

Appendix A

RF Test Data for BT V4.1(BDR/EDR) (Conducted Measurement)

Product Name: Letter Clock with BT Speaker

Trade Mark: N/A

Test Model: BSSK9010

Environmental Conditions

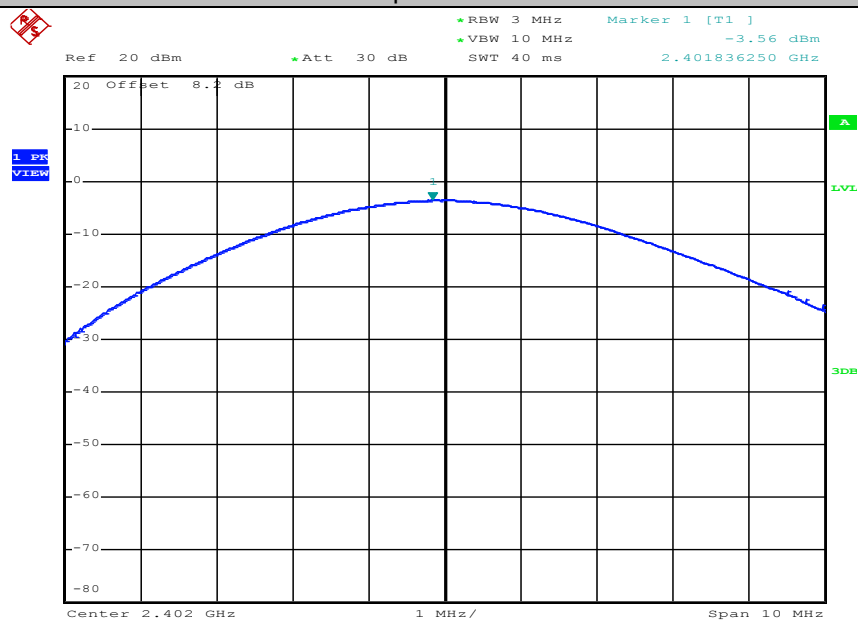
| | |
|--------------------|-------------|
| Temperature: | 23.7 ° C |
| Relative Humidity: | 53.8% |
| ATM Pressure: | 100.0 kPa |
| Test Engineer: | SCOUT WU |
| Supervised by: | Wang.Chuang |

A.1 Maximum Conducted Peak Output Power

| Mode | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------|----------|---------------------------------|-------------|---------|
| GFSK | LCH | -3.56 | 30 | PASS |
| | MCH | -1.88 | 30 | PASS |
| | HCH | -0.27 | 30 | PASS |
| $\pi/4$ DQPSK | LCH | -3.68 | 21 | PASS |
| | MCH | -2.04 | 21 | PASS |
| | HCH | -0.08 | 21 | PASS |

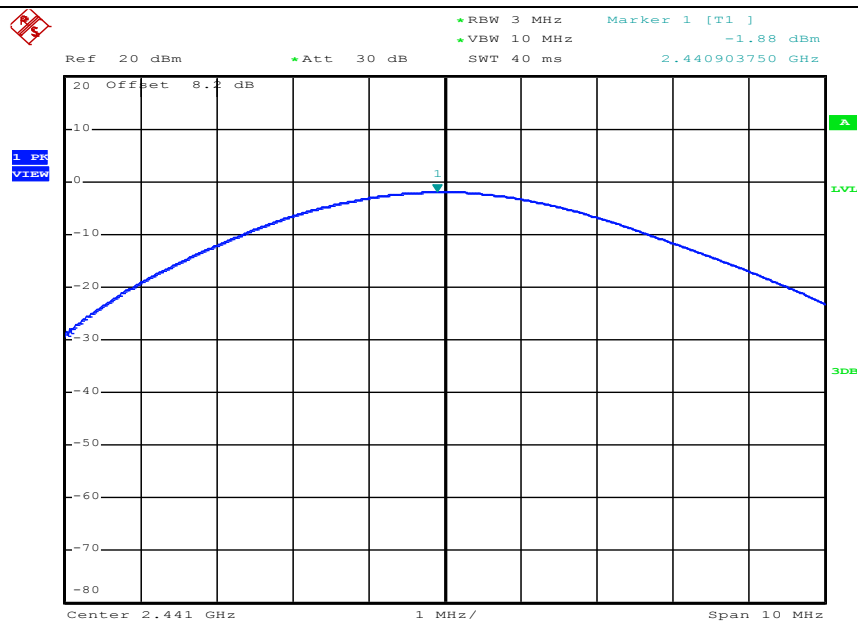
Test Graphs

GFSK/LCH



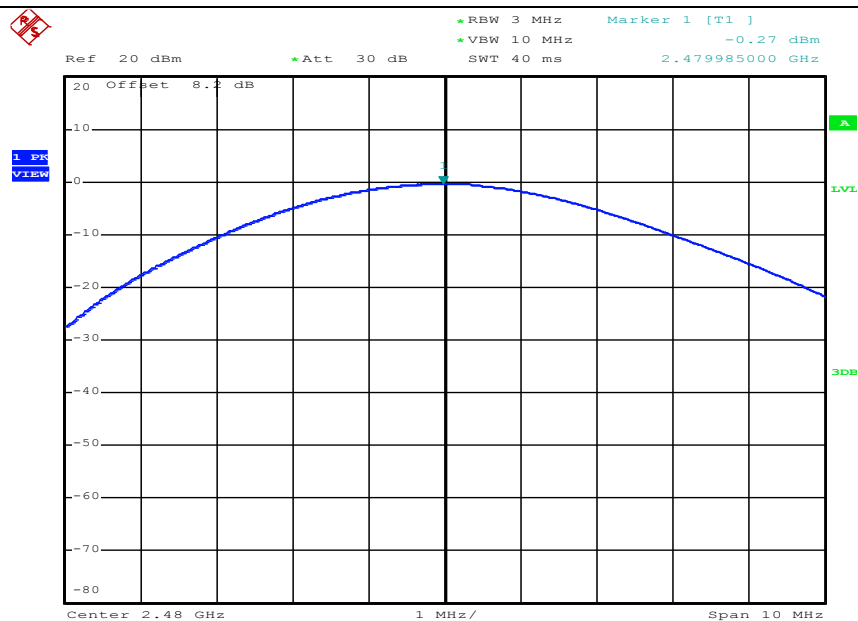
Date: 18.OCT.2019 17:55:07

GFSK/MCH

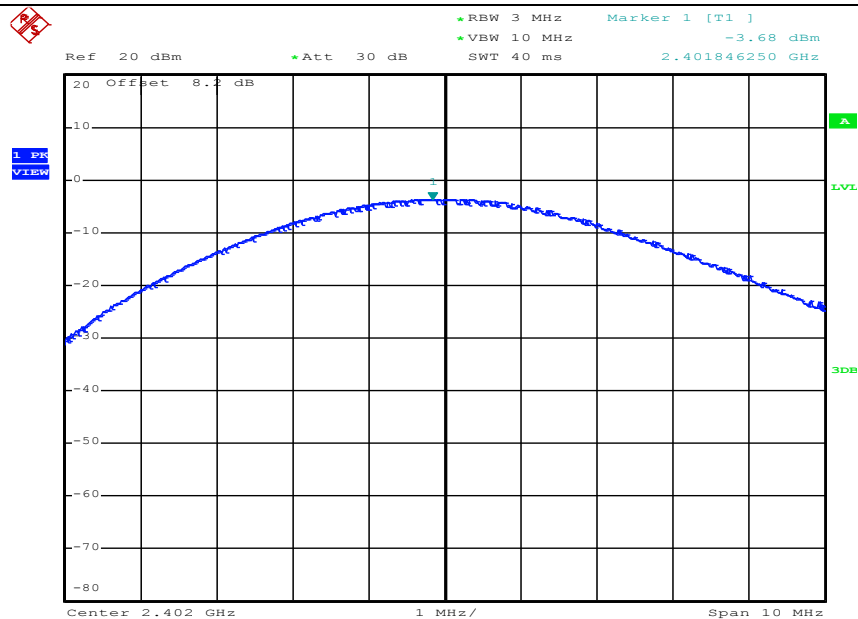


Date: 18.OCT.2019 17:57:45

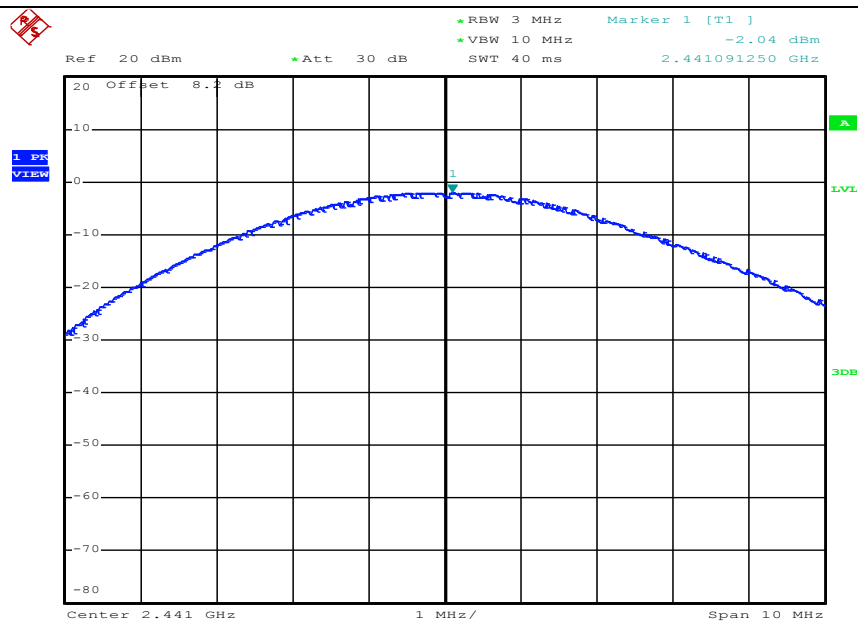
GFSK/HCH



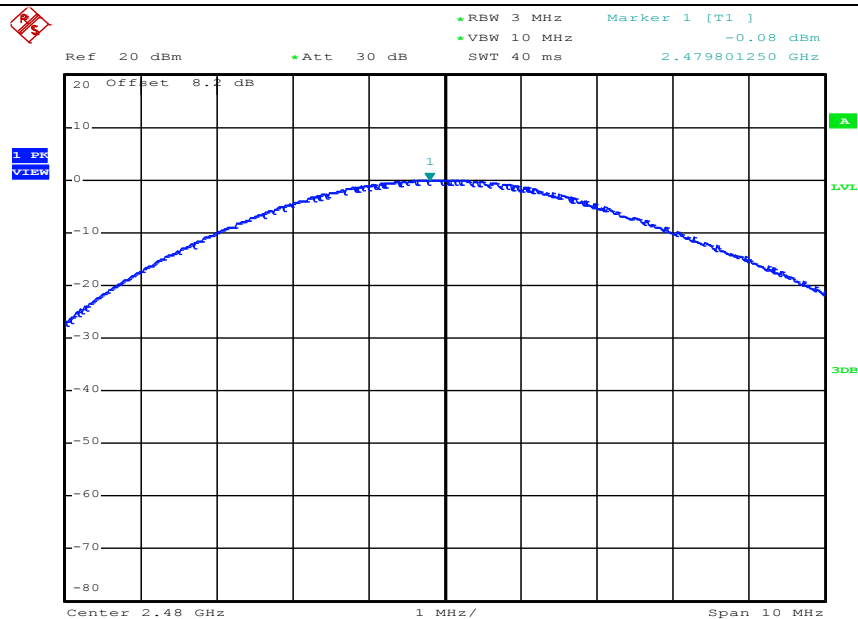
Date: 18.OCT.2019 17:59:28

 $\pi/4$ DQPSK/LCH

Date: 18.OCT.2019 18:02:15

$\pi/4$ DQPSK/MCH

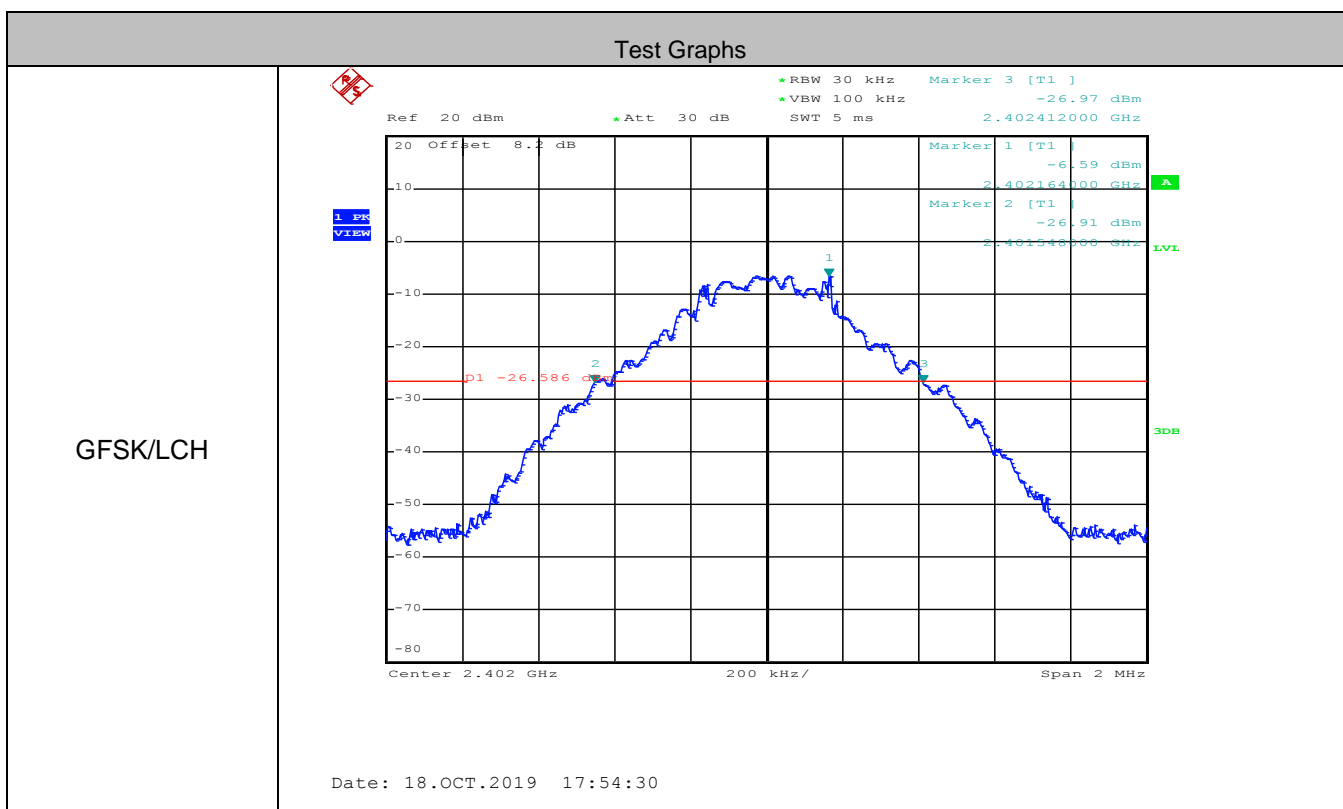
Date: 18.OCT.2019 18:04:45

 $\pi/4$ DQPSK/HCH

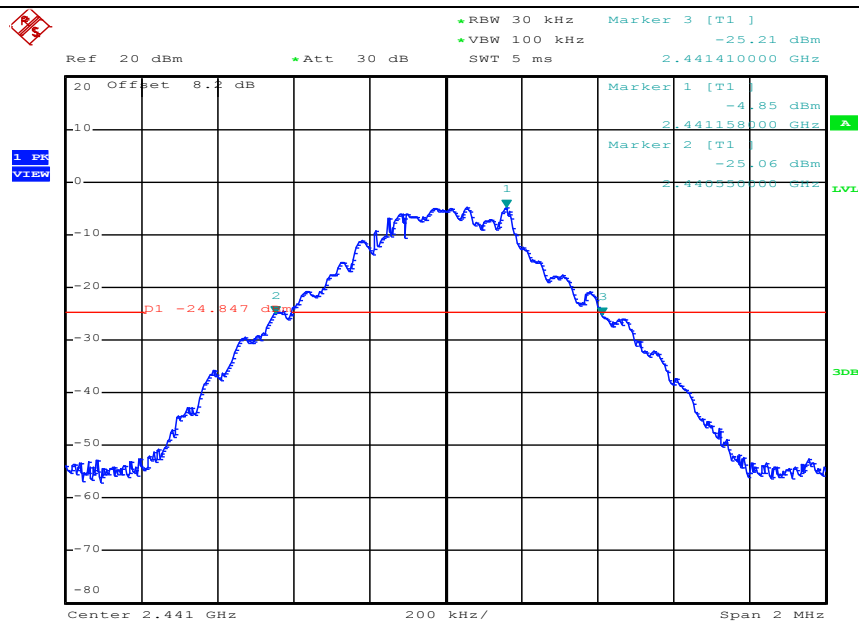
Date: 18.OCT.2019 18:06:26

A.2 20dB Bandwidth

| Mode | Channel. | 20dB Bandwidth [MHz] | Limit [MHz] | Verdict |
|---------------|----------|----------------------|---------------|---------|
| GFSK | LCH | 0.864 | Not Specified | PASS |
| | MCH | 0.860 | Not Specified | PASS |
| | HCH | 0.862 | Not Specified | PASS |
| $\pi/4$ DQPSK | LCH | 1.262 | Not Specified | PASS |
| | MCH | 1.264 | Not Specified | PASS |
| | HCH | 1.264 | Not Specified | PASS |

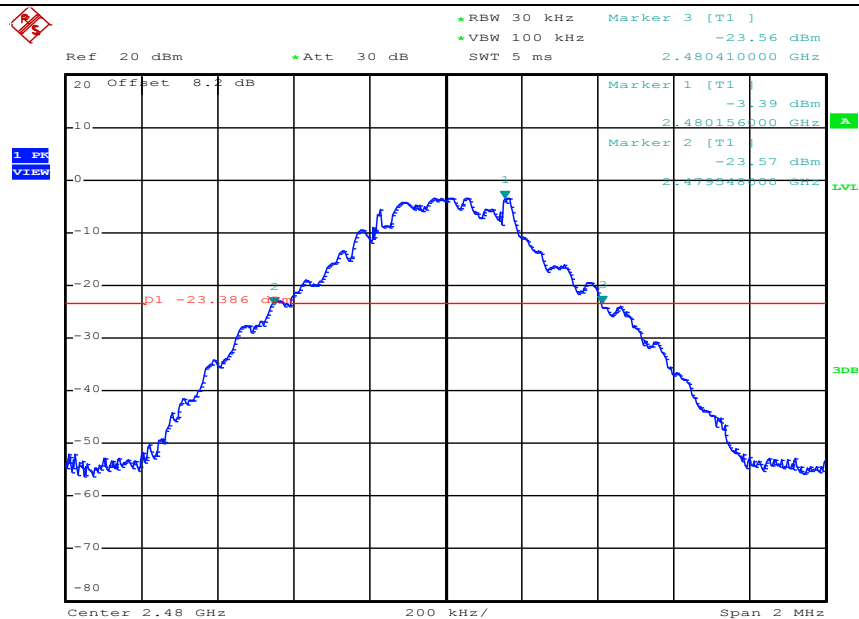


GFSK/MCH

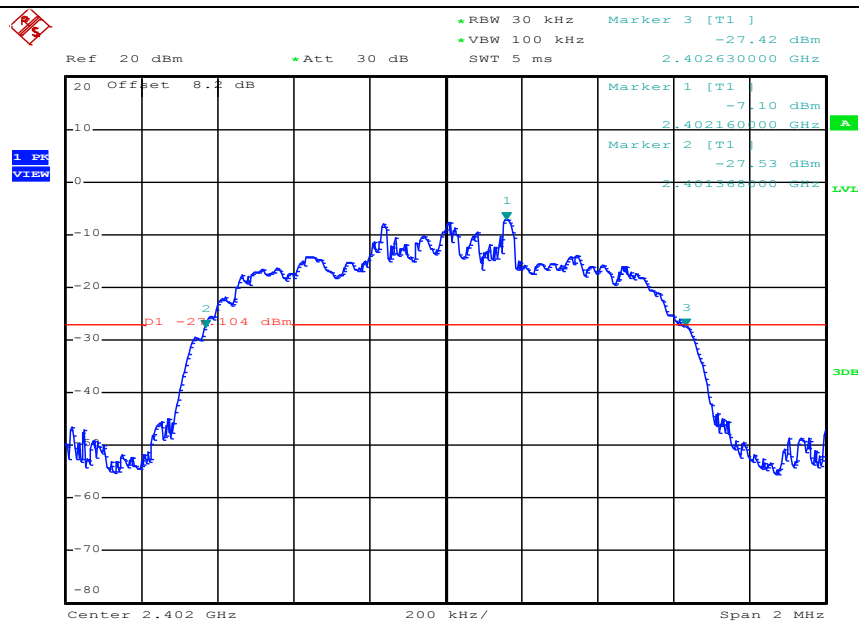


Date: 18.OCT.2019 17:57:08

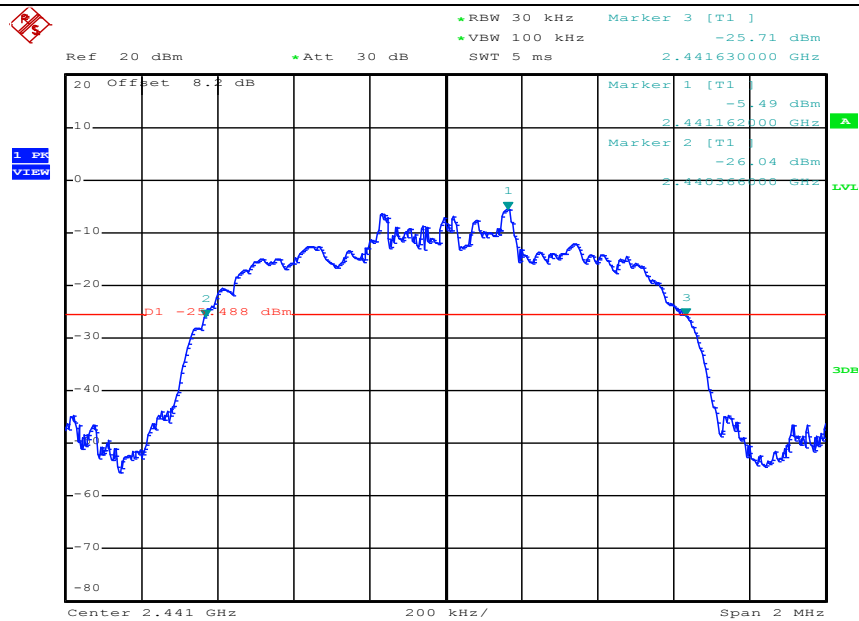
GFSK/HCH



Date: 18.OCT.2019 17:58:52

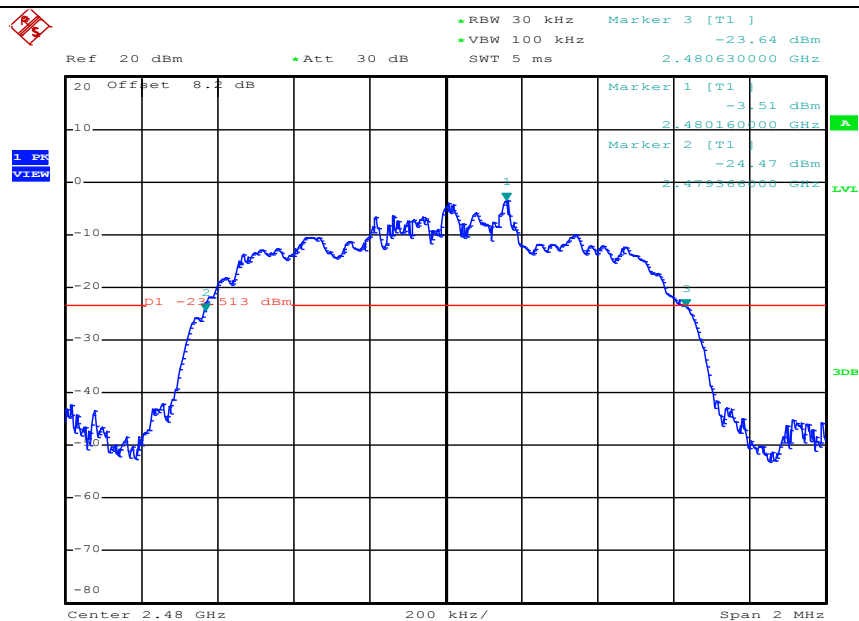
$\pi/4$ DQPSK/LCH

Date: 18.OCT.2019 18:01:39

 $\pi/4$ DQPSK/MCH

Date: 18.OCT.2019 18:04:08

$\pi/4$ DQPSK/HCH



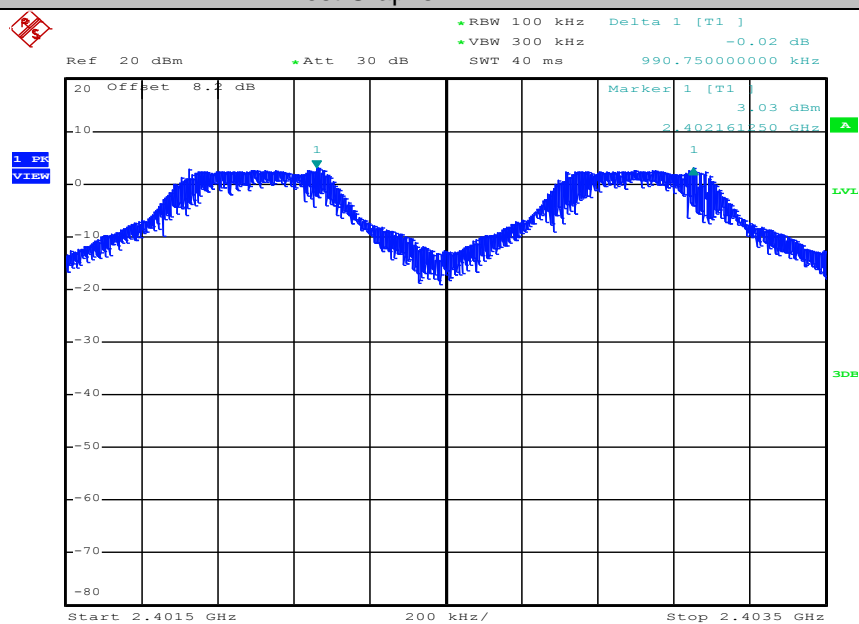
Date: 18.OCT.2019 18:05:50

A.3 Carrier Frequency Separation

| Mode | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK | LCH | 0.991 | 0.864 | PASS |
| | MCH | 1.148 | 0.860 | PASS |
| | HCH | 0.998 | 0.862 | PASS |
| π /4DQPSK | LCH | 0.988 | 0.841 | PASS |
| | MCH | 0.890 | 0.843 | PASS |
| | HCH | 0.992 | 0.843 | PASS |

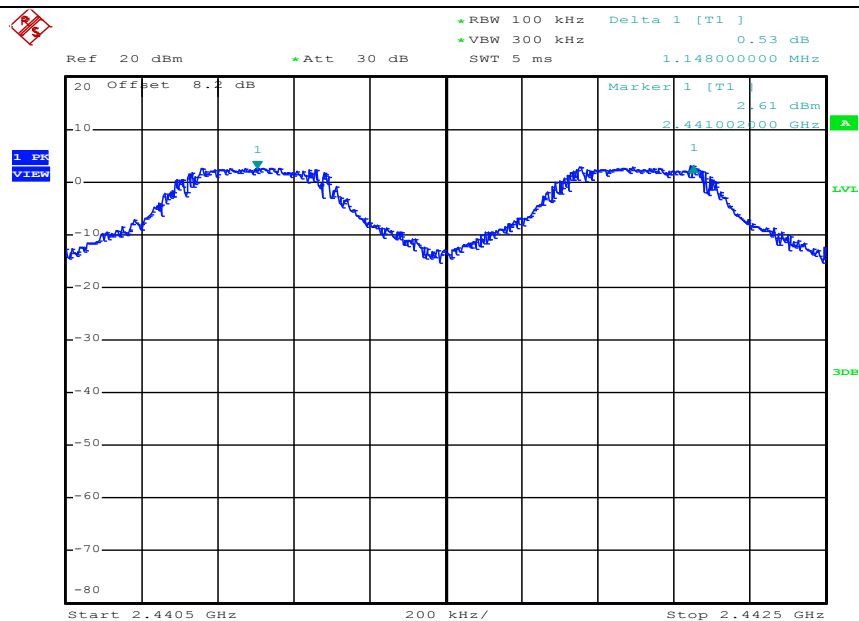
Test Graphs

GFSK/LCH



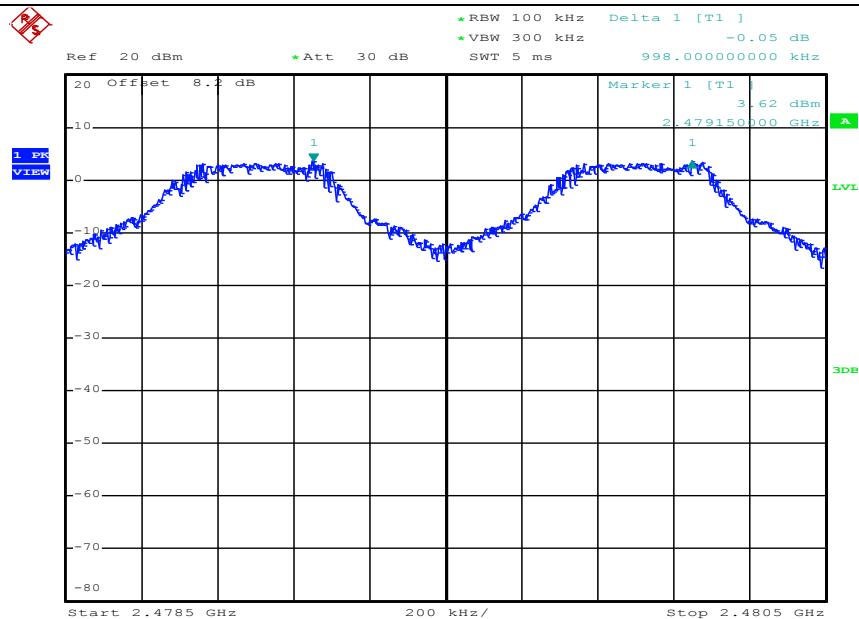
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GFSK/MCH

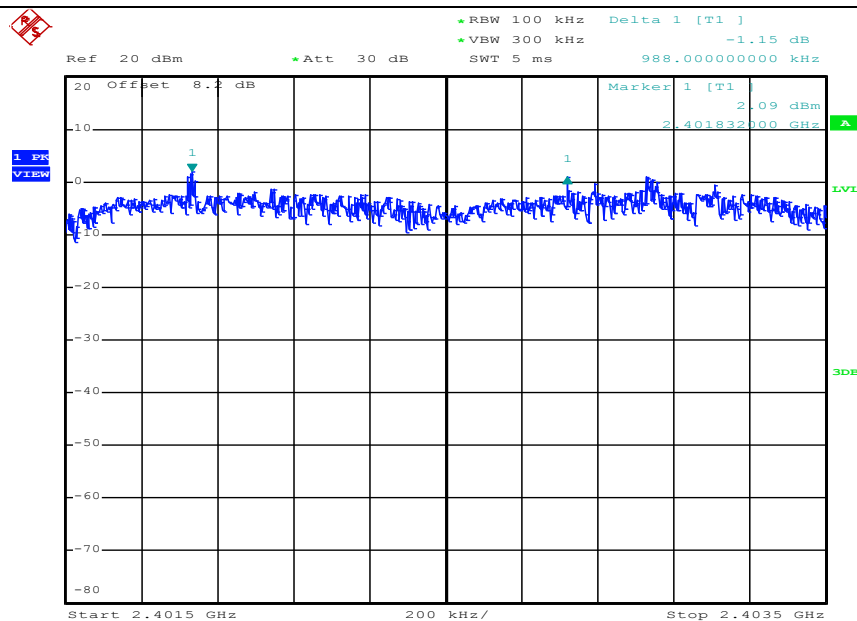


Date: 17.OCT.2019 20:39:51

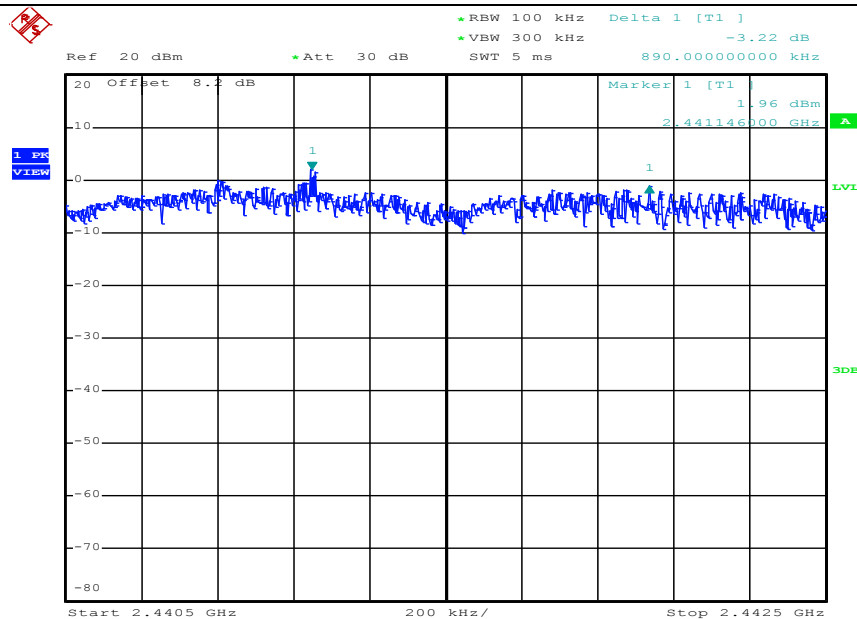
GFSK/HCH



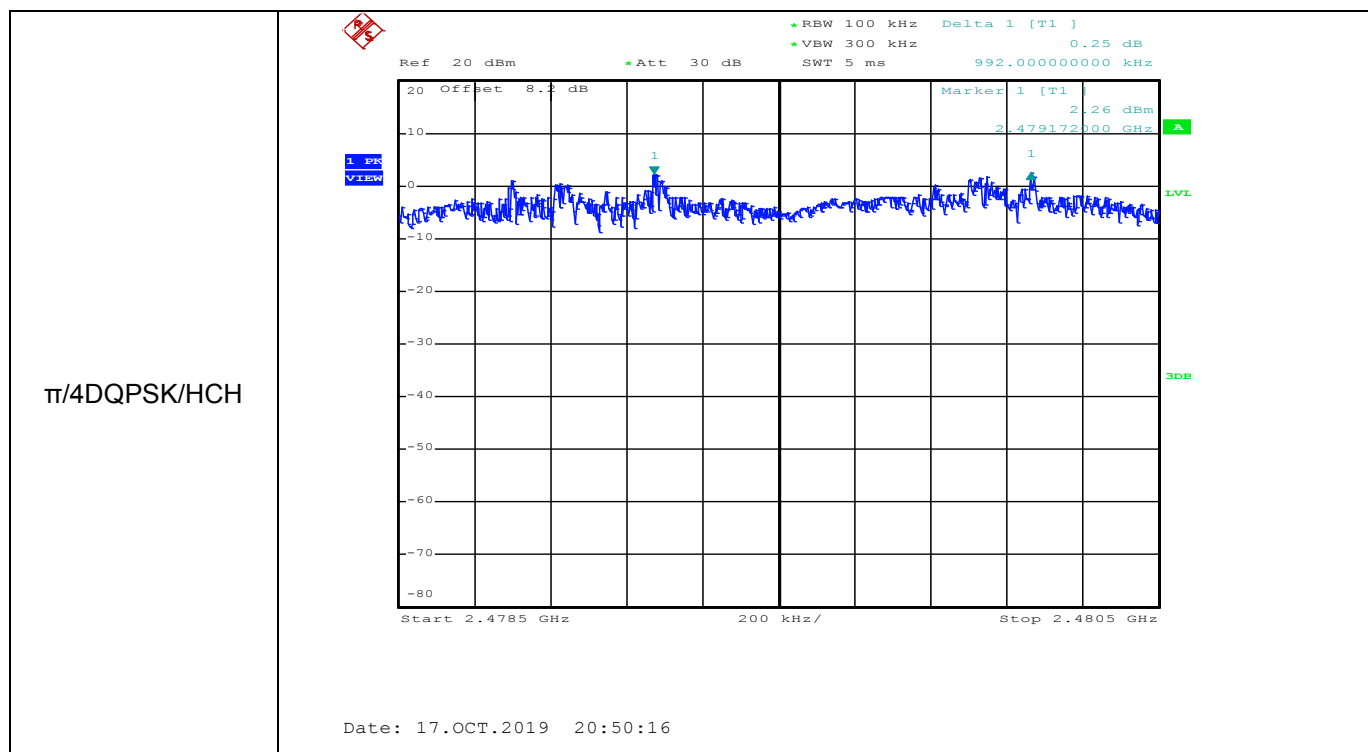
Date: 17.OCT.2019 20:40:52

$\pi/4$ DQPSK/LCH

Date: 17.OCT.2019 20:46:11

 $\pi/4$ DQPSK/MCH

Date: 17.OCT.2019 20:49:29

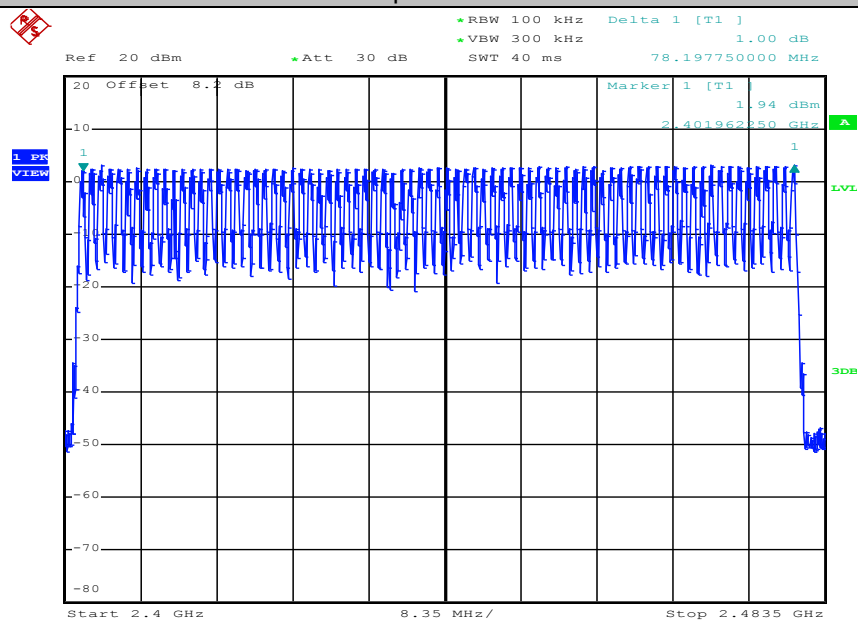


A.4 Hopping Channel Number

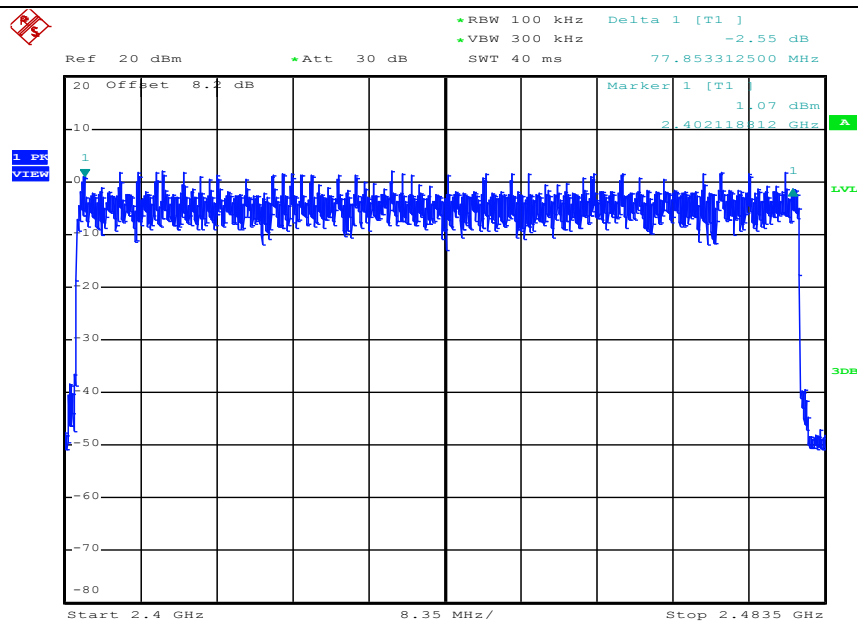
| Mode | Channel. | Number of Hopping Channel [N] | Limit [N] | Verdict |
|---------------|----------|-------------------------------|-----------|---------|
| GFSK | Hop | 79 | ≥ 15 | PASS |
| $\pi/4$ DQPSK | Hop | 79 | ≥ 15 | PASS |
| 8DPSK | Hop | 79 | ≥ 15 | PASS |

Test Graphs

GFSK/Hop



Date: 17.OCT.2019 20:44:54

 $\pi/4$ DQPSK/Hop

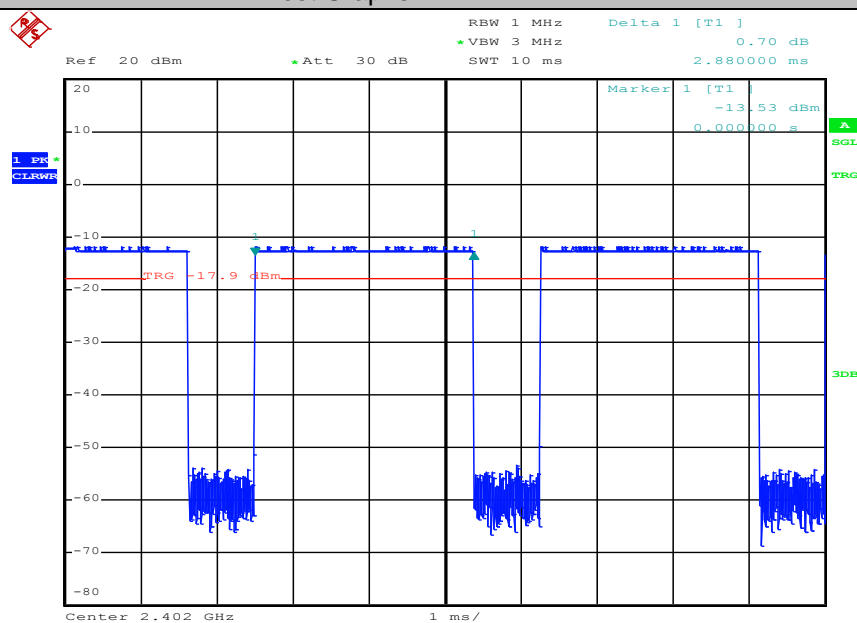
Date: 17.OCT.2019 20:54:39

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 |

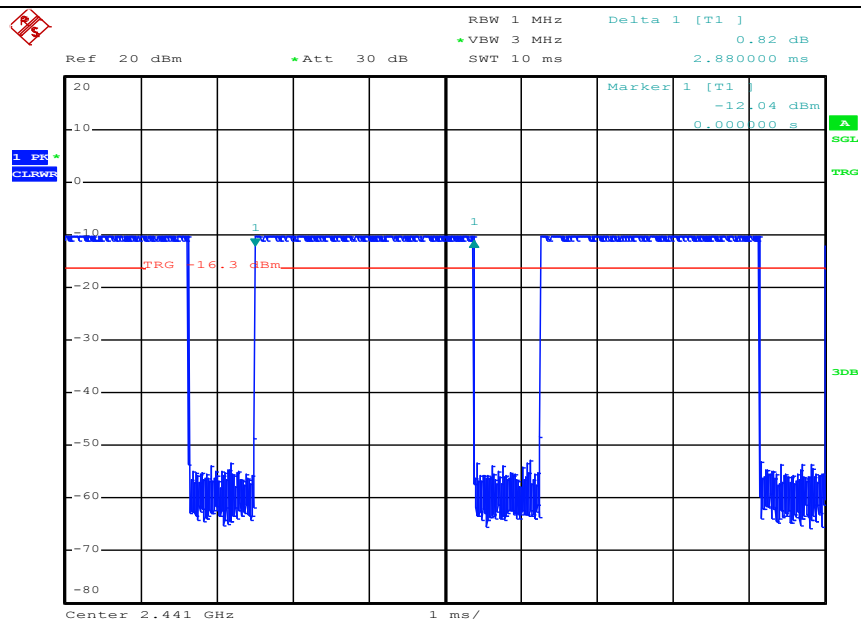
Test Graphs

GFSK_DH5/LCH



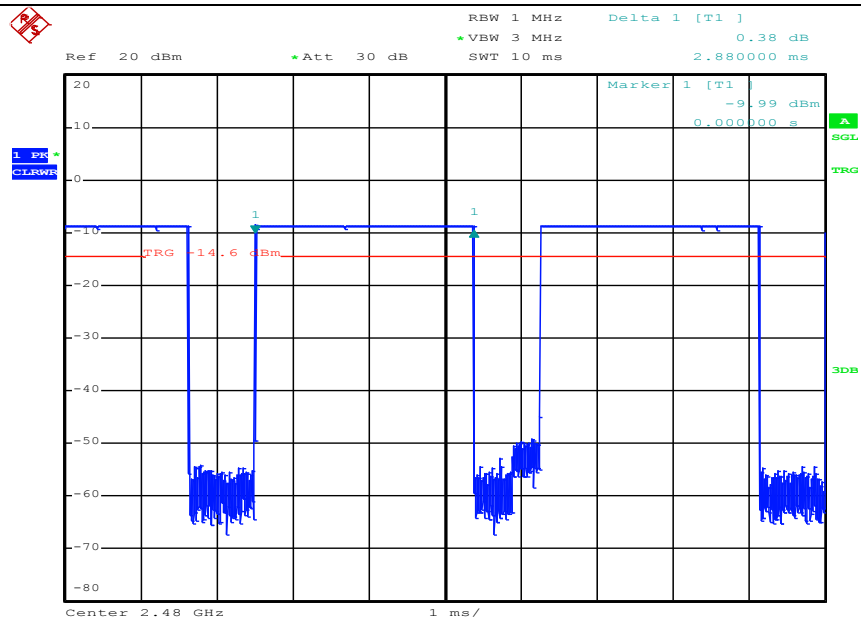
Date: 18.OCT.2019 17:54:51

GFSK_DH5/MCH



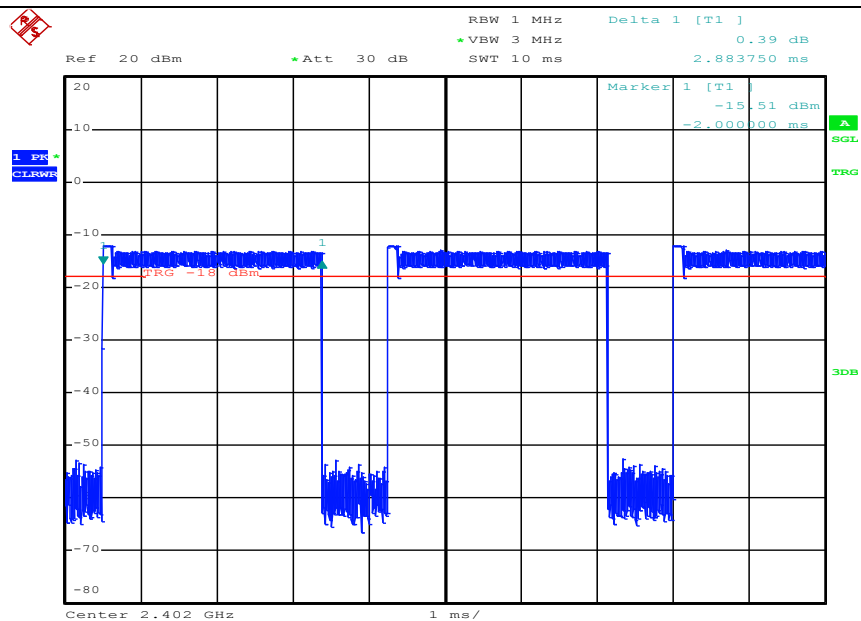
Date: 18.OCT.2019 17:57:30

GFSK_DH5/HCH



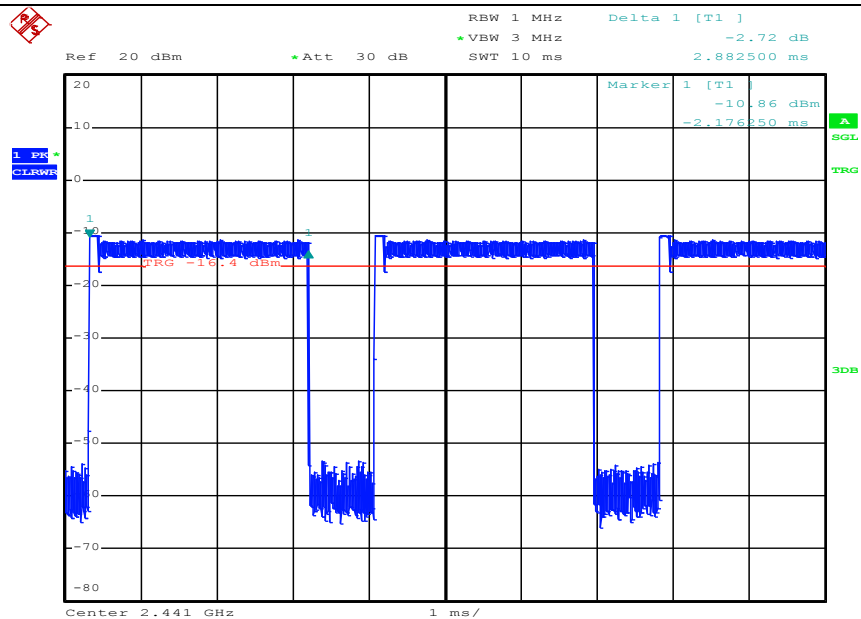
Date: 18.OCT.2019 17:59:13

$\pi/4$ DQPSK
_2DH5/LCH



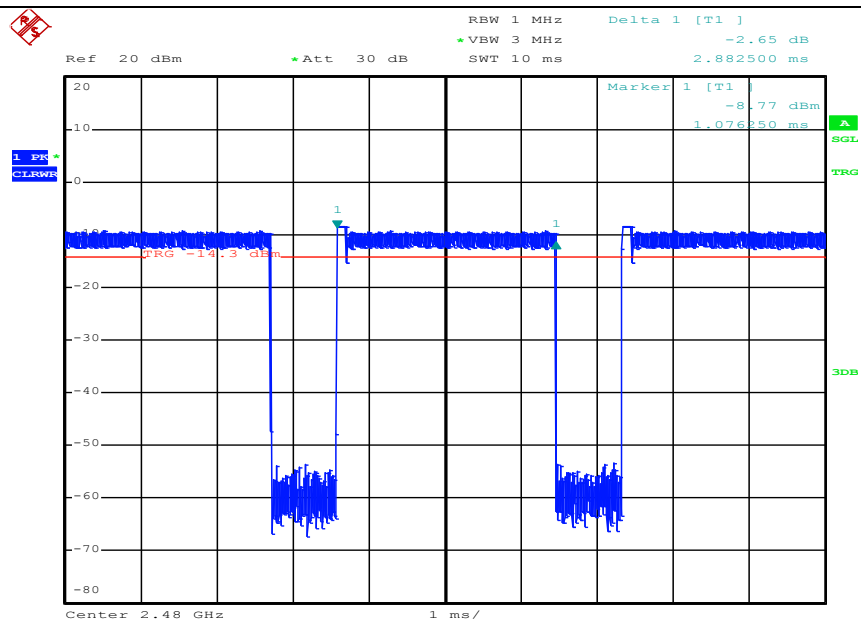
Date: 18.OCT.2019 18:02:00

$\pi/4$ DQPSK
_2DH5/MCH



Date: 18.OCT.2019 18:04:30

$\pi/4$ DQPSK
_2DH5/HCH



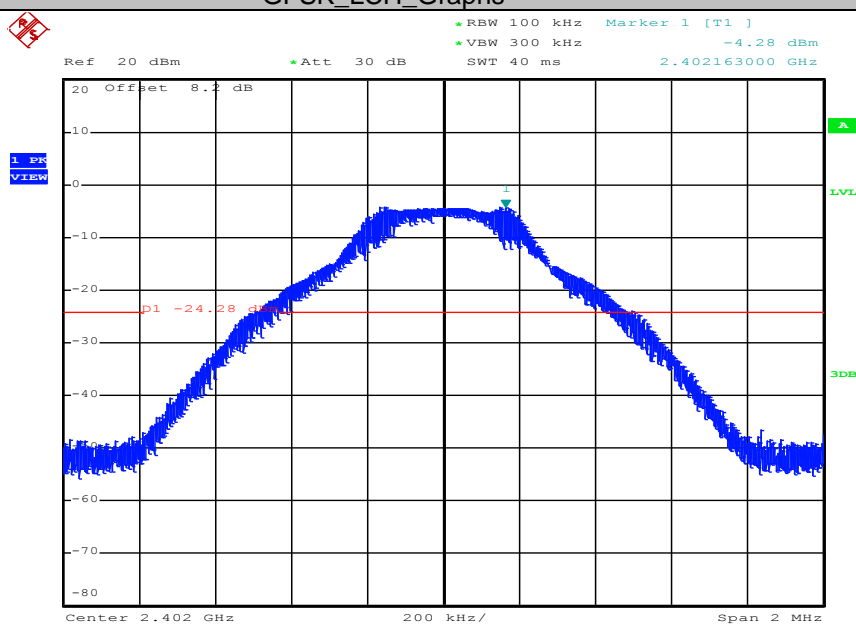
Date: 18.OCT.2019 18:06:11

A.6 RF Conducted Spurious Emissions

| Mode | Channel | Pref [dBm] | Max. Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|------------|------------------|-------------|---------|
| GFSK | LCH | -4.28 | -31.500 | -24.280 | PASS |
| | MCH | -2.62 | -32.310 | -22.620 | PASS |
| | HCH | -0.9 | -31.020 | -20.900 | PASS |
| $\pi/4$ DQPSK | LCH | -4.14 | -31.150 | -24.140 | PASS |
| | MCH | -2.34 | -31.780 | -22.340 | PASS |
| | HCH | -0.36 | -31.990 | -20.360 | PASS |

GFSK_LCH_Graphs

Pref

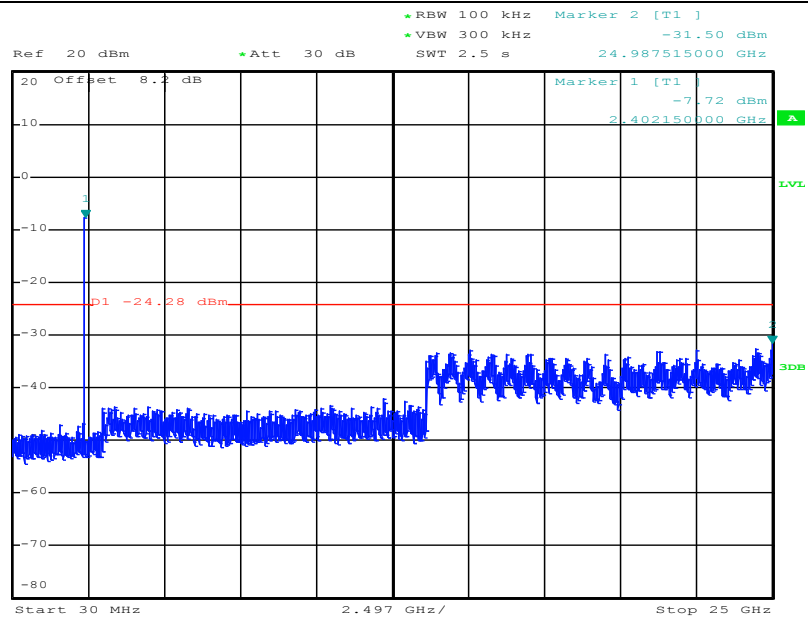


Date: 18.OCT.2019 17:55:36

P_{uw}

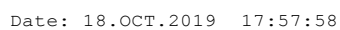


1. PK
VIEW

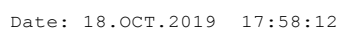


Date: 18.OCT.2019 17:55:51

Pref

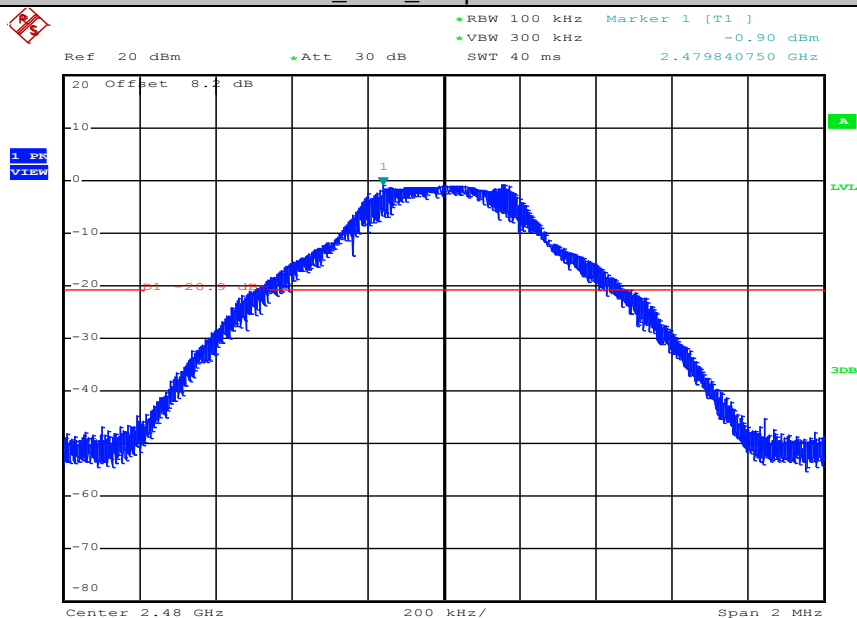


Puw



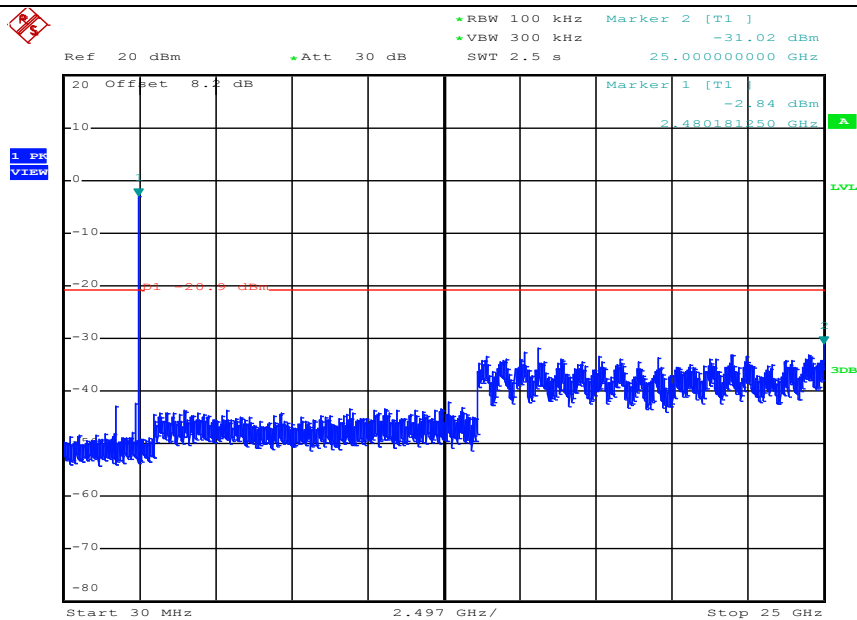
GFSK_HCH_Graphs

Pref



Date: 18.OCT.2019 17:59:58

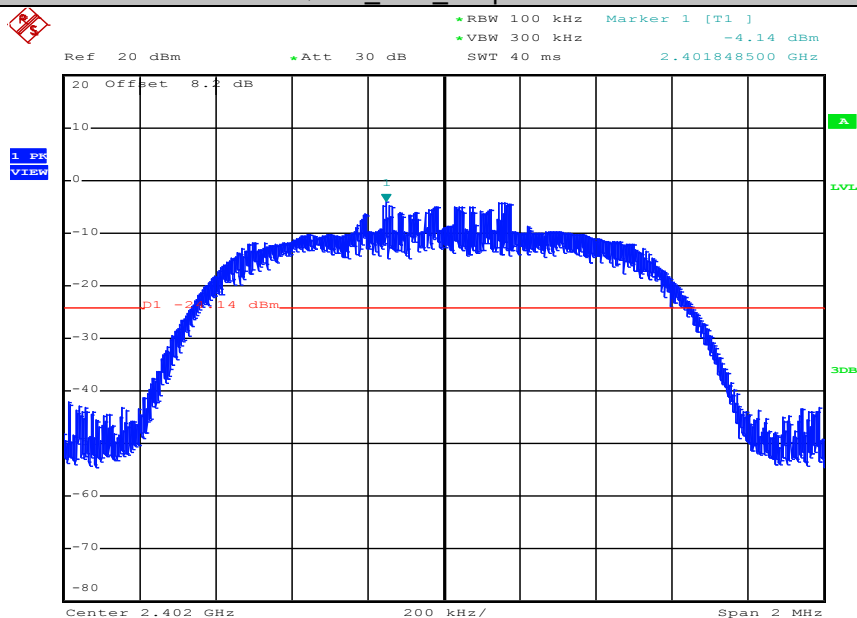
Puw



Date: 18.OCT.2019 18:00:12

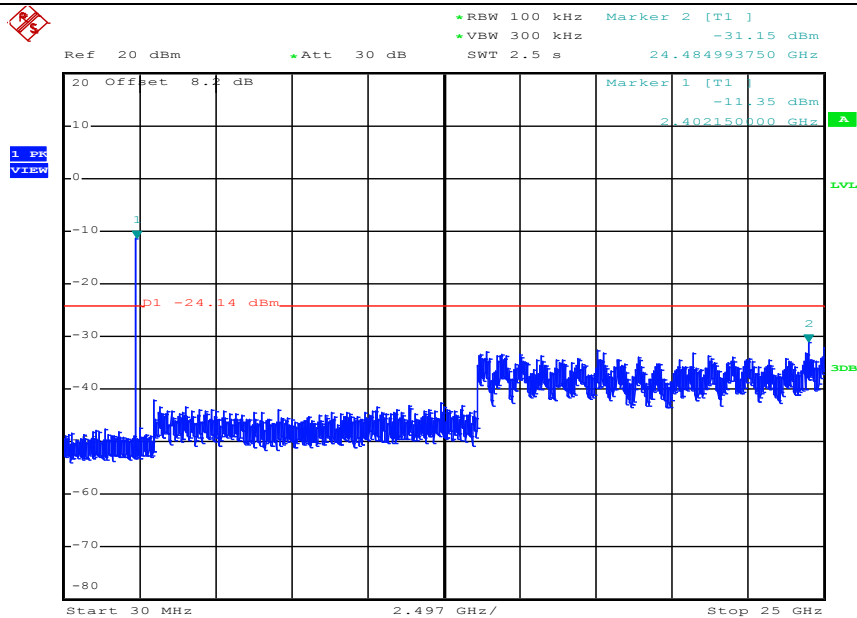
$\pi/4$ DQPSK_LCH_Graphs

Pref



Date: 18.OCT.2019 18:02:45

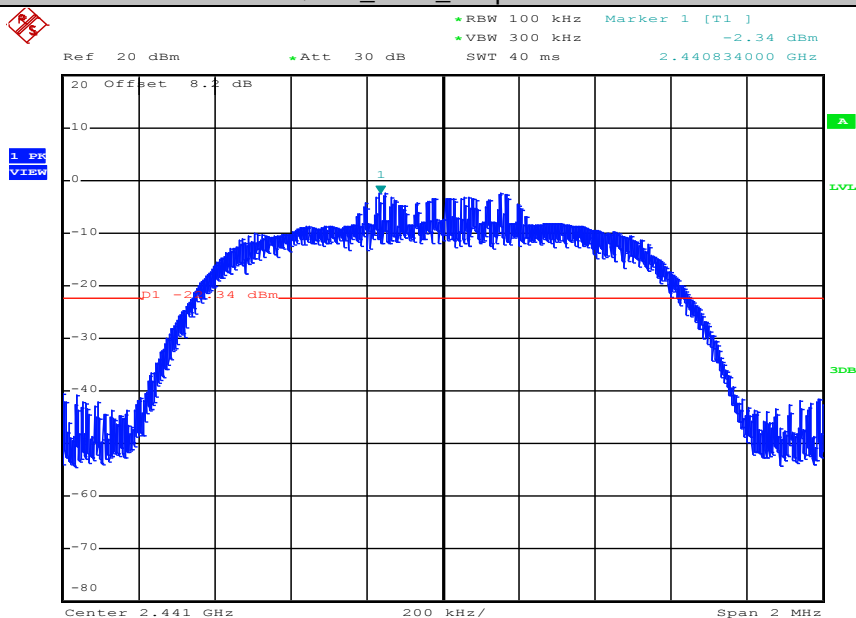
Puw



Date: 18.OCT.2019 18:02:59

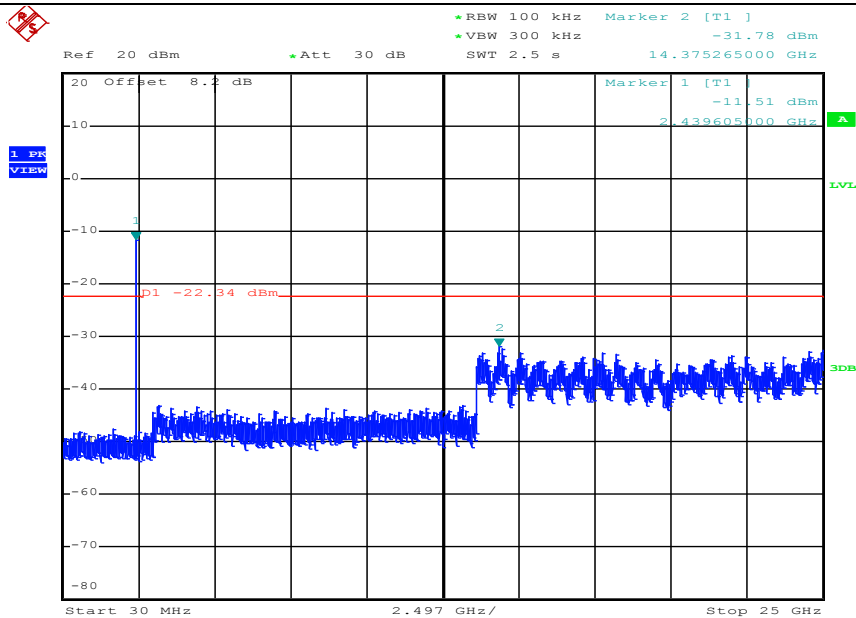
$\pi/4$ DQPSK_MCH_Graphs

Pref



Date: 18.OCT.2019 18:04:57

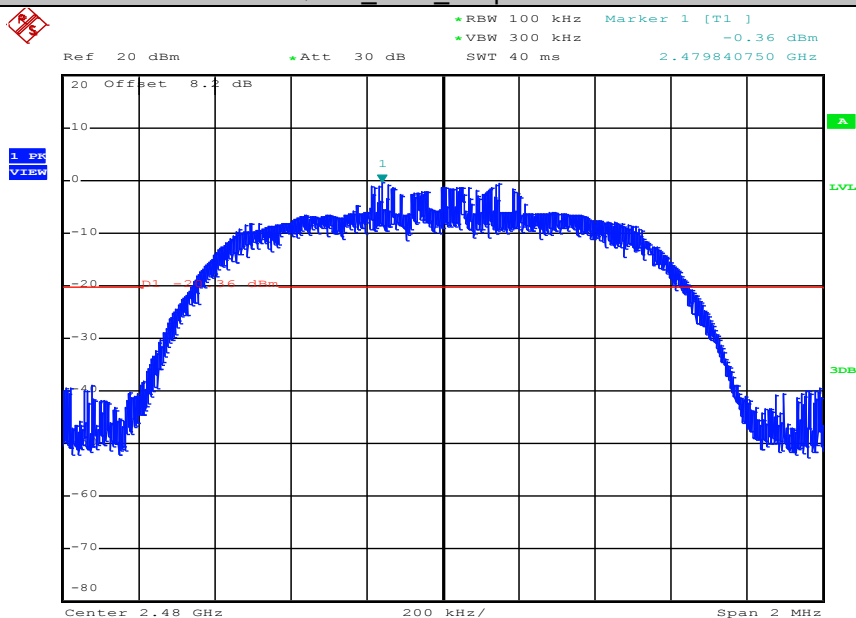
Puw



Date: 18.OCT.2019 18:05:12

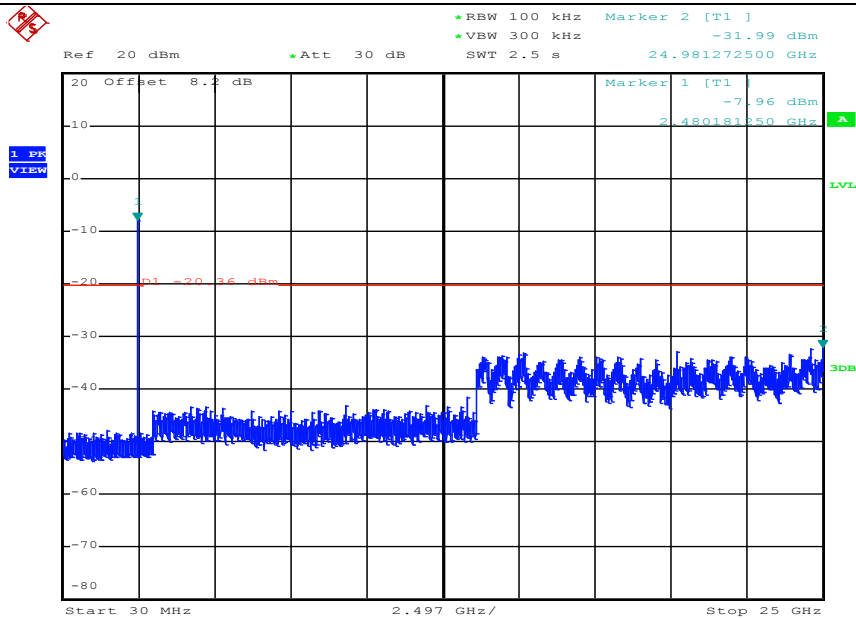
$\pi/4$ DQPSK_HCH_Graphs

Pref



Date: 18.OCT.2019 18:06:56

Puw



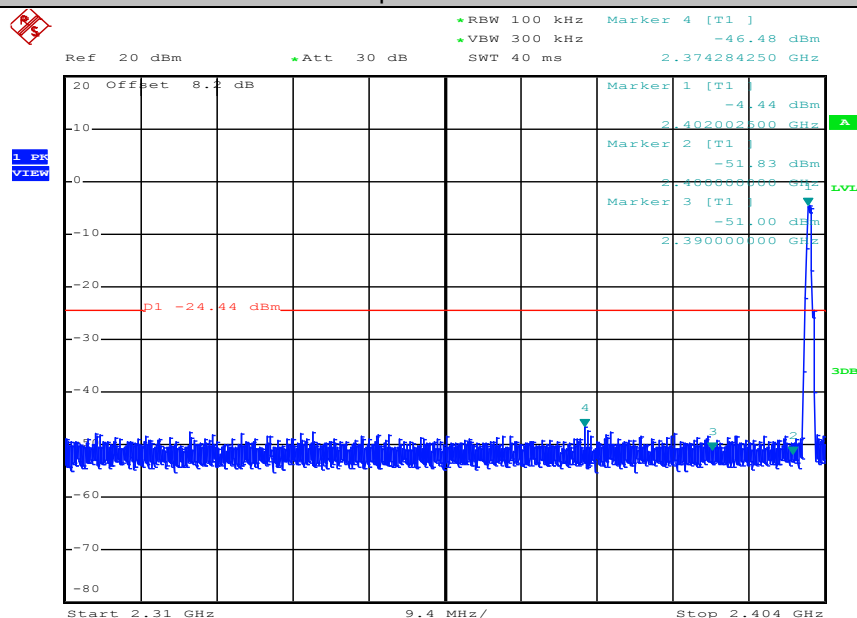
Date: 18.OCT.2019 18:07:11

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 | -4.440 | Off | -46.481 | -24.44 | PASS |
| | | | 2.940 | On | -46.979 | -17.06 | PASS |
| | HCH | 2480 | -0.960 | Off | -46.959 | -20.96 | PASS |
| | | | 3.520 | On | -47.276 | -16.48 | PASS |
| $\pi/4$ DQPSK | LCH | 2402 | -9.220 | Off | -47.482 | -29.22 | PASS |
| | | | 2.060 | On | -46.717 | -17.94 | PASS |
| | HCH | 2480 | -0.360 | Off | -46.061 | -20.36 | PASS |
| | | | 2.500 | On | -47.314 | -17.5 | PASS |

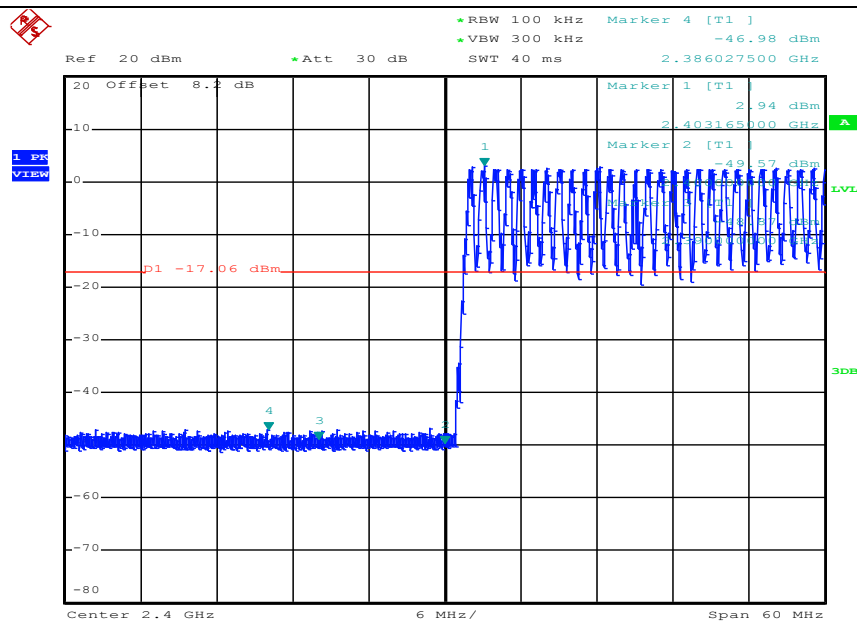
Test Graphs

GFSK/LCH/No Hop



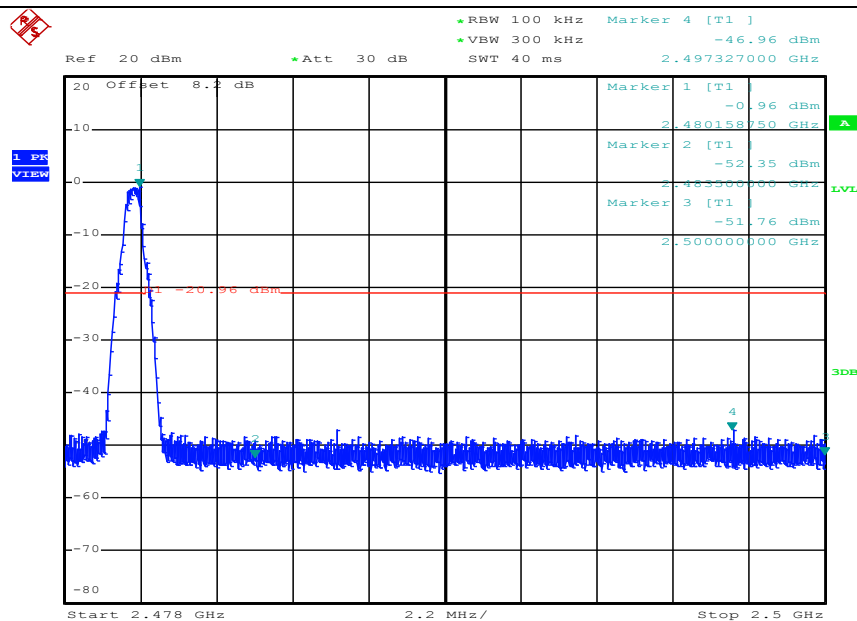
Date: 18.OCT.2019 17:55:23

GFSK/LCH/Hop



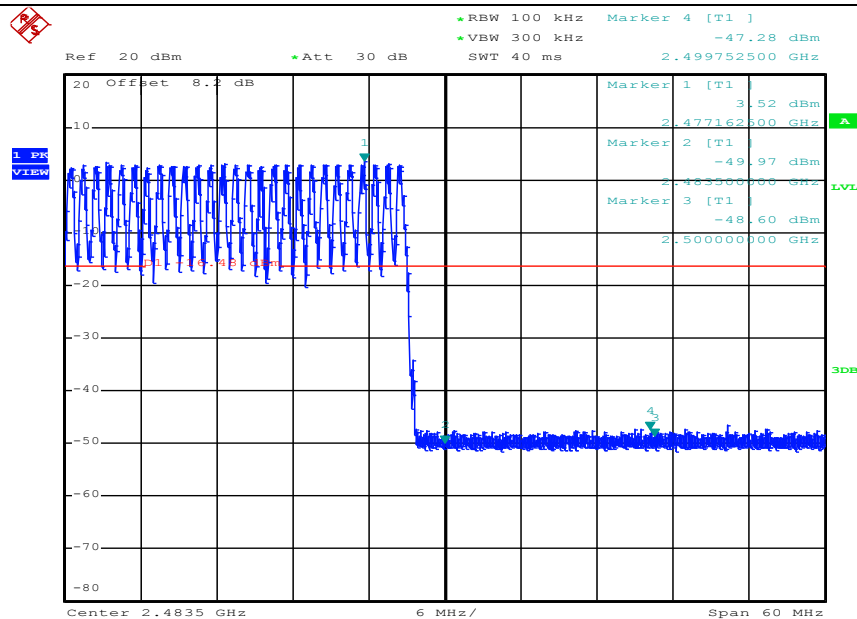
Date: 17.OCT.2019 20:38:25

GFSK/HCH/No Hop



Date: 18.OCT.2019 17:59:45

GFSK/HCH/Hop

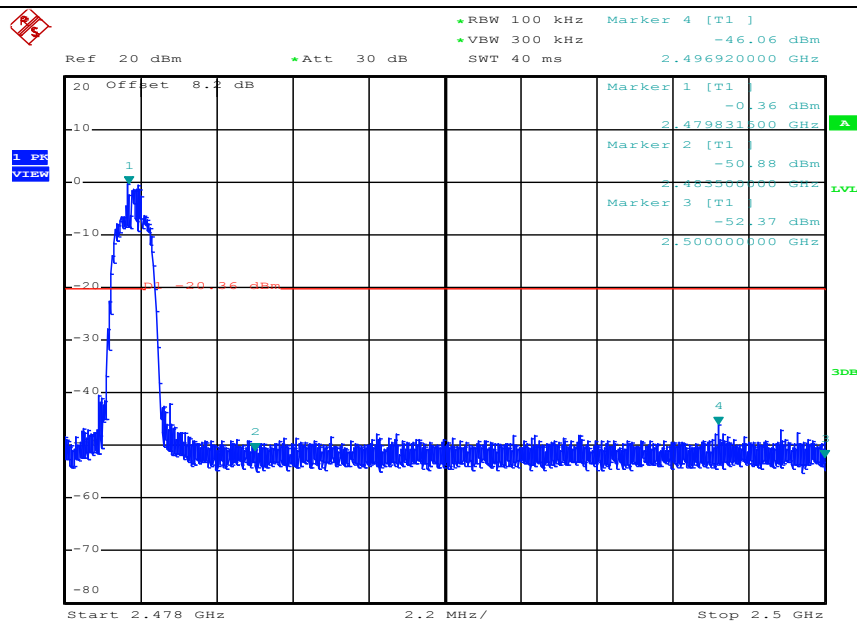


Date: 17.OCT.2019 20:42:42

Date: 18.OCT.2019 18:02:32

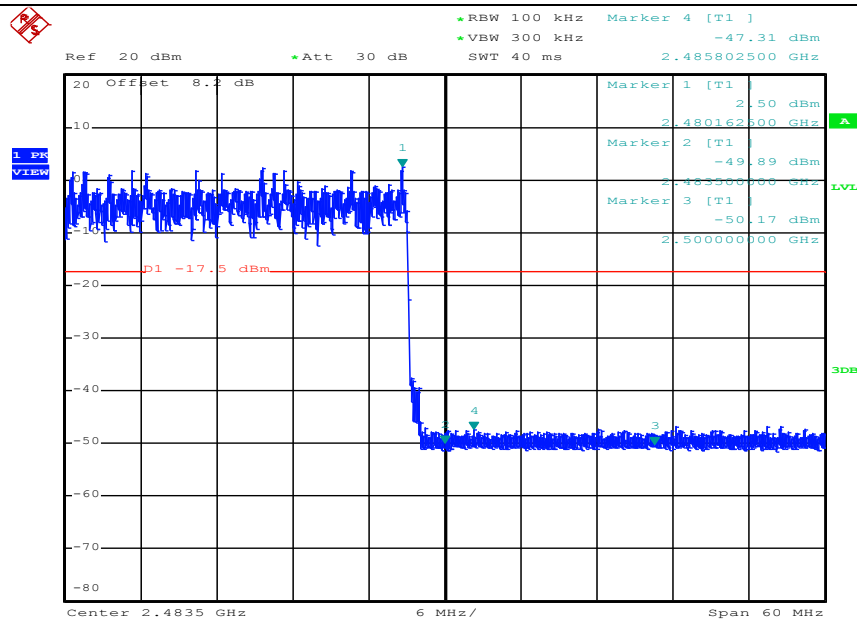
Date: 17.OCT.2019 20:48:38

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



Date: 18.OCT.2019 18:06:42

$\pi/4$ DQPSK/HCH/Hop

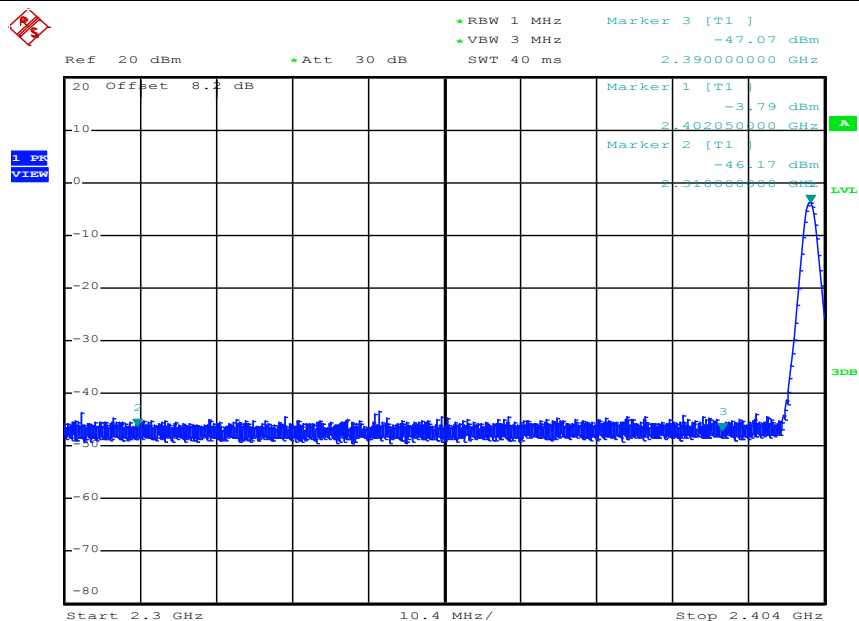


Date: 17.OCT.2019 20:52:09

A.8 Restrict-band band-edge measurements

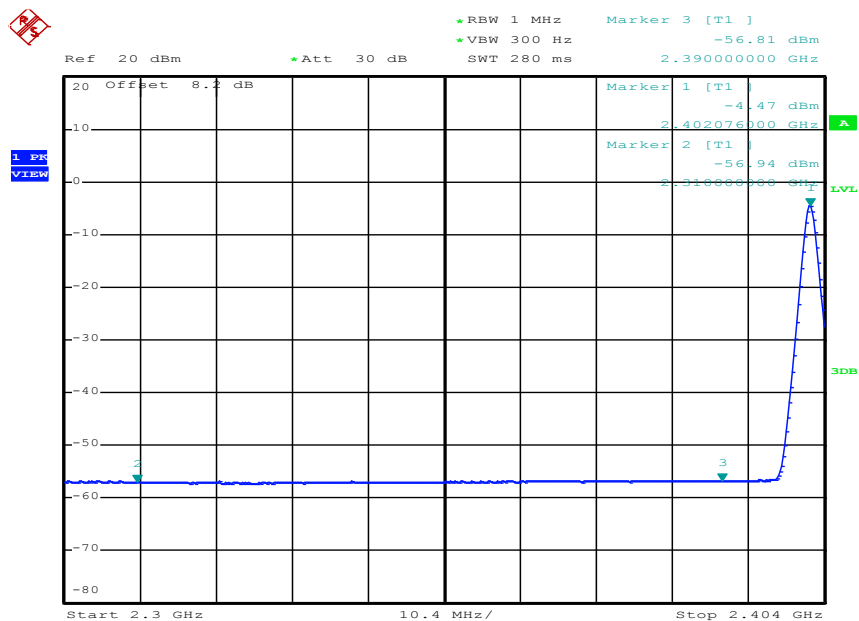
| Test Mode | Hopping | Freq. | Power [dBm] | Gain | Ground Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|---------------|---------|--------|-------------|------|---------------|------------|----------|----------------|---------|
| GFSK | Off | 2310.0 | -46.17 | 2.0 | 0 | 49.09 | PEAK | 74 | PASS |
| | Off | 2310.0 | -56.94 | 2.0 | 0 | 38.32 | AV | 54 | PASS |
| | Off | 2390.0 | -47.07 | 2.0 | 0 | 48.19 | PEAK | 74 | PASS |
| | Off | 2390.0 | -56.81 | 2.0 | 0 | 38.45 | AV | 54 | PASS |
| | Off | 2483.5 | -39.37 | 2.0 | 0 | 55.89 | PEAK | 74 | PASS |
| | Off | 2483.5 | -42.46 | 2.0 | 0 | 52.80 | AV | 54 | PASS |
| | Off | 2500.0 | -48.75 | 2.0 | 0 | 46.51 | PEAK | 74 | PASS |
| | Off | 2500.0 | -57.33 | 2.0 | 0 | 37.93 | AV | 54 | PASS |
| $\pi/4$ DQPSK | Off | 2310.0 | -47.54 | 2.0 | 0 | 47.72 | PEAK | 74 | PASS |
| | Off | 2310.0 | -56.99 | 2.0 | 0 | 38.27 | AV | 54 | PASS |
| | Off | 2390.0 | -46.39 | 2.0 | 0 | 48.87 | PEAK | 74 | PASS |
| | Off | 2390.0 | -56.83 | 2.0 | 0 | 38.43 | AV | 54 | PASS |
| | Off | 2483.5 | -39.51 | 2.0 | 0 | 55.75 | PEAK | 74 | PASS |
| | Off | 2483.5 | -44.69 | 2.0 | 0 | 50.57 | AV | 54 | PASS |
| | Off | 2500.0 | -45.95 | 2.0 | 0 | 49.31 | PEAK | 74 | PASS |
| | Off | 2500.0 | -57.30 | 2.0 | 0 | 37.96 | AV | 54 | PASS |

Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



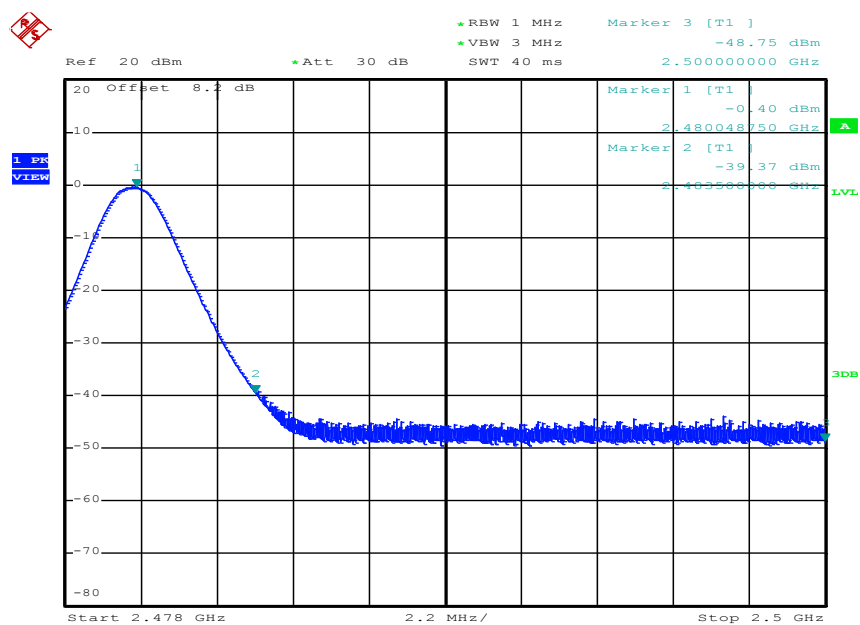
Date: 18.OCT.2019 17:56:09

Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



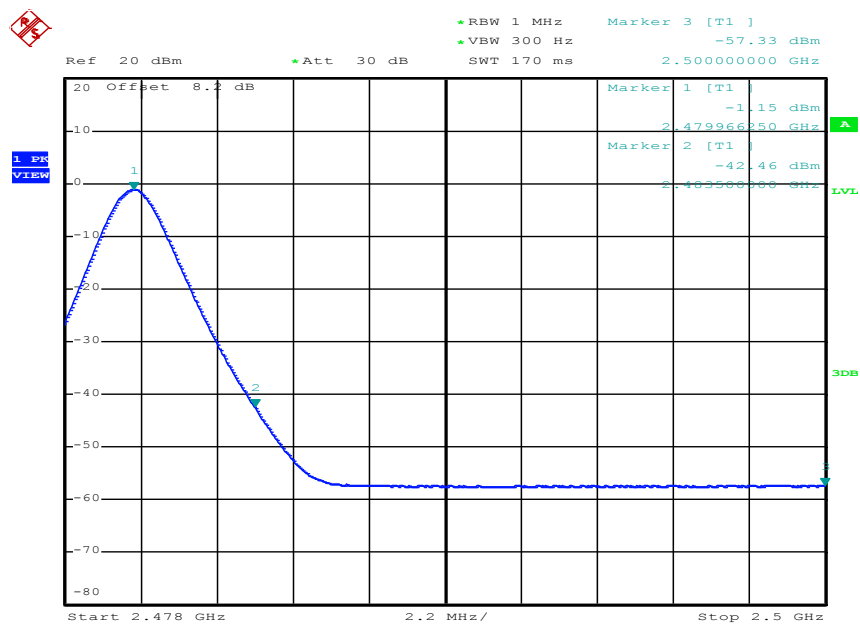
Date: 18.OCT.2019 17:56:23

Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)

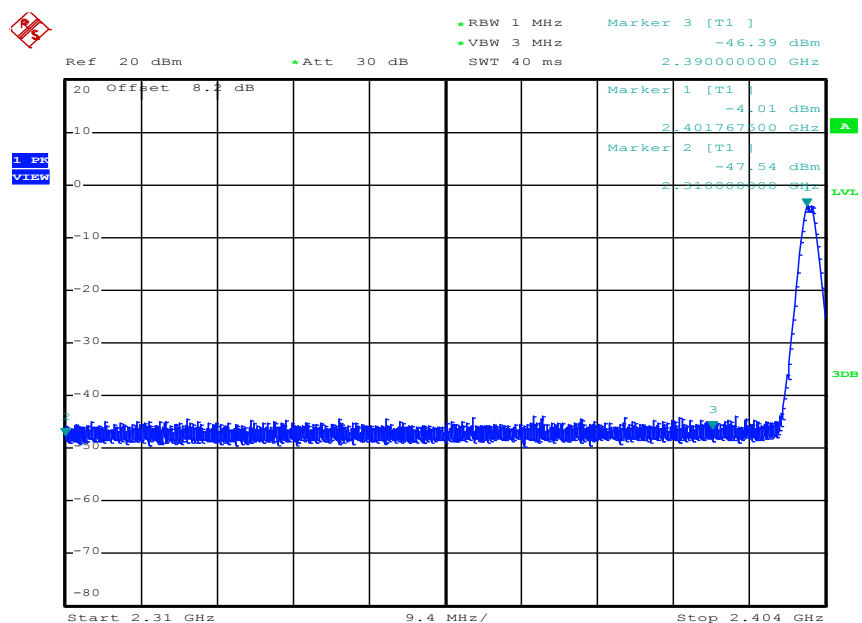


Date: 18.OCT.2019 18:00:31

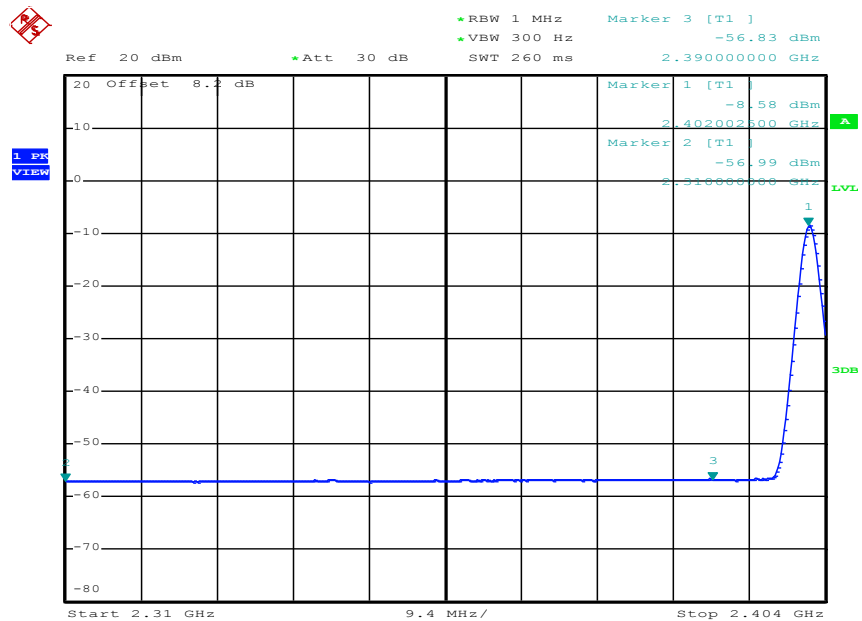
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



Date: 18.OCT.2019 18:00:44

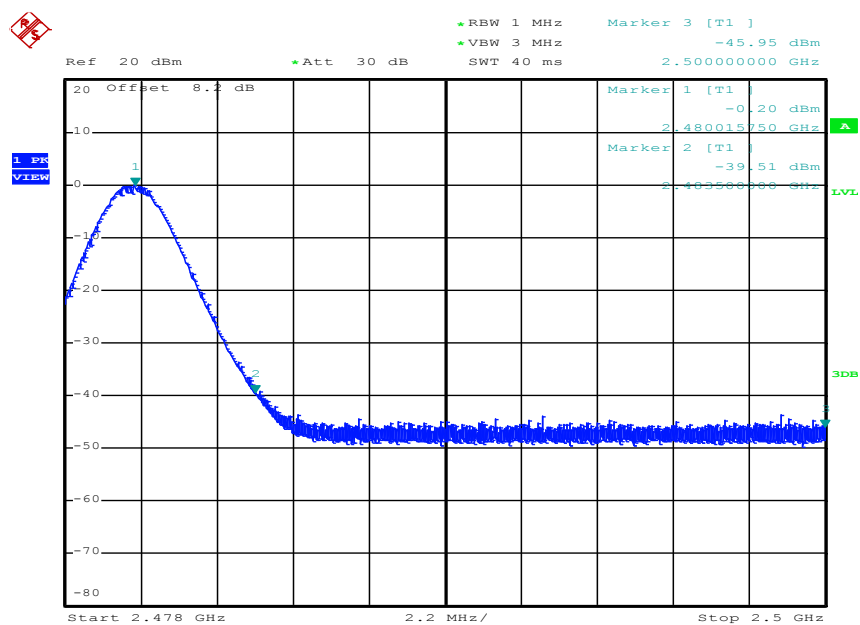
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)

Date: 18.OCT.2019 18:03:18

Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

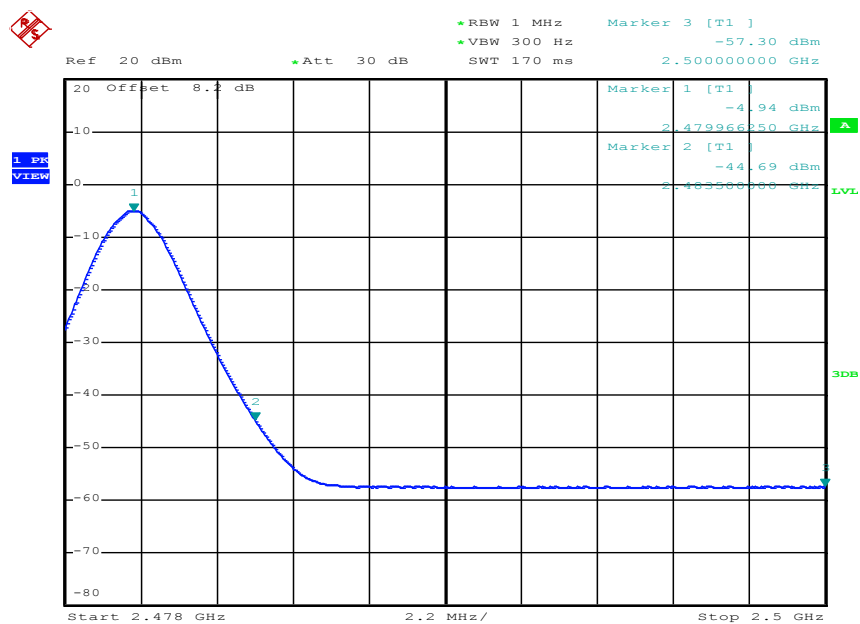
Date: 18.OCT.2019 18:03:31

Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



Date: 18.OCT.2019 18:07:30

Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



Date: 18.OCT.2019 18:07:43