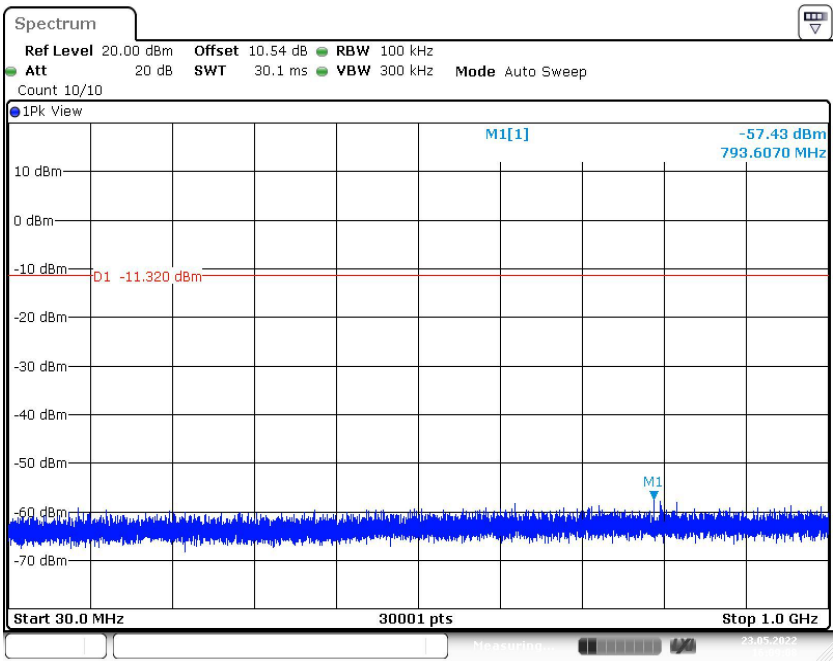

Fig. 23 Conducted Spurious Emission (π/4 DQPSK, CH0, 30MHz -1GHz)

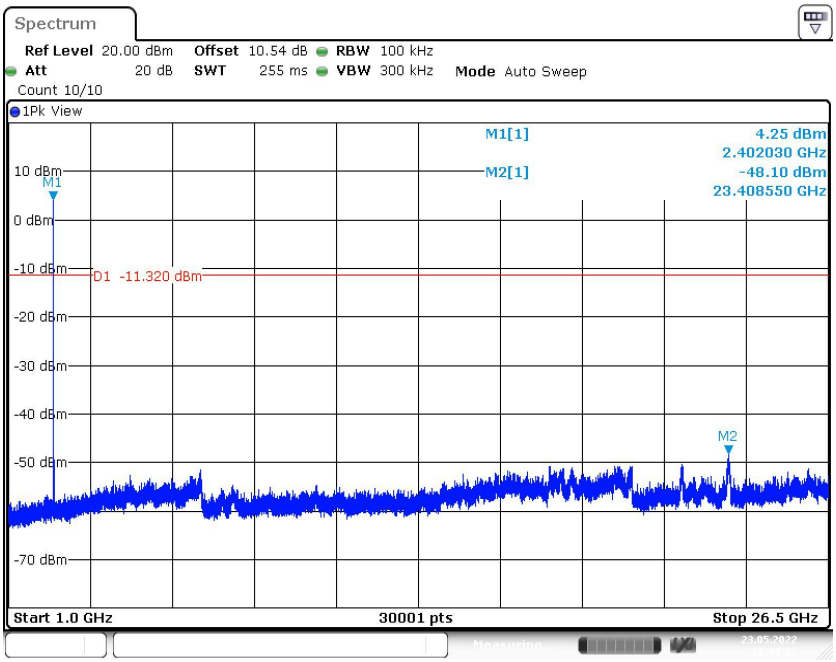

Fig. 24 Conducted Spurious Emission (π/4 DQPSK, CH0, 1GHz-26.5GHz)

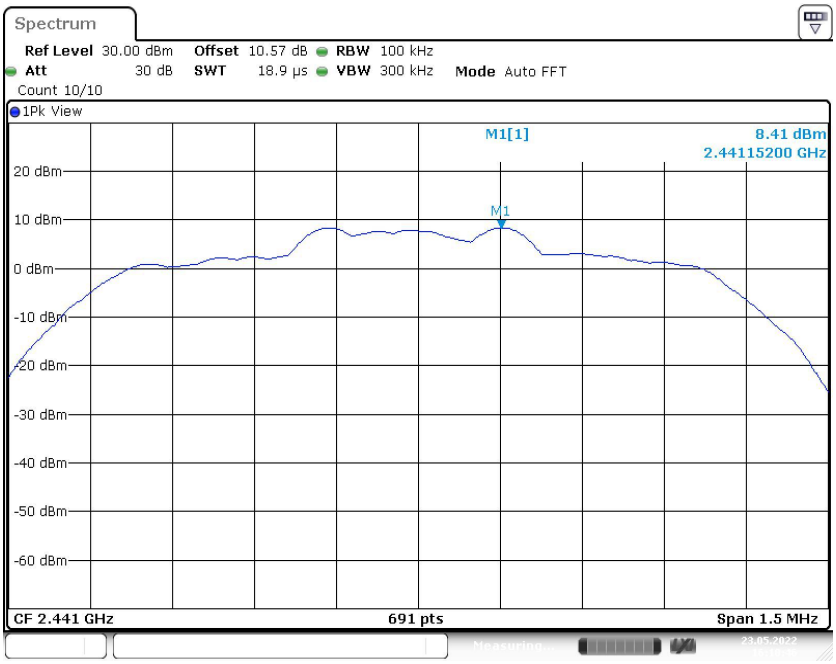

Fig. 25 Conducted Spurious Emission (π/4 DQPSK, CH39, 2.441GHz)

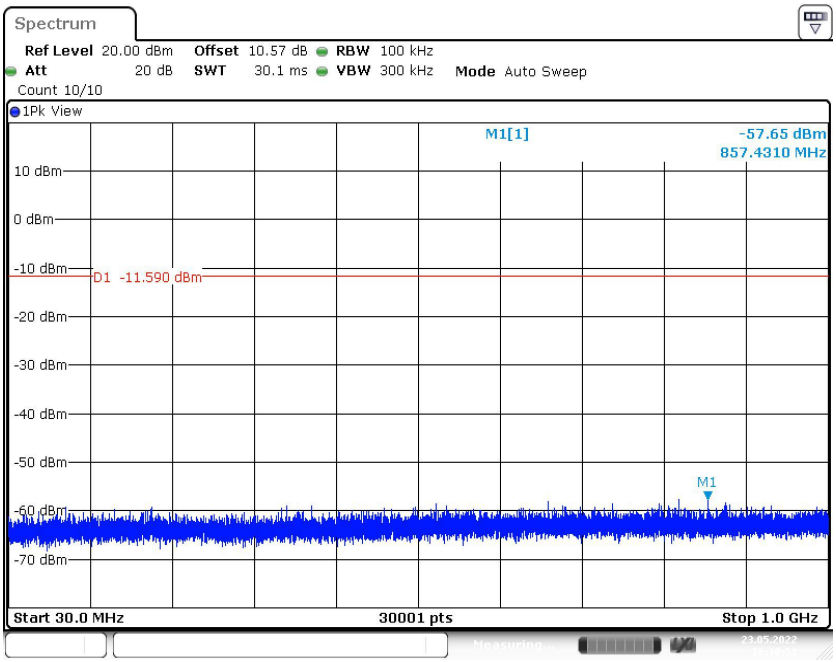

Fig. 26 Conducted Spurious Emission (π/4 DQPSK, CH39, 30MHz -1GHz)

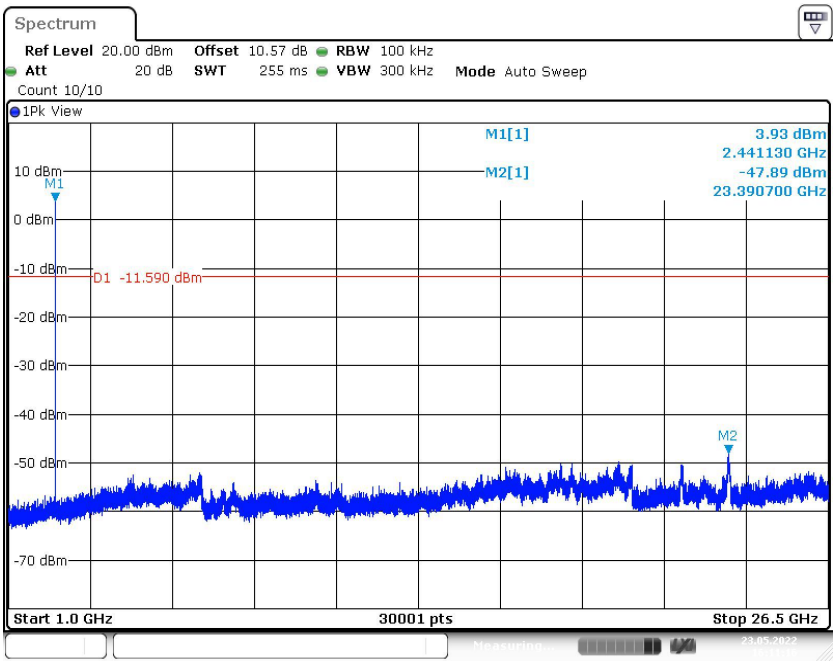

Fig. 27 Conducted Spurious Emission (π/4 DQPSK, CH39, 1GHz-26.5GHz)

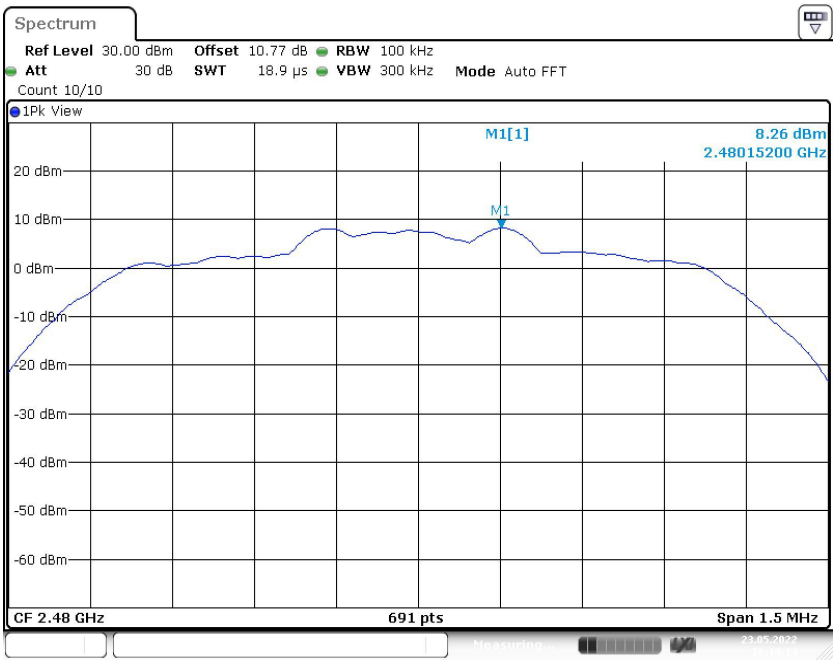

Fig. 28 Conducted Spurious Emission (π/4 DQPSK, CH78, 2.480GHz)

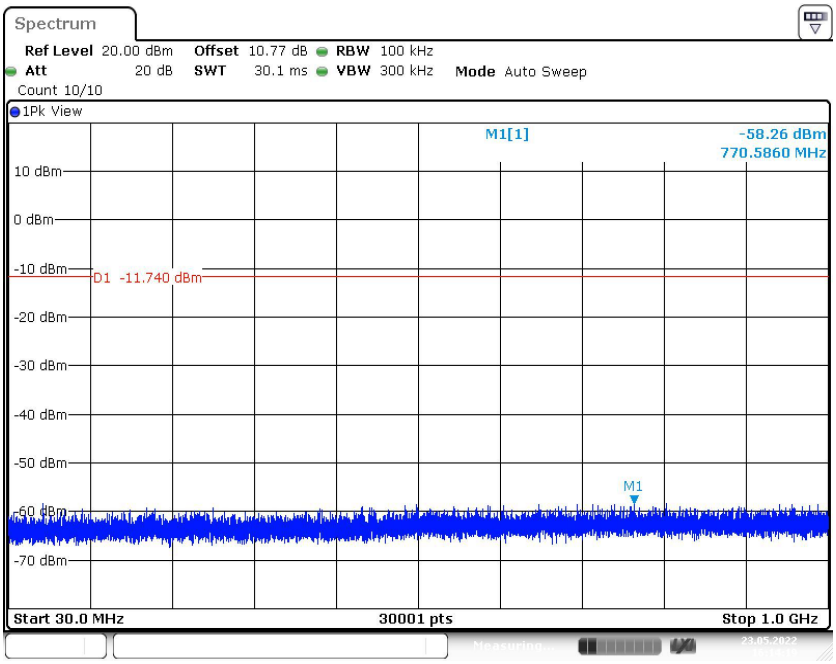

Fig. 29 Conducted Spurious Emission (π/4 DQPSK, CH78, 30MHz -1GHz)

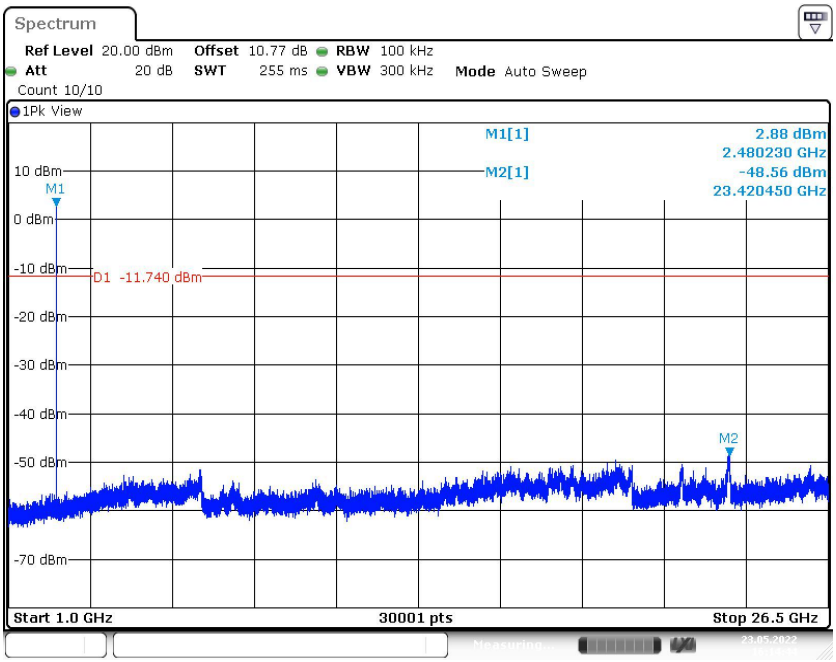

Fig. 30 Conducted Spurious Emission (π/4 DQPSK, CH78, 1GHz-26.5GHz)

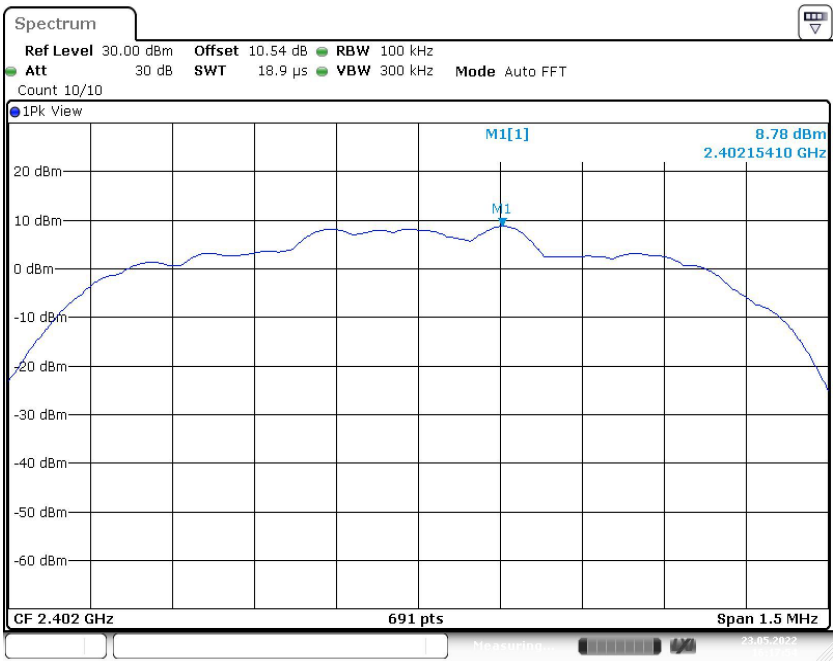

Fig. 31 Conducted Spurious Emission (8DPSK, CH0, 2.402GHz)

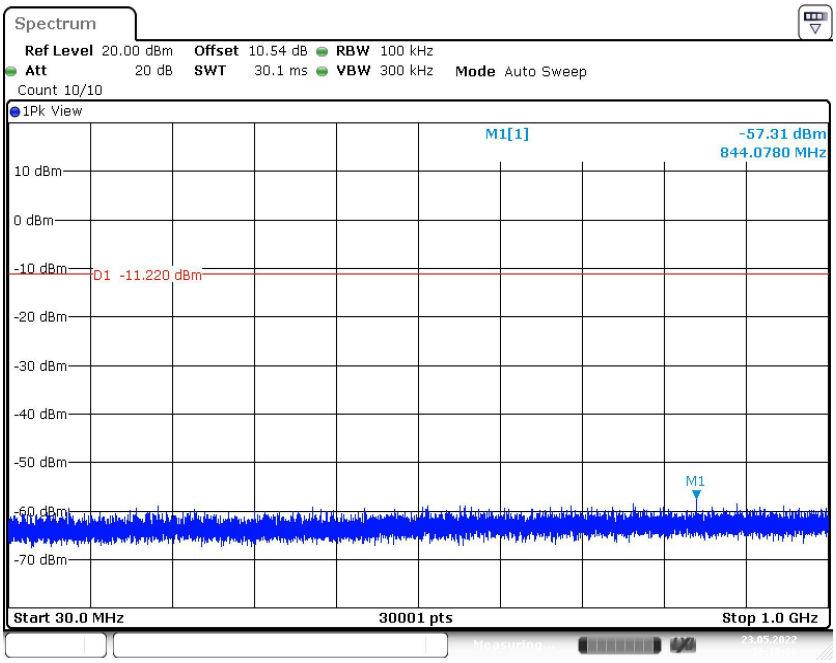

Fig. 32 Conducted Spurious Emission (8DPSK, CH0, 30MHz -1GHz)

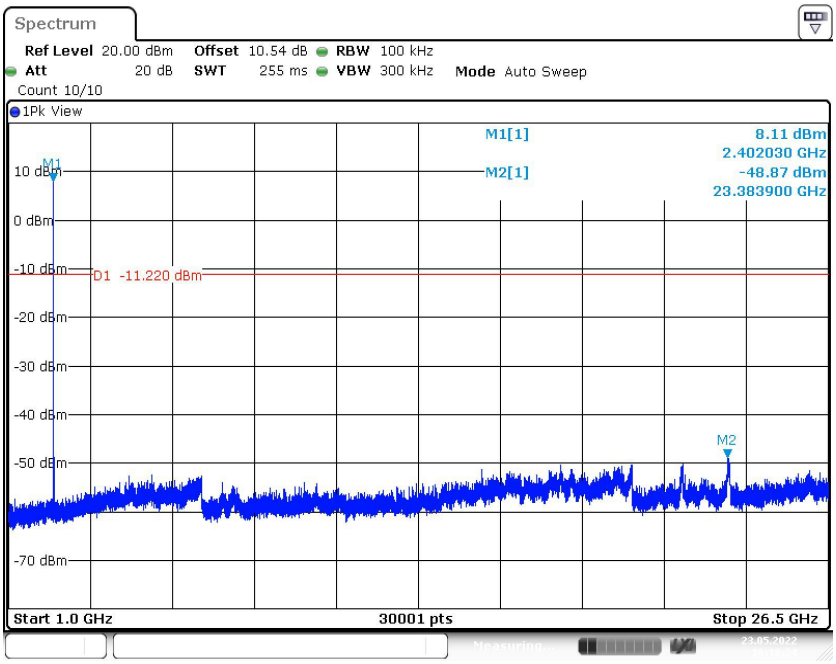

Fig. 33 Conducted Spurious Emission (8DPSK, CH0, 1GHz-26.5GHz)

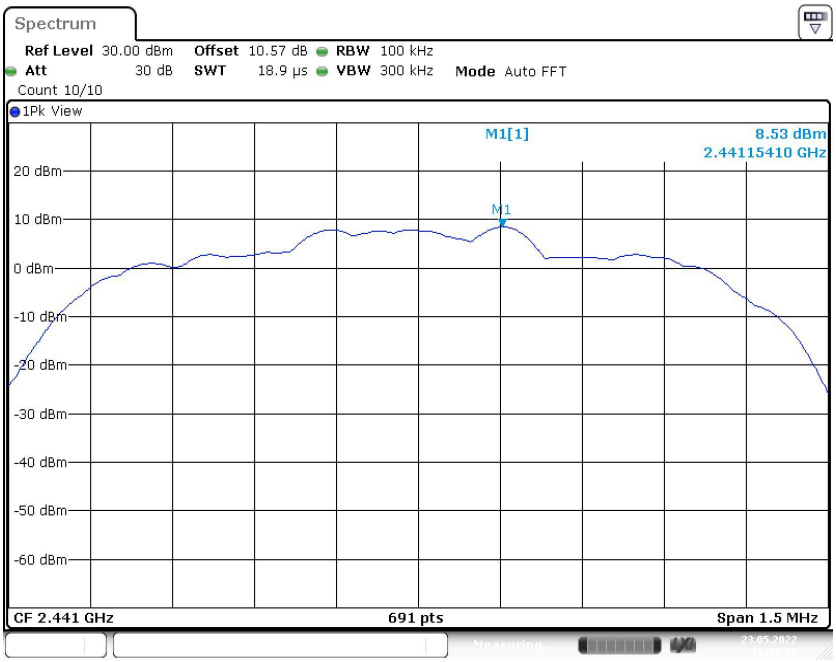

Fig. 34 Conducted Spurious Emission (8DPSK, CH39, 2.441GHz)

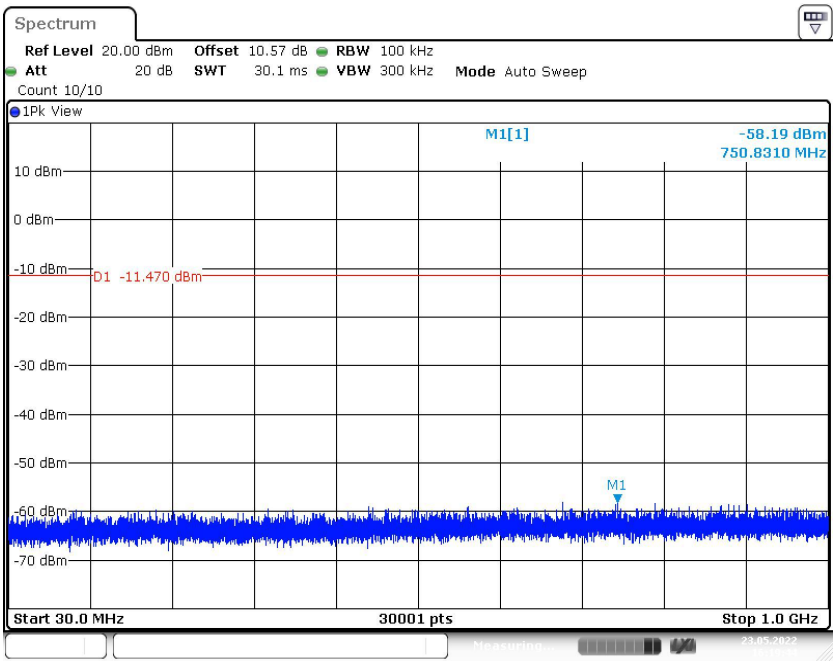

Fig. 35 Conducted Spurious Emission (8DPSK, CH39, 30MHz -1GHz)

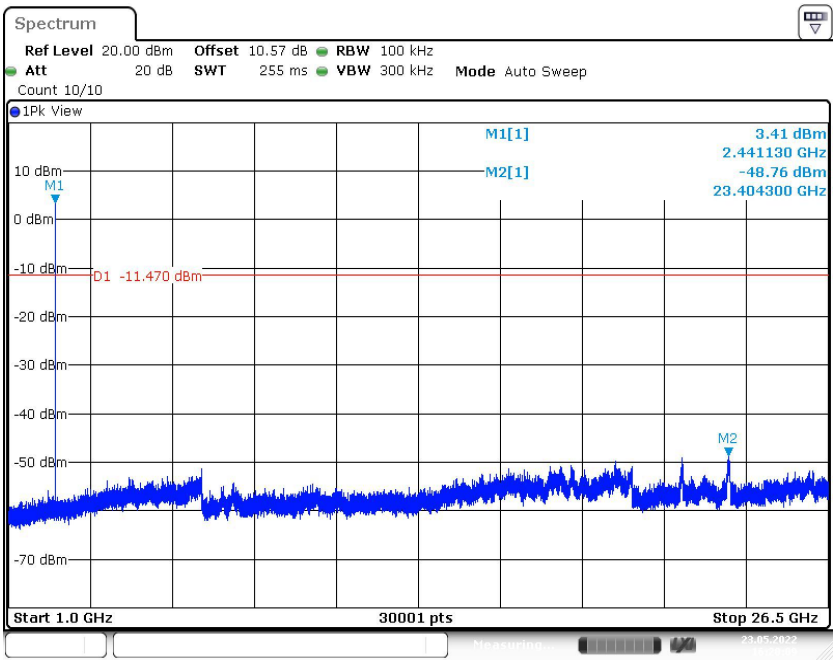

Fig. 36 Conducted Spurious Emission (8DPSK, CH39, 1GHz-26.5GHz)

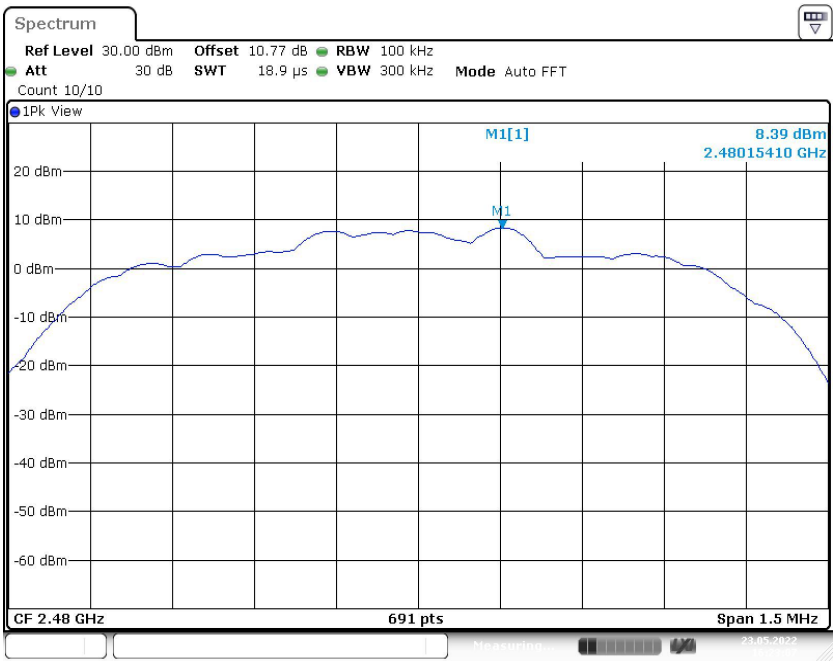

Fig. 37 Conducted Spurious Emission (8DPSK, CH78, 2.480GHz)

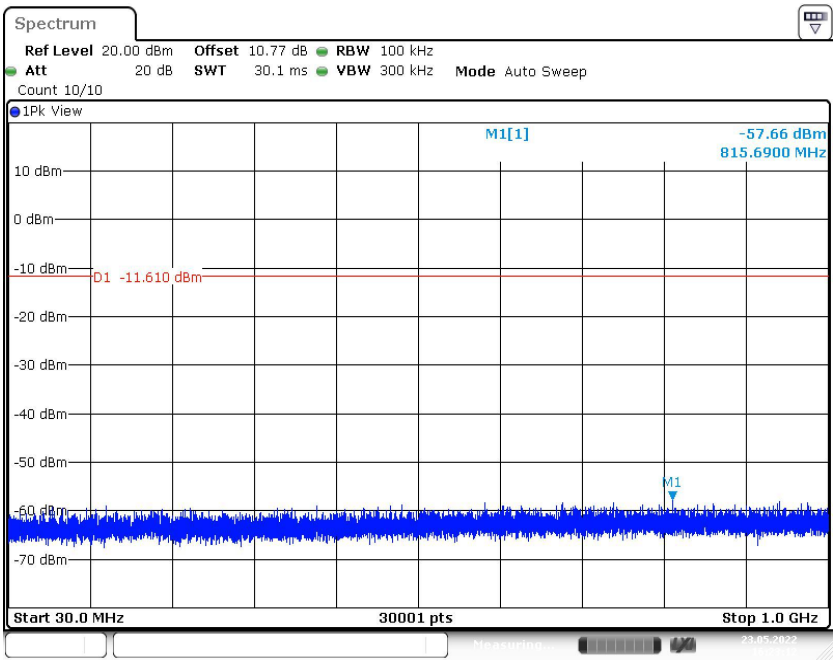

Fig. 38 Conducted Spurious Emission (8DPSK, CH78, 30MHz -1GHz)

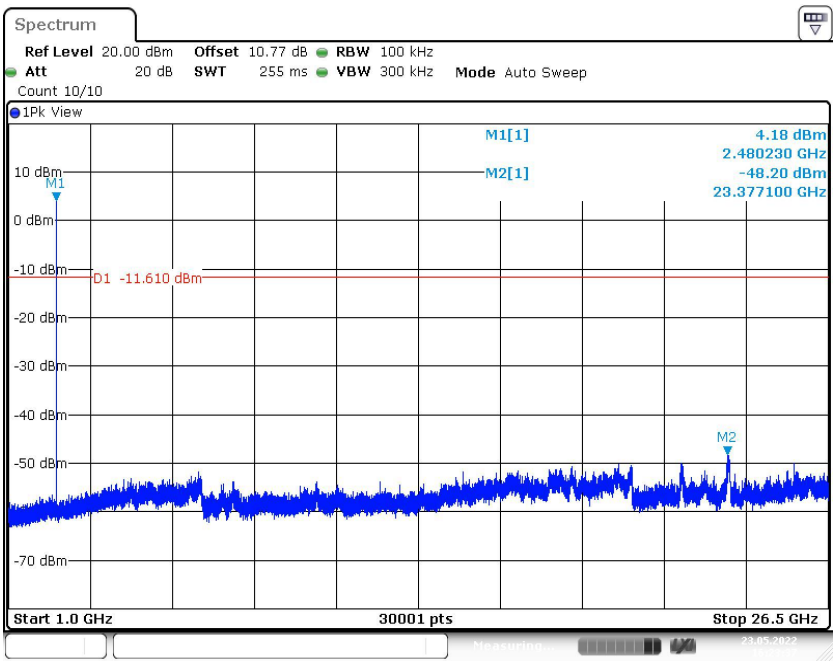

Fig. 39 Conducted Spurious Emission (8DPSK, CH78, 1GHz-26.5GHz)

A.4 Radiated Emission

Method of Measurement: See ANSI C63.10-clause 6.3&6.4&6.5&6.6.

Measurement Limit:

Standard	Limit (dBm)
FCC 47 CFR Part 15.247, 15.205, 15.209	20dBm 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)).

Limit in restricted band:

Frequency of emission (MHz)	Field strength(μV/m)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

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	120kHz/300kHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

Note: According to the performance evaluation, the radiated emission margin of EUT is over 20dB in the band from 9kHz to 30MHz. Therefore, the measurement starts from 30MHz to tenth harmonic.

The measurement results include the horizontal polarization and vertical polarization measurements.

Measurement Results:

Mode	Channel	Frequency Range	Test Results	Conclusion
GFSK	0	1 GHz ~18 GHz	Fig.40	**P**
	39	1 GHz ~18 GHz	Fig.41	**P**
	78	1 GHz ~18 GHz	Fig.42	**P**
	Restricted Band(CH0)	2.38 GHz ~ 2.45 GHz	Fig.43	**P**
	Restricted Band (CH78)	2.45 GHz ~ 2.5 GHz	Fig.44	**P**
π/4 DQPSK	0	1 GHz ~18 GHz	Fig.45	**P**
	39	1 GHz ~18 GHz	Fig.46	**P**
	78	1 GHz ~18 GHz	Fig.47	**P**
	Restricted Band (CH0)	2.38 GHz ~ 2.45 GHz	Fig.48	**P**
	Restricted Band (CH78)	2.45 GHz ~ 2.5 GHz	Fig.49	**P**
8DPSK	0	1 GHz ~18 GHz	Fig.50	**P**
	39	1 GHz ~18 GHz	Fig.51	**P**
	78	1 GHz ~18 GHz	Fig.52	**P**
	Restricted Band (CH0)	2.38 GHz ~ 2.45 GHz	Fig.53	**P**
	Restricted Band (CH78)	2.45 GHz ~ 2.5 GHz	Fig.54	**P**
/	All channels	9 kHz ~30 MHz	Fig.55	**P**
		30 MHz ~1 GHz	Fig.56	**P**
		18 GHz ~26.5 GHz	Fig.57	**P**

Worst Case Result

GFSK CH0 (1-18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
10926.000000	47.41	74.00	26.59	V	9.5
12572.571429	47.92	74.00	26.08	V	11.3
14870.142857	51.48	74.00	22.52	H	13.0
15934.714286	52.69	74.00	21.31	V	14.1
16863.857143	54.24	74.00	19.76	H	18.0
17921.142857	55.06	74.00	18.94	H	18.9

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
10926.000000	35.23	54.00	18.77	V	9.5
12572.571429	35.79	54.00	18.21	V	11.3
14870.142857	38.65	54.00	15.35	H	13.0
15934.714286	39.99	54.00	14.01	V	14.1
16863.857143	41.96	54.00	12.04	H	18.0
17921.142857	42.70	54.00	11.30	H	18.9

π/4 DQPSK CH0 (1-18GHz)

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
10400.142857	47.68	74.00	26.32	H	9.1
12252.857143	49.50	74.00	24.50	V	10.9
14850.428572	50.61	74.00	23.39	V	13.0
15912.428571	53.26	74.00	20.74	V	14.1
17035.714286	55.13	74.00	18.87	V	18.4
17907.857143	54.54	74.00	19.46	V	18.9

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
10400.142857	35.19	54.00	18.81	H	9.1
12252.857143	36.06	54.00	17.94	V	10.9
14850.428572	38.30	54.00	15.70	V	13.0
15912.428571	40.13	54.00	13.87	V	14.1
17035.714286	42.40	54.00	11.60	V	18.4
17907.857143	42.55	54.00	11.45	V	18.9

8DPSK CH0 (1-18GHz)

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
11593.714286	47.13	74.00	26.87	H	10.0
12866.142857	48.86	74.00	25.14	H	11.0
14207.571429	48.57	74.00	25.43	V	11.1
15966.000000	51.81	74.00	22.19	V	14.1
16851.428571	53.80	74.00	20.20	V	17.9
17908.285714	55.24	74.00	18.76	V	18.9

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
11593.714286	35.38	54.00	18.62	H	10.0
12866.142857	36.37	54.00	17.63	H	11.0
14207.571429	36.17	54.00	17.83	V	11.1
15966.000000	39.41	54.00	14.59	V	14.1
16851.428571	41.83	54.00	12.17	V	17.9
17908.285714	42.58	54.00	11.42	V	18.9

Note:

A "reference path loss" is established and the A_{Rpl} is the attenuation of “reference path loss”, and Antenna Factor, the gain of the preamplifier, the cable loss. P_{Mea} is the field strength recorded from the instrument. The measurement results are obtained as described below:

Result= P_{Mea} +Cable Loss +Antenna Factor-Gain of the preamplifier.

See below for test graphs.

Conclusion: Pass

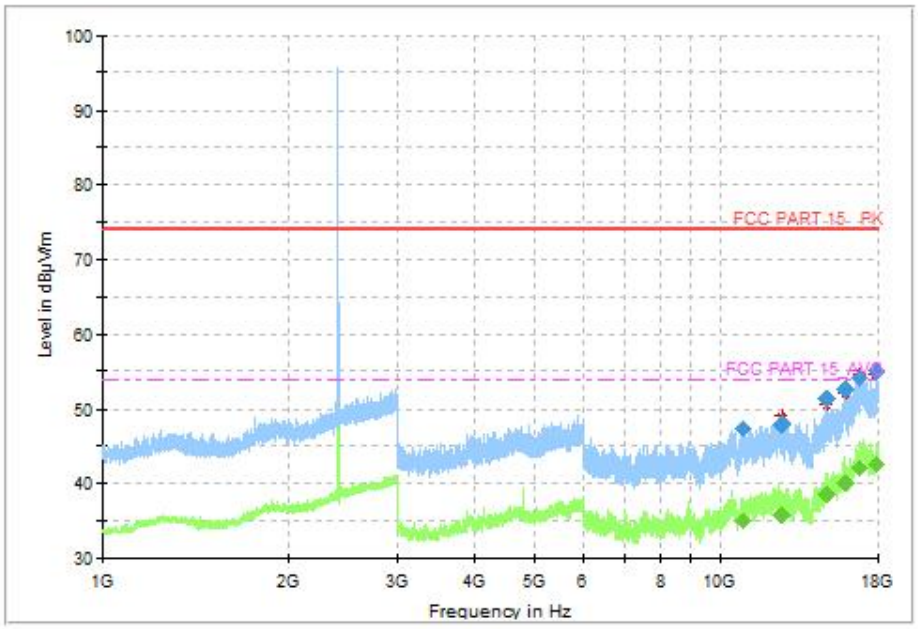

Fig. 40 Radiated Spurious Emission (GFSK, CH0, 1 GHz ~18 GHz)

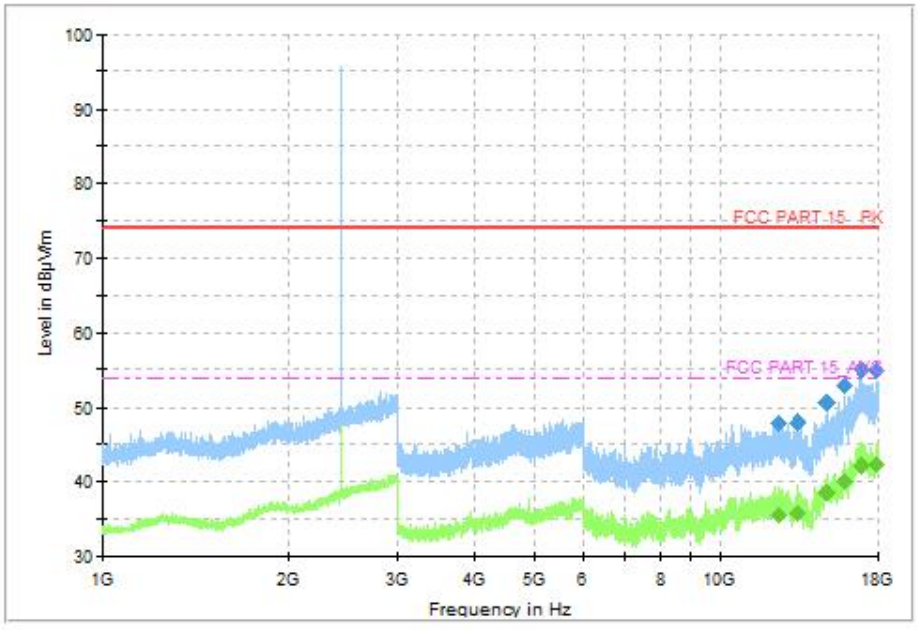

Fig. 41 Radiated Spurious Emission (GFSK, CH39, 1 GHz ~18 GHz)

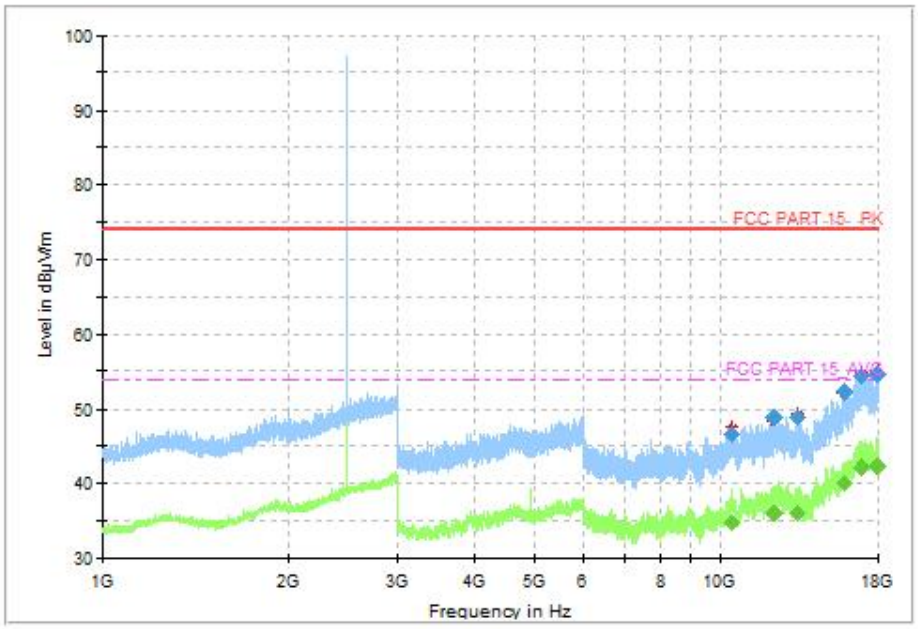

Fig. 42 Radiated Spurious Emission (GFSK, CH78, 1 GHz ~18 GHz)

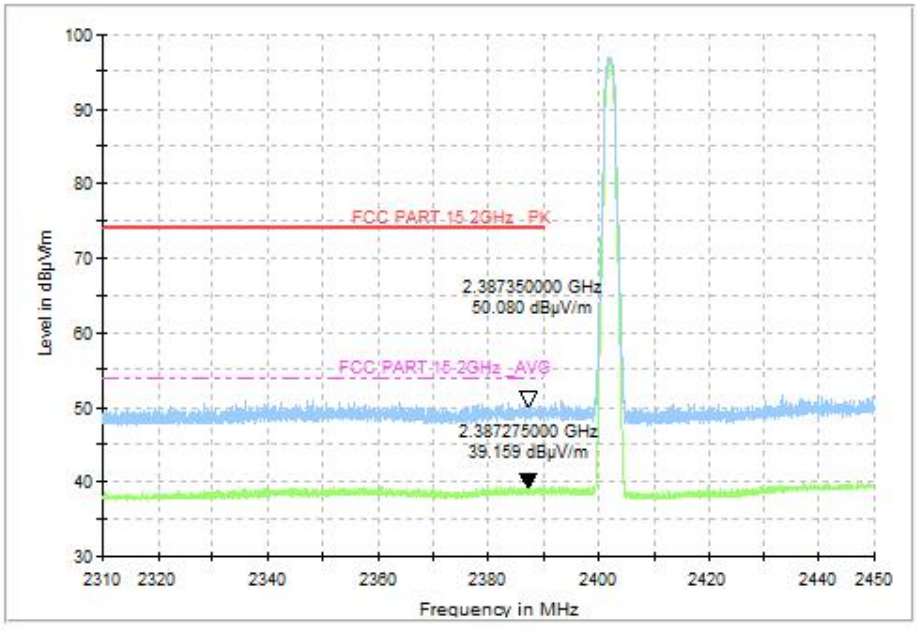

Fig. 43 Radiated Band Edges (GFSK, CH0, 2380GHz~2450GHz)

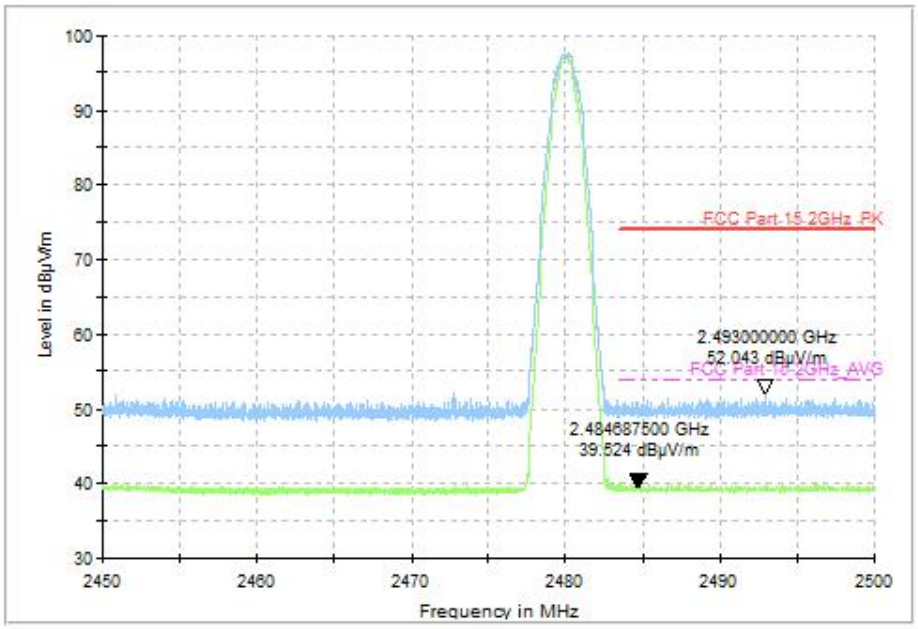

Fig. 44 Radiated Band Edges (GFSK, CH78, 2450GHz~2500GHz)

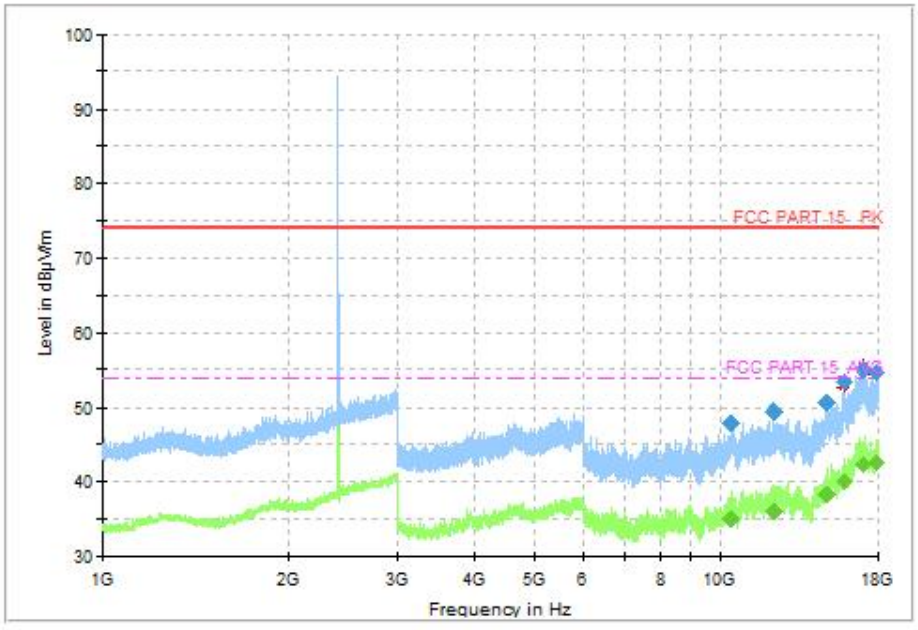

Fig. 45 Radiated Spurious Emission (π/4 DQPSK, CH0, 1 GHz ~18 GHz)

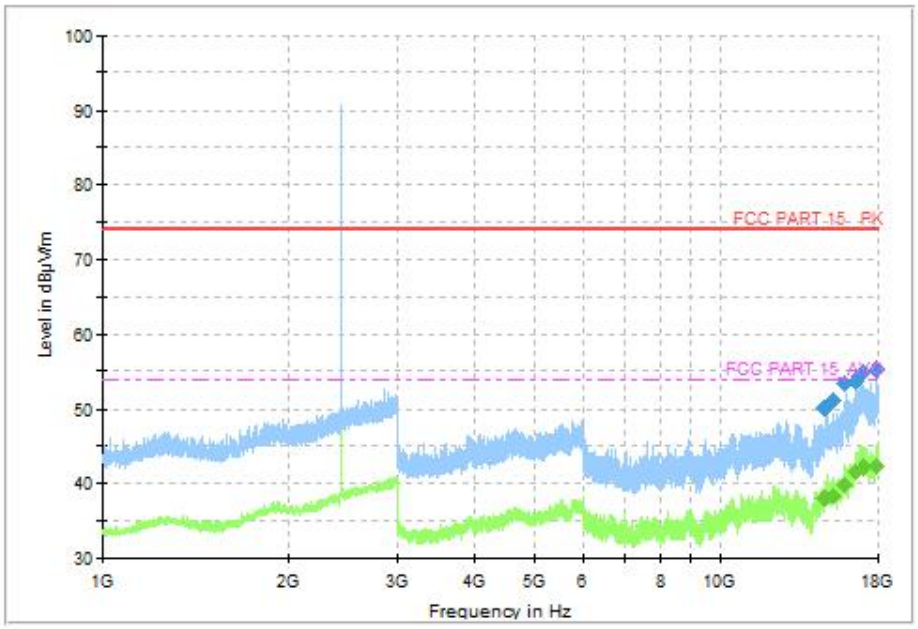

Fig. 46 Radiated Spurious Emission (π/4 DQPSK, CH39, 1 GHz ~18 GHz)

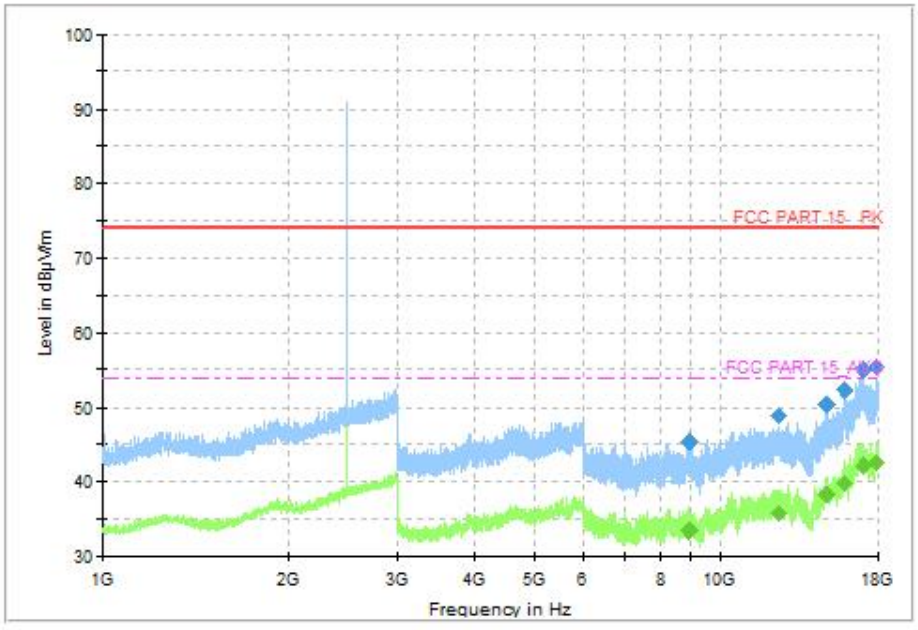

Fig. 47 Radiated Spurious Emission (π/4 DQPSK, CH78, 1 GHz ~18 GHz)

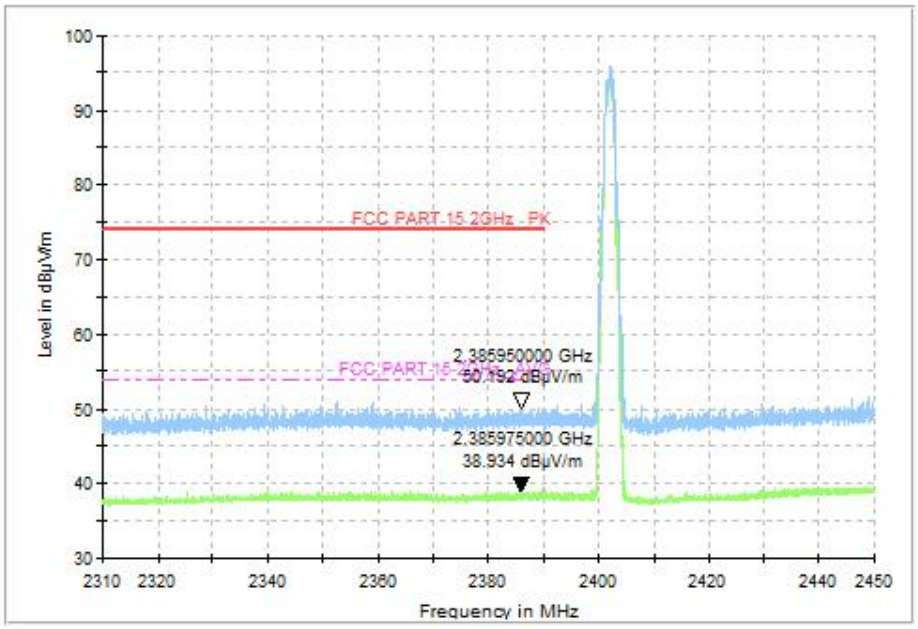

Fig. 48 Radiated Band Edges (π/4 DQPSK, CH0, 2380GHz~2450GHz)

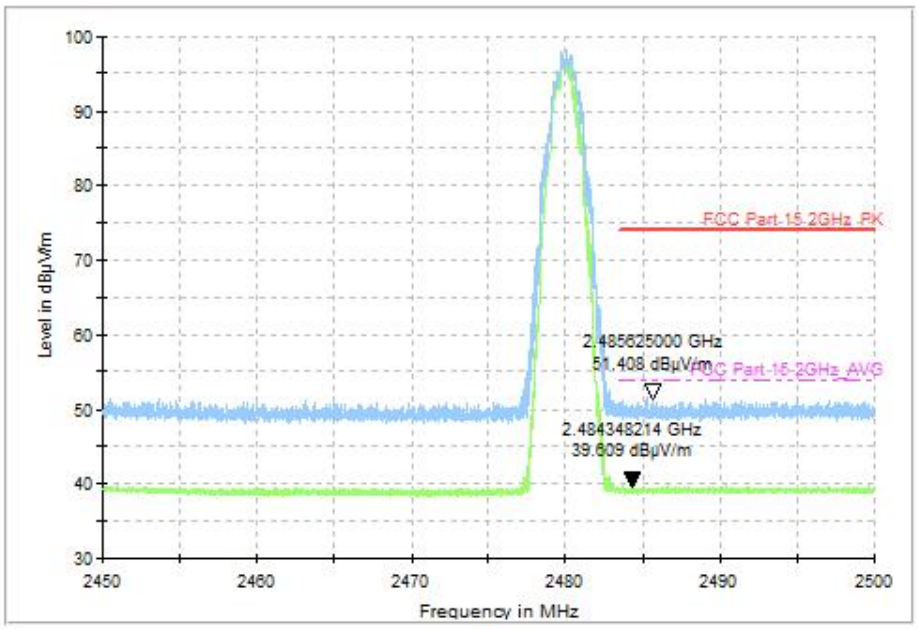

Fig. 49 Radiated Band Edges (π/4 DQPSK, CH78, 2450GHz~2500GHz)

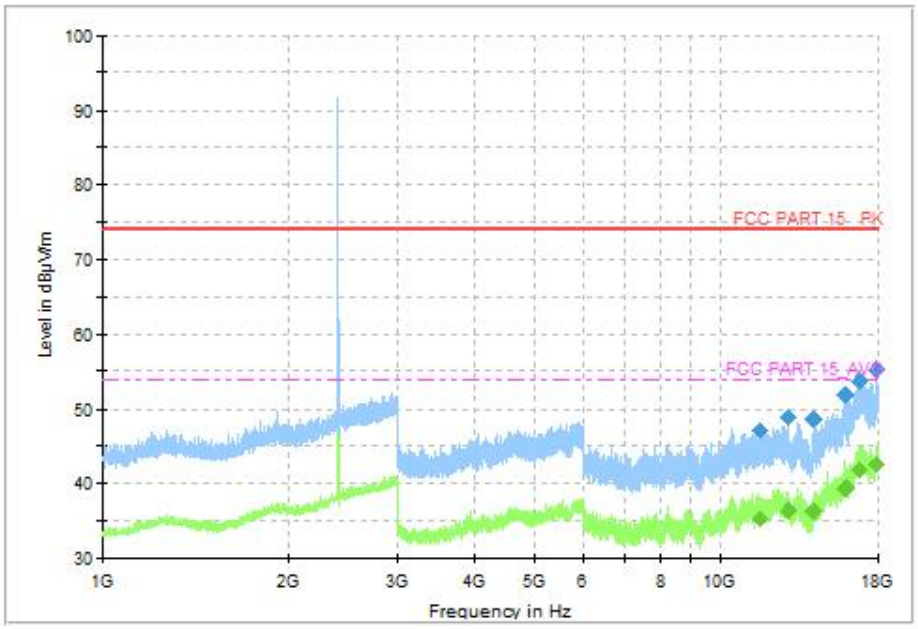

Fig. 50 Radiated Spurious Emission (8DPSK, CH0, 1 GHz ~18 GHz)

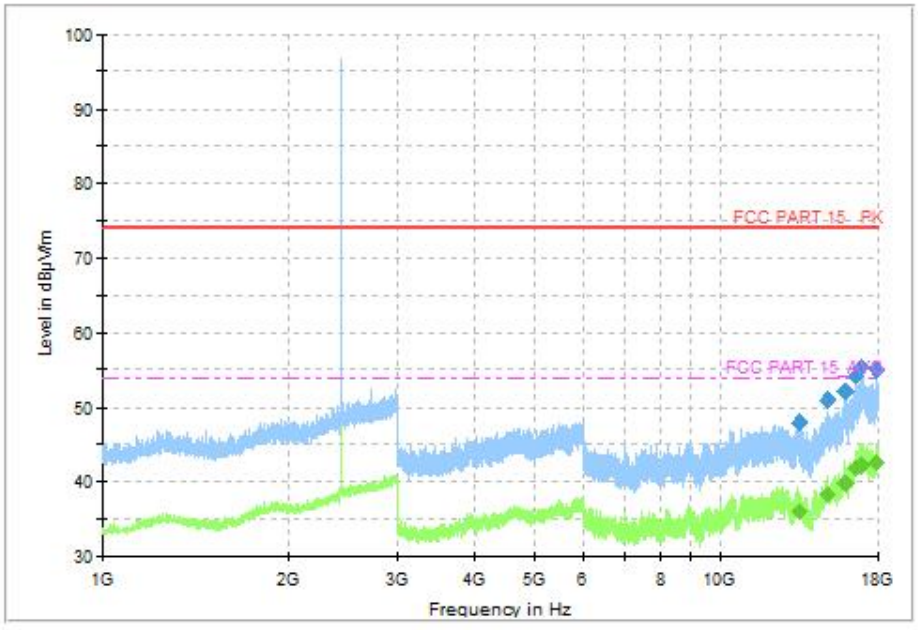

Fig. 51 Radiated Spurious Emission (8DPSK, CH39, 1 GHz ~18 GHz)

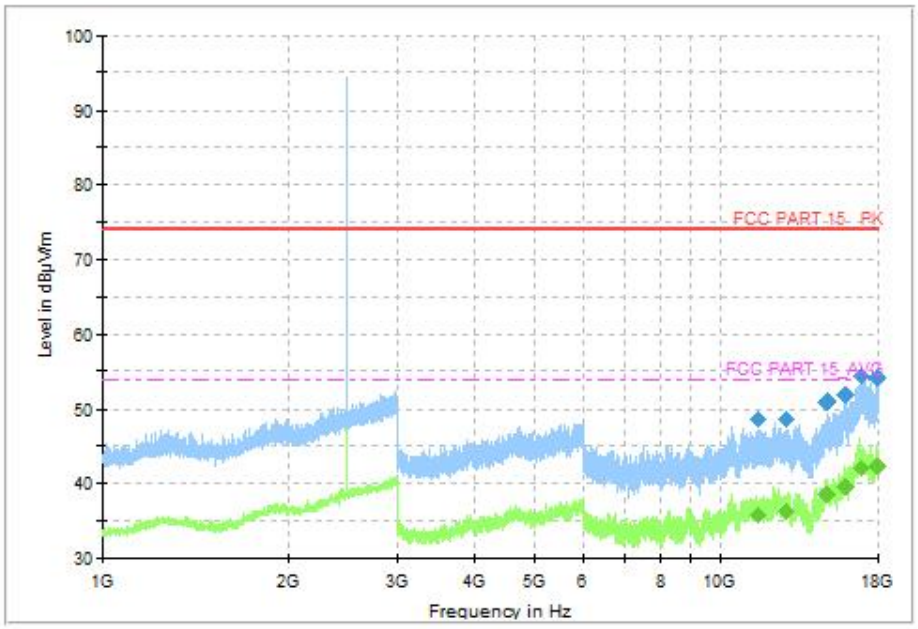

Fig. 52 Radiated Spurious Emission (8DPSK, CH78, 1 GHz ~18 GHz)

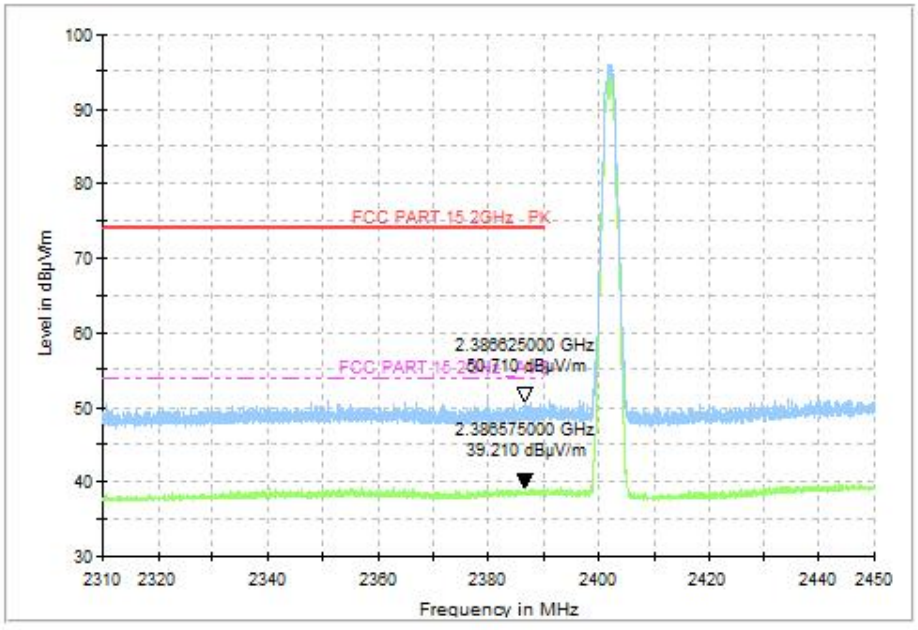

Fig. 53 Radiated Band Edges (8DPSK, CH0, 2380GHz~2450GHz)

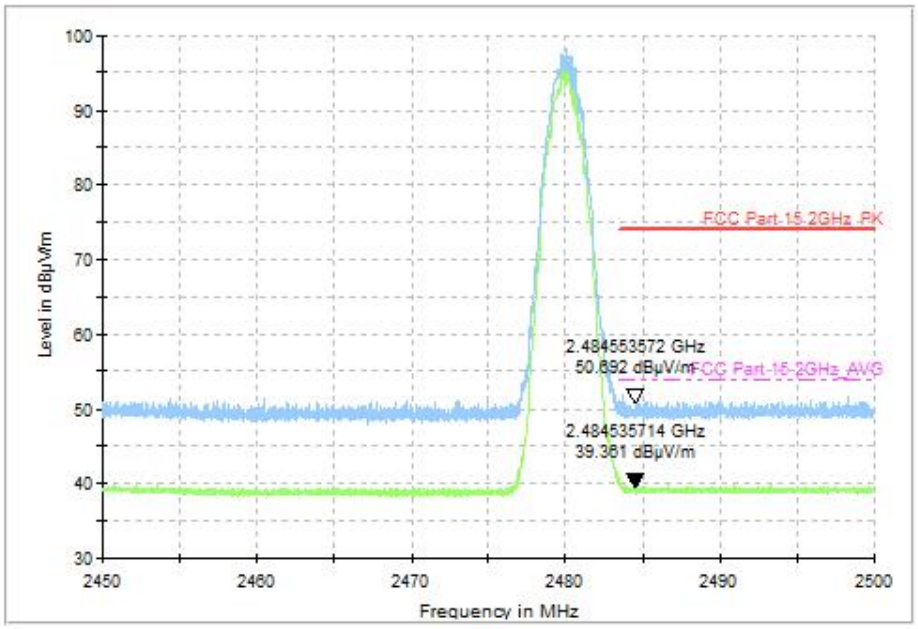

Fig. 54 Radiated Band Edges (8DPSK, CH78, 2450GHz~2500GHz)

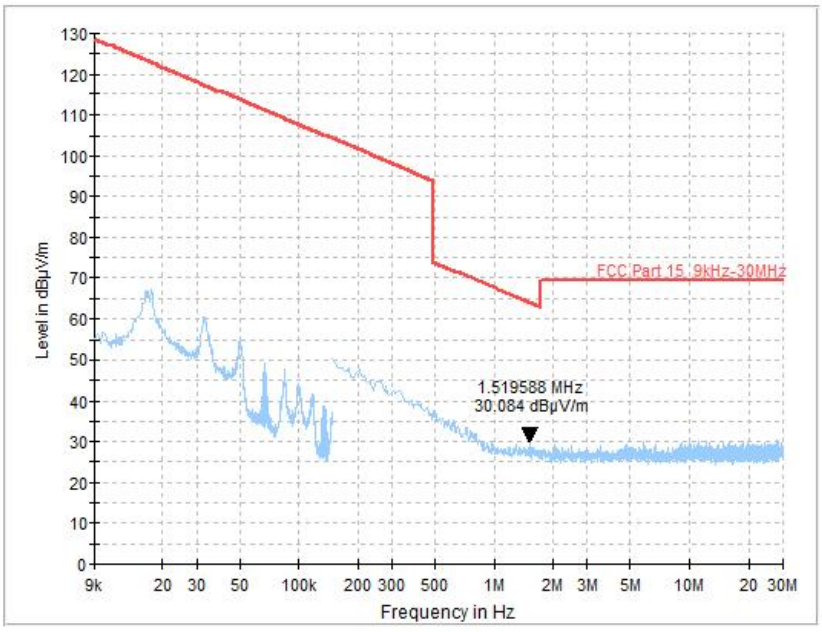

Fig. 55 Radiated Spurious Emission (All Channels, 9 kHz ~30 MHz)

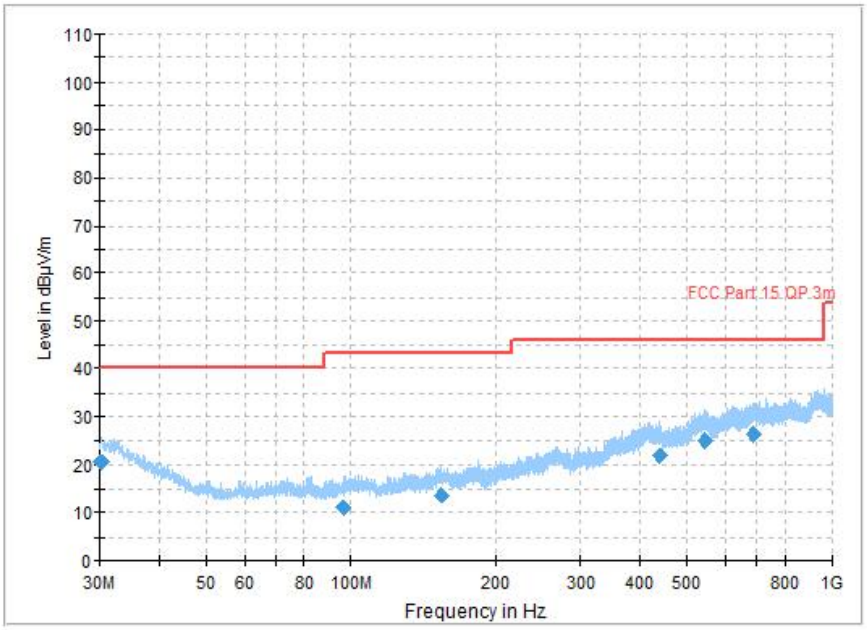

Fig. 56 Radiated Spurious Emission (All Channels, 30 MHz ~1 GHz)

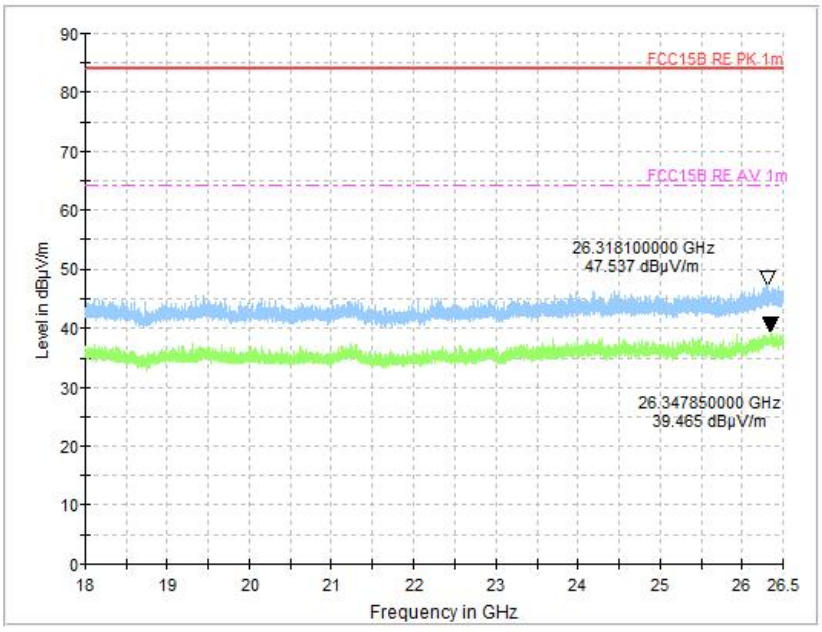

Fig. 57 Radiated Spurious Emission (All Channels, 18 GHz ~26.5 GHz)

A.5 20dB Bandwidth

Method of Measurement: See ANSI C63.10-clause 7.8.7.

Measurement Limit:

Standard	Limit (MHz)
FCC 47 CFR Part 15.247 (a)	/

Measurement Result:

Mode	Channel	20dB Bandwidth (MHz)		Conclusion
GFSK	0	Fig.58	0.81	/
	39	Fig.59	0.81	
	78	Fig.60	0.81	
π/4 DQPSK	0	Fig.61	1.26	/
	39	Fig.62	1.26	
	78	Fig.63	1.26	
8DPSK	0	Fig.64	1.26	/
	39	Fig.65	1.25	
	78	Fig.66	1.26	

See below for test graphs.

Conclusion: PASS

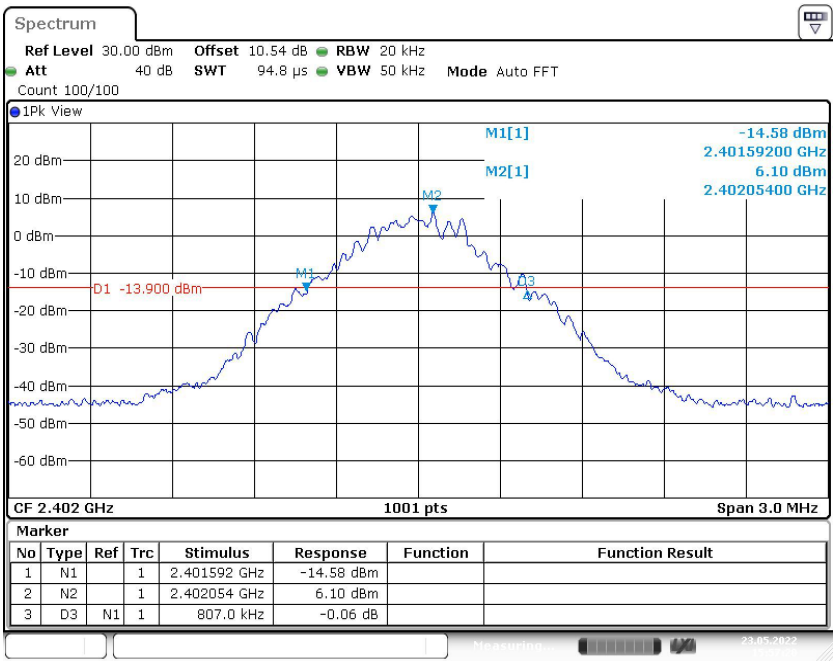

Fig. 58 20dB Bandwidth (GFSK, CH0)

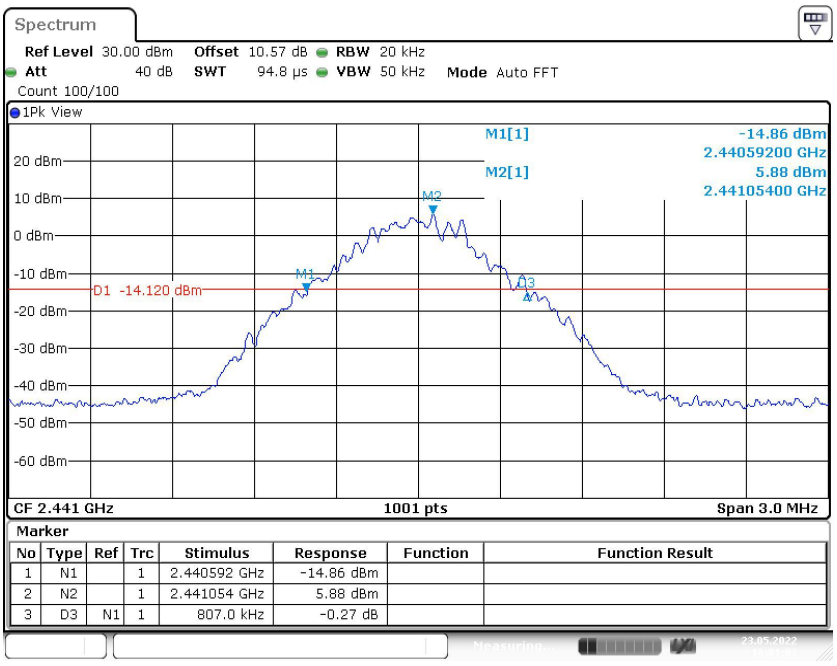

Fig. 59 20dB Bandwidth (GFSK, CH39)

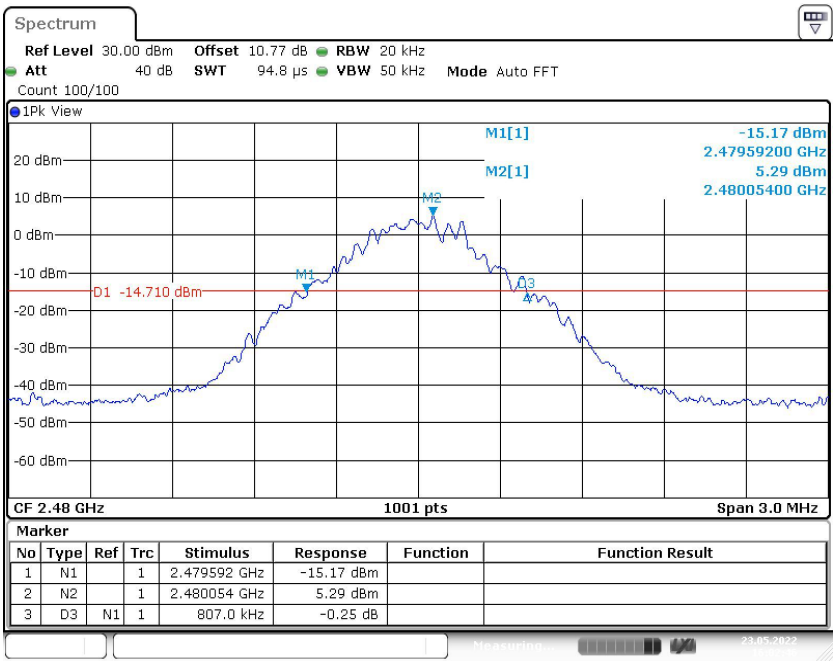

Fig. 60 20dB Bandwidth (GFSK, CH78)

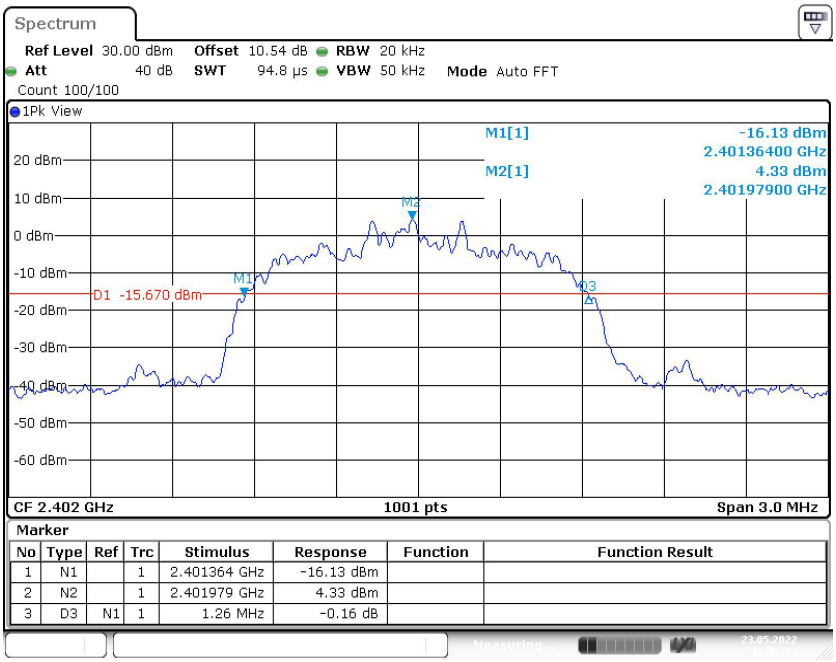

Fig. 61 20dB Bandwidth (π/4 DQPSK, CH0)

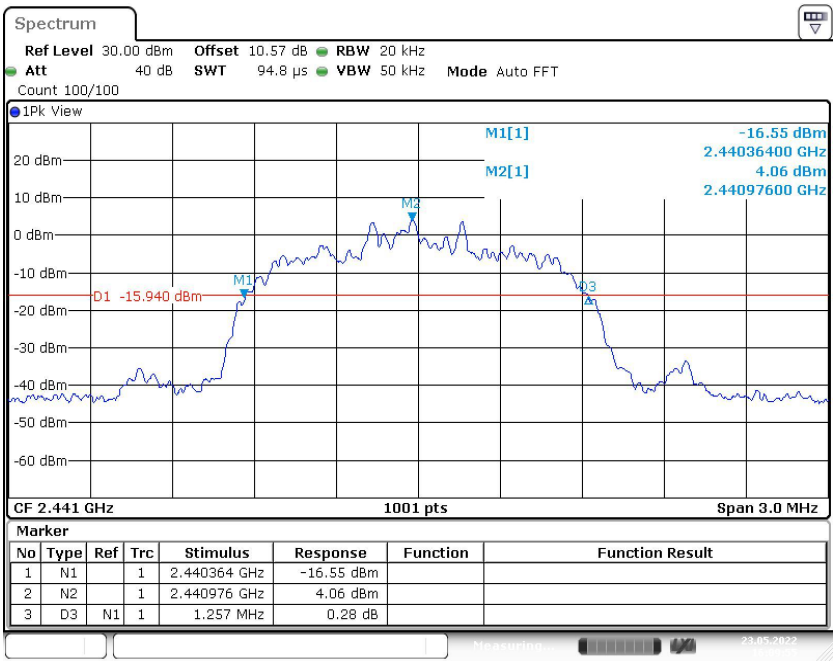

Fig. 62 20dB Bandwidth (π/4 DQPSK, CH39)

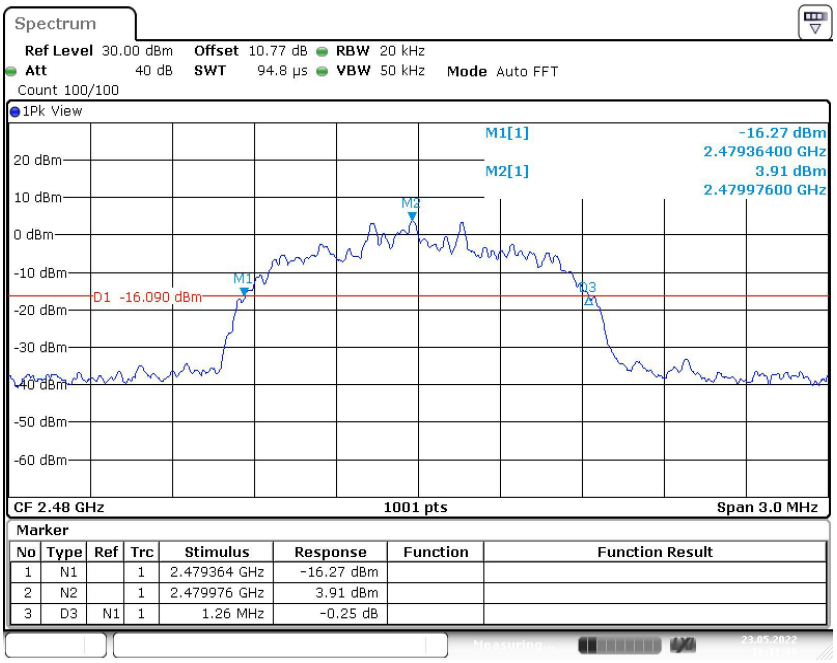

Fig. 63 20dB Bandwidth (π/4 DQPSK, CH78)