



TEST REPORT

No. I22N01500-BT

BLU Products, Inc.

Smart Phone

Model Name: B1550VL

with

Hardware Version: V1.0

Software Version: BLU_B1550VL_V12.0.02.05.02.17_FSec

FCC ID: YHLBLUB1550VL

Issued Date: 2022-09-09

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:

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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 20dB BANDWIDTH	31
A.5 TIME OF OCCUPANCY (DWELL TIME).....	36
A.6 NUMBER OF HOPPING CHANNELS.....	40
A.7 CARRIER FREQUENCY SEPARATION	44



1. Summary of Test Report

1.1. Test Items

Description	Smart Phone
Model Name	B1550VL
Applicant's name	BLU Products, Inc.
Manufacturer's Name	BLU Products, Inc.

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: 2022-07-14
Testing End Date: 2022-08-19

1.6. Signature

Lin Kanfeng
(Prepared this test report)

An Ran
(Reviewed this test report)

Zhang Bojun
(Approved this test report)



2. Client Information

2.1. Applicant Information

Company Name: BLU Products, Inc.
Address: 10814 NW 33rd St # 100 Doral, FL 33172, USA
Contact Person: Zeng wei
E-Mail: zwei@ctasiasz.com
Telephone: 305.715.7171
FAX: 305.436.8819

2.2. Manufacturer Information

Company Name: BLU Products, Inc.
Address: 10814 NW 33rd St # 100 Doral, FL 33172, USA
Contact Person: Zeng wei
E-Mail: zwei@ctasiasz.com
Telephone: 305.715.7171
FAX: 305.436.8819



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

3.1. About EUT

Description	Smart Phone
Model Name	B1550VL
Frequency Band	2400MHz~2483.5MHz
Equipment type	Bluetooth® BR/EDR
Type of Modulation	GFSK/π /4 DQPSK/8DPSK
Number of Channels	79
Antenna Type	Integrated
Antenna Gain	2.4 dBi
Power Supply	3.85V DC by Battery
FCC ID	YHLBLUB1550VL
Condition of EUT as received	No abnormality in appearance

3.2. Internal Identification of EUT

EUT ID*	IMEI	HW Version	SW Version	Receive Date
UT01aa	350547790004382	V1.0	BLU_B1550VL_V12. 0.02.05.02.17_FSec	2022-07-12

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

3.3. Internal Identification of AE

AE ID*	Description	SN
AE1	Battery	/
AE2	Charger	/
AE1		
Model	TN-BP4000N1	
Manufacturer	Guangdong Fenghua New Energy Co.,Ltd.	
Capacity	4000mAh	
Nominal Voltage	3.85V	
AE2		
Model	TN-050200U3	
Manufacturer	Guangdong Beicom Electronics Co.,Ltd.	

*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 Smart 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.



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

5. Test Results

5.1. Testing Environment

Normal Temperature: 15~35°C

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	Occupied 20dB bandwidth	15.247 (a)	/
5	Time of Occupancy (Dwell Time)	15.247 (a)	P
6	Number of Hopping Channel	15.247 (a)	P
7	Carrier Frequency Separation	15.247 (a)	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.

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 Acquisition	U2531A	TW55443507	Keysight	/	/

Test software

No.	Equipment	Manufacturer	Version
1	TechMgr Software	CAICT	2.1.1

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



7. Laboratory Environment

Shielded room

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

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	4.56kHz	
4. Transmitter Spurious Emission - Conducted	$30\text{MHz} \leq f < 1\text{GHz}$	1.41dB
	$1\text{GHz} \leq f < 7\text{GHz}$	1.92dB
	$7\text{GHz} \leq f < 13\text{GHz}$	2.31dB
	$13\text{GHz} \leq f \leq 26\text{GHz}$	2.61dB



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 2.4 dBi. The RF transmitter uses an integrate antenna without connector.



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	10.94	10.67	9.21
π /4 DQPSK	9.97	9.72	8.98
8DPSK	9.80	9.57	8.83

E.I.R.P

Mode	Peak Conducted Output Power (dBm)		
	2402MHz (Ch0)	2441MHz (Ch39)	2480MHz (Ch78)
GFSK	13.34	13.07	11.61
π /4 DQPSK	12.37	12.12	11.38
8DPSK	12.20	11.97	11.23

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

Conclusion: Pass

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

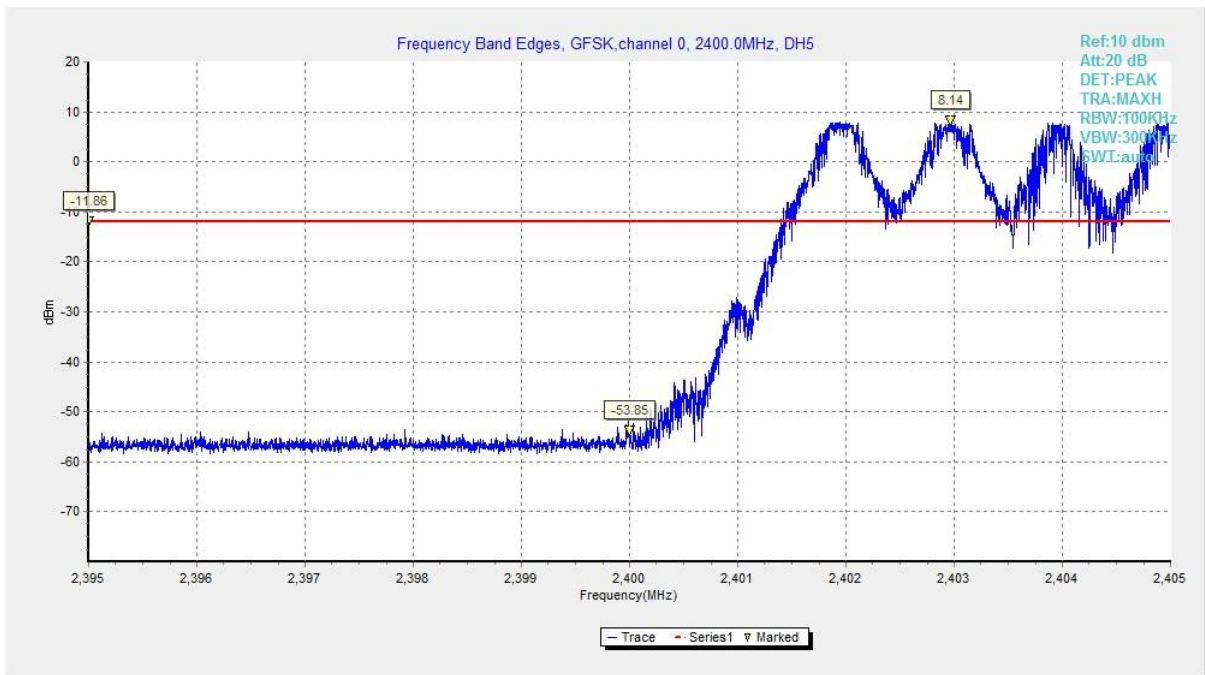


Fig. 1 Band Edges (GFSK, Ch 0, Hopping ON)

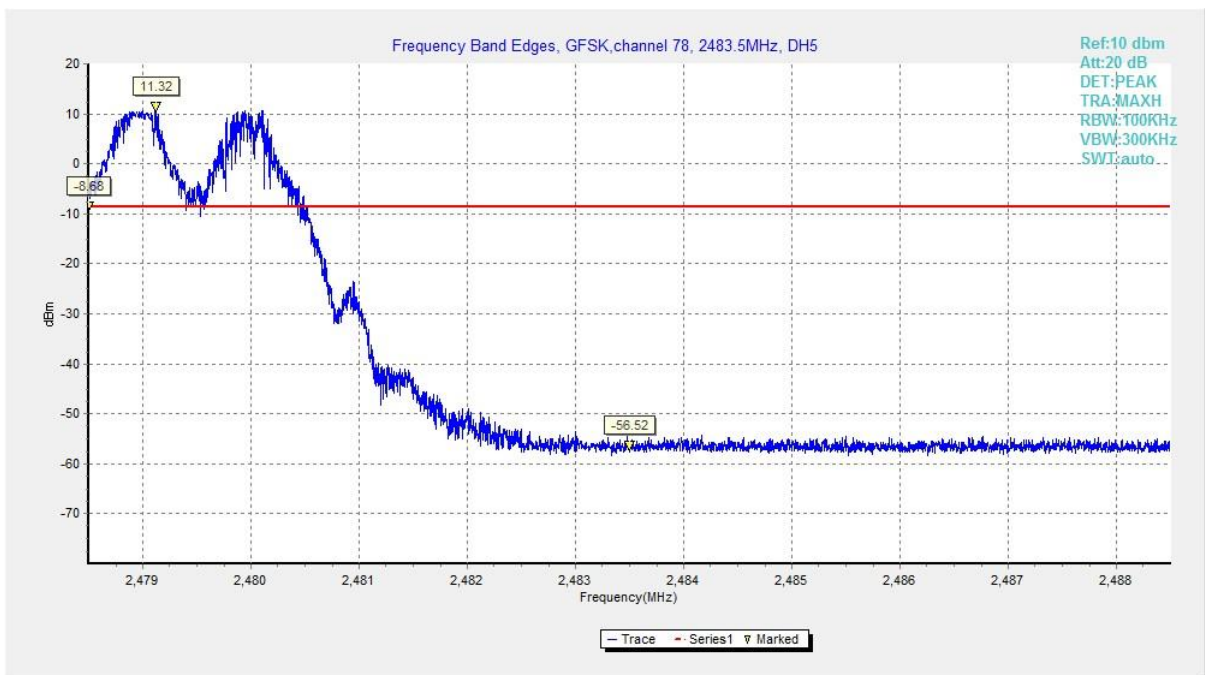


Fig. 2 Band Edges (GFSK, Ch 78, Hopping ON)

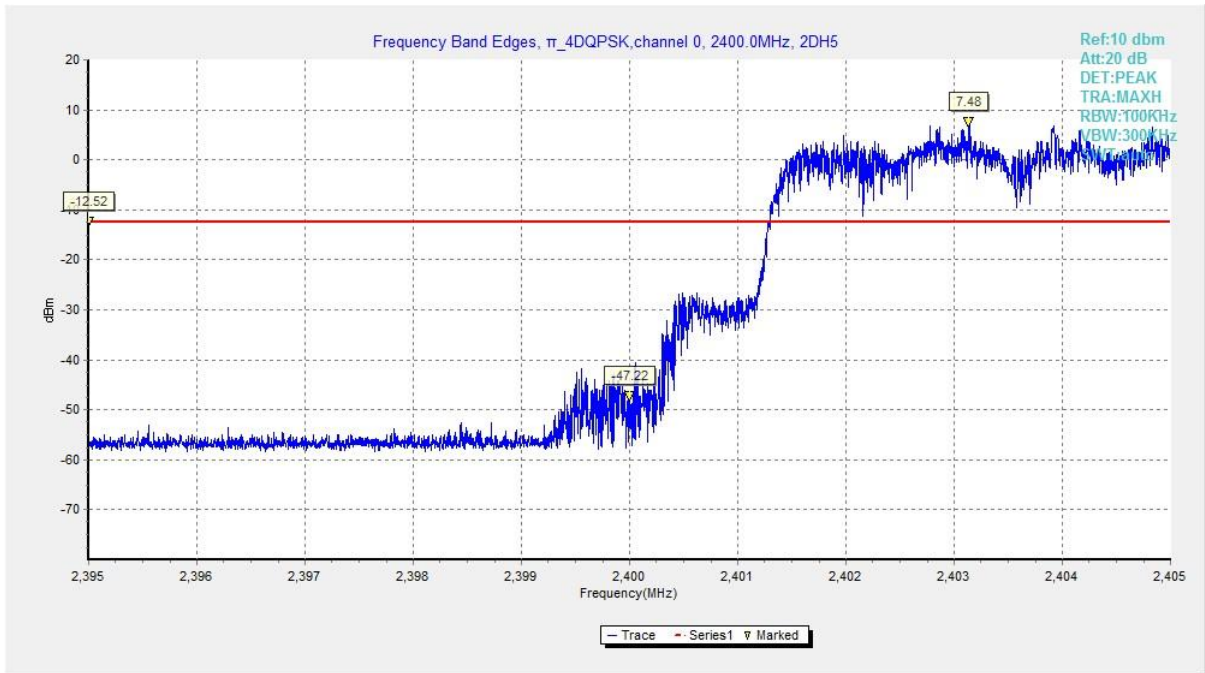


Fig. 3 Band Edges ($\pi/4$ DQPSK, Ch 0, Hopping ON)

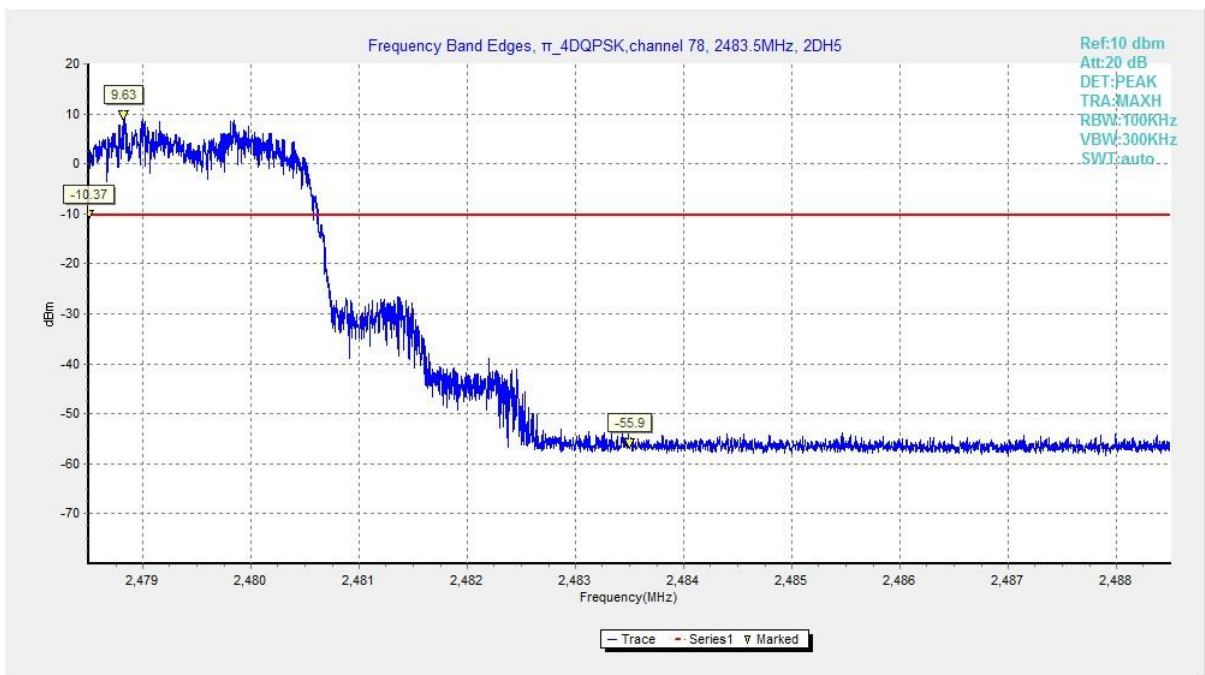


Fig. 4 Band Edges ($\pi/4$ DQPSK, Ch 78, Hopping ON)

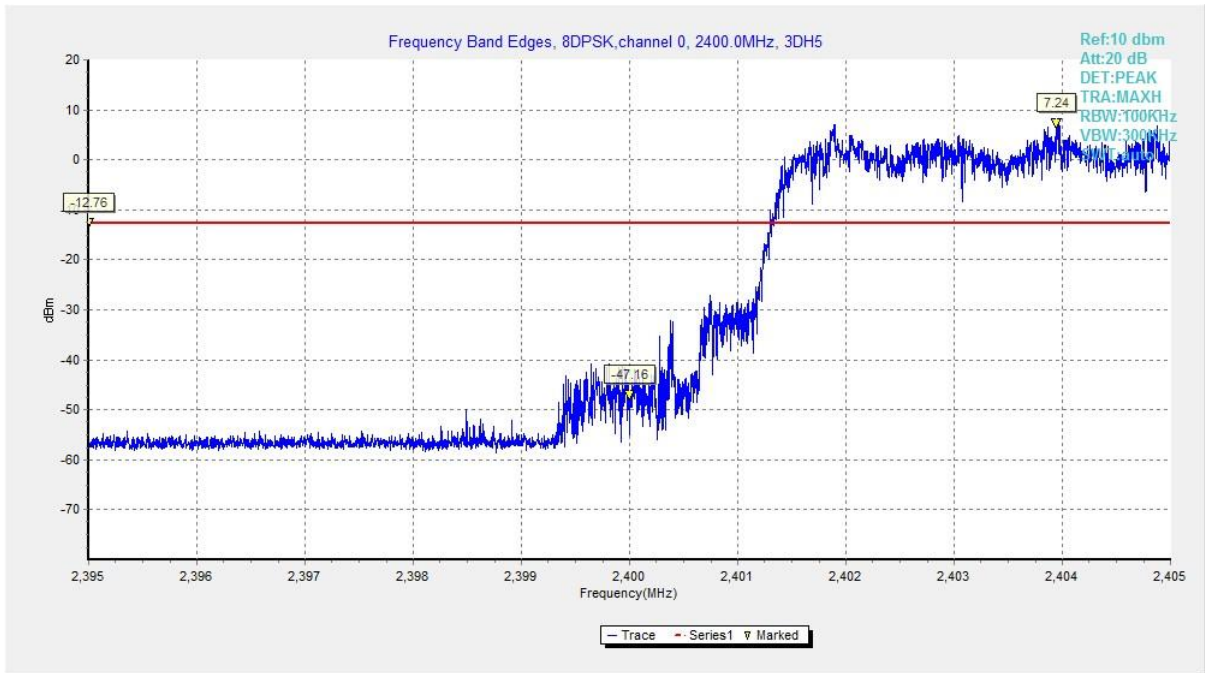


Fig. 5 Band Edges (8DPSK, Ch 0, Hopping ON)

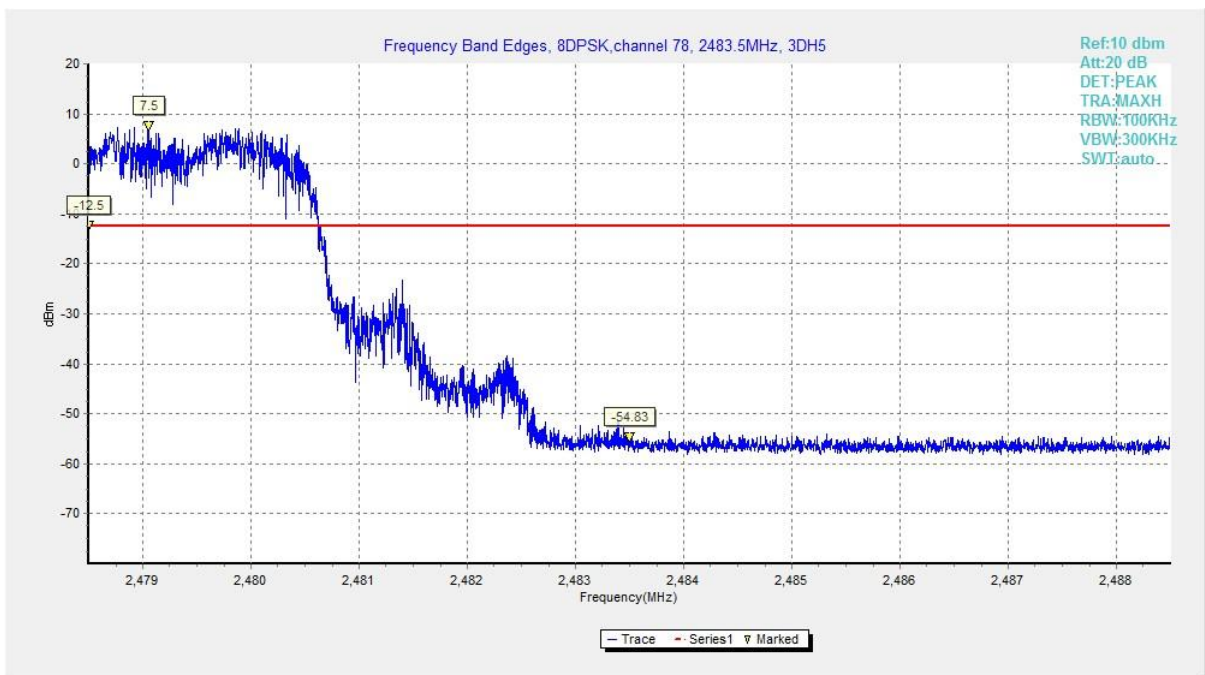


Fig. 6 Band Edges (8DPSK, Ch 78, Hopping ON)

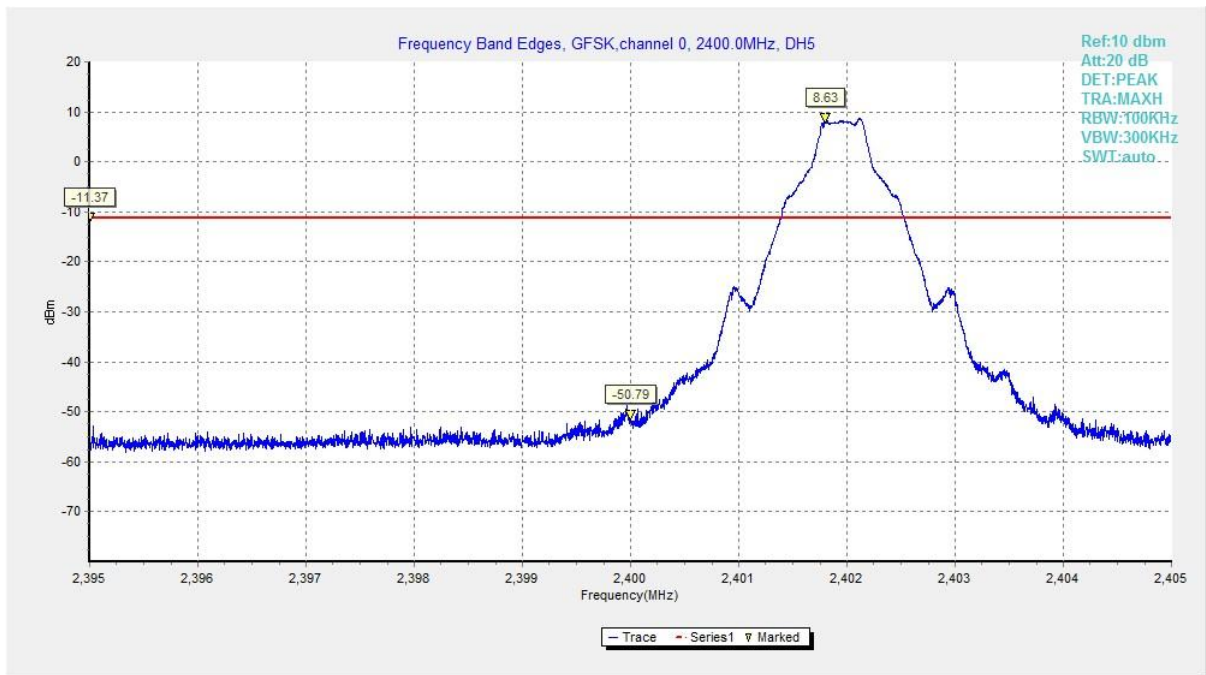


Fig. 7 Band Edges (GFSK, Ch 0, Hopping OFF)

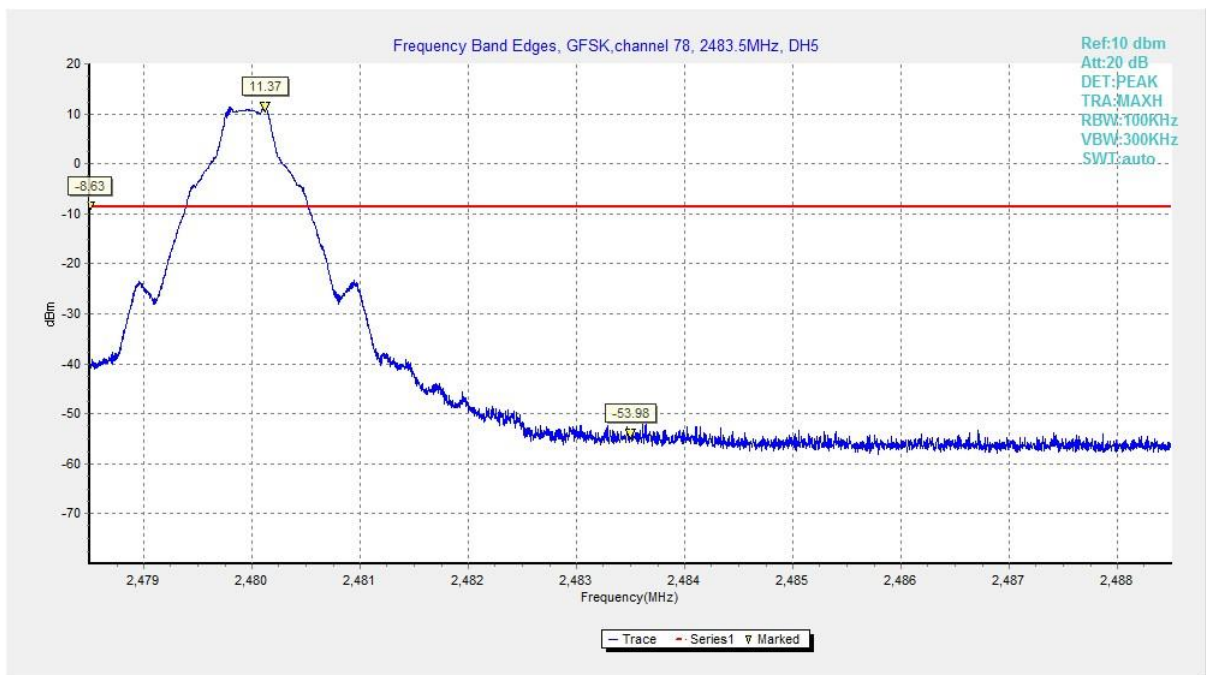


Fig. 8 Band Edges (GFSK, Ch 78, Hopping OFF)

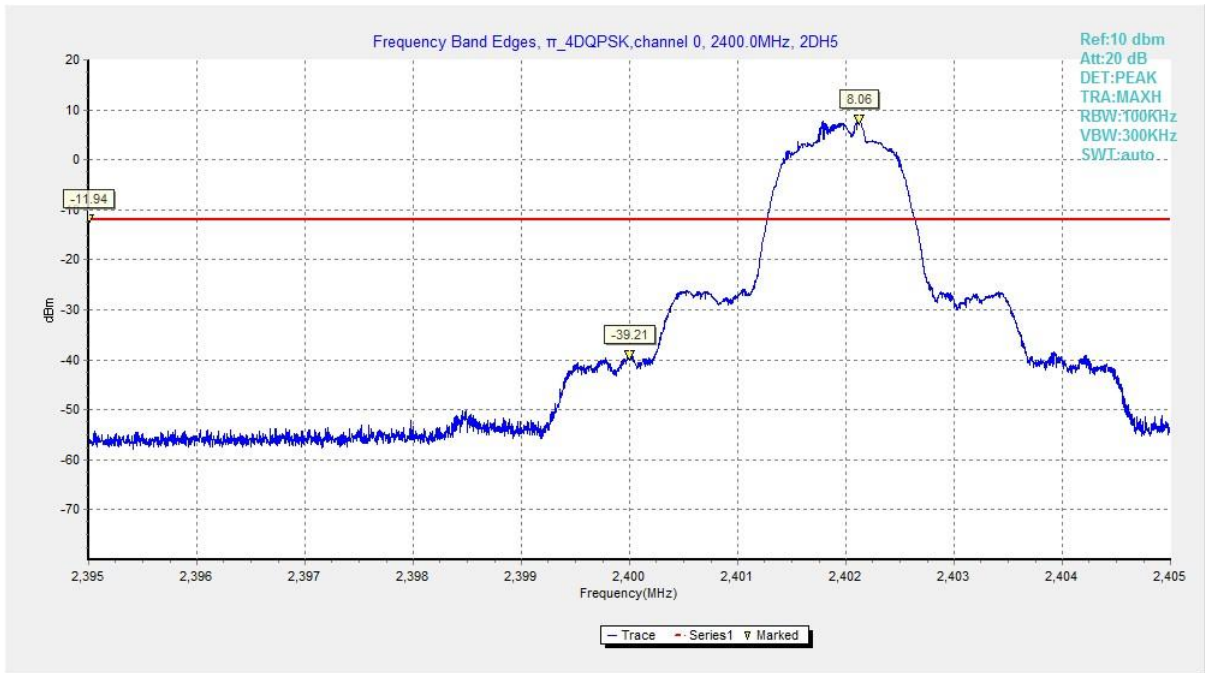


Fig. 9 Band Edges ($\pi/4$ DQPSK, Ch 0, Hopping OFF)

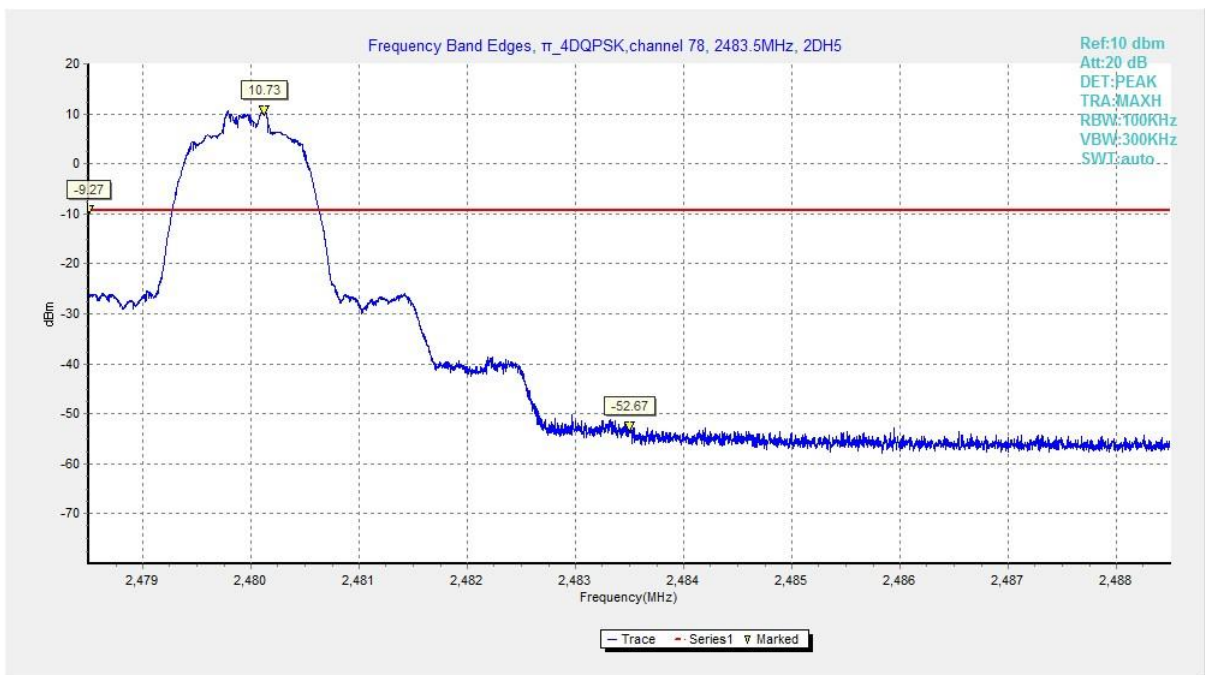


Fig. 10 Band Edges ($\pi/4$ DQPSK, Ch 78, Hopping OFF)

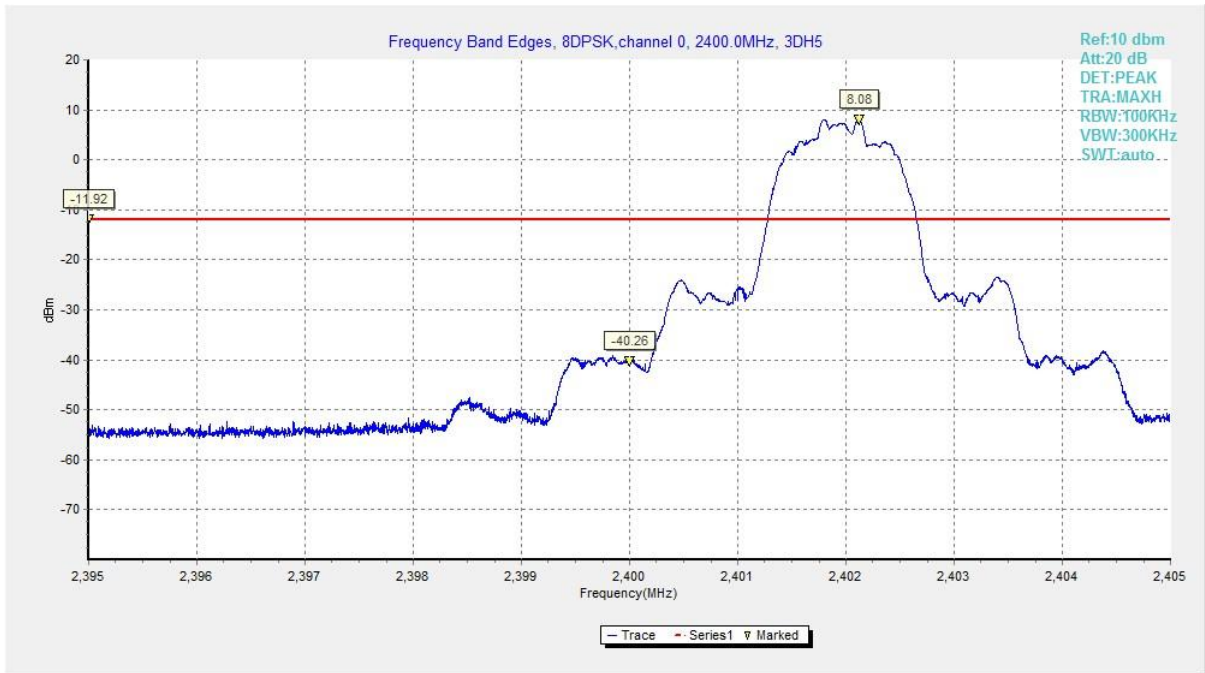


Fig. 11 Band Edges (8DPSK, Ch 0, Hopping OFF)

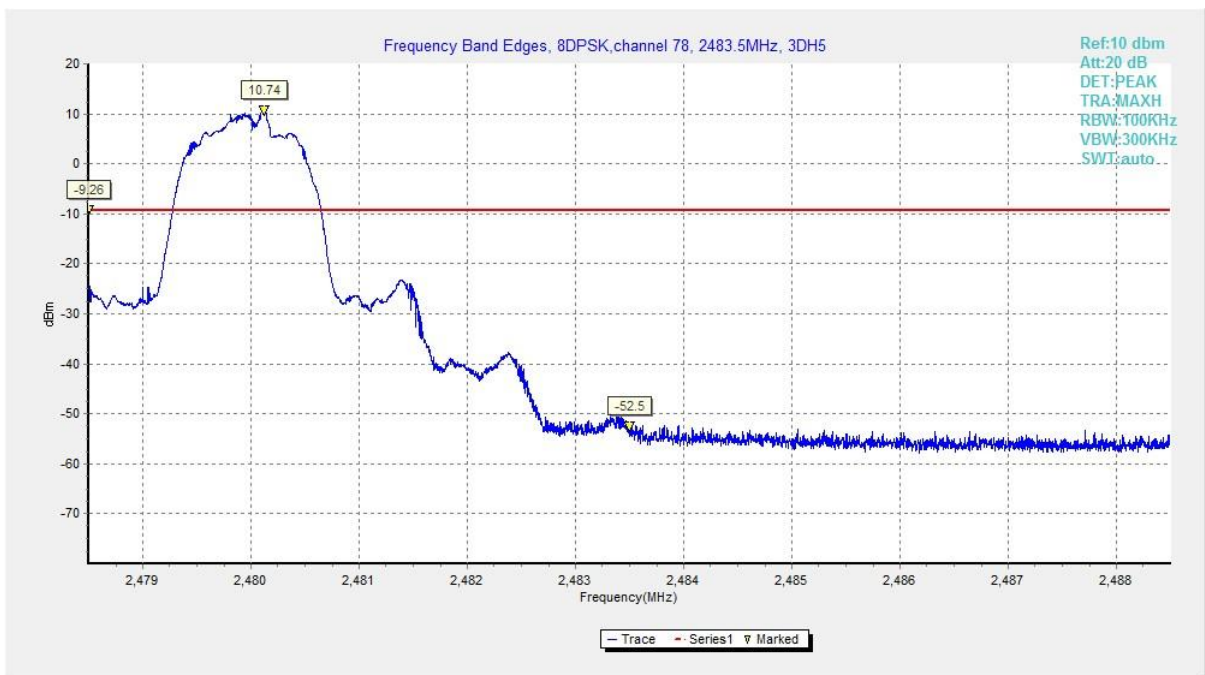


Fig. 12 Band Edges (8DPSK, Ch 78, Hopping OFF)



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	1GHz-3GHz	Fig.13	P
		3GHz-10GHz	Fig.14	P
	39	1GHz-3GHz	Fig.15	P
		3GHz-10GHz	Fig.16	P
	78	1GHz-3GHz	Fig.17	P
		3GHz-10GHz	Fig.18	P
$\pi/4$ DQPSK	0	1GHz-3GHz	Fig.19	P
		3GHz-10GHz	Fig.20	P
	39	1GHz-3GHz	Fig.21	P
		3GHz-10GHz	Fig.22	P
	78	1GHz-3GHz	Fig.23	P
		3GHz-10GHz	Fig.24	P
8DPSK	0	1GHz-3GHz	Fig.25	P
		3GHz-10GHz	Fig.26	P
	39	1GHz-3GHz	Fig.27	P
		3GHz-10GHz	Fig.28	P
	78	1GHz-3GHz	Fig.29	P
		3GHz-10GHz	Fig.30	P
/	All channels	30 MHz-1GHz	Fig.31	P
		10GHz-26GHz	Fig.32	P

See below for test graphs.

Conclusion: Pass

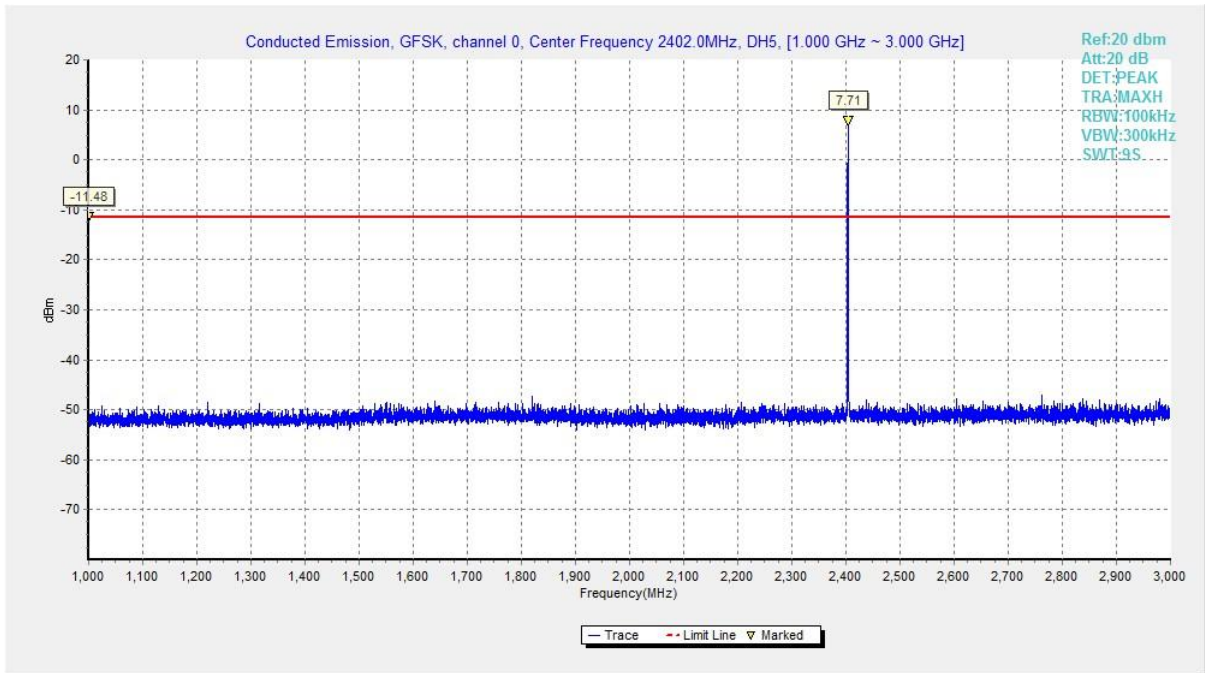


Fig. 13 Conducted Spurious Emission (GFSK, Ch0, 1GHz-3GHz)

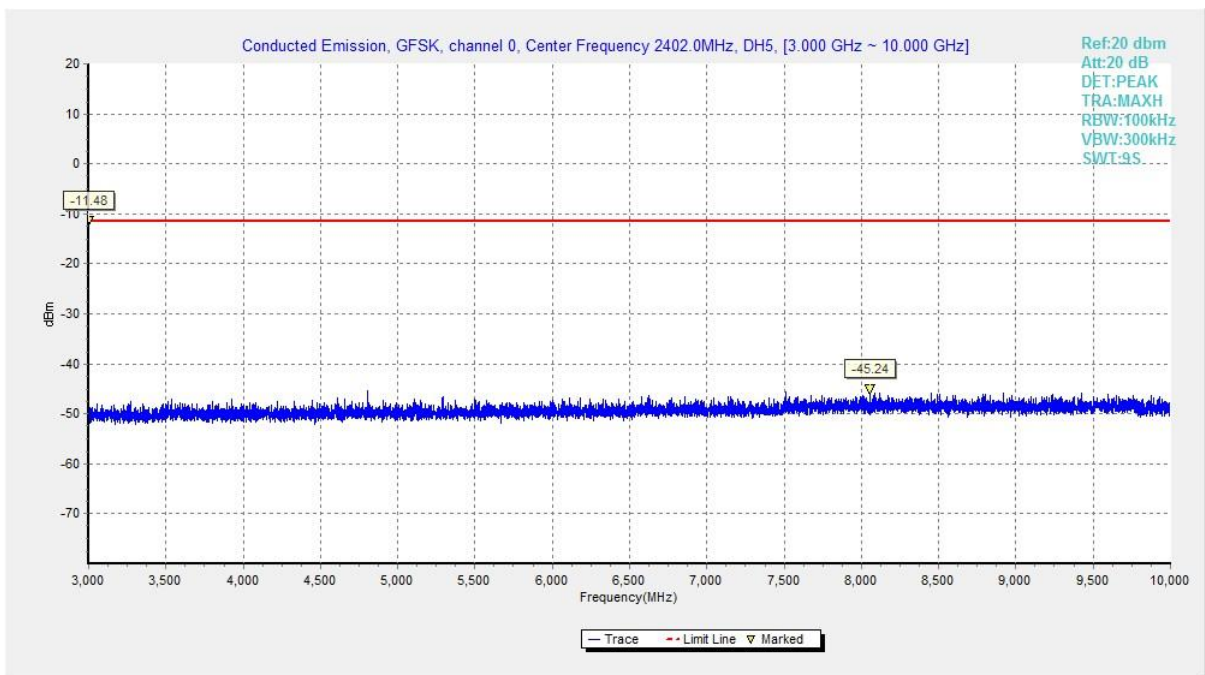


Fig. 14 Conducted Spurious Emission (GFSK, Ch0, 3GHz-10GHz)

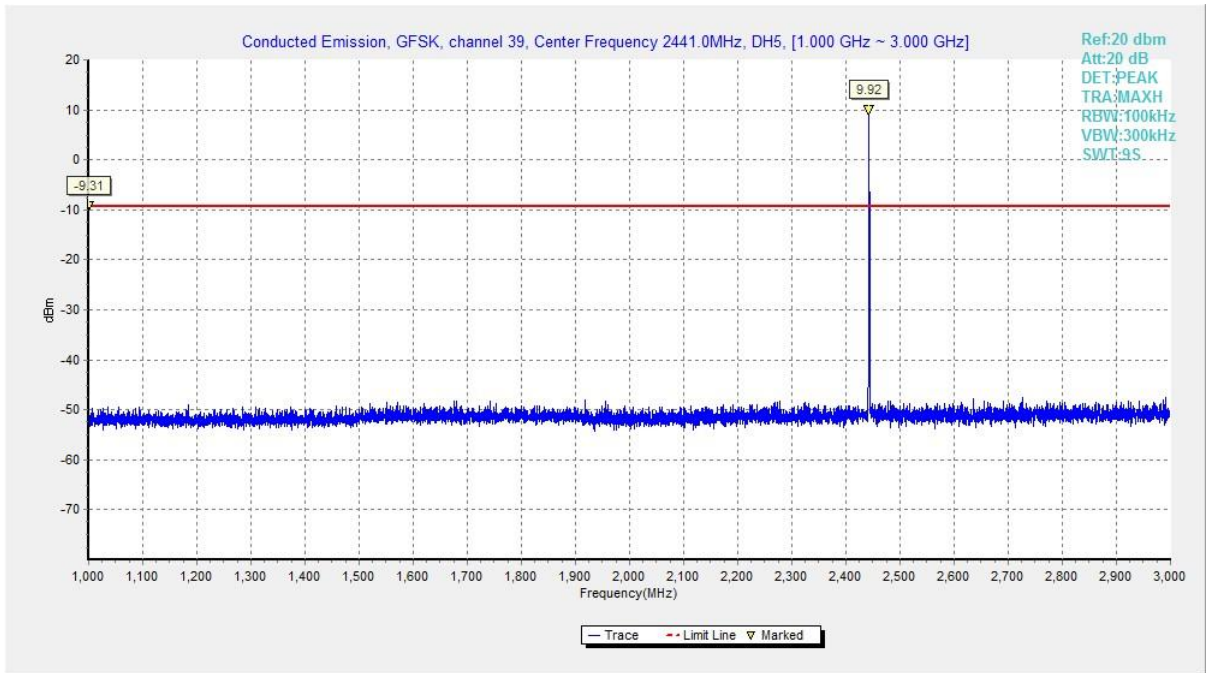


Fig. 15 Conducted Spurious Emission (GFSK, Ch39, 1GHz-3GHz)

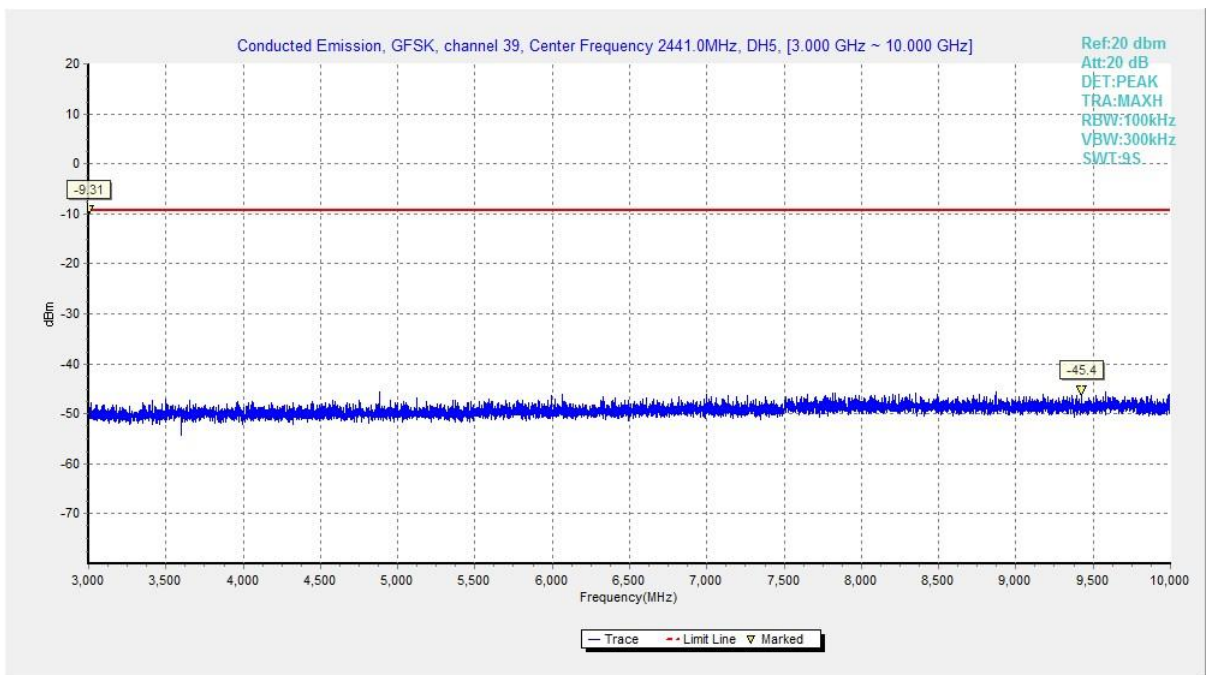


Fig. 16 Conducted Spurious Emission (GFSK, Ch39, 3GHz-10GHz)

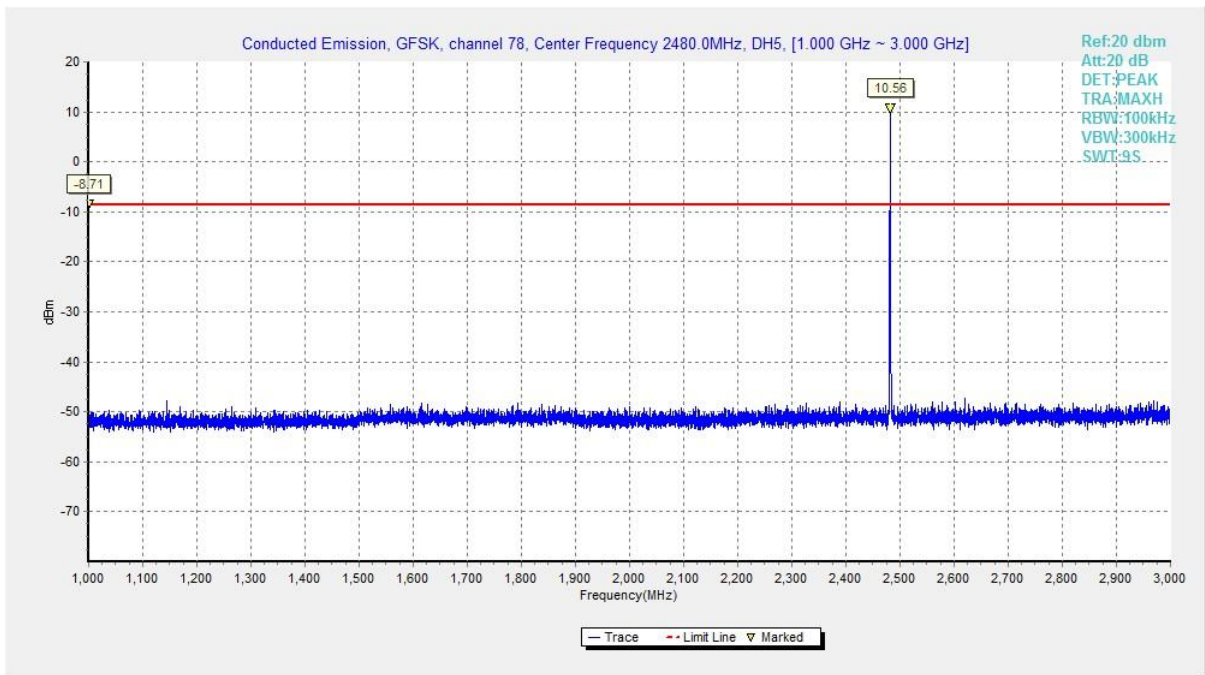


Fig. 17 Conducted Spurious Emission (GFSK, Ch78, 1GHz-3GHz)

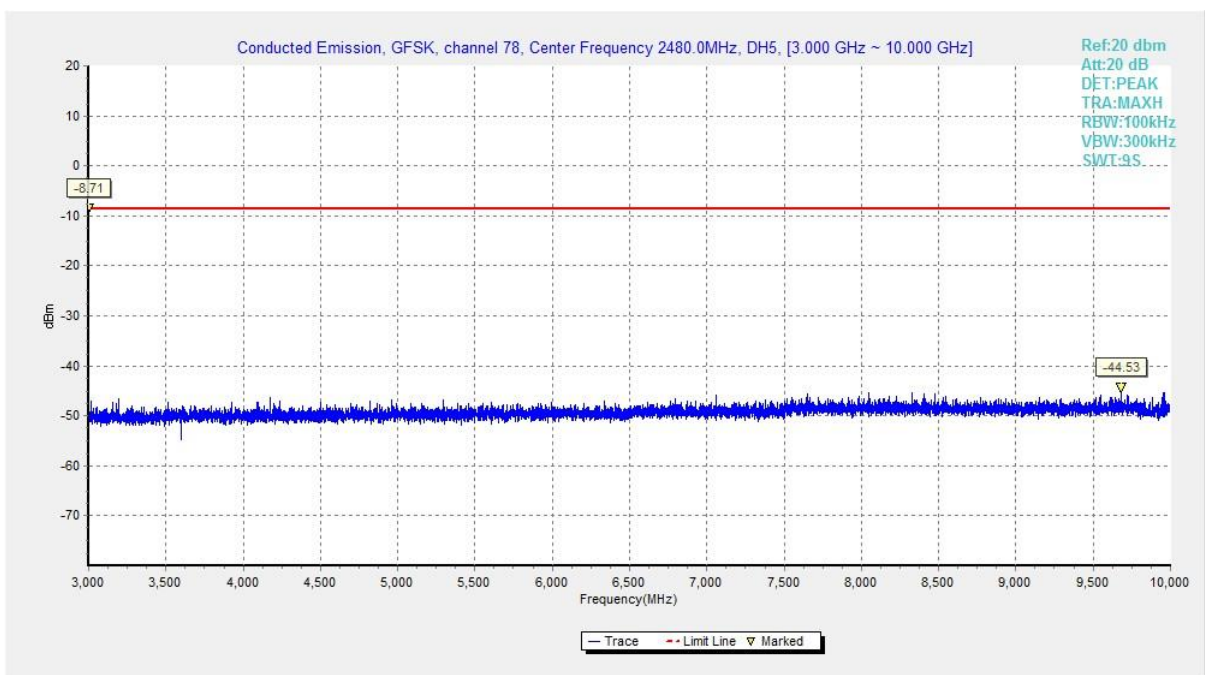


Fig. 18 Conducted Spurious Emission (GFSK, Ch78, 3GHz-10GHz)

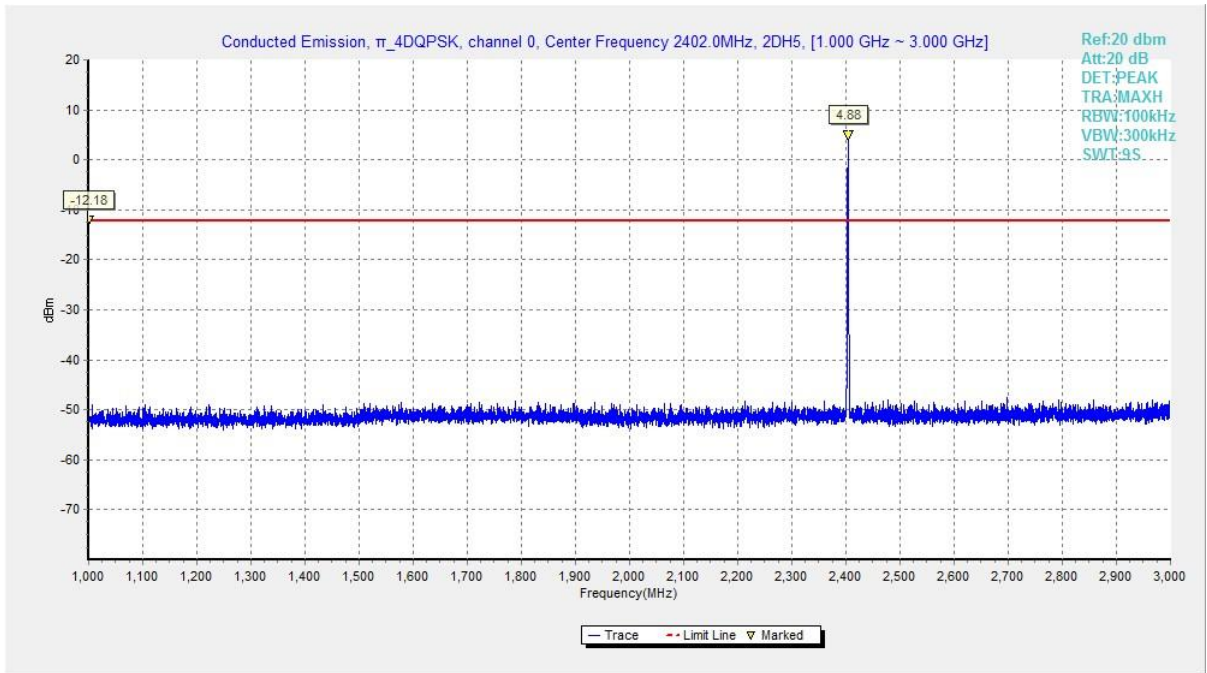


Fig. 19 Conducted Spurious Emission ($\pi/4$ DQPSK, Ch0, 1GHz-3GHz)

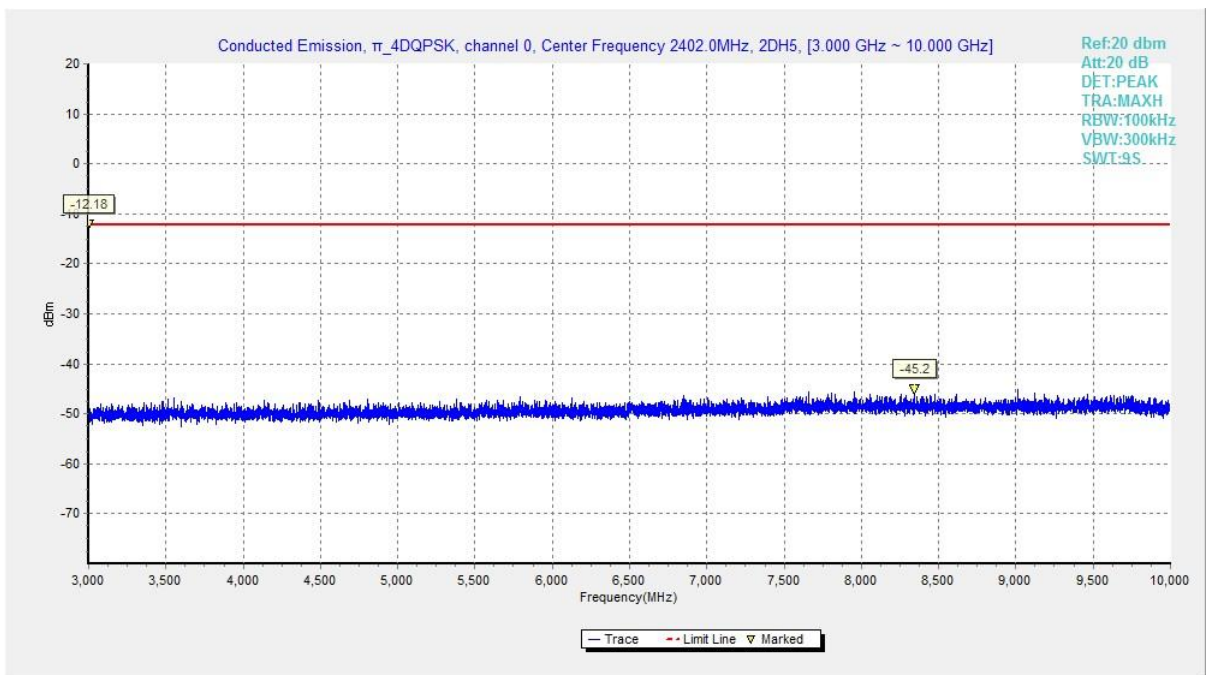


Fig. 20 Conducted Spurious Emission ($\pi/4$ DQPSK, Ch0, 3GHz-10GHz)

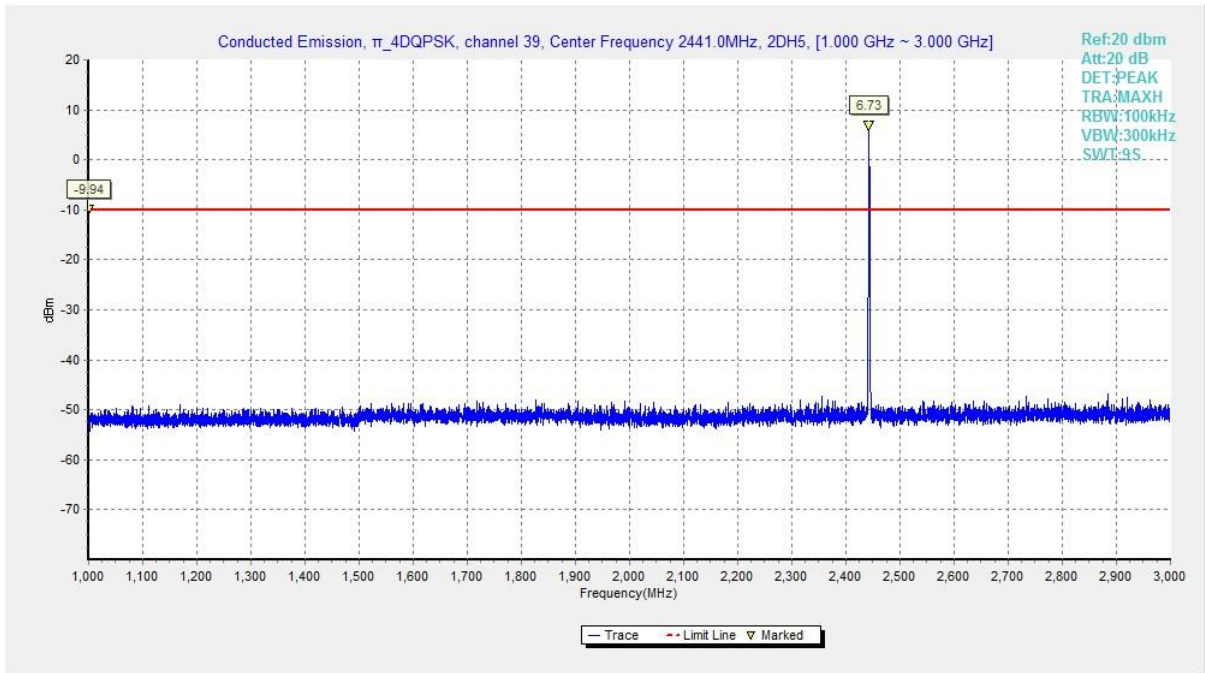


Fig. 21 Conducted Spurious Emission ($\pi/4$ DQPSK, Ch39, 1GHz-3GHz)

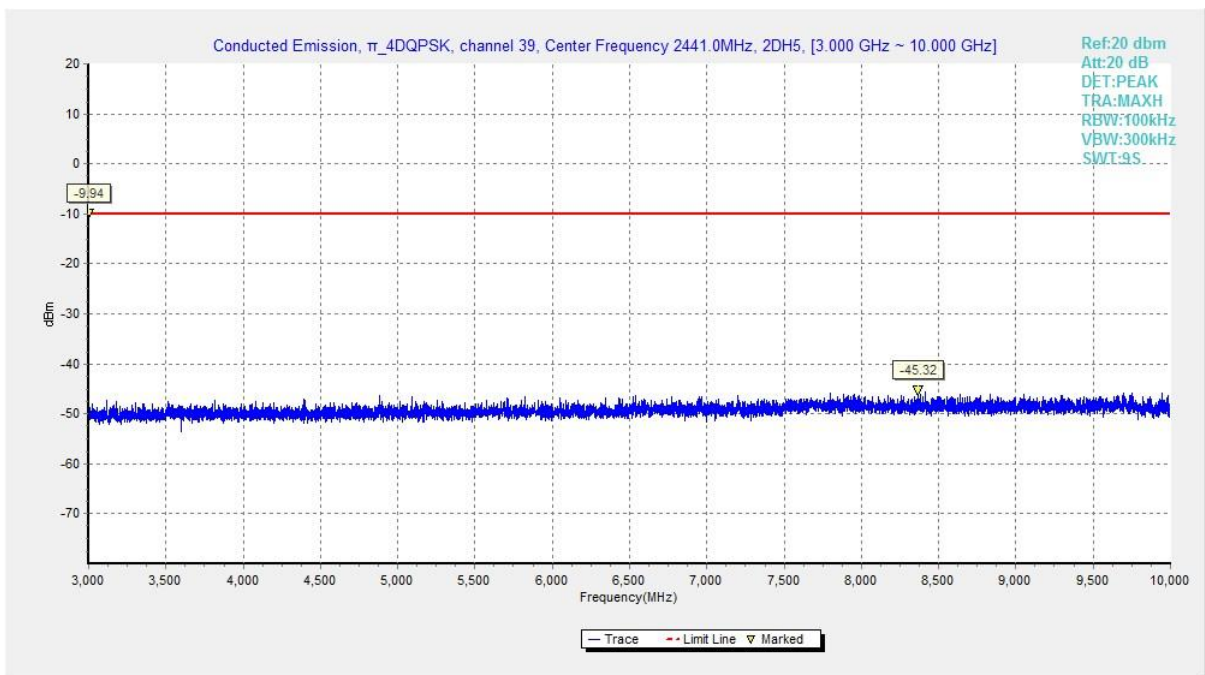


Fig. 22 Conducted Spurious Emission ($\pi/4$ DQPSK, Ch39, 3GHz-10GHz)

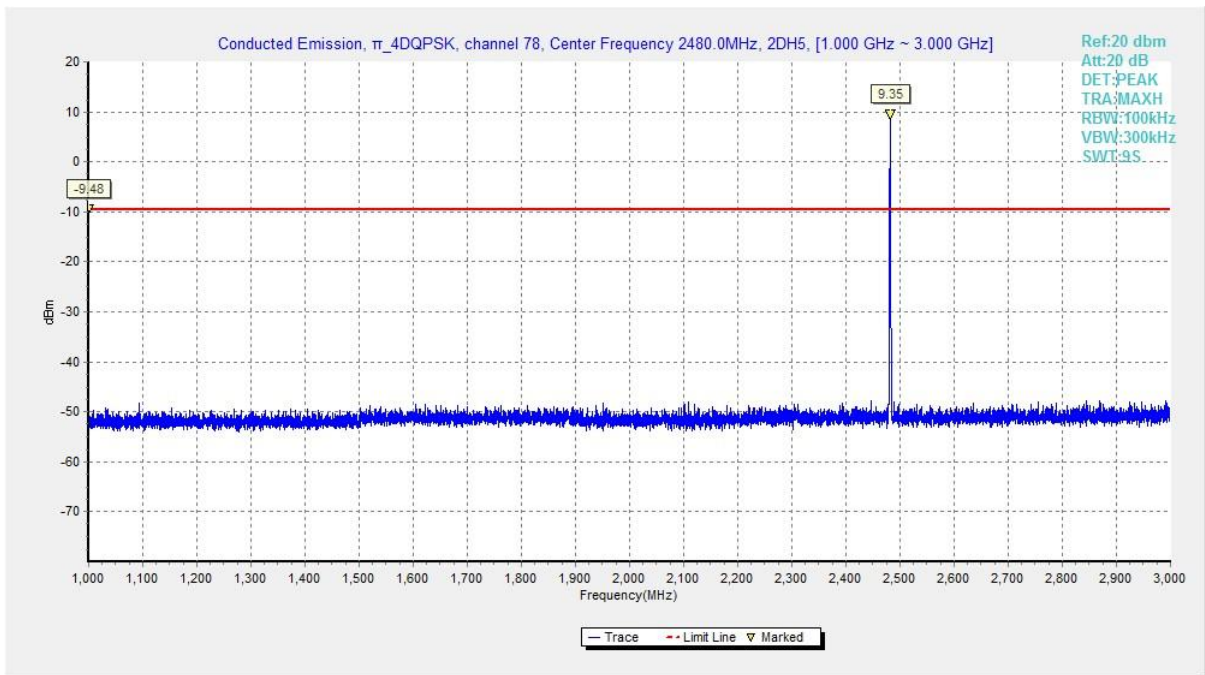


Fig. 23 Conducted Spurious Emission ($\pi/4$ DQPSK, Ch78, 1GHz-3GHz)

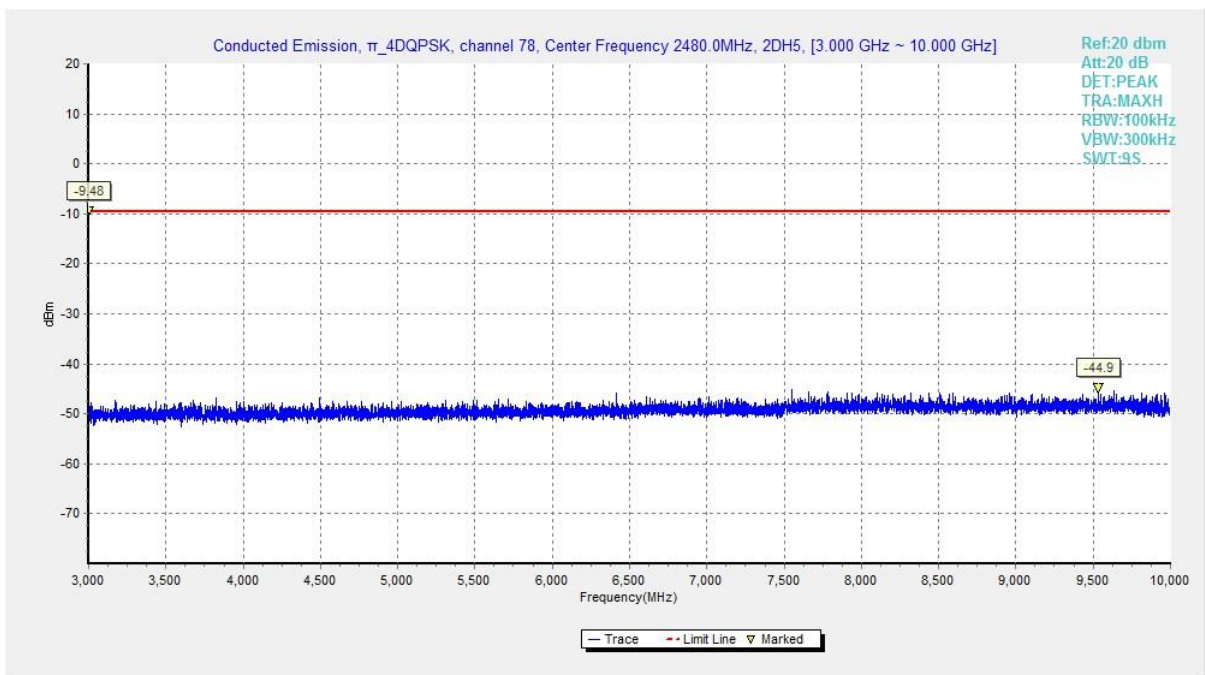


Fig. 24 Conducted Spurious Emission ($\pi/4$ DQPSK, Ch78, 3GHz-10GHz)

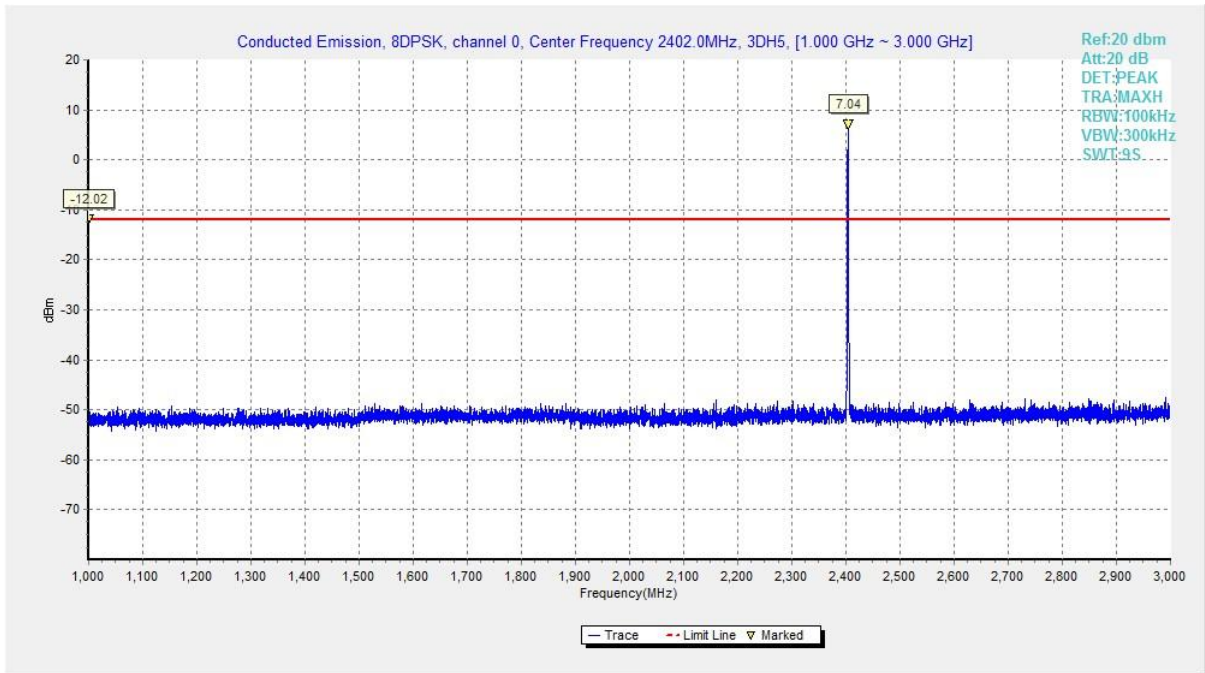


Fig. 25 Conducted Spurious Emission (8DPSK, Ch0, 1GHz-3GHz)

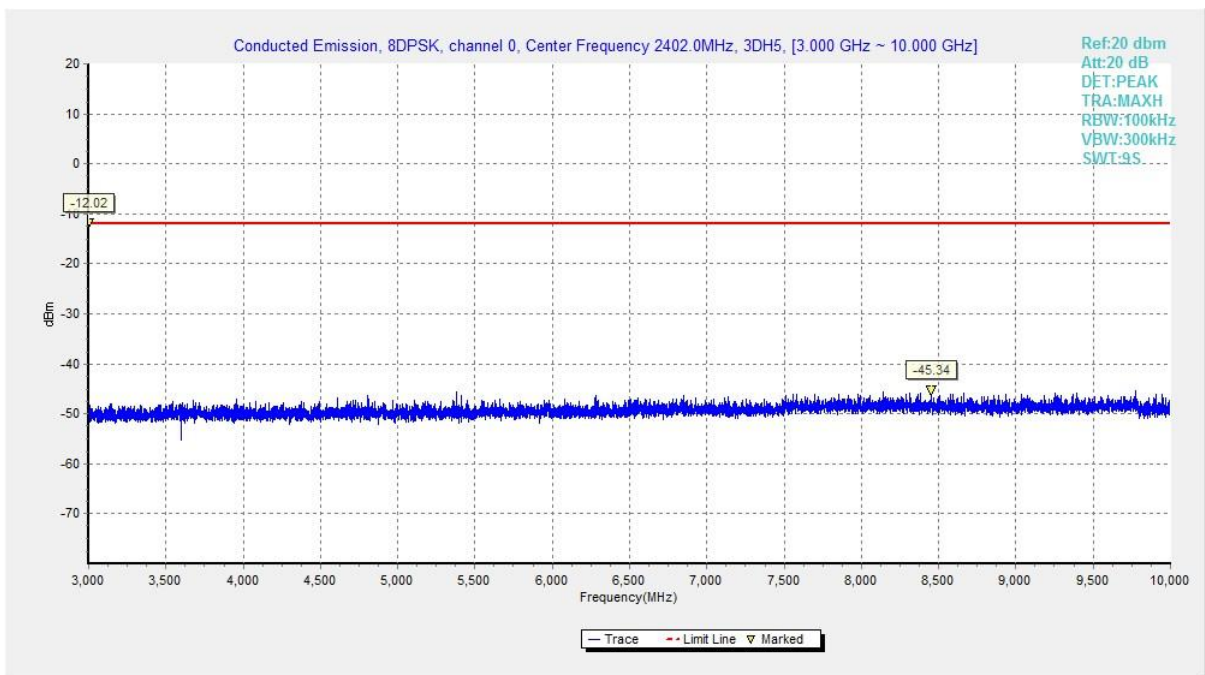


Fig. 26 Conducted Spurious Emission (8DPSK, Ch0, 3GHz-10GHz)

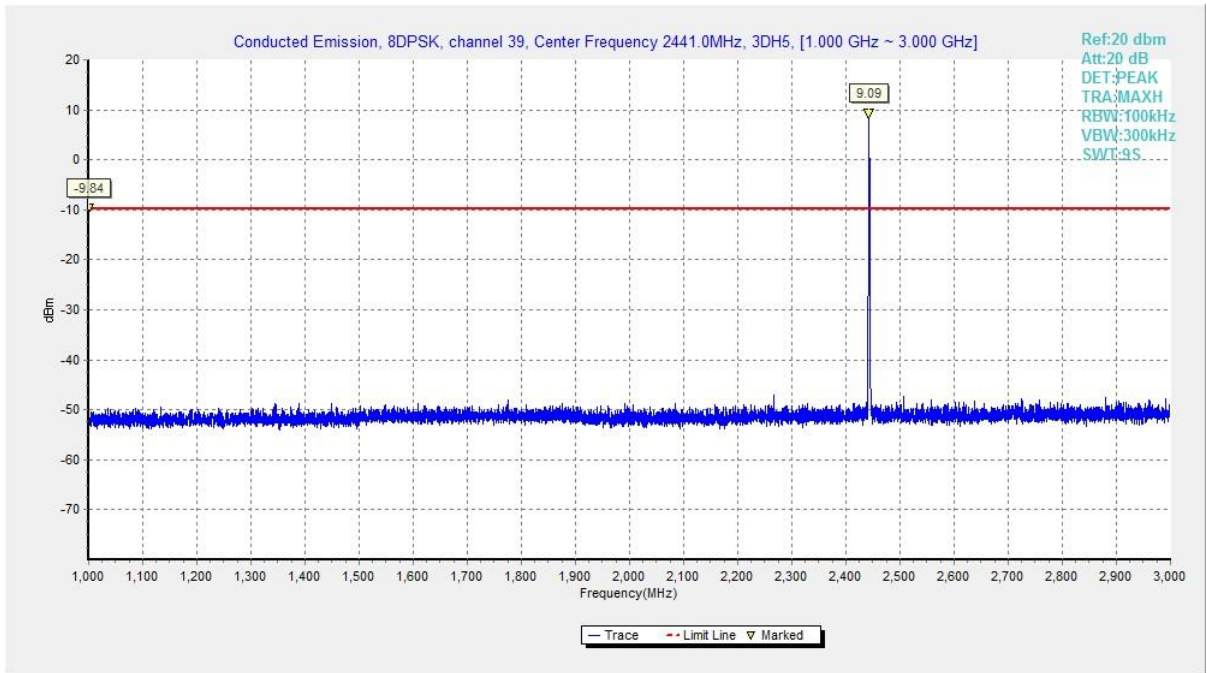


Fig. 27 Conducted Spurious Emission (8DPSK, Ch39, 1GHz-3GHz)

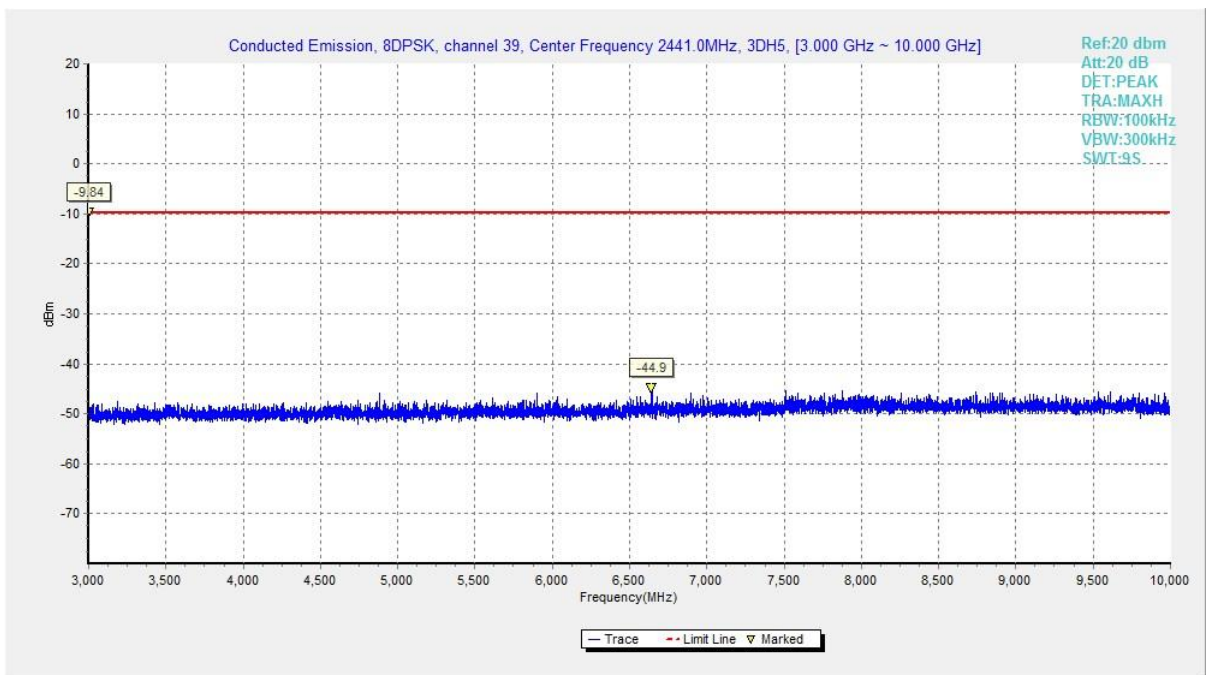


Fig. 28 Conducted Spurious Emission (8DPSK, Ch39, 3GHz-10GHz)

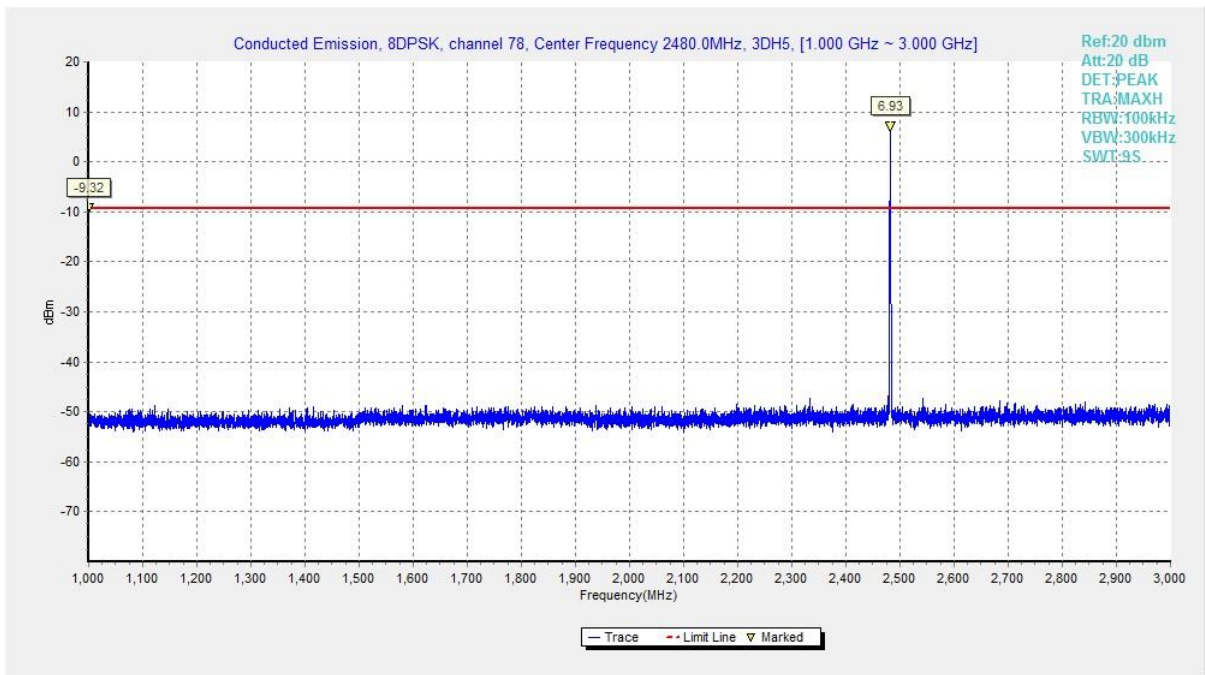


Fig. 29 Conducted Spurious Emission (8DPSK, Ch78, 1GHz-3GHz)

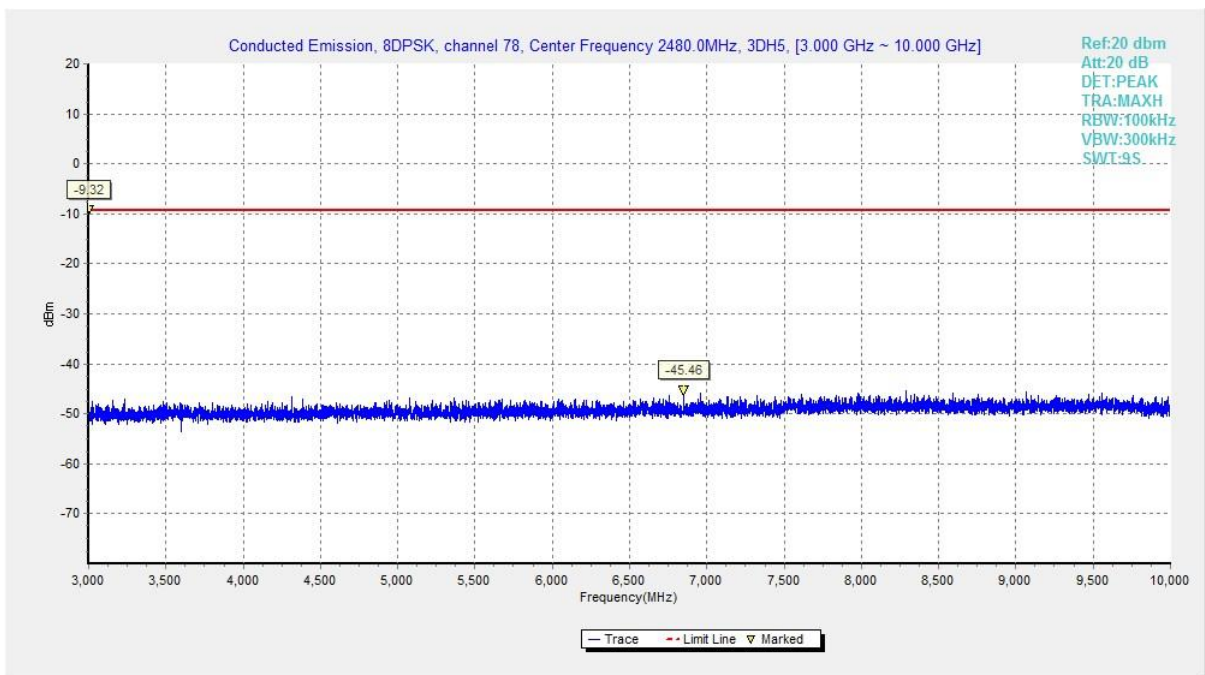


Fig. 30 Conducted Spurious Emission (8DPSK, Ch78, 3GHz-10GHz)

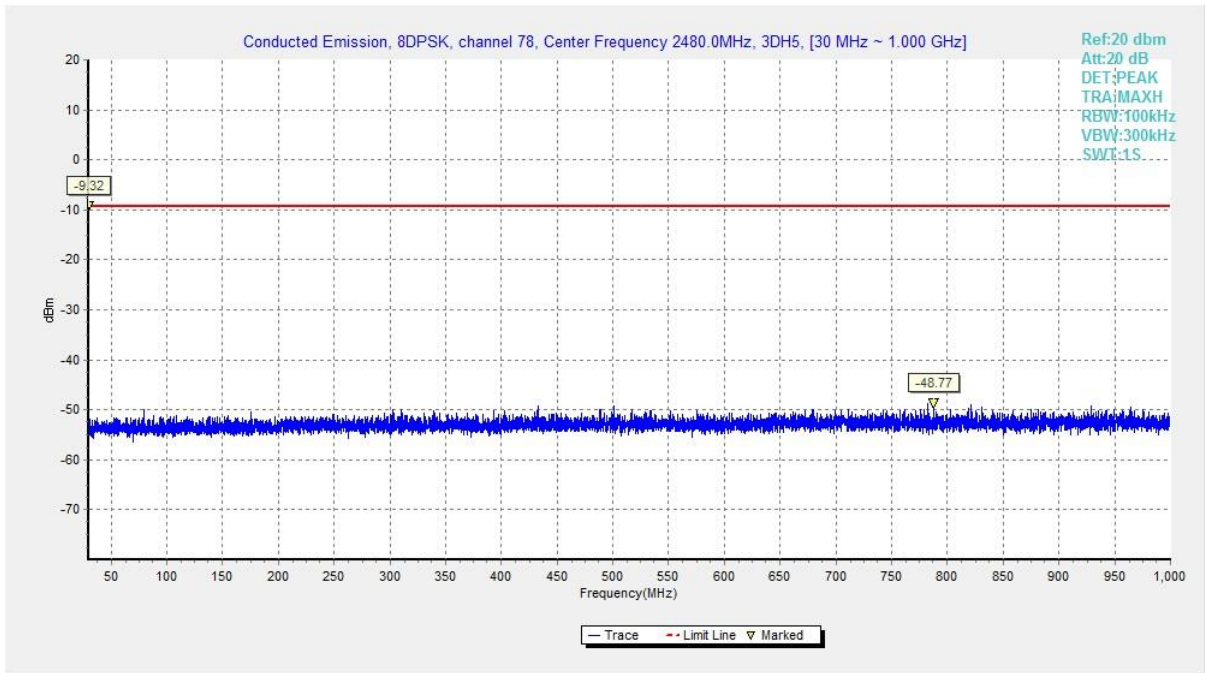


Fig. 31 Conducted Spurious Emission (All channel, 30MHz-1GHz)

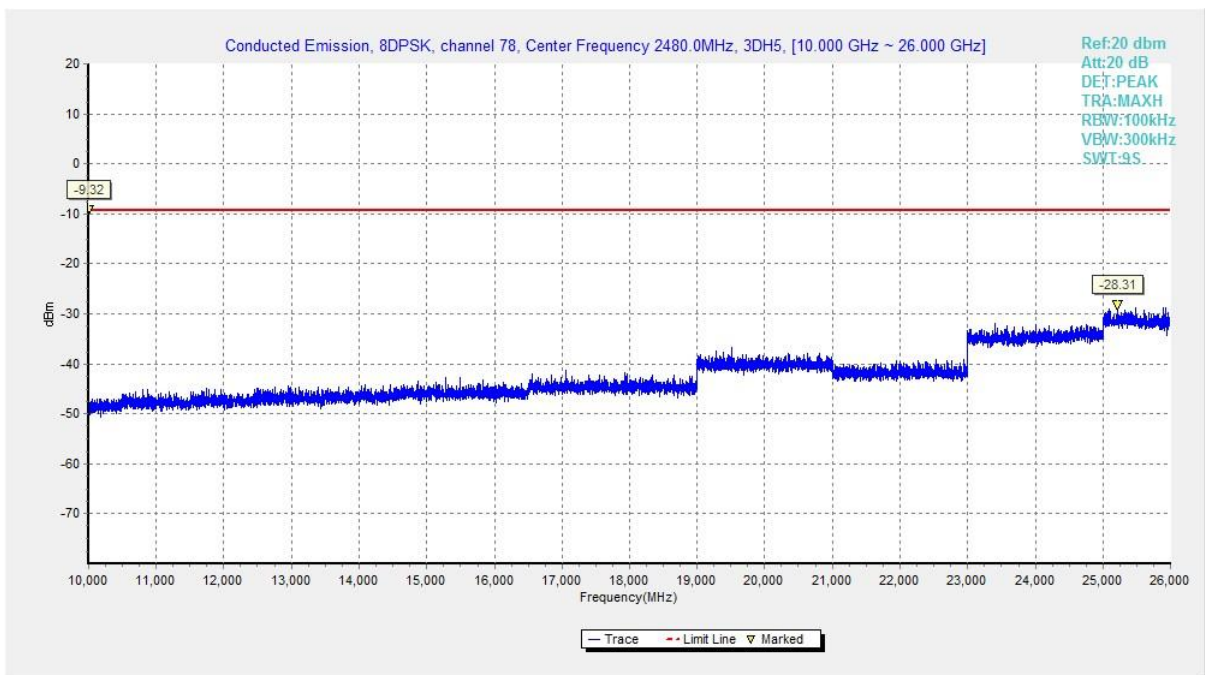


Fig. 32 Conducted Spurious Emission (All channel, 10GHz-26GHz)

A.4 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.33	998.25	/
	39	Fig.34	988.50	
	78	Fig.35	983.25	
$\pi/4$ DQPSK	0	Fig.36	1267.50	/
	39	Fig.37	1266.75	
	78	Fig.38	1268.25	
8DPSK	0	Fig.39	1296.75	/
	39	Fig.40	1296.00	
	78	Fig.41	1275.00	

See below for test graphs.

Conclusion: PASS

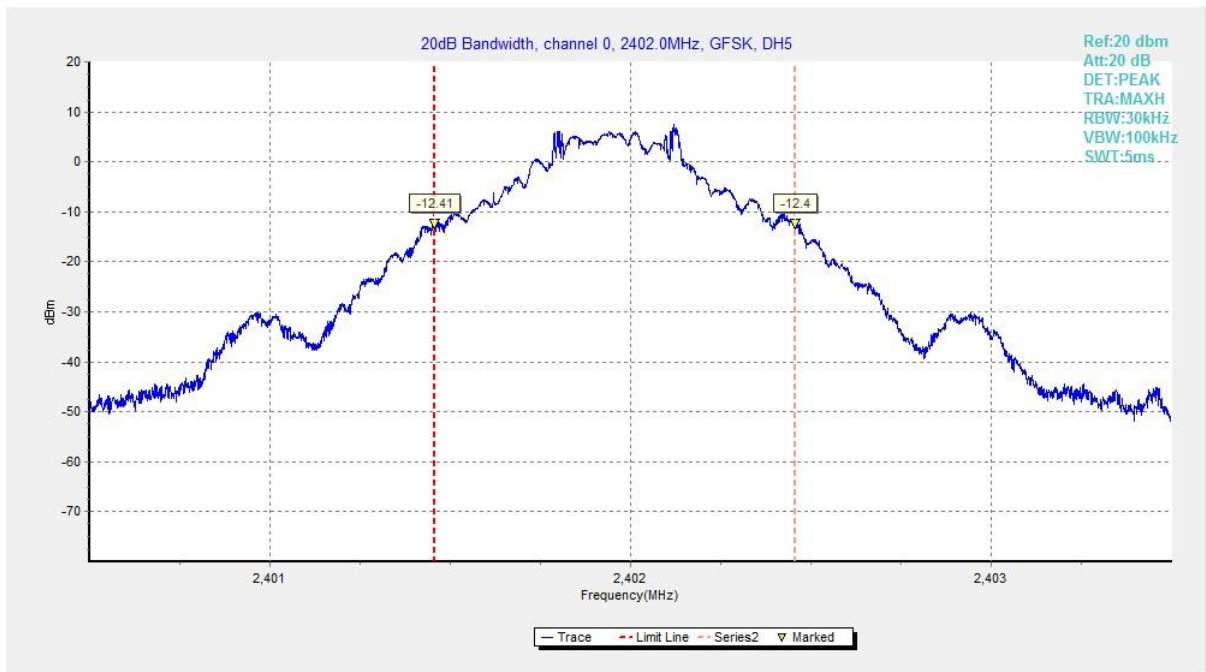


Fig. 33 20dB Bandwidth (GFSK, Ch 0)

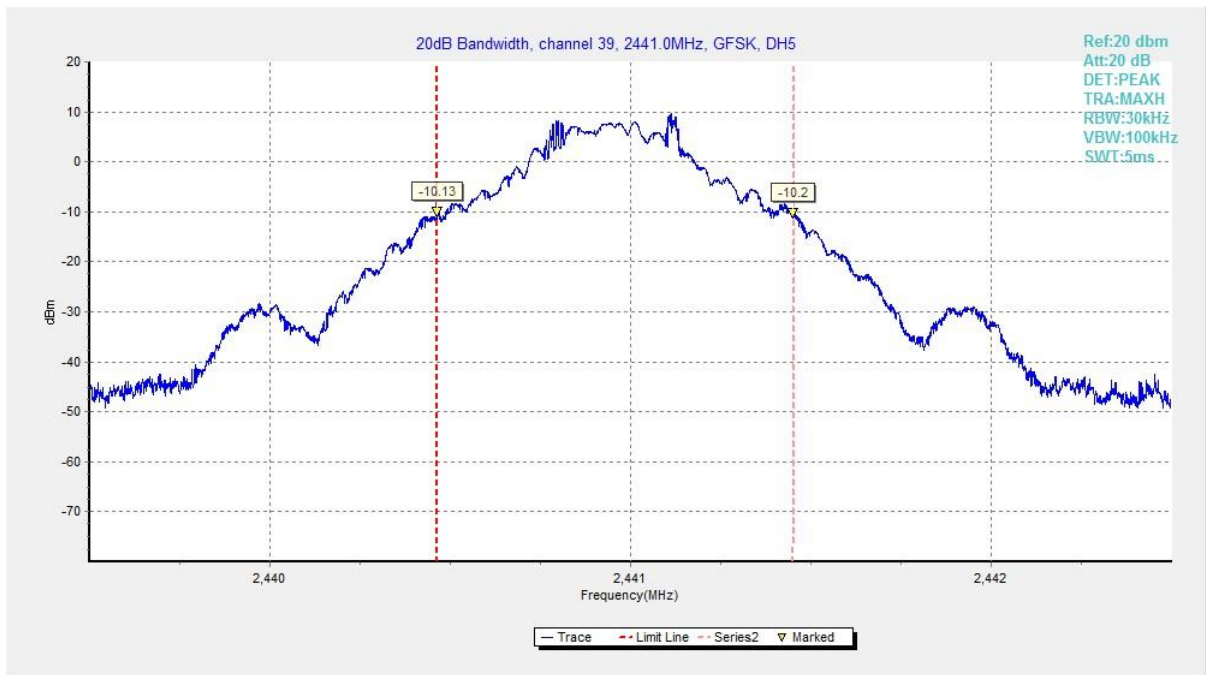


Fig. 34 20dB Bandwidth (GFSK, Ch 39)

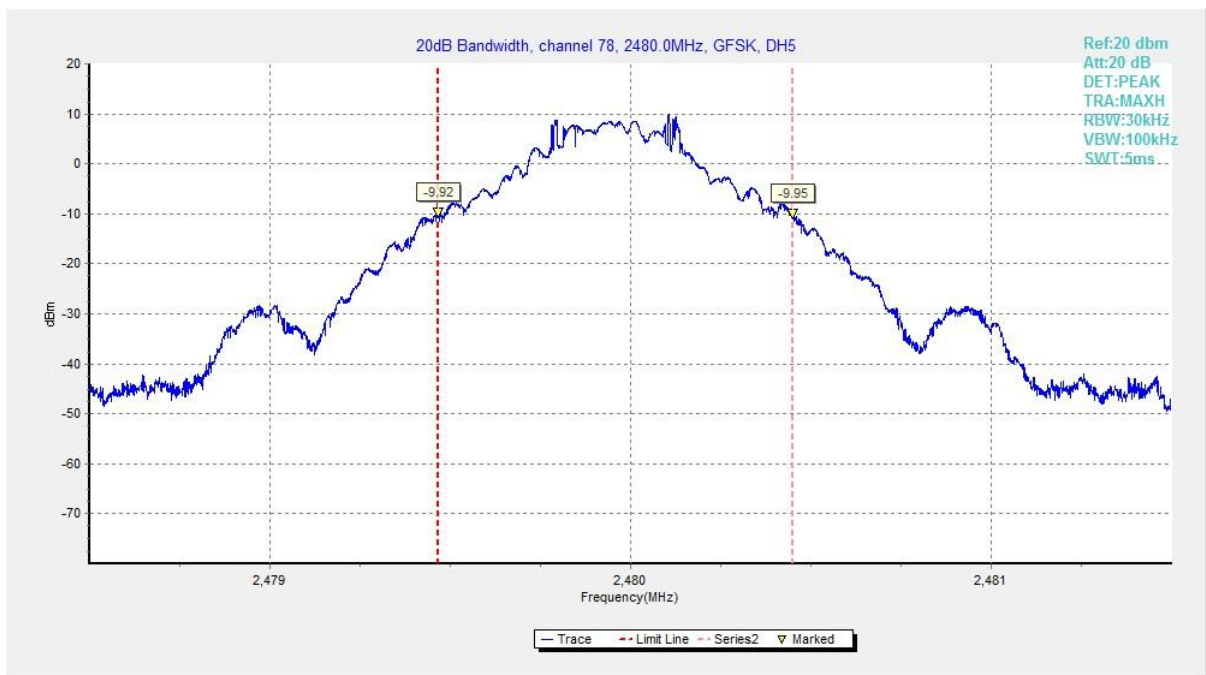


Fig. 35 20dB Bandwidth (GFSK, Ch 78)

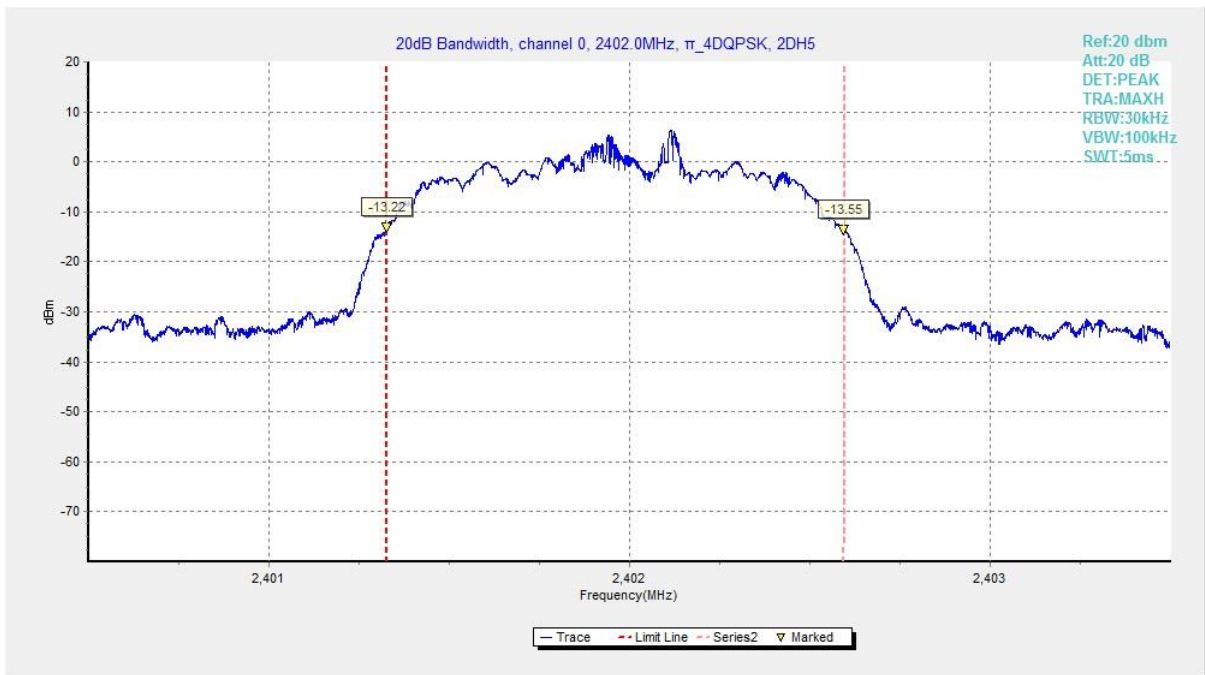


Fig. 36 20dB Bandwidth (π /4 DQPSK, Ch 0)

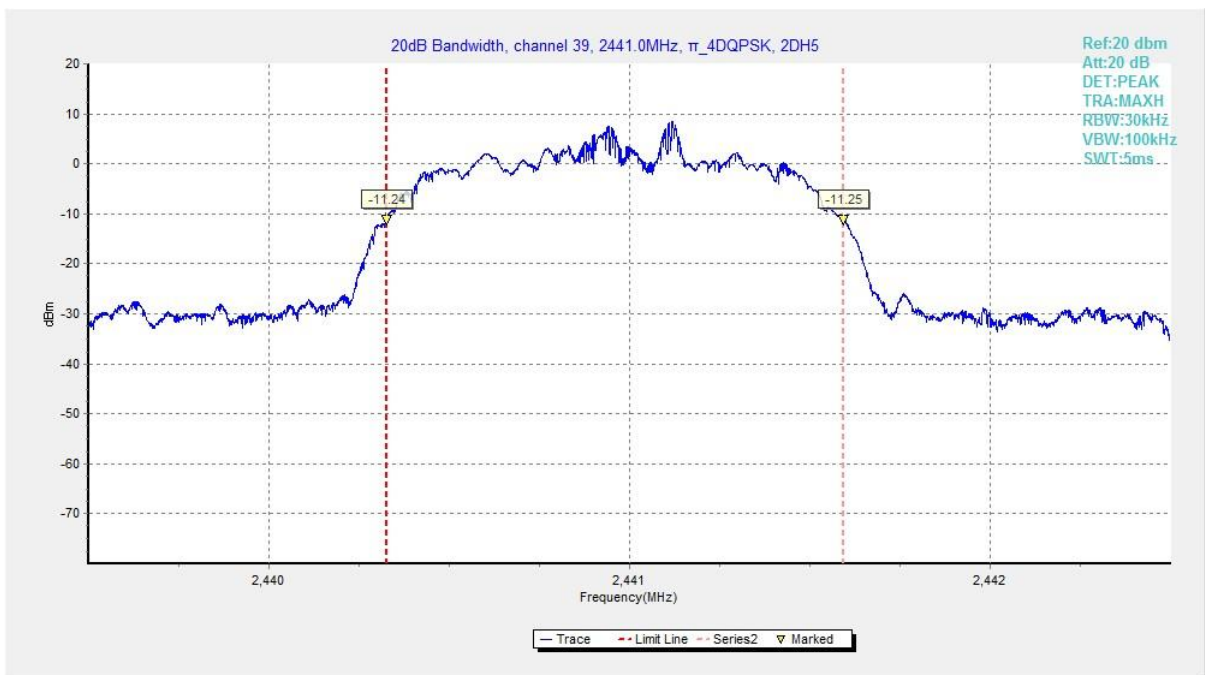


Fig. 37 20dB Bandwidth (π /4 DQPSK, Ch 39)

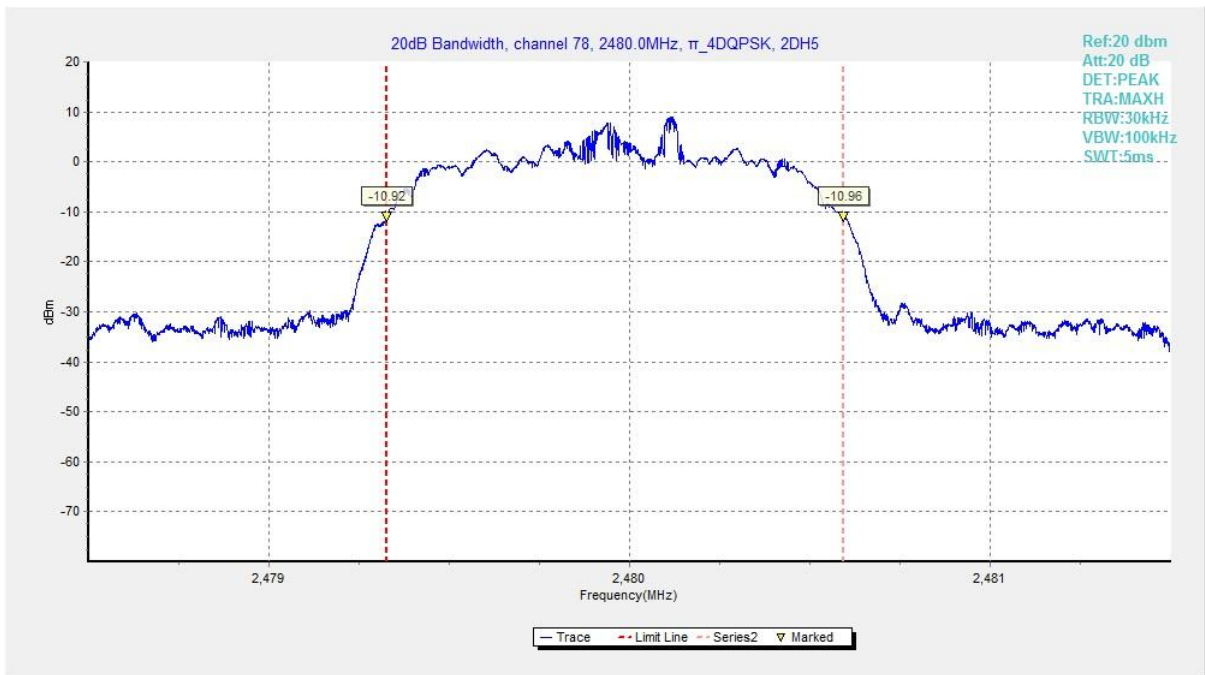


Fig. 38 20dB Bandwidth ($\pi/4$ DQPSK, Ch 78)

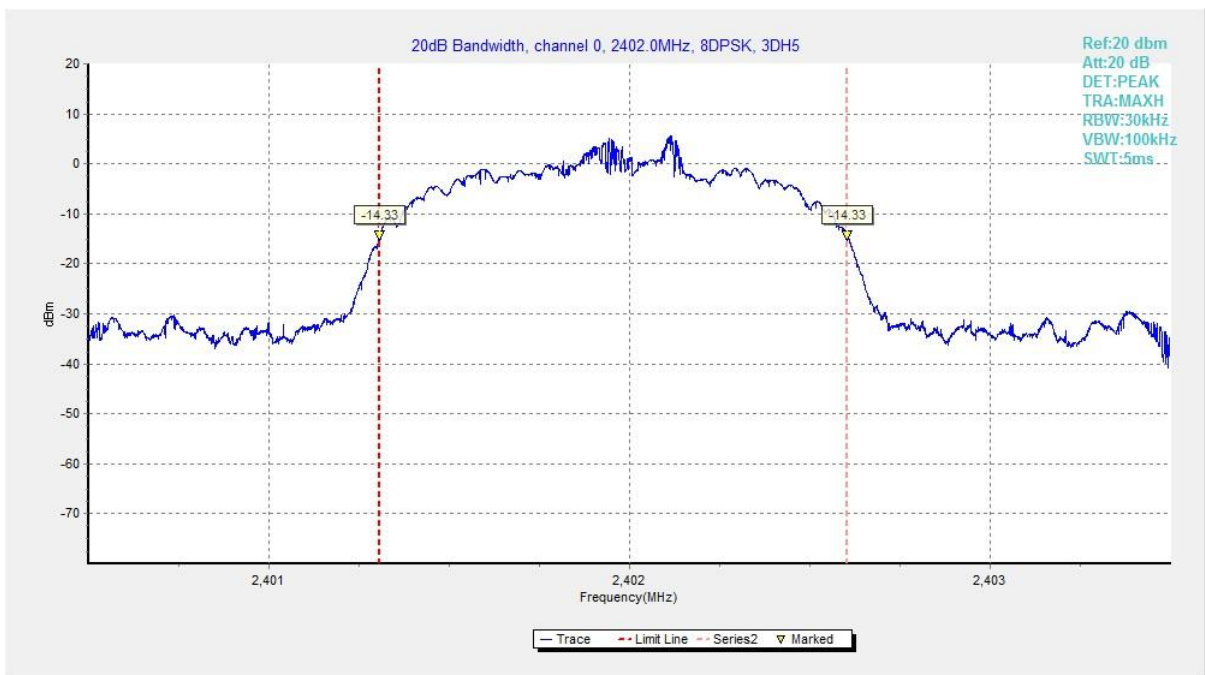


Fig. 39 20dB Bandwidth (8DPSK, Ch 0)

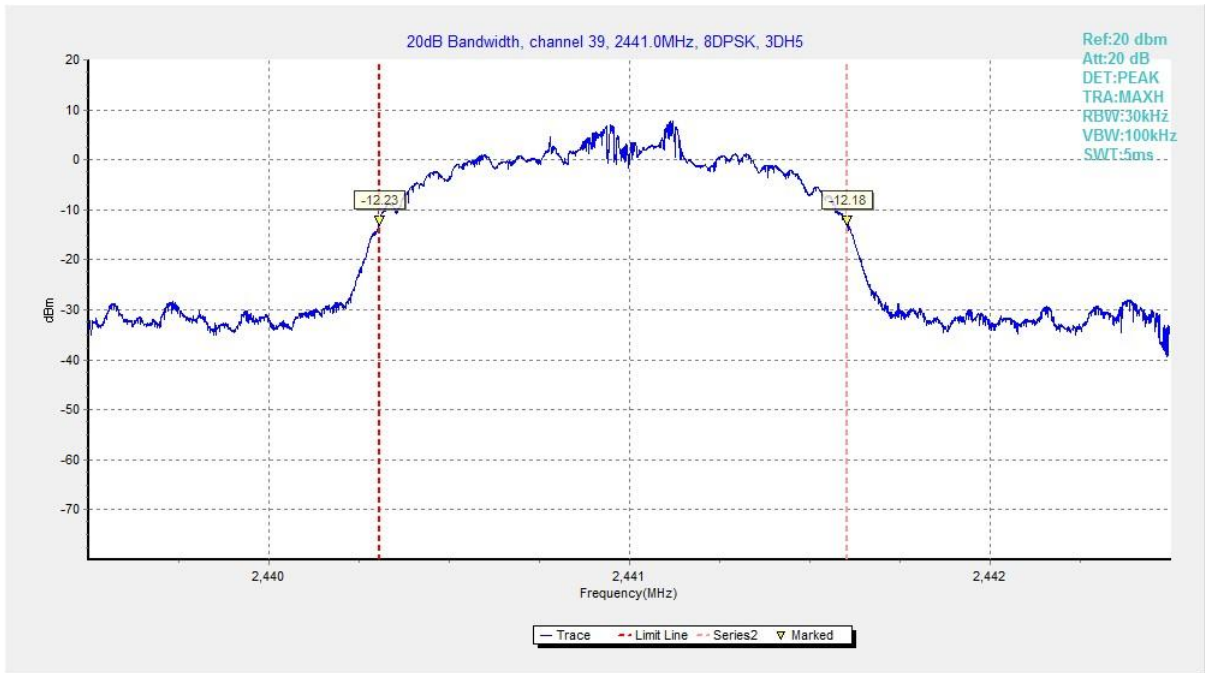


Fig. 40 20dB Bandwidth (8DPSK, Ch 39)

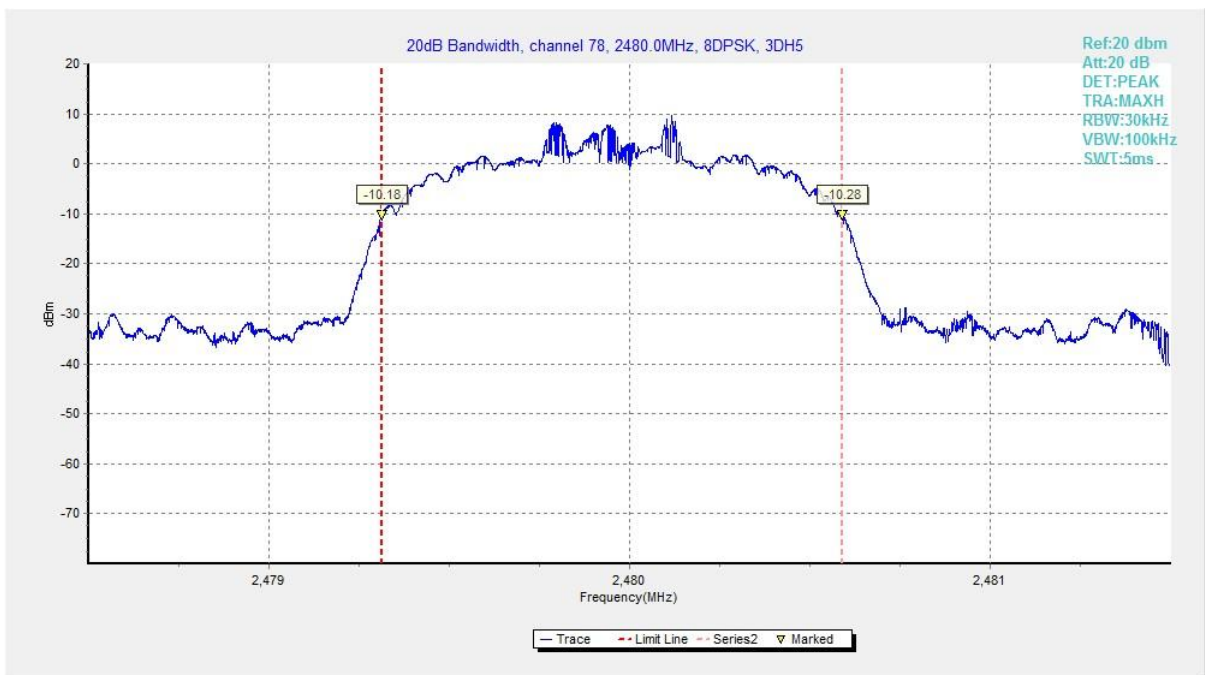


Fig. 41 20dB Bandwidth (8DPSK, Ch 78)

A.5 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.42	203.96	P
			Fig.43		
$\pi/4$ DQPSK	39	2-DH5	Fig.44	192.95	P
			Fig.45		
8DPSK	39	3-DH5	Fig.46	239.68	P
			Fig.47		

See below for test graphs.

Conclusion: Pass

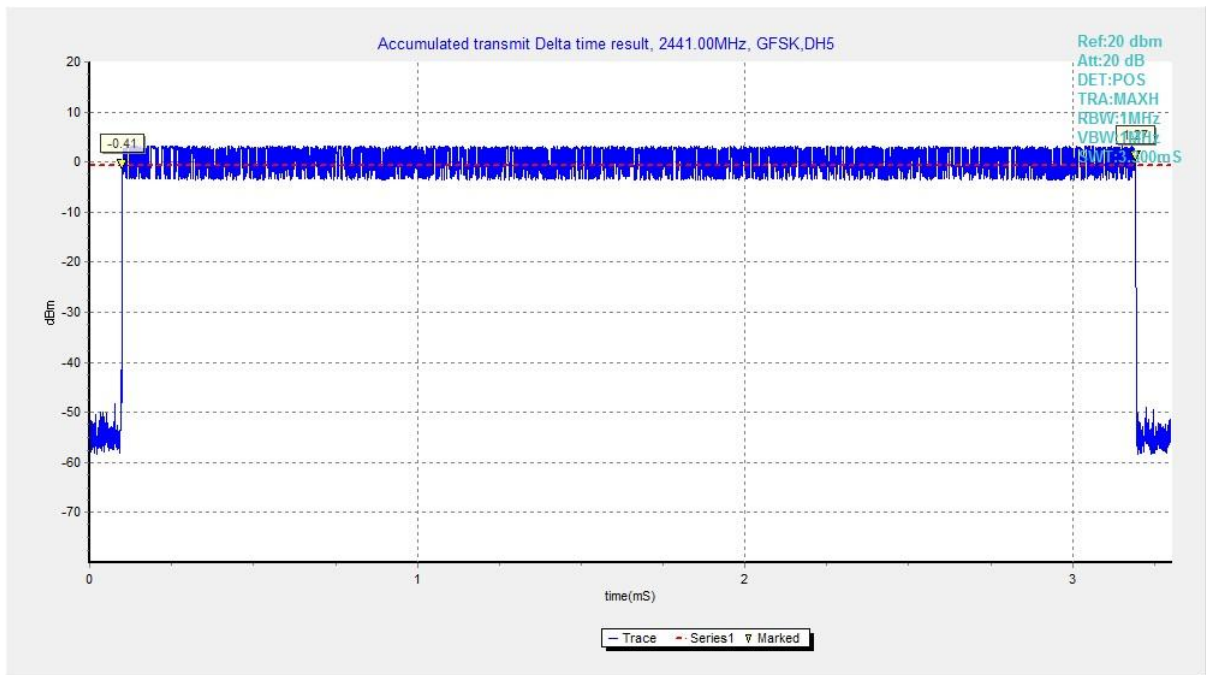


Fig. 42 Time of Occupancy(Dwell Time) (GFSK, Ch39)

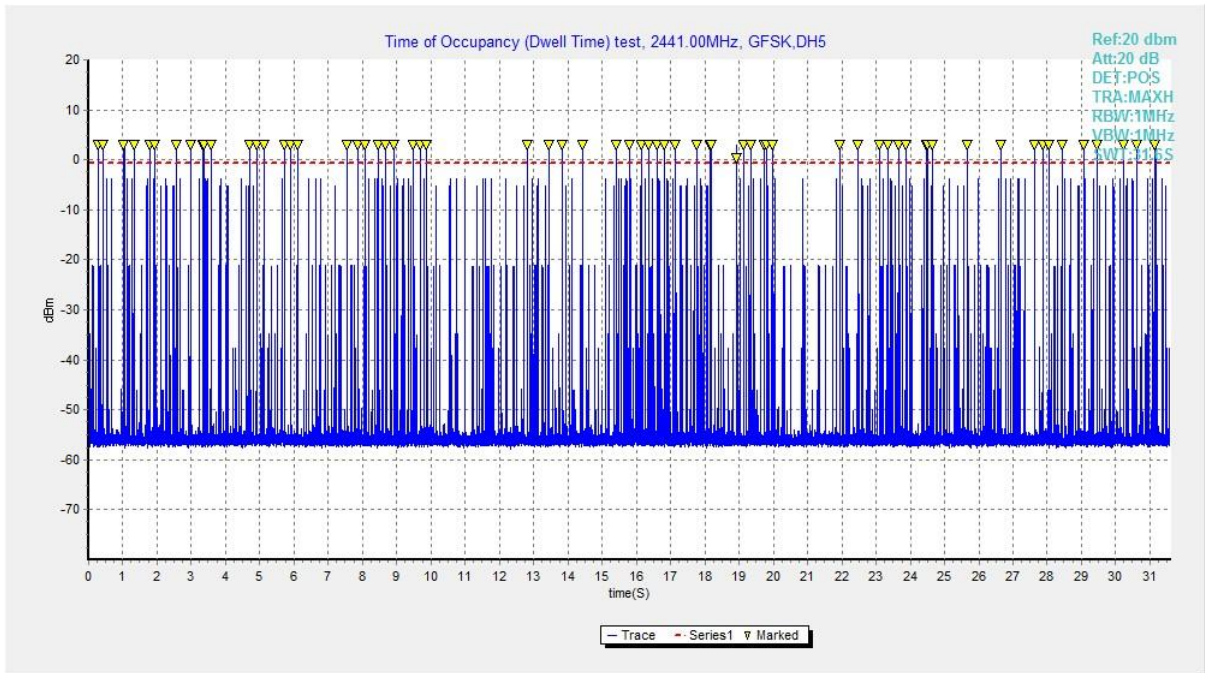


Fig. 43 Time of Occupancy(Dwell Time) (GFSK, Ch39)

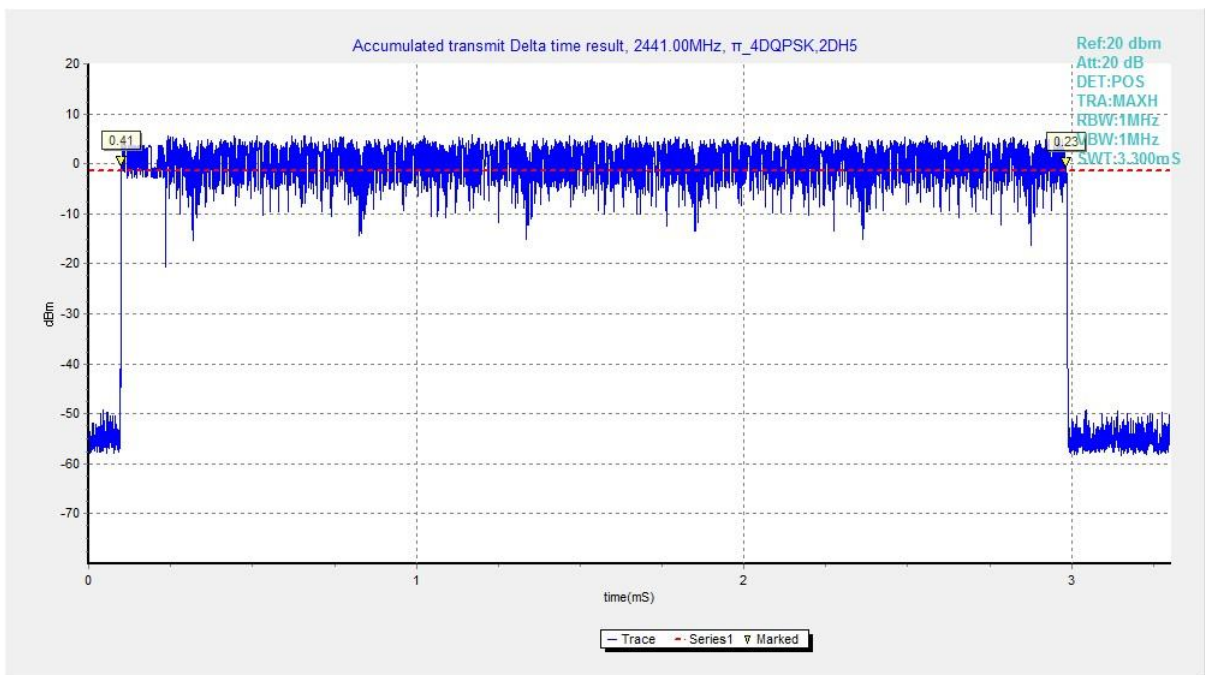


Fig. 44 Time of Occupancy(Dwell Time) ($\pi/4$ DQPSK, Ch39)

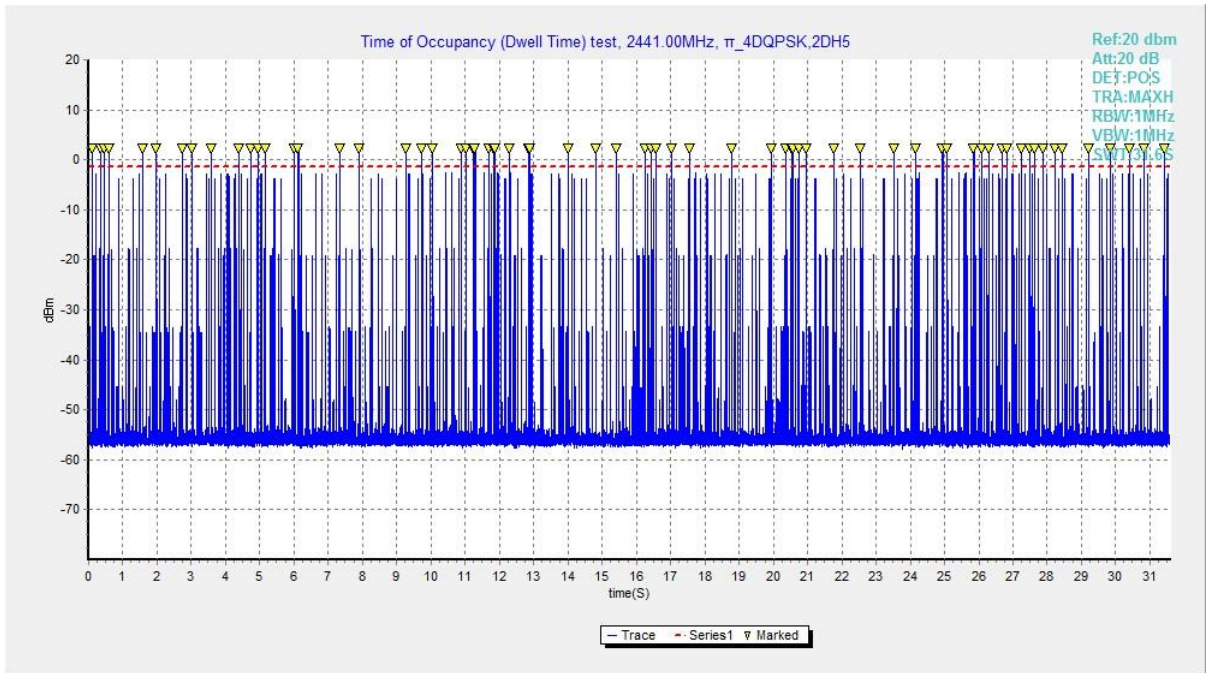


Fig. 45 Time of Occupancy(Dwell Time) (π /4 DQPSK, Ch39)

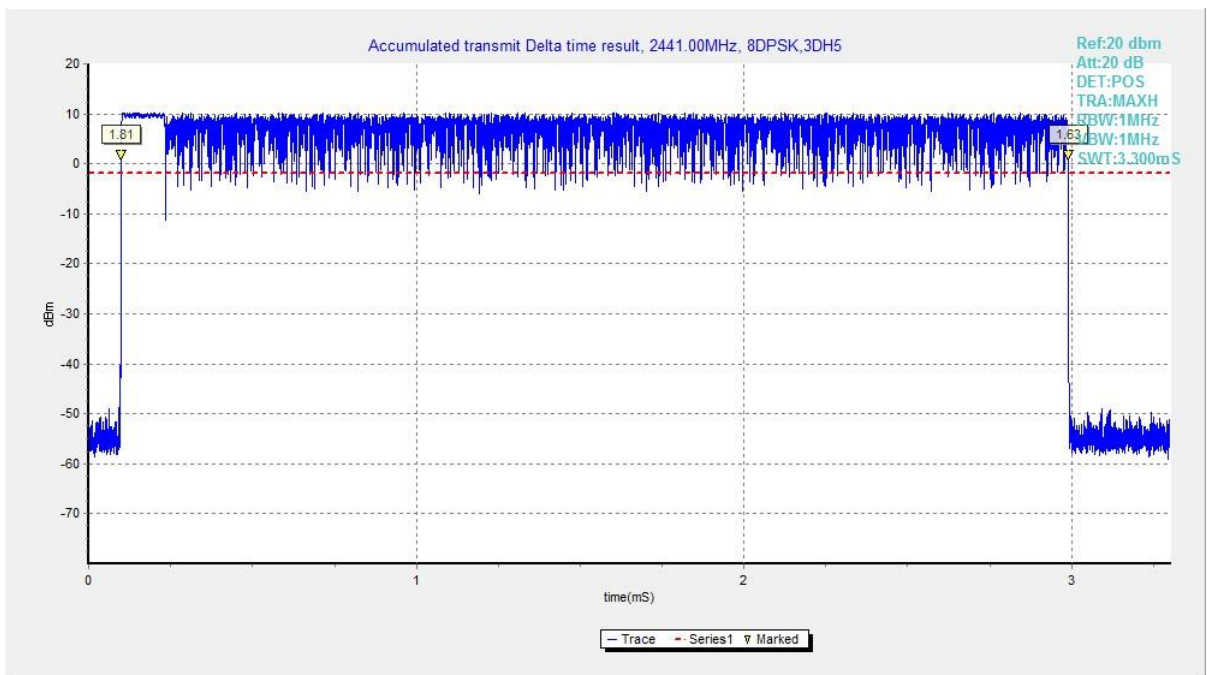


Fig. 46 Time of Occupancy(Dwell Time) (8DPSK, Ch39)

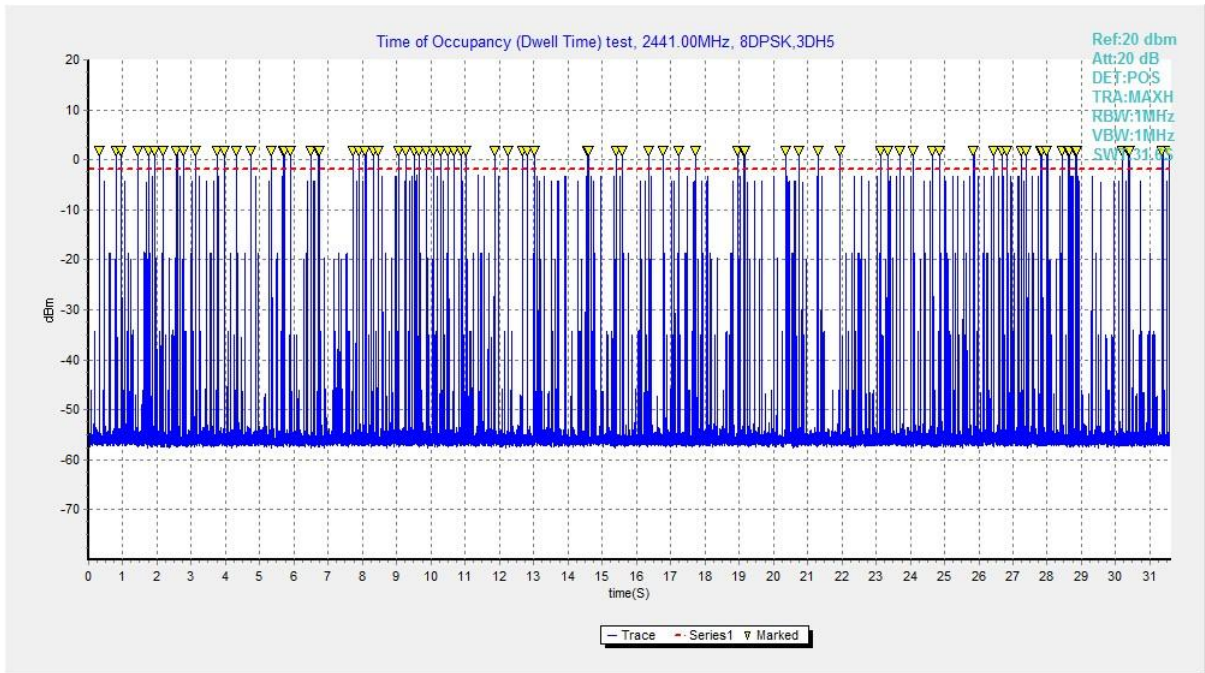


Fig. 47 Time of Occupancy(Dwell Time) (8DPSK, Ch39)

A.6 Number of Hopping Channels

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a)	At least 15 non-overlapping channels

Measurement Results:

Mode	Packet	Number of hopping channels		Test result	Conclusion
GFSK	DH5	Fig.48	Fig.49	79	P
$\pi/4$ DQPSK	2-DH5	Fig.50	Fig.51	79	P
8DPSK	3-DH5	Fig.52	Fig.53	79	P

See below for test graphs.

Conclusion: Pass

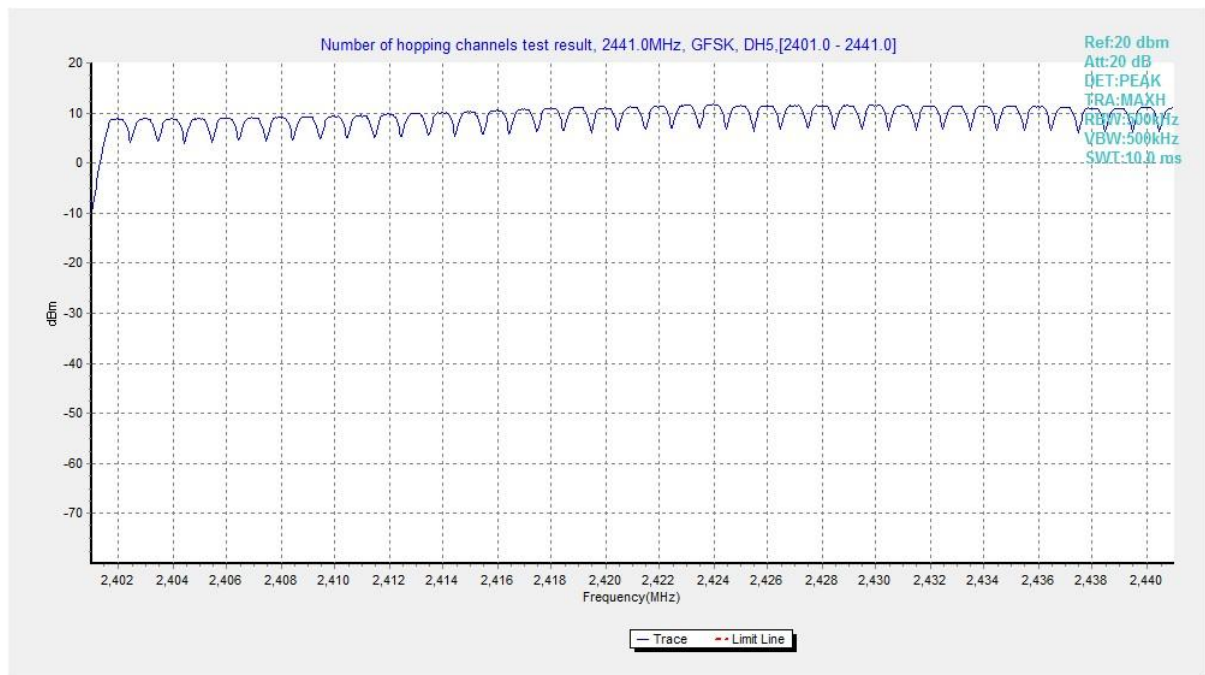


Fig. 48 Hopping channel ch0~39 (GFSK, Ch39)

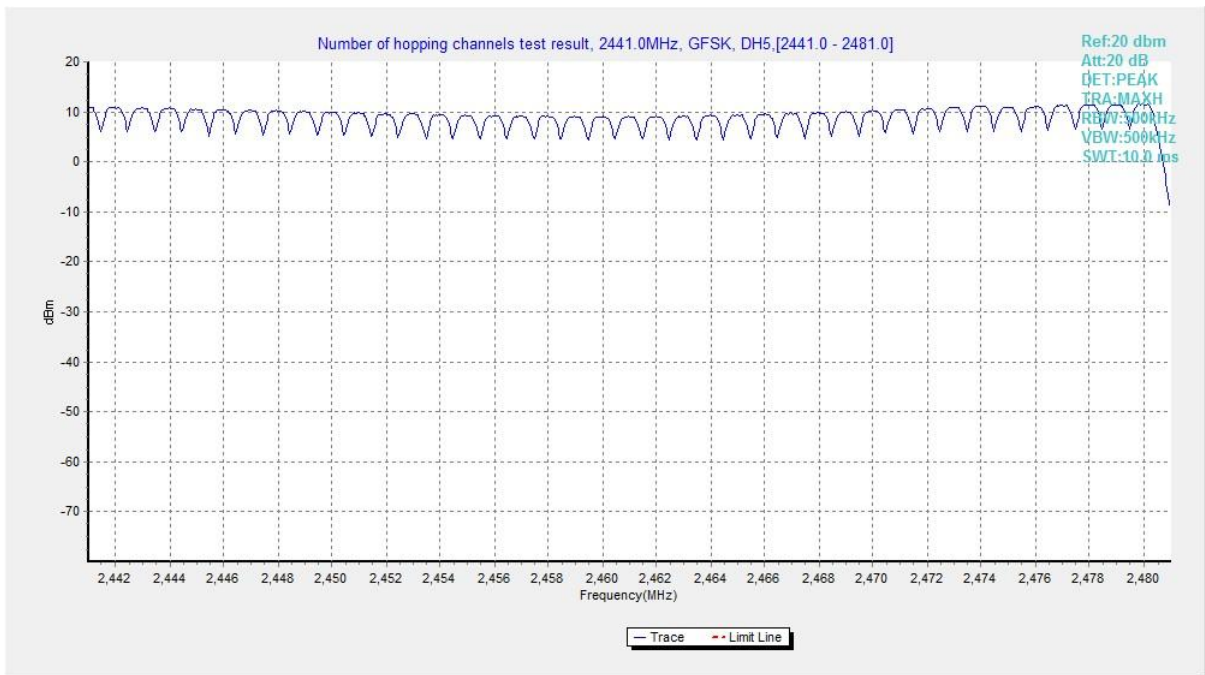


Fig. 49 Hopping channel ch40~78 (GFSK, Ch39)

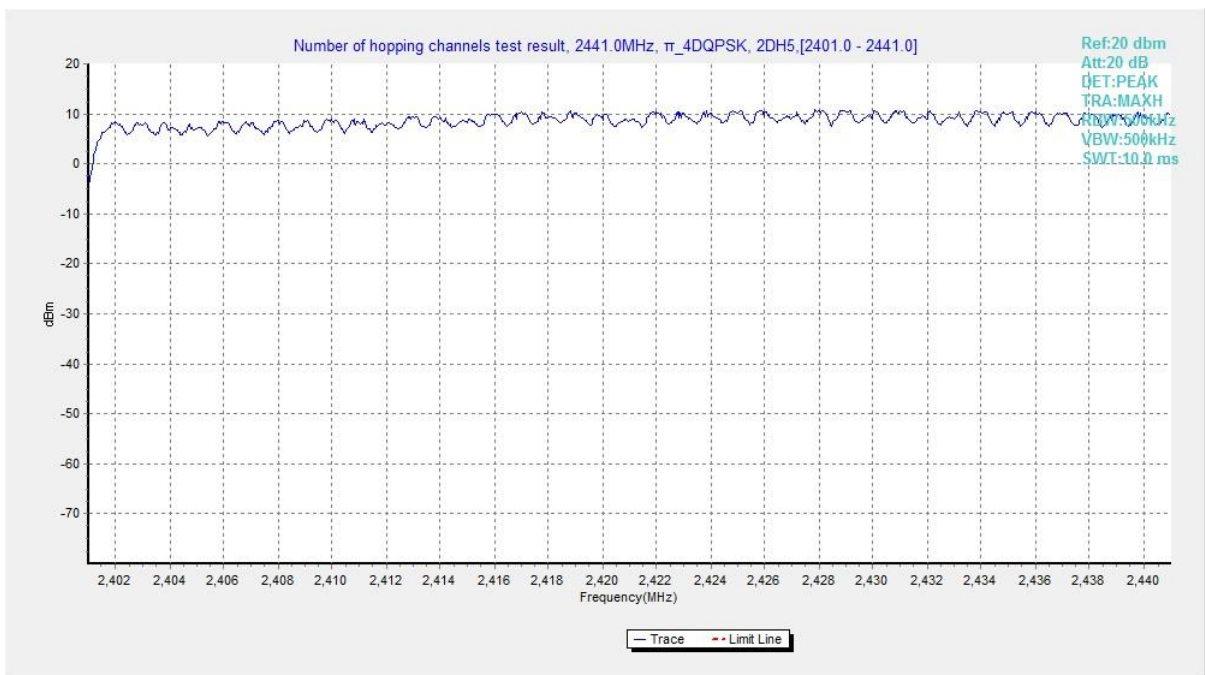


Fig. 50 Hopping channel ch0~39 ($\pi/4$ DQPSK, Ch39)

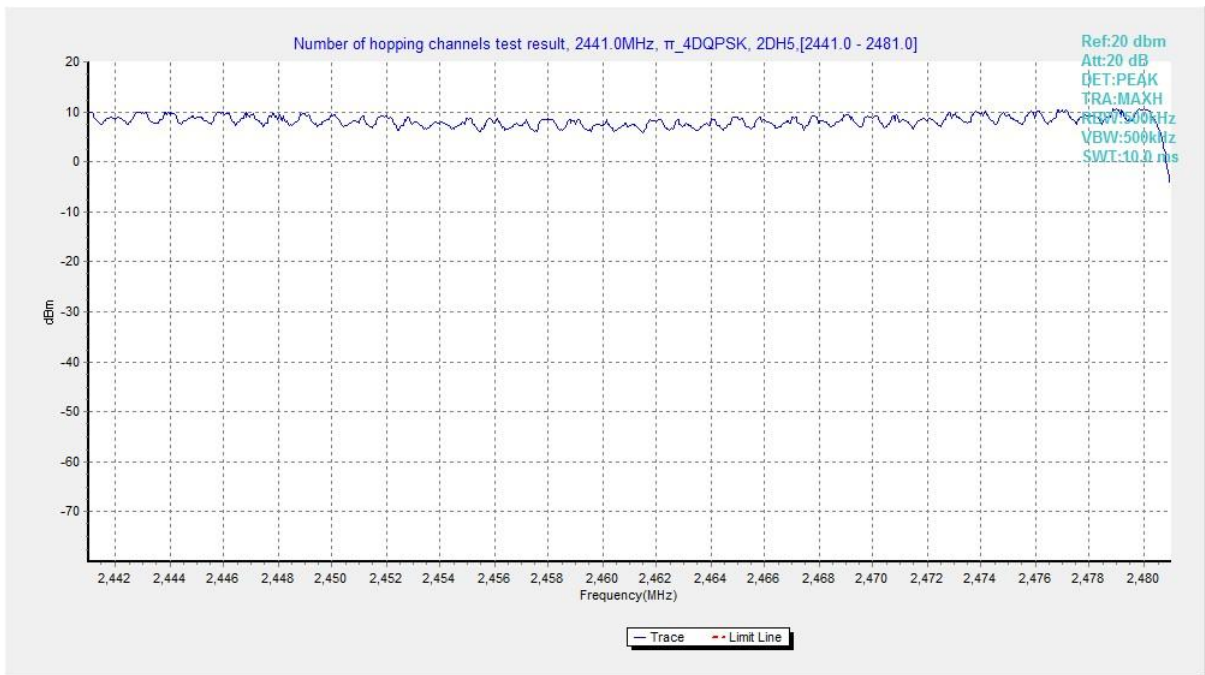


Fig. 51 Hopping channel ch40~78 ($\pi/4$ DQPSK, Ch39)

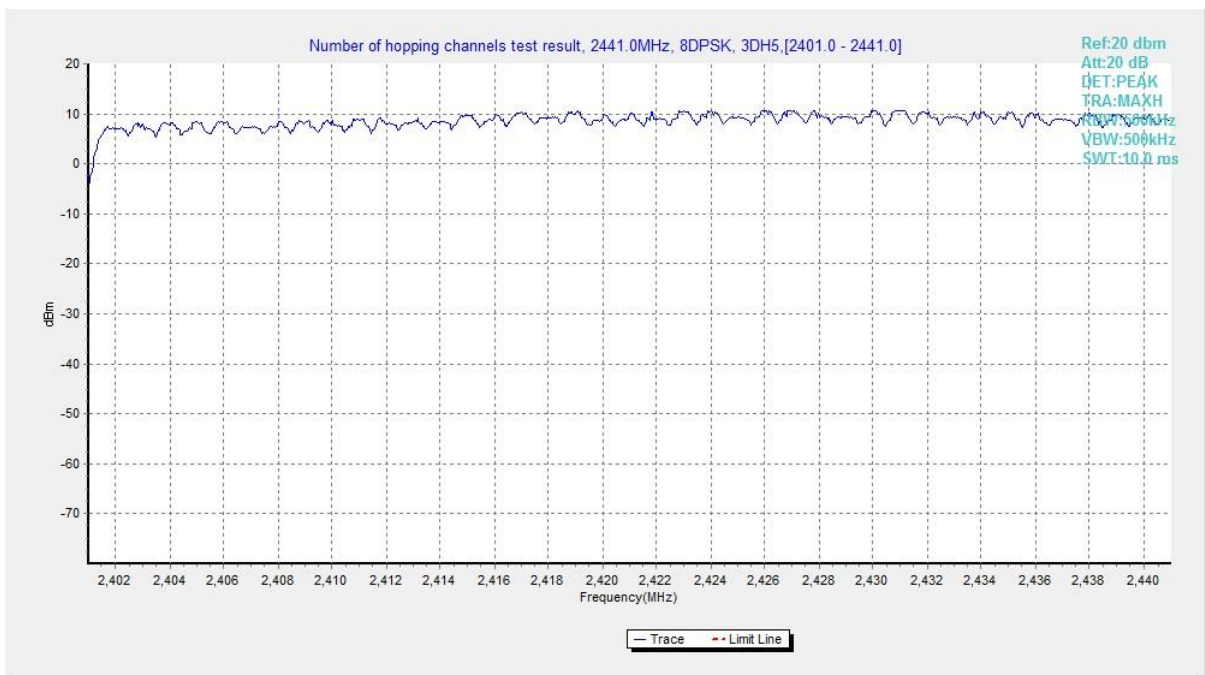


Fig. 52 Hopping channel ch0~39 (8DPSK, Ch39)

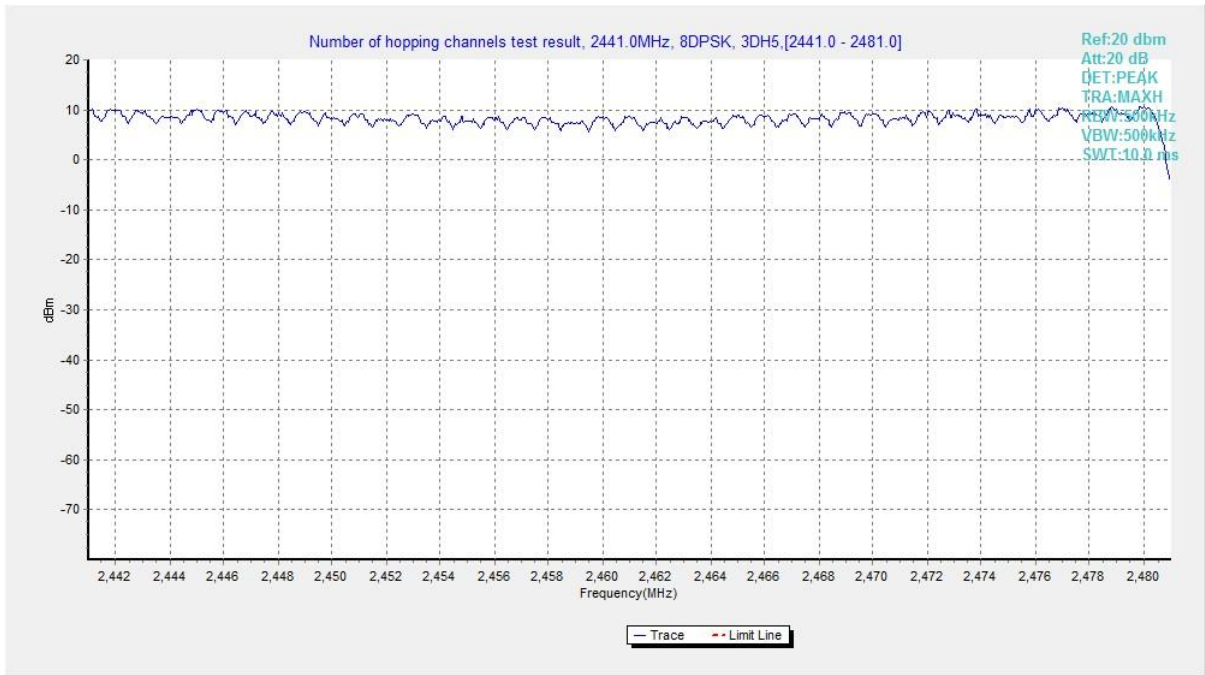


Fig. 53 Hopping channel ch40~78 (8DPSK, Ch39)

A.7 Carrier Frequency Separation

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a)	By a minimum of 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater

Measurement Results:

Mode	Channel	Packet	Separation of hopping channels	Test result (MHz)	Conclusion
GFSK	39	DH5	Fig.54	1.00	P
$\pi/4$ DQPSK	39	2-DH5	Fig.55	1.00	P
8DPSK	39	3-DH5	Fig.56	1.00	P

See below for test graphs.

Conclusion: Pass

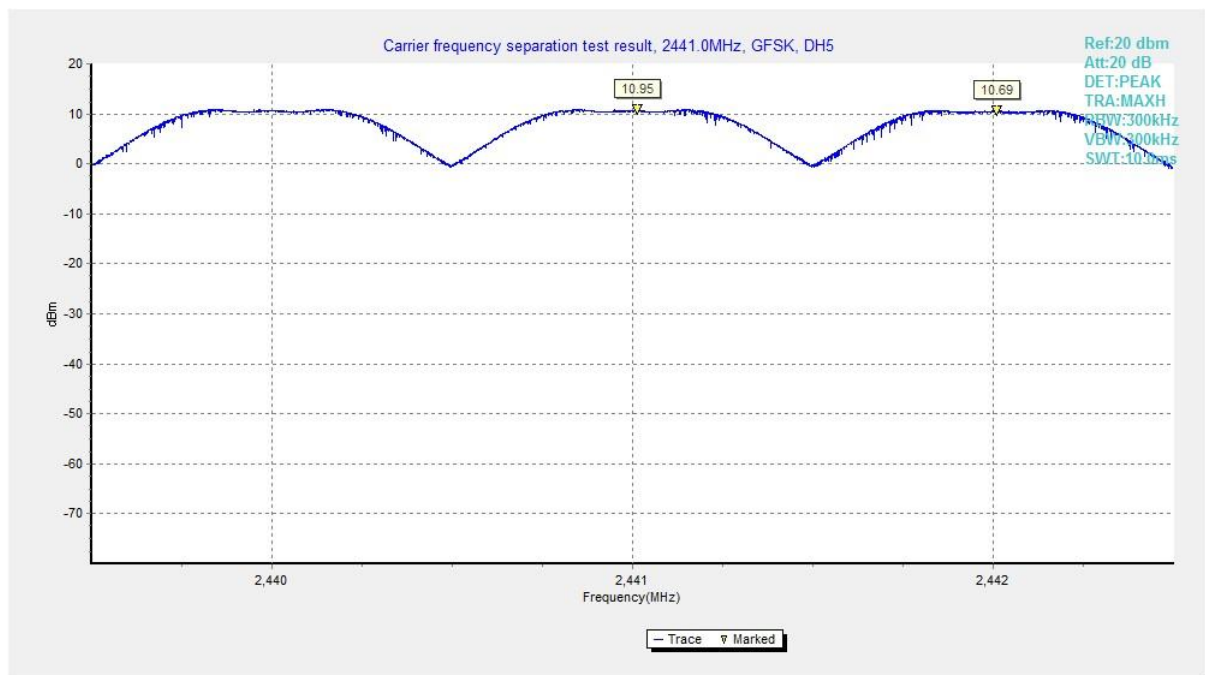


Fig. 54 Carrier Frequency Separation (GFSK, Ch39)

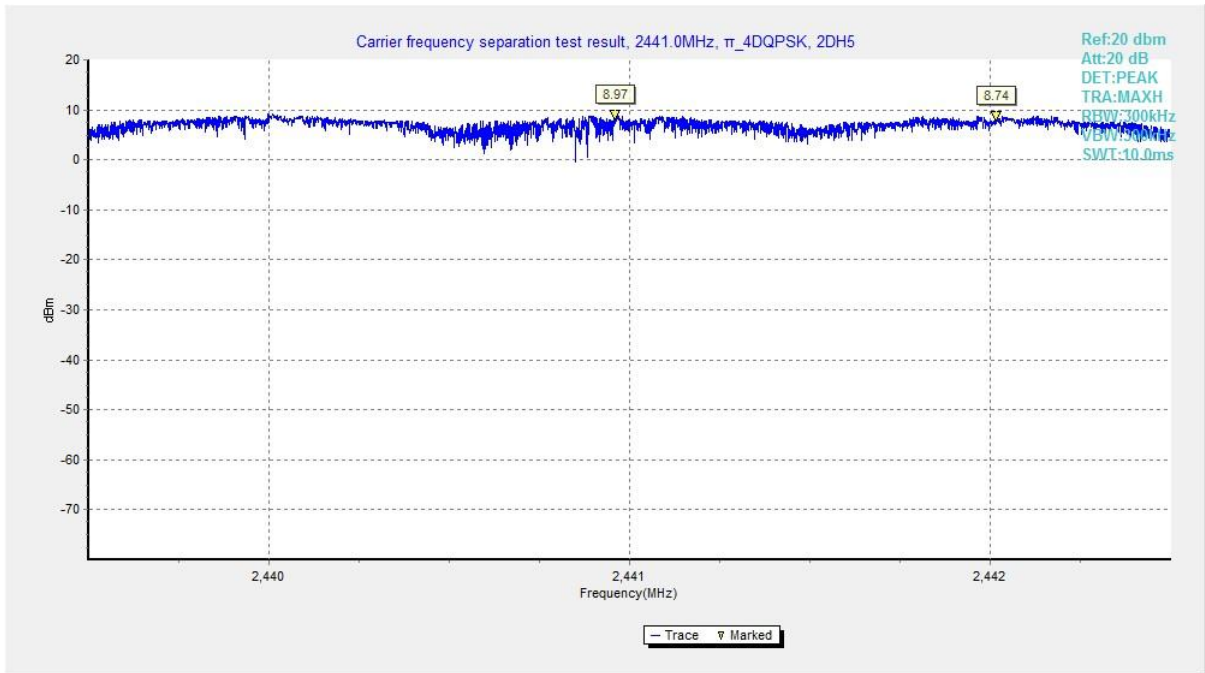


Fig. 55 Carrier Frequency Separation (π /4 DQPSK, Ch39)

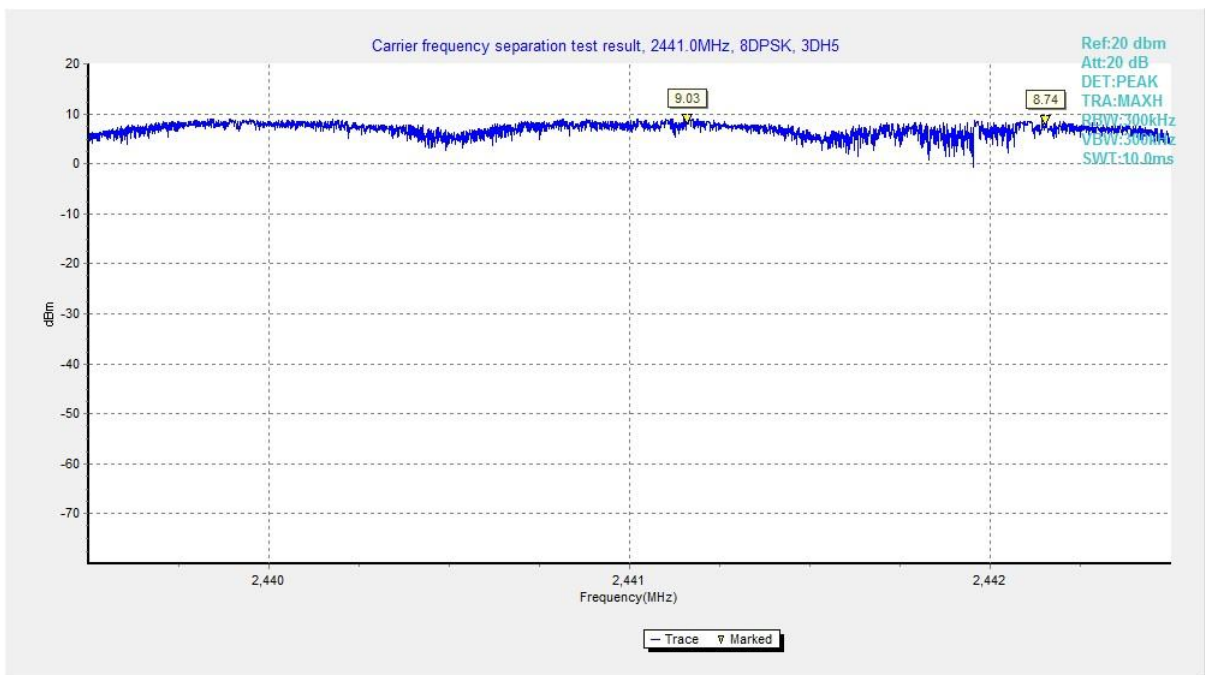


Fig. 56 Carrier Frequency Separation (8DPSK, Ch39)

END OF REPORT