

FCC BT TEST REPORT

No. 150220-BT

For

MFOURTEL MEXICO S.A. DE C.V.

Product Name: Mobile Phone

Model Name: M4 SS4345

Trade Name: M4

Issued Date: 2015-03-11

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 GCCT.

To verify test report authenticity, send full test report to Email: dr_xywen@126.com

Test Laboratory:

GCCT, *Guangdong Telecommunications Terminal Products Quality Supervision and Testing Center*

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GENERAL SUMMARY

Product Name	Mobile phone
Model Name	M4 SS4345
Applicant	MFOURTEL MEXICO S.A. DE C.V.
Manufacturer	CK Telecom Limited
Test Laboratory	GCCT, Guangdong Telecommunications Terminal Products Quality Supervision and Testing Center
Reference Standards	FCC CFR 47 Part 15C:“Radio Frequency Devices Sub-Part C: intentional Radiators”
Test Conclusion	<p>This portable wireless equipment has been measured in all cases requested by the relevant standards. Test results in annex B of this test report are below limits specified in the relevant standards.</p> <p>General Judgment: Pass</p> <p style="text-align: right;">Date of issue: 2015.03.17</p>
Comment	The test results in this report apply only to the tested sample of the stated device/equipment.

Approved by:



Luo Jian
Manager

Reviewed by:



Wen Xiaoyong
Deputy Manager

Tested by:



Gao Xiaoqing
Test Engineer

1. Test Laboratory

1.1 Testing Location

Company Name	GCCT, Guangdong Telecommunications Terminal Products Quality Supervision and Testing Center
Address	Technology Road, High-tech Zone, Heyuan, Guangdong Province, PR.China
CNAS Registration No.	L4992
FCC Registration No.	303878
Postal Code	517001
Telephone	+86-762-3607221
Fax	+86-762-3603336

1.2 Testing Environment

Environment Data	Temperature(°C)	Humidity(%)
Maximum Ambient	23.1	46
Minimum Ambient	17.6	40

EUT is under testing environment.

1.3 Project Data

Project Leader	Wen Xiaoyong
Testing Start Date	2015-02-10
Testing End Date	2015-03-17

2. Client Information

2.1 Applicant Information

Company Name	MFOURTEL MEXICO S.A. DE C.V
Address	Av.Egercito Nacional 436 Piso 3 Chapultepec Morales Miguel Hidalgo D.F 11570
City	Mexico
Postal Code	/
Country	Mexico
Telephone	/
Fax	/

2.2 Manufacturer Information

Company Name	CK Telecom Limited
Address	Technology Road.High-Tech Development Zone. Heyuan

City	heyuan
Postal Code	/
Country	China
Telephone	0755-26738515
Fax	0755-26739500

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

3.1 About EUT

Model Name	M4 SS4350
FCC ID	CLNSS4350
Tx Frequency	GSM850:824.2~848.8 MHz UMTS Band V : 826.4~846.6MHz PCS1900 TX: 1850.2~1909.8MHz UMTS Band II TX: 1852.4~1907.6MHz Bluetooth/BLE: 2402 ~ 2480 MHz WIFI(802.11b/g/n-20): 2412 ~ 2462 MHz WIFI(n-40): 2422 ~ 2452 MHz
Rx Frequency	GSM850: 869.2~893.8 MHz UMTS Band V : 871.4~891.6 MHz PCS1900 TX: 1930.2~1989.8 MHz UMTS Band II TX: 1932.4~1987.6 MHz Bluetooth/BLE: 2402 ~ 2480 MHz WIFI(802.11b/g/n-20): 2412 ~ 2462 MHz WIFI(n-40): 2422 ~ 2452 MHz
Number of Channels	GSM850&WCDMA Band V:25 PCS1900&WCDMA Band II: 60 Bluetooth:79 WIFI(802.11b/g/n-20):11 WIFI(n-40):7 BLE:40
Modulation	GSM&DCS:GMSK WCDMA:BPSK/QPSK Bluetooth: GFSK& $\pi/4$ -DQPSK&8DPSK WIFI:CCK/OFDM BLE:GFSK
Antenna Type	PIFA(GSM/DCS/WCDMA); MONOPOLE (Bluetooth/WIFI)
Antenna Gain	GSM850:-0.5dBi DCS1900: -0.5dBi WCDMA850: -1dBi WCDMA1900: -1dBi Bluetooth/BLE/WIFI: -1dBi

Normal Voltage	3.7V
Extreme Low Voltage	3.6V
Extreme High Voltage	4.2V
Extreme Low Temperature	0°C
Extreme High Temperature	45°C

3.2 Internal Identification of EUT

EUT ID *	IMEI	HW Version	SW Version
150220-M01	867040020000582	SLFQPLUS-V1.0	SLFQPLUS14A-S00A_CKT_L2EN_101_150130
150220-M04	867041020002230	SLFQPLUS-V1.0	SLFQPLUS14A-S00A_CKT_L2EN_101_150130

*EUT ID: is used to identify the test sample in the lab internally. 150220-M01 and 150220-M04 are the same mobile phone.

3.3 Internal Identification of AE

AE ID *	Description	Type	SN
150220-B01	Battery	CA366069HV	/
150220-C01	Adapter	A8-501000	/
150220-B04	Battery	CA366069HV	/
150220-C04	Adapter	A8-501000	/

*AE ID: is used to identify the test sample in the lab internally. 150220-B01 and 150220-B04 are the same accessory , 150220-C01 and 150220-C04 are the same accessory ,

4. Test Results

4.1 Summary of Test Results

No	Test cases	Sample	Verdict
1	Maximum transmit power	M01	Pass
2	20dB Bandwidth	M01	Pass
3	Band Edge Compliance	M01	Pass
4	Carrier Frequency Separation	M01	Pass
5	Time Of Occupancy (Dwell Time)	M01	Pass
6	Number Of Channel Hopping	M01	Pass
7	Conducted Spurious Emissions	M01	Pass
8	AC Conducted Emission	M04	Pass
9	Radiated Spurious Emissions	M04	Pass
10	Antenna Requirements	M01	Pass

Note: please refer to Annex B in this test report for the detailed test results.

4.2 Statements

GCCT has evaluated the test cases requested by the applicant/manufacturee as listed in section 4.1 of this report, for the EUT specified in section 3, according to the standards or reference documents listed in general summary.

5. Test Equipment Utilized

Table 1. Measurement Equipment

Hardware						
No.	Name	Model	SN	Manufacture	Cal. Date	Cal. Due Date
1	Signal Tester	MT8852B	1307002	Anritsu	2014.08.15	2015.08.15
2	Spectrum Analyzer	N9020A	MY52091261	Agilent	2014.08.15	2015.08.15
3	Switch Unit	/	E0112	/	2014.08.15	2015.08.15
Software						
Tech BT			v1.0.3			

Table 2. Radiated emission test system

No.	Name	Model	SN	Manufacture	Cal. date	Cal. Due Date
1	Spectrum Analyzer	E4440A	MY48250641	Agilent	2014.08.15	2015.08.15
2	BiCoNilog Antenna	3142E	00142015	ETS-Lindgren	2014.08.15	2015.08.15
3	Horn Antenna	3117	129169	ETS-Lindgren	2014.08.15	2015.08.15
4	Signal Generator	N5183A-532	MY49060563	Agilent	2014.08.15	2015.08.15
5	Universal Radio Communication Tester	E5515C	MY48367105	Agilent	2014.08.15	2015.08.15
6	RF Preselector	N9039A	MY48260024	Agilent	/	/
7	Loop Antenna	HFH2	860015/00	R&S	2014.08.15	2015.08.15

ANNEX A: EUT Photograph

EUT Front View



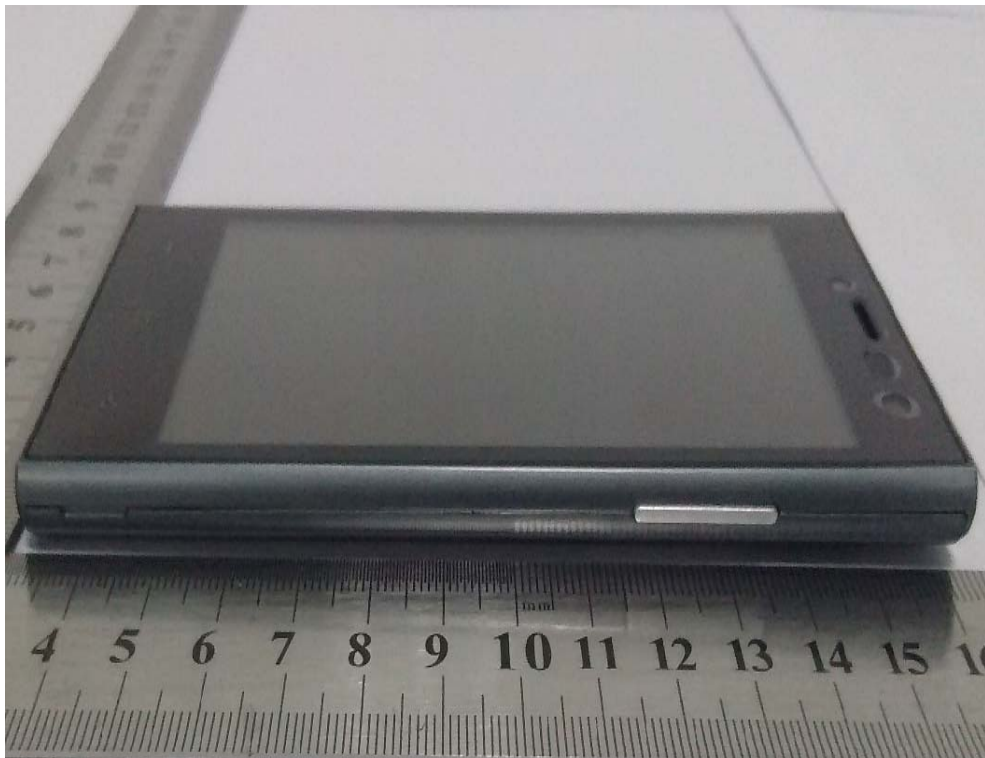
EUT behind View



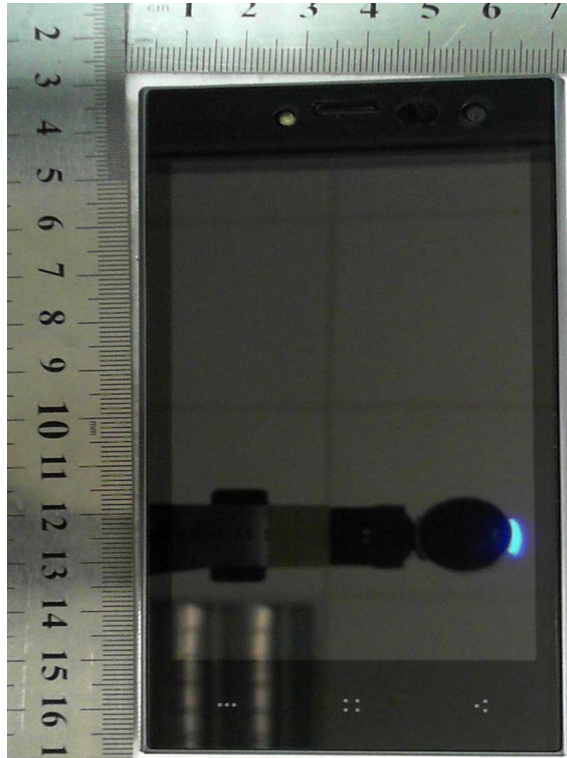
EUT Left View



EUT Right View



EUT Top View



EUT Rear View



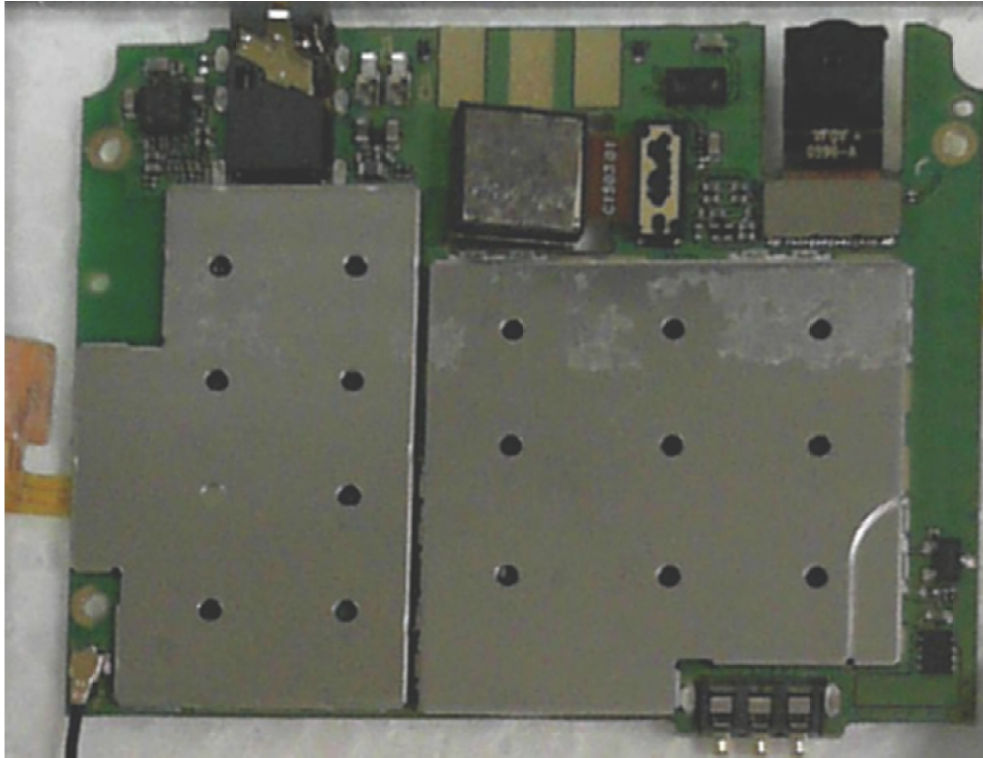
All



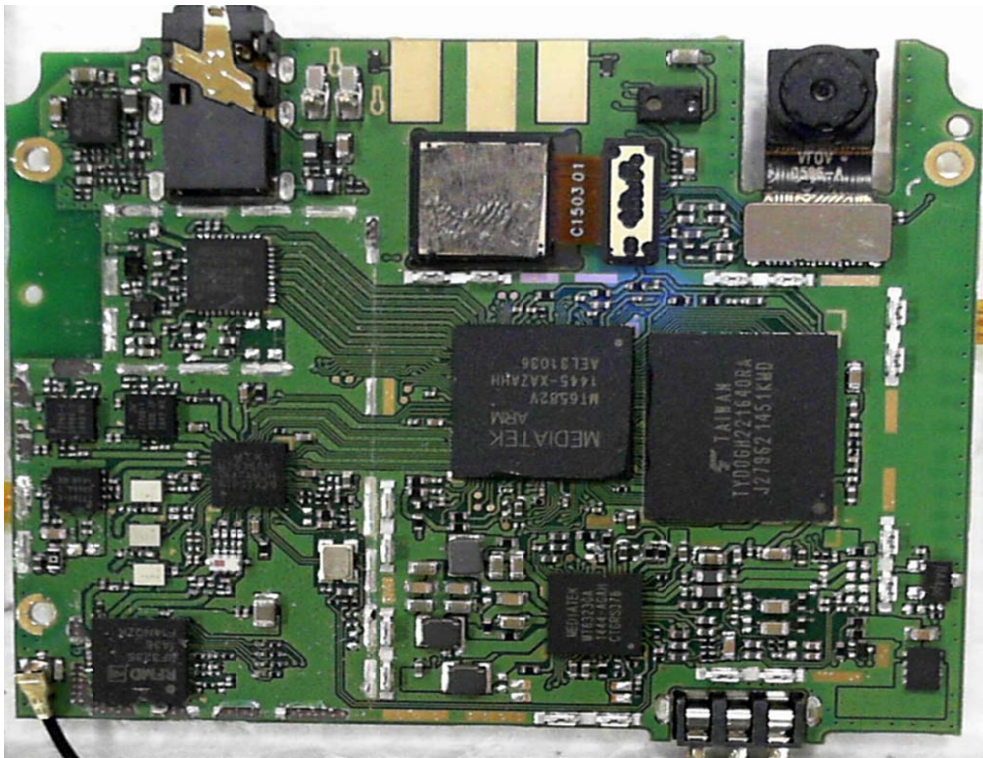
Cover off



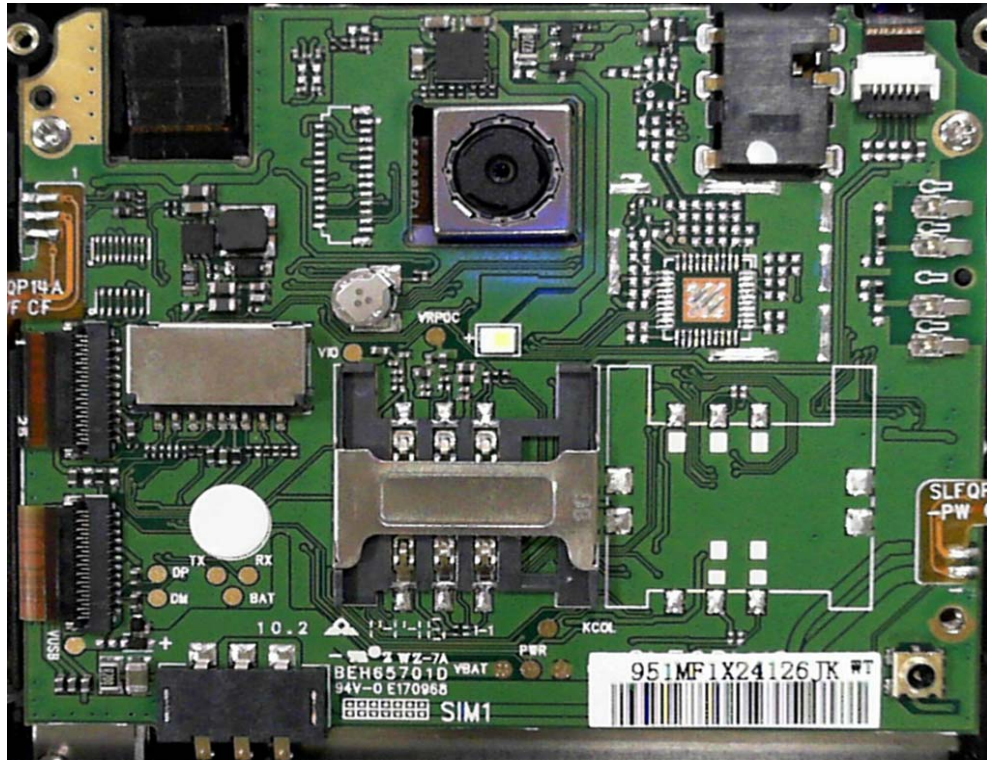
Main board With shielding Front View



Main board Without shielding Front View



Main board Rear



Battery Front View



USB Cable



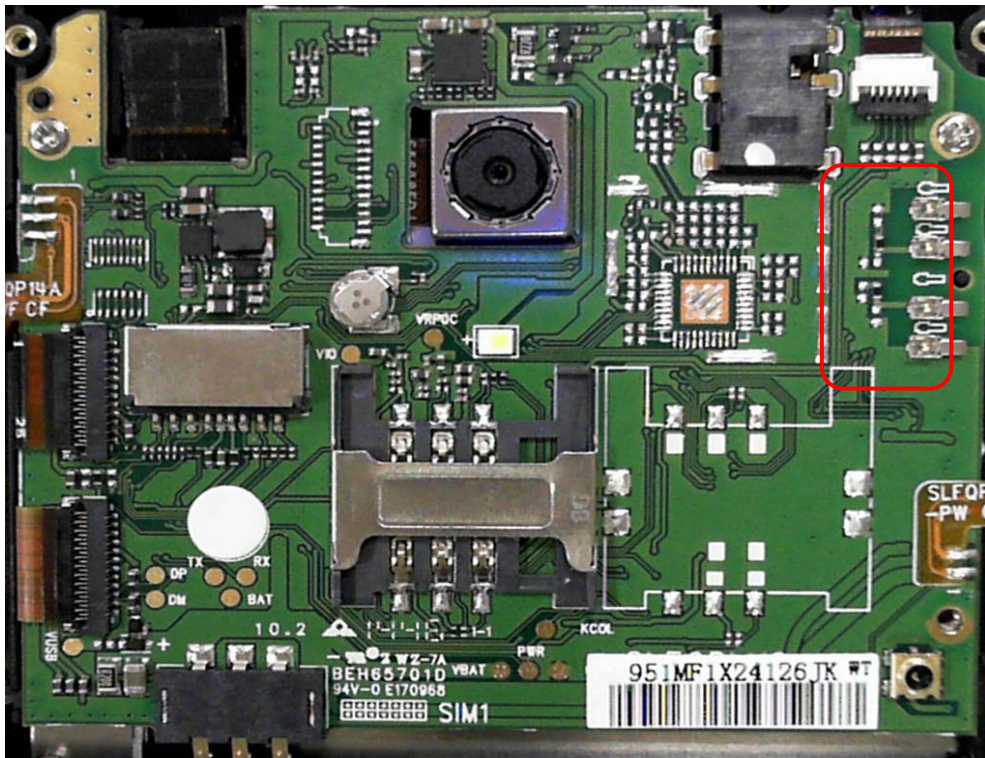
Headset



GSM/DCS/UMTS Antenna View



BT/WIFI Antenna View

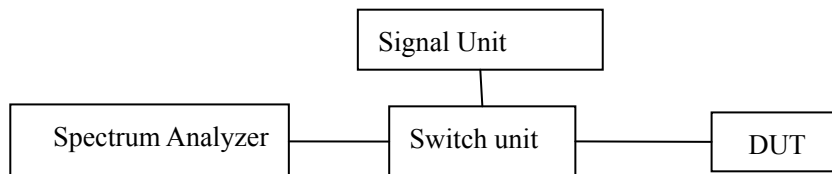


Adapter



ANNEX B: Detailed Test Results

The radiated test setup is shown in each radiated test case section. The conducted test setup is shown as following:



All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.

B.1 Maximum Transmit Power

B.1.1 Description

According to §15.247(b)(1),

The maximum Peak Output power shall be equal to or less than 125mW≈21dBm

B.1.2 Test Results

Date rate (Mbps)	Maximum peak output power			Verdict
	2402MHz	2441MHz	2480MHz	
1	7.177 dBm (2.402GHz)	7.213 dBm (2.440GHz)	7.185 dBm (2.479GHz)	Pass
2	5.508 dBm (2.401GHz)	5.699 dBm (2.441GHz)	5.652 dBm (2.479GHz)	Pass
3	5.513 dBm (2.401GHz)	5.363 dBm (2.441GHz)	5.582 dBm (2.480GHz)	Pass

B.2 20dB Bandwidth

B.2.1 Description

According to §15.247(a)(1)(iii)

The bandwidth at 20 dBm down from the highest in-band spectral density is measured with a spectrum analyzer connected to the receiver antenna while the EUT is operating in transmission mode at the appropriate frequencies.

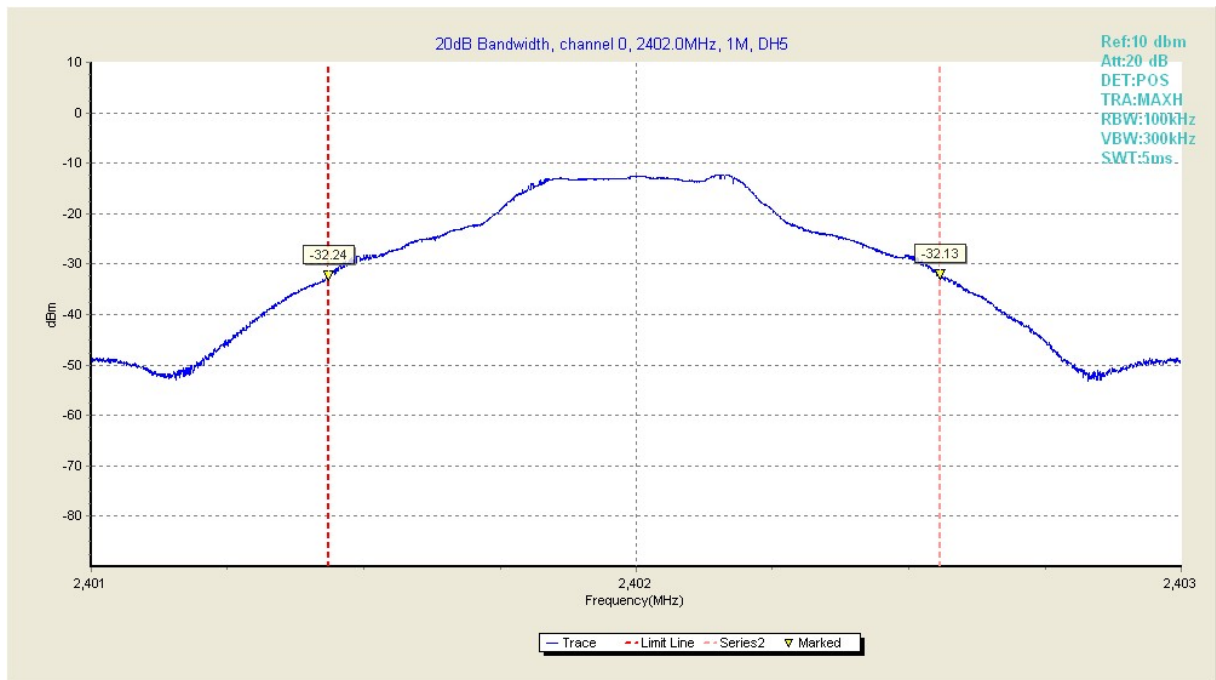
B.2.2 Test Results

Test equipment parameter:

TRA: Max Hold RBW: 100kHz VBW: 300kHz Sweep time: AUTO

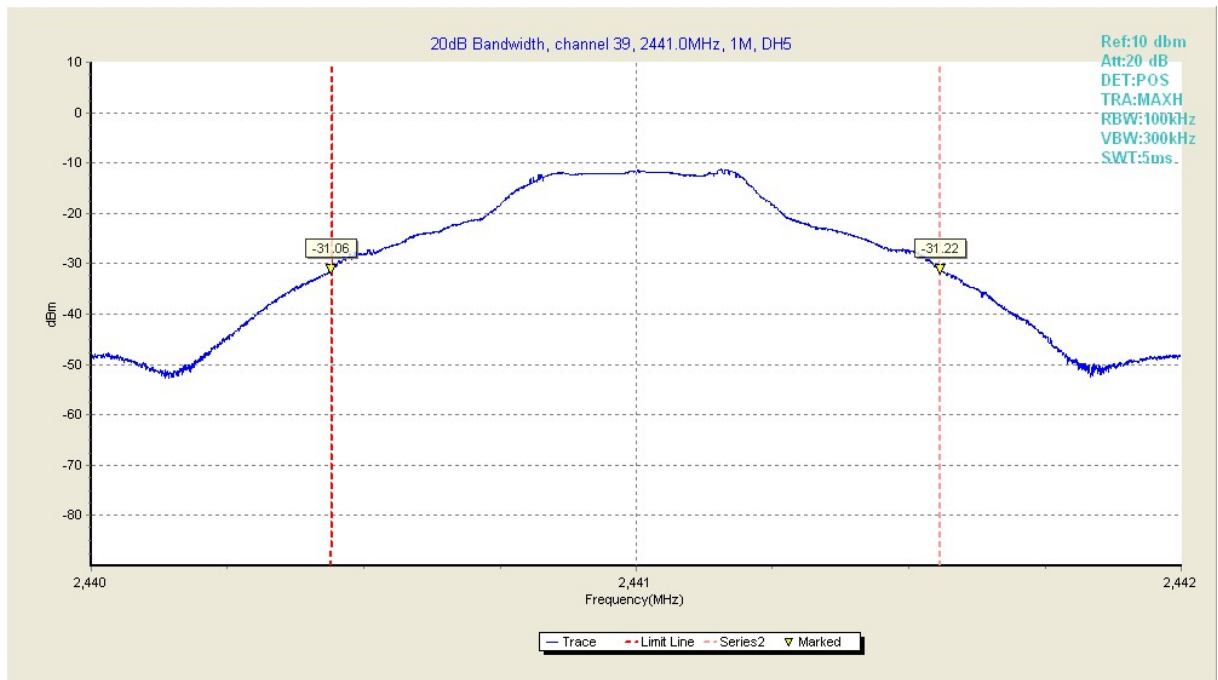
GFSK Modulation

Date rate (Mbps)	Frequency(MHz)	Test Result(MHz)		Verdict
1	2402	1.123	Fig.1	Pass
	2441	1.116	Fig.2	Pass
	2480	1.119	Fig.3	Pass



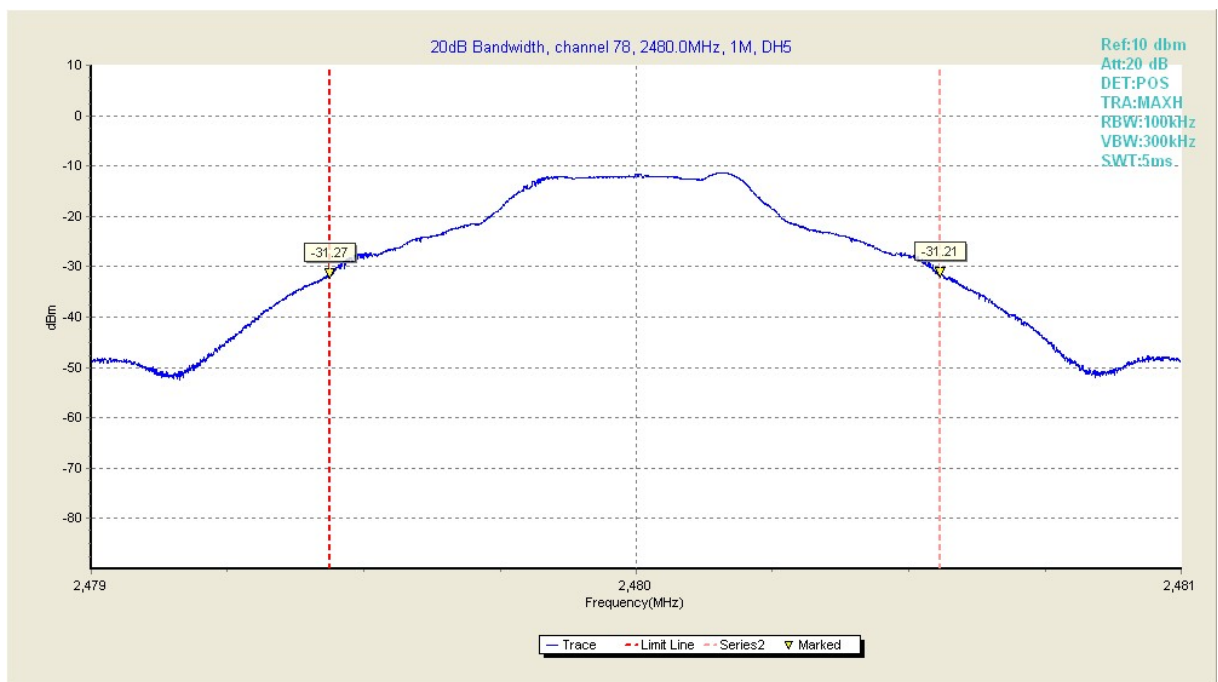
Test plot 1	2401.435059	-32.240002
Test plot 2	2402.557617	-32.130001

Fig1. 20dB Bandwidth in 2402MHz,1Mbps



Test plot 1	2440.440918	-31.059999
Test plot 2	2441.556885	-31.219999

Fig2. 20 dB Bandwidth in 2441MHz,1Mbps

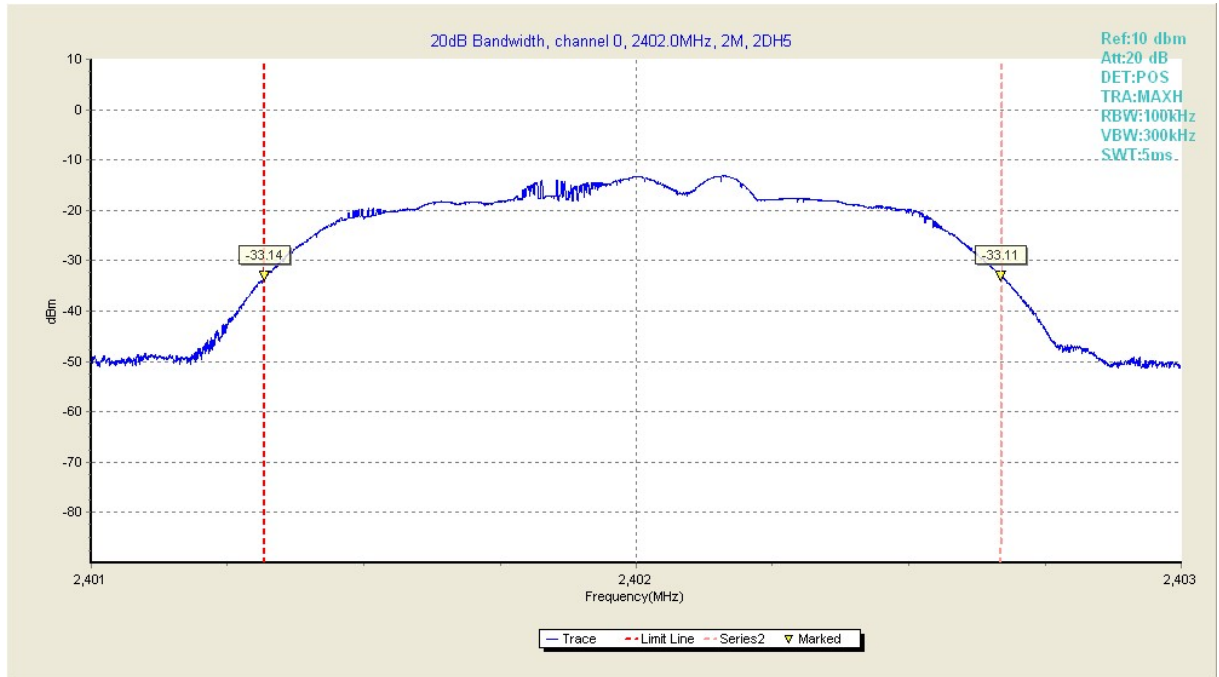


Test plot 1	2479.437988	-31.270000
Test plot 2	2480.556885	-31.209999

Fig3. 20 dB Bandwidth in 2480MHz,1Mbps

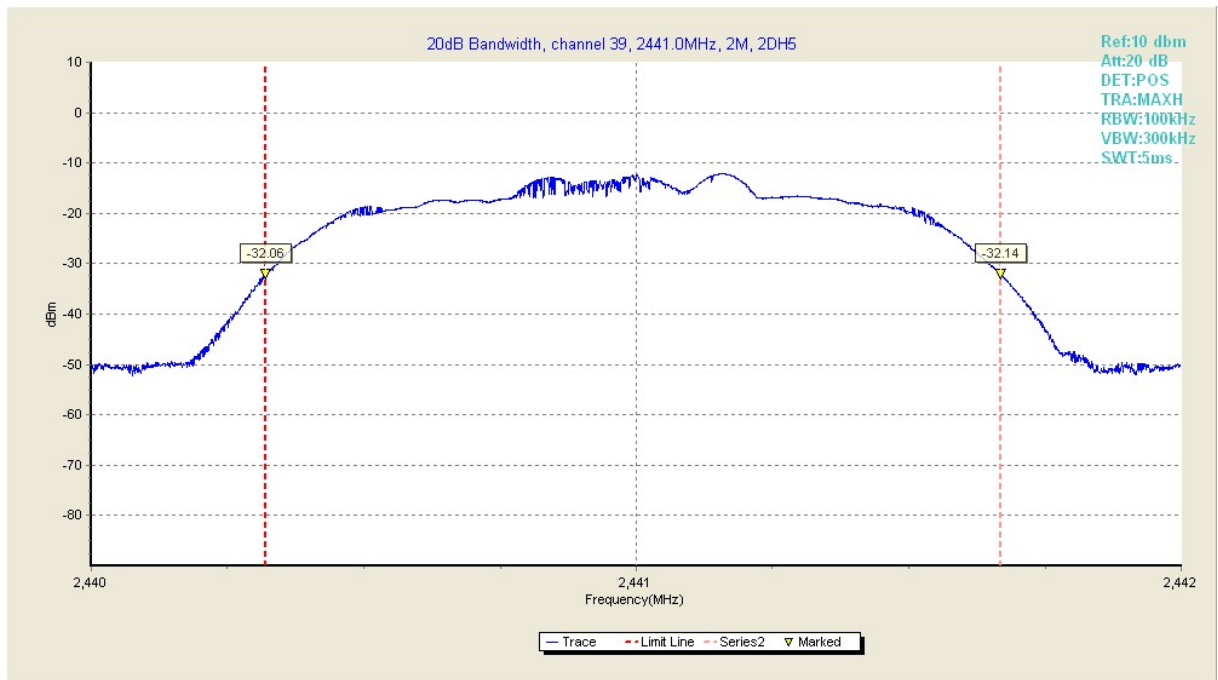
$\pi/4$ -DQPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Test Result(MHz)		Verdict
2	2402	1.352	Fig.4	Pass
	2441	1.349	Fig.5	Pass
	2480	1.346	Fig.6	Pass



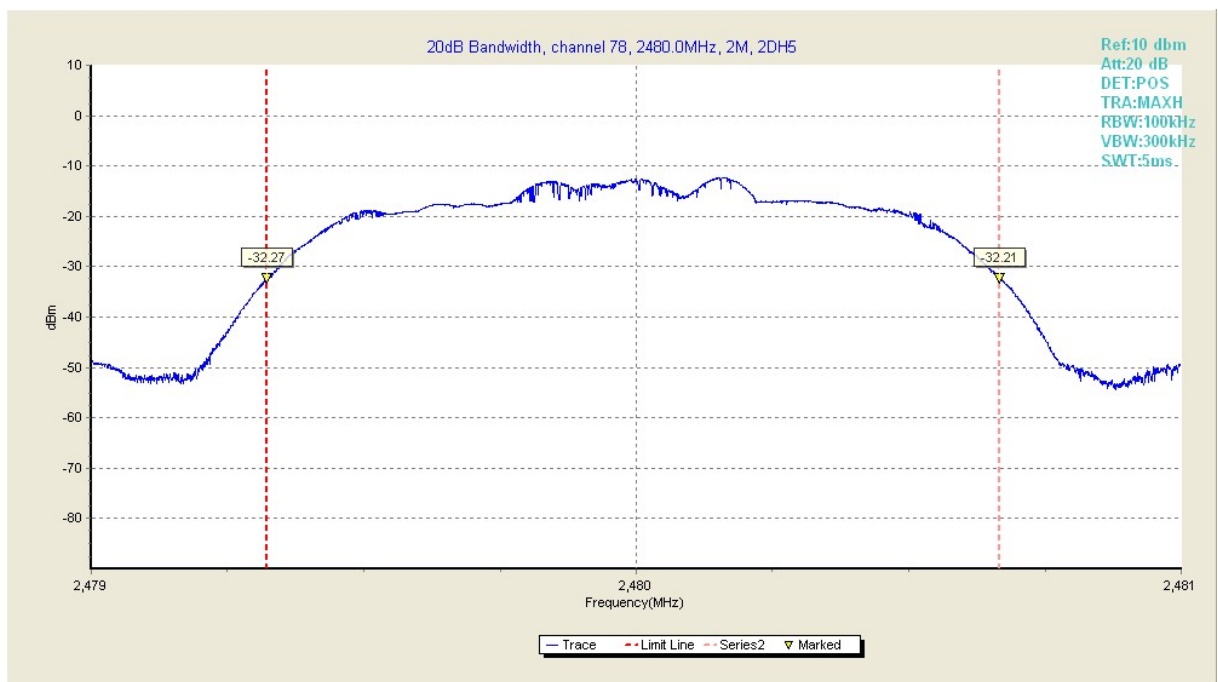
Test plot 1	2401.318115	-33.139999
Test plot 2	2402.669922	-33.110001

Fig4. 20dB Bandwidth in 2402MHz,2Mbps



Test plot 1	2440.320068	-32.060001
Test plot 2	2441.668945	-32.139999

Fig5. 20 dB Bandwidth in 2441MHz,2Mbps

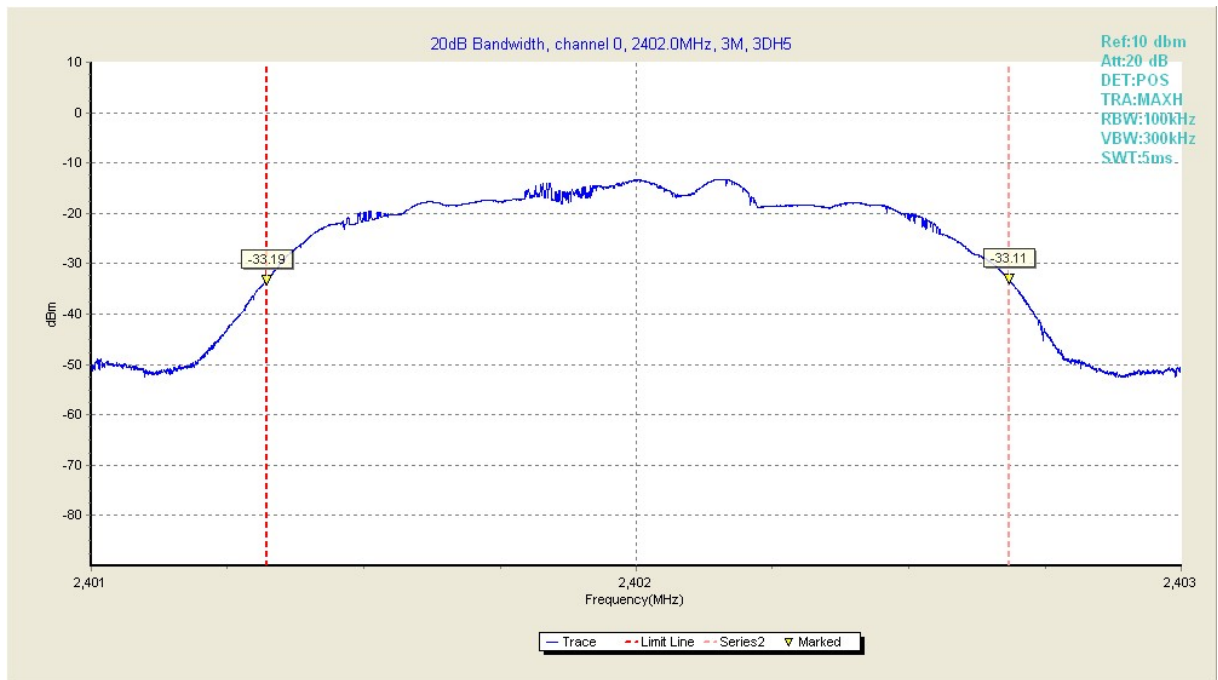


Test plot 1	2479.321533	-32.270000
Test plot 2	2480.666992	-32.209999

Fig6. 20 dB Bandwidth in 2480MHz,2Mbps

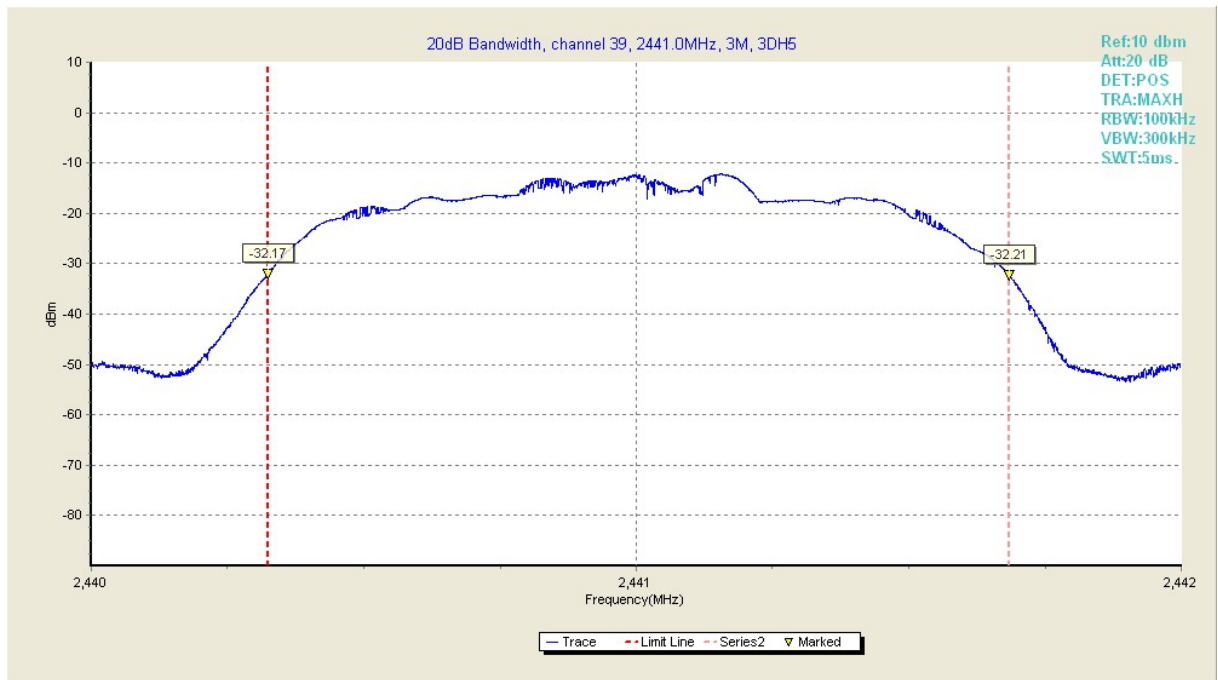
8DPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Test Result(MHz)		Verdict
3	2402	1.363	Fig.7	Pass
	2441	1.360	Fig.8	Pass
	2480	1.360	Fig.9	Pass



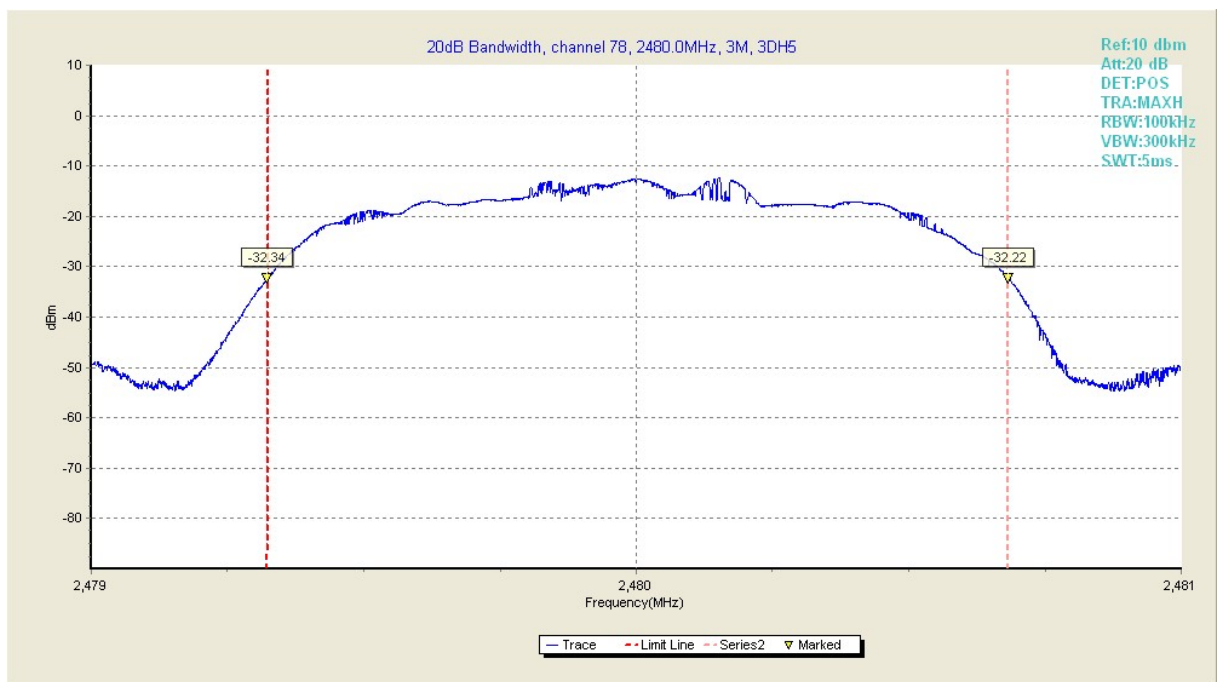
Test plot 1	2401.322021	-33.189999
Test plot 2	2402.684570	-33.110001

Fig7. 20dB Bandwidth in 2402MHz,3Mbps



Test plot 1	2440.323486	-32.169998
Test plot 2	2441.683594	-32.209999

Fig8. 20 dB Bandwidth in 2441MHz,3Mbps



Test plot 1	2479.322998	-32.340000
Test plot 2	2480.682617	-32.220001

Fig9. 20 dB Bandwidth in 2480MHz, 3Mbps

B.3 Band Edge Compliance

B.3.1 Description

According to §15.247(d), the Band Edges Compliance shall be equal to or less than -20 dB.

B.3.3 Test Results

Test equipment parameter:

TRA: Max Hold RBW: 100kHz VBW: 100kHz Sweep time: 1s

GFSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (dB)	Test Result(dB)		Verdict
1	2400	-20	-56.18	Fig.10	Pass
			-42.22	Fig.11	
	2483.5		-60.70	Fig.12	Pass
			-51.65	Fig.13	

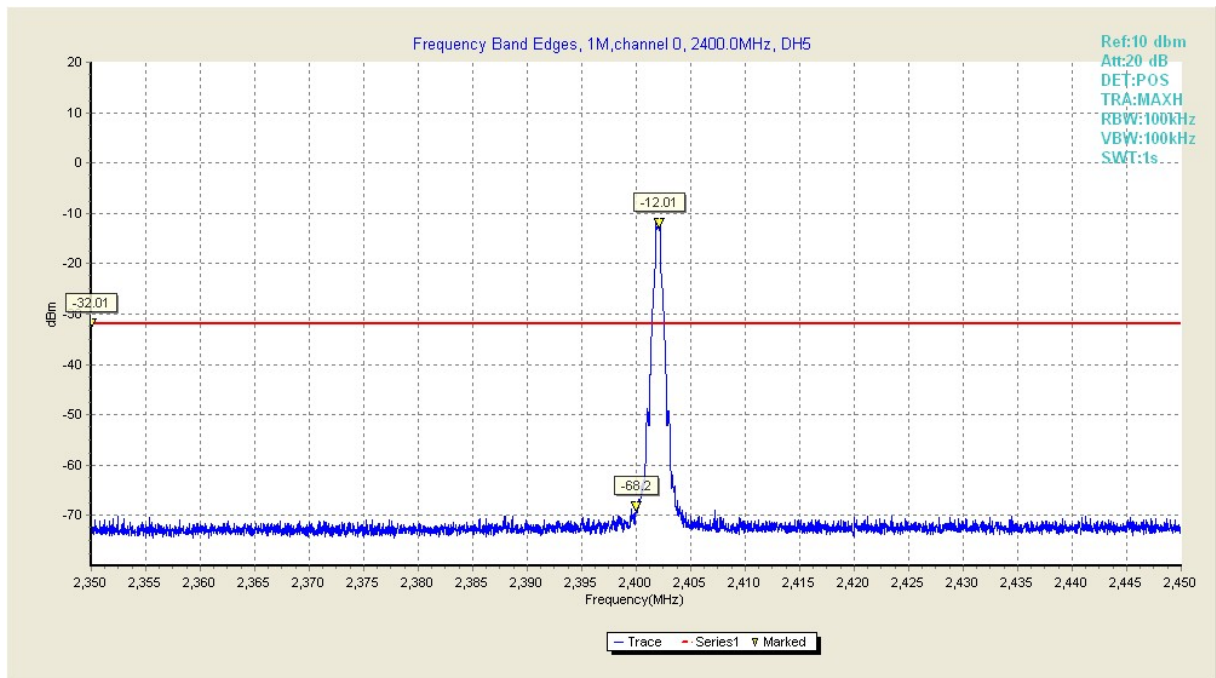


Fig10. Frequency Band Edges in CH0,1Mbps,Hopping off

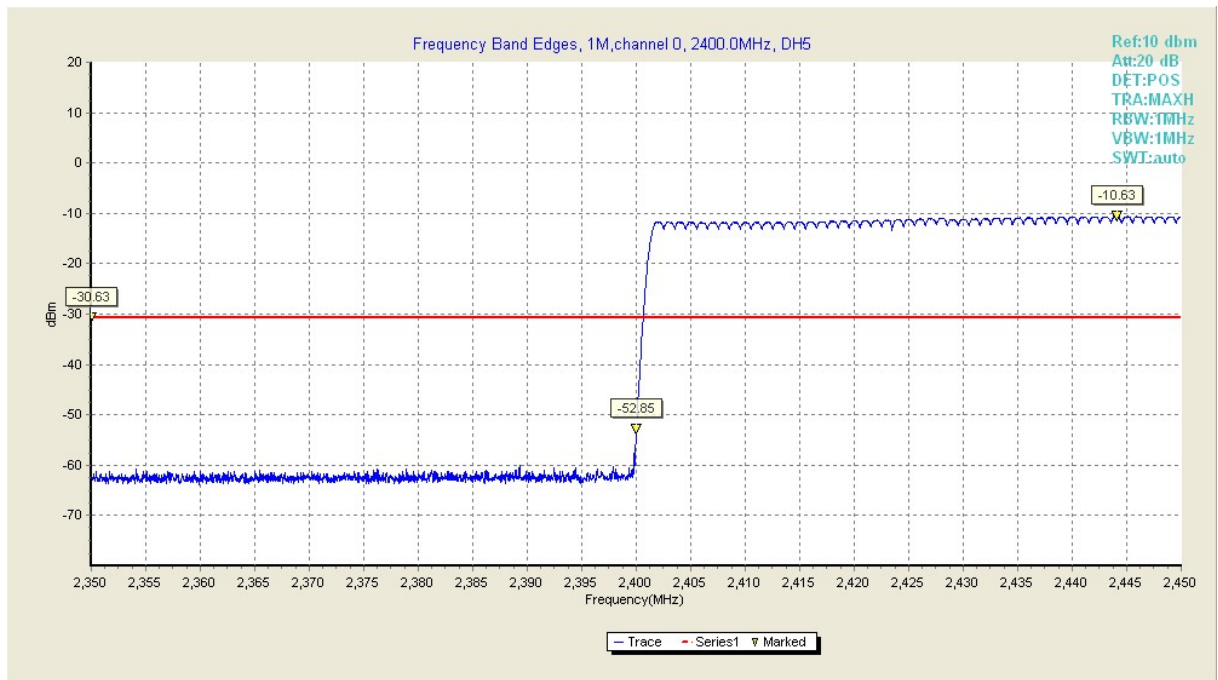


Fig11. Frequency Band Edges in CH0,1Mbps,Hopping on

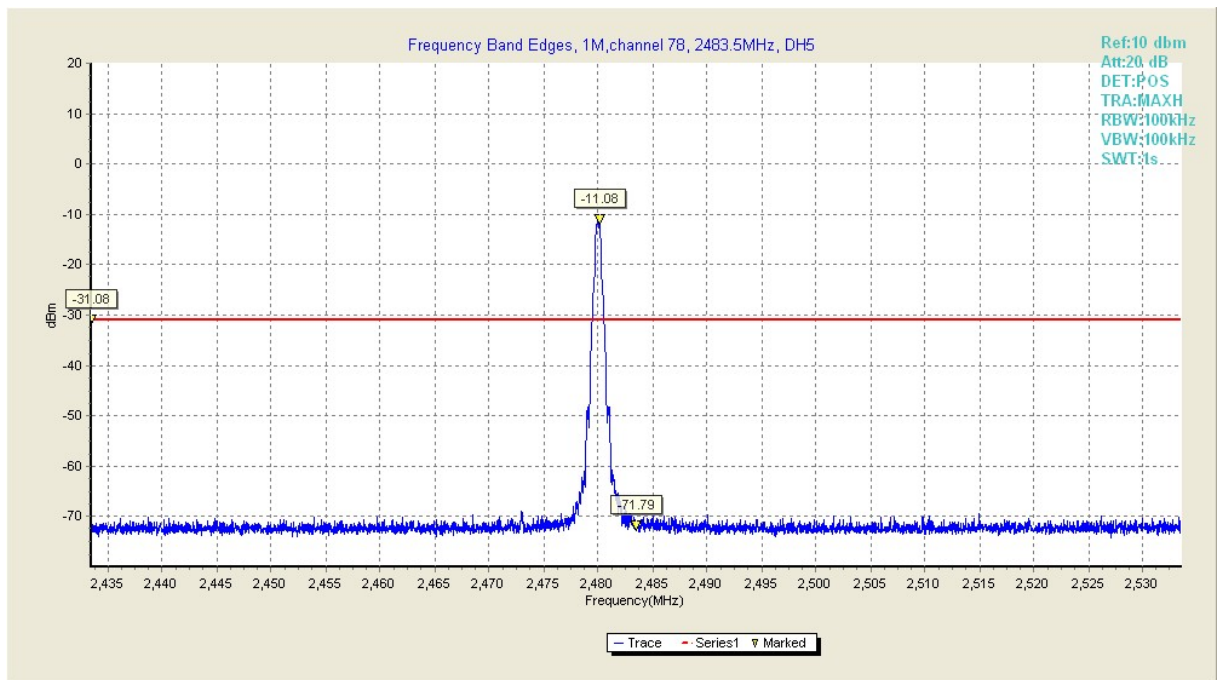


Fig12. Frequency Band Edges in CH78,1Mbps, Hopping off

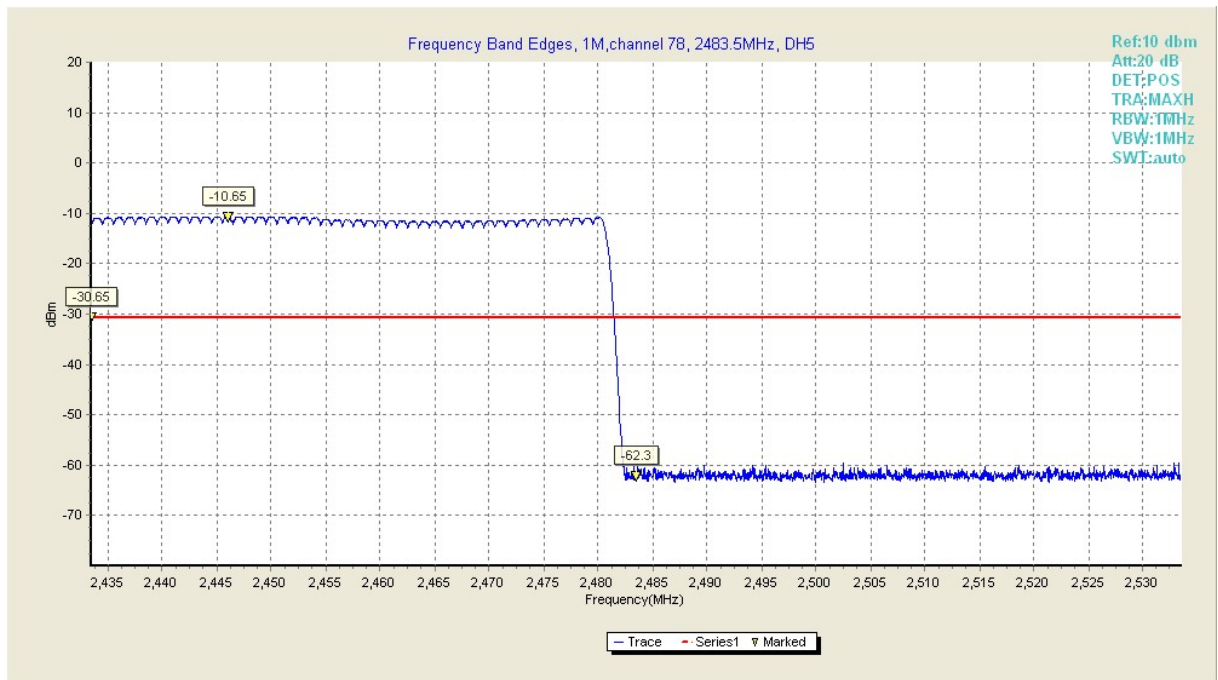


Fig13. Frequency Band Edges in CH78,1Mbps, Hopping on

$\pi/4$ -DQPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (dB)	Test Result(dB)		Verdict
			Value	Figure	
2	2400	-20	-53.88	Fig.14	Pass
			-35.87	Fig.15	
	2483.5		-59.09	Fig.16	Pass
			-51.33	Fig.17	

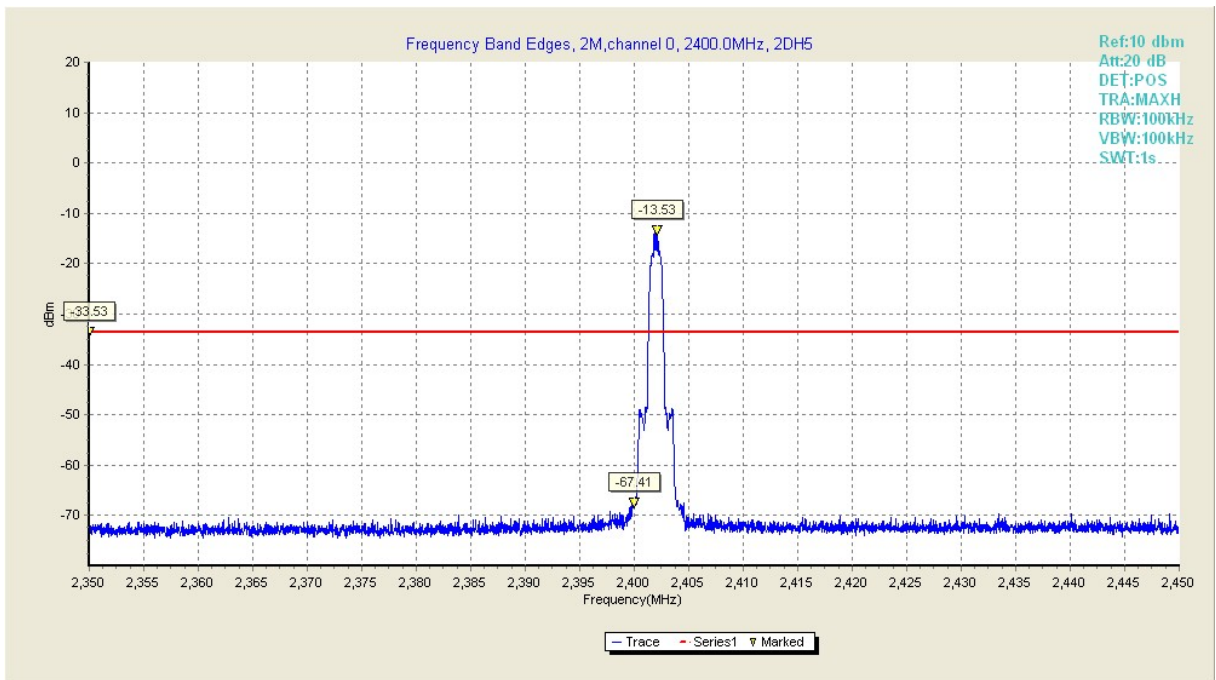


Fig14. Frequency Band Edges in CH 0, 2Mbps,Hopping off

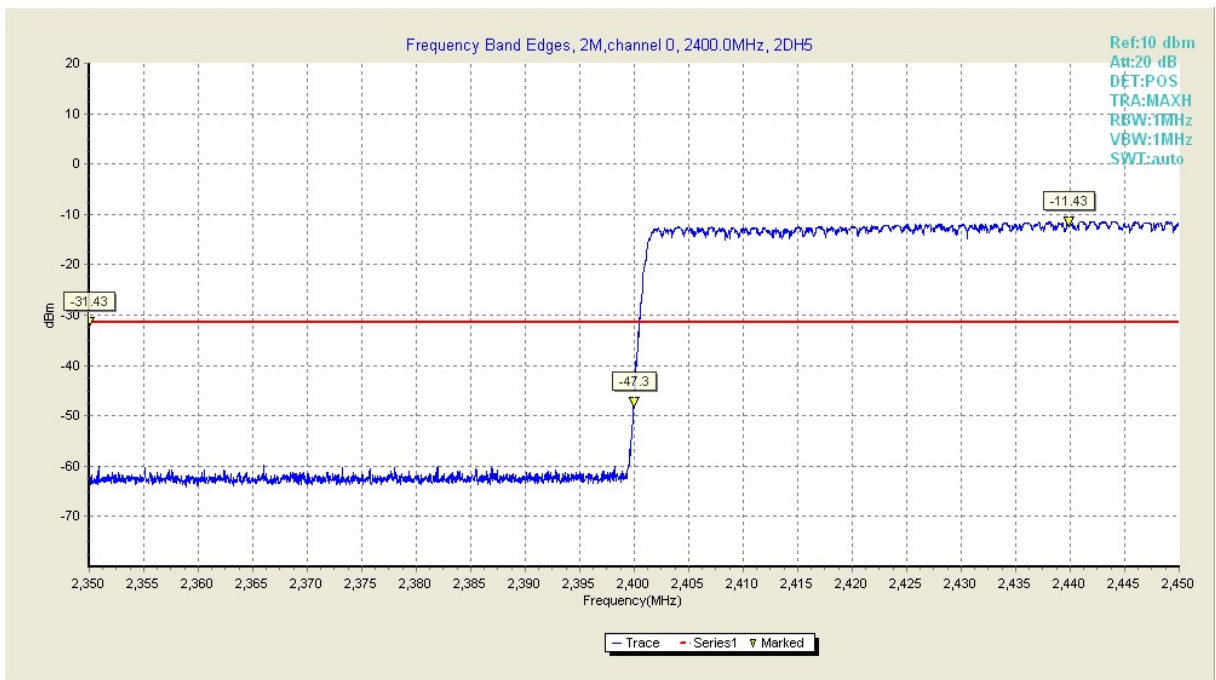


Fig15. Frequency Band Edges in CH 0, 2Mbps,Hopping on

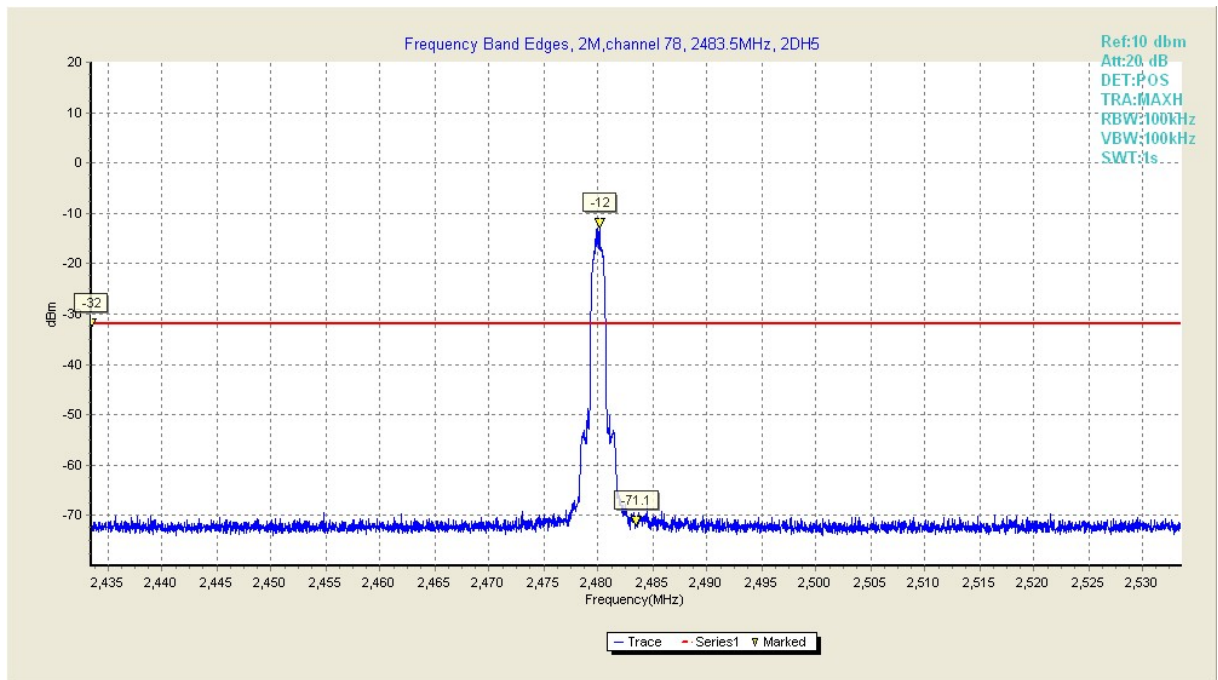


Fig16. Frequency Band Edges in CH 78, 2Mbps, Hopping off

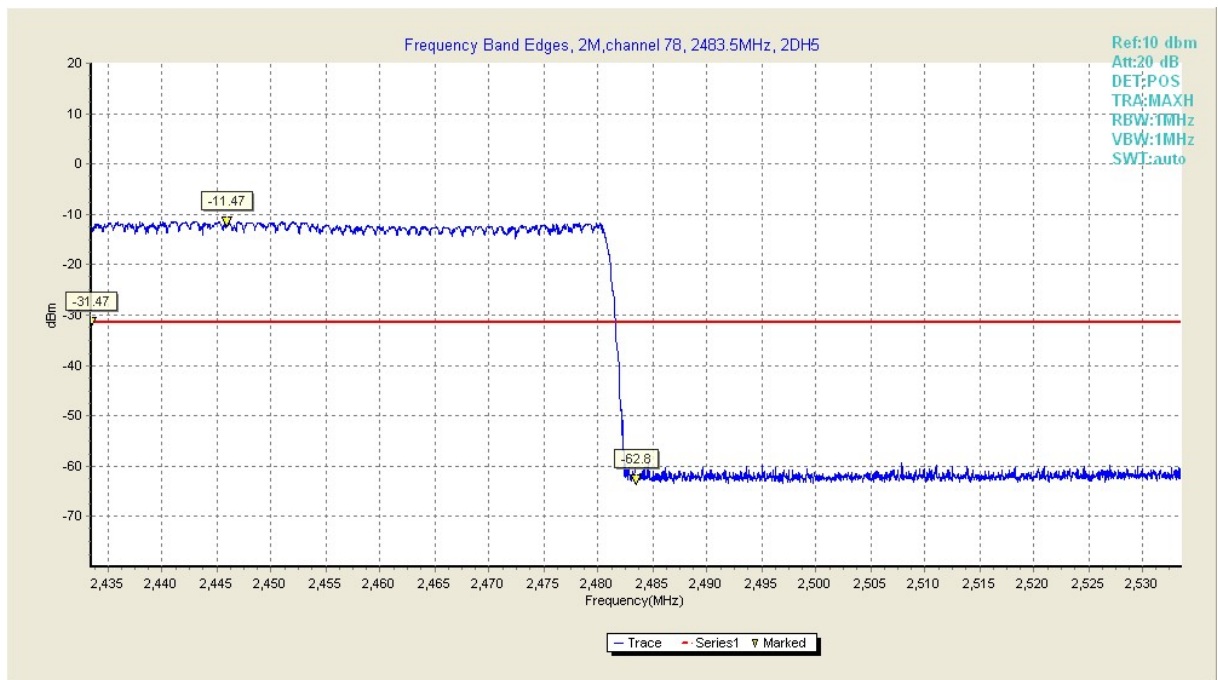


Fig17. Frequency Band Edges in CH 78, 2Mbps, Hopping on

8DPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (dB)	Test Result(dB)		Verdict
3	2400	-20	-55.58	Fig.18	Pass
			-35.15	Fig.19	
	2483.5		-58.96	Fig.20	Pass

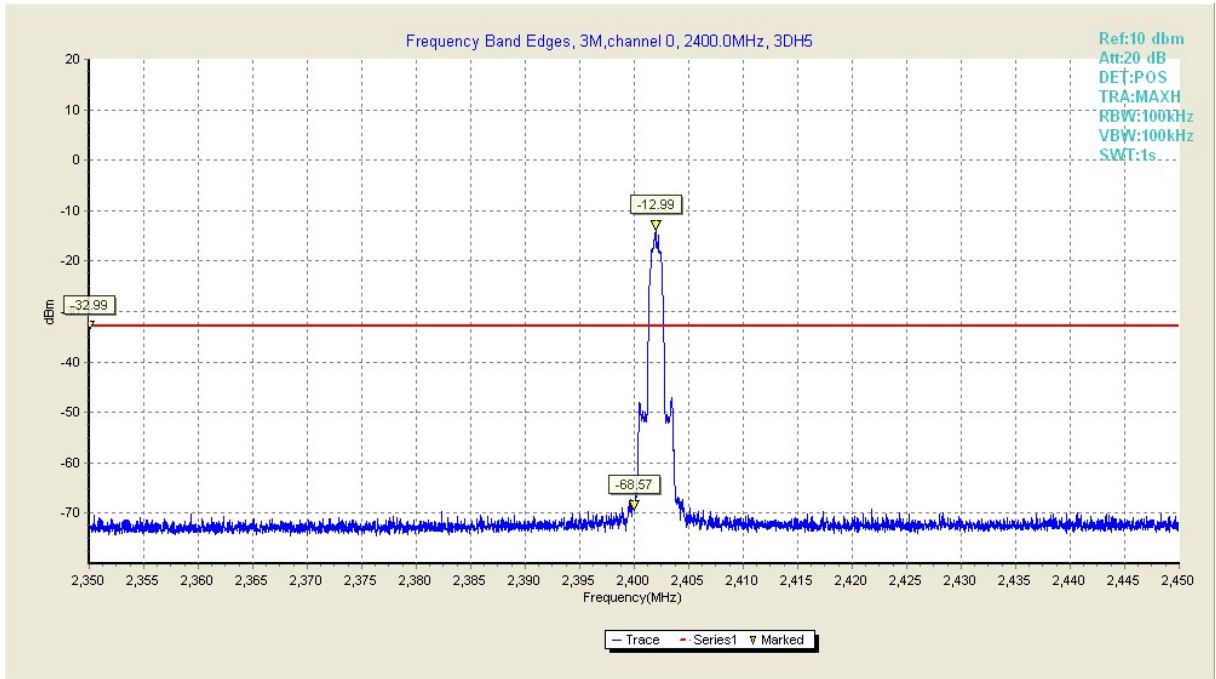


Fig18. Frequency Band Edges in CH0 , 3Mbps,Hopping off

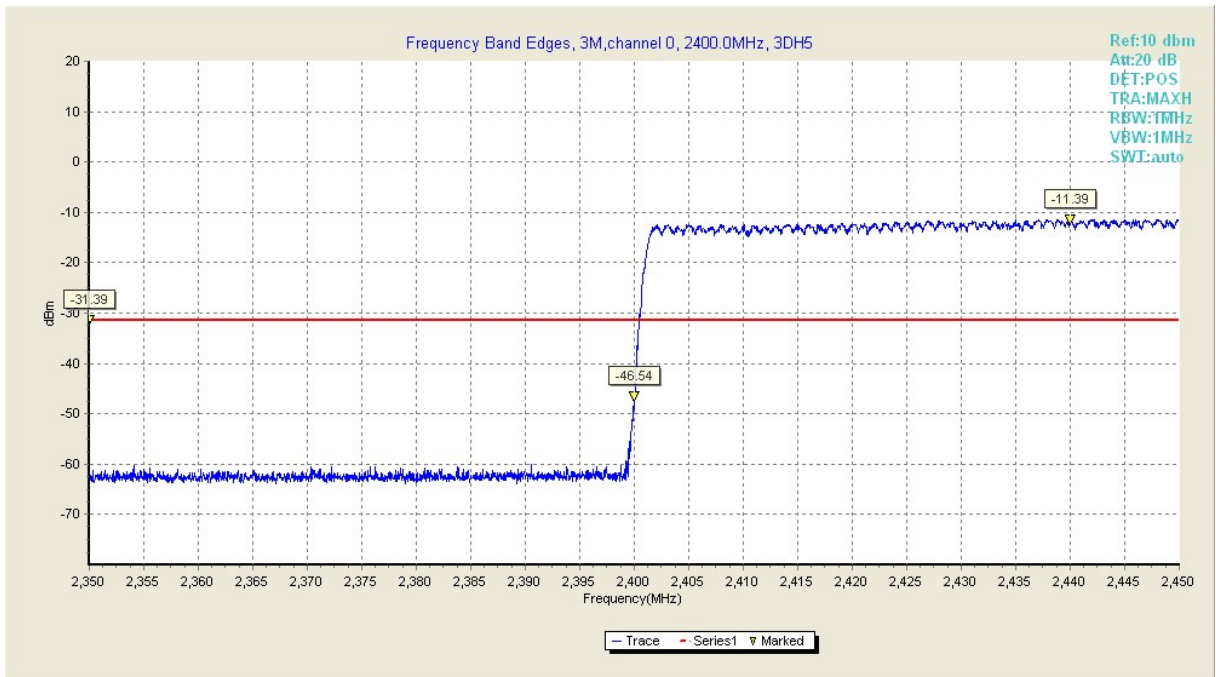


Fig19. Frequency Band Edges in CH0 , 3Mbps,Hopping on

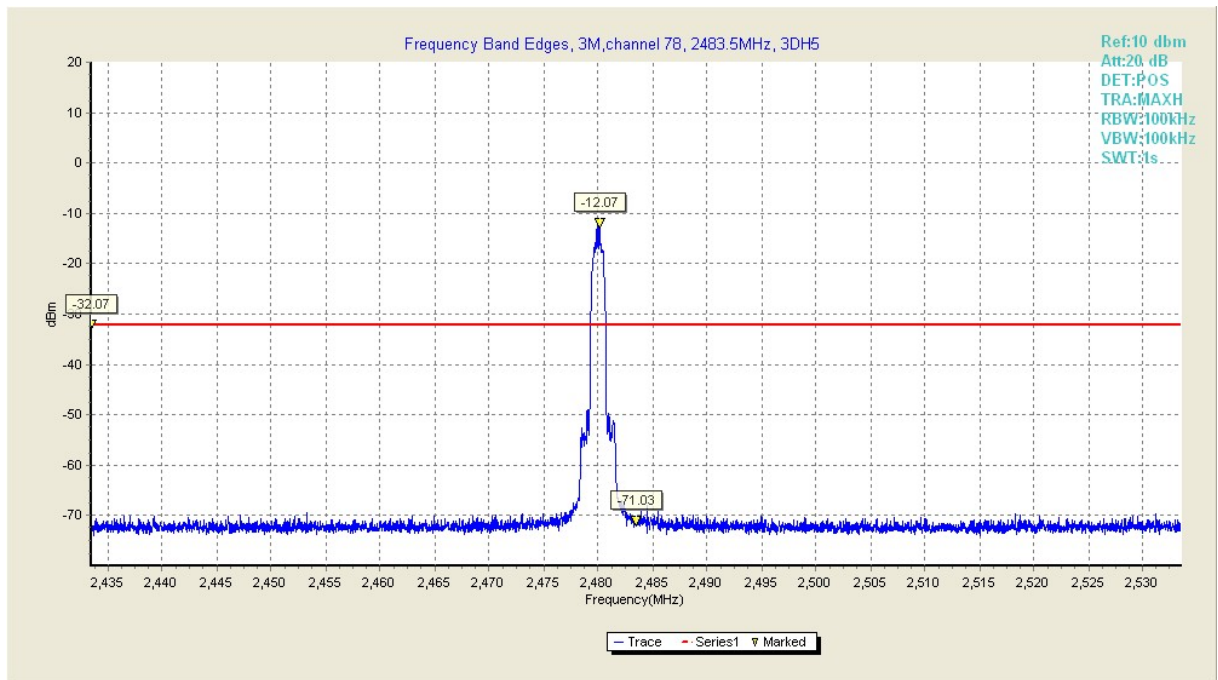


Fig20. Frequency Band Edges in CH 78, 3Mbps,Hopping off

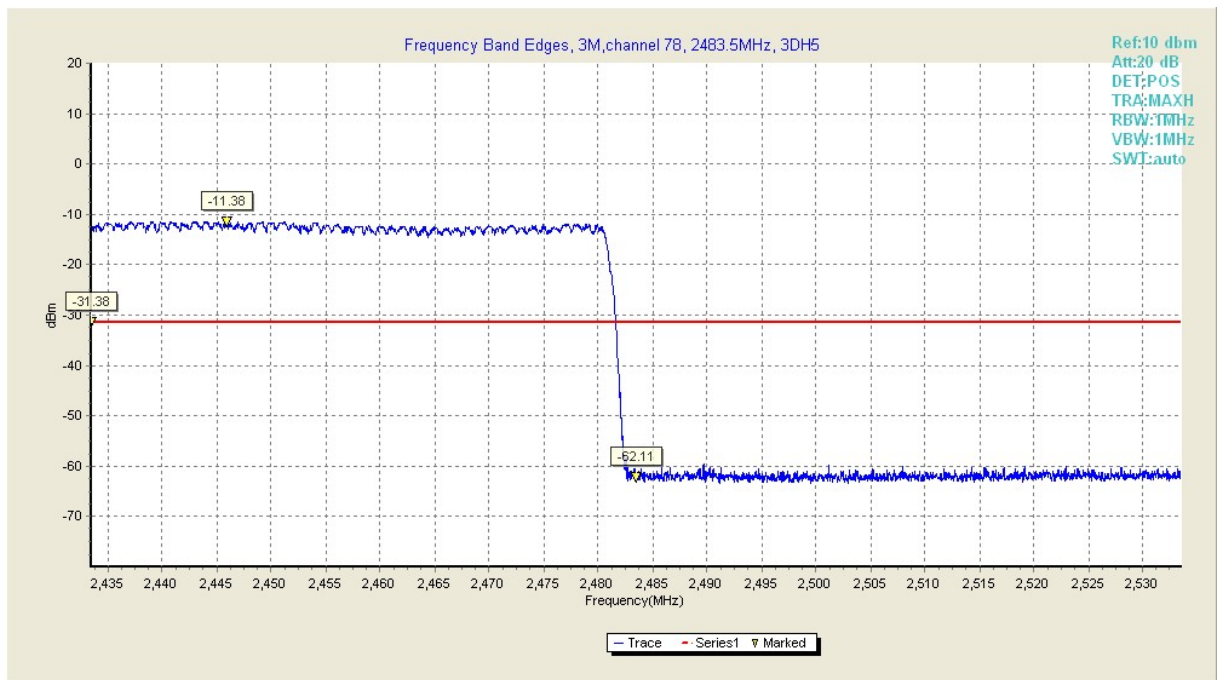


Fig21. Frequency Band Edges in CH 78, 3Mbps,Hopping on

B.4 Carrier Frequency Separation

B.4.1 Description

According to §15.247(a)(1),

Carrier Frequency Separation should be more than two-thirds of the 20 dB bandwidth of the hopping channel

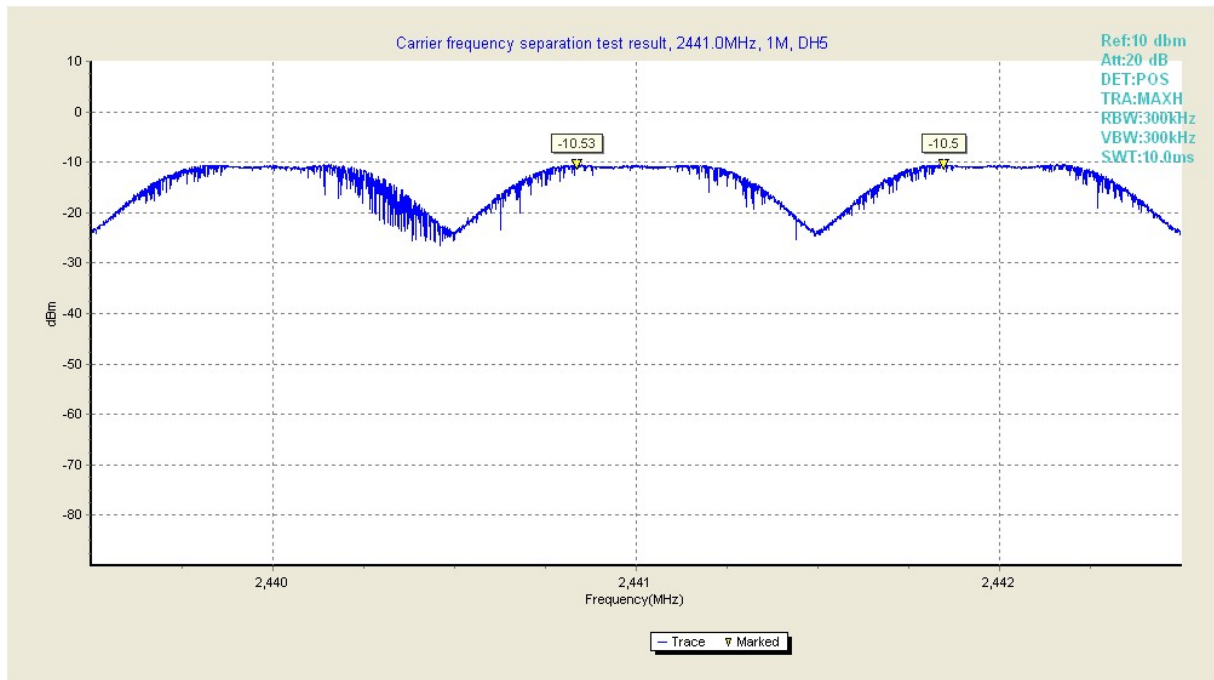
B.4.2 Test Results

Test equipment parameter:

TRA: Max Hold RBW: 300kHz VBW: 300kHz Sweep time: 10ms

GFSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (MHz)	Test Result(MHz)		Verdict
1	2441	0.7441	1.0072	Fig.22	Pass

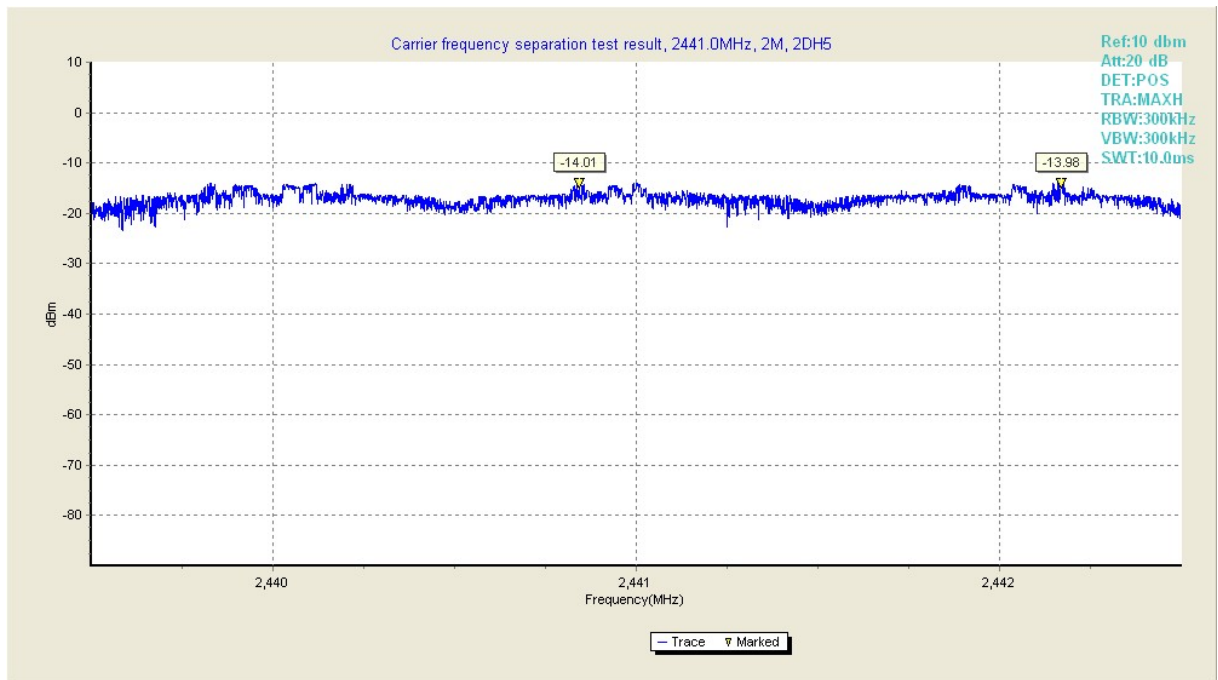


Test plot 1	2440.837891	-10.530000
Test plot 2	2441.845215	-10.500000

Fig 22. Carrier Frequency Separation in 2441MHz,1Mbps

$\pi/4$ -DQPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (MHz)	Test Result(MHz)		Verdict
2	2441	0.8990	1.3290	Fig.23	Pass

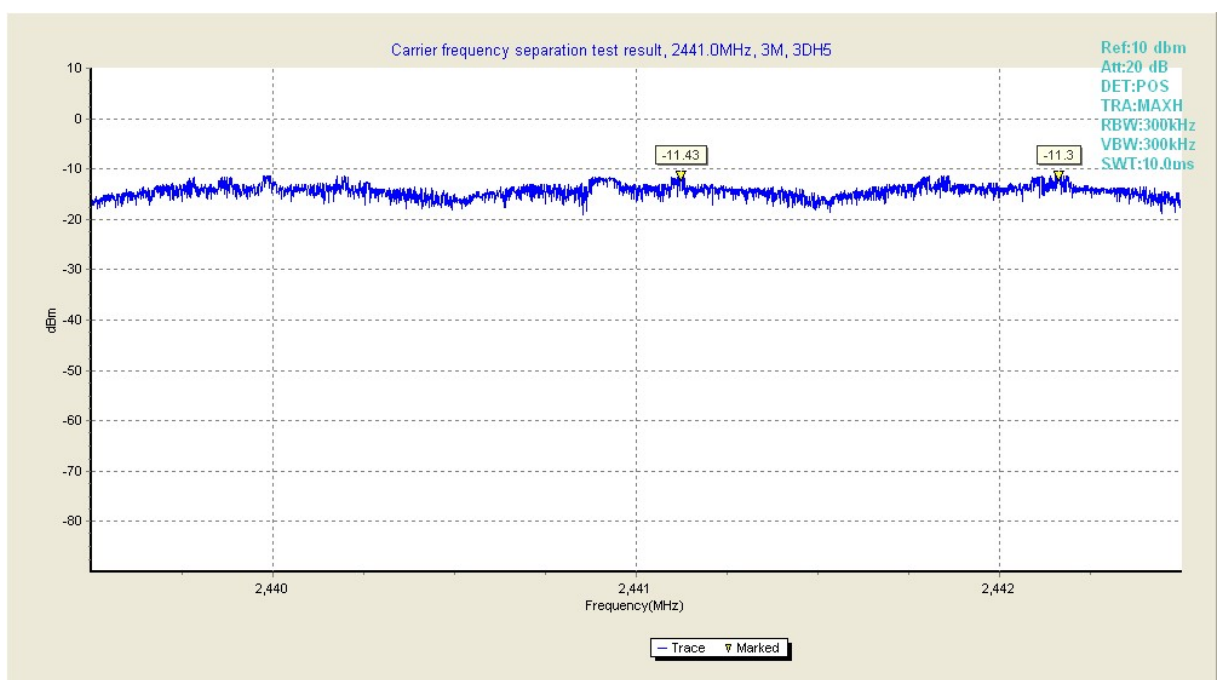


Test plot 1	2440.842011	-14.010572
Test plot 2	2442.171485	-13.980557

Fig23. Carrier Frequency Separation in 2441MHz,2Mbps

8DPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (MHz)	Test Result(MHz)		Verdict
3	2441	0.9067	1.0372	Fig.24	Pass



Test plot 1	2441.124512	-11.430000
Test plot 2	2442.161865	-11.300000

Fig24. Carrier Frequency Separation in 2441MHz,3Mbps

B.5 Time Of Occupancy (Dwell Time)

B.5.1 Description

According to §15.247(a)(1)(iii)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

B.5.2 Test Results

Test equipment parameter:

TRA: Max Hold RBW: 3MHz VBW: 3MHz Sweep time: 3.125ms

GFSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (ms)	Test Result(ms)		Verdict
1	2402	400	306.42	Fig.25	Pass
	2441		306.46	Fig.26	Pass
	2480		306.42	Fig.27	Pass

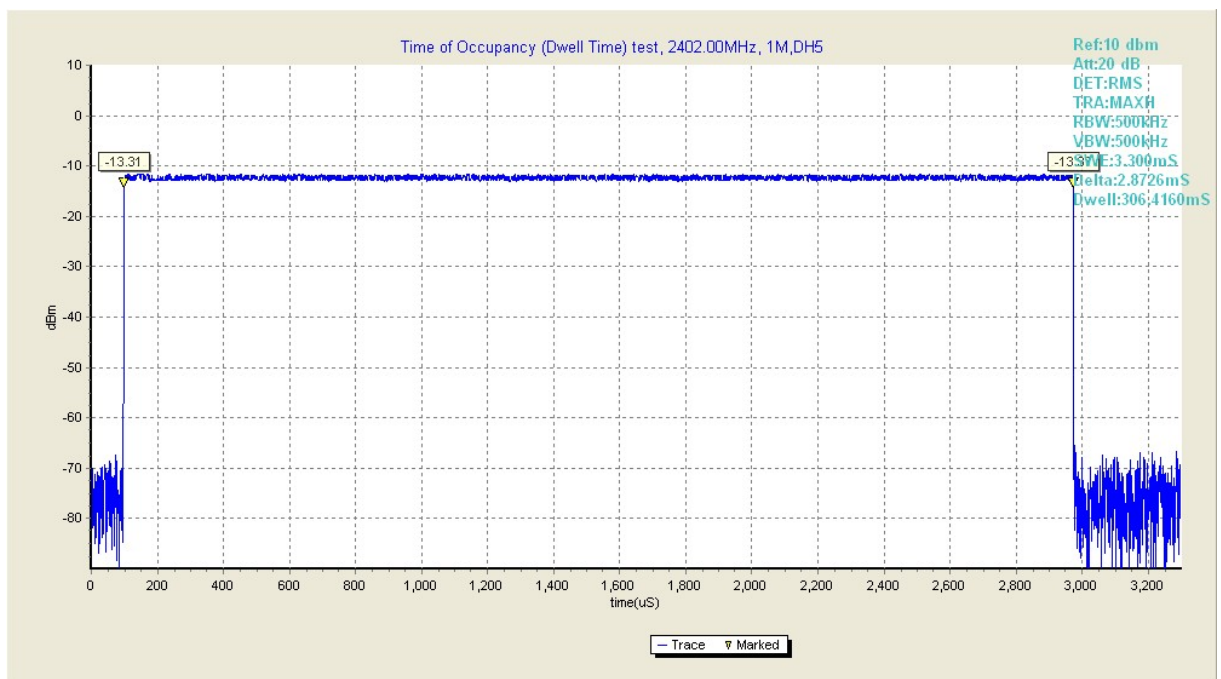


Fig25. Dwell Time in 2402MHz,1Mbps

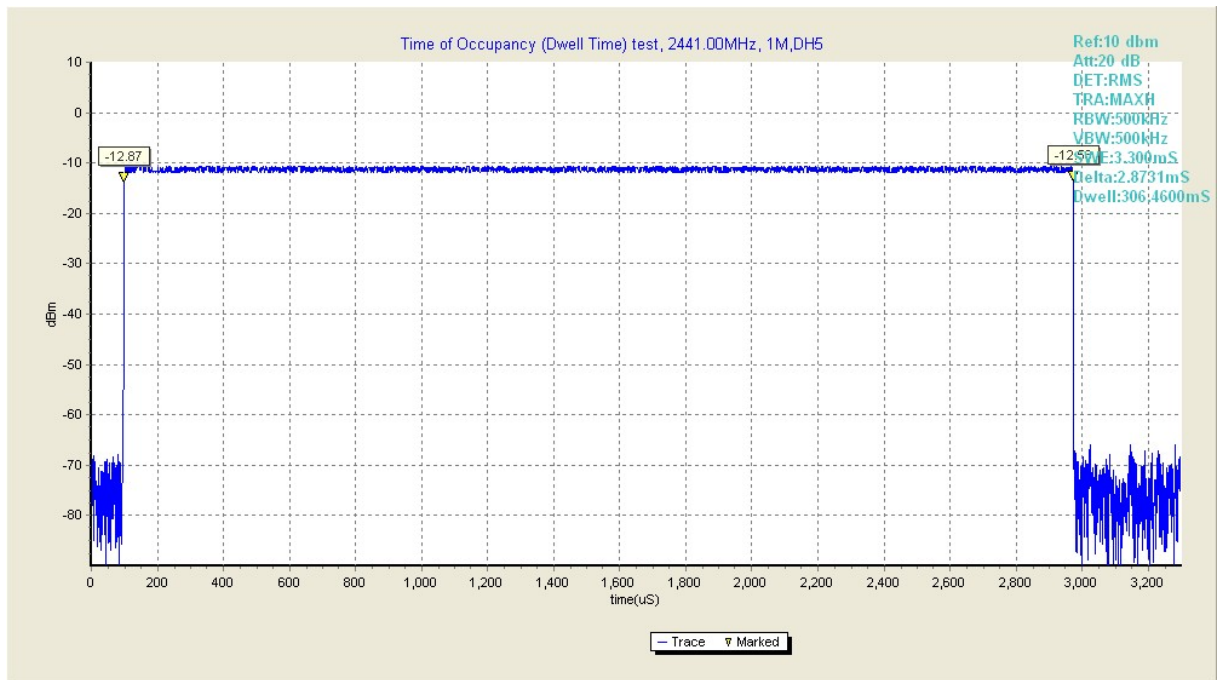


Fig26. Dwell Time in 2441MHz,1Mbps

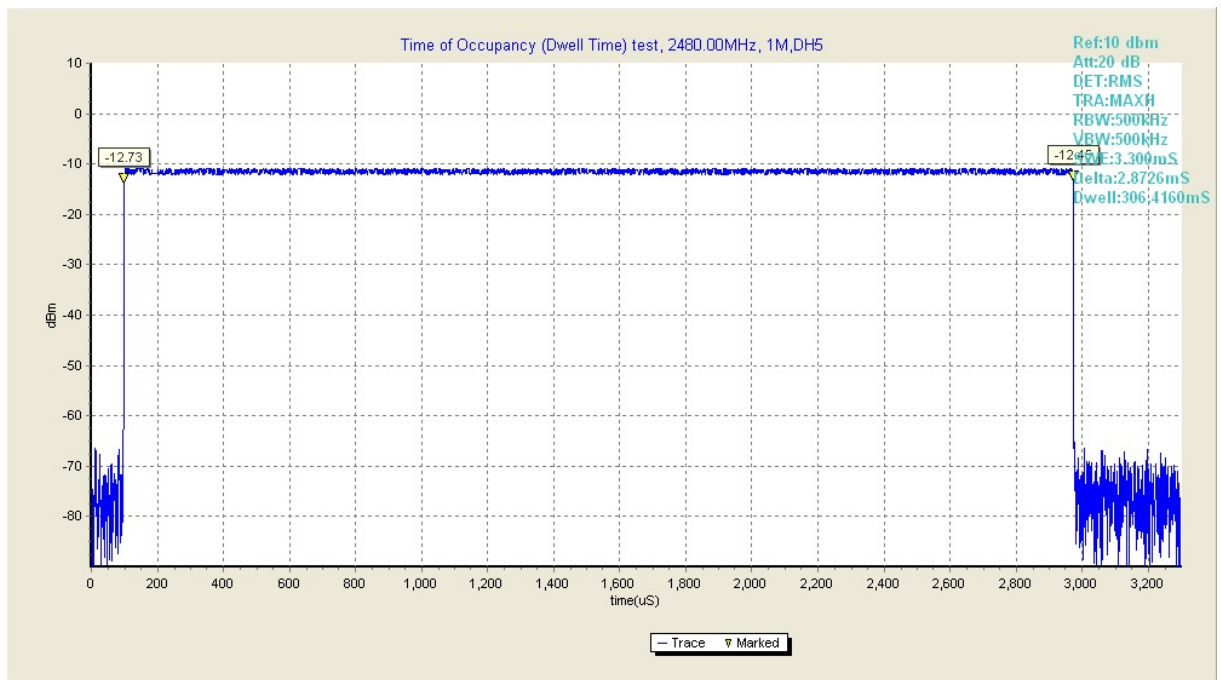


Fig27. Dwell Time in 2480MHz,1Mbps

$\pi/4$ -DQPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (ms)	Test Result(ms)		Verdict
2	2402	400	306.81	Fig.28	Pass
	2441		307.29	Fig.29	Pass

	2480		306.77	Fig.30	Pass
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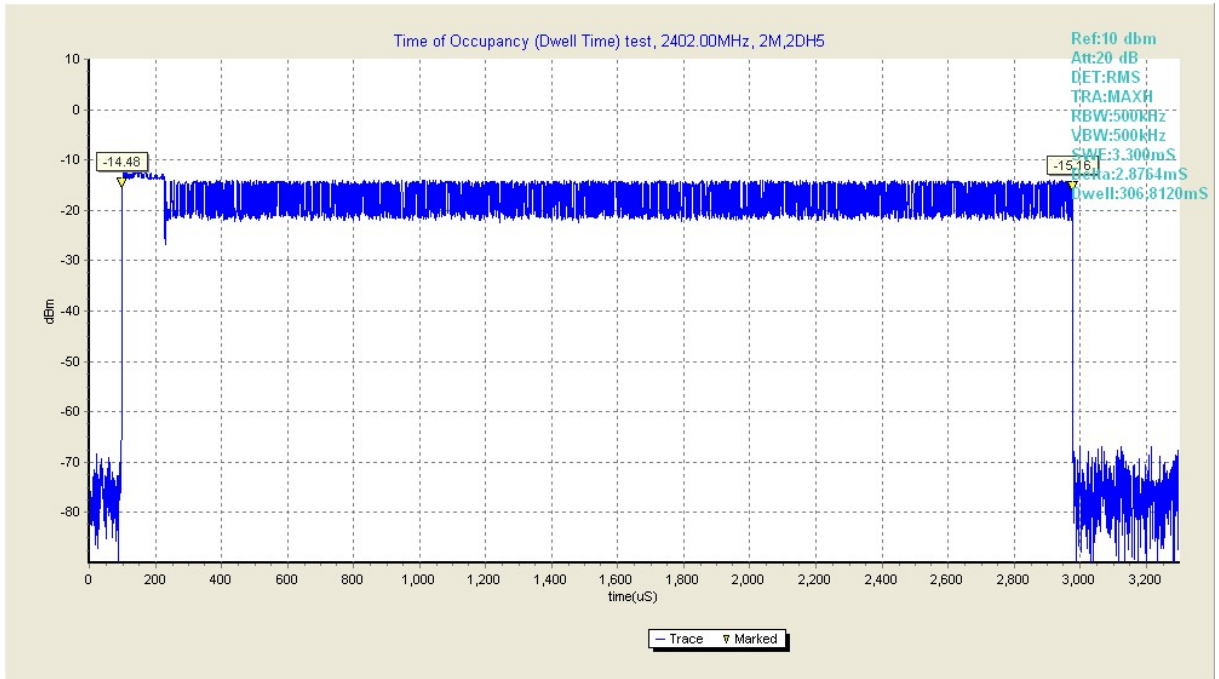


Fig28. Dwell Time in 2402MHz,2Mbps

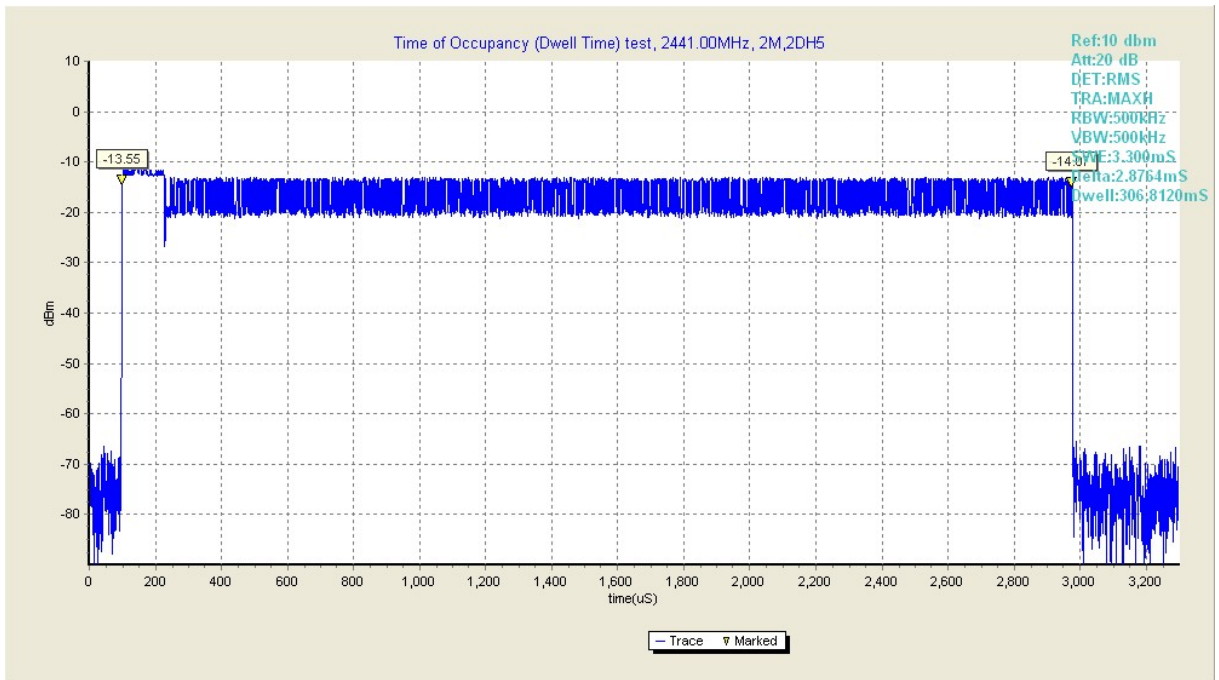


Fig29. Dwell Time in 2441MHz,2Mbps

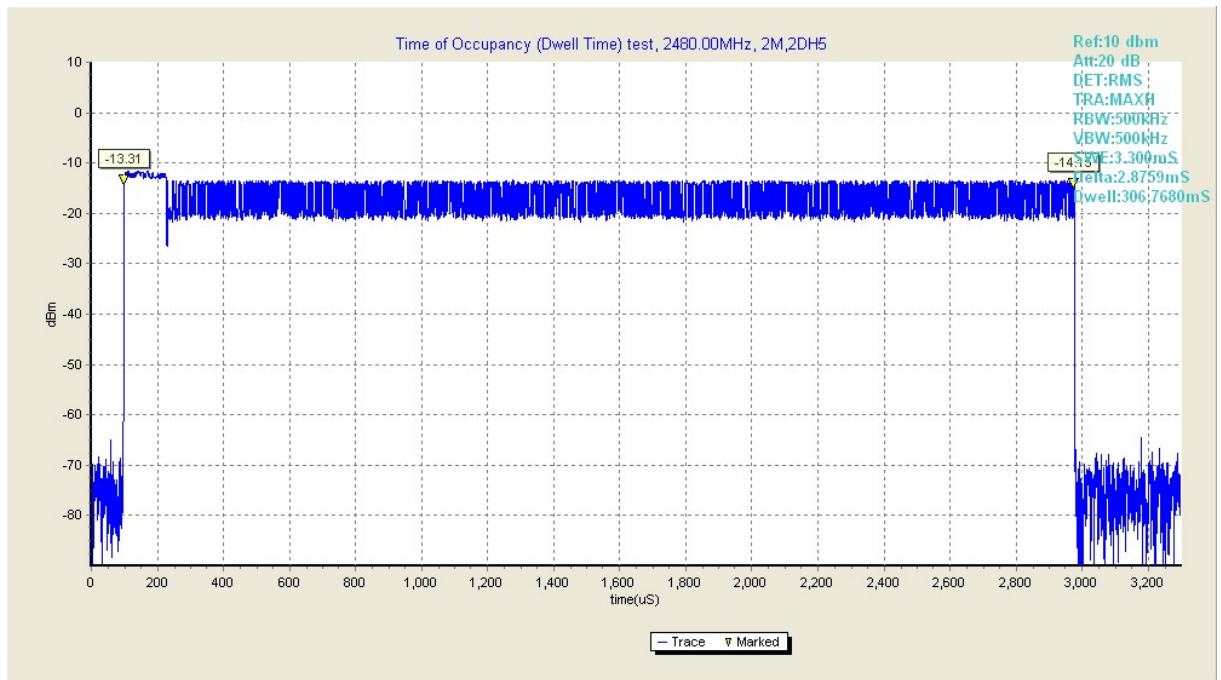


Fig30. Dwell Time in 2480MHz,2Mbps

8DPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (ms)	Test Result(ms)		Verdict
3	2402	400	307.03	Fig.31	Pass
	2441		307.03	Fig.32	Pass
	2480		307.03	Fig.33	Pass

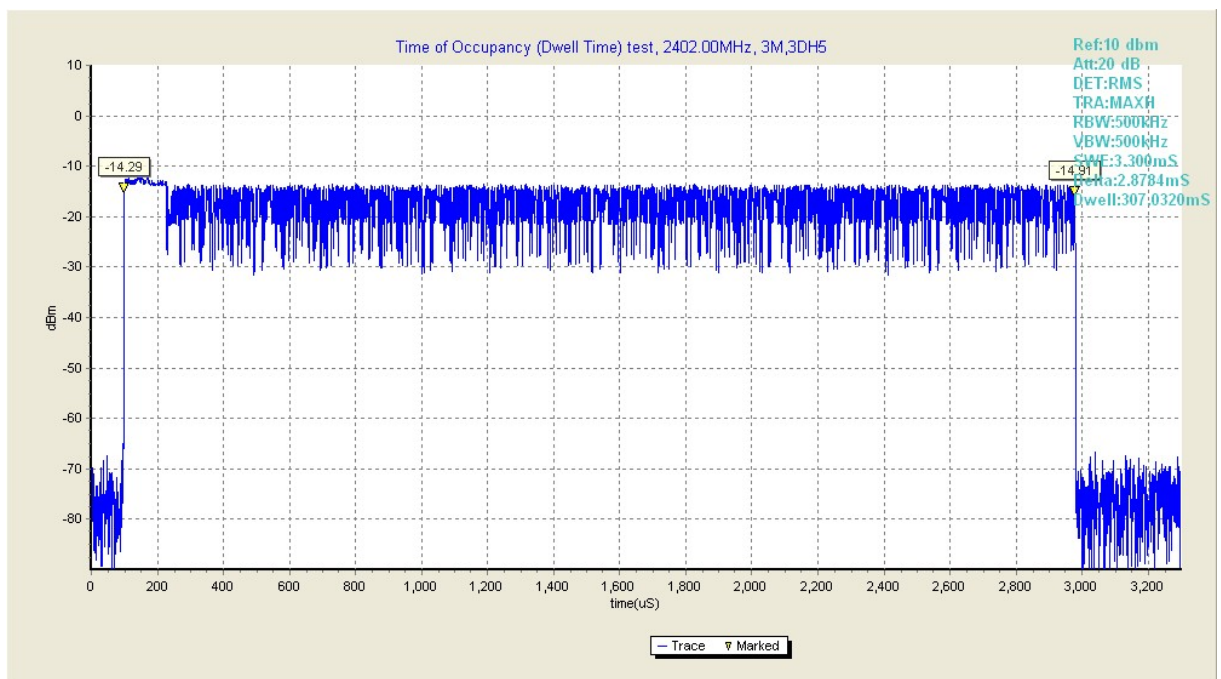


Fig31 Dwell Time in 2402MHz,3Mbps

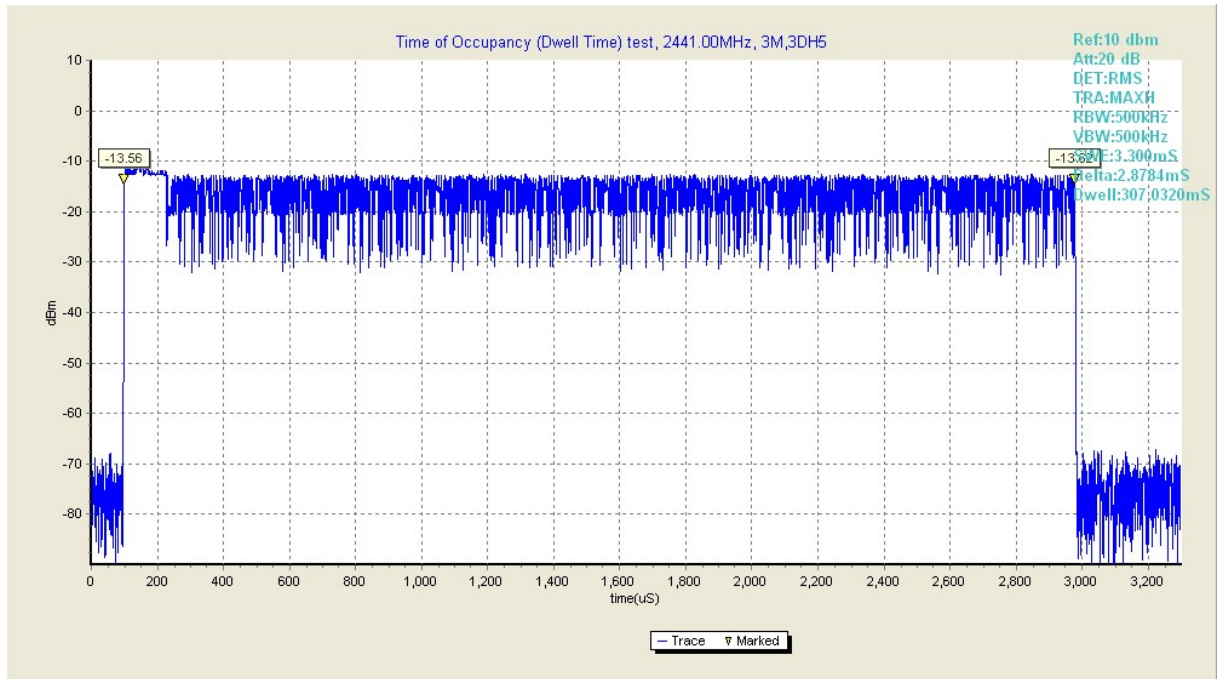


Fig32. Dwell Time in 2441MHz,3Mbps

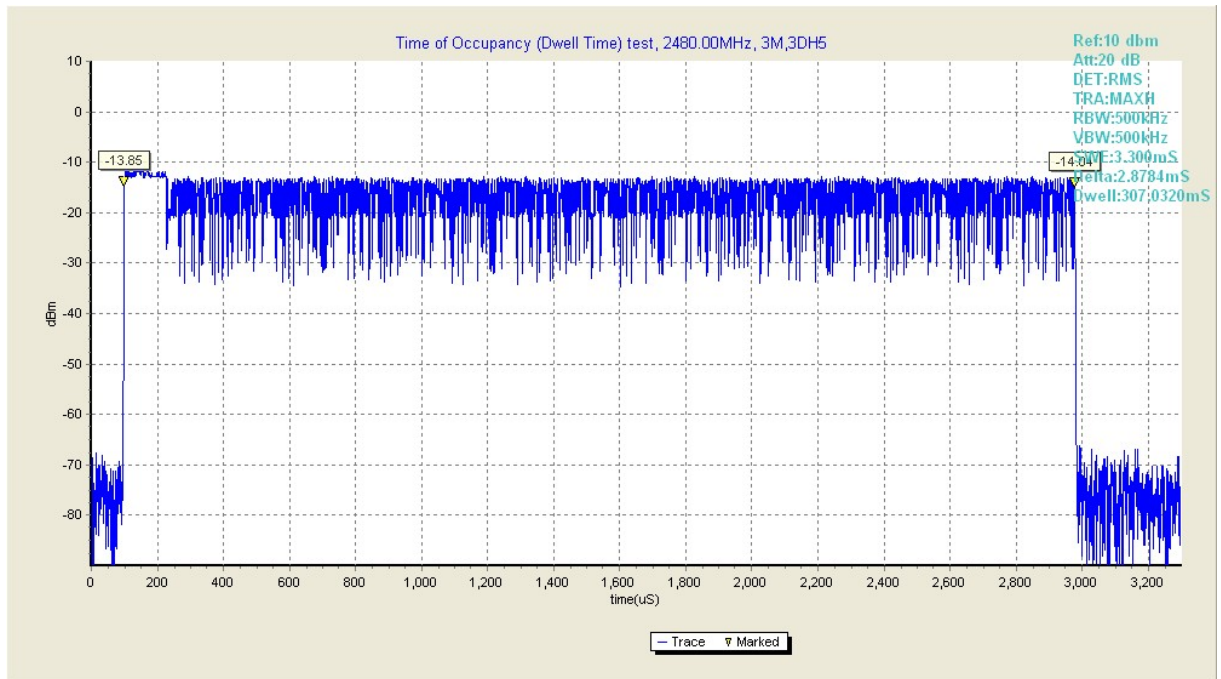


Fig33. Dwell Time in 2480MHz,3Mbps

B.6 Number of Channel Hopping

B.6.1 Description

According to §15.247(a)(1)(iii),

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.