

Fig.36. Conducted spurious emission: $\pi/4$ DQPSK, Channel 39, 3GHz - 10GHz

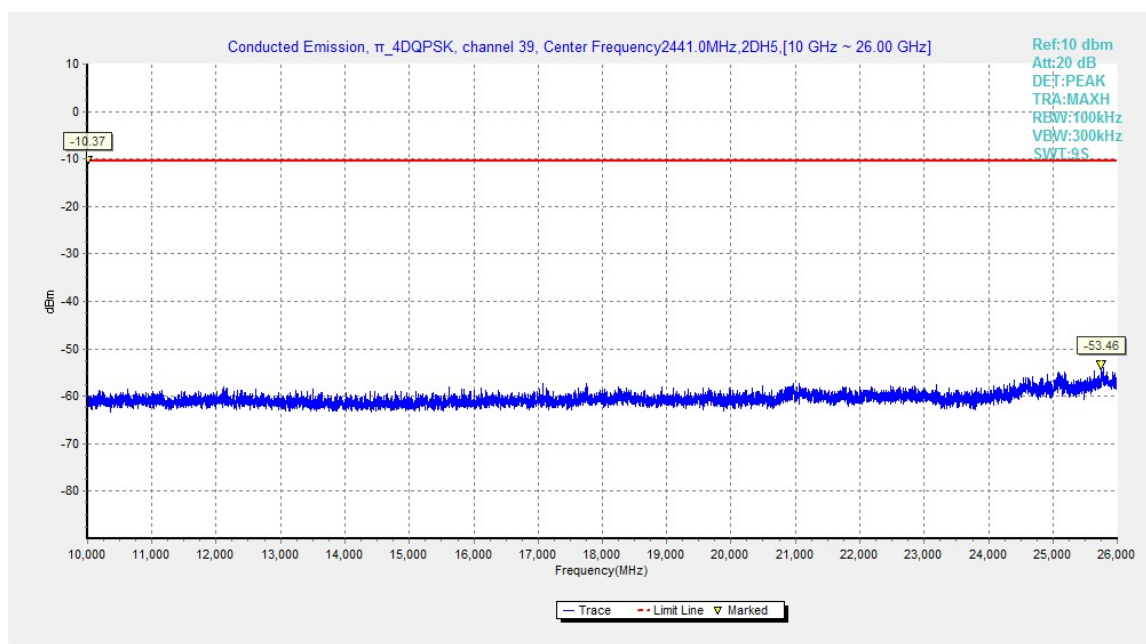


Fig.37. Conducted spurious emission: $\pi/4$ DQPSK, Channel 39, 10GHz – 26GHz

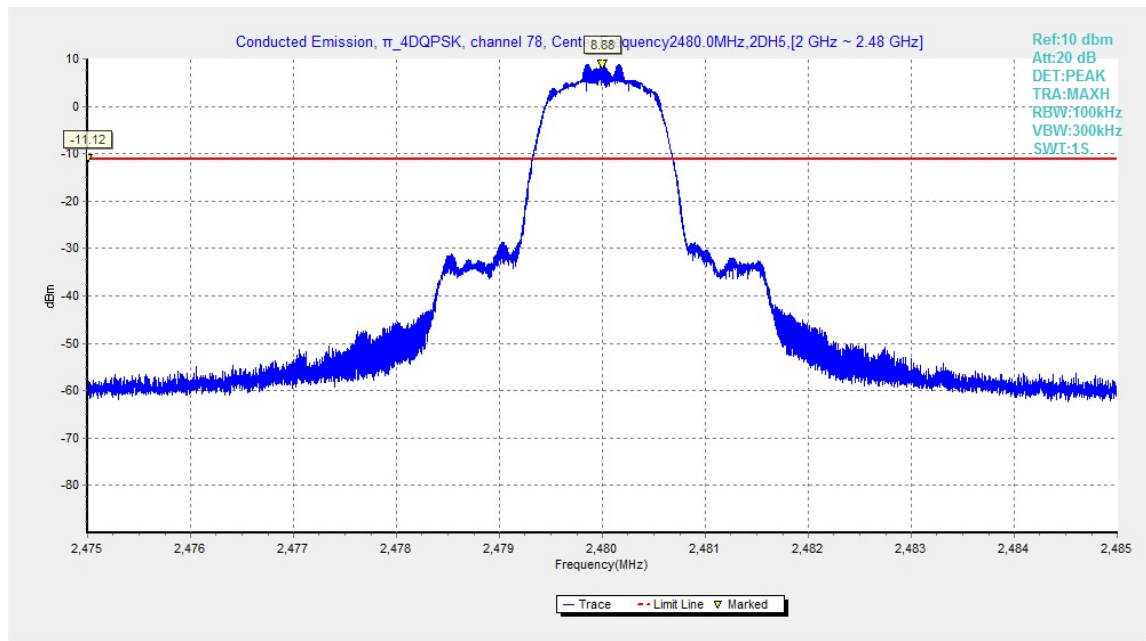


Fig.38. Conducted spurious emission: $\pi/4$ DQPSK, Channel 78, 2480MHz

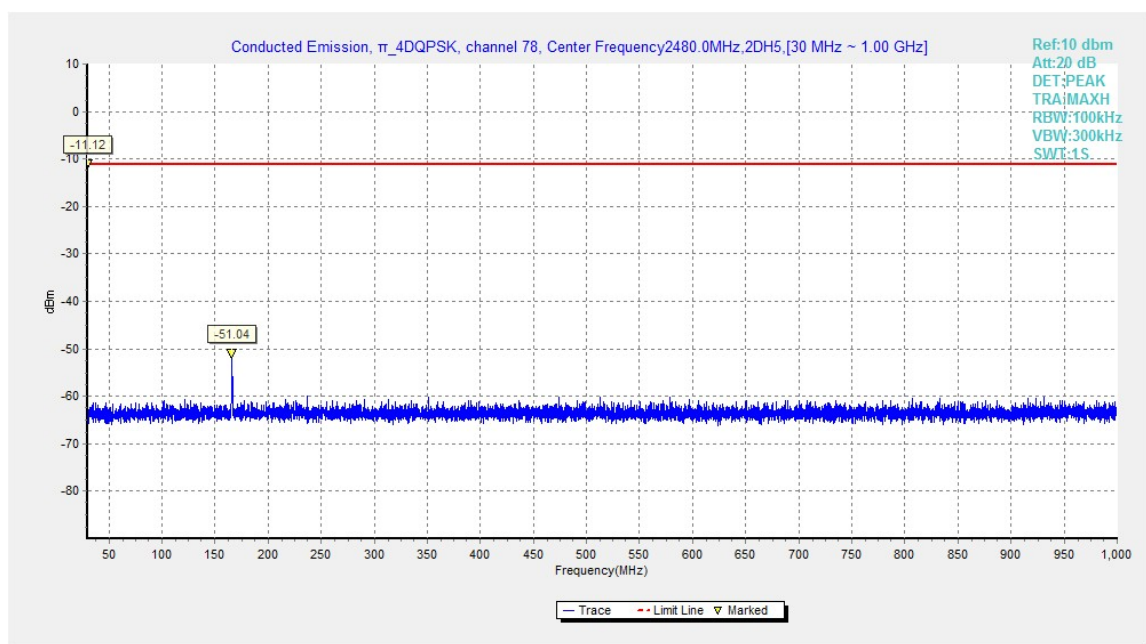


Fig.39. Conducted spurious emission: $\pi/4$ DQPSK, Channel 78, 30MHz - 1GHz

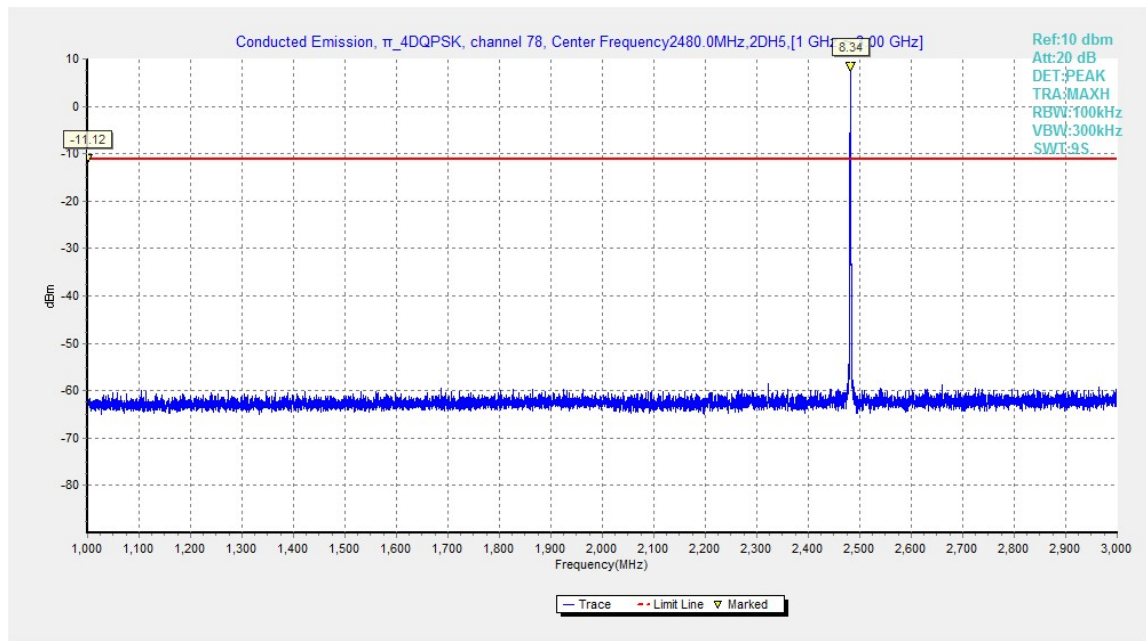


Fig.40. Conducted spurious emission: $\pi/4$ DQPSK, Channel 78, 1GHz - 3GHz

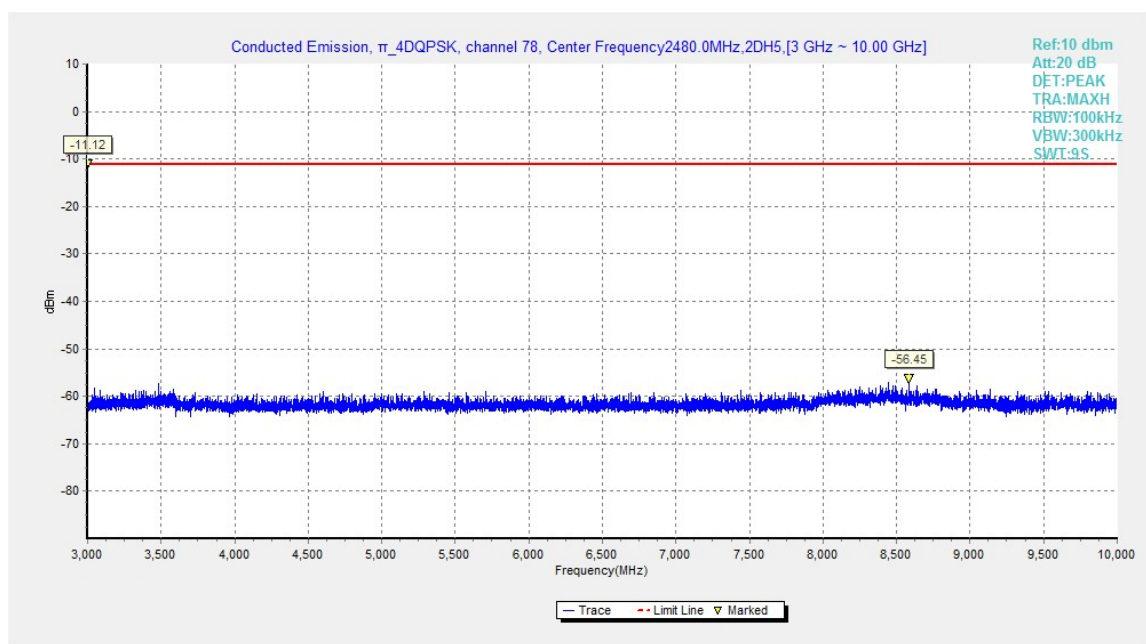


Fig.41. Conducted spurious emission: $\pi/4$ DQPSK, Channel 78, 3GHz - 10GHz

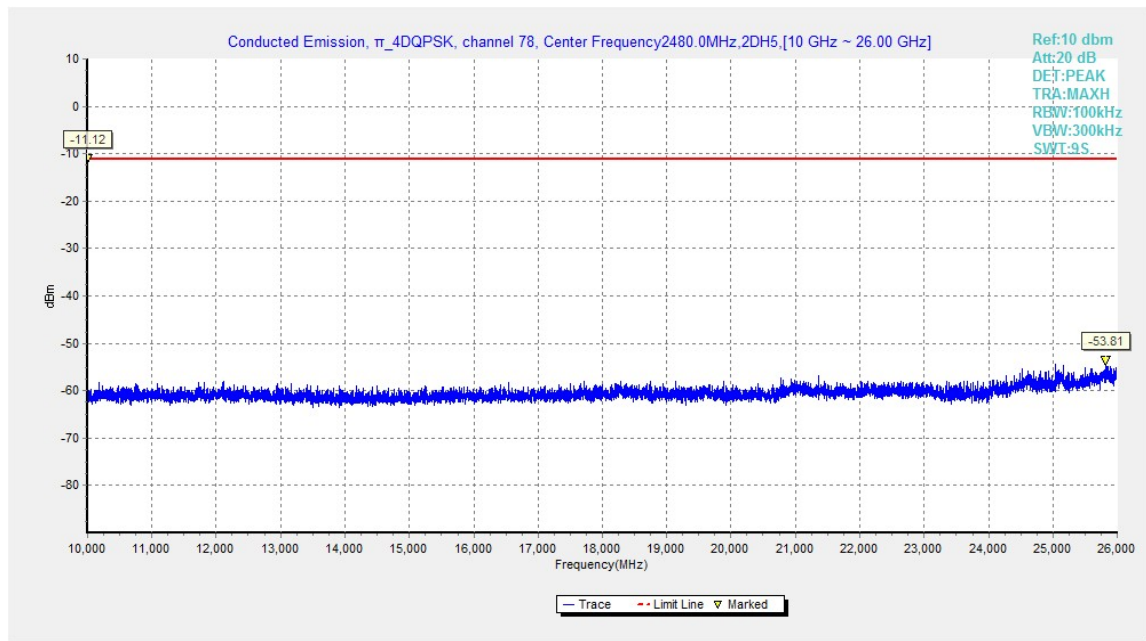


Fig.42. Fig.30 Conducted spurious emission: $\pi/4$ DQPSK, Channel 78, 10GHz - 26GHz

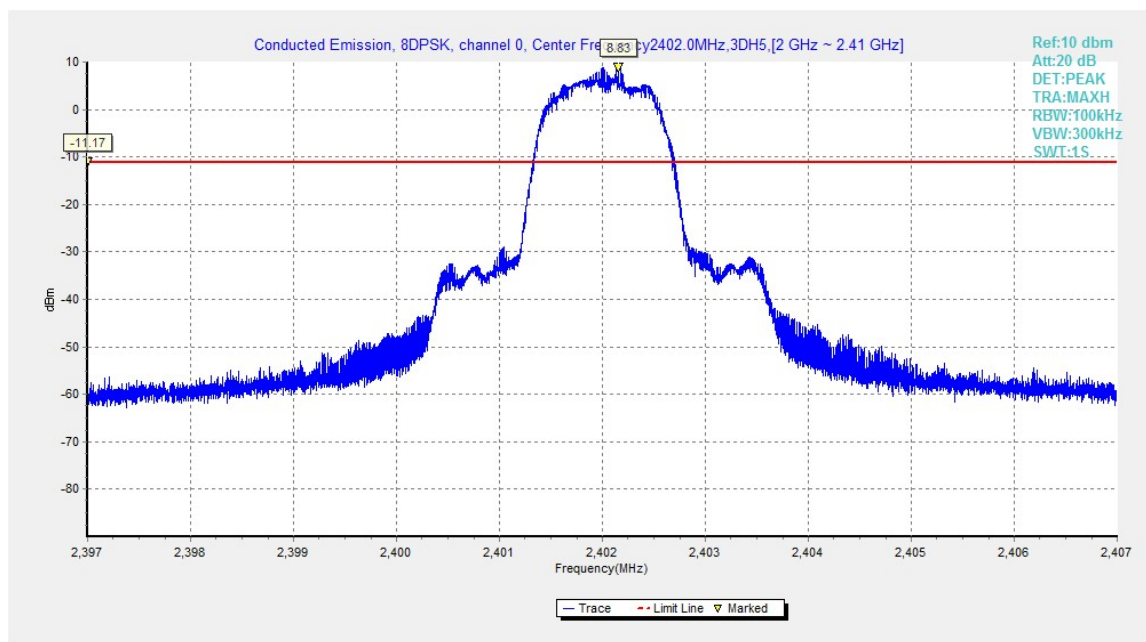


Fig.43. Conducted spurious emission: 8DPSK, Channel 0,2402MHz

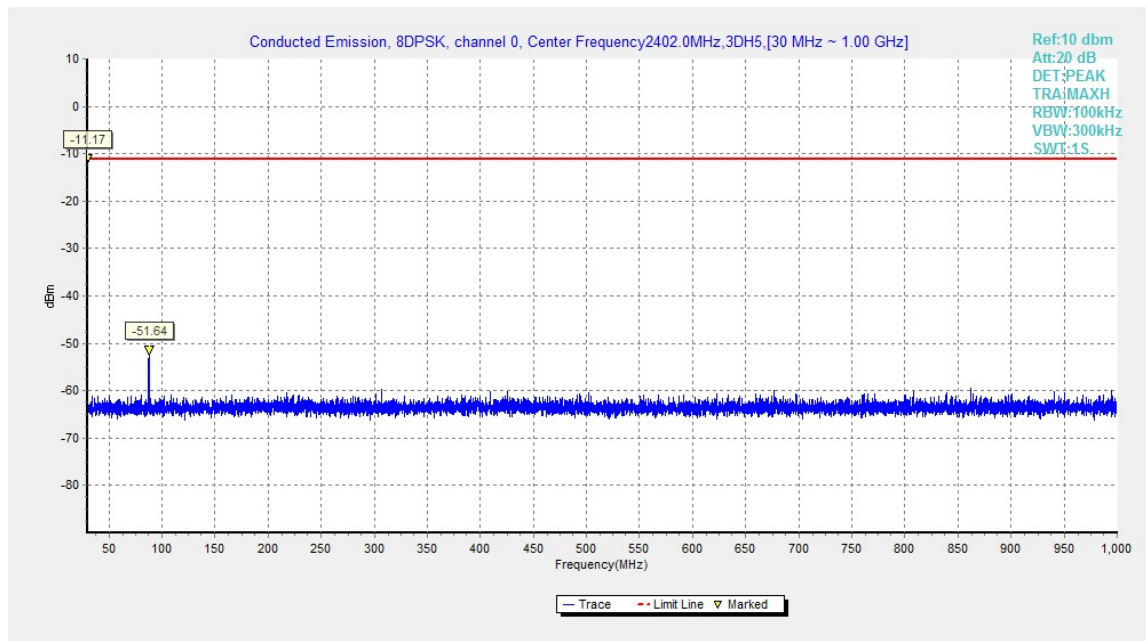


Fig.44. Conducted spurious emission: 8DPSK, Channel 0, 30MHz - 1GHz

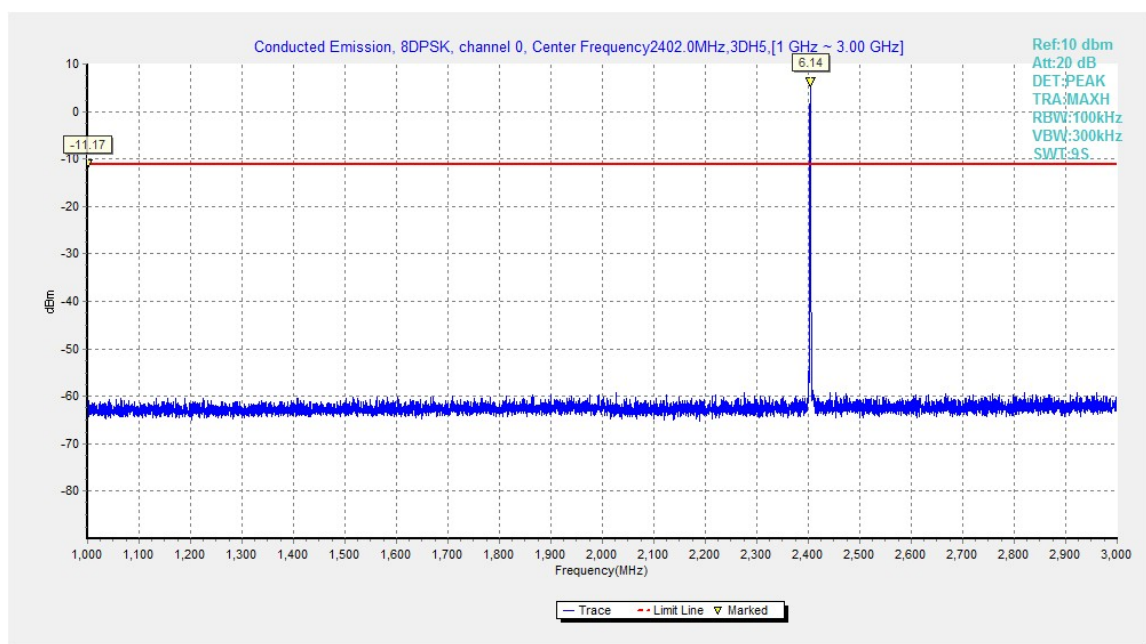


Fig.45. Conducted spurious emission: 8DPSK, Channel 0, 1GHz - 3GHz

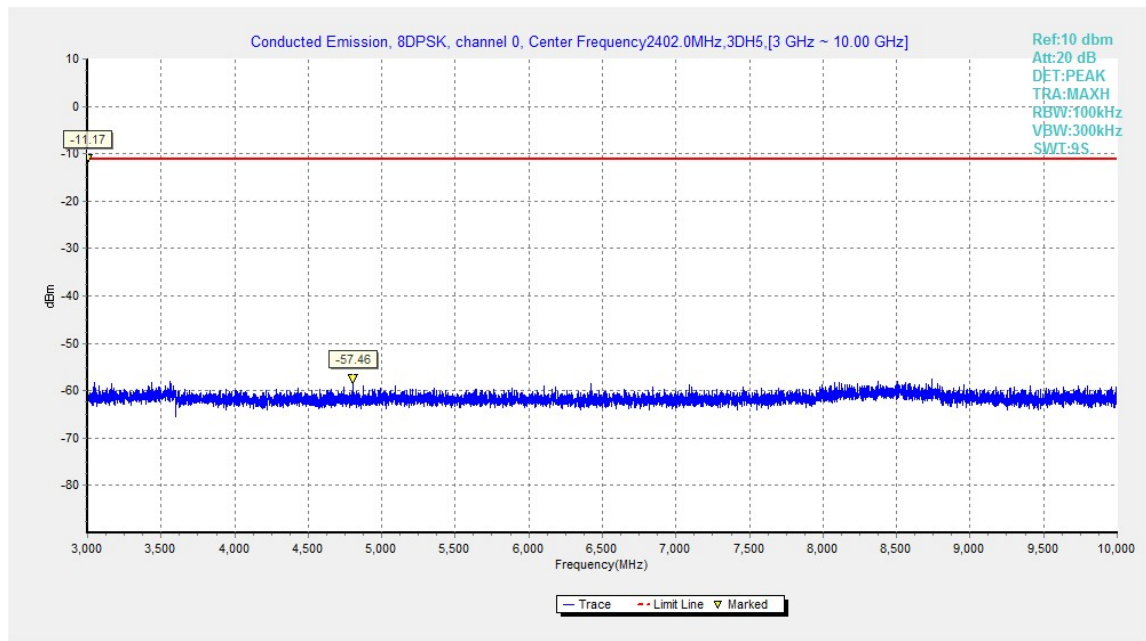


Fig.46. Conducted spurious emission: 8DPSK, Channel 0, 3GHz - 10GHz

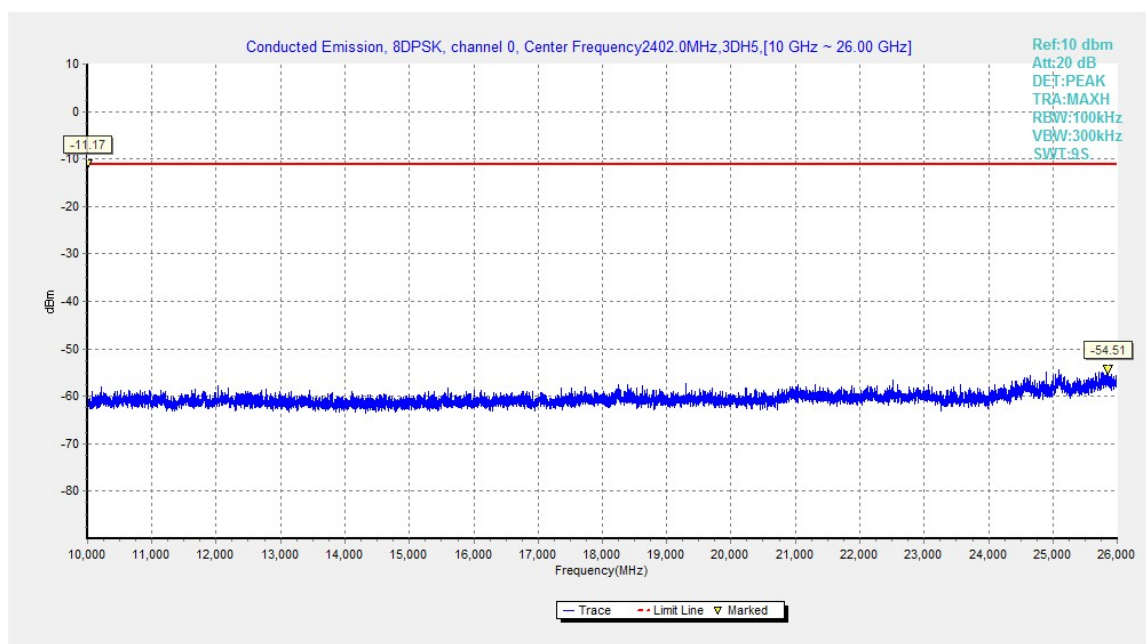


Fig.47. Conducted spurious emission: 8DPSK, Channel 0,10GHz - 26GHz

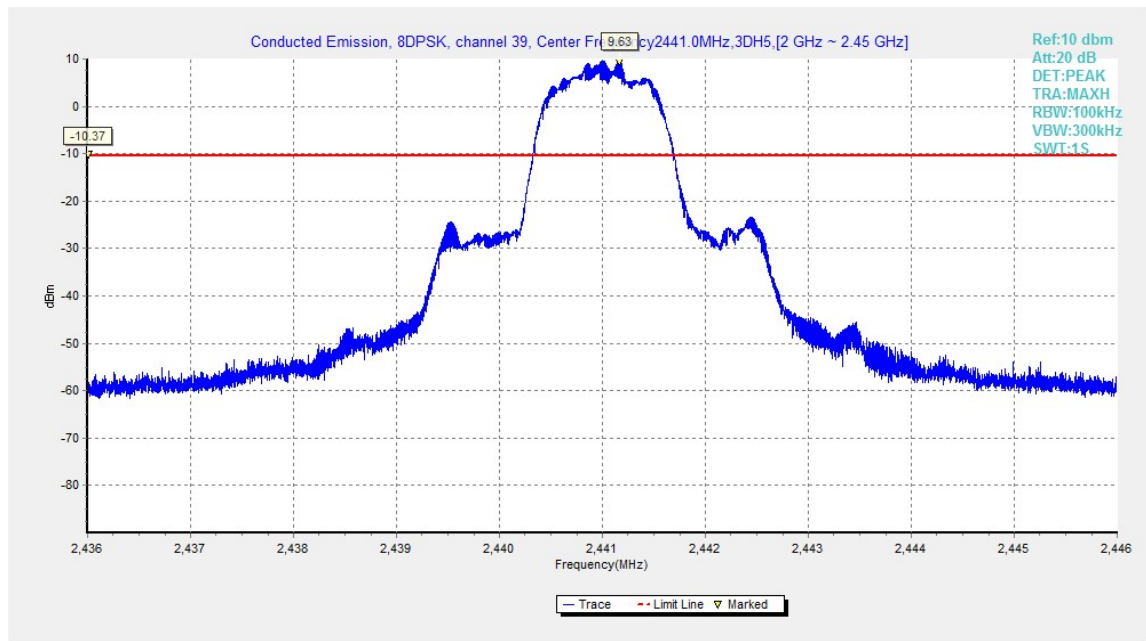


Fig.48. Conducted spurious emission: 8DPSK, Channel 39, 2441MHz

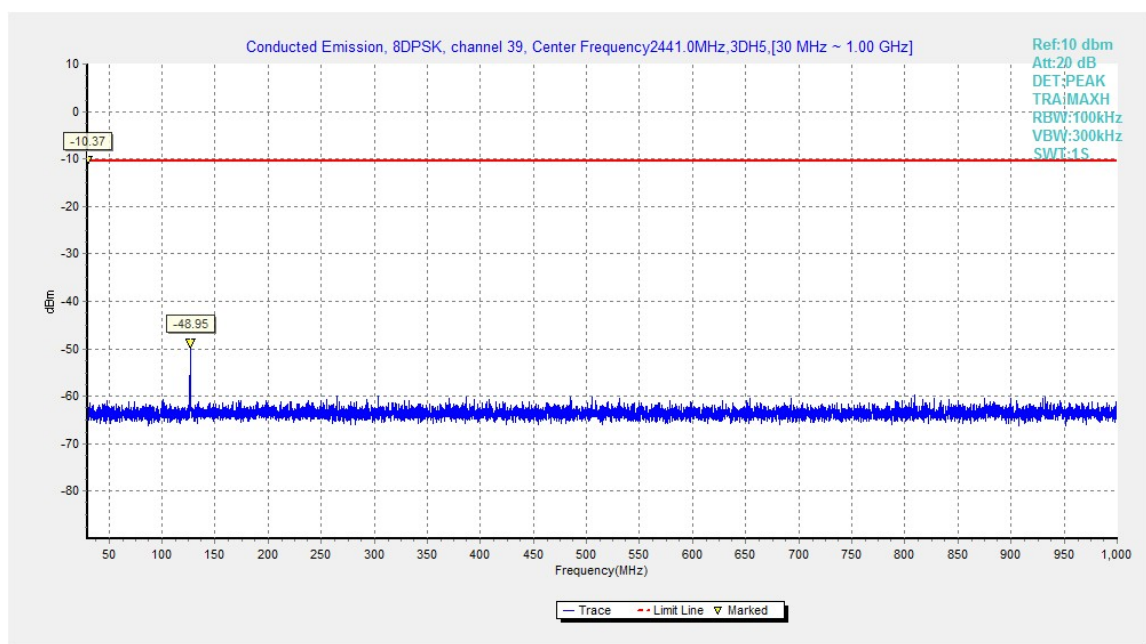


Fig.49. Conducted spurious emission: 8DPSK, Channel 39, 30MHz - 1GHz

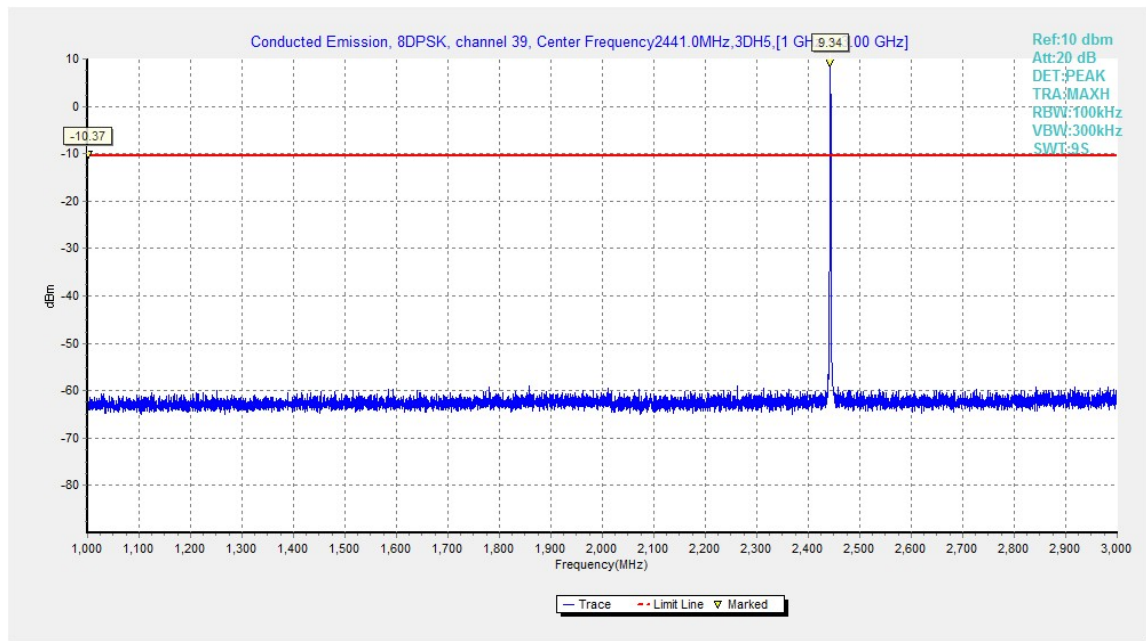


Fig.50. Conducted spurious emission: 8DPSK, Channel 39, 1GHz - 3GHz

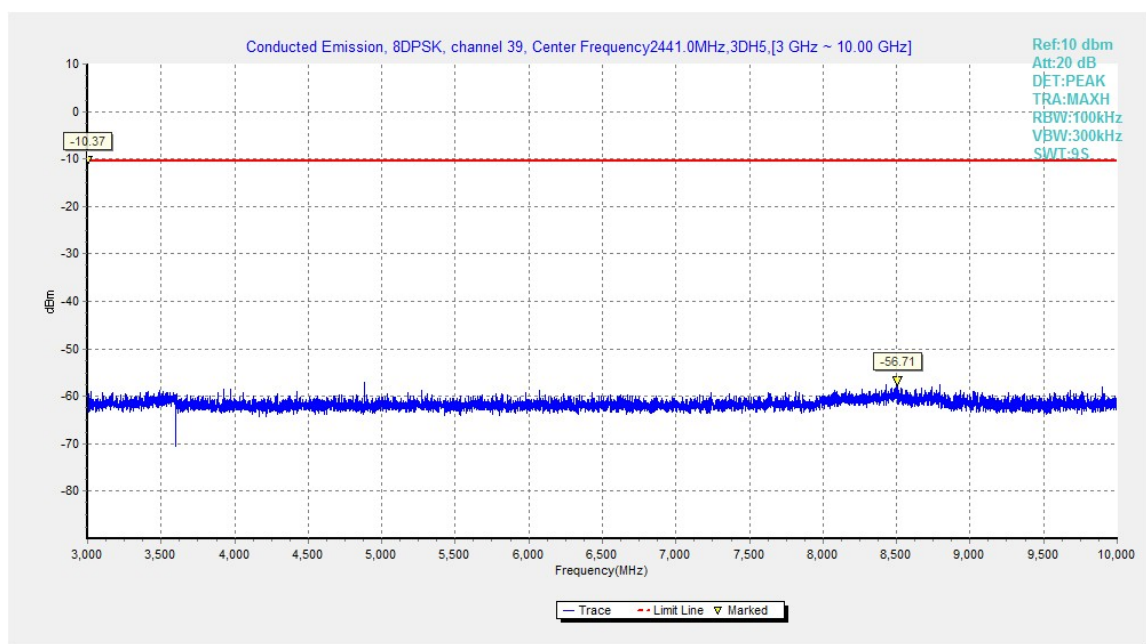


Fig.51. Conducted spurious emission: 8DPSK, Channel 39, 3GHz - 10GHz

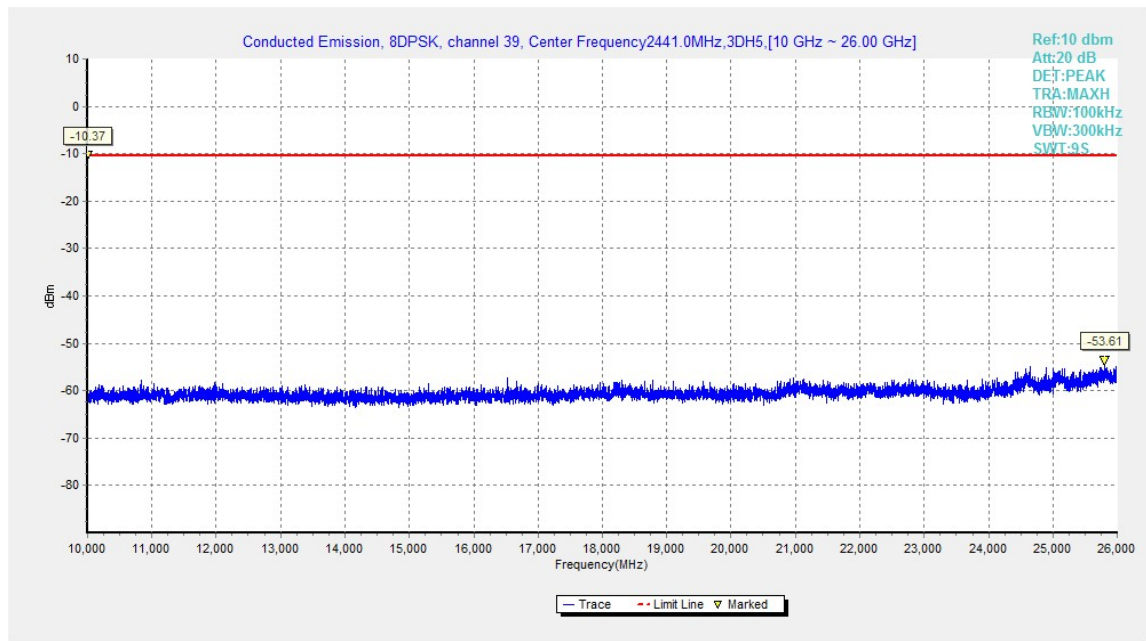


Fig.52. Conducted spurious emission: 8DPSK, Channel 39, 10GHz – 26GHz

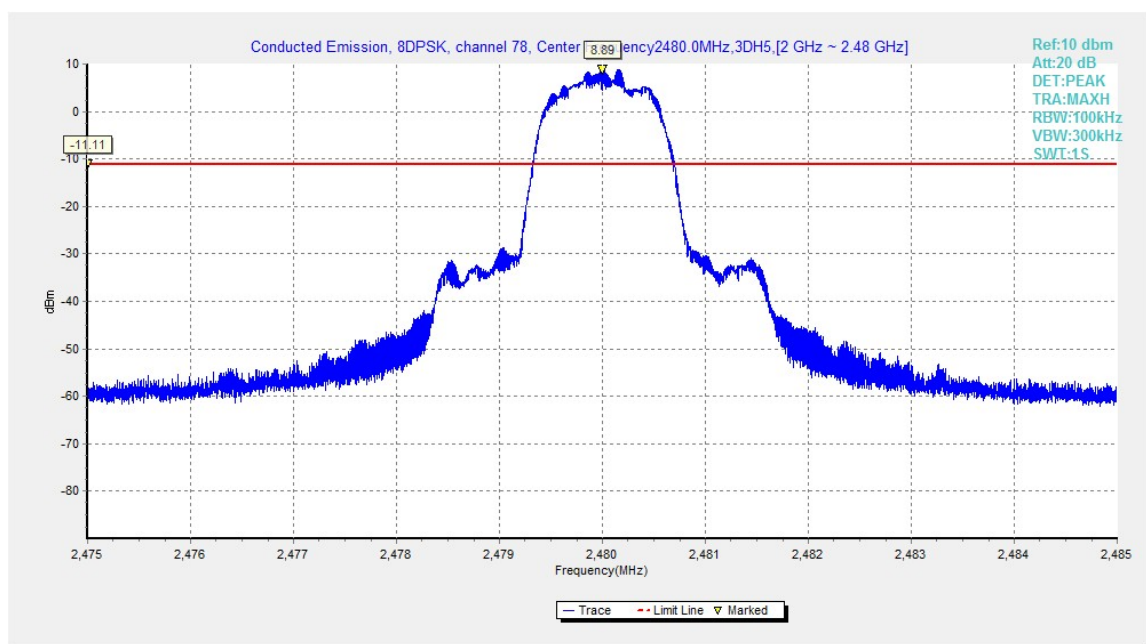


Fig.53. Conducted spurious emission: 8DPSK, Channel 78, 2480MHz

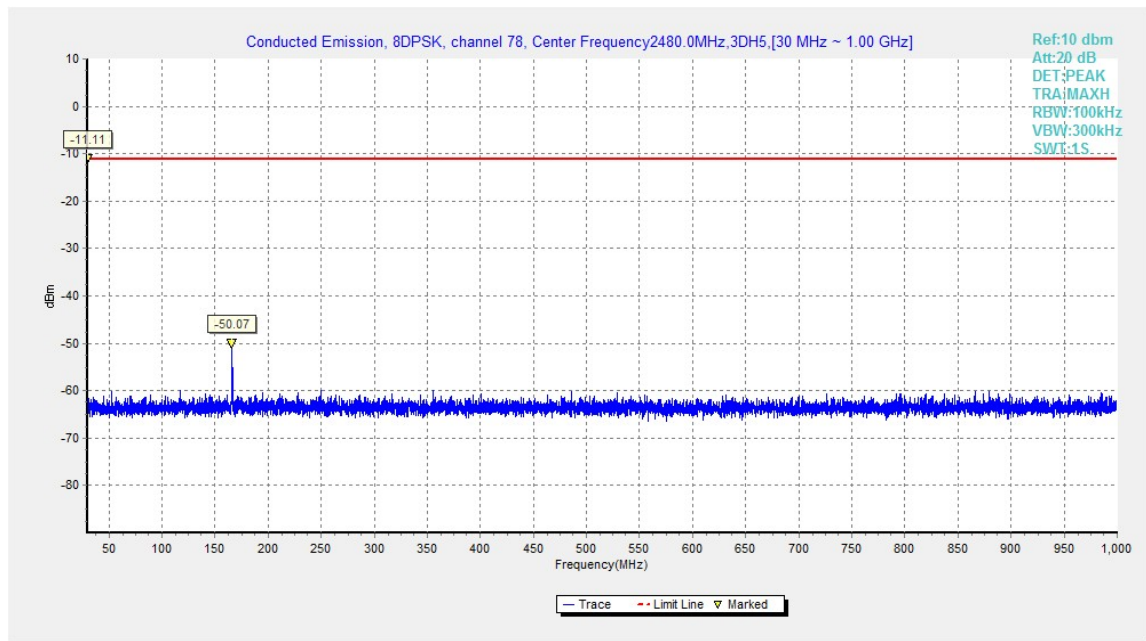


Fig.54. Conducted spurious emission: 8DPSK, Channel 78, 30MHz - 1GHz

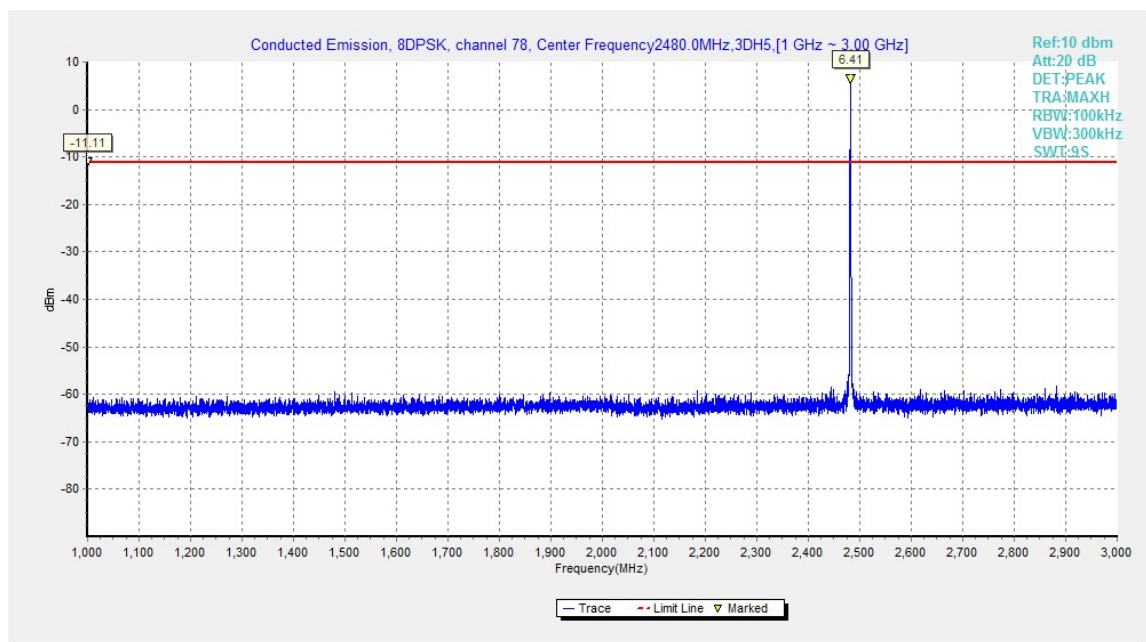


Fig.55. Conducted spurious emission: 8DPSK, Channel 78, 1GHz - 3GHz

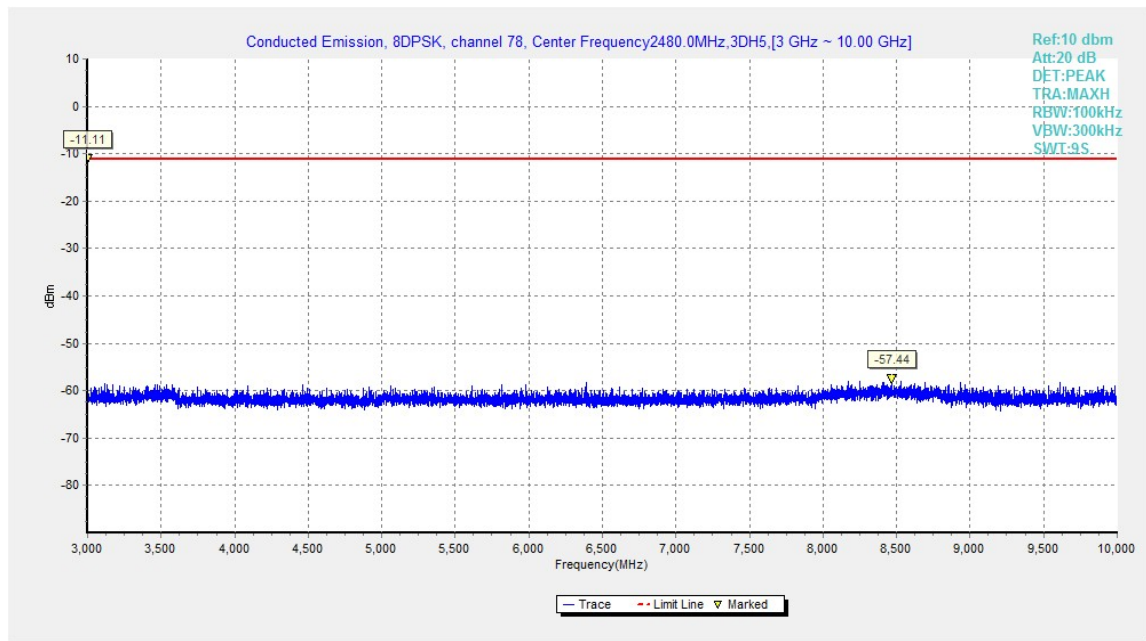


Fig.56. Conducted spurious emission: 8DPSK, Channel 78, 3GHz - 10GHz

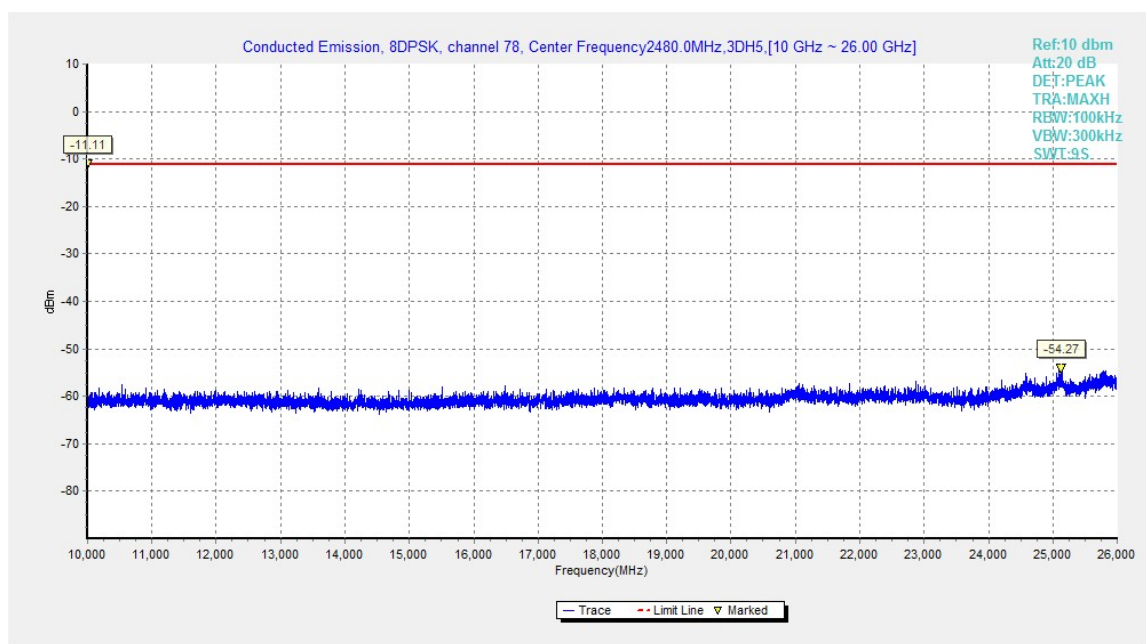


Fig.57. Conducted spurious emission: 8DPSK, Channel 78, 10GHz - 26GHz

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:

Result= P_{Mea} +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 $\pi/4$ 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)	Polarization
2384.620	46.0	2.9	32.0	11.1	H
2474.800	47.5	2.9	33.0	11.6	H
4803.000	41.9	-17.3	34.5	24.7	H
7206.000	39.3	-16.4	36.1	19.6	V
12010.000	41.1	-17.4	39.3	19.2	H
16814.000	44.2	-15.7	41.5	18.5	V

GFSK Ch 39 - Average

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss(dB)	Antenna Factor (dB/m)	Receiver Reading(dB μ V)	Polarization
2376.400	46.1	2.9	32.1	11.2	H
2648.800	48.9	3.0	33.7	12.2	H
4881.000	43.8	-18.5	34.5	27.8	H
7323.000	37.3	-18.5	36.1	19.7	V

9764.000	39.1	-17.8	37.2	19.7	V
17087.000	44.5	-15.3	41.3	18.5	V

GFSK Ch 78 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss(dB)	Antenna Factor (dB/m)	Receiver Reading(dBμV)	Polarization
4960.000	41.9	-18.2	34.5	25.6	V
7440.000	38.9	-16.9	36.0	19.8	V
9920.000	39.9	-17.1	37.4	19.6	H
17360.000	45.4	-14.4	41.2	18.6	H

π/4 DQPSK Ch 0 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss(dB)	Antenna Factor (dB/m)	Receiver Reading(dBμV)	Polarization
2385.740	46.1	2.9	32.0	11.2	H
2472.000	47.5	2.9	32.9	11.7	H
4804.000	40.6	-17.3	34.5	23.4	V
7206.000	39.5	-16.4	36.1	19.8	H
9608.000	38.3	-18.2	37.0	19.6	H
16814.000	44.6	-15.7	41.5	18.9	H

π/4 DQPSK Ch 39 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss(dB)	Antenna Factor (dB/m)	Receiver Reading(dBμV)	Polarization
2374.400	46.1	2.9	32.1	11.2	V
2648.800	48.9	3.0	33.7	12.2	H
4882.000	41.3	-18.5	34.5	25.3	H
7323.000	37.4	-18.5	36.1	19.8	V
12205.000	40.5	-17.8	39.2	19.1	V
17087.000	44.7	-15.3	41.3	18.7	H

π/4 DQPSK Ch 78 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss(dB)	Antenna Factor (dB/m)	Receiver Reading(dBμV)	Polarization
4960.000	39.1	-18.2	34.5	22.8	H
7440.000	39.0	-16.9	36.0	19.9	H
12400.000	40.8	-17.5	39.1	19.2	H
17360.000	45.5	-14.4	41.2	18.7	H

8DPSK Ch 0 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss(dB)	Antenna Factor (dB/m)	Receiver Reading(dBμV)	Polarization
2386.090	46.1	2.9	32.0	11.2	H
2646.000	48.9	3.0	33.6	12.2	V
4804	39.9	-17.3	34.5	22.7	H
7206	39.5	-16.4	36.1	19.8	V

12010	41.5	-17.4	39.3	19.6	H
16814	44.7	-15.7	41.5	19.0	V

8DPSK Ch 39 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss(dB)	Antenna Factor (dB/m)	Receiver Reading(dBμV)	Polarization
2376.800	46.1	2.9	32.1	11.2	H
2649.200	49.0	3.0	33.7	12.3	V
4882.000	40.8	-18.5	34.5	24.8	H
7323.000	37.4	-18.5	36.1	19.8	H
12205.000	40.6	-17.8	39.2	19.2	V
17087.000	44.7	-15.3	41.3	18.7	H

8DPSK Ch 78 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss(dB)	Antenna Factor (dB/m)	Receiver Reading(dBμV)	Polarization
4960.000	39.2	-18.2	34.5	22.9	V
7440.000	39.0	-16.9	36.0	19.9	V
12400.000	40.8	-17.5	39.1	19.2	V
17360.000	45.4	-14.4	41.2	18.6	H

GFSK Ch 0 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss(dB)	Antenna Factor (dB/m)	Receiver Reading(dBμV)	Polarization
2360.500	56.4	2.8	31.8	21.71	H
2385.075	55.4	2.9	32.0	20.52	H
17700.750	61.3	-13.2	41.0	33.43	H
17947.500	61.3	-13.6	40.8	34.03	V
17703.750	61.3	-13.2	41.0	33.41	H
17608.500	61.1	-13.3	41.1	33.29	H

GFSK Ch 39 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss(dB)	Antenna Factor (dB/m)	Receiver Reading(dBμV)	Polarization
2359.750	55.5	2.8	31.8	20.83	V
2546.000	58.3	3.0	33.0	22.29	H
17535.750	61.6	-14.1	41.2	34.54	H
17643.000	61.1	-13.0	41.1	33.05	V
17542.500	61.0	-14.0	41.2	33.88	H
17508.000	61.0	-14.4	41.2	34.19	H

GFSK Ch 78 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss(dB)	Antenna Factor (dB/m)	Receiver Reading(dBμV)	Polarization
17612.250	61.9	-13.2	41.1	33.99	H
17622.750	61.8	-13.1	41.1	33.83	V

17570.250	61.8	-13.7	41.1	34.33	V
17635.500	61.4	-13.0	41.1	33.32	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)	Polarization
2376.000	57.2	2.9	32.1	22.25	H
2386.615	54.5	2.9	32.0	19.63	H
17652.000	62.2	-13.1	41.1	34.22	V
17645.250	62.2	-13.0	41.1	34.12	H
17268.750	62.1	-14.0	41.2	34.94	H
17955.750	61.7	-13.6	40.8	34.50	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)	Polarization
2375.000	57.1	2.9	32.1	22.14	V
2546.500	58.0	3.0	33.0	21.98	H
17699.250	61.6	-13.2	41.0	33.77	V
17608.500	61.3	-13.3	41.1	33.44	V
17625.000	61.2	-13.1	41.1	33.23	V
17692.500	61.2	-13.2	41.0	33.28	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)	Polarization
17723.250	61.8	-13.2	41.0	34.00	V
17598.750	61.3	-13.4	41.1	33.60	H
17668.500	61.3	-13.1	41.1	33.29	H
17721.750	61.3	-13.2	41.0	33.47	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)	Polarization
2365.750	56.8	2.8	31.9	22.02	H
2382.940	54.7	2.9	32.0	19.80	H
17551.500	61.5	-13.9	41.2	34.20	H
17724.000	61.4	-13.2	41.0	33.67	V
17666.250	61.4	-13.1	41.1	33.43	V
17609.250	61.3	-13.3	41.1	33.47	H

8DPSK Ch 39 - Peak

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss(dB)	Antenna Factor (dB/m)	Receiver Reading(dB μ V)	Polarization
2357.000	56.2	2.8	31.8	21.58	H

2531.500	58.0	3.0	32.8	22.23	H
17683.500	62.8	-13.1	41.1	34.84	H
17820.000	62.1	-13.5	40.9	34.58	H
17608.500	62.1	-13.3	41.1	34.21	H
17667.750	62.0	-13.1	41.1	34.01	H

8DPSK Ch 78 – Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss(dB)	Antenna Factor (dB/m)	Receiver Reading(dBμV)	Polarization
17748.750	61.8	-13.3	41.0	34.07	H
17656.500	61.7	-13.1	41.1	33.64	V
17612.250	61.5	-13.2	41.1	33.64	H
17862.750	61.3	-13.5	40.9	33.95	V

Conclusion: PASS

Test graphs as below:

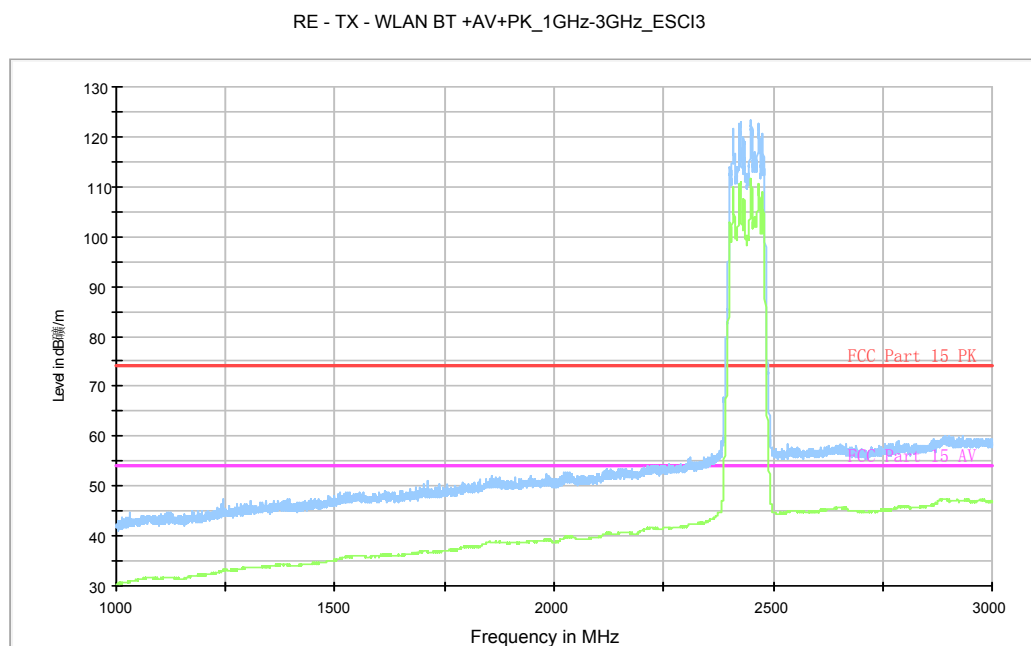


Fig.58. Radiated emission: GFSK, Channel 0, 1 GHz - 3 GHz

RE - 3GHz-18GHz

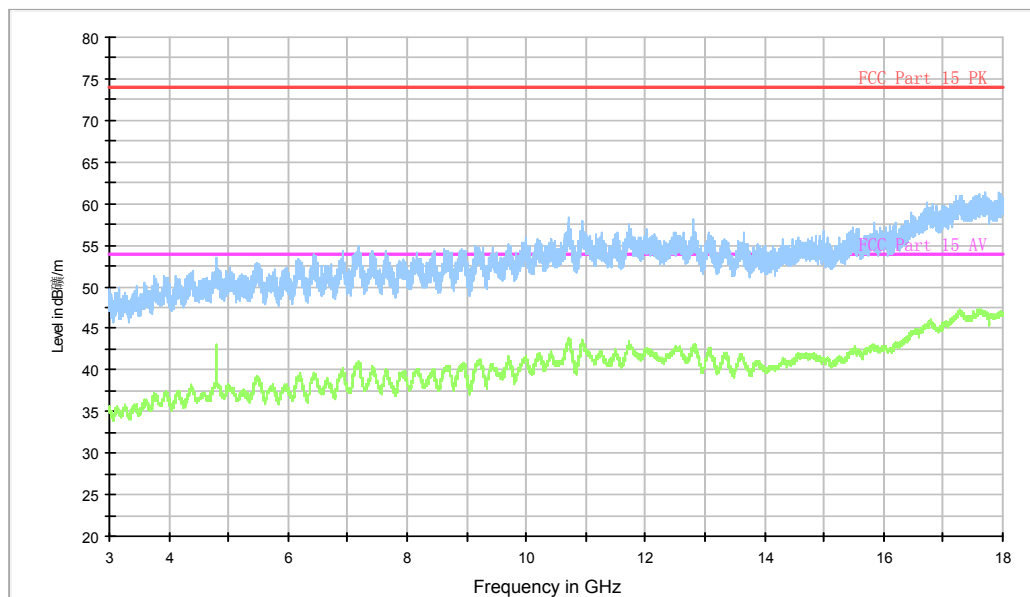


Fig.59. Radiated emission: GFSK, Channel 0, 3 GHz - 18 GHz

RE 9kHz-30MHz_ESC13

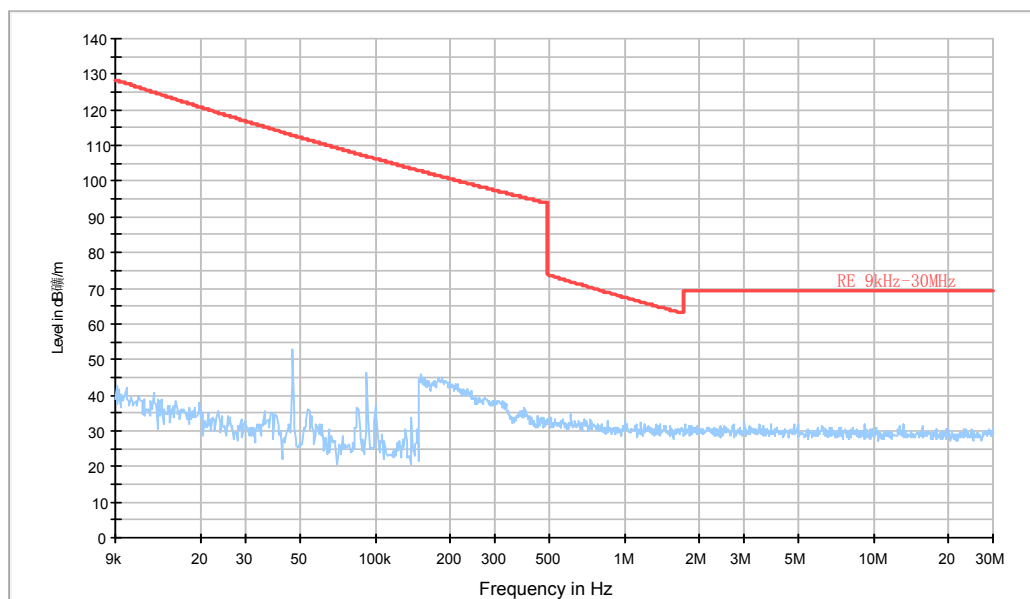


Fig.60. Radiated emission: GFSK, Channel 39, 9 kHz - 30 MHz

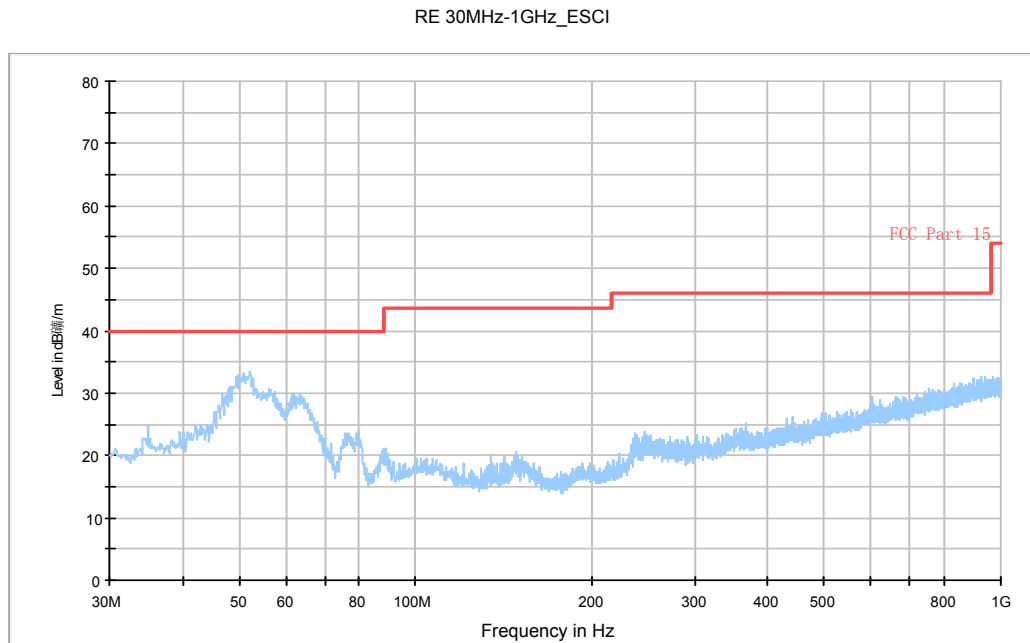


Fig.61. Radiated emission: GFSK, Channel 39, 30 MHz - 1 GHz

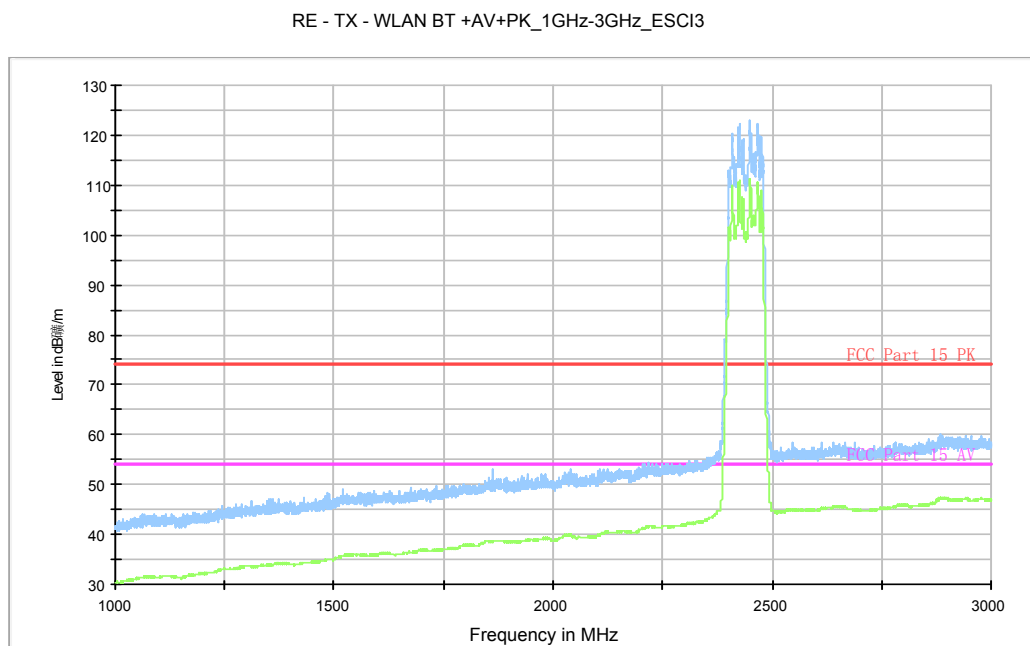


Fig.62. Radiated emission: GFSK, Channel 39, 1 GHz - 3 GHz

RE - 3GHz-18GHz

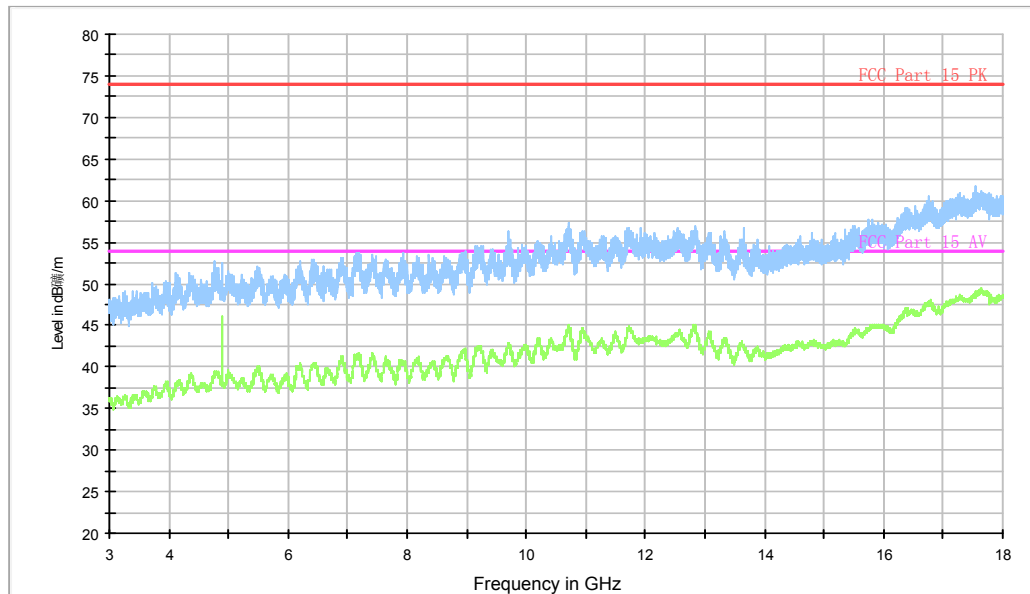


Fig.63. Radiated emission: GFSK, Channel 39, 3 GHz - 18 GHz

RE - TX - WLAN BT +AV+PK_1GHz-3GHz_ESC13

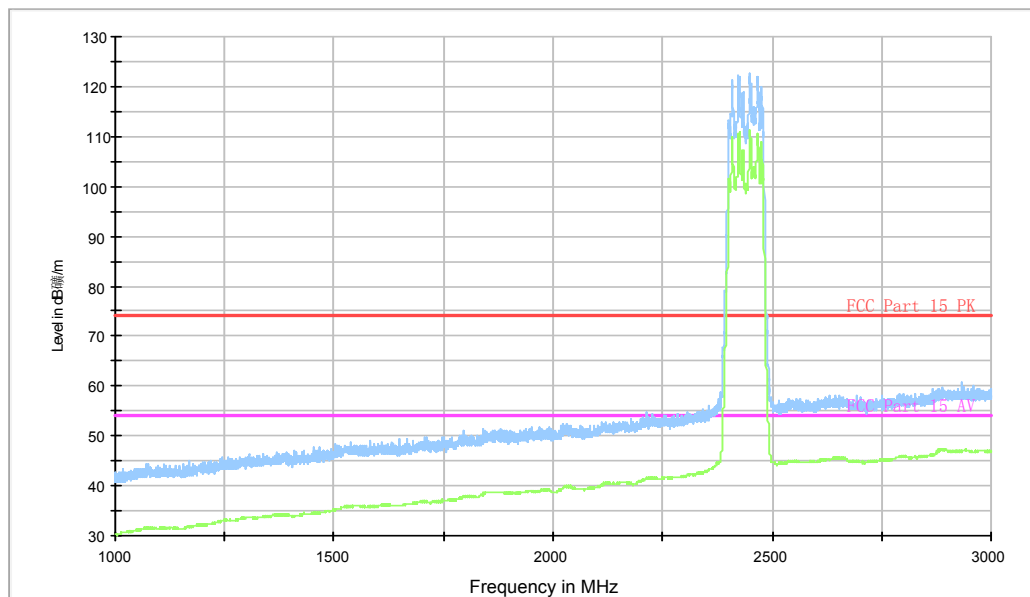


Fig.64. Radiated emission: GFSK, Channel 78, 1 GHz - 3 GHz

RE - 3GHz-18GHz

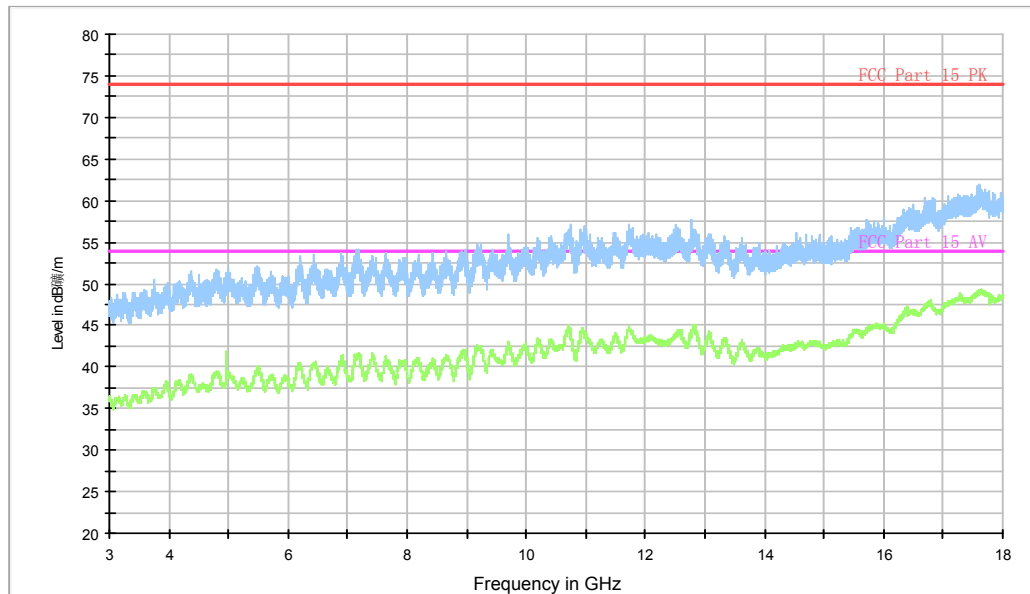


Fig.65. Radiated emission: GFSK, Channel 78, 3 GHz - 18 GHz

RE - Power-2.38GHz-2.45GHz_ESC13

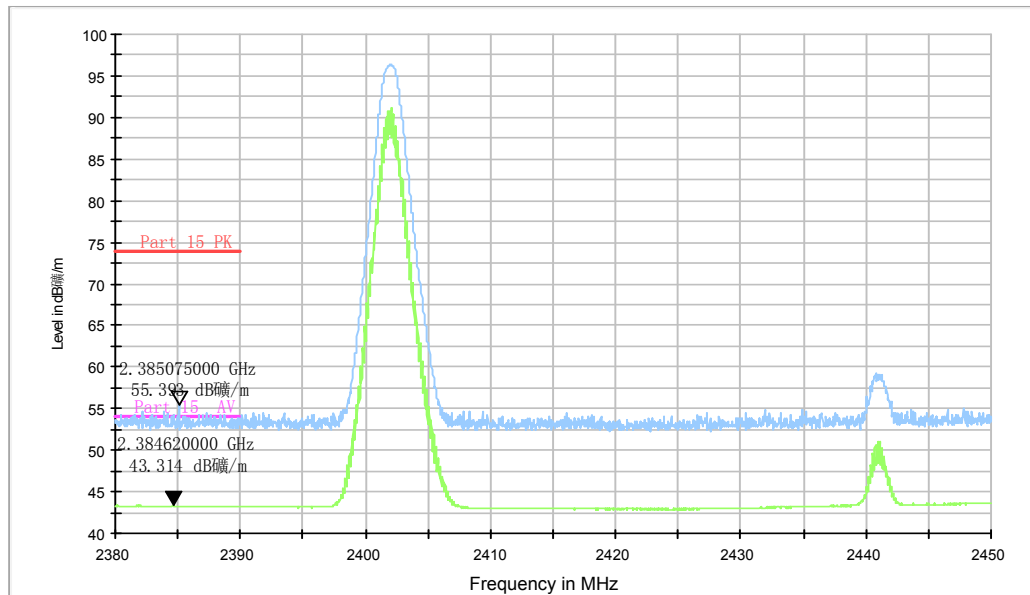


Fig.66. Radiated emission (Power): GFSK, low channel

RE - Power-2.45GHz-2.5GHz_ESC13

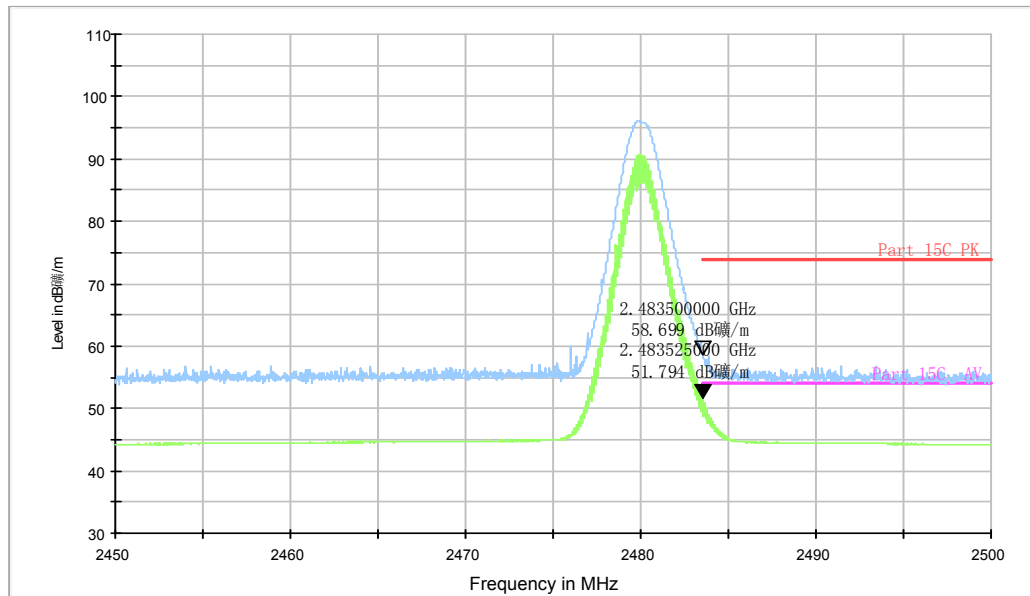


Fig.67. Radiated emission (Power) GFSK, high channel

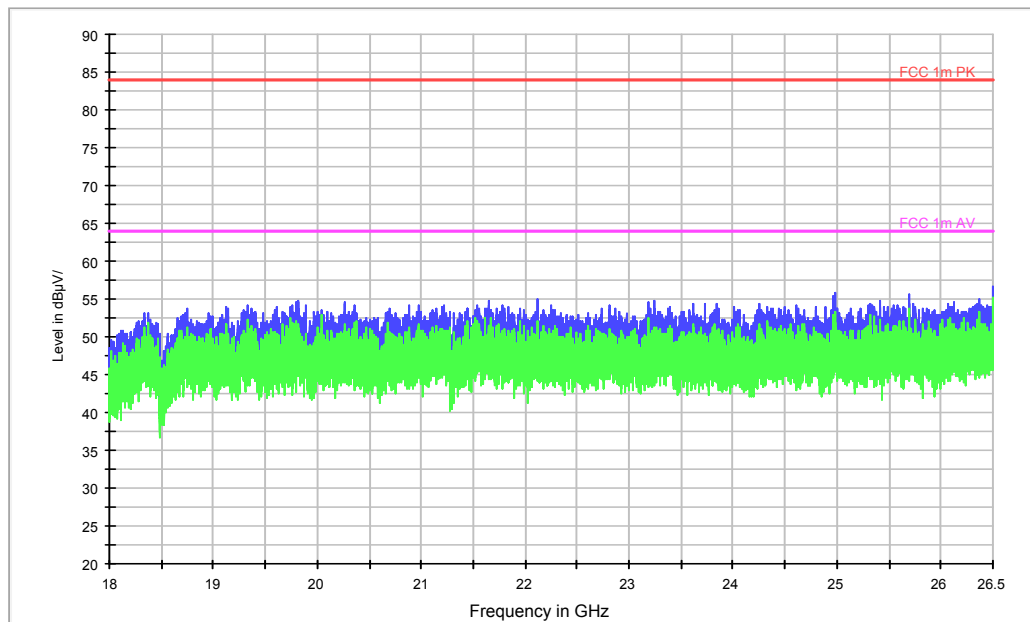


Fig.68. Radiated emission: GFSK, 18 GHz - 26 GHz

RE - TX - WLAN BT +AV+PK_1GHz-3GHz_ESC13

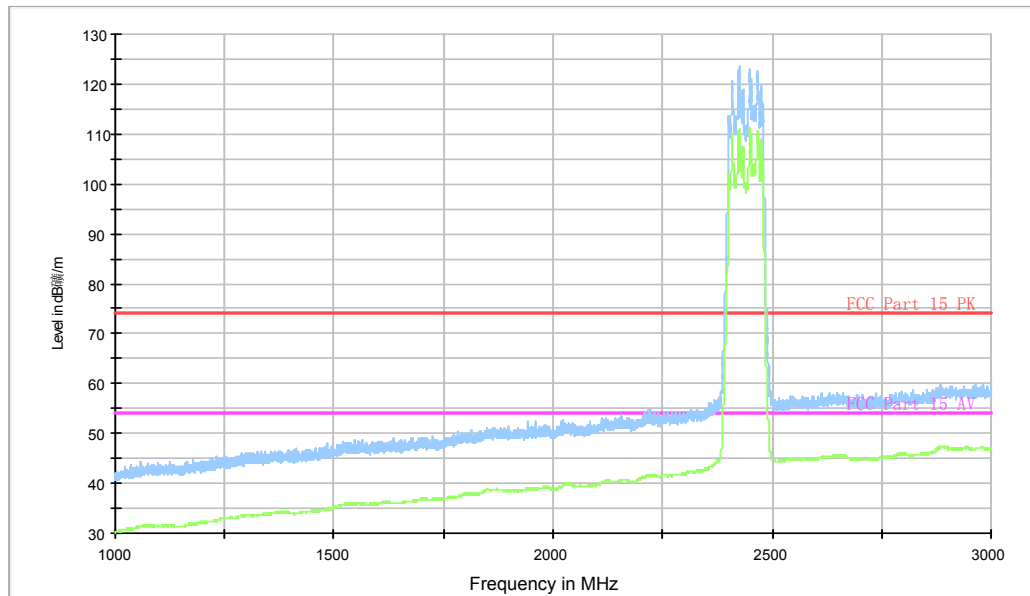


Fig.69. Radiated emission: $\pi/4$ DQPSK, Channel 0, 1 GHz - 3 GHz

RE - 3GHz-18GHz

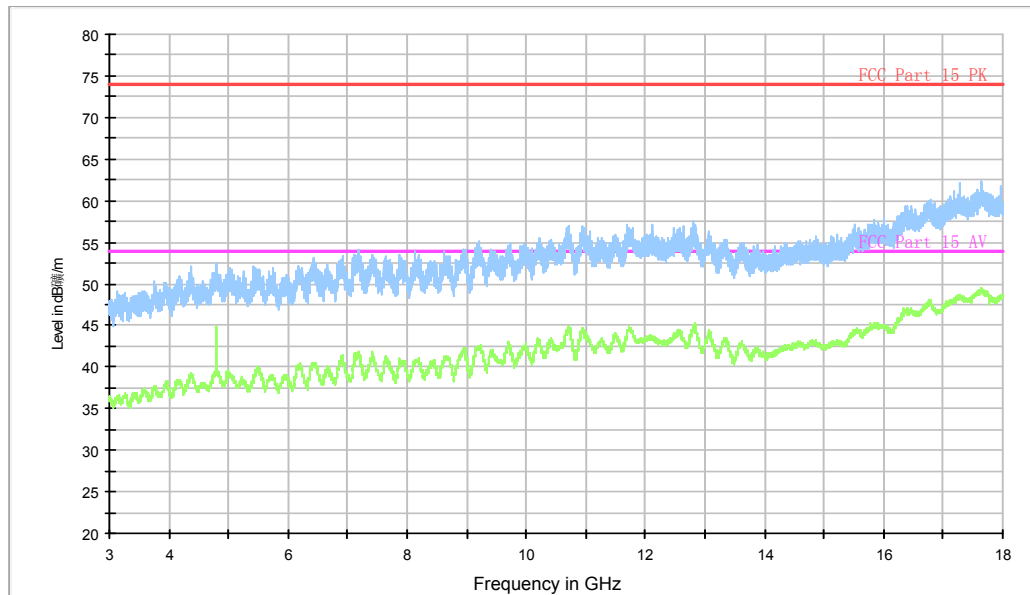


Fig.70. Radiated emission: $\pi/4$ DQPSK, Channel 0, 3 GHz - 18 GHz

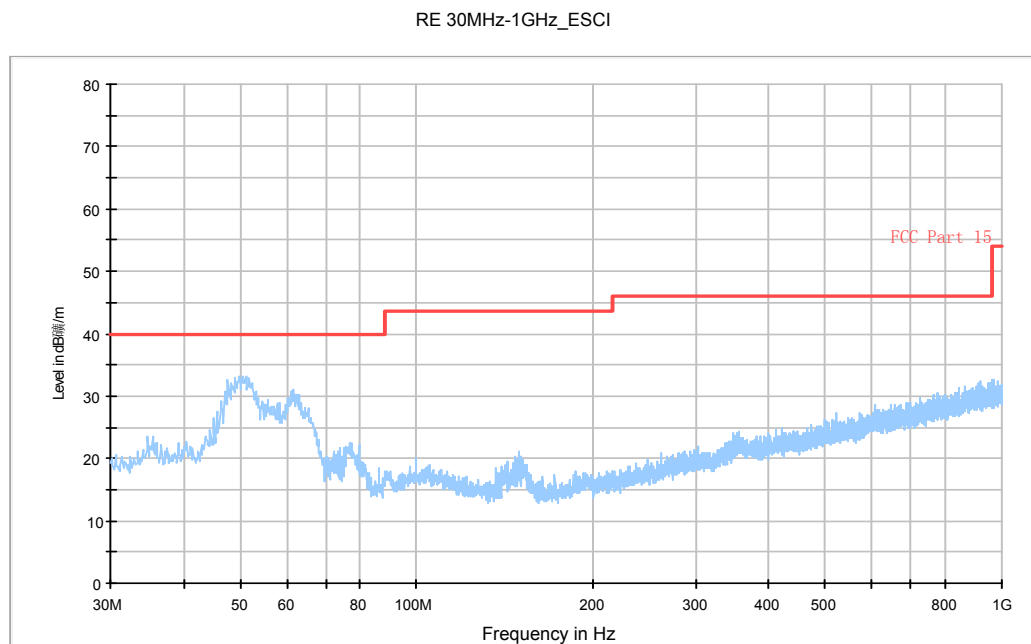


Fig.71. Radiated emission: $\pi/4$ DQPSK, Channel 39, 30 MHz - 1 GHz

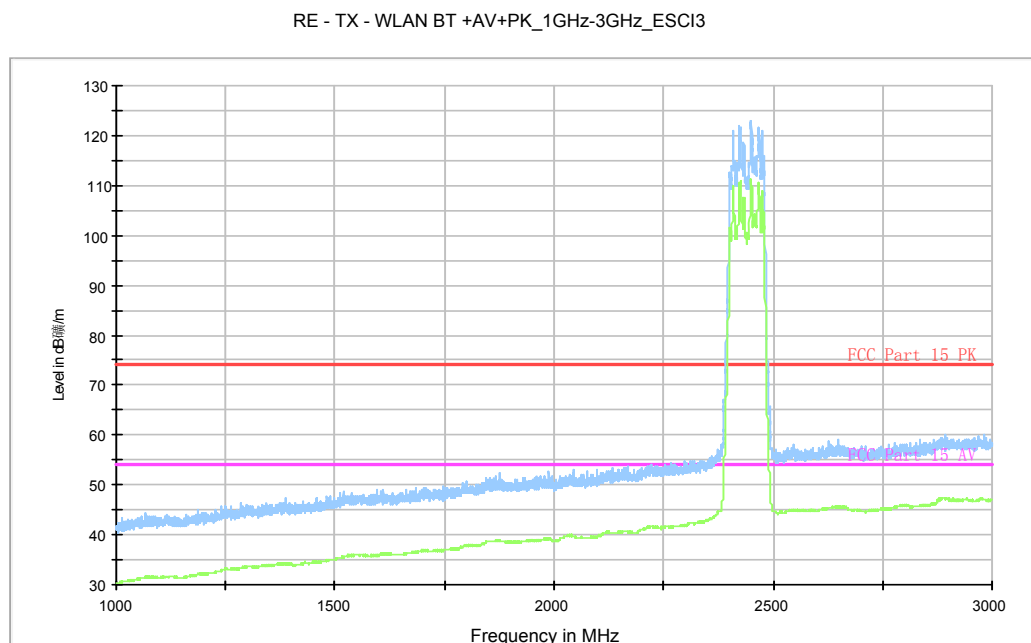


Fig.72. Radiated emission: $\pi/4$ DQPSK, Channel 39, 1 GHz - 3 GHz

RE - 3GHz-18GHz

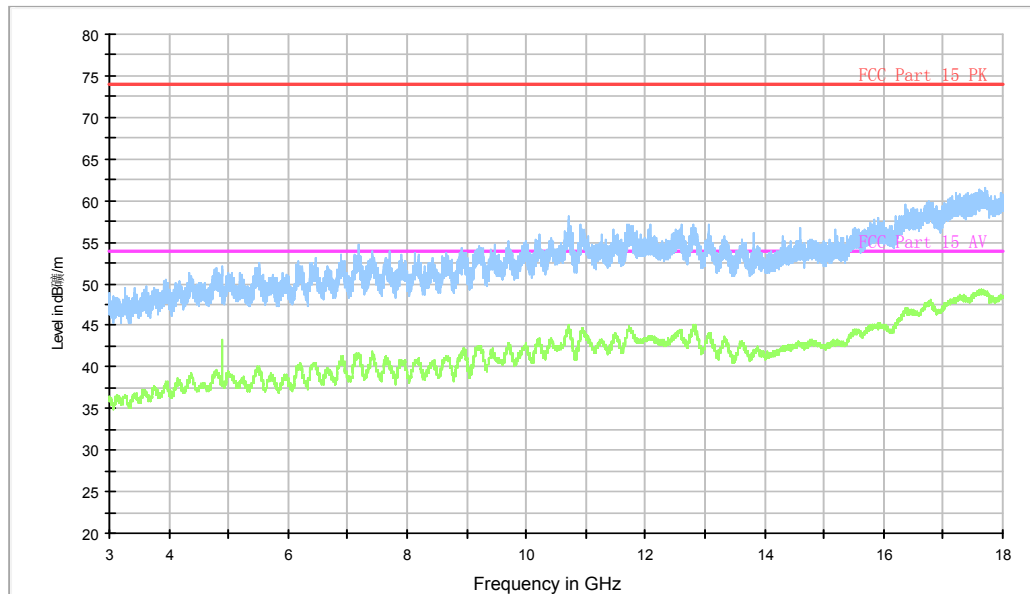


Fig.73. Radiated emission: $\pi/4$ DQPSK, Channel 39, 3 GHz - 18 GHz

RE - TX - WLAN BT +AV+PK_1GHz-3GHz_ESC13

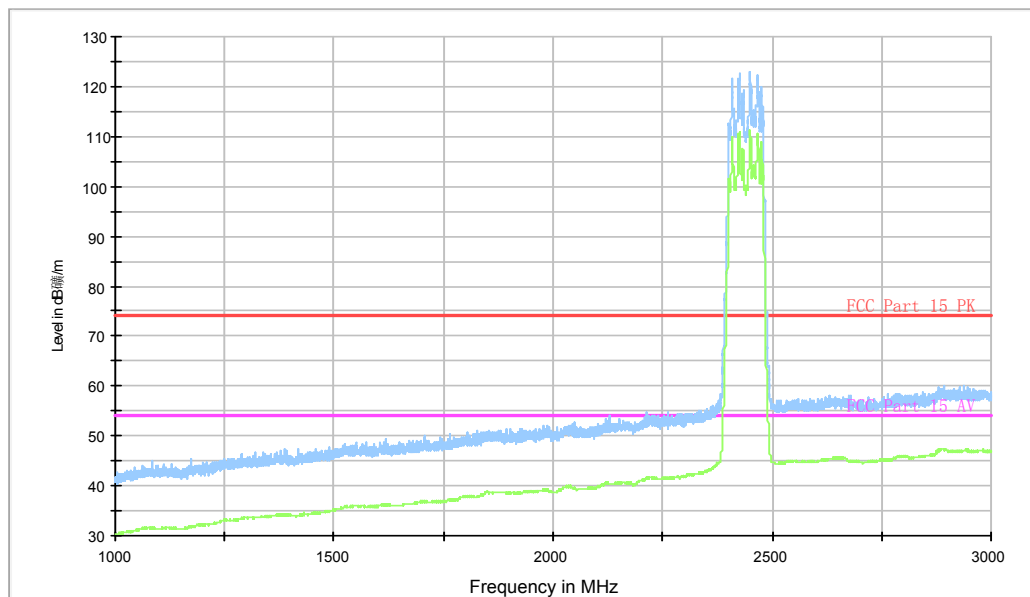


Fig.74. Radiated emission: $\pi/4$ DQPSK, Channel 78, 1 GHz - 3 GHz

RE - 3GHz-18GHz

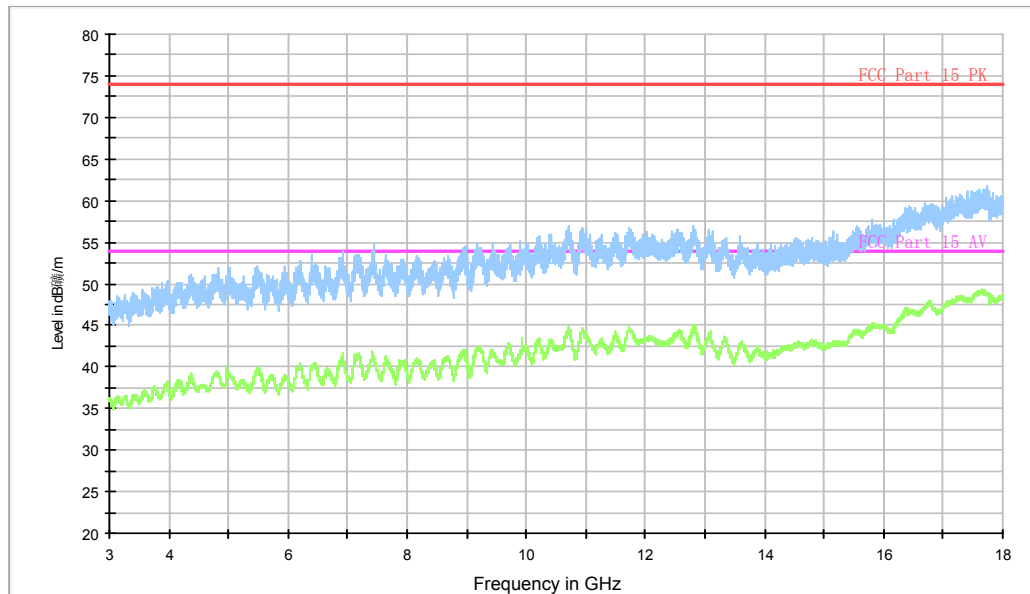


Fig.75. Radiated emission: $\pi/4$ DQPSK, Channel 78, 3 GHz - 18 GHz

RE - Power-2.38GHz-2.45GHz_ESCI3

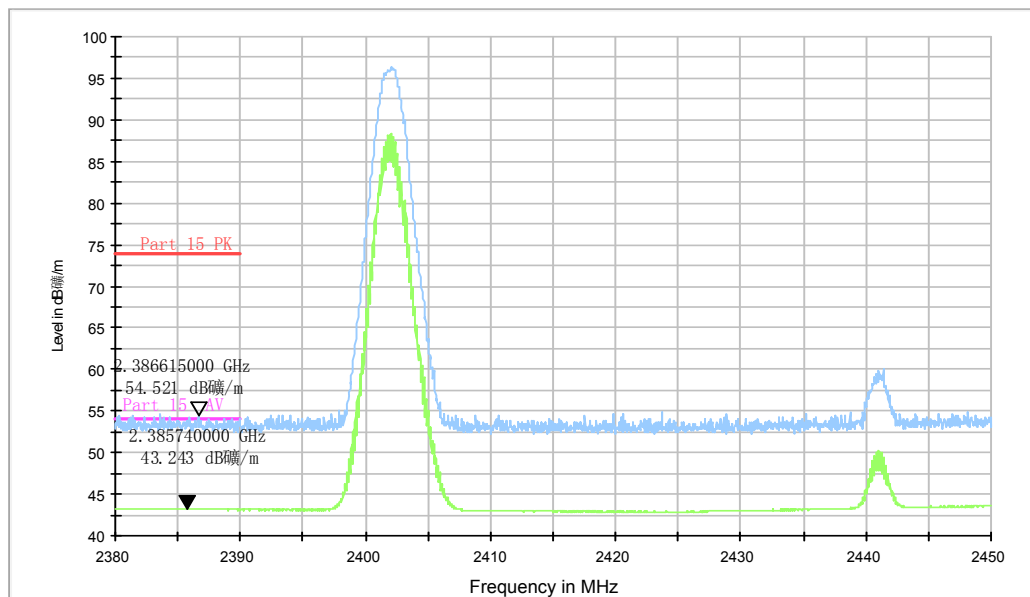


Fig.76. Radiated emission (Power): $\pi/4$ DQPSK, low channel

RE - Power-2.45GHz-2.5GHz_ESC13

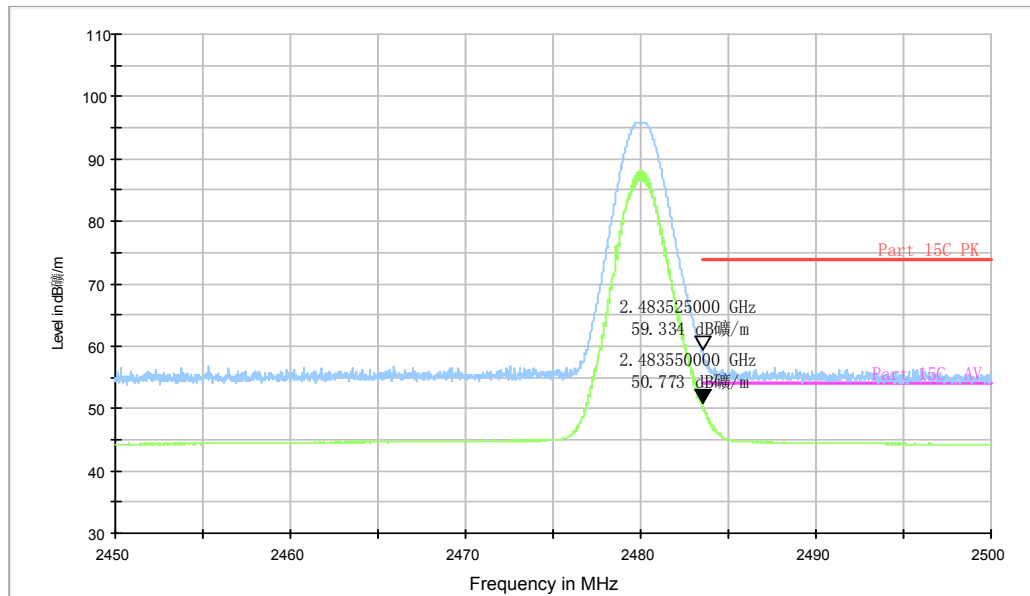


Fig.77. Radiated emission (Power): $\pi/4$ DQPSK, high channel

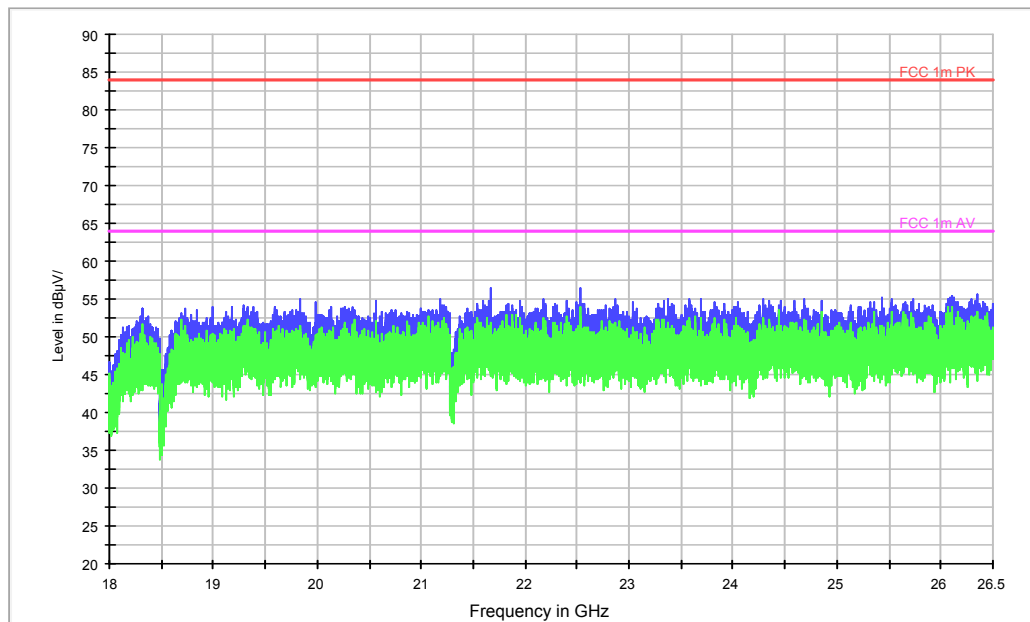


Fig.78. Radiated emission: $\pi/4$ DQPSK, 18 GHz - 26 GHz

RE - TX - WLAN BT +AV+PK_1GHz-3GHz_ESCI3

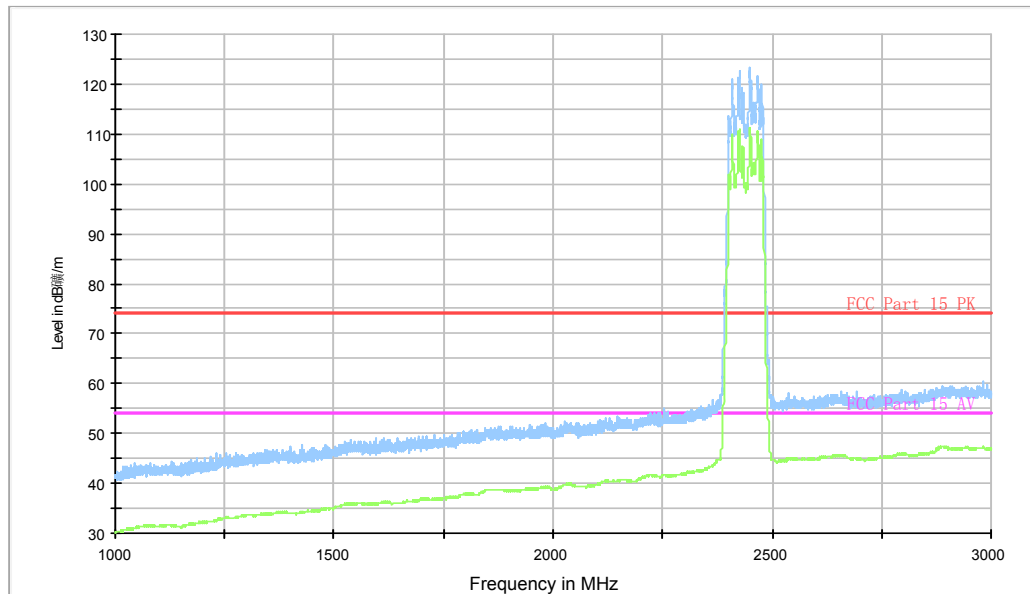


Fig.79. Radiated emission: 8DPSK, Channel 0, 1 GHz - 3 GHz

RE - 3GHz-18GHz

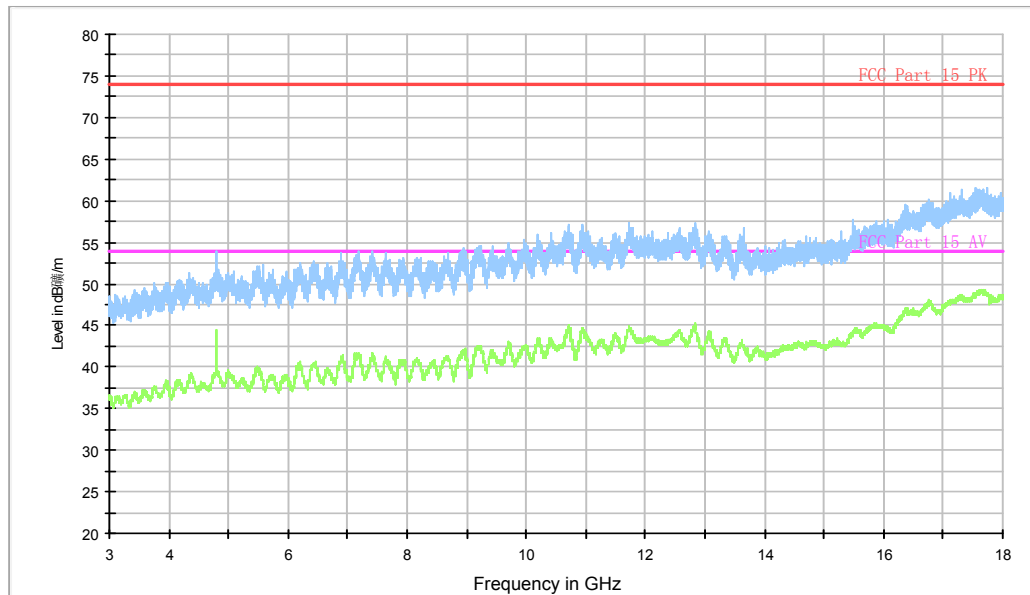


Fig.80. Radiated emission: 8DPSK, Channel 0, 3 GHz - 18 GHz

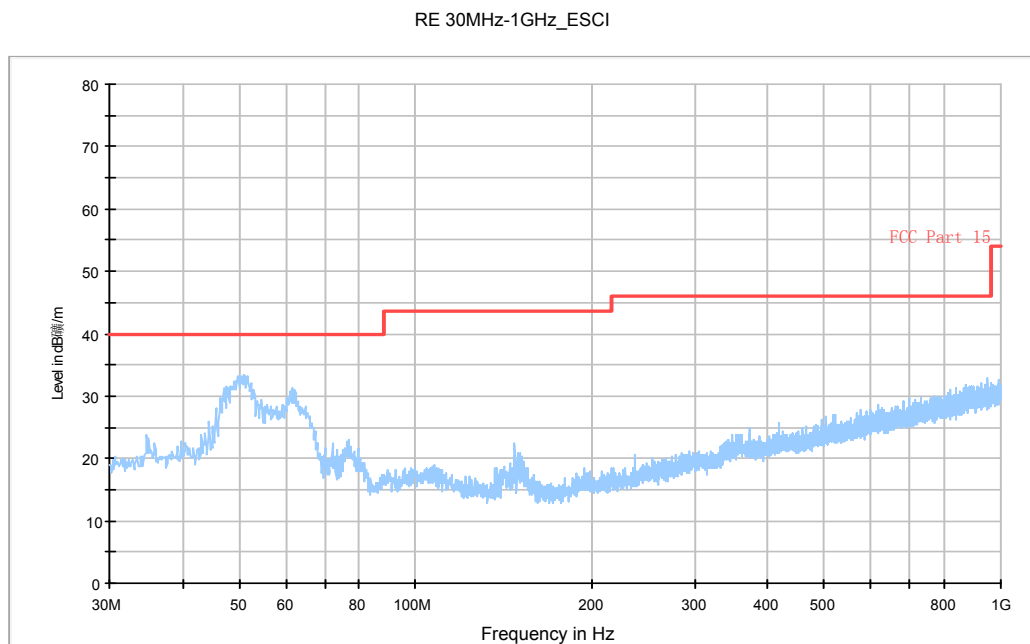


Fig.81. Radiated emission: 8DPSK, Channel 39, 30 MHz - 1 GHz

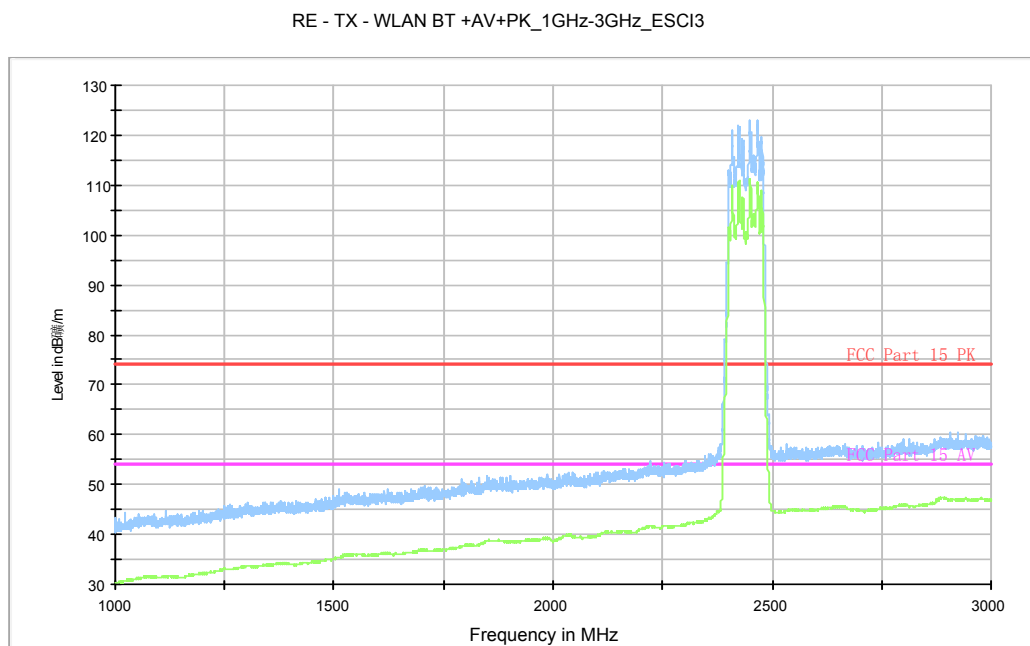


Fig.82. Radiated emission: 8DPSK, Channel 39, 1 GHz - 3 GHz

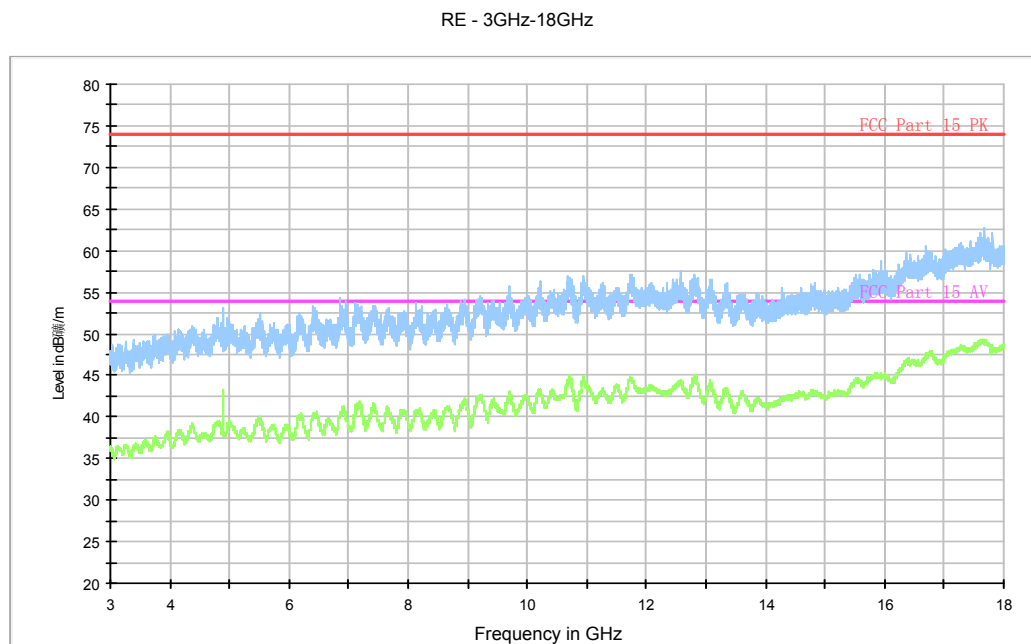


Fig.83. Radiated emission: 8DPSK, Channel 39, 3 GHz - 18 GHz

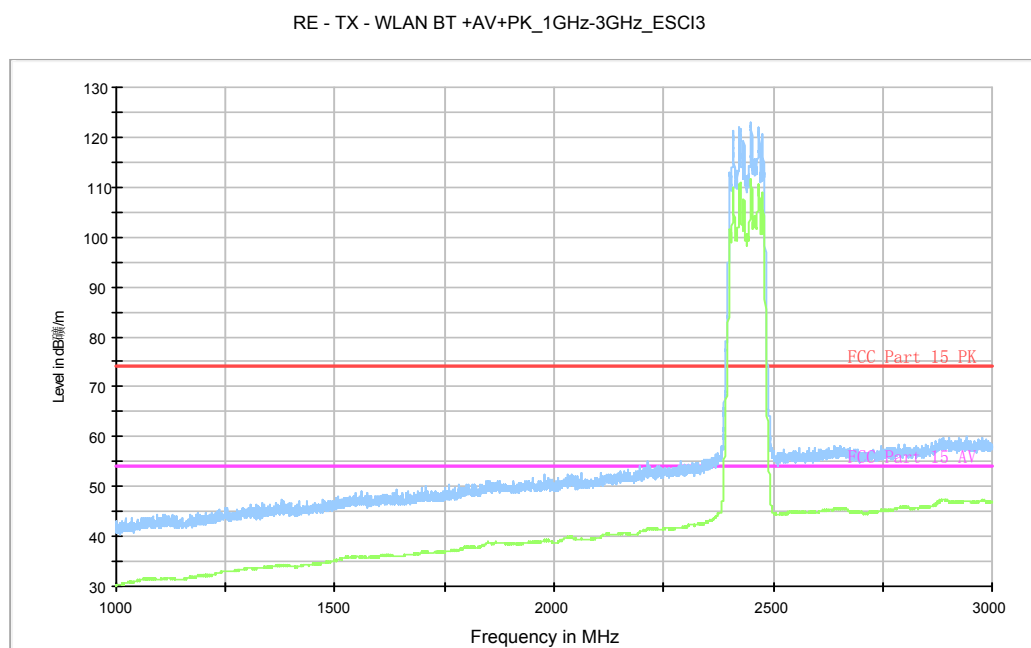


Fig.84. Radiated emission: 8DPSK, Channel 78, 1 GHz - 3 GHz

RE - 3GHz-18GHz

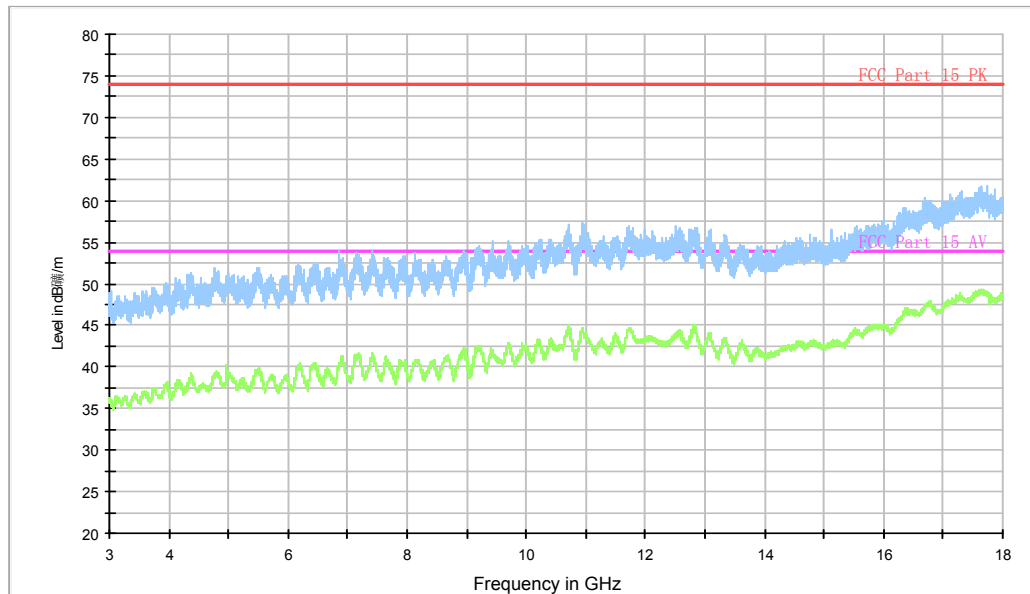


Fig.85. Radiated emission: 8DPSK, Channel 78, 3 GHz - 18 GHz

RE - Power-2.38GHz-2.45GHz_ESCI3

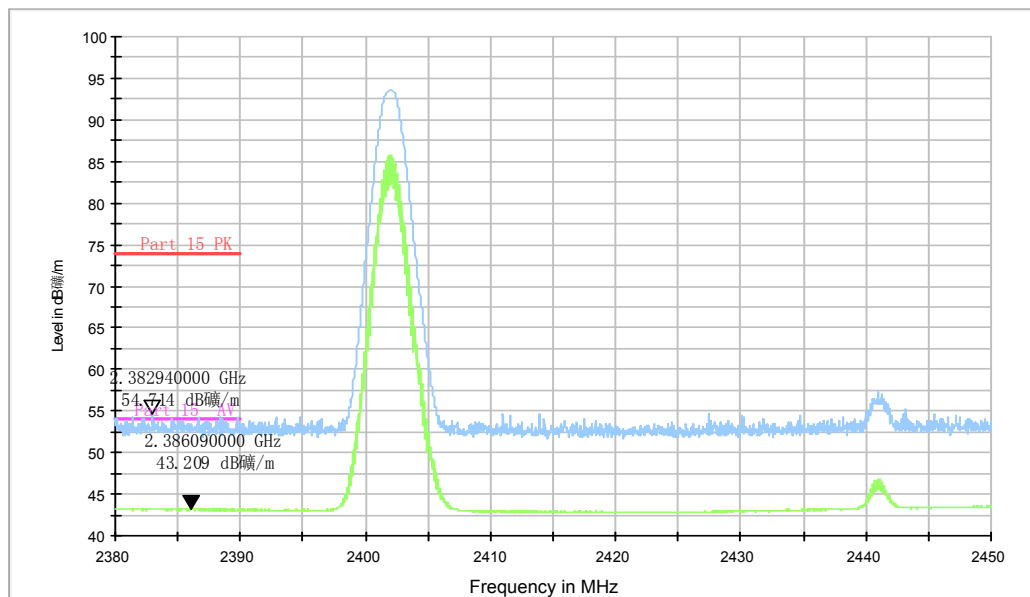


Fig.86. Radiated emission (Power): 8DPSK, low channel

RE - Power-2.45GHz-2.5GHz_ESCI3

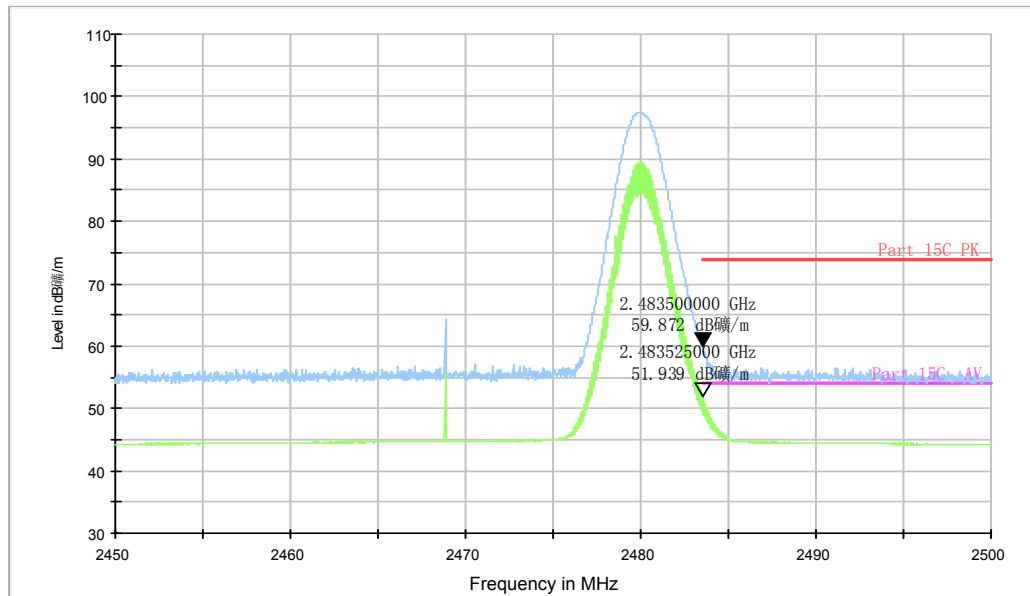


Fig.87. Radiated emission (Power): 8DPSK, high channel

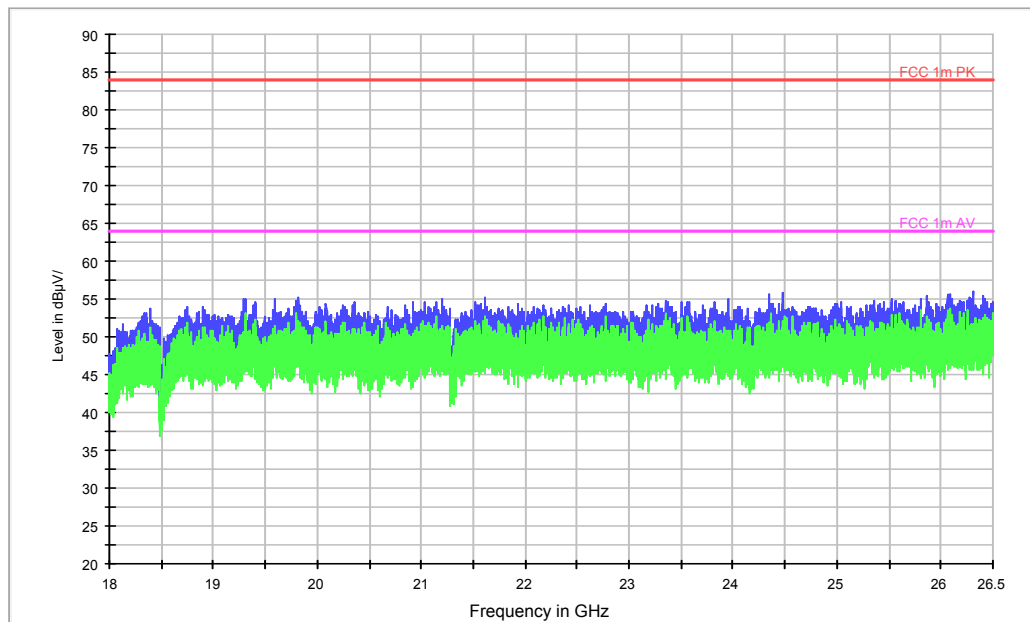


Fig.88. Radiated emission: 8DPSK, 18 GHz - 26 GHz

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	P
	DH3	Fig.90	261.89	P
	DH5	Fig.91	307.72	P

For $\pi/4$ DQPSK

Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.92	123.71	P
	DH3	Fig.93	262.20	P
	DH5	Fig.94	307.91	P

For 8DPSK

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