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Website: www.cqa-cert.com Report Template Revision Date: 2021-11-03

# **Test Report**

Report No.: CQASZ20250200258E

Applicant: Shenzhen Hollyland Technology Co.,Ltd.

Address of Applicant: 8F, Building 5D, Skyworth Innovation Valley, Tangtou Road, Shiyan Street,

Baoan District, Shenzhen, 518055 China

**Equipment Under Test (EUT):** 

Product: Wireless Microphone

Model No.: M18R1

Test Model No.: M18R1

**Brand Name:** 

(X) HOLLYLAND

FCC ID: 2ADZC-M18R1

Standards: 47 CFR Part 15, Subpart C

KDB558074 D01 15.247 Meas Guidance v05r02

ANSI C63.10:2013

**Date of Receipt:** 2025-02-14

**Date of Test**: 2025-02-14 to 2025-04-10

Date of Issue: 2025-04-10
Test Result: PASS\*

\*In the configuration tested, the EUT complied with the standards specified above.

Tested By:

(Lewis Zhou)

Reviewed By:

(Timo Lei )

Approved By: \_\_\_\_\_\_(Jack Ai )

TESTING TECHNOLOGY

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\*\*APPROVED\*\*





# 1 Version

## **Revision History Of Report**

Report No.	Version	Description	Issue Date
CQASZ20250200258E	Rev.01	Initial report	2025-04-10



## 2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15.203	1	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10-2013	PASS
Conducted Peak Output Power	47 CFR Part 15.247	ANSI C63.10-2013	PASS
20dB Occupied Bandwidth	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Carrier Frequencies Separation	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Hopping Channel Number	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Dwell Time	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Pseudorandom Frequency Hopping Sequence	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15.247	ANSI C63.10-2013	PASS
RF Conducted Spurious Emissions	47 CFR Part 15.247	ANSI C63.10-2013	PASS
Radiated Spurious emissions	47 CFR Part 15.209	ANSI C63.10-2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15.205/15.209	ANSI C63.10-2013	PASS

### Remark:

The tested sample(s) and the sample information are provided by the client.

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radiated Frequency.

CH: In this whole report CH means channel.

Volt: In this whole report Volt means Voltage.

Temp: In this whole report Temp means Temperature.

Humid: In this whole report Humid means humidity.

Press: In this whole report Press means Pressure.

N/A: In this whole report not application



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## 4 General Information

## 4.1 Client Information

Applicant:	Shenzhen Hollyland Technology Co.,Ltd.
Address of Applicant:	8F, Building 5D, Skyworth Innovation Valley, Tangtou Road, Shiyan Street, Baoan District, Shenzhen, 518055 China
Manufacturer:	Shenzhen Hollyland Technology Co.,Ltd.
Address of Manufacturer:	8F, Building 5D, Skyworth Innovation Valley, Tangtou Road, Shiyan Street, Baoan District, Shenzhen, 518055 China
Factory:	Shenzhen Hollyland Technology Co.,Ltd.
Address of Factory:	8F, Building 5D, Skyworth Innovation Valley, Tangtou Road, Shiyan Street, Baoan District, Shenzhen, 518055 China

## 4.2 General Description of EUT

•	
Product Name:	Wireless Microphone
Model No.:	M18R1
Test Model No.:	M18R1
Trade Mark:	HOLLYLAND
Software Version:	A6108_RX_V1.0.0.10.fw
Hardware Version:	A6108-RX-TYPEC_V08
Operation Frequency:	2402MHz~2480MHz
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK
Transfer Rate:	1Mbps/2Mbps
Number of Channel:	40
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	☐ Mobile ☐ Portable
Test Software of EUT:	Telink BDT
Antenna Type:	Monopole antenna
Antenna Gain:	-0.1dBi
Power Supply:	Power supply DC5V form adapter
Simultaneous Transmission	☐ Simultaneous TX is supported and evaluated in this report.



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Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz
2	2406MHz	12	2426MHz	22	2446MHz	32	2466MHz
3	2408MHz	13	2428MHz	23	2448MHz	33	2468MHz
4	2410MHz	14	2430MHz	24	2450MHz	34	2470MHz
5	2412MHz	15	2432MHz	25	2452MHz	35	2472MHz
6	2414MHz	16	2434MHz	26	2454MHz	36	2474MHz
7	2416MHz	17	2436MHz	27	2456MHz	37	2476MHz
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz

#### Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency	
The Lowest channel	2402MHz	
The Middle channel	2440MHz	
The Highest channel	2480MHz	

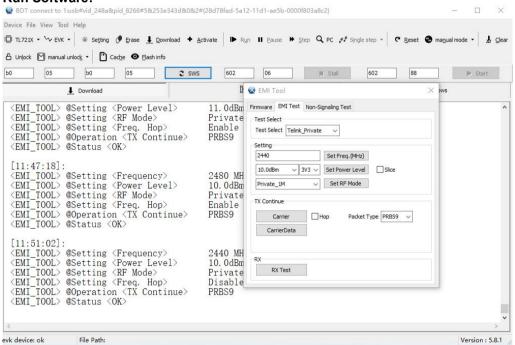


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#### 4.3 Additional Instructions

EUT Test Software Settings:						
Mode:	⊠ Special software is used.	⊠ Special software is used.				
		☐ Through engineering command into the engineering mode. engineering command: *#*#3646633#*#*				
EUT Power level:	(Power level is built-in set parameter selected)	(Power level is built-in set parameters and cannot be changed and selected)				
Use test software to set the transmitting of the EUT.	lowest frequency, the middle frequency ar	nd the highest frequency keep				
Mode Channel Frequency(MHz)						
CH0 2402						
GFSK CH19 2440						
	CH39 2480					

#### **Run Software:**





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### **4.4** Test Environment

Operating Environment:	Operating Environment:			
Temperature:	25 °C			
Humidity:	54% RH			
Atmospheric Pressure:	1009mbar			
Test Mode:	Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.			

## 4.5 Description of Support Units

The EUT has been tested with associated equipment below.

The Let has been tested that descented equipment below.				
Description	Manufacturer	Model No.	Remark	Supplied
Adapter	MI	1	1	CQA
Phone	Redmi	/	1	CQA





### 4.6 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CQA laboratory is reported:

No.	Item	Uncertainty
1	Radiated Emission (Below 1GHz)	5.12dB
2	Radiated Emission (Above 1GHz)	4.60dB
3	Conducted Disturbance (0.15~30MHz)	3.34dB
4	Radio Frequency	3×10 <sup>-8</sup>
5	Duty cycle	0.6 %
6	Occupied Bandwidth	1.1%
7	RF conducted power	0.86dB
8	RF power density	0.74
9	Conducted Spurious emissions	0.86dB
10	Temperature test	0.8℃
11	Humidity test	2.0%
12	Supply voltages	0.5 %
13	Frequency Error	5.5 Hz



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### 4.7 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

### 4.8 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

#### IC Registration No.: 22984-1

The 3m Semi-anechoic chamber of Shenzhen Huaxia Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

The test facility is recognized, certified, or accredited by the following organizations:

#### • CNAS (No. CNAS L5785)

CNAS has accredited Shenzhen Huaxia Testing Technology Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

#### • A2LA (Certificate No. 4742.01)

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

#### • FCC Registration No.: 522263

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

#### 4.9 Abnormalities from Standard Conditions

None.

#### 4.10 Other Information Requested by the Customer

None.



## **4.11** Equipment List

			Instrument	Calibration	Calibration
Test Equipment	Manufacturer	Model No.	No.	Date	Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
Spectrum analyzer	R&S	FSU26	CQA-038	2024/9/2	2025/9/1
Spectrum analyzer	R&S	FSU40	CQA-075	2024/9/2	2025/9/1
Preamplifier	MITEQ	AFS4-00010300-18- 10P-4	CQA-035	2024/9/2	2025/9/1
Preamplifier	MITEQ	AMF-6D-02001800- 29-20P	CQA-036	2024/9/2	2025/9/1
Preamplifier	EMCI	EMC184055SE	CQA-089	2024/9/2	2025/9/1
Loop antenna	Schwarzbeck	FMZB1516	CQA-060	2023/9/8	2026/9/7
Bilog Antenna	R&S	HL562	CQA-011	2023/11/01	2026/10/31
Horn Antenna	R&S	HF906	CQA-012	2023/11/01	2026/10/31
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2023/9/7	2026/9/6
Coaxial Cable (Above 1GHz)	CQA	N/A	C007	2024/9/2	2025/9/1
Coaxial Cable (Below 1GHz)	CQA	N/A	C013	2024/9/2	2025/9/1
Antenna Connector	CQA	RFC-01	CQA-080	2024/9/2	2025/9/1
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2024/9/2	2025/9/1
Power meter	R&S	NRVD	CQA-029	2024/9/2	2025/9/1
Power divider	MIDWEST	PWD-2533-02-SMA- 79	CQA-067	2024/9/2	2025/9/1
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
LISN	R&S	ENV216	CQA-003	2024/9/2	2025/9/1
Coaxial cable	CQA	N/A	CQA-C009	2024/9/2	2025/9/1
DC power	KEYSIGHT	E3631A	CQA-028	2024/9/2	2025/9/1

#### Test software:

		Software	Software
	Manufacturer	brand	version
Radiated Emissions test software	Tonscend	JS1120-3	Version:8
Conducted Emissions test software	Audix	e3	Version:9
RF Conducted test software	Audix	e3	V3.5.39

#### Note:

The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.





### 5 Test results and Measurement Data

### 5.1 Antenna Requirement

Standard requirement: 47 CFR Part 15C Section 15.203 /247(c)

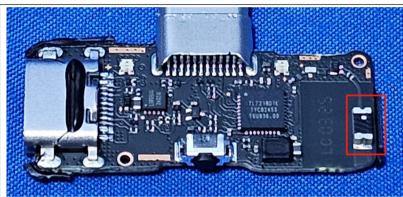
15.203 requirement:

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, 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.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **EUT Antenna:**



The antenna is Monopole antenna.

The connection/connection type between the antenna to the EUT's antenna port is: This is either permanently attachment.





## **5.2** Conducted Emissions

	2 Conducted Linissions					
Test Requirement:	47 CFR Part 15C Section 15.207					
Test Method:	ANSI C63.10: 2013					
Test Frequency Range	: 150kHz to 30MHz					
Limit:	Fraguency range (MHz)	Limit (c	dBuV)			
	Frequency range (MHz)	Quasi-peak	Average			
	0.15-0.5	66 to 56*	56 to 46*			
	0.5-5	56	46			
	5-30	60	50			
	* Decreases with the logarithn	n of the frequency.		•		
Test Procedure:	room.  2) The EUT was connected to Impedance Stabilization N impedance. The power cal connected to a second LIS reference plane in the sam measured. A multiple sock power cables to a single L exceeded.  3) The tabletop EUT was place ground reference plane. A placed on the horizontal ground reference plane. A placed on the horizontal ground reference plane. The LISN unit under test and bonded mounted on top of the ground between the closest points the EUT and associated en	<ul> <li>* Decreases with the logarithm of the frequency.</li> <li>1) The mains terminal disturbance voltage test was conducted in a shield room.</li> <li>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω lines impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not</li> </ul>				
Test Setup:	Shielding Room  EUT  AC Mains  LISN1	AE  LISN2  AC Ma  Ground Reference Plane	Test Receiver			



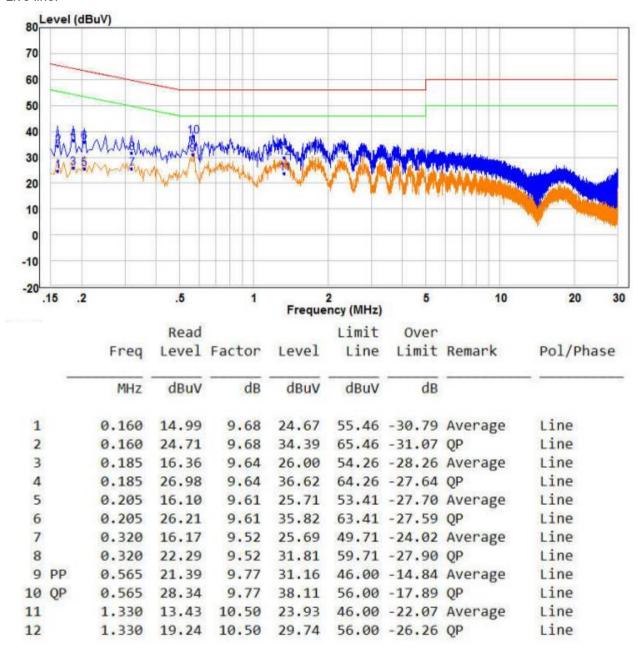
Report No.: CQASZ20250200258E

Test Mode:	Charge mode
Test Voltage:	AC 120V/60Hz
Test Results:	Pass



#### **Measurement Data**

#### Live line:

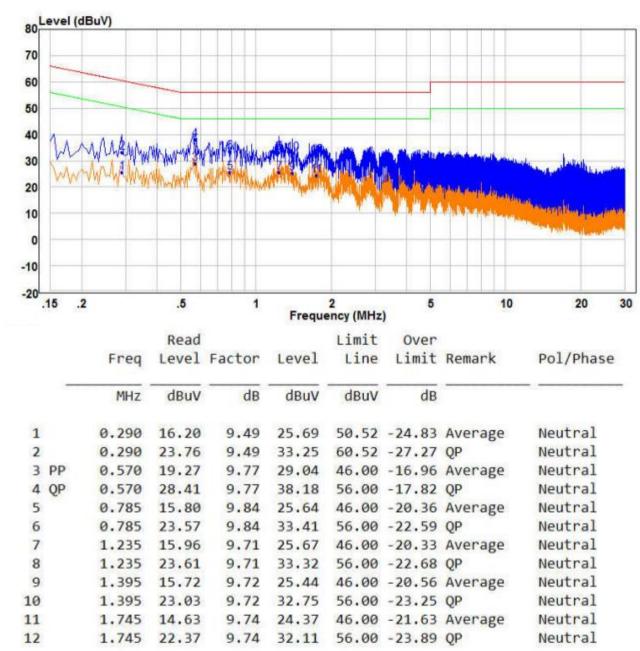


#### Remark:

- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
- 3. If the Peak value under Average limit, the Average value is not recorded in the report.



#### Neutral line:



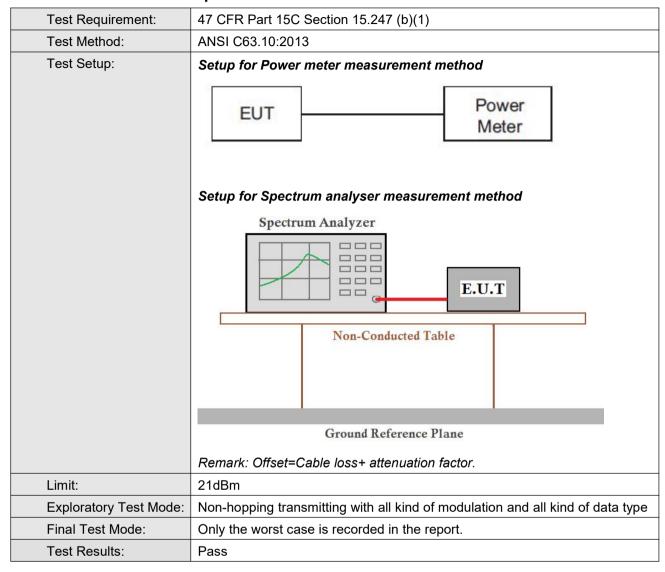
#### Remark:

- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
- 3. If the Peak value under Average limit, the Average value is not recorded in the report.



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### 5.3 Conducted Peak Output Power





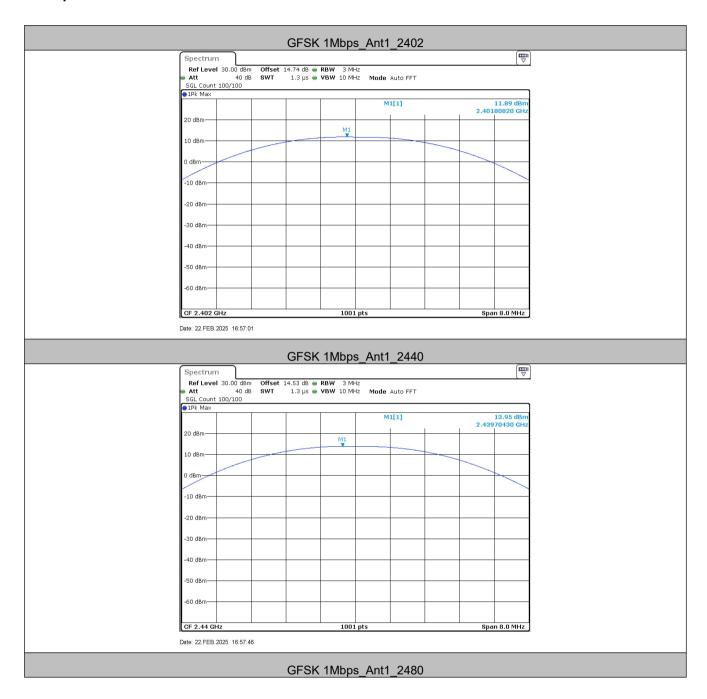
Report No.: CQASZ20250200258E

### **Measurement Data**

GFSK 1Mbps mode						
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result			
Lowest	11.89	21.00	Pass			
Middle	13.95	21.00	Pass			
Highest	12.15	21.00	Pass			
	GFSK 2Mbps mode					
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result			
Lowest 12.05		21.00	Pass			
Middle	Middle 12.75		Pass			
Highest	14.57	21.00	Pass			

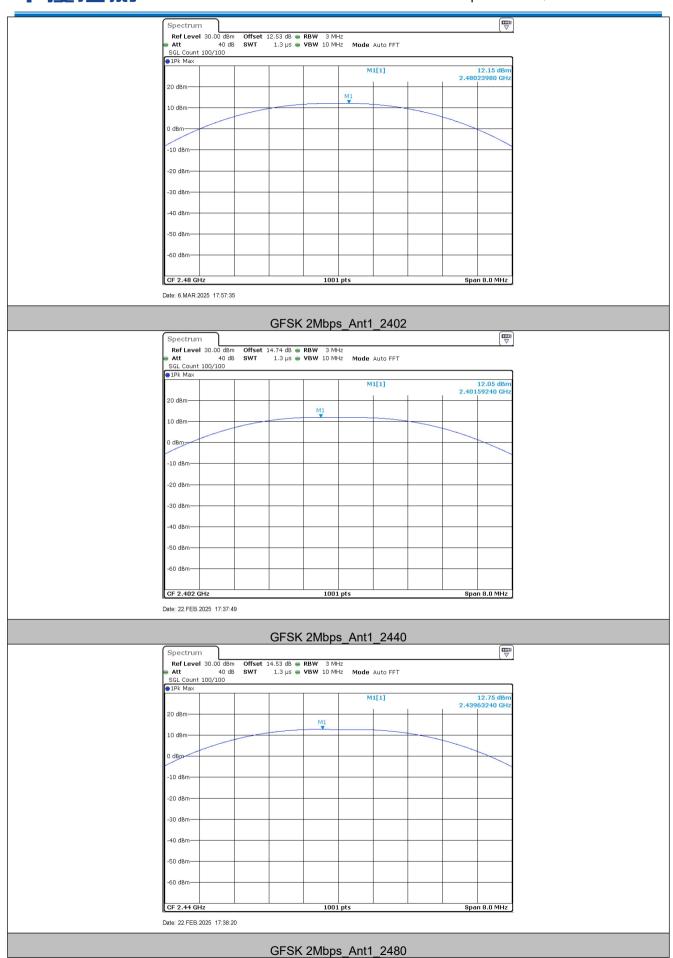


#### Test plot as follows:



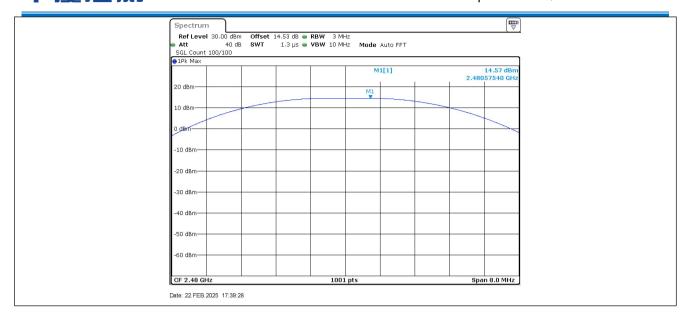


Report No.: CQASZ20250200258E





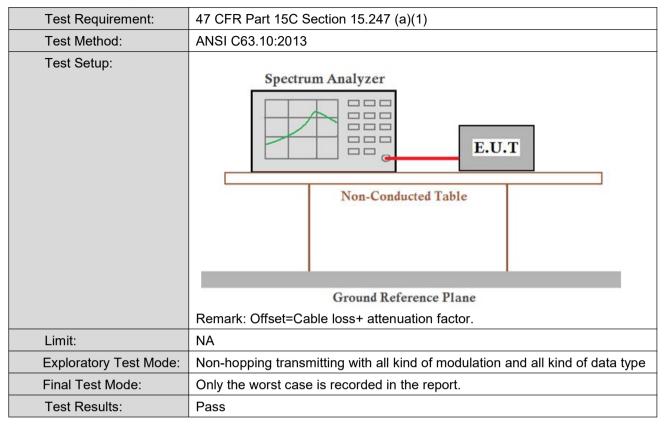
Report No.: CQASZ20250200258E







## 5.4 20dB Occupied Bandwidth



#### **Measurement Data**

Test channel	20dB Occupy Bandwidth (MHz)		
rest channel	GFSK 1Mbps	GFSK 2Mbps	
Lowest	1.20	2.28	
Middle	1.21	2.28	
Highest	1.20	2.26	

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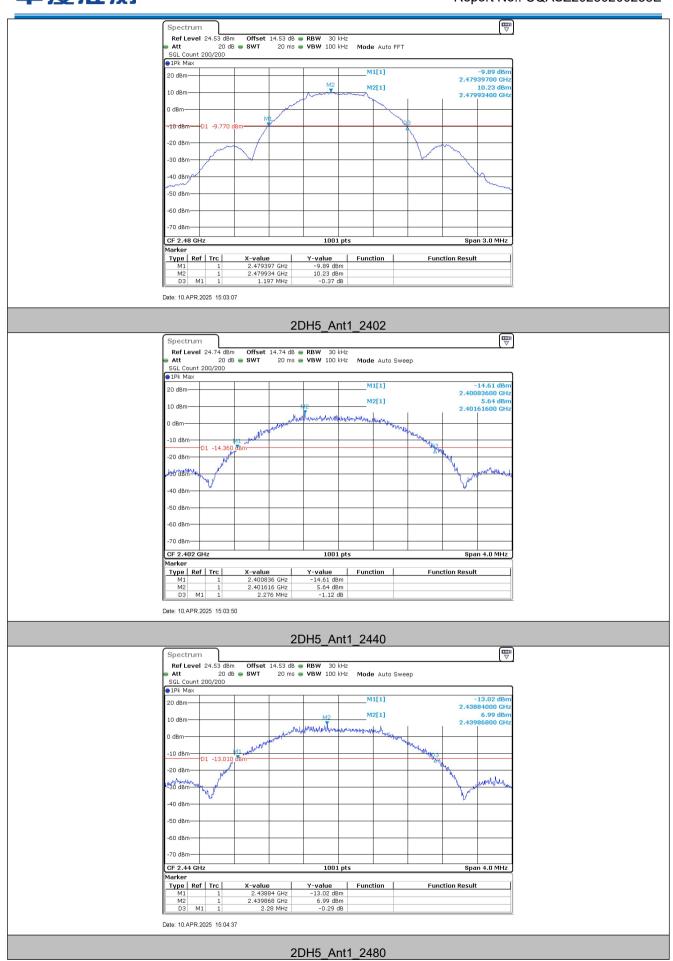
Report No.: CQASZ20250200258E

### Test plot as follows:



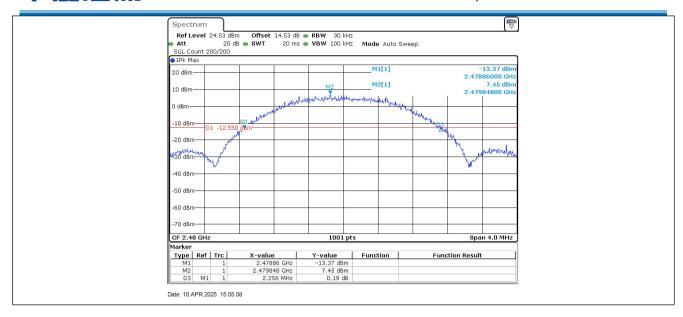


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## 5.5 Carrier Frequencies Separation

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)			
Test Method:	ANSI C63.10:2013			
Test Setup:	Constant Andrews			
	Spectrum Analyzer  E.U.T  Non-Conducted Table			
	Ground Reference Plane			
	Remark: Offset=Cable loss+ attenuation factor.			
Limit:	2/3 of the 20dB bandwidth			
	Remark: the transmission power is less than 0.125W.			
Exploratory Test Mode:	Hopping transmitting with all kind of modulation and all kind of data type			
Final Test Mode:	Only the worst case is recorded in the report.			
Test Results:	Pass			



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### **Measurement Data**

TestMode	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
GFSK 1Mbps	Нор	2.00	≥0.787	PASS
GFSK 2Mbps	Hop	1.99	≥1.540	PASS

Mode	20dB bandwidth (MHz)	Limit (MHz)
Wiode	(worse case)	(Carrier Frequencies Separation)
GFSK 1Mbps	1.18	≥0.787
GFSK 2Mbps	2.31	≥1.540



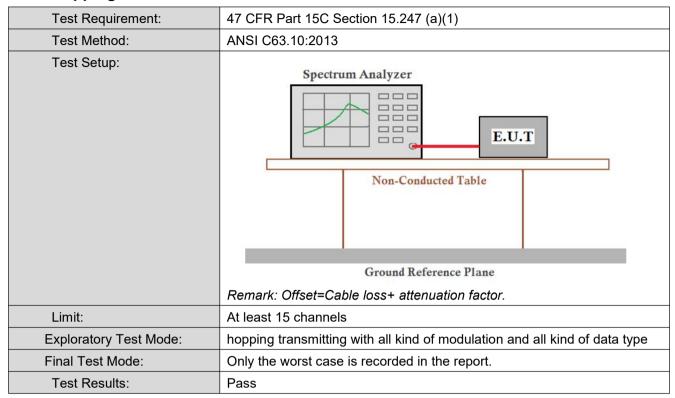
### Test plot as follows:





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## 5.6 Hopping Channel Number

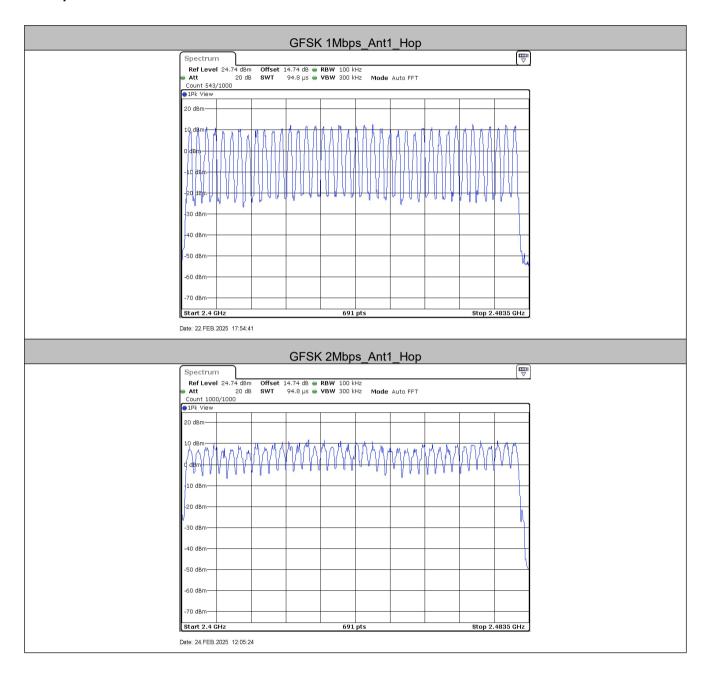


#### **Measurement Data**

Mode	Hopping channel numbers	Limit
GFSK 1Mbps	40	≥15
GFSK 2Mbps	40	≥15



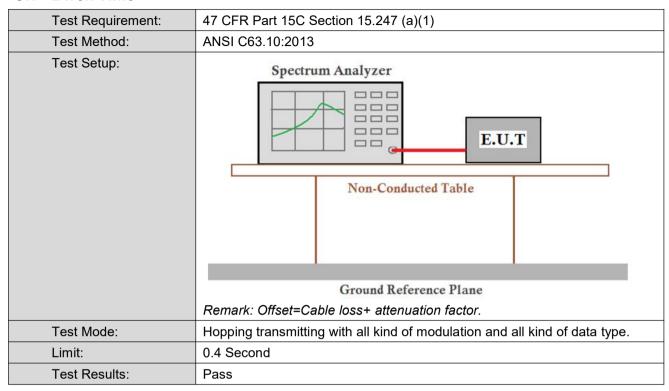
#### Test plot as follows:







### 5.7 Dwell Time





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### **Measurement Data**

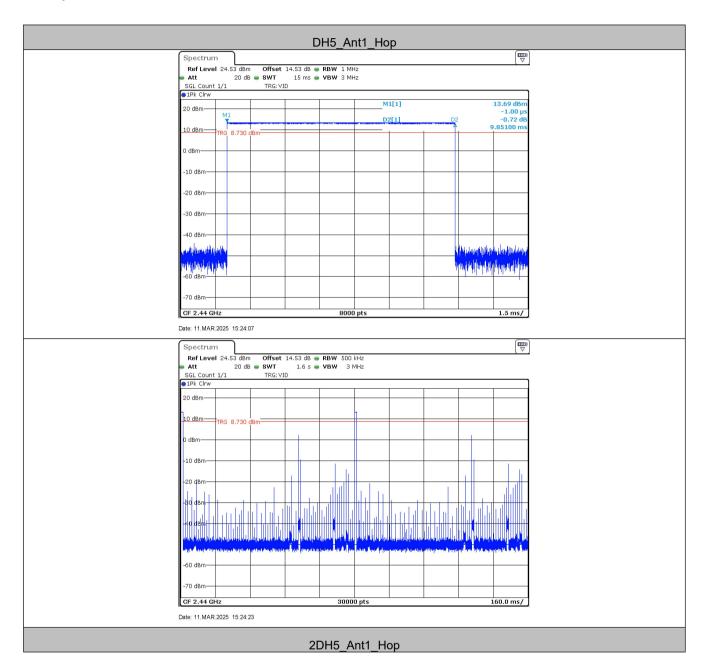
TestMode	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Нор	9.851	20	0.197	≤0.4	PASS
2DH5	Нор	9.843	20	0.197	≤0.4	PASS

### Remark:

The test period: T= 0.4 Second/Channel x 40 Channel = 16 s

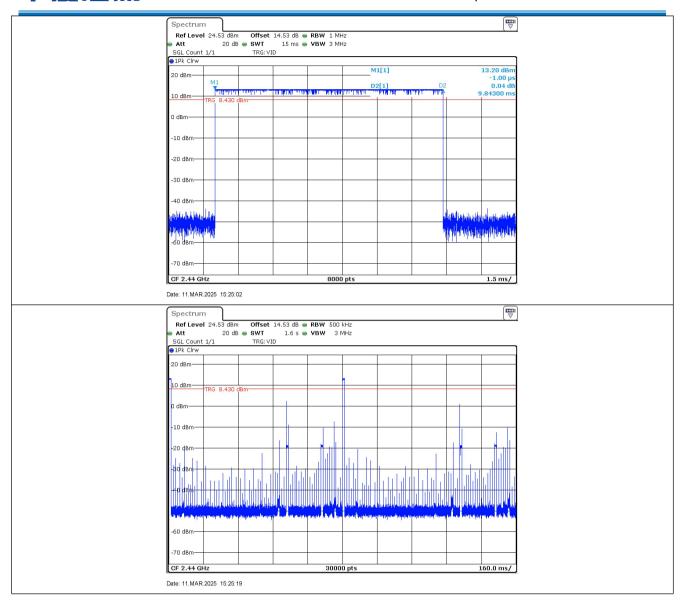


#### Test plot as follows:





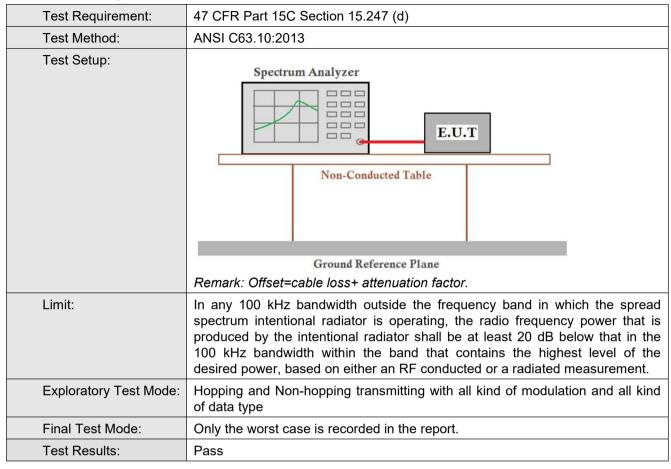
Report No.: CQASZ20250200258E







## 5.8 Band-edge for RF Conducted Emissions





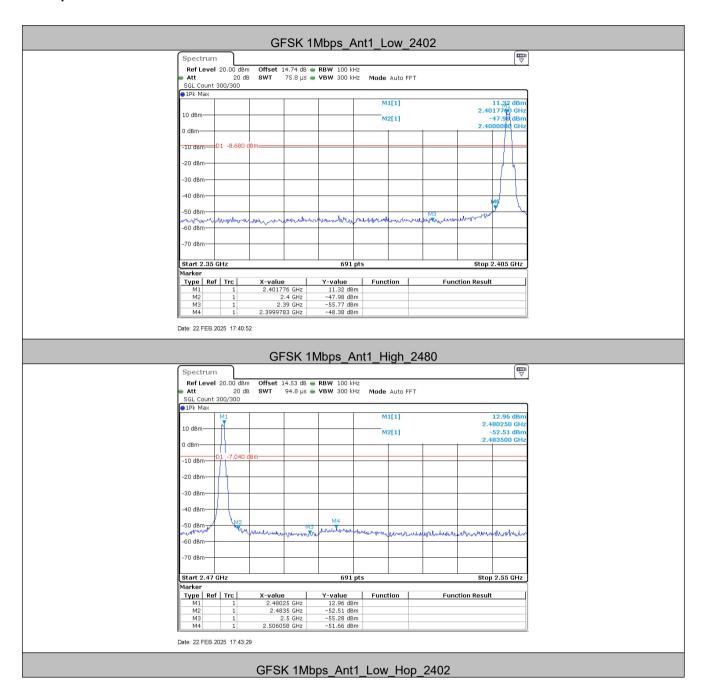
Report No.: CQASZ20250200258E

### Measurement Data

TestMode	ChName	Freq(MHz)	RefLevel	Result	Limit [dBm]	Verdict
	Low	2402	11.32	-48.38	≤-8.68	PASS
GFSK	High	2480	12.96	-51.66	≤-7.04	PASS
1Mbps	Low	Hop_2402	9.83	-29.36	≤-10.17	PASS
	High	Hop_2480	12.01	-32.33	≤-7.99	PASS
	Low	2402	12.46	-23.75	≤-7.54	PASS
GFSK	High	2480	12.44	-49.64	≤-7.56	PASS
2Mbps	Low	Hop_2402	8.48	-30.33	≤-11.52	PASS
	High	Hop_2480	11.84	-41.24	≤-8.16	PASS



#### Test plot as follows:





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