GFSK Ch 0 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2387.300	46.23	2.9	32.0	11.4	54.0	7.8	H	155	92
2388.100	46.31	2.9	32.0	11.5	54.0	7.7	H	155	115
4804.000	38.03	-35.0	34.1	39.0	54.0	16.0	H	155	135
7206.000	37.24	-32.4	35.8	33.8	54.0	16.8	H	155	168
9608.000	40.98	-29.7	36.7	33.9	54.0	13.0	H	155	184
12010.000	42.24	-30.5	38.9	33.8	54.0	11.8	H	155	202

GFSK Ch 39 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2430.600	46.43	2.9	32.0	11.56	54.0	7.6	H	155	92
2449.900	46.44	2.9	32.0	11.55	54.0	7.6	H	155	267
4882.000	35.08	-35.5	34.1	36.52	54.0	18.9	H	155	296
7323.000	38.43	-31.3	35.8	33.95	54.0	15.6	H	155	314
9764.000	39.06	-31.4	36.9	33.54	54.0	14.9	H	155	90
12205.000	44.00	-28.8	39.0	33.86	54.0	10.0	H	155	112

GFSK Ch 78 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.700	51.29	2.9	32.0	12.55	54.0	2.7	H	155	4
2483.800	51.27	2.9	32.0	11.47	54.0	2.7	H	155	32
4960.000	34.92	-34.9	34.1	35.71	54.0	19.1	H	155	72
7440.000	37.38	-32.2	35.8	33.75	54.0	16.6	H	155	90
9920.000	41.09	-29.7	37.1	33.64	54.0	12.9	H	155	46
12400.000	43.35	-30.0	39.1	34.32	54.0	10.7	H	155	16

π/4 DQPSK Ch 0 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2381.600	46.26	2.9	32.0	11.44	54.0	7.7	H	155	46
2385.700	46.31	2.9	32.0	11.49	54.0	7.7	H	155	70
4803.000	35.20	-35.0	34.1	36.12	54.0	18.8	H	155	92
7206.000	37.16	-32.4	35.8	33.75	54.0	16.8	H	155	268
9608.000	40.89	-29.7	36.7	33.82	54.0	13.1	H	155	292
12010.000	42.14	-30.5	38.9	33.73	54.0	11.9	H	155	316

π/4 DQPSK Ch 39 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2431.000	46.35	2.9	32.0	11.48	54.0	7.6	H	155	40
2453.600	46.30	2.9	32.0	11.40	54.0	7.7	H	155	65
4882.000	33.96	-35.5	34.1	35.41	54.0	20.0	H	155	84
7323.000	38.39	-31.3	35.8	33.90	54.0	15.6	H	155	107
9764.000	39.04	-31.4	36.9	33.52	54.0	15.0	H	155	135
12205.000	44.09	-28.8	39.0	33.95	54.0	9.9	H	155	151

π/4 DQPSK Ch 78 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.500	51.92	2.9	32.0	11.61	54.0	2.1	H	155	92
2483.600	52.04	2.9	32.0	11.37	54.0	2.0	H	155	68
4959.000	34.08	-34.9	34.1	34.88	54.0	19.9	H	155	118
7440.000	37.44	-32.2	35.8	33.81	54.0	16.6	H	155	354
9920.000	41.19	-29.7	37.1	33.74	54.0	12.8	H	155	18
12400.000	43.33	-30.0	39.1	34.30	54.0	10.7	H	155	38

8DPSK Ch 0 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2386.500	46.24	2.9	32.0	11.42	54.0	7.8	H	155	170
2388.400	46.19	2.9	32.0	11.36	54.0	7.8	H	155	150
4804.000	35.42	-35.0	34.1	36.35	54.0	18.6	H	155	20
7206.000	37.21	-32.4	35.8	33.80	54.0	16.8	H	155	180
9608.000	40.90	-29.7	36.7	33.83	54.0	13.1	H	155	202
12010.000	42.18	-30.5	38.9	33.77	54.0	11.8	H	155	8

8DPSK Ch 39 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2431.800	46.40	2.9	32.0	11.53	54.0	7.6	H	155	268
2450.500	46.42	2.9	32.0	11.53	54.0	7.6	H	155	290
4881.000	34.15	-35.5	34.1	35.59	54.0	19.9	H	155	312
7323.000	38.41	-31.3	35.8	33.92	54.0	15.6	H	155	46
9764.000	39.00	-31.4	36.9	33.49	54.0	15.0	H	155	70
12205.000	44.03	-28.8	39.0	33.89	54.0	10.0	H	155	92

8DPSK Ch 78 - Average

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.500	52.30	2.9	32.0	12.20	54.0	1.7	H	155	86
2483.900	50.81	2.9	32.0	11.55	54.0	3.2	H	155	107
4960.000	34.11	-34.9	34.1	34.90	54.0	19.9	H	155	130
7440.000	37.30	-32.2	35.8	33.68	54.0	16.7	H	155	152
9920.000	41.06	-29.7	37.1	33.62	54.0	12.9	H	155	174
12400.000	43.29	-30.0	39.1	34.27	54.0	10.7	H	155	195

GFSK Ch 0 – Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2386.160	59.99	2.9	32.0	25.17	74.0	14.0	H	155	88
2389.350	59.38	2.9	32.0	24.55	74.0	14.6	H	155	110
4803.500	44.55	-35.0	34.1	45.48	74.0	29.4	V	155	132
7206.000	42.76	-32.4	35.8	39.36	74.0	31.2	V	155	154
9608.000	44.36	-29.7	36.7	37.29	74.0	29.6	H	155	176
12010.000	45.74	-30.5	38.9	37.33	74.0	28.3	V	155	198

GFSK Ch 39 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2364.600	47.77	-27.3	32.0	43.14	74.0	26.2	H	155	92
2536.200	48.42	-26.8	32.0	43.19	74.0	25.6	H	155	267
4882.000	39.46	-35.5	34.1	40.90	74.0	34.5	H	155	296
7323.000	43.58	-31.3	35.8	39.09	74.0	30.4	H	155	314
9764.000	43.15	-31.4	36.9	37.63	74.0	30.9	H	155	90
12205.000	48.58	-28.8	39.0	38.44	74.0	25.4	H	155	112

GFSK Ch 78 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.510	61.10	2.9	32.0	26.18	74.0	12.9	H	155	0
2483.610	60.82	2.9	32.0	25.90	74.0	13.2	H	155	22
4960.000	42.08	-34.9	34.1	42.86	74.0	31.9	V	155	66
7440.000	42.49	-32.2	35.8	38.86	74.0	31.5	V	155	88
9920.000	46.39	-29.7	37.1	38.95	74.0	27.6	V	155	44
12400.000	46.55	-30.0	39.1	37.52	74.0	27.5	H	155	22

π/4 DQPSK Ch 0 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2387.126	60.15	2.9	32.0	25.32	74.0	13.9	H	155	44
2388.792	59.86	2.9	32.0	25.04	74.0	14.1	H	155	66
4804.000	43.22	-35.0	34.1	44.16	74.0	30.8	H	155	88
7206.000	44.02	-32.4	35.8	40.61	74.0	30.0	H	155	264
9608.000	45.57	-29.7	36.7	38.50	74.0	28.4	H	155	286
12010.000	45.06	-30.5	38.9	36.65	74.0	28.9	H	155	308

π/4 DQPSK Ch 39 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2366.800	47.54	-27.2	32.0	42.77	74.0	26.5	H	155	0
2513.000	48.63	-26.6	32.0	43.17	74.0	25.4	H	155	22
4882.000	39.81	-35.5	34.1	41.26	74.0	34.2	V	155	66
7323.000	43.81	-31.3	35.8	39.32	74.0	30.2	V	155	88
9764.000	42.94	-31.4	36.9	37.43	74.0	31.1	V	155	44
12205.000	46.95	-28.8	39.0	36.82	74.0	27.0	H	155	22

π/4 DQPSK Ch 78 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.540	60.98	2.9	32.0	26.06	74.0	13.0	H	155	88
2483.920	60.55	2.9	32.0	25.62	74.0	13.5	H	155	66
4960.000	42.50	-34.9	34.1	43.29	74.0	31.5	H	155	110
7440.000	42.79	-32.2	35.8	39.16	74.0	31.2	V	155	0
9920.000	46.25	-29.7	37.1	38.80	74.0	27.8	H	155	22
12400.000	46.83	-30.0	39.1	37.80	74.0	27.2	H	155	44

8DPSK Ch 0 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2387.448	60.58	2.9	32.0	25.76	74.0	13.4	H	155	176
2388.092	60.46	2.9	32.0	25.63	74.0	13.5	H	155	154
4803.500	43.40	-35.0	34.1	44.33	74.0	30.6	V	155	22
7206.000	42.28	-32.4	35.8	38.87	74.0	31.7	V	155	176
9608.000	46.50	-29.7	36.7	39.43	74.0	27.5	H	155	198
12010.000	45.72	-30.5	38.9	37.31	74.0	28.3	H	155	0

8DPSK Ch 39 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2373.600	48.16	-26.7	32.0	42.96	74.0	25.8	H	155	264
2518.400	47.87	-26.7	32.0	42.53	74.0	26.1	H	155	286
4882.000	41.70	-35.5	34.1	43.14	74.0	32.3	V	155	308
7323.000	44.24	-31.3	35.8	39.75	74.0	29.8	H	155	44
9764.000	42.79	-31.4	36.9	37.27	74.0	31.2	H	155	66
12205.000	47.27	-28.8	39.0	37.13	74.0	26.7	V	155	88

8DPSK Ch 78 - Peak

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.530	61.38	2.9	32.0	26.45	74.0	12.6	V	155	88
2483.600	60.71	2.9	32.0	25.78	74.0	13.3	H	155	110
4960.000	40.77	-34.9	34.1	41.56	74.0	33.2	V	155	132
7440.000	42.67	-32.2	35.8	39.04	74.0	31.3	H	155	154
9920.000	46.52	-29.7	37.1	39.07	74.0	27.5	V	155	176
12400.000	45.98	-30.0	39.1	36.95	74.0	28.0	V	155	198

Conclusion: PASS

Test graphs as below:

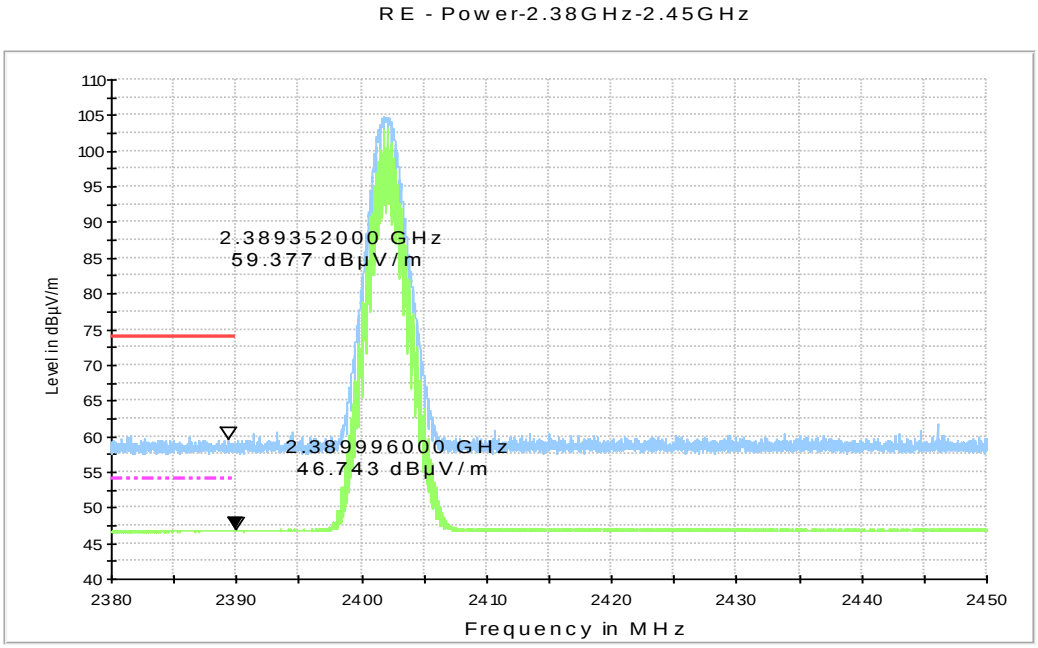


Fig.58. Radiated emission (Power): GFSK, low channel

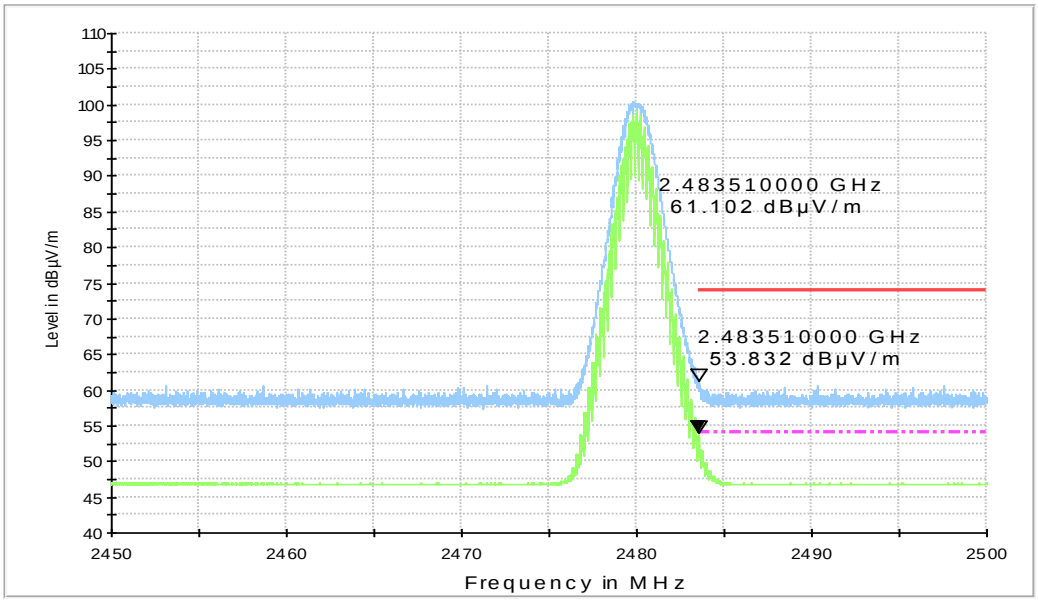


Fig.59. Radiated emission (Power) GFSK, high channel

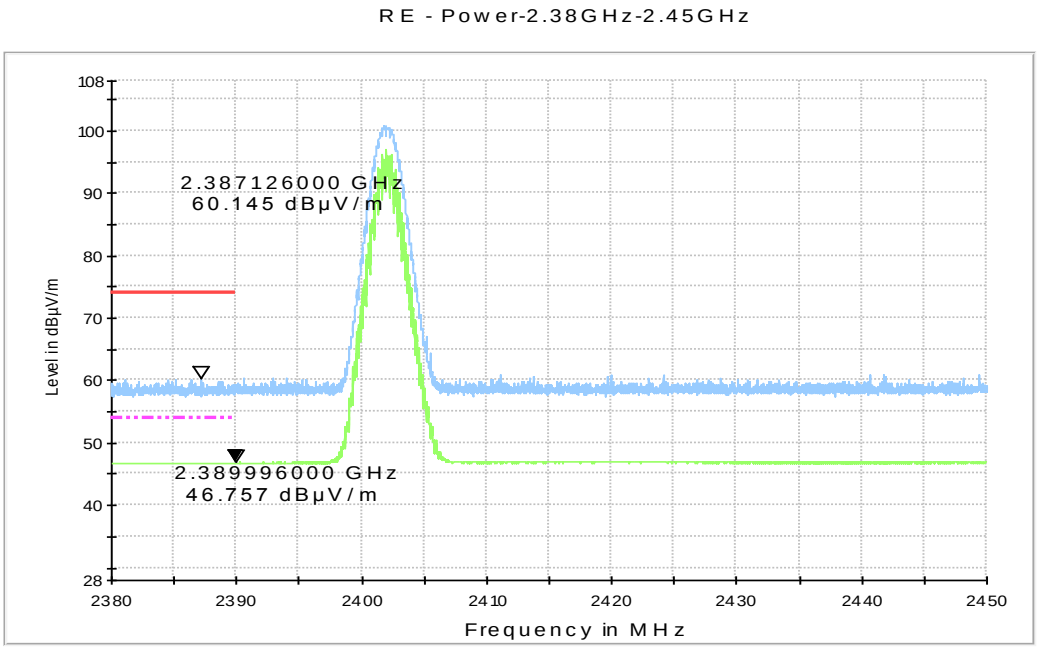


Fig.60. Radiated emission (Power): π/4 DQPSK, low channel

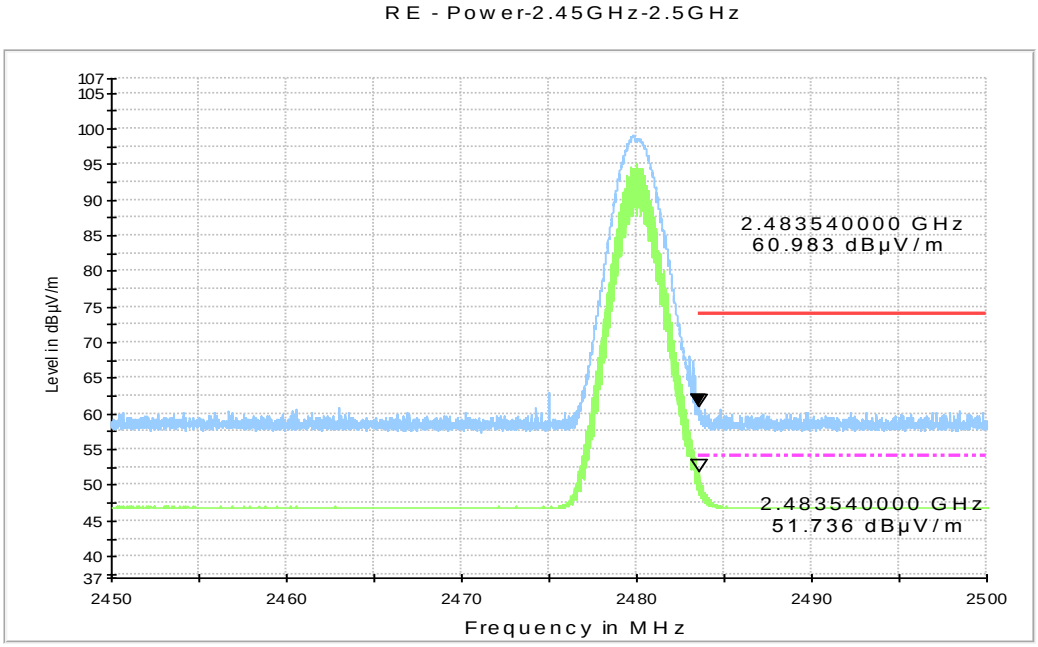


Fig.61. Radiated emission (Power): π/4 DQPSK, high channel

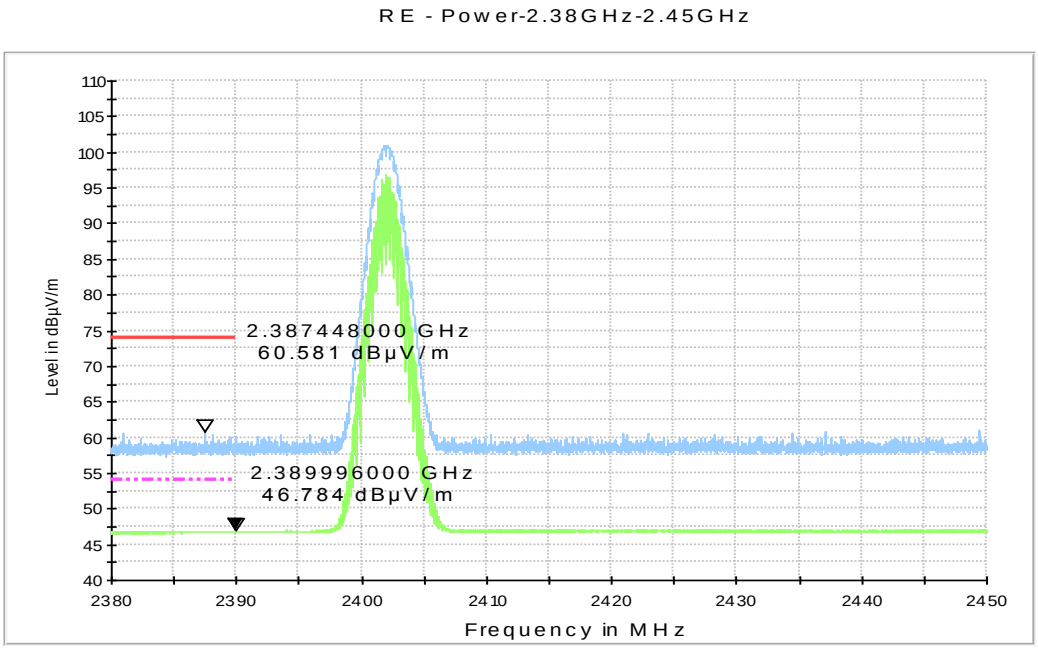


Fig.62. Radiated emission (Power): 8DPSK, low channel

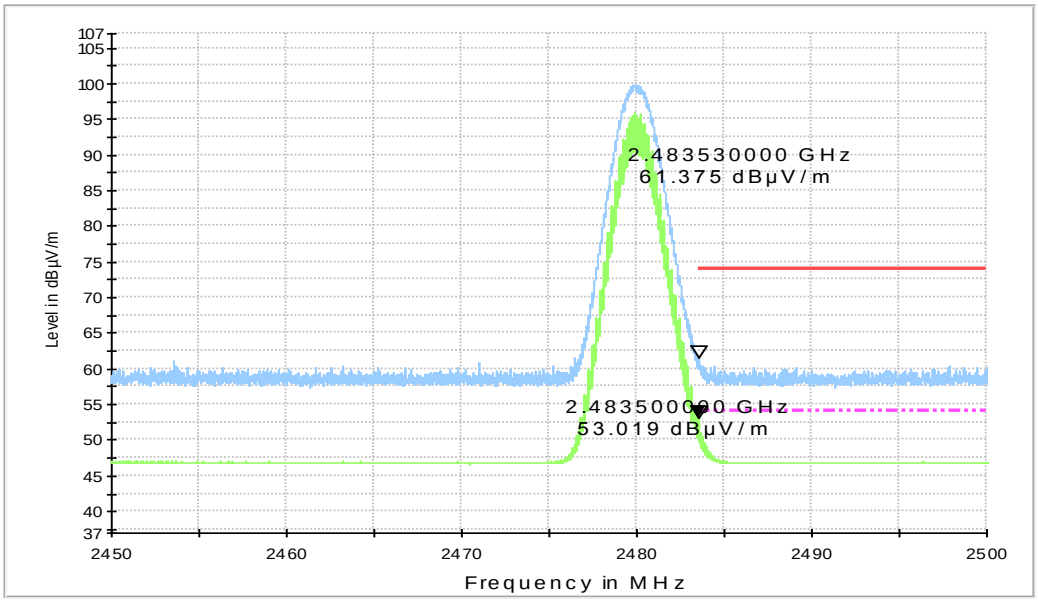


Fig.63. Radiated emission (Power): 8DPSK, high channel

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	118.20	P
		Fig.65		
	DH3	Fig.66	174.43	P
		Fig.67		
	DH5	Fig.68	178.45	P
		Fig.69		

For π/4 DQPSK

Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.70	121.64	P
		Fig.71		
	DH3	Fig.72	178.05	P
		Fig.73		
	DH5	Fig.74	172.88	P
		Fig.75		

For 8DPSK

Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.76	121.57	P
		Fig.77		
	DH3	Fig.78	177.93	P

		Fig.79		
	DH5	Fig.80	170.13	P
		Fig.81		

Conclusion: PASS

Test graphs as below:

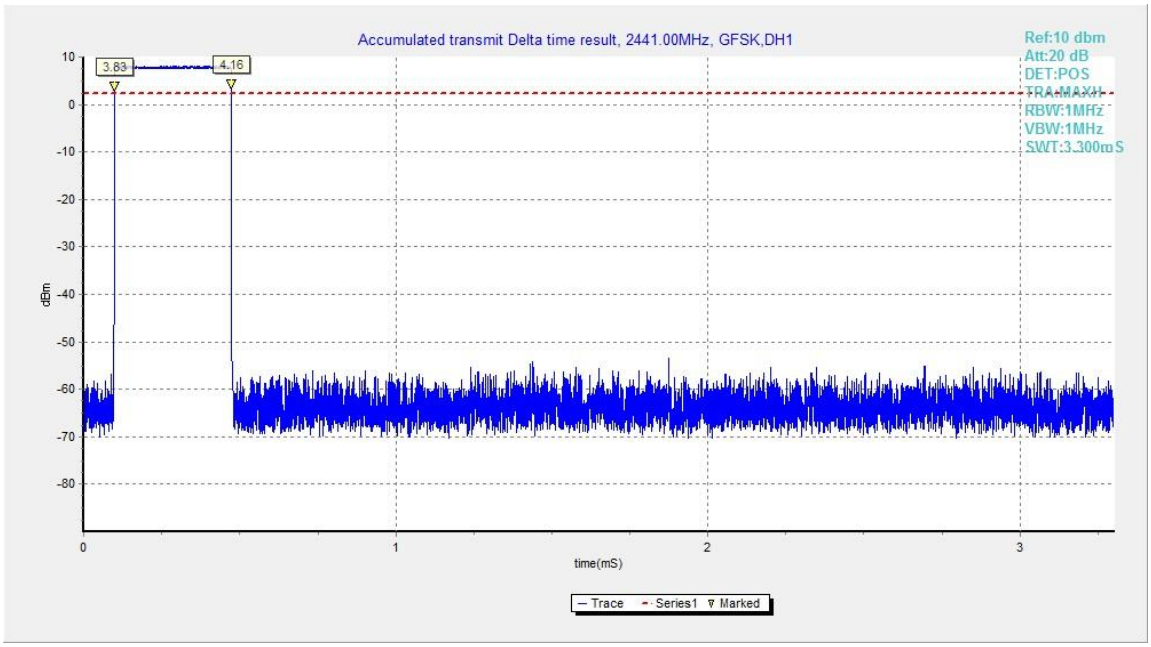


Fig.64. Time of occupancy (Dwell Time): Channel 39, Packet DH1

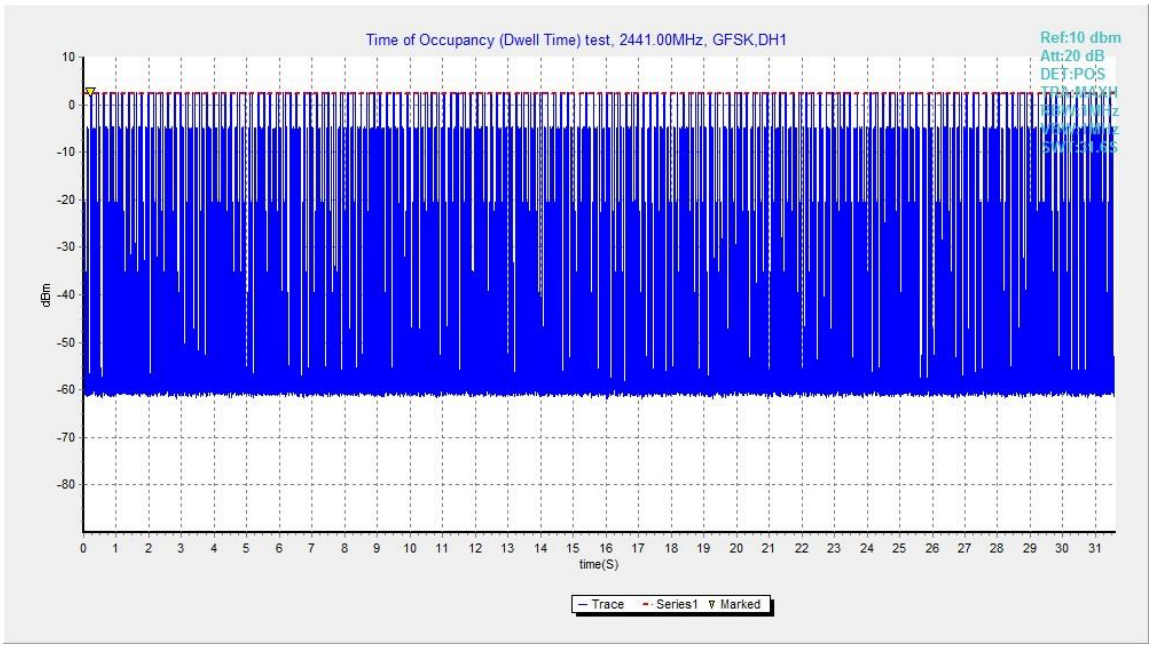


Fig.65. Number of Transmissions Measurement: Channel 39,Packet DH1

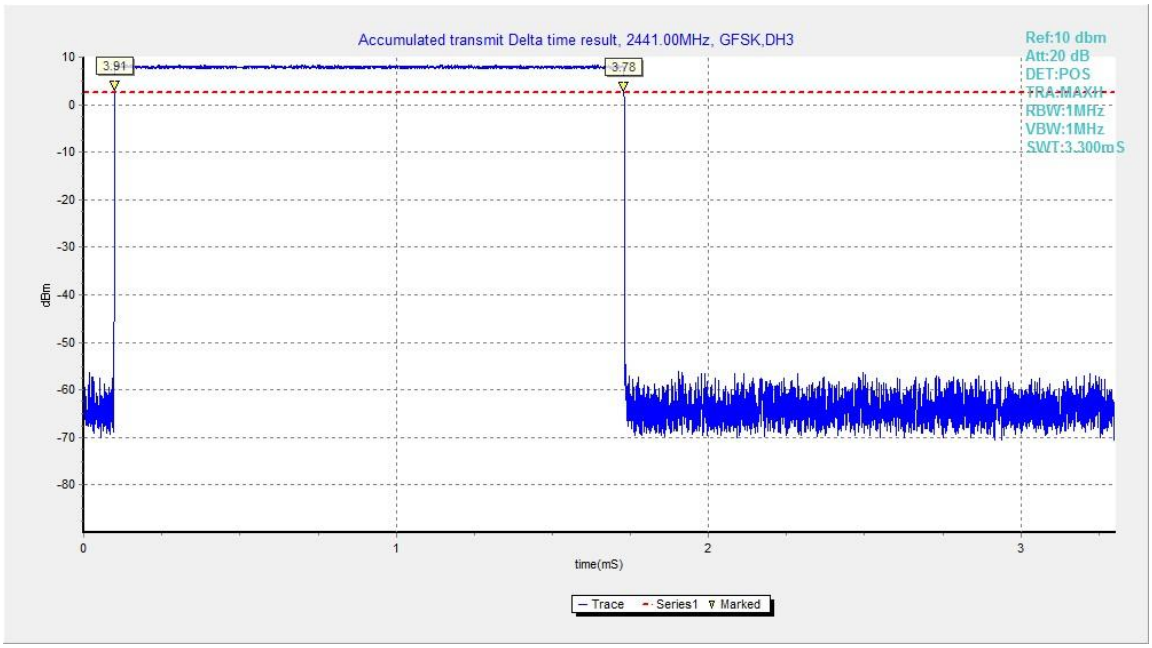


Fig.66. Time of occupancy (Dwell Time): Channel 39, Packet DH3

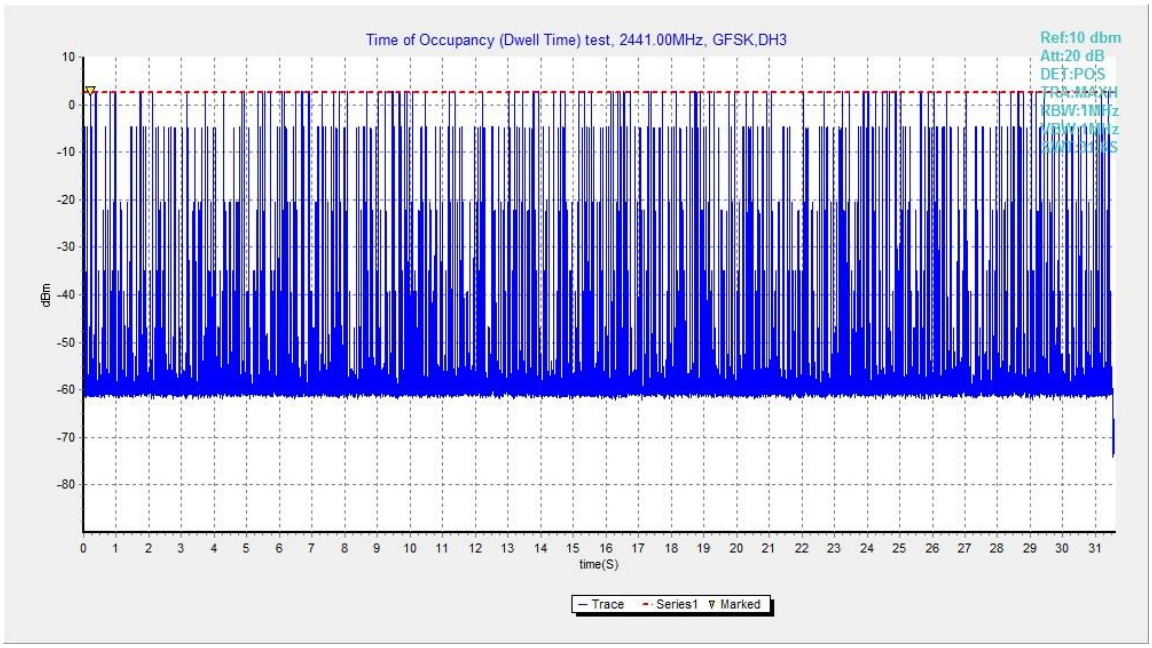


Fig.67. Number of Transmissions Measurement: Channel 39,Packet DH3

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

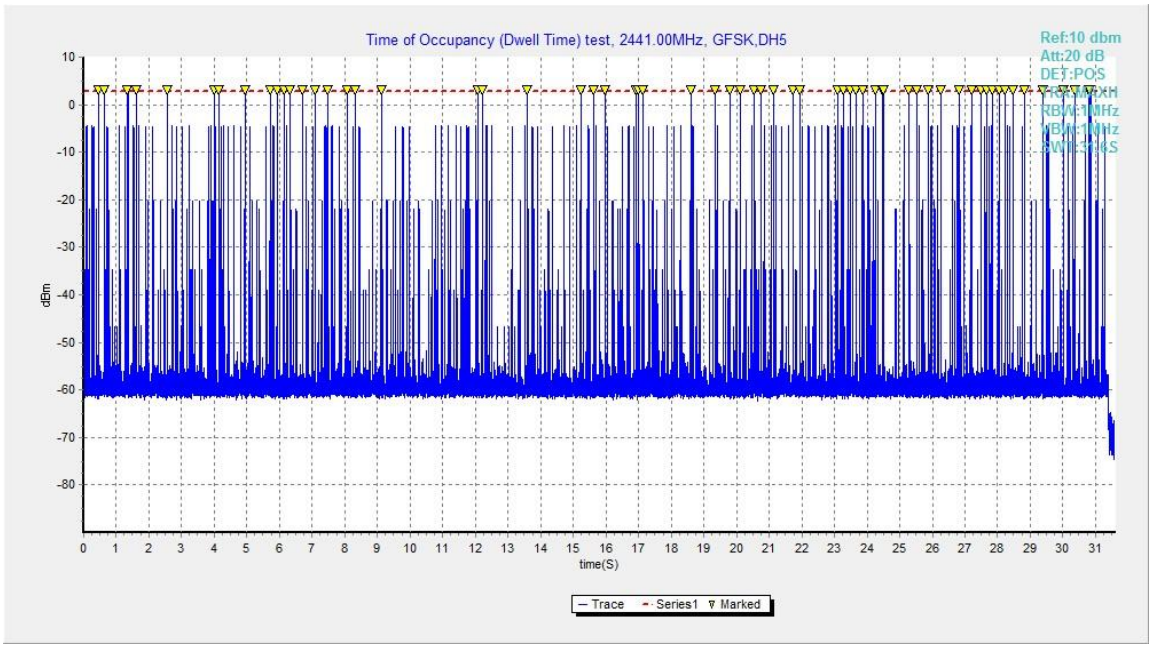


Fig.69. Number of Transmissions Measurement: Channel 39,Packet DH5

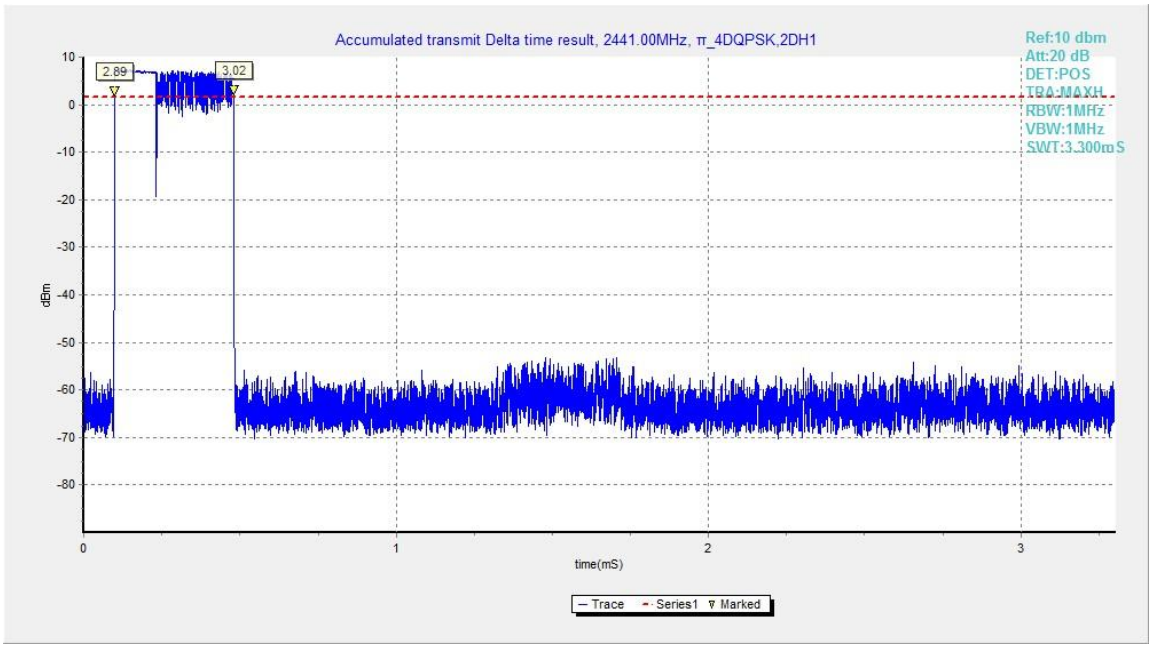


Fig.70. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH1

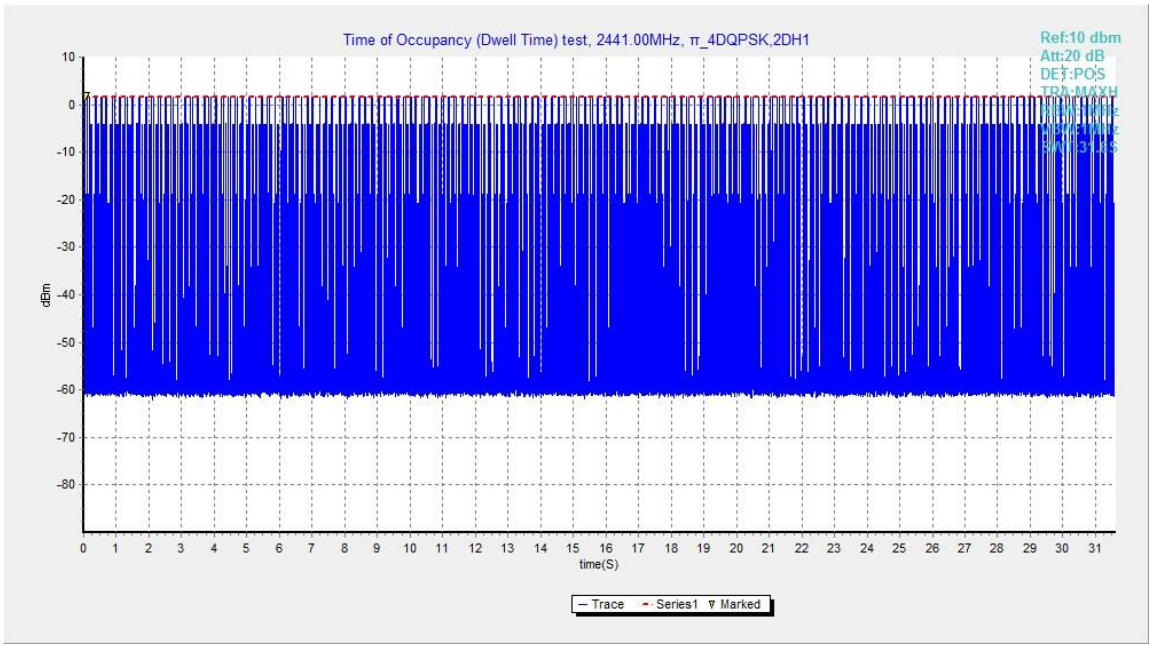


Fig.71. Number of Transmissions Measurement: Channel 39,Packet 2-DH1

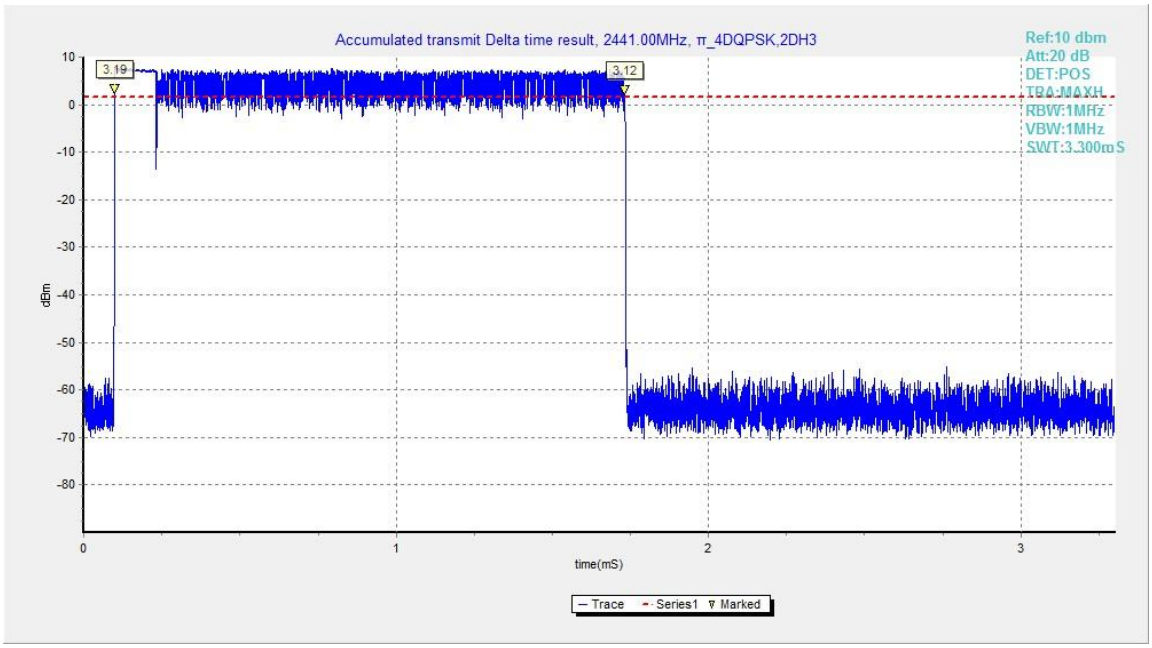


Fig.72. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH3

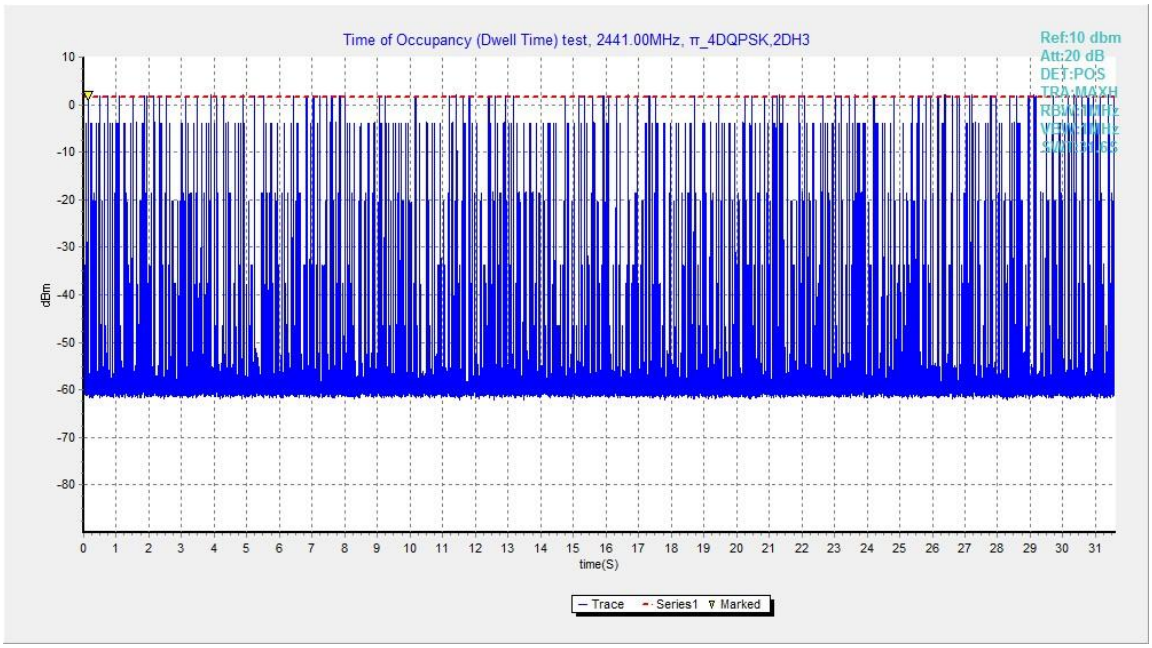


Fig.73. Number of Transmissions Measurement: Channel 39,Packet 2-DH3

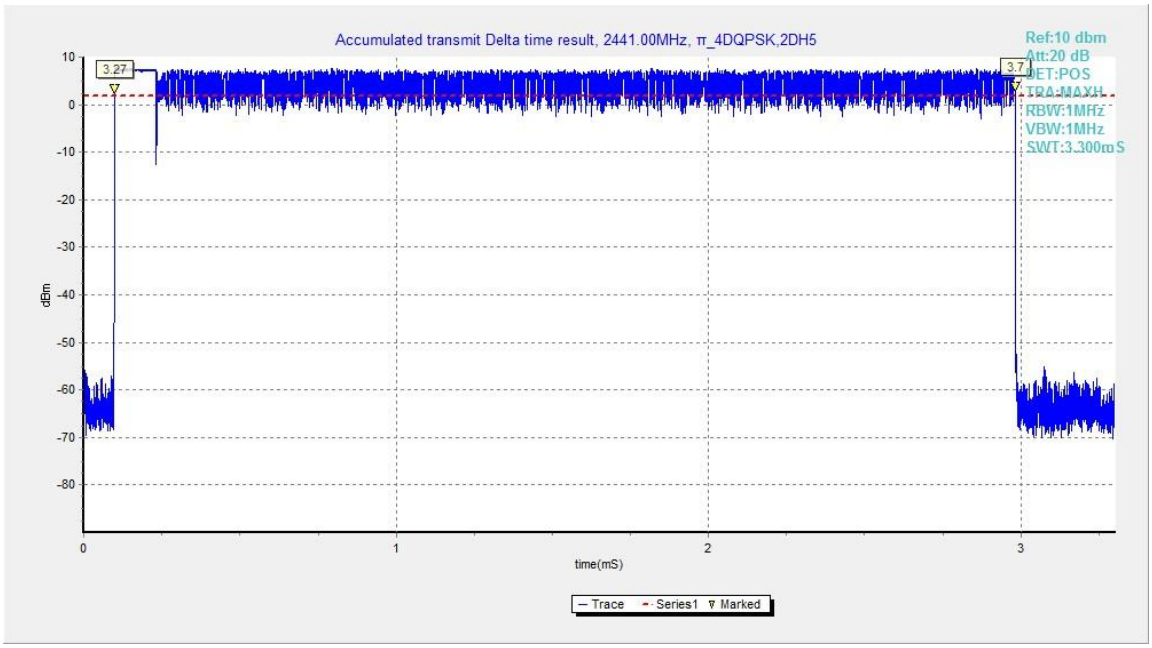


Fig.74. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH5

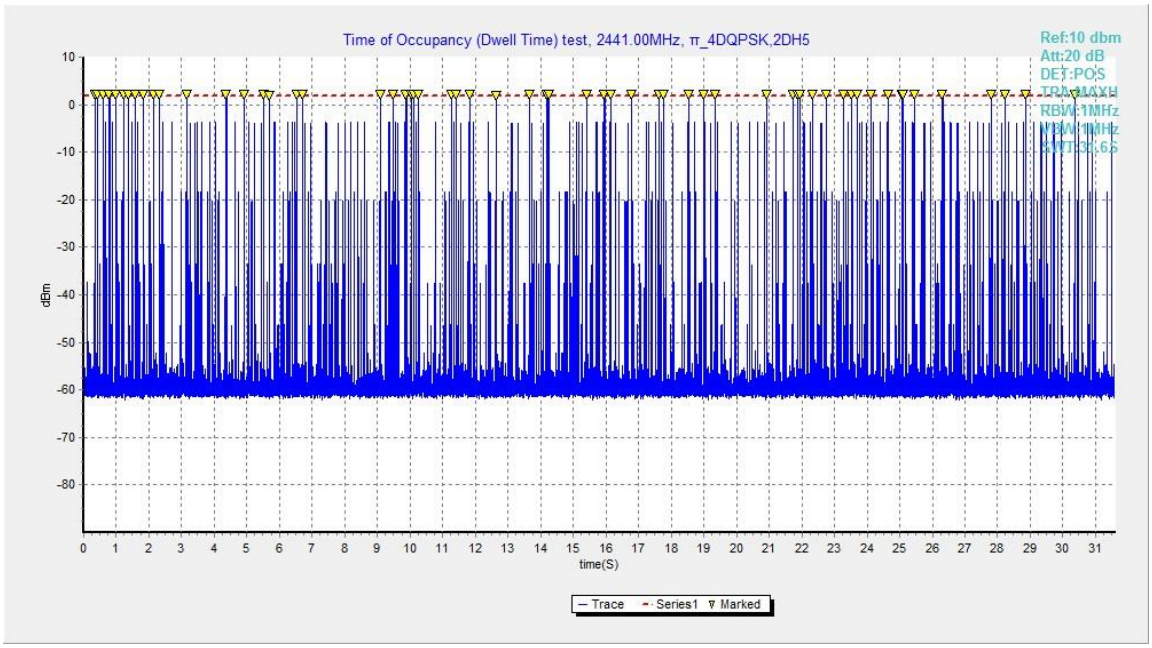


Fig.75. Number of Transmissions Measurement: Channel 39,Packet 2-DH5

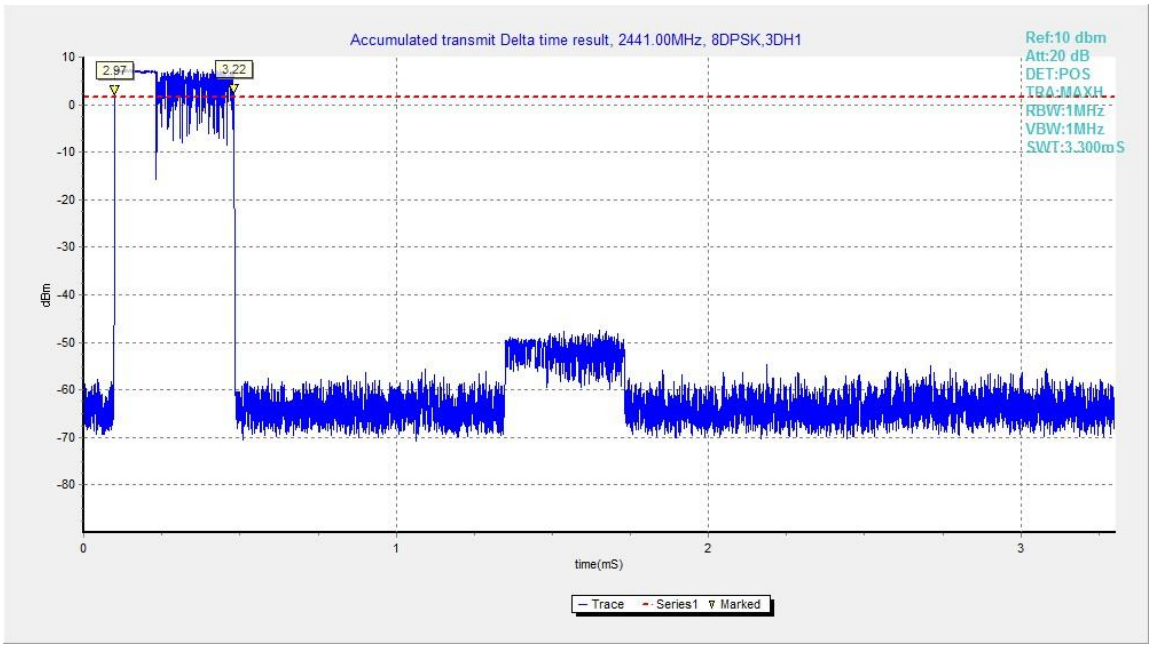


Fig.76. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH1

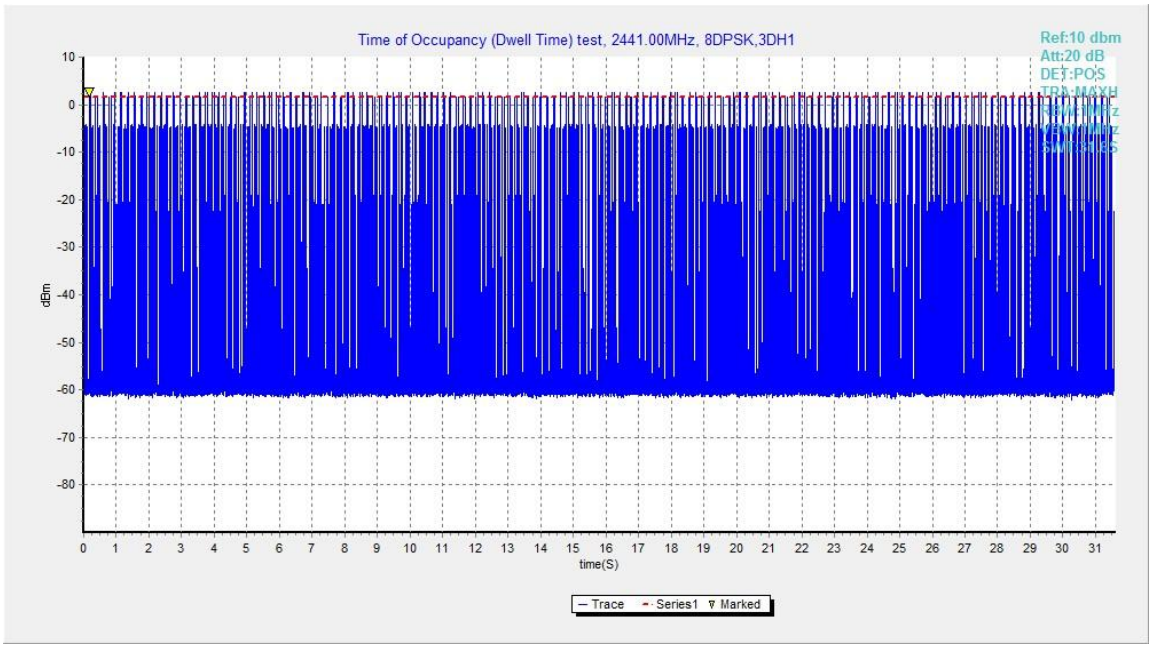


Fig.77. Number of Transmissions Measurement: Channel 39,Packet 3-DH1

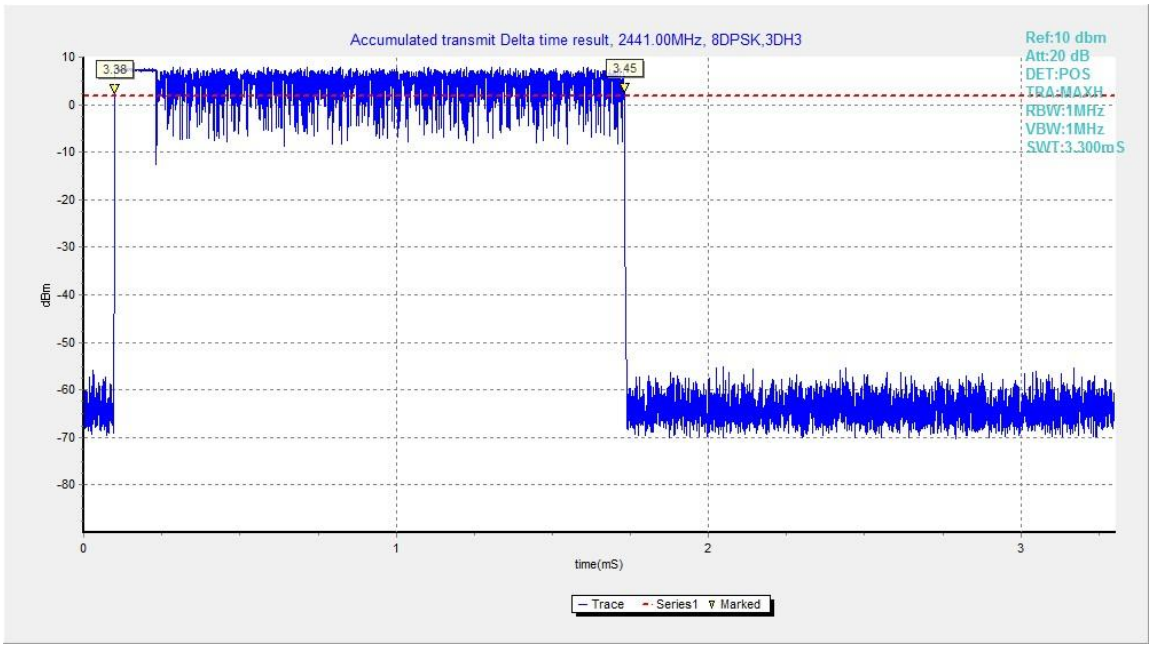


Fig.78. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH3

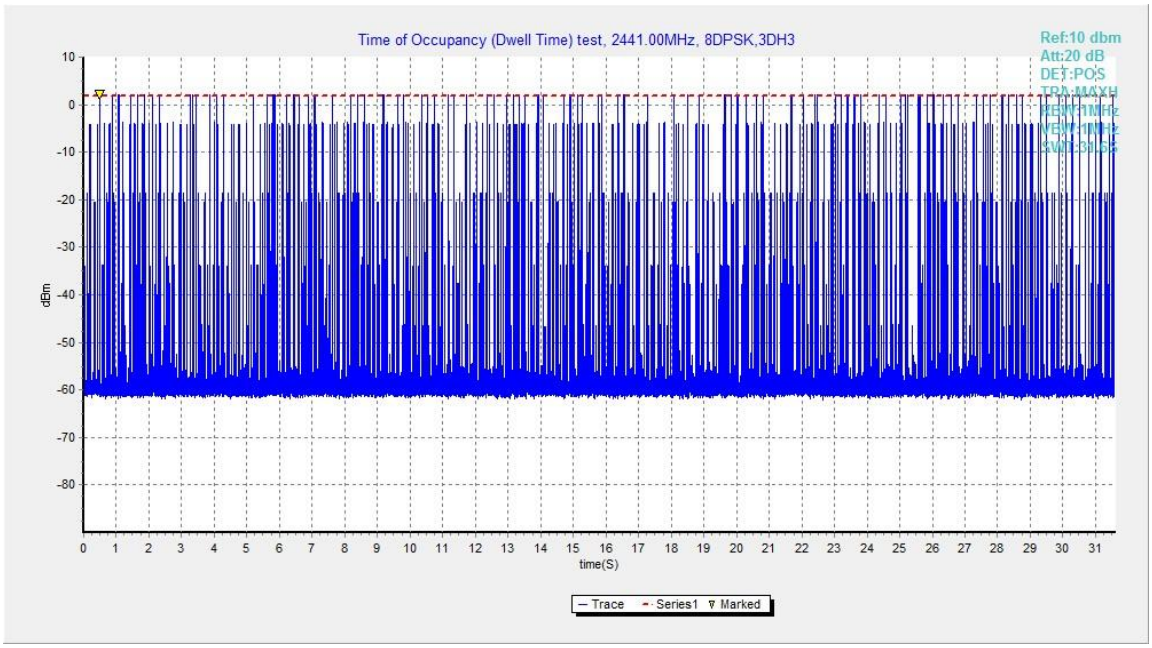


Fig.79. Number of Transmissions Measurement: Channel 39,Packet 3-DH3

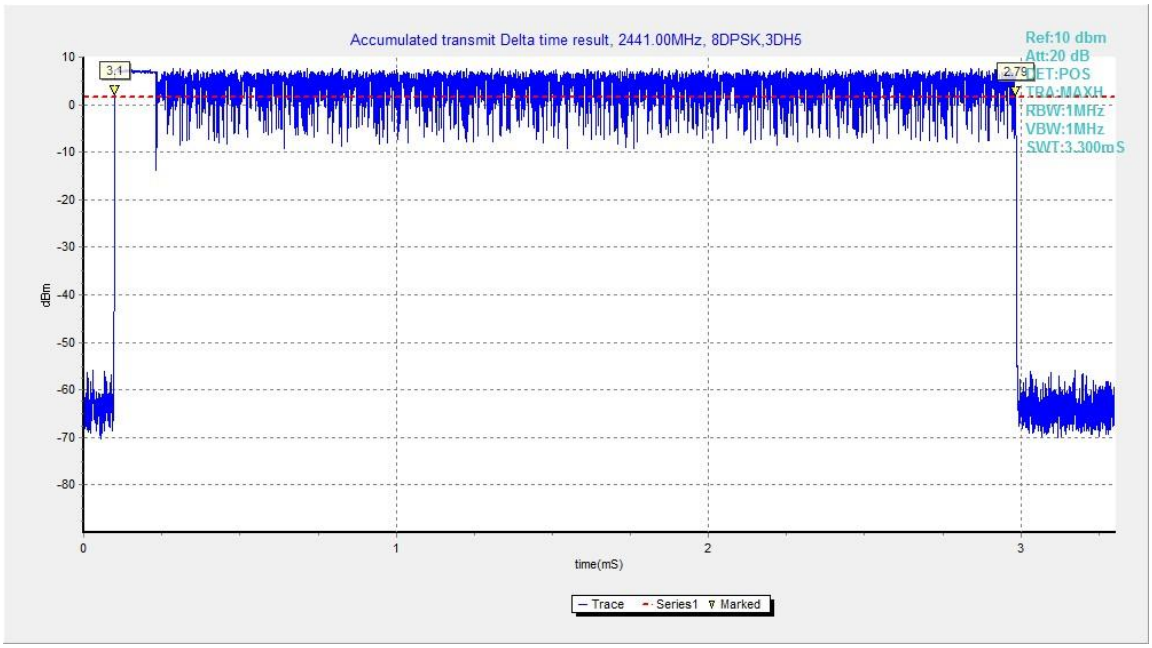


Fig.80. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH5

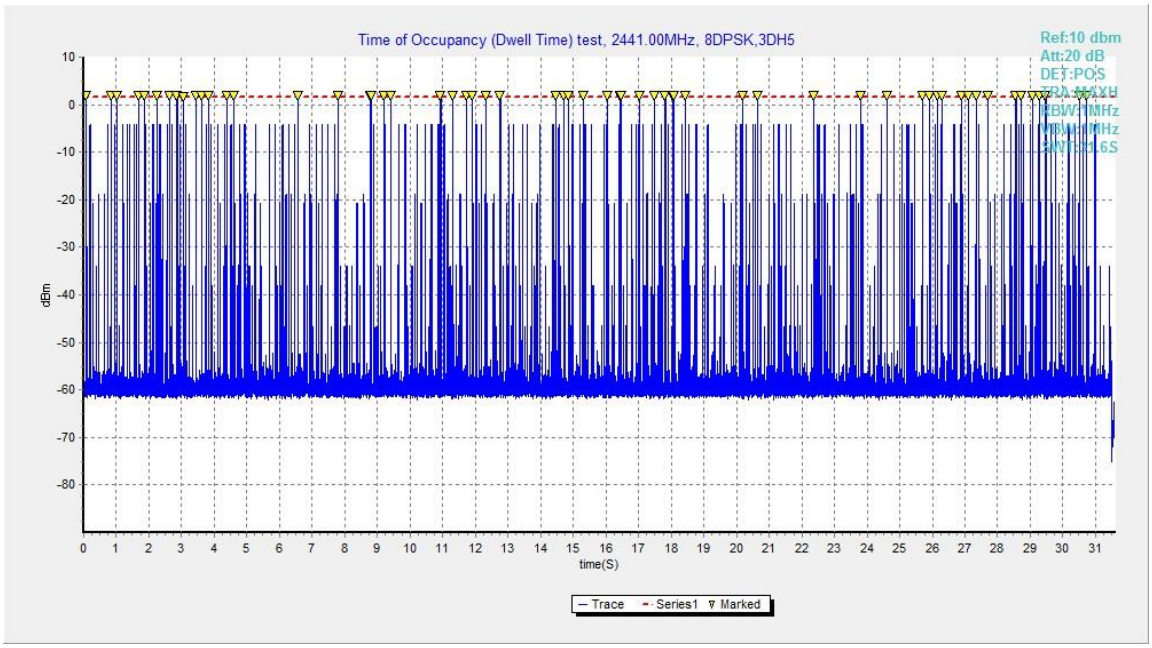


Fig.81. Number of Transmissions Measurement: Channel 39,Packet 3-DH5

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	943.50	NA
39	Fig.83	946.50	NA
78	Fig.84	952.50	NA

For π/4 DQPSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.85	1296.75	NA
39	Fig.86	1282.50	NA
78	Fig.87	1264.50	NA

For 8DPSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.88	1295.25	NA
39	Fig.89	1267.50	NA
78	Fig.90	1270.50	NA

Conclusion: NA

Test graphs as below:

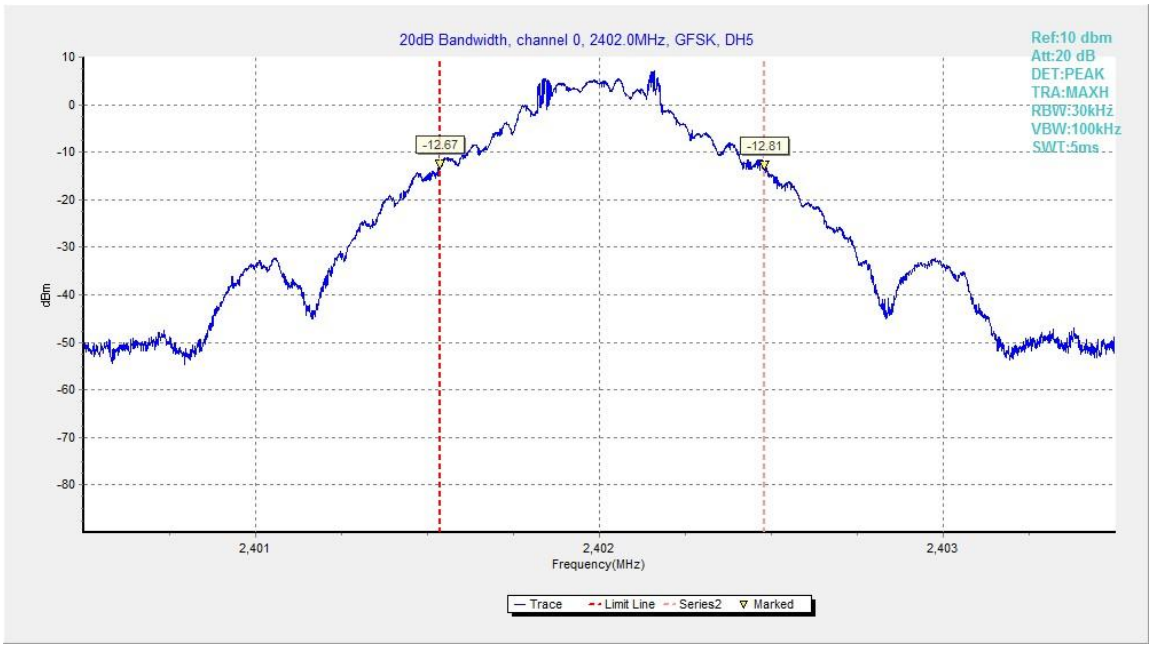


Fig.82. 20dB Bandwidth: GFSK, Channel 0

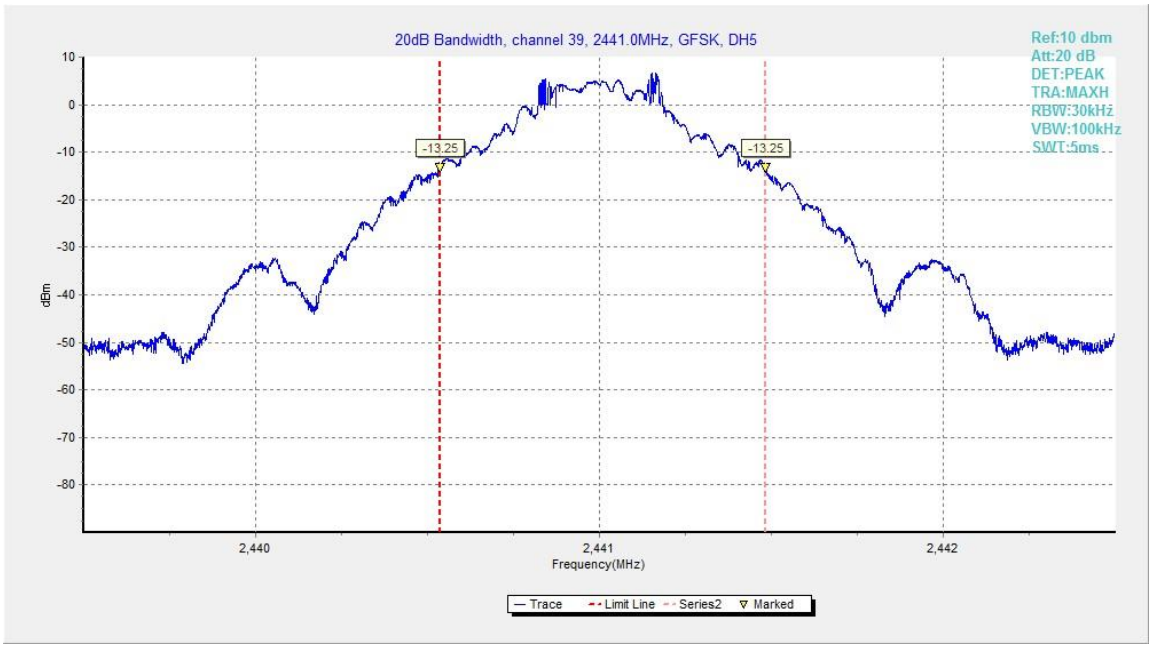


Fig.83. 20dB Bandwidth: GFSK, Channel 39

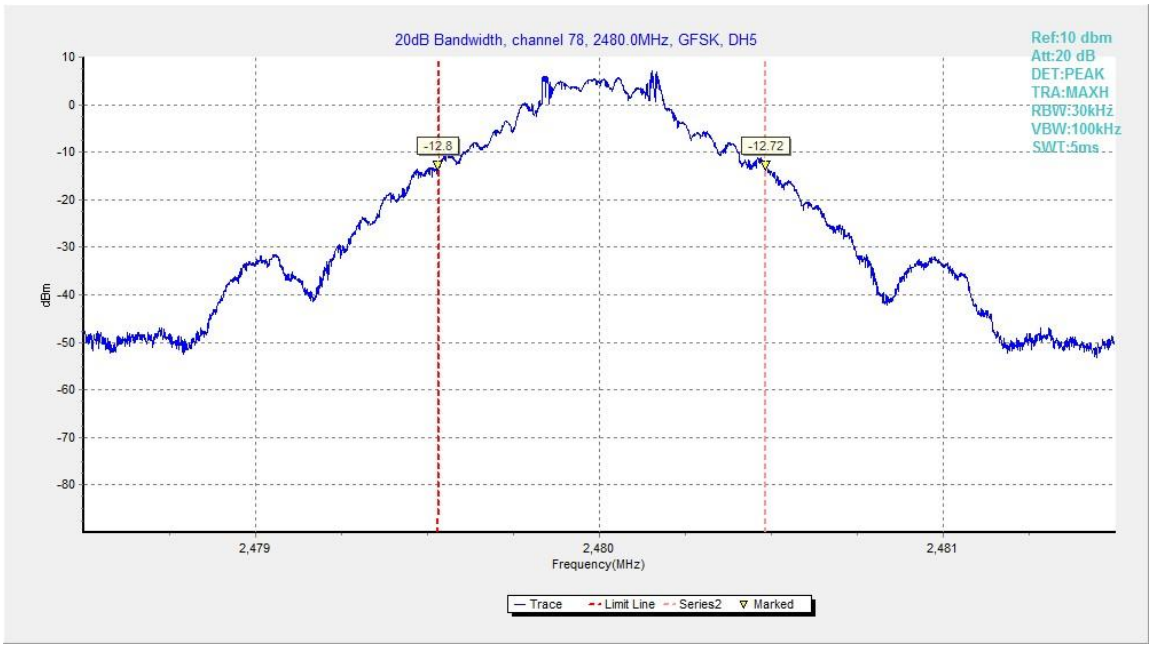


Fig.84. 20dB Bandwidth: GFSK, Channel 78

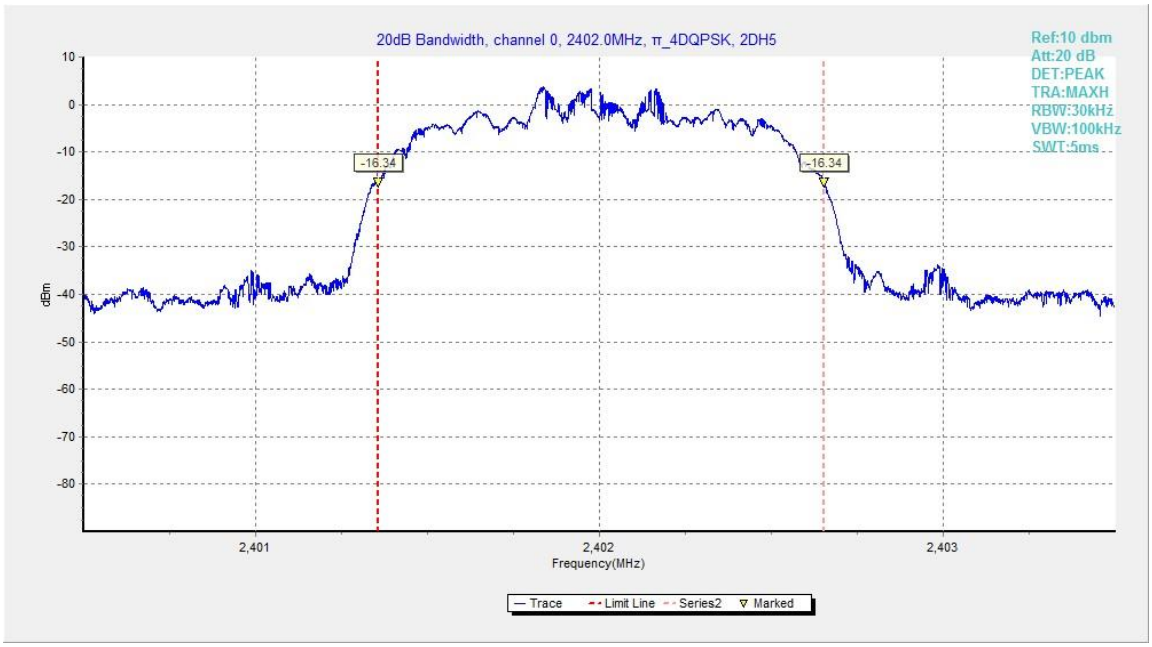


Fig.85. 20dB Bandwidth: π/4 DQPSK, Channel 0

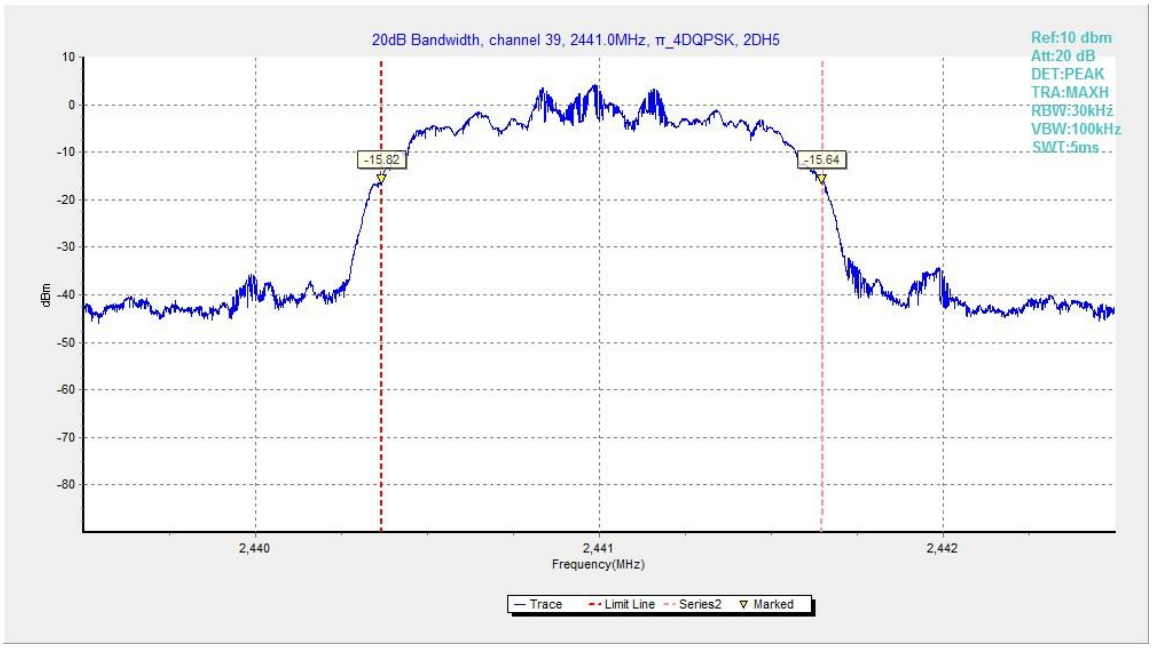


Fig.86. 20dB Bandwidth: π/4 DQPSK, Channel 39

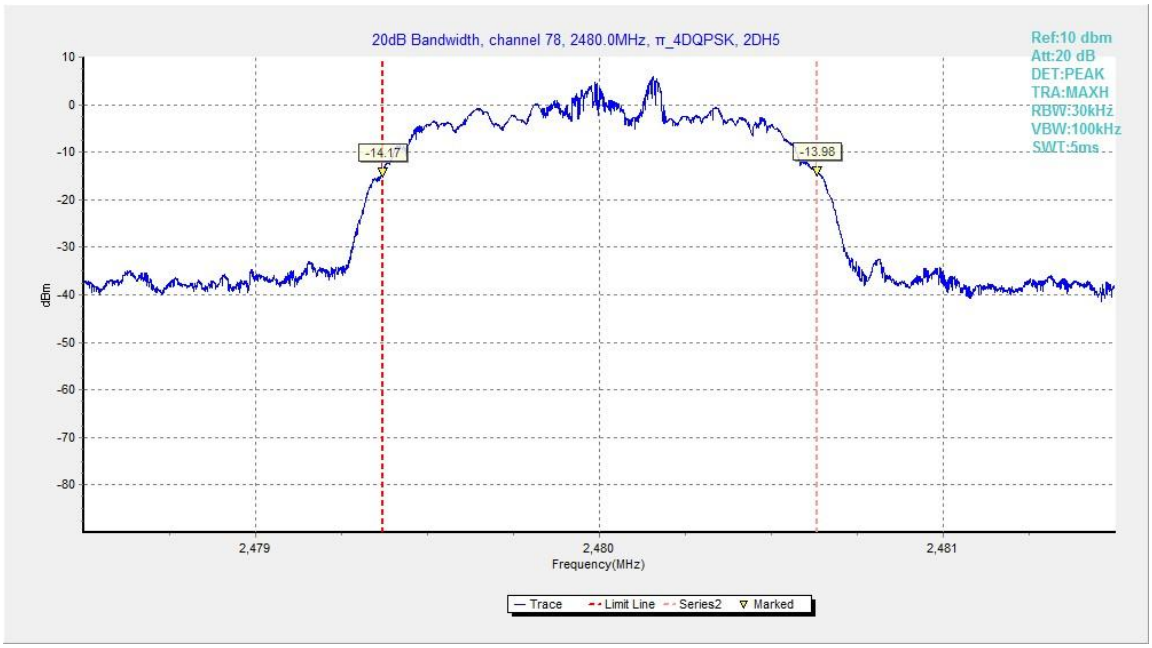


Fig.87. 20dB Bandwidth: π/4 DQPSK, Channel 78

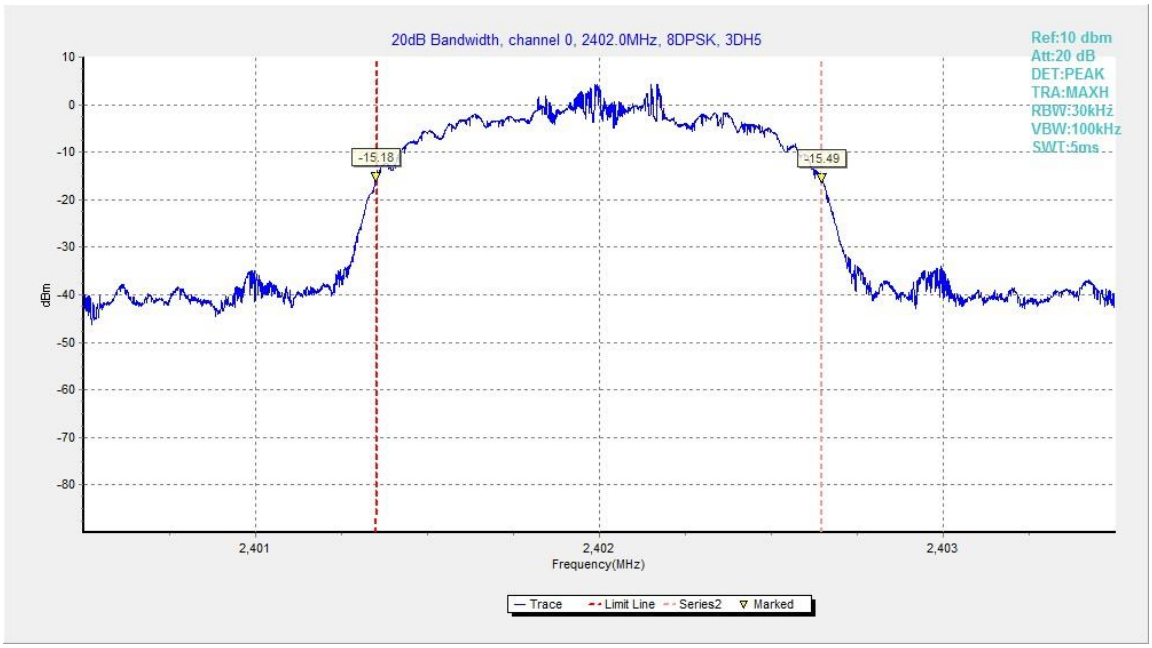


Fig.88. 20dB Bandwidth: 8DPSK, Channel 0

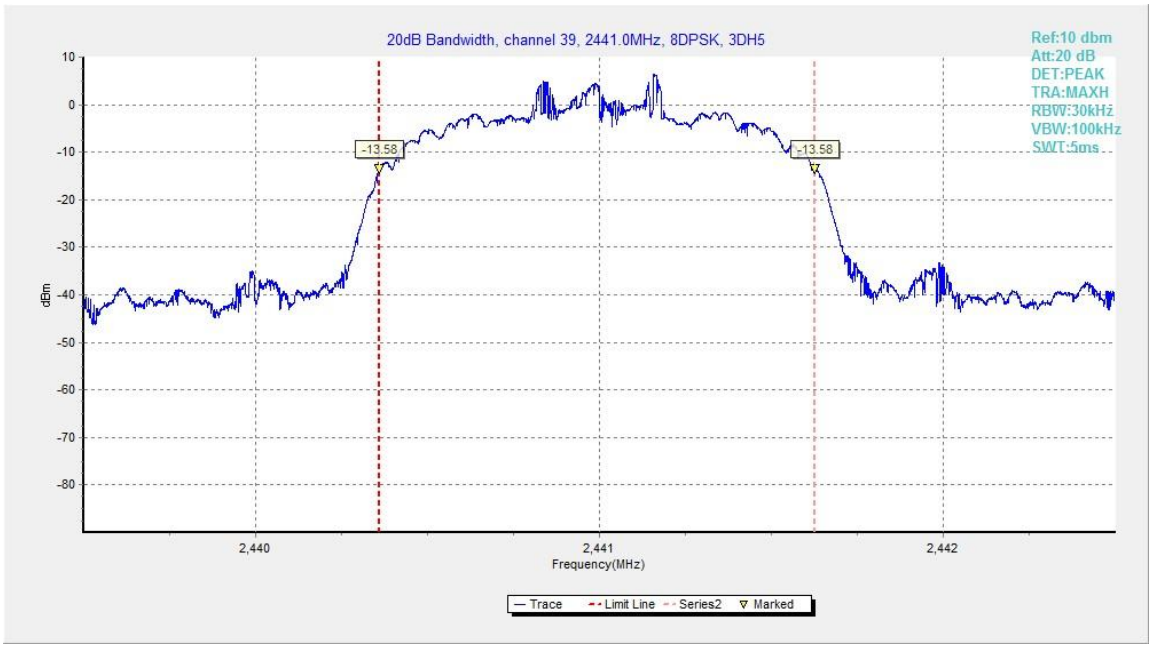


Fig.89. 20dB Bandwidth: 8DPSK, Channel 39

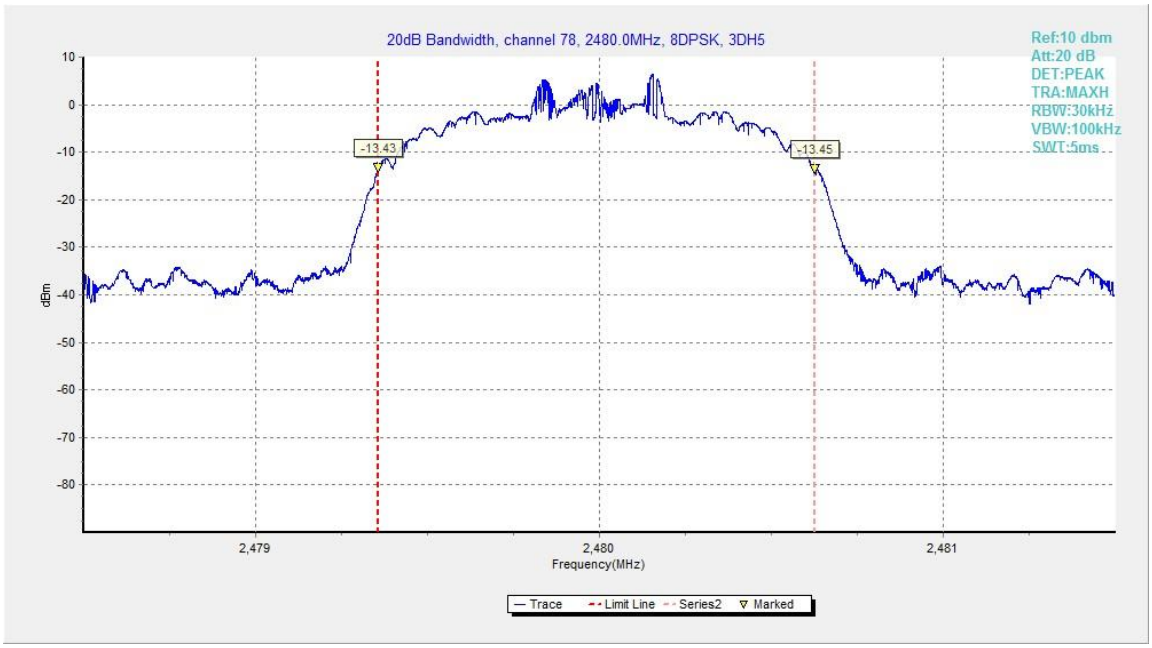


Fig.90. 20dB Bandwidth: 8DPSK, Channel 78

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	1343.25	P

For π/4 DQPSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.92	1003.50	P

For 8DPSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.93	1015.50	P

Conclusion: PASS

Test graphs as below:

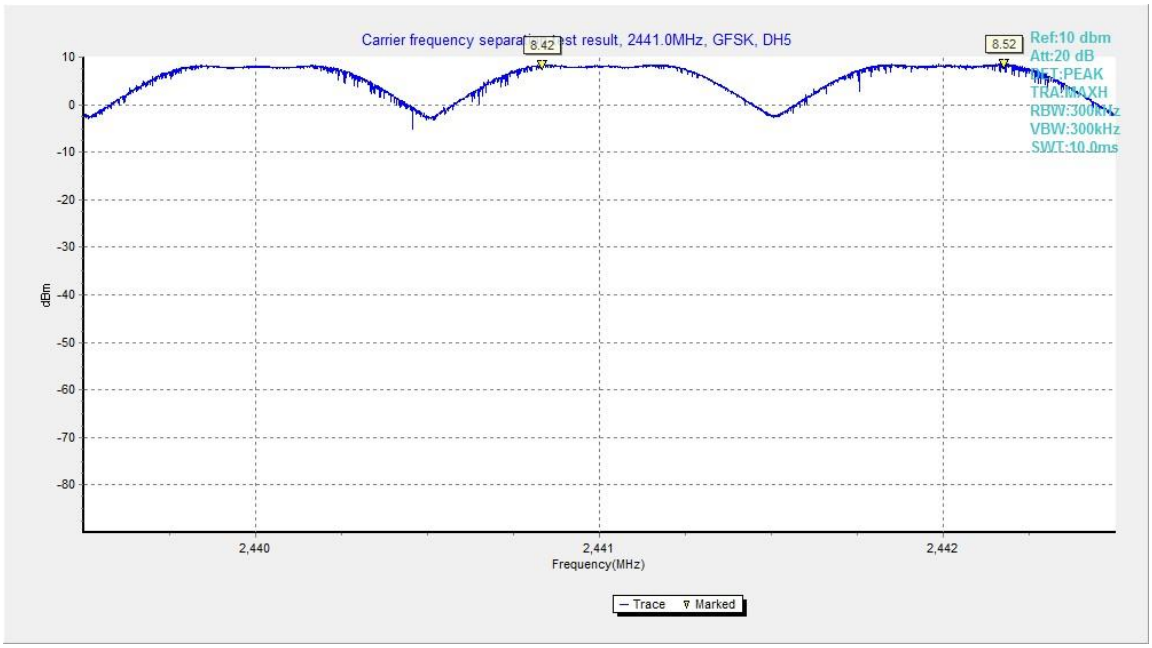


Fig.91. Carrier frequency separation measurement: GFSK, Channel 39

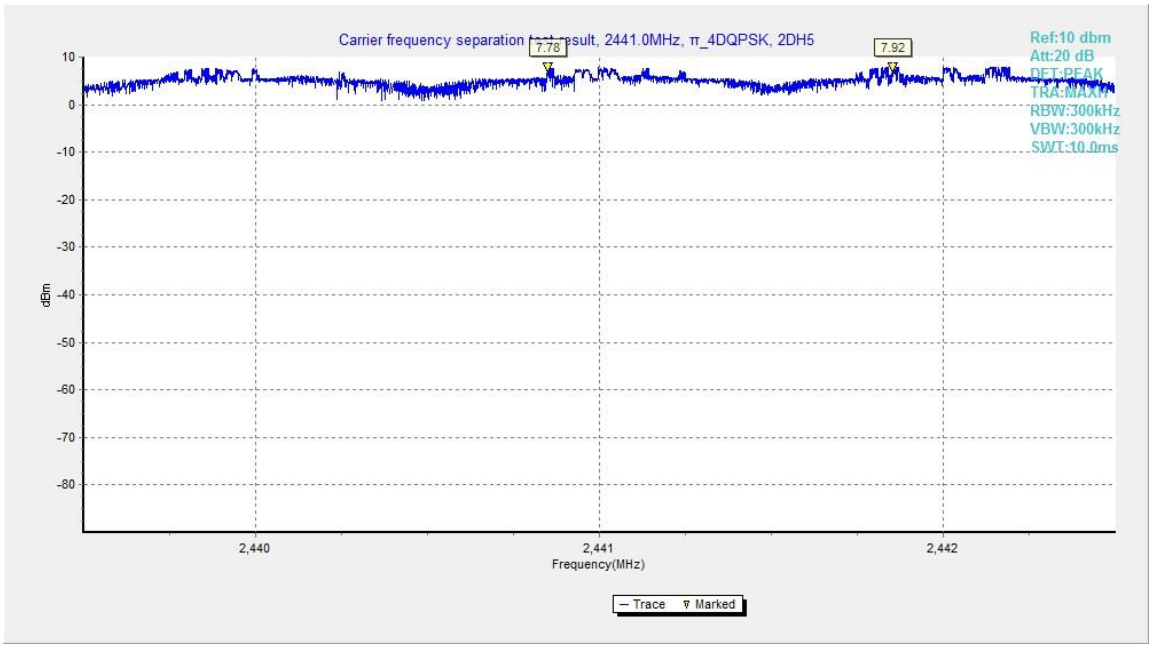


Fig.92. Carrier frequency separation measurement: π/4 DQPSK, Channel 39

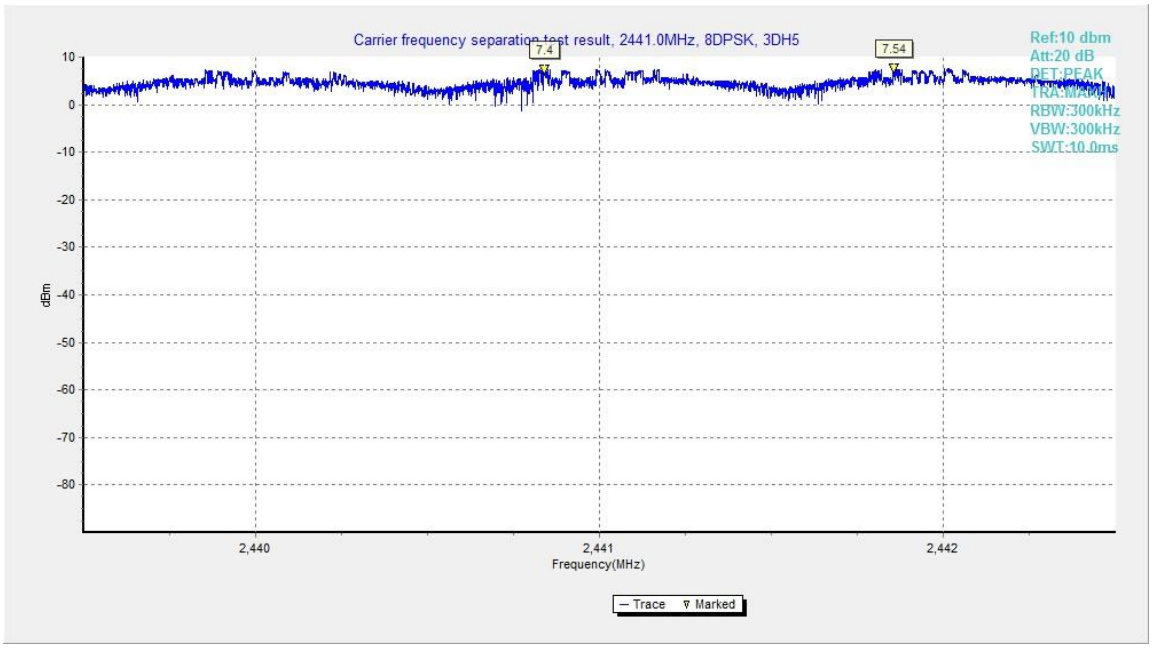


Fig.93. Carrier frequency separation measurement: 8DPSK, Channel 39

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:

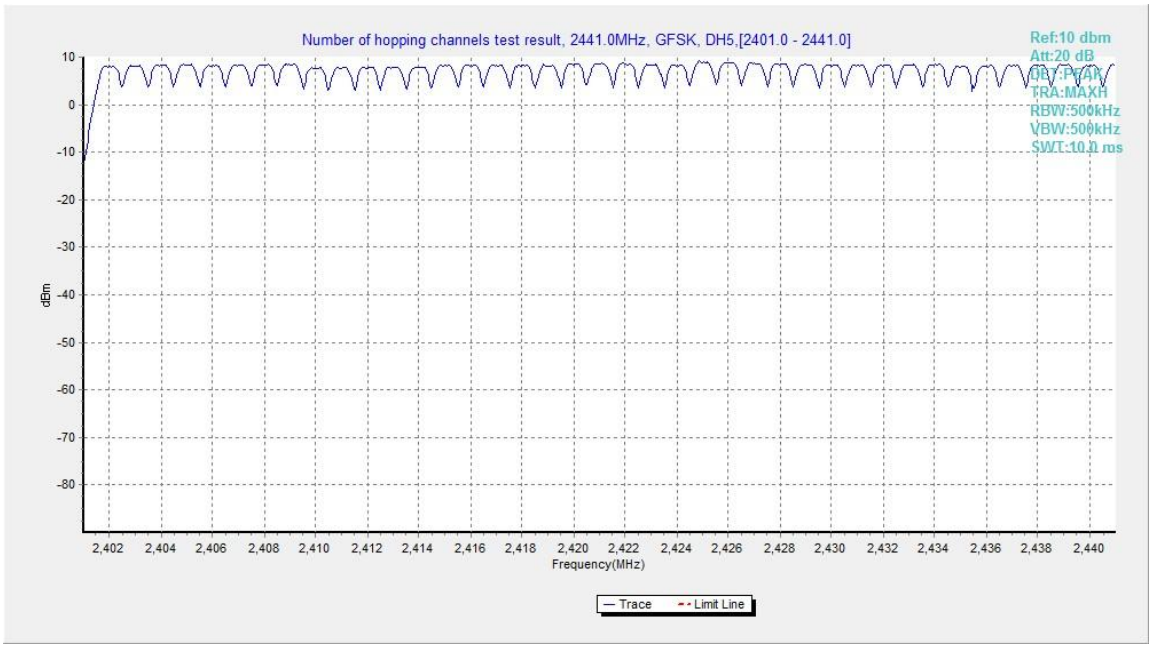


Fig.94. Number of hopping frequencies: GFSK, Channel 0 - 39

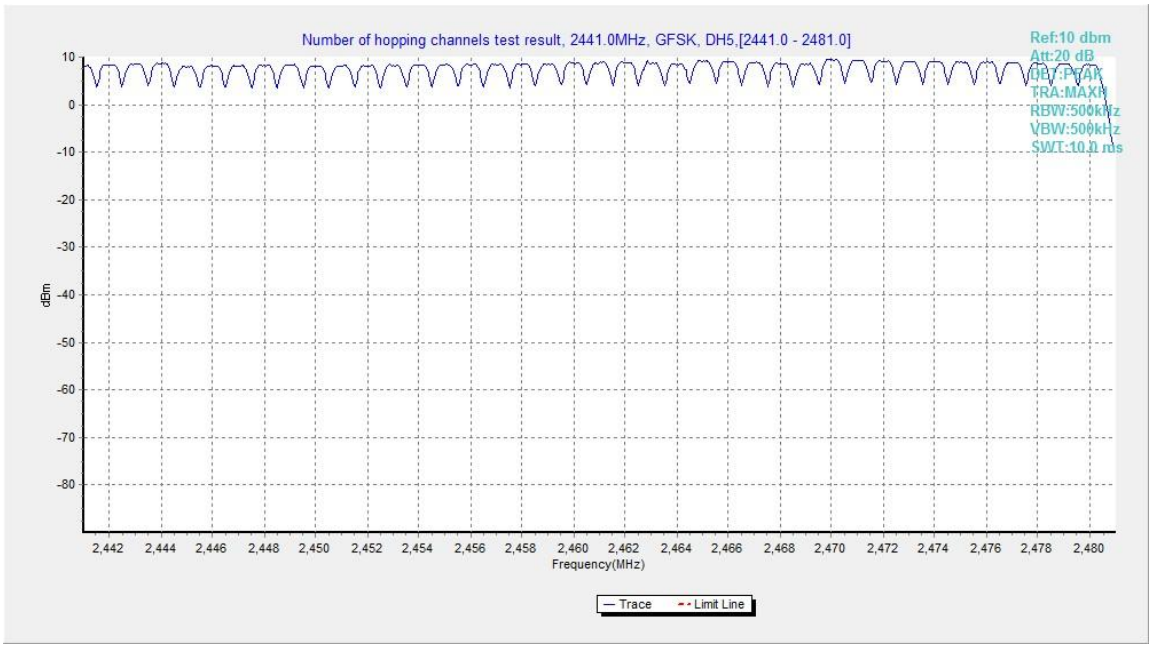


Fig.95. Number of hopping frequencies: GFSK, Channel 40 - 78

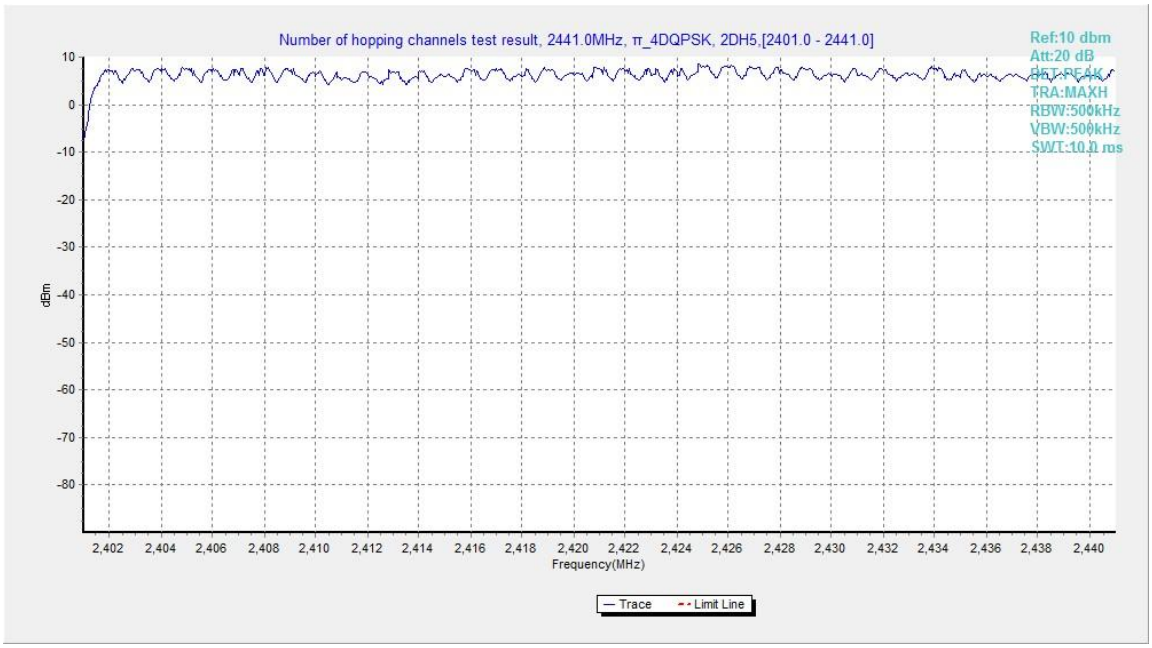


Fig.96. Number of hopping frequencies: π/4 DQPSK, Channel 0 - 39

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

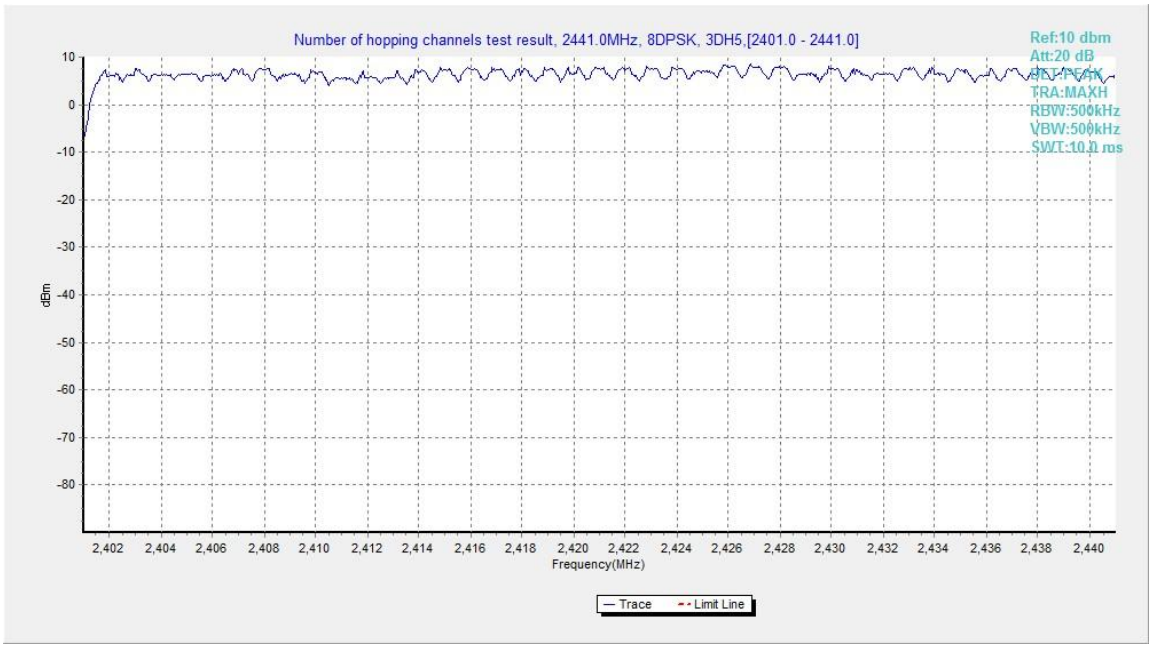


Fig.98. Number of hopping frequencies: 8DPSK, Channel 0 - 39

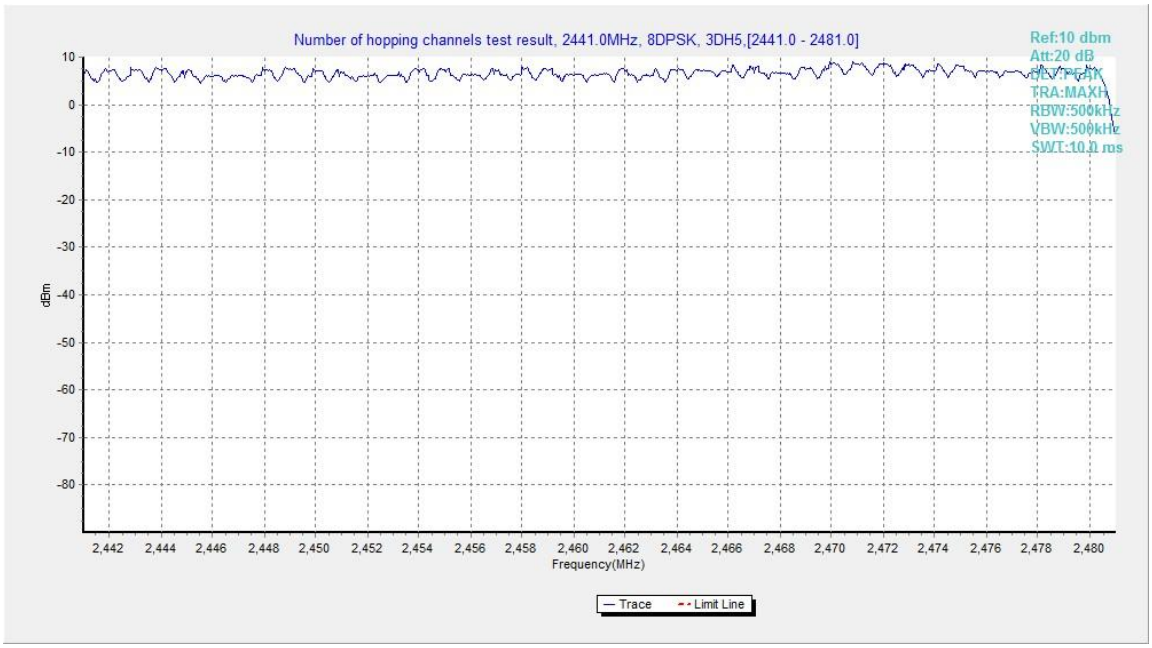


Fig.99. Number of hopping frequencies: 8DPSK, Channel 40 - 78

A.10. AC Powerline Conducted Emission

Method of Measurement: See ANSI C63.10-clause 6.2

1. the one EUT cable configuration and arrangement and mode of operation that produced the emission with the highest amplitude relative to the limit is selected for the final measurement, while applying the appropriate modulating signal to the EUT.
2. If the EUT is relocated from an exploratory test site to a final test site, the highest emissions shall be remaximized at the final test location before final ac power-line conducted emission measurements are performed.
3. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) is then performed for the full frequency range for which the EUT is being tested for compliance without further variation of the EUT arrangement, cable positions, or EUT mode of operation.
4. If the EUT is comprised of equipment units that have their own separate ac power connections, e.g., floor-standing equipment with independent power cords for each shelf that are able to connect directly to the ac power network, each current-carrying conductor of one unit is measured while the other units are connected to a second (or more) LISN(s). All units shall be separately measured. If a power strip is provided by the manufacturer, to supply all of the units making up the EUT, only the conductors in the power cord of the power strip shall be measured.
5. If the EUT uses a detachable antenna, these measurements shall be made with a suitable dummy load connected to the antenna output terminals; otherwise, the tests shall be made with the antenna connected and, if adjustable, fully extended. When measuring the ac conducted emissions from a device that operates between 150 kHz and 30 MHz a non-detachable antenna may be replaced with a dummy load for the measurements within the fundamental emission band of the transmitter, but only for those measurements.36 Record the six highest EUT emissions relative to the limit of each of the current-carrying conductors of the power cords of the equipment that comprises the EUT over the frequency range specified by the procuring or regulatory agency. Diagram or photograph the test setup that was used. See Clause 8 for full reporting requirements.

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)

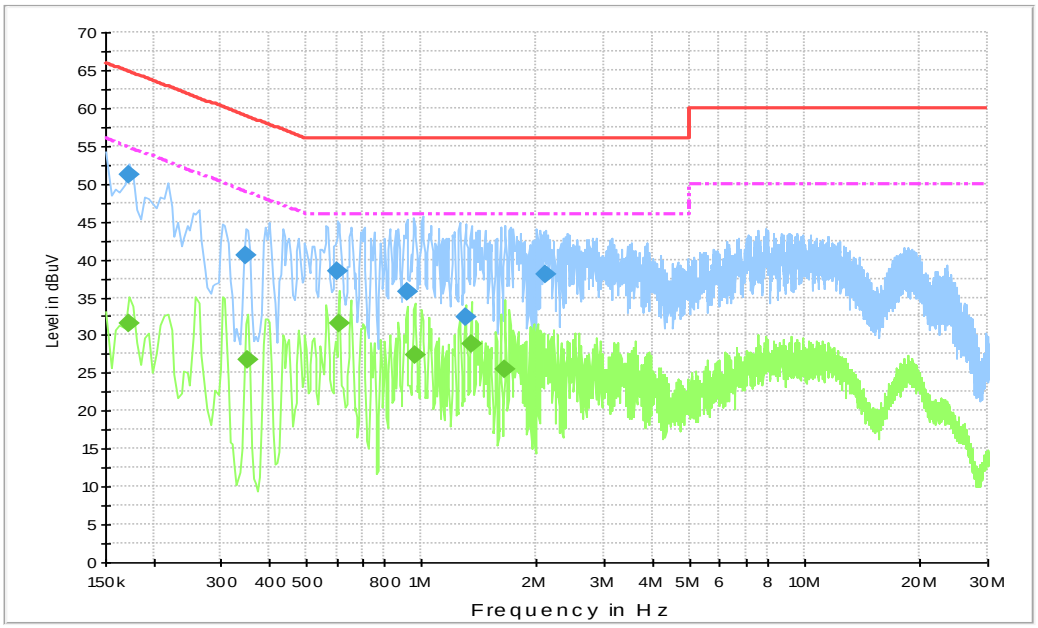
Frequency range (MHz)	Average Limit (dBμV)	Conclusion
0.15 to 0.5	56 to 46	P
0.5 to 5	46	
5 to 30	50	
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.		

The measurement is made according to ANSI C63.10

Conclusion: PASS

Test graphs as below:

Traffic (With AE2):



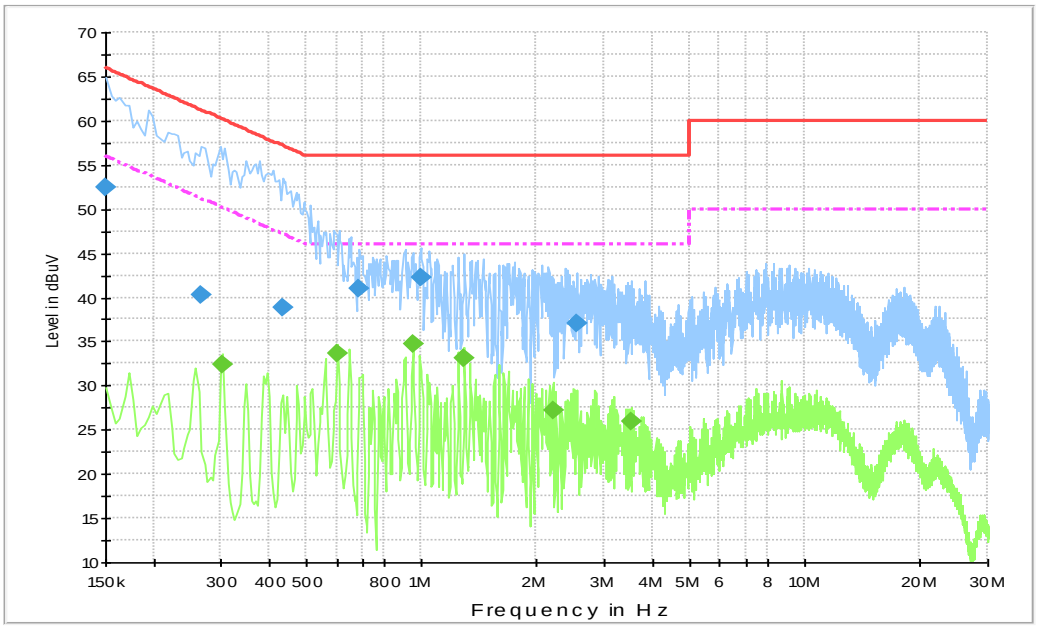
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.172500	51.1	10000.0	9.000	GND	N	10.3	13.7	64.8
0.348000	40.6	10000.0	9.000	GND	N	10.3	18.4	59.0
0.604500	38.4	10000.0	9.000	GND	N	10.4	17.6	56.0
0.915000	35.8	10000.0	9.000	GND	L1	10.4	20.2	56.0
1.306500	32.3	10000.0	9.000	GND	N	10.4	23.7	56.0
2.103000	38.0	10000.0	9.000	GND	L1	10.4	18.0	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.172500	31.5	10000.0	9.000	GND	L1	10.3	23.4	54.8
0.352500	26.8	10000.0	9.000	GND	L1	10.3	22.1	48.9
0.609000	31.5	10000.0	9.000	GND	L1	10.4	14.5	46.0
0.960000	27.3	10000.0	9.000	GND	L1	10.4	18.7	46.0
1.347000	28.9	10000.0	9.000	GND	L1	10.3	17.1	46.0
1.653000	25.4	10000.0	9.000	GND	L1	10.4	20.6	46.0

Idle (With AE2):



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	52.5	10000.0	9.000	GND	L1	10.2	13.5	66.0
0.267000	40.3	10000.0	9.000	GND	L1	10.3	20.9	61.2
0.433500	38.8	10000.0	9.000	GND	L1	10.3	18.4	57.2
0.690000	41.0	10000.0	9.000	GND	L1	10.3	15.0	56.0
0.996000	42.3	10000.0	9.000	GND	L1	10.3	13.7	56.0
2.544000	37.1	10000.0	9.000	GND	L1	10.4	18.9	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.303000	32.5	10000.0	9.000	GND	L1	10.3	17.7	50.2
0.604500	33.7	10000.0	9.000	GND	L1	10.4	12.3	46.0
0.946500	34.7	10000.0	9.000	GND	L1	10.4	11.3	46.0
1.293000	33.1	10000.0	9.000	GND	L1	10.4	12.9	46.0
2.197500	27.1	10000.0	9.000	GND	L1	10.4	18.9	46.0
3.529500	25.9	10000.0	9.000	GND	L1	10.5	20.1	46.0

ANNEX E: Accreditation Certificate

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 600118-0

Telecommunication Technology Labs, CAICT
Beijing
China

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2018-09-28 through 2019-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program

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