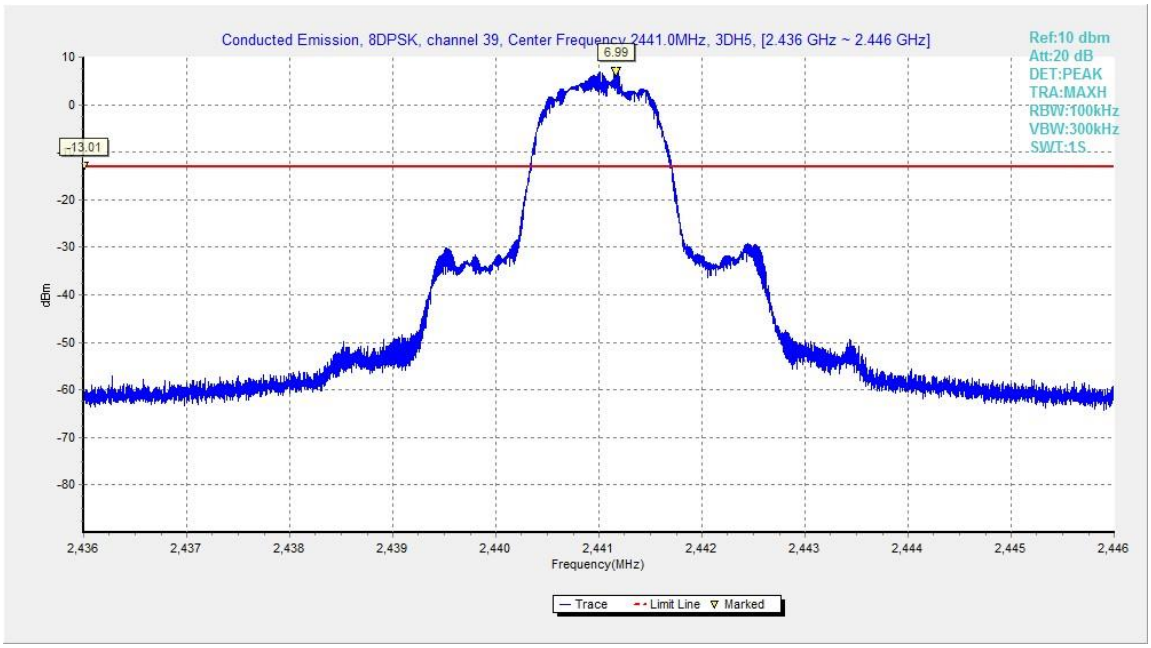

Fig.48. Conducted spurious emission: 8DPSK, Channel 39, 2441MHz

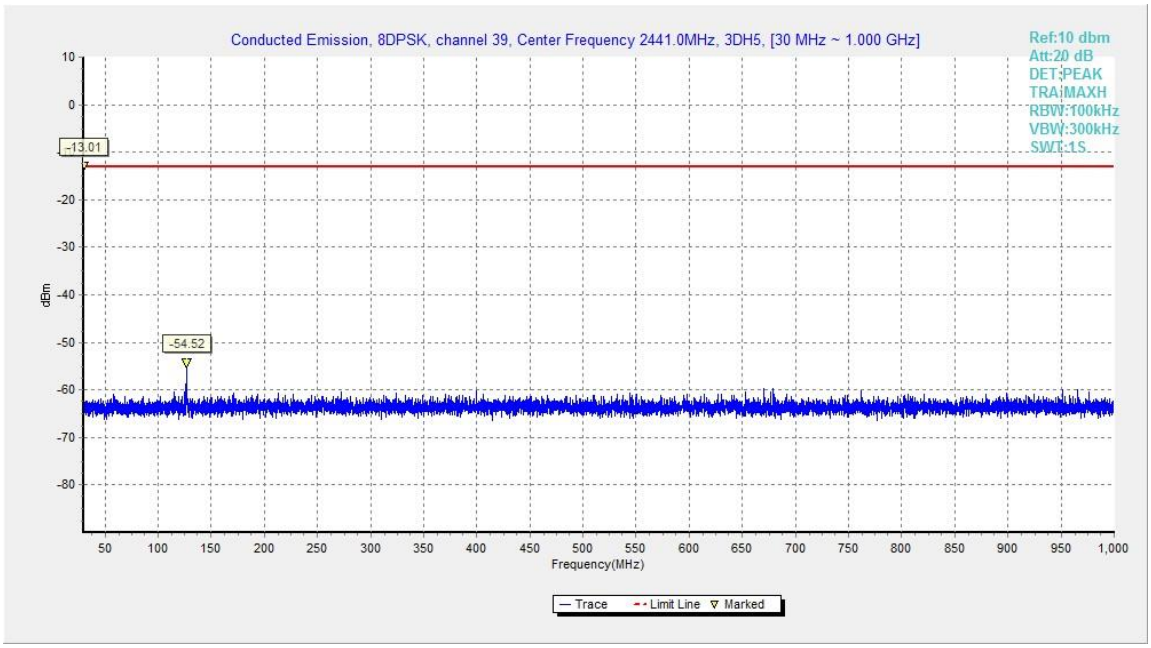

Fig.49. Conducted spurious emission: 8DPSK, Channel 39, 30MHz - 1GHz

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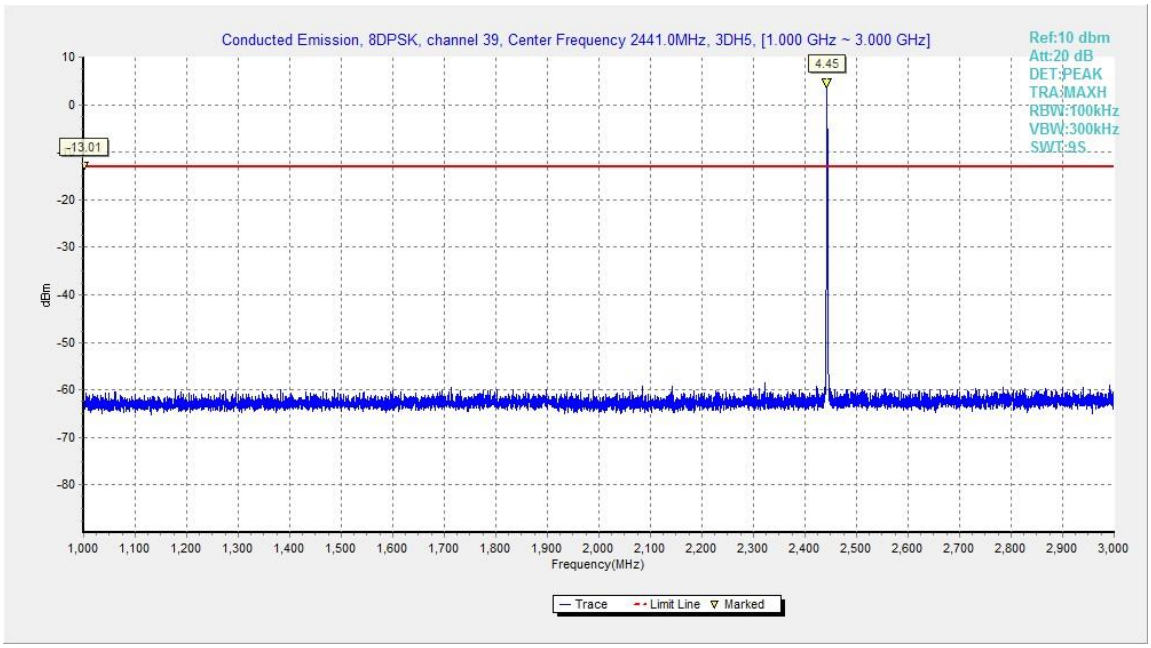

Fig.50. Conducted spurious emission: 8DPSK, Channel 39, 1GHz - 3GHz

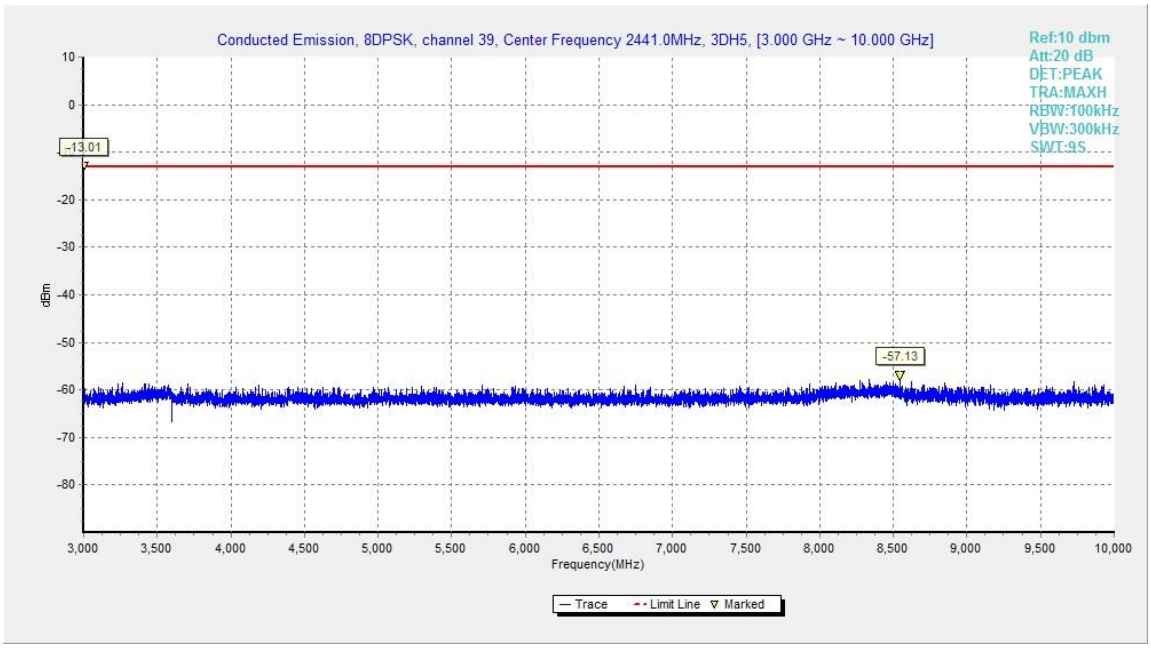

Fig.51. Conducted spurious emission: 8DPSK, Channel 39, 3GHz - 10GHz

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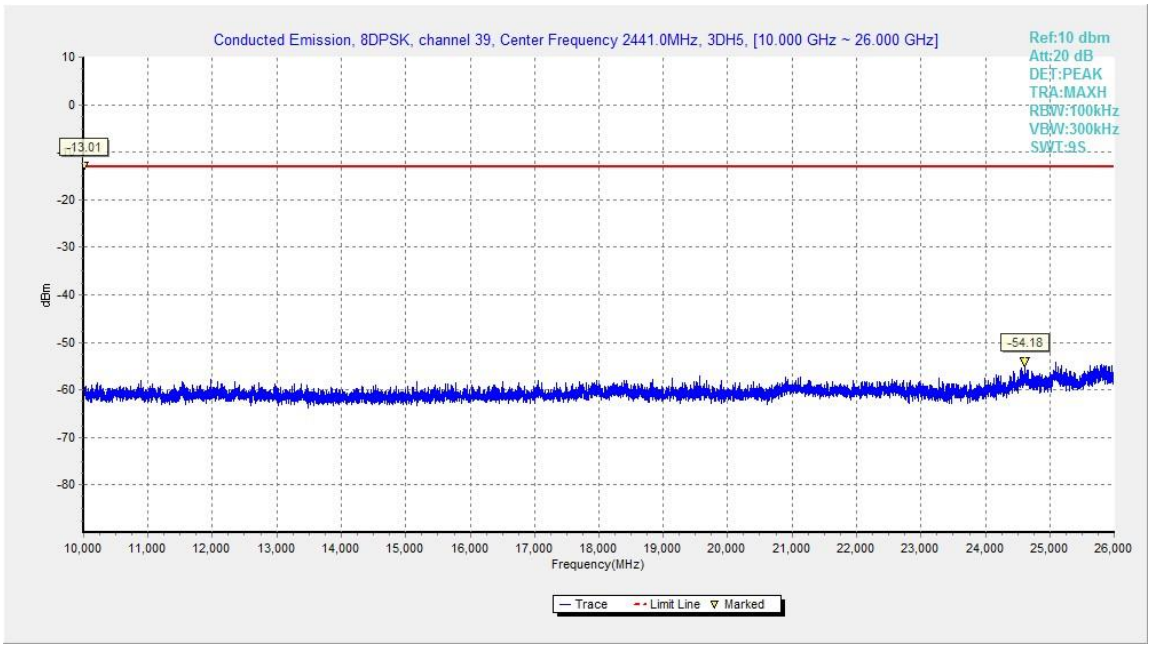

Fig.52. Conducted spurious emission: 8DPSK, Channel 39, 10GHz – 26GHz

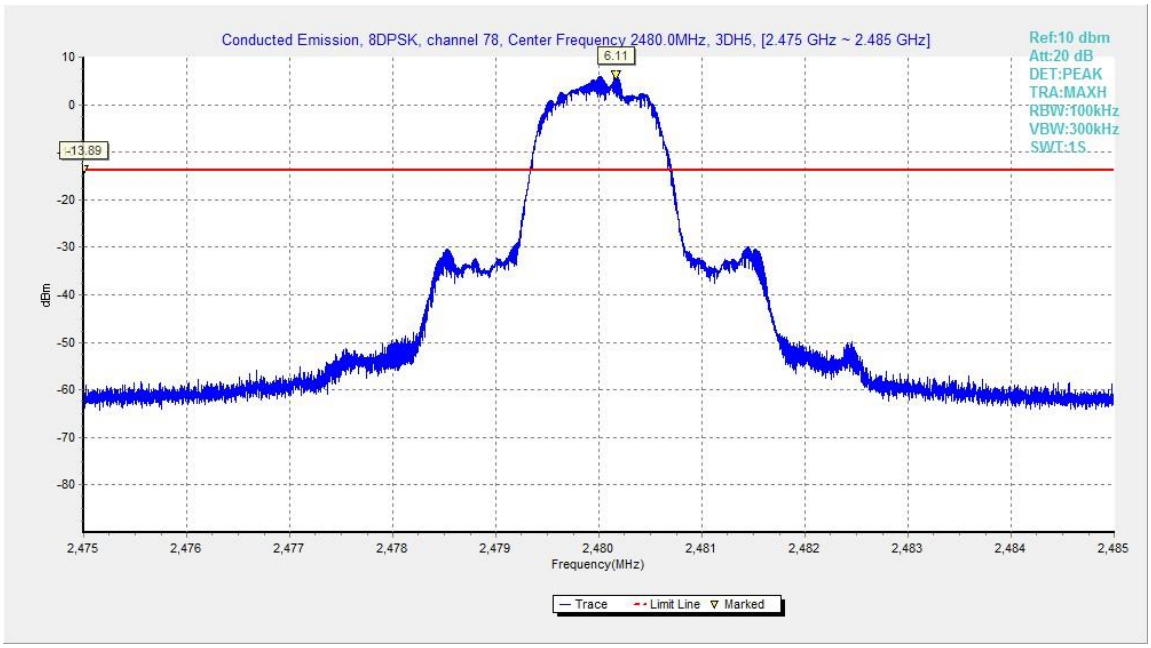

Fig.53. Conducted spurious emission: 8DPSK, Channel 78, 2480MHz

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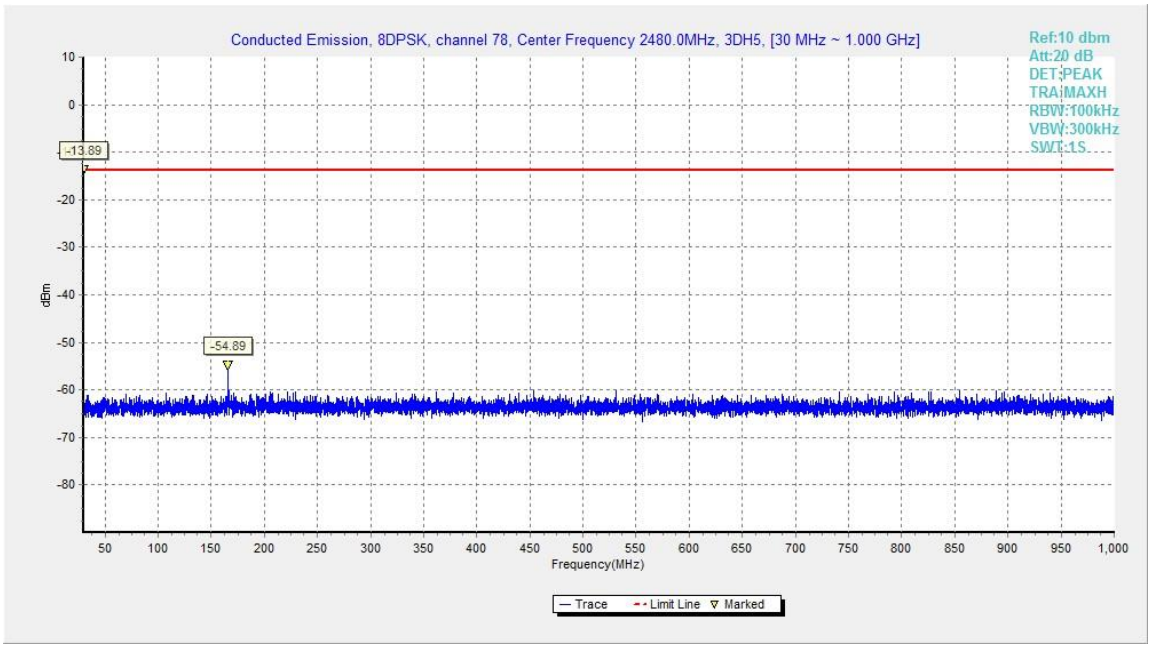

Fig.54. Conducted spurious emission: 8DPSK, Channel 78, 30MHz - 1GHz

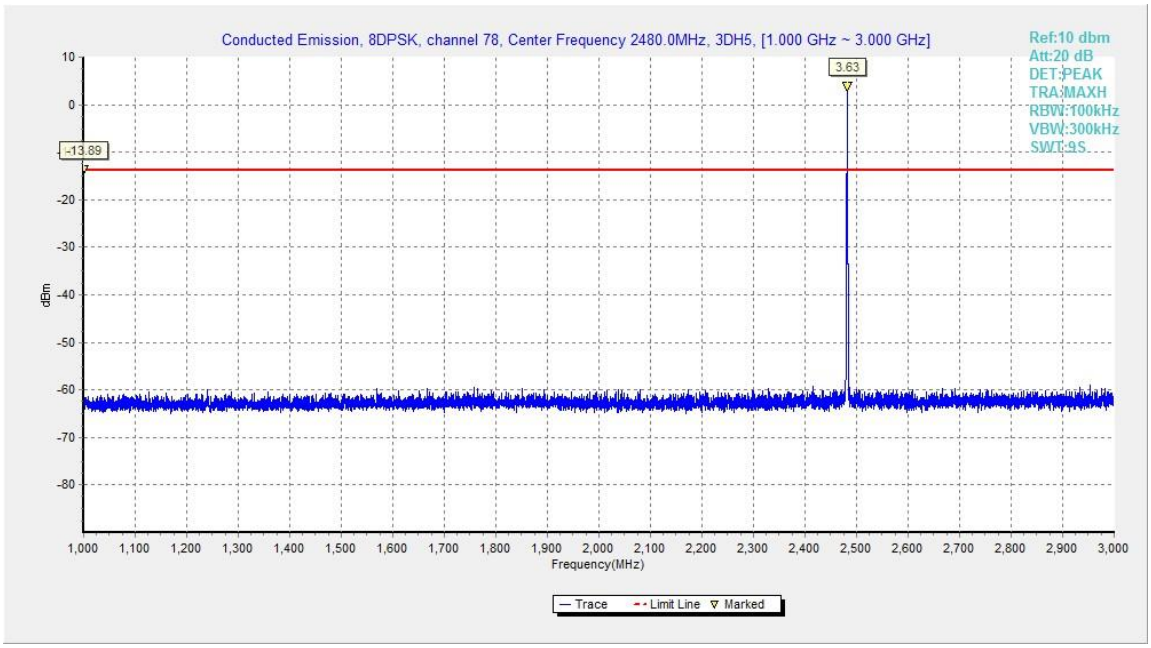

Fig.55. Conducted spurious emission: 8DPSK, Channel 78, 1GHz - 3GHz

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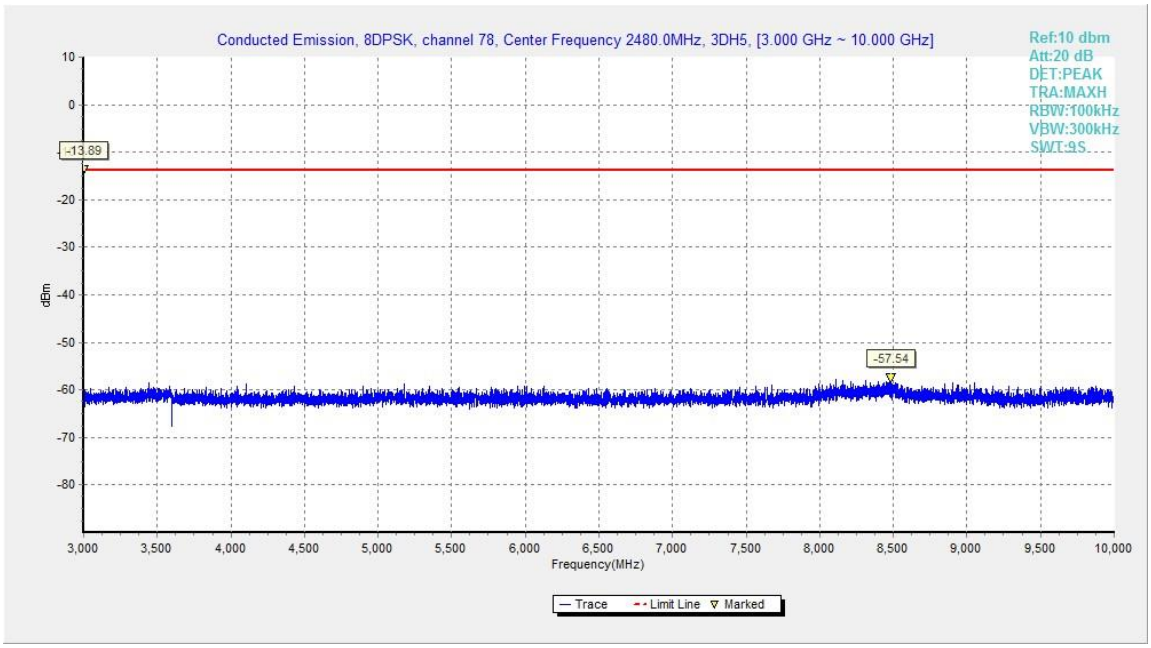

Fig.56. Conducted spurious emission: 8DPSK, Channel 78, 3GHz - 10GHz

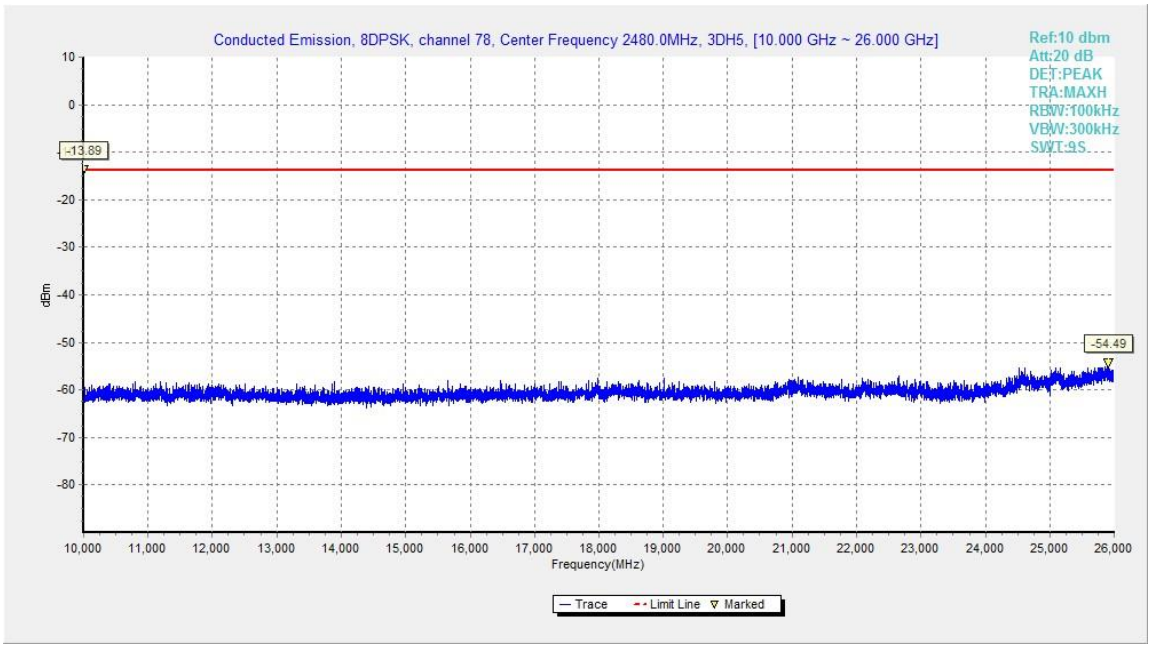

Fig.57. Conducted spurious emission: 8DPSK, Channel 78, 10GHz - 26GHz

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A.5. Radiated Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

The measurement is made according to ANSI C63.10

Limit in restricted band:

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Condition

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100KHz/300KHz	5
1000-4000	1MHz/1MHz	15
4000-18000	1MHz/1MHz	40
18000-26500	1MHz/1MHz	20

Measurement Results:

Result=P_{Mea}+ARPL

For GFSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	1 GHz ~ 3 GHz	Fig.58	P
	3 GHz ~ 18 GHz	Fig.59	P
Ch 39 2441 MHz	9 kHz ~ 30 MHz	Fig.60	P
	30 MHz ~ 1 GHz	Fig.61	P
	1 GHz ~ 3 GHz	Fig.62	P
	3 GHz ~ 18 GHz	Fig.63	P
Ch 78 2480 MHz	1 GHz ~ 3 GHz	Fig.64	P
	3 GHz ~ 18 GHz	Fig.65	P
Power	2.38GHz~2.4GHz---L	Fig.66	P
Power	2.45GHz~2.5GHz---H	Fig.67	P

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For all channels	18 GHz ~ 26 GHz	Fig.68	P

Forπ/4 DQPSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	1 GHz ~ 3 GHz	Fig.69	P
	3 GHz ~ 18 GHz	Fig.70	P
Ch 39 2441 MHz	30 MHz ~ 1 GHz	Fig.71	P
	1 GHz ~ 3 GHz	Fig.72	P
	3 GHz ~ 18 GHz	Fig.73	P
Ch 78 2480 MHz	1 GHz ~ 3 GHz	Fig.74	P
	3 GHz ~ 18 GHz	Fig.75	P
Power	2.38GHz~2.4GHz---L	Fig.76	P
Power	2.45GHz~2.5GHz---H	Fig.77	P
For all channels	18 GHz ~ 26 GHz	Fig.78	P

For 8DPSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	1 GHz ~ 3 GHz	Fig.79	P
	3 GHz ~ 18 GHz	Fig.80	P
Ch 39 2441 MHz	30 MHz ~ 1 GHz	Fig.81	P
	1 GHz ~ 3 GHz	Fig.82	P
	3 GHz ~ 18 GHz	Fig.83	P
Ch 78 2480 MHz	1 GHz ~ 3 GHz	Fig.84	P
	3 GHz ~ 18 GHz	Fig.85	P
Power	2.38GHz~2.4GHz---L	Fig.86	P
Power	2.45GHz~2.5GHz---H	Fig.87	P
For all channels	18 GHz ~ 26 GHz	Fig.88	P

GFSK Ch 0 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	PMea(dBuv/m)	Polarization
2389.310	41.9	-11.1	53.0	H
17983.594	49.9	27.9	22.0	H
17988.281	49.9	27.9	22.0	V
17983.125	49.8	27.9	21.9	H
17990.156	49.8	27.9	21.9	H
17999.531	49.7	27.9	21.8	H

GFSK Ch 39 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
17983.125	49.8	27.9	21.900	H
17997.188	49.7	27.9	21.800	H
17979.844	49.6	27.9	21.700	V
17994.844	49.6	27.9	21.700	H
17998.594	49.6	27.9	21.700	H
17996.250	49.5	27.9	21.600	H

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GFSK Ch 78 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2484.150	42.0	-11.2	53.2	H
17986.875	50.1	27.9	22.2	H
17997.188	50.1	27.9	22.2	V
17991.094	50.0	27.9	22.1	H
17990.625	49.9	27.9	22.0	H
17991.563	49.9	27.9	22.0	H

π/4 DQPSK Ch 0 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2389.660	41.7	-11.1	52.8	H
17983.594	49.9	27.9	22.0	H
17988.281	49.9	27.9	22.0	V
17983.125	49.8	27.9	21.9	H
17990.156	49.8	27.9	21.9	H
17999.531	49.7	27.9	21.8	H

π/4 DQPSK Ch 39 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
17983.125	49.8	27.9	21.9	H
17997.188	49.7	27.9	21.8	H
17979.844	49.6	27.9	21.7	V
17994.844	49.6	27.9	21.7	H
17998.594	49.6	27.9	21.7	H
17996.250	49.5	27.9	21.6	H

π/4 DQPSK Ch 78 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2483.385	41.8	-11.2	53.0	H
17986.875	50.1	27.9	22.2	H
17997.188	50.1	27.9	22.2	V
17991.094	50.0	27.9	22.1	H
17990.625	49.9	27.9	22.0	H
17991.563	49.9	27.9	22.0	H

8DPSK Ch 0 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2387.320	41.9	-11.1	53.0	H
17994.375	50.0	27.9	22.1	H
17993.438	50.0	27.9	22.1	V
17991.563	49.9	27.9	22.0	H
17998.594	49.9	27.9	22.0	H
17986.875	49.8	27.9	21.9	H

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8DPSK Ch 39 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
17990.156	50.0	27.9	22.1	H
17997.531	50.0	26.8	51.1	H
17999.531	49.9	27.9	22.0	V
17994.844	49.8	27.9	21.9	H
17991.563	49.7	27.9	21.8	H
17993.438	49.7	27.9	21.8	H

8DPSK Ch 78 - Average

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2490.200	42.1	-11.2	53.3	H
17993.438	50.2	27.9	22.3	H
17990.625	50.0	27.9	22.1	V
17997.656	49.9	27.9	22.0	H
17980.313	49.9	27.9	22.0	H
17999.531	49.8	27.9	21.9	H

GFSK Ch 0 - Peak

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	PMea(dBuv/m)	Polarization
2389.135	54.2	-11.1	65.3	H
17967.656	61.0	27.9	33.1	H
17982.188	60.6	27.9	32.7	V
17991.563	60.6	27.9	32.7	H
17984.063	60.5	27.9	32.6	H
17979.844	60.3	27.9	32.4	H

GFSK Ch 39 - Peak

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
17989.688	61.0	27.9	33.1	H
17988.750	60.8	27.9	32.9	H
17992.969	60.6	27.9	32.7	V
17998.594	60.5	27.9	32.6	H
17988.281	60.2	27.9	32.3	H
17990.625	60.1	27.9	32.2	H

GFSK Ch 78 - Peak

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2483.840	54.3	-11.2	65.500	H
17973.281	60.8	27.9	32.900	H
17999.531	60.5	27.9	32.600	V
17992.500	60.5	27.9	32.600	H
17987.344	60.5	27.9	32.600	H
17991.563	60.3	27.9	32.400	H

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π/4 DQPSK Ch 0 - Peak

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2390.145	54.3	-11.1	65.4	H
17967.656	61.0	27.9	33.1	H
17982.188	60.6	27.9	32.7	V
17991.563	60.6	27.9	32.7	H
17984.063	60.5	27.9	32.6	H
17979.844	60.3	27.9	32.4	H

π/4 DQPSK Ch 39 - Peak

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
17989.688	61.0	27.9	33.1	H
17988.750	60.8	27.9	32.9	H
17992.969	60.6	27.9	32.7	V
17998.594	60.5	27.9	32.6	H
17988.281	60.2	27.9	32.3	H
17990.625	60.1	27.9	32.2	H

π/4 DQPSK Ch 78 - Peak

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2483.425	53.7	-11.2	64.9	H
17973.281	60.8	27.9	32.9	H
17999.531	60.5	27.9	32.6	V
17992.500	60.5	27.9	32.6	H
17987.344	60.5	27.9	32.6	H
17991.563	60.3	27.9	32.4	H

8DPSK Ch 0 - Peak

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2380.780	53.5	-11.1	64.6	H
17984.063	61.0	27.9	33.1	H
17987.344	60.8	27.9	32.9	V
17999.063	60.7	27.9	32.8	H
17985.000	60.4	27.9	32.5	H
17983.125	60.2	27.9	32.3	H

8DPSK Ch 39 - Peak

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
17988.750	60.9	27.9	33.0	H
17990.625	60.6	27.9	32.7	H
17982.188	60.5	27.9	32.6	V
17995.781	60.4	27.9	32.5	H
17994.375	60.4	27.9	32.5	H
17991.275	60.4	26.9	61.0	H

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8DPSK Ch 78 - Peak

Frequency(MHz)	Result(dBuv/m)	ARPL (dB)	Pmea(dBuv/m)	Polarization
2490.115	54.4	-11.2	65.6	H
17996.719	61.1	27.9	33.2	H
17990.625	60.9	27.9	33.0	V
17988.281	60.8	27.9	32.9	H
17983.594	60.7	27.9	32.8	H
17975.625	60.4	27.9	32.5	H

Sample calculation: 8DPSK Ch 78 - Peak, 2490.115 MHz

Peak ERP(dBm) = PMea(65.6 dBuV/m) + ARpl (-11.2 dB) = 54.4 dBuV/m

Conclusion: PASS

Test graphs as below:

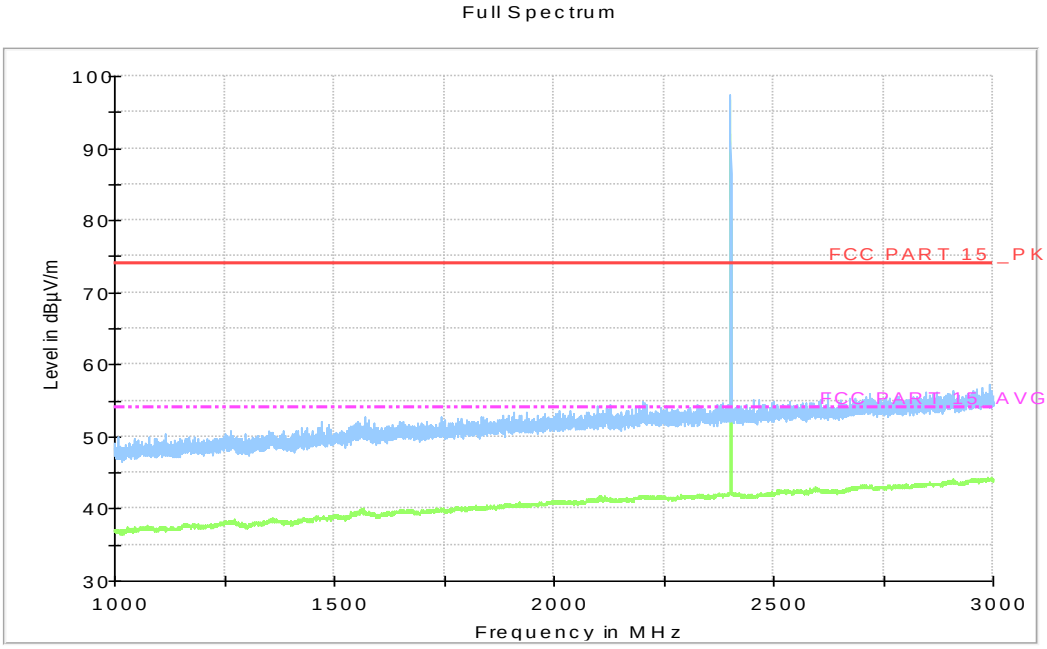

Fig.58. Radiated emission: GFSK, Channel 0, 1 GHz - 3 GHz

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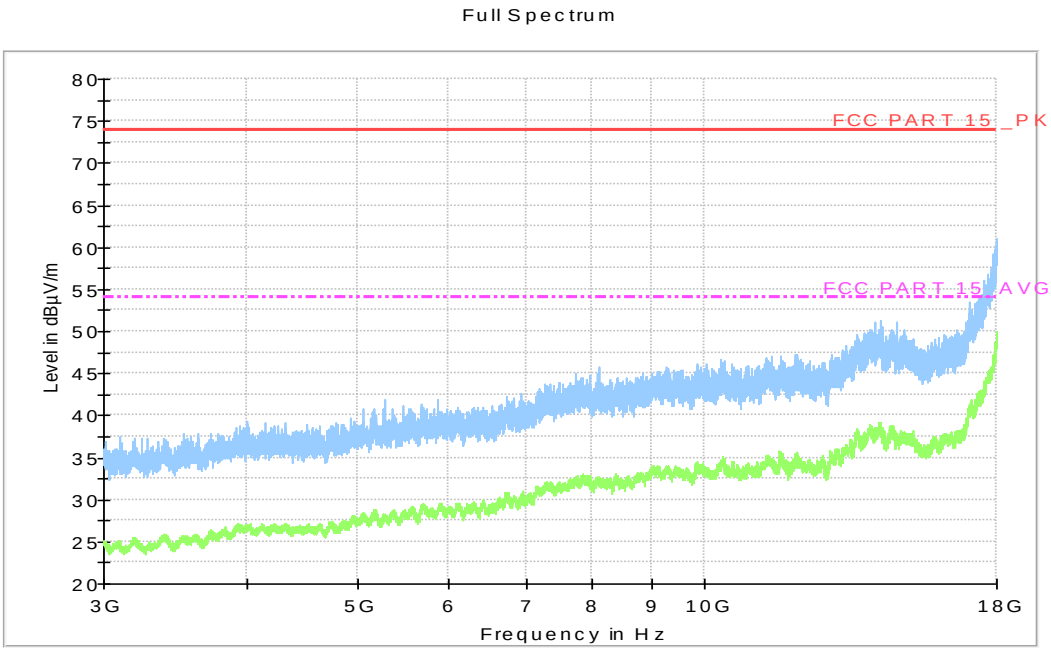

Fig.59. Radiated emission: GFSK, Channel 0, 3 GHz - 18 GHz

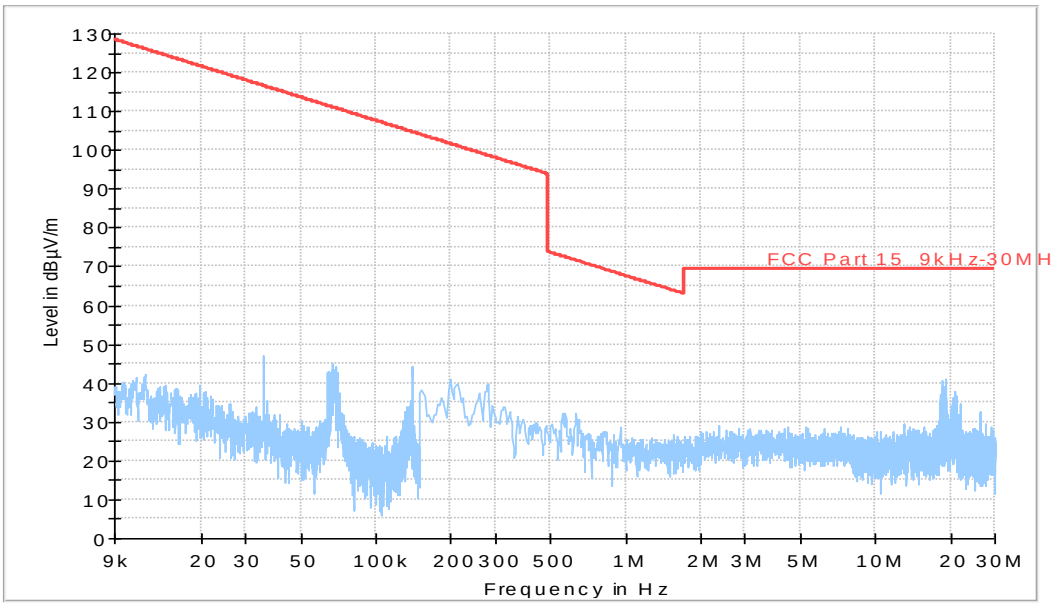

Fig.60. Radiated emission: GFSK, Channel 39, 9 kHz - 30 MHz

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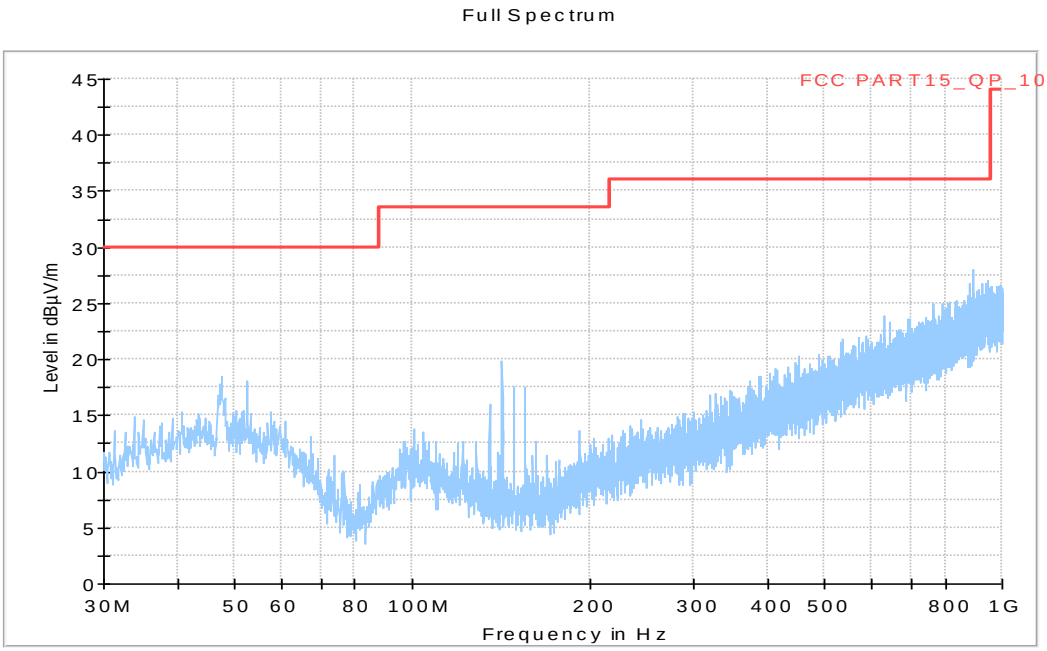

Fig.61. Radiated emission: GFSK, Channel 39, 30 MHz - 1 GHz

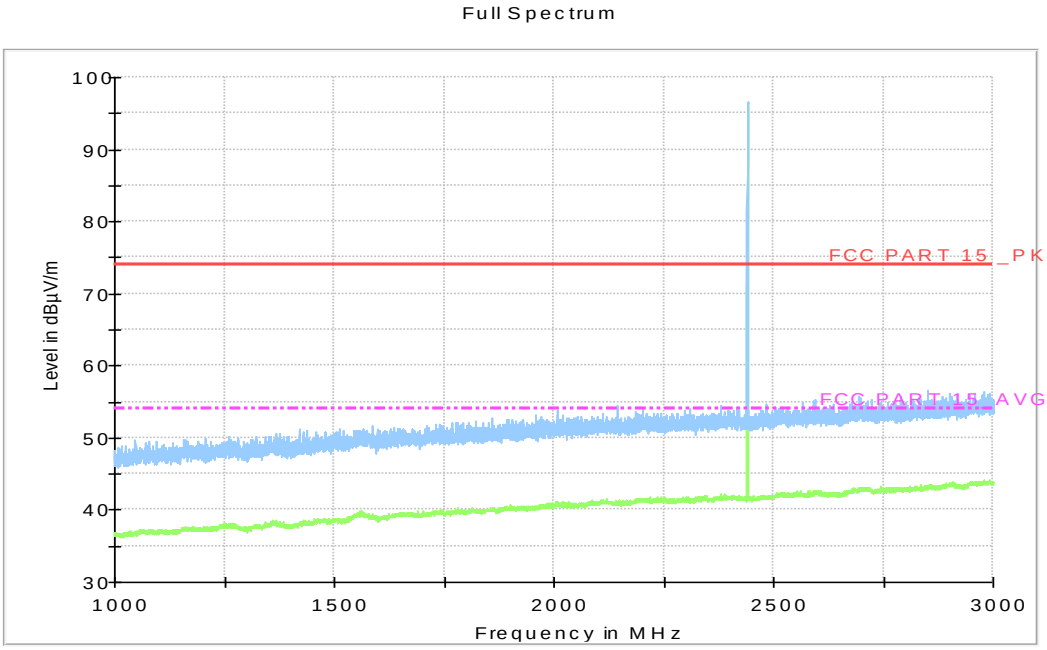

Fig.62. Radiated emission: GFSK, Channel 39, 1 GHz - 3 GHz

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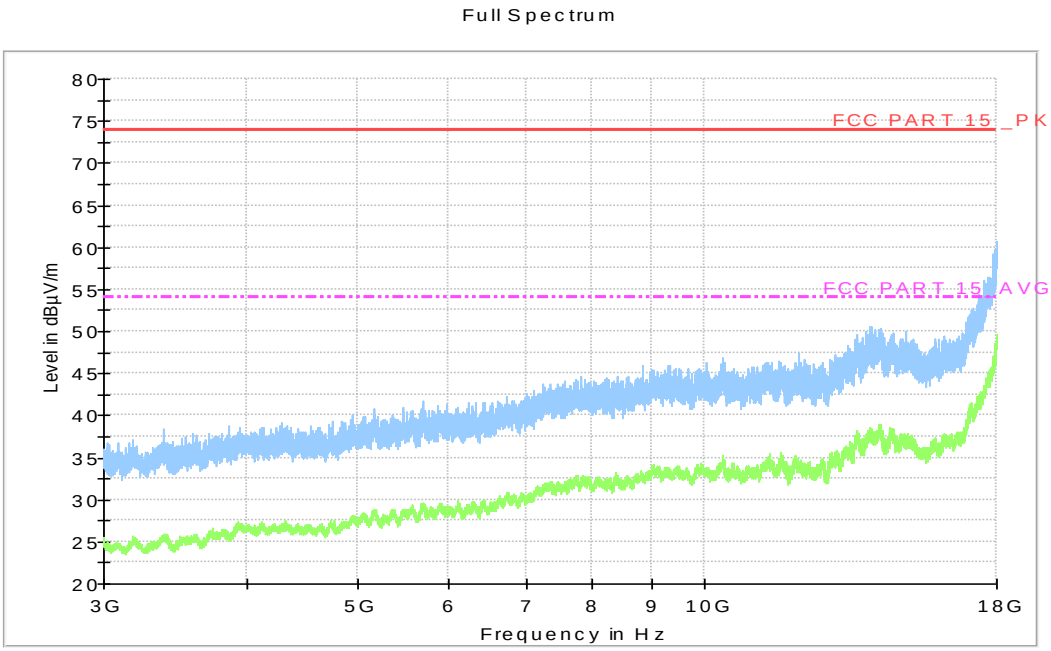

Fig.63. Radiated emission: GFSK, Channel 39, 3 GHz - 18 GHz

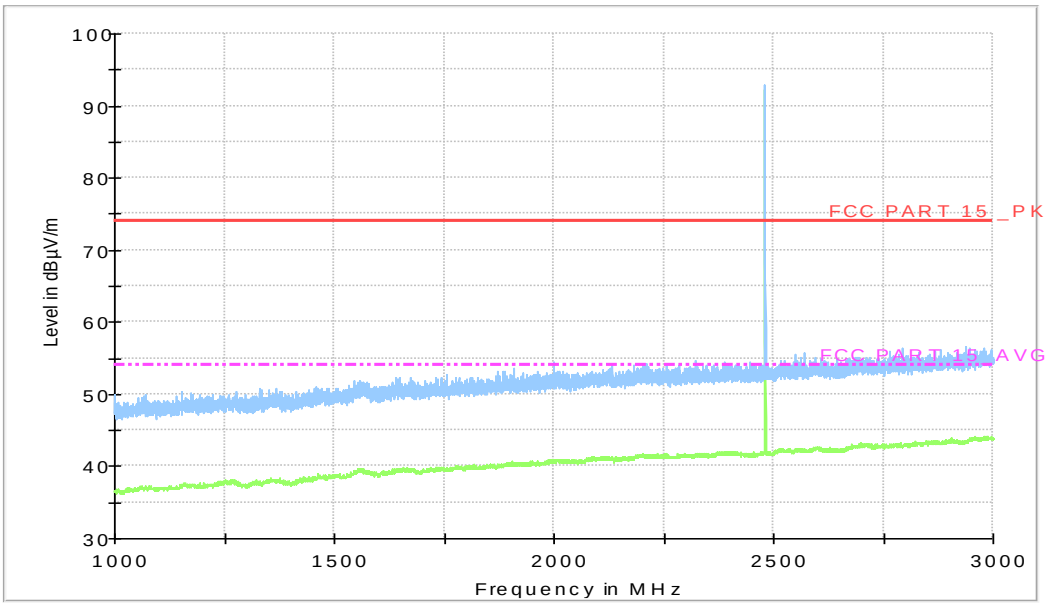

Fig.64. Radiated emission: GFSK, Channel 78, 1 GHz - 3 GHz

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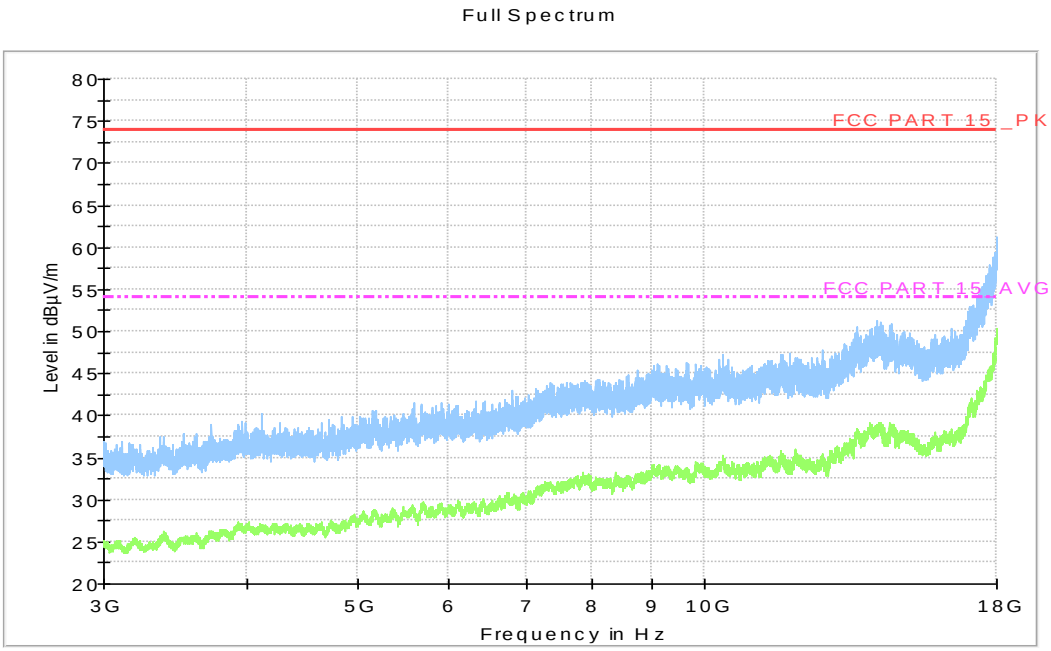

Fig.65. Radiated emission: GFSK, Channel 78, 3 GHz - 18 GHz

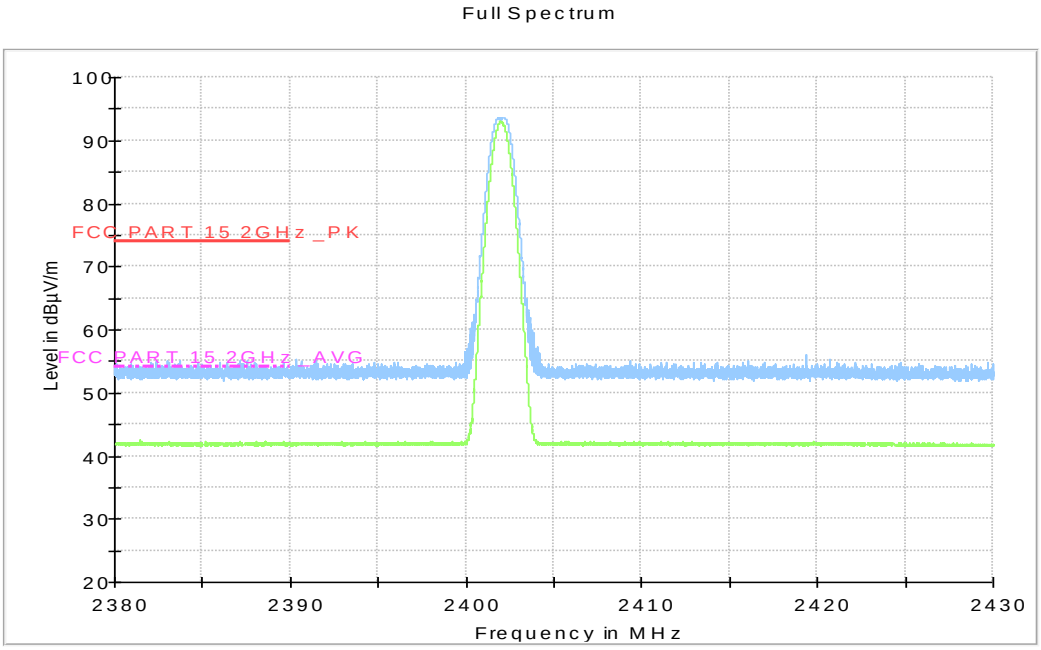

Fig.66. Radiated emission (Power): GFSK, low channel

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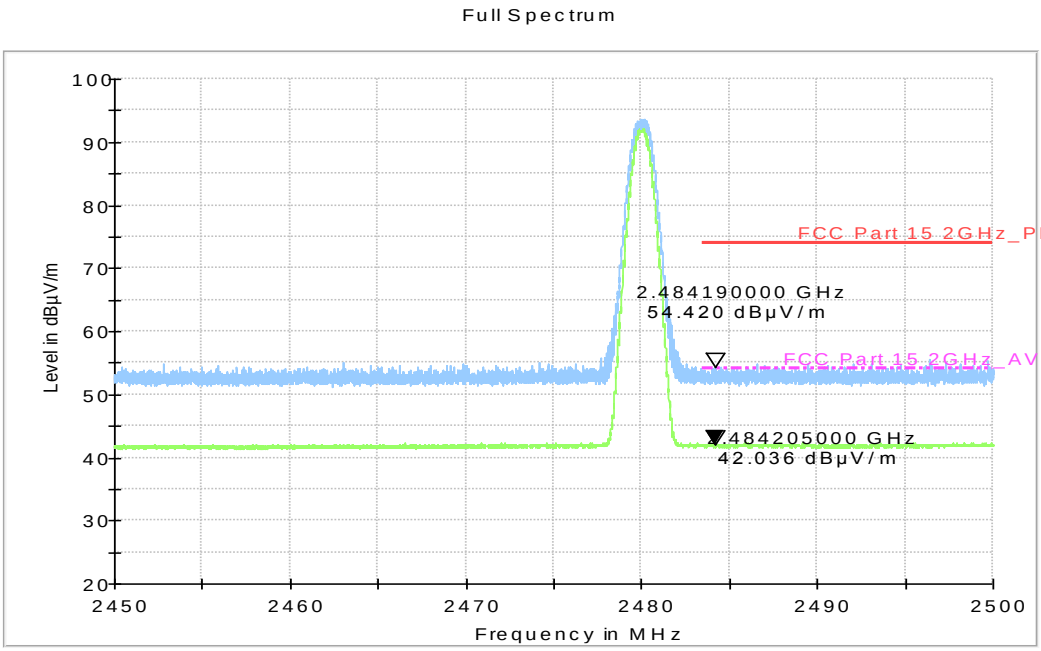

Fig.67. Radiated emission (Power) GFSK, high channel

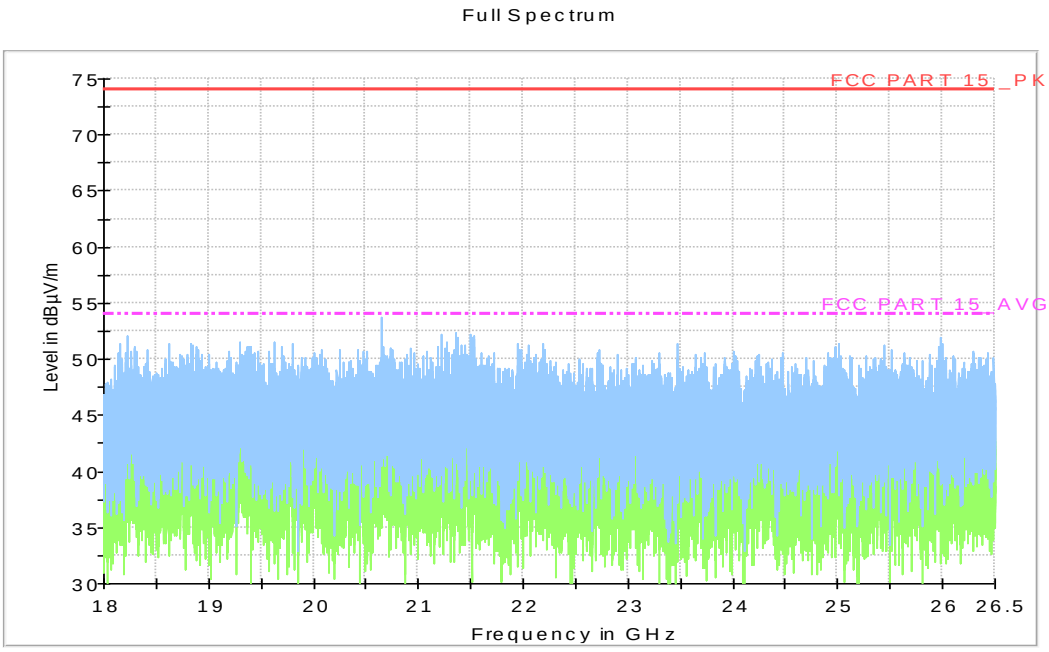

Fig.68. Radiated emission: GFSK, 18 GHz - 26 GHz

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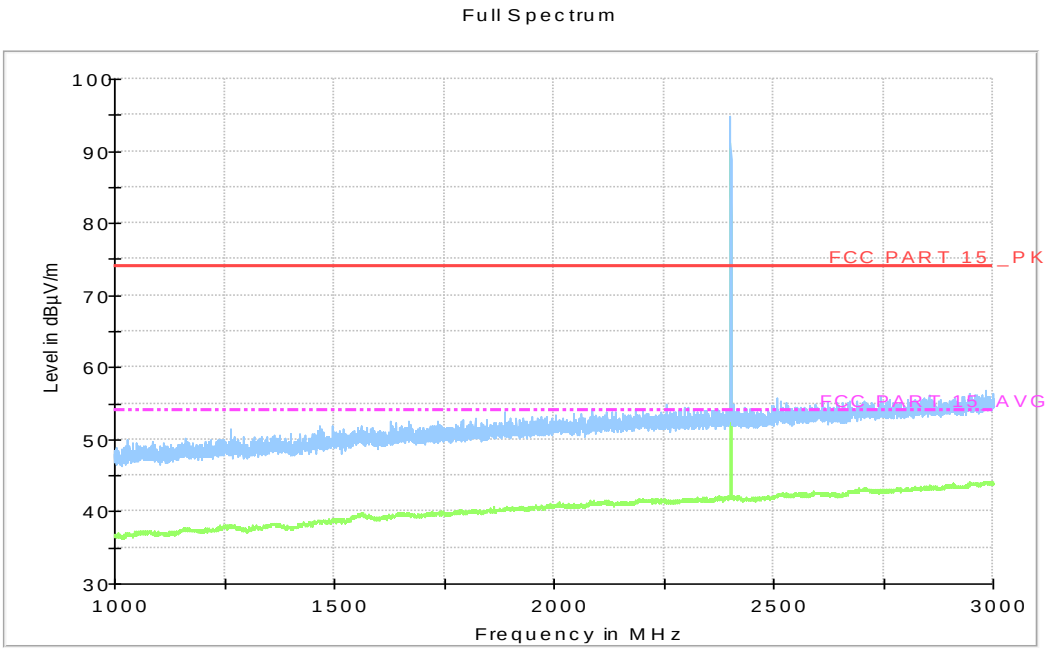

Fig.69. Radiated emission: π/4 DQPSK, Channel 0, 1 GHz - 3 GHz

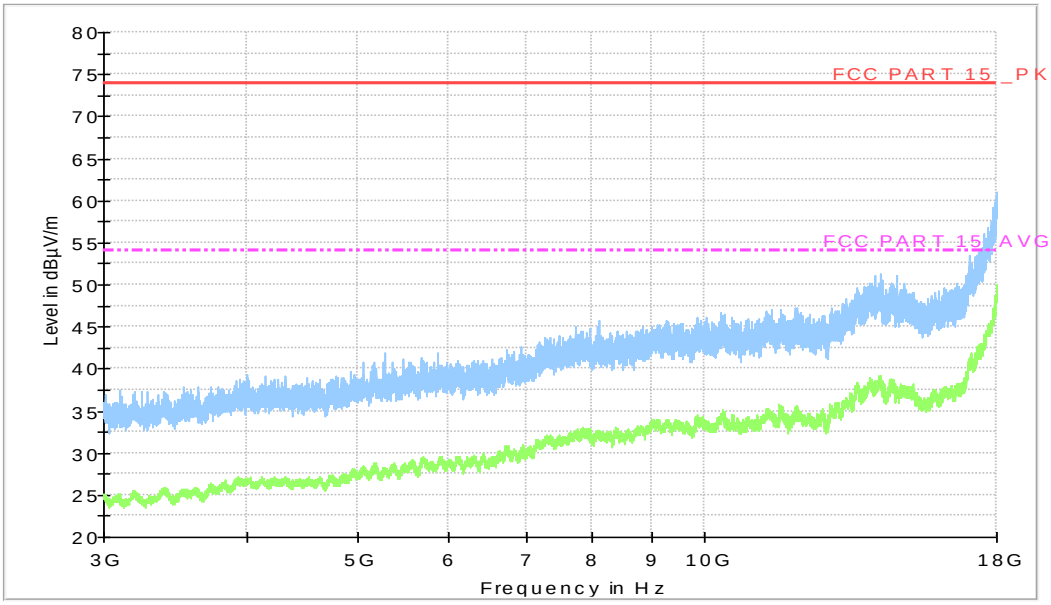

Fig.70. Radiated emission: π/4 DQPSK, Channel 0, 3 GHz - 18 GHz

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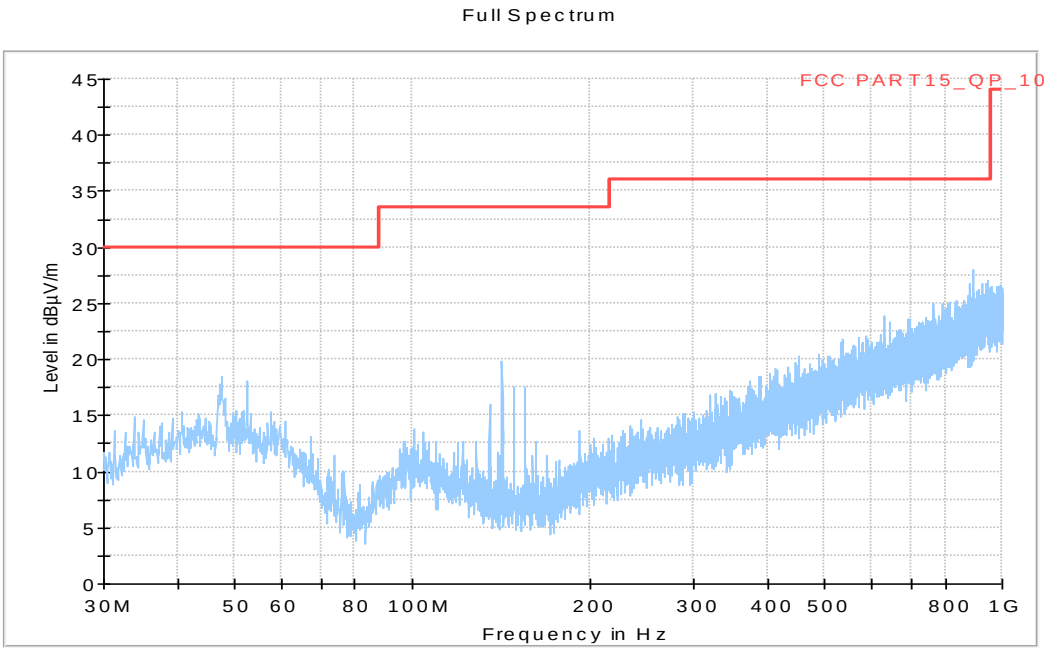

Fig.71. Radiated emission: π/4 DQPSK, Channel 39, 30 MHz - 1 GHz

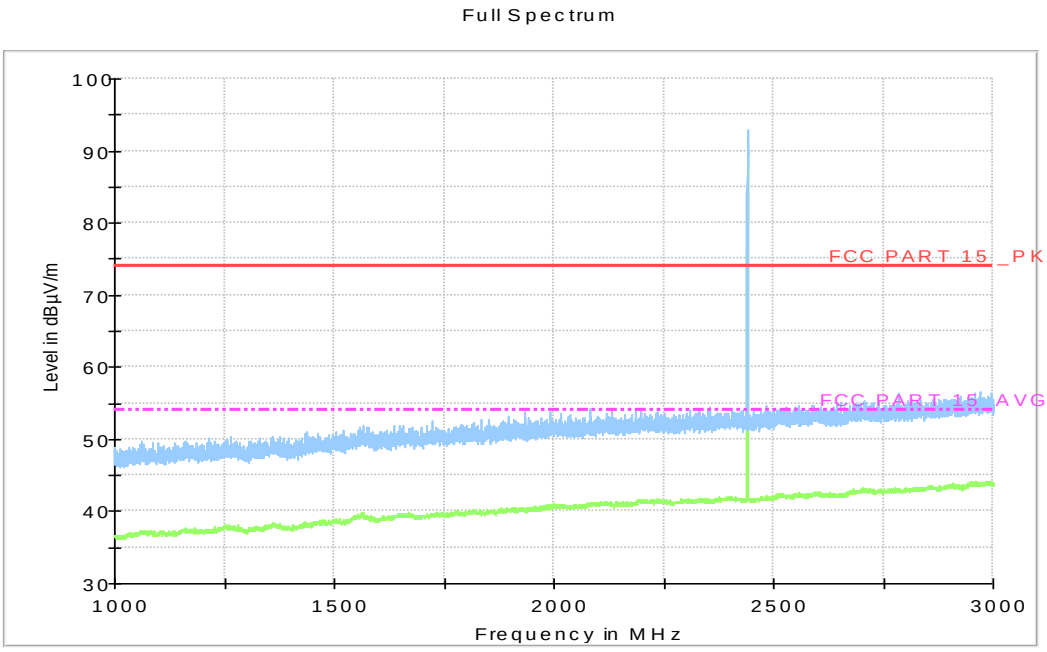

Fig.72. Radiated emission: π/4 DQPSK, Channel 39, 1 GHz - 3 GHz

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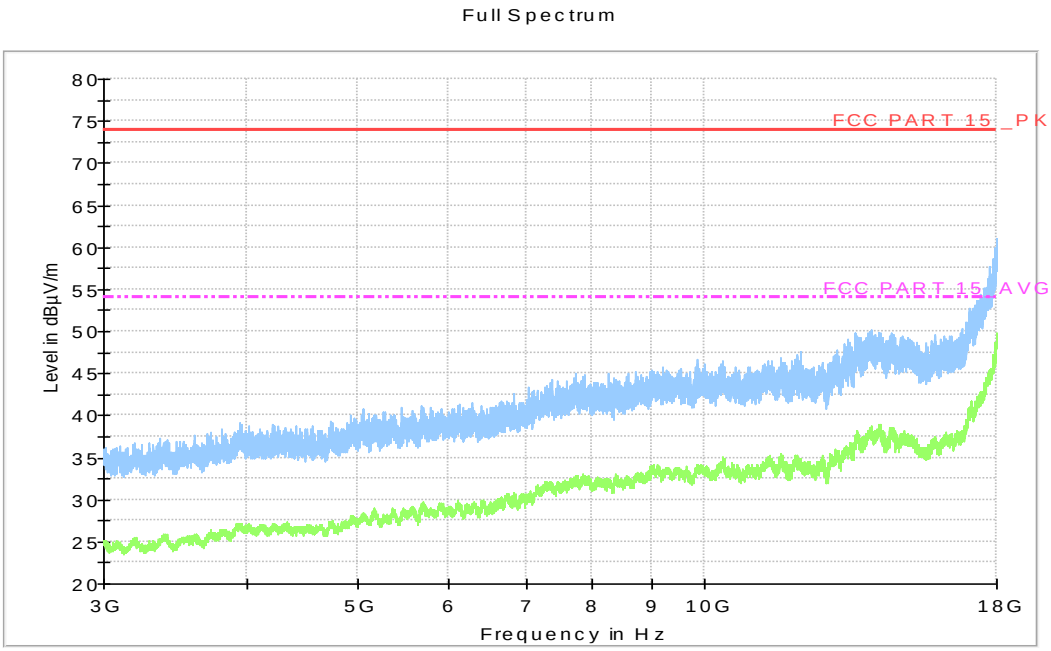

Fig.73. Radiated emission: π/4 DQPSK, Channel 39, 3 GHz - 18 GHz

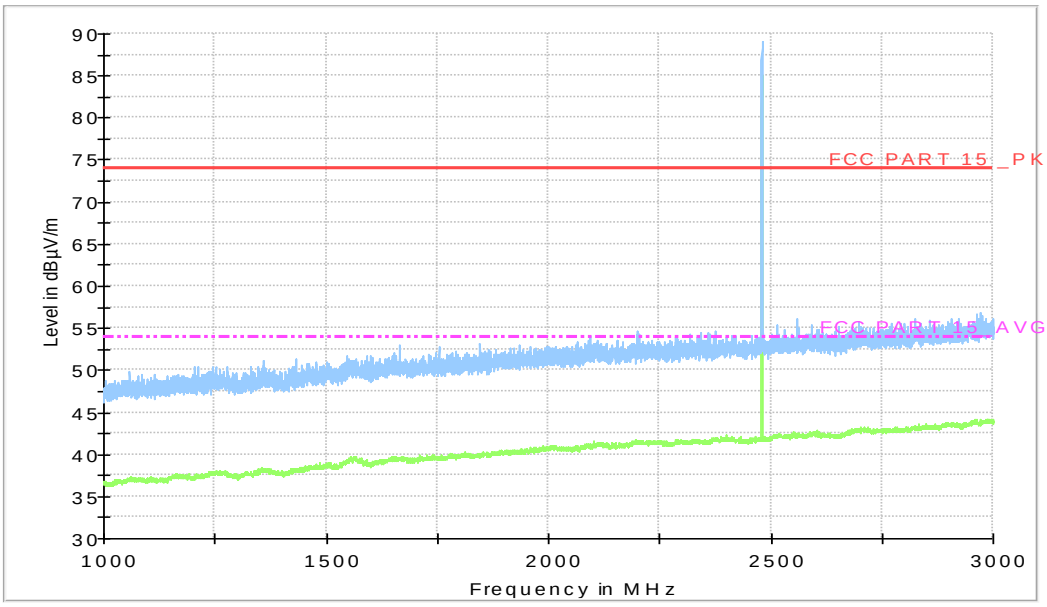

Fig.74. Radiated emission: π/4 DQPSK, Channel 78, 1 GHz - 3 GHz

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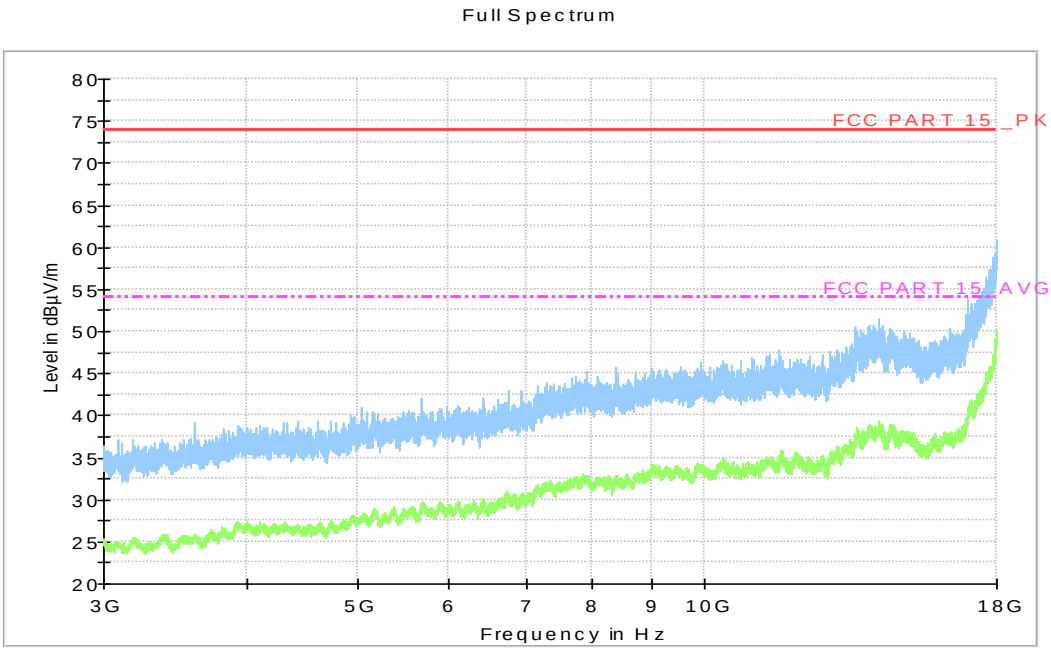

Fig.75. Radiated emission: π/4 DQPSK, Channel 78, 3 GHz - 18 GHz

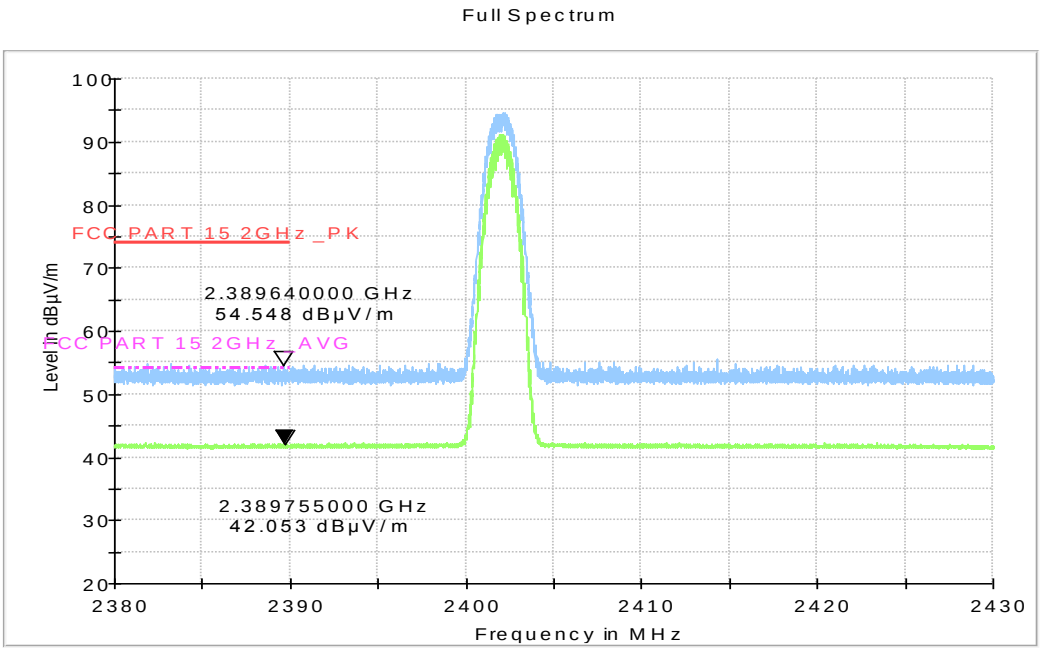

Fig.76. Radiated emission (Power): π/4 DQPSK, low channel

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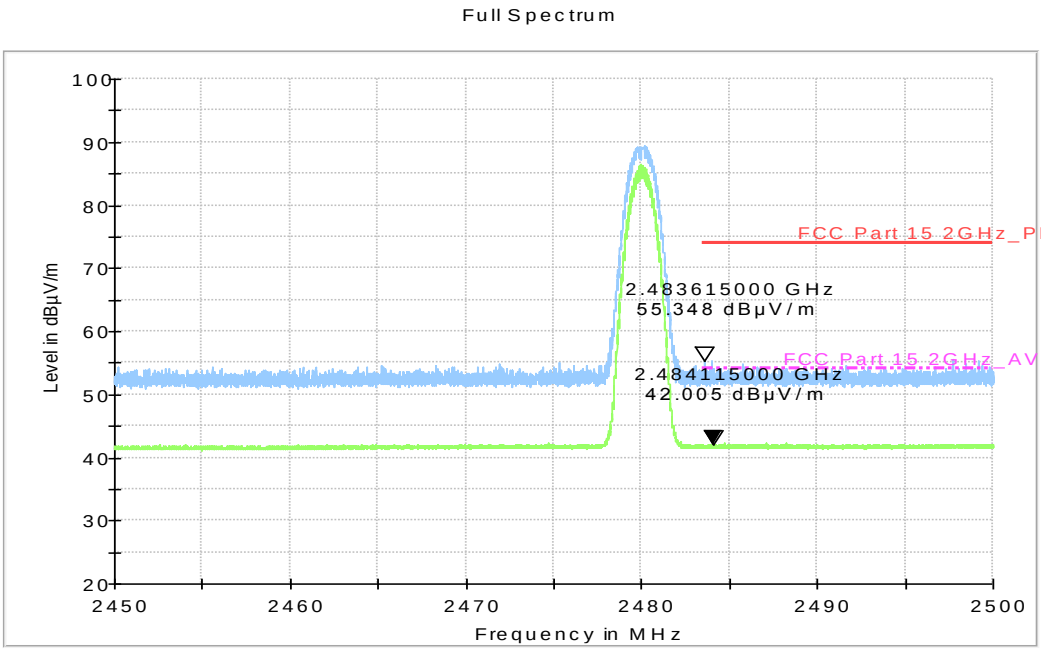

Fig.77. Radiated emission (Power): π/4 DQPSK, high channel

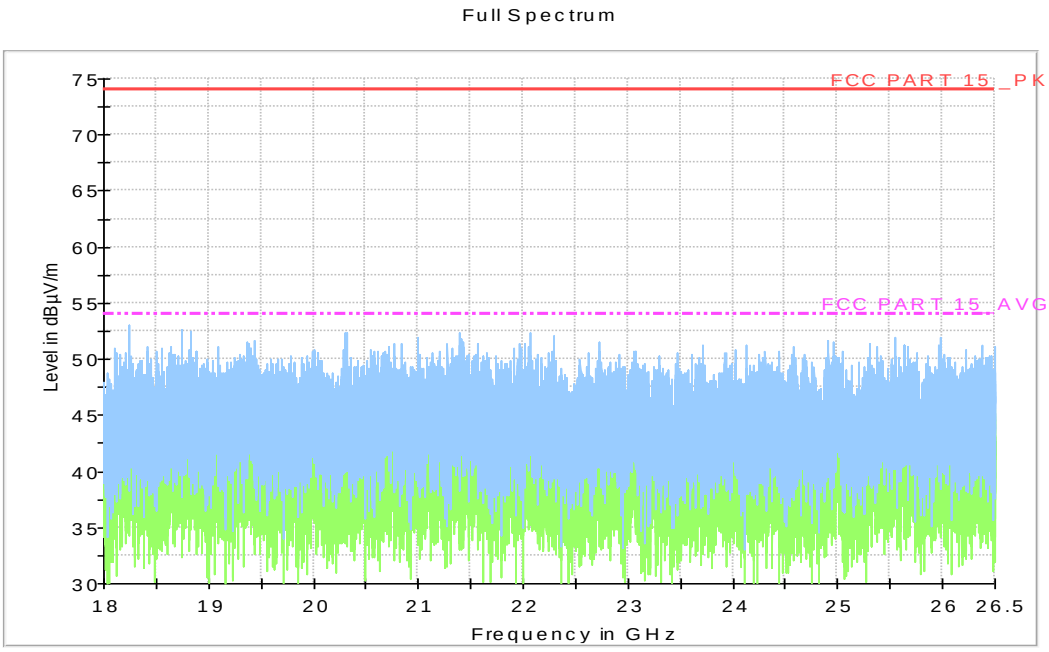

Fig.78. Radiated emission: π/4 DQPSK, 18 GHz - 26 GHz

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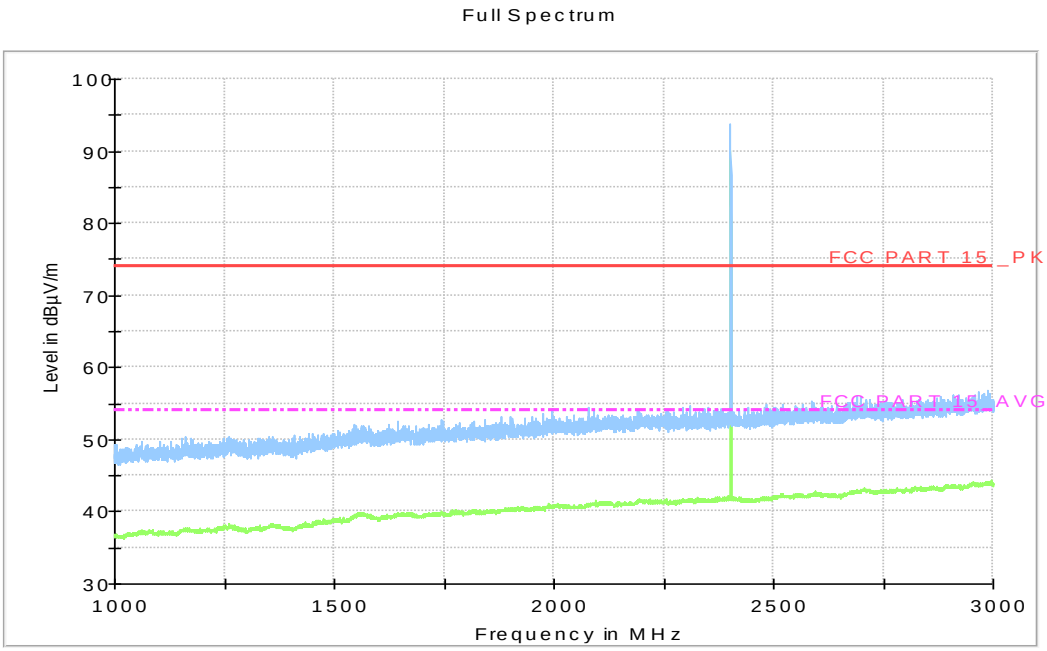

Fig.79. Radiated emission: 8DPSK, Channel 0, 1 GHz - 3 GHz

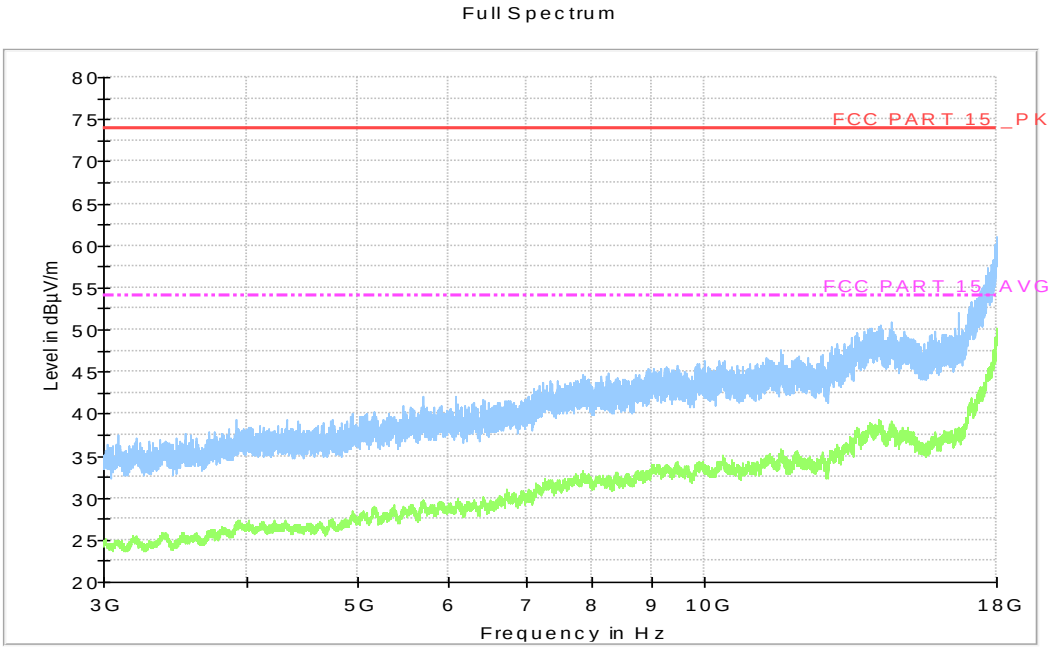

Fig.80. Radiated emission: 8DPSK, Channel 0, 3 GHz - 18 GHz

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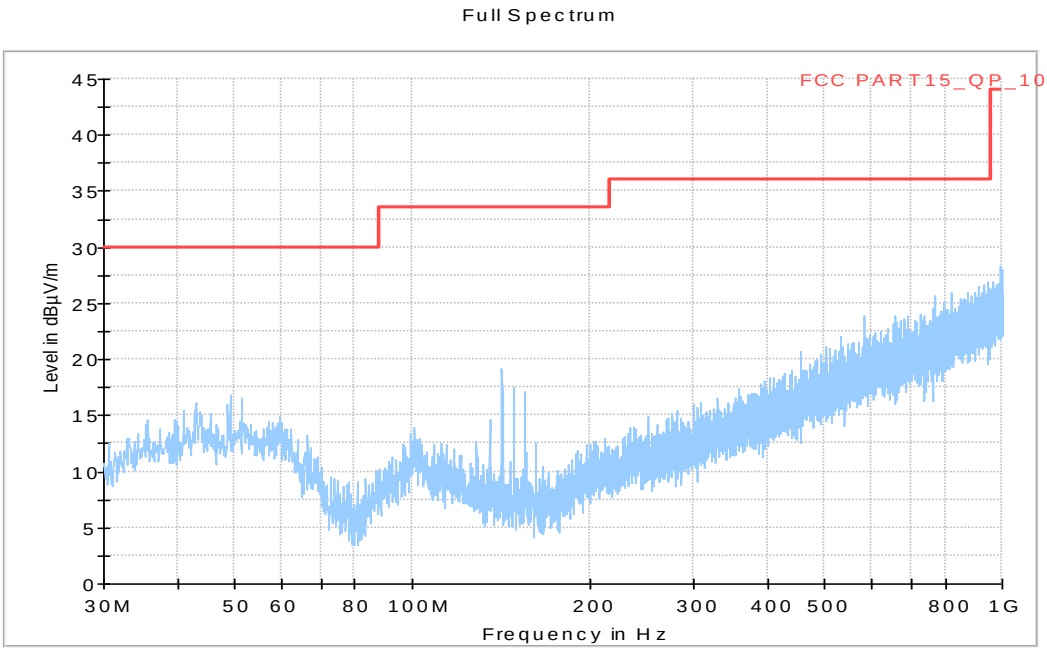

Fig.81. Radiated emission: 8DPSK, Channel 39, 30 MHz - 1 GHz

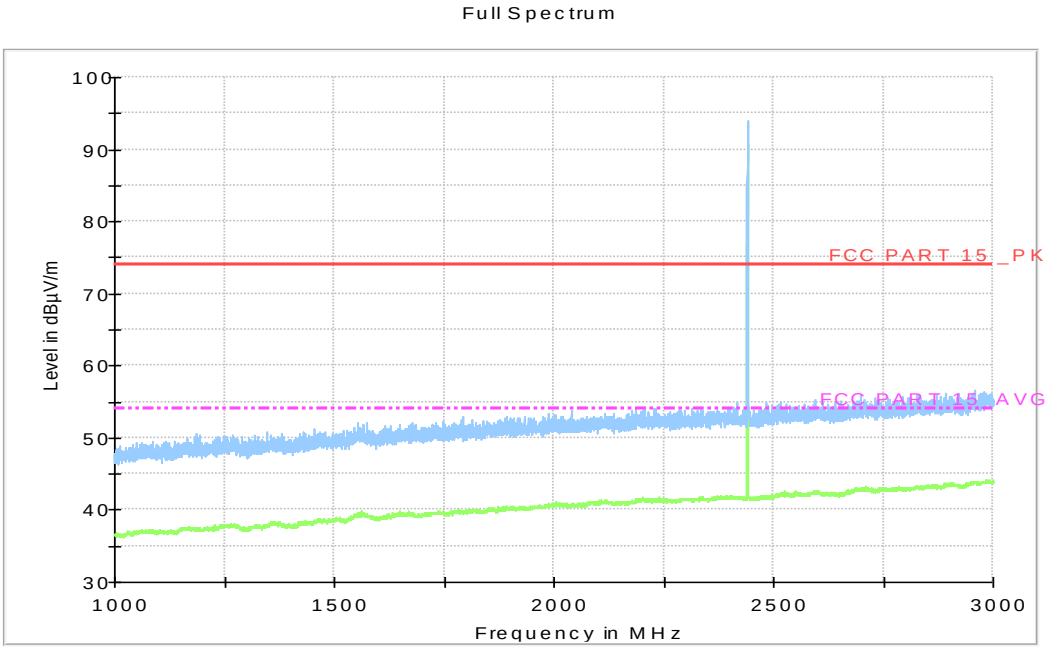

Fig.82. Radiated emission: 8DPSK, Channel 39, 1 GHz - 3 GHz

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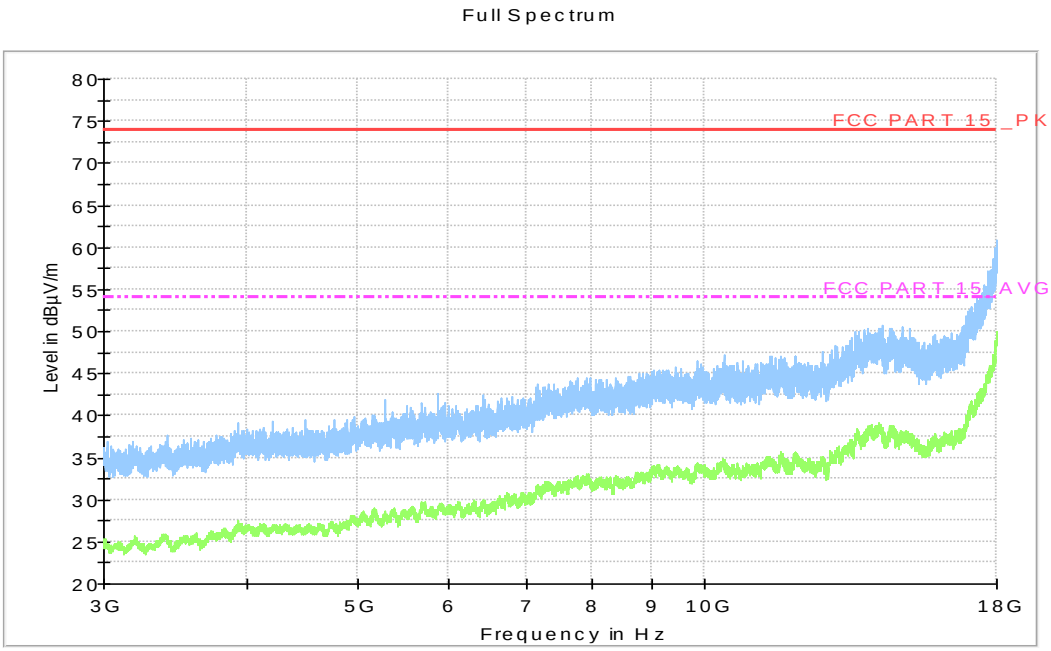

Fig.83. Radiated emission: 8DPSK, Channel 39, 3 GHz - 18 GHz

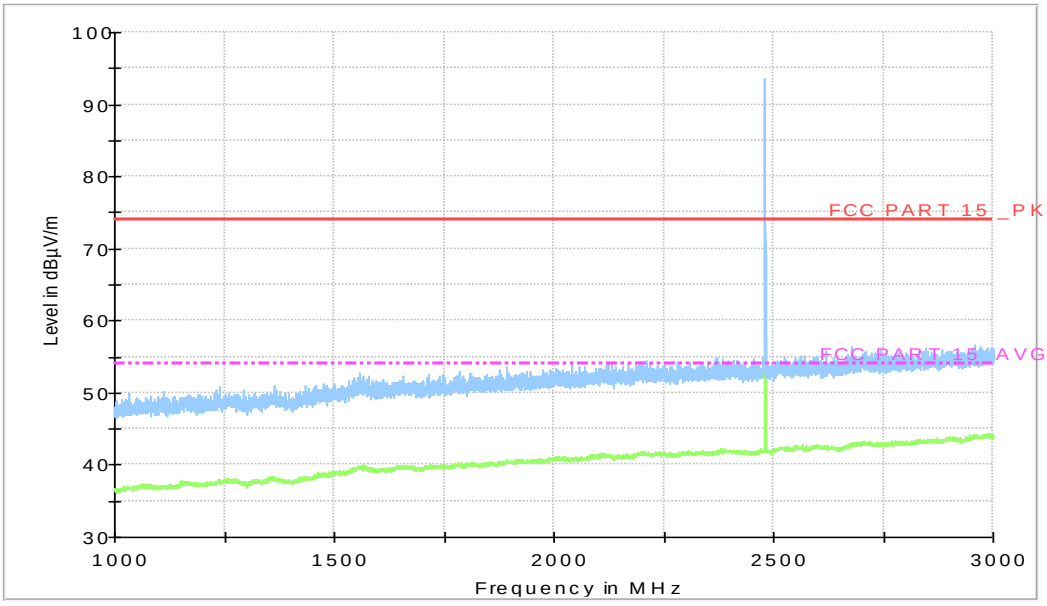

Fig.84. Radiated emission: 8DPSK, Channel 78, 1 GHz - 3 GHz

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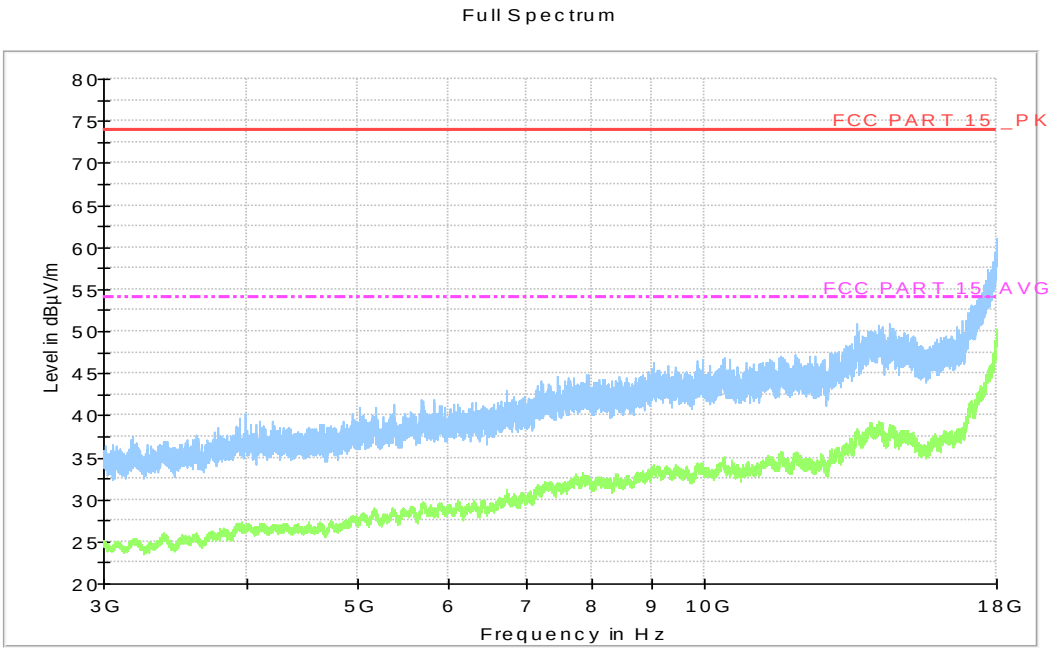

Fig.85. Radiated emission: 8DPSK, Channel 78, 3 GHz - 18 GHz

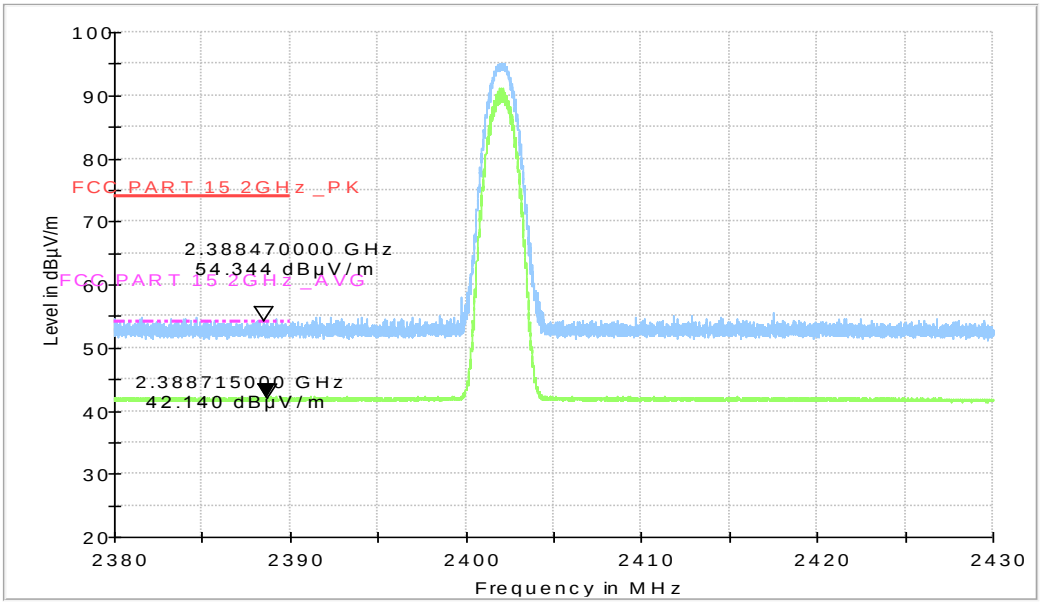

Fig.86. Radiated emission (Power): 8DPSK, low channel

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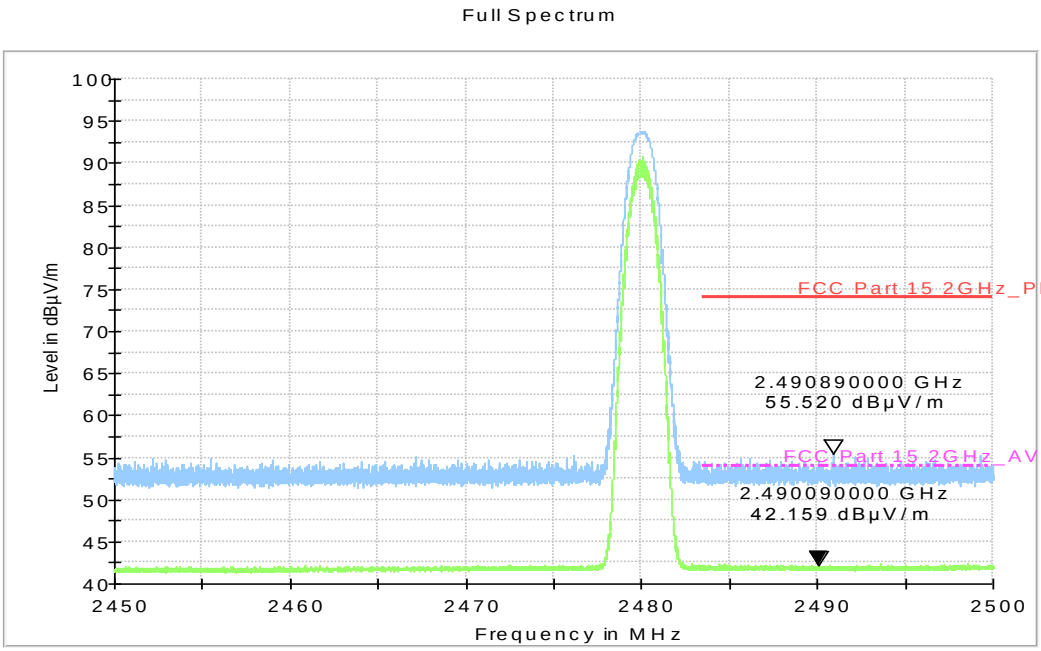

Fig.87. Radiated emission (Power): 8DPSK, high channel

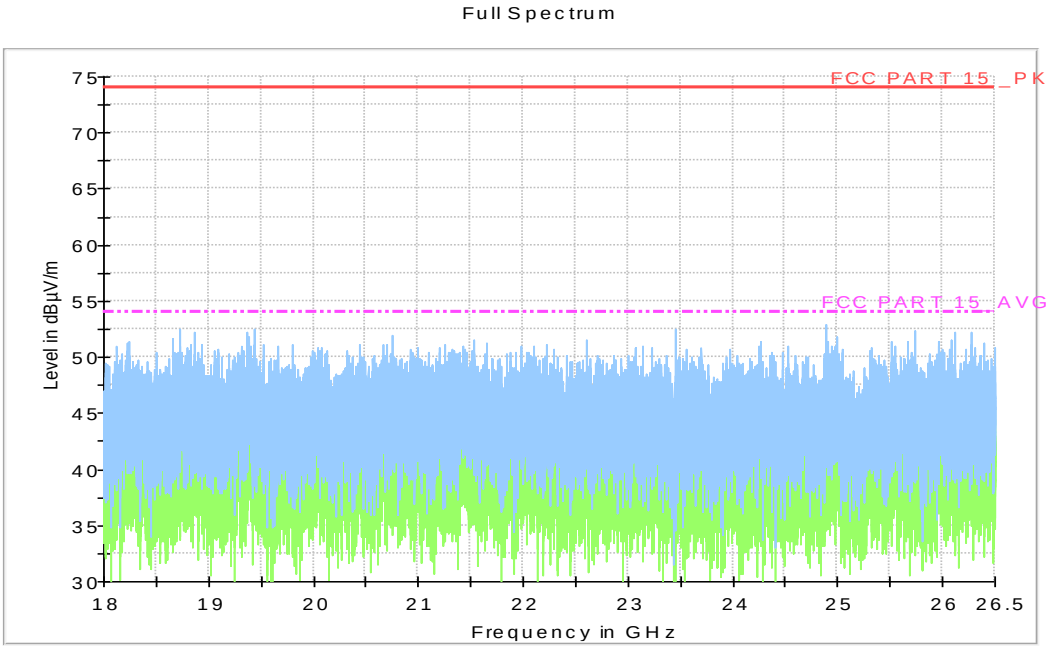

Fig.88. Radiated emission: 8DPSK, 18 GHz - 26 GHz

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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.89	121.59	P
		Fig.90		
	DH3	Fig.91	170.28	P
		Fig.92		
	DH5	Fig.93	150.04	P
		Fig.94		

For π/4 DQPSK

Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.95	123.97	P
		Fig.96		
	DH3	Fig.97	157.67	P
		Fig.98		
	DH5	Fig.99	166.74	P
		Fig.100		

For 8DPSK

Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.101	119.33	P
		Fig.102		
	DH3	Fig.103	171.56	P

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		Fig.104		
	DH5	Fig.105	204.05	P
		Fig.106		

Conclusion: PASS

Test graphs as below:

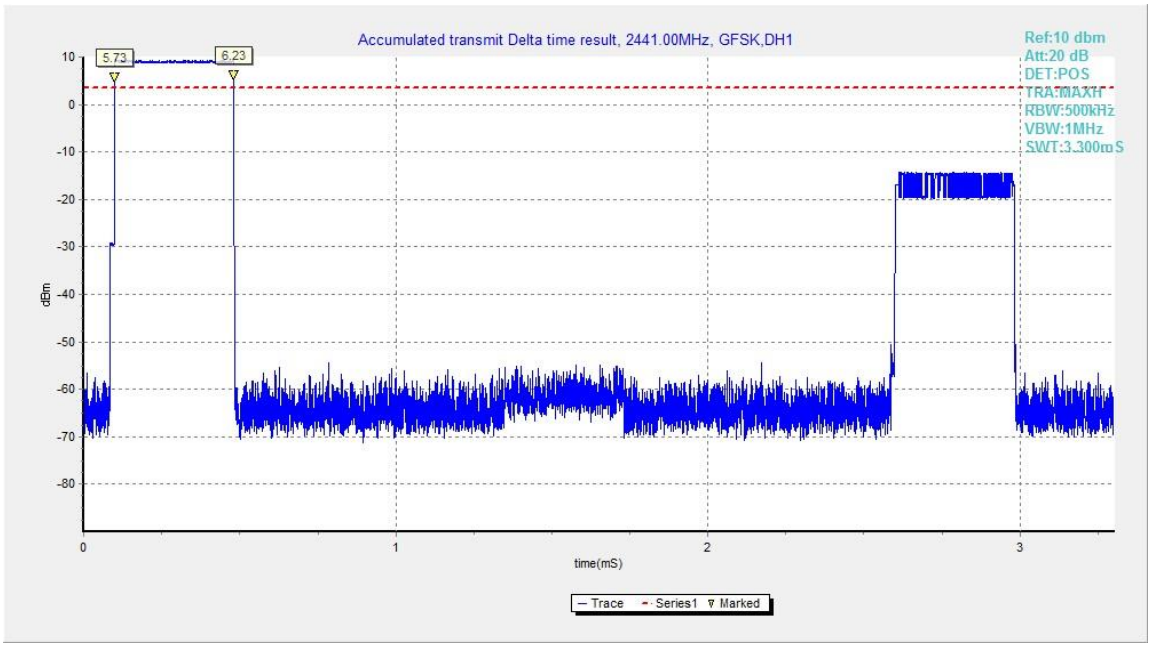

Fig.89. Time of occupancy (Dwell Time): Channel 39, Packet DH1

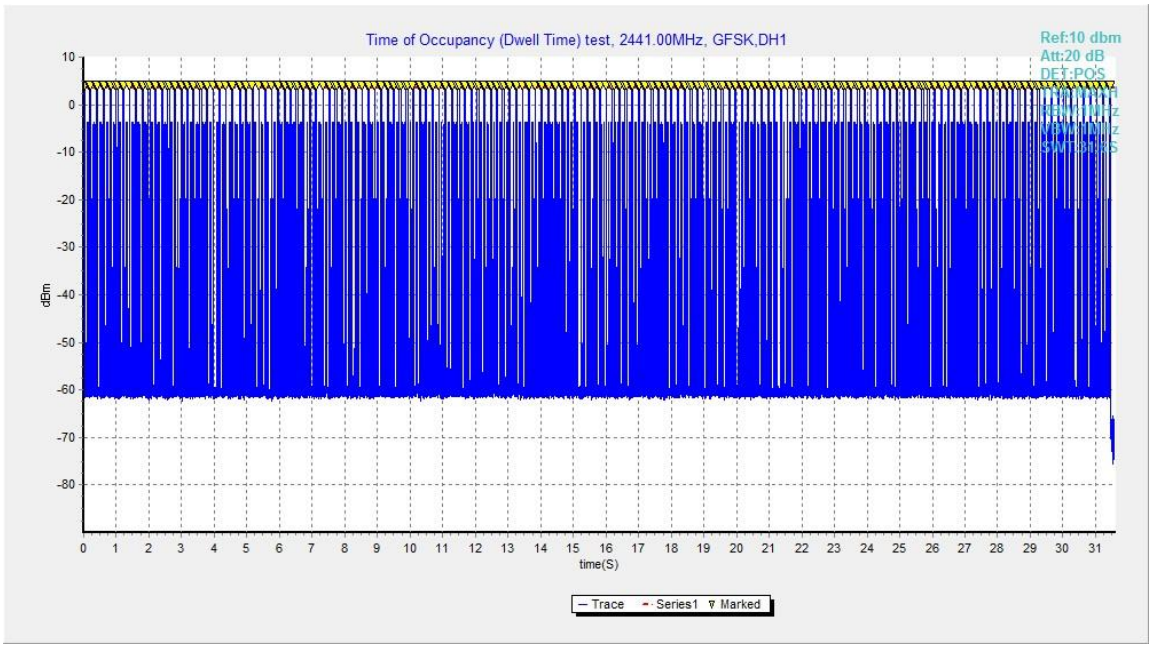

Fig.90. Number of Transmissions Measurement:Channel 39,Packet DH1

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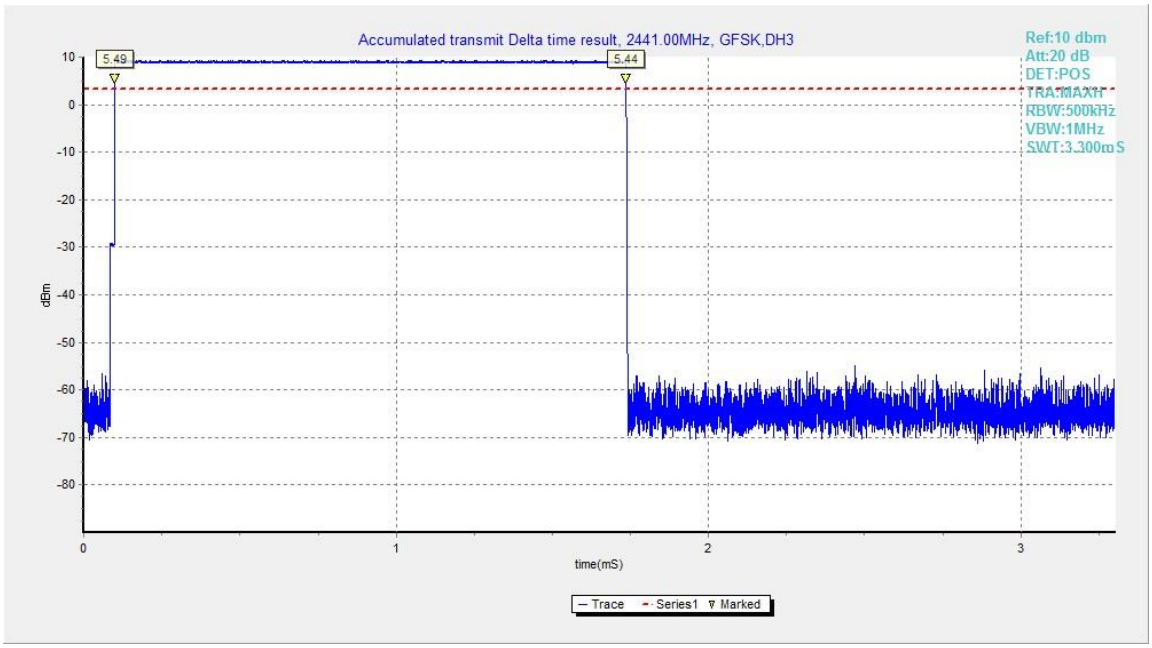

Fig.91. Time of occupancy (Dwell Time): Channel 39, Packet DH3

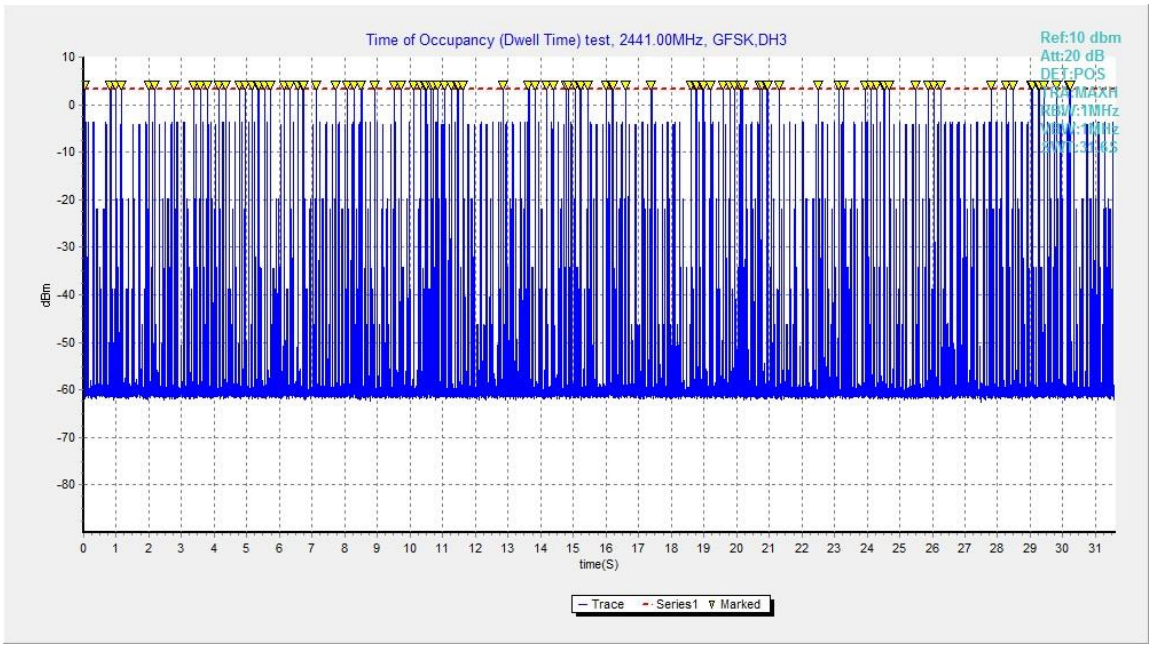

Fig.92. Number of Transmissions Measurement:Channel 39,Packet DH3

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Fig.93. Time of occupancy (Dwell Time): Channel 39, Packet DH5

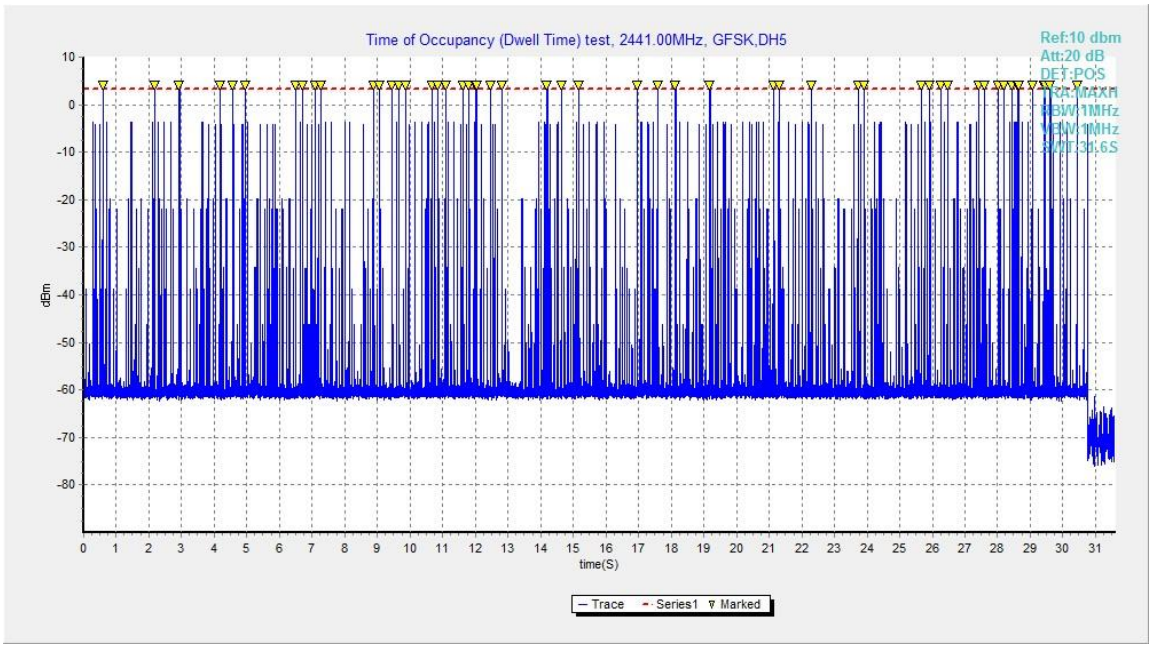

Fig.94. Number of Transmissions Measurement:Channel 39,Packet DH5

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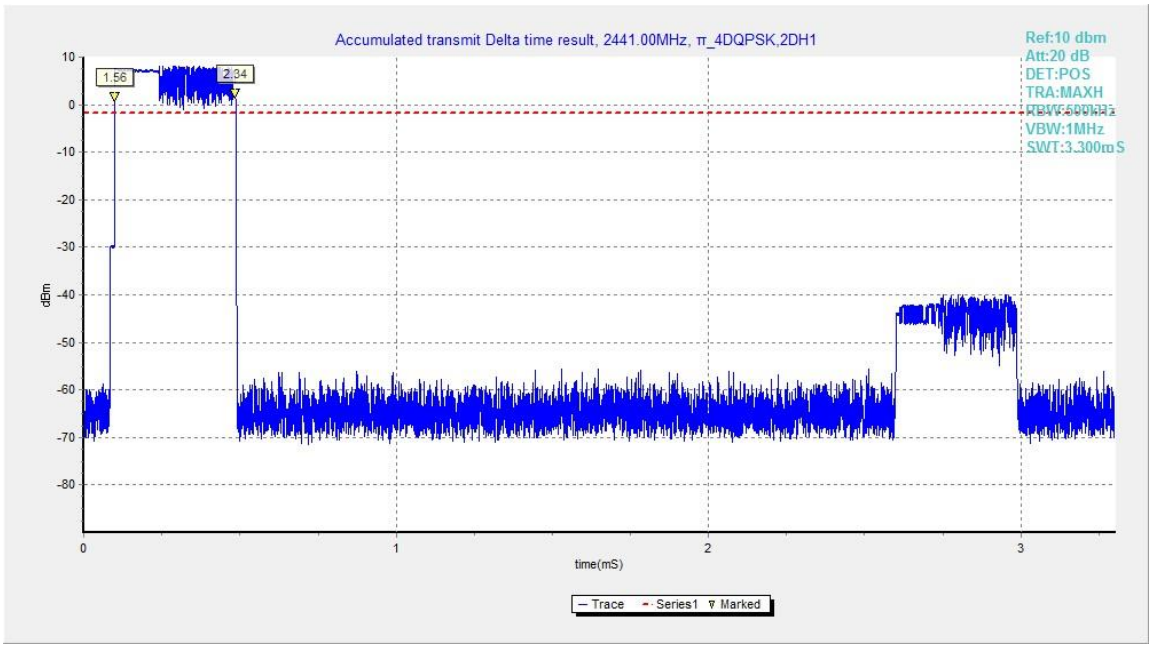

Fig.95. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH1

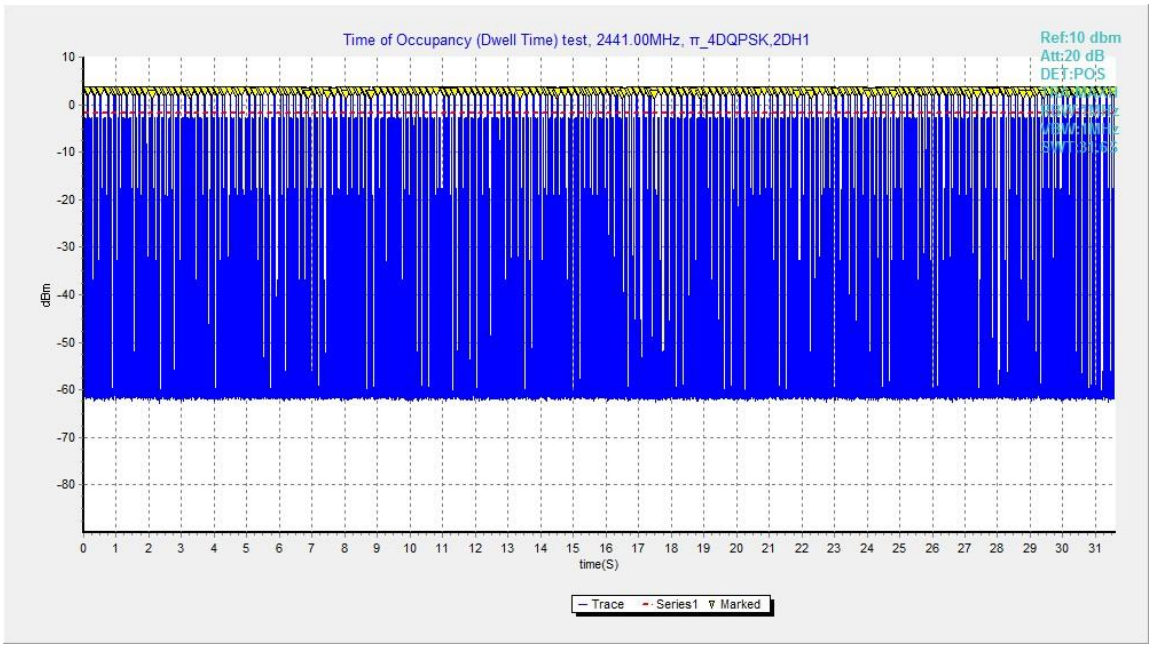

Fig.96. Number of Transmissions Measurement:Channel 39,Packet 2-DH1

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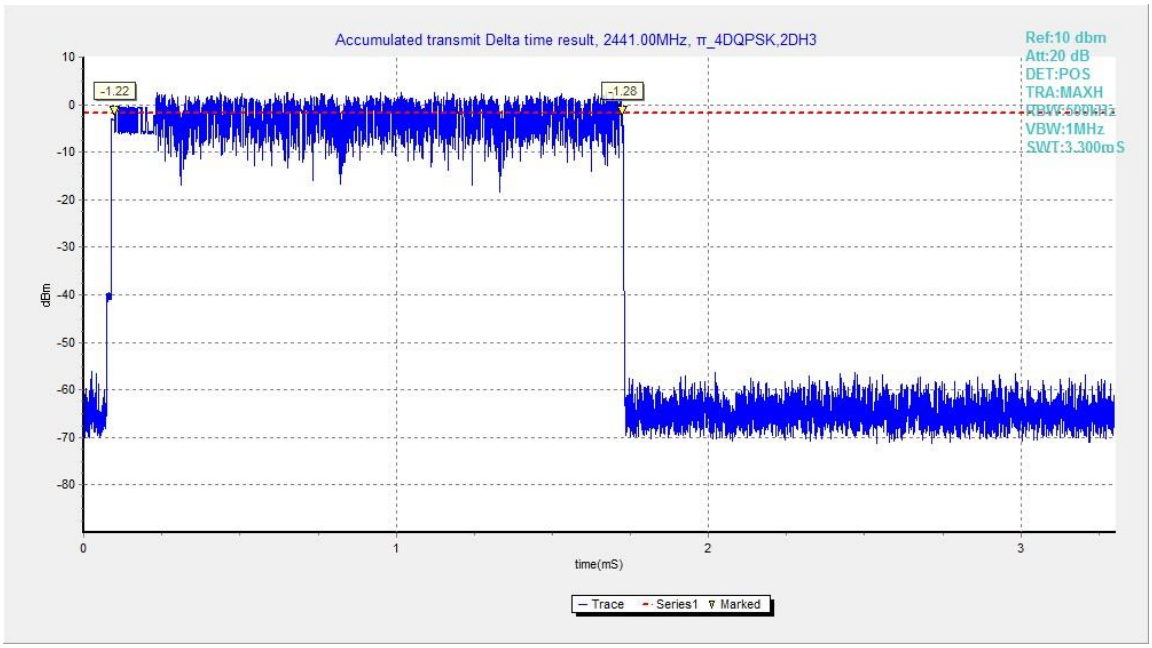

Fig.97. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH3

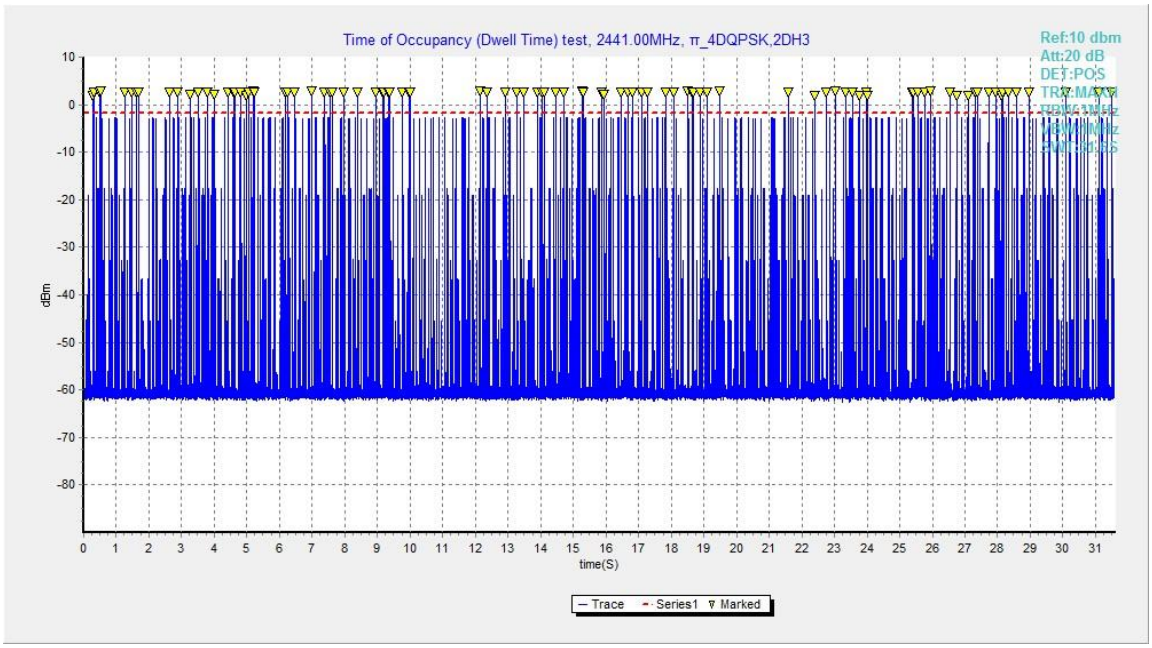

Fig.98. Number of Transmissions Measurement:Channel 39,Packet 2-DH3

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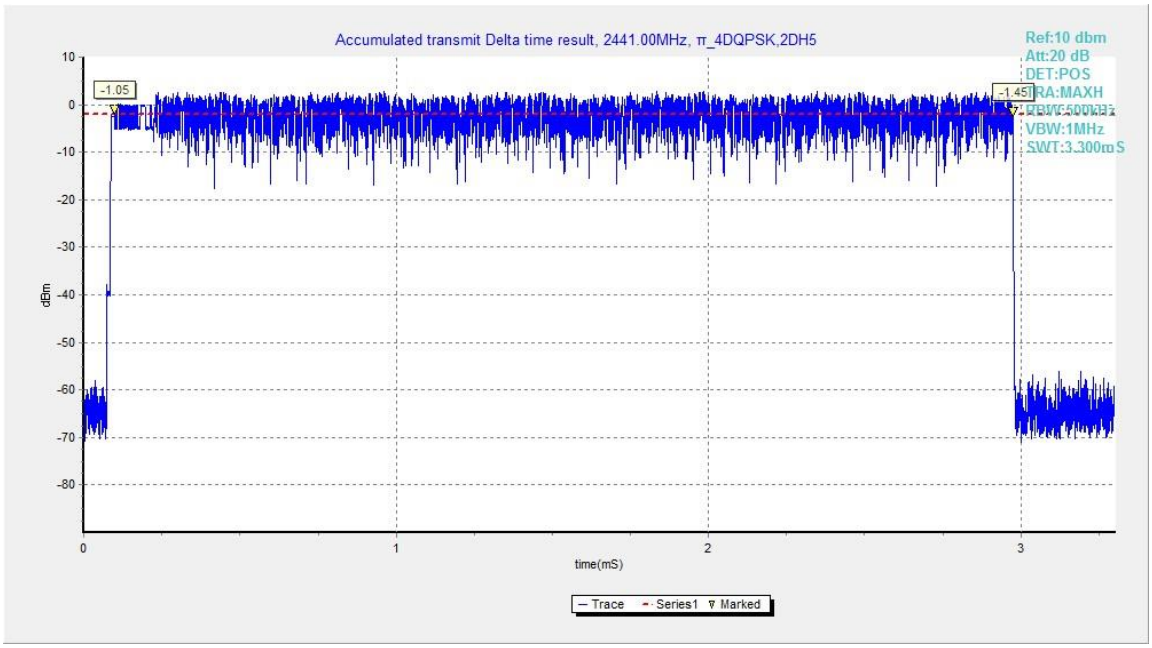

Fig.99. Time of occupancy (Dwell Time): Channel 39, Packet 2-DH5

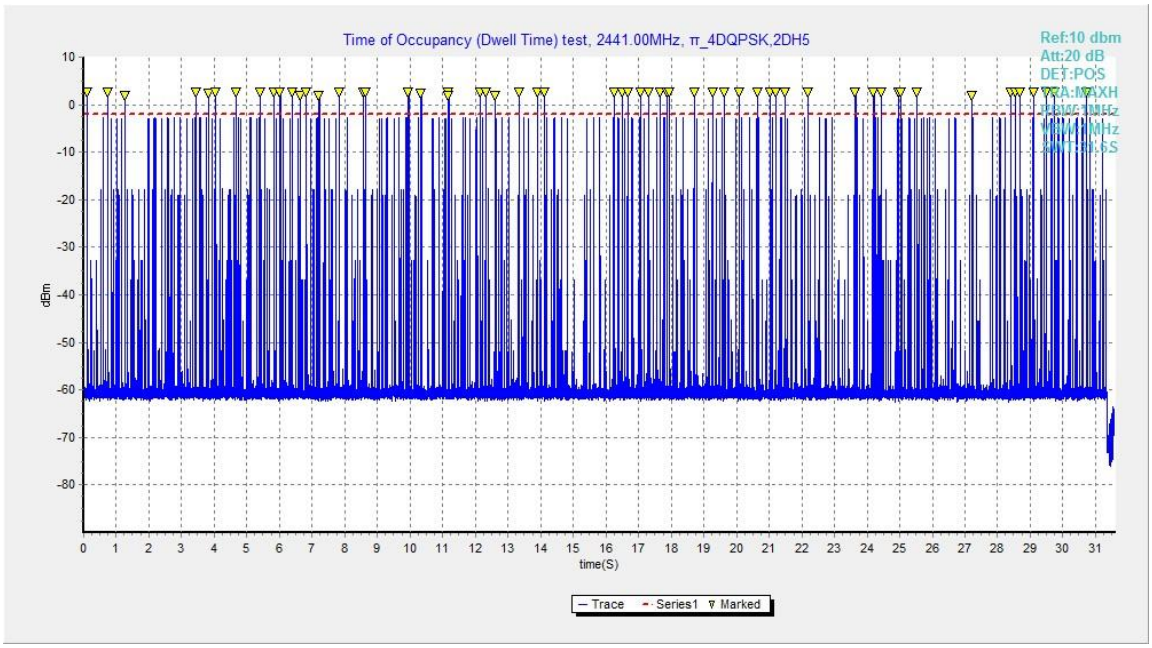

Fig.100. Number of Transmissions Measurement:Channel 39,Packet 2-DH5

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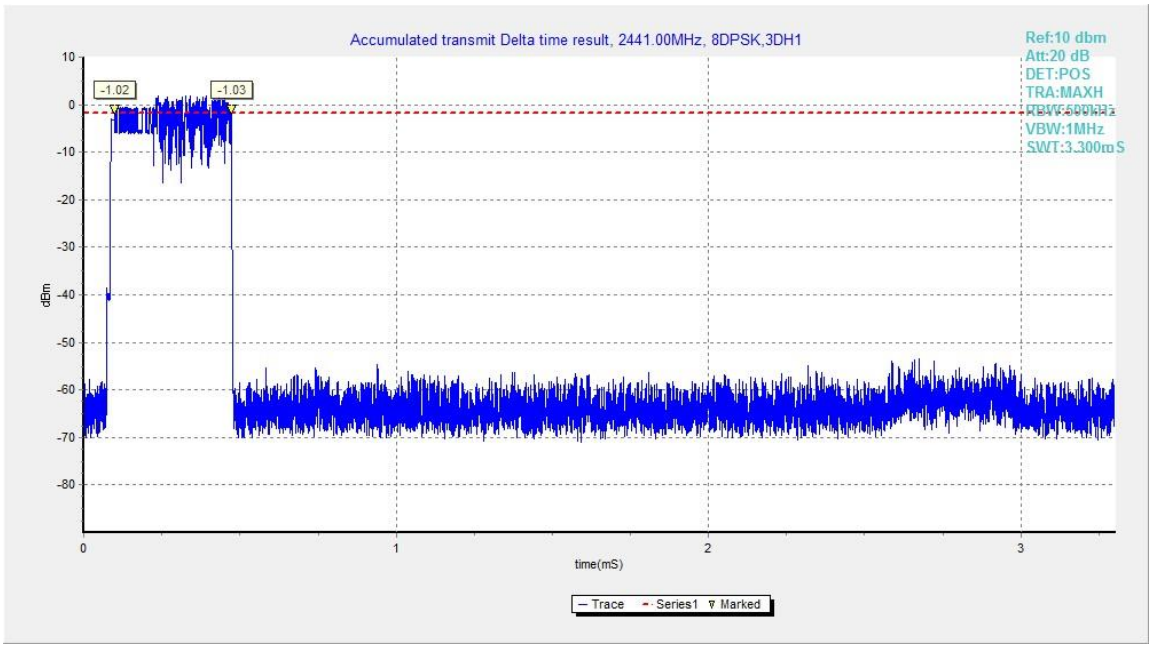

Fig.101. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH1

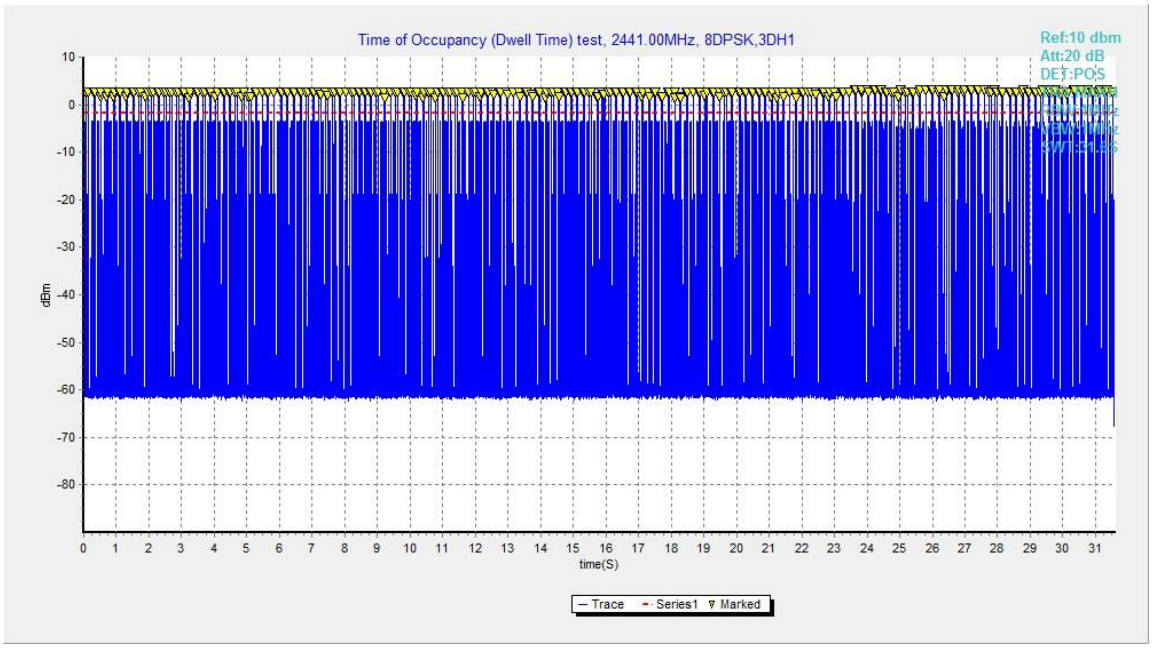

Fig.102. Number of Transmissions Measurement:Channel 39,Packet 3-DH1

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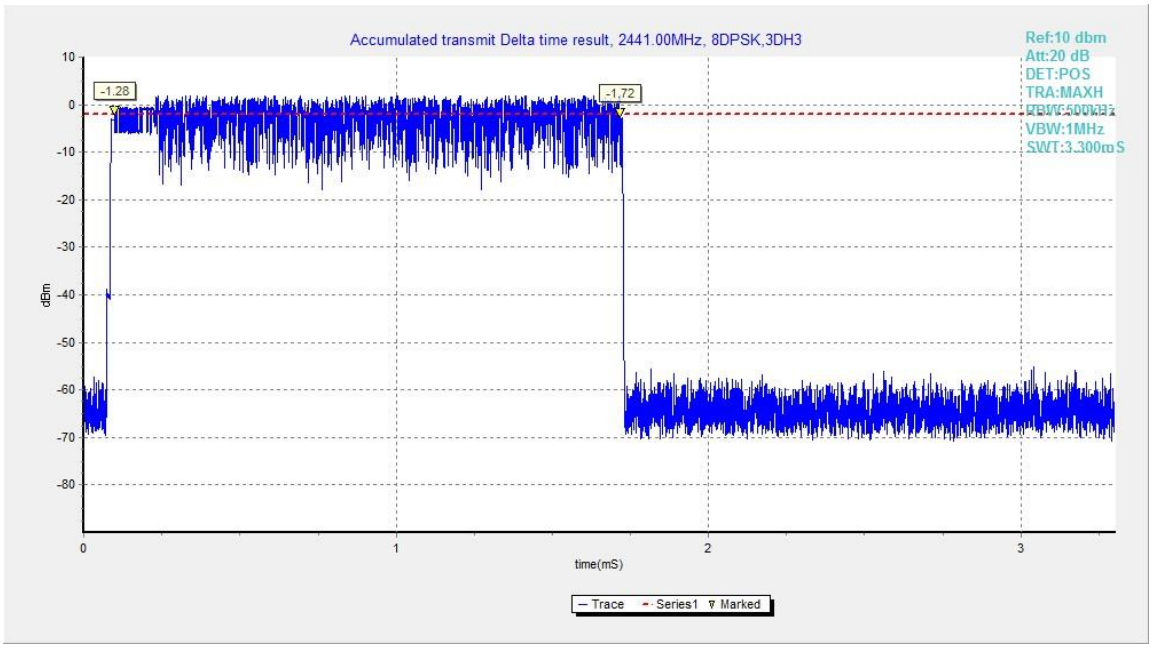

Fig.103. Time of occupancy (Dwell Time): Channel 39, Packet 3-DH3

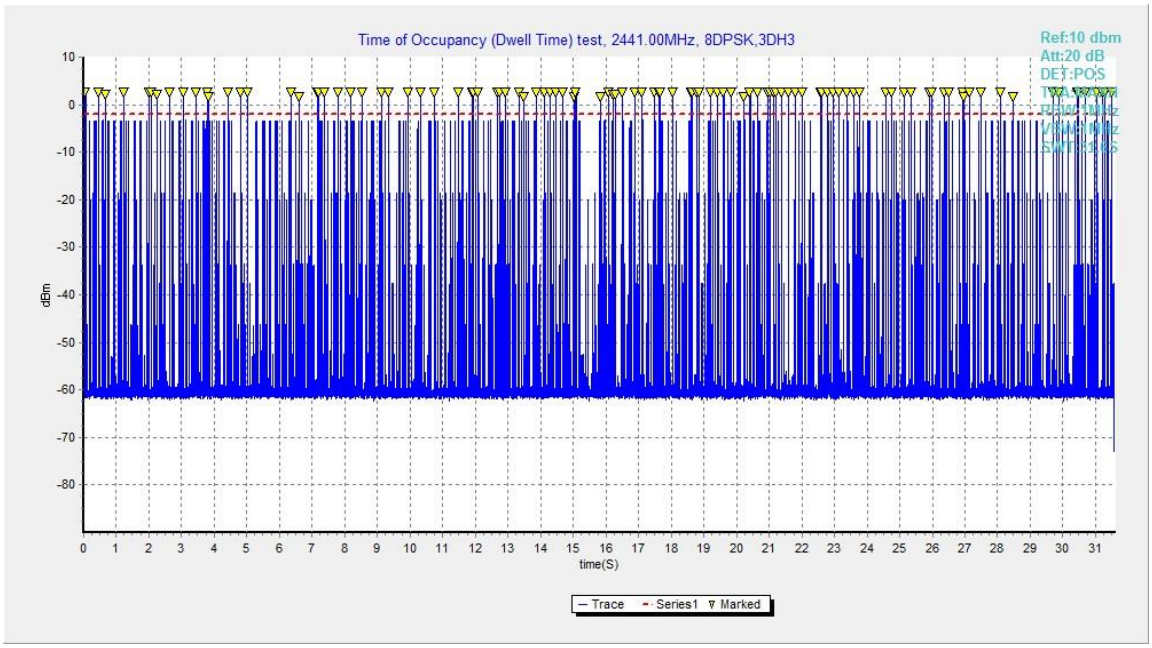

Fig.104. Number of Transmissions Measurement:Channel 39,Packet 3-DH3

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