



# FCC PART 15C TEST REPORT

## BLUETOOTH LOW ENERGY (BLE) PART

No. I22Z62512-IOT06

for

**HONOR Device Co., Ltd.**

**Smart Phone**

**Model Name: RBN-NX3**

**FCC ID: 2AYGCRBN-NX3**

**with**

**Hardware Version: HN1RBNM**

**Software Version: 6.1.0.100 (C900E100R1P1)**

**Issued Date: 2023-2-13**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

**Test Laboratory:**

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## REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22Z62512-IOT06	Rev.0	1st edition	2023-2-13

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## **1. Test Laboratory**

### **1.1. Introduction & Accreditation**

**Telecommunication Technology Labs, CAICT** is an ISO/IEC 17025:2017 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0, and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (ISED#: 24849). The detail accreditation scope can be found on NVLAP website.

### **1.2. Testing Location**

Conducted testing Location: CTT(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,  
P. R. China100191

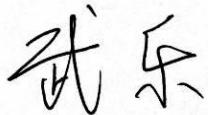
### 1.3. Testing Environment

Normal Temperature: 20-27°C  
Relative Humidity: 20-50%

### 1.4. Project data

Testing Start Date: 2022-12-30  
Testing End Date: 2023-2-13

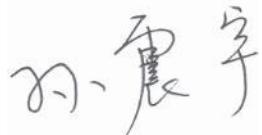
### 1.5. Signature



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Wu Le

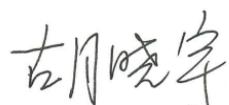
(Prepared this test report)



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Sun Zhenyu

(Reviewed this test report)



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Hu Xiaoyu

(Approved this test report)

## **2. Client Information**

### **2.1. Applicant Information**

Company Name: HONOR Device Co., Ltd.  
Suite 3401,Unit A,Building 6,Shum Yip Sky Park,No.8089,Hongli  
Address /Post: West Road,Xiangmihu Street,Futian District,Shenzhen,Guangdong  
518040,People's Republic of China  
City: Shenzhen  
Postal Code: /  
Country: China  
Telephone: /  
Fax: /

### **2.2. Manufacturer Information**

Company Name: HONOR Device Co., Ltd.  
Suite 3401,Unit A,Building 6,Shum Yip Sky Park,No.8089,Hongli  
Address /Post: West Road,Xiangmihu Street,Futian District,Shenzhen,Guangdong  
518040,People's Republic of China  
City: Shenzhen  
Postal Code: /  
Country: China  
Telephone: /  
Fax: /

### **3. Equipment Under Test (EUT) and Ancillary Equipment (AE)**

#### **3.1. About EUT**

Description	Smart Phone
Model Name	RBN-NX3
FCC ID	2AYGCRBN-NX3
Frequency Band	ISM 2400MHz~2483.5MHz
Type of Modulation(LE mode)	GFSK (Bluetooth Low Energy)
Number of Channels(LE mode)	40
Power Supply	3.87V DC by Battery
Antenna gain	-2.0dBi

#### **3.2. Internal Identification of EUT**

<b>EUT ID*</b>	<b>SN or IMEI</b>	<b>HW Version</b>	<b>SW Version</b>	<b>Date of receipt</b>
EUT1	861571060012703/ 861571060030705	HN1RBNM	6.1.0.100(C900E100R1P1)	2022-12-30

\*EUT ID: is used to identify the test sample in the lab internally.

#### **3.3. Internal Identification of AE**

<b>AE ID*</b>	<b>Description</b>		
AE1	Battery	/	Inbuilt

\*AE ID: is used to identify the test sample in the lab internally.

#### **3.4. Normal Accessory setting**

Fully charged battery is used during the test.

#### **3.5. General Description**

The Equipment Under Test (EUT) is a model of Smart Phone with integrated antenna. It consists of normal options: lithium battery, charger. Manual and specifications of the EUT were provided to fulfill the test. Samples undergoing test were selected by the Client.

## 4. Reference Documents

### 4.1. Documents supplied by applicant

EUT parameters, referring to Annex A for detailed information, is supplied by the client or manufacturer, which is the basis of testing.

### 4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part15	FCC CFR 47, Part 15, Subpart C: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; 15.247 Operation within the bands 902–928MHz, 2400–2483.5 MHz, and 5725–5850 MHz.	2021
ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	June,2013

## 5. Test Results

### 5.1. Summary of EUT Mode

Two modes are provided:

Mode	Conditions
Mode A	1Mbps
Mode B	2Mbps

\*For the test results, the EUT had been tested all conditions. But only the worst case (Mode B) was shown in test report except the " Peak Output Power " test was shown all conditions.

### 5.2. Summary of Test Results

Abbreviations used in this clause:

**P** Pass, The EUT complies with the essential requirements in the standard.  
**F** Fail, The EUT does not comply with the essential requirements in the standard  
**NA** Not Applicable, The test was not applicable  
**NP** Not Performed, The test was not performed by CTTL

SUMMARY OF MEASUREMENT RESULTS	Sub-clause	Verdict
Peak Output Power	15.247 (b)(1)	<b>P</b>
Frequency Band Edges- Conducted	15.247 (d)	<b>P</b>
Transmitter Spurious Emission - Conducted	15.247 (d)	<b>P</b>
6dB Bandwidth	15.247 (a)(2)	<b>P</b>
Maximum Power Spectral Density Level	15.247(e)	<b>P</b>

Please refer to **ANNEX A** for detail.

The measurement is made according to ANSI C63.10.

### 5.3. Statements

CTTL has evaluated the test cases requested by the applicant /manufacturer as listed in section 5.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.2

## **6. Test Facilities Utilized**

### **Conducted test system**

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Vector Signal Analyzer	FSQ26	100024	R&S	1 year	2023-03-23
2	Shielding Room	S81	/	ETS-Lindgren	/	/

## **7. Measurement Uncertainty**

### **7.1. Peak Output Power - Conducted**

**Measurement Uncertainty:**

Measurement Uncertainty (k=2)	0.66dB
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### **7.2. Frequency Band Edges - Conducted**

**Measurement Uncertainty:**

Measurement Uncertainty (k=2)	0.66dB
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### **7.3. Transmitter Spurious Emission - Conducted**

**Measurement Uncertainty:**

Frequency Range	Uncertainty (k=2)
30 MHz ~ 8 GHz	1.22dB
8 GHz ~ 12.75 GHz	1.51dB
12.7GHz ~ 26 GHz	1.51dB

### **7.4. 6dB Bandwidth**

**Measurement Uncertainty:**

Measurement Uncertainty (k=2)	61.936Hz
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### **7.5. Maximum Power Spectral Density Level**

**Measurement Uncertainty:**

Measurement Uncertainty (k=2)	0.66dB
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## **ANNEX A: EUT parameters**

Disclaimer: The antenna gain provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

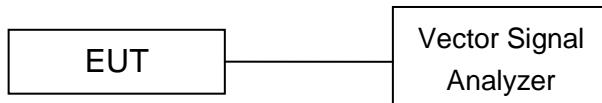
## **ANNEX B: Detailed Test Results**

### **B.1. Measurement Method**

#### **B.1.1. Conducted Measurements**

The measurement is made according to ANSI C63.10.

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode (Transmitter, receiver or transmitter & receiver).
- 3). Set the EUT to the required channel.
- 4). Set the EUT hopping mode (hopping or hopping off).
- 5). Set the spectrum analyzer to start measurement.
- 6). Record the values. Vector Signal Analyzer



## B.2. Peak Output Power

### B.2.1. Peak Output Power – Conducted

**Method of Measurement:** See ANSI C63.10-clause 11.9.1.1

- a) Set the RBW = 3 MHz.
- b) Set VBW = 10 MHz.
- c) Set span = 10 MHz.
- d) Sweep time = auto couple.
- e) Detector = peak.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use peak marker function to determine the peak amplitude level.

**Measurement Limit:**

Standard	Limit (dBm)
FCC Part 15.247(b)(3)	< 30

**Measurement Results:**

**For GFSK**

Sample Rate	Channel No.	Frequency (MHz)	Peak Conducted Output Power (dBm)	Conclusion
1Mbps	0	2402	7.87	P
	19	2440	8.22	P
	39	2480	10.20	P
2Mbps	0	2402	7.93	P
	19	2440	8.28	P
	39	2480	10.20	P

**Conclusion:** PASS

### B.2.2. E.I.R.P.

**The radiated E.I.R.P. is listed below:**

Antenna gain = -2.0dBi

**For GFSK**

Sample Rate	Channel No.	Frequency (MHz)	E.I.R.P. (dBm)	Conclusion
1Mbps	0	2402	5.87	P
	19	2440	6.22	P
	39	2480	8.20	P
2Mbps	0	2402	5.93	P
	19	2440	6.28	P
	39	2480	8.20	P

Note: E.I.R.P. are calculated with the antenna gain.

**Conclusion:** PASS

### B.3. Frequency Band Edges - Conducted

**Method of Measurement: See ANSI C63.10-clause 6.10.4**

Connect the spectrum analyzer to the EUT using an appropriate RF cable connected to the EUT output. Configure the spectrum analyzer settings as described below.

- a) Set Span = 8MHz
- b) Sweep Time: Auto
- c) Set the RBW= 100 kHz
- c) Set the VBW= 300 kHz
- d) Detector: Peak
- e) Trace: Max hold

Observe the stored trace and measure the amplitude delta between the peak of the fundamental and the peak of the band-edge emission. This is not an absolute field strength measurement; it is only a relative measurement to determine the amount by which the emission drops at the band edge relative to the highest fundamental emission level.

**Measurement Limit:**

Standard	Limit (dBc)
FCC 47 CFR Part 15.247 (d)	< -20

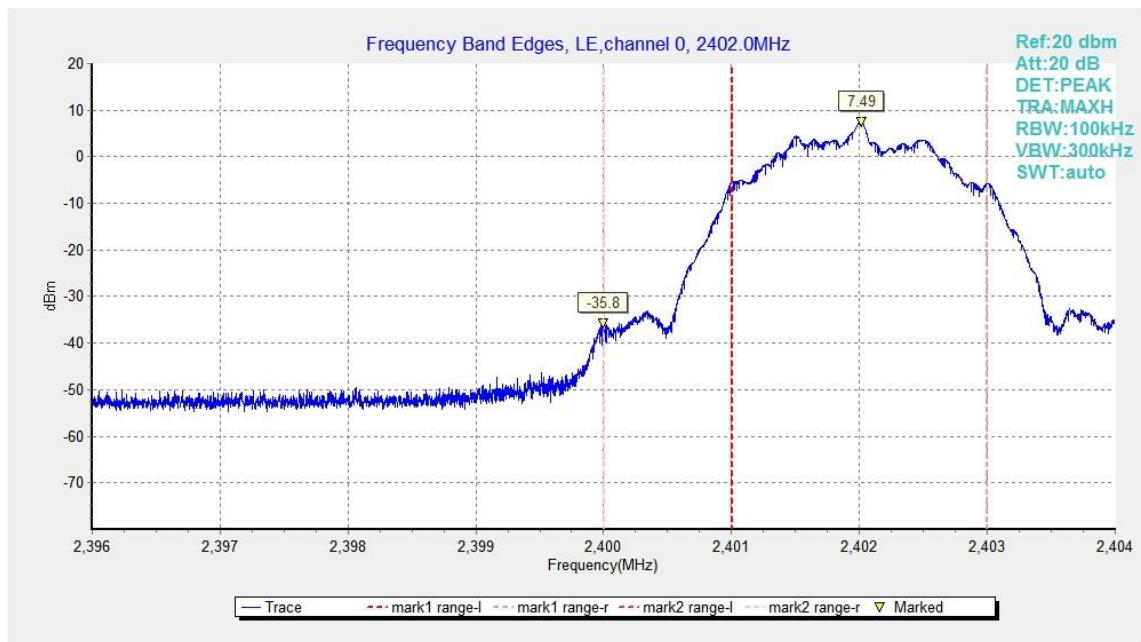
**Measurement Result:**

**For GFSK**

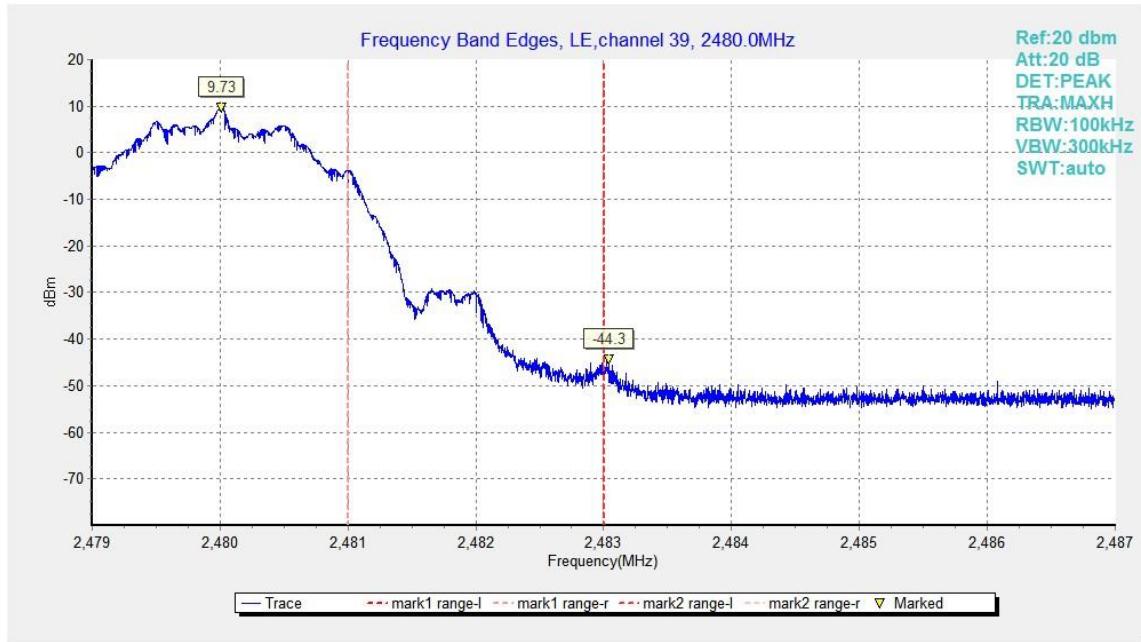
Channel No.	Frequency (MHz)	Hopping	Band Edge Power ( dBc)		Conclusion
0	2402	Hopping OFF	Fig.1	-43.29	P
39	2480	Hopping OFF	Fig.2	-54.03	P

**Conclusion: PASS**

Test graphs as below



**Fig.1.** Frequency Band Edges: GFSK, 2402 MHz, Hopping Off



**Fig.2.** Frequency Band Edges: GFSK, 2480 MHz, Hopping Off

## B.4. Transmitter Spurious Emission - Conducted

**Method of Measurement: See ANSI C63.10-clause 11.11.2 and clause 11.11.3**

**Measurement Procedure – Reference Level**

1. Set the RBW = 100 kHz.
2. Set the VBW = 300 kHz.
3. Set the span to  $\geq 1.5$  times the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum PSD level. Next, determine the power in 100 kHz band segments outside of the authorized frequency band using the following measurement:

**Measurement Procedure - Unwanted Emissions**

1. Set RBW = 100 kHz.
2. Set VBW = 300 kHz.
3. Set span to encompass the spectrum to be examined.
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize (this may take some time, depending on the extent of the span).

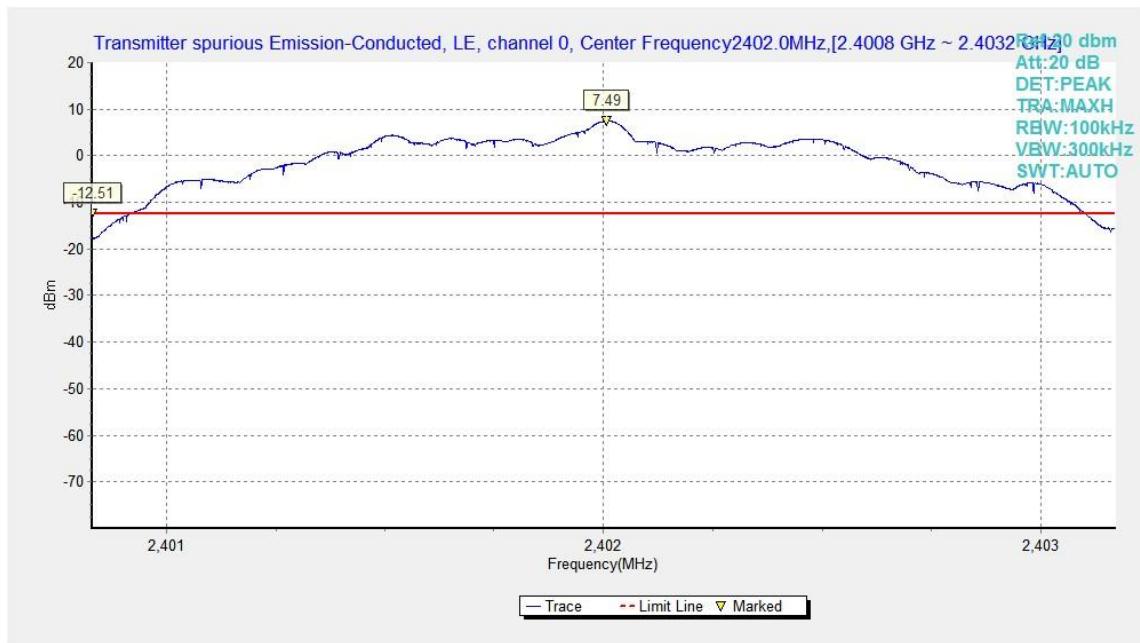
Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified above.

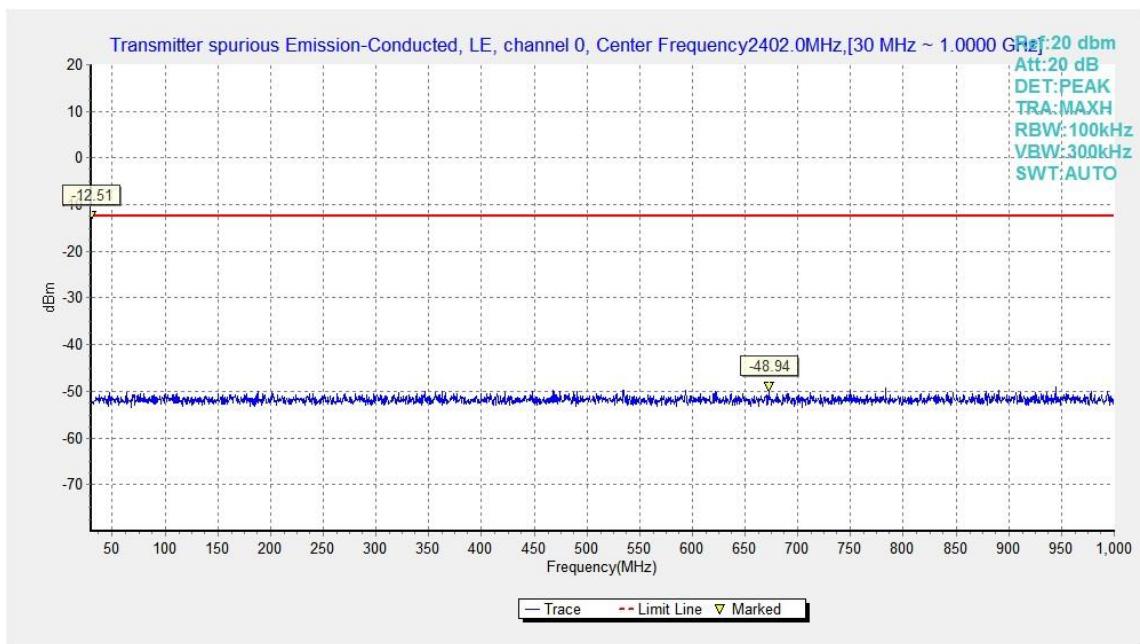
**Measurement Limit:**

Standard	Limit
FCC 47 CFR Part 15.247 (d)	20dB below peak output power in 100 kHz bandwidth

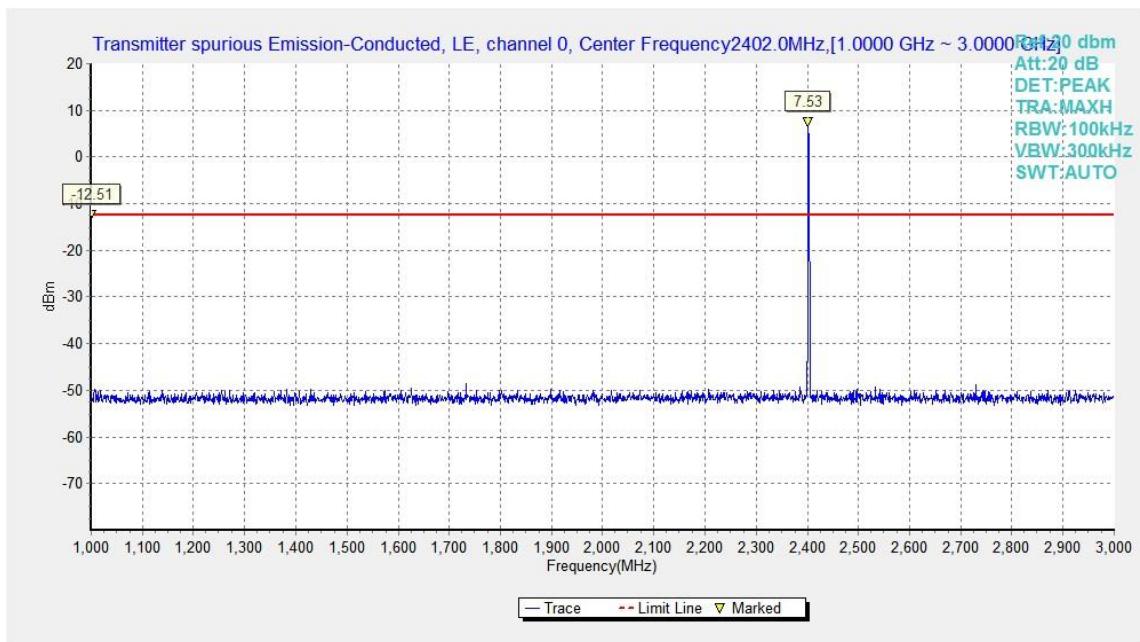
**Measurement Results:**
**For GFSK**

Channel No.	Frequency (MHz)	Frequency Range	Test Results	Conclusion
0	2402	Center Frequency	Fig.3	P
		30 MHz ~ 1 GHz	Fig.4	P
		1 GHz ~ 3 GHz	Fig.5	P
		3 GHz ~ 10 GHz	Fig.6	P
		10GHz ~ 26 GHz	Fig.7	P
19	2440	Center Frequency	Fig.8	P
		30 MHz ~ 1 GHz	Fig.9	P
		1 GHz ~ 3 GHz	Fig.10	P
		3 GHz ~ 10 GHz	Fig.11	P
		10GHz ~ 26 GHz	Fig.12	P
39	2480	Center Frequency	Fig.13	P
		30 MHz ~ 1 GHz	Fig.14	P
		1 GHz ~ 3GHz	Fig.15	P
		3 GHz ~ 10 GHz	Fig.16	P
		10 GHz ~ 26 GHz	Fig.17	P

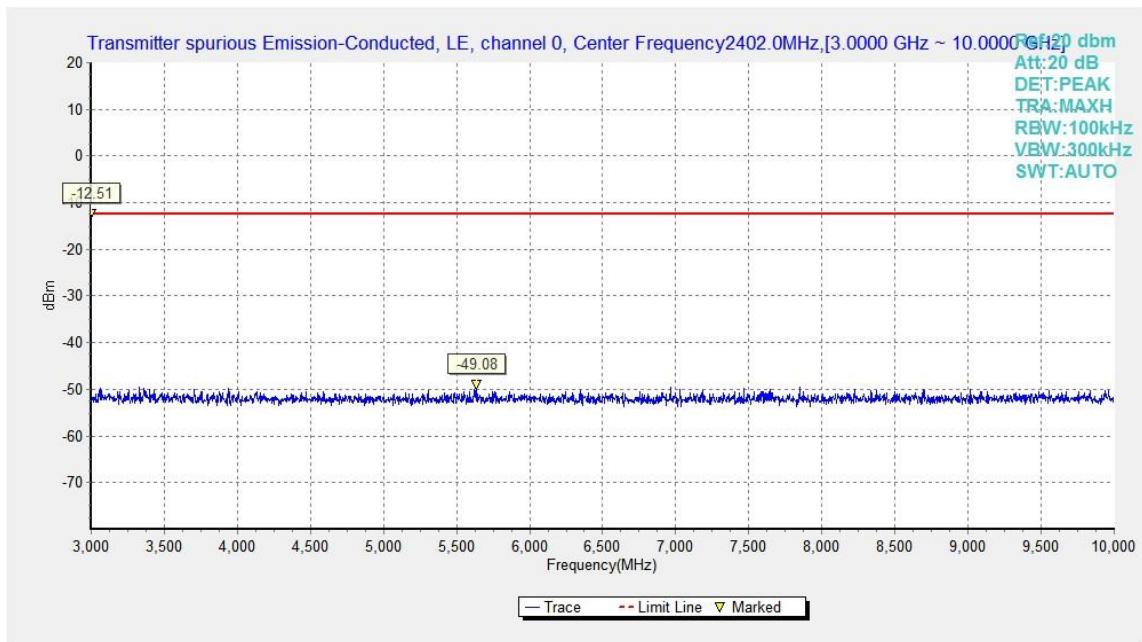
**Conclusion: PASS**
**Test graphs as below**

**Fig.3.** Transmitter Spurious Emission - Conducted: GFSK,2402MHz



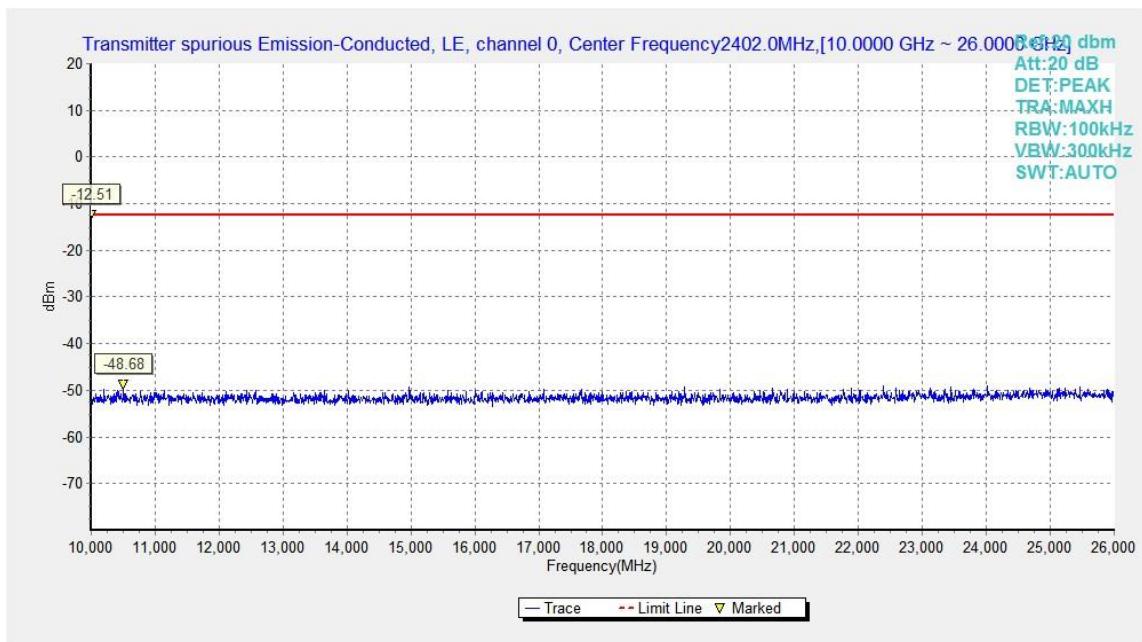
**Fig.4.** Transmitter Spurious Emission - Conducted: GFSK, 2402 MHz, 30MHz - 1GHz



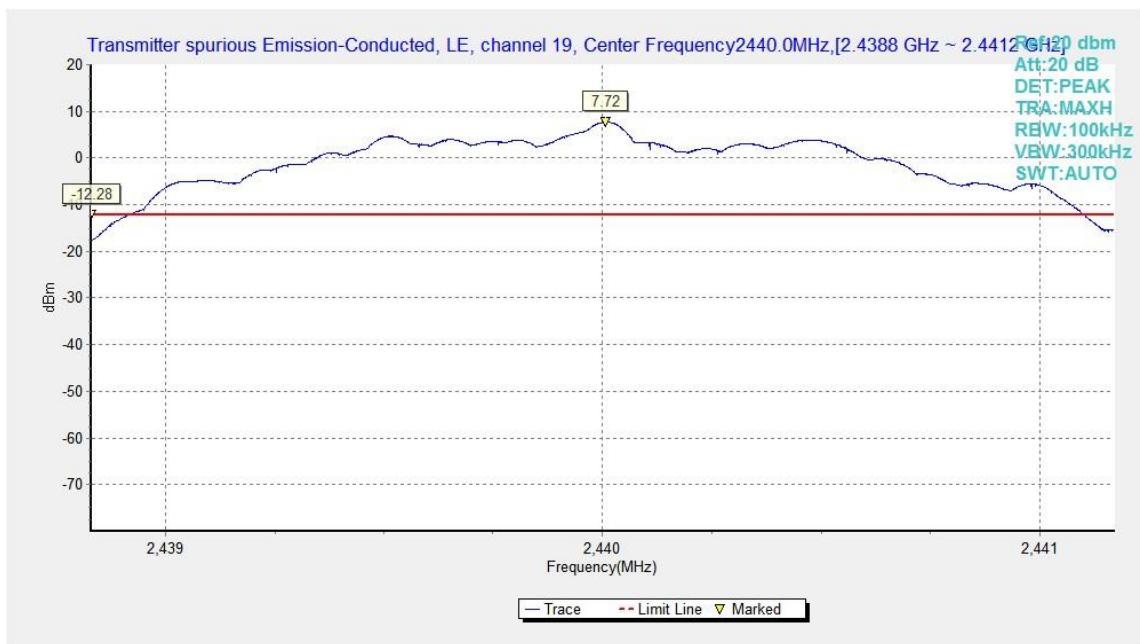
**Fig.5.** Transmitter Spurious Emission - Conducted: GFSK, 2402 MHz,1GHz - 3GHz



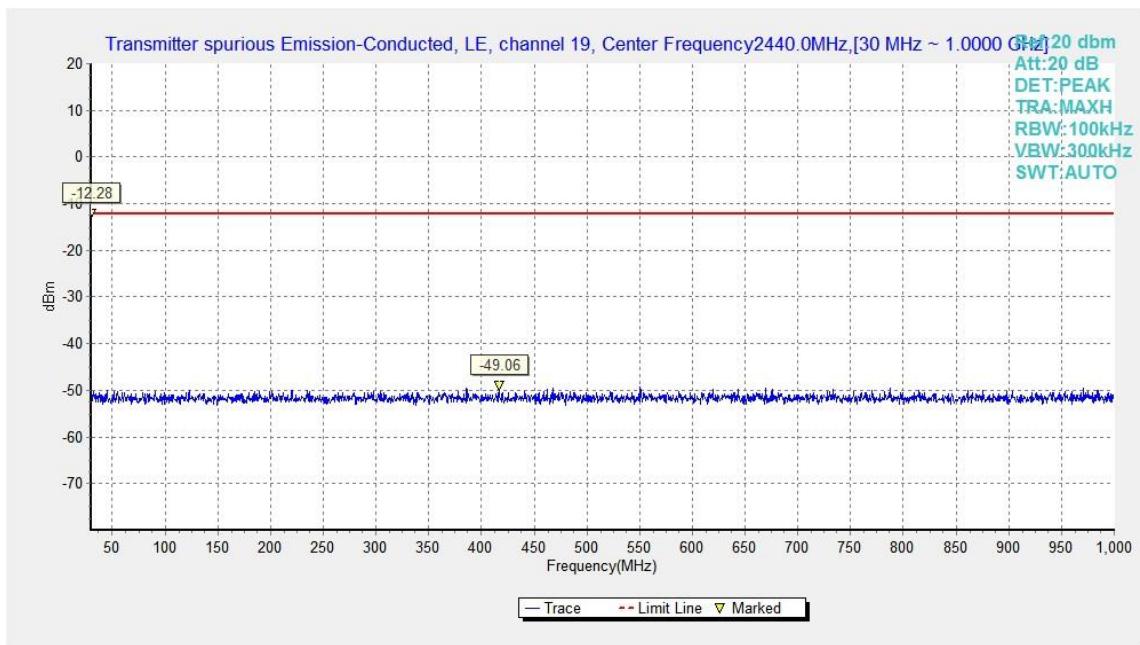
**Fig.6.** Transmitter Spurious Emission - Conducted: GFSK, 2402 MHz, 3GHz - 10GHz



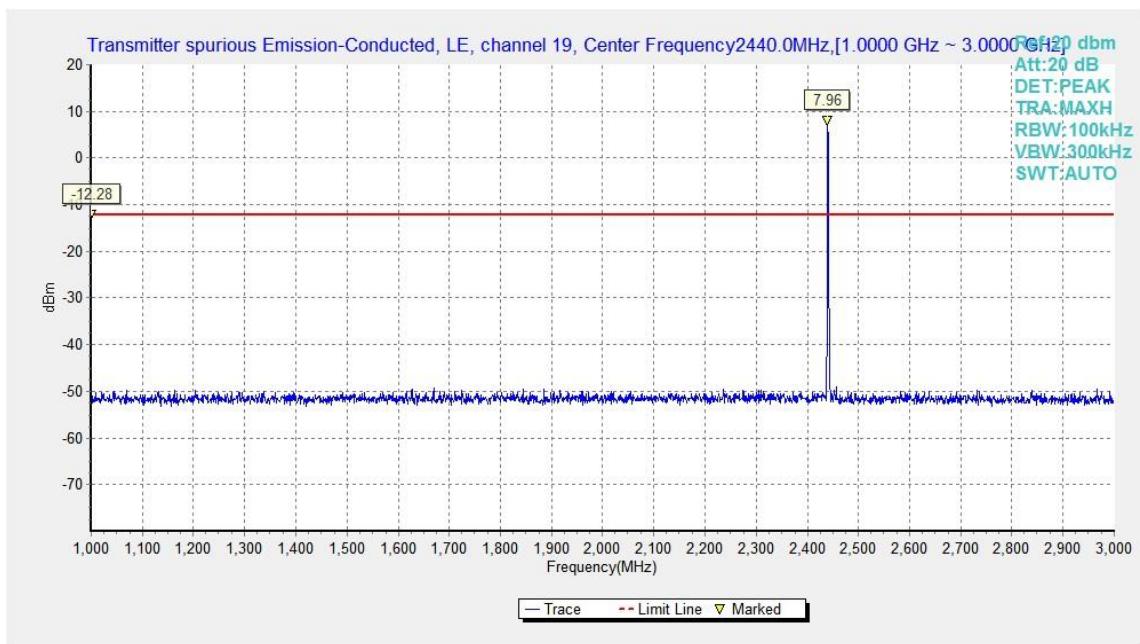
**Fig.7.** Transmitter Spurious Emission - Conducted: GFSK, 2402 MHz, 10GHz - 26GHz



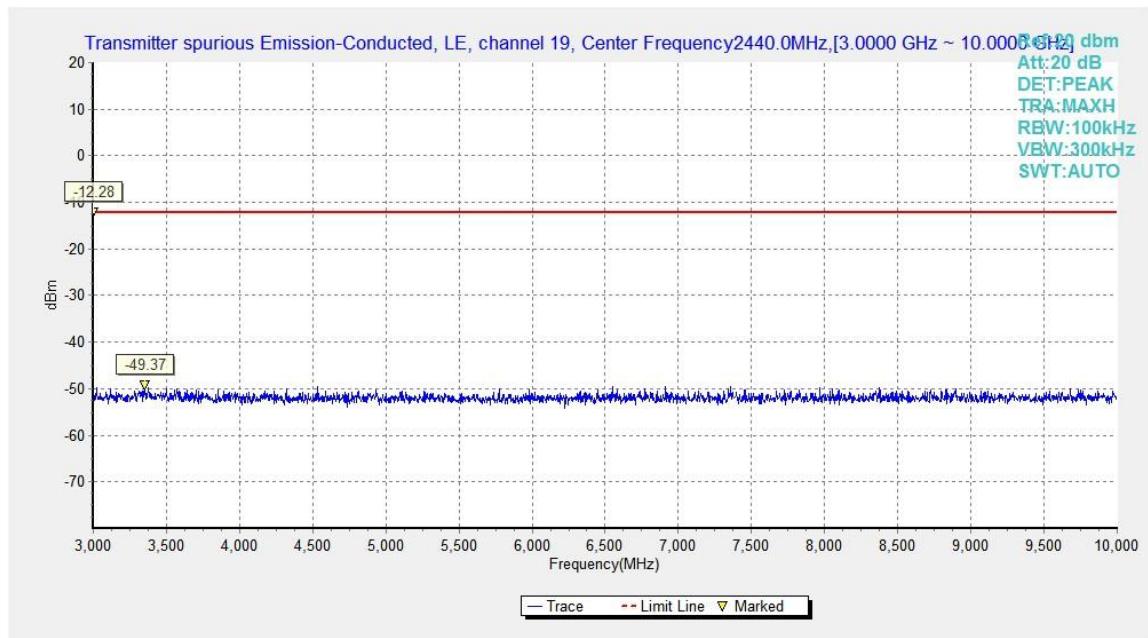
**Fig.8.** Transmitter Spurious Emission - Conducted: GFSK, 2440MHz



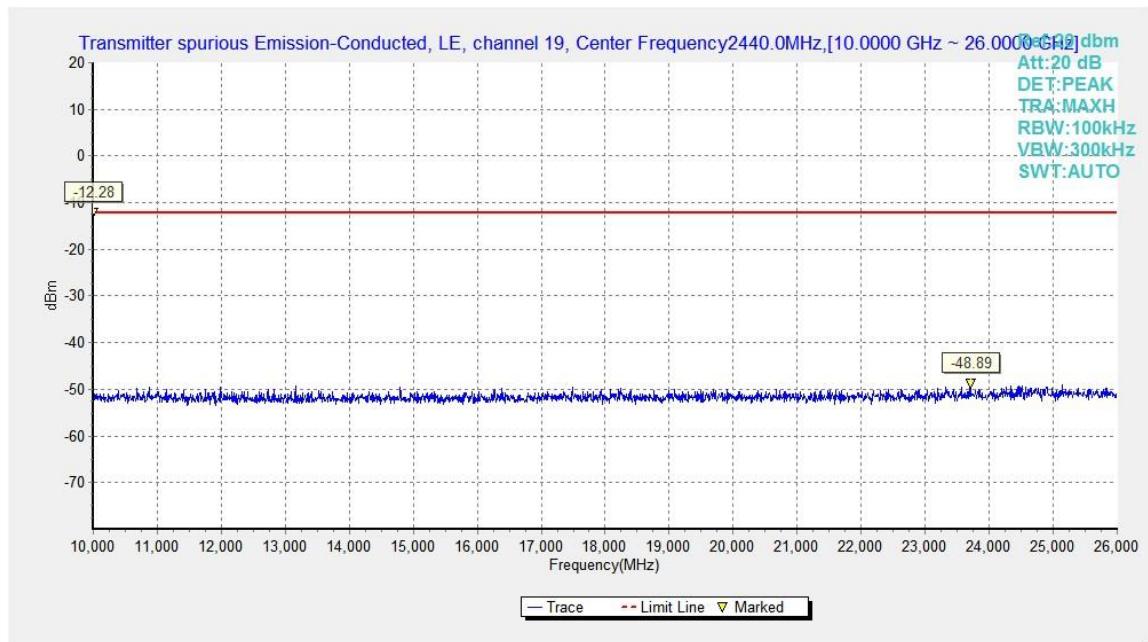
**Fig.9.** Transmitter Spurious Emission - Conducted: GFSK, 2440 MHz, 30MHz - 1GHz



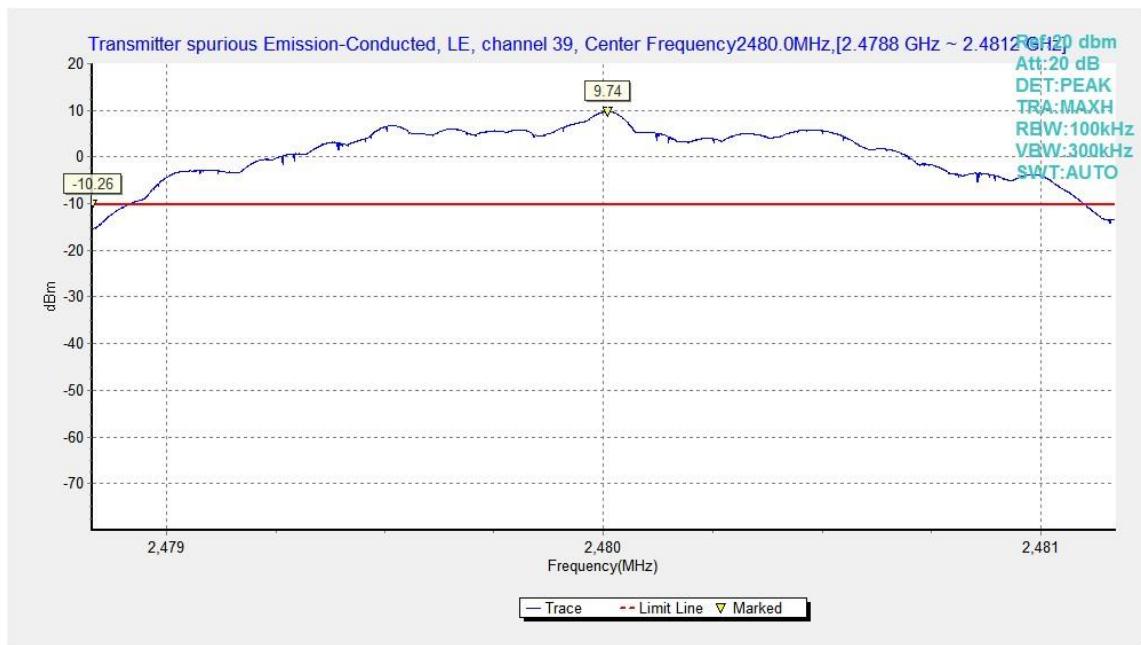
**Fig.10.** Transmitter Spurious Emission - Conducted: GFSK, 2440 MHz, 1GHz – 3GHz



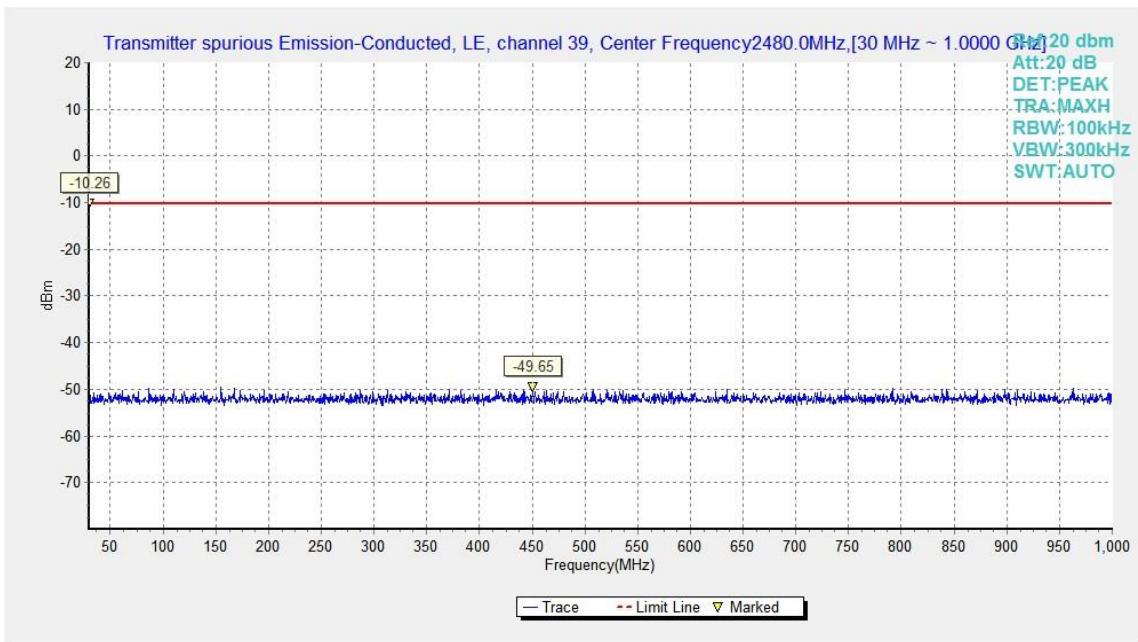
**Fig.11.** Transmitter Spurious Emission - Conducted: GFSK, 2440 MHz, 3GHz – 10GHz



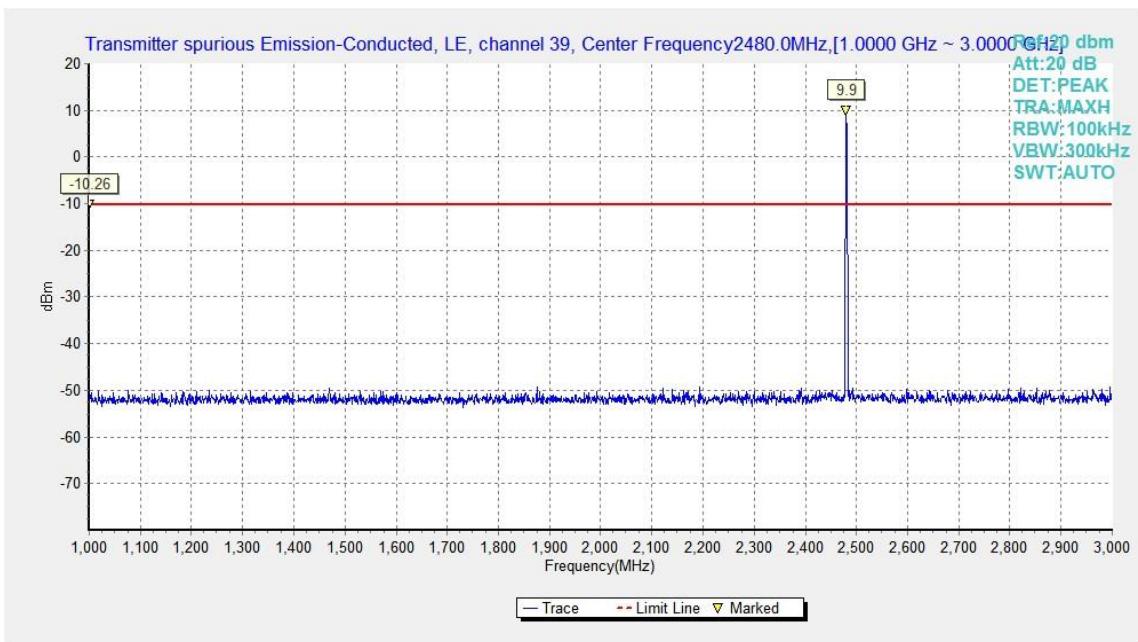
**Fig.12.** Transmitter Spurious Emission - Conducted: GFSK, 2440 MHz, 10GHz – 26GHz



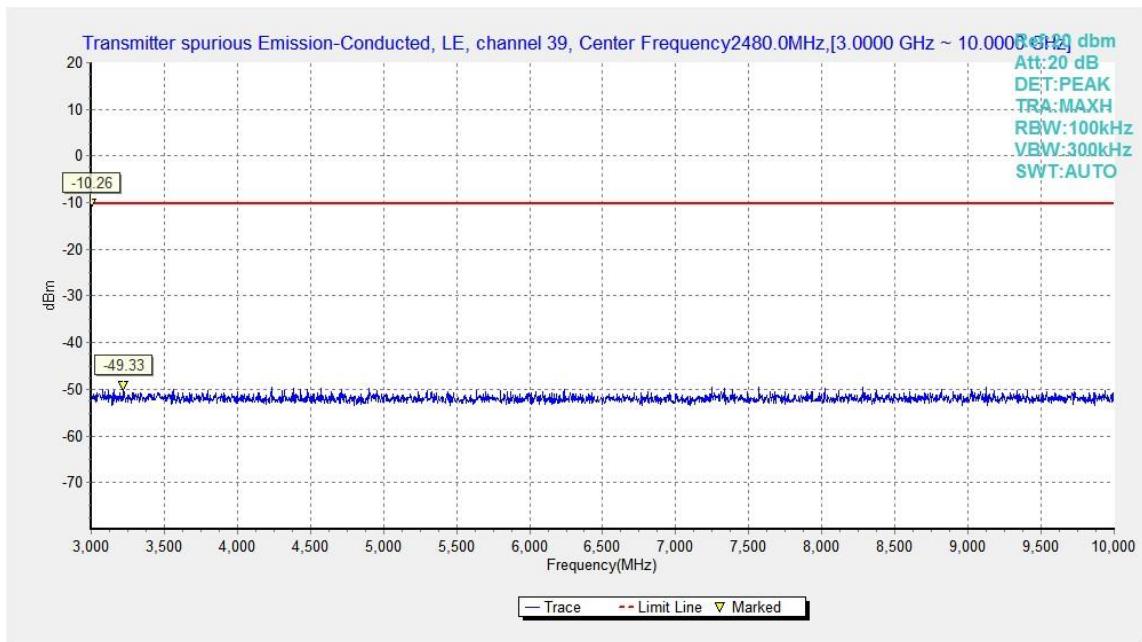
**Fig.13.** Transmitter Spurious Emission - Conducted: GFSK, 2480 MHz



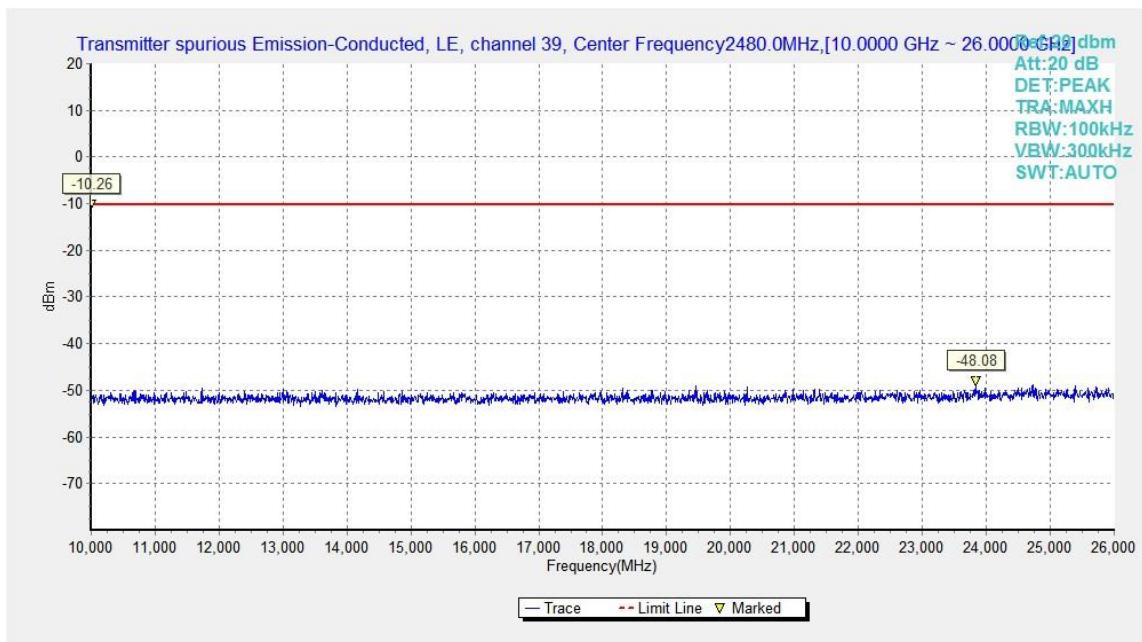
**Fig.14.** Transmitter Spurious Emission - Conducted: GFSK, 2480 MHz, 30MHz - 1GHz



**Fig.15.** Transmitter Spurious Emission - Conducted: GFSK, 2480 MHz, 1GHz - 3GHz



**Fig.16.** Transmitter Spurious Emission - Conducted: GFSK, 2480 MHz, 3GHz - 10GHz



**Fig.17.** Transmitter Spurious Emission - Conducted: GFSK, 2480 MHz, 10GHz - 26GHz

## B.5. 6dB Bandwidth

### Method of Measurement:

The measurement is made according to ANSI C63.10 clause 11.8.1

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) = 300 kHz.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a)(2)	>= 500KHz

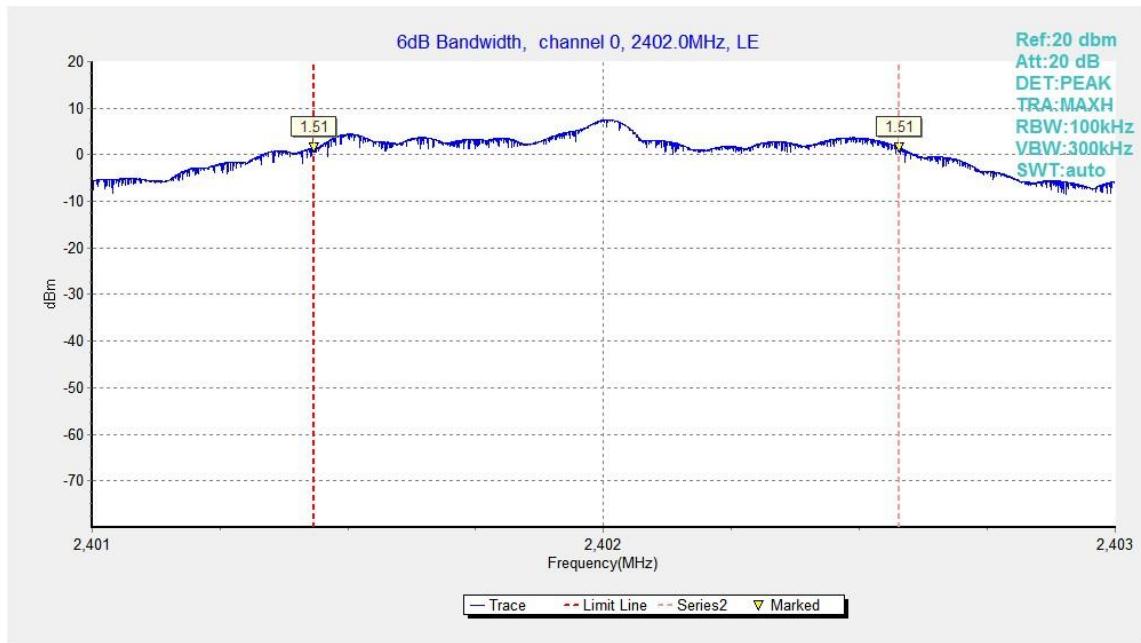
### Measurement Results:

#### For GFSK

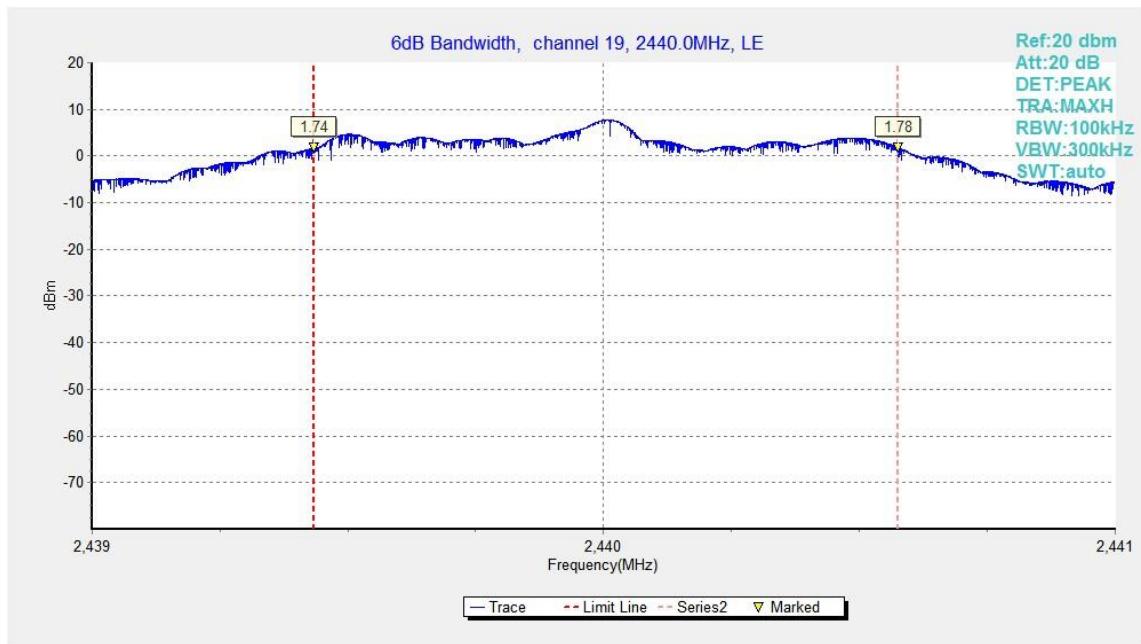
Channel No.	Frequency (MHz)	6dB Bandwidth (kHz)		Conclusion
0	2402	Fig.18	1144.00	P
19	2440	Fig.19	1141.50	P
39	2480	Fig.20	1141.00	P

**Conclusion: PASS**

**Test graphs as below:**



**Fig.18.** 6dB Bandwidth: GFSK, 2402 MHz



**Fig.19.** 6dB Bandwidth: GFSK, 2440 MHz

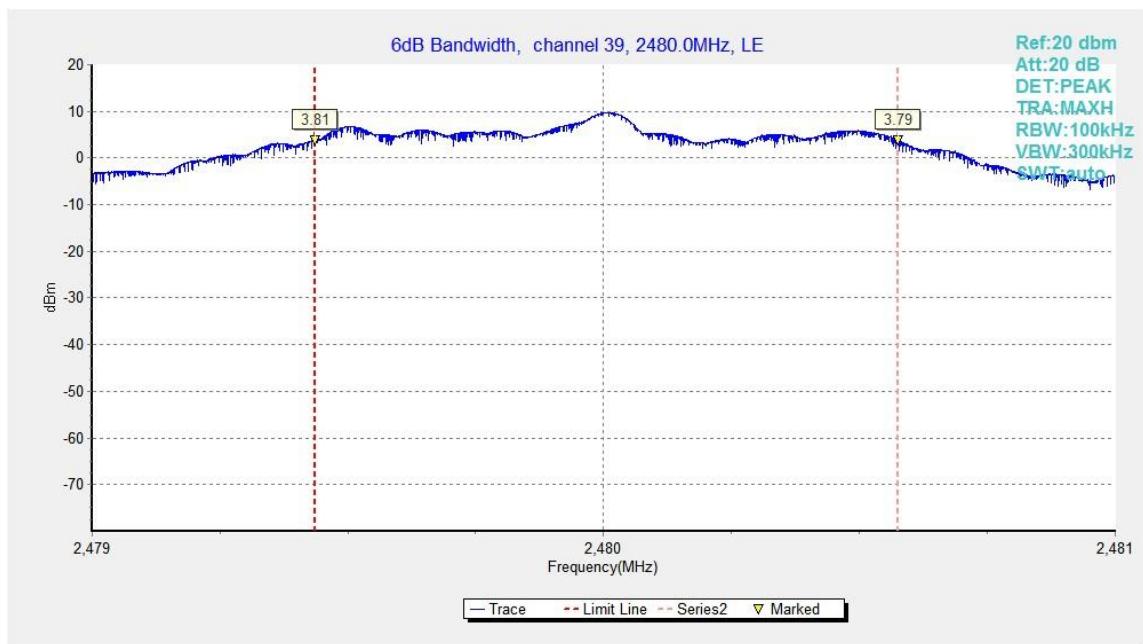


Fig.20. 6dB Bandwidth: GFSK, 2480 MHz

## B.6. Maximum Power Spectral Density Level

### Method of Measurement:

The measurement is made according to ANSI C63.10 clause 11.10.2

1. Set the RBW = 3 kHz.
2. Set the VBW = 10 kHz.
3. Set the span to 2 times the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level within the RBW.

### Measurement Limit:

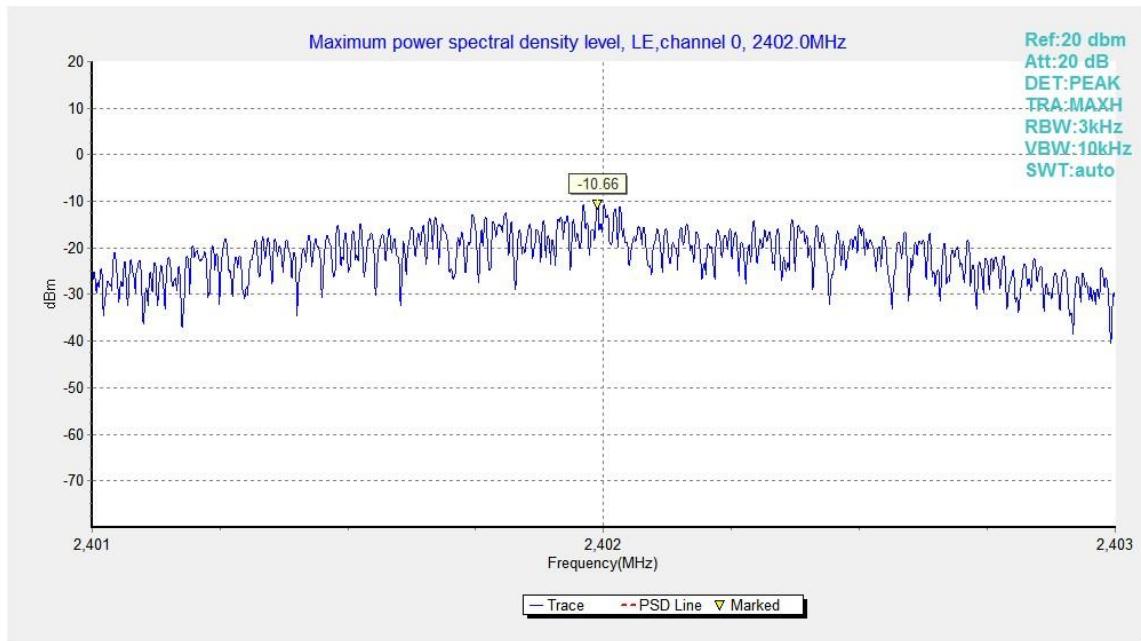
Standard	Limit
FCC 47 CFR Part 15.247(e)	<=8.0dBm/3kHz

### Measurement Results:

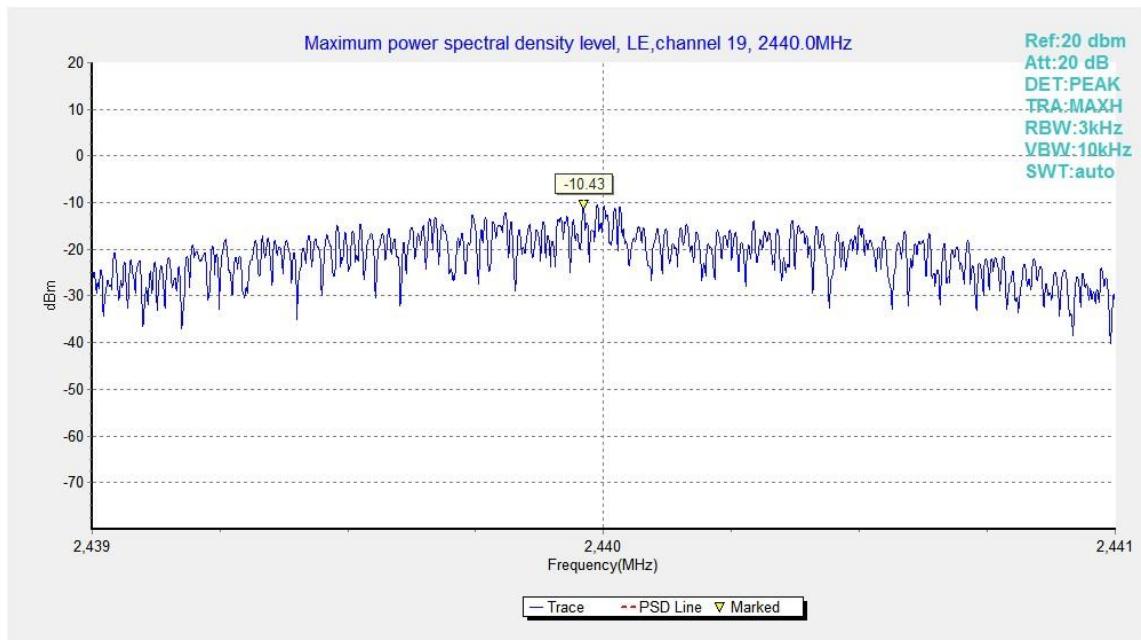
#### For GFSK

Channel No.	Frequency (MHz)	Maximum Power Spectral Density Level(dBm/3kHz)		Conclusion
0	2402	Fig.21	-10.66	P
19	2440	Fig.22	-10.43	P
39	2480	Fig.23	-8.40	P

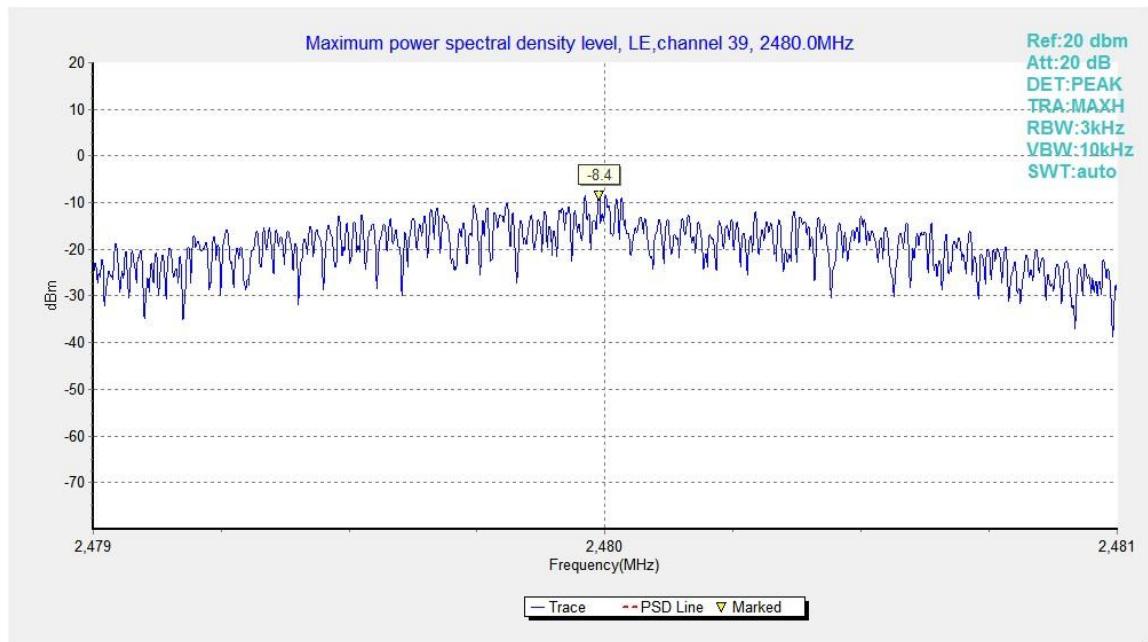
Test graphs as below:



**Fig.21.** Maximum Power Spectral Density Level Function: GFSK, 2402 MHz



**Fig.22.** Maximum Power Spectral Density Level Function: GFSK, 2440 MHz



**Fig.23.** Maximum Power Spectral Density Level Function: GFSK, 2480 MHz

## ANNEX C: Accreditation Certificate

United States Department of Commerce  
National Institute of Standards and Technology



### **Certificate of Accreditation to ISO/IEC 17025:2017**

**NVLAP LAB CODE: 600118-0**

**Telecommunication Technology Labs, CAICT**

Beijing  
China

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,  
listed on the Scope of Accreditation, for:*

**Electromagnetic Compatibility & Telecommunications**

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.  
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality  
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2022-10-01 through 2023-09-30

*Effective Dates*



*For the National Voluntary Laboratory Accreditation Program*



**\*\*\*END OF REPORT\*\*\***