TEST REPORT

No. I22N00674-BT

TCL Communication Ltd.

LTE/WCDMA/GSM mobile phone

Model Name: T676J

with

Hardware Version: PIO

Software Version: V2B51

FCC ID: 2ACCJH157

Issued Date: 2022-03-16

Designation Number: CN1210

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 SAICT.

Test Laboratory:

Shenzhen Academy of Information and Communications Technology

Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China 518000.

Tel: +86(0)755-33322000, Fax: +86(0)755-33322001

Email: yewu@caict.ac.cn, website: www.cszit.com

©Copyright. All rights reserved by SAICT.

CONTENTS

1. SUMMARY OF TEST REPORT 3

1.1. TEST ITEMS 3
1.2. TEST STANDARDS 3
1.3. TEST RESULT 3
1.4. TESTING LOCATION 3
1.5. PROJECT DATA 3
1.6. SIGNATURE 3

2. CLIENT INFORMATION 4

2.1. APPLICANT INFORMATION 4
2.2. MANUFACTURER INFORMATION 4

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) 5

3.1. ABOUT EUT 5
3.2. INTERNAL IDENTIFICATION OF EUT 5
3.3. INTERNAL IDENTIFICATION OF AE 5
3.4. GENERAL DESCRIPTION 5

4. REFERENCE DOCUMENTS 6

4.1. DOCUMENTS SUPPLIED BY APPLICANT 6
4.2. REFERENCE DOCUMENTS FOR TESTING 6

5. TEST RESULTS 7

5.1. TESTING ENVIRONMENT 7
5.2. TEST RESULTS 7
5.3. STATEMENTS 7

6. TEST EQUIPMENTS UTILIZED 8

7. LABORATORY ENVIRONMENT 9

8. MEASUREMENT UNCERTAINTY 10

ANNEX A: DETAILED TEST RESULTS 11

A.0 ANTENNA REQUIREMENT 11
A.1 MAXIMUM PEAK OUTPUT POWER 12
A.2 BAND EDGES COMPLIANCE 13
A.3 CONDUCTED EMISSION 20
A.4 RADIATED EMISSION 36
A.5 20DB BANDWIDTH 49
A.6 TIME OF OCCUPANCY (DWELL TIME) 54
A.7 NUMBER OF HOPPING CHANNELS 58
A.8 CARRIER FREQUENCY SEPARATION 62
A.9 AC POWER LINE CONDUCTED EMISSION 64

©Copyright. All rights reserved by SAICT.

1. Summary of Test Report

1.1. Test Items

Description	LTE/WCDMA/GSM mobile phone
Model Name	T676J
Applicant's name	TCL Communication Ltd.
Manufacturer's Name	TCL Communication Ltd.

1.2. Test Standards

FCC Part15-2019; ANSI C63.10-2013

1.3. Test Result

Pass

Please refer to 5.2 Test Results.

1.4. Testing Location

Address: Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China

1.5. Project data

Testing Start Date:	2021-12-27
Testing End Date:	2022-01-20

1.6. Signature

Lin Kanfeng

(Prepared this test report)

An Ran

(Reviewed this test report)

Zhang Bojun

(Approved this test report)

©Copyright. All rights reserved by SAICT.

2. Client Information

2.1. Applicant Information

Company Name:	TCL Communication Ltd.
Address:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact Person:	Peter yang
E-Mail:	peter.yang@tcl.com
Telephone:	+86 755 3664 5759
FAX:	0086-755-36612000-81722

2.2. Manufacturer Information

Company Name:	TCL Communication Ltd.
Address:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact Person:	Peter yang
E-Mail:	peter.yang@tcl.com
Telephone:	+86 755 3664 5759
FAX:	0086-755-36612000-81722

©Copyright. All rights reserved by SAICT.

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

3.1. About EUT

Description	LTE/WCDMA/GSM mobile phone
Model Name	T676J
Frequency Band	2400MHz~2483.5MHz
Type of Modulation	GFSK/ π /4 DQPSK/8DPSK
Number of Channels	79
Antenna Type	Integrated
Antenna Gain	-0.15 dBi
Power Supply	3.85V DC by Battery
FCC ID	2ACCJH157
Condition of EUT as received	No abnormality in appearance

3.2. Internal Identification of EUT

EUT ID*	IMEI	HW Version	SW Version	Receive Date
UT02aa	/	PIO	V2B51	2021-12-22
UT05aa	/	PIO	V2B51	2021-12-22

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

*UT02aa is used for Conduction test; UT05aa is used for Radiation test and AC Power line Conducted Emission test.

3.3. Internal Identification of AE

AE ID*	Description	SN
AE1	Battery	CAC4900004C7
AE2	Charger	CBA0064BGTC5
AE3	Charger	CBA0059AGTC1
AE4	Charger	CBA0059AGTC5

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

3.4. General Description

The Equipment under Test (EUT) is a model of LTE/WCDMA/GSM mobile phone with integrated antenna and battery. It consists of normal options: Lithium Battery and Charger. Manual and specifications of the EUT were provided to fulfil the test. Samples undergoing test were selected by the client.

According to the customer's description, T676J (2sim) is a variant product of T676J (1sim). All results were from the initial model. The initial model report number is I21N03521-BT.

©Copyright. All rights reserved by SAICT.

4. Reference Documents

4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant 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 Part 15	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	2019
ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	2013

©Copyright. All rights reserved by SAICT.

5. Test Results

5.1. Testing Environment

Normal Temperature: 15~35℃

Relative Humidity: 20~75%

5.2. Test Results

No	Test cases	Sub-clause of Part 15C	Verdict
0	Antenna Requirement	15.203	**P**
1	Maximum Peak Output Power	15.247 (b)	**P**
2	Band Edges Compliance	15.247 (d)	**P**
3	Conducted Spurious Emission	15.247 (d)	**P**
4	Radiated Spurious Emission	15.247, 15.205, 15.209	**P**
5	Occupied 20dB bandwidth	15.247 (a)	**/**
6	Time of Occupancy (Dwell Time)	15.247 (a)	**P**
7	Number of Hopping Channel	15.247 (a)	**P**
8	Carrier Frequency Separation	15.247 (a)	**P**
9	AC Power line Conducted Emission	15.107, 15.207	**P**

See **ANNEX A** for details.

5.3. Statements

SAICT has evaluated the test cases requested by the applicant/manufacturer as listed in section 5.2 of this report, for the EUT specified in section 3, according to the standards or reference documents listed in section 4.2.

Disclaimer:

A. After confirmation with the customer, the sample information provided by the customer may affect the validity of the measurement results in this report, and the impact and consequences arising therefrom shall be borne by the customer.

B. The samples in this report are provided by the customer, and the test results are only applicable to the samples received.

©Copyright. All rights reserved by SAICT.

6. Test Equipments Utilized

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1	Vector Signal Analyzer	FSV40	100903	Rohde & Schwarz	2022-12-29	1 year
2	Bluetooth Tester	CBT32	100584	Rohde & Schwarz	2022-12-29	1 year
3	Power Sensor	U2021XA	MY55430013	Keysight	2022-12-29	1 year
4	Data Acquisiton	U2531A	TW55443507	Keysight	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1	LISN	ESH2-Z5	100196	R&S	2022-12-31	1 year
2	Test Receiver	ESCI	100701	R&S	2022-08-04	1 year
3	Loop Antenna	HLA6120	35779	TESEQ	2022-05-01	3 year
4	BiLog Antenna	VULB9163	9163 329	Schwarzbeck	2024-02-15	3 year
5	Horn Antenna	3117	00066585	ETS-Lindgren	2022-03-04	3 year
6	Test Receiver	ESR7	101675	R&S	2022-07-16	1 year
7	Spectrum Analyzer	FSP 40	100378	R&S	2022-12-10	1 year
8	Chamber	FACT5-2.0	4166	ETS-Lindgren	2024-05-11	3 year
9	Antenna	QSH-SL-1 8-26-S-20	17013	Q-par	2024-01-13	3 year
10	Antenna	QSH-SL-2 6-40-K-20	17014	Q-par	2024-01-19	3 year

Test software

No.	Equipment	Manufacturer	Version
1	TechMgr Software	CAICT	2.1.1
2	EMC32	Rohde & Schwarz	8.53.0
3	EMC32	Rohde & Schwarz	10.01.00

EUT is engineering software provided by the customer to control the transmitting signal.
The EUT was programmed to be in continuously transmitting mode.

Anechoic chamber

Fully anechoic chamber by ETS-Lindgren

©Copyright. All rights reserved by SAICT.

7. Laboratory Environment

Semi-anechoic chamber

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ±4 dB, 3 m distance, from 30 to 1000 MHz

Shielded room

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-1000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω

Fully-anechoic chamber

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω
Voltage Standing Wave Ratio (VSWR)	⩽ 6 dB, from 1 to 18 GHz, 3 m distance
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

©Copyright. All rights reserved by SAICT.

8. Measurement Uncertainty

Test Name	Uncertainty *(k=2)*	
1. RF Output Power - Conducted	1.32dB	
2. Time of Occupancy - Conducted	0.58ms	
3. Occupied channel bandwidth - Conducted	66Hz	
4. Transmitter Spurious Emission - Conducted	30MHz≤f<1GHz	1.41dB
	1GHz≤f<7GHz	1.92dB
	7GHz≤f<13GHz	2.31dB
	13GHz≤f≤26GHz	2.61dB
5. Transmitter Spurious Emission - Radiated	9kHz≤f<30MHz	1.70dB
	30MHz≤f<1GHz	4.90dB
	1GHz≤f<18GHz	4.60dB
	18GHz≤f≤40GHz	4.10dB
6. AC Power line Conducted Emission	150kHz≤f≤30MHz	3.00dB

©Copyright. All rights reserved by SAICT.

ANNEX A: Detailed Test Results

A.0 Antenna requirement

Measurement Limit:

Standard	Requirement
FCC CRF Part 15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

Conclusion: The Directional gains of antenna used for transmitting is -0.15dBi. The RF transmitter uses an integrate antenna without connector.

©Copyright. All rights reserved by SAICT.

A.1 Maximum Peak Output Power

Method of Measurement: See ANSI C63.10-clause 7.8.5.

A peak responding power meter may be used, where the power meter and sensor system video bandwidth is greater than the occupied bandwidth of the unlicensed wireless device, rather than a spectrum analyzer.

Measurement Limit:

Standard	Limit (dBm)	E.I.R.P Limit (dBm)
FCC CRF Part 15.247 (b)	< 30	< 36

Measurement Results:

Conducted transmitter power

Mode	Peak Conducted Output Power (dBm)		
	2402MHz (Ch0)	2441MHz (Ch39)	2480MHz (Ch78)
GFSK	9.24	9.29	9.23
π /4 DQPSK	8.33	8.41	8.78
8DPSK	8.34	8.42	8.79

E.I.R.P

Mode	Peak Conducted Output Power (dBm)		
	2402MHz (Ch0)	2441MHz (Ch39)	2480MHz (Ch78)
GFSK	9.09	9.14	9.08
π /4 DQPSK	8.18	8.26	8.63
8DPSK	8.19	8.27	8.64

Note: E.I.R.P value = Conducted values (with conducted samples) + Antenna Gain.

Conclusion: Pass

©Copyright. All rights reserved by SAICT.

A.2 Band Edges Compliance

Measurement Limit:

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

Measurement Result:

Mode	Channel	Hopping	Test Results	Conclusion
GFSK	0	ON	Fig.1	**P**
	78	ON	Fig.2	**P**
π /4 DQPSK	0	ON	Fig.3	**P**
	78	ON	Fig.4	**P**
8DPSK	0	ON	Fig.5	**P**
	78	ON	Fig.6	**P**

Mode	Channel	Hopping	Test Results	Conclusion
GFSK	0	OFF	Fig.7	**P**
	78	OFF	Fig.8	**P**
π /4 DQPSK	0	OFF	Fig.9	**P**
	78	OFF	Fig.10	**P**
8DPSK	0	OFF	Fig.11	**P**
	78	OFF	Fig.12	**P**

See below for test graphs.

Conclusion: Pass

©Copyright. All rights reserved by SAICT.

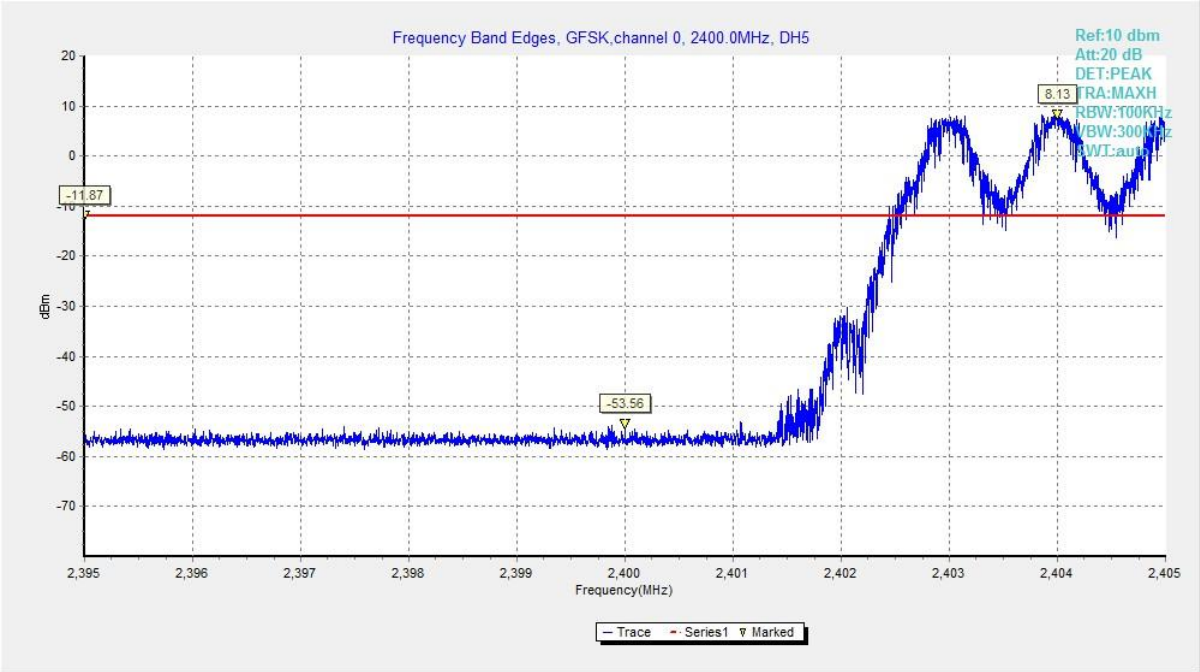

Fig. 1 Band Edges (GFSK, Ch 0, Hopping ON)

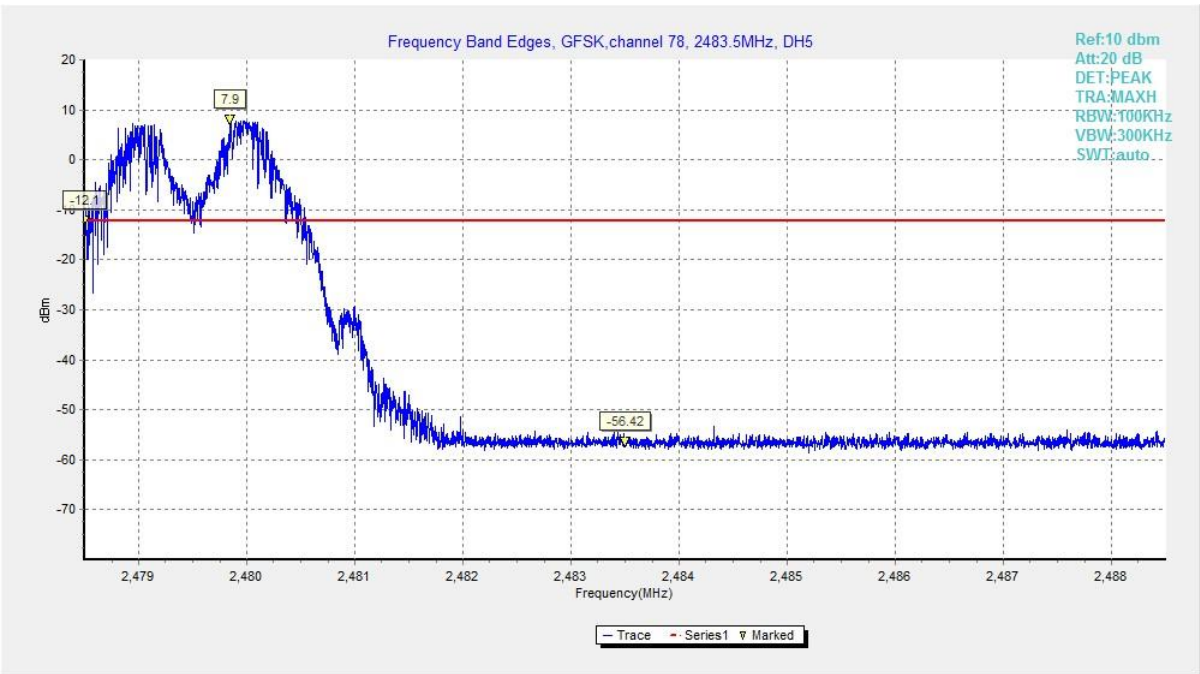

Fig. 2 Band Edges (GFSK, Ch 78, Hopping ON)

©Copyright. All rights reserved by SAICT.

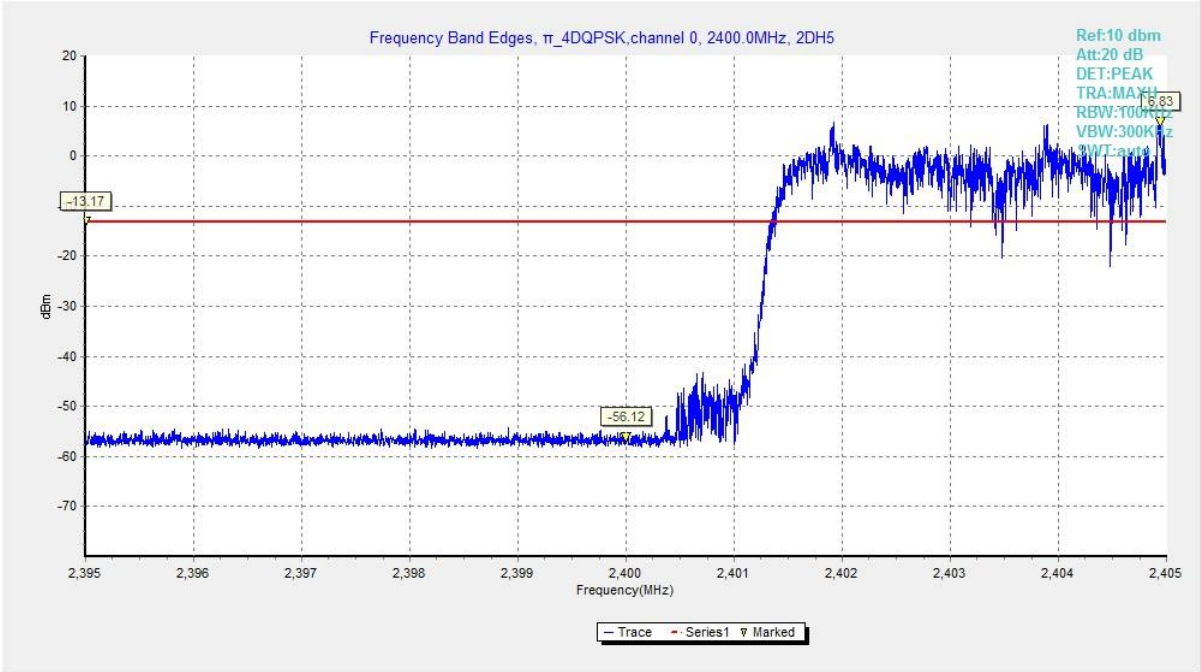

Fig. 3 Band Edges (π /4 DQPSK, Ch 0, Hopping ON)

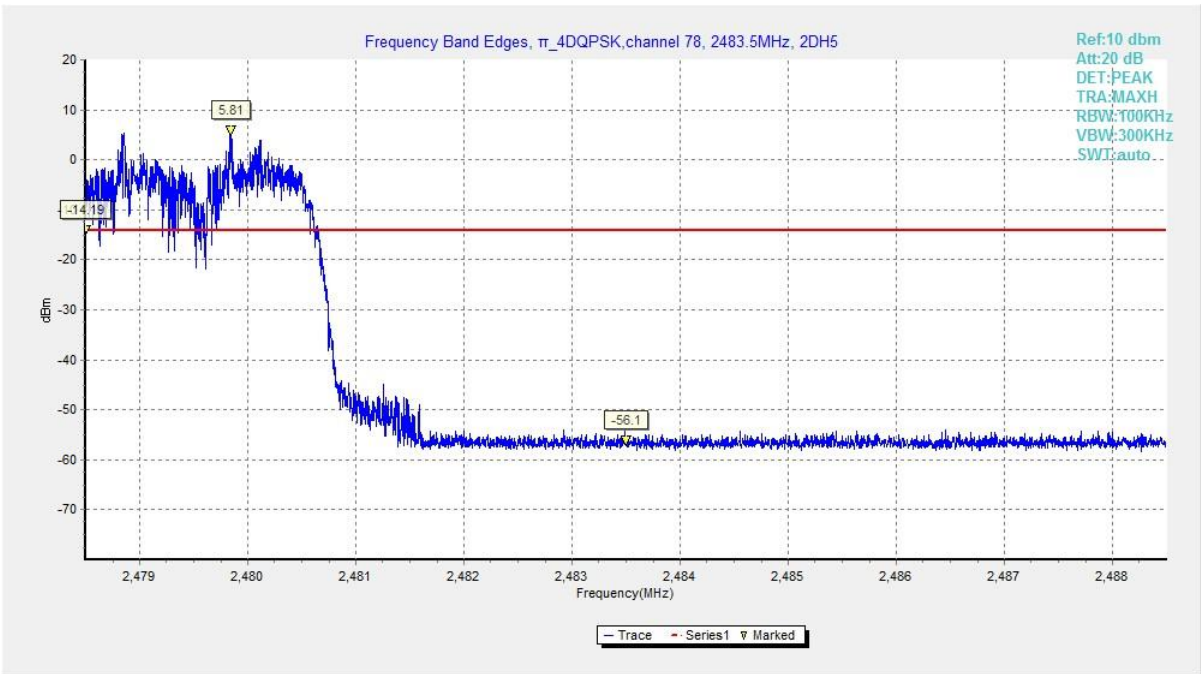

Fig. 4 Band Edges (π /4 DQPSK, Ch 78, Hopping ON)

©Copyright. All rights reserved by SAICT.

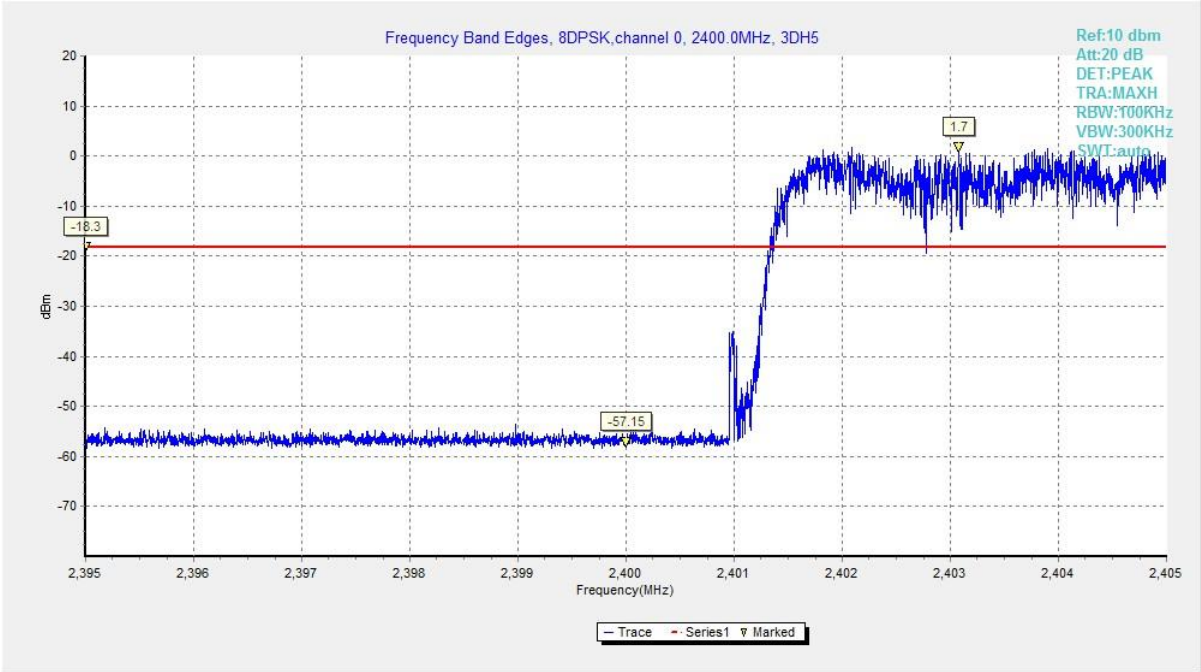

Fig. 5 Band Edges (8DPSK, Ch 0, Hopping ON)

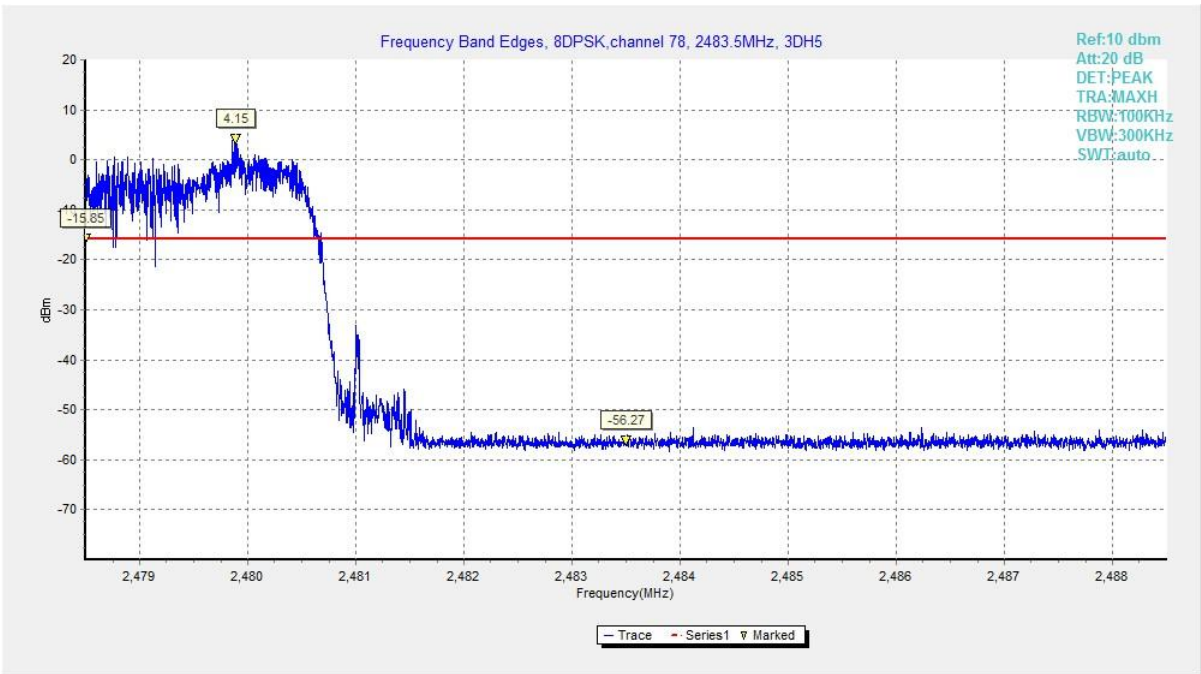

Fig. 6 Band Edges (8DPSK, Ch 78, Hopping ON)

©Copyright. All rights reserved by SAICT.

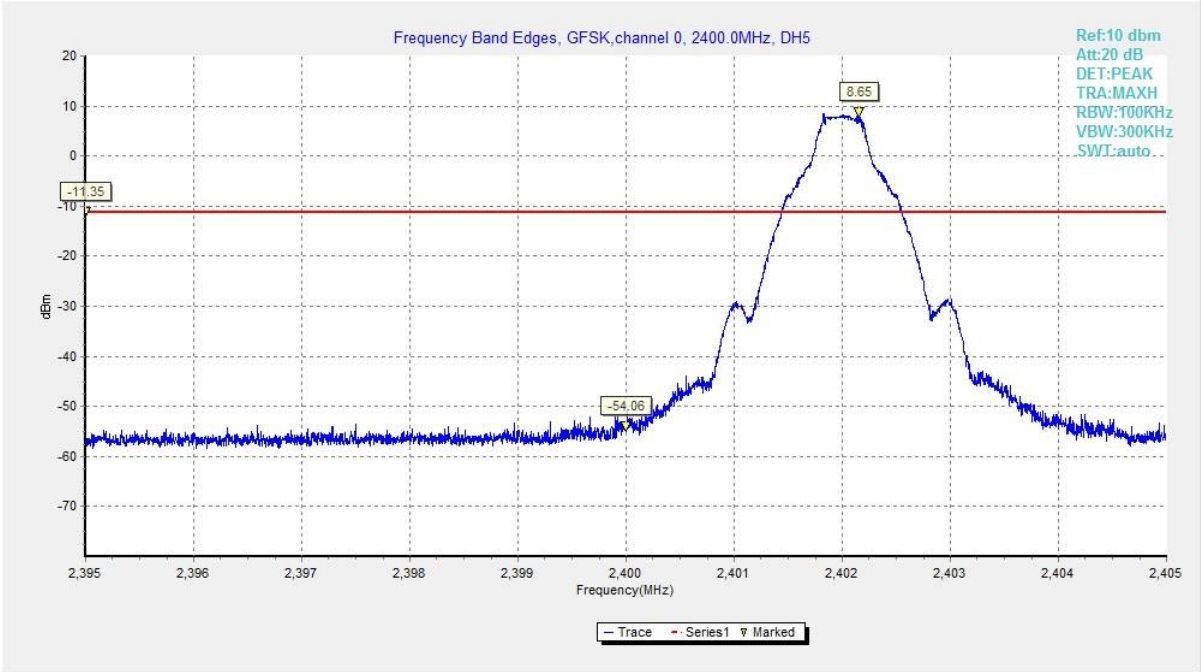

Fig. 7 Band Edges (GFSK, Ch 0, Hopping OFF)

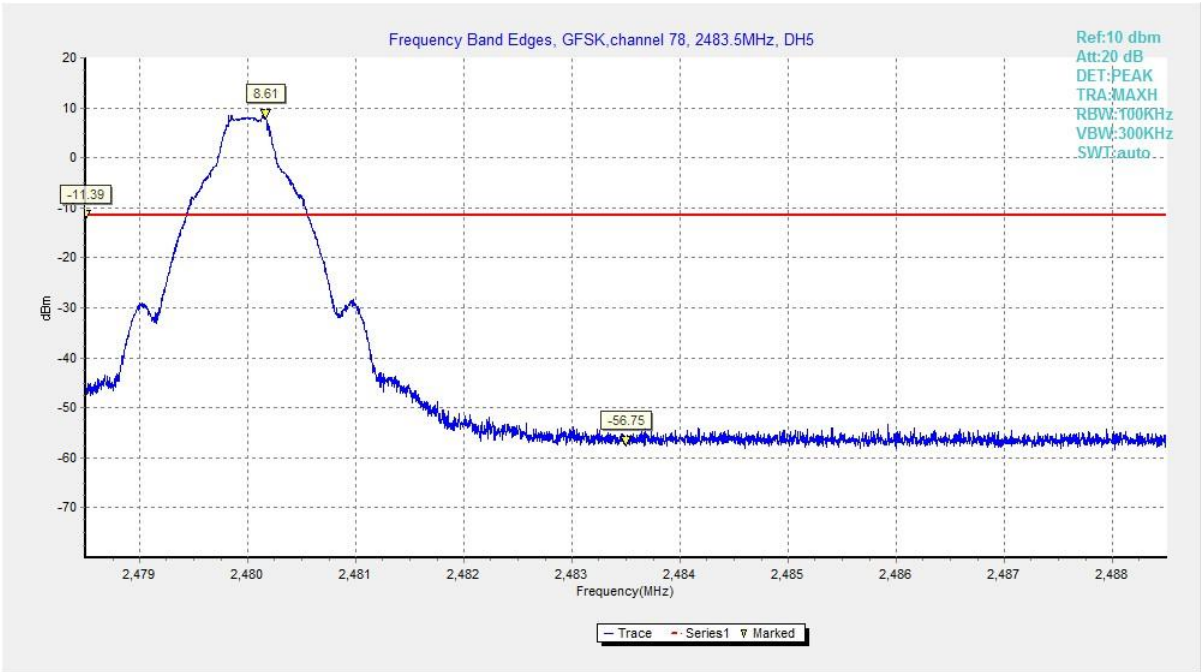

Fig. 8 Band Edges (GFSK, Ch 78, Hopping OFF)

©Copyright. All rights reserved by SAICT.

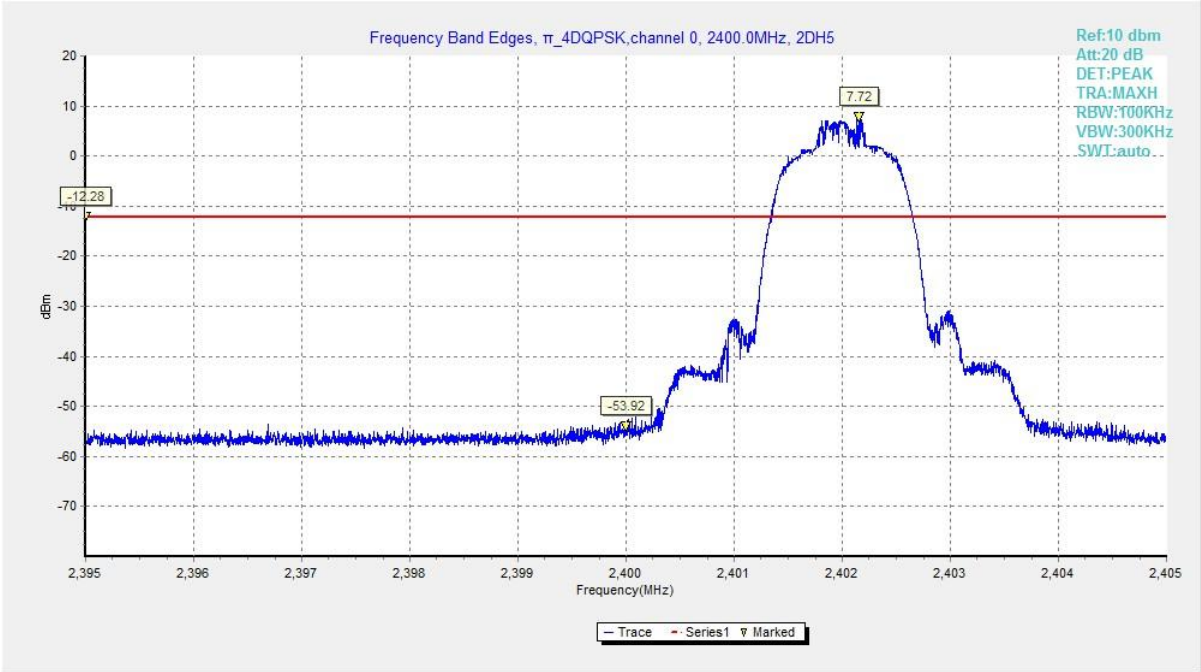

Fig. 9 Band Edges (π /4 DQPSK, Ch 0, Hopping OFF)

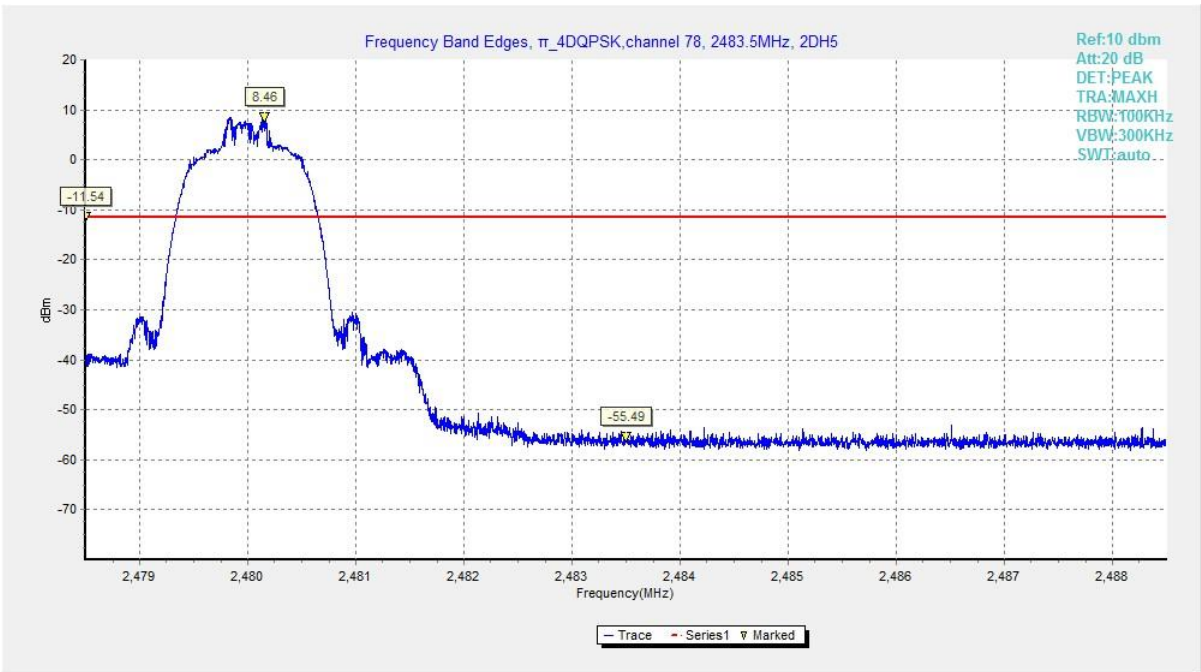

Fig. 10 Band Edges (π /4 DQPSK, Ch 78, Hopping OFF)

©Copyright. All rights reserved by SAICT.

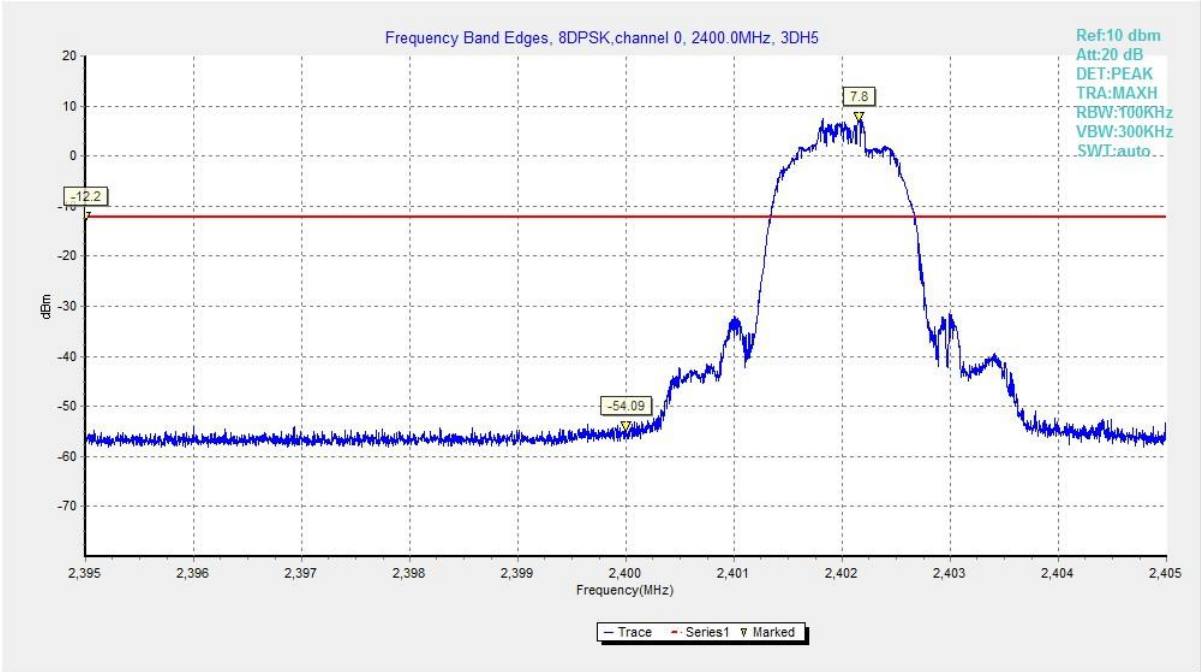

Fig. 11 Band Edges (8DPSK, Ch 0, Hopping OFF)

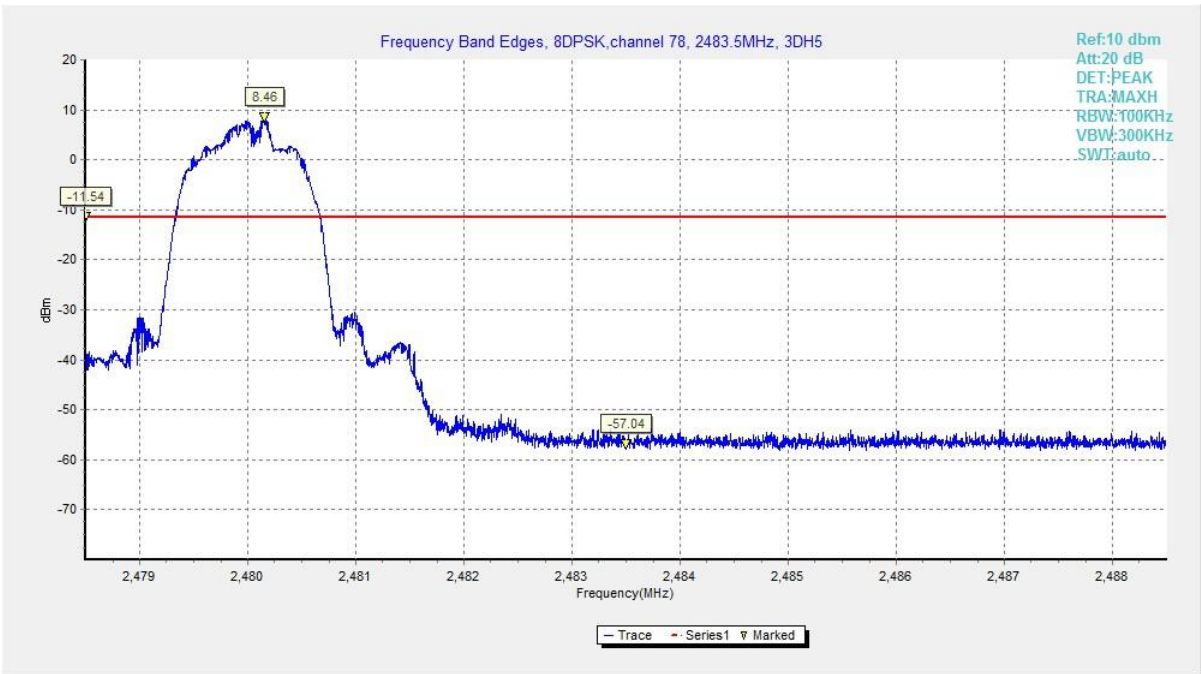

Fig. 12 Band Edges (8DPSK, Ch 78, Hopping OFF)

©Copyright. All rights reserved by SAICT.

A.3 Conducted Emission

Measurement Limit:

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

Measurement Results:

MODE	Channel	Frequency Range	Test Results	Conclusion
GFSK	0	2.402 GHz	Fig.13	**P**
		1GHz-3GHz	Fig.14	**P**
		3GHz-10GHz	Fig.15	**P**
	39	2.441 GHz	Fig.16	**P**
		1GHz-3GHz	Fig.17	**P**
		3GHz-10GHz	Fig.18	**P**
	78	2.480 GHz	Fig.19	**P**
		1GHz-3GHz	Fig.20	**P**
		3GHz-10GHz	Fig.21	**P**
π /4 DQPSK	0	2.402 GHz	Fig.22	**P**
		1GHz-3GHz	Fig.23	**P**
		3GHz-10GHz	Fig.24	**P**
	39	2.441 GHz	Fig.25	**P**
		1GHz-3Ghz	Fig.26	**P**
		3GHz-10GHz	Fig.27	**P**
	78	2.480 GHz	Fig.28	**P**
		1GHz-3Ghz	Fig.29	**P**
		3GHz-10GHz	Fig.30	**P**
8DPSK	0	2.402 GHz	Fig.31	**P**
		1GHz-3GHz	Fig.32	**P**
		3GHz-10GHz	Fig.33	**P**
	39	2.441 GHz	Fig.34	**P**
		1GHz-3GHz	Fig.35	**P**
		3GHz-10GHz	Fig.36	**P**
	78	2.480 GHz	Fig.37	**P**
		1GHz-3GHz	Fig.38	**P**
		3GHz-10GHz	Fig.39	**P**
/	All channels	30 MHz-1GHz	Fig.40	**P**
		10GHz-26GHz	Fig.41	**P**

See below for test graphs.

Conclusion: Pass

©Copyright. All rights reserved by SAICT.

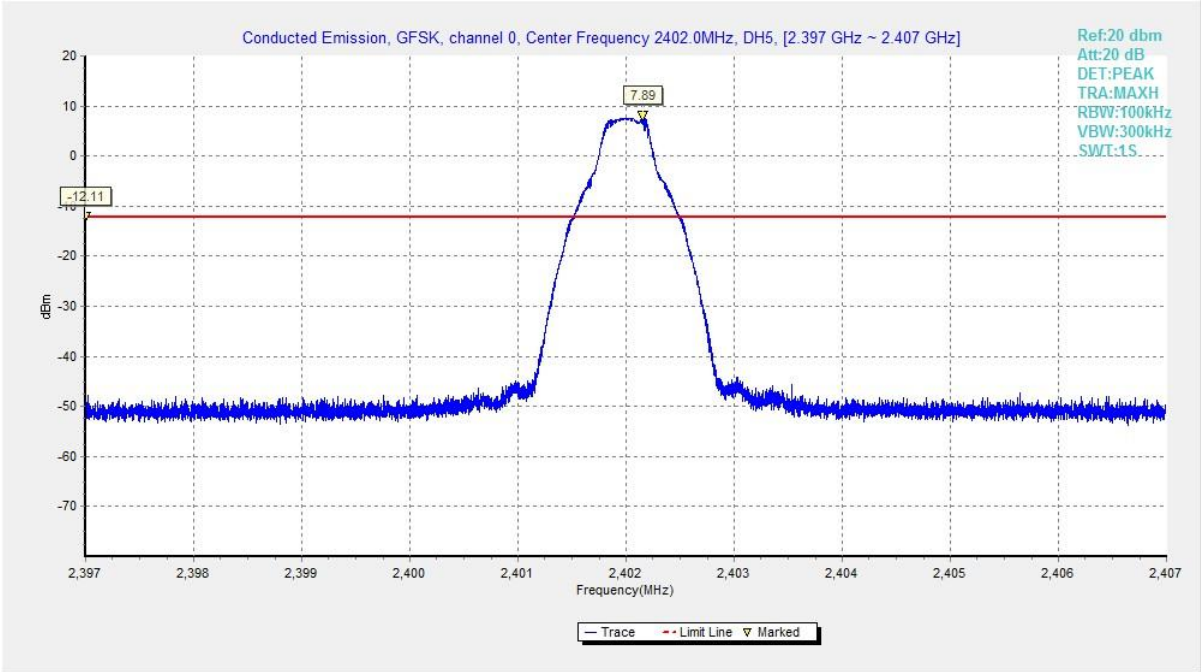

Fig. 13 Conducted Spurious Emission (GFSK, Ch0, 2.402GHz)

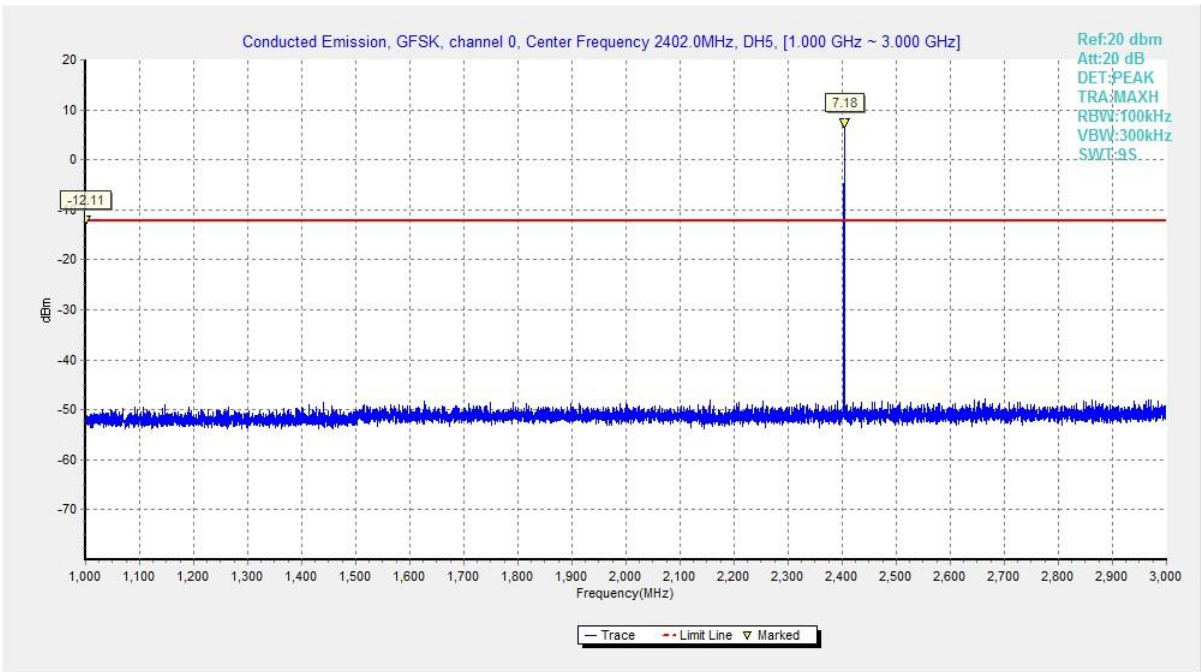

Fig. 14 Conducted Spurious Emission (GFSK, Ch0, 1 GHz-3 GHz)

©Copyright. All rights reserved by SAICT.

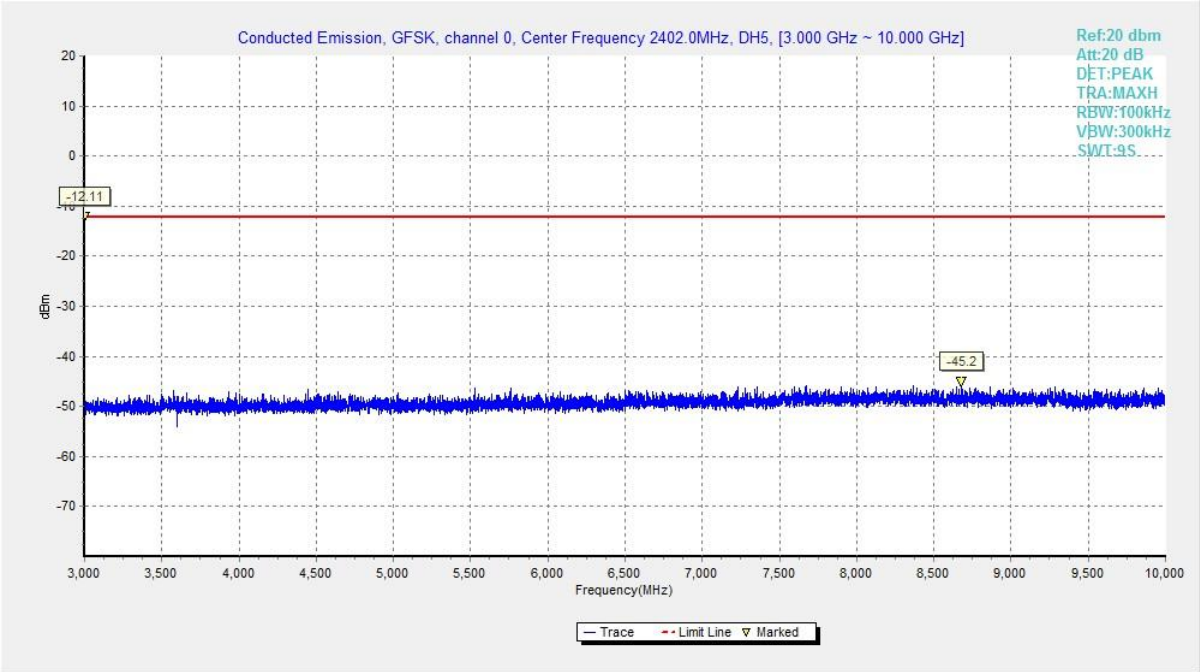

Fig. 15 Conducted Spurious Emission (GFSK, Ch0, 3GHz-10 GHz)

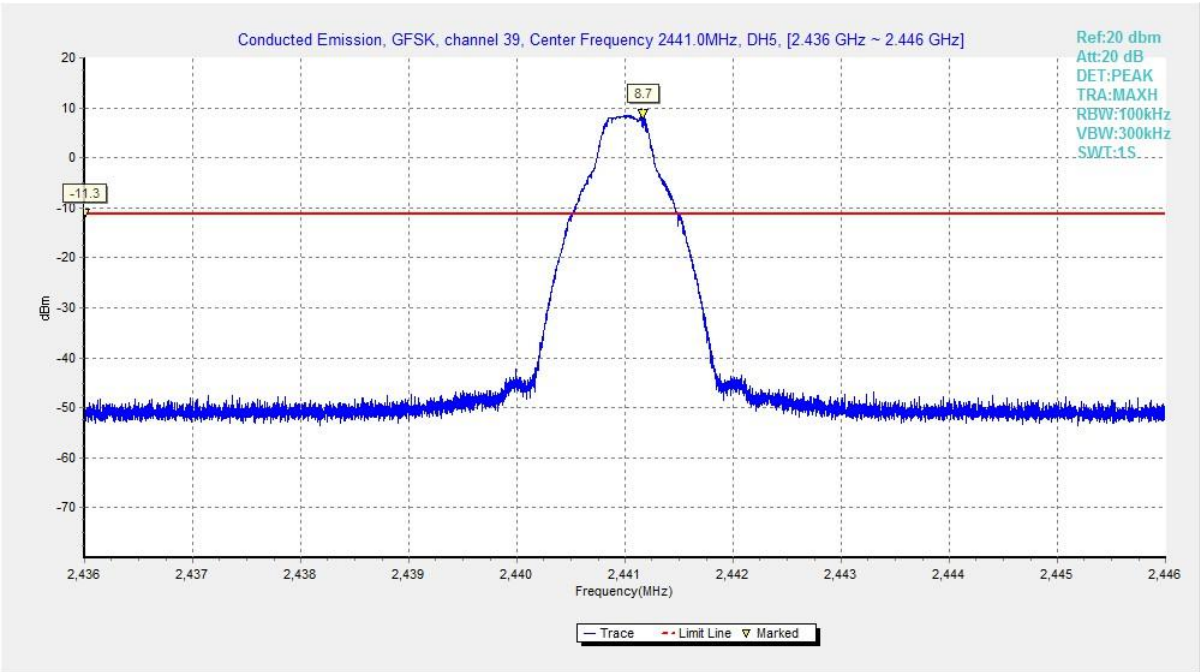

Fig. 16 Conducted Spurious Emission (GFSK, Ch39, 2.441GHz)

©Copyright. All rights reserved by SAICT.

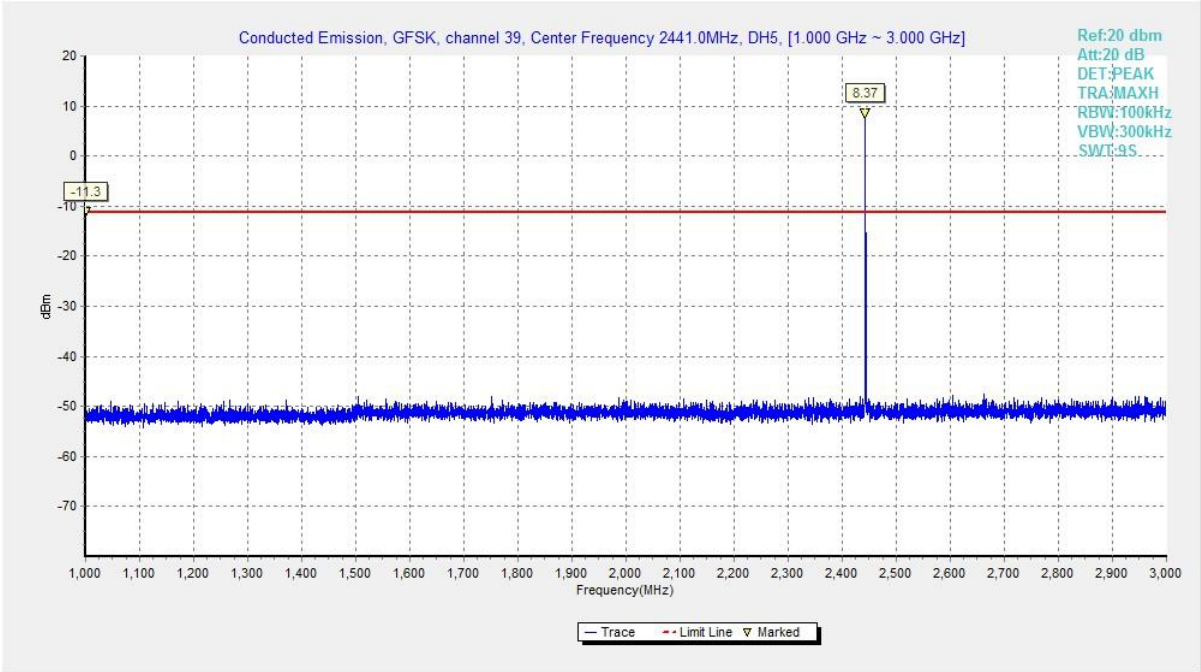

Fig. 17 Conducted Spurious Emission (GFSK, Ch39, 1GHz-3 GHz)

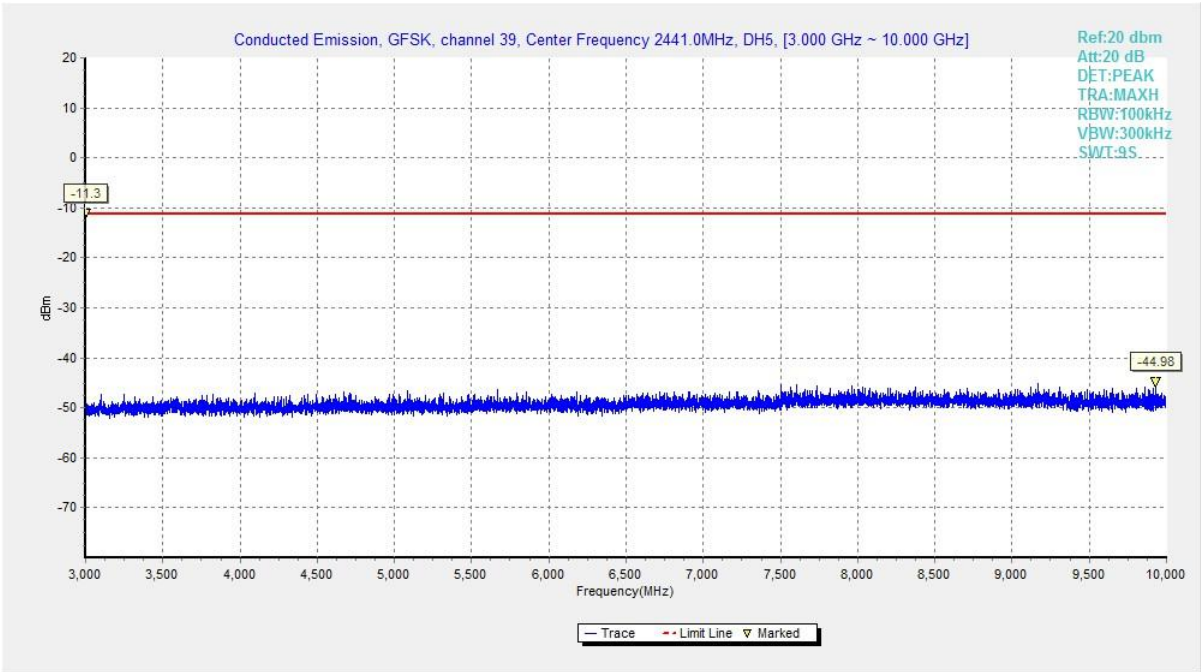

Fig. 18 Conducted Spurious Emission (GFSK, Ch39, 3GHz-10 GHz)

©Copyright. All rights reserved by SAICT.

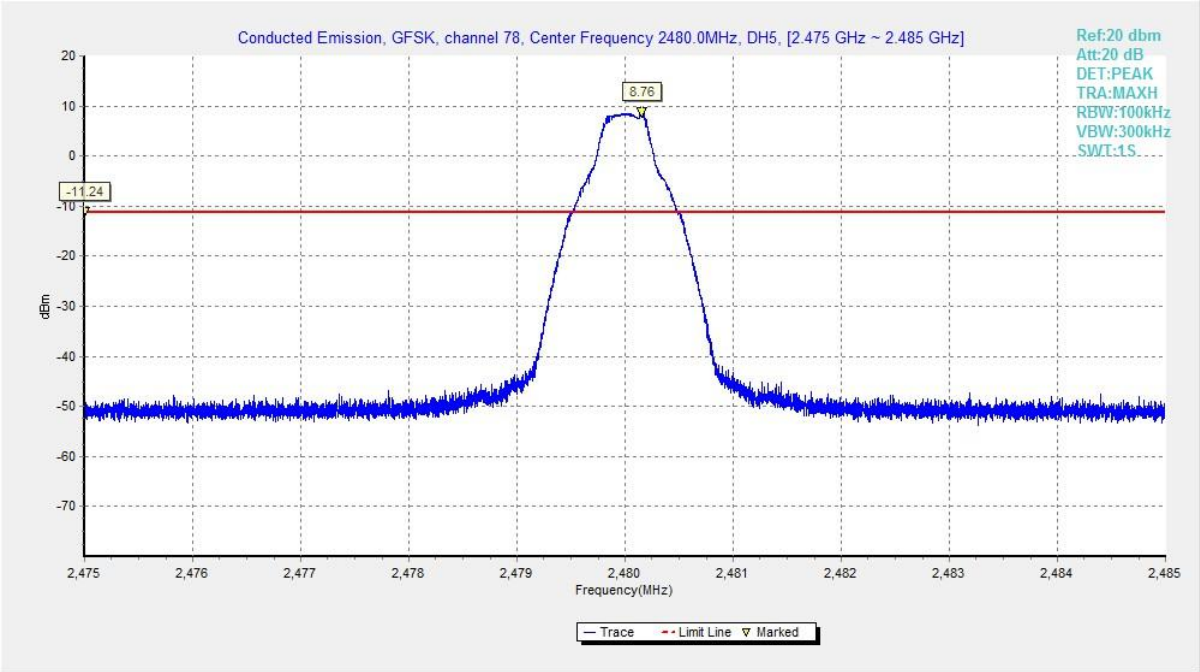

Fig. 19 Conducted Spurious Emission (GFSK, Ch78, 2.480GHz)

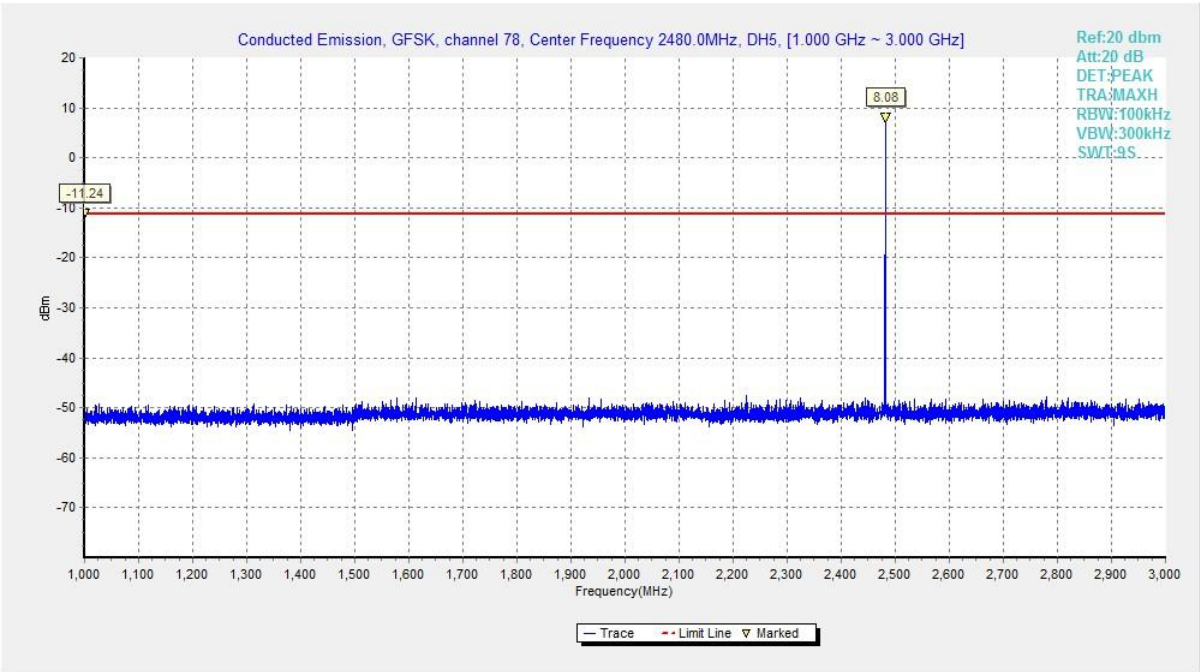

Fig. 20 Conducted Spurious Emission (GFSK, Ch78, 1GHz-3 GHz)

©Copyright. All rights reserved by SAICT.

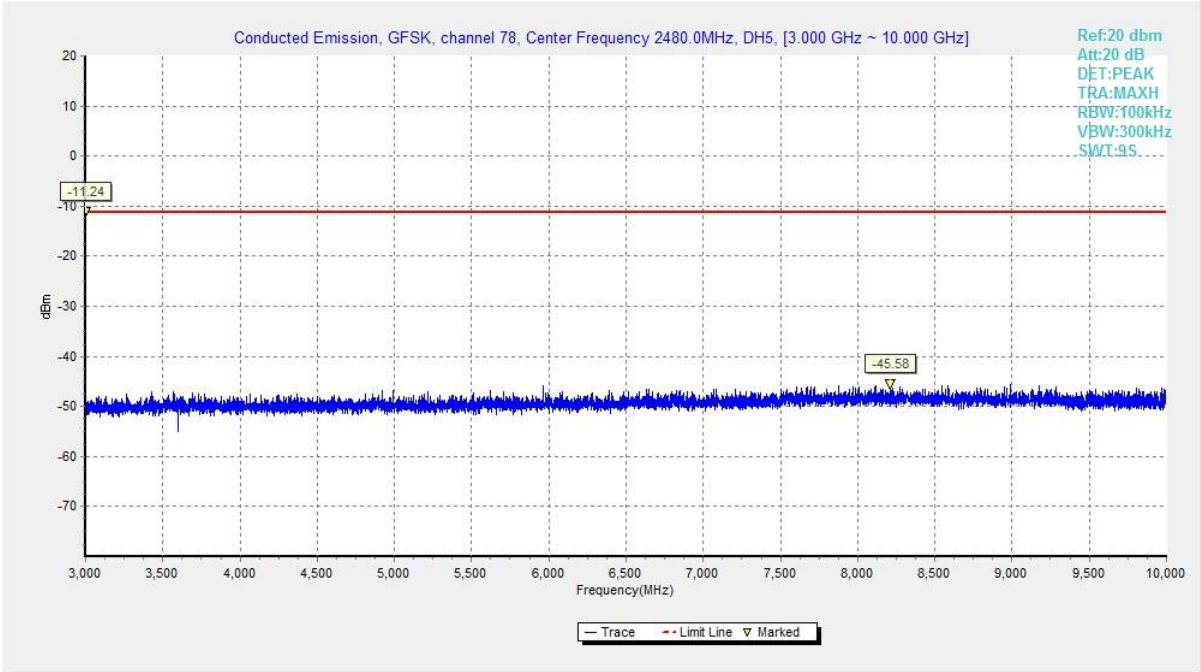

Fig. 21 Conducted Spurious Emission (GFSK, Ch78, 3GHz-10 GHz)

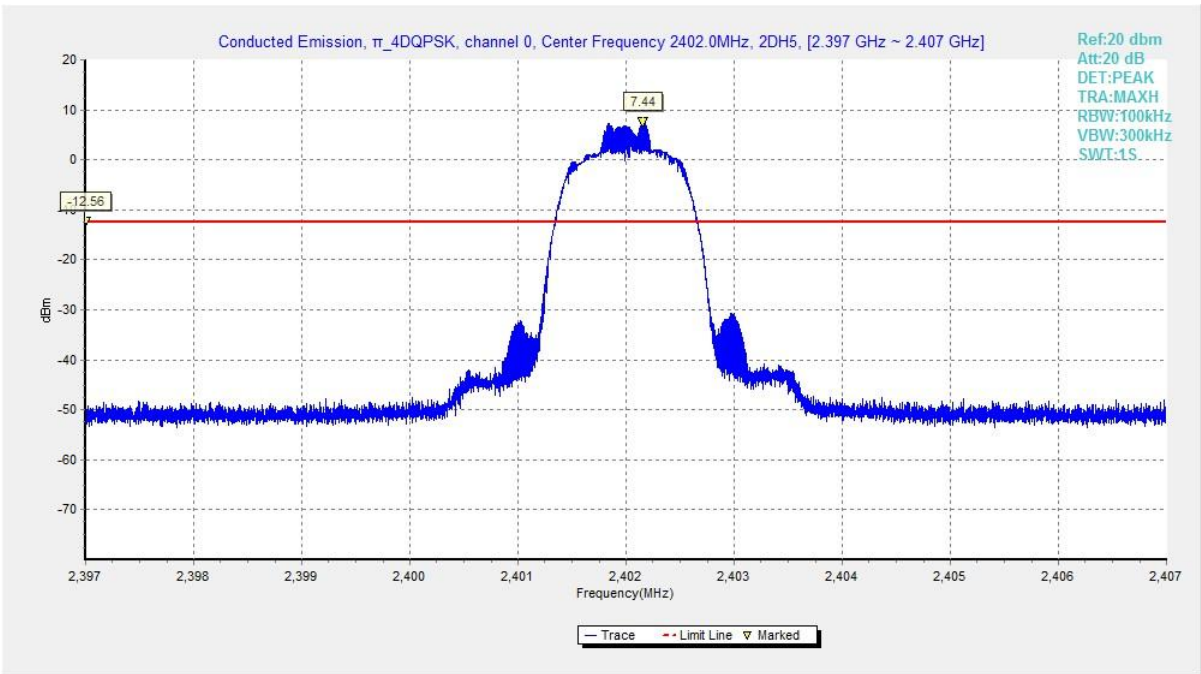

Fig. 22 Conducted Spurious Emission (π /4 DQPSK, Ch0, 2.402GHz)

©Copyright. All rights reserved by SAICT.

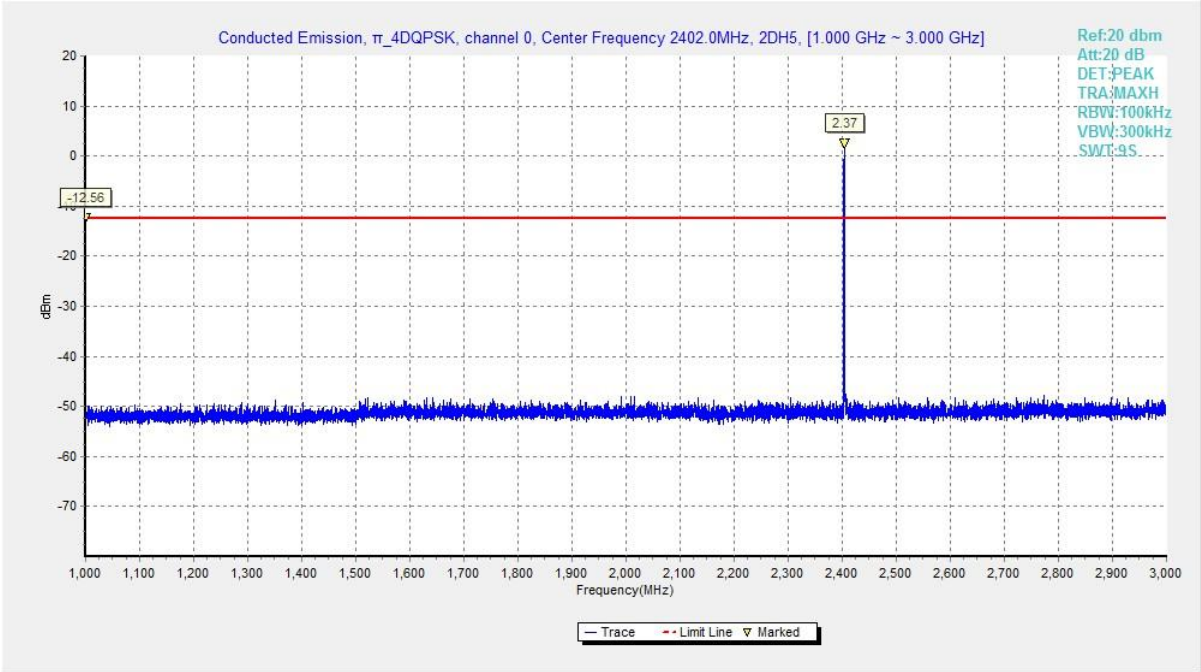

Fig. 23 Conducted Spurious Emission (π /4 DQPSK, Ch0, 1GHz-3 GHz)

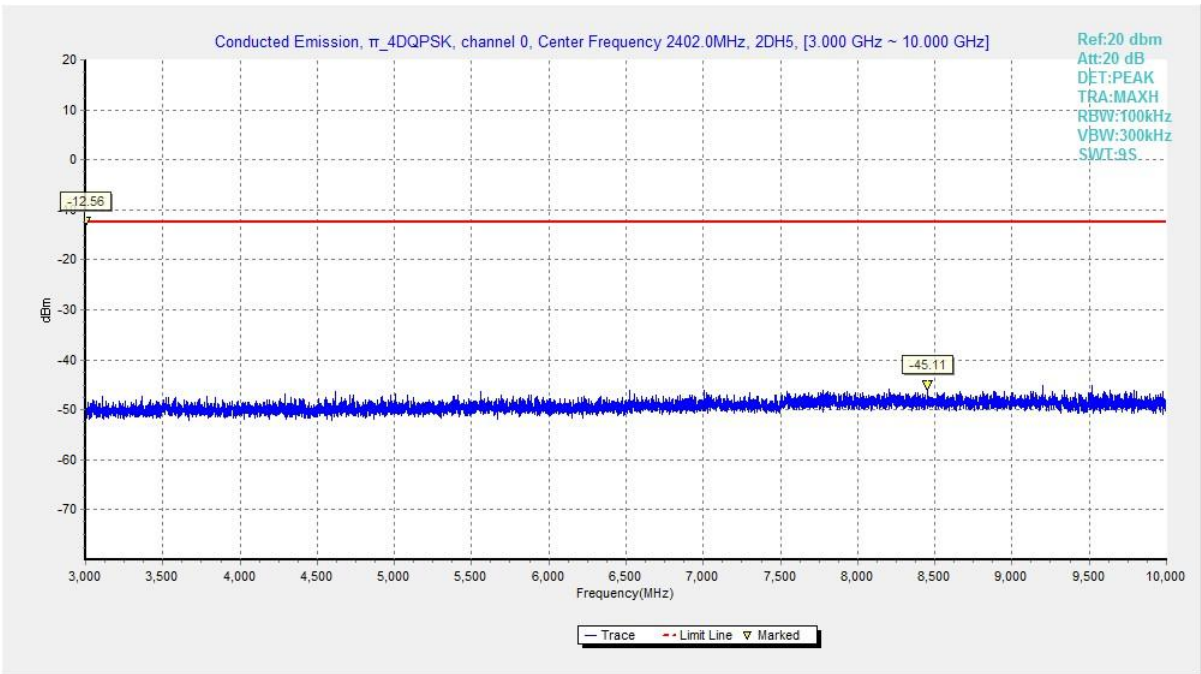

Fig. 24 Conducted Spurious Emission (π /4 DQPSK, Ch0, 3GHz-10 GHz)

©Copyright. All rights reserved by SAICT.

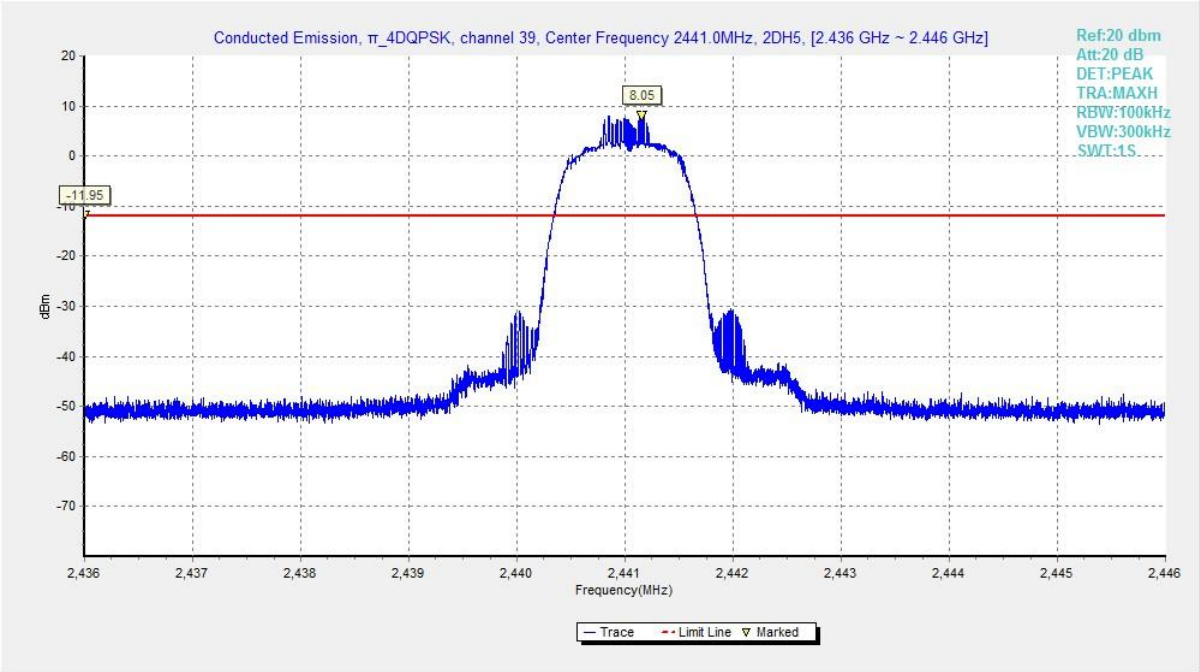

Fig. 25 Conducted Spurious Emission (π /4 DQPSK, Ch39, 2.441GHz)

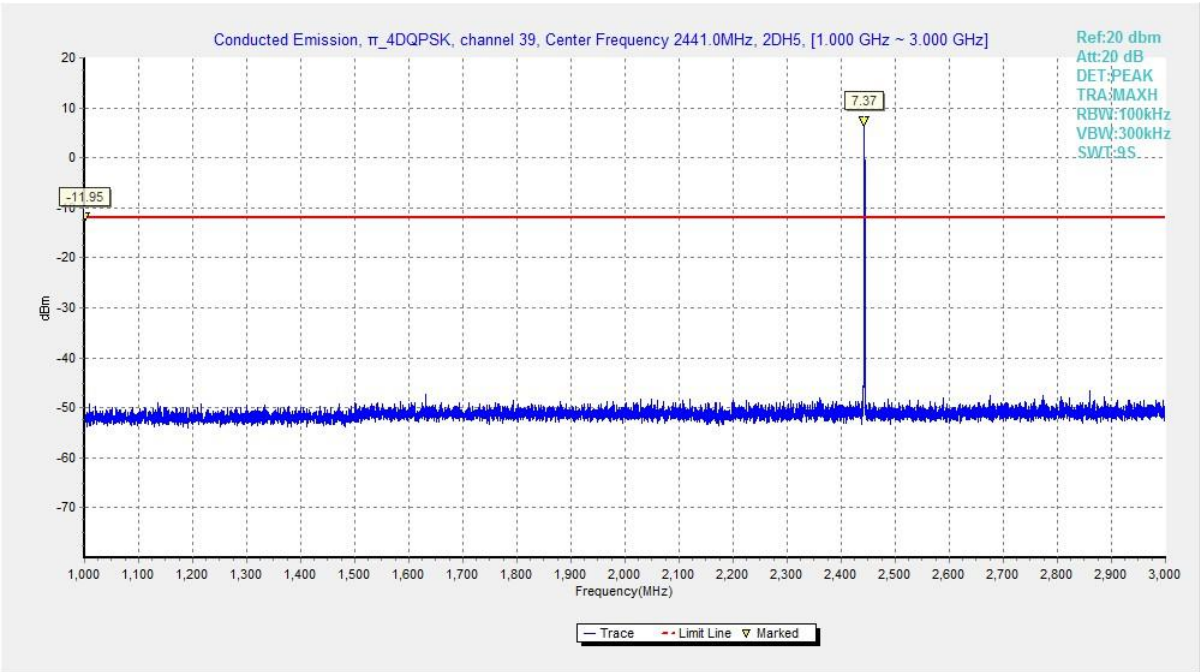

Fig. 26 Conducted Spurious Emission (π /4 DQPSK, Ch39, 1GHz-3 GHz)

©Copyright. All rights reserved by SAICT.

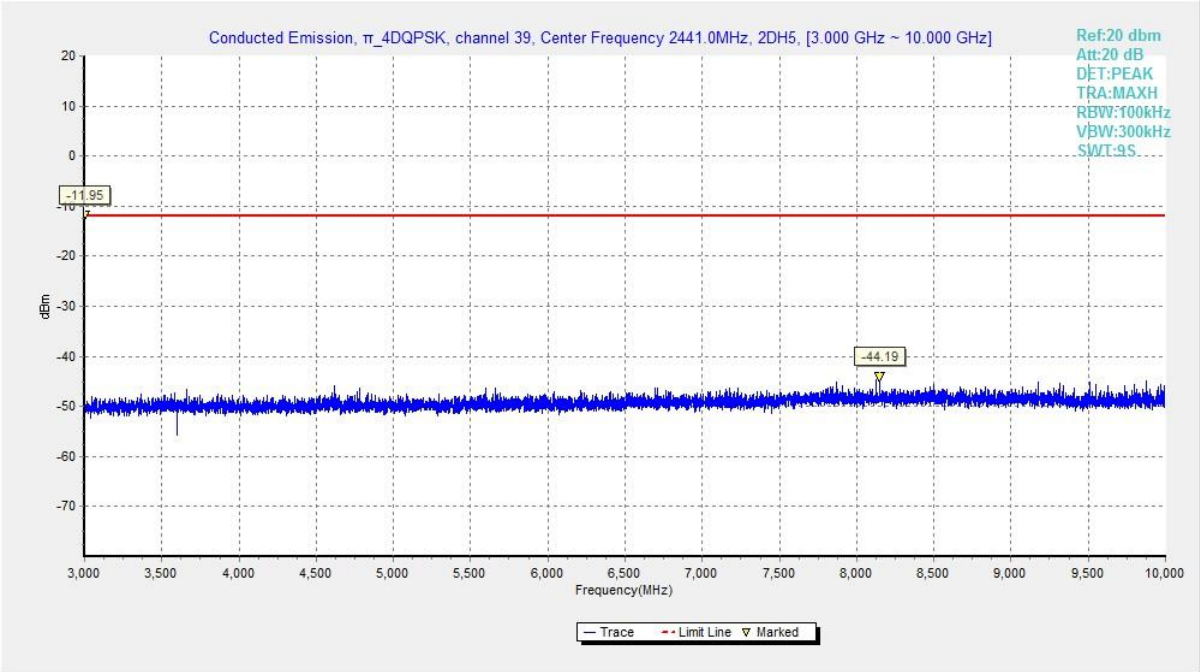

Fig. 27 Conducted Spurious Emission (π /4 DQPSK, Ch39, 3GHz-10 GHz)

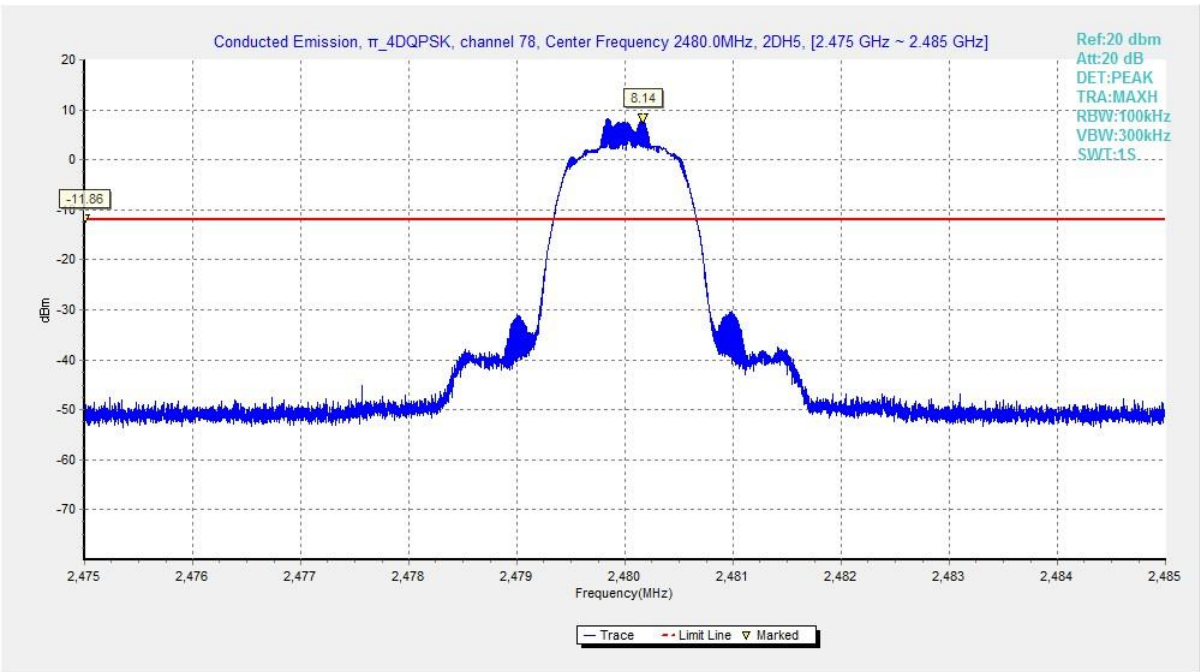

Fig. 28 Conducted Spurious Emission (π /4 DQPSK, Ch78, 2.480GHz)

©Copyright. All rights reserved by SAICT.

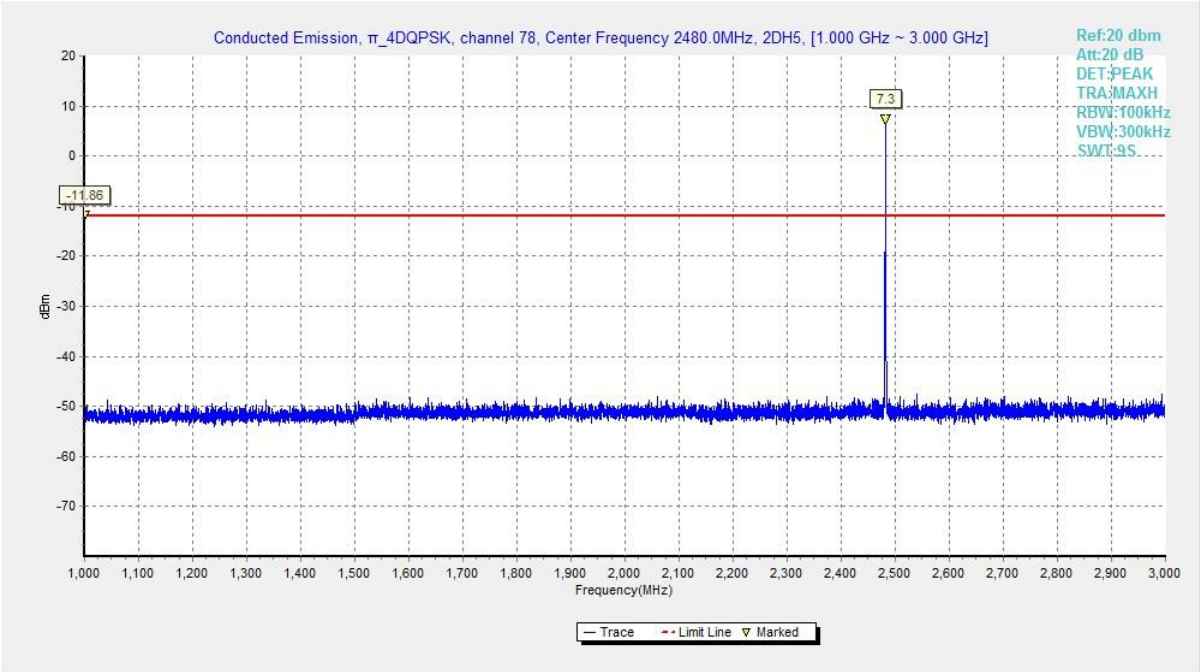

Fig. 29 Conducted Spurious Emission (π /4 DQPSK, Ch78, 1GHz-3 GHz)

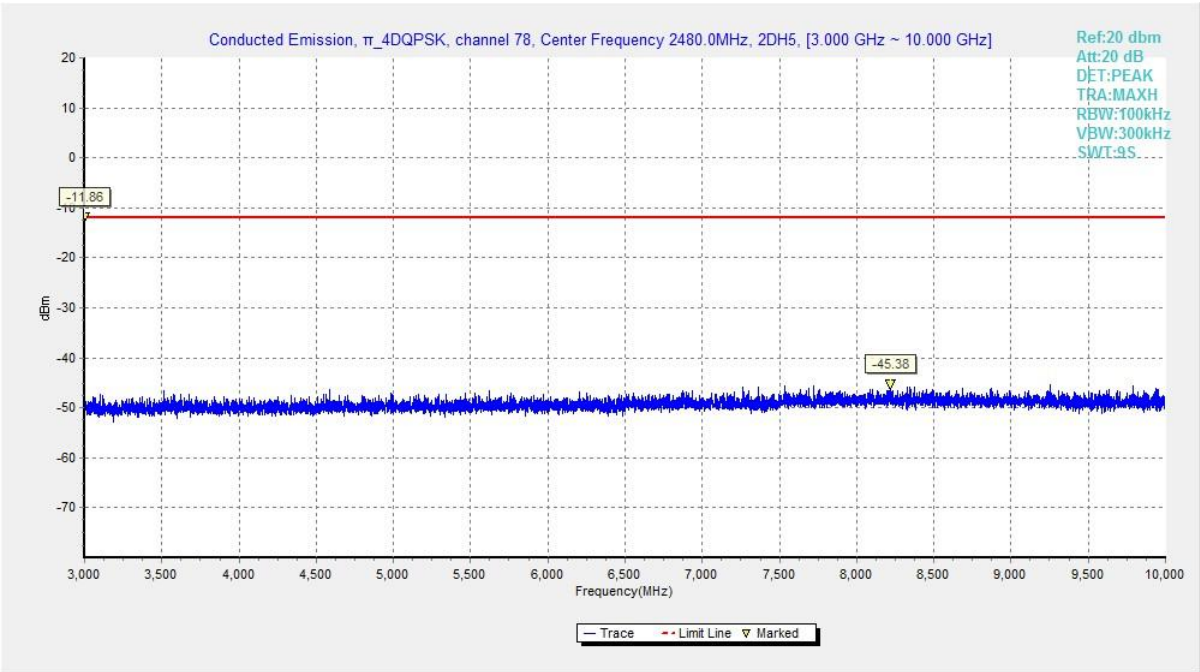

Fig. 30 Conducted Spurious Emission (π /4 DQPSK, Ch78, 3GHz-10 GHz)

©Copyright. All rights reserved by SAICT.

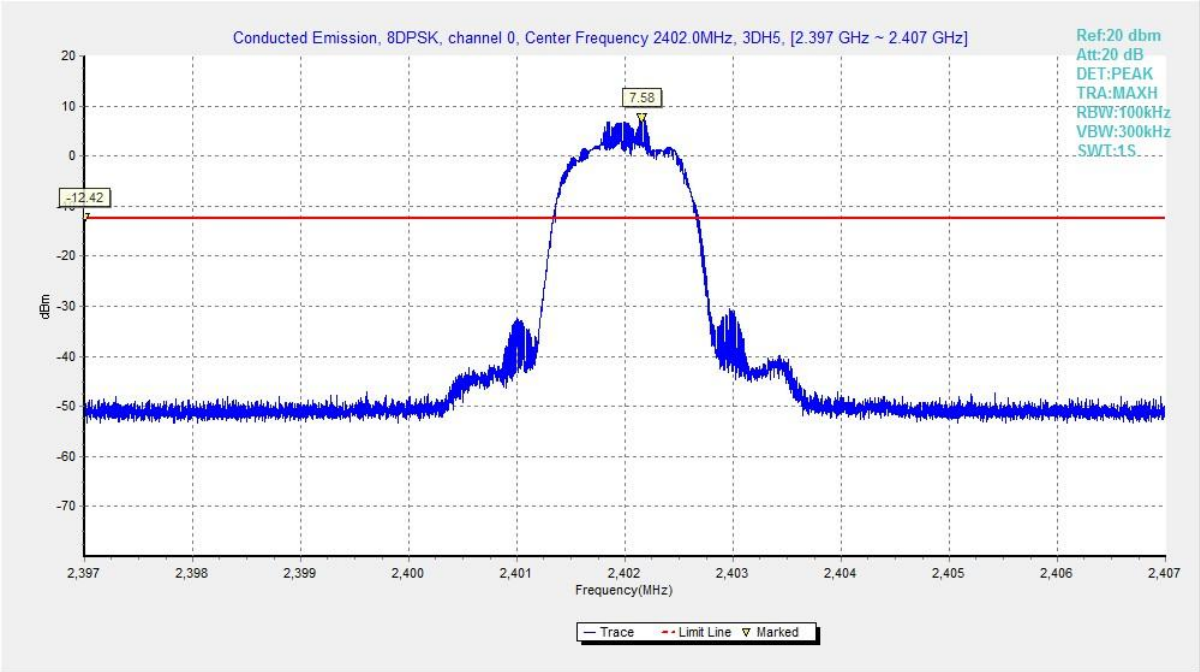

Fig. 31 Conducted Spurious Emission (8DPSK, Ch0, 2.402GHz)

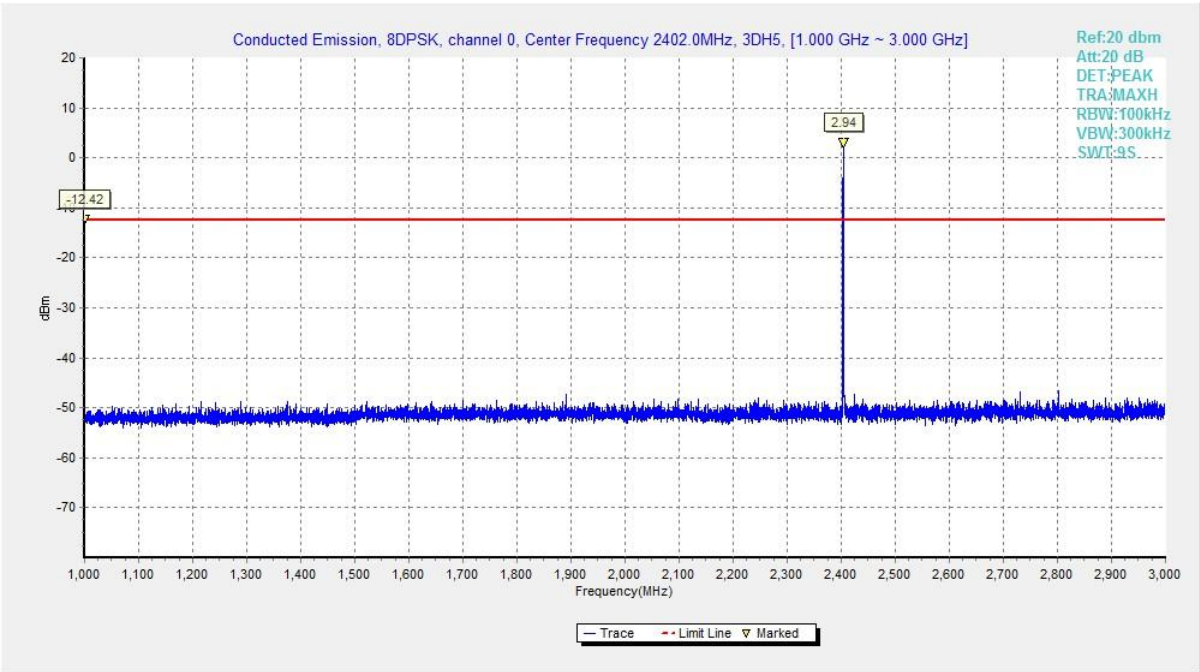

Fig. 32 Conducted Spurious Emission (8DPSK, Ch0, 1GHz-3 GHz)

©Copyright. All rights reserved by SAICT.

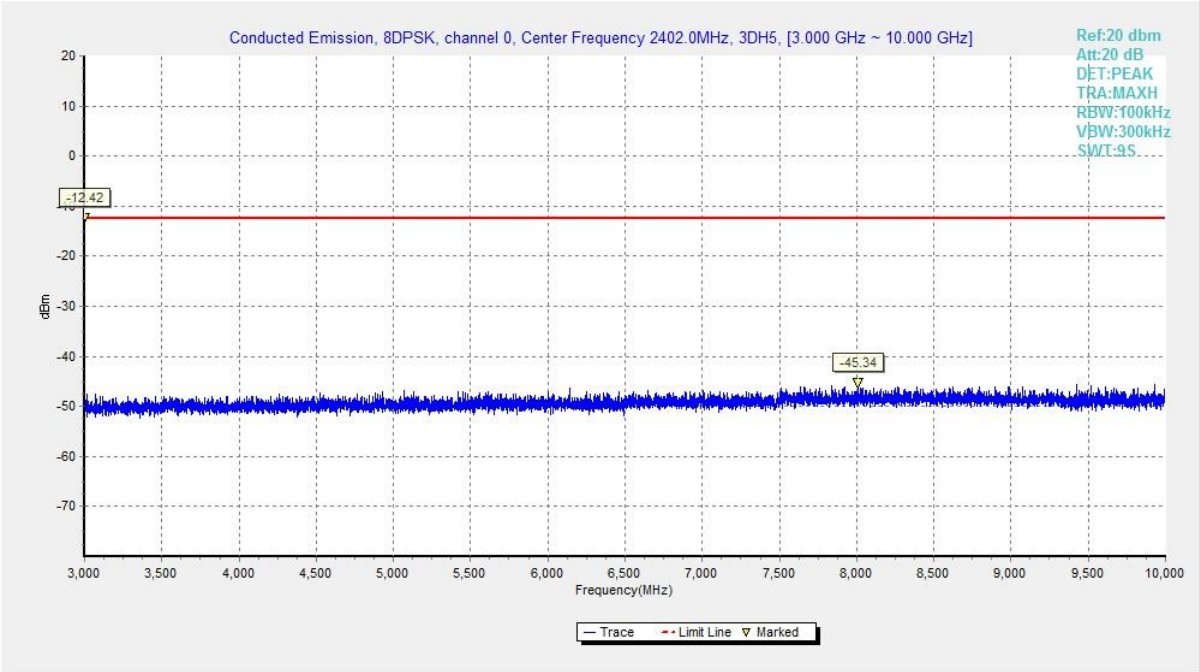

Fig. 33 Conducted Spurious Emission (8DPSK, Ch0, 3GHz-10 GHz)

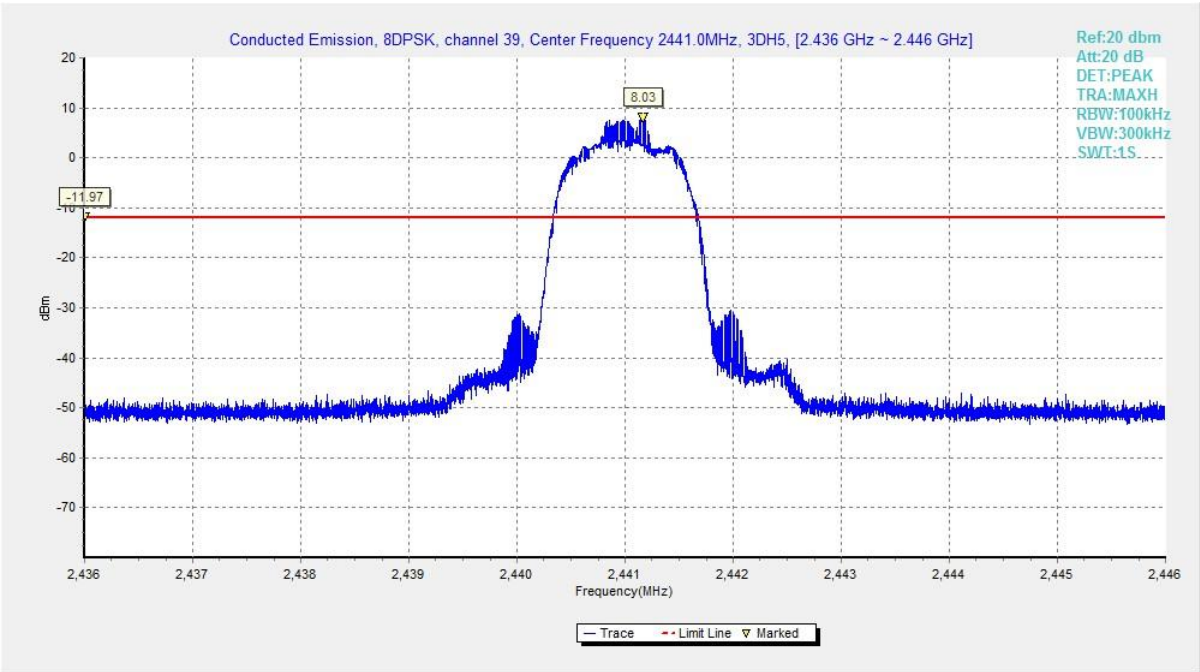

Fig. 34 Conducted Spurious Emission (8DPSK, Ch39, 2.441GHz)

©Copyright. All rights reserved by SAICT.

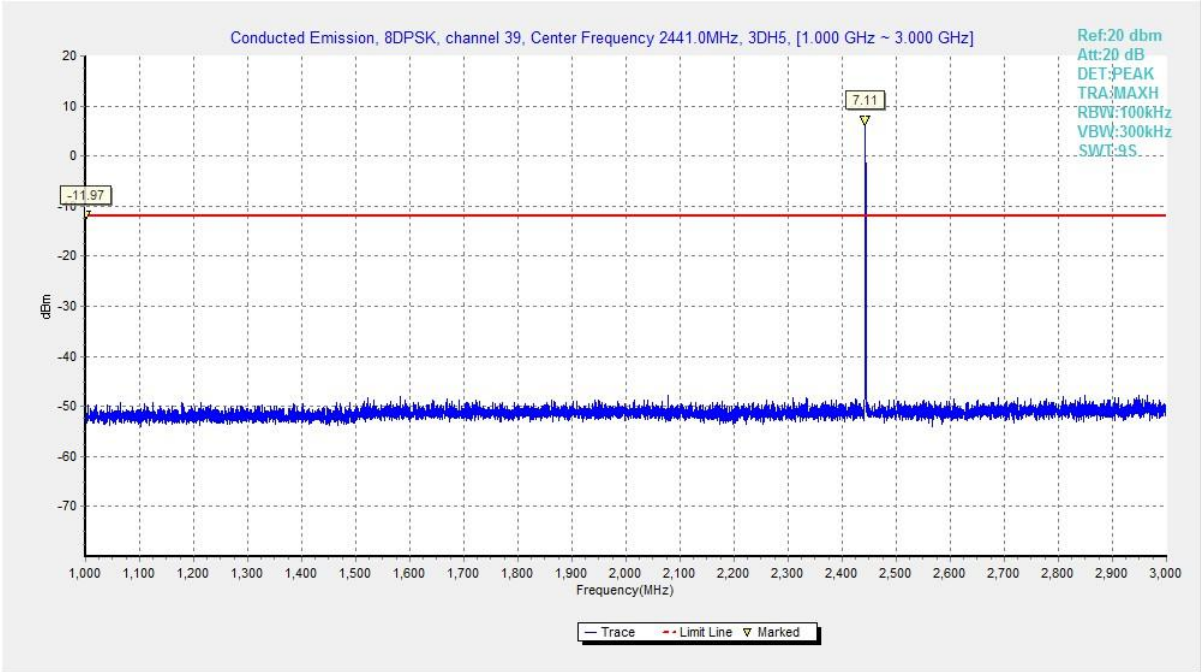

Fig. 35 Conducted Spurious Emission (8DPSK, Ch39, 1GHz-3 GHz)

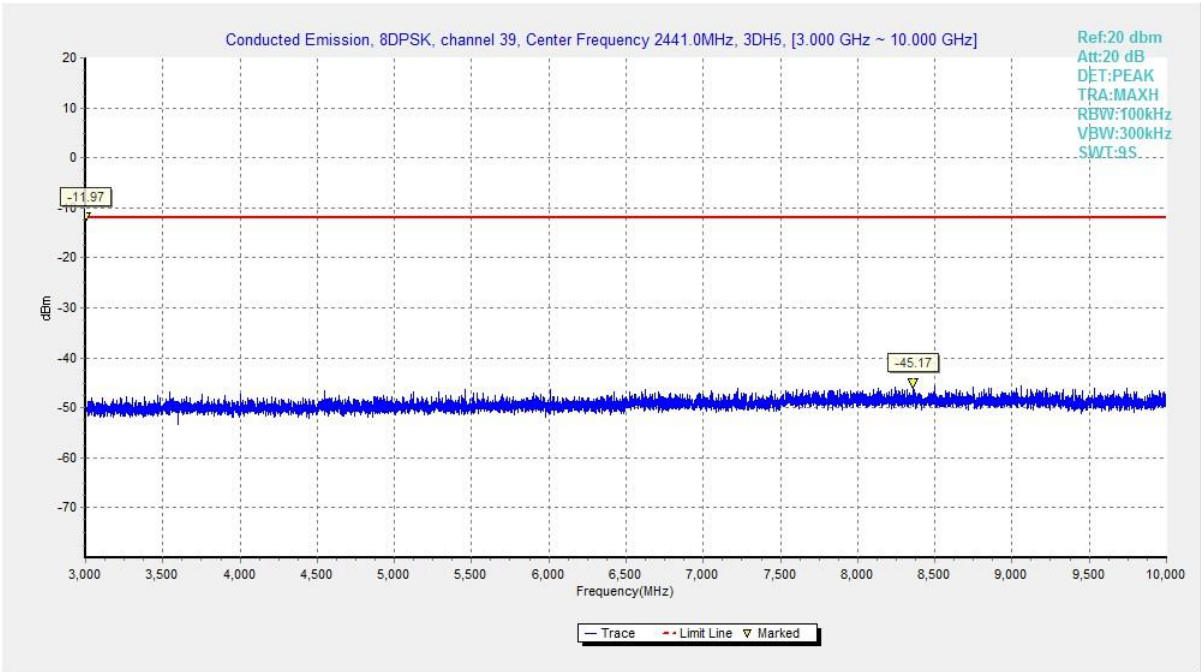

Fig. 36 Conducted Spurious Emission (8DPSK, Ch39, 3GHz-10 GHz)

©Copyright. All rights reserved by SAICT.

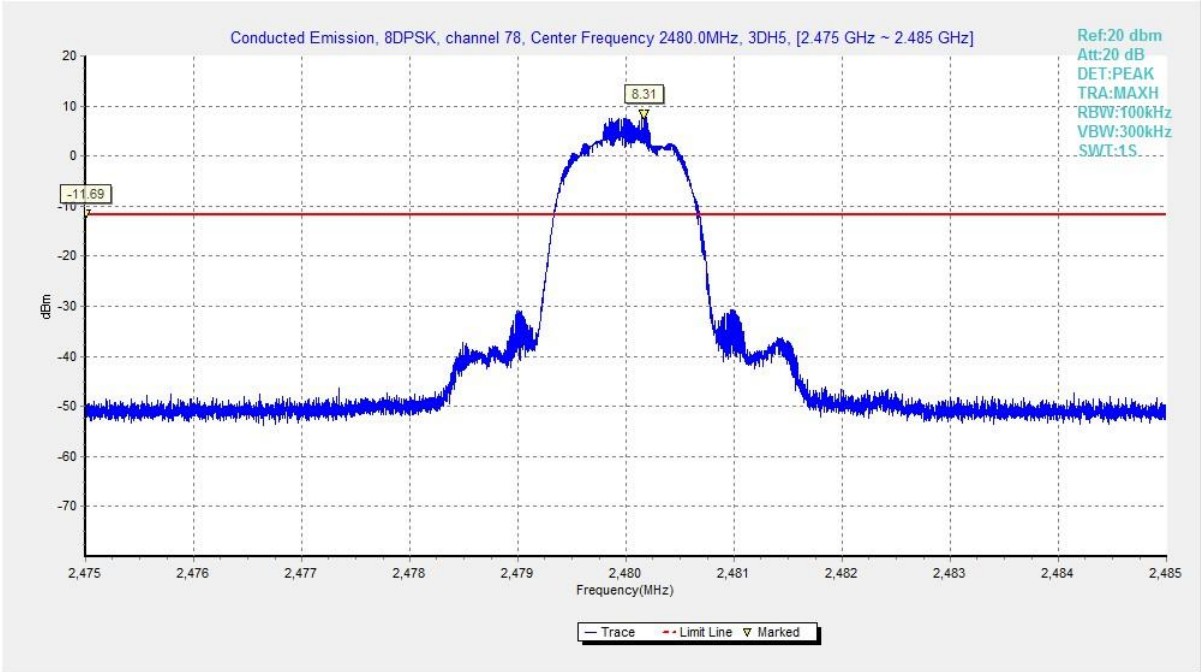

Fig. 37 Conducted Spurious Emission (8DPSK, Ch78, 2.480GHz)

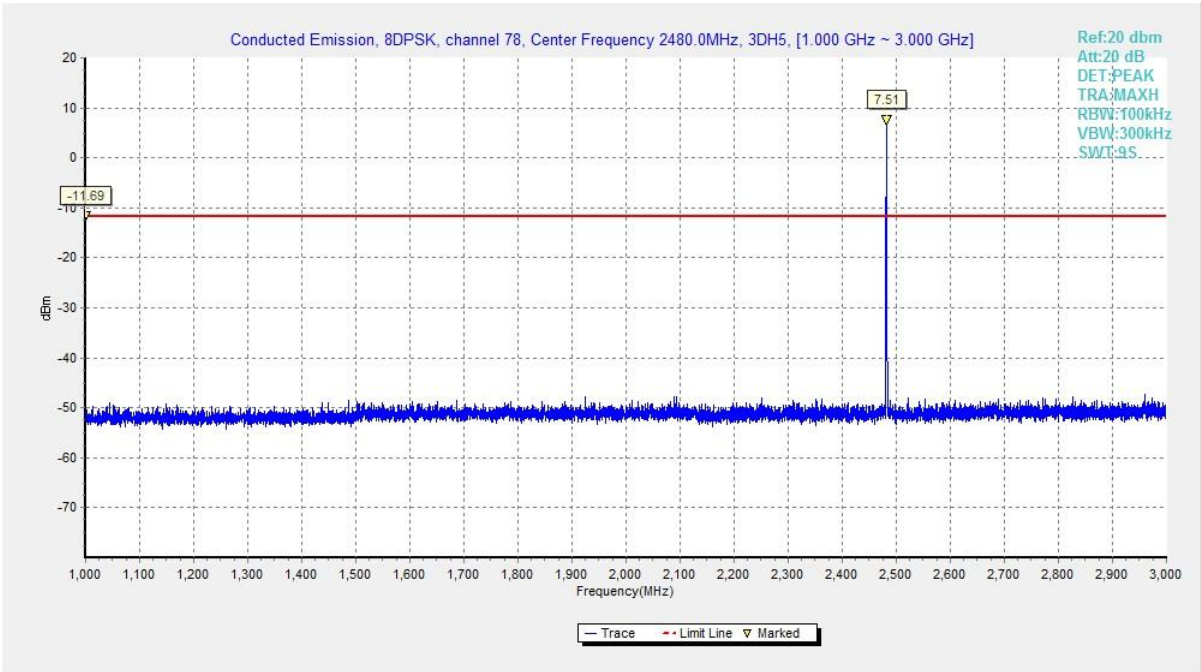

Fig. 38 Conducted Spurious Emission (8DPSK, Ch78, 1GHz-3 GHz)

©Copyright. All rights reserved by SAICT.

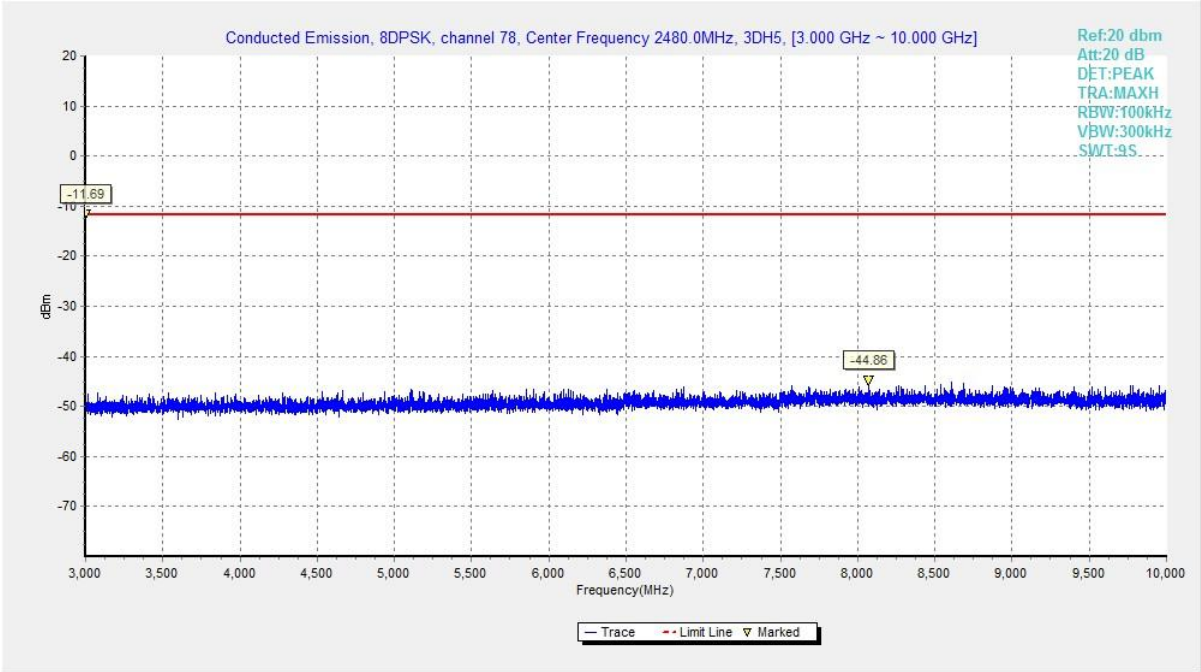

Fig. 39 Conducted Spurious Emission (8DPSK, Ch78, 3GHz-10 GHz)

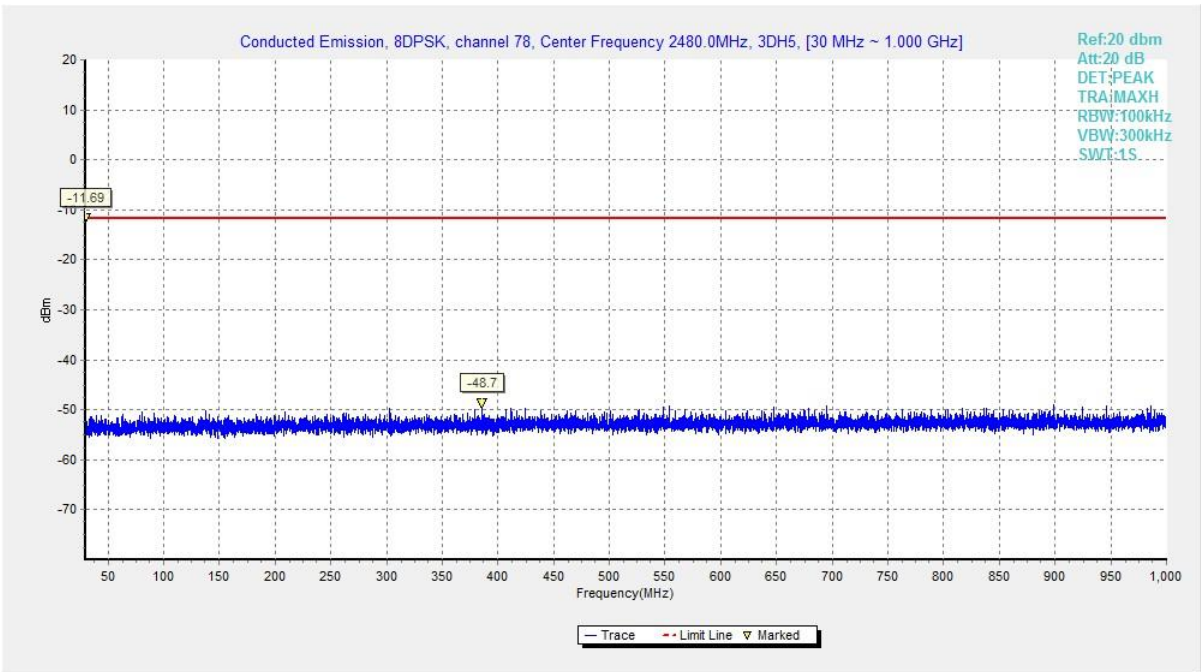

Fig. 40 Conducted Spurious Emission (All channel, 30 MHz-1 GHz)

©Copyright. All rights reserved by SAICT.

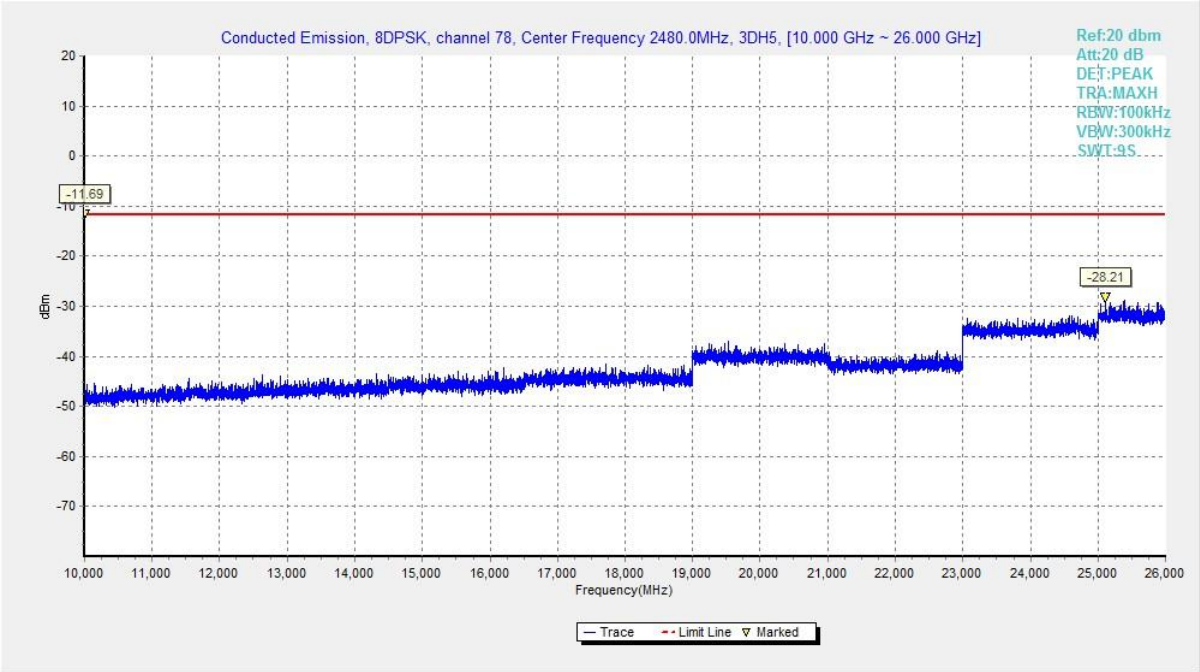

Fig. 41 Conducted Spurious Emission (All channel, 10GHz-26 GHz)

©Copyright. All rights reserved by SAICT.

A.4 Radiated Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

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)).

Limit in restricted band:

Frequency of emission (MHz)	Field strength (μV/m)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Condition:

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission (MHz)	RBW/VBW	Sweep Time (s)
30-1000	120kHz/300kHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

Note: According to the performance evaluation, the radiated emission margin of EUT is over 20dB in the band from 9kHz to 30MHz. Therefore, the measurement starts from 30MHz to tenth harmonic.

The measurement results include the horizontal polarization and vertical polarization measurements.

©Copyright. All rights reserved by SAICT.

Measurement Results:

Mode	Channel	Frequency Range	Test Results	Conclusion
GFSK	0	1 GHz ~ 18 GHz	Fig.42	**P**
	39	1 GHz ~ 18 GHz	Fig.43	**P**
	78	1 GHz ~ 18 GHz	Fig.44	**P**
	Restricted Band(CH0)	2.38 GHz ~ 2.45 GHz	Fig.45	**P**
	Restricted Band (CH78)	2.45 GHz ~ 2.5 GHz	Fig.46	**P**
π /4 DQPSK	0	1 GHz ~ 18 GHz	Fig.47	**P**
	39	1 GHz ~ 18 GHz	Fig.48	**P**
	78	1 GHz ~ 18 GHz	Fig.49	**P**
	Restricted Band (CH0)	2.38 GHz ~ 2.45 GHz	Fig.50	**P**
	Restricted Band (CH78)	2.45 GHz ~ 2.5 GHz	Fig.51	**P**
8DPSK	0	1 GHz ~ 18 GHz	Fig.52	**P**
	39	1 GHz ~ 18 GHz	Fig.53	**P**
	78	1 GHz ~ 18 GHz	Fig.54	**P**
	Restricted Band (CH0)	2.38 GHz ~ 2.45 GHz	Fig.55	**P**
	Restricted Band (CH78)	2.45 GHz ~ 2.5 GHz	Fig.56	**P**
/	All channels	9 kHz ~ 30 MHz	Fig.57	**P**
		30 MHz ~ 1 GHz	Fig.58	**P**
		18 GHz ~ 26.5 GHz	Fig.59	**P**

©Copyright. All rights reserved by SAICT.

Worst Case Result

GFSK CH39 (1-18GHz)

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
2970.000000	45.81	74.00	28.19	H	8.95
3919.200000	37.07	74.00	36.93	V	-10.67
5482.800000	39.01	74.00	34.99	H	-6.67
8100.400000	45.24	74.00	28.76	H	-0.74
14802.800000	51.30	74.00	22.70	H	6.54
17829.600000	53.87	74.00	20.13	H	12.03

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
2970.000000	32.64	54.00	21.36	H	8.95
3919.200000	25.23	54.00	28.77	V	-10.67
5482.800000	27.61	54.00	26.39	H	-6.67
8100.400000	32.62	54.00	21.38	H	-0.74
14802.800000	38.43	54.00	15.57	H	6.54
17829.600000	41.14	54.00	12.86	H	12.03

π /4 DQPSK CH78 (1-18GHz)

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
2980.000000	44.94	74.00	29.06	H	8.97
3376.200000	35.55	74.00	38.45	H	-14.32
4031.400000	37.47	74.00	36.53	H	-11.25
7383.600000	45.40	74.00	28.60	V	-0.50
14252.800000	50.54	74.00	23.46	H	6.99
17775.600000	54.33	74.00	19.67	H	11.76

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
2980.000000	33.36	54.00	20.64	H	8.97
3376.200000	21.39	54.00	32.61	H	-14.32
4031.400000	24.63	54.00	29.37	H	-11.25
7383.600000	32.19	54.00	21.81	V	-0.50
14252.800000	38.40	54.00	15.60	H	6.99
17775.600000	41.60	54.00	12.40	H	11.76

©Copyright. All rights reserved by SAICT.

8DPSK CH78 (1-18GHz)

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
2952.000000	45.35	74.00	28.65	V	8.99
3615.900000	36.39	74.00	37.61	V	-12.66
5136.000000	40.10	74.00	33.90	V	-7.58
8726.800000	45.03	74.00	28.97	H	-0.90
14650.800000	51.61	74.00	22.39	H	6.28
17777.200000	53.38	74.00	20.62	H	11.77

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
2952.000000	33.50	54.00	20.50	V	8.99
3615.900000	24.28	54.00	29.72	V	-12.66
5136.000000	27.16	54.00	26.84	V	-7.58
8726.800000	31.82	54.00	22.18	H	-0.90
14650.800000	37.47	54.00	16.53	H	6.28
17777.200000	41.40	54.00	12.60	H	11.77

Note:

A "reference path loss" is established and the A_{Rpl} is the attenuation of “reference path loss”, and Antenna Factor, the gain of the preamplifier, the cable loss. P_{Mea} is the field strength recorded from the instrument.

The measurement results are obtained as described below:

Result = P_{Mea} + Cable Loss + Antenna Factor - Gain of the preamplifier

See below for test graphs.

Conclusion: Pass

©Copyright. All rights reserved by SAICT.

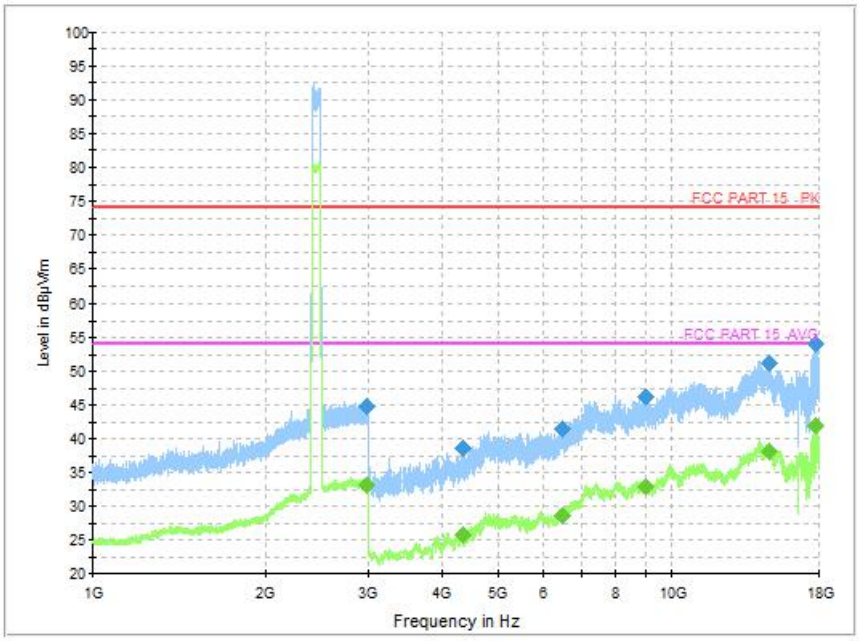

Fig. 42 Radiated Spurious Emission (GFSK, Ch0, 1GHz ~ 18GHz)

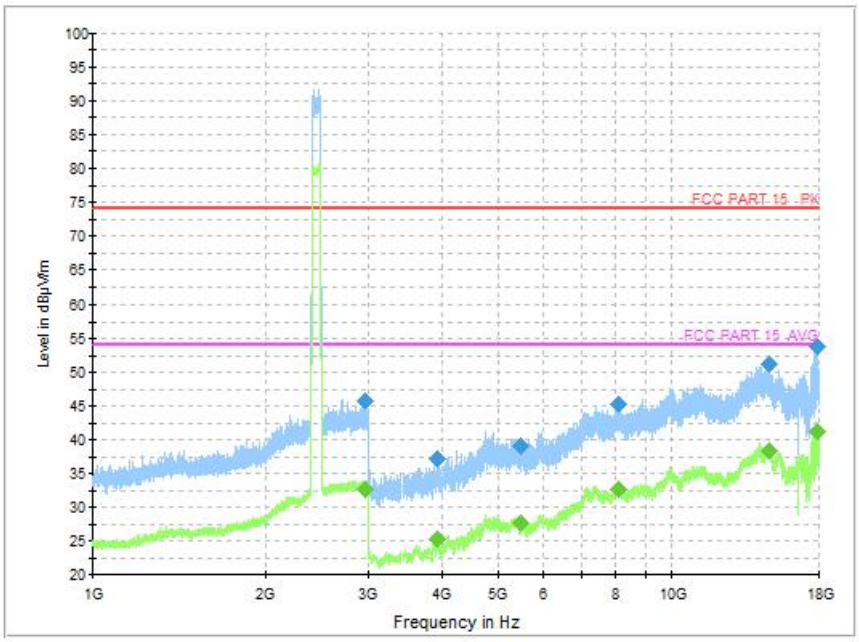

Fig. 43 Radiated Spurious Emission (GFSK, Ch39, 1GHz ~ 18GHz)

©Copyright. All rights reserved by SAICT.

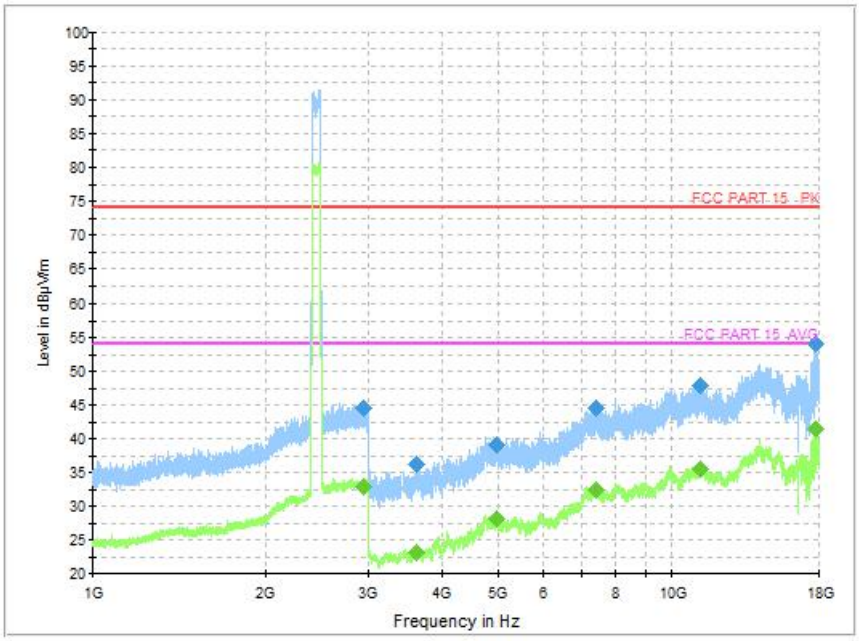

Fig. 44 Radiated Spurious Emission (GFSK, Ch78, 1GHz ~ 18GHz)

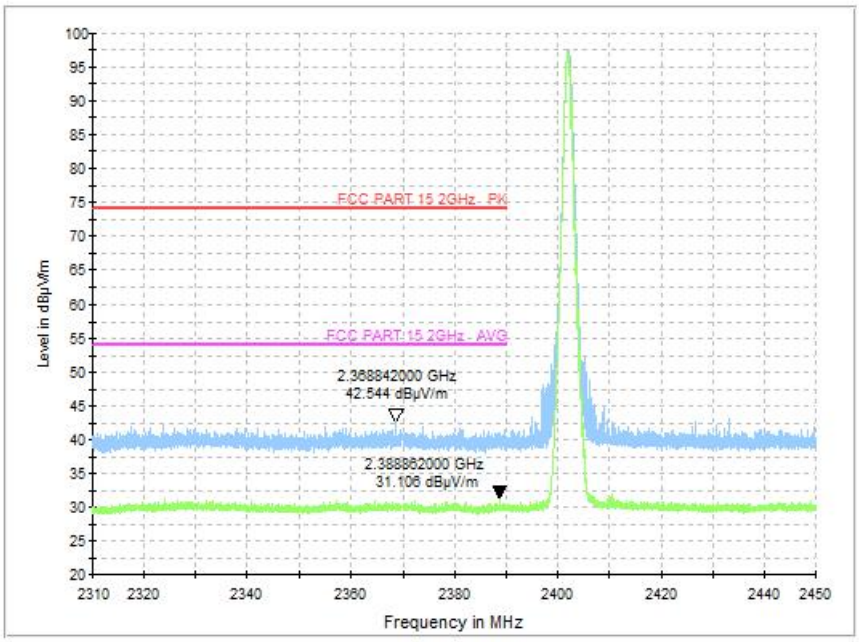

Fig. 45 Radiated Band Edges (GFSK, Ch0, 2380GHz ~ 2450GHz)

©Copyright. All rights reserved by SAICT.

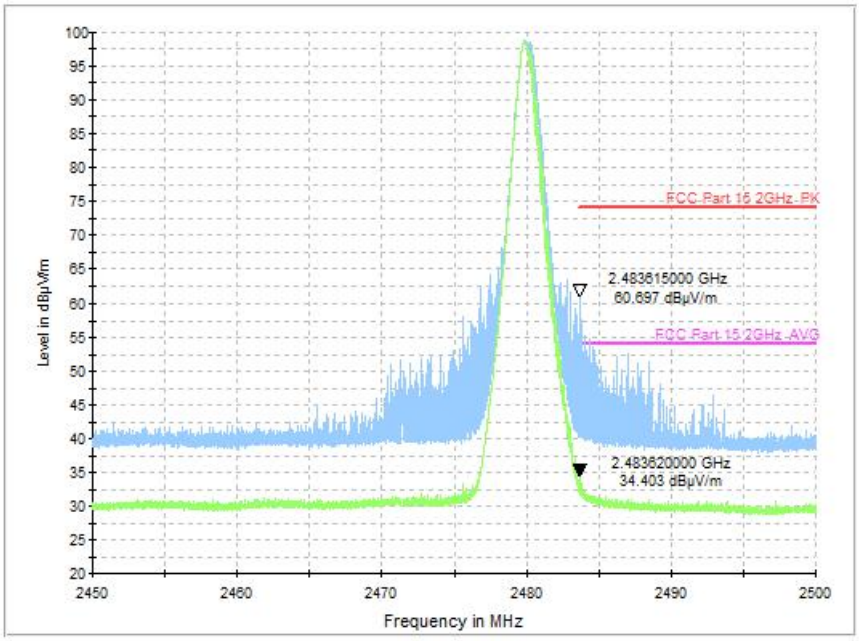

Fig. 46 Radiated Band Edges (GFSK, Ch78, 2450GHz ~ 2500GHz)

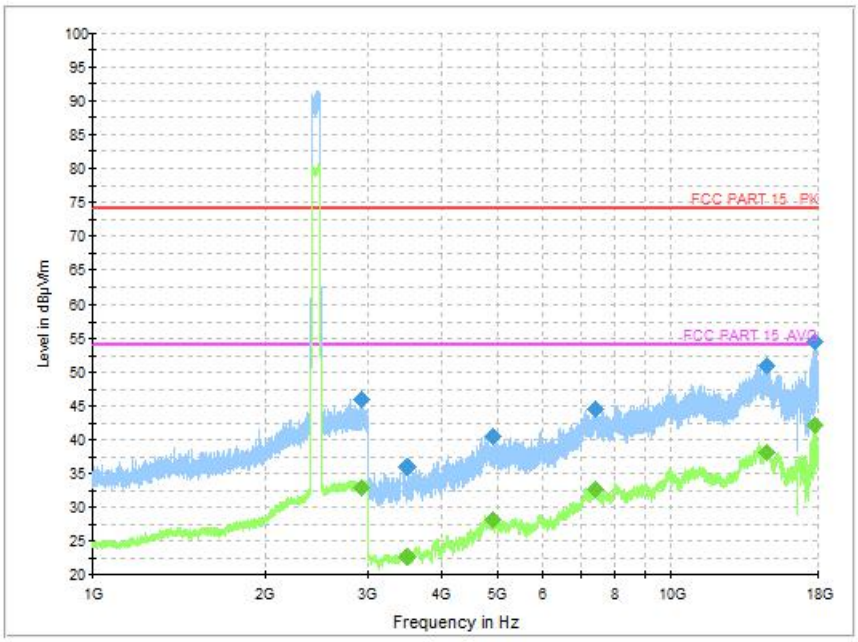

Fig. 47 Radiated Spurious Emission (π /4 DQPSK, Ch0, 1GHz ~ 18GHz)

©Copyright. All rights reserved by SAICT.

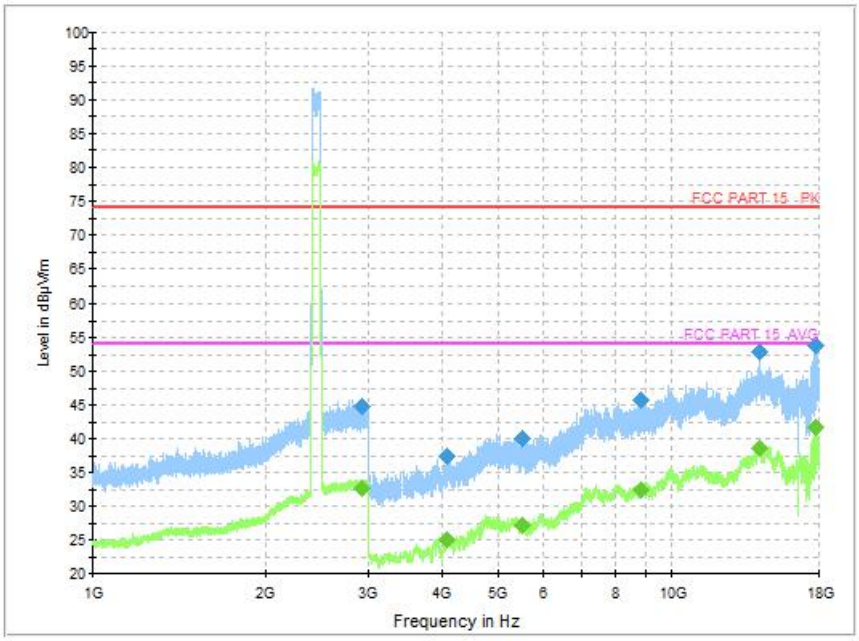

Fig. 48 Radiated Spurious Emission (π /4 DQPSK, Ch39, 1GHz ~ 18GHz)

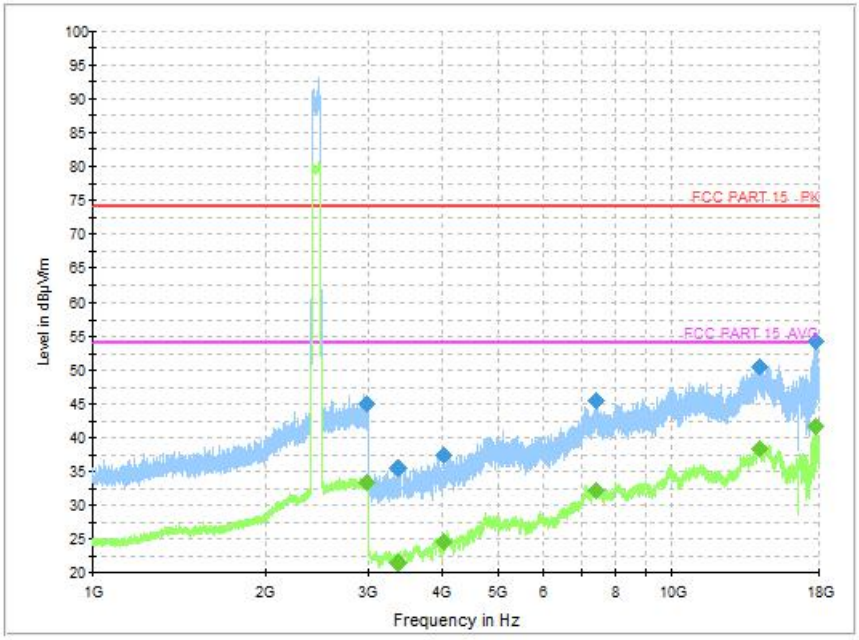

Fig. 49 Radiated Spurious Emission (π /4 DQPSK, Ch78, 1GHz ~ 18GHz)

©Copyright. All rights reserved by SAICT.

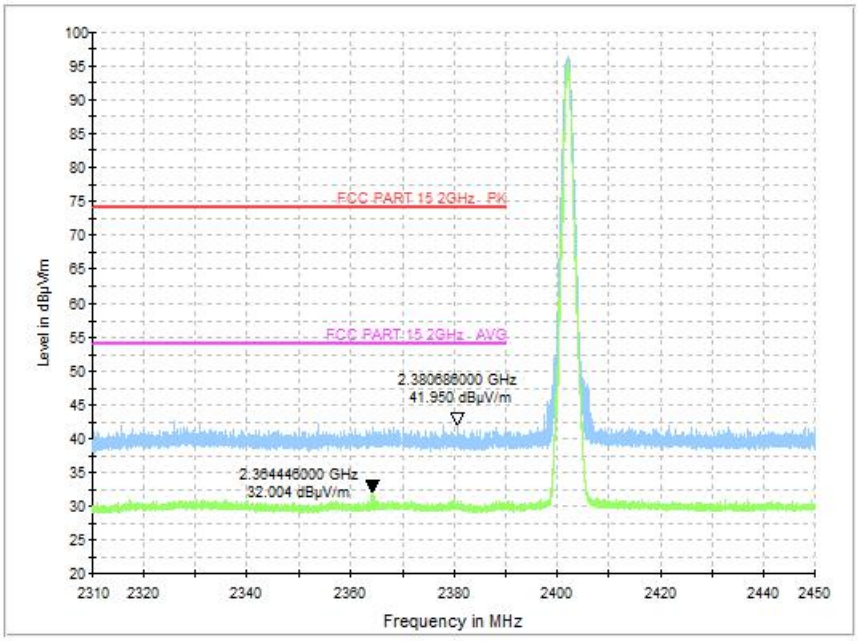

Fig. 50 Radiated Band Edges (π /4 DQPSK, Ch0, 2380GHz ~ 2450GHz)

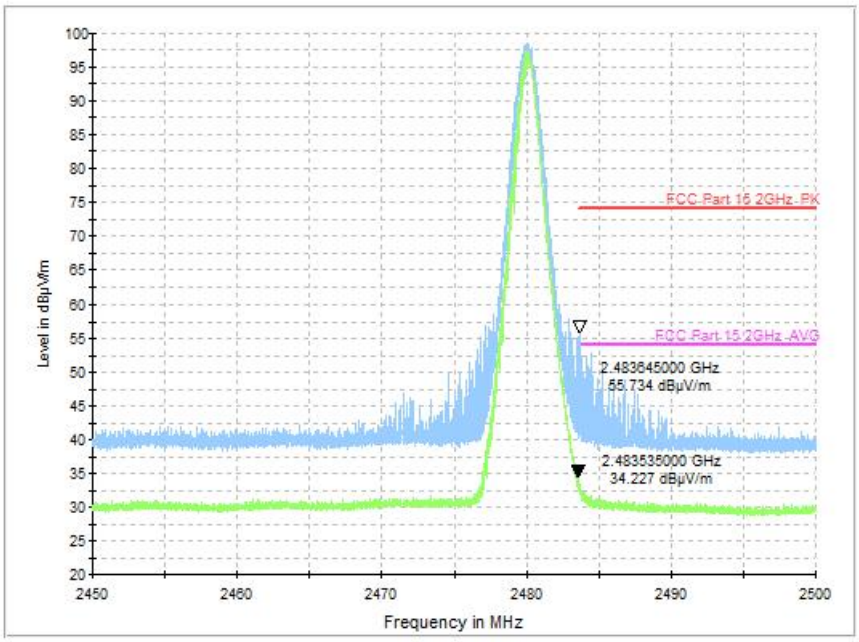

Fig. 51 Radiated Band Edges (π /4 DQPSK, Ch78, 2450GHz ~ 2500GHz)

©Copyright. All rights reserved by SAICT.

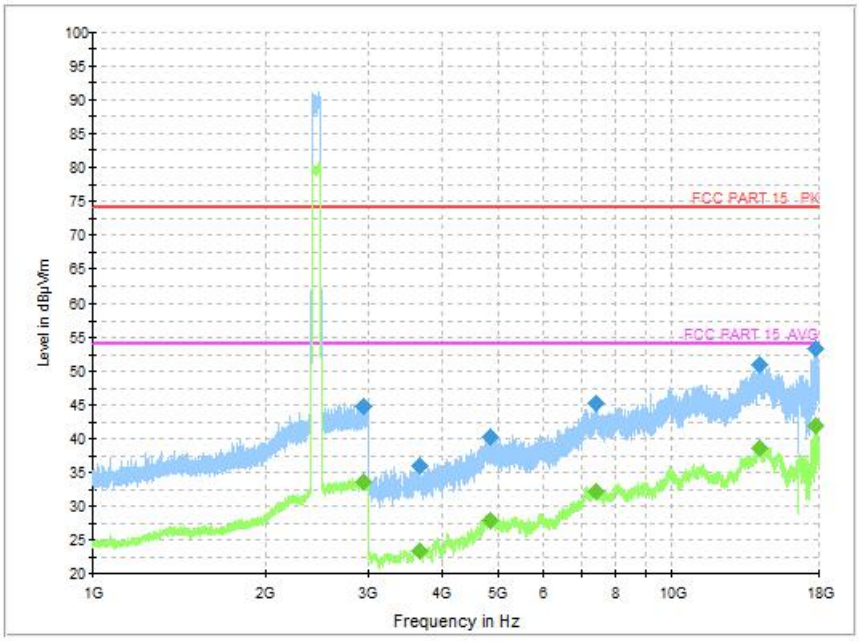

Fig. 52 Radiated Spurious Emission (8DPSK, Ch0, 1GHz ~ 18GHz)

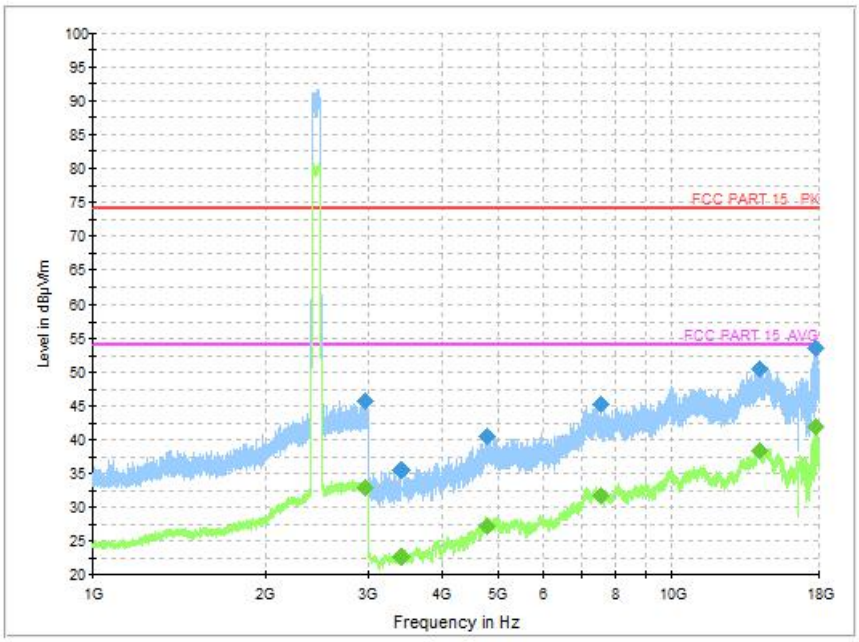

Fig. 53 Radiated Spurious Emission (8DPSK, Ch39, 1GHz ~ 18GHz)

©Copyright. All rights reserved by SAICT.

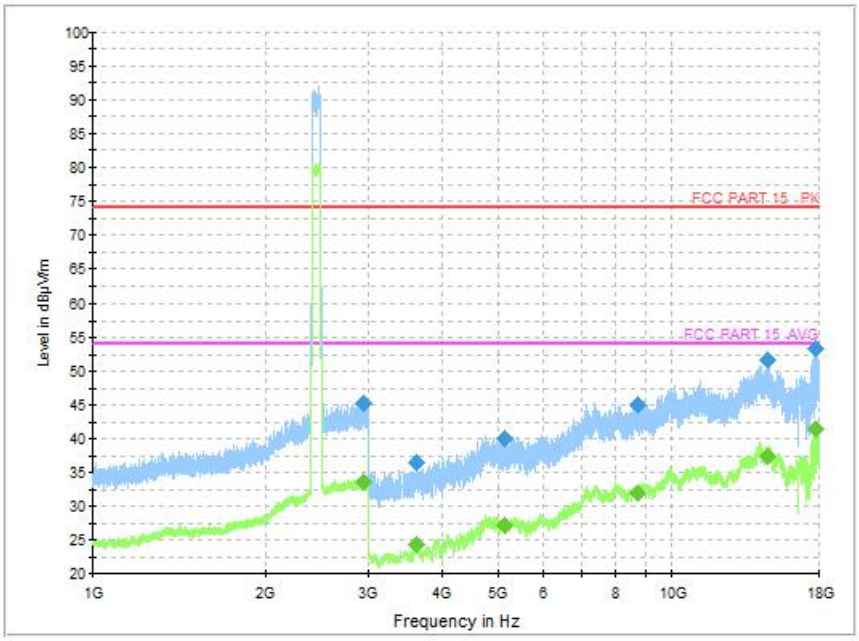

Fig. 54 Radiated Spurious Emission (8DPSK, Ch78, 1GHz ~ 18GHz)

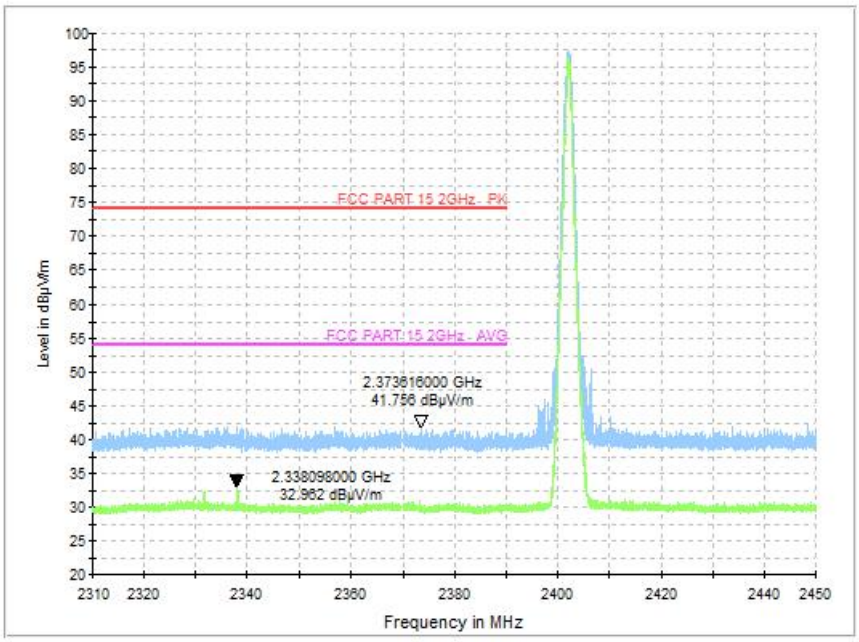

Fig. 55 Radiated Band Edges (8DPSK, Ch0, 2380GHz ~ 2450GHz)

©Copyright. All rights reserved by SAICT.

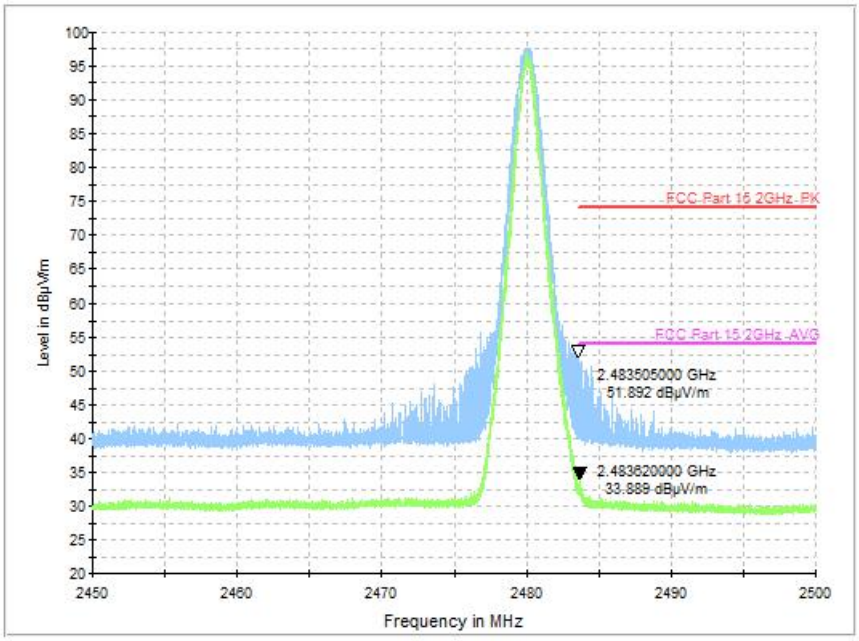

Fig. 56 Radiated Band Edges (8DPSK, Ch78, 2450GHz ~ 2500GHz)

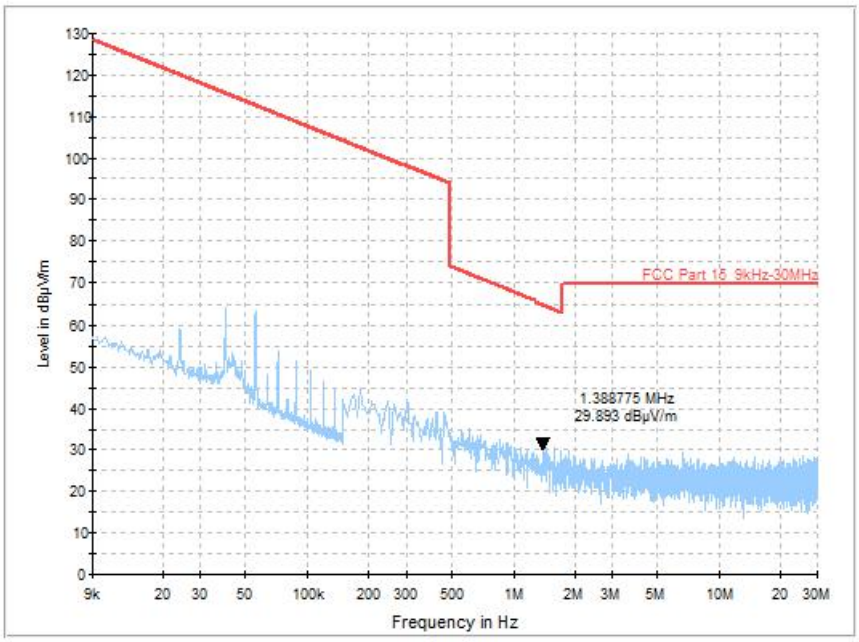

Fig. 57 Radiated Spurious Emission (All Channels, 9kHz ~ 30MHz)

©Copyright. All rights reserved by SAICT.

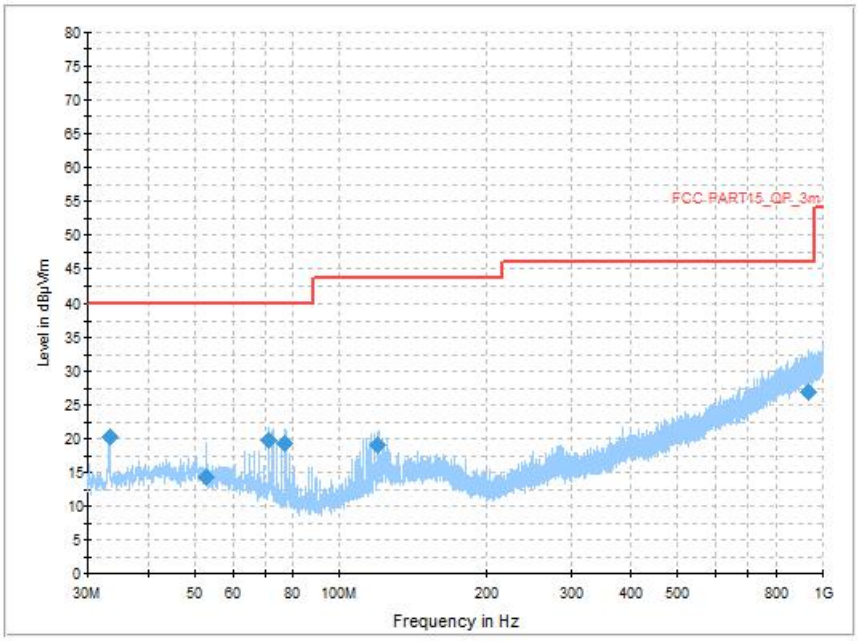

Fig. 58 Radiated Spurious Emission (All Channels, 30MHz ~ 1GHz)

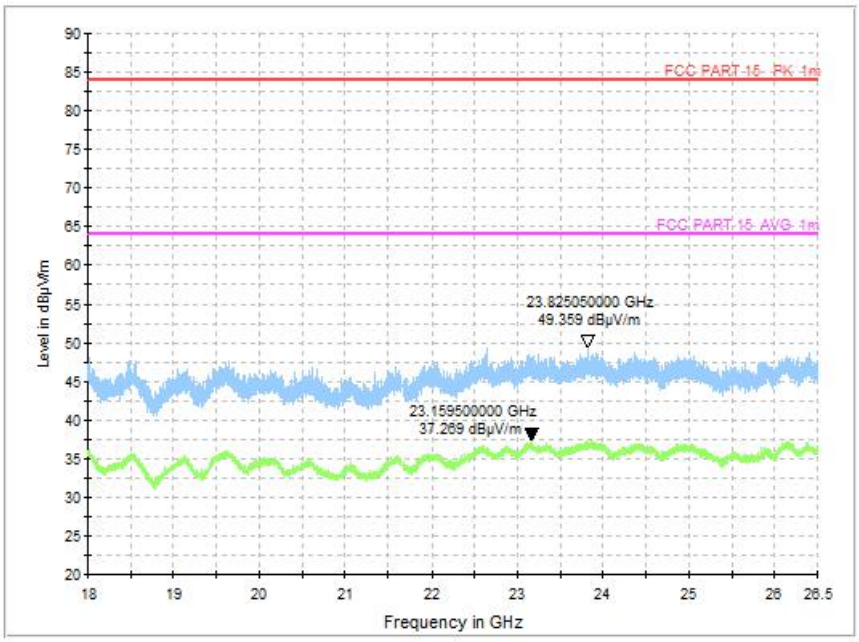

Fig. 59 Radiated Spurious Emission (All Channels, 18GHz ~ 26.5GHz)

©Copyright. All rights reserved by SAICT.

A.5 20dB Bandwidth

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a)	/

Measurement Result:

Mode	Channel	20dB Bandwidth (kHz)		conclusion
GFSK	0	Fig.60	941.25	/
	39	Fig.61	938.25	
	78	Fig.62	947.25	
π /4 DQPSK	0	Fig.63	1257.75	/
	39	Fig.64	1255.50	
	78	Fig.65	1259.25	
8DPSK	0	Fig.66	1275.00	/
	39	Fig.67	1268.25	
	78	Fig.68	1265.25	

See below for test graphs.

Conclusion: PASS

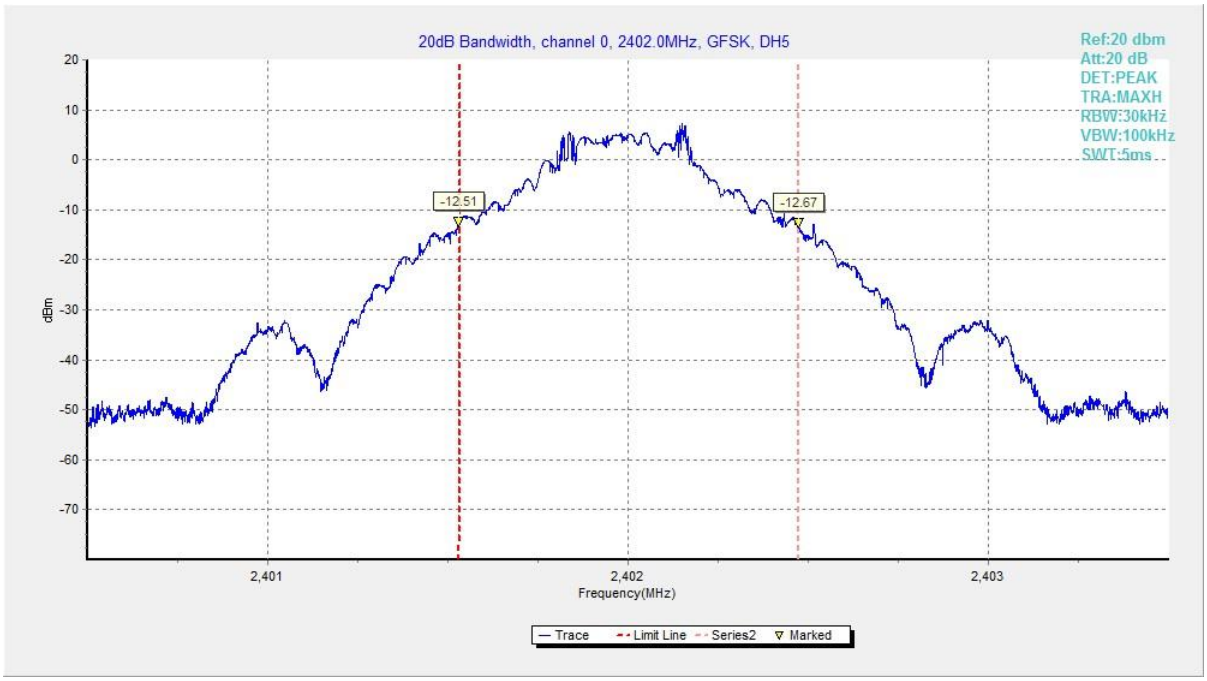

Fig. 60 20dB Bandwidth (GFSK, Ch 0)

©Copyright. All rights reserved by SAICT.

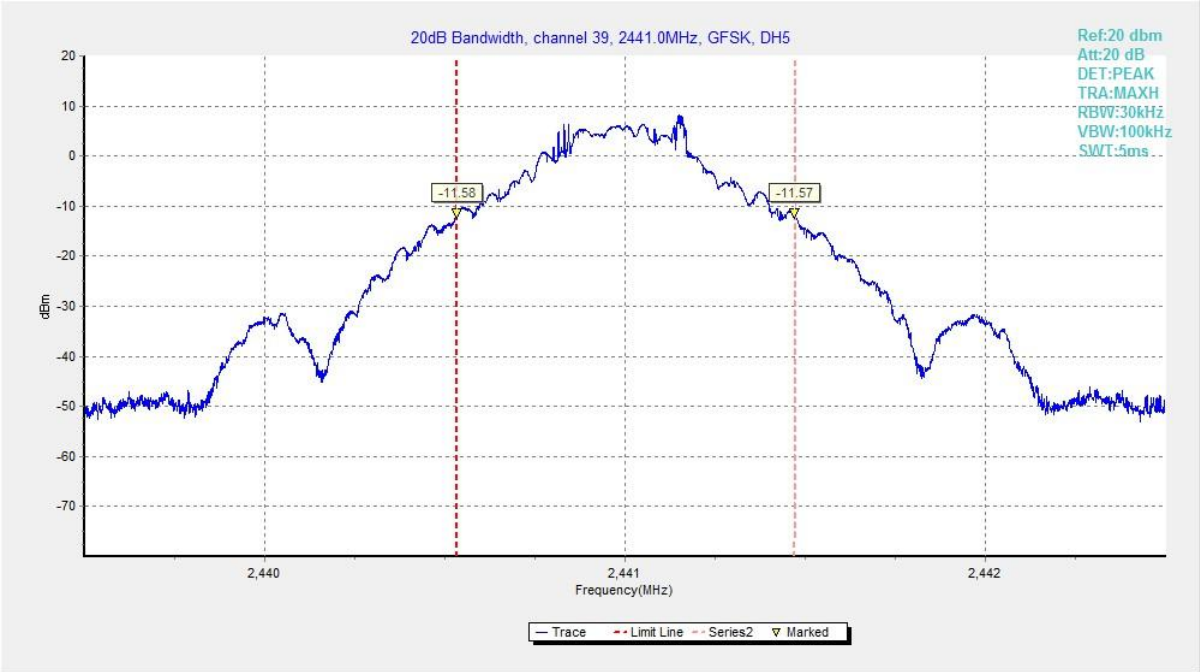

Fig. 61 20dB Bandwidth (GFSK, Ch 39)

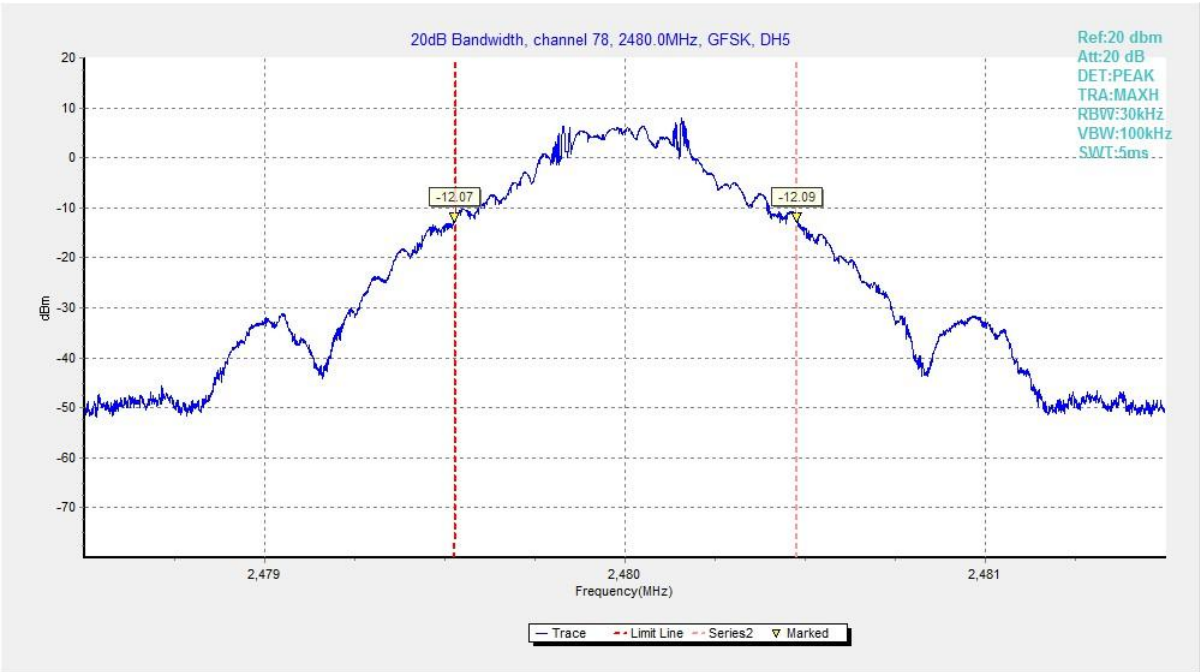

Fig. 62 20dB Bandwidth (GFSK, Ch 78)

©Copyright. All rights reserved by SAICT.

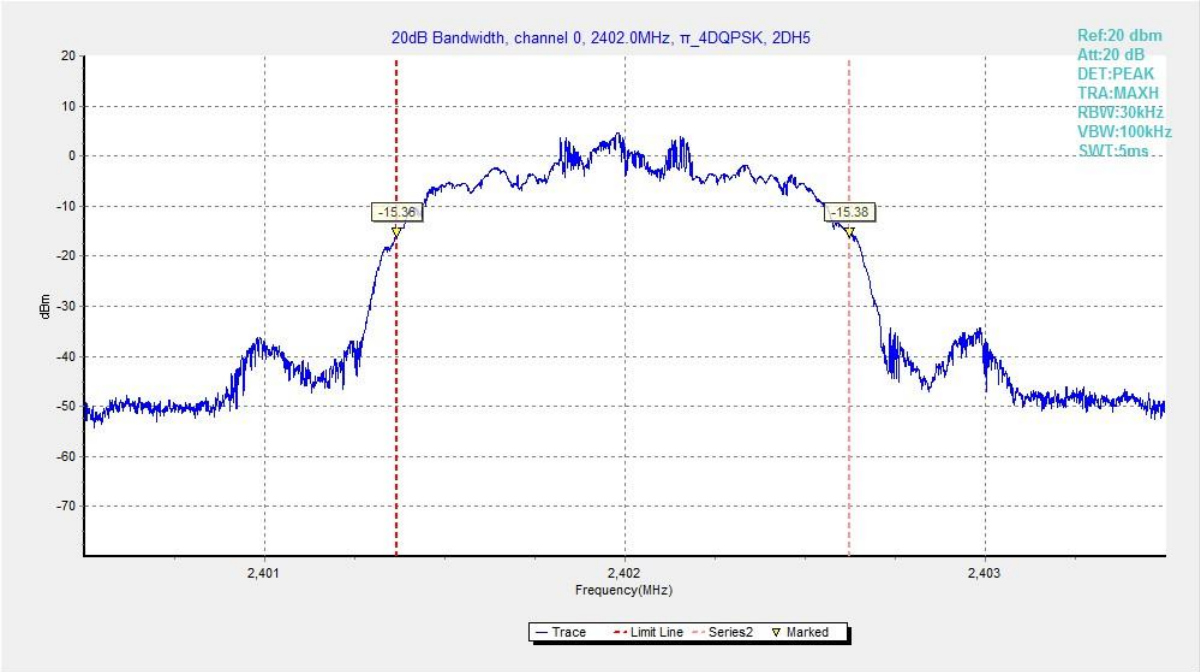

Fig. 63 20dB Bandwidth (π /4 DQPSK, Ch 0)

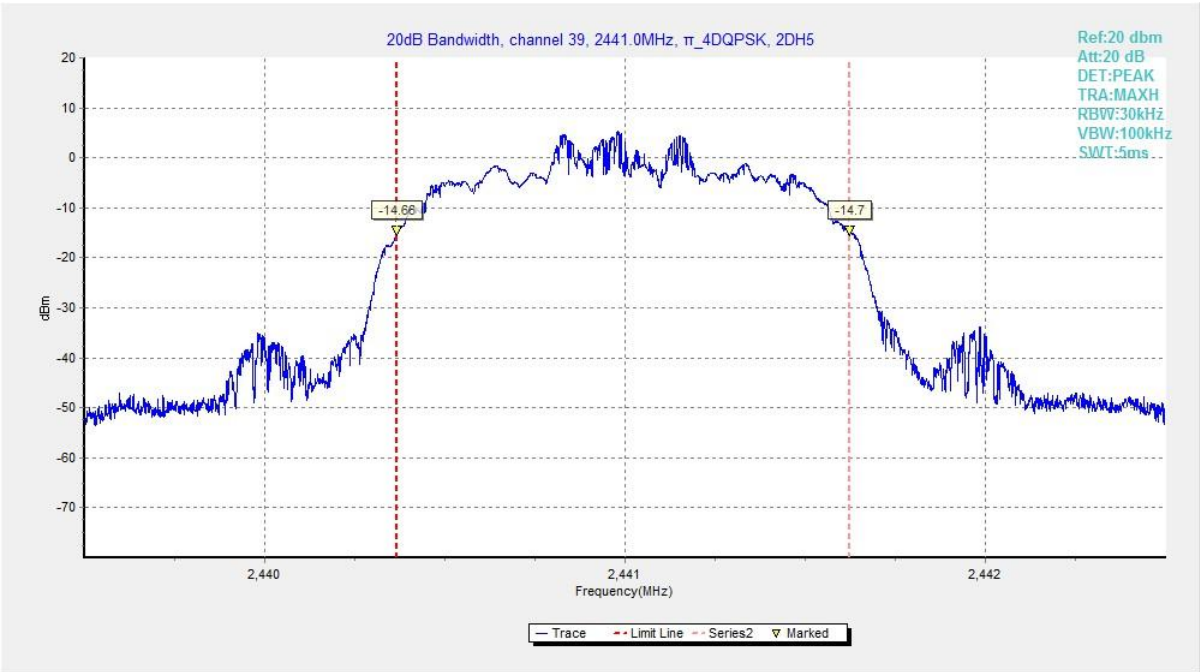

Fig. 64 20dB Bandwidth (π /4 DQPSK, Ch 39)

©Copyright. All rights reserved by SAICT.

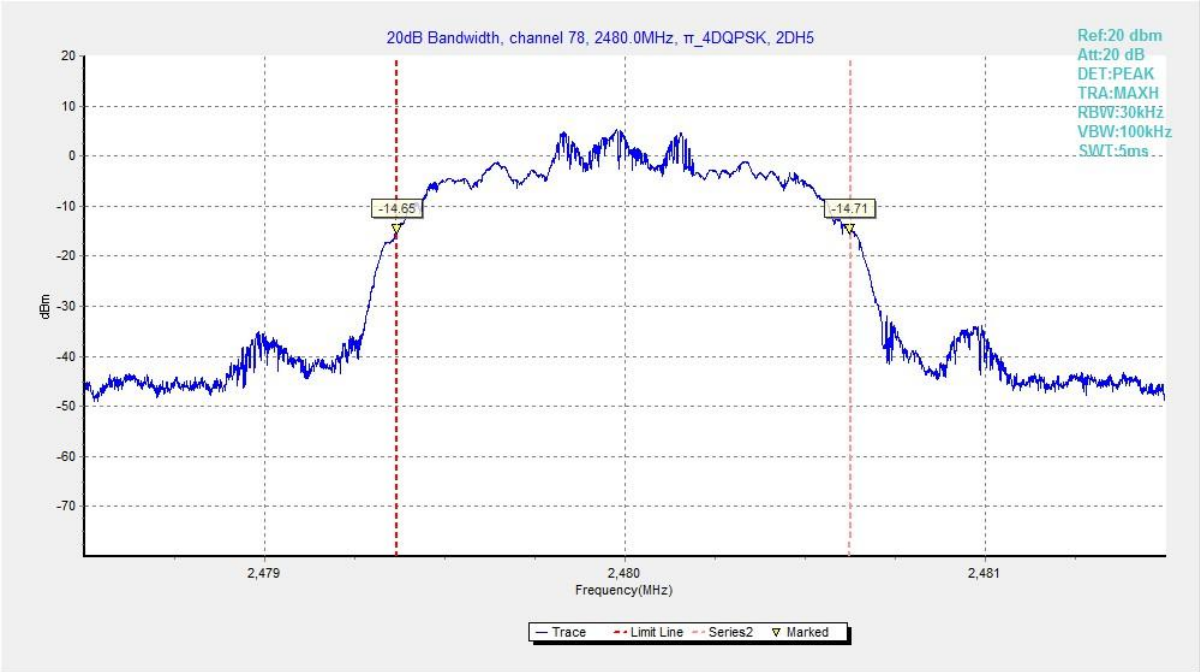

Fig. 65 20dB Bandwidth (π /4 DQPSK, Ch 78)

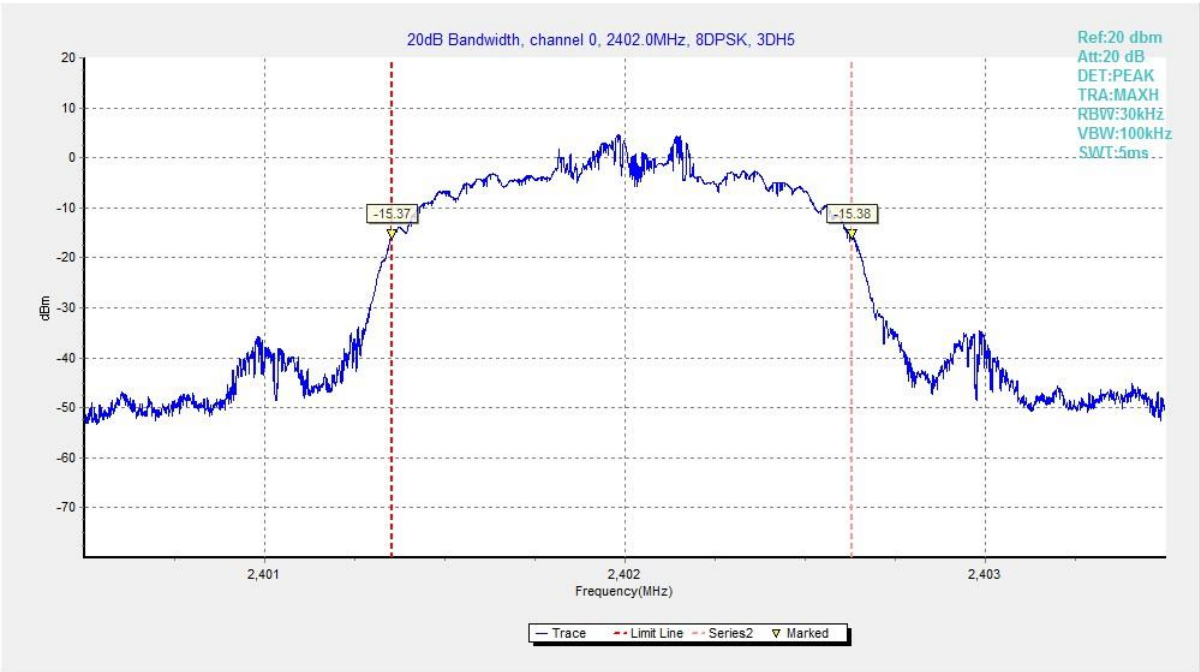

Fig. 66 20dB Bandwidth (8DPSK, Ch 0)

©Copyright. All rights reserved by SAICT.

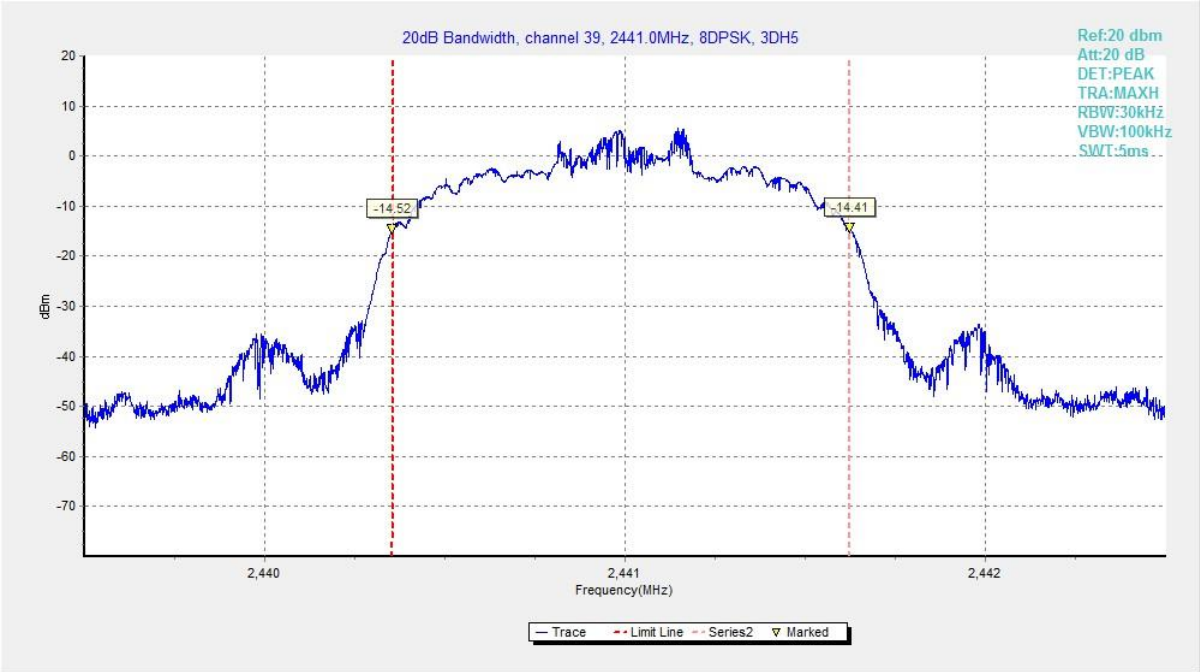

Fig. 67 20dB Bandwidth (8DPSK, Ch 39)

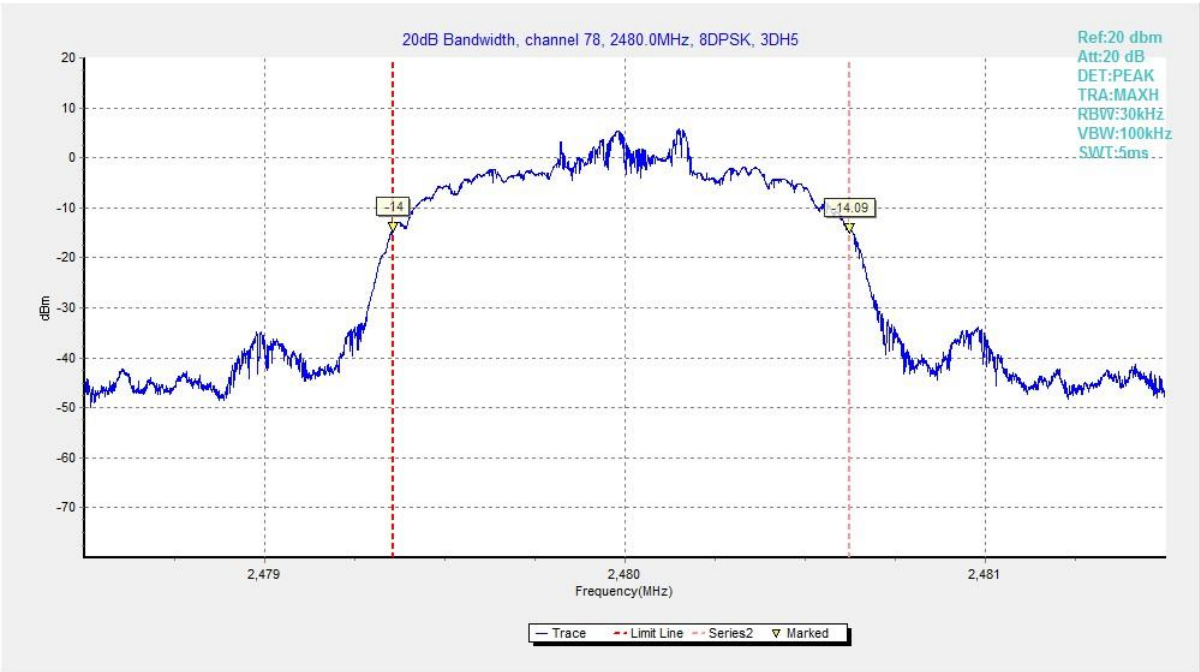

Fig. 68 20dB Bandwidth (8DPSK, Ch 78)

©Copyright. All rights reserved by SAICT.

A.6 Time of Occupancy (Dwell Time)

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247 (a)	< 400 ms

Measurement Results:

Mode	Channel	Packet	Dwell Time(ms)		Conclusion
GFSK	39	DH5	Fig.69	203.92	**P**
			Fig.70		
π /4 DQPSK	39	2-DH5	Fig.71	196.19	**P**
			Fig.72		
8DPSK	39	3-DH5	Fig.73	184.78	**P**
			Fig.74		

See below for test graphs.

Conclusion: Pass

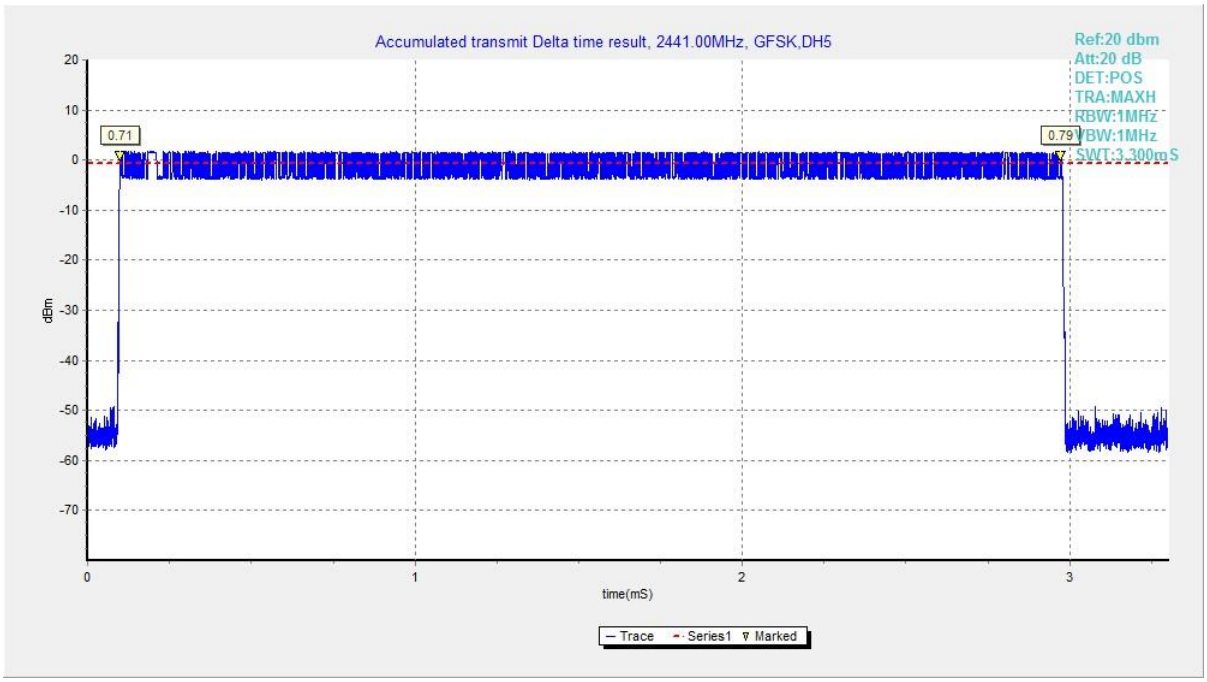

Fig. 69 Time of Occupancy(Dwell Time) (GFSK, Ch39)

©Copyright. All rights reserved by SAICT.