

## Appendix A

### RF Test Data for BT V5.0(BDR/EDR) (Conducted Measurement)

Product Name: BT500ANC Over Ear Wireless Headphones

Trade Mark: Monoprice, IIIP

Test Model: 39160

#### Environmental Conditions

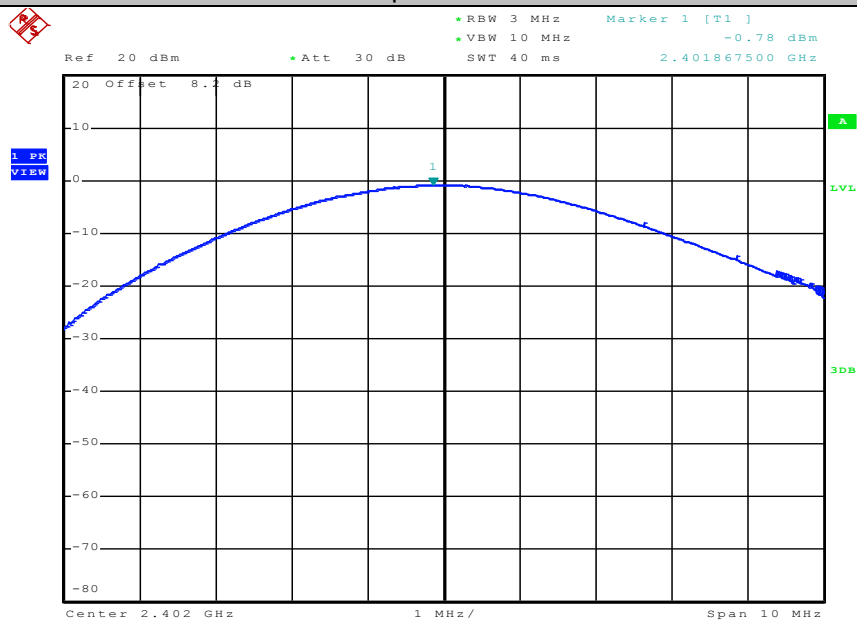
Temperature:	24.5 ° C
Relative Humidity:	54.4%
ATM Pressure:	100.0 kPa
Test Engineer:	JK ZHOU
Supervised by:	Wang.Chuang

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

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.780	30	PASS
	MCH	-0.540	30	PASS
	HCH	-1.240	30	PASS
$\pi/4$ DQPSK	LCH	-1.670	21	PASS
	MCH	-0.450	21	PASS
	HCH	-1.060	21	PASS
8DPSK	LCH	-1.820	21	PASS
	MCH	-1.270	21	PASS
	HCH	-1.520	21	PASS

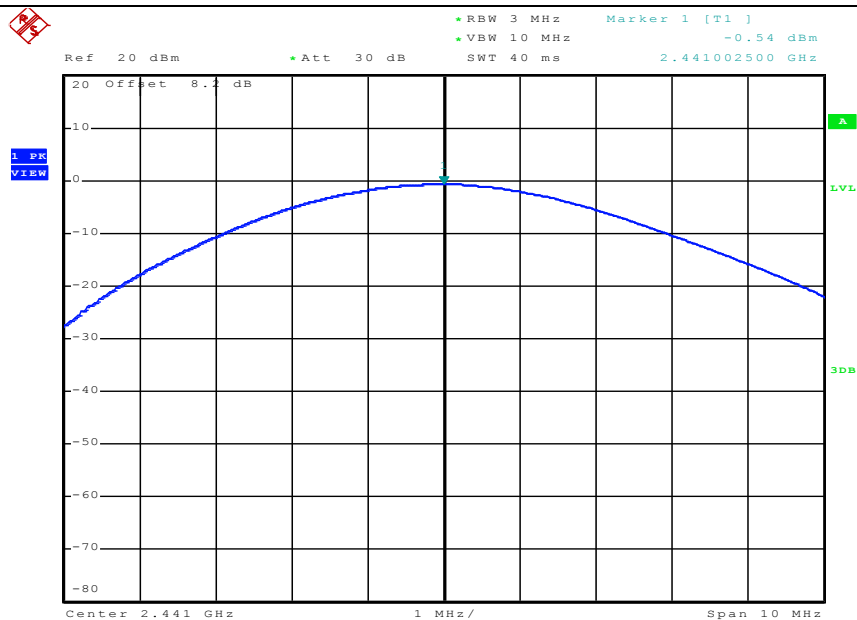
# Test Graphs

GFSK/LCH



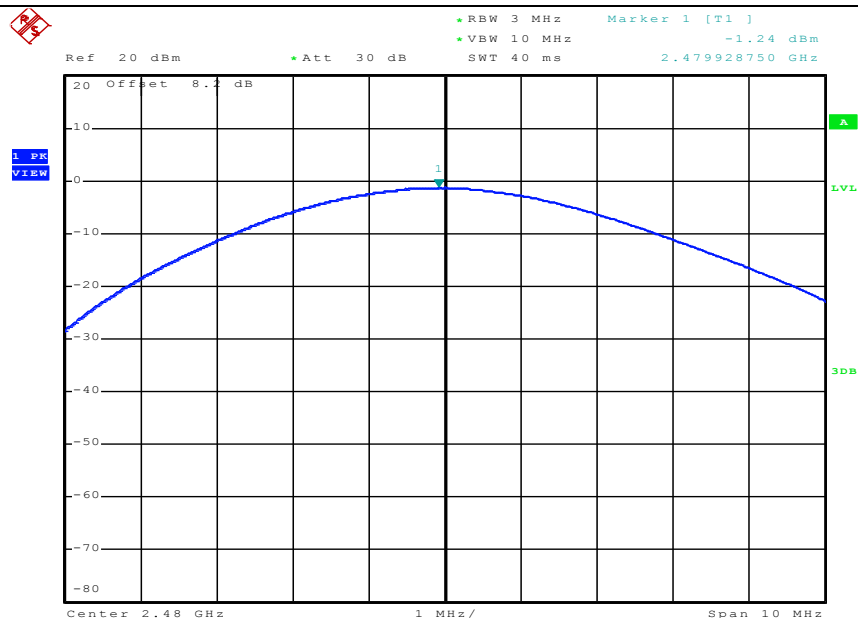
Date: 30.SEP.2019 11:18:23

GFSK/MCH



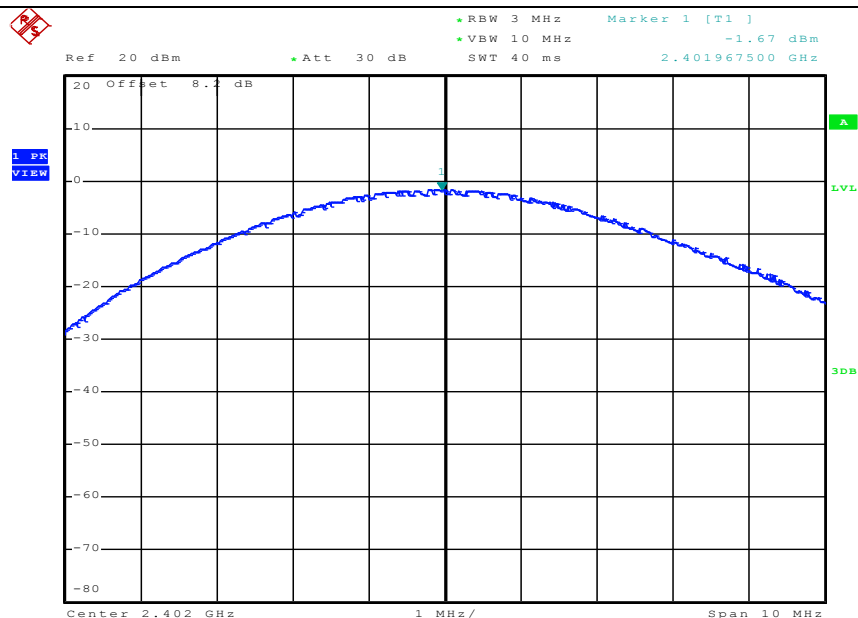
Date: 30.SEP.2019 11:18:54

GFSK/HCH



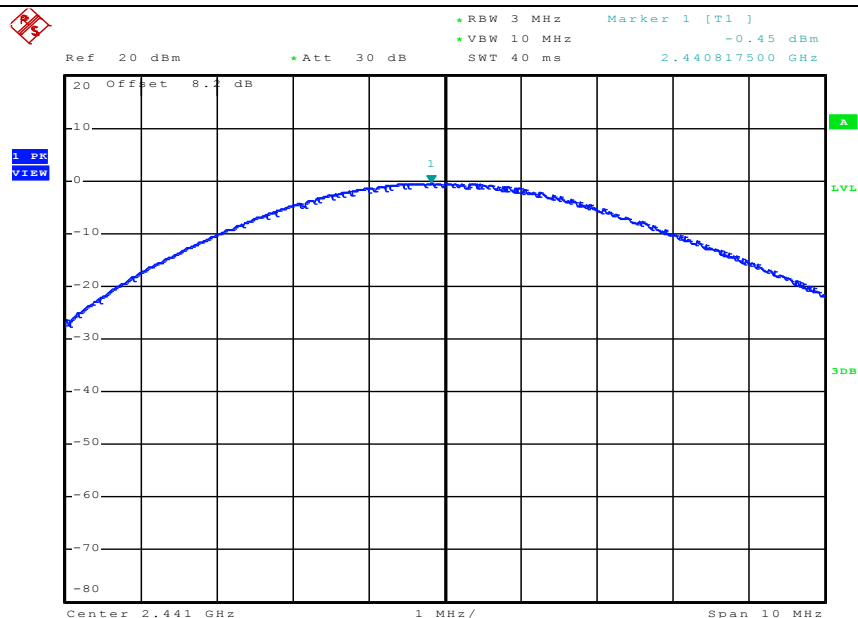
Date: 30.SEP.2019 11:19:18

$\pi/4$ DQPSK/LCH



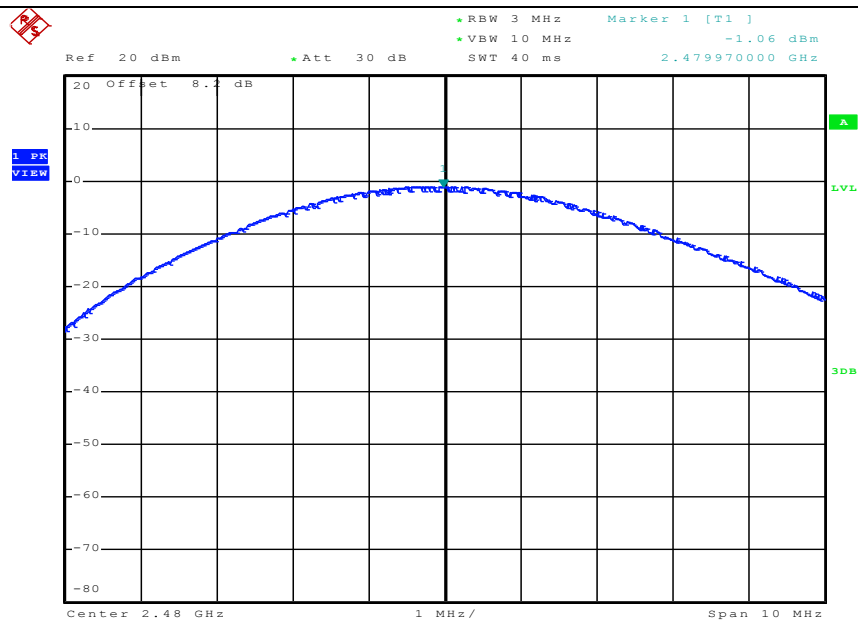
Date: 30.SEP.2019 11:19:46

$\pi/4$ DQPSK/MCH



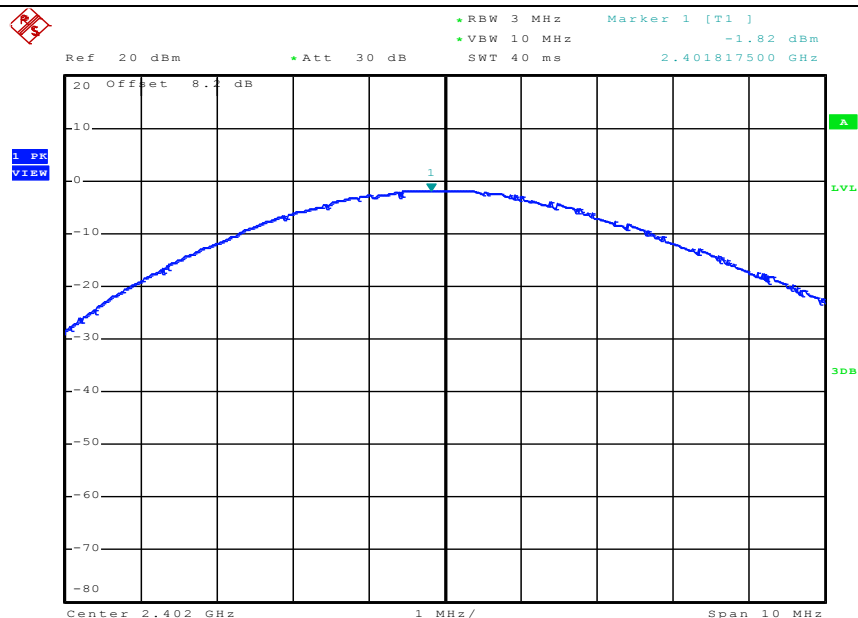
Date: 30.SEP.2019 11:22:14

$\pi/4$ DQPSK/HCH



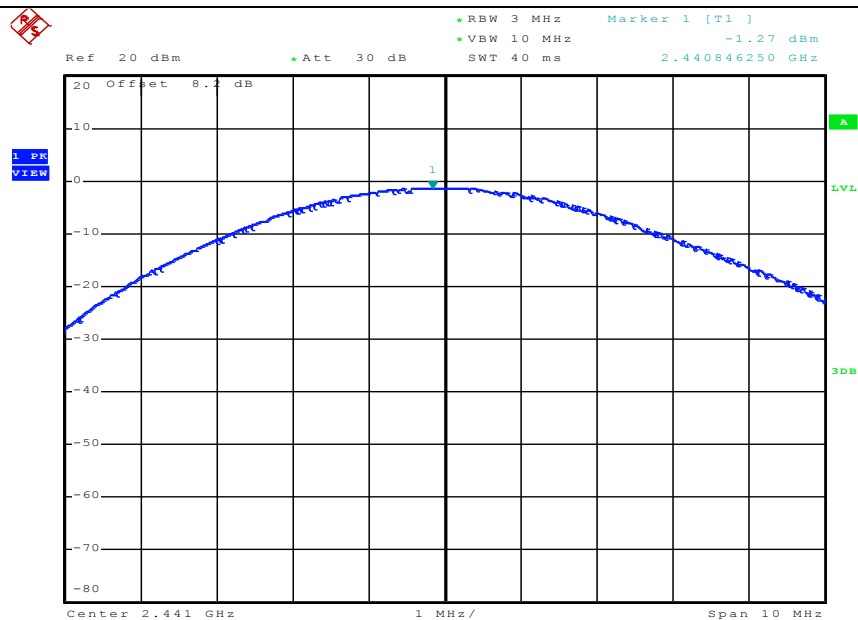
Date: 30.SEP.2019 11:24:35

8DPSK/LCH



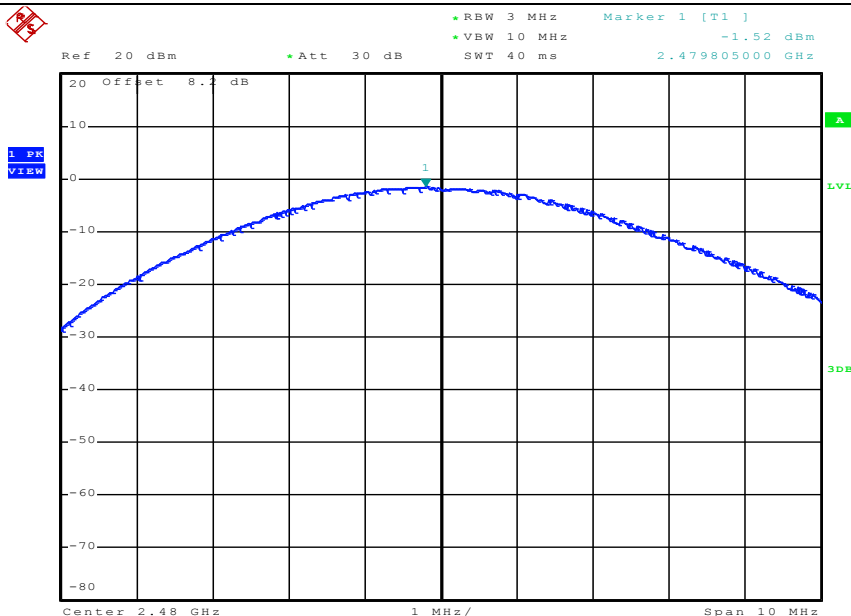
Date: 30.SEP.2019 11:27:14

8DPSK/MCH



Date: 30.SEP.2019 11:29:44

8DPSK/HCH



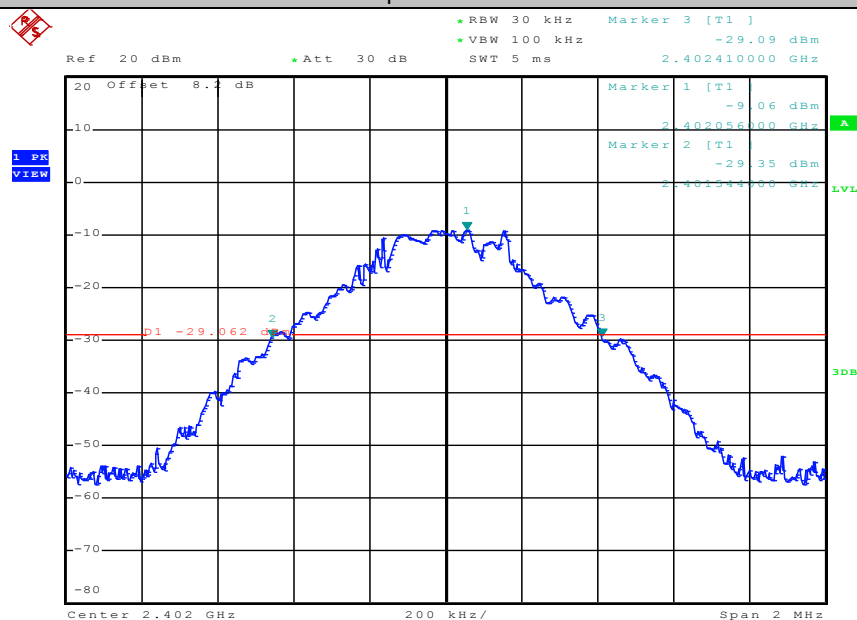
Date: 30.SEP.2019 11:31:23

## A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.866	Not Specified	PASS
	MCH	0.860	Not Specified	PASS
	HCH	0.864	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.262	Not Specified	PASS
	MCH	1.260	Not Specified	PASS
	HCH	1.262	Not Specified	PASS
8DPSK	LCH	1.262	Not Specified	PASS
	MCH	1.280	Not Specified	PASS
	HCH	1.266	Not Specified	PASS

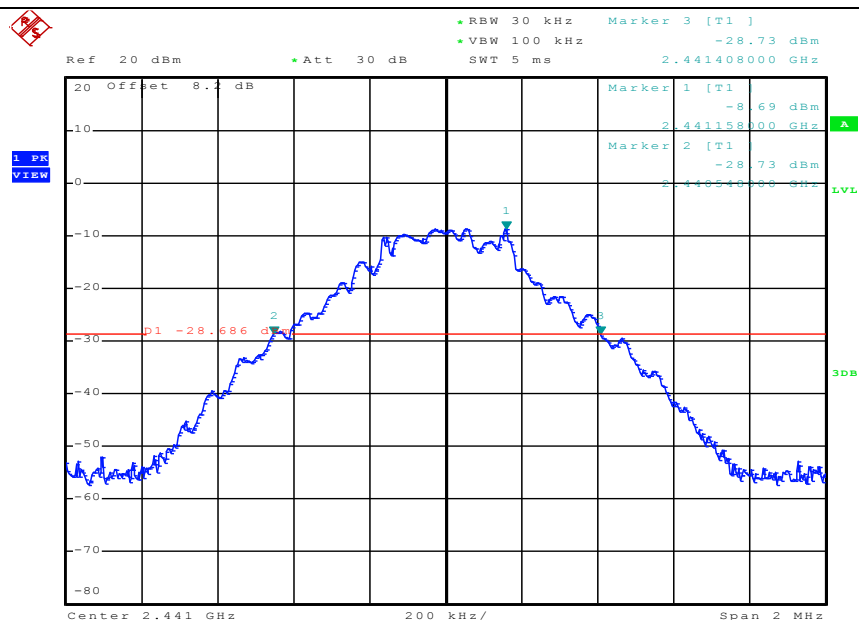
Test Graphs

GFSK/LCH



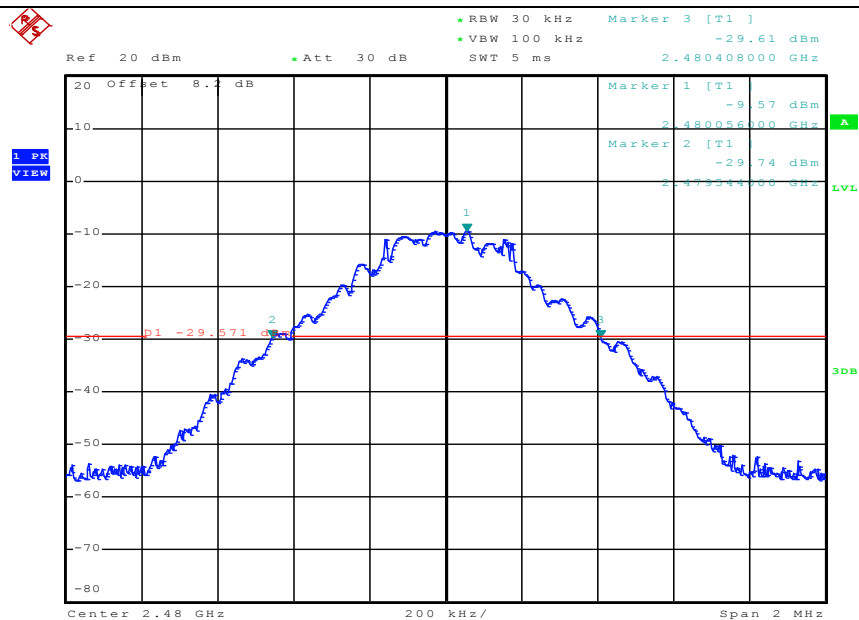
Date: 30.SEP.2019 11:05:30

GFSK/MCH



Date: 30.SEP.2019 11:08:21

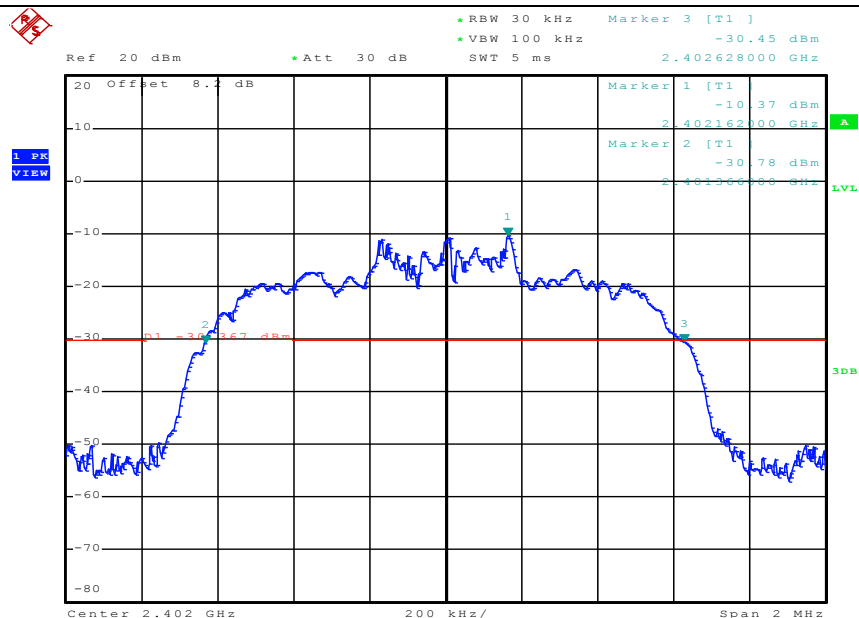
GFSK/HCH



Date: 30.SEP.2019 11:12:31

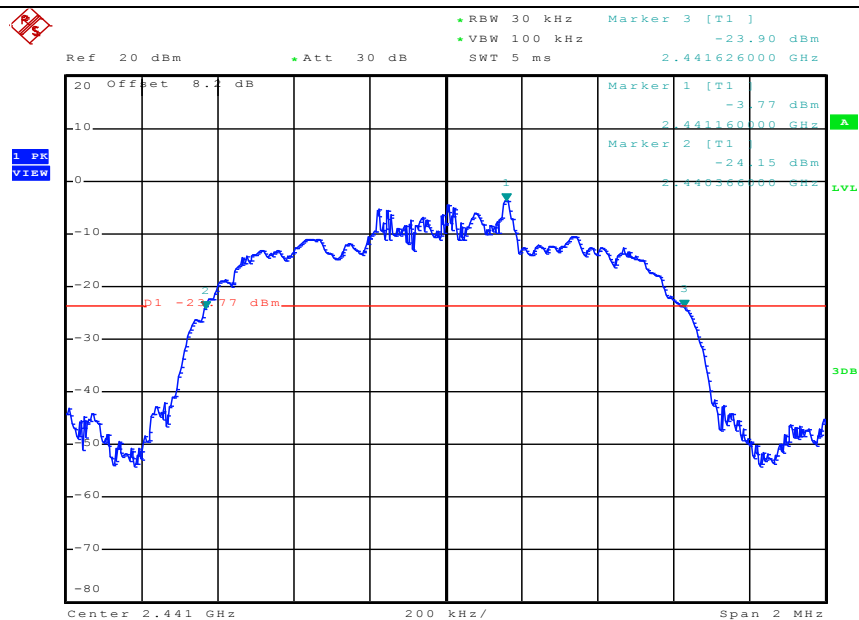


$\pi/4$ DQPSK/LCH



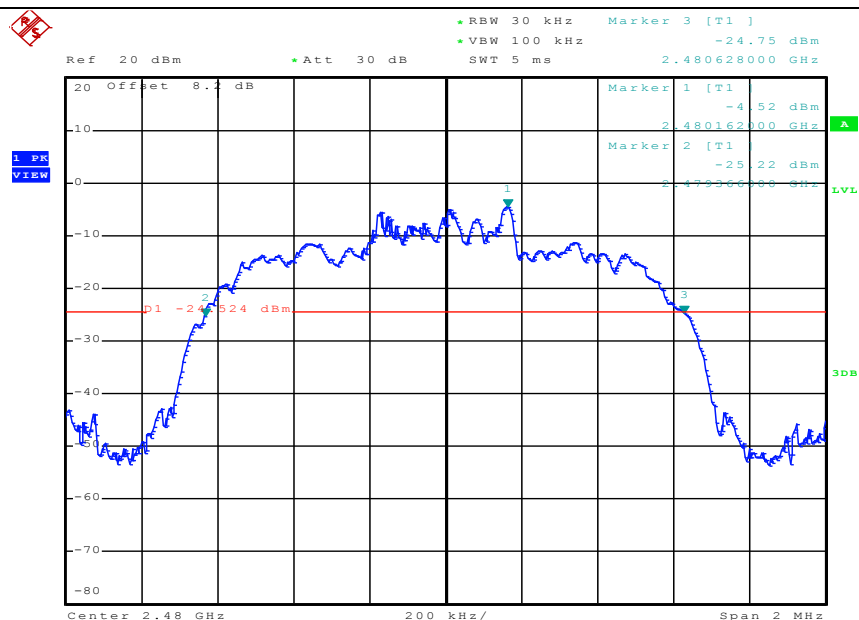
Date: 30.SEP.2019 11:15:28

$\pi/4$ DQPSK/MCH



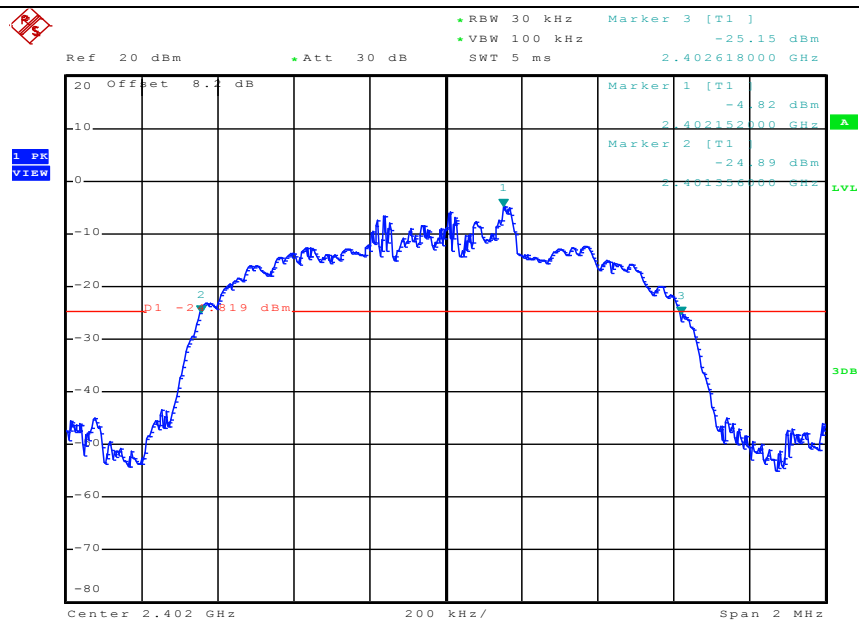
Date: 30.SEP.2019 11:21:38

$\pi/4$ DQPSK/HCH



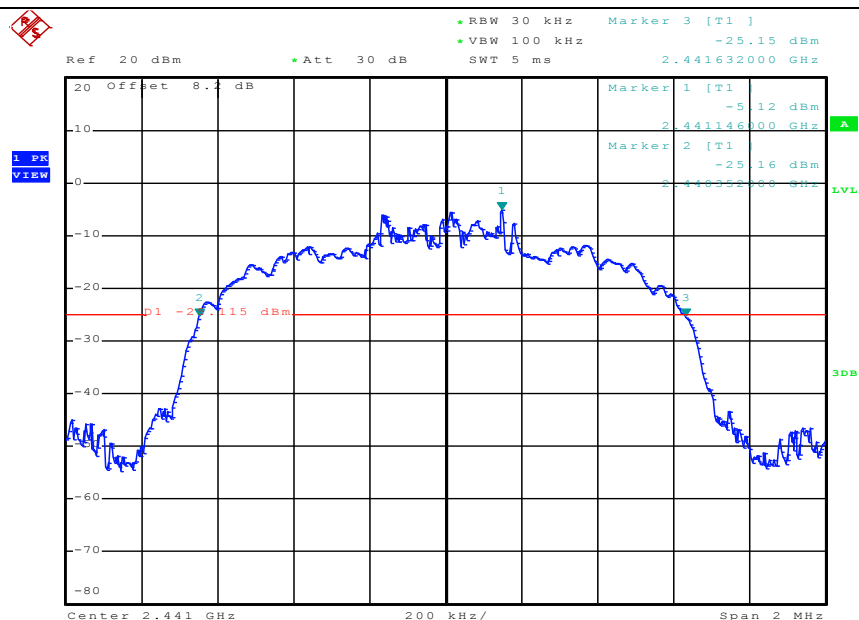
Date: 30.SEP.2019 11:23:59

8DPSK/LCH



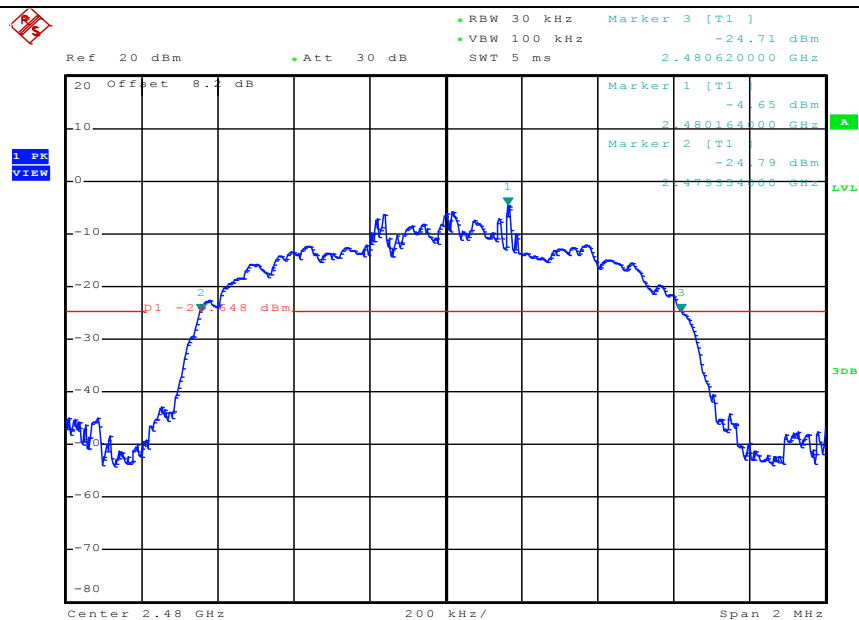
Date: 30.SEP.2019 11:26:38

8DPSK/MCH



Date: 30.SEP.2019 11:29:08

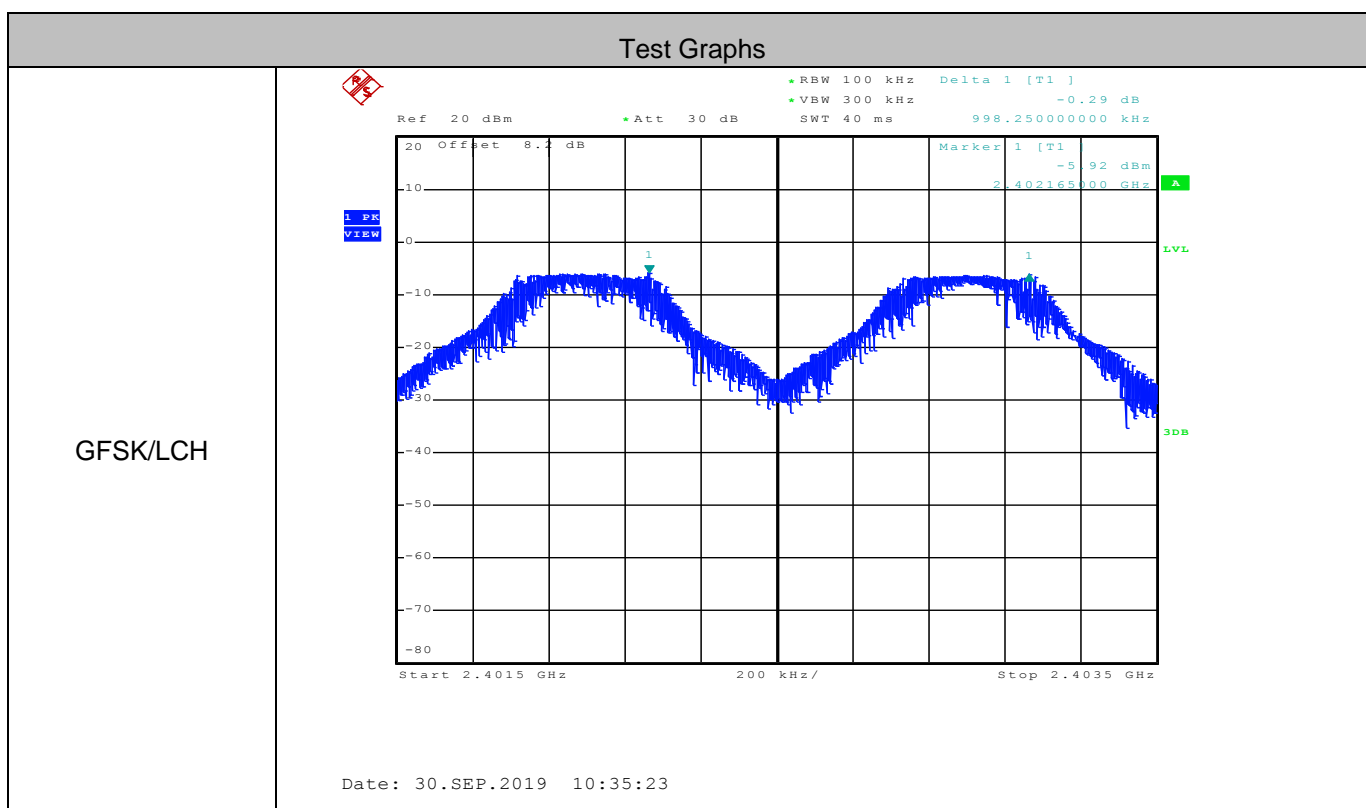
8DPSK/HCH



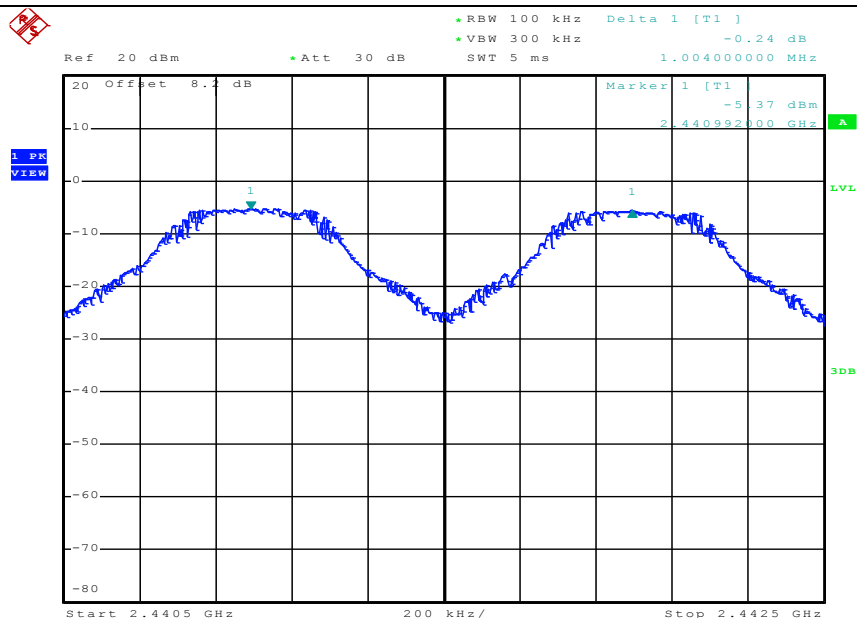
Date: 30.SEP.2019 11:30:47

### A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.998	0.571	PASS
	MCH	1.004	0.571	PASS
	HCH	1.126	0.571	PASS
$\pi/4$ DQPSK	LCH	1.004	0.845	PASS
	MCH	0.984	0.845	PASS
	HCH	0.966	0.845	PASS
8DPSK	LCH	1.176	0.848	PASS
	MCH	1.000	0.848	PASS
	HCH	1.334	0.848	PASS

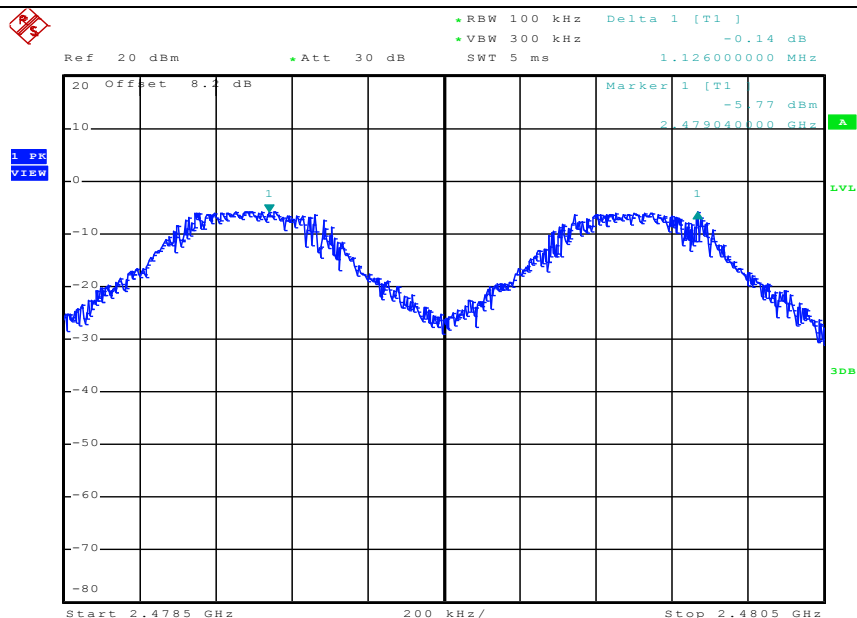


GFSK/MCH



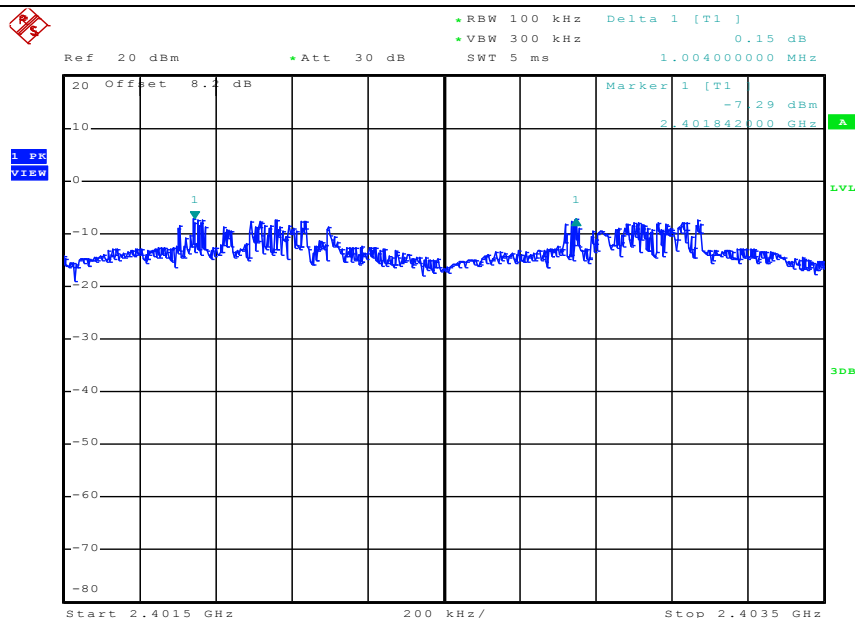
Date: 30.SEP.2019 10:40:28

GFSK/HCH



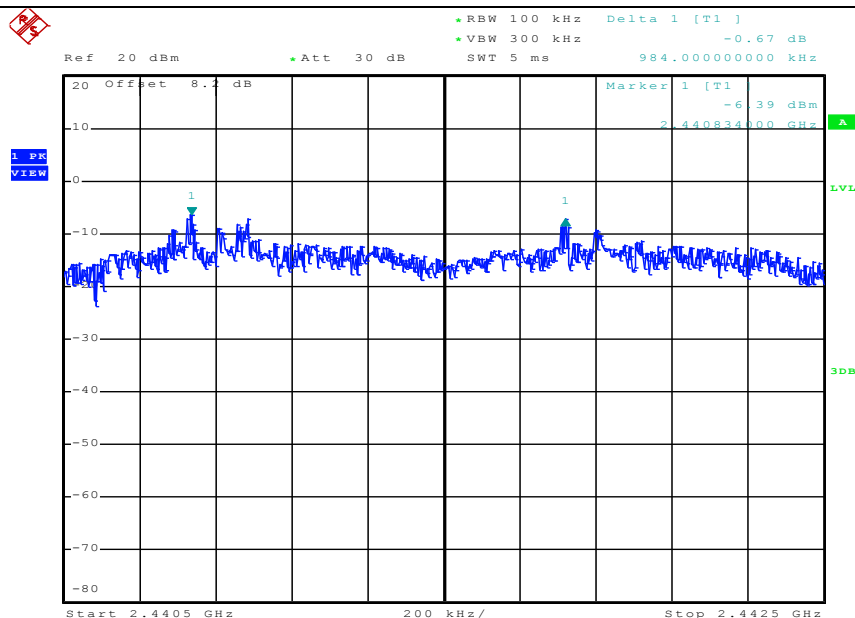
Date: 30.SEP.2019 10:42:01

$\pi/4$ DQPSK/LCH



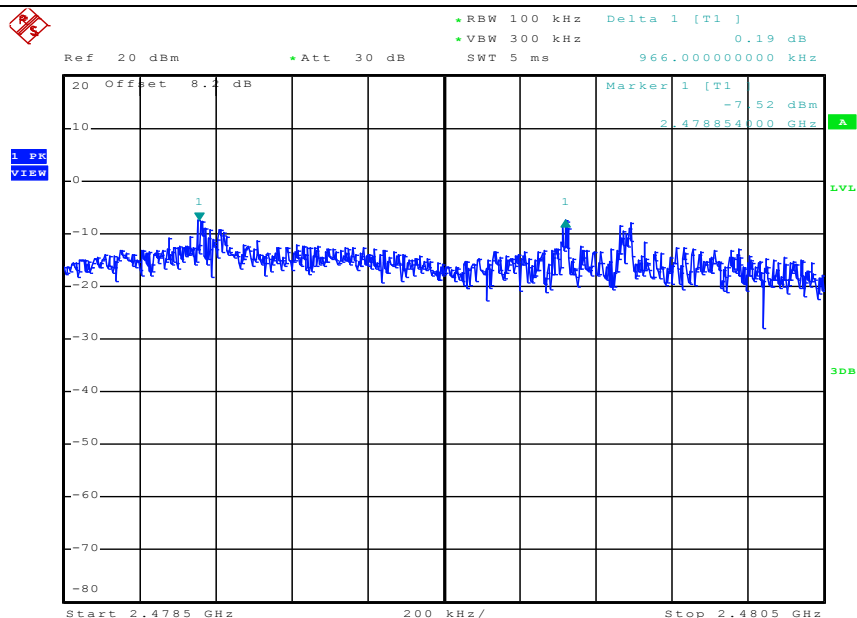
Date: 30.SEP.2019 10:48:26

$\pi/4$ DQPSK/MCH



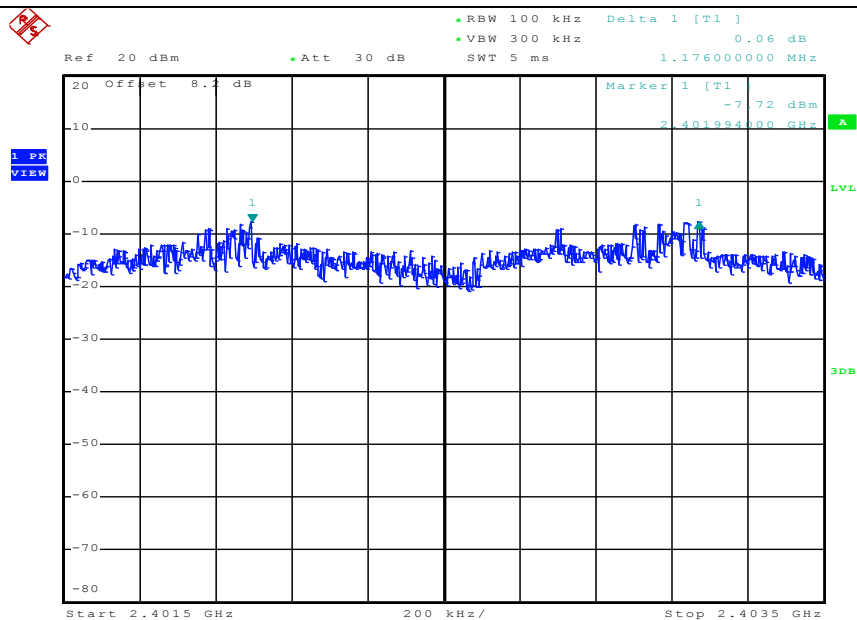
Date: 30.SEP.2019 10:51:19

$\pi/4$ DQPSK/HCH

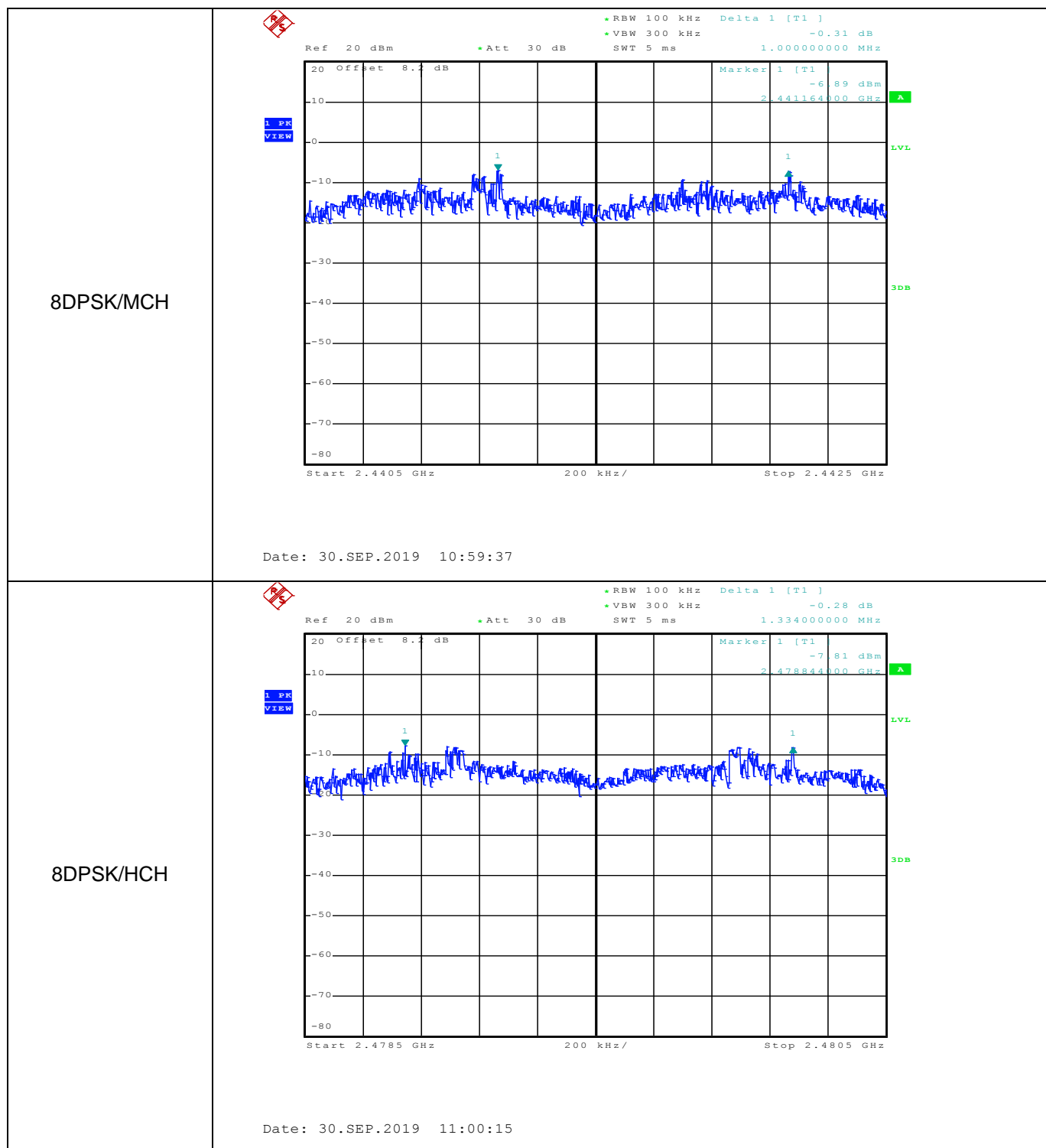


Date: 30.SEP.2019 10:51:49

8DPSK/LCH



Date: 30.SEP.2019 10:56:54



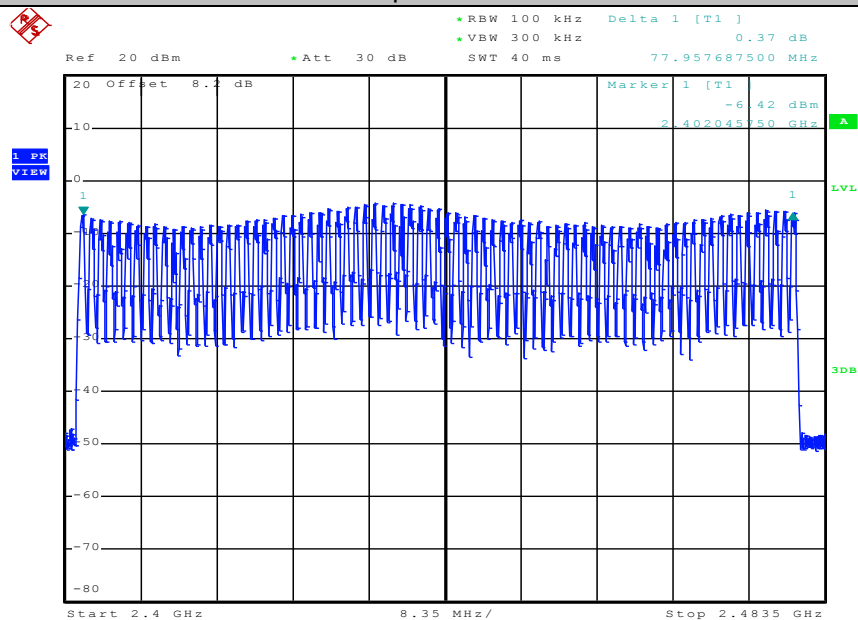
#### A.4 Hopping Channel Number

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



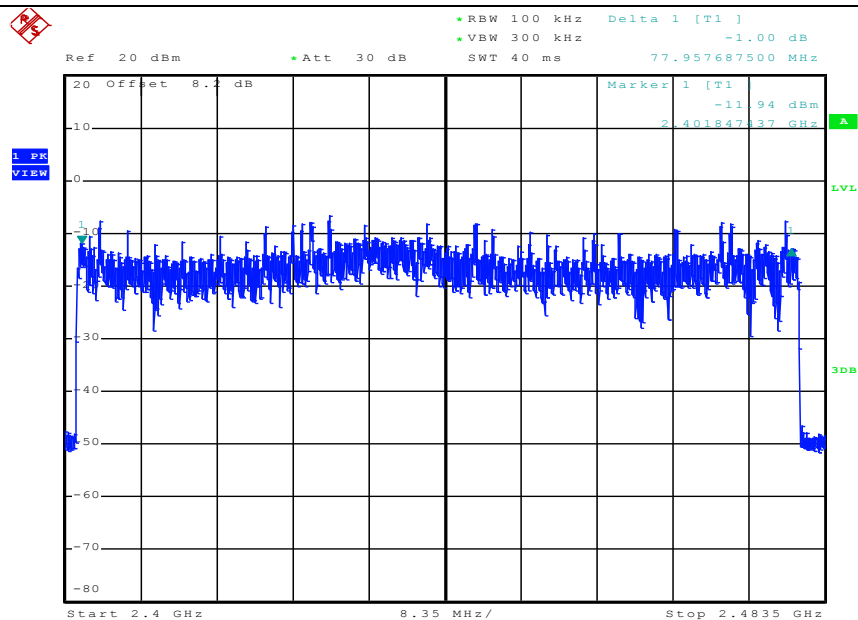
# Test Graphs

GFSK/Hop



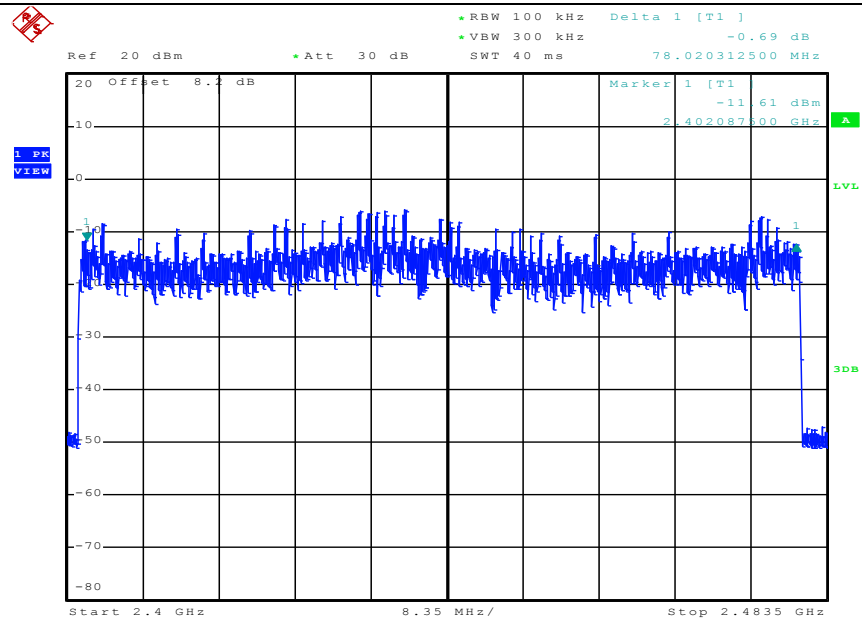
Date: 30.SEP.2019 10:46:19

$\pi/4$ DQPSK/Hop



Date: 30.SEP.2019 10:54:57

8DPSK/Hop



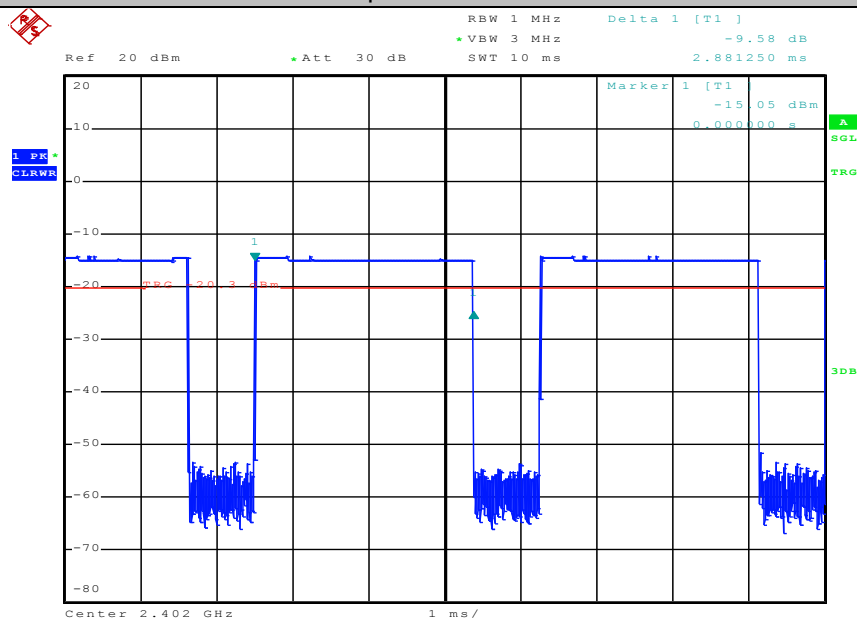
Date: 30.SEP.2019 11:04:47

## 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	0.307	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

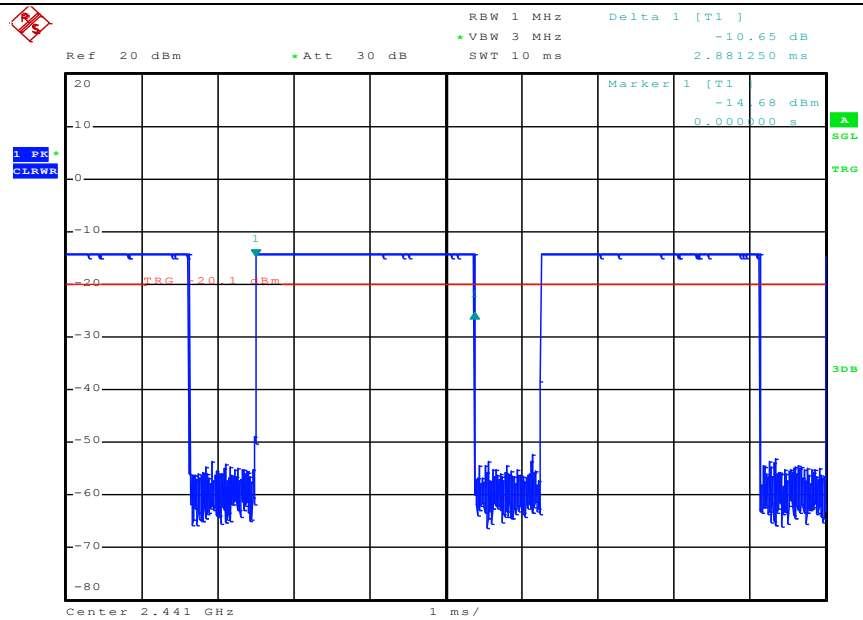
### Test Graphs

GFSK\_DH5/LCH



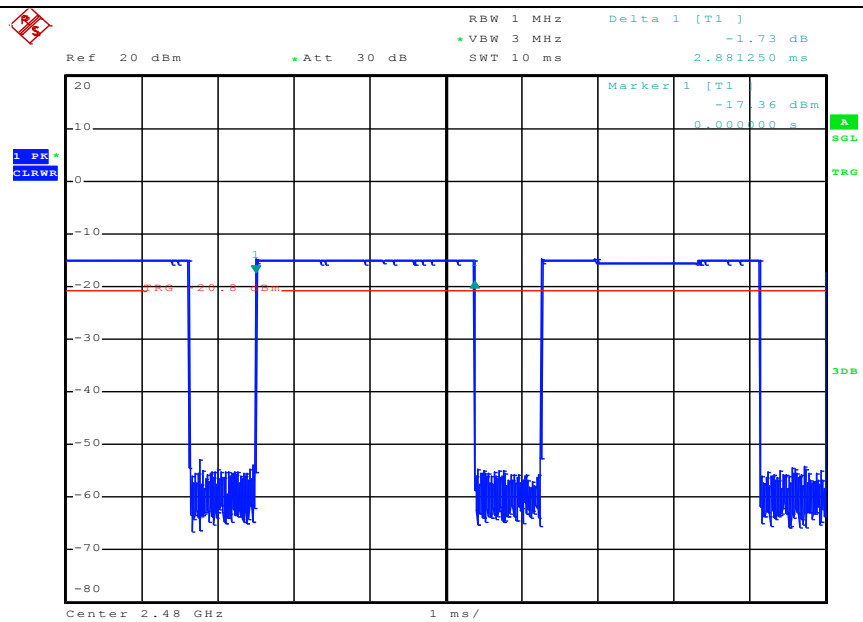
Date: 30.SEP.2019 11:05:52

GFSK\_DH5/MCH



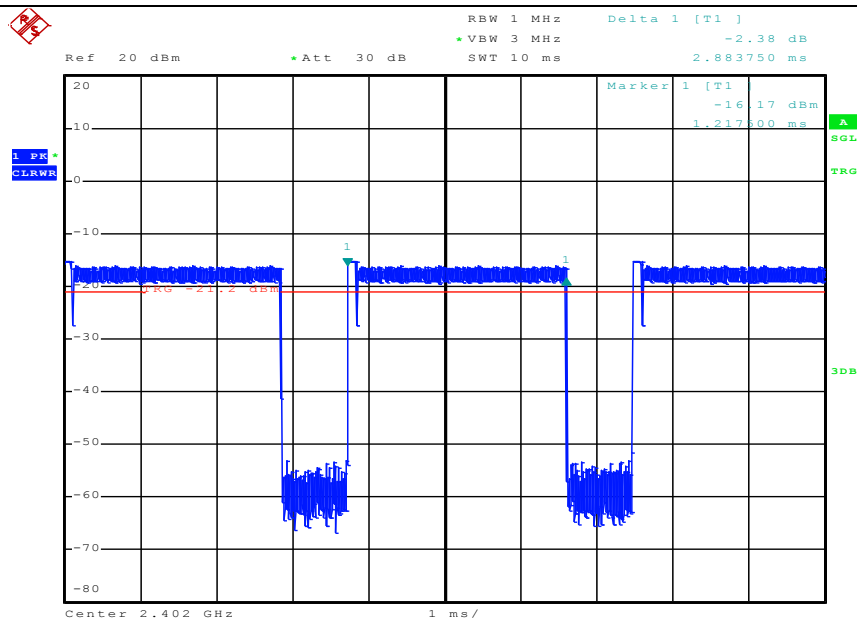
Date: 30.SEP.2019 11:08:43

GFSK\_DH5/HCH



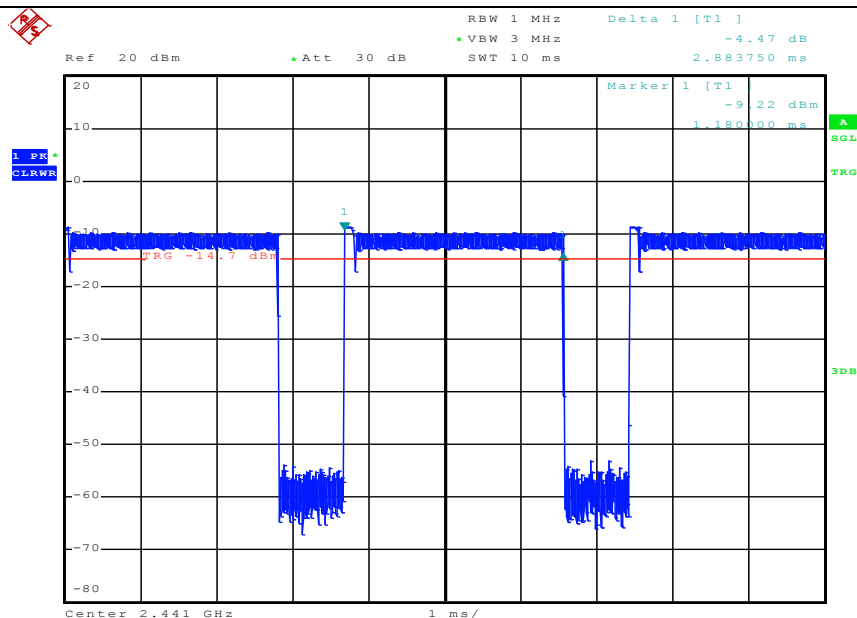
Date: 30.SEP.2019 11:12:53

$\pi/4$ DQPSK  
\_2DH5/LCH



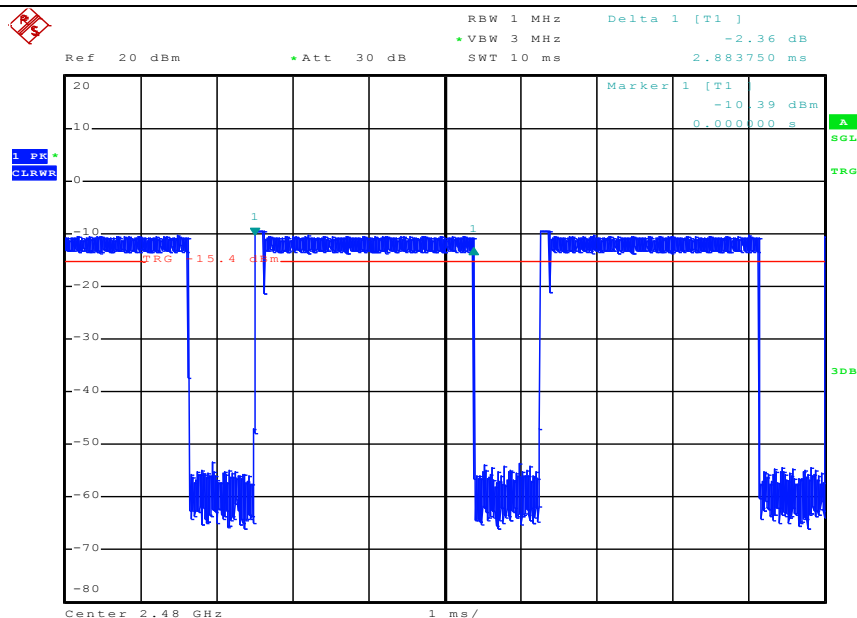
Date: 30.SEP.2019 11:15:49

$\pi/4$ DQPSK  
\_2DH5/MCH



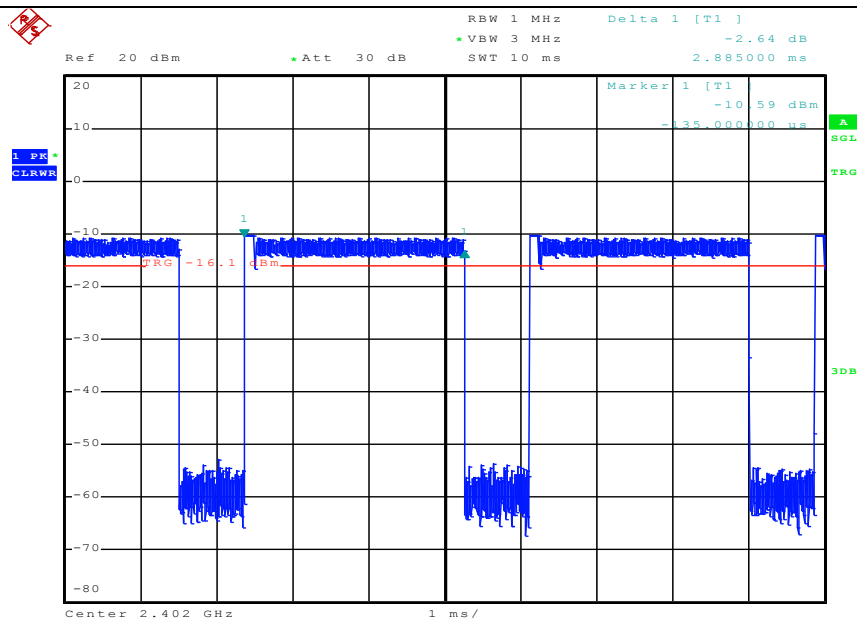
Date: 30.SEP.2019 11:21:59

$\pi/4$ DQPSK  
\_2DH5/HCH



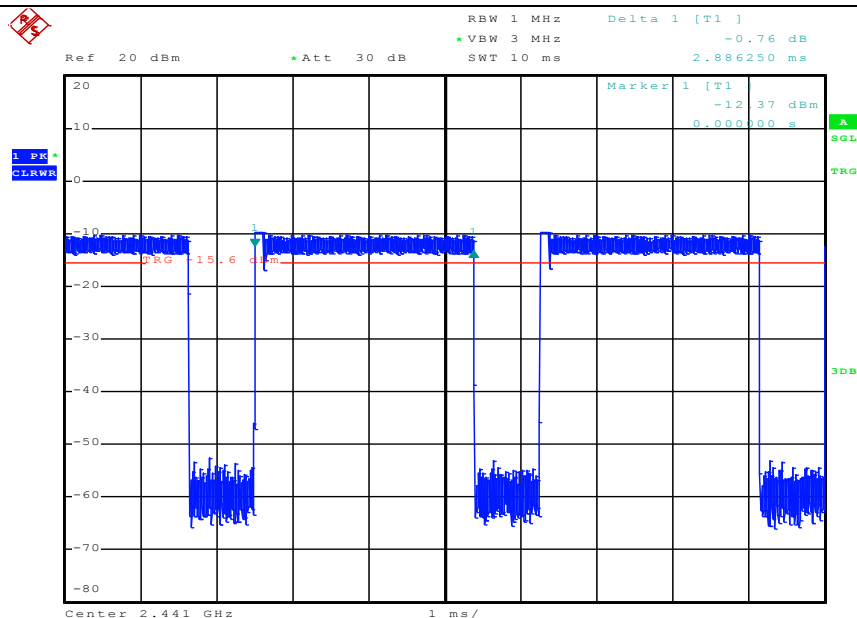
Date: 30.SEP.2019 11:24:20

8DPSK\_3DH5/LCH



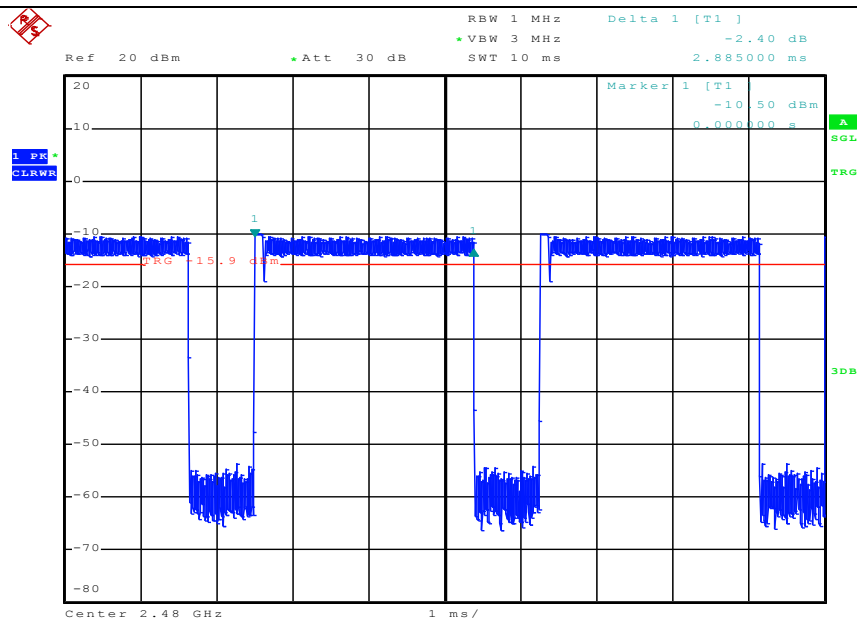
Date: 30.SEP.2019 11:26:59

8DPSK\_3DH5/MCH



Date: 30.SEP.2019 11:29:29

8DPSK\_3DH5/HCH



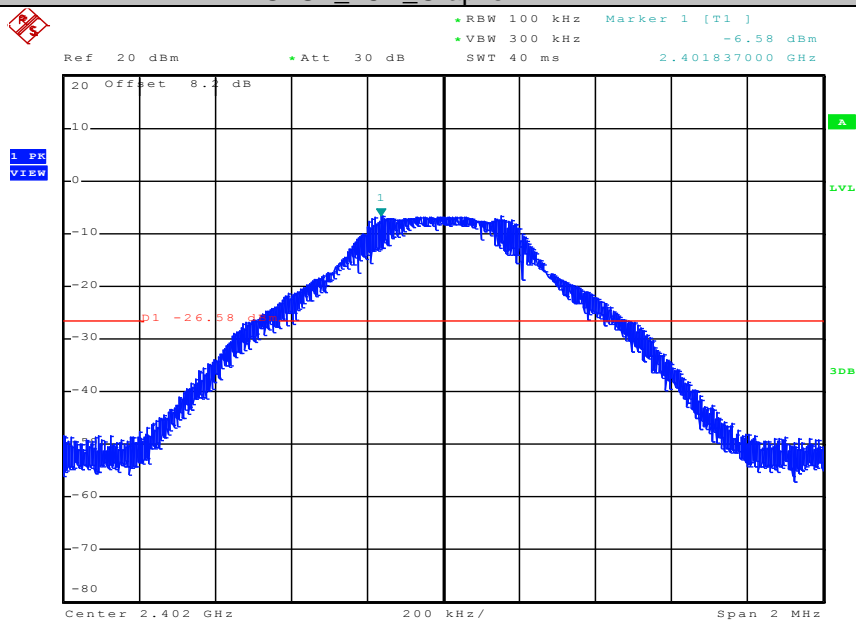
Date: 30.SEP.2019 11:31:08

## A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-6.58	-32.210	-26.580	PASS
	MCH	-6.43	-32.430	-26.430	PASS
	HCH	-7.23	-32.840	-27.230	PASS
$\pi/4$ DQPSK	LCH	-1.06	-31.160	-21.060	PASS
	MCH	-0.82	-31.680	-20.820	PASS
	HCH	-1.46	-32.210	-21.460	PASS
8DPSK	LCH	-2.48	-31.750	-22.480	PASS
	MCH	-1.71	-32.400	-21.710	PASS
	HCH	-2.06	-32.630	-22.060	PASS

GFSK\_LCH\_Graphs

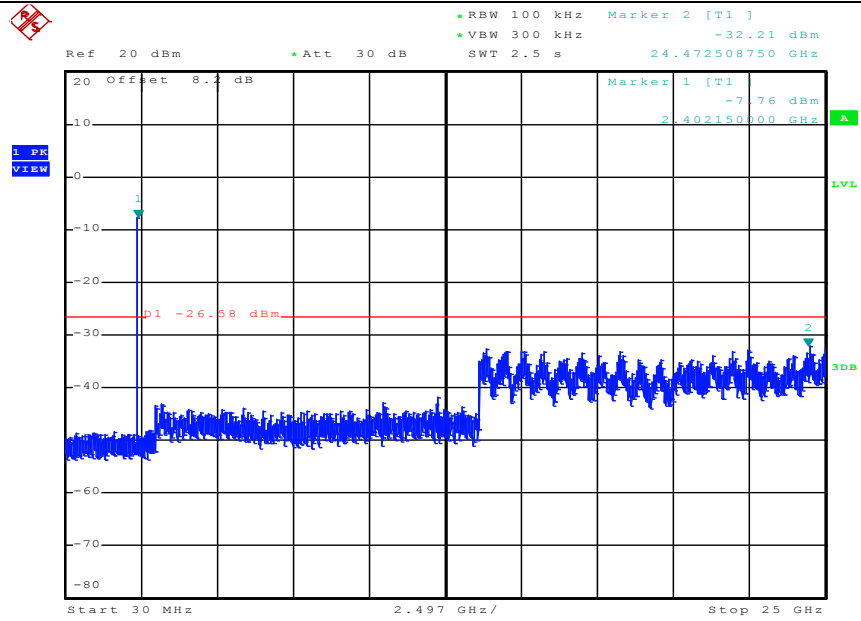
Pref



Date: 30.SEP.2019 11:06:36



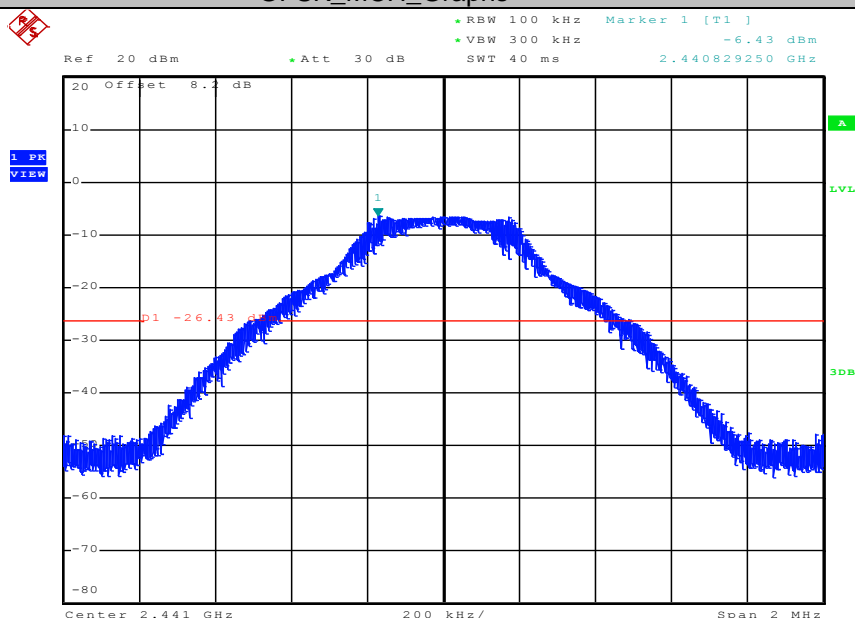
P<sub>uw</sub>



Date: 30.SEP.2019 11:06:51

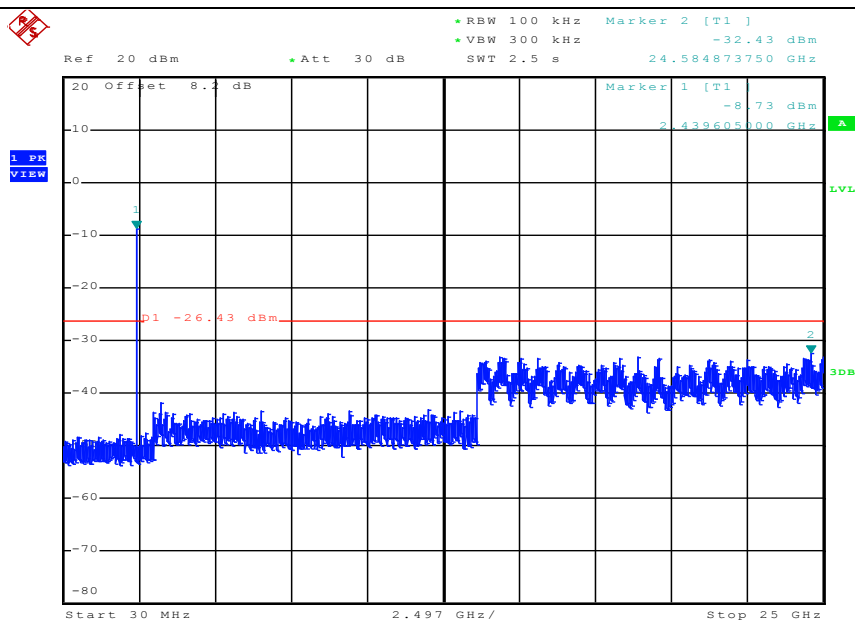
# GFSK\_MCH\_Graphs

Pref



Date: 30.SEP.2019 11:09:10

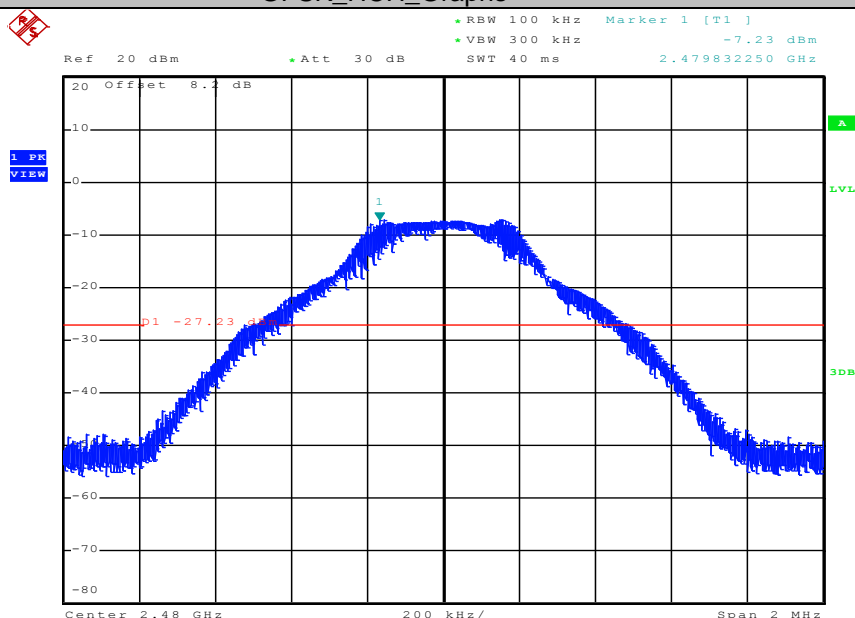
Puw



Date: 30.SEP.2019 11:09:25

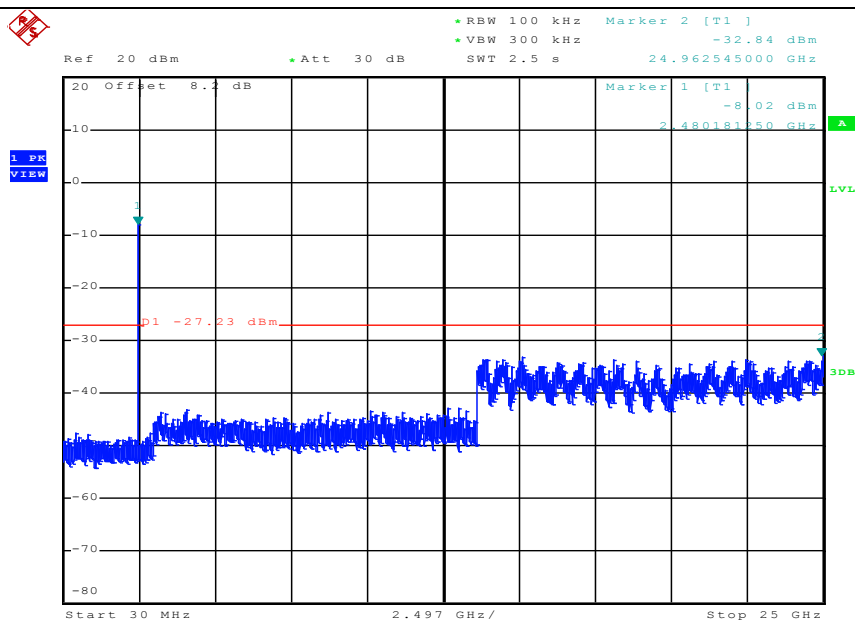
# GFSK\_HCH\_Graphs

Pref



Date: 30.SEP.2019 11:13:37

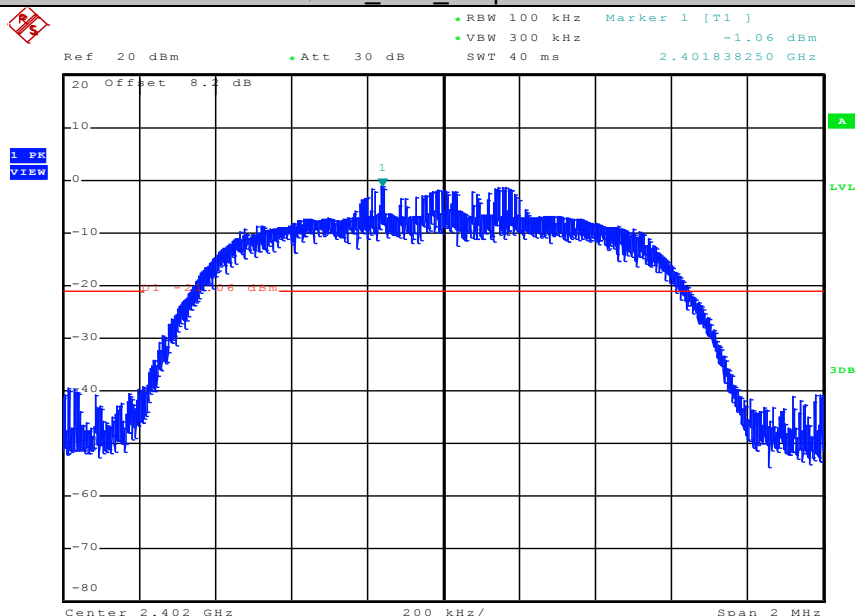
Puw



Date: 30.SEP.2019 11:13:51

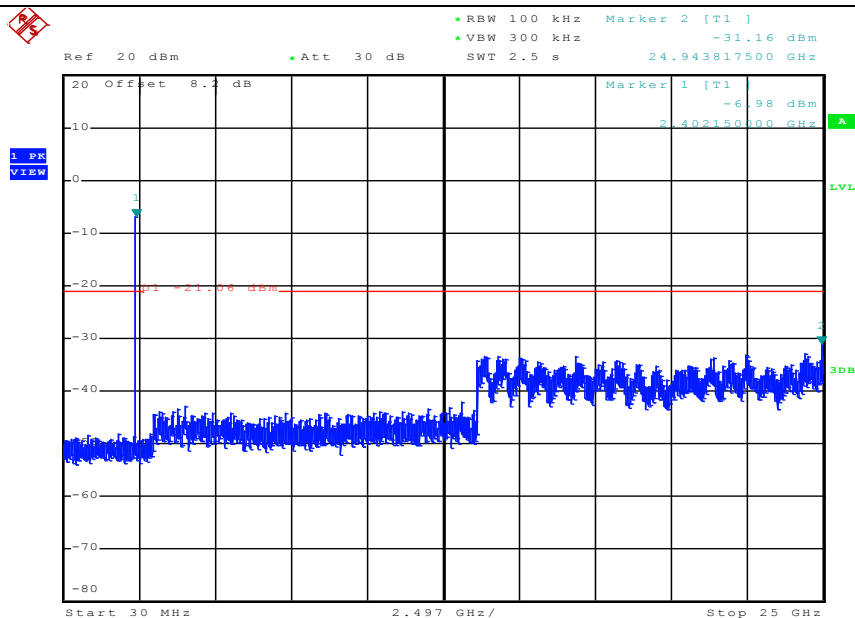
# $\pi/4$ DQPSK LCH\_Graphs

Pref



Date: 30.SEP.2019 11:20:16

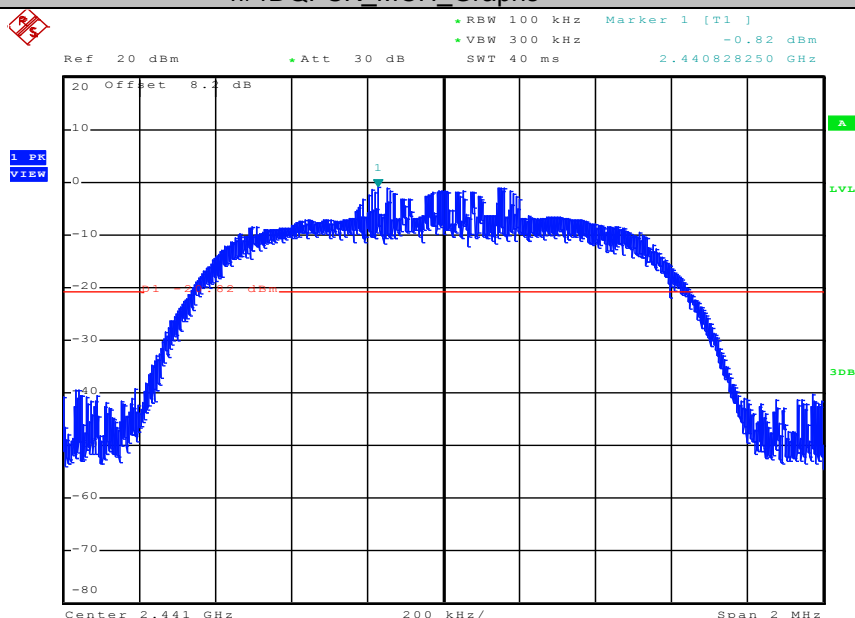
Puw



Date: 30.SEP.2019 11:20:30

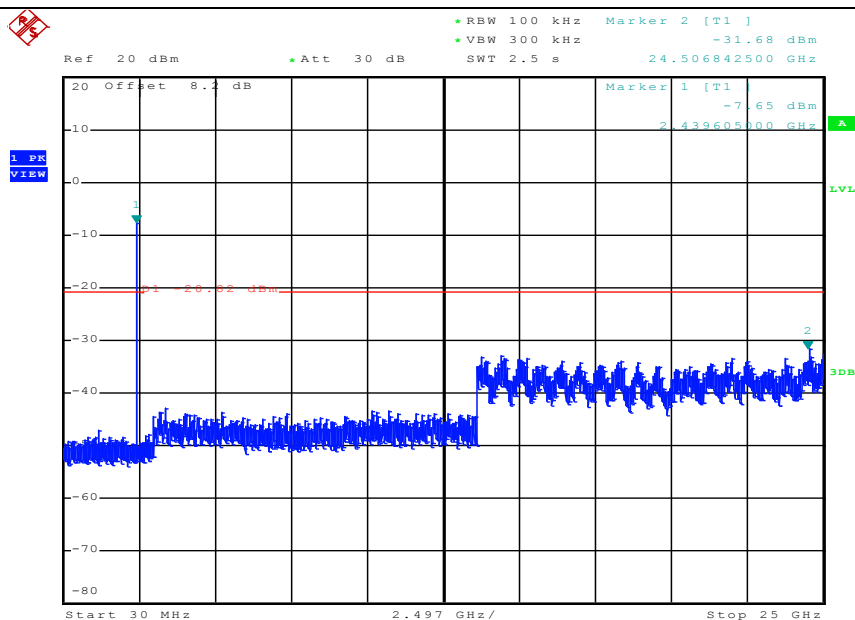
# $\pi/4$ DQPSK\_MCH\_Graphs

Pref



Date: 30.SEP.2019 11:22:26

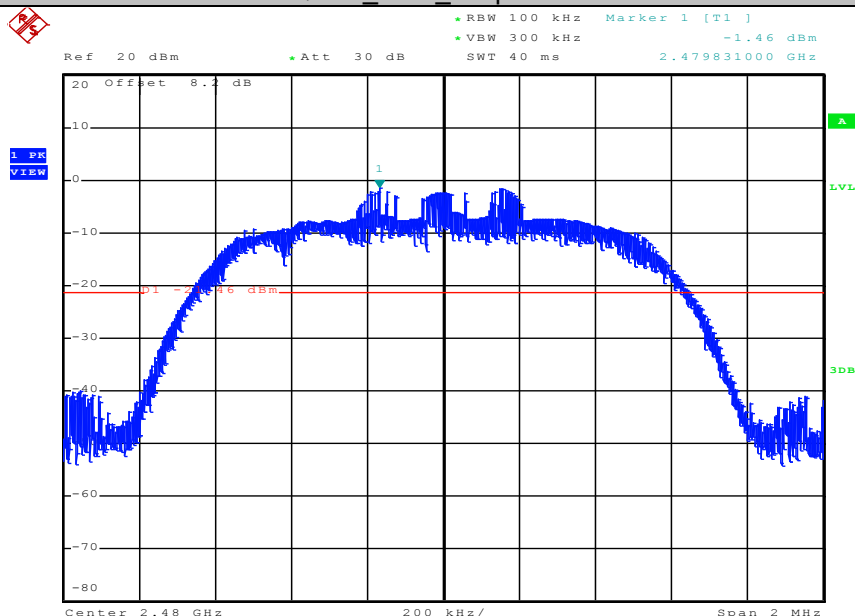
Puw



Date: 30.SEP.2019 11:22:41

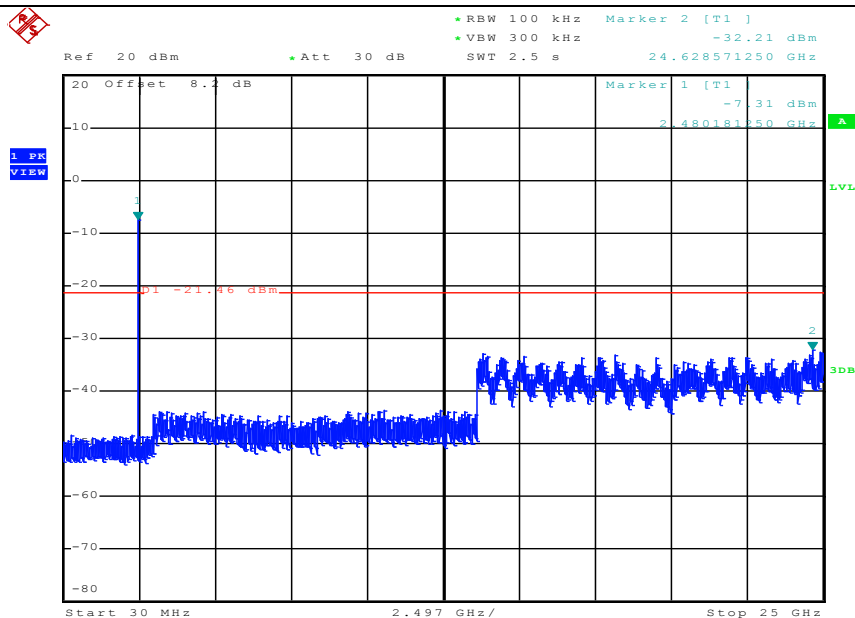
# $\pi/4$ DQPSK\_HCH\_Graphs

Pref



Date: 30.SEP.2019 11:25:05

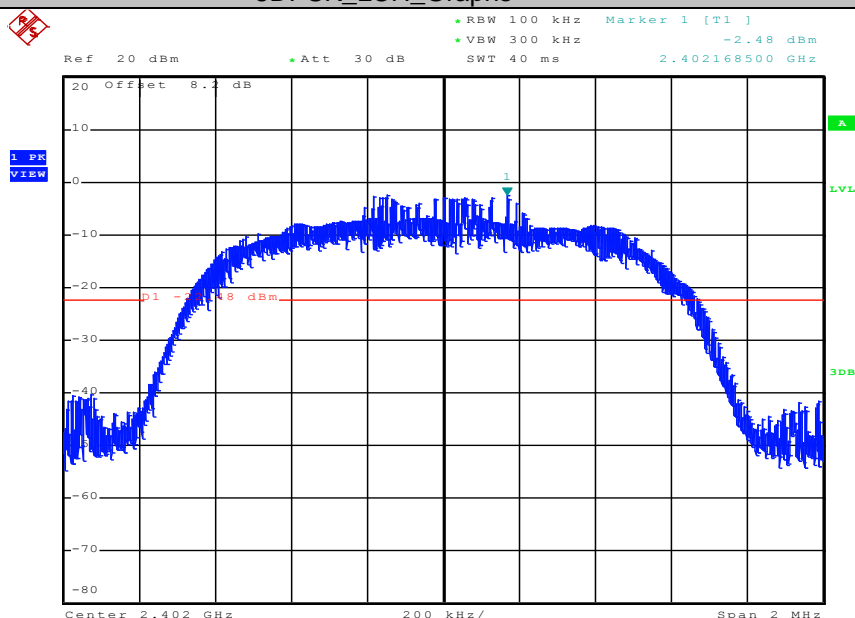
Puw



Date: 30.SEP.2019 11:25:19

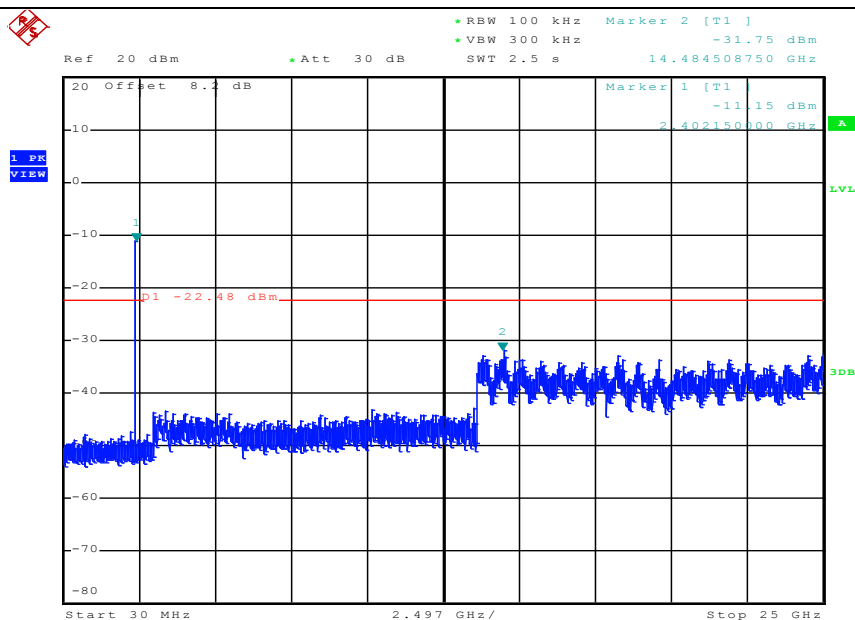
# 8DPSK\_LCH\_Graphs

Pref



Date: 30.SEP.2019 11:27:43

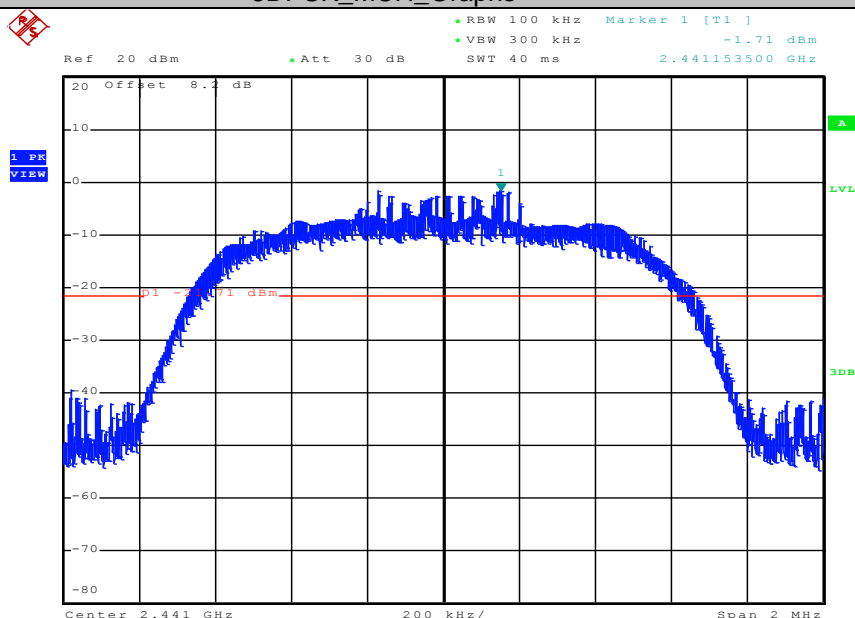
Puw



Date: 30.SEP.2019 11:27:57

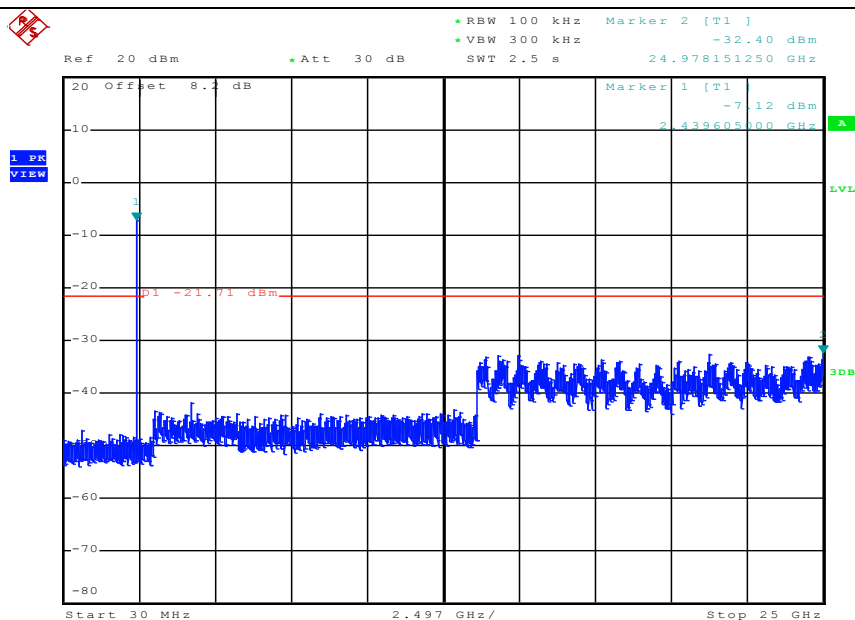
# 8DPSK\_MCH\_Graphs

Pref



Date: 30.SEP.2019 11:29:56

Puw

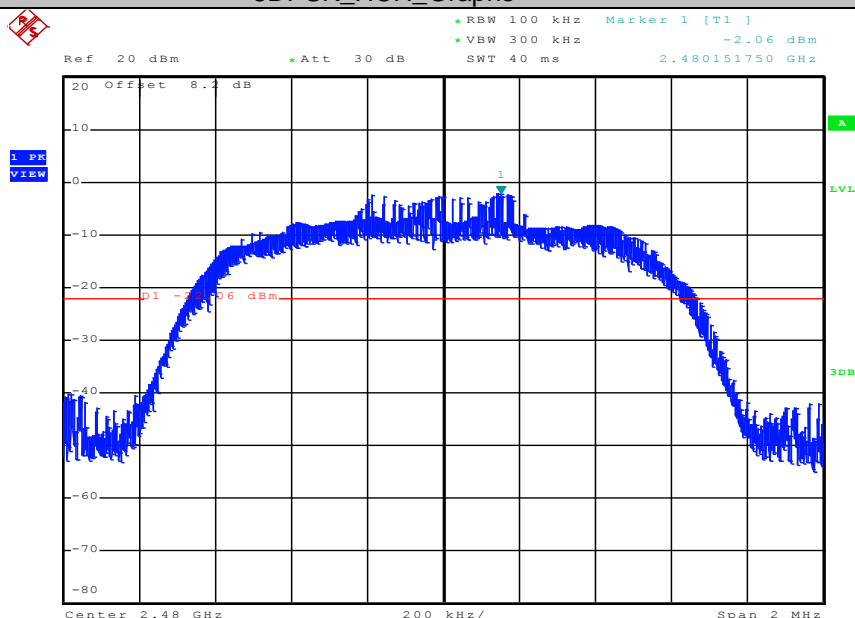


Date: 30.SEP.2019 11:30:11



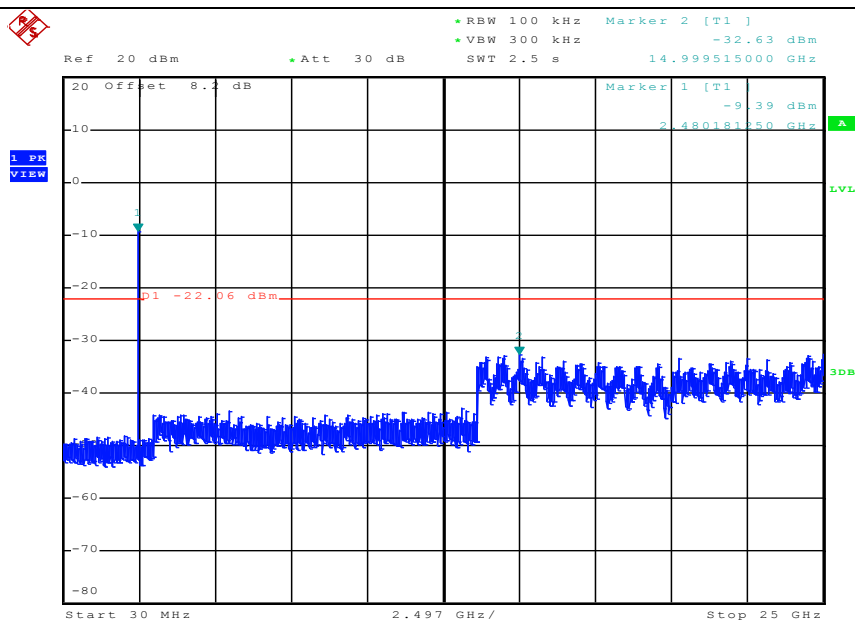
# 8DPSK\_HCH\_Graphs

Pref



Date: 30.SEP.2019 11:31:53

Puw



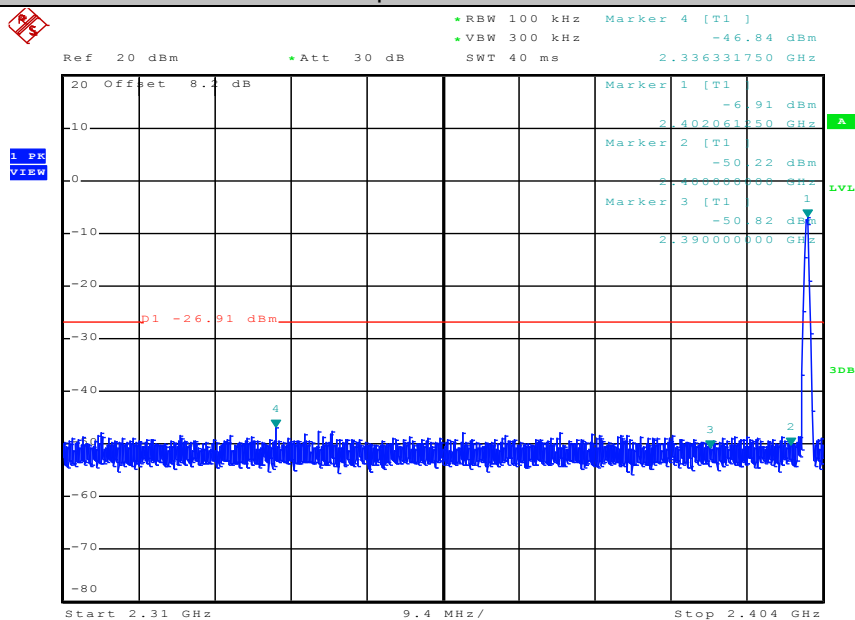
Date: 30.SEP.2019 11:32:07

## 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	-6.910	Off	-46.841	-26.91	PASS
			-5.280	On	-46.777	-25.28	PASS
	HCH	2480	-7.310	Off	-47.500	-27.31	PASS
			-5.600	On	-46.918	-25.6	PASS
$\pi$ /4DQPSK	LCH	2402	-1.760	Off	-47.370	-21.76	PASS
			-6.620	On	-46.594	-26.62	PASS
	HCH	2480	-2.070	Off	-47.221	-22.07	PASS
			-7.590	On	-46.801	-27.59	PASS
8DPSK	LCH	2402	-2.320	Off	-47.409	-22.32	PASS
			-7.210	On	-46.496	-27.21	PASS
	HCH	2480	-2.960	Off	-47.004	-22.96	PASS
			-7.870	On	-46.622	-27.87	PASS

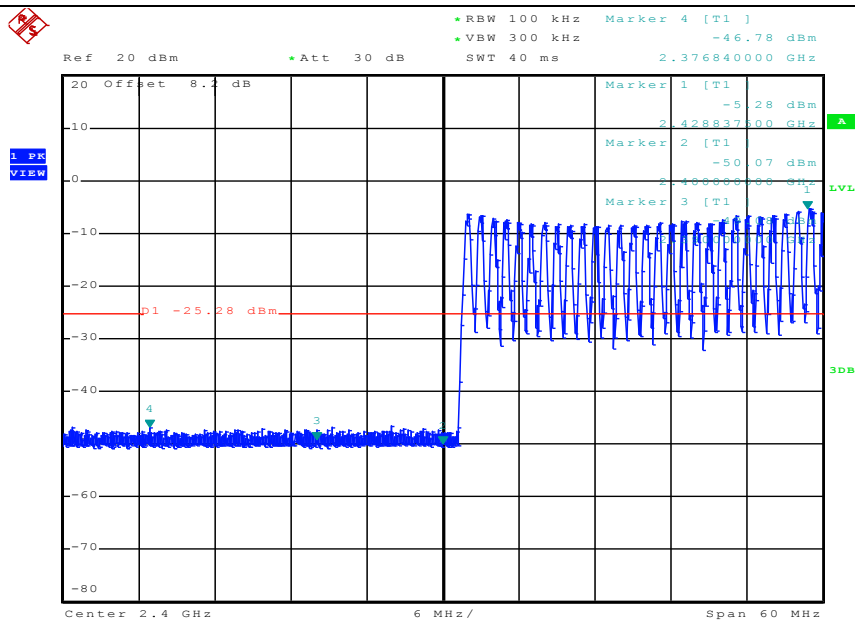
# Test Graphs

GFSK/LCH/No Hop



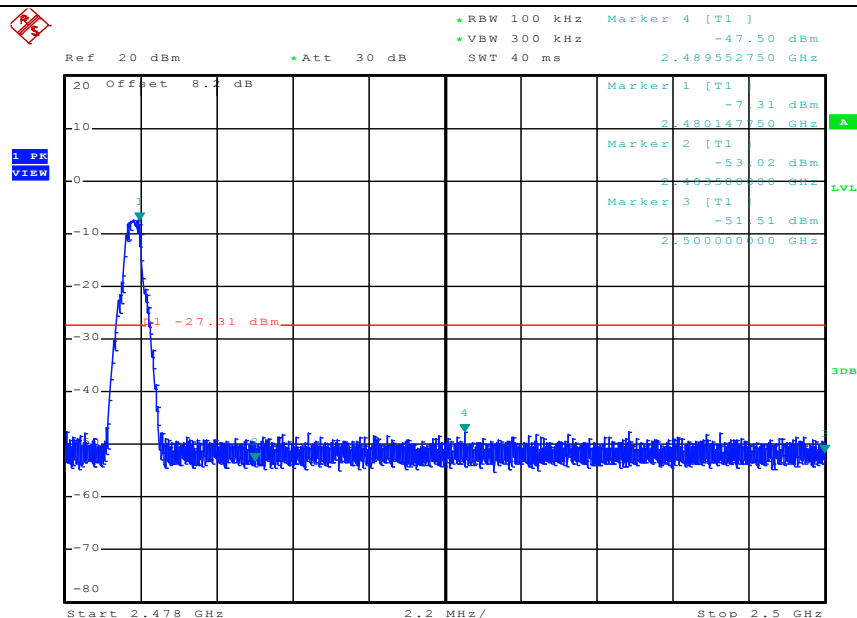
Date: 30.SEP.2019 11:06:23

GFSK/LCH/Hop



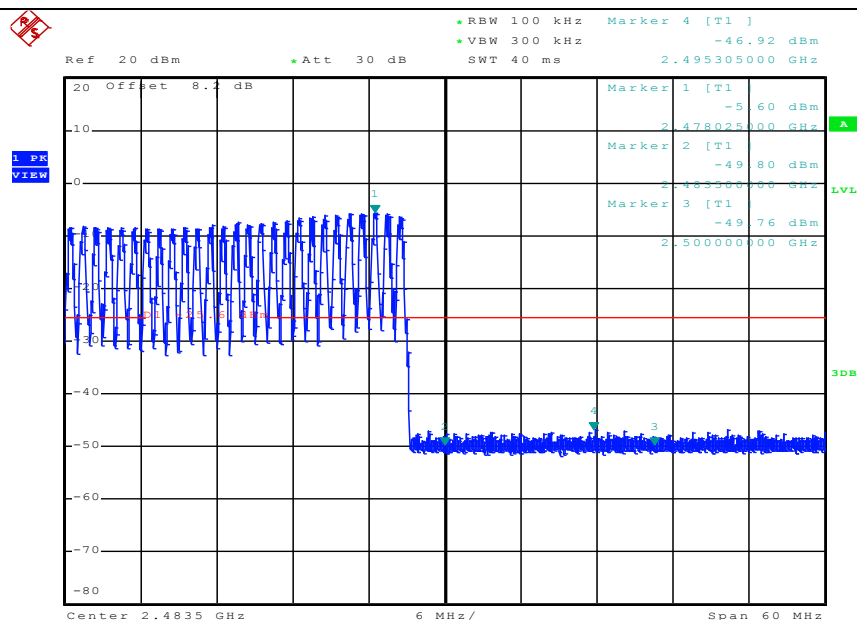
Date: 30.SEP.2019 10:39:13

GFSK/HCH/No Hop



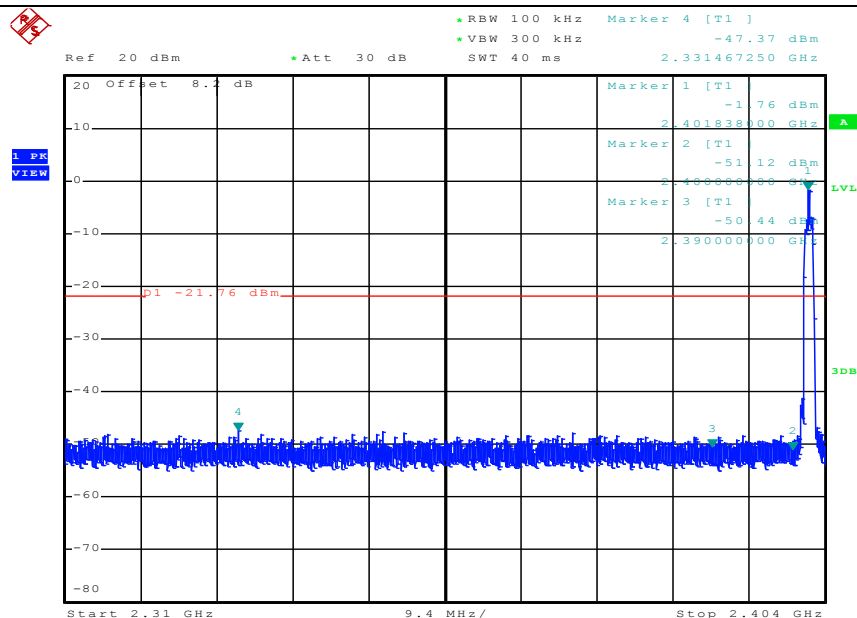
Date: 30.SEP.2019 11:13:24

GFSK/HCH/Hop



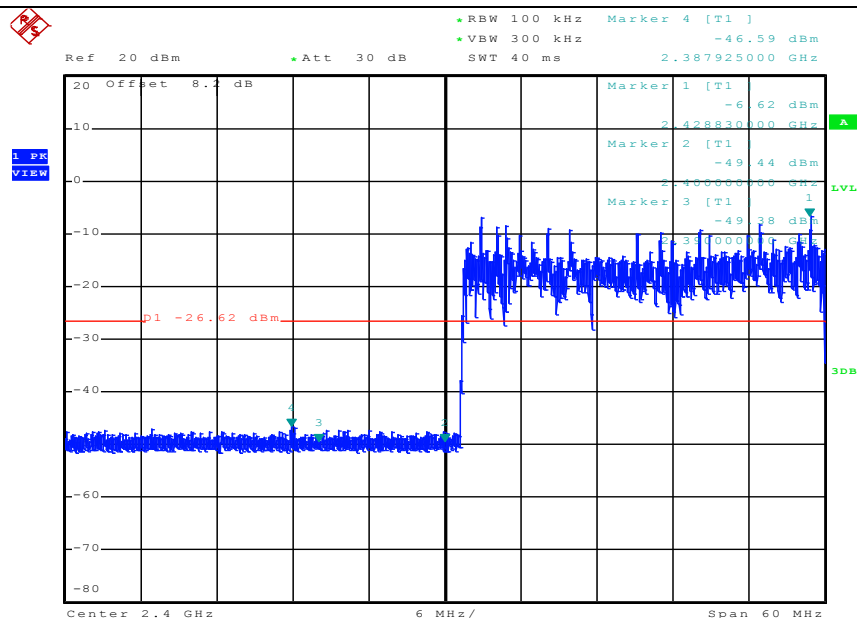
Date: 30.SEP.2019 10:43:54

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



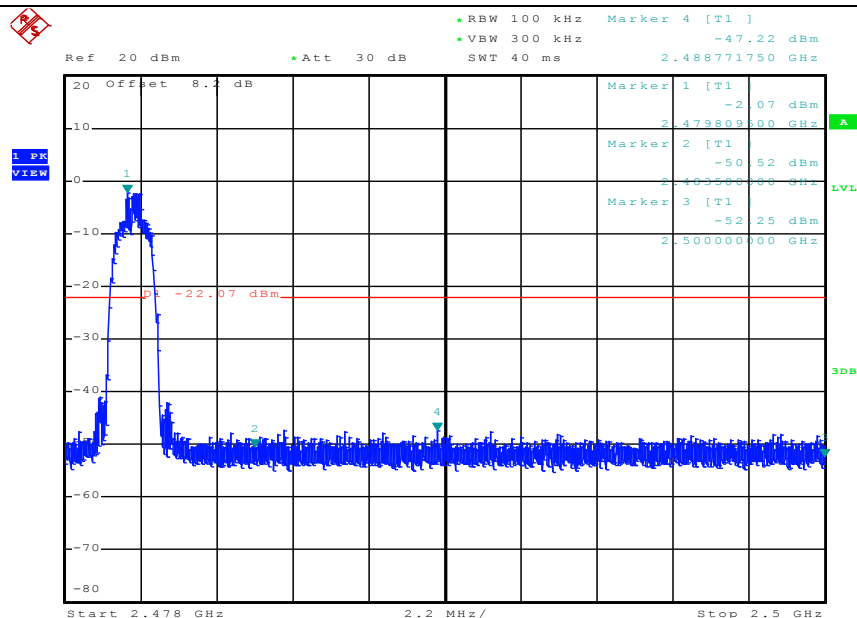
Date: 30.SEP.2019 11:20:02

$\pi/4$ DQPSK/LCH/Hop



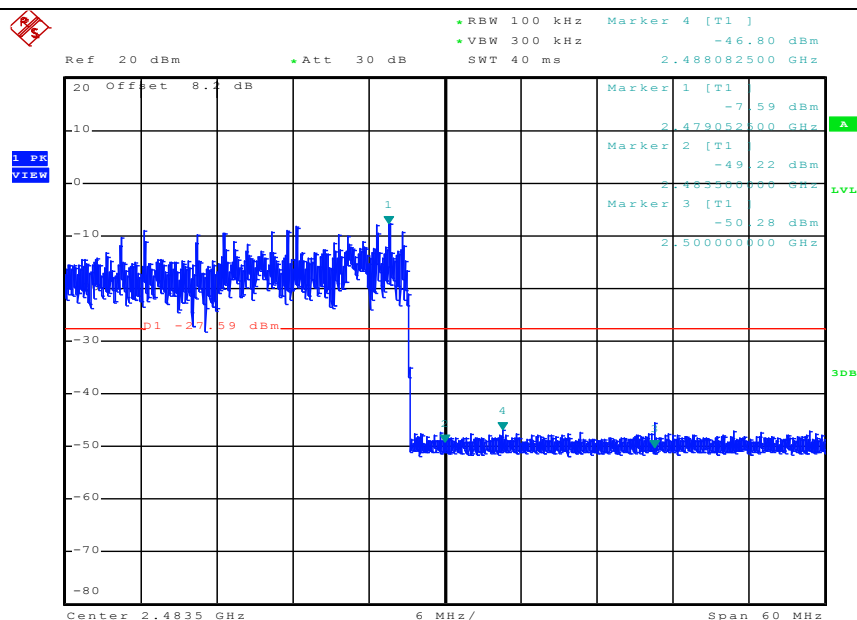
Date: 30.SEP.2019 10:50:00

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



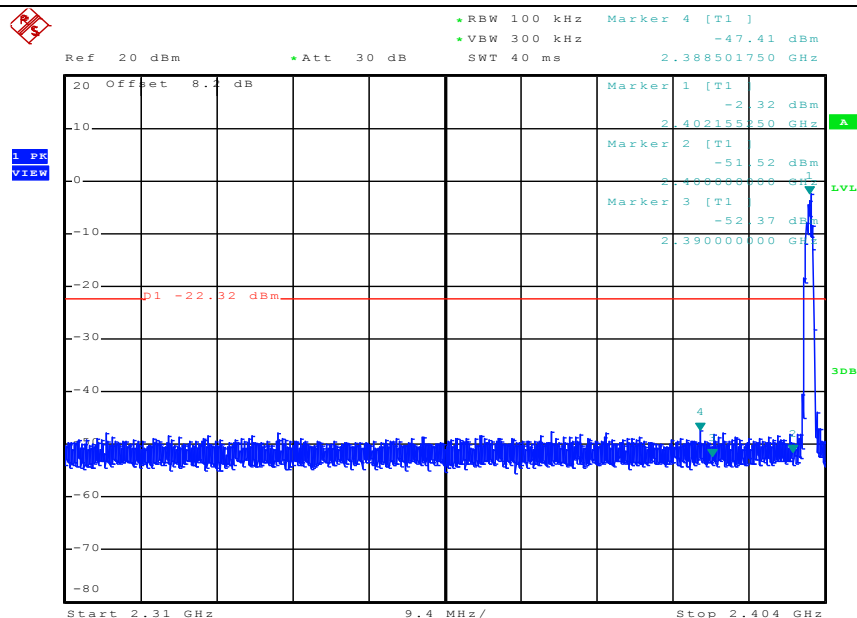
Date: 30.SEP.2019 11:24:52

$\pi/4$ DQPSK/HCH/Hop



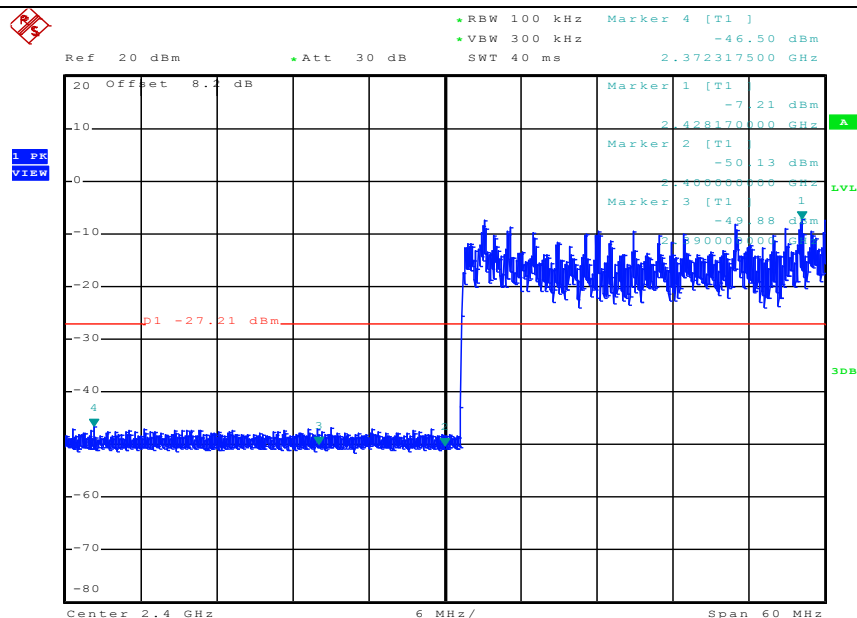
Date: 30.SEP.2019 10:53:19

8DPSK/LCH/No Hop



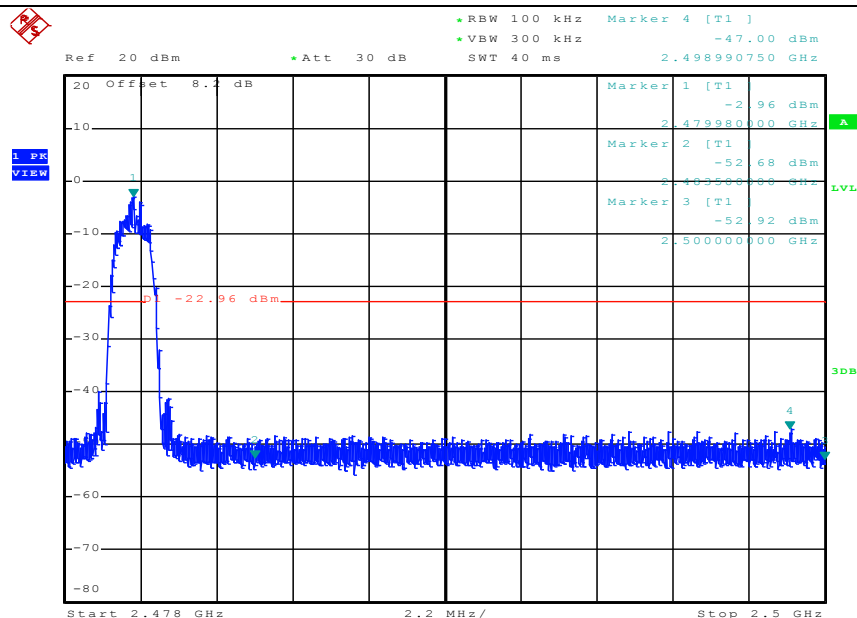
Date: 30.SEP.2019 11:27:30

8DPSK/LCH/Hop



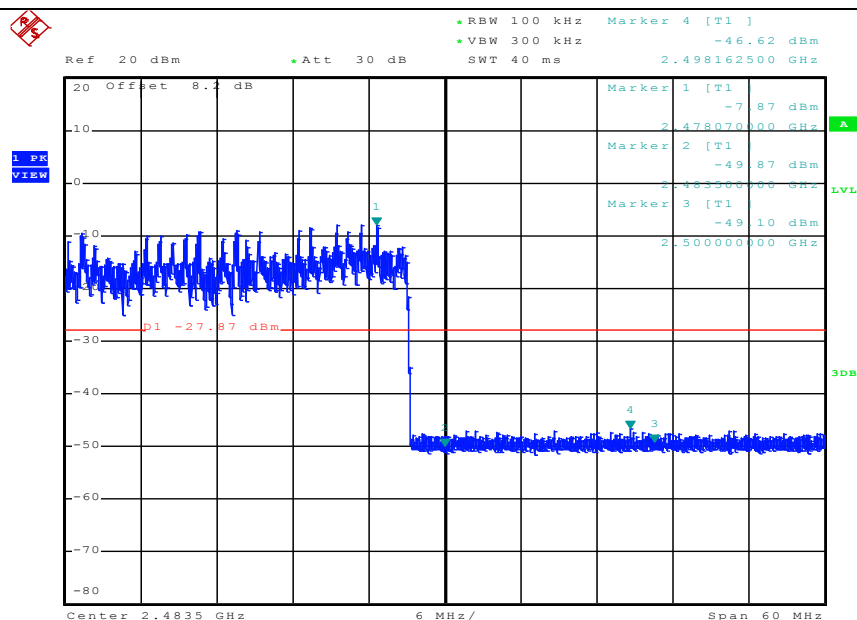
Date: 30.SEP.2019 10:59:11

8DPSK/HCH/No Hop



Date: 30.SEP.2019 11:31:40

8DPSK/HCH/Hop



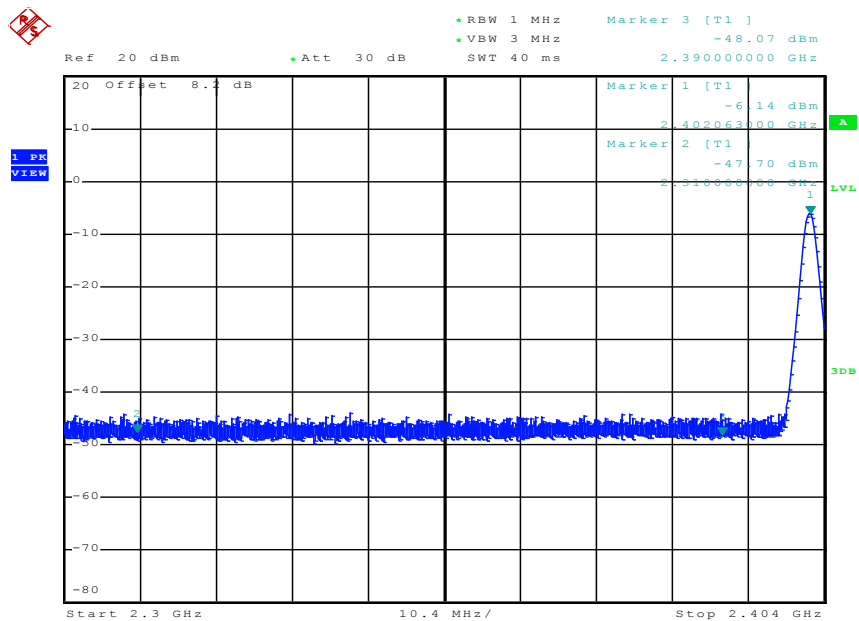
Date: 30.SEP.2019 11:02:36



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

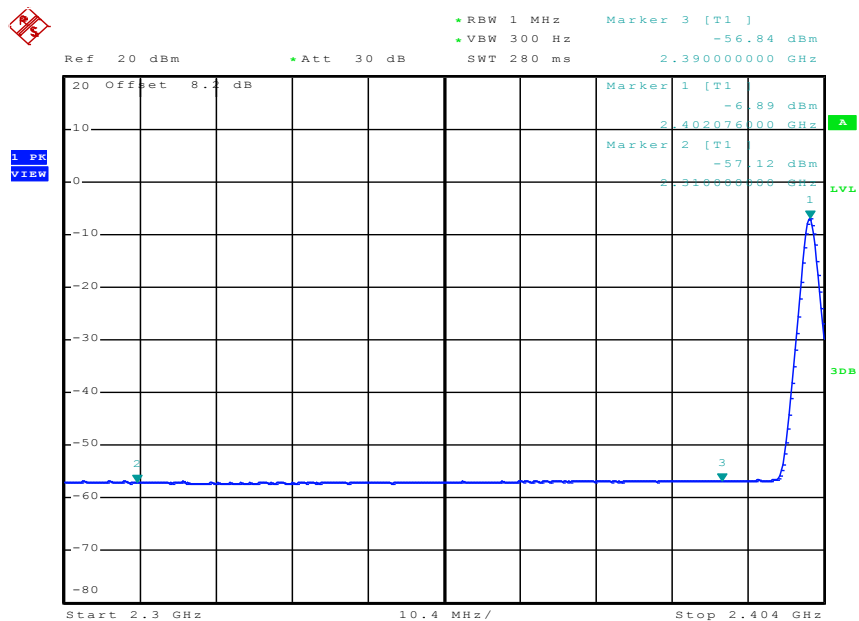
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-47.70	2.0	0	47.56	PEAK	74	PASS
	Off	2310.0	-57.12	2.0	0	38.14	AV	54	PASS
	Off	2390.0	-48.07	2.0	0	47.19	PEAK	74	PASS
	Off	2390.0	-56.84	2.0	0	38.42	AV	54	PASS
	Off	2483.5	-43.36	2.0	0	51.90	PEAK	74	PASS
	Off	2483.5	-48.60	2.0	0	46.66	AV	54	PASS
	Off	2500.0	-46.87	2.0	0	48.39	PEAK	74	PASS
	Off	2500.0	-57.37	2.0	0	37.89	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-47.11	2.0	0	48.15	PEAK	74	PASS
	Off	2310.0	-57.05	2.0	0	38.21	AV	54	PASS
	Off	2390.0	-47.53	2.0	0	47.73	PEAK	74	PASS
	Off	2390.0	-56.81	2.0	0	38.45	AV	54	PASS
	Off	2483.5	-39.61	2.0	0	55.65	PEAK	74	PASS
	Off	2483.5	-45.76	2.0	0	49.50	AV	54	PASS
	Off	2500.0	-47.23	2.0	0	48.03	PEAK	74	PASS
	Off	2500.0	-57.39	2.0	0	37.87	AV	54	PASS
8DPSK	Off	2310.0	-47.39	2.0	0	47.87	PEAK	74	PASS
	Off	2310.0	-57.09	2.0	0	38.17	AV	54	PASS
	Off	2390.0	-48.07	2.0	0	47.19	PEAK	74	PASS
	Off	2390.0	-56.81	2.0	0	38.45	AV	54	PASS
	Off	2483.5	-40.72	2.0	0	54.54	PEAK	74	PASS
	Off	2483.5	-46.15	2.0	0	49.11	AV	54	PASS
	Off	2500.0	-46.95	2.0	0	48.31	PEAK	74	PASS
	Off	2500.0	-57.40	2.0	0	37.86	AV	54	PASS

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



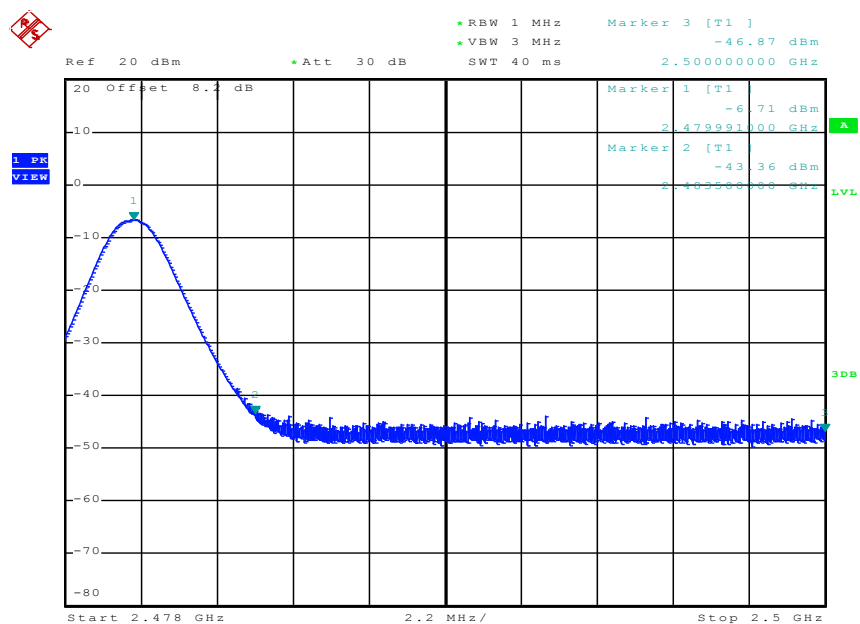
Date: 30.SEP.2019 11:07:10

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



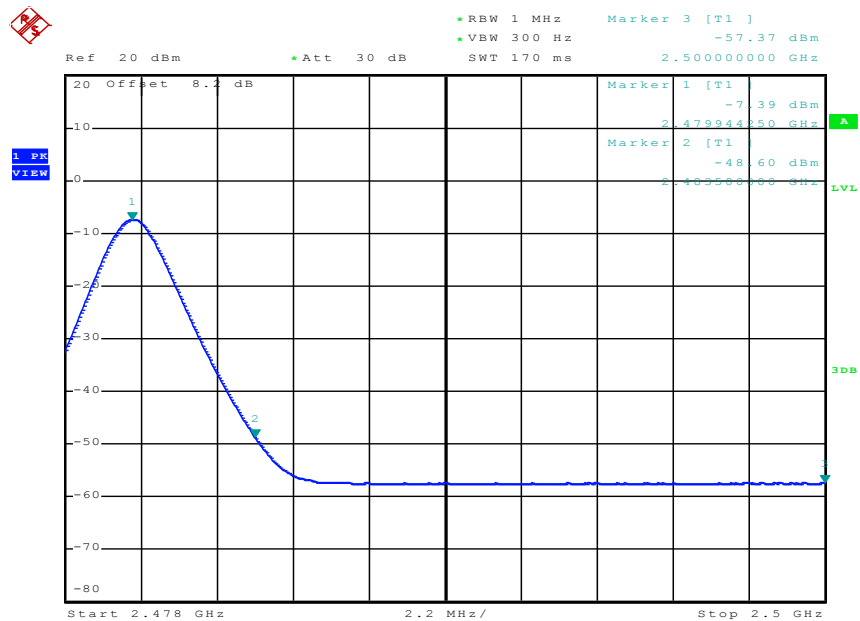
Date: 30.SEP.2019 11:07:23

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



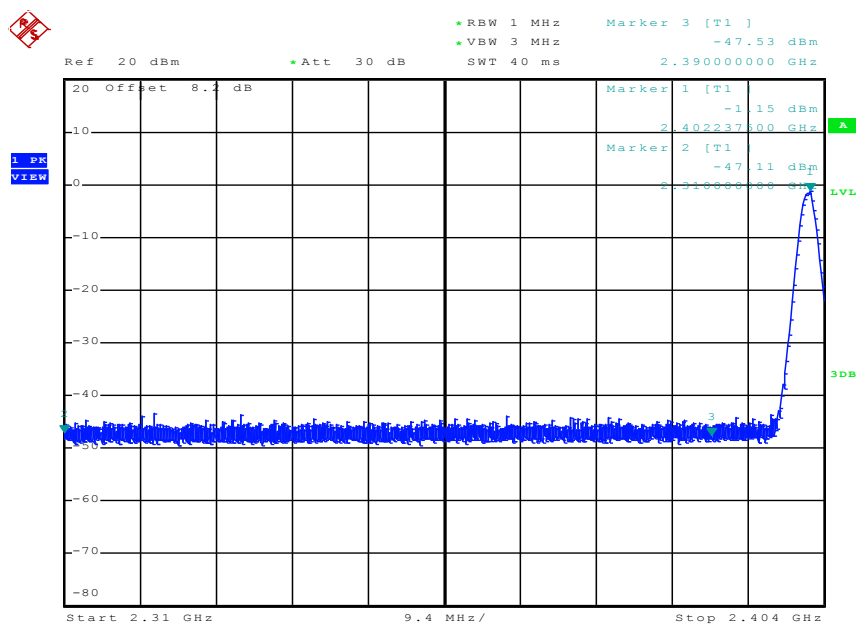
Date: 30.SEP.2019 11:14:10

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



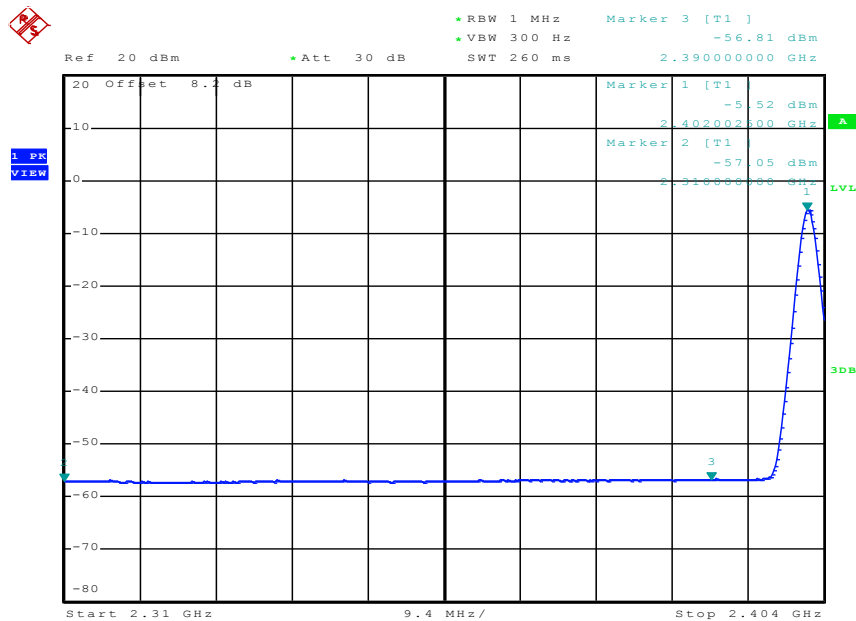
Date: 30.SEP.2019 11:14:23

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



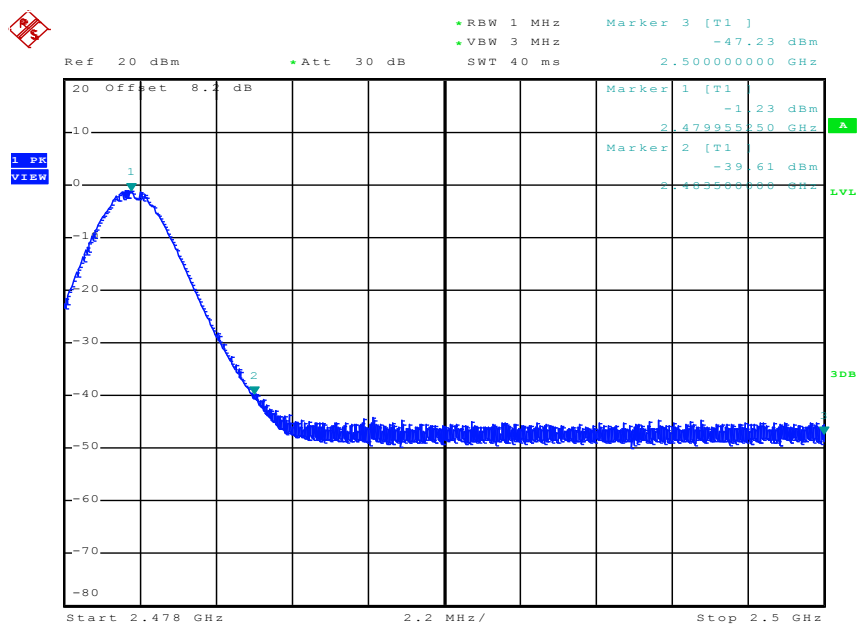
Date: 30.SEP.2019 11:20:49

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



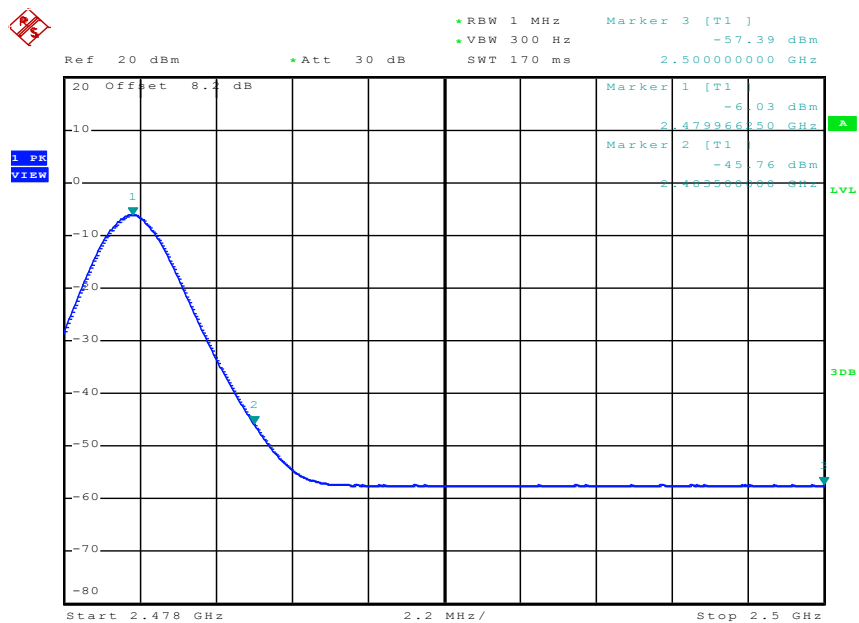
Date: 30.SEP.2019 11:21:02

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



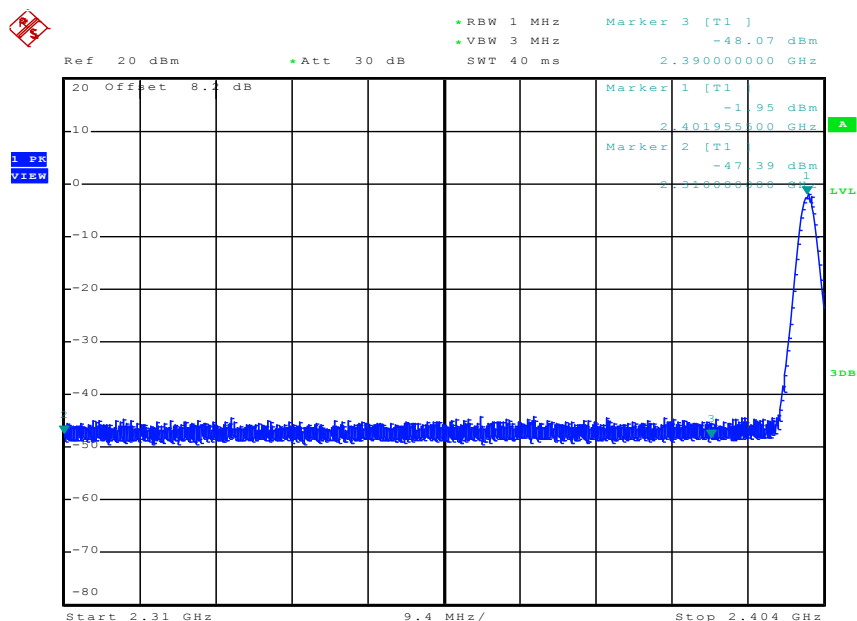
Date: 30.SEP.2019 11:25:38

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



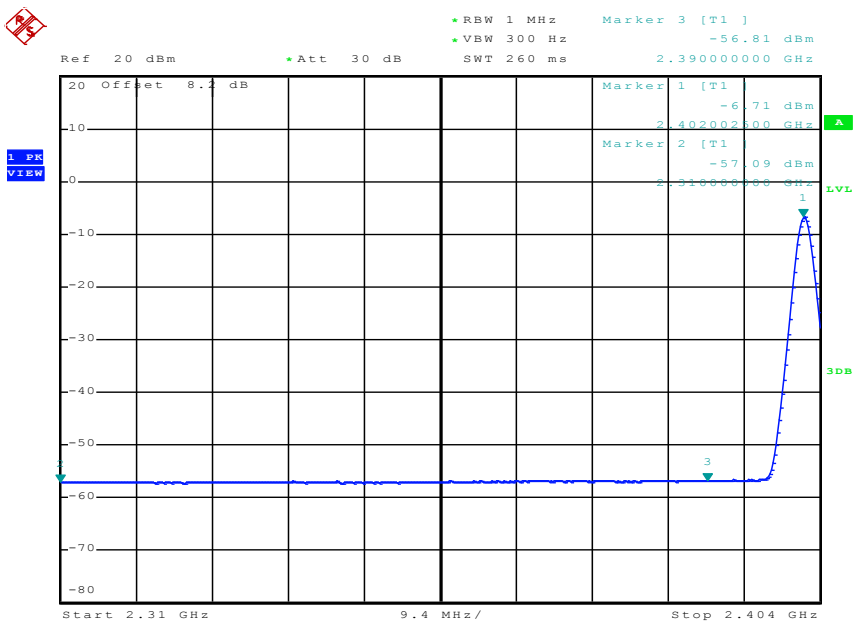
Date: 30.SEP.2019 11:25:51

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



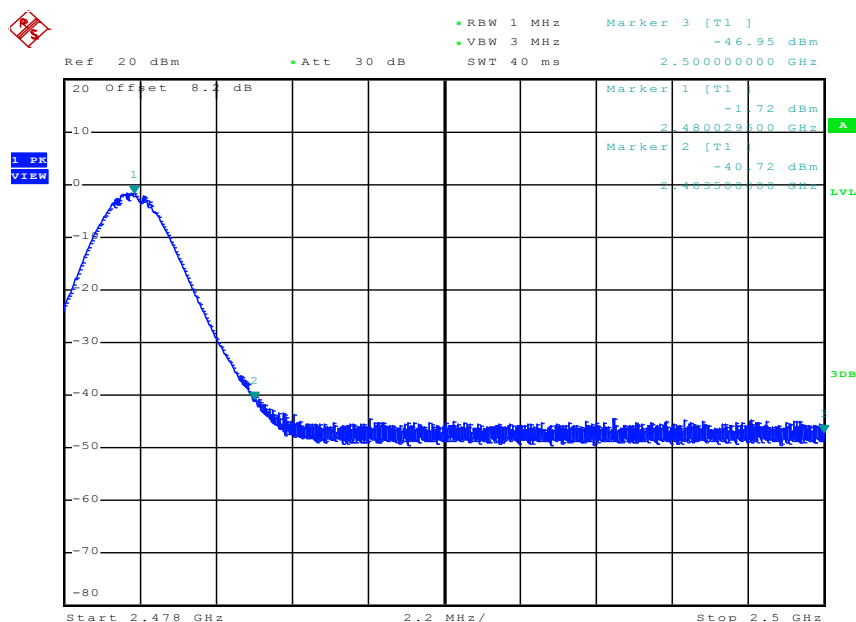
Date: 30.SEP.2019 11:28:16

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



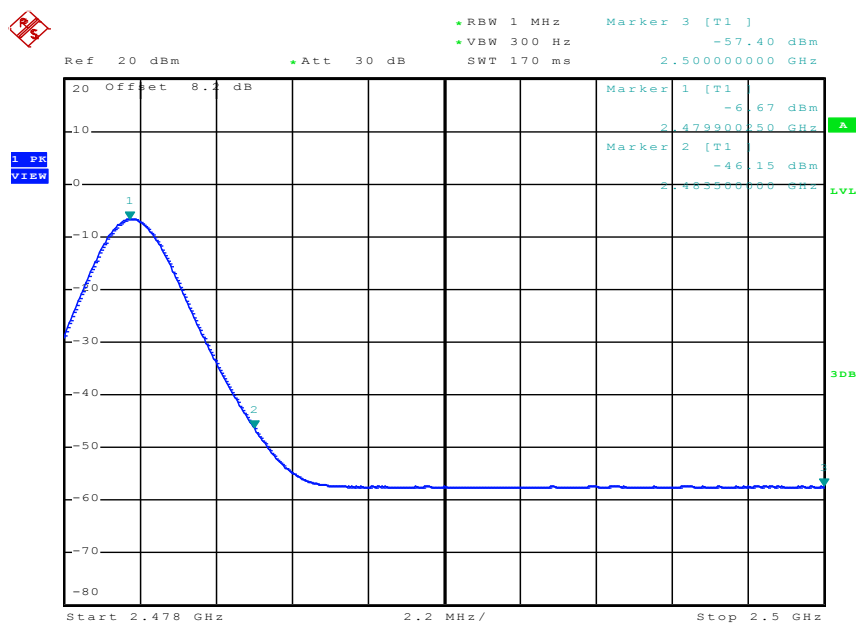
Date: 30.SEP.2019 11:28:30

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



Date: 30.SEP.2019 11:32:26

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



Date: 30.SEP.2019 11:32:39