# Appendix A

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

**Product Name: Bluetooth speaker & Bluetooth Boombox**

**Trade Mark: N/A**

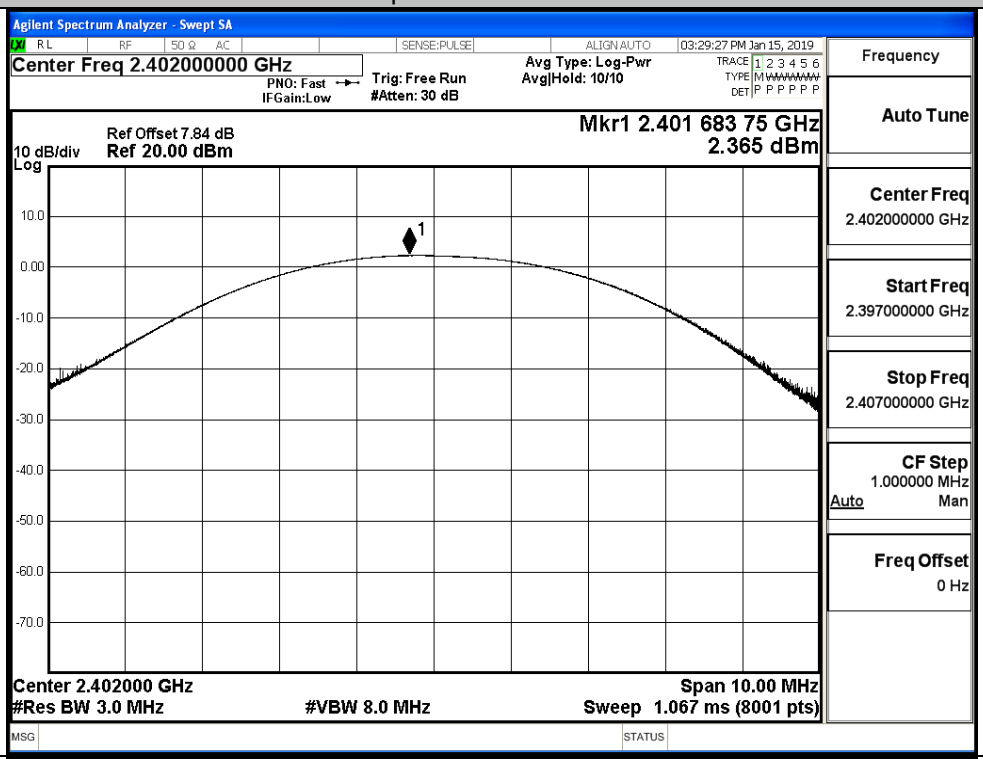
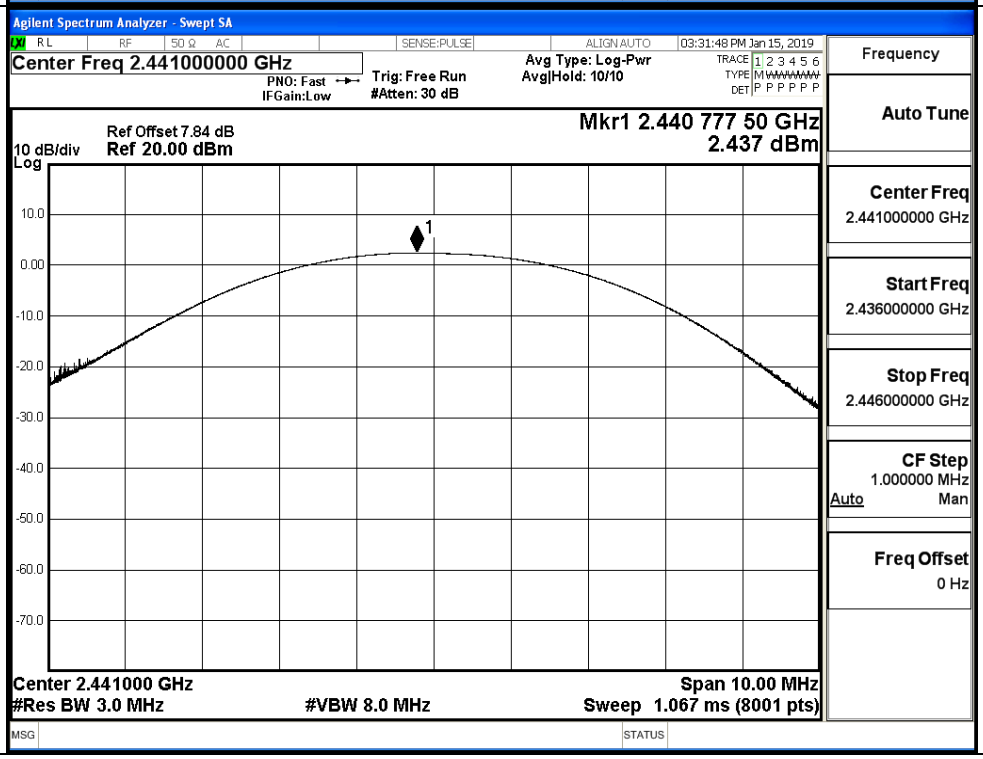
**Test Model: H07SW**

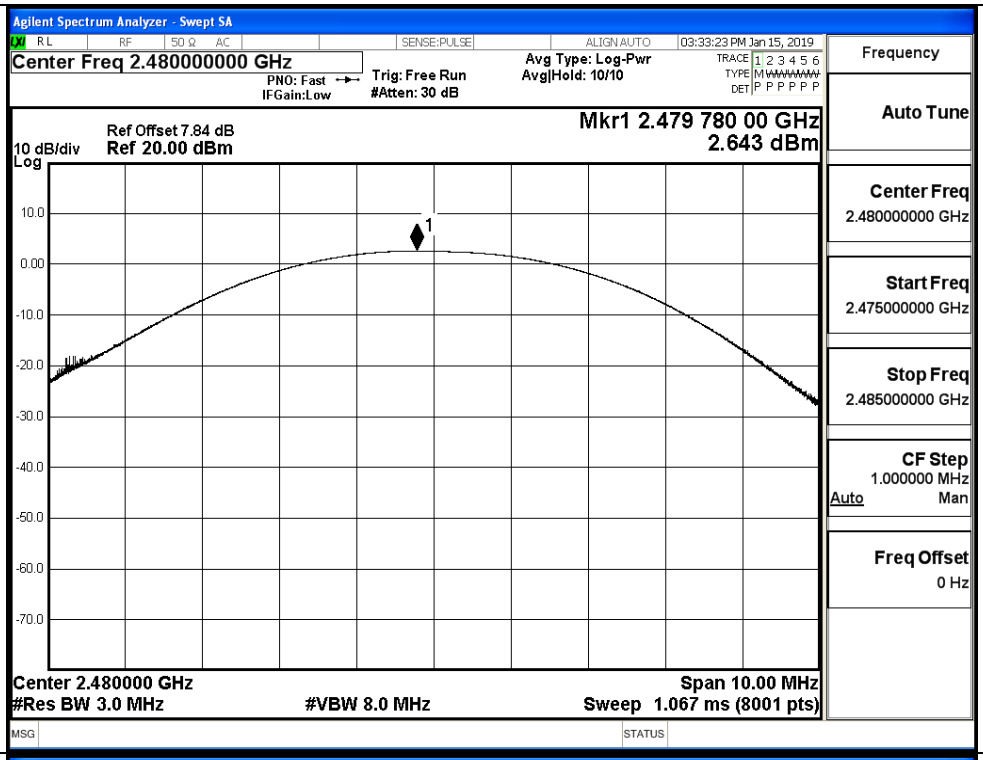
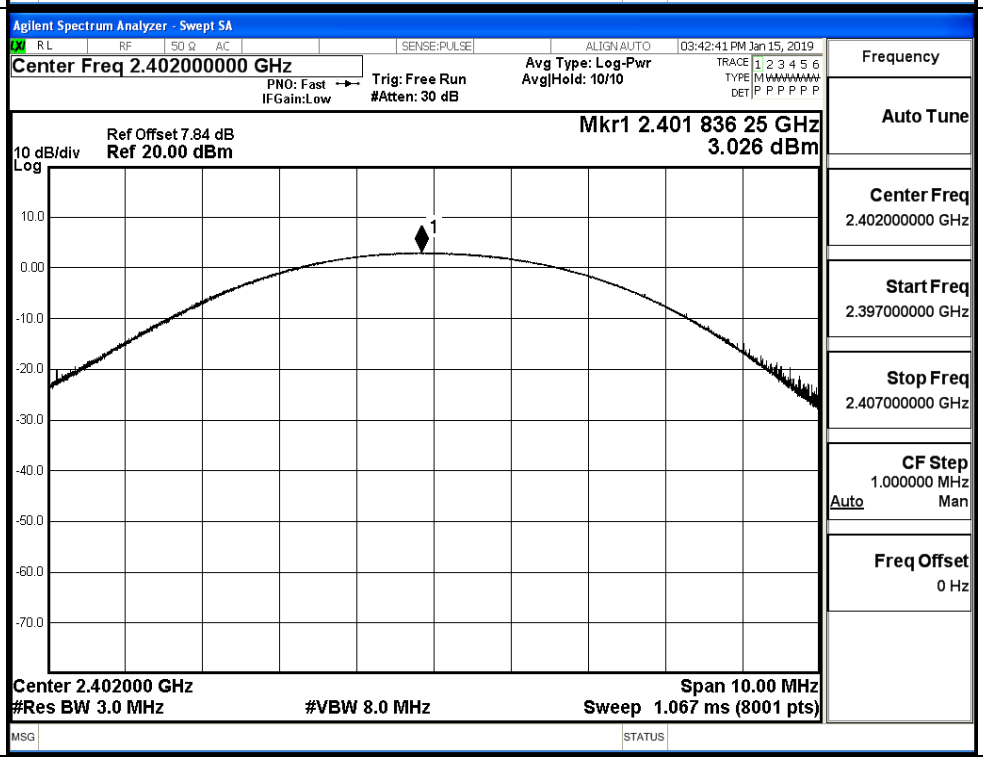
### Environmental Conditions

| | |
|---|---|
| Temperature: | 24.3 ° C |
| Relative Humidity: | 52.7% |
| ATM Pressure: | 100.0 kPa |
| Test Engineer: | JERRY.Zeng |
| Supervised by: | Jayden.Zhuo |

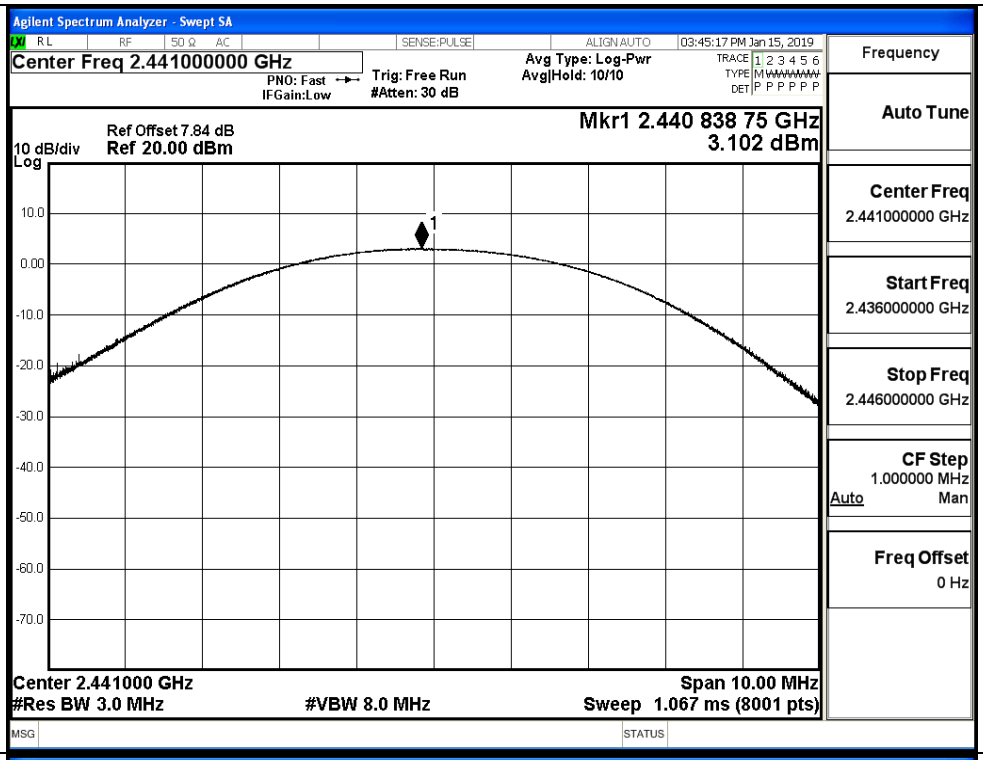
### A.1 Maximum Conducted Peak Output Power

| Mode | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---|---|---|---|---|
| GFSK | LCH | 2.365 | 21 | PASS |
| | MCH | 2.437 | 21 | PASS |
| | HCH | 2.643 | 21 | PASS |
| π/4DQPSK | LCH | 3.026 | 21 | PASS |
| | MCH | 3.102 | 21 | PASS |
| | HCH | 3.273 | 21 | PASS |

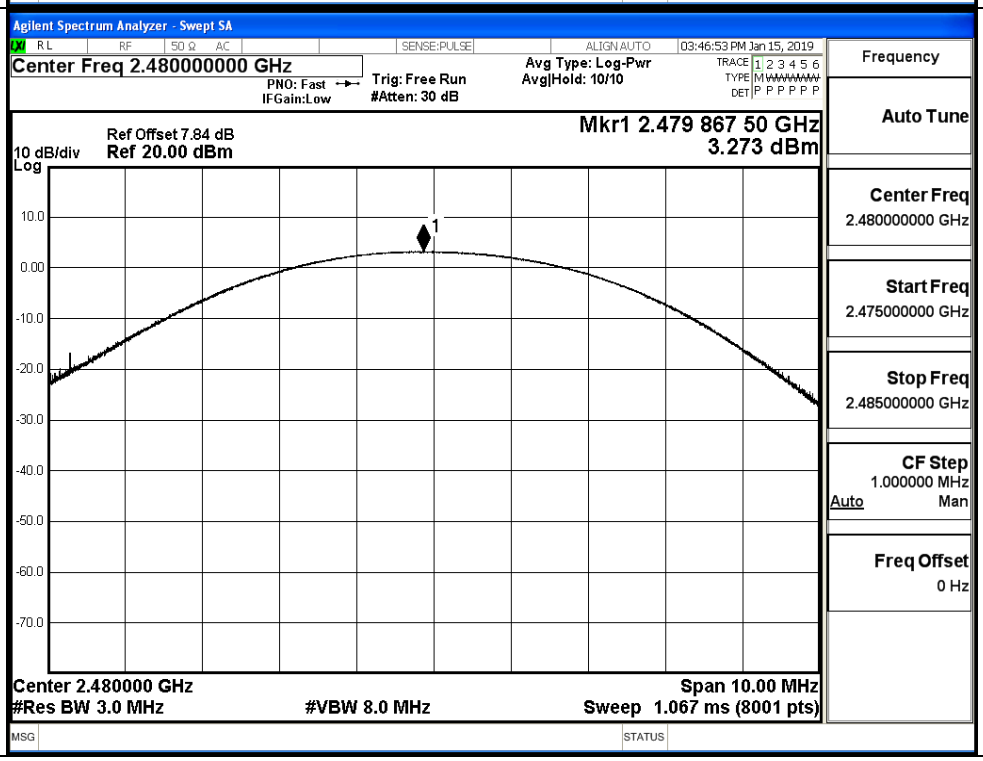
| Test Graphs | | |
|---|---|---|
| GFSK/LCH | |  |
| GFSK/MCH | |  |

| | | |
|---|---|---|
| GFSK/HCH | |  |
| π/4DQPSK/LCH | |  |

π/4DQPSK/MCH

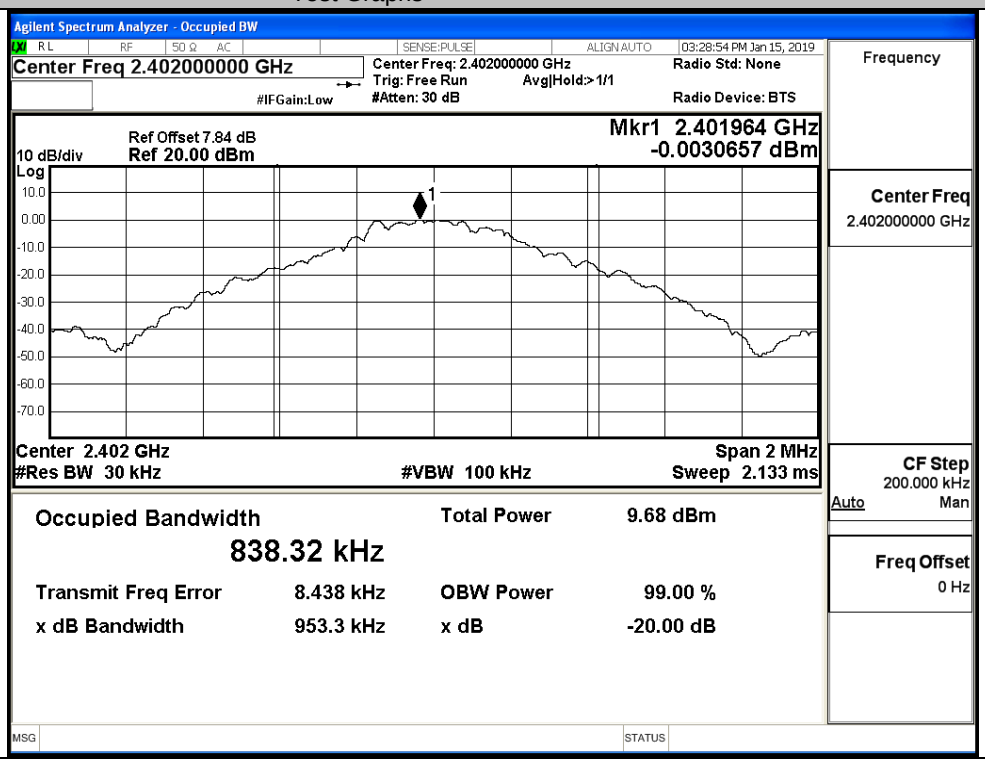



π/4DQPSK/HCH

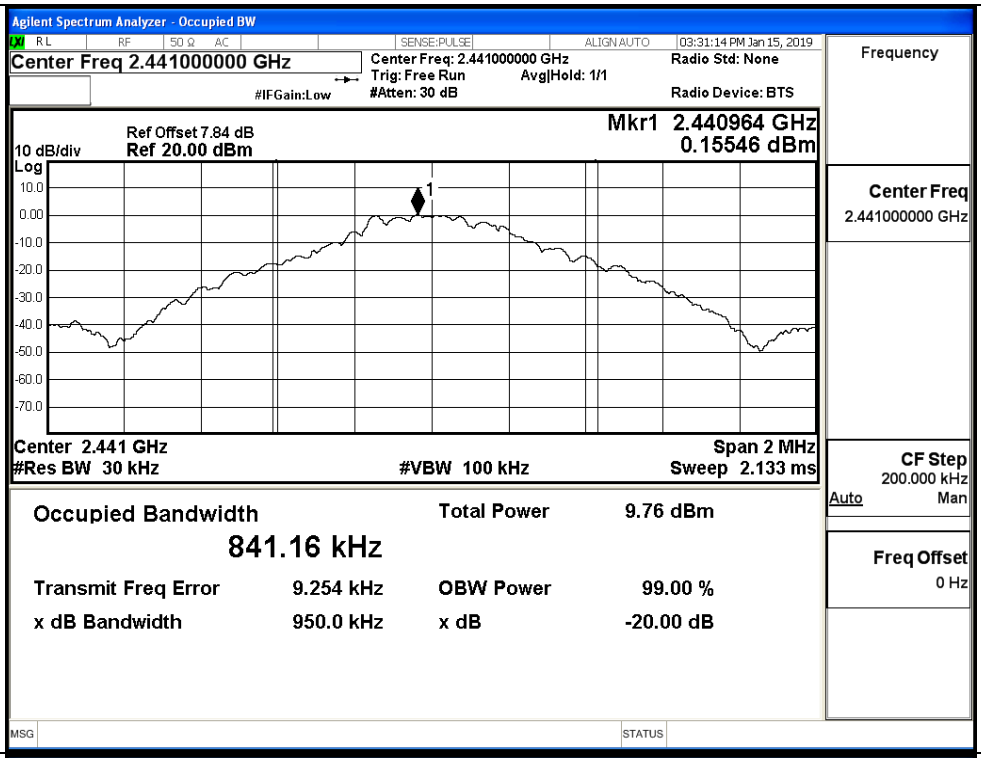


## A.2 99% and 20dB Bandwidth

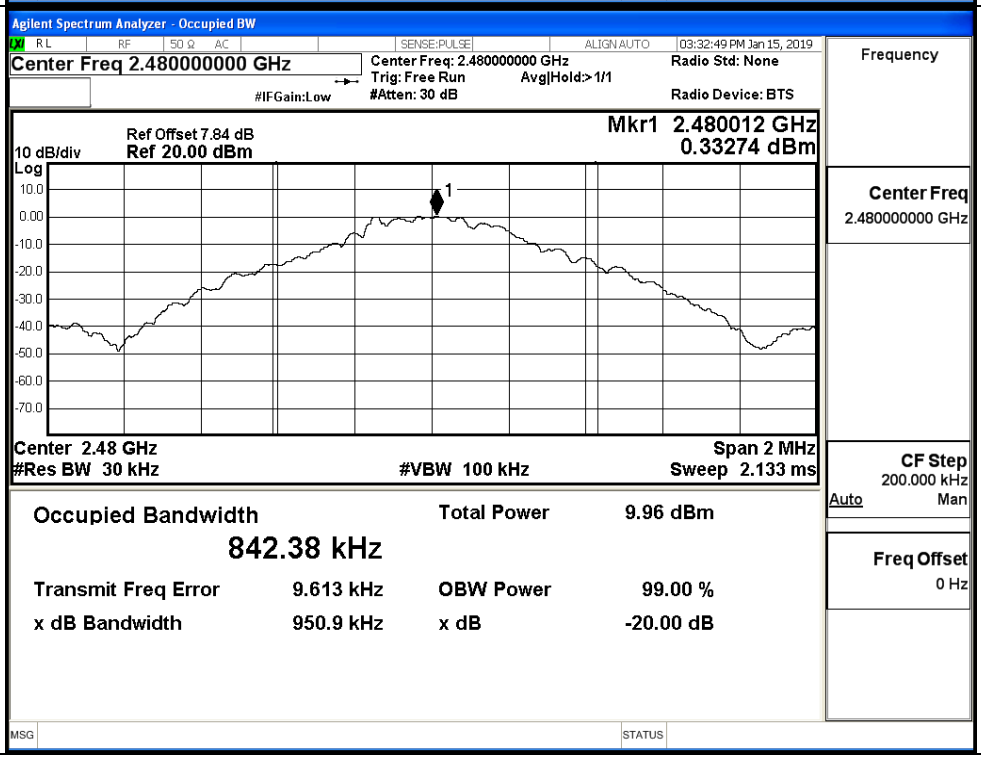
| Mode | Channel. | 99% Bandwidth [MHz] | 20dB Bandwidth [MHz] | Limit [MHz] | Verdict |
|---|---|---|---|---|---|
| GFSK | LCH | 0.83832 | 0.9533 | Not Specified | PASS |
| | MCH | 0.84116 | 0.9500 | Not Specified | PASS |
| | HCH | 0.84238 | 0.9509 | Not Specified | PASS |
| π/4DQPSK | LCH | 1.1745 | 1.314 | Not Specified | PASS |
| | MCH | 1.1775 | 1.315 | Not Specified | PASS |
| | HCH | 1.1776 | 1.315 | Not Specified | PASS |

| Test Graphs | |
|---|---|
| GFSK/LCH |  |

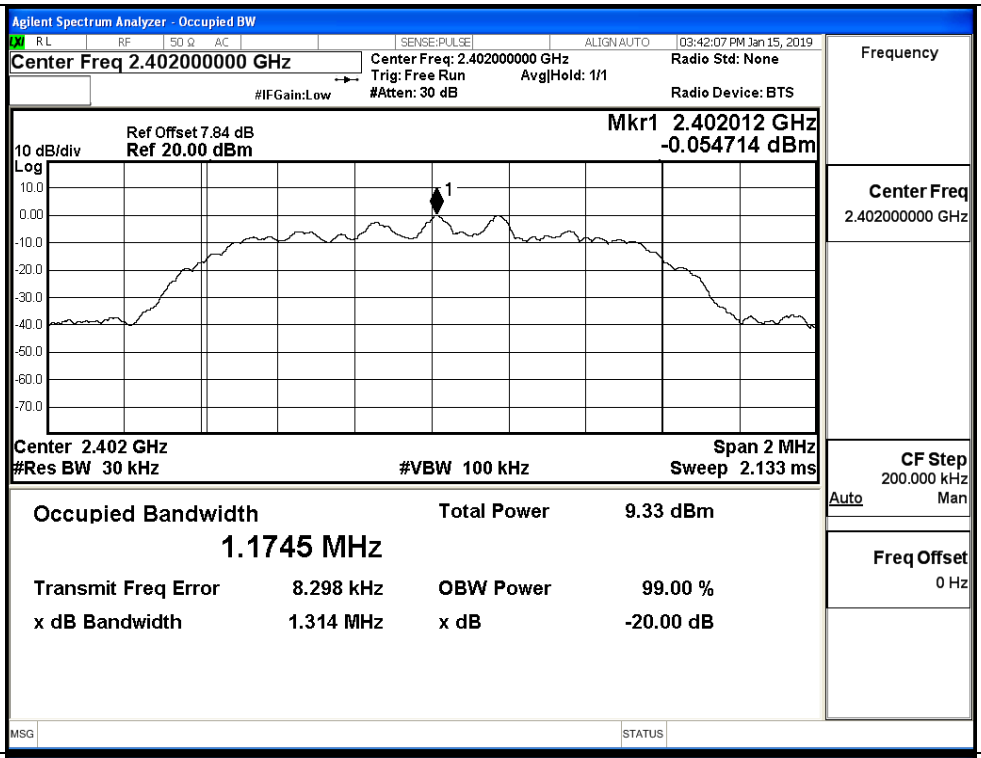
GFSK/MCH



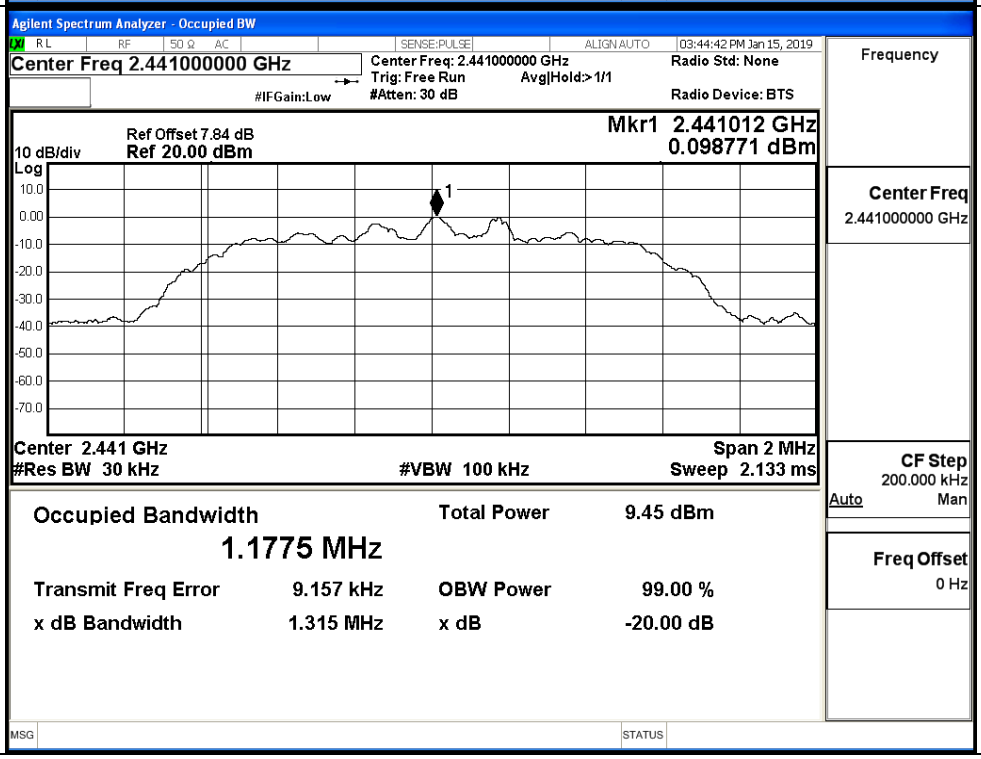

GFSK/HCH



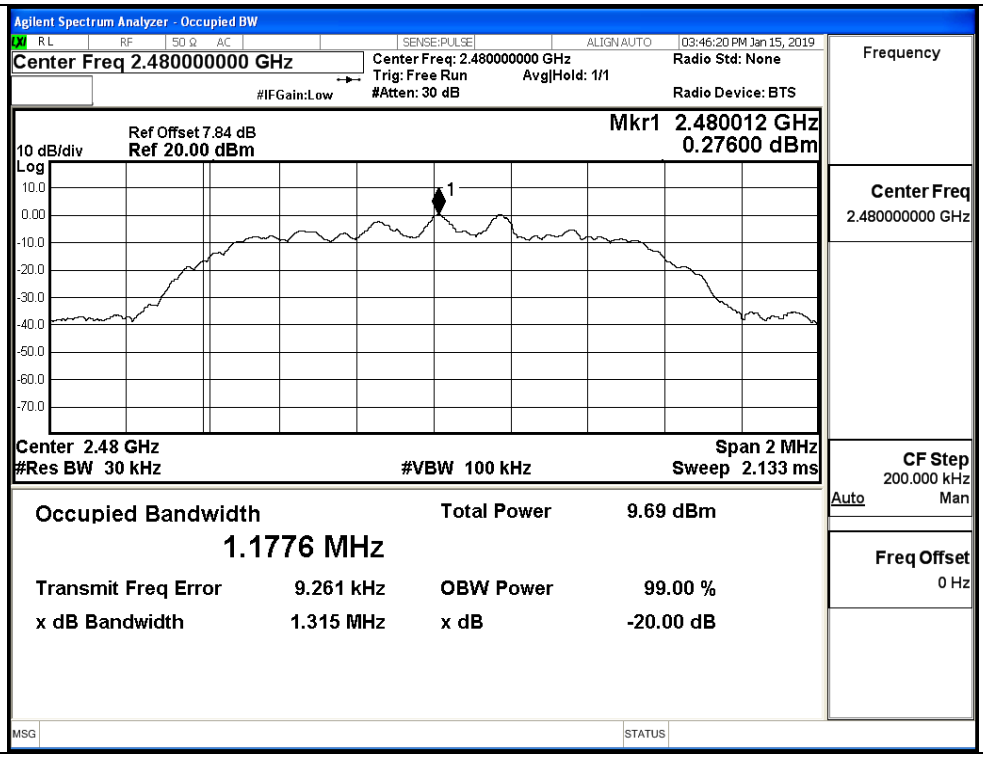
π/4DQPSK/LCH




π/4DQPSK/MCH

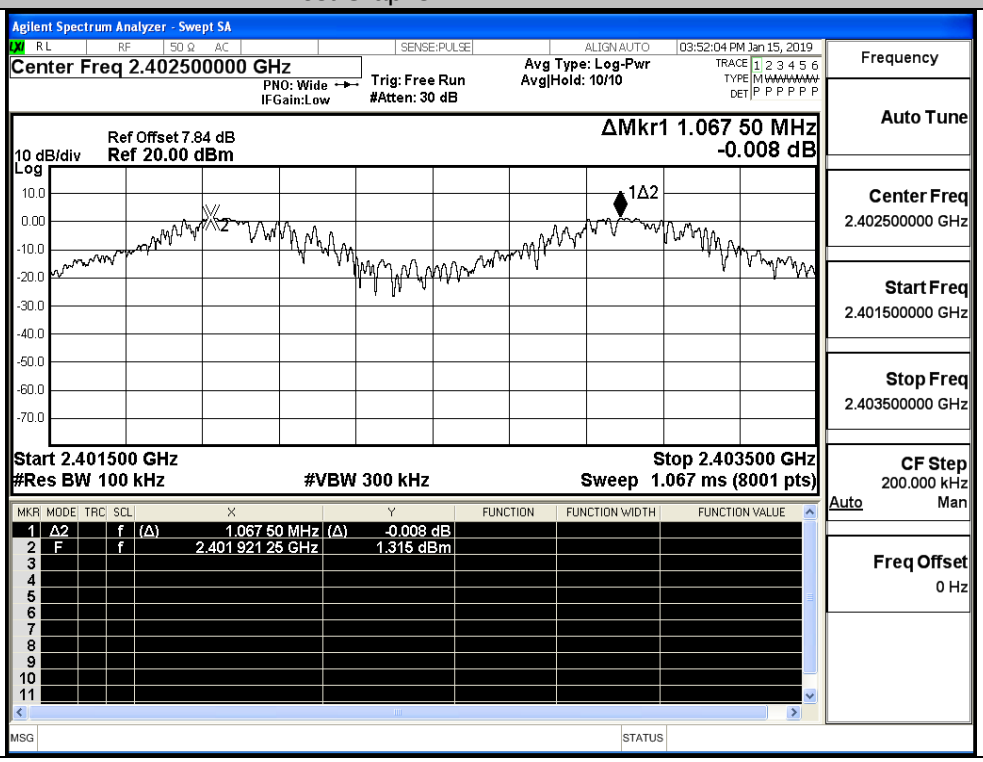


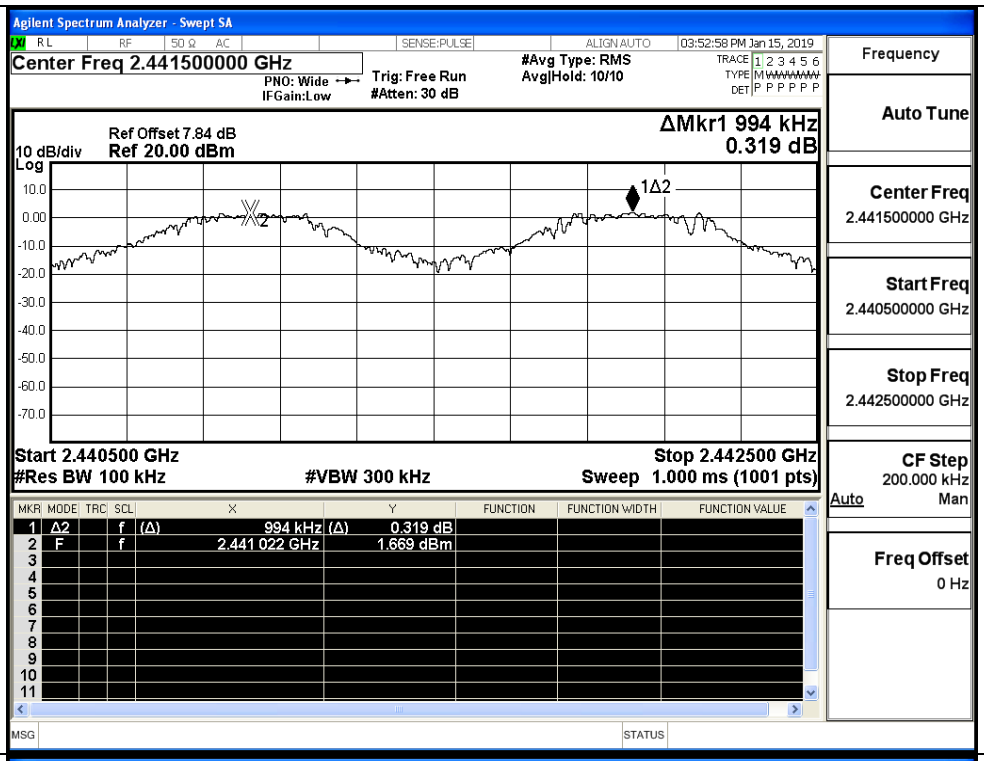
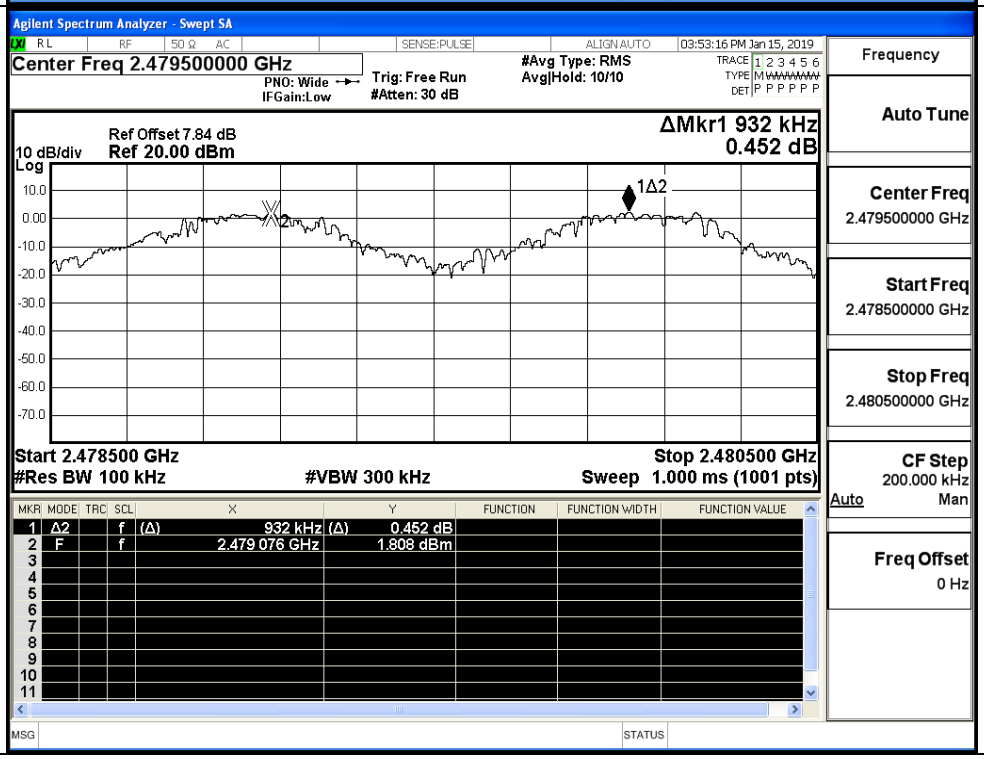
π/4DQPSK/HCH


Agilent Spectrum Analyzer - Occupied BW
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold: 1/1
#Atten: 30 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
03:46:20 PM Jan 15, 2019
Frequency
Ref Offset 7.84 dB
10 dB/div
Ref 20.00 dBm
Mkr1 2.480012 GHz
0.27600 dBm
Center Freq
2.480000000 GHz
Center 2.48 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
CF Step
200.000 kHz
Auto
Man
Occupied Bandwidth
1.1776 MHz
Total Power 9.69 dBm
Transmit Freq Error 9.261 kHz
OBW Power 99.00 %
x dB Bandwidth 1.315 MHz
x dB -20.00 dB
Freq Offset
0 Hz
MSG
STATUS

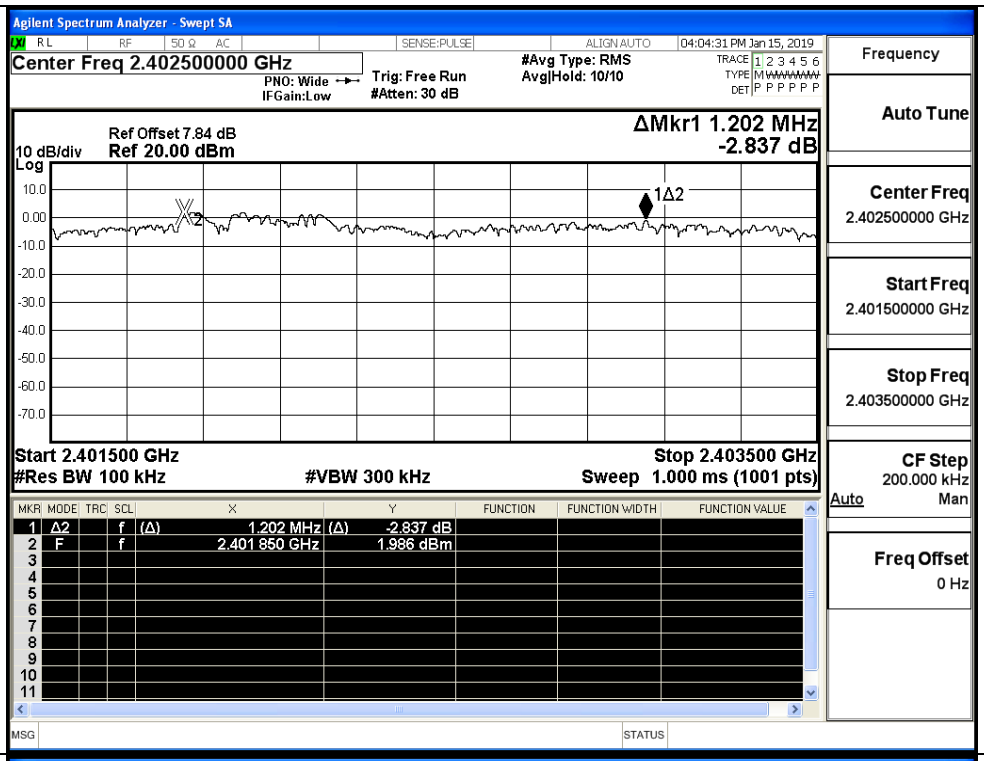
## A.3 Carrier Frequency Separation

| Mode | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---|---|---|---|---|
| GFSK | LCH | 1.068 | 0.636 | PASS |
| | MCH | 0.994 | 0.636 | PASS |
| | HCH | 0.932 | 0.636 | PASS |
| π/4DQPSK | LCH | 1.202 | 0.877 | PASS |
| | MCH | 1.070 | 0.877 | PASS |
| | HCH | 1.000 | 0.877 | PASS |

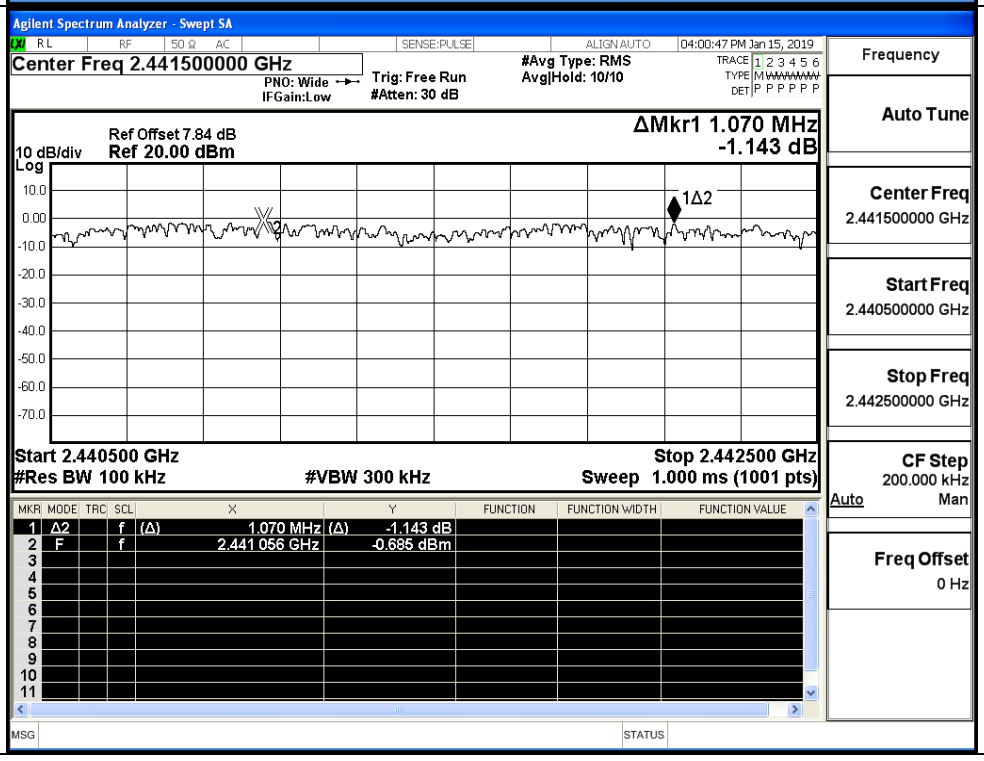
| Test Graphs | | |
|---|---|---|
| GFSK/LCH | |  |

| | | |
|---|---|---|
| GFSK/MCH | |  |
| GFSK/HCH | |  |

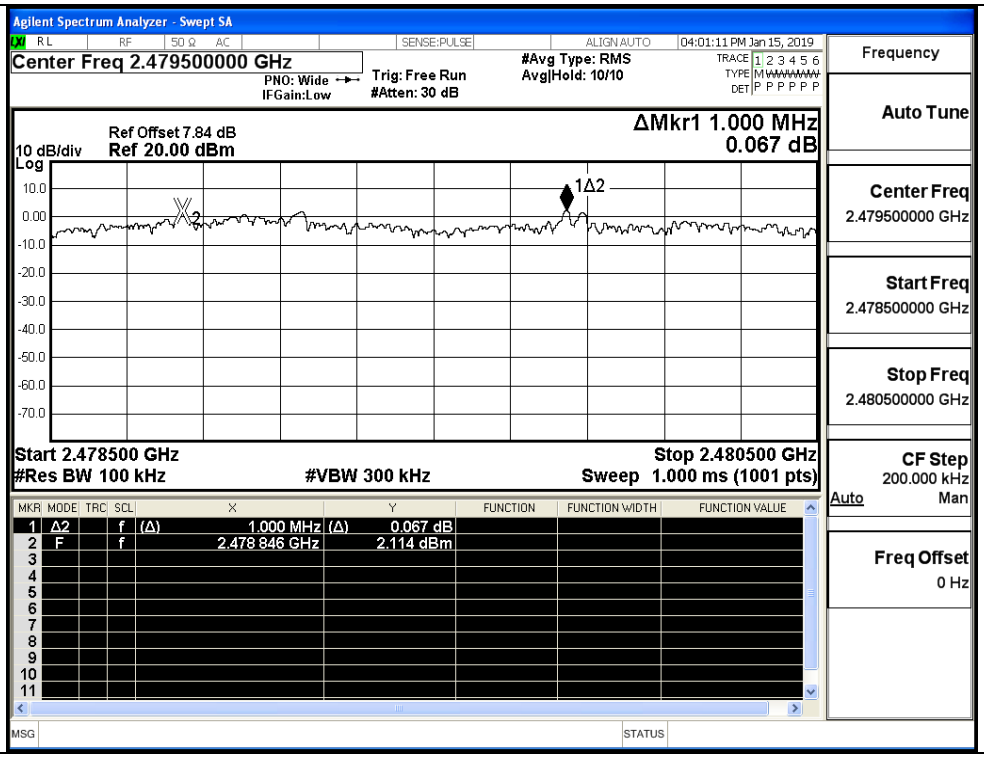
π/4DQPSK/LCH




π/4DQPSK/MCH

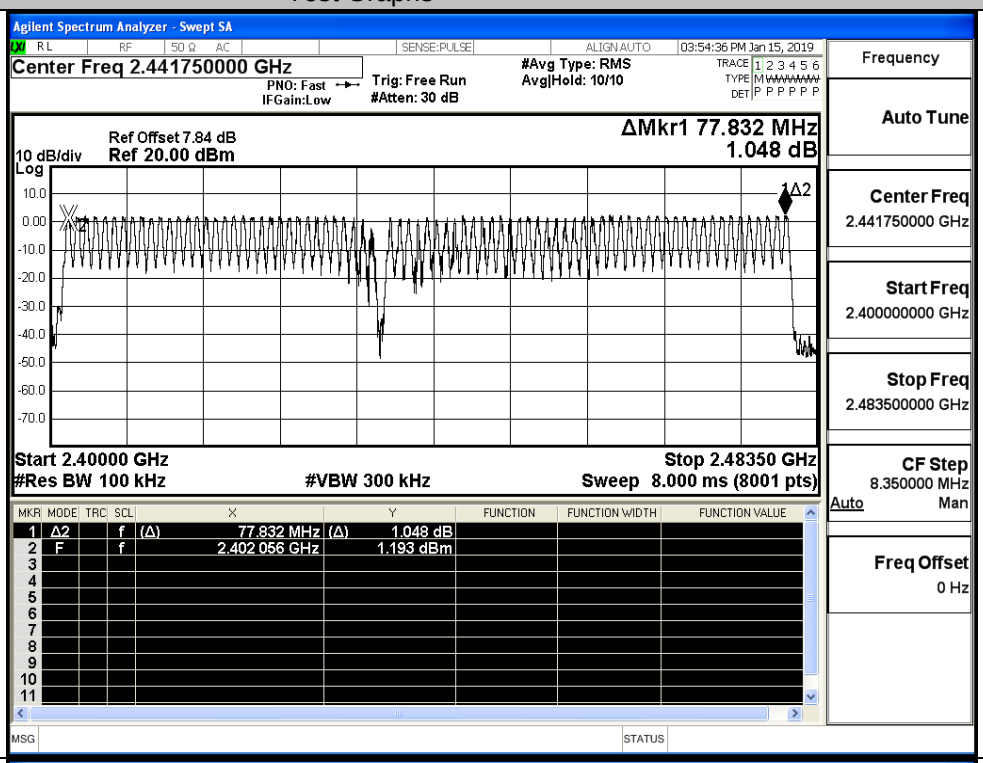
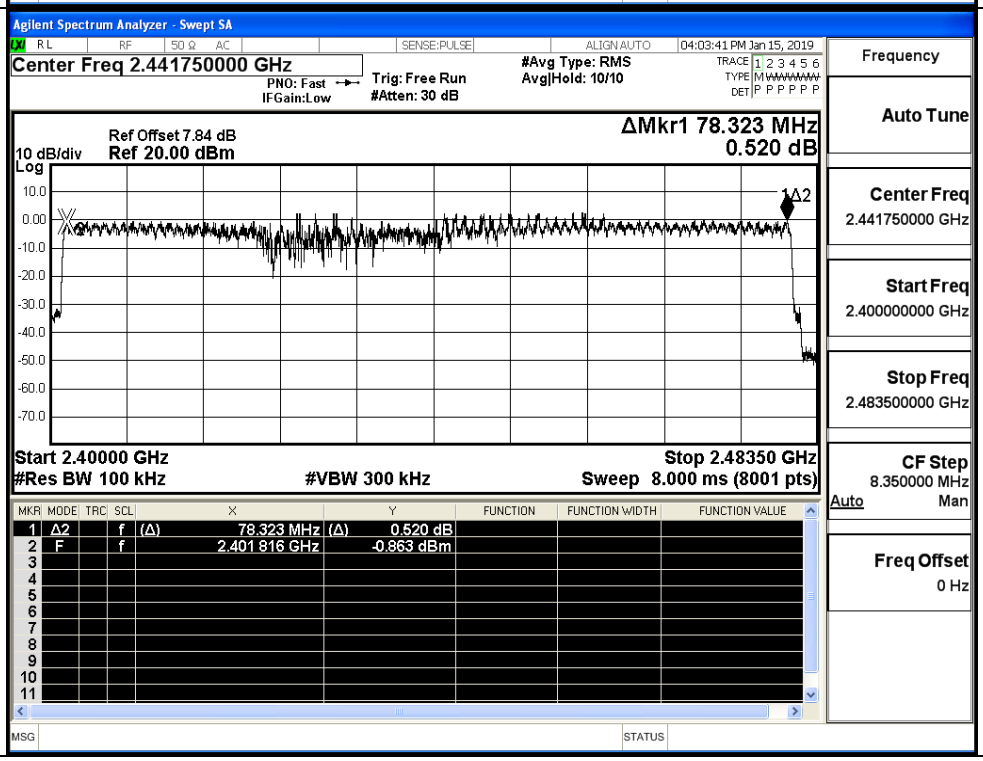


π/4DQPSK/HCH


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.479500000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
04:01:11 PM Jan 15, 2019
Ref Offset 7.84 dB
10 dB/div
Ref 20.00 dBm
ΔMkr1 1.000 MHz
0.067 dB
1Δ2
Start 2.478500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.480500 GHz
Sweep 1.000 ms (1001 pts)
1 Δ2 f (Δ) 1.000 MHz (Δ) 0.067 dB
2 F f 2.478 846 GHz 2.114 dBm
Frequency
Auto Tune
Center Freq 2.479500000 GHz
Start Freq 2.478500000 GHz
Stop Freq 2.480500000 GHz
CF Step 200.000 kHz
Auto Man
Freq Offset 0 Hz

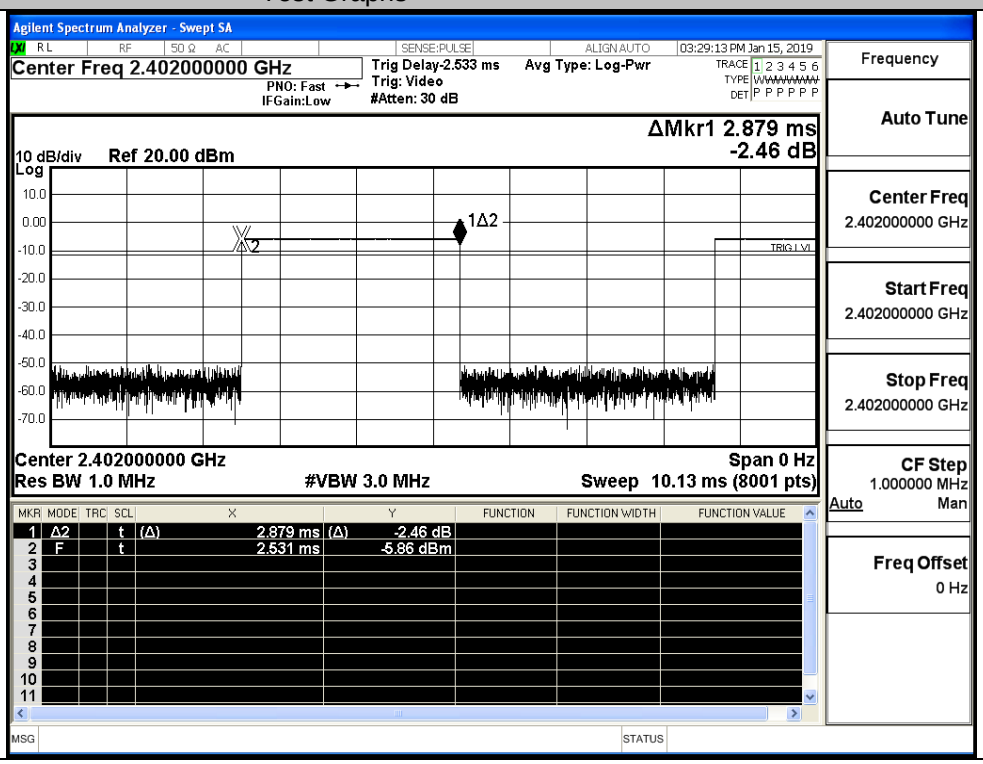
## A.4 Hopping Channel Number

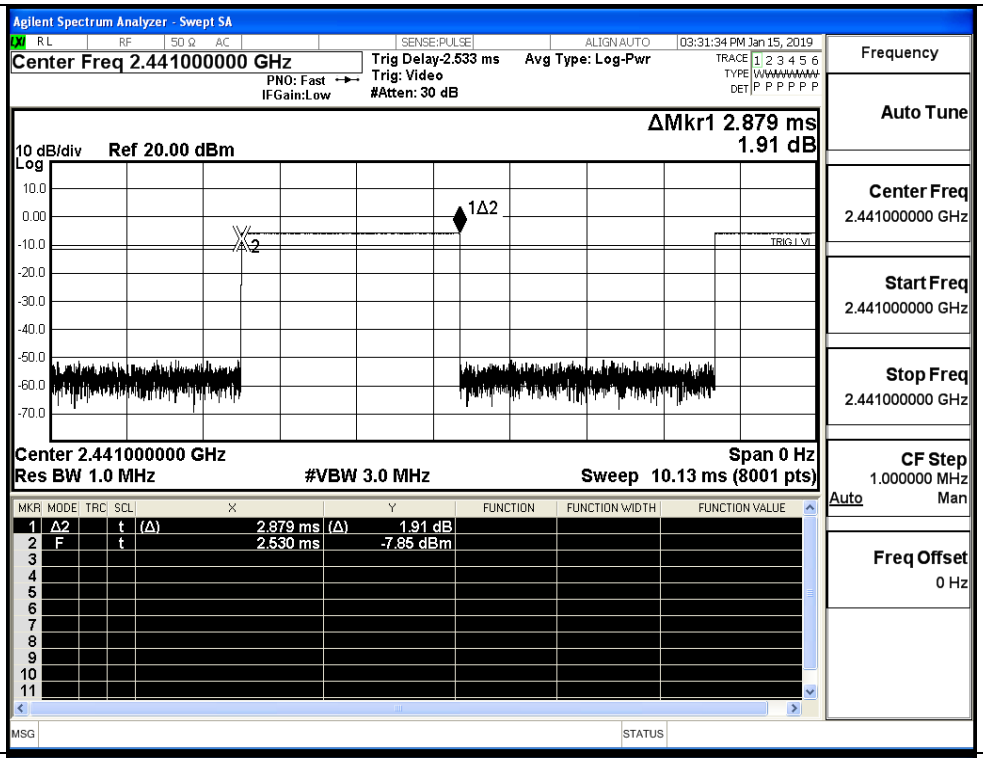
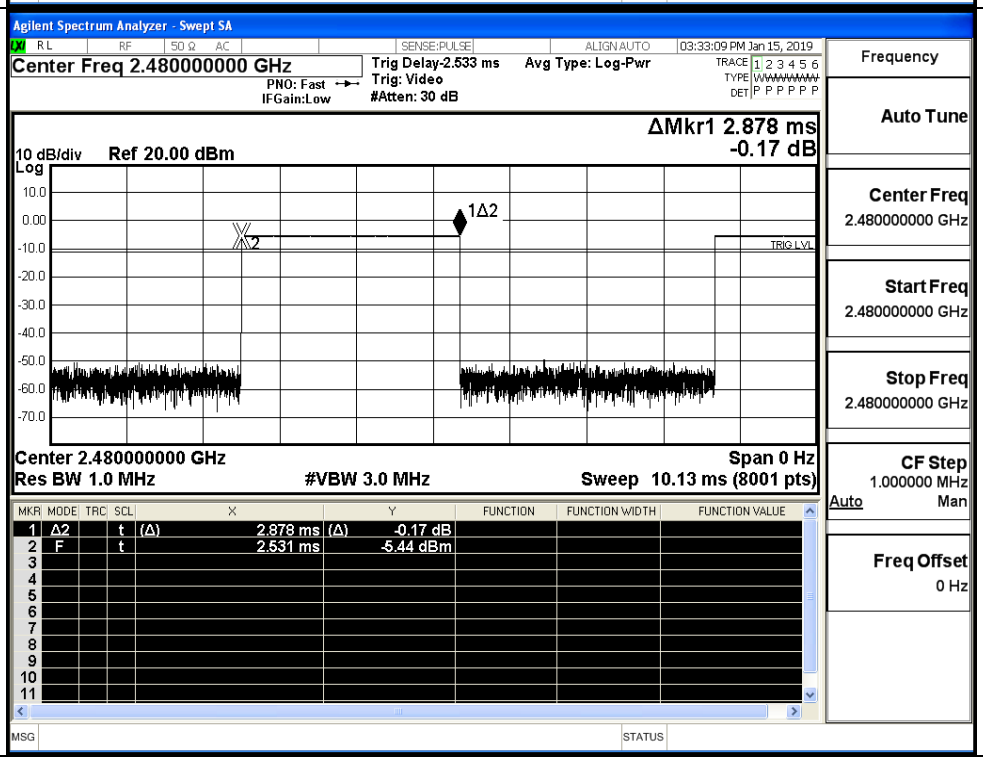
| Mode | Channel. | Number of Hopping Channel [N] | Limit [N] | Verdict |
|---|---|---|---|---|
| GFSK | Hop | 79 | >=15 | PASS |
| π/4DQPSK | Hop | 79 | >=15 | PASS |

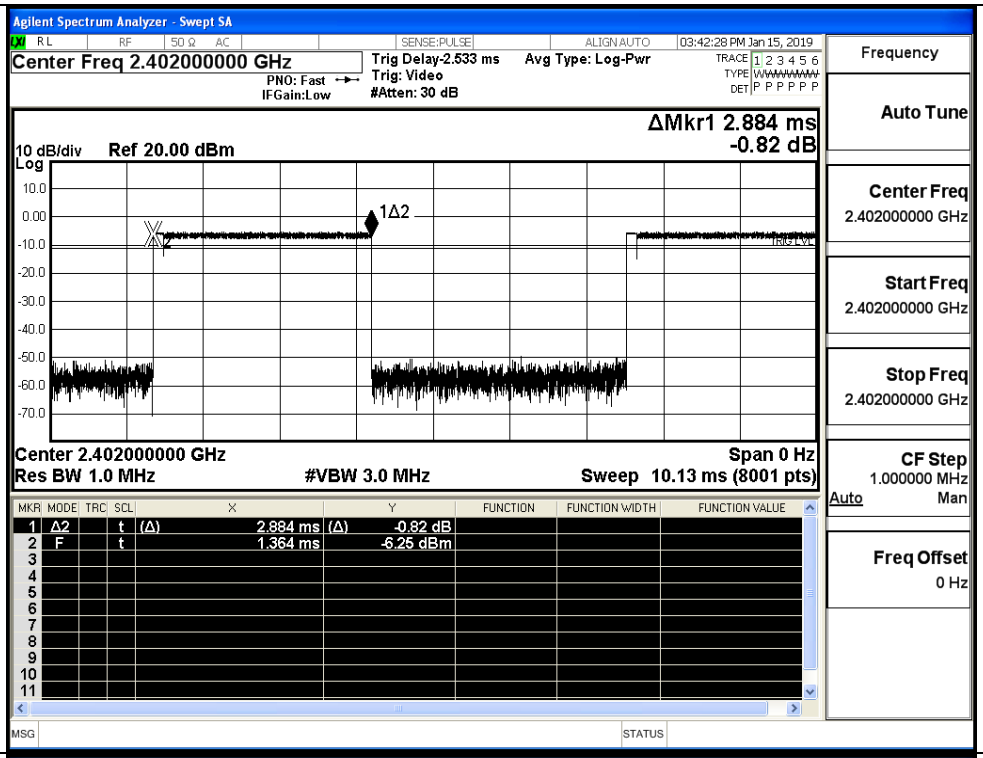
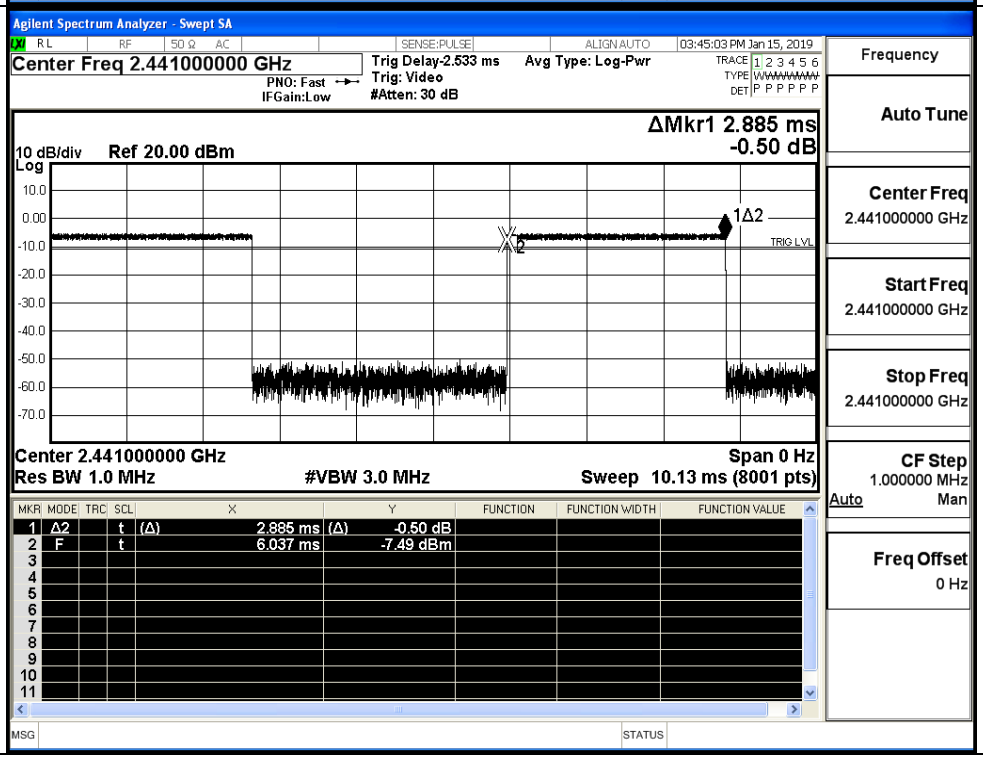
| Test Graphs | |
|---|---|
| GFSK/Hop |  |
| π/4DQPSK/Hop |  |

## 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 |
| π/4DQPSK | 2DH5 | LCH | 2.88 | 106.7 | 0.307 | 0.4 | PASS |
| | 2DH5 | MCH | 2.89 | 106.7 | 0.308 | 0.4 | PASS |
| | 2DH5 | HCH | 2.89 | 106.7 | 0.308 | 0.4 | PASS |

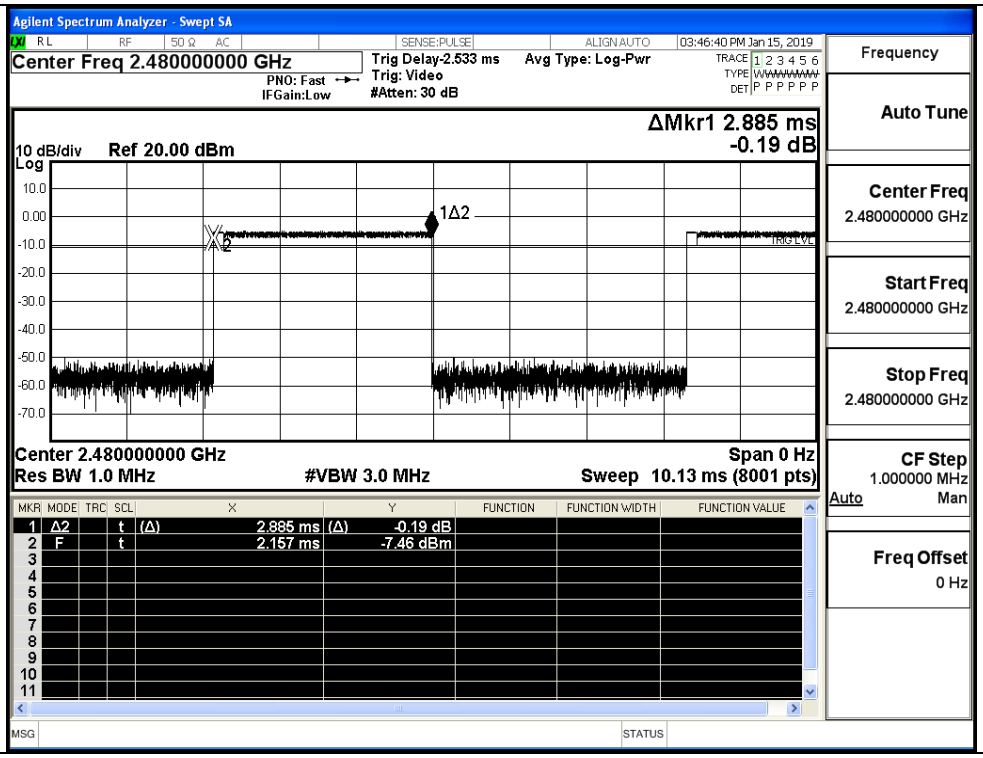
| Test Graphs | |
|---|---|
| GFSK_DH5/LCH |  |

| | |
|---|---|
| GFSK_DH5/MCH |  |
| GFSK_DH5/HCH |  |

| | |
|---|---|
| π/4DQPSK<br>_2DH5/LCH |  |
| π/4DQPSK<br>_2DH5/MCH |  |

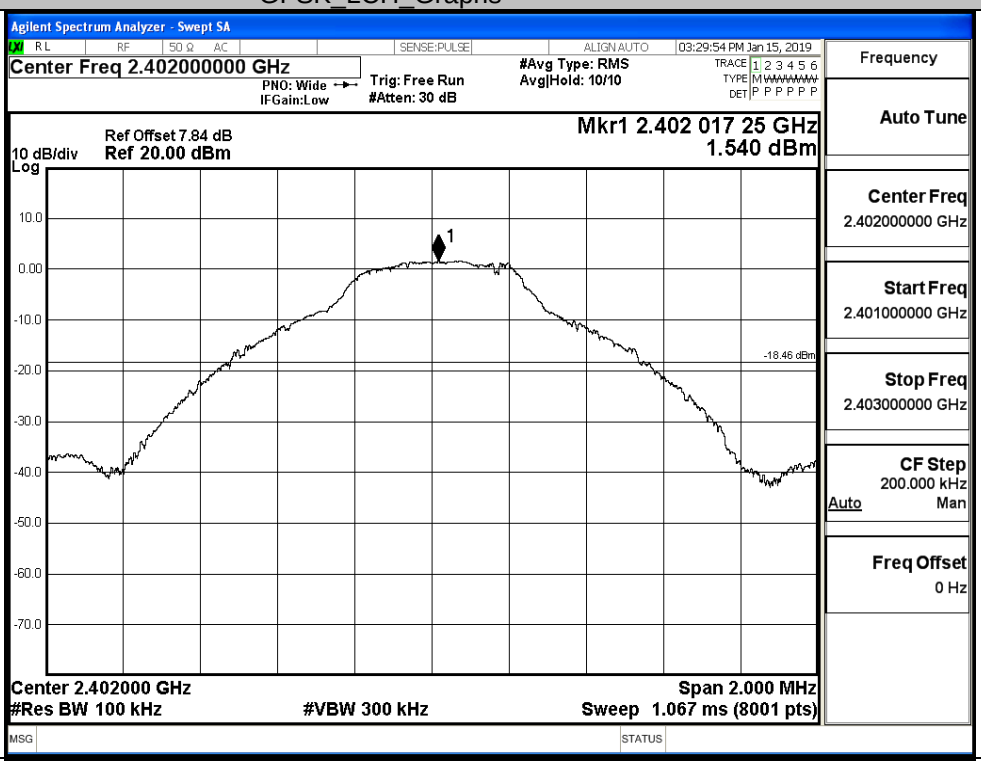
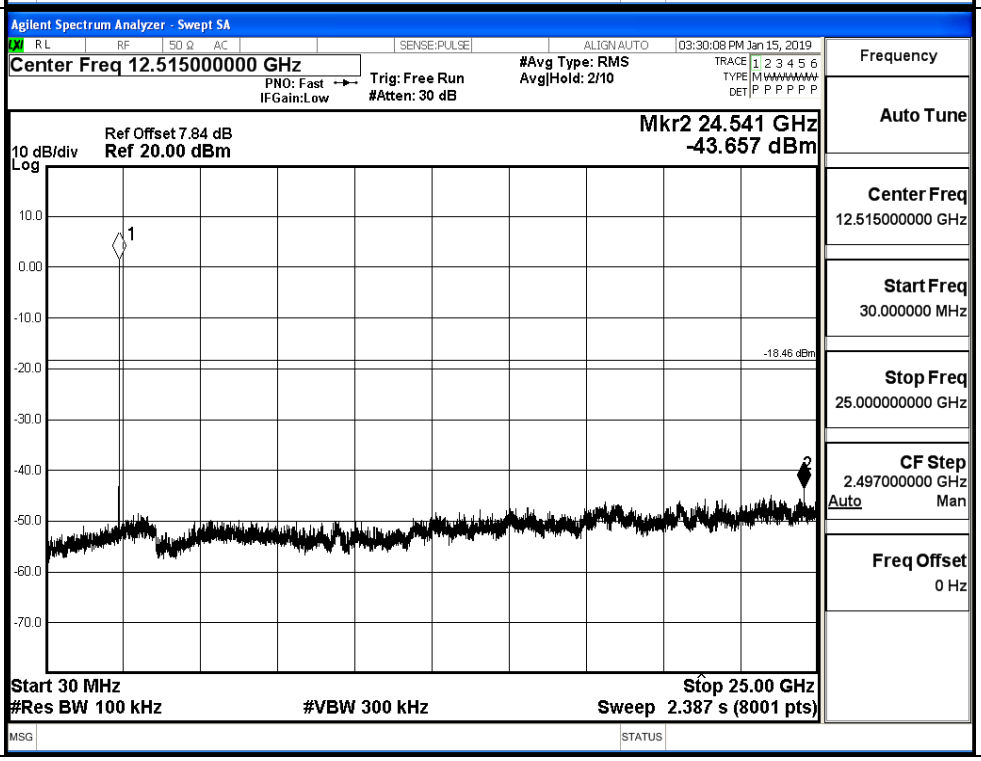
π/4DQPSK

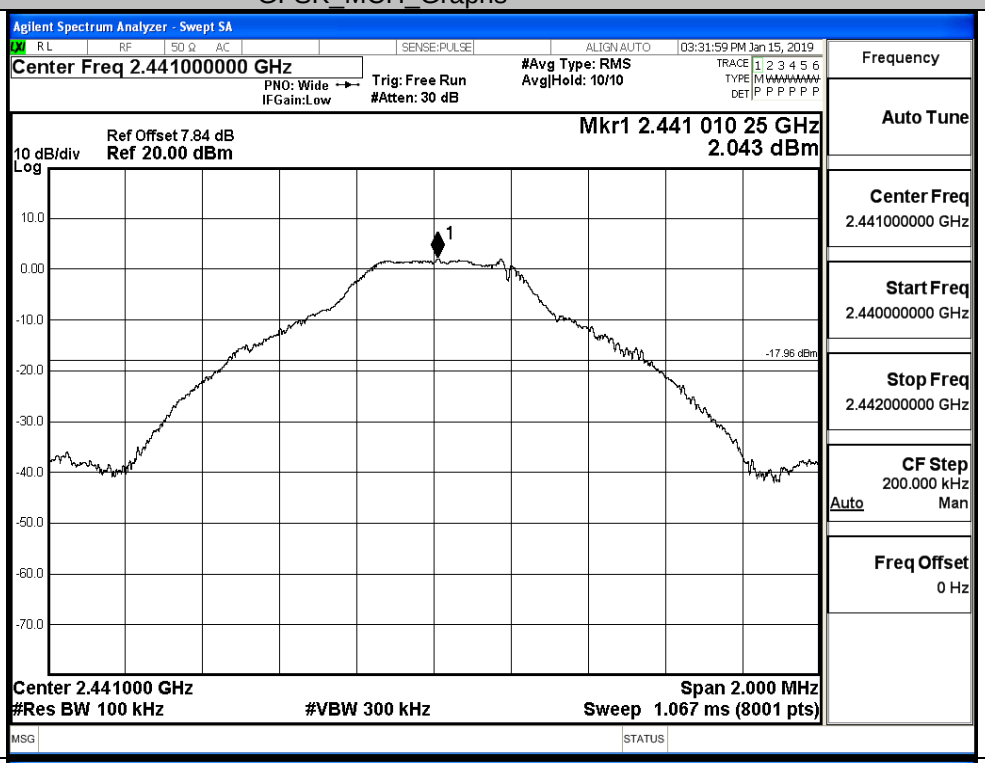
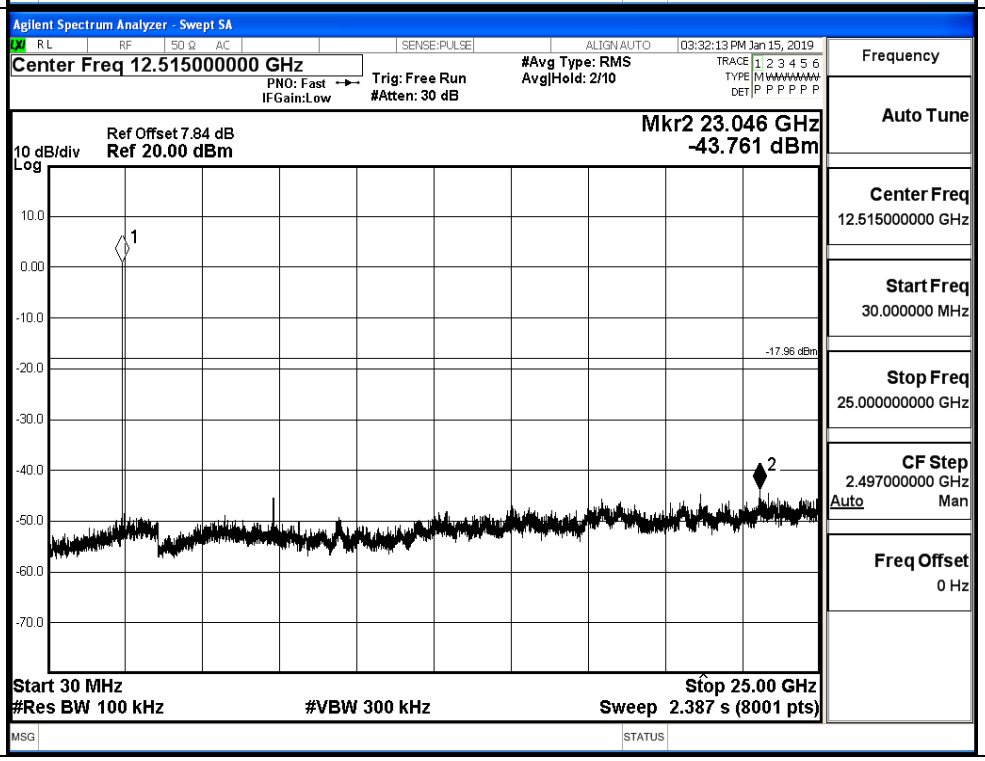
_2DH5/HCH

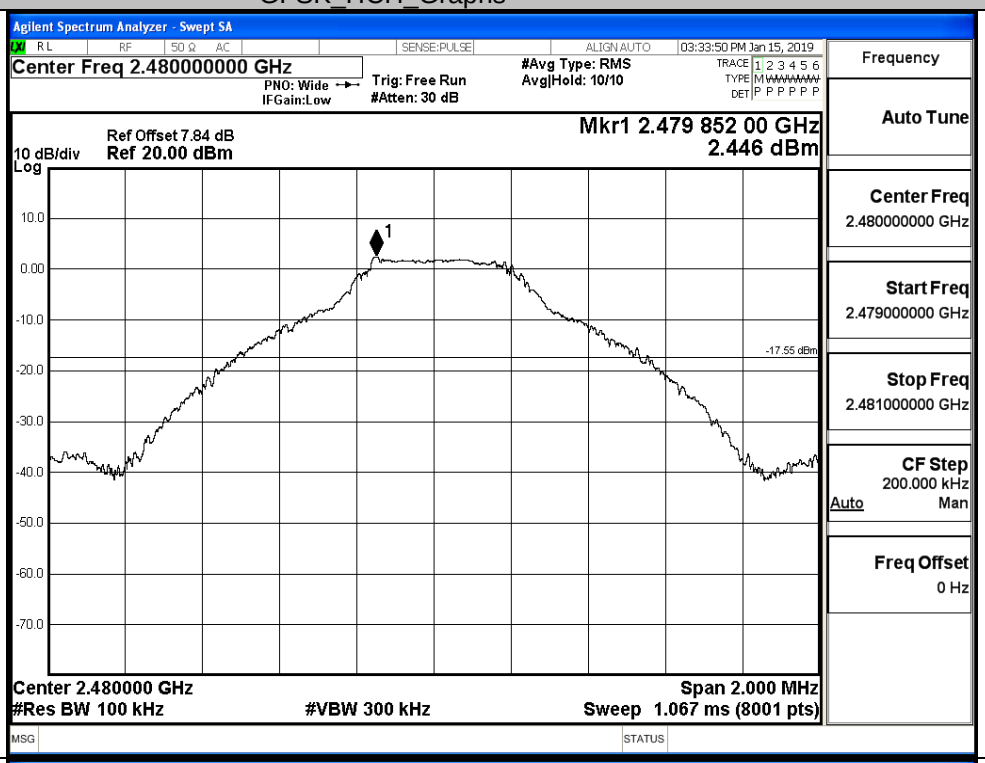
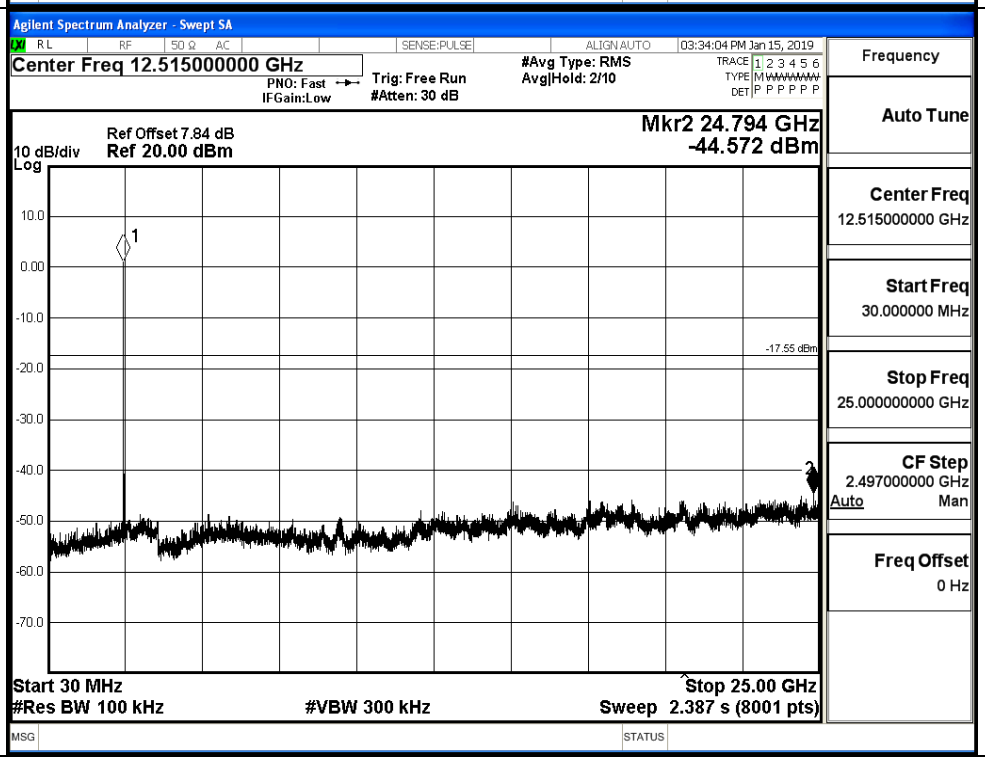


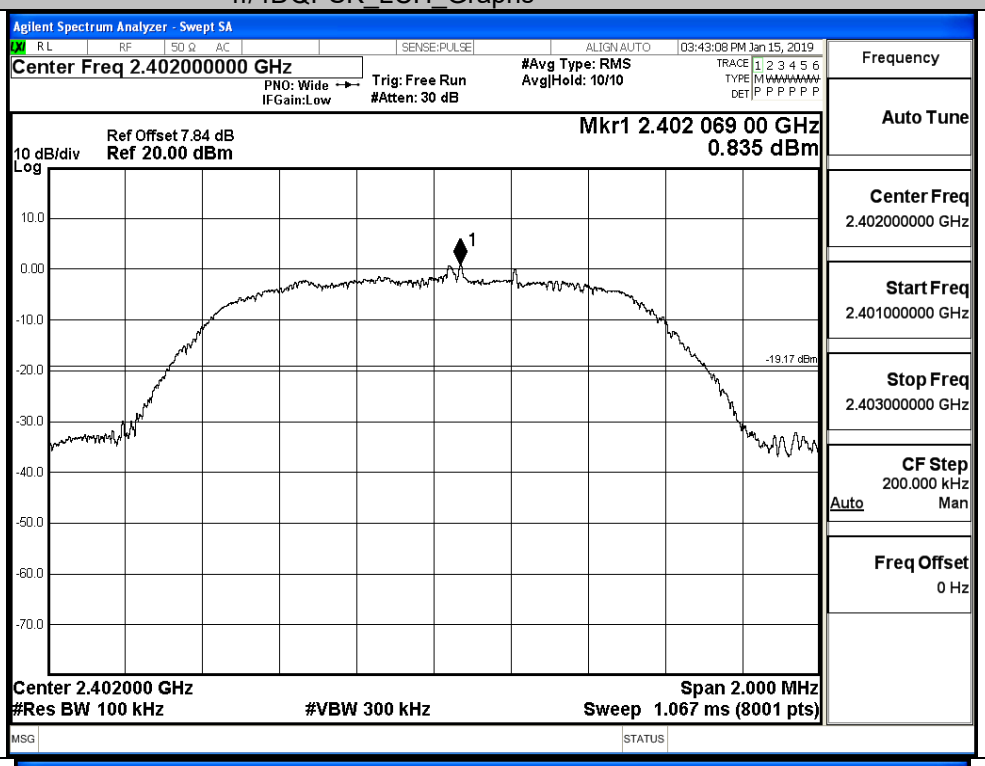
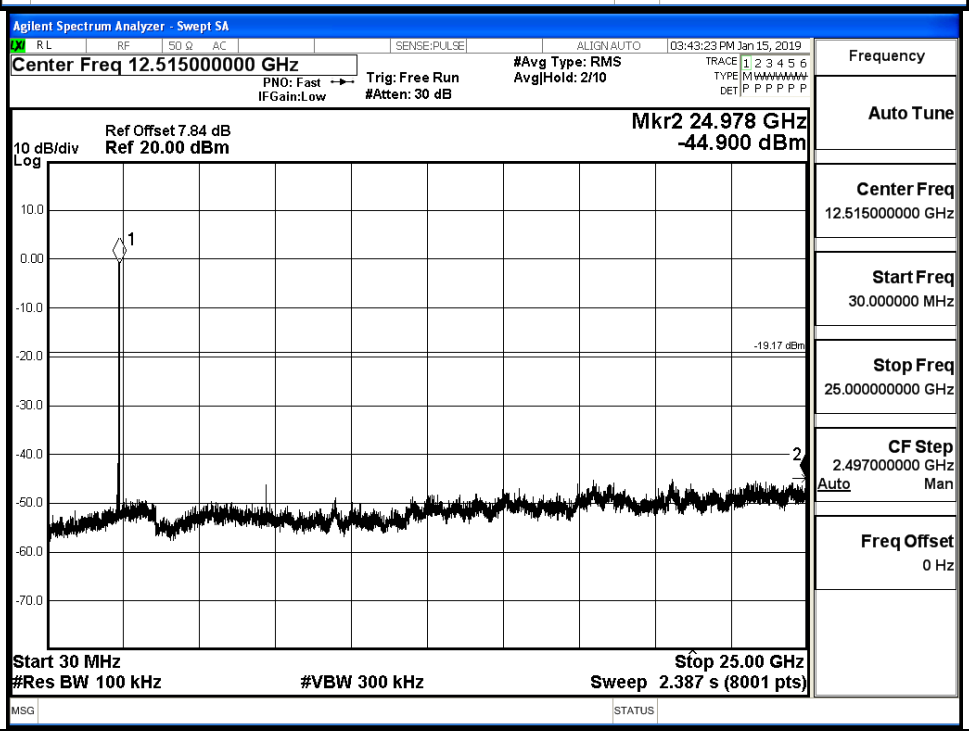
## A.6 RF Conducted Spurious Emissions

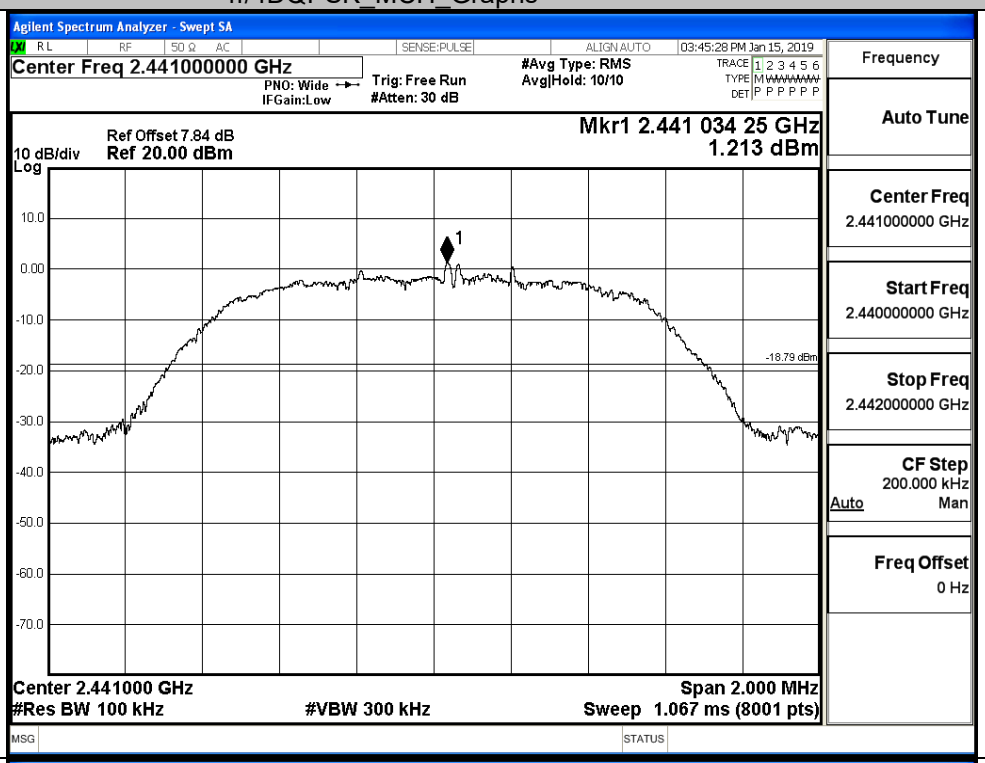
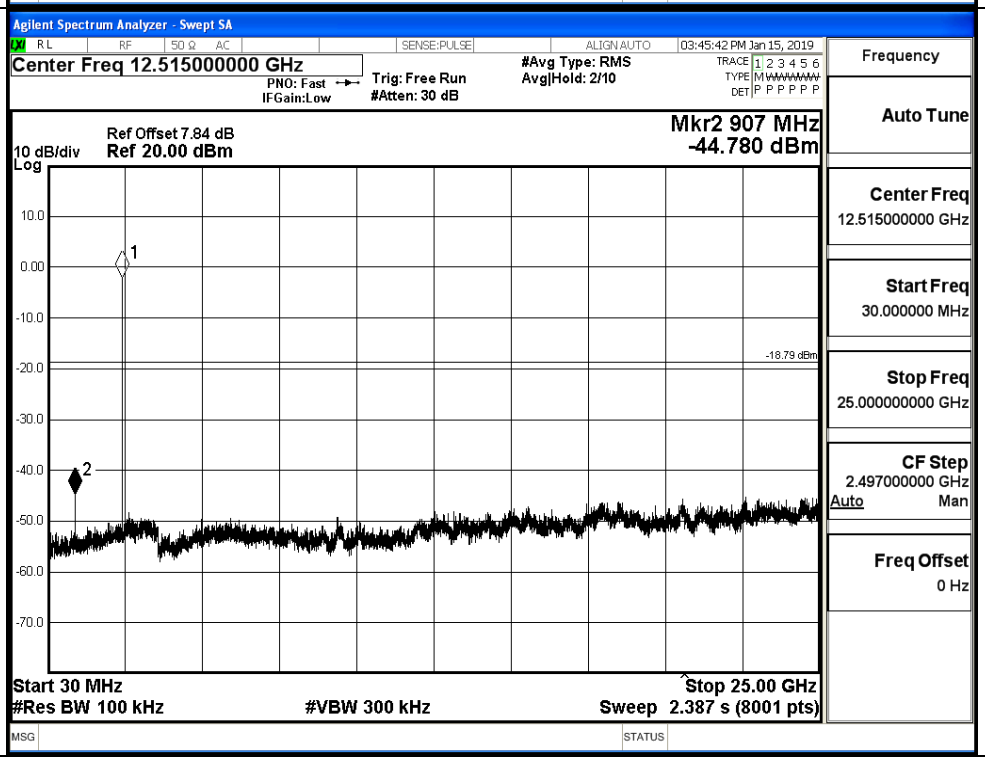
| Mode | Channel | Pref [dBm] | Max. Level [dBm] | Limit [dBm] | Verdict |
|---|---|---|---|---|---|
| GFSK | LCH | 1.540 | -43.657 | -18.460 | PASS |
| | MCH | 2.043 | -43.761 | -17.957 | PASS |
| | HCH | 2.446 | -44.572 | -17.554 | PASS |
| π/4DQPSK | LCH | 0.835 | -44.900 | -19.165 | PASS |
| | MCH | 1.213 | -44.780 | -18.787 | PASS |
| | HCH | 2.248 | -44.578 | -17.752 | PASS |

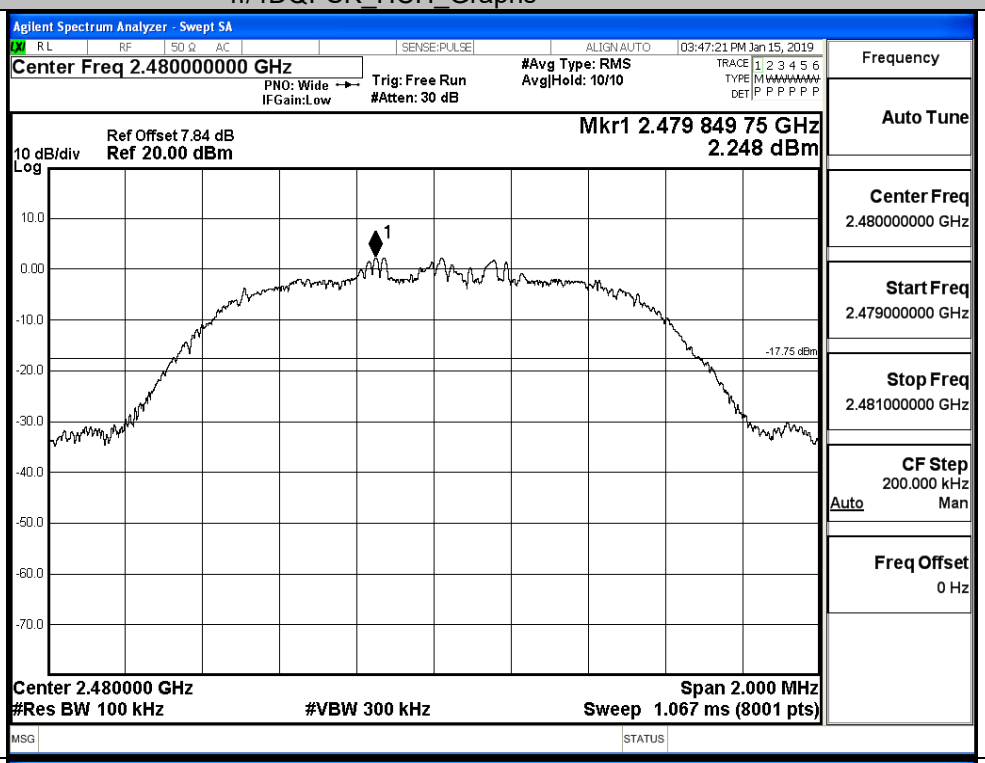
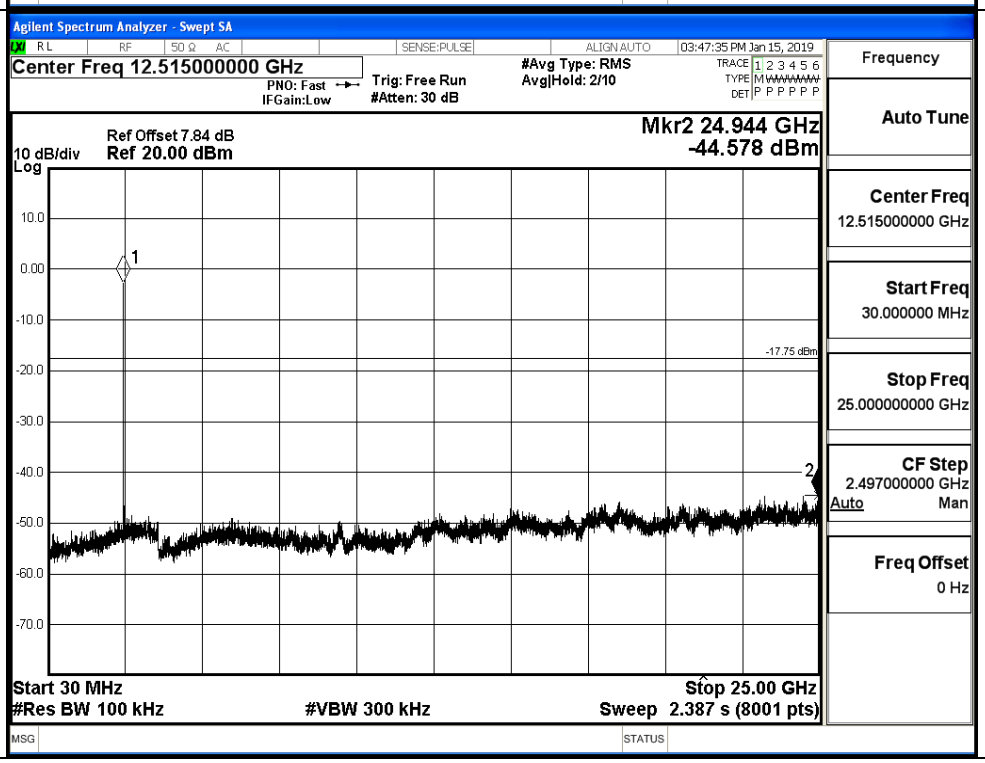
| GFSK_LCH_Graphs | | |
|---|---|---|
| Pref | |  |
| Puw | |  |

| GFSK_MCH_Graphs | | |
|---|---|---|
| Pref | |  |
| Puw | |  |

| GFSK_HCH_Graphs | | |
|---|---|---|
| Pref | |  |
| Puw | |  |

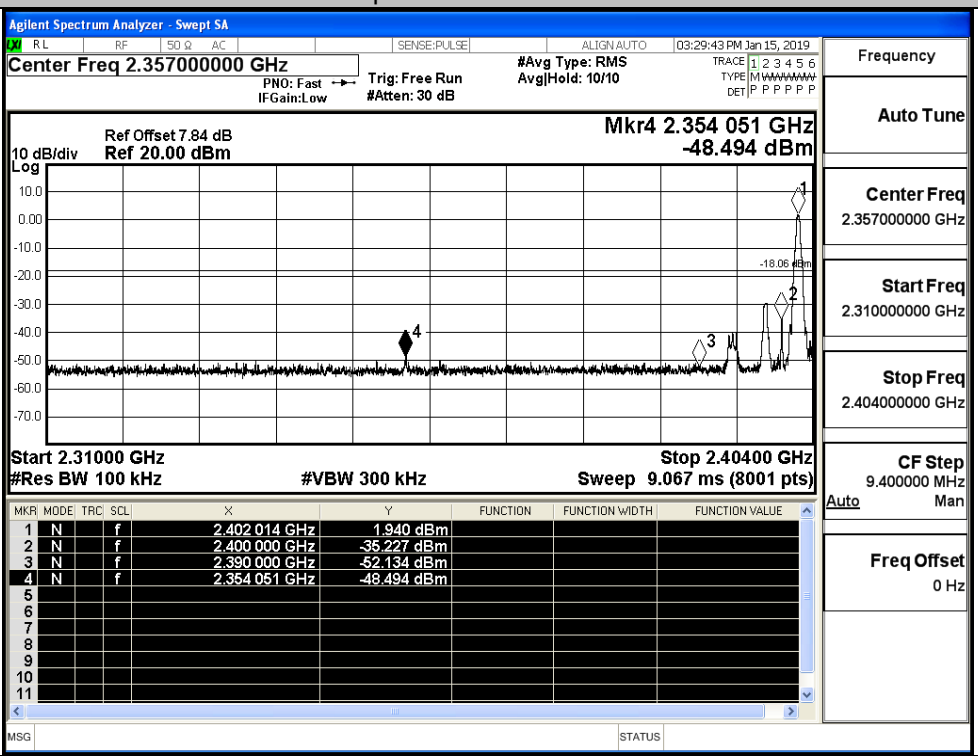
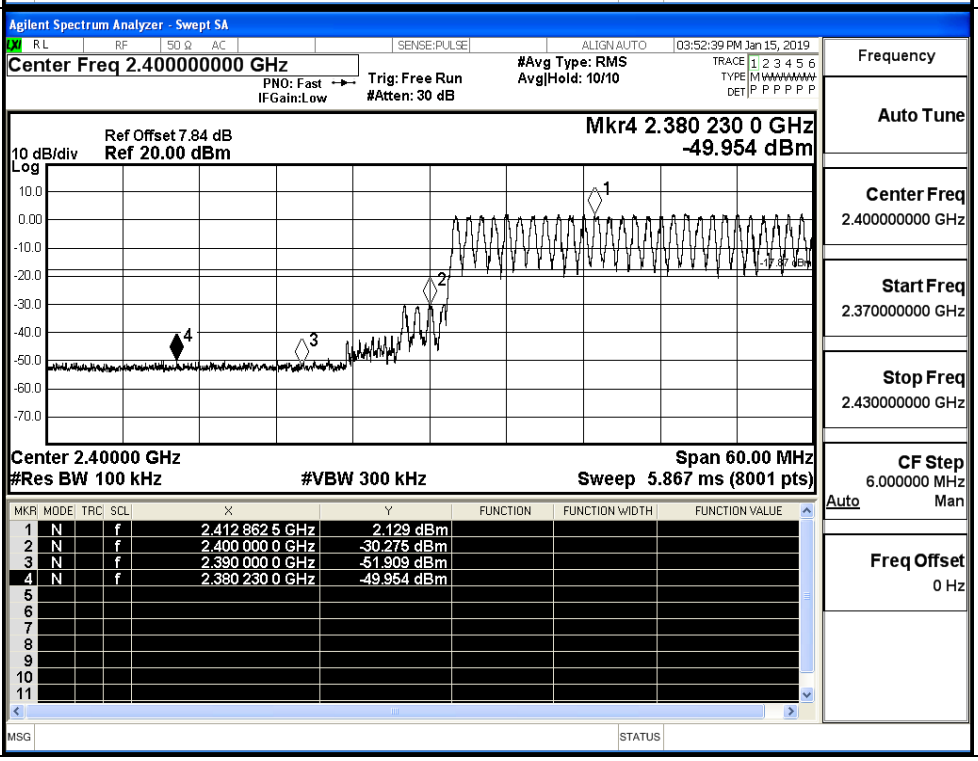
| π/4DQPSK_LCH_Graphs | | |
|---|---|---|
| Pref | |  |
| Puw | |  |

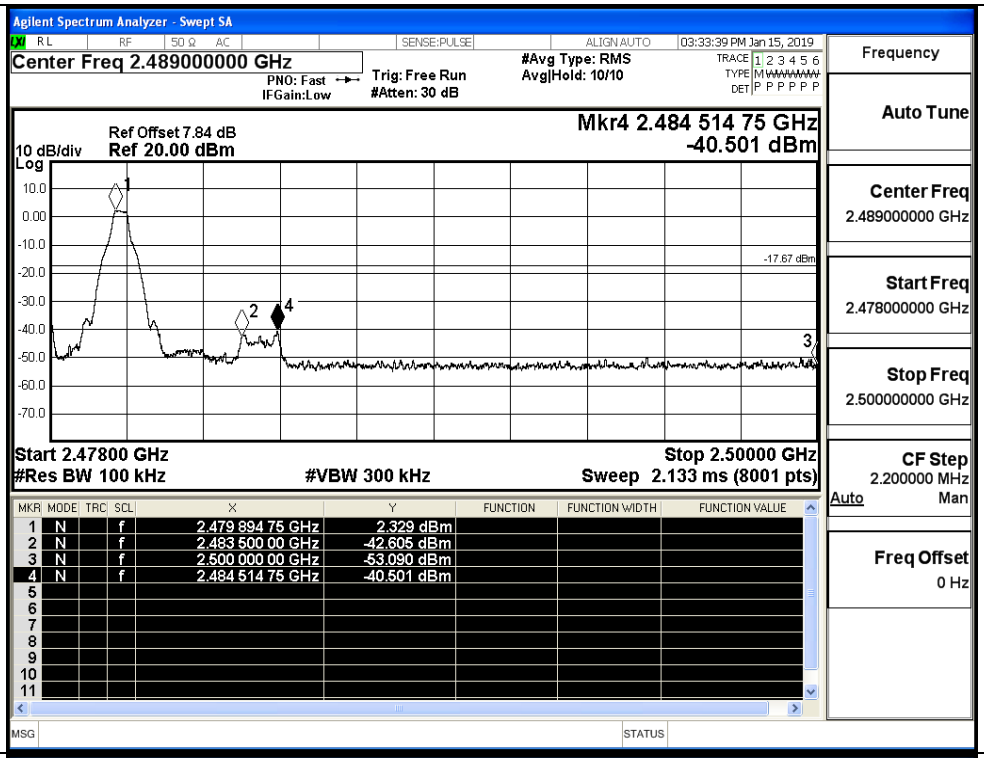
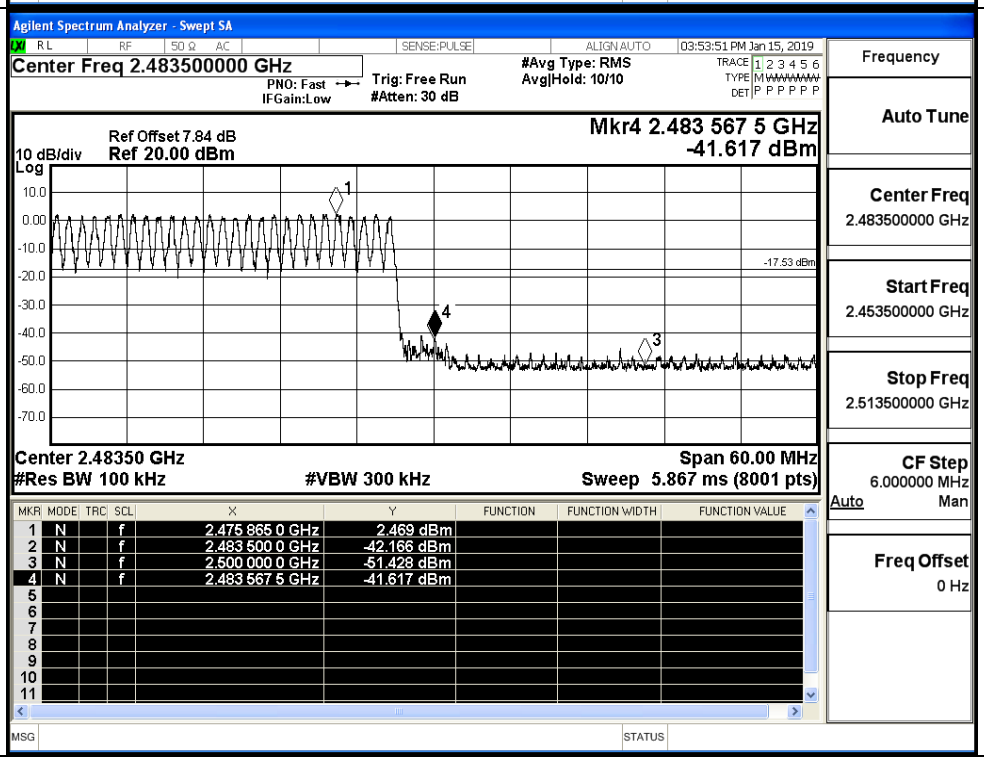
| π/4DQPSK_MCH_Graphs | | | |
|---|---|---|---|
| Pref | |  | |
| Puw | |  | |

| π/4DQPSK_HCH_Graphs | | | |
|---|---|---|---|
| Pref | |  | |
| Puw | |  | |

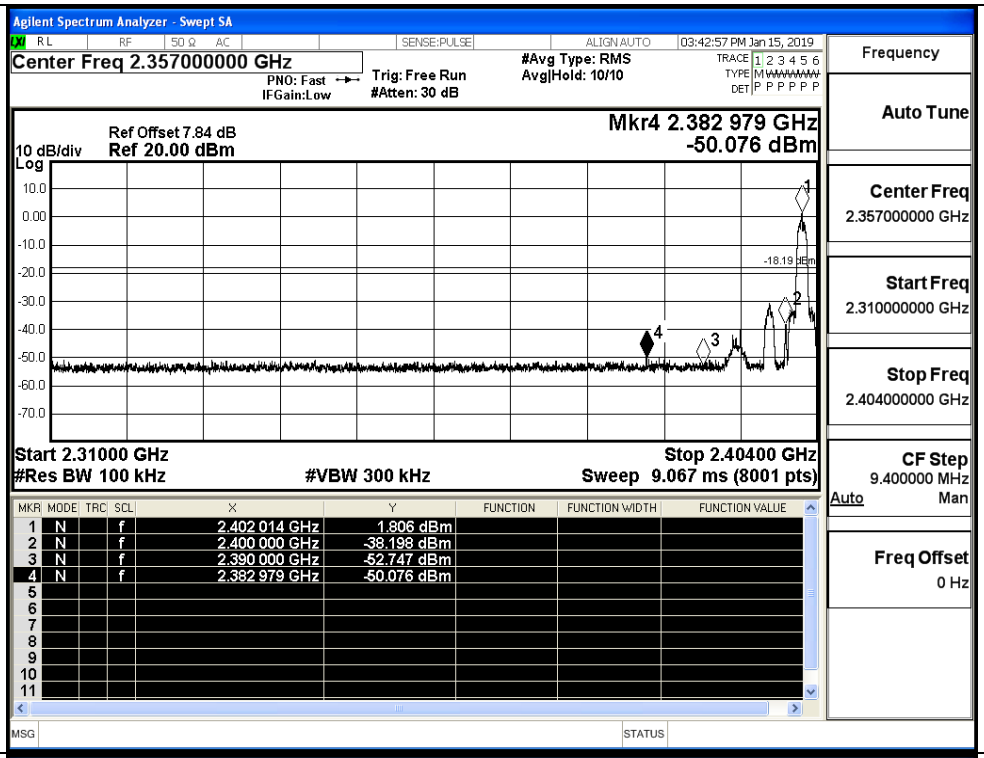
## A.7 Band-edge for RF Conducted Emissions

| Mode | Channel | Carrier Frequency [MHz] | Carrier Power [dBm] | Frequency Hopping | Max Spurious Level [dBm] | Limit [dBm] | Verdict |
|---|---|---|---|---|---|---|---|
| GFSK | LCH | 2402 | 1.940 | Off | -48.494 | -18.06 | PASS |
| | | | 2.129 | On | -49.954 | -17.87 | PASS |
| | HCH | 2480 | 2.329 | Off | -40.501 | -17.67 | PASS |
| | | | 2.469 | On | -41.617 | -17.53 | PASS |
| π/4DQPSK | LCH | 2402 | 1.806 | Off | -50.076 | -18.19 | PASS |
| | | | 2.186 | On | -49.626 | -17.81 | PASS |
| | HCH | 2480 | 1.271 | Off | -43.737 | -18.73 | PASS |
| | | | 2.352 | On | -41.804 | -17.65 | PASS |

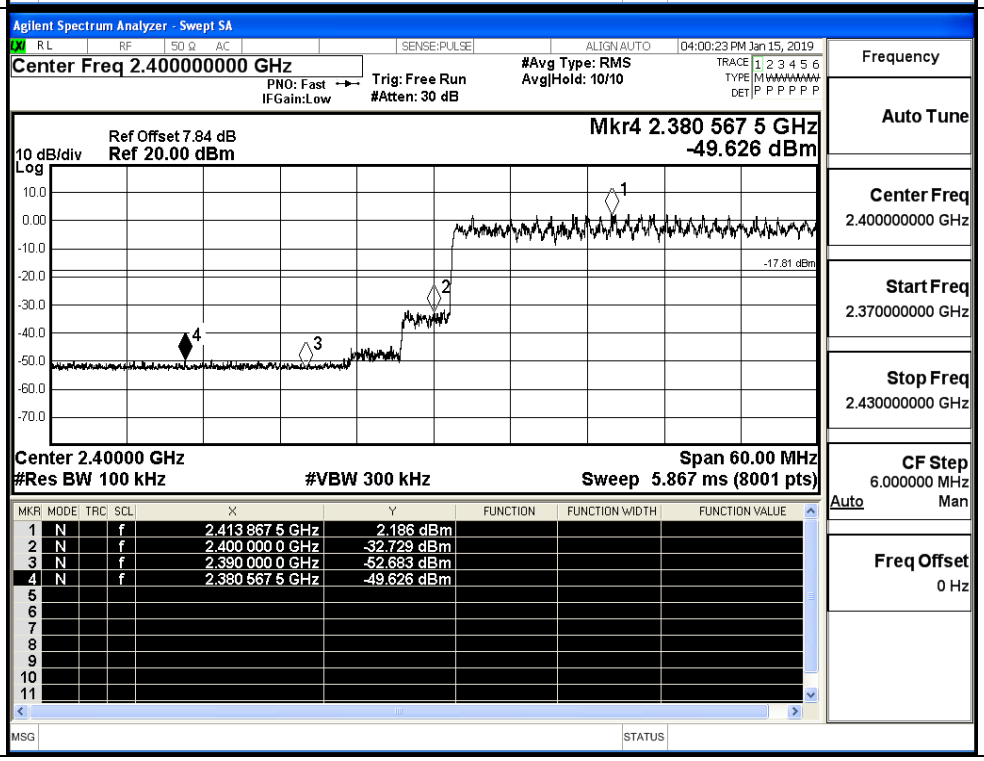
| Test Graphs | |
|---|---|
| GFSK/LCH/No Hop |  |
| GFSK/LCH/Hop |  |

| | |
|---|---|
| GFSK/HCH/No Hop |  |
| GFSK/HCH/Hop |  |

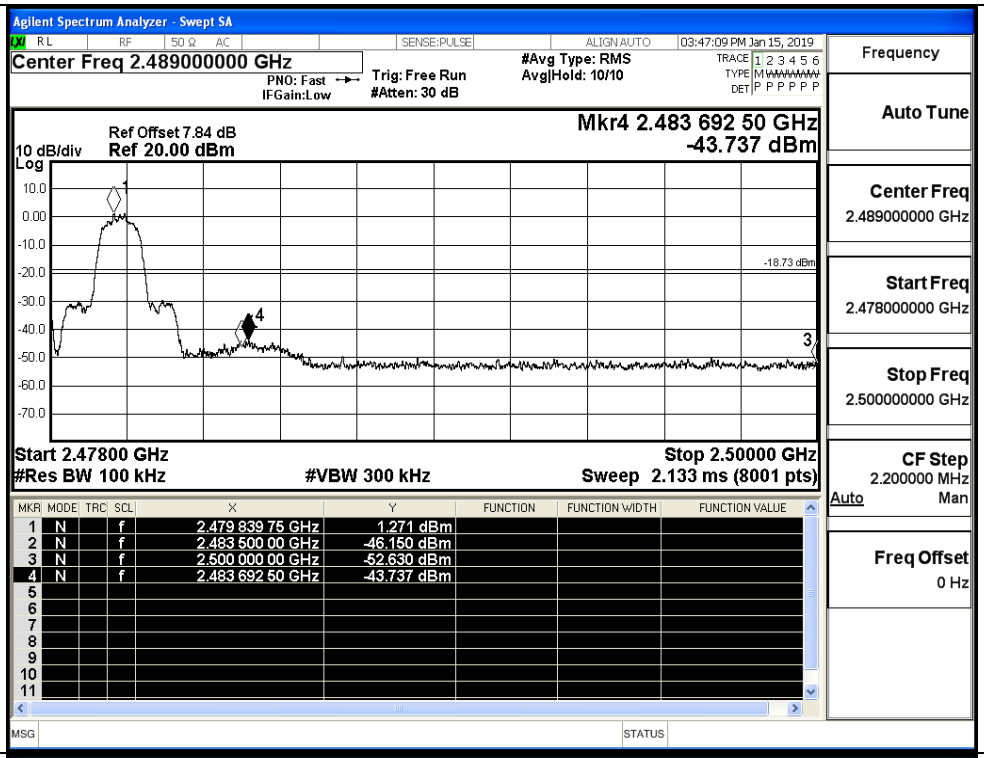
π/4DQPSK/LCH/No Hop



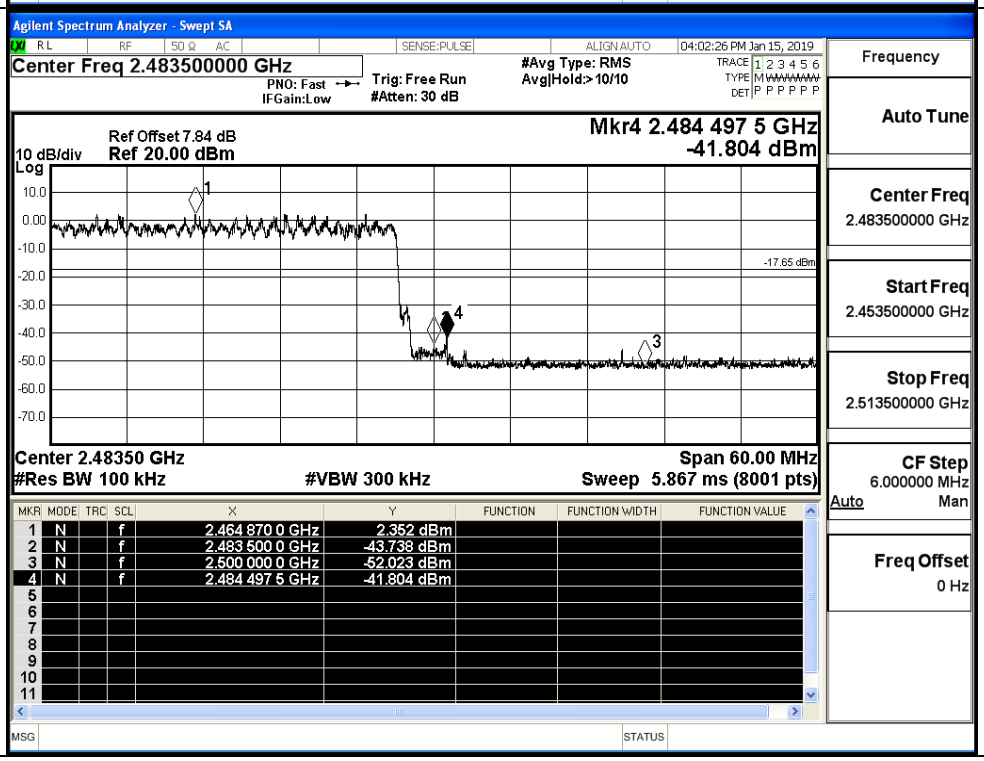

π/4DQPSK/LCH/Hop



π/4DQPSK/HCH/No Hop



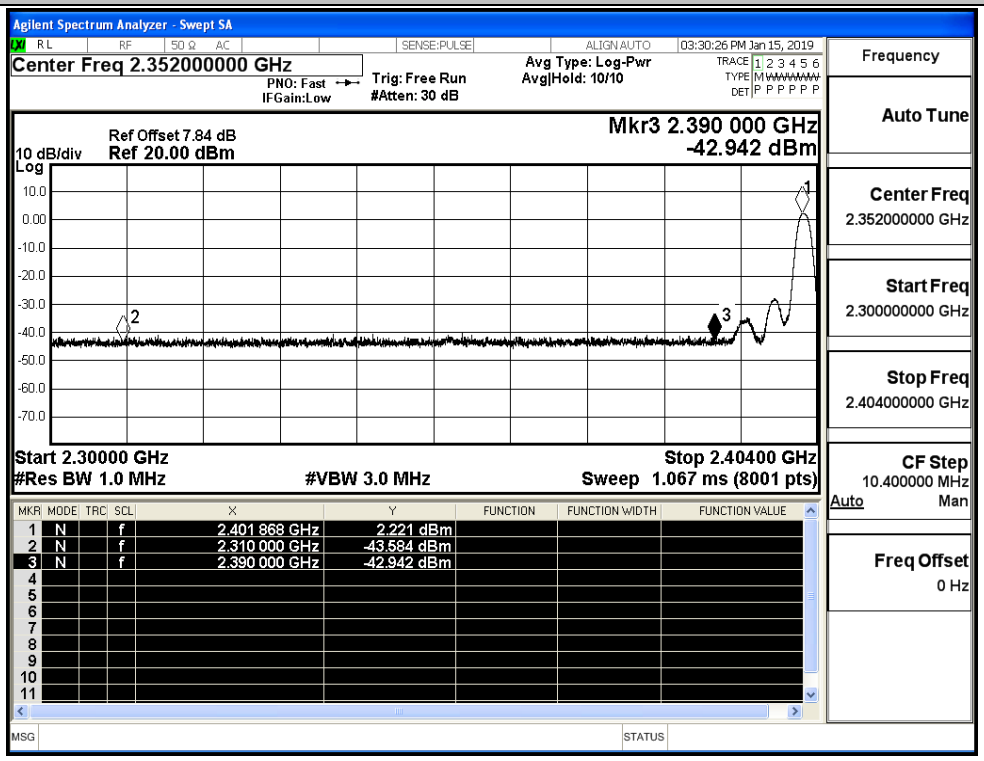

π/4DQPSK/HCH/Hop



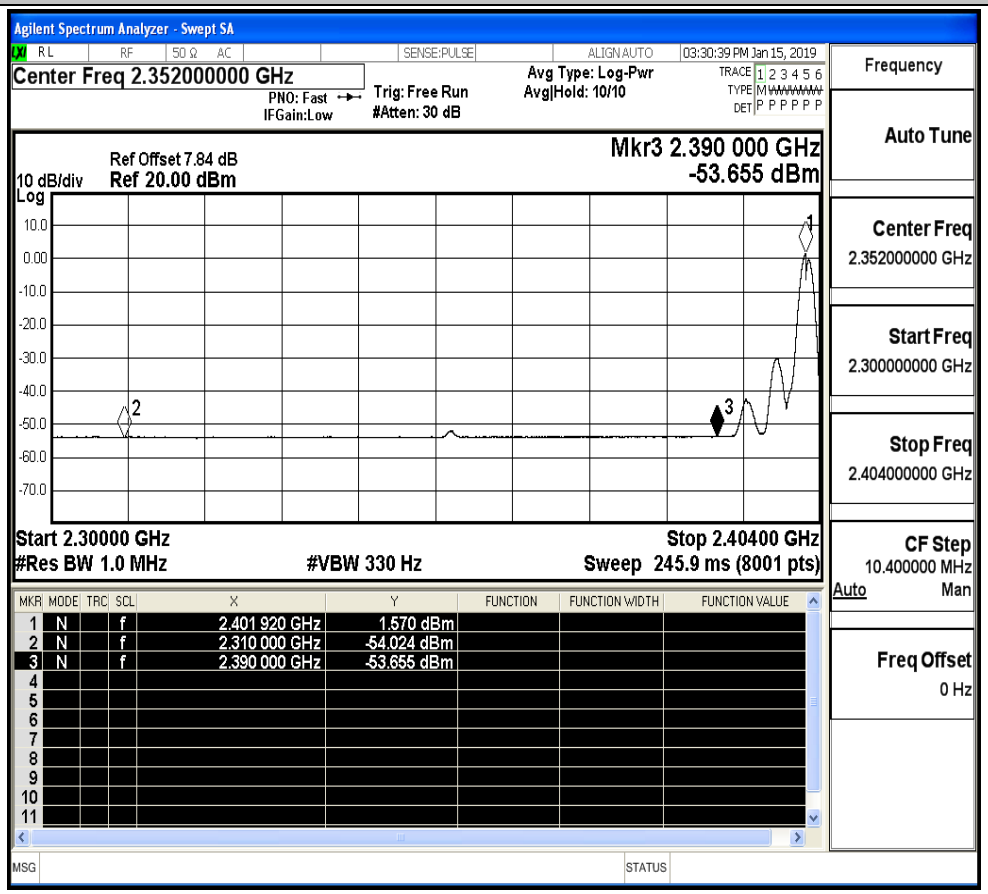
## A.8 Restrict-band band-edge measurements

| Test Mode | Hopping | Freq. | Power [dBm] | Gain | Ground Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|---|---|---|---|---|---|---|---|---|---|
| GFSK | Off | 2310.0 | -43.58 | 2.0 | 0 | 51.67 | PEAK | 74 | PASS |
| | Off | 2310.0 | -54.02 | 2.0 | 0 | 41.23 | AV | 54 | PASS |
| | Off | 2390.0 | -42.94 | 2.0 | 0 | 52.32 | PEAK | 74 | PASS |
| | Off | 2390.0 | -53.66 | 2.0 | 0 | 41.60 | AV | 54 | PASS |
| | Off | 2483.5 | -35.62 | 2.0 | 0 | 59.64 | PEAK | 74 | PASS |
| | Off | 2483.5 | -44.07 | 2.0 | 0 | 51.19 | AV | 54 | PASS |
| | Off | 2500.0 | -43.41 | 2.0 | 0 | 51.85 | PEAK | 74 | PASS |
| | Off | 2500.0 | -53.32 | 2.0 | 0 | 41.94 | AV | 54 | PASS |
| π/4DQPSK | Off | 2310.0 | -44.48 | 2.0 | 0 | 50.78 | PEAK | 74 | PASS |
| | Off | 2310.0 | -53.86 | 2.0 | 0 | 41.39 | AV | 54 | PASS |
| | Off | 2390.0 | -44.45 | 2.0 | 0 | 50.81 | PEAK | 74 | PASS |
| | Off | 2390.0 | -53.72 | 2.0 | 0 | 41.54 | AV | 54 | PASS |
| | Off | 2483.5 | -36.57 | 2.0 | 0 | 58.69 | PEAK | 74 | PASS |
| | Off | 2483.5 | -46.41 | 2.0 | 0 | 48.85 | AV | 54 | PASS |
| | Off | 2500.0 | -43.09 | 2.0 | 0 | 52.17 | PEAK | 74 | PASS |
| | Off | 2500.0 | -53.31 | 2.0 | 0 | 41.95 | AV | 54 | PASS |

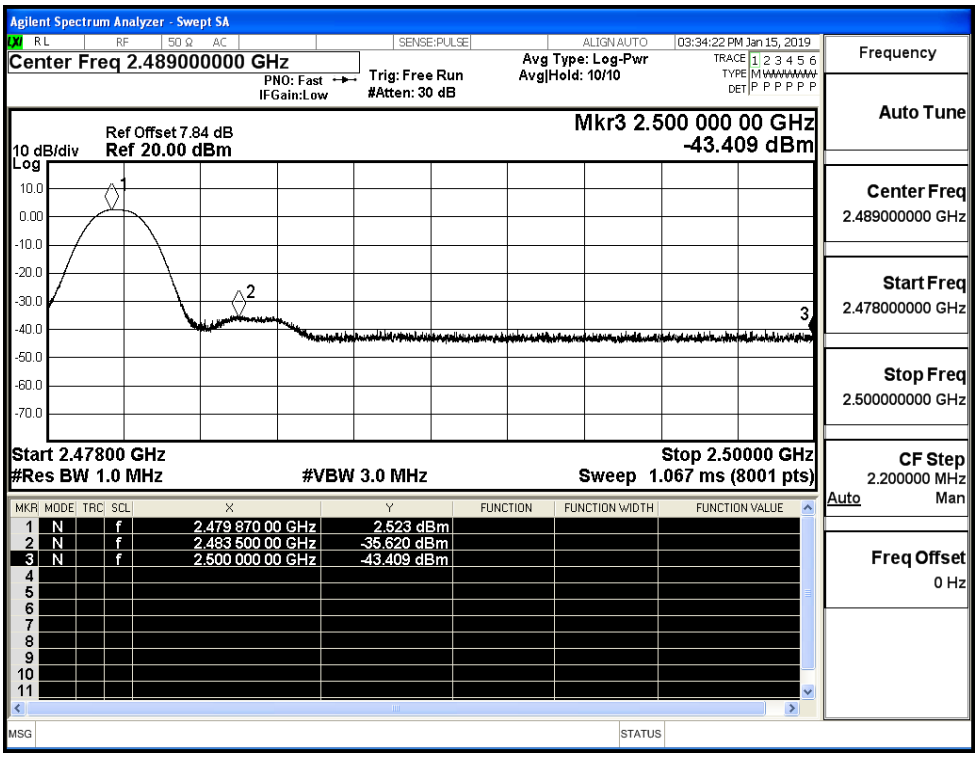
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



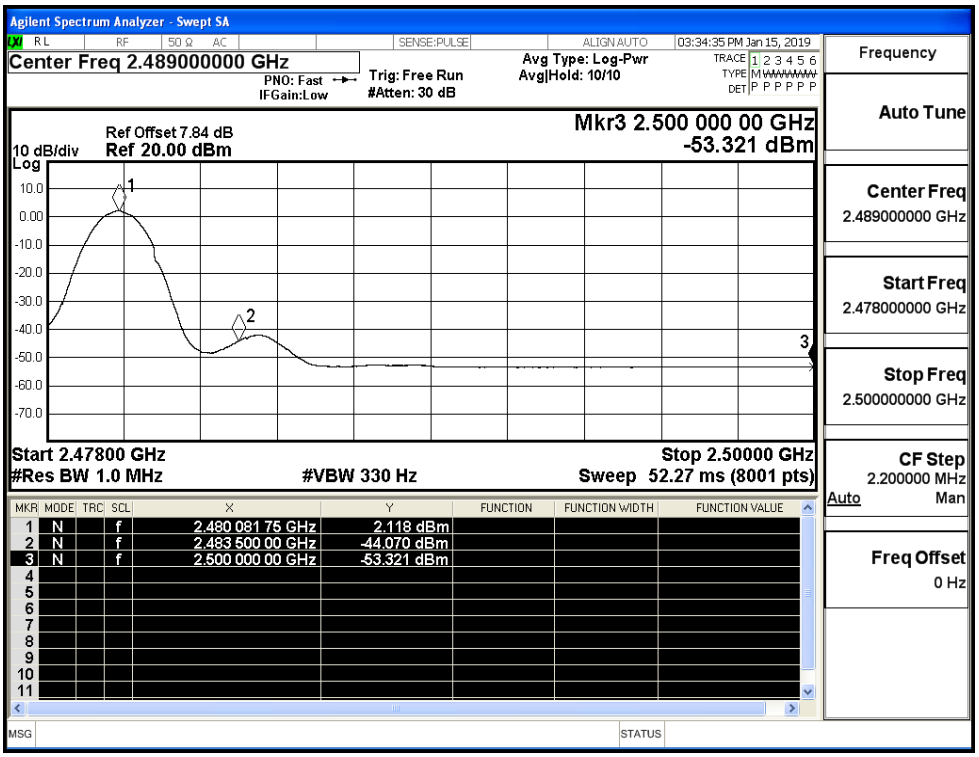

Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



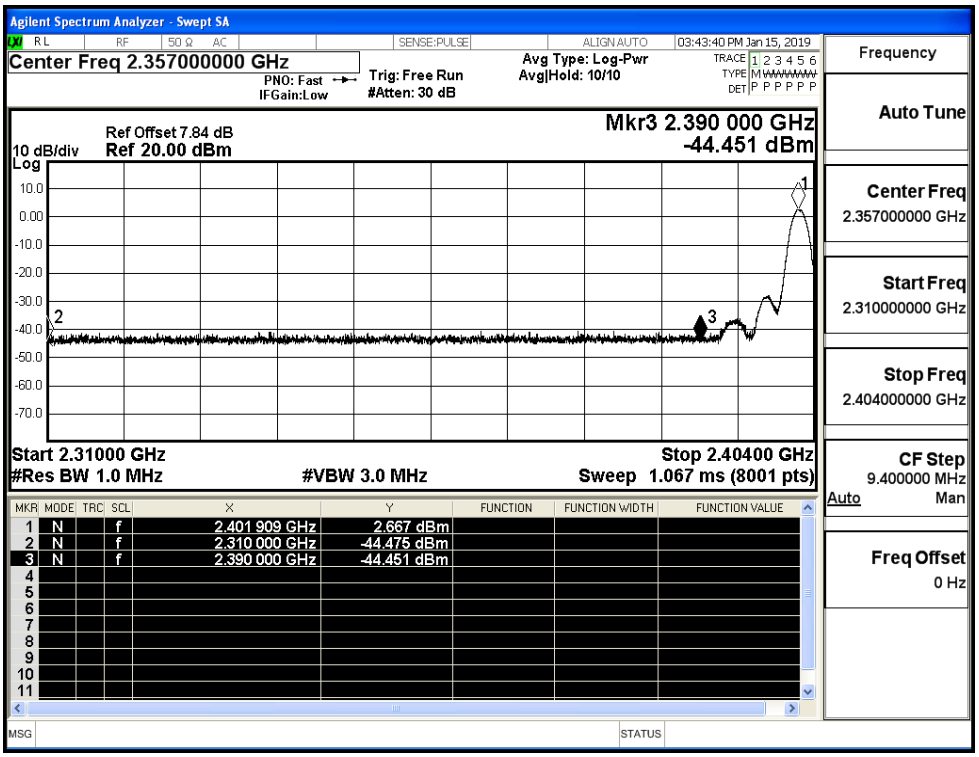
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



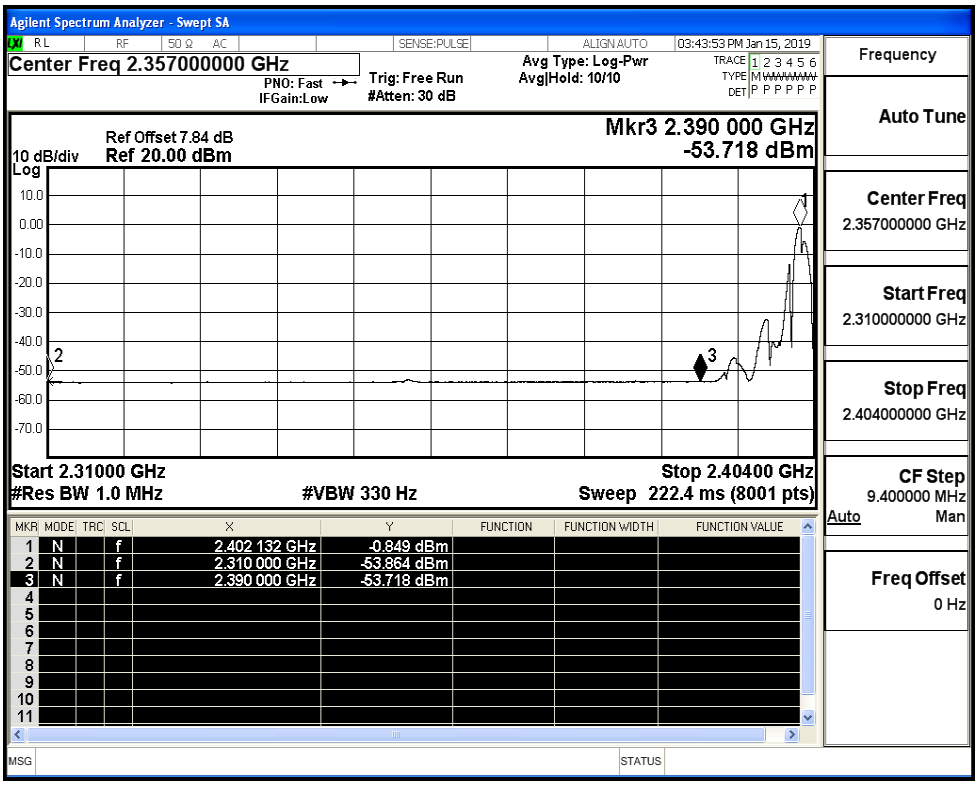

Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



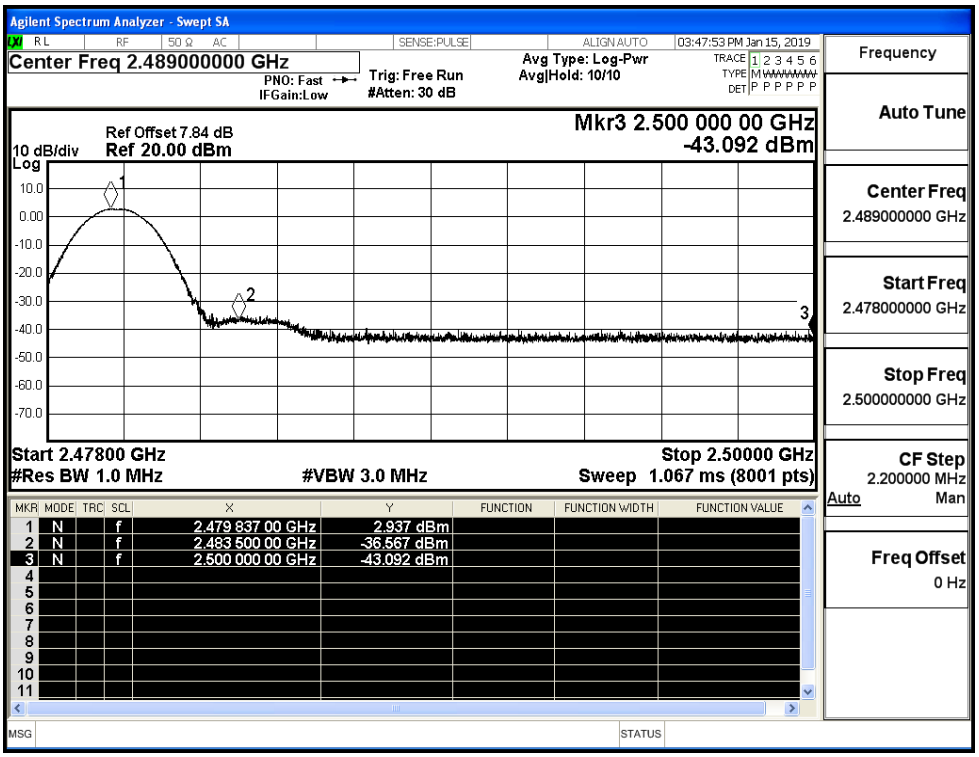
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)

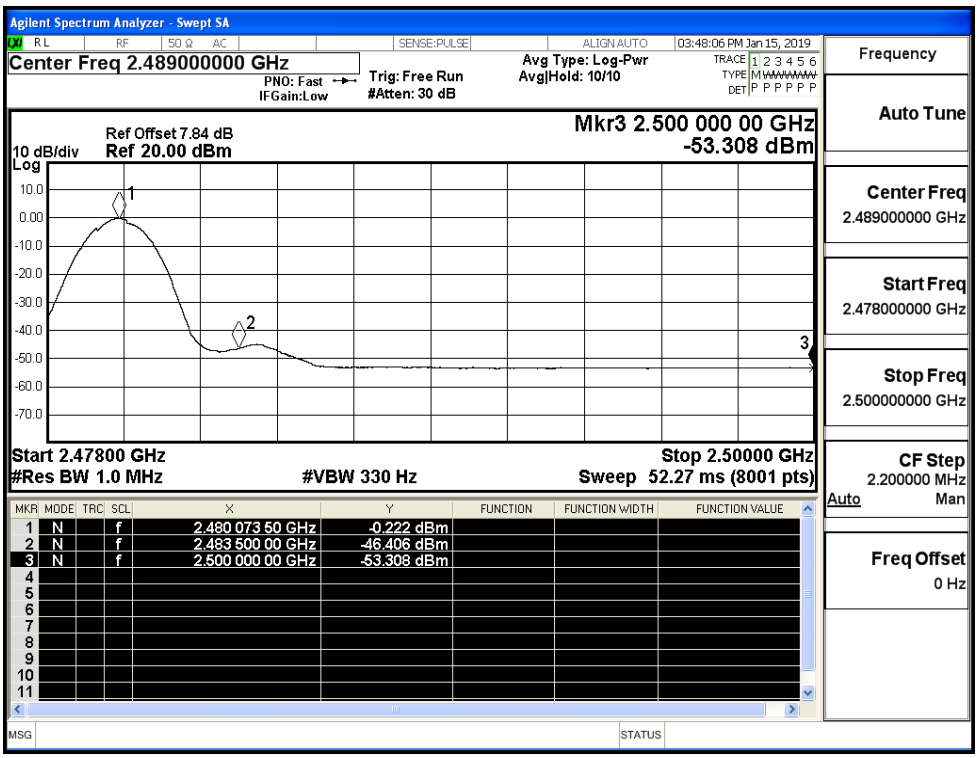



Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



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




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