

## Appendix A

### RF Test Data for BT V4.2(BDR/EDR) (Conducted Measurement)

Product Name: Stereo DAB/Internet Radio

Trade Mark: N/A

Test Model: MA-230S

#### Environmental Conditions

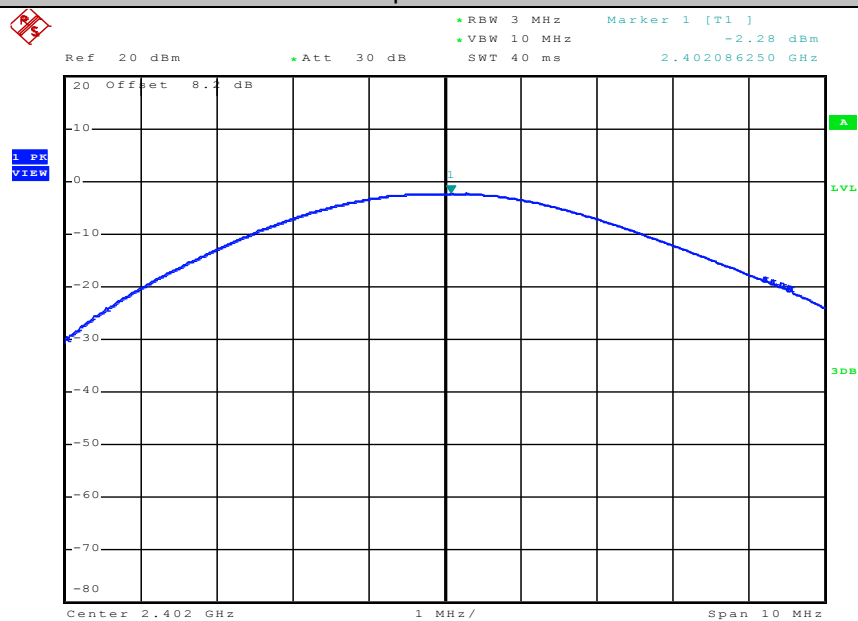
Temperature:	23.6 C
Relative Humidity:	52.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Jerry.Zeng
Supervised by:	Wang.Chuang

#### A.1 Maximum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.280	30	PASS
	MCH	-1.090	30	PASS
	HCH	-1.820	30	PASS
$\pi/4$ DQPSK	LCH	-2.830	21	PASS
	MCH	-1.700	21	PASS
	HCH	-2.520	21	PASS
8DPSK	LCH	-2.770	21	PASS
	MCH	-1.550	21	PASS
	HCH	-2.460	21	PASS

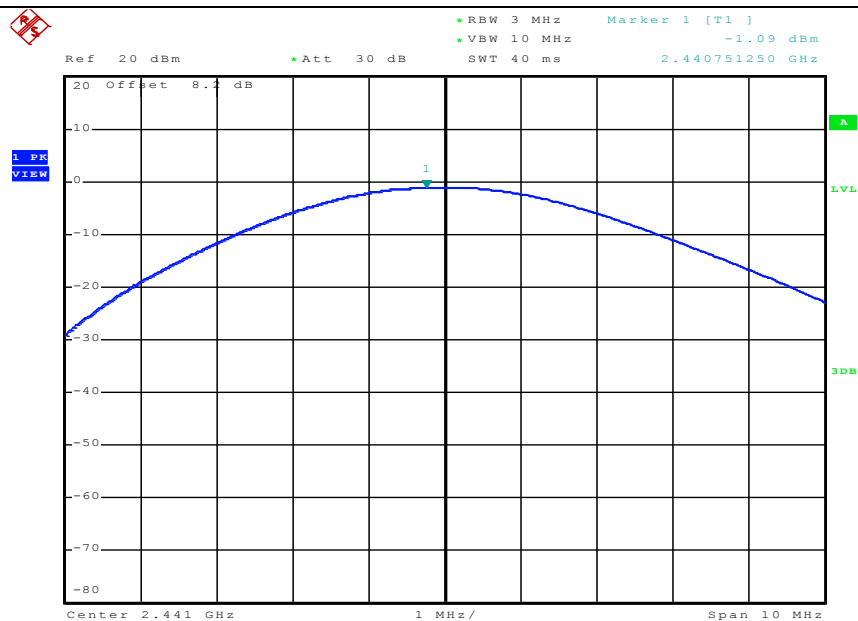
## Test Graphs

GFSK/LCH



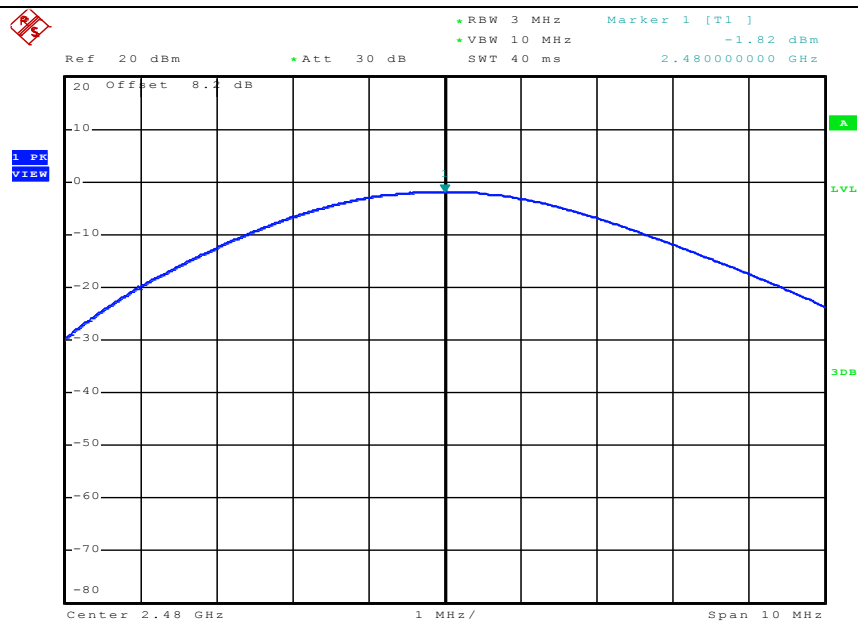
Date: 22.AUG.2019 18:23:30

GFSK/MCH

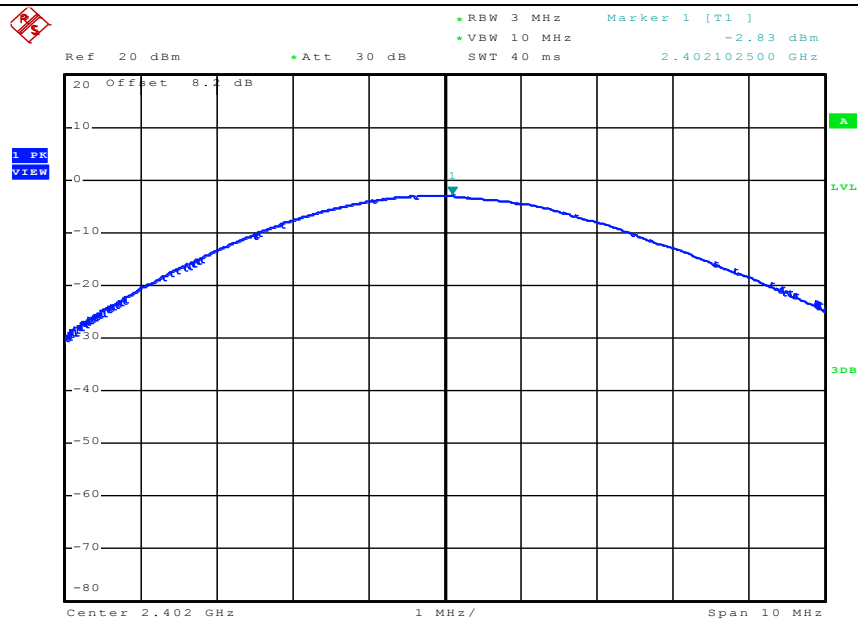


Date: 22.AUG.2019 18:26:03

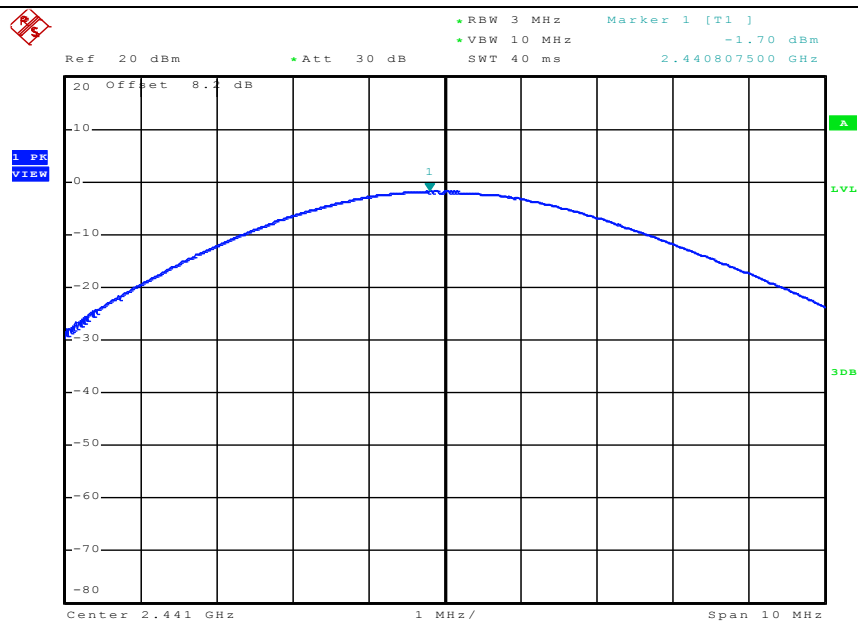
GFSK/HCH



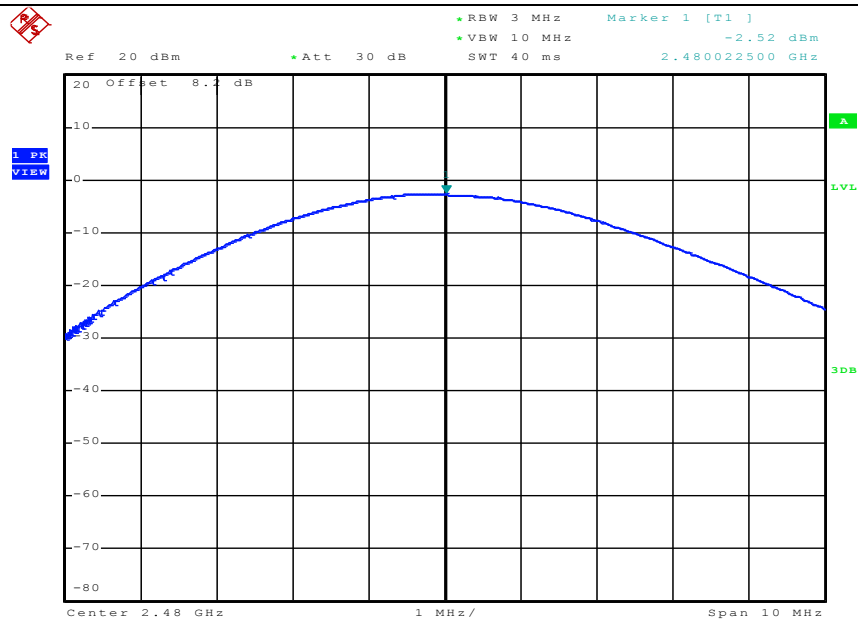
Date: 22.AUG.2019 18:27:47

 $\pi/4$ DQPSK/LCH

Date: 22.AUG.2019 18:31:54

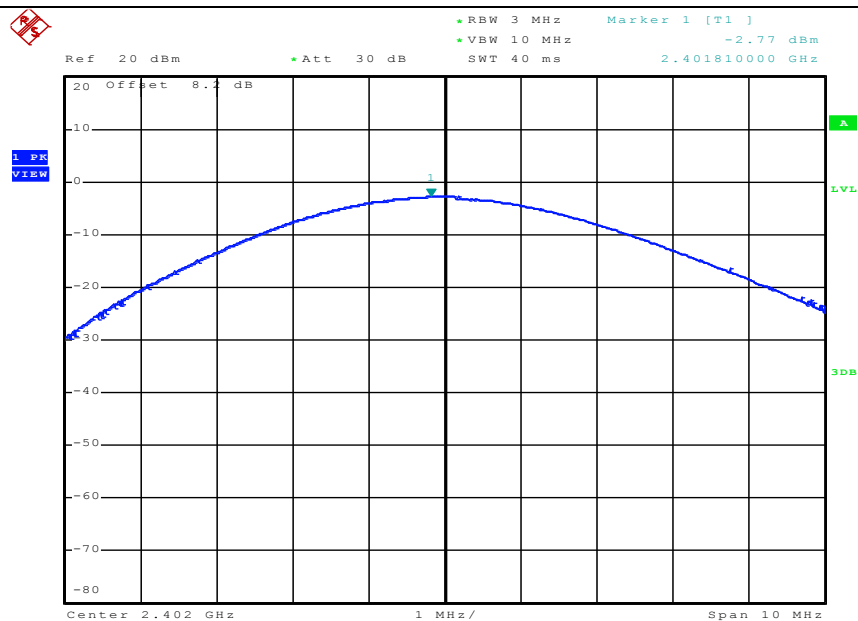
$\pi/4$ DQPSK/MCH

Date: 22.AUG.2019 18:34:27

 $\pi/4$ DQPSK/HCH

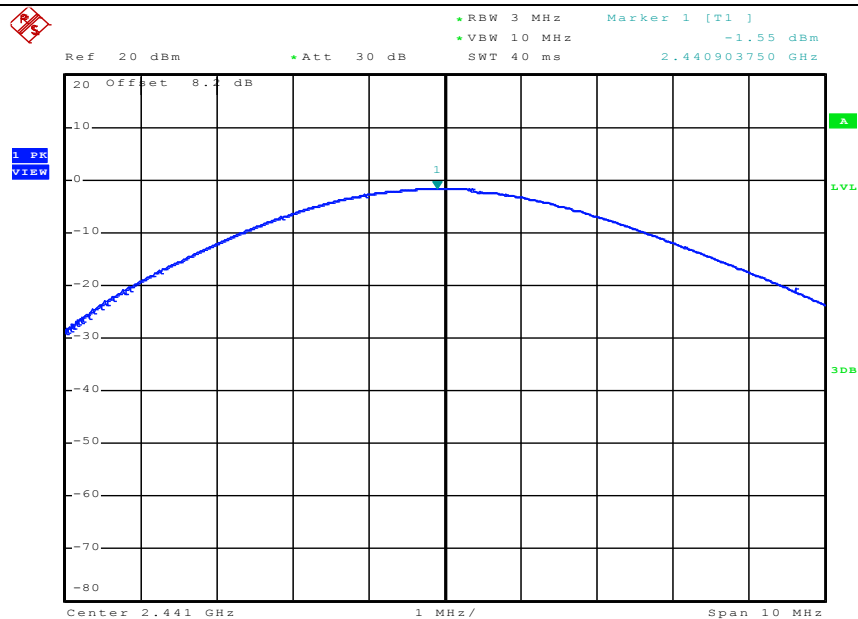
Date: 22.AUG.2019 18:36:08

8DPSK/LCH



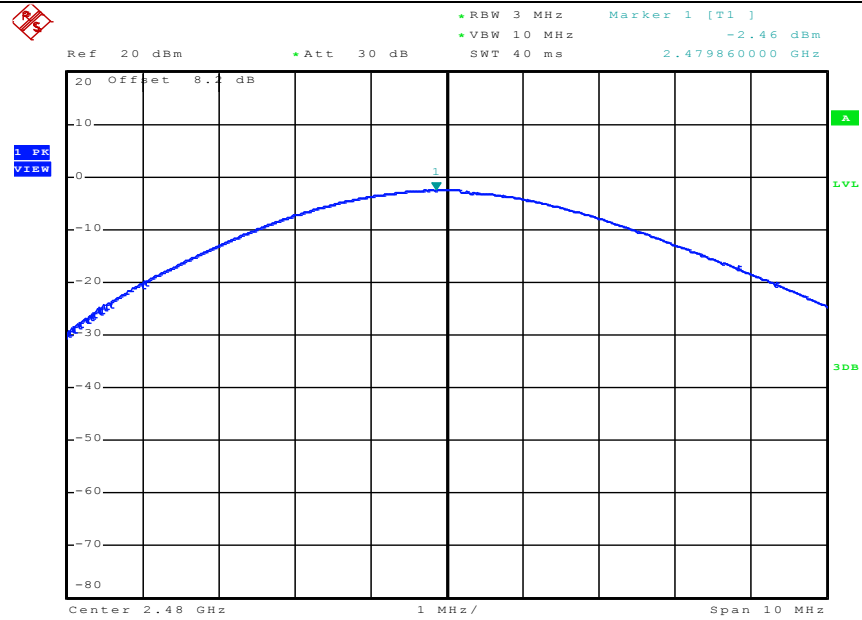
Date: 22.AUG.2019 18:38:41

8DPSK/MCH



Date: 22.AUG.2019 18:41:09

8DPSK/HCH



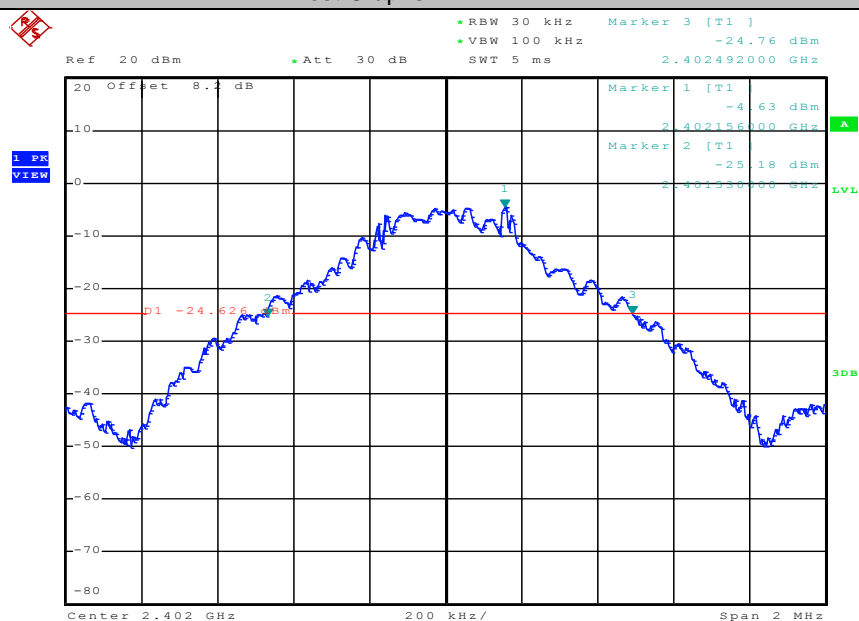
Date: 22.AUG.2019 18:44:29

## A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.962	Not Specified	PASS
	MCH	0.966	Not Specified	PASS
	HCH	0.980	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.286	Not Specified	PASS
	MCH	1.320	Not Specified	PASS
	HCH	1.288	Not Specified	PASS
8DPSK	LCH	1.292	Not Specified	PASS
	MCH	1.308	Not Specified	PASS
	HCH	1.304	Not Specified	PASS

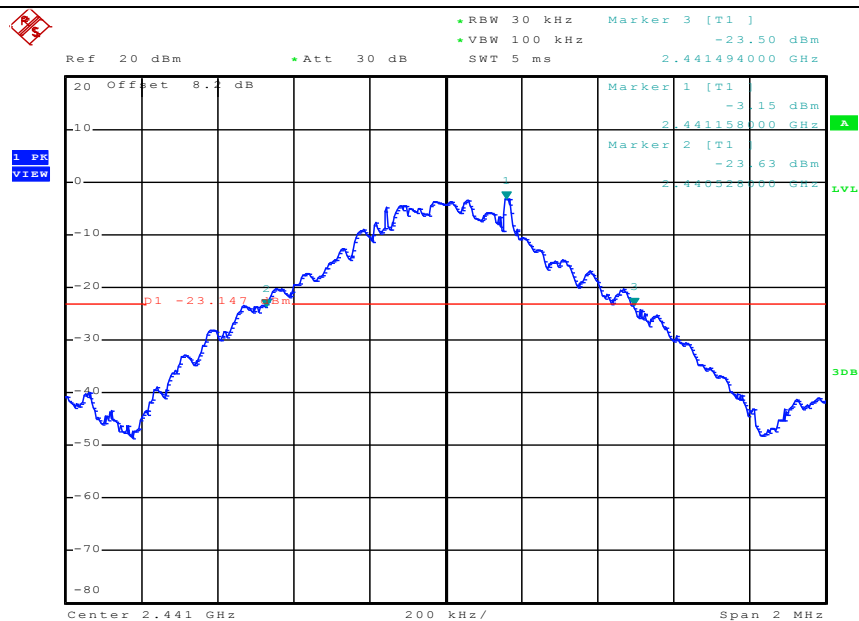
Test Graphs

GFSK/LCH



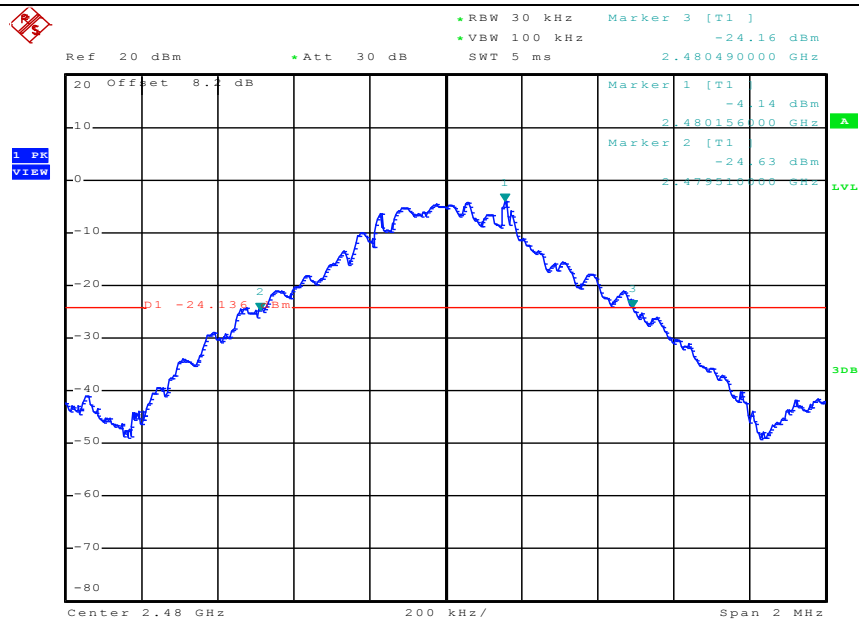
Date: 22.AUG.2019 18:22:53

GFSK/MCH



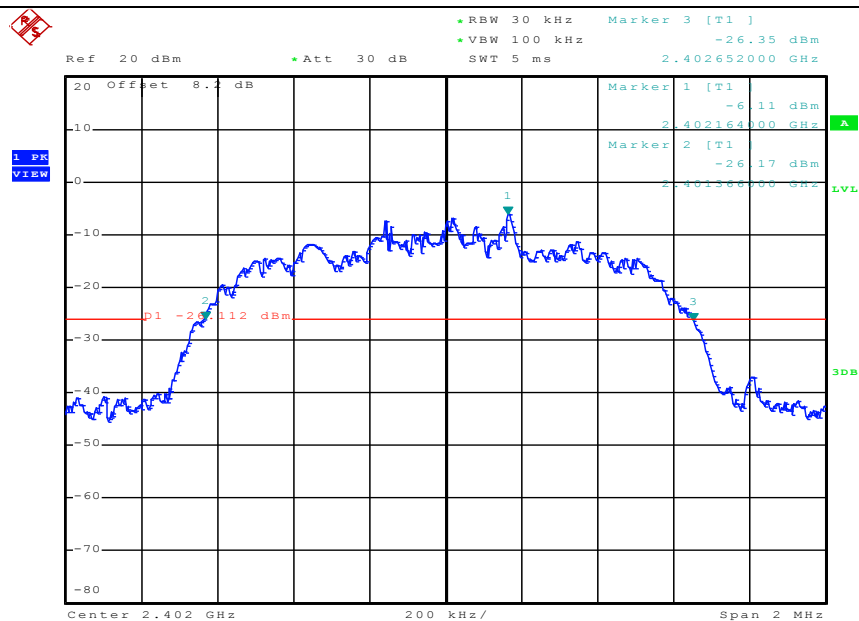
Date: 22.AUG.2019 18:25:27

GFSK/HCH

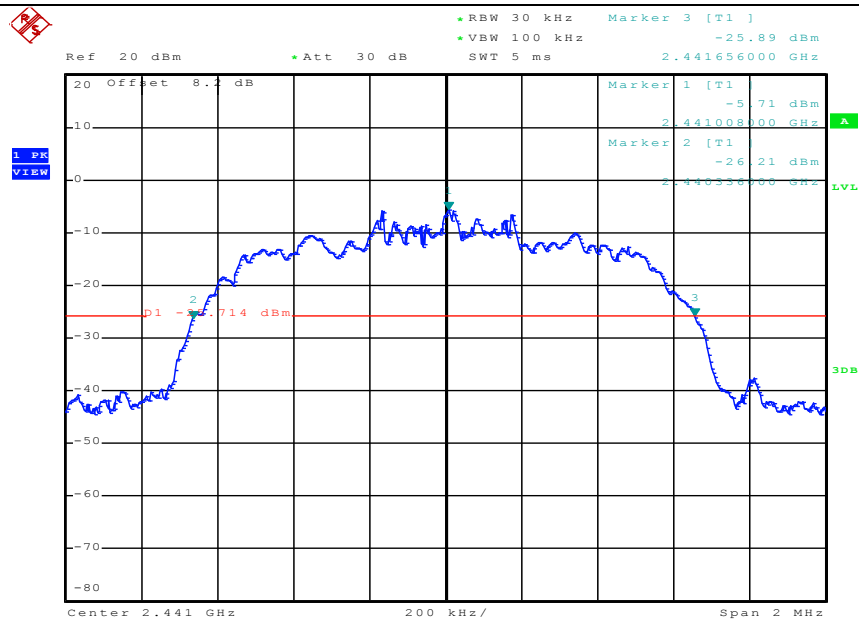


Date: 22.AUG.2019 18:27:10

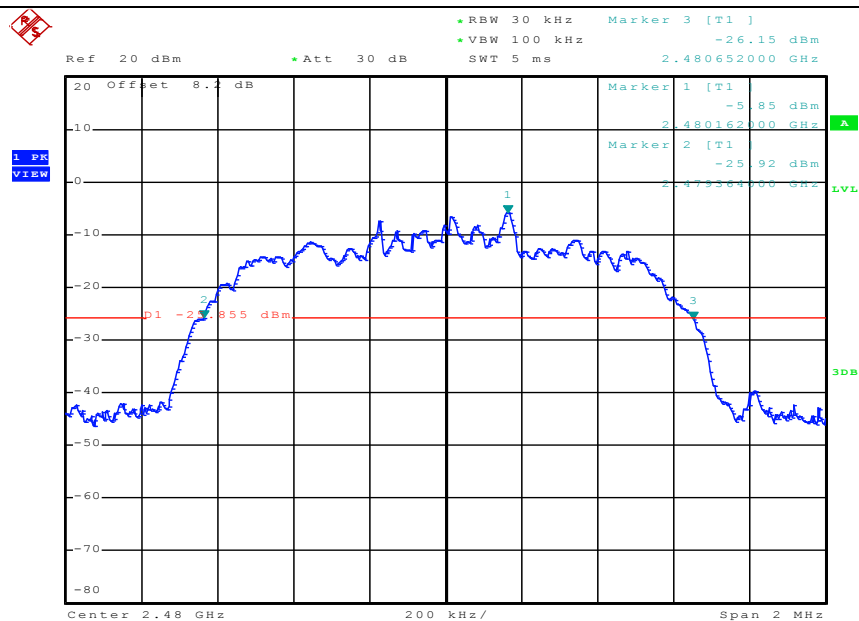


$\pi/4$ DQPSK/LCH

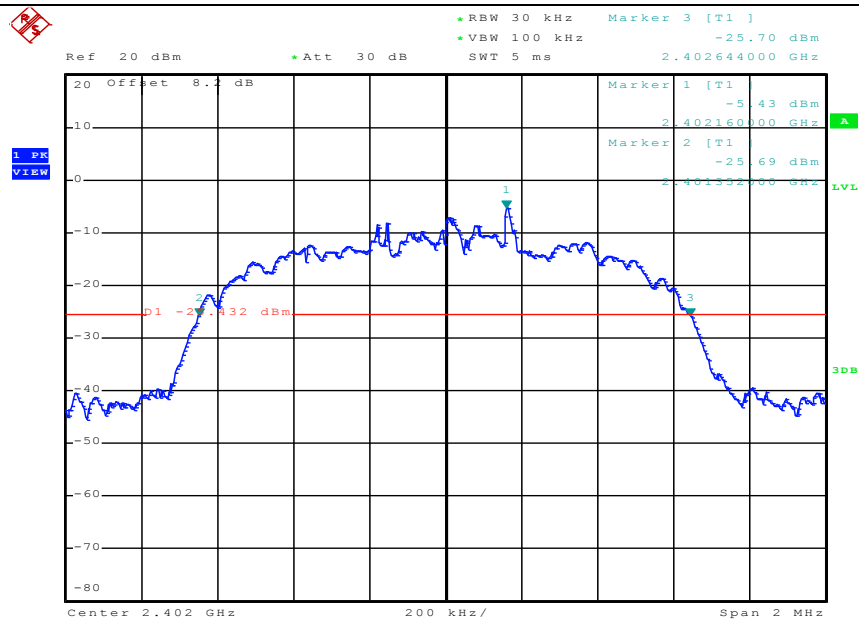
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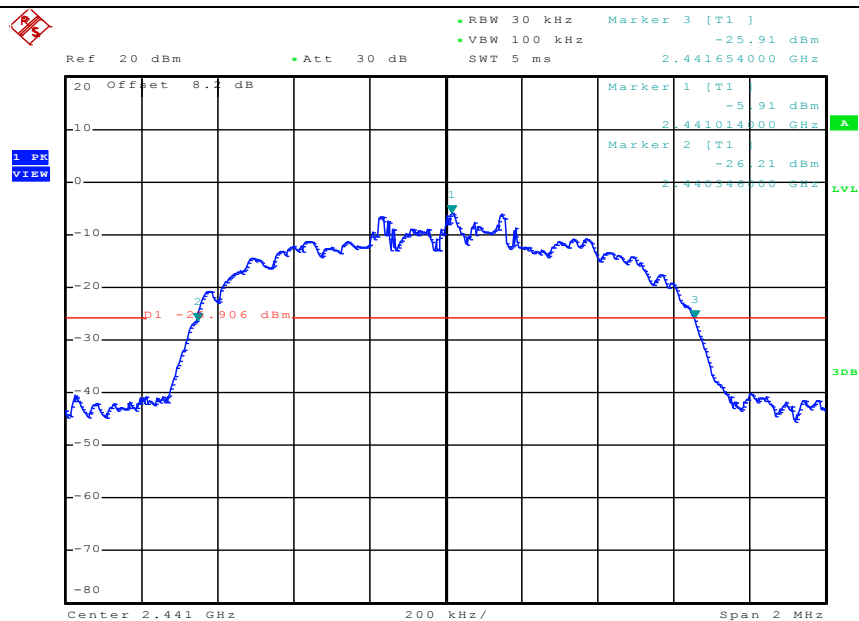
Date: 22.AUG.2019 18:33:51

$\pi/4$ DQPSK/HCH

8DPSK/LCH

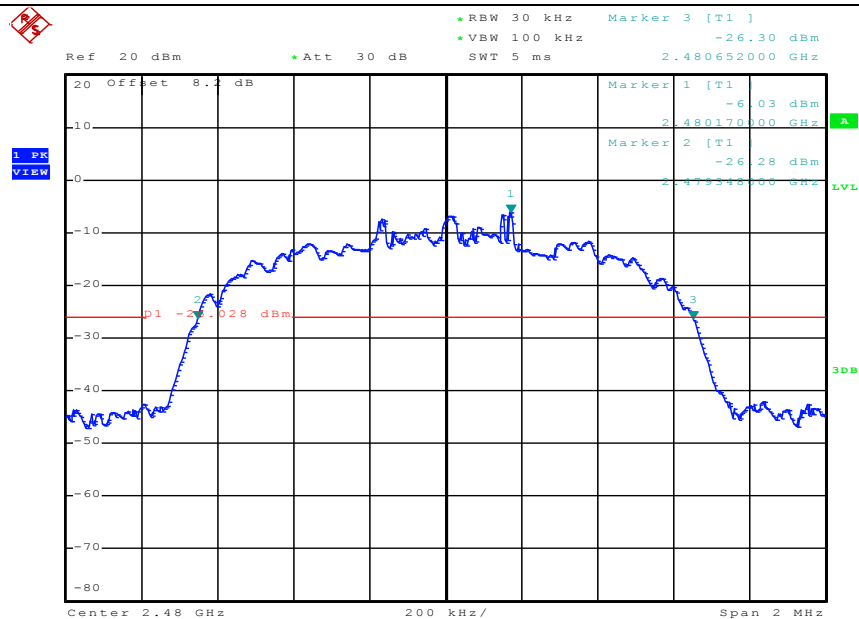


8DPSK/MCH



Date: 22.AUG.2019 18:40:33

8DPSK/HCH



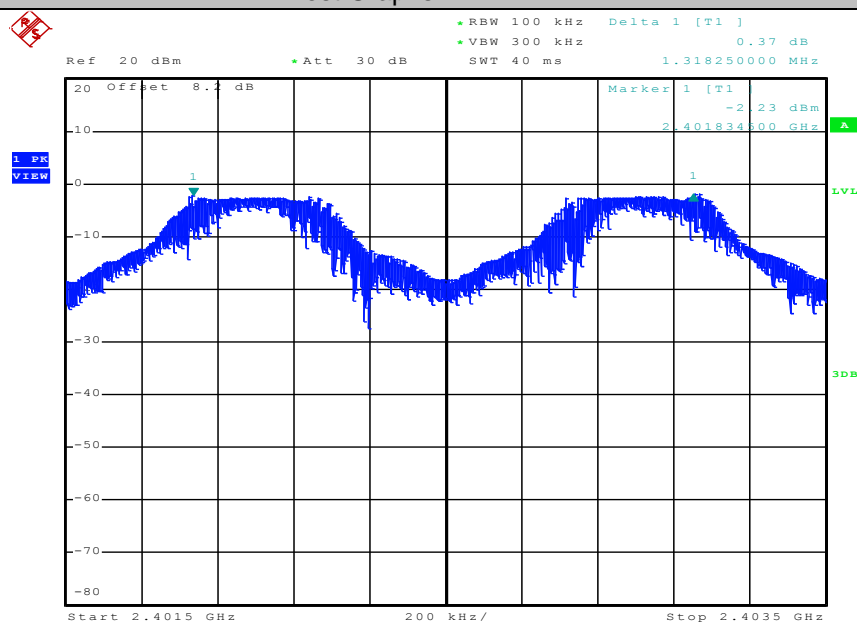
Date: 22.AUG.2019 18:42:15

### A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.318	0.653	PASS
	MCH	1.286	0.653	PASS
	HCH	1.154	0.653	PASS
$\pi/4$ DQPSK	LCH	1.058	0.880	PASS
	MCH	1.296	0.880	PASS
	HCH	1.020	0.880	PASS
8DPSK	LCH	1.272	0.872	PASS
	MCH	0.906	0.872	PASS
	HCH	1.016	0.872	PASS

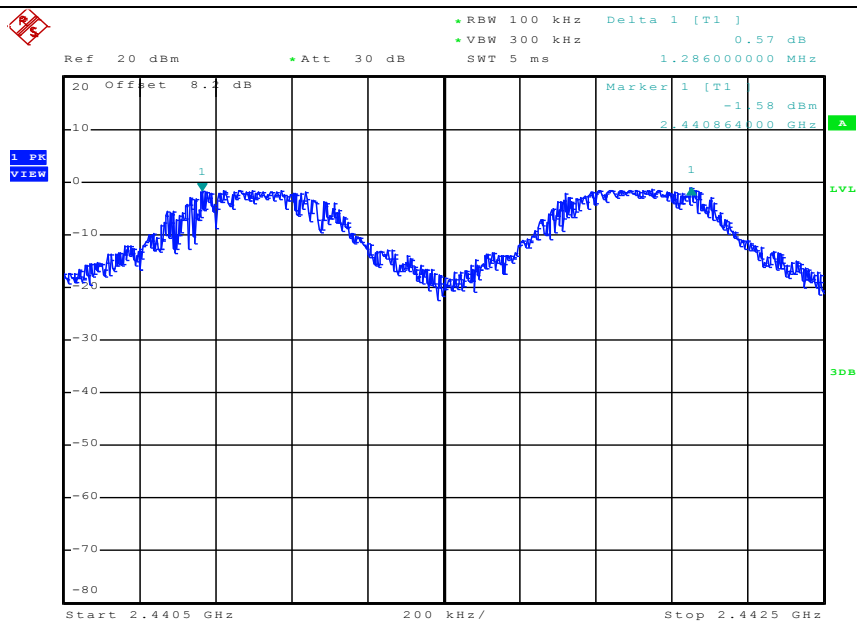
#### Test Graphs

GFSK/LCH



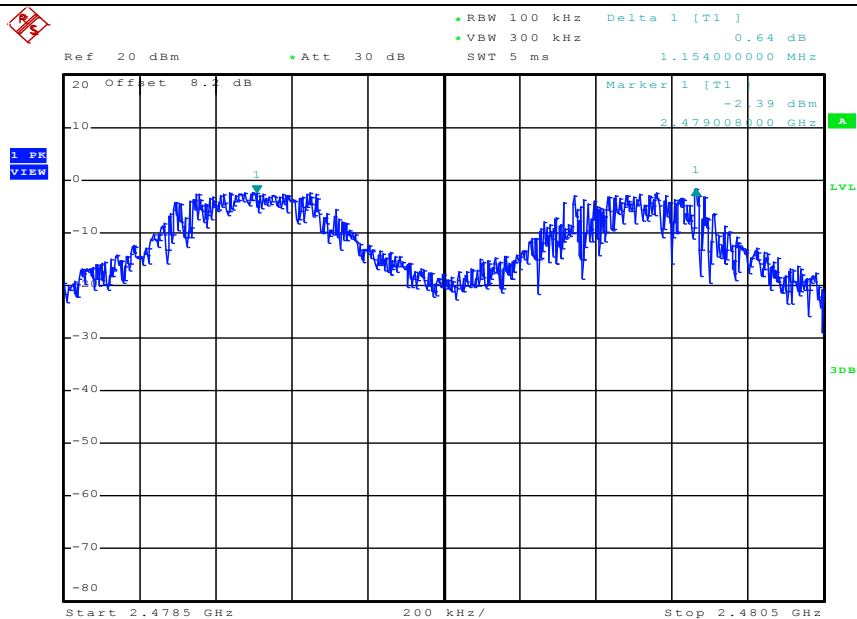
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GFSK/MCH

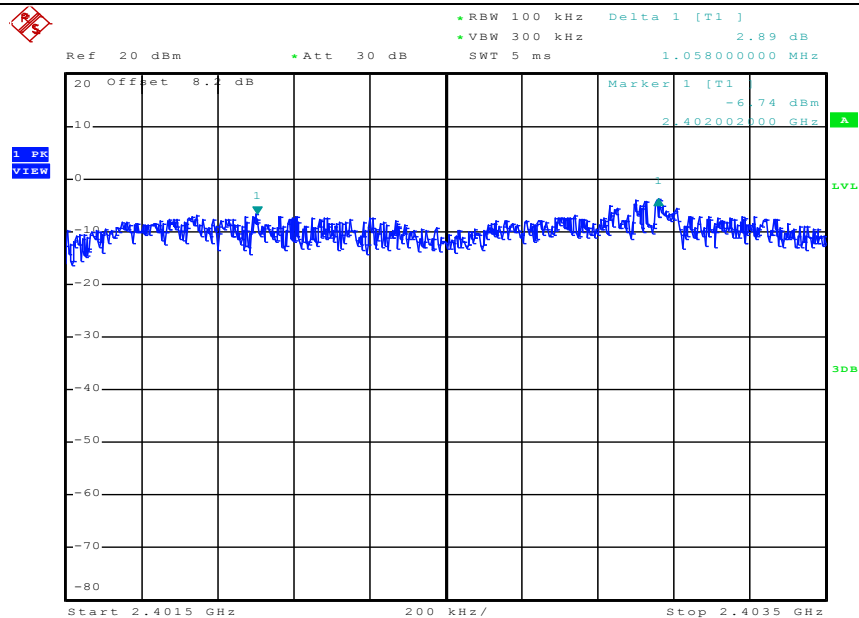


Date: 22.AUG.2019 18:50:36

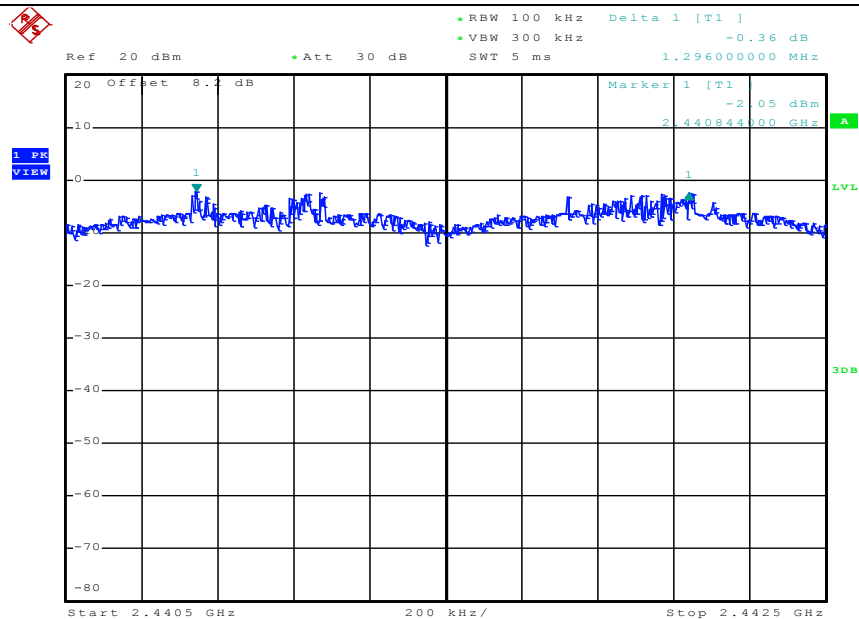
GFSK/HCH



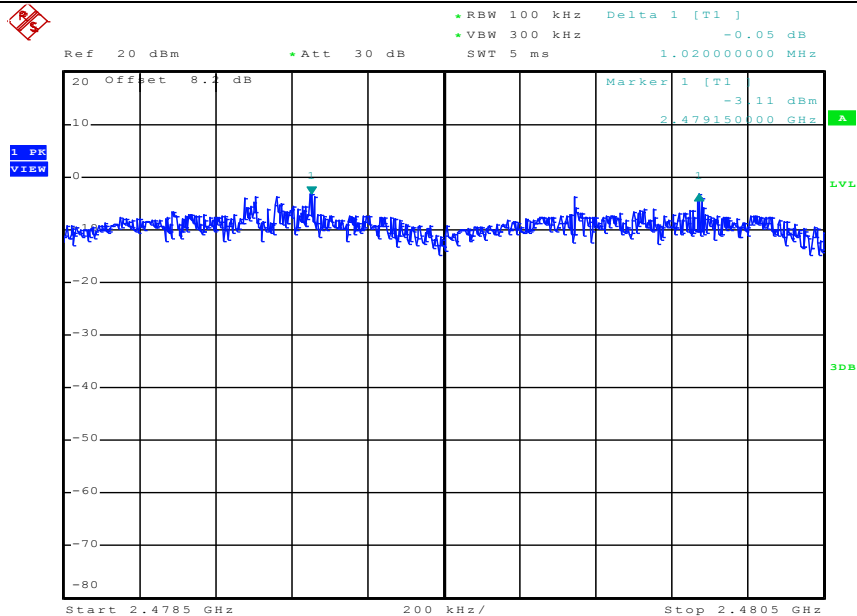
Date: 22.AUG.2019 18:50:56

$\pi/4$ DQPSK/LCH

Date: 22.AUG.2019 18:55:20

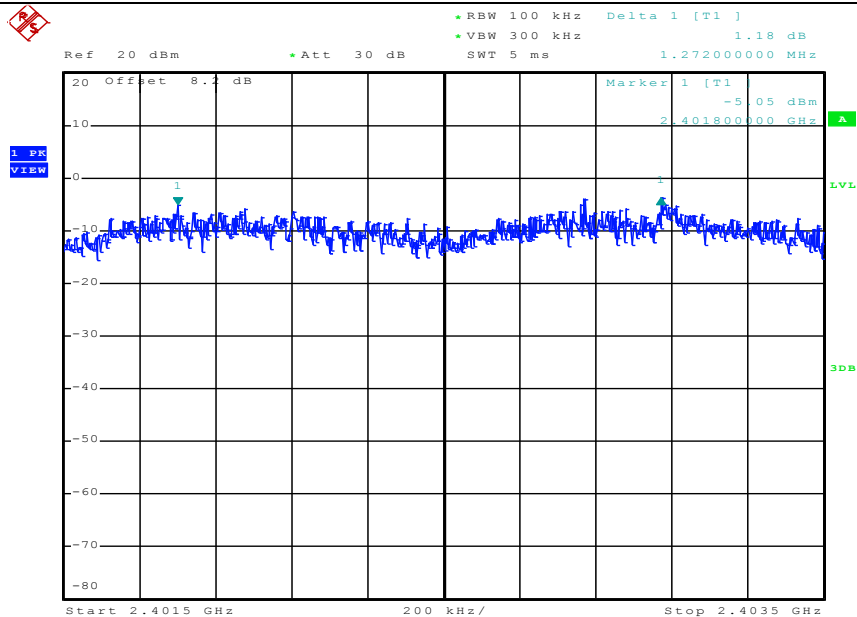
 $\pi/4$ DQPSK/MCH

Date: 22.AUG.2019 18:58:31

$\pi/4$ DQPSK/HCH

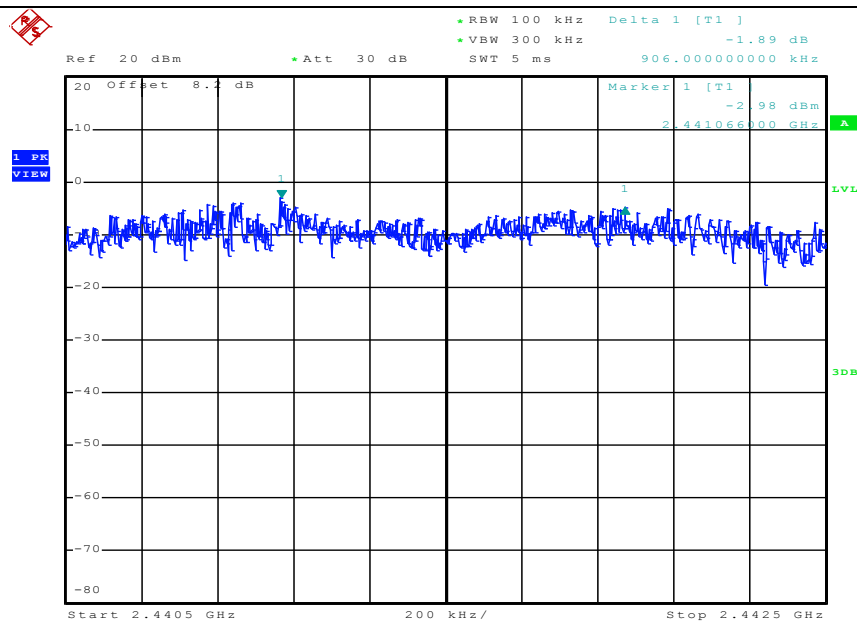
Date: 22.AUG.2019 18:59:11

8DPSK/LCH



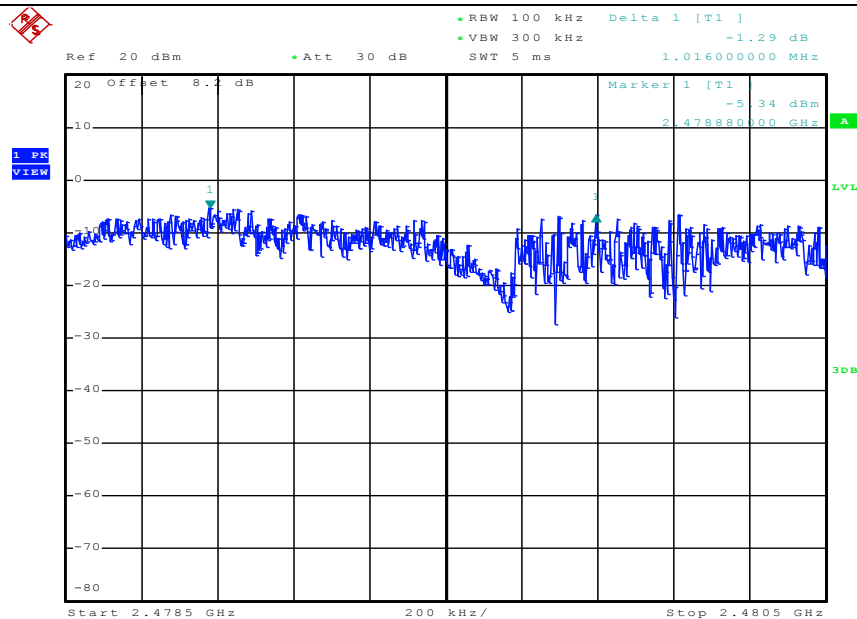
Date: 22.AUG.2019 19:04:01

8DPSK/MCH



Date: 22.AUG.2019 19:13:30

8DPSK/HCH



Date: 22.AUG.2019 19:06:52

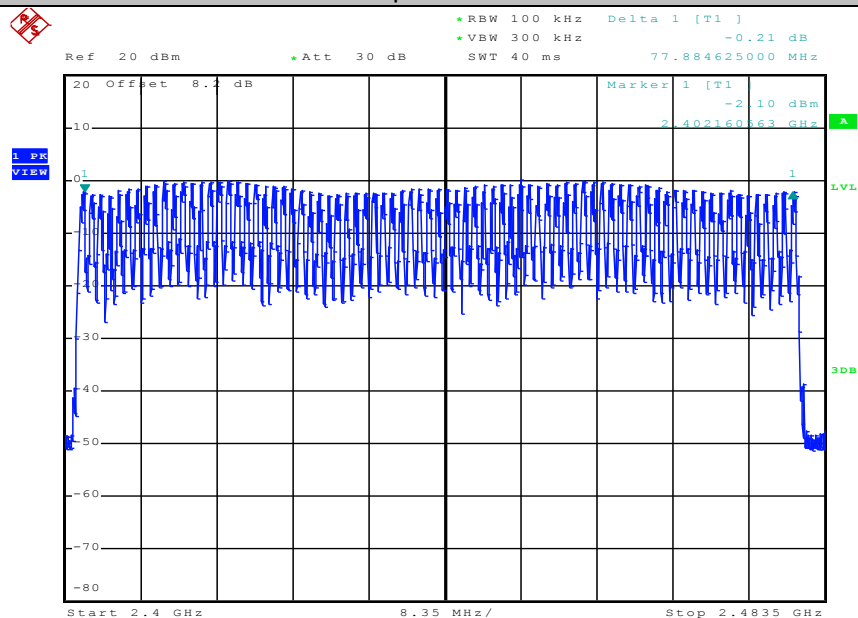
#### A.4 Hopping Channel Number

Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

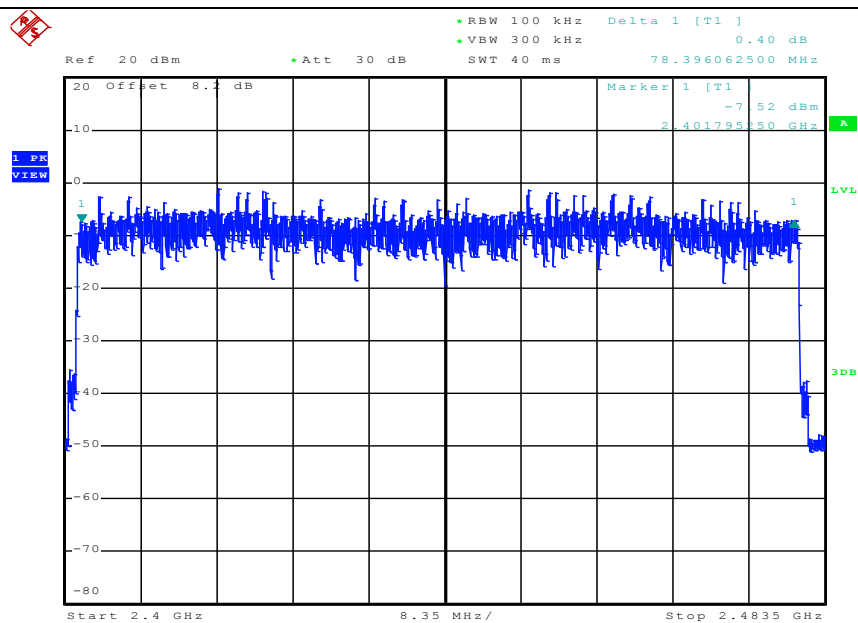


## Test Graphs

GFSK/Hop

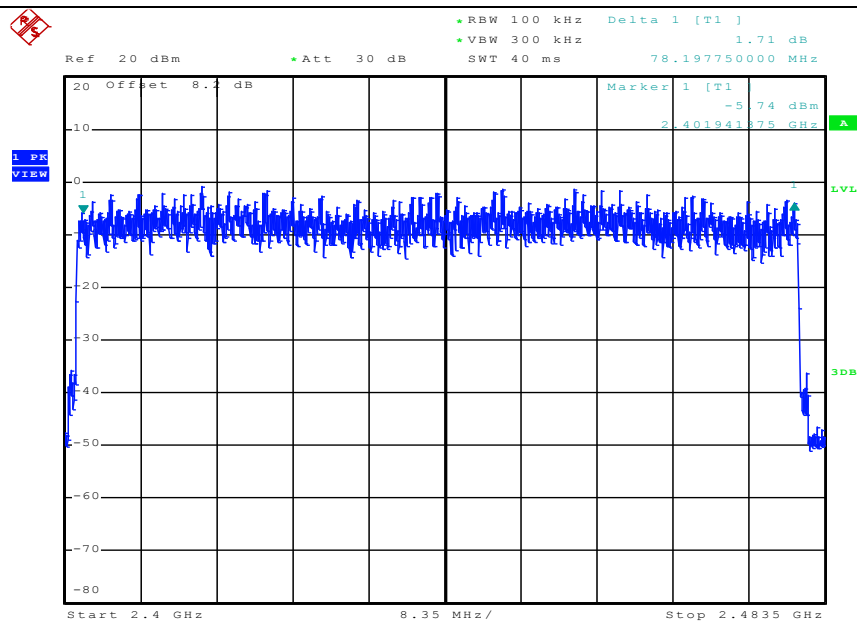


Date: 22.AUG.2019 18:54:29

 $\pi/4$ DQPSK/Hop

Date: 22.AUG.2019 19:03:13

8DPSK/Hop



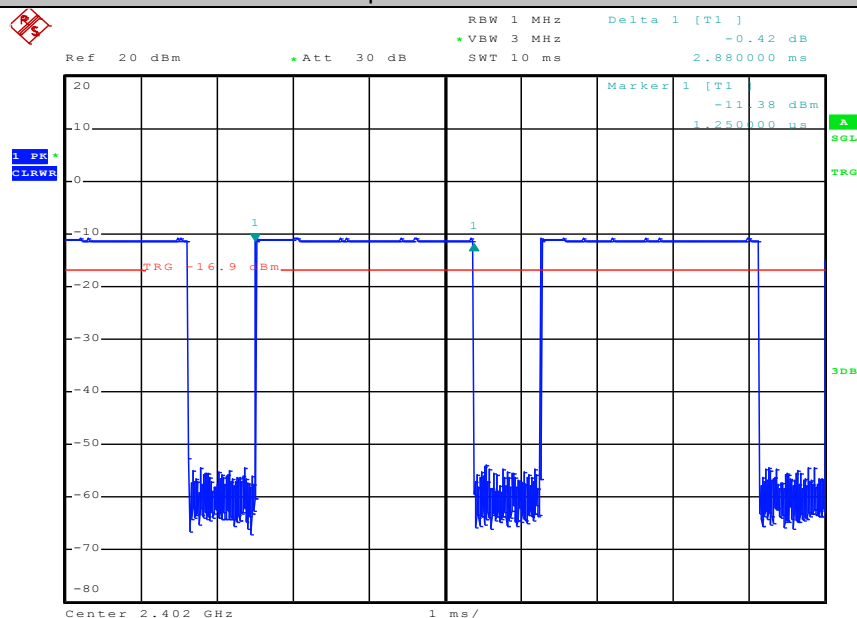
Date: 22.AUG.2019 19:12:54

## A.5 Dwell Time

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.162	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.88	106.7	0.308	0.4	PASS
	3DH5	MCH	2.88	106.7	0.308	0.4	PASS
	3DH5	HCH	2.88	106.7	0.308	0.4	PASS

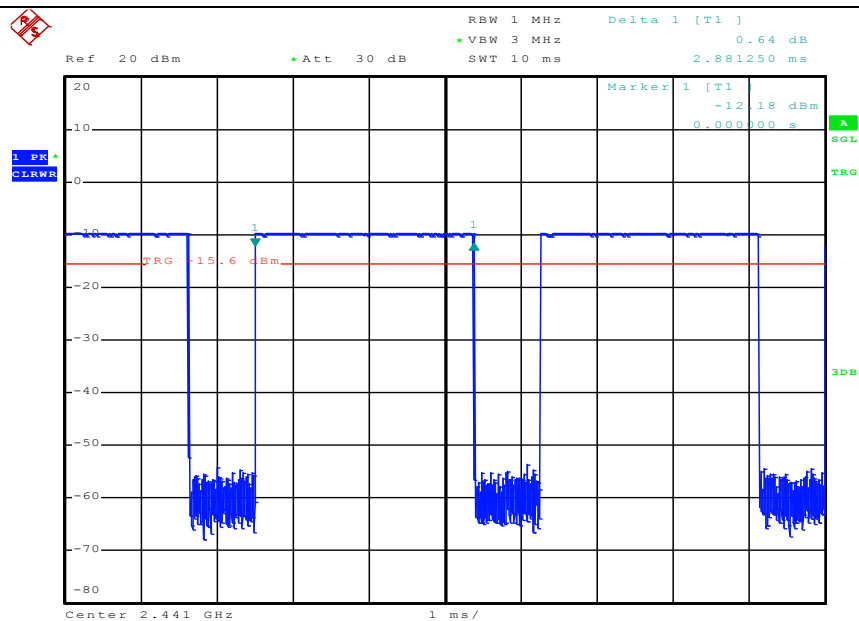
### Test Graphs

GFSK\_DH5/LCH



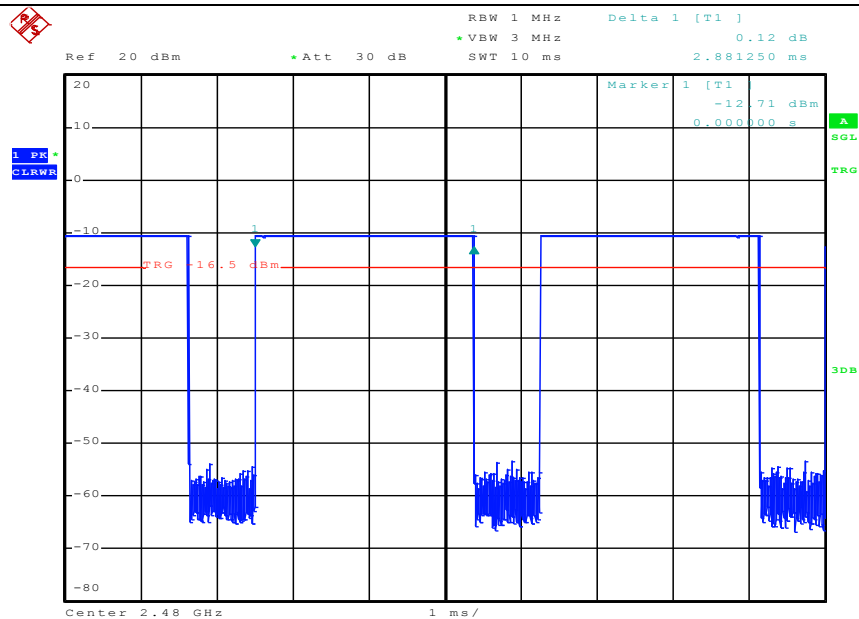
Date: 22.AUG.2019 18:23:15

GFSK\_DH5/MCH



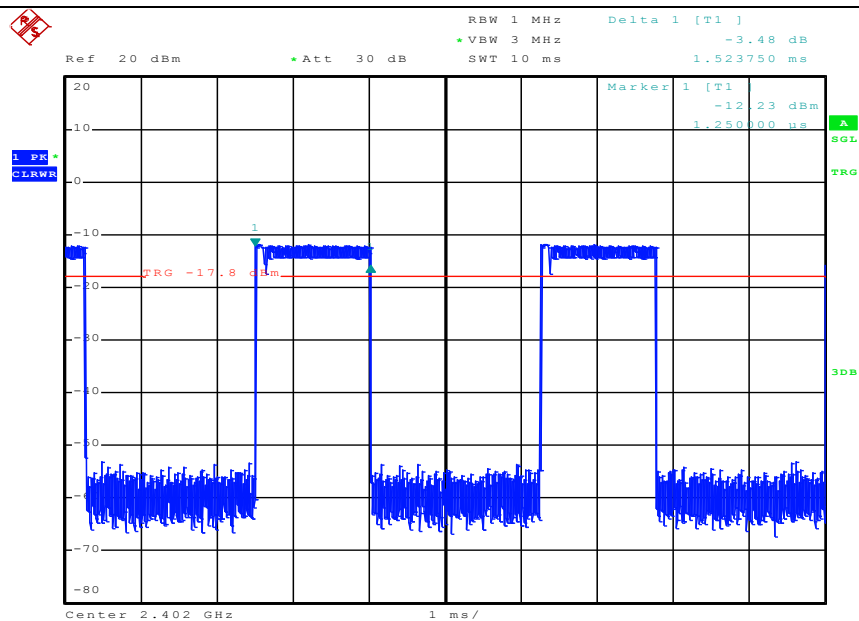
Date: 22.AUG.2019 18:25:49

GFSK\_DH5/HCH



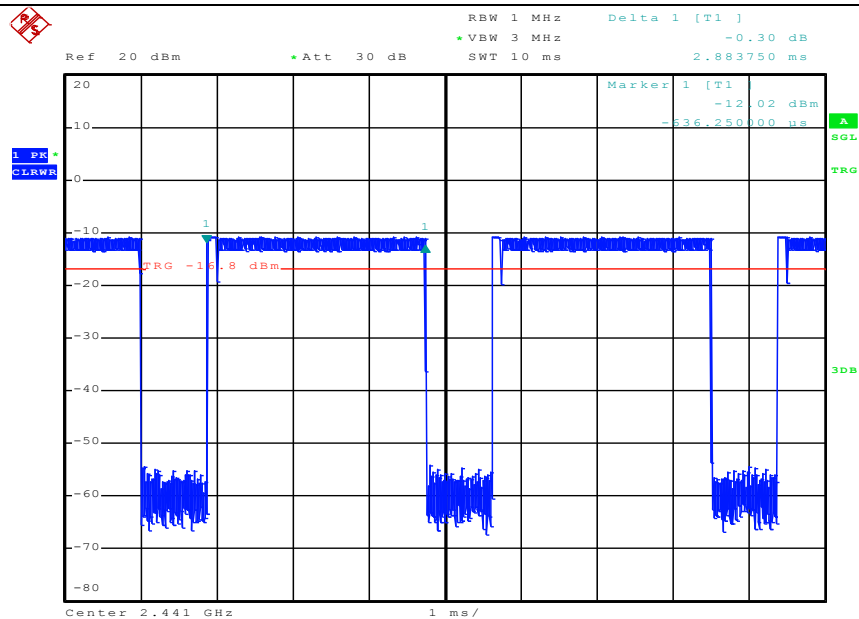
Date: 22.AUG.2019 18:27:32

$\pi/4$ DQPSK  
\_2DH5/LCH



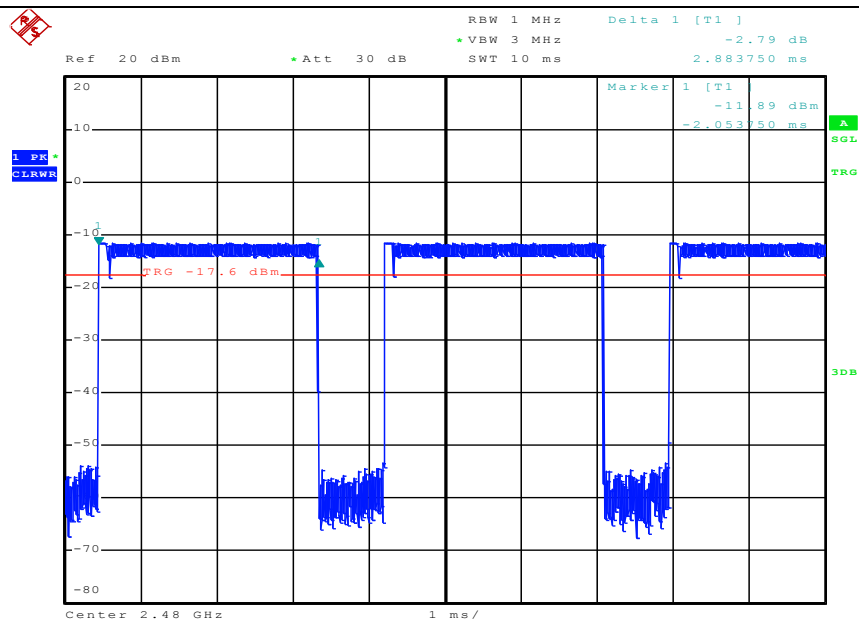
Date: 22.AUG.2019 18:31:38

$\pi/4$ DQPSK  
\_2DH5/MCH



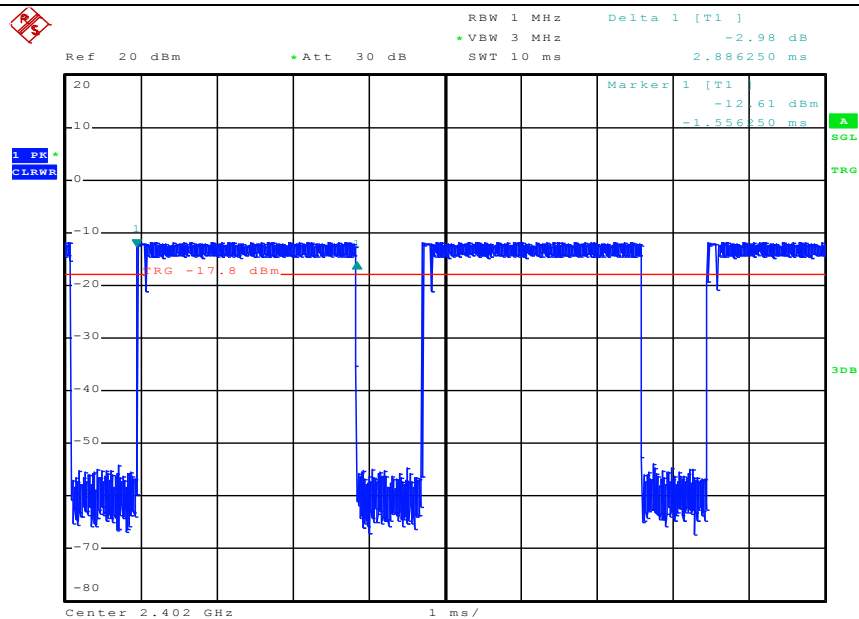
Date: 22.AUG.2019 18:34:12

$\pi/4$ DQPSK  
\_2DH5/HCH



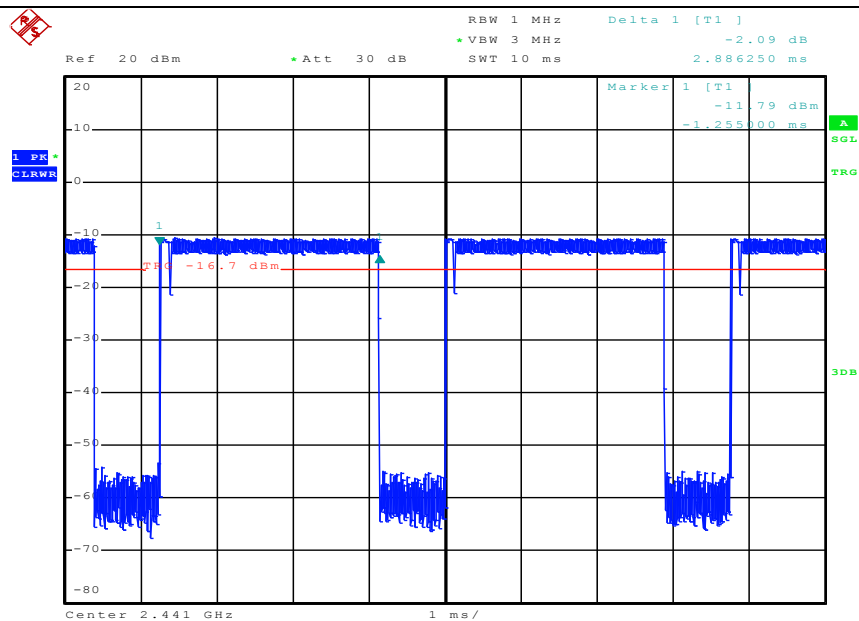
Date: 22.AUG.2019 18:35:54

8DPSK\_3DH5/LCH



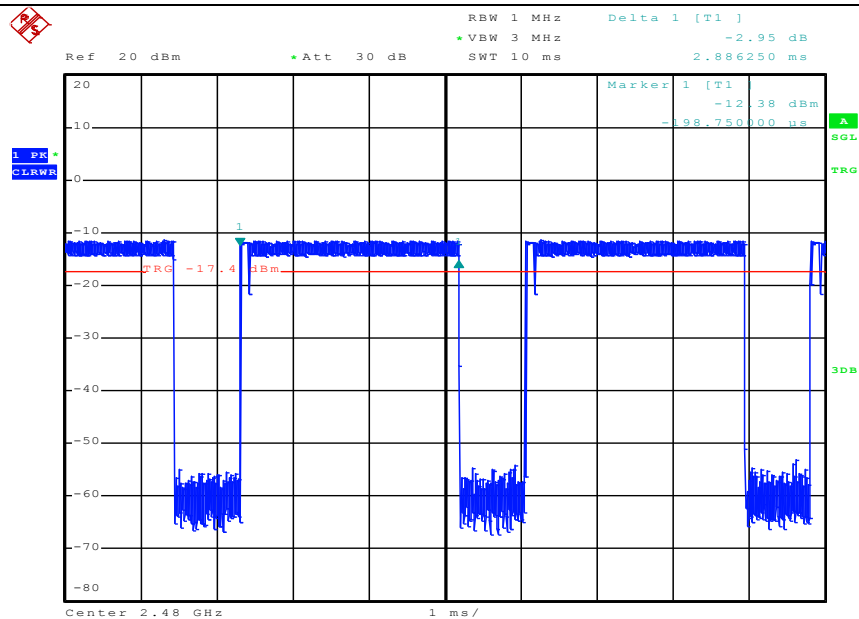
Date: 22.AUG.2019 18:38:27

8DPSK\_3DH5/MCH



Date: 22.AUG.2019 18:40:54

8DPSK\_3DH5/HCH



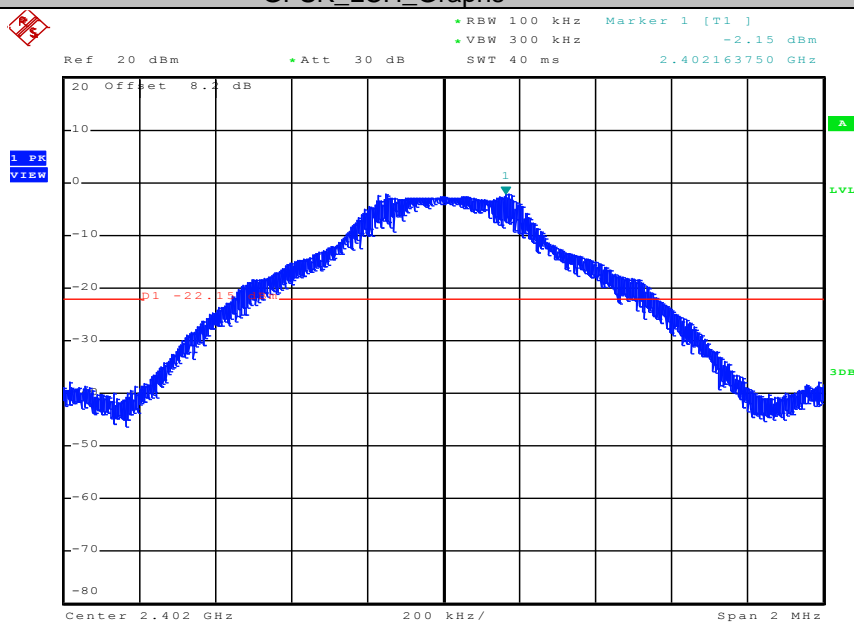
Date: 22.AUG.2019 18:42:37

## A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.15	-31.380	-22.150	PASS
	MCH	-1.13	-31.430	-21.130	PASS
	HCH	-1.64	-32.860	-21.640	PASS
$\pi/4$ DQPSK	LCH	-3.37	-31.510	-23.370	PASS
	MCH	0.93	-31.570	-19.070	PASS
	HCH	-3.15	-31.780	-23.150	PASS
8DPSK	LCH	-3.22	-32.920	-23.220	PASS
	MCH	-2.17	-32.340	-22.170	PASS
	HCH	-3.01	-32.900	-23.010	PASS

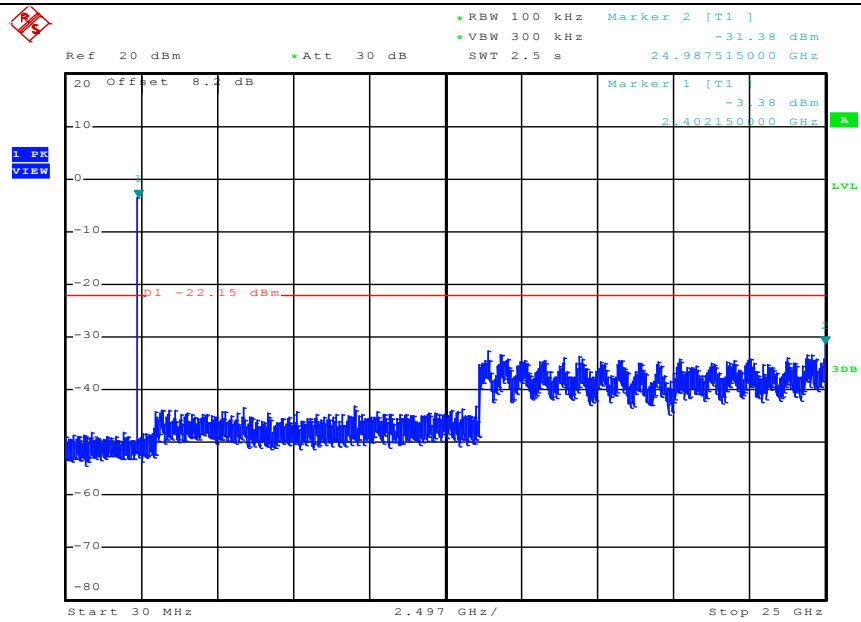
GFSK\_LCH\_Graphs

Pref



Date: 22.AUG.2019 18:23:59

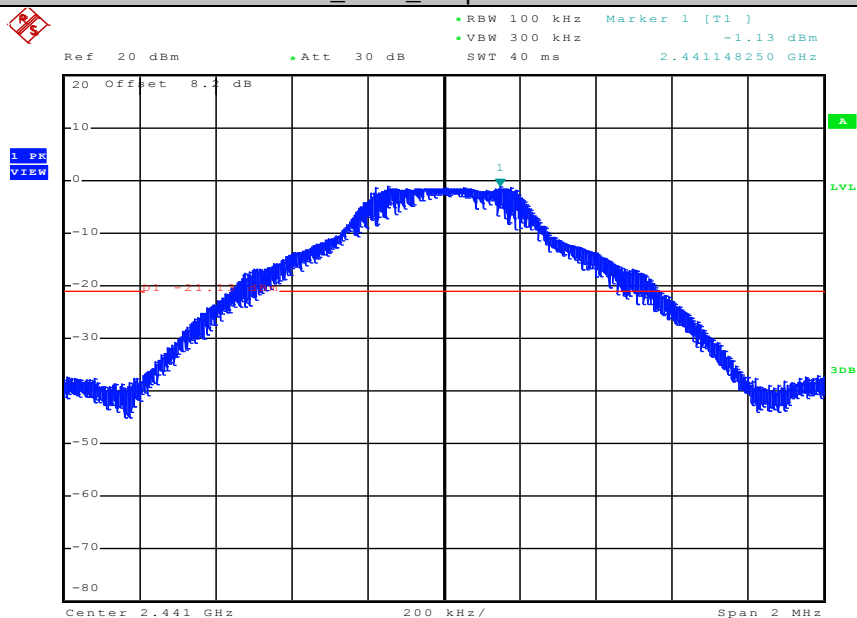


P<sub>uw</sub>

Date: 22.AUG.2019 18:24:14

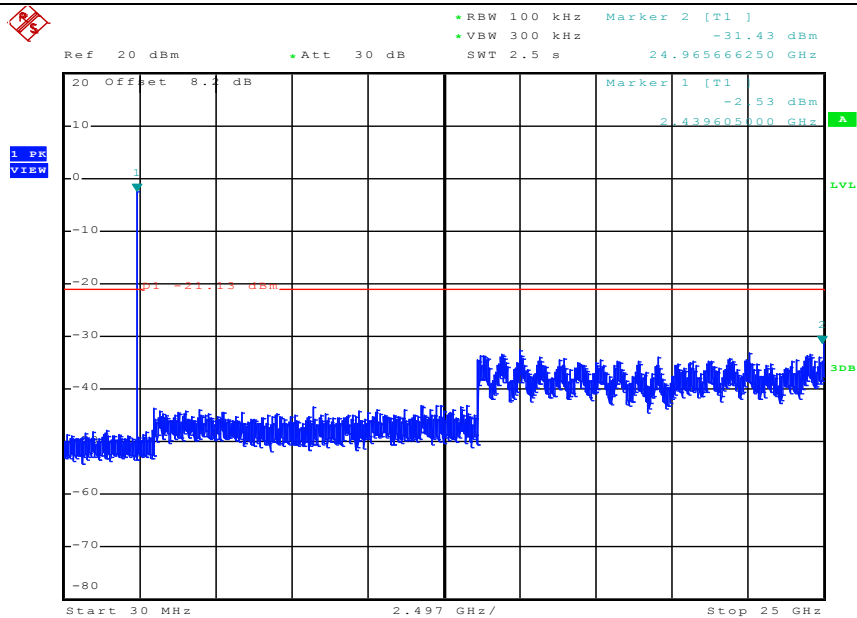
# GFSK\_MCH\_Graphs

Pref



Date: 22.AUG.2019 18:26:16

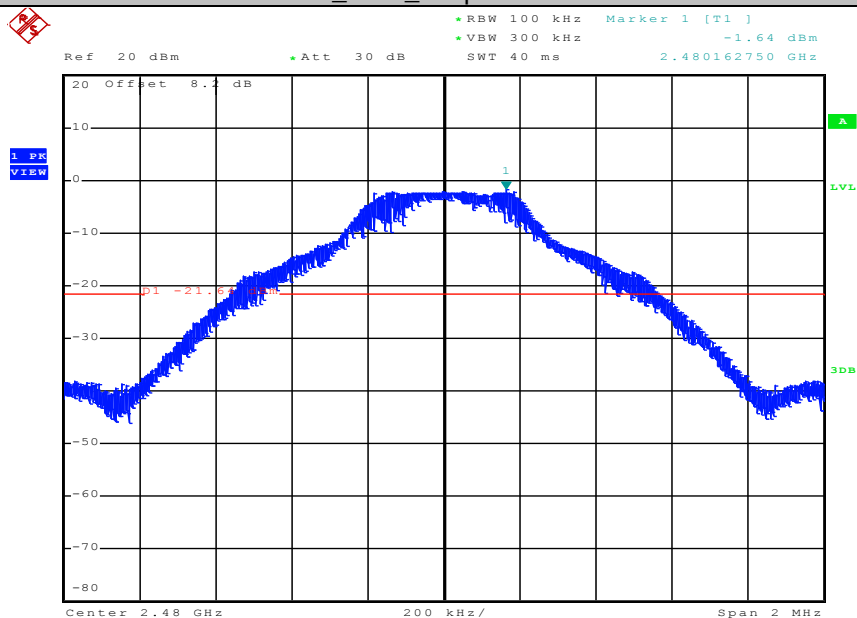
Puw



Date: 22.AUG.2019 18:26:31

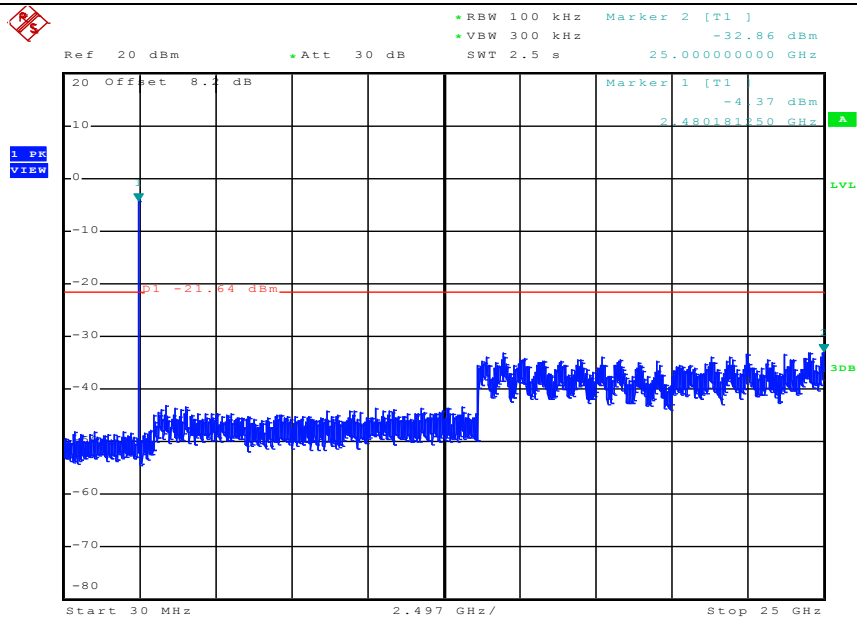
# GFSK\_HCH\_Graphs

Pref



Date: 22.AUG.2019 18:28:17

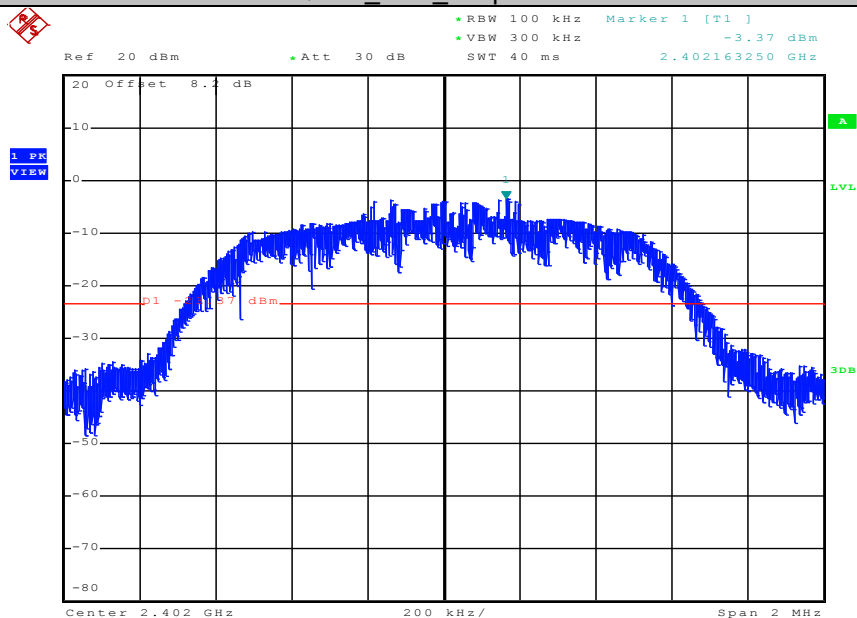
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Date: 22.AUG.2019 18:28:31

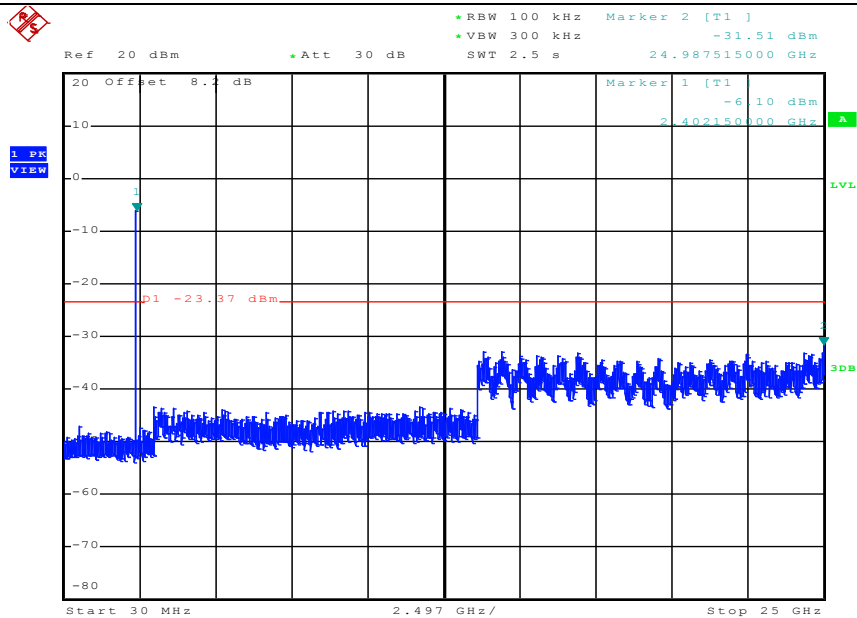
$\pi/4$ DQPSK\_LCH\_Graphs

Pref



Date: 22.AUG.2019 18:32:23

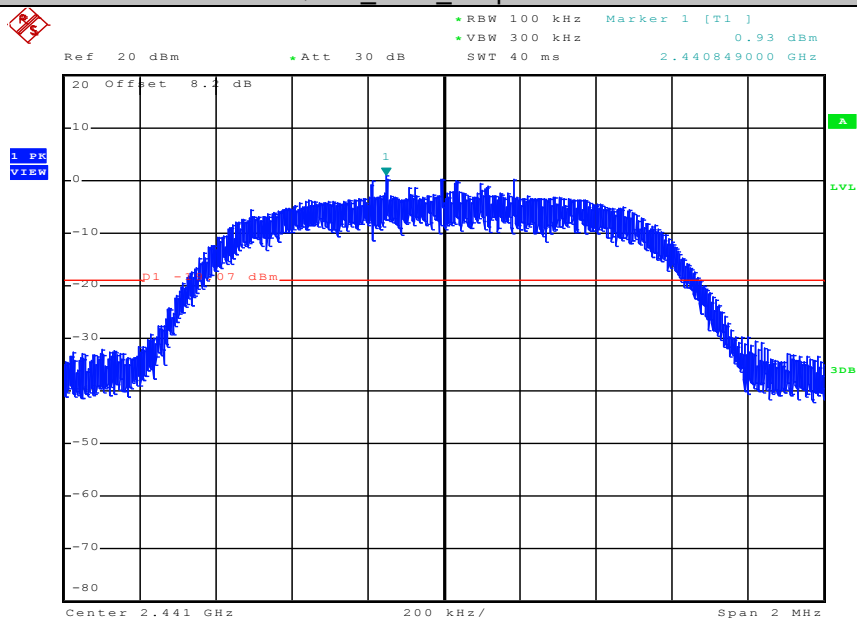
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Date: 22.AUG.2019 18:32:37

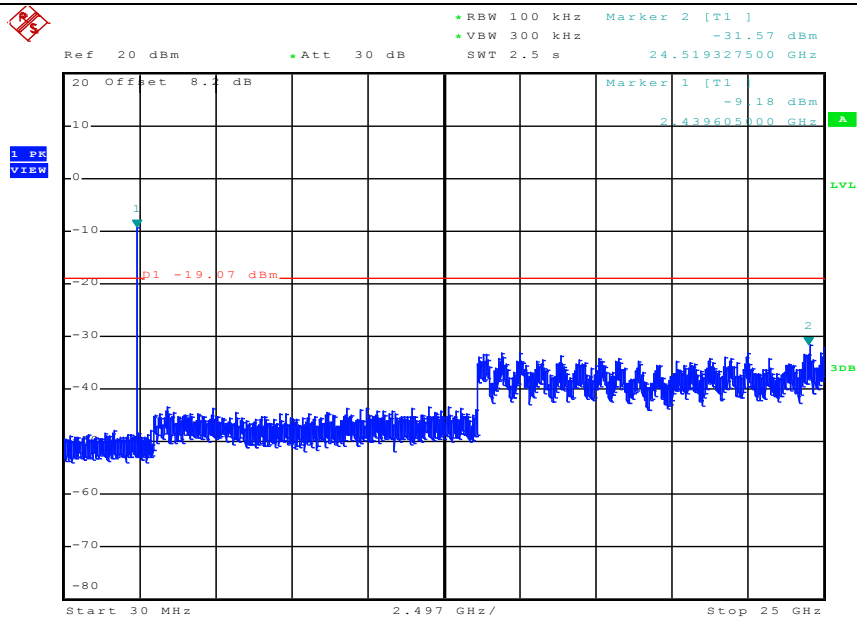
# $\pi/4$ DQPSK\_MCH\_Graphs

Pref



Date: 22.AUG.2019 18:34:39

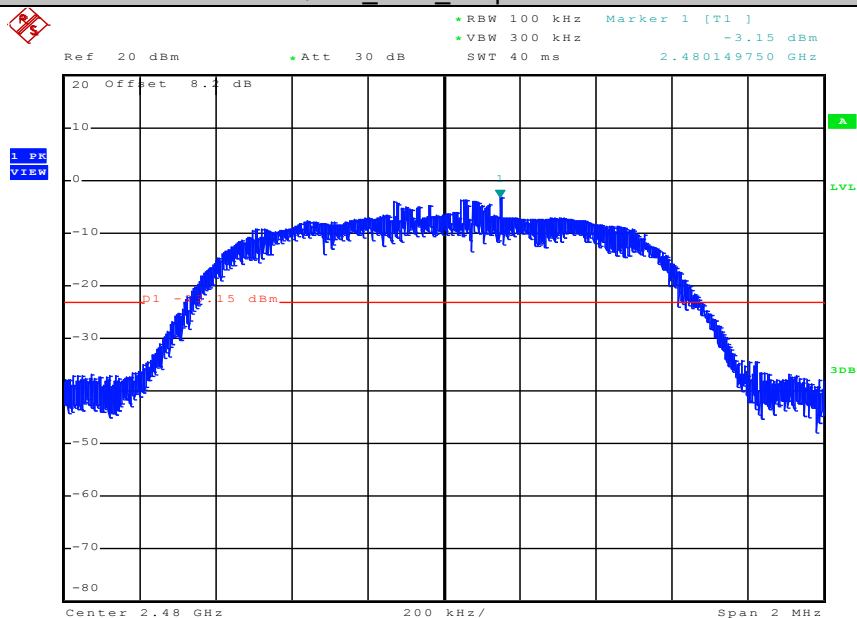
Puw



Date: 22.AUG.2019 18:34:53

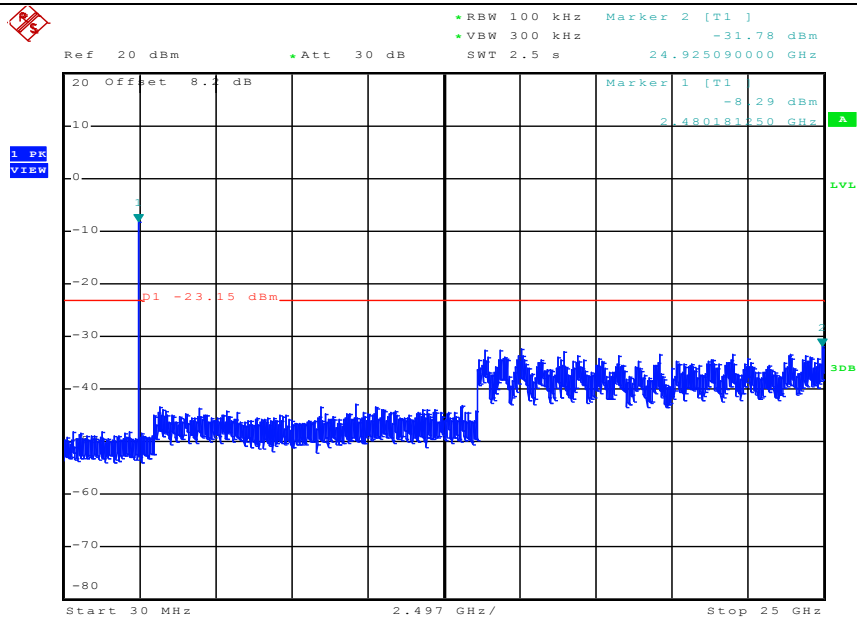
# $\pi/4$ DQPSK\_HCH\_Graphs

Pref



Date: 22.AUG.2019 18:36:37

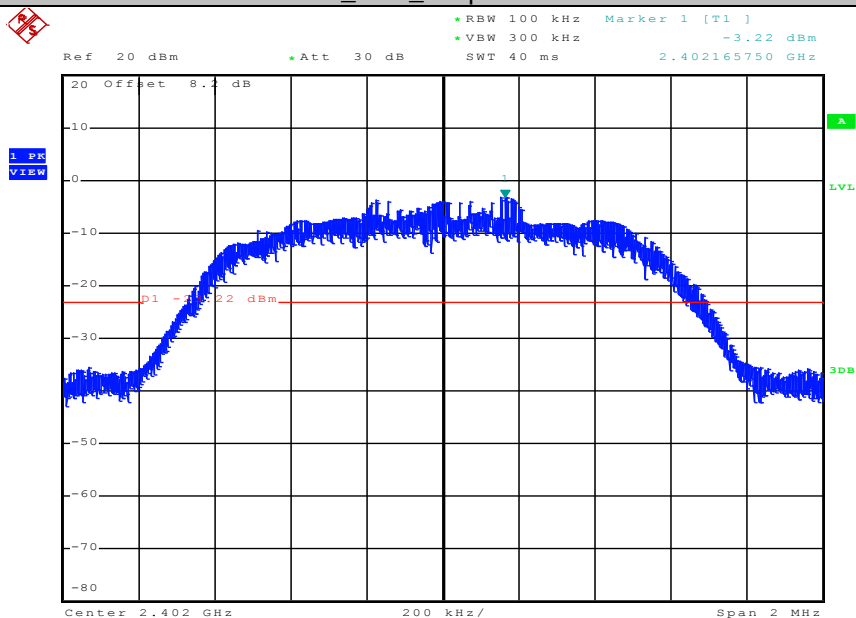
Puw



Date: 22.AUG.2019 18:36:51

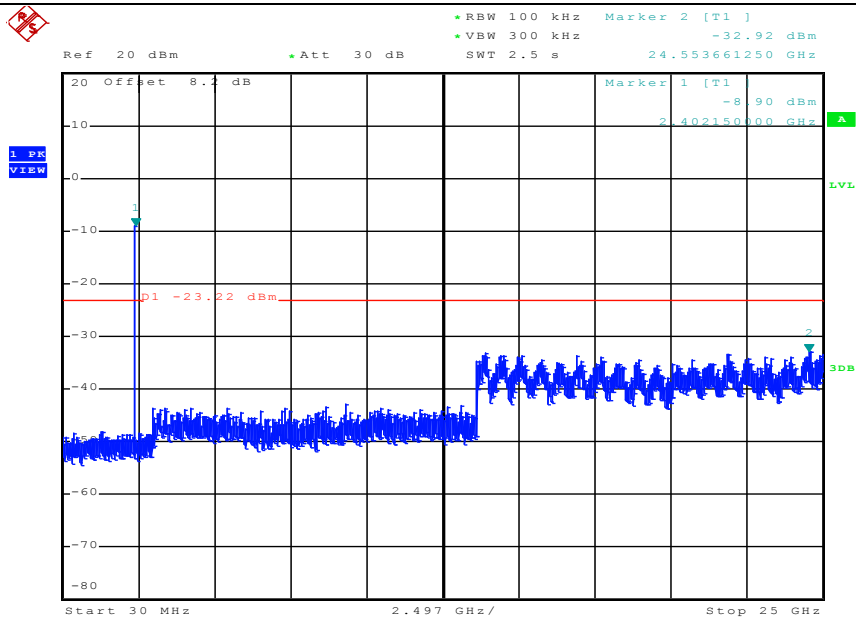
# 8DPSK\_LCH\_Graphs

Pref



Date: 22.AUG.2019 18:39:10

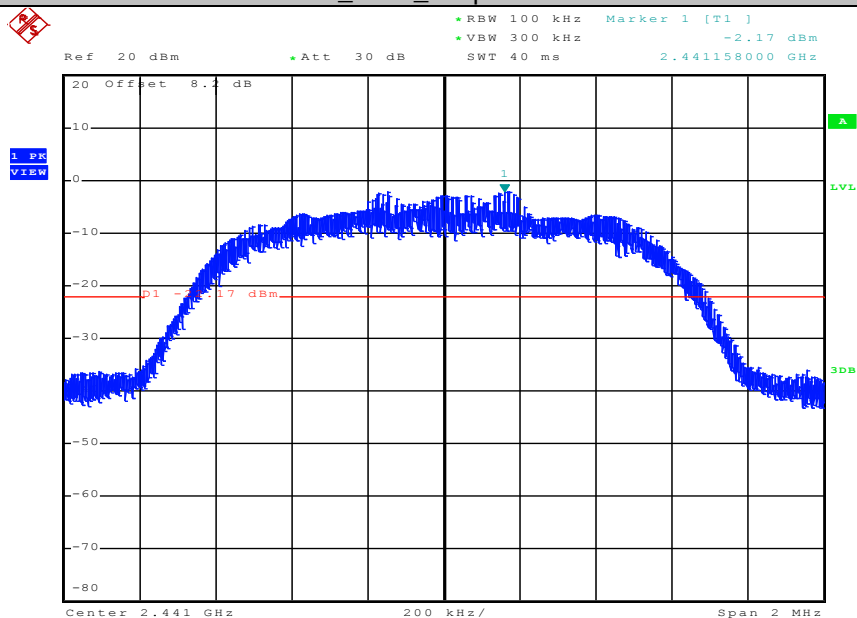
Puw



Date: 22.AUG.2019 18:39:25

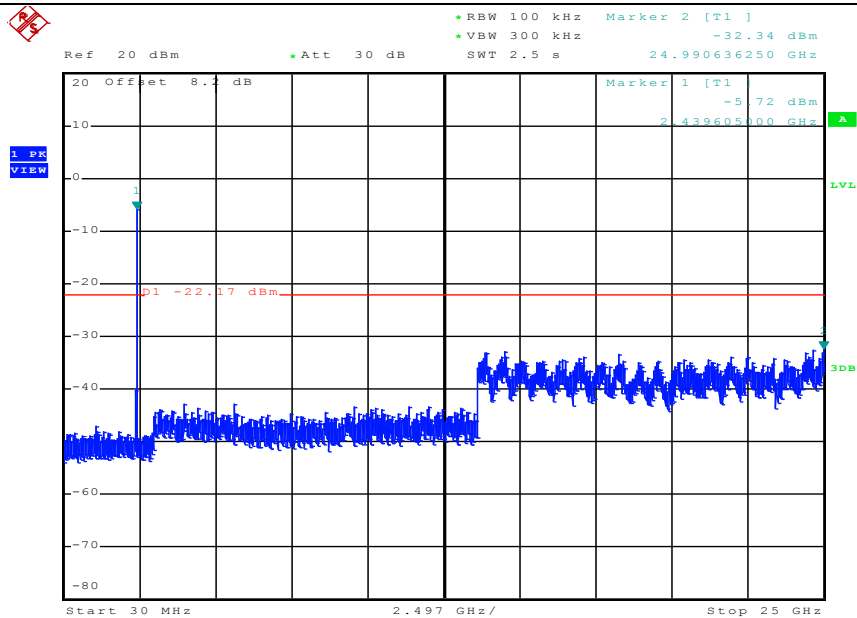
## 8DPSK\_MCH\_Graphs

Pref



Date: 22.AUG.2019 18:41:21

Puw

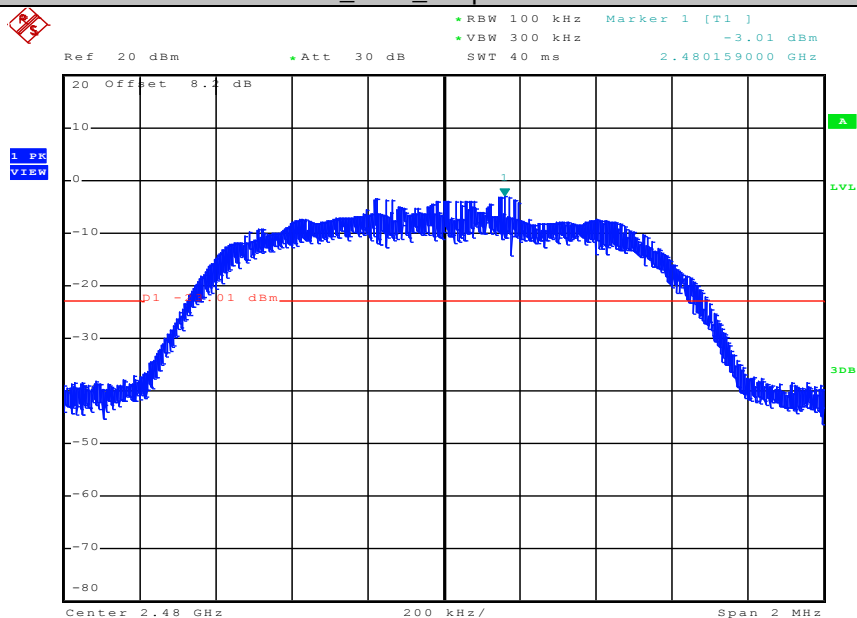


Date: 22.AUG.2019 18:41:36



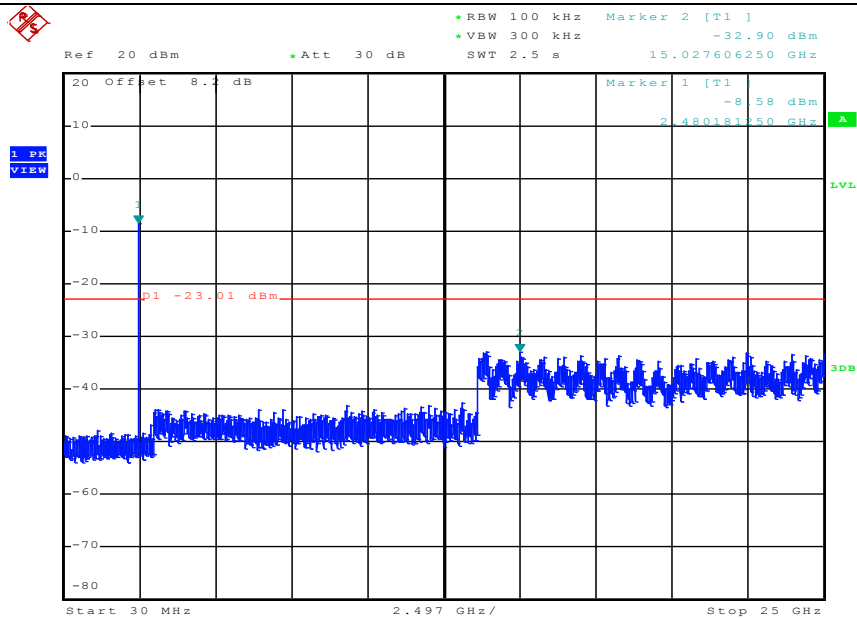
## 8DPSK\_HCH\_Graphs

Pref



Date: 22.AUG.2019 18:44:59

Puw



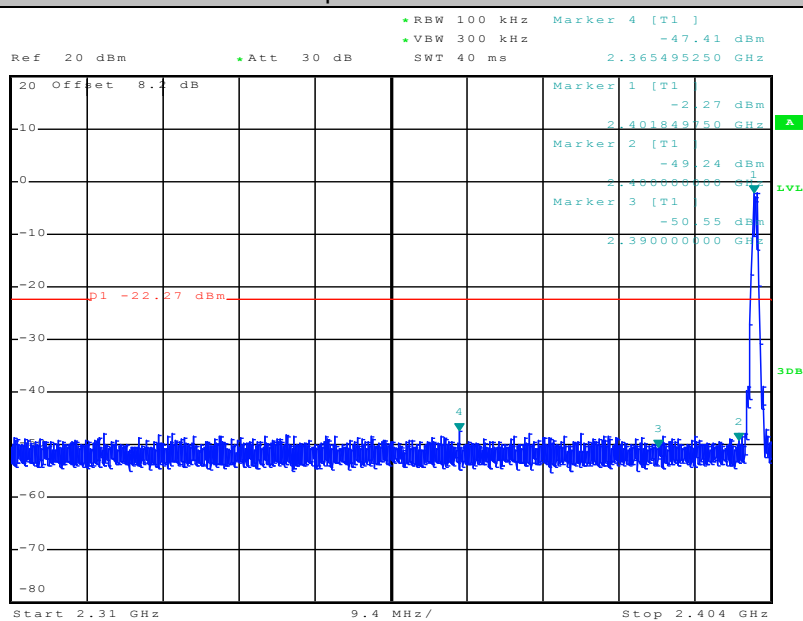
Date: 22.AUG.2019 18:45:14

## A.7 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-2.270	Off	-47.411	-22.27	PASS
			-0.280	On	-46.664	-20.28	PASS
	HCH	2480	-1.680	Off	-47.874	-21.68	PASS
			-0.160	On	-46.136	-20.16	PASS
$\pi/4$ DQPSK	LCH	2402	-3.950	Off	-47.433	-23.95	PASS
			-1.230	On	-46.744	-21.23	PASS
	HCH	2480	-3.080	Off	-47.472	-23.08	PASS
			-1.100	On	-46.805	-21.1	PASS
8DPSK	LCH	2402	-4.000	Off	-47.351	-24	PASS
			-1.050	On	-46.409	-21.05	PASS
	HCH	2480	-3.970	Off	-47.142	-23.97	PASS
			-1.460	On	-46.688	-21.46	PASS

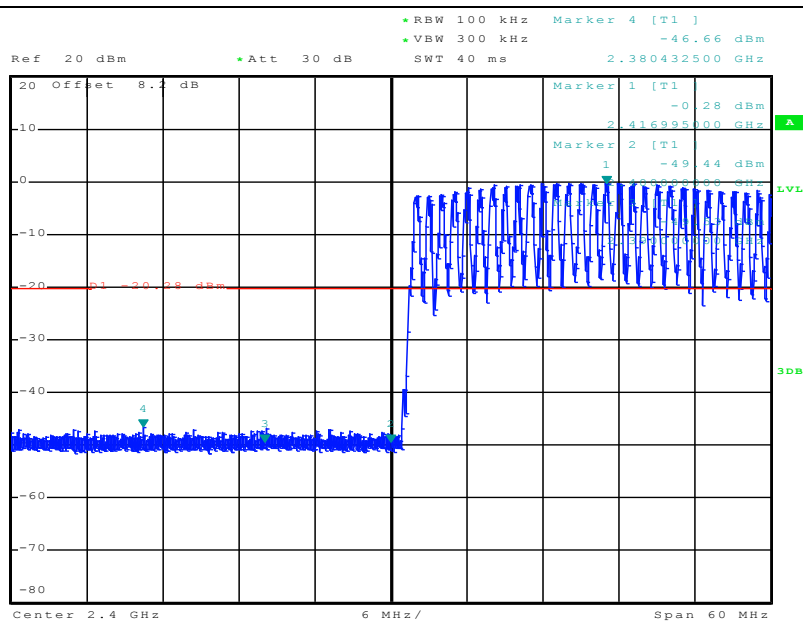
## Test Graphs

GFSK/LCH/No Hop

PEAK  
VIEW

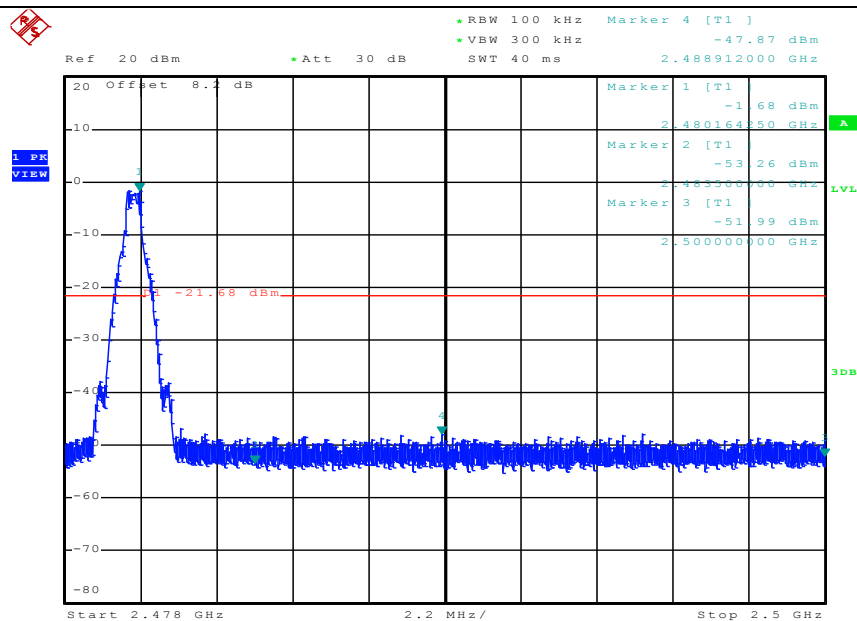
Date: 22.AUG.2019 18:23:47

GFSK/LCH/Hop

PEAK  
VIEW

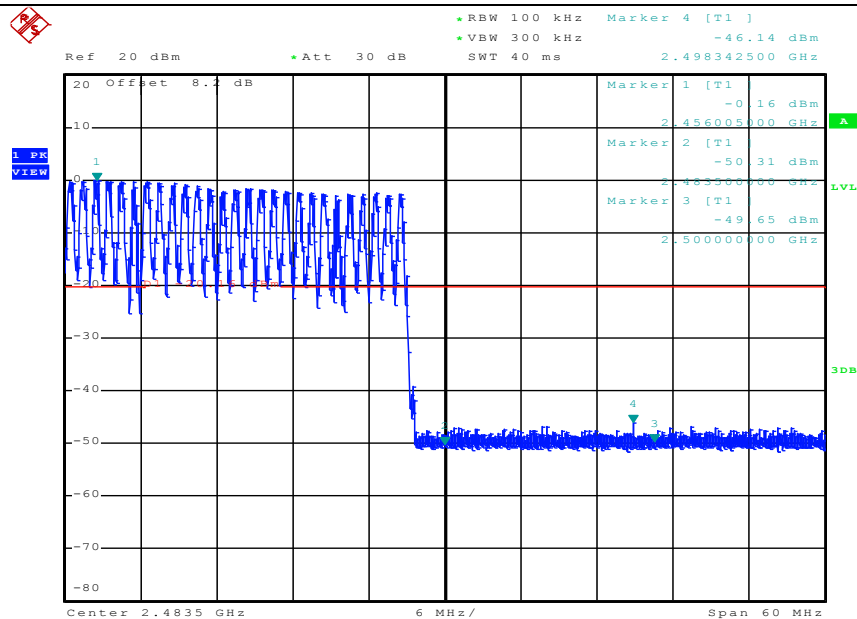
Date: 22.AUG.2019 18:50:07

GFSK/HCH/No Hop



Date: 22.AUG.2019 18:28:03

GFSK/HCH/Hop



Date: 22.AUG.2019 18:52:57

Ref 20 dBm Att 30 dB RBW 100 kHz VBW 300 kHz SWT 40 ms Marker 4 [T1] -47.43 dBm 2.330997250 GHz

1 PR VIEW

20 Offset 8.2 dB

Marker 1 [T1] -3.95 dBm 2.402073000 GHz

Marker 2 [T1] -52.75 dBm 2.400000000 GHz

Marker 3 [T1] -49.94 dBm 2.390000000 GHz

d1 -23.95 dBm

4

3

3dB

Start 2.31 GHz 9.4 MHz/ Stop 2.404 GHz

1 PK  
VIEW

1 PK  
VIEW

20 Offset 8.1 dB

Ref 20 dBm Att 30 dB

RBW 100 kHz VBW 300 kHz SWT 40 ms

Marker 4 [T1] -46.74 dBm 2.373727500 GHz

Marker 1 [T1] -1.23 dBm 2.419162000 GHz

Marker 2 [T1] -50.37 dBm 2.400000000 GHz

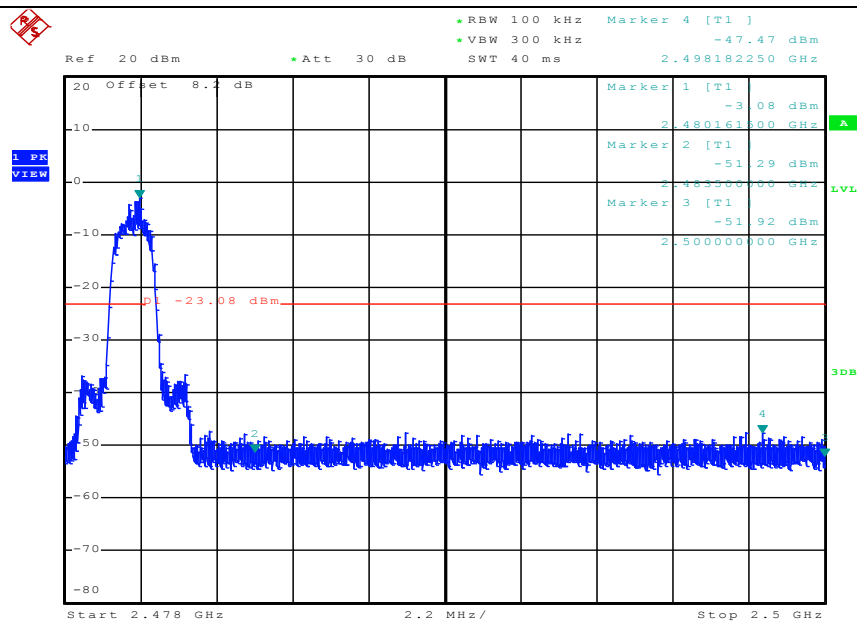
Marker 3 [T1] -50.37 dBm 2.400000000 GHz

Marker 4 [T1] -46.74 dBm 2.373727500 GHz

Center 2.4 GHz 6 MHz/ Span 60 MHz

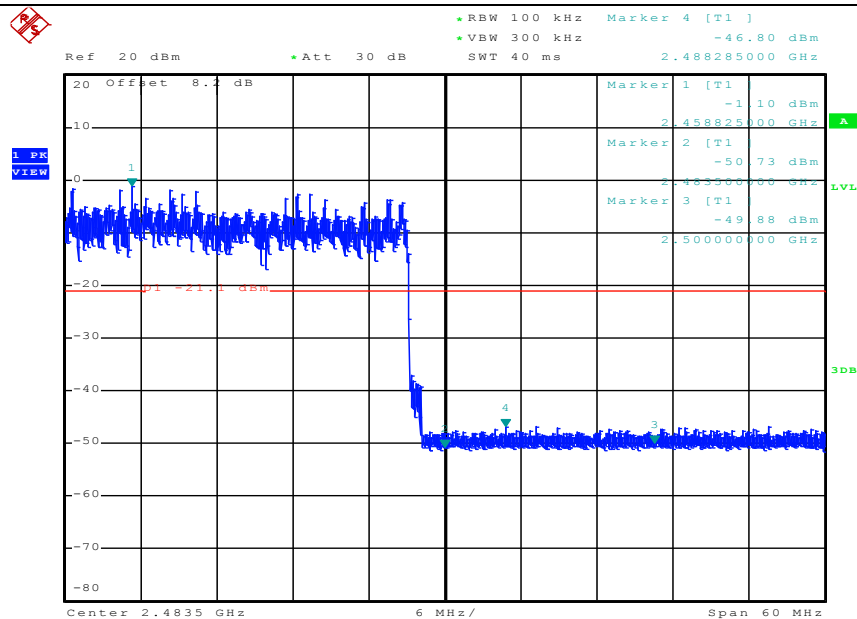
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$\pi/4$ DQPSK/HCH/No  
Hop



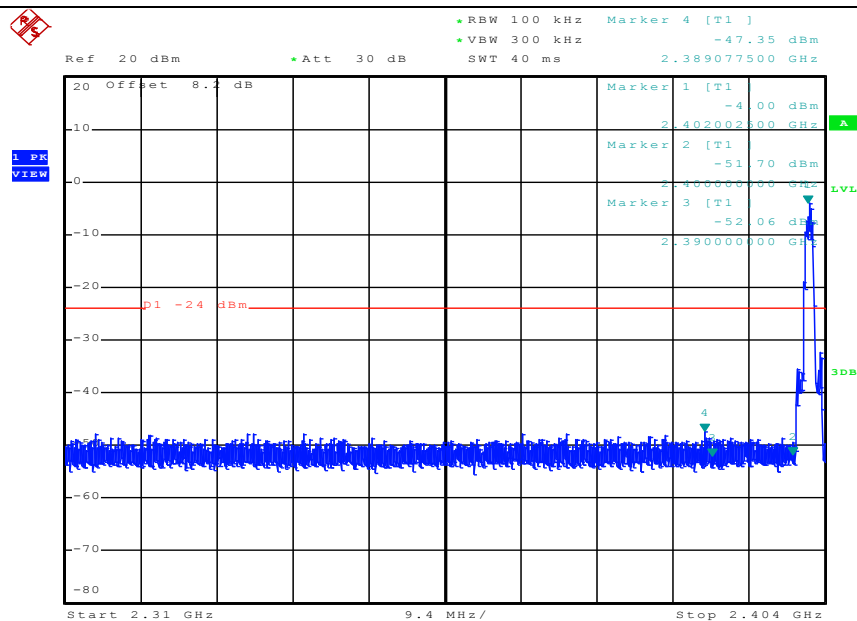
Date: 22.AUG.2019 18:36:24

$\pi/4$ DQPSK/HCH/Hop



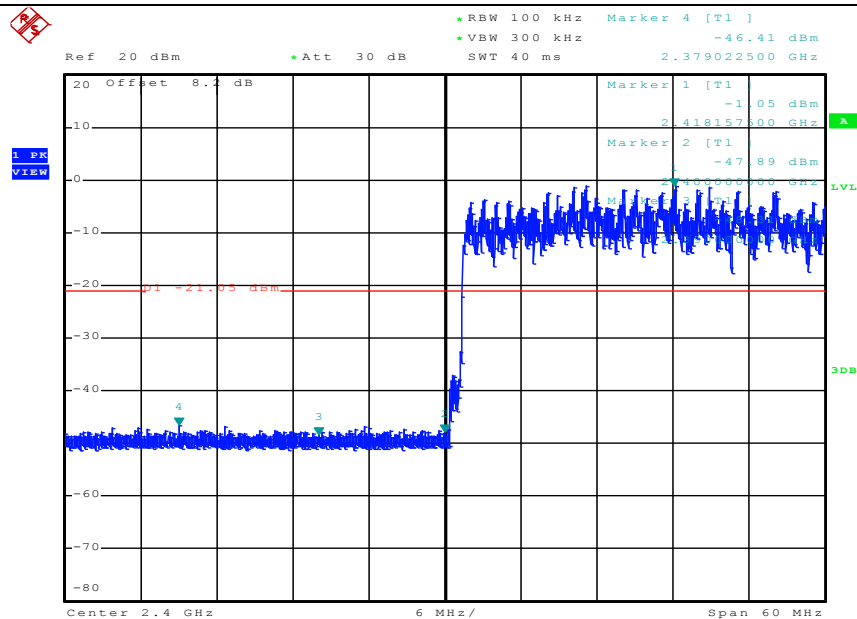
Date: 22.AUG.2019 19:01:25

8DPSK/LCH/No Hop



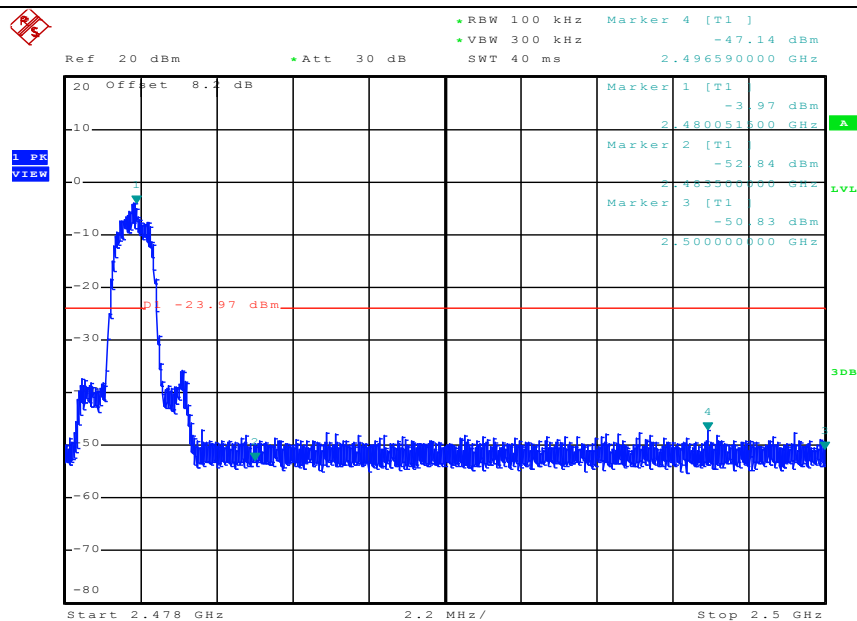
Date: 22.AUG.2019 18:38:58

8DPSK/LCH/Hop



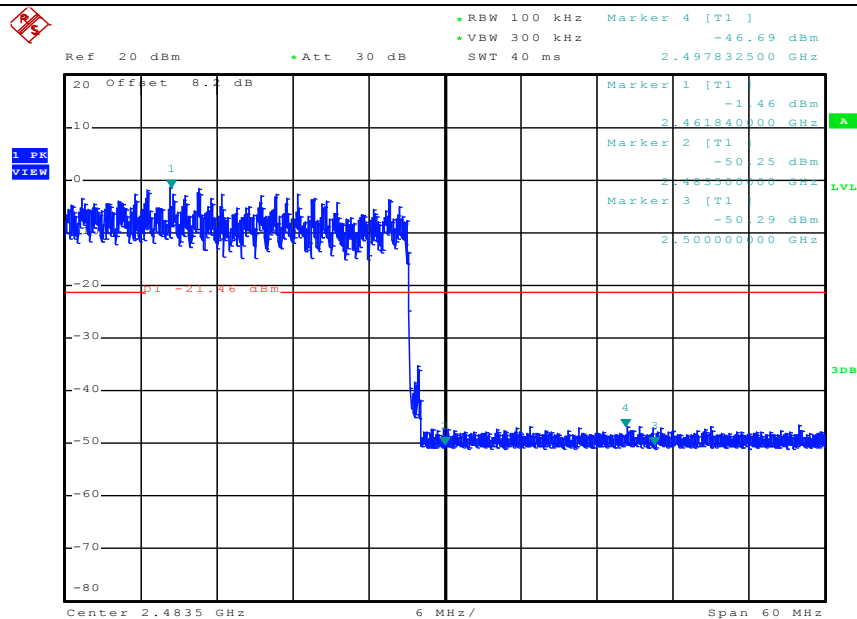
Date: 22.AUG.2019 19:06:01

8DPSK/HCH/No Hop



Date: 22.AUG.2019 18:44:46

8DPSK/HCH/Hop



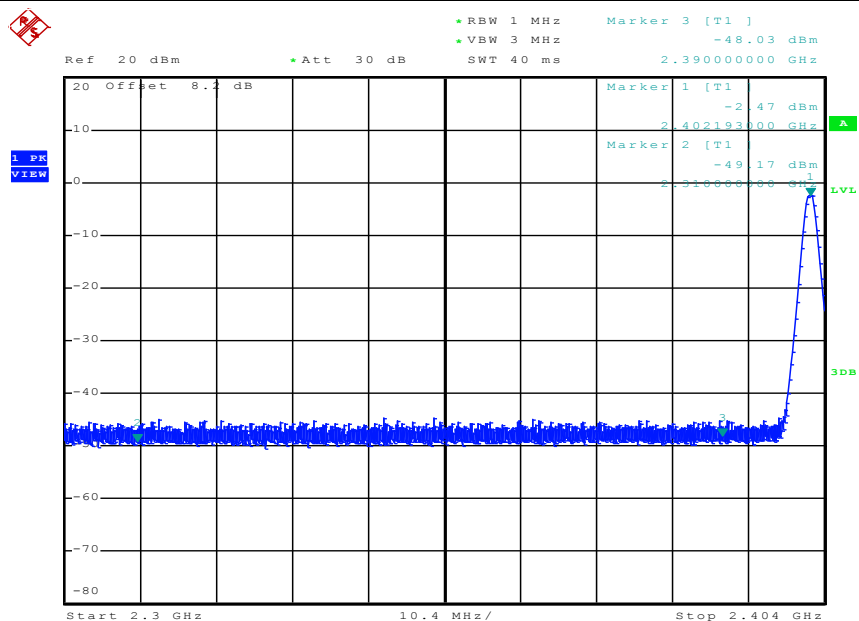
Date: 22.AUG.2019 19:09:30



## A.8 Restrict-band band-edge measurements

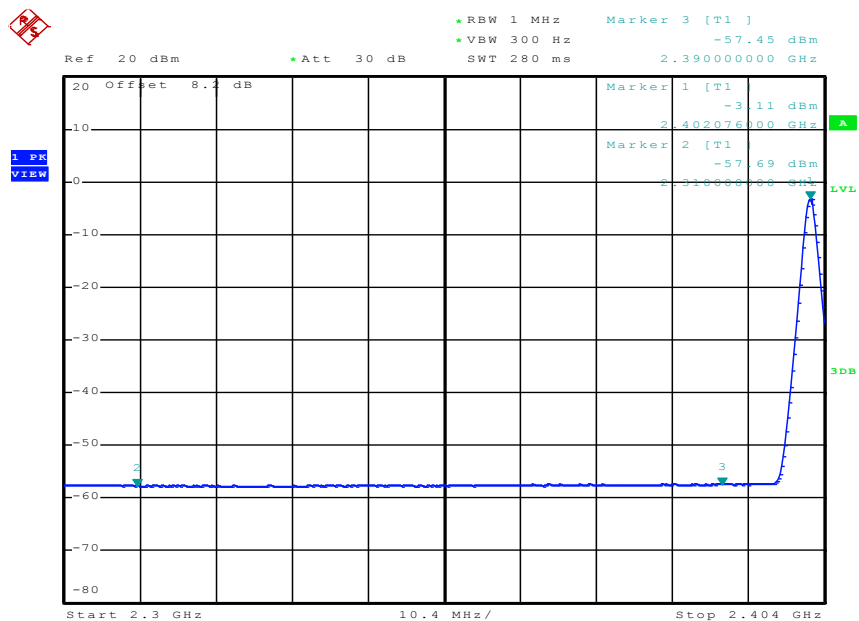
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-49.17	3.3	0	49.39	PEAK	74	PASS
	Off	2310.0	-57.69	3.3	0	40.87	AV	54	PASS
	Off	2390.0	-48.03	3.3	0	50.53	PEAK	74	PASS
	Off	2390.0	-57.45	3.3	0	41.11	AV	54	PASS
	Off	2483.5	-40.34	3.3	0	58.22	PEAK	74	PASS
	Off	2483.5	-44.79	3.3	0	53.77	AV	54	PASS
	Off	2500.0	-46.35	3.3	0	52.21	PEAK	74	PASS
	Off	2500.0	-58.05	3.3	0	40.51	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-48.01	3.3	0	50.55	PEAK	74	PASS
	Off	2310.0	-57.68	3.3	0	40.88	AV	54	PASS
	Off	2390.0	-47.79	3.3	0	50.77	PEAK	74	PASS
	Off	2390.0	-57.46	3.3	0	41.1	AV	54	PASS
	Off	2483.5	-41.48	3.3	0	57.08	PEAK	74	PASS
	Off	2483.5	-46.87	3.3	0	51.69	AV	54	PASS
	Off	2500.0	-47.27	3.3	0	51.29	PEAK	74	PASS
	Off	2500.0	-58.09	3.3	0	40.47	AV	54	PASS
8DPSK	Off	2310.0	-48.32	3.3	0	50.24	PEAK	74	PASS
	Off	2310.0	-57.73	3.3	0	40.83	AV	54	PASS
	Off	2390.0	-47.85	3.3	0	50.71	PEAK	74	PASS
	Off	2390.0	-57.48	3.3	0	41.08	AV	54	PASS
	Off	2483.5	-41.49	3.3	0	57.07	PEAK	74	PASS
	Off	2483.5	-46.91	3.3	0	51.65	AV	54	PASS
	Off	2500.0	-48.75	3.3	0	49.81	PEAK	74	PASS
	Off	2500.0	-58.05	3.3	0	40.51	AV	54	PASS

## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



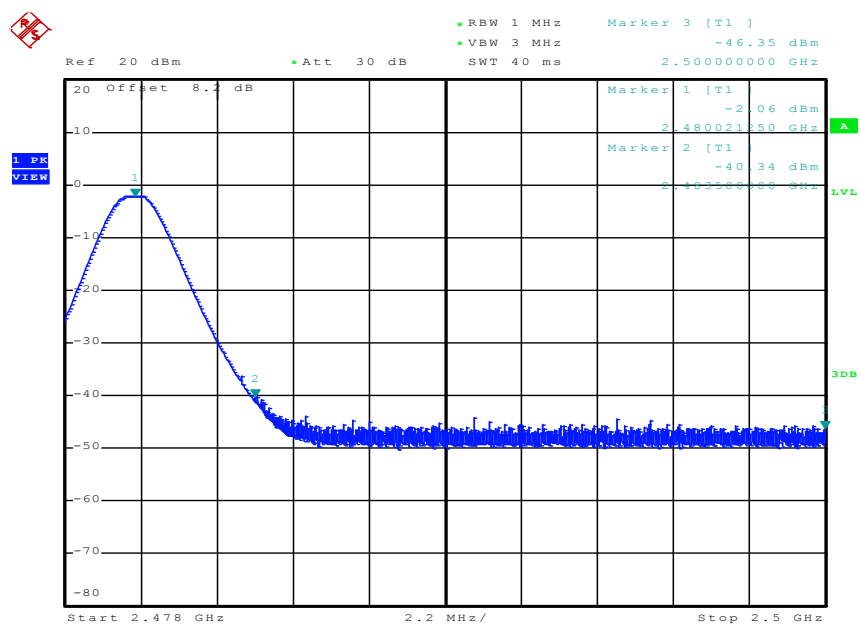
Date: 22.AUG.2019 18:24:33

## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)



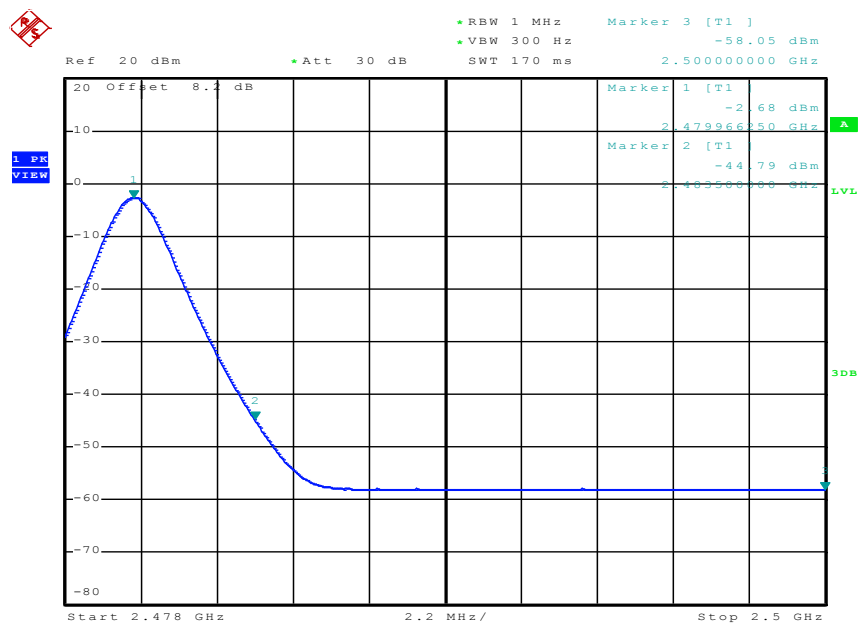
Date: 22.AUG.2019 18:24:46

## Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_PEAK (High Channel)

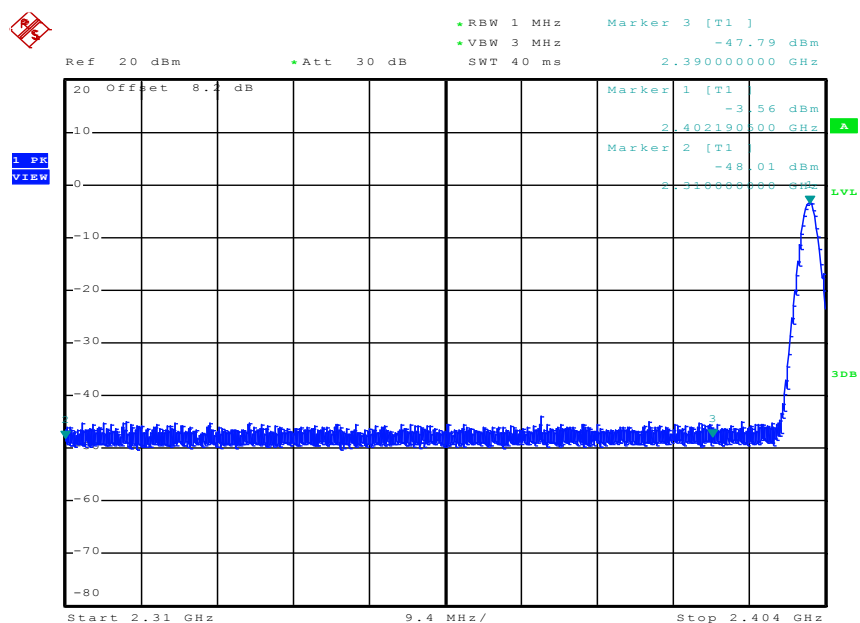


Date: 22.AUG.2019 18:28:50

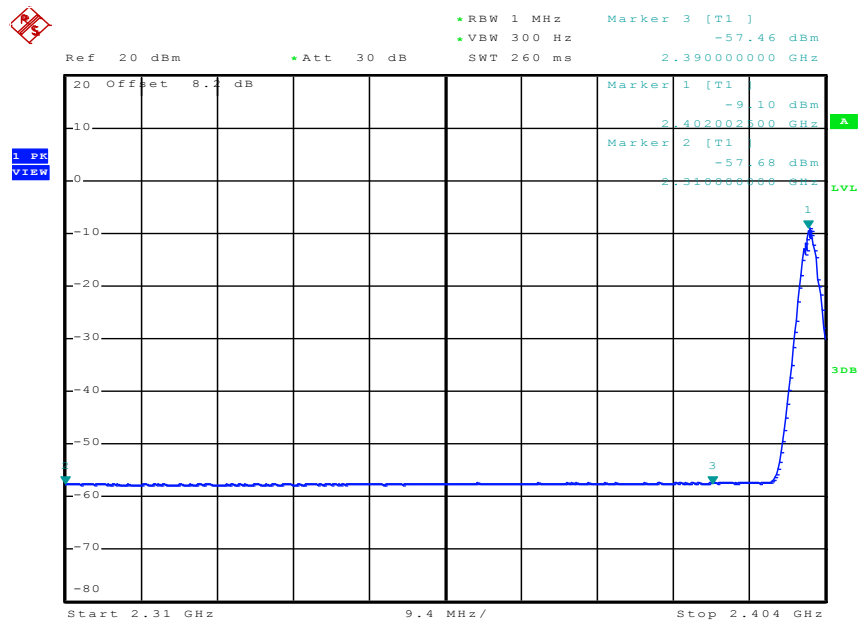
## Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_Average (High Channel)



Date: 22.AUG.2019 18:29:04

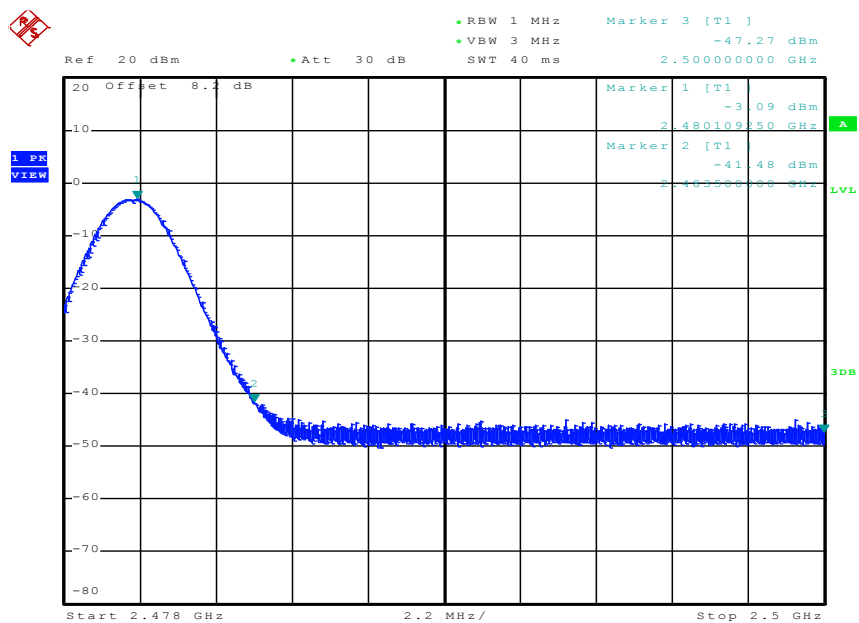
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (Low Channel)

Date: 22.AUG.2019 18:32:55

Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_Average (Low Channel)

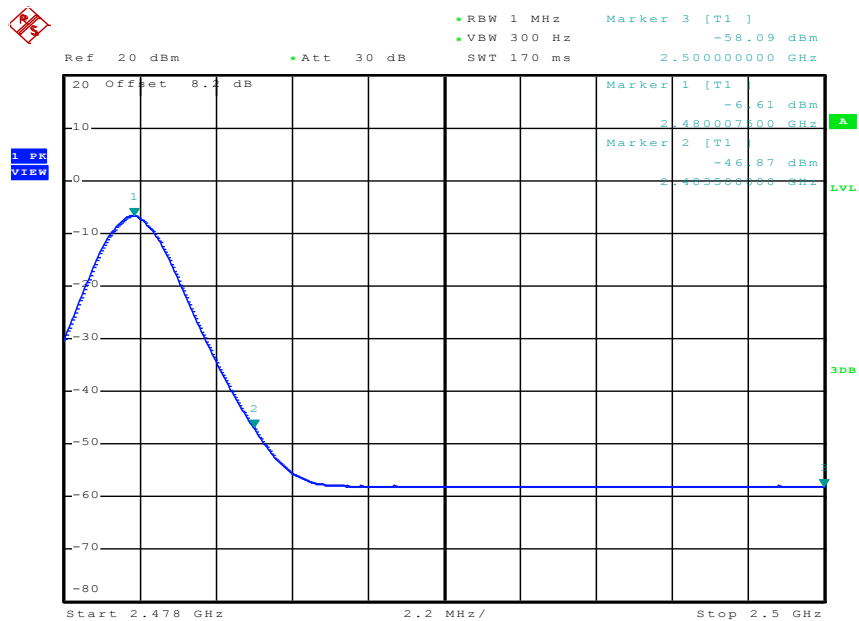
Date: 22.AUG.2019 18:33:08

## Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_PEAK (High Channel)



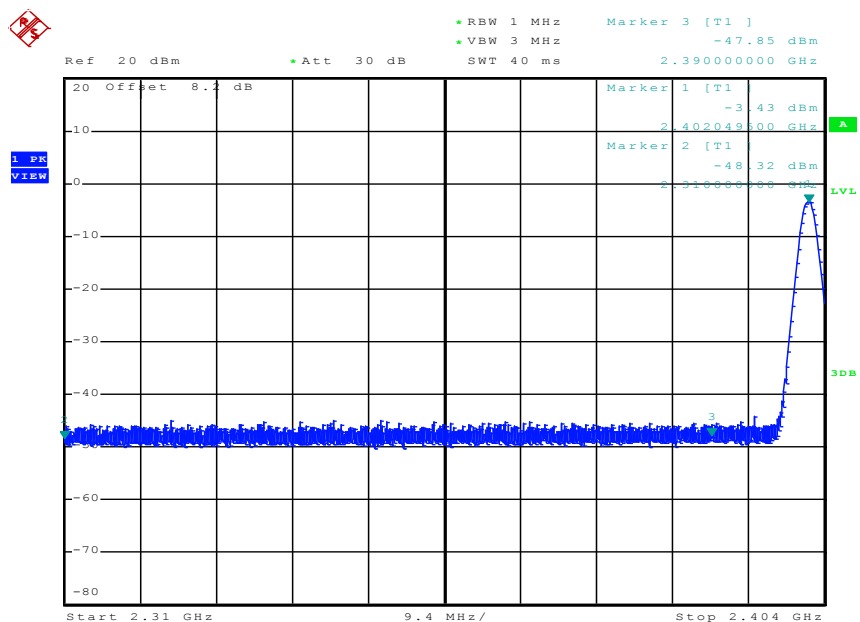
Date: 22.AUG.2019 18:37:09

## Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_Average (High Channel)

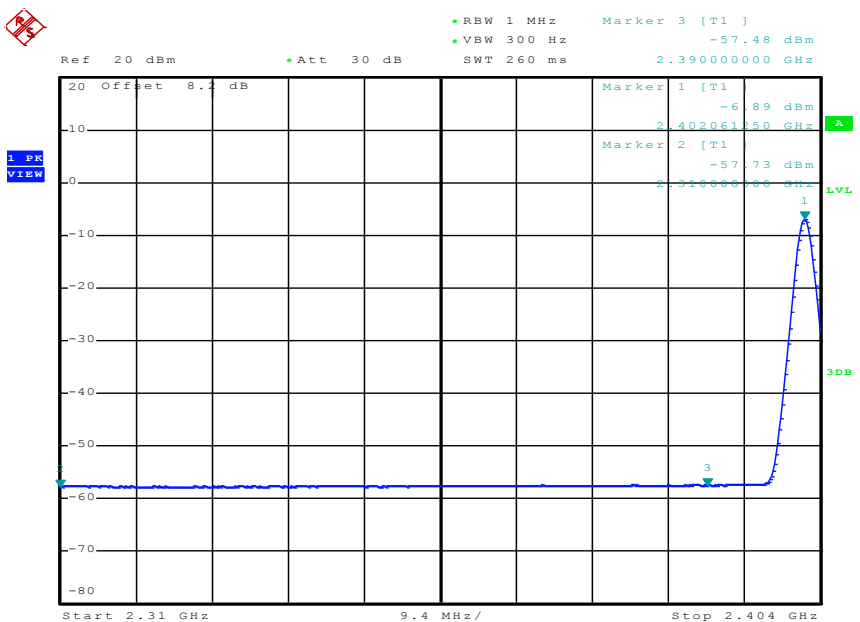


Date: 22.AUG.2019 18:37:22

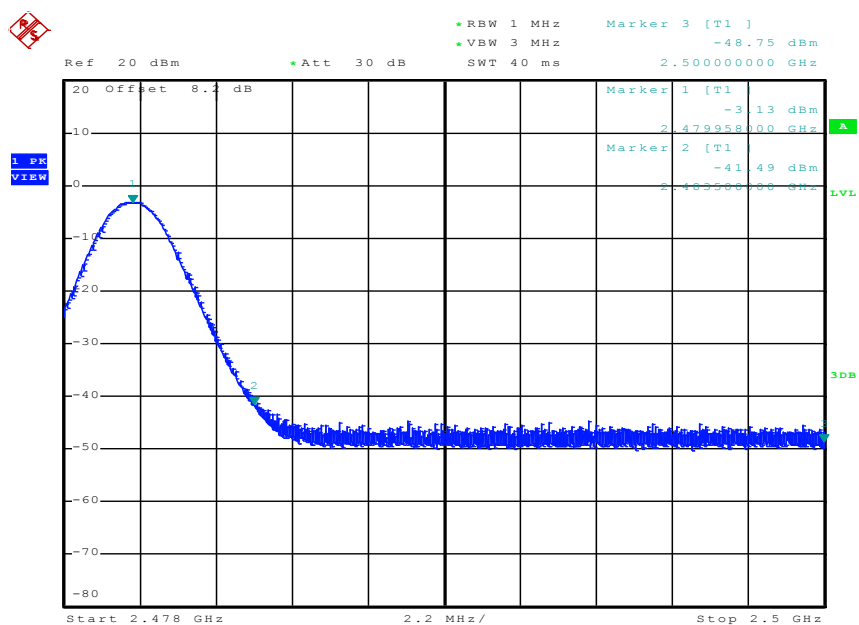
## Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



## Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_Average (Low Channel)

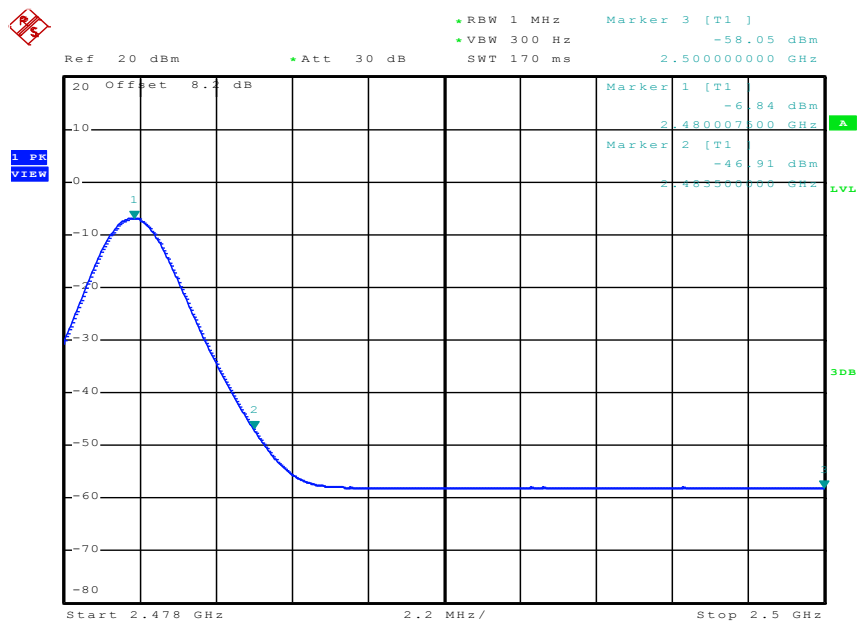


## Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (High Channel)



Date: 22.AUG.2019 18:45:33

## Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_Average (High Channel)



Date: 22.AUG.2019 18:45:46