

Fig. 72 Number of Transmissions ($\pi/4$ DQPSK, Ch39)

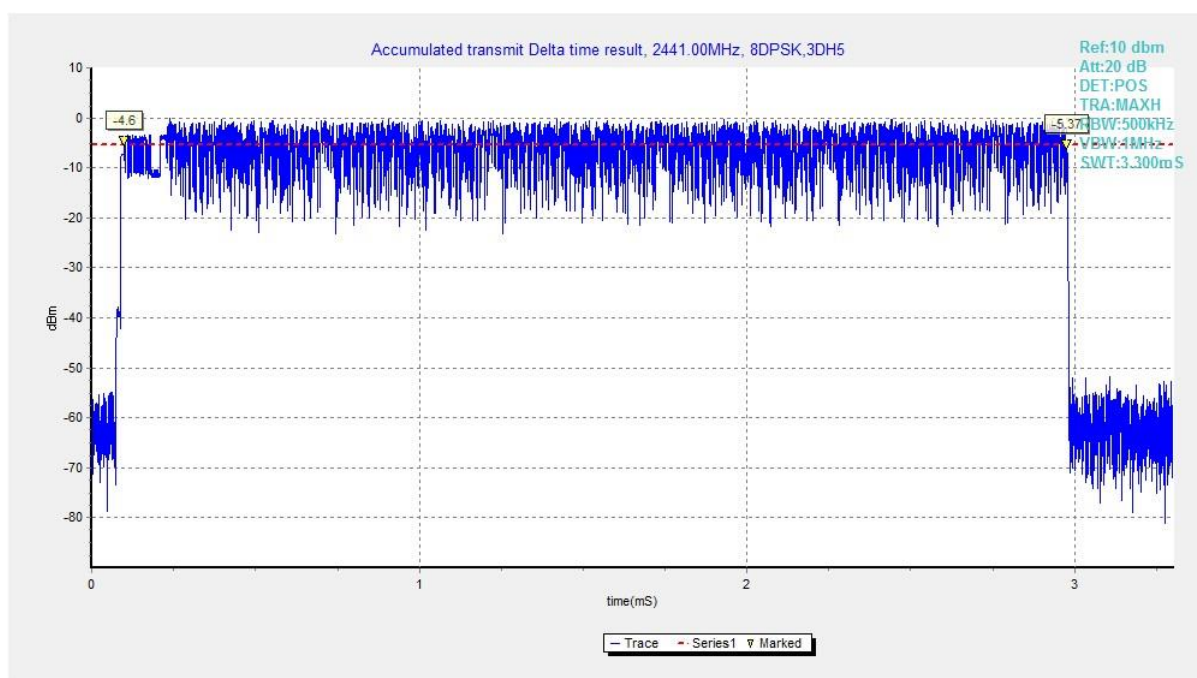


Fig. 73 Time of Occupancy (Dwell Time) (8DPSK, Ch39)

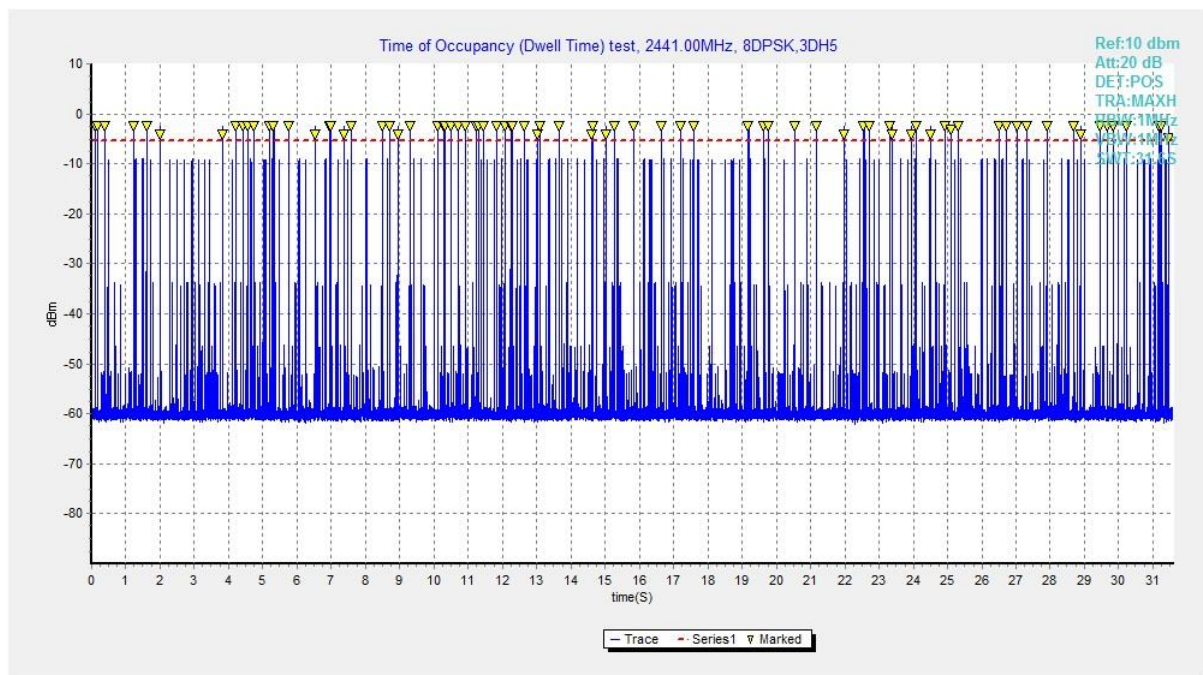


Fig. 74 Number of Transmissions (8DPSK, Ch39)

A.8 Number of Hopping Channels

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a) & RSS-247 section 5.1	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

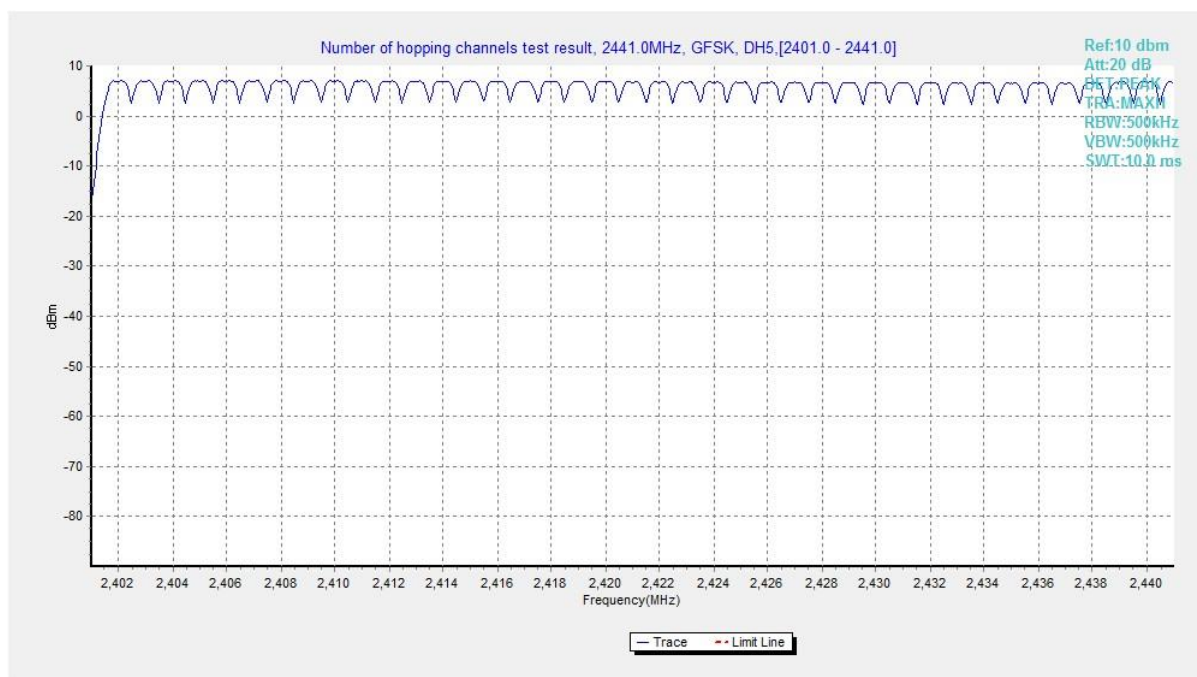


Fig. 75 Hopping channel ch0 ~ ch39 (GFSK)

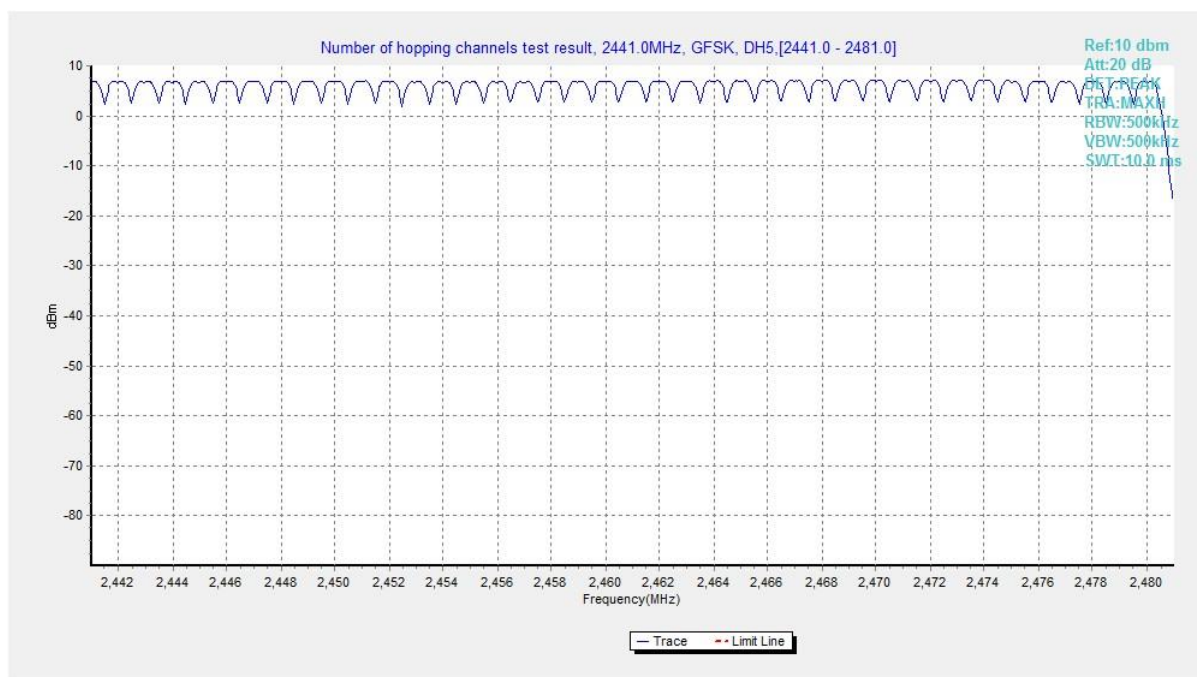


Fig. 76 Hopping channel ch40 ~ ch78 (GFSK)

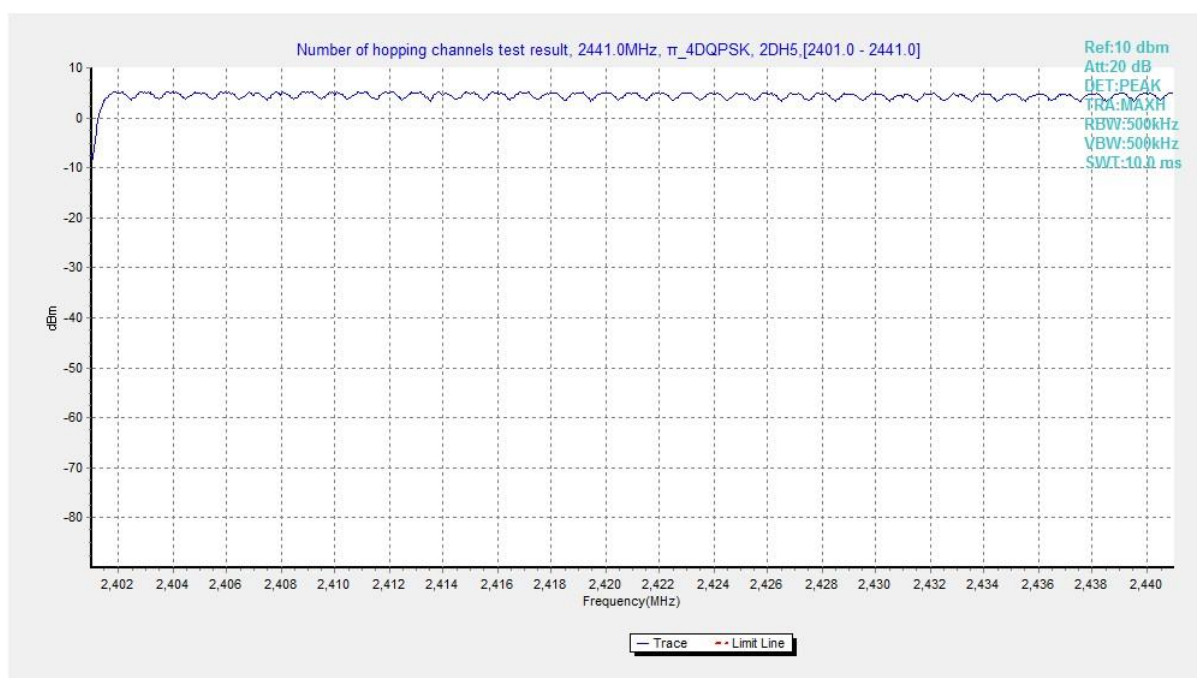


Fig. 77 Hopping channel ch0 ~ ch39 ($\pi/4$ DQPSK)

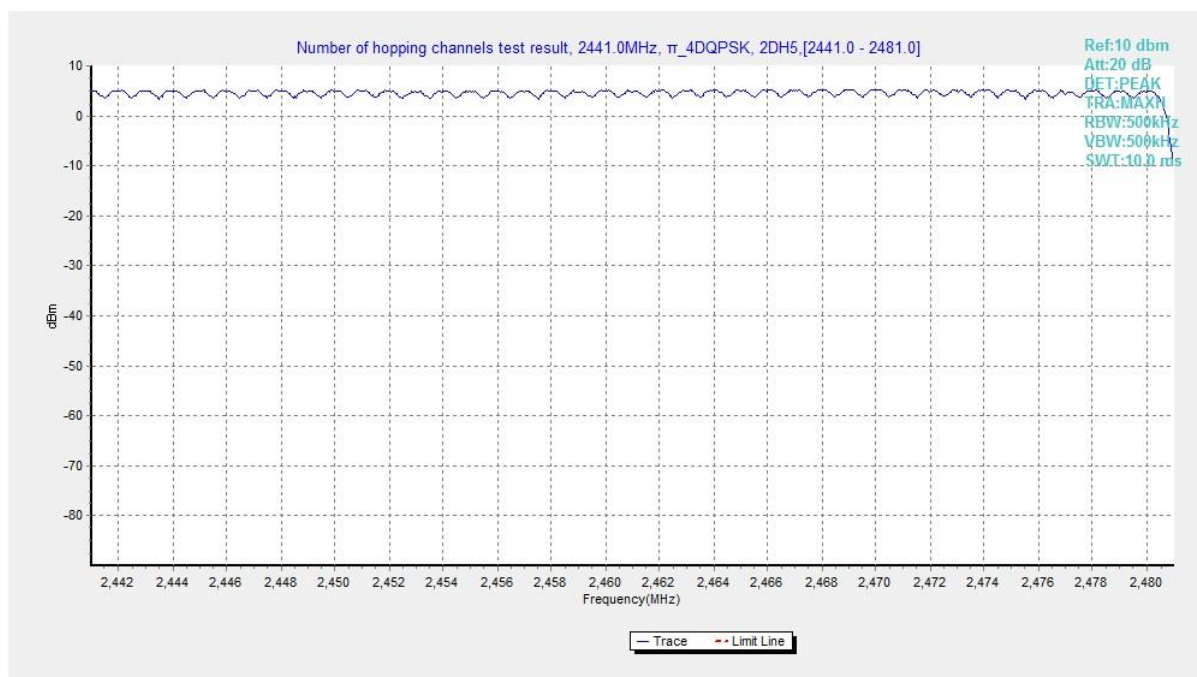


Fig. 78 Hopping channel ch40 ~ ch78 ($\pi/4$ DQPSK)

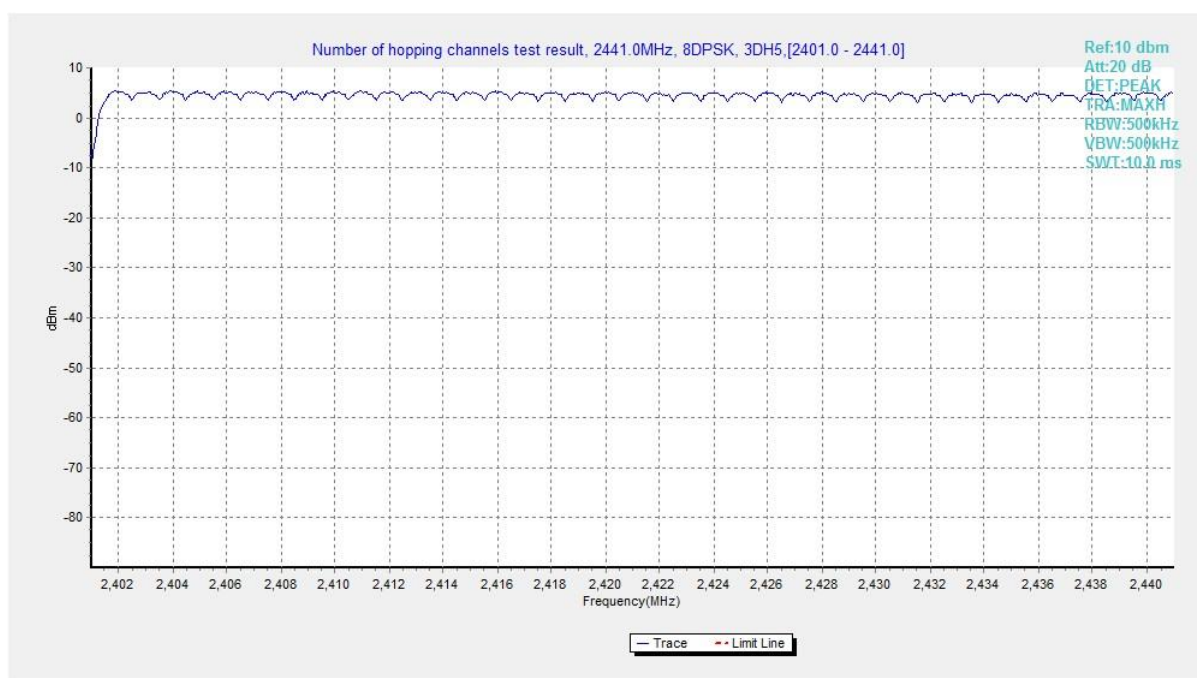


Fig. 79 Hopping channel ch0 ~ ch39 (8DPSK)

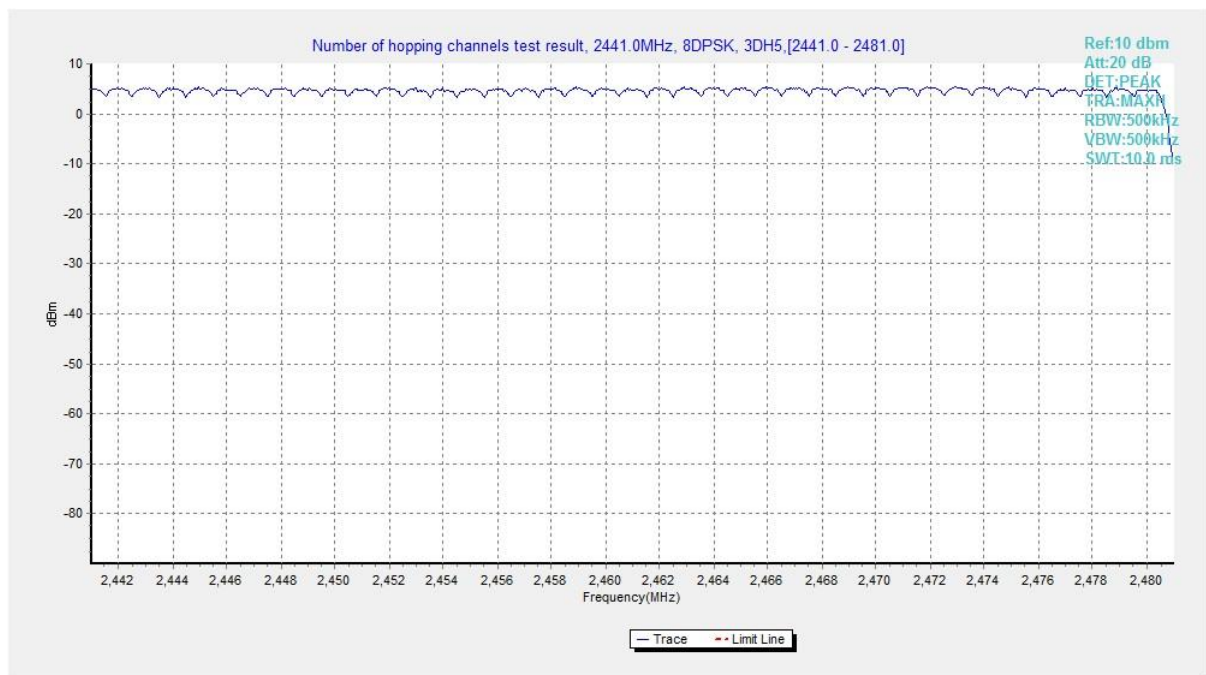


Fig. 80 Hopping channel ch40 ~ ch78 (8DPSK)

A.9 Carrier Frequency Separation

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a) & RSS-247 section 5.1	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	1.00	P
8DPSK	39	3-DH5	Fig.83	1.00	P

See below for test graphs.

Conclusion: Pass

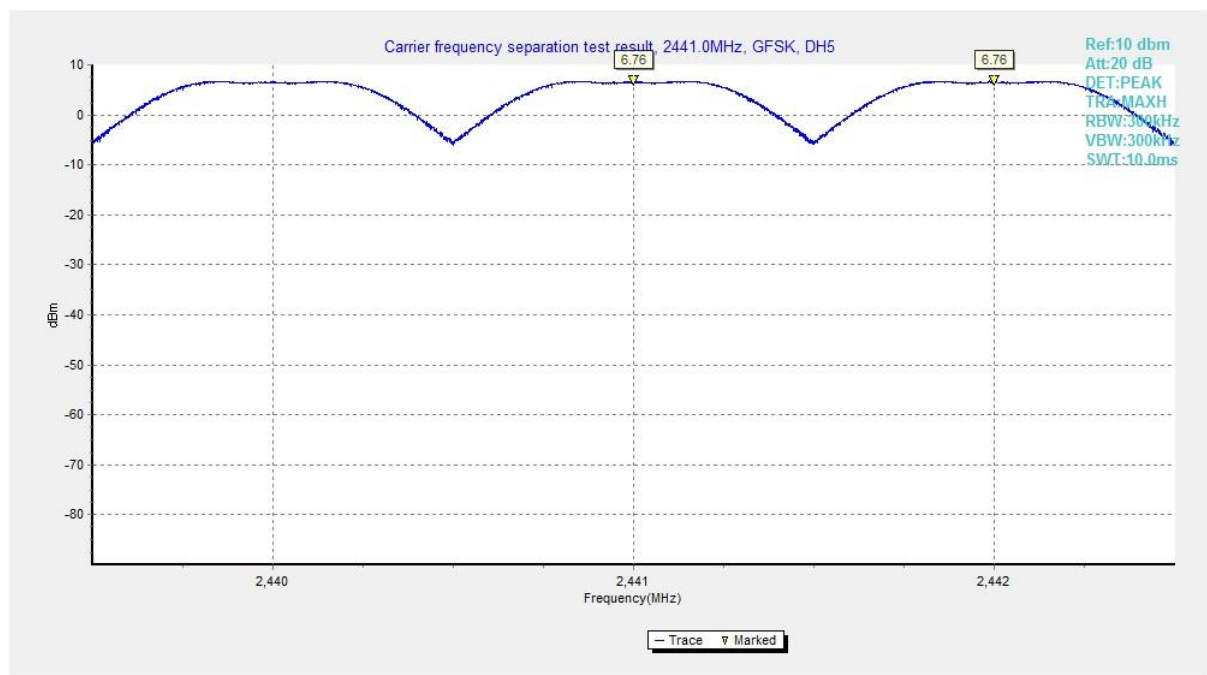


Fig. 81 Carrier Frequency Separation (GFSK, Ch39)

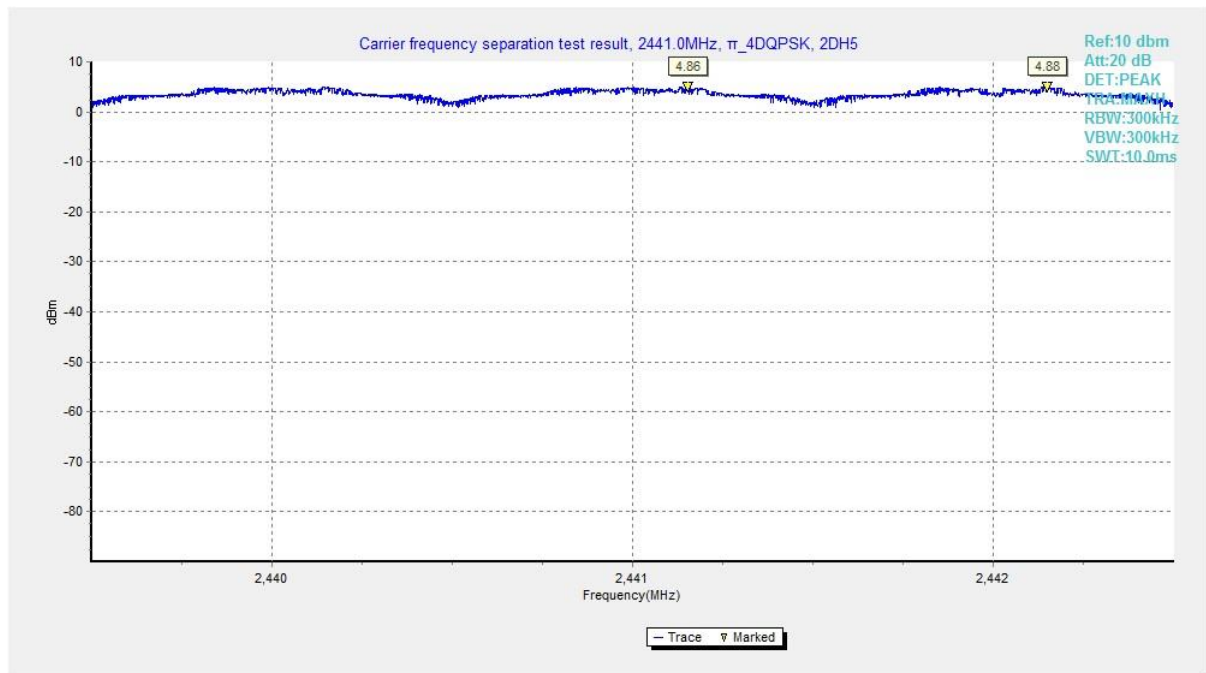


Fig. 82 Carrier Frequency Separation ($\pi/4$ DQPSK, Ch39)

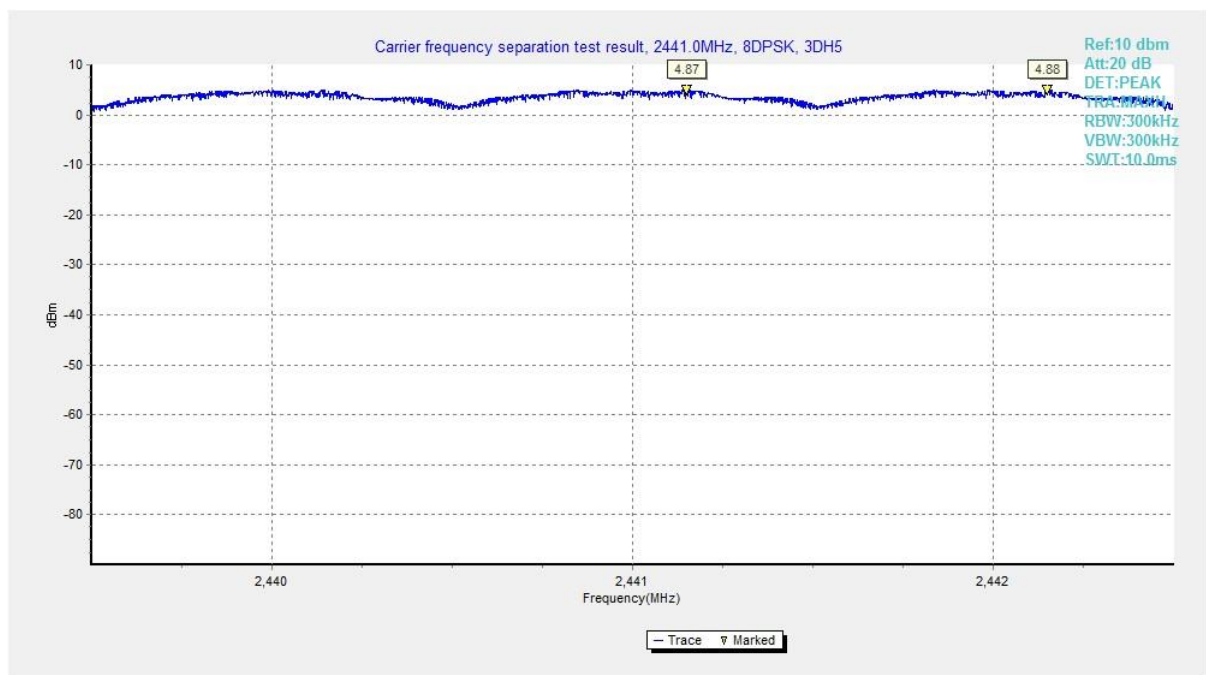


Fig. 83 Carrier Frequency Separation (8DPSK, Ch39)

A.10 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.

Test Condition:

Voltage (V)	Frequency (Hz)
240	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.86	Fig.87	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	Average-peak	Result (dB μ V)	Conclusion
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No. 24T04N002718-004-BT

(MHz)	Limit (dBμV)	Traffic	Idle	
0.15 to 0.5	56 to 46	Fig.86	Fig.87	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

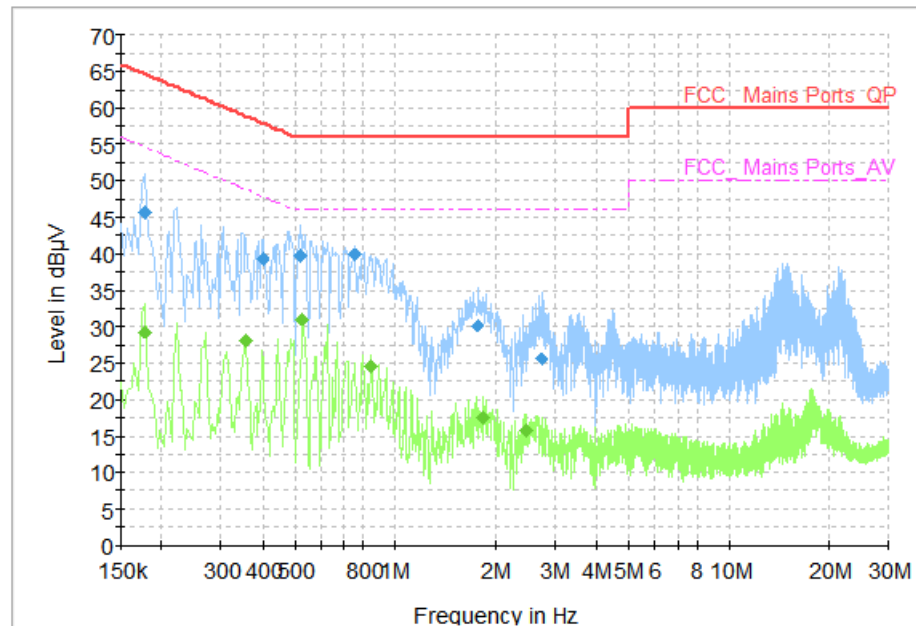


Fig. 84 AC Powerline Conducted Emission (Traffic, AE2, 120V)

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.178000	45.66	64.58	18.92	N	ON	9.6
0.402000	39.37	57.81	18.44	N	ON	9.6
0.518000	39.63	56.00	16.37	N	ON	9.7
0.758000	39.77	56.00	16.23	L1	ON	9.7
1.762000	30.19	56.00	25.81	N	ON	9.7
2.754000	25.62	56.00	30.38	N	ON	9.7

Measurement Results: Average

Frequency (MHz)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.178000	29.19	54.58	25.39	N	ON	9.6
0.358000	28.04	48.78	20.74	L1	ON	9.7
0.530000	31.05	46.00	14.95	L1	ON	9.7
0.846000	24.45	46.00	21.55	L1	ON	9.7
1.830000	17.39	46.00	28.61	L1	ON	9.7
2.458000	15.78	46.00	30.22	L1	ON	9.7

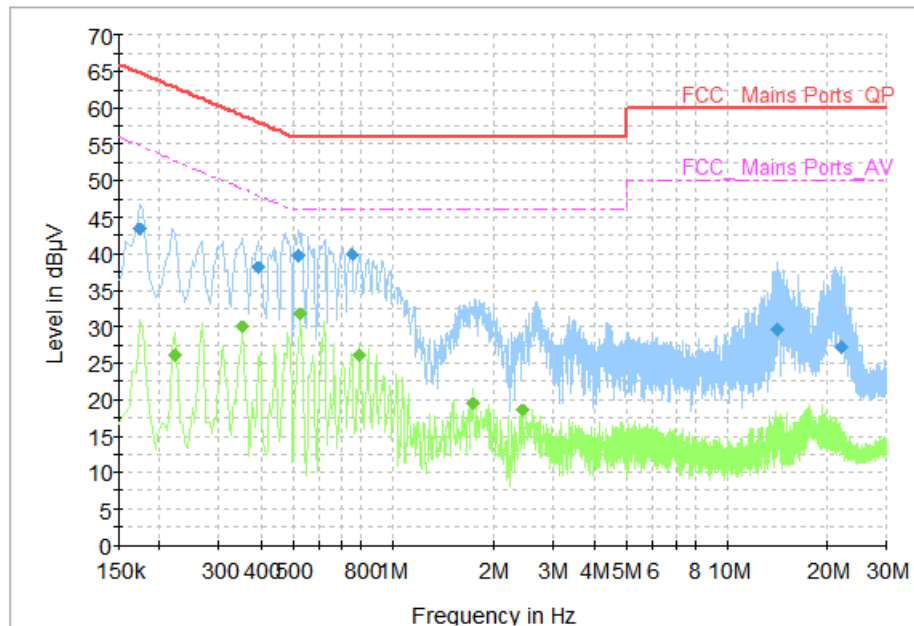


Fig. 85 AC Power line Conducted Emission (Idle, AE2, 120V)

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.174000	43.40	64.77	21.36	L1	ON	9.7
0.394000	38.17	57.98	19.81	N	ON	9.6
0.518000	39.68	56.00	16.32	N	ON	9.7
0.754000	39.79	56.00	16.21	L1	ON	9.7
14.090000	29.64	60.00	30.36	N	ON	9.9
22.050000	27.23	60.00	32.77	N	ON	10.4

Measurement Results: Average

Frequency (MHz)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.222000	26.09	52.74	26.65	N	ON	9.6
0.354000	30.01	48.87	18.86	L1	ON	9.7
0.530000	31.71	46.00	14.29	L1	ON	9.7
0.794000	26.11	46.00	19.89	L1	ON	9.7
1.730000	19.41	46.00	26.59	L1	ON	9.7
2.434000	18.48	46.00	27.52	L1	ON	9.7

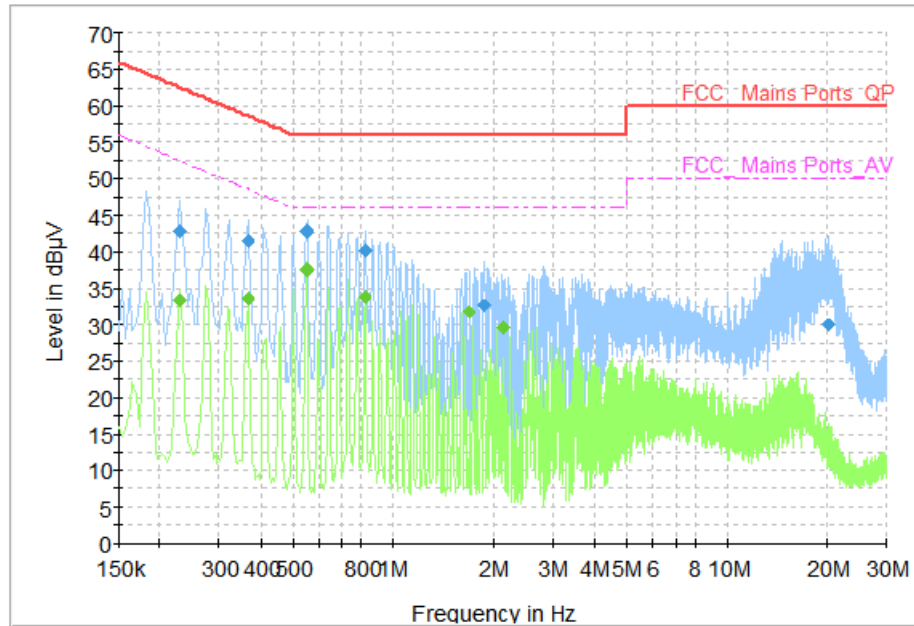


Fig. 86 AC Powerline Conducted Emission (Traffic, AE2, 240V)

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.230000	42.78	62.45	19.67	L1	ON	9.7
0.366000	41.48	58.59	17.11	N	ON	9.6
0.550000	42.90	56.00	13.10	L1	ON	9.7
0.826000	40.17	56.00	15.83	N	ON	9.7
1.870000	32.67	56.00	23.33	N	ON	9.7
20.114000	30.02	60.00	29.98	N	ON	10.4

Measurement Results: Average

Frequency (MHz)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.230000	33.31	52.45	19.14	L1	ON	9.7
0.366000	33.52	48.59	15.07	L1	ON	9.7
0.550000	37.47	46.00	8.53	L1	ON	9.7
0.822000	33.90	46.00	12.10	L1	ON	9.7
1.690000	31.80	46.00	14.20	L1	ON	9.7
2.146000	29.60	46.00	16.40	L1	ON	9.7

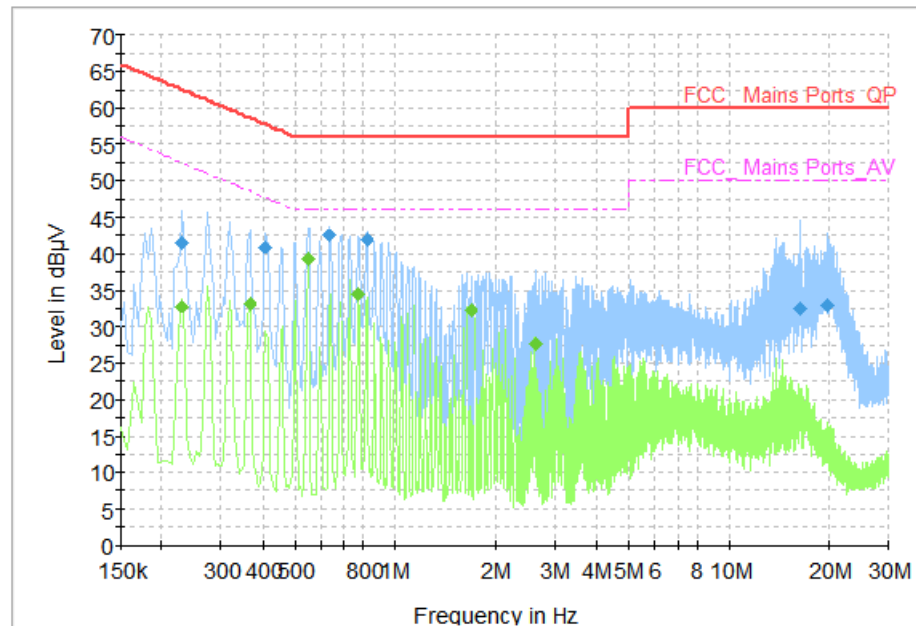


Fig. 87 AC Power line Conducted Emission (Idle, AE2, 240V)

Measurement Results: Quasi Peak

Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.230000	41.45	62.45	21.00	N	ON	9.6
0.410000	40.98	57.65	16.67	N	ON	9.7
0.638000	42.52	56.00	13.48	L1	ON	9.7
0.822000	41.94	56.00	14.06	N	ON	9.7
16.250000	32.50	60.00	27.50	N	ON	10.1
19.742000	33.06	60.00	26.94	N	ON	10.4

Measurement Results: Average

Frequency (MHz)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.230000	32.86	52.45	19.59	L1	ON	9.7
0.366000	33.21	48.59	15.38	L1	ON	9.7
0.546000	39.29	46.00	6.71	L1	ON	9.7
0.774000	34.33	46.00	11.67	L1	ON	9.7
1.686000	32.20	46.00	13.80	L1	ON	9.7
2.646000	27.62	46.00	18.38	L1	ON	9.7

A.11 Occupied Bandwidth

Measurement Limit:

Standard	Limit
RSS-Gen section 6.7	/

Measurement Result:

Mode	Channel	Occupied Bandwidth (kHz)		conclusion
GFSK	0	Fig.88	1012.25	/
	39	Fig.89	1013.25	
	78	Fig.90	1012.25	
$\pi/4$ DQPSK	0	Fig.91	973.76	/
	39	Fig.92	955.26	
	78	Fig.93	974.76	
8DPSK	0	Fig.94	1066.73	/
	39	Fig.95	1040.74	
	78	Fig.96	1071.73	

See below for test graphs.

Conclusion: Pass

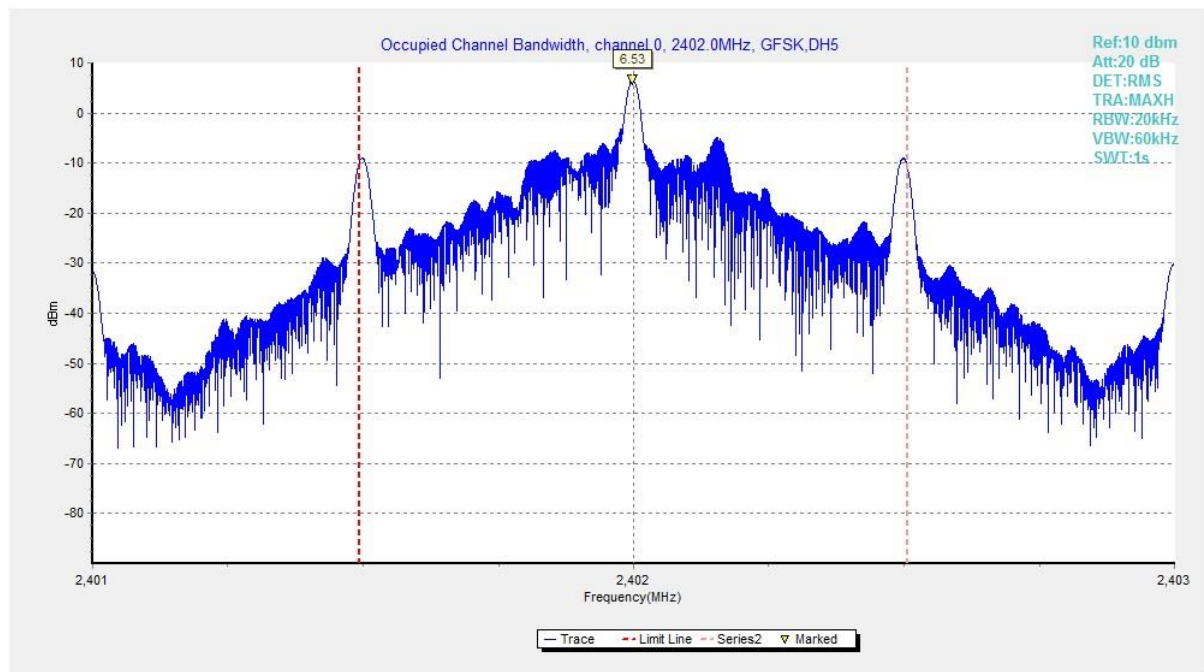


Fig. 88 Occupied Bandwidth (GFSK, Ch 0)

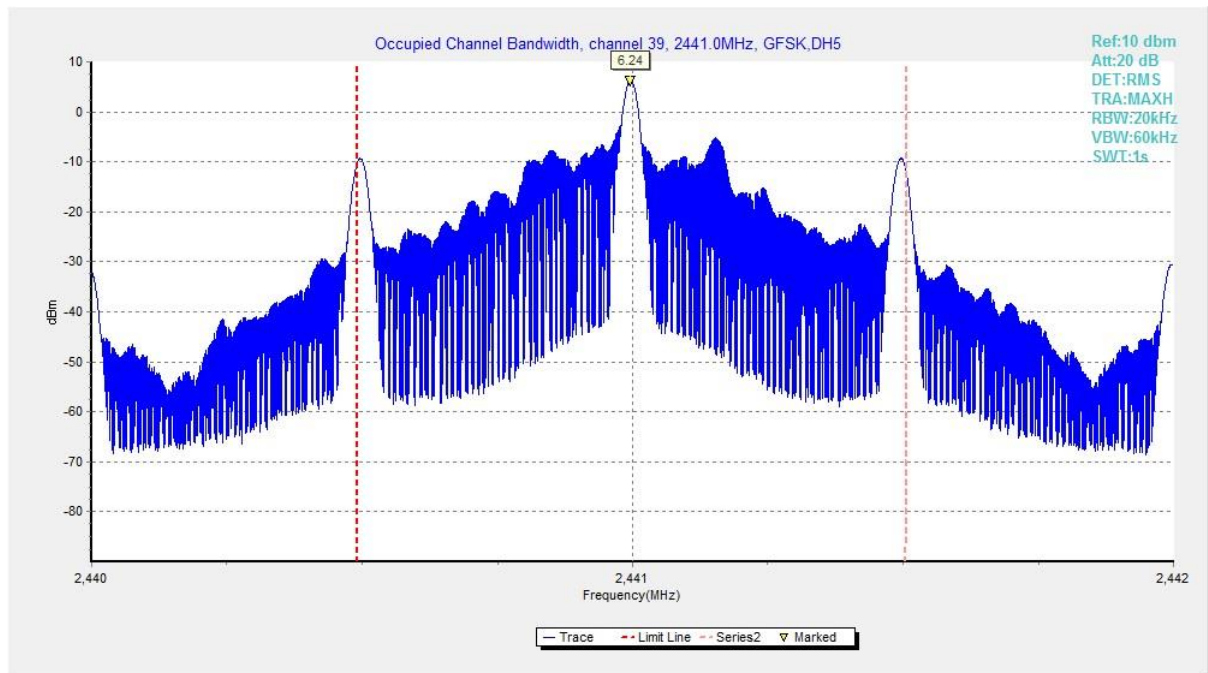


Fig. 89 Occupied Bandwidth (GFSK, Ch 39)

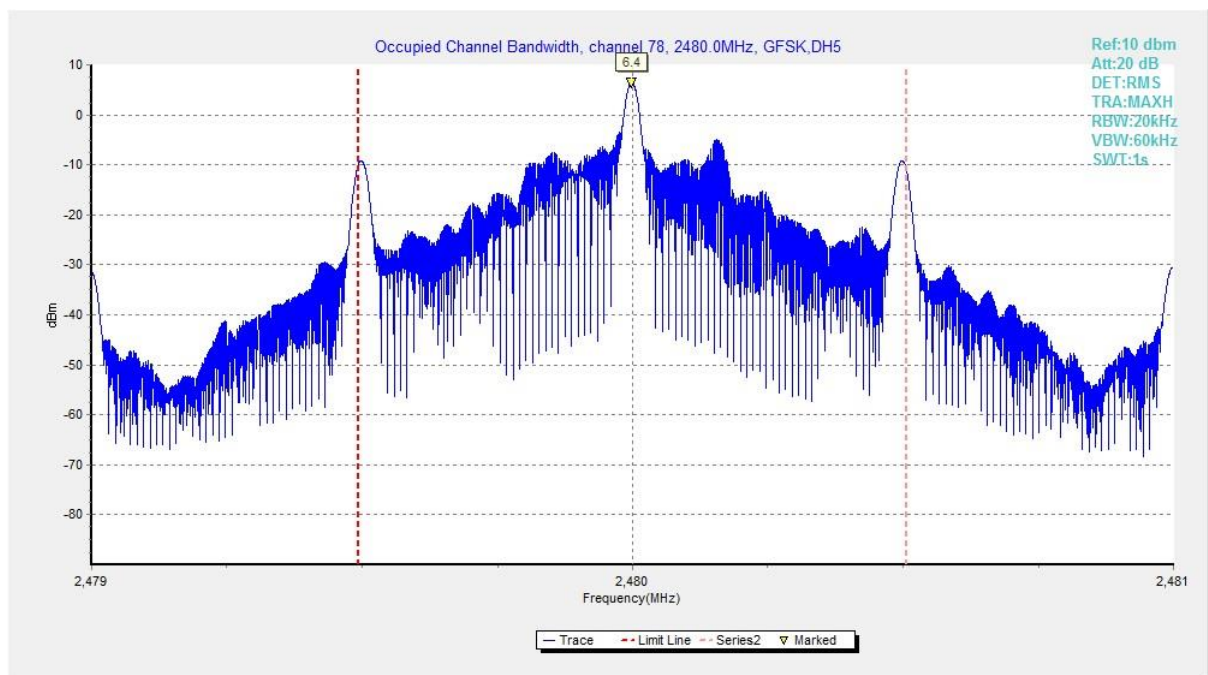


Fig. 90 Occupied Bandwidth (GFSK, Ch 78)

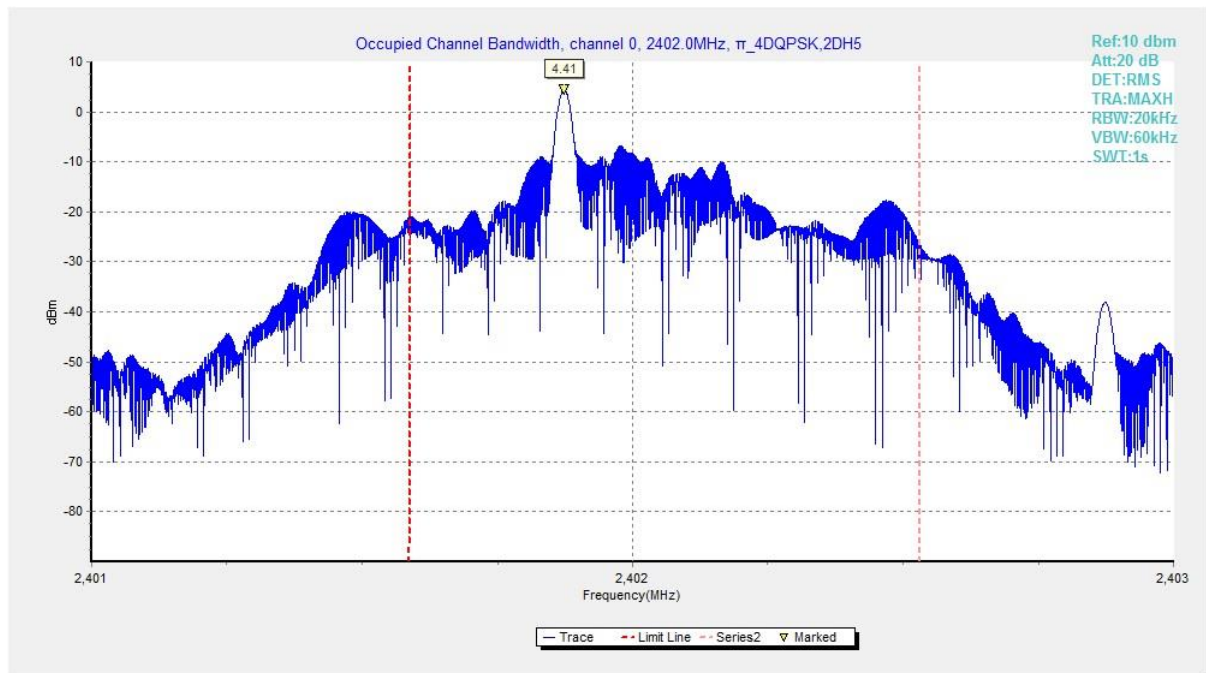


Fig. 91 Occupied Bandwidth (π /4 DQPSK, Ch 0)

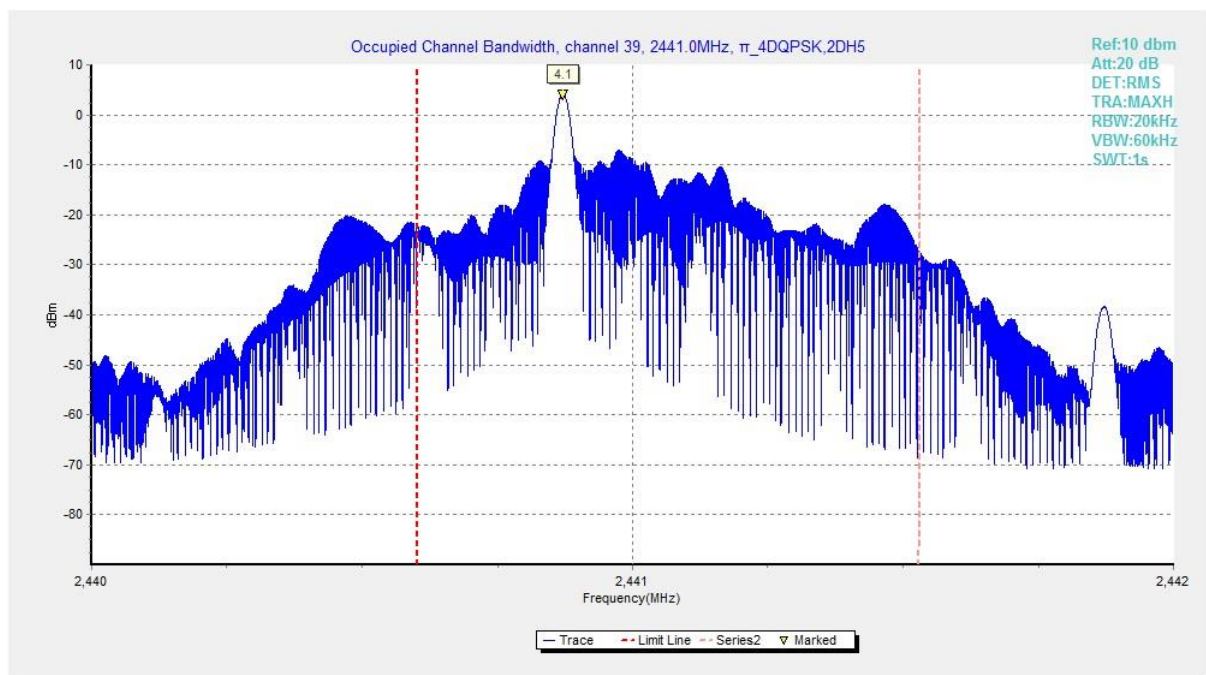


Fig. 92 Occupied Bandwidth (π /4 DQPSK, Ch 39)

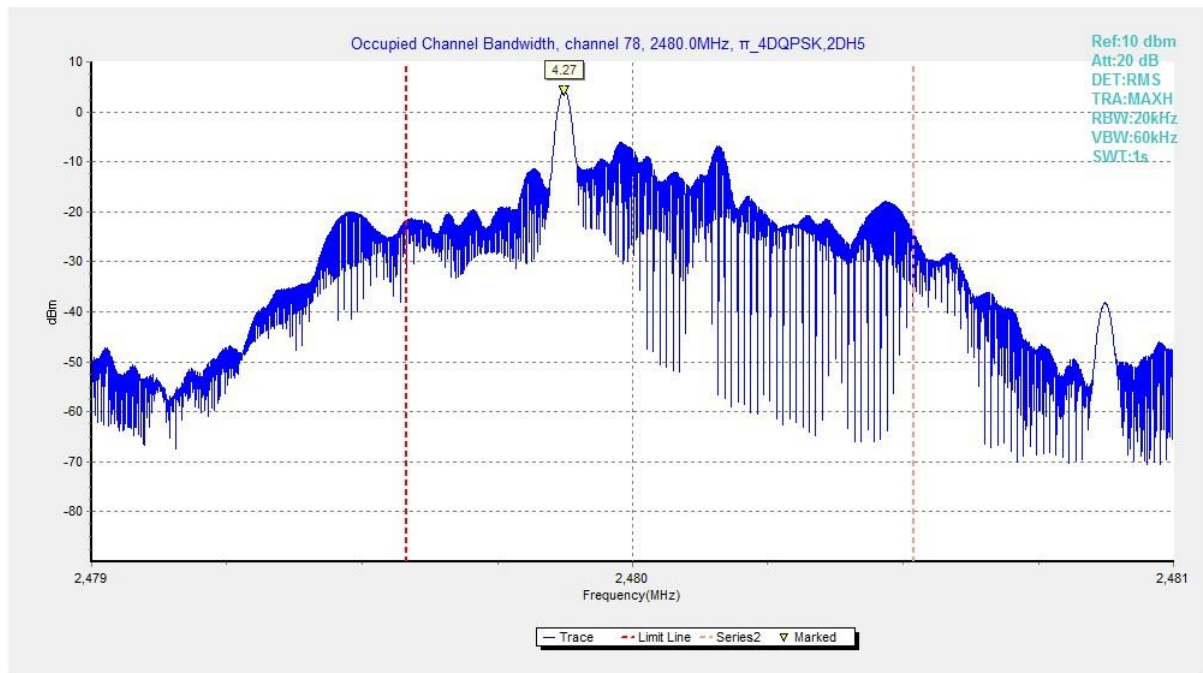


Fig. 93 Occupied Bandwidth ($\pi/4$ DQPSK, Ch 78)

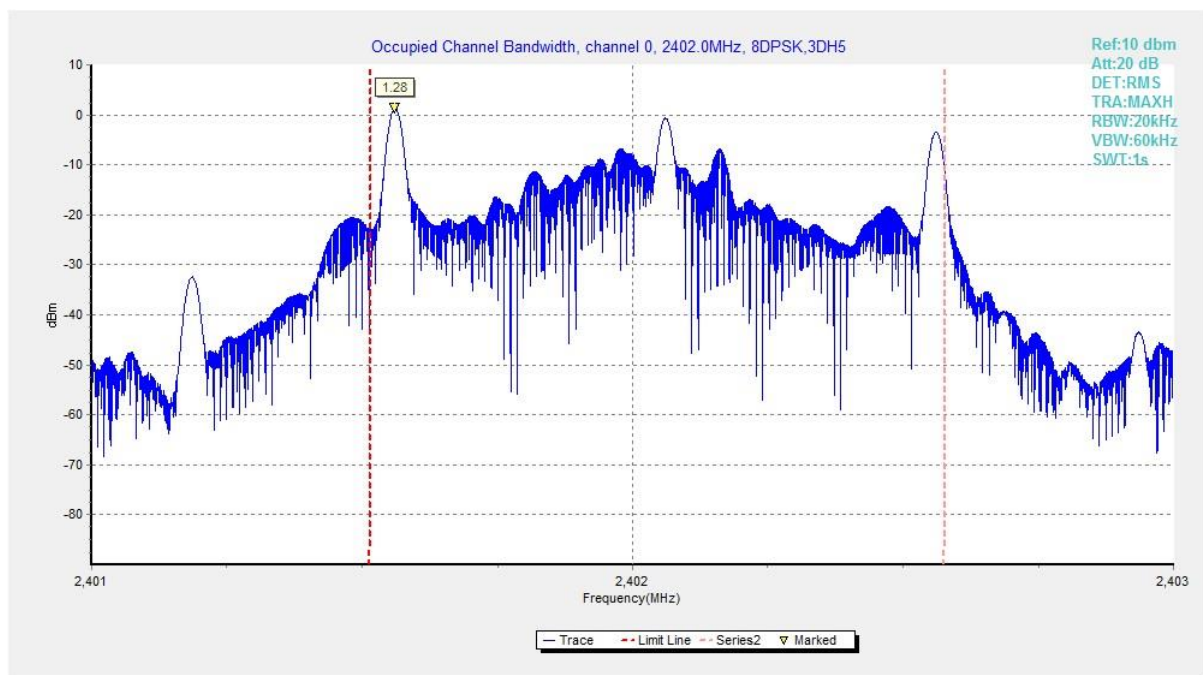


Fig. 94 Occupied Bandwidth (8DPSK, Ch 0)

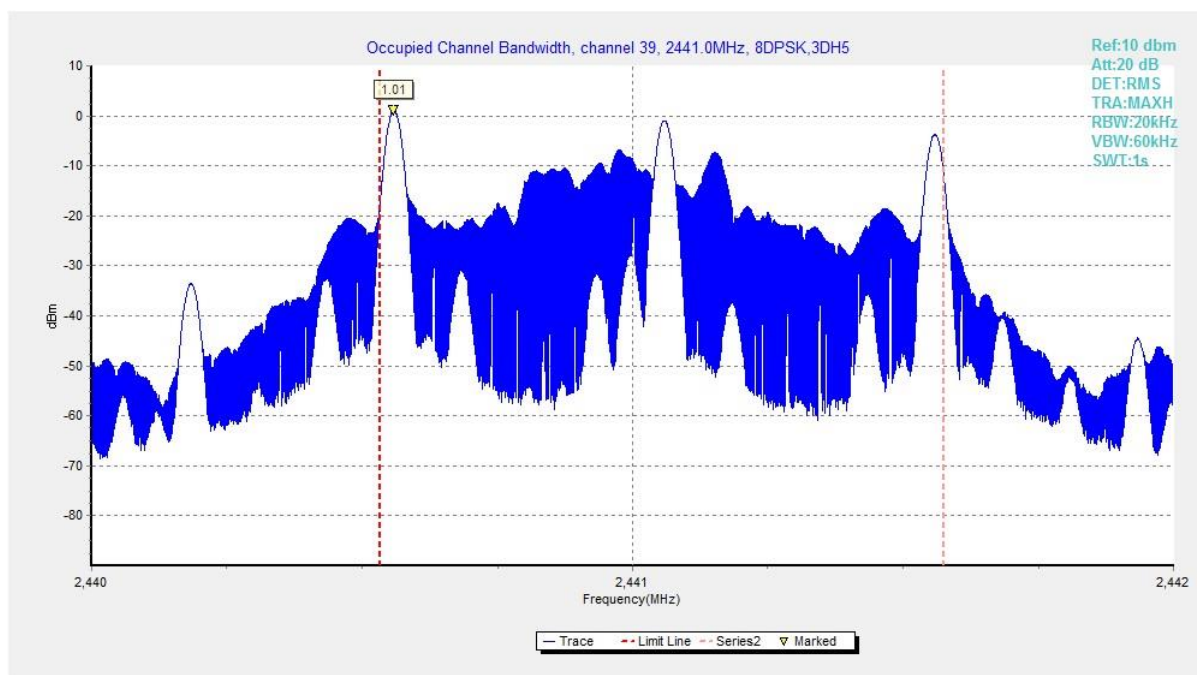


Fig. 95 Occupied Bandwidth (8DPSK, Ch 39)

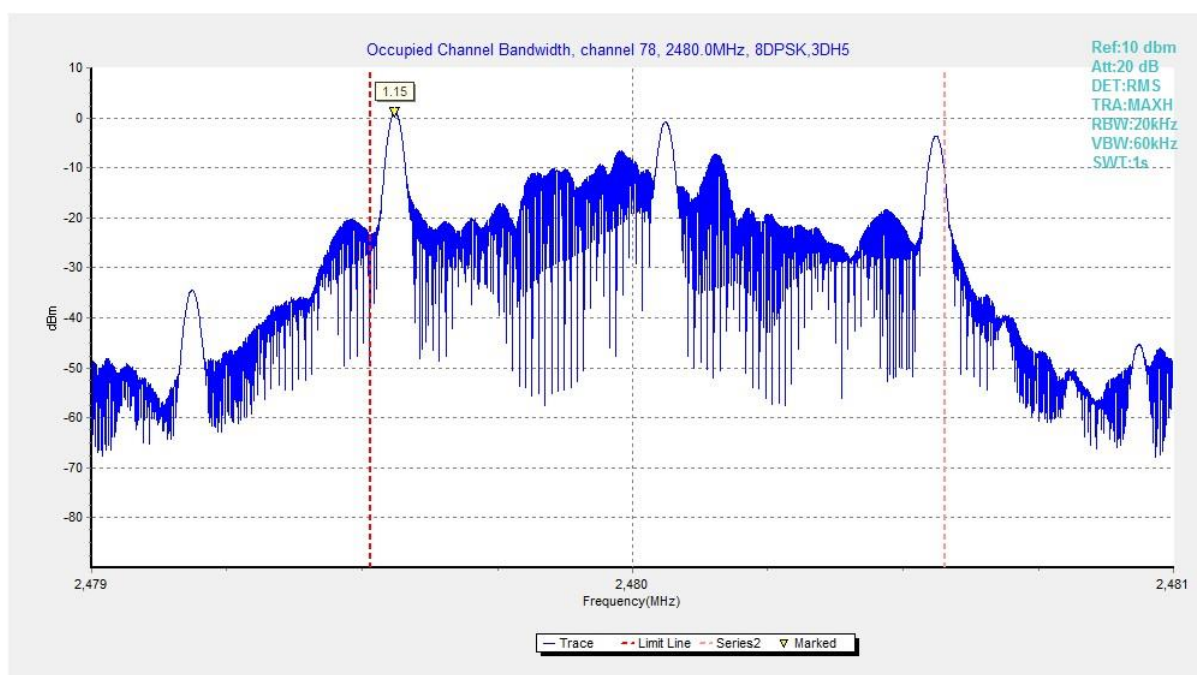


Fig. 96 Occupied Bandwidth (8DPSK, Ch 78)

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