GFSK Ch 0 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2385.200	46.2	2.9	32.0	11.31	54.0	7.8	V
2388.600	46.2	2.9	32.0	11.34	54.0	7.8	V
4804.000	39.5	-32.9	34.5	37.83	54.0	14.5	H
7206.000	30.2	-31.6	36.1	25.72	54.0	23.8	V
9608.000	32.6	-30.0	37.0	25.66	54.0	21.4	H
12010.000	35.0	-29.8	39.3	25.58	54.0	19.0	H

GFSK Ch 39 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2375.890	46.1	2.9	32.1	11.15	54.0	7.9	H
2491.230	46.9	2.9	32.5	11.41	54.0	7.1	V
4882.000	41.7	-32.7	34.5	39.94	54.0	12.3	H
7323.000	30.6	-31.9	36.1	26.47	54.0	23.4	V
9764.000	33.1	-30.6	37.2	26.49	54.0	20.9	H
12205.000	35.1	-29.4	39.2	25.33	54.0	18.9	H

GFSK Ch 78 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2487.200	46.8	2.9	32.7	11.24	54.0	7.2	H
2485.400	47.0	2.9	32.7	11.33	54.0	7.0	V
4959.000	45.5	-33.4	34.5	44.37	54.0	8.5	V
7440.000	29.9	-31.8	36.0	25.60	54.0	24.1	V
9920.000	33.5	-29.9	37.4	26.03	54.0	20.5	H
12400.000	34.6	-29.5	39.1	24.97	54.0	19.4	H

π/4 DQPSK Ch 0 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2381.920	46.2	2.9	32.0	11.27	54.0	7.8	V
2389.600	46.2	2.9	32.0	11.39	54.0	7.8	H
4803.000	33.9	-32.9	34.5	32.30	54.0	20.1	V
7206.000	30.2	-31.6	36.1	25.70	54.0	23.8	H
9608.000	32.7	-30.0	37.0	25.71	54.0	21.3	H
12010.000	35.1	-29.8	39.3	25.67	54.0	18.9	V

π/4 DQPSK Ch 39 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2379.560	46.5	2.9	32.1	11.59	54.0	7.5	H
2490.710	46.6	2.9	32.6	11.11	54.0	7.4	V
4882.500	36.5	-32.7	34.5	34.75	54.0	17.5	V
7323.000	29.9	-31.9	36.1	25.78	54.0	24.1	H
9764.000	32.4	-30.6	37.2	25.73	54.0	21.6	H
12205.000	35.0	-29.4	39.2	25.18	54.0	19.0	V

π/4 DQPSK Ch 78 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2485.500	46.9	2.9	32.7	11.29	54.0	7.1	V
2490.000	46.8	2.9	32.6	11.32	54.0	7.2	H
4959.000	40.3	-33.4	34.5	39.18	54.0	13.7	H
7440.000	29.8	-31.8	36.0	25.54	54.0	24.2	V
9920.000	33.7	-29.9	37.4	26.23	54.0	20.3	H
12400.000	34.5	-29.5	39.1	24.90	54.0	19.5	H

8DPSK Ch 0 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2381.500	46.3	2.9	32.0	11.34	54.0	7.8	V
2385.500	46.2	2.9	32.0	11.36	54.0	7.8	V
4804.000	34.4	-32.9	34.5	32.78	54.0	19.6	H
7206.000	30.0	-31.6	36.1	25.56	54.0	24.0	H
9608.000	32.6	-30.0	37.0	25.63	54.0	21.4	H
12010.000	35.1	-29.8	39.3	25.61	54.0	18.9	V

8DPSK Ch 39 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2378.680	46.5	2.9	32.1	11.59	54.0	7.5	H
2489.640	46.6	2.9	32.6	11.10	54.0	7.4	V
4881.000	36.2	-32.7	34.5	34.42	54.0	17.8	H
7323.000	29.8	-31.9	36.1	25.64	54.0	24.2	H
9764.000	32.4	-30.6	37.2	25.74	54.0	21.6	V
12205.000	35.0	-29.4	39.2	25.21	54.0	19.0	H

8DPSK Ch 78 - Average

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
2487.800	46.9	2.9	32.6	11.32	54.0	7.1	H
2485.200	47.0	2.9	32.7	11.33	54.0	7.0	H
4959.000	40.6	-33.4	34.5	39.49	54.0	13.4	H
7440.000	29.8	-31.8	36.0	25.58	54.0	24.2	V
9920.000	33.7	-29.9	37.4	26.20	54.0	20.3	H
12400.000	34.5	-29.5	39.1	24.91	54.0	19.5	V

GFSK Ch 0 – Peak

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
2381.946	59.8	2.9	32.0	24.85	74.0	14.2	H
2387.098	59.1	2.9	32.0	24.21	74.0	14.9	V
4803.750	45.9	-32.9	34.5	44.30	74.0	28.1	V
17727.010	52.1	-24.3	41.0	35.42	74.0	21.9	V
17807.250	52.6	-23.0	41.0	34.64	74.0	21.4	V
17822.530	52.4	-23.2	40.9	34.64	74.0	21.6	V

GFSK Ch 39 - Peak

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
2358.020	49.5	-28.5	31.8	46.26	74.0	24.5	H
2647.600	52.6	-27.7	33.7	46.66	74.0	21.4	H
4881.750	47.8	-32.7	34.5	46.01	74.0	26.2	V
17807.250	52.6	-23.0	41.0	34.64	74.0	21.4	V
17822.250	52.4	-23.2	40.9	34.63	74.0	21.6	H
17819.250	52.4	-23.1	40.9	34.54	74.0	21.6	H

GFSK Ch 78 - Peak

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBµV)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.870	60.1	2.9	32.8	24.46	74.0	13.9	H
2487.500	59.7	2.9	32.6	24.14	74.0	14.3	V
4960.500	46.3	-33.4	34.5	45.19	74.0	27.7	H
17811.020	54.0	-23.0	41.0	36.07	74.0	20.0	H
17819.250	53.0	-23.1	40.9	35.18	74.0	21.0	H
17805.340	52.2	-23.1	41.0	34.30	74.0	21.8	H

π/4 DQPSK Ch 0 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2384.704	59.2	2.9	32.0	24.28	74.0	14.8	H
2389.674	59.9	2.9	32.0	25.07	74.0	14.1	H
4803.750	44.4	-32.9	34.5	42.75	74.0	29.6	V
17838.000	52.9	-23.4	40.9	35.34	74.0	21.1	V
17810.250	52.5	-23.0	41.0	34.57	74.0	21.5	V
17805.000	52.3	-23.1	41.0	34.39	74.0	21.7	V

π/4 DQPSK Ch 39 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2209.213	48.8	-29.2	30.6	47.38	74.0	25.2	H
2925.402	54.6	-26.3	33.9	46.91	74.0	19.4	H
4881.750	46.1	-32.7	34.5	44.29	74.0	27.9	H
17796.750	52.9	-23.2	41.0	35.11	74.0	21.1	H
17802.000	52.8	-23.1	41.0	34.99	74.0	21.2	H
17820.000	52.3	-23.1	40.9	34.54	74.0	21.7	V

π/4 DQPSK Ch 78 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.950	59.3	2.9	32.7	23.61	74.0	14.7	H
2488.270	60.1	2.9	32.6	24.54	74.0	13.9	H
4959.000	49.2	-33.4	34.5	48.06	74.0	24.8	V
17800.500	52.5	-23.1	41.0	34.69	74.0	21.5	V
17853.000	52.3	-23.6	40.9	35.01	74.0	21.7	V
17803.500	52.3	-23.1	41.0	34.39	74.0	21.7	V

8DPSK Ch 0 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2387.532	59.3	2.9	32.0	24.41	74.0	14.7	H
2386.776	59.7	2.9	32.0	24.83	74.0	14.3	H
4803.000	43.7	-32.9	34.5	42.02	74.0	30.3	V
17850.000	53.7	-23.5	40.9	36.28	74.0	20.3	H
17801.250	53.3	-23.1	41.0	35.48	74.0	20.7	H
17802.000	52.7	-23.1	41.0	34.81	74.0	21.3	H

8DPSK Ch 39 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2316.613	48.7	-28.9	31.1	46.50	74.0	25.3	H
2873.342	52.9	-26.4	33.6	45.71	74.0	21.1	H
4881.750	46.6	-32.7	34.5	44.84	74.0	27.4	V
17805.000	52.6	-23.1	41.0	34.70	74.0	21.4	H
17801.250	52.3	-23.1	41.0	34.49	74.0	21.7	V
17818.500	52.2	-23.1	40.9	34.40	74.0	21.8	V

8DPSK Ch 78 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver eading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
2486.640	59.9	2.9	32.7	24.30	74.0	14.1	H
2487.480	60.0	2.9	32.6	24.39	74.0	14.0	H
4959.000	48.4	-33.4	34.5	47.31	74.0	25.6	H
17824.500	53.2	-23.2	40.9	35.44	74.0	20.8	V
17821.500	52.5	-23.2	40.9	34.76	74.0	21.5	V
17794.500	52.3	-23.2	41.0	34.62	74.0	21.7	V

Conclusion: PASS

Test graphs as below:

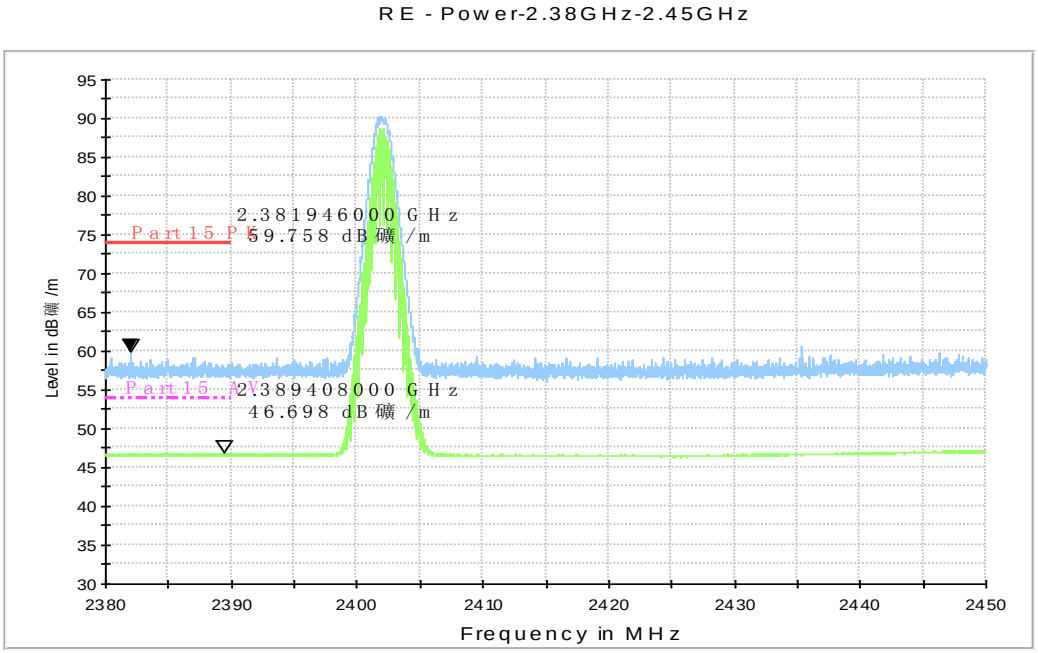


Fig.58. Radiated emission (Power): GFSK, low channel

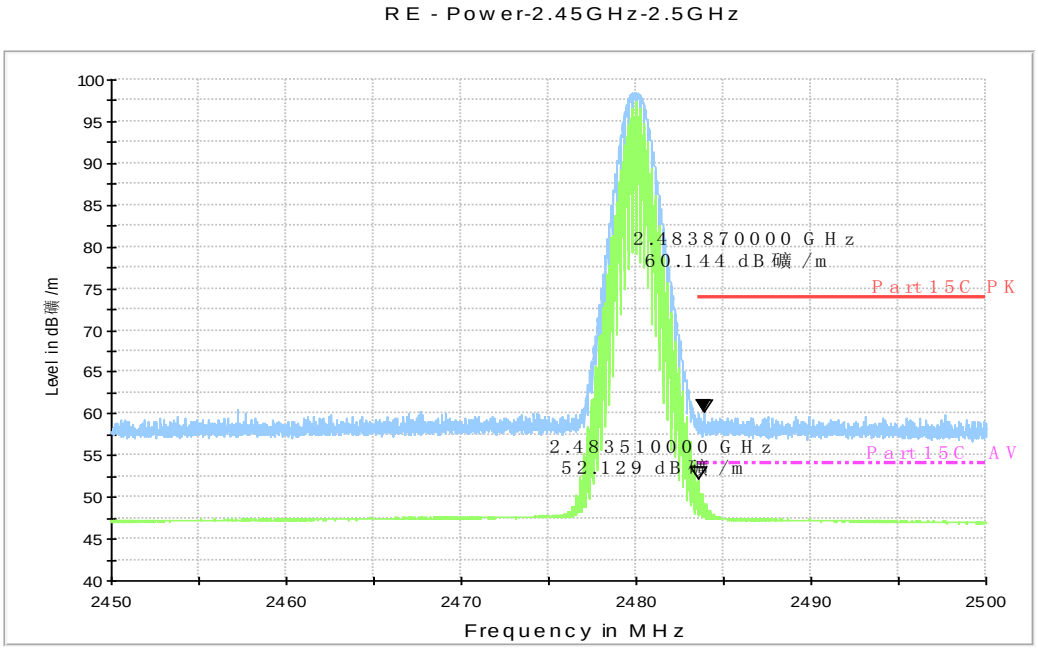


Fig.59. Radiated emission (Power) GFSK, high channel

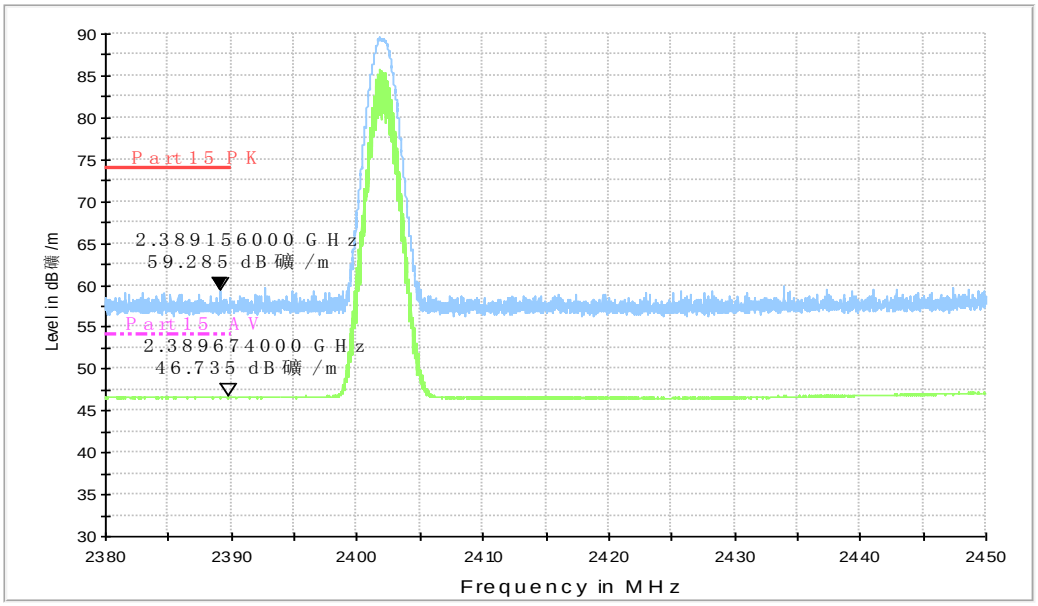


Fig.60. Radiated emission (Power): π/4 DQPSK, low channel

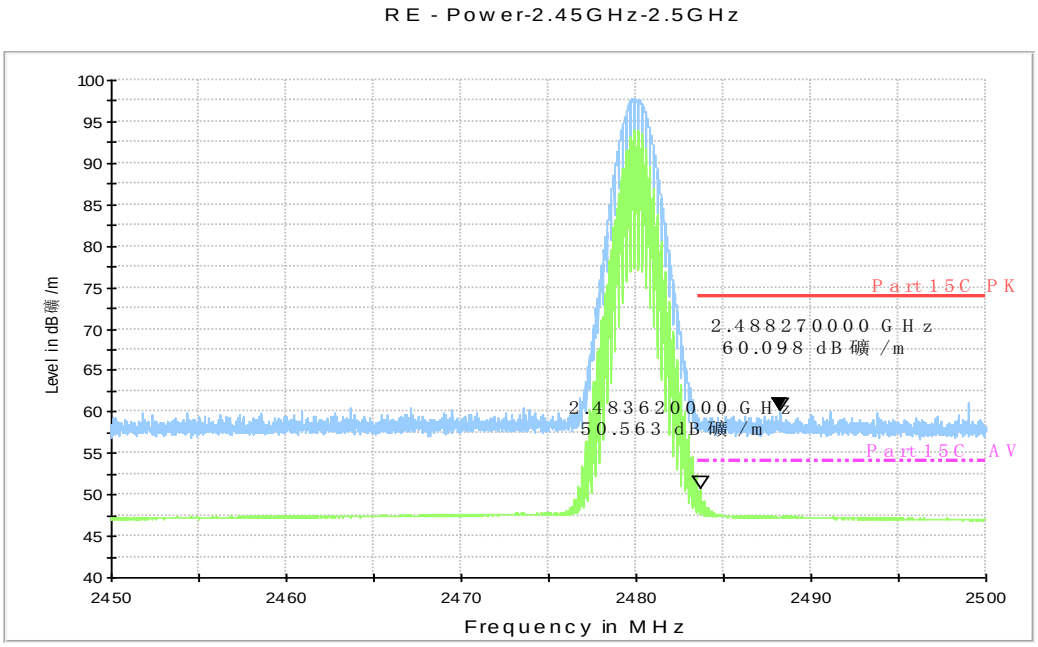


Fig.61. Radiated emission (Power): π/4 DQPSK, high channel

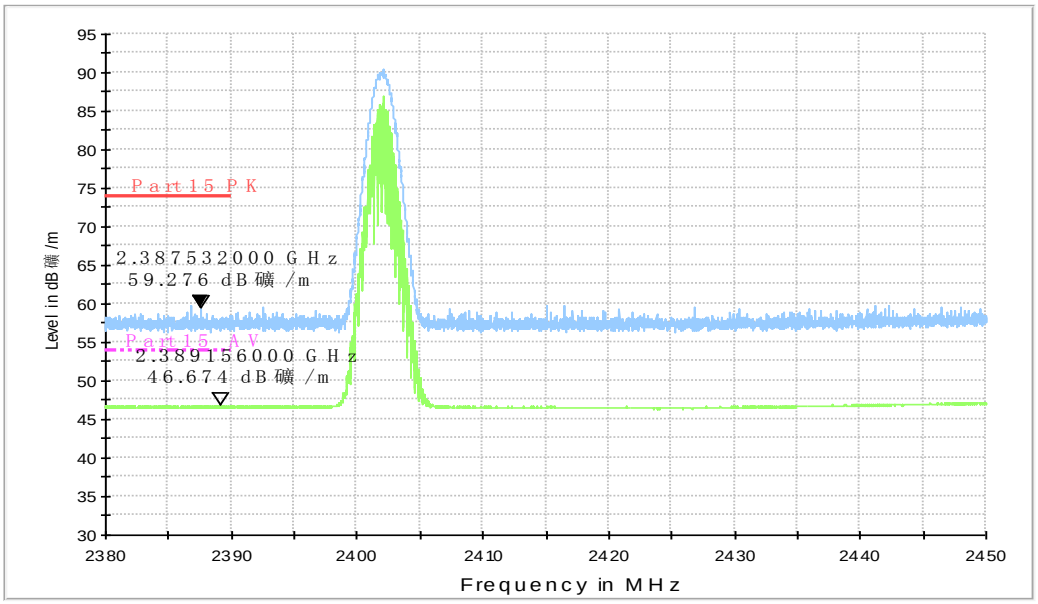


Fig.62. Radiated emission (Power): 8DPSK, low channel

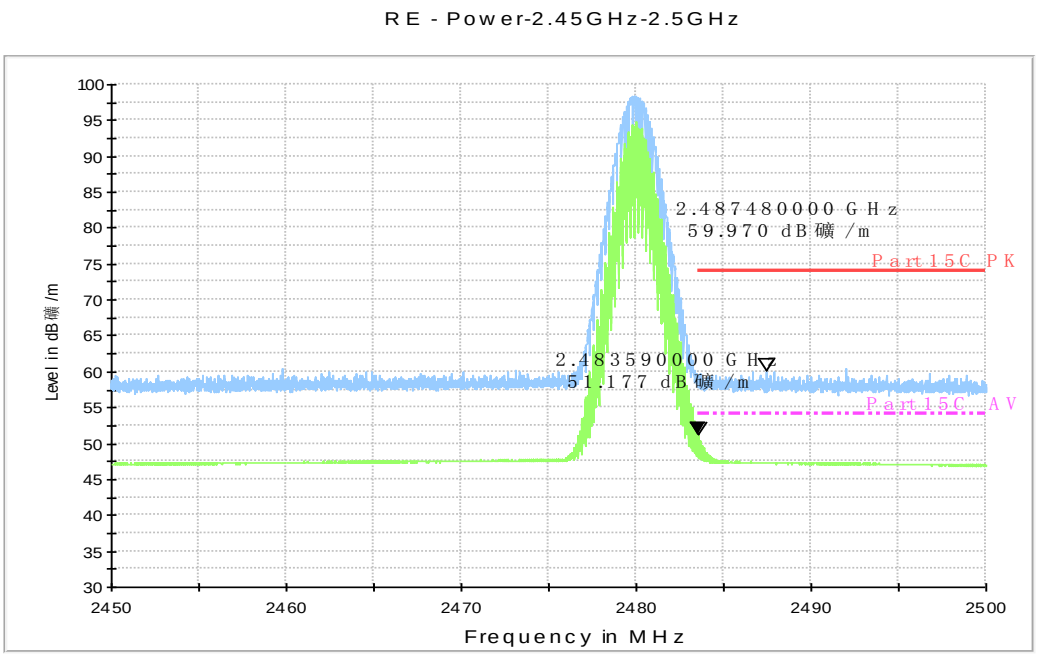


Fig.63. Radiated emission (Power): 8DPSK, high channel

A.6. Time of Occupancy (Dwell Time)

Method of Measurement: See ANSI C63.10-clause 7.8.4

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

- Span = zero span, centered on a hopping channel
- RBW = 1 MHz
- VBW ≥ RBW
- Sweep = as necessary to capture the entire dwell time per hopping channel
- Detector function = peak
- Trace = max hold

Measure a pulse time in time domain at middle frequency and then count the hopping number in 31.6s(which equals with 0.4 multiply 79) of middle frequency ,then multiply the pulse time and hopping number and record them.

Measurement Limit:

Standard	Limit (ms)
FCC 47 CFR Part 15.247(a) (1)(iii)	< 400

Measurement Result:

For GFSK

Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.64	117.69	P
		Fig.65		
	DH3	Fig.66	173.99	P
		Fig.67		
	DH5	Fig.68	183.96	P
		Fig.69		

For π/4 DQPSK

Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.70	120.00	P
		Fig.71		
	DH3	Fig.72	171.08	P
		Fig.73		
	DH5	Fig.74	215.81	P
		Fig.75		

For 8DPSK

Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.76	120.31	P
		Fig.77		
	DH3	Fig.78	175.87	P

		Fig.79		
	DH5	Fig.80	190.05	P
		Fig.81		

Conclusion: PASS

Test graphs as below:

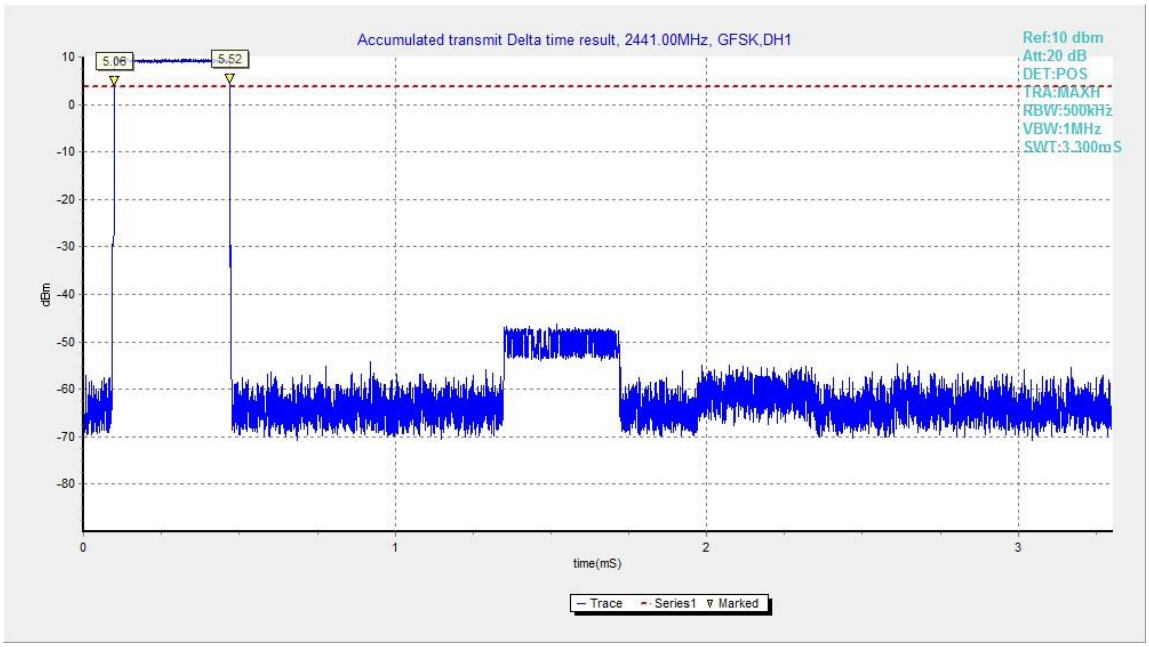


Fig.64. Time of occupancy (Dwell Time): Channel 39, Packet DH1

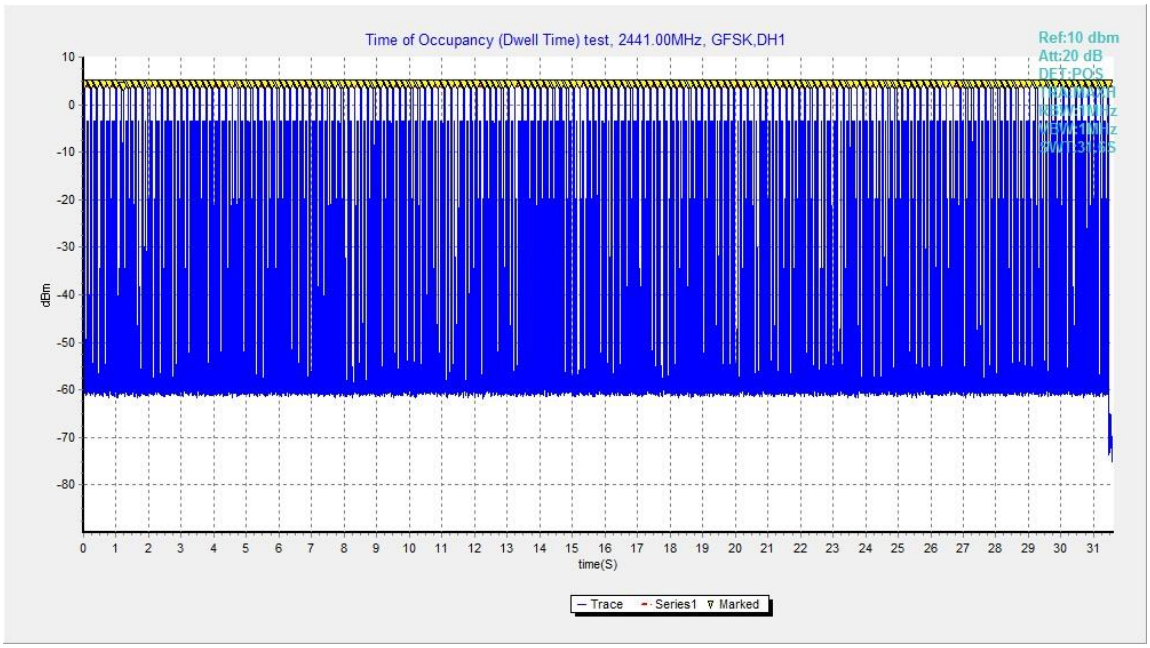


Fig.65. Number of Transmissions Measurement:Channel 39,Packet DH1

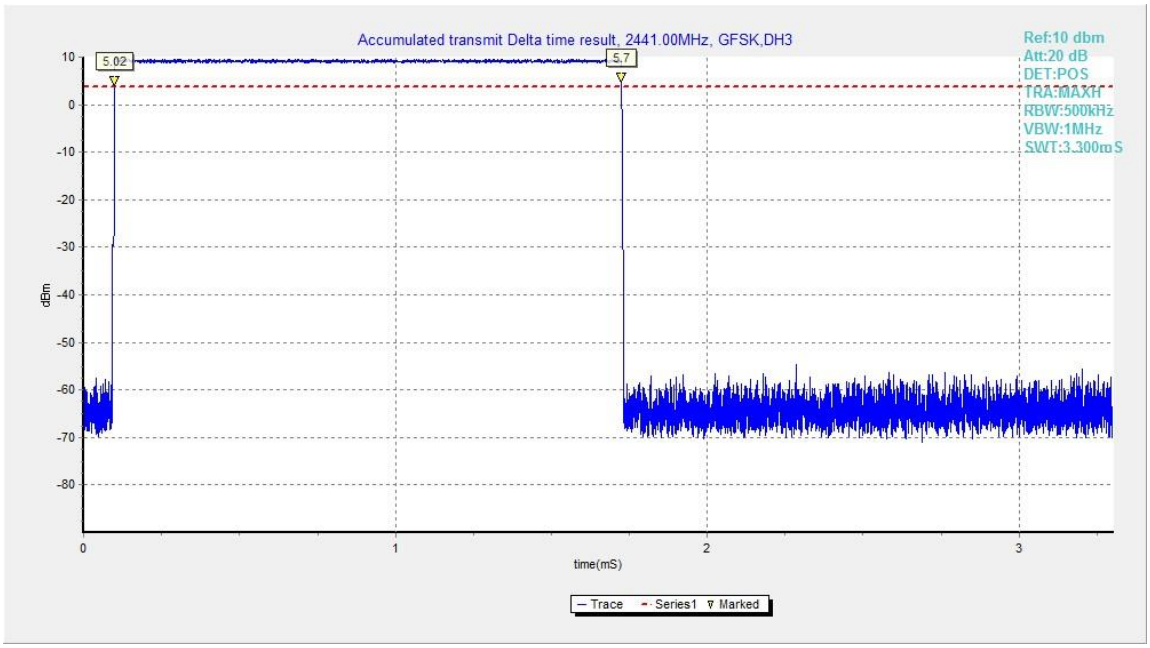


Fig.66. Time of occupancy (Dwell Time): Channel 39, Packet DH3

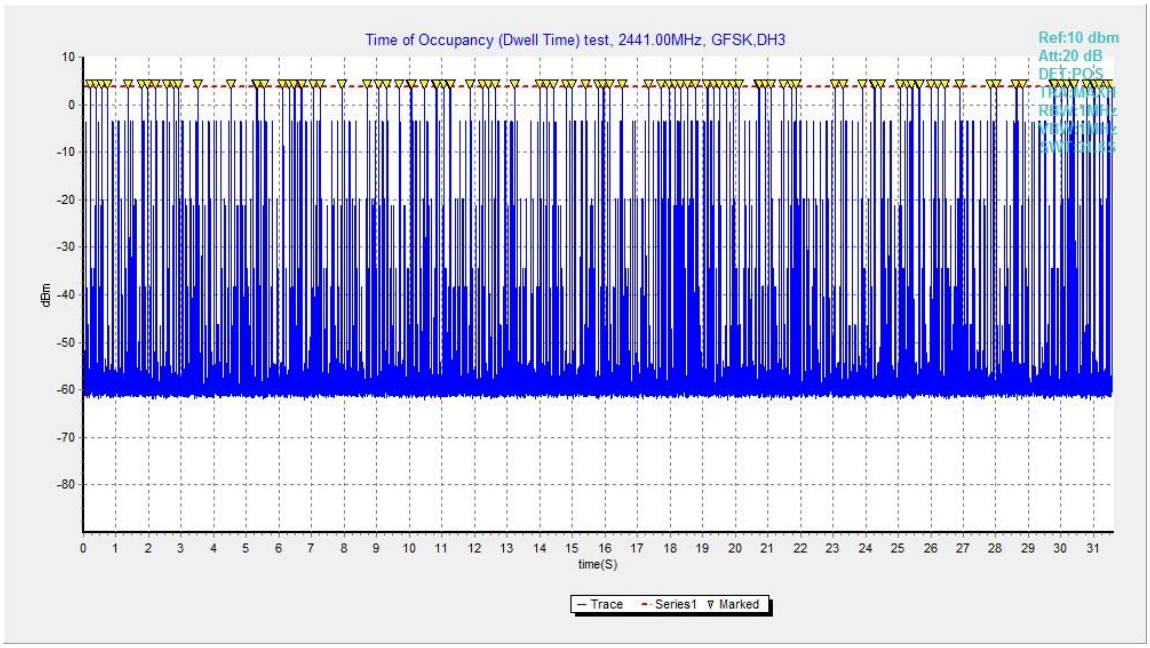


Fig.67. Number of Transmissions Measurement:Channel 39,Packet DH3

Fig.68. Time of occupancy (Dwell Time): Channel 39, Packet DH5

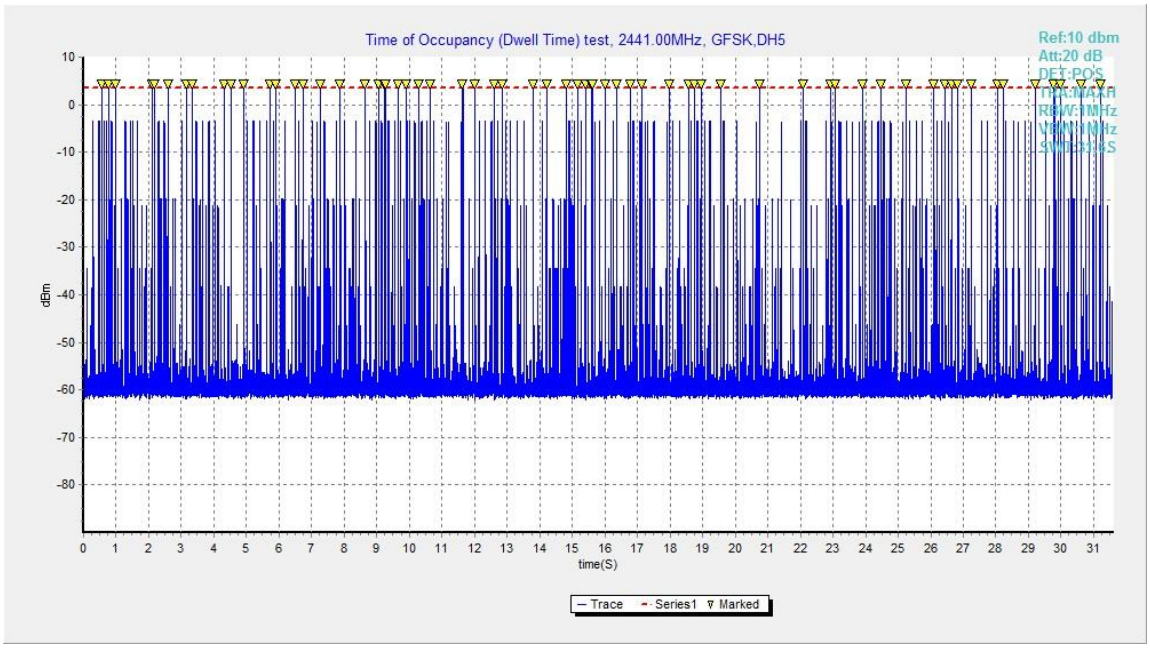


Fig.69. Number of Transmissions Measurement:Channel 39,Packet DH5

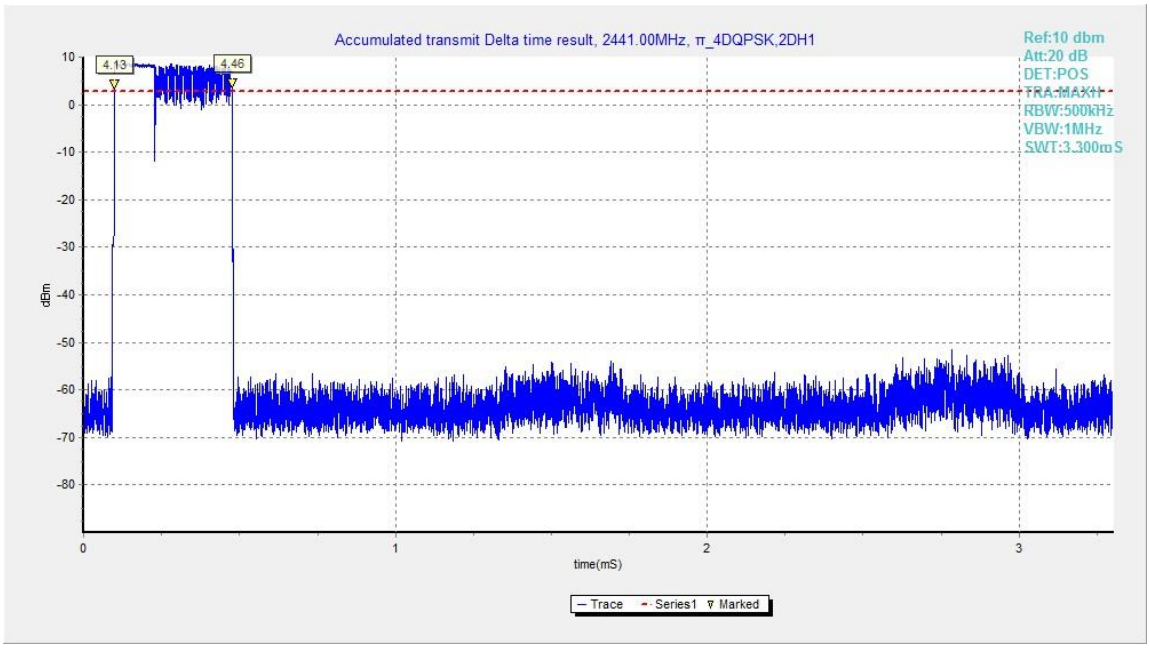


Fig.70. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH1

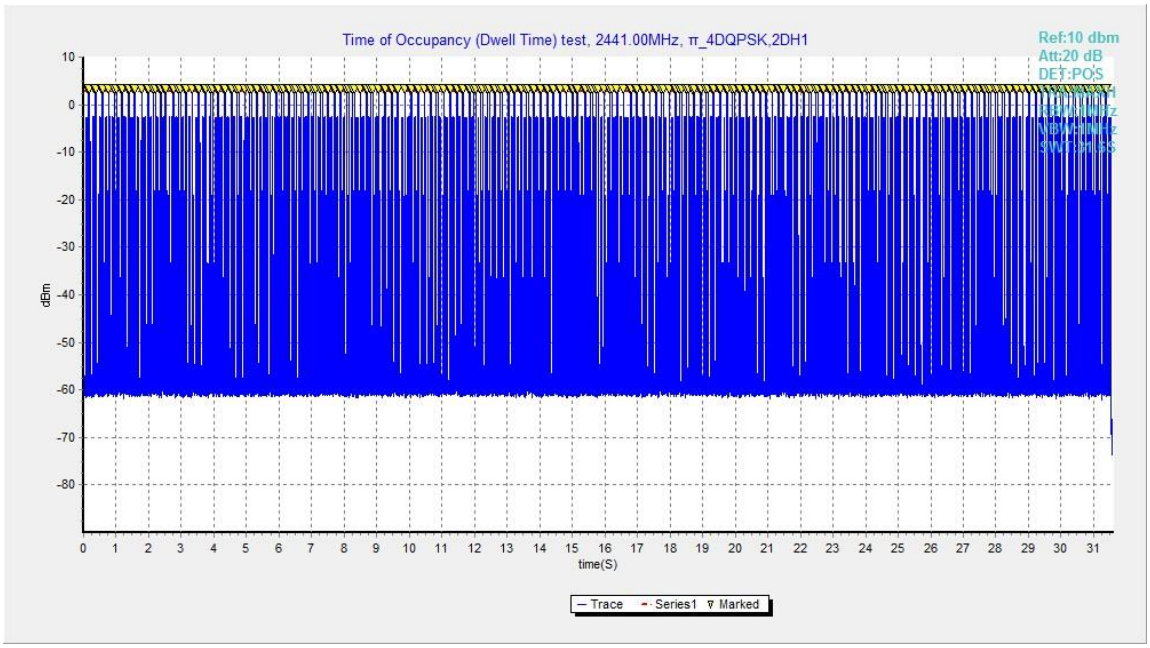


Fig.71. Number of Transmissions Measurement:Channel 39,Packet 2-DH1

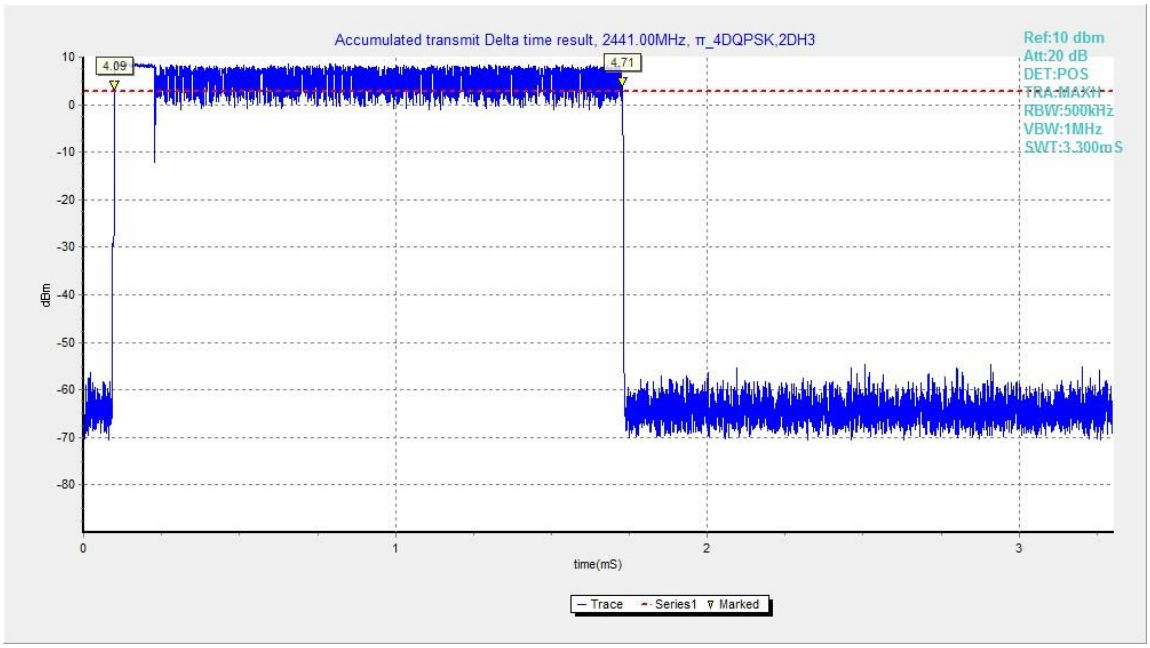


Fig.72. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH3

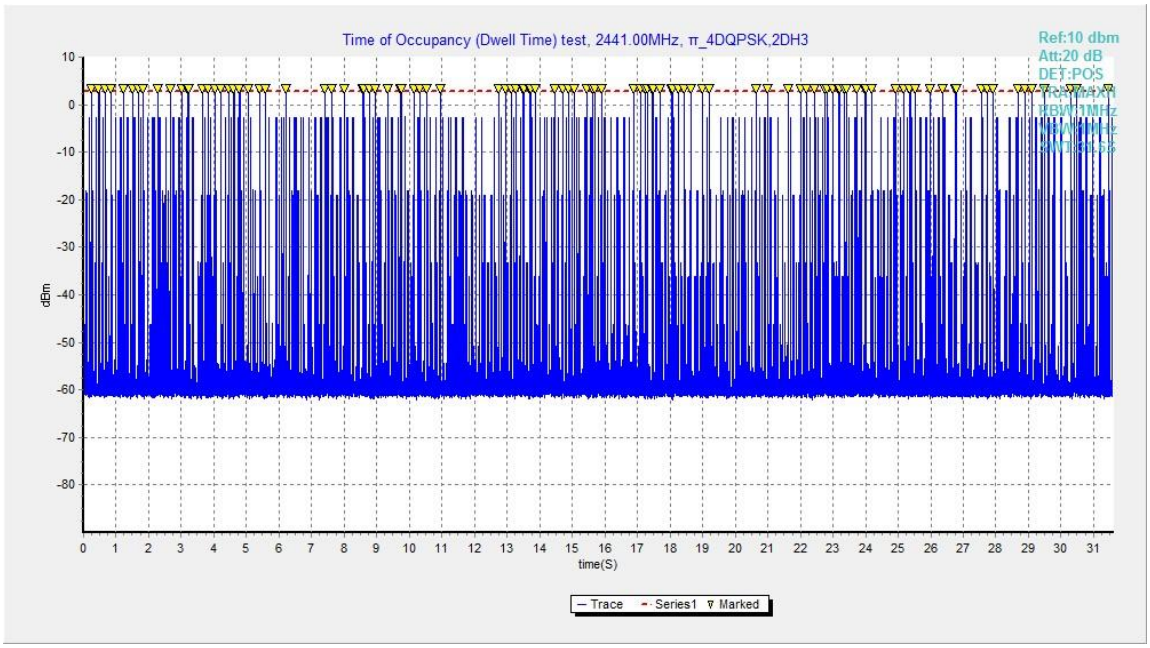


Fig.73. Number of Transmissions Measurement:Channel 39,Packet 2-DH3

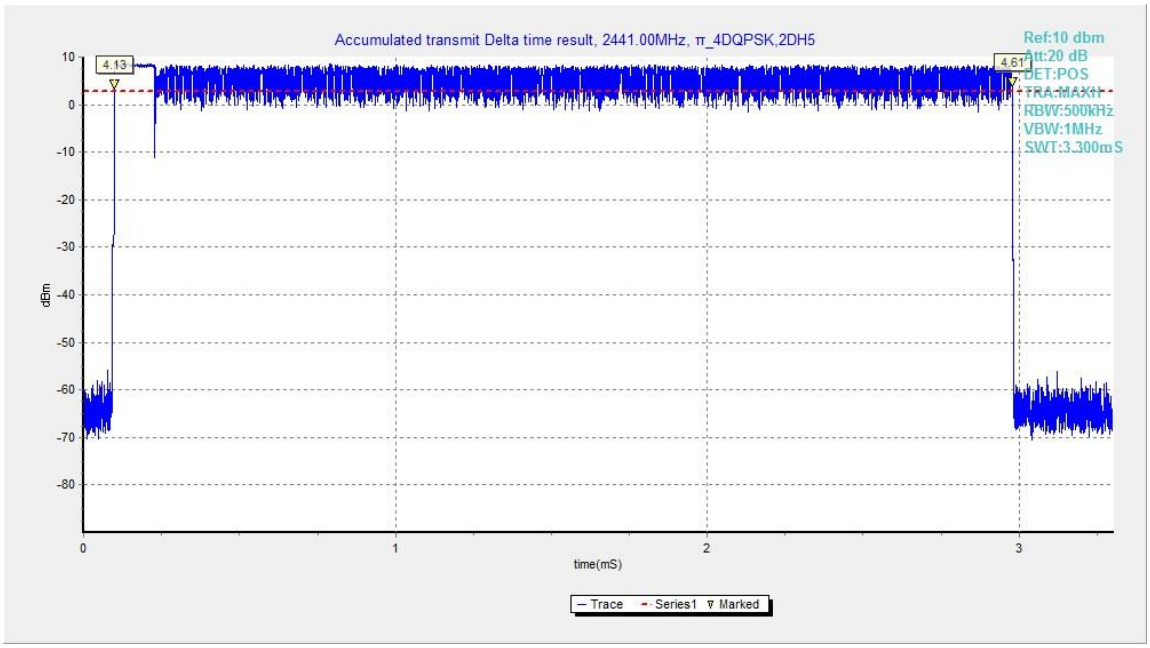


Fig.74. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH5

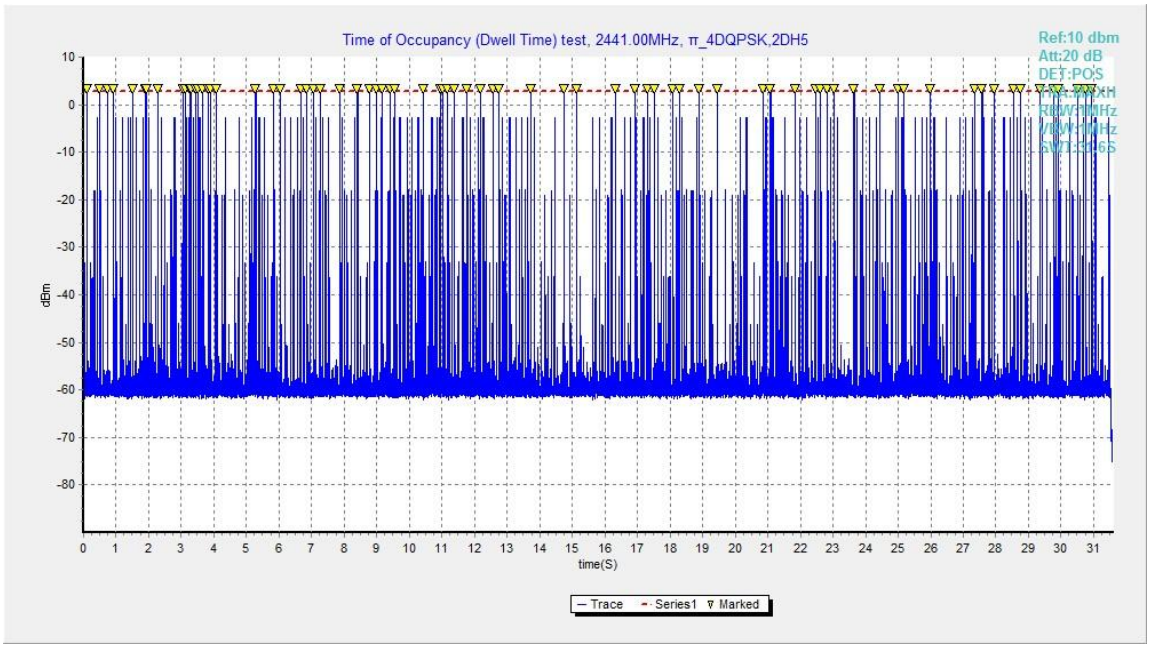


Fig.75. Number of Transmissions Measurement:Channel 39,Packet 2-DH5

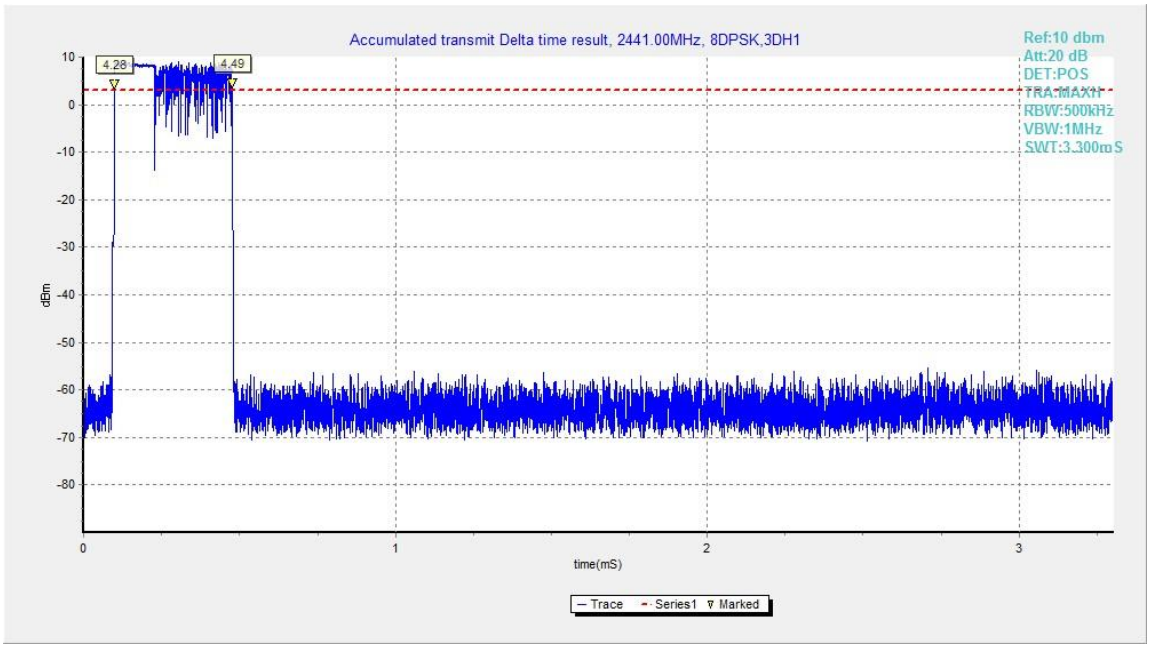


Fig.76. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH1

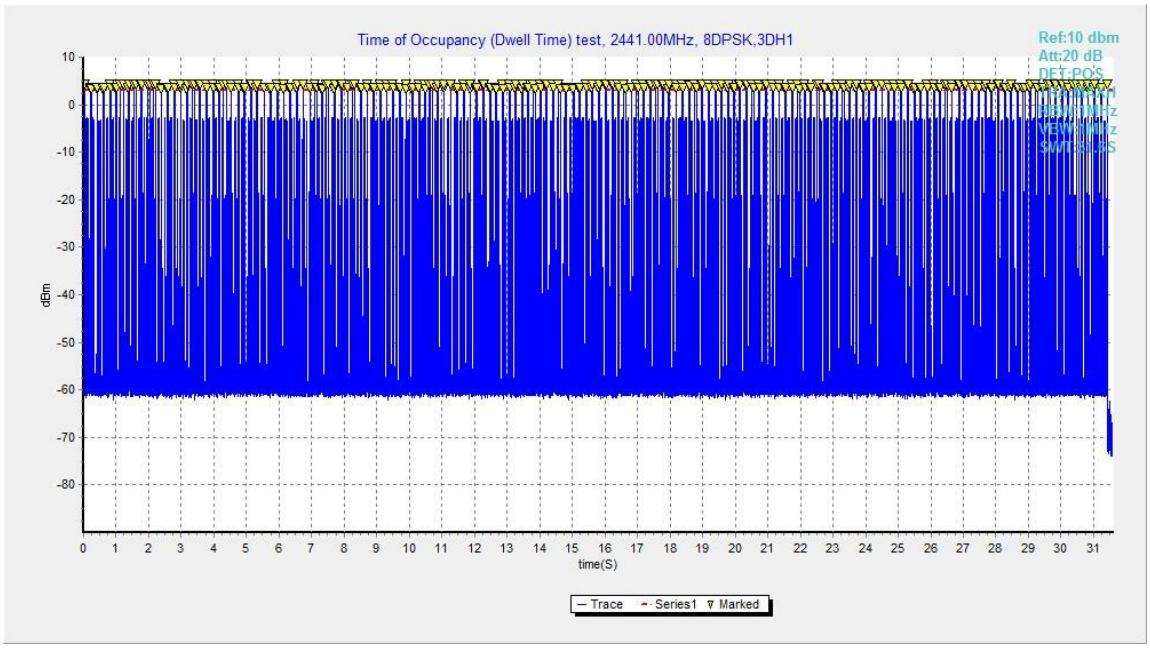


Fig.77. Number of Transmissions Measurement:Channel 39,Packet 3-DH1

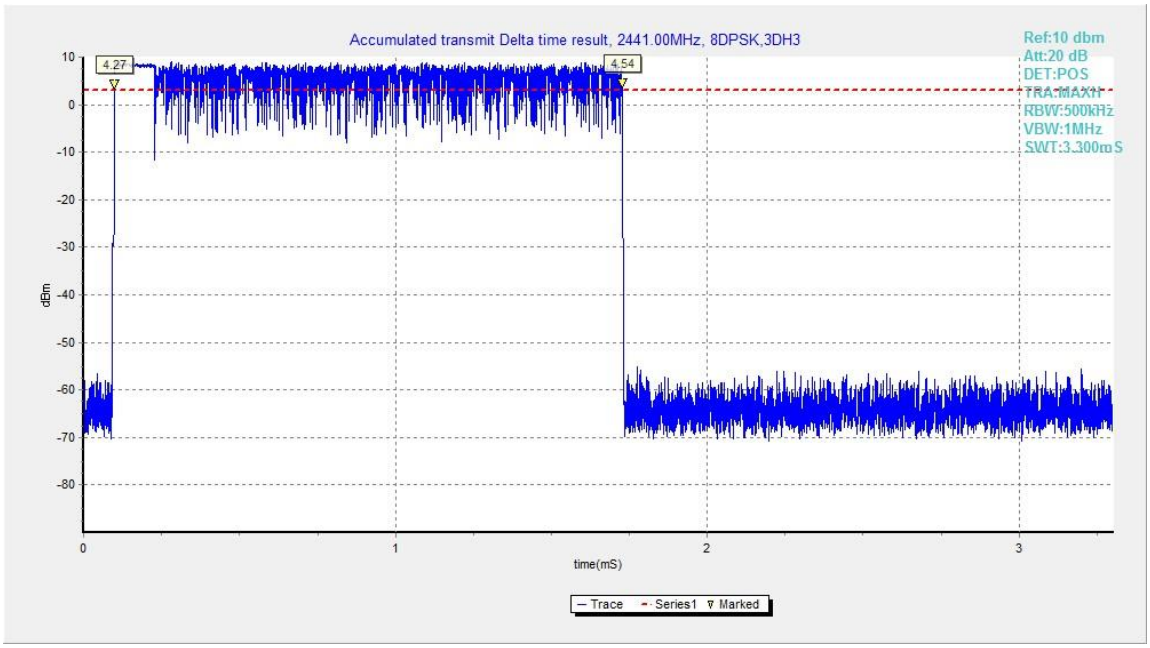


Fig.78. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH3

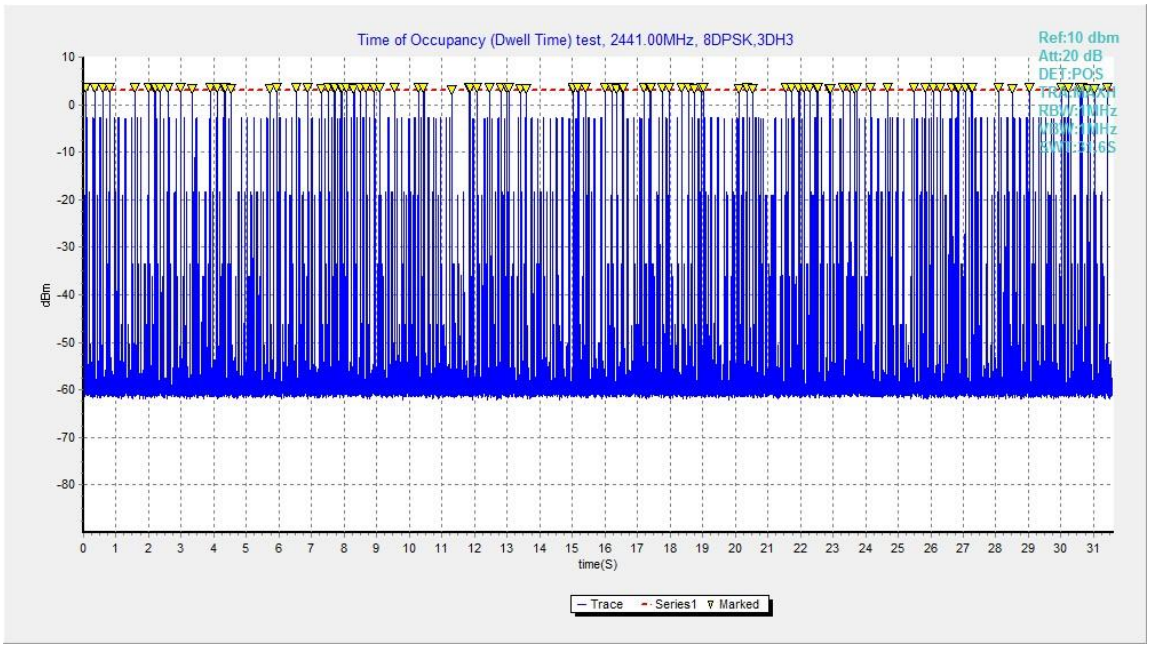


Fig.79. Number of Transmissions Measurement:Channel 39,Packet 3-DH3

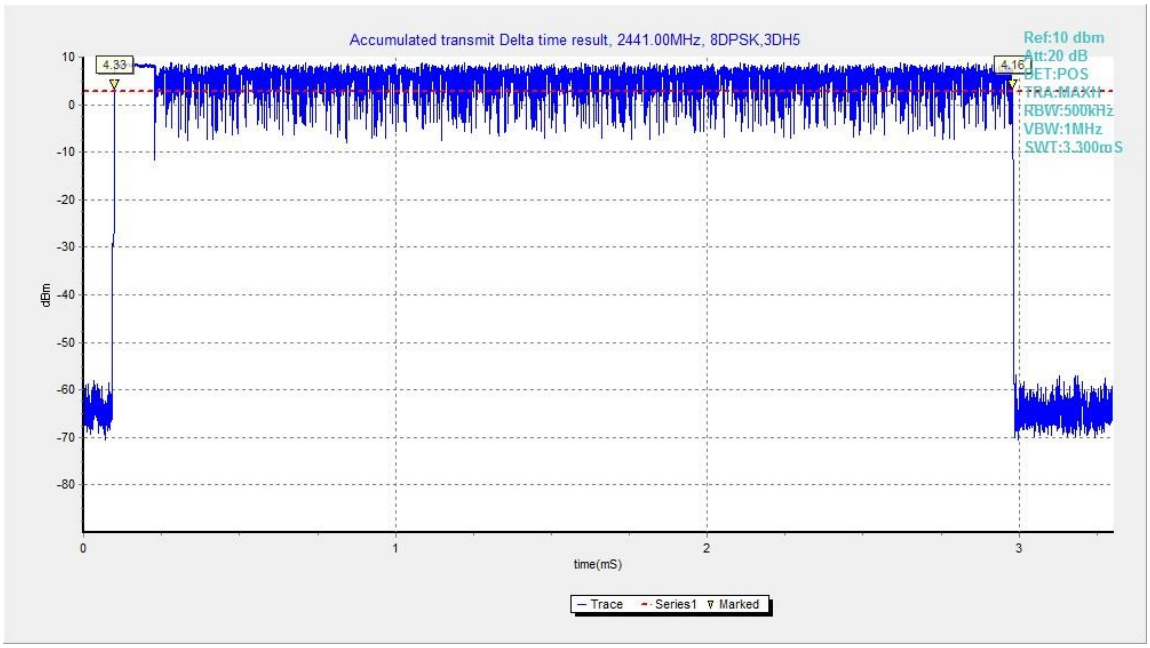


Fig.80. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH5

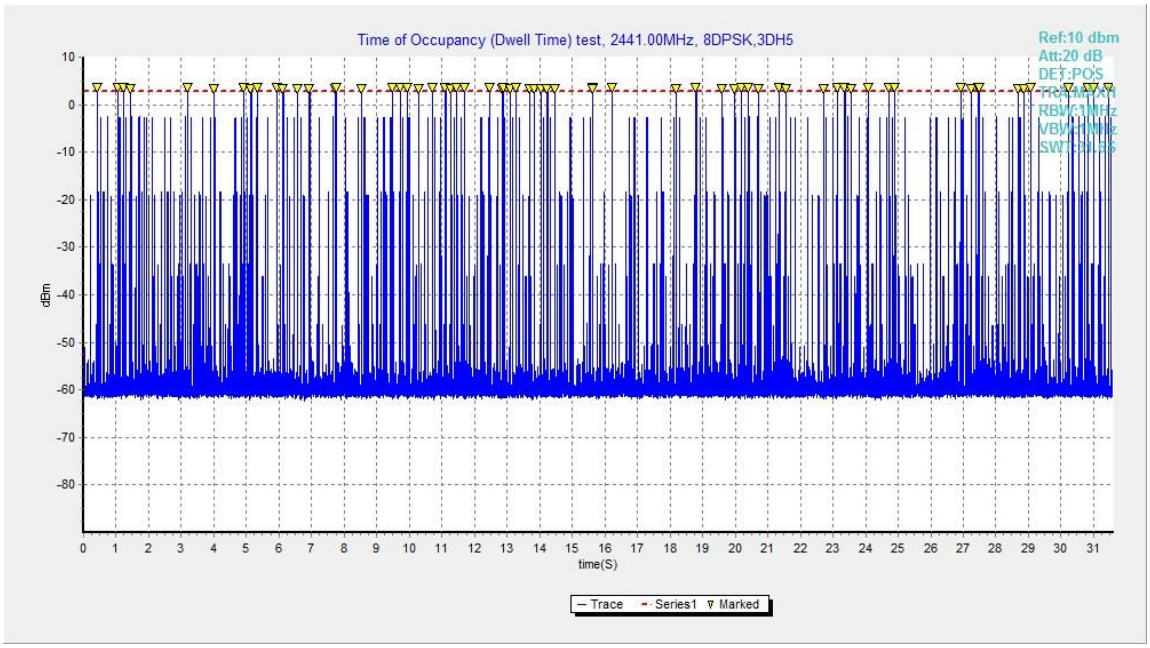


Fig.81. Number of Transmissions Measurement:Channel 39,Packet 3-DH5

A.7. 20dB Bandwidth

Method of Measurement: See ANSI C63.10-clause 6.9.2

Measurement Procedure - Unwanted Emissions

1. Set RBW = 30kHz.

2. Set VBW = 100 kHz.

3. Set span to 3MHz

4. Detector = peak.

5. Trace Mode = max hold.

6. Sweep = auto couple.

7. Allow the trace to stabilize (this may take some time, depending on the extent of the span).

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a)(1)	NA *

Use NdB Down function of the SA to measure the 20dB Bandwidth

* Comment: This test case is not required according to the latest FCC 47 CFR Part 15.247. But the test results are necessary for “carrier frequency separation” test case, in Annex A.8.

Measurement Results:

For GFSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.82	940.50	NA
39	Fig.83	954.75	NA
78	Fig.84	945.00	NA

Forπ/4 DQPSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.85	1263.00	NA
39	Fig.86	1262.25	NA
78	Fig.87	1283.25	NA

For 8DPSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.88	1289.25	NA
39	Fig.89	1269.75	NA
78	Fig.90	1269.00	NA

Conclusion: NA

Test graphs as below:

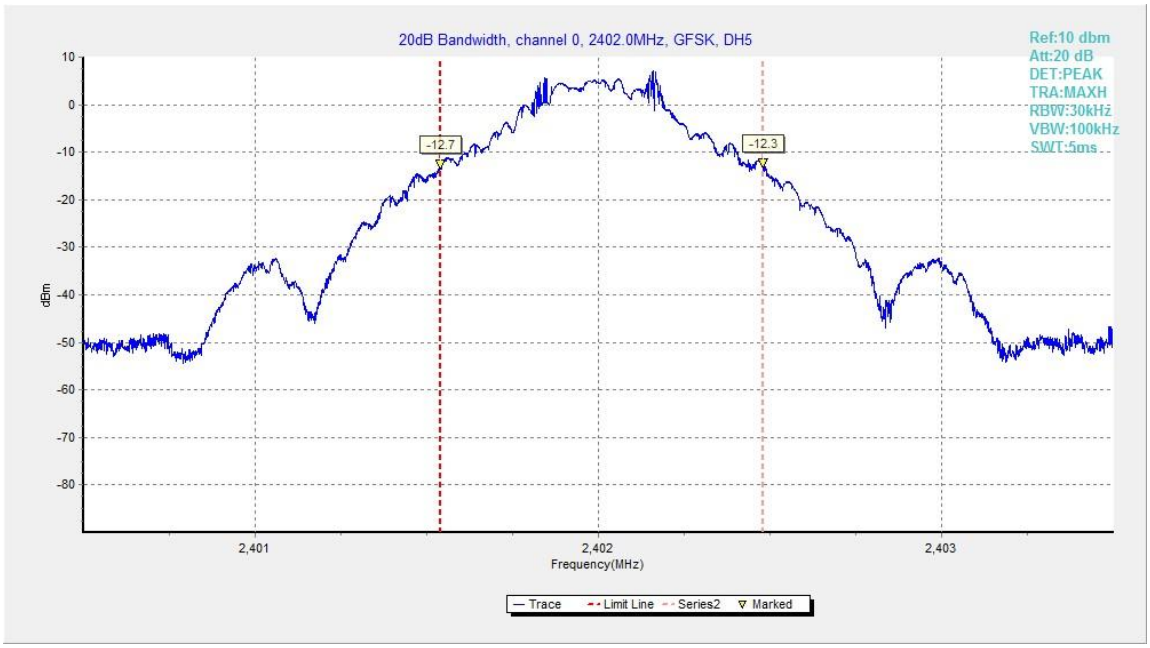


Fig.82. 20dB Bandwidth: GFSK, Channel 0

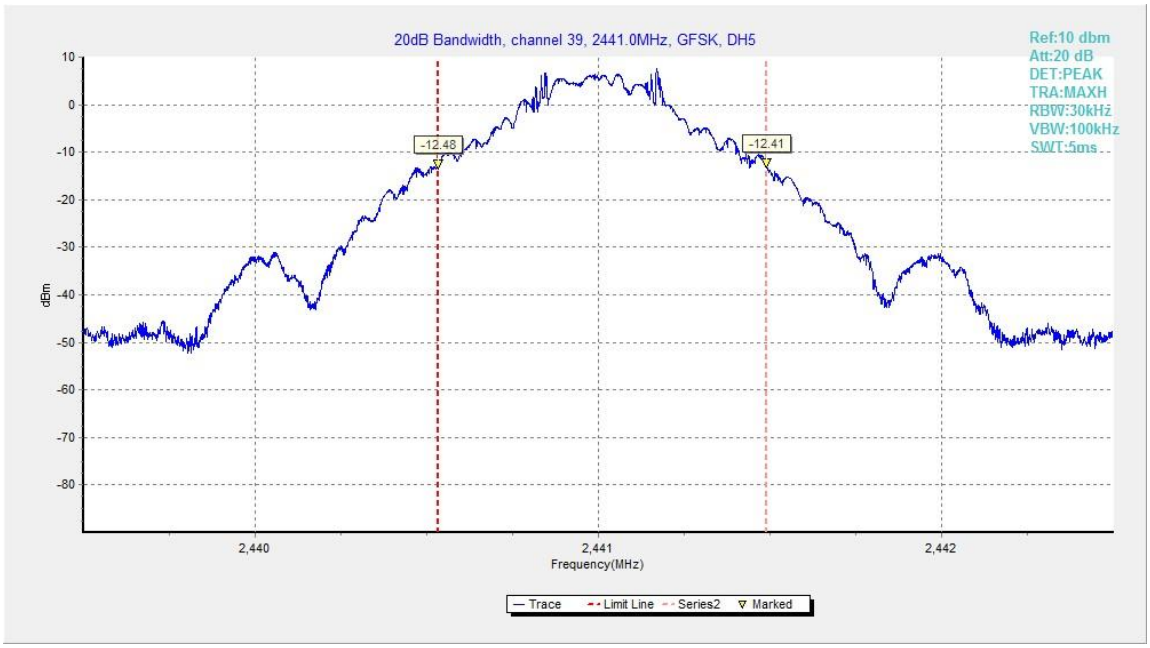


Fig.83. 20dB Bandwidth: GFSK, Channel 39

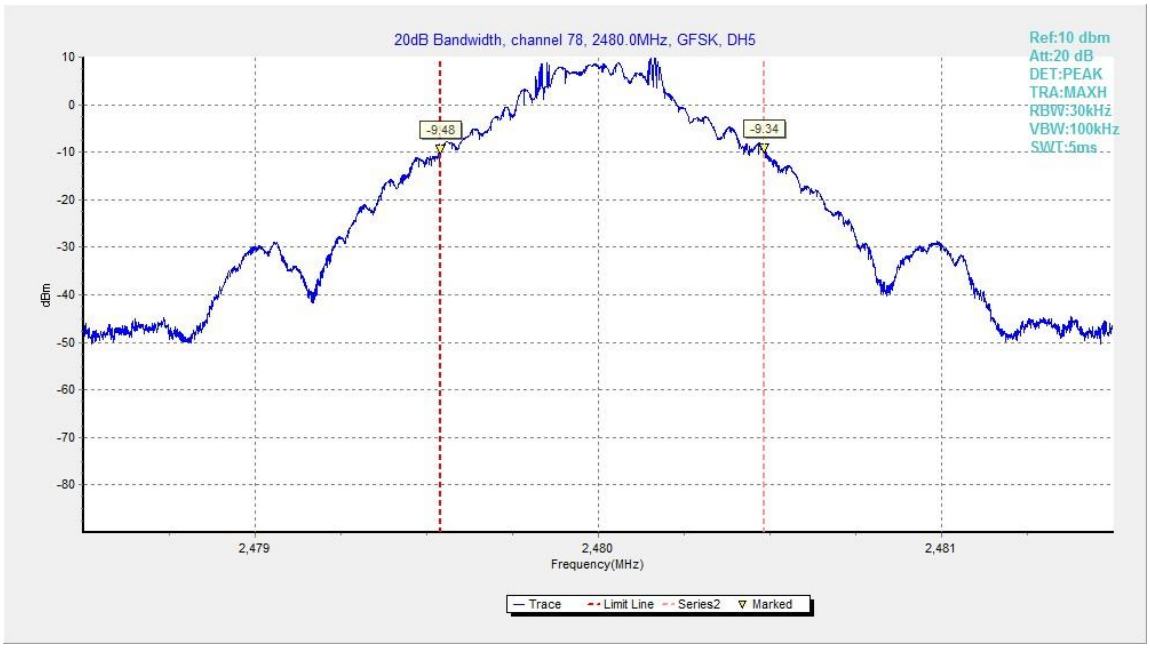


Fig.84. 20dB Bandwidth: GFSK, Channel 78

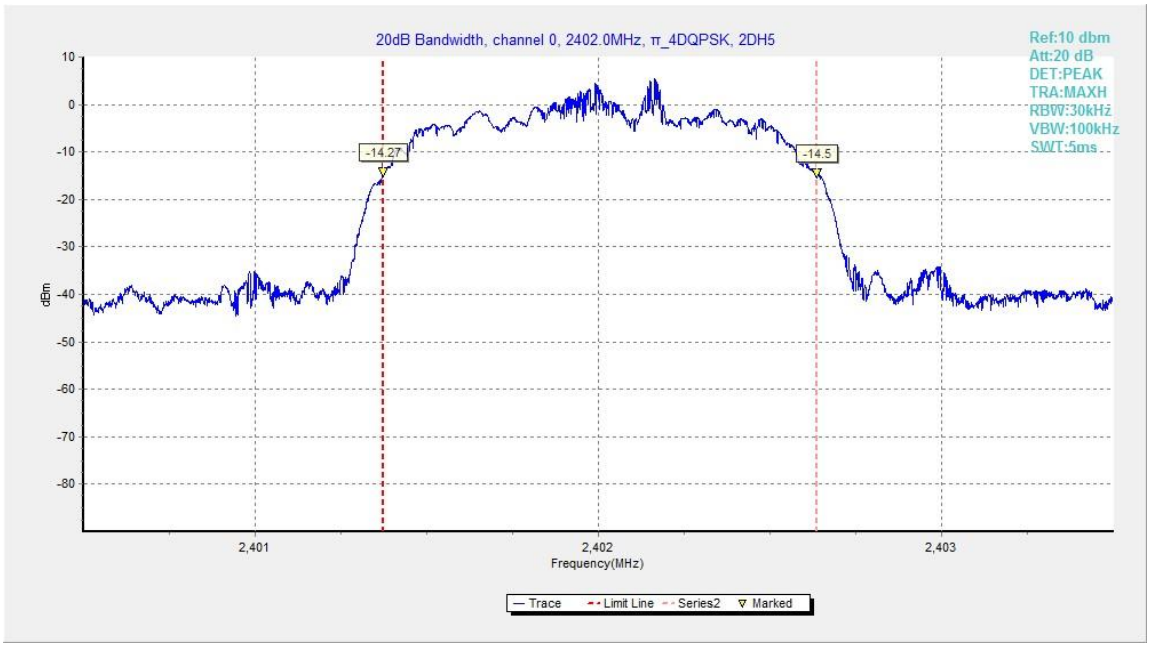


Fig.85. 20dB Bandwidth: π/4 DQPSK, Channel 0

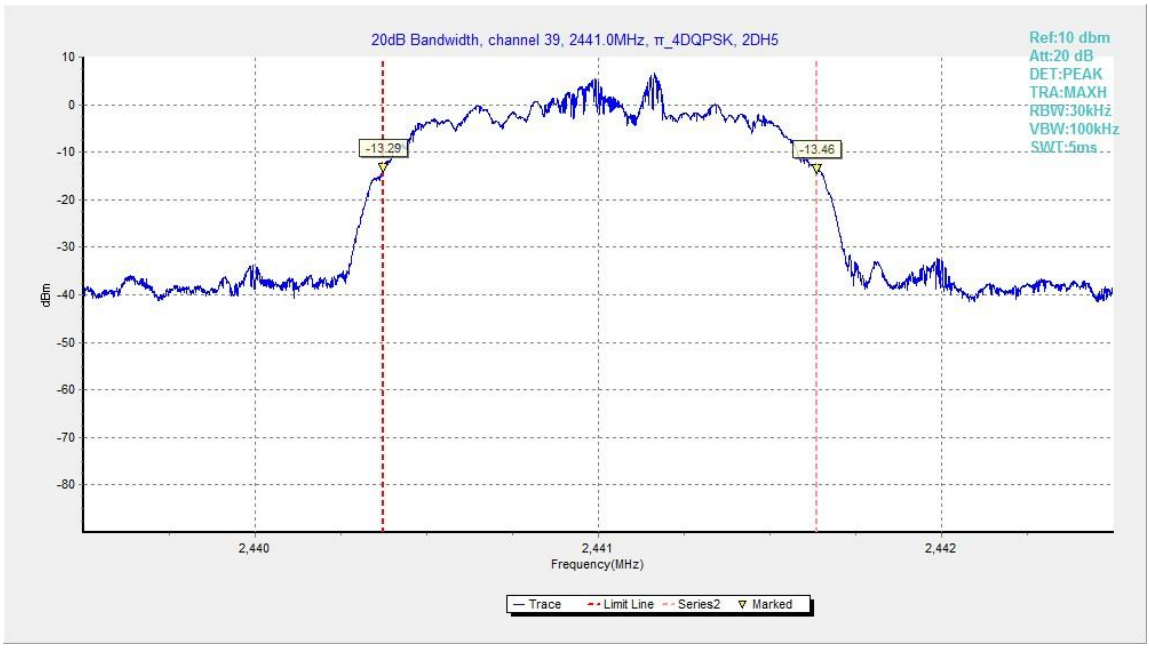


Fig.86. 20dB Bandwidth: π/4 DQPSK, Channel 39

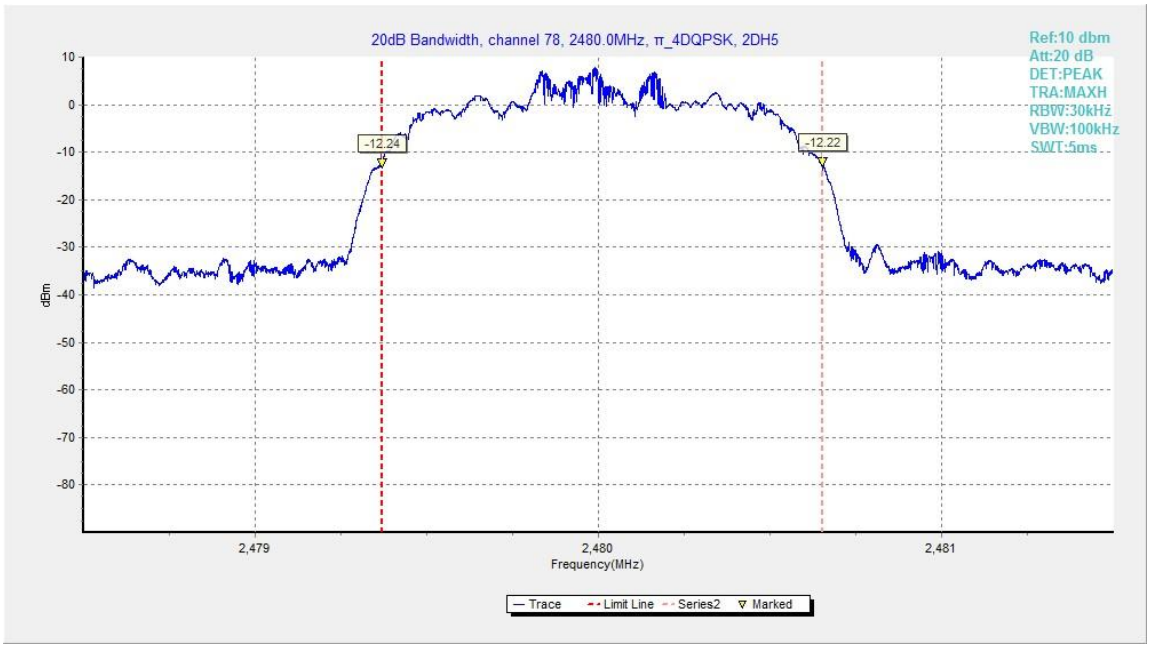


Fig.87. 20dB Bandwidth: π/4 DQPSK, Channel 78

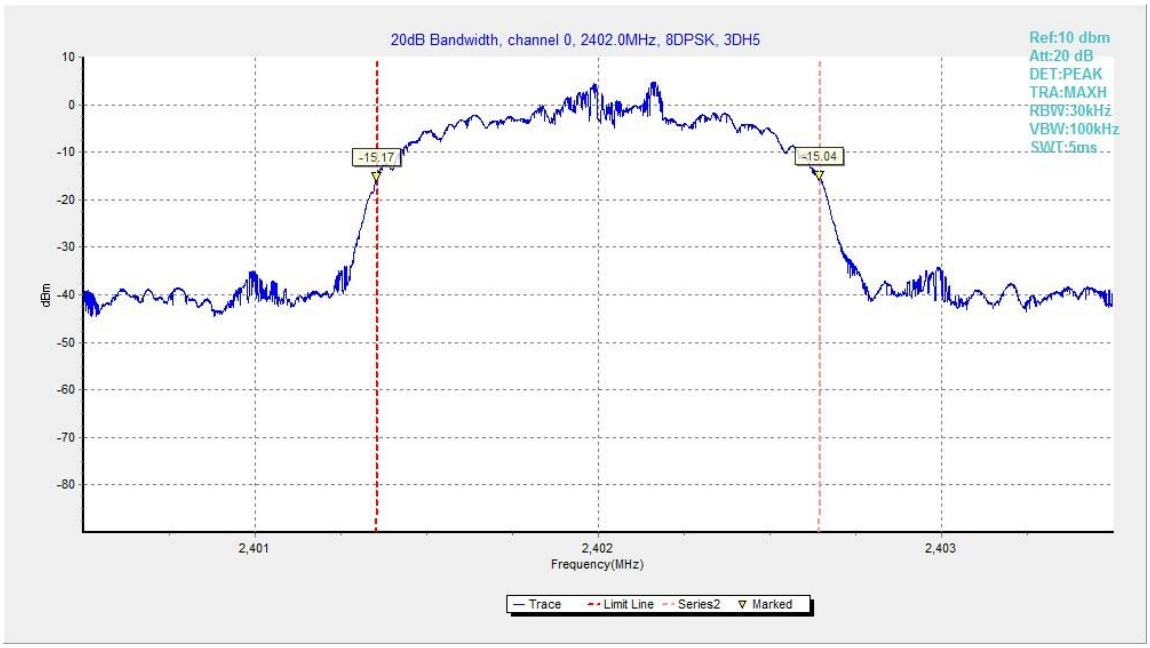


Fig.88. 20dB Bandwidth: 8DPSK, Channel 0

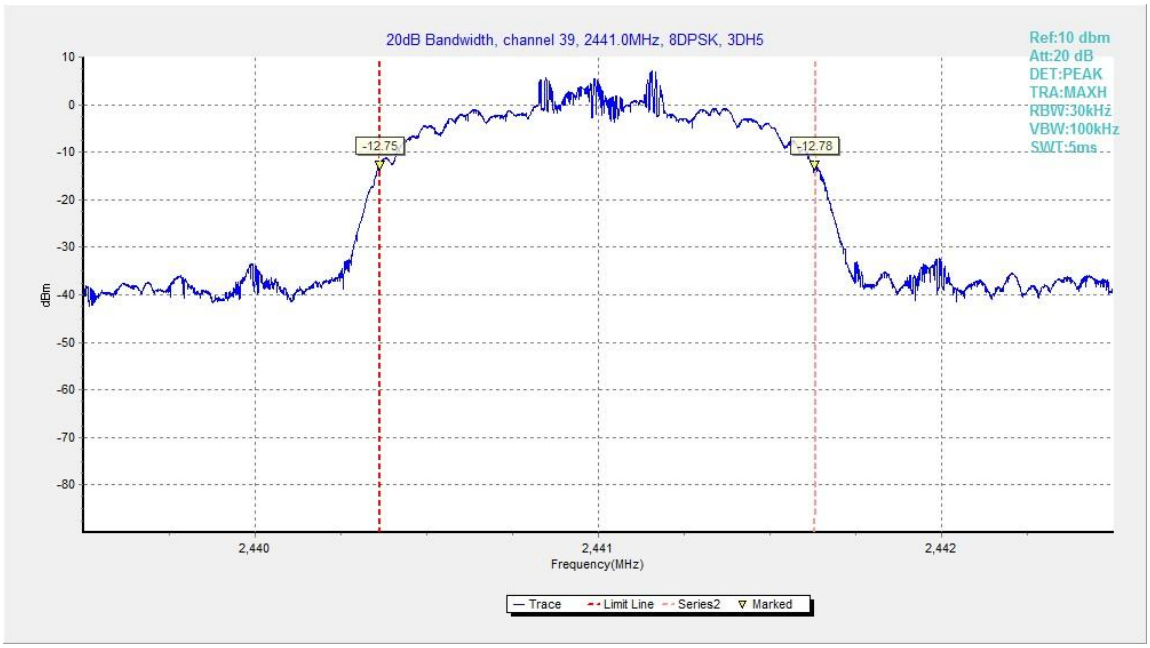


Fig.89. 20dB Bandwidth: 8DPSK, Channel 39

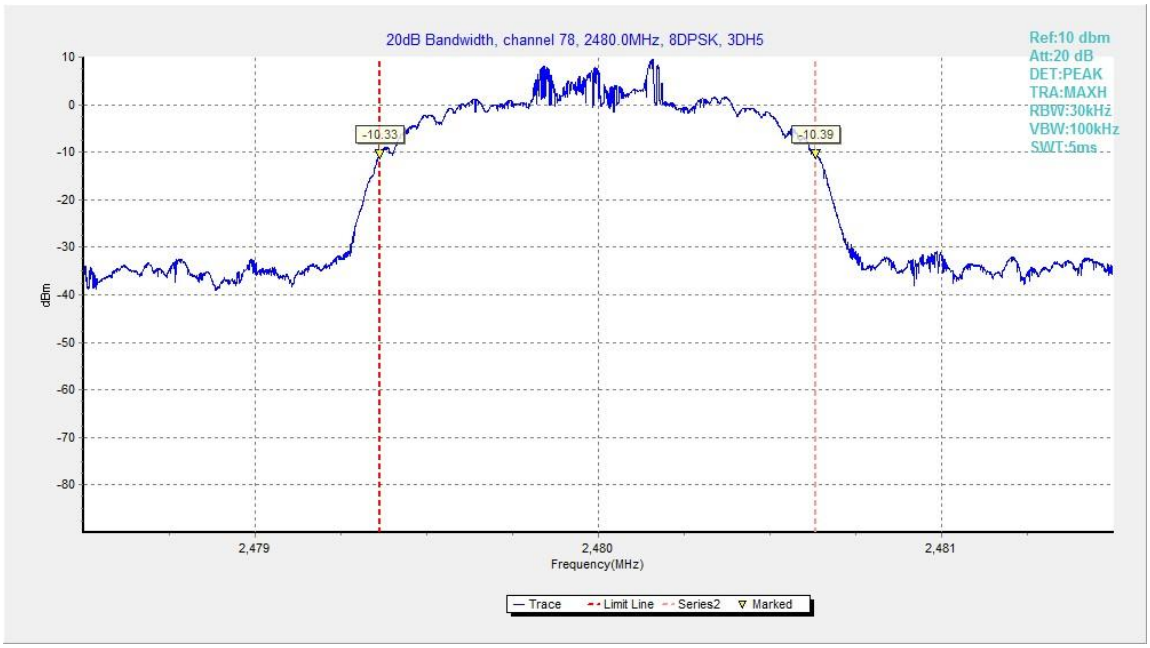


Fig.90. 20dB Bandwidth: 8DPSK, Channel 78

A.8. Carrier Frequency Separation

Method of Measurement: See ANSI C63.10-clause 7.8.2

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

- Span = 3MHz
- RBW=300kHz
- VBW=300kHz
- Sweep = auto
- Detector function = peak
- Trace = max hold
- Allow the trace to stabilize

Search the peak marks of the middle frequency and adjacent channel, then record the separation between them.

* Comment: This limit should be over 25 kHz or (2/3) * 20dB bandwidth, whichever is greater.

Measurement Limit:

Standard	Limit(kHz)
FCC 47 CFR Part 15.247(a)(1)	over 25 kHz or (2/3) * 20dB bandwidth

Measurement Result:

For GFSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.91	1314.00	P

For π/4 DQPSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.92	1148.25	P

For 8DPSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.93	1041.00	P

Conclusion: PASS

Test graphs as below:

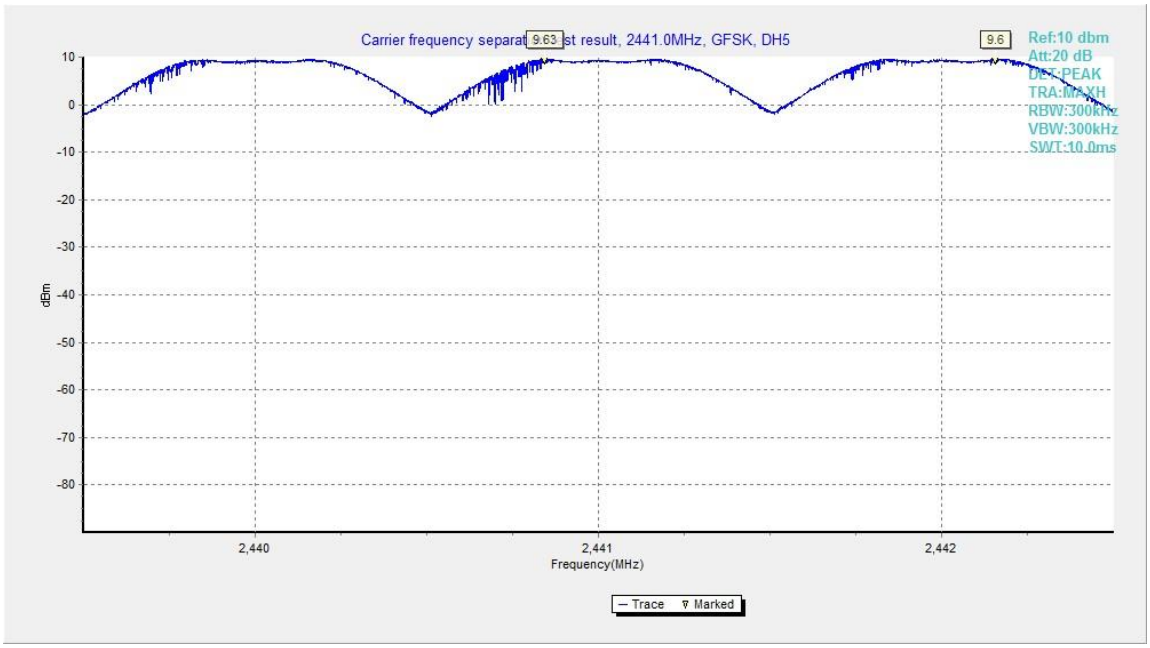


Fig.91. Carrier frequency separation measurement: GFSK, Channel 39

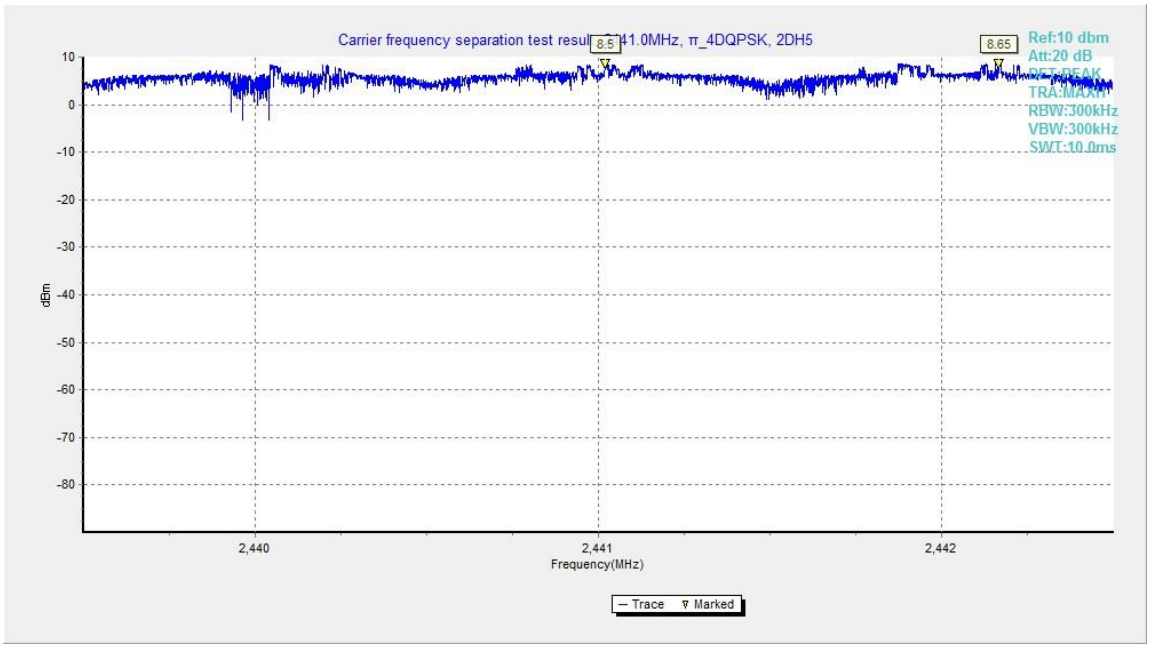


Fig.92. Carrier frequency separation measurement: π/4 DQPSK, Channel 39

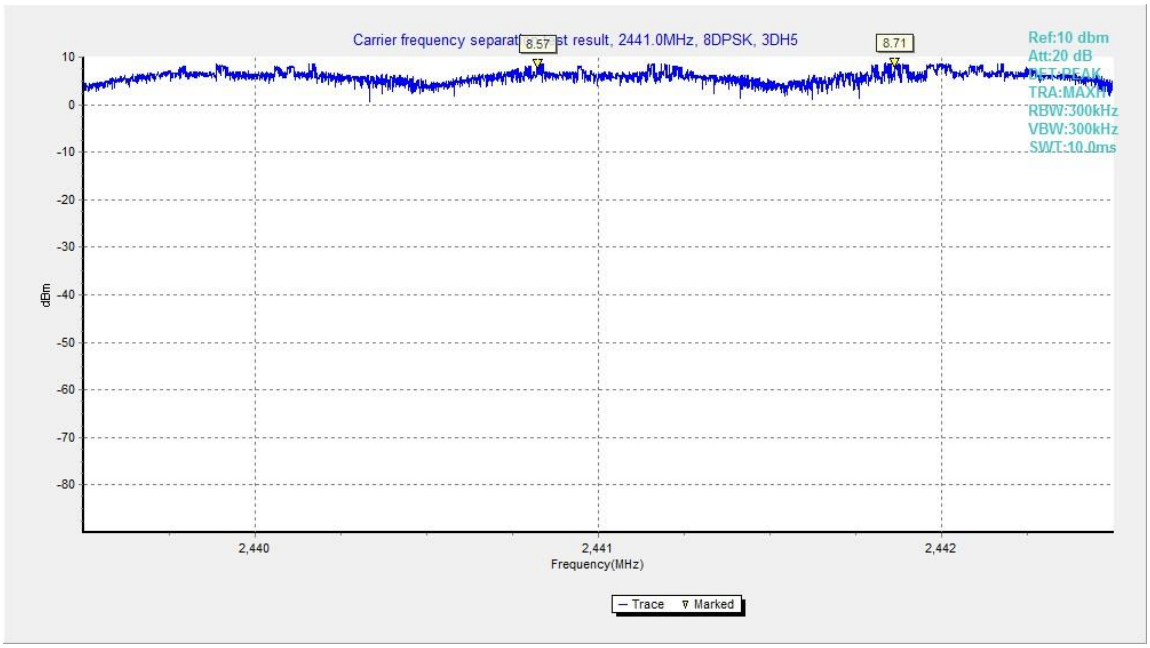


Fig.93. Carrier frequency separation measurement: 8DPSK, Channel 39

A.9. Number of Hopping Channels

Method of Measurement: See ANSI C63.10-clause 7.8.3

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

- Span = the frequency band of operation
- RBW = 500kHz
- VBW = 500kHz
- Sweep = auto
- Detector function = peak
- Trace = max hold
- Allow the trace to stabilize

It might prove necessary to break the span up into subranges to show clearly all of the hopping frequencies. Compliance of an EUT with the appropriate regulatory limit shall be determined for the number of hopping channels. A plot of the data shall be included in the test report.

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a) (1)(iii)	At least 15 non-overlapping channels

Measurement Result:

For GFSK

Channel	Number of hopping channels		Conclusion
0~39	Fig.94	79	P
40~78	Fig.95		

Forπ/4 DQPSK

Channel	Number of hopping channels		Conclusion
0~39	Fig.96	79	P
40~78	Fig.97		

For 8DPSK

Channel	Number of hopping channels		Conclusion
0~39	Fig.98	79	P
40~78	Fig.99		

Conclusion: PASS

Test graphs as below:

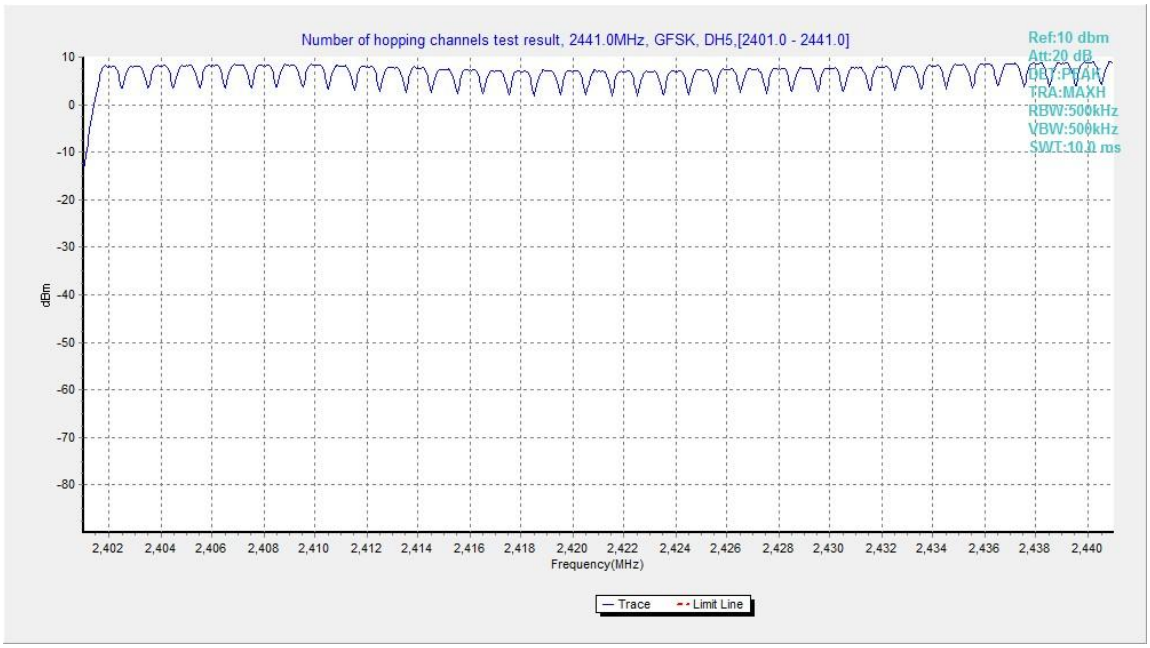


Fig.94. Number of hopping frequencies: GFSK, Channel 0 - 39

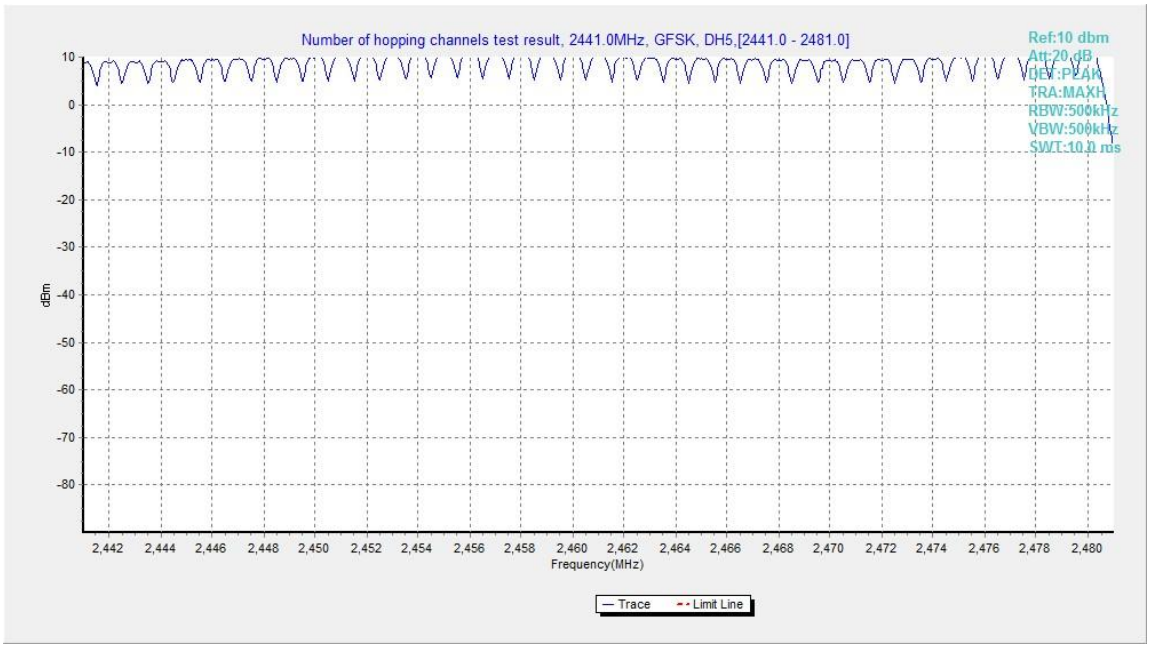


Fig.95. Number of hopping frequencies: GFSK, Channel 40 - 78

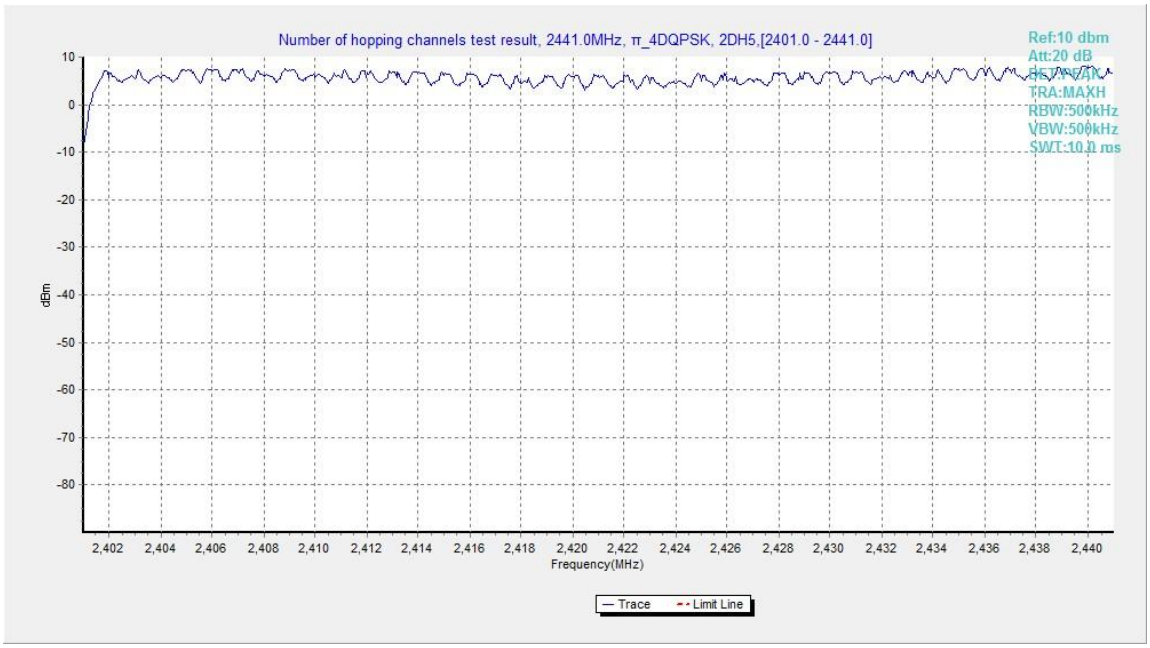


Fig.96. Number of hopping frequencies: π/4 DQPSK, Channel 0 - 39

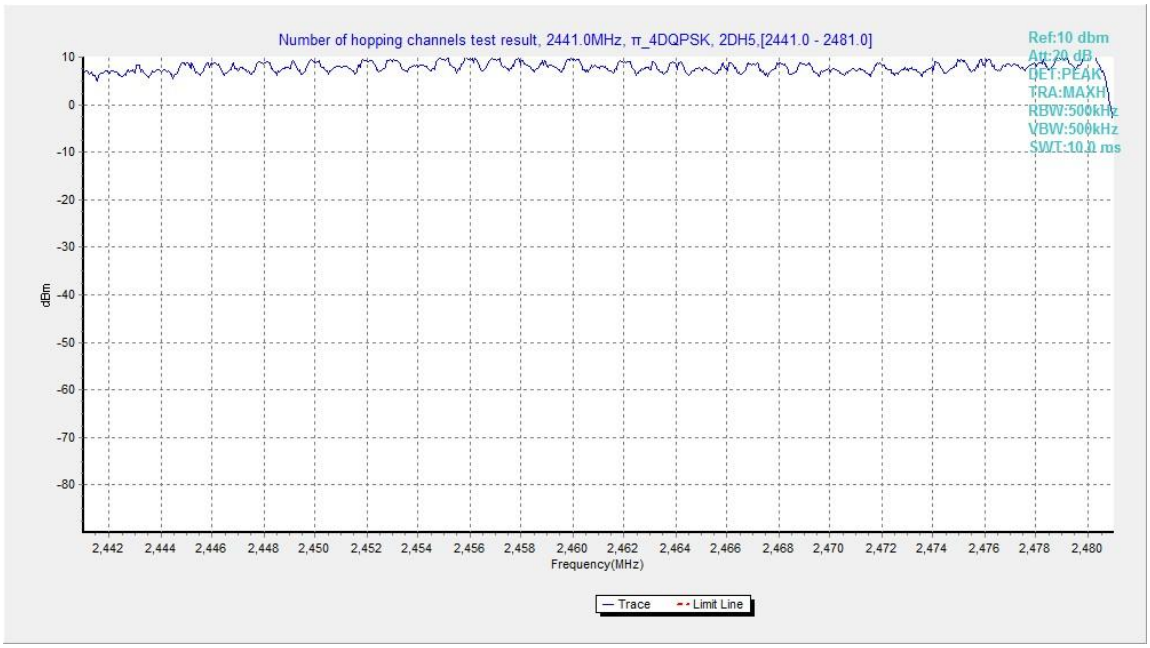


Fig.97. Number of hopping frequencies: π/4 DQPSK, Channel 40 - 78

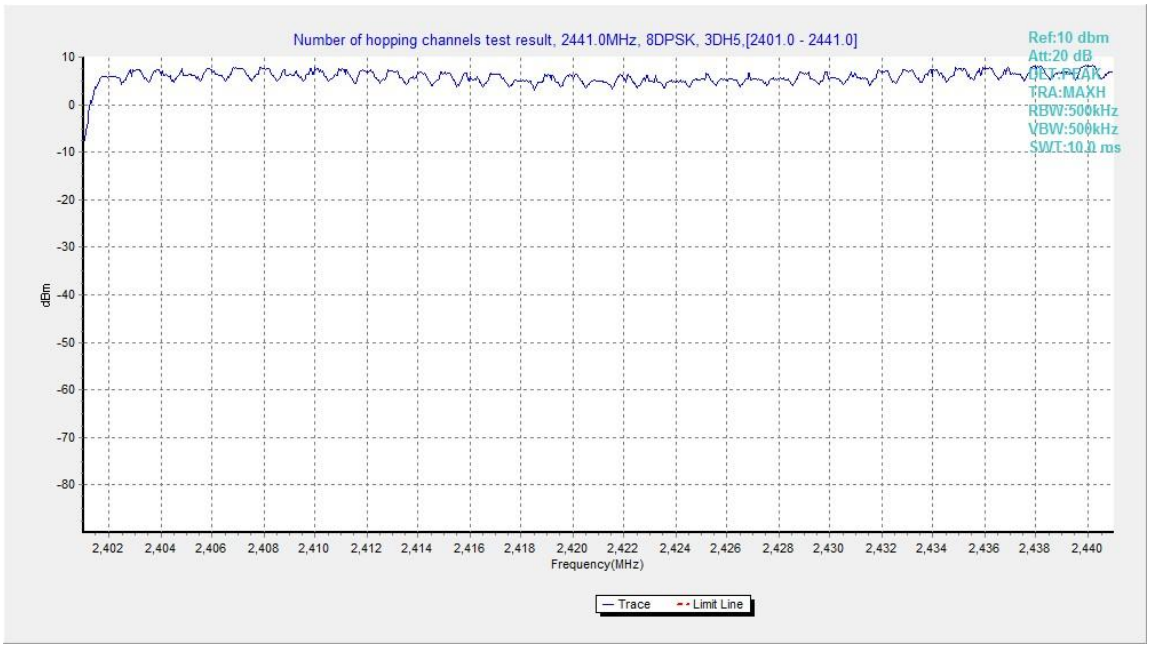


Fig.98. Number of hopping frequencies: 8DPSK, Channel 0 - 39

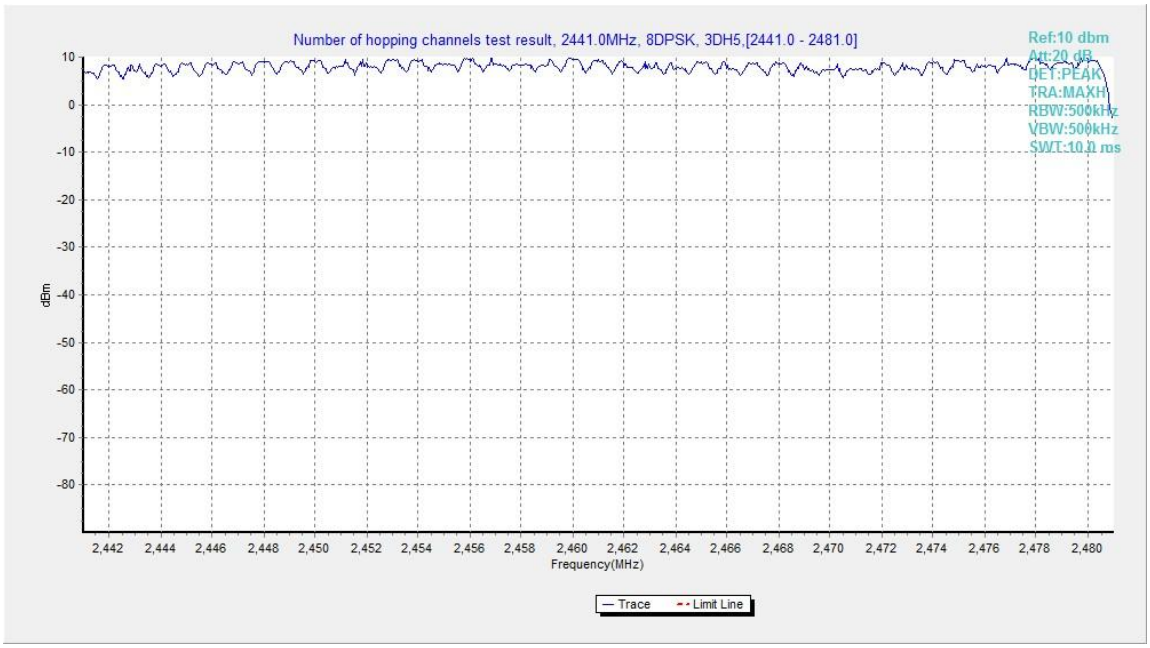


Fig.99. Number of hopping frequencies: 8DPSK, Channel 40 - 78

A.10. AC Powerline Conducted Emission

Test Condition

Voltage（V）	Frequency（Hz）
120	60

Measurement Result and limit:

Bluetooth (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Conclusion
0.15 to 0.5	66 to 56	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.		

Bluetooth (Average Limit)

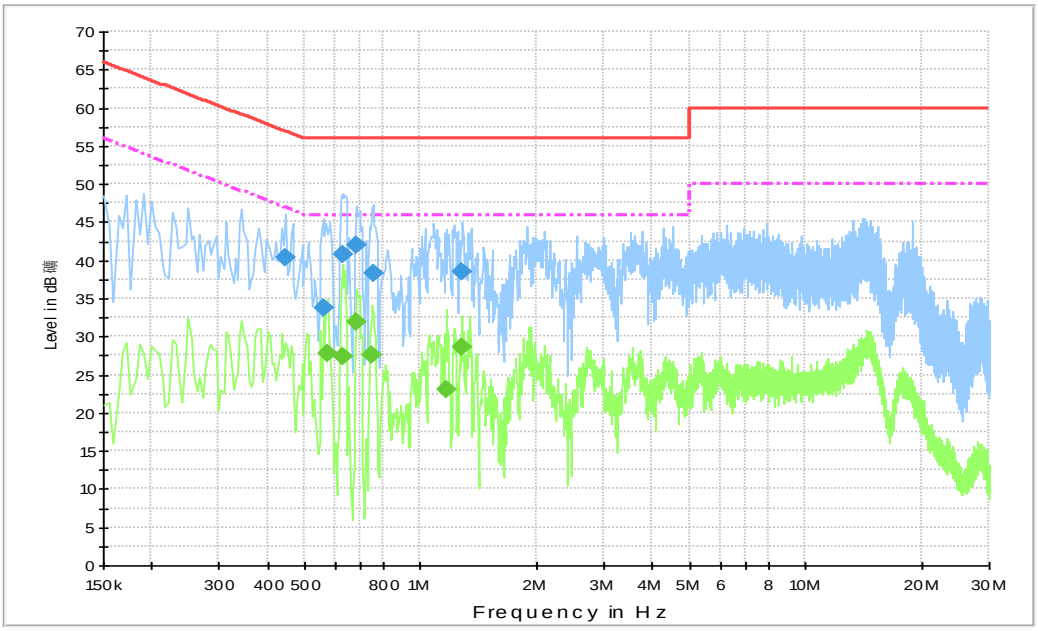
Frequency range (MHz)	Average Limit (dBμV)	Conclusion
0.15 to 0.5	56 to 46	P
0.5 to 5	46	
5 to 30	50	
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.		

The measurement is made according to ANSI C63.10

Conclusion: PASS

Test graphs as below:

Traffic:



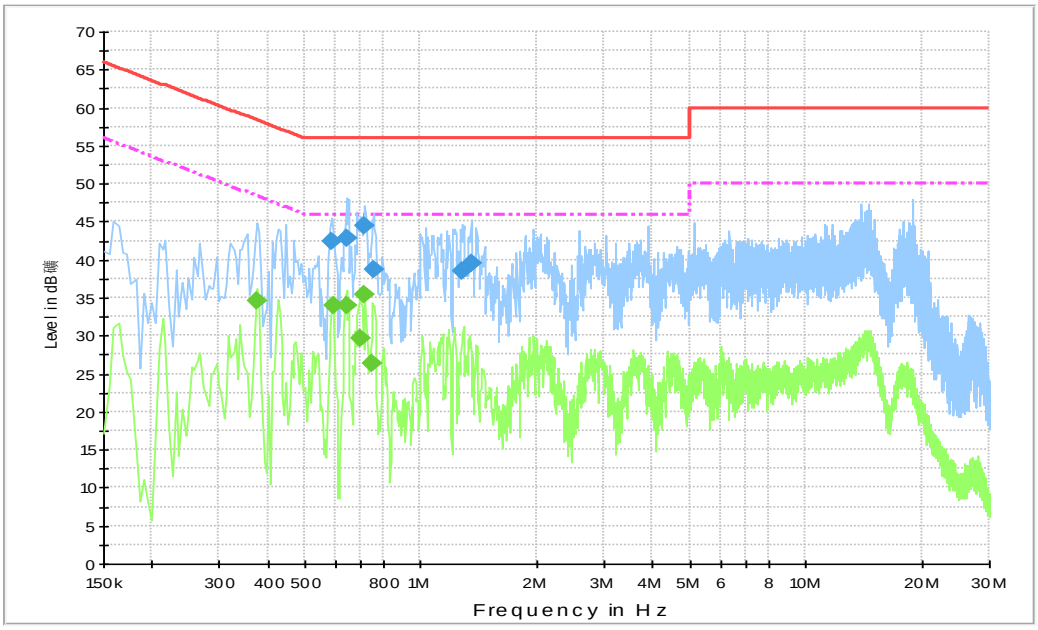
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.447000	40.4	GND	N	10.3	16.5	56.9
0.559500	33.8	GND	N	10.3	22.2	56.0
0.627000	40.7	GND	N	10.3	15.3	56.0
0.681000	42.0	GND	N	10.3	14.0	56.0
0.753000	38.3	GND	N	10.3	17.7	56.0
1.284000	38.4	GND	N	10.3	17.6	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.573000	27.9	GND	N	10.3	18.1	46.0
0.627000	27.4	GND	N	10.3	18.6	46.0
0.685500	32.0	GND	N	10.3	14.0	46.0
0.748500	27.5	GND	N	10.3	18.5	46.0
1.167000	23.1	GND	N	10.3	22.9	46.0
1.279500	28.6	GND	N	10.3	17.4	46.0

Idle:



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.586500	42.5	GND	N	10.3	13.5	56.0
0.640500	42.9	GND	N	10.3	13.1	56.0
0.717000	44.4	GND	N	10.3	11.6	56.0
0.753000	38.8	GND	N	10.3	17.2	56.0
1.284000	38.4	GND	N	10.3	17.6	56.0
1.351500	39.6	GND	N	10.3	16.4	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.375000	34.6	GND	N	10.3	13.8	48.4
0.591000	34.0	GND	N	10.3	12.0	46.0
0.640500	33.9	GND	N	10.3	12.1	46.0
0.694500	29.6	GND	N	10.3	16.4	46.0
0.717000	35.5	GND	N	10.3	10.5	46.0
0.748500	26.3	GND	N	10.3	19.7	46.0

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