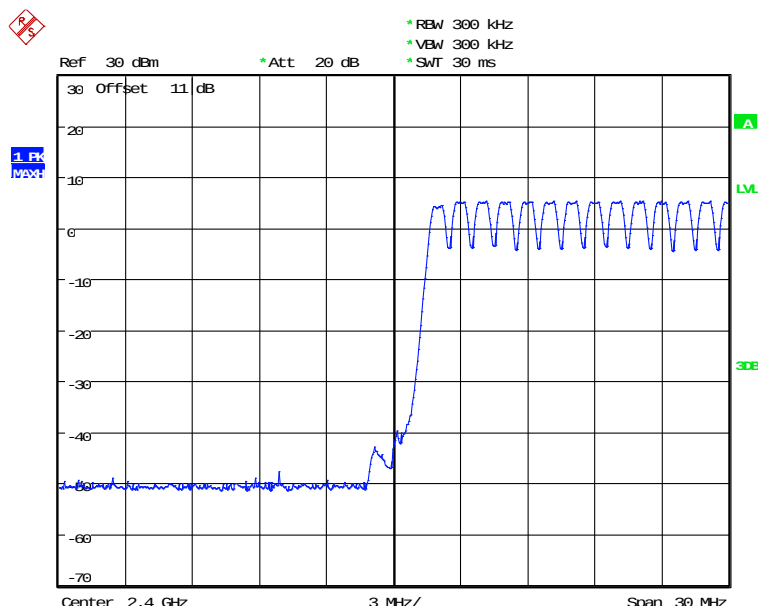
According to FCC rules part 15 subpart C §15.247 frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies. Frequency hopping systems in 5725-5850 MHz bands shall use least 75 hopping frequencies.

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.

Temperature: 26.2°C

Humidity: 52.1%

Tester: Sora



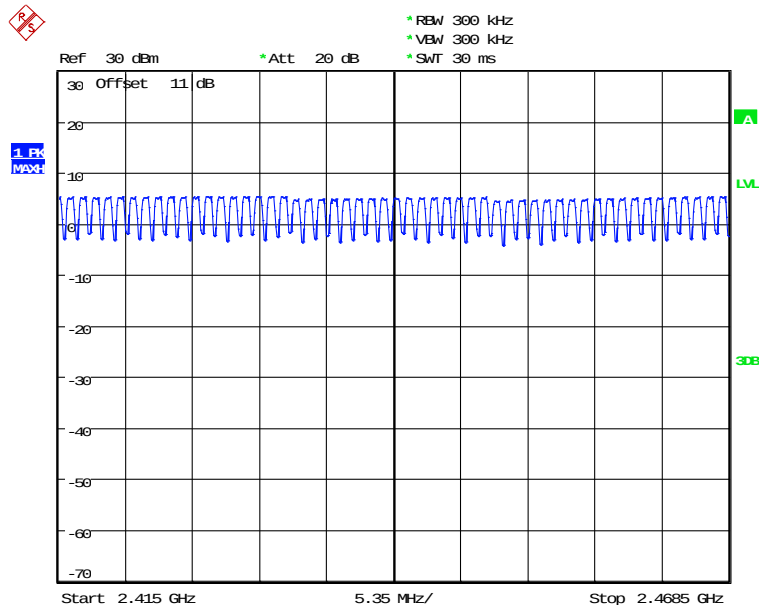
NUMBER OF HOPPING CH0-13
Date: 20.JUN.2024 15:09:57



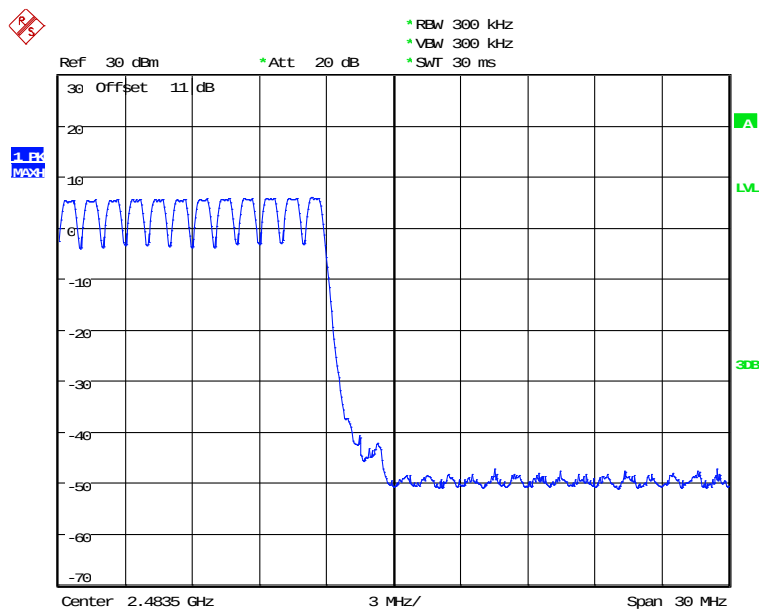
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081



NUMBER OF HOPPING CH14-66
Date: 20.JUN.2024 15:12:01



NUMBER OF HOPPING CH67-78
Date: 20.JUN.2024 15:10:45



Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

Limits:

Frequency (MHz)	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

3.5.1 Pseudorandom Frequency Hopping Sequence

The generation of the hopping sequence is determined by the Bluetooth core specification and complies with the FCC requirements.

3.5.2 Coordination of hopping sequences to other transmitters

According to the Bluetooth core specification such a coordination is not possible. During scatternet function only one of the two hopping sequences will be used at a definite moment.

3.5.3 System Receiver Hopping Capability

According to the Bluetooth core specification. The system receivers shift frequencies in synchronization with the transmitted signals.



Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

3.6 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.

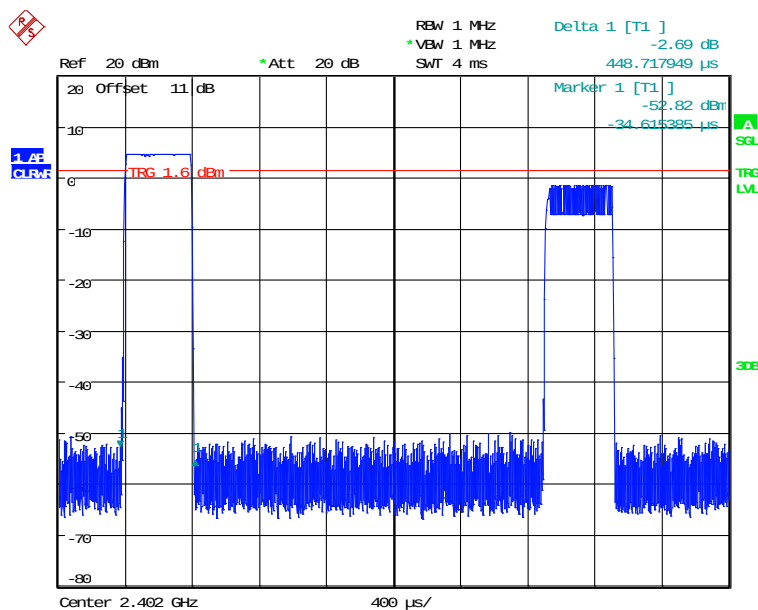
For frequency hopping systems operating in the 902-928 MHz band: if the 20dB bandwidth of the hopping channel is less than 250 kHz, the average time of occupancy on any frequency shall not greater than 0.4 seconds within a 20 second period; if the 20dB bandwidth of the hopping channel is 250 kHz or greater,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

Test date: June 20, 2024

Temperature: 26.2°C

Humidity: 52.1%

Tester: Sora

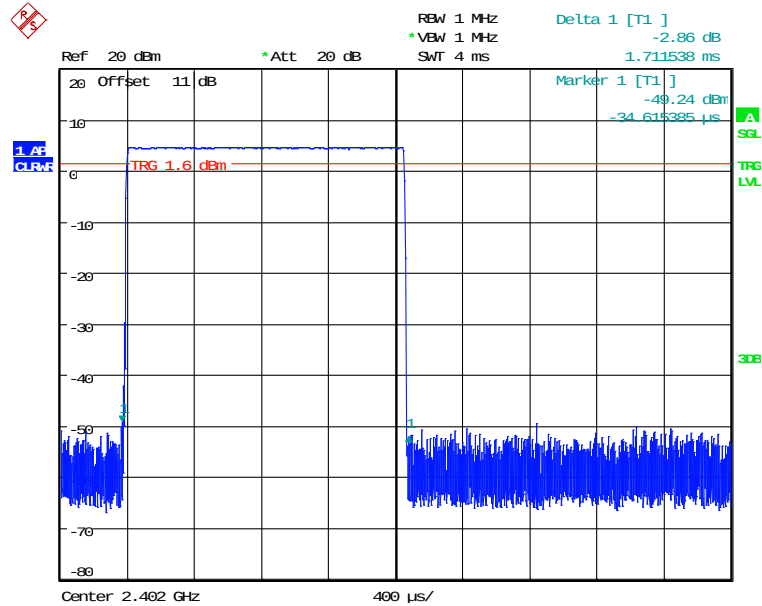


DWELL TIME CH0 DH1 (0.449ms * 320events = 143.68ms)
Date: 20.JUN.2024 15:34:23



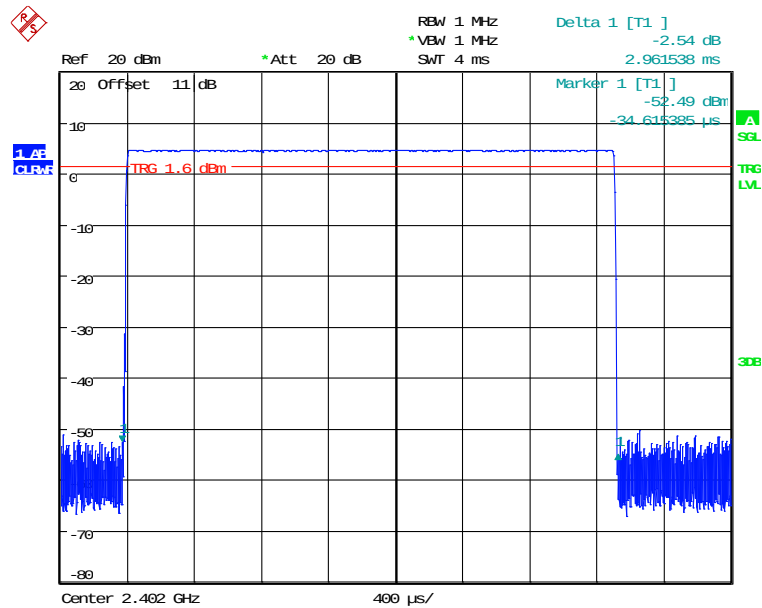
Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081



DWELL TIME CH0 DH3 (1.712ms * 160events = 273.92ms)

Date: 20.JUN.2024 15:38:24



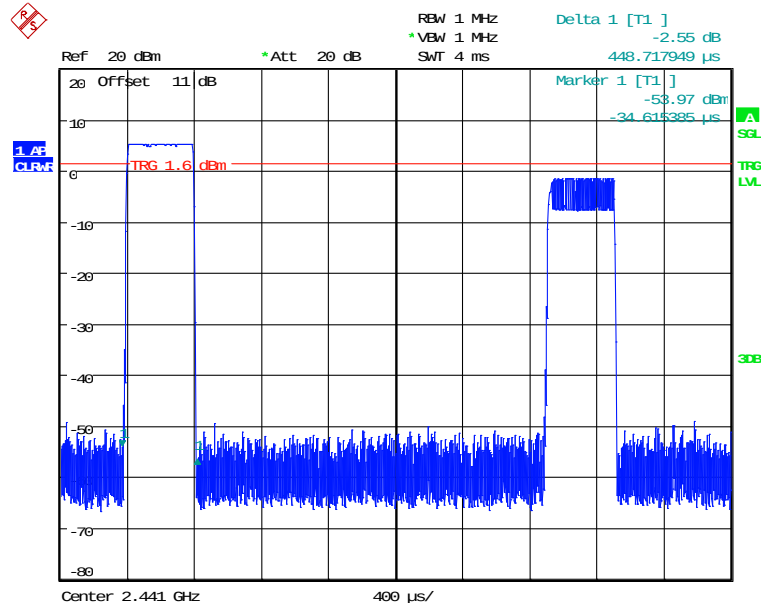
DWELL TIME CH0 DH5 (2.962ms * 106events = 313.972ms)

Date: 20.JUN.2024 15:40:37



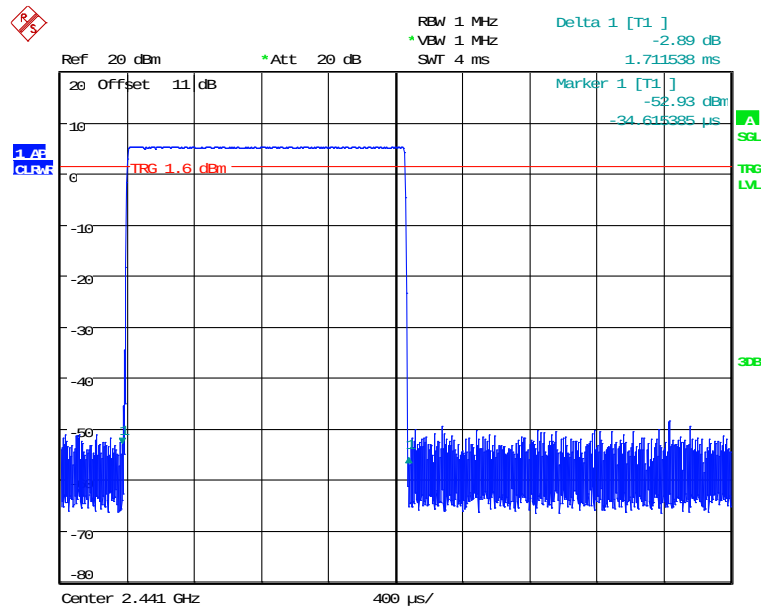
Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081



DWELL TIME CH39 DH1 (0.449ms * 320events = 143.68ms)

Date: 20.JUN.2024 15:35:10



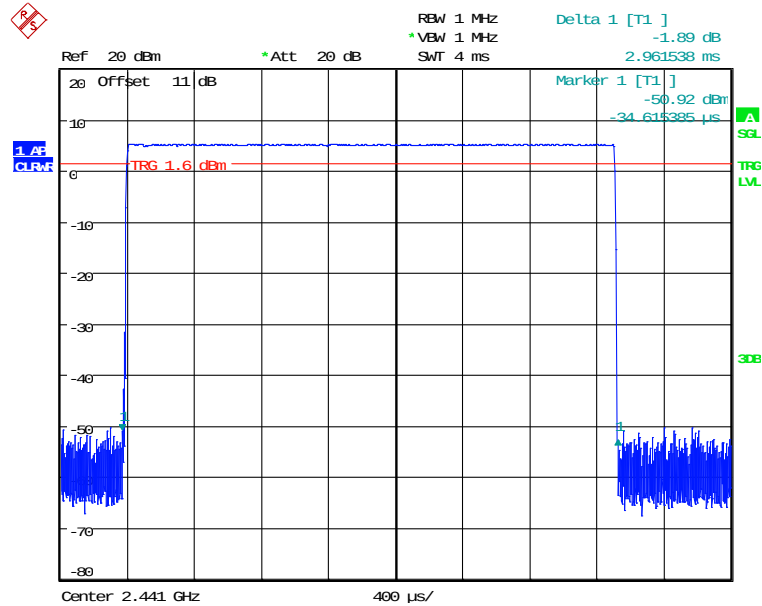
DWELL TIME CH39 DH3 (1.712ms * 160events = 273.92ms)

Date: 20.JUN.2024 15:38:04



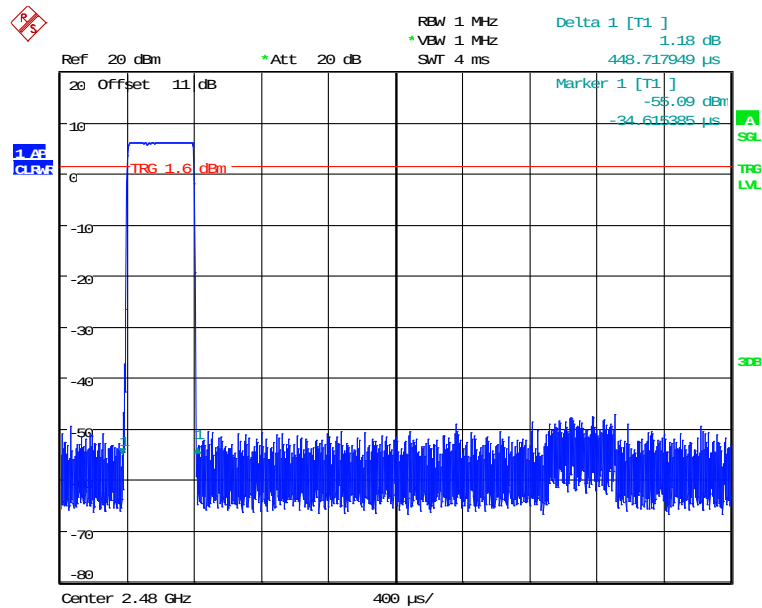
Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081



DWELL TIME CH39 DH5 (2.962ms * 106events = 313.972ms)

Date: 20.JUN.2024 15:41:01



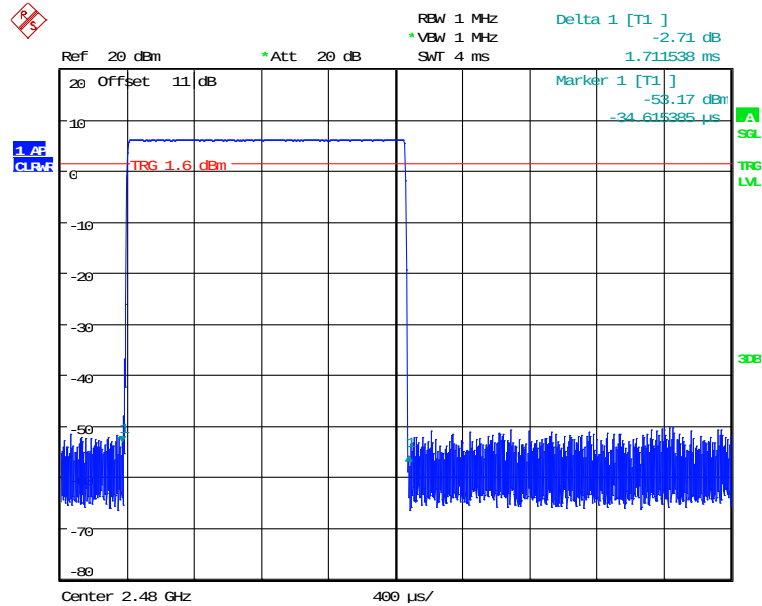
DWELL TIME CH78 DH1 (0.449ms * 320events = 143.68ms)

Date: 20.JUN.2024 15:35:29



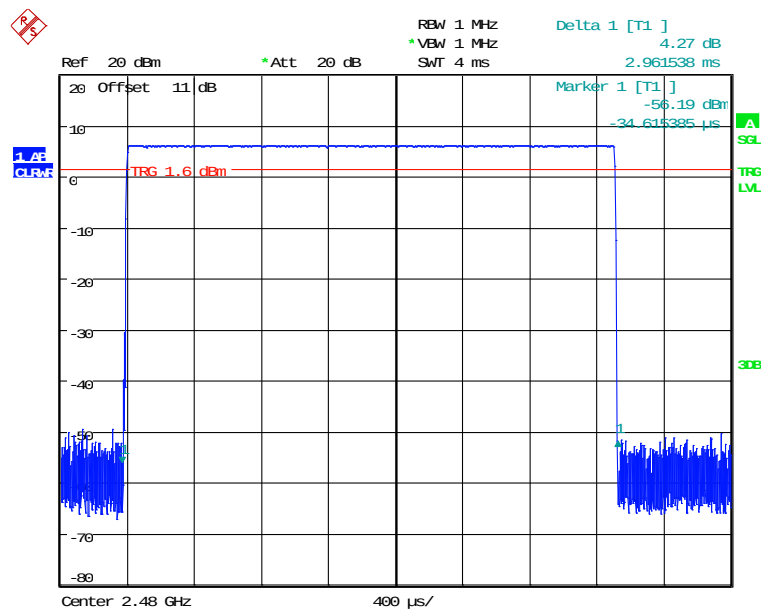
Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081



DWELL TIME CH78 DH3 (1.712ms * 160events = 273.92ms)

Date: 20.JUN.2024 15:37:42



DWELL TIME CH78 DH5 (2.962ms * 106events = 313.972ms)

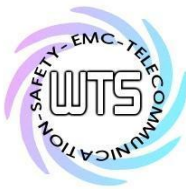
Date: 20.JUN.2024 15:41:22



Registration number: W6M22404-23381-C-1
FCC ID: NTMPA558081

Limits and measurement periods:

Frequency (MHz)	Number of channels	Measurement Periode	Limit
902 – 928	≥ 50	20 s	0.4 s
	$49 \geq 25$	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



Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

3.7 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.

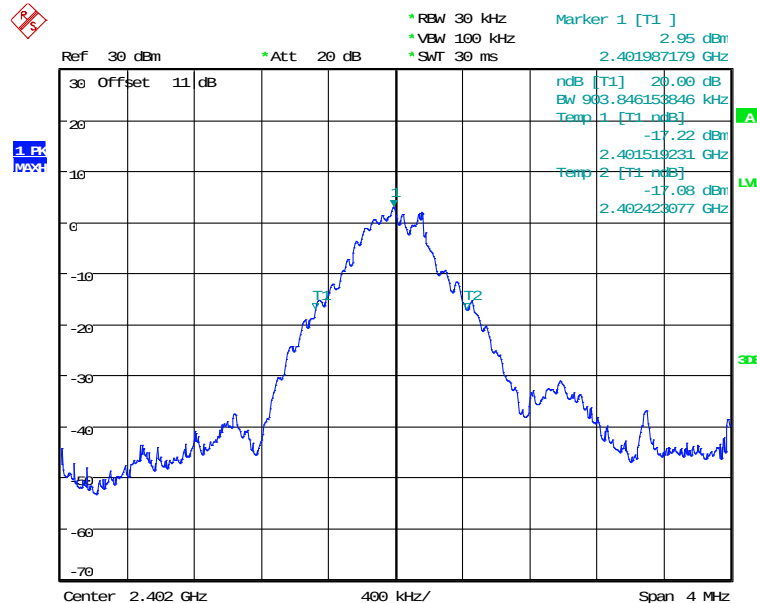
Test date: June 20, 2024

Temperature: 26.2°C

Humidity: 52.1%

Tester: Sora

Normal mode

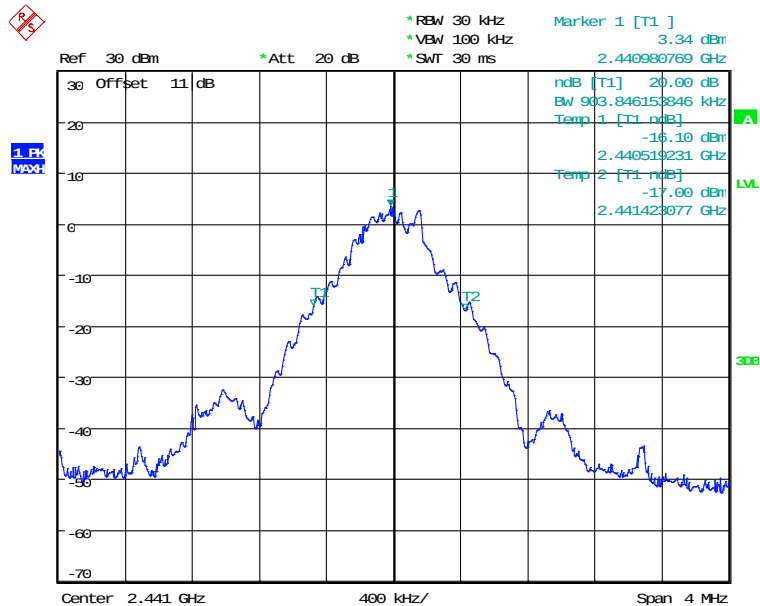


20DB BANDWIDTH CH0
Date: 20.JUN.2024 15:06:37

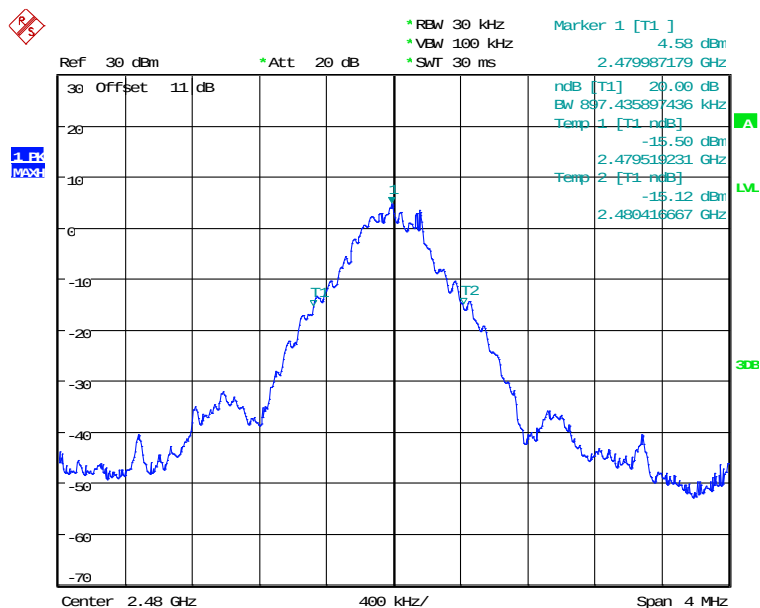


Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081



20DB BANDWIDTH CH39
Date: 20.JUN.2024 15:08:13



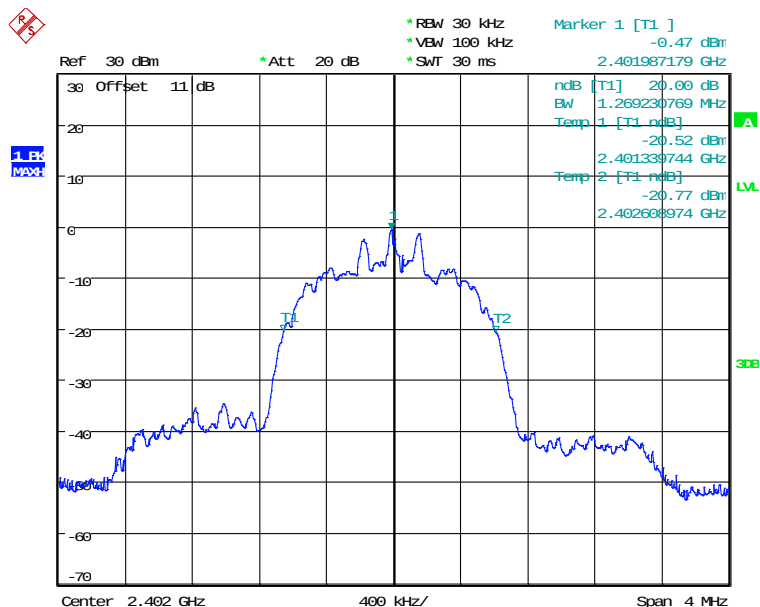
20DB BANDWIDTH CH78
Date: 20.JUN.2024 15:08:49



Registration number: W6M22404-23381-C-1

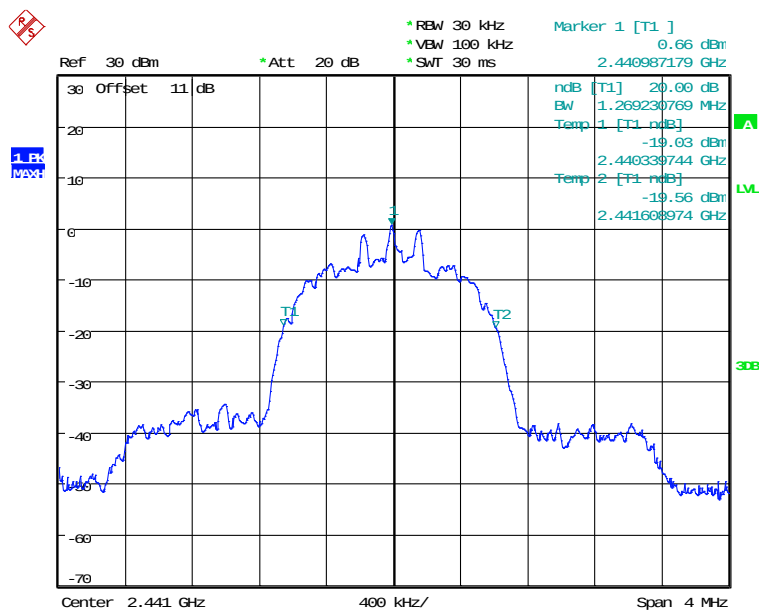
FCC ID: NTMPA558081

EDR mode



20DB BANDWIDTH CH0 EDR MODE

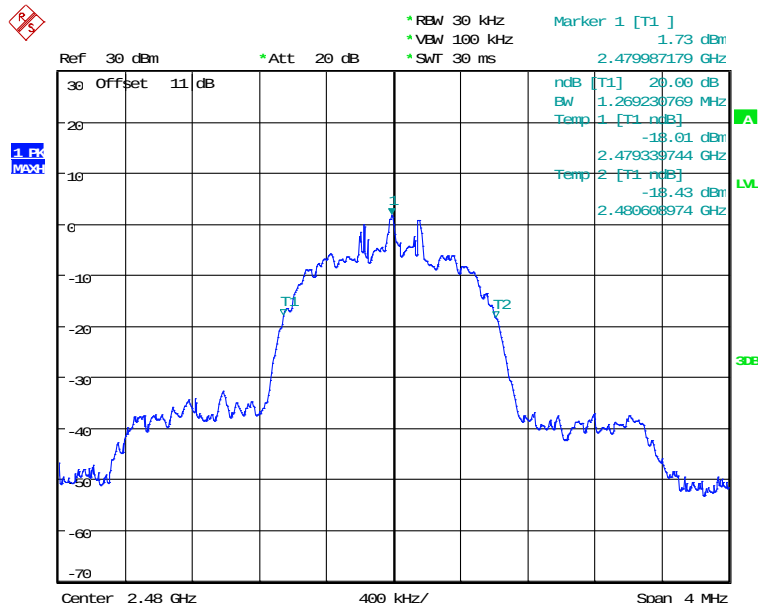
Date: 20.JUN.2024 15:15:45



20DB BANDWIDTH CH39 EDR MODE

Date: 20.JUN.2024 15:16:29

Registration number: W6M22404-23381-C-1
FCC ID: NTMPA558081



20DB BANDWIDTH CH78 EDR MODE
Date: 20.JUN.2024 15:17:01

Limits:

Frequency (MHz)	Limit
902-928	≤ 500 kHz
2400-2483.5	not defined
5725-5850	≤ 1 MHz

3.7.1 System Receiver Input Bandwidth

It is determined in the Bluetooth core specification. The value matches to the bandwidth of transmitter signal.



Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

3.8 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.

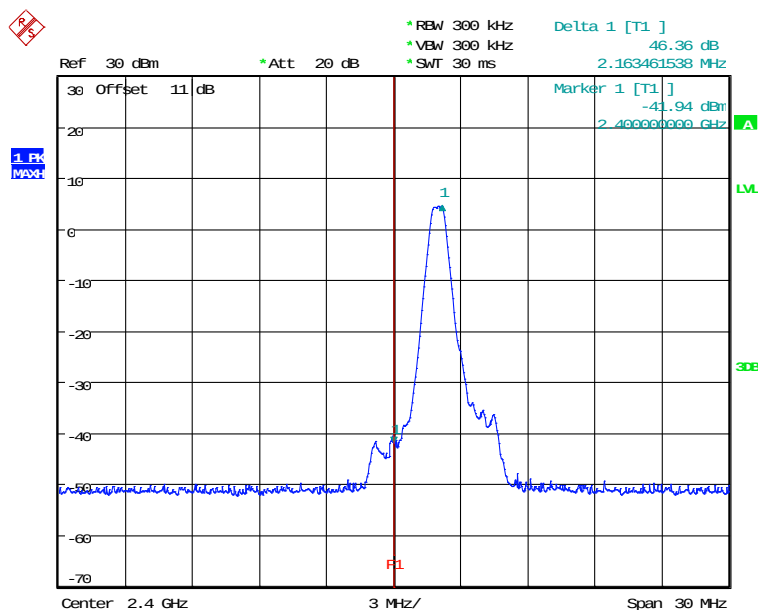
Test date: June 20, 2024

Temperature: 26.2°C

Humidity: 52.1%

Tester: Sora

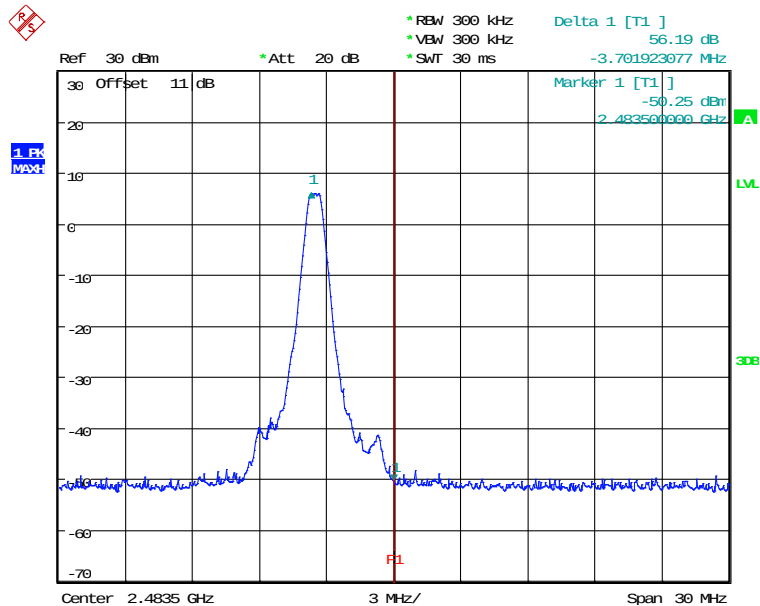
Normal mode



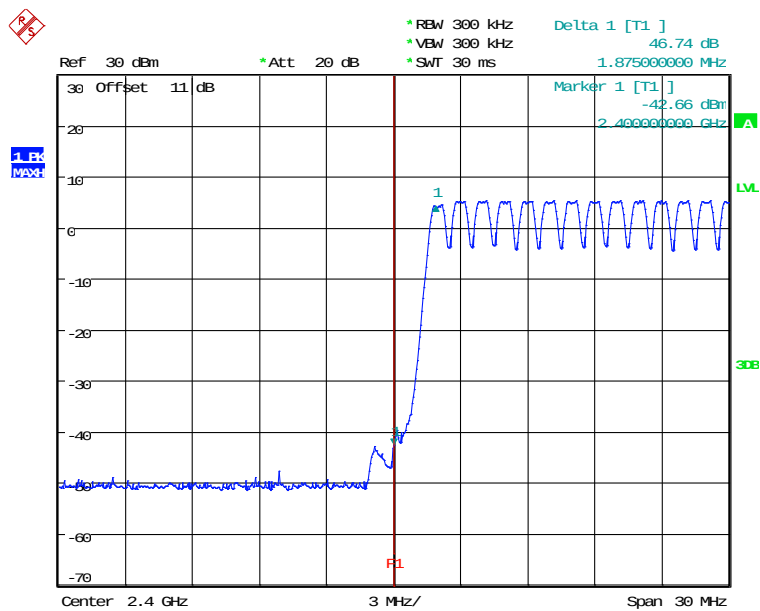
BANDEGE CH0
Date: 20.JUN.2024 15:06:49



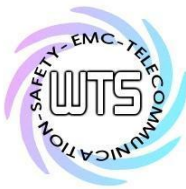
Registration number: W6M22404-23381-C-1
FCC ID: NTMPA558081



BANDEDGE CH78
Date: 20.JUN.2024 15:08:57



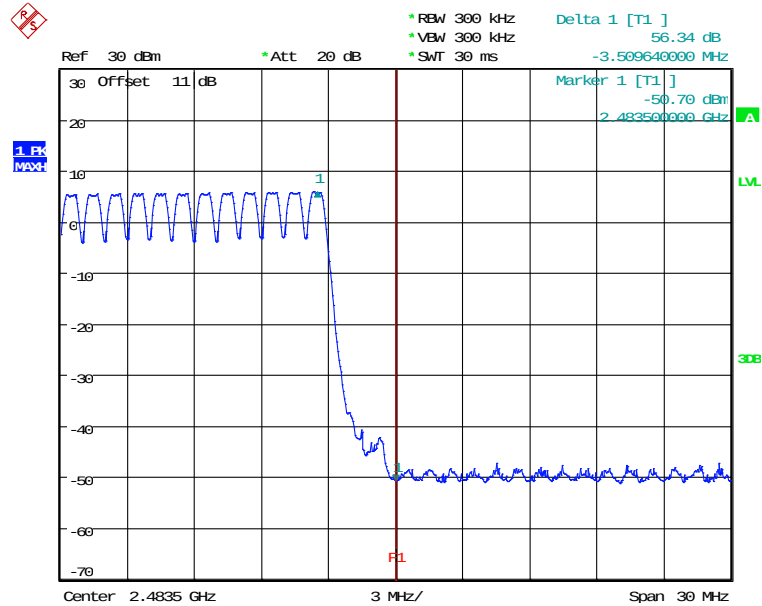
BANDEDGE CH0 HOPPING MODE
Date: 20.JUN.2024 15:09:58



Worldwide Testing Services(Taiwan) Co., Ltd.

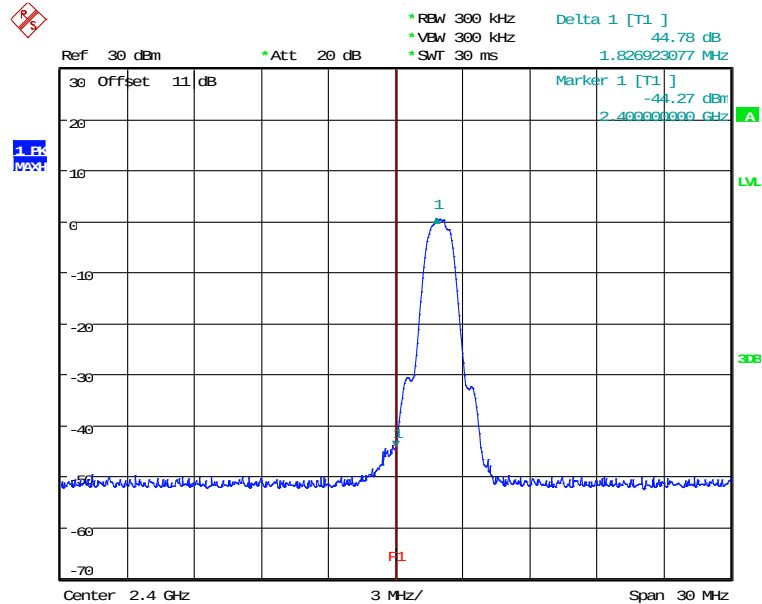
Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081



BANDEDGE CH78 HOPPING MODE
Date: 20.JUN.2024 15:10:46

EDR mode

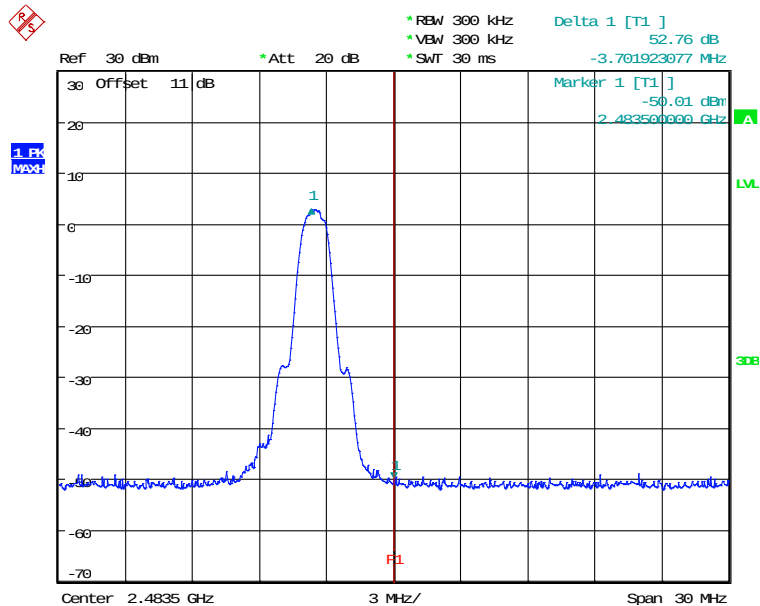


BANDEDGE CH0 EDR MODE
Date: 20.JUN.2024 15:15:53

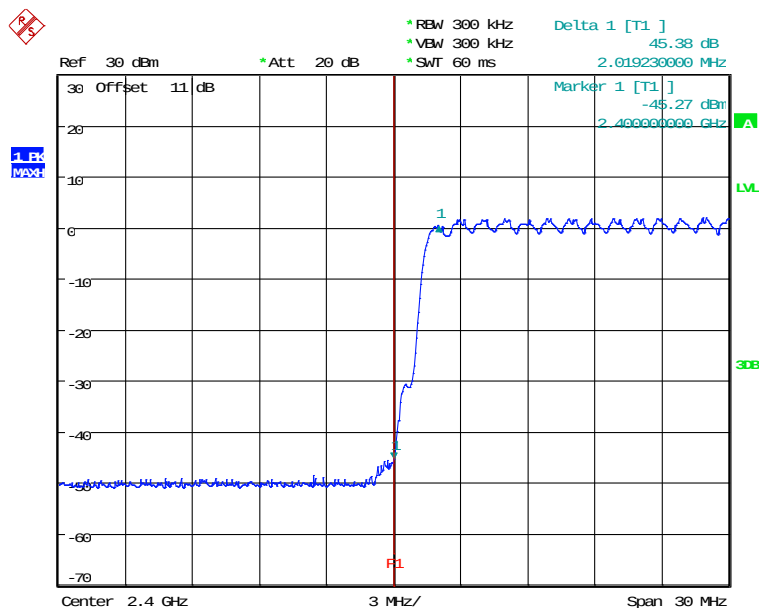


Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081



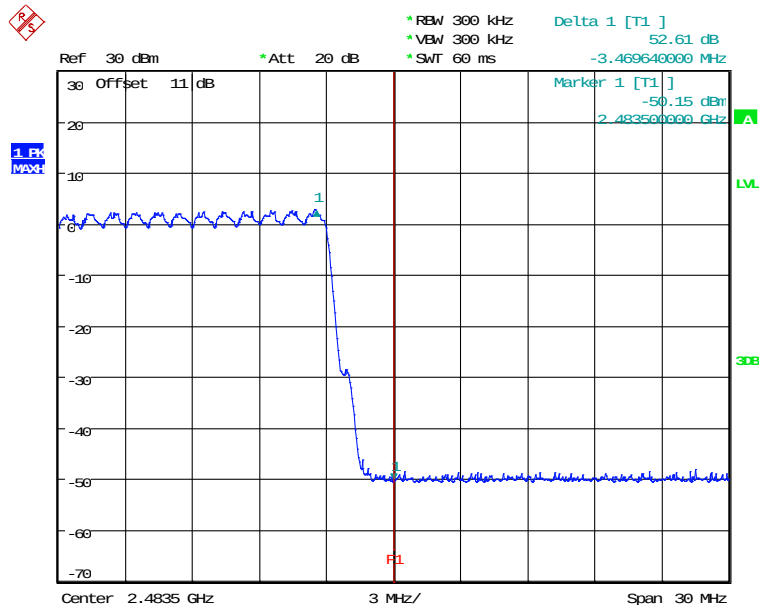
BANDEDGE CH78 EDR MODE
Date: 20.JUN.2024 15:17:13



BANDEDGE CH0 EDR HOPPING MODE
Date: 20.JUN.2024 15:19:41



Registration number: W6M22404-23381-C-1
FCC ID: NTMPA558081



BANDEDGE CH78 EDR HOPPING MODE
Date: 20.JUN.2024 15:21:33

Limits:

Frequency (MHz)	Limit
902 – 928	- 20 dB
2400 – 2483.5	
5725 - 5850	



Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

3.9 Radiated Emissions from Digital Part

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.: W6M22404-23381-P-15B.



Registration number: W6M22404-23381-C-1

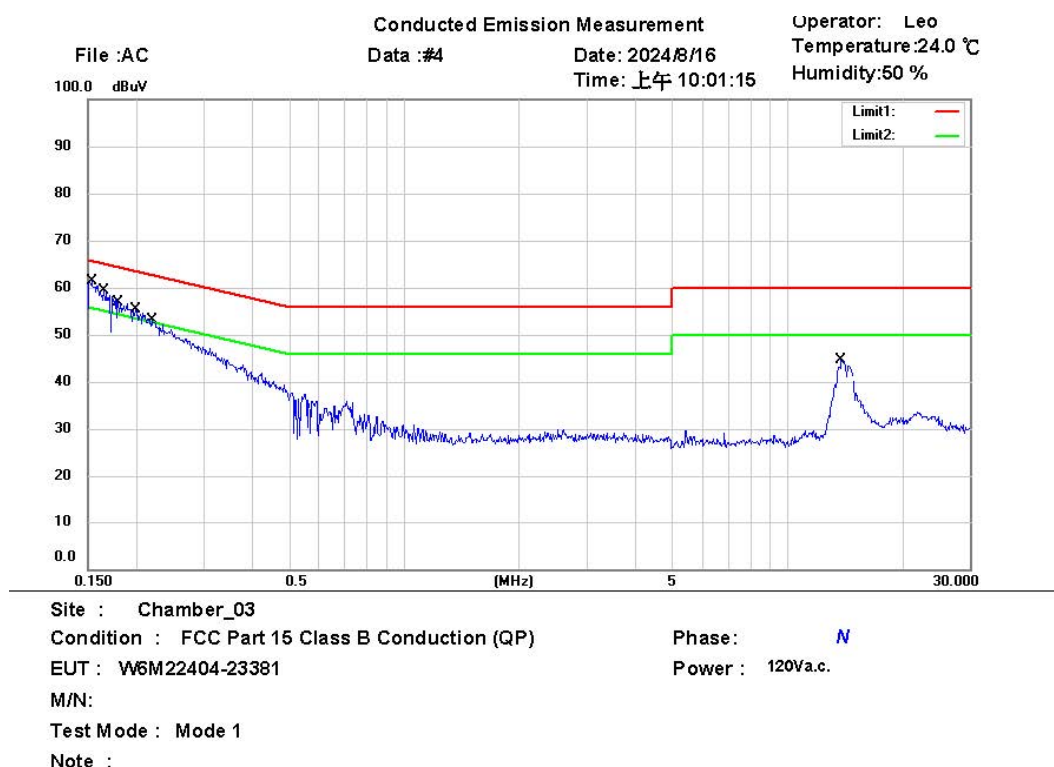
FCC ID: NTMPA558081

3.10 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



Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1537	39.82	QP	9.64	49.46	65.80	-16.34	
	0.1537	26.93	AVG	9.64	36.57	55.80	-19.23	
	0.1645	38.27	QP	9.64	47.91	65.23	-17.32	
	0.1645	18.12	AVG	9.64	27.76	55.23	-27.47	
	0.1792	36.71	QP	9.64	46.35	64.52	-18.17	
	0.1792	20.84	AVG	9.64	30.48	54.52	-24.04	
	0.1995	34.42	QP	9.64	44.06	63.63	-19.57	
	0.1995	17.09	AVG	9.64	26.73	53.63	-26.90	
	0.2218	32.17	QP	9.64	41.81	62.75	-20.94	
	0.2218	13.40	AVG	9.64	23.04	52.75	-29.71	
	13.7250	29.20	QP	9.92	39.12	60.00	-20.88	
	13.7250	20.70	AVG	9.92	30.62	50.00	-19.38	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

Conducted Emission Measurement

Operator: Leo

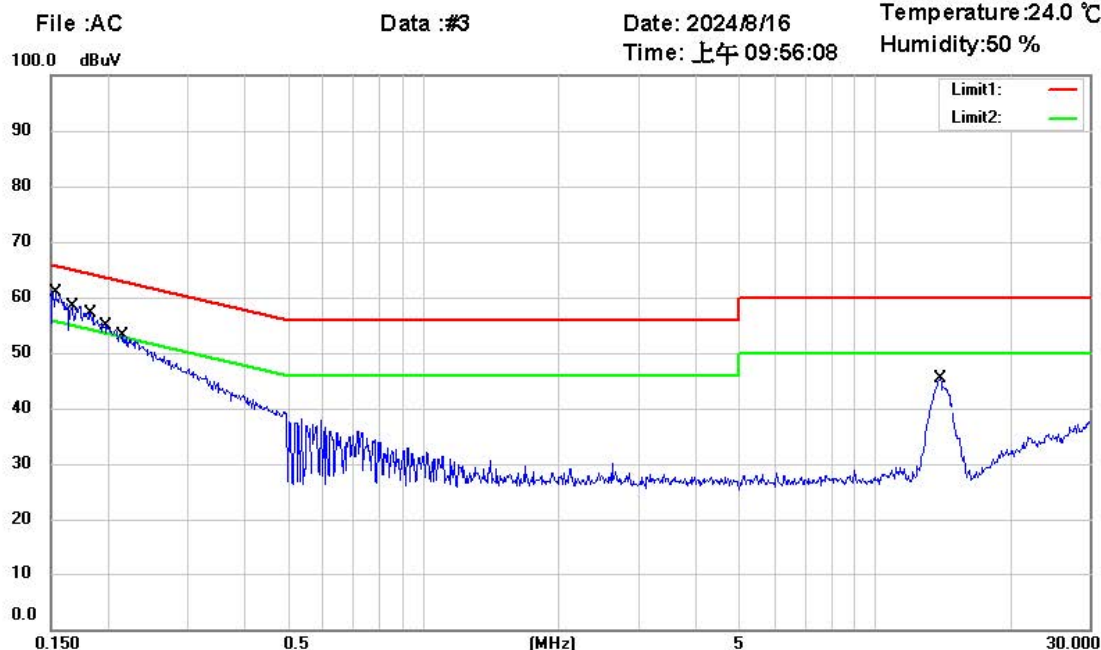
Data :#3

Date: 2024/8/16

Temperature: 24.0 °C

Time: 上午 09:56:08

Humidity: 50 %



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: L1

EUT : W6M22404-23381

Power : 120Va.c.

M/N:

Test Mode : Mode 1

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1532	40.00	QP	9.66	49.66	65.82	-16.16	
	0.1532	28.16	AVG	9.66	37.82	55.82	-18.00	
	0.1661	38.11	QP	9.66	47.77	65.15	-17.38	
	0.1661	17.54	AVG	9.66	27.20	55.15	-27.95	
	0.1833	36.18	QP	9.65	45.83	64.33	-18.50	
	0.1833	22.34	AVG	9.65	31.99	54.33	-22.34	
	0.1992	34.64	QP	9.65	44.29	63.64	-19.35	
	0.1992	15.87	AVG	9.65	25.52	53.64	-28.12	
	0.2156	32.79	QP	9.65	42.44	62.99	-20.55	
	0.2156	8.89	AVG	9.65	18.54	52.99	-34.45	
	13.8875	29.94	QP	9.84	39.78	60.00	-20.22	
	13.8875	20.72	AVG	9.84	30.56	50.00	-19.44	

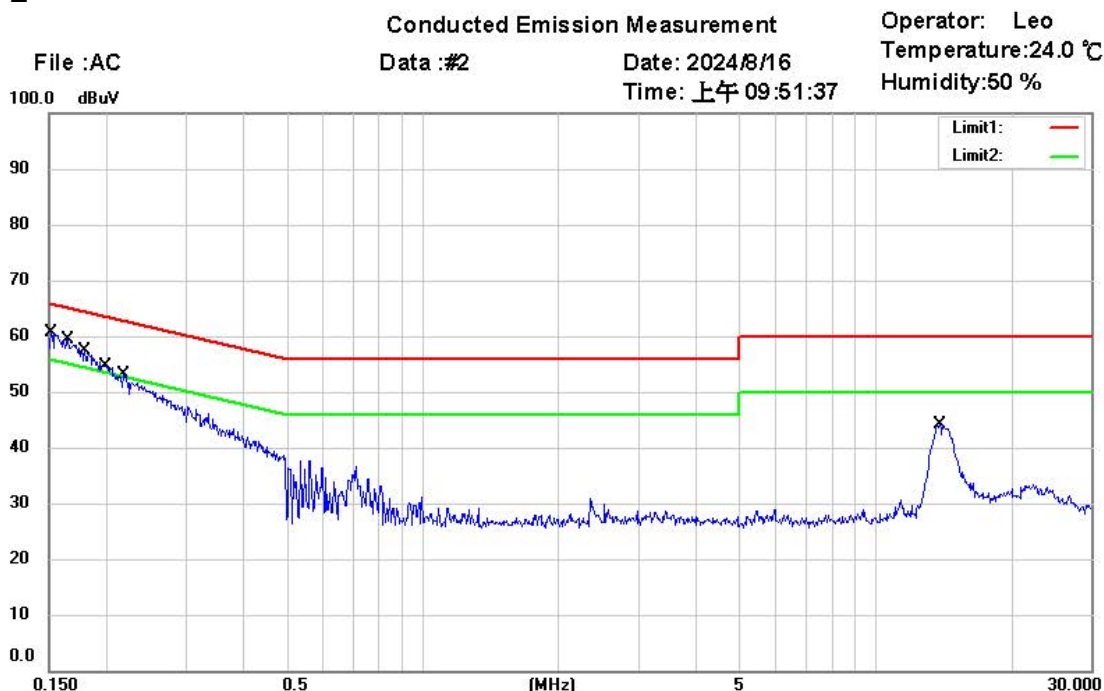


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

Mode 2



Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1514	40.76	QP	9.64	50.40	65.92	-15.52	
	0.1514	29.16	AVG	9.64	38.80	55.92	-17.12	
	0.1642	38.61	QP	9.64	48.25	65.25	-17.00	
	0.1642	18.91	AVG	9.64	28.55	55.25	-26.70	
	0.1792	36.75	QP	9.64	46.39	64.52	-18.13	
	0.1792	22.48	AVG	9.64	32.12	54.52	-22.40	
	0.1992	34.74	QP	9.64	44.38	63.64	-19.26	
	0.1992	16.87	AVG	9.64	26.51	53.64	-27.13	
	0.2183	32.57	QP	9.64	42.21	62.88	-20.67	
	0.2183	10.38	AVG	9.64	20.02	52.88	-32.86	
	13.8750	29.80	QP	9.93	39.73	60.00	-20.27	
	13.8750	21.34	AVG	9.93	31.27	50.00	-18.73	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

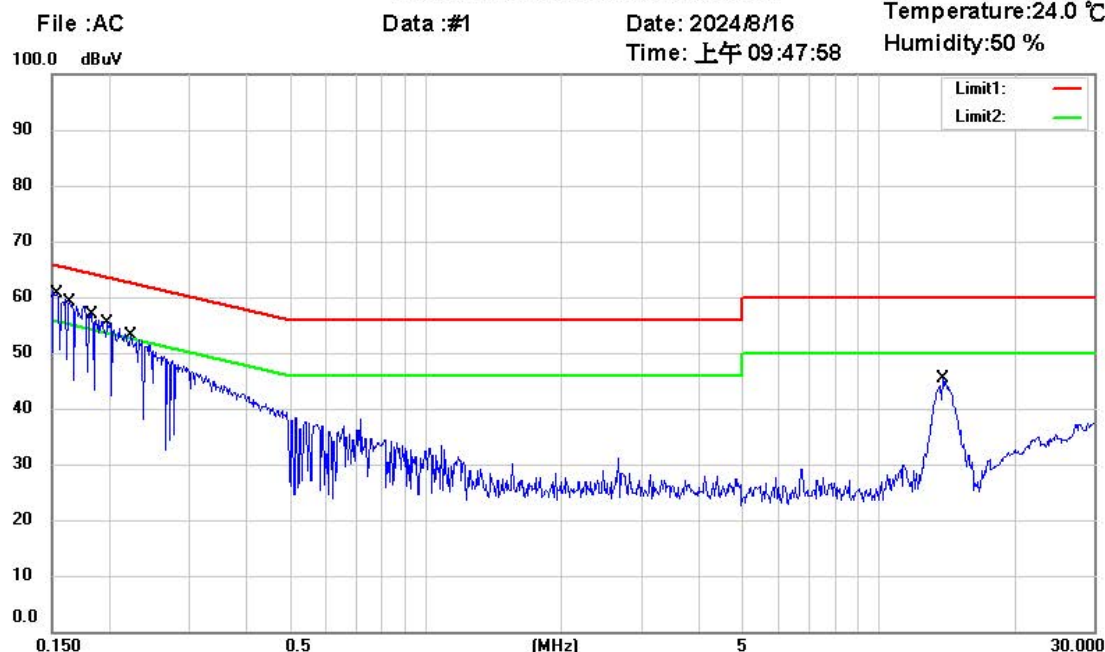
FCC ID: NTMPA558081

Conducted Emission Measurement

Operator: Leo

Temperature: 24.0 °C

Humidity: 50 %



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: L1

EUT : W6M22404-23381

Power : 120Vac.

M/N:

Test Mode : Mode 2

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1533	40.60	QP	9.66	50.26	65.82	-15.56	
	0.1533	28.83	AVG	9.66	38.49	55.82	-17.33	
	0.1651	38.45	QP	9.66	48.11	65.20	-17.09	
	0.1651	18.21	AVG	9.66	27.87	55.20	-27.33	
	0.1826	36.40	QP	9.65	46.05	64.37	-18.32	
	0.1826	23.16	AVG	9.65	32.81	54.37	-21.56	
	0.1983	34.72	QP	9.65	44.37	63.68	-19.31	
	0.1983	15.24	AVG	9.65	24.89	53.68	-28.79	
	0.2226	32.39	QP	9.65	42.04	62.72	-20.68	
	0.2226	11.55	AVG	9.65	21.20	52.72	-31.52	
	13.8750	30.13	QP	9.84	39.97	60.00	-20.03	
	13.8750	20.83	AVG	9.84	30.67	50.00	-19.33	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

Mode 3

Conducted Emission Measurement

Operator: Leo

Temperature: 24.0 °C

Humidity: 50 %



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: N

EUT : W6M22404-23381

Power : 120Vac.

M/N:

Test Mode : Mode 3

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1533	39.92	QP	9.64	49.56	65.82	-16.26	
	0.1533	27.98	AVG	9.64	37.62	55.82	-18.20	
	0.1650	38.17	QP	9.64	47.81	65.21	-17.40	
	0.1650	18.02	AVG	9.64	27.66	55.21	-27.55	
	0.1792	36.71	QP	9.64	46.35	64.52	-18.17	
	0.1792	21.64	AVG	9.64	31.28	54.52	-23.24	
	0.1906	35.18	QP	9.64	44.82	64.01	-19.19	
	0.1906	14.58	AVG	9.64	24.22	54.01	-29.79	
	0.2132	32.87	QP	9.64	42.51	63.08	-20.57	
	0.2132	9.36	AVG	9.64	19.00	53.08	-34.08	
	13.8375	29.72	QP	9.93	39.65	60.00	-20.35	
	13.8375	21.45	AVG	9.93	31.38	50.00	-18.62	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

Conducted Emission Measurement

Operator: Leo

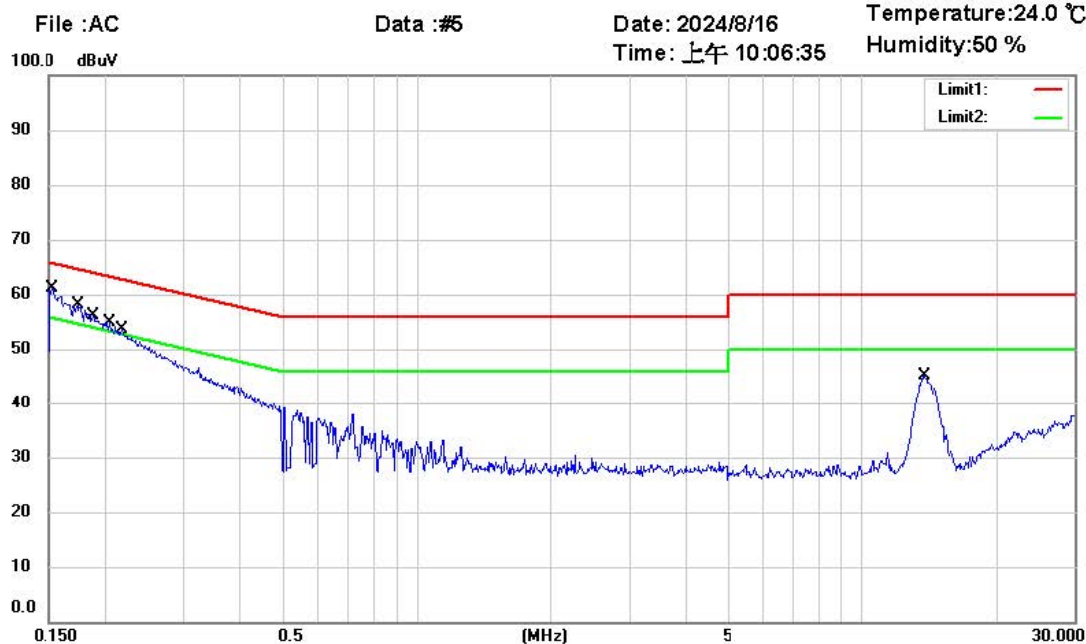
Data :#5

Date: 2024/8/16

Temperature:24.0 °C

Time: 上午 10:06:35

Humidity:50 %



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: L1

EUT : W6M22404-23381

Power : 120Vac.

M/N:

Test Mode : Mode 3

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1535	39.68	QP	9.66	49.34	65.81	-16.47	
	0.1535	27.49	AVG	9.66	37.15	55.81	-18.66	
	0.1736	37.61	QP	9.66	47.27	64.79	-17.52	
	0.1736	21.15	AVG	9.66	30.81	54.79	-23.98	
	0.1883	35.72	QP	9.65	45.37	64.11	-18.74	
	0.1883	18.40	AVG	9.65	28.05	54.11	-26.06	
	0.2048	34.00	QP	9.65	43.65	63.41	-19.76	
	0.2048	13.24	AVG	9.65	22.89	53.41	-30.52	
	0.2177	32.67	QP	9.65	42.32	62.91	-20.59	
	0.2177	9.55	AVG	9.65	19.20	52.91	-33.71	
	13.8250	30.31	QP	9.84	40.15	60.00	-19.85	
	13.8250	21.00	AVG	9.84	30.84	50.00	-19.16	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

Mode 4

Conducted Emission Measurement

Operator: Leo

Temperature: 24.0 °C

Humidity: 50 %



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: N

EUT : W6M22404-23381

Power : 120V.a.c.

M/N:

Test Mode : Mode 4

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1521	40.10	QP	9.64	49.74	65.88	-16.14	
	0.1521	28.02	AVG	9.64	37.66	55.88	-18.22	
	0.1644	38.39	QP	9.64	48.03	65.24	-17.21	
	0.1644	18.99	AVG	9.64	28.63	55.24	-26.61	
	0.1855	36.32	QP	9.64	45.96	64.24	-18.28	
	0.1855	21.50	AVG	9.64	31.14	54.24	-23.10	
	0.2027	34.24	QP	9.64	43.88	63.50	-19.62	
	0.2027	15.75	AVG	9.64	25.39	53.50	-28.11	
	0.2263	32.01	QP	9.64	41.65	62.58	-20.93	
	0.2263	12.48	AVG	9.64	22.12	52.58	-30.46	
	13.8750	30.02	QP	9.93	39.95	60.00	-20.05	
	13.8750	21.59	AVG	9.93	31.52	50.00	-18.48	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

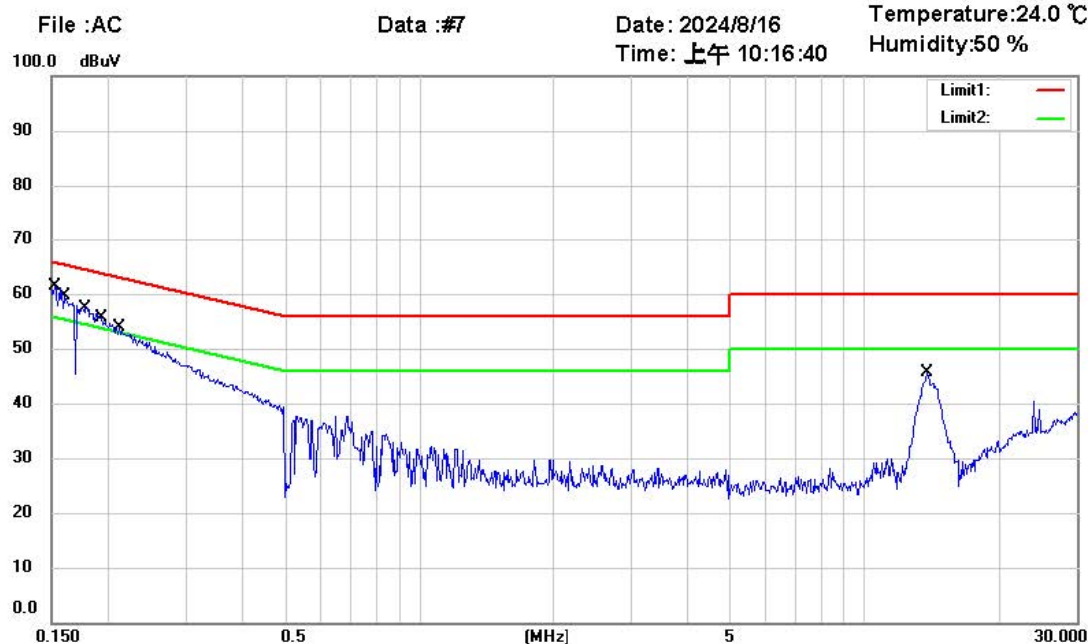
FCC ID: NTMPA558081

Conducted Emission Measurement

Operator: Leo

Temperature: 24.0 °C

Humidity: 50 %



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: L1

EUT : W6M22404-23381

Power : 120V.a.c.

M/N:

Test Mode : Mode 4

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1522	39.90	QP	9.66	49.56	65.88	-16.32	
	0.1522	27.84	AVG	9.66	37.50	55.88	-18.38	
	0.1612	38.87	QP	9.66	48.53	65.40	-16.87	
	0.1612	20.68	AVG	9.66	30.34	55.40	-25.06	
	0.1787	36.69	QP	9.65	46.34	64.55	-18.21	
	0.1787	21.10	AVG	9.65	30.75	54.55	-23.80	
	0.1930	35.14	QP	9.65	44.79	63.91	-19.12	
	0.1930	12.34	AVG	9.65	21.99	53.91	-31.92	
	0.2121	33.17	QP	9.65	42.82	63.12	-20.30	
	0.2121	9.61	AVG	9.65	19.26	53.12	-33.86	
	13.8250	30.33	QP	9.84	40.17	60.00	-19.83	
	13.8250	21.35	AVG	9.84	31.19	50.00	-18.81	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

Mode 5

Conducted Emission Measurement

Operator: Leo

Data :#10

Date: 2024/8/16

Temperature:24.0 °C

Time: 上午 10:27:37

Humidity:50 %



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: N

EUT : W6M22404-23381

Power : 120Vac.

M/N:

Test Mode : Mode 5

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1530	39.98	QP	9.64	49.62	65.84	-16.22	
	0.1530	27.84	AVG	9.64	37.48	55.84	-18.36	
	0.1714	37.81	QP	9.64	47.45	64.89	-17.44	
	0.1714	20.79	AVG	9.64	30.43	54.89	-24.46	
	0.1845	36.12	QP	9.64	45.76	64.28	-18.52	
	0.1845	21.25	AVG	9.64	30.89	54.28	-23.39	
	0.2065	33.63	QP	9.64	43.27	63.34	-20.07	
	0.2065	12.48	AVG	9.64	22.12	53.34	-31.22	
	0.2270	31.75	QP	9.64	41.39	62.56	-21.17	
	0.2270	12.34	AVG	9.64	21.98	52.56	-30.58	
	13.8750	30.00	QP	9.93	39.93	60.00	-20.07	
	13.8750	21.59	AVG	9.93	31.52	50.00	-18.48	

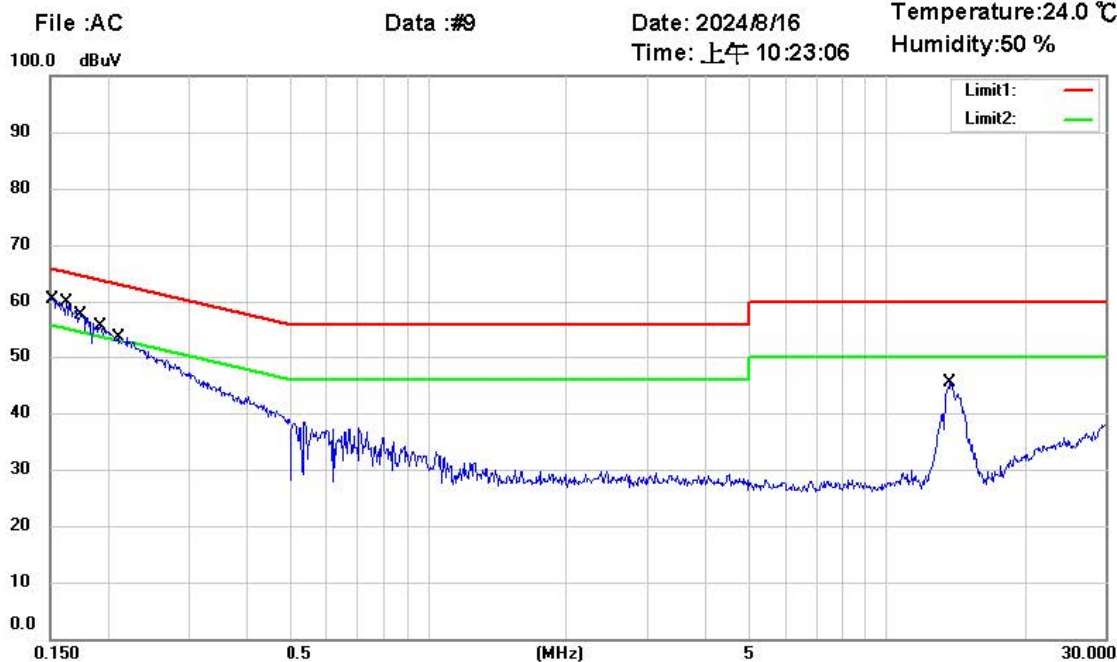


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1
FCC ID: NTMPA558081

Conducted Emission Measurement

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



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: L1

EUT : W6M22404-23381

Power : 120V.a.c.

M/N:

Test Mode : Mode 5

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1522	39.92	QP	9.66	49.58	65.88	-16.30	
	0.1522	28.07	AVG	9.66	37.73	55.88	-18.15	
	0.1623	38.51	QP	9.66	48.17	65.35	-17.18	
	0.1623	19.24	AVG	9.66	28.90	55.35	-26.45	
	0.1736	37.47	QP	9.66	47.13	64.79	-17.66	
	0.1736	21.15	AVG	9.66	30.81	54.79	-23.98	
	0.1918	35.26	QP	9.65	44.91	63.96	-19.05	
	0.1918	13.08	AVG	9.65	22.73	53.96	-31.23	
	0.2104	33.27	QP	9.65	42.92	63.19	-20.27	
	0.2104	9.30	AVG	9.65	18.95	53.19	-34.24	
	13.7625	30.22	QP	9.84	40.06	60.00	-19.94	
	13.7625	21.11	AVG	9.84	30.95	50.00	-19.05	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1

FCC ID: NTMPA558081

Mode 7

Conducted Emission Measurement

Operator: Leo

Data :#24

Date: 2024/8/24

Temperature: 24.0 °C

Time: 下午 12:43:45

Humidity: 50 %



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: N

EUT : W6M22404-23381

Power : 230Vac.

M/N:

Test Mode : Mode 7

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1626	35.96	QP	9.64	45.60	65.33	-19.73	
	0.1626	19.72	AVG	9.64	29.36	55.33	-25.97	
	0.1805	33.90	QP	9.64	43.54	64.46	-20.92	
	0.1805	20.16	AVG	9.64	29.80	54.46	-24.66	
	0.2023	31.67	QP	9.64	41.31	63.52	-22.21	
	0.2023	14.71	AVG	9.64	24.35	53.52	-29.17	
	0.2303	29.12	QP	9.64	38.76	62.44	-23.68	
	0.2303	12.25	AVG	9.64	21.89	52.44	-30.55	
	0.2748	26.16	QP	9.65	35.81	60.97	-25.16	
	0.2748	12.83	AVG	9.65	22.48	50.97	-28.49	
	17.0000	22.64	QP	9.99	32.63	60.00	-27.37	
	17.0000	17.32	AVG	9.99	27.31	50.00	-22.69	

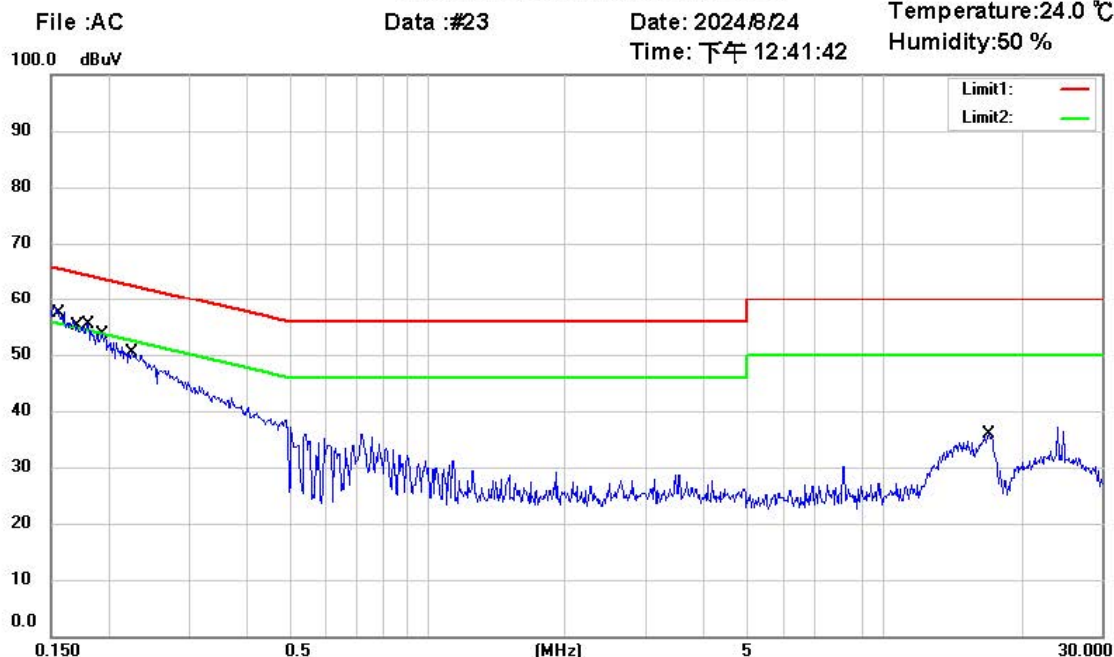


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22404-23381-C-1
FCC ID: NTMPA558081

Conducted Emission Measurement

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



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: L1

EUT : W6M22404-23381

Power : 230Vac.

M/N:

Test Mode : Mode 7

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.1554	36.89	QP	9.66	46.55	65.71	-19.16	
	0.1554	25.37	AVG	9.66	35.03	55.71	-20.68	
	0.1705	35.04	QP	9.66	44.70	64.94	-20.24	
	0.1705	16.71	AVG	9.66	26.37	54.94	-28.57	
	0.1798	34.04	QP	9.65	43.69	64.49	-20.80	
	0.1798	19.08	AVG	9.65	28.73	54.49	-25.76	
	0.1960	32.37	QP	9.65	42.02	63.78	-21.76	
	0.1960	12.74	AVG	9.65	22.39	53.78	-31.39	
	0.2254	29.28	QP	9.65	38.93	62.62	-23.69	
	0.2254	11.64	AVG	9.65	21.29	52.62	-31.33	
	17.0125	20.06	QP	9.87	29.93	60.00	-30.07	
	17.0125	13.96	AVG	9.87	23.83	50.00	-26.17	

- 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.



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_BT_TX 2402MHz

Data :#1

Date: 2024/6/26

Temperature:25.1 °C

Time: 下午 01:24:08

Humidity:52.8 %



Site : 966A Chamber

Condition : FCC_part 15 RE-Class C_30-1000MHz

EUT : W6M22404-23381

M/N:

Test Mode : TX 2402MHz

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
	227.8800	46.40	peak	-15.33	31.07	46.00	100	98	-14.93	
*	305.9650	45.43	peak	-12.04	33.39	46.00	100	85	-12.61	

*: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: 1_BT_TX 2402MHz

Data: #2

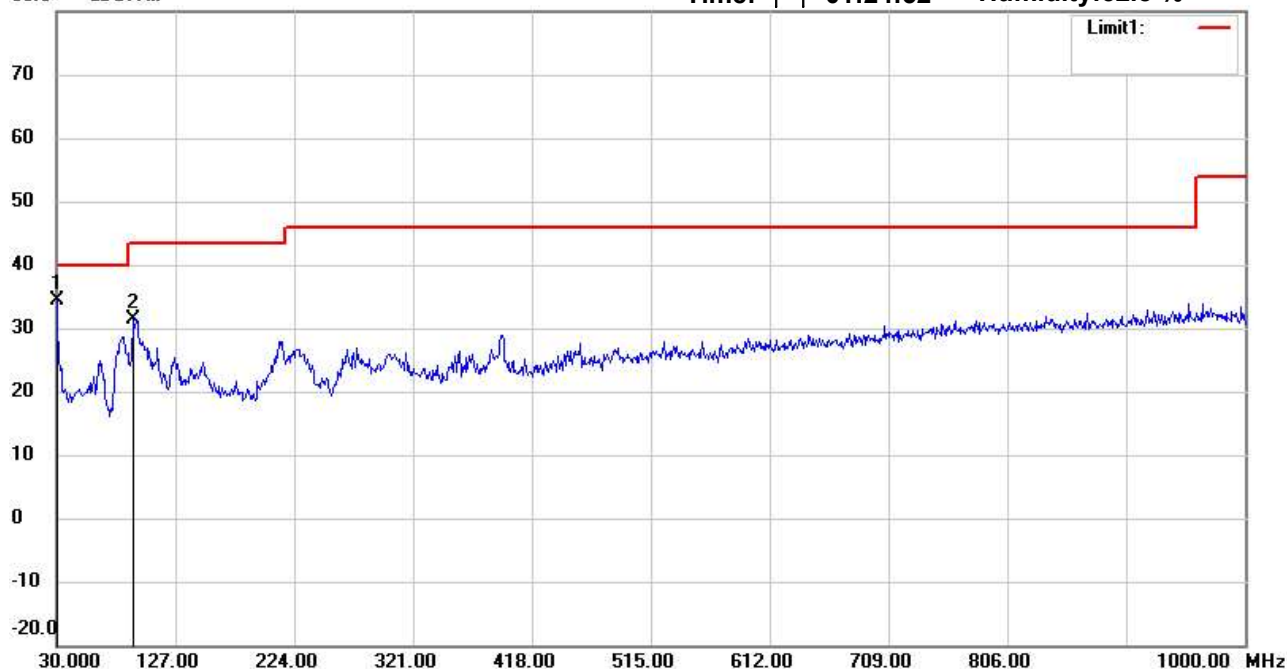
Date: 2024/6/26

Temperature: 25.1 °C

80.0 dBuV/m

Time: 下午 01:24:52

Humidity: 52.8 %



Site: 966A Chamber

Condition: FCC_part 15 RE-Class C_30-1000MHz

EUT: W6M22404-23381

M/N:

Test Mode: TX 2402MHz

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
*	30.0000	49.31	peak	-14.87	34.44	40.00	100	81	-5.56	
	92.5650	49.57	peak	-18.16	31.41	43.50	100	260	-12.09	

*: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

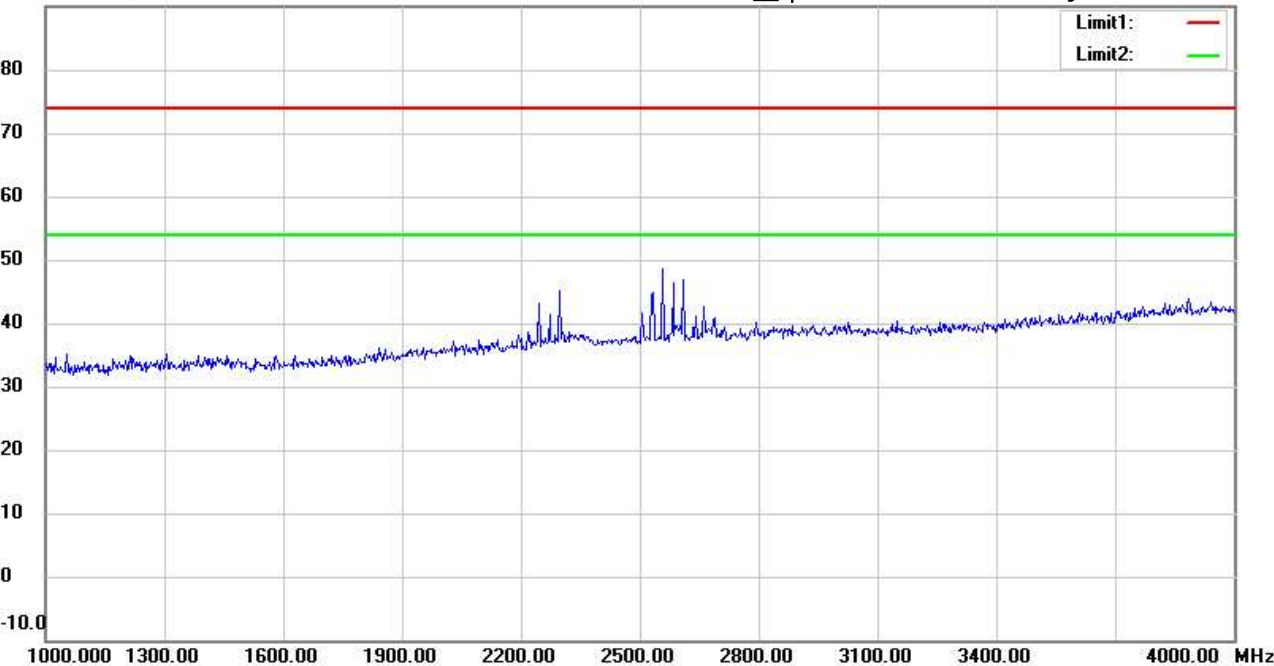
Date: 2024/6/26

Temperature:25.1 °C

90.0 dBuV/m

Time: 上午 10:58:04

Humidity:52.8 %



Site : 966A Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

EUT : W6M22404-23381

M/N:

Test Mode : TX 2402MHz

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

*: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 :#6

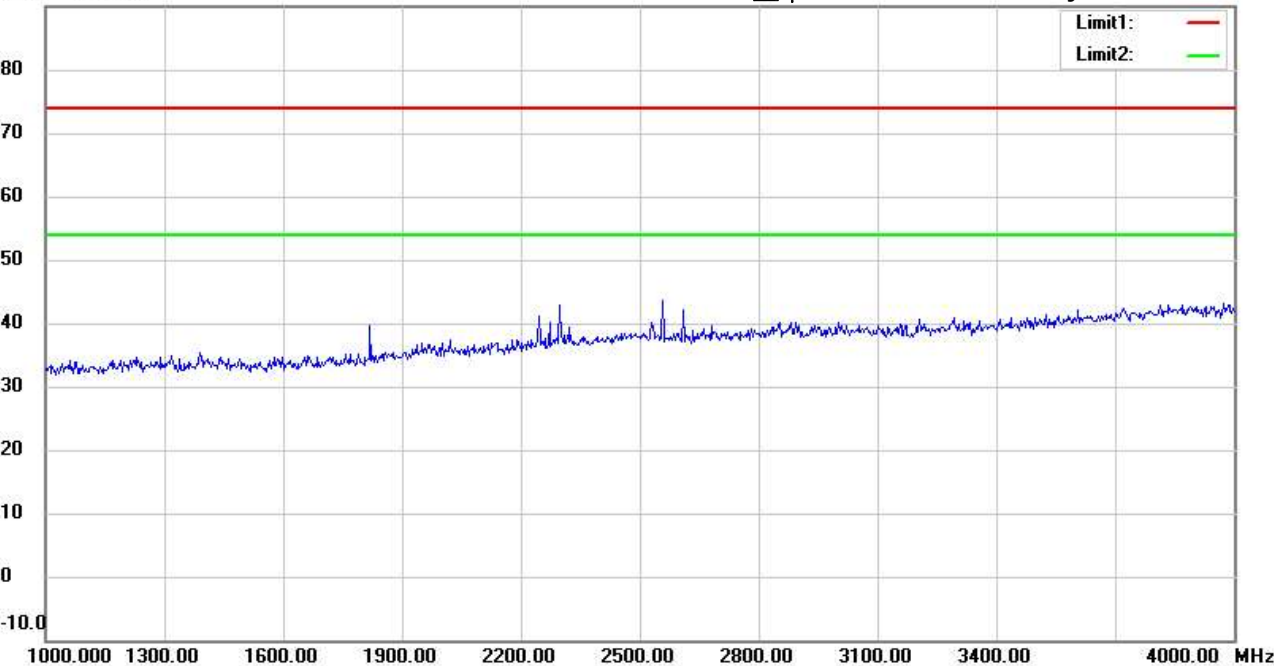
Date: 2024/6/26

Temperature:25.1 °C

90.0 dBuV/m

Time: 上午 11:00:52

Humidity:52.8 %



Site : 966A Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

EUT : W6M22404-23381

M/N:

Test Mode : TX 2402MHz

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

*: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

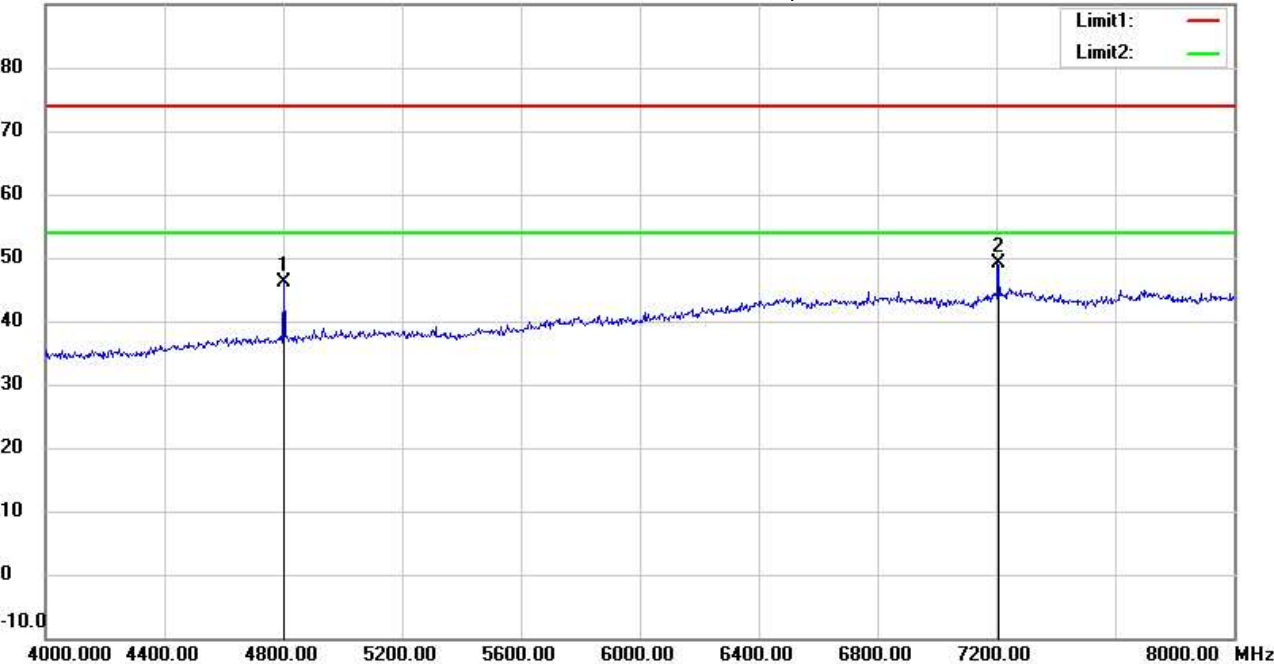
Date: 2024/6/26

Temperature:25.1 °C

90.0 dBuV/m

Time: 上午 10:58:48

Humidity:52.8 %



Site : 966A Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

EUT : W6M22404-23381

M/N:

Test Mode : TX 2402MHz

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
	4802.000	41.73	peak	4.33	46.06	74.00	150	150	-27.94	
*	7206.000	38.13	peak	10.98	49.11	74.00	150	76	-24.89	

*: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 :#7

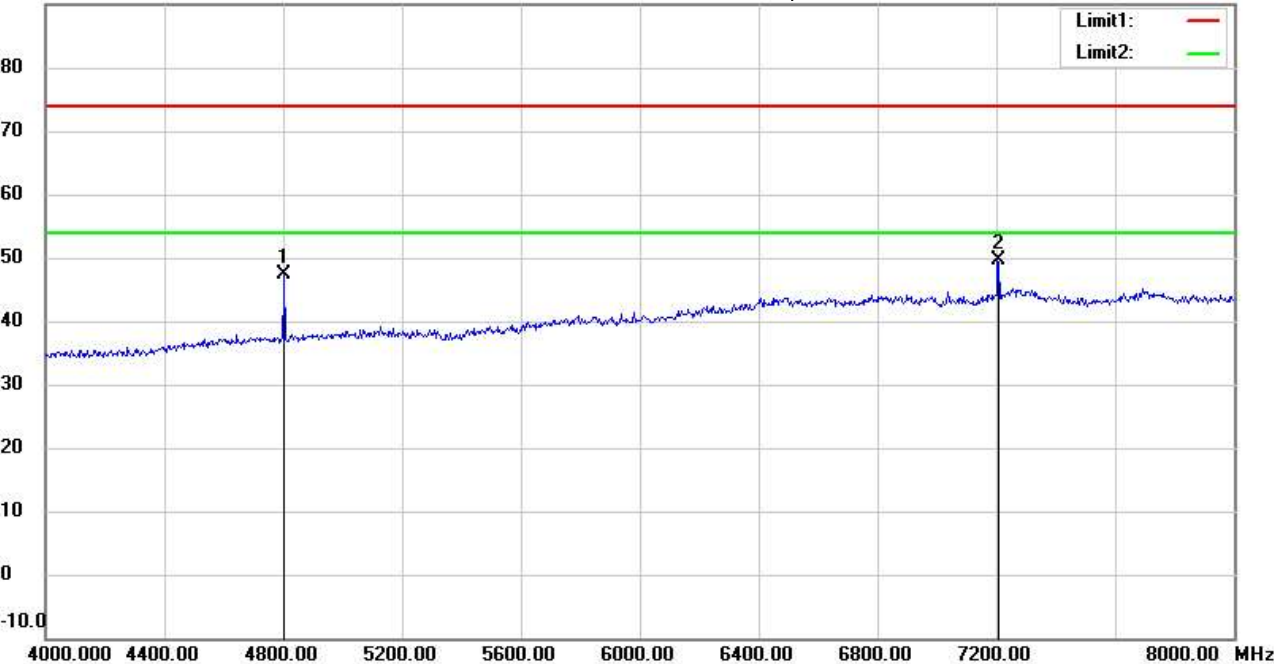
Date: 2024/6/26

Temperature:25.1 °C

90.0 dBuV/m

Time: 上午 11:01:37

Humidity:52.8 %



Site : 966A Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

EUT : W6M22404-23381

M/N:

Test Mode : TX 2402MHz

Note :

Polarization: Vertical

Power : 120 V.a.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
	4804.000	43.14	peak	4.34	47.48	74.00	150	110	-26.52	
*	7206.000	38.68	peak	10.98	49.66	74.00	150	358	-24.34	

*: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 :#3

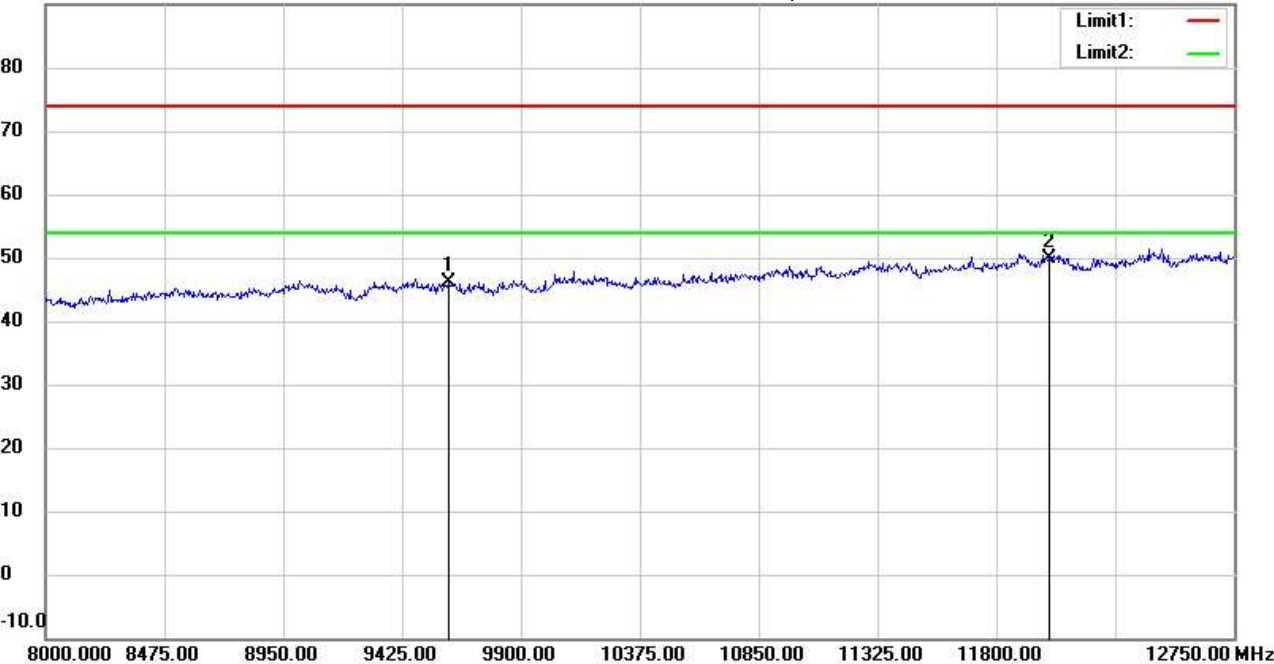
Date: 2024/6/26

Temperature:25.1 °C

90.0 dBuV/m

Time: 上午 10:59:38

Humidity:52.8 %



Site : 966A Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

EUT : W6M22404-23381

M/N:

Test Mode : TX 2402MHz

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
	9608.000	33.34	peak	12.79	46.13	74.00	150	164	-27.87	
*	12010.000	33.14	peak	16.78	49.92	74.00	150	238	-24.08	

*: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 :#8

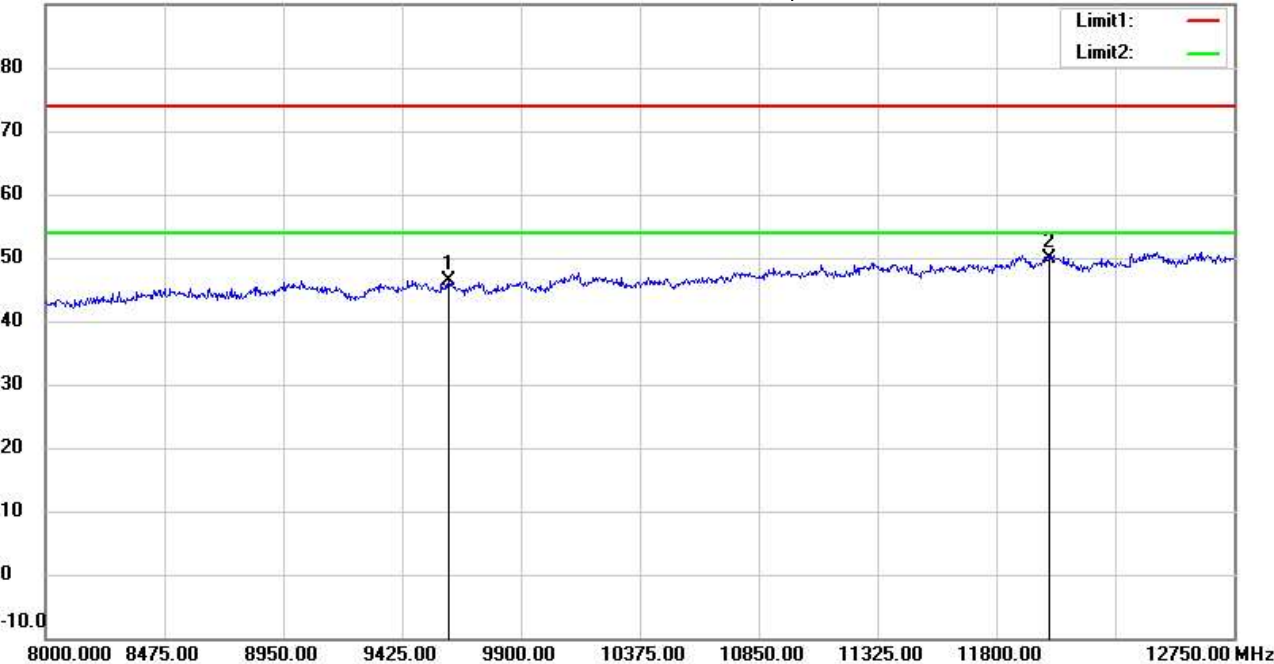
Date: 2024/6/26

Temperature:25.1 °C

90.0 dBuV/m

Time: 上午 11:02:19

Humidity:52.8 %



Site : 966A Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

EUT : W6M22404-23381

M/N:

Test Mode : TX 2402MHz

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
	9608.000	33.53	peak	12.79	46.32	74.00	150	168	-27.68	
*	12010.000	33.07	peak	16.78	49.85	74.00	150	154	-24.15	

*: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 :#4

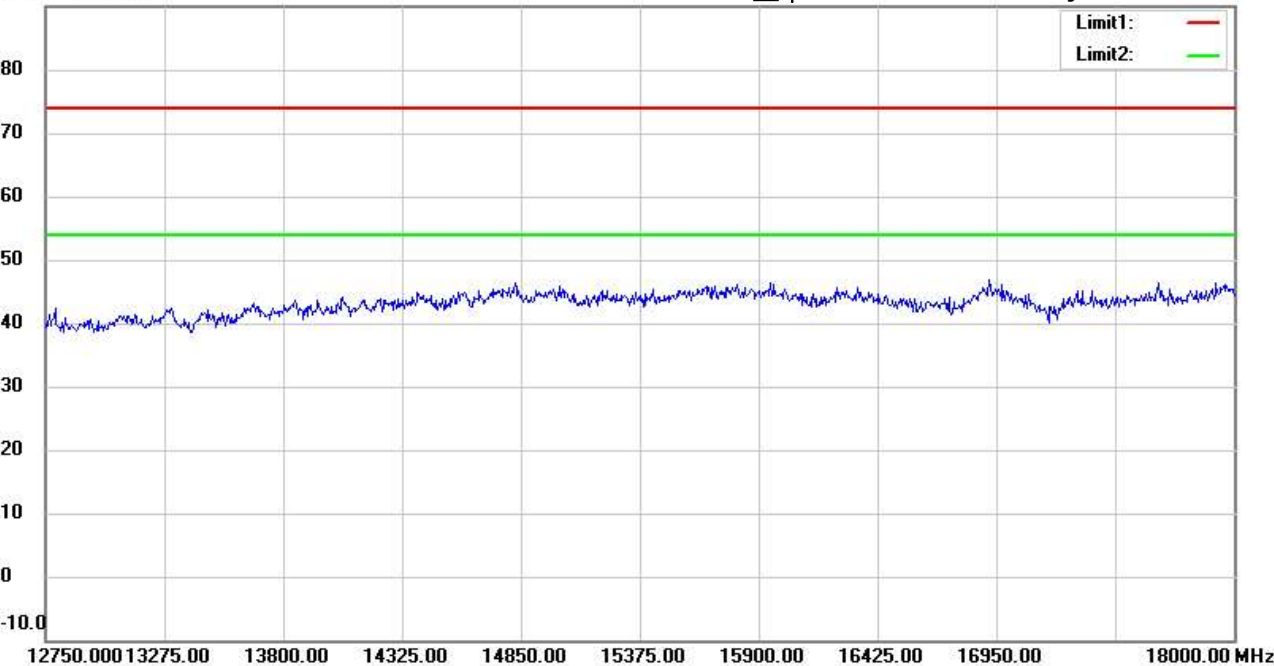
Date: 2024/6/26

Temperature:25.1 °C

90.0 dBuV/m

Time: 上午 10:59:55

Humidity:52.8 %



Site : 966A Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

EUT : W6M22404-23381

M/N:

Test Mode : TX 2402MHz

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

*: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 :#9

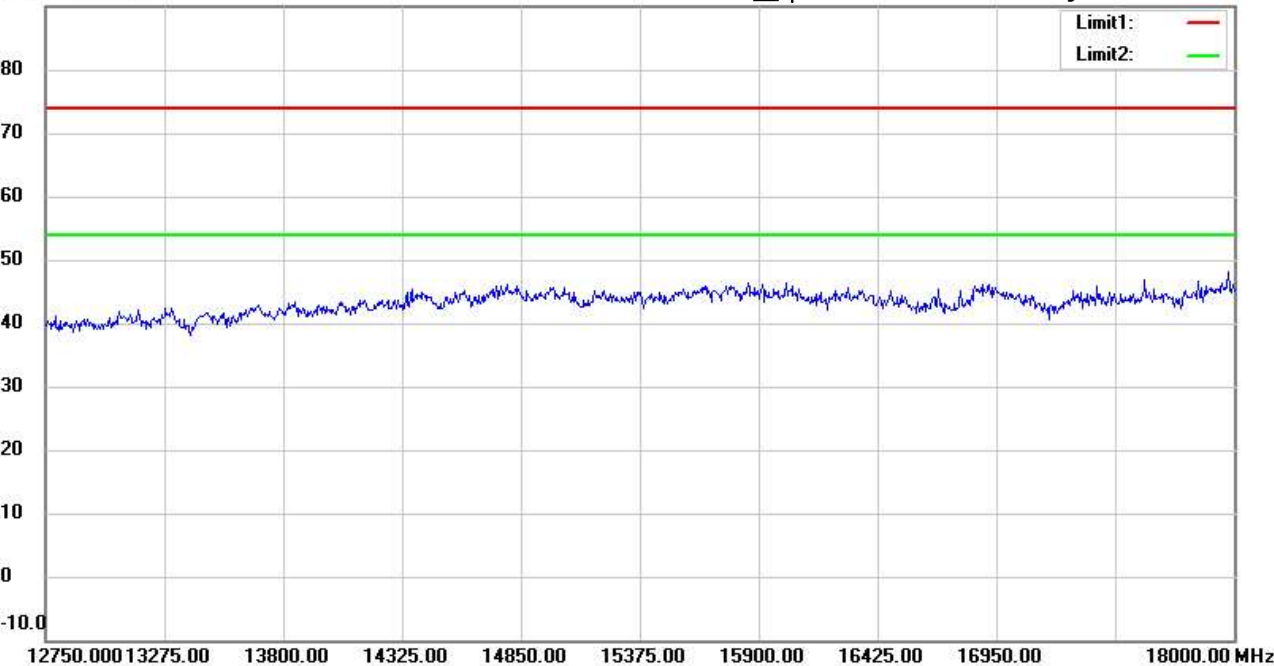
Date: 2024/6/26

Temperature:25.1 °C

90.0 dBuV/m

Time: 上午 11:02:36

Humidity:52.8 %



Site : 966A Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

EUT : W6M22404-23381

M/N:

Test Mode : TX 2402MHz

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

*: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 :#5

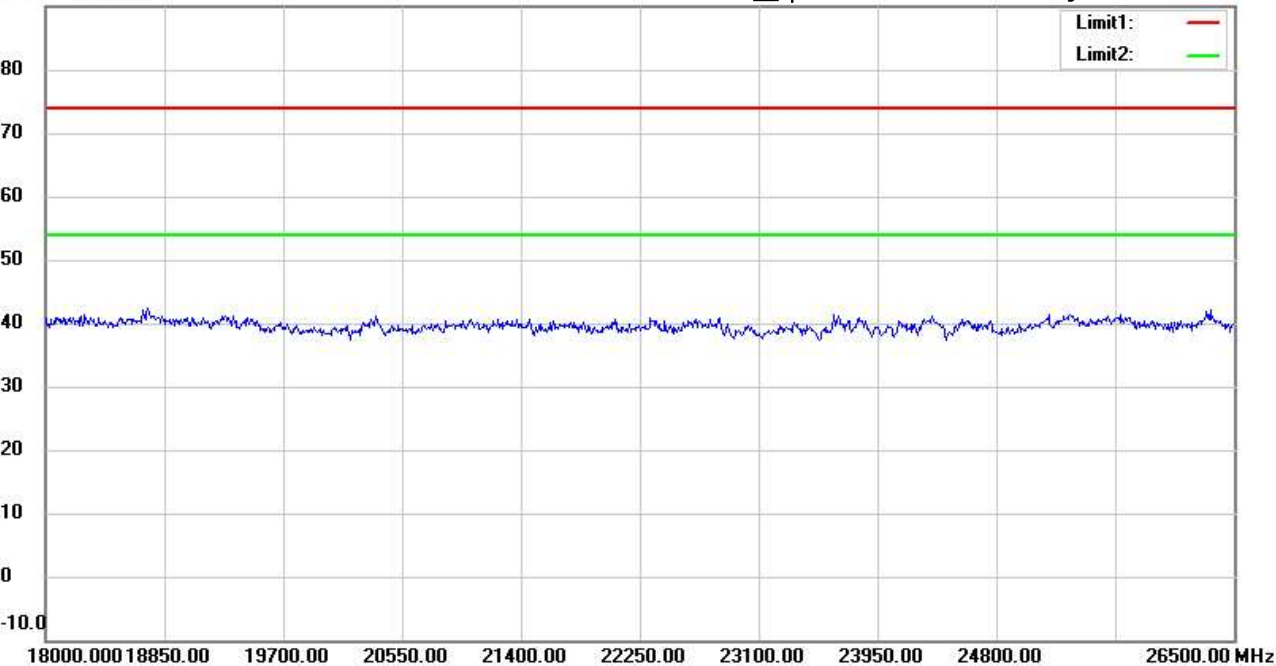
Date: 2024/6/26

Temperature:25.1 °C

90.0 dBuV/m

Time: 上午 11:00:06

Humidity:52.8 %



Site : 966A Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

EUT : W6M22404-23381

M/N:

Test Mode : TX 2402MHz

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

*: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 :#10

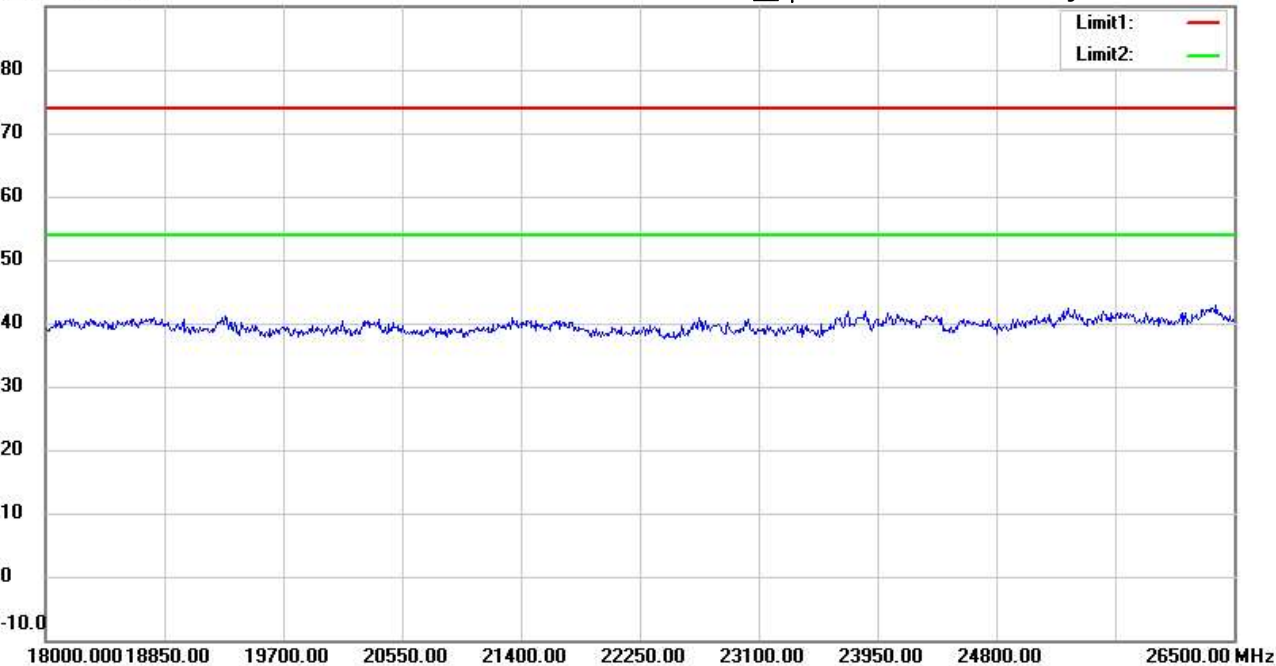
Date: 2024/6/26

Temperature:25.1 °C

90.0 dBuV/m

Time: 上午 11:02:47

Humidity:52.8 %



Site : 966A Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

EUT : W6M22404-23381

M/N:

Test Mode : TX 2402MHz

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

*: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

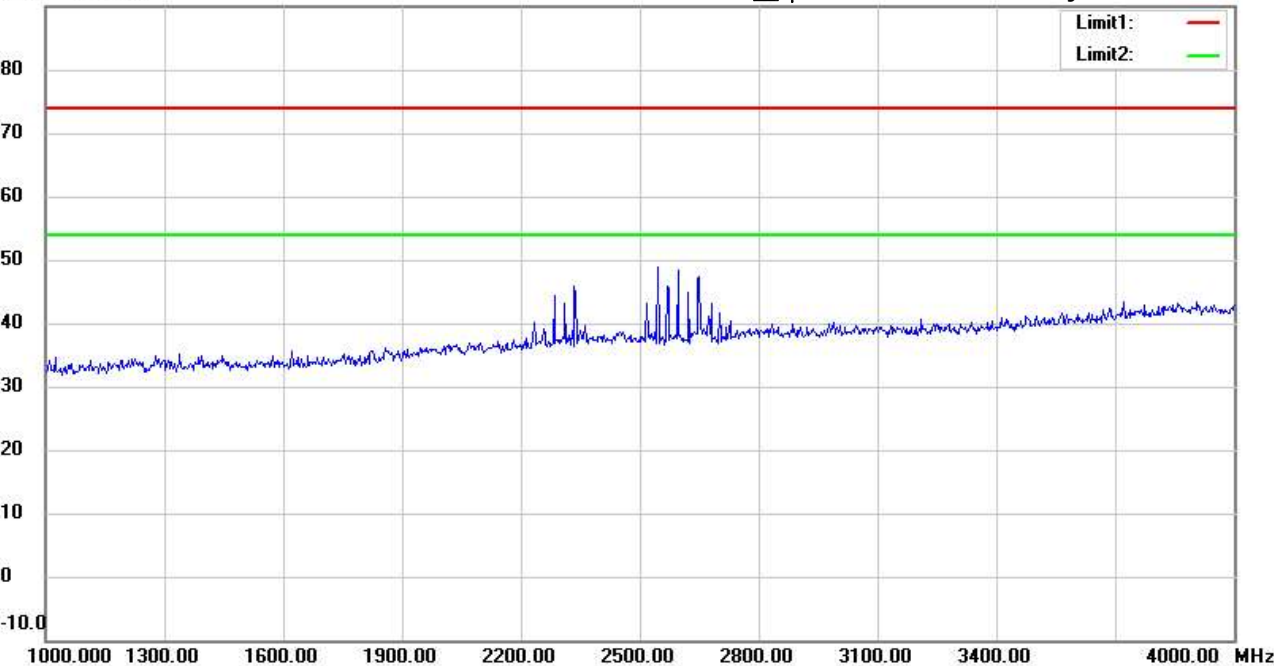
Date: 2024/6/26

Temperature:25.1 °C

90.0 dBuV/m

Time: 上午 11:21:23

Humidity:52.8 %



Site : 966A Chamber

Condition : FCC_part 15 RE-Class C_Above 1GHz_PK

EUT : W6M22404-23381

M/N:

Test Mode : TX 2441MHz

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

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