

Radio Test Report

Report No.: RJBGYQ-WTW-P25110658-1

Test Model: M-034

Received Date: 2025/12/9

Test Date: 2026/6/25 ~ 2026/6/30

Issued Date: 2026/7/15

Applicant: GN Audio Taiwan Ltd.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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Release Control Record

Issue No.	Description	Date Issued
RJBGYQ-WTW-P25110658-1	Original Release	2026/7/15

1 Certificate of Conformity

Product: Wireless Mouse

Brand: steelseries

Test Model: M-034

Sample Status: Engineering sample

Applicant: GN Audio Taiwan Ltd.

Test Date: 2026/6/25 ~ 2026/6/30

Standards: Certification Ordinance Article 2-1-47-4

Measurement Procedure: MIC notice 88 of 2004, Annex 70

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by :

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Date:

2026/7/15

Pettie Chen / Senior Specialist

Approved by :

Jeremy Lin

Date:

2026/7/15

Jeremy Lin / Project Engineer

2 Summary of Test Results

The EUT has been tested according to the following specifications:

Certification Ordinance Article 2-1-47-4		
Clause	Parameter	Test Results (Note)
OR: Article 5. OR: Annex 1. 34 Note: No.306 of 2021	Frequency tolerance (Designated frequency band)	C
OR: Article 15. 1	Voltage test	C
OR: Article 15. 2	Temperature and humidity test	NT
OR: Article 15. 3	Vibration test	NT
OR: Article 6. OR: Annex 2. 49	Occupied bandwidth	C
OR: Article 7. OR: Annex 3. 43	Spurious emissions	C
OR: Article 49-27.	Antenna power (E.I.R.P.)	C
OR: Article 49-27.	Type, configuration, etc. of transmitting antenna	C
OR: Article 49-27.	Antenna Gain	C
OR: Article 49-27.	Spreading Bandwidth	C
OR: Article 49-14. 11	Refer to all articles for transmitting antenna	C
OR: Article 24. 18	Spurious emissions of receiver	C
OR: Article 49-27.	High frequency / modulation section cannot be opened easily	C
OR: Article 49-27.	Operating Frequency	NT
OR: Article 14. Table 8	Tolerance of Antenna Power	C
OR: Article 14-2 Note: No.31 of 2019 Note: No.32 of 2019	Radio waves exposed to the human	C
Note: 1. OR: Ordinance Regulating Radio Equipment. RE: Regulations for Enforcement of the radio law. Note: Notification (MIC) 2. C = Conform NC = Not Conform NT = Not Tested NA = Not Applicable 3. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.		

2.1 Test Instruments

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until	Calibration Authority	Calibration Method
Signal & Spectrum Analyzer R&S	FSW43	101582	2026/5/2	2027/5/1	ETC	(c)
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2026/5/21	2027/5/20	BV CPS E&E	(d)
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A	N/A	N/A
DC Power Supply OWON	ODP3122	ODP31222001094	Refer Notes 2	Refer Notes 2	Refer Notes 2	Refer Notes 2

Notes:

- Calibration method:
 - Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18 paragraph (1).
 - Calibration conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992) Japan Calibration Service System.
 - Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).
 - Calibration conducted by using other equipment that listed above from a) to c).
- The power supply no evaluation calibrated, which used the RMS clamp meter to verify before each testing.
- The test was performed in HY - Oven room (Hwaya).
- Tested Date: 2026/6/25 ~ 2026/6/30

2.2 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in TR 100 028-1.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Parameter	Uncertainty
Occupied Bandwidth	72 Hz
Spurious Emissions	2.208 dB
Output Power Density	2.889 dB
Frequency Tolerance	614.95 Hz

2.3 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Wireless Mouse
Brand	steelseries
Test Model	M-034
Status of EUT	Engineering sample
Nominal Voltage	3.91 Vdc from battery
Modulation Type	OOK
Operating Frequency Range	7.25GHz~9GHz
Operating Frequency	8396.8MHz
Number of Channel	1
Rated RF Output Power	0 dBm/50MHz (PK)
Radiated RF Output Power	-18.74 dBm/50MHz (PK) -51.73 dBm/MHz (AV)

Note:

1. The EUT uses following accessory.

Item	Brand	Model	Specification
Battery	steelseries	682020PN9 or M672020XV	Rating: 3.91Vdc

2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

1 channel is provided in EUT for test:

Channel	Frequency (MHz)
0	8396.8

3.3 Test Conditions

Test Conditions	Voltage (Vdc)
V_{normal}	3.91

Note: After checking the fluctuation of input voltage to the circuit of the radio part (excluding the power supply) of the equipment to be tested, the fluctuation less than $\pm 1\%$ when input voltage from an external supply into the equipment fluctuates $\pm 10\%$, therefore, the test is carried out only at the normal voltage.

3.4 Assembly

Particular screw and separating the housing was only possible by special tools.

3.5 Antenna Specifications

3.5.1 Antenna Gain

The antenna information is listed as below.

Antenna Type	Brand	Model	Antenna Connector	Freq. (MHz)	Gain (dBi)
Vivaldi	SPARK Microsystems	SR1020	none(like solder)	8396.8MHz	2.29

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

3.5.2 Antenna Pattern

Please refer to the attached file (Antenna pattern).

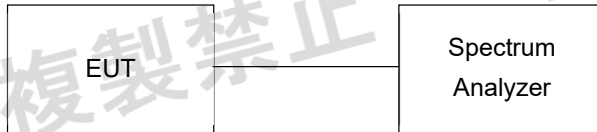
4 Test Results

4.1 Frequency Tolerance Measurement

4.1.1 Limits of Frequency Tolerance Measurement

Tolerance of frequency shall be within designated frequency band 8.125 GHz (7.25 ~ 9 GHz).

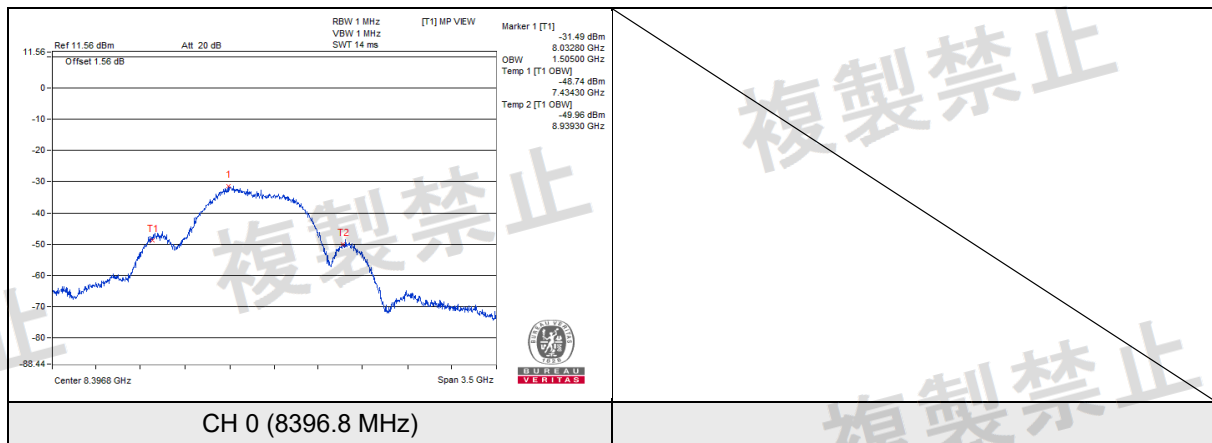
4.1.2 Test Setup



4.1.3 Test Results

Environmental Conditions	23 deg.C, 68% RH	Tested By	Luis Lee
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Channel	Frequency (MHz)	FL (MHz)	FH (MHz)
0	8396.8	7434.3	8939.3

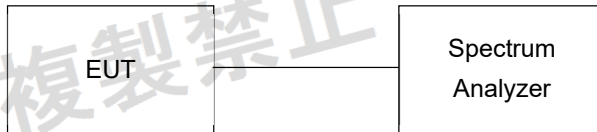


4.2 Occupied Bandwidth Measurement (99% power bandwidth)

4.2.1 Limits of Occupied Bandwidth Measurement

Item	Limit
Occupied bandwidth	< 1.75 GHz

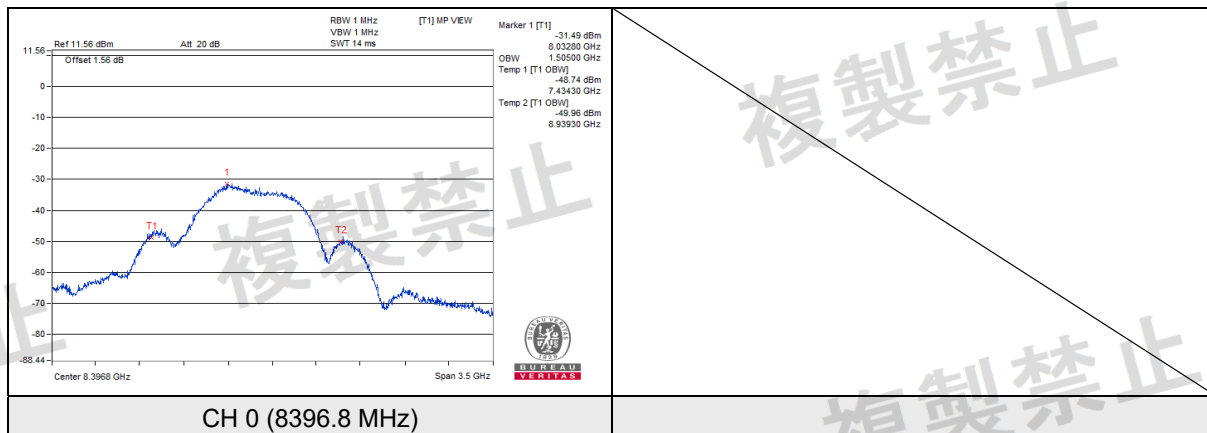
4.2.2 Test Setup



4.2.3 Test Results

Environmental Conditions	23 deg.C, 68% RH	Tested By	Luis Lee
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Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
0	8396.8	1505.00



4.3 Spreading Bandwidth Measurement (10 dB power bandwidth)

4.3.1 Limits of Spreading Bandwidth Measurement

Item	Limit
Spreading bandwidth	450 MHz or more

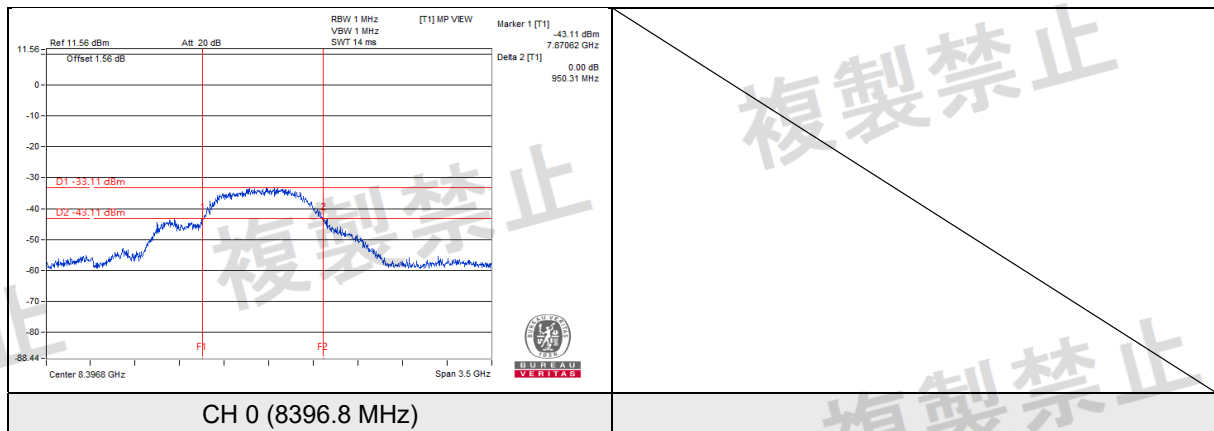
4.3.2 Test Setup



4.3.3 Test Results

Environmental Conditions	23 deg.C, 68% RH	Tested By	Luis Lee
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Channel	Frequency (MHz)	Spreading Bandwidth (10 dBc) (MHz)
0	8396.8	950.31



4.4 Spurious Emissions for Transmitter Measurement

4.4.1 Limits of Spurious Emissions

Frequencies	Limit (dBm/MHz) *E.I.R.P.	
	Average	Peak
30 MHz to 1600 MHz	-90	-84
1600 MHz to 2700 MHz	-85	-79
2700 MHz to 7.5 GHz	-70	-64
9 GHz to 10.25 GHz	-60	-35.7
10.25 GHz to 10.6 GHz	-70	-64
10.6 GHz to 10.7 GHz	-85	-79
10.7 GHz to 11.7 GHz	-70	-64
11.7 GHz to 12.75 GHz	-85	-79
12.75 GHz to 26 GHz	-70	-64

4.4.2 Test Setup



4.4.3 Test Results

Environmental Conditions	23 deg.C, 68% RH	Tested By	Luis Lee
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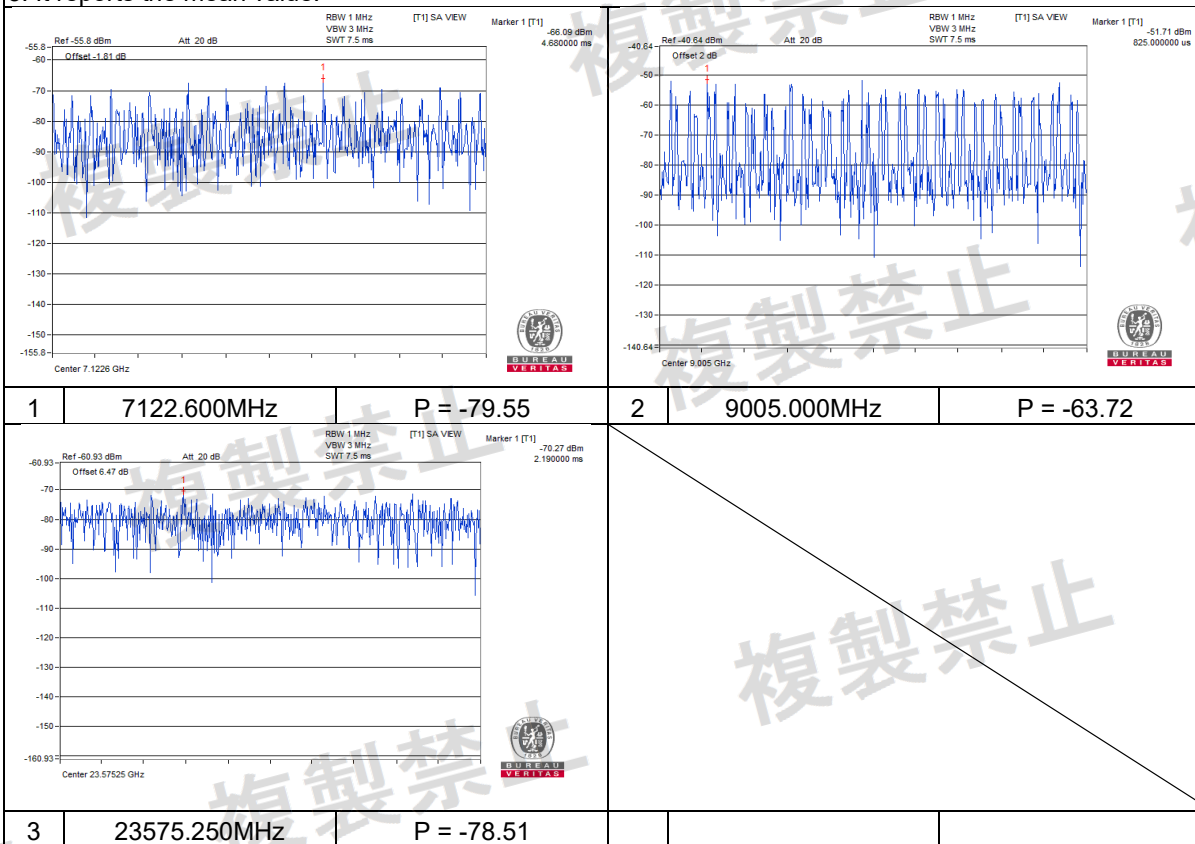
TEST CHANNEL	CH 0 (8396.8 MHz)			
FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE (dBm/MHz)	LIMIT (dBm/MHz)	RESULT
30 to 1000	204.600	-96.37	-84	PASS
1000 to 1600	1556.500	-111.89	-84	PASS
1600 to 2700	2557.550	-95.88	-79	PASS
2700 to 7250	7122.600	-79.55	-70	PASS(1)
9000 to 10250	9005.000	-63.72	-60	PASS(2)
10250 to 10600	10490.100	-90.5	-64	PASS
10600 to 10700	10672.150	-92.29	-79	PASS
10700 to 11700	10877.000	-89.38	-64	PASS
11700 to 12750	12221.850	-91.47	-79	PASS
12750 to 26000	23575.250	-78.51	-70	PASS(3)

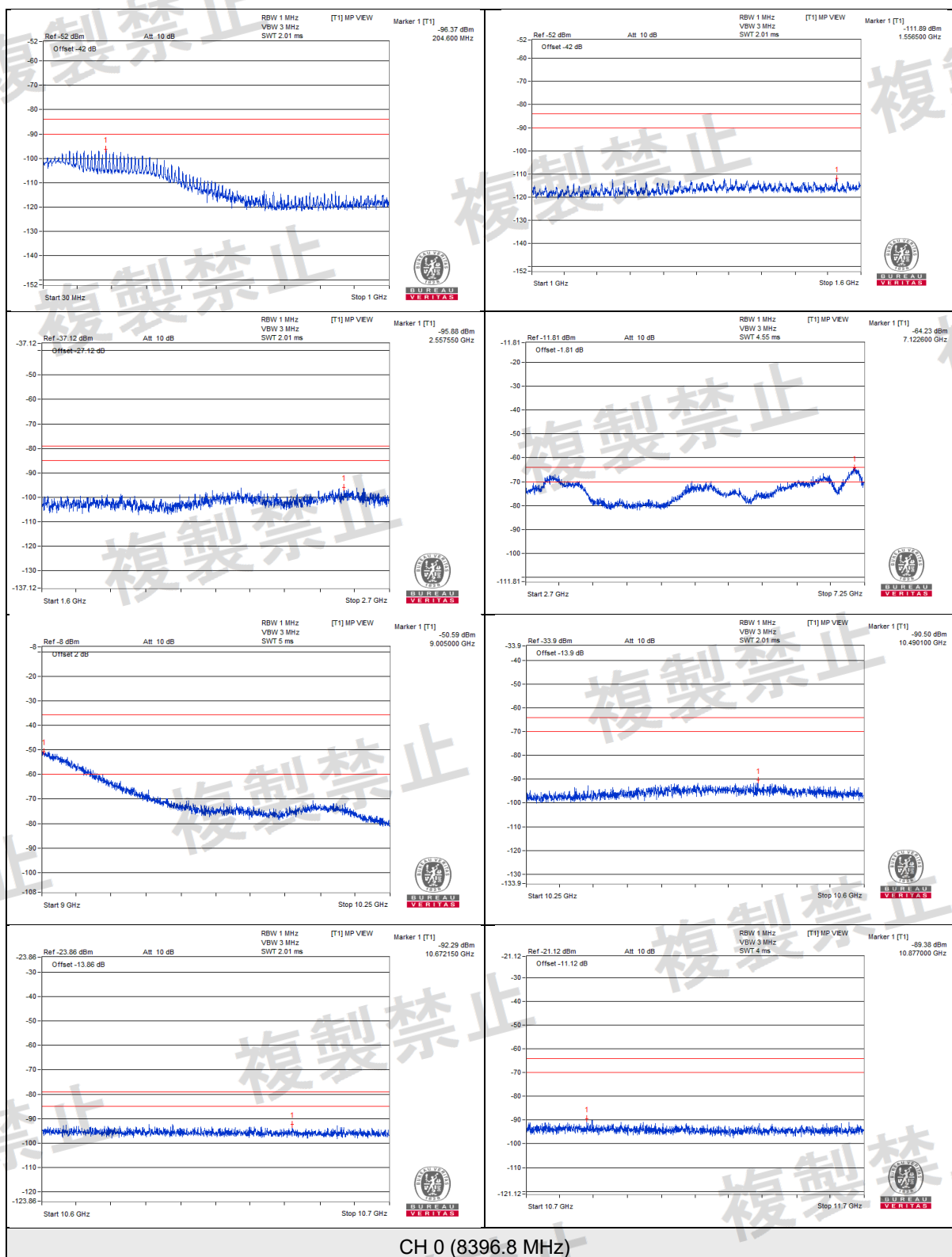
NOTE: 1. The spectrum plots are attached on the following pages.

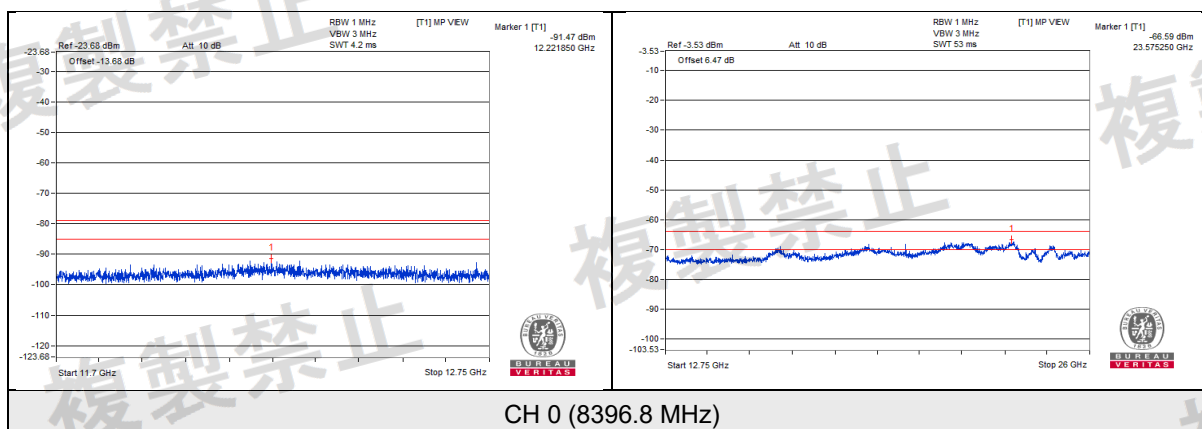
2. (No.): The value was tested under Measuring Mode *Zero Span.

Measuring Mode *Zero Span

1. Set the spectrum analyzer as below and it takes in a value of all data point.
2. Regarding the all data value, it transforms the "dBm" value into "uW" value.
3. It adds the all values and calculates a grand total. Define a grand total as "P".
4. It divides "P" by sample data point (>400) and calculates the mean value.
5. It reports the mean value.







4.5 Antenna Power Measurement

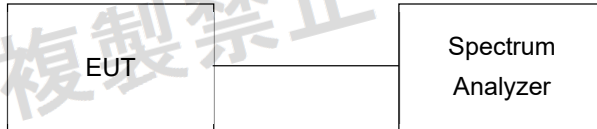
4.5.1 Limits of Antenna Power

Antenna Power limit:

Peak: 0 dBm/50 MHz or less and Average -41.3 dBm/MHz or less.

Tolerance of antenna power shall be +20% (upper value) and no minimum.

4.5.2 Test Setup

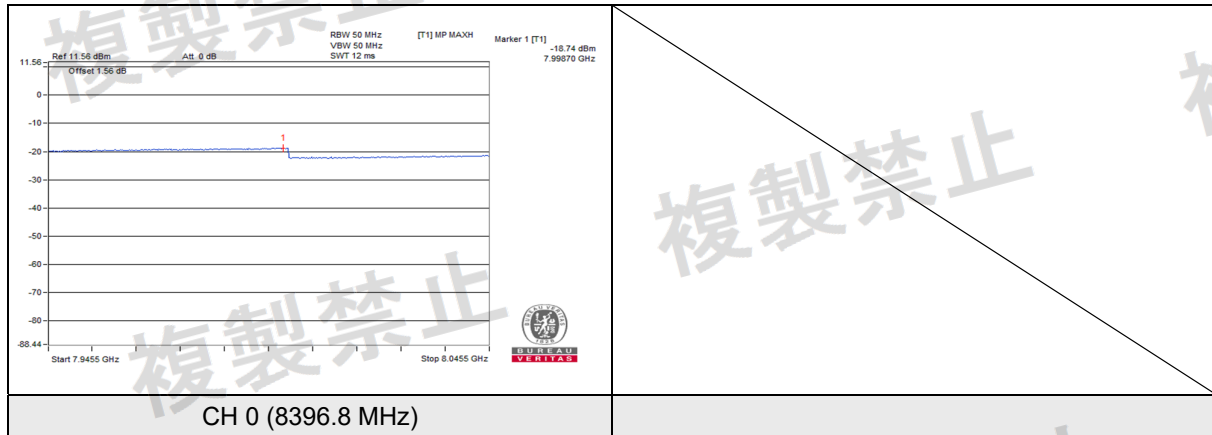


4.5.3 Test Results

Environmental Conditions	23 deg.C, 68% RH	Tested By	Luis Lee
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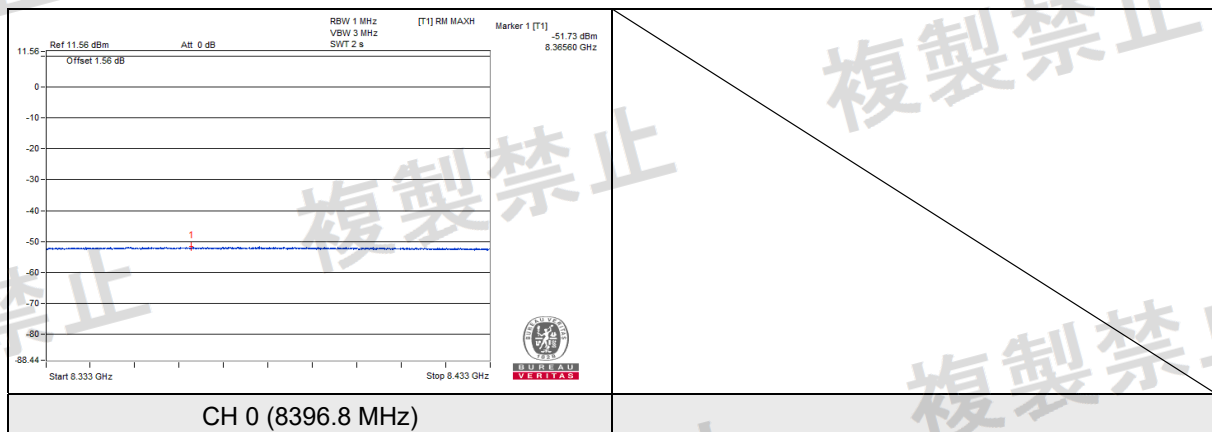
Peak

Channel Number	Frequency (MHz)	Radiated RF Output Power (dBm/50MHz)
0	8396.8	-18.74



Average

TEST CHANNEL	CH 0 (8396.8 MHz)					
FREQUENCY (MHz)	Radiated RF Output Power (dBm/MHz)	Rated Power (dBm/MHz)	Tolerance of Antenna Power (dBm/MHz)	Tolerance of Antenna Power (%)	Tolerance of Antenna Power limit (%)	result
8365.60	-51.73	-41.3	-40.51	-90.94	20	PASS



4.6 Spurious Emissions for Receiver Measurement

4.6.1 Limits of Spurious Emissions for Receiver

Frequencies	Limit (dBm/MHz) *E.I.R.P.
	Average
30 MHz to 1600 MHz	-90
1600 MHz to 2700 MHz	-85
2700 MHz to 7.25 GHz	-70
7.25 GHz to 9 GHz	-54
9 GHz to 10.25 GHz	-60
10.25 GHz to 10.6 GHz	-70
10.6 GHz to 10.7 GHz	-85
10.7 GHz to 11.7 GHz	-70
11.7 GHz to 12.75 GHz	-85
12.75 GHz to 26 GHz	-70

4.6.2 Test Setup



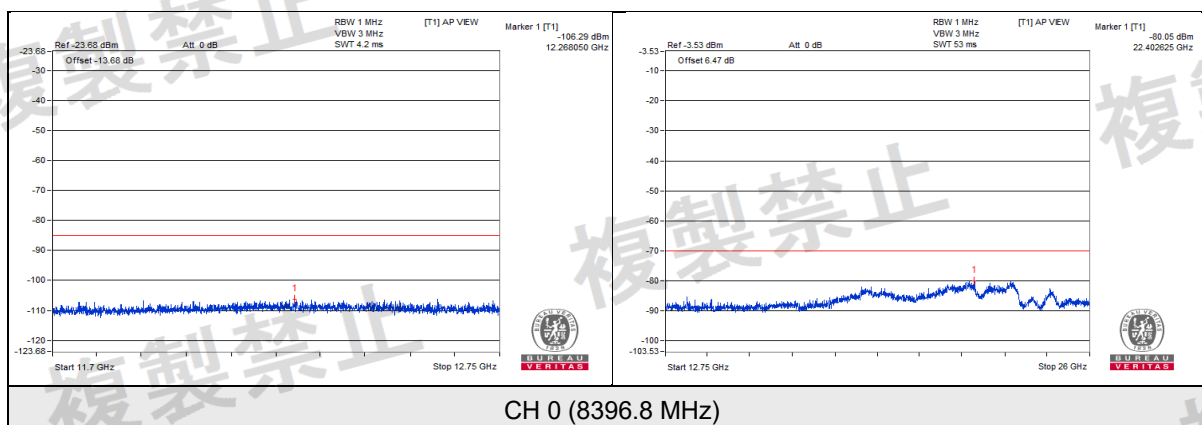
4.6.3 Test Results

Environmental Conditions	23 deg.C, 68% RH	Tested By	Luis Lee
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TEST CHANNEL	CH 0 (8396.8 MHz)			
FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE (dBm/MHz)	LIMIT (dBm/MHz)	RESULT
30 to 1600	192.495	-134.78	-90	PASS
1600 to 2700	2228.650	-119.37	-85	PASS
2700 to 7250	4984.100	-91.78	-70	PASS
7250 to 9000	8734.000	-90.3	-54	PASS
9000 to 10250	10000.000	-90.61	-60	PASS
10250 to 10600	10251.050	-107.51	-70	PASS
10600 to 10700	10613.700	-106.52	-85	PASS
10700 to 11700	10820.500	-103.9	-70	PASS
11700 to 12750	12268.050	-106.29	-85	PASS
12750 to 26000	22402.625	-80.05	-70	PASS

NOTE: 1. The spectrum plots are attached on the following pages.





4.7 Radio Waves Exposed to the Human Measurement

4.7.1 Limits of Radio Waves Exposed to the Human

Incident power density : $2\text{mW} / \text{cm}^2$

In the case of having a function to emit multiple radio waves at the same time : The total radiation ratio is 1 or less

*Requirement is not applied to the equipment of the following.

- Body ; "Average power : 8mW (9.03 dBm) or less(*Note.1)", or "Equipment that the separation distance between the human body and the transmission antenna (except head and both hand) is used in at least 20cm ."
- Head ; "Average power : 8mW (9.03 dBm) or less(*Note.1)", or "Equipment that is not used in close proximity to the human head"

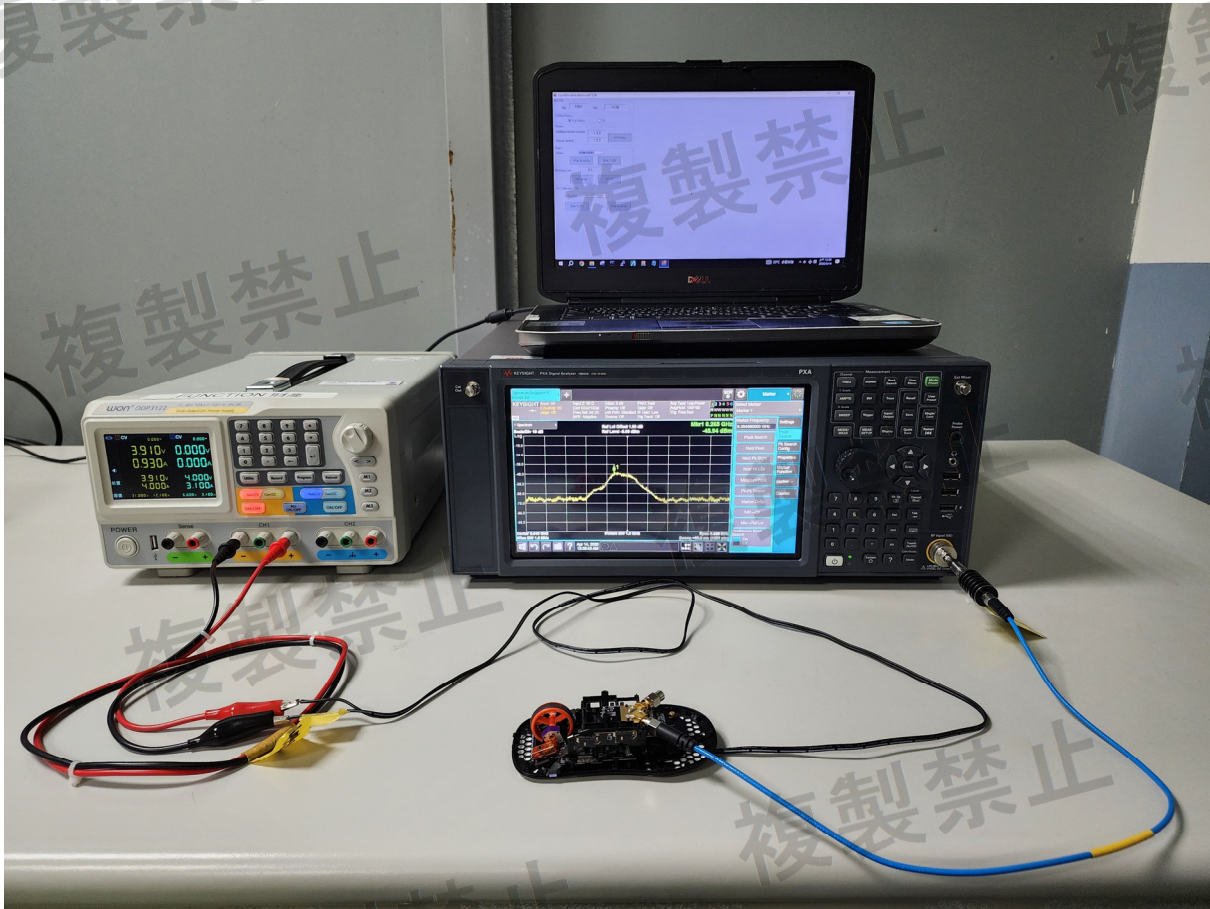
*Note.1: In the case of having a function to emit multiple radio waves at the same time: The total radiation ratio to threshold is 1 or less. The average power of the radio waves emitted by the mentioned radio wave for six minutes.

4.7.2 Test Results

RF Exposure					
Operation Mode	Frequency Band (MHz)	Maximum EIRP (dBm)	Maximum EIRP (mW)	Limit (mW)	Test Result
UWB	8396.8	-51.73	0.0000067	8	Pass

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

5 Photographs of the Test Configuration



Appendix - Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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