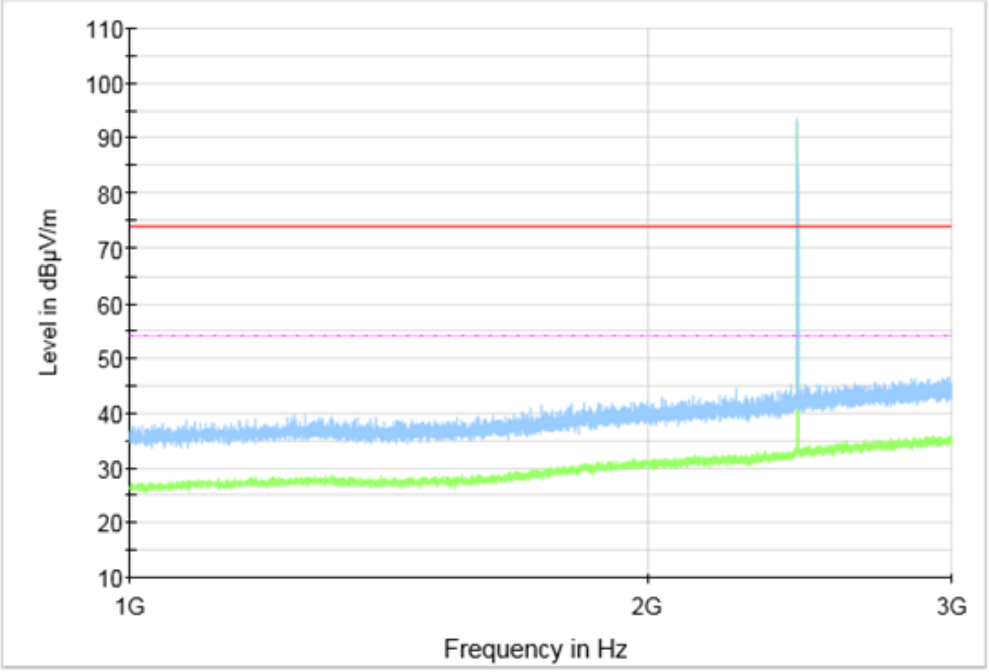

Fig. 44 Radiated Spurious Emission (GFSK, Ch39, 1 GHz ~3 GHz)

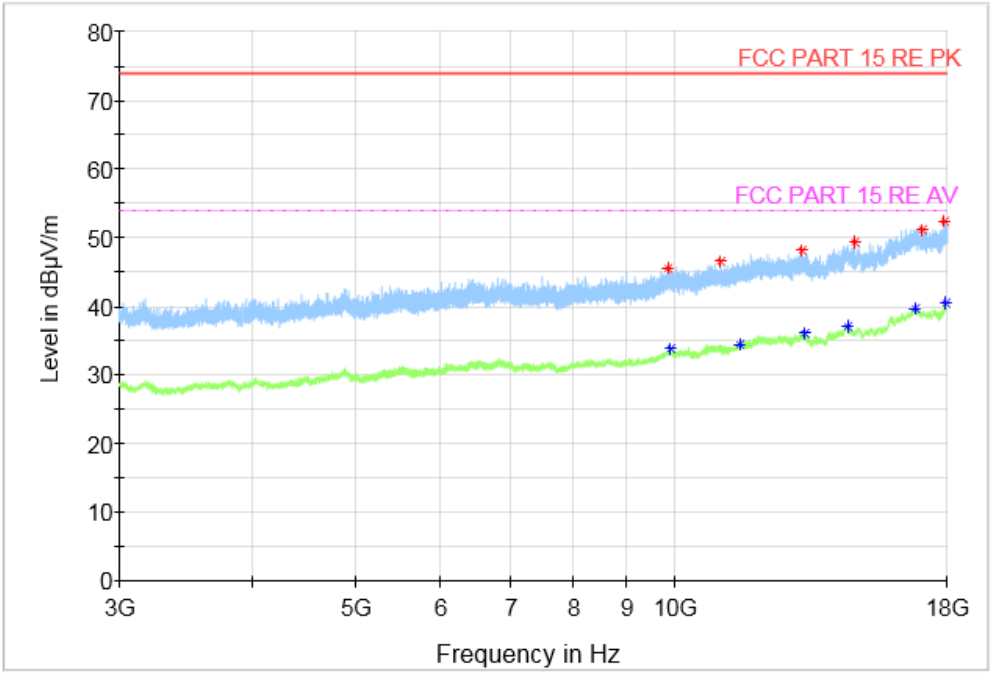

Fig. 45 Radiated Spurious Emission (GFSK, Ch39, 3 GHz ~18 GHz)

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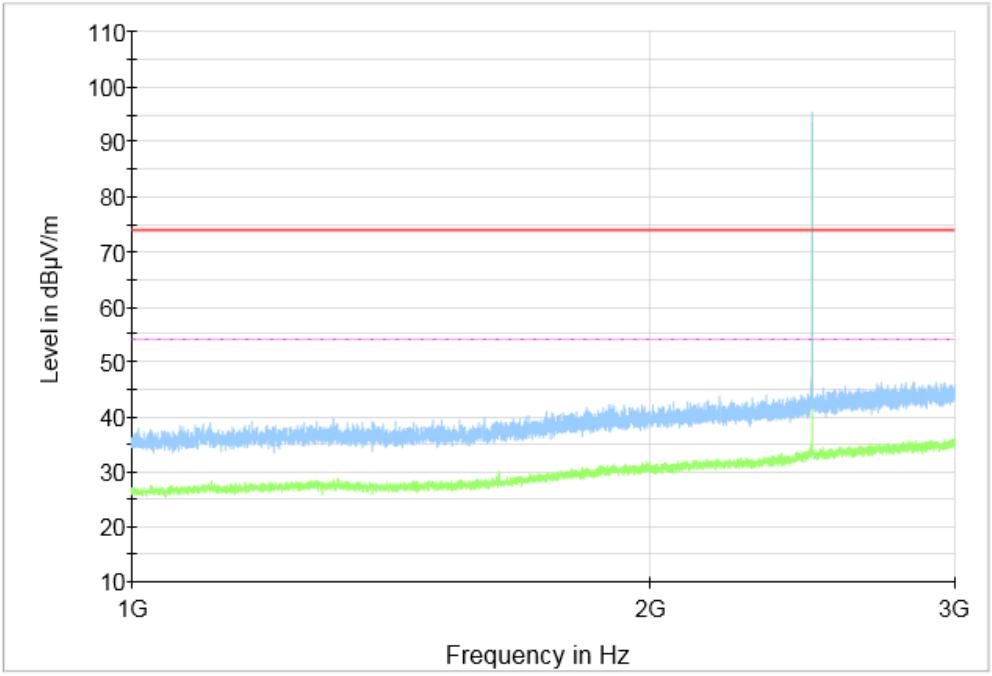

Fig. 46 Radiated Spurious Emission (GFSK, Ch78, 1 GHz ~3 GHz)

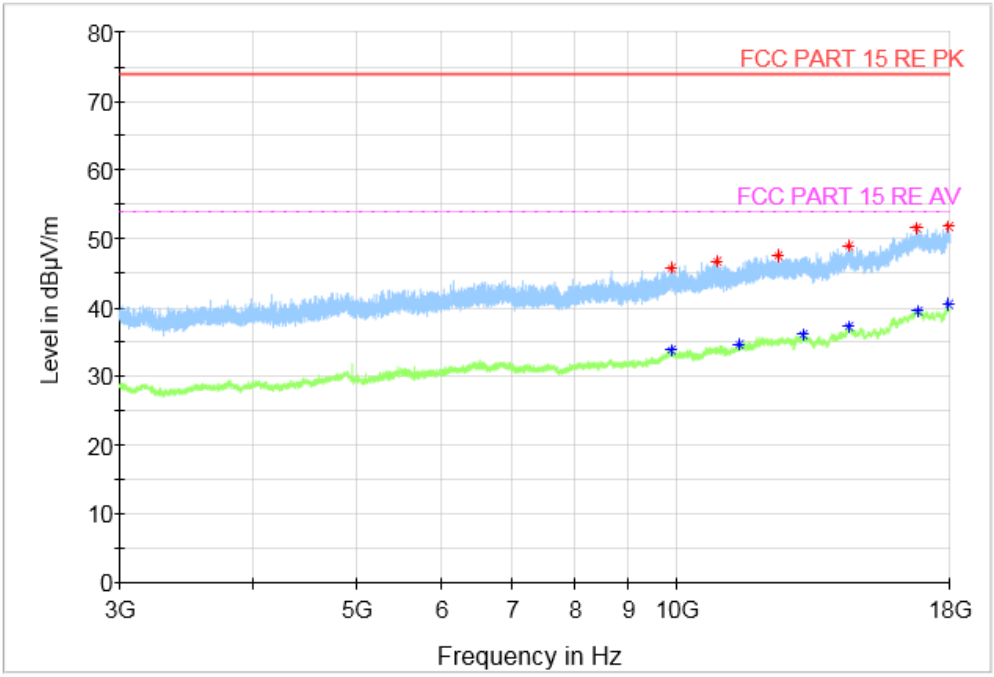

Fig. 47 Radiated Spurious Emission (GFSK, Ch78, 3 GHz ~18 GHz)

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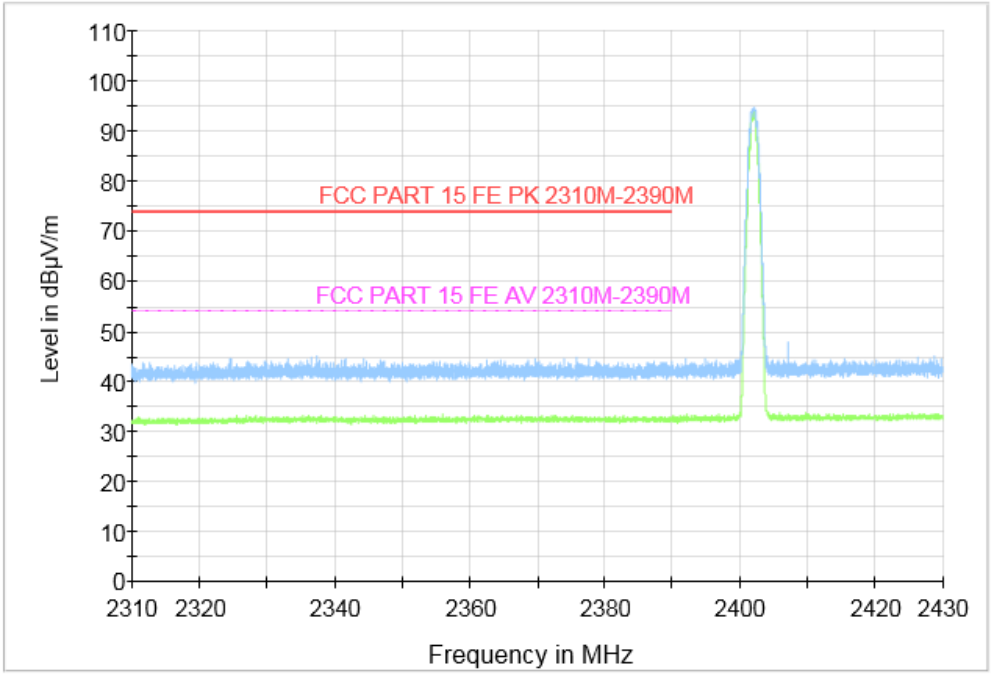

Fig. 48 Radiated Band Edges (GFSK, Ch0, 2380GHz~2450GHz)

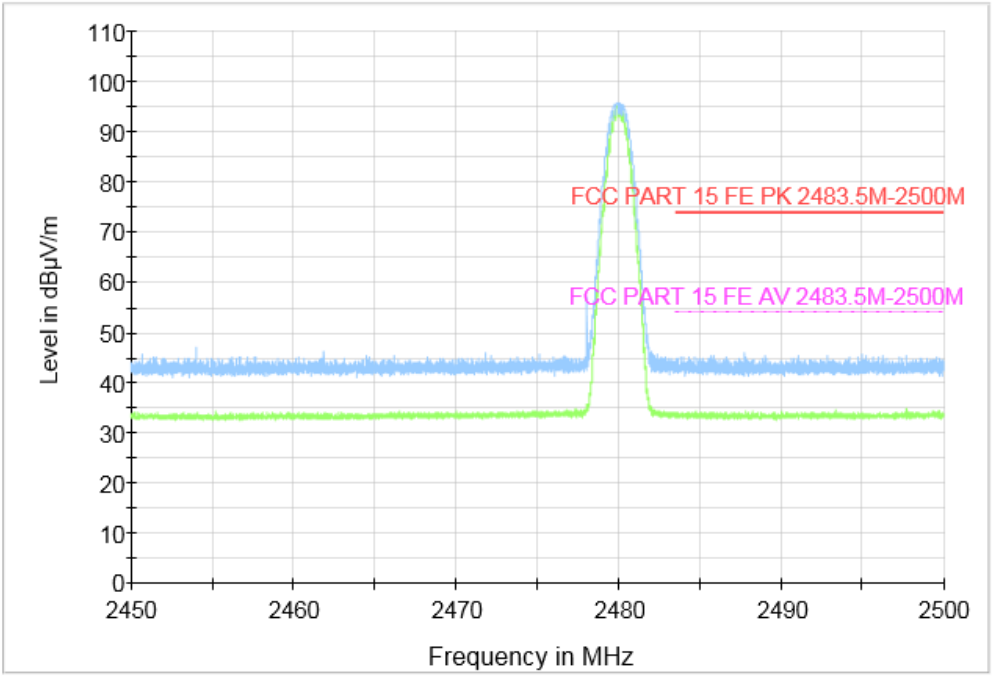

Fig. 49 Radiated Band Edges (GFSK, Ch78, 2450GHz~2500GHz)

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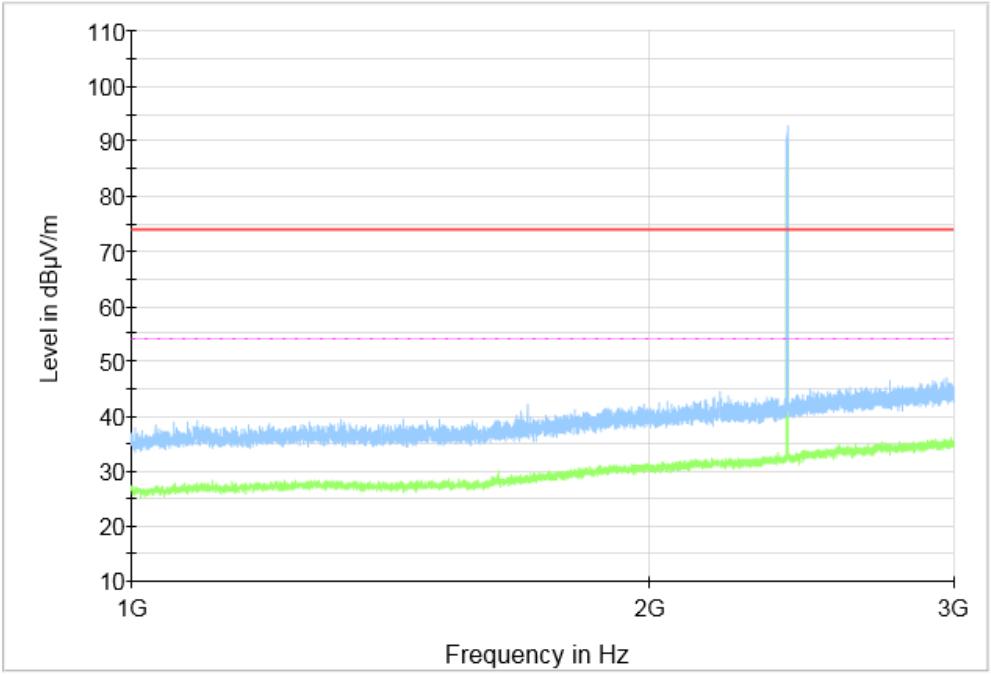

Fig. 50 Radiated Spurious Emission (π/4 DQPSK, Ch0, 1 GHz ~3 GHz)

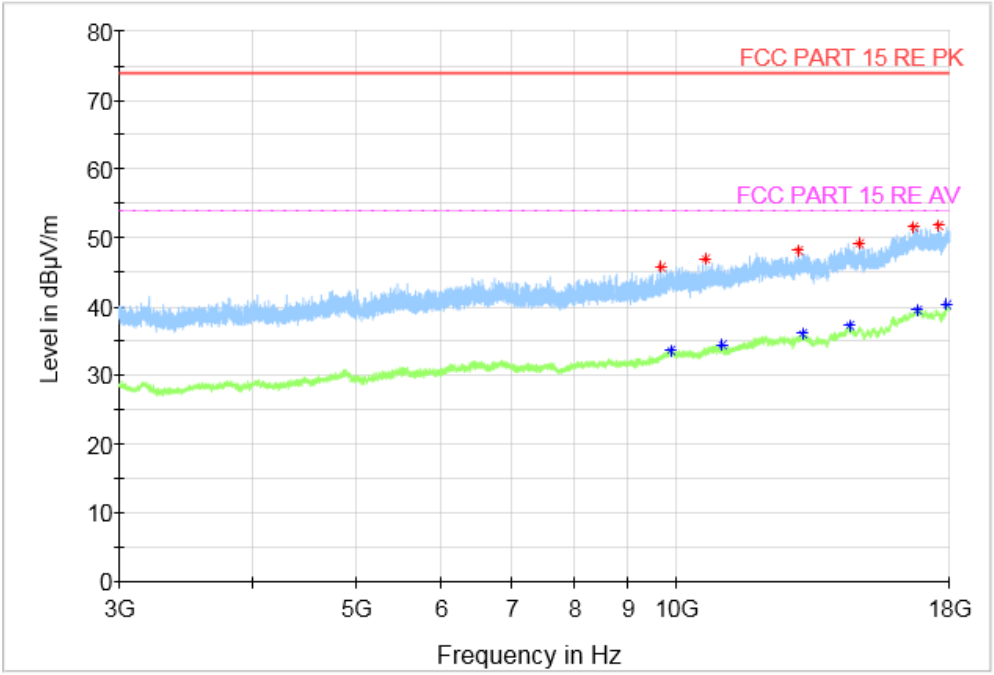

Fig. 51 Radiated Spurious Emission (π/4 DQPSK, Ch0, 3 GHz ~18 GHz)

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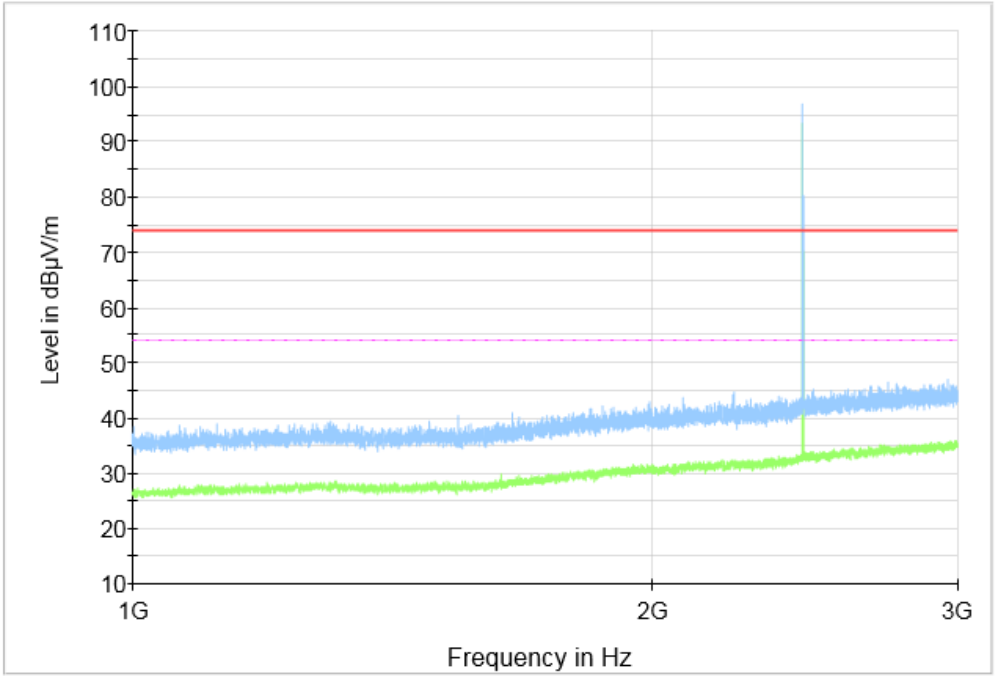

Fig. 52 Radiated Spurious Emission (π/4 DQPSK, Ch39, 1 GHz ~3 GHz)

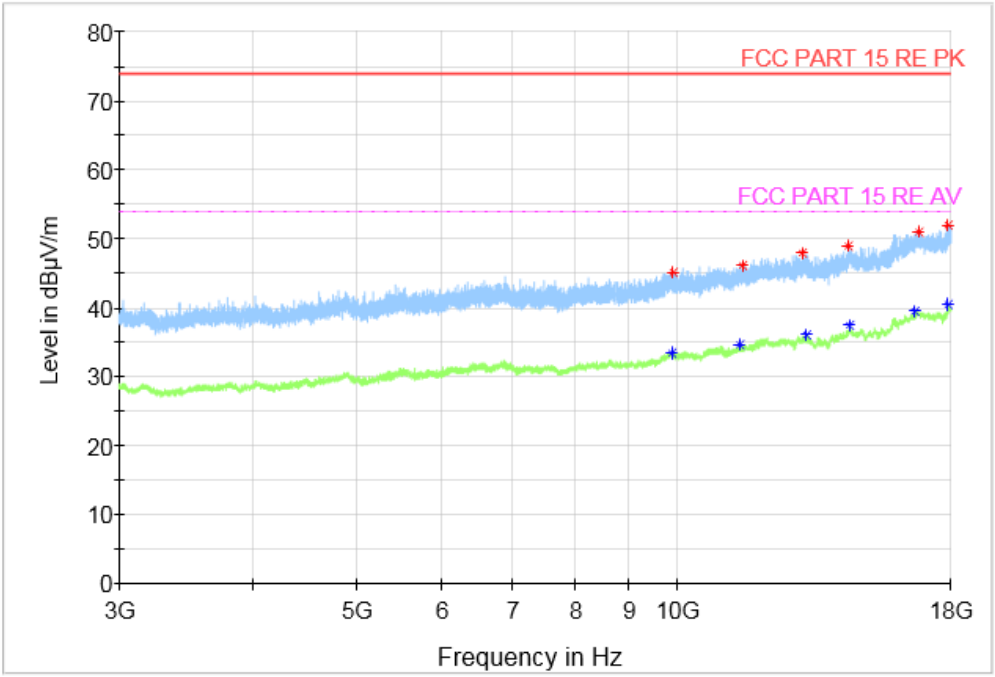

Fig. 53 Radiated Spurious Emission (π/4 DQPSK, Ch39, 3 GHz ~18 GHz)

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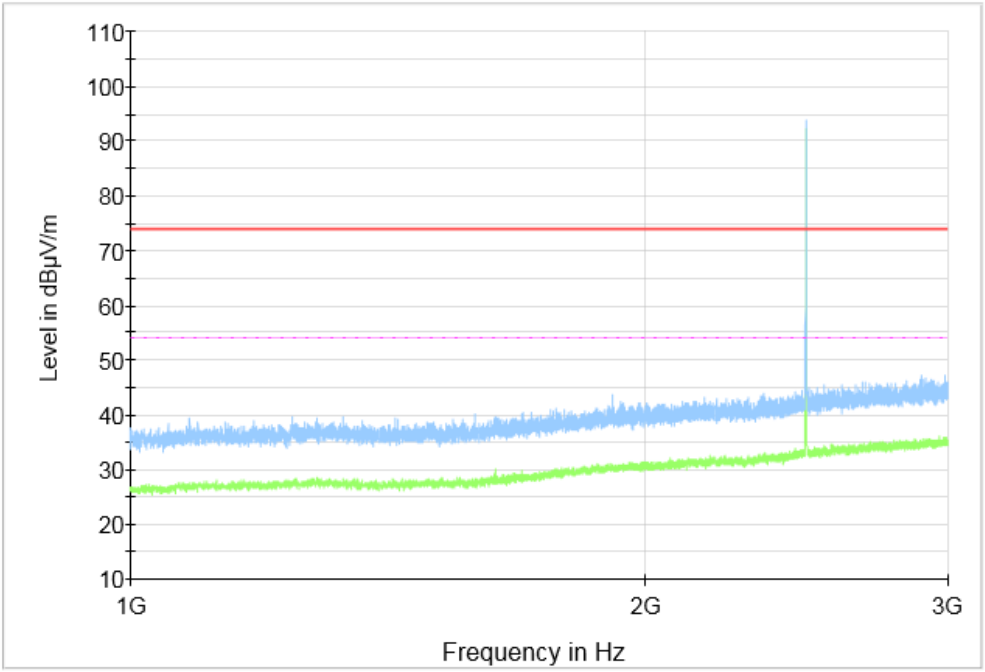

Fig. 54 Radiated Spurious Emission (π/4 DQPSK, Ch78, 1 GHz ~3 GHz)

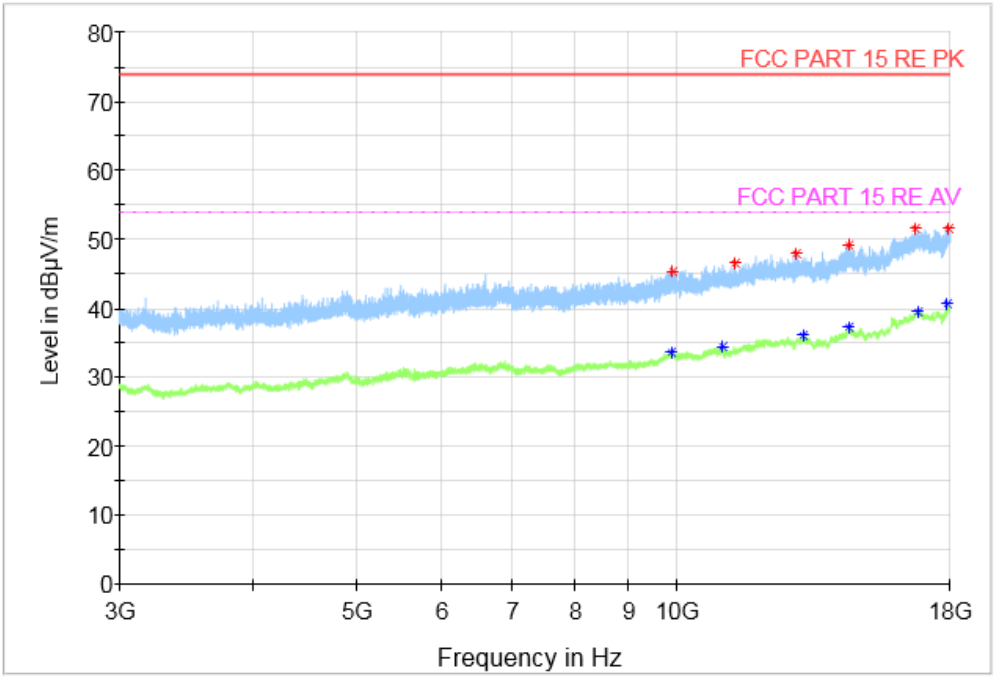

Fig. 55 Radiated Spurious Emission (π/4 DQPSK, Ch78, 3 GHz ~18 GHz)

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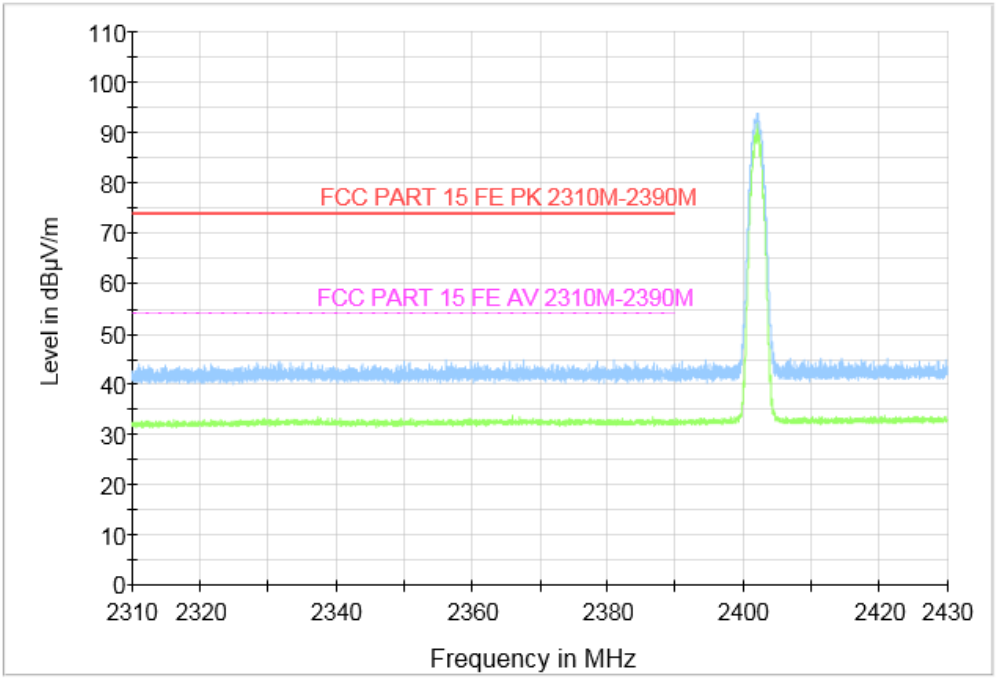

Fig. 56 Radiated Band Edges (π/4 DQPSK, Ch0, 2380GHz~2450GHz)

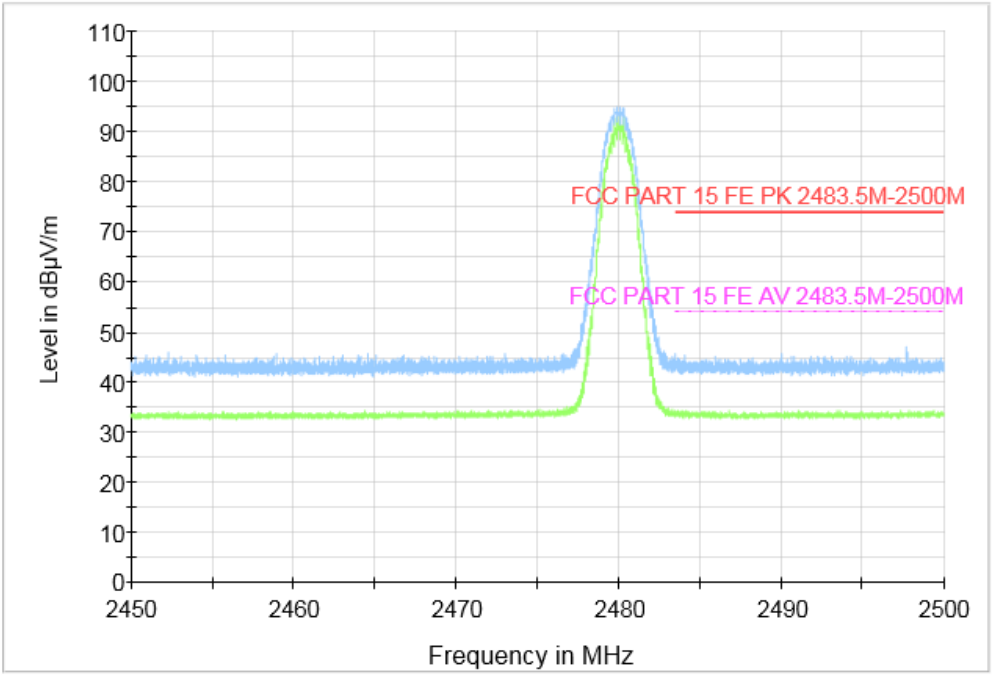

Fig. 57 Radiated Band Edges (π/4 DQPSK, Ch78, 2450GHz~2500GHz)

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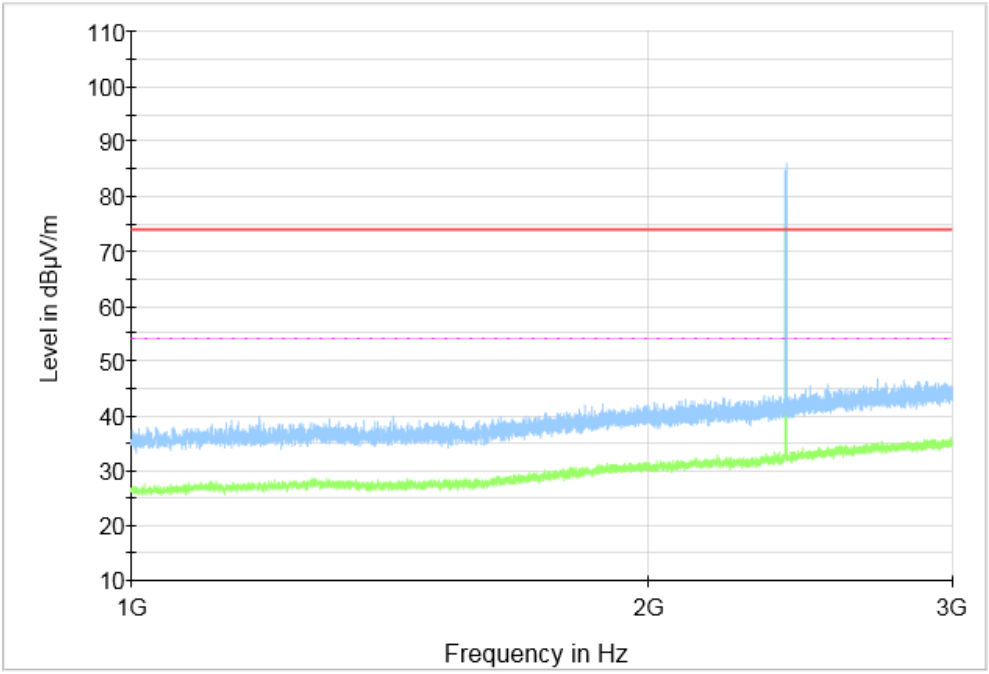

Fig. 58 Radiated Spurious Emission (8DPSK, Ch0, 1 GHz ~3 GHz)

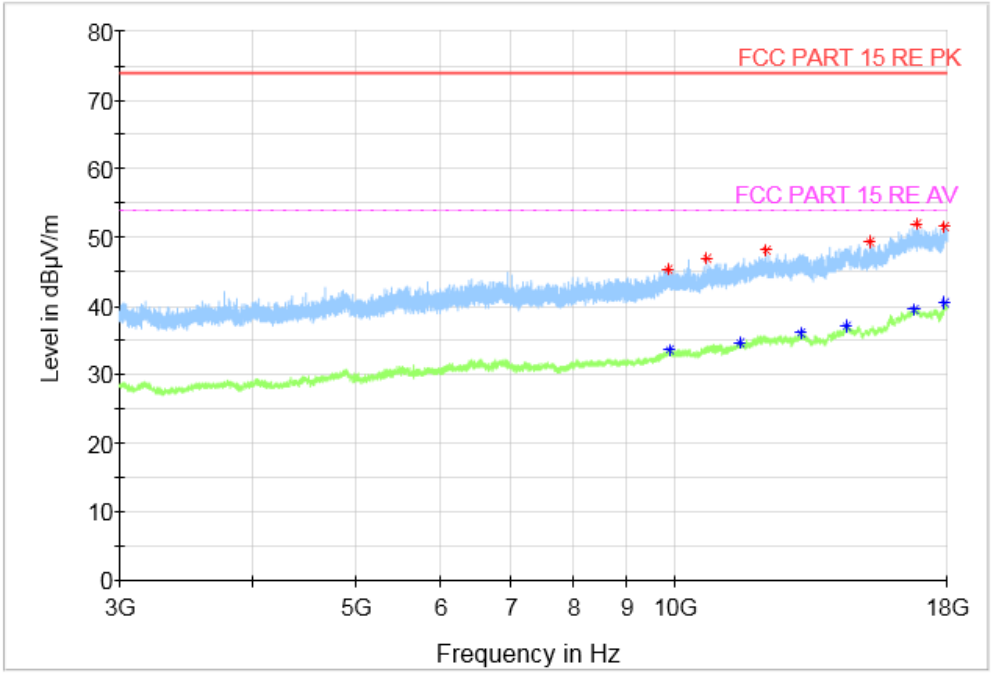

Fig. 59 Radiated Spurious Emission (8DPSK, Ch0, 3 GHz ~18 GHz)

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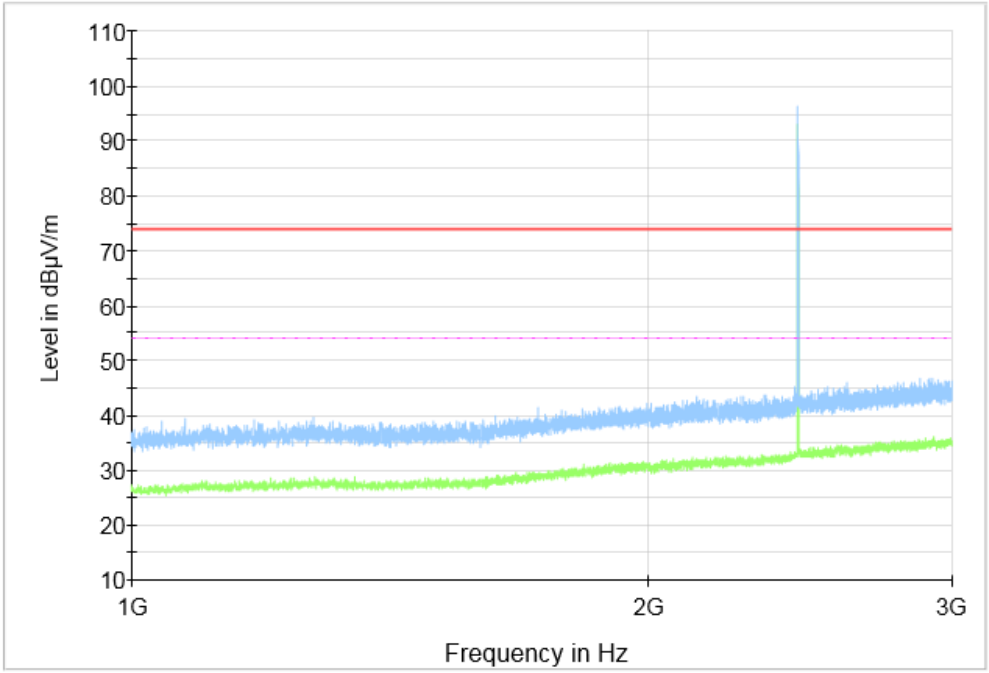

Fig. 60 Radiated Spurious Emission (8DPSK, Ch39, 1 GHz ~3 GHz)

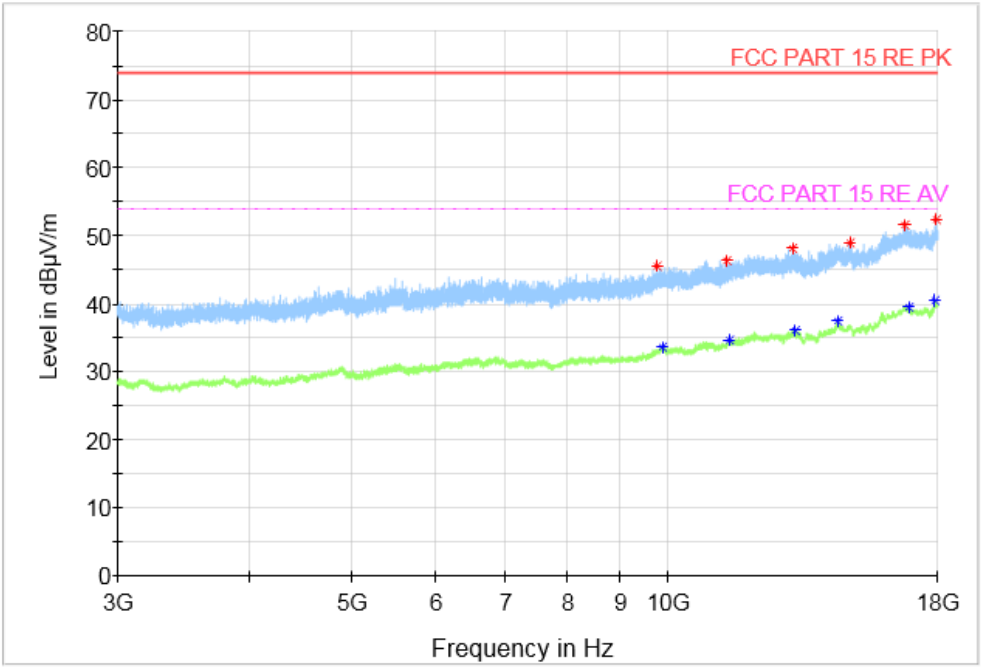

Fig. 61 Radiated Spurious Emission (8DPSK, Ch39, 3 GHz ~18 GHz)

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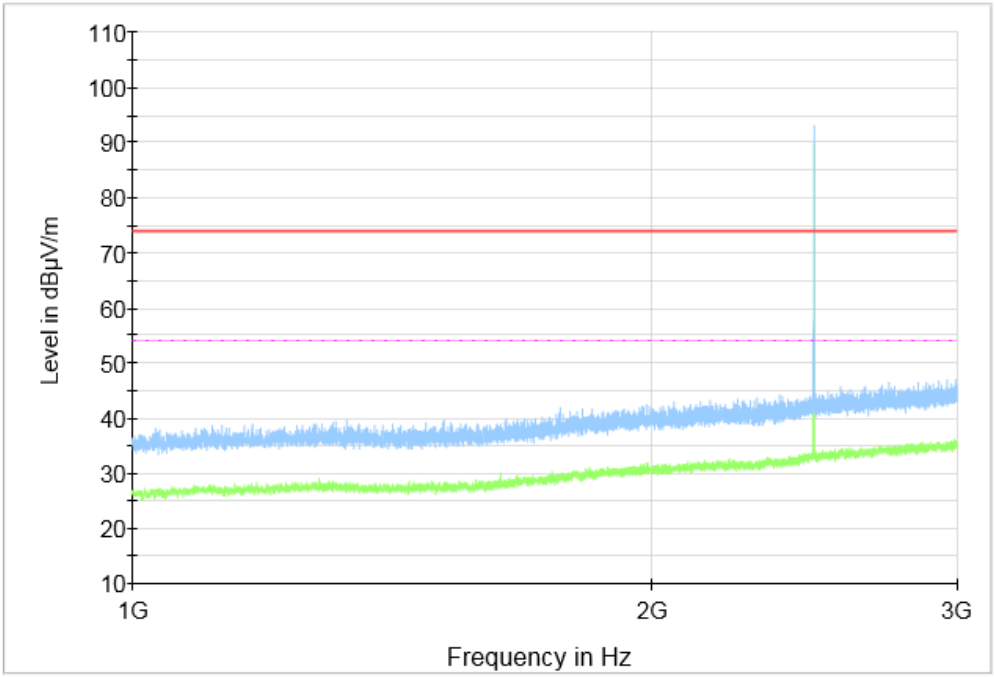

Fig. 62 Radiated Spurious Emission (8DPSK, Ch78, 1 GHz ~3 GHz)

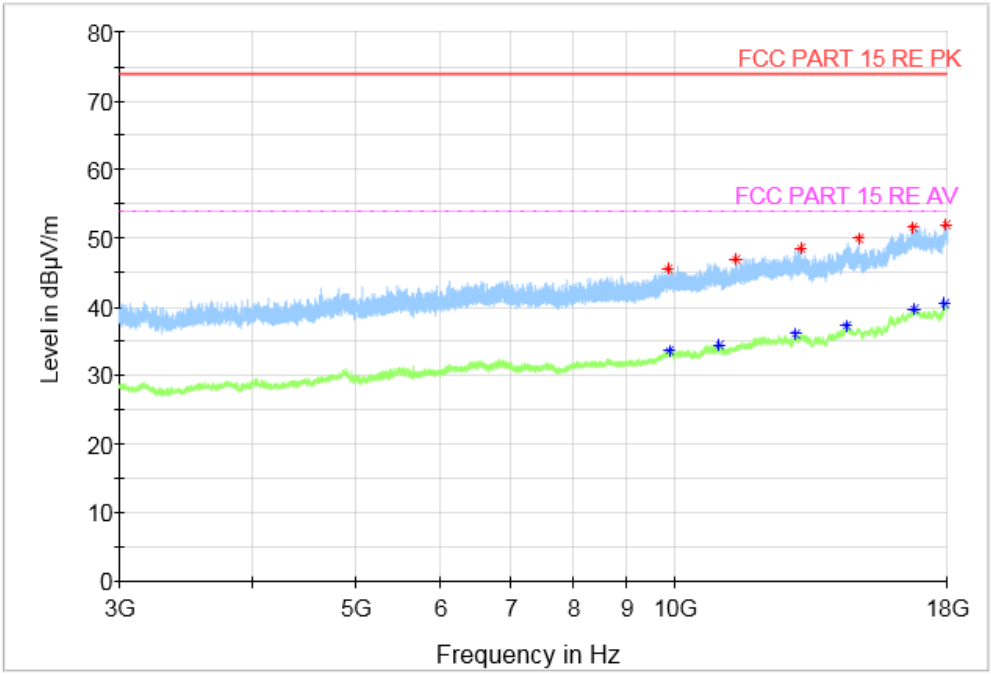

Fig. 63 Radiated Spurious Emission (8DPSK, Ch78, 3 GHz ~18 GHz)

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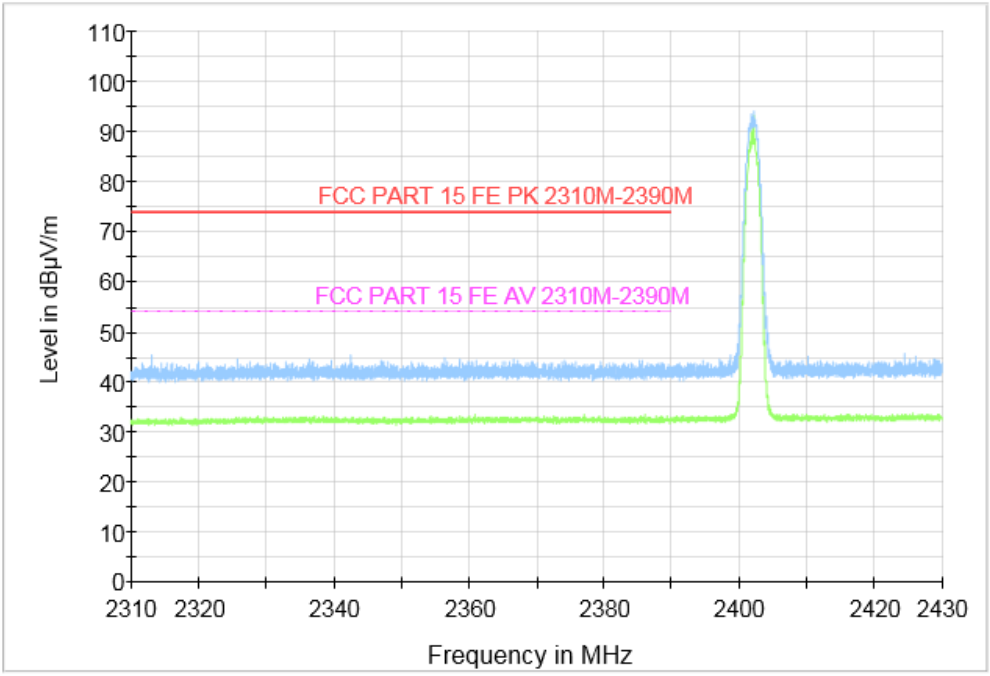

Fig. 64 Radiated Band Edges (8DPSK, Ch0, 2380GHz~2450GHz)

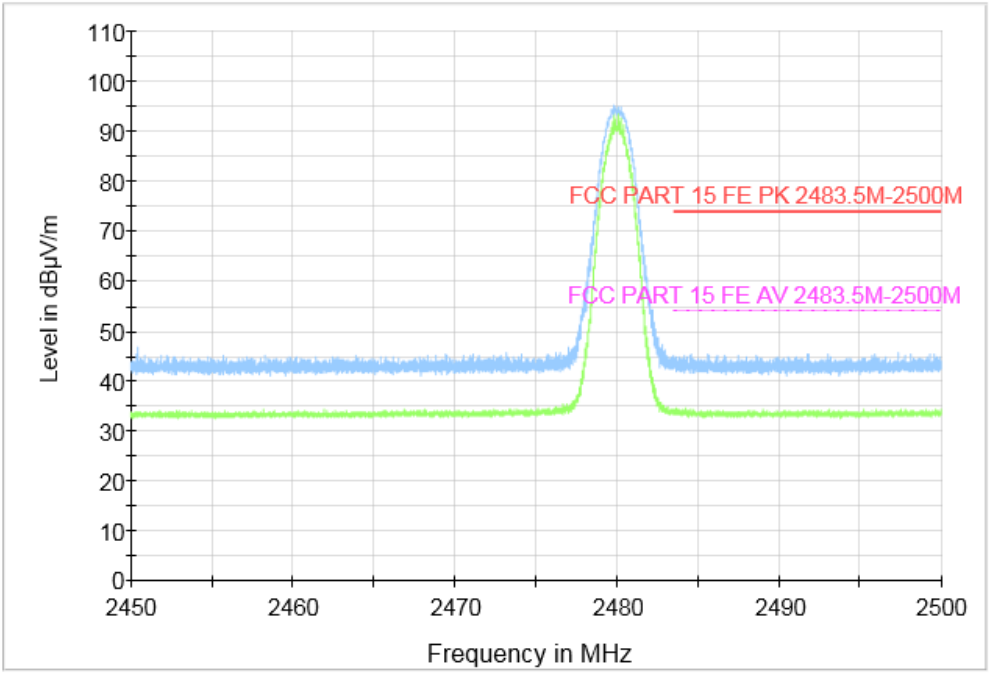

Fig. 65 Radiated Band Edges (8DPSK, Ch78, 2450GHz~2500GHz)

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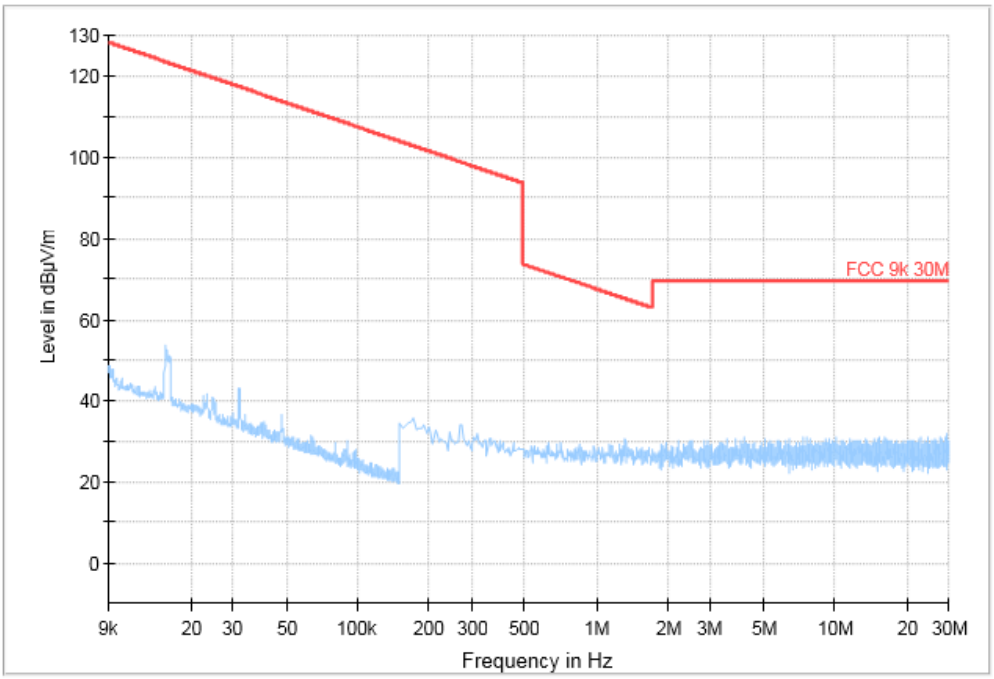

Fig. 66 Radiated Spurious Emission (All Channels, 9 kHz ~30 MHz)

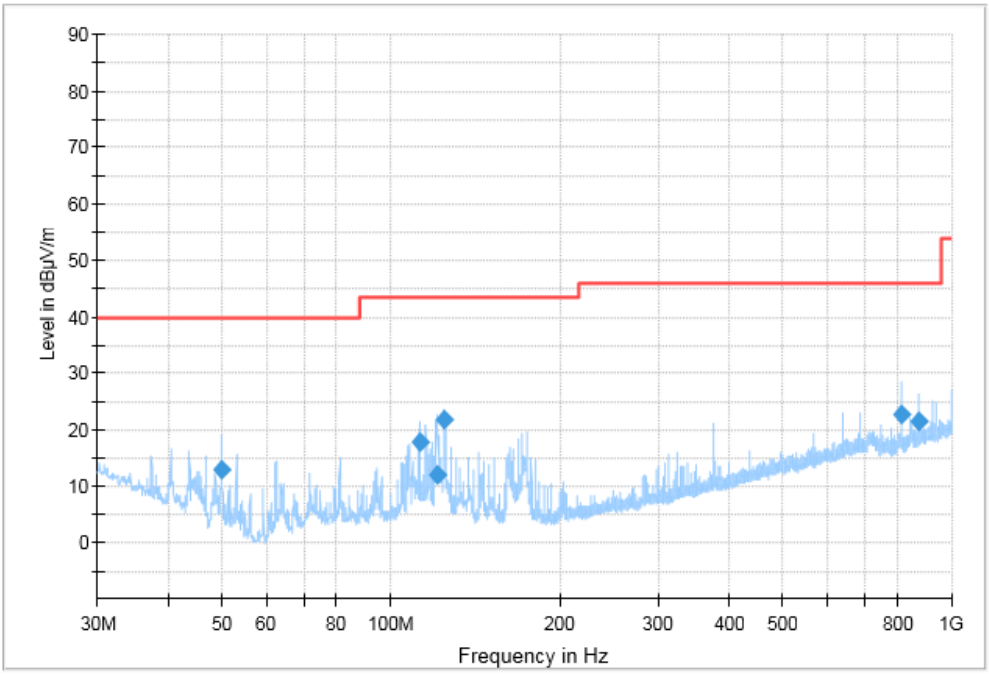

Fig. 67 Radiated Spurious Emission (All Channels, 30 MHz ~1 GHz)

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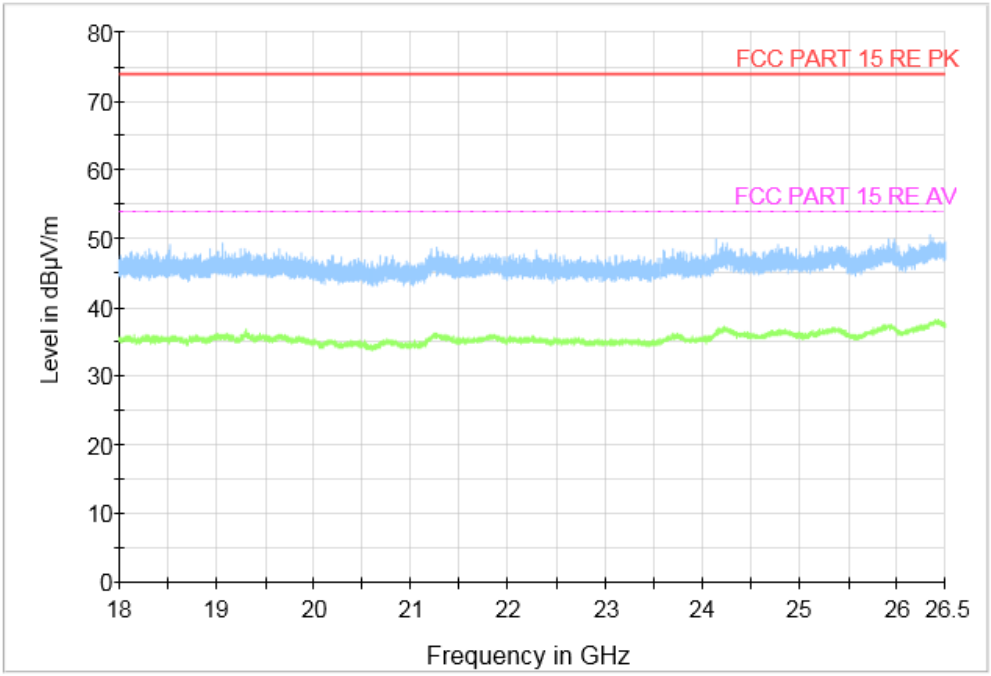

Fig. 68 Radiated Spurious Emission (All Channels, 18 GHz ~26.5 GHz)

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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	939.75	/
	39	Fig.70	939.00	
	78	Fig.71	940.50	
π/4 DQPSK	0	Fig.72	1252.50	/
	39	Fig.73	1230.75	
	78	Fig.74	1231.50	
8DPSK	0	Fig.75	1238.25	/
	39	Fig.76	1257.75	
	78	Fig.77	1256.25	

See below for test graphs.

Conclusion: PASS

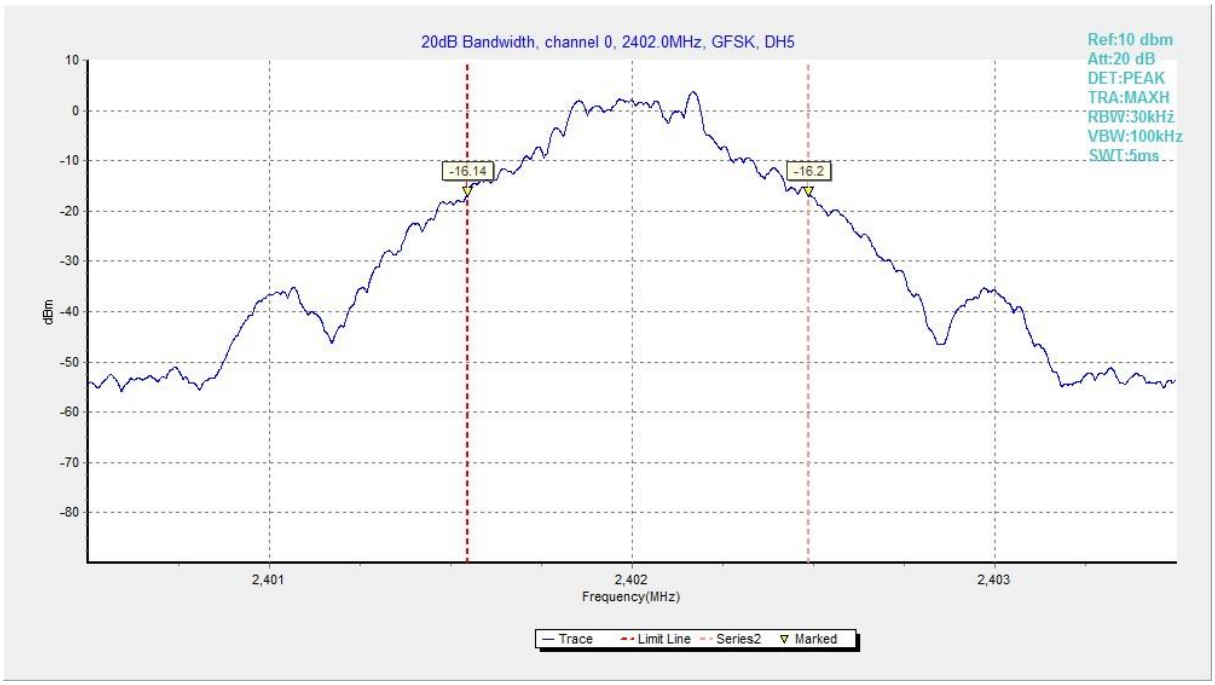

Fig. 69 20dB Bandwidth (GFSK, Ch 0)

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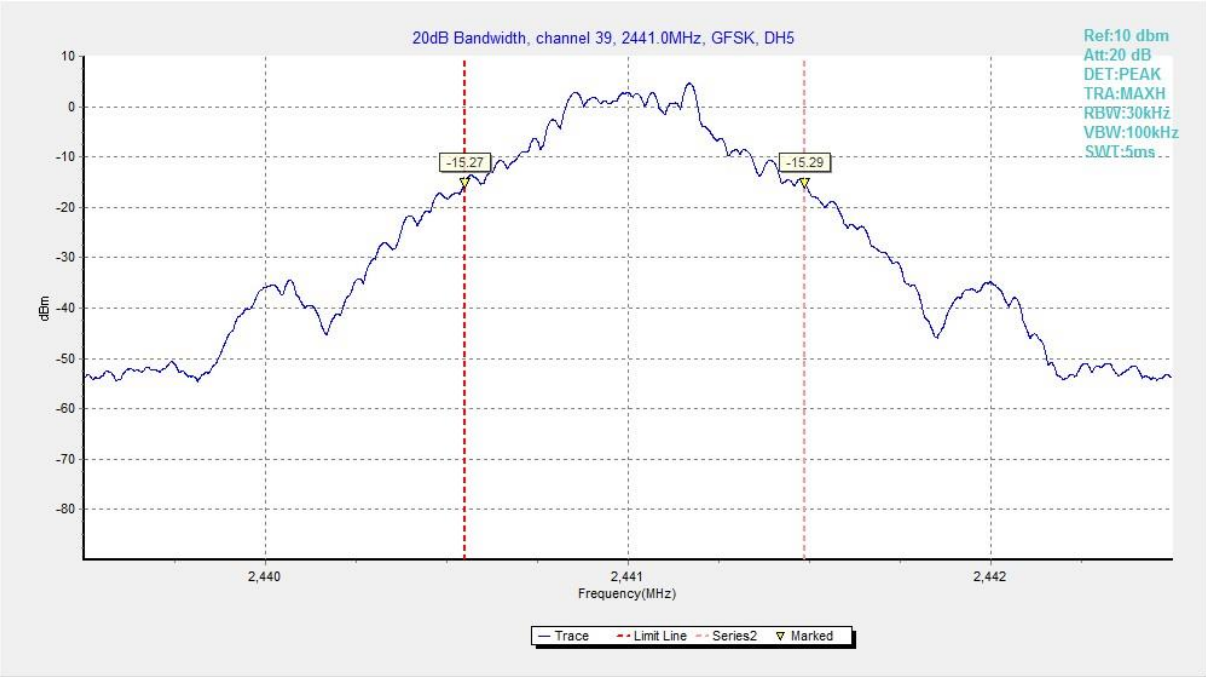

Fig. 70 20dB Bandwidth (GFSK, Ch 39)

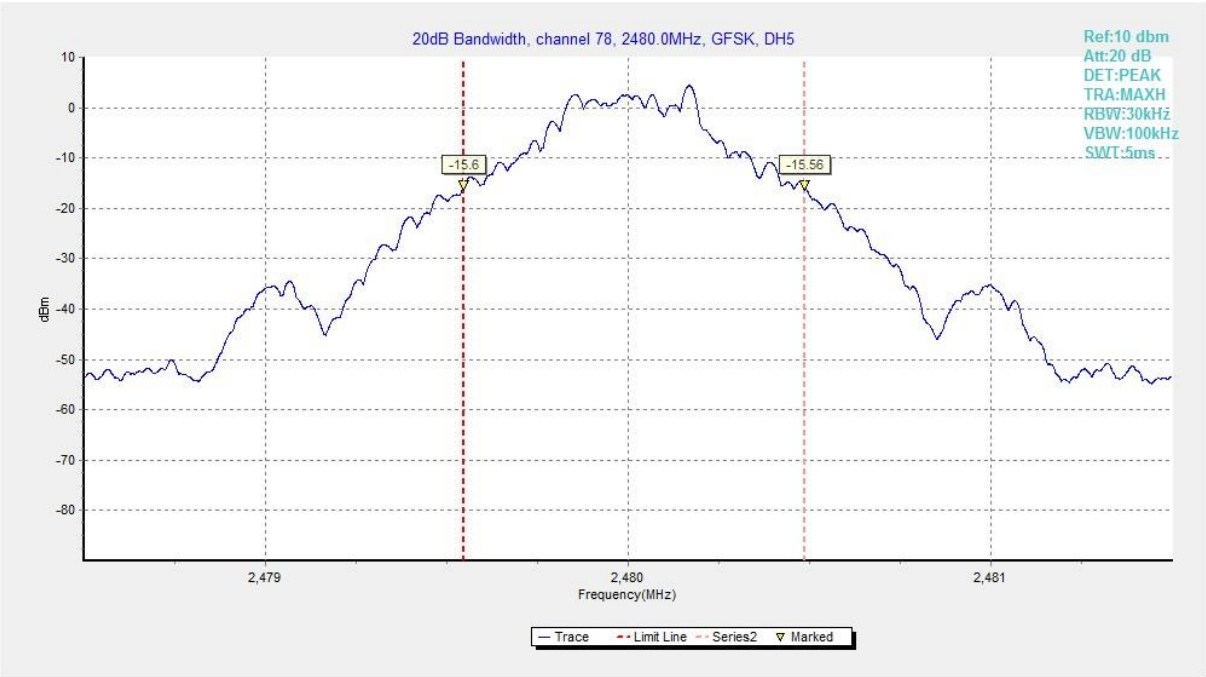

Fig. 71 20dB Bandwidth (GFSK, Ch 78)

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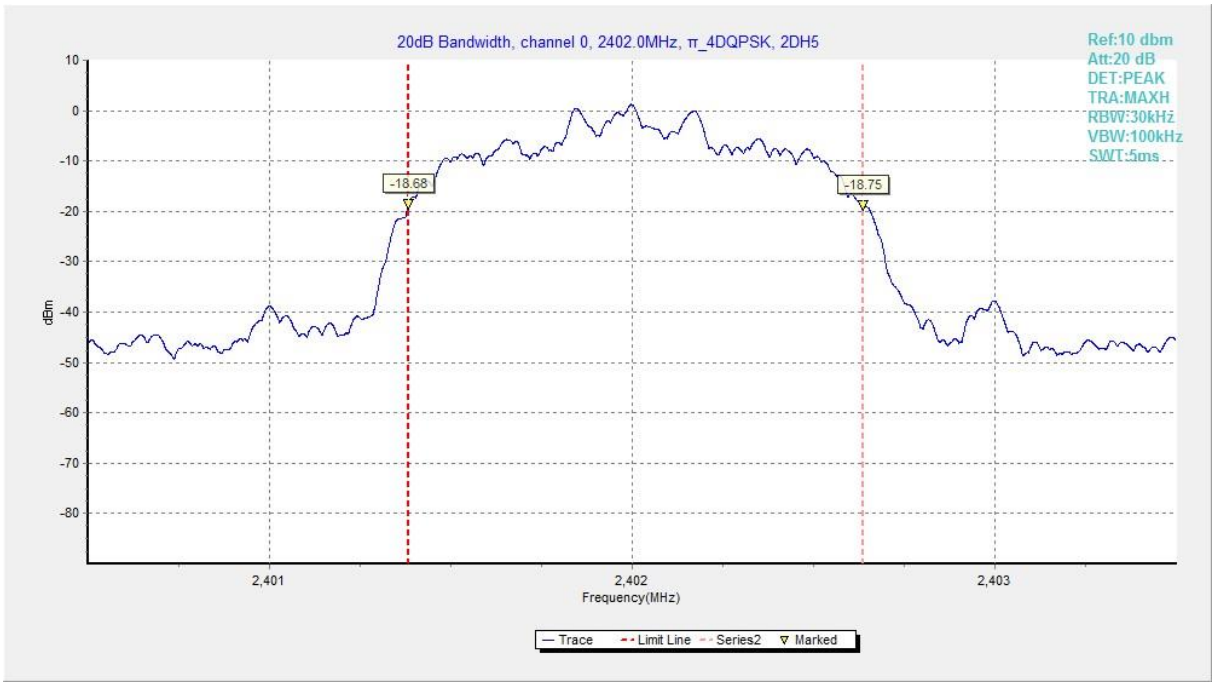

Fig. 72 20dB Bandwidth (π/4 DQPSK, Ch 0)

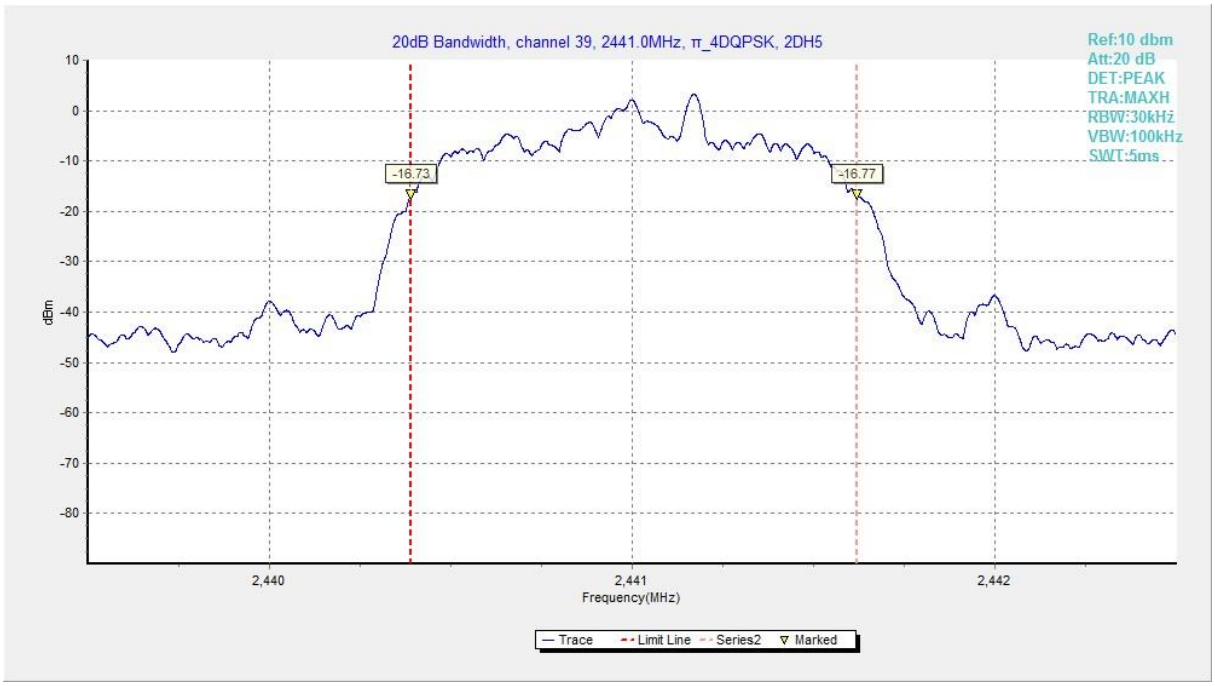

Fig. 73 20dB Bandwidth (π/4 DQPSK, Ch 39)

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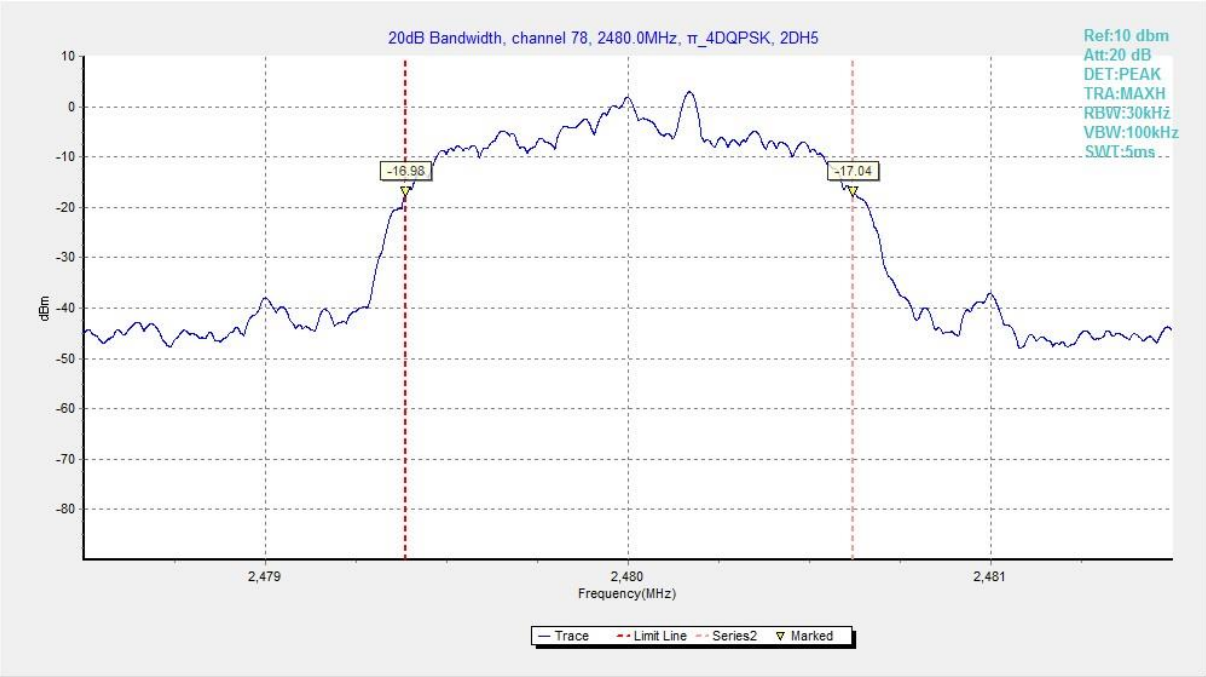

Fig. 74 20dB Bandwidth (π/4 DQPSK, Ch 78)

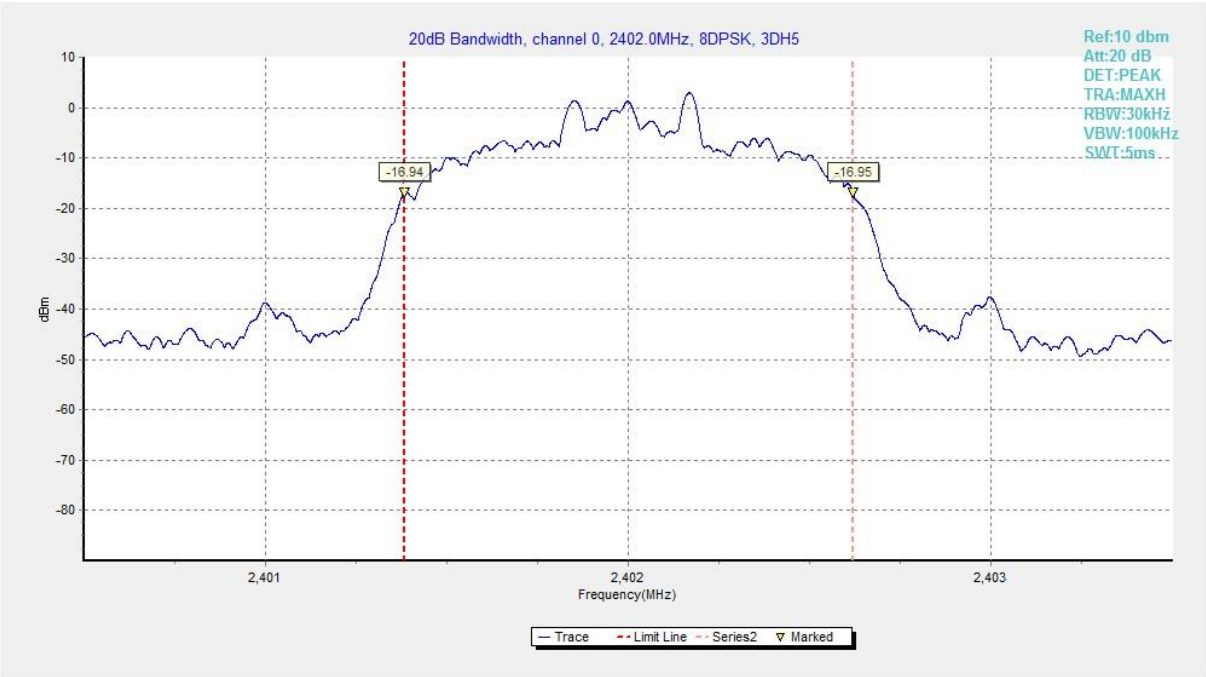

Fig. 75 20dB Bandwidth (8DPSK, Ch 0)

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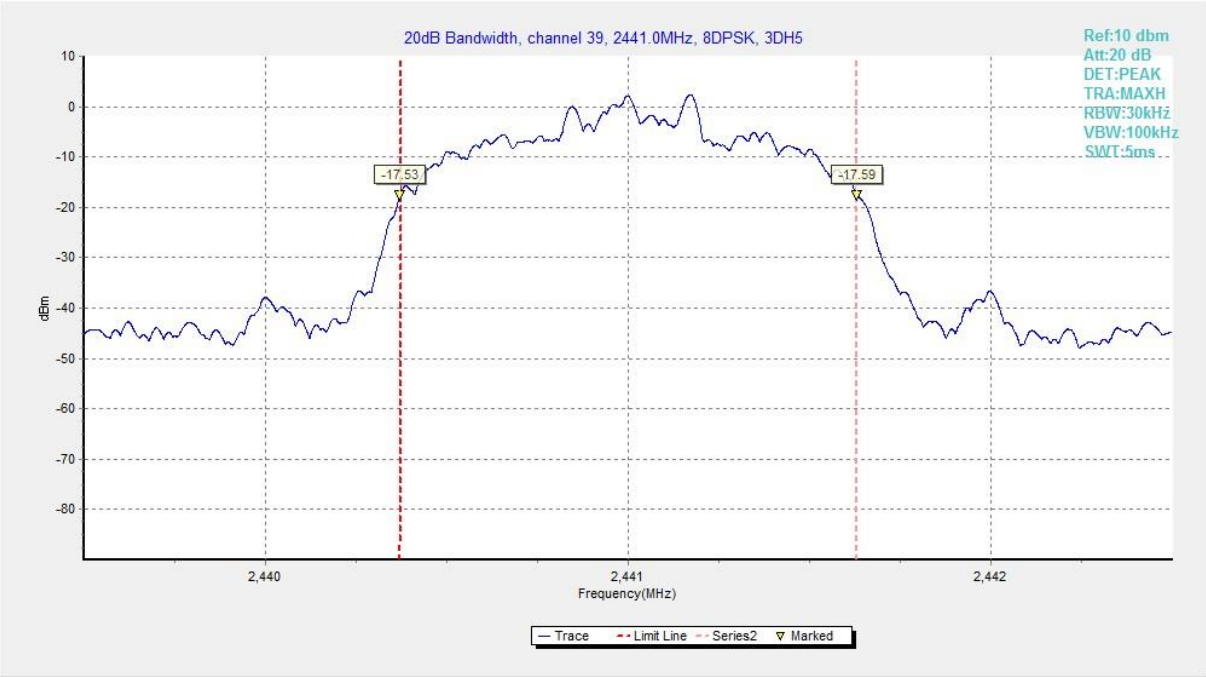

Fig. 76 20dB Bandwidth (8DPSK, Ch 39)

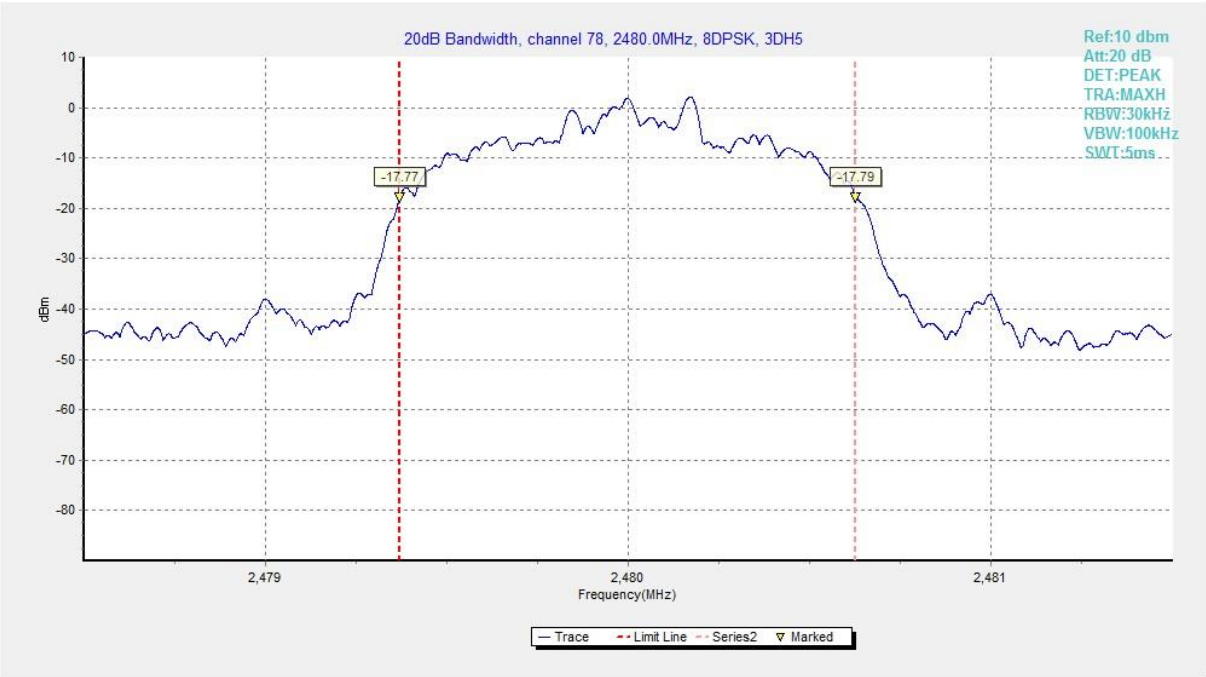

Fig. 77 20dB Bandwidth (8DPSK, Ch 78)

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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	307.28	**P**
			Fig.79		
π/4 DQPSK	39	2-DH5	Fig.80	307.10	**P**
			Fig.81		
8DPSK	39	3-DH5	Fig.82	306.98	**P**
			Fig.83		

See below for test graphs.

Conclusion: Pass

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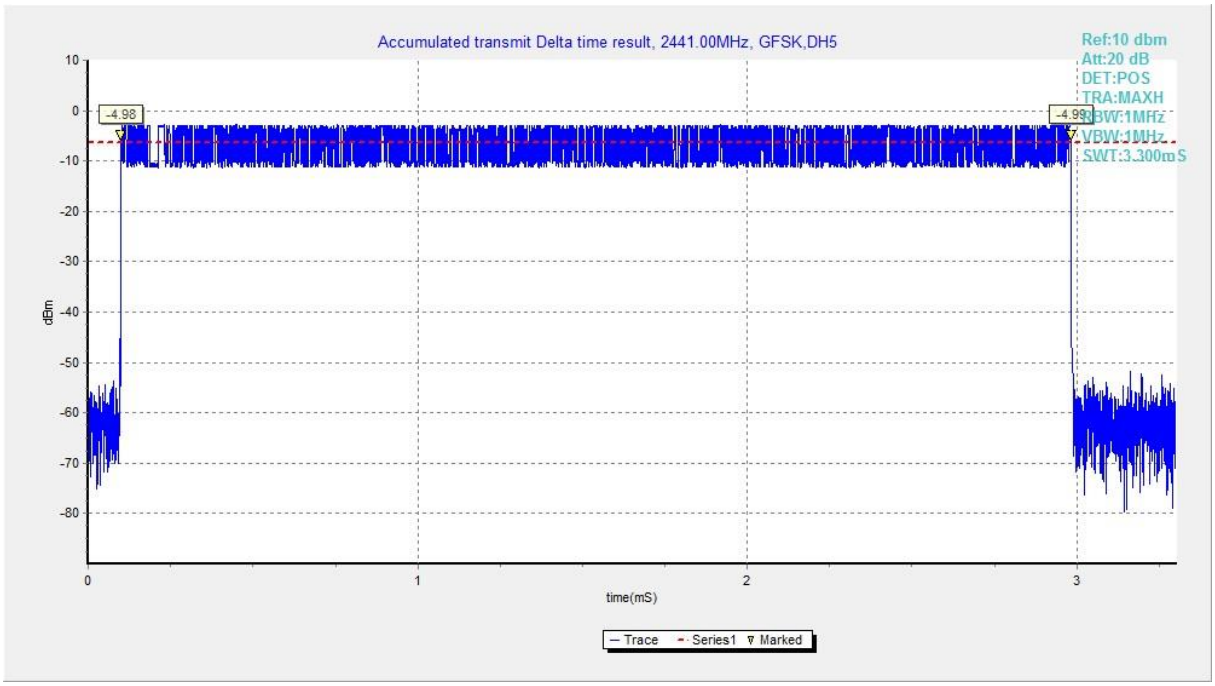

Fig. 78 Time of Occupancy (Dwell Time) (GFSK, Ch39)

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

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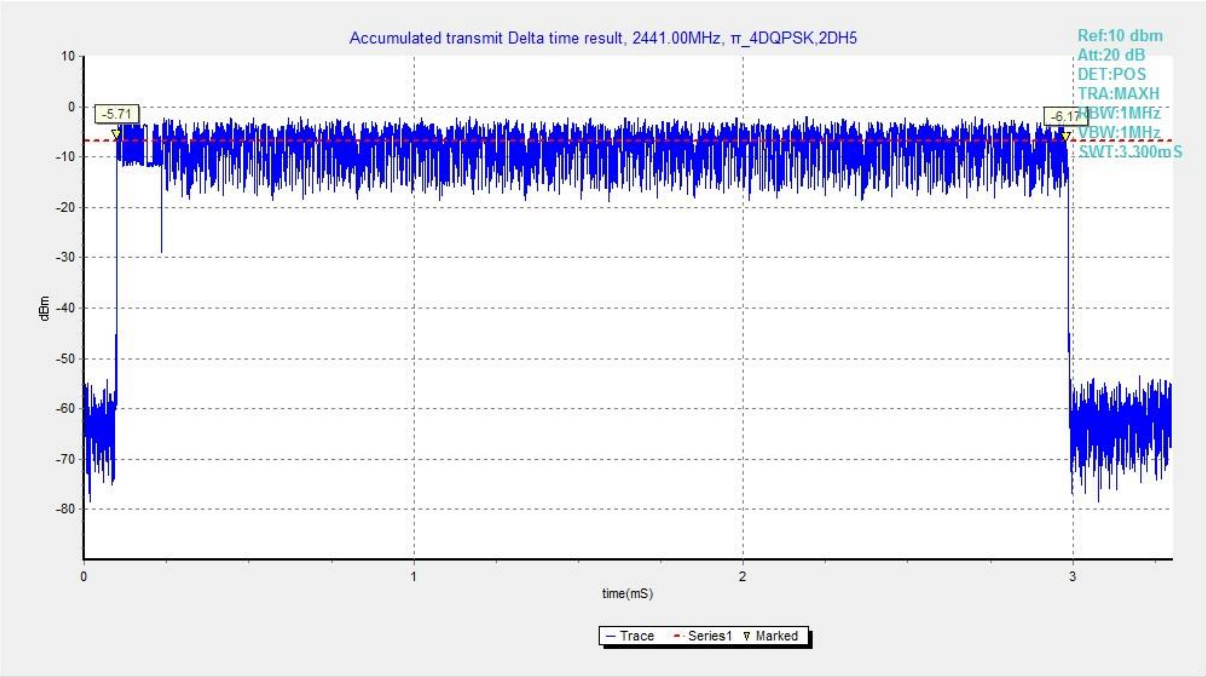

Fig. 80 Time of Occupancy (Dwell Time) (π/4 DQPSK, Ch39)

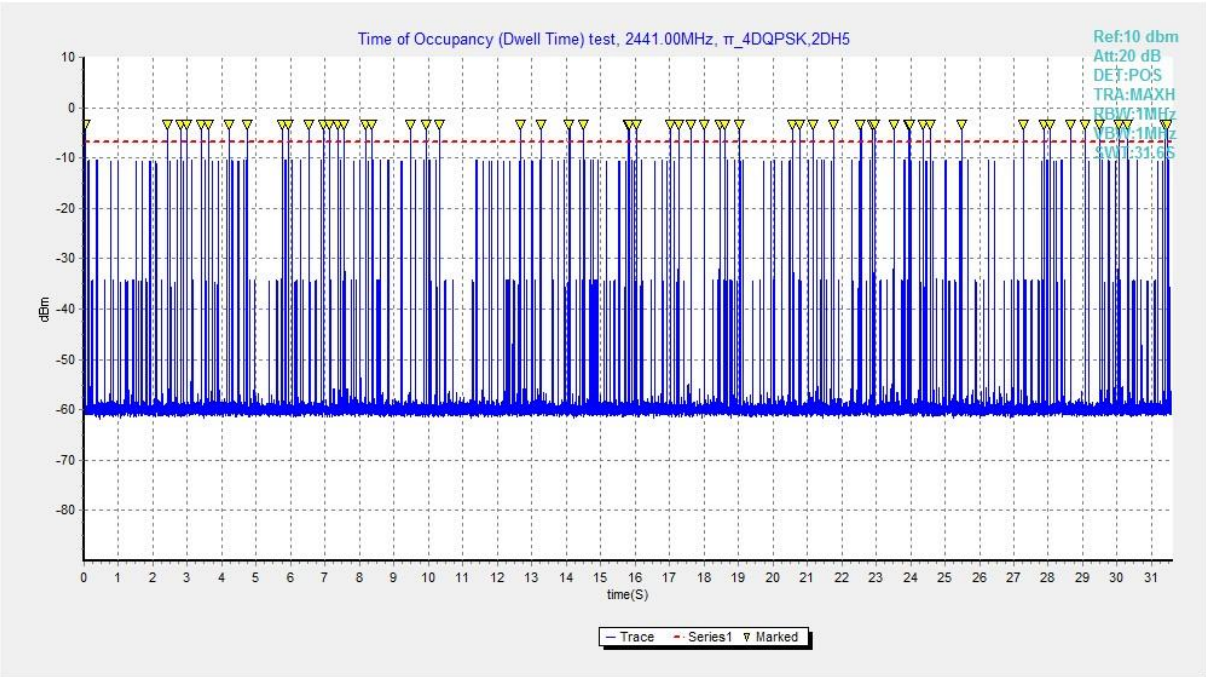

Fig. 81 Time of Occupancy (Dwell Time) (π/4 DQPSK, Ch39)

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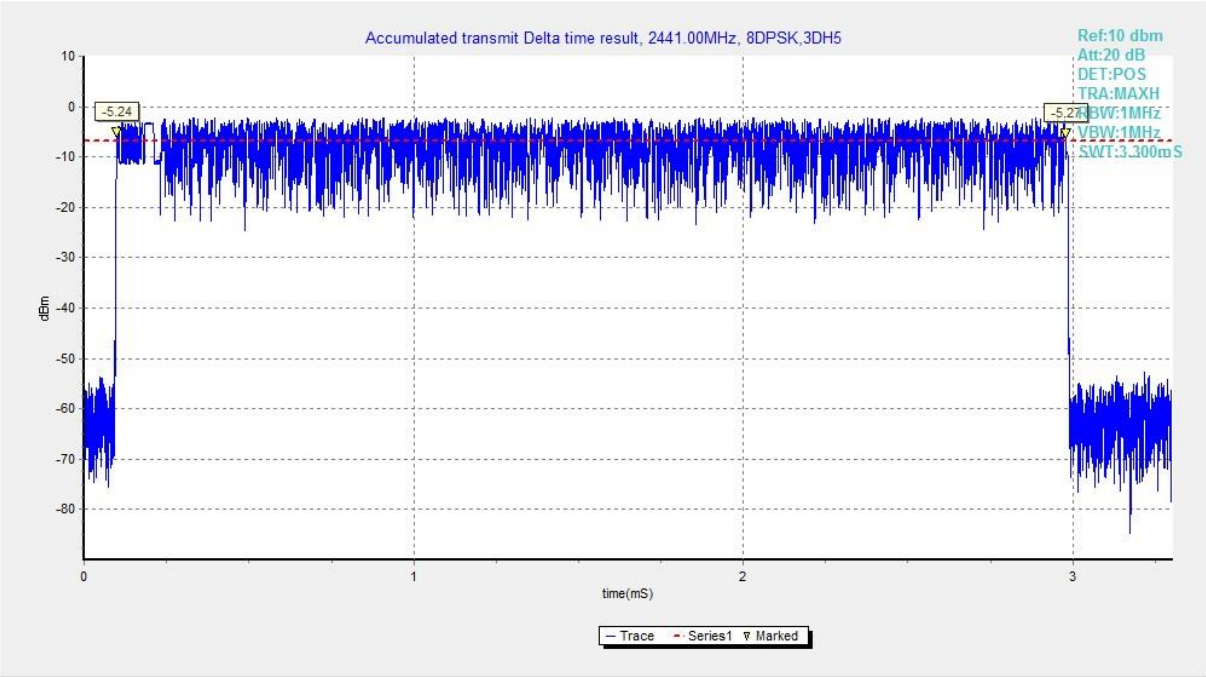

Fig. 82 Time of Occupancy (Dwell Time) (8DPSK, Ch39)

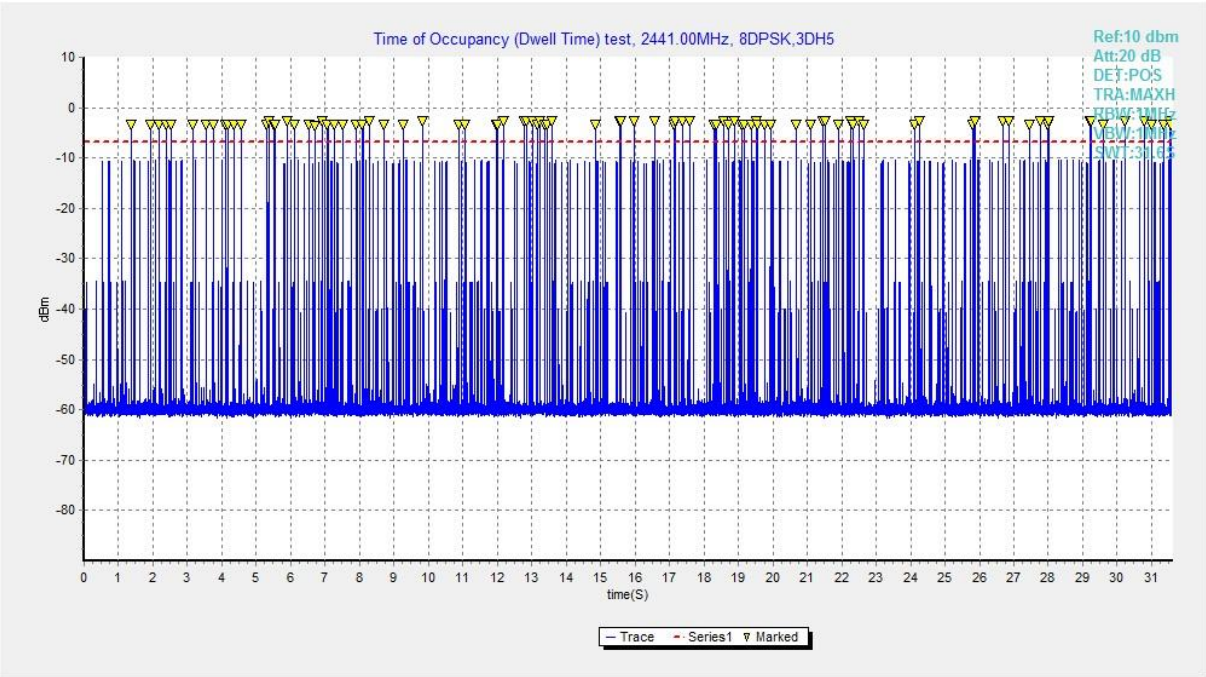

Fig. 83 Time of Occupancy (Dwell Time) (8DPSK, Ch39)

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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

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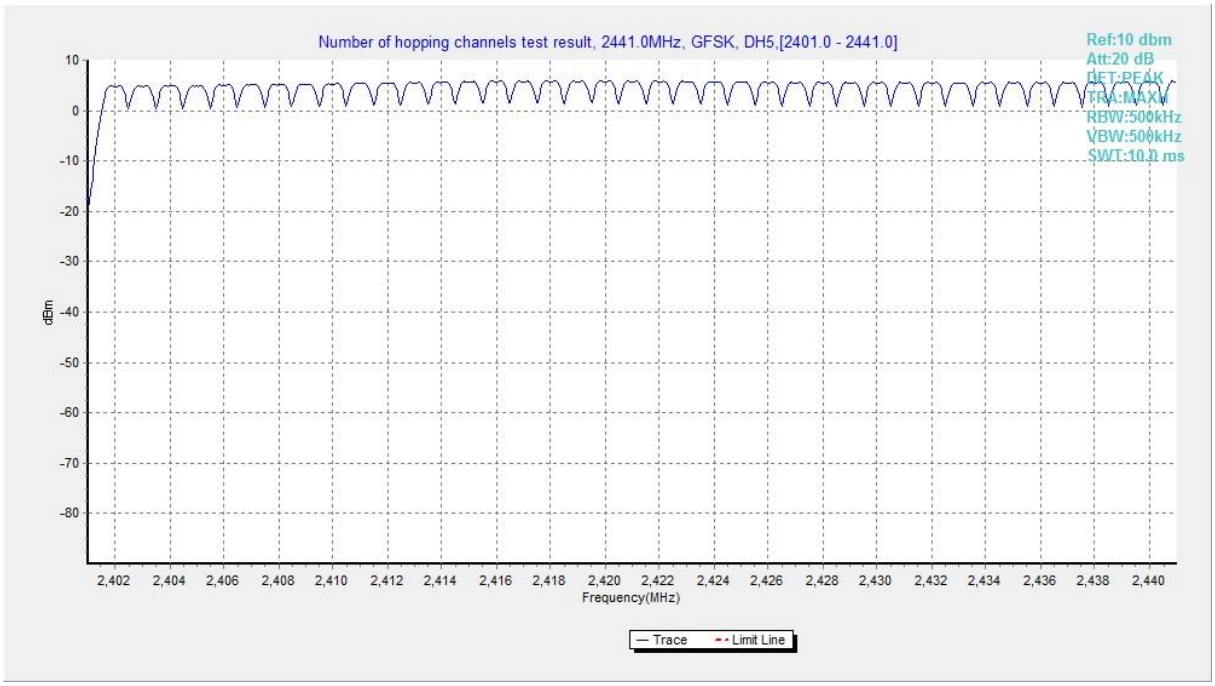

Fig. 84 Hopping channel ch0~39 (GFSK, Ch39)

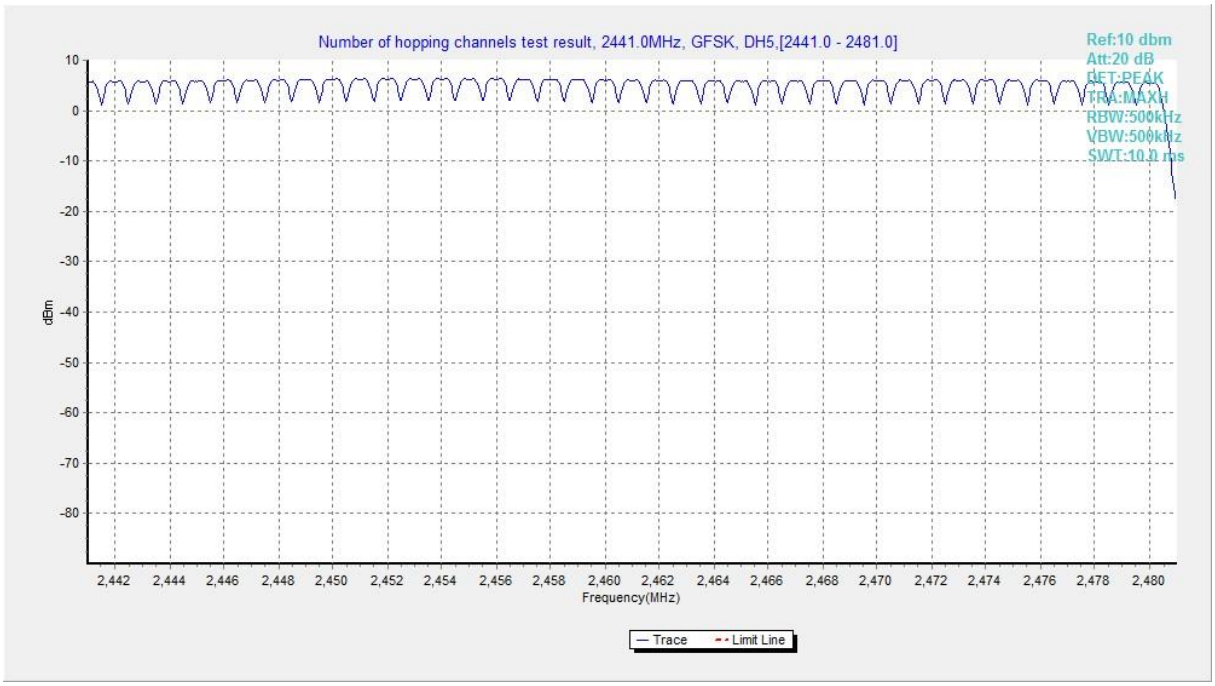

Fig. 85 Hopping channel ch39~78 (GFSK, Ch39)

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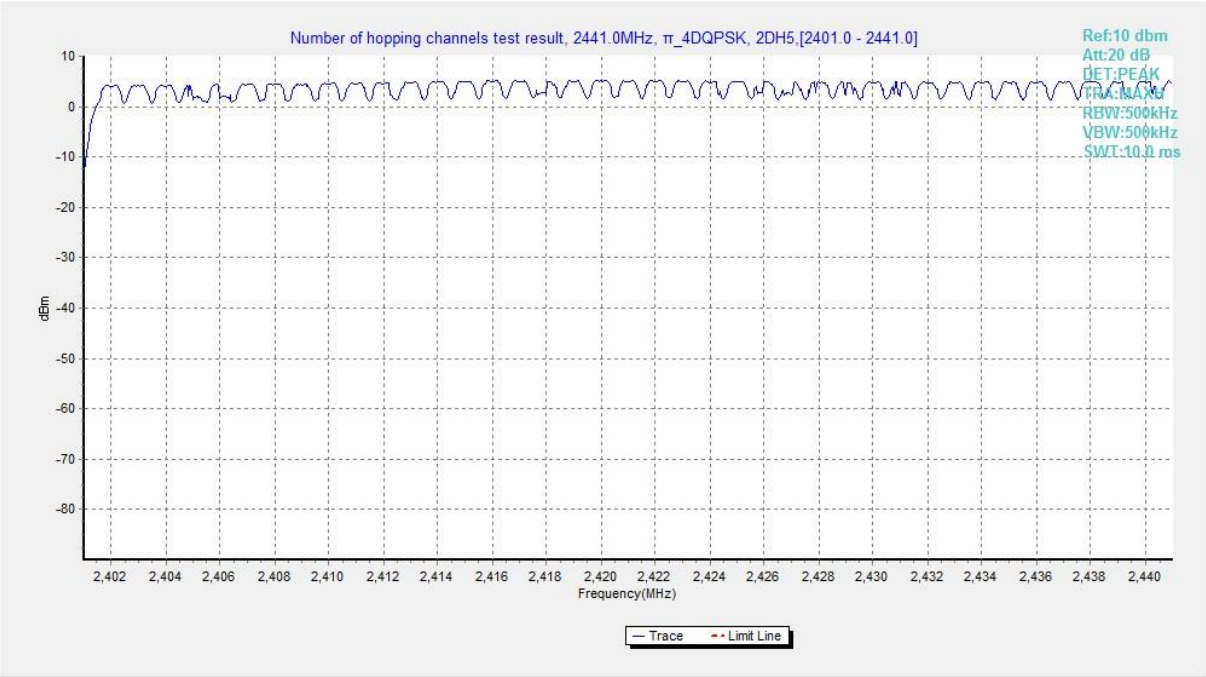

Fig. 86 Hopping channel ch0~39 (π/4 DQPSK, Ch39)

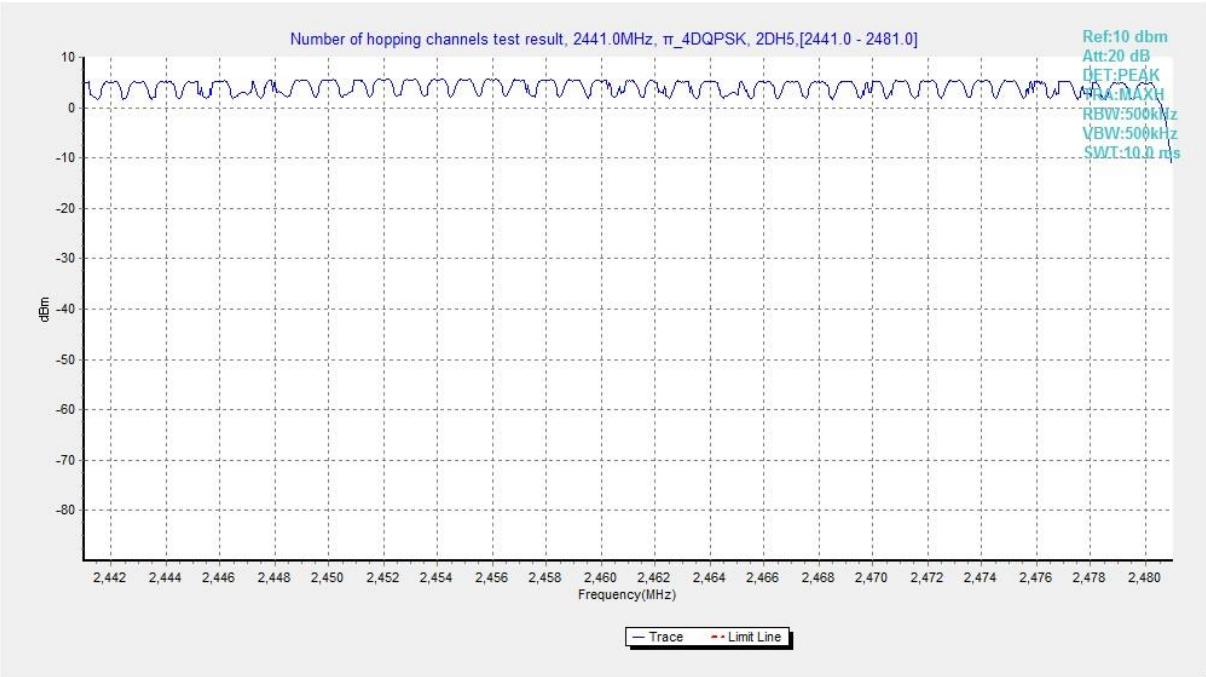

Fig. 87 Hopping channel ch39~78 (π/4 DQPSK, Ch39)

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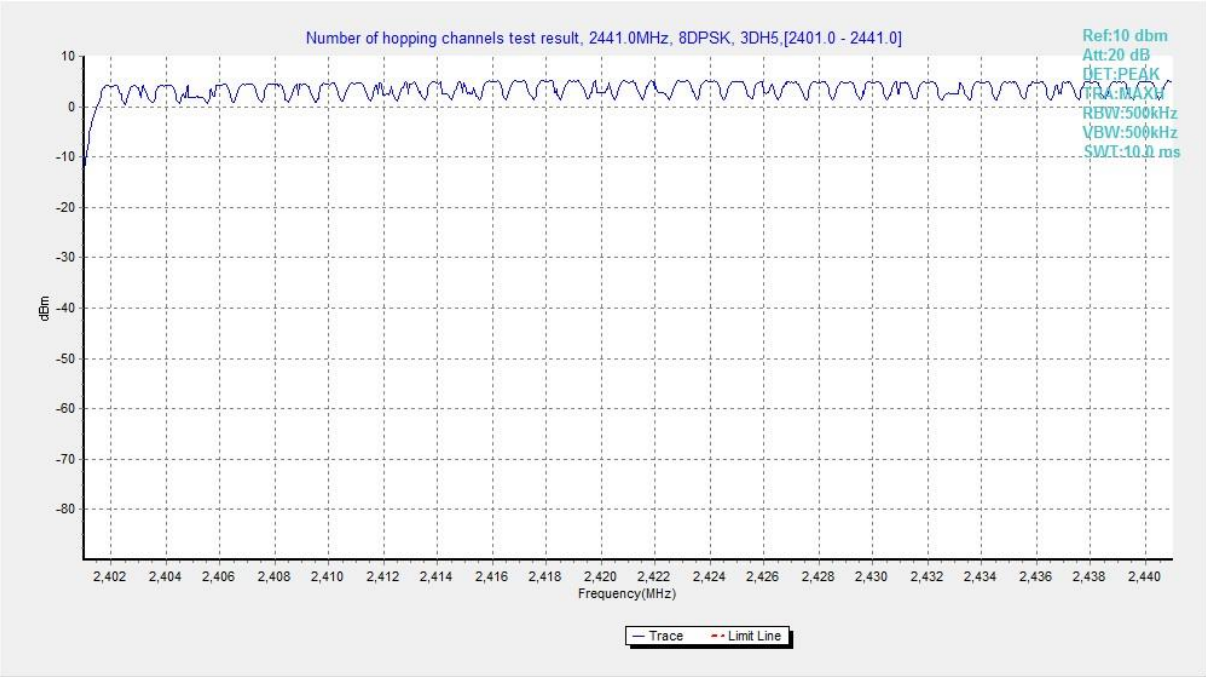

Fig. 88 Hopping channel ch0~39 (8DPSK, Ch39)

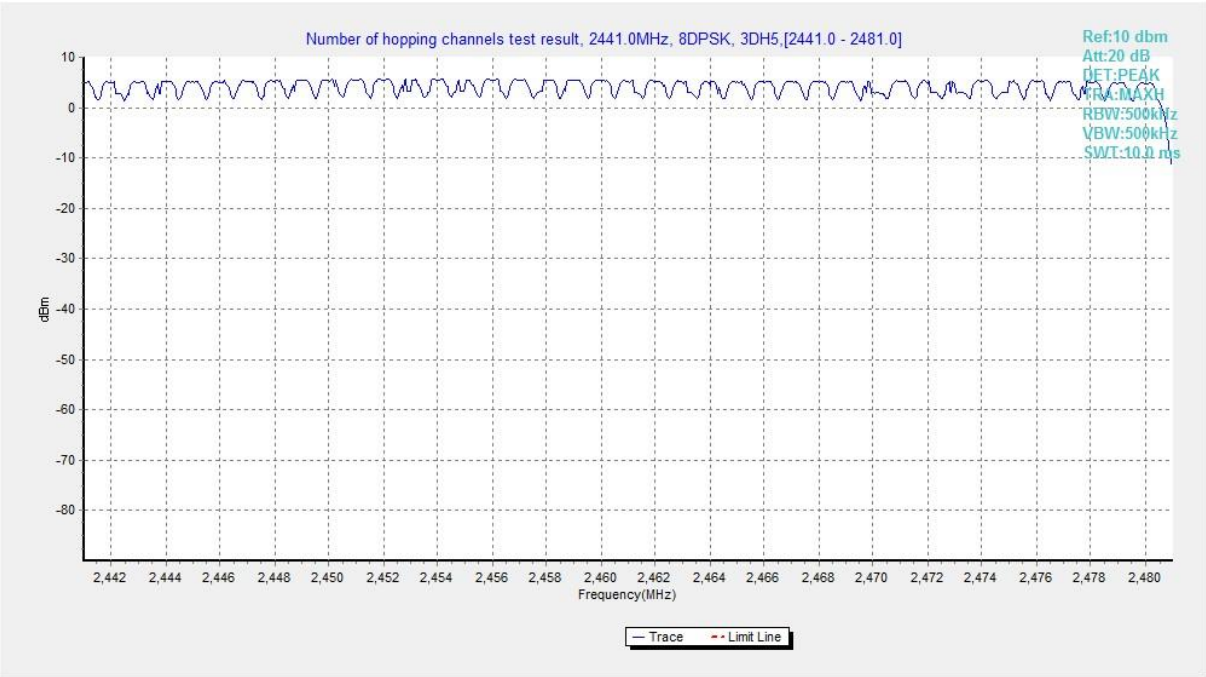

Fig. 89 Hopping channel ch39~78 (8DPSK, Ch39)

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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	1004.25	**P**
π/4 DQPSK	39	2-DH5	Fig.91	1000.50	**P**
8DPSK	39	3-DH5	Fig.92	997.50	**P**

See below for test graphs.

Conclusion: Pass

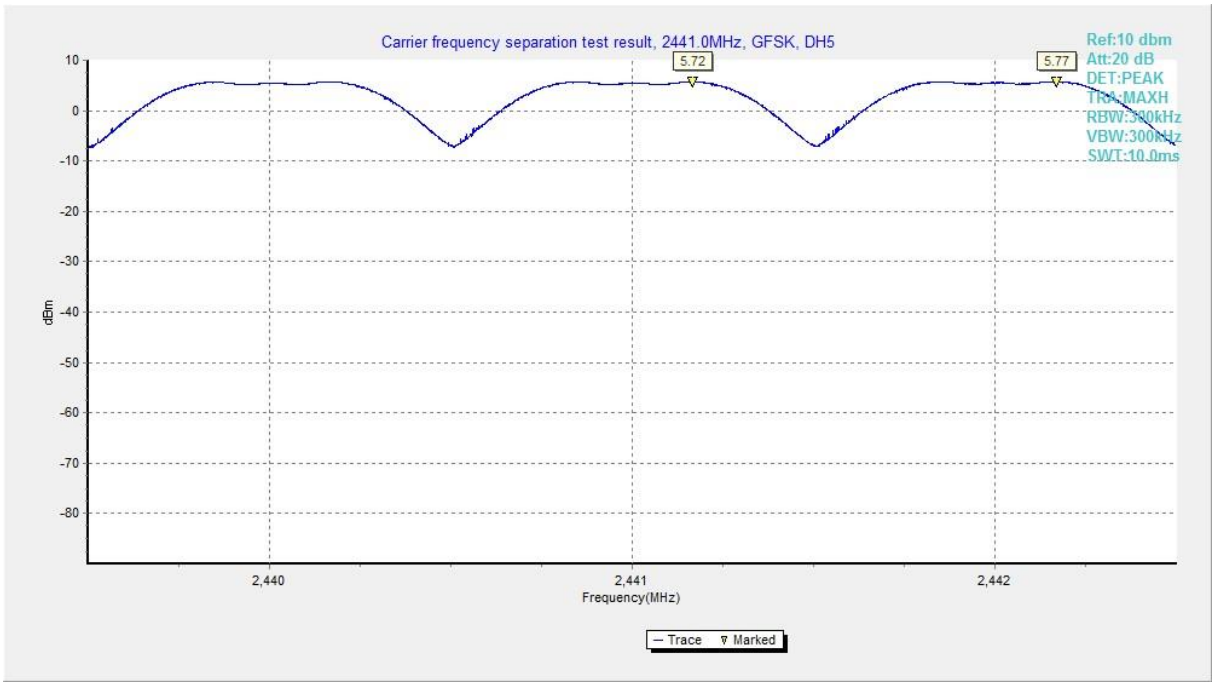

Fig. 90 Carrier Frequency Separation (GFSK, Ch39)

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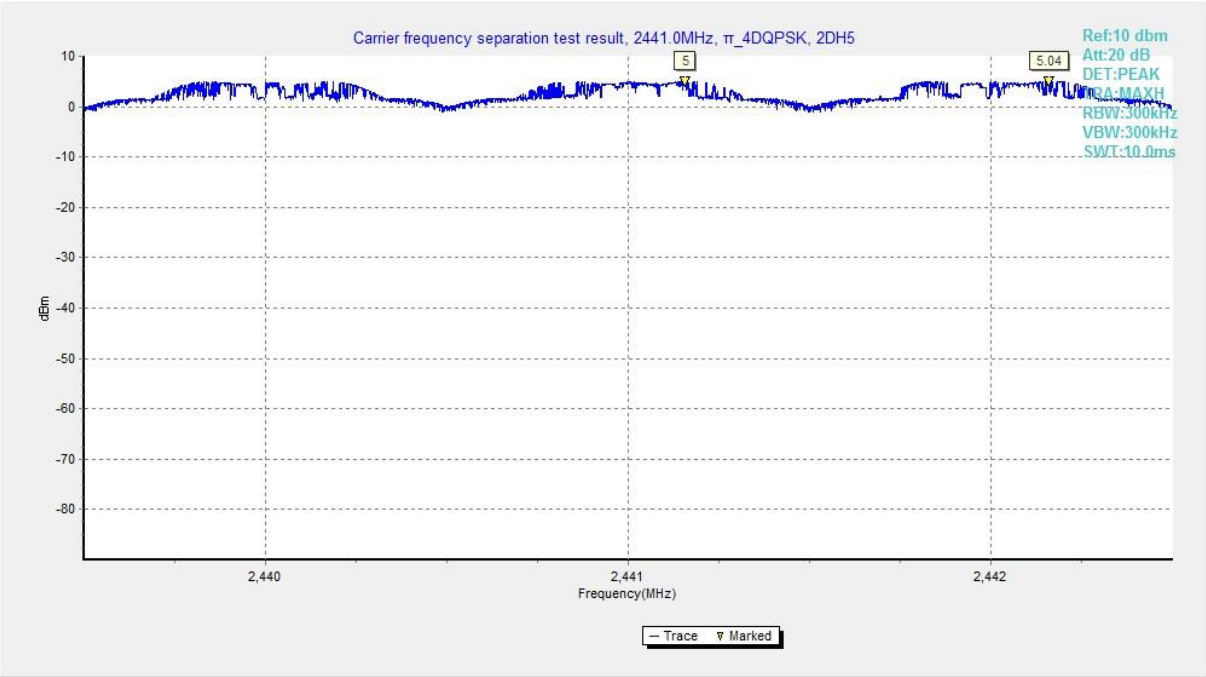

Fig. 91 Carrier Frequency Separation (π/4 DQPSK, Ch39)

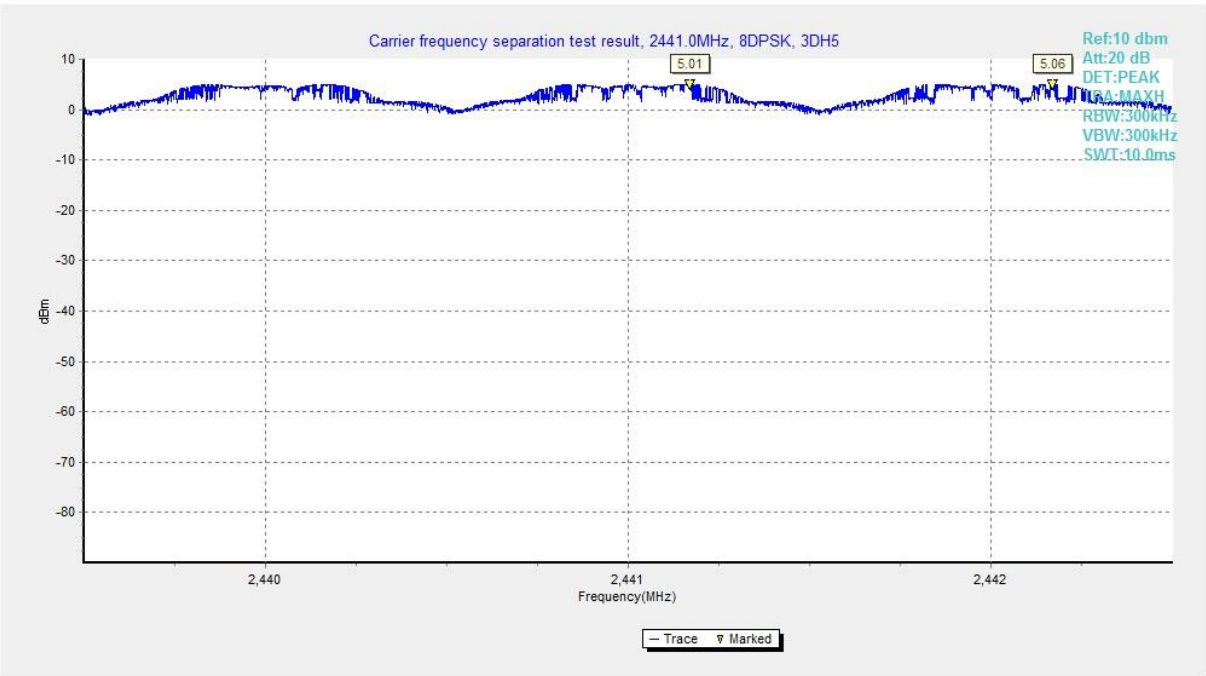

Fig. 92 Carrier Frequency Separation (8DPSK, Ch39)

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A.9 AC Power line Conducted Emission

Test Condition:

Voltage（V）	Frequency（Hz）
120	60

Measurement Result and limit:

BT (Quasi-peak Limit)-A2-1, A3-1

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	66 to 56	Fig.93	Fig.94	**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)-A2-1, A3-1

Frequency range (MHz)	Average-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig.93	Fig.94	**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.				

BT (Quasi-peak Limit)-A2-2, A3-2

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.16 to 0.5	66 to 56	Fig.95	Fig.96	**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)-A2-2, A3-2

Frequency range (MHz)	Average-peak Limit (dBμV)	Result (dBμV)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig.95	Fig.96	**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

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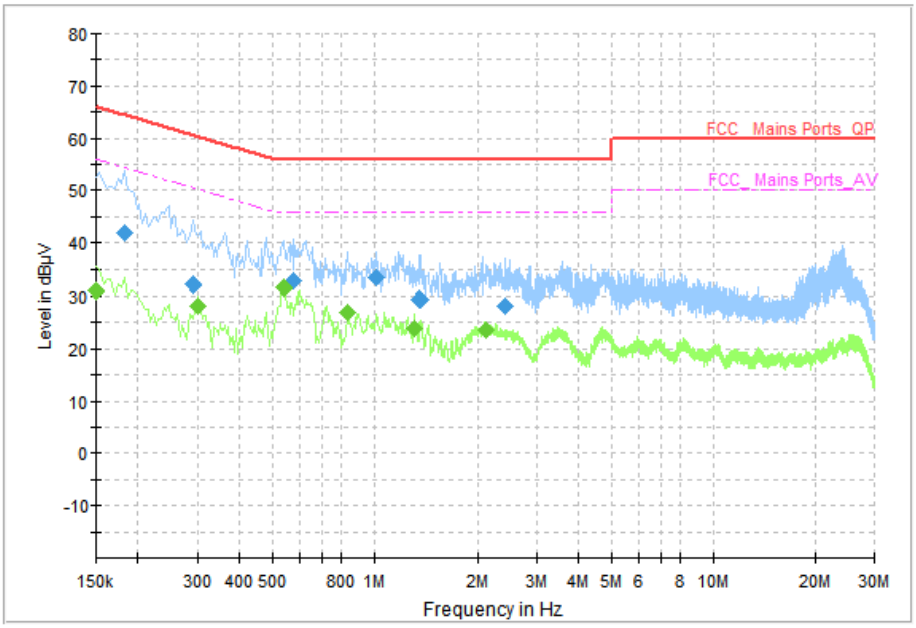

Fig. 93 AC Powerline Conducted Emission (Traffic), A2-1, A3-1

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.182000	42.04	64.39	22.35	N	ON	10
0.290000	32.01	60.52	28.51	N	ON	10
0.574000	32.84	56.00	23.16	L1	ON	10
1.014000	33.20	56.00	22.80	N	ON	10
1.362000	29.41	56.00	26.59	N	ON	10
2.418000	28.20	56.00	27.80	N	ON	10

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	30.84	56.00	25.16	L1	ON	10
0.302000	28.05	50.19	22.14	L1	ON	10
0.542000	31.67	46.00	14.33	L1	ON	10
0.838000	27.02	46.00	18.98	L1	ON	10
1.318000	23.85	46.00	22.15	L1	ON	10
2.126000	23.49	46.00	22.51	L1	ON	10

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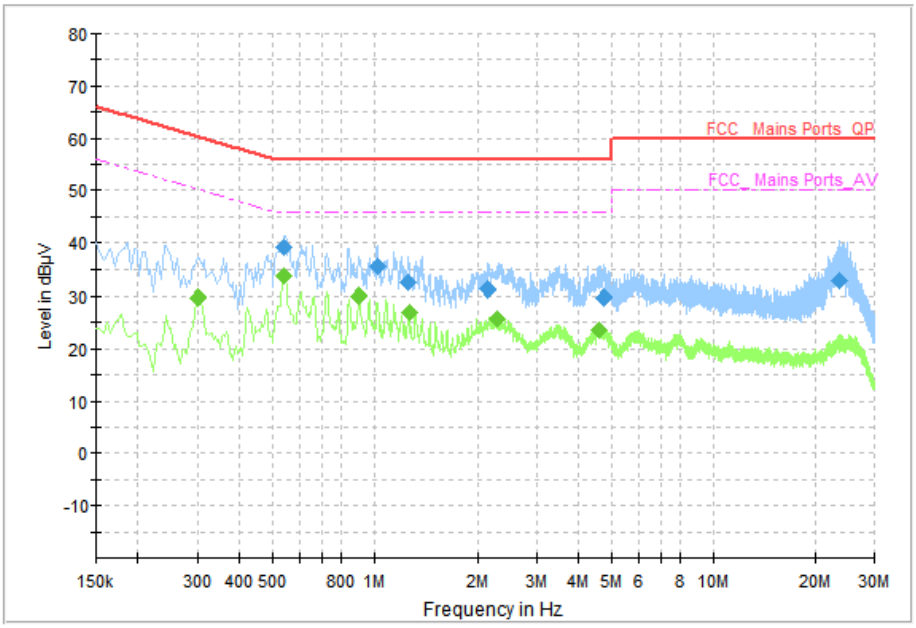

Fig. 94 AC Power line Conducted Emission (Idle), A2-1, A3-1

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.542000	39.23	56.00	16.77	L1	ON	10
1.022000	35.61	56.00	20.39	L1	ON	10
1.258000	32.45	56.00	23.55	L1	ON	10
2.154000	31.27	56.00	24.73	L1	ON	10
4.730000	29.64	56.00	26.36	L1	ON	10
23.754000	32.72	60.00	27.28	N	ON	10

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.302000	29.84	50.19	20.34	L1	ON	10
0.542000	33.51	46.00	12.49	L1	ON	10
0.902000	29.96	46.00	16.04	L1	ON	10
1.270000	27.09	46.00	18.91	L1	ON	10
2.294000	25.68	46.00	20.32	L1	ON	10
4.594000	23.51	46.00	22.49	L1	ON	10

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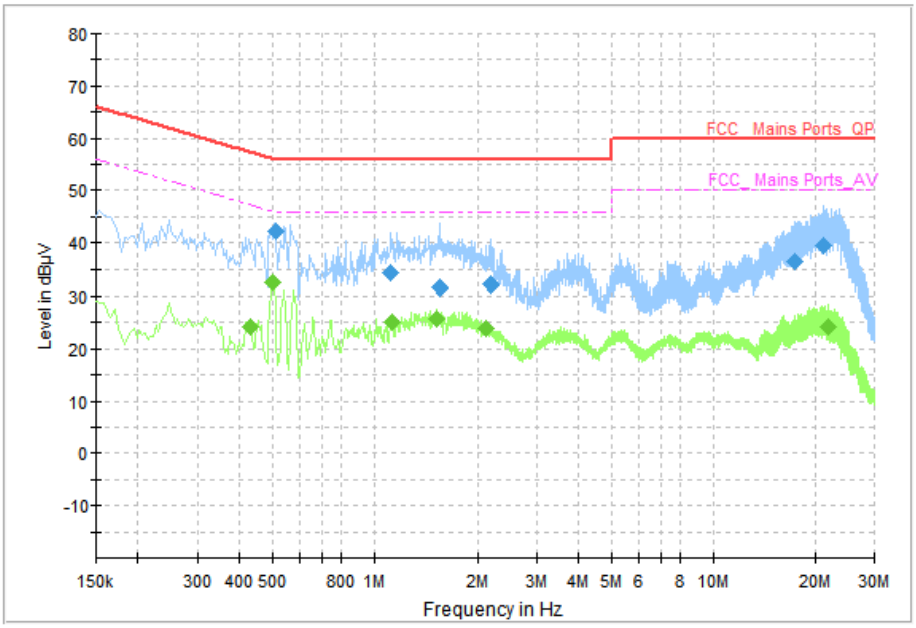

Fig. 95 AC Powerline Conducted Emission (Traffic), A2-2, A3-2

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.510000	42.11	56.00	13.89	L1	ON	10
1.122000	34.26	56.00	21.74	L1	ON	10
1.542000	31.51	56.00	24.49	L1	ON	10
2.198000	32.09	56.00	23.91	L1	ON	10
17.434000	36.43	60.00	23.57	L1	ON	10
21.262000	39.31	60.00	20.70	L1	ON	10

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.430000	24.27	47.25	22.98	L1	ON	10
0.498000	32.34	46.03	13.69	N	ON	10
1.126000	25.24	46.00	20.76	N	ON	10
1.510000	25.71	46.00	20.29	N	ON	10
2.126000	23.93	46.00	22.07	N	ON	10
21.878000	24.21	50.00	25.80	L1	ON	10

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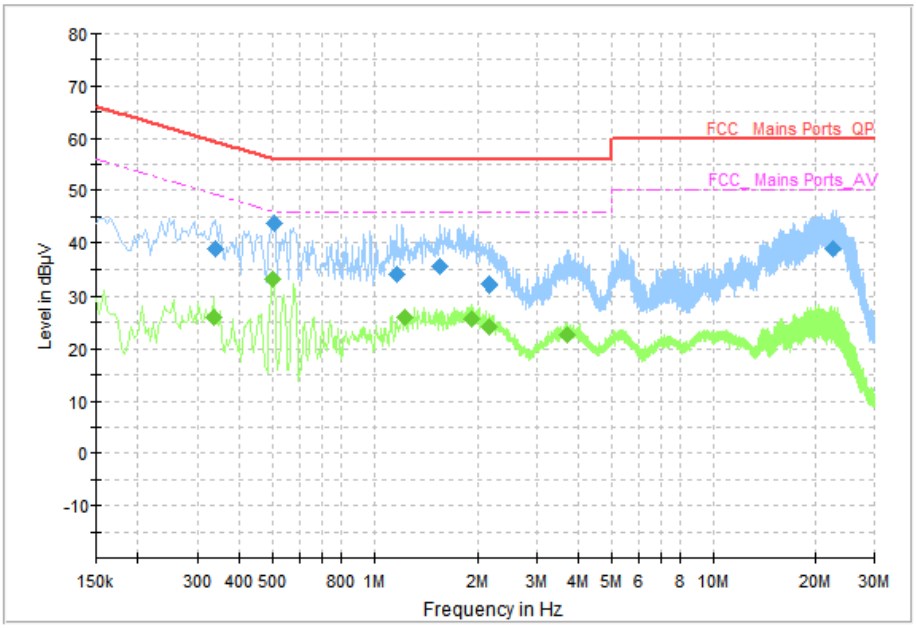

Fig. 96 AC Power line Conducted Emission (Idle), A2-2, A3-2

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.338000	38.96	59.25	20.29	L1	ON	10
0.506000	43.59	56.00	12.41	L1	ON	10
1.162000	34.01	56.00	21.99	L1	ON	10
1.554000	35.42	56.00	20.58	L1	ON	10
2.178000	31.99	56.00	24.01	L1	ON	10
22.718000	38.78	60.00	21.22	L1	ON	10

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.334000	25.90	49.35	23.45	L1	ON	10
0.498000	33.19	46.03	12.84	N	ON	10
1.238000	26.07	46.00	19.93	N	ON	10
1.934000	25.86	46.00	20.14	N	ON	10
2.166000	24.25	46.00	21.75	N	ON	10
3.706000	22.64	46.00	23.36	N	ON	10

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

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