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)
2388.375	46.01	2.9	32.0	11.19	54.0	8.0	H	155	48
2390.000	46.02	2.9	32.0	11.19	54.0	8.0	H	155	6
4803.000	34.75	-35.0	34.1	35.68	54.0	19.2	H	155	312
7206.000	37.50	-32.4	35.8	34.09	54.0	16.5	H	155	48
9607.500	41.90	-29.7	36.7	34.85	54.0	12.1	H	155	68
12010.500	42.32	-30.5	38.9	33.91	54.0	11.7	H	155	80

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)
2432.100	46.07	2.9	32.0	11.20	54.0	7.9	H	155	4
2478.900	46.10	2.9	32.0	11.17	54.0	7.9	H	155	26
4881.000	34.37	-35.5	34.1	35.82	54.0	19.6	H	155	356
7323.000	38.85	-31.3	35.8	34.36	54.0	15.2	H	155	348
9763.500	39.93	-31.4	36.9	34.41	54.0	14.1	H	155	174
12205.500	44.22	-28.9	39.0	34.09	54.0	9.8	H	155	112

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	50.11	2.9	32.0	15.19	54.0	3.9	H	155	28
2483.625	49.03	2.9	32.0	14.10	54.0	5.0	H	155	48
4959.000	34.63	-34.9	34.1	35.43	54.0	19.4	H	155	8
7440.000	37.78	-32.2	35.8	34.15	54.0	16.2	H	155	16
9919.500	41.91	-29.6	37.1	34.45	54.0	12.1	H	155	228
12400.500	43.58	-30.0	39.1	34.55	54.0	10.4	H	155	92

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)
2380.750	45.95	2.9	32.0	11.14	54.0	8.0	H	155	92
2388.375	45.99	2.9	32.0	11.17	54.0	8.0	H	155	26
4803.000	34.80	-35.0	34.1	35.72	54.0	19.2	H	155	222
7206.000	37.60	-32.4	35.8	34.19	54.0	16.4	H	155	248
9607.500	41.90	-29.7	36.7	34.84	54.0	12.1	H	155	46
12010.500	42.37	-30.5	38.9	33.96	54.0	11.6	H	155	68

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)
2431.700	46.12	2.9	32.0	11.25	54.0	7.9	H	155	98
2450.175	46.15	2.9	32.0	11.26	54.0	7.8	H	155	135
4882.500	34.06	-35.5	34.1	35.51	54.0	19.9	H	155	4
7323.000	38.86	-31.3	35.8	34.37	54.0	15.1	H	155	74
9763.500	40.06	-31.4	36.9	34.54	54.0	13.9	H	155	48
12205.500	44.27	-28.9	39.0	34.15	54.0	9.7	H	155	246

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	50.15	2.9	32.0	15.22	54.0	3.9	H	155	8
2483.625	48.21	2.9	32.0	13.28	54.0	5.8	H	155	52
4959.000	34.67	-34.9	34.1	35.47	54.0	19.3	H	155	18
7440.000	37.76	-32.2	35.8	34.14	54.0	16.2	H	155	6
9919.500	42.00	-29.6	37.1	34.54	54.0	12.0	H	155	48
12400.500	43.63	-30.0	39.1	34.60	54.0	10.4	H	155	128

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)
2335.186	59.39	2.8	31.9	24.62	74.0	14.6	H	155	0
2381.260	60.39	2.9	32.0	25.57	74.0	13.6	H	155	22
4804.000	41.59	-35.0	34.1	42.52	74.0	32.4	H	155	110
7206.000	43.20	-32.4	35.8	39.79	74.0	30.8	V	155	132
9608.000	47.44	-29.7	36.7	40.37	74.0	26.6	V	155	66
12010.000	47.29	-30.5	38.9	38.88	74.0	26.7	V	155	88

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)
2355.600	47.07	-27.7	31.9	42.86	74.0	26.9	H	155	22
2516.800	47.09	-26.6	32.0	41.72	74.0	26.9	H	155	44
4882.000	41.95	-35.5	34.1	43.40	74.0	32.1	V	155	220
7323.000	44.64	-31.3	35.8	40.15	74.0	29.4	V	155	242
9764.000	44.73	-31.4	36.9	39.22	74.0	29.3	H	155	264
12205.000	48.17	-28.8	39.0	38.03	74.0	25.8	H	155	286

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)
2494.595	60.80	2.9	32.0	25.86	74.0	13.2	H	155	0
2497.535	60.98	2.9	32.0	26.04	74.0	13.0	H	155	44
4960.000	43.79	-34.9	34.1	44.58	74.0	30.2	V	155	88
7440.000	42.49	-32.2	35.8	38.87	74.0	31.5	V	155	44
7720.000	47.33	-33.3	35.8	44.81	74.0	26.7	V	155	66
12400.000	47.26	-30.0	39.1	38.24	74.0	26.7	H	155	88

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)
2351.972	60.10	2.8	31.9	25.32	74.0	13.9	H	155	44
2359.378	60.00	2.8	31.9	25.20	74.0	14.0	H	155	0
4804.000	41.78	-35.0	34.1	42.71	74.0	32.2	V	155	308
7206.000	42.67	-32.4	35.8	39.26	74.0	31.3	H	155	44
9608.000	45.92	-29.7	36.7	38.85	74.0	28.1	V	155	66
12010.000	45.38	-30.5	38.9	36.97	74.0	28.6	H	155	88

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)
2326.800	48.50	-27.7	31.9	44.29	74.0	25.5	H	155	0
2526.200	48.21	-26.8	32.0	43.01	74.0	25.8	V	155	22
4882.000	41.32	-35.5	34.1	42.76	74.0	32.7	V	155	352
7323.000	43.97	-31.3	35.8	39.48	74.0	30.0	V	155	352
9764.000	43.34	-31.4	36.9	37.82	74.0	30.7	V	155	176
12205.000	47.68	-28.8	39.0	37.54	74.0	26.3	V	155	110

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	60.47	2.9	32.0	25.54	74.0	13.5	H	155	22
2493.975	61.06	2.9	32.0	26.13	74.0	12.9	H	155	44
4960.000	42.05	-34.9	34.1	42.84	74.0	32.0	V	155	0
7440.000	41.83	-32.2	35.8	38.20	74.0	32.2	H	155	22
9920.000	47.00	-29.7	37.1	39.55	74.0	27.0	H	155	242
12400.000	45.61	-30.0	39.1	36.59	74.0	28.4	H	155	88

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)
2341.220	59.64	2.8	31.9	24.86	74.0	14.4	H	155	88
2359.588	59.79	2.8	31.9	25.00	74.0	14.2	H	155	22
4804.000	41.86	-35.0	34.1	42.80	74.0	32.1	V	155	220
7206.000	42.46	-32.4	35.8	39.05	74.0	31.5	V	155	242
9608.000	45.33	-29.7	36.7	38.25	74.0	28.7	V	155	44
12010.000	46.18	-30.5	38.9	37.77	74.0	27.8	V	155	66

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)
2349.800	47.52	-27.7	31.9	43.32	74.0	26.5	H	155	88
2536.200	47.48	-26.8	32.0	42.25	74.0	26.5	H	155	132
4882.000	39.99	-35.5	34.1	41.44	74.0	34.0	H	155	0
7323.000	43.13	-31.3	35.8	38.65	74.0	30.9	V	155	66
9764.000	42.75	-31.4	36.9	37.24	74.0	31.3	V	155	44
12205.000	46.72	-28.8	39.0	36.58	74.0	27.3	H	155	242

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)
2492.510	60.33	2.9	32.0	25.39	74.0	13.7	V	155	0
2497.015	60.09	2.9	32.0	25.15	74.0	13.9	H	155	44
4960.000	40.49	-34.9	34.1	41.28	74.0	33.5	V	155	22
7440.000	41.67	-32.2	35.8	38.05	74.0	32.3	H	155	0
9920.000	45.43	-29.7	37.1	37.99	74.0	28.6	H	155	44
12400.000	45.64	-30.0	39.1	36.61	74.0	28.4	V	155	132

Conclusion: PASS

Test graphs as below:

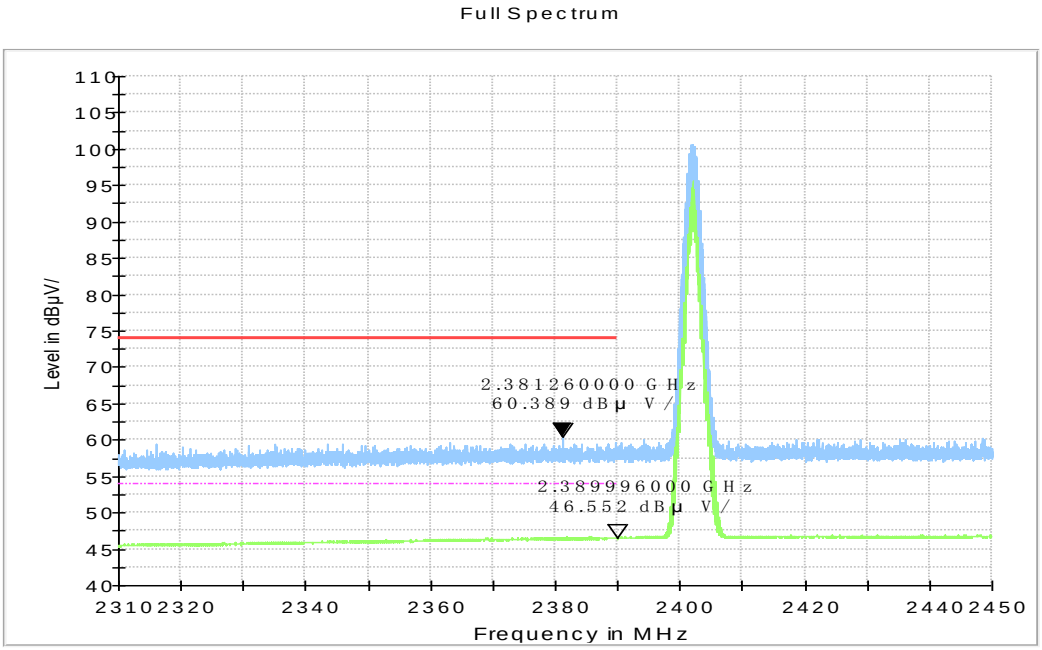


Fig.58. Radiated emission (Power): GFSK, low channel

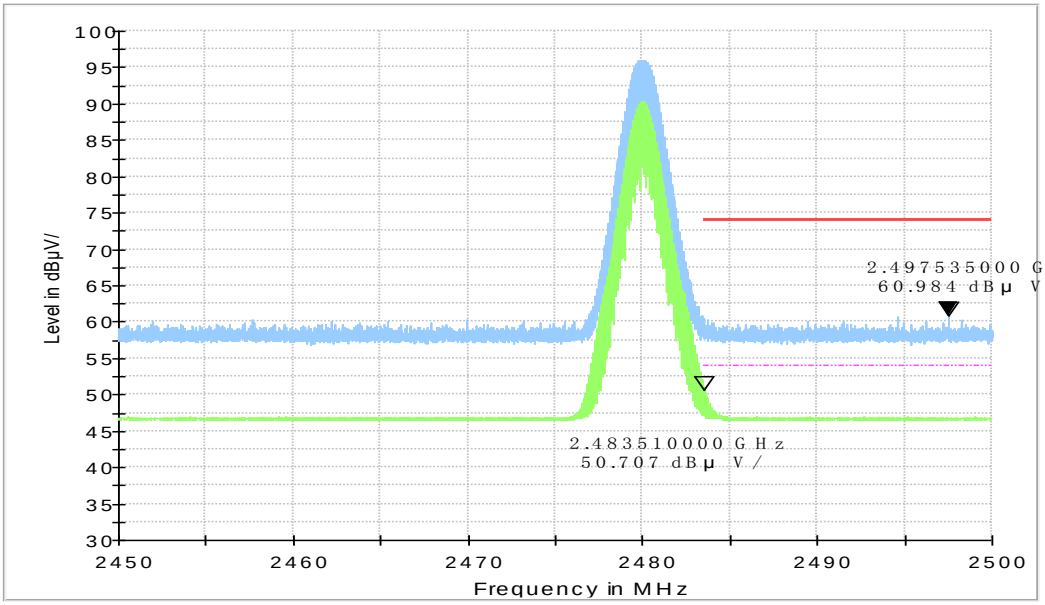


Fig.59. Radiated emission (Power) GFSK, high channel

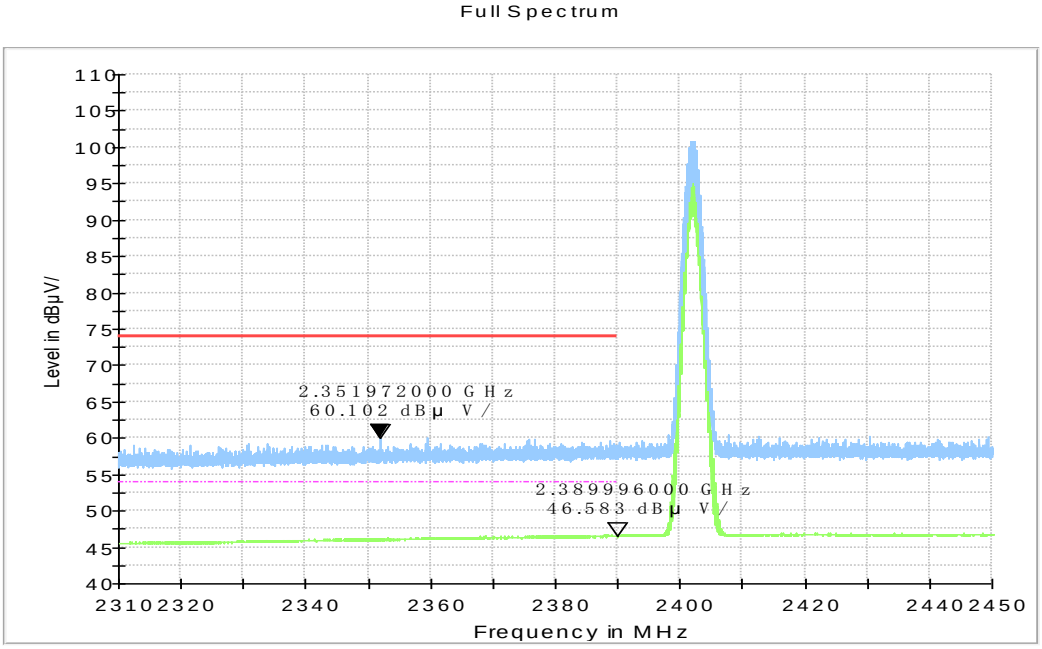


Fig.60. Radiated emission (Power): π/4 DQPSK, low channel

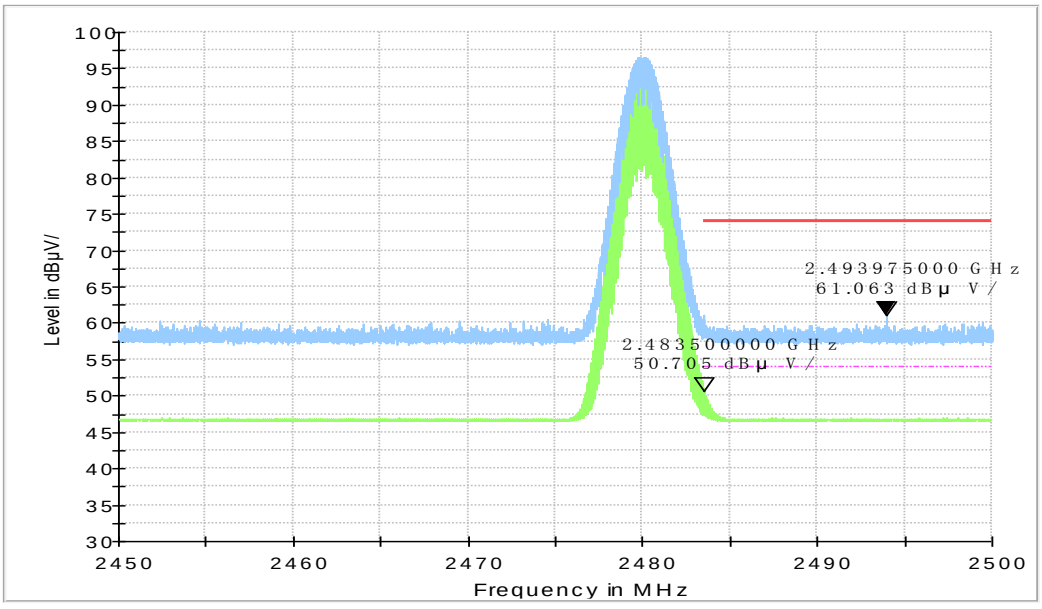


Fig.61. Radiated emission (Power): π/4 DQPSK, high channel

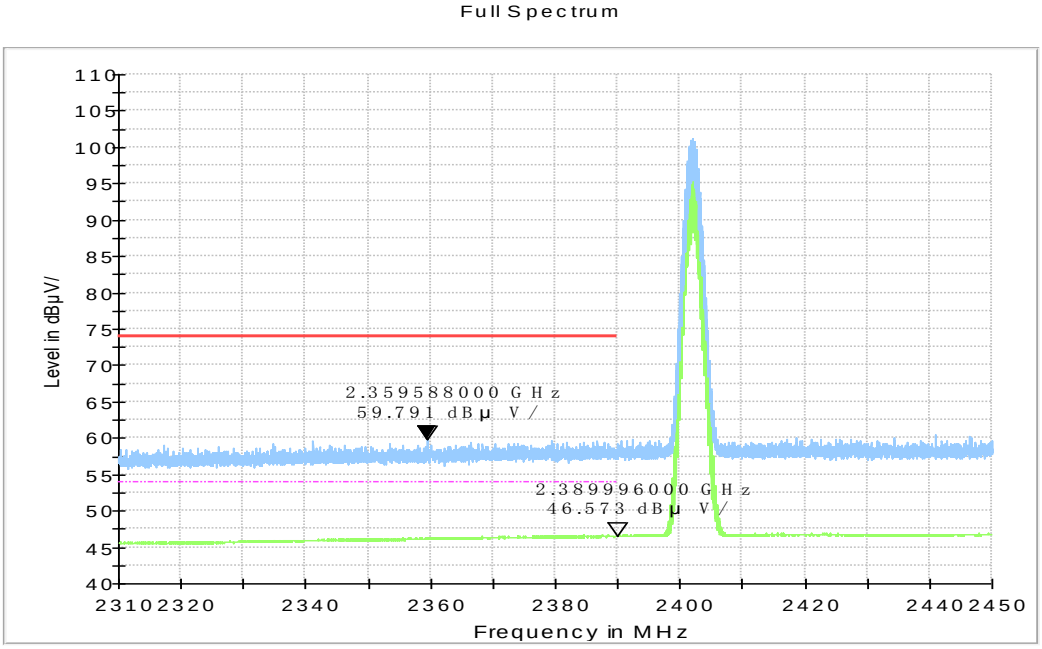


Fig.62. Radiated emission (Power): 8DPSK, low channel

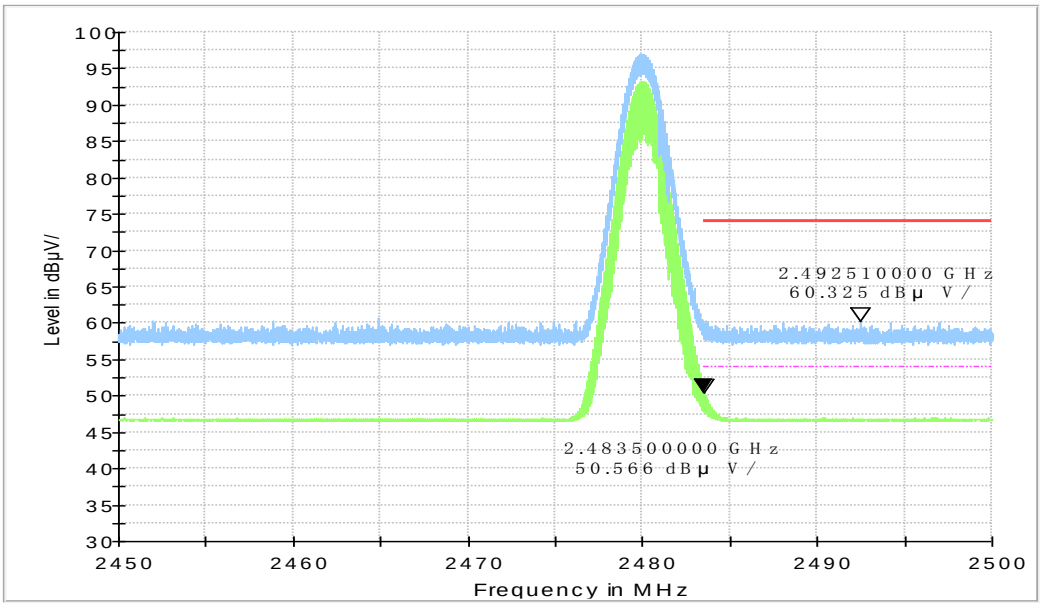


Fig.63. Radiated emission (Power): 8DPSK, high channel

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	Pulse time (ms)		Number of Transmissions		Dwell Time (ms)	Conclusion
39	DH1	Fig.64	0.38	Fig.65	317	120.46	P
	DH3	Fig.66	1.64	Fig.67	114	186.96	P
	DH5	Fig.68	2.89	Fig.69	66	190.74	P

For π/4 DQPSK

Channel	Packet	Pulse time (ms)		Number of Transmissions		Dwell Time (ms)	Conclusion
39	2DH1	Fig.70	0.39	Fig.71	319	124.41	P
	2DH3	Fig.72	1.64	Fig.73	110	180.40	P
	2DH5	Fig.74	2.89	Fig.75	71	205.19	P

For 8DPSK

Channel	Packet	Pulse time (ms)		Number of Transmissions		Dwell Time (ms)	Conclusion
39	3DH1	Fig.76	0.39	Fig.77	317	123.63	P
	3DH3	Fig.78	1.64	Fig.79	110	180.40	P
	3DH5	Fig.80	2.89	Fig.81	67	193.63	P

Conclusion: PASS

Test graphs as below:

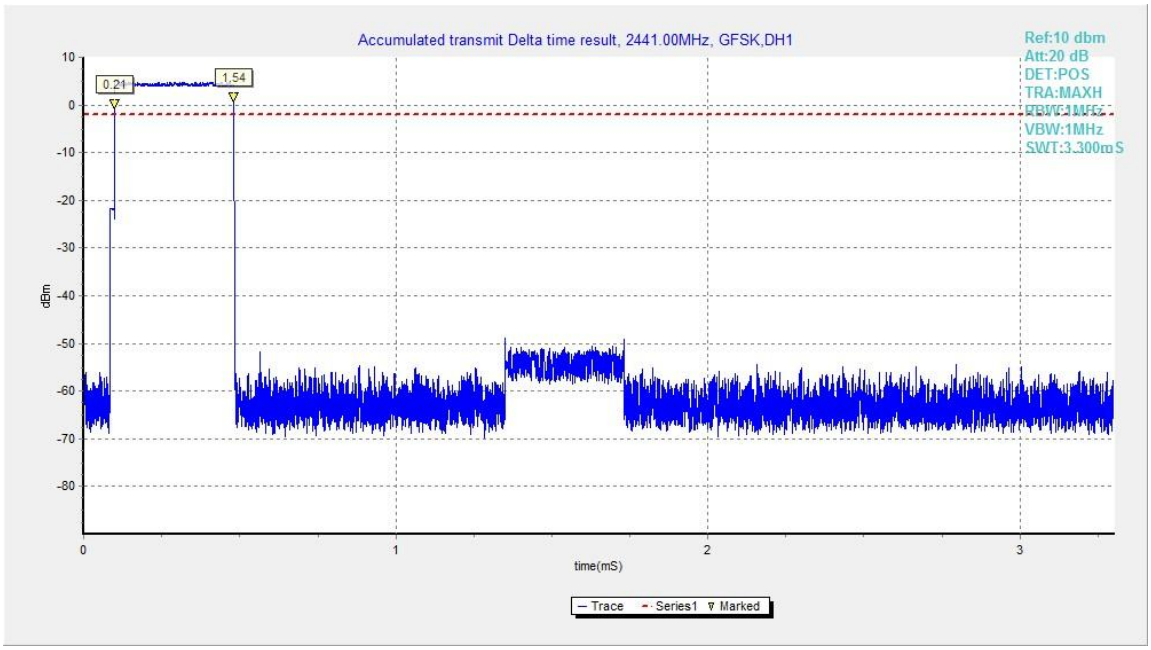


Fig.64. Time of occupancy (Dwell Time): Channel 39, Packet DH1

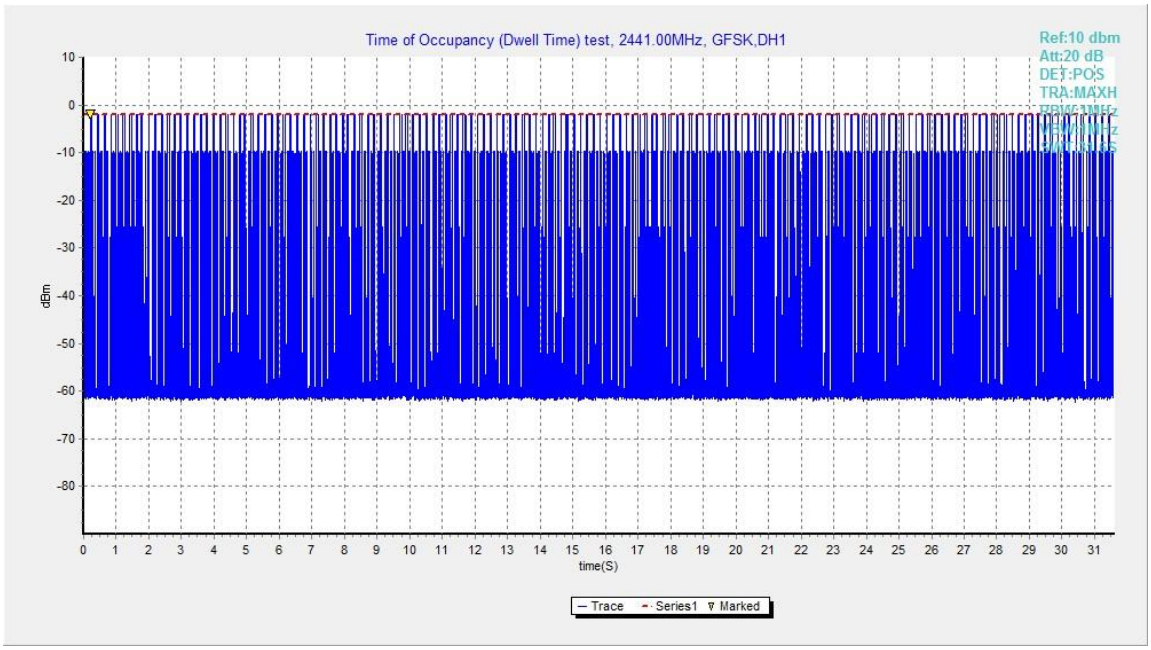


Fig.65. Number of Transmissions Measurement: Channel 39,Packet DH1

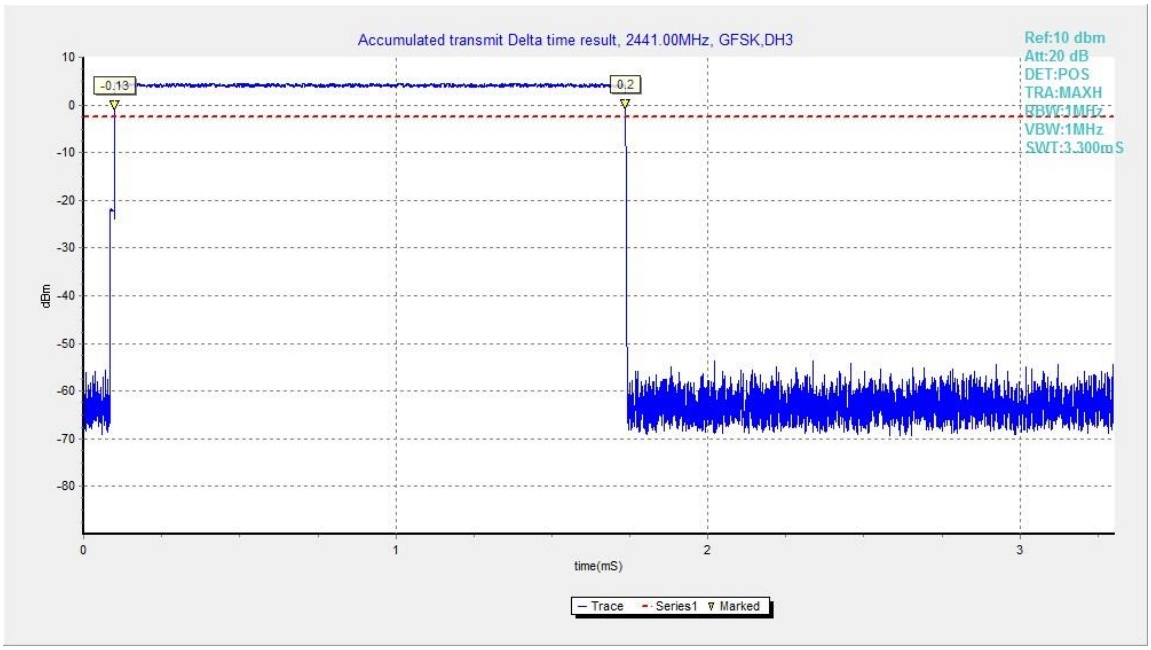


Fig.66. Time of occupancy (Dwell Time): Channel 39, Packet DH3

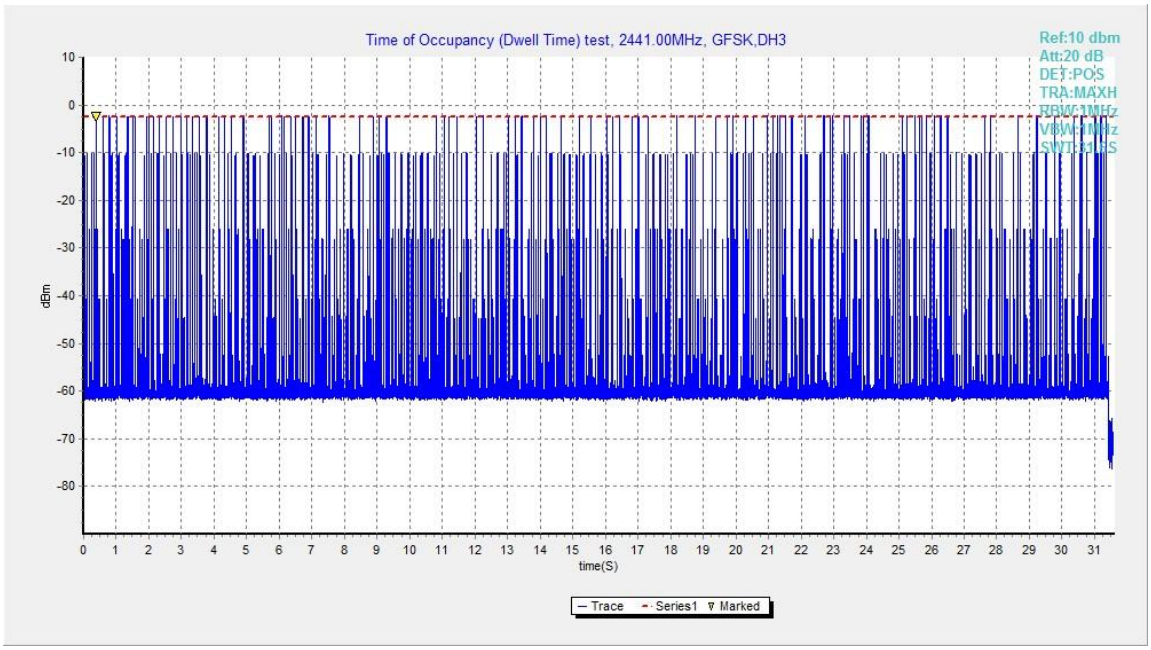


Fig.67. Number of Transmissions Measurement: Channel 39,Packet DH3

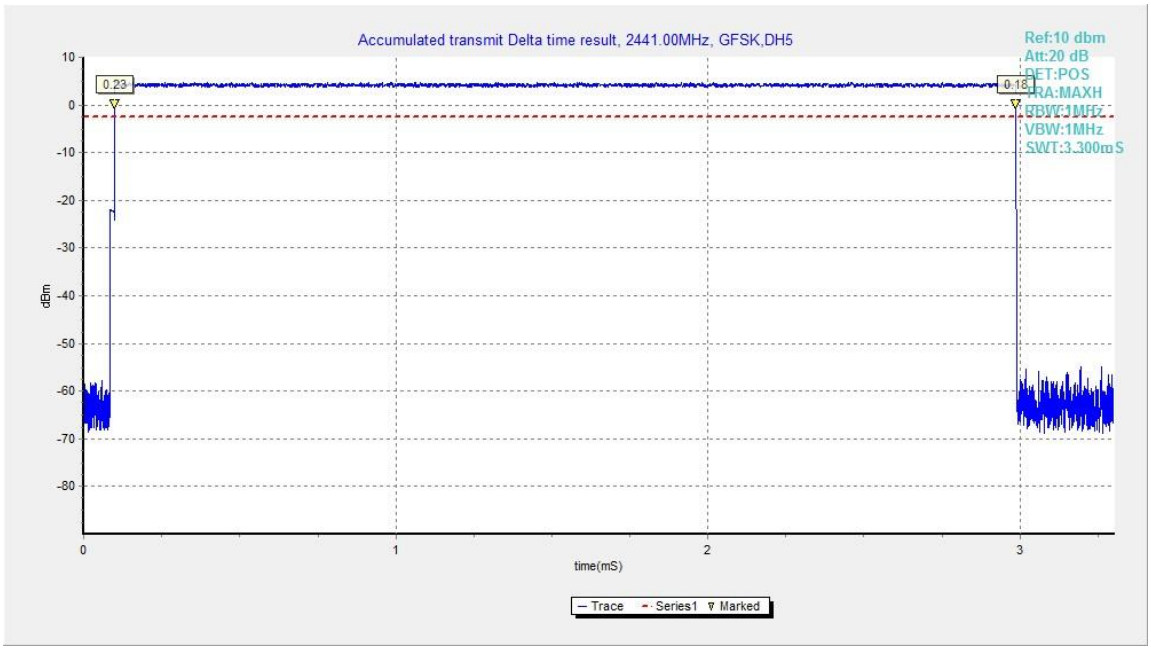


Fig.68. Time of occupancy (Dwell Time): Channel 39, Packet DH5

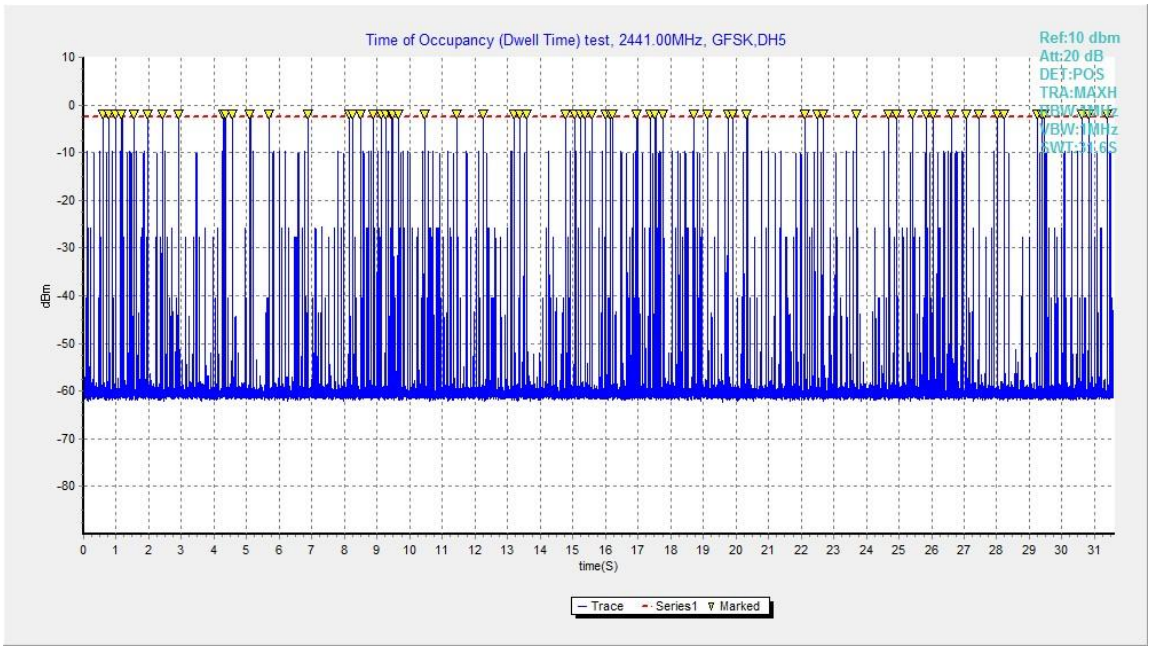


Fig.69. Number of Transmissions Measurement: Channel 39,Packet DH5

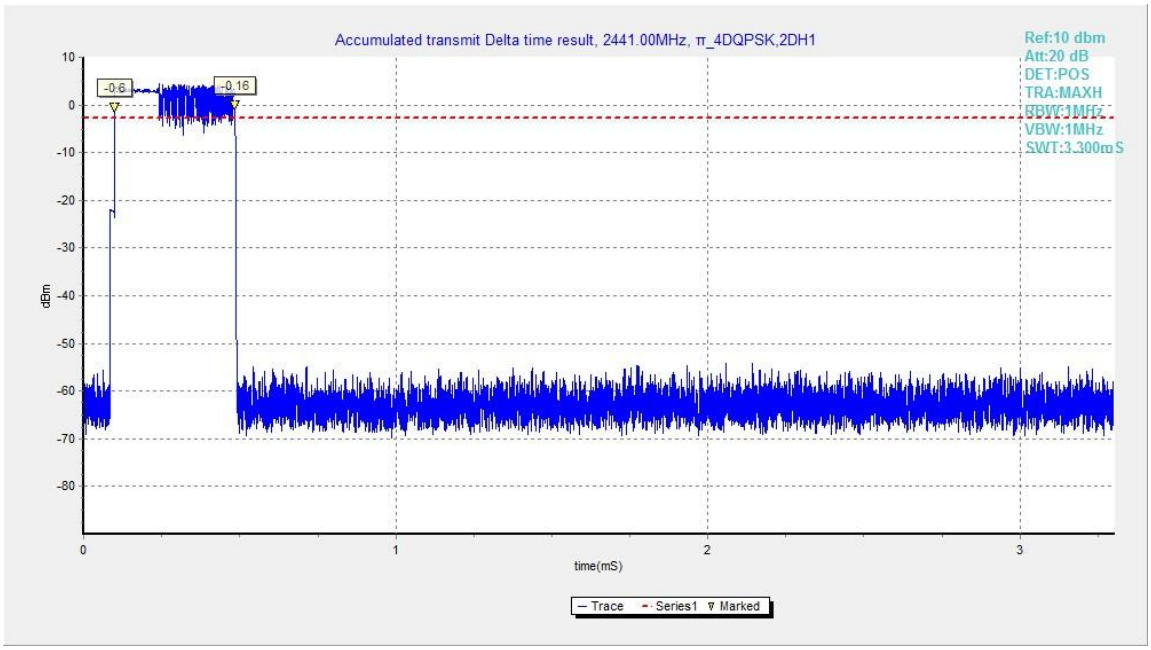


Fig.70. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH1

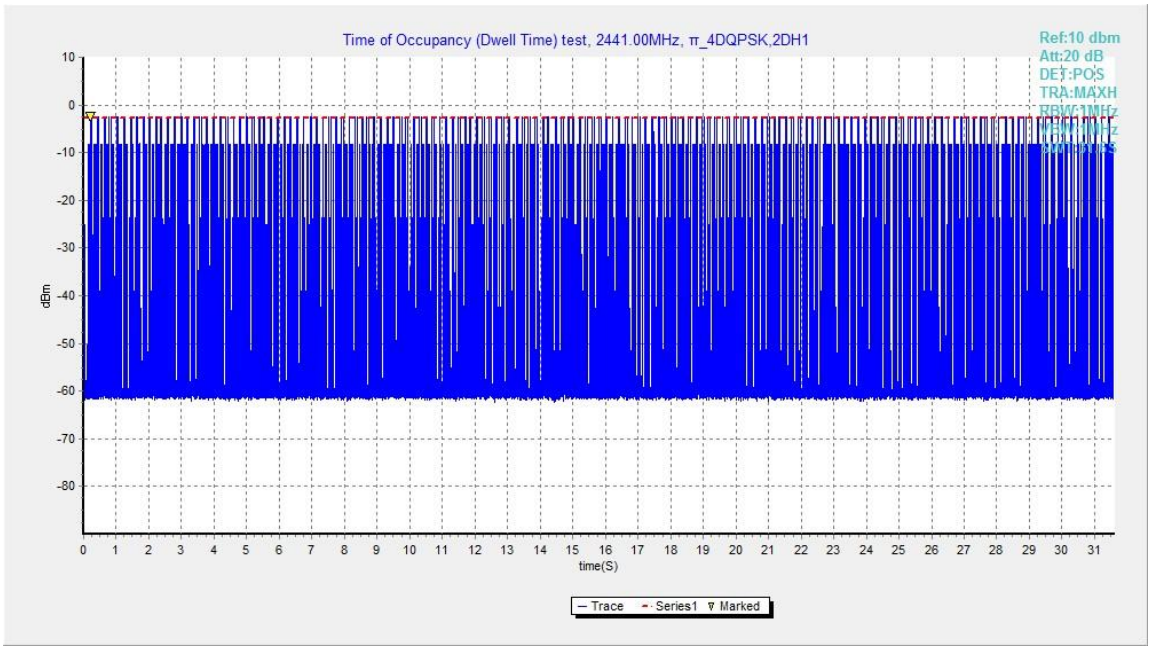


Fig.71. Number of Transmissions Measurement: Channel 39,Packet 2-DH1

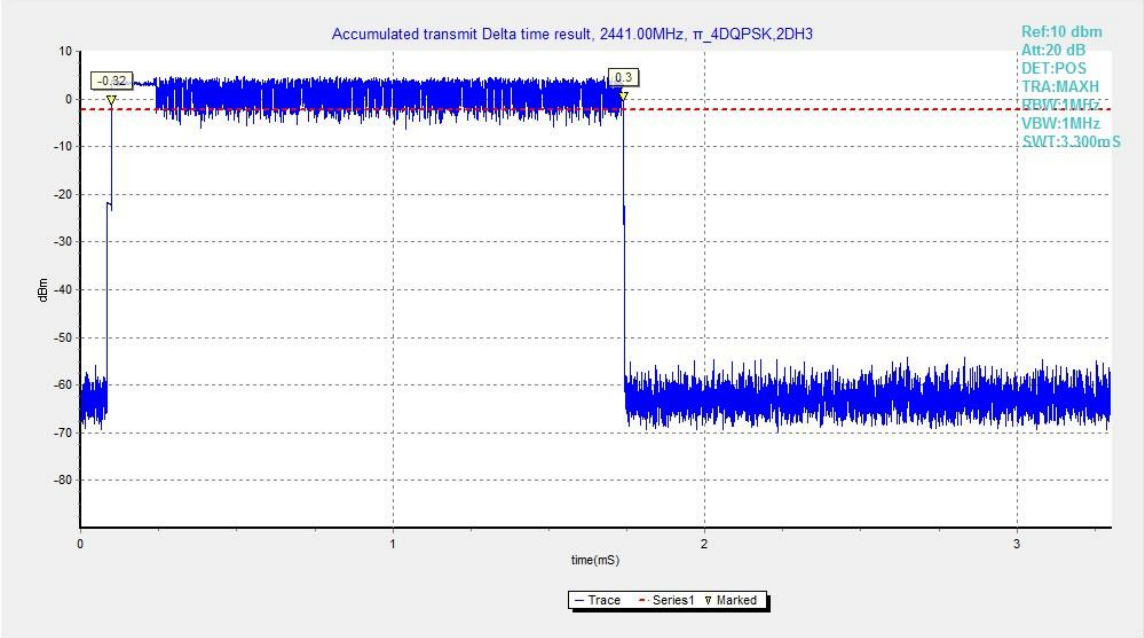


Fig.72. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH3

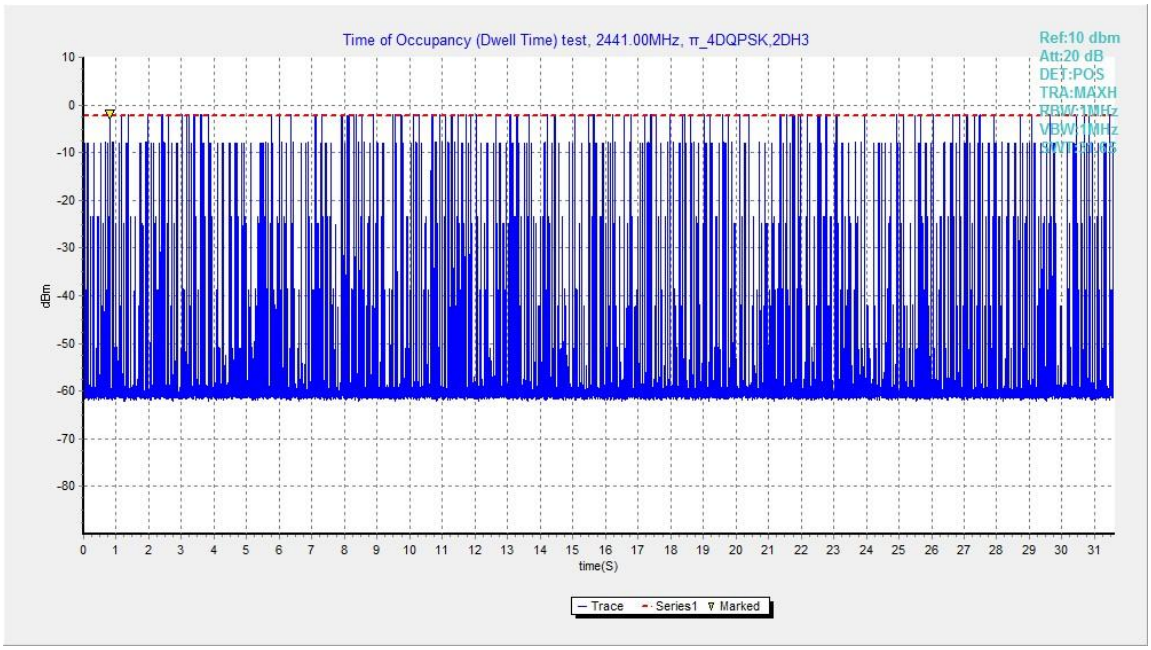


Fig.73. Number of Transmissions Measurement: Channel 39,Packet 2-DH3

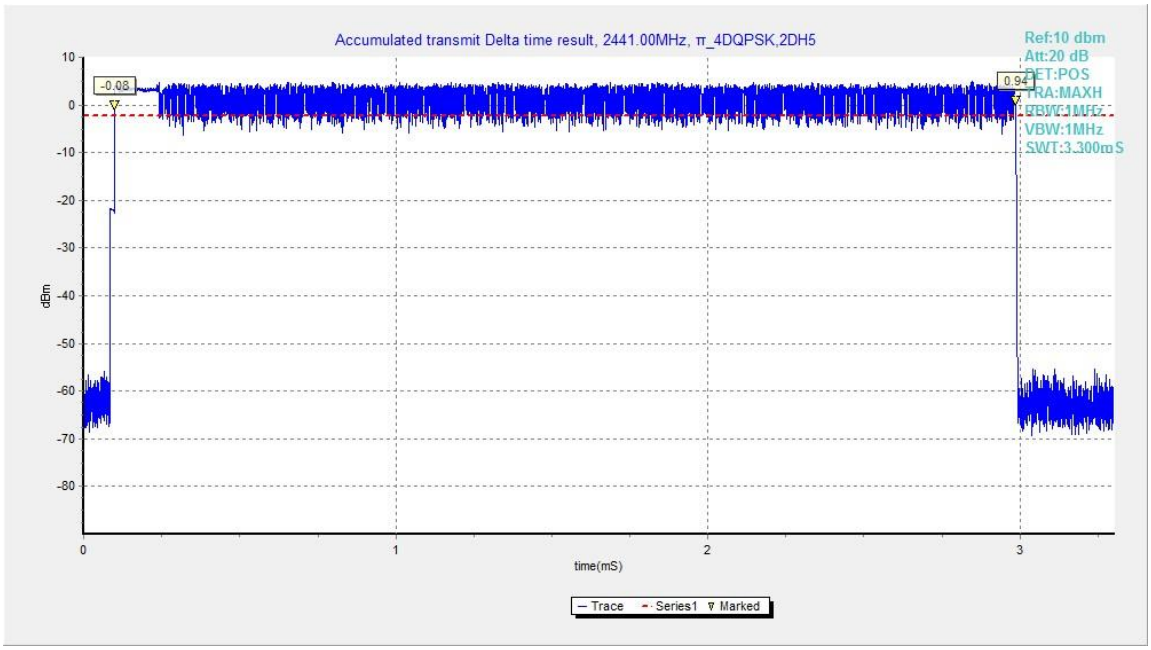


Fig.74. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH5

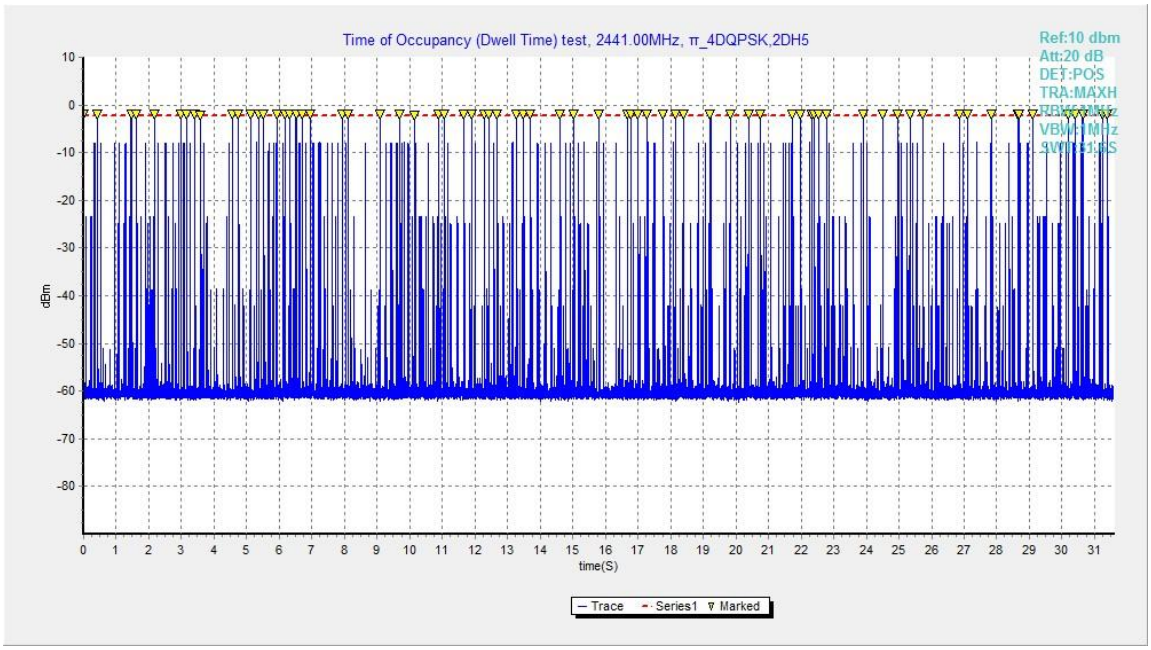


Fig.75. Number of Transmissions Measurement: Channel 39,Packet 2-DH5

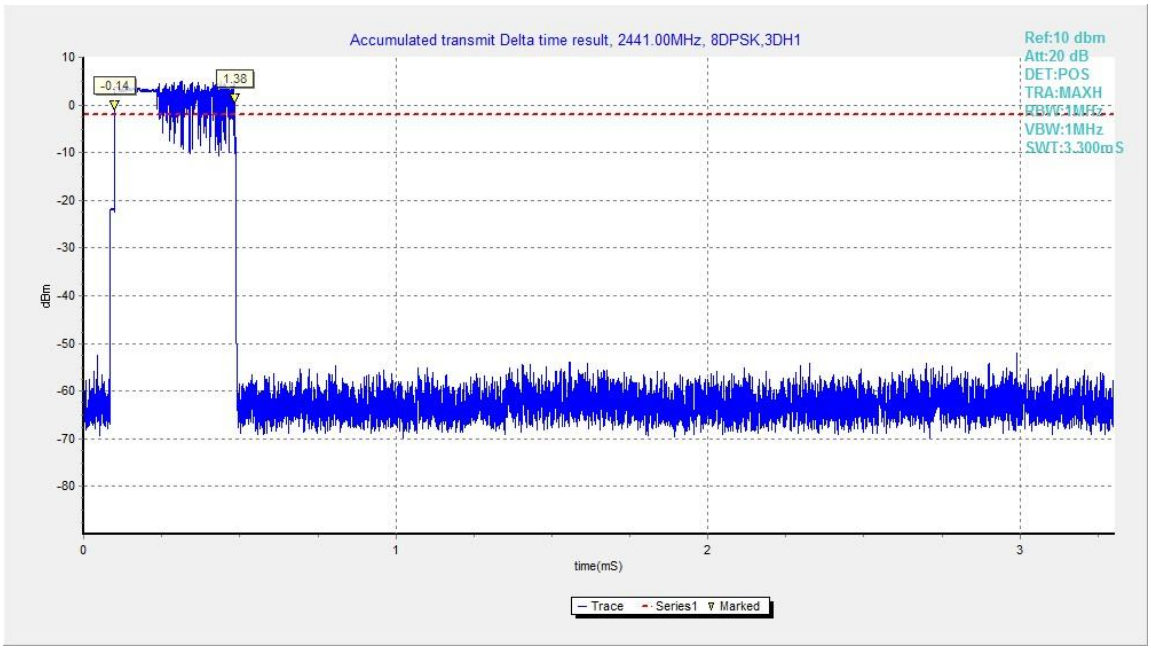


Fig.76. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH1

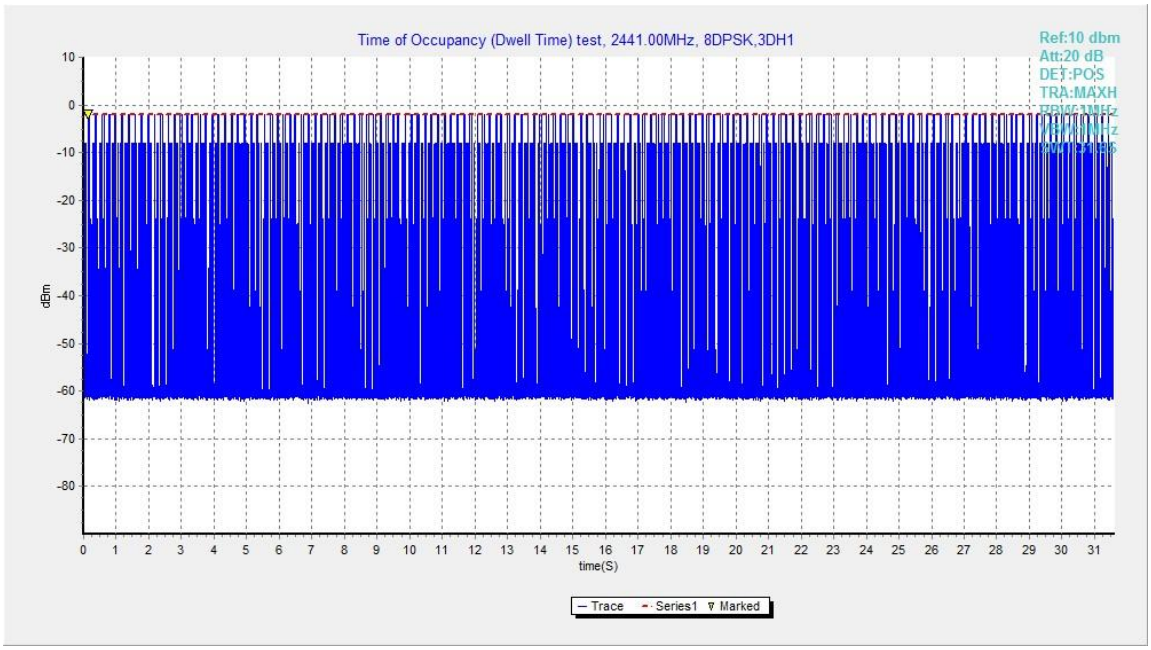


Fig.77. Number of Transmissions Measurement: Channel 39,Packet 3-DH1

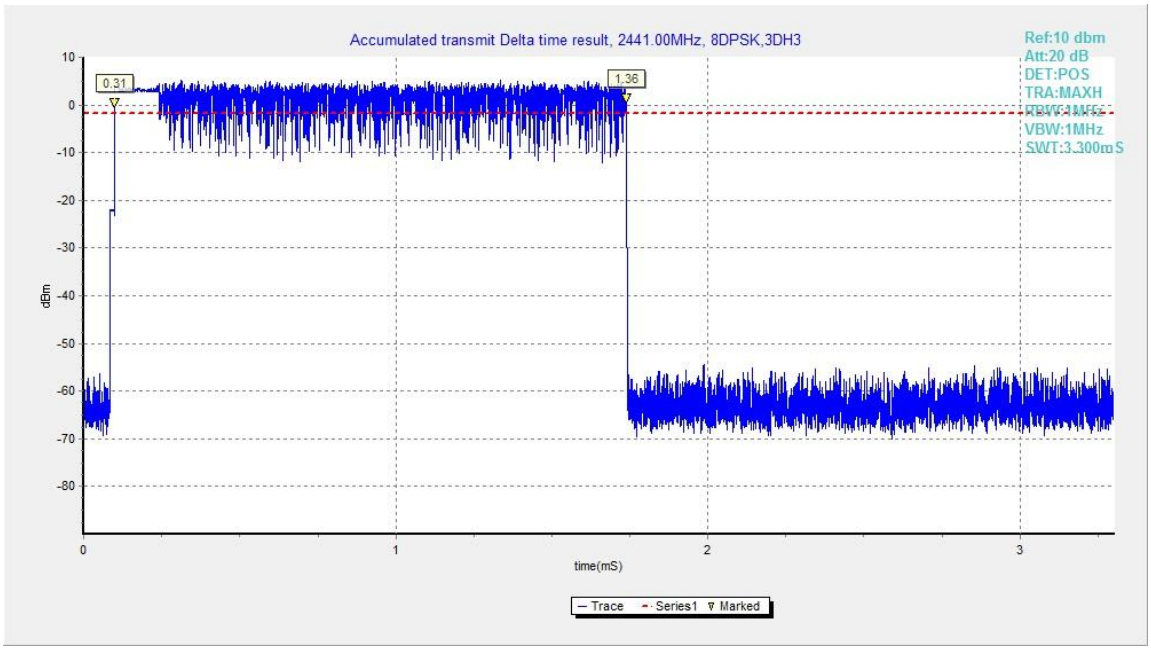


Fig.78. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH3

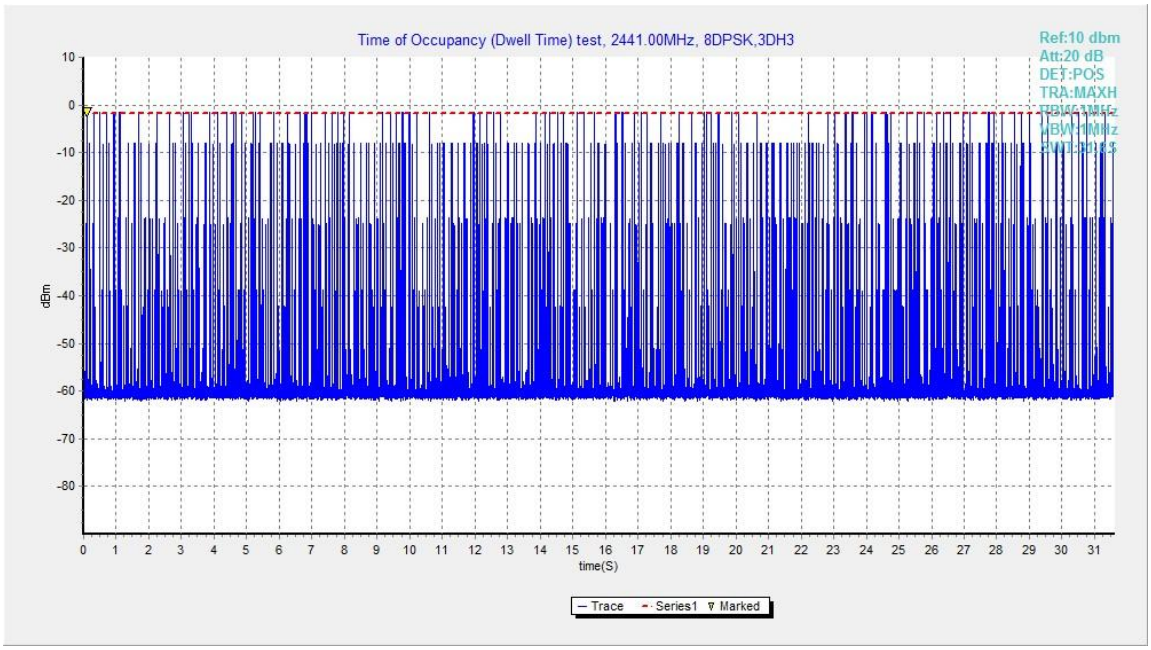


Fig.79. Number of Transmissions Measurement: Channel 39,Packet 3-DH3

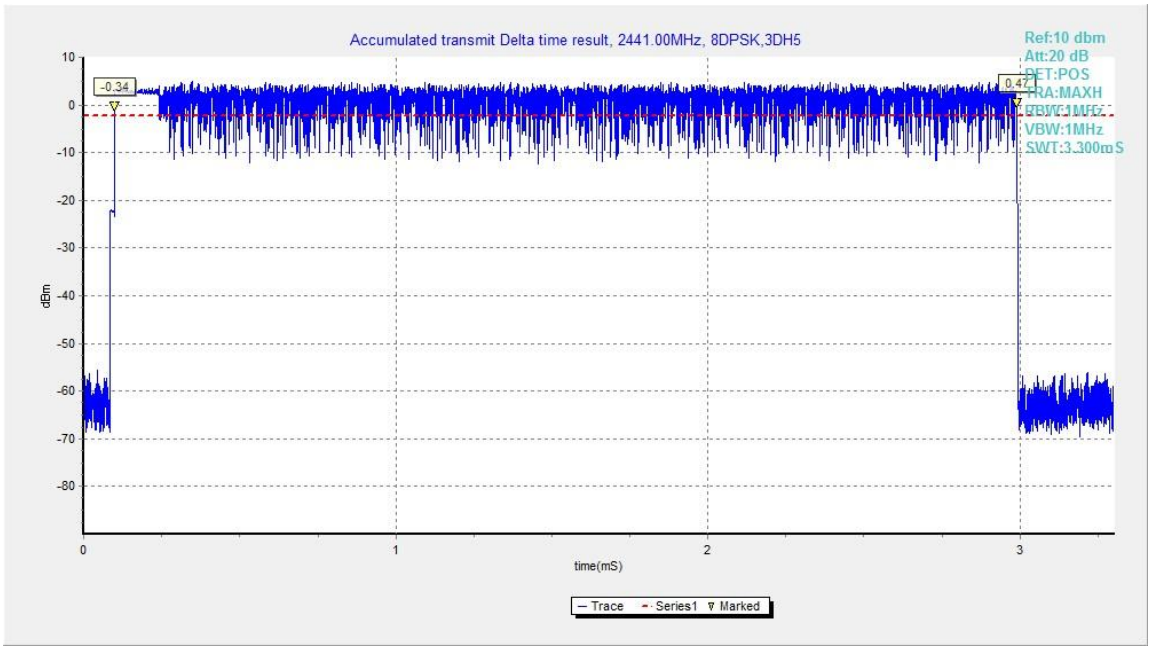


Fig.80. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH5

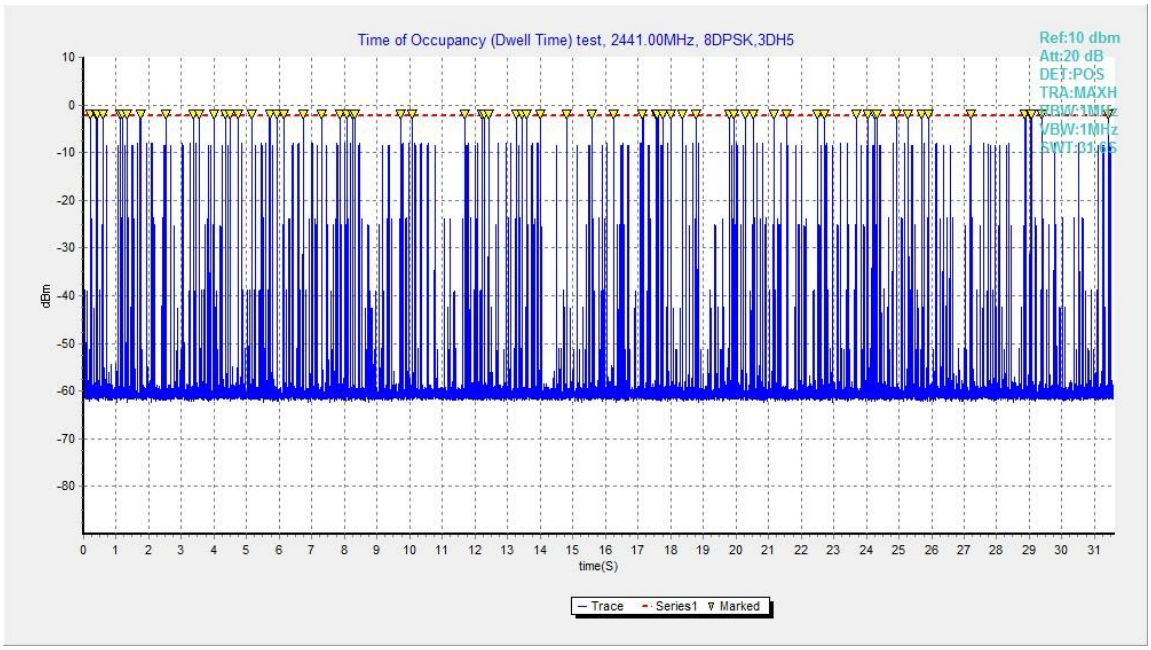


Fig.81. Number of Transmissions Measurement: Channel 39,Packet 3-DH5

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	939.75	NA
39	Fig.83	939.75	NA
78	Fig.84	941.25	NA

For π/4 DQPSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.85	1302.00	NA
39	Fig.86	1298.25	NA
78	Fig.87	1312.50	NA

For 8DPSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.88	1272.75	NA
39	Fig.89	1271.25	NA
78	Fig.90	1275.75	NA

Conclusion: NA

Test graphs as below:

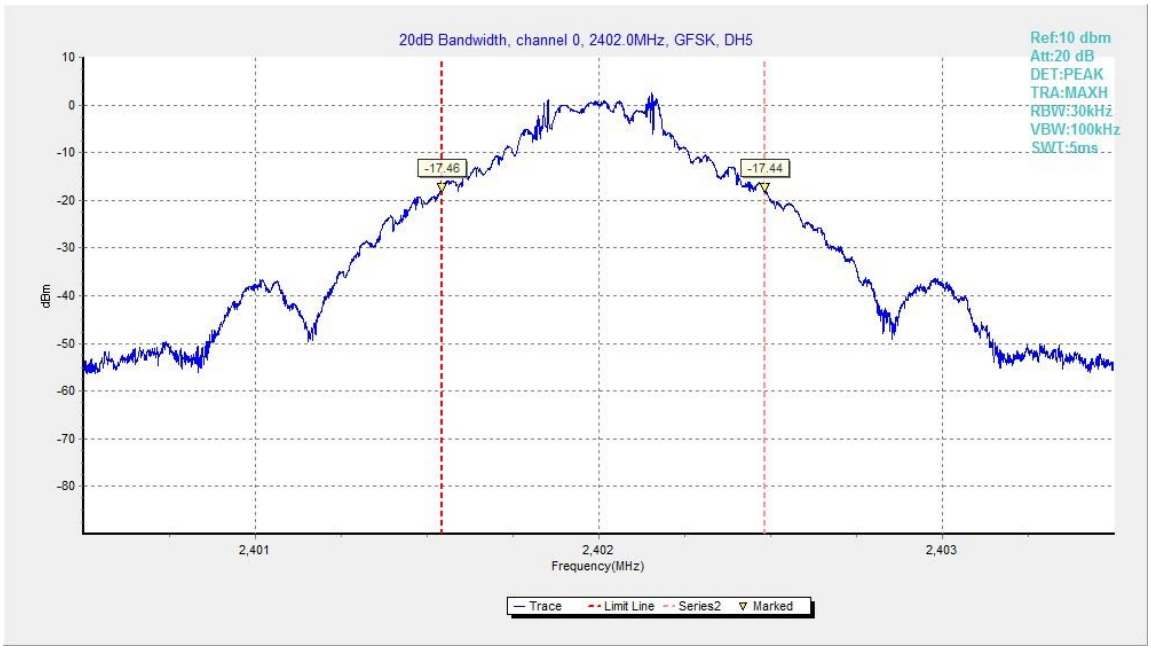


Fig.82. 20dB Bandwidth: GFSK, Channel 0

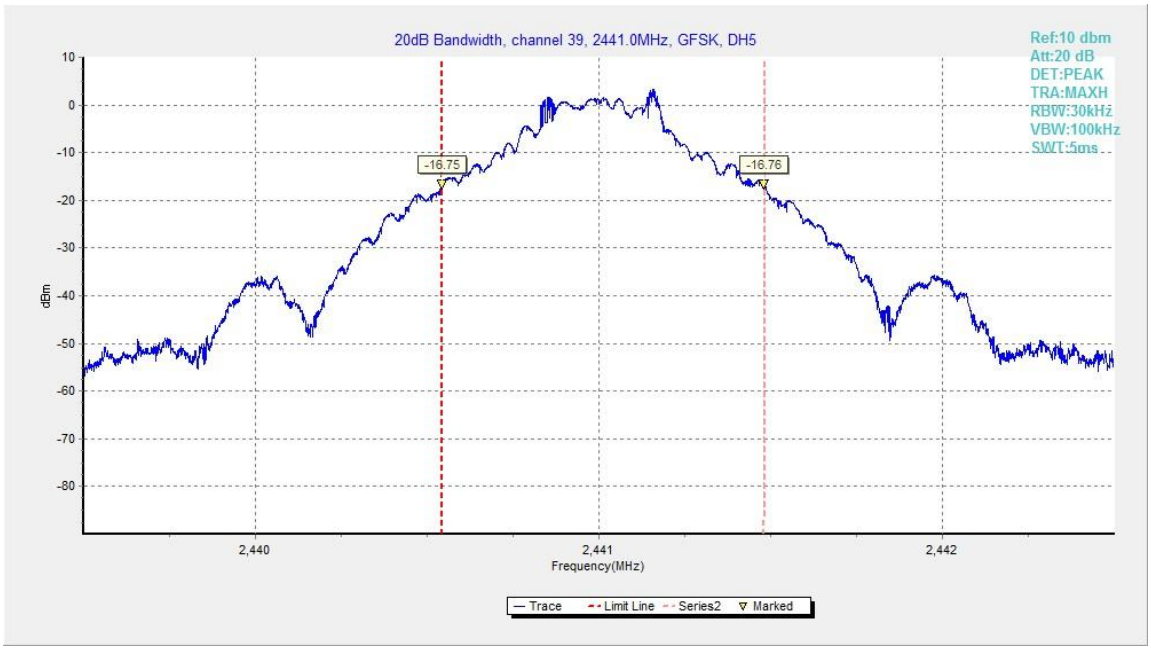


Fig.83. 20dB Bandwidth: GFSK, Channel 39

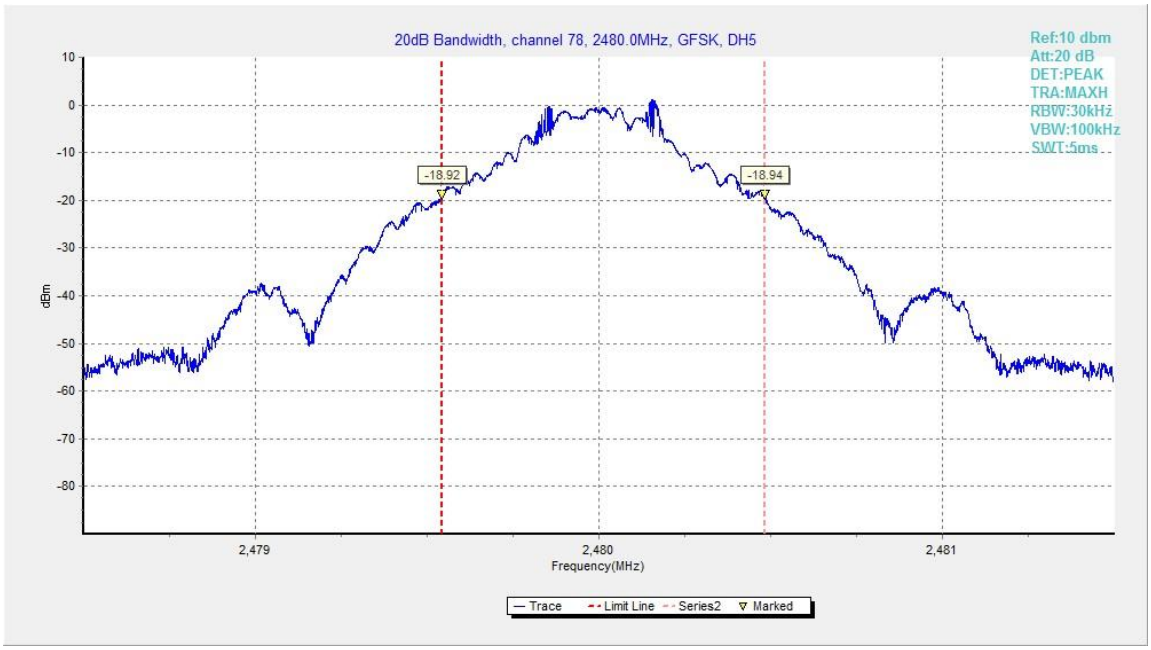


Fig.84. 20dB Bandwidth: GFSK, Channel 78

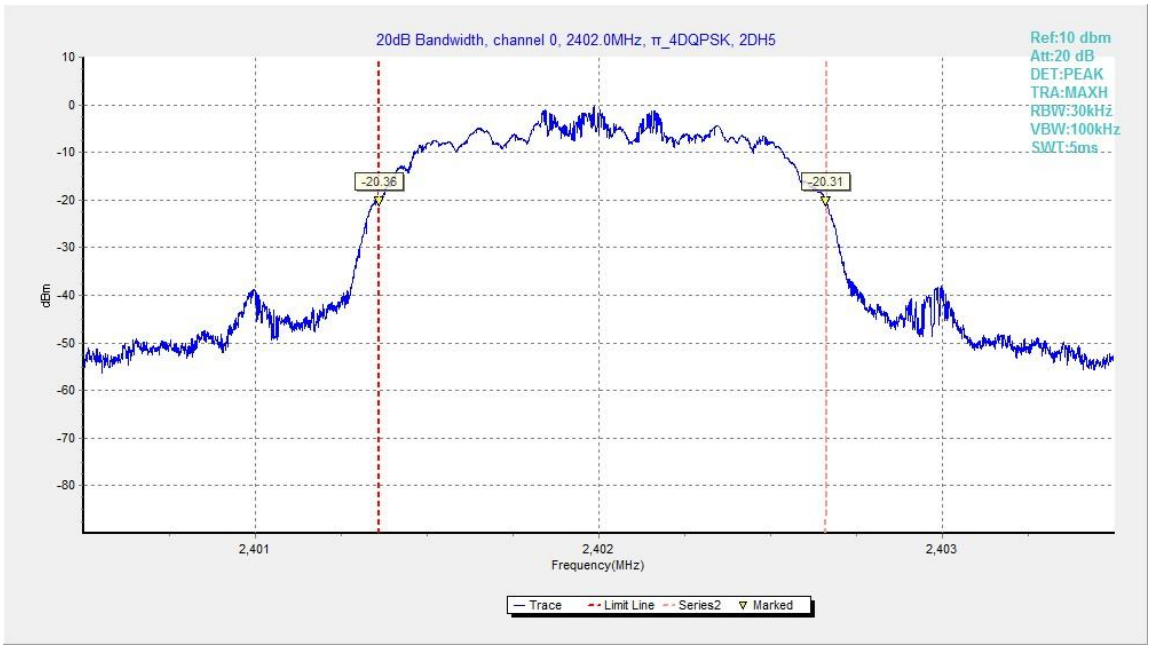


Fig.85. 20dB Bandwidth: π/4 DQPSK, Channel 0

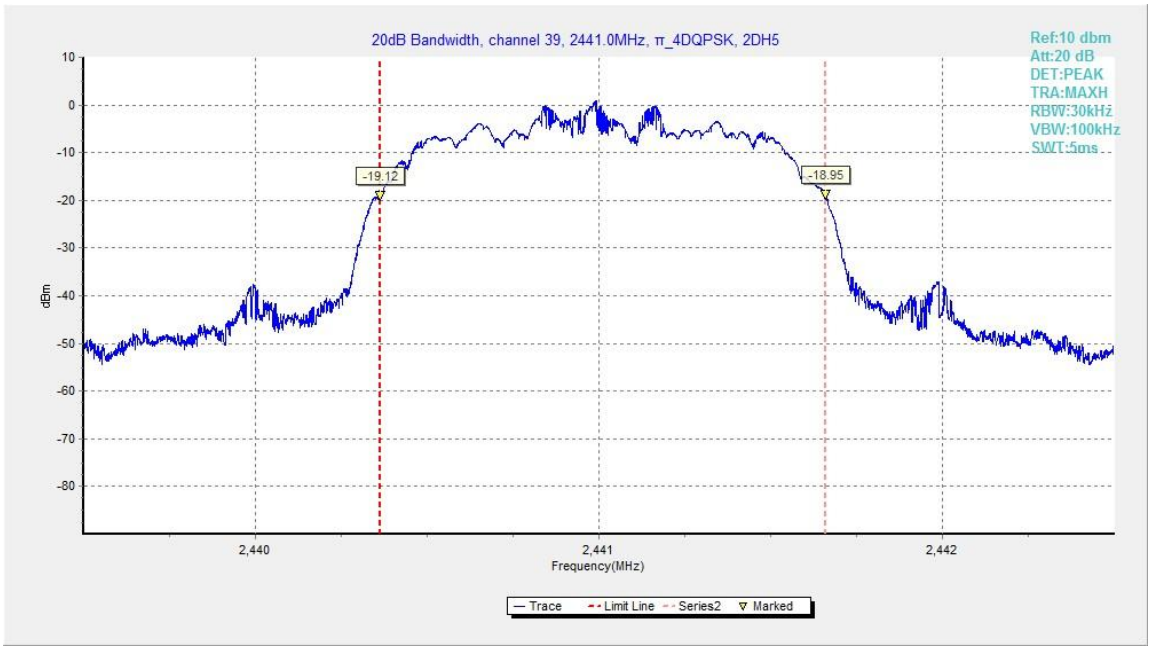


Fig.86. 20dB Bandwidth: π/4 DQPSK, Channel 39

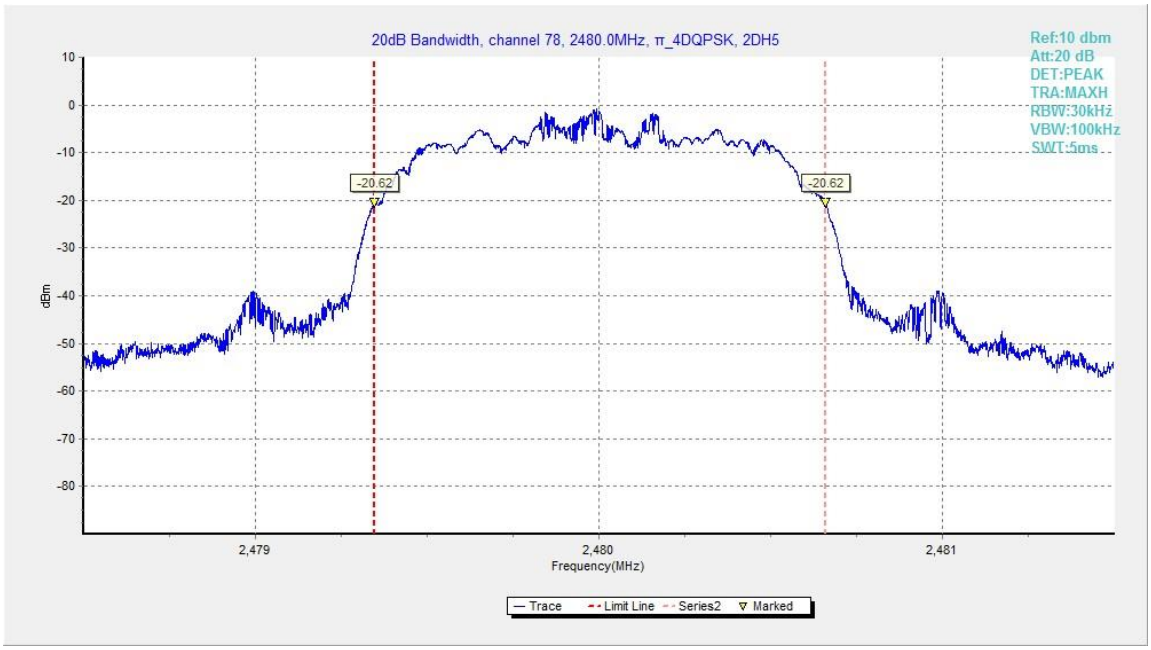


Fig.87. 20dB Bandwidth: π/4 DQPSK, Channel 78

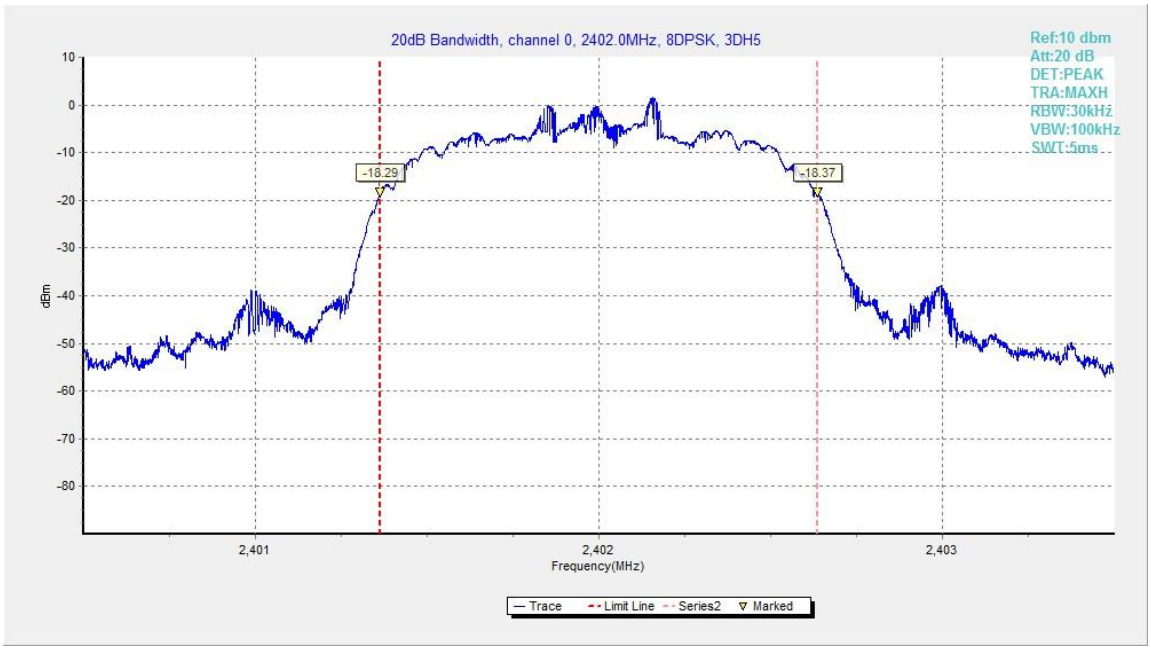


Fig.88. 20dB Bandwidth: 8DPSK, Channel 0

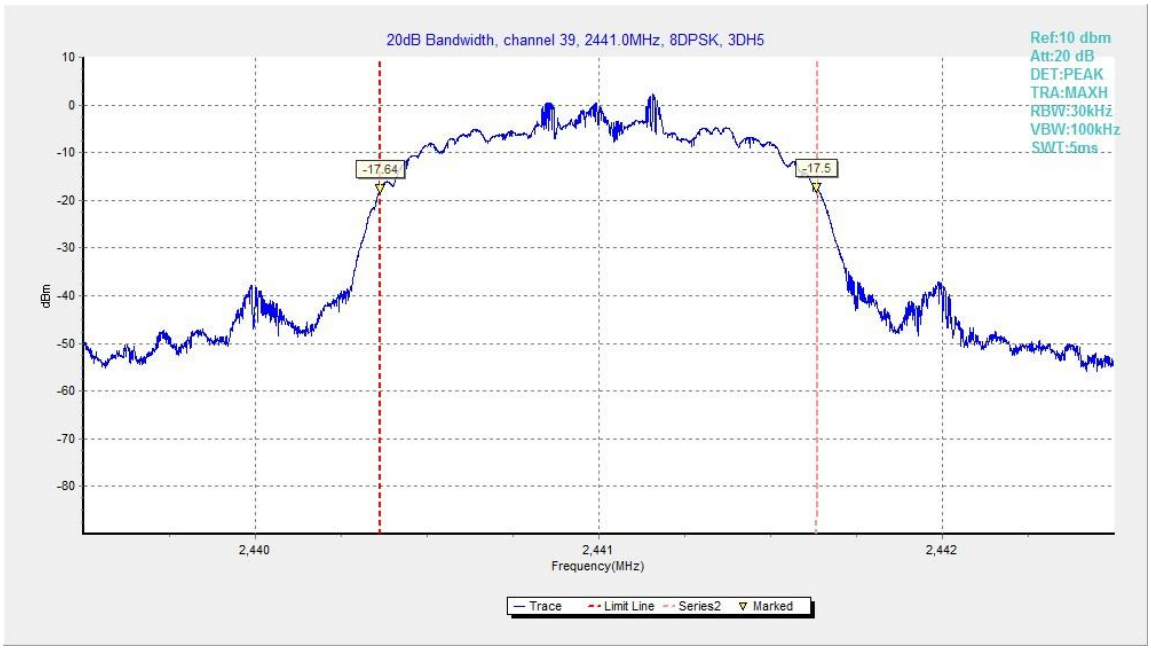


Fig.89. 20dB Bandwidth: 8DPSK, Channel 39

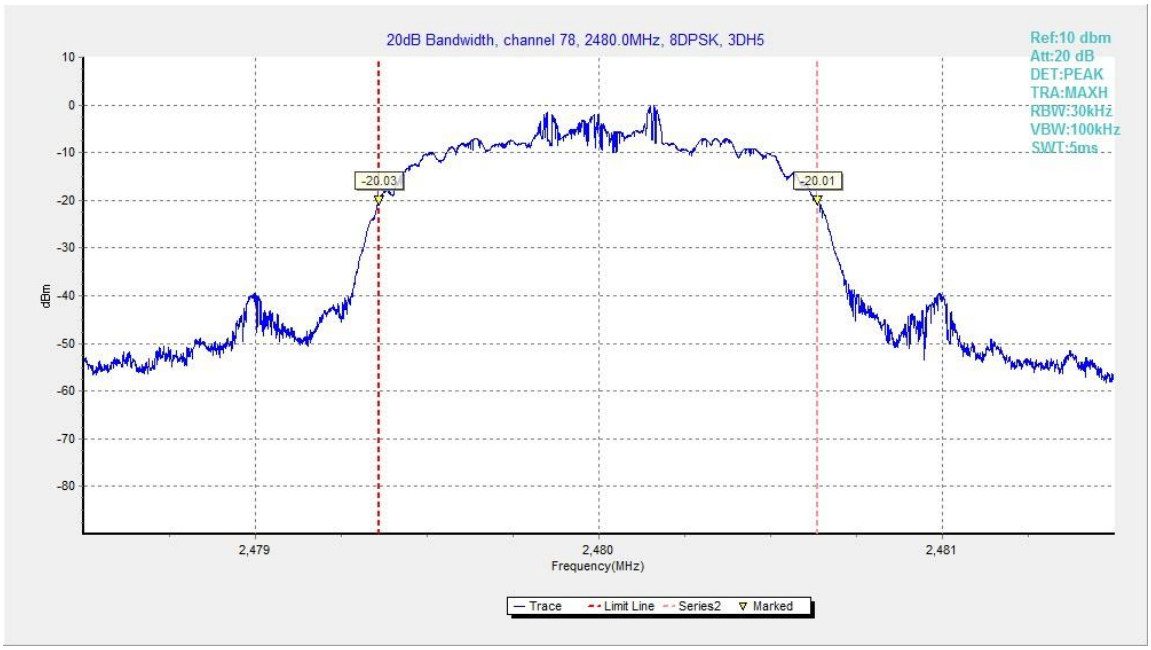


Fig.90. 20dB Bandwidth: 8DPSK, Channel 78

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	969.00	P

For π/4 DQPSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.92	1002.75	P

For 8DPSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.93	1216.50	P

Conclusion: PASS

Test graphs as below:

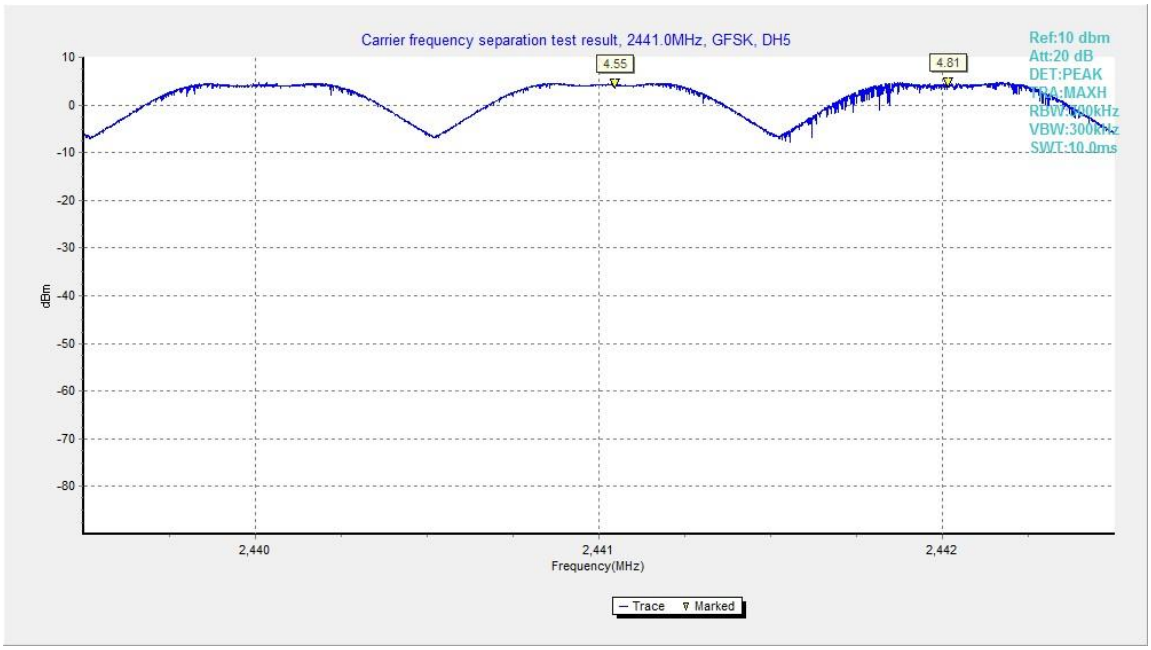


Fig.91. Carrier frequency separation measurement: GFSK, Channel 39

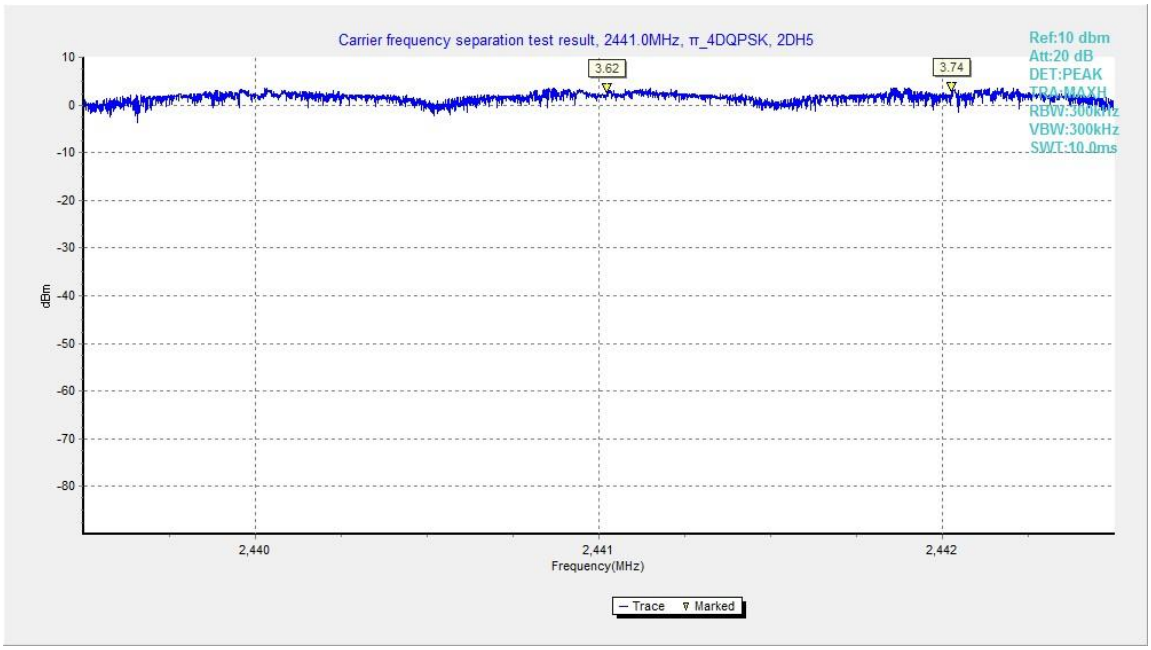


Fig.92. Carrier frequency separation measurement: π/4 DQPSK, Channel 39

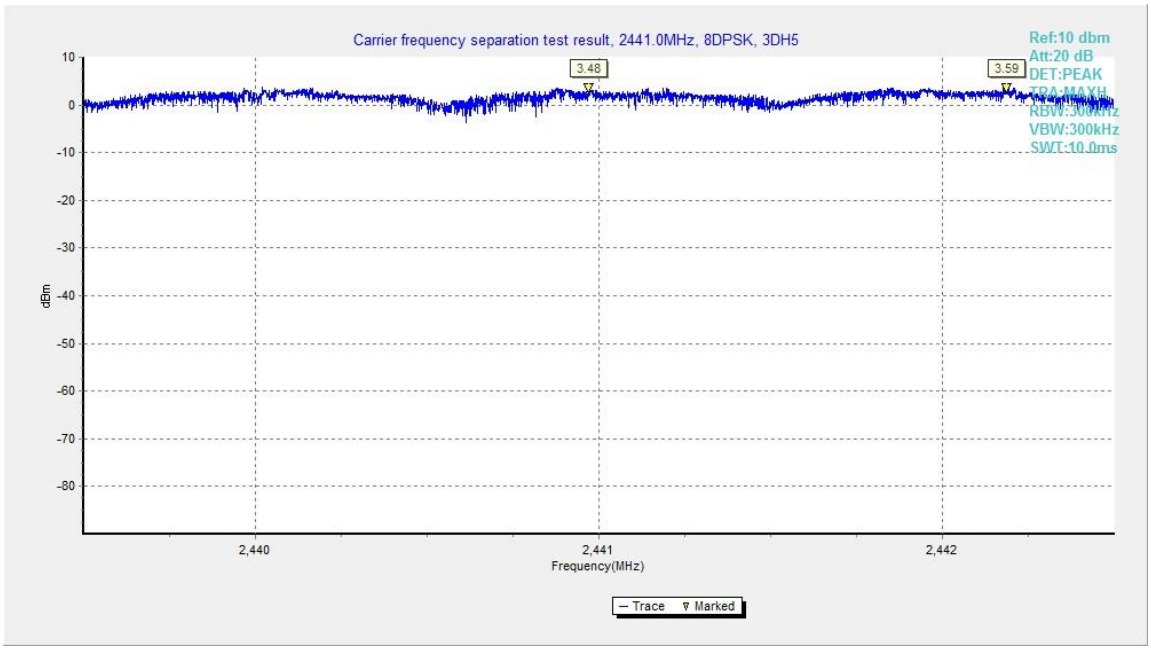


Fig.93. Carrier frequency separation measurement: 8DPSK, Channel 39

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:

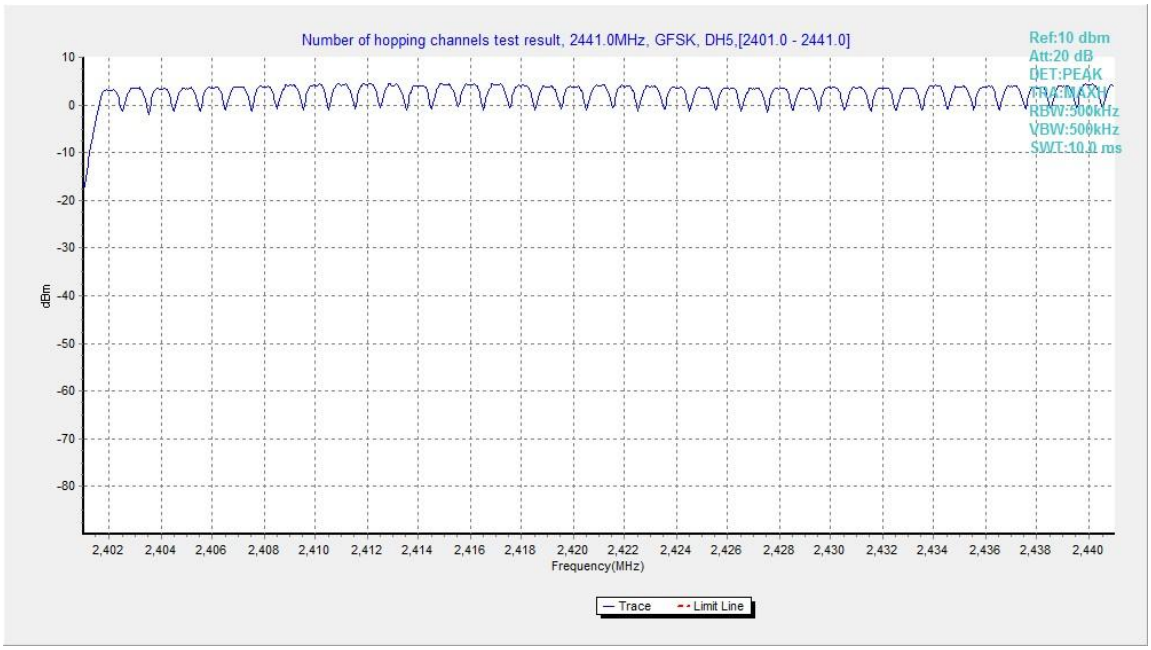


Fig.94. Number of hopping frequencies: GFSK, Channel 0 - 39

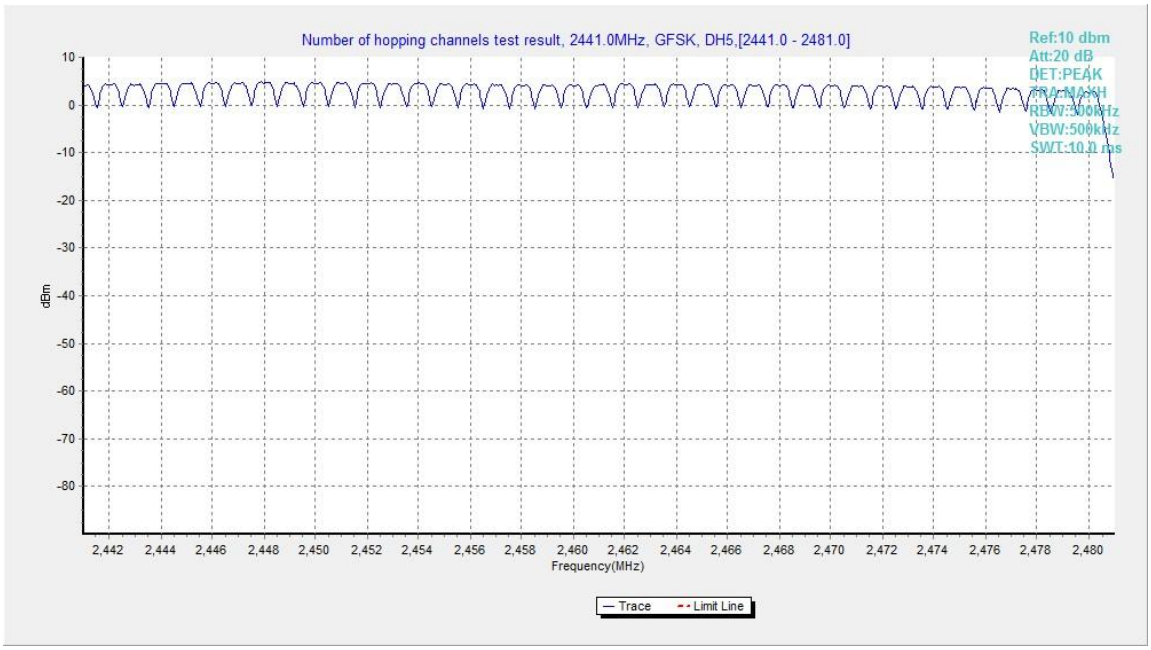


Fig.95. Number of hopping frequencies: GFSK, Channel 40 - 78

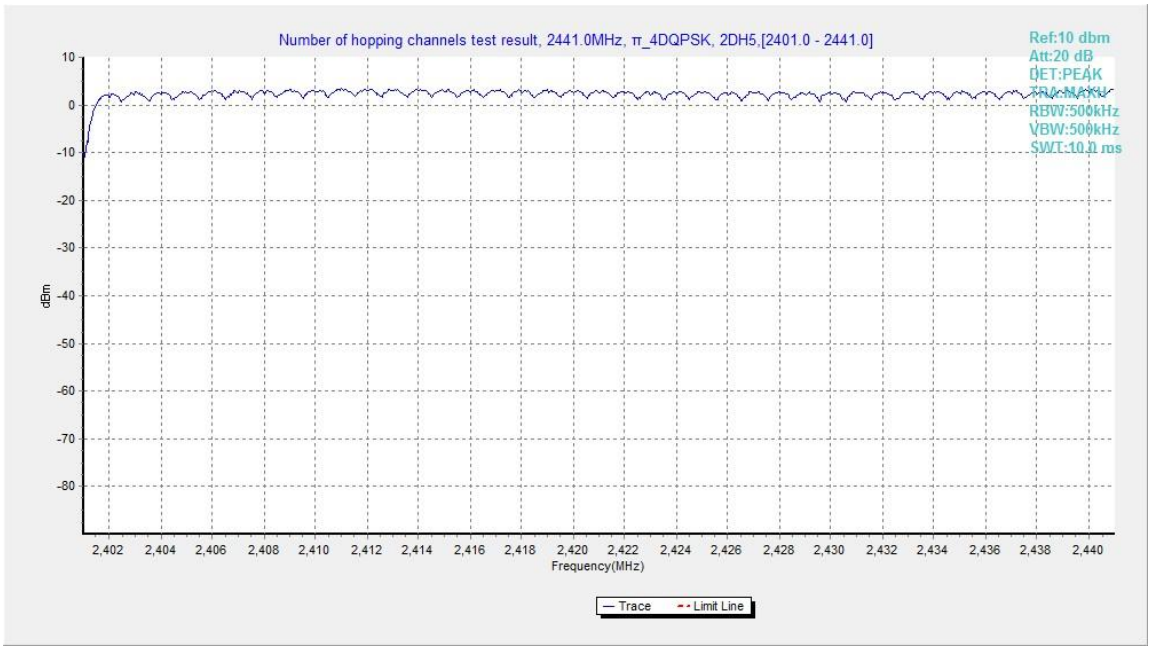


Fig.96. Number of hopping frequencies: π/4 DQPSK, Channel 0 - 39

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

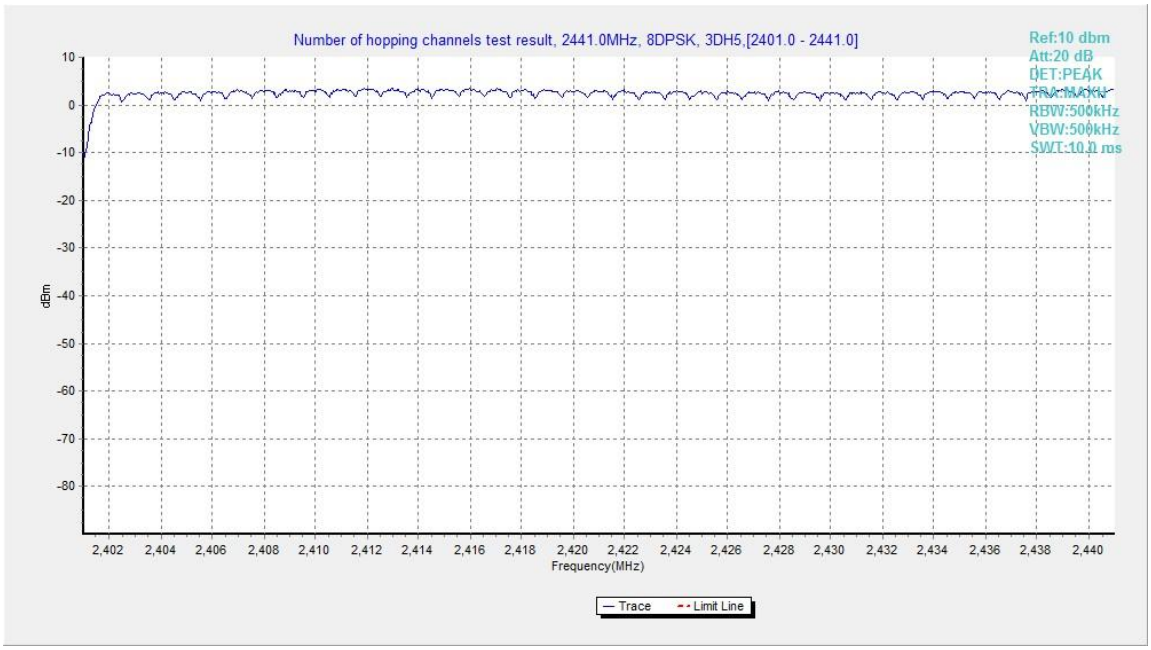


Fig.98. Number of hopping frequencies: 8DPSK, Channel 0 - 39

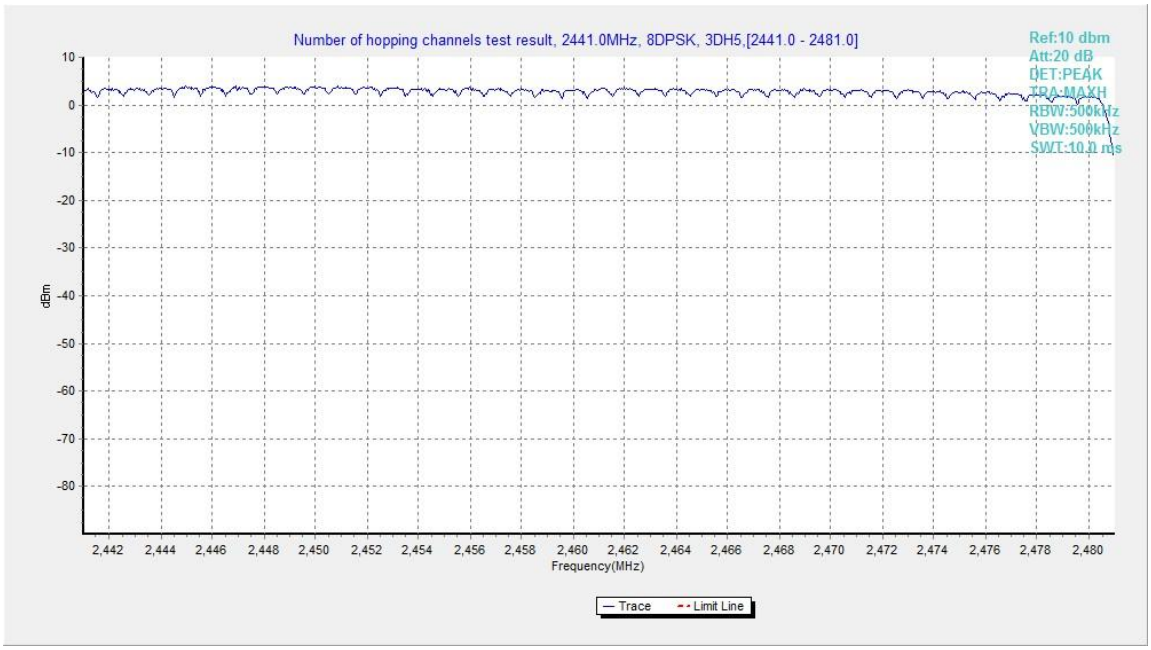


Fig.99. Number of hopping frequencies: 8DPSK, Channel 40 - 78

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)

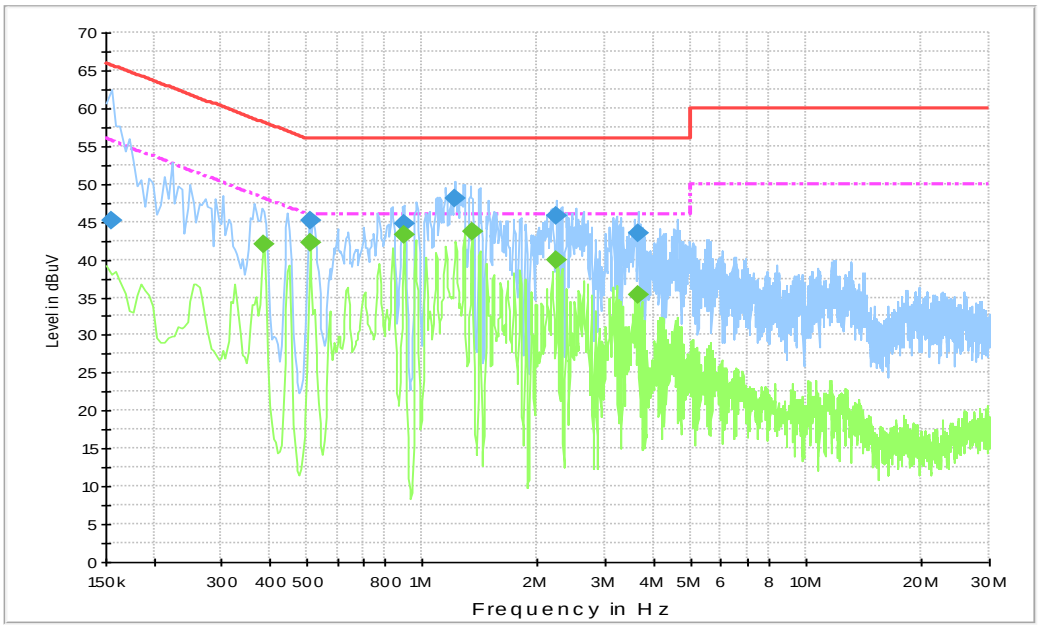
Frequency range (MHz)	Average Limit (dBμV)	Conclusion
0.15 to 0.5	56 to 46	P
0.5 to 5	46	
5 to 30	50	
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.		

The measurement is made according to ANSI C63.10

Conclusion: PASS

Test graphs as below:

Traffic (With AE2):



Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

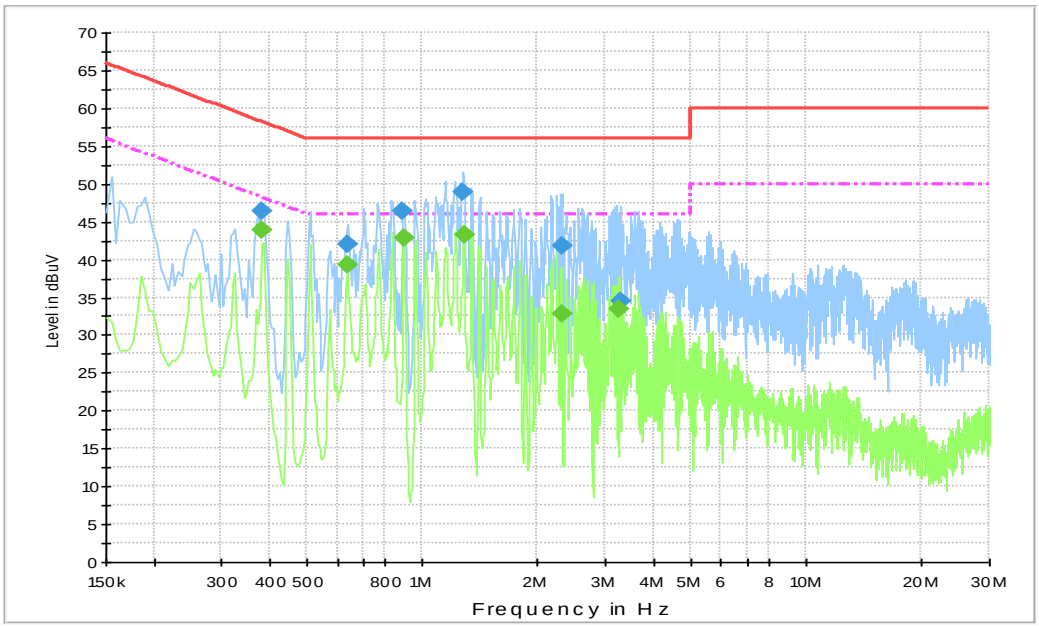
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154500	45.2	10000.0	9.000	On	L1	28.0	20.6	65.8
0.510000	45.1	10000.0	9.000	On	N	20.0	10.9	56.0
0.897000	44.8	10000.0	9.000	On	N	19.9	11.2	56.0
1.216500	48.1	10000.0	9.000	On	N	19.8	7.9	56.0
2.242500	45.8	10000.0	9.000	On	N	19.8	10.2	56.0
3.646500	43.4	10000.0	9.000	On	N	19.8	12.6	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.388500	42.0	10000.0	9.000	On	N	20.0	6.1	48.1
0.510000	42.3	10000.0	9.000	On	N	20.0	3.7	46.0
0.897000	43.4	10000.0	9.000	On	N	19.9	2.6	46.0
1.347000	43.7	10000.0	9.000	On	N	19.8	2.3	46.0
2.242500	39.9	10000.0	9.000	On	N	19.8	6.1	46.0
3.646500	35.2	10000.0	9.000	On	N	19.8	10.8	46.0

Note: The measurement results showed here are worst cases of the combinations of different USB cables.

Idle (With AE2):



Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

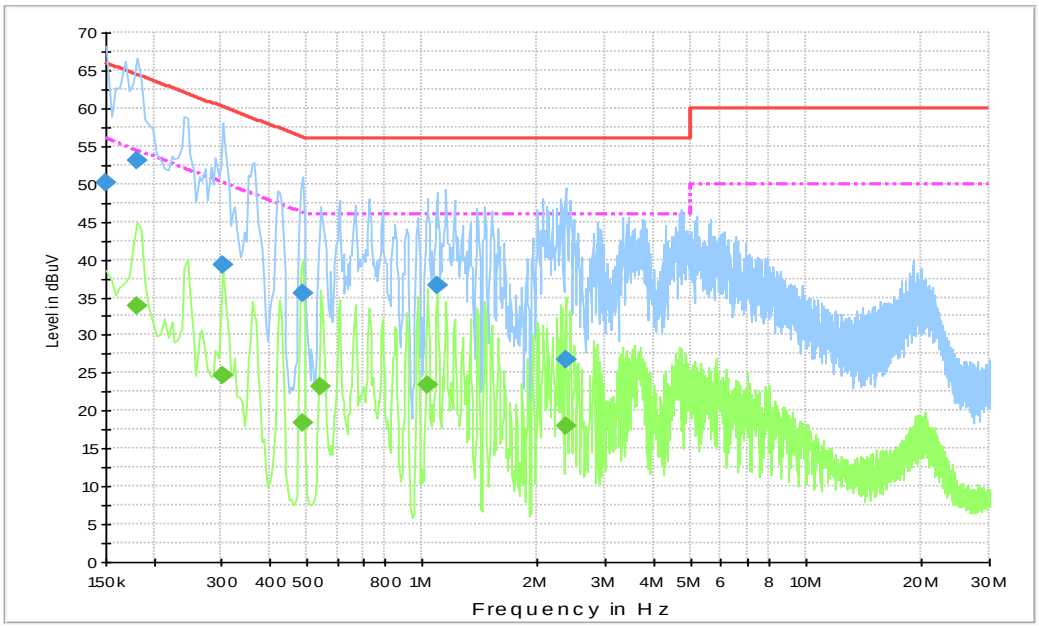
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.384000	46.4	10000.0	9.000	On	N	20.0	11.8	58.2
0.640500	41.9	10000.0	9.000	On	N	20.0	14.1	56.0
0.892500	46.5	10000.0	9.000	On	L1	19.9	9.5	56.0
1.279500	48.8	10000.0	9.000	On	N	19.8	7.2	56.0
2.314500	41.7	10000.0	9.000	On	N	19.8	14.3	56.0
3.282000	34.4	10000.0	9.000	On	N	19.8	21.6	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.384000	43.9	10000.0	9.000	On	N	20.0	4.3	48.2
0.636000	39.2	10000.0	9.000	On	N	20.0	6.8	46.0
0.897000	42.8	10000.0	9.000	On	N	19.9	3.2	46.0
1.284000	43.2	10000.0	9.000	On	N	19.8	2.8	46.0
2.310000	32.8	10000.0	9.000	On	N	19.8	13.2	46.0
3.268500	33.4	10000.0	9.000	On	N	19.8	12.6	46.0

Note: The measurement results showed here are worst cases of the combinations of different USB cables.

Traffic (With AE3):



Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

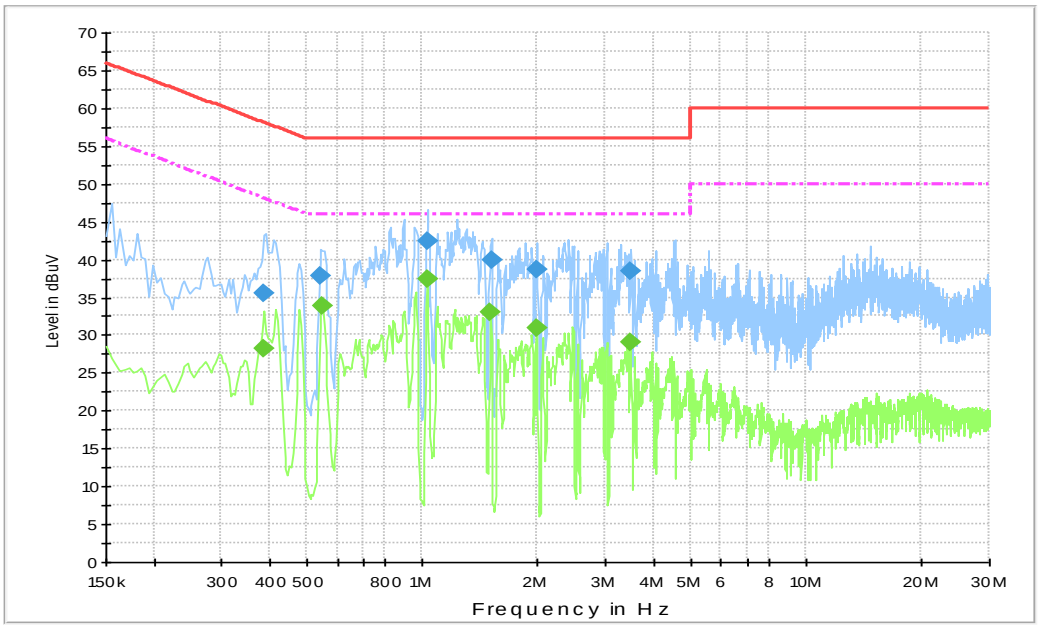
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	50.2	10000.0	9.000	On	N	28.9	15.8	66.0
0.181500	53.1	10000.0	9.000	On	L1	23.0	11.4	64.4
0.303000	39.2	10000.0	9.000	On	N	20.0	21.0	60.2
0.487500	35.4	10000.0	9.000	On	L1	20.0	20.8	56.2
1.090500	36.7	10000.0	9.000	On	L1	19.9	19.3	56.0
2.359500	26.8	10000.0	9.000	On	N	19.8	29.2	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.181500	33.8	10000.0	9.000	On	L1	23.0	20.6	54.4
0.303000	24.7	10000.0	9.000	On	N	20.0	25.5	50.2
0.487500	18.5	10000.0	9.000	On	L1	20.0	27.7	46.2
0.546000	23.2	10000.0	9.000	On	L1	20.0	22.8	46.0
1.032000	23.5	10000.0	9.000	On	L1	19.9	22.5	46.0
2.359500	18.0	10000.0	9.000	On	L1	19.8	28.0	46.0

Note: The measurement results showed here are worst cases of the combinations of different USB cables.

Traffic (With AE4):



Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.388500	35.5	10000.0	9.000	On	L1	20.0	22.6	58.1
0.546000	37.8	10000.0	9.000	On	L1	20.0	18.2	56.0
1.032000	42.4	10000.0	9.000	On	L1	19.9	13.6	56.0
1.513500	39.9	10000.0	9.000	On	L1	19.8	16.1	56.0
1.990500	38.7	10000.0	9.000	On	L1	19.8	17.3	56.0
3.507000	38.5	10000.0	9.000	On	L1	19.8	17.5	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.388500	28.2	10000.0	9.000	On	L1	20.0	19.9	48.1
0.550500	33.8	10000.0	9.000	On	L1	20.0	12.2	46.0
1.027500	37.5	10000.0	9.000	On	L1	19.9	8.5	46.0
1.509000	33.0	10000.0	9.000	On	L1	19.8	13.0	46.0
1.990500	31.0	10000.0	9.000	On	L1	19.8	15.0	46.0
3.498000	29.0	10000.0	9.000	On	L1	19.8	17.0	46.0

Note: The measurement results showed here are worst cases of the combinations of different USB cables.

ANNEX B: Accreditation Certificate

United States Department of Commerce
National Institute of Standards and Technology

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).

2019-09-26 through 2020-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program

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