

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

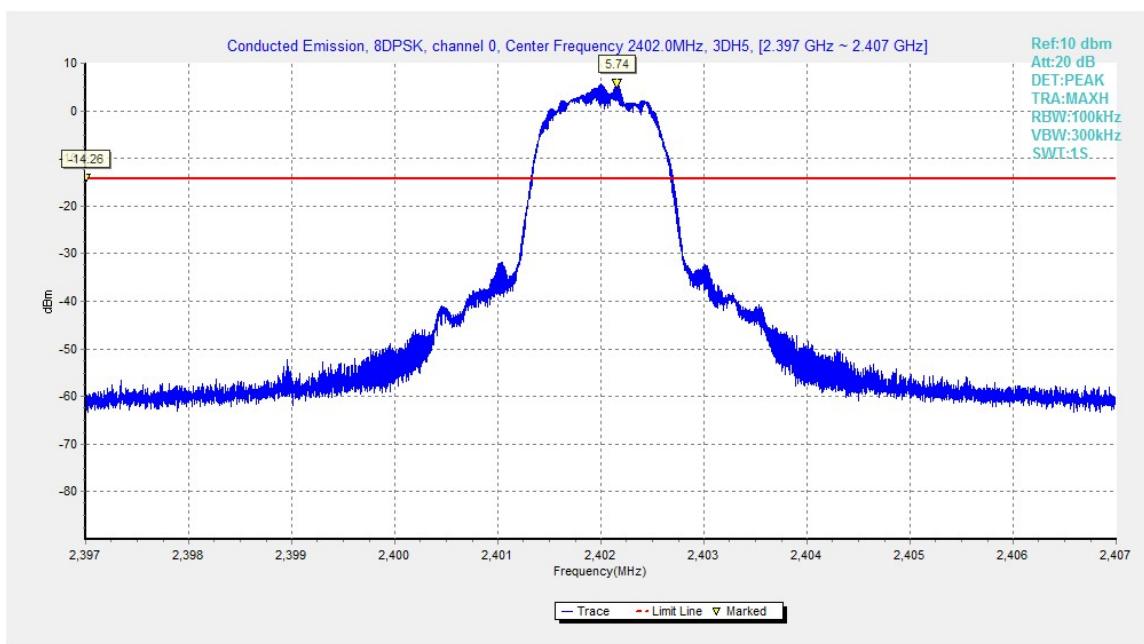


Fig.43. Conducted spurious emission: 8DPSK, Channel 0, 2402MHz

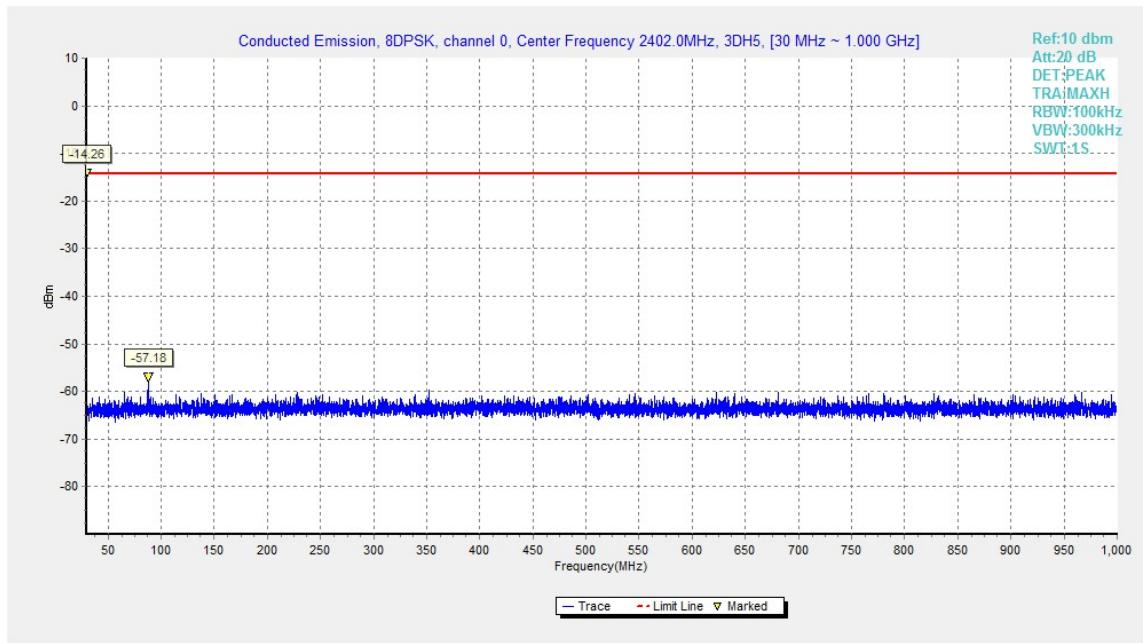


Fig.44. Conducted spurious emission: 8DPSK, Channel 0, 30MHz - 1GHz

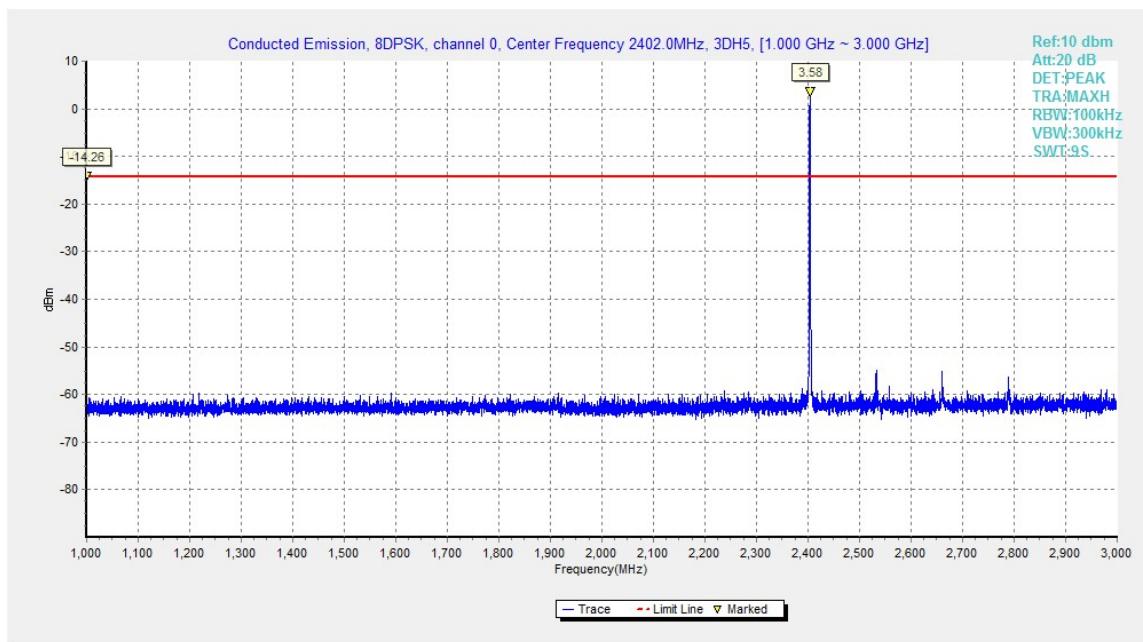


Fig.45. Conducted spurious emission: 8DPSK, Channel 0, 1GHz - 3GHz

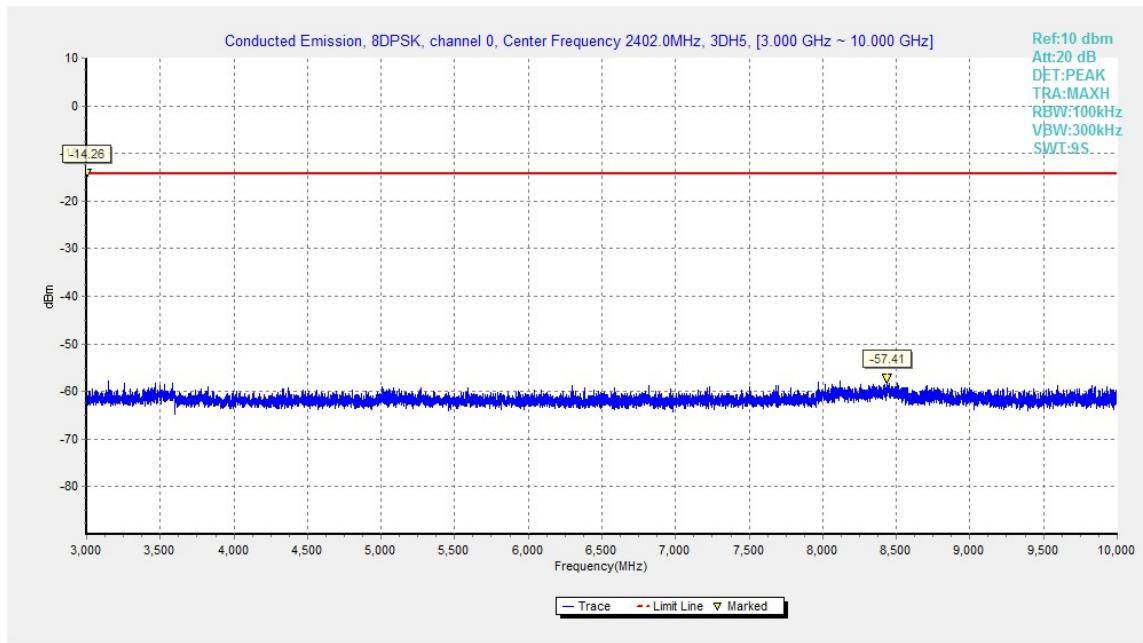


Fig.46. Conducted spurious emission: 8DPSK, Channel 0, 3GHz - 10GHz

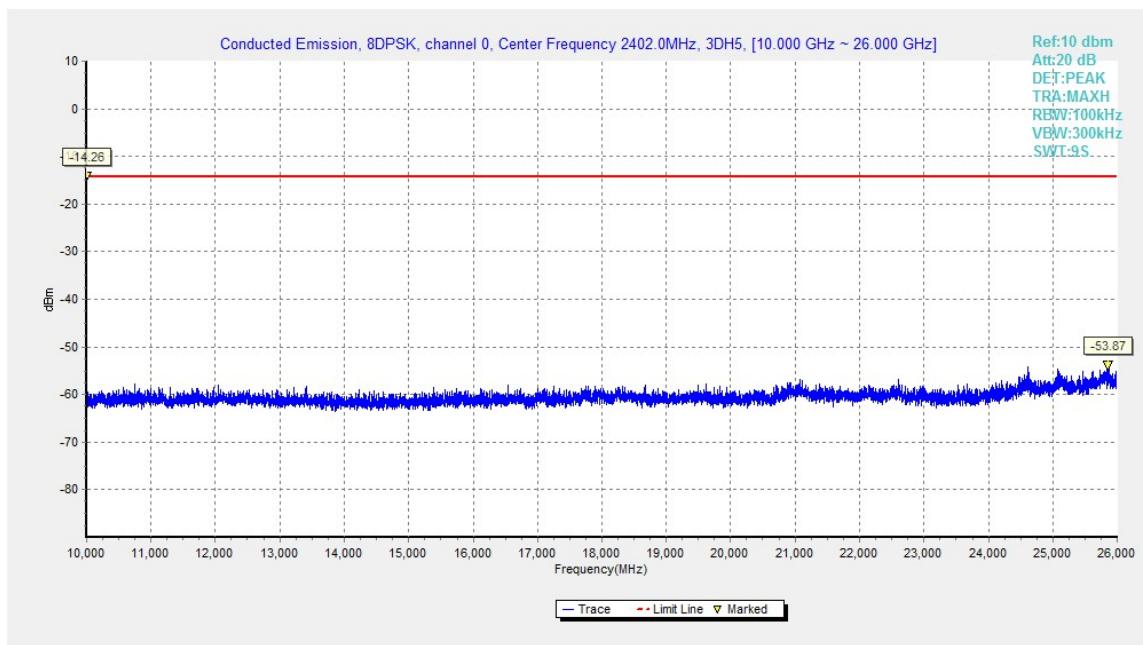


Fig.47. Conducted spurious emission: 8DPSK, Channel 0, 10GHz - 26GHz

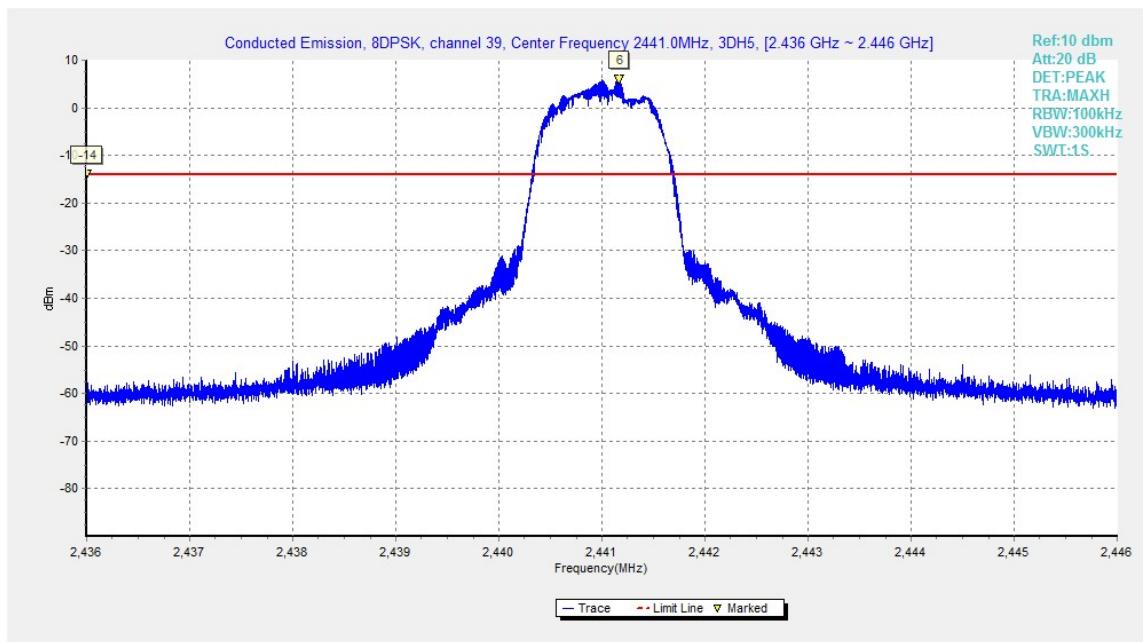


Fig.48. Conducted spurious emission: 8DPSK, Channel 39, 2441MHz

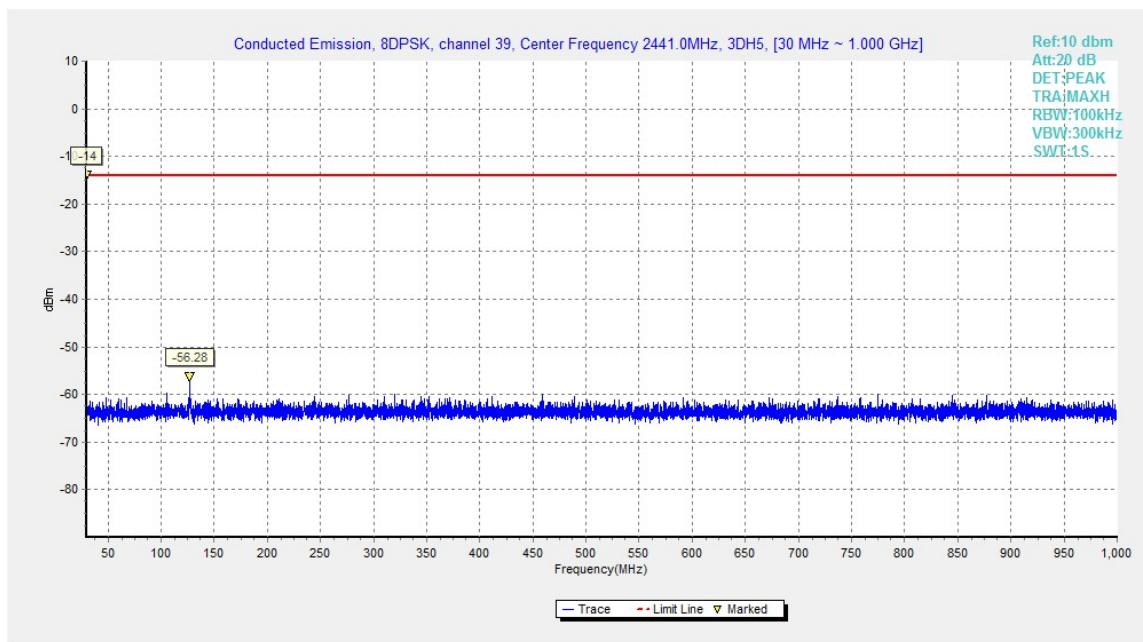


Fig.49. Conducted spurious emission: 8DPSK, Channel 39, 30MHz - 1GHz

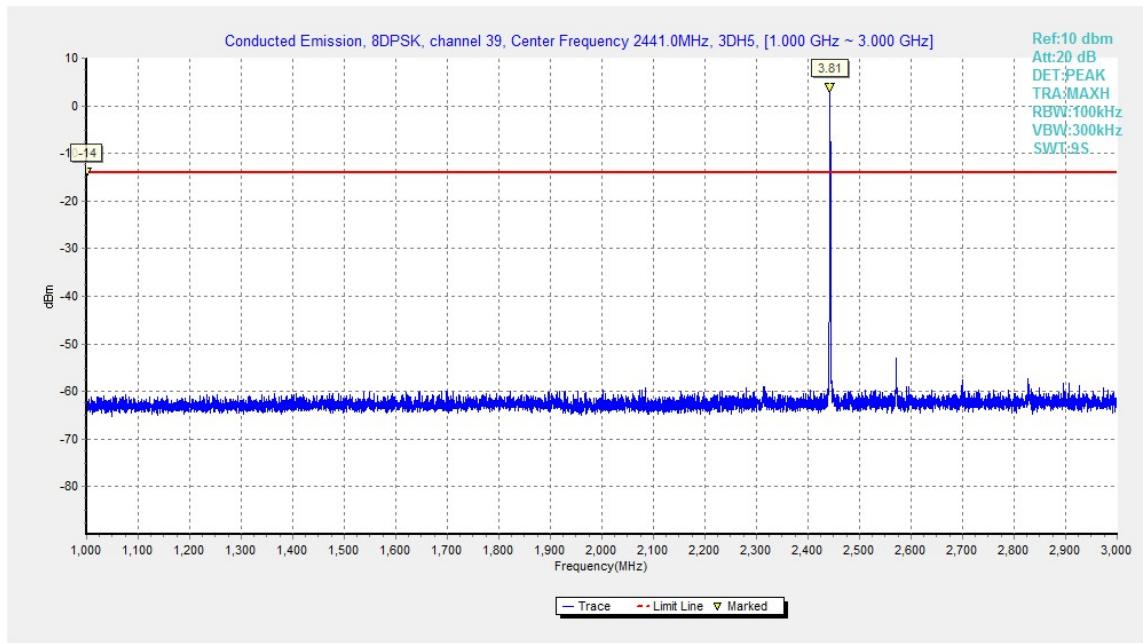


Fig.50. Conducted spurious emission: 8DPSK, Channel 39, 1GHz - 3GHz

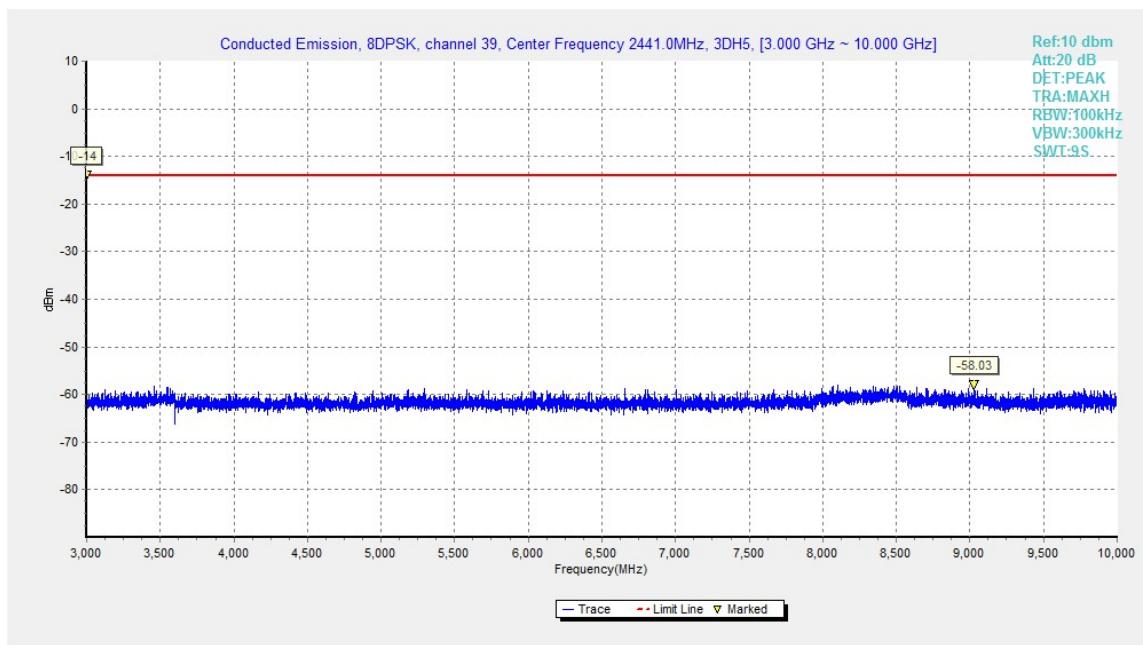


Fig.51. Conducted spurious emission: 8DPSK, Channel 39, 3GHz - 10GHz

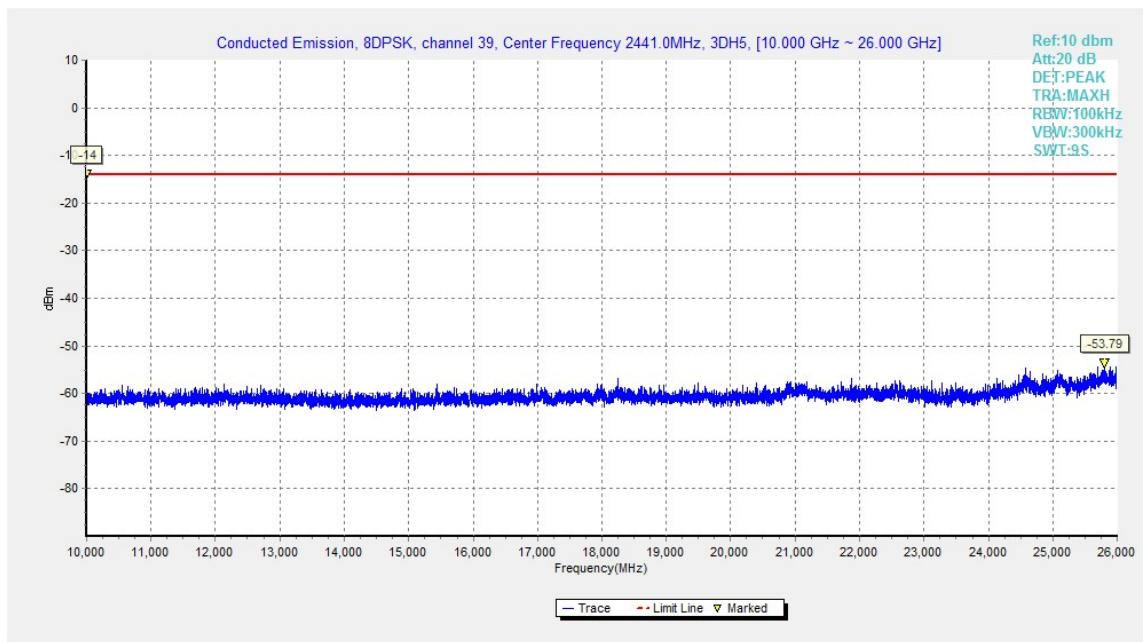


Fig.52. Conducted spurious emission: 8DPSK, Channel 39, 10GHz – 26GHz

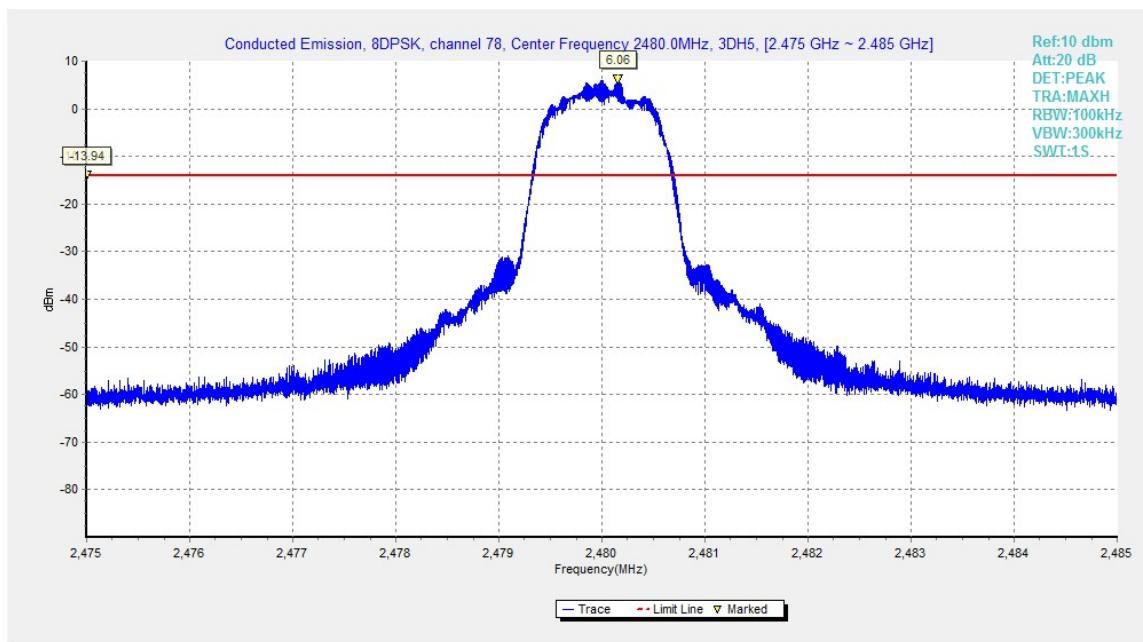


Fig.53. Conducted spurious emission: 8DPSK, Channel 78, 2480MHz

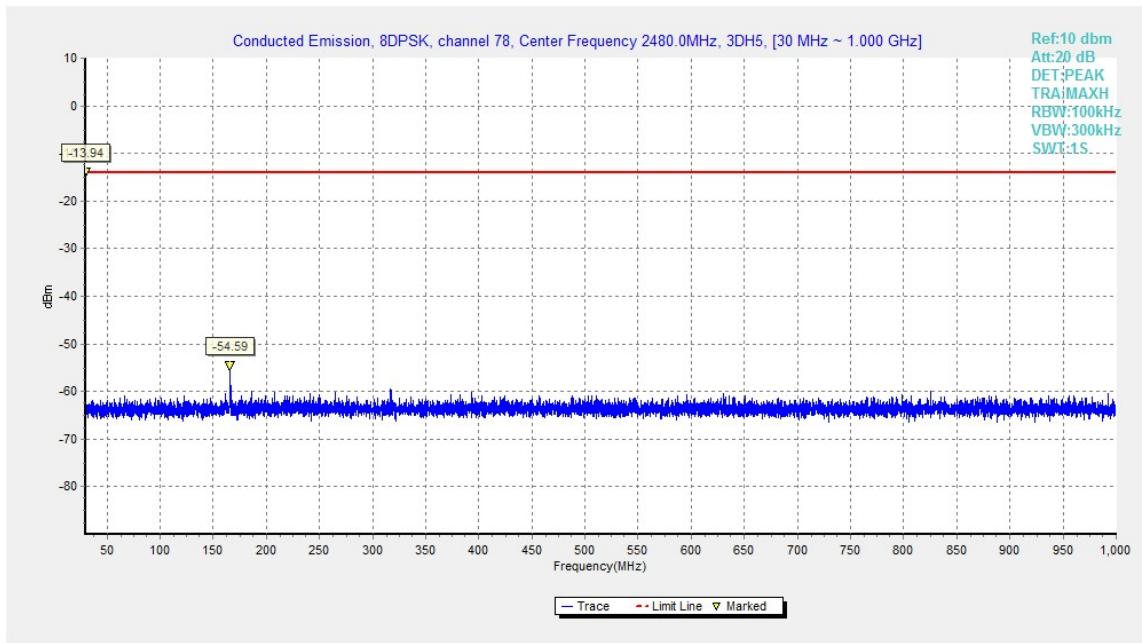


Fig.54. Conducted spurious emission: 8DPSK, Channel 78, 30MHz - 1GHz

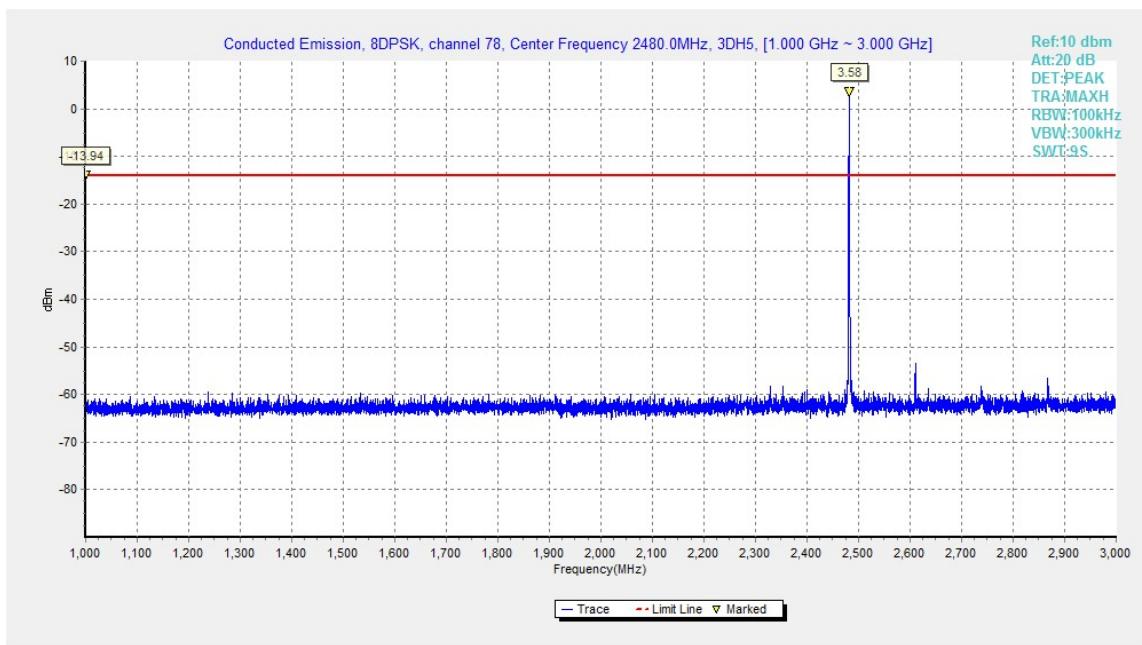


Fig.55. Conducted spurious emission: 8DPSK, Channel 78, 1GHz - 3GHz

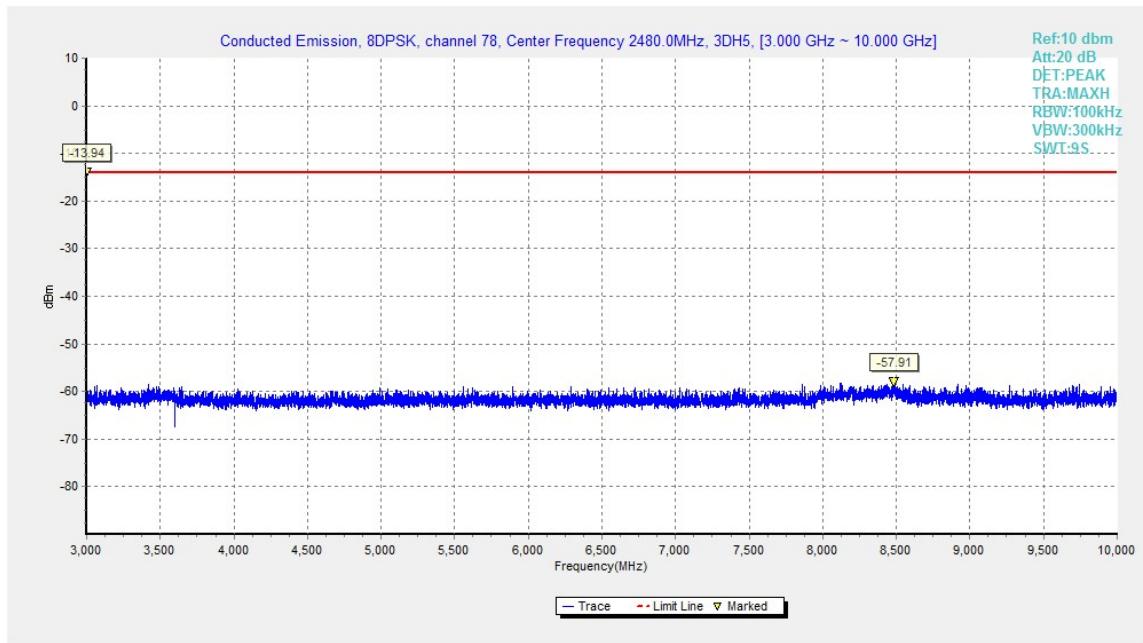


Fig.56. Conducted spurious emission: 8DPSK, Channel 78, 3GHz - 10GHz

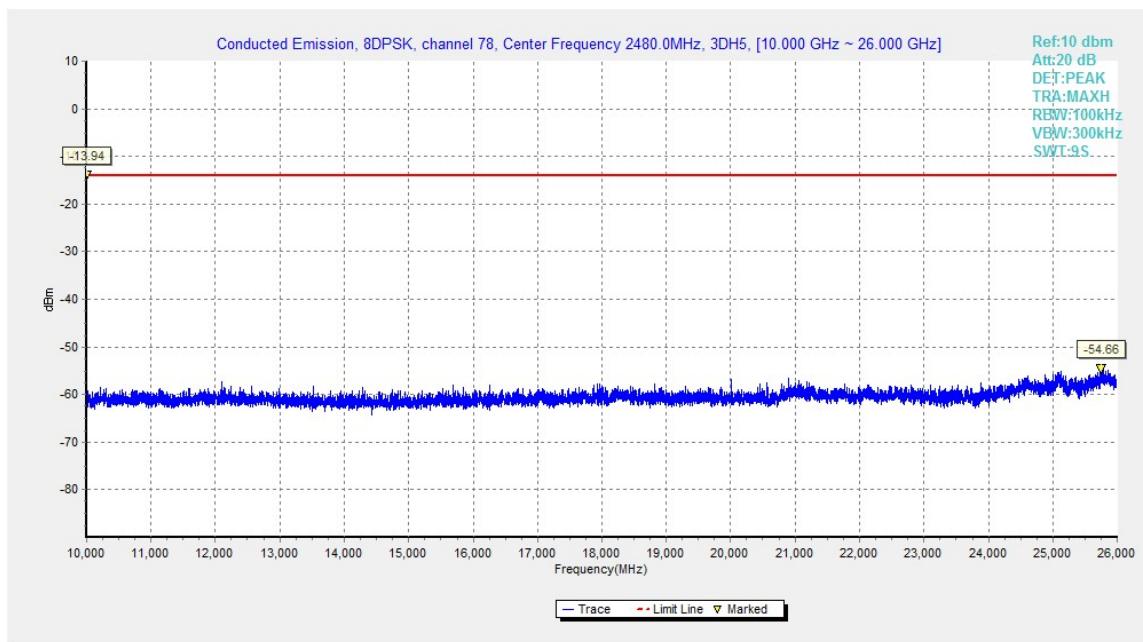


Fig.57. Conducted spurious emission: 8DPSK, Channel 78, 10GHz - 26GHz

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
------------------	-----------------	--------	---

Form/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 (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)
2386.900	46.8	2.9	32.0	11.97	54.0	7.2	H
2389.500	46.8	2.9	32.0	11.99	54.0	7.2	H
4804.000	37.1	-17.3	34.5	19.85	54.0	16.9	H
7206.000	39.4	-16.4	36.1	19.65	54.0	14.6	H
9608.000	38.4	-18.2	37.0	19.65	54.0	15.6	H
12010.500	41.4	-17.4	39.3	19.45	54.0	12.6	H

GFSK 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)
2379.600	46.6	2.9	32.1	11.73	54.0	7.4	H
2650.200	49.5	3.0	33.7	12.75	54.0	4.5	H

4882.000	35.8	-18.5	34.5	19.88	54.0	18.2	H
7323.500	34.1	-18.5	36.1	16.51	54.0	19.9	H
9764.000	39.2	-17.8	37.2	19.76	54.0	14.8	H
12205.500	40.5	-17.8	39.2	19.10	54.0	13.5	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)
2485.700	47.9	2.9	32.7	12.22	54.0	6.1	H
2485.100	47.9	2.9	32.7	12.28	54.0	6.1	H
4960.000	36.6	-18.2	34.5	20.29	54.0	17.4	H
7440.000	38.9	-16.9	36.0	19.76	54.0	15.1	H
9919.500	40.3	-17.1	37.4	20.03	54.0	13.7	H
12405.000	40.8	-17.5	39.1	19.10	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	46.8	2.9	32.0	11.97	54.0	7.2	H
2388.500	46.9	2.9	32.0	12.07	54.0	7.1	H
4804.500	37.1	-17.3	34.5	19.90	54.0	16.9	H
7206.400	39.5	-16.4	36.1	19.77	54.0	14.5	H
9608.000	38.5	-18.2	37.0	19.73	54.0	15.5	H
12010.400	41.4	-17.4	39.3	19.50	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)
2371.300	46.6	2.9	32.0	11.74	54.0	7.4	H
2648.900	49.4	3.0	33.7	12.65	54.0	4.6	H
4882.000	35.8	-18.5	34.5	19.85	54.0	18.2	H
7323.000	37.1	-18.5	36.1	19.51	54.0	16.9	H
9764.000	39.1	-17.8	37.2	19.66	54.0	14.9	H
12205.000	40.5	-17.8	39.2	19.06	54.0	13.5	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)
2490.100	47.7	2.9	32.6	12.19	54.0	6.3	H
2487.500	47.8	2.9	32.6	12.19	54.0	6.2	H
4960.000	36.6	-18.2	34.5	20.30	54.0	17.4	H

7440.000	38.9	-16.9	36.0	19.79	54.0	15.1	H
9920.000	40.4	-17.1	37.4	20.11	54.0	13.6	H
12400.000	40.8	-17.5	39.1	19.16	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)
2385.800	46.8	2.9	32.0	11.96	54.0	7.2	H
2388.620	46.8	2.9	32.0	11.98	54.0	7.2	H
4804.400	37.2	-17.3	34.5	19.99	54.0	16.8	H
7206.000	39.5	-16.4	36.1	19.84	54.0	14.5	H
9608.400	38.5	-18.3	37.0	19.79	54.0	15.5	H
12010.500	41.5	-17.4	39.3	19.57	54.0	12.5	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)
2373.400	46.6	2.9	32.1	11.66	54.0	7.4	H
2646.800	49.5	3.0	33.6	12.82	54.0	4.5	H
4882.500	36.0	-18.5	34.5	20.03	54.0	18.0	H
7323.000	37.2	-18.5	36.1	19.62	54.0	16.8	H
9764.000	39.2	-17.8	37.2	19.76	54.0	14.8	H
12205.400	40.6	-17.8	39.2	19.14	54.0	13.4	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)
2488.600	47.7	2.9	32.6	12.19	54.0	6.3	H
2485.600	47.8	2.9	32.7	12.21	54.0	6.2	H
4960.400	36.6	-18.2	34.5	20.29	54.0	17.4	H
7440.000	38.9	-16.9	36.0	19.84	54.0	15.1	H
9920.000	40.4	-17.1	37.4	20.03	54.0	13.6	H
12400.000	40.9	-17.5	39.1	19.23	54.0	13.1	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)
2382.190	59.1	2.9	32.0	24.16	74.0	14.9	H
2383.542	59.5	2.9	32.0	24.63	74.0	14.5	H
17301.750	59.6	-14.0	41.2	32.45	74.0	14.4	V
17258.250	59.6	-14.1	41.2	32.46	74.0	14.4	H

17362.500	59.3	-14.4	41.2	32.48	74.0	14.7	H
17170.500	59.2	-14.7	41.3	32.66	74.0	14.8	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)
2310.800	49.0	-27.8	31.1	45.75	74.0	25.0	H
2701.000	51.8	-26.7	33.1	45.46	74.0	22.2	H
17262.750	59.6	-14.1	41.2	32.44	74.0	14.4	V
17926.500	59.6	-13.6	40.9	32.28	74.0	14.4	H
17595.000	59.4	-13.4	41.1	31.66	74.0	14.6	H
17753.250	59.3	-13.3	41.0	31.67	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)
2484.350	60.2	2.9	32.7	24.52	74.0	13.8	H
2485.930	60.9	2.9	32.7	25.26	74.0	13.1	H
17757.750	59.9	-13.3	41.0	32.19	74.0	14.1	V
17274.000	59.6	-14.0	41.2	32.37	74.0	14.4	V
17559.750	59.2	-13.8	41.2	31.86	74.0	14.8	H
17843.250	59.2	-13.5	40.9	31.75	74.0	14.8	H

 $\pi/4$ 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)
2384.700	59.4	2.9	32.0	24.54	74.0	14.6	H
2387.800	59.5	2.9	32.0	24.61	74.0	14.5	H
17257.500	59.7	-14.1	41.2	32.58	74.0	14.3	H
17991.000	59.6	-13.6	40.8	32.42	74.0	14.4	V
17285.250	59.5	-13.9	41.2	32.21	74.0	14.5	V
17304.750	59.4	-14.0	41.2	32.23	74.0	14.6	V

 $\pi/4$ 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)
2269.800	48.3	-28.1	30.8	45.65	74.0	25.7	V
2677.800	52.3	-26.7	33.4	45.71	74.0	21.7	V
17262.750	59.7	-14.1	41.2	32.58	74.0	14.3	V
17953.500	59.4	-13.6	40.8	32.19	74.0	14.6	V
17250.000	59.4	-14.2	41.2	32.37	74.0	14.6	H

17229.000	59.4	-14.3	41.2	32.46	74.0	14.6	H
-----------	------	-------	------	-------	------	------	---

 $\pi/4$ DQPSK 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)
2483.600	61.0	2.9	32.8	25.28	74.0	13.0	V
2485.900	60.8	2.9	32.7	25.14	74.0	13.2	V
17727.750	60.4	-13.3	41.0	32.66	74.0	13.6	H
17681.250	59.9	-13.1	41.1	31.98	74.0	14.1	V
17625.000	59.3	-13.1	41.1	31.27	74.0	14.7	H
17737.500	59.3	-13.3	41.0	31.52	74.0	14.7	H

8DPSK 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)
2382.700	59.3	2.9	32.0	24.37	74.0	14.7	H
2389.180	59.4	2.9	32.0	24.56	74.0	14.6	H
17859.000	60.2	-13.5	40.9	32.84	74.0	13.8	H
17661.750	60.1	-13.1	41.1	32.09	74.0	13.9	H
17733.750	59.8	-13.3	41.0	32.00	74.0	14.2	H
17775.750	59.6	-13.4	41.0	32.02	74.0	14.4	V

8DPSK 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)
2275.230	49.1	-28.1	30.8	46.35	74.0	24.9	H
2880.200	53.9	-25.6	33.7	45.80	74.0	20.1	H
17577.750	60.2	-13.6	41.1	32.63	74.0	13.8	H
17808.000	60.0	-13.5	41.0	32.46	74.0	14.0	V
17609.250	59.8	-13.3	41.1	31.91	74.0	14.2	V
17915.250	59.5	-13.6	40.9	32.22	74.0	14.5	H

8DPSK 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)
2484.500	61.3	2.9	32.7	25.68	74.0	12.7	V
2489.150	61.0	2.9	32.6	25.50	74.0	13.0	V
17501.250	59.5	-14.4	41.2	32.71	74.0	14.5	V
17722.500	59.4	-13.2	41.0	31.65	74.0	14.6	H
17622.750	59.2	-13.1	41.1	31.24	74.0	14.8	V

17576.250	59.1	-13.6	41.1	31.63	74.0	14.9	V
-----------	------	-------	------	-------	------	------	---

Conclusion: PASS

Test graphs as below:

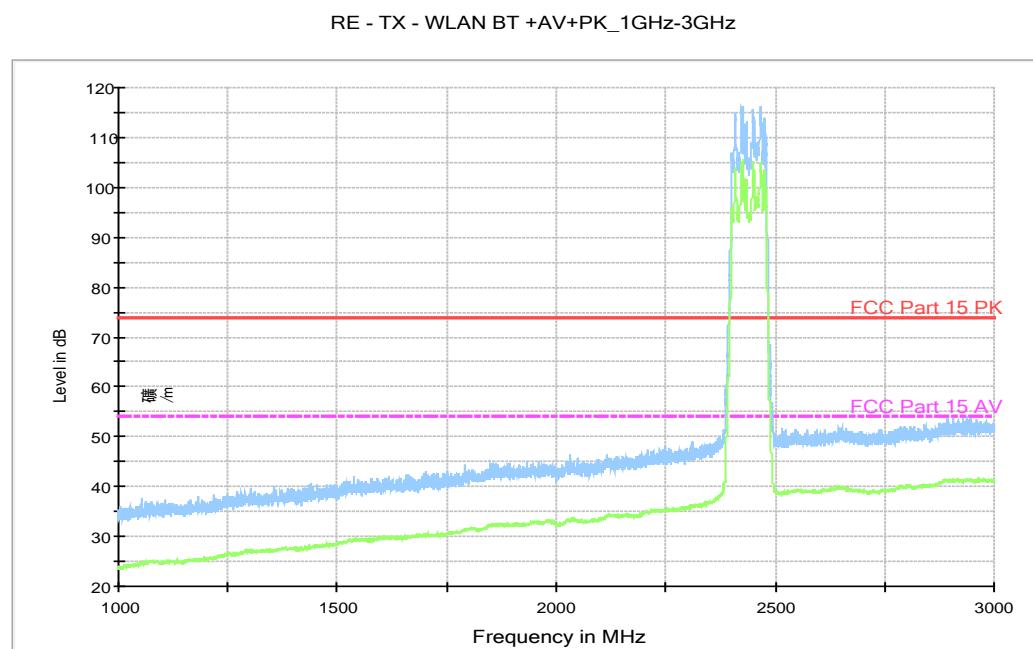


Fig.58. Radiated emission: GFSK, Channel 0, 1 GHz - 3 GHz

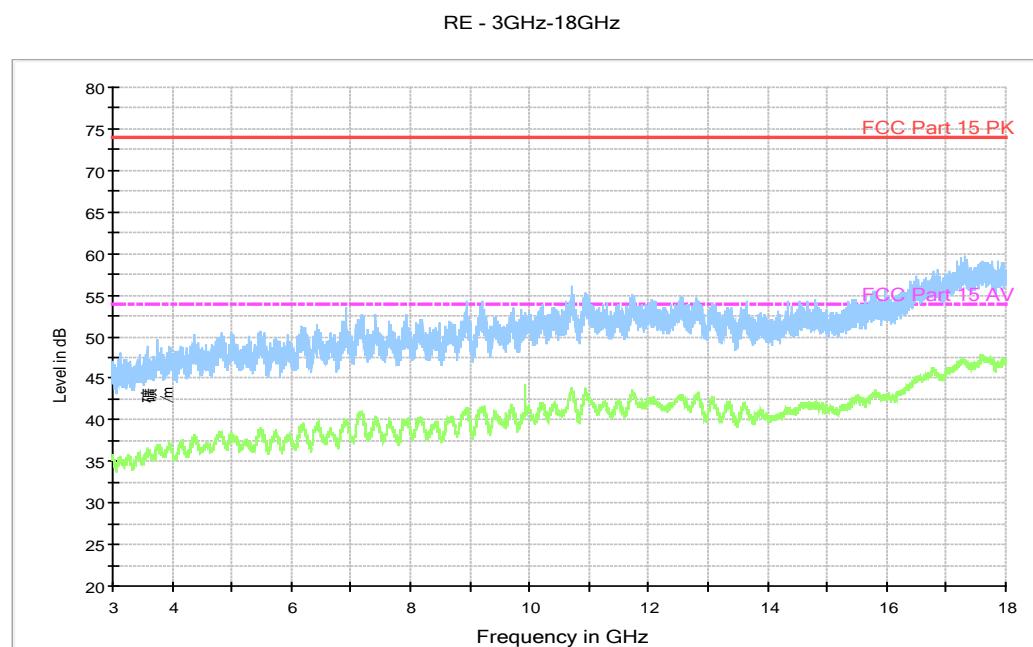


Fig.59. Radiated emission: GFSK, Channel 0, 3 GHz - 18 GHz

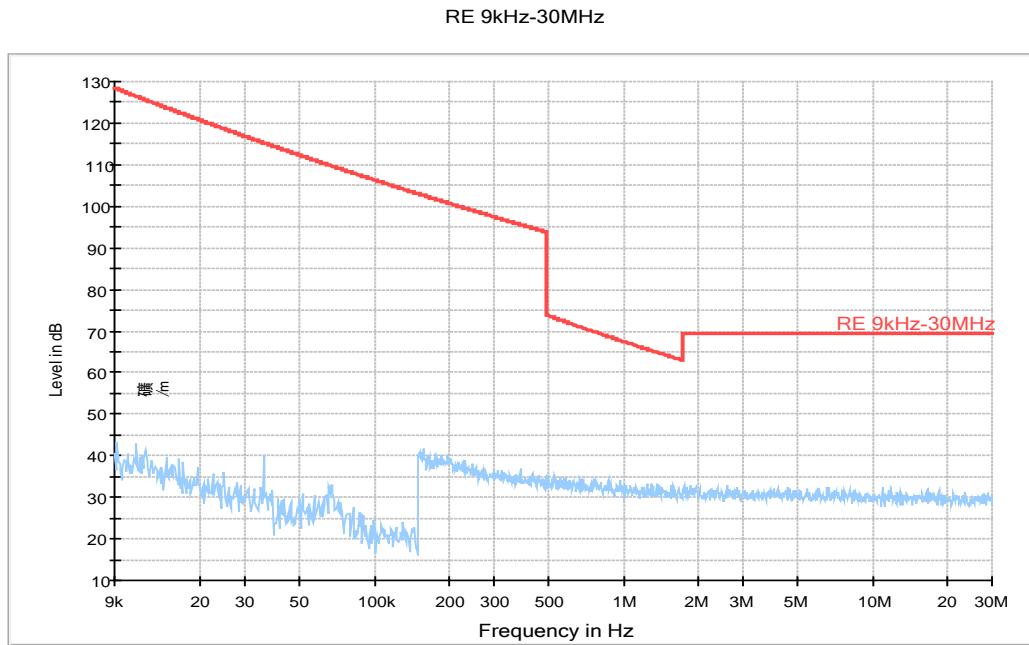


Fig.60. Radiated emission: GFSK, Channel 39, 9 kHz - 30 MHz

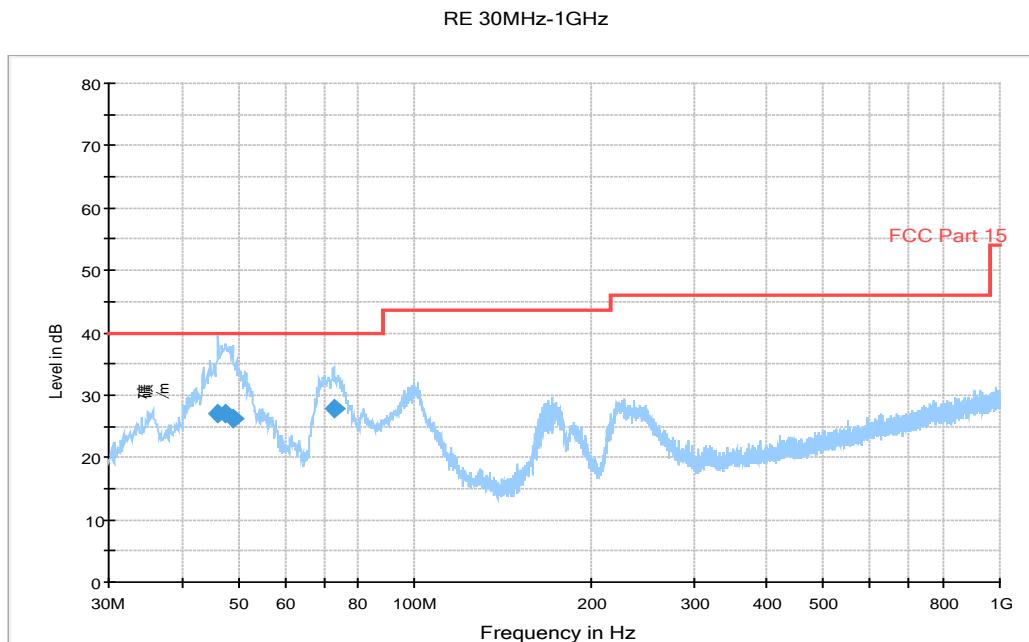


Fig.61. Radiated emission: GFSK, Channel 39, 30 MHz - 1 GHz

Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V/m)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
46.102000	27.1	115.0	V	10.0	-18.1	12.9	40.0
47.460000	27.1	100.0	V	25.0	-18.3	12.9	40.0
48.915000	26.3	100.0	V	26.0	-18.4	13.7	40.0
72.680000	27.9	100.0	V	201.0	-23.3	12.1	40.0

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

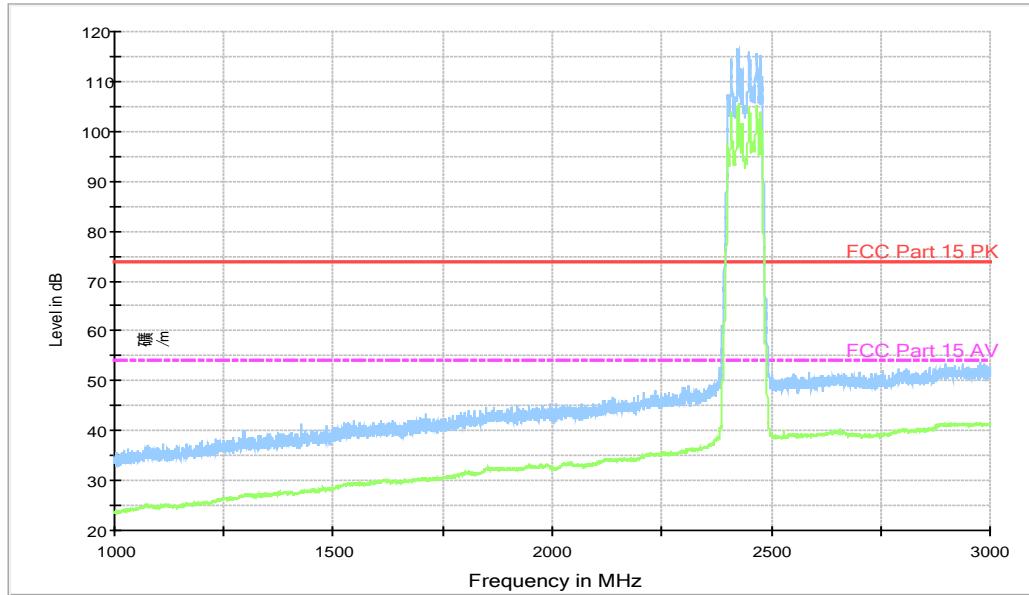


Fig.62. Radiated emission: GFSK, Channel 39, 1 GHz - 3 GHz

RE - 3GHz-18GHz

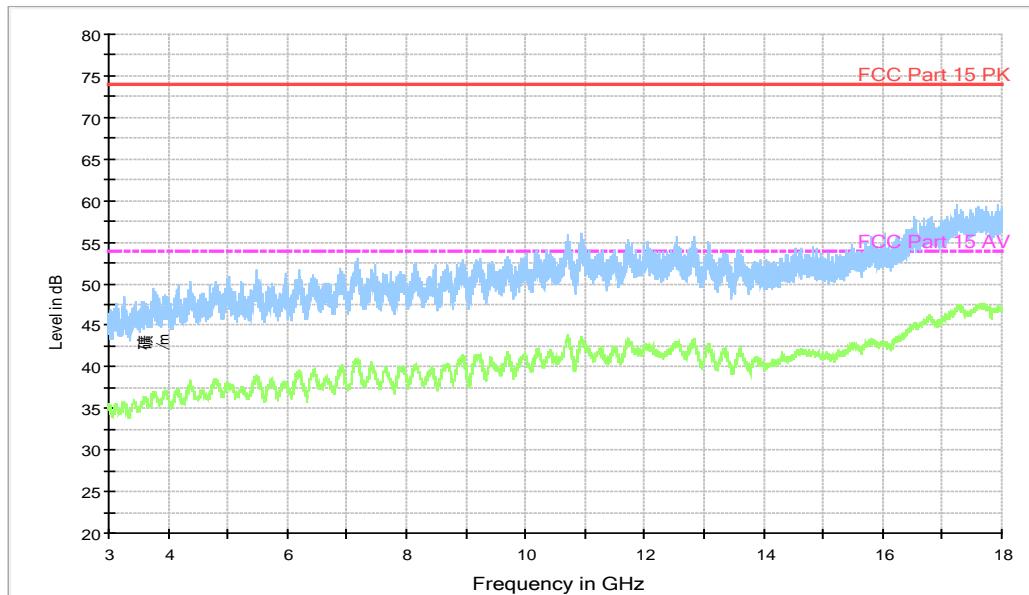


Fig.63. Radiated emission: GFSK, Channel 39, 3 GHz - 18 GHz

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

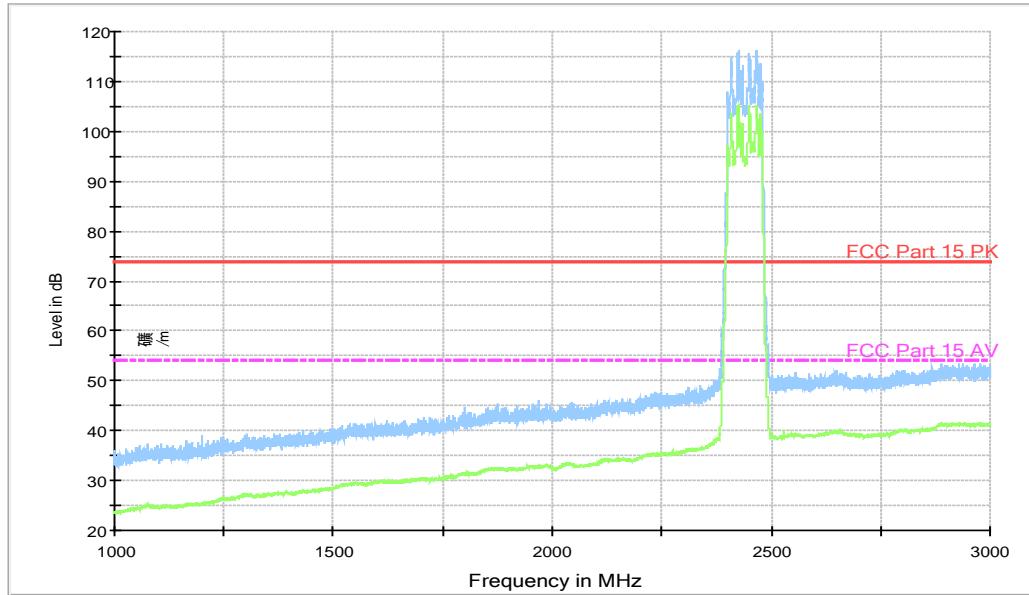


Fig.64. Radiated emission: GFSK, Channel 78, 1 GHz - 3 GHz

RE - 3GHz-18GHz

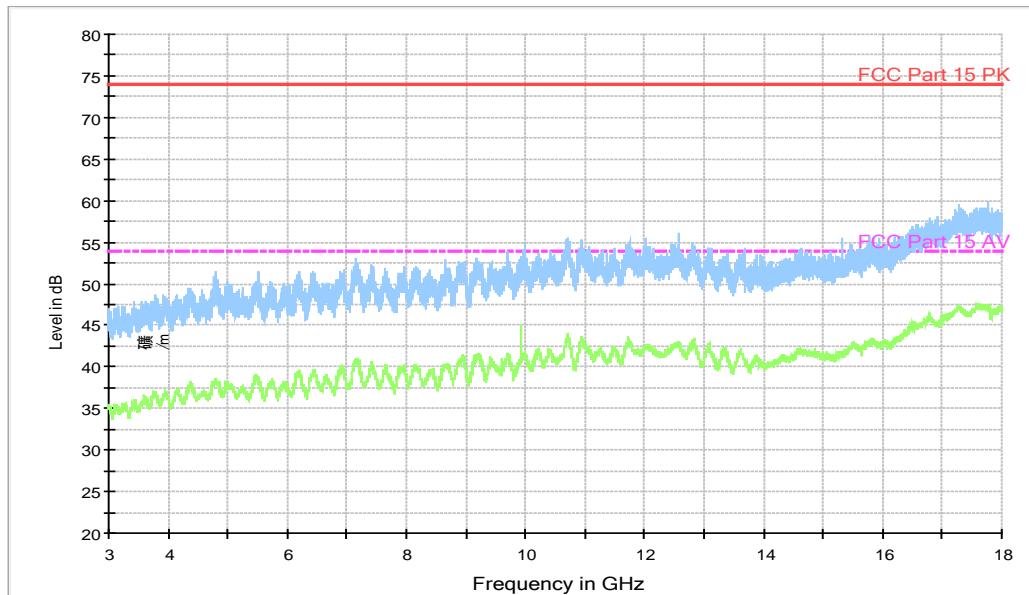


Fig.65. Radiated emission: GFSK, Channel 78, 3 GHz - 18 GHz

RE - Power-2.38GHz-2.45GHz

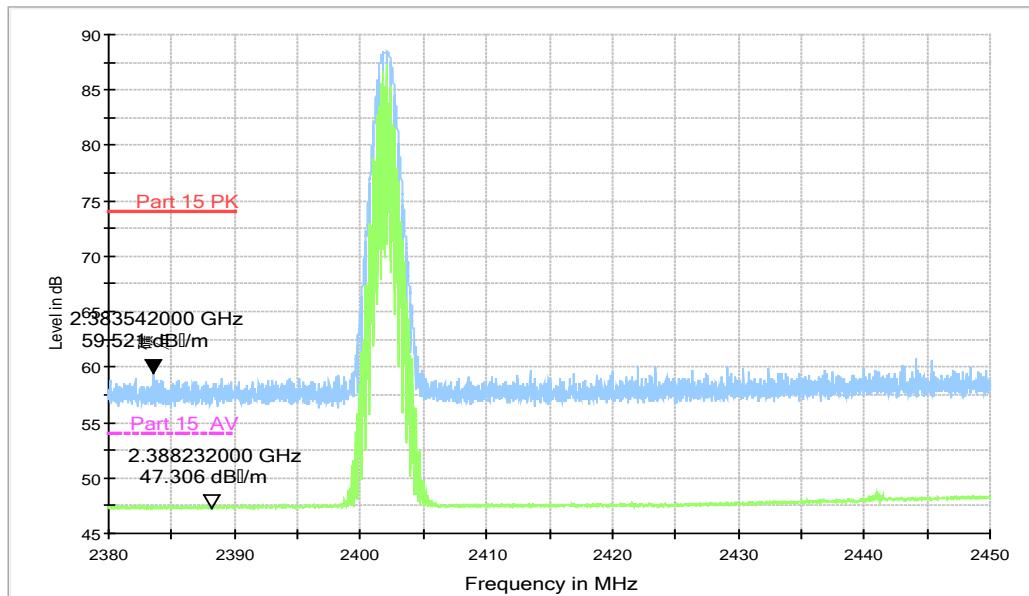


Fig.66. Radiated emission (Power): GFSK, low channel

RE - Power-2.45GHz-2.5GHz

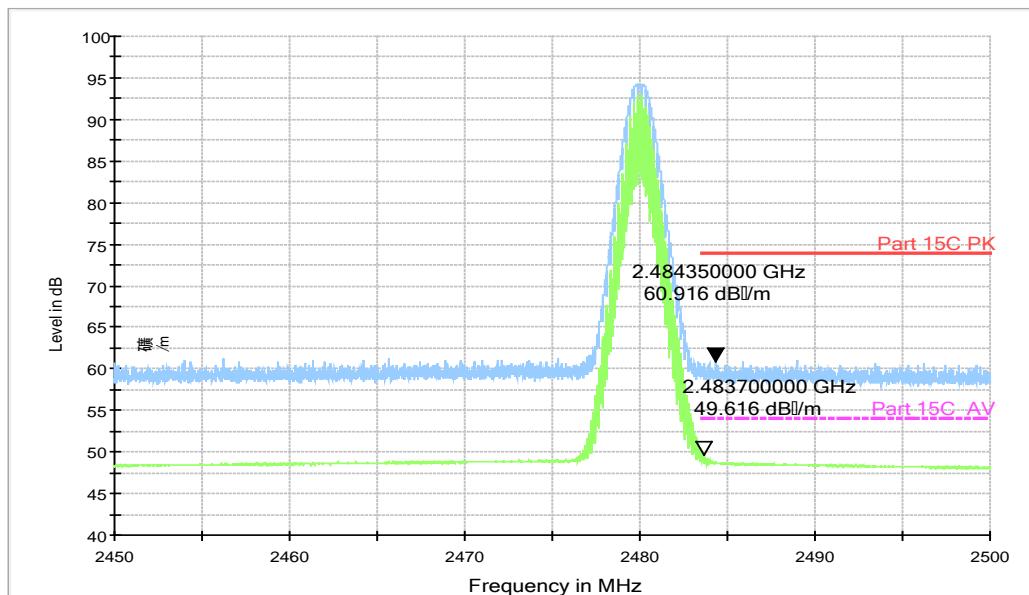


Fig.67. Radiated emission (Power) GFSK, high channel

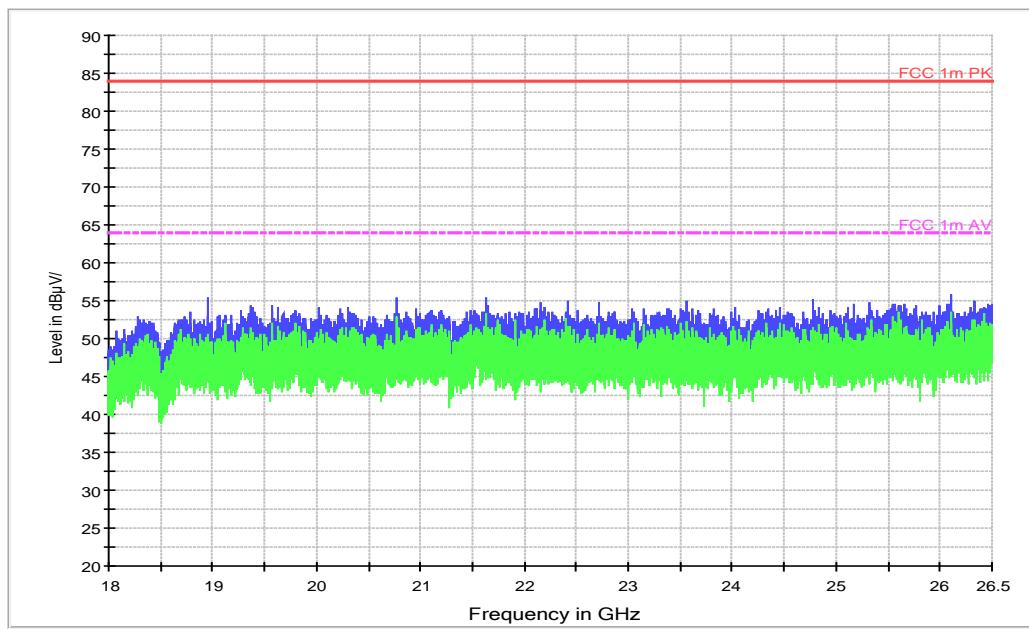


Fig.68. Radiated emission: GFSK, 18 GHz - 26 GHz

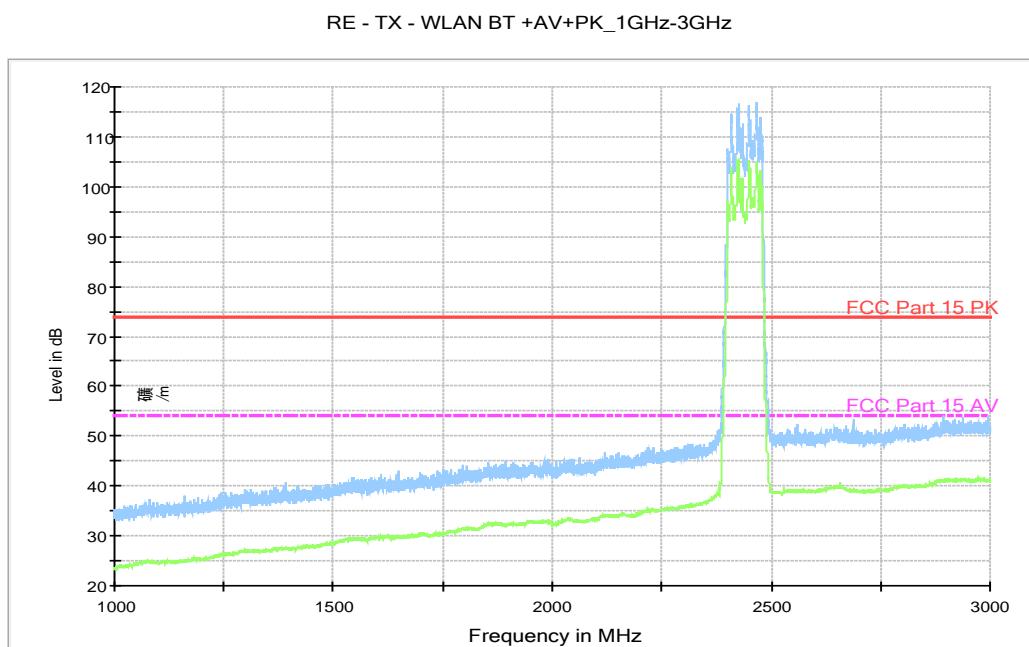
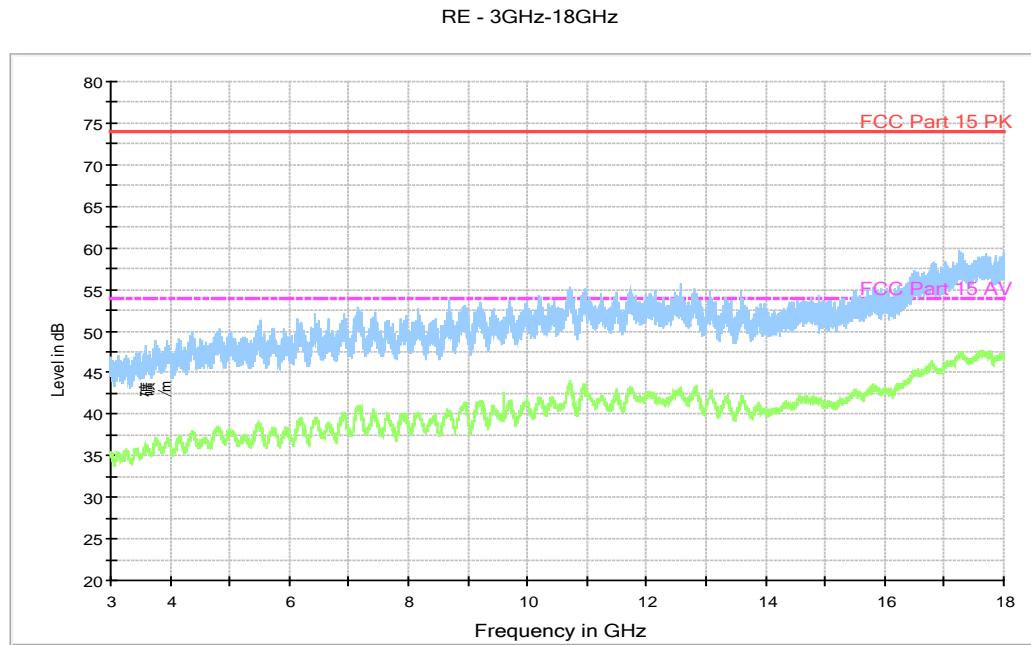
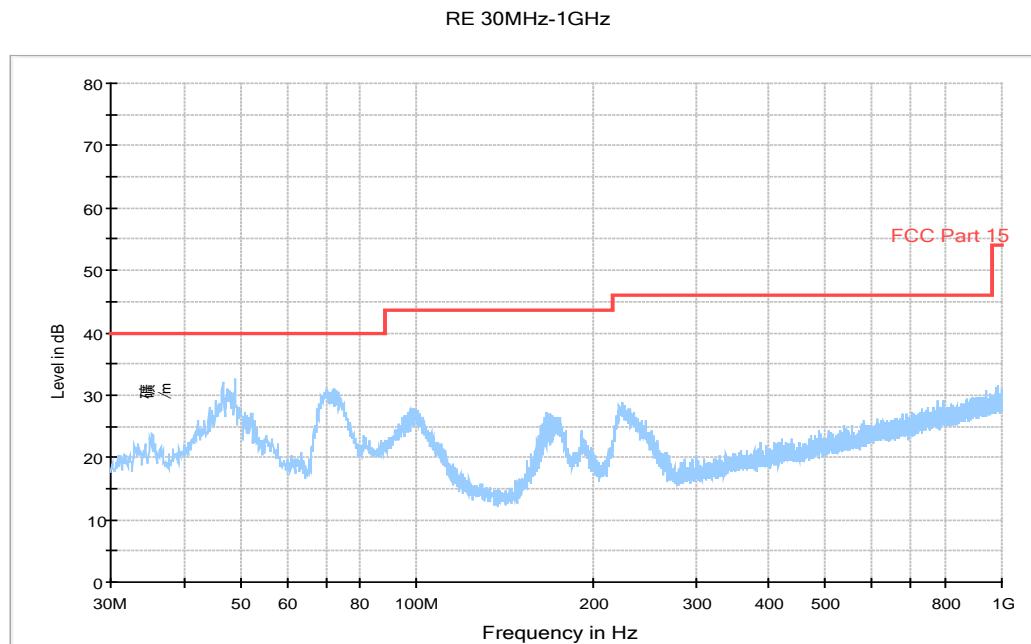


Fig.69. Radiated emission: $\pi/4$ DQPSK, Channel 0, 1 GHz - 3 GHz

Fig.70. Radiated emission: $\pi/4$ DQPSK, Channel 0, 3 GHz - 18 GHzFig.71. Radiated emission: $\pi/4$ DQPSK, Channel 39, 30 MHz - 1 GHz

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

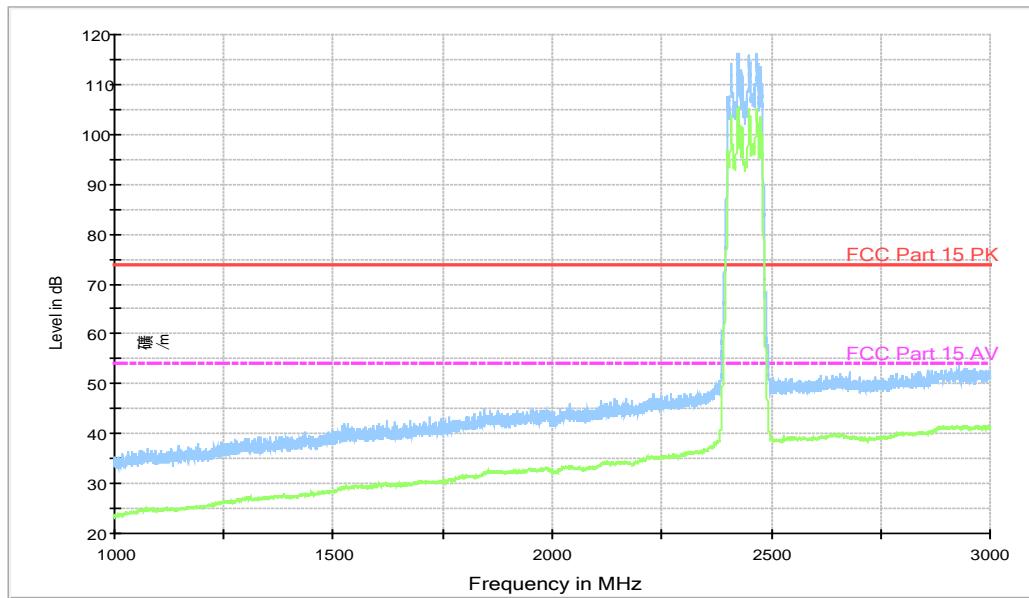


Fig.72. Radiated emission: $\pi/4$ DQPSK, Channel 39, 1 GHz - 3 GHz

RE - 3GHz-18GHz

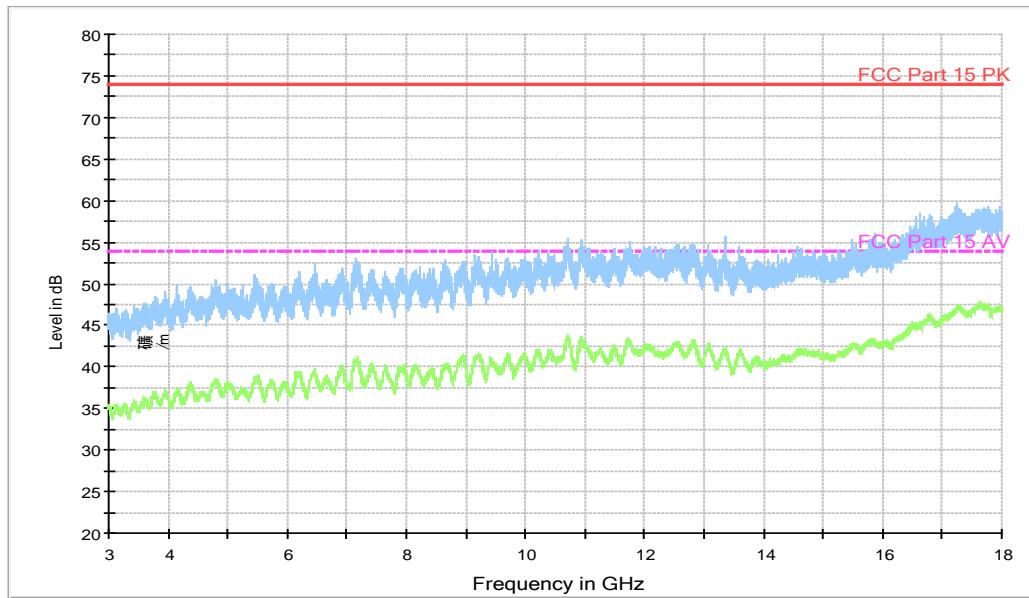


Fig.73. Radiated emission: $\pi/4$ DQPSK, Channel 39, 3 GHz - 18 GHz

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

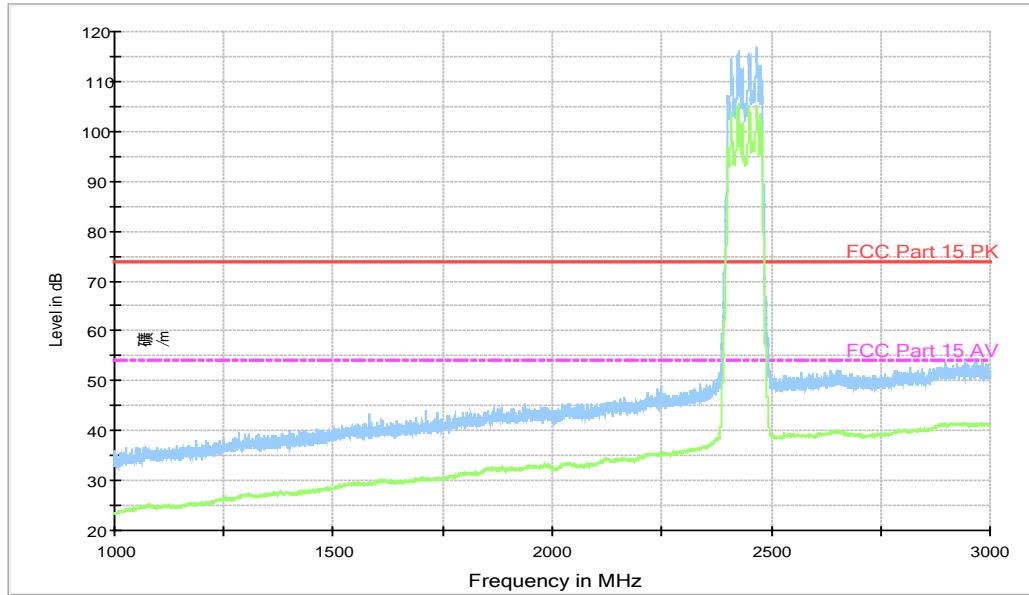


Fig.74. Radiated emission: $\pi/4$ DQPSK, Channel 78, 1 GHz - 3 GHz

RE - 3GHz-18GHz

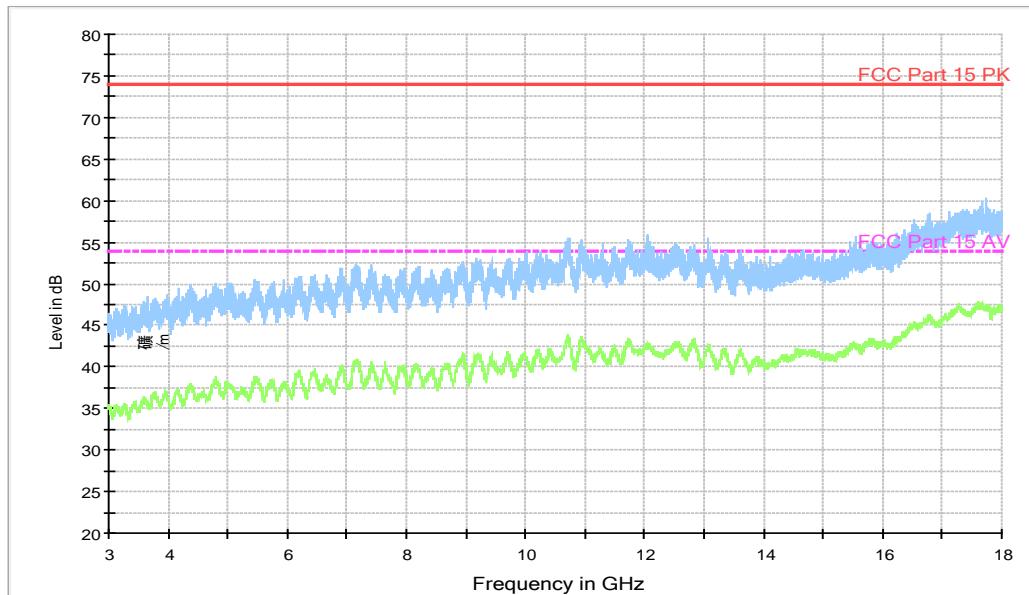


Fig.75. Radiated emission: $\pi/4$ DQPSK, Channel 78, 3 GHz - 18 GHz

RE - Power-2.38GHz-2.45GHz

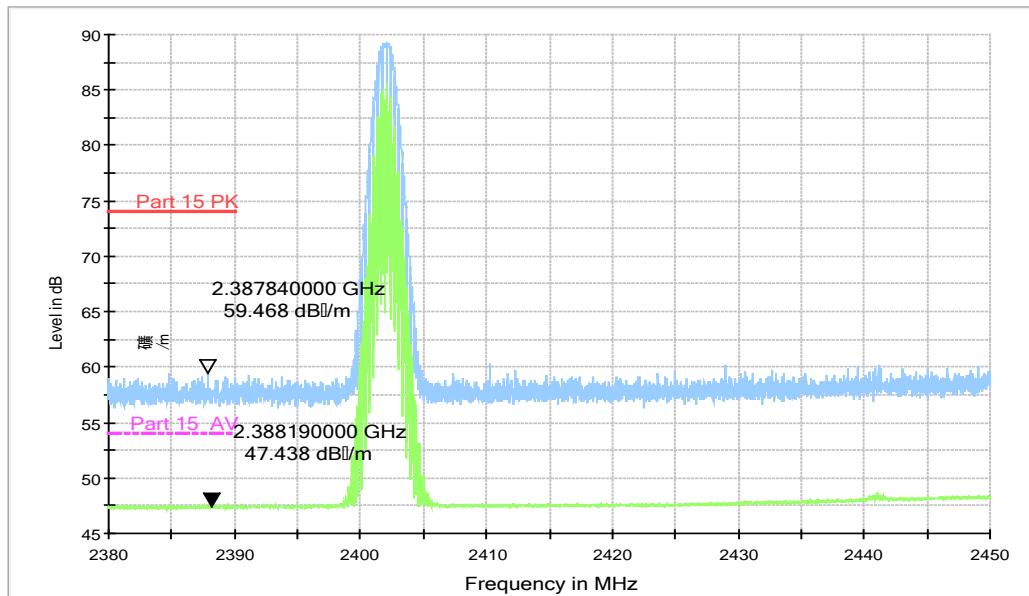


Fig.76. Radiated emission (Power): $\pi/4$ DQPSK, low channel

RE - Power-2.45GHz-2.5GHz

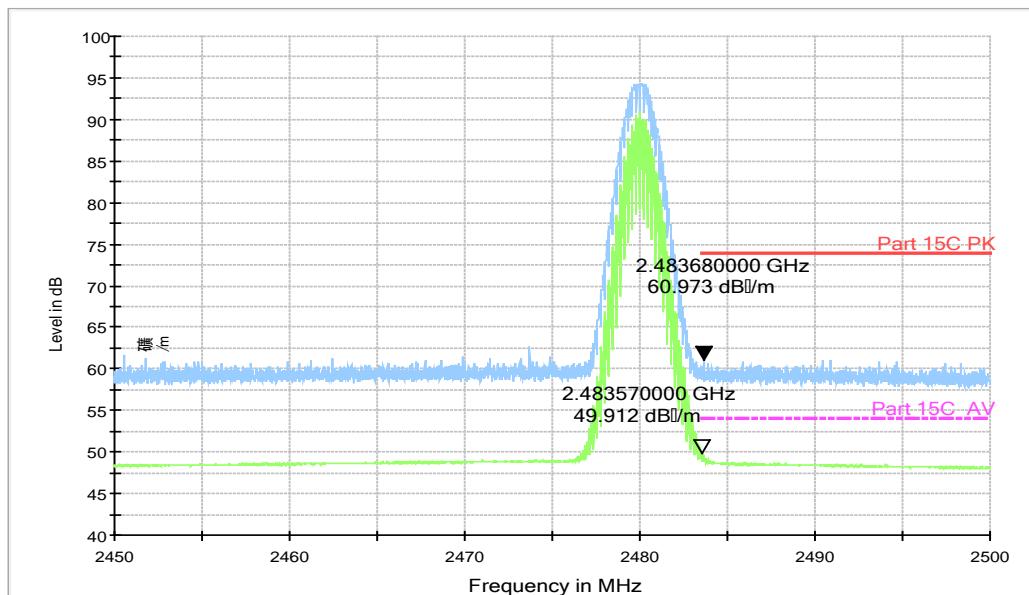


Fig.77. Radiated emission (Power): $\pi/4$ DQPSK, high channel

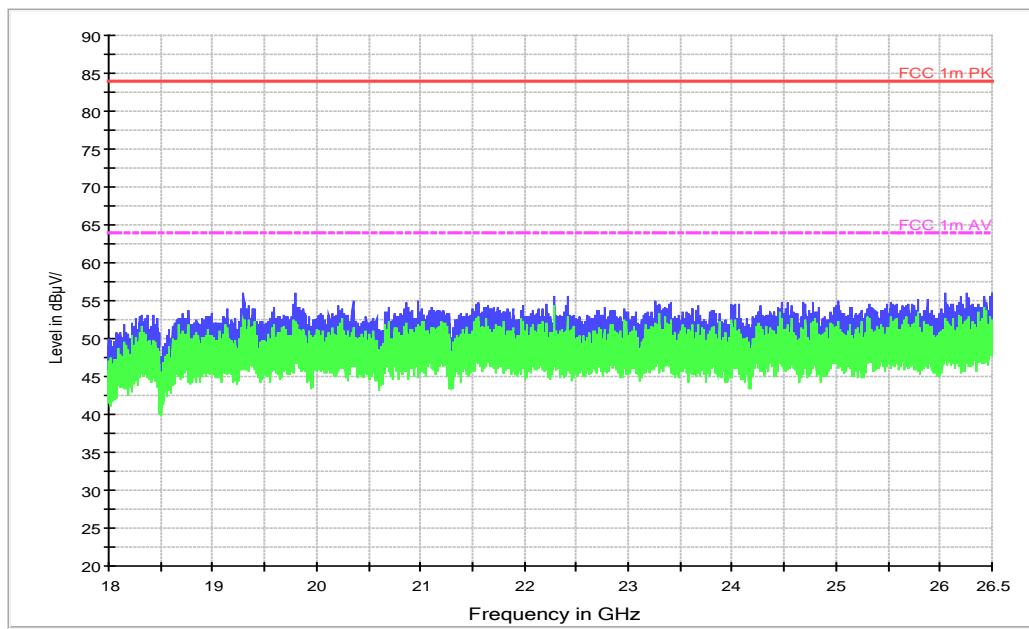


Fig.78. Radiated emission: $\pi/4$ DQPSK, 18 GHz - 26 GHz

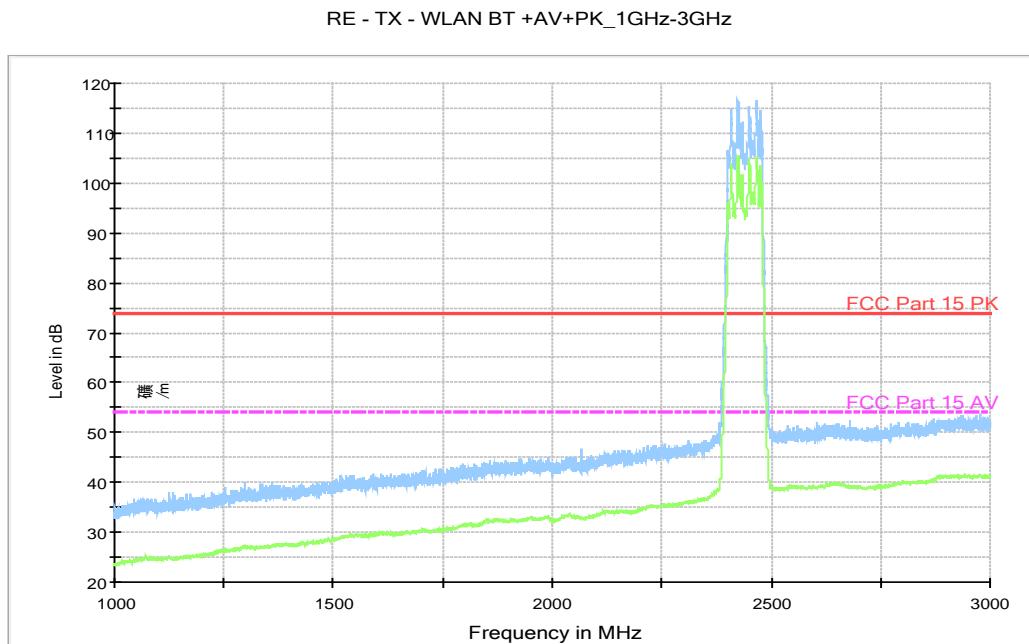


Fig.79. Radiated emission: 8DPSK, Channel 0, 1 GHz - 3 GHz

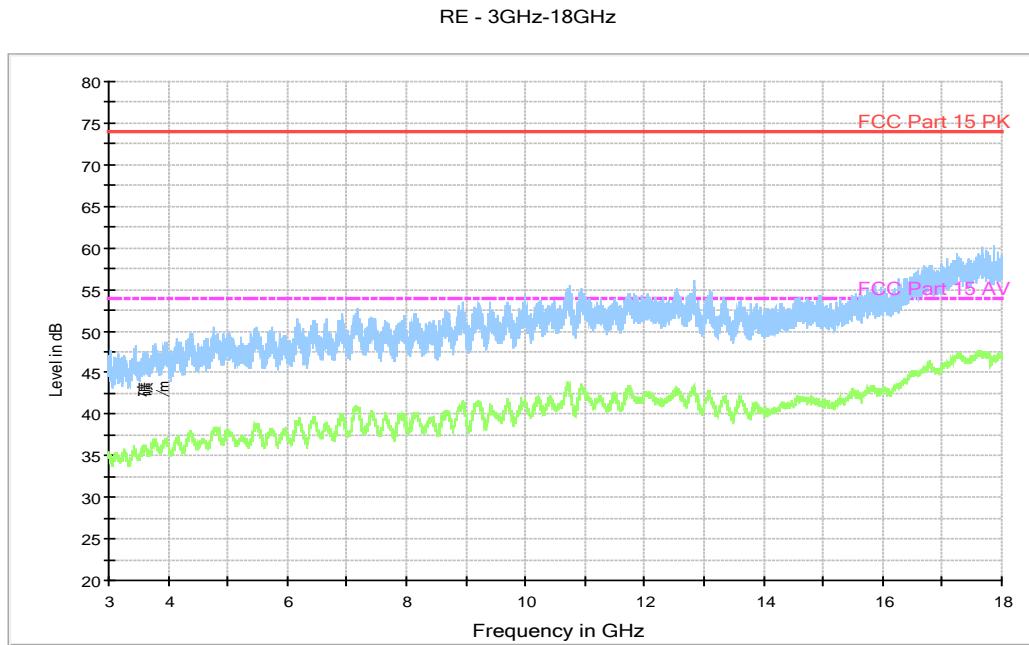


Fig.80. Radiated emission: 8DPSK, Channel 0, 3 GHz - 18 GHz

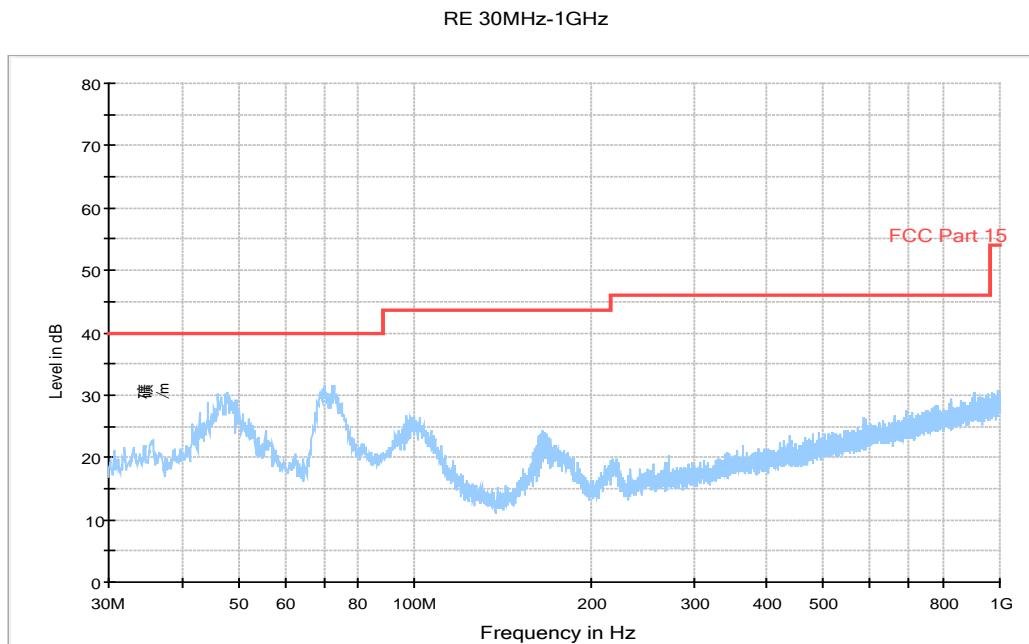


Fig.81. Radiated emission: 8DPSK, Channel 39, 30 MHz - 1 GHz

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

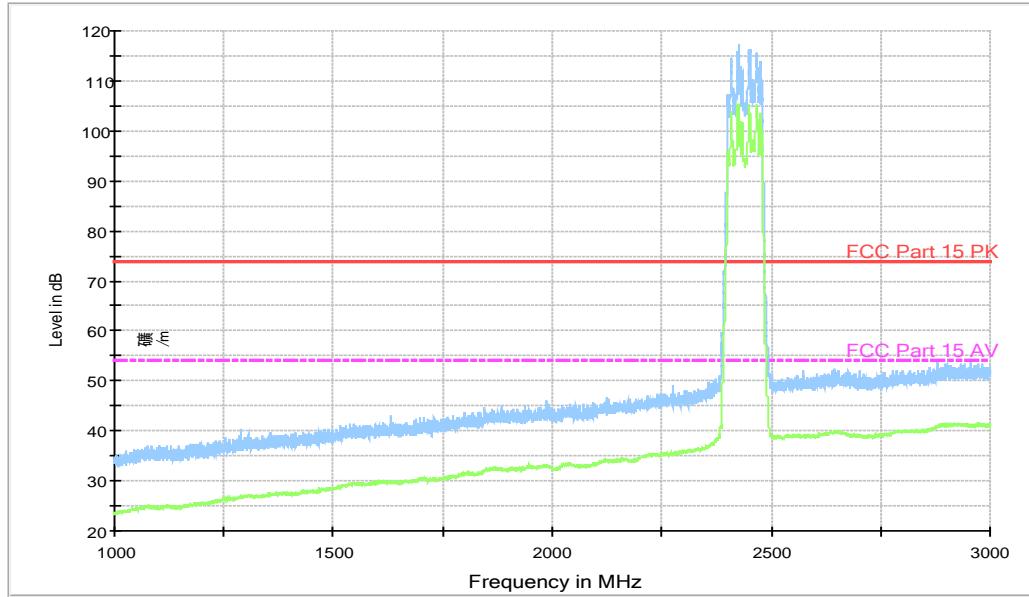


Fig.82. Radiated emission: 8DPSK, Channel 39, 1 GHz - 3 GHz

RE - 3GHz-18GHz

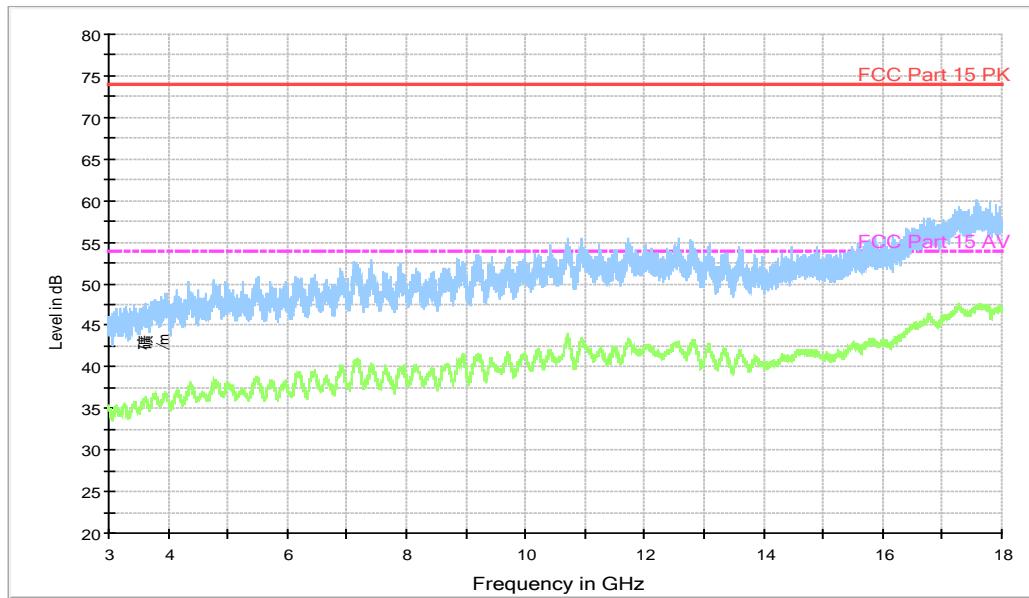


Fig.83. Radiated emission: 8DPSK, Channel 39, 3 GHz - 18 GHz

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

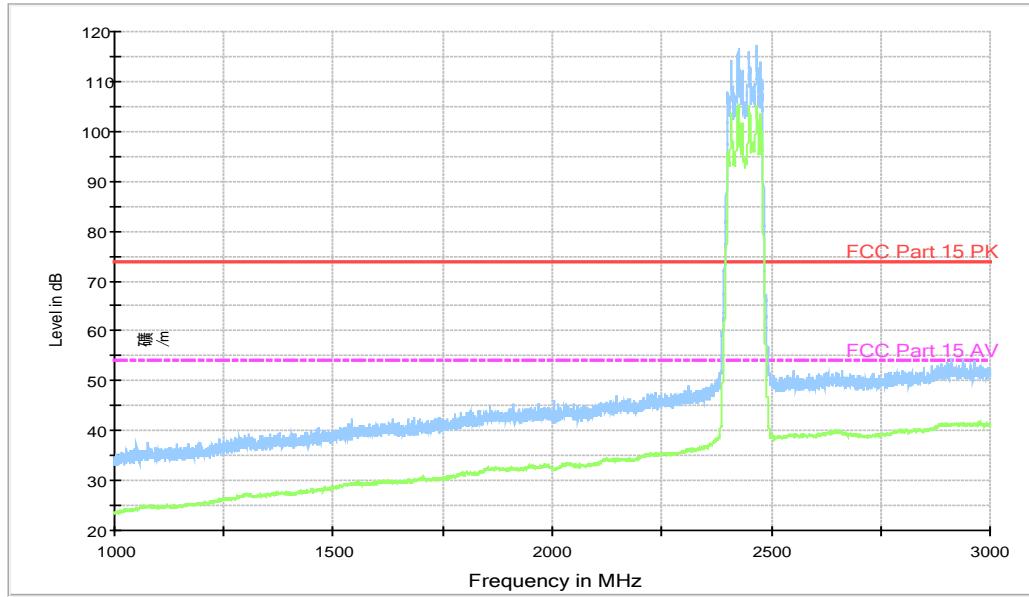


Fig.84. Radiated emission: 8DPSK, Channel 78, 1 GHz - 3 GHz

RE - 3GHz-18GHz

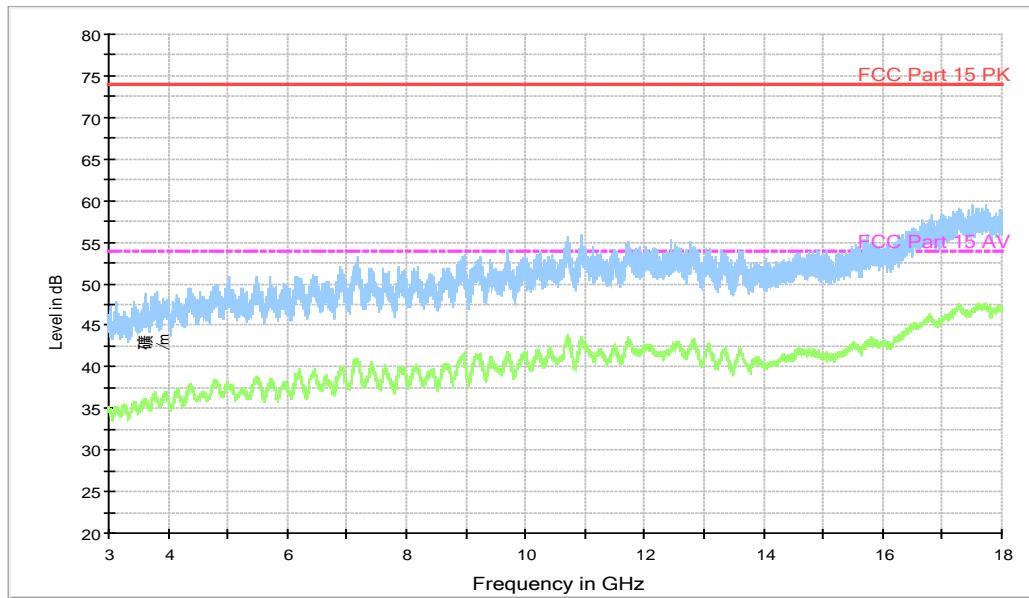


Fig.85. Radiated emission: 8DPSK, Channel 78, 3 GHz - 18 GHz

RE - Power-2.38GHz-2.45GHz

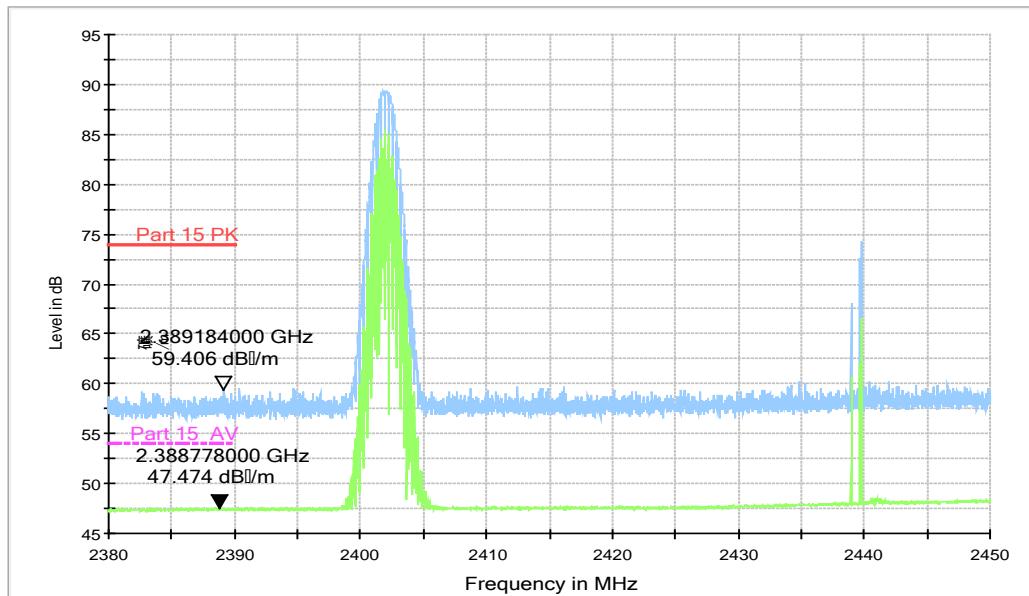


Fig.86. Radiated emission (Power): 8DPSK, low channel

RE - Power-2.45GHz-2.5GHz

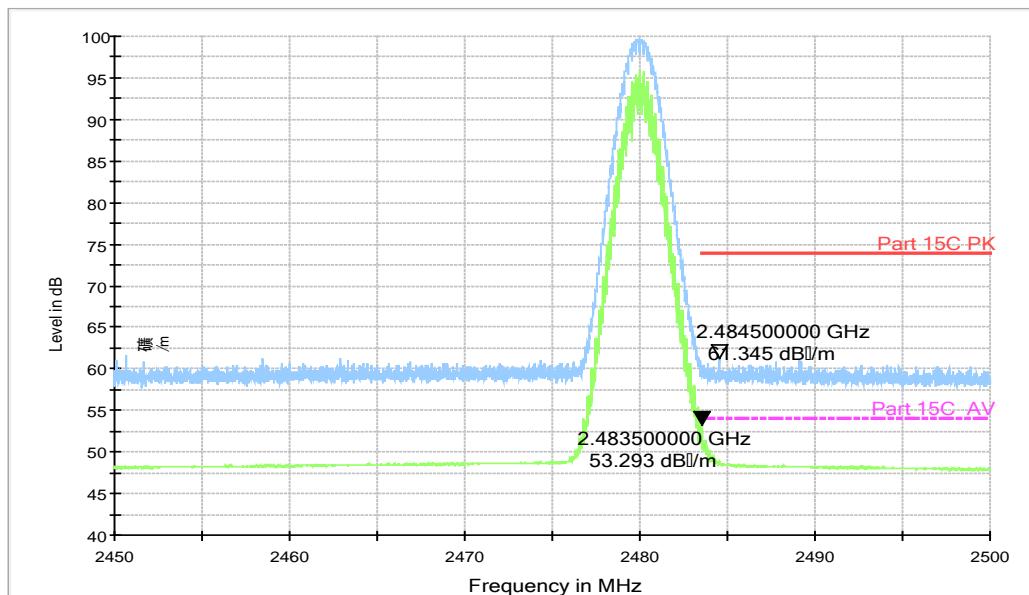


Fig.87. Radiated emission (Power): 8DPSK, high channel

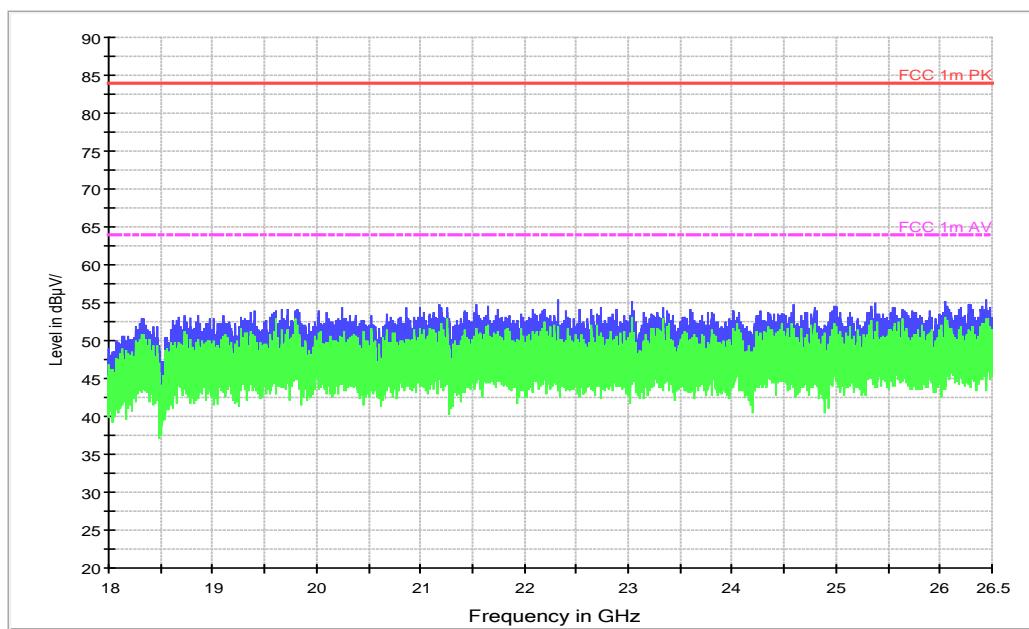


Fig.88. Radiated emission: 8DPSK, 18 GHz - 26 GHz

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	121.81
	DH3	Fig.90	261.89
	DH5	Fig.91	307.72

For $\pi/4$ DQPSK

Channel	Packet	Dwell Time (ms)	Conclusion
39	DH1	Fig.92	123.66
	DH3	Fig.93	262.15
	DH5	Fig.94	307.91

For 8DPSK

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

	DH3	Fig.96	261.99	P
	DH5	Fig.97	308.11	P

Conclusion: PASS

Test graphs as below:

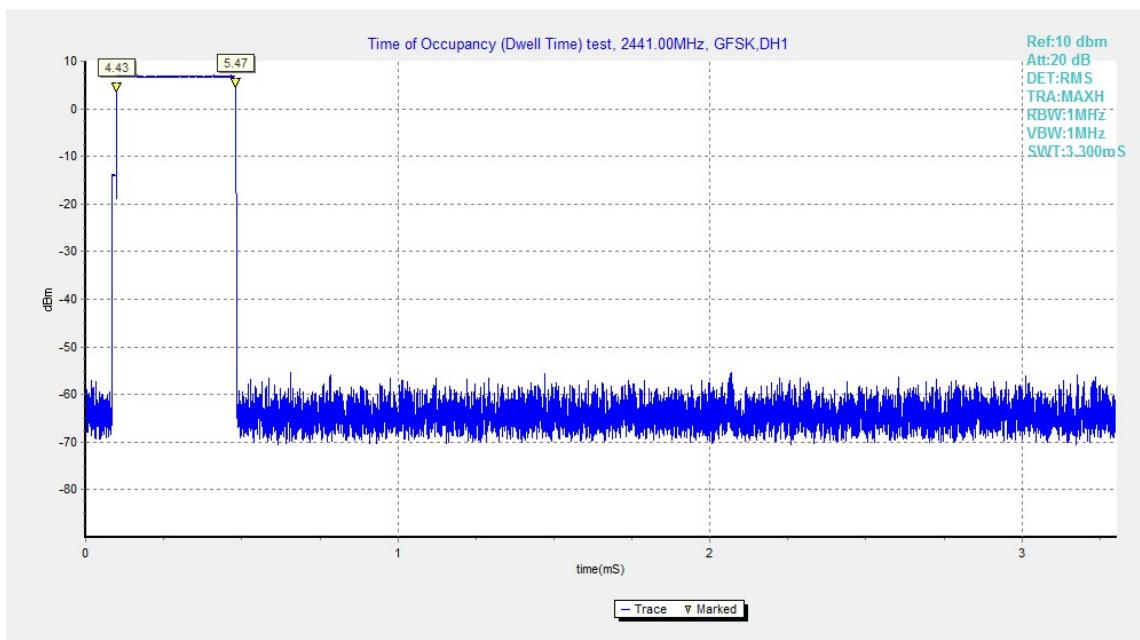


Fig.89. Time of occupancy (Dwell Time): Channel 39, Packet DH1

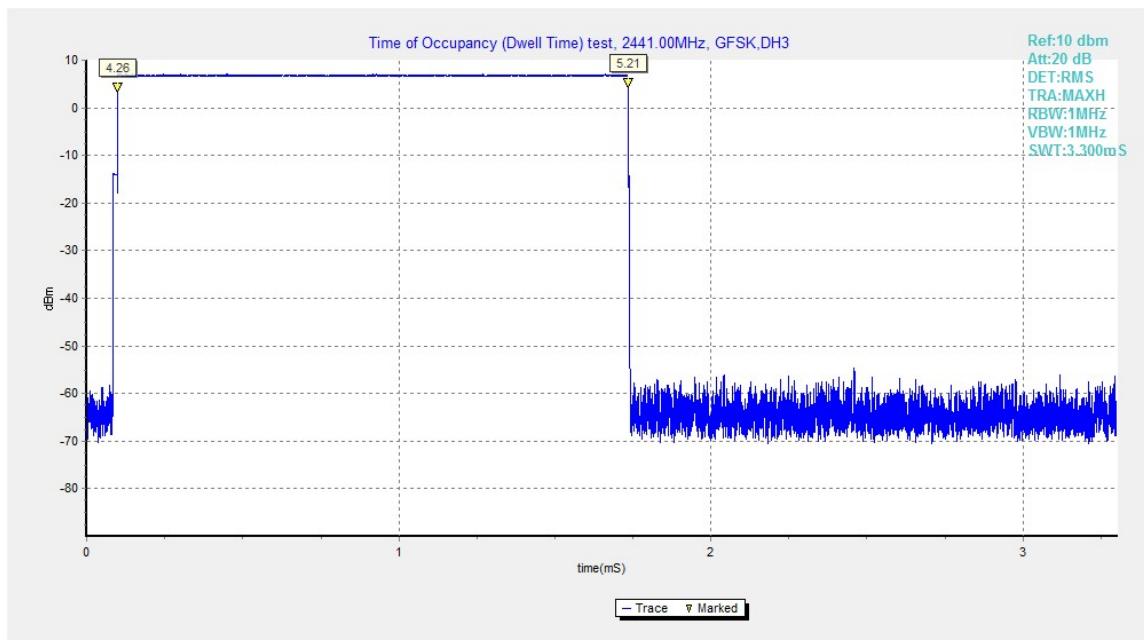


Fig.90. Time of occupancy (Dwell Time): Channel 39, Packet DH3

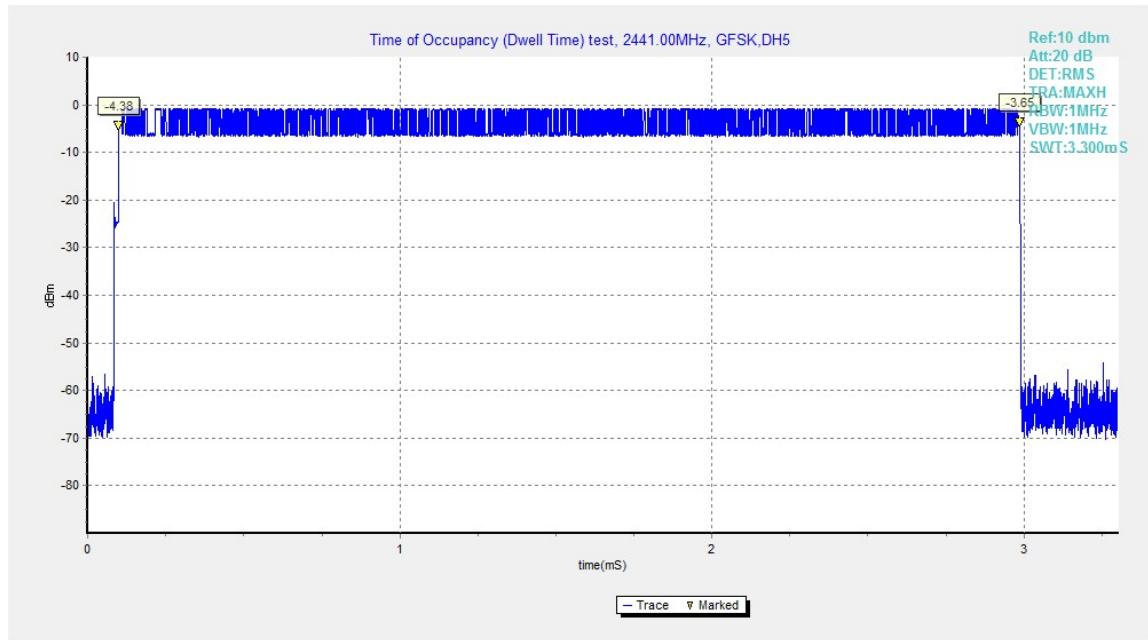


Fig.91. Time of occupancy (Dwell Time): Channel 39, Packet DH5

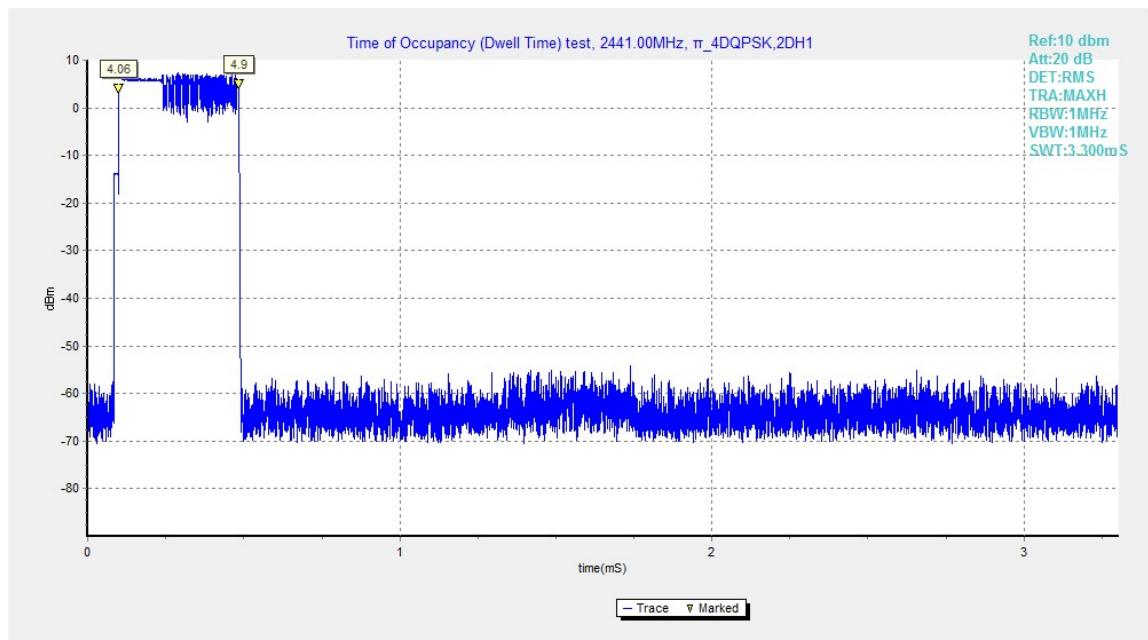


Fig.92. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH1

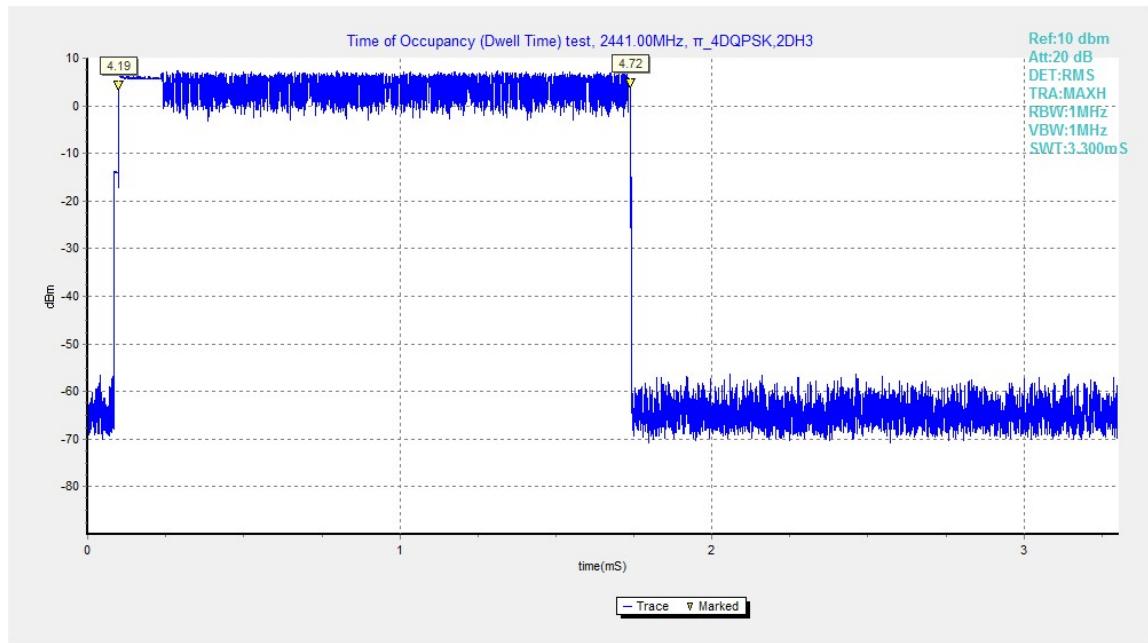


Fig.93. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH3

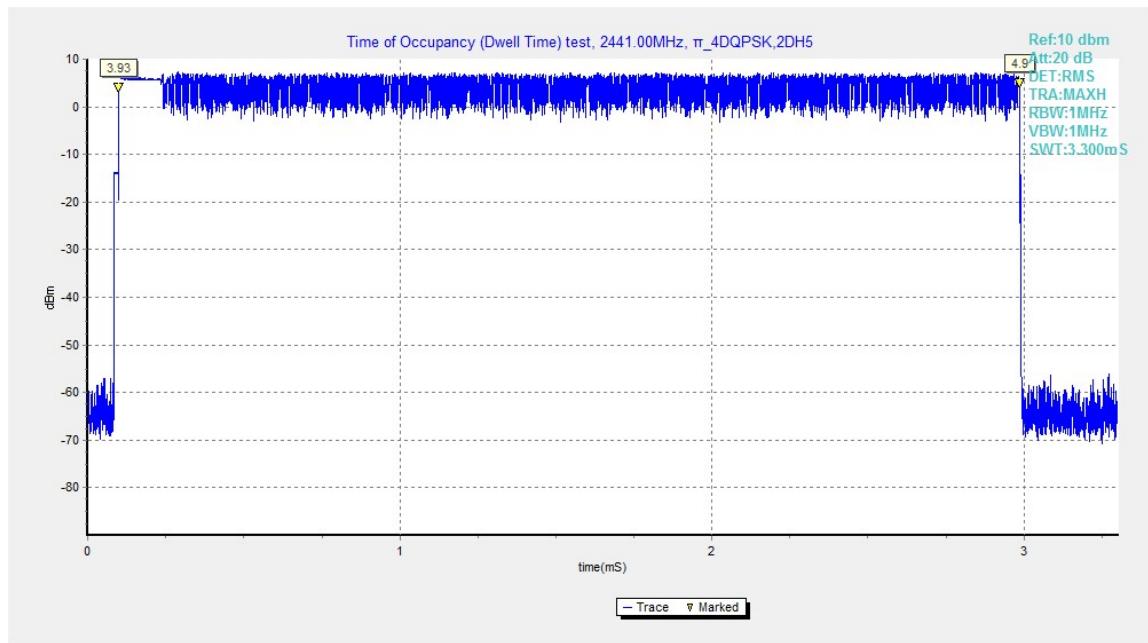


Fig.94. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH5

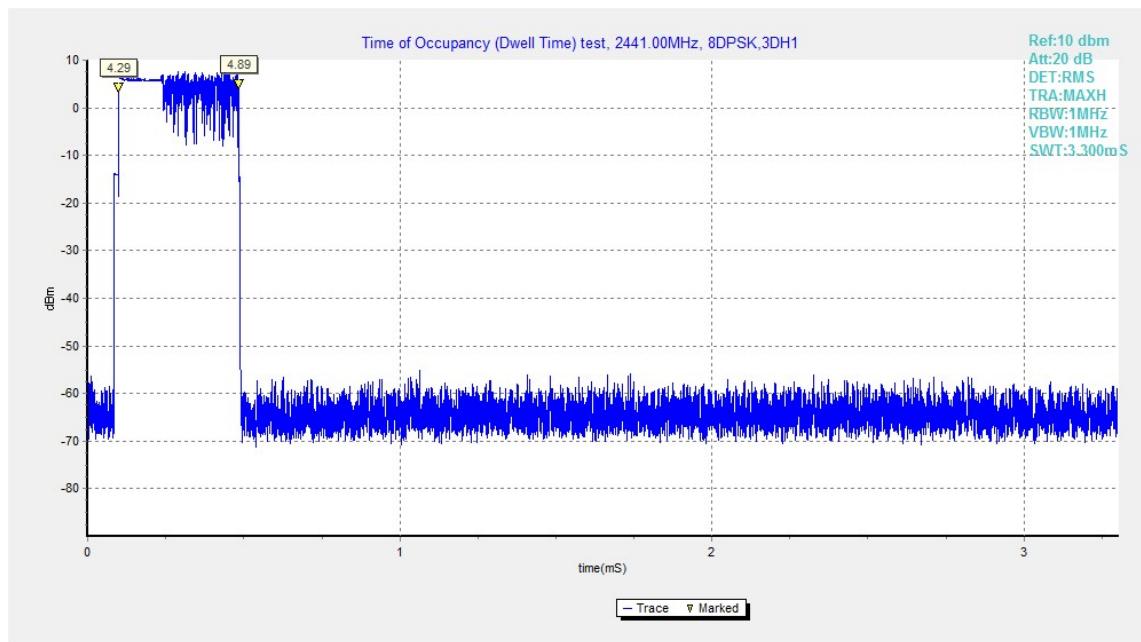


Fig.95. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH1

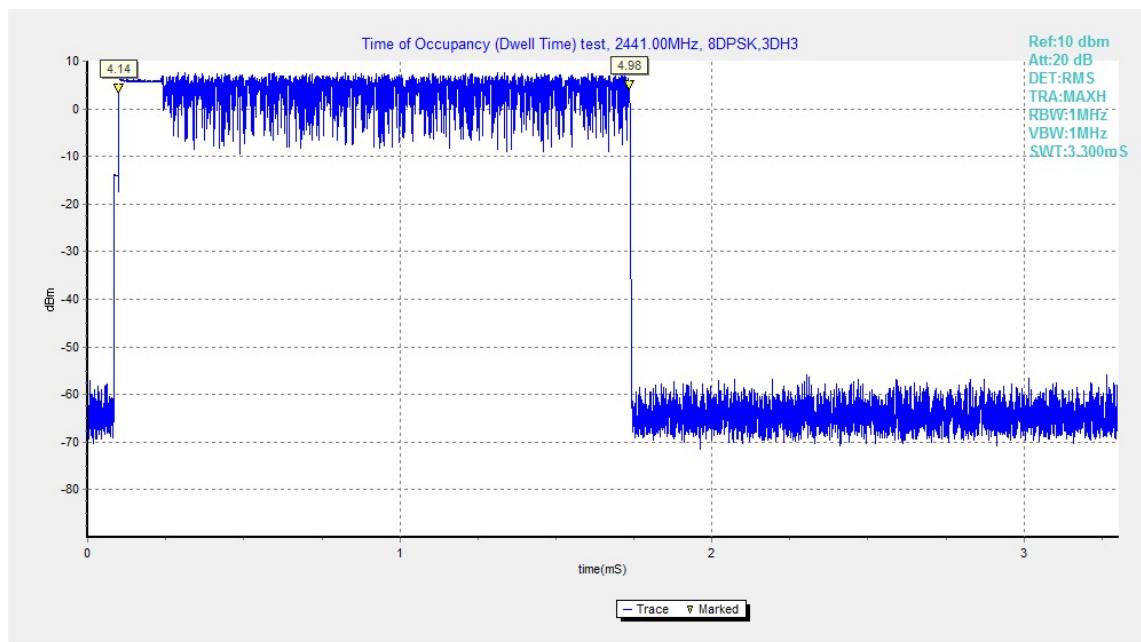


Fig.96. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH3

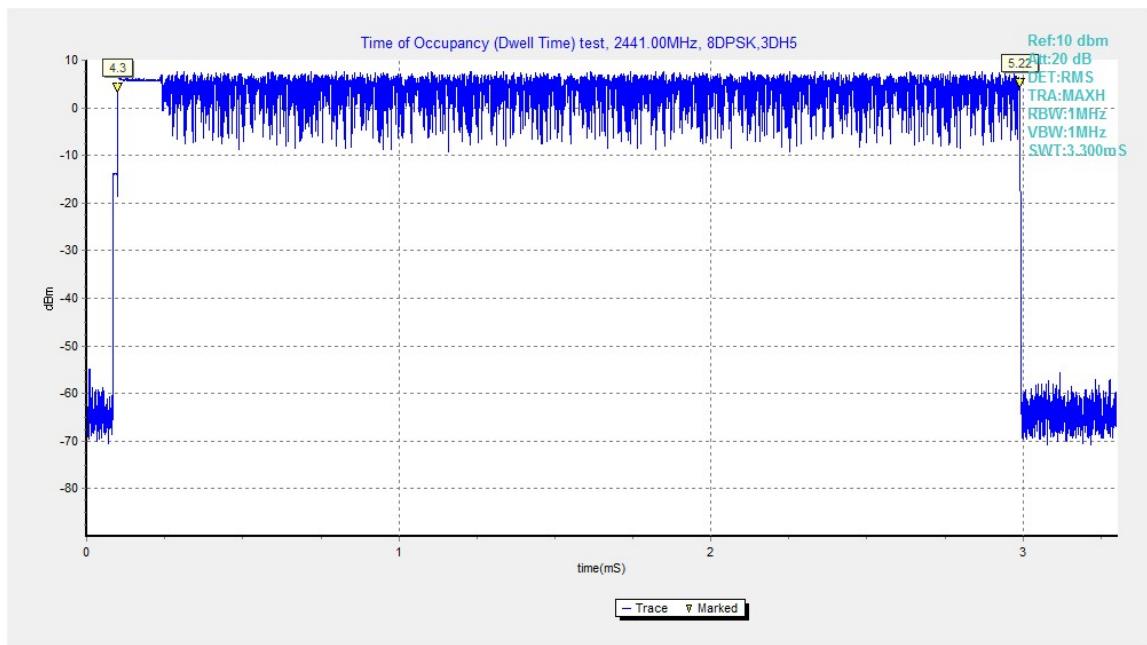


Fig.97. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH5

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	940.00	NA
39	Fig.99	939.00	NA
78	Fig.100	935.00	NA

For π/4 DQPSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.101	1275.00	NA
39	Fig.102	1306.00	NA
78	Fig.103	1282.00	NA

For 8DPSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.104	1296.00	NA
39	Fig.105	1297.00	NA
78	Fig.106	1299.00	NA

Conclusion: NA

Test graphs as below:

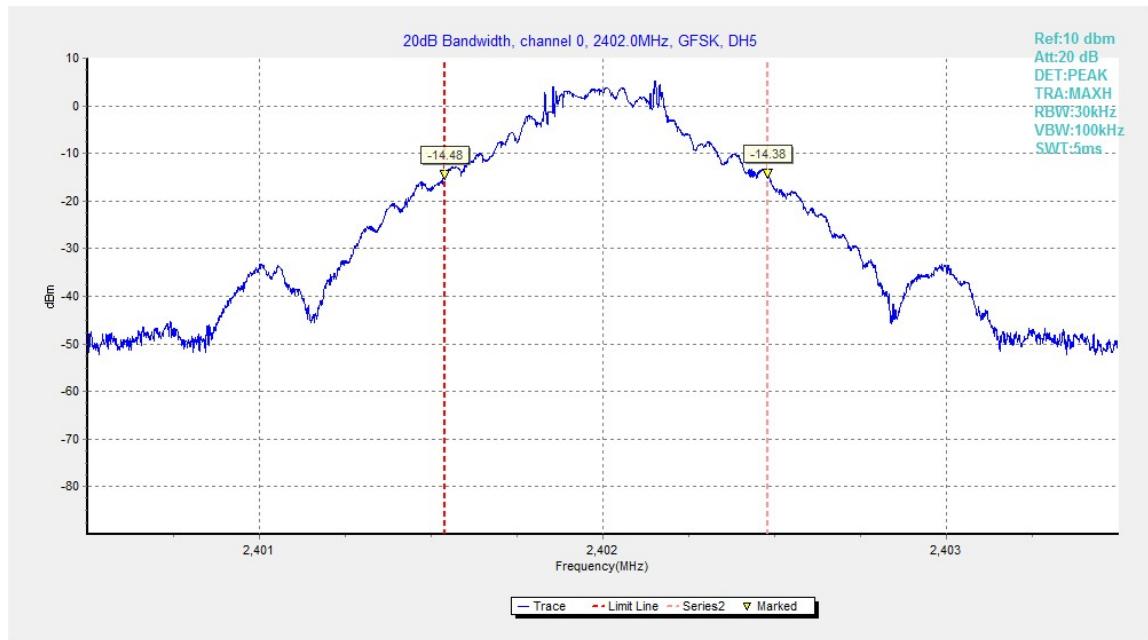


Fig.98. 20dB Bandwidth: GFSK, Channel 0

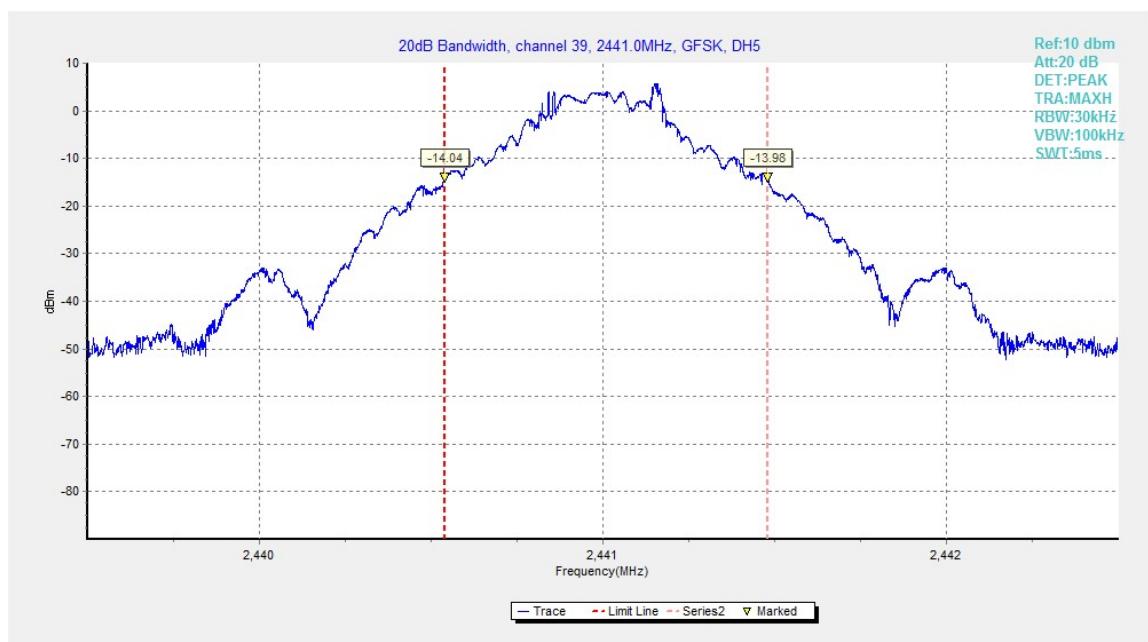


Fig.99. 20dB Bandwidth: GFSK, Channel 39

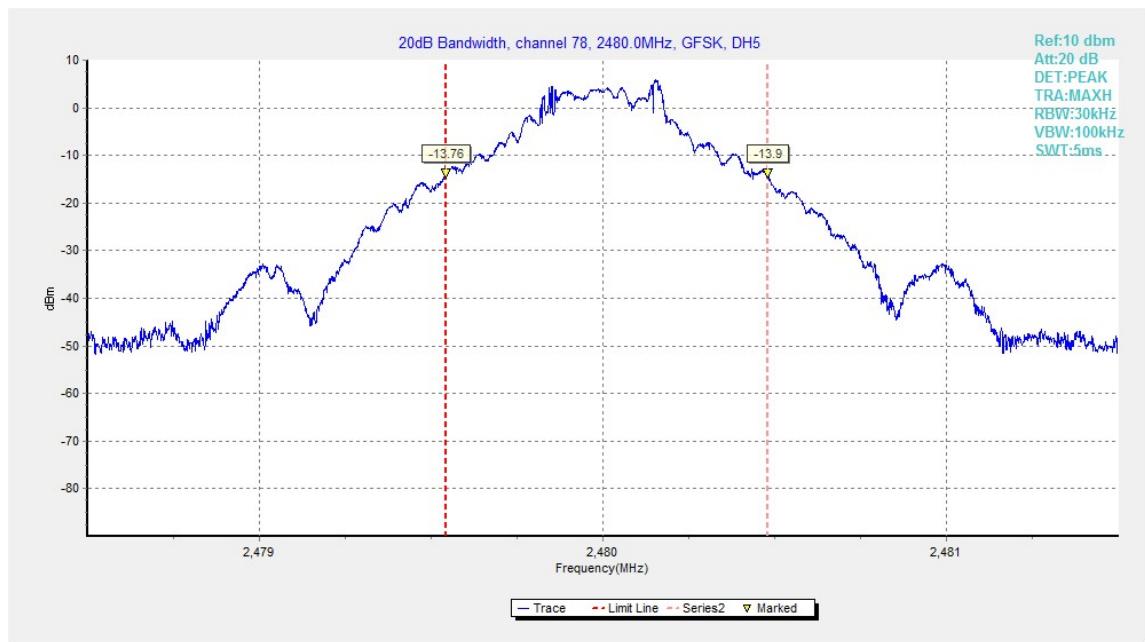


Fig.100. 20dB Bandwidth: GFSK, Channel 78

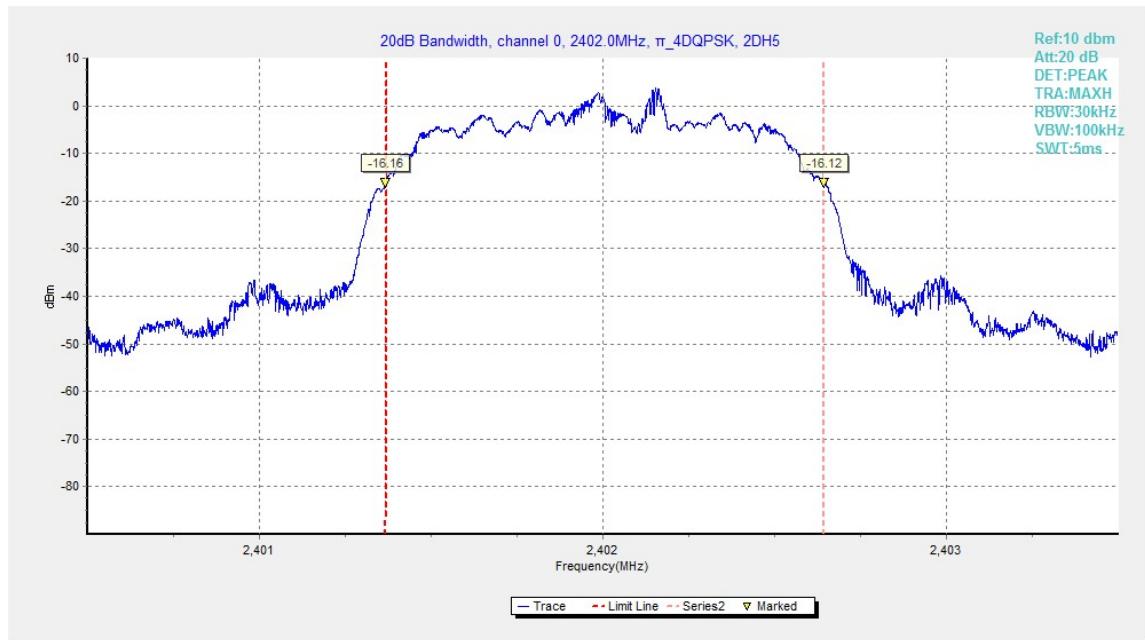


Fig.101. 20dB Bandwidth: $\pi/4$ DQPSK, Channel 0

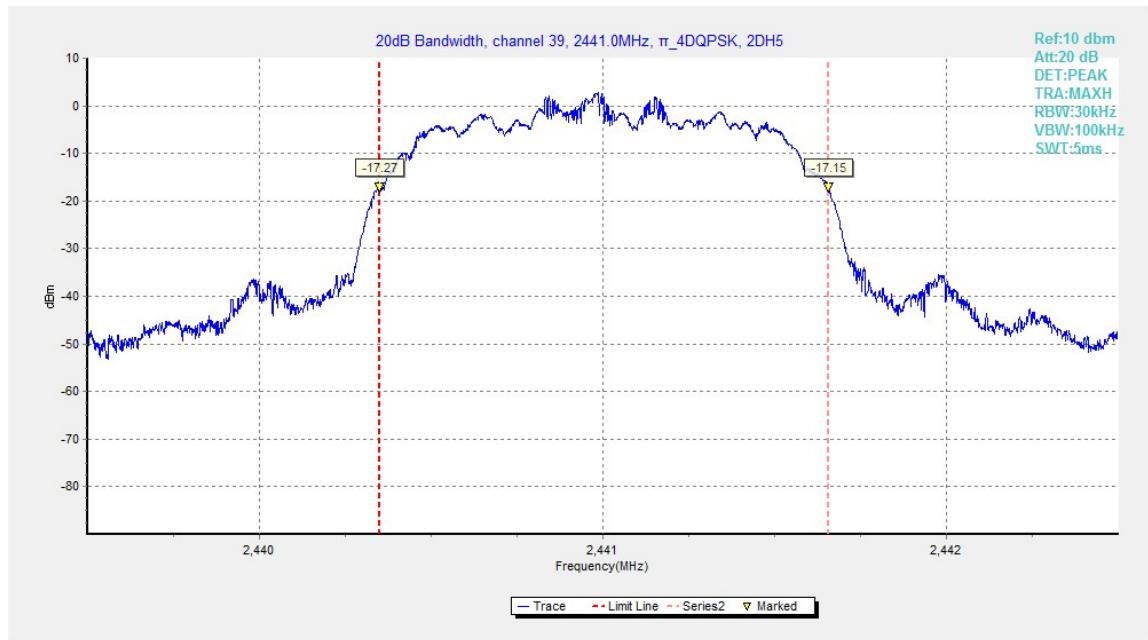


Fig.102. 20dB Bandwidth: $\pi/4$ DQPSK, Channel 39

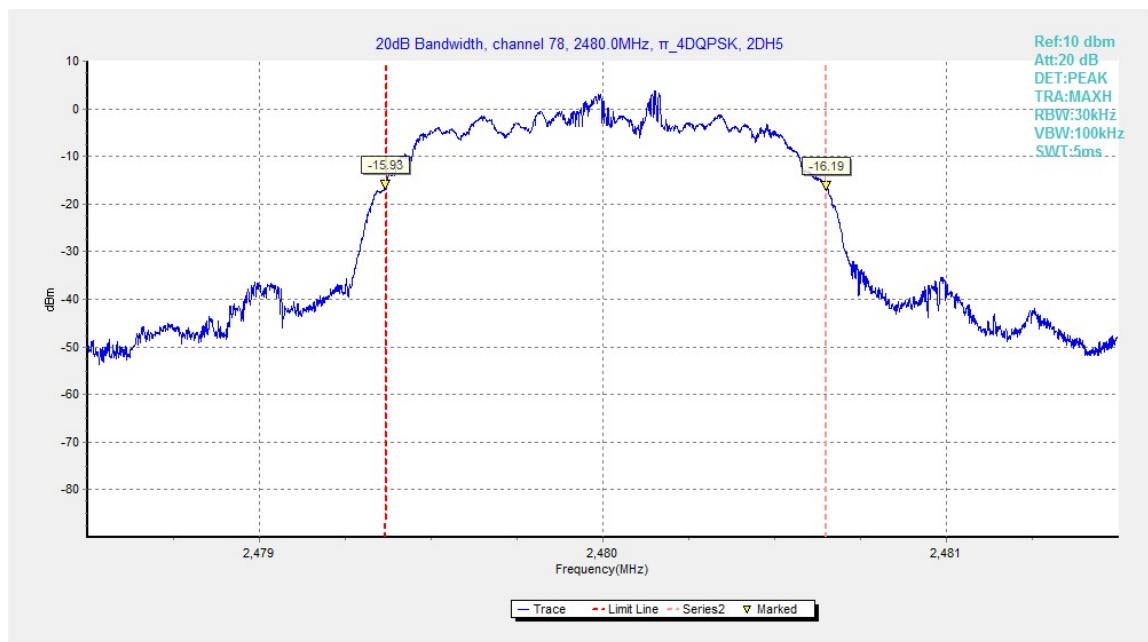


Fig.103. 20dB Bandwidth: $\pi/4$ DQPSK, Channel 78

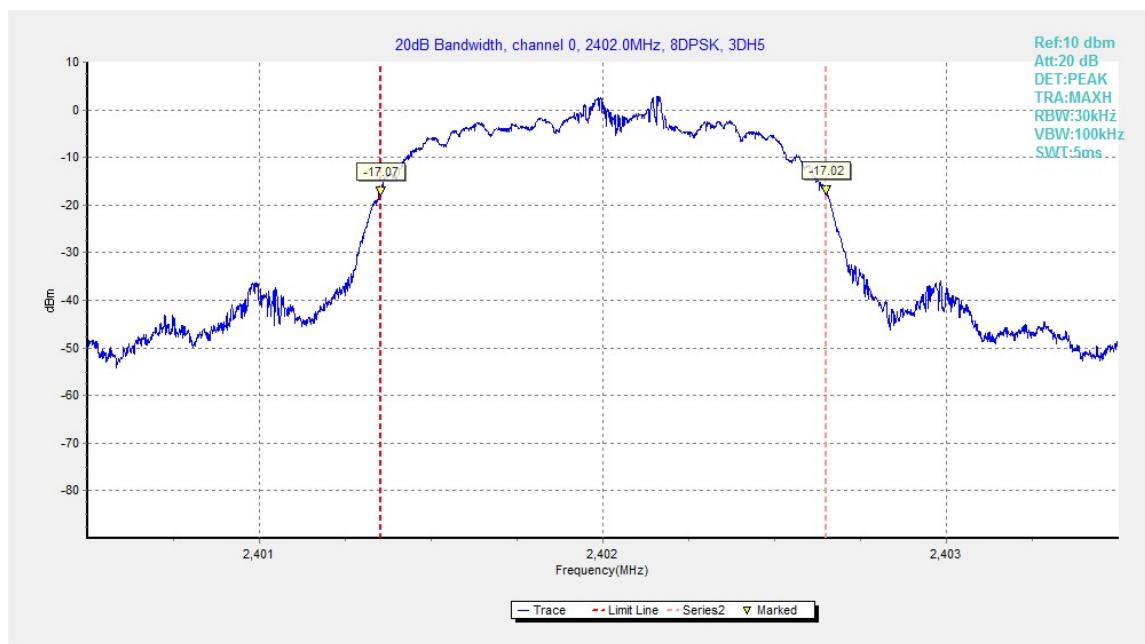


Fig.104. 20dB Bandwidth: 8DPSK, Channel 0

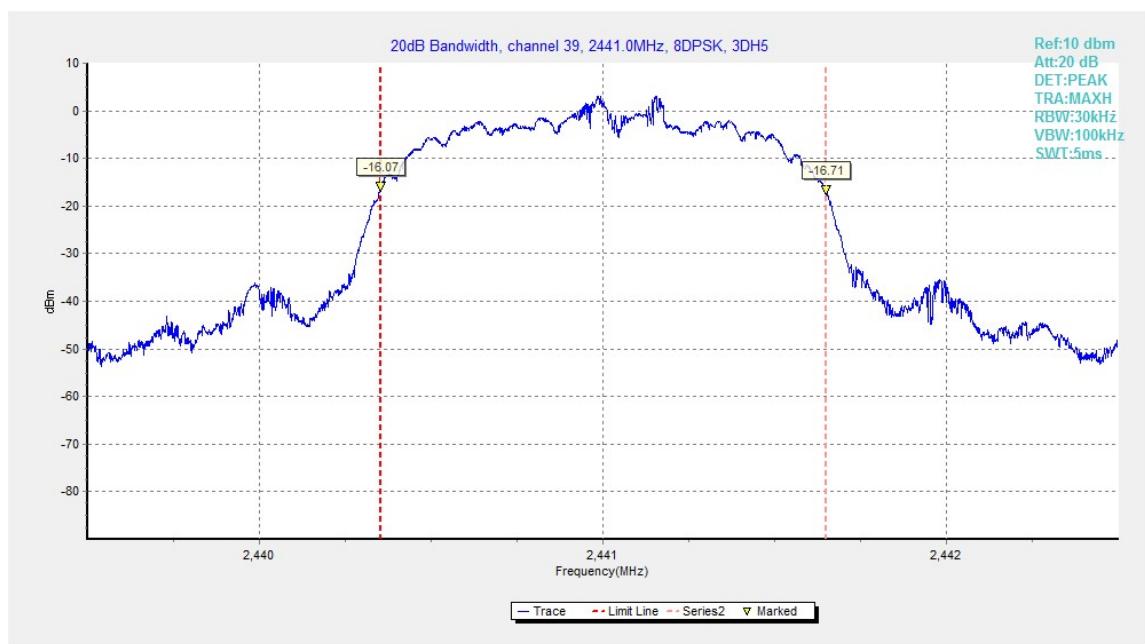


Fig.105. 20dB Bandwidth: 8DPSK, Channel 39

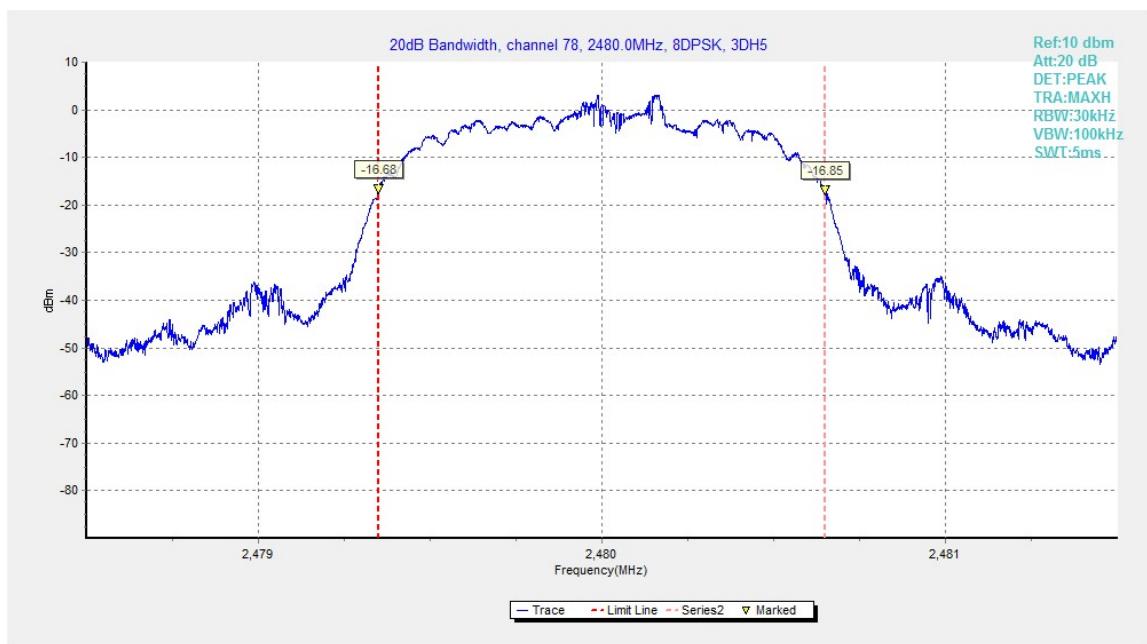


Fig.106. 20dB Bandwidth: 8DPSK, Channel 78

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	1008.00	P

For $\pi/4$ DQPSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.108	977.00	P

For 8DPSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.109	1345.00	P

Conclusion: PASS

Test graphs as below:

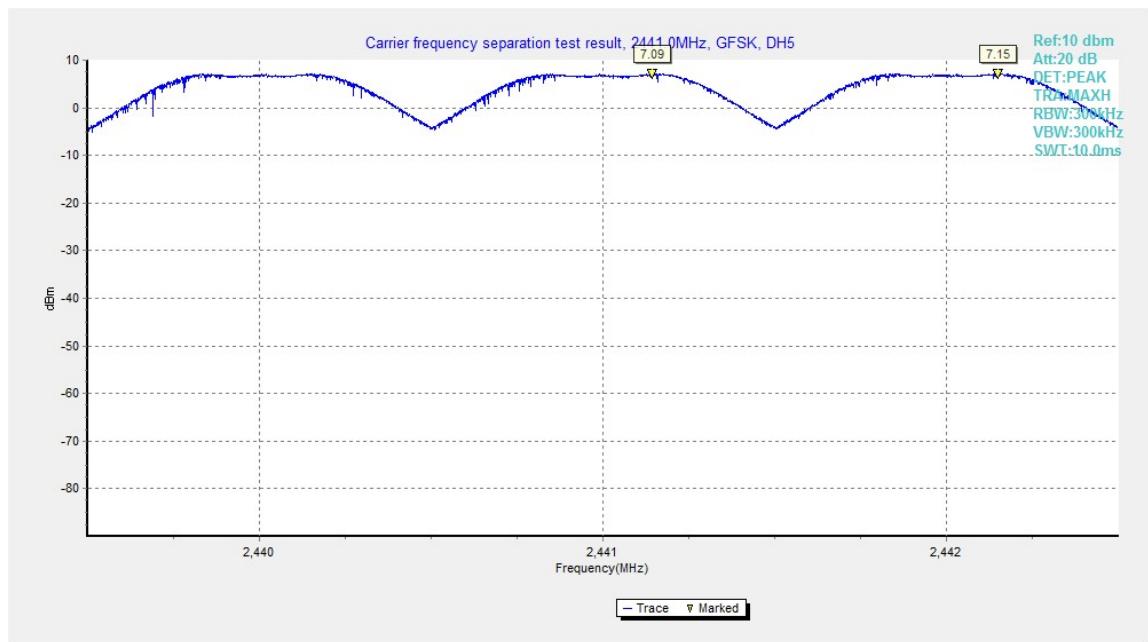


Fig.107. Carrier frequency separation measurement: GFSK, Channel 39

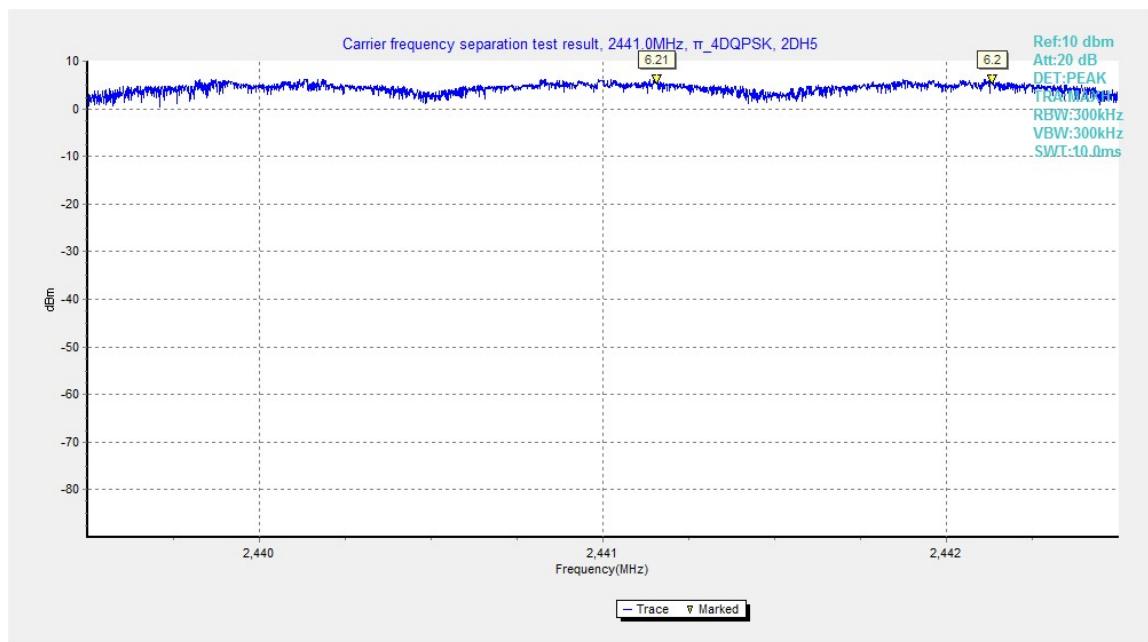


Fig.108. Carrier frequency separation measurement: $\pi/4$ DQPSK, Channel 39