

FCC BT TEST REPORT

No. 150106-BT

For

Bullitt Group

Product Name: Mobile Phone

Model Name: IM 5

Trade Name: Kodak

Issued Date: 2015-02-06

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

Technology Road, High-tech Zone, He Yuan, Guang Dong, PR China 517001

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GENERAL SUMMARY

Product Name	Mobile phone
Model Name	IM 5
Applicant	Bullitt Group
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	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. General Judgment: Pass Date of issue: 2015.02.06
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	25.8	47
Minimum Ambient	19.1	43

EUT is under testing environment.

1.3 Project Data

Project Leader	Wen Xiaoyong
Testing Start Date	2015-01-26
Testing End Date	2015-02-06

2. Client Information

2.1 Applicant Information

Company Name	Bullitt Group
Address	4 The Aquarium, 1-7 King Street, Reading, RG1 2AN, UK
City	/
Postal Code	/
Country	/
Telephone	+44 1189 580 449
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	IM 5
FCC ID	ZL5IM5
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
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
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:-1dBi DCS1900: 1dBi WCDMA850: -1dBi WCDMA1900: 1dBi Bluetooth/BLE/WIFI: -2dBi
Normal Voltage	3.7V
Extreme Low Voltage	3.6V
Extreme High Voltage	4.2V
Extreme Low Temperature	0℃
Extreme High Temperature	40℃

3.2 Internal Identification of EUT

EUT ID *	IMEI	HW Version	SW Version
150106-M03	1:355616029939703 2:355616029941154	XL-V2.0	XL01D-S13A_BULLITT_L7EN_202_141230
150106-M04	1:355616029939216 2:355616029940669	XL-V2.0	XL01D-S13A_BULLITT_L7EN_202_141230

*EUT ID: is used to identify the test sample in the lab internally. 150106-M03 and 150106-M04 are the same mobile phone.

3.3 Internal Identification of AE

AE ID *	Description	Type	SN
150106-B03	Battery	CA366069HV	/
150106-C03	Adapter	A8-501000	/
150106-B04	Battery	CA366069HV	/
150106-C04	Adapter	A8-501000	/

*AE ID: is used to identify the test sample in the lab internally. 150106-B03 and 150106-B04 are the same accessory , 150106-C03 and 150106-C04 are the same accessory ,

4. Test Results

4.1 Summary of Test Results

No	Test cases	Sample	Verdict
1	Maximum transmit power	M03	Pass
2	20dB Bandwidth	M03	Pass
3	Band Edge Compliance	M03	Pass
4	Carrier Frequency Separation	M03	Pass
5	Time Of Occupancy (Dwell Time)	M03	Pass
6	Number Of Channel Hoppings	M03	Pass
7	Conducted Spurious Emissions	M03	Pass
8	AC Conducted Emission	M04	Pass
9	Radiated Spurious Emissions	M04	Pass
10	Antenna Requirements	M03	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/manufacture 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



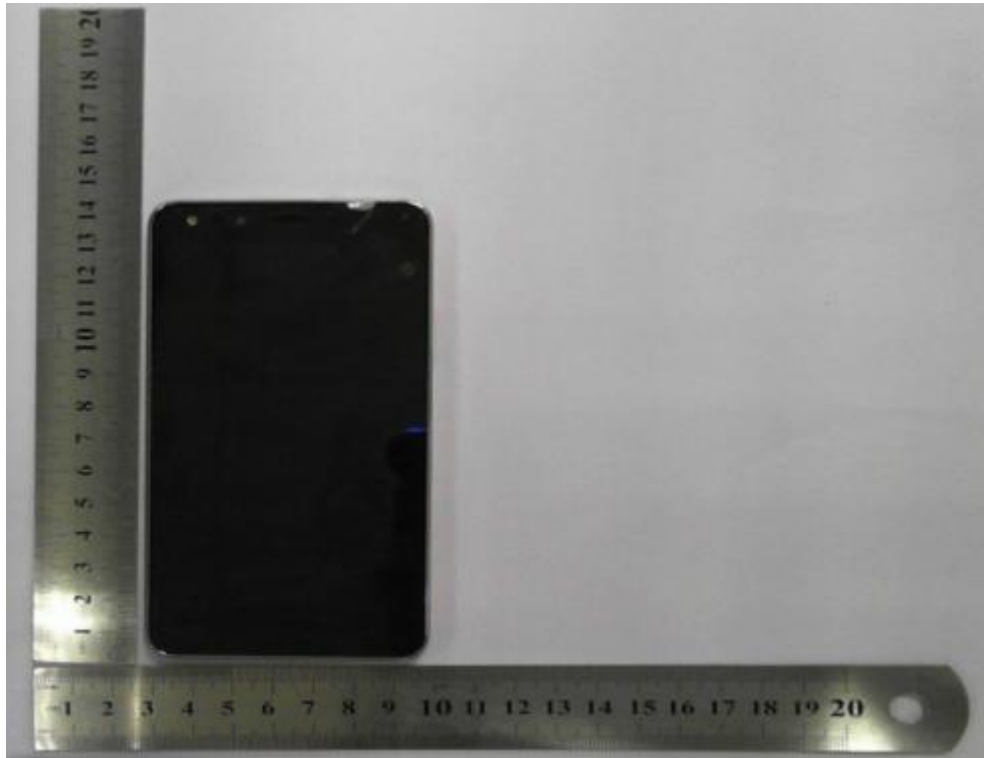
EUT Left View



EUT Right View



EUT Top View



EUT Rear View



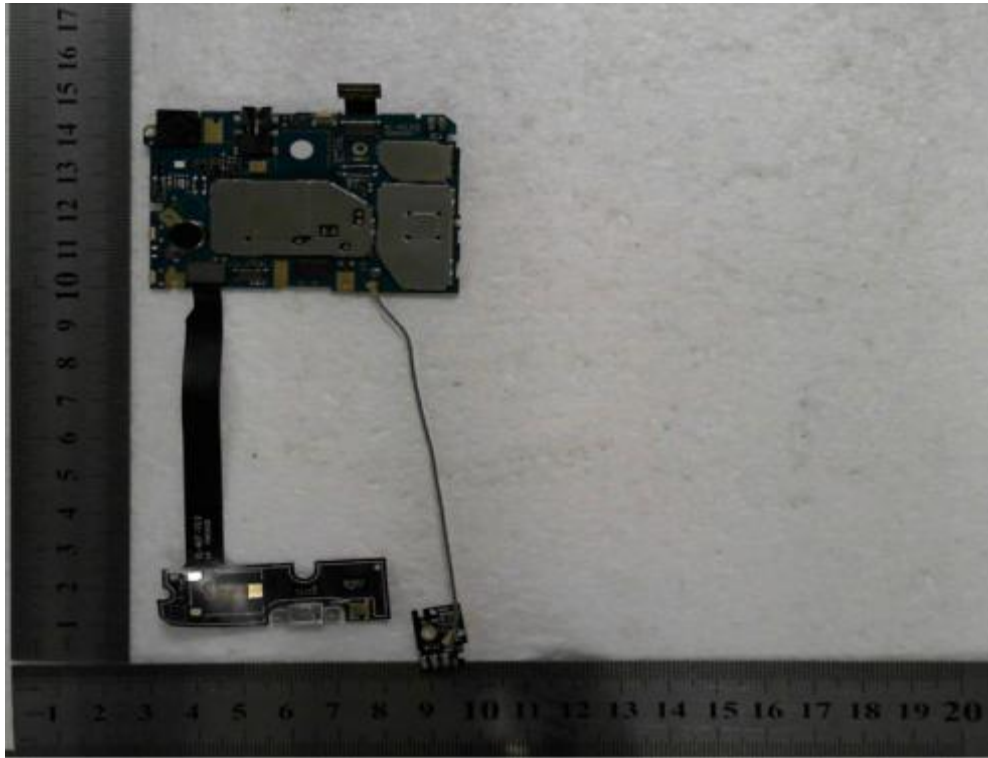
All



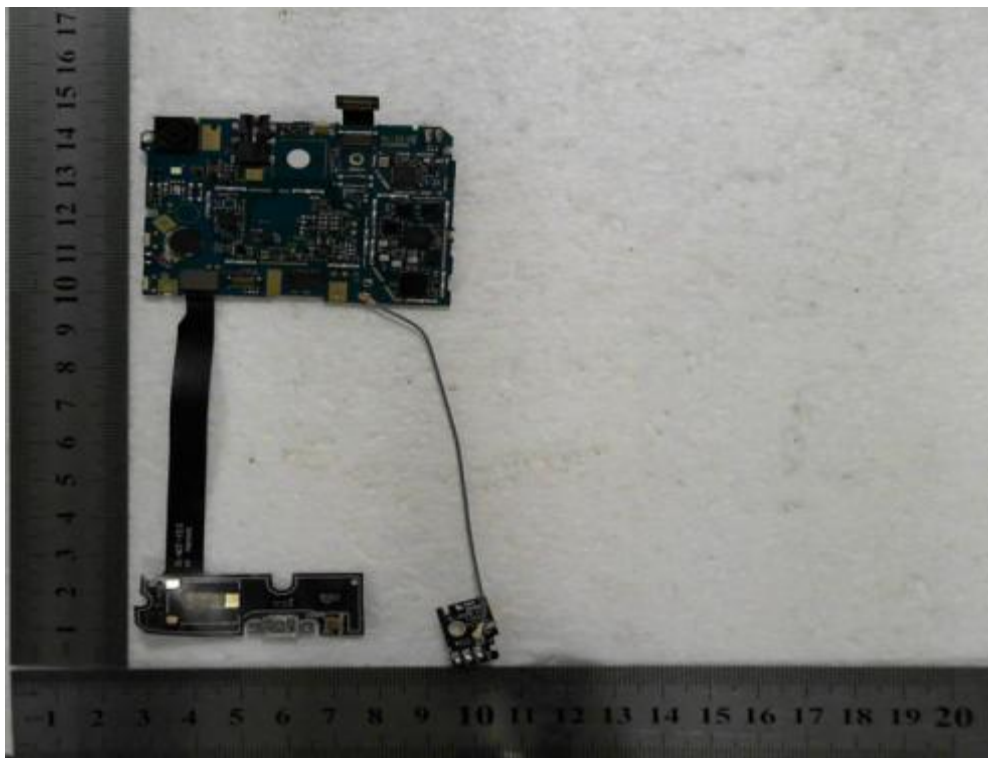
cover off



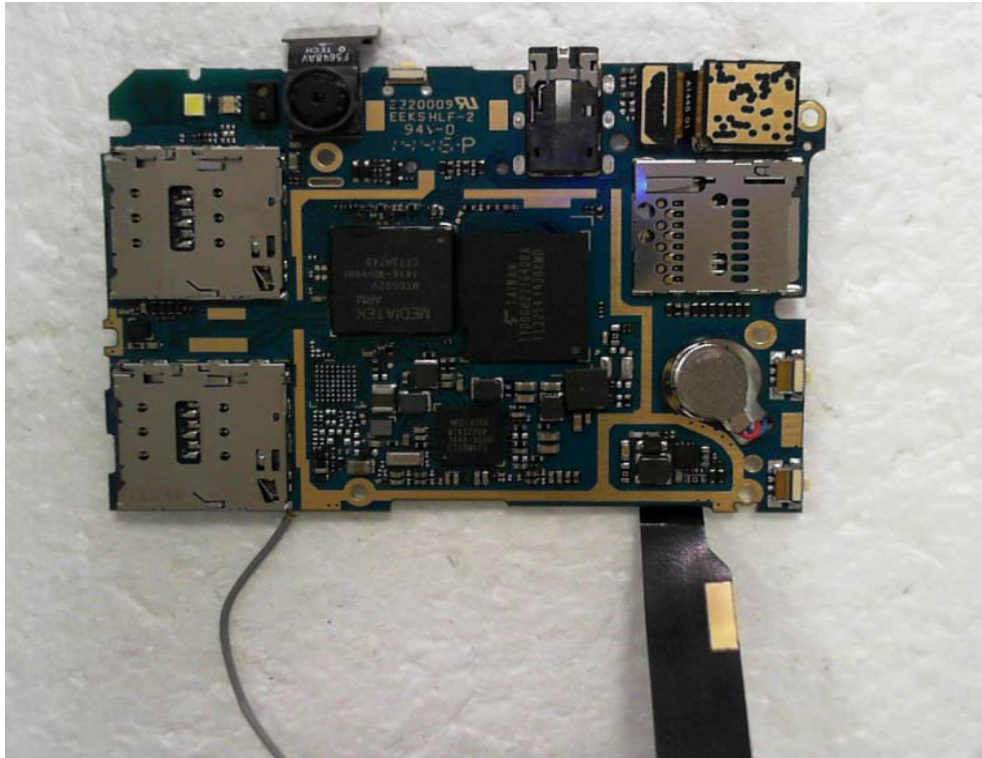
Mainboard With shielding Front View



Mainboard Without shielding Front View



Mainboard Rear



Battery



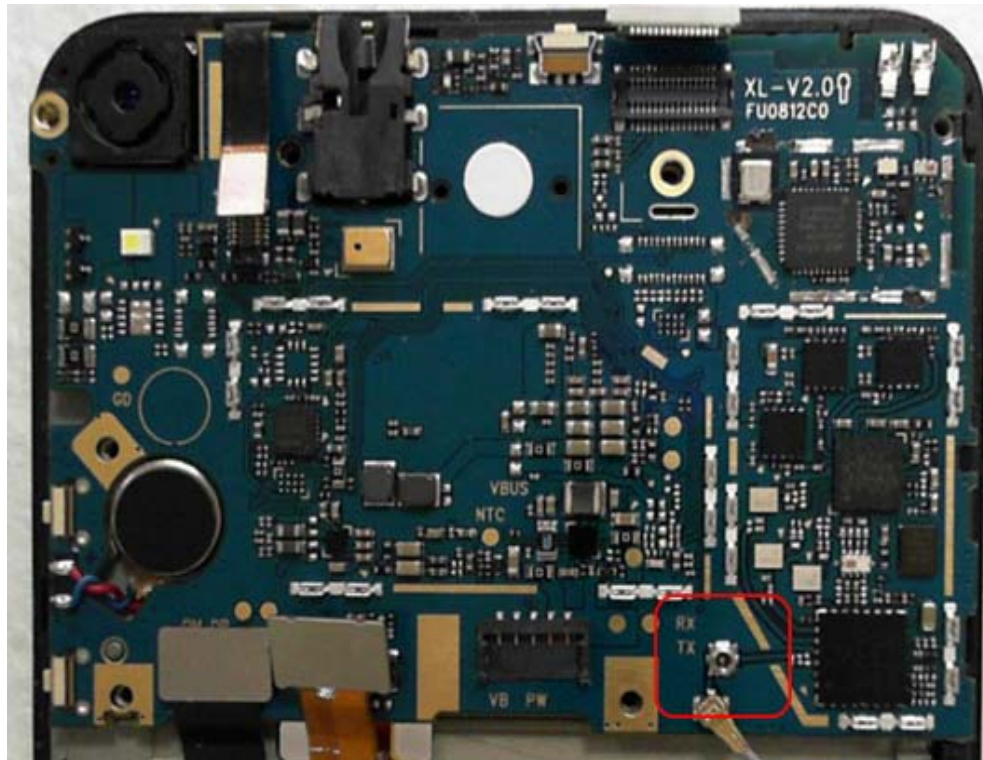
USB Cable



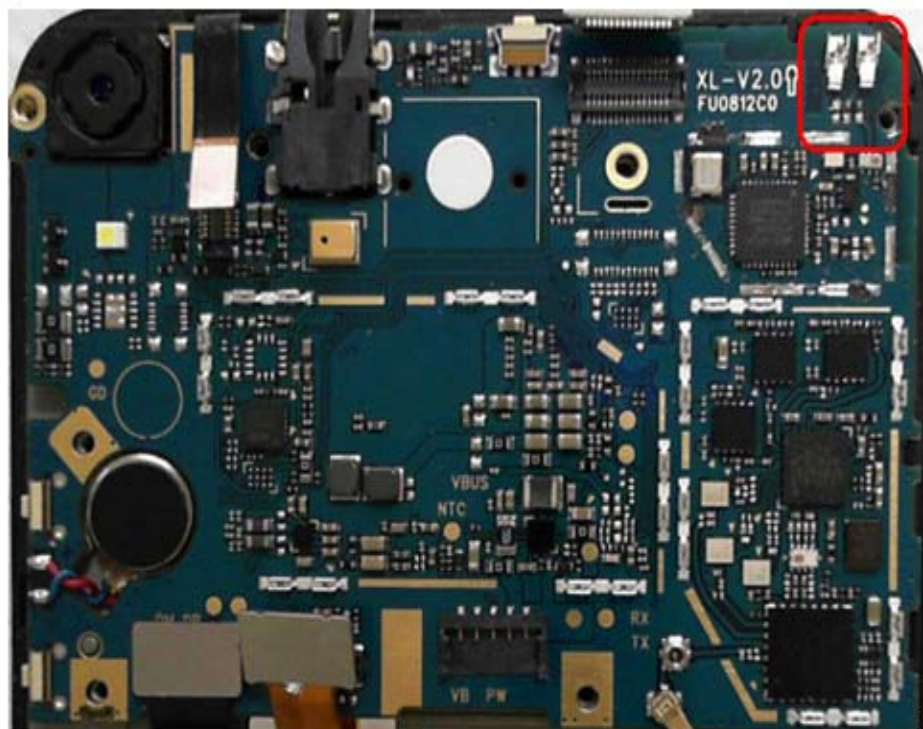
Headset



GSM/DCS/UMTS Antenna View



BT/WIFI Antenna View

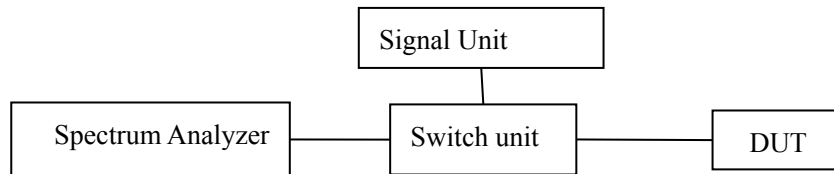


Adapter



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 30dBm.

B.1.2 Test Results

Date rate (Mbps)	Limit EIRP(dBm)	Maximum peak output power(dBm)			Verdict
		2402MHz	2441MHz	2480MHz	
1	30	3.216	4.126	4.32	Pass
2		2.839	3.753	3.981	Pass
3		3.286	4.198	4.396	Pass

B.2 20dB Bandwidth

B.2.1 Description

According to §15.247(a)(1)(iii), the 20dB Bandwidth shall be equal to or more than 0.5MHz

B.2.2 Test Results

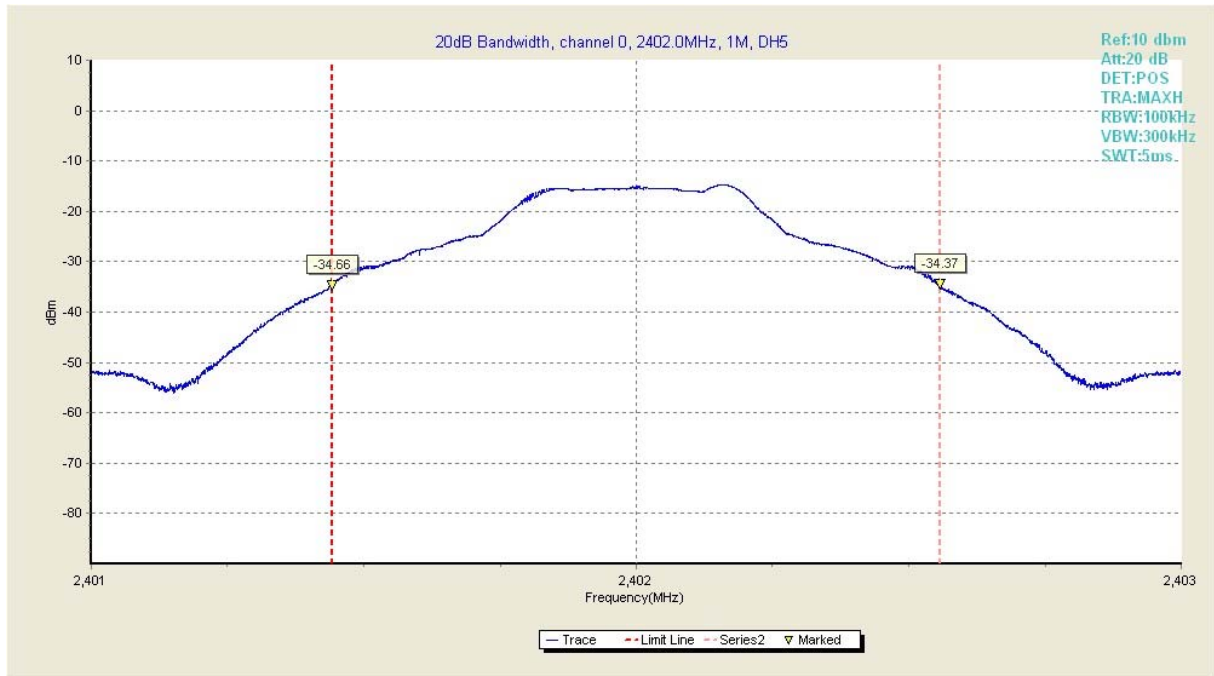
Test equipment parameter:

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

GFSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (MHz)	Test Result(MHz)		Verdict
1	2402	>0.5	1.115	Fig.1	Pass

	2441		1.118	Fig.2	Pass
	2480		1.112	Fig.3	Pass



Test plot 1	2401.441 MHz	-34.660 dBm
Test plot 2	2402.557 MHz	-34.369 dBm

Fig1. 20dB Bandwidth in 2402MHz,1Mbps



Test plot 1	2440.441 MHz	-33.410 dBm
Test plot 2	2441.560 MHz	-33.470 dBm

Fig2. 20 dB Bandwidth in 2441MHz,1Mbps

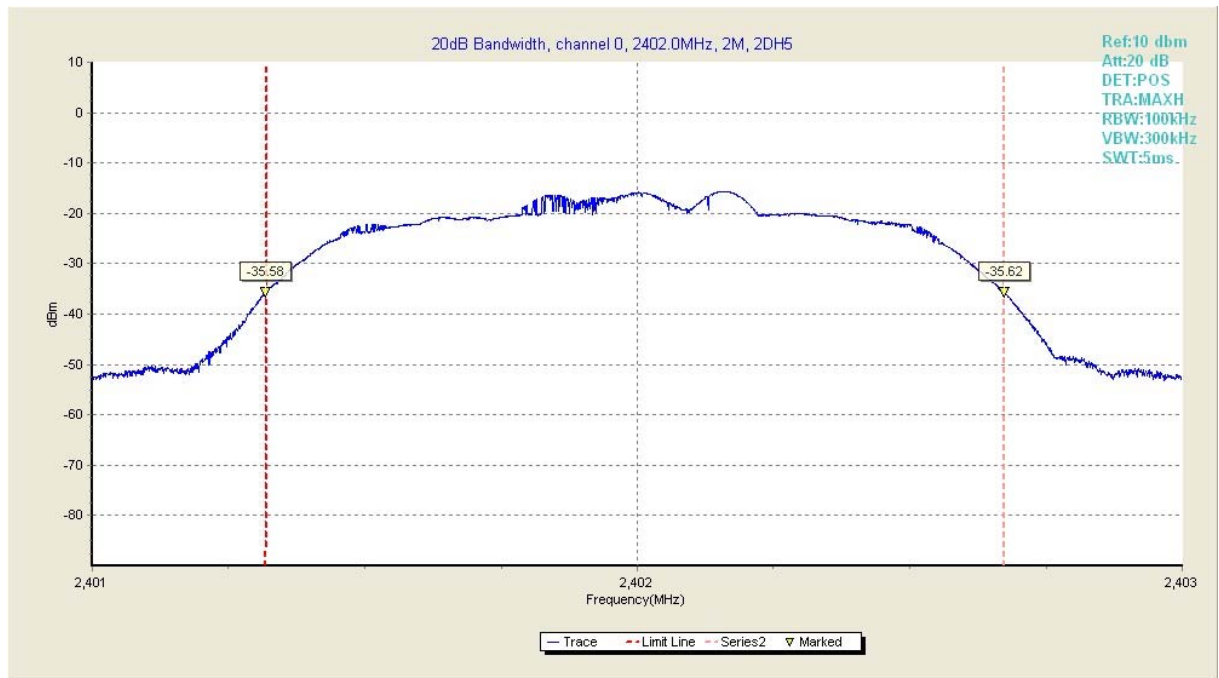


Test plot 1	2479.440 MHz	-33.340 dBm
Test plot 2	2480.552 MHz	-33.380 dBm

Fig3. 20 dB Bandwidth in 2480MHz,1Mbps

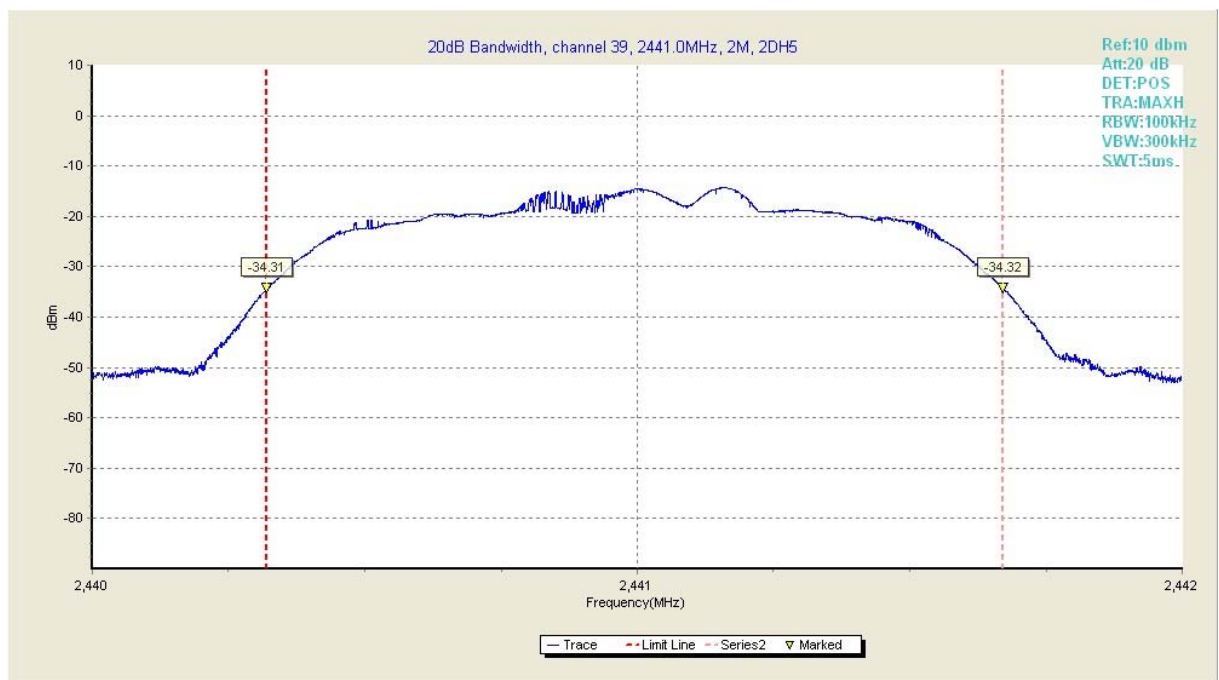
$\pi/4$ -DQPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (MHz)	Test Result(MHz)		Verdict
2	2402	>0.5	1.355	Fig.4	Pass
	2441		1.352	Fig.5	Pass
	2480		1.348	Fig.6	Pass



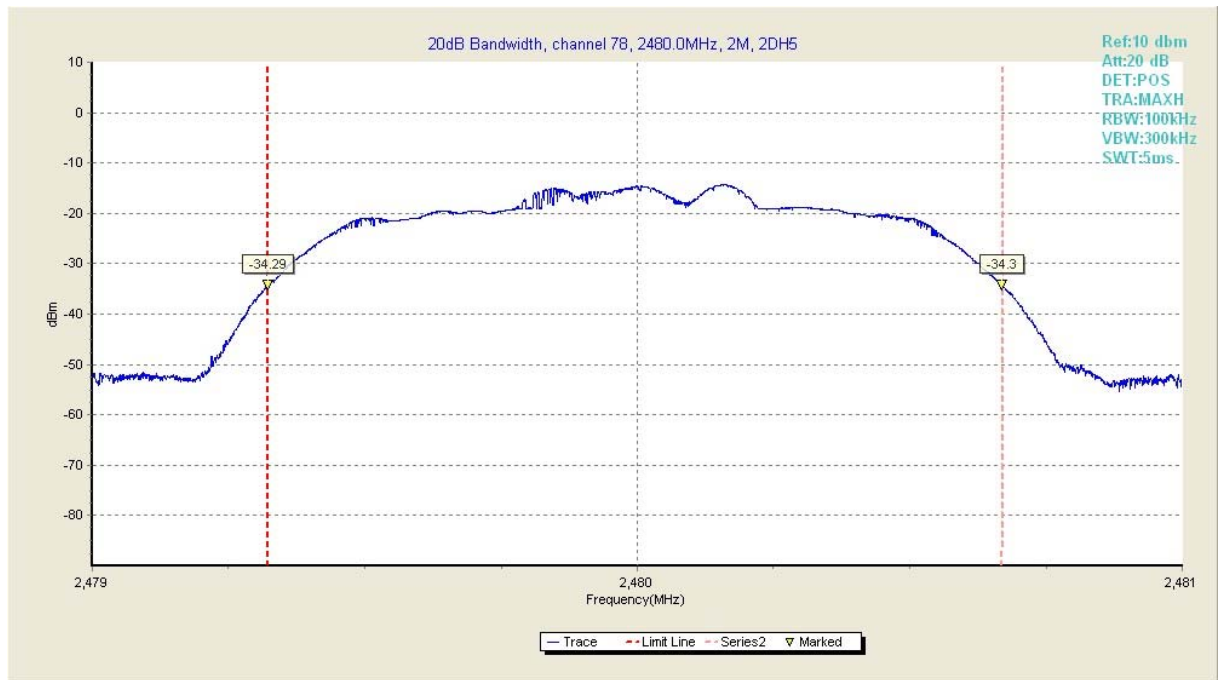
Test plot 1	2401.318 MHz	-35.580 dBm
Test plot 2	2402.673 MHz	-35.619 dBm

Fig4. 20dB Bandwidth in 2402MHz,2Mbps



Test plot 1	2440.319 MHz	-34.310 dBm
Test plot 2	2441.671 MHz	-34.320 dBm

Fig5. 20 dB Bandwidth in 2441MHz,2Mbps

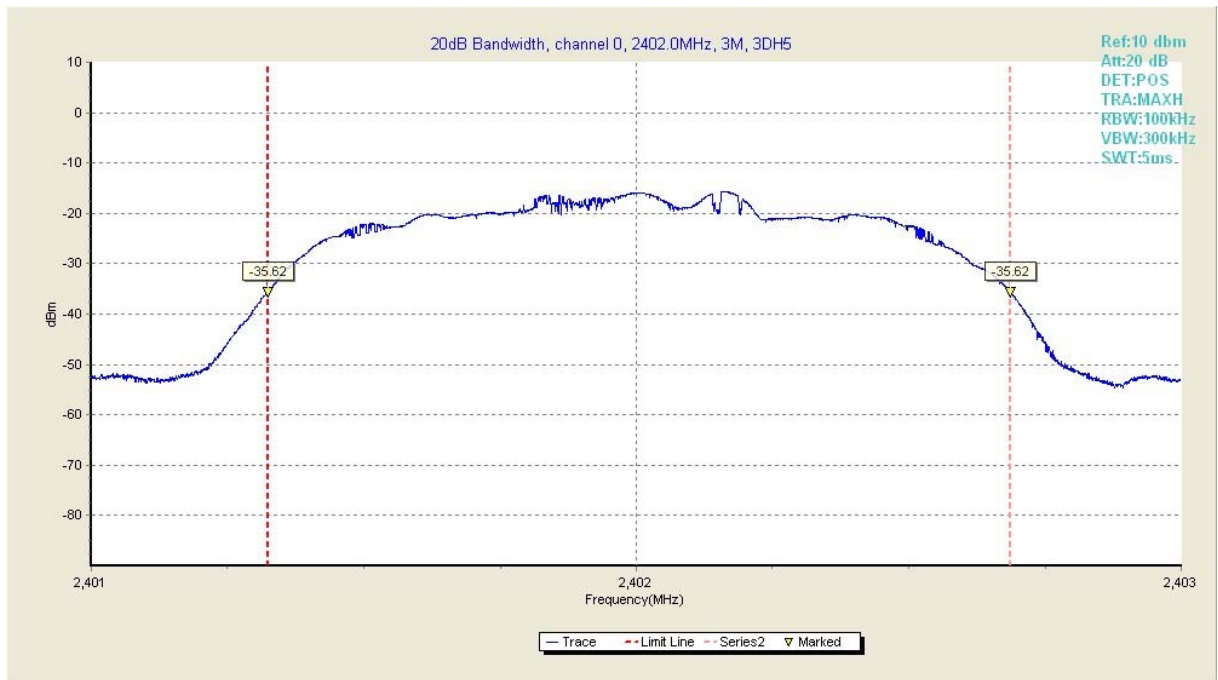


Test plot 1	2479.321 MHz	-34.290 dBm
Test plot 2	2480.669 MHz	-34.299 dBm

Fig6. 20 dB Bandwidth in 2480MHz,2Mbps

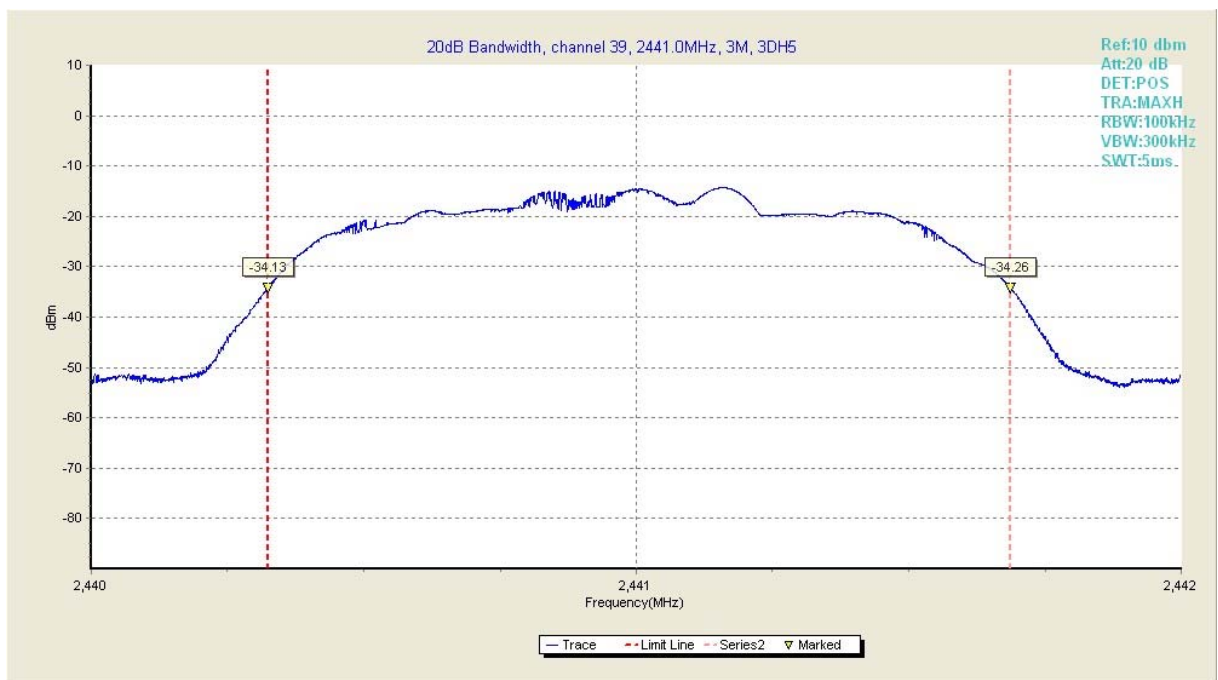
8DPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (MHz)	Test Result(MHz)		Verdict
3	2402	>0.5	1.362	Fig.7	Pass
	2441		1.362	Fig.8	Pass
	2480		1.360	Fig.9	Pass



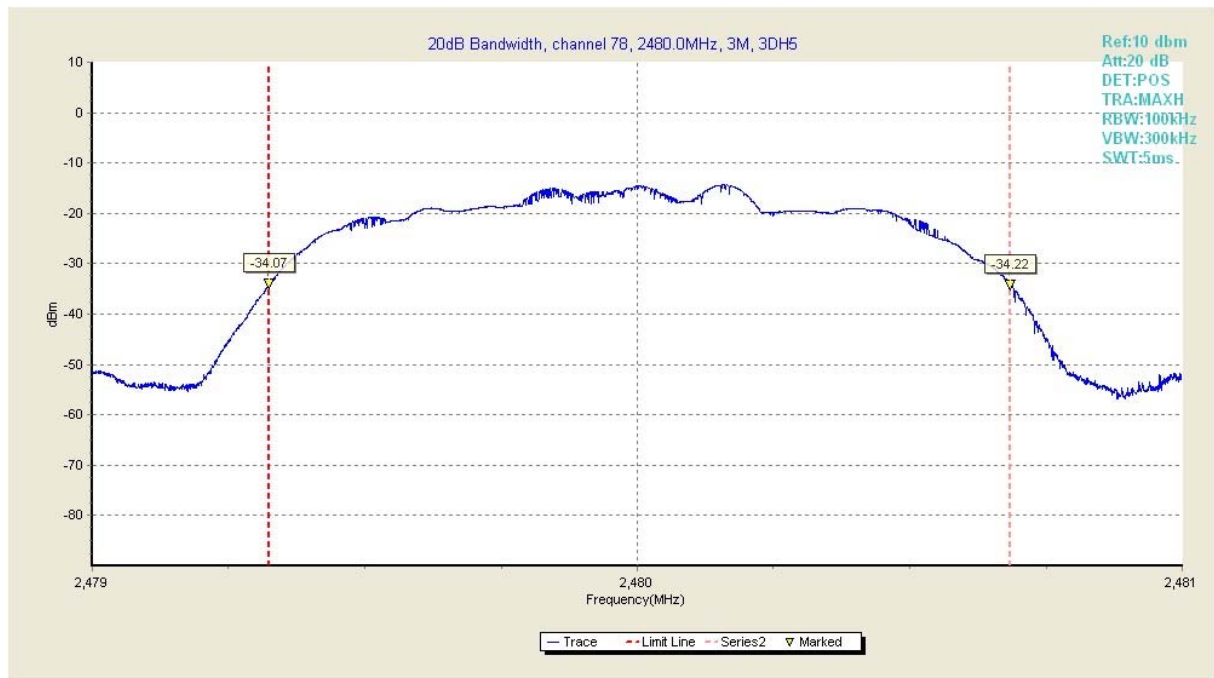
Test plot 1	2401.323 MHz	-35.619 dBm
Test plot 2	2402.686 MHz	-35.619 dBm

Fig7. 20dB Bandwidth in 2402MHz,3Mbps



Test plot 1	2440.323 MHz	-34.130 dBm
Test plot 2	2441.686 MHz	-34.259 dBm

Fig8. 20 dB Bandwidth in 2441MHz,3Mbps



Test plot 1	2479.324 MHz	-34.070 dBm
Test plot 2	2480.685MHz	-34.220 dBm

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 dBc.

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(MHz)		Verdict
1	2400	≤-20	-57.080	Fig.10	Pass
	2483.5		-58.059	Fig.11	Pass

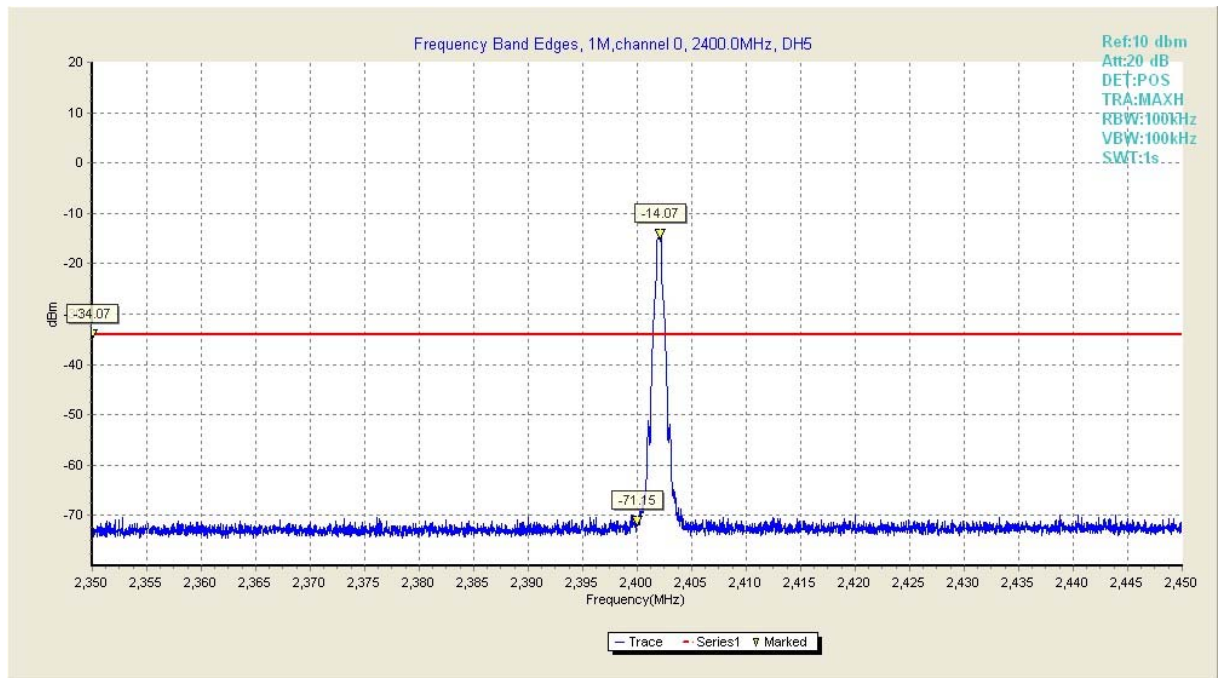


Fig10. Frequency Band Edges in 2400MHz, 1Mbps

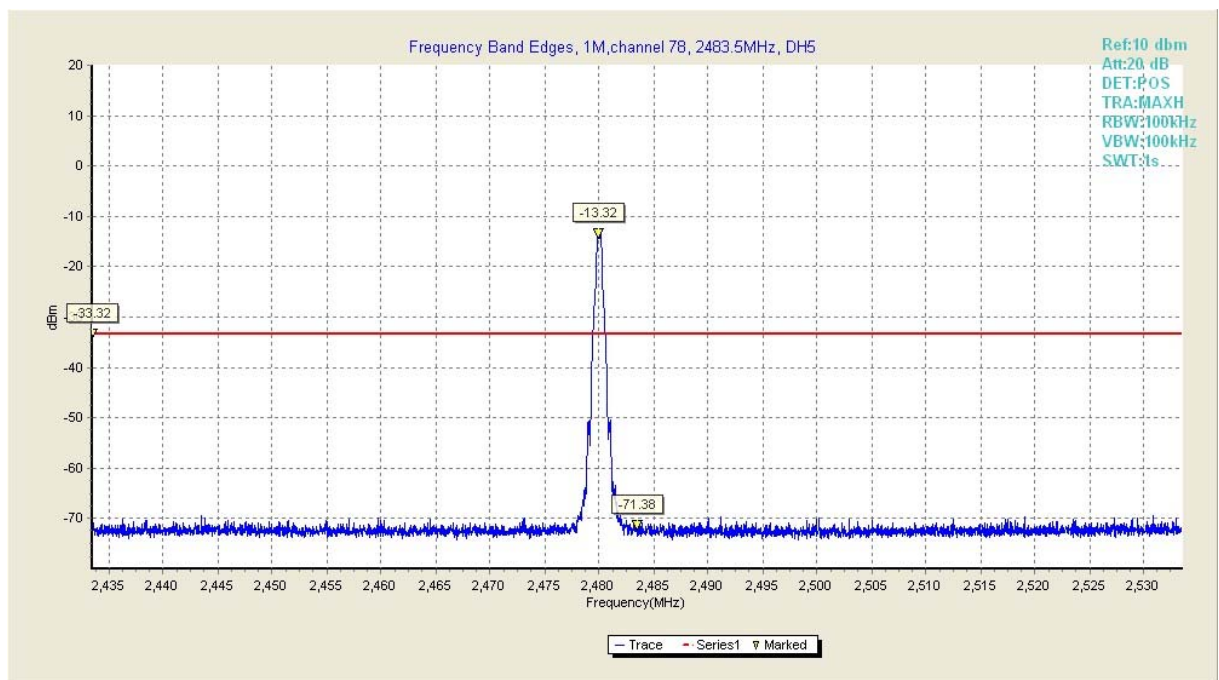


Fig11. Frequency Band Edges in 2483.5MHz, 1Mbps

$\pi/4$ -DQPSK Modulation

Date rate (Mbps)	Frequency (MHz)	Limit (dB)	Test Result (MHz)		Verdict
2	2400	≤ -20	-55.190	Fig.12	Pass
	2483.5		-58.160	Fig.13	Pass

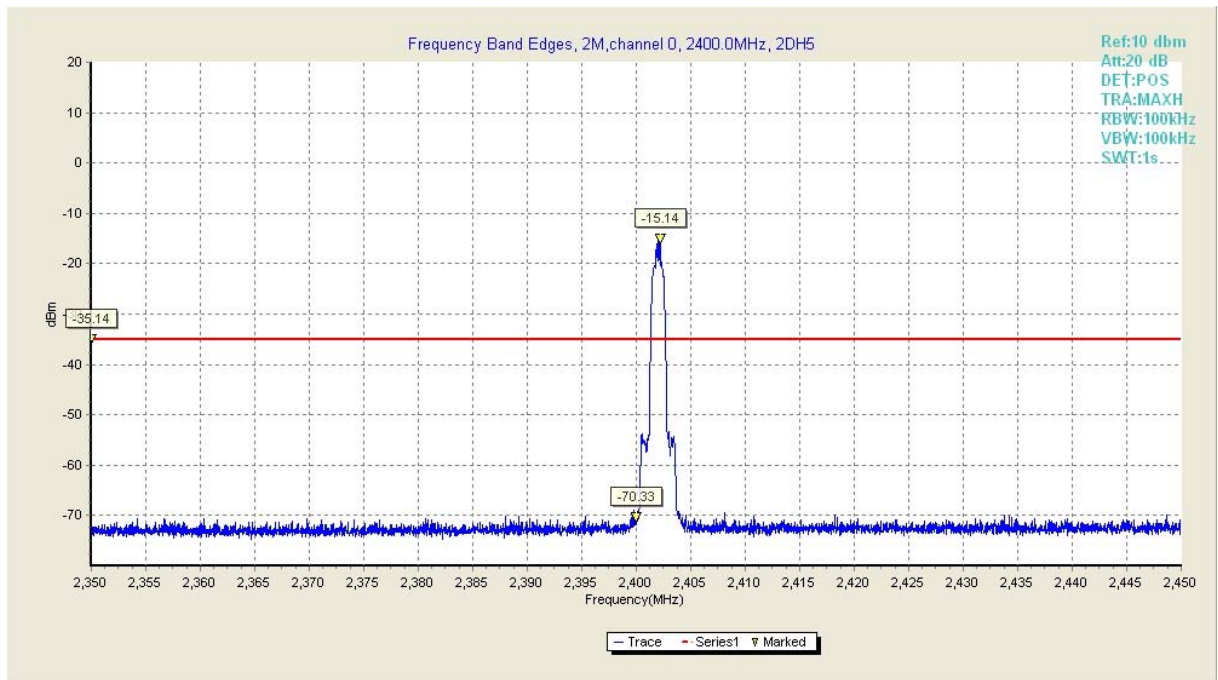


Fig12. Frequency Band Edges in 2400MHz,2Mbps

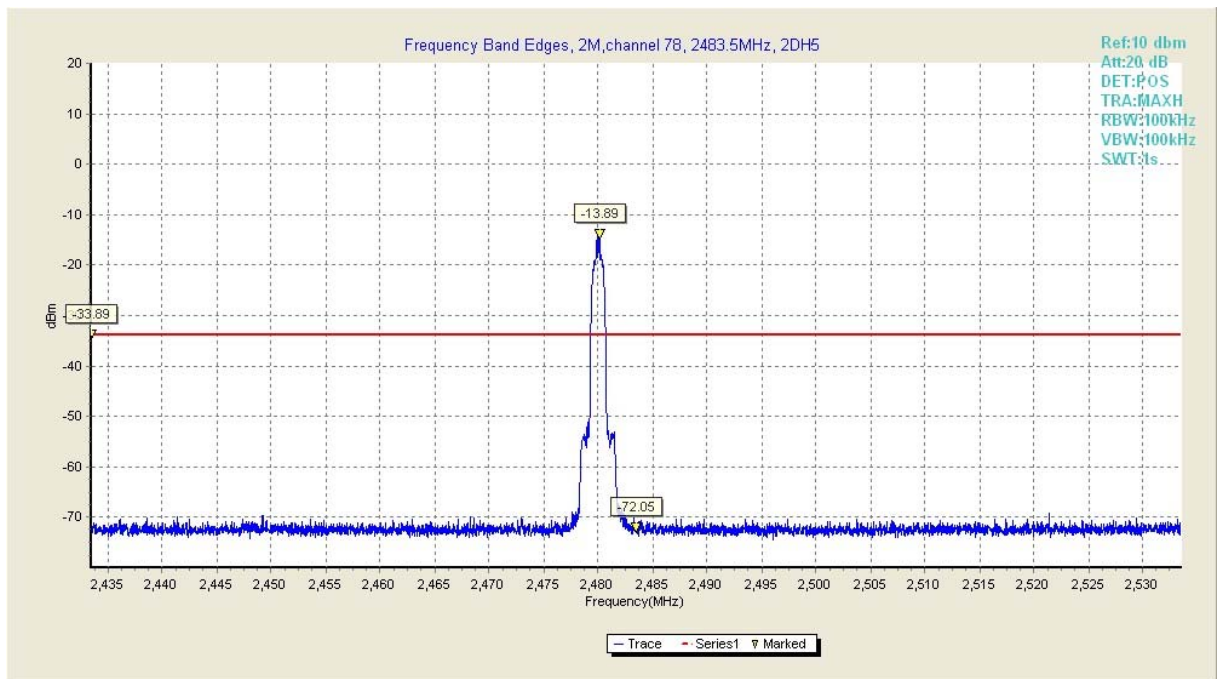


Fig13. Frequency Band Edges in 2483.5MHz,2Mbps

8DPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (dB)	Test Result(MHz)		Verdict
3	2400	≤ -20	-56.000	Fig.14	Pass

	2483.5		-58.940	Fig.15	Pass
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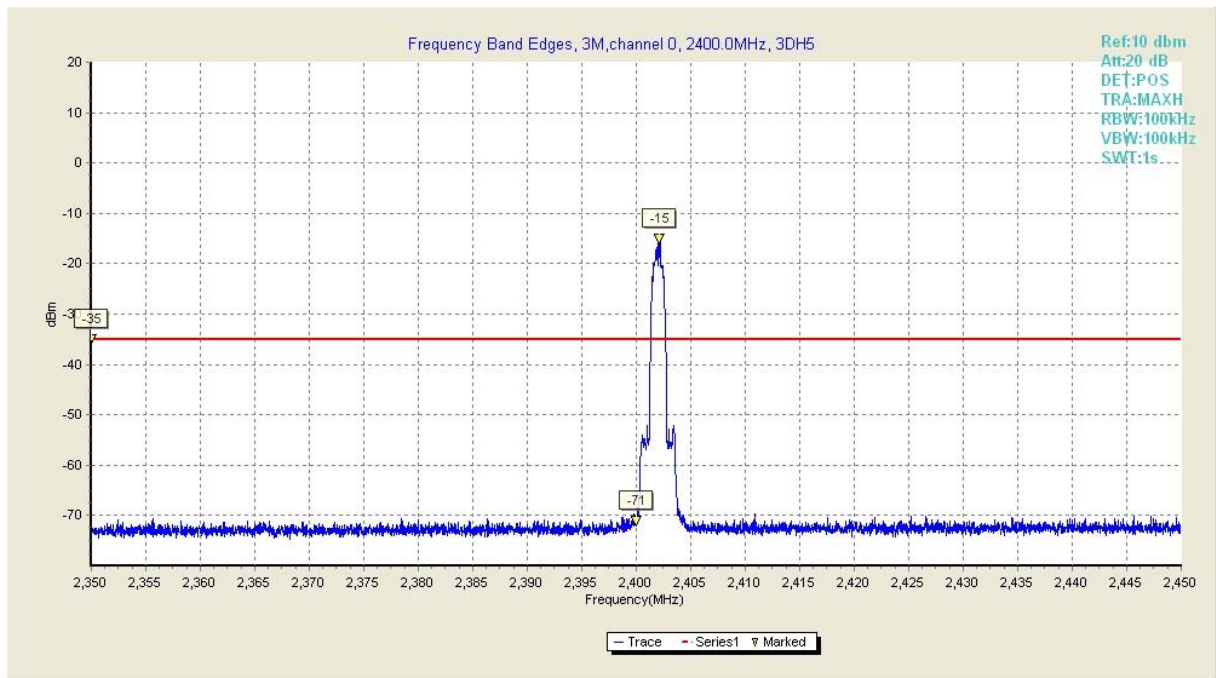


Fig14. Frequency Band Edges in 2400MHz,3Mbps

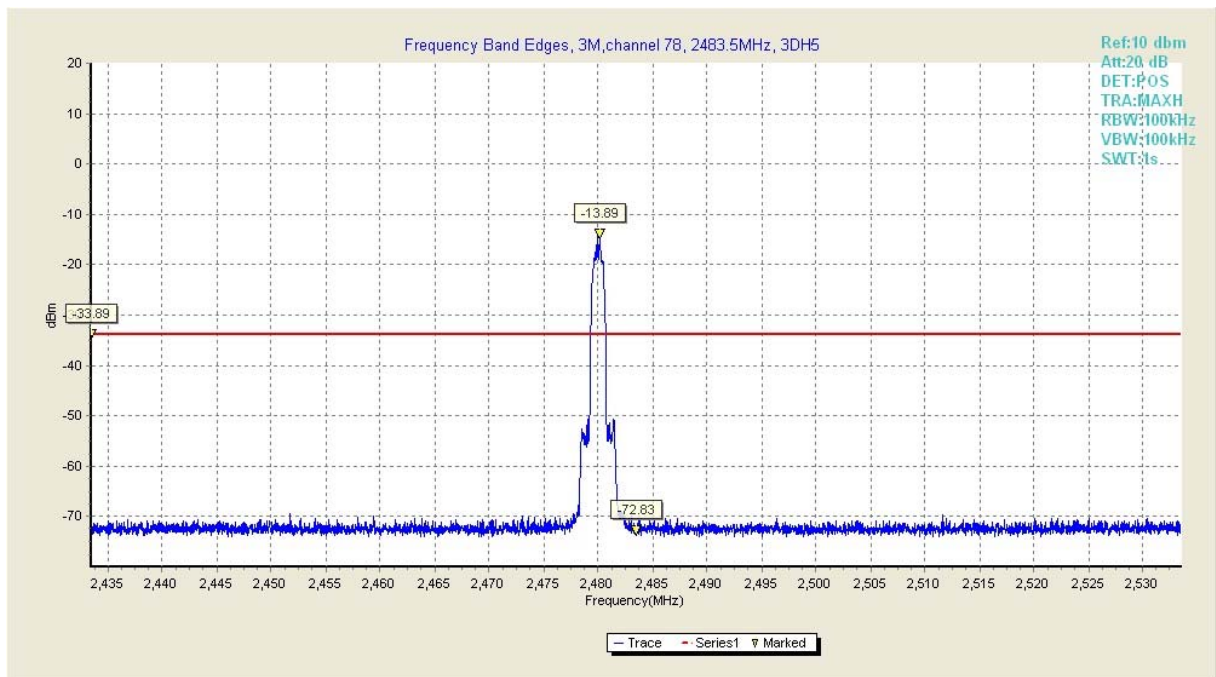


Fig15. Frequency Band Edges in 2483.5MHz,3Mbps

B.4 Carrier Frequency Separation

B.4.1 Description

According to §15.247(a)(1),

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier

frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

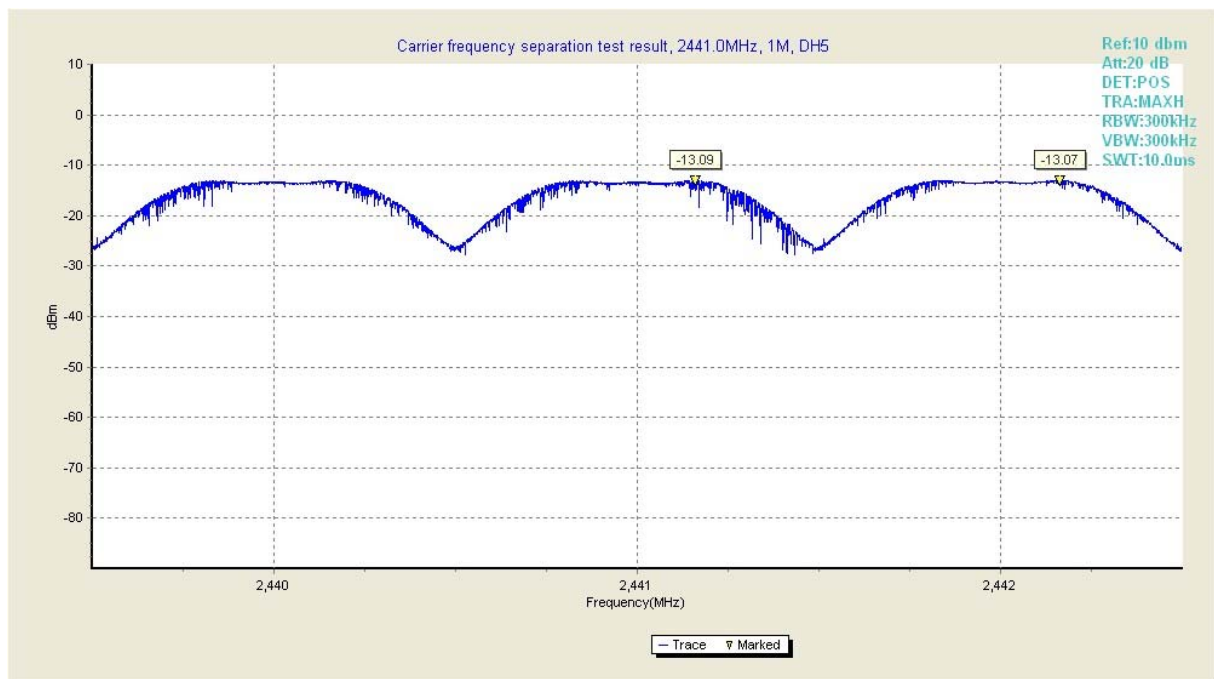
B.4.2 Test Results

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	>0.6933	1.004	Fig.16	Pass

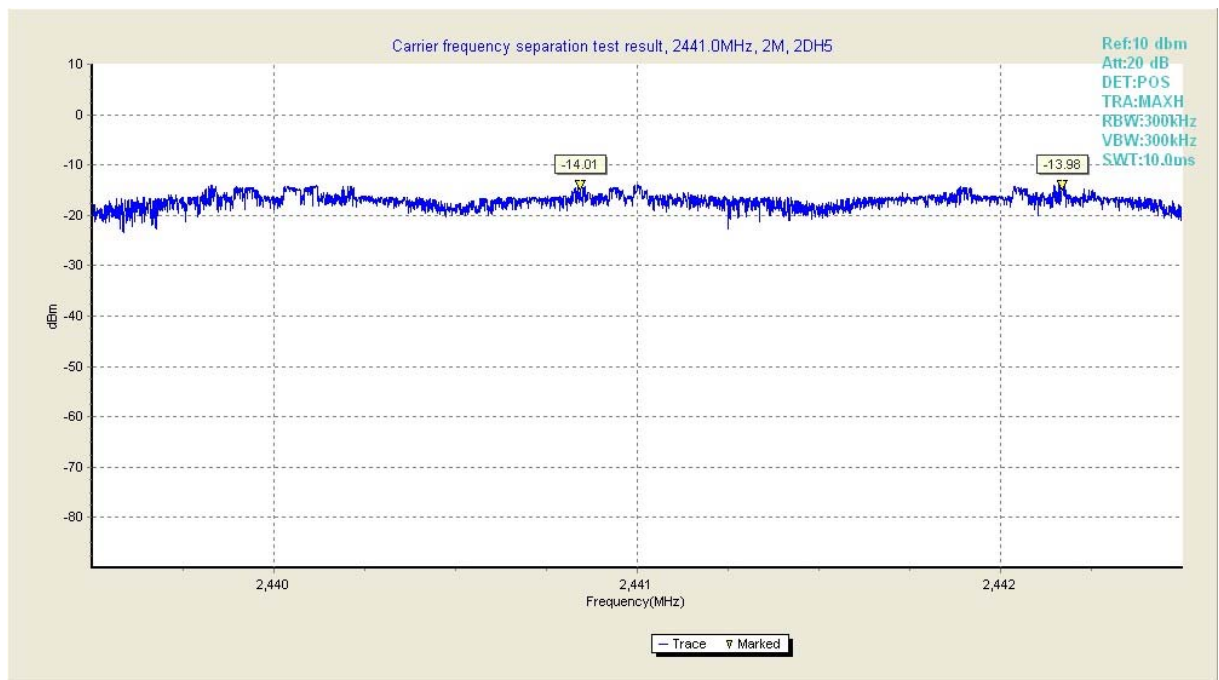


Test plot 1	2441.158 MHz	-13.090 dBm
Test plot 2	2442.163 MHz	-13.070 dBm

Fig16. Carrier Frequency Separation in 2441MHz,1Mbps

$\pi/4$ -DQPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (MHz)	Test Result(MHz)		Verdict
2	2441	>0.8487	1.3290	Fig.17	Pass

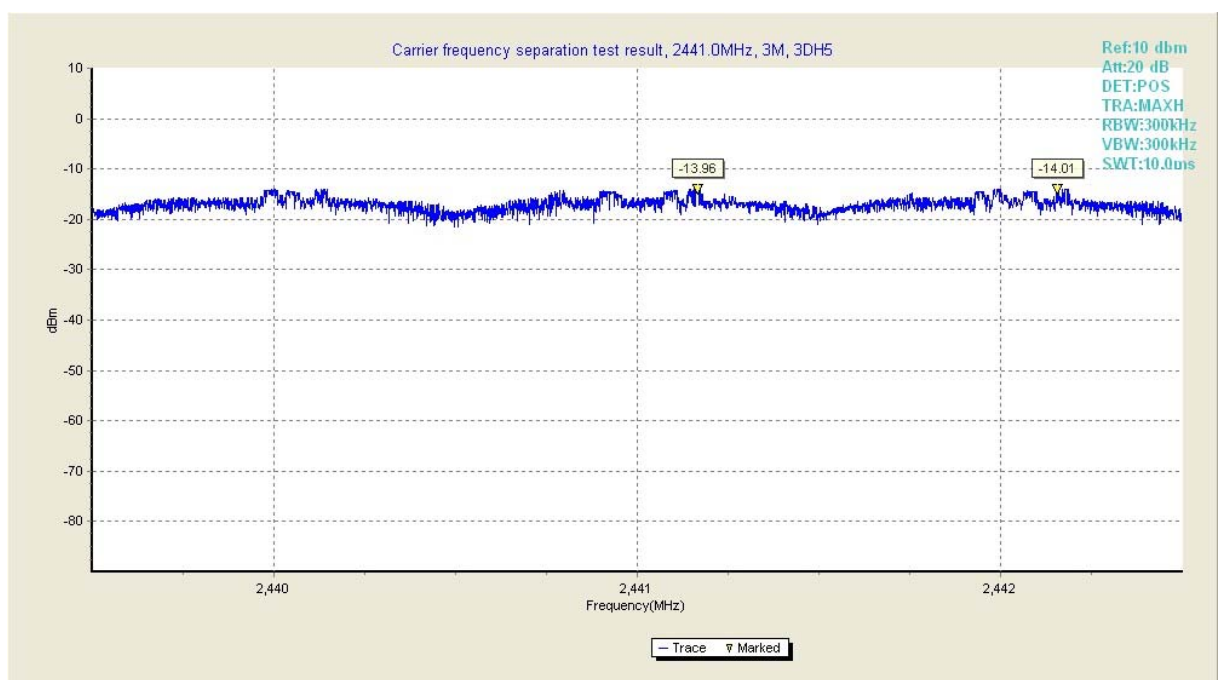


Test plot 1	2440.842 MHz	-14.010 dBm
Test plot 2	2442.171 MHz	-13.980 dBm

Fig17. Carrier Frequency Separation in 2441MHz,2Mbps

8DPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (MHz)	Test Result(MHz)		Verdict
3	2441	>0.8613	0.9915	Fig.18	Pass



Test plot 1	2441.165 MHz	-13.960 dBm
Test plot 2	2442.157 MHz	-14.010 dBm

Fig18. 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	309.00	Fig.19	Pass
	2441		308.95	Fig.20	Pass
	2480		309.00	Fig.21	Pass

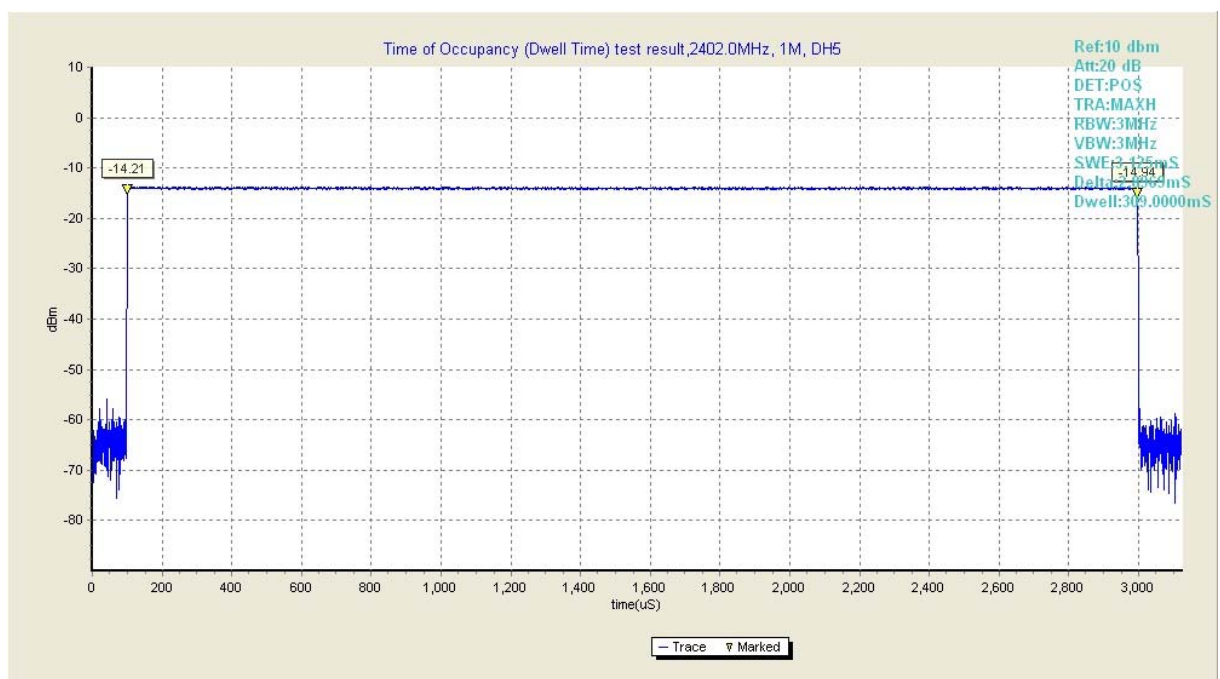


Fig19. Dwell Time in 2402MHz,1Mbps

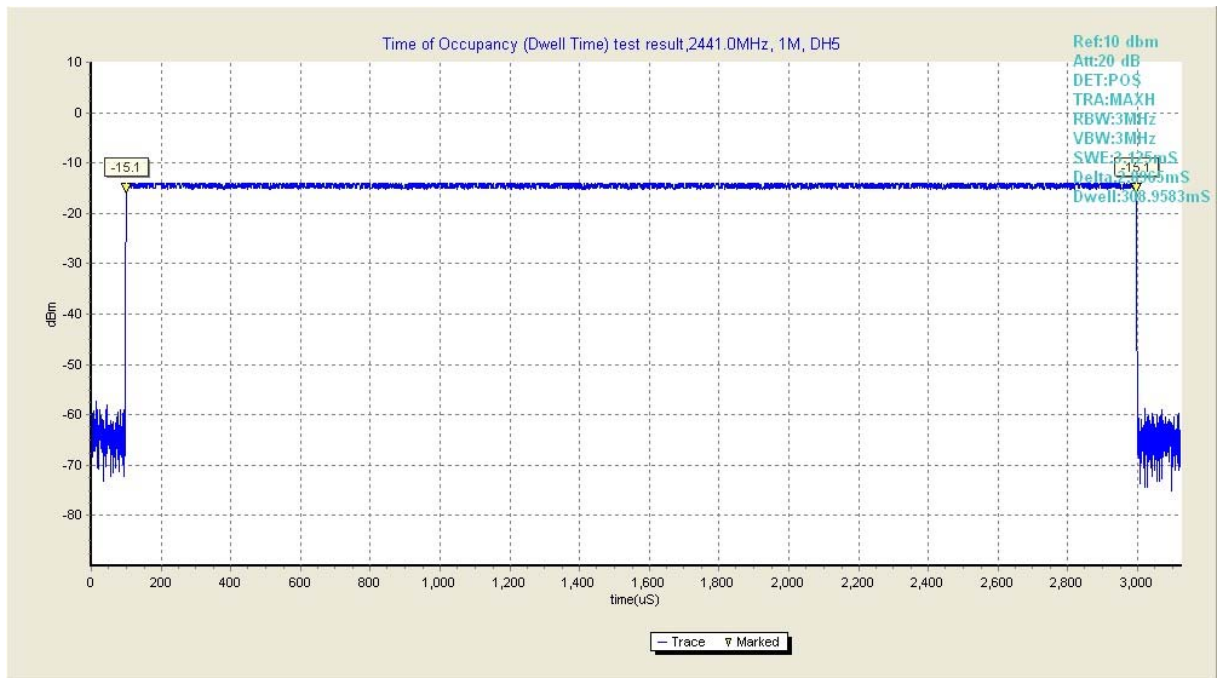


Fig20. Dwell Time in 2441MHz,1Mbps

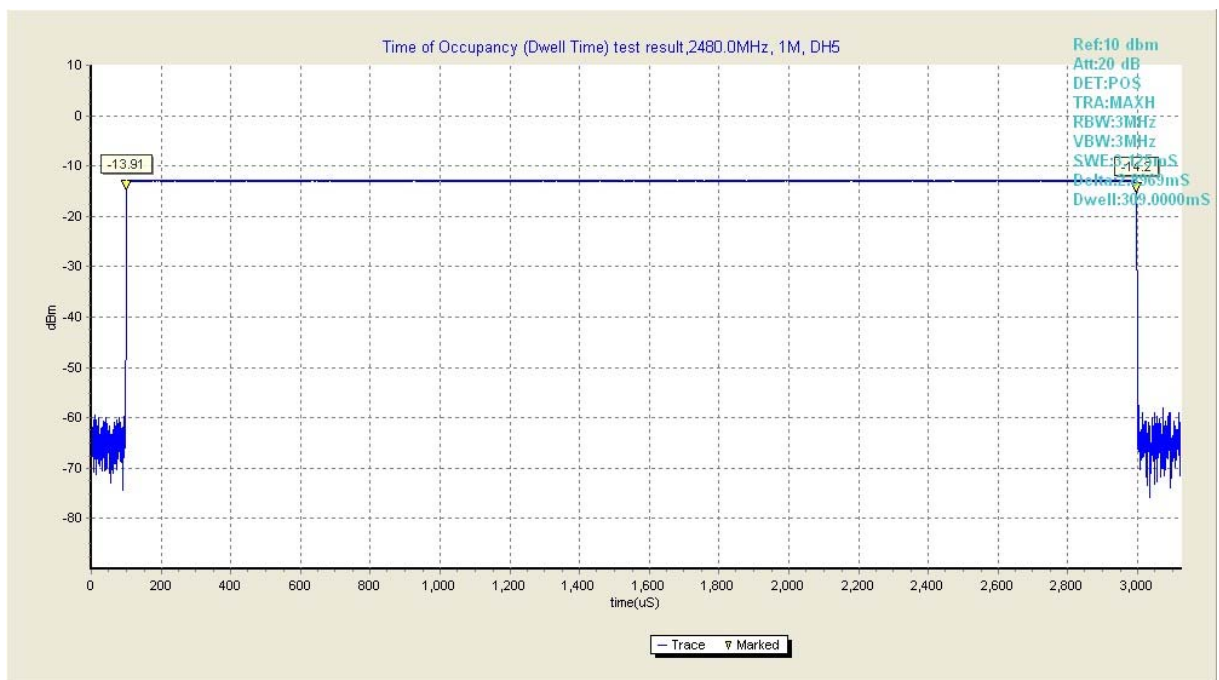


Fig19. Dwell Time in 2480MHz,1Mbps

$\pi/4$ -DQPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (ms)	Test Result(ms)		Verdict
2	2402	<400	309.21	Fig.22	Pass
	2441		309.29	Fig.23	Pass

	2480		309.29	Fig.24	Pass
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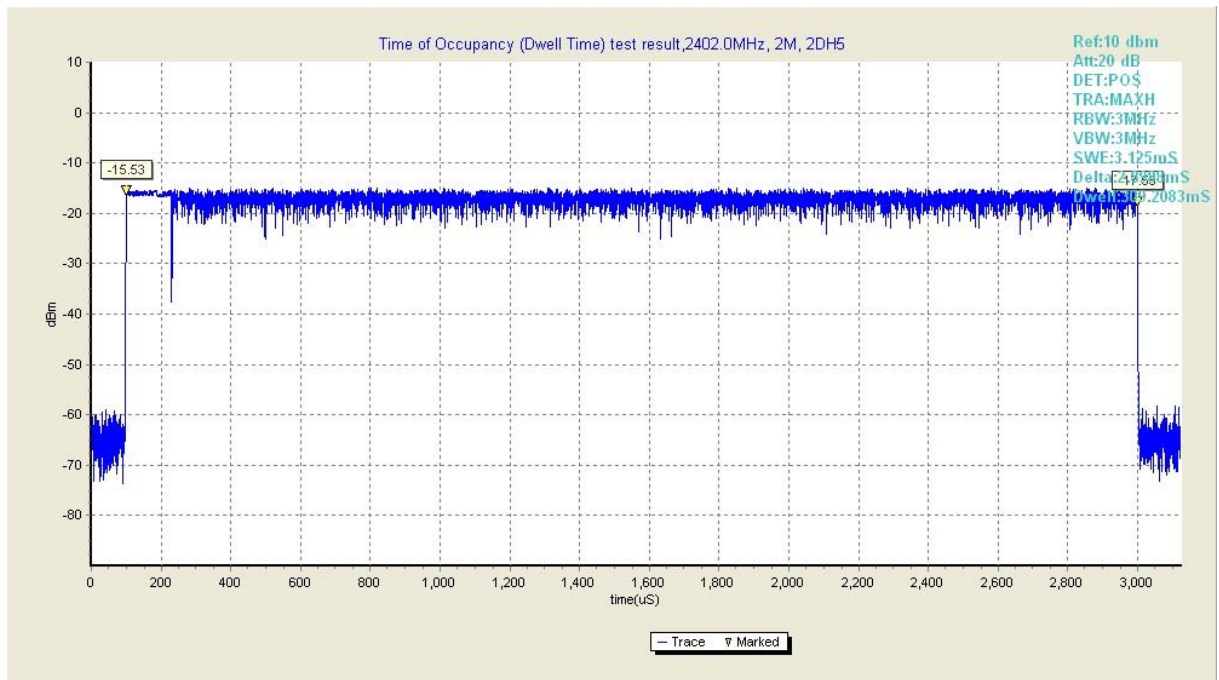


Fig22. Dwell Time in 2402MHz, 2Mbps

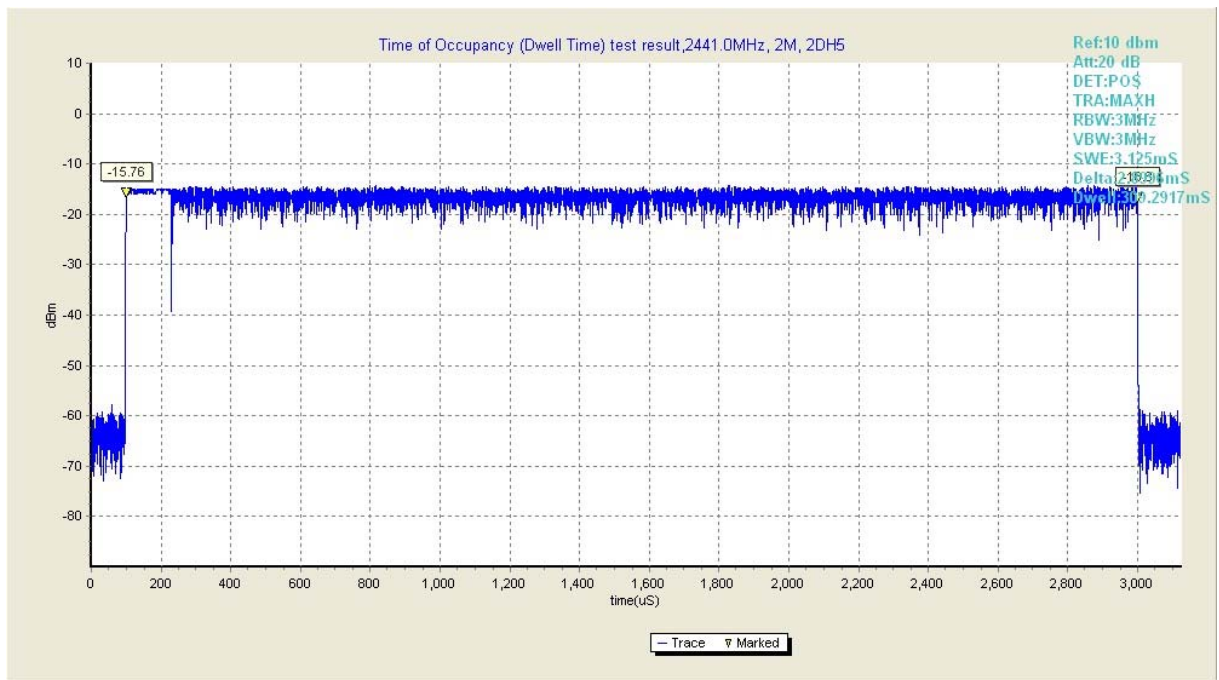


Fig23. Dwell Time in 2441MHz, 2Mbps

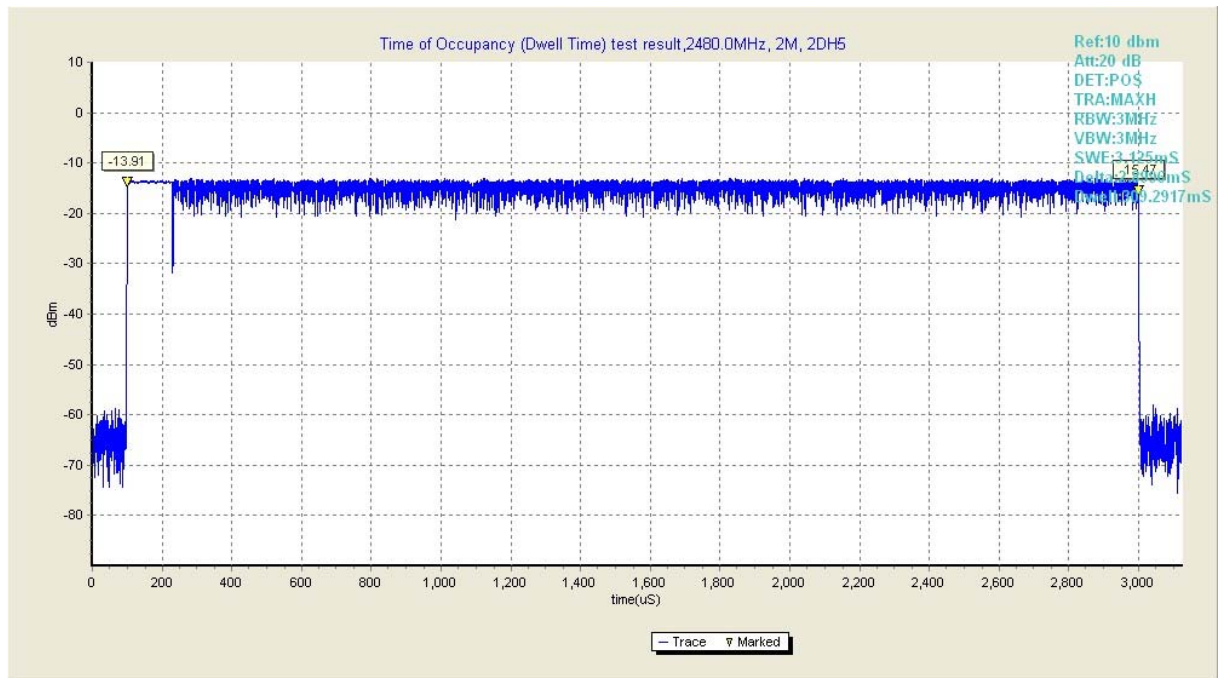


Fig24. Dwell Time in 2480MHz, 2Mbps

8DPSK Modulation

Date rate (Mbps)	Frequency(MHz)	Limit (ms)	Test Result(ms)		Verdict
3	2402	< 400	309.45	Fig.25	Pass
	2441		309.50	Fig.26	Pass
	2480		309.50	Fig.27	Pass

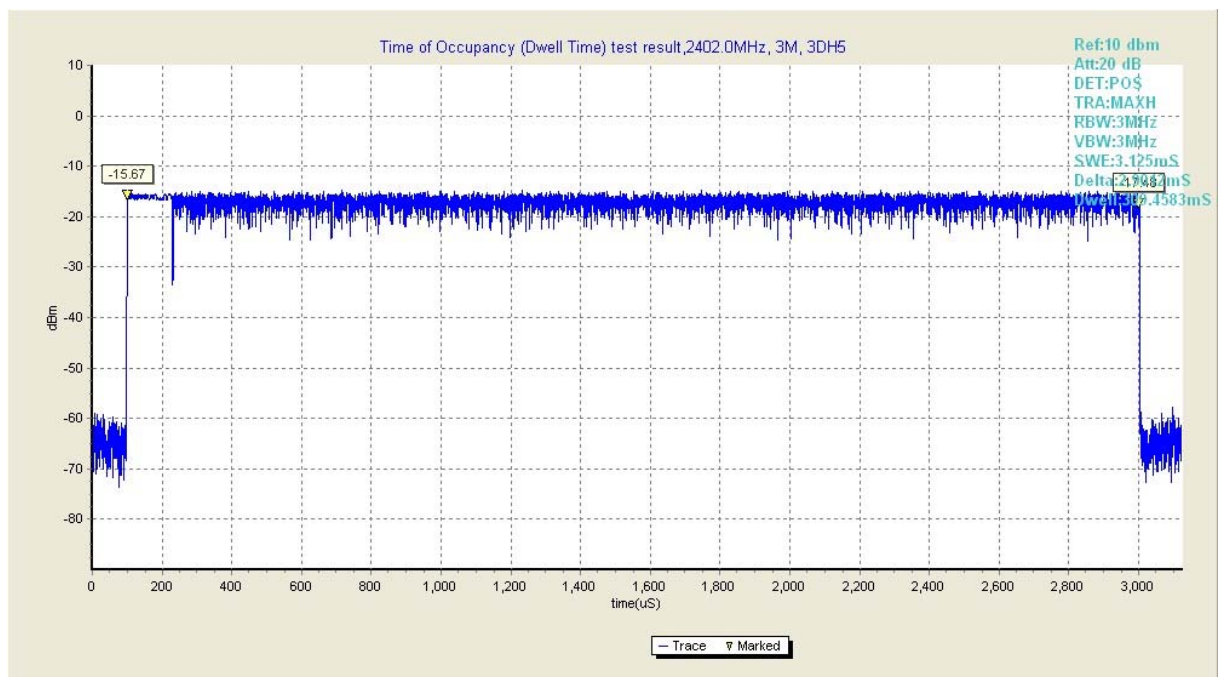
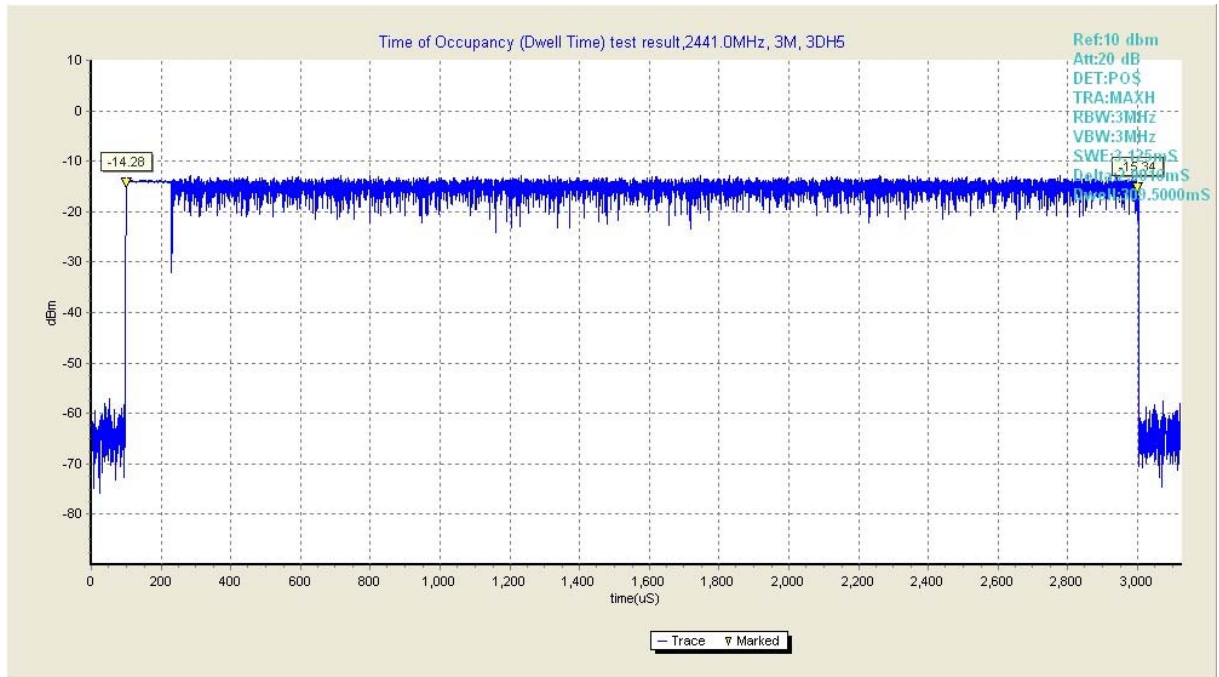
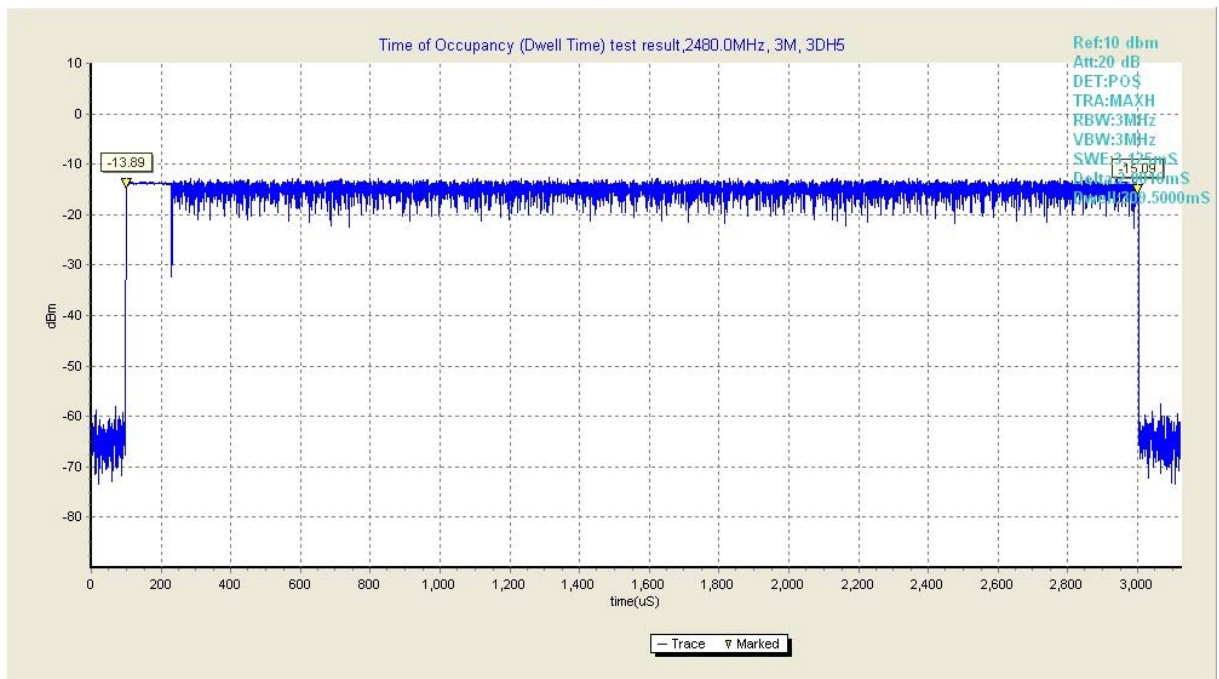


Fig25. Dwell Time in 2402MHz,3Mbps**Fig26. Dwell Time in 2441MHz,3Mbps****Fig27. Dwell Time in 2480MHz,3Mbps**

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.

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

GFSK Modulation

Hopping Channel Frequency Range(MHz)	Limits(Channel)	Number of hopping Channel	Test Results	Verdict
2401~2481	20	79	Fig.28 Fig.29	Pass

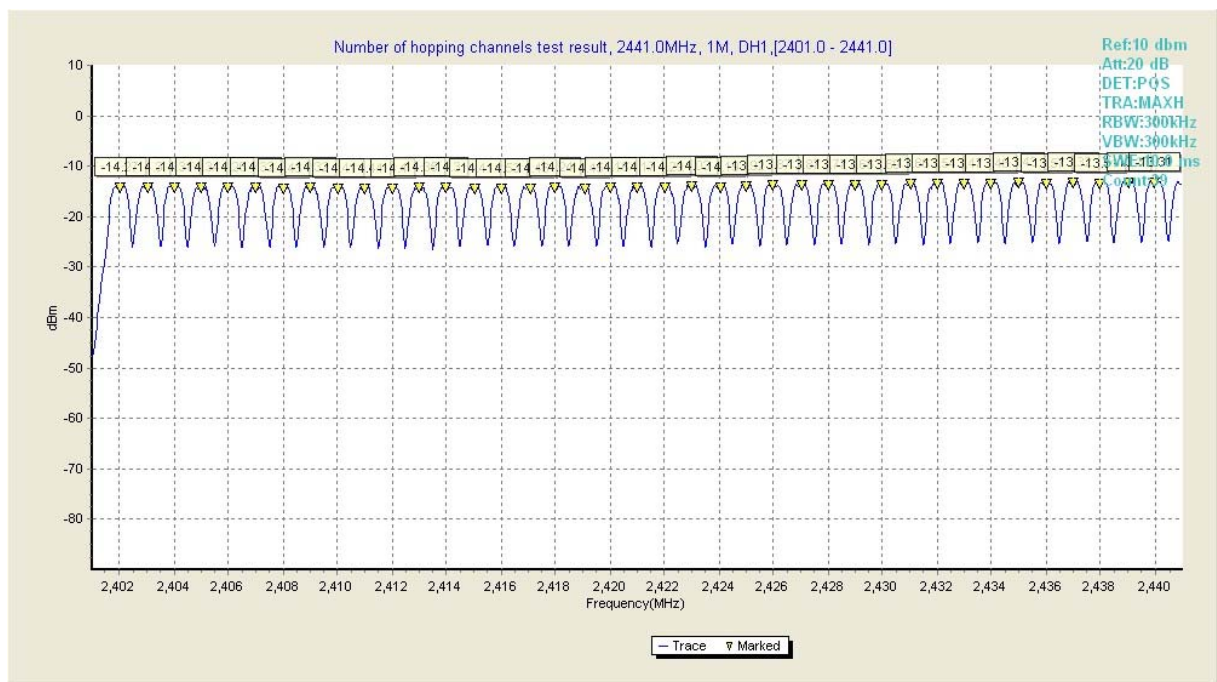


Fig28. Number of hopping channels in 2441MHz, 1Mbps,2401~2441MHz

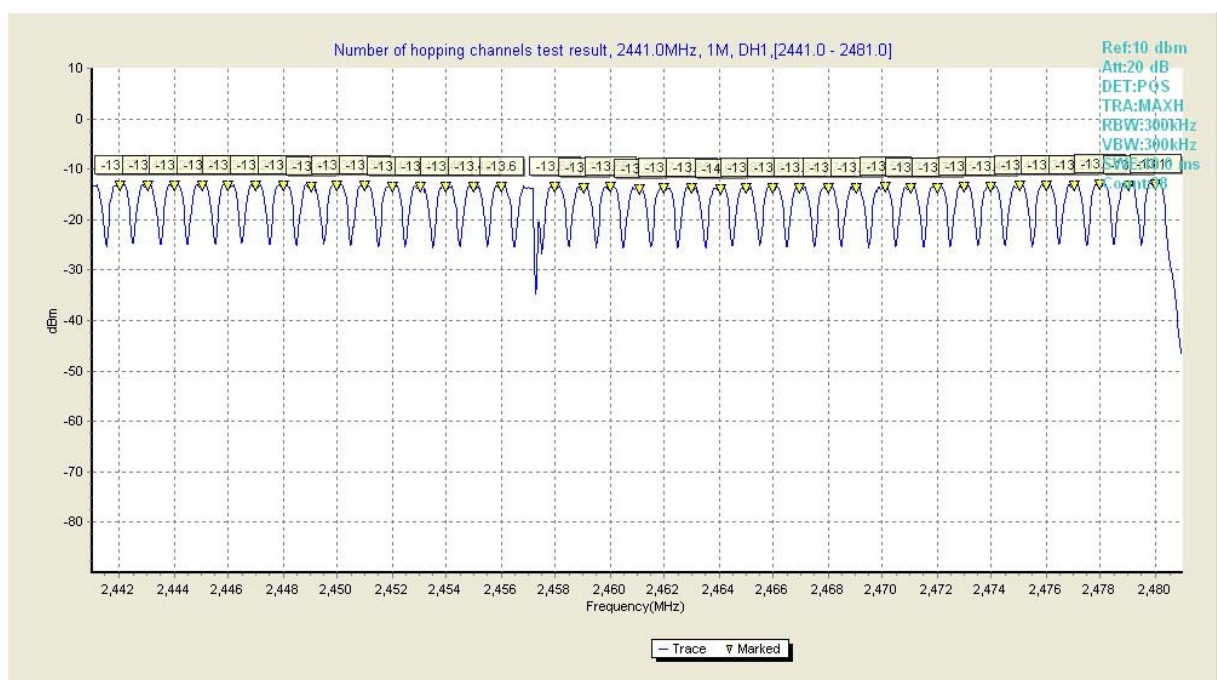


Fig29. Number of hopping channels in 2441MHz, 1Mbps,2441~2480MHz

$\pi/4$ -DQPSK Modulation

Hopping Channel Frequency Range(MHz)	Limits(Channel)	Number of hopping Channel	Test Results	Verdict
2401~2481	20	79	Fig.30 Fig.31	Pass

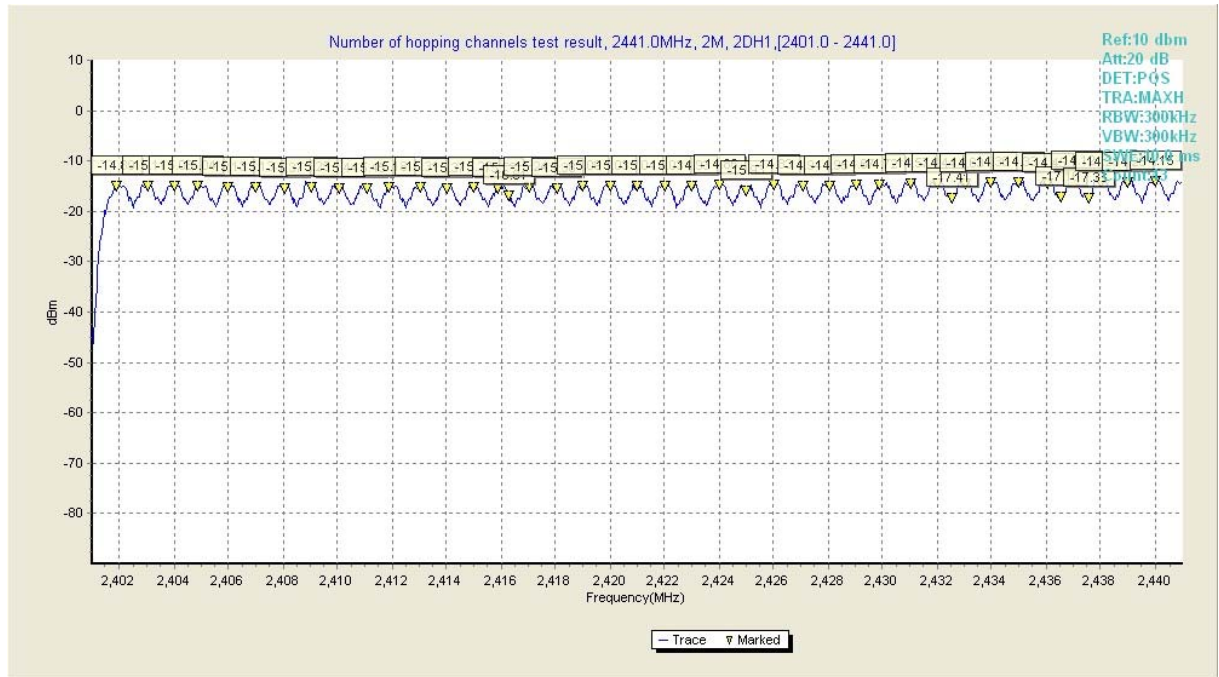


Fig30. Number of hopping channels in 2441MHz, 2Mbps,2401~2441MHz

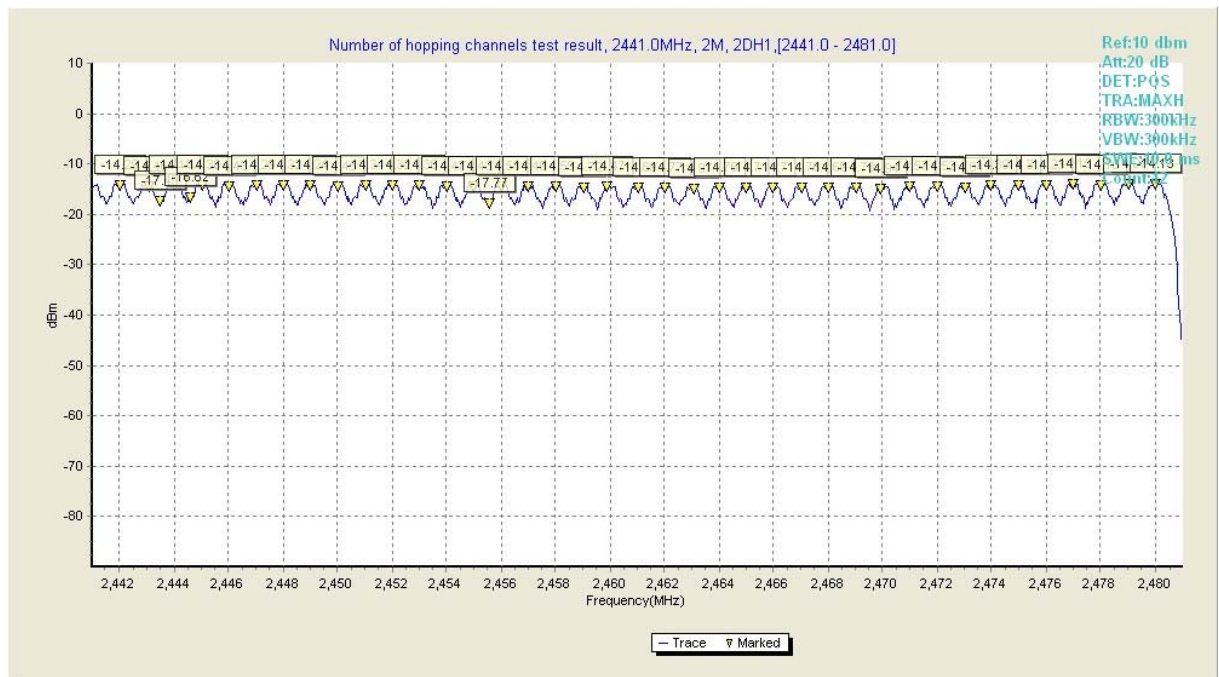


Fig31. Number of hopping channels in 2441MHz, 2Mbps,2441~2480MHz

8DPSK Modulation

Hopping Channel Frequency Range(MHz)	Limits(Channel)	Number of hopping Channel	Test Results	Verdict
2401~2481	20	79	Fig.32 Fig.33	Pass

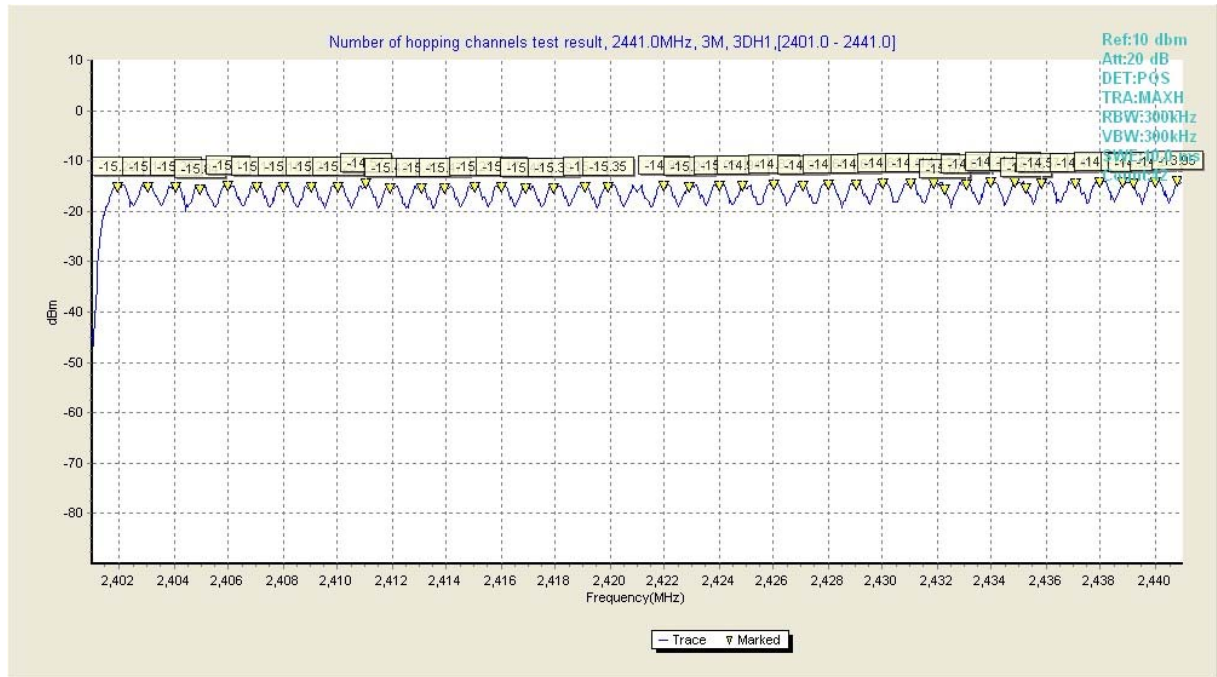


Fig32. Number of hopping channels in 2441MHz, 3Mbps,2401~2441MHz

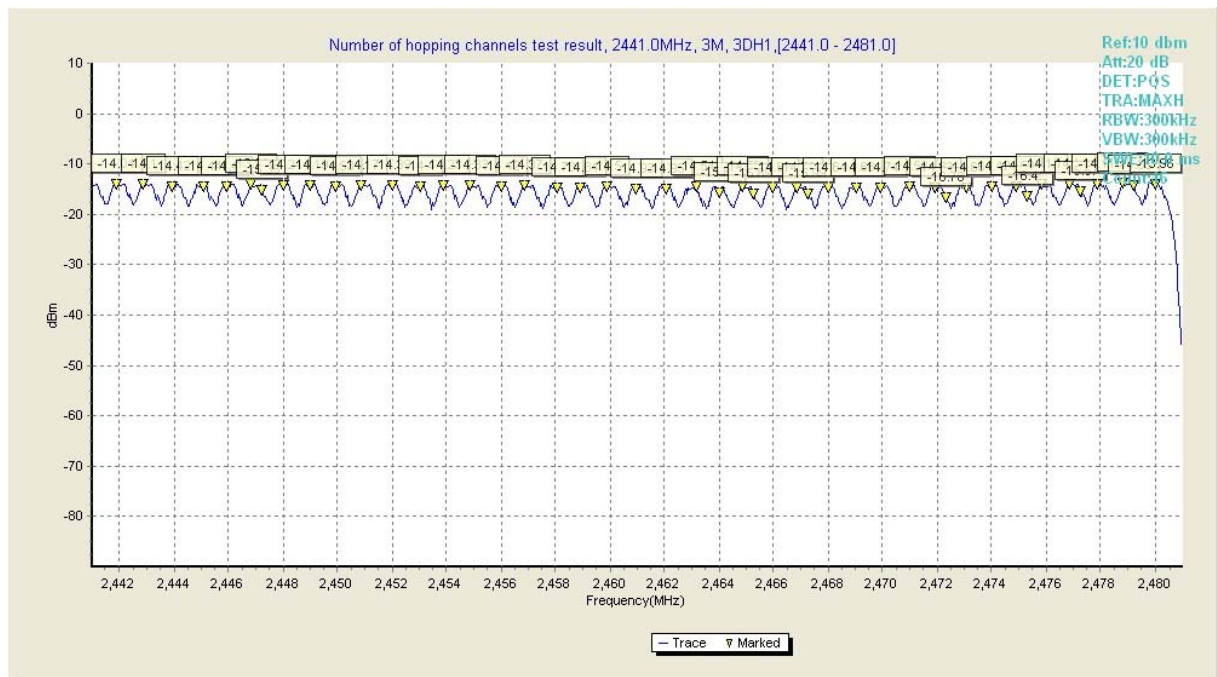


Fig33. Number of hopping channels in 2441MHz, 3Mbps,2441~2480MHz

B.7 Conducted Spurious Emissions

B.7.1 Description

According to §15.247(d),

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band.

B.7.2 Test Result

Test equipment parameter:

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

GFSK Modulation

Channel	Frequency Range	Test Results	Verdict
0	30MHz ~ 1GHz	Fig.34	Pass
	1GHz ~ 12GHz	Fig.35	Pass
	12GHz ~ 26GHz	Fig.36	Pass
39	30MHz ~ 1GHz	Fig.37	Pass
	1GHz ~ 12GHz	Fig.38	Pass
	12GHz ~ 26GHz	Fig.39	Pass
78	30MHz ~ 1GHz	Fig.40	Pass
	1GHz ~ 12GHz	Fig.41	Pass
	12GHz ~ 26GHz	Fig.42	Pass

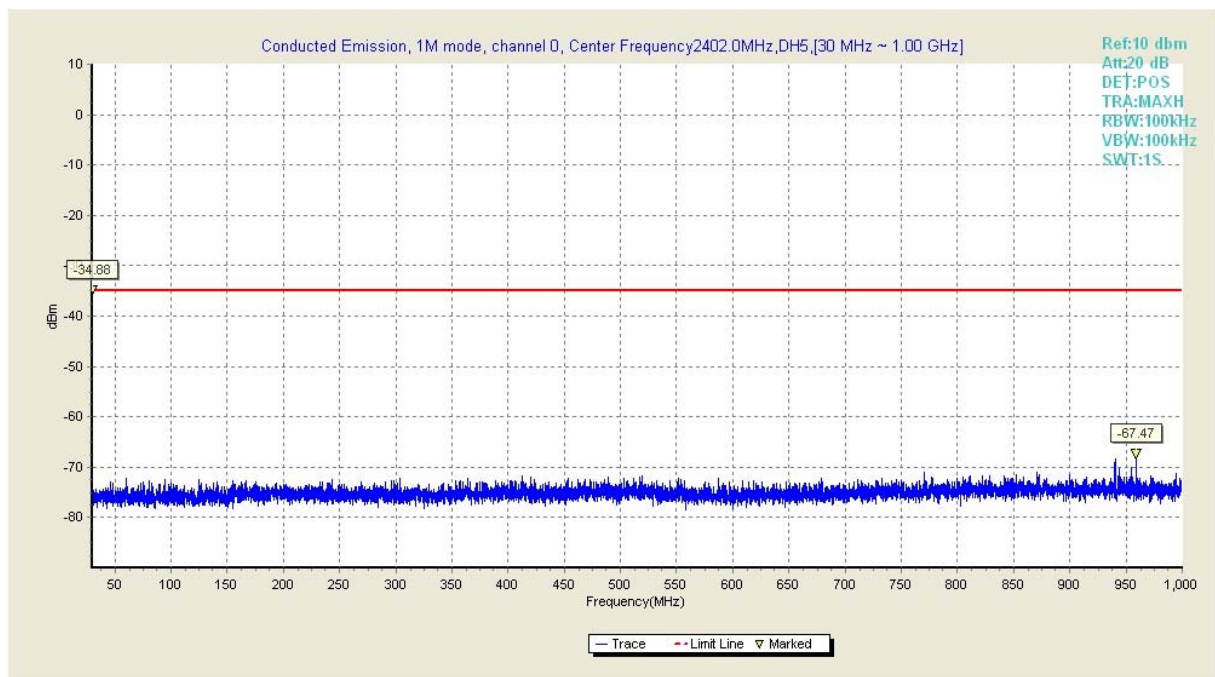


Fig.34 Conducted Emission in 1M mode ,channel 0, (30 MHz ~ 1 GHz)

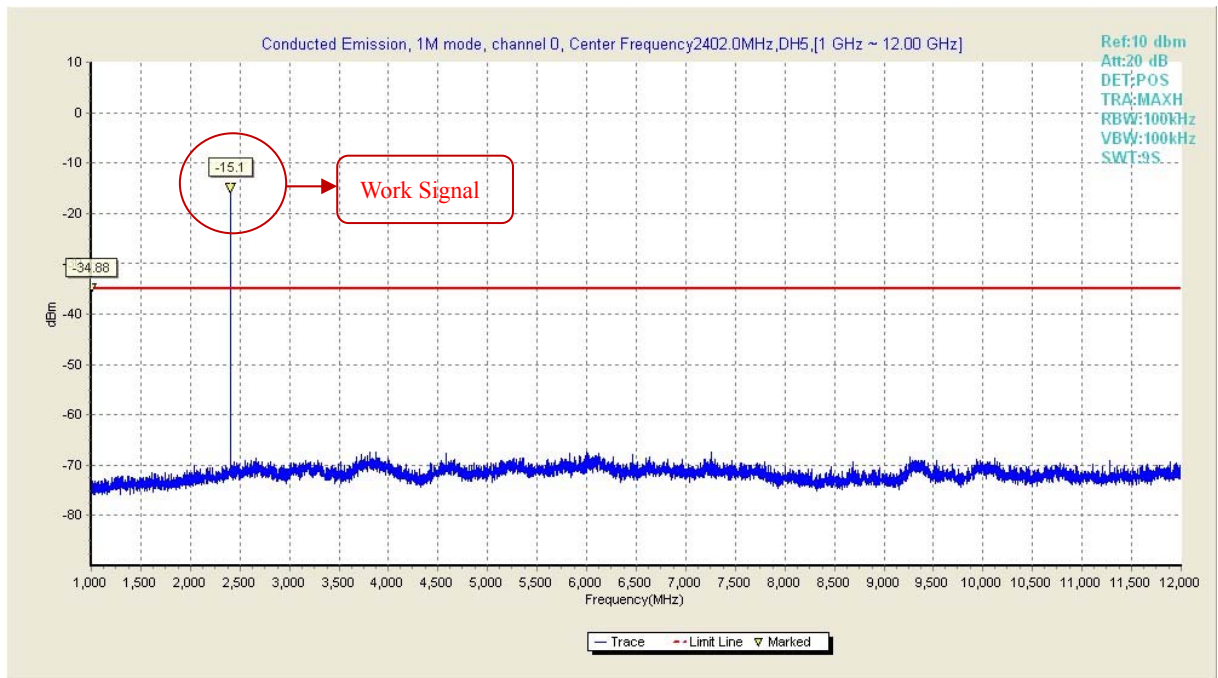


Fig.35 Conducted Emission in 1M mode ,channel 0, (1 GHz ~ 12 GHz)

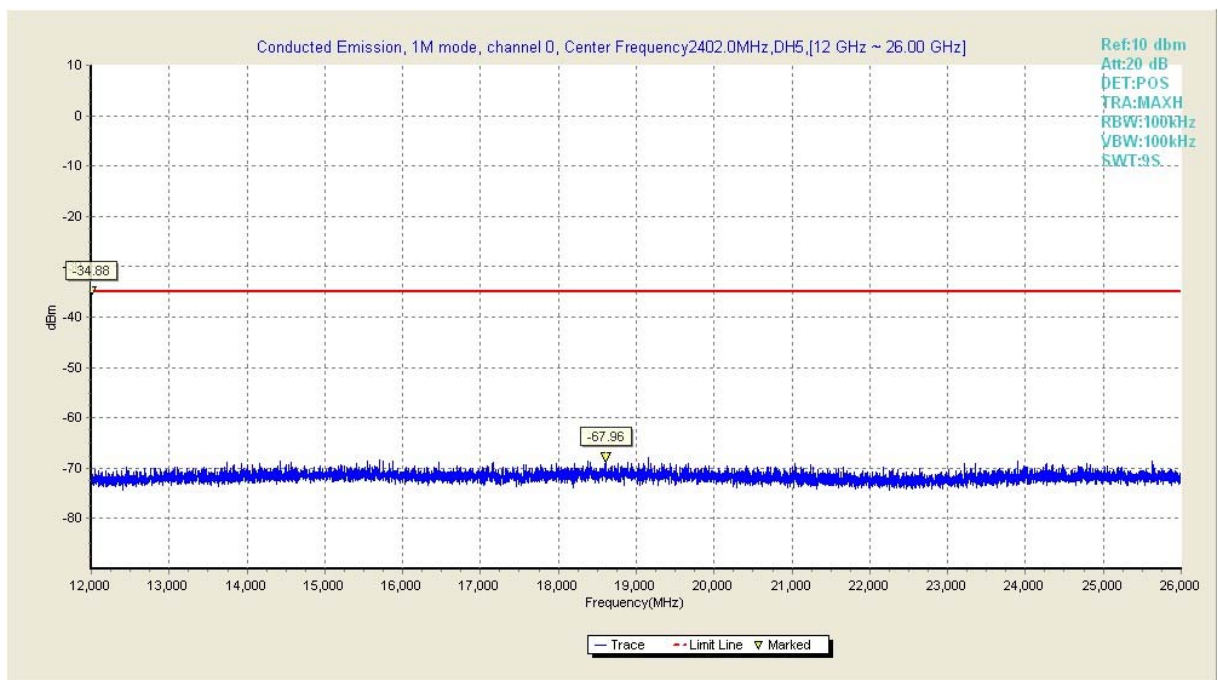


Fig.36 Conducted Emission in 1M mode ,channel 0, (12 GHz ~ 26 GHz)

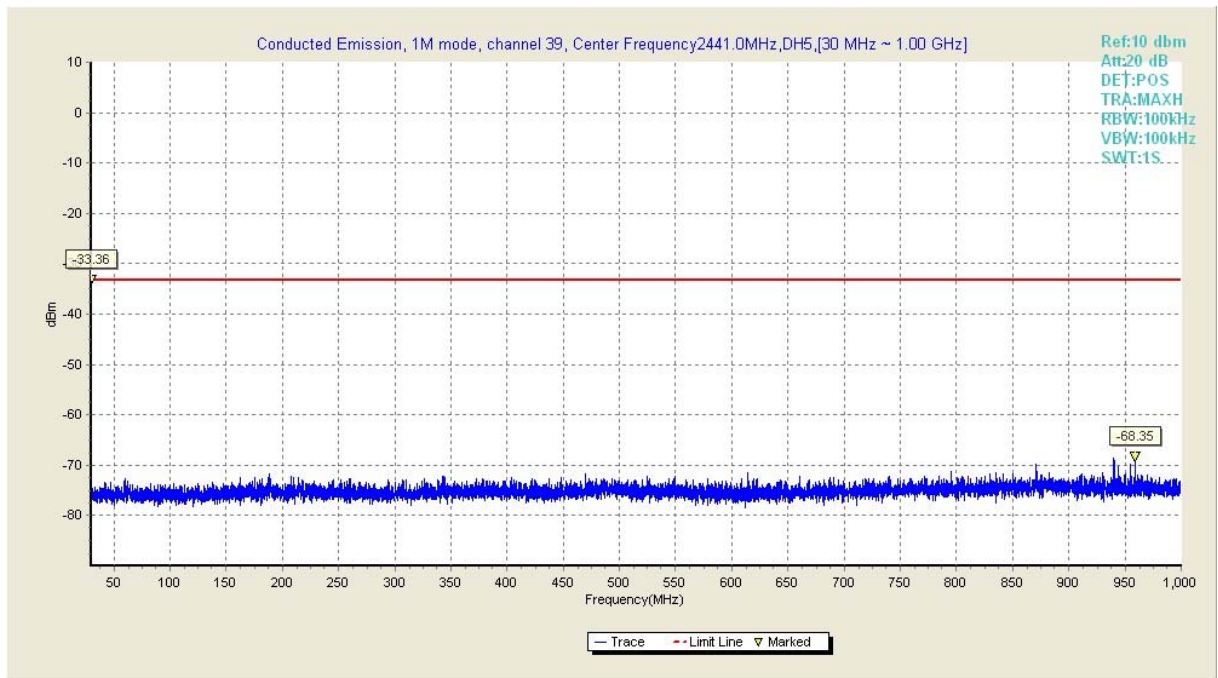


Fig.37 Conducted Emission in 1M mode ,channel 39, (30 MHz ~ 1 GHz)

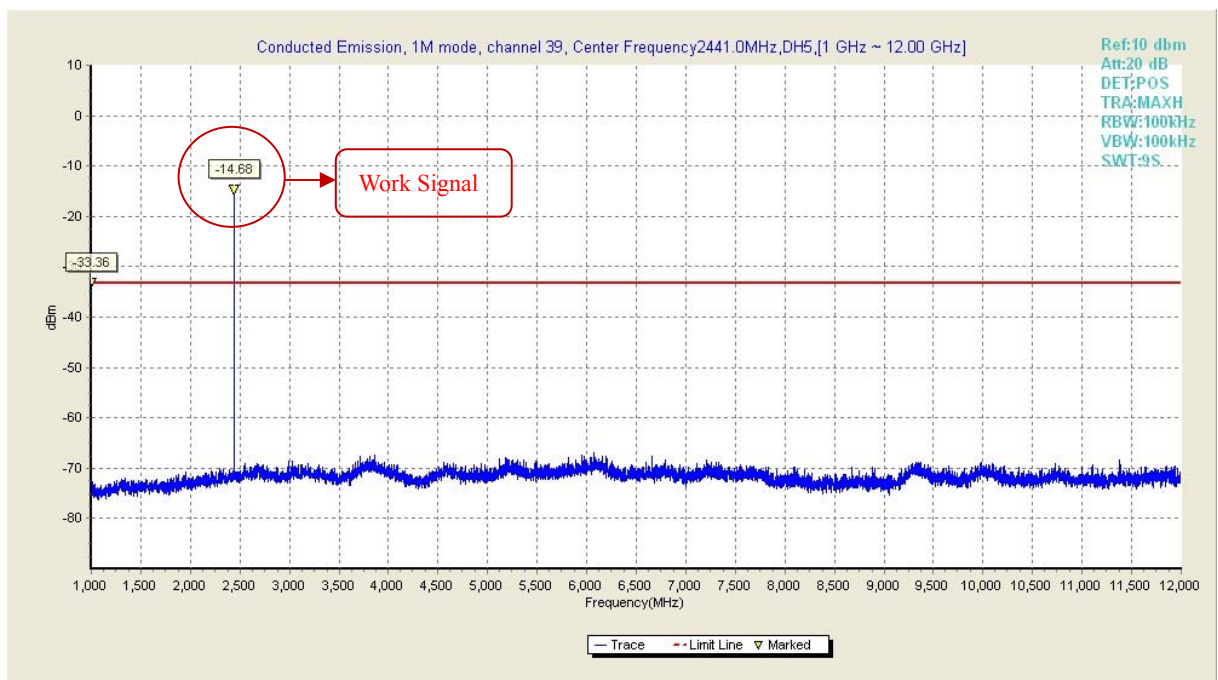


Fig.38 Conducted Emission in 1M mode ,channel 39, (1 GHz ~ 12 GHz)

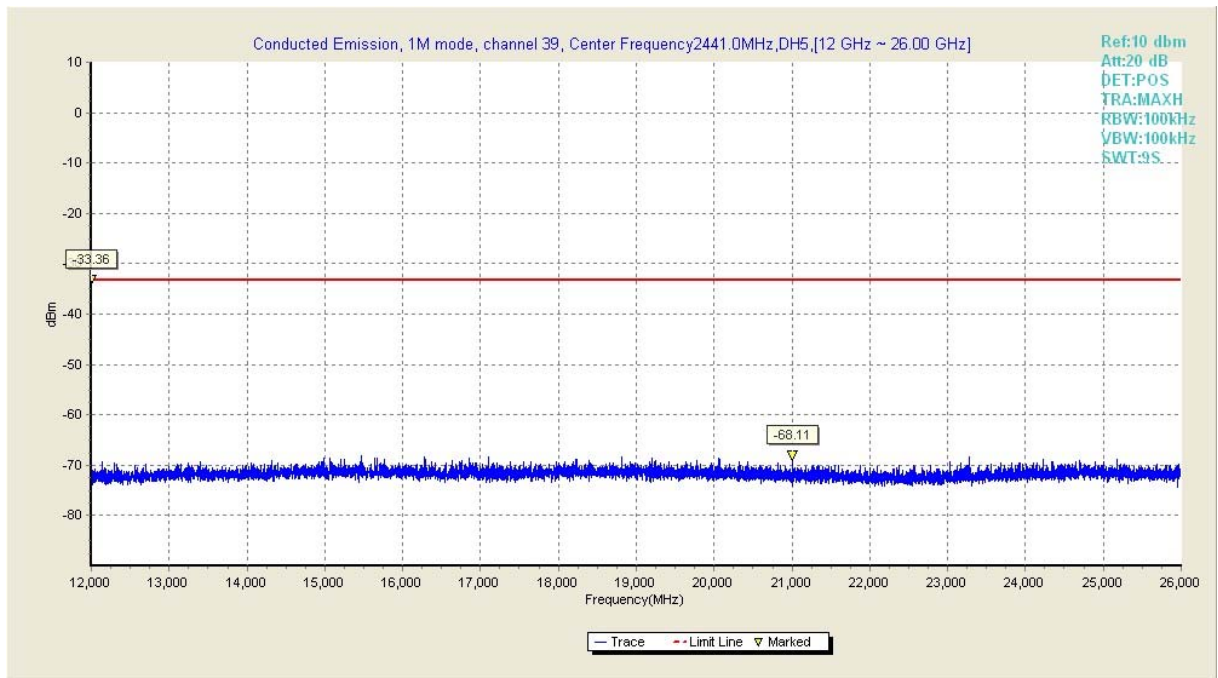


Fig.39 Conducted Emission in 1M mode ,channel 39, (12 GHz ~ 26 GHz)

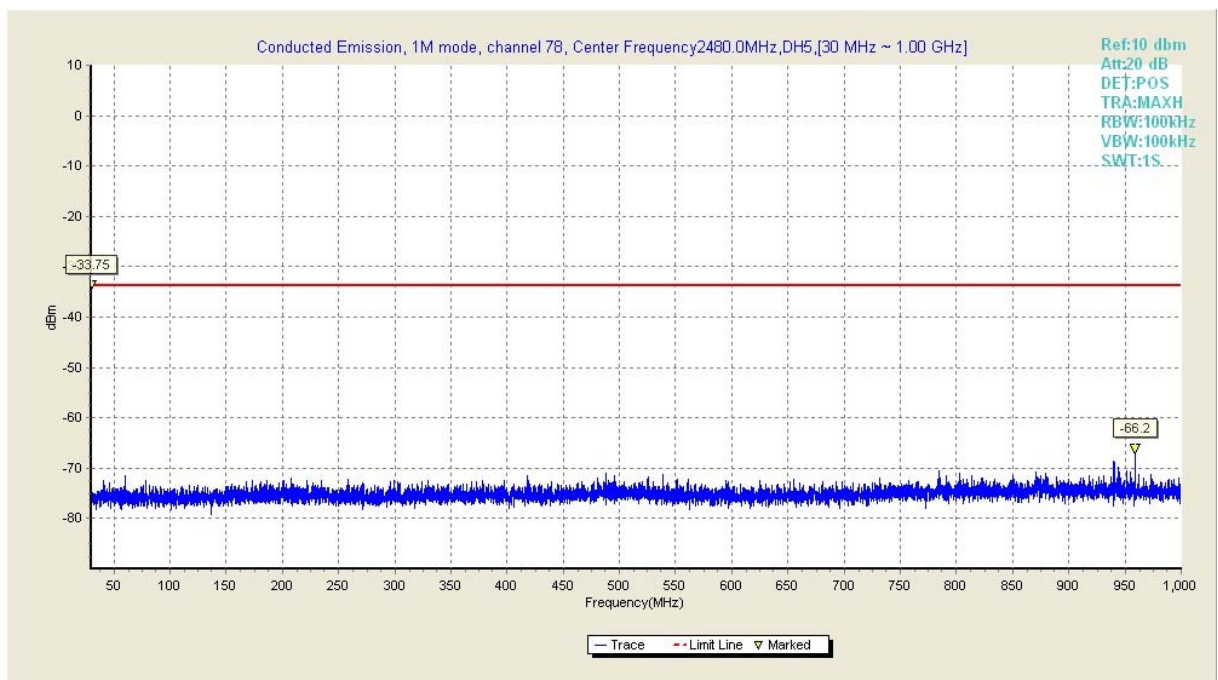


Fig.40 Conducted Emission in 1M mode ,channel 78, (30 MHz ~ 1 GHz)

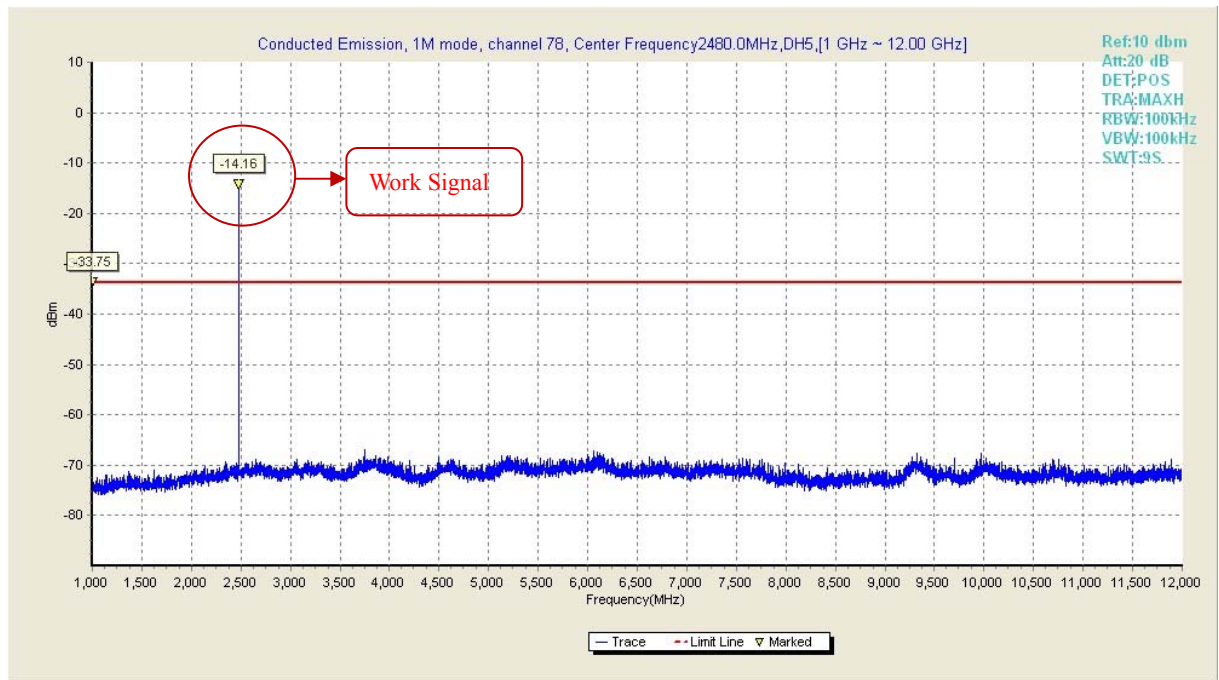


Fig.41 Conducted Emission in 1M mode ,channel 78, (1 GHz ~ 12 GHz)

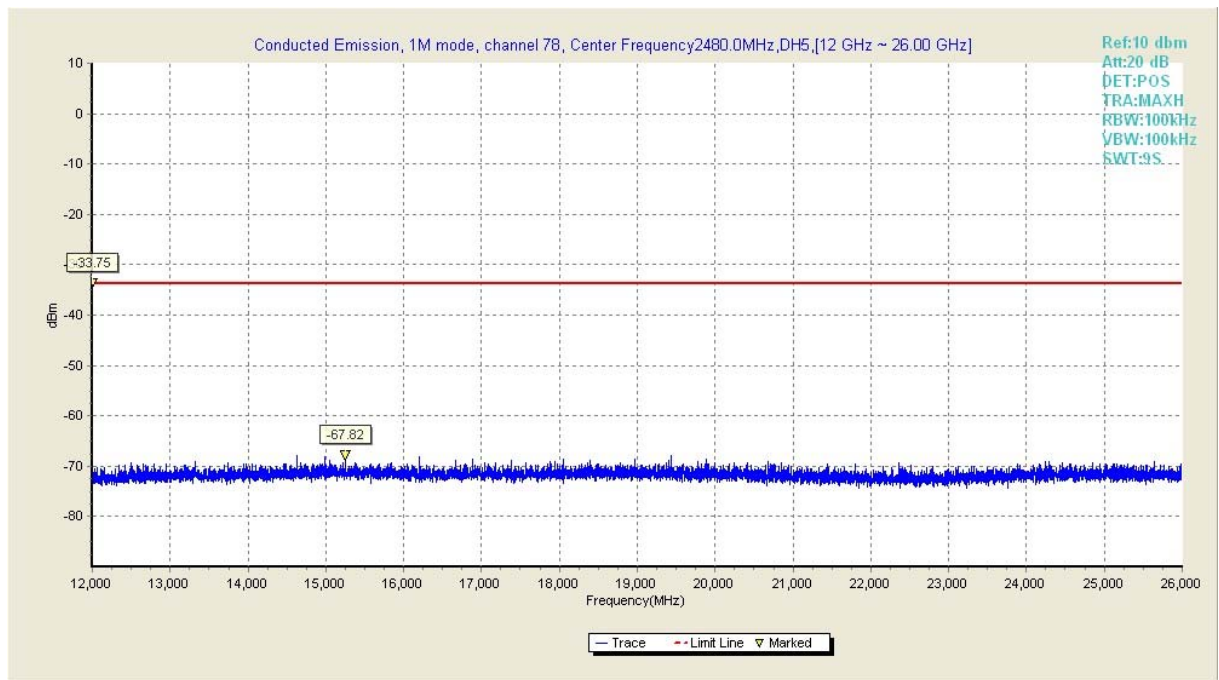


Fig.42 Conducted Emission in 1M mode ,channel 78, (12 GHz ~ 26 GHz)

$\pi/4$ -DQPSK Modulation

Channel	Frequency Range	Test Results	Verdict
0	30MHz ~ 1GHz	Fig.43	Pass
	1GHz ~ 12GHz	Fig.44	Pass
	12GHz ~ 26GHz	Fig.45	Pass
39	30MHz ~ 1GHz	Fig.46	Pass

78	1GHz ~ 12GHz	Fig.47	Pass
	1GHz ~ 26GHz	Fig.48	Pass
	30MHz ~ 1GHz	Fig.49	Pass
	1GHz ~ 12GHz	Fig.50	Pass
	1GHz ~ 26GHz	Fig.51	Pass

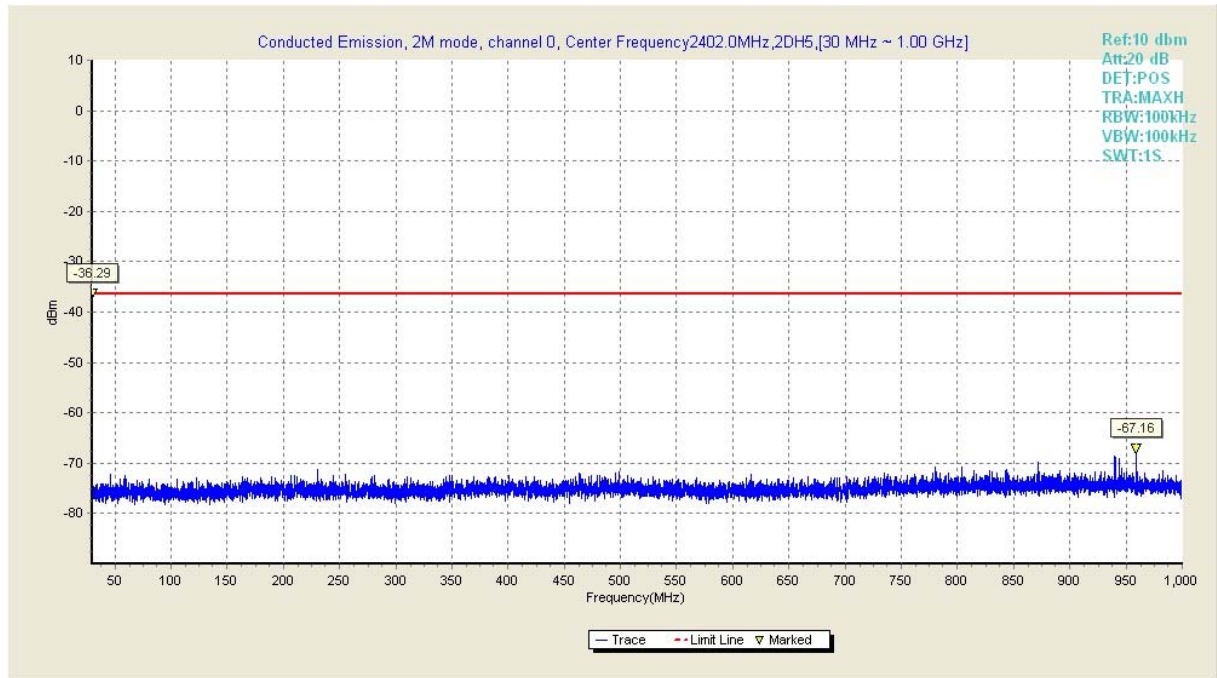


Fig.43 Conducted Emission in 2M mode ,channel 0, (30 MHz ~ 1 GHz)

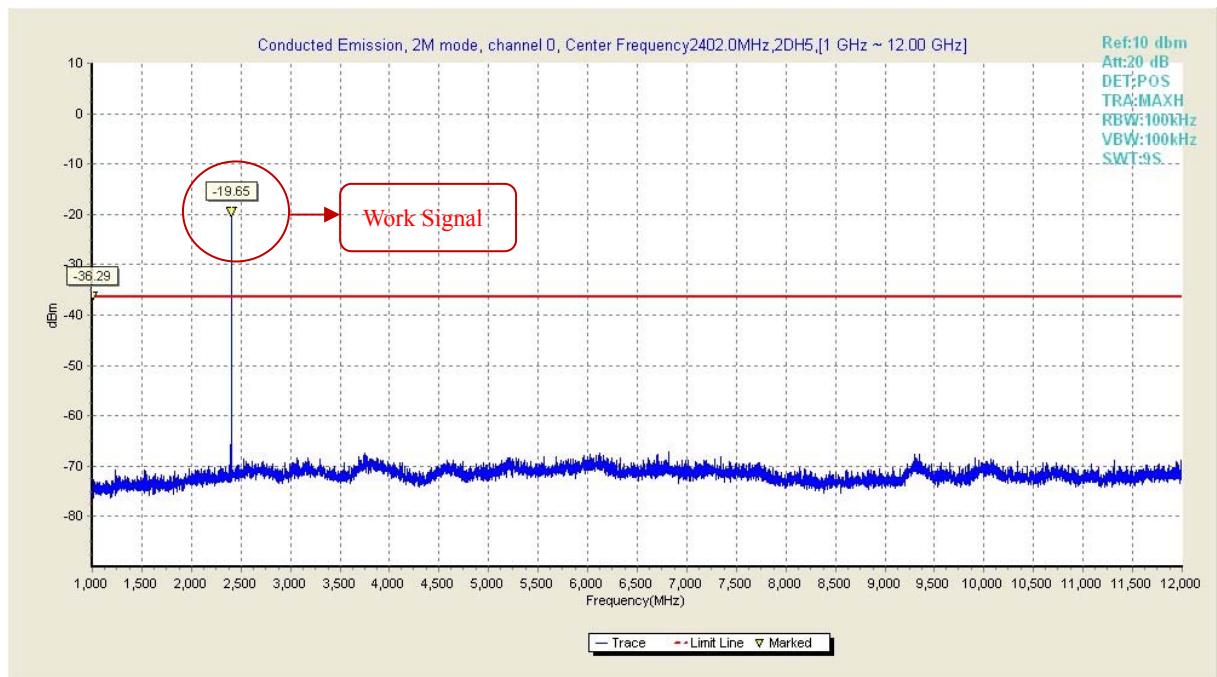


Fig.44 Conducted Emission in 2M mode ,channel 0, (1 GHz ~ 12 GHz)

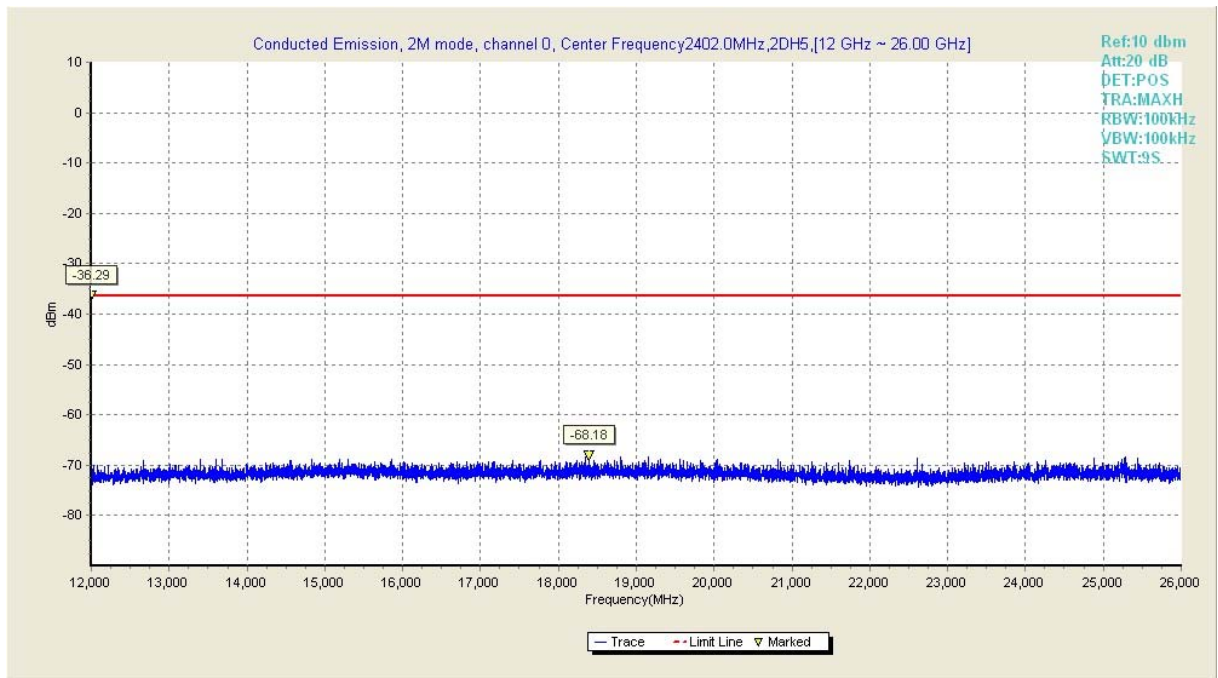


Fig.45 Conducted Emission in 2M mode ,channel 0, (12 GHz ~ 26 GHz)

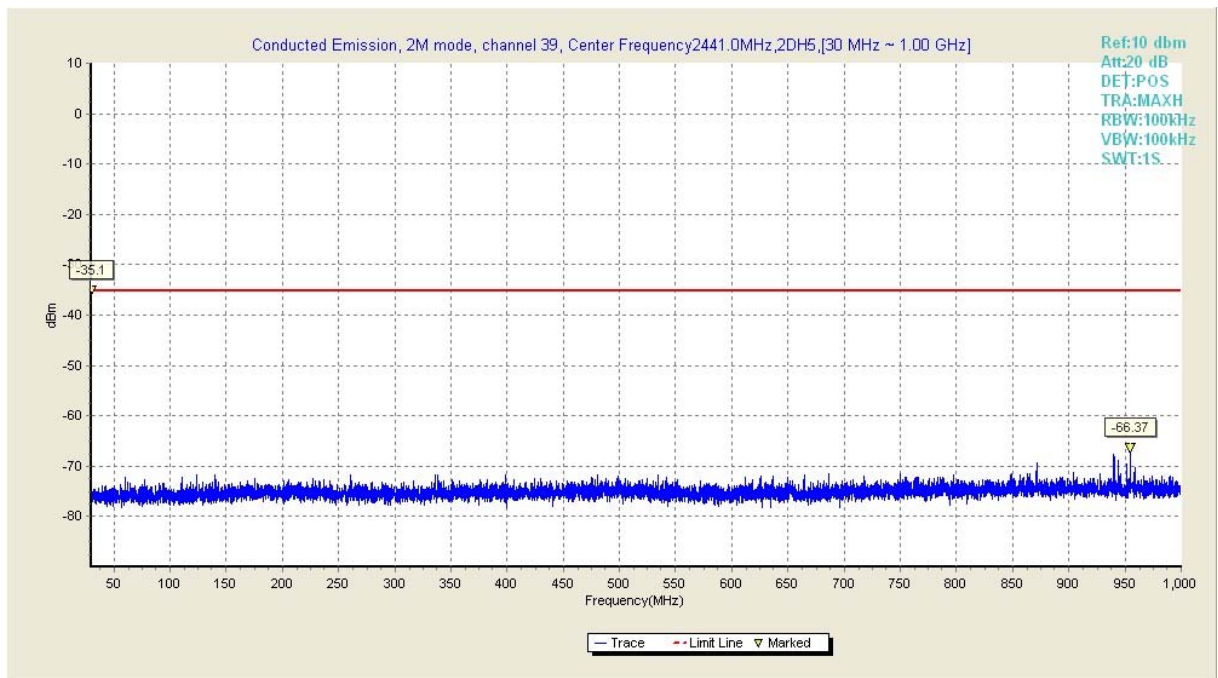


Fig.46 Conducted Emission in 2M mode ,channel 39, (30 MHz ~ 1 GHz)

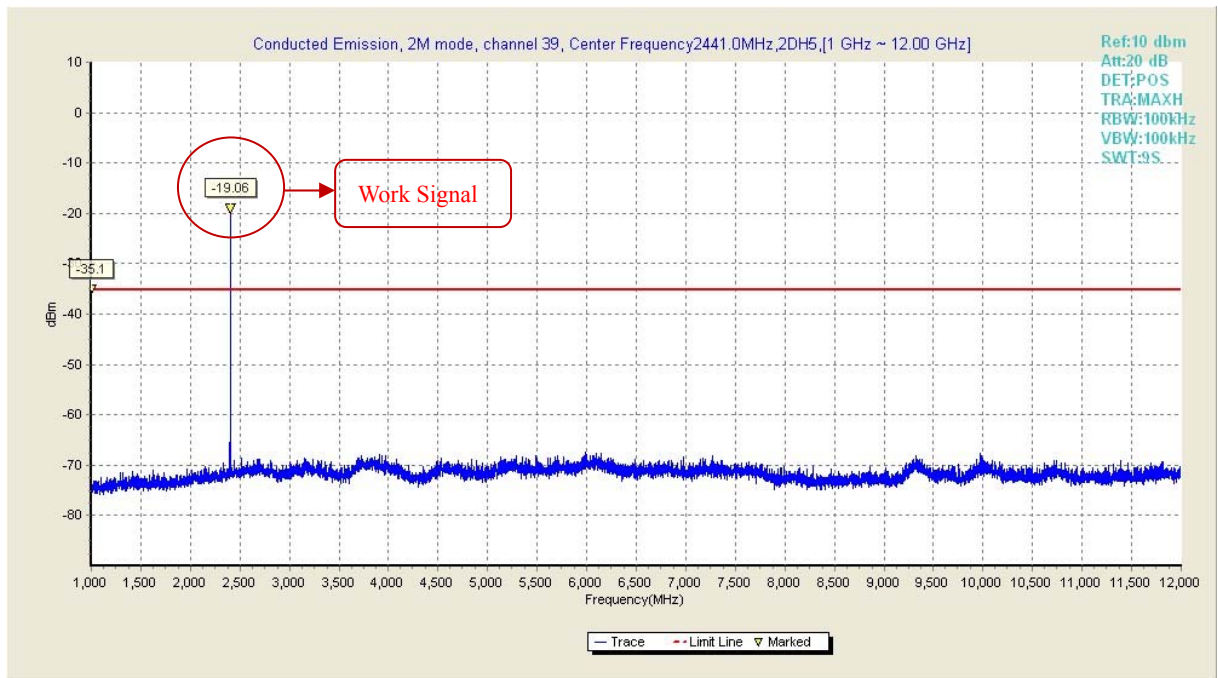


Fig.47 Conducted Emission in 2M mode ,channel 39, (1 GHz ~ 12 GHz)

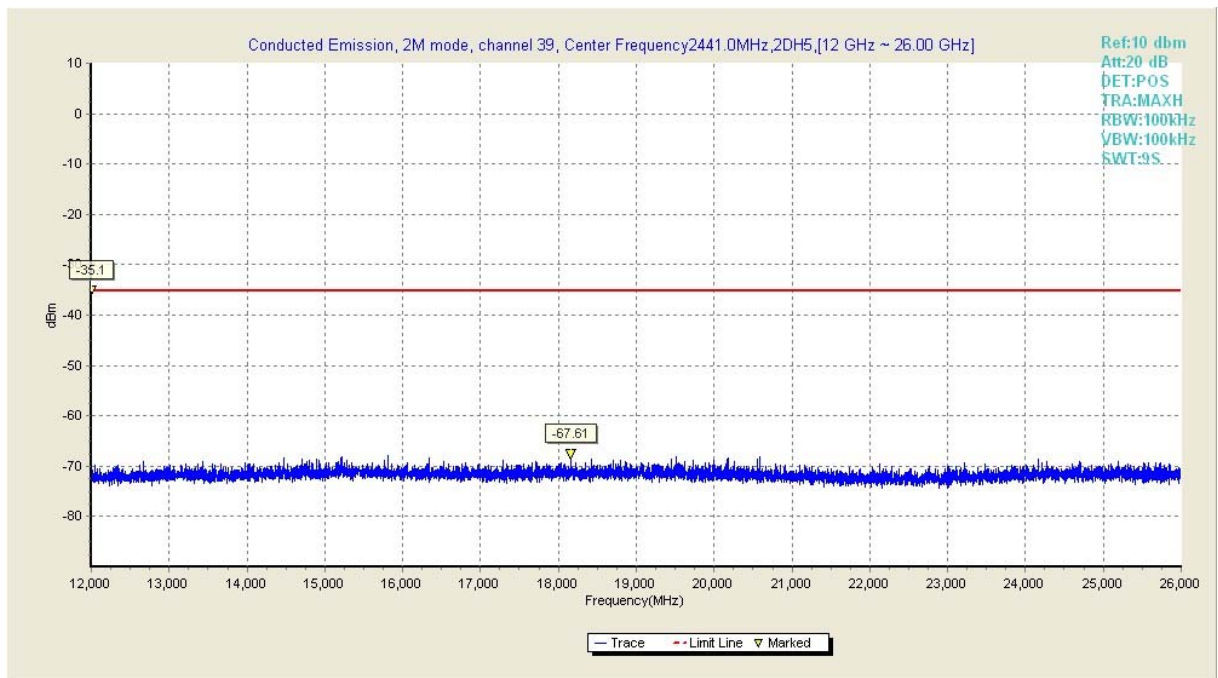


Fig.48 Conducted Emission in 2M mode ,channel 39, (12 GHz ~ 26 GHz)

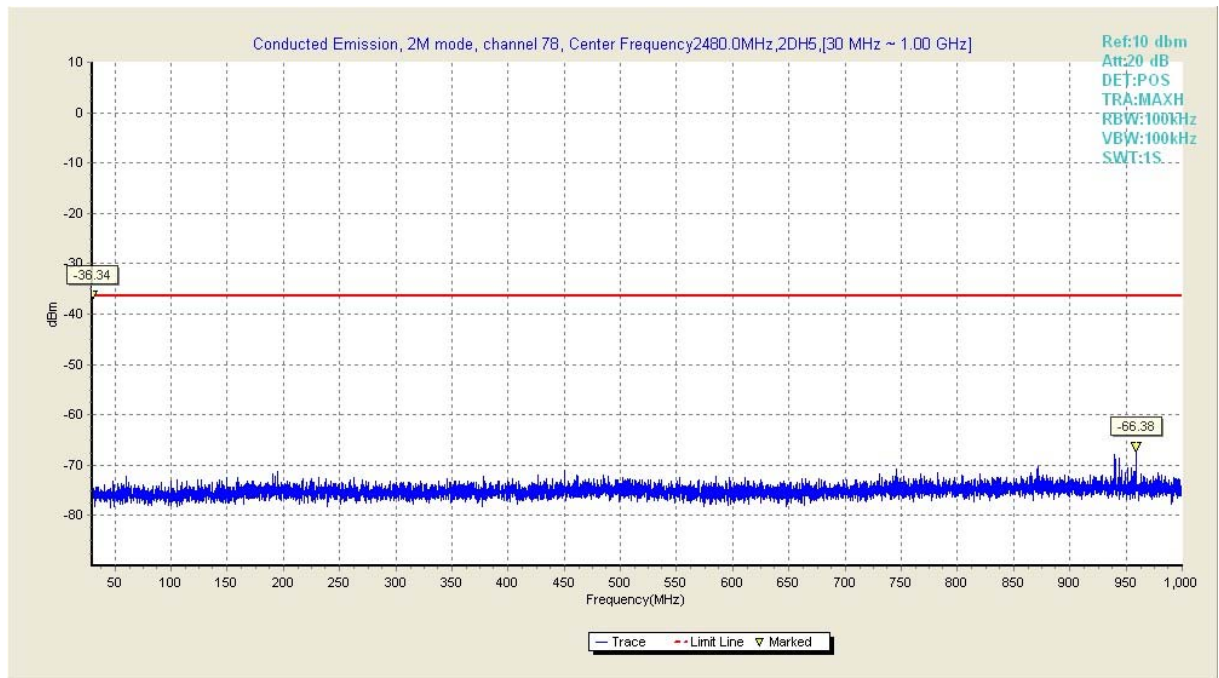


Fig.49 Conducted Emission in 2M mode ,channel 78, (30 MHz ~ 1 GHz)

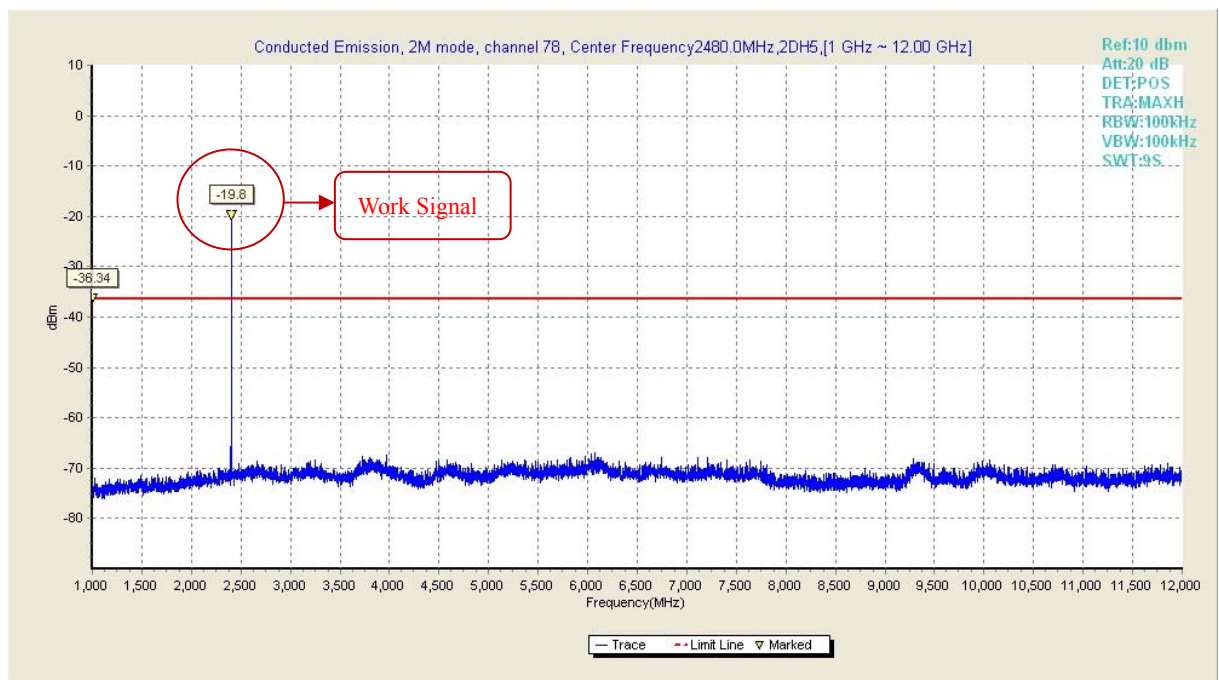


Fig.50 Conducted Emission in 2M mode ,channel 78, (1 GHz ~ 12 GHz)

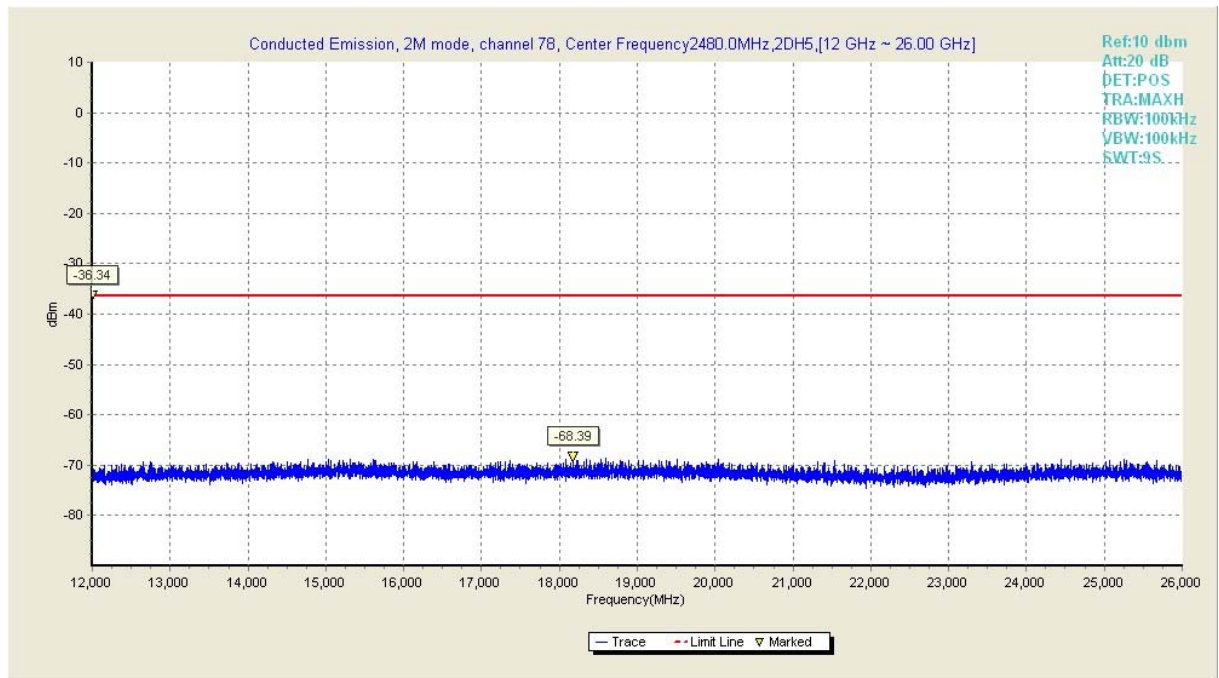


Fig.51 Conducted Emission in 2M mode ,channel 78, (12 GHz ~ 26 GHz)

8DPSK Modulation

Channel	Frequency Range	Test Results	Verdict
0	30MHz ~ 1GHz	Fig.52	Pass
	1GHz ~ 12GHz	Fig.53	Pass
	12GHz ~ 26GHz	Fig.54	Pass
39	30MHz ~ 1GHz	Fig.55	Pass
	1GHz ~ 12GHz	Fig.56	Pass
	1GHz ~ 26GHz	Fig.57	Pass
78	30MHz ~ 1GHz	Fig.58	Pass
	1GHz ~ 12GHz	Fig.59	Pass
	1GHz ~ 26GHz	Fig.60	Pass

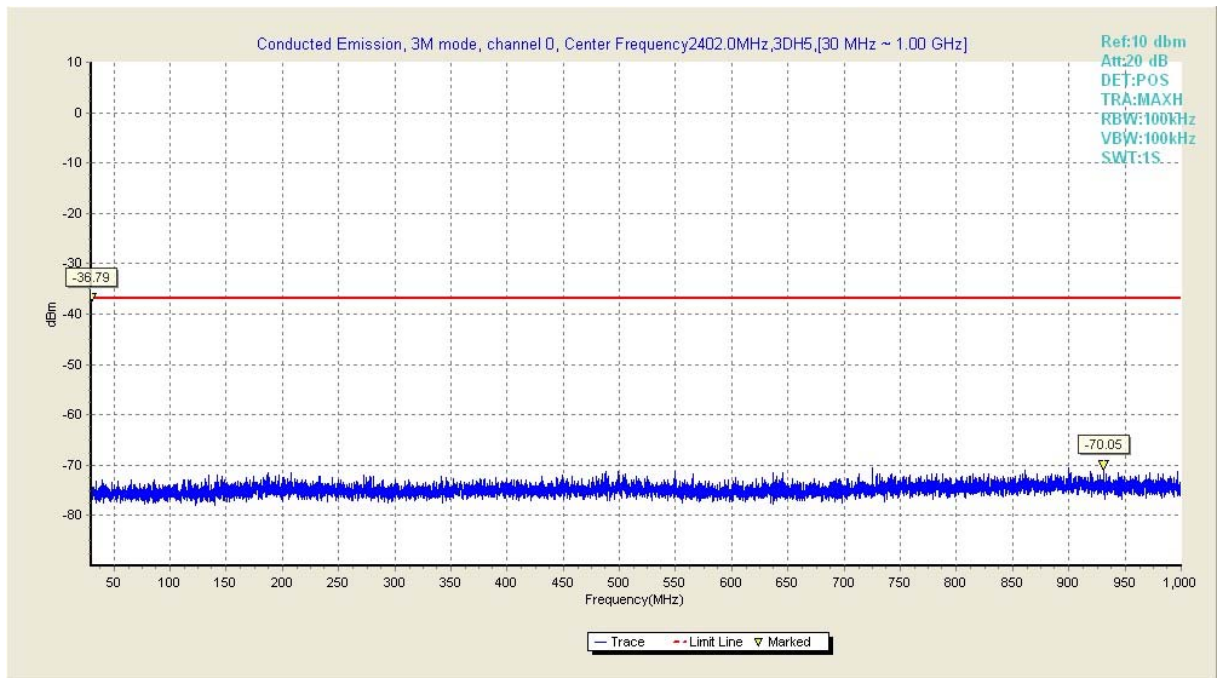


Fig.52 Conducted Emission in 3M mode ,channel 0, (30 MHz ~ 1 GHz)

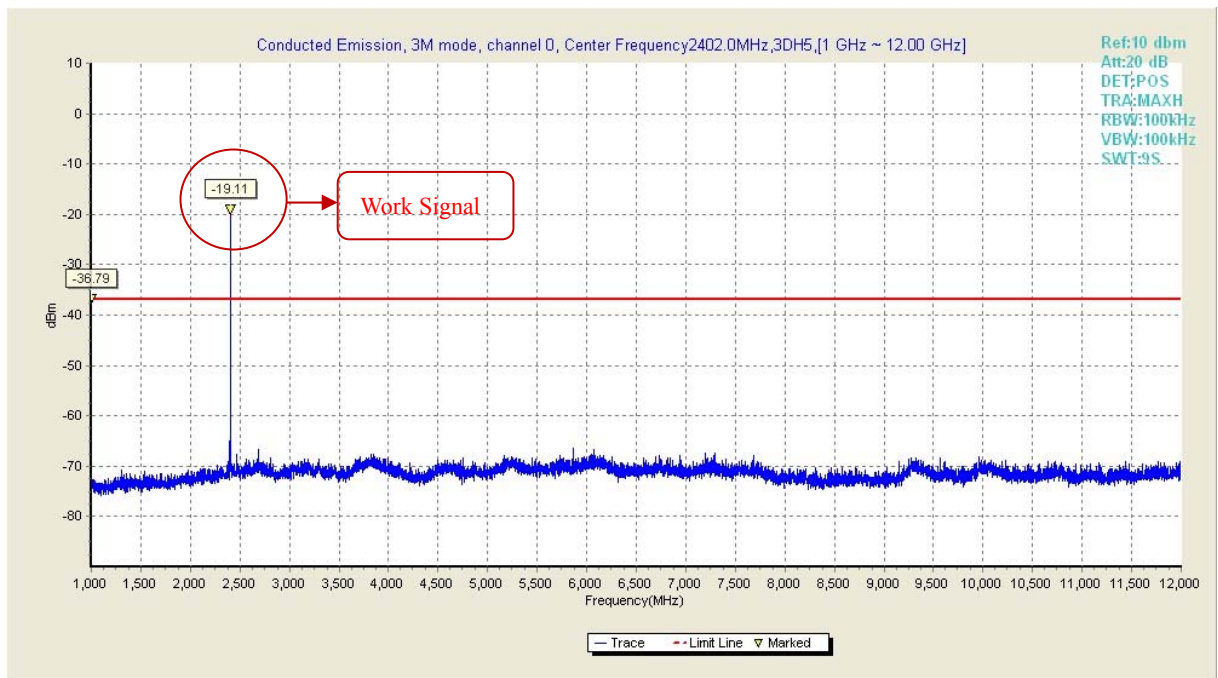


Fig.53 Conducted Emission in 3M mode ,channel 0, (1 GHz ~ 12 GHz)

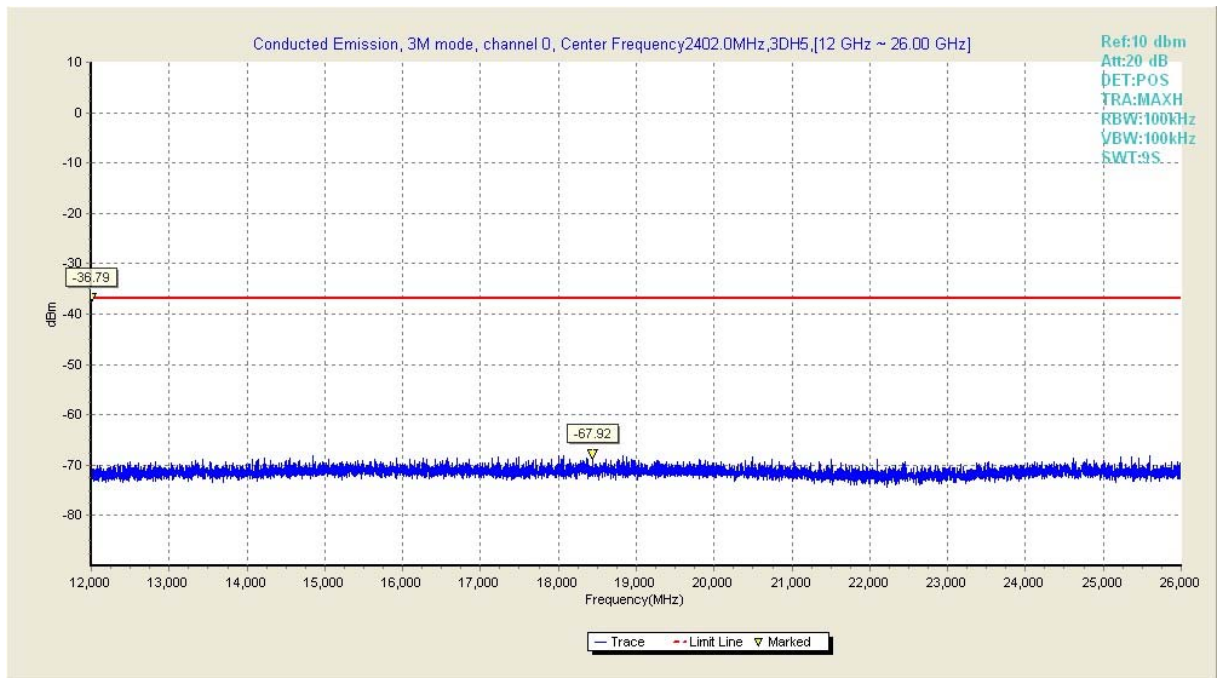


Fig.54 Conducted Emission in 3M mode ,channel 0, (12 GHz ~ 26 GHz)

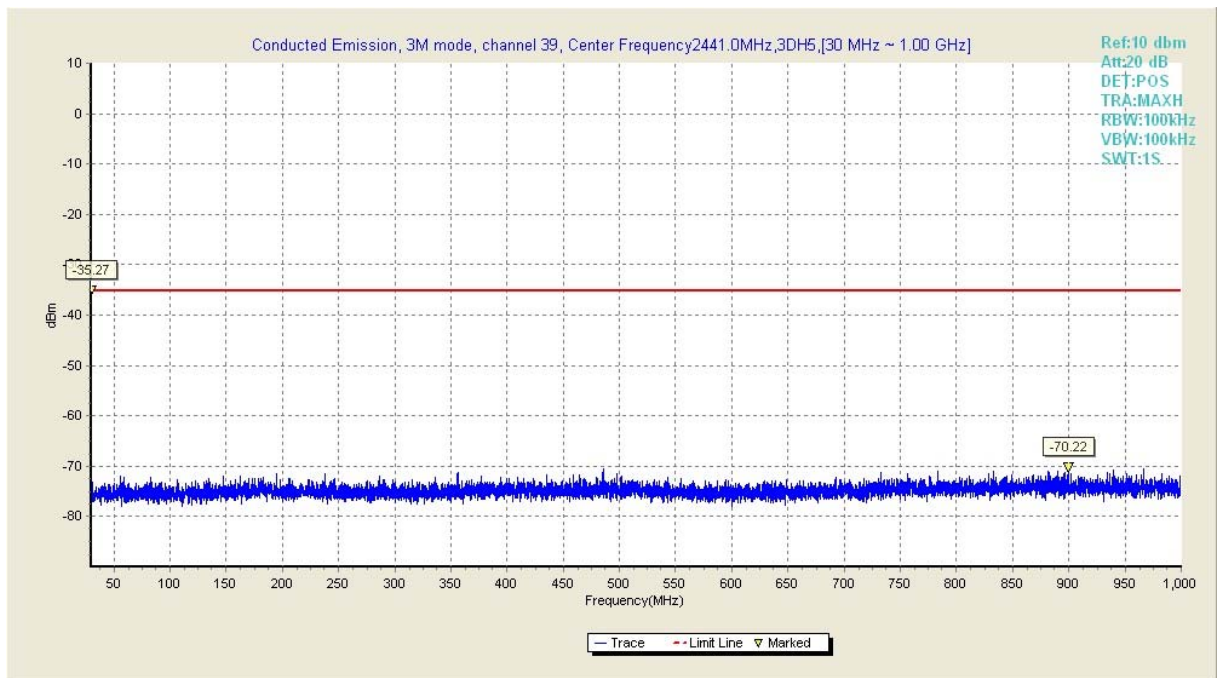


Fig.55 Conducted Emission in 3M mode ,channel 39, (30 MHz ~ 1 GHz)

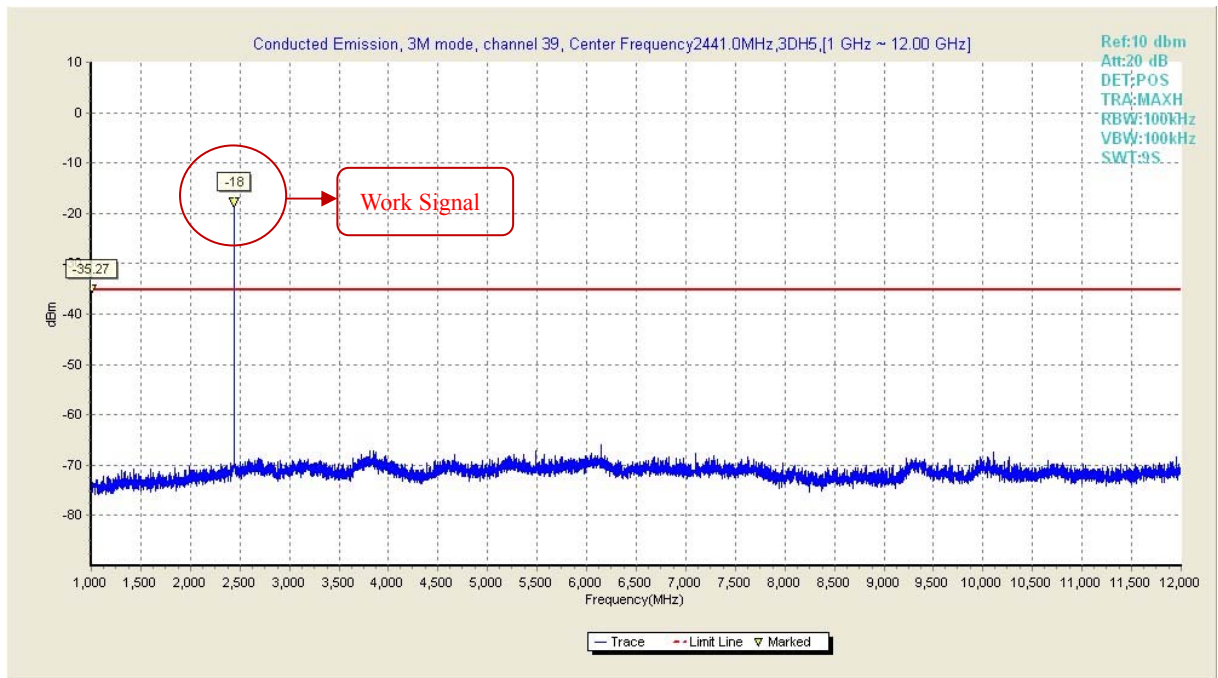


Fig.56 Conducted Emission in 3M mode ,channel 39, (1 GHz ~ 12 GHz)

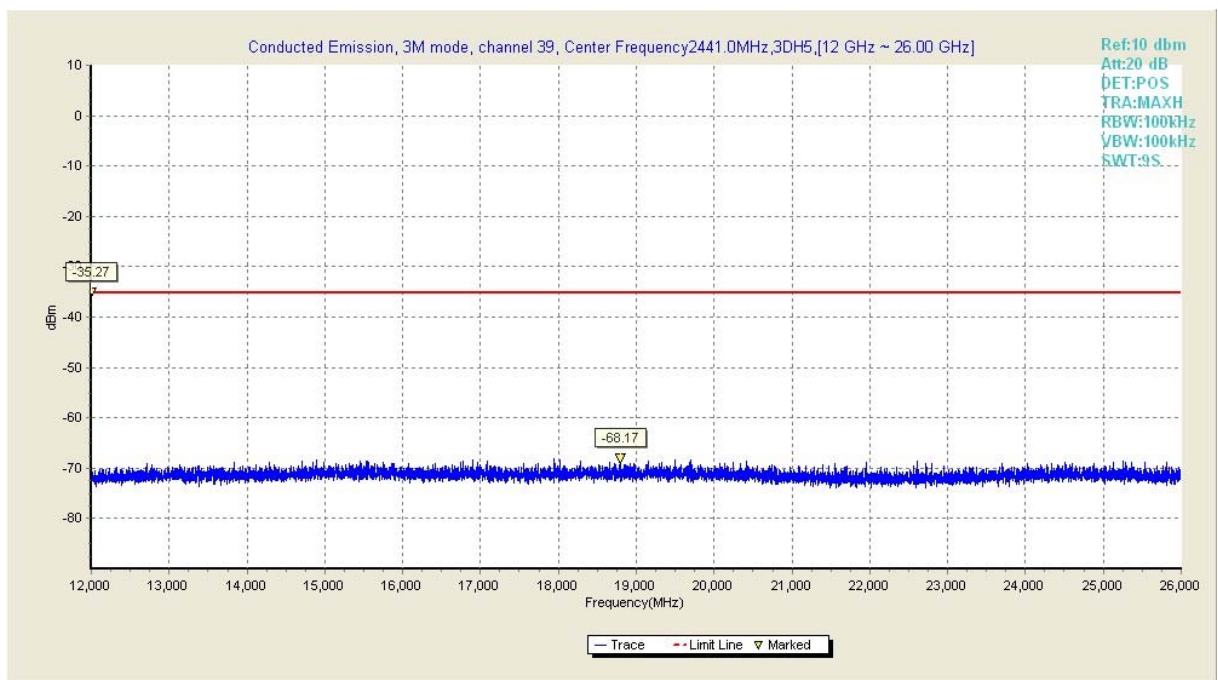


Fig.57 Conducted Emission in 3M mode ,channel 39, (12 GHz ~ 26 GHz)

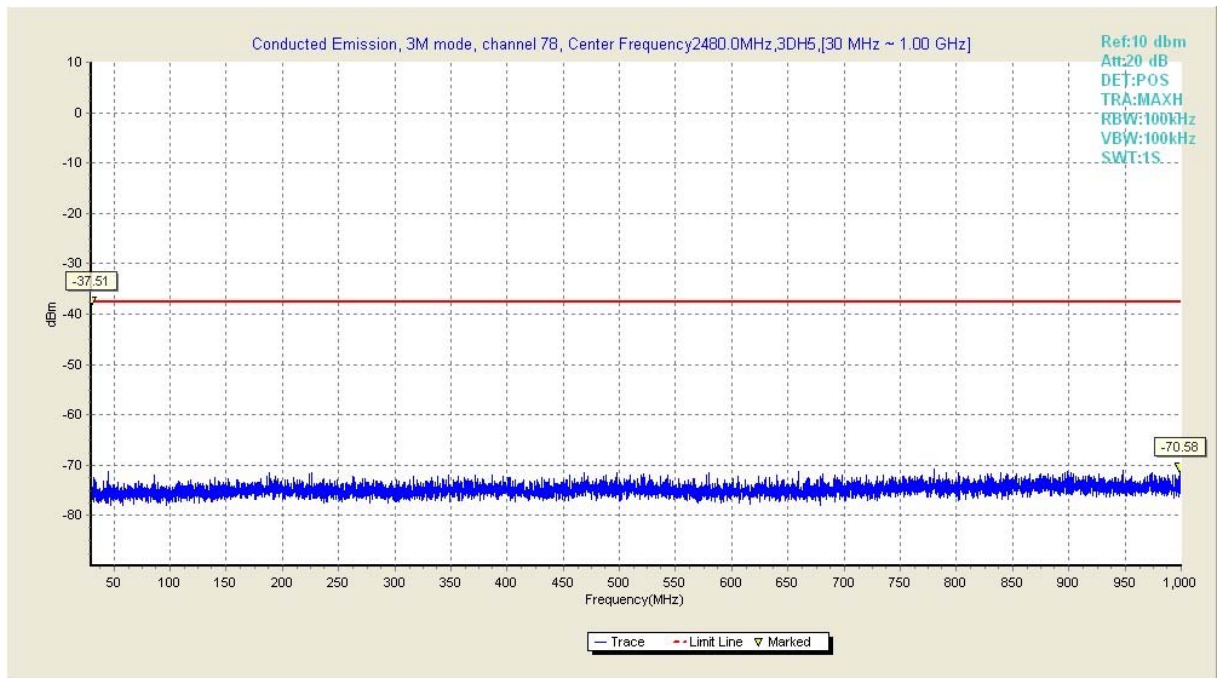


Fig.58 Conducted Emission in 3M mode ,channel 78, (30 MHz ~ 1 GHz)

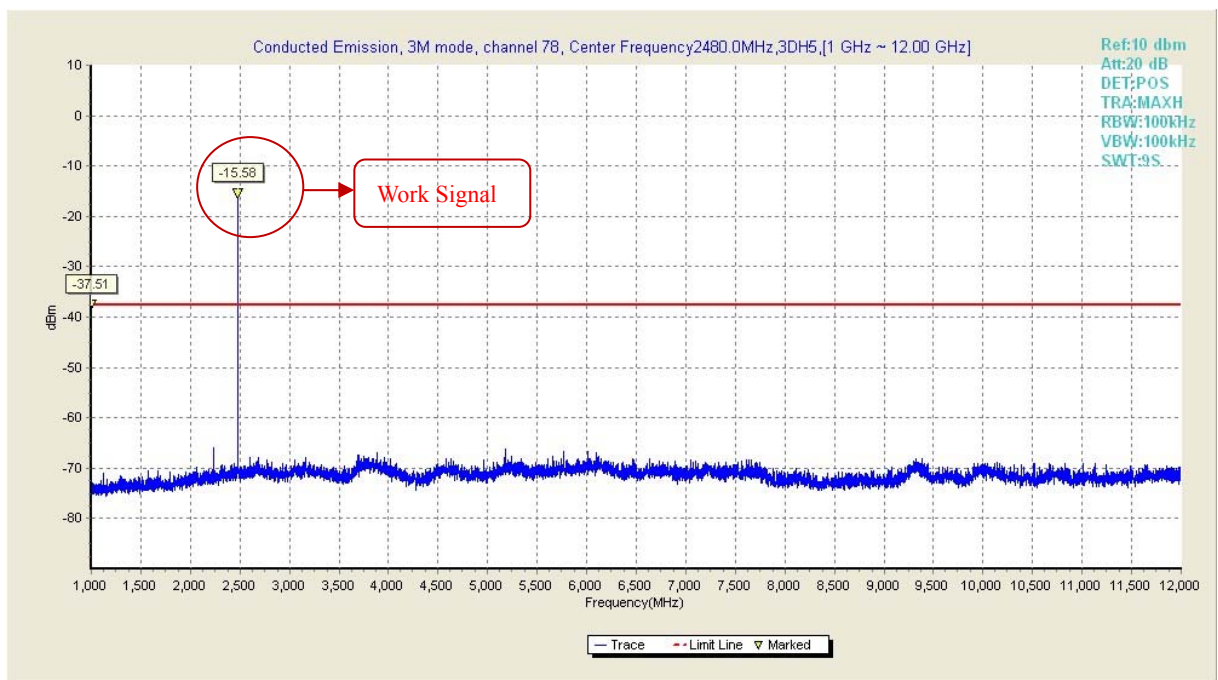


Fig.59 Conducted Emission in 3M mode ,channel 78, (1 GHz ~ 12 GHz)

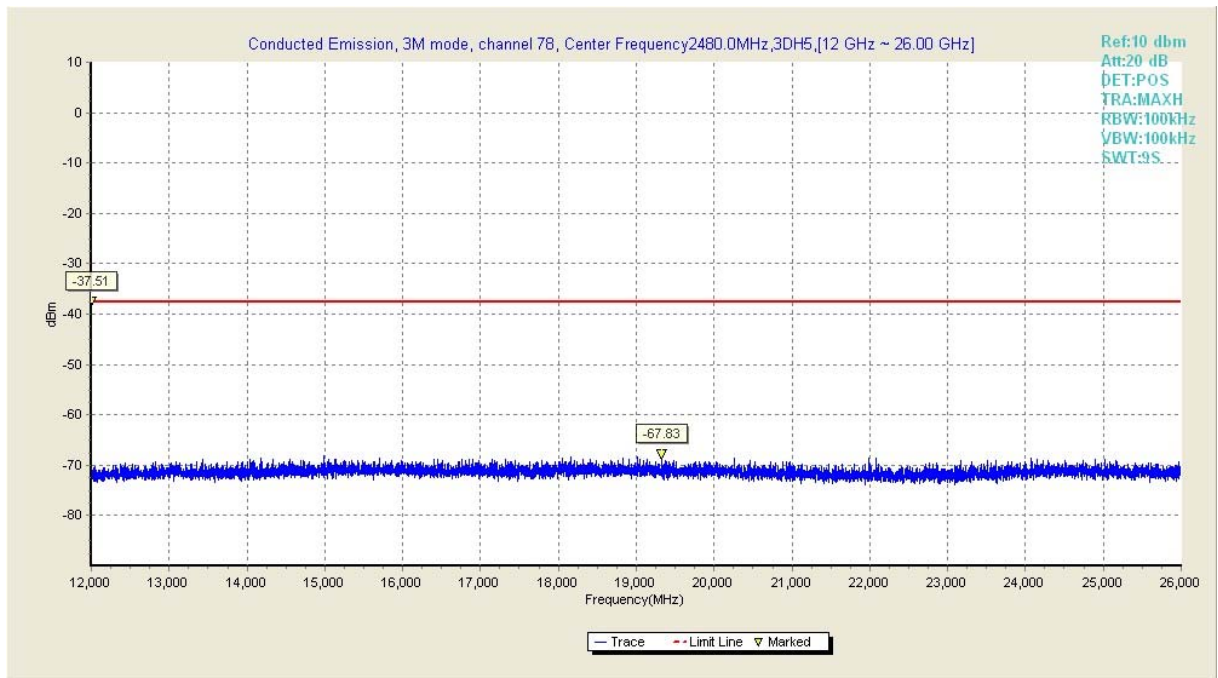


Fig.60 Conducted Emission in 3M mode ,channel 78, (12 GHz ~ 26 GHz)

B.8 AC Conducted Emission

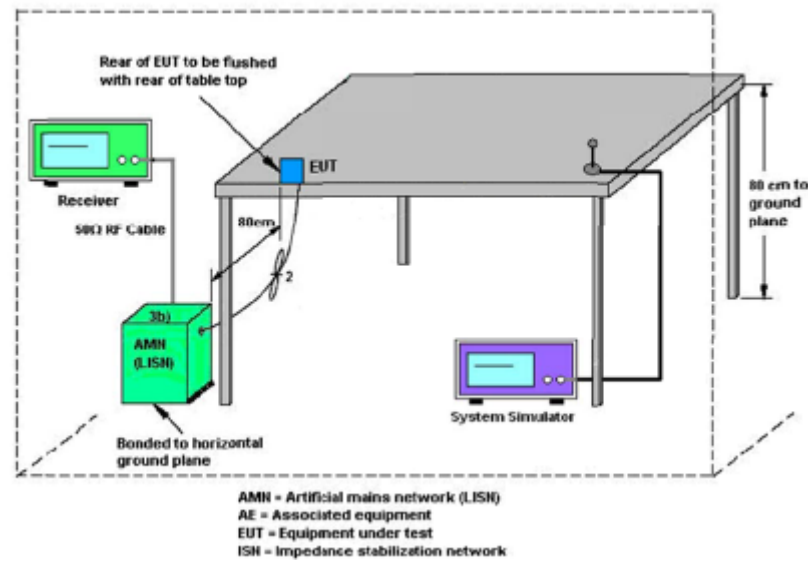
B.8.1 Description

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits

B.8.2 Test Procedure

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

B.8.4 Test Setup



B.8.5 Test Results

Limit

Frequency of Emission(MHz)	Conducted Limit(dBμV)	
	Quasi –Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with logarithm of the frequency		

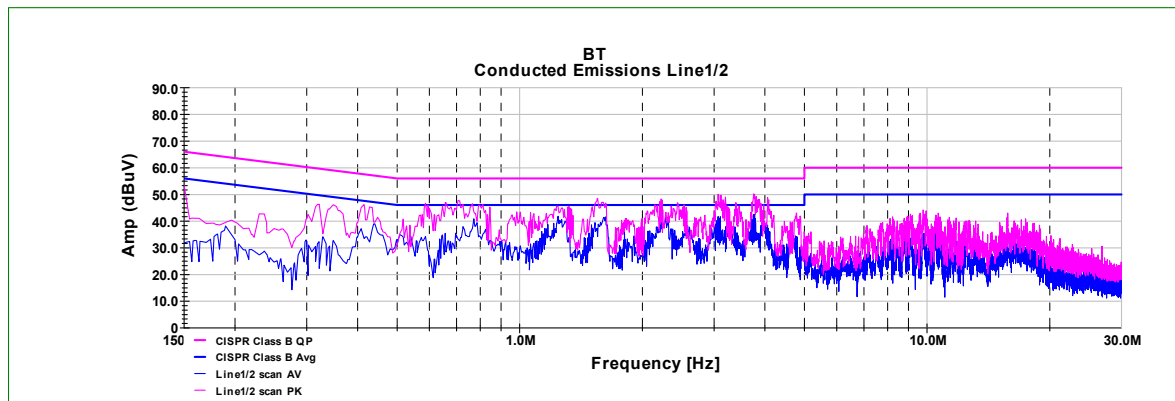


Fig.61 AC conducted emission in 0.15MHz~30MHz

B.9 Radiated Emission

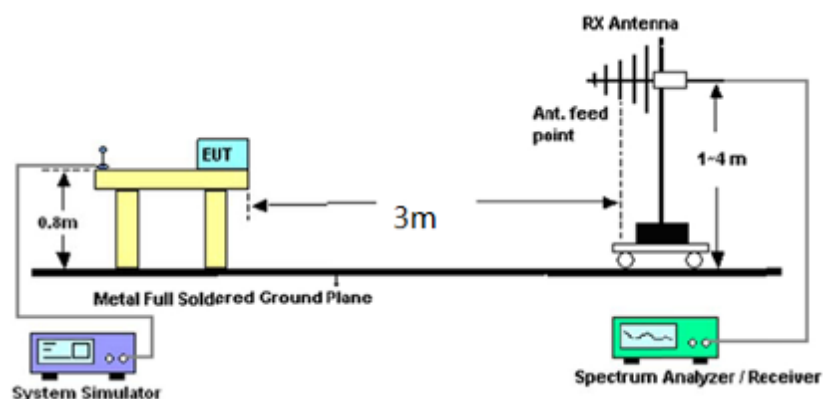
B.9.1 Limit of Radiated Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below

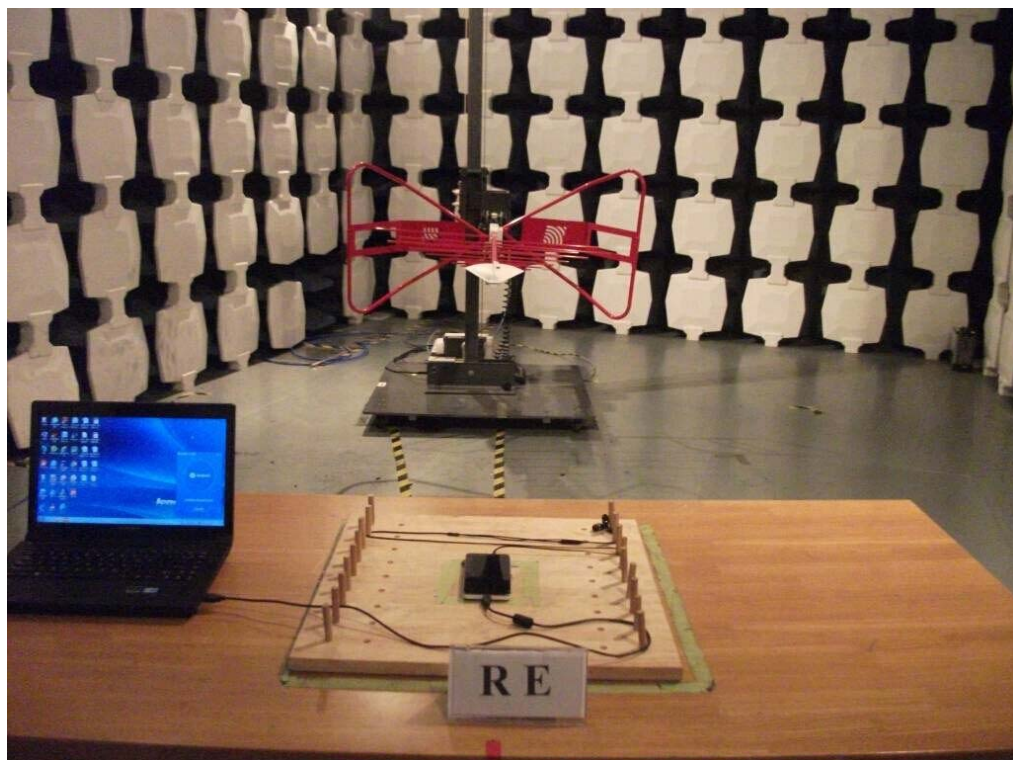
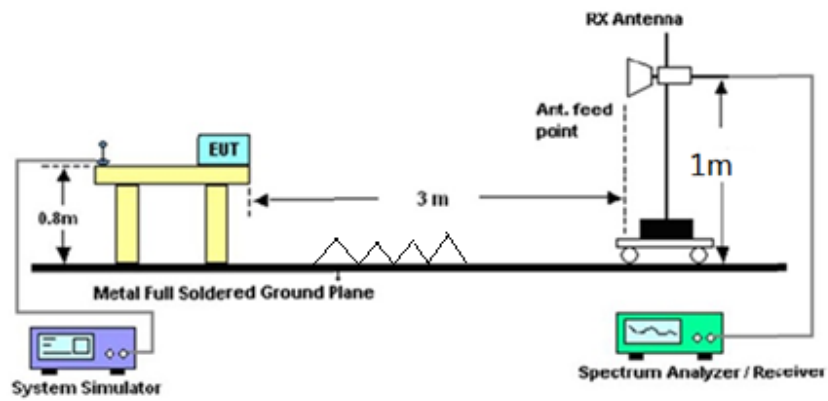
Frequency(MHz)	Field Strength(microvolts/meters)	Measurement Distance(Meters)
0.009-0.490	2400/F(kHz)	3000
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
above 960	500	3

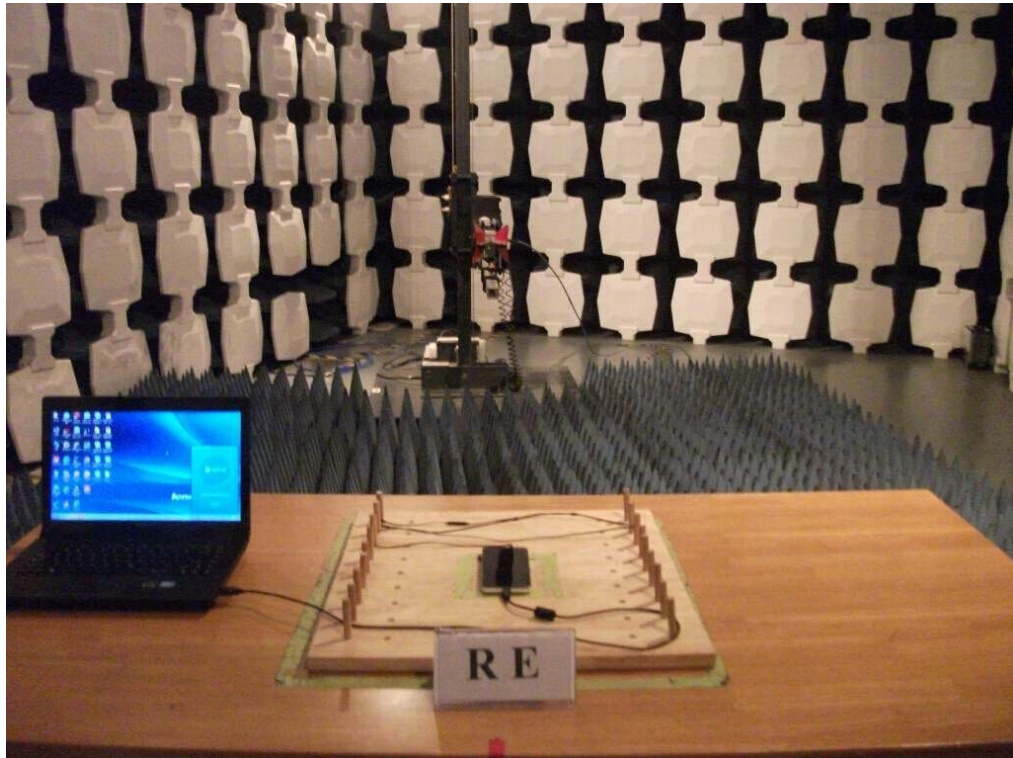
B.9.2 Test Setup

Radiated Emissions Frequency: Below 1GHz



Radiated Emissions Frequency: above 1GHz





B.9.3 Test Results

The low frequency, which started from 9kHz to 30MHz and the high frequency, which above 6GHz to 10th harmonic, were pre-scanned and which was 20dB lower than limit line per 15.31(0) were not reported.

Worst case data rate: 3M

Test Mode: Traffic

Verdict: Pass

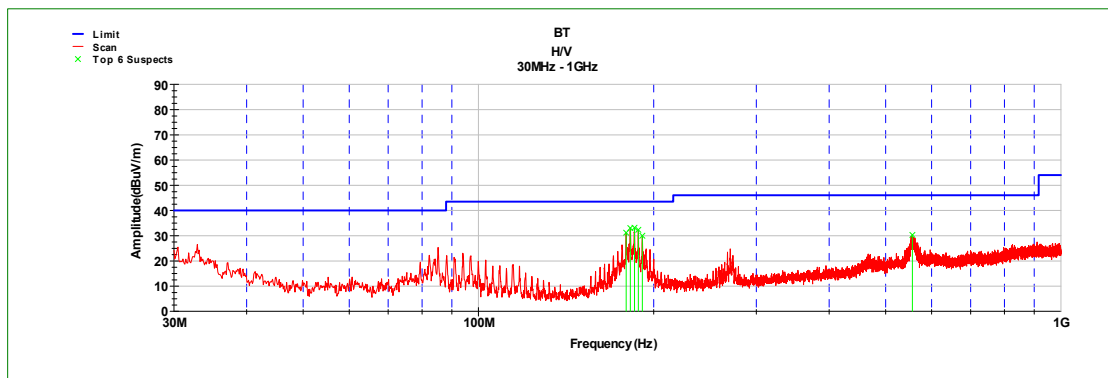


Fig.62 Radiated Emission of channel 0 in 30MHz-1GHz

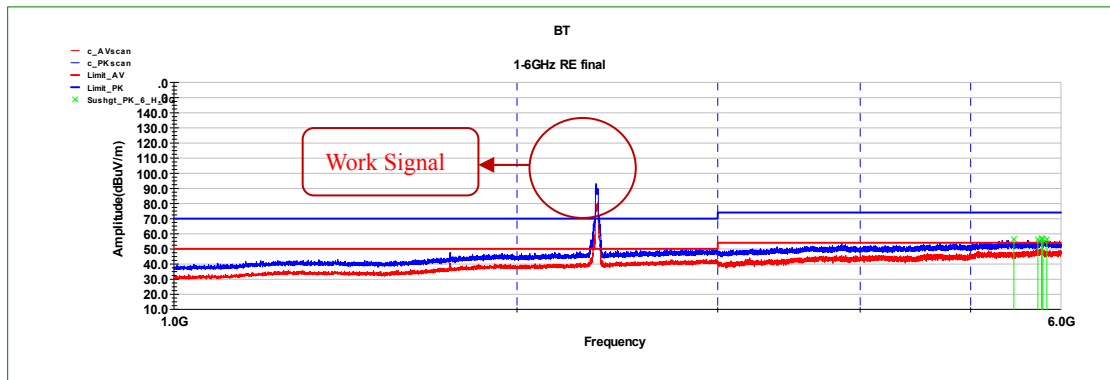


Fig.63 Radiated Emission of channel 0 in 1GHz-6GHz

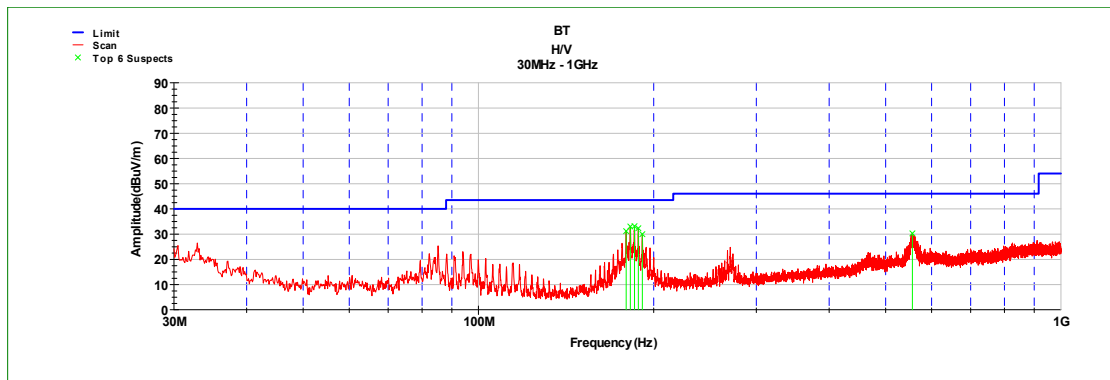


Fig.64 Radiated Emission of channel 39 in 30MHz-1GHz

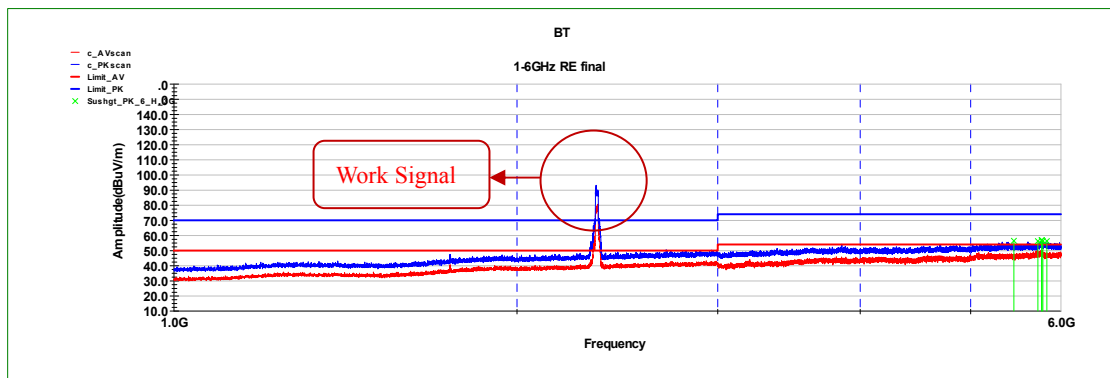


Fig.65 Radiated Emission of channel 39 in 1GHz-6GHz

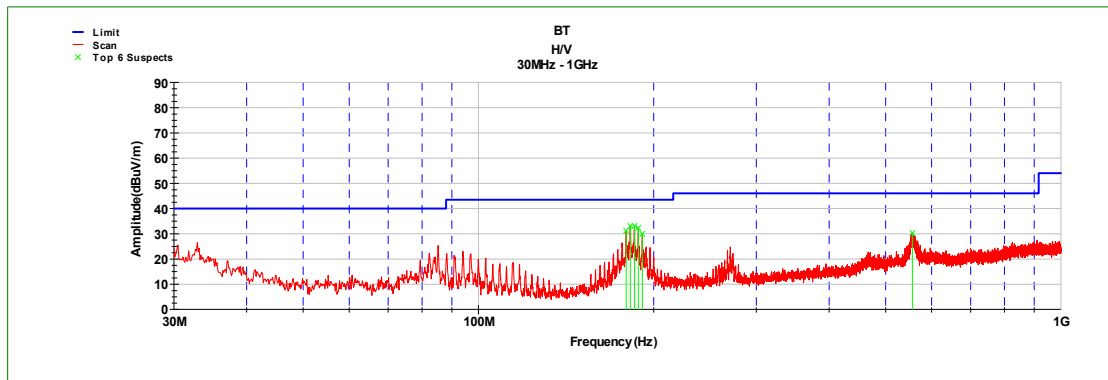


Fig.66 Radiated Emission of channel 78 in 30MHz-1GHz

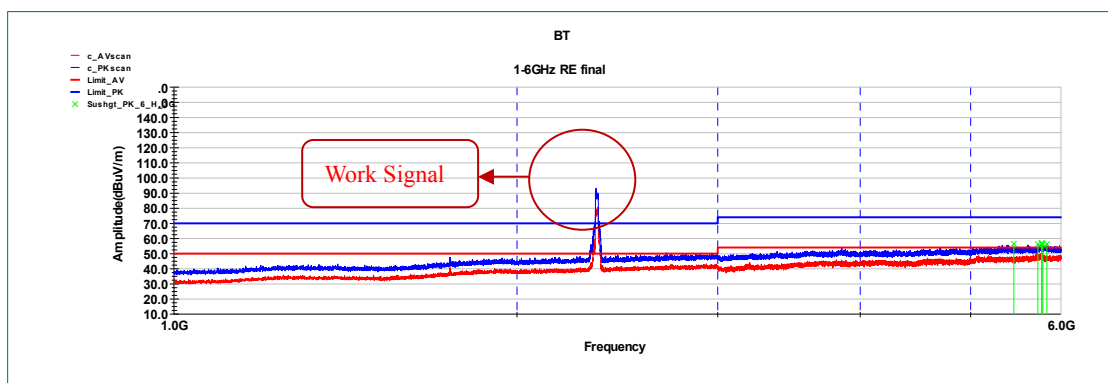


Fig.67 Radiated Emission of channel 78 in 1GHz-6GHz

B.10 Antenna Requirements

B.10.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. 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 FCC rule.

B.10.2 Antenna Connected construction

The Antenna type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement.

B.10.3 Antenna Gain

The antenna peak gain of EUT is less than 6dBi, Therefore, it is not necessary to reduced maximum peak output power limit.

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