

## Appendix A

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

Product Name: 720P smart Roku projector

Trade Mark: RCA

Test Model: RPJ133

#### Environmental Conditions

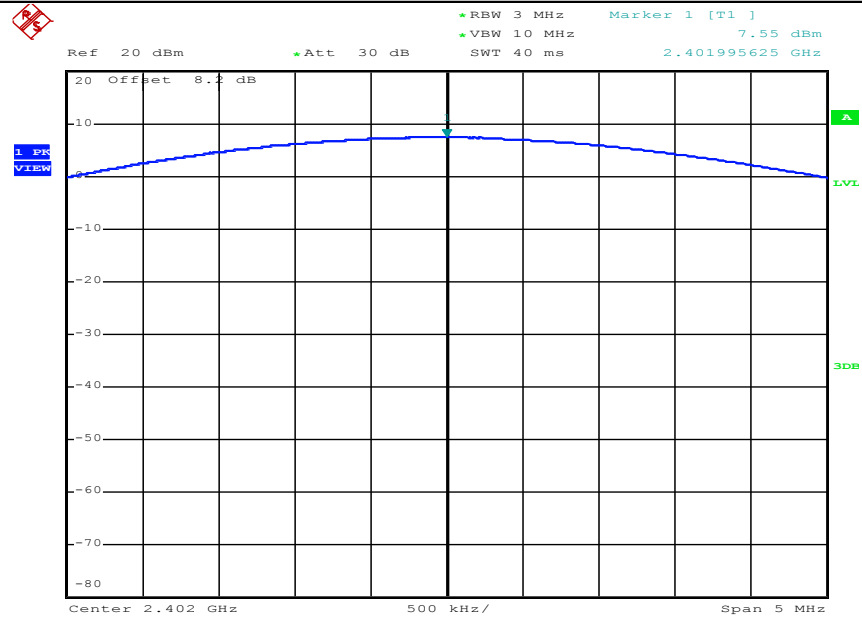
|                    |             |
|--------------------|-------------|
| Temperature:       | 24.6 ° C    |
| Relative Humidity: | 52.8%       |
| ATM Pressure:      | 100.0 kPa   |
| Test Engineer:     | JK ZHOU     |
| Supervised by:     | Wang.Chuang |

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

| Mode          | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------|----------|---------------------------------|-------------|---------|
| GFSK          | LCH      | 7.550                           | 21          | PASS    |
|               | MCH      | 6.750                           | 21          | PASS    |
|               | HCH      | 7.330                           | 21          | PASS    |
| $\pi/4$ DQPSK | LCH      | 6.720                           | 21          | PASS    |
|               | MCH      | 5.660                           | 21          | PASS    |
|               | HCH      | 6.510                           | 21          | PASS    |
| 8DPSK         | LCH      | 6.720                           | 21          | PASS    |
|               | MCH      | 6.630                           | 21          | PASS    |
|               | HCH      | 6.480                           | 21          | PASS    |

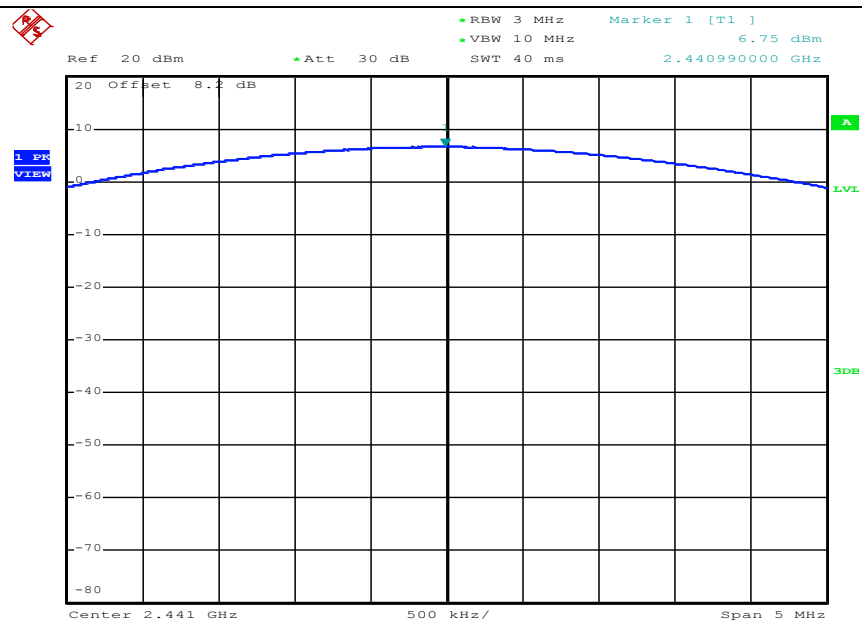
# Test Graphs

GFSK/LCH



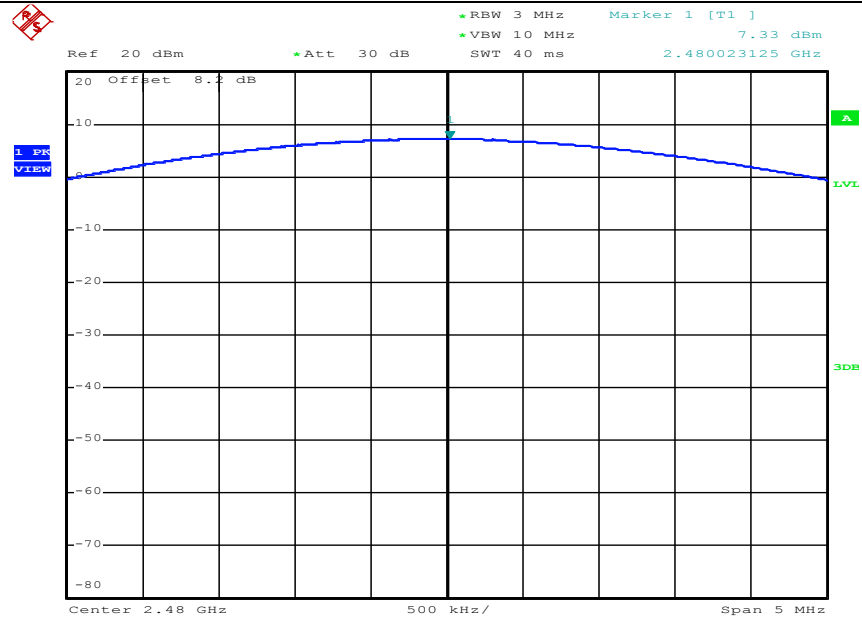
Date: 10.AUG.2019 18:31:48

GFSK/MCH



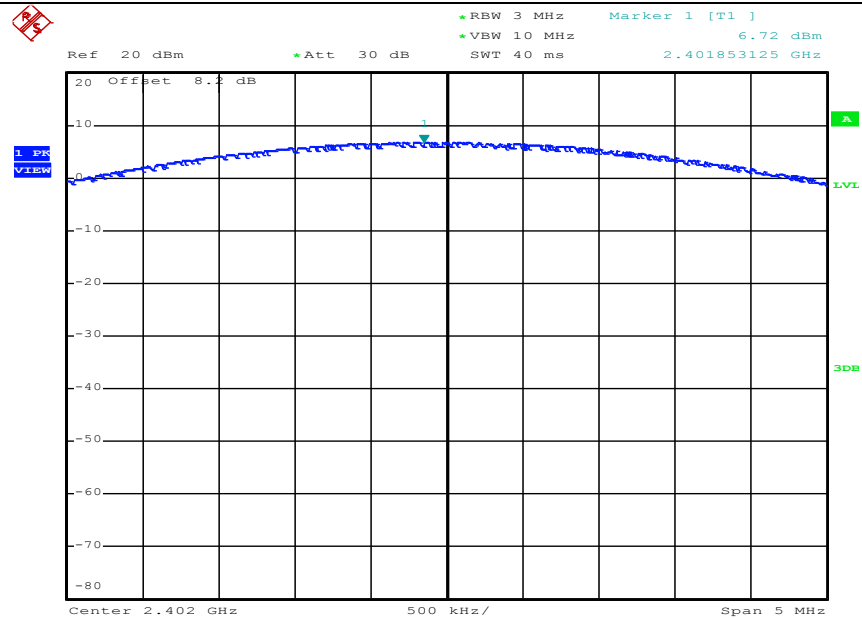
Date: 10.AUG.2019 18:34:29

GFSK/HCH



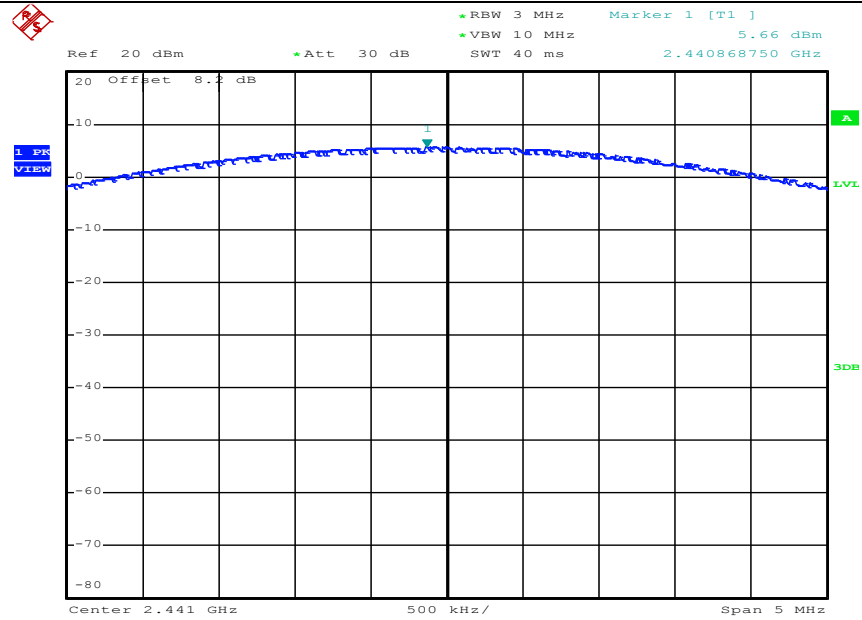
Date: 10.AUG.2019 18:36:24

$\pi/4$ DQPSK/LCH



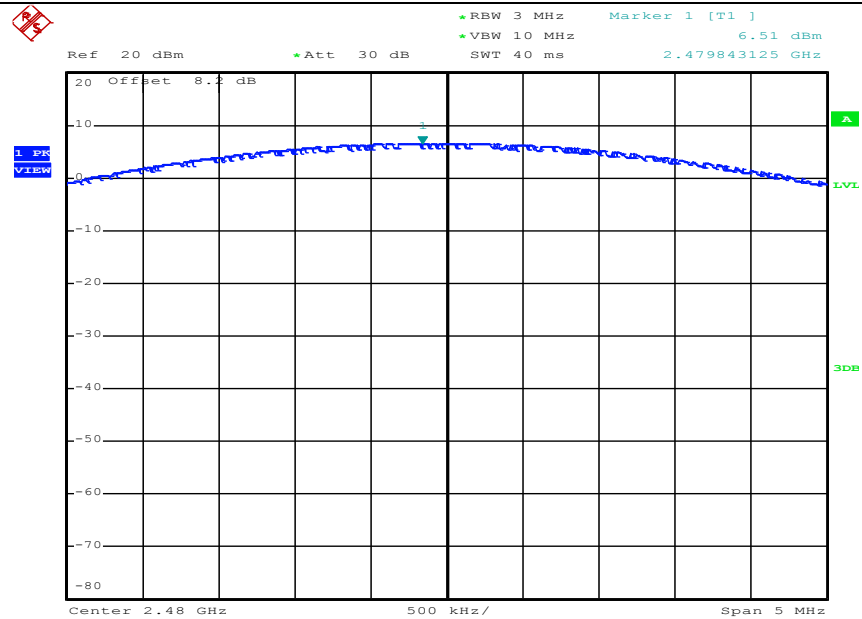
Date: 10.AUG.2019 18:42:00

$\pi/4$ DQPSK/MCH



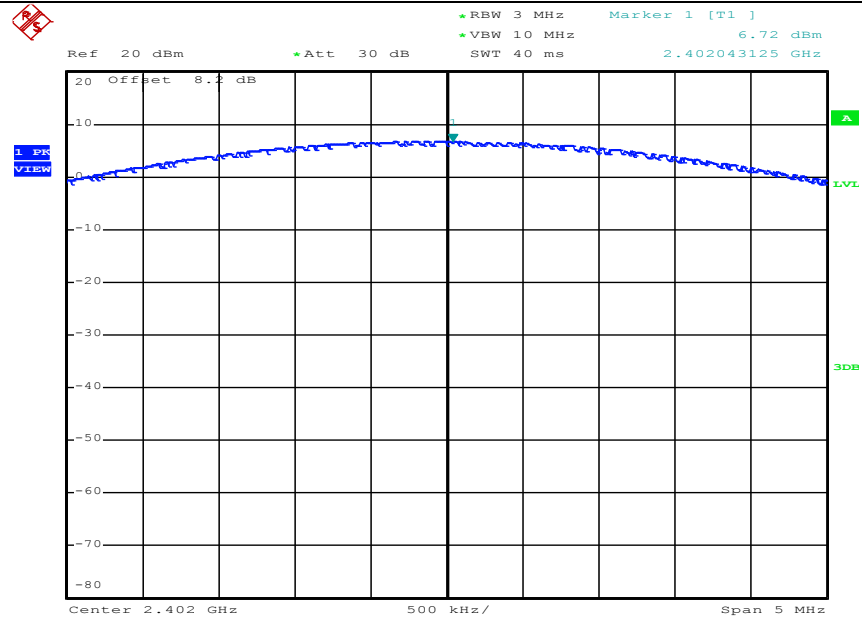
Date: 10.AUG.2019 18:44:55

$\pi/4$ DQPSK/HCH



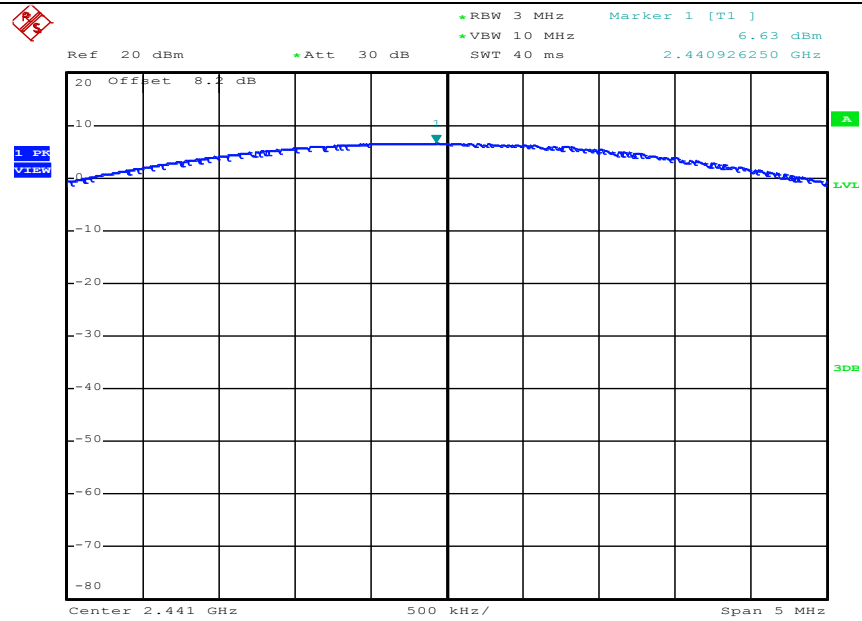
Date: 10.AUG.2019 18:46:34

8DPSK/LCH



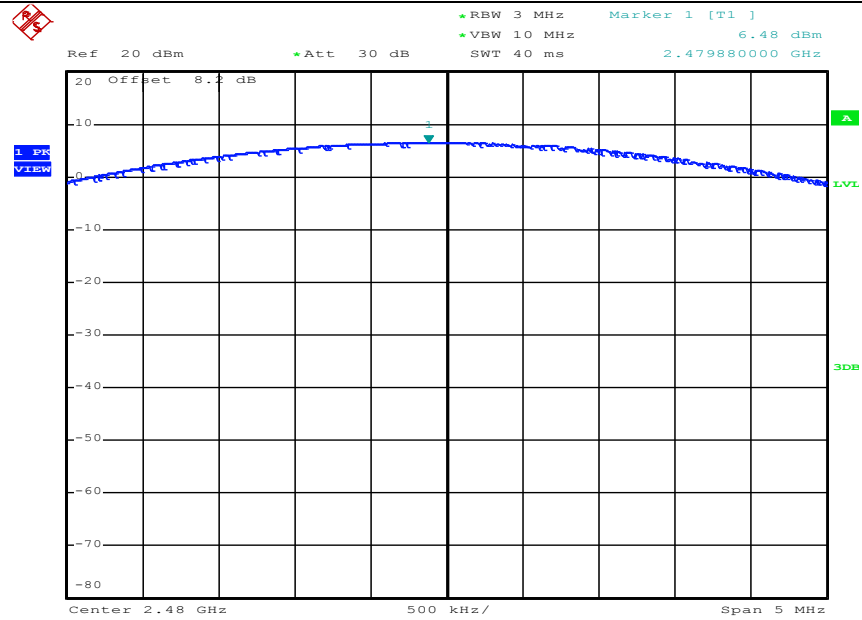
Date: 10.AUG.2019 18:49:23

8DPSK/MCH



Date: 10.AUG.2019 18:51:48

8DPSK/HCH



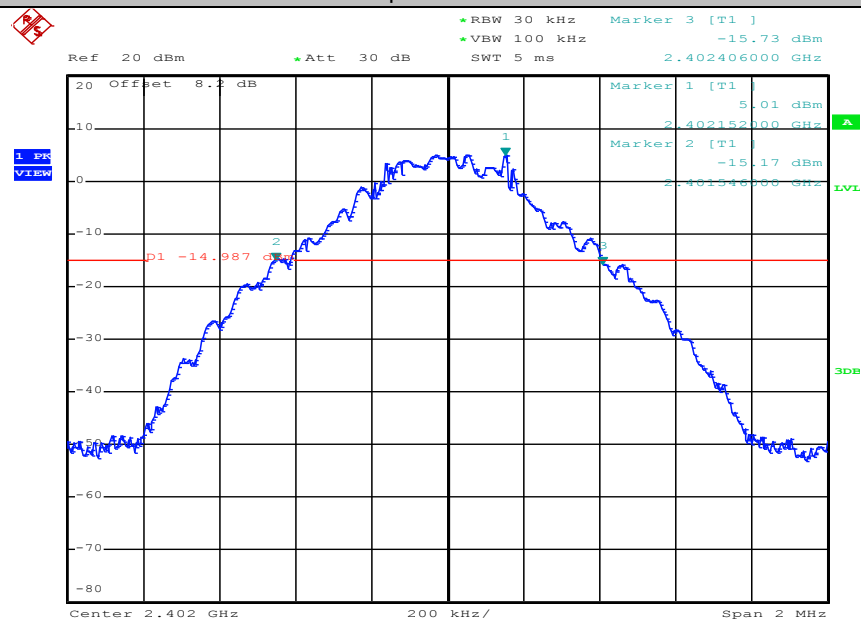
Date: 10.AUG.2019 18:54:14

## A.2 20dB Bandwidth

| Mode          | Channel. | 20dB Bandwidth [MHz] | Limit [MHz]   | Verdict |
|---------------|----------|----------------------|---------------|---------|
| GFSK          | LCH      | 0.860                | Not Specified | PASS    |
|               | MCH      | 0.862                | Not Specified | PASS    |
|               | HCH      | 0.858                | Not Specified | PASS    |
| $\pi/4$ DQPSK | LCH      | 1.260                | Not Specified | PASS    |
|               | MCH      | 1.272                | Not Specified | PASS    |
|               | HCH      | 1.260                | Not Specified | PASS    |
| 8DPSK         | LCH      | 1.258                | Not Specified | PASS    |
|               | MCH      | 1.254                | Not Specified | PASS    |
|               | HCH      | 1.258                | Not Specified | PASS    |

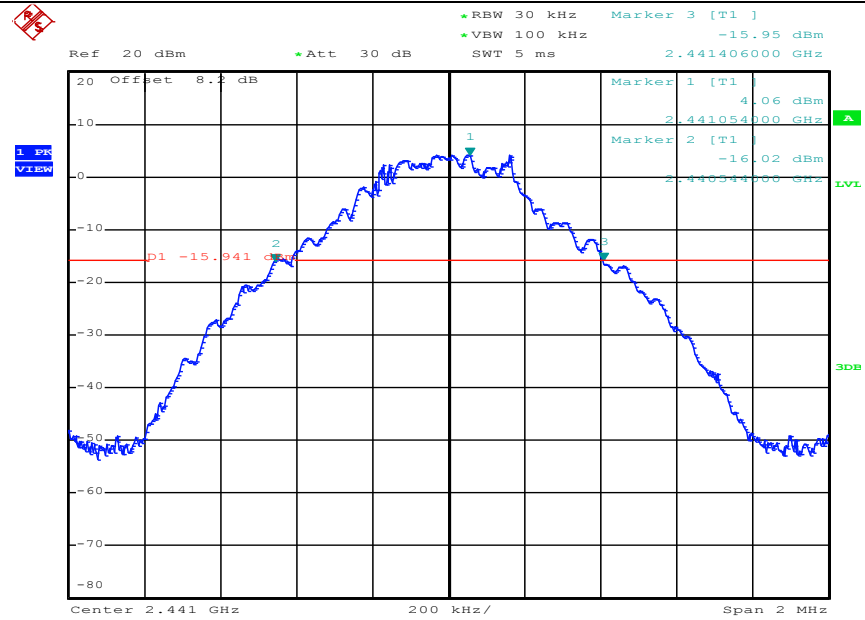
Test Graphs

GFSK/LCH



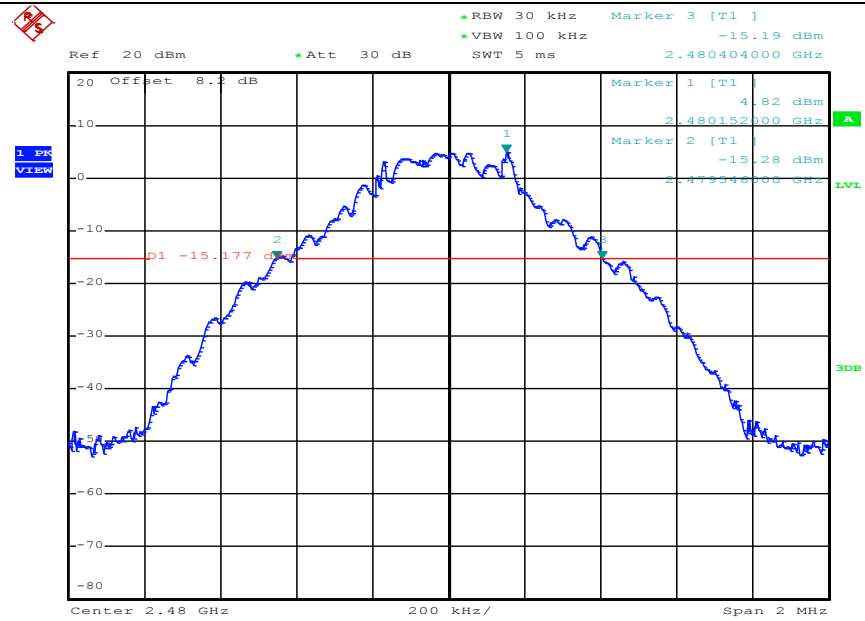
Date: 10.AUG.2019 18:31:11

GFSK/MCH



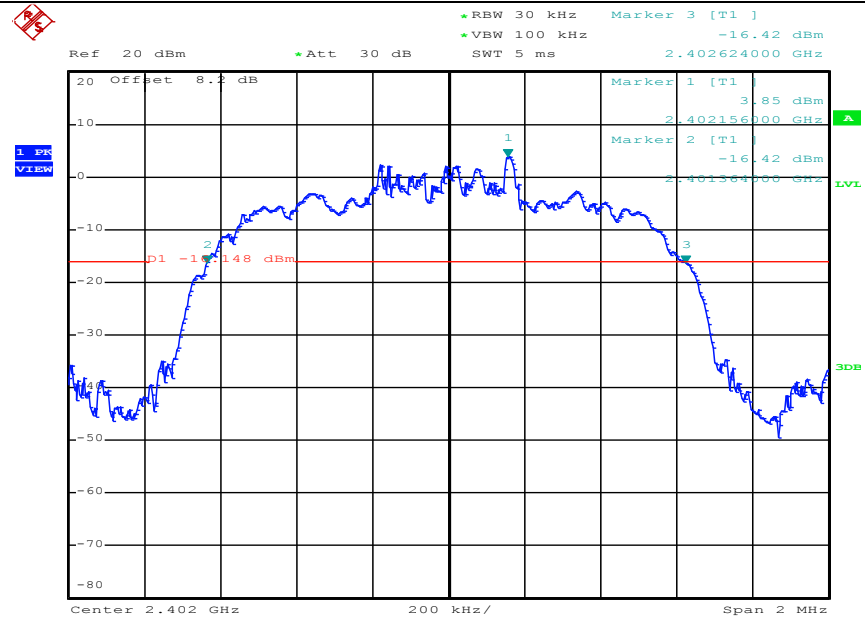
Date: 10.AUG.2019 18:33:53

GFSK/HCH



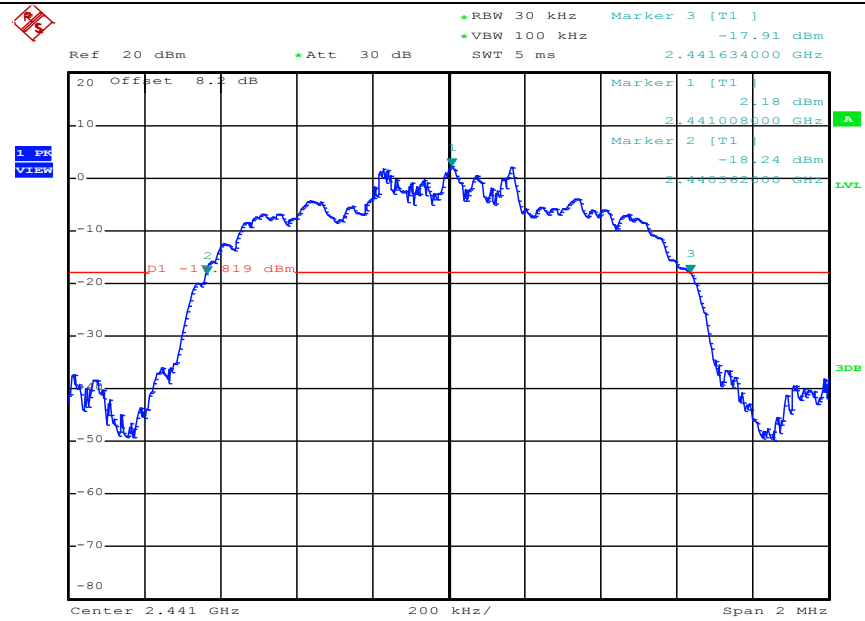
Date: 10.AUG.2019 18:35:48

$\pi/4$ DQPSK/LCH



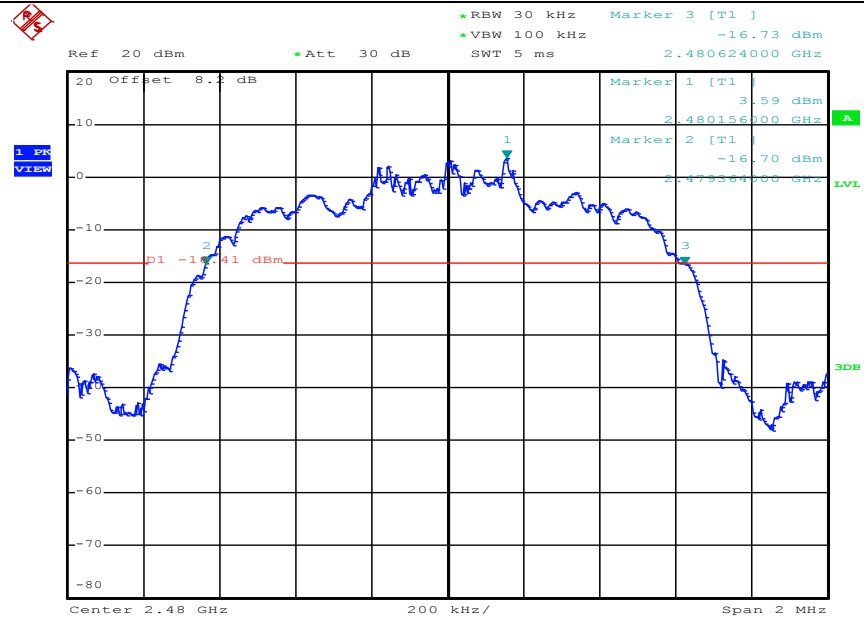
Date: 10.AUG.2019 18:41:23

$\pi/4$ DQPSK/MCH



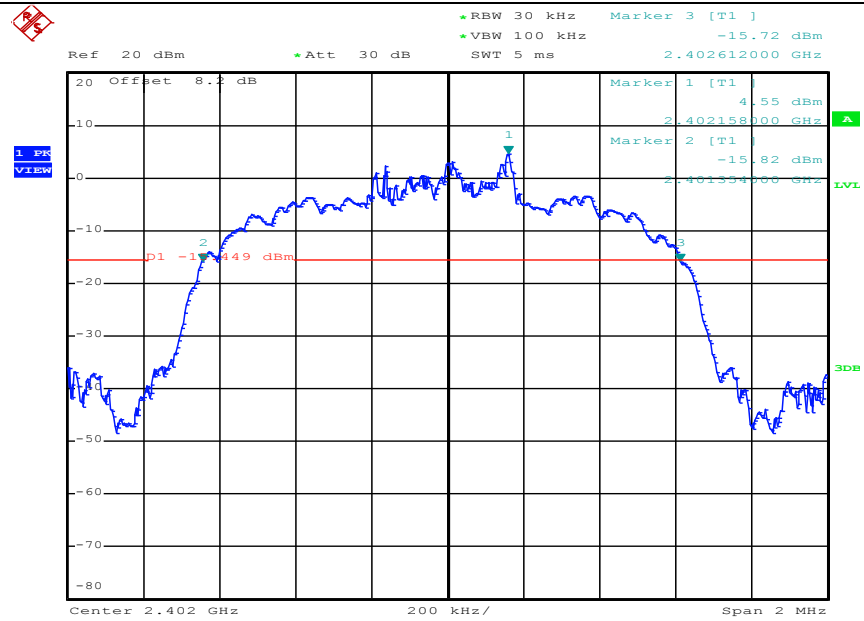
Date: 10.AUG.2019 18:44:21

$\pi/4$ DQPSK/HCH



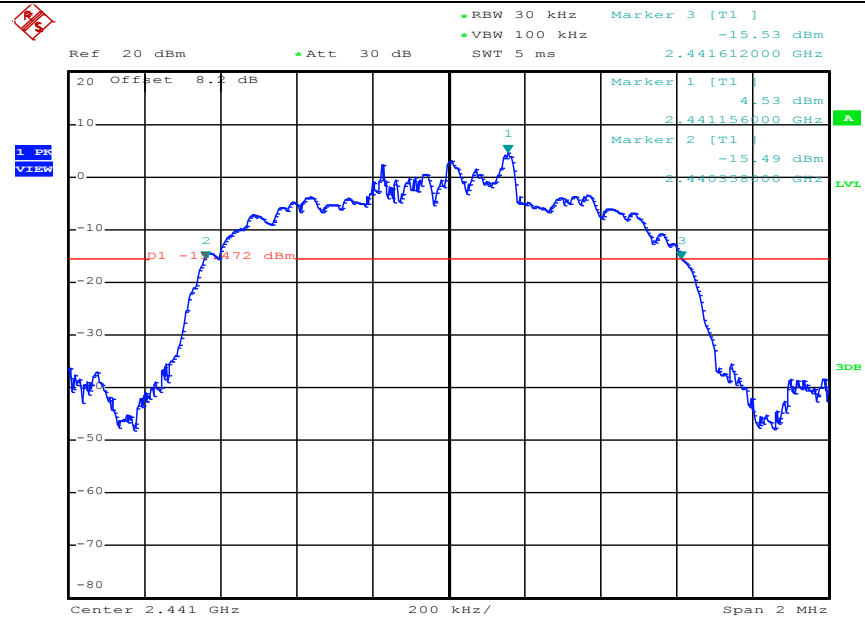
Date: 10.AUG.2019 18:46:00

8DPSK/LCH



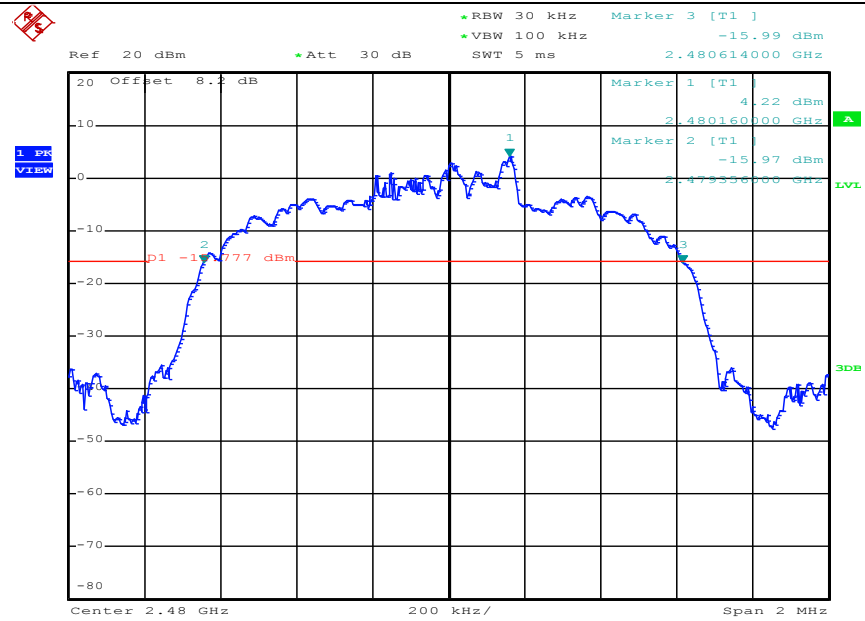
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8DPSK/MCH



Date: 10.AUG.2019 18:51:14

8DPSK/HCH



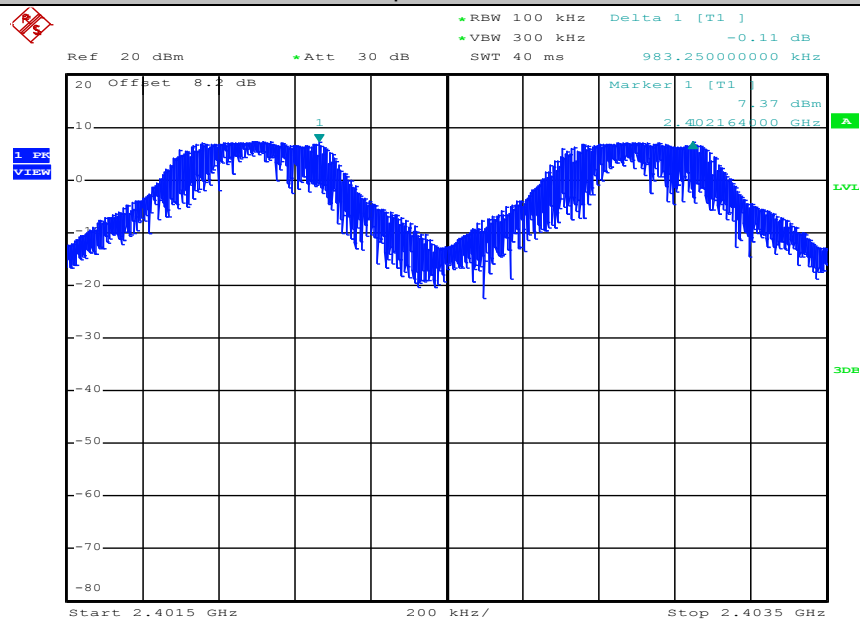
Date: 10.AUG.2019 18:53:40

### A.3 Carrier Frequency Separation

| Mode          | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK          | LCH      | 0.983                              | 0.575       | PASS    |
|               | MCH      | 0.946                              | 0.575       | PASS    |
|               | HCH      | 0.928                              | 0.575       | PASS    |
| $\pi/4$ DQPSK | LCH      | 0.944                              | 0.848       | PASS    |
|               | MCH      | 1.114                              | 0.848       | PASS    |
|               | HCH      | 1.152                              | 0.848       | PASS    |
| 8DPSK         | LCH      | 1.204                              | 0.839       | PASS    |
|               | MCH      | 0.884                              | 0.839       | PASS    |
|               | HCH      | 1.300                              | 0.839       | PASS    |

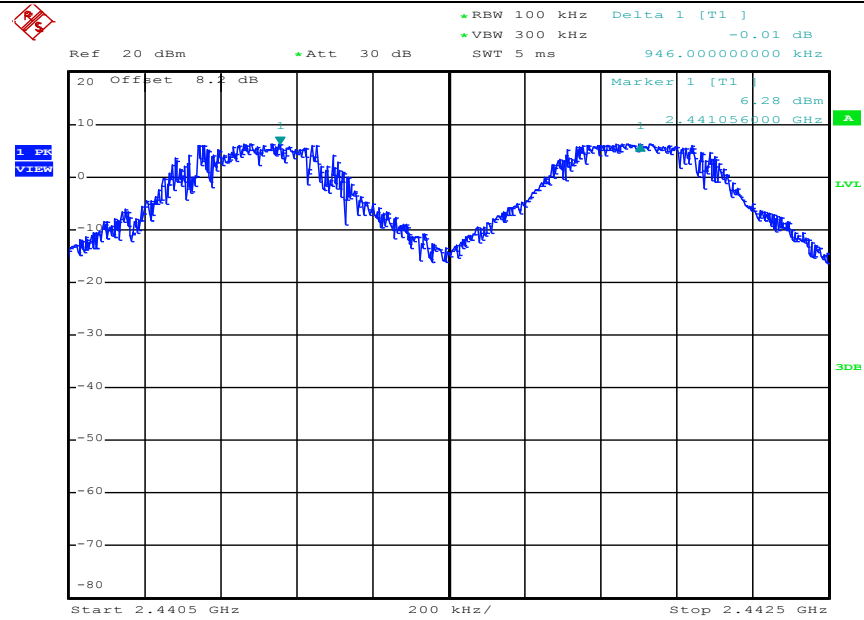
#### Test Graphs

GFSK/LCH



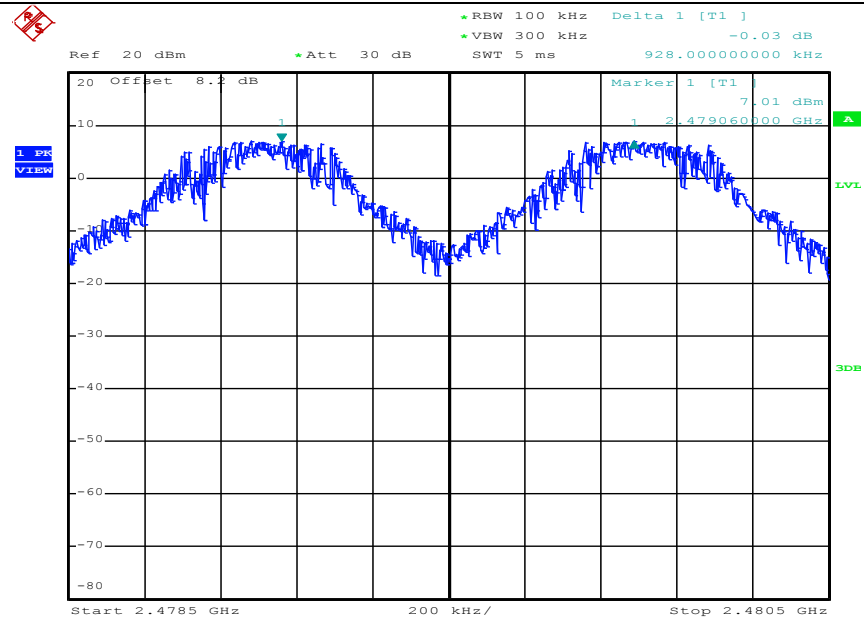
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GFSK/MCH



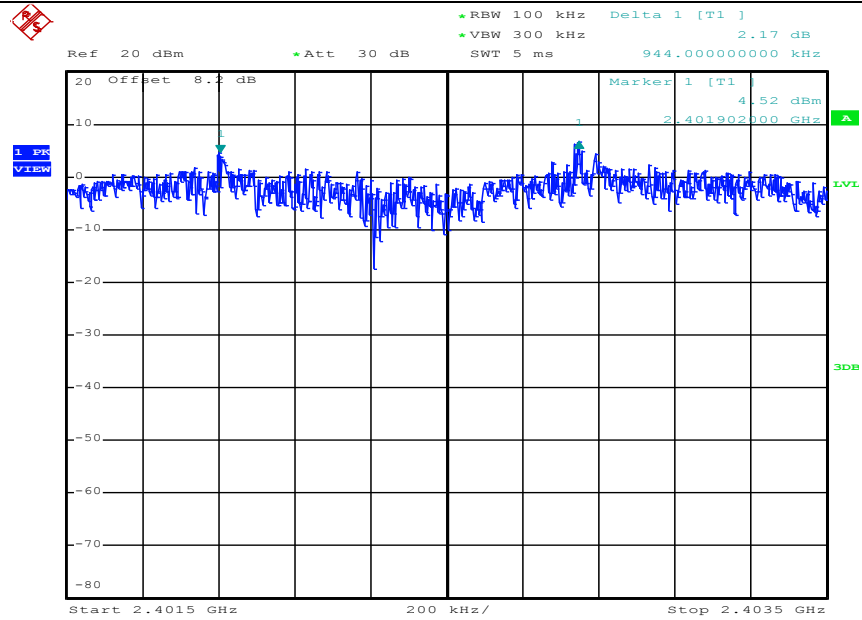
Date: 10.AUG.2019 19:19:58

GFSK/HCH



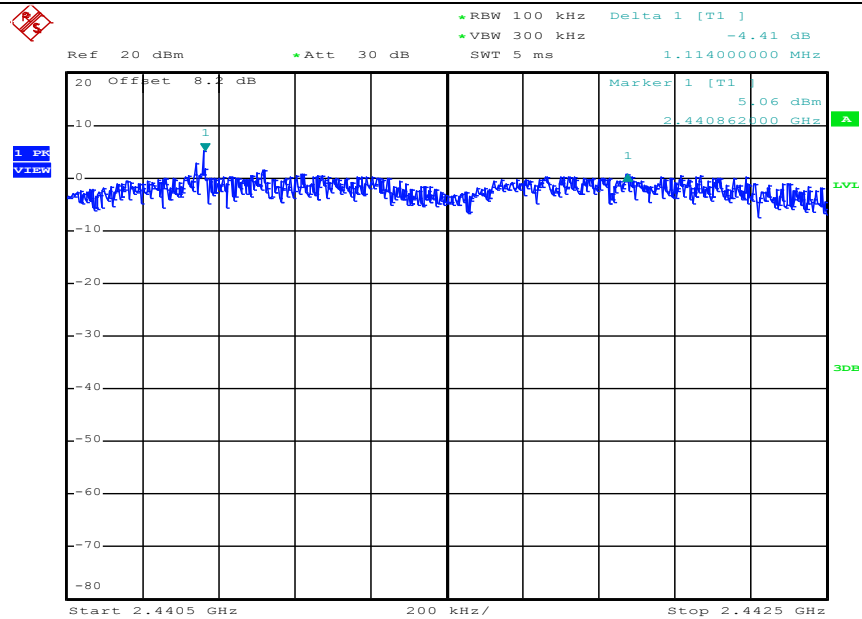
Date: 10.AUG.2019 19:20:21

$\pi/4$ DQPSK/LCH



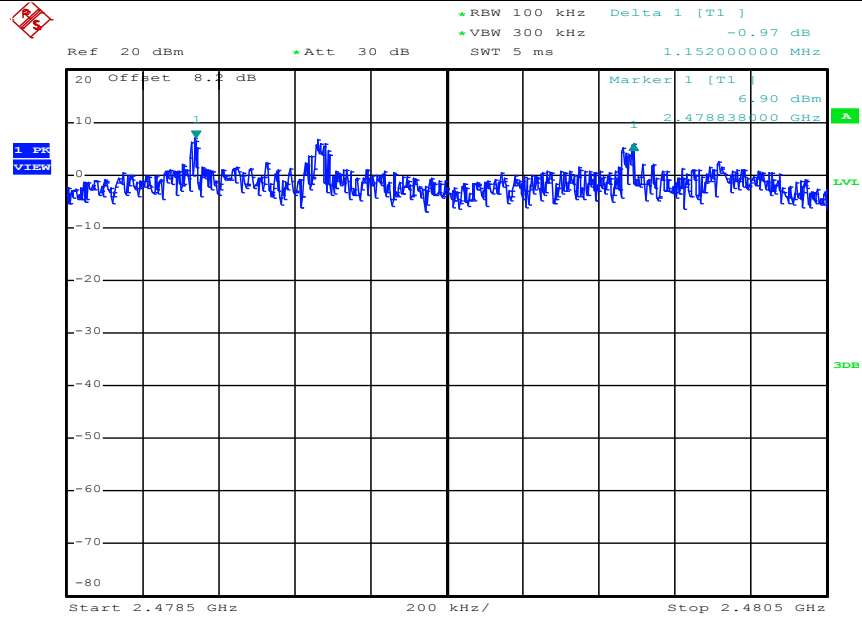
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$\pi/4$ DQPSK/MCH



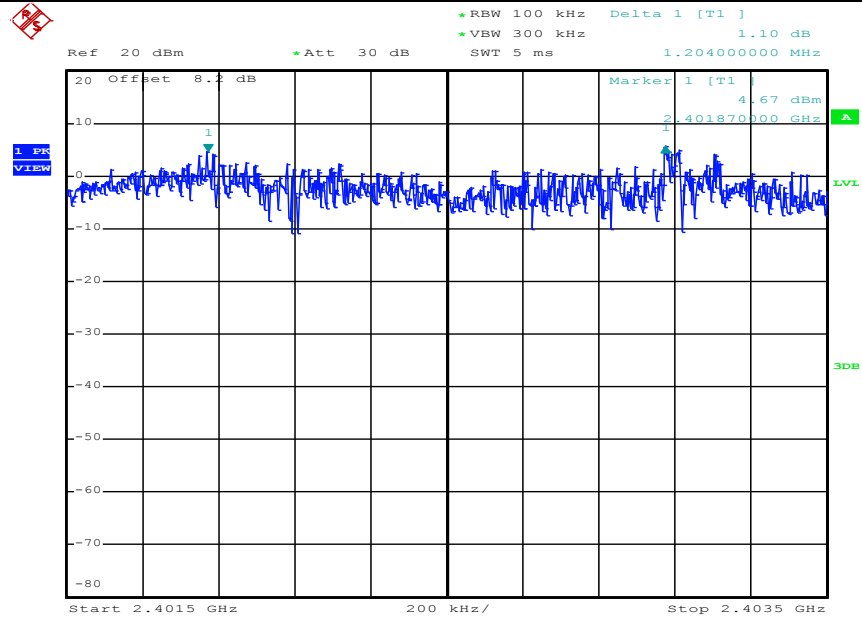
Date: 10.AUG.2019 19:27:46

$\pi/4$ DQPSK/HCH



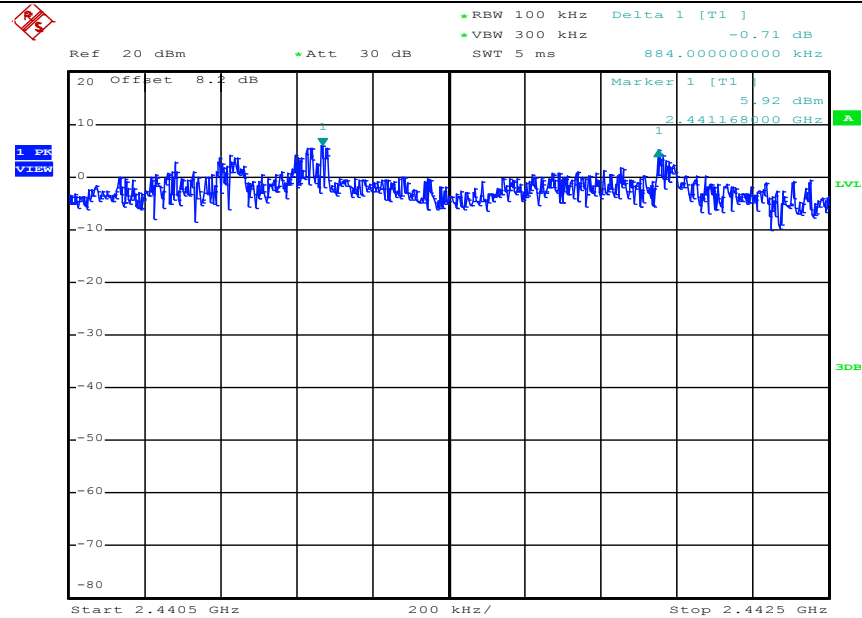
Date: 10.AUG.2019 19:28:11

8DPSK/LCH

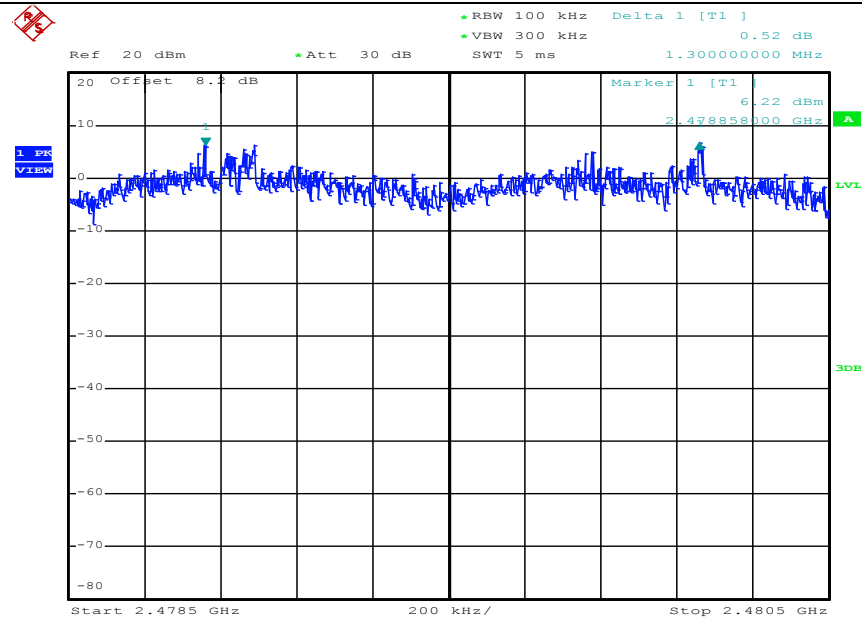


Date: 10.AUG.2019 19:31:56

8DPSK/MCH



8DPSK/HCH

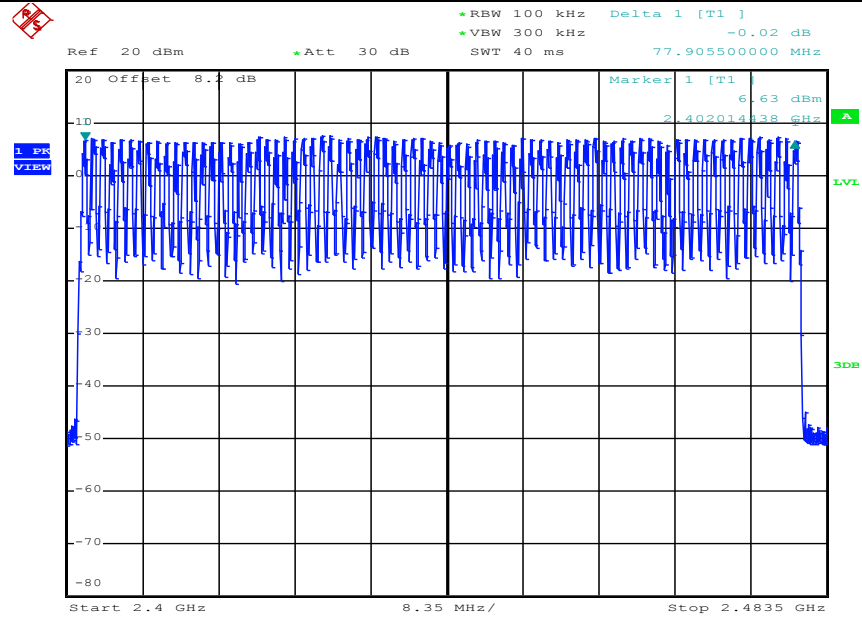


## A.4 Hopping Channel Number

| 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    |

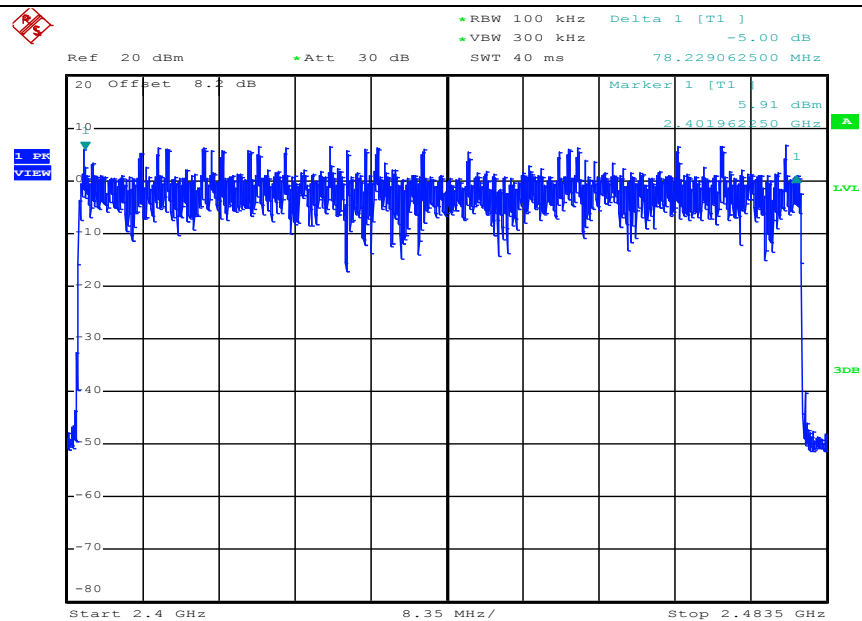
# Test Graphs

GFSK/Hop



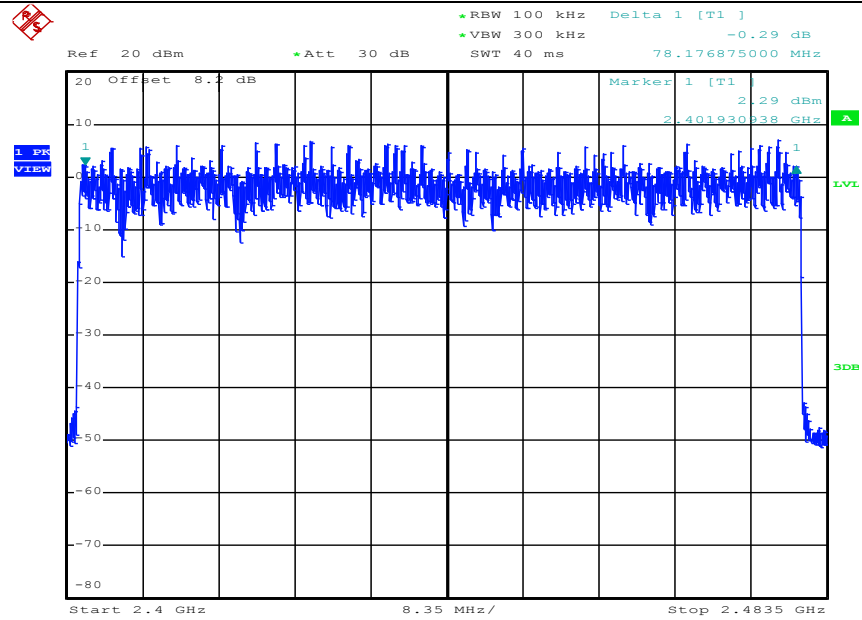
Date: 10.AUG.2019 19:22:56

$\pi/4$ DQPSK/Hop



Date: 10.AUG.2019 19:31:14

8DPSK/Hop



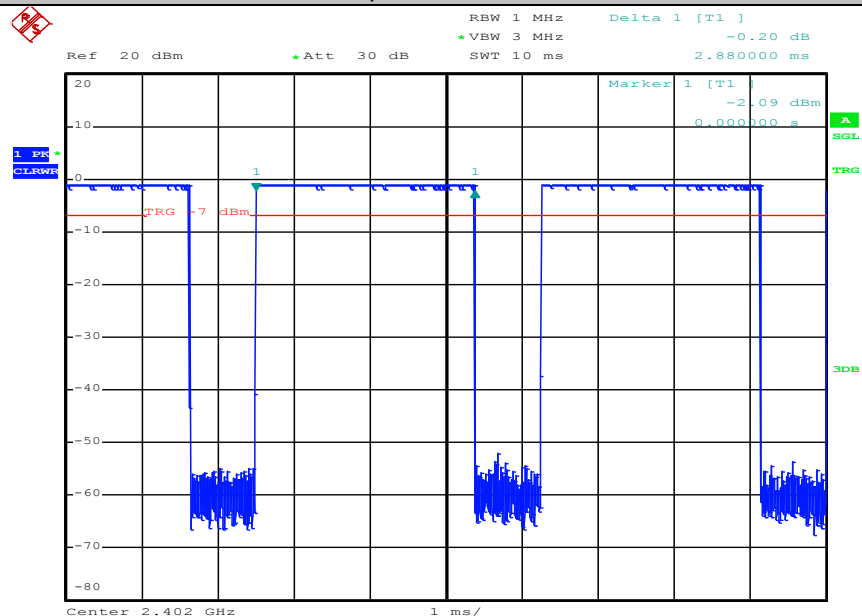
Date: 10.AUG.2019 19:37:42

## A.5 Dwell Time

| Mode          | Packet | Channel | Burst Width<br>[ms/hop/ch] | Total<br>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                 | 0.306         | 0.4       | PASS    |
|               | 2DH5   | HCH     | 2.88                       | 106.7                 | 0.306         | 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    |

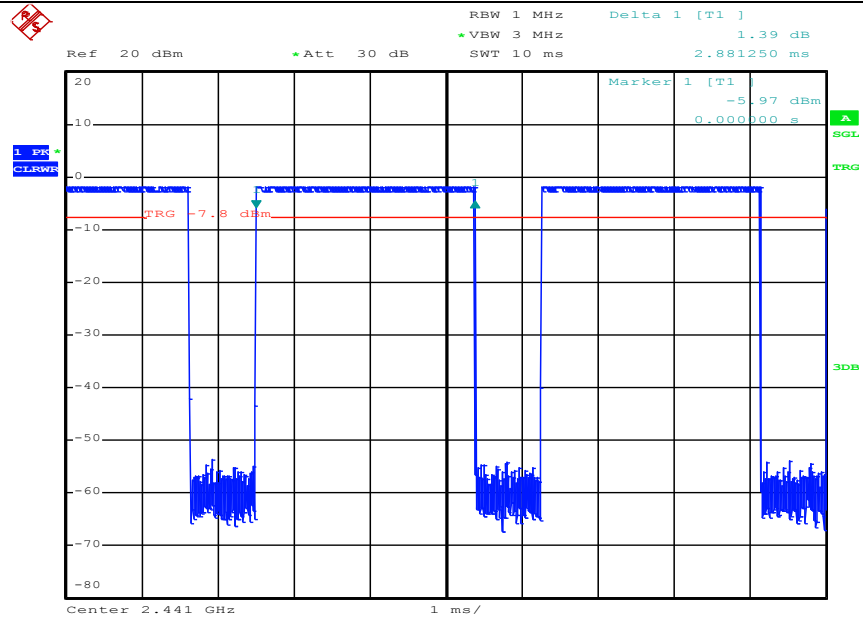
Test Graphs

GFSK\_DH5/LCH



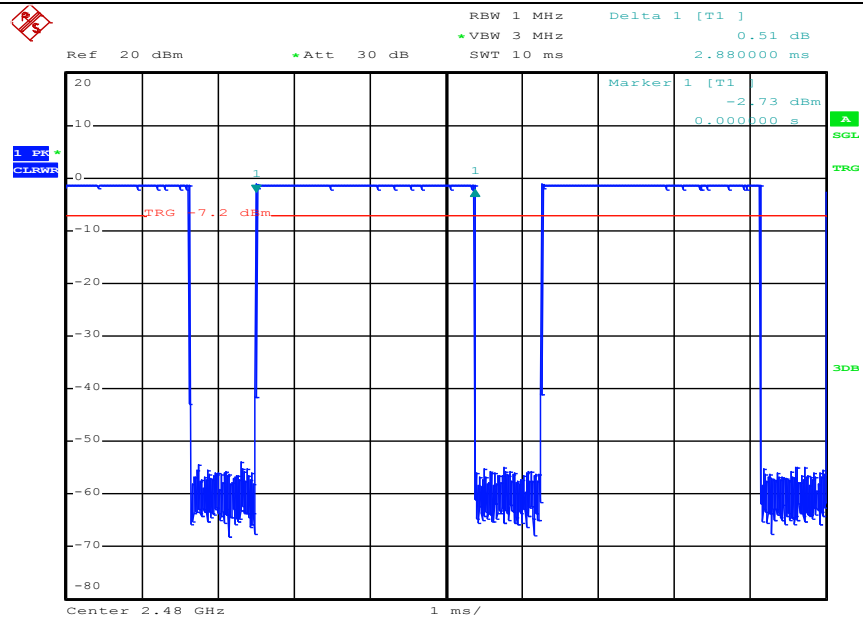
Date: 10.AUG.2019 18:31:33

GFSK\_DH5/MCH



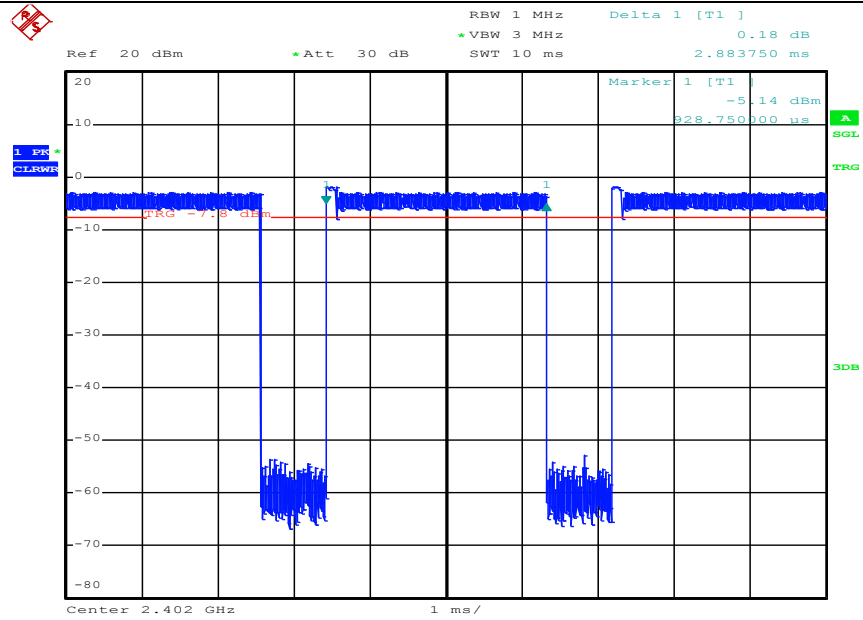
Date: 10.AUG.2019 18:34:14

GFSK\_DH5/HCH



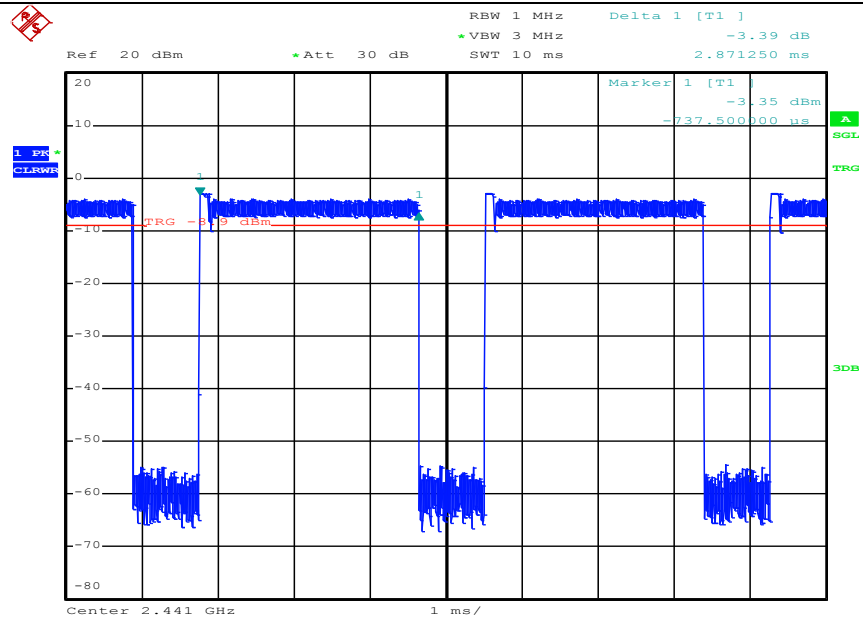
Date: 10.AUG.2019 18:36:09

$\pi/4$ DQPSK  
\_2DH5/LCH



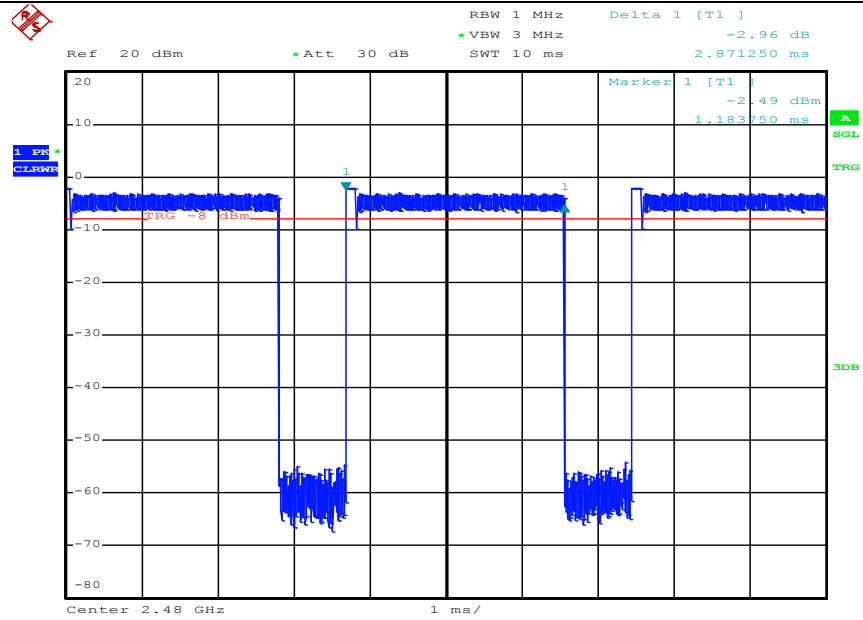
Date: 10.AUG.2019 18:41:45

$\pi/4$ DQPSK  
\_2DH5/MCH



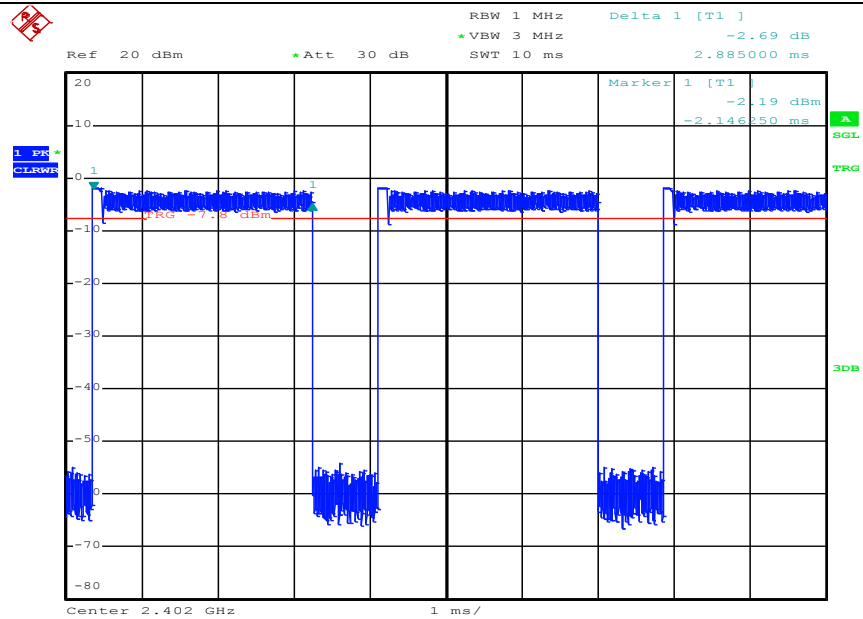
Date: 10.AUG.2019 18:44:41

$\pi/4$ DQPSK  
\_2DH5/HCH



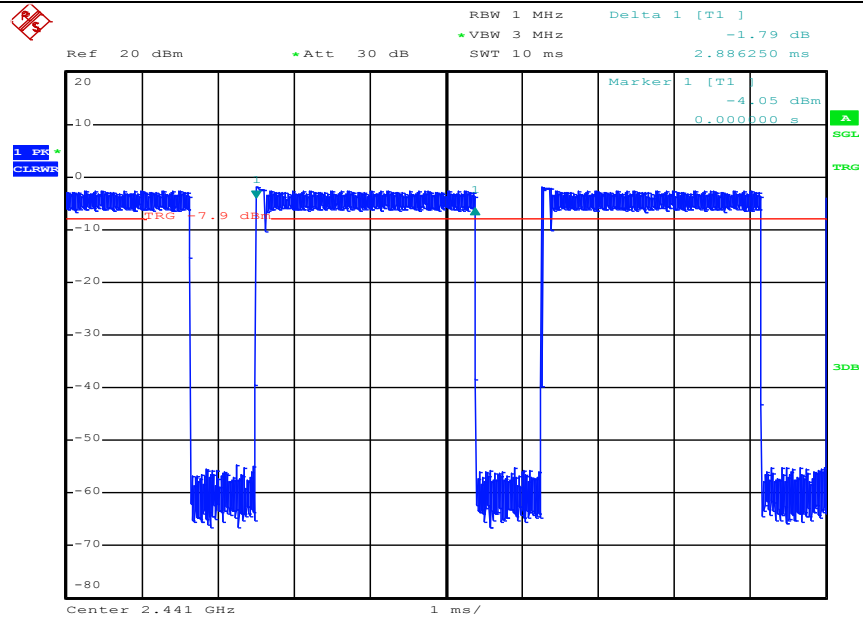
Date: 10.AUG.2019 18:46:20

8DPSK\_3DH5/LCH



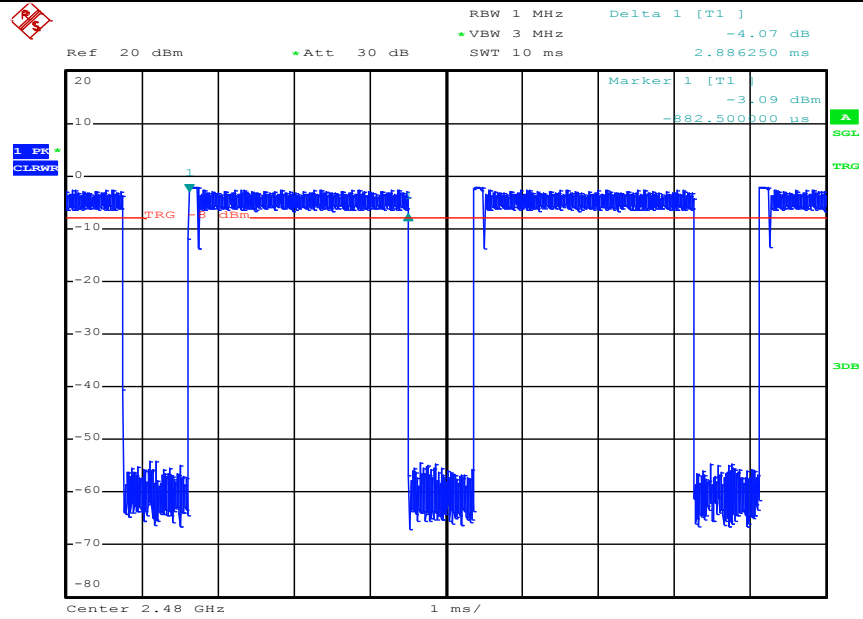
Date: 10.AUG.2019 18:49:08

8DPSK\_3DH5/MCH



Date: 10.AUG.2019 18:51:34

8DPSK\_3DH5/HCH



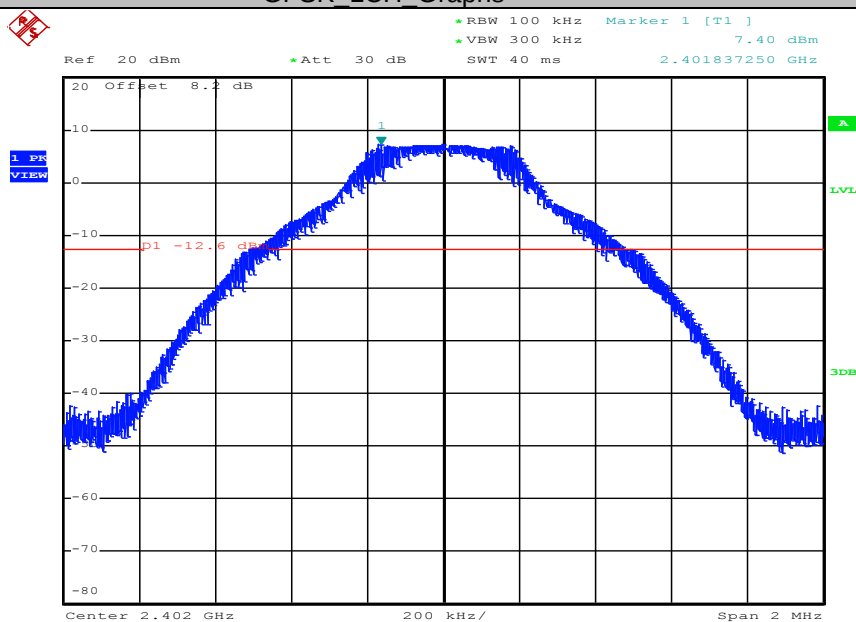
Date: 10.AUG.2019 18:54:00

## A.6 RF Conducted Spurious Emissions

| Mode          | Channel | Pref [dBm] | Max. Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|------------|------------------|-------------|---------|
| GFSK          | LCH     | 7.4        | -33.060          | -12.600     | PASS    |
|               | MCH     | 6.6        | -32.560          | -13.400     | PASS    |
|               | HCH     | 7.14       | -32.540          | -12.860     | PASS    |
| $\pi/4$ DQPSK | LCH     | 6.9        | -31.810          | -13.100     | PASS    |
|               | MCH     | 5.8        | -32.930          | -14.200     | PASS    |
|               | HCH     | 6.65       | -32.200          | -13.350     | PASS    |
| 8DPSK         | LCH     | 6.86       | -32.740          | -13.140     | PASS    |
|               | MCH     | 6.78       | -31.950          | -13.220     | PASS    |
|               | HCH     | 6.63       | -32.200          | -13.370     | PASS    |

GFSK LCH Graphs

Pref

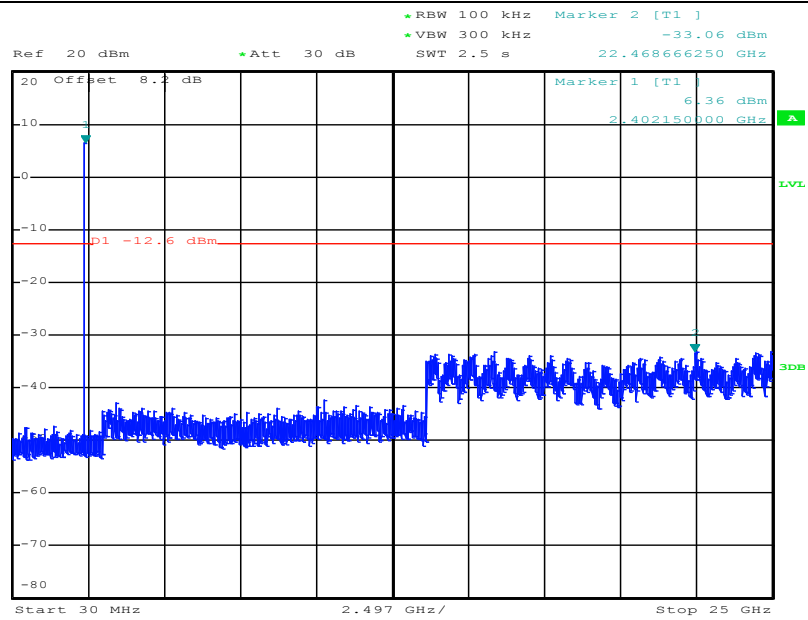


Date: 10.AUG.2019 18:32:17

P<sub>uw</sub>



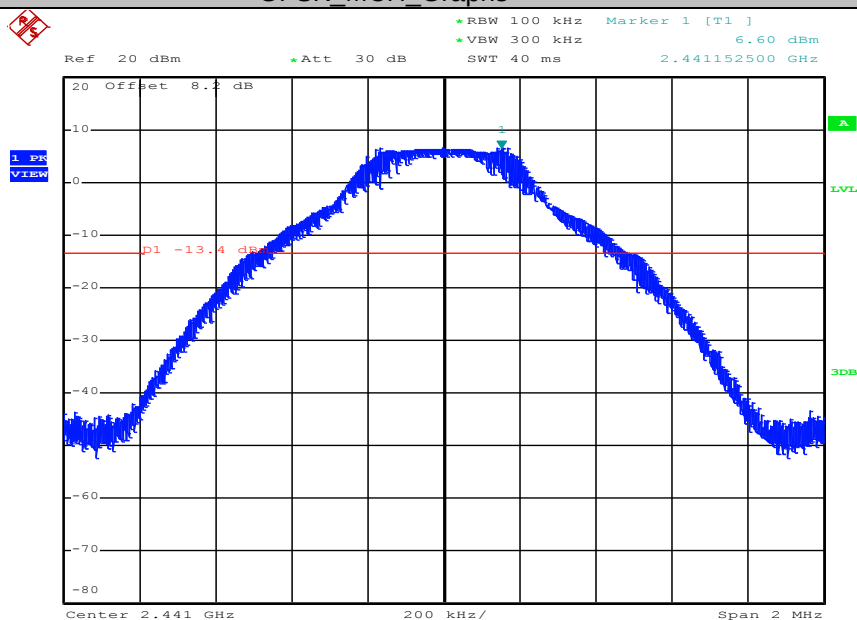
1. PR  
VIEW



Date: 10.AUG.2019 18:32:31

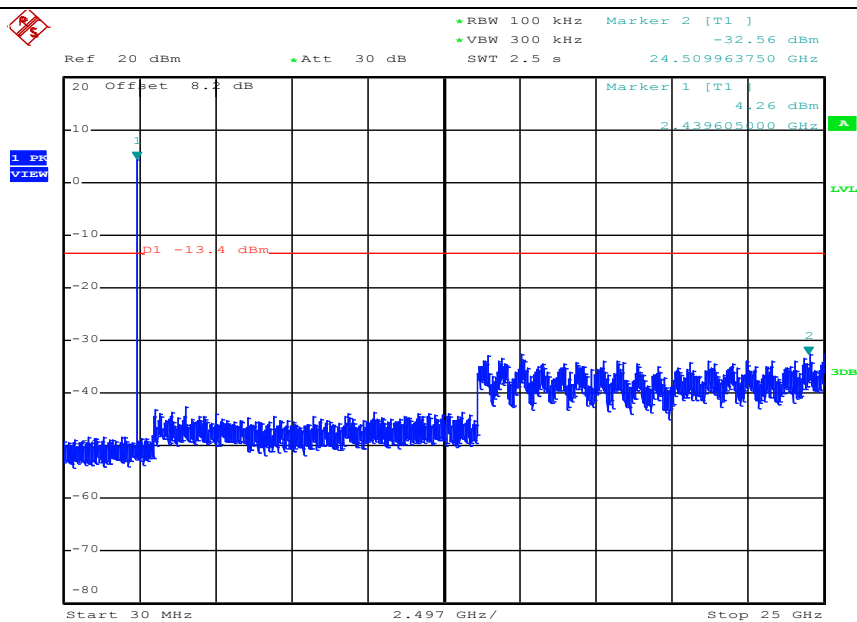
## GFSK MCH Graphs

Pref



Date: 10.AUG.2019 18:34:42

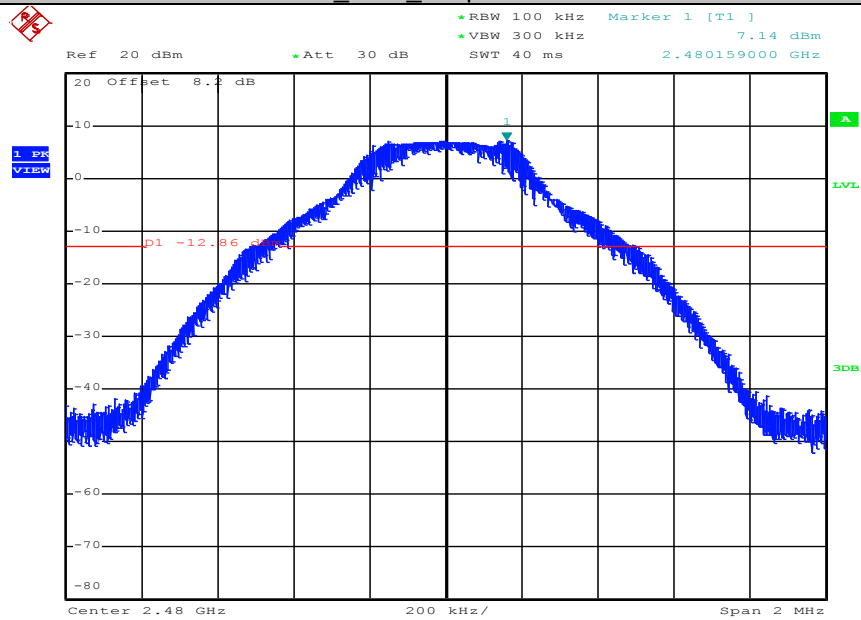
Puw



Date: 10.AUG.2019 18:34:56

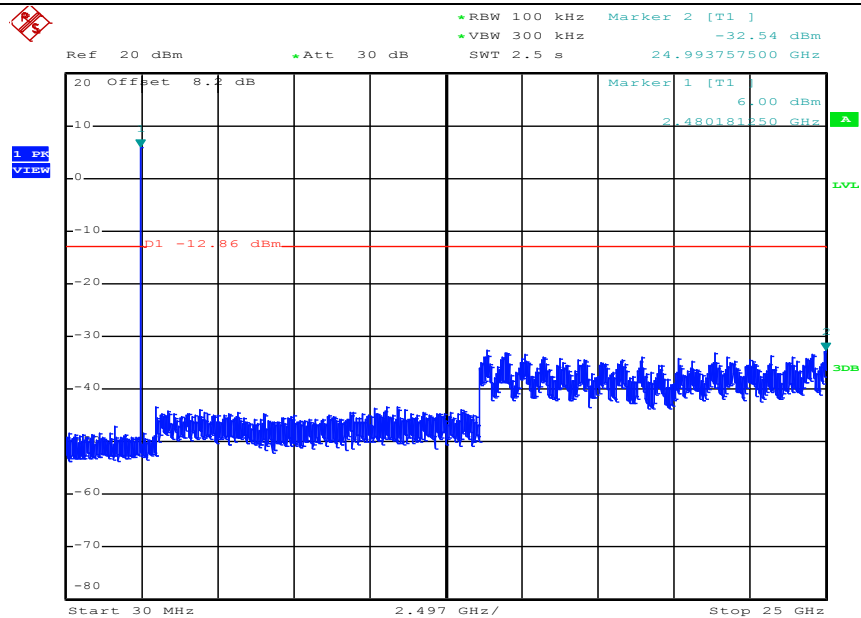
# GFSK\_HCH\_Graphs

Pref



Date: 10.AUG.2019 18:36:54

Puw



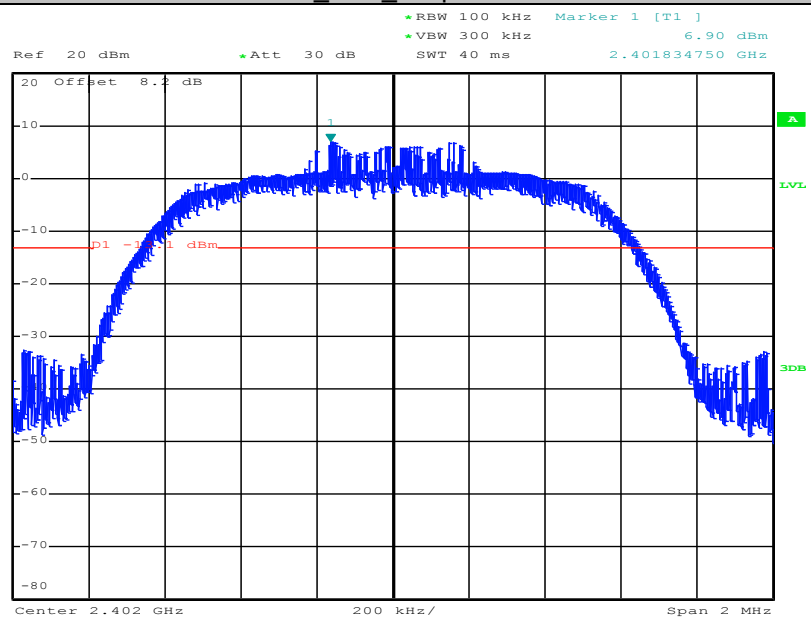
Date: 10.AUG.2019 18:37:08

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

Pref



1 PR  
VIEW

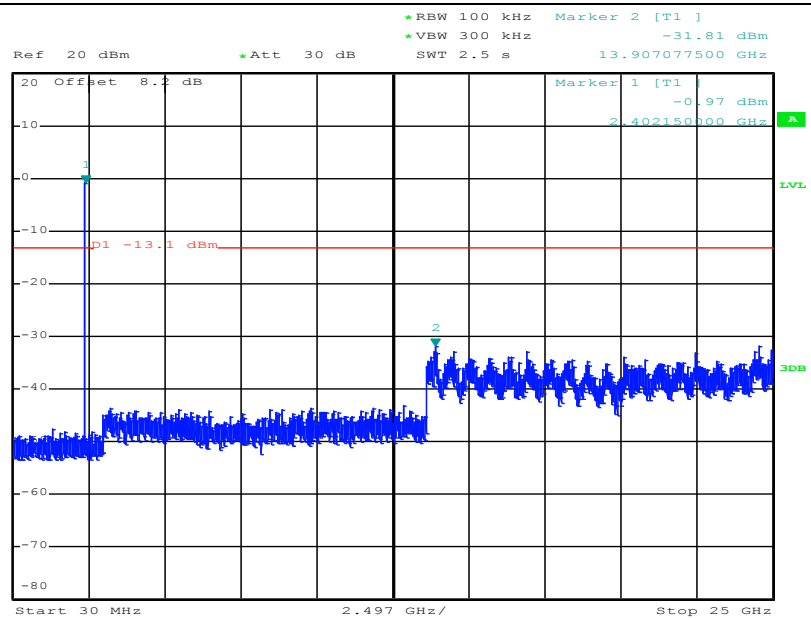


Date: 10.AUG.2019 18:42:29

Puw



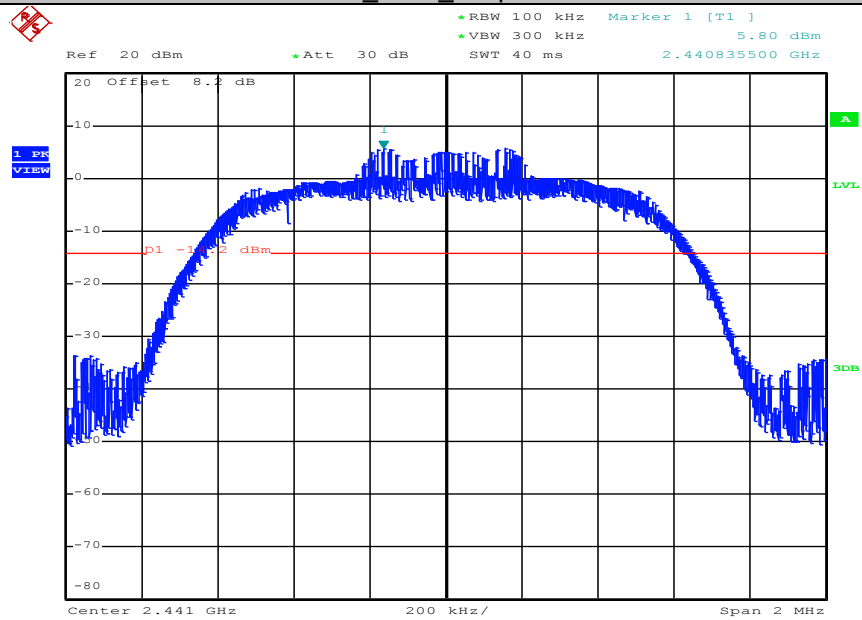
1 PR  
VIEW



Date: 10.AUG.2019 18:42:44

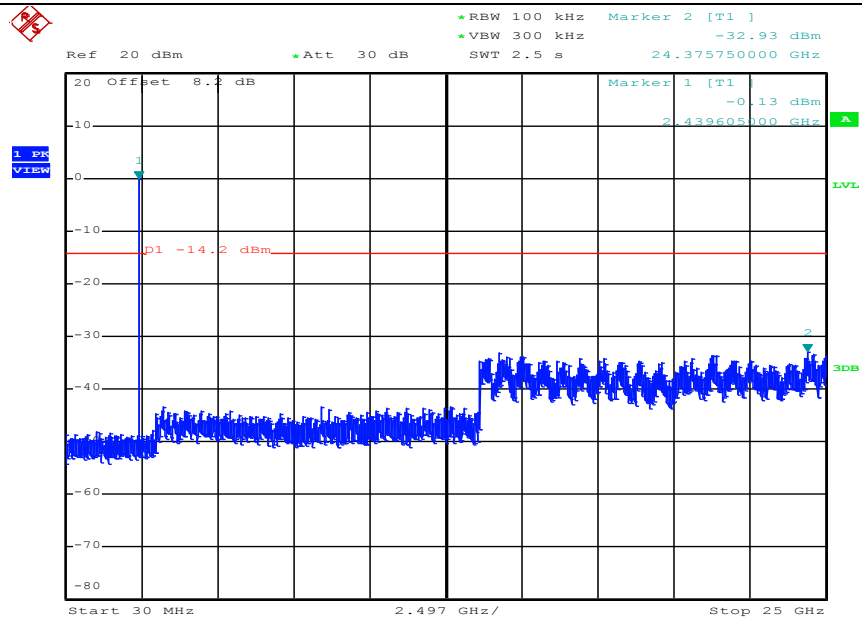
# $\pi/4$ DQPSK\_MCH\_Graphs

Pref



Date: 10.AUG.2019 18:45:07

Puw



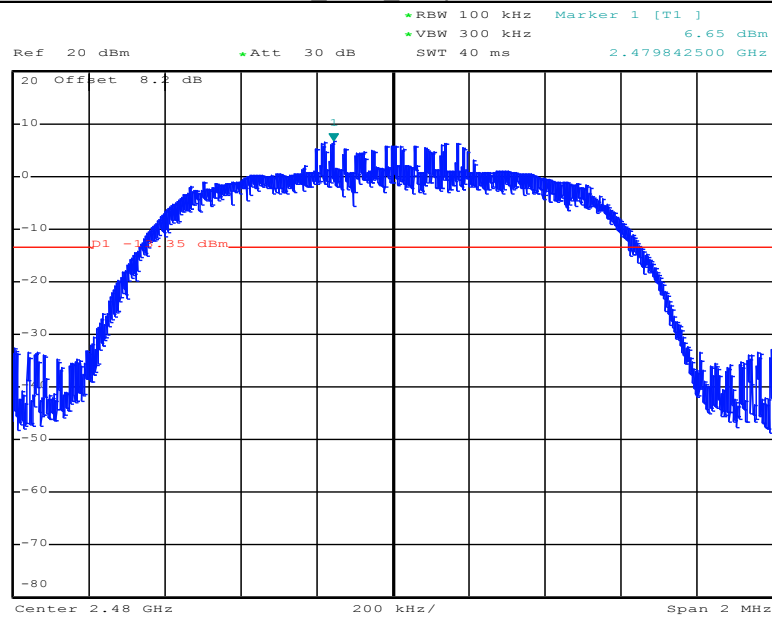
Date: 10.AUG.2019 18:45:21

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

Pref



1 PR  
VIEW

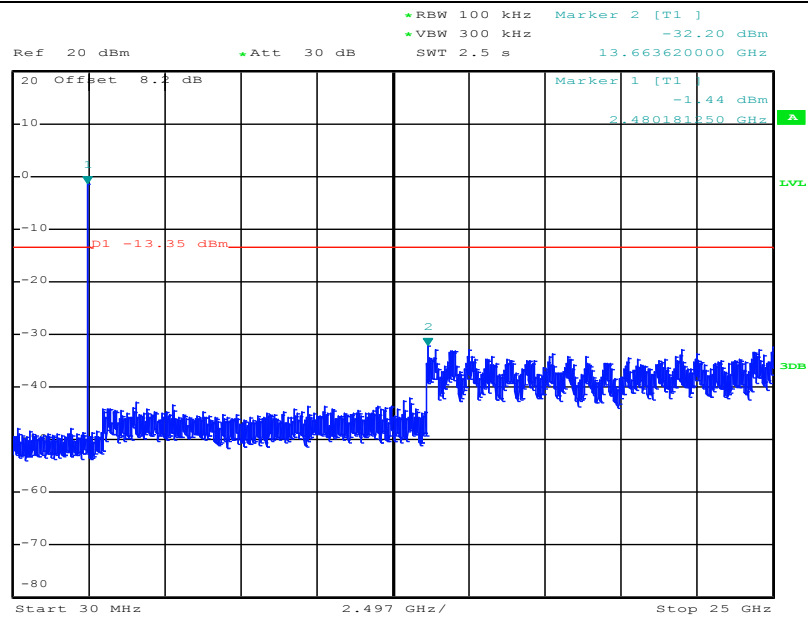


Date: 10.AUG.2019 18:47:02

Puw



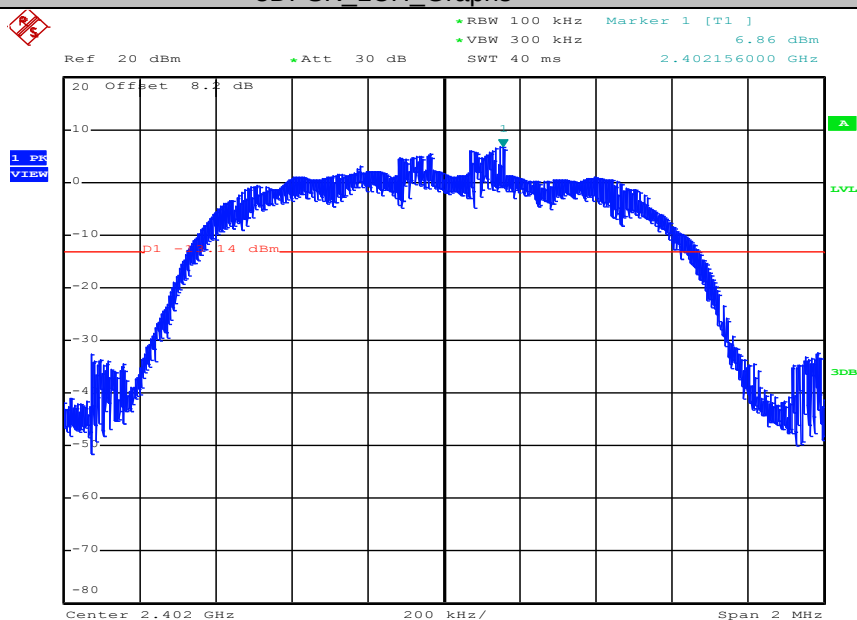
1 PR  
VIEW



Date: 10.AUG.2019 18:47:16

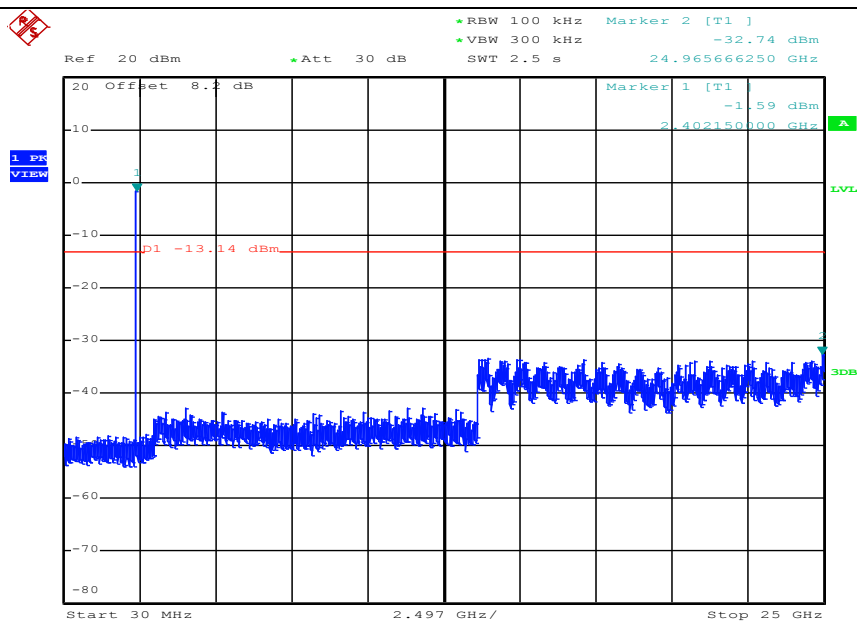
## 8DPSK LCH Graphs

Pref



Date: 10.AUG.2019 18:49:50

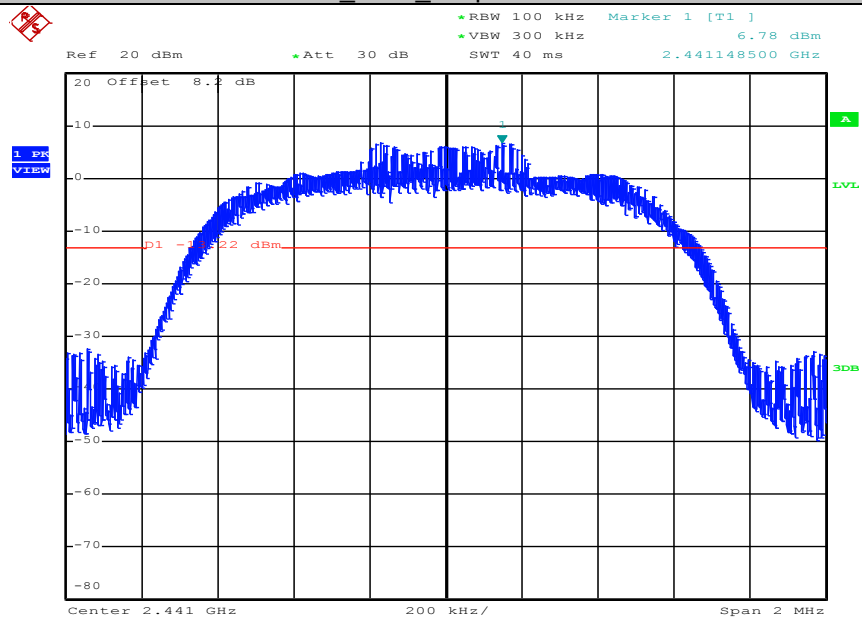
PuW



Date: 10.AUG.2019 18:50:04

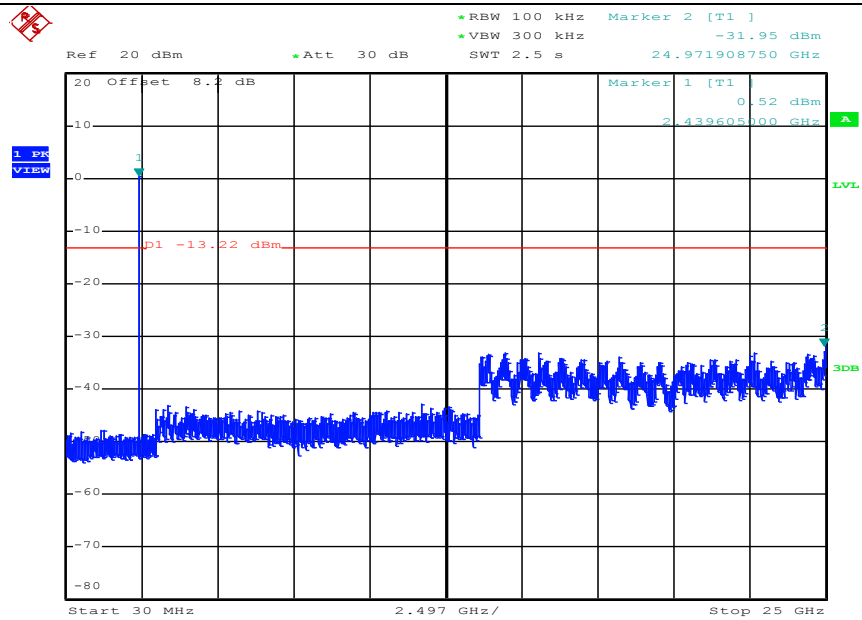
# 8DPSK\_MCH\_Graphs

Pref



Date: 10.AUG.2019 18:52:00

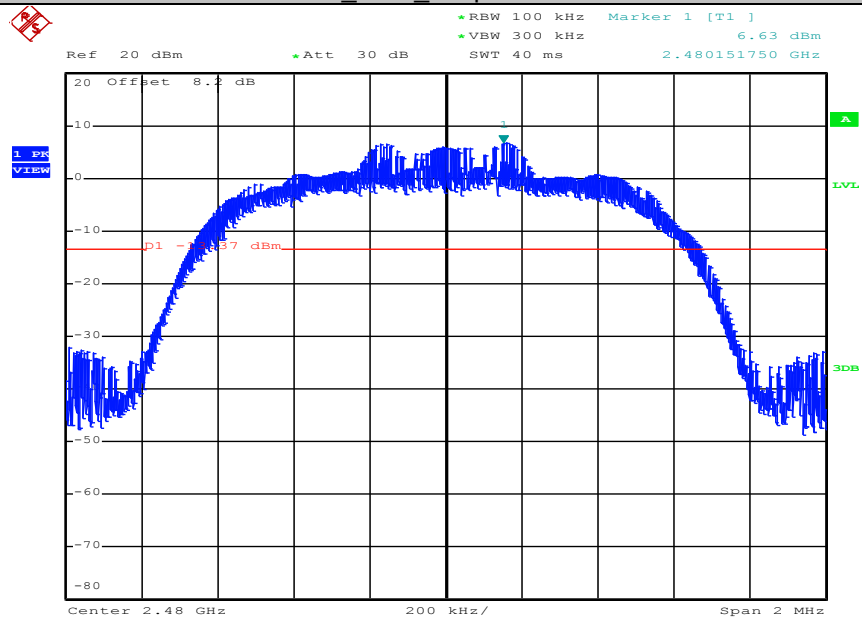
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Date: 10.AUG.2019 18:52:14

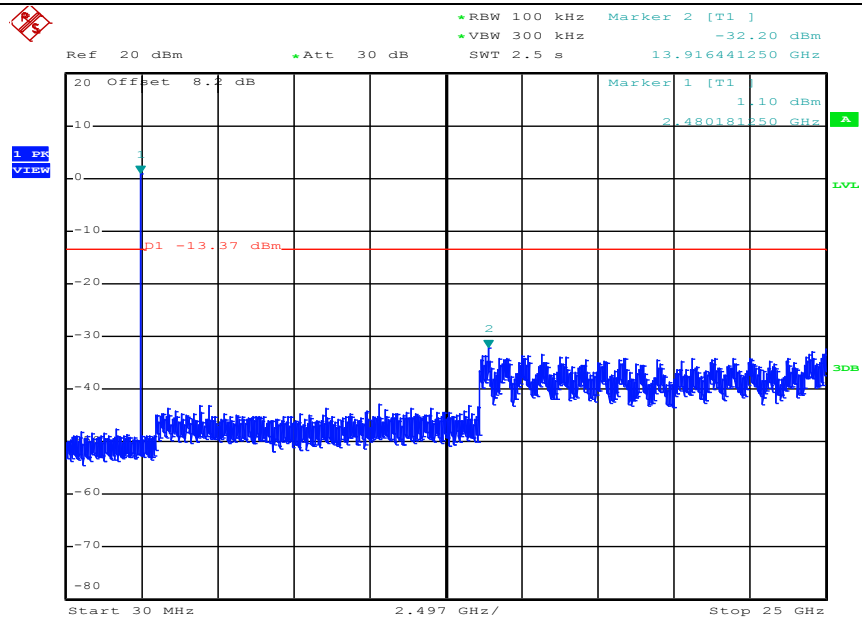
# 8DPSK\_HCH\_Graphs

Pref



Date: 10.AUG.2019 18:54:42

Puw



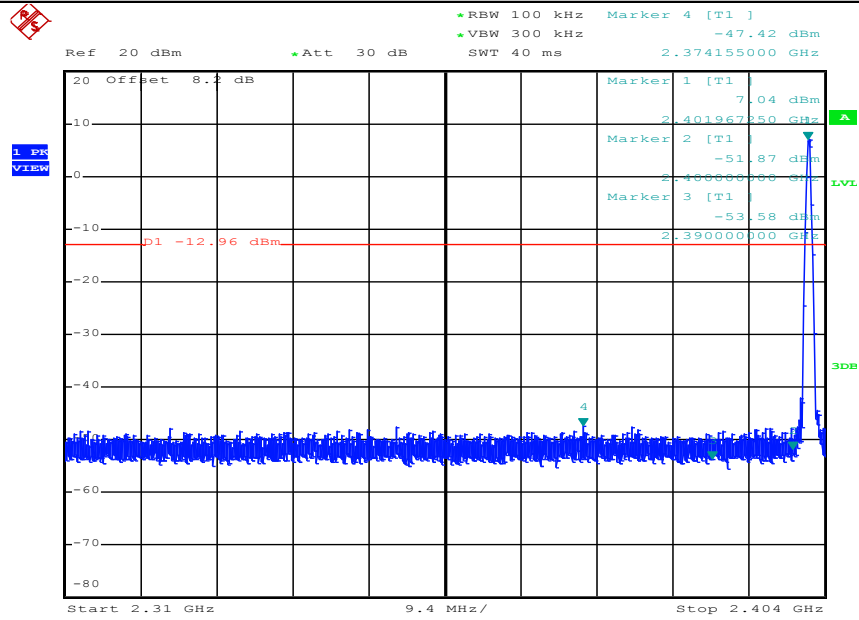
Date: 10.AUG.2019 18:54:56

## 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                    | 7.040               | Off               | -47.416                  | -12.96      | PASS    |
|               |         |                         | 7.400               | On                | -46.805                  | -12.6       | PASS    |
|               | HCH     | 2480                    | 6.930               | Off               | -47.235                  | -13.07      | PASS    |
|               |         |                         | 7.150               | On                | -46.992                  | -12.85      | PASS    |
| $\pi/4$ DQPSK | LCH     | 2402                    | 6.060               | Off               | -46.943                  | -13.94      | PASS    |
|               |         |                         | 5.860               | On                | -46.652                  | -14.14      | PASS    |
|               | HCH     | 2480                    | 6.640               | Off               | -47.227                  | -13.36      | PASS    |
|               |         |                         | 6.620               | On                | -46.927                  | -13.38      | PASS    |
| 8DPSK         | LCH     | 2402                    | 2.180               | Off               | -47.551                  | -17.82      | PASS    |
|               |         |                         | 6.660               | On                | -46.241                  | -13.34      | PASS    |
|               | HCH     | 2480                    | 6.470               | Off               | -47.547                  | -13.53      | PASS    |
|               |         |                         | 6.650               | On                | -45.652                  | -13.35      | PASS    |

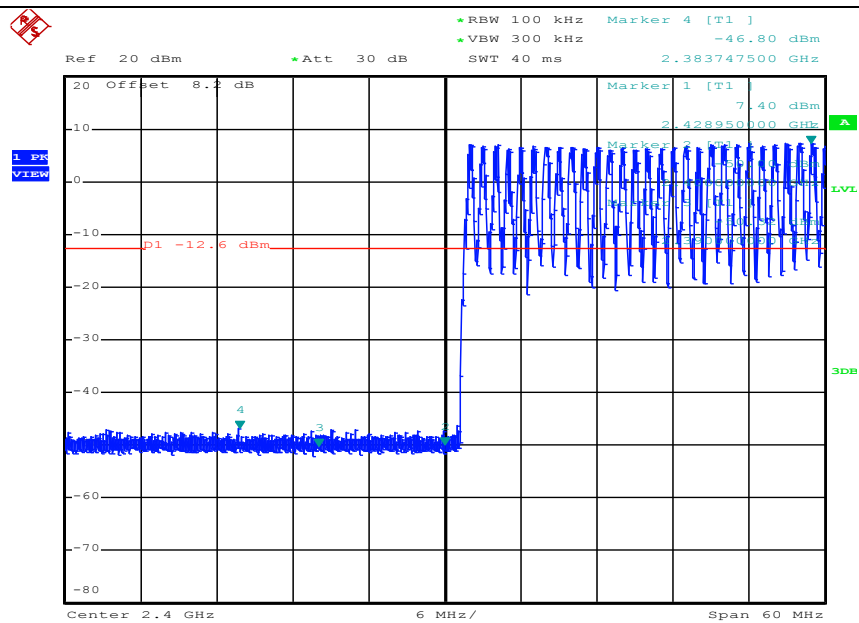
# Test Graphs

GFSK/LCH/No Hop



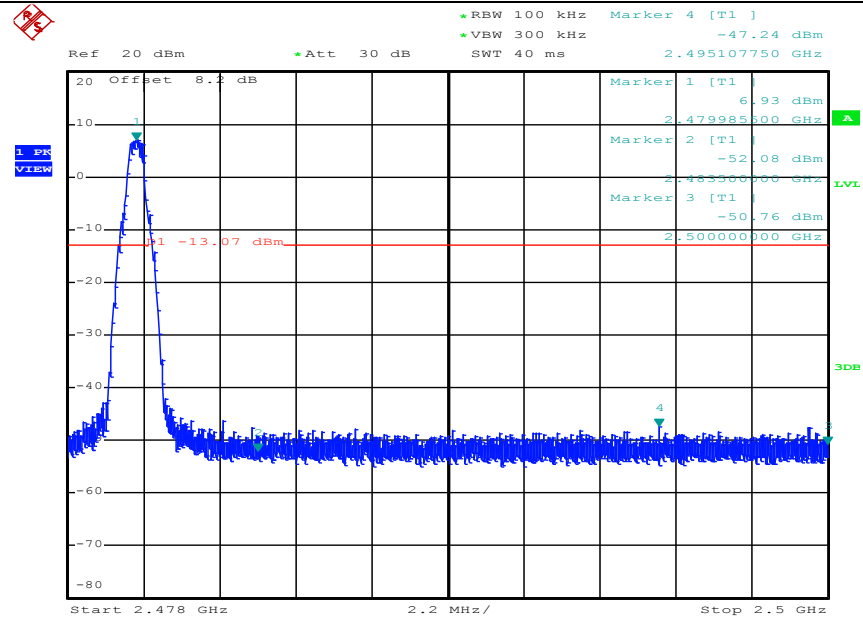
Date: 10.AUG.2019 18:32:04

GFSK/LCH/Hop



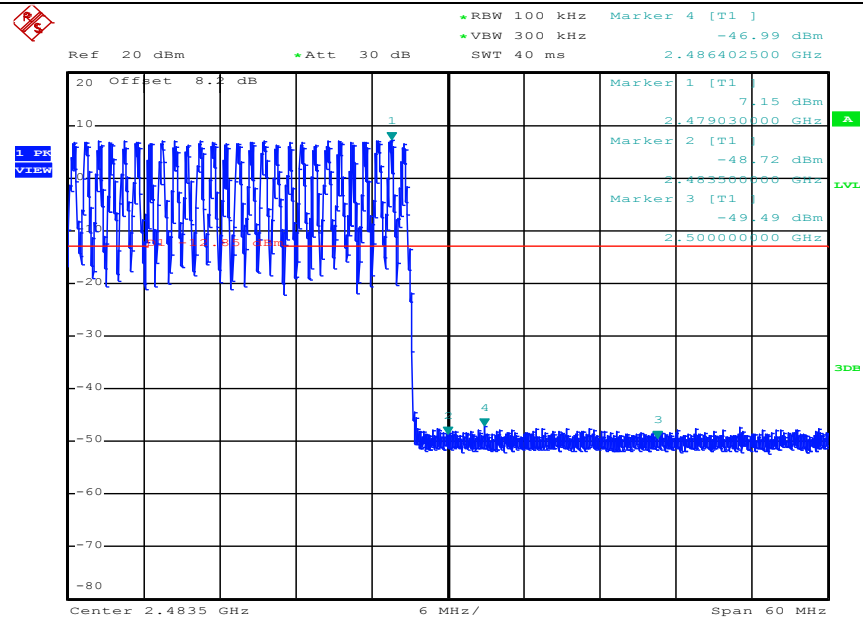
Date: 10.AUG.2019 19:19:27

GFSK/HCH/No Hop



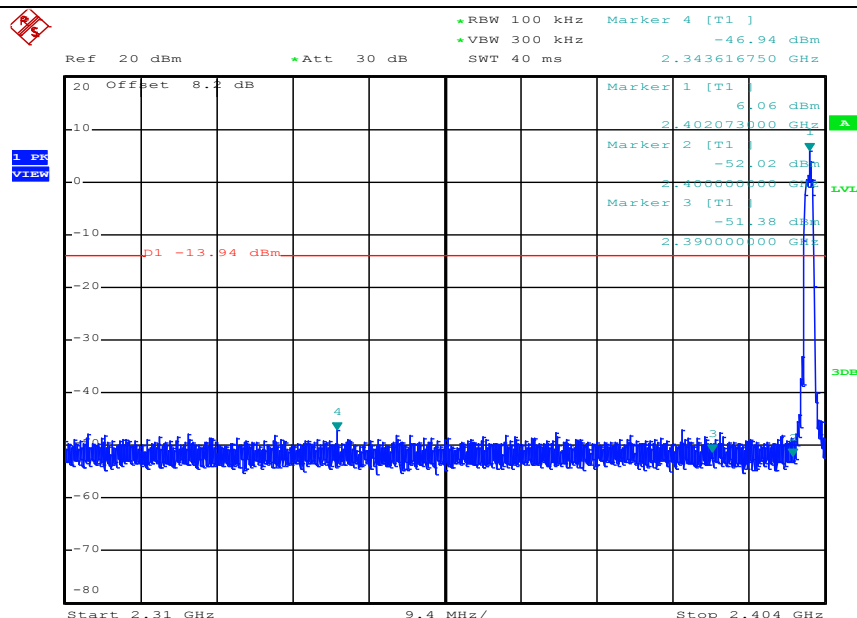
Date: 10.AUG.2019 18:36:41

GFSK/HCH/Hop



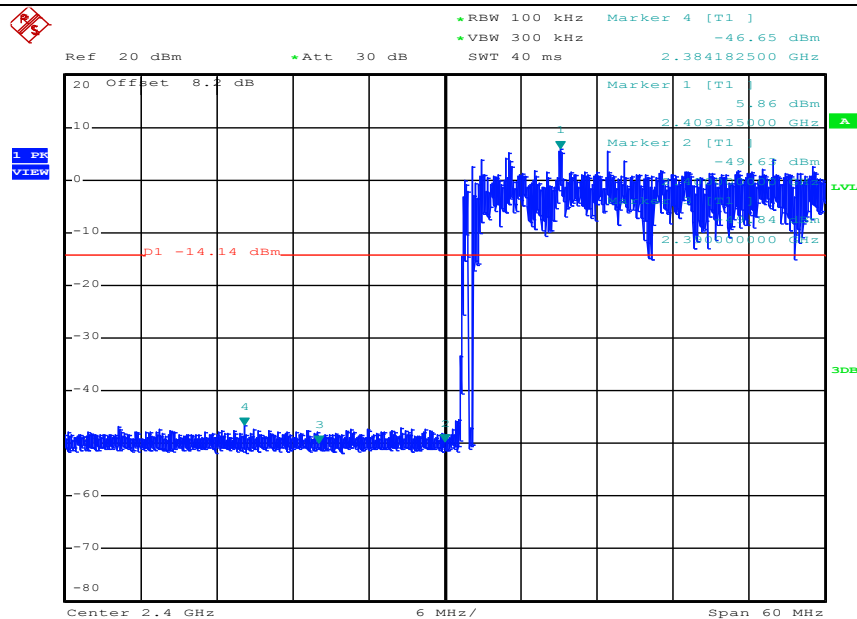
Date: 10.AUG.2019 19:21:20

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



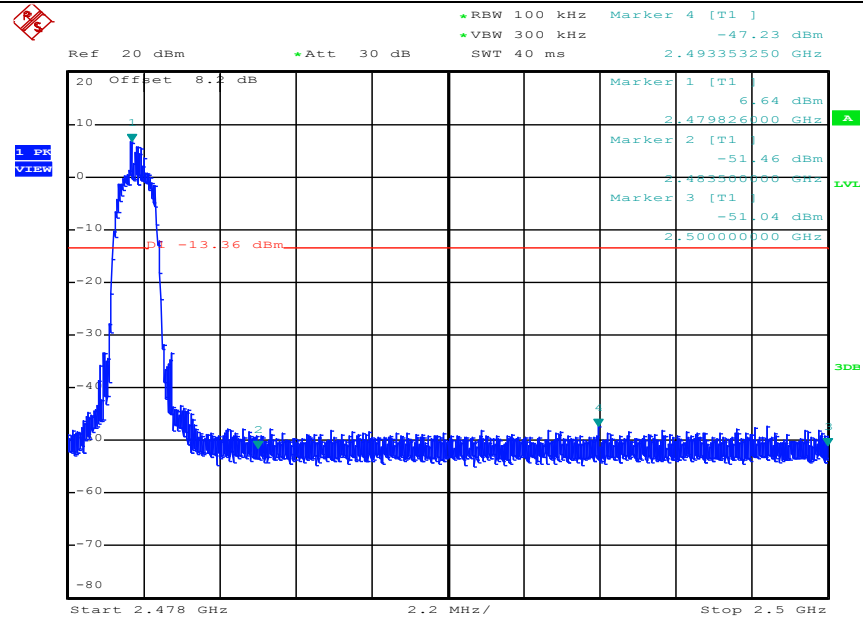
Date: 10.AUG.2019 18:42:16

$\pi/4$ DQPSK/LCH/Hop



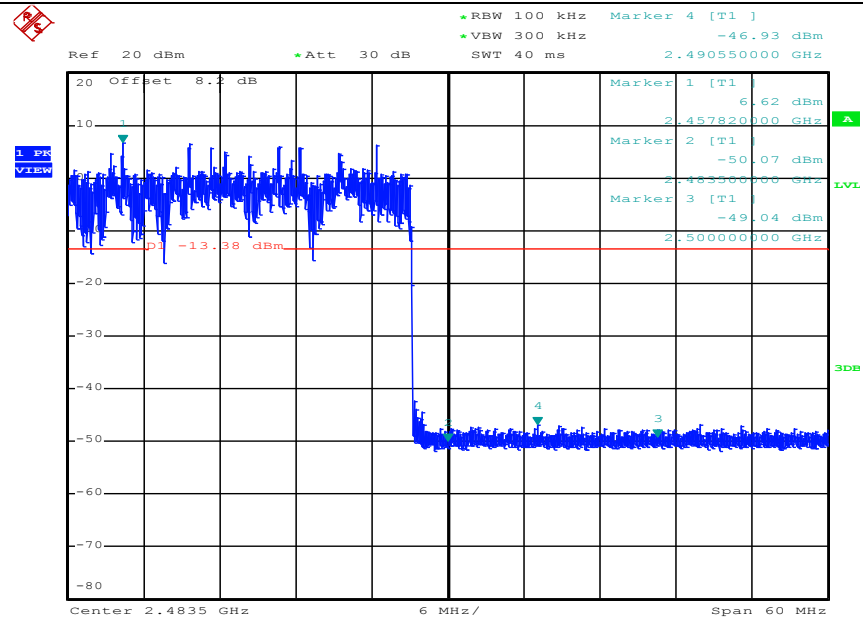
Date: 10.AUG.2019 19:27:20

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



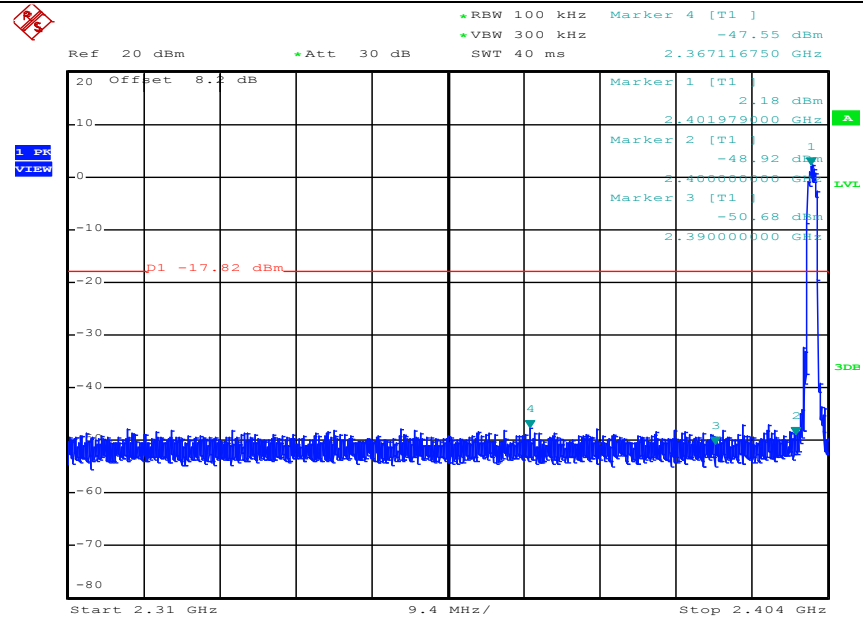
Date: 10.AUG.2019 18:46:50

$\pi/4$ DQPSK/HCH/Hop



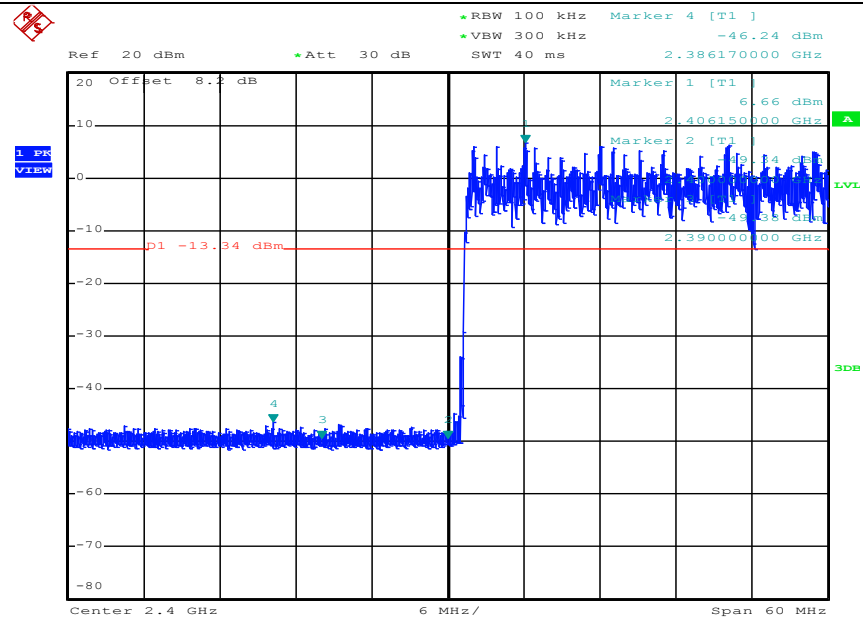
Date: 10.AUG.2019 19:29:47

8DPSK/LCH/No Hop



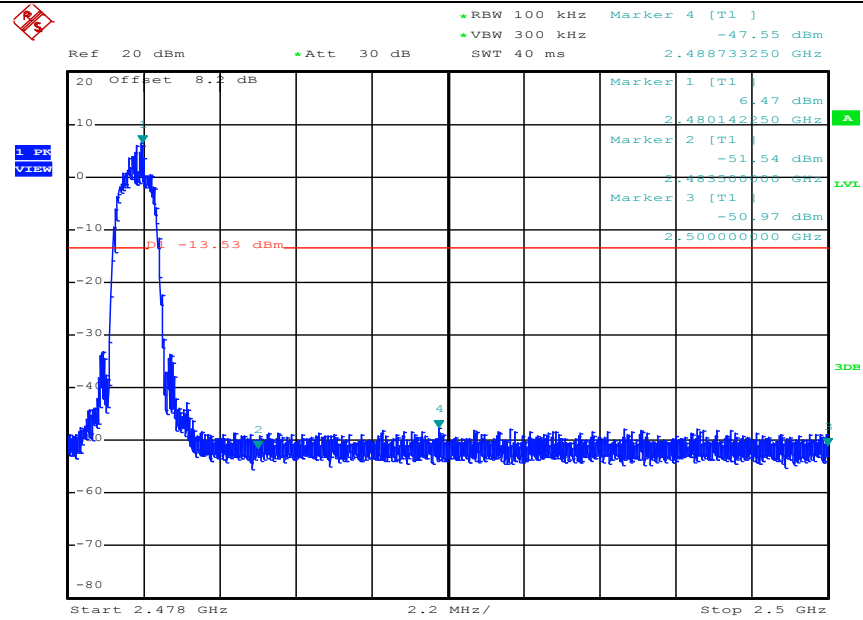
Date: 10.AUG.2019 18:49:38

8DPSK/LCH/Hop



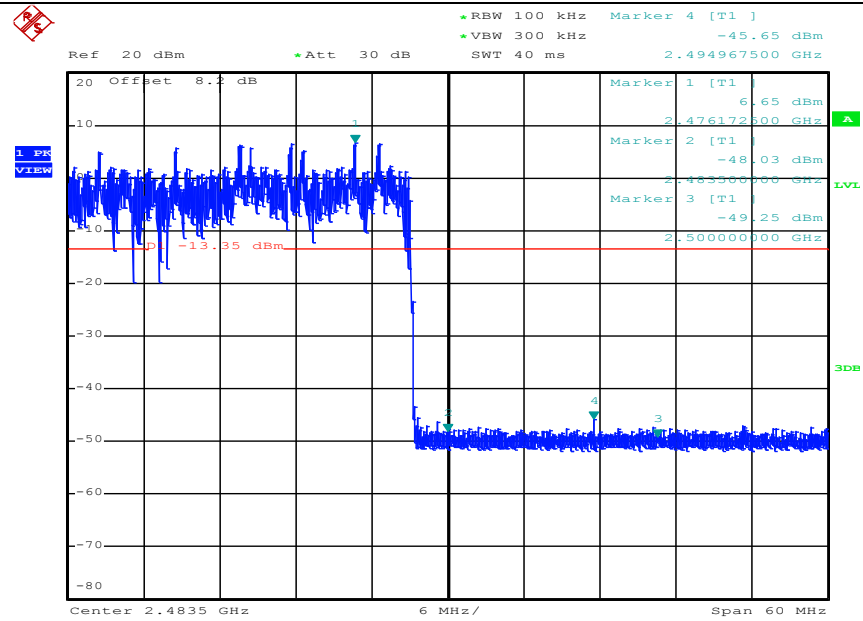
Date: 10.AUG.2019 19:33:34

8DPSK/HCH/No Hop



Date: 10.AUG.2019 18:54:30

8DPSK/HCH/Hop

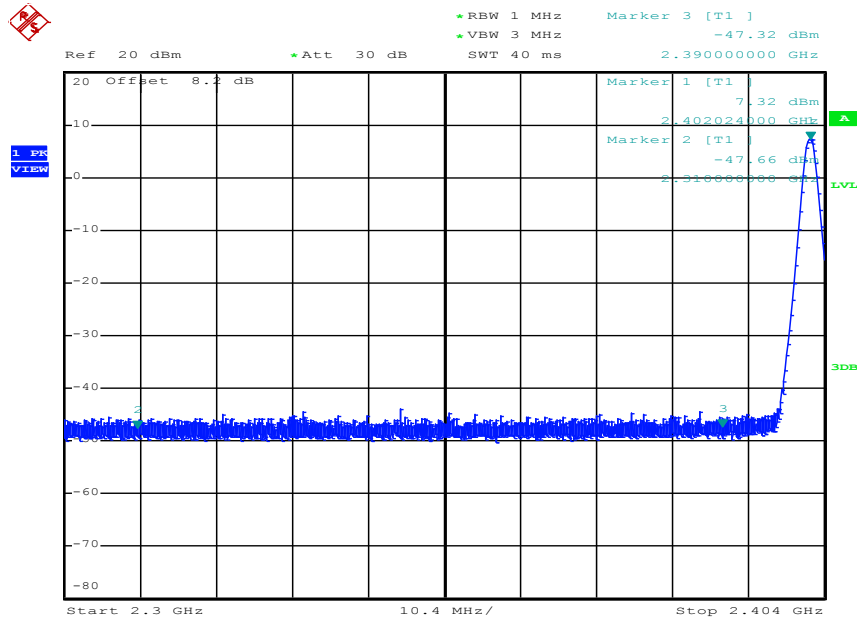


Date: 10.AUG.2019 19:35:39

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

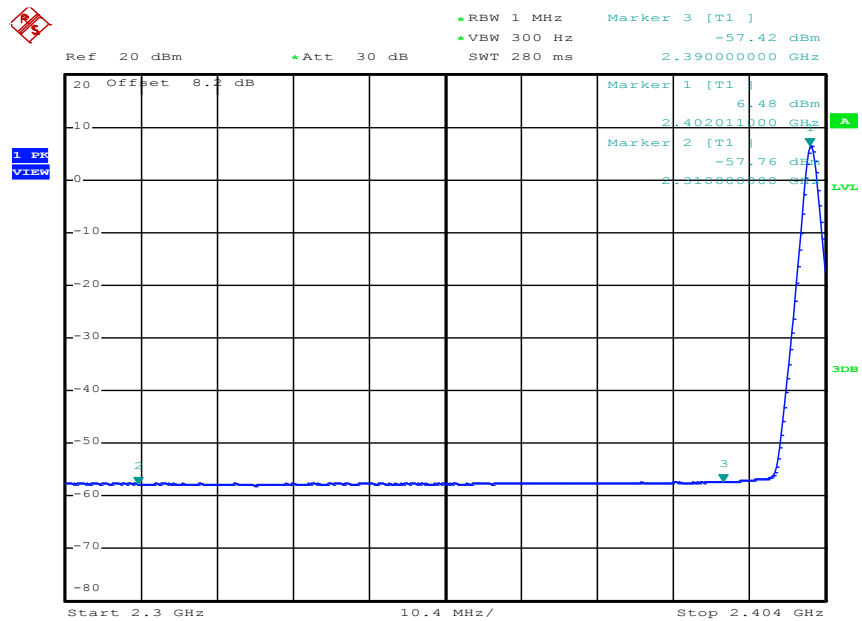
| Test Mode     | Hopping | Freq.  | Power [dBm] | Gain | Ground Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|---------------|---------|--------|-------------|------|---------------|------------|----------|----------------|---------|
| GFSK          | Off     | 2310.0 | -47.66      | 2.0  | 0             | 47.60      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -57.76      | 2.0  | 0             | 37.50      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -47.32      | 2.0  | 0             | 47.94      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -57.42      | 2.0  | 0             | 37.84      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -33.51      | 2.0  | 0             | 61.75      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -36.10      | 2.0  | 0             | 52.16      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -48.68      | 2.0  | 0             | 46.58      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -57.99      | 2.0  | 0             | 37.27      | AV       | 54             | PASS    |
| $\pi/4$ DQPSK | Off     | 2310.0 | -49.27      | 2.0  | 0             | 45.99      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -57.77      | 2.0  | 0             | 37.49      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -48.98      | 2.0  | 0             | 46.28      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -57.39      | 2.0  | 0             | 37.87      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -34.39      | 2.0  | 0             | 60.87      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -39.41      | 2.0  | 0             | 50.85      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -47.97      | 2.0  | 0             | 47.29      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -58.00      | 2.0  | 0             | 37.26      | AV       | 54             | PASS    |
| 8DPSK         | Off     | 2310.0 | -48.68      | 2.0  | 0             | 46.58      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -57.75      | 2.0  | 0             | 37.51      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -47.47      | 2.0  | 0             | 47.79      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -57.42      | 2.0  | 0             | 37.84      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -34.01      | 2.0  | 0             | 61.25      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -39.35      | 2.0  | 0             | 51.91      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -48.43      | 2.0  | 0             | 46.83      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -58.06      | 2.0  | 0             | 37.20      | AV       | 54             | PASS    |

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



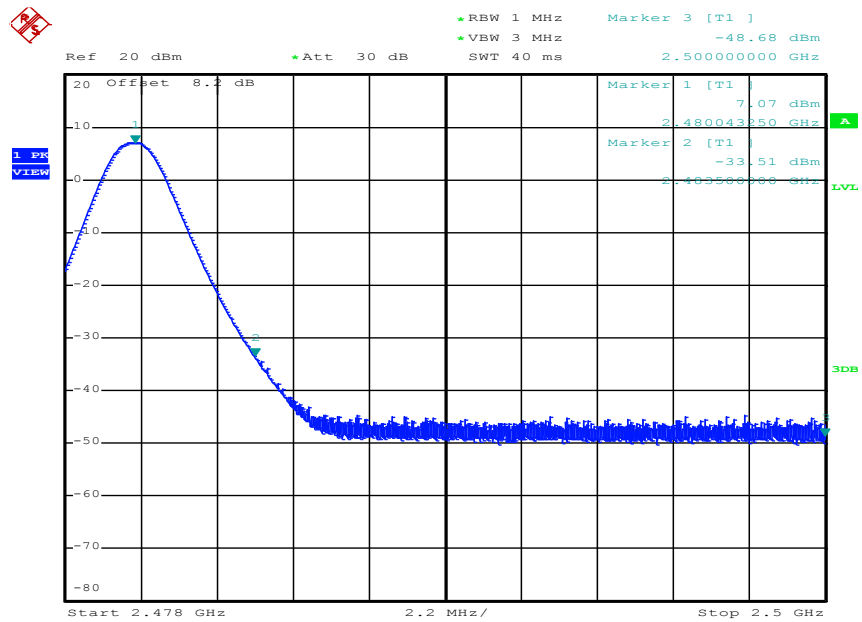
Date: 10.AUG.2019 18:32:51

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



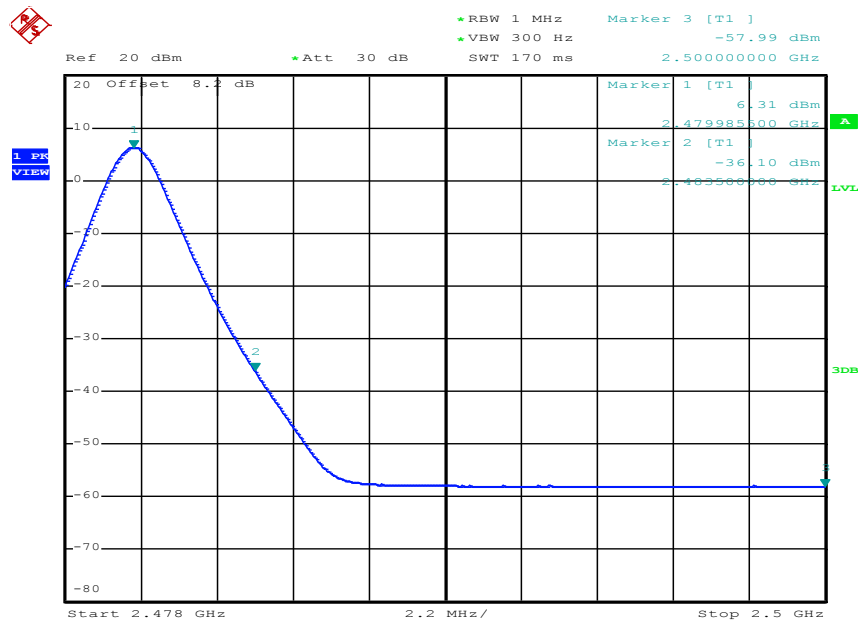
Date: 10.AUG.2019 18:33:04

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



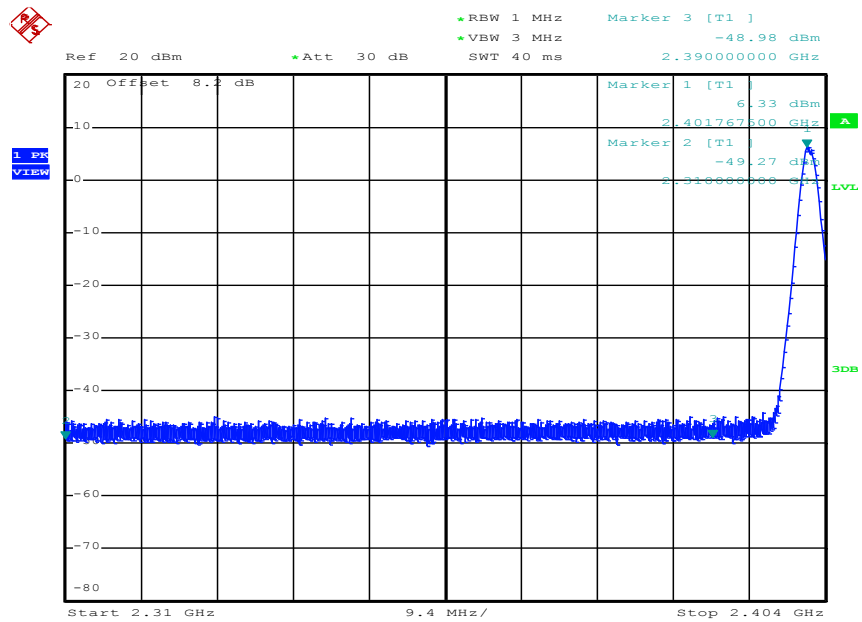
Date: 10.AUG.2019 18:39:59

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



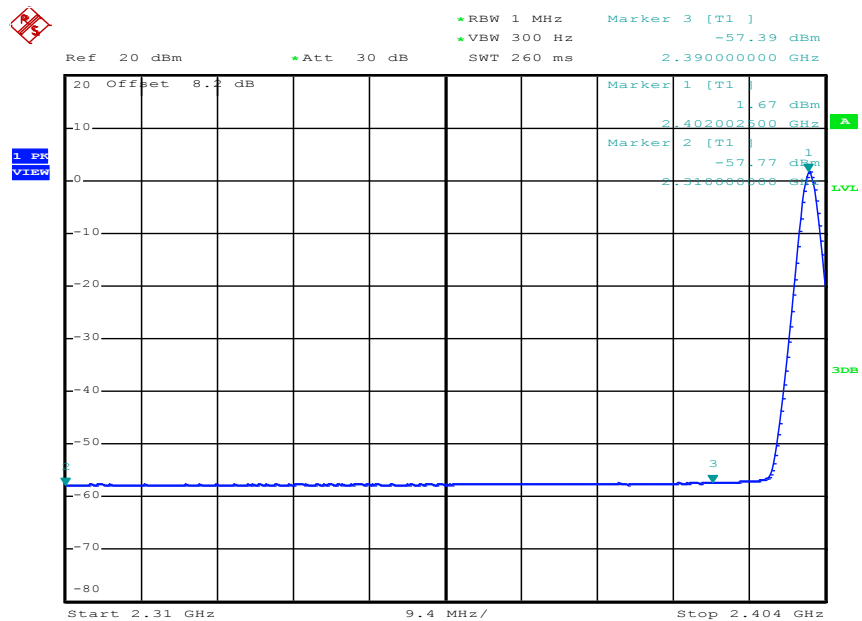
Date: 10.AUG.2019 18:40:12

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



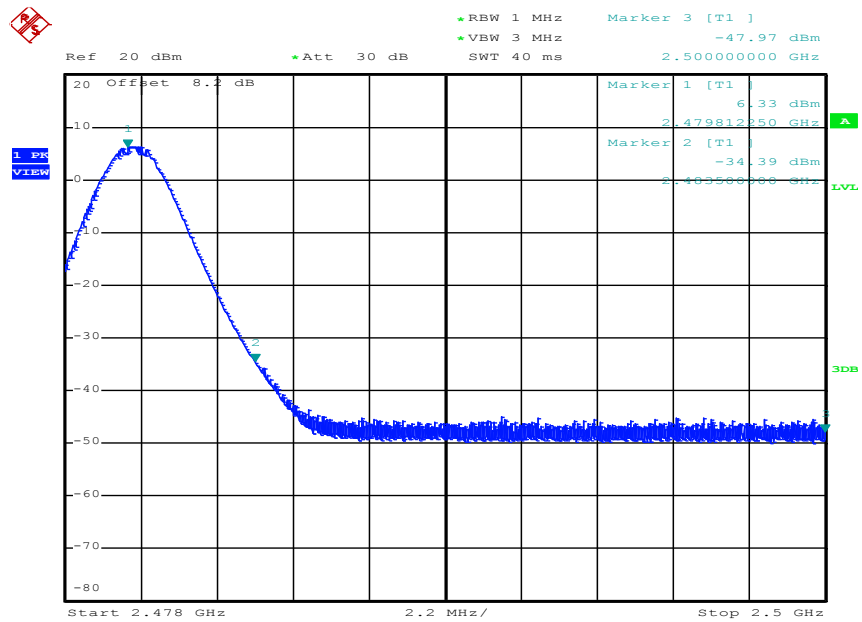
Date: 10.AUG.2019 18:43:02

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



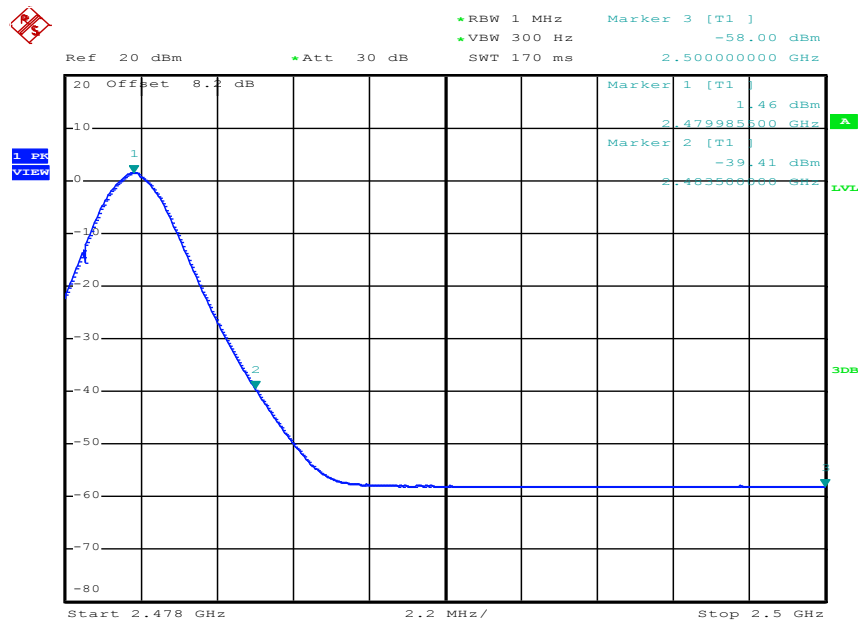
Date: 10.AUG.2019 18:43:16

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



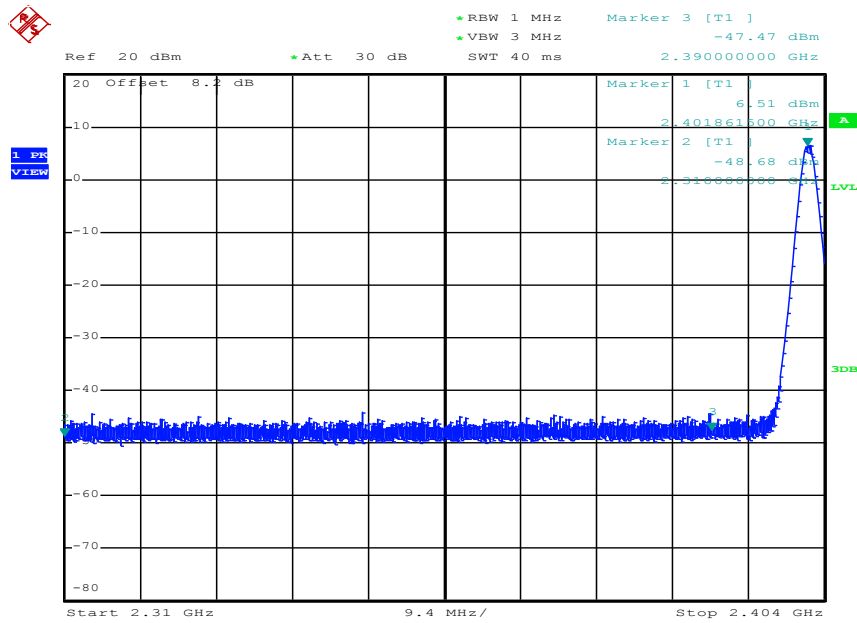
Date: 10.AUG.2019 18:47:34

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



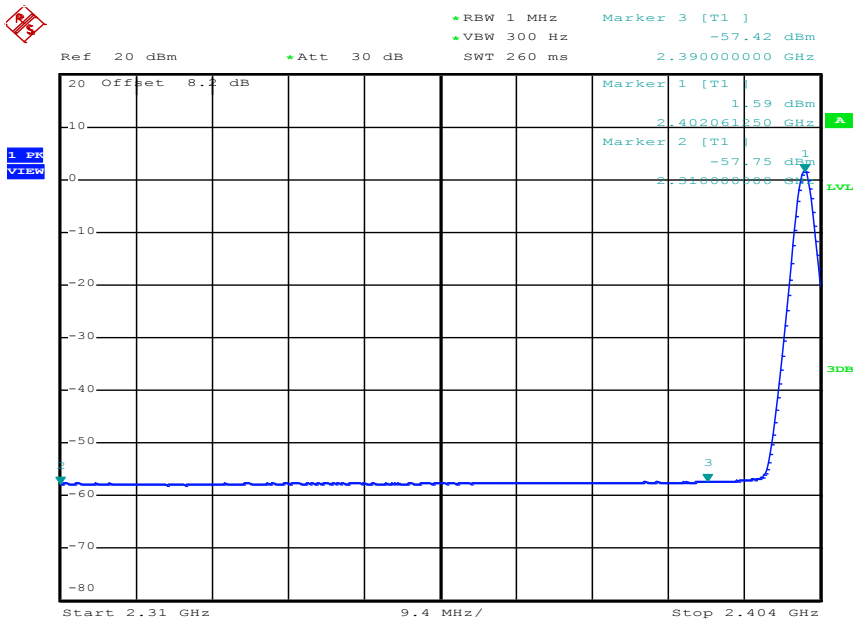
Date: 10.AUG.2019 18:47:47

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



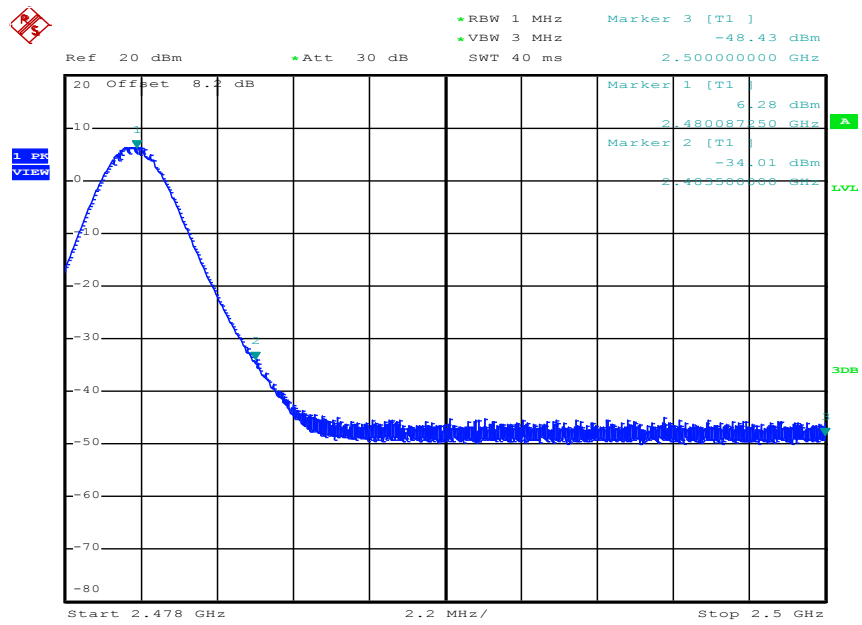
Date: 10.AUG.2019 18:50:22

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



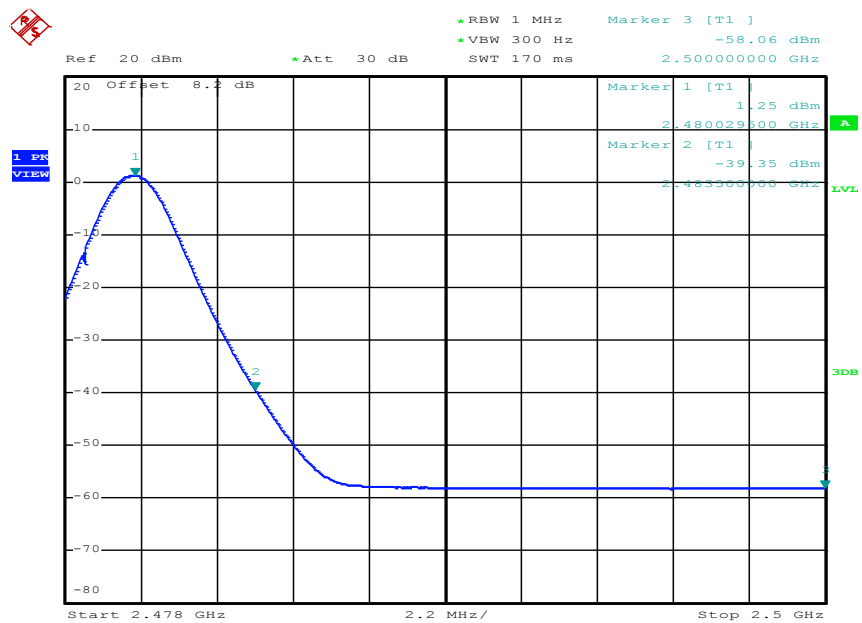
Date: 10.AUG.2019 18:50:36

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



Date: 10.AUG.2019 18:55:14

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



Date: 10.AUG.2019 18:55:28