

Fig.42. Fig.30 Conducted spurious emission: $\pi/4$ DQPSK, Channel 78, 10GHz - 26GHz

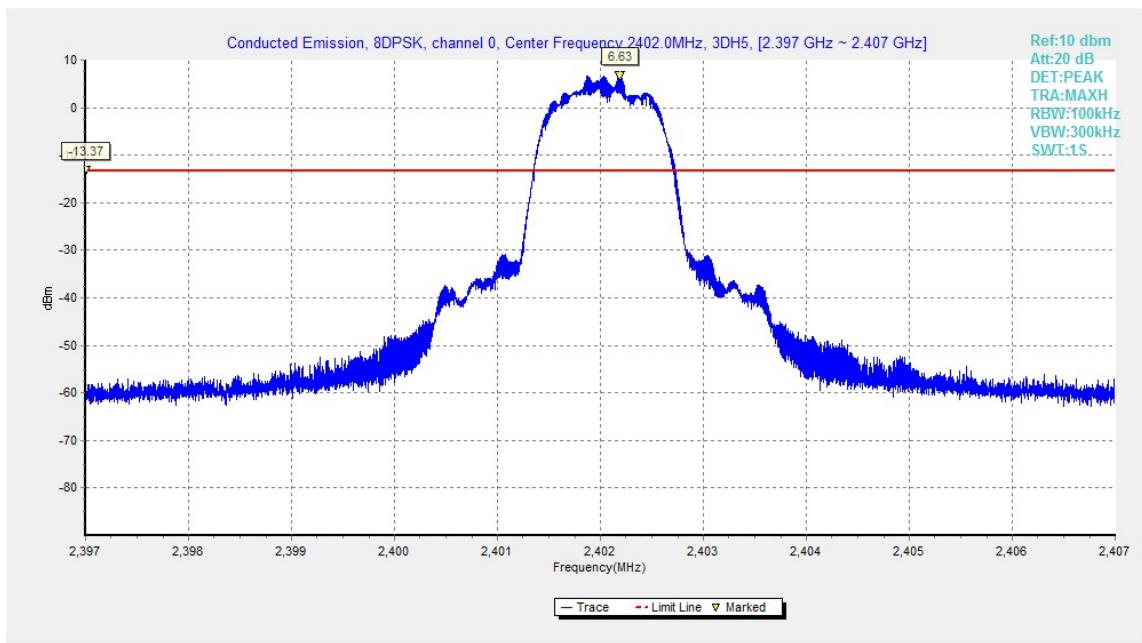


Fig.43. Conducted spurious emission: 8DPSK, Channel 0, 2402MHz

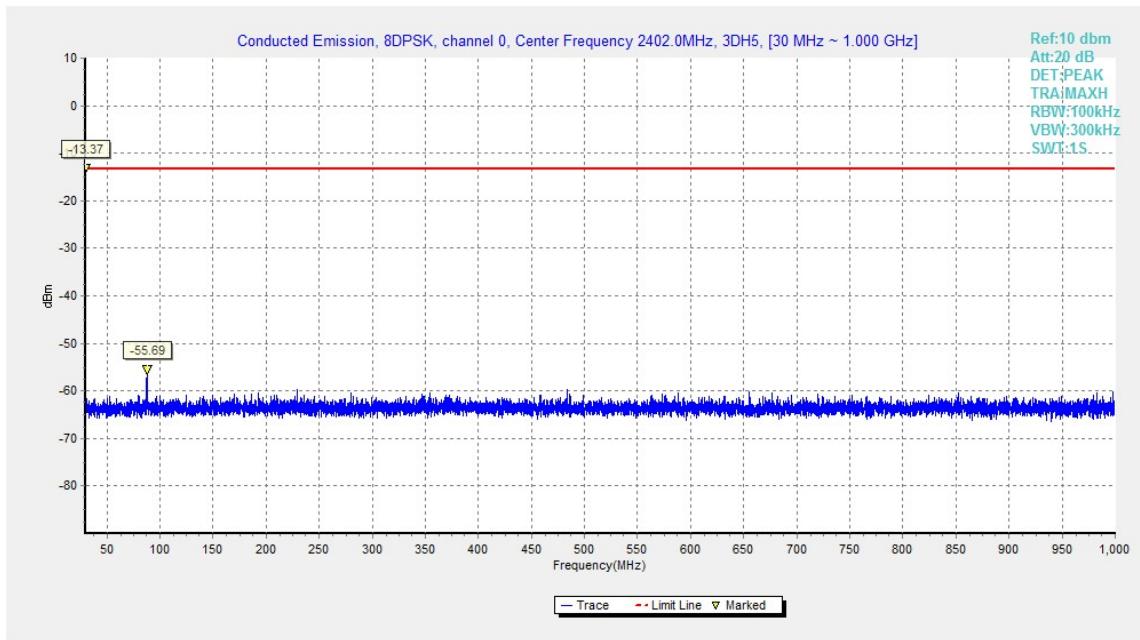


Fig.44. Conducted spurious emission: 8DPSK, Channel 0, 30MHz - 1GHz

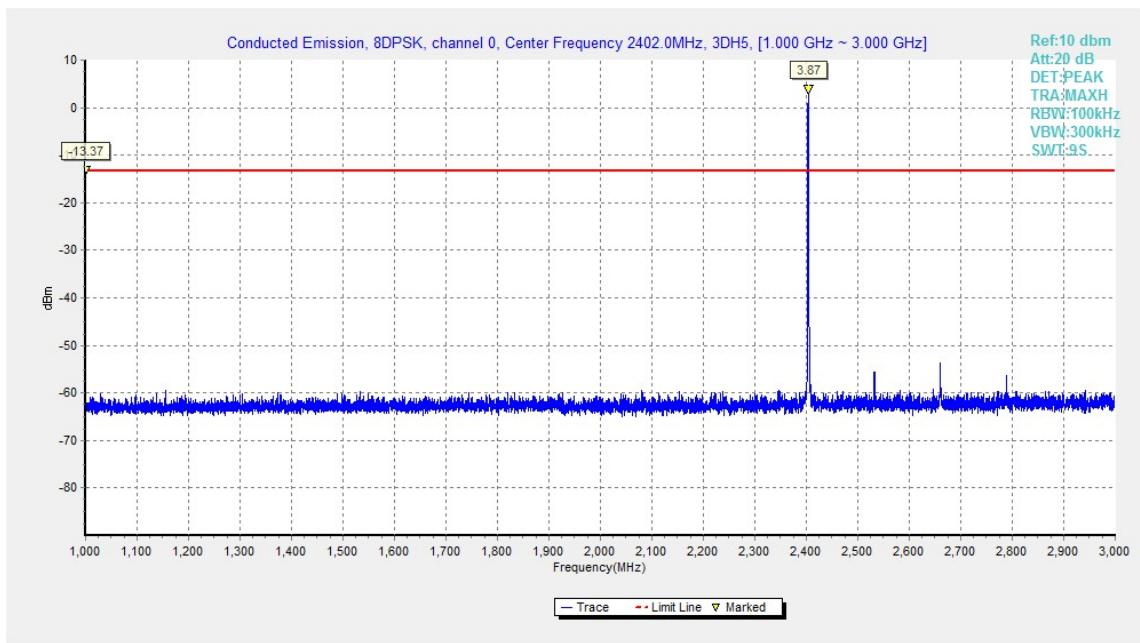


Fig.45. Conducted spurious emission: 8DPSK, Channel 0, 1GHz - 3GHz

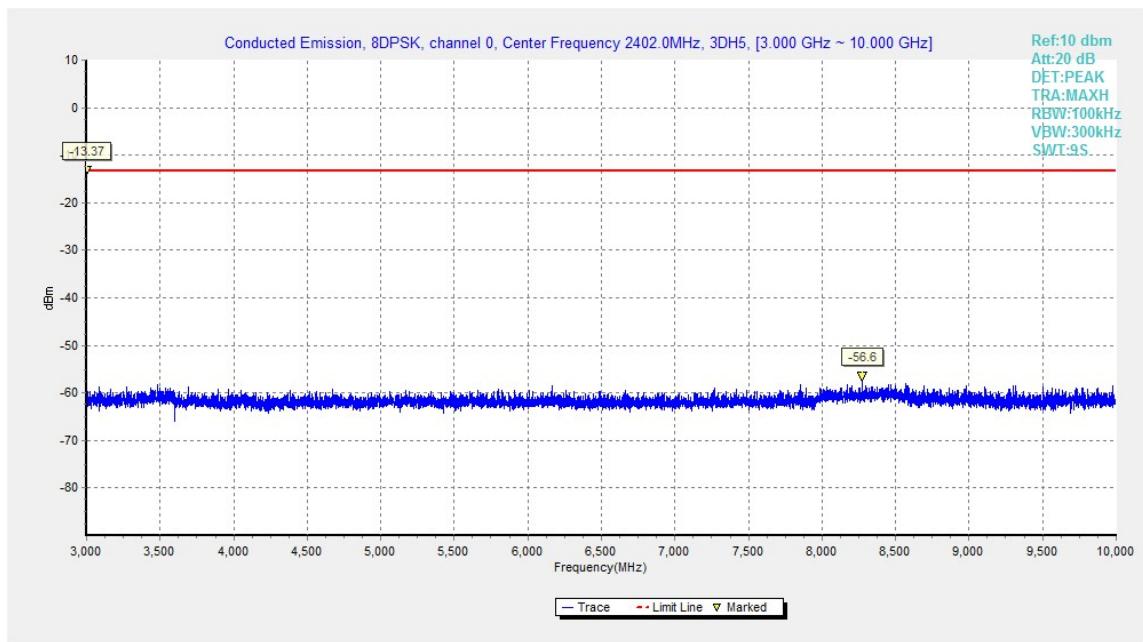


Fig.46. Conducted spurious emission: 8DPSK, Channel 0, 3GHz - 10GHz

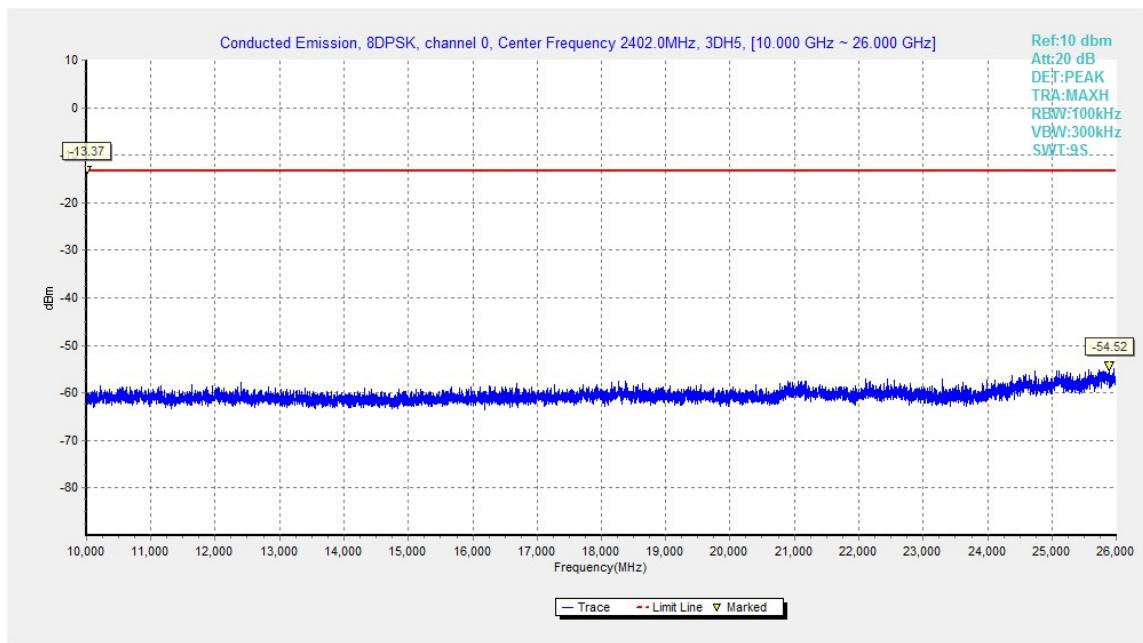


Fig.47. Conducted spurious emission: 8DPSK, Channel 0,10GHz - 26GHz

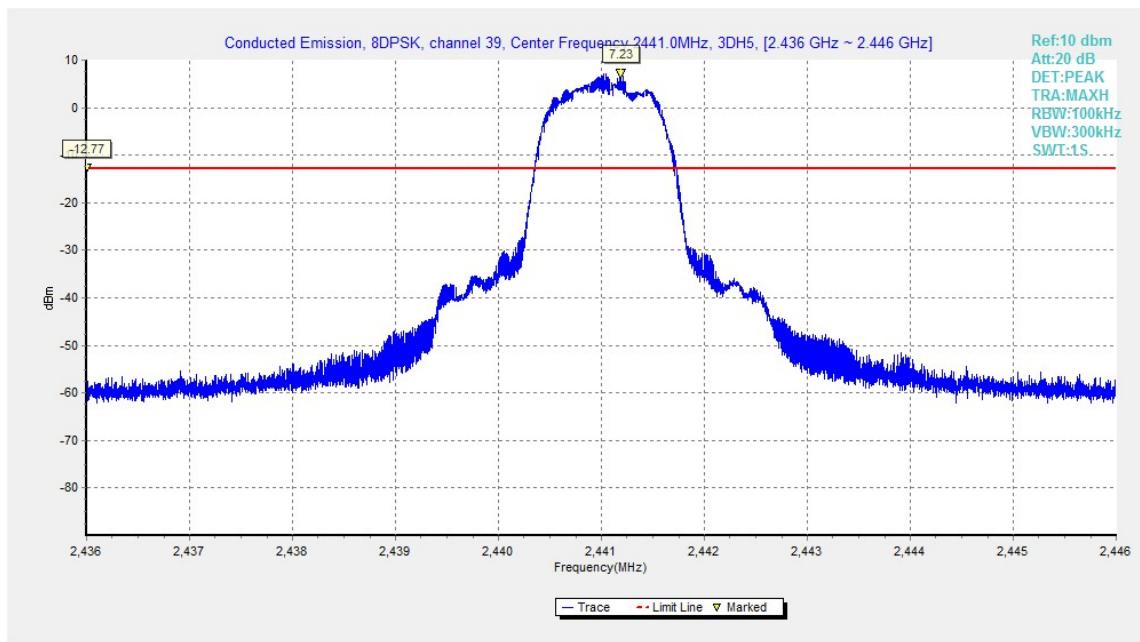


Fig.48. Conducted spurious emission: 8DPSK, Channel 39, 2441MHz

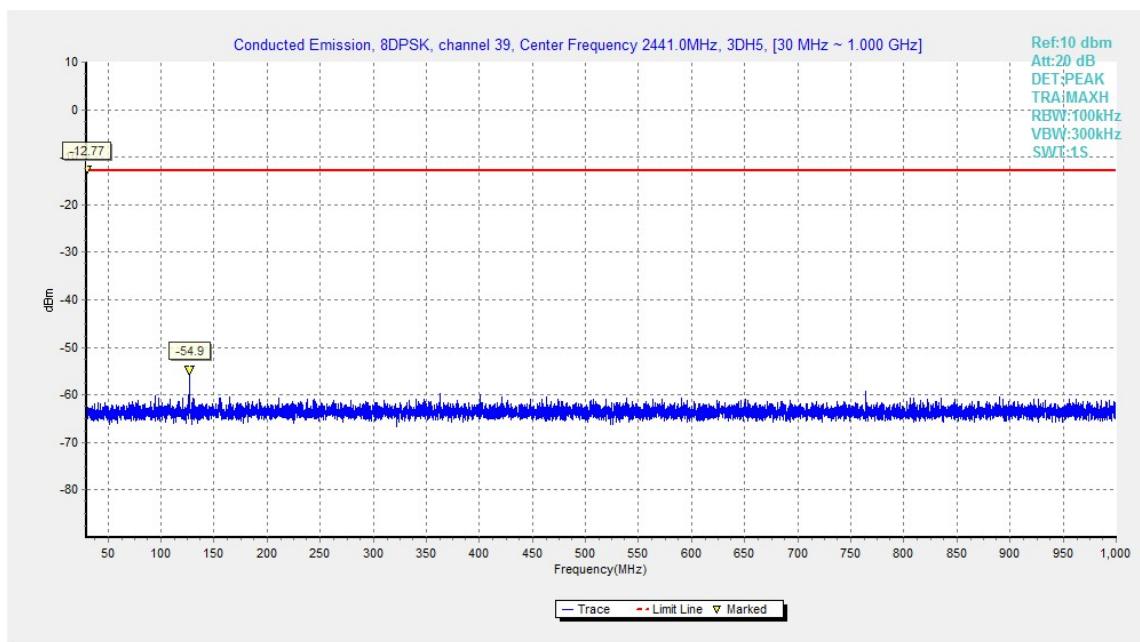


Fig.49. Conducted spurious emission: 8DPSK, Channel 39, 30MHz - 1GHz

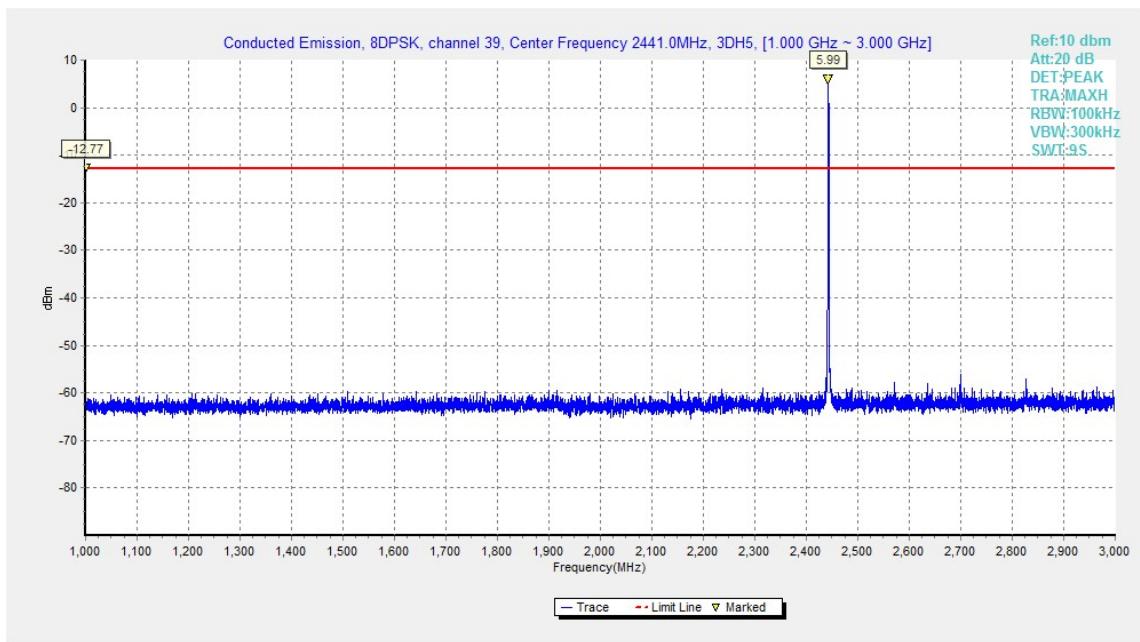


Fig.50. Conducted spurious emission: 8DPSK, Channel 39, 1GHz - 3GHz

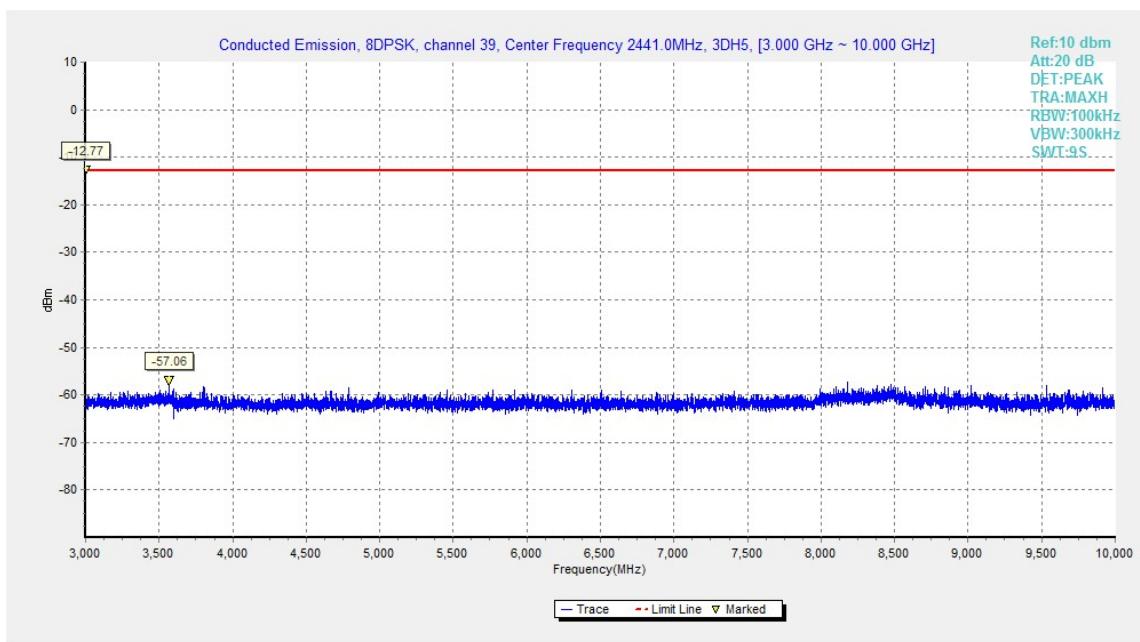


Fig.51. Conducted spurious emission: 8DPSK, Channel 39, 3GHz - 10GHz

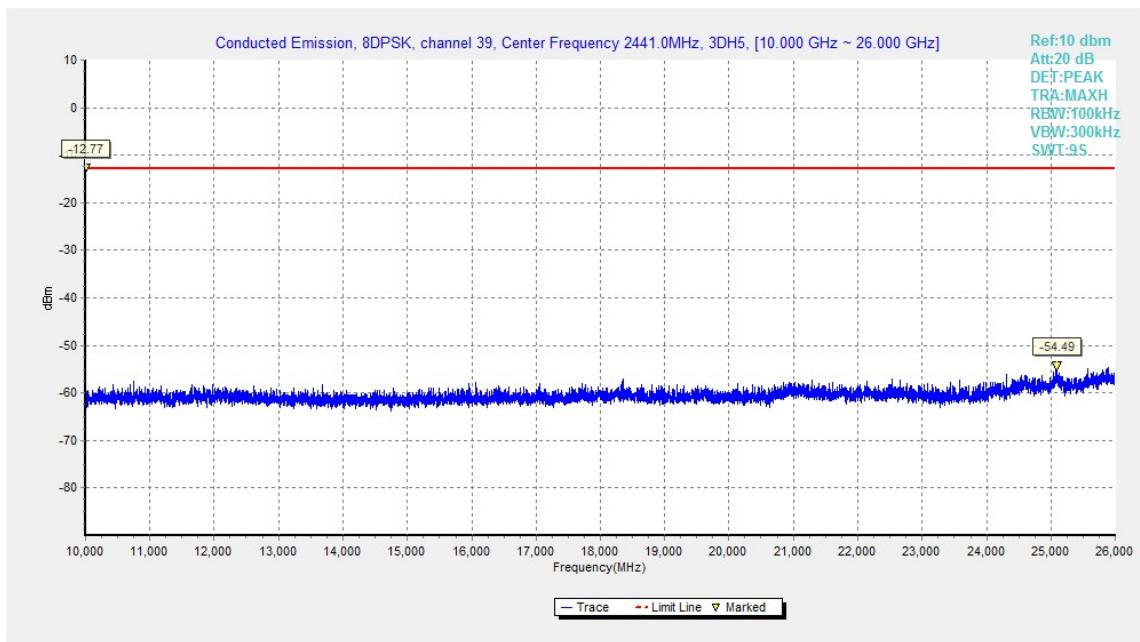


Fig.52. Conducted spurious emission: 8DPSK, Channel 39, 10GHz – 26GHz

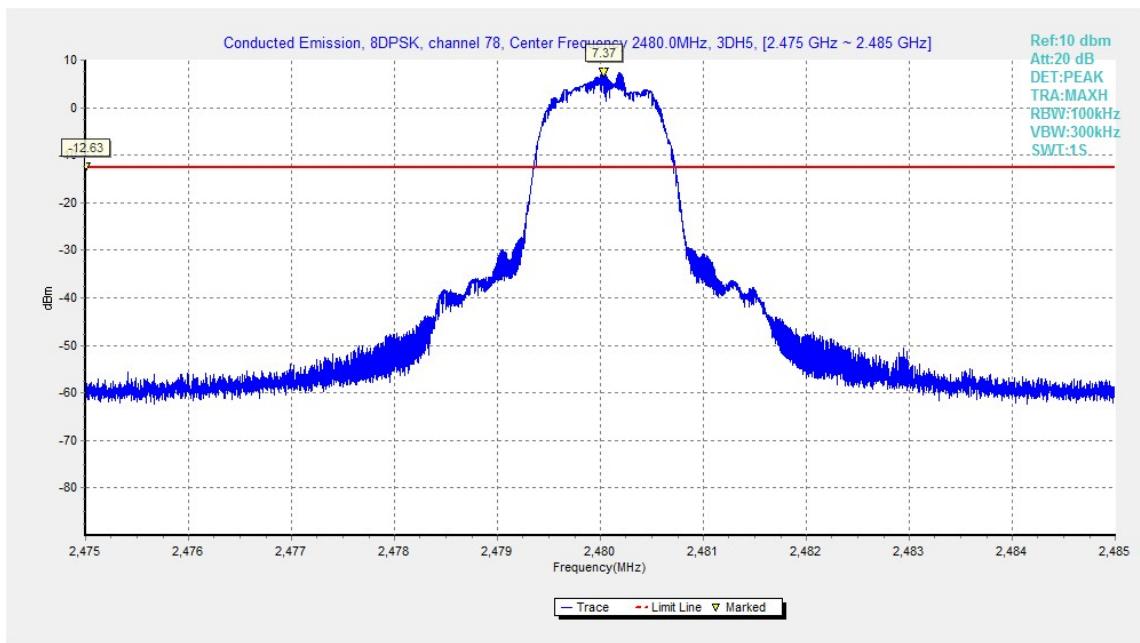


Fig.53. Conducted spurious emission: 8DPSK, Channel 78, 2480MHz

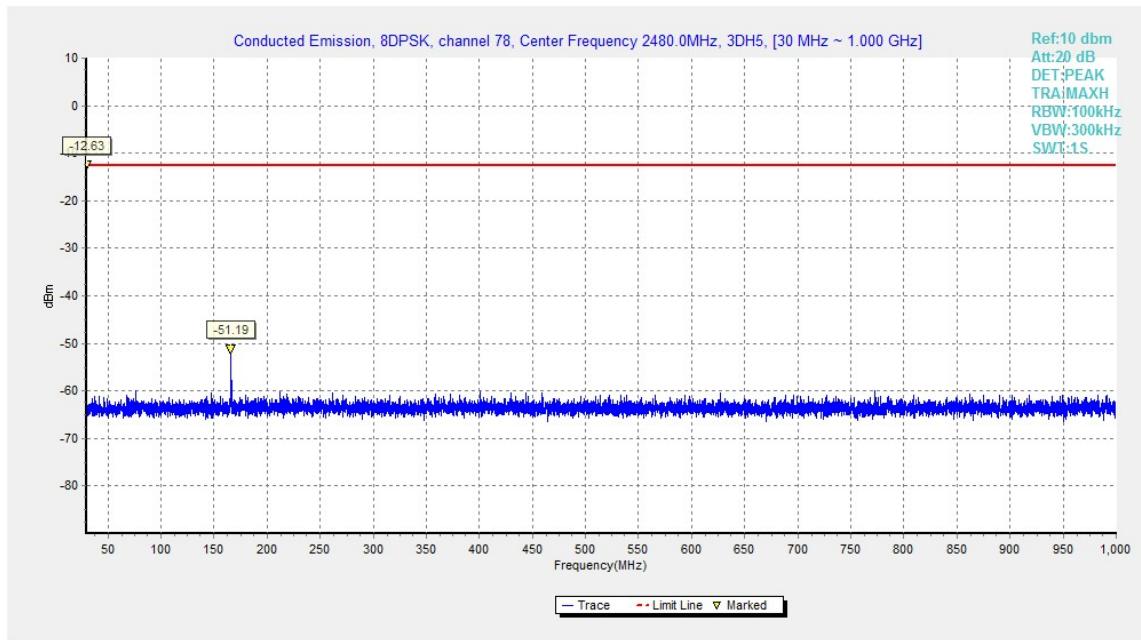


Fig.54. Conducted spurious emission: 8DPSK, Channel 78, 30MHz - 1GHz

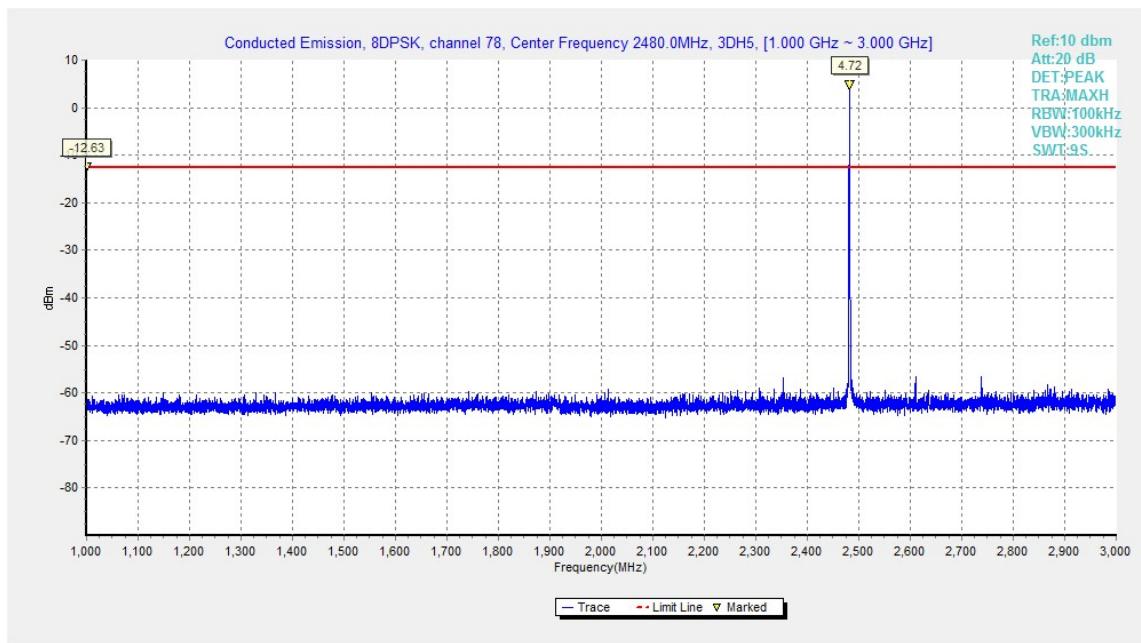


Fig.55. Conducted spurious emission: 8DPSK, Channel 78, 1GHz - 3GHz

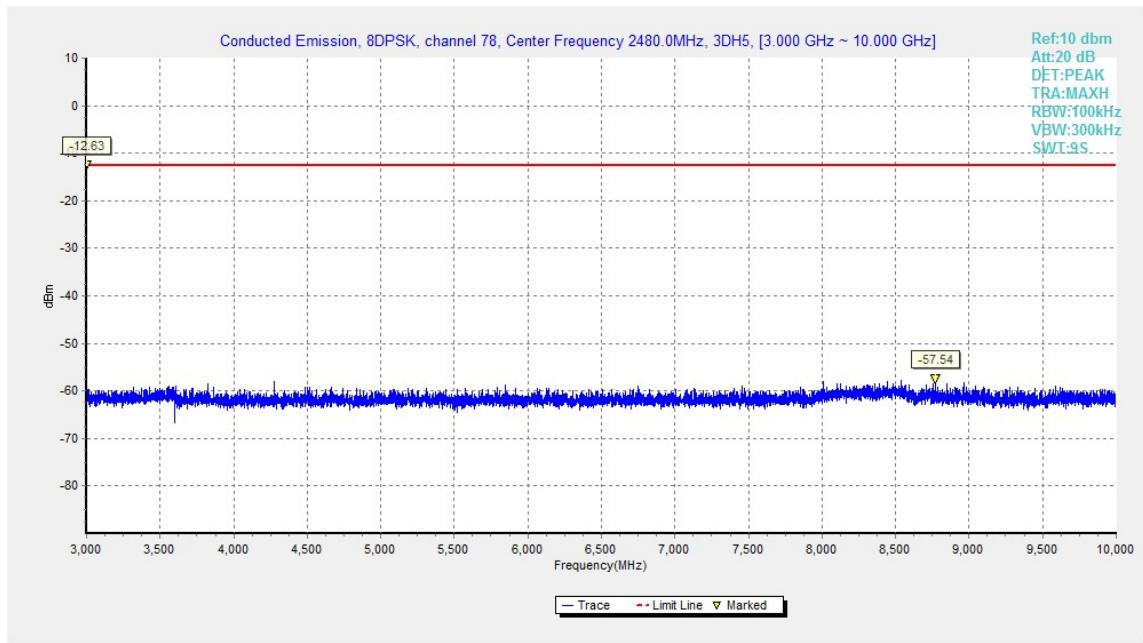


Fig.56. Conducted spurious emission: 8DPSK, Channel 78, 3GHz - 10GHz

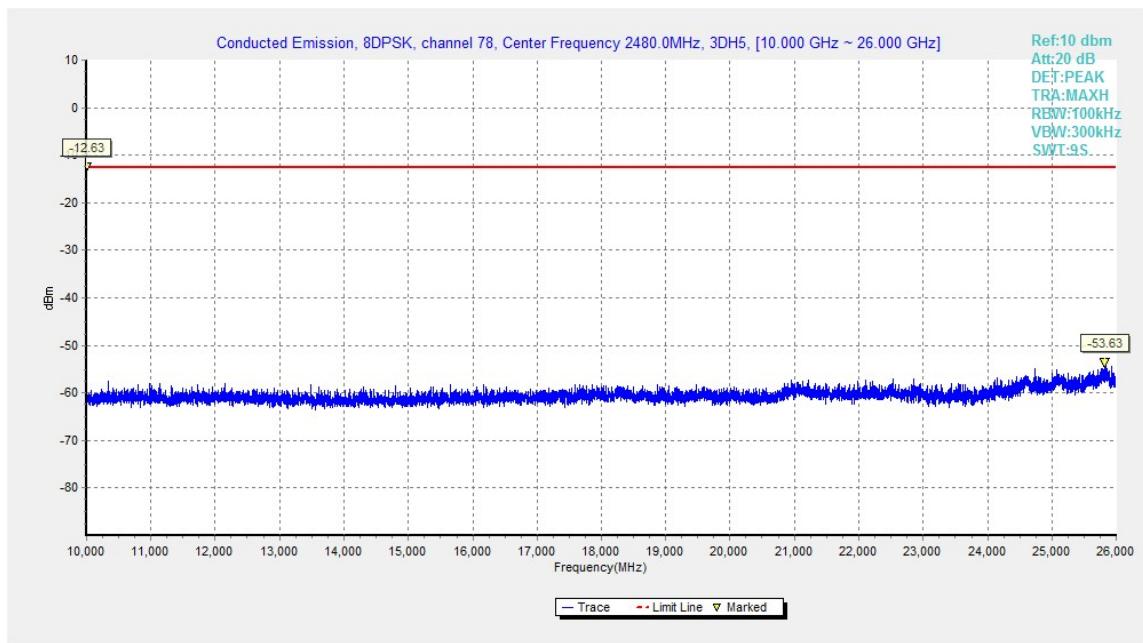


Fig.57. Conducted spurious emission: 8DPSK, Channel 78, 10GHz - 26GHz

A.5. Radiated Emission

Measurement Limit:

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

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

The measurement is made according to ANSI C63.10

Limit in restricted band:

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Condition

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

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100KHz/300KHz	5
1000-4000	1MHz/1MHz	15
4000-18000	1MHz/1MHz	40
18000-26500	1MHz/1MHz	20

Measurement Results:

$$\text{Result} = P_{\text{Mea}} + \text{ARPL}$$

For GFSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	1 GHz ~ 3 GHz	Fig.58	P
	3 GHz ~ 18 GHz	Fig.59	P
Ch 39 2441 MHz	9 kHz ~ 30 MHz	Fig.60	P
	30 MHz ~ 1 GHz	Fig.61	P
	1 GHz ~ 3 GHz	Fig.62	P
	3 GHz ~ 18 GHz	Fig.63	P
Ch 78 2480 MHz	1 GHz ~ 3 GHz	Fig.64	P
	3 GHz ~ 18 GHz	Fig.65	P
Power	2.38GHz~2.4GHz---L	Fig.66	P
Power	2.45GHz~2.5GHz---H	Fig.67	P

For all channels	18 GHz ~ 26 GHz	Fig.68	P
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For π/4 DQPSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	1 GHz ~ 3 GHz	Fig.69	P
	3 GHz ~ 18 GHz	Fig.70	P
Ch 39 2441 MHz	30 MHz ~ 1 GHz	Fig.71	P
	1 GHz ~ 3 GHz	Fig.72	P
	3 GHz ~ 18 GHz	Fig.73	P
Ch 78 2480 MHz	1 GHz ~ 3 GHz	Fig.74	P
	3 GHz ~ 18 GHz	Fig.75	P
Power	2.38GHz~2.4GHz---L	Fig.76	P
Power	2.45GHz~2.5GHz---H	Fig.77	P
For all channels	18 GHz ~ 26 GHz	Fig.78	P

For 8DPSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	1 GHz ~ 3 GHz	Fig.79	P
	3 GHz ~ 18 GHz	Fig.80	P
Ch 39 2441 MHz	30 MHz ~ 1 GHz	Fig.81	P
	1 GHz ~ 3 GHz	Fig.82	P
	3 GHz ~ 18 GHz	Fig.83	P
Ch 78 2480 MHz	1 GHz ~ 3 GHz	Fig.84	P
	3 GHz ~ 18 GHz	Fig.85	P
Power	2.38GHz~2.4GHz---L	Fig.86	P
Power	2.45GHz~2.5GHz---H	Fig.87	P
For all channels	18 GHz ~ 26 GHz	Fig.88	P

GFSK Ch 0 – Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2382.200	46.9	2.9	32.0	11.99	54.0	7.1	H
2388.400	46.6	2.9	32.0	11.72	54.0	7.4	H
4804.500	37.2	-17.3	34.5	19.962	54.0	16.8	H
7206.000	39.4	-16.4	36.1	19.709	54.0	14.6	H
9607.500	40.4	-18.2	37.0	21.652	54.0	13.6	H
12010.500	41.4	-17.4	39.3	19.453	54.0	12.6	H

GFSK Ch 39 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2379.300	47.0	2.9	32.1	12.039	54.0	7.0	H
2650.020	49.7	3.0	33.7	12.934	54.0	4.3	H

4882.500	36.0	-18.5	34.5	19.993	54.0	18.1	H
7323.000	37.3	-18.5	36.1	19.680	54.0	16.7	H
9763.500	39.1	-17.8	37.2	19.687	54.0	14.9	H
12205.500	40.6	-17.8	39.2	19.165	54.0	13.4	H

GFSK Ch 78 - Average

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
2485.250	47.8	2.9	32.7	12.169	54.0	6.2	H
2486.000	47.8	2.9	32.7	12.210	54.0	6.2	H
4960.500	36.6	-18.2	34.5	20.313	54.0	17.4	H
7440.000	38.9	-16.9	36.0	19.821	54.0	15.1	H
9919.500	40.0	-17.1	37.4	19.656	54.0	14.0	H
12400.500	40.8	-17.5	39.1	19.179	54.0	13.2	H

 $\pi/4$ DQPSK Ch 0 - Average

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
2387.200	46.9	2.9	32.0	12.07	54.0	7.1	H
2388.400	46.9	2.9	32.0	12.07	54.0	7.1	H
4804.500	37.2	-17.3	34.5	19.975	54.0	16.8	H
7206.000	39.4	-16.4	36.1	19.728	54.0	14.6	H
9607.500	40.3	-18.2	37.0	21.604	54.0	13.7	H
12010.500	41.4	-17.4	39.3	19.471	54.0	12.6	H

 $\pi/4$ DQPSK Ch 39 - Average

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
2378.900	47.0	2.9	32.1	12.06	54.0	7.0	H
2650.300	49.7	3.0	33.7	12.92	54.0	4.3	H
4882.500	35.9	-18.5	34.5	19.992	54.0	18.1	H
7323.000	37.2	-18.5	36.1	19.646	54.0	16.8	H
9763.500	39.1	-17.8	37.2	19.687	54.0	14.9	H
12205.500	40.6	-17.8	39.2	19.146	54.0	13.4	H

 $\pi/4$ DQPSK Ch 78 - Average

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
2486.600	47.9	2.9	32.7	12.299	54.0	6.1	H
2489.200	47.8	2.9	32.6	12.280	54.0	6.2	H
4960.500	36.4	-18.2	34.5	20.123	54.0	17.6	H

7440.000	39.0	-16.9	36.0	19.867	54.0	15.0	H
9919.500	39.9	-17.1	37.4	19.632	54.0	14.1	H
12400.500	40.8	-17.5	39.1	19.162	54.0	13.2	H

8DPSK Ch 0 - Average

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
2387.700	47.0	2.9	32.0	12.18	54.0	7.0	H
2389.400	47.1	2.9	32.0	12.21	54.0	6.9	H
4804.500	37.1	-17.3	34.5	19.894	54.0	16.9	H
7206.000	39.4	-16.4	36.1	19.725	54.0	14.6	H
9607.500	40.5	-18.2	37.0	21.768	54.0	13.5	H
12010.500	41.4	-17.4	39.3	19.509	54.0	12.6	H

8DPSK Ch 39 - Average

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
2378.800	46.9	2.9	32.1	11.97	54.0	7.1	H
2475.600	48.4	2.9	33.0	12.50	54.0	5.6	H
4882.500	35.9	-18.5	34.5	19.935	54.0	18.1	H
7323.000	37.3	-18.5	36.1	19.751	54.0	16.7	H
9763.500	39.2	-17.8	37.2	19.741	54.0	14.8	H
12205.500	40.7	-17.8	39.2	19.226	54.0	13.3	H

8DPSK Ch 78 - Average

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
2488.100	47.8	2.9	32.6	12.203	54.0	6.2	H
2493.300	47.7	2.9	32.5	12.266	54.0	6.3	H
4960.500	36.5	-18.2	34.5	20.174	54.0	17.5	H
7440.000	38.9	-16.9	36.0	19.809	54.0	15.1	H
9919.500	40.0	-17.1	37.4	19.682	54.0	14.0	H
12400.500	40.8	-17.5	39.1	19.119	54.0	13.2	H

GFSK Ch 0 – Peak

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
2382.390	59.7	2.9	32.0	24.76	74.0	14.3	H
2383.860	59.8	2.9	32.0	24.93	74.0	14.2	H
17997.000	60.2	-13.5	40.8	32.917	74.0	13.8	H
17581.500	59.9	-13.6	41.1	32.343	74.0	14.1	H



17774.250	59.6	-13.4	41.0	32.010	74.0	14.4	V
17758.500	59.6	-13.3	41.0	31.945	74.0	14.4	V

GFSK Ch 39 - Peak

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
2313.200	49.4	-29.2	31.1	47.45	74.0	24.6	H
2781.600	53.1	-27.6	33.3	47.38	74.0	20.9	H
17230.500	59.5	-14.3	41.2	32.598	74.0	14.5	V
17685.750	59.4	-13.1	41.1	31.509	74.0	14.6	V
17946.750	59.4	-13.6	40.8	32.173	74.0	14.6	V
17861.250	59.3	-13.5	40.9	31.931	74.0	14.7	H

GFSK Ch 78 - Peak

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
2483.880	61.2	2.9	32.8	25.515	74.0	12.8	H
2484.610	60.8	2.9	32.7	25.142	74.0	13.2	H
17259.750	59.8	-14.1	41.2	32.680	74.0	14.2	H
17676.750	59.5	-13.1	41.1	31.552	74.0	14.5	V
17772.000	59.4	-13.4	41.0	31.783	74.0	14.6	H
17360.250	59.4	-14.4	41.2	32.512	74.0	14.6	V

 $\pi/4$ DQPSK Ch 0 - Peak

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
2383.820	59.6	2.9	32.0	24.71	74.0	14.4	H
2388.550	59.4	2.9	32.0	24.55	74.0	14.6	H
17625.750	60.2	-13.1	41.1	32.173	74.0	13.8	H
17664.000	59.7	-13.1	41.1	31.693	74.0	14.3	V
17926.500	59.5	-13.6	40.9	32.225	74.0	14.5	V
17277.750	59.3	-14.0	41.2	32.080	74.0	14.7	H

 $\pi/4$ DQPSK Ch 39 - Peak

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)
2281.800	49.1	-29.3	30.9	47.62	74.0	24.9	H
2652.200	52.8	-28.1	33.7	47.16	74.0	21.2	H
17279.250	60.3	-14.0	41.2	33.064	74.0	13.7	V
17666.250	60.2	-13.1	41.1	32.273	74.0	13.8	H
17621.250	60.0	-13.1	41.1	32.013	74.0	14.0	H

17742.750	59.7	-13.3	41.0	31.945	74.0	14.3	V
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π/4 DQPSK Ch 78 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.600	60.9	2.9	32.8	25.18	74.0	13.1	H
2486.280	60.4	2.9	32.7	24.80	74.0	13.6	H
17537.250	60.2	-14.1	41.2	33.125	74.0	13.8	H
17280.000	59.9	-14.0	41.2	32.638	74.0	14.1	H
17996.250	59.9	-13.5	40.8	32.594	74.0	14.1	H
17637.750	59.9	-13.0	41.1	31.781	74.0	14.1	V

8DPSK Ch 0 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2382.240	59.3	2.9	32.0	24.36	74.0	14.7	H
2386.810	59.7	2.9	32.0	24.86	74.0	14.3	H
17345.250	59.4	-14.3	41.2	32.49	74.0	14.6	H
17915.250	59.4	-13.6	40.9	32.06	74.0	14.6	V
17720.250	59.3	-13.2	41.0	31.53	74.0	14.7	H
17622.750	59.3	-13.1	41.1	31.28	74.0	14.7	V

8DPSK Ch 39 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2361.200	49.1	-29.1	31.9	46.40	74.0	24.9	H
2739.100	52.8	-28.0	33.0	47.80	74.0	21.2	H
17273.250	59.8	-14.0	41.2	32.59	74.0	14.2	H
17342.250	59.4	-14.3	41.2	32.44	74.0	14.6	H
17621.250	59.2	-13.1	41.1	31.26	74.0	14.8	H
17229.750	59.2	-14.3	41.2	32.30	74.0	14.8	V

8DPSK Ch 78 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.530	60.6	2.9	32.8	24.92	74.0	13.4	H
2484.700	61.0	2.9	32.7	25.32	74.0	13.0	H
17571.750	60.3	-13.7	41.1	32.86	74.0	13.7	H
17298.000	59.6	-14.0	41.2	32.36	74.0	14.4	V
17518.500	59.5	-14.3	41.2	32.59	74.0	14.5	H

17331.000	59.5	-14.2	41.2	32.46	74.0	14.5	H
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Conclusion: PASS

Test graphs as below:

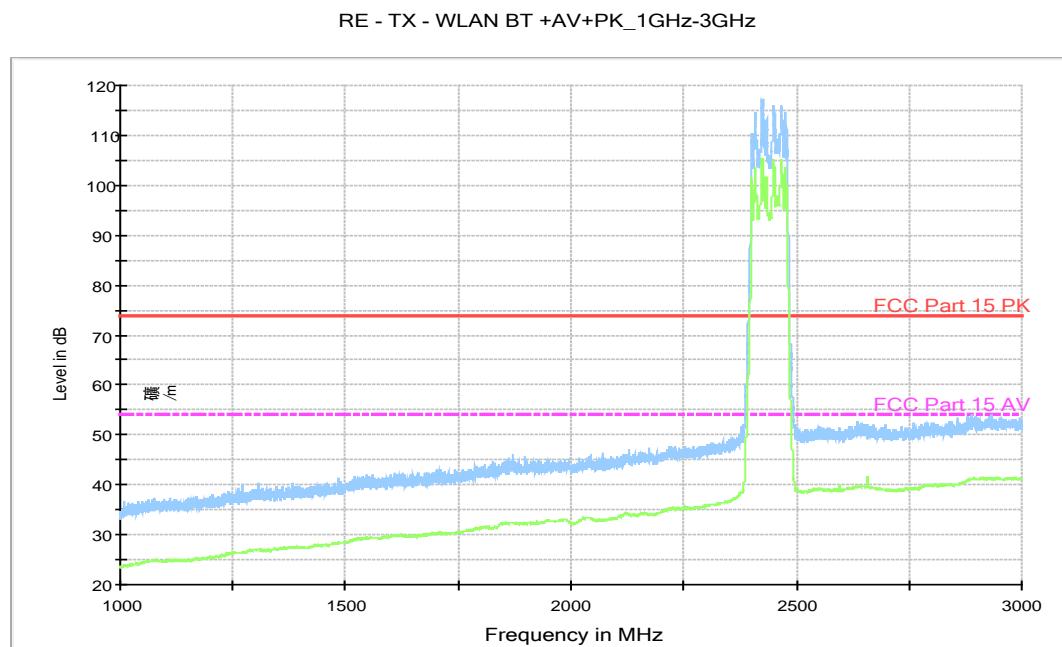


Fig.58. Radiated emission: GFSK, Channel 0, 1 GHz - 3 GHz

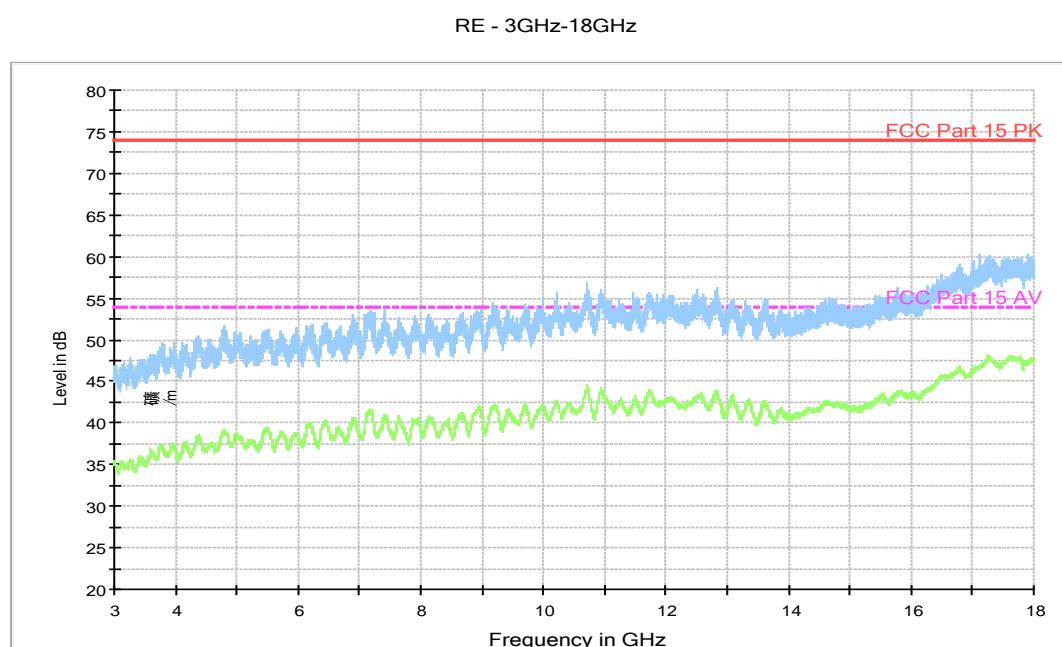


Fig.59. Radiated emission: GFSK, Channel 0, 3 GHz - 18 GHz

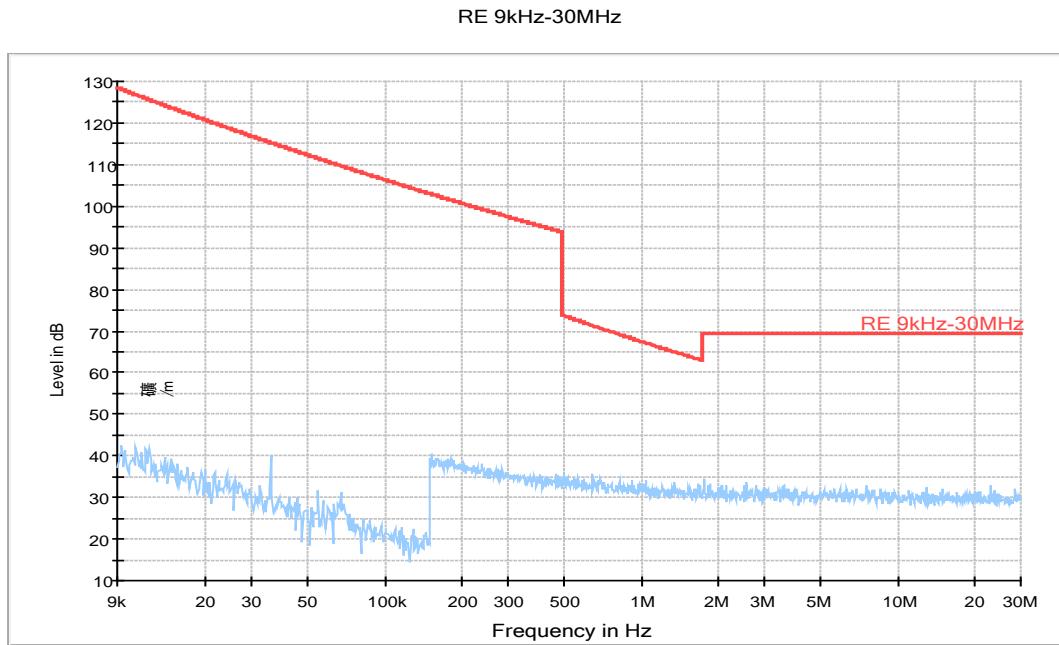


Fig.60. Radiated emission: GFSK, Channel 39, 9 kHz - 30 MHz

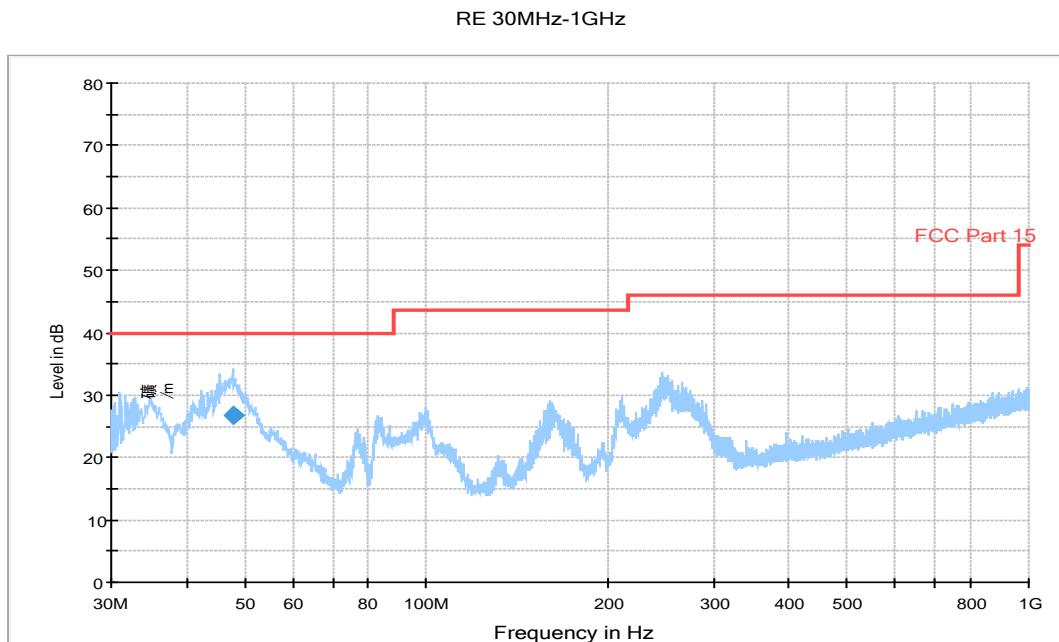


Fig.61. Radiated emission: GFSK, Channel 39, 30 MHz - 1 GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
47.751000	26.8	121.0	V	20.0	-18.3	13.2	40.0

RE - TX - WLAN BT +AV+PK_1GHz-3GHz

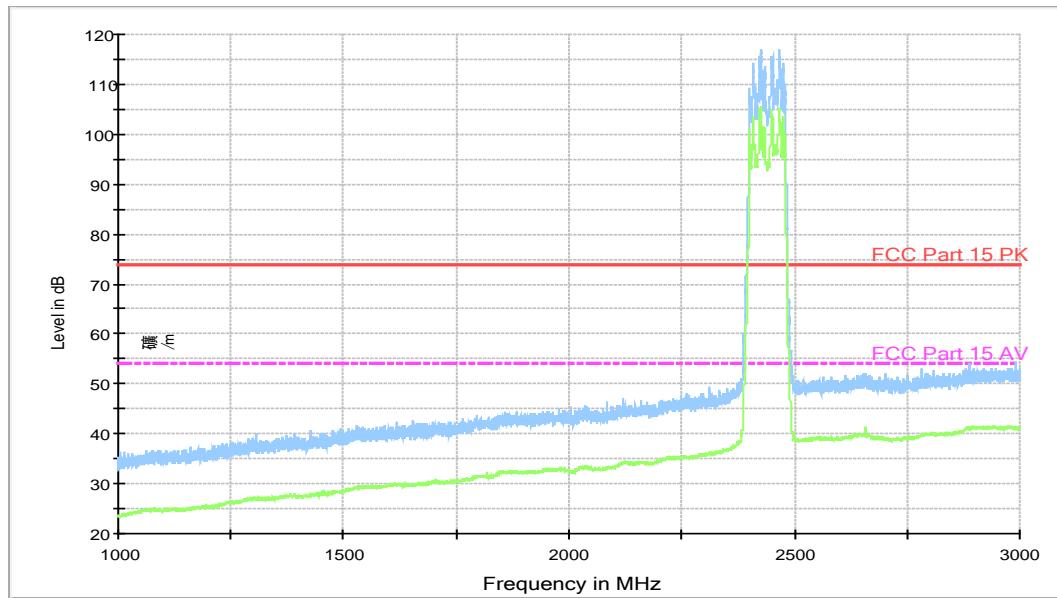


Fig.62. Radiated emission: GFSK, Channel 39, 1 GHz - 3 GHz

RE - 3GHz-18GHz

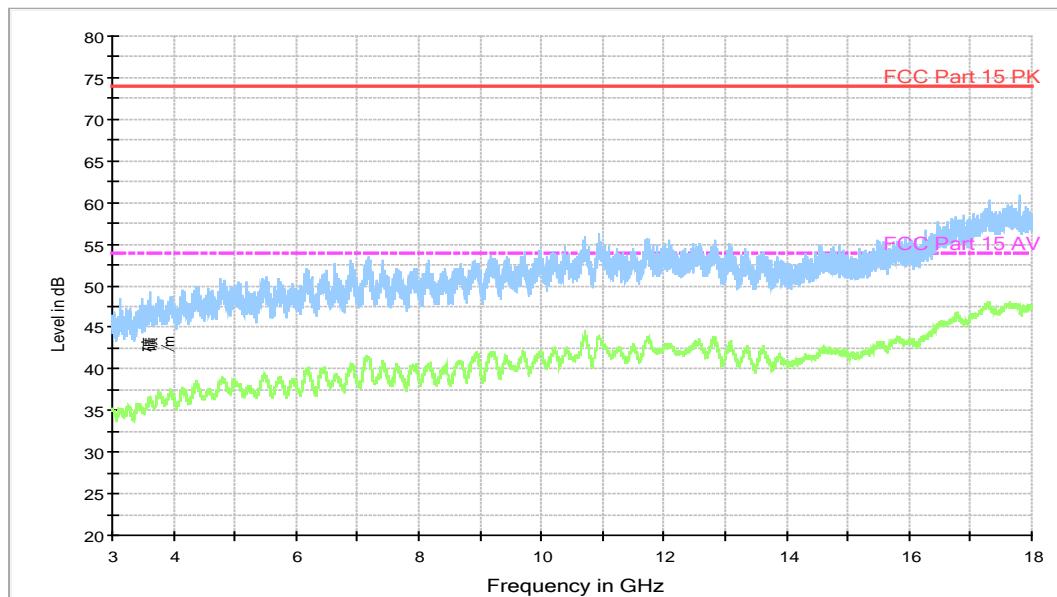


Fig.63. Radiated emission: GFSK, Channel 39, 3 GHz - 18 GHz

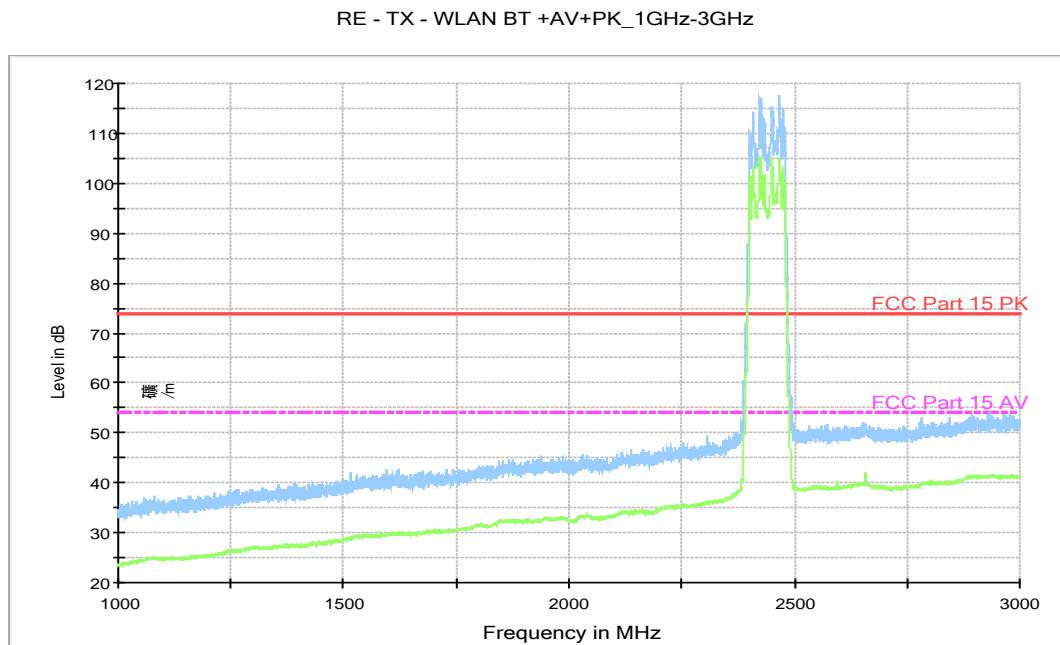


Fig.64. Radiated emission: GFSK, Channel 78, 1 GHz - 3 GHz

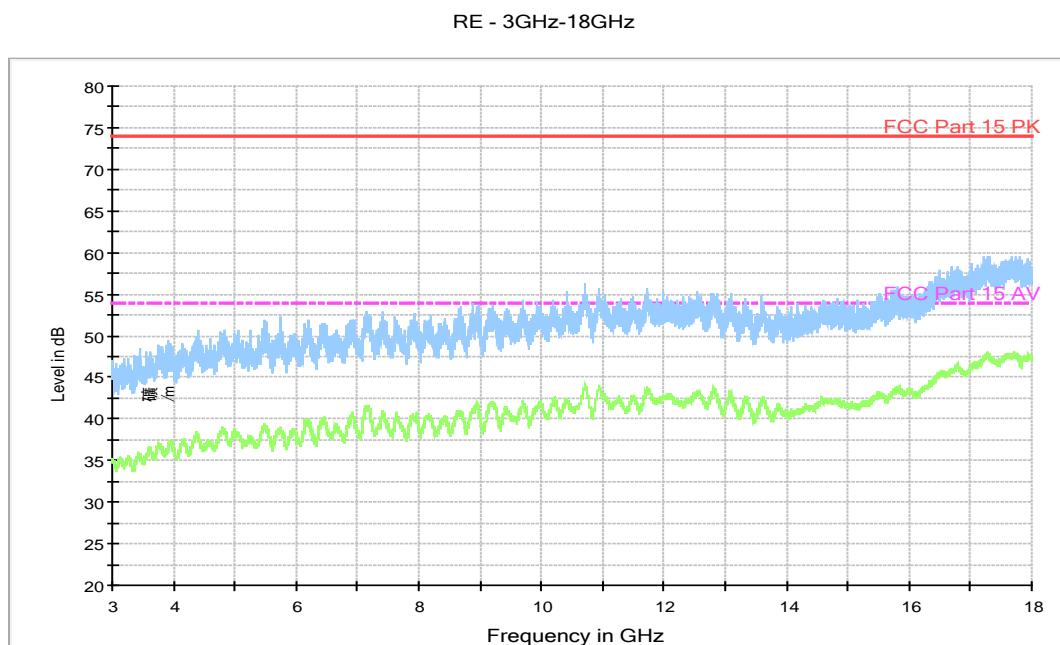


Fig.65. Radiated emission: GFSK, Channel 78, 3 GHz - 18 GHz

RE - Power-2.38GHz-2.45GHz

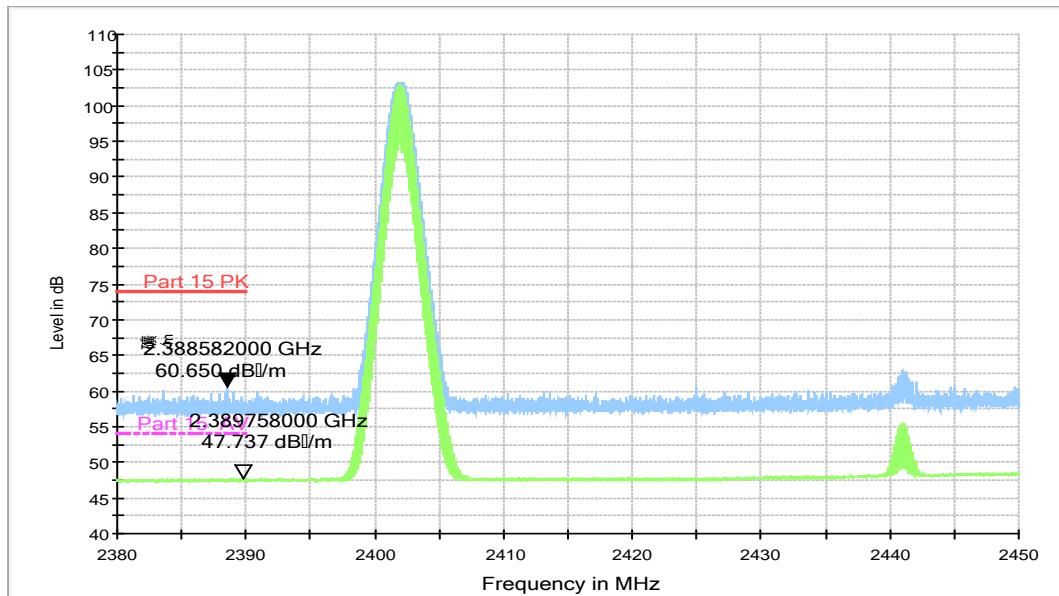


Fig.66. Radiated emission (Power): GFSK, low channel

RE - Power-2.45GHz-2.5GHz

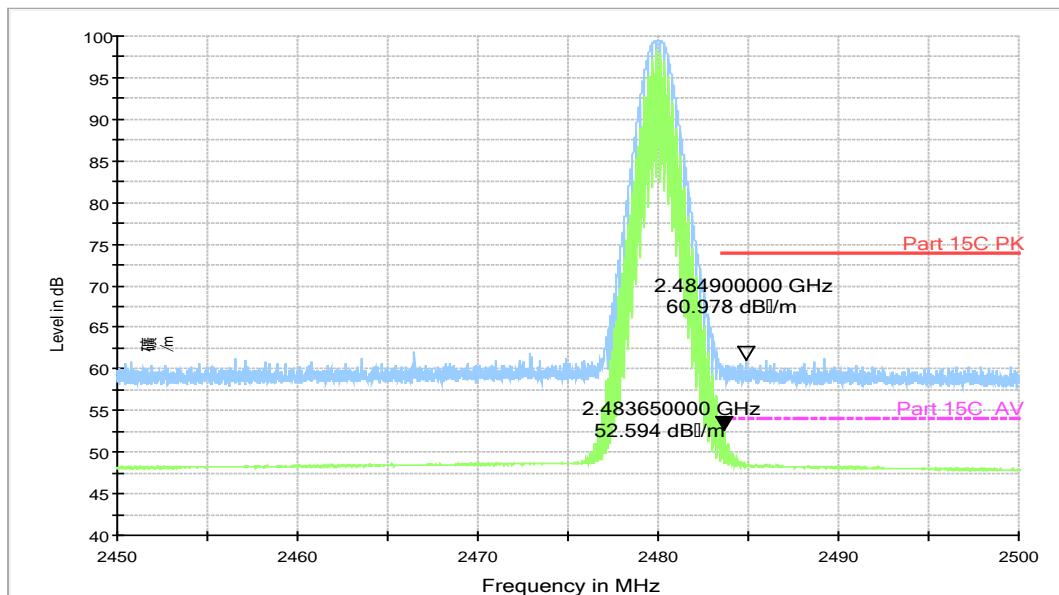


Fig.67. Radiated emission (Power) GFSK, high channel

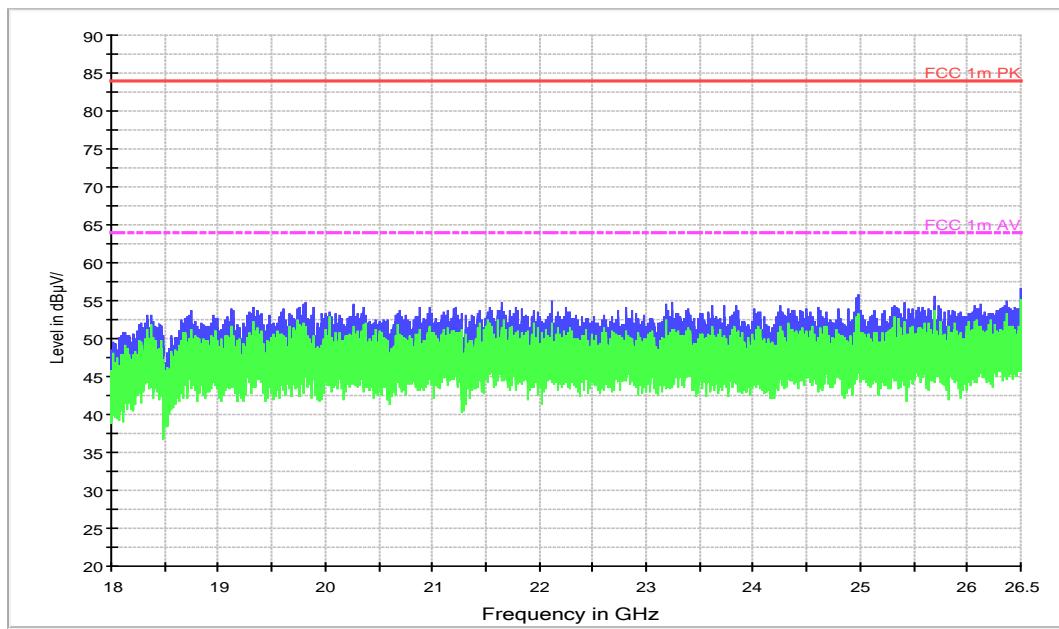


Fig.68. Radiated emission: GFSK, 18 GHz - 26 GHz

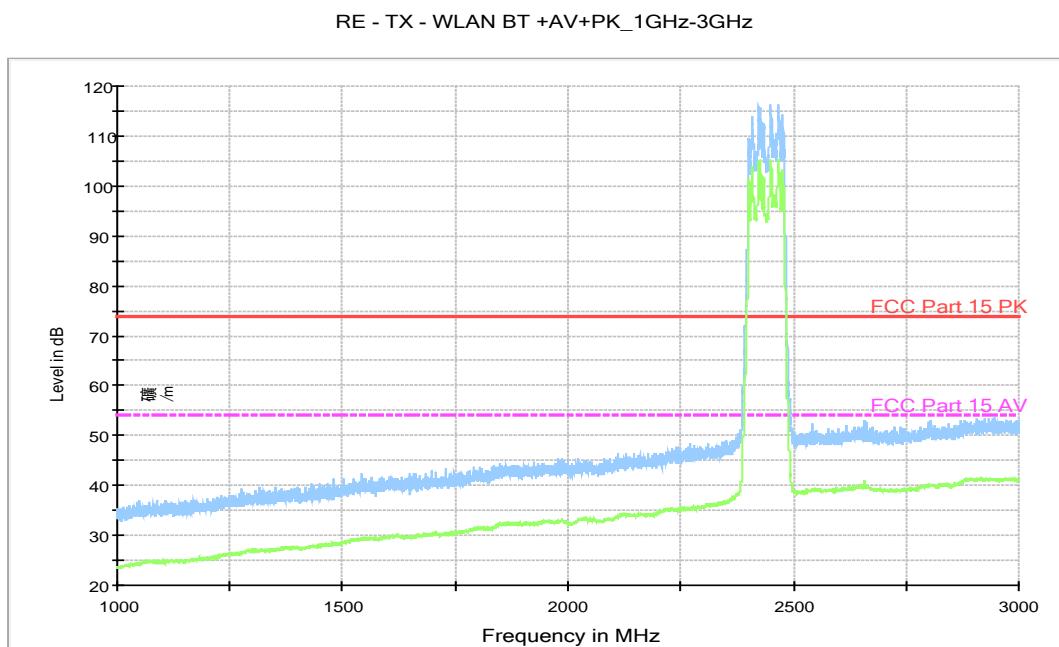


Fig.69. Radiated emission: π/4 DQPSK, Channel 0, 1 GHz - 3 GHz

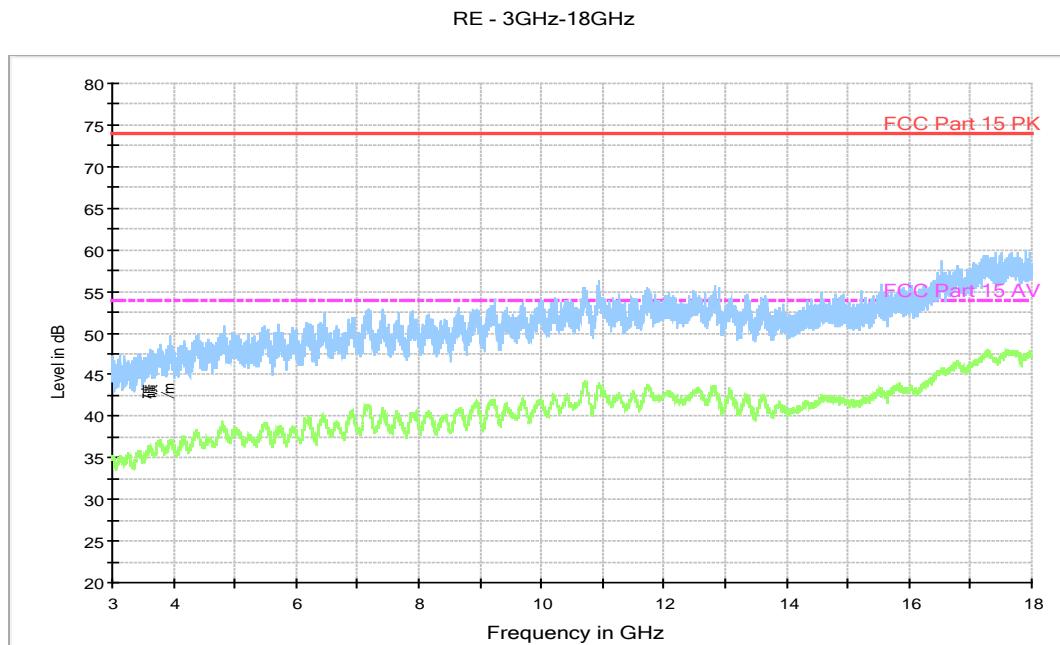


Fig.70. Radiated emission: $\pi/4$ DQPSK, Channel 0, 3 GHz - 18 GHz

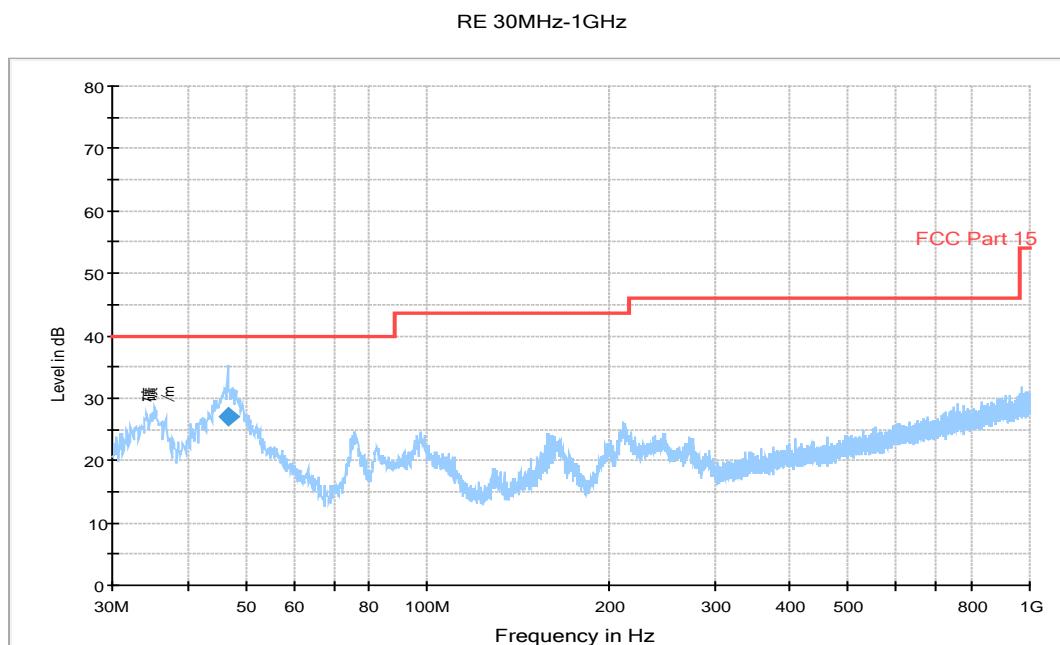


Fig.71. Radiated emission: $\pi/4$ DQPSK, Channel 39, 30 MHz - 1 GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
46.684000	27.1	100.0	V	41.0	-18.2	12.9	40.0

RE - TX - WLAN BT +AV+PK_1GHz-3GHz

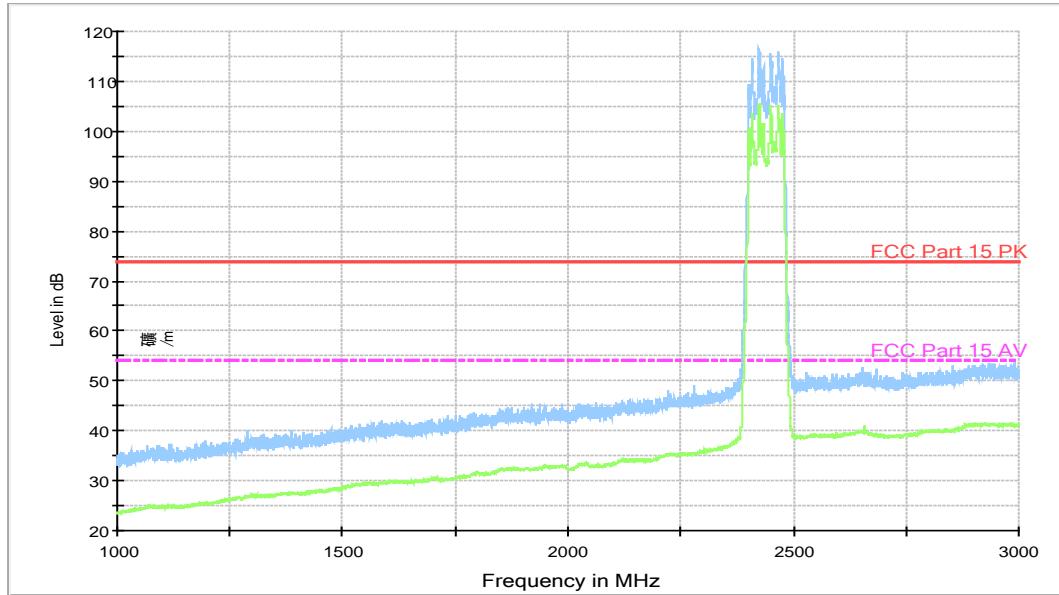


Fig.72. Radiated emission: $\pi/4$ DQPSK, Channel 39, 1 GHz - 3 GHz

RE - 3GHz-18GHz

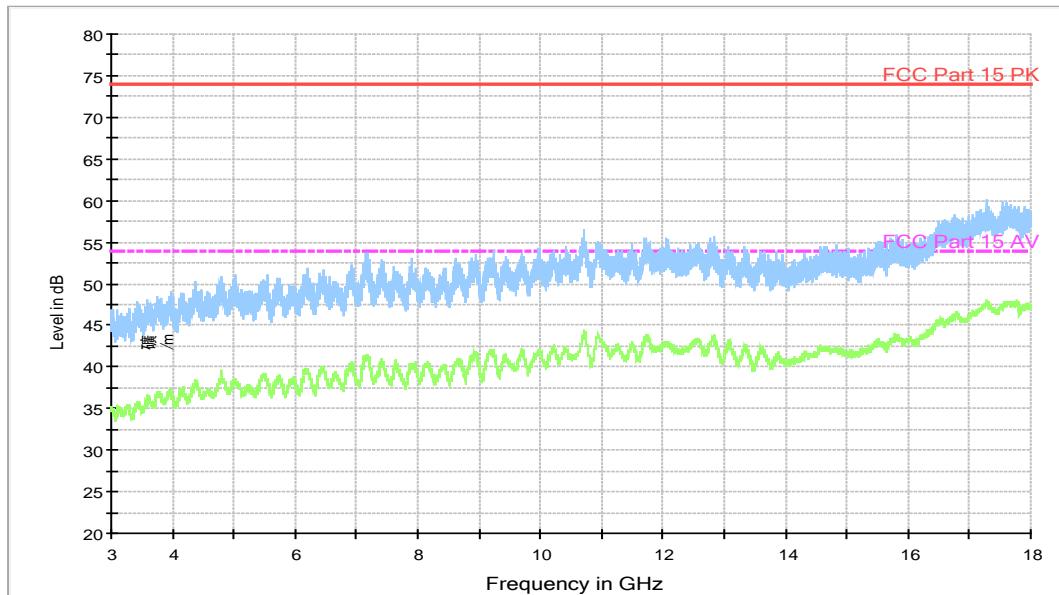


Fig.73. Radiated emission: $\pi/4$ DQPSK, Channel 39, 3 GHz - 18 GHz

RE - TX - WLAN BT +AV+PK_1GHz-3GHz

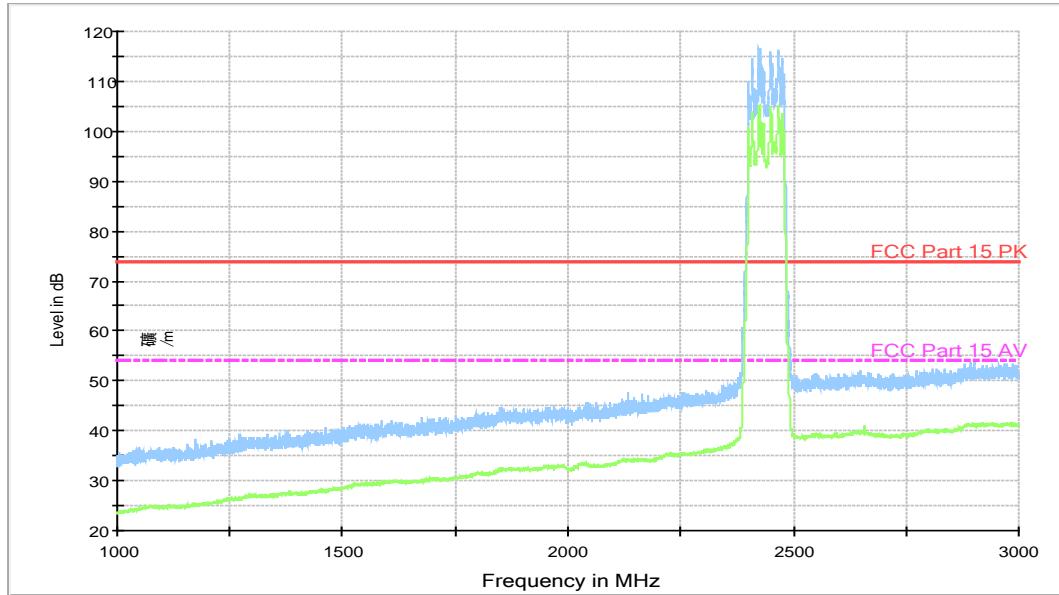


Fig.74. Radiated emission: $\pi/4$ DQPSK, Channel 78, 1 GHz - 3 GHz

RE - 3GHz-18GHz

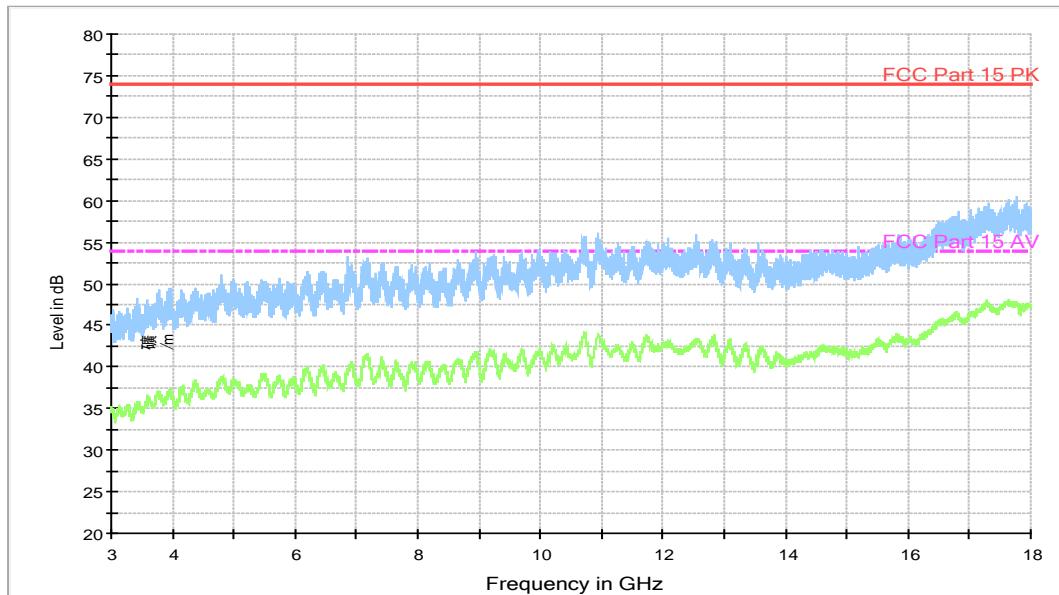


Fig.75. Radiated emission: $\pi/4$ DQPSK, Channel 78, 3 GHz - 18 GHz

RE - Power-2.38GHz-2.45GHz

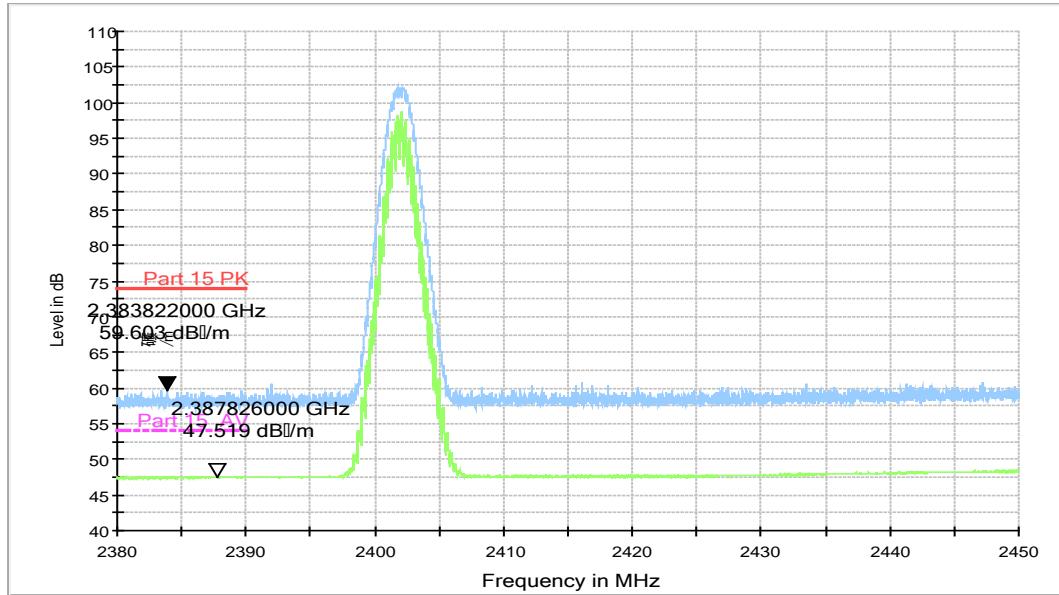


Fig.76. Radiated emission (Power): $\pi/4$ DQPSK, low channel

RE - Power-2.45GHz-2.5GHz

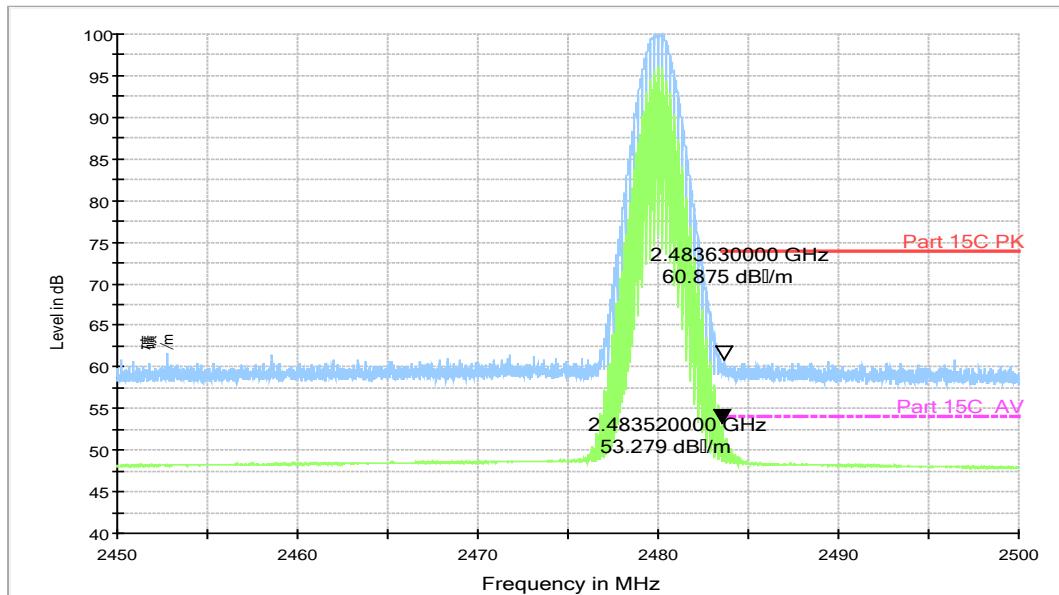


Fig.77. Radiated emission (Power): $\pi/4$ DQPSK, high channel

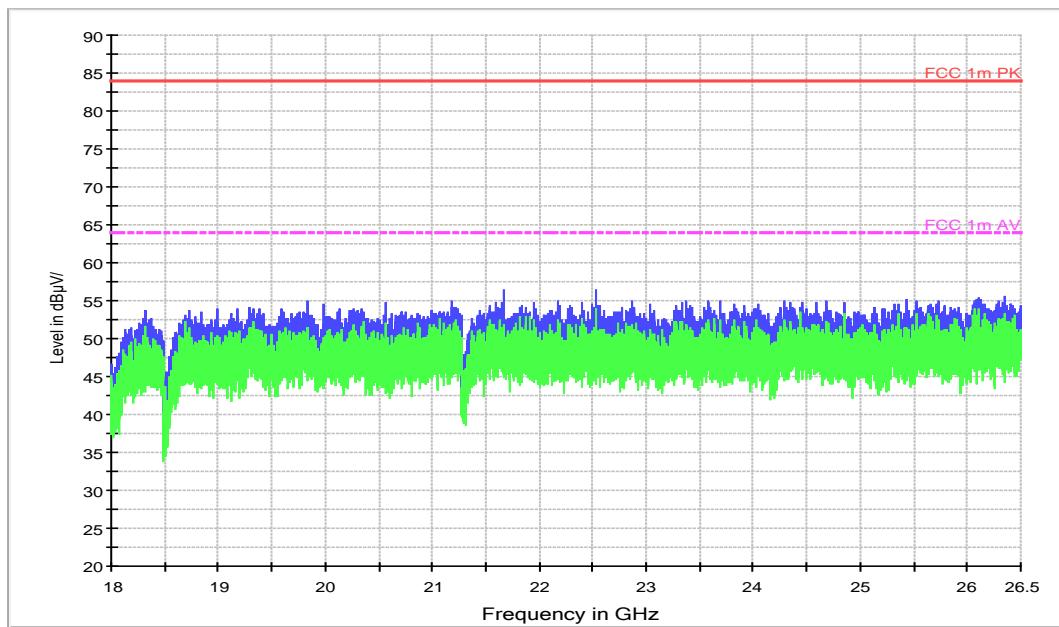


Fig.78. Radiated emission: $\pi/4$ DQPSK, 18 GHz - 26 GHz

RE - TX - WLAN BT +AV+PK_1GHz-3GHz

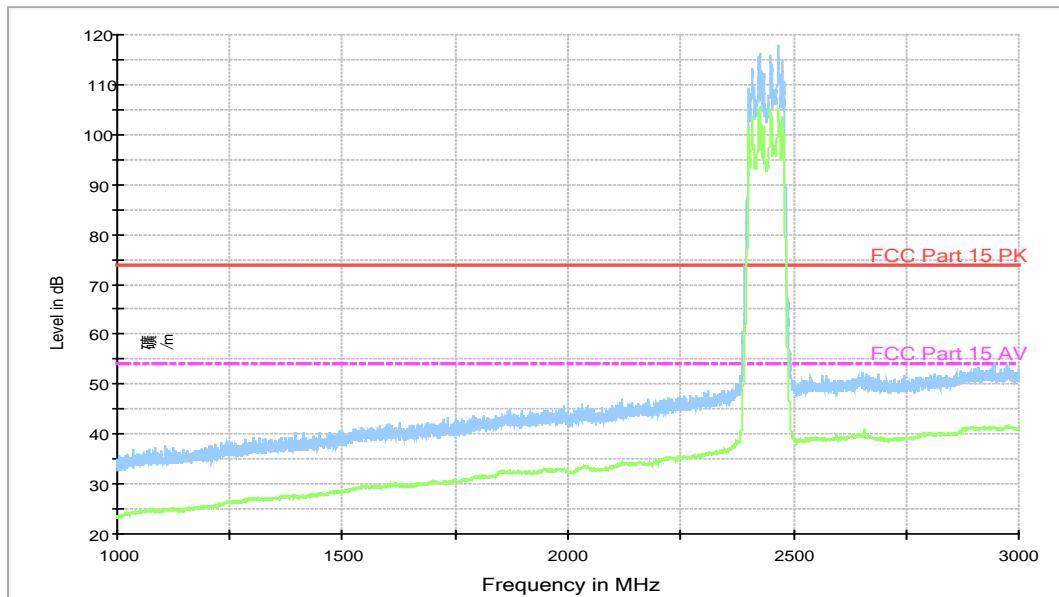


Fig.79. Radiated emission: 8DPSK, Channel 0, 1 GHz - 3 GHz

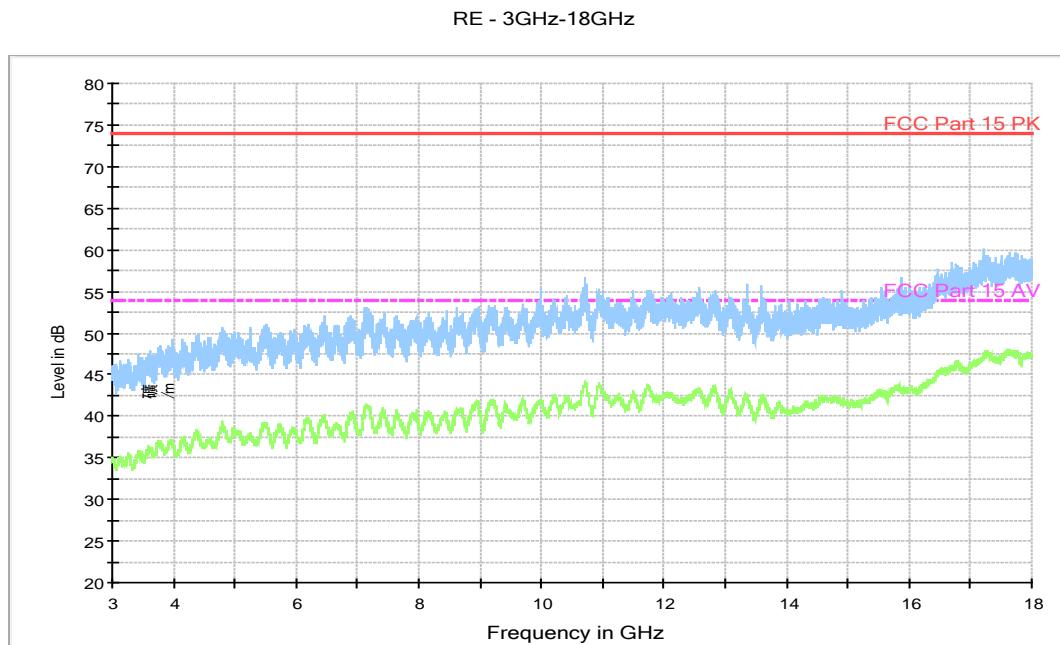


Fig.80. Radiated emission: 8DPSK, Channel 0, 3 GHz - 18 GHz

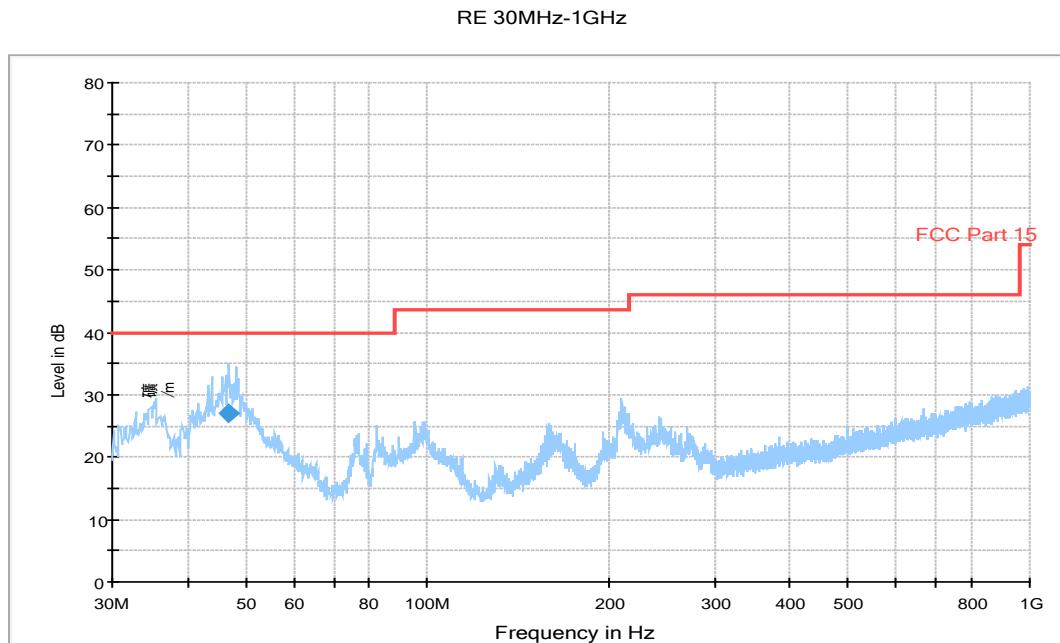


Fig.81. Radiated emission: 8DPSK, Channel 39, 30 MHz - 1 GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
46.878000	27.1	100.0	V	45.0	-18.2	12.9	40.0

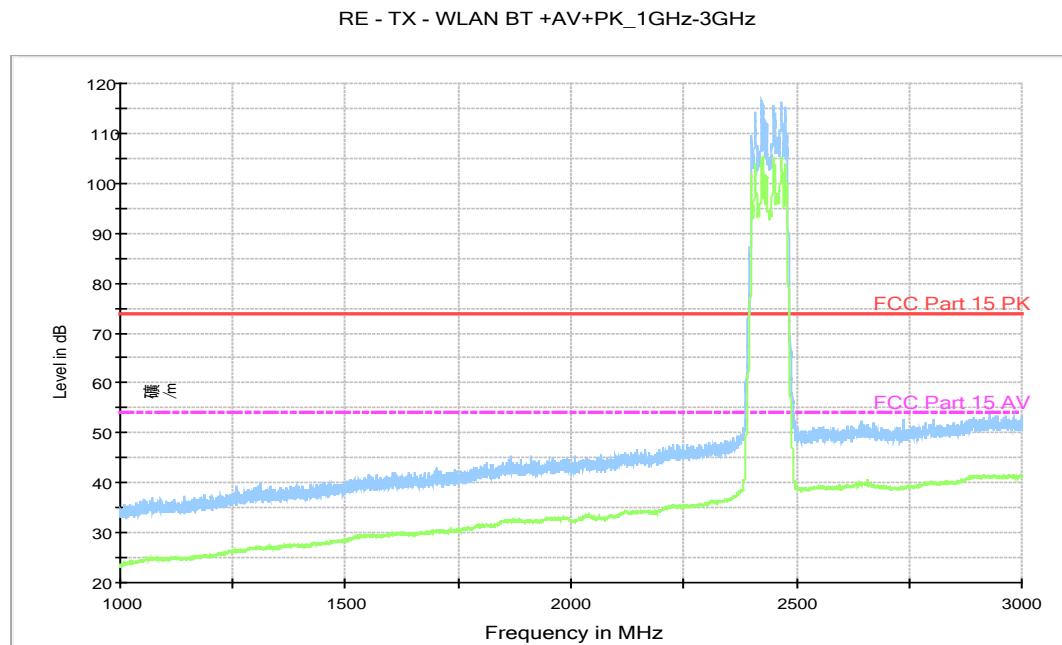


Fig.82. Radiated emission: 8DPSK, Channel 39, 1 GHz - 3 GHz

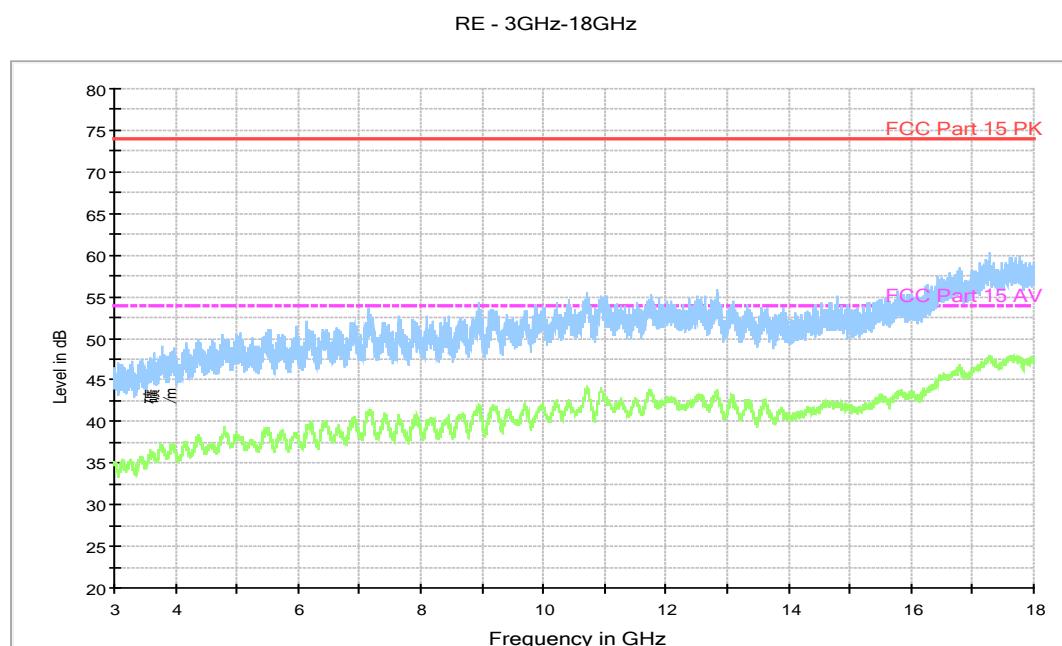


Fig.83. Radiated emission: 8DPSK, Channel 39, 3 GHz - 18 GHz

RE - TX - WLAN BT +AV+PK_1GHz-3GHz

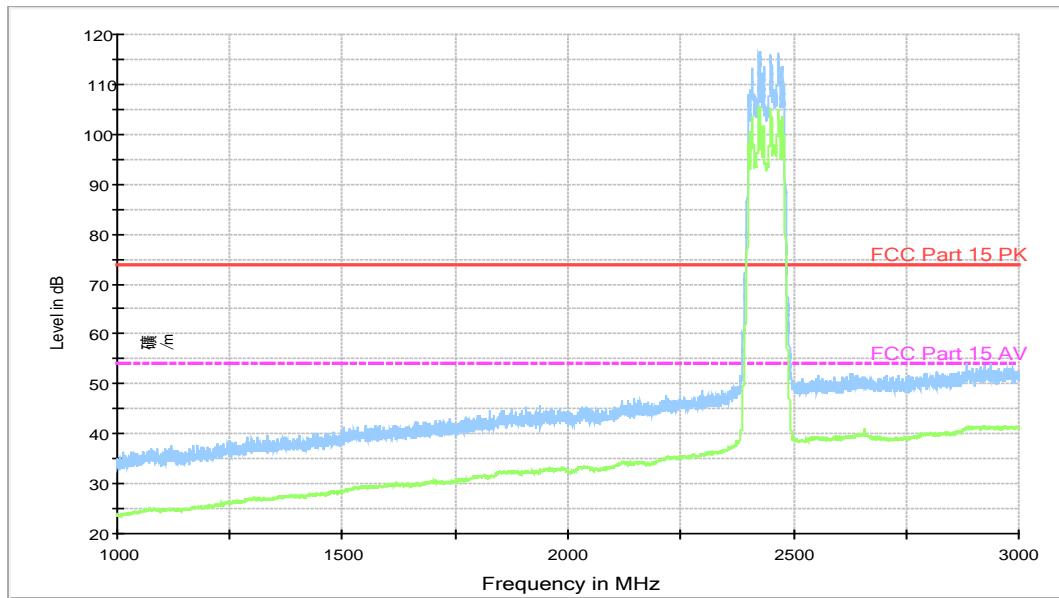


Fig.84. Radiated emission: 8DPSK, Channel 78, 1 GHz - 3 GHz

RE - 3GHz-18GHz

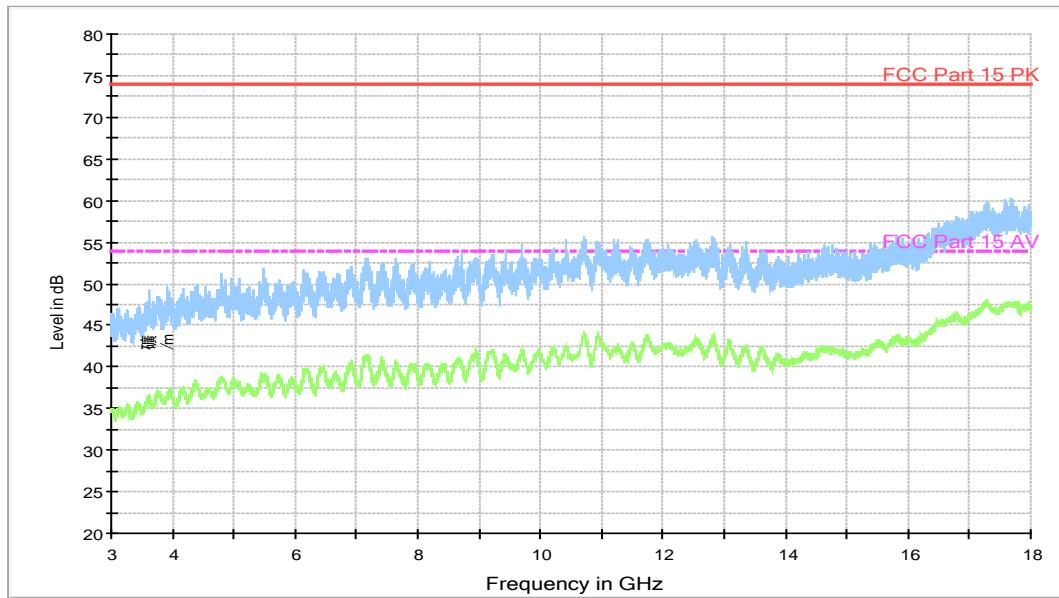


Fig.85. Radiated emission: 8DPSK, Channel 78, 3 GHz - 18 GHz

RE - Power-2.38GHz-2.45GHz

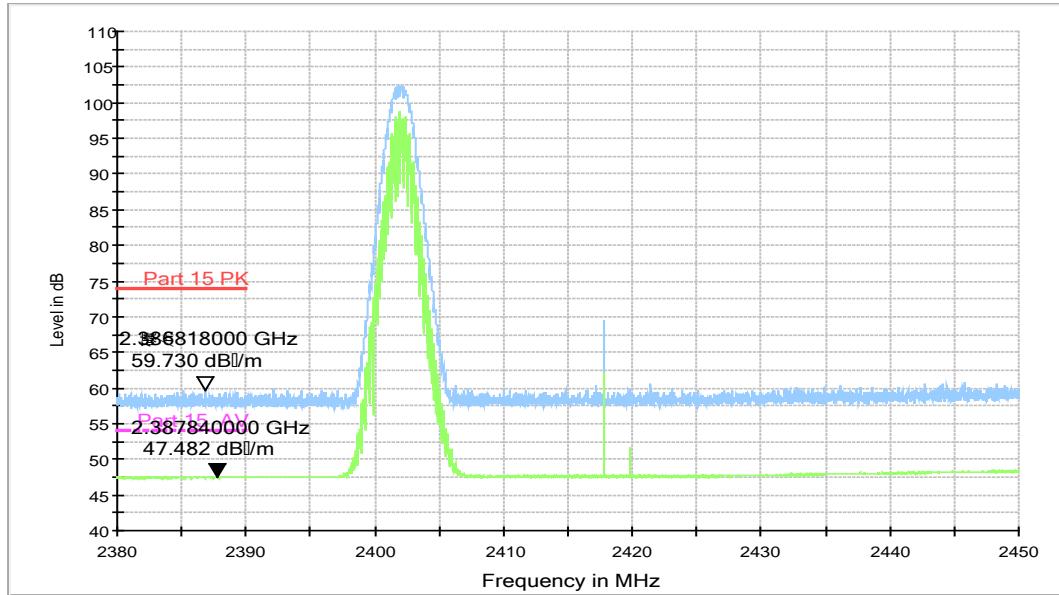


Fig.86. Radiated emission (Power): 8DPSK, low channel

RE - Power-2.45GHz-2.5GHz

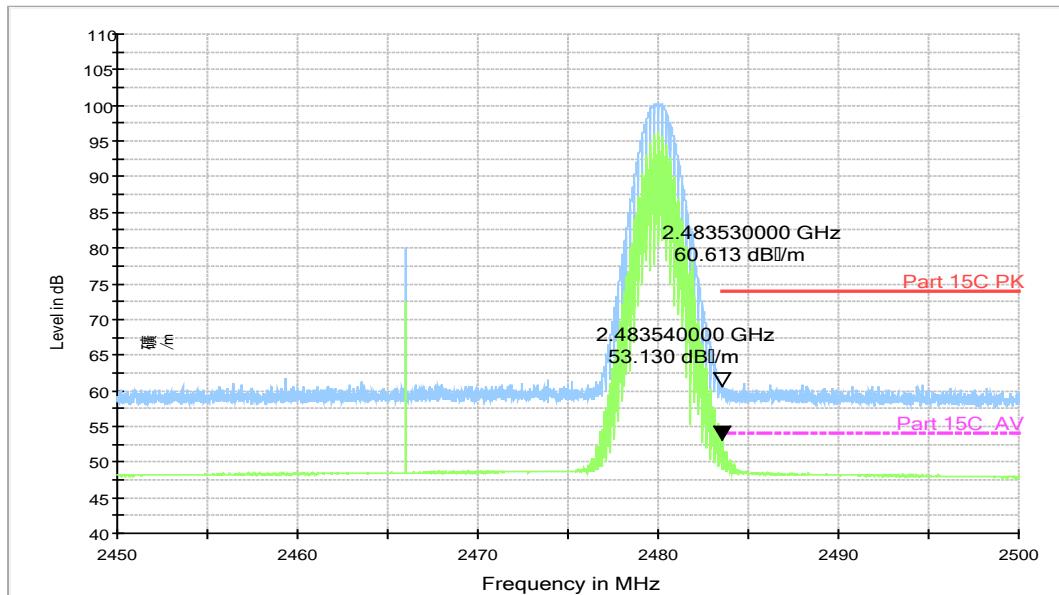


Fig.87. Radiated emission (Power): 8DPSK, high channel

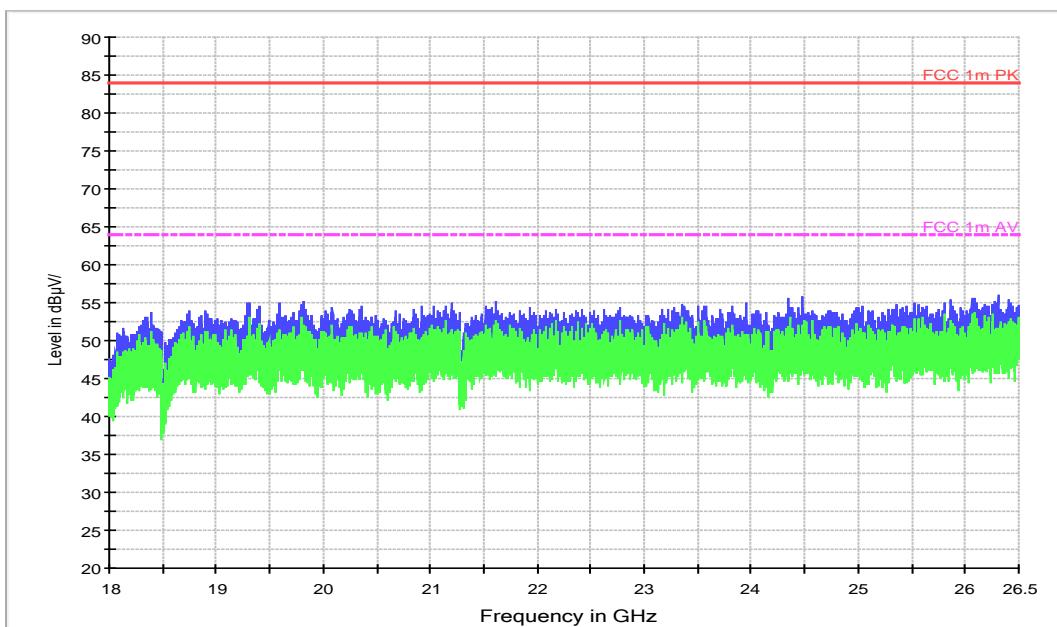


Fig.88. Radiated emission: 8DPSK, 18 GHz - 26 GHz

A.6. Time of Occupancy (Dwell Time)

Method of Measurement: See ANSI C63.10-clause 7.8.4

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

- Span = zero span, centered on a hopping channel
- RBW = 1 MHz
- VBW \geq RBW
- Sweep = as necessary to capture the entire dwell time per hopping channel
- Detector function = peak
- Trace = max hold

Measure a pulse time in time domain at middle frequency and then count the hopping number in 31.6s(which equals with 0.4 multiply 79) of middle frequency ,then multiply the pulse time and hopping number and record them.

Measurement Limit:

Standard	Limit (ms)
FCC 47 CFR Part 15.247(a) (1)(iii)	< 400

Measurement Result:

For GFSK

Channel	Packet	Dwell Time (ms)	Conclusion
39	DH1	Fig.89	121.86
	DH3	Fig.90	261.89
	DH5	Fig.91	307.72

For $\pi/4$ DQPSK

Channel	Packet	Dwell Time (ms)	Conclusion
39	DH1	Fig.92	123.71
	DH3	Fig.93	262.18
	DH5	Fig.94	307.91

For 8DPSK

Channel	Packet	Dwell Time (ms)	Conclusion
39	DH1	Fig.95	123.66

	DH3	Fig.96	261.62	P
	DH5	Fig.97	308.11	P

Conclusion: PASS

Test graphs as below:

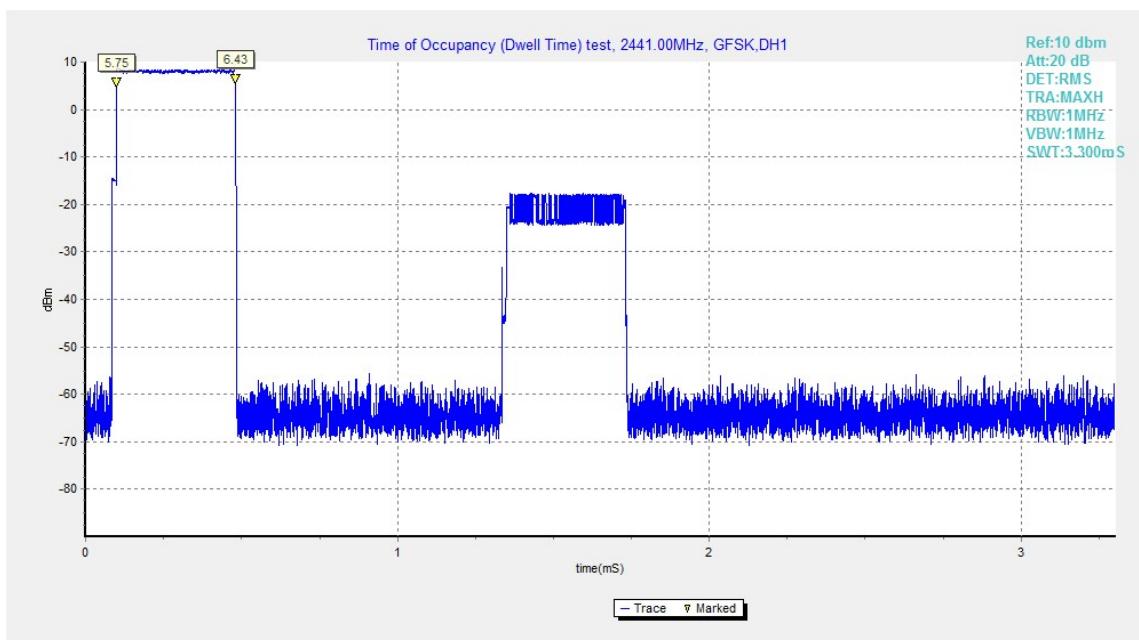


Fig.89. Time of occupancy (Dwell Time): Channel 39, Packet DH1

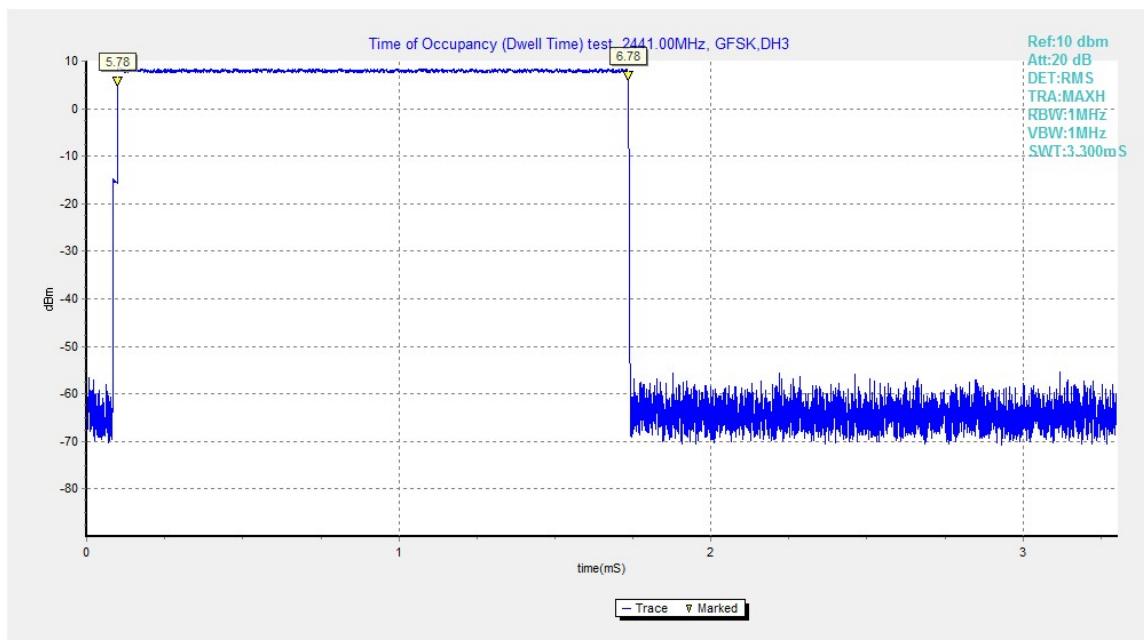


Fig.90. Time of occupancy (Dwell Time): Channel 39, Packet DH3

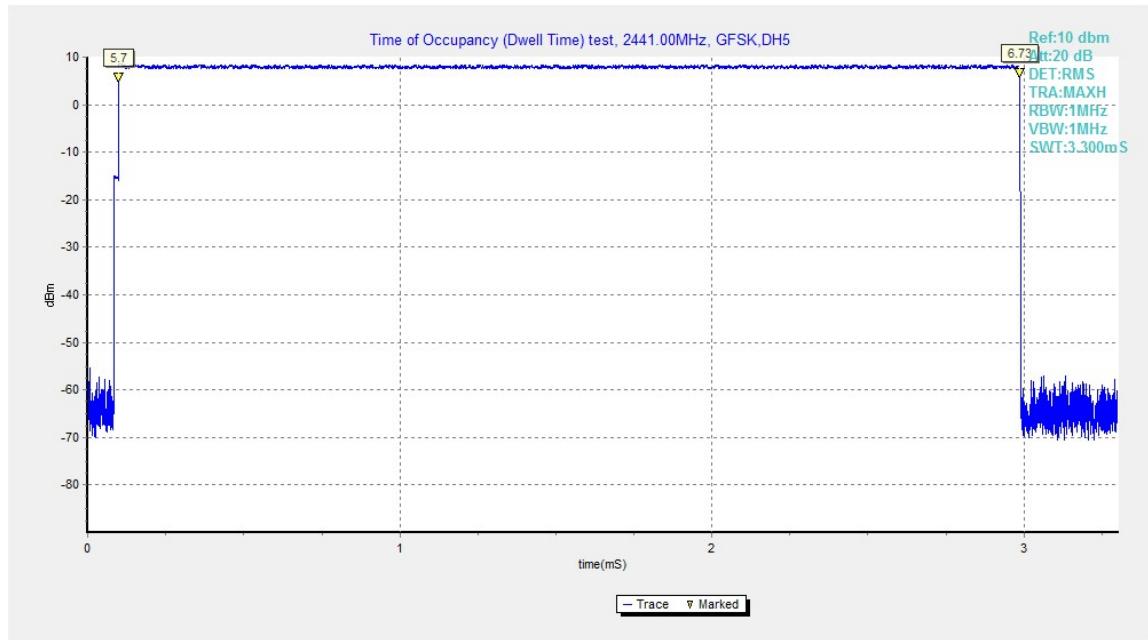


Fig.91. Time of occupancy (Dwell Time): Channel 39, Packet DH5

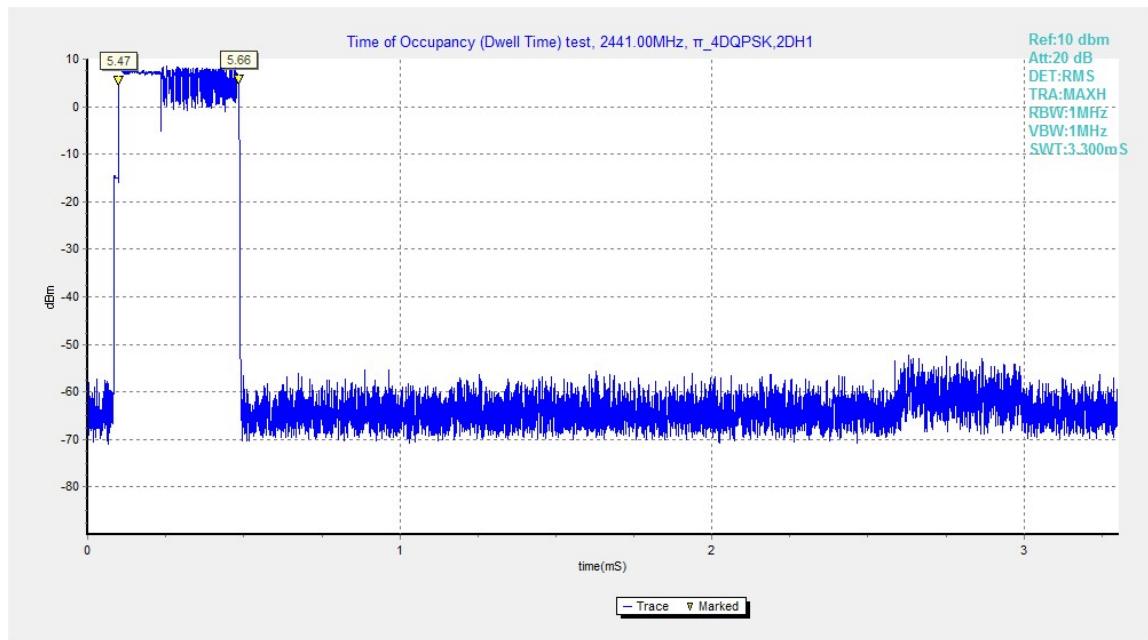


Fig.92. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH1

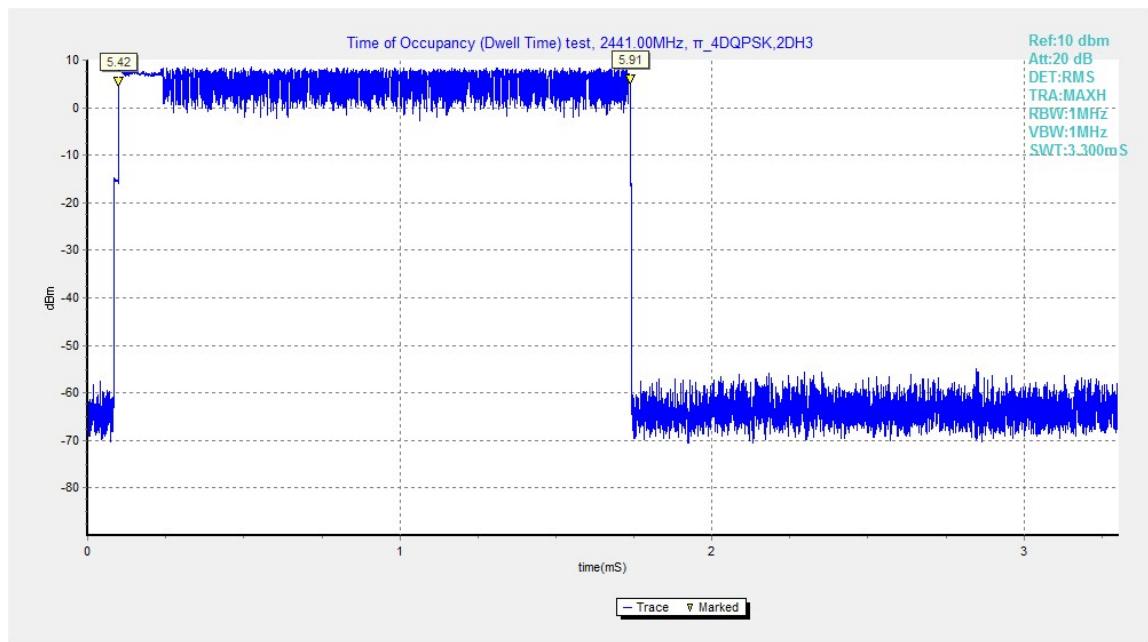


Fig.93. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH3

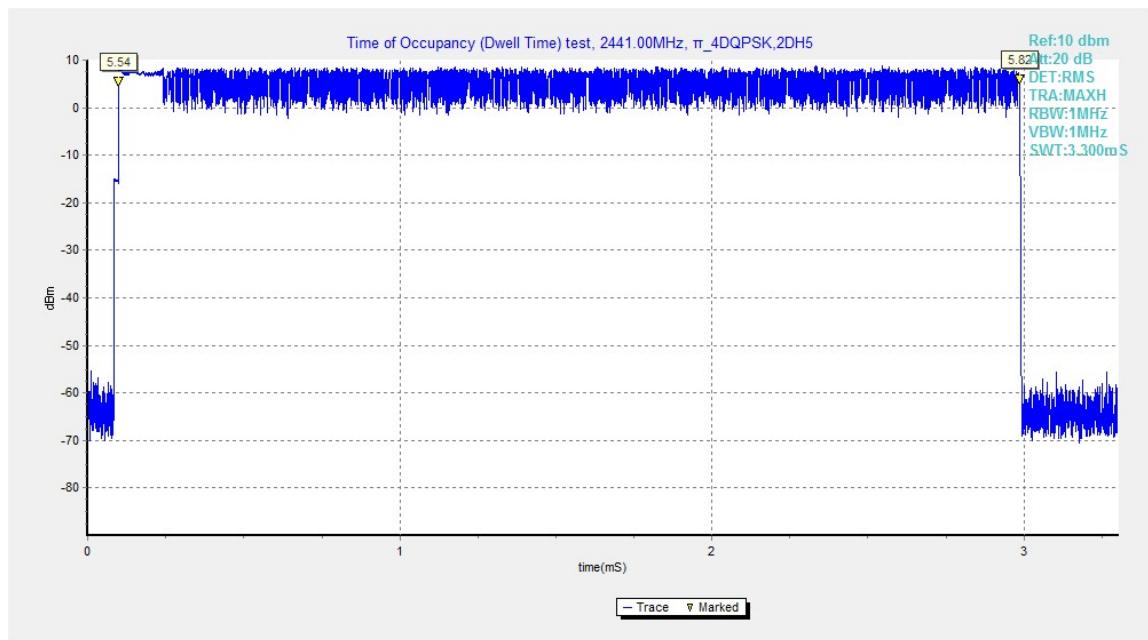


Fig.94. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH5

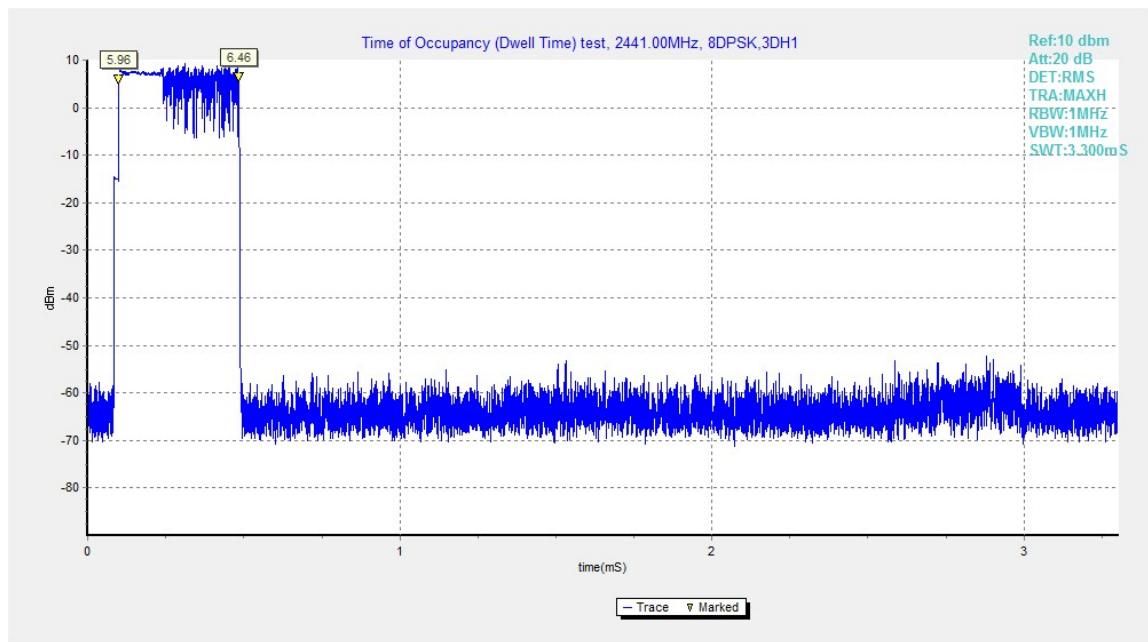


Fig.95. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH1

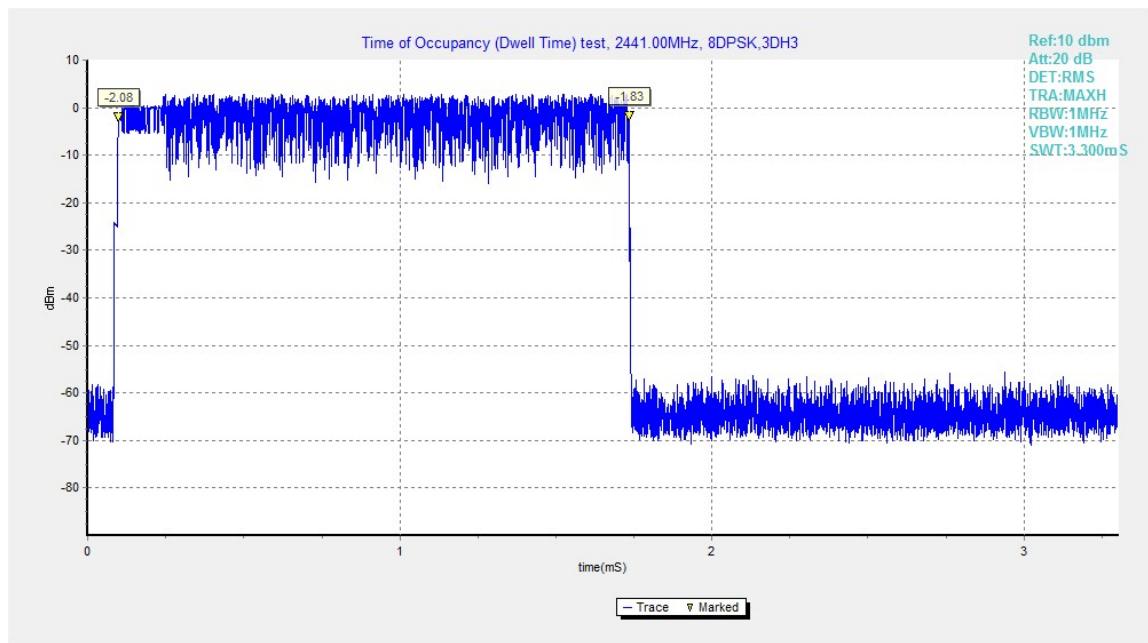


Fig.96. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH3

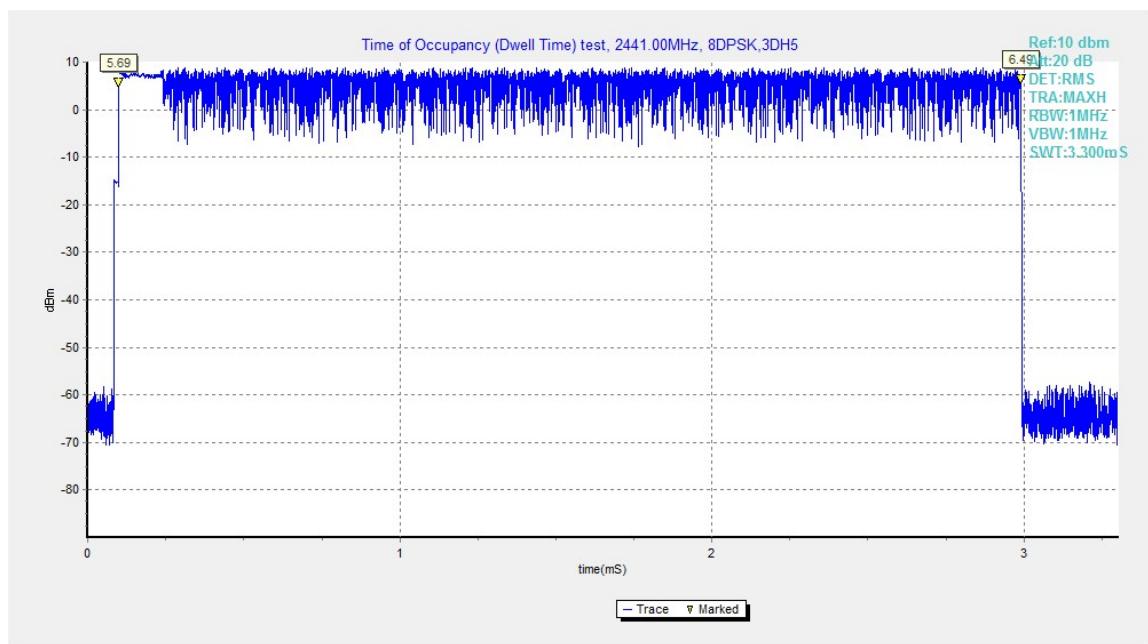


Fig.97. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH5

A.7. 20dB Bandwidth

Method of Measurement: See ANSI C63.10-clause 6.9.2

Measurement Procedure - Unwanted Emissions

1. Set RBW = 30kHz.
2. Set VBW = 100 kHz.
3. Set span to 3MHz
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize (this may take some time, depending on the extent of the span).

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a)(1)	NA *

Use NdB Down function of the SA to measure the 20dB Bandwidth

* Comment: This test case is not required according to the latest FCC 47 CFR Part 15.247. But the test results are necessary for “carrier frequency separation” test case, in Annex A.8.

Measurement Results:

For GFSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.98	948.00	NA
39	Fig.99	938.00	NA
78	Fig.100	939.00	NA

For π/4 DQPSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.101	1292.00	NA
39	Fig.102	1308.00	NA
78	Fig.103	1318.00	NA

For 8DPSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.104	1296.00	NA
39	Fig.105	1297.00	NA
78	Fig.106	1295.00	NA

Conclusion: NA

Test graphs as below:

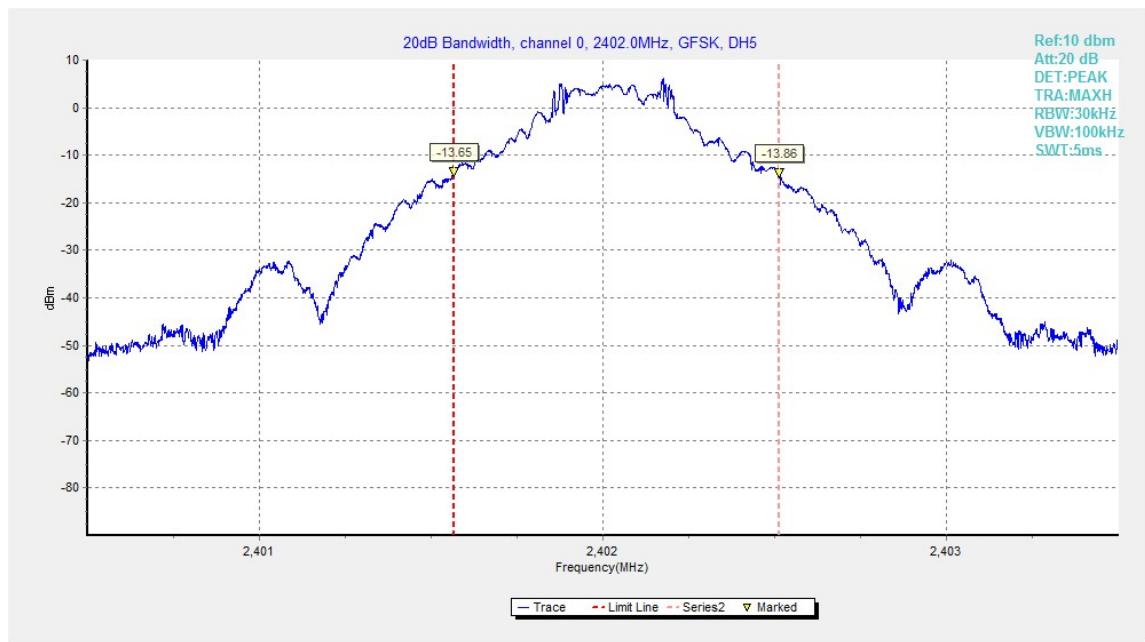


Fig.98. 20dB Bandwidth: GFSK, Channel 0

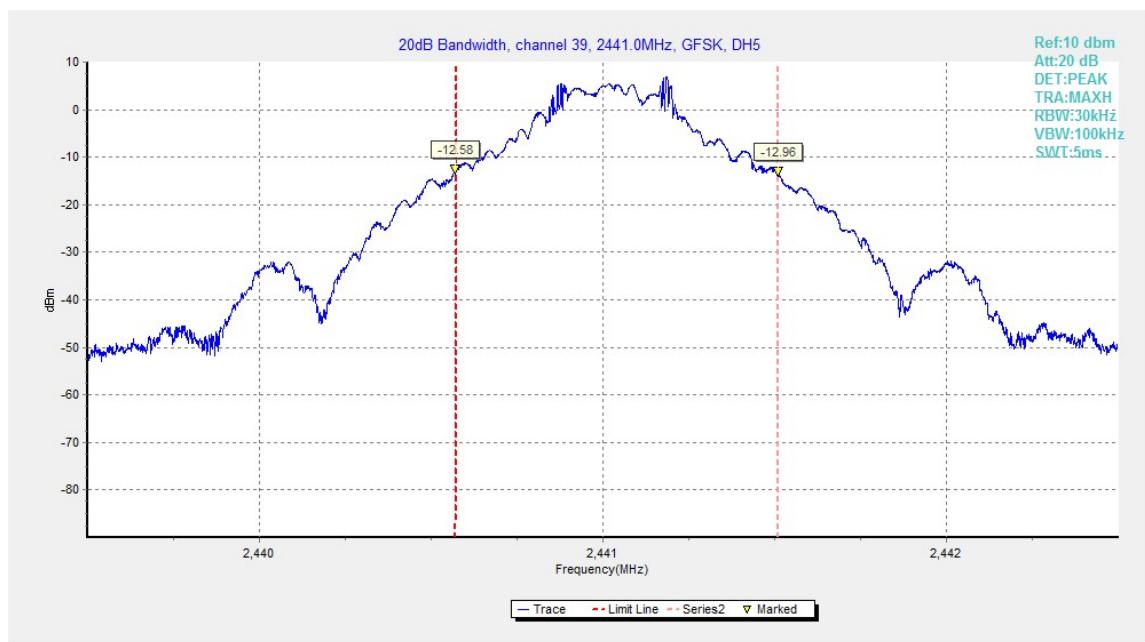


Fig.99. 20dB Bandwidth: GFSK, Channel 39

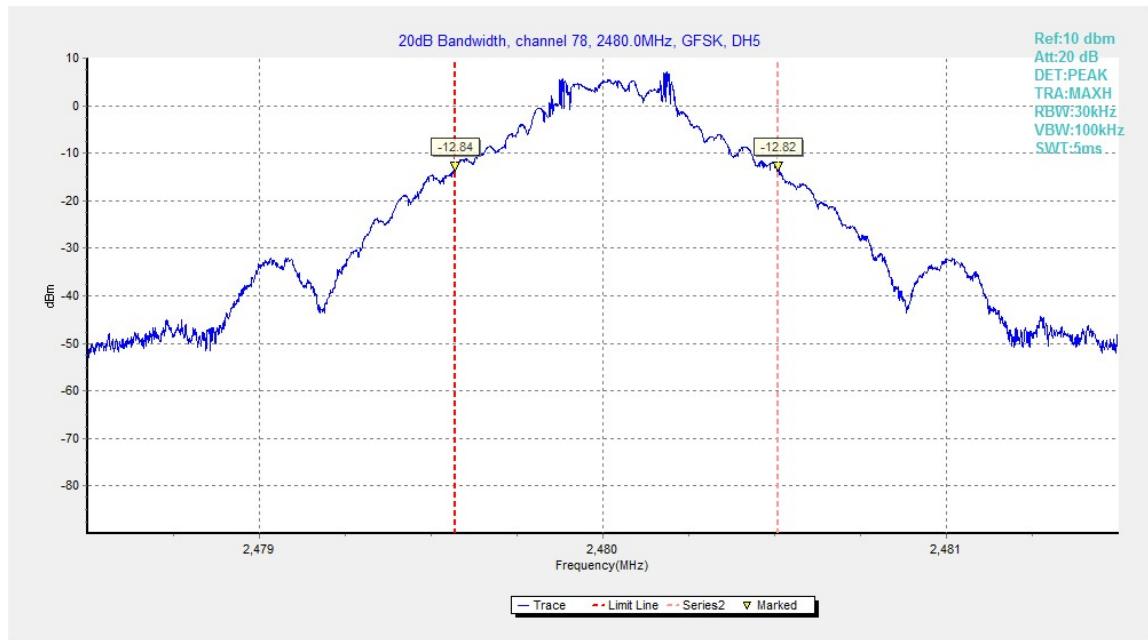


Fig.100. 20dB Bandwidth: GFSK, Channel 78

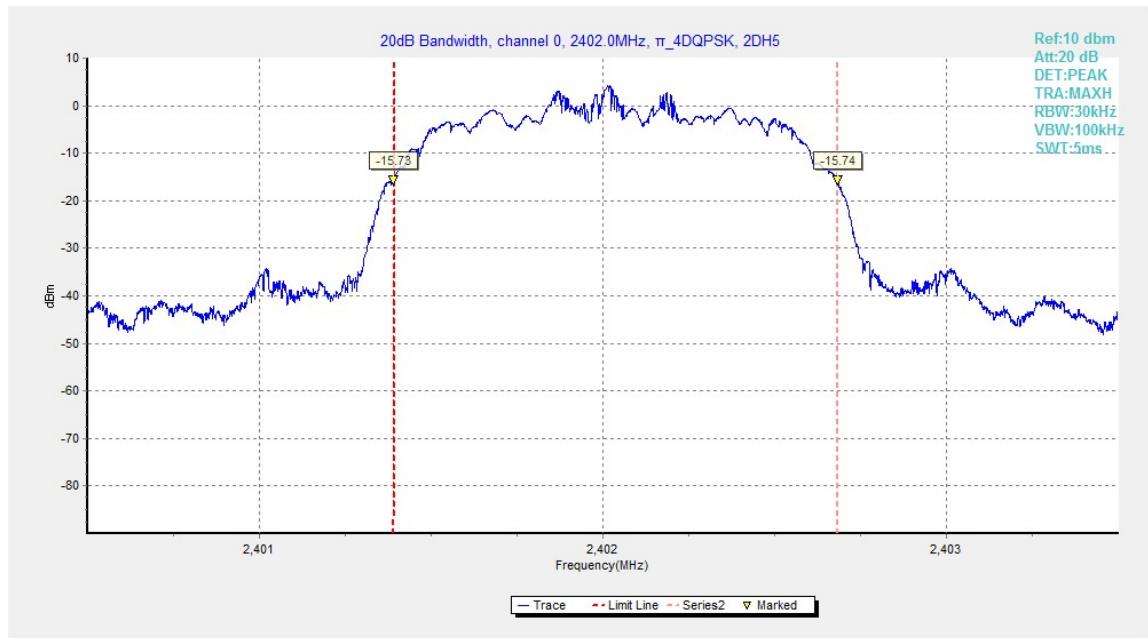


Fig.101. 20dB Bandwidth: π/4 DQPSK, Channel 0

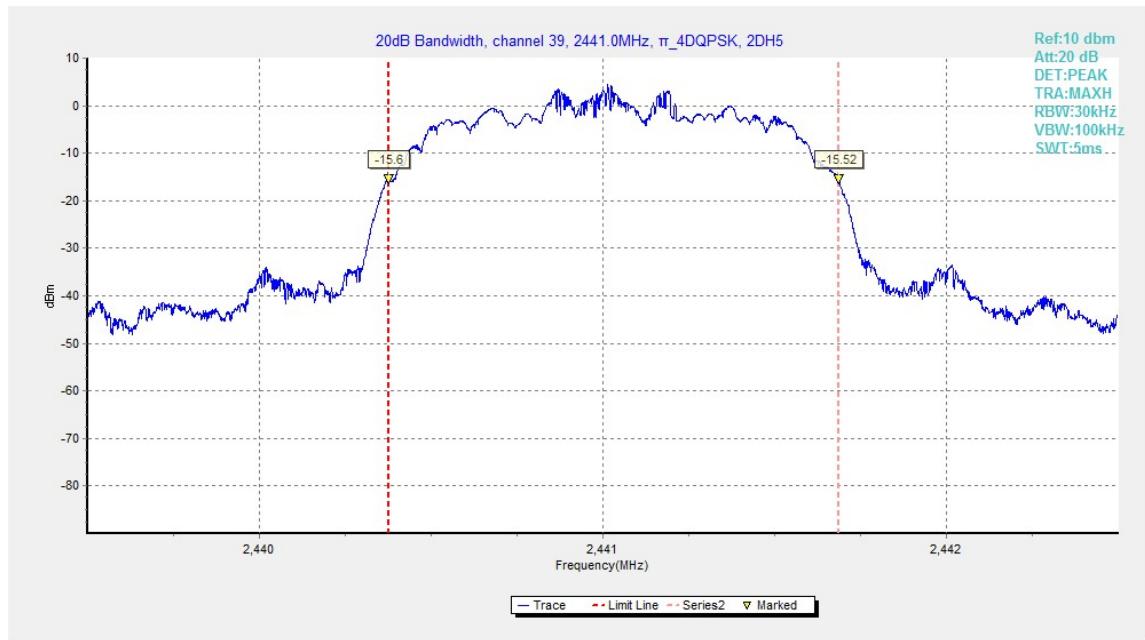


Fig.102. 20dB Bandwidth: $\pi/4$ DQPSK, Channel 39

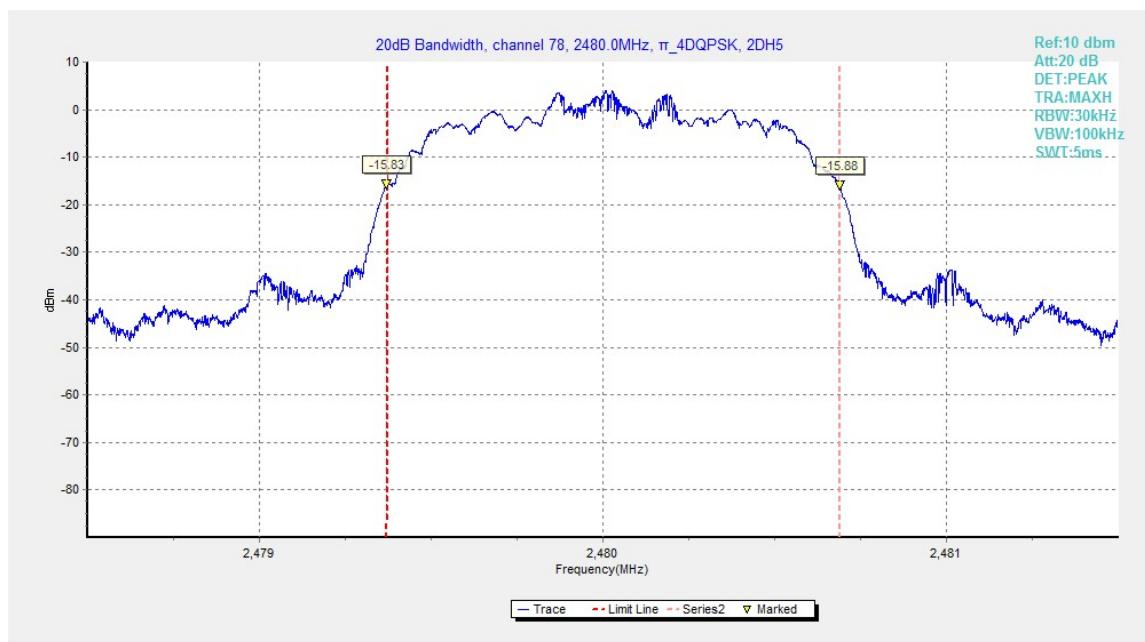


Fig.103. 20dB Bandwidth: $\pi/4$ DQPSK, Channel 78

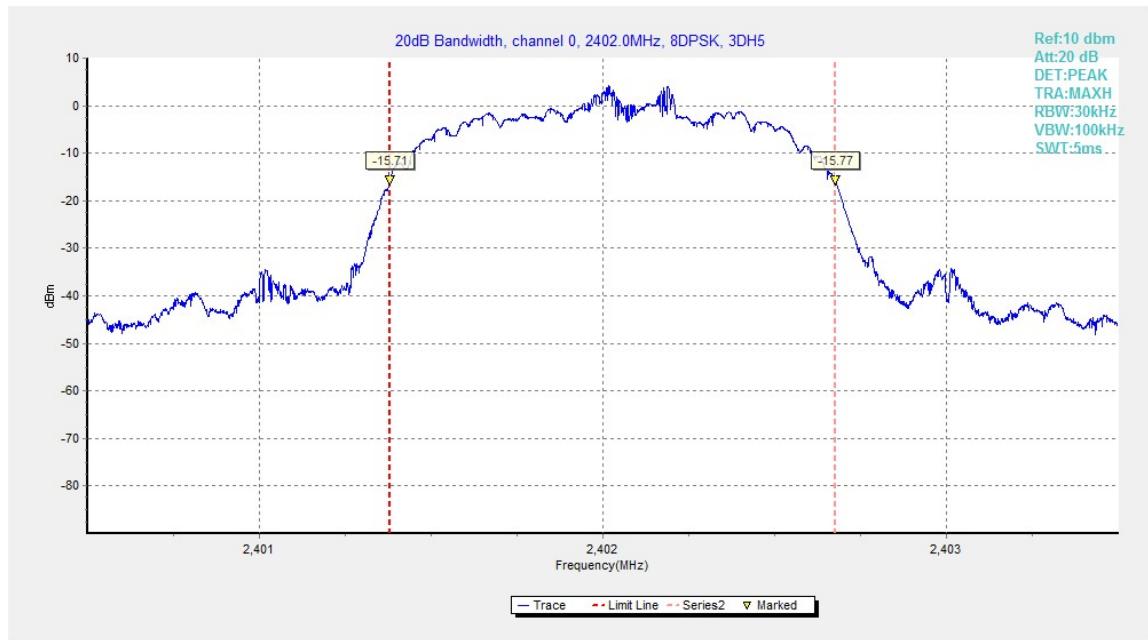


Fig.104. 20dB Bandwidth: 8DPSK, Channel 0

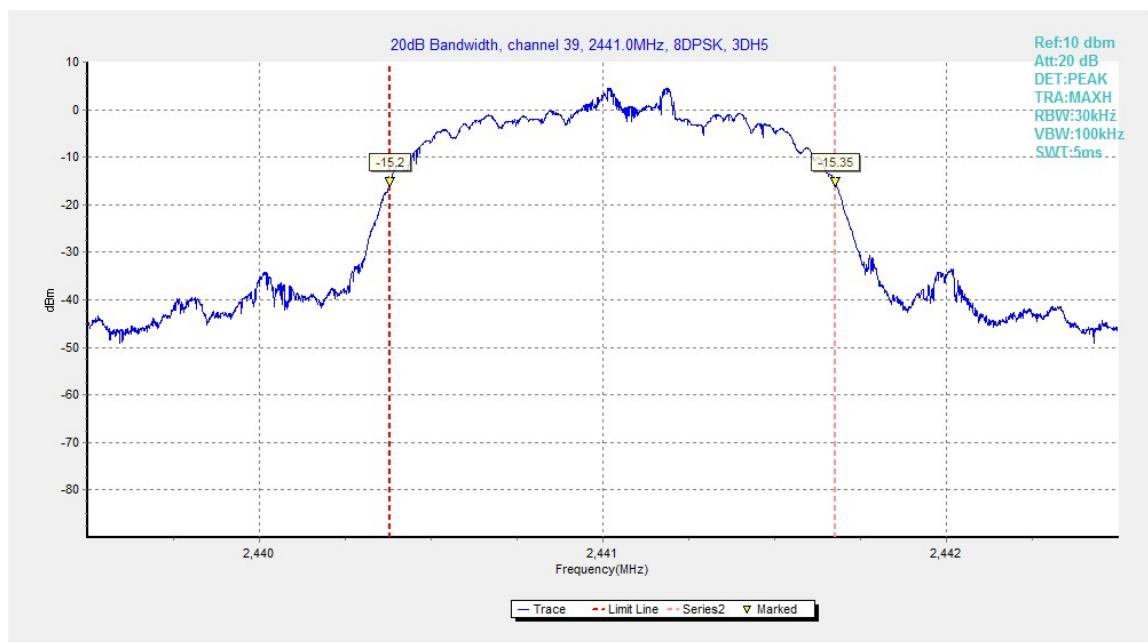


Fig.105. 20dB Bandwidth: 8DPSK, Channel 39

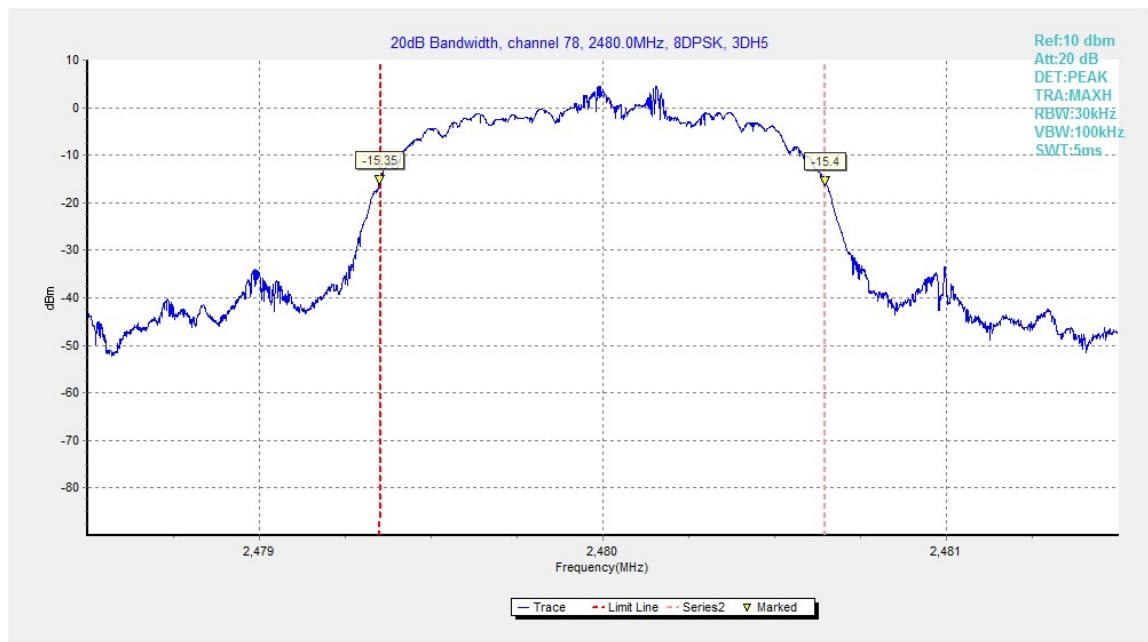


Fig.106. 20dB Bandwidth: 8DPSK, Channel 78

A.8. Carrier Frequency Separation

Method of Measurement: See ANSI C63.10-clause 7.8.2

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

- Span = 3MHz
- RBW=300kHz
- VBW=300kHz
- Sweep = auto
- Detector function = peak
- Trace = max hold
- Allow the trace to stabilize

Search the peak marks of the middle frequency and adjacent channel, then record the separation between them.

* Comment: This limit should be over 25 kHz or $(2/3) * 20\text{dB}$ bandwidth, whichever is greater.

Measurement Limit:

Standard	Limit(kHz)
FCC 47 CFR Part 15.247(a)(1)	over 25 kHz or $(2/3) * 20\text{dB}$ bandwidth

Measurement Result:

For GFSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.107	1145.00	P

For $\pi/4$ DQPSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.108	994.00	P

For 8DPSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.109	1136.00	P

Conclusion: PASS

Test graphs as below:

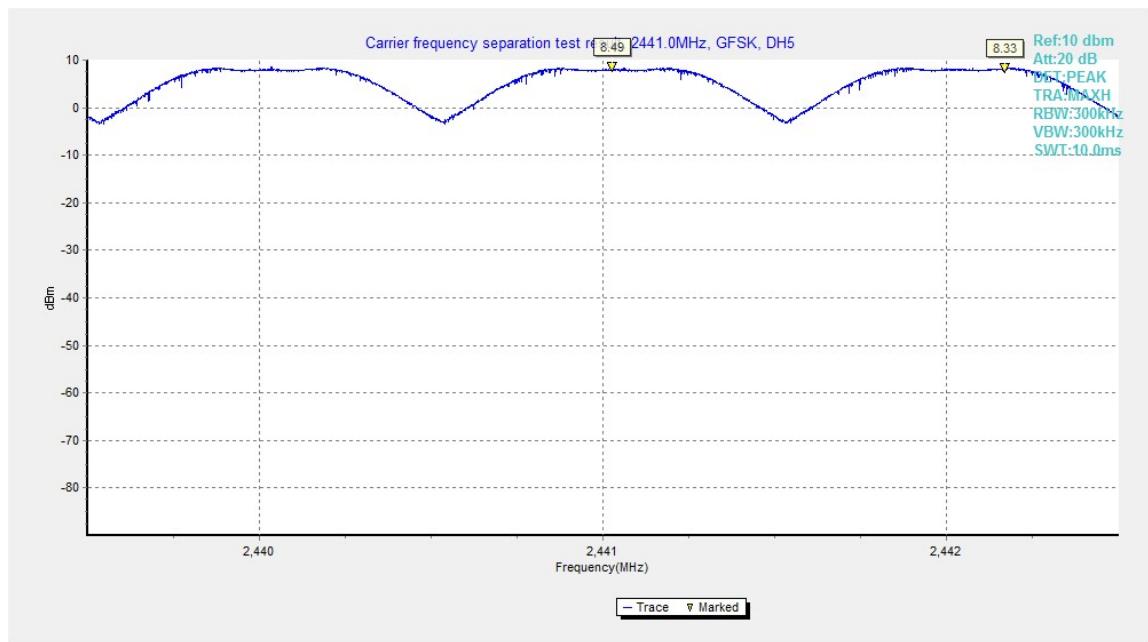


Fig.107. Carrier frequency separation measurement: GFSK, Channel 39

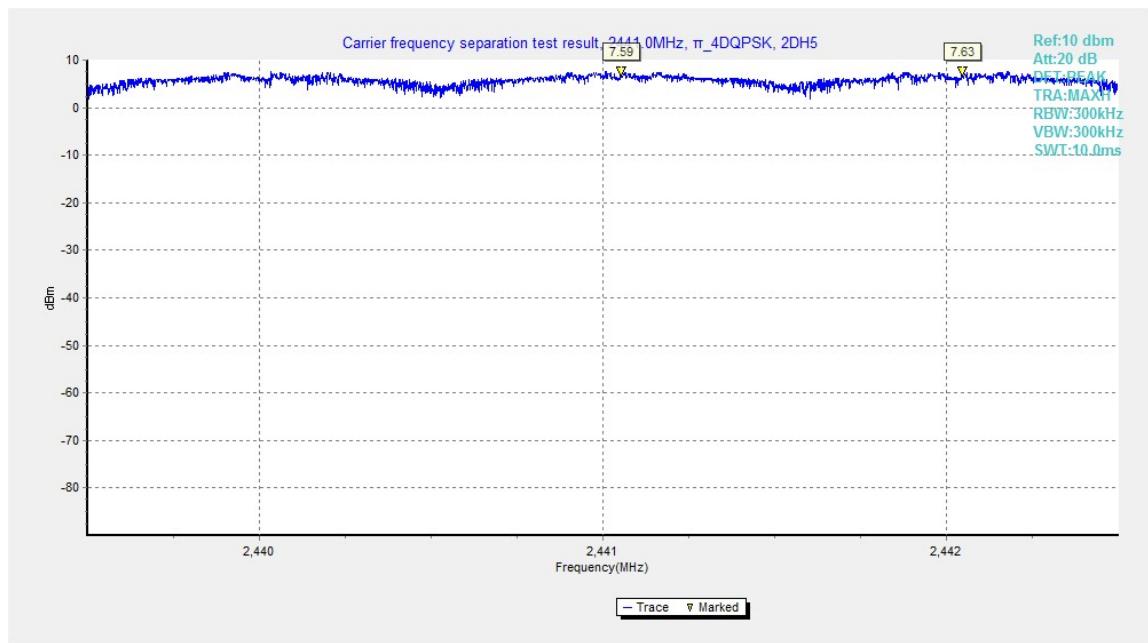


Fig.108. Carrier frequency separation measurement: π/4 DQPSK, Channel 39