

B.6.2 Test Results

Test equipment parameter:

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
2402~2480	15	79	Fig.34	Pass

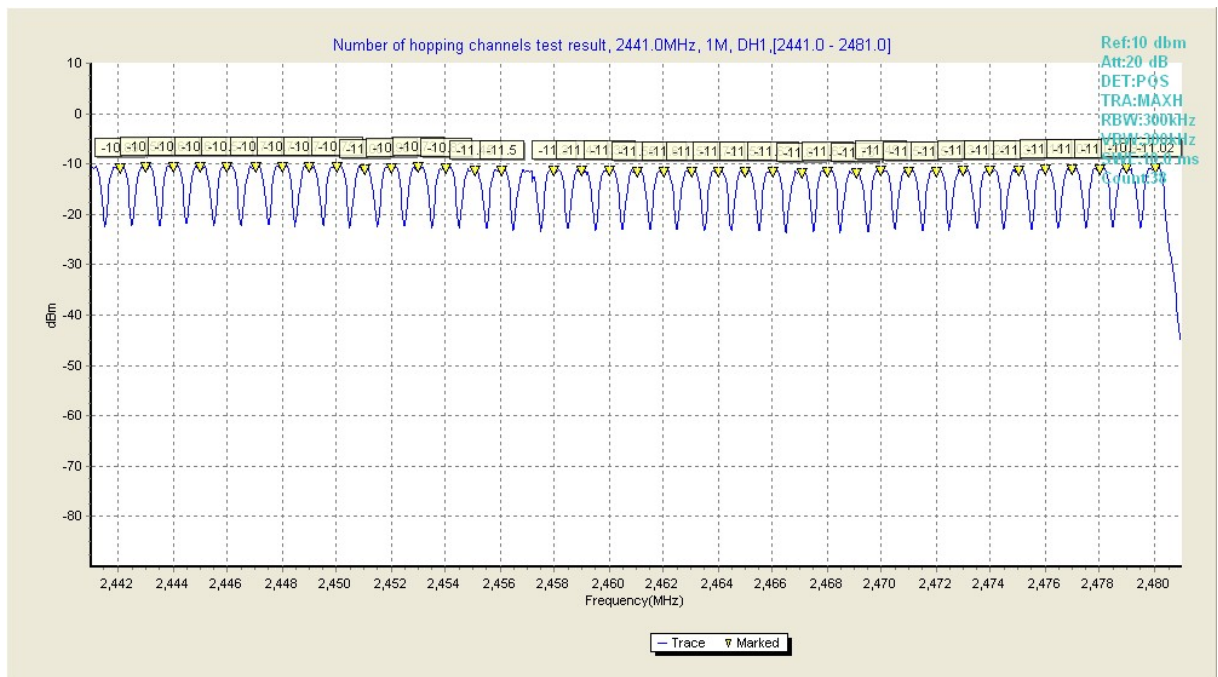
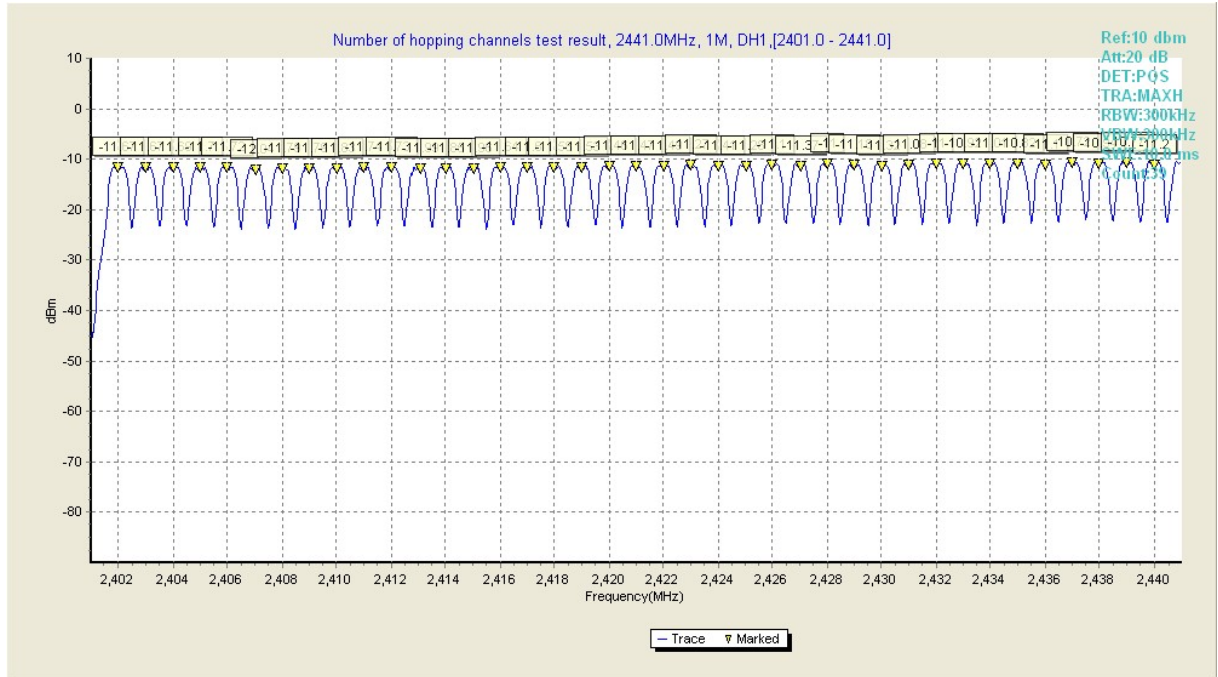


Fig34. Dwell Time in 1Mbps

$\pi/4$ -DQPSK Modulation

Hopping Channel Frequency Range(MHz)	Limits(Channel)	Number of hopping Channel	Test Results	Verdict
2402~2480	15	79	Fig.35	Pass

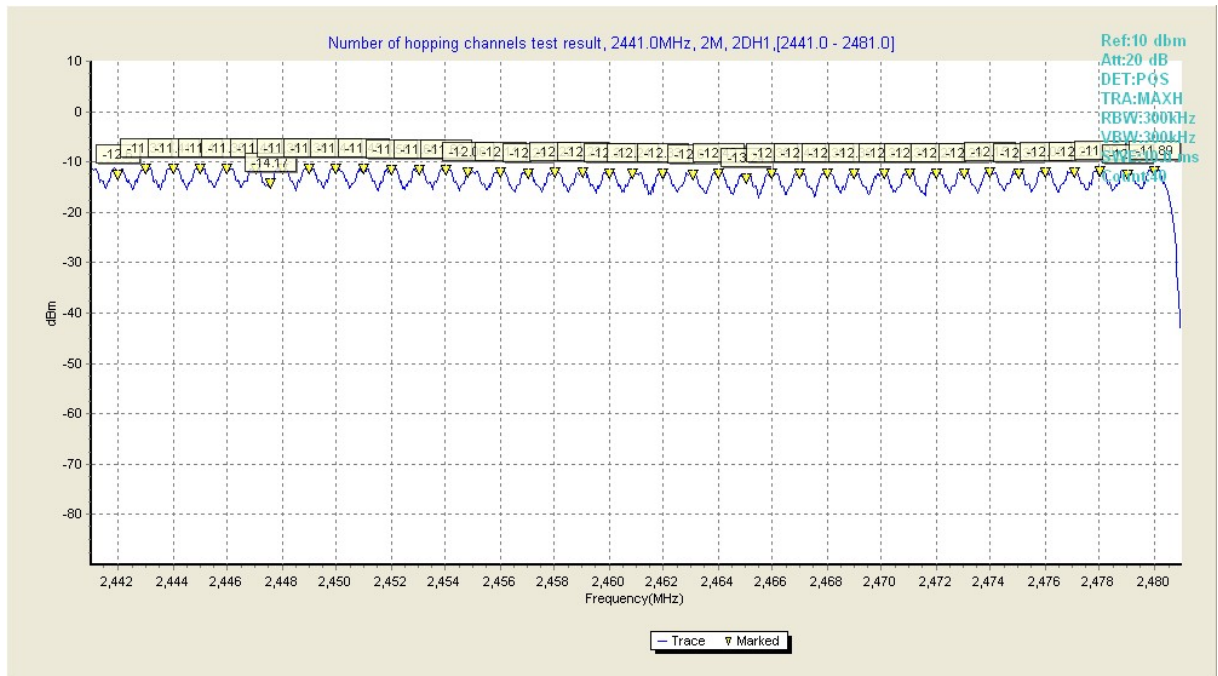
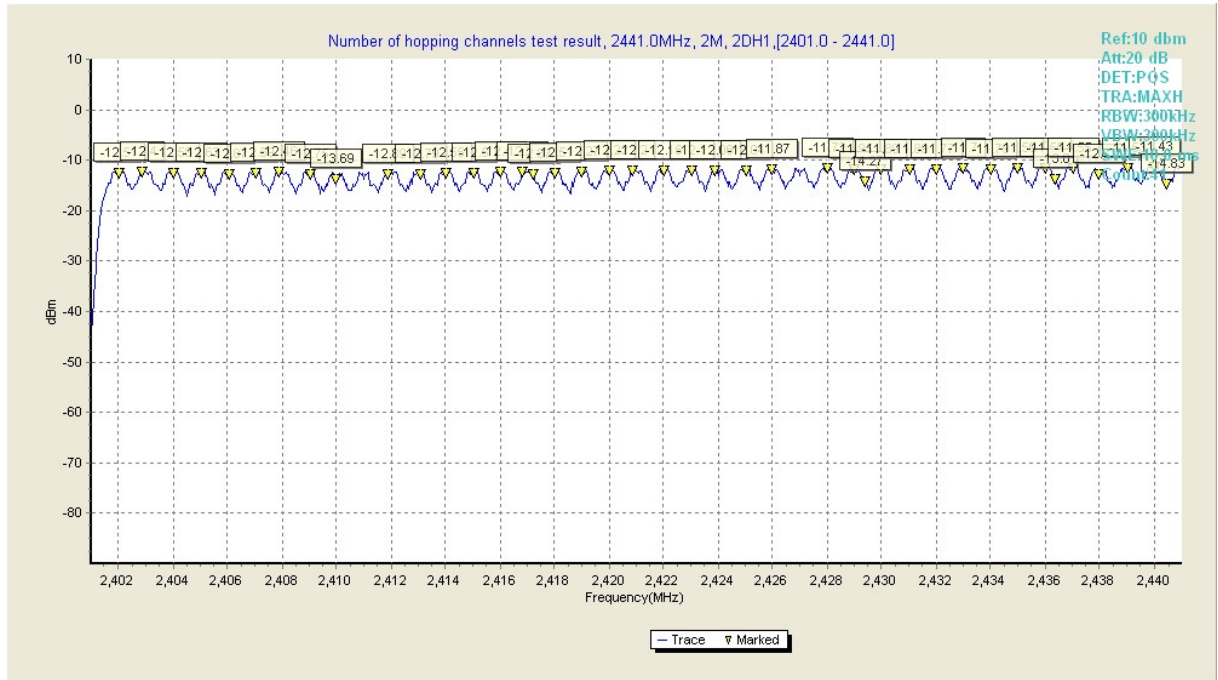


Fig35. Dwell Time in 2Mbps

8DPSK Modulation

Hopping Channel Frequency Range(MHz)	Limits(Channel)	Number of hopping Channel	Test Results	Verdict
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2402~2480	15	79	Fig.36	Pass
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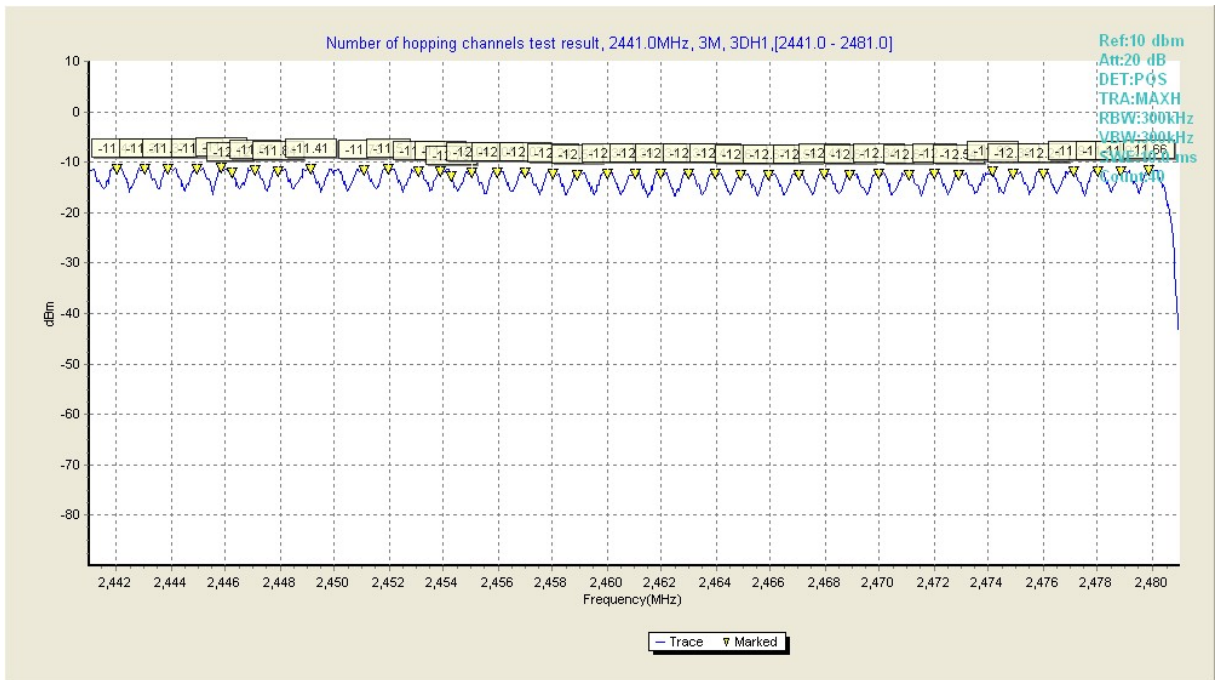
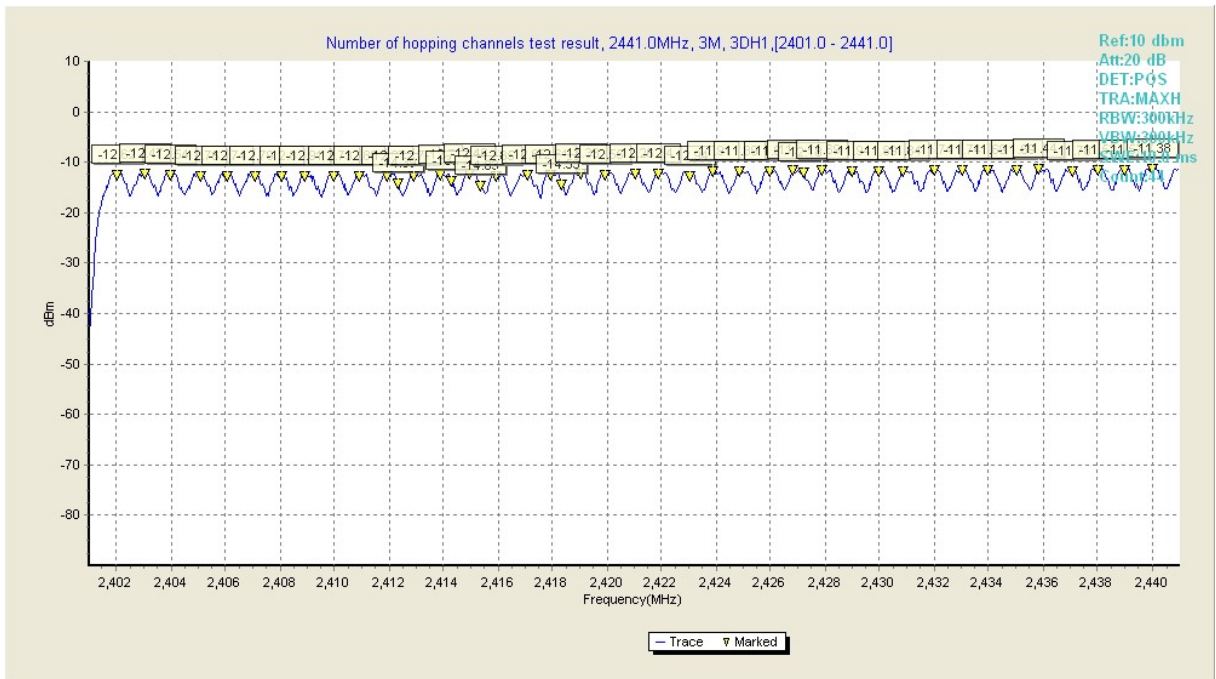


Fig36. Dwell Time in 3Mbps

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.37	Pass
	1GHz ~ 12GHz	Fig.38	Pass
	12GHz ~ 26GHz	Fig.38	Pass
39	30MHz ~ 1GHz	Fig.39	Pass
	1GHz ~ 12GHz	Fig.40	Pass
	12GHz ~ 26GHz	Fig.41	Pass
78	30MHz ~ 1GHz	Fig.42	Pass
	1GHz ~ 12GHz	Fig.43	Pass
	12GHz ~ 26GHz	Fig.44	Pass

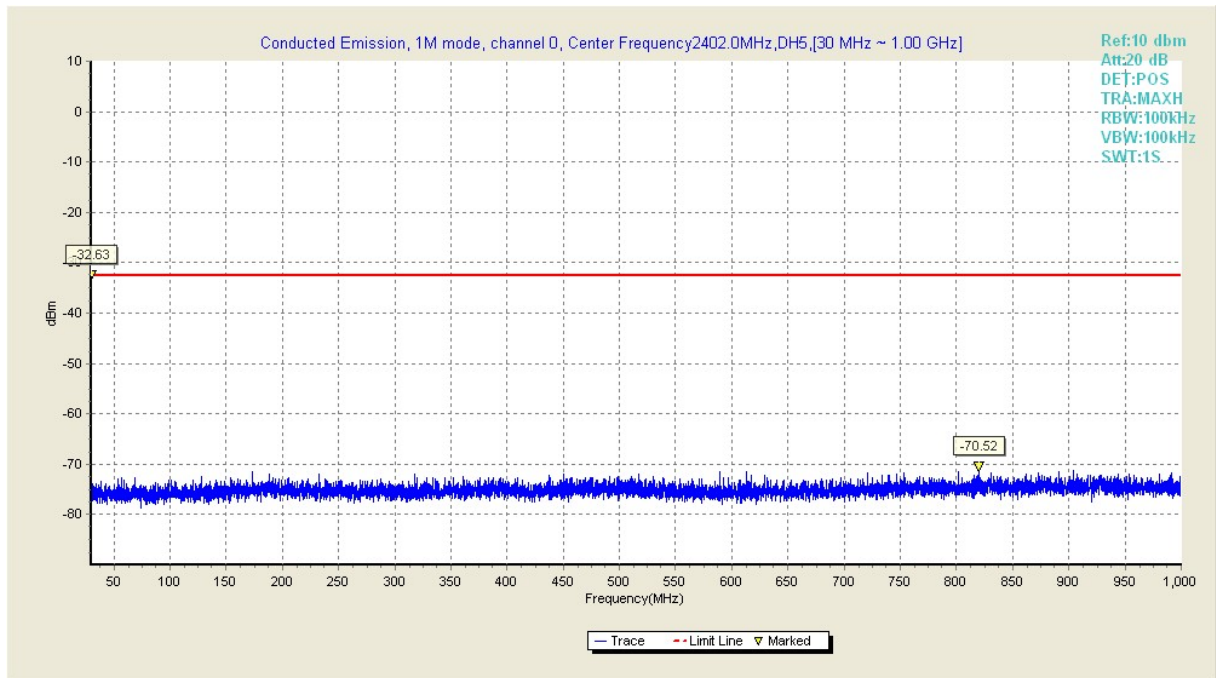


Fig.37 Conducted Emission in 1M mode ,channel 0, (30 MHz ~ 1 GHz)

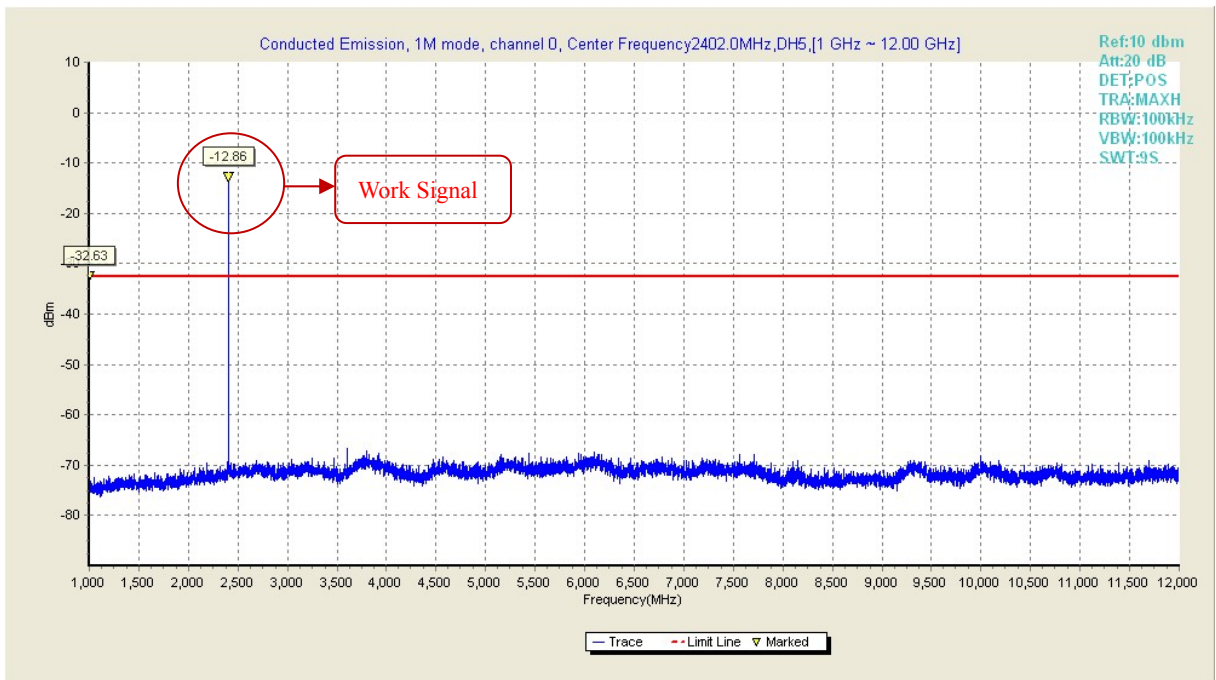


Fig.38 Conducted Emission in 1M mode ,channel 0, (1 GHz ~ 12 GHz)

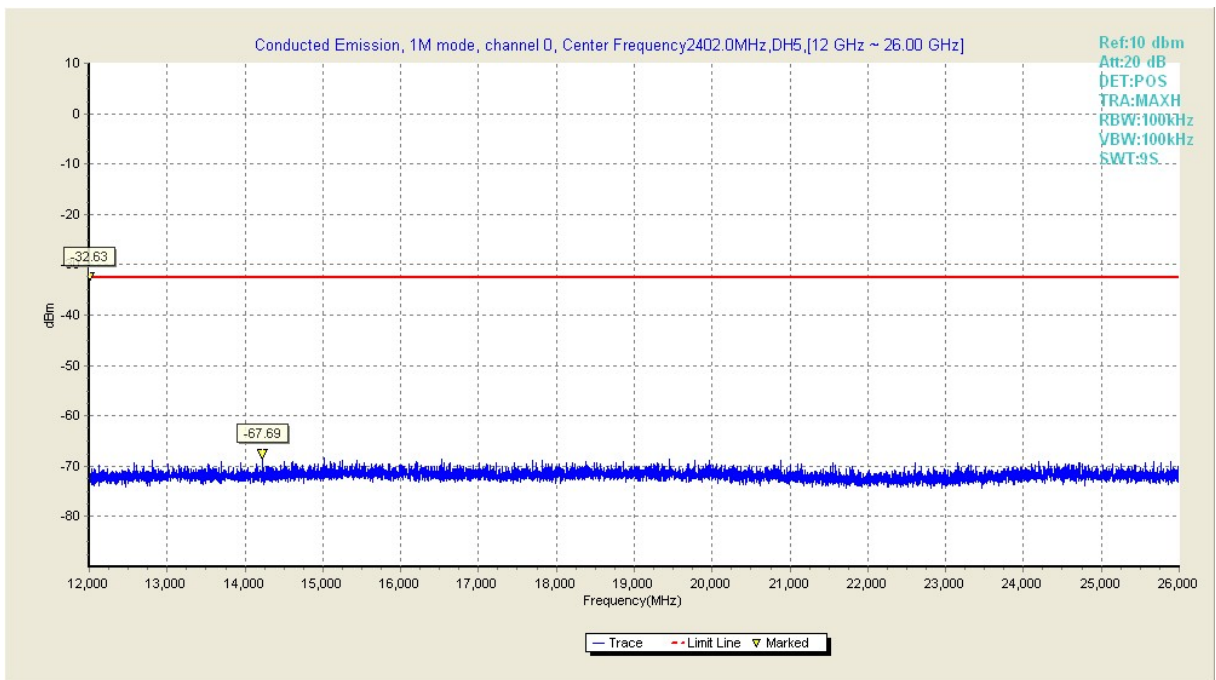


Fig.39 Conducted Emission in 1M mode ,channel 0, (12 GHz ~ 26 GHz)

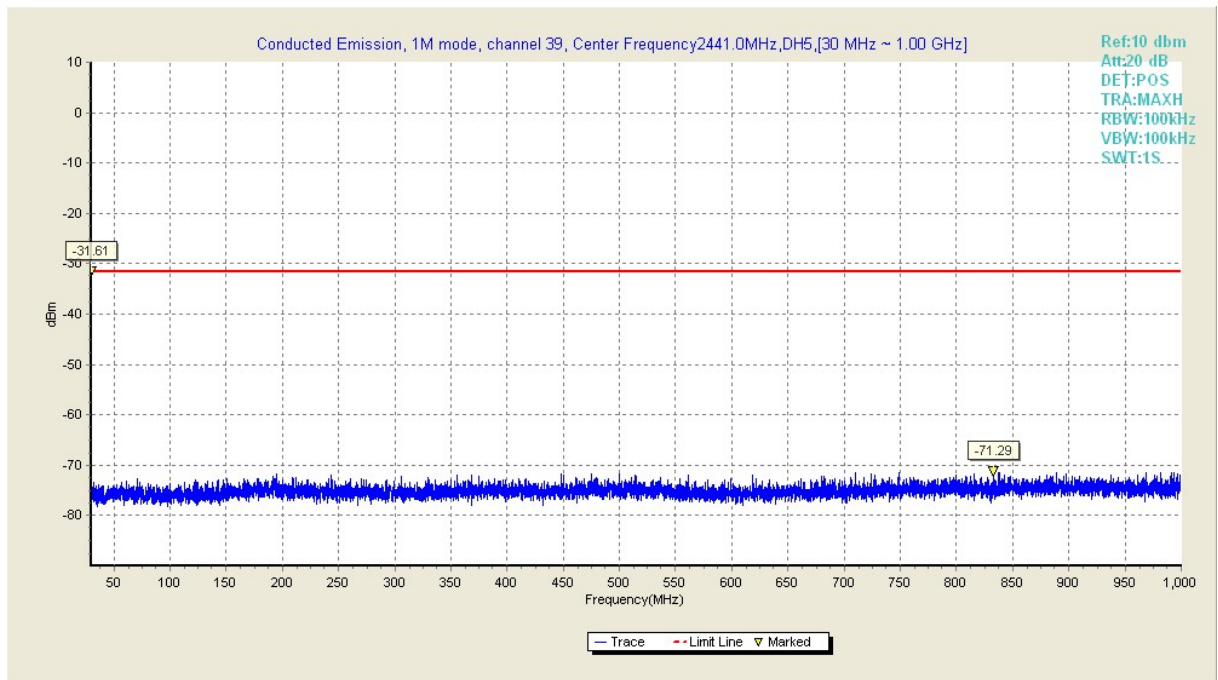


Fig.40 Conducted Emission in 1M mode ,channel 39, (30 MHz ~ 1 GHz)

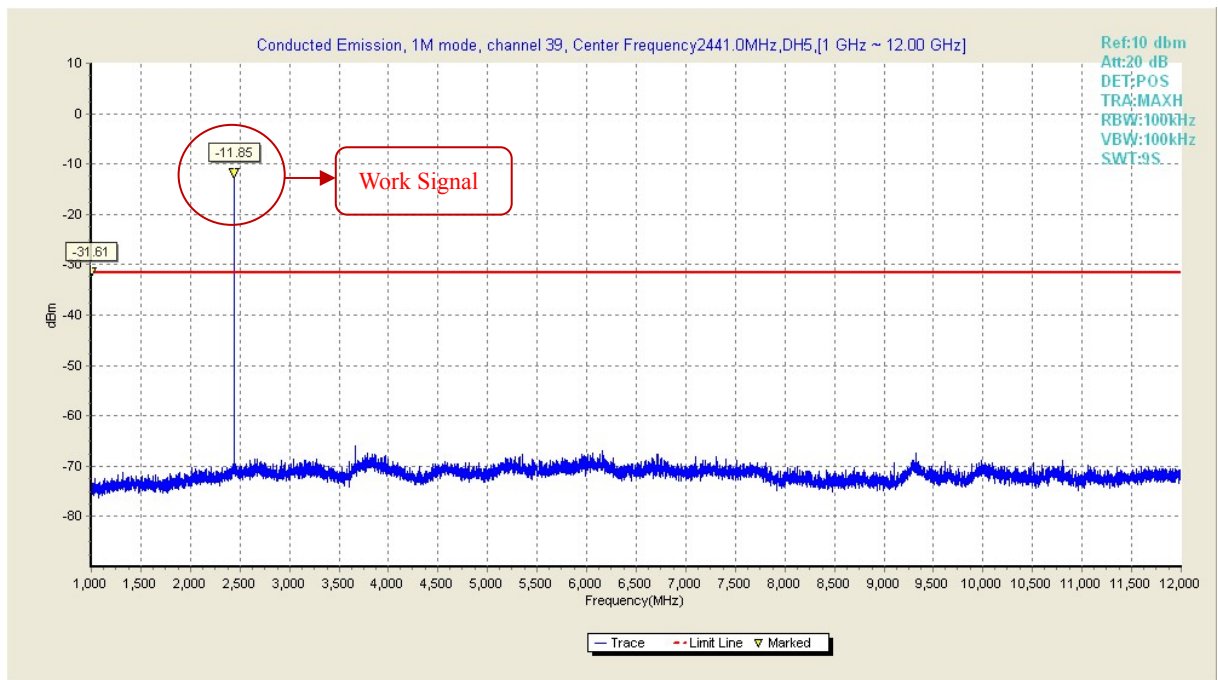


Fig.41 Conducted Emission in 1M mode ,channel 39, (1 GHz ~ 12 GHz)

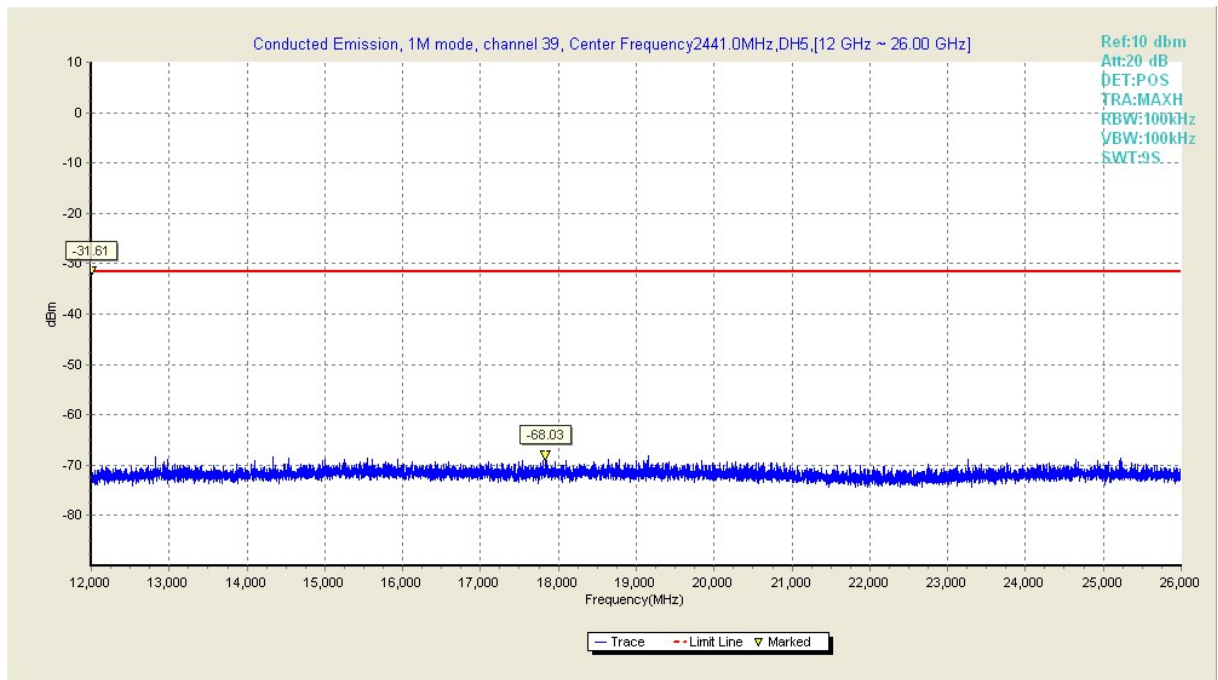


Fig.42 Conducted Emission in 1M mode ,channel 39, (12 GHz ~ 26 GHz)

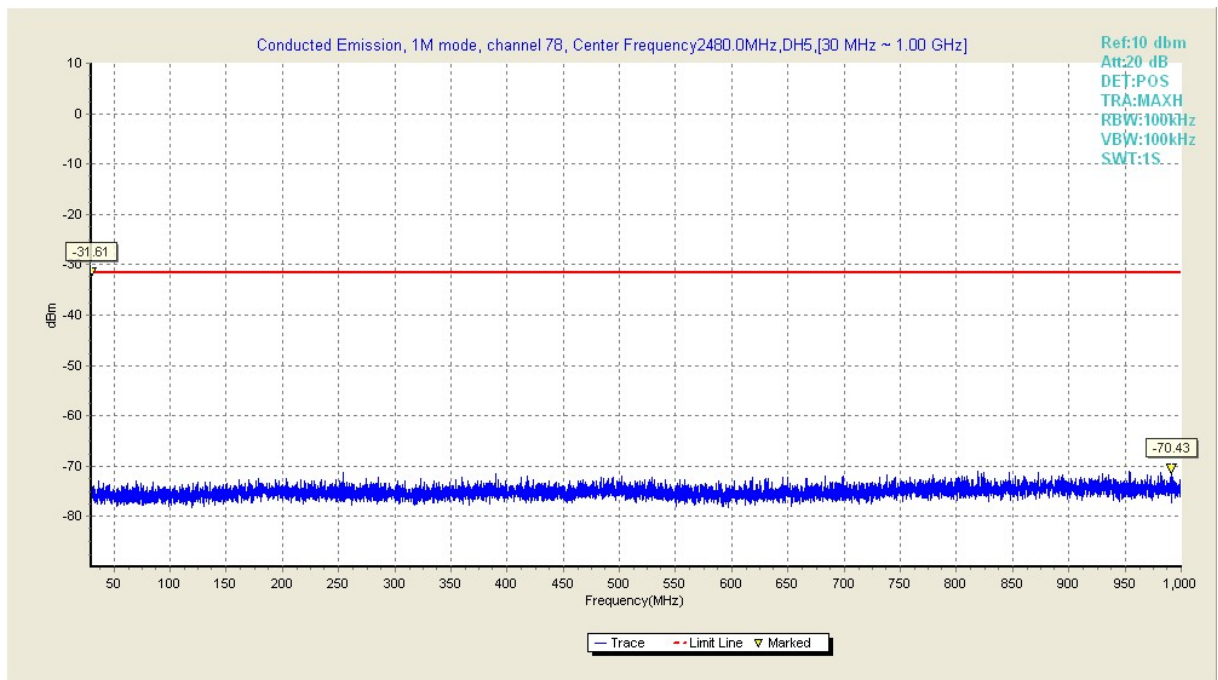


Fig.43 Conducted Emission in 1M mode ,channel 78, (30 MHz ~ 1 GHz)

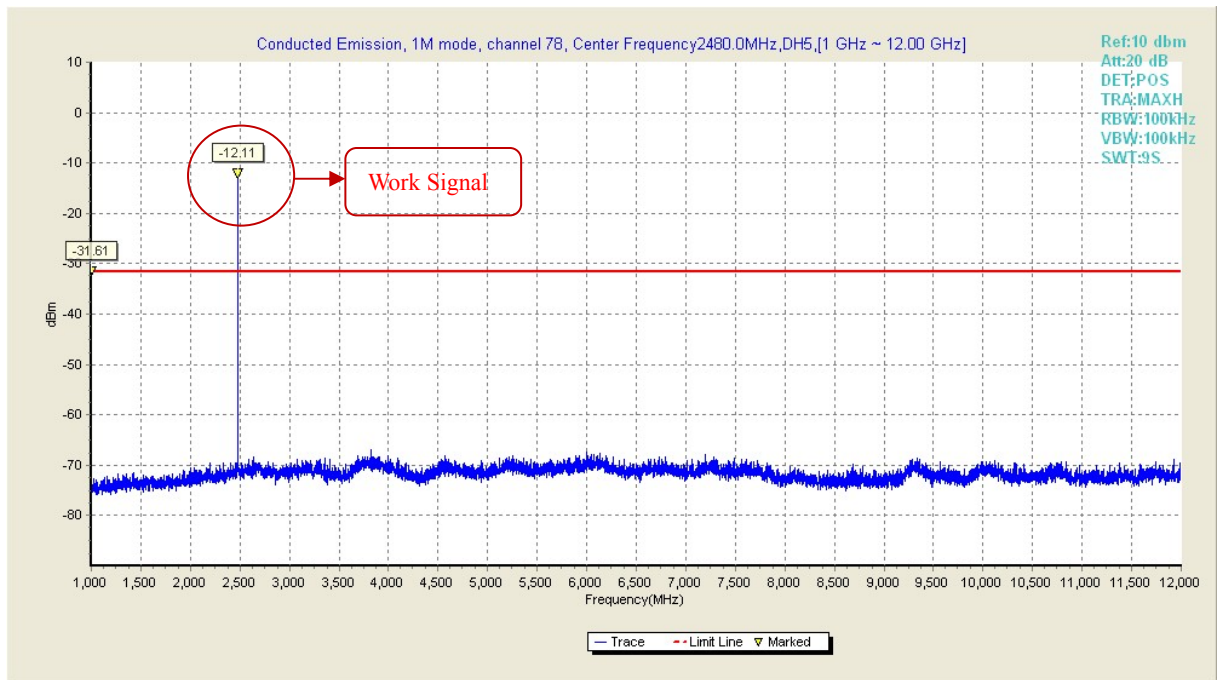


Fig.44 Conducted Emission in 1M mode ,channel 78, (1 GHz ~ 12 GHz)

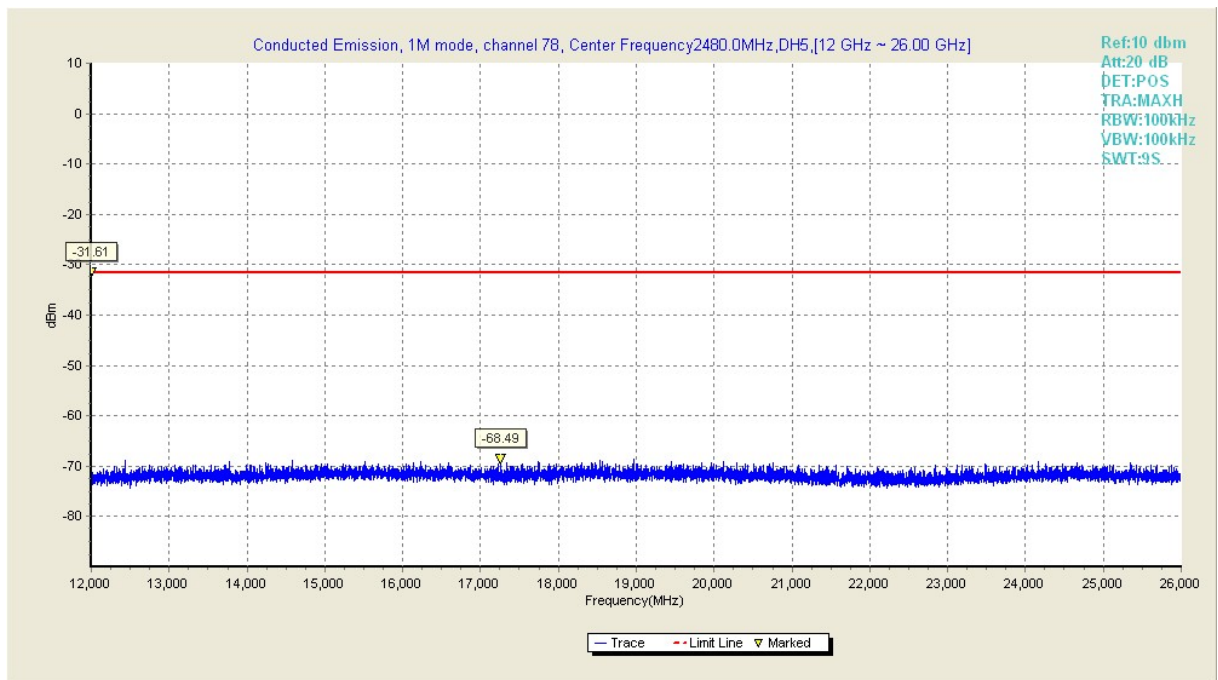


Fig.45 Conducted Emission in 1M mode ,channel 78, (12 GHz ~ 26 GHz)

$\pi/4$ -DQPSK Modulation

Channel	Frequency Range	Test Results	Verdict
0	30MHz ~ 1GHz	Fig.46	Pass
	1GHz ~ 12GHz	Fig.47	Pass
	12GHz ~ 26GHz	Fig.48	Pass
39	30MHz ~ 1GHz	Fig.49	Pass

	1GHz ~ 12GHz	Fig.50	Pass
	1GHz ~ 26GHz	Fig.51	Pass
78	30MHz ~ 1GHz	Fig.52	Pass
	1GHz ~ 12GHz	Fig.53	Pass
	1GHz ~ 26GHz	Fig.54	Pass

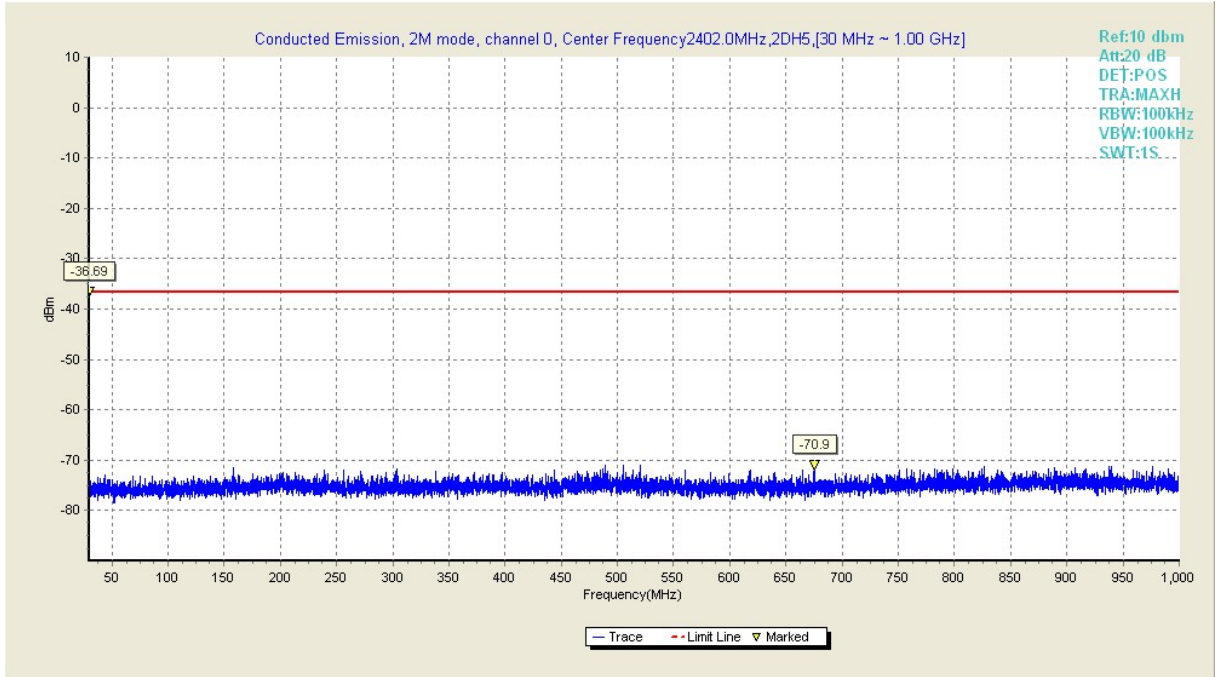


Fig.46 Conducted Emission in 2M mode ,channel 0, (30 MHz ~ 1 GHz)

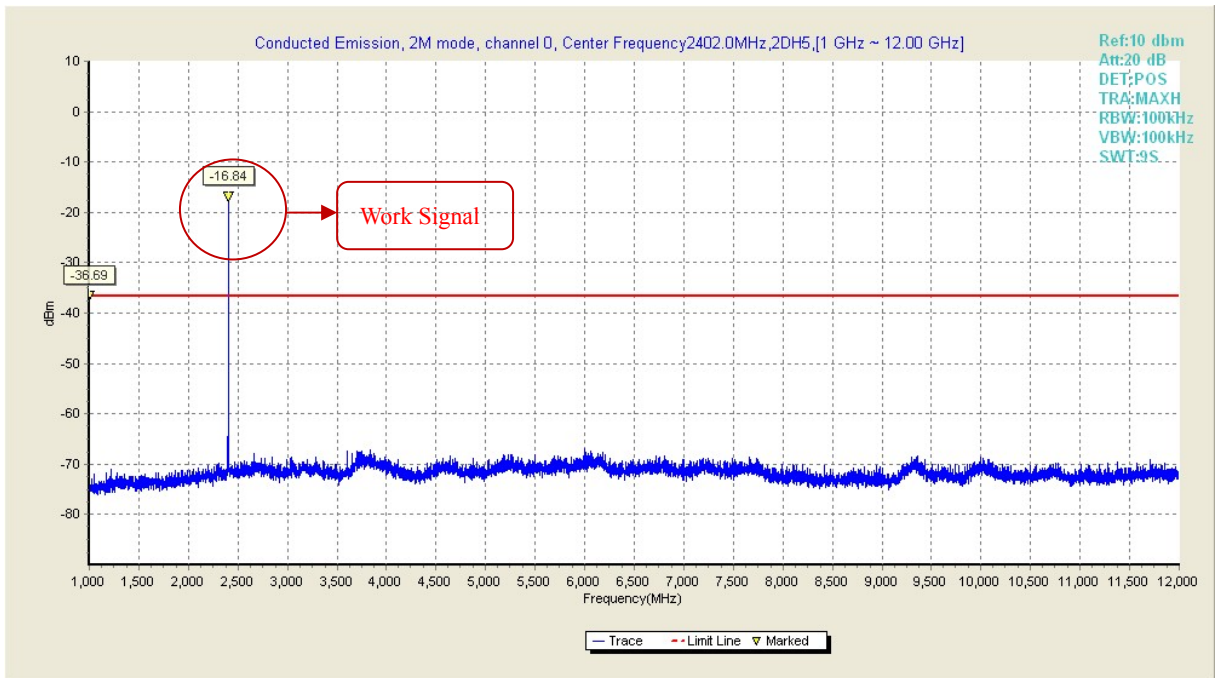


Fig.47 Conducted Emission in 2M mode ,channel 0, (1 GHz ~ 12 GHz)

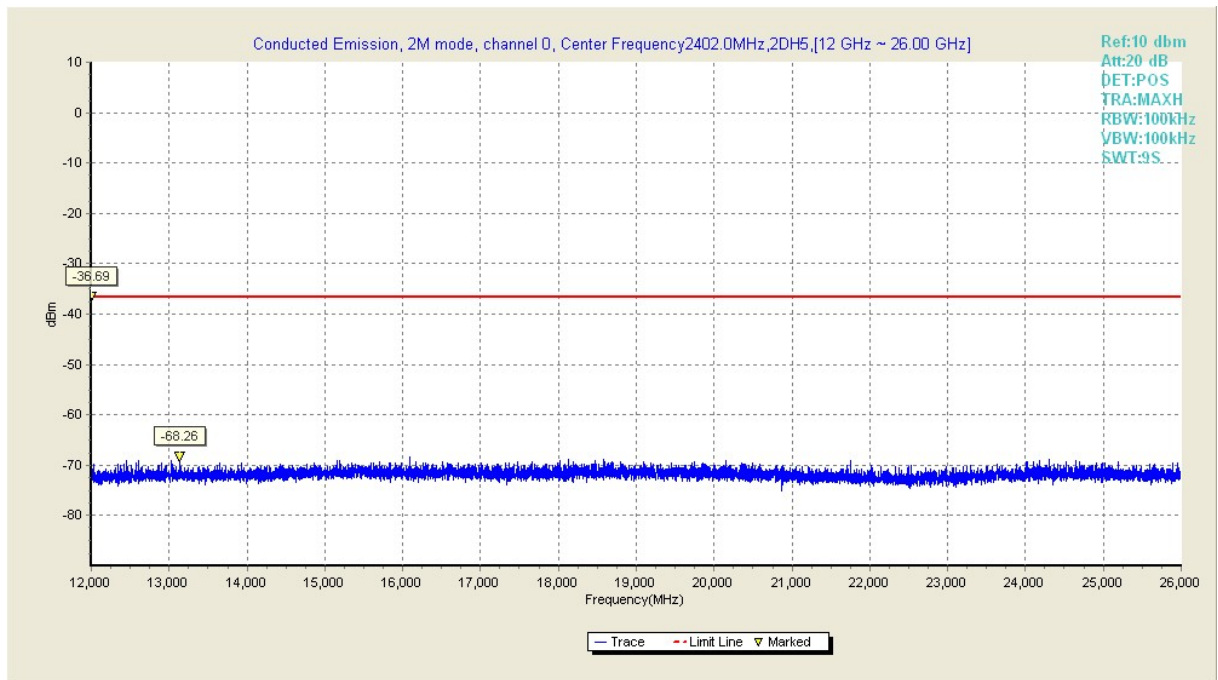


Fig.48 Conducted Emission in 2M mode ,channel 0, (12 GHz ~ 26 GHz)

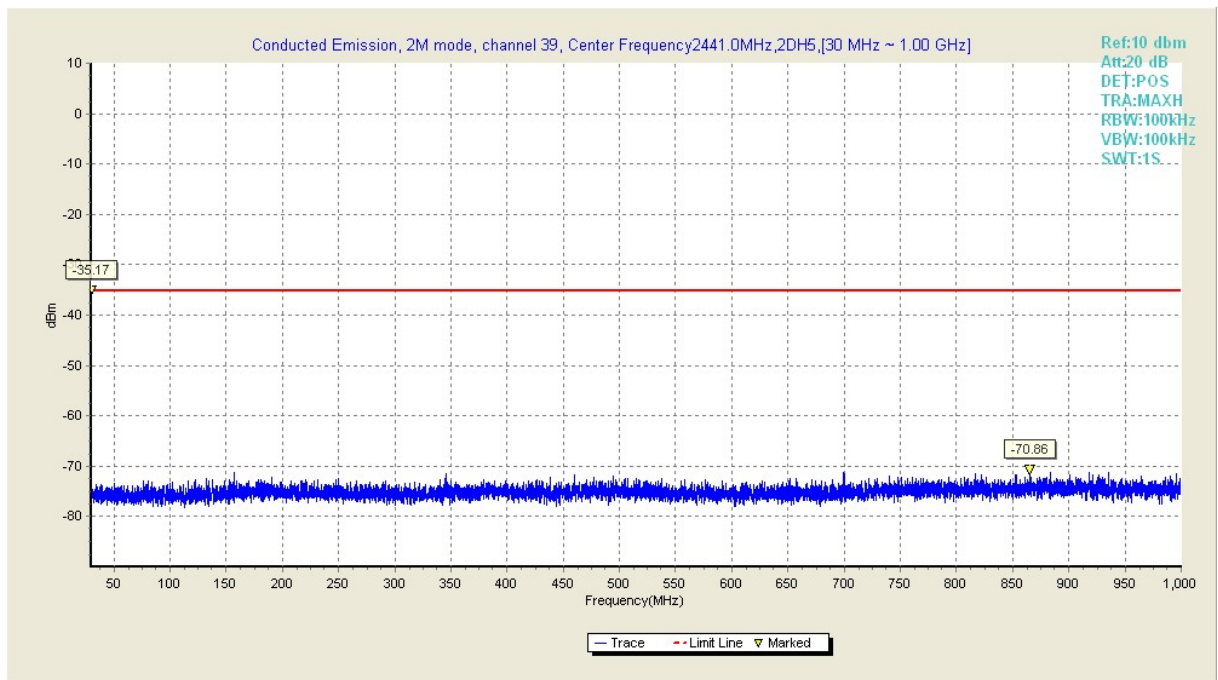


Fig.49 Conducted Emission in 2M mode ,channel 39, (30 MHz ~ 1 GHz)

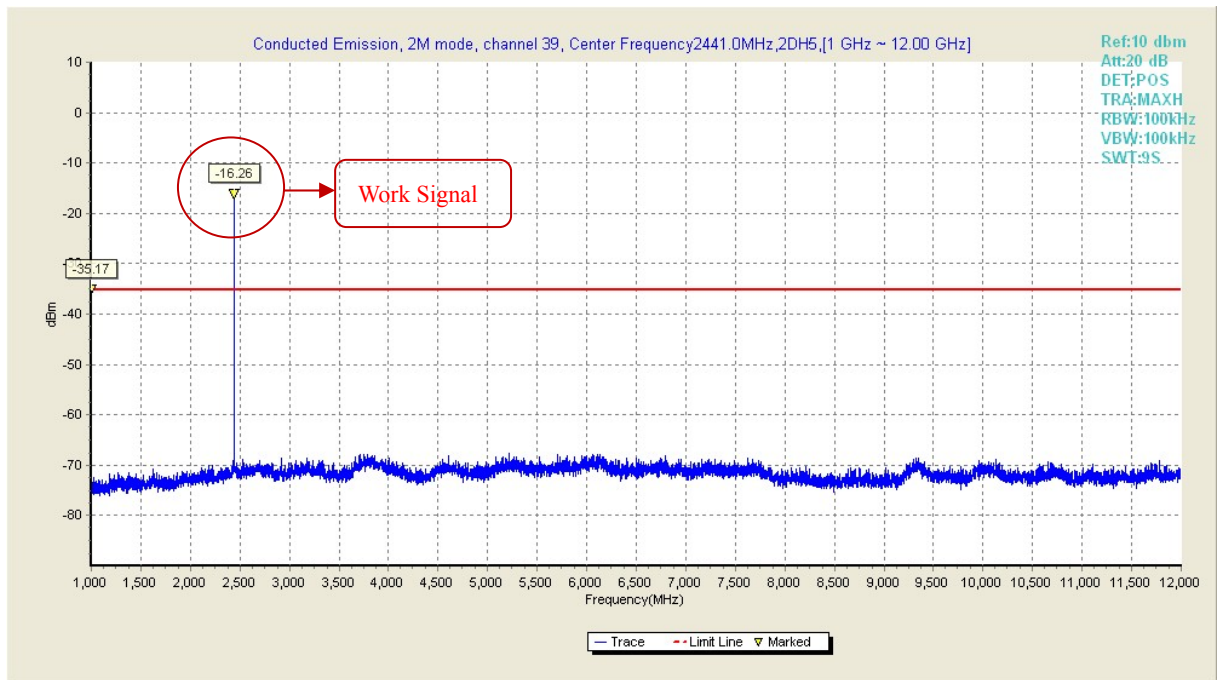


Fig.50 Conducted Emission in 2M mode ,channel 39, (1 GHz ~ 12 GHz)

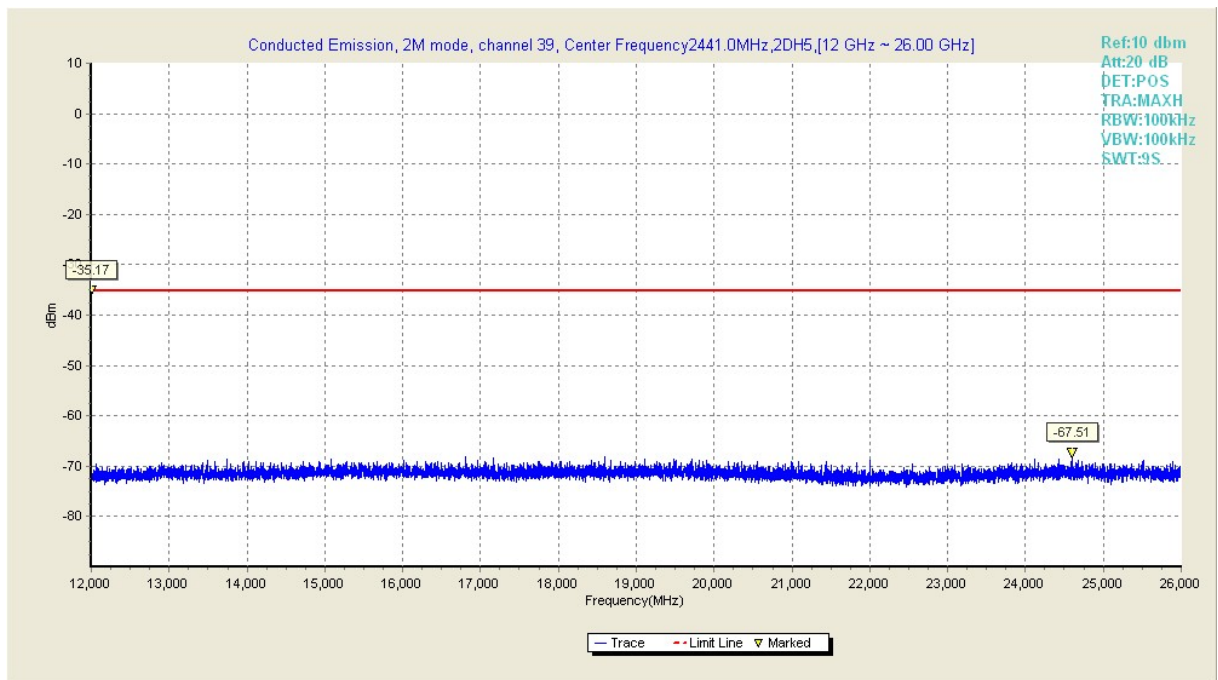


Fig.51 Conducted Emission in 2M mode ,channel 39, (12 GHz ~ 26 GHz)

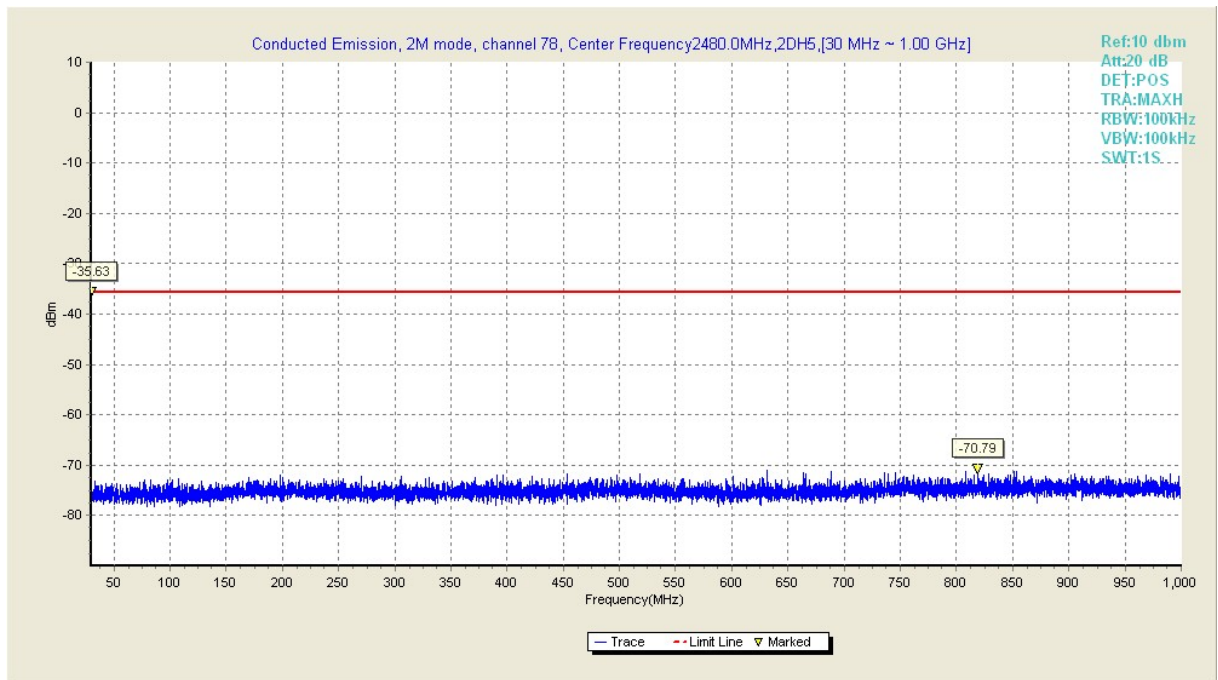


Fig.52 Conducted Emission in 2M mode ,channel 78, (30 MHz ~ 1 GHz)

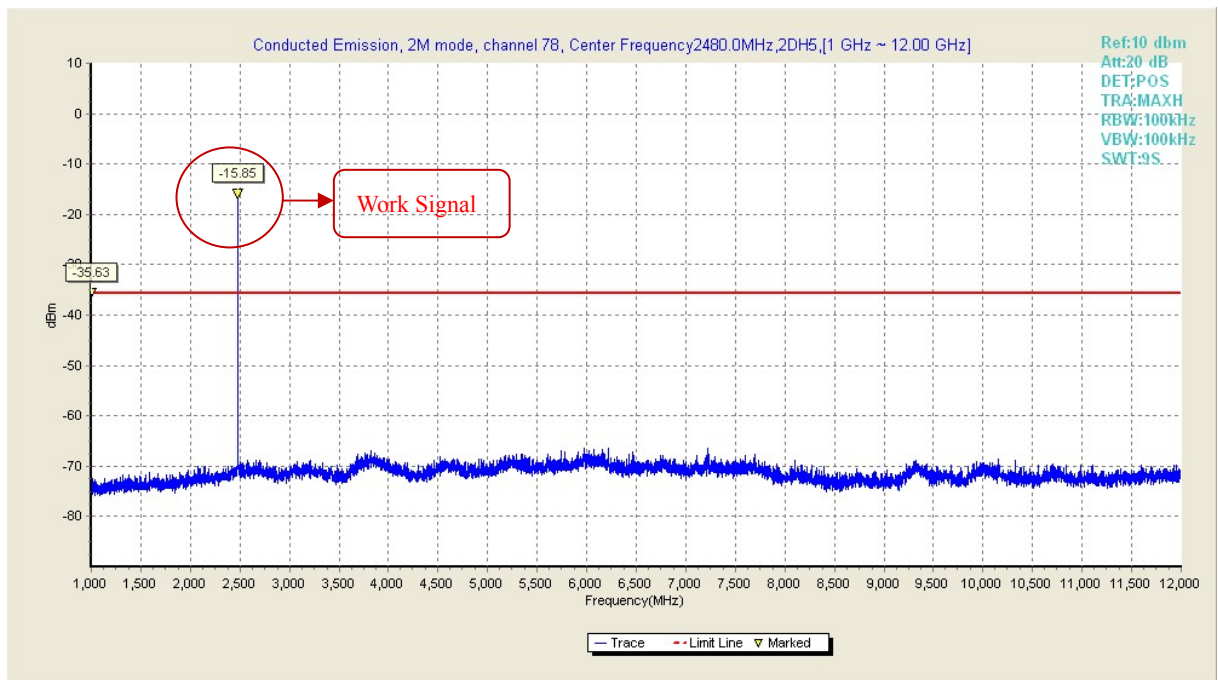


Fig.53 Conducted Emission in 2M mode ,channel 78, (1 GHz ~ 12 GHz)

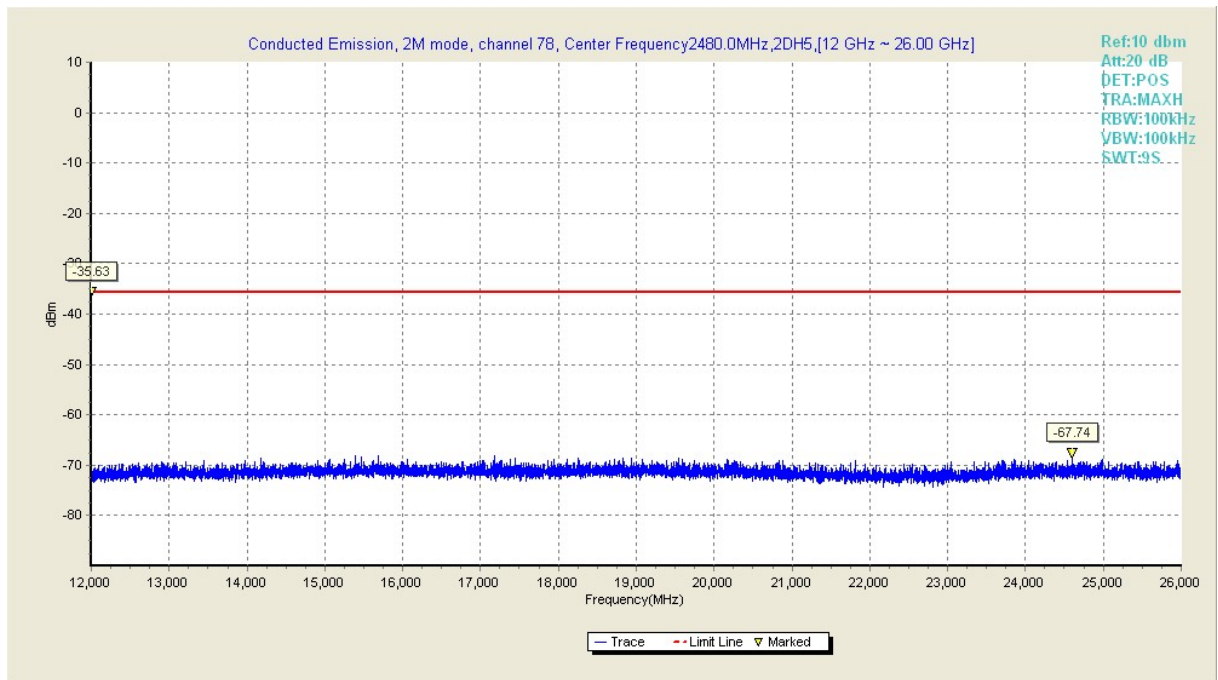


Fig.54 Conducted Emission in 2M mode ,channel 78, (12 GHz ~ 26 GHz)

8DPSK Modulation

Channel	Frequency Range	Test Results	Verdict
0	30MHz ~ 1GHz	Fig.55	Pass
	1GHz ~ 12GHz	Fig.56	Pass
	12GHz ~ 26GHz	Fig.57	Pass
39	30MHz ~ 1GHz	Fig.58	Pass
	1GHz ~ 12GHz	Fig.59	Pass
	1GHz ~ 26GHz	Fig.60	Pass
78	30MHz ~ 1GHz	Fig.61	Pass
	1GHz ~ 12GHz	Fig.62	Pass
	1GHz ~ 26GHz	Fig.63	Pass

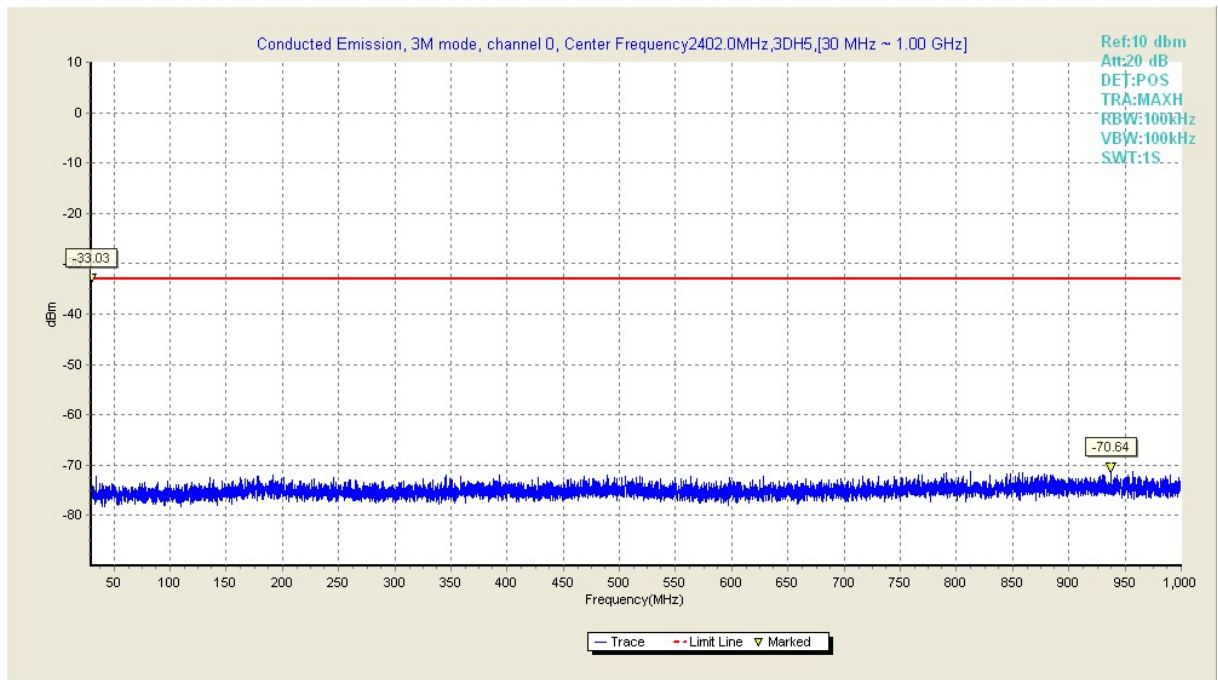


Fig.55 Conducted Emission in 3M mode ,channel 0, (30 MHz ~ 1 GHz)

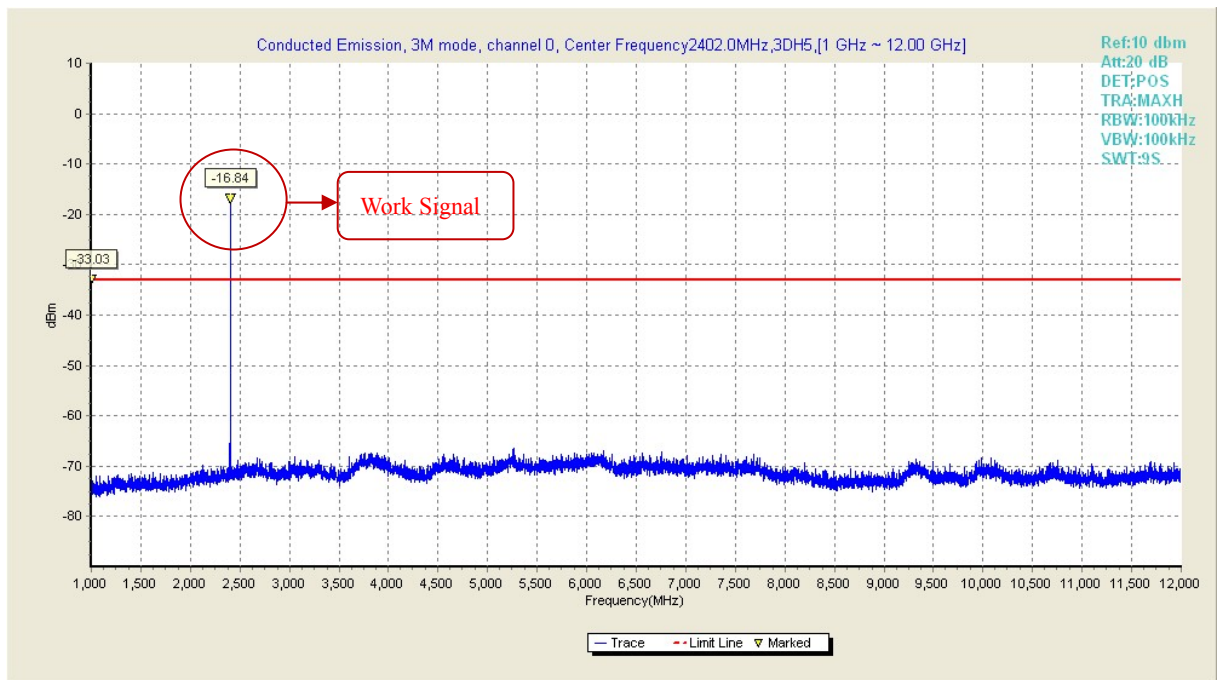


Fig.56 Conducted Emission in 3M mode ,channel 0, (1 GHz ~ 12 GHz)

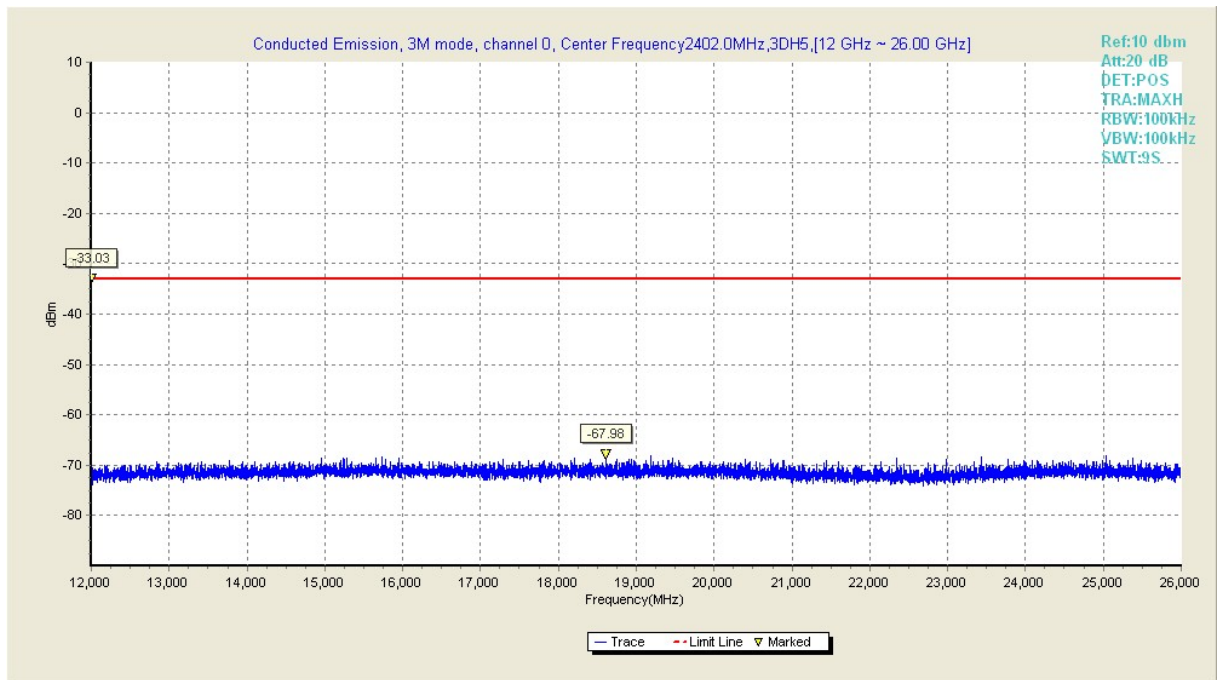


Fig.57 Conducted Emission in 3M mode ,channel 0, (12 GHz ~ 26 GHz)

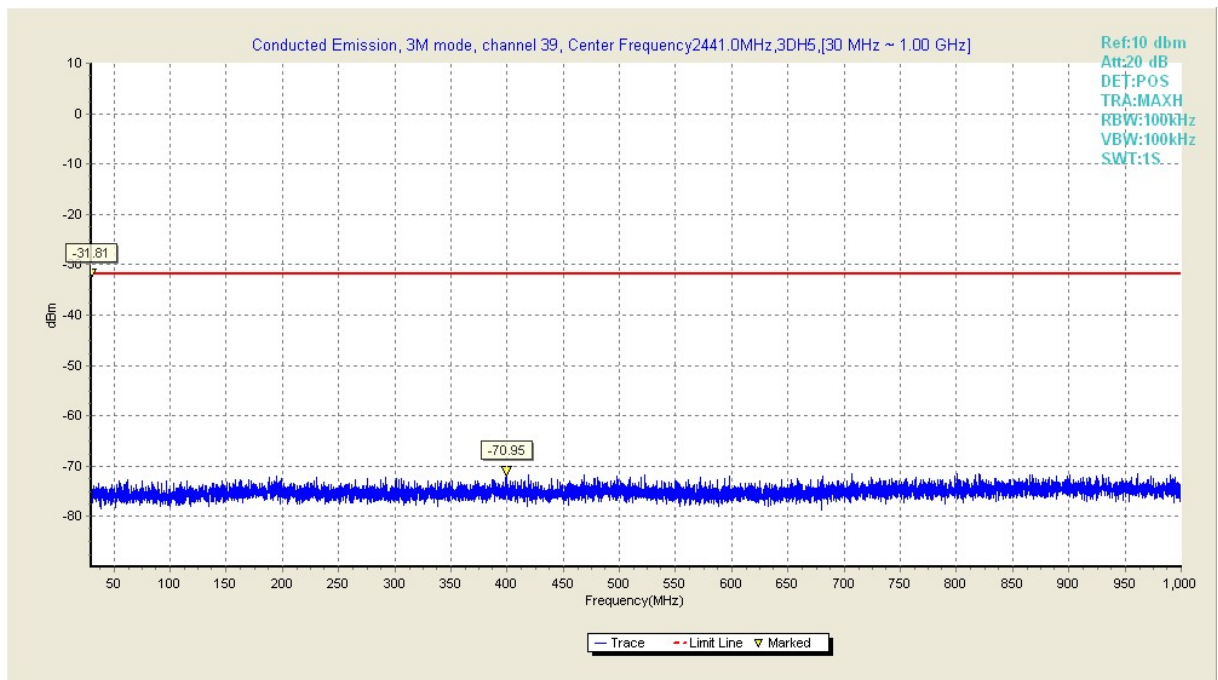


Fig.58 Conducted Emission in 3M mode ,channel 39, (30 MHz ~ 1 GHz)

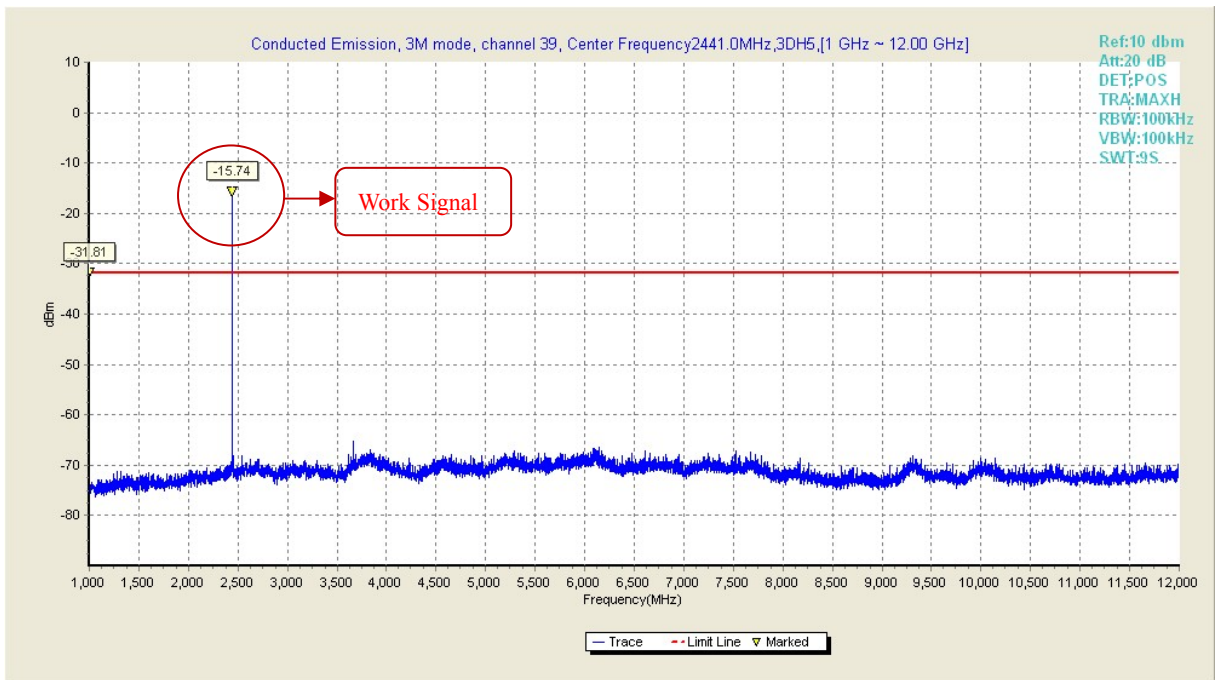


Fig.59 Conducted Emission in 3M mode ,channel 39, (1 GHz ~ 12 GHz)

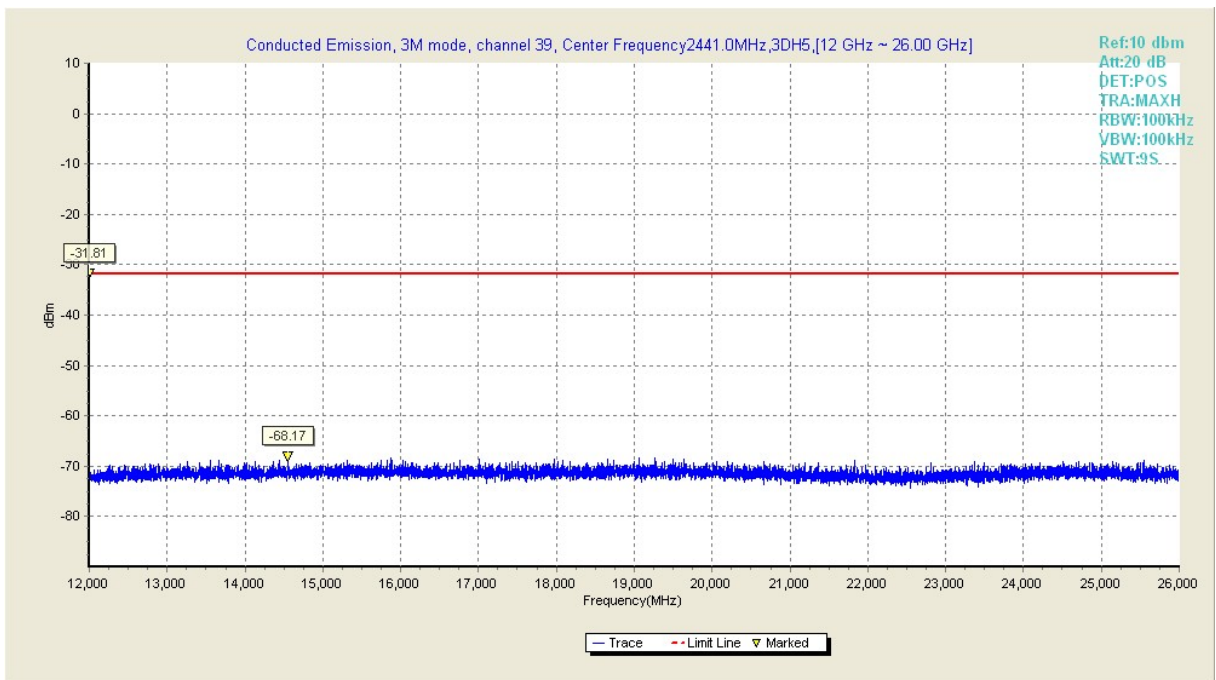


Fig.60 Conducted Emission in 3M mode ,channel 39, (12 GHz ~ 26 GHz)

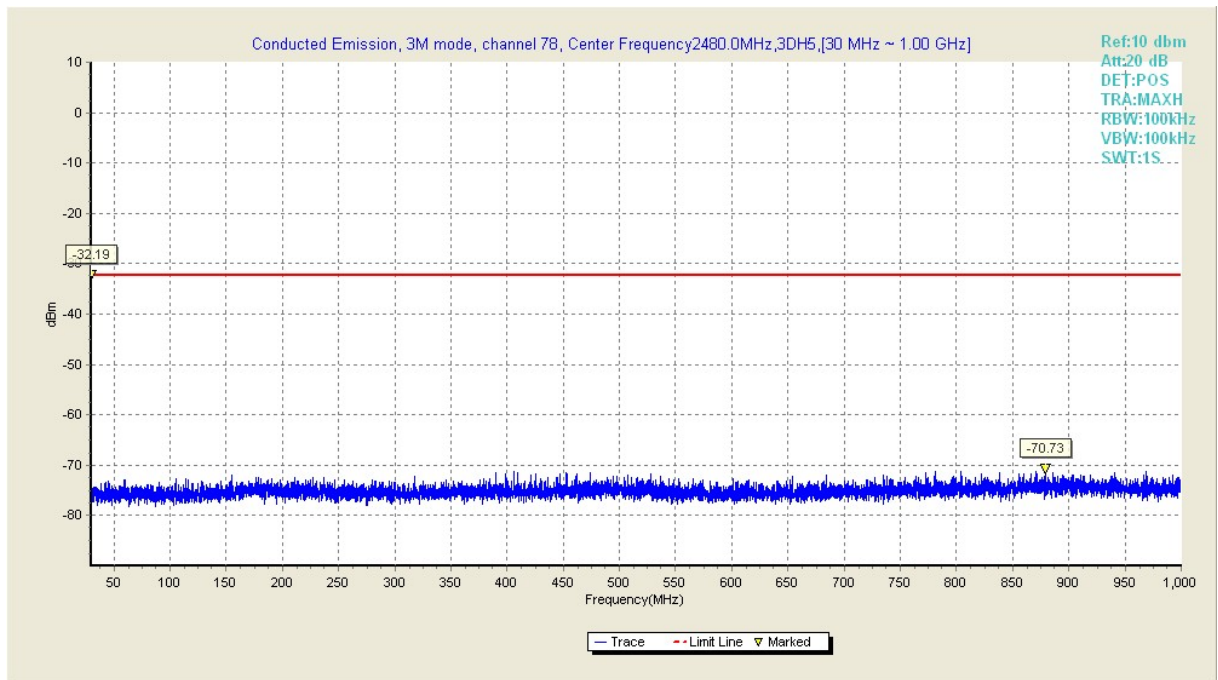


Fig.61 Conducted Emission in 3M mode ,channel 78, (30 MHz ~ 1 GHz)

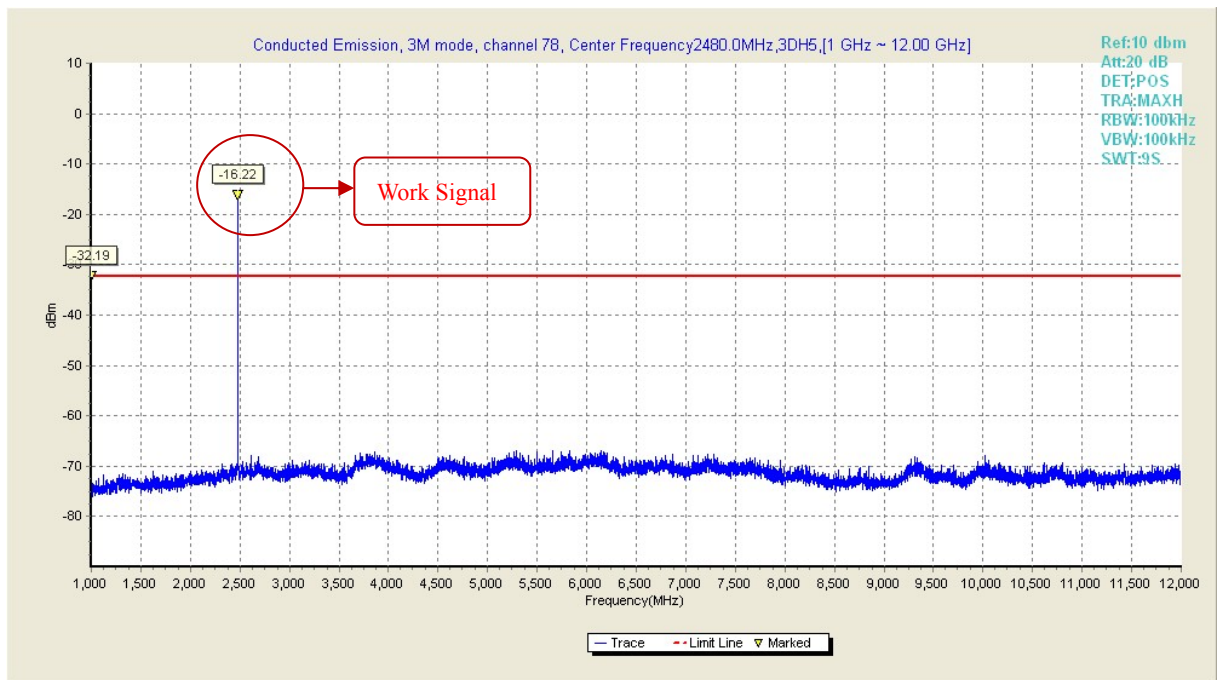


Fig.62 Conducted Emission in 3M mode ,channel 78, (1 GHz ~ 12 GHz)

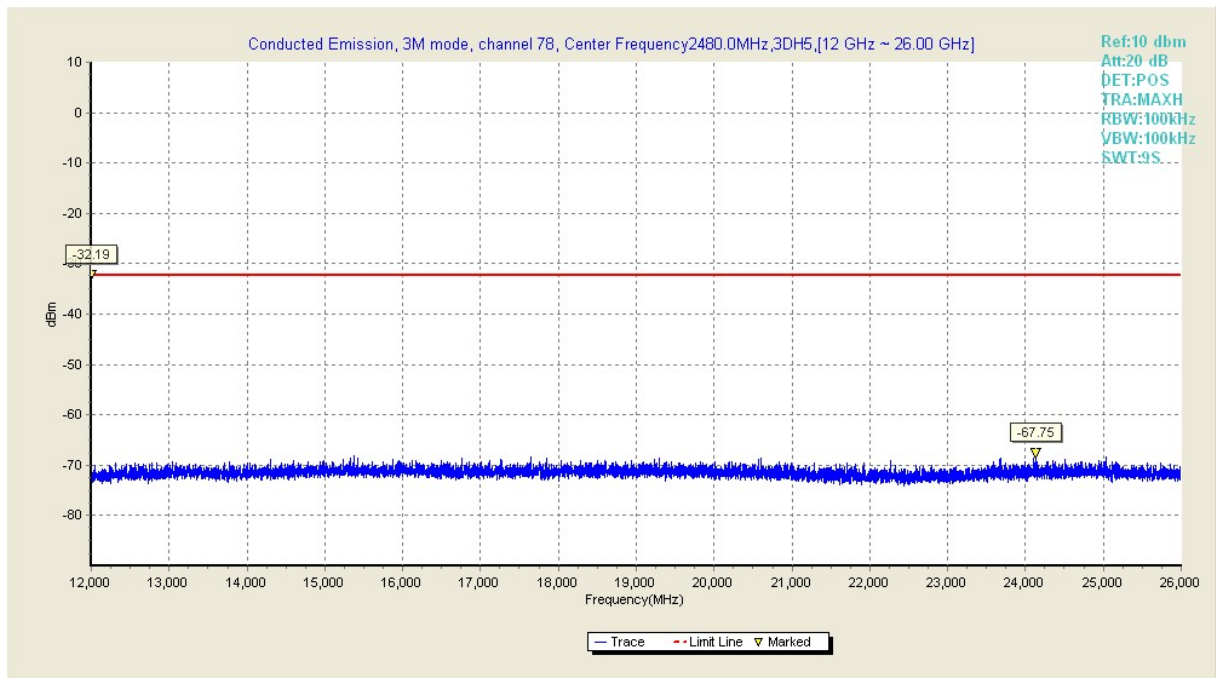


Fig.63 Conducted Emission in 3M mode ,channel 78, (12 GHz ~ 26 GHz)

B.8 AC Conducted Emission

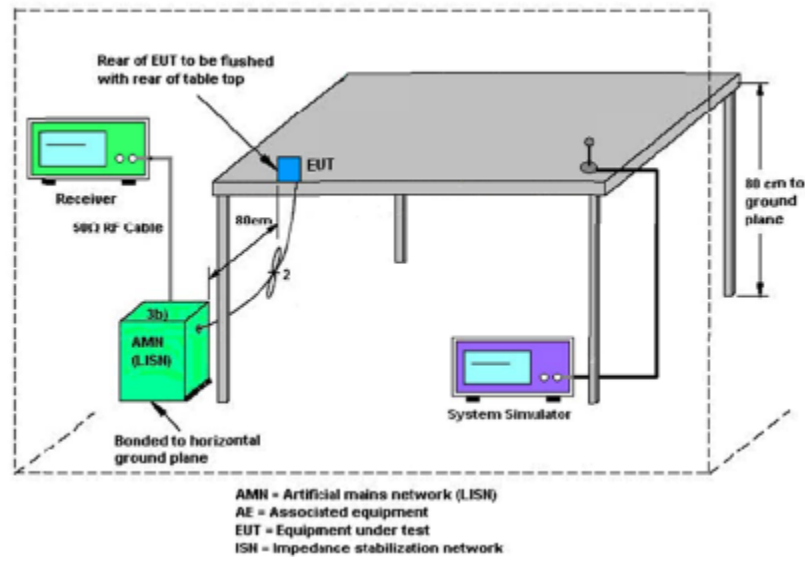
B.8.1 Description

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



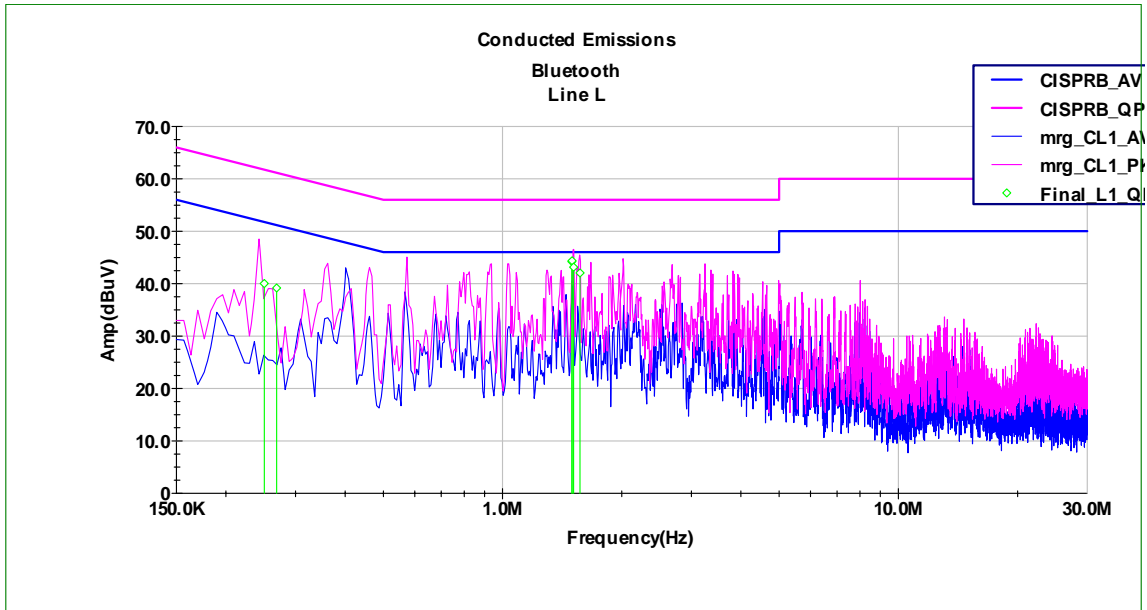
B.8.5 Test Results

Limit

Frequency of Emission(MHz)	Conducted Limit(dB μ V)	
	Quasi -Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

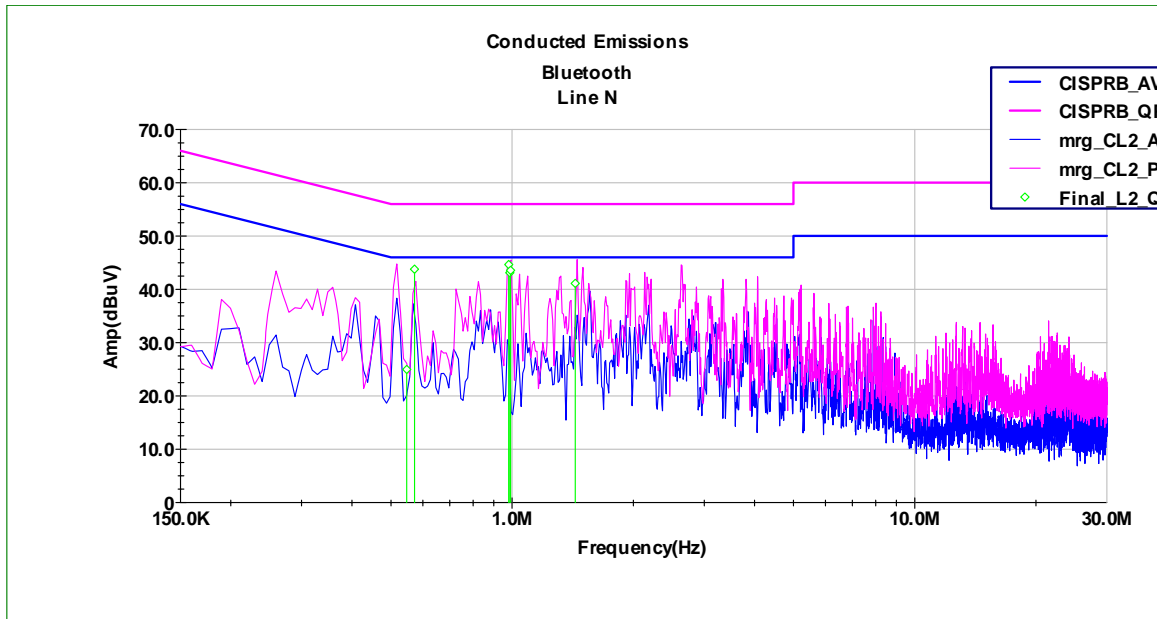
*Decreases with logarithm of the frequency

Line L



Frequency (MHz)	Limit dB(μV)	QP dB(μV)	Frequency (MHz)	Limit dB(μV)	AV dB(μV)
0.249	61.76	40.02	0.249	51.76	25.31
0.268	61.16	39.18	0.268	51.16	24.27
1.496	56	44.21	1.496	46	33.65
1.498	56	44.36	1.498	46	34.65
1.512	56	43.15	1.512	46	29.75
1.569	56	42.05	1.569	46	29.48

Line N



Frequency (MHz)	Limit dB(μV)	QP dB(μV)	Frequency (MHz)	Limit dB(μV)	AV dB(μV)

0.547	56	24.96	0.547	46	17.73
0.572	56	43.77	0.572	46	39.53
0.980	56	44.65	0.980	46	33.31
0.986	56	43.12	0.986	46	31.83
0.991	56	43.56	0.991	46	27.80
1.435	56	41.11	1.435	46	28.13

B.9 Radiated Emission

B.9.1 Limit of Radiated Emission

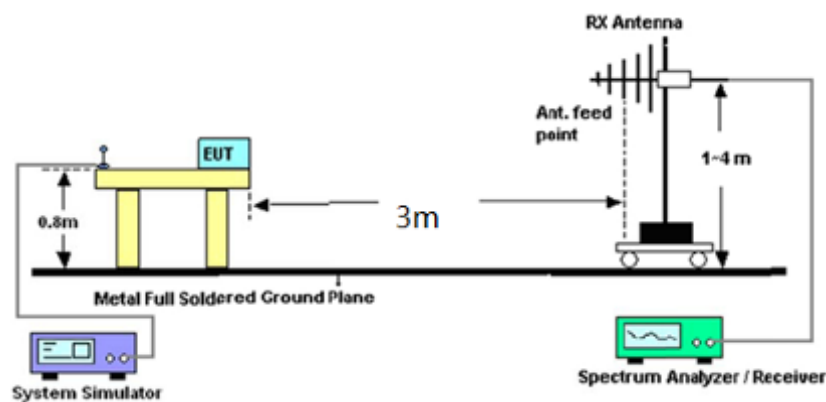
In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as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

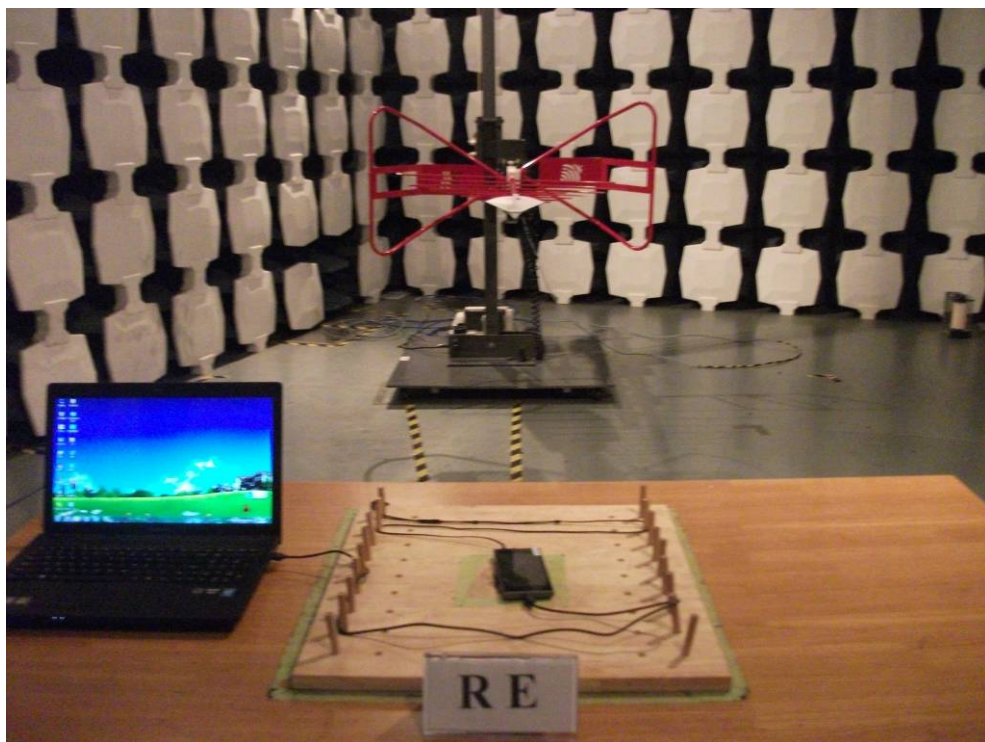
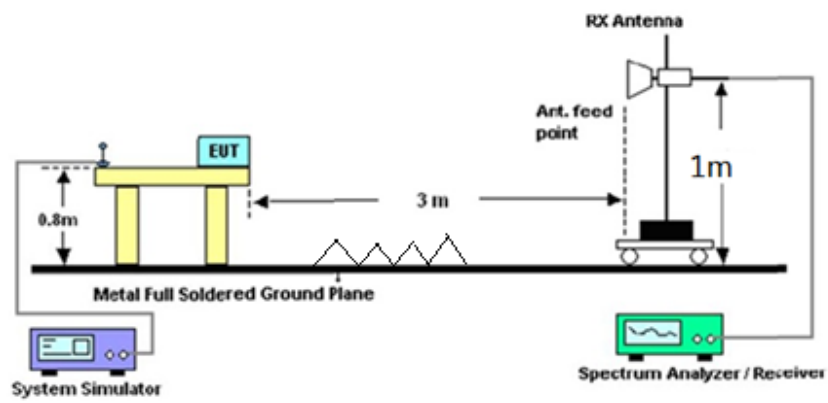
B.9.2 Test Setup

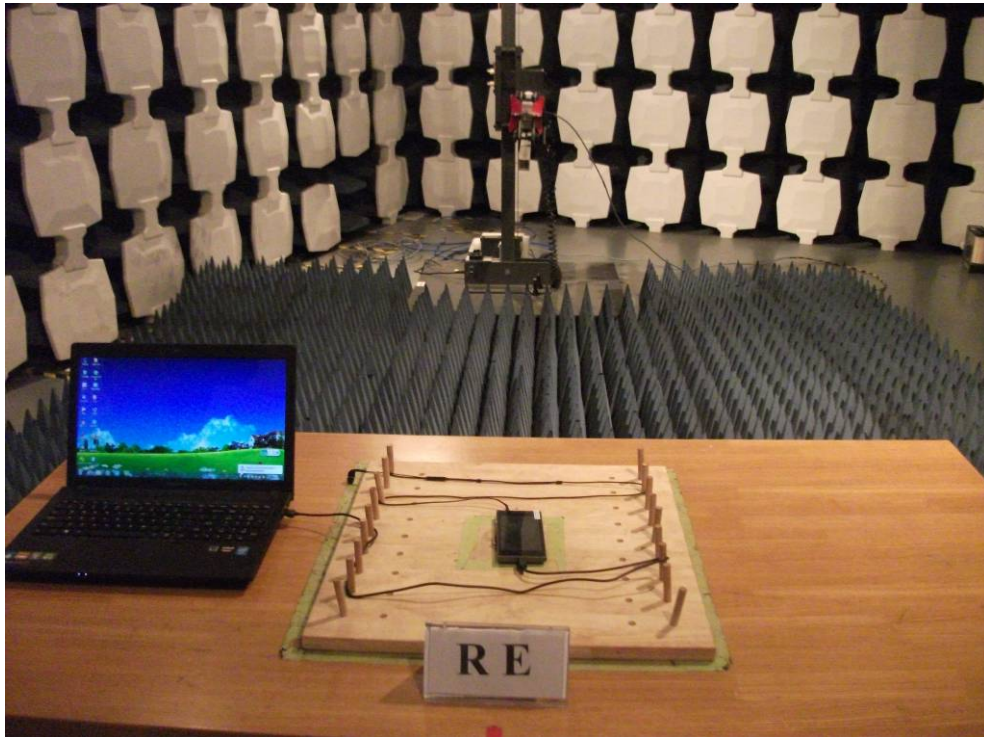
Frequency Band(MHz)	Function	Resolution Bandwidth	Video Bandwidth
30 to 1000	Peak	100kHz	100kHz
Above 1000	Peak	1MHz	1MHz
	Average	1MHz	10Hz

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 started from 18GHz to 26GHz, were pre-scanned and which was 20dB lower than limit line per 15.31(0) were not reported.

Worst case data rate: 1M

Test Mode: Traffic

Verdict: Pass

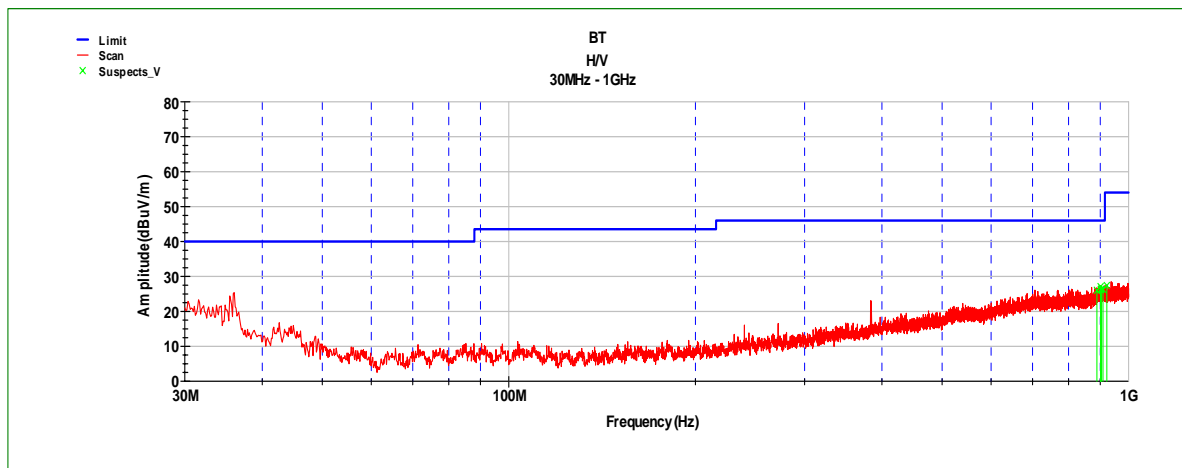


Fig.65 Radiated Emission of channel 0 in 30MHz-1GHz

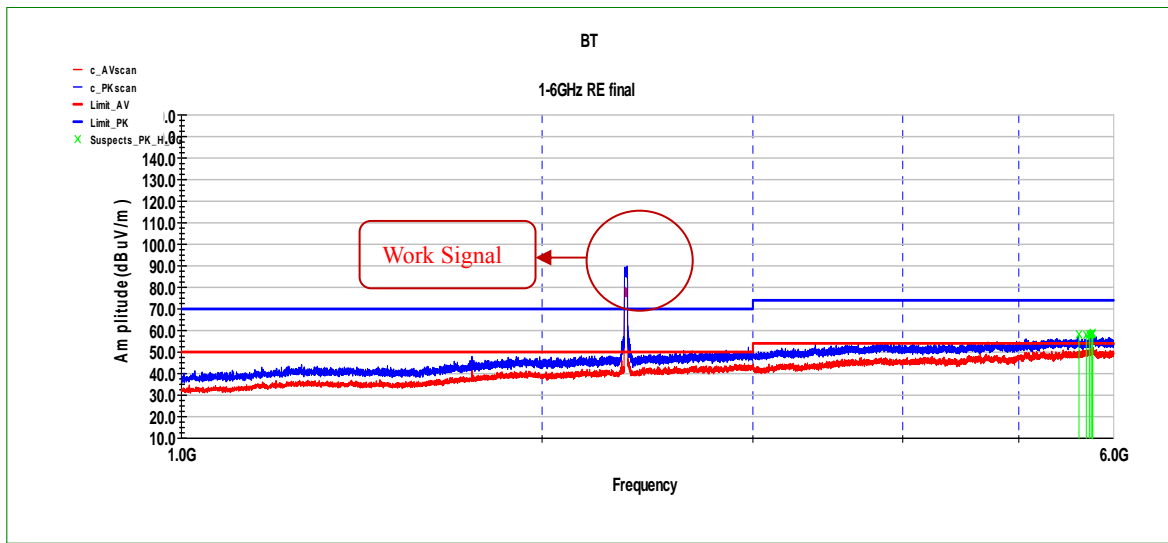


Fig.63 Radiated Emission of channel 0 in 1GHz-6GHz

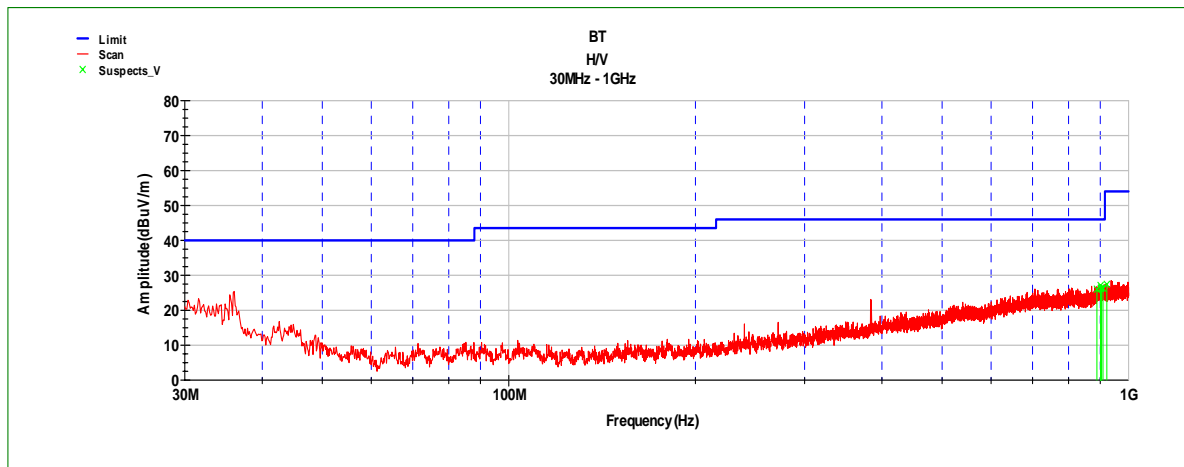


Fig.66 Radiated Emission of channel 39 in 30MHz-1GHz

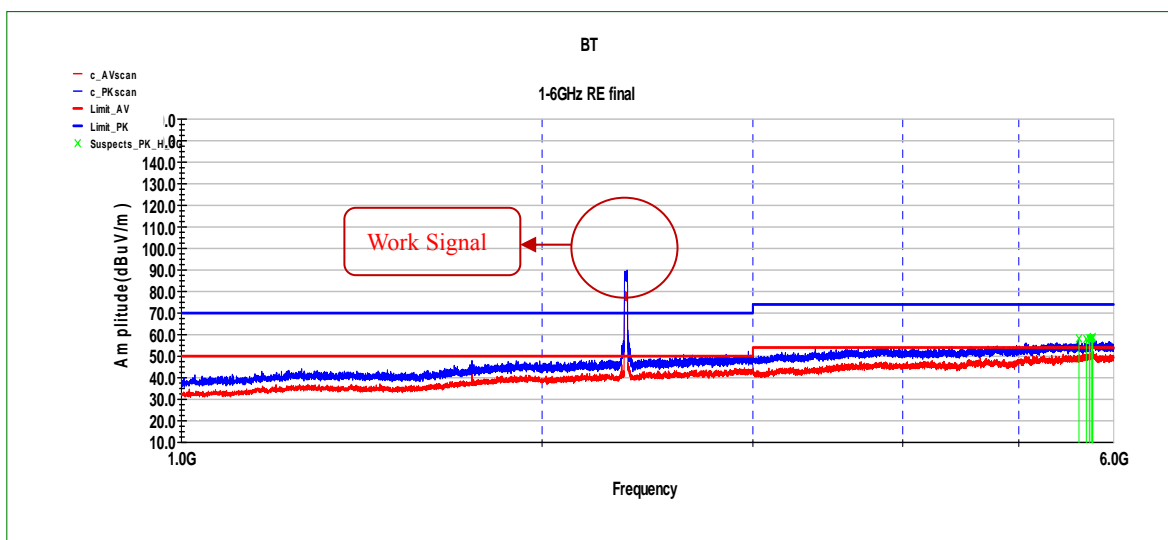


Fig.67 Radiated Emission of channel 39 in 1GHz-6GHz

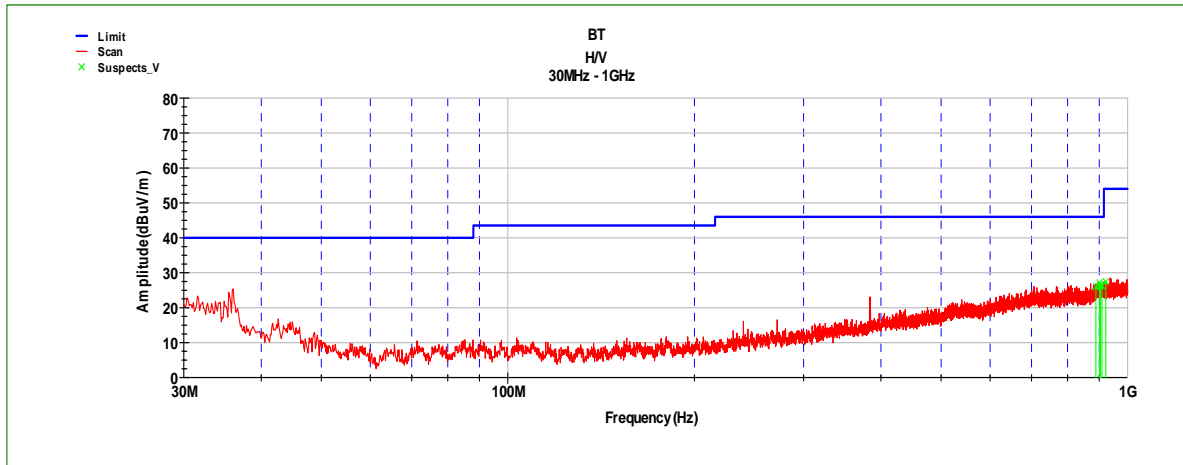


Fig.68 Radiated Emission of channel 78 in 30MHz-1GHz

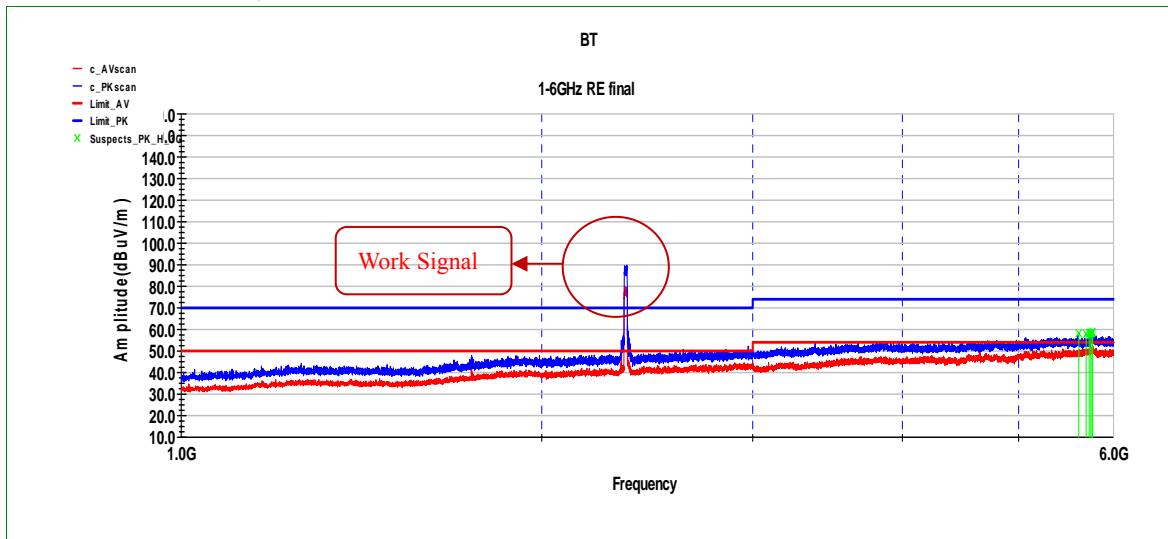


Fig.69 Radiated Emission of channel 78 in 1GHz-6GHz

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*****