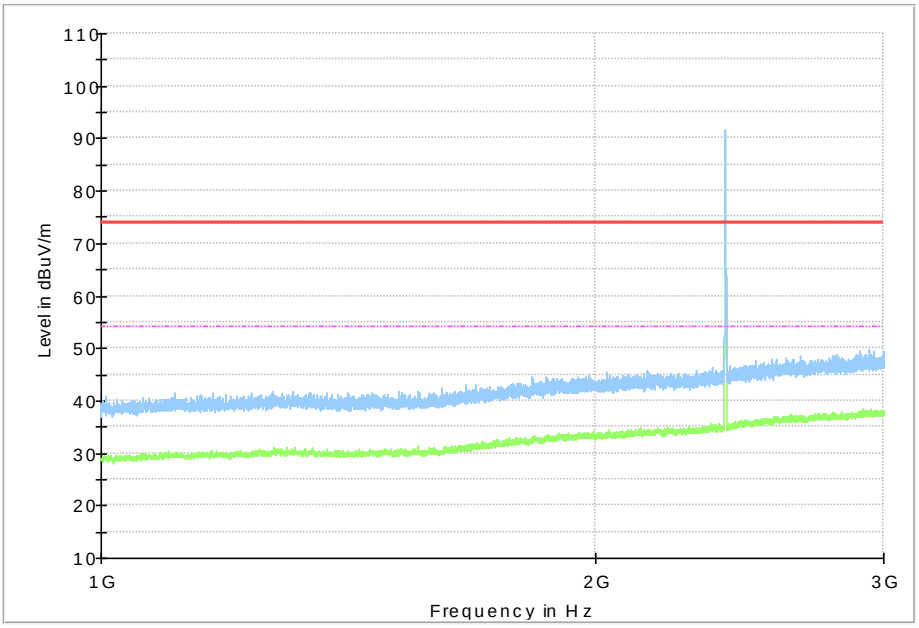

Fig. 42 Radiated Spurious Emission (GFSK, Ch0, 1 GHz ~3 GHz)

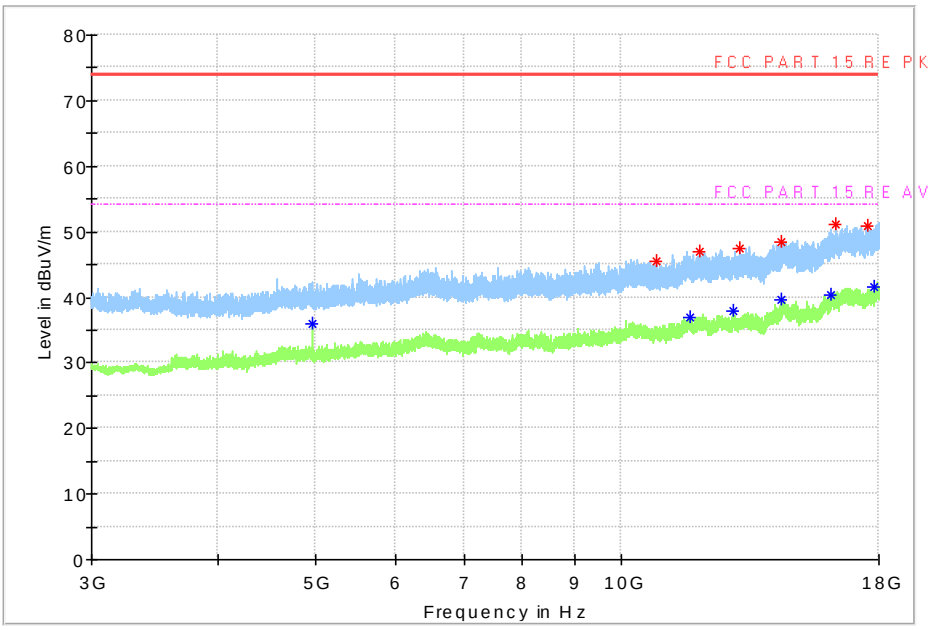

Fig. 43 Radiated Spurious Emission (GFSK, Ch0, 3 GHz ~18 GHz)

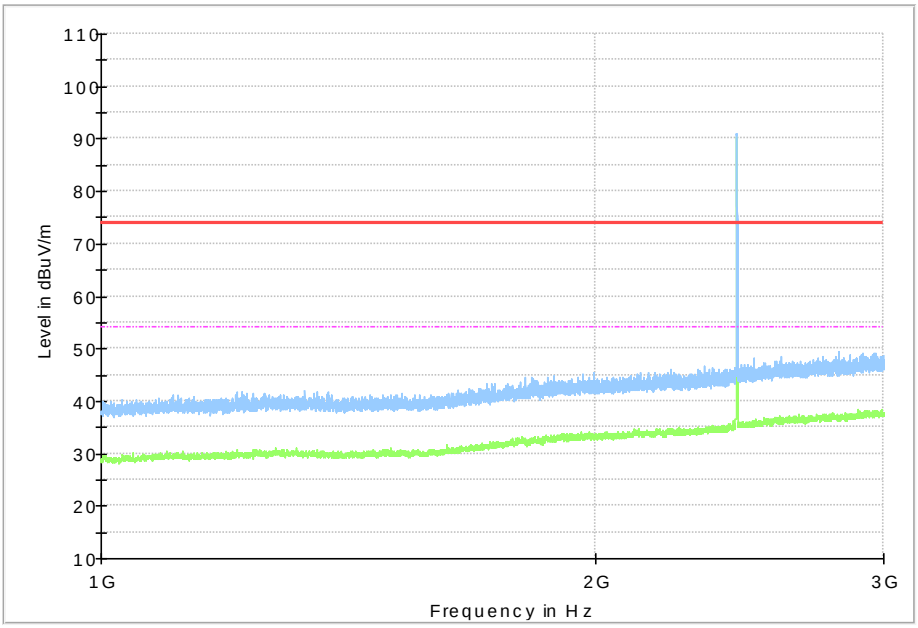

Fig. 44 Radiated Spurious Emission (GFSK, Ch39, 1 GHz ~3 GHz)

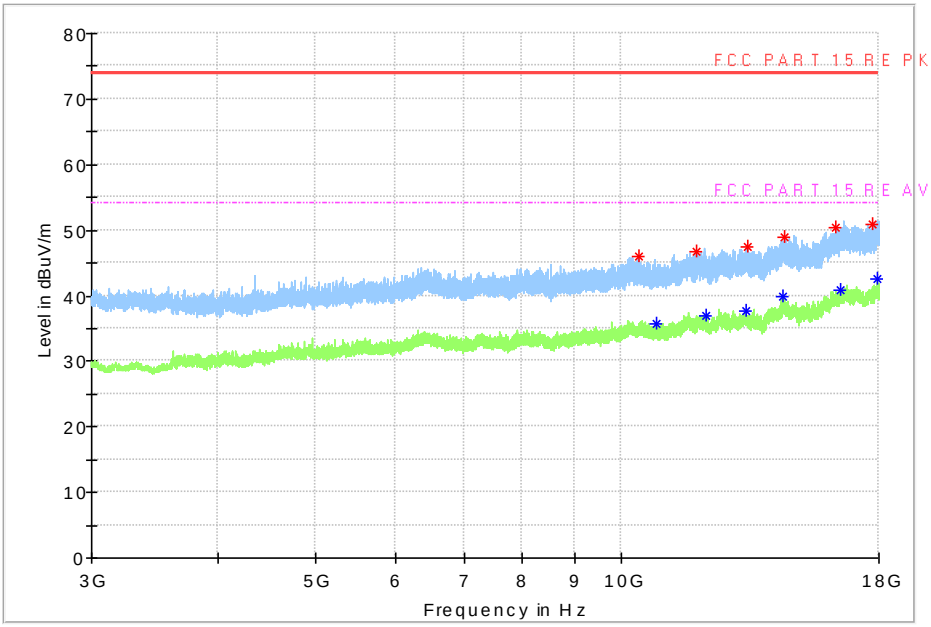

Fig. 45 Radiated Spurious Emission (GFSK, Ch39, 3 GHz ~18 GHz)

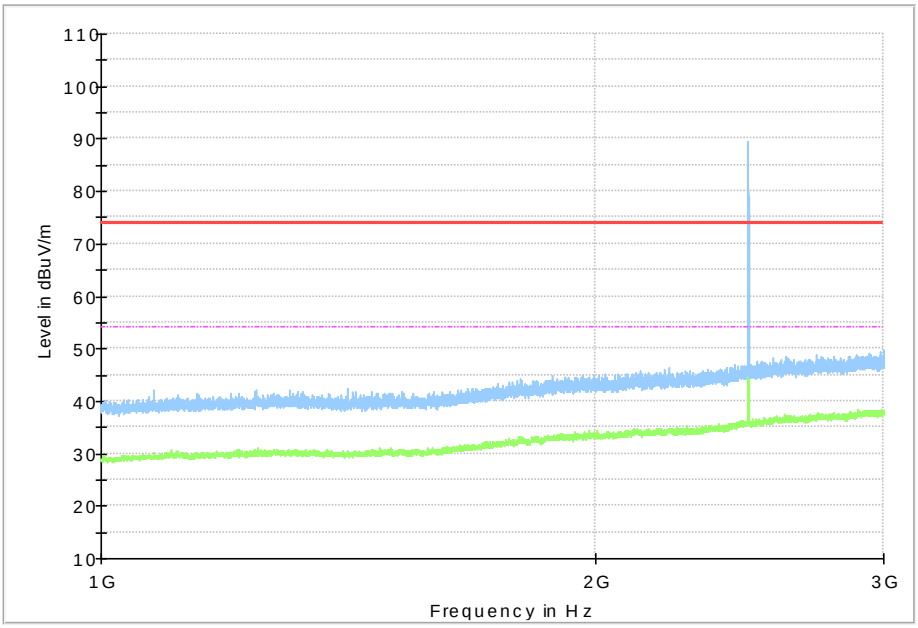

Fig. 46 Radiated Spurious Emission (GFSK, Ch78, 1 GHz ~3 GHz)

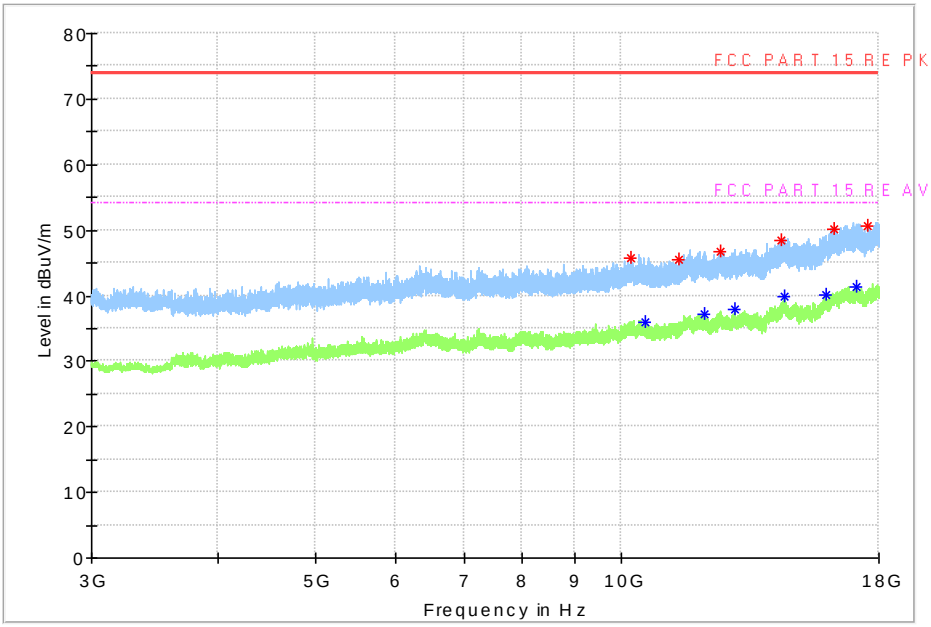

Fig. 47 Radiated Spurious Emission (GFSK, Ch78, 3 GHz ~18 GHz)

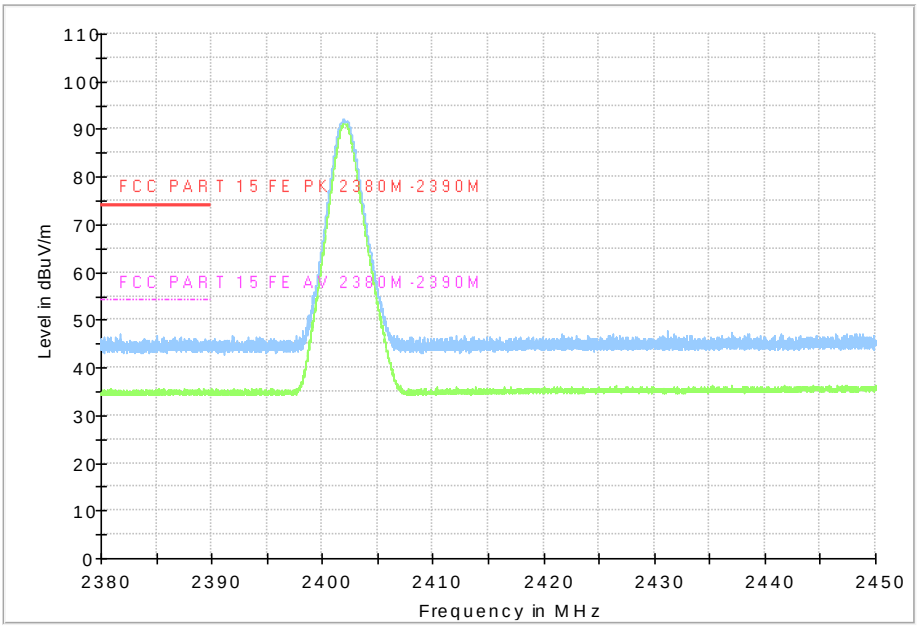

Fig. 48 Radiated Band Edges (GFSK, Ch0, 2380GHz~2450GHz)

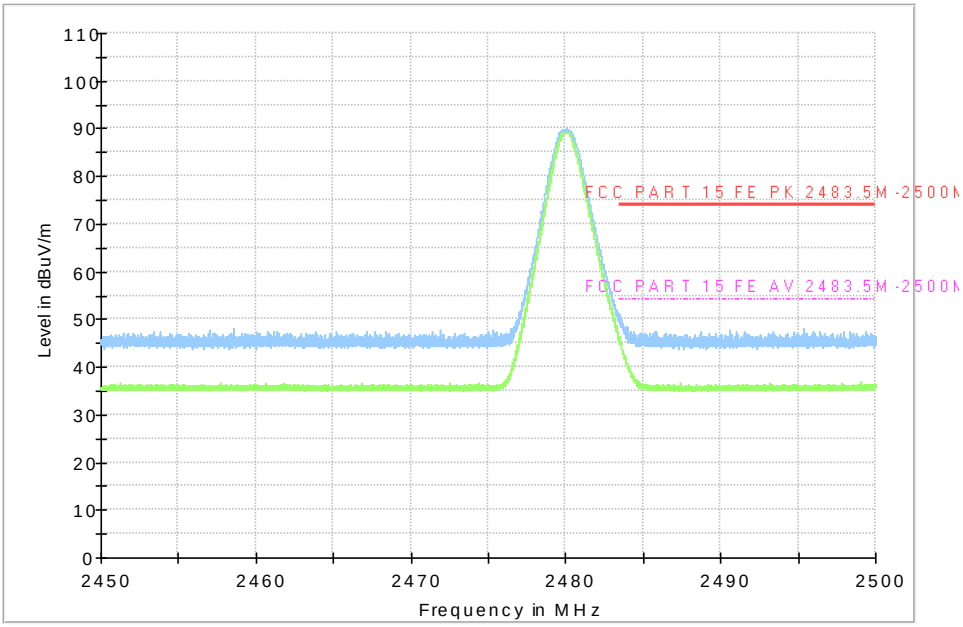

Fig. 49 Radiated Band Edges (GFSK, Ch78, 2450GHz~2500GHz)

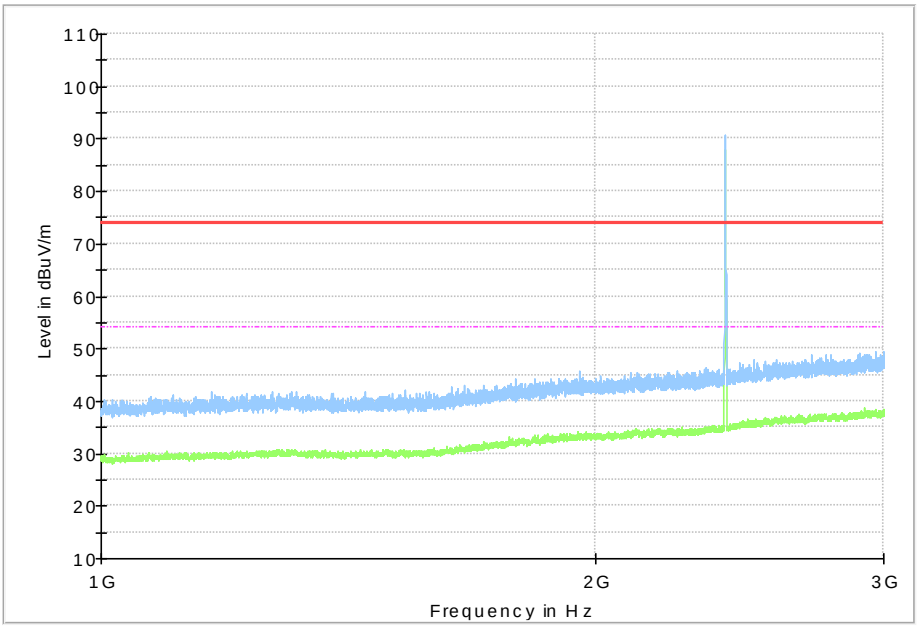

Fig. 50 Radiated Spurious Emission (π /4 DQPSK, Ch0, 1 GHz ~3 GHz)

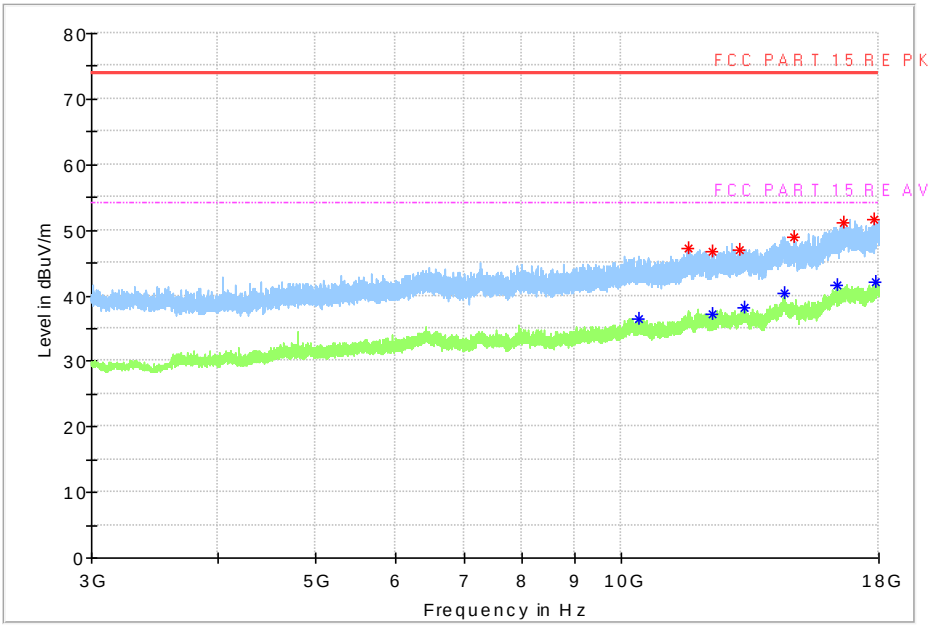

Fig. 51 Radiated Spurious Emission (π /4 DQPSK, Ch0, 3 GHz ~18 GHz)

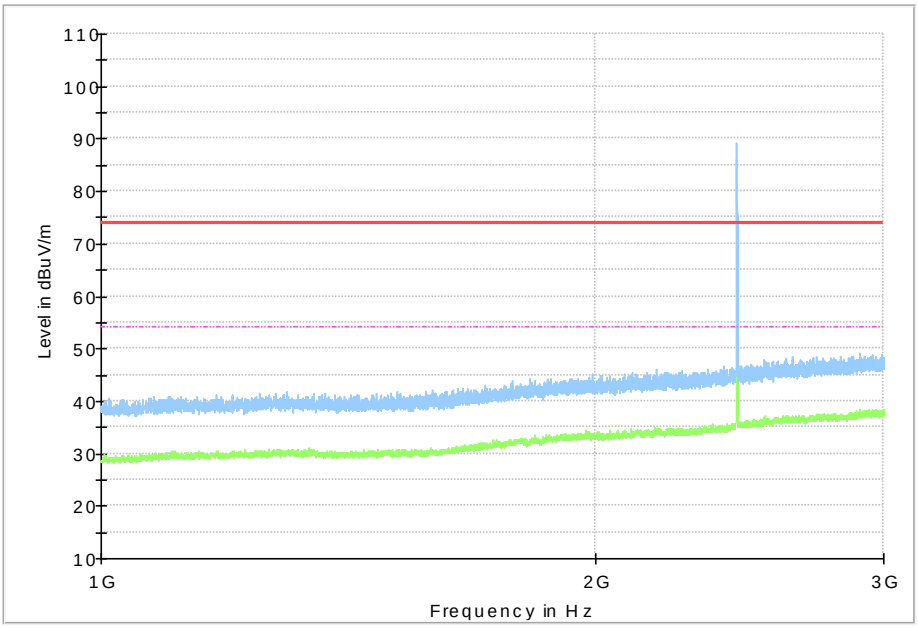

Fig. 52 Radiated Spurious Emission (π/4 DQPSK, Ch39, 1 GHz ~3 GHz)

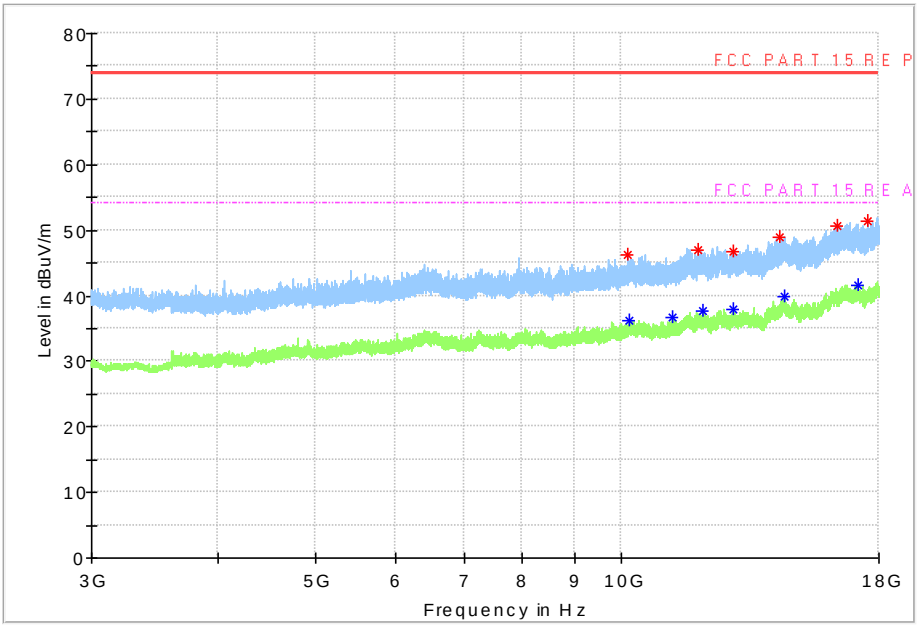

Fig. 53 Radiated Spurious Emission (π/4 DQPSK, Ch39, 3 GHz ~18 GHz)

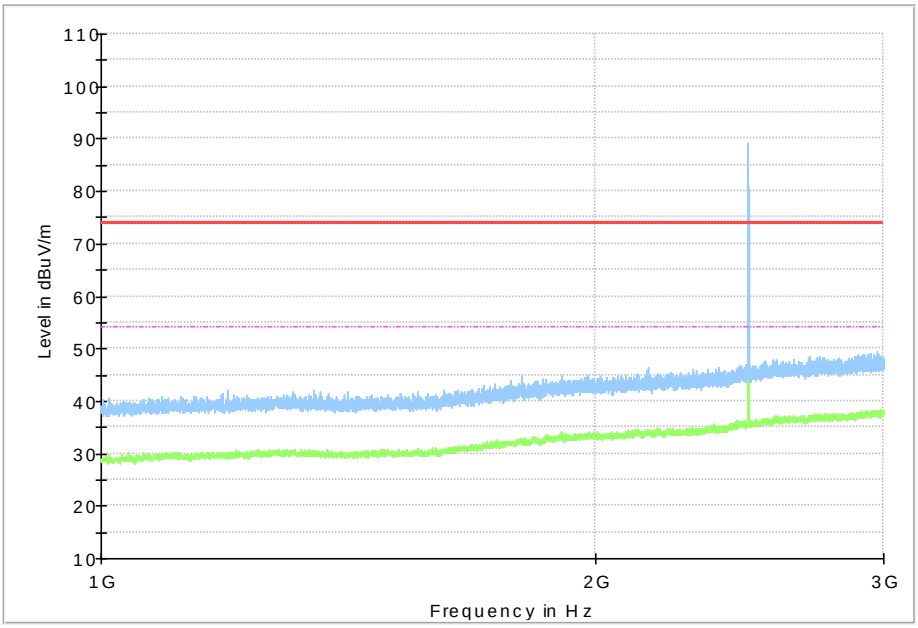

Fig. 54 Radiated Spurious Emission (π/4 DQPSK, Ch78, 1 GHz ~3 GHz)

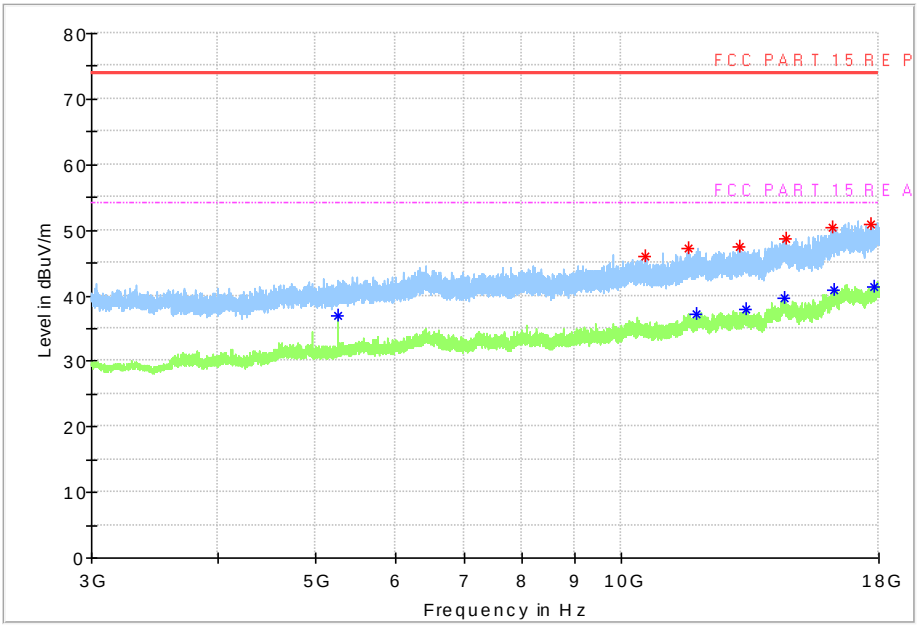

Fig. 55 Radiated Spurious Emission (π/4 DQPSK, Ch78, 3 GHz ~18 GHz)

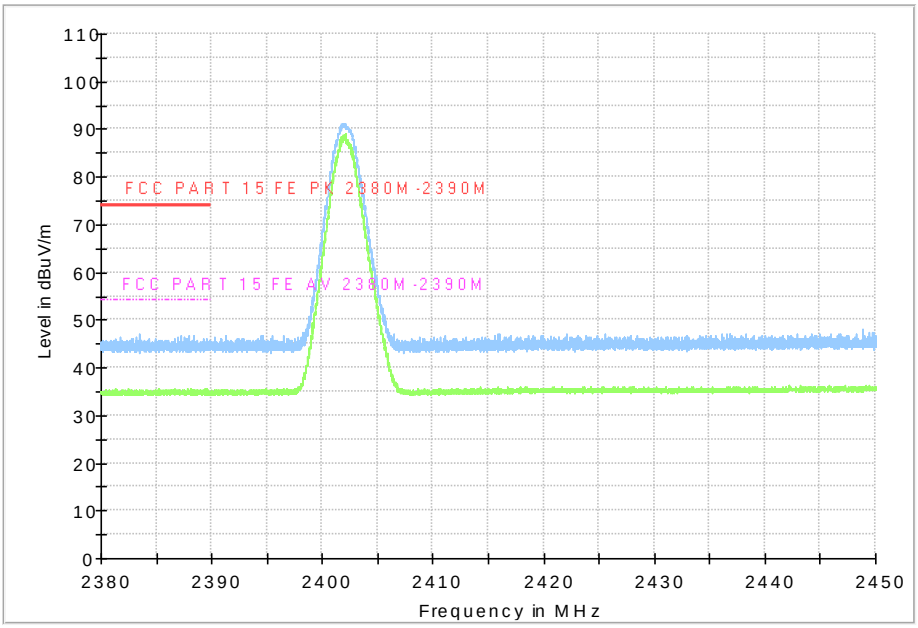

Fig. 56 Radiated Band Edges (π /4 DQPSK, Ch0, 2380GHz~2450GHz)

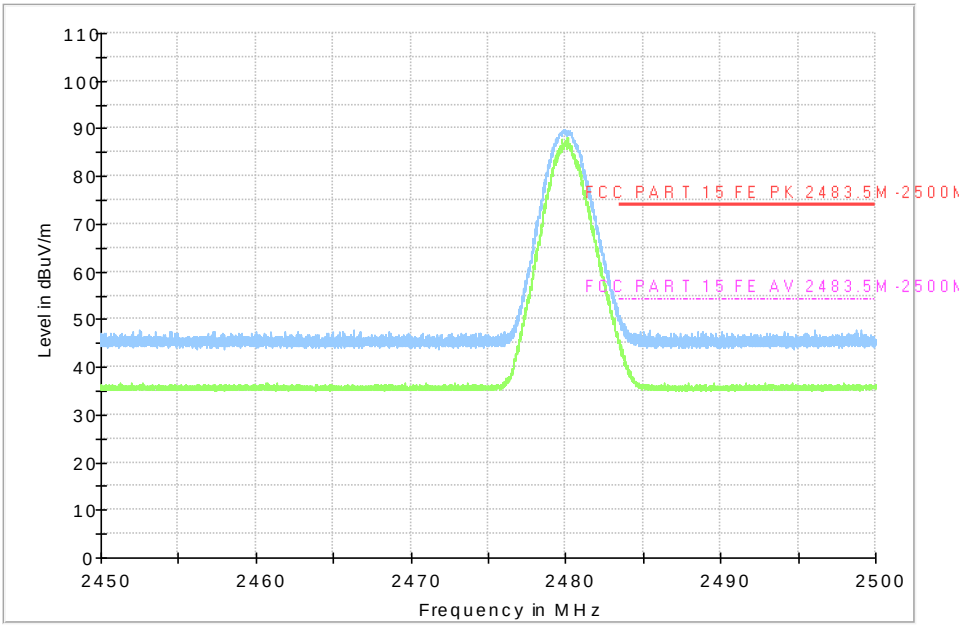

Fig. 57 Radiated Band Edges (π /4 DQPSK, Ch78, 2450GHz~2500GHz)

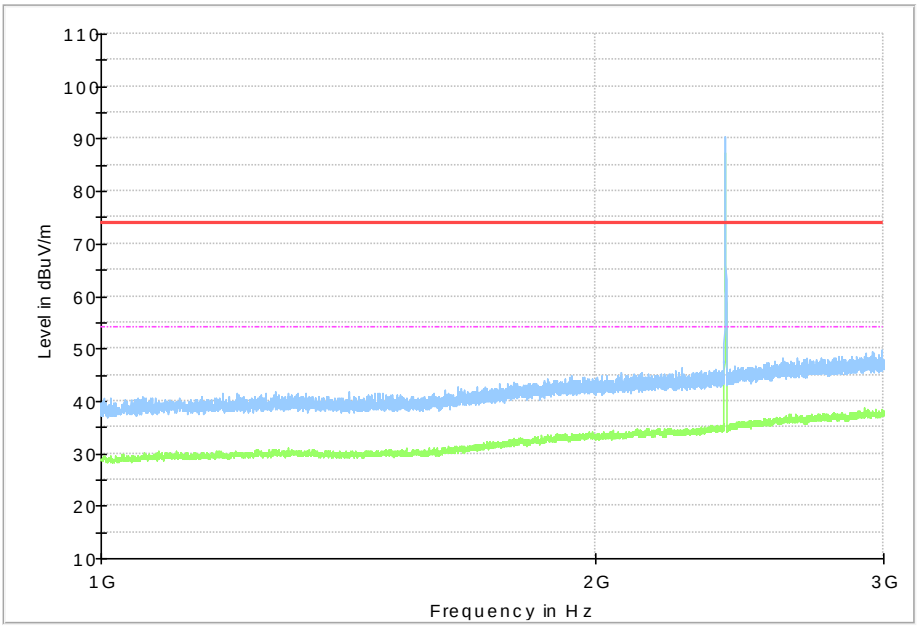

Fig. 58 Radiated Spurious Emission (8DPSK, Ch0, 1 GHz ~3 GHz)

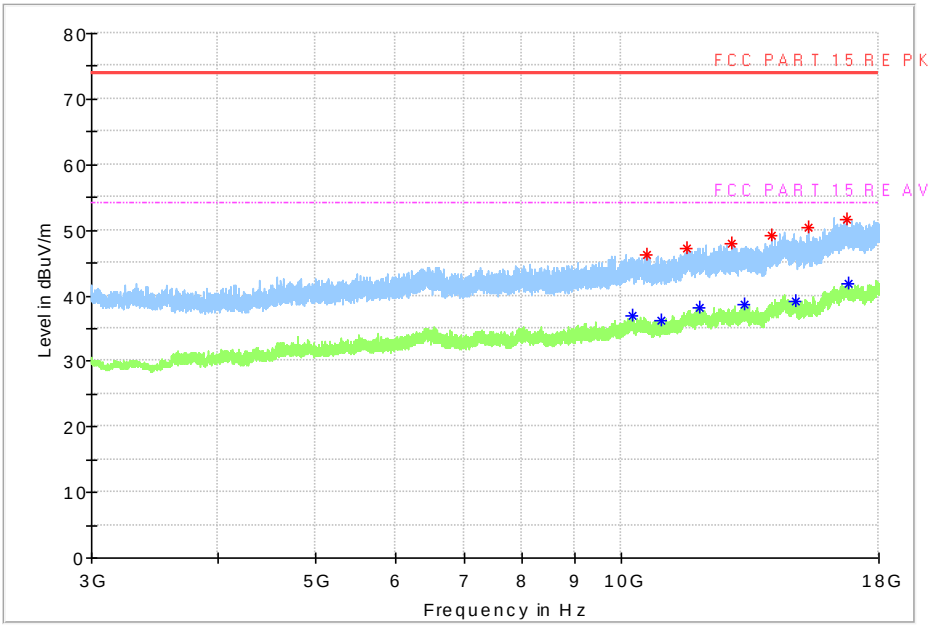

Fig. 59 Radiated Spurious Emission (8DPSK, Ch0, 3 GHz ~18 GHz)

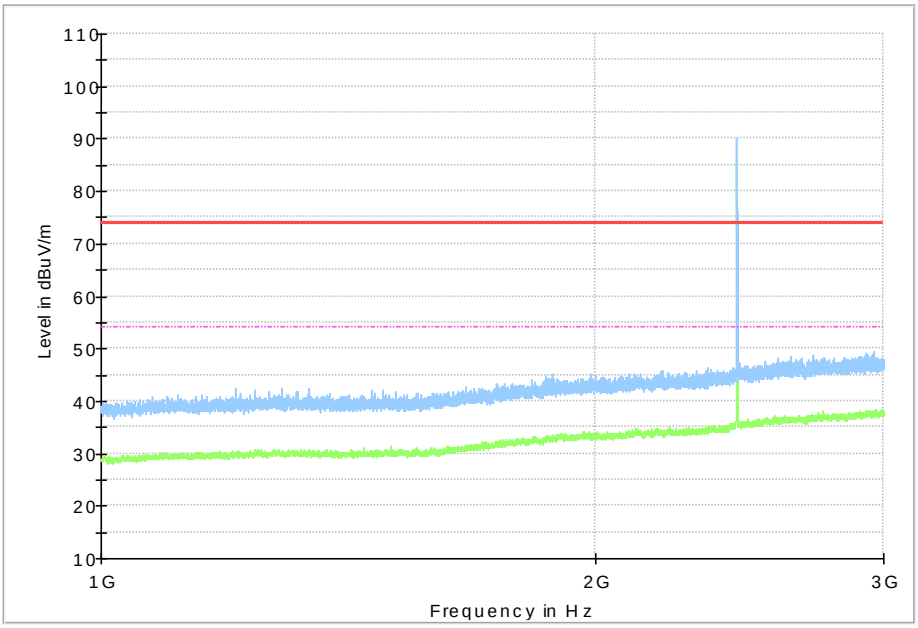

Fig. 60 Radiated Spurious Emission (8DPSK, Ch39, 1 GHz ~3 GHz)

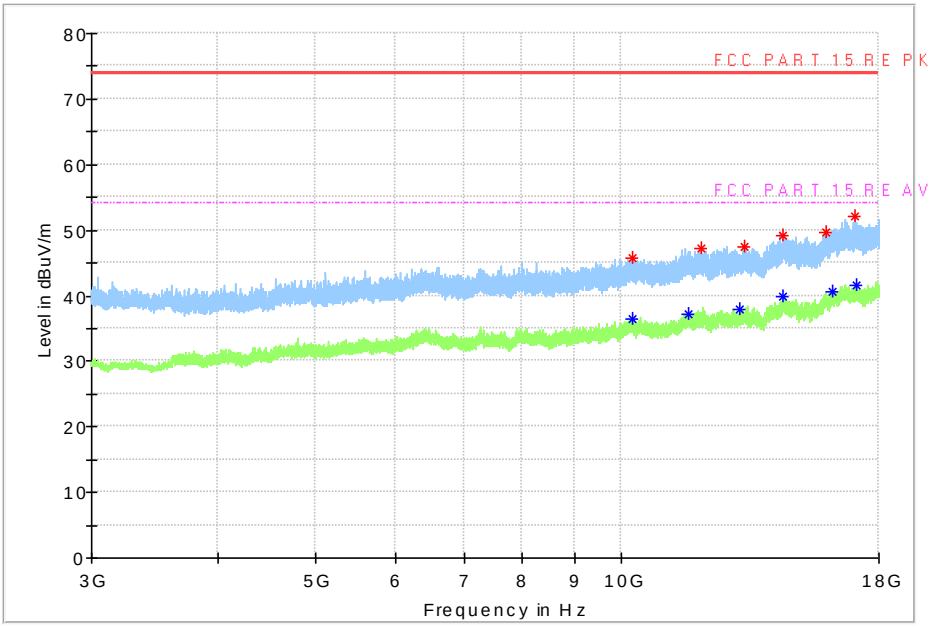

Fig. 61 Radiated Spurious Emission (8DPSK, Ch39, 3 GHz ~18 GHz)

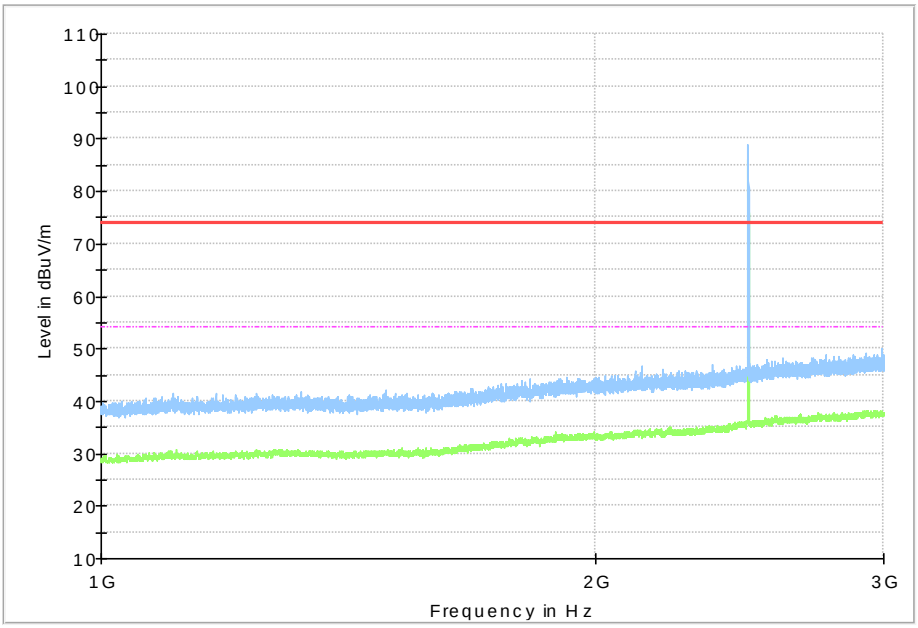

Fig. 62 Radiated Spurious Emission (8DPSK, Ch78, 1 GHz ~3 GHz)

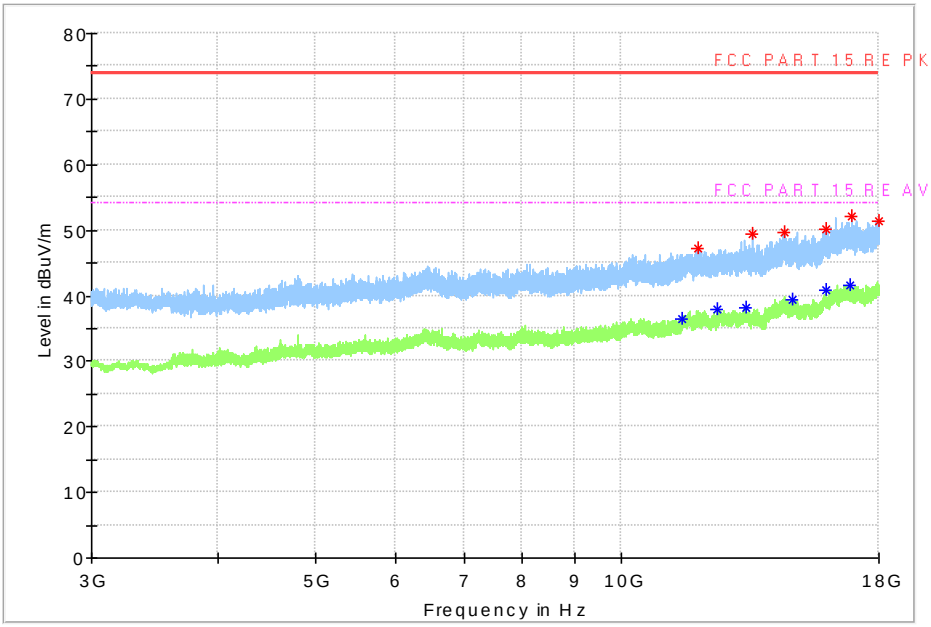

Fig. 63 Radiated Spurious Emission (8DPSK, Ch78, 3 GHz ~18 GHz)

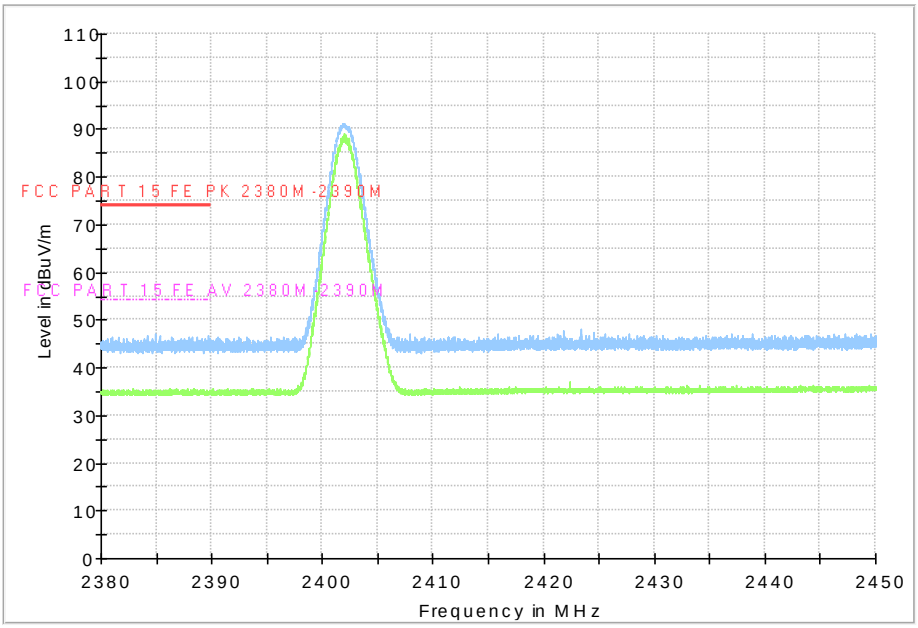

Fig. 64 Radiated Band Edges (8DPSK, Ch0, 2380GHz~2450GHz)

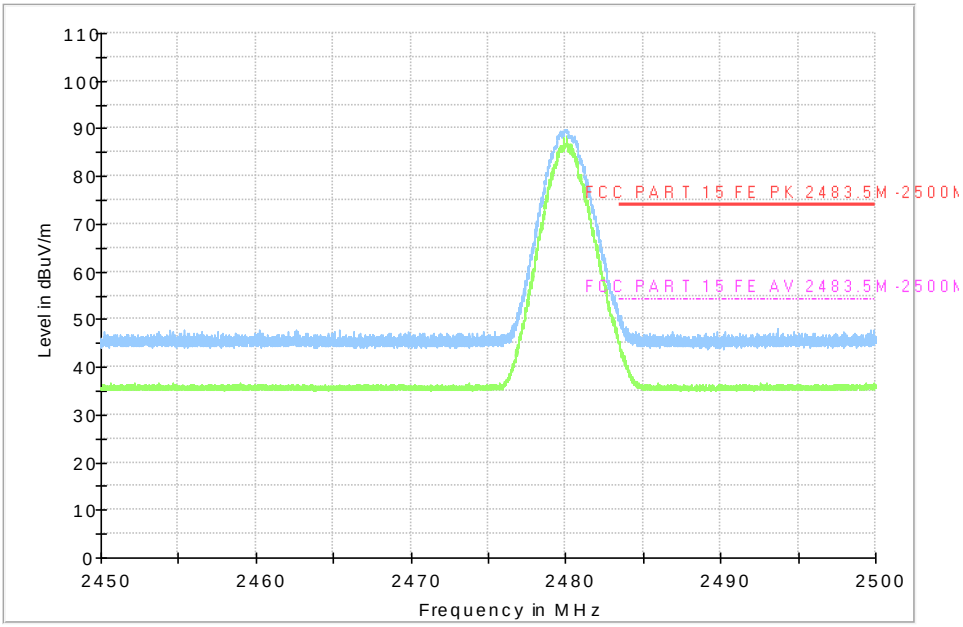

Fig. 65 Radiated Band Edges (8DPSK, Ch78, 2450GHz~2500GHz)

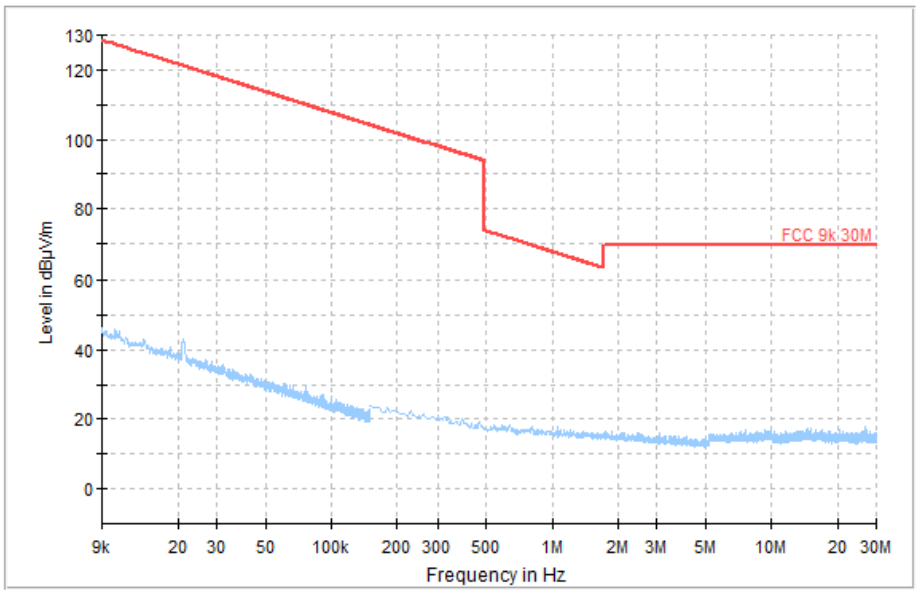

Fig. 66 Radiated Spurious Emission (All Channels, 9 kHz ~30 MHz)

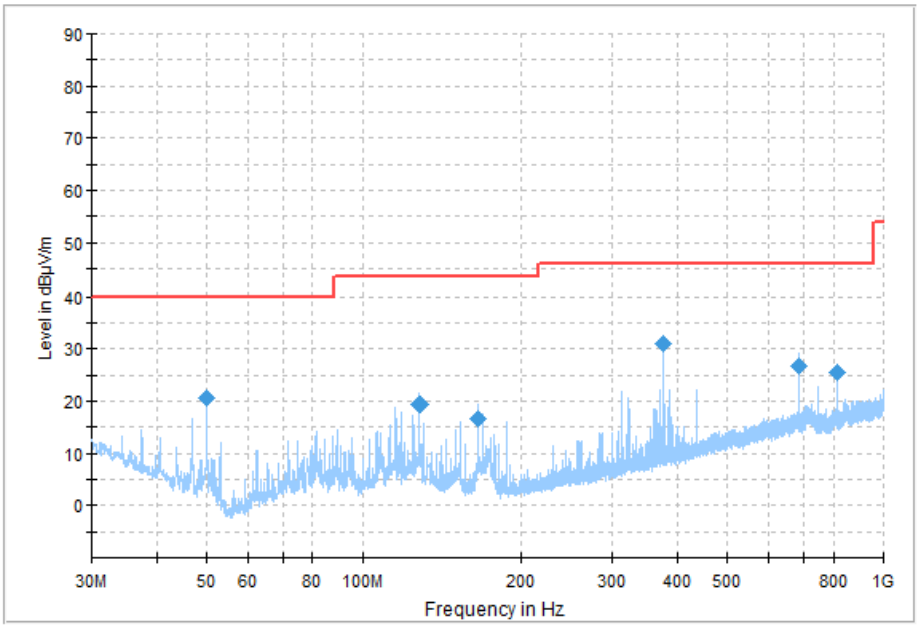

Fig. 67 Radiated Spurious Emission (All Channels, 30 MHz ~1 GHz)

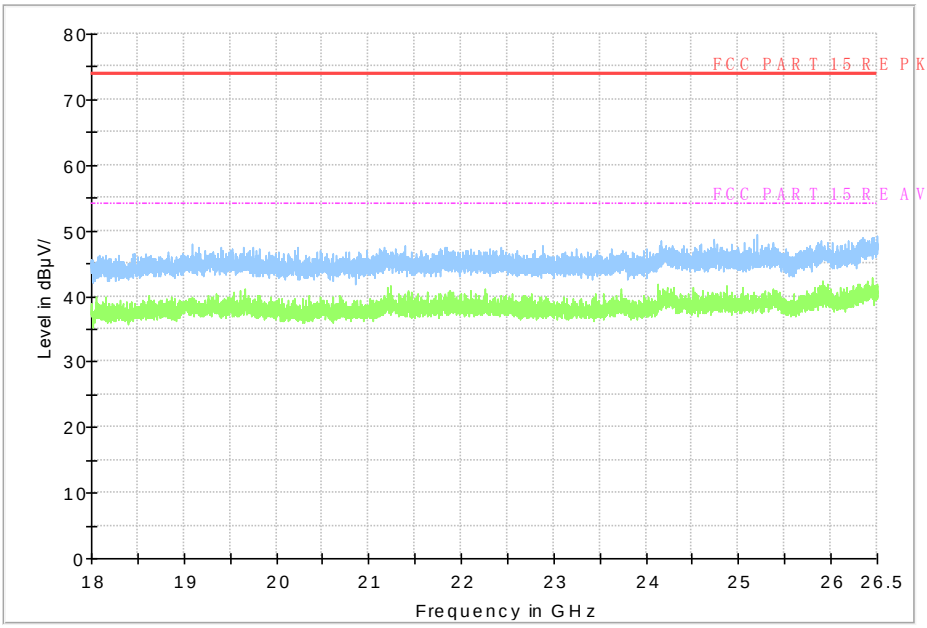

Fig. 68 Radiated Spurious Emission (All Channels, 18 GHz ~26.5 GHz)

A.5 20dB Bandwidth

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a)	/

Measurement Result:

Mode	Channel	20dB Bandwidth (KHz)		conclusion
GFSK	0	Fig.69	922.50	/
	39	Fig.70	922.50	
	78	Fig.71	923.25	
π /4 DQPSK	0	Fig.72	1280.25	/
	39	Fig.73	1278.00	
	78	Fig.74	1275.75	
8DPSK	0	Fig.75	1296.75	/
	39	Fig.76	1271.25	
	78	Fig.77	1269.75	

See below for test graphs.

Conclusion: PASS

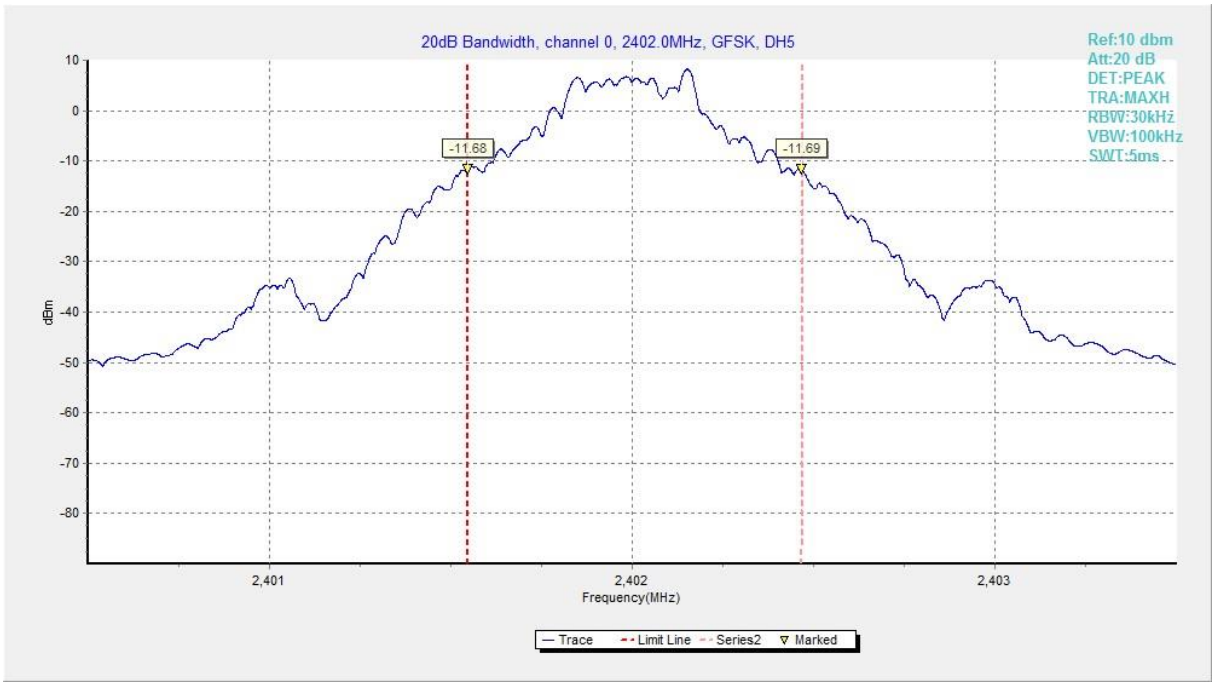

Fig. 69 20dB Bandwidth (GFSK, Ch 0)

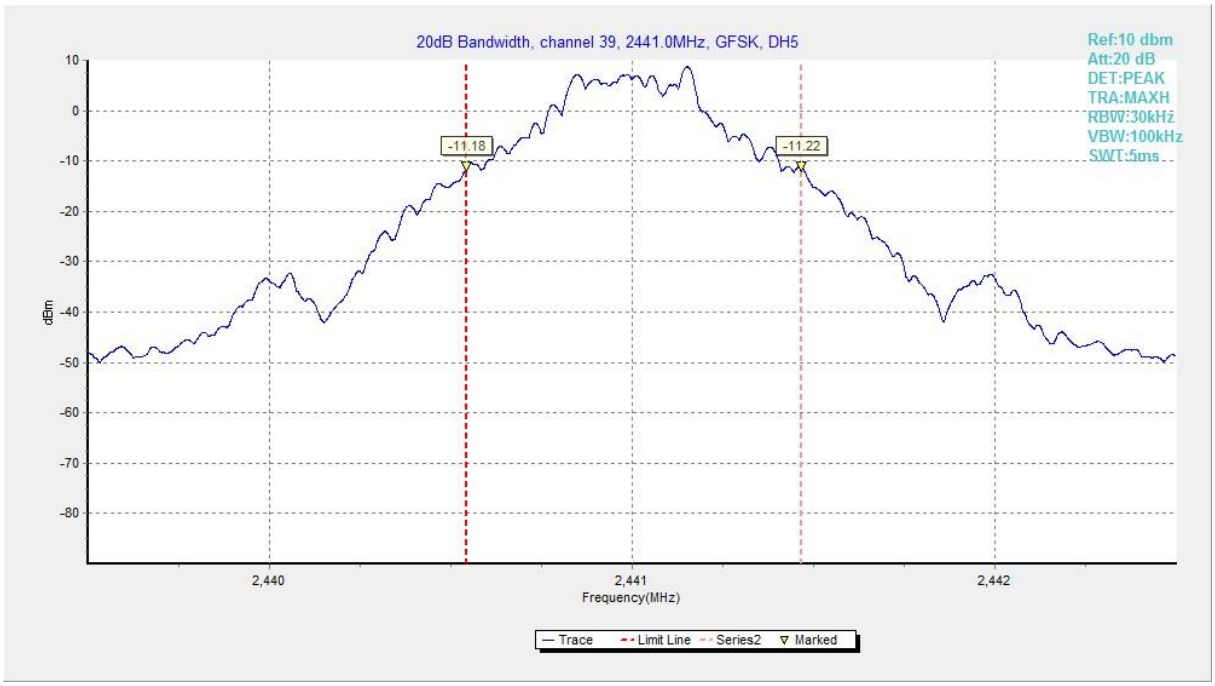

Fig. 70 20dB Bandwidth (GFSK, Ch 39)

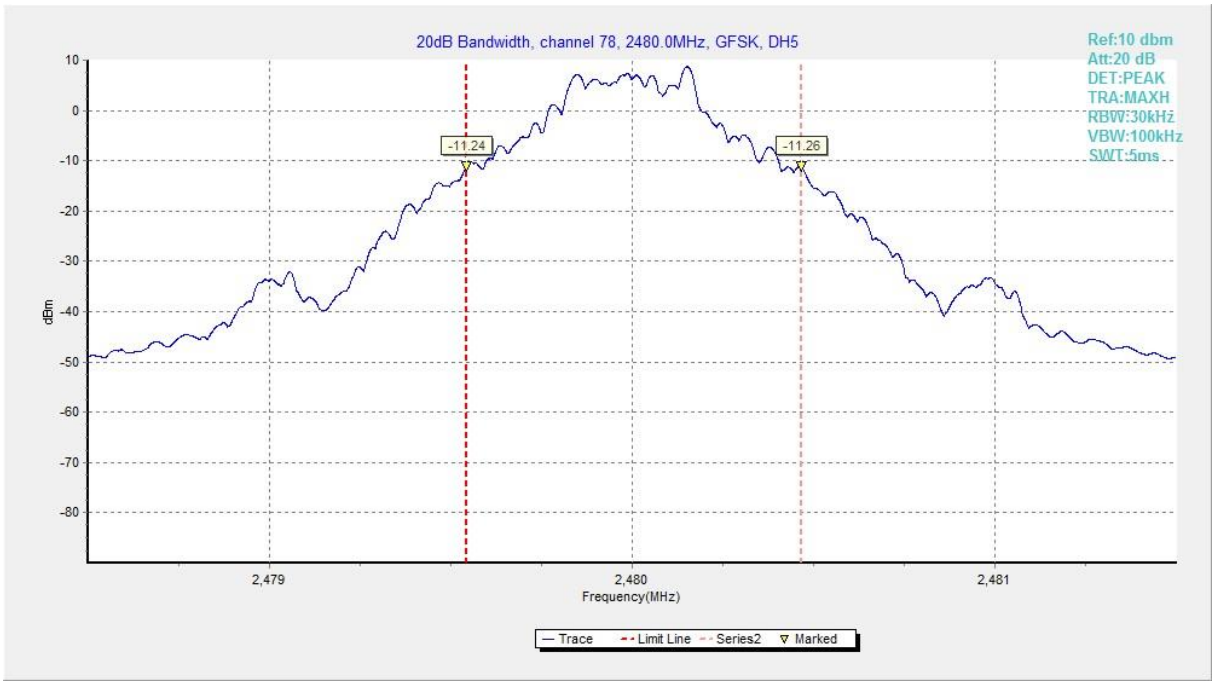

Fig. 71 20dB Bandwidth (GFSK, Ch 78)

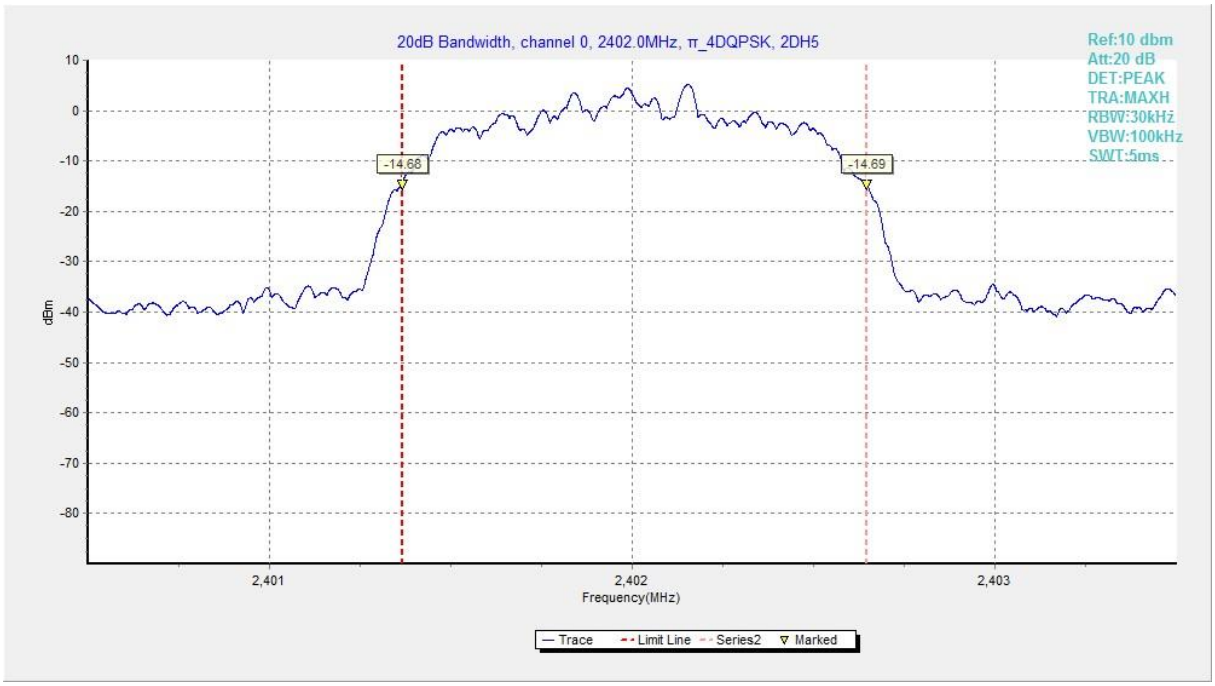

Fig. 72 20dB Bandwidth (π /4 DQPSK, Ch 0)

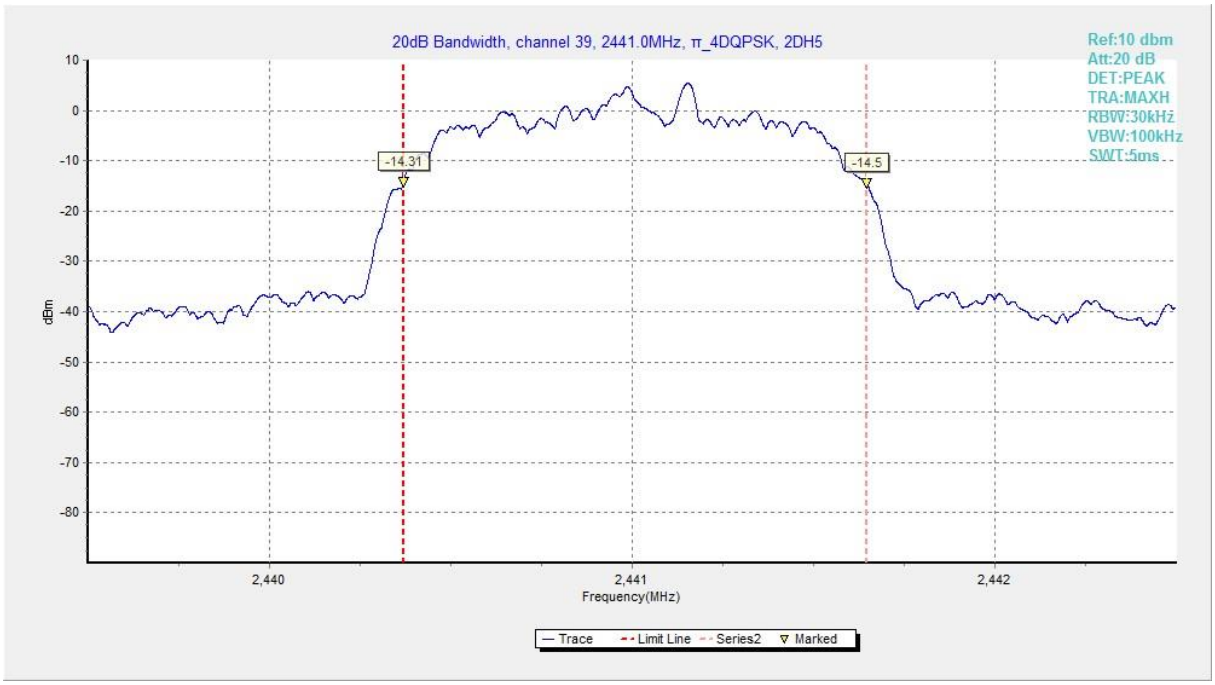

Fig. 73 20dB Bandwidth (π /4 DQPSK, Ch 39)

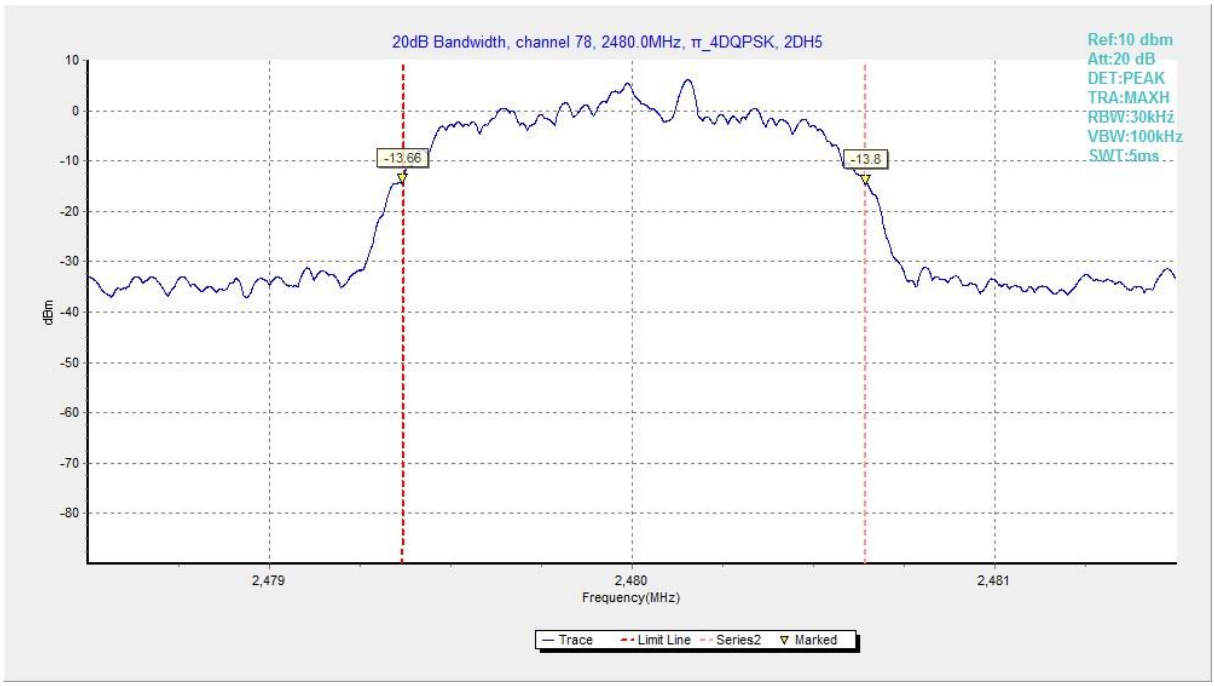

Fig. 74 20dB Bandwidth (π /4 DQPSK, Ch 78)

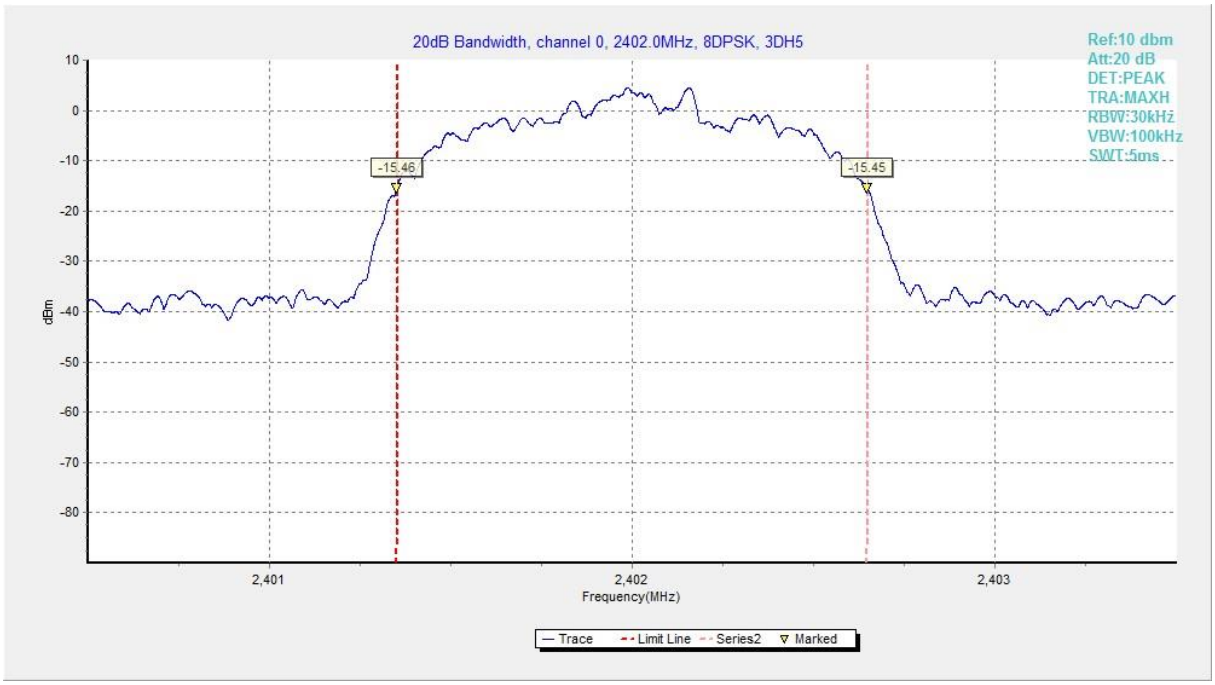

Fig. 75 20dB Bandwidth (8DPSK, Ch 0)

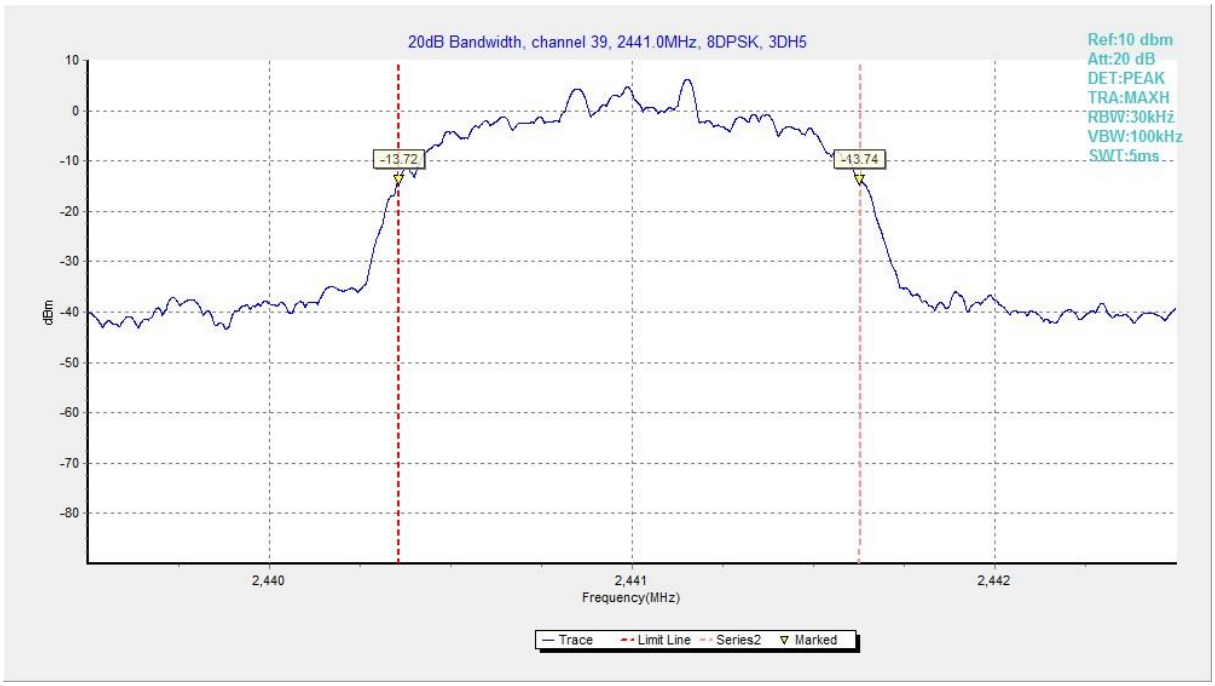

Fig. 76 20dB Bandwidth (8DPSK, Ch 39)

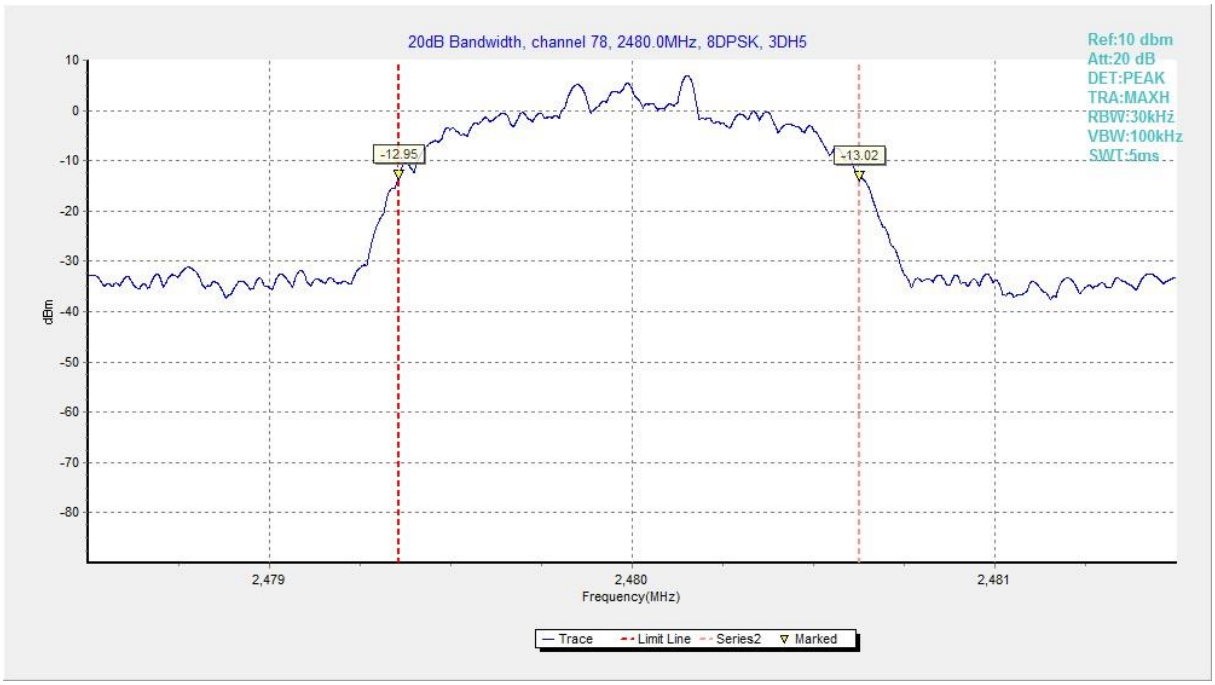

Fig. 77 20dB Bandwidth (8DPSK, Ch 78)

A.6 Time of Occupancy (Dwell Time)

Measurement Limit:

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

Measurement Results:

Mode	Channel	Packet	Dwell Time(ms)		Conclusion
GFSK	39	DH5	Fig.78	306.45	**P**
			Fig.79		
π /4 DQPSK	39	2-DH5	Fig.80	306.50	**P**
			Fig.81		
8DPSK	39	3-DH5	Fig.82	306.75	**P**
			Fig.83		

See below for test graphs.

Conclusion: Pass

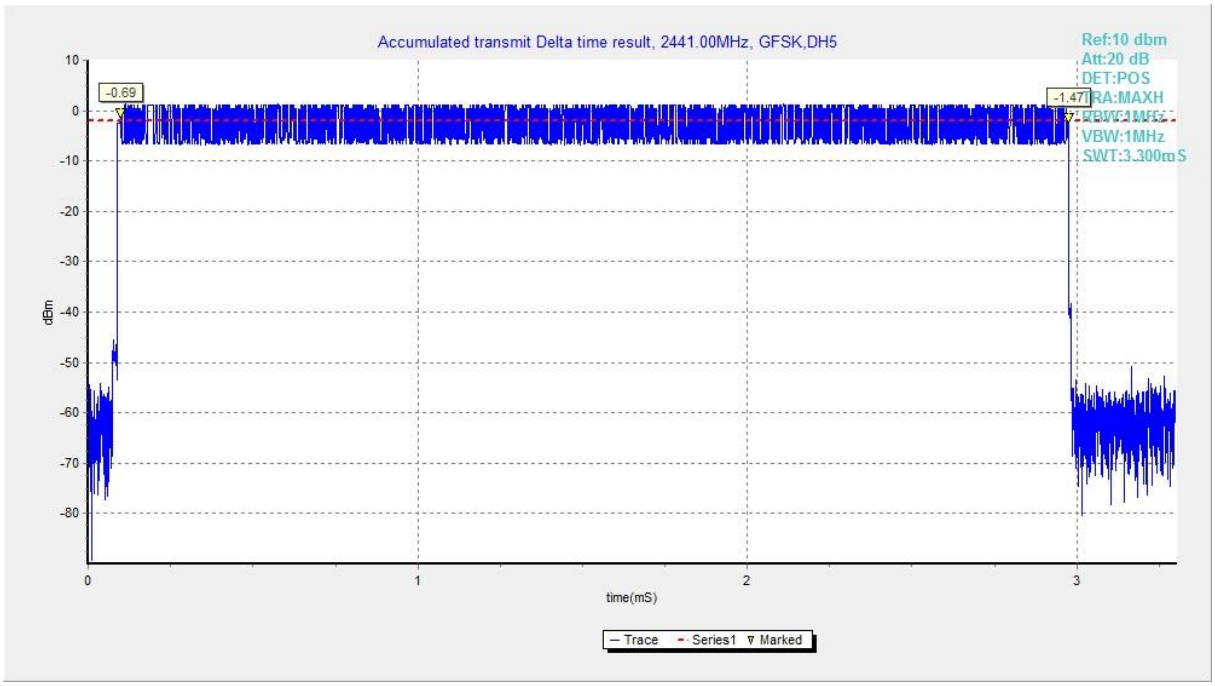

Fig. 78 Time of Occupancy(Dwell Time) (GFSK, Ch39)

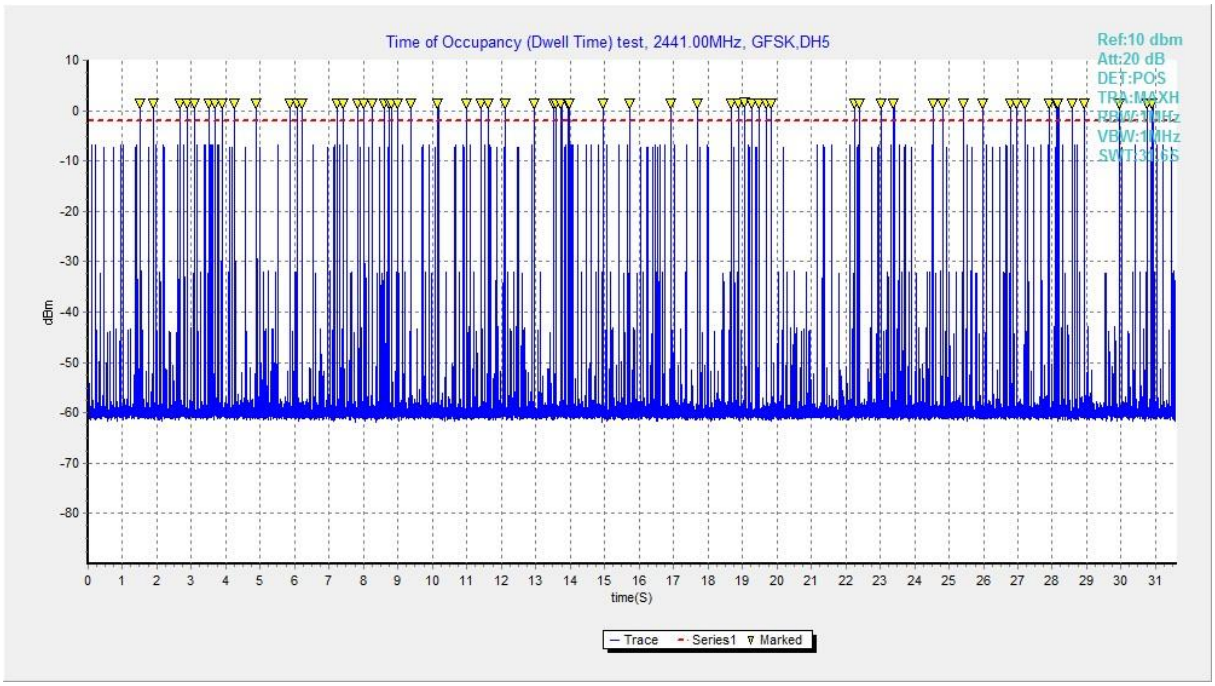

Fig. 79 Time of Occupancy(Dwell Time) (GFSK, Ch39)

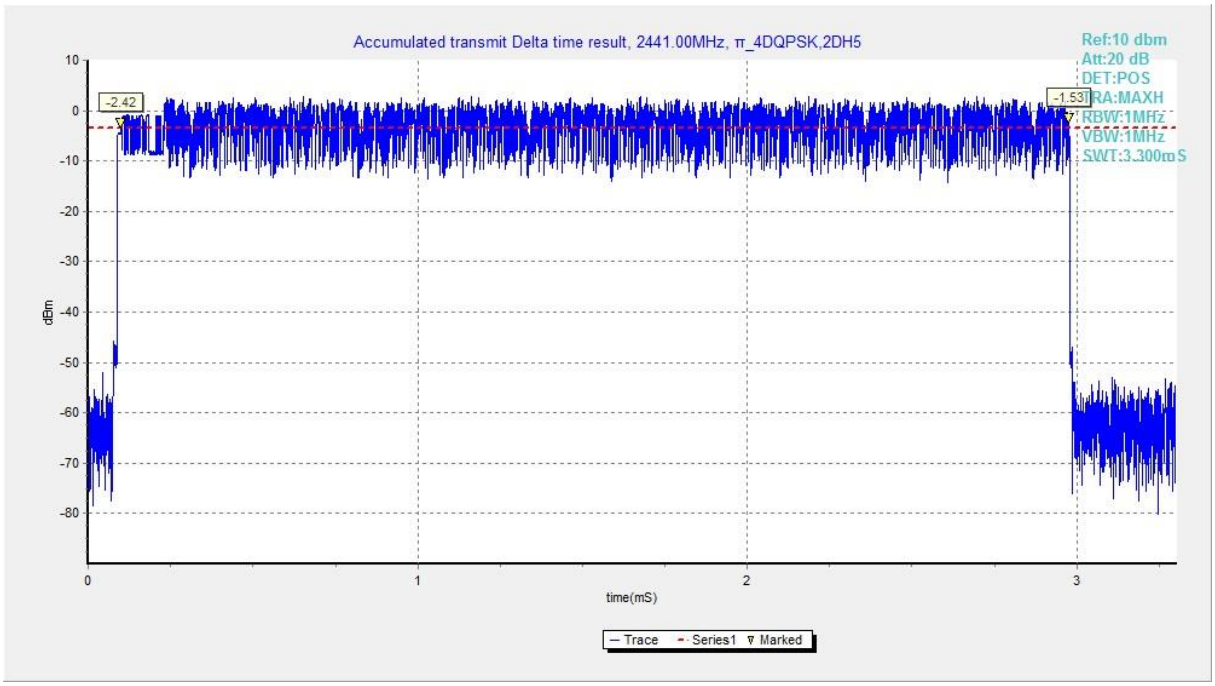

Fig. 80 Time of Occupancy(Dwell Time) (π /4 DQPSK, Ch39)

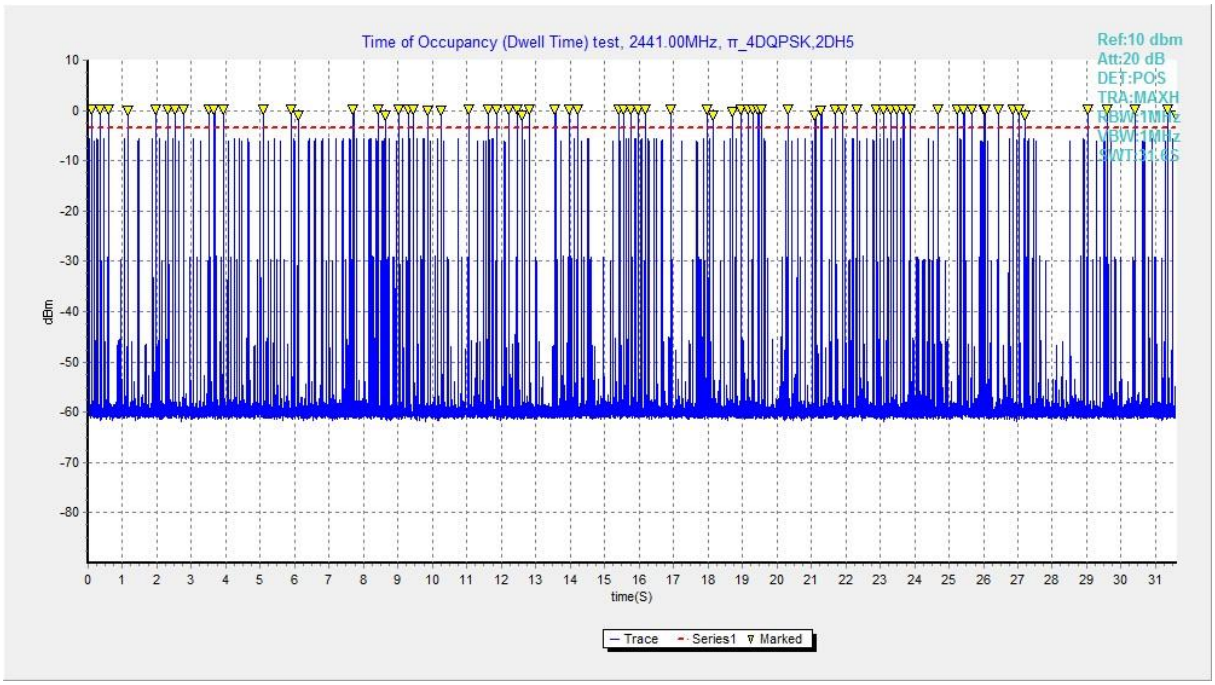

Fig. 81 Time of Occupancy(Dwell Time) (π /4 DQPSK, Ch39)

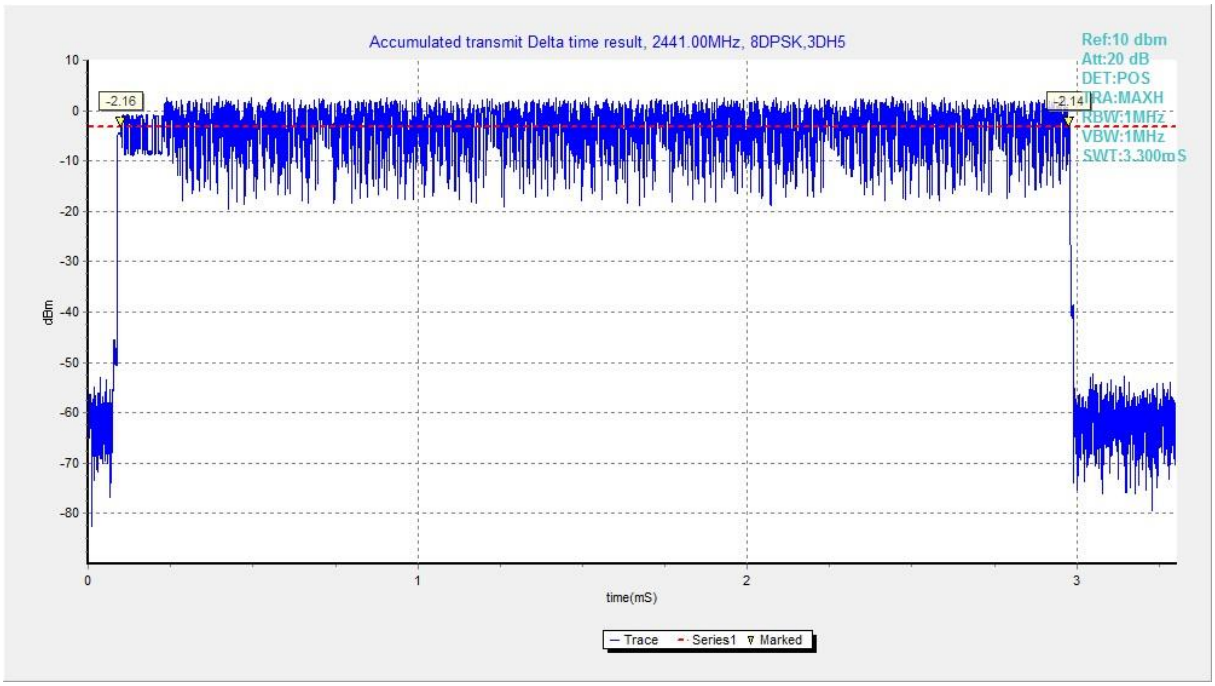

Fig. 82 Time of Occupancy(Dwell Time) (8DPSK, Ch39)

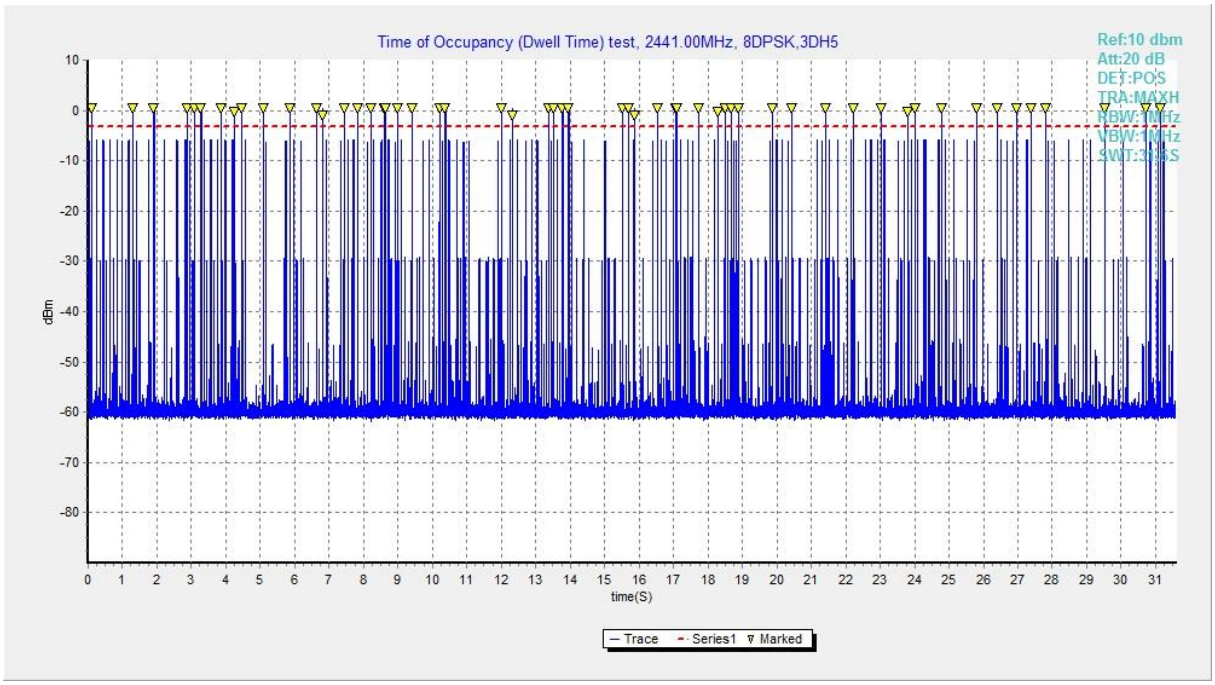

Fig. 83 Time of Occupancy(Dwell Time) (8DPSK, Ch39)

A.7 Number of Hopping Channels

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a)	At least 15 non-overlapping channels

Measurement Results:

Mode	Packet	Number of hopping		Test result	Conclusion
GFSK	DH5	Fig.84	Fig.85	79	**P**
π/4 DQPSK	2-DH5	Fig.86	Fig.87	79	**P**
8DPSK	3-DH5	Fig.88	Fig.89	79	**P**

See below for test graphs.

Conclusion: Pass

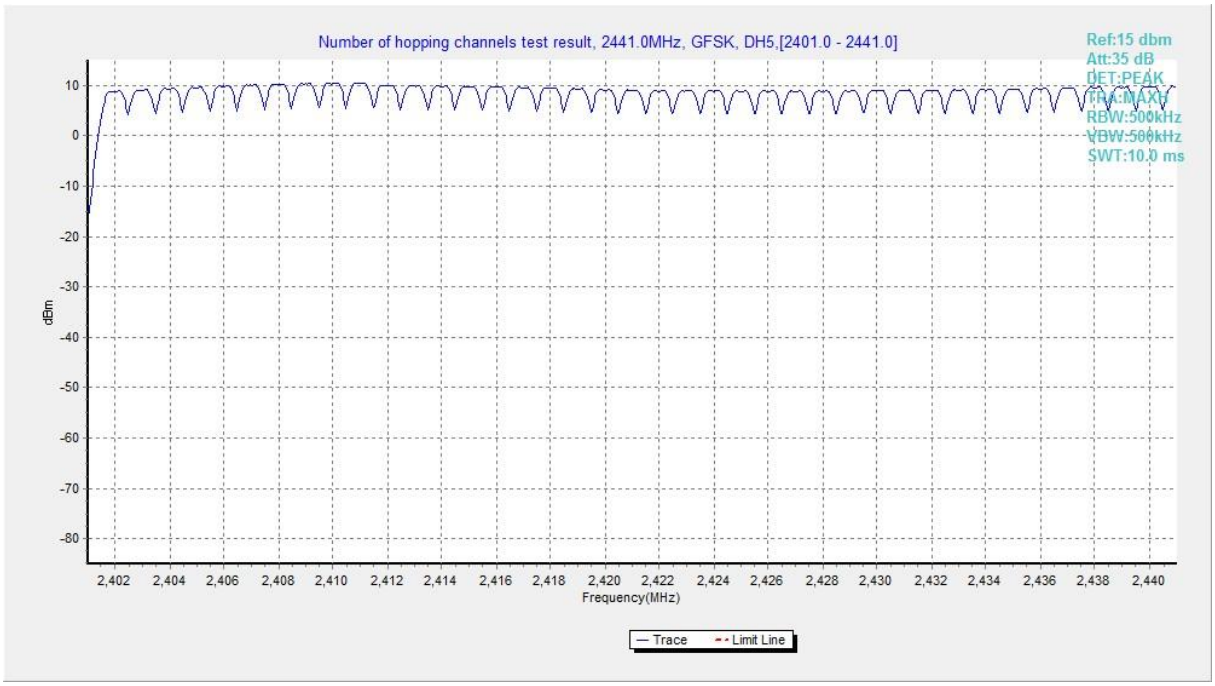

Fig. 84 Hopping channel ch0~39 (GFSK, Ch39)

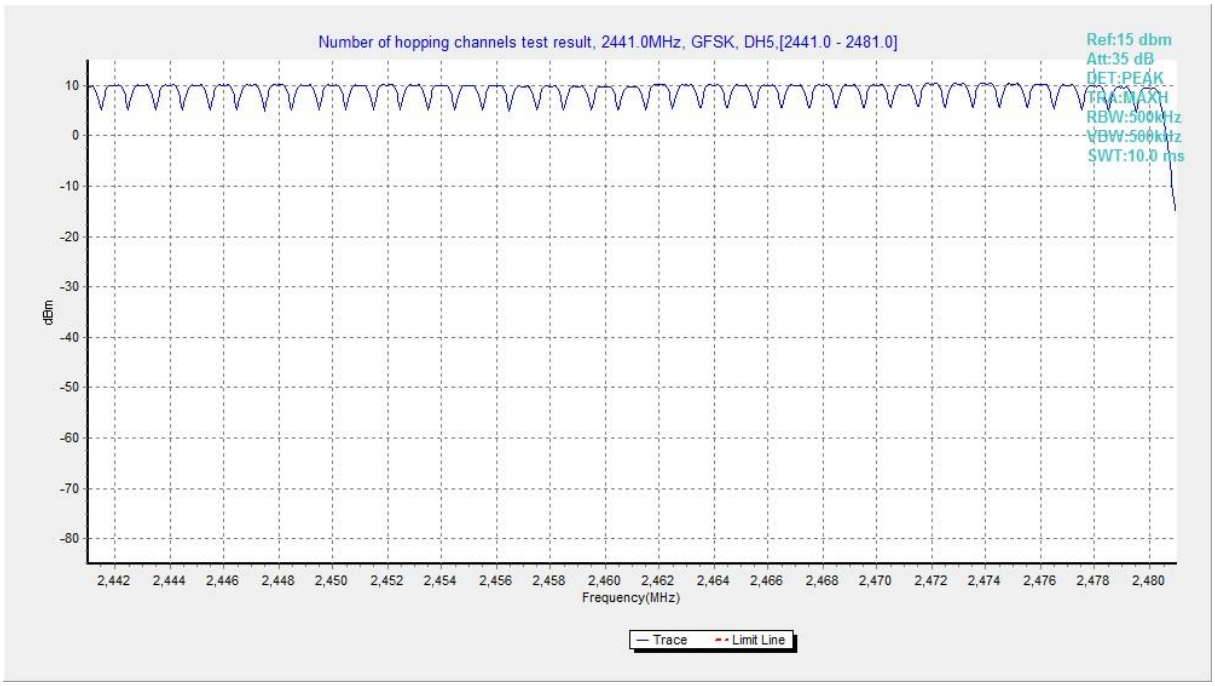

Fig. 85 Hopping channel ch39~78 (GFSK, Ch39)

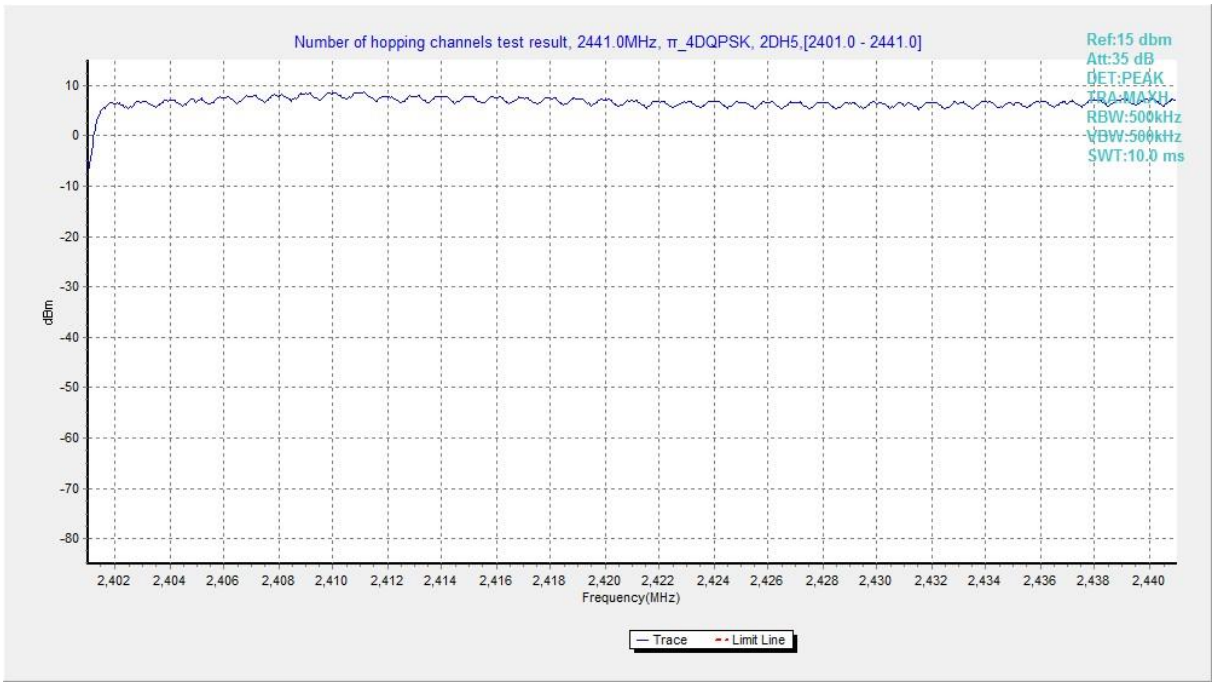

Fig. 86 Hopping channel ch0~39 (π /4 DQPSK, Ch39)

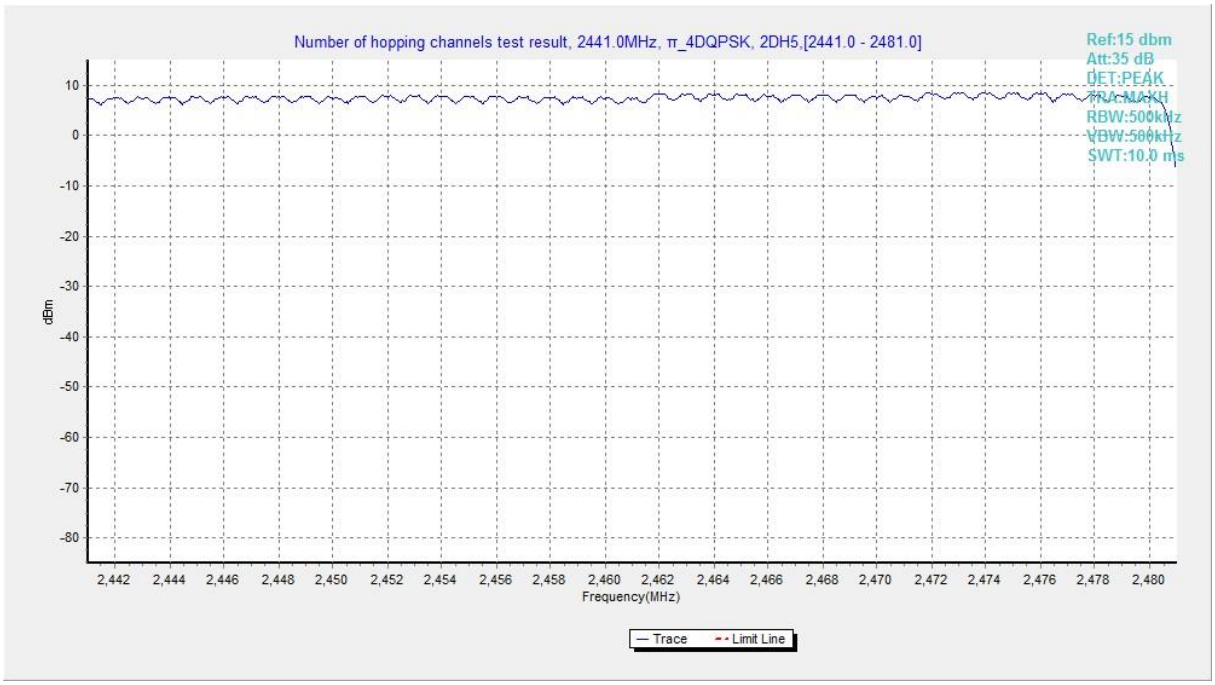

Fig. 87 Hopping channel ch39~78 (π /4 DQPSK, Ch39)

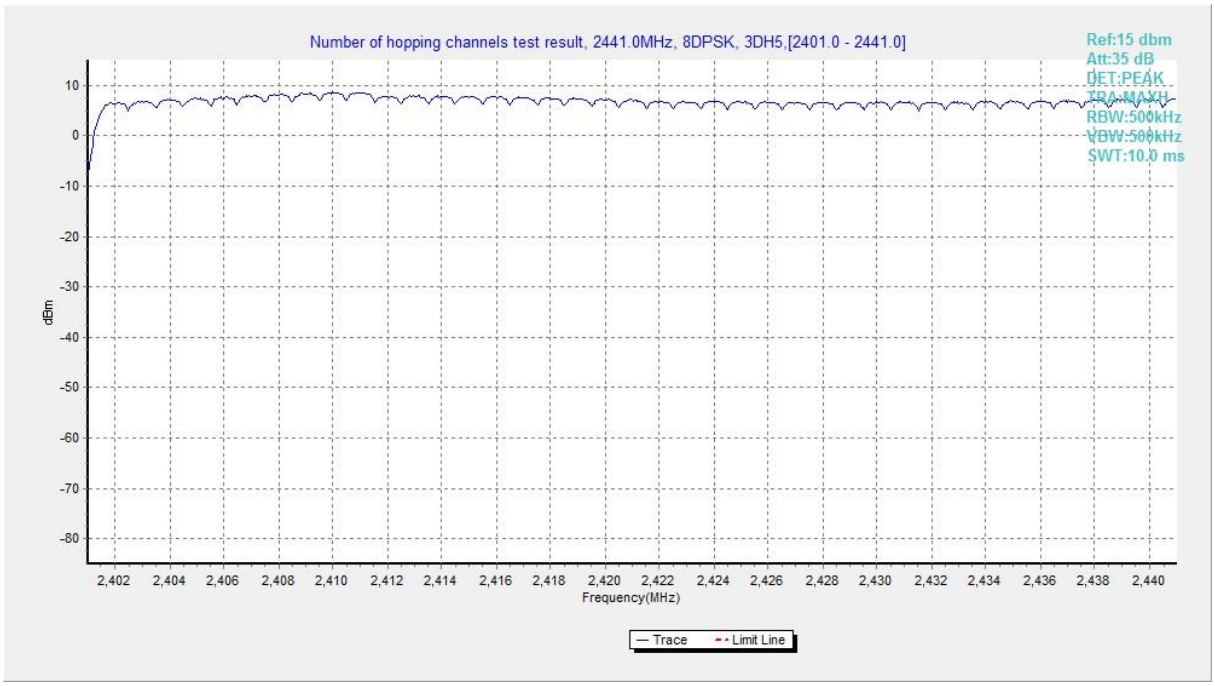

Fig. 88 Hopping channel ch0~39 (8DPSK, Ch39)

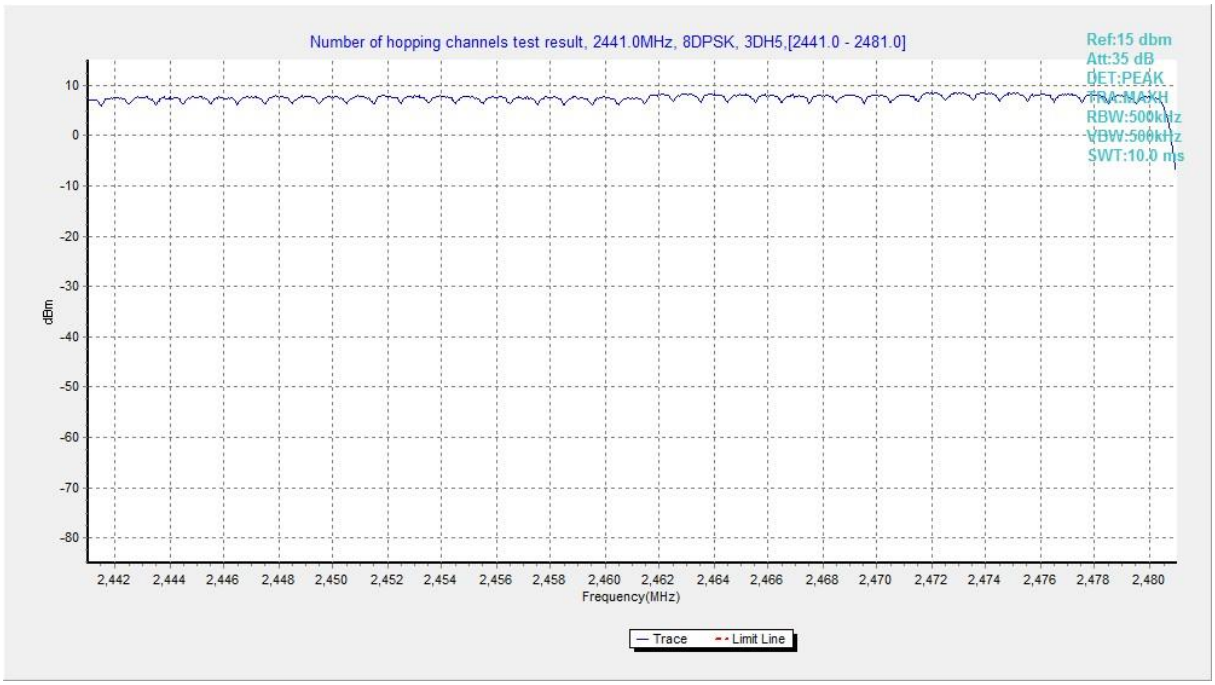

Fig. 89 Hopping channel ch39~78 (8DPSK, Ch39)

A.8 Carrier Frequency Separation

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a)	By a minimum of 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater

Measurement Results:

Mode	Channel	Packet	Separation of hopping channels	Test result (KHz)	Conclusion
GFSK	39	DH5	Fig.90	999.75	**P**
π /4 DQPSK	39	2-DH5	Fig.91	1155.75	**P**
8DPSK	39	3-DH5	Fig.92	1158.00	**P**

See below for test graphs.

Conclusion: Pass

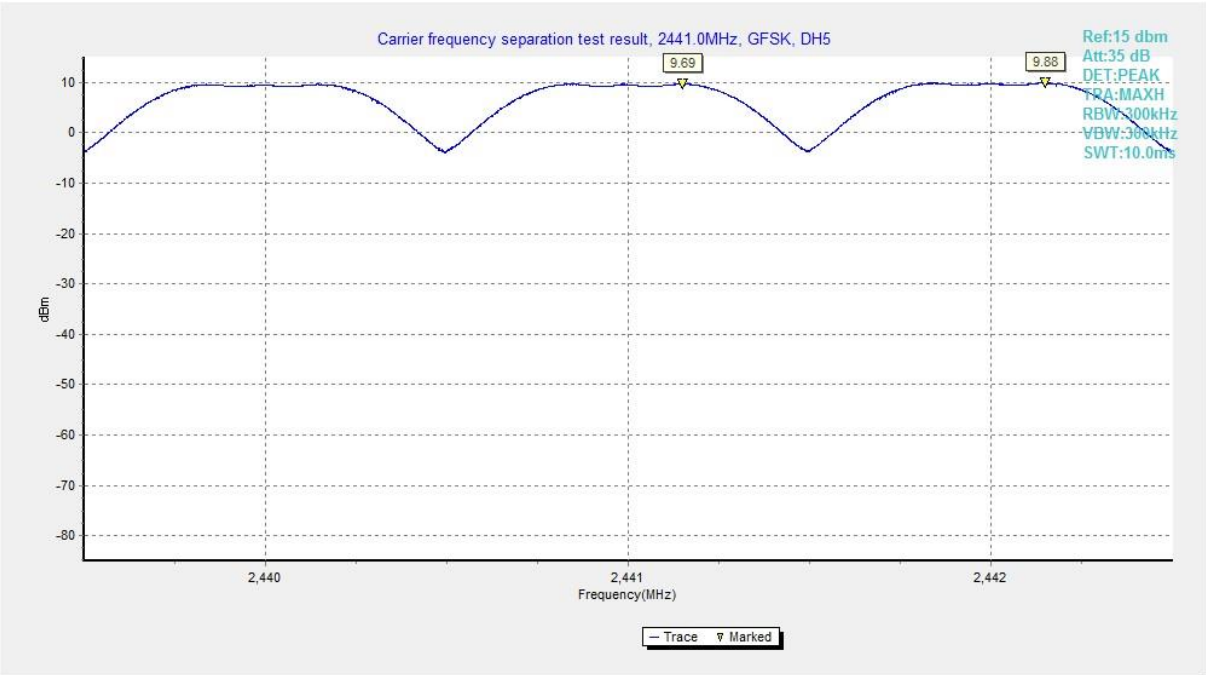

Fig. 90 Carrier Frequency Separation (GFSK, Ch39)

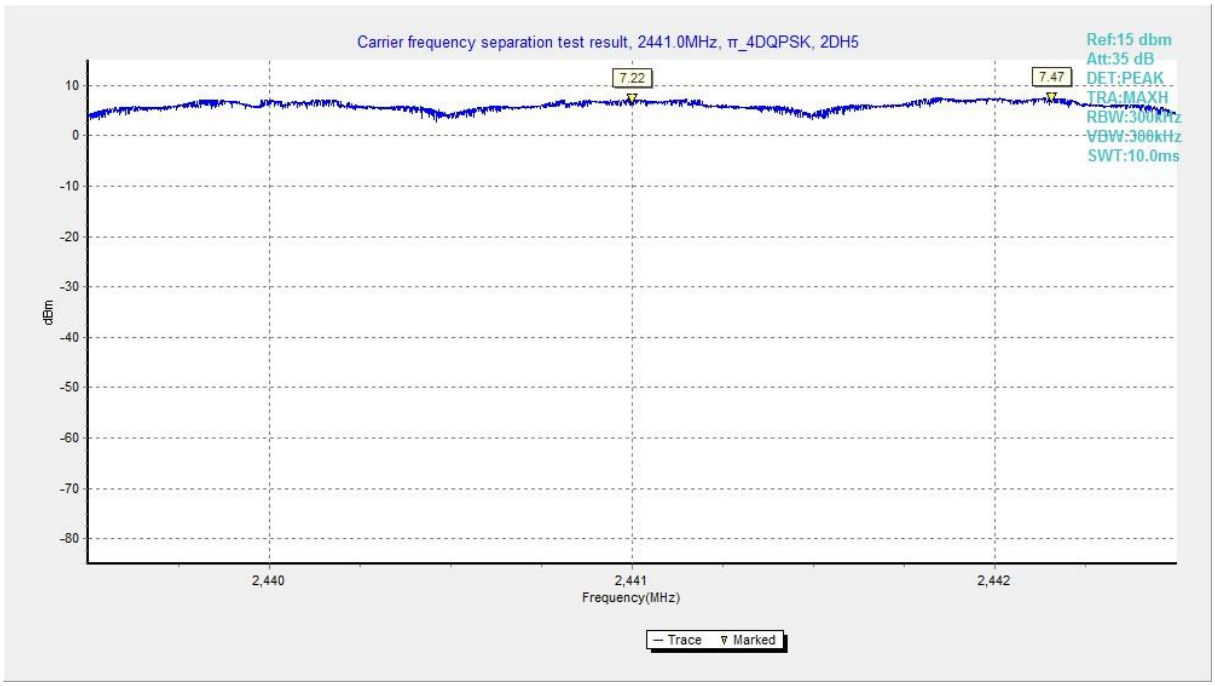

Fig. 91 Carrier Frequency Separation (π /4 DQPSK, Ch39)

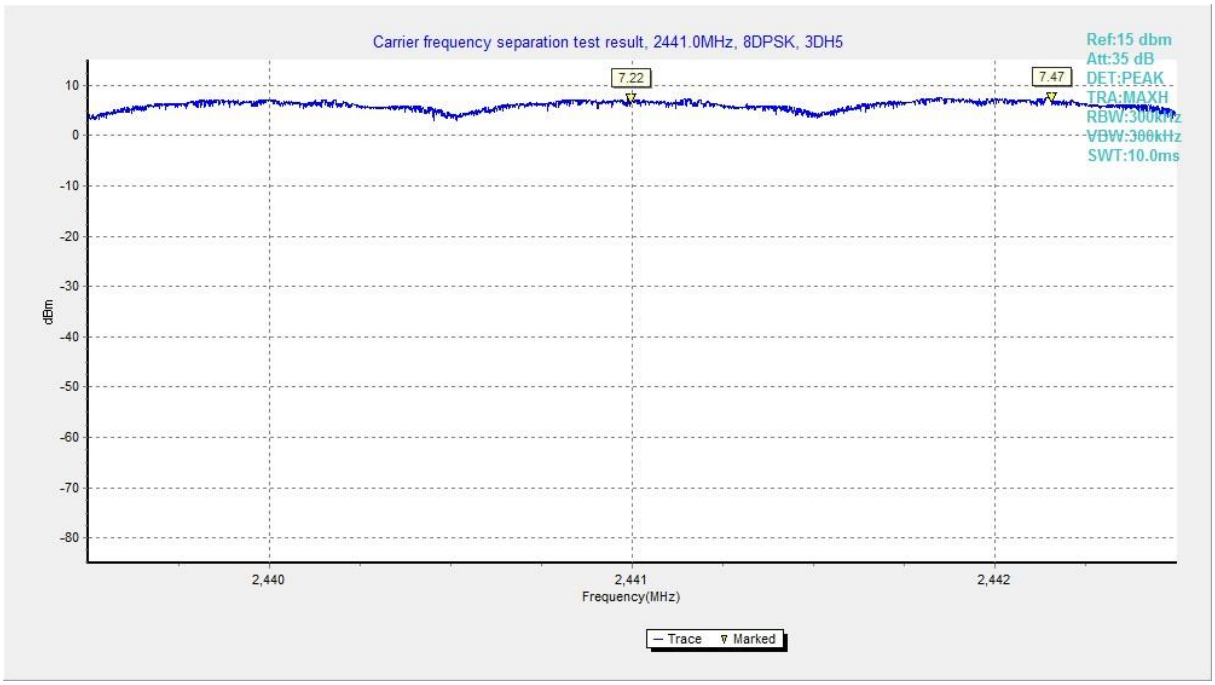

Fig. 92 Carrier Frequency Separation (8DPSK, Ch39)

A.9 AC Power line Conducted Emission

Test Condition:

Voltage（V）	Frequency（Hz）
120	60

Measurement Result and limit:

BT (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	66 to 56	Fig.102	Fig.103	**P**
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

BT (Average Limit)

Frequency range (MHz)	Average-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig 102	Fig 103	**P**
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

Note: The measurement results include the L1 and N measurements.

See below for test graphs.

Conclusion: Pass

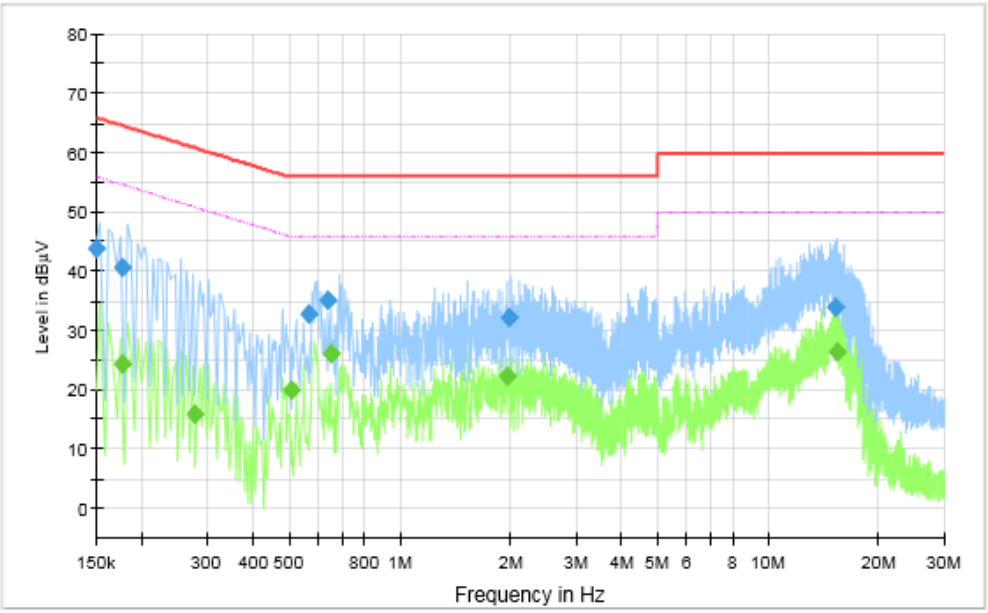

Fig. 93 AC Powerline Conducted Emission (Traffic)

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
1.988	32.18	56.00	23.82	N	ON	9.7
0.568	32.78	56.00	23.22	N	ON	9.6
15.272	34.12	60.00	25.88	N	ON	9.8
0.640	35.18	56.00	20.83	N	ON	9.6
0.176	40.69	64.67	23.98	L1	ON	9.6
0.150	43.98	66.00	22.02	L1	ON	9.6

Measurement Results : Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.176	24.49	54.67	30.18	N	ON	9.6
0.276	16.03	50.94	34.90	L1	ON	9.6
0.508	20.02	46.00	25.98	N	ON	9.6
0.648	26.21	46.00	19.79	N	ON	9.6
1.952	22.28	46.00	23.72	N	ON	9.7
15.332	26.43	50.00	23.57	N	ON	9.8

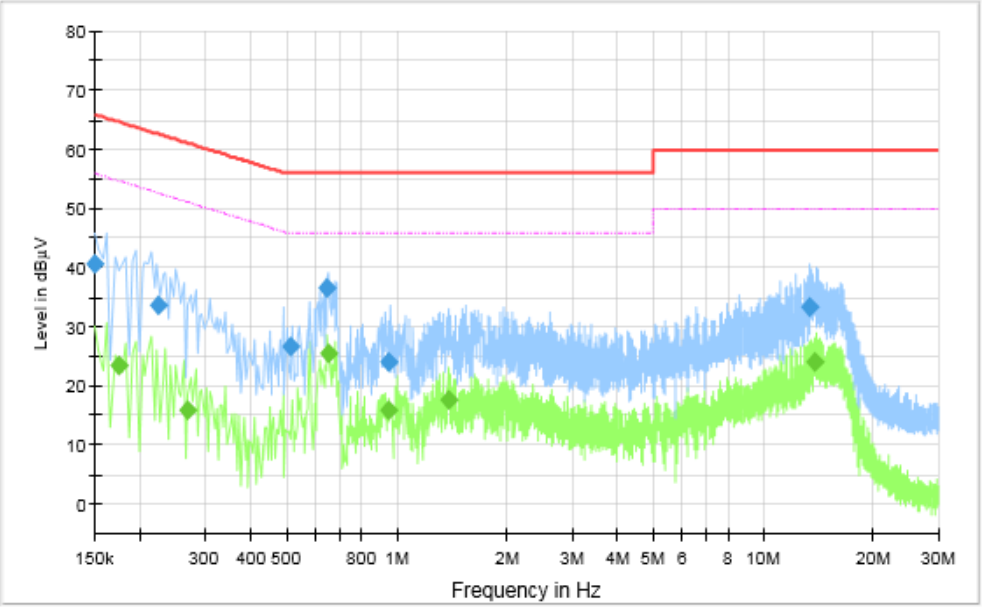

Fig. 94 AC Power line Conducted Emission (Idle)

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.948	24.25	56.00	31.75	N	ON	9.7
0.512	26.75	56.00	29.25	N	ON	9.6
13.336	33.47	60.00	26.53	N	ON	9.8
0.224	33.74	62.67	28.93	N	ON	9.6
0.644	36.63	56.00	19.37	N	ON	9.6
0.150	40.64	66.00	25.36	N	ON	9.6

Measurement Results : Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.174	23.55	54.77	31.21	N	ON	9.6
0.268	15.83	51.18	35.35	N	ON	9.6
0.652	25.59	46.00	20.41	N	ON	9.6
0.952	16.09	46.00	29.91	N	ON	9.7
1.384	17.62	46.00	28.38	N	ON	9.7
13.856	24.22	50.00	25.78	N	ON	9.8

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