

Fig. 54 Radiated Spurious Emission (8DPSK, Ch78, 1GHz ~ 18GHz)

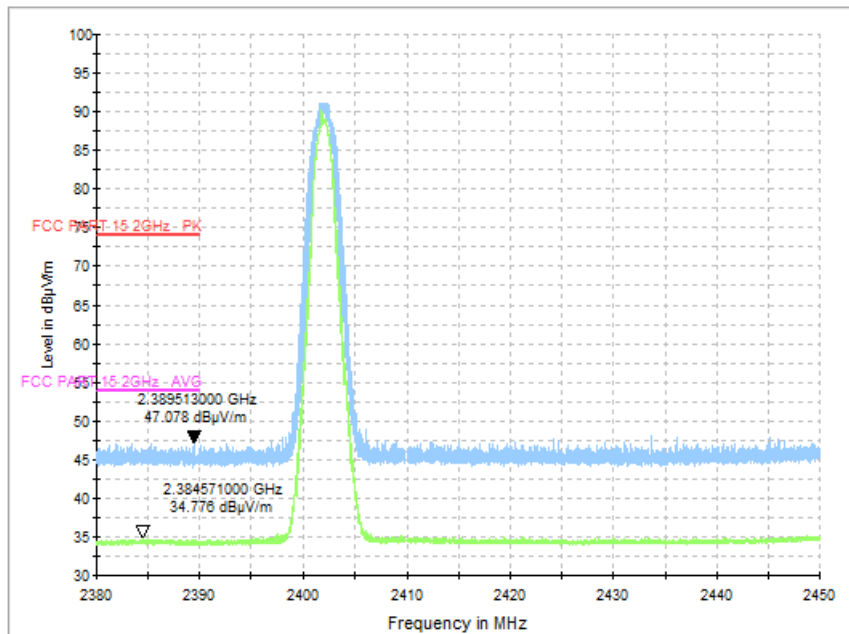


Fig. 55 Radiated Band Edges (8DPSK, Ch0, 2380GHz ~ 2450GHz)

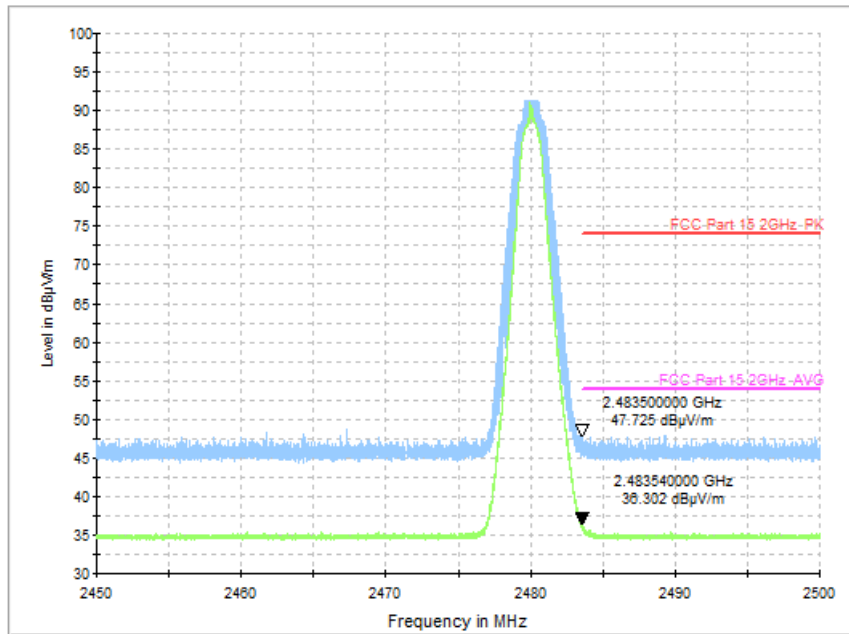


Fig. 56 Radiated Band Edges (8DPSK, Ch78, 2450GHz ~ 2500GHz)

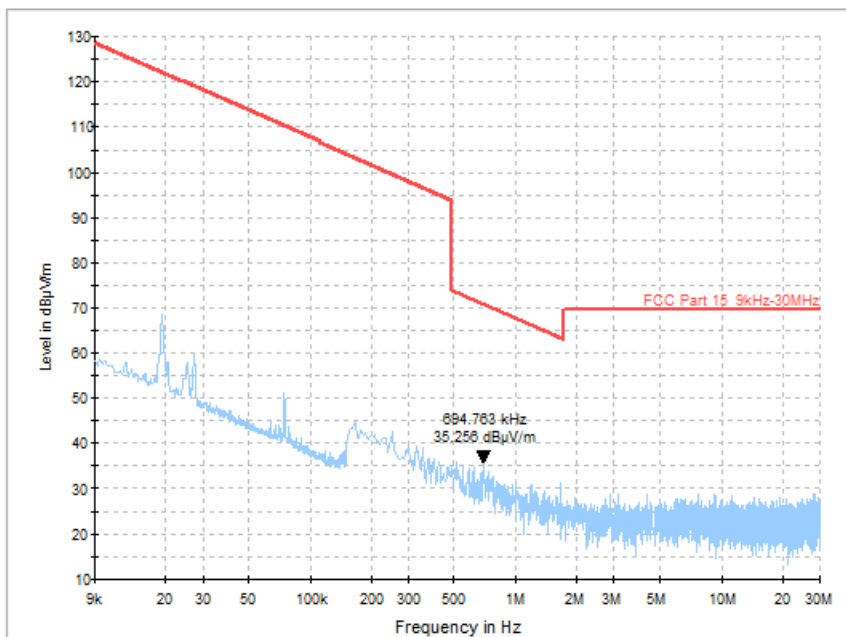


Fig. 57 Radiated Spurious Emission (All Channels, 9kHz ~ 30MHz)

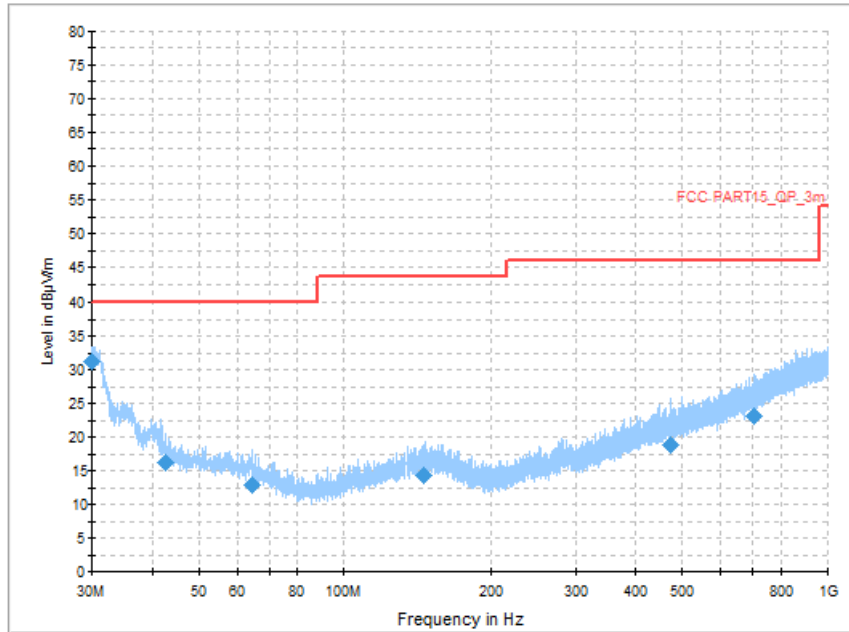


Fig. 58 Radiated Spurious Emission (All Channels, 30MHz ~ 1GHz)

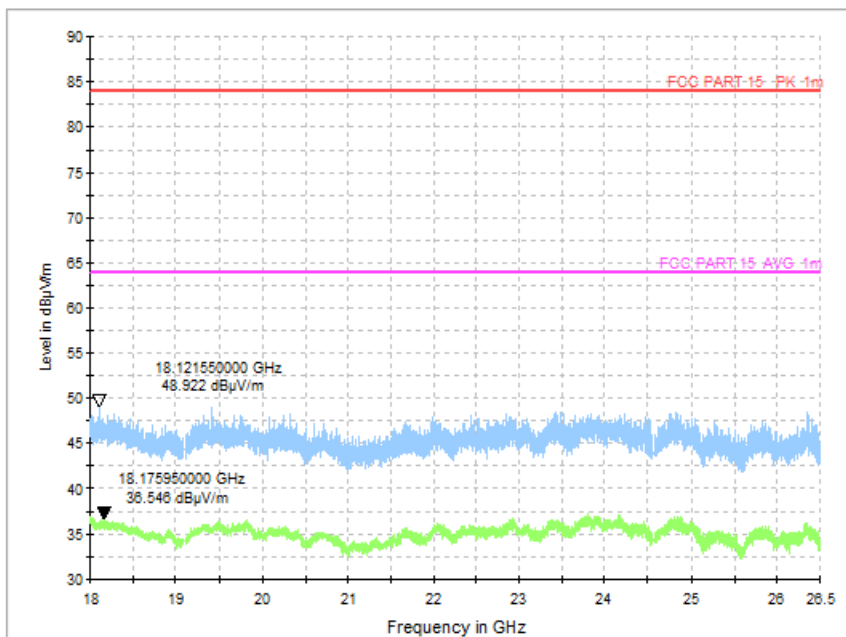


Fig. 59 Radiated Spurious Emission (All Channels, 18GHz ~ 26.5GHz)

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.60	952.50	/
	39	Fig.61	945.00	
	78	Fig.62	948.00	
$\pi/4$ DQPSK	0	Fig.63	1290.00	/
	39	Fig.64	1295.25	
	78	Fig.65	1269.75	
8DPSK	0	Fig.66	1258.50	/
	39	Fig.67	1287.00	
	78	Fig.68	1260.75	

See below for test graphs.

Conclusion: PASS

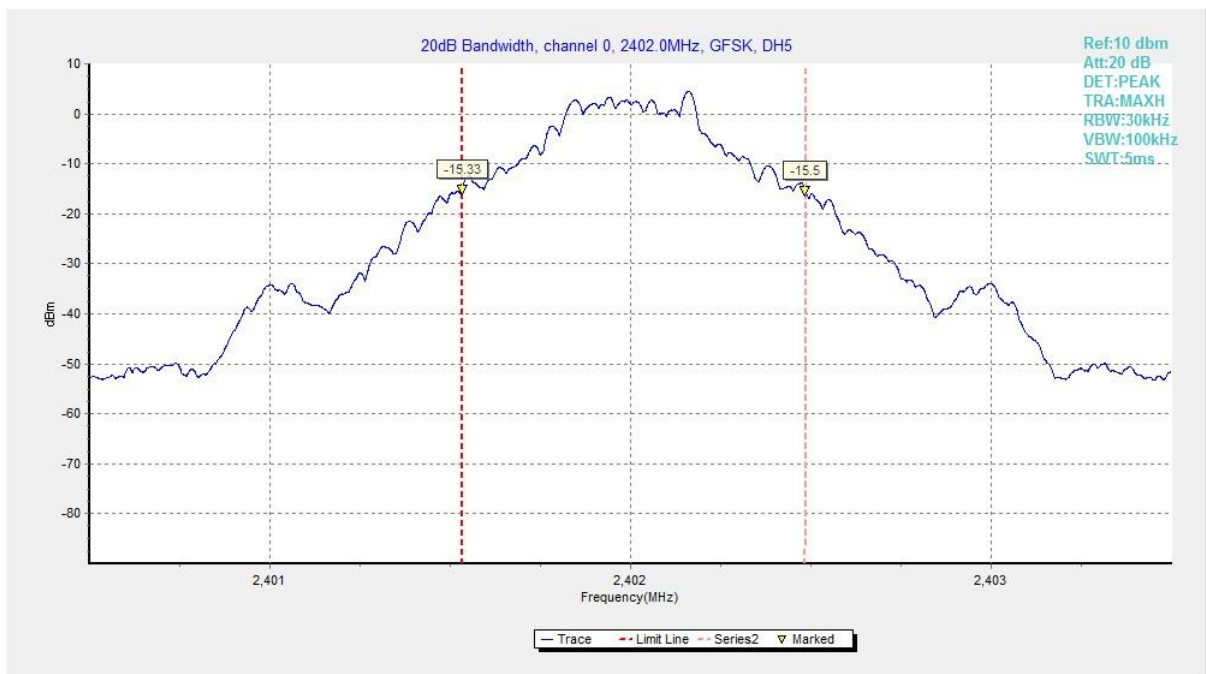


Fig. 60 20dB Bandwidth (GFSK, Ch 0)

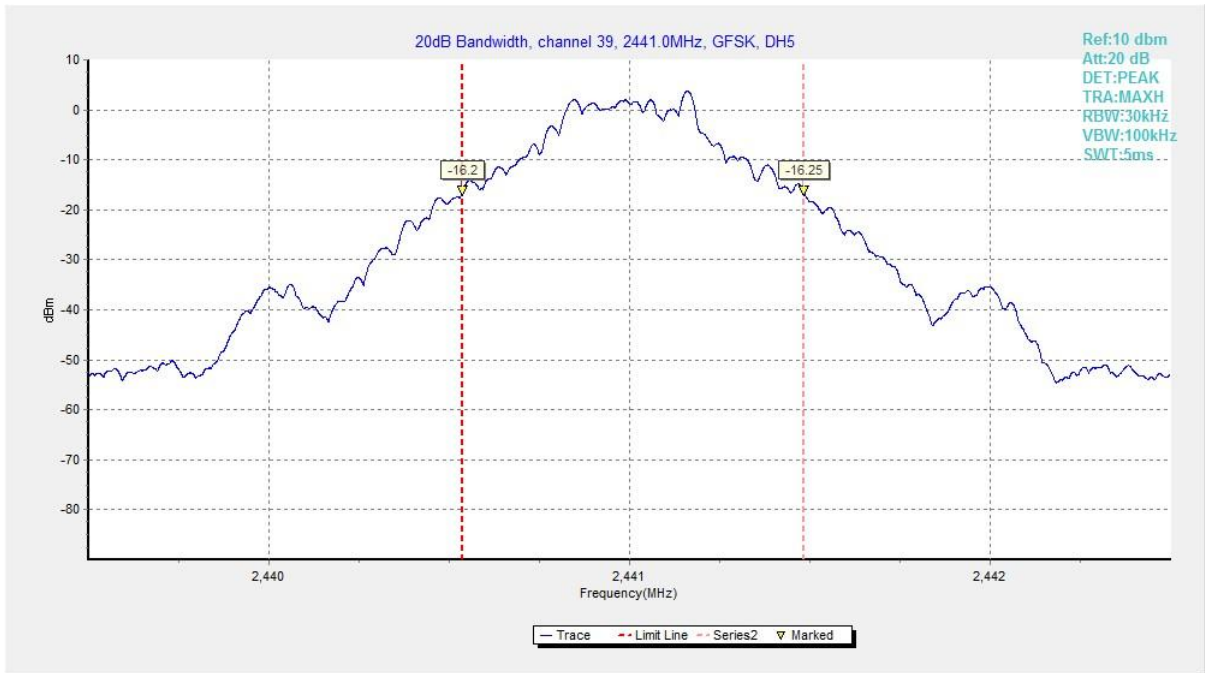


Fig. 61 20dB Bandwidth (GFSK, Ch 39)

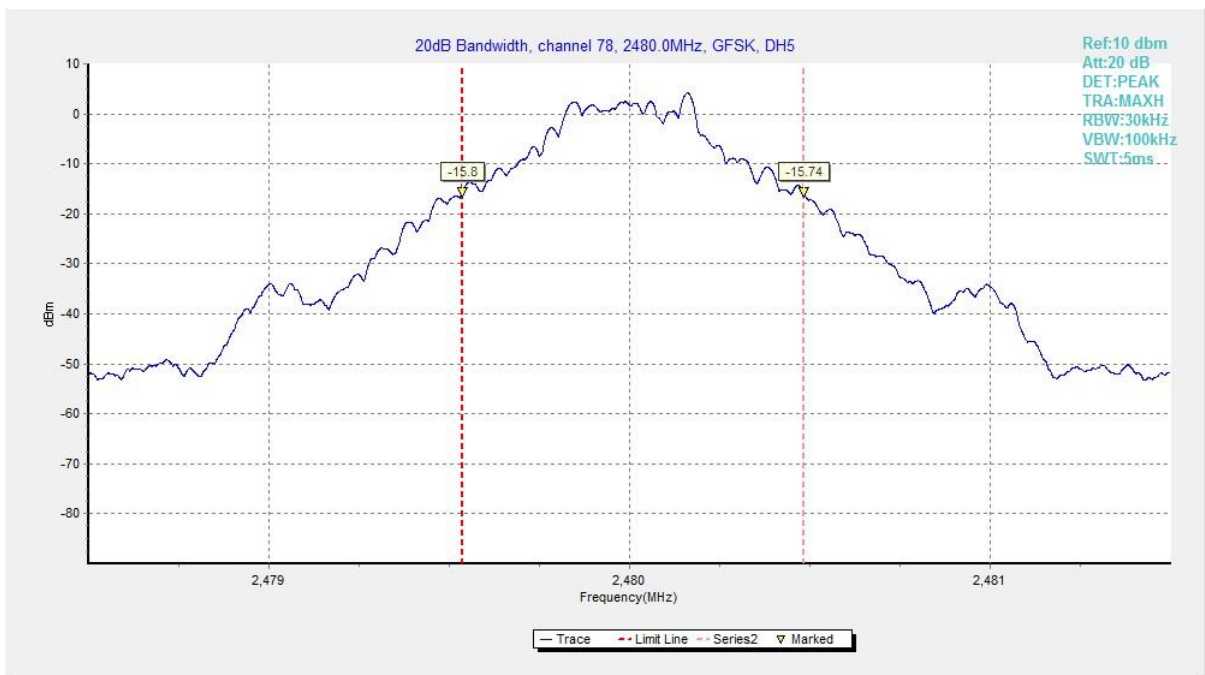


Fig. 62 20dB Bandwidth (GFSK, Ch 78)

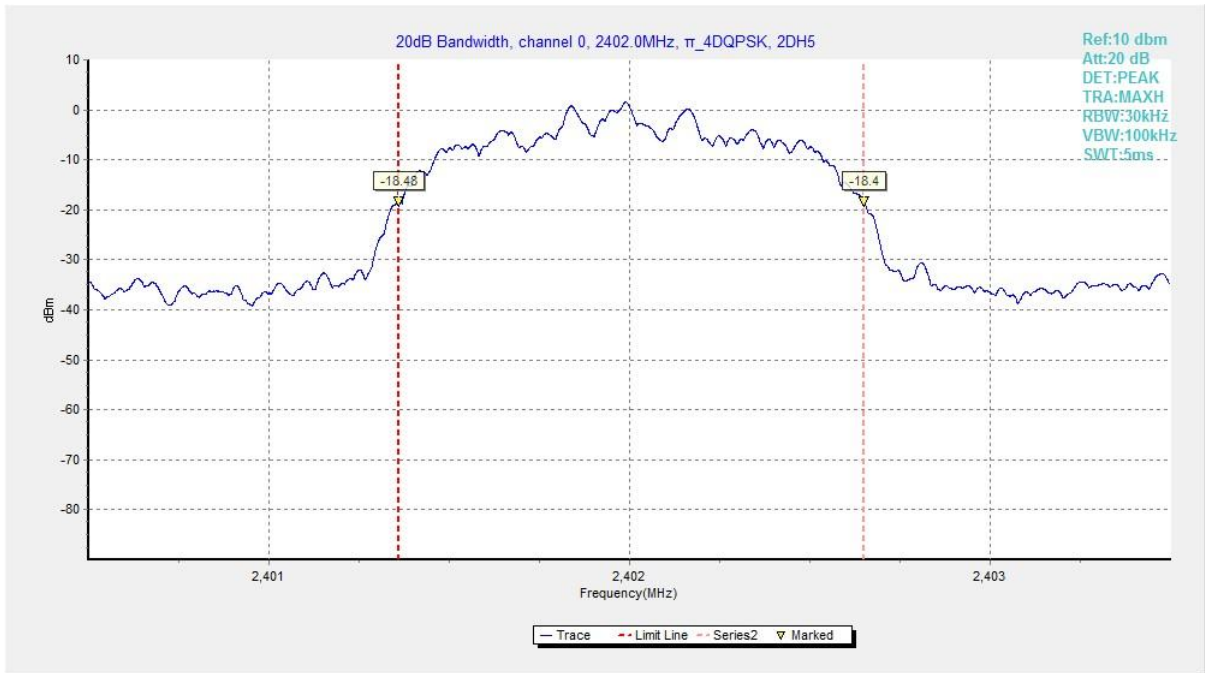


Fig. 63 20dB Bandwidth (π /4 DQPSK, Ch 0)

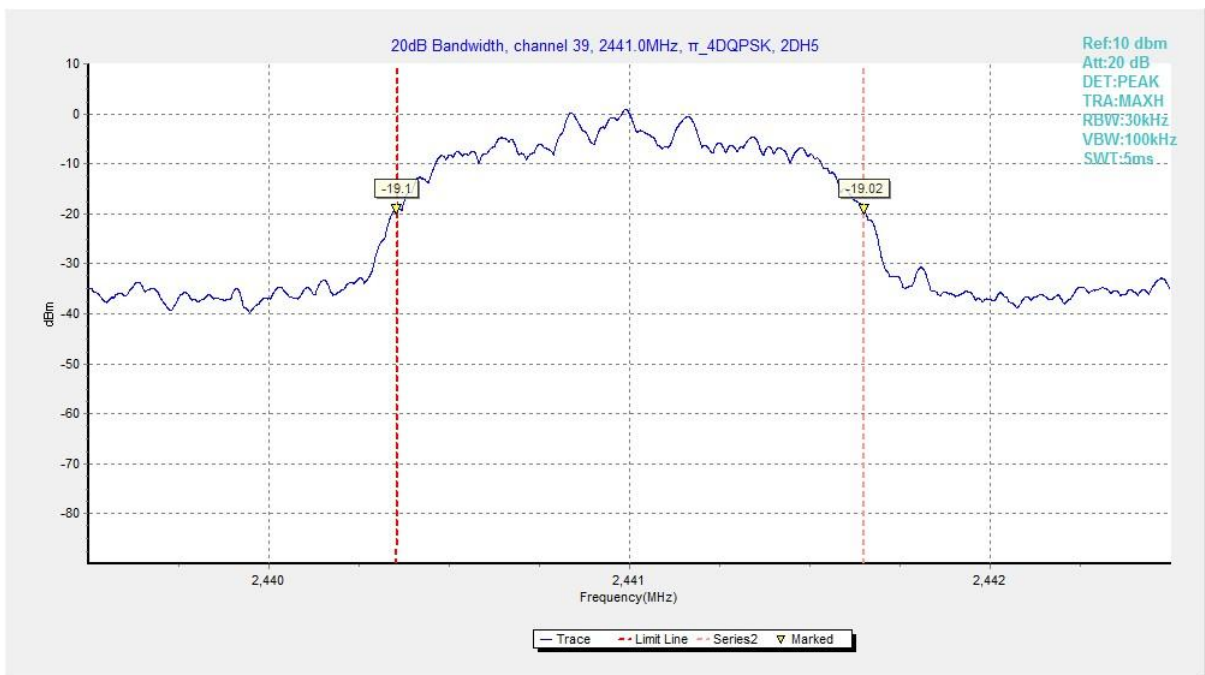


Fig. 64 20dB Bandwidth (π /4 DQPSK, Ch 39)

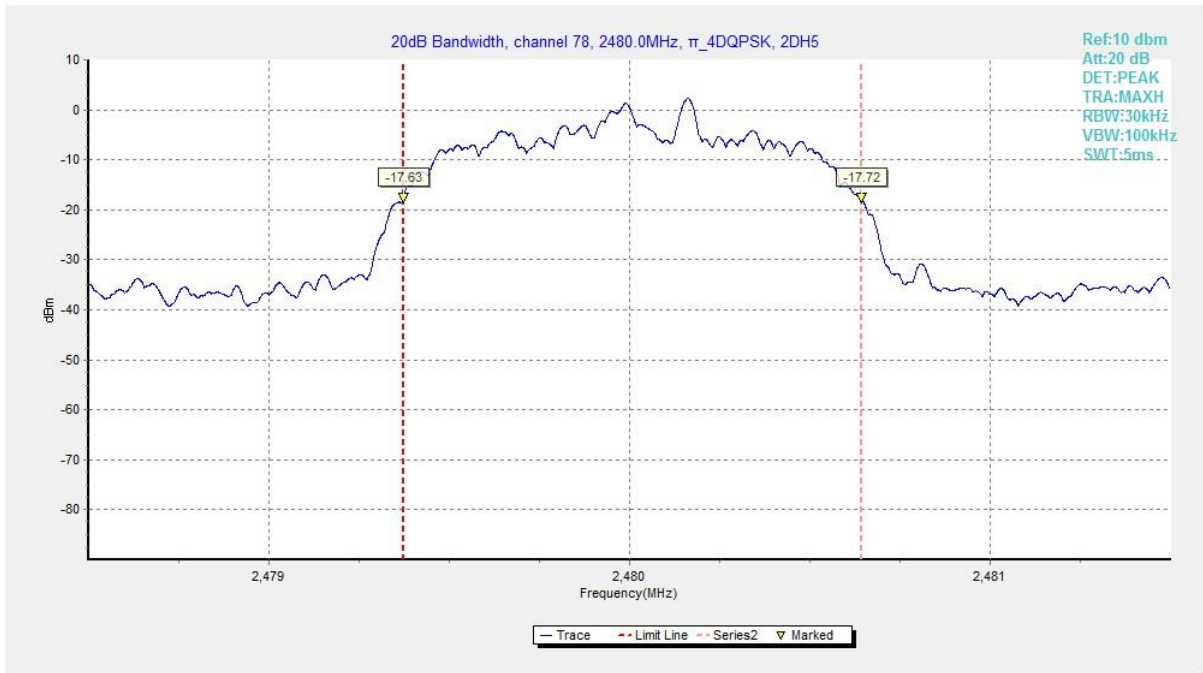


Fig. 65 20dB Bandwidth ($\pi/4$ DQPSK, Ch 78)

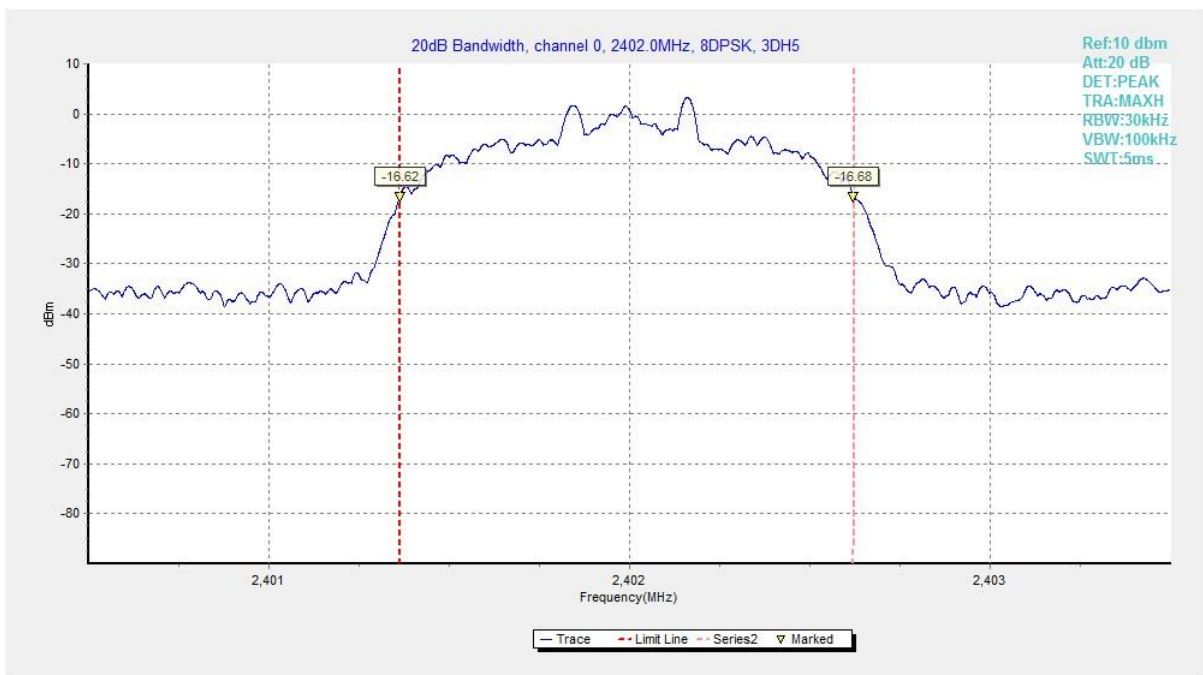


Fig. 66 20dB Bandwidth (8DPSK, Ch 0)

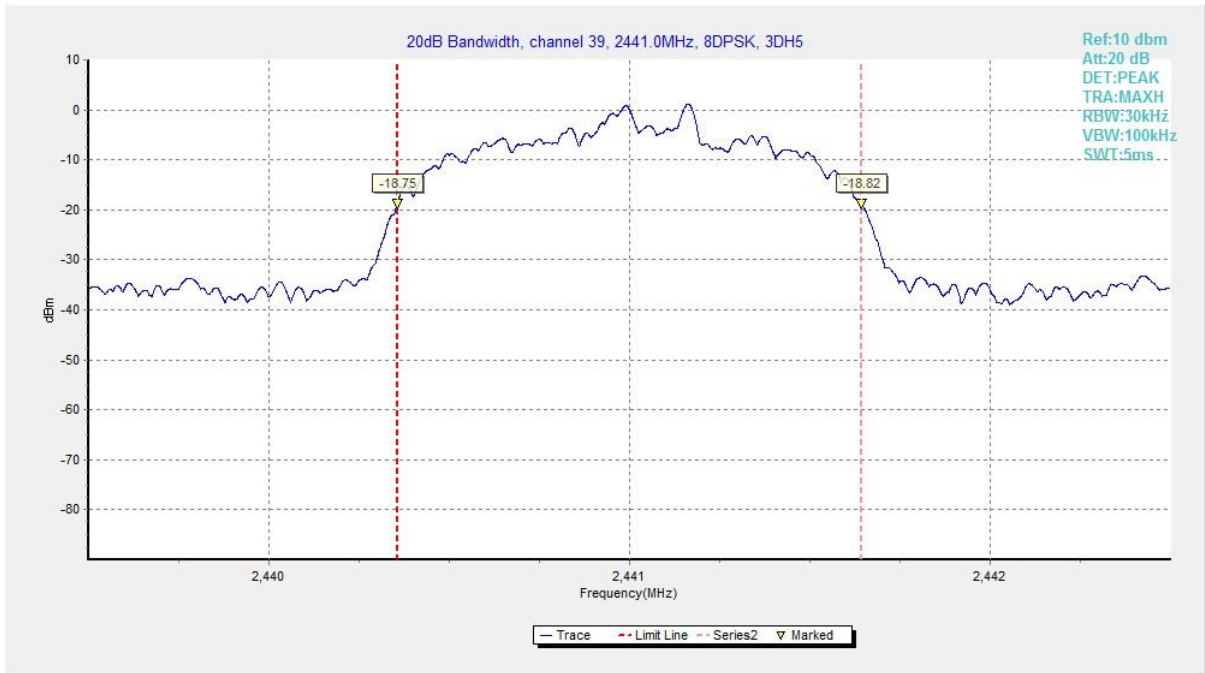


Fig. 67 20dB Bandwidth (8DPSK, Ch 39)

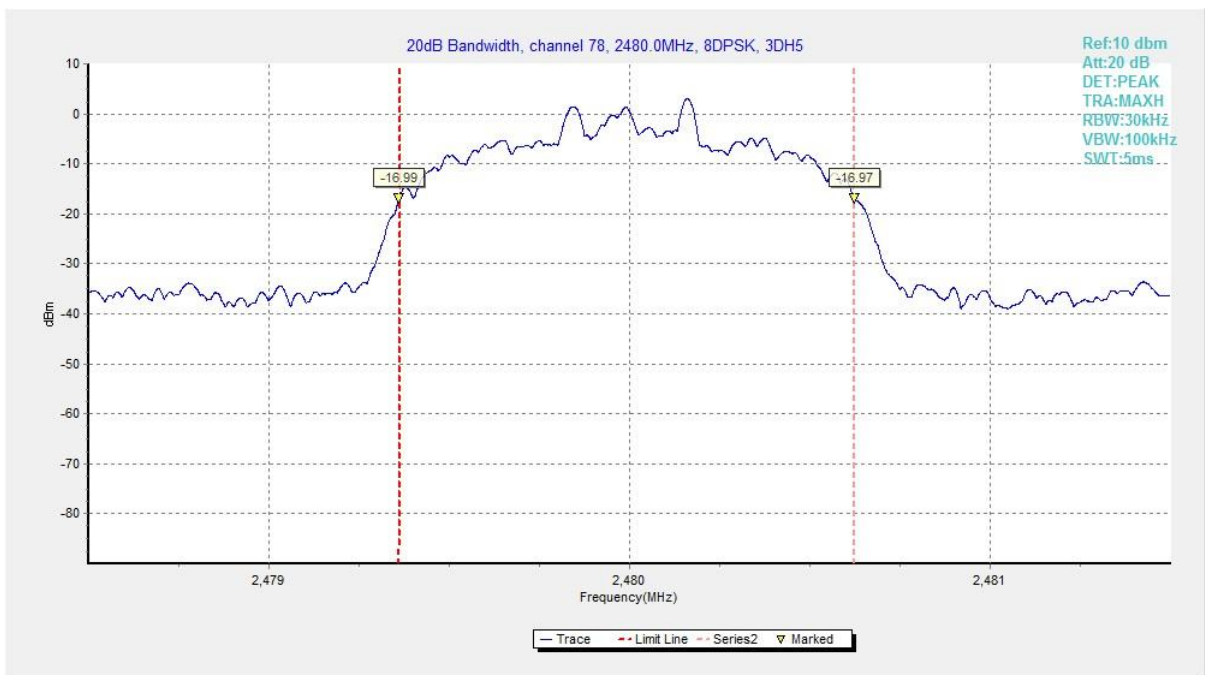


Fig. 68 20dB Bandwidth (8DPSK, Ch 78)

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.69	184.32	P
			Fig.70		
$\pi/4$ DQPSK	39	2-DH5	Fig.71	181.79	P
			Fig.72		
8DPSK	39	3-DH5	Fig.73	187.69	P
			Fig.74		

See below for test graphs.

Conclusion: Pass

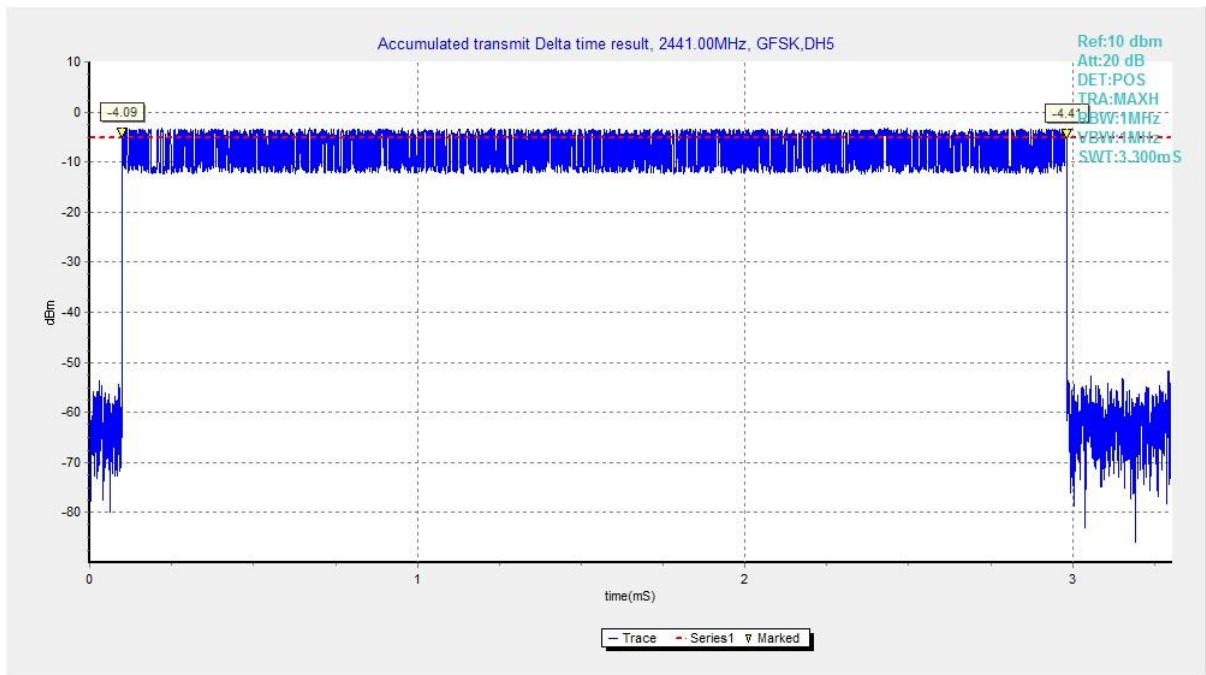


Fig. 69 Time of Occupancy(Dwell Time) (GFSK, Ch39)

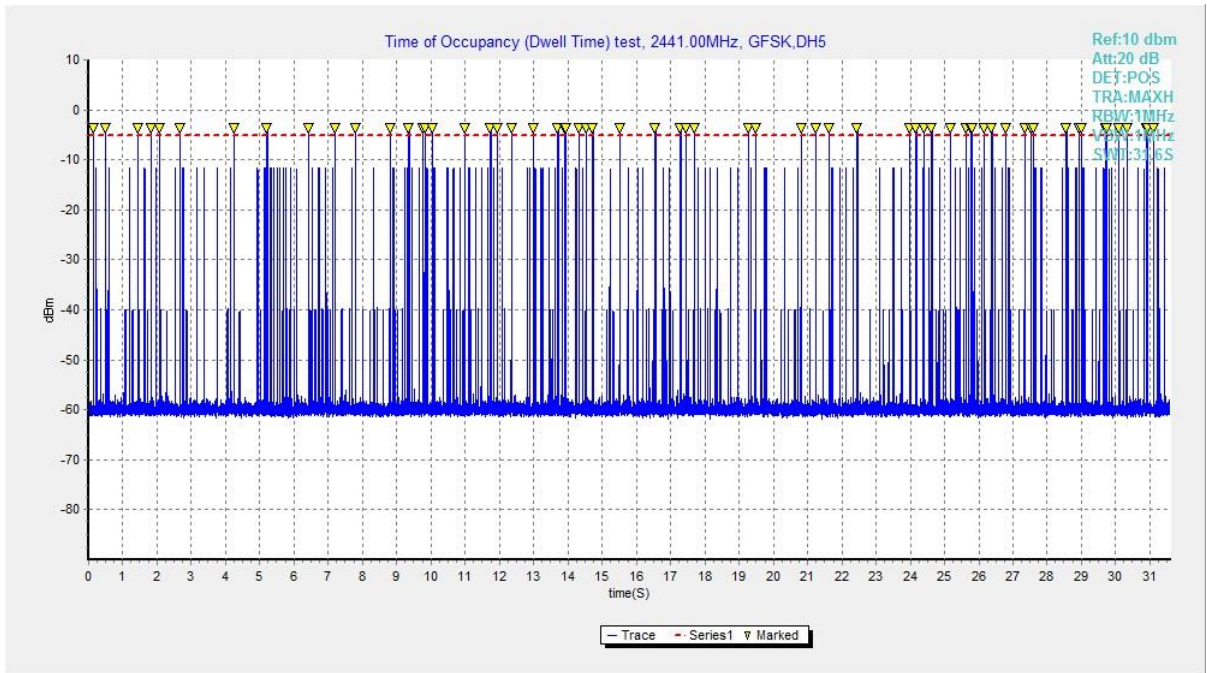


Fig. 70 Time of Occupancy(Dwell Time) (GFSK, Ch39)

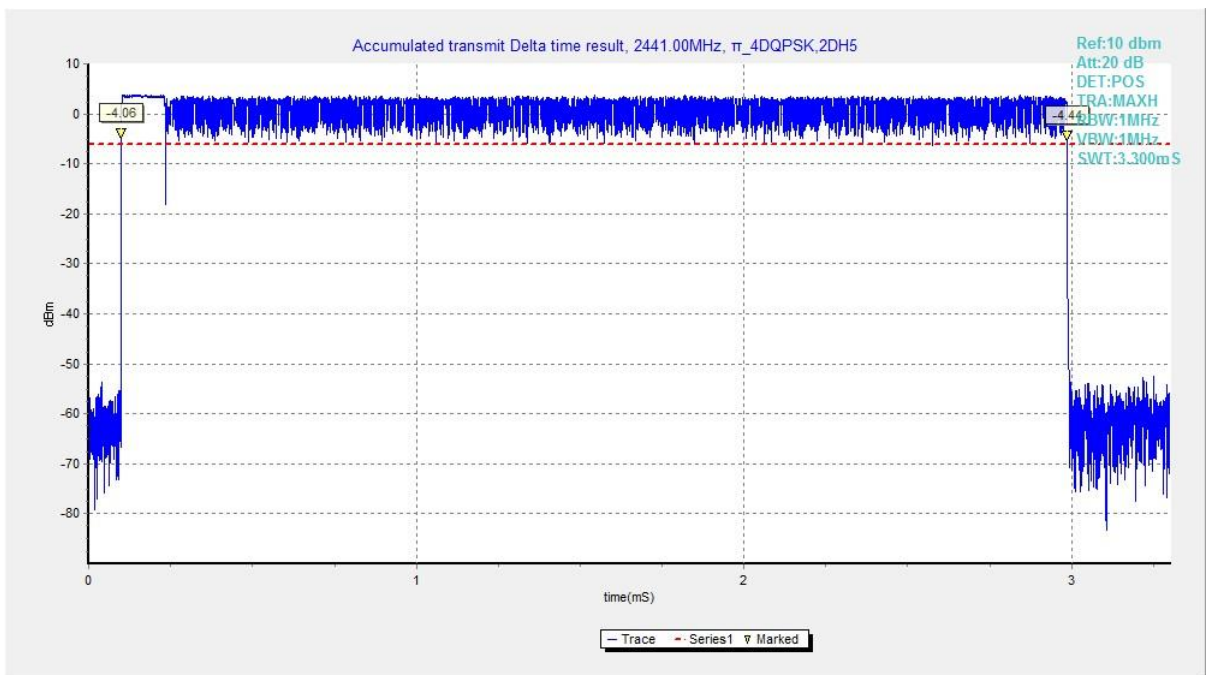


Fig. 71 Time of Occupancy(Dwell Time) ($\pi/4$ DQPSK, Ch39)

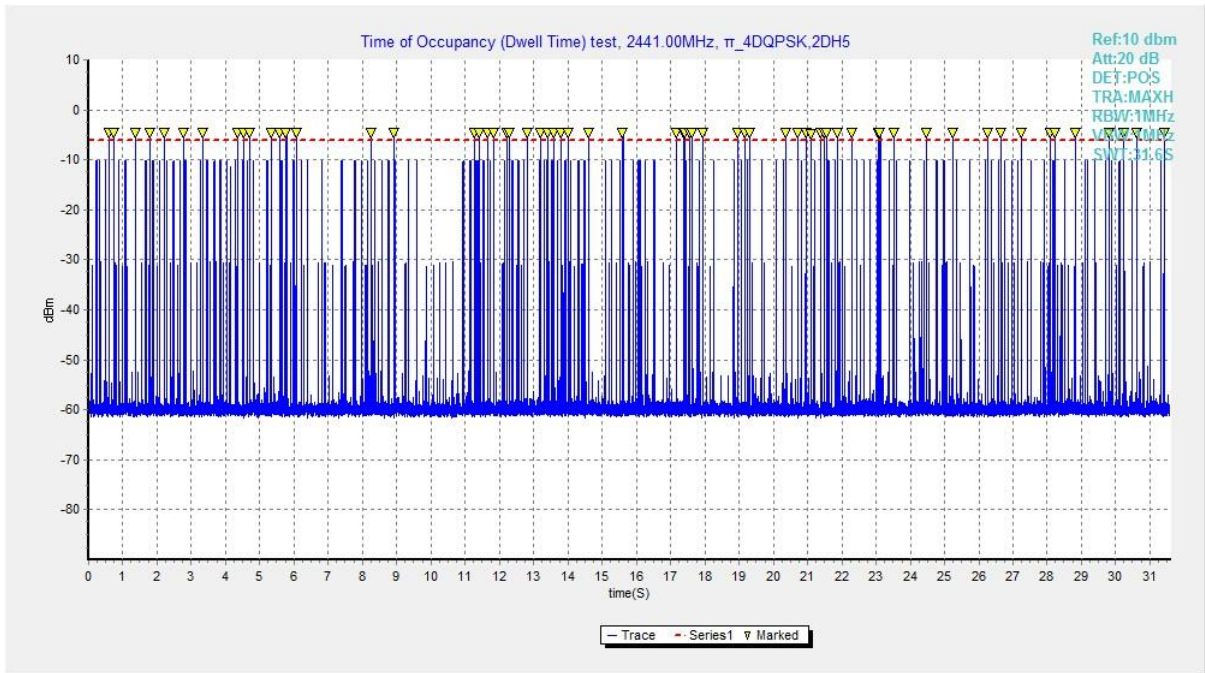


Fig. 72 Time of Occupancy(Dwell Time) (π /4 DQPSK, Ch39)

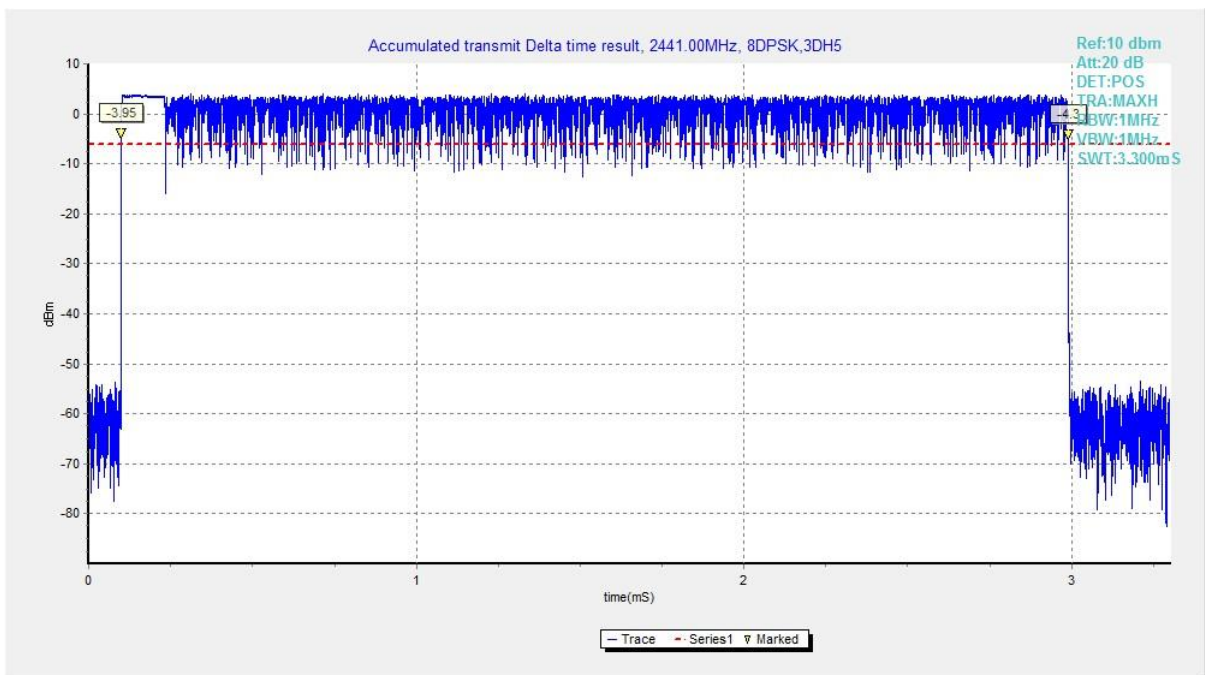


Fig. 73 Time of Occupancy(Dwell Time) (8DPSK, Ch39)

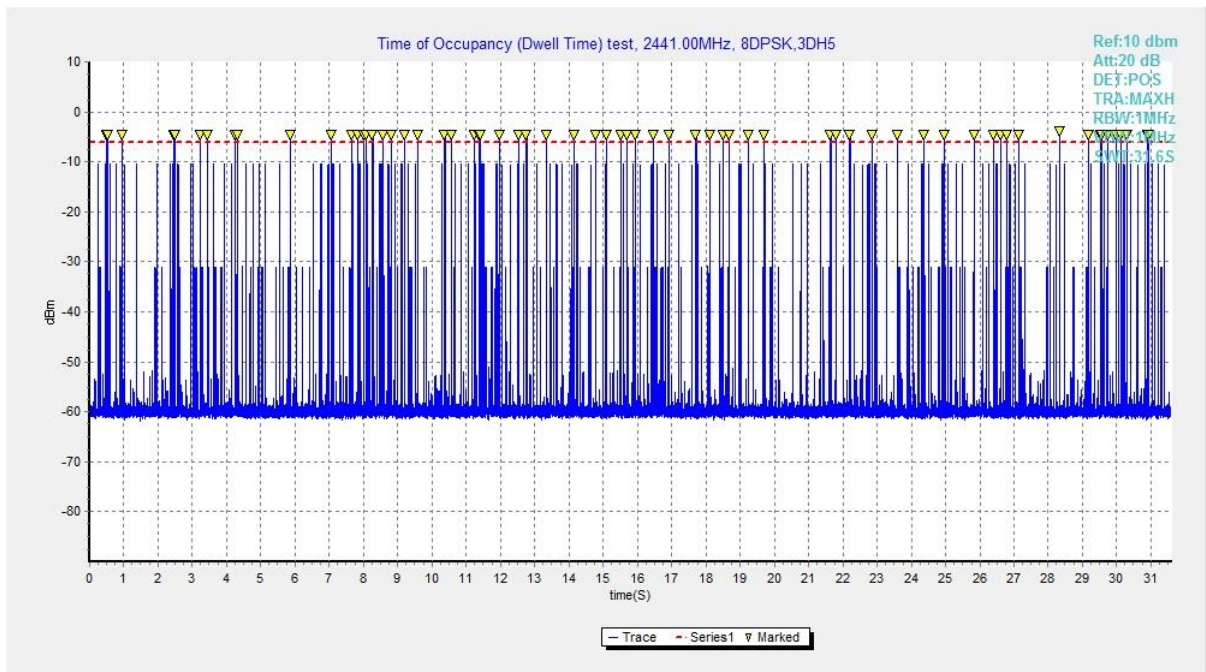


Fig. 74 Time of Occupancy(Dwell Time) (8DPSK, Ch39)

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 channels		Test result	Conclusion
GFSK	DH5	Fig.75	Fig.76	79	P
$\pi/4$ DQPSK	2-DH5	Fig.77	Fig.78	79	P
8DPSK	3-DH5	Fig.79	Fig.80	79	P

See below for test graphs.

Conclusion: Pass

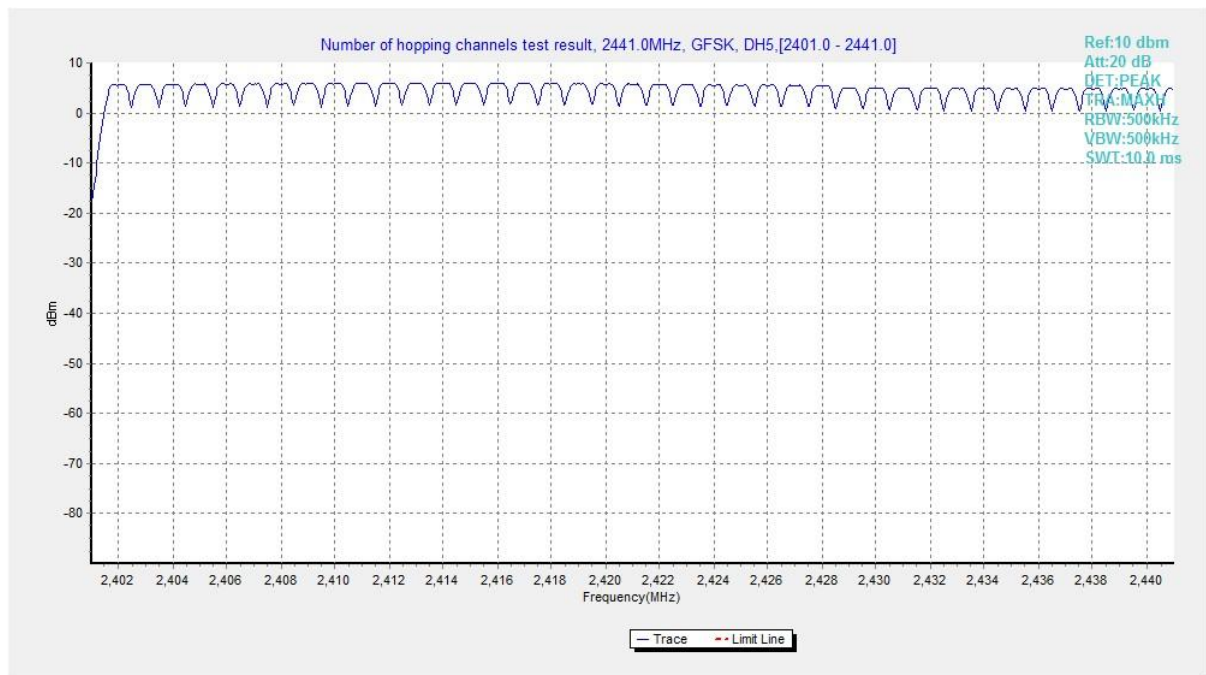


Fig. 75 Hopping channel ch0~39 (GFSK, Ch39)

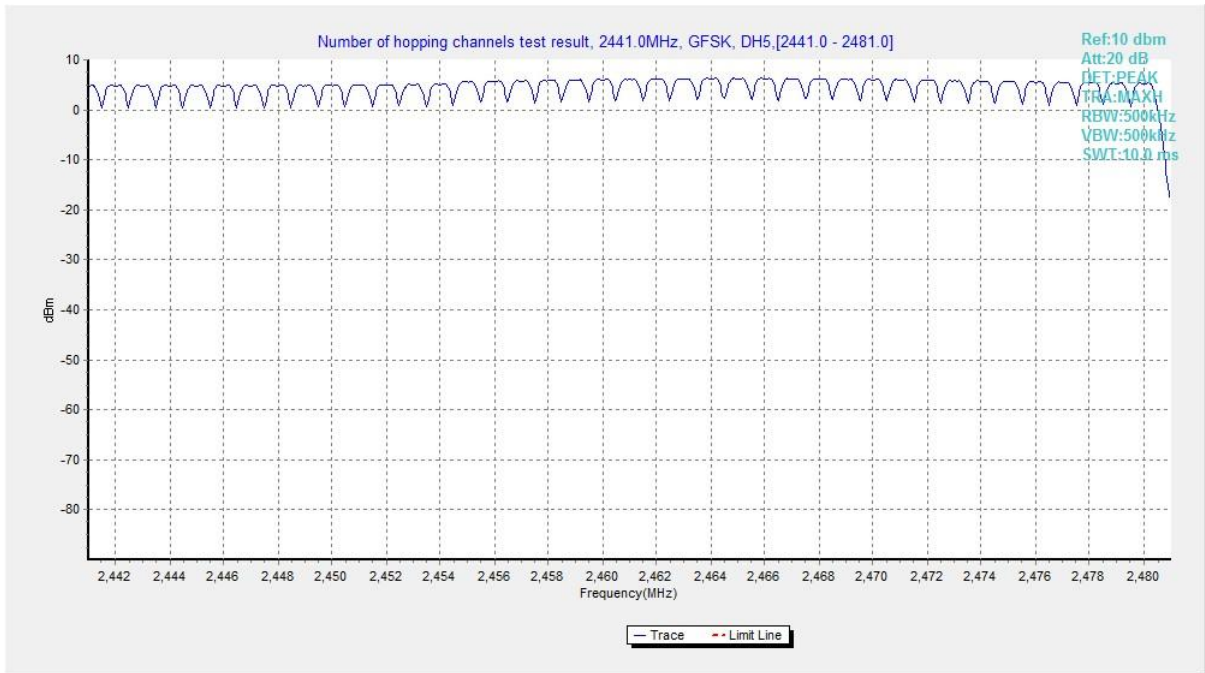


Fig. 76 Hopping channel ch40~78 (GFSK, Ch39)

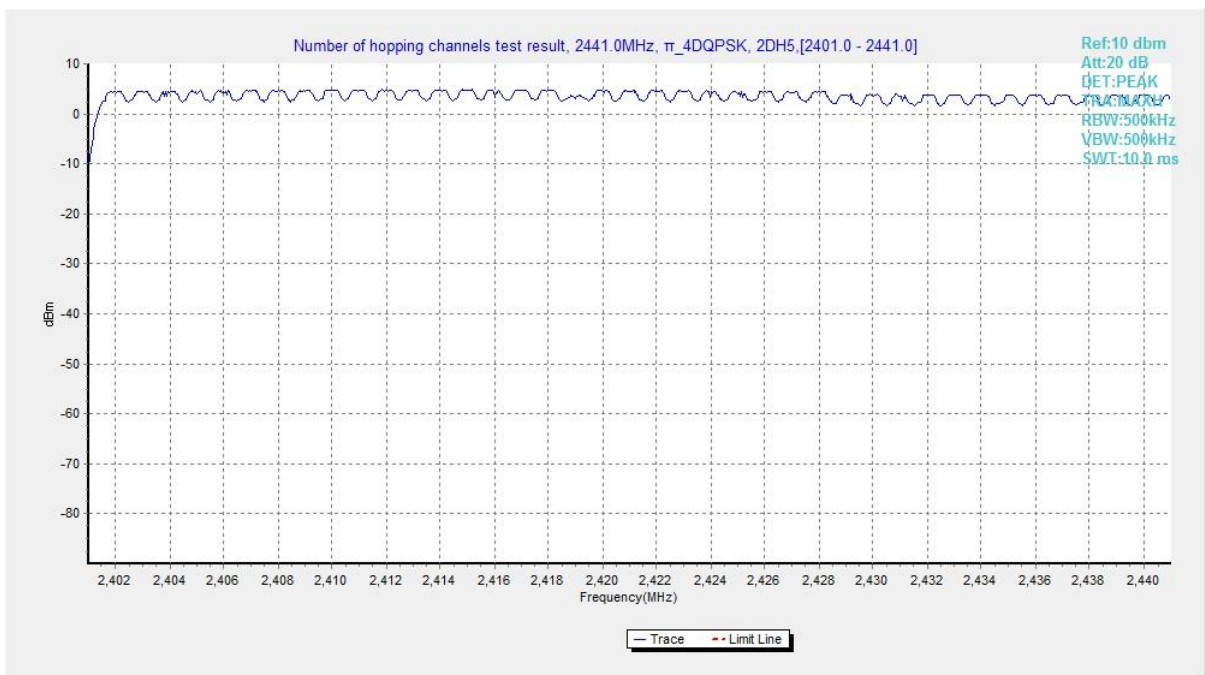


Fig. 77 Hopping channel ch0~39 (π /4 DQPSK, Ch39)

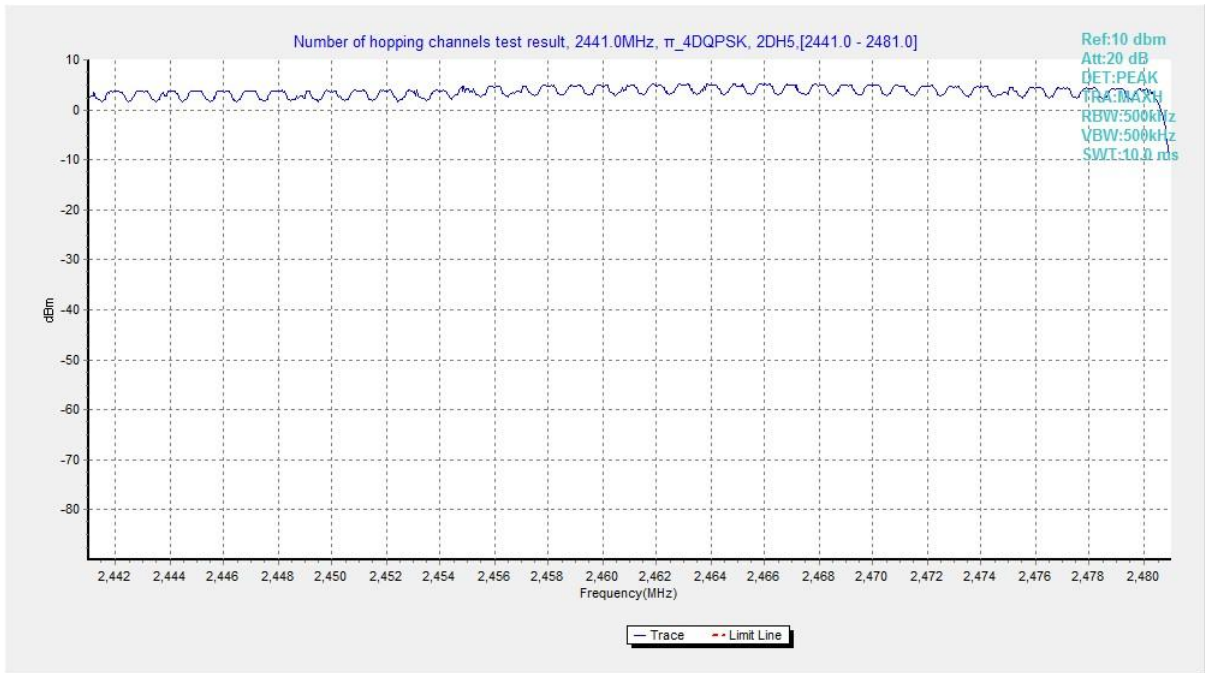


Fig. 78 Hopping channel ch40~78 (π /4 DQPSK, Ch39)

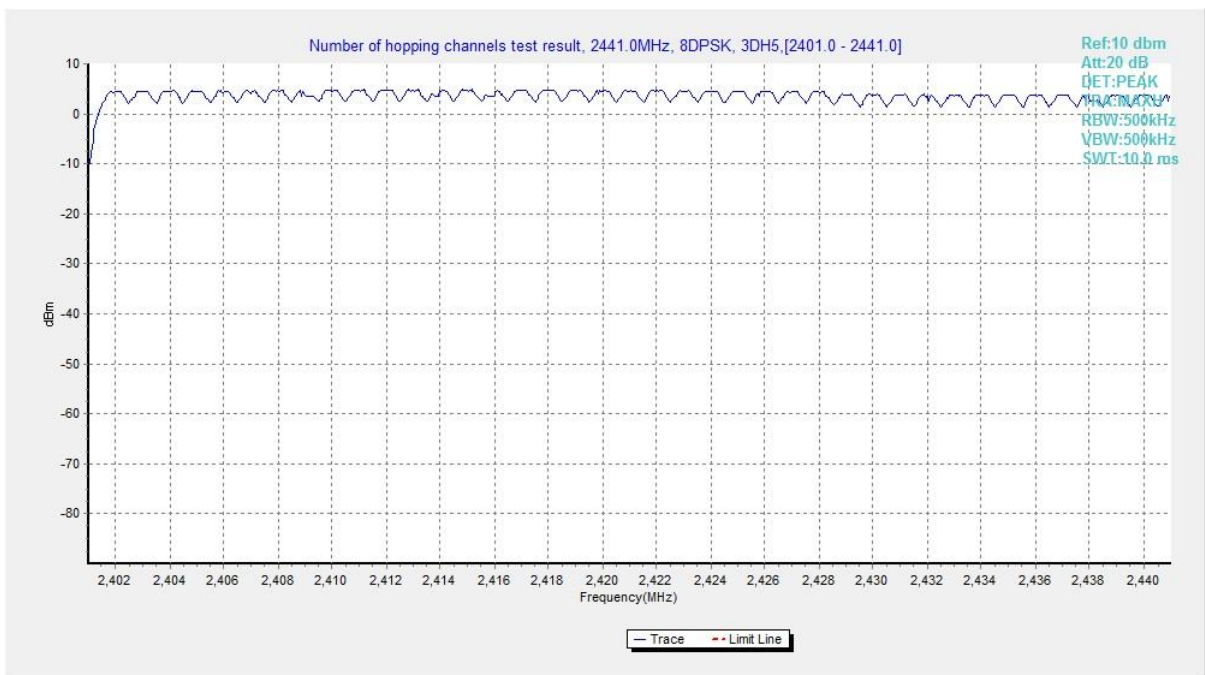


Fig. 79 Hopping channel ch0~39 (8DPSK, Ch39)

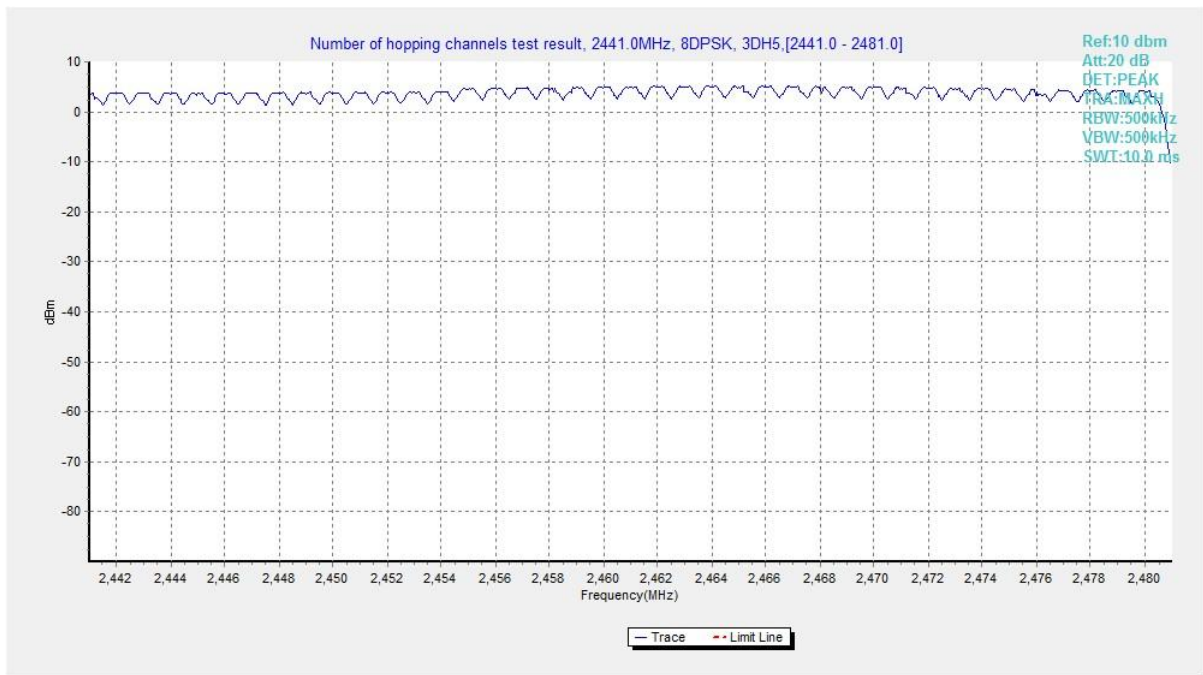


Fig. 80 Hopping channel ch40~78 (8DPSK, Ch39)

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 (MHz)	Conclusion
GFSK	39	DH5	Fig.81	1.00	P
$\pi/4$ DQPSK	39	2-DH5	Fig.82	1.01	P
8DPSK	39	3-DH5	Fig.83	1.01	P

See below for test graphs.

Conclusion: Pass

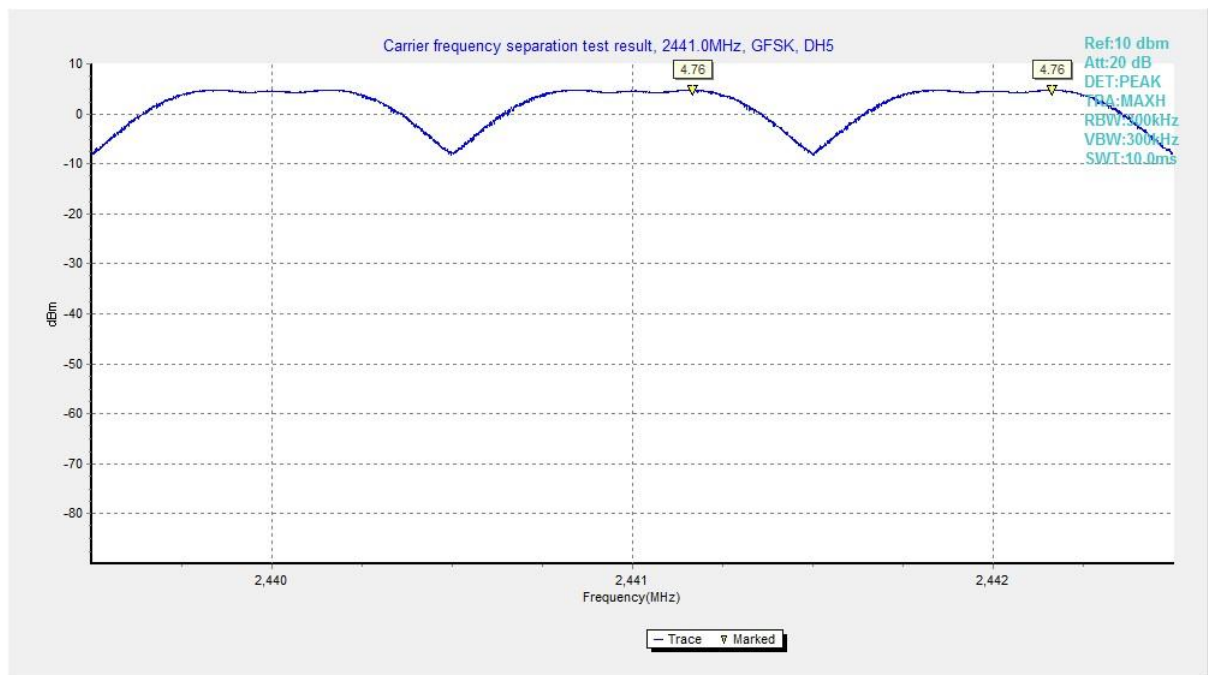


Fig. 81 Carrier Frequency Separation (GFSK, Ch39)

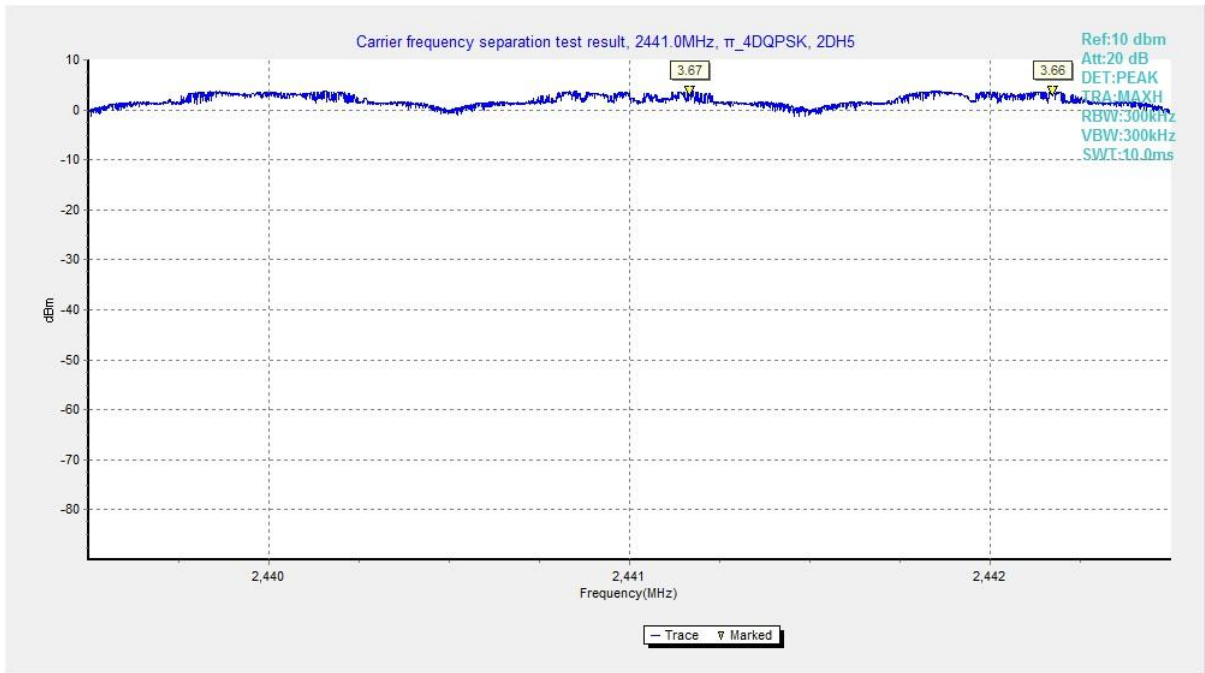


Fig. 82 Carrier Frequency Separation (π /4 DQPSK, Ch39)

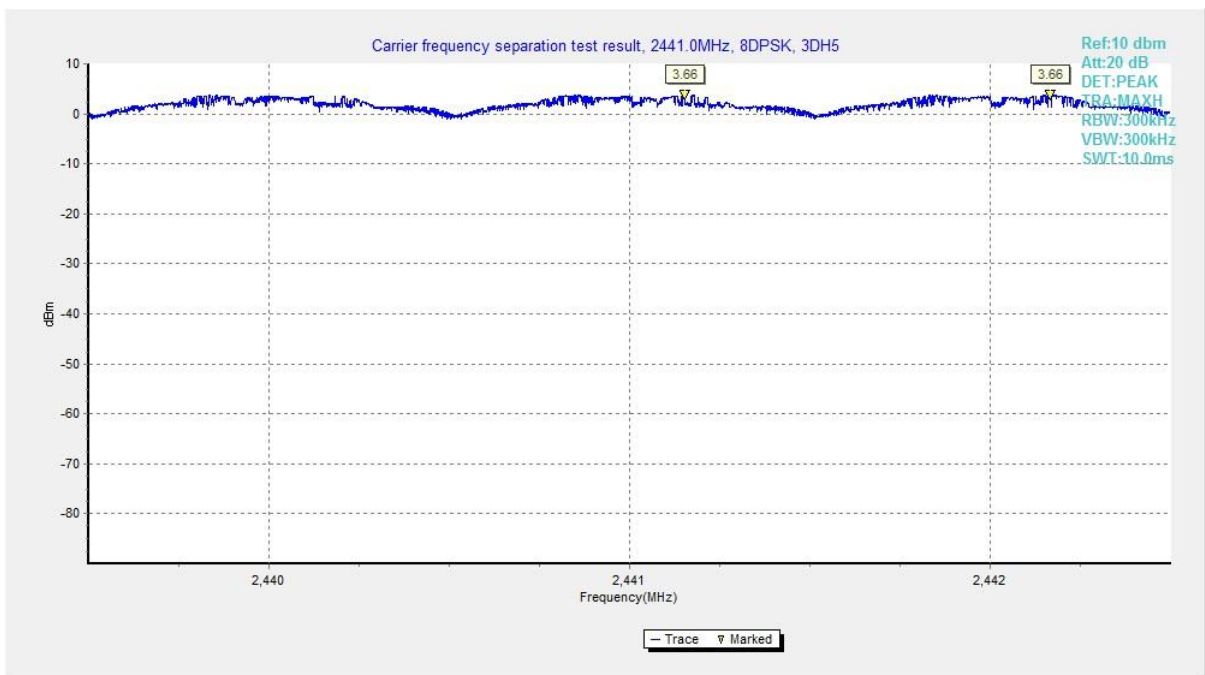


Fig. 83 Carrier Frequency Separation (8DPSK, Ch39)

A.9 AC Power line Conducted Emission

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

Measurement Result and limit:

BT (Quasi-peak Limit) - AE2

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)		Conclusion
		Traffic	Idle	
0.15 to 0.5	66 to 56	Fig.84	Fig.85	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) - AE2

Frequency range (MHz)	Average-peak Limit (dB μ V)	Result (dB μ V)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig.84	Fig.85	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

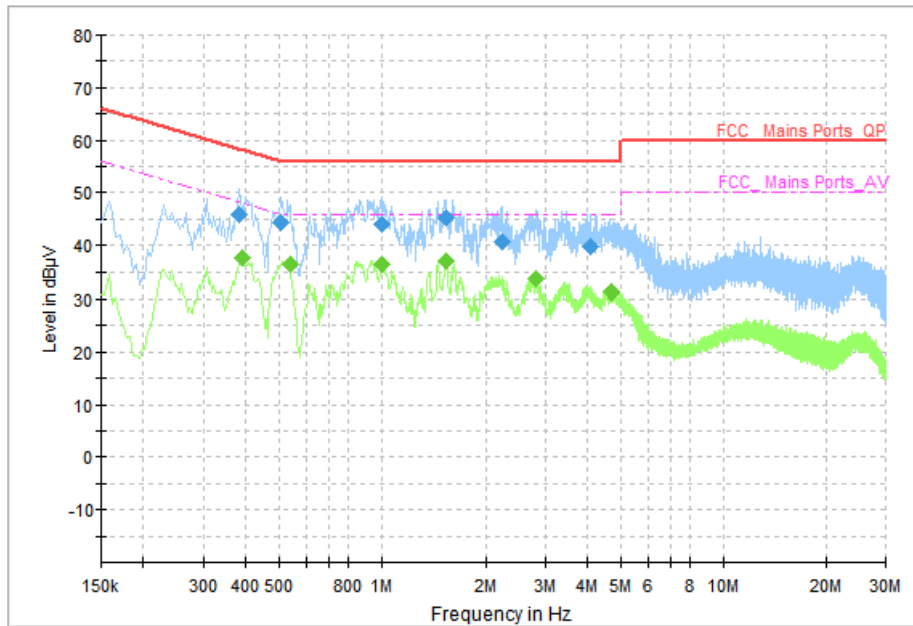


Fig. 84 AC Powerline Conducted Emission (Traffic, AE2, 120V)

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.382000	45.90	58.24	12.33	N	ON	9.6
0.506000	44.37	56.00	11.63	N	ON	9.7
1.002000	44.12	56.00	11.88	N	ON	9.7
1.530000	45.29	56.00	10.72	N	ON	9.7
2.234000	40.79	56.00	15.21	N	ON	9.7
4.070000	39.67	56.00	16.33	N	ON	9.7

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.390000	37.71	48.06	10.36	N	ON	9.6
0.538000	36.31	46.00	9.69	N	ON	9.7
1.002000	36.46	46.00	9.54	N	ON	9.7
1.538000	37.15	46.00	8.85	N	ON	9.7
2.822000	33.55	46.00	12.45	N	ON	9.7
4.674000	31.14	46.00	14.86	N	ON	9.7

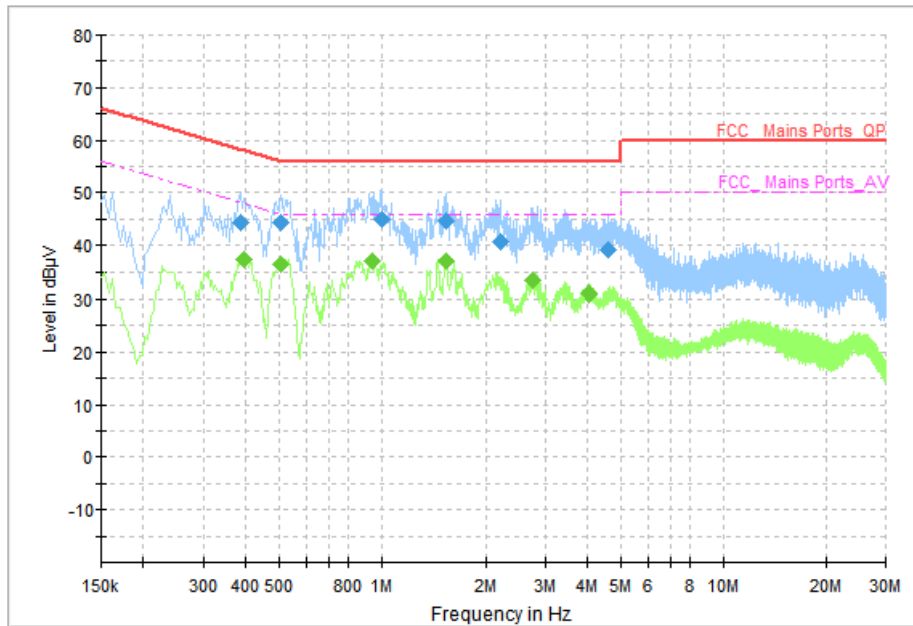


Fig. 85 AC Power line Conducted Emission (Idle, AE2, 120V)

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.386000	44.42	58.15	13.73	N	ON	9.6
0.506000	44.21	56.00	11.79	N	ON	9.7
0.998000	44.86	56.00	11.14	N	ON	9.7
1.526000	44.73	56.00	11.27	N	ON	9.7
2.210000	40.69	56.00	15.31	N	ON	9.7
4.606000	39.15	56.00	16.85	N	ON	9.7

Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.394000	37.22	47.98	10.76	N	ON	9.6
0.506000	36.33	46.00	9.67	N	ON	9.7
0.938000	36.93	46.00	9.07	N	ON	9.7
1.534000	37.11	46.00	8.89	N	ON	9.7
2.746000	33.46	46.00	12.54	N	ON	9.7
4.010000	31.02	46.00	14.98	N	ON	9.7

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