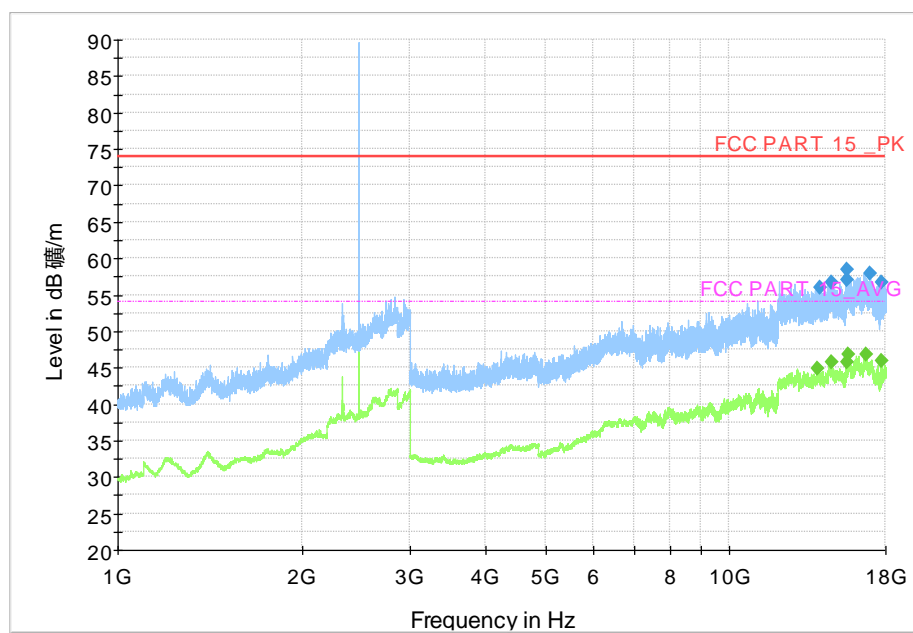


**Fig. 48 Radiated Spurious Emission ( $\pi/4$  DQPSK, Ch39, 1 GHz ~18 GHz)**



**Fig. 49 Radiated Spurious Emission ( $\pi/4$  DQPSK, Ch78, 1 GHz ~18 GHz)**

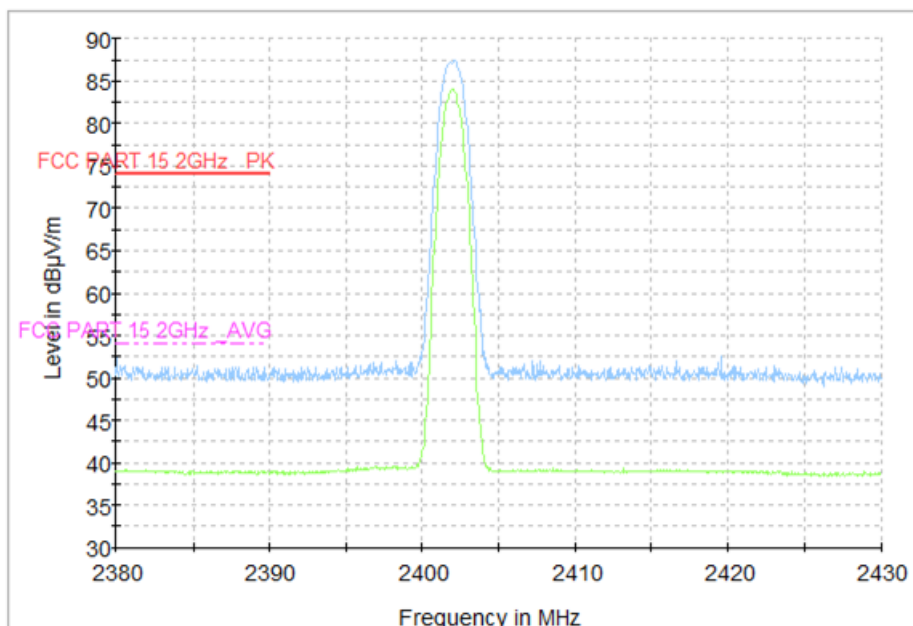


Fig. 50 Radiated Band Edges ( $\pi/4$  DQPSK, Ch0, 2380GHz~2450GHz)

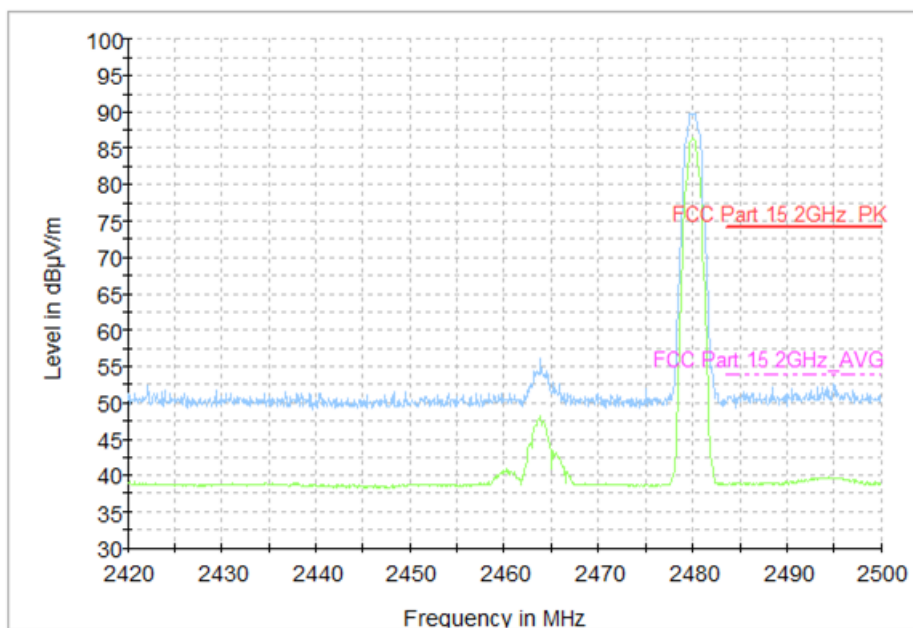
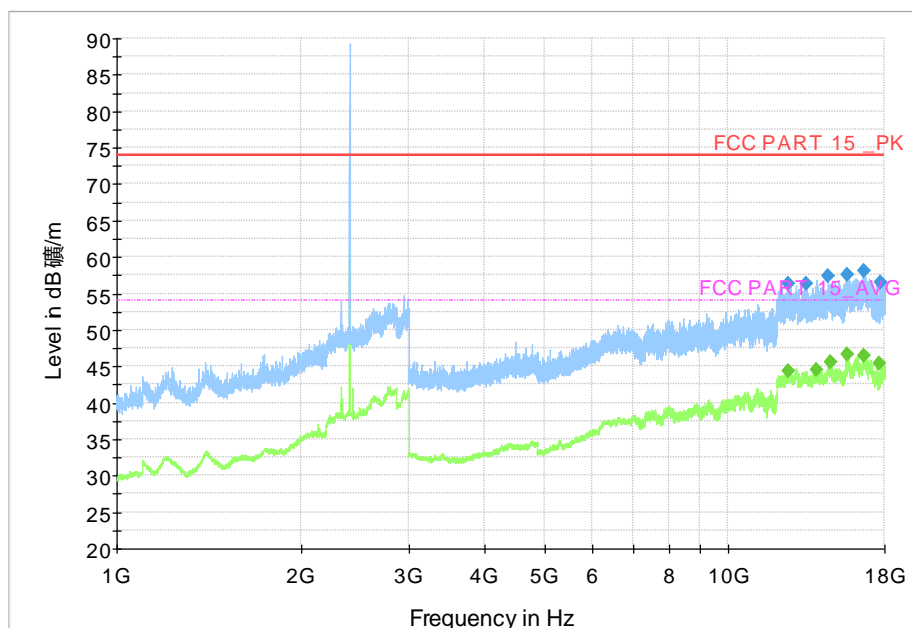
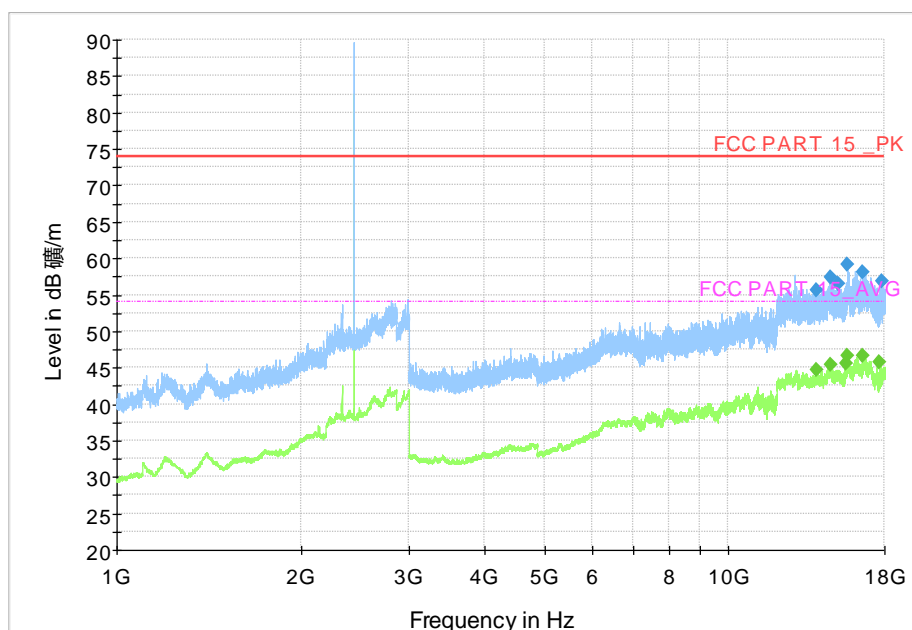


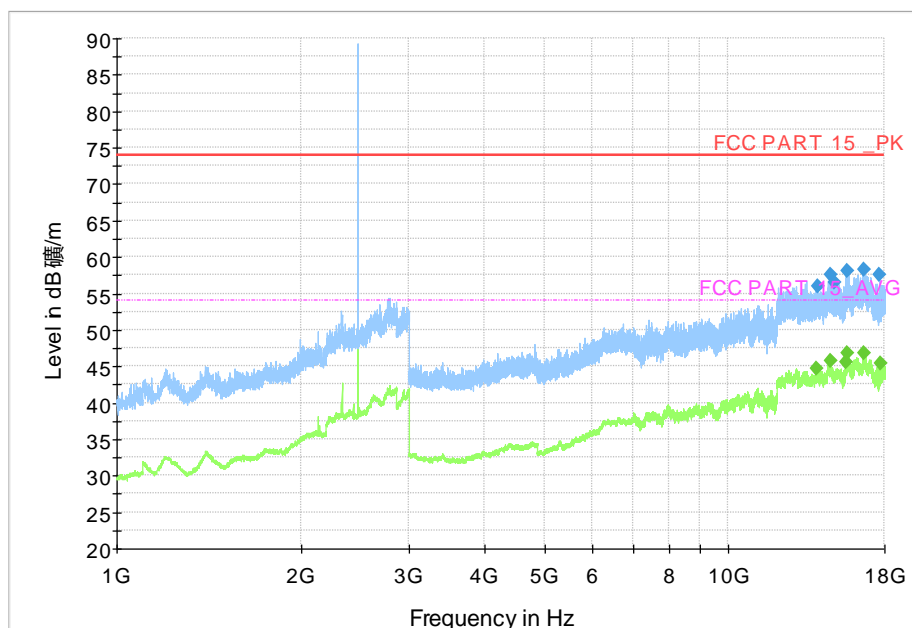
Fig. 51 Radiated Band Edges ( $\pi/4$  DQPSK, Ch78, 2450GHz~2500GHz)



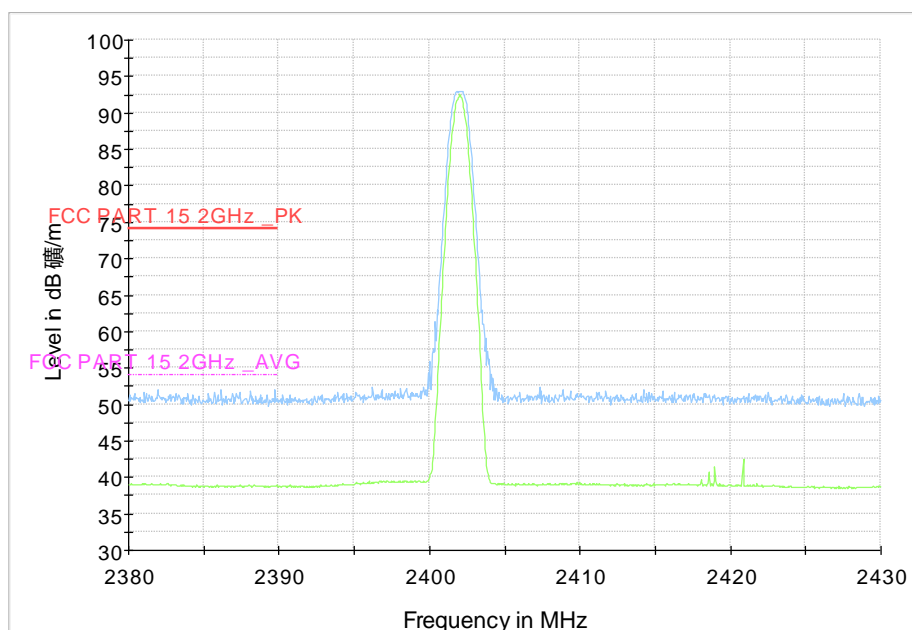
**Fig. 52 Radiated Spurious Emission (8DPSK, Ch0, 1 GHz ~18 GHz)**



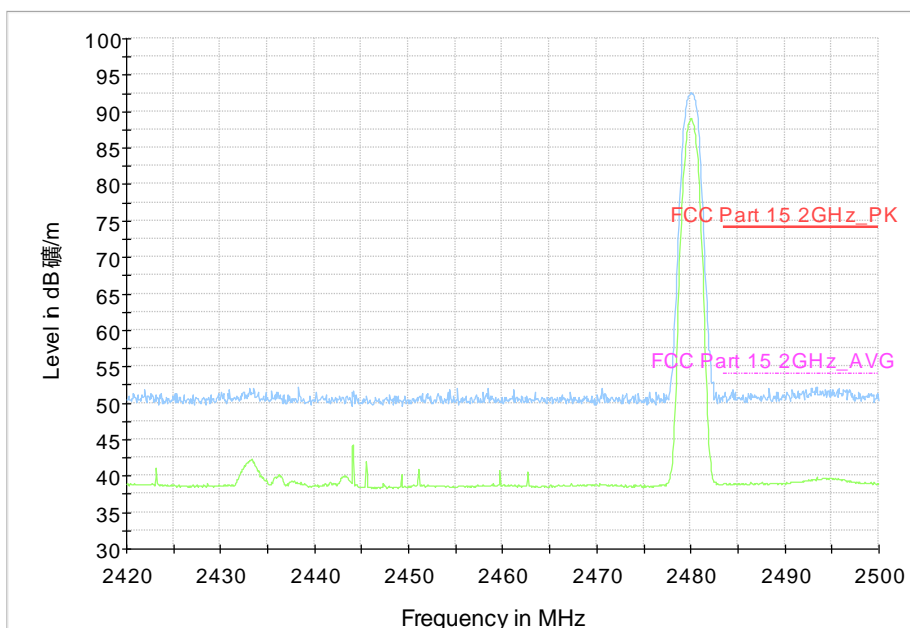
**Fig. 53 Radiated Spurious Emission (8DPSK, Ch39, 1 GHz ~18 GHz)**



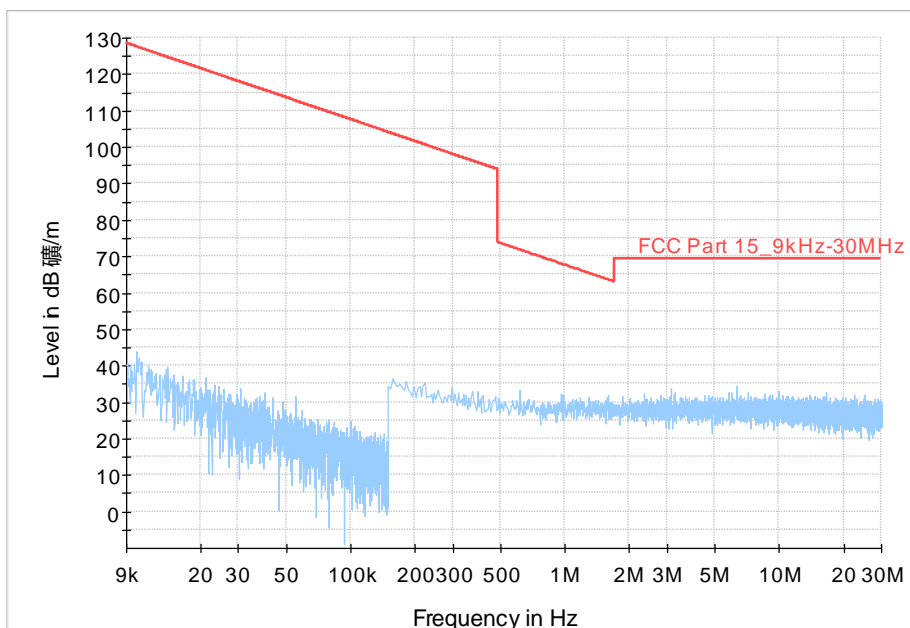
**Fig. 54 Radiated Spurious Emission (8DPSK, Ch78, 1 GHz ~18 GHz)**



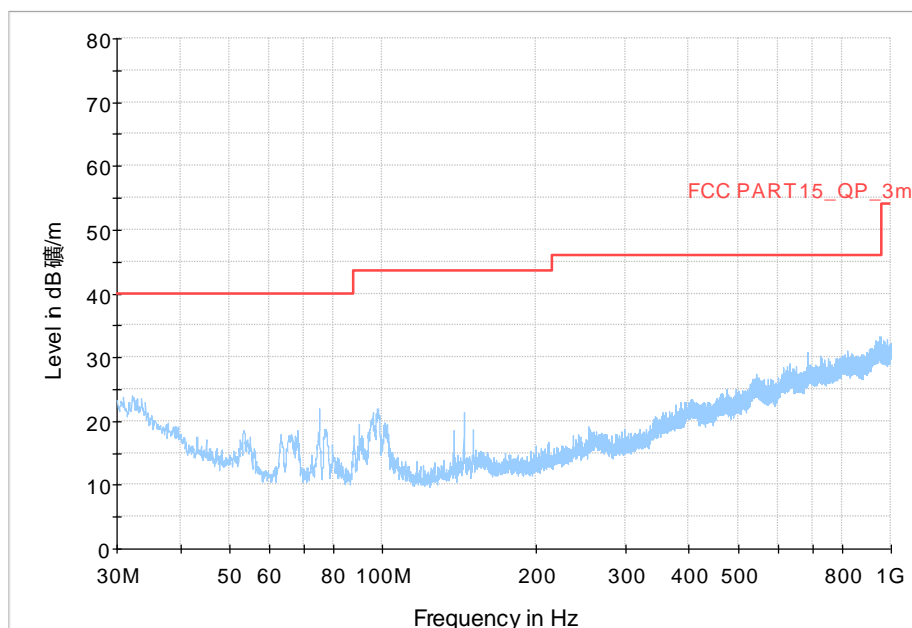
**Fig. 55 Radiated Band Edges (8DPSK, Ch0, 2380GHz~2450GHz)**



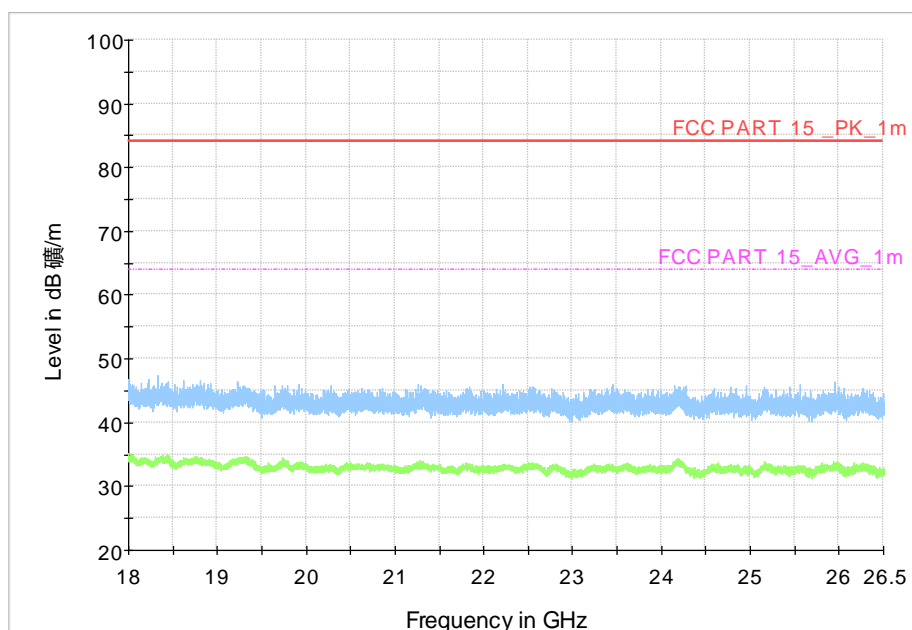
**Fig. 56 Radiated Band Edges (8DPSK, Ch78, 2450GHz~2500GHz)**



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



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



**Fig. 59 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.60	936.75	/
	39	Fig.61	936.75	
	78	Fig.62	936.75	
$\pi/4$ DQPSK	0	Fig.63	1277.25	/
	39	Fig.64	1284.00	
	78	Fig.65	1277.25	
8DPSK	0	Fig.66	1290.75	/
	39	Fig.67	1265.25	
	78	Fig.68	1264.50	

See below for test graphs.

Conclusion: PASS

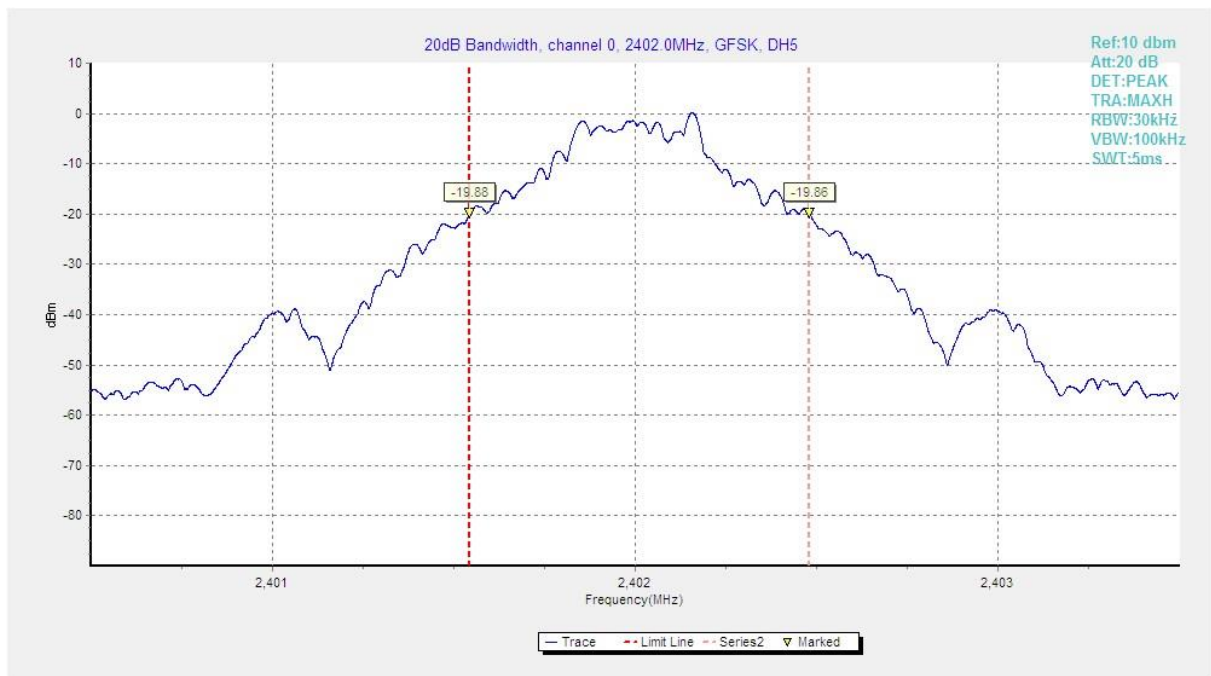
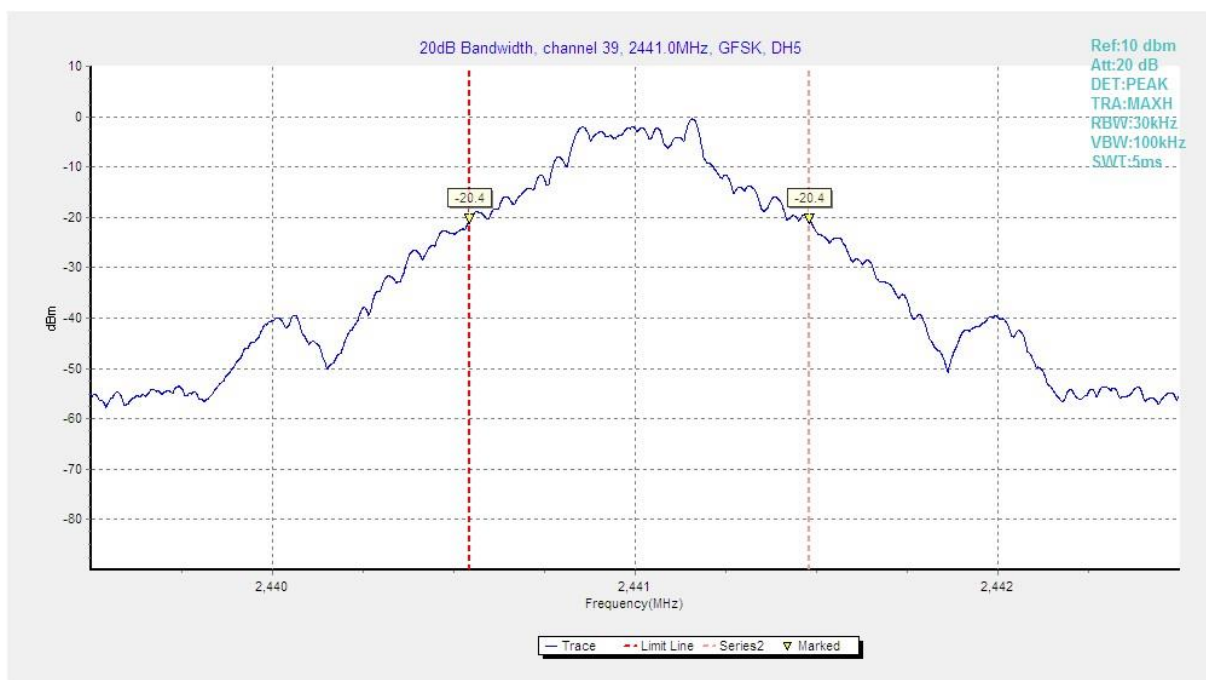
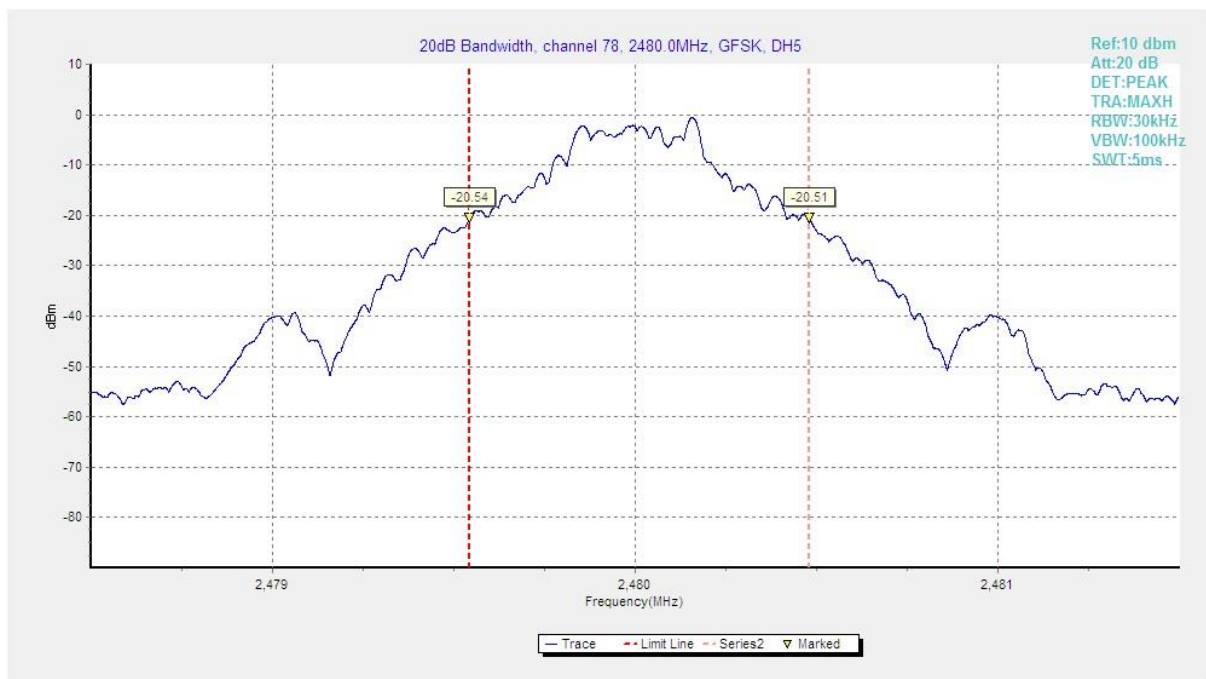


Fig. 60 20dB Bandwidth (GFSK, Ch 0)

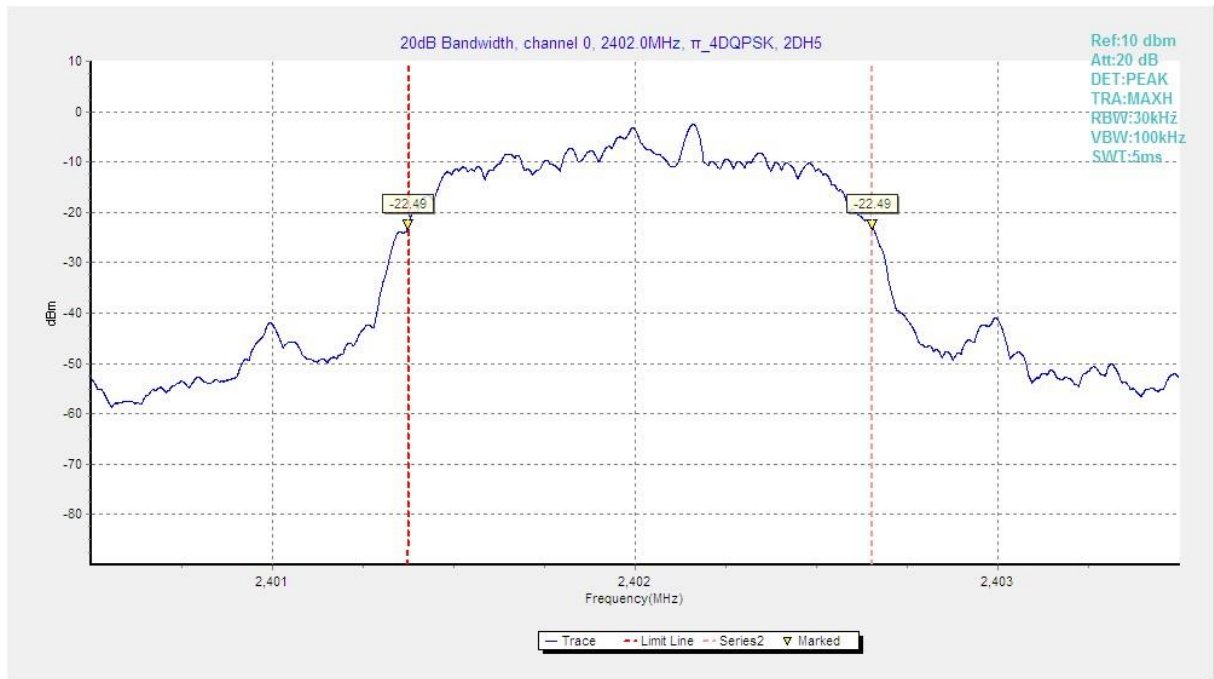


**Fig. 61 20dB Bandwidth (GFSK, Ch 39)**



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





**Fig. 63 20dB Bandwidth ( $\pi$ /4 DQPSK, Ch 0)**



**Fig. 64 20dB Bandwidth ( $\pi$ /4 DQPSK, Ch 39)**

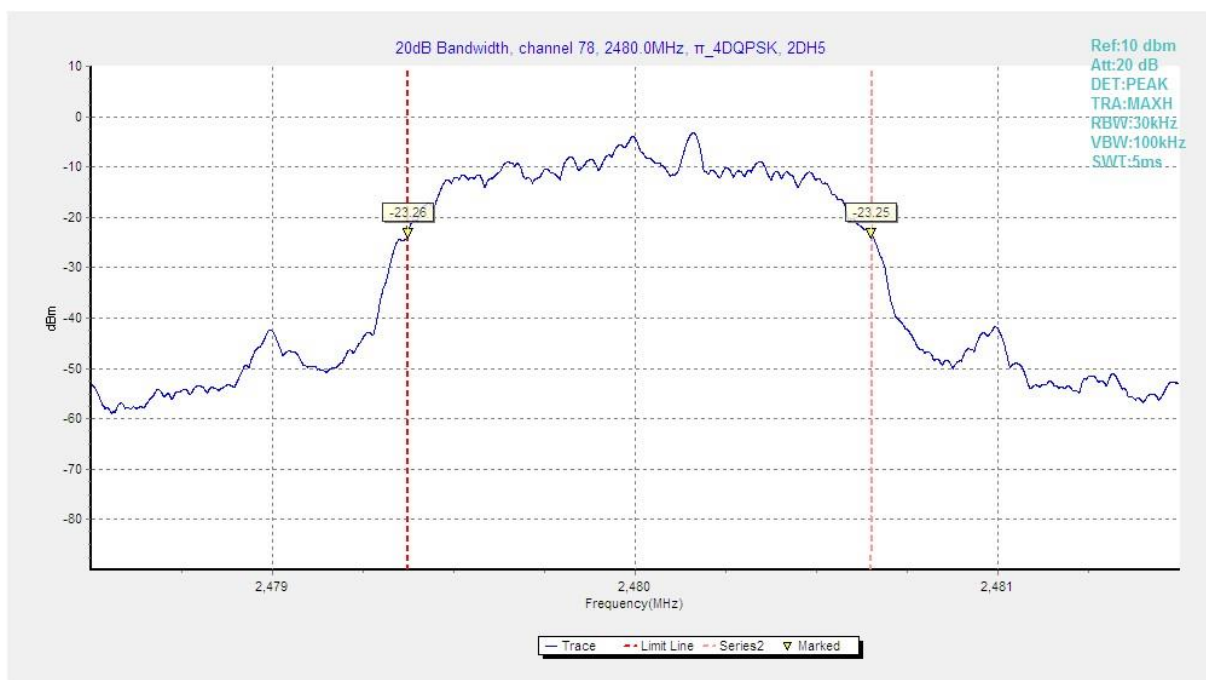


Fig. 65 20dB Bandwidth ( $\pi/4$  DQPSK, Ch 78)

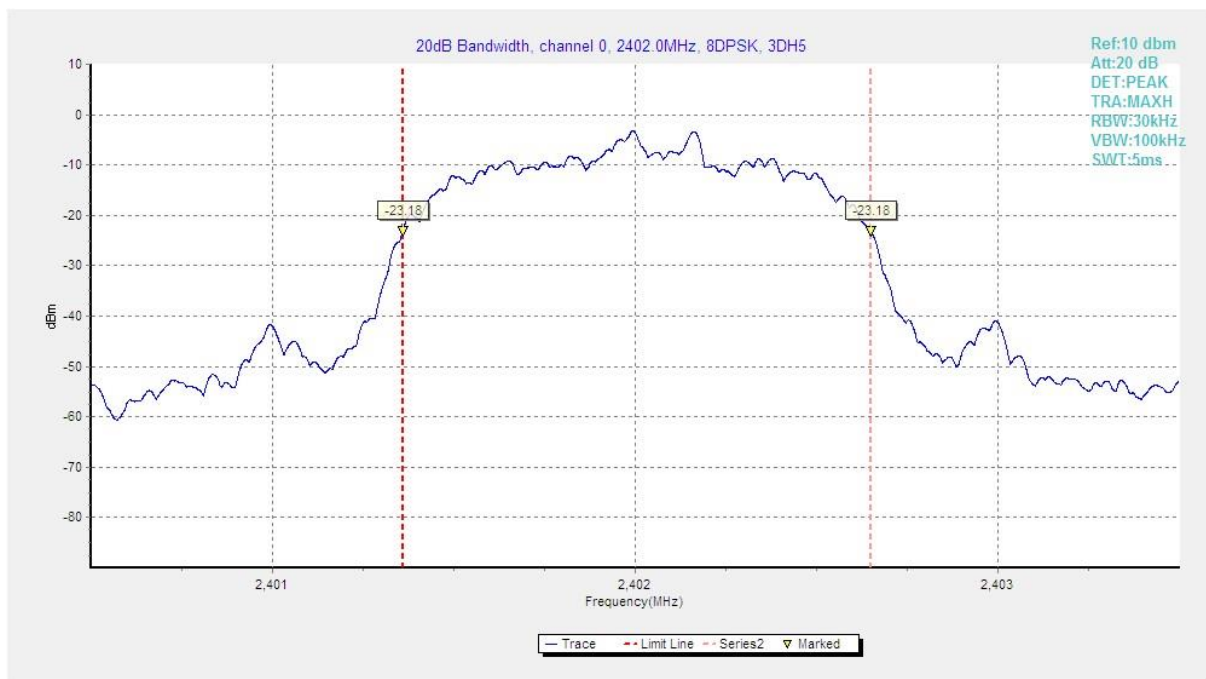
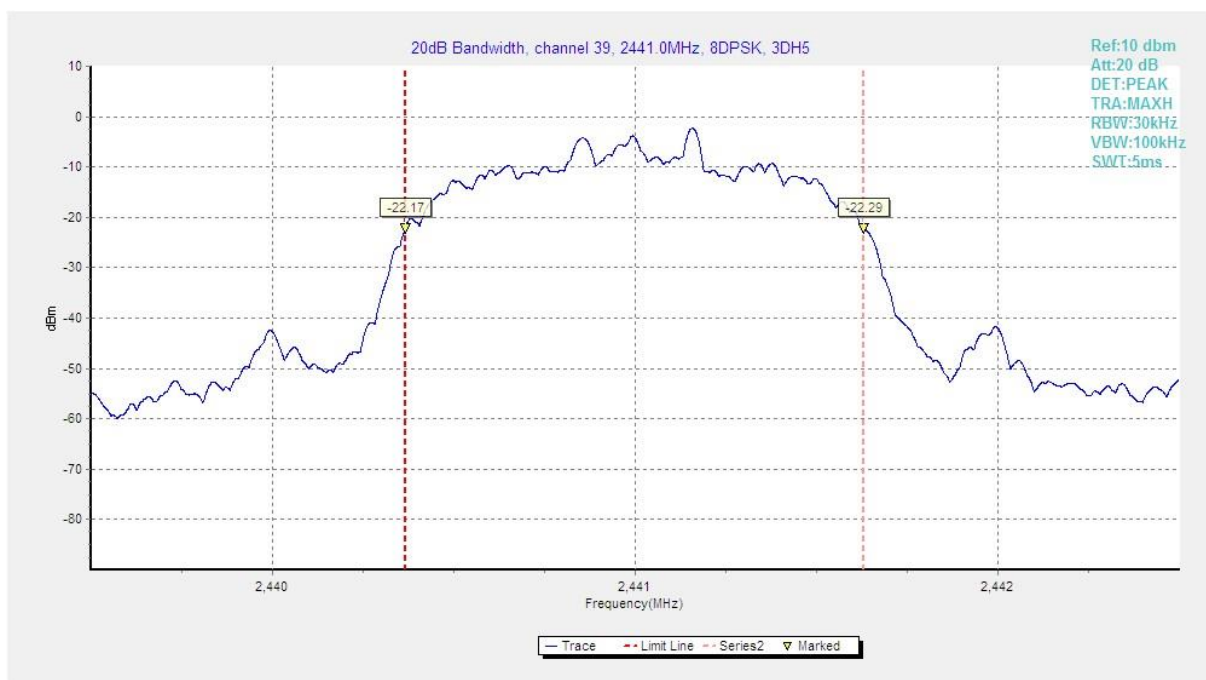
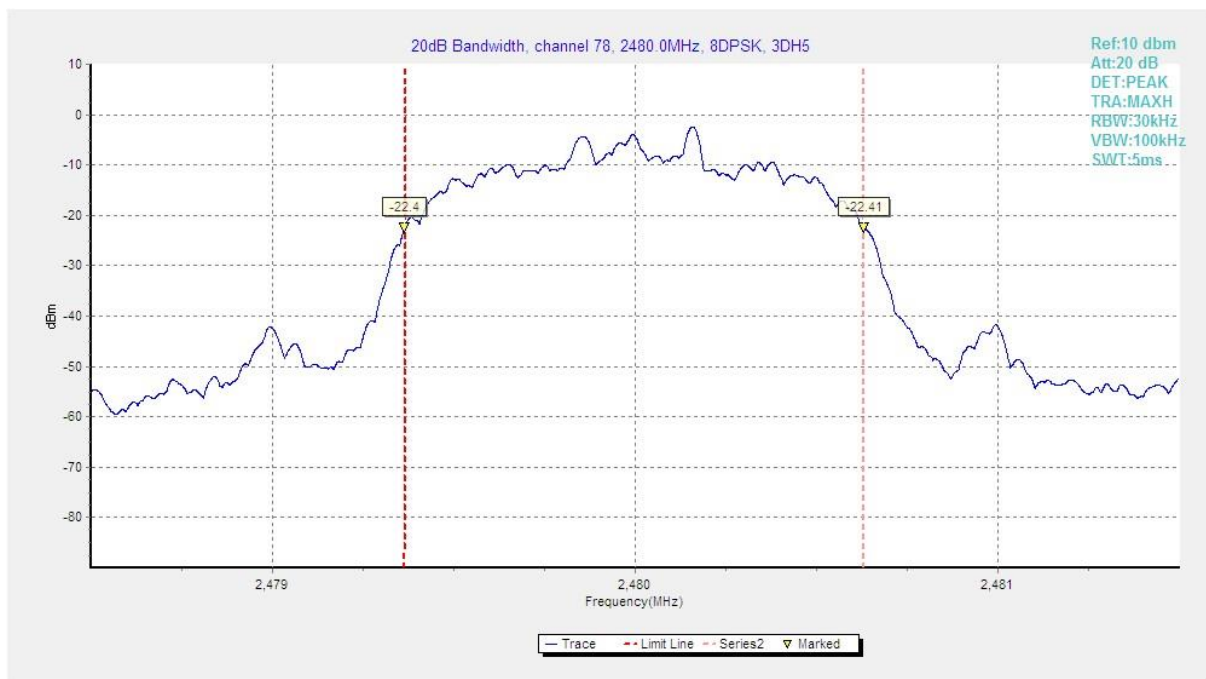


Fig. 66 20dB Bandwidth (8DPSK, Ch 0)



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



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

## A.6 Time of Occupancy (Dwell Time)

### Measurement Limit:

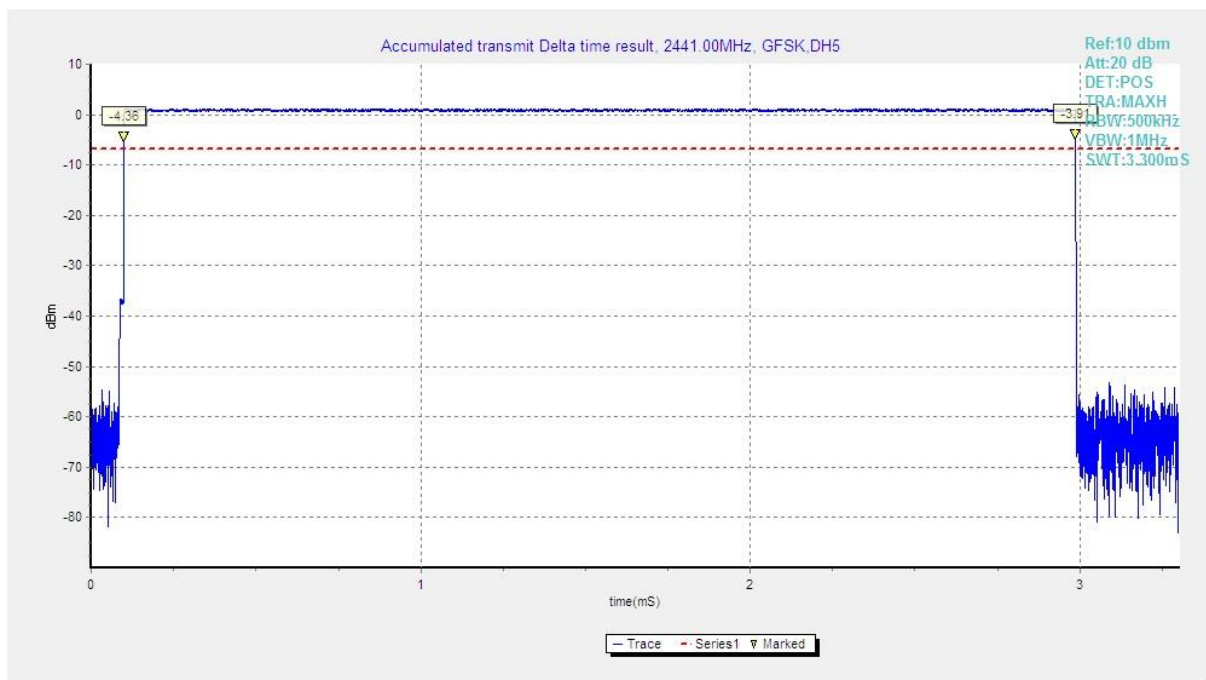
Standard	Limit
FCC 47 CFR Part 15.247(a)	< 400 ms

### Measurement Results:

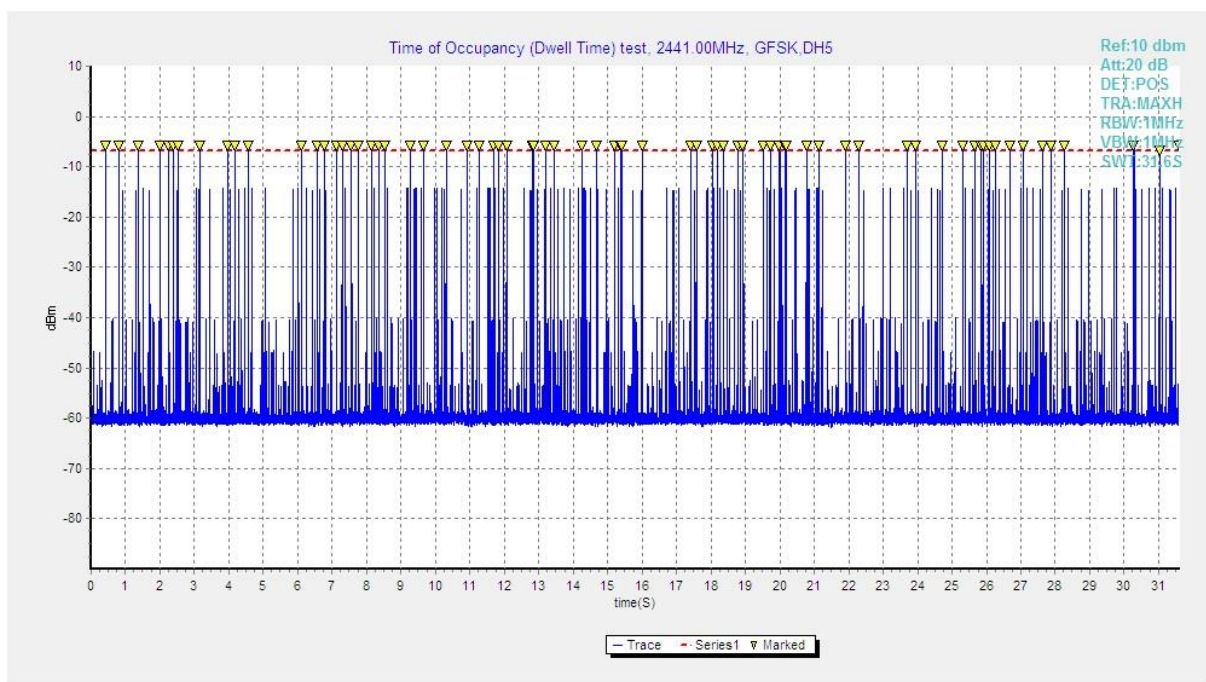
Mode	Channel	Packet	Dwell Time(ms)		Conclusion
GFSK	39	DH5	Fig.69	207.76	<b>P</b>
			Fig.70		
$\pi/4$ DQPSK	39	2-DH5	Fig.71	207.89	<b>P</b>
			Fig.72		
8DPSK	39	3-DH5	Fig.73	190.69	<b>P</b>
			Fig.74		

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)**



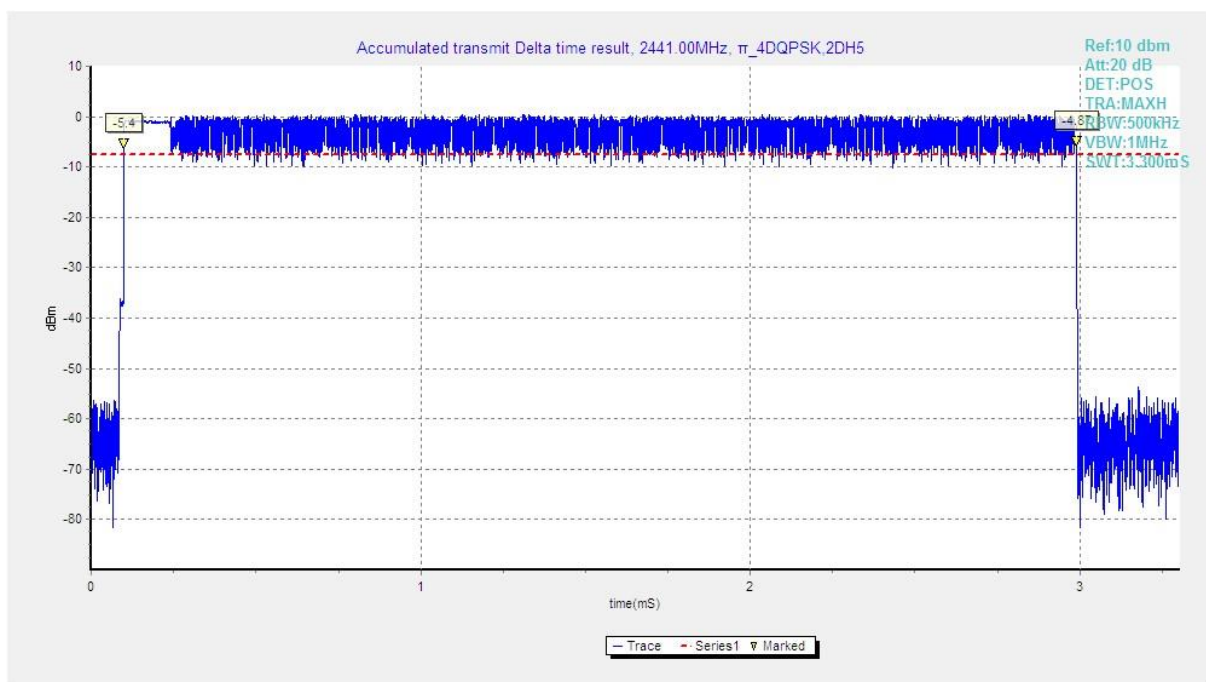


Fig. 71 Time of Occupancy(Dwell Time) ( $\pi/4$  DQPSK, Ch39)

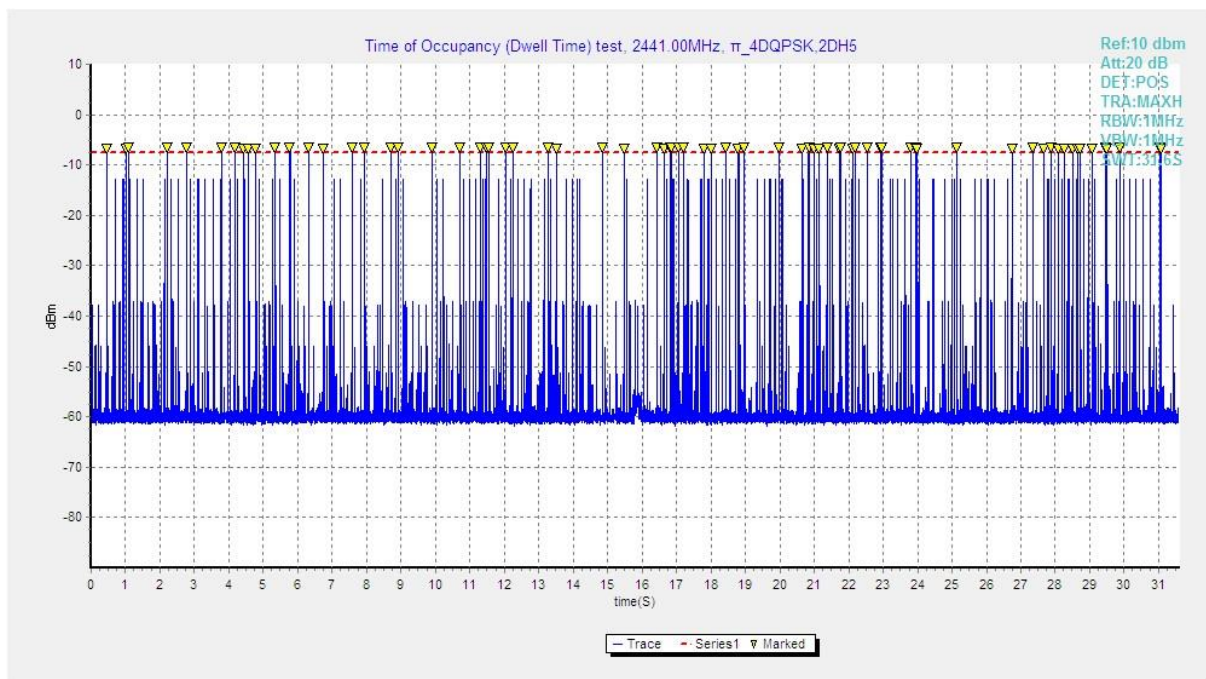
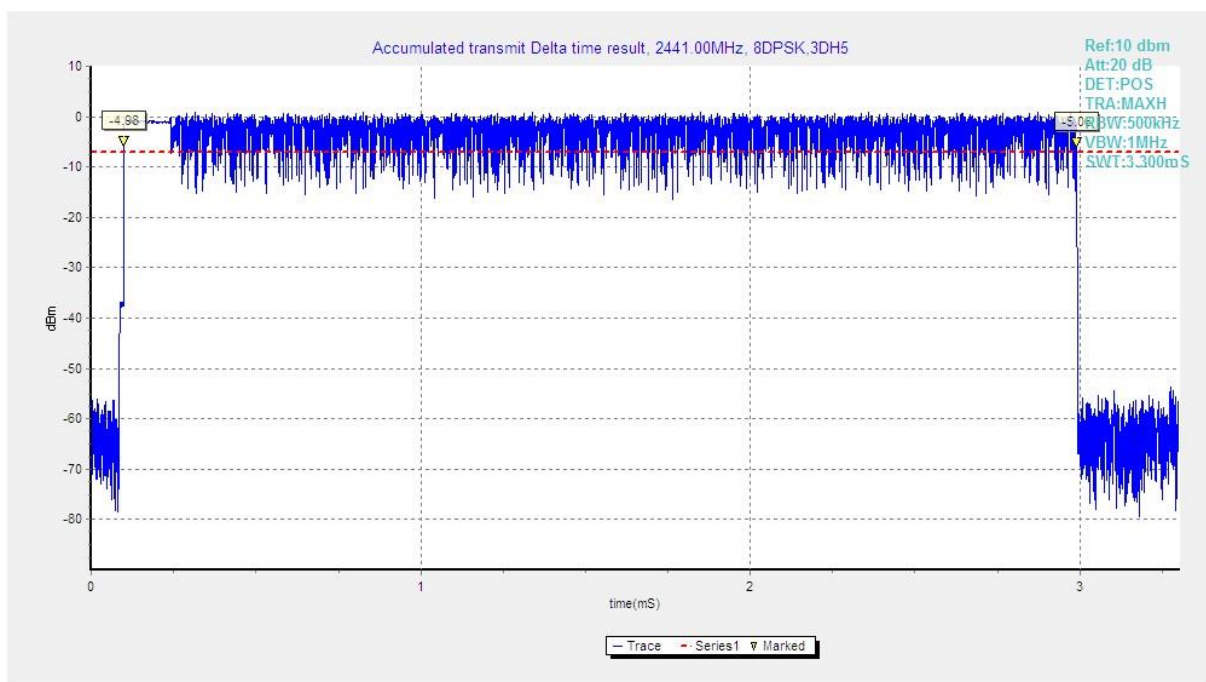
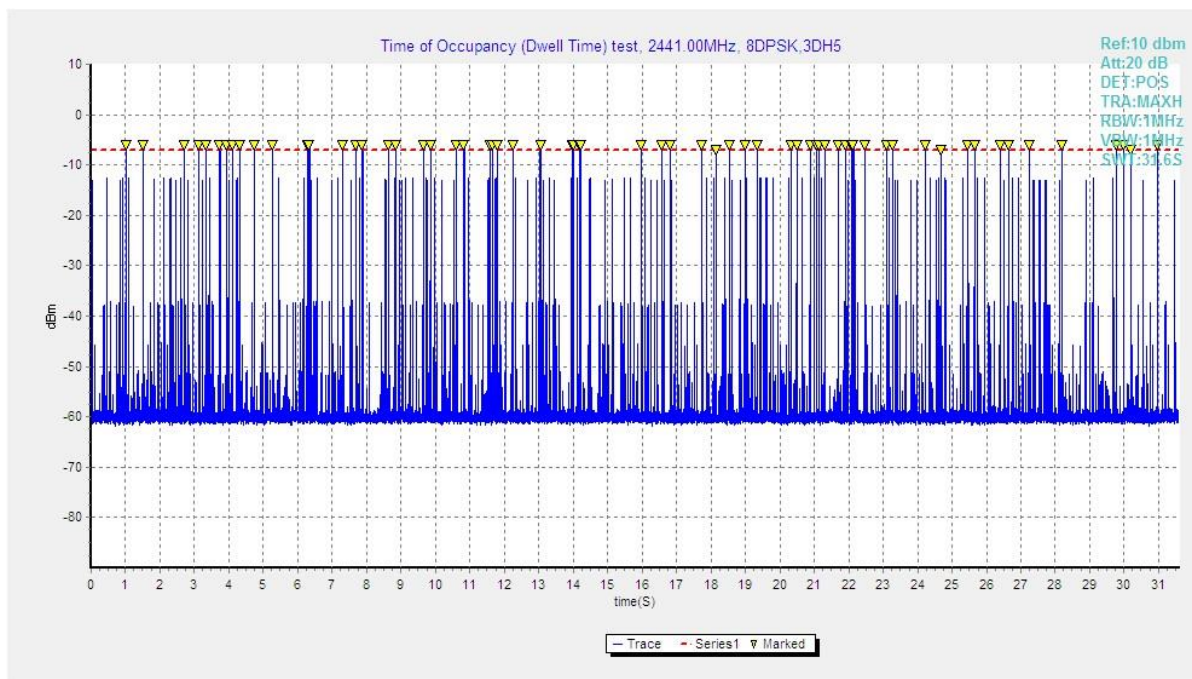


Fig. 72 Time of Occupancy(Dwell Time) ( $\pi/4$  DQPSK, Ch39)



**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

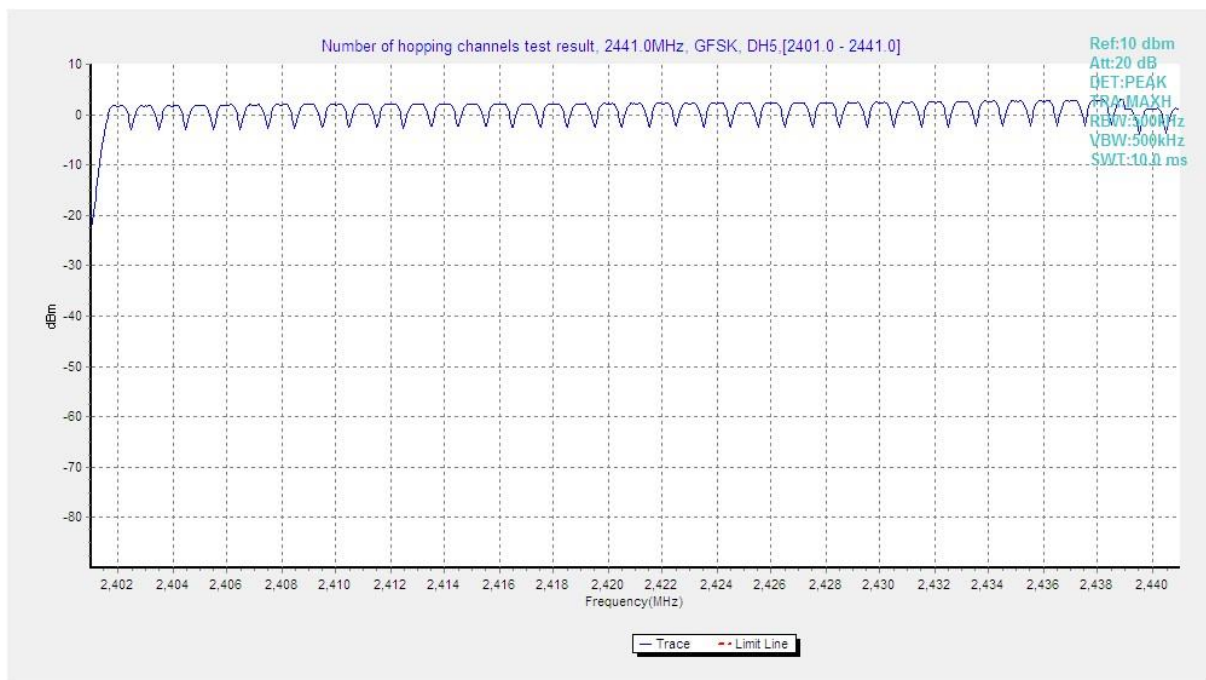
### Measurement Results:

Mode	Packet	Number of hopping		Test result	Conclusion
GFSK	DH5	Fig.75	Fig.76	79	<b>P</b>
$\pi/4$ DQPSK	2-DH5	Fig.77	Fig.78	79	<b>P</b>
8DPSK	3-DH5	Fig.79	Fig.80	79	<b>P</b>

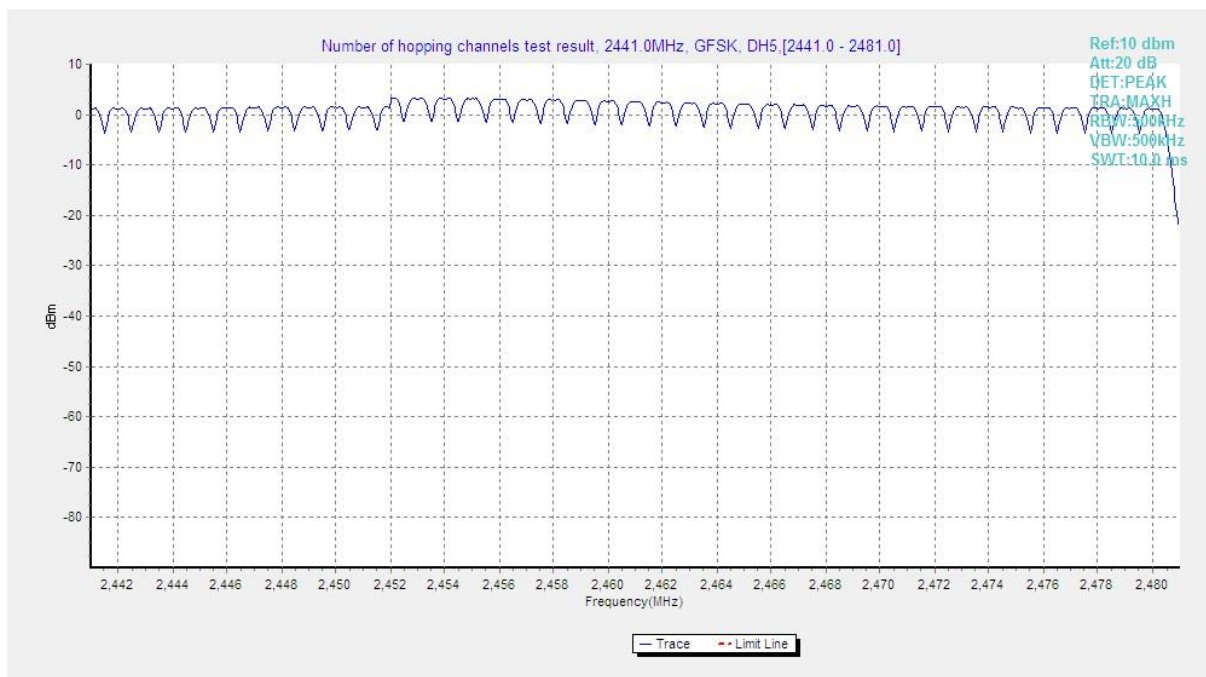
See below for test graphs.

**Conclusion: Pass**

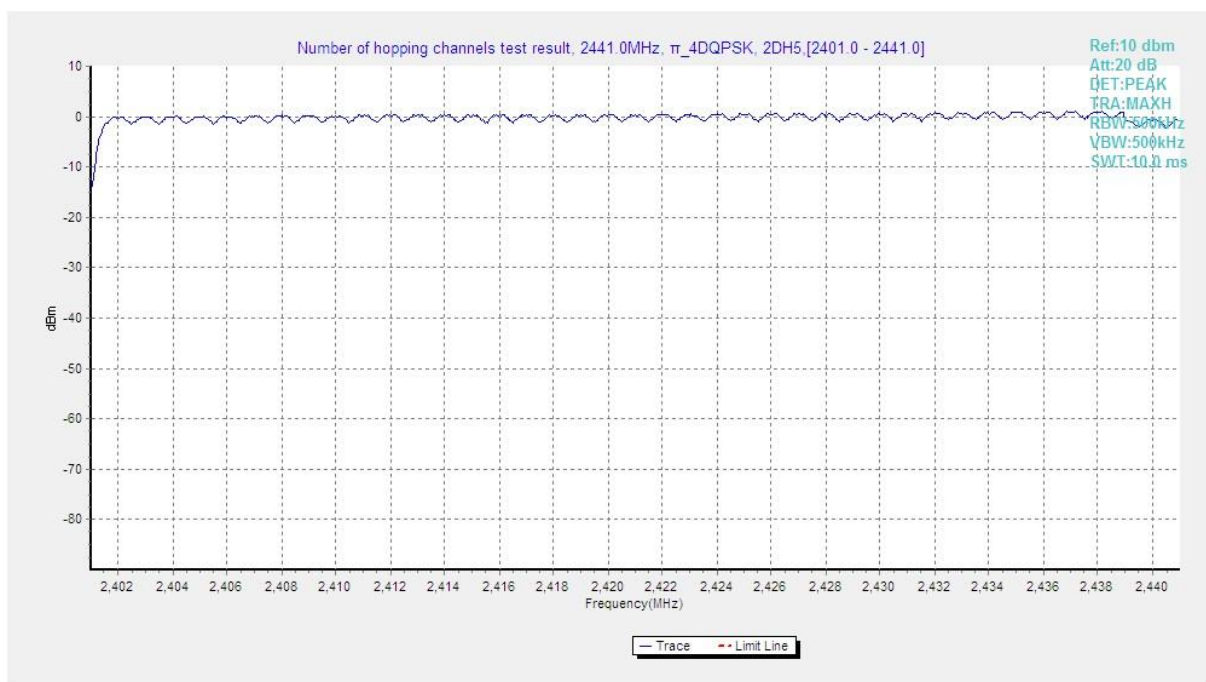




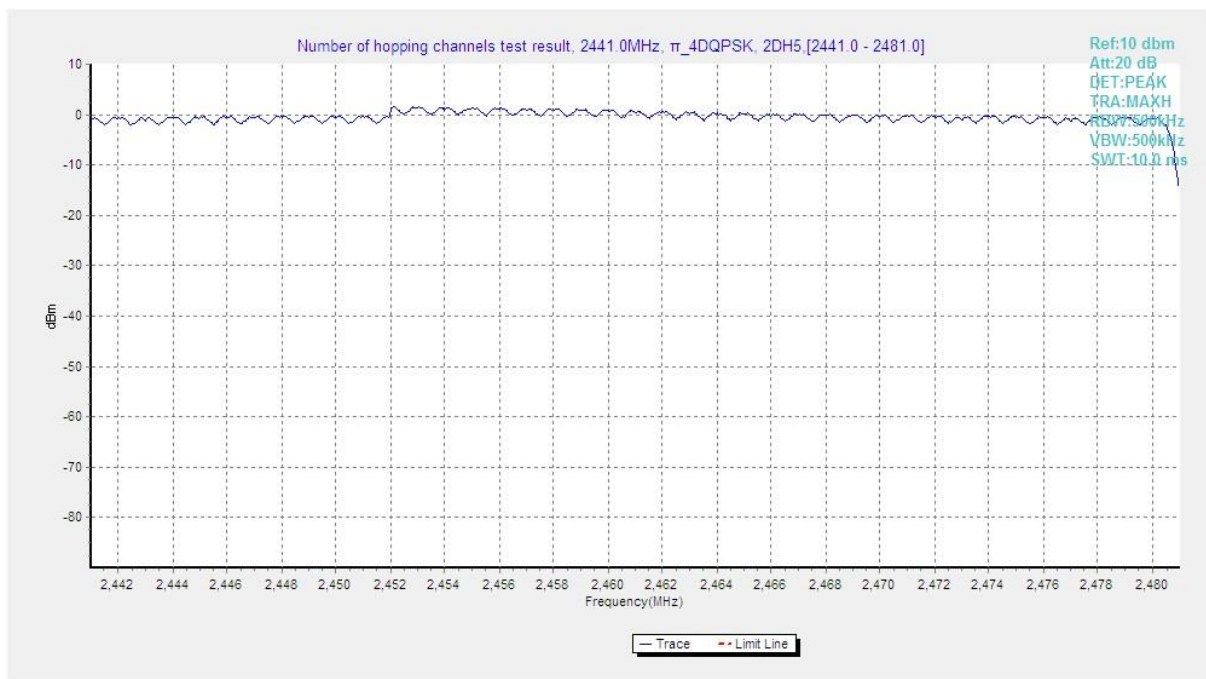
**Fig. 75 Hopping channel ch0~39 (GFSK, Ch39)**



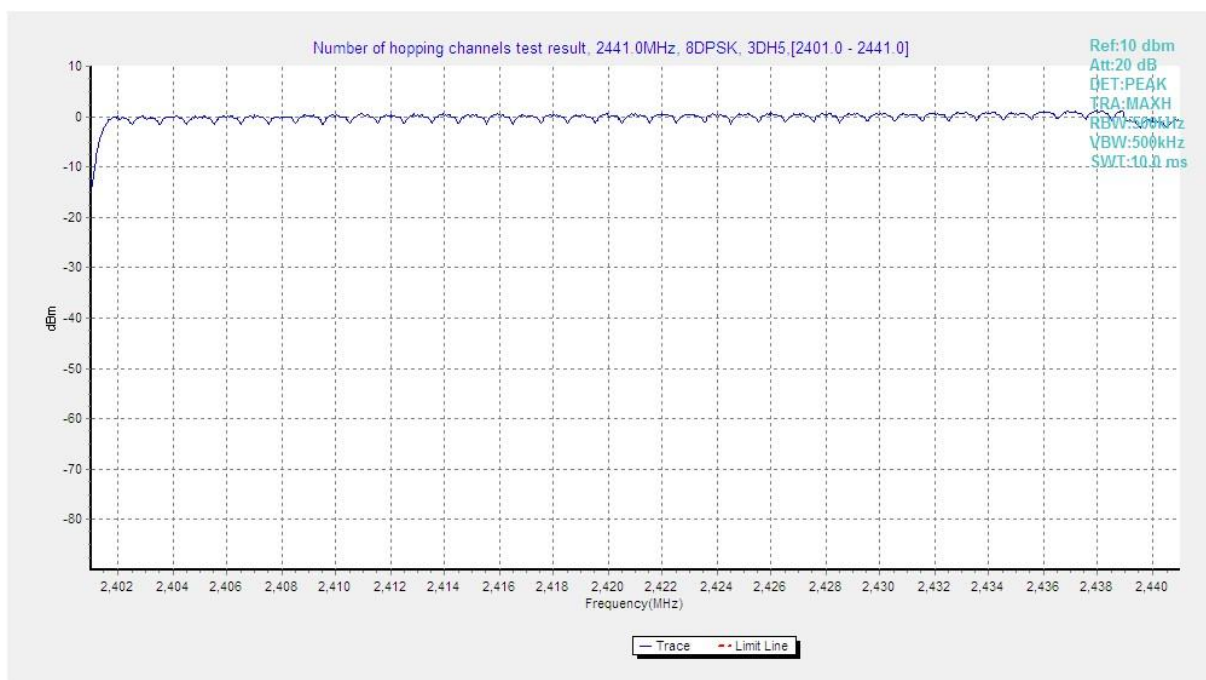
**Fig. 76 Hopping channel ch39~78 (GFSK, Ch39)**



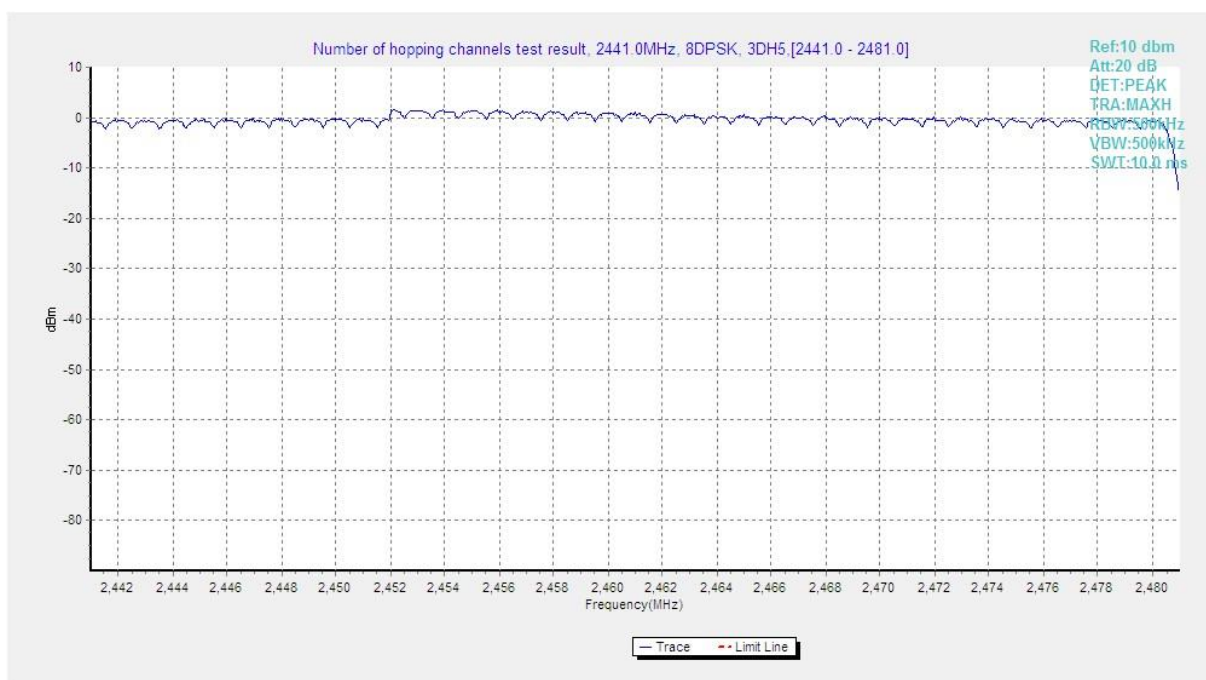
**Fig. 77 Hopping channel ch0~39 ( $\pi/4$  DQPSK, Ch39)**



**Fig. 78 Hopping channel ch39~78 ( $\pi/4$  DQPSK, Ch39)**



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



**Fig. 80 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.81	995.25	<b>P</b>
$\pi/4$ DQPSK	39	2-DH5	Fig.82	1019.25	<b>P</b>
8DPSK	39	3-DH5	Fig.83	996.00	<b>P</b>

See below for test graphs.

Conclusion: Pass

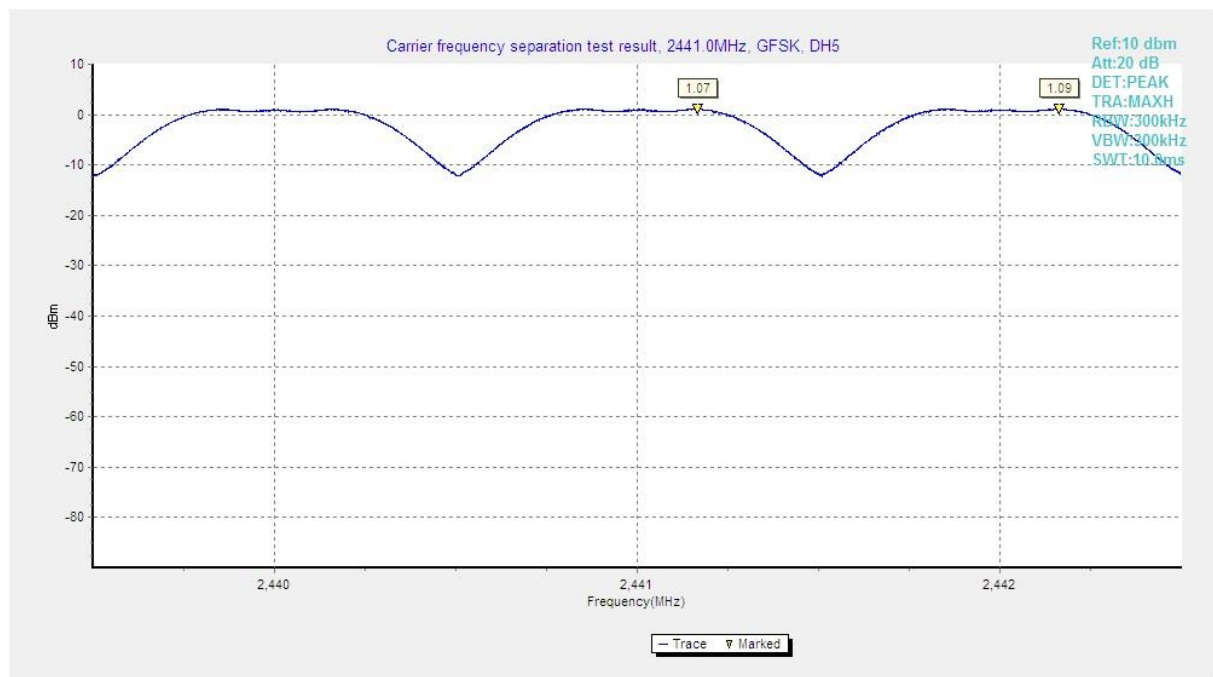
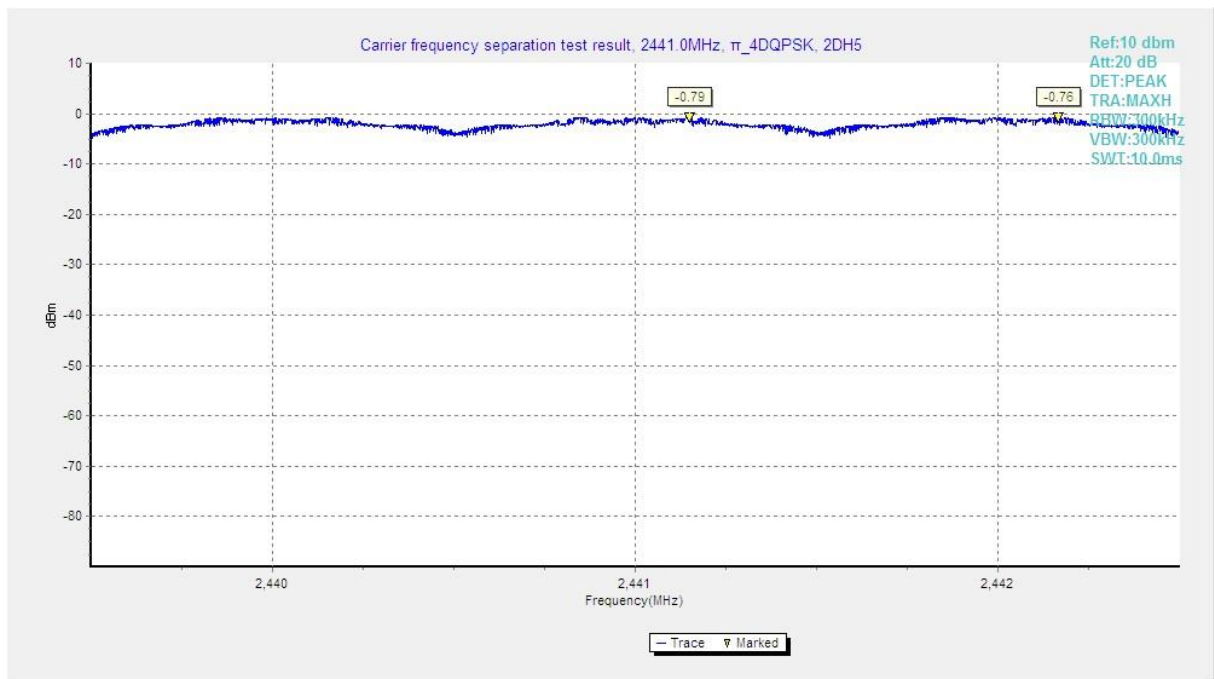
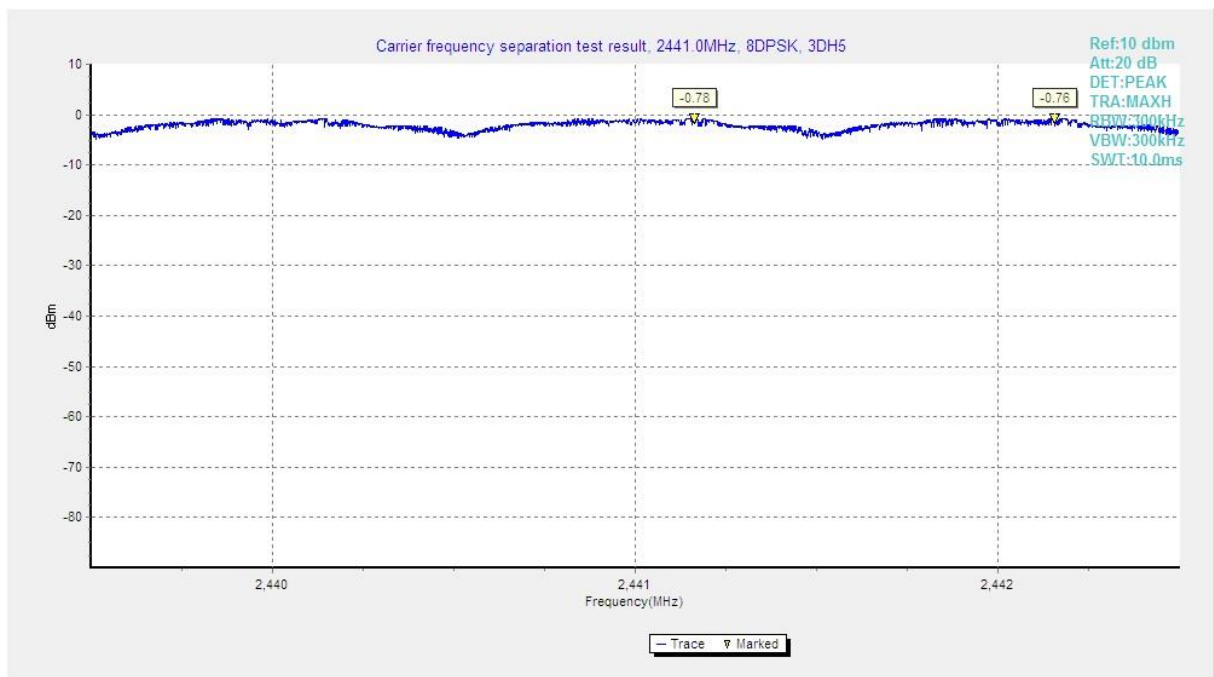


Fig. 81 Carrier Frequency Separation (GFSK, Ch39)



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



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

## A.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 (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		Traffic	Idle	
0.15 to 0.5	66 to 56	Fig.93	Fig.94	<b>P</b>
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 (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig 93	Fig 94	<b>P</b>
0.5 to 5	46			
5 to 30	50			

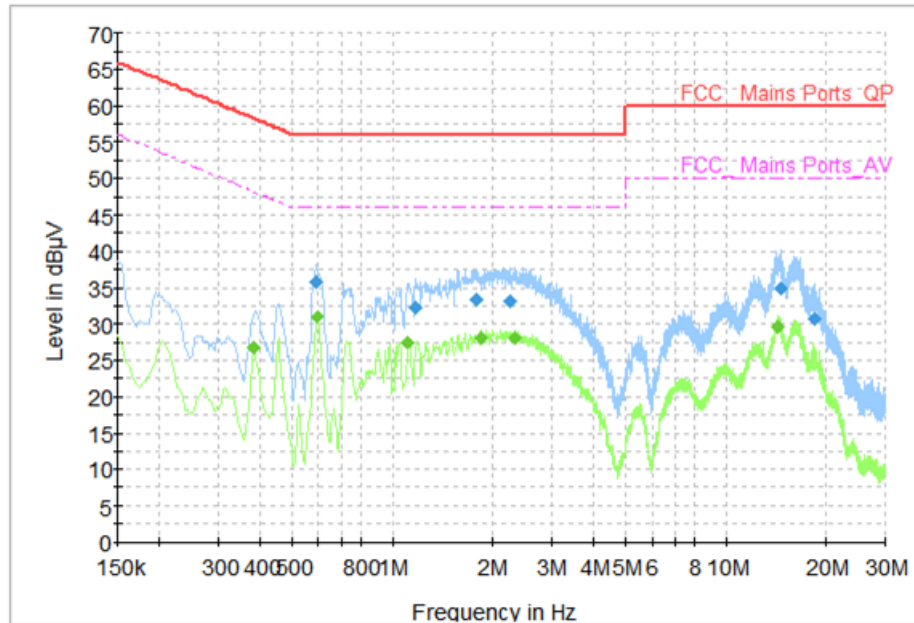
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

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

See below for test graphs.

**Conclusion: Pass**





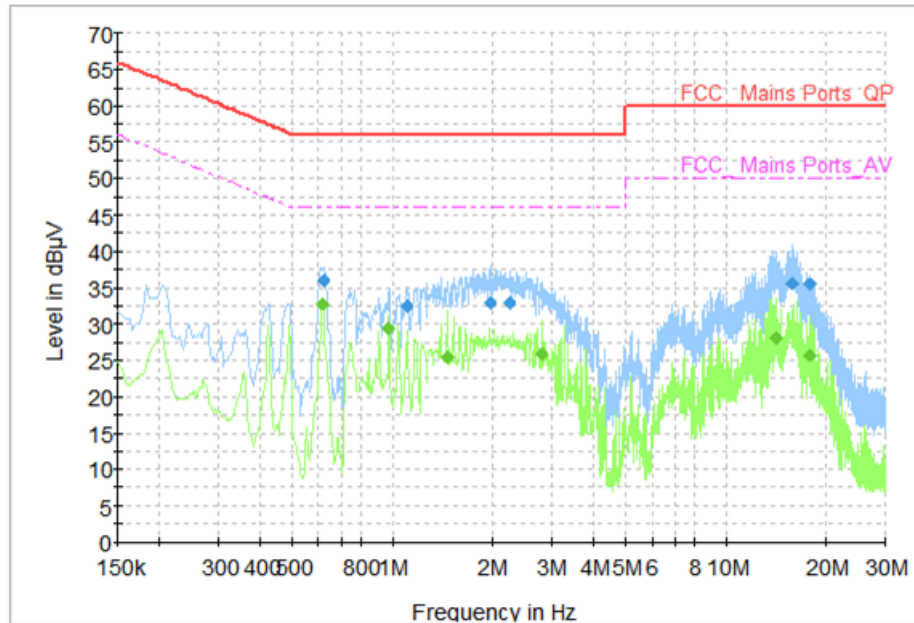
**Fig. 84 AC Powerline Conducted Emission (Traffic)**

**Measurement Results: Quasi Peak**

Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.586000	35.86	56.00	20.14	L1	ON	9.7
1.174000	32.18	56.00	23.82	L1	ON	9.7
1.770000	33.26	56.00	22.74	L1	ON	9.7
2.258000	33.07	56.00	22.93	N	ON	9.7
14.590000	34.91	60.00	25.09	L1	ON	10.1
18.406000	30.70	60.00	29.30	N	ON	10.3

**Measurement Results : Average**

Frequency (MHz)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.382000	26.77	48.24	21.46	L1	ON	9.7
0.594000	31.06	46.00	14.94	L1	ON	9.7
1.110000	27.54	46.00	18.46	L1	ON	9.7
1.846000	28.07	46.00	17.93	N	ON	9.7
2.318000	28.05	46.00	17.95	N	ON	9.7
14.274000	29.67	50.00	20.33	N	ON	9.9



**Fig. 85 AC Power line Conducted Emission (Idle)**

**Measurement Results: Quasi Peak**

Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.618000	35.94	56.00	20.06	N	ON	9.7
1.102000	32.36	56.00	23.64	N	ON	9.7
1.954000	33.01	56.00	22.99	L1	ON	9.7
2.234000	33.01	56.00	22.99	N	ON	9.7
15.702000	35.68	60.00	24.32	L1	ON	10.1
17.858000	35.38	60.00	24.62	N	ON	10.2

**Measurement Results : Average**

Frequency (MHz)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.614000	32.79	46.00	13.21	N	ON	9.7
0.974000	29.45	46.00	16.55	L1	ON	9.7
1.462000	25.38	46.00	20.62	N	ON	9.7
2.790000	25.98	46.00	20.02	N	ON	9.7
14.094000	27.99	50.00	22.01	N	ON	9.9
17.858000	25.77	50.00	24.23	N	ON	10.2

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