

Appendix A
RF Test Data for BT(BDR/EDR) (Conducted Measurement)

Product Name: Mobile Phone

Trade Mark: Uoshou

Test Model: F28A

FCC ID: 2ATE7-F28A

Environmental Conditions

Temperature:	23.7° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

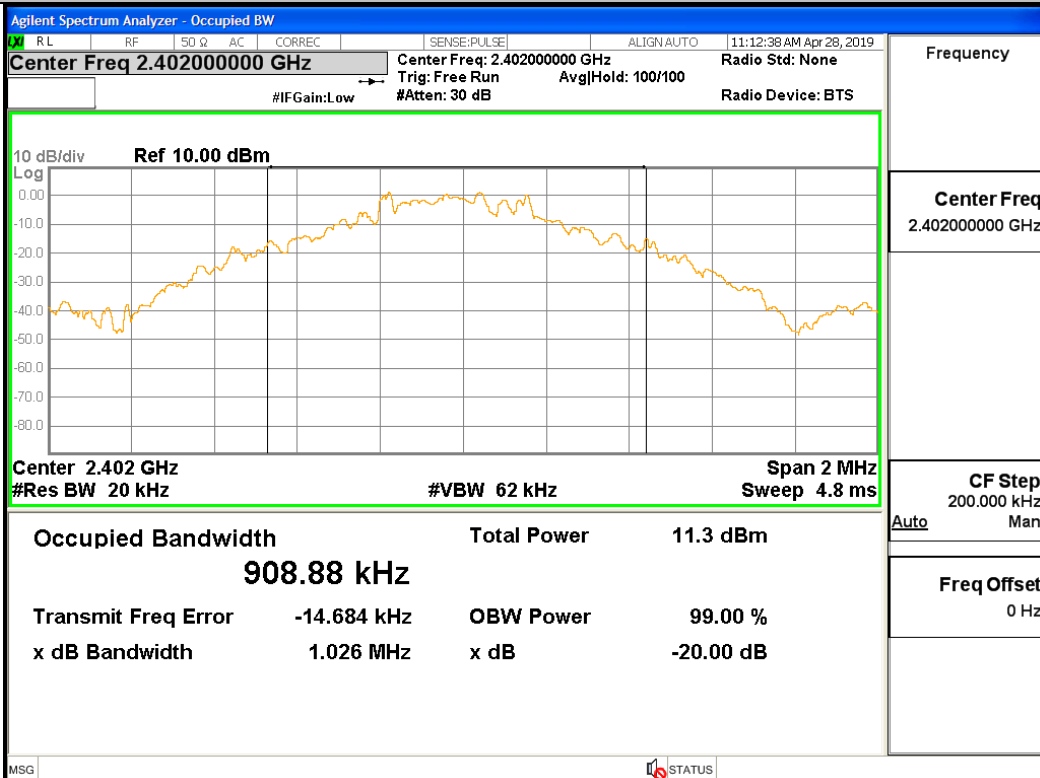
A.1 20 dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	1.026	Not Specified	PASS
GFSK	MCH	0.948	Not Specified	PASS
GFSK	HCH	0.947	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.320	Not Specified	PASS
$\pi/4$ DQPSK	MCH	1.317	Not Specified	PASS
$\pi/4$ DQPSK	HCH	1.317	Not Specified	PASS
8DPSK	LCH	1.311	Not Specified	PASS
8DPSK	MCH	1.312	Not Specified	PASS
8DPSK	HCH	1.277	Not Specified	PASS

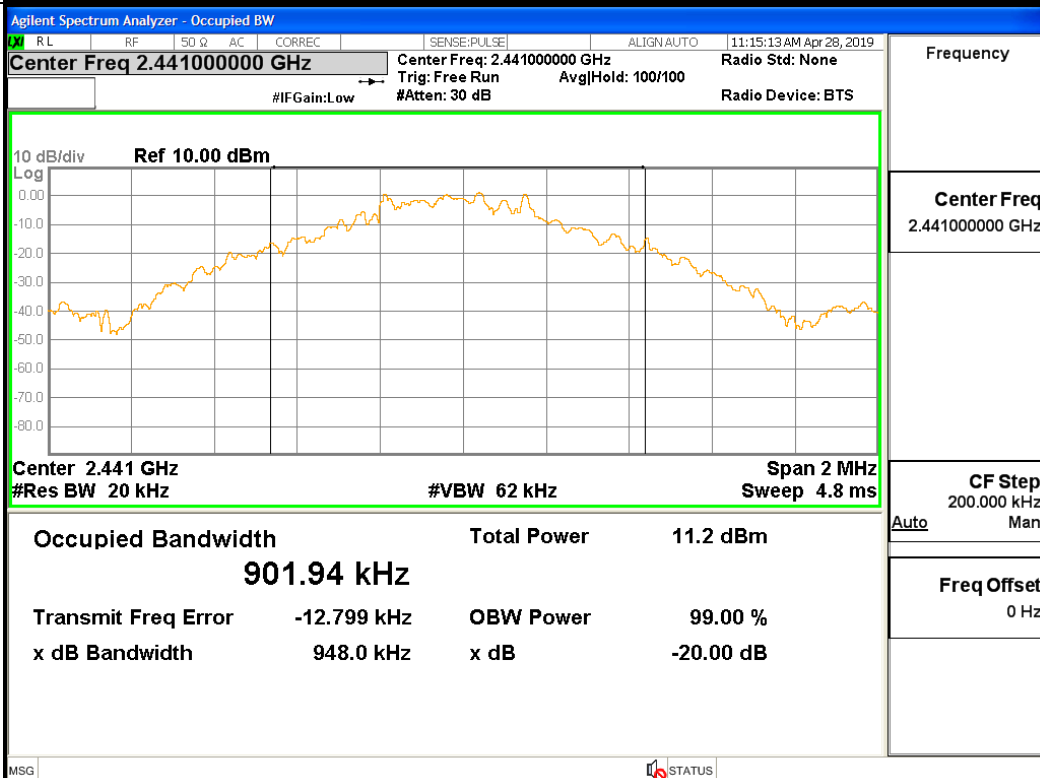
Test Graph

Graphs

GFSK/LCH



GFSK/MCH



GFSK/HCH

Agilent Spectrum Analyzer - Occupied BW

☒ R L	RF	50 Ω	AC	CORREC	SENSE:PULSE	ALIGN:AUTO	11:16:40 AM Apr 28, 2019
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Center Freq 2.480000000 GHz

Center Freq: 2.480000000 GHz
Trig: Free Run Avg|Hold: 100/100
Radio Std: None
Radio Device: BTS

#IFGain: Low #Atten: 30 dB

10 dB/div Ref 10.00 dBm

Center 2.48 GHz Span 2 MHz
#Res BW 20 kHz #VBW 62 kHz Sweep 4.8 ms

Occupied Bandwidth	Total Power	11.2 dBm
914.98 kHz		
Transmit Freq Error	-13.839 kHz	OBW Power 99.00 %
x dB Bandwidth	947.3 kHz	x dB -20.00 dB

MSG STATUS

Frequency

Center Freq
2.480000000 GHz

CF Step
200.000 kHz
Man

Auto

Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH

Agilent Spectrum Analyzer - Occupied BW

☒ R L	RF	50 Ω	AC	CORREC	SENSE:PULSE	ALIGN:AUTO	11:19:26 AM Apr 28, 2019
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Center Freq 2.402000000 GHz

Center Freq: 2.402000000 GHz
Trig: Free Run Avg|Hold: 100/100
Radio Std: None
Radio Device: BTS

#IFGain: Low #Atten: 30 dB

10 dB/div Ref 10.00 dBm

Center 2.402 GHz Span 2 MHz
#Res BW 20 kHz #VBW 62 kHz Sweep 4.8 ms

Occupied Bandwidth	Total Power	10.4 dBm
1.1884 MHz		
Transmit Freq Error	-18.919 kHz	OBW Power 99.00 %
x dB Bandwidth	1.320 MHz	x dB -20.00 dB

MSG STATUS

Frequency

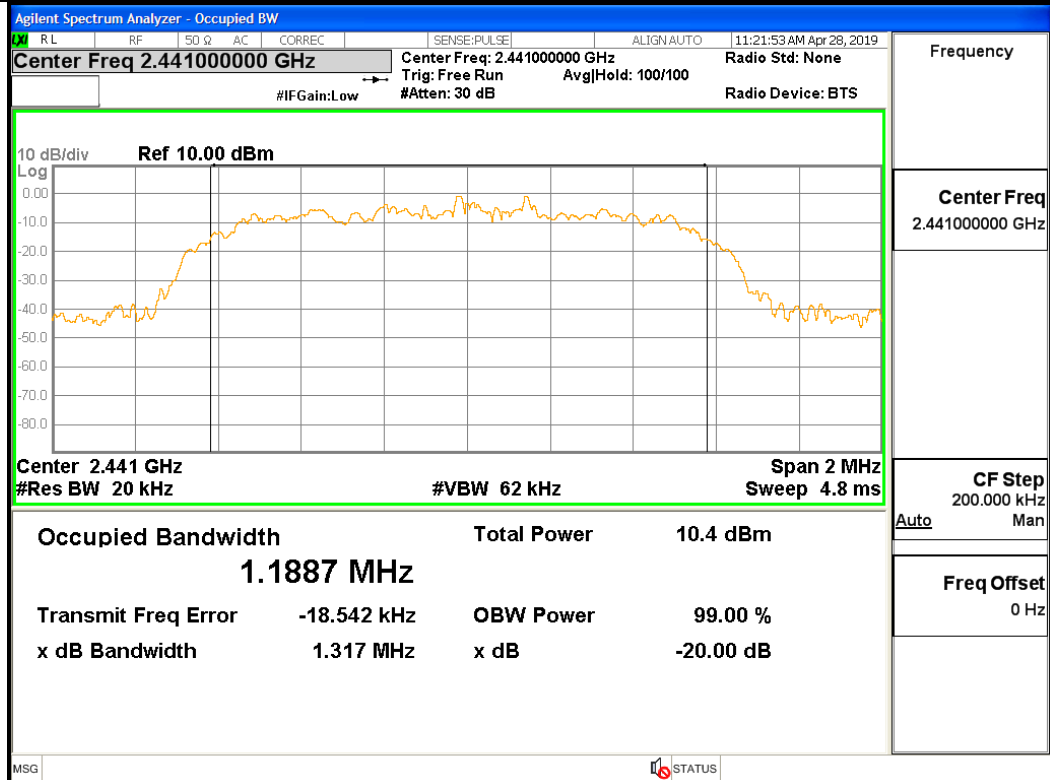
Center Freq
2.402000000 GHz

CF Step
200.000 kHz
Man

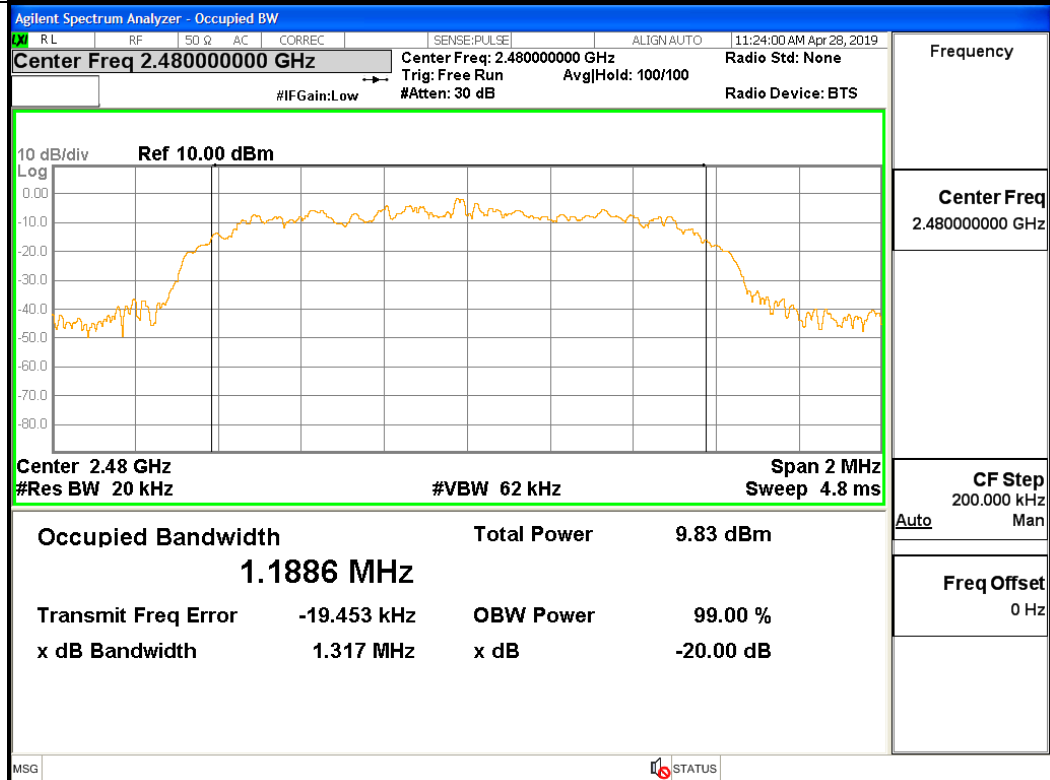
Auto

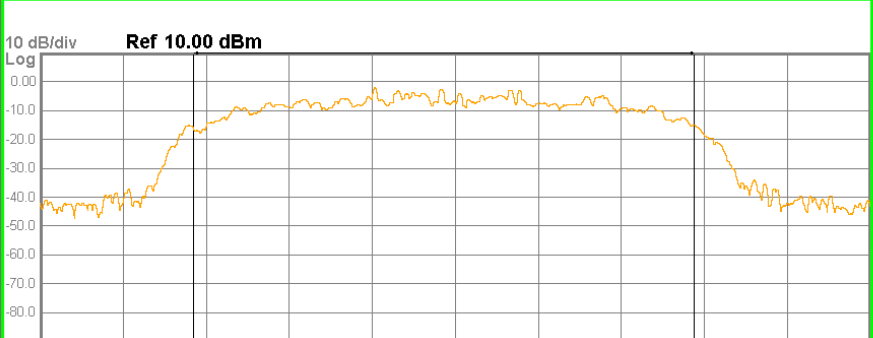
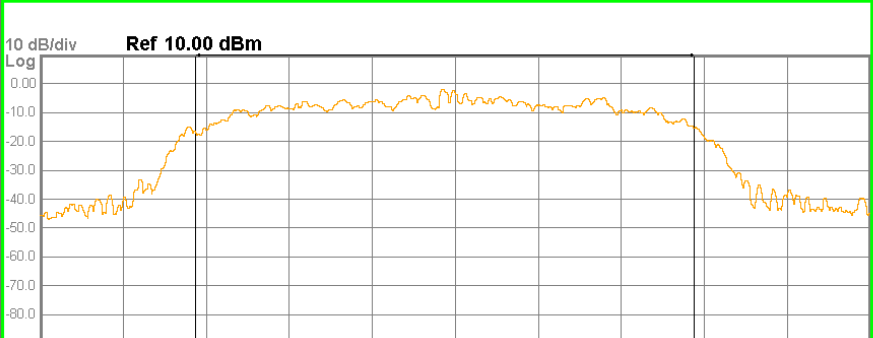
Freq Offset
0 Hz

$\pi/4$ DQPSK/MCH

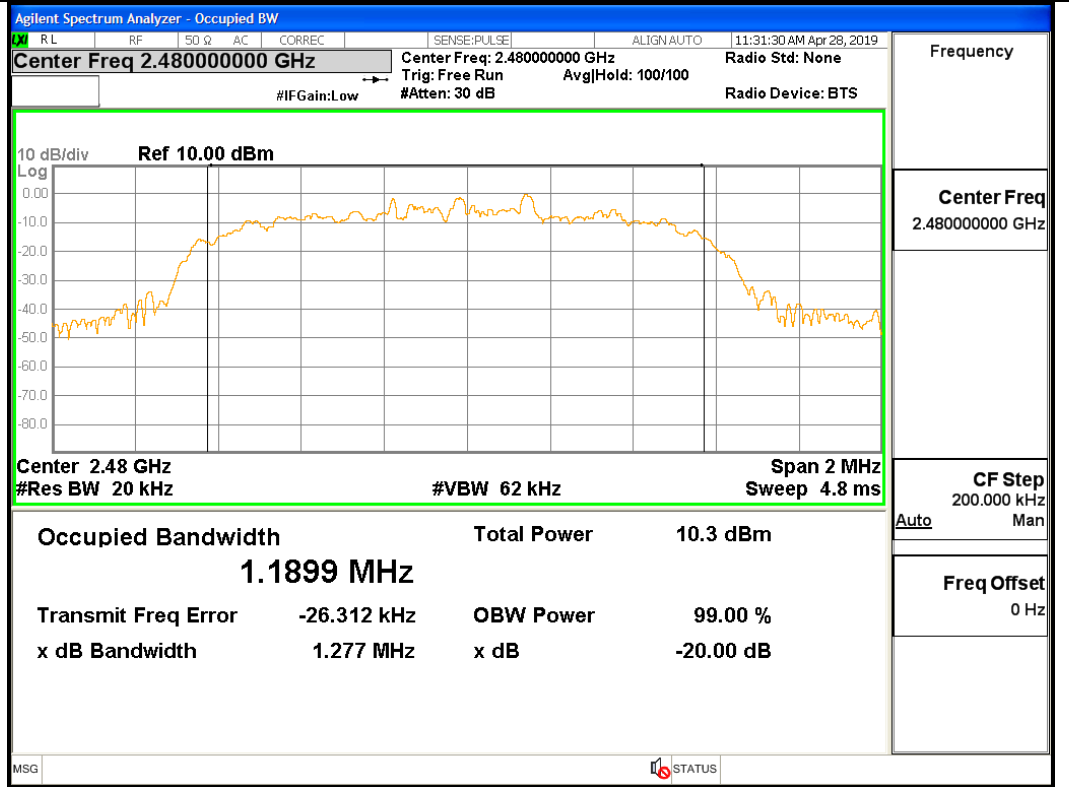


$\pi/4$ DQPSK/HCH



8DPSK/LCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN: AUTO 11:26:37 AM Apr 28, 2019 Center Freq 2.402000000 GHz Center Freq: 2.402000000 GHz Radio Std: None #IFGain: Low #Atten: 30 dB Avg Hold: 100/100 Radio Device: BTS 10 dB/div Ref 10.00 dBm  Center 2.402 GHz #Res BW 20 kHz #VBW 62 kHz Span 2 MHz Sweep 4.8 ms Occupied Bandwidth 1.2013 MHz Total Power 10.2 dBm Transmit Freq Error -26.393 kHz OBW Power 99.00 % x dB Bandwidth 1.311 MHz x dB -20.00 dB MSG STATUS	Frequency Center Freq 2.402000000 GHz CF Step 200.000 kHz Auto Freq Offset 0 Hz
8DPSK/MCH	Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN: AUTO 11:29:27 AM Apr 28, 2019 Center Freq 2.441000000 GHz Center Freq: 2.441000000 GHz Radio Std: None #IFGain: Low #Atten: 30 dB Avg Hold: 100/100 Radio Device: BTS 10 dB/div Ref 10.00 dBm  Center 2.441 GHz #Res BW 20 kHz #VBW 62 kHz Span 2 MHz Sweep 4.8 ms Occupied Bandwidth 1.2009 MHz Total Power 10.2 dBm Transmit Freq Error -25.536 kHz OBW Power 99.00 % x dB Bandwidth 1.312 MHz x dB -20.00 dB MSG STATUS	Frequency Center Freq 2.441000000 GHz CF Step 200.000 kHz Auto Freq Offset 0 Hz

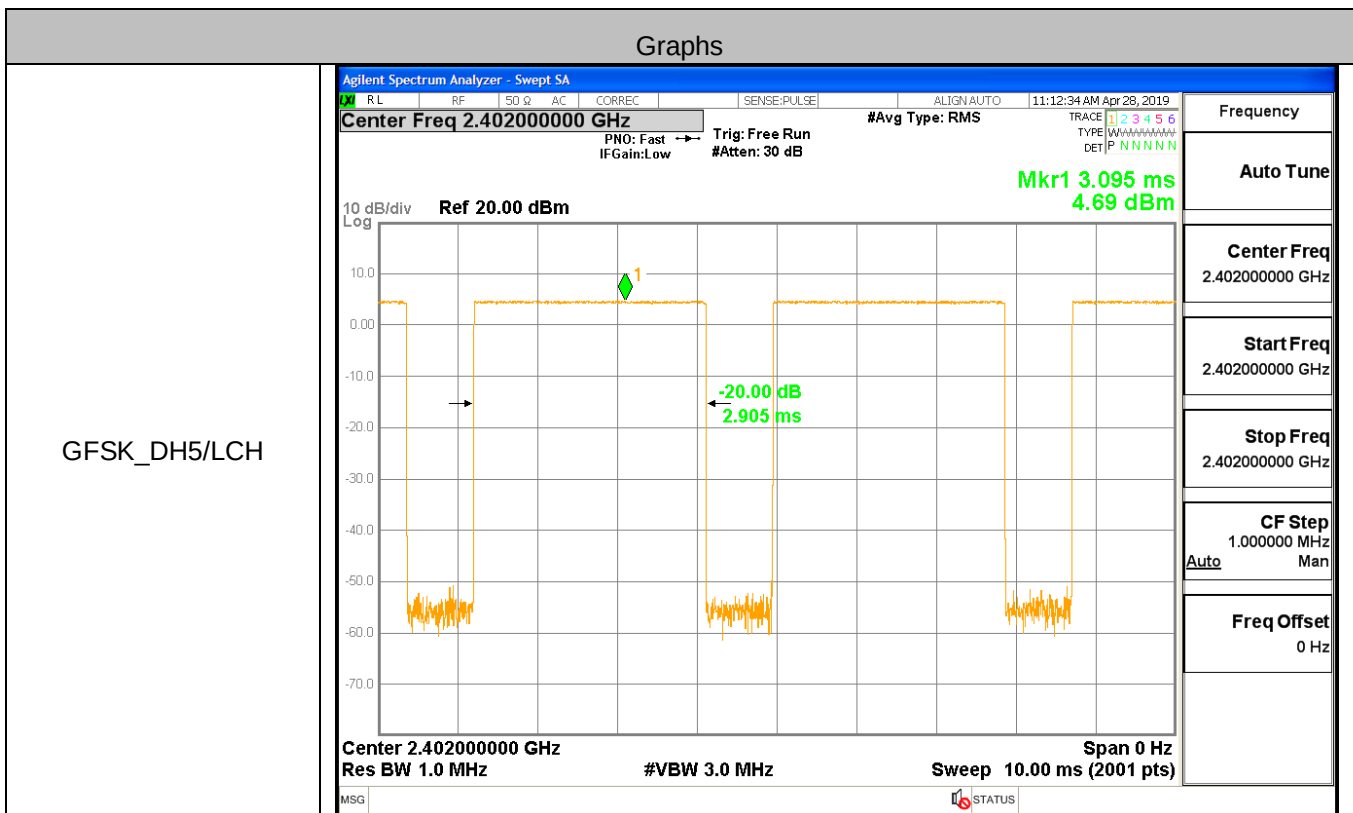
8DPSK/HCH

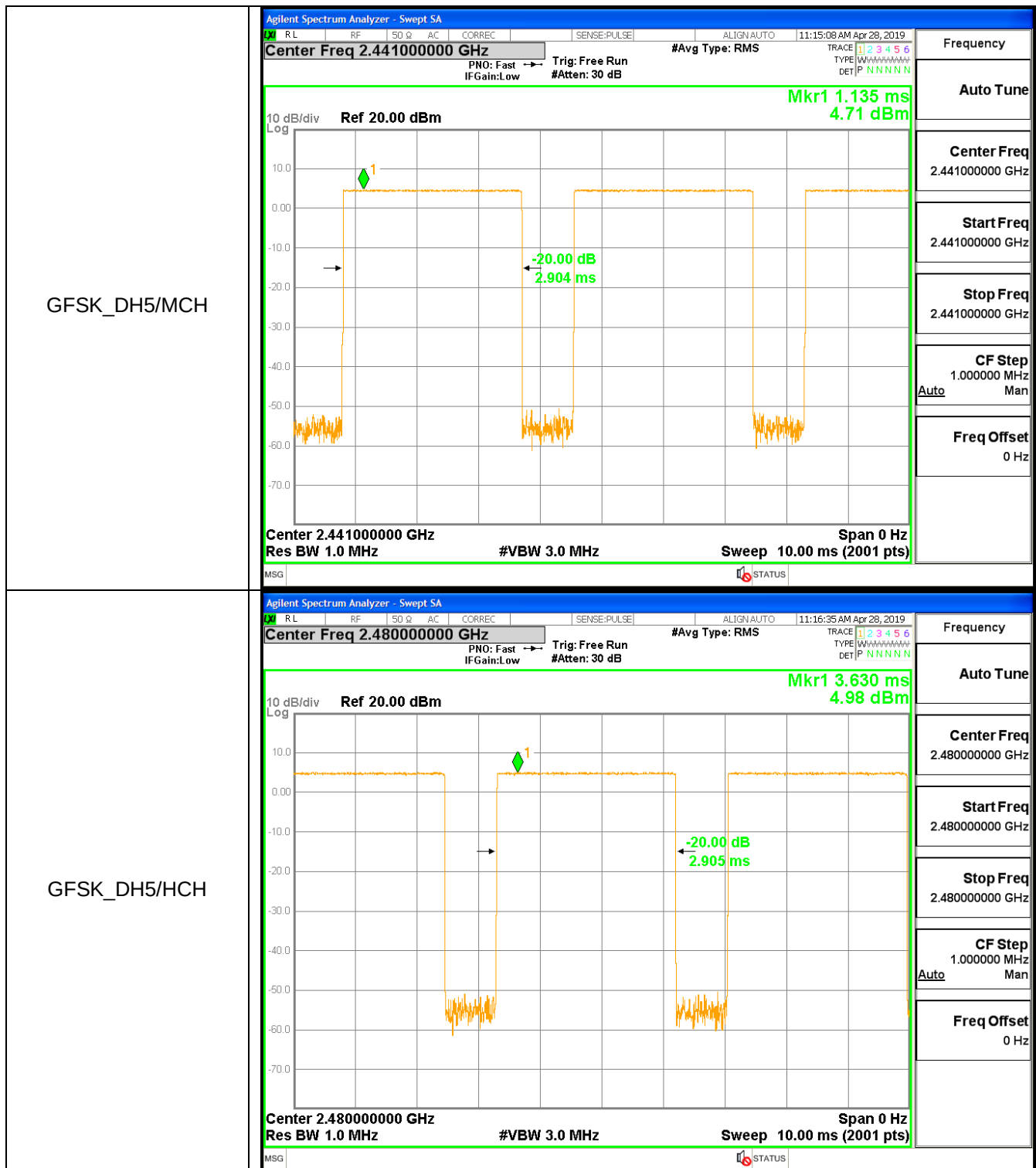


A.2 Dwell Time

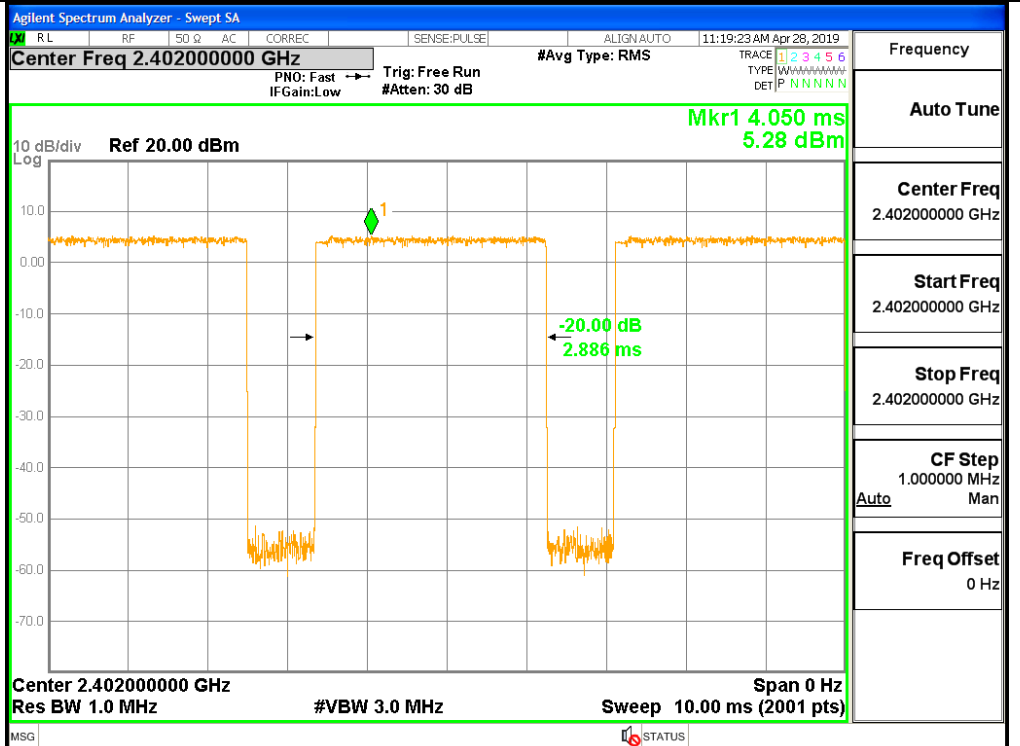
Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.002905	106.7	0.309921	0.4	PASS
GFSK	DH5	MCH	0.002904	106.7	0.309871	0.4	PASS
GFSK	DH5	HCH	0.002905	106.7	0.309917	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	0.002886	106.7	0.307906	0.4	PASS
$\pi/4$ DQPSK	2DH5	MCH	0.002888	106.7	0.30814	0.4	PASS
$\pi/4$ DQPSK	2DH5	HCH	0.002886	106.7	0.307903	0.4	PASS
8DPSK	3DH5	LCH	0.002885	106.7	0.307836	0.4	PASS
8DPSK	3DH5	MCH	0.002890	106.7	0.308327	0.4	PASS
8DPSK	3DH5	HCH	0.002890	106.7	0.308357	0.4	PASS

Test Graph

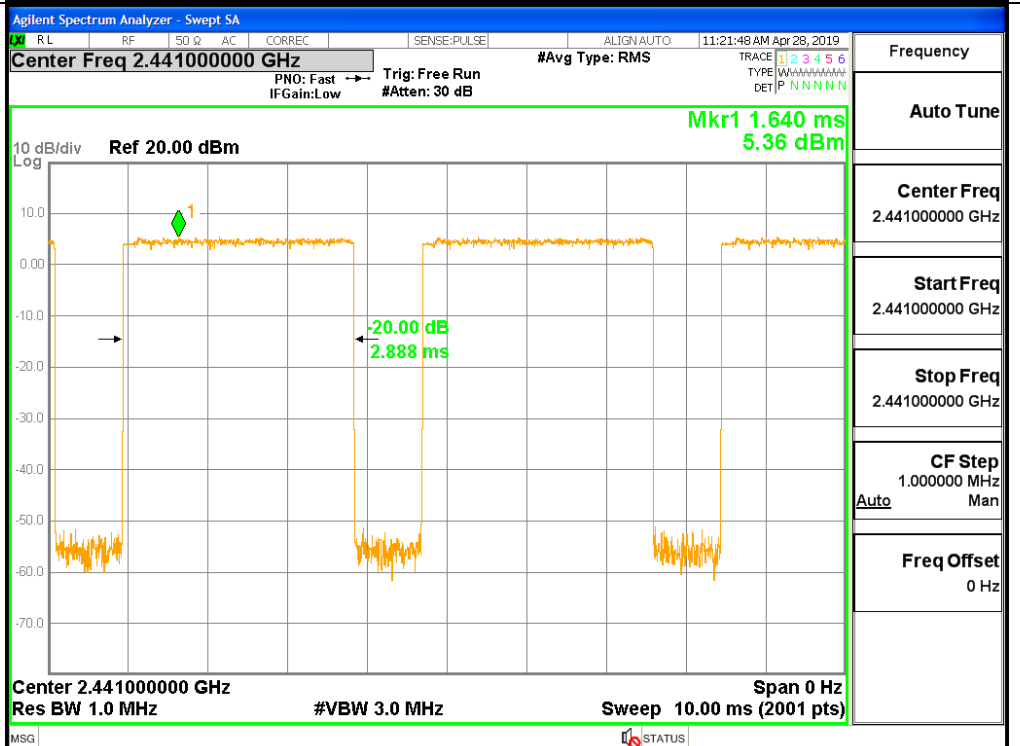




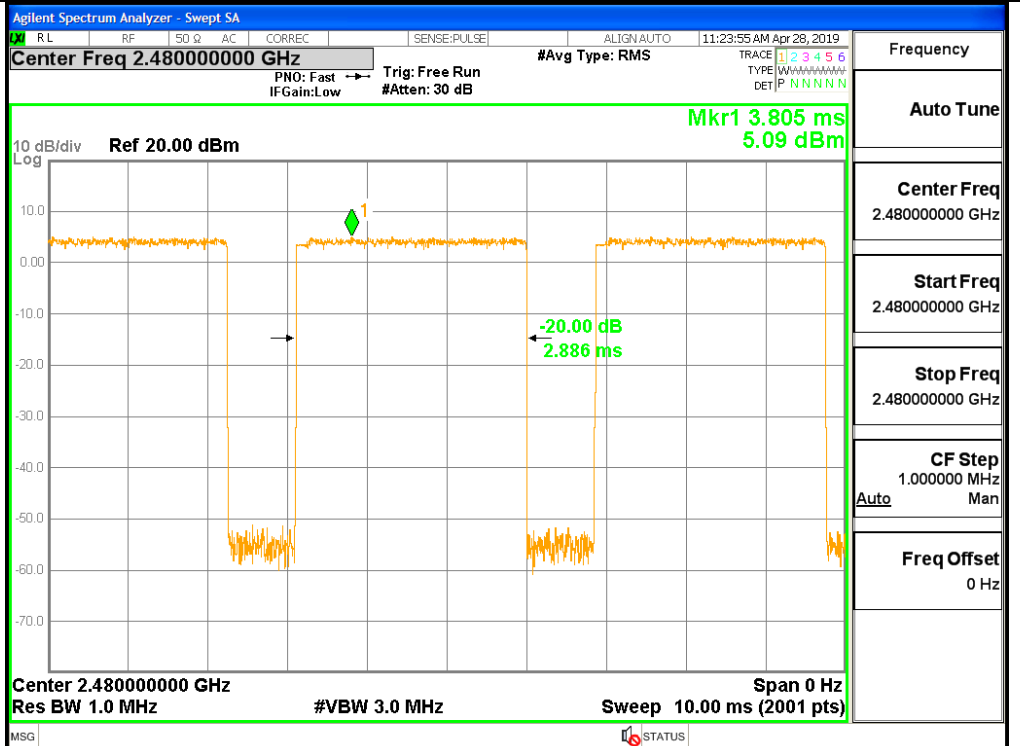
$\pi/4$ DQPSK
_2DH5/LCH



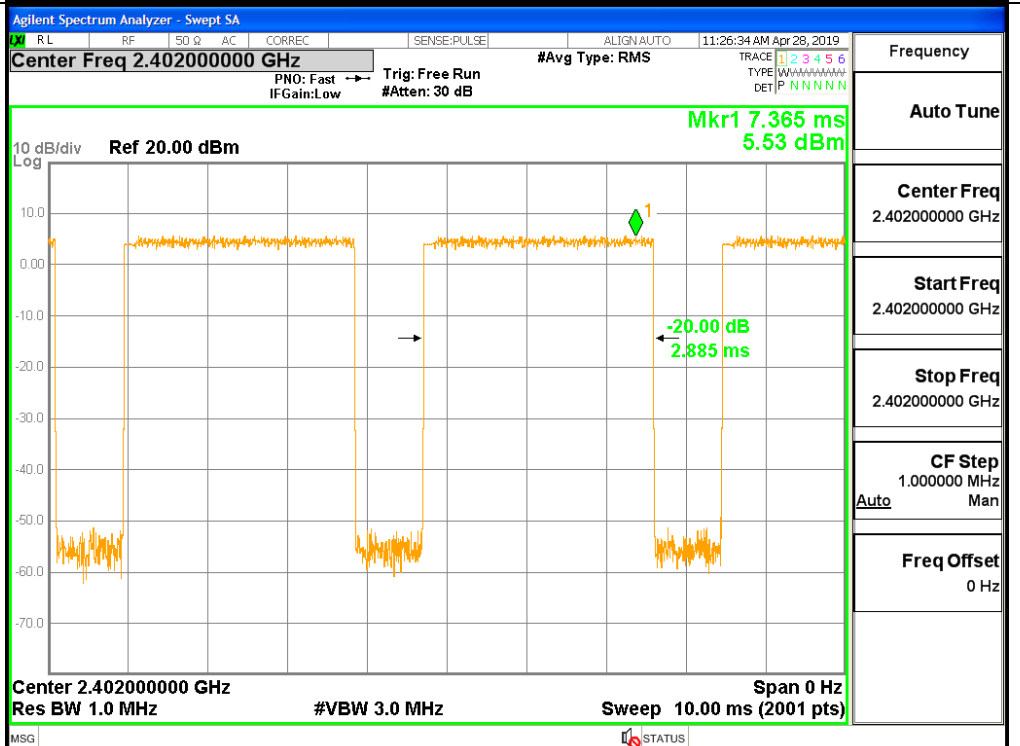
$\pi/4$ DQPSK
_2DH5/MCH

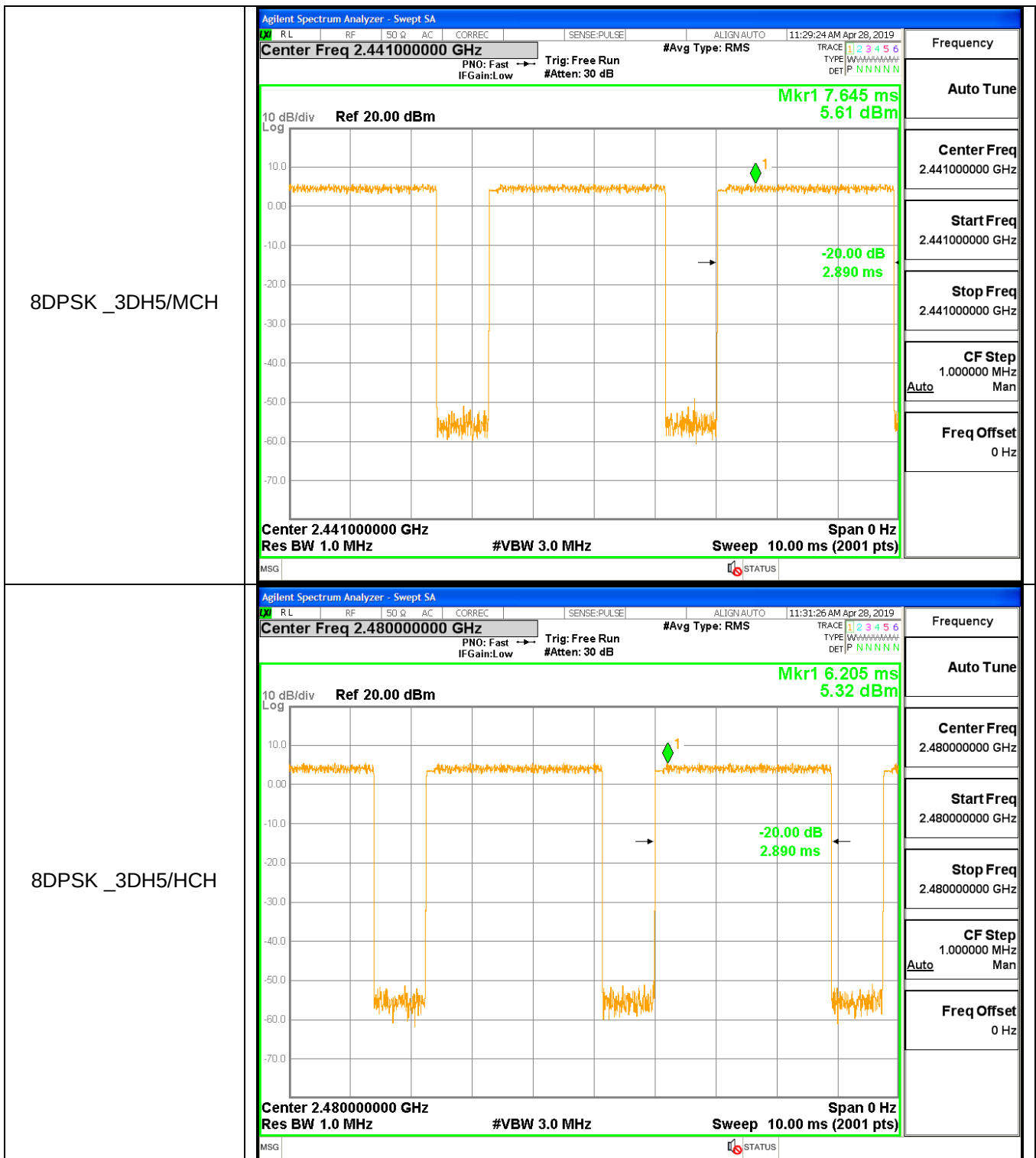


$\pi/4$ DQPSK
_2DH5/HCH



8DPSK_3DH5/LCH

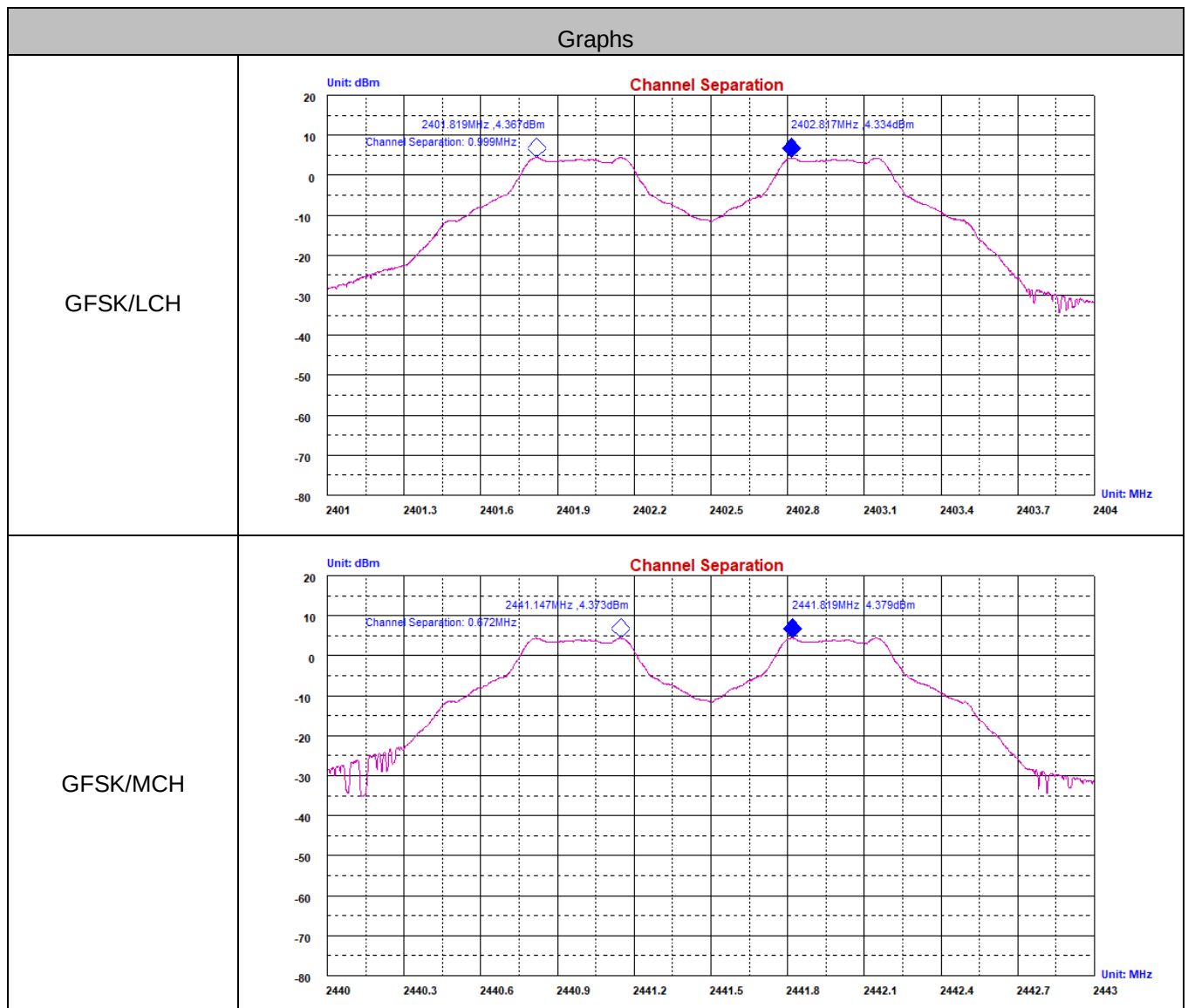




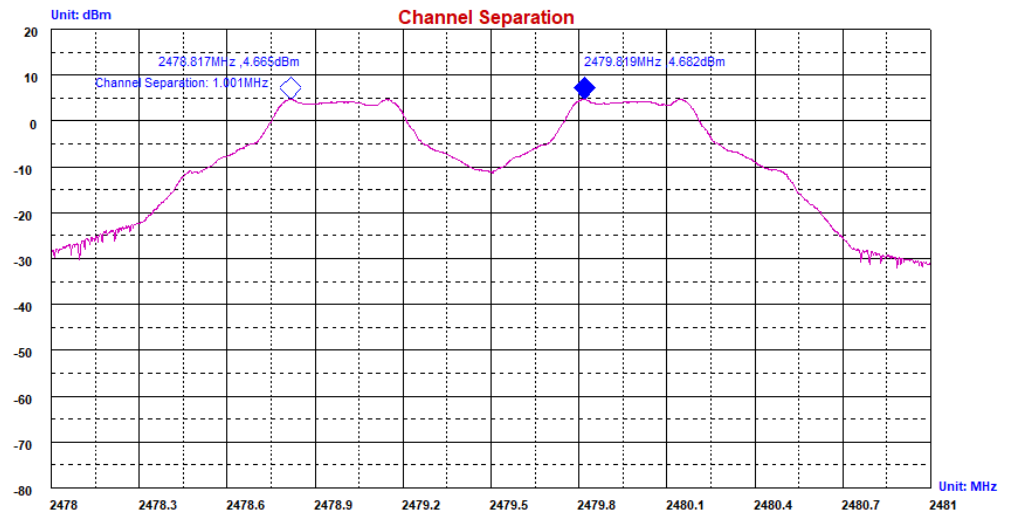
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.999	0.684	PASS
GFSK	MCH	0.672	0.632	PASS
GFSK	HCH	1.001	0.631	PASS
$\pi/4$ DQPSK	LCH	1.001	0.880	PASS
$\pi/4$ DQPSK	MCH	1.000	0.878	PASS
$\pi/4$ DQPSK	HCH	1.001	0.878	PASS
8DPSK	LCH	0.999	0.874	PASS
8DPSK	MCH	1.000	0.875	PASS
8DPSK	HCH	1.000	0.851	PASS

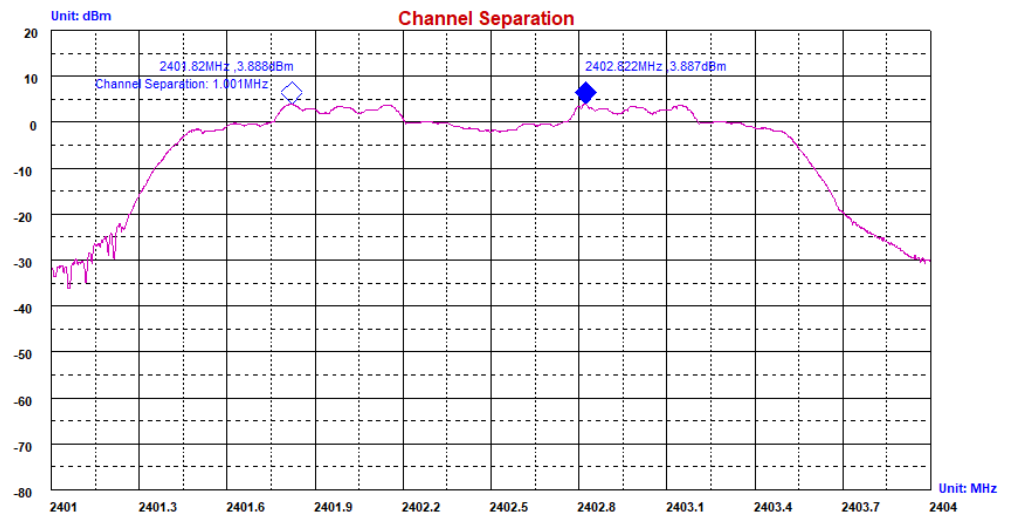
Test Graph



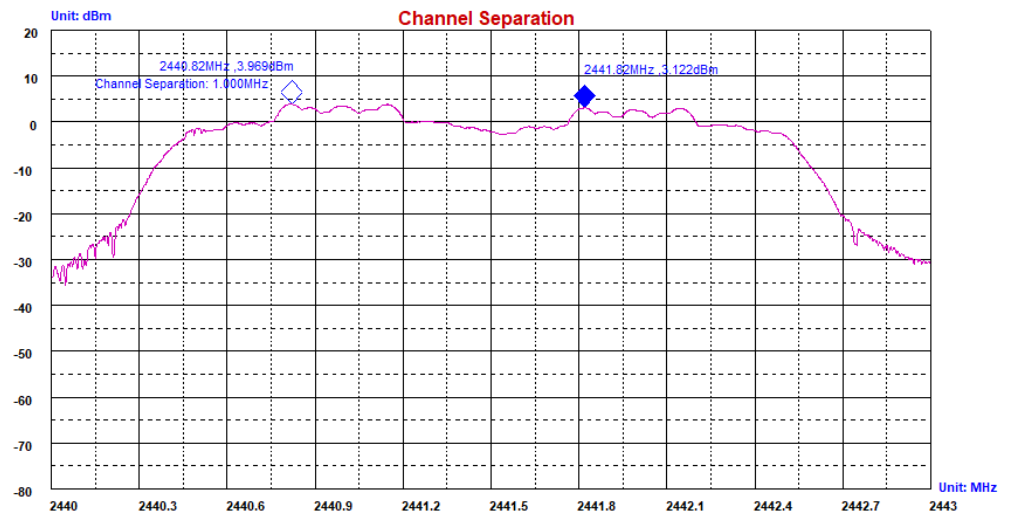
GFSK/HCH

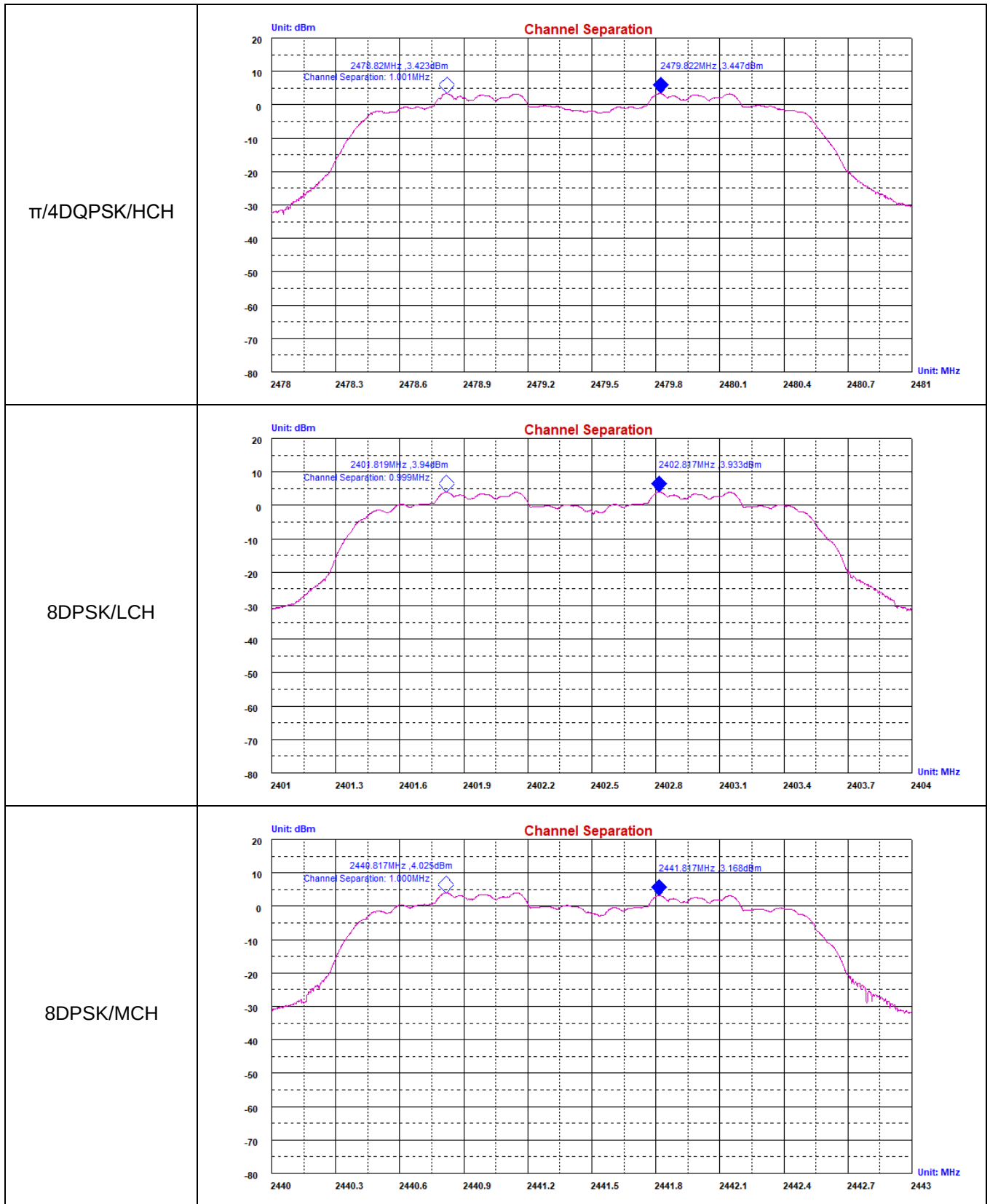


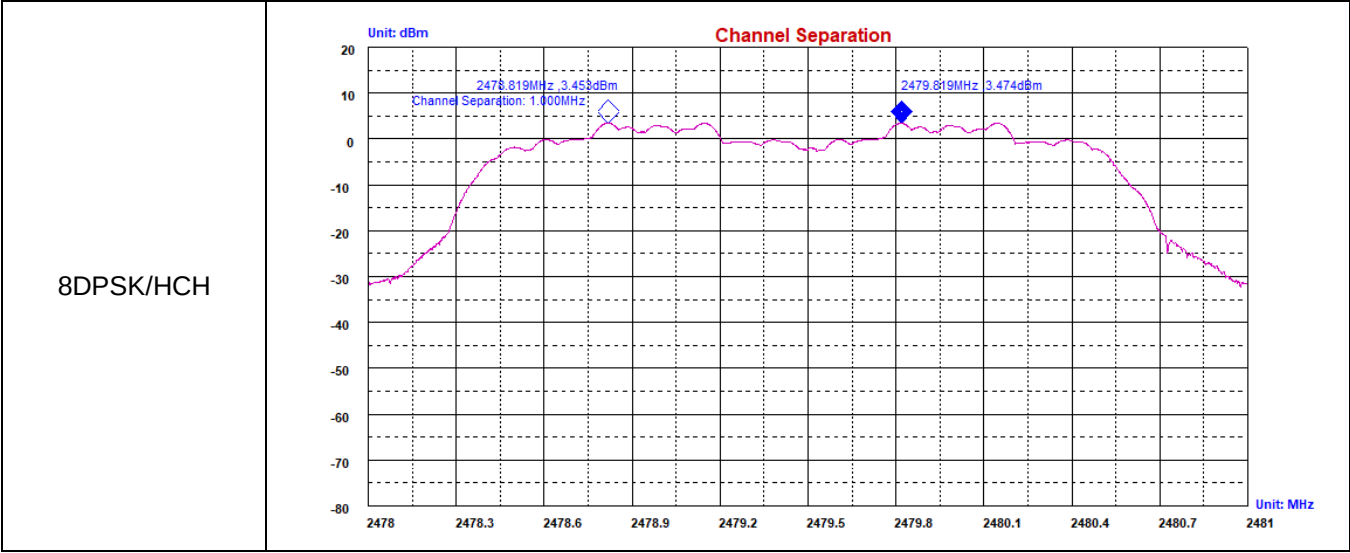
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



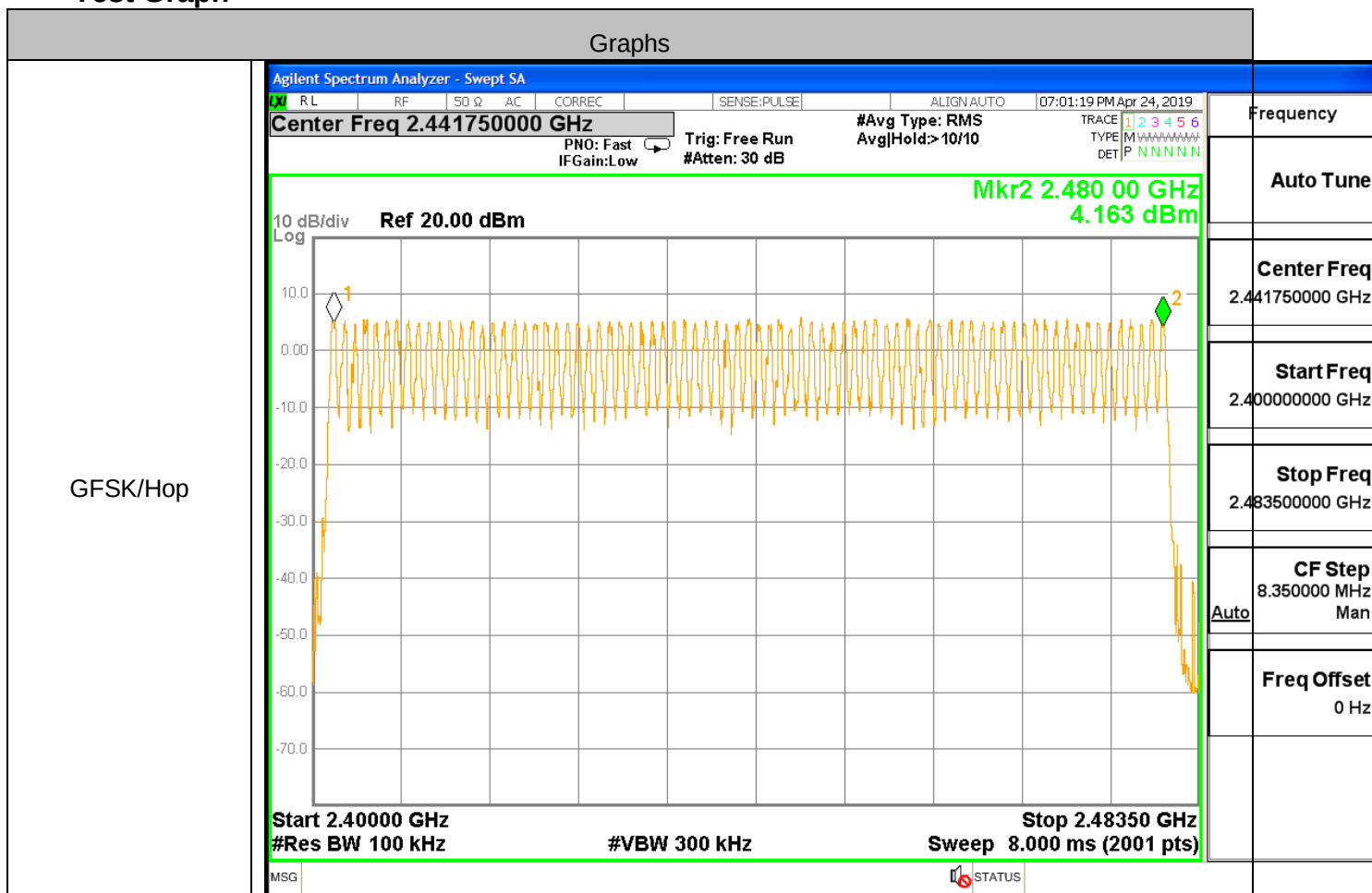




A.4 Hopping Channel Number

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 Graph



The figure displays two screenshots of an Agilent Spectrum Analyzer (Swept SA) showing signal spectra for different modulation schemes. Both plots are centered at 2.441750000 GHz with a resolution bandwidth (Res BW) of 100 kHz and a video bandwidth (VBW) of 300 kHz. The y-axis represents power in dBm, ranging from -70.0 to 10.0 dBm, with a 10 dB/div Log scale. The x-axis represents frequency in GHz, ranging from 2.400000000 to 2.483500000 GHz. A marker (Mkr2) is placed at 2.48000 GHz.

Top Plot: $\pi/4$ DQPSK/Hop

- Center Freq: 2.441750000 GHz
- Start: 2.40000 GHz
- Stop: 2.48350 GHz
- Res BW: 100 kHz
- VBW: 300 kHz
- Sweep: 8.000 ms (2001 pts)
- Marker (Mkr2): 2.48000 GHz, 0.524 dBm

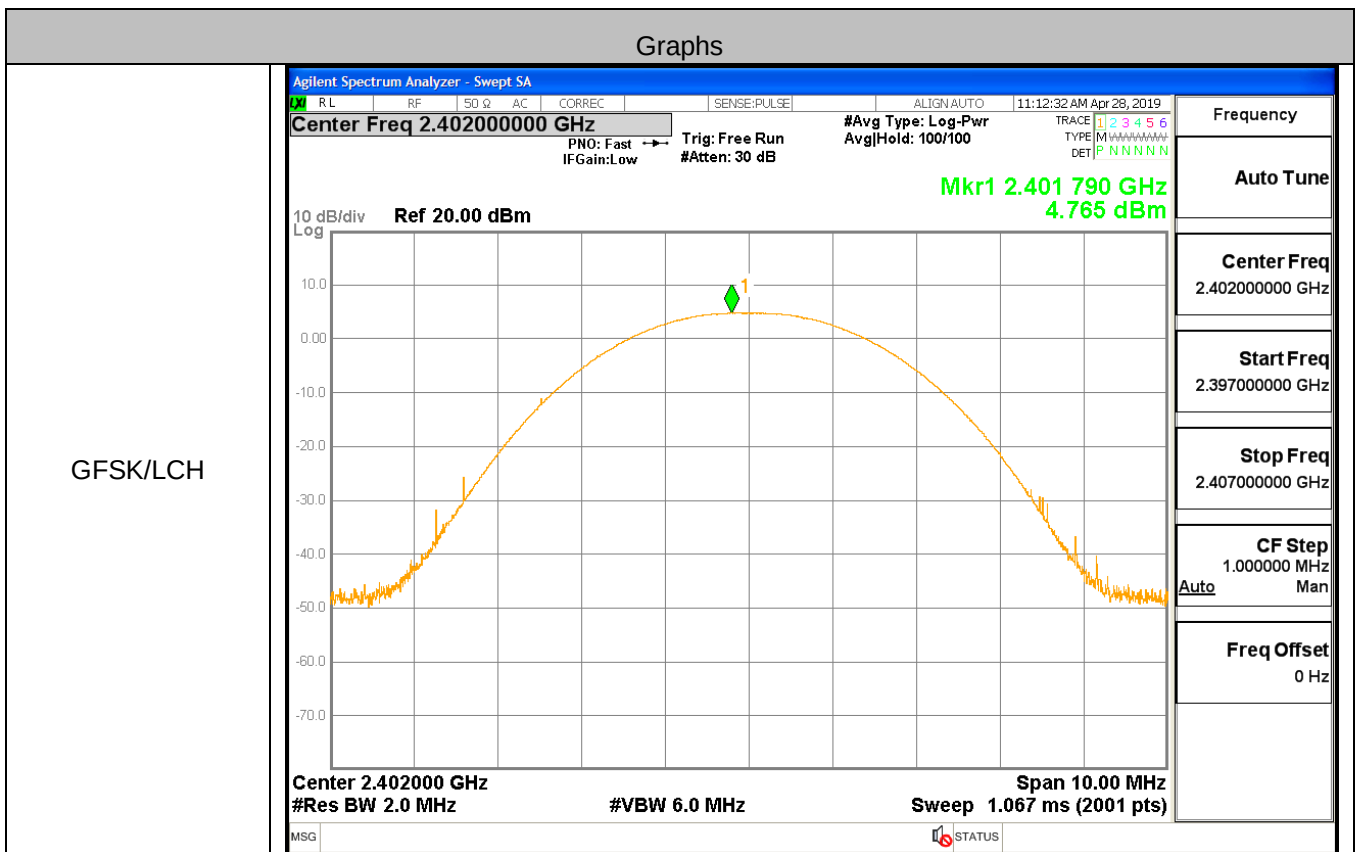
Bottom Plot: 8DPSK/Hop

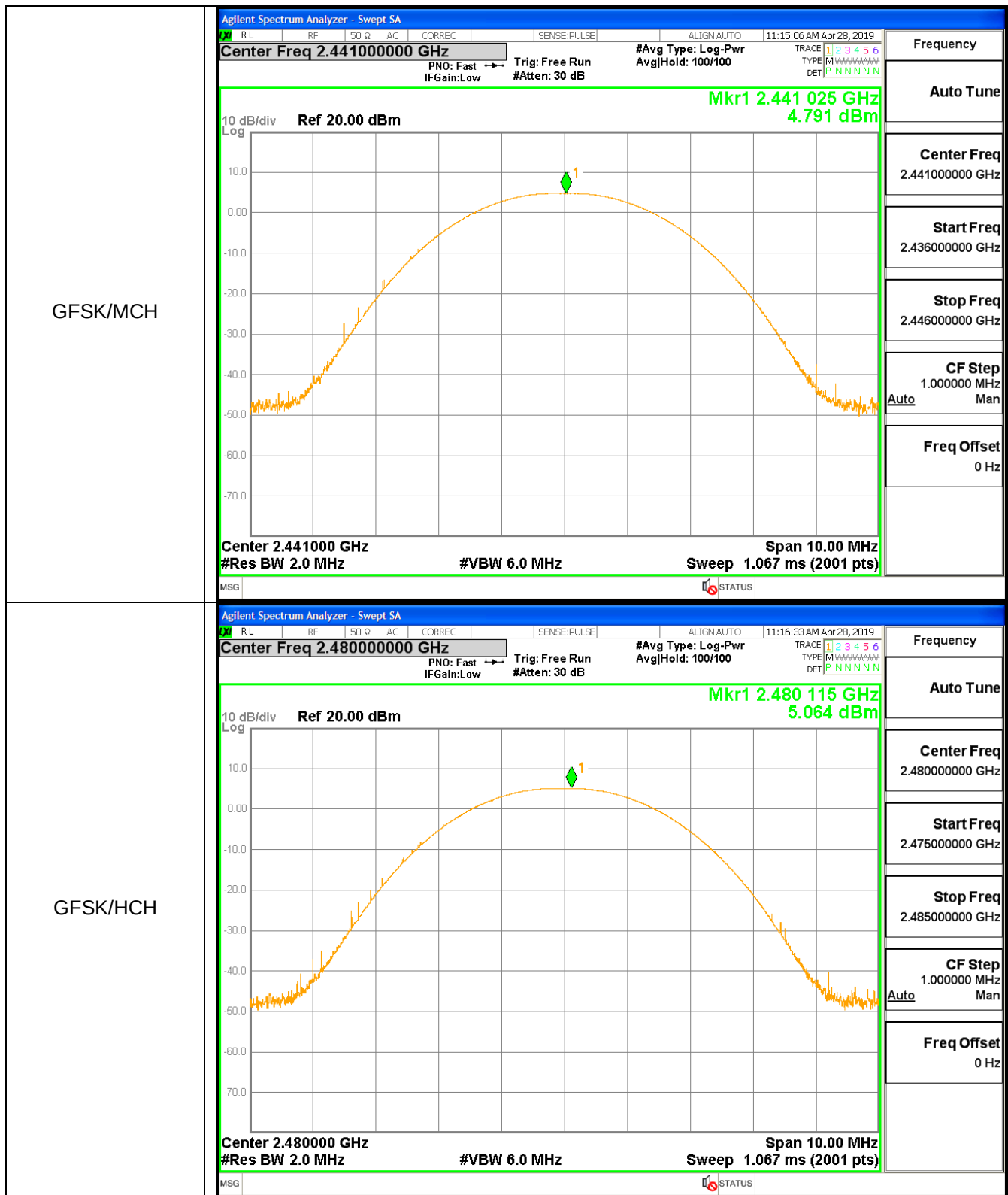
- Center Freq: 2.441750000 GHz
- Start: 2.40000 GHz
- Stop: 2.48350 GHz
- Res BW: 100 kHz
- VBW: 300 kHz
- Sweep: 8.000 ms (2001 pts)
- Marker (Mkr2): 2.48000 GHz, 1.317 dBm

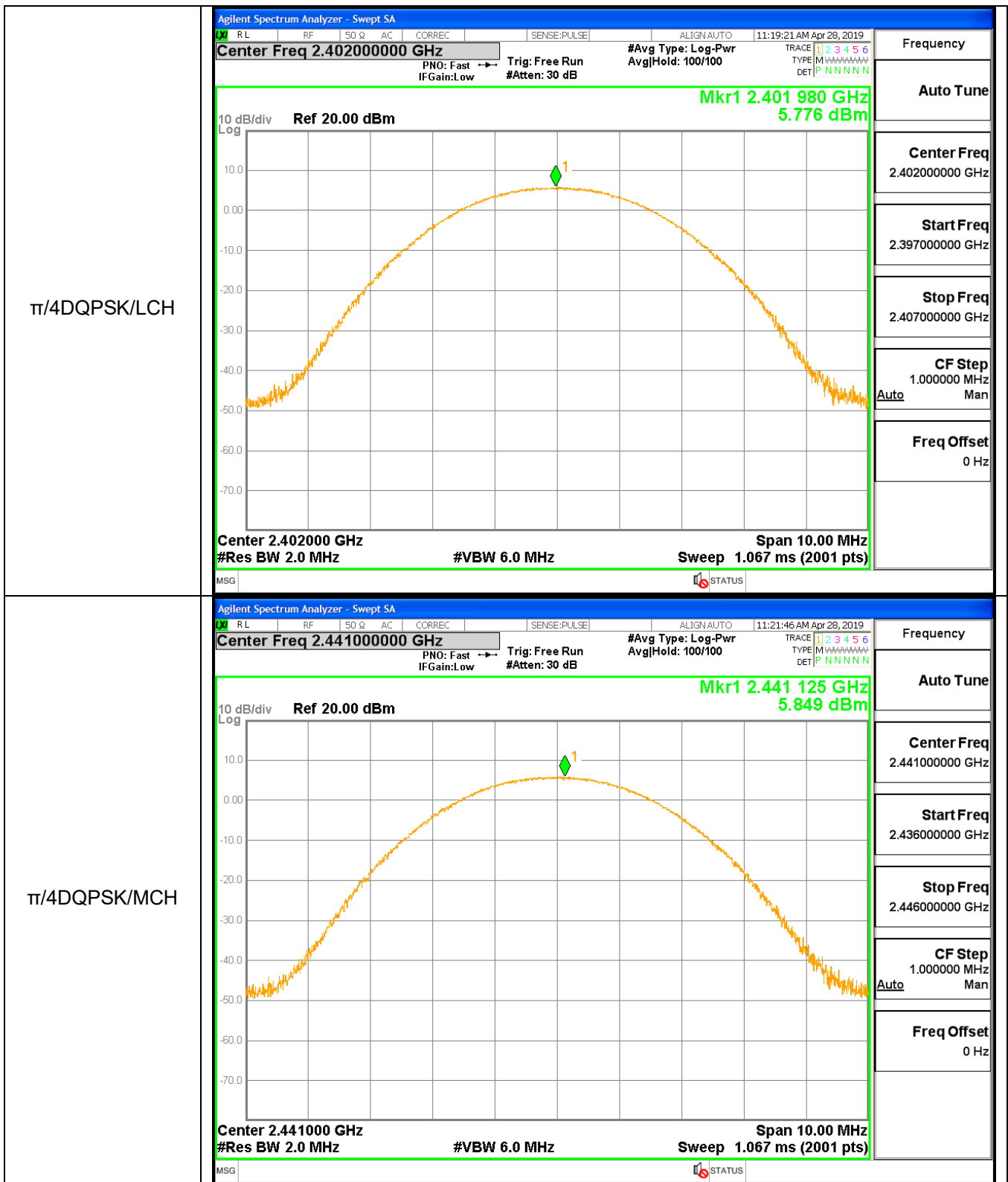
A.5 Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	4.765	21	PASS
GFSK	MCH	4.791	21	PASS
GFSK	HCH	5.064	21	PASS
$\pi/4$ DQPSK	LCH	5.776	21	PASS
$\pi/4$ DQPSK	MCH	5.849	21	PASS
$\pi/4$ DQPSK	HCH	5.596	21	PASS
8DPSK	LCH	5.996	21	PASS
8DPSK	MCH	6.051	21	PASS
8DPSK	HCH	5.773	21	PASS

Test Graph







Frequency

Auto Tune

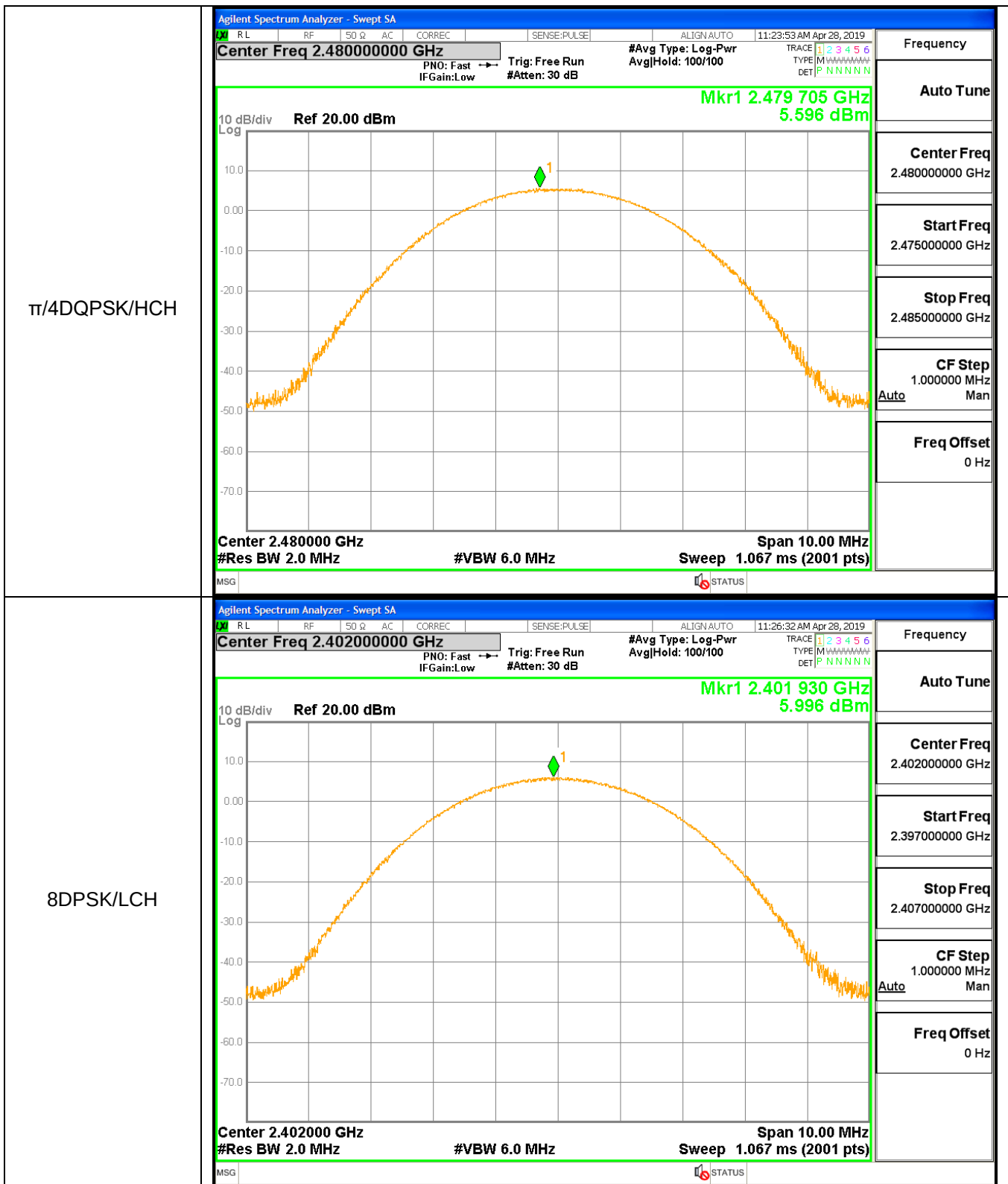
Center Freq
2.402000000 GHz

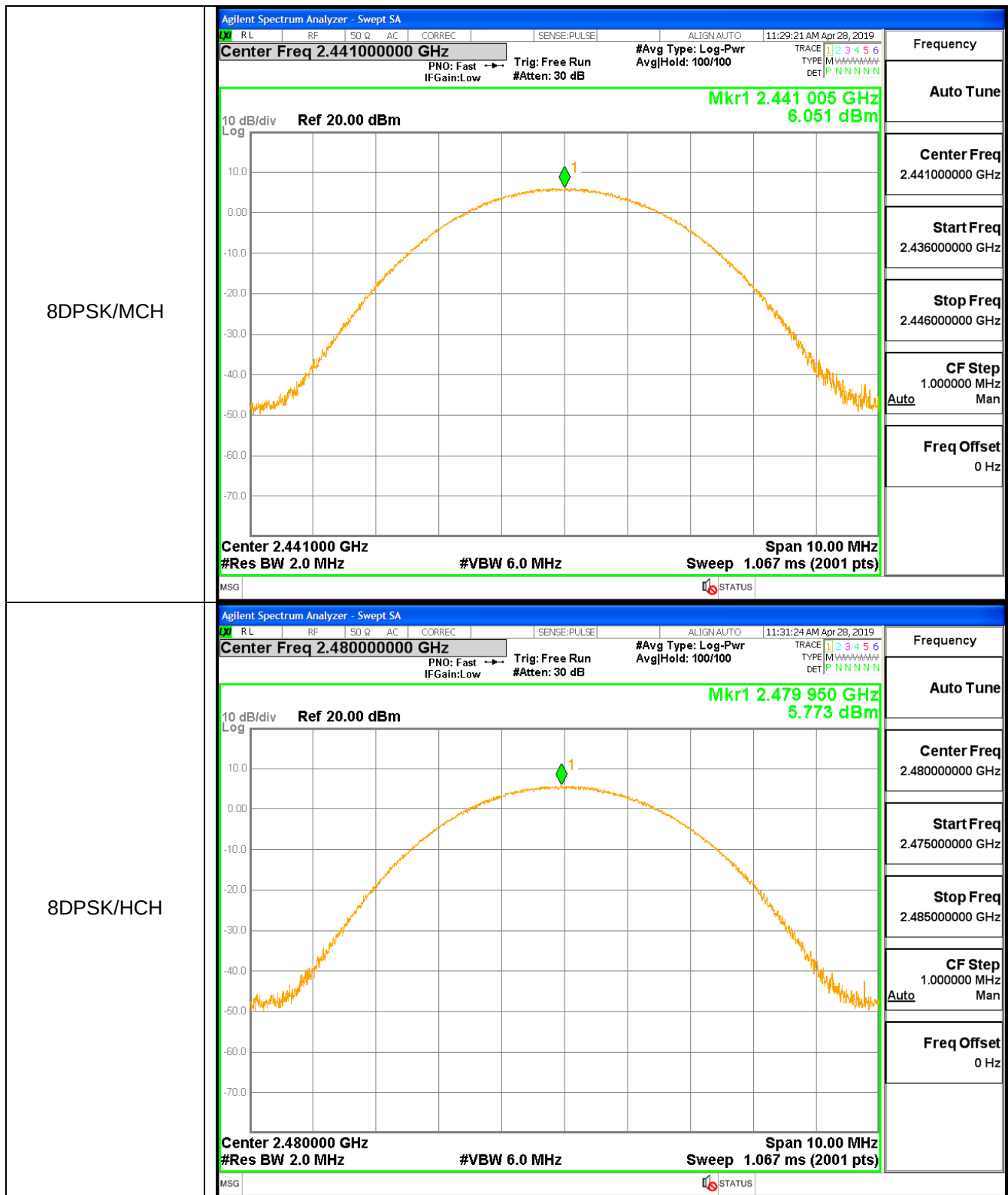
Start Freq
2.397000000 GHz

Stop Freq
2.407000000 GHz

CF Step
1.000000 MHz
Auto Man

Freq Offset
0 Hz





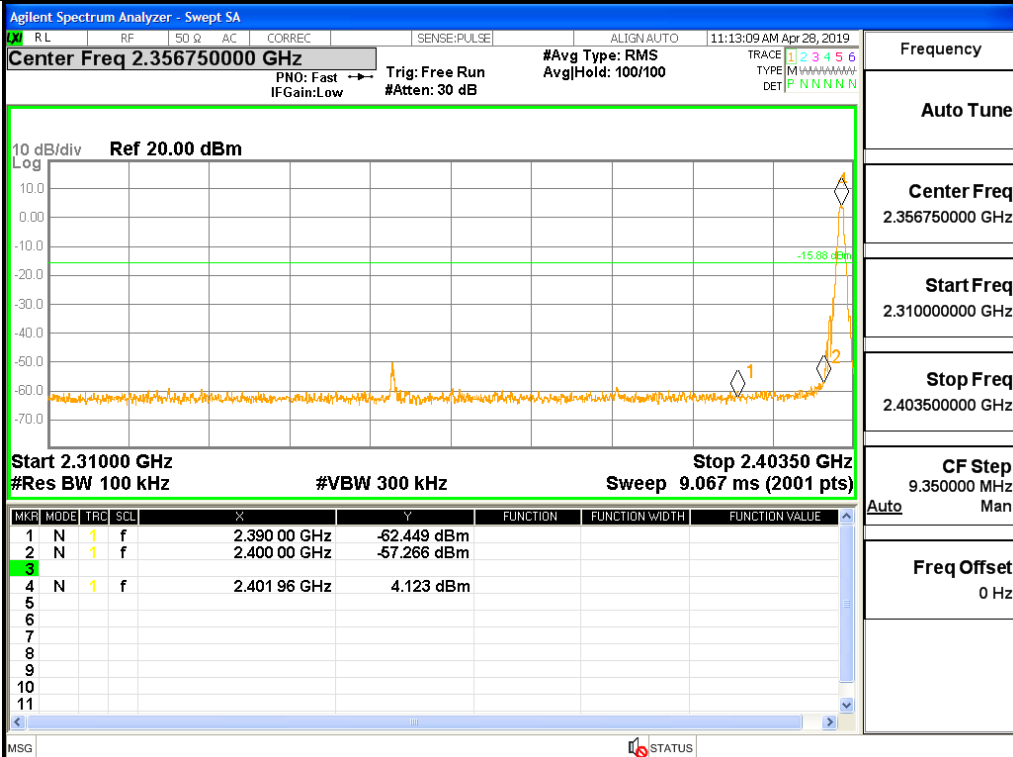
A.6 Band-edge for RF Conducted Emissions

Type	Carrier Frequency(MHz)	Frequency(MHz)	Carrier Frequency Power [dBm]	Bandedge Peak(dBm)	Upper limit(dBm)	Conclusion
1DH5	2402	2400	4.123	-57.27	-15.877	Pass
1DH5	2480	2483.5	4.294	-58.41	-15.706	Pass
2DH5	2402	2400	2.078	-48.57	-17.922	Pass
2DH5	2480	2500	3.001	-60.28	-16.999	Pass
3DH5	2402	2400	3.052	-49.64	-16.948	Pass
3DH5	2480	2483.5	3.38	-59.37	-16.62	Pass
1DH5-Hopping	2402	2400	7.94	-58.83	-12.06	Pass
1DH5-Hopping	2480	2483.5	8.718	-59.1	-11.282	Pass
2DH5-Hopping	2402	2400	4.943	-58.23	-15.057	Pass
2DH5-Hopping	2480	2483.5	5.819	-58.11	-14.181	Pass
3DH5-Hopping	2402	2400	4.118	-57.82	-15.882	Pass
3DH5-Hopping	2480	2483.5	5.731	-58.1	-14.269	Pass

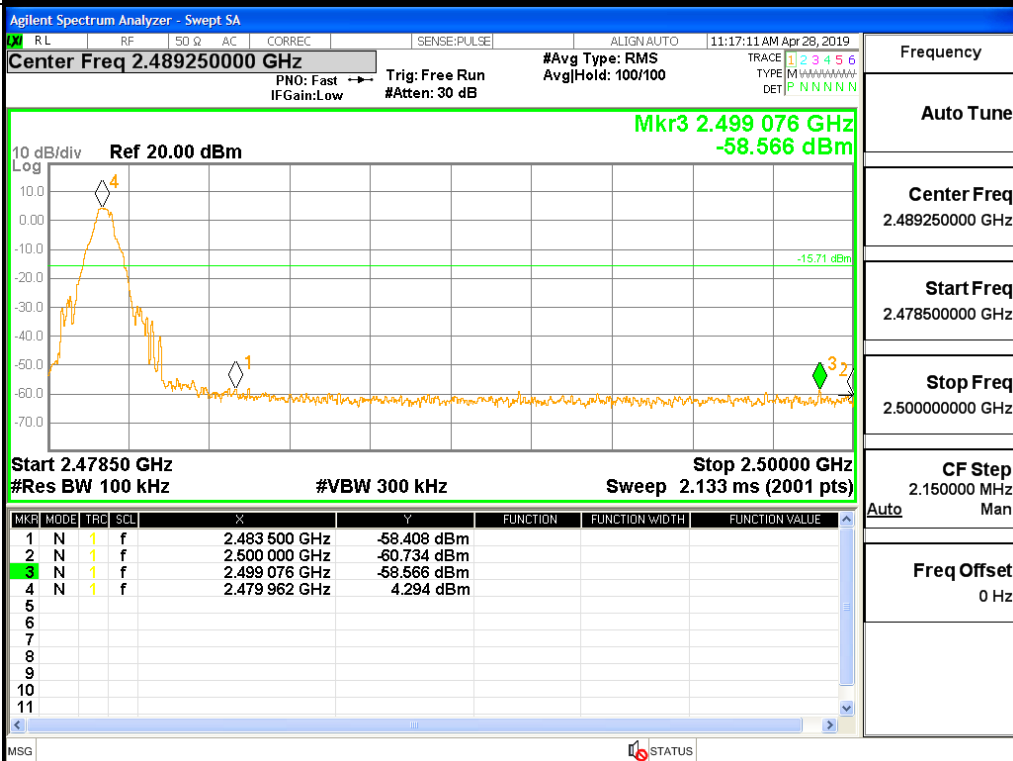
Test Graph

Graphs

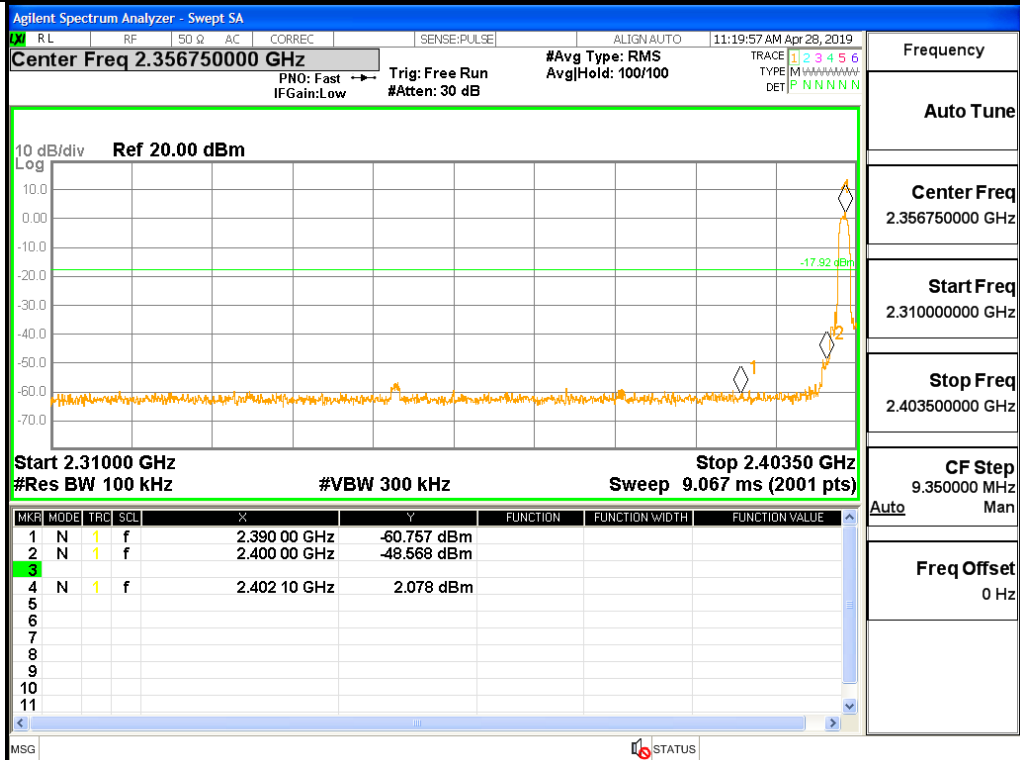
GFSK/LCH/No Hop



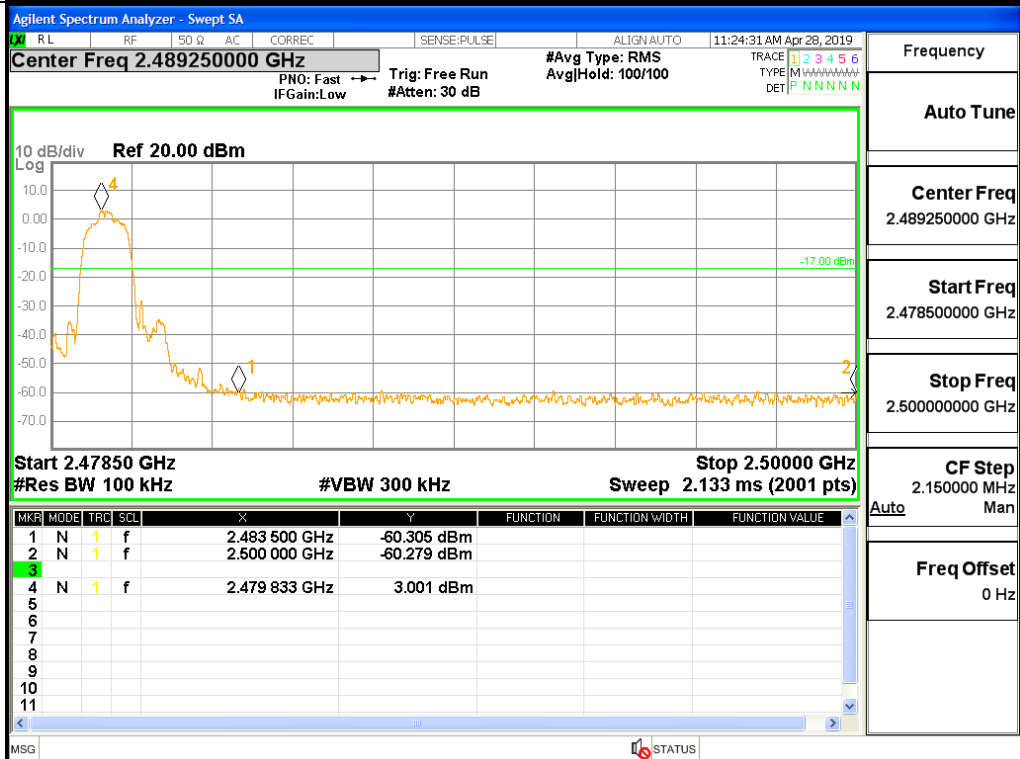
GFSK/HCH/No Hop



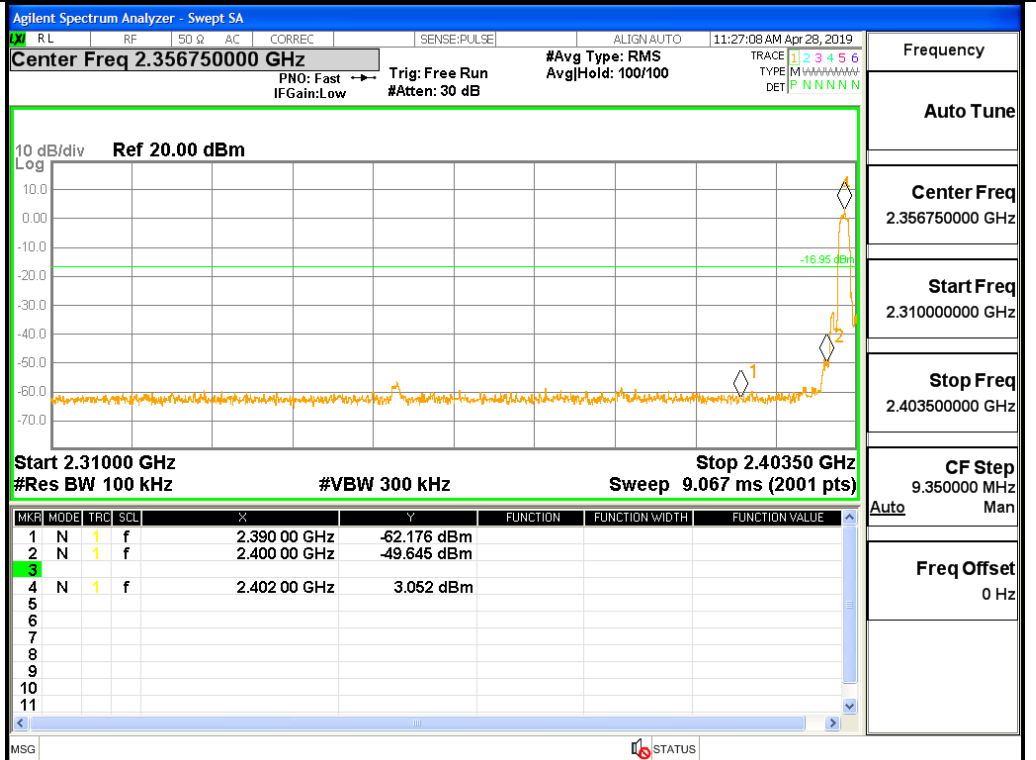
$\pi/4$ DQPSK/LCH/No
Hop



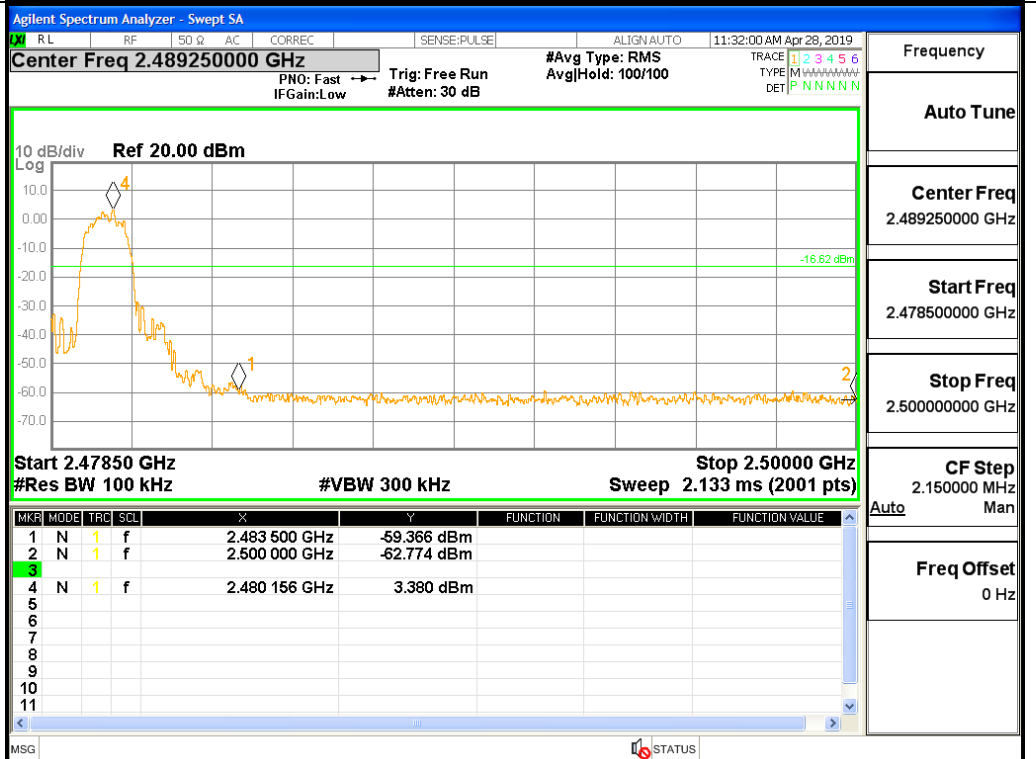
$\pi/4$ DQPSK/HCH/No
Hop



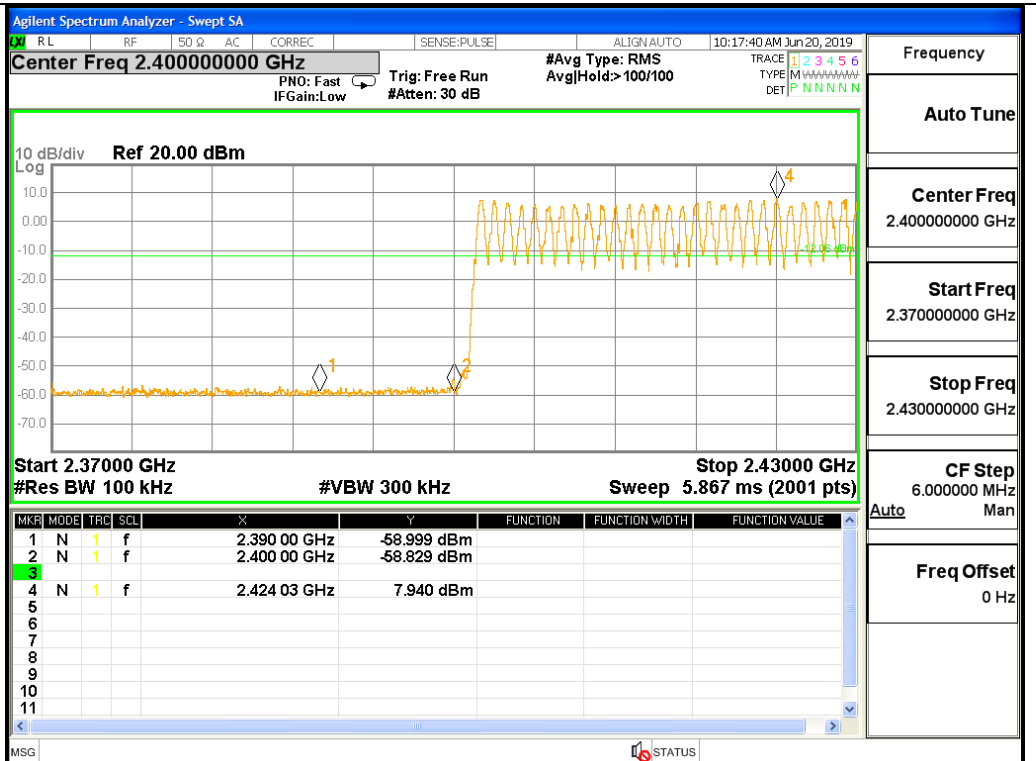
8DPSK/LCH/No Hop



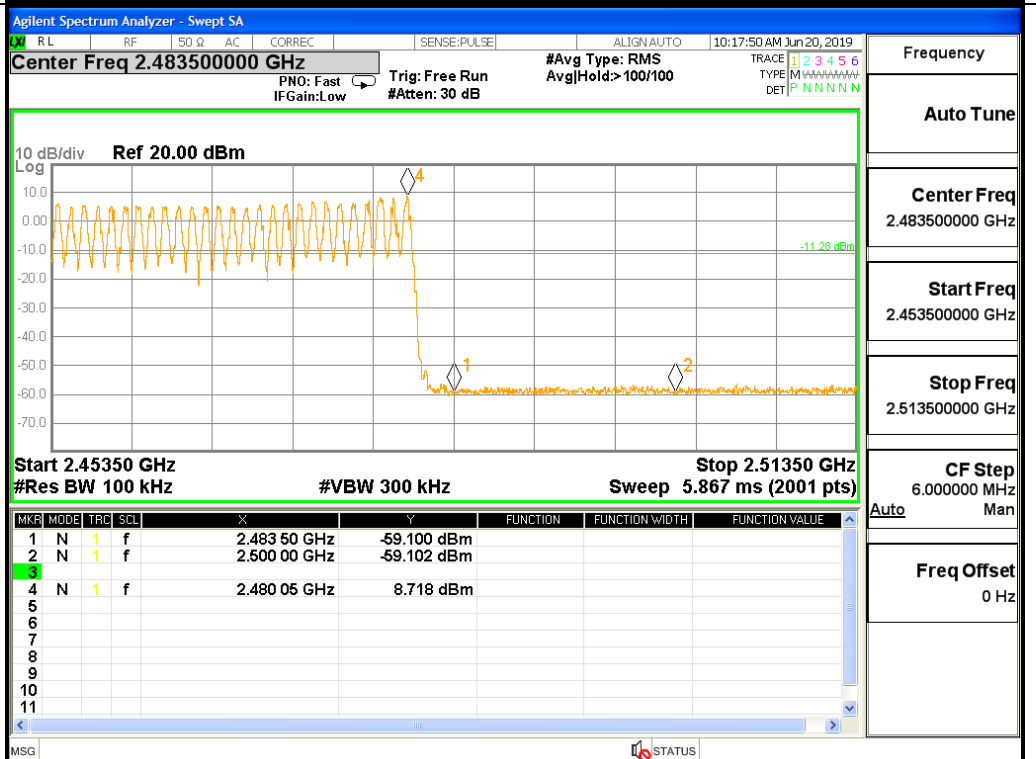
8DPSK/HCH/No Hop



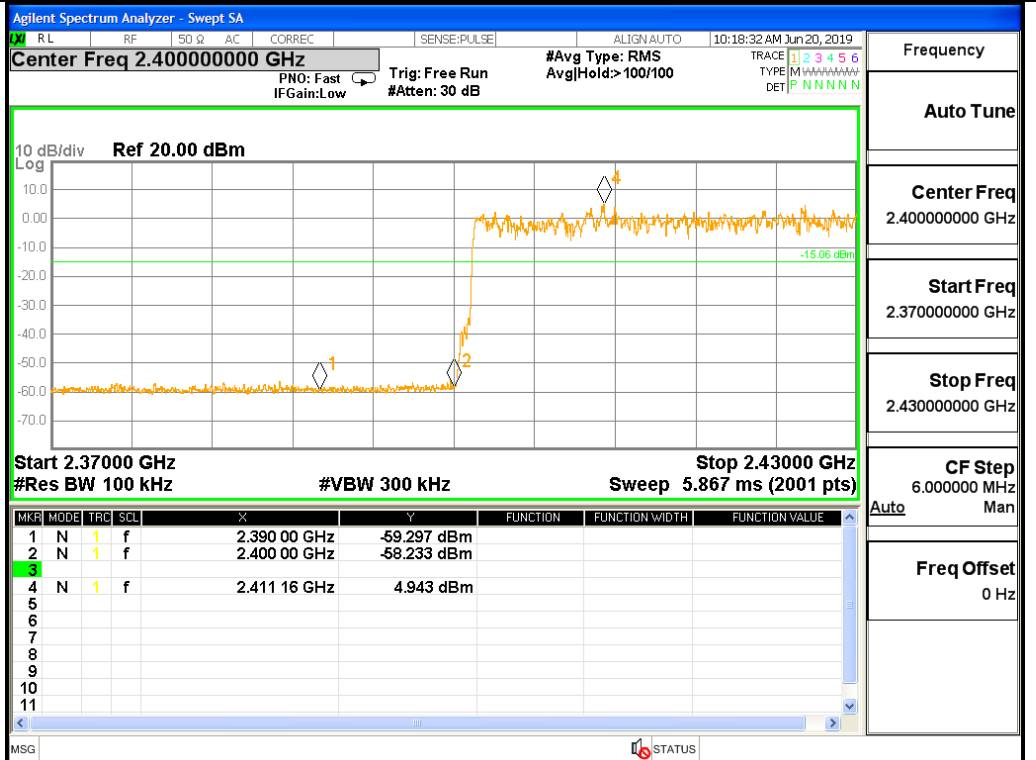
GFSK/LCH/Hop



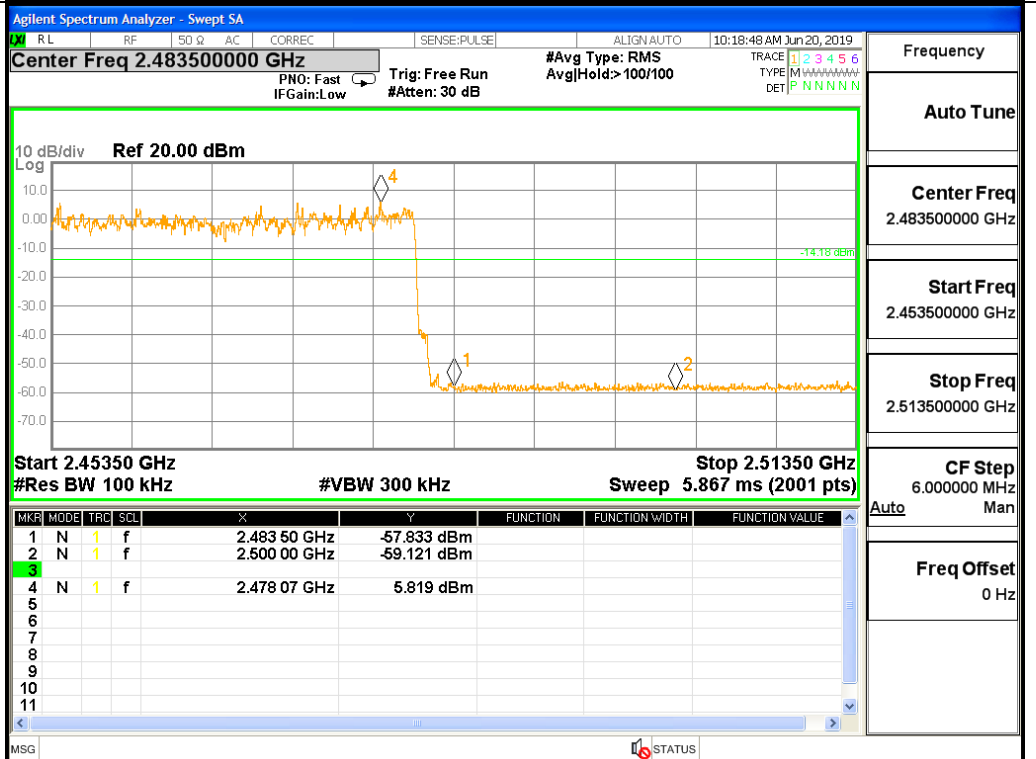
GFSK/HCH/Hop



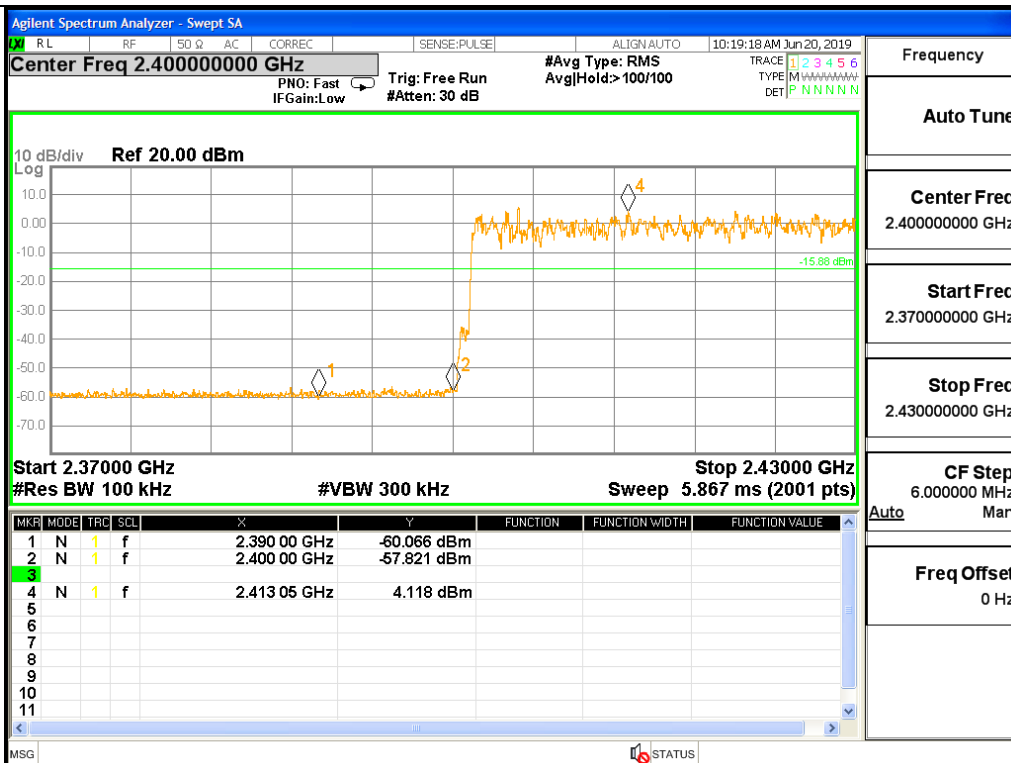
$\pi/4$ DQPSK/LCH/Hop



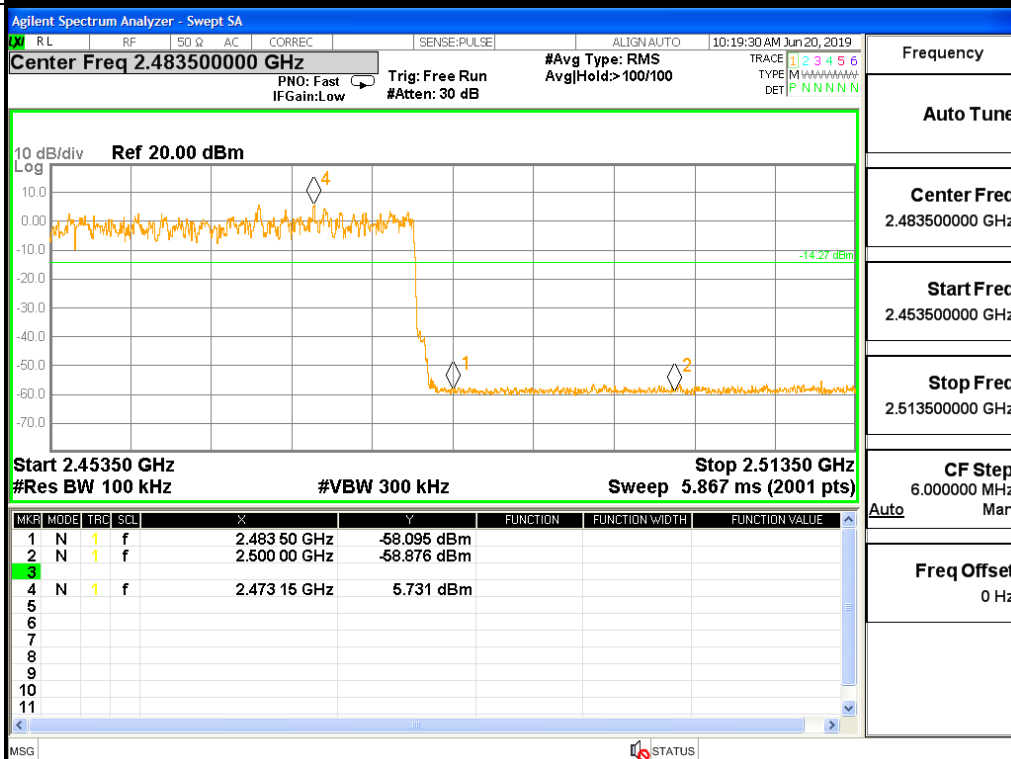
$\pi/4$ DQPSK/HCH/Hop



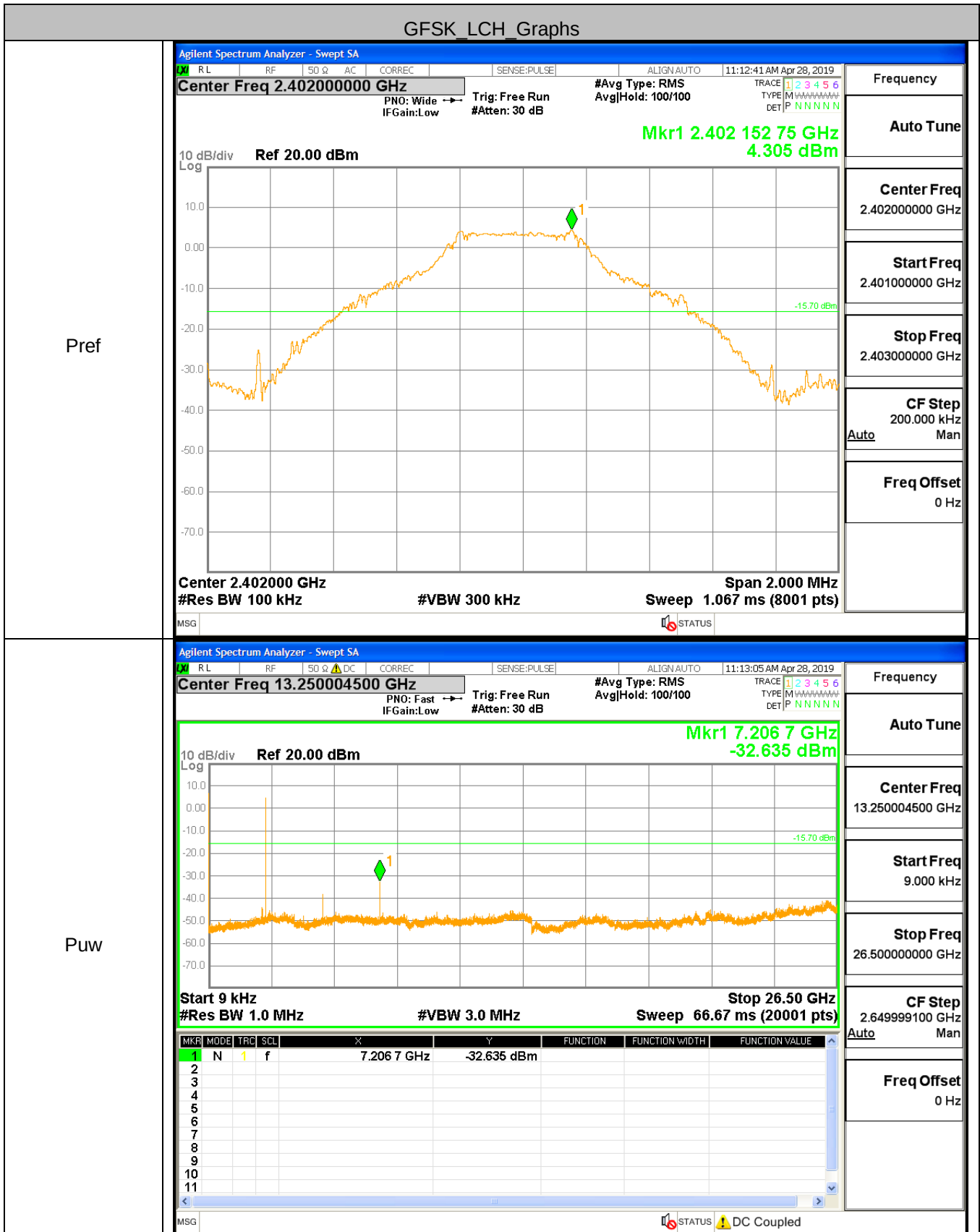
8DPSK/LCH/Hop



8DPSK/HCH/Hop

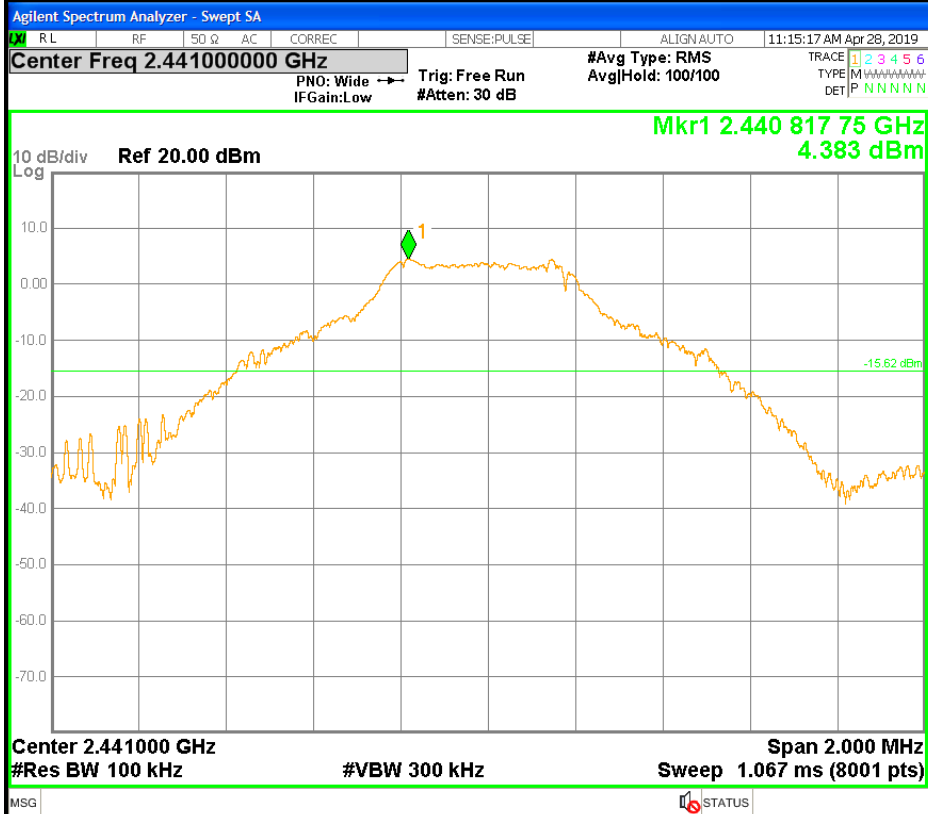


A.7 RF Conducted Spurious Emissions Test Graph



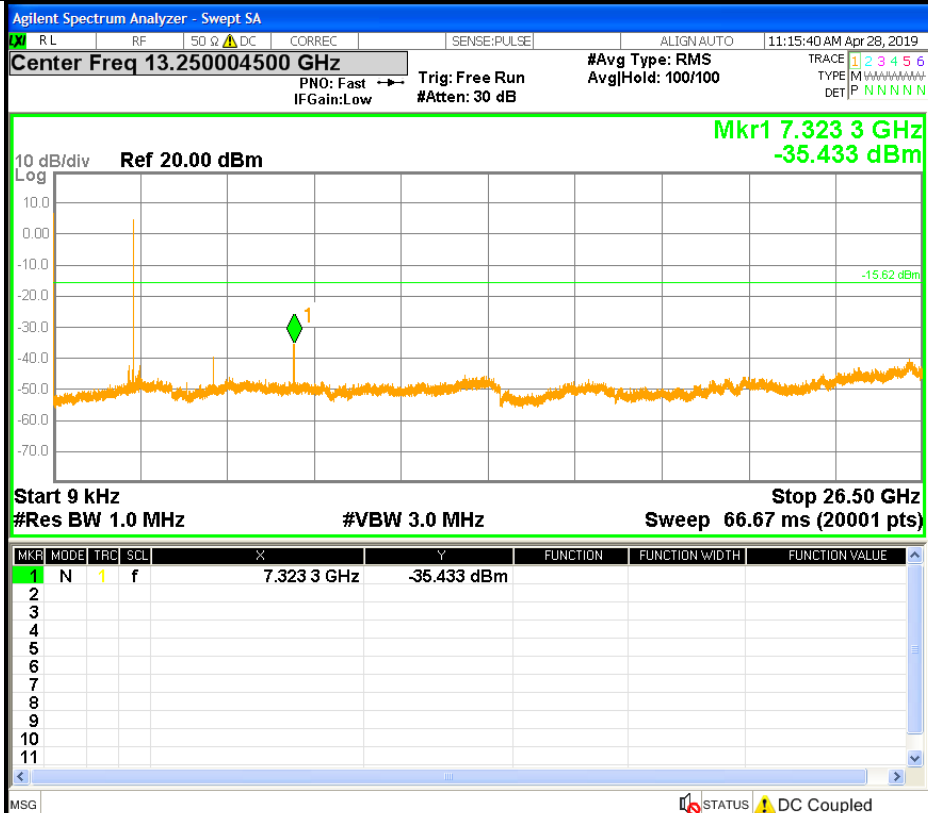
GFSK MCH Graphs

Pref



Frequency
Auto Tune
Center Freq 2.441000000 GHz
Start Freq 2.440000000 GHz
Stop Freq 2.442000000 GHz
CF Step 200.000 kHz Auto Man
Freq Offset 0 Hz

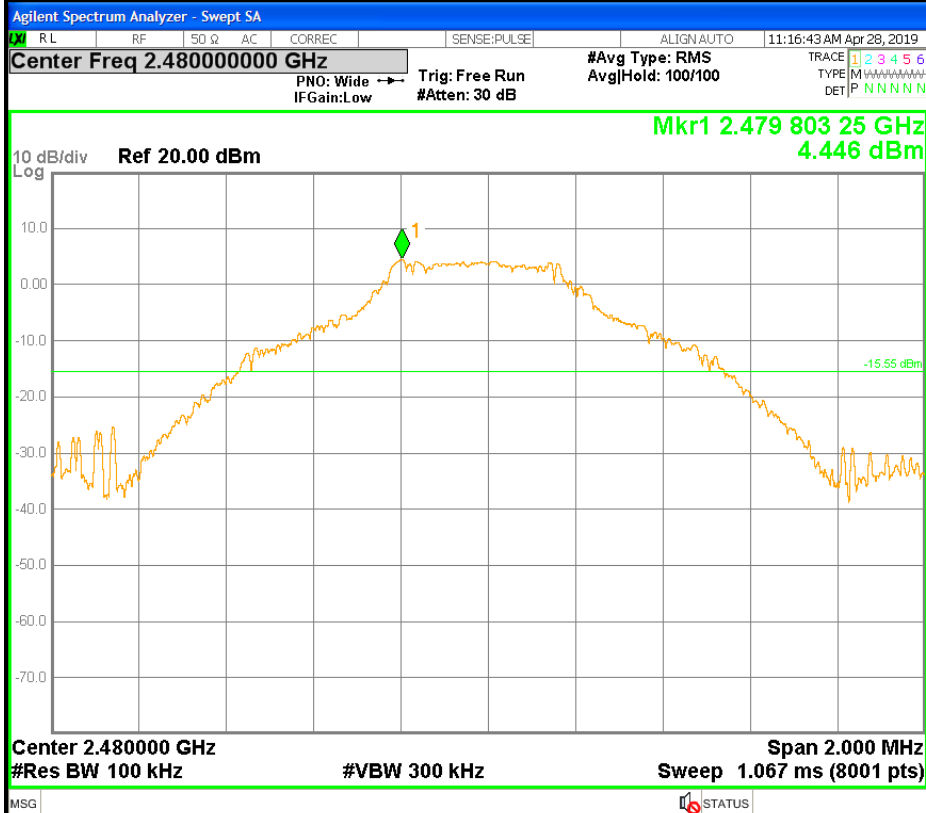
Puw



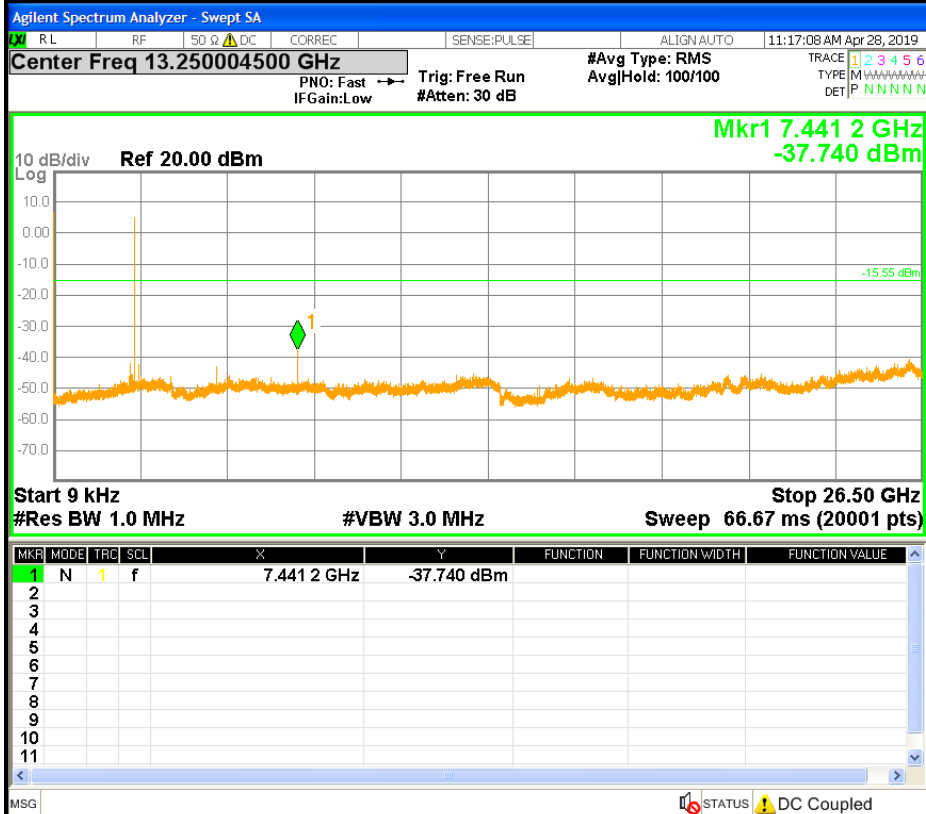
Frequency
Auto Tune
Center Freq 13.250004500 GHz
Start Freq 9.000 kHz
Stop Freq 26.500000000 GHz
CF Step 2.649999100 GHz Auto Man
Freq Offset 0 Hz

GFSK HCH Graphs

Pref

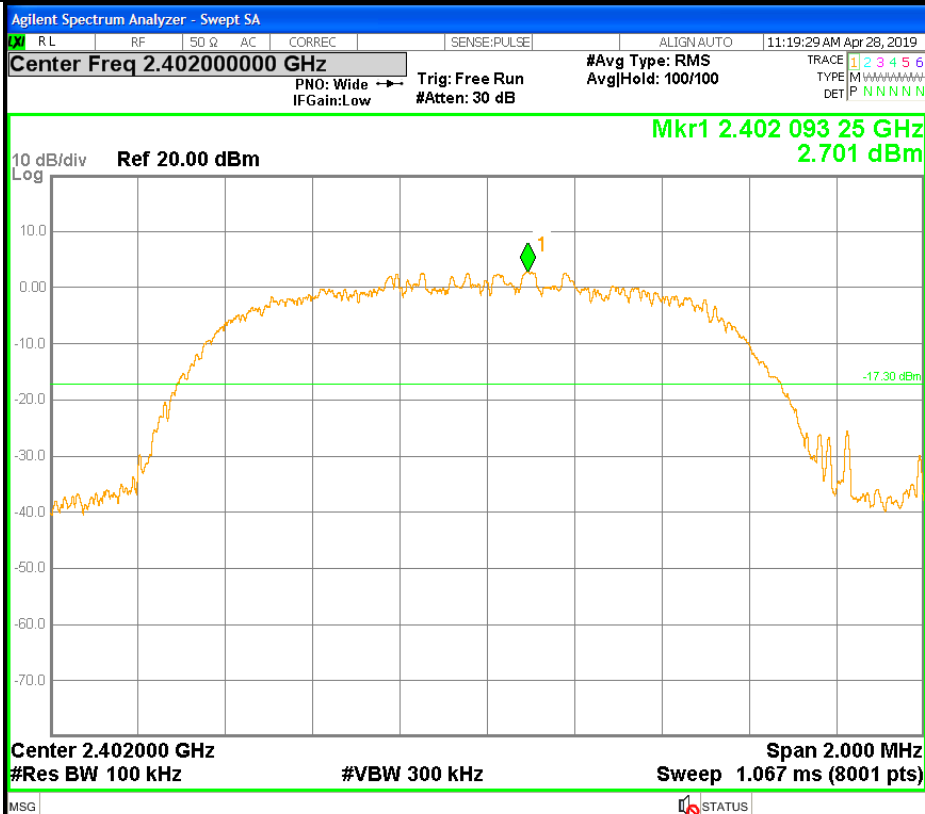


Puw



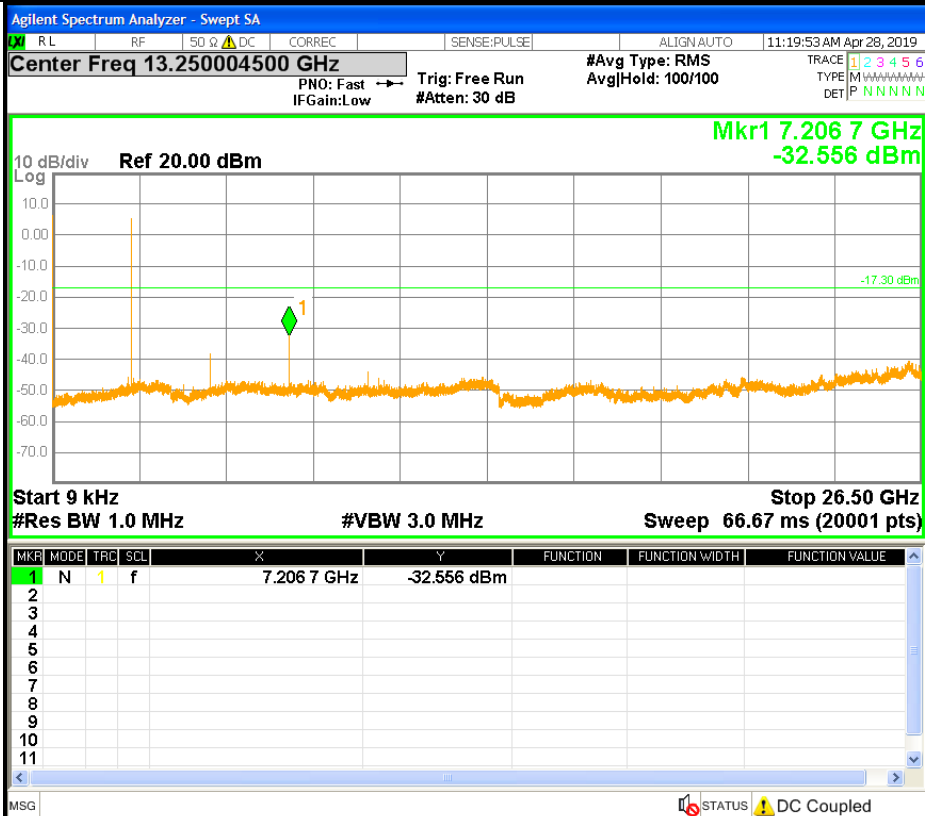
$\pi/4$ DQPSK LCH_Graphs

Pref



Frequency
Auto Tune
Center Freq 2.402000000 GHz
Start Freq 2.401000000 GHz
Stop Freq 2.403000000 GHz
CF Step 200.000 kHz Auto Man
Freq Offset 0 Hz

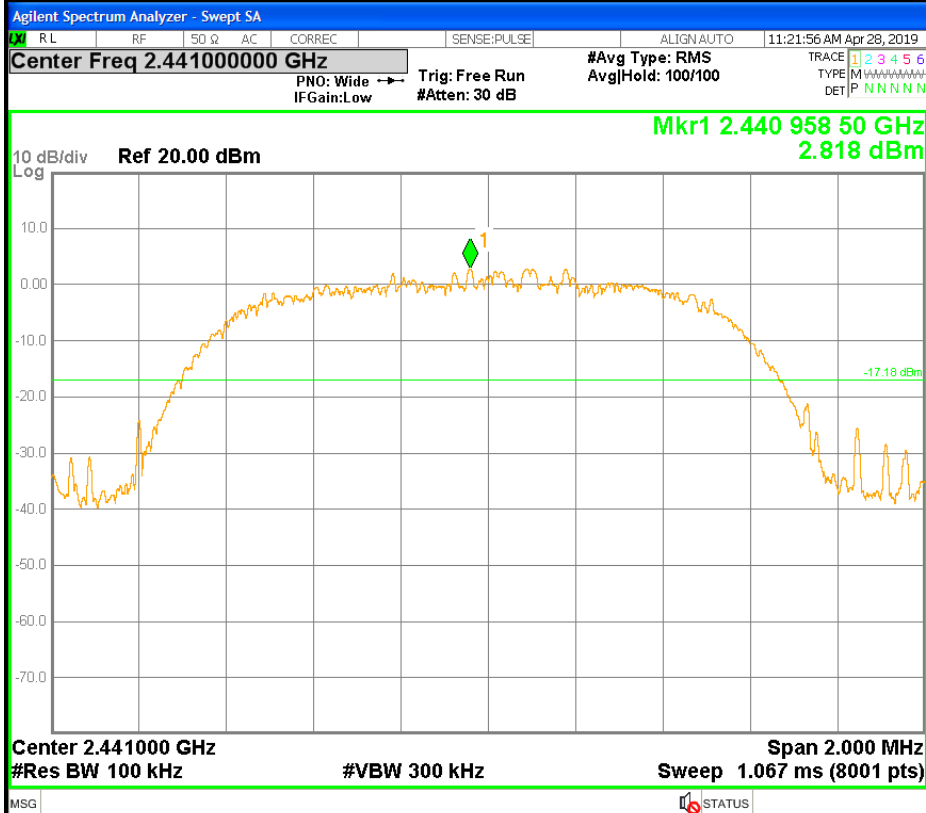
Puw



Frequency
Auto Tune
Center Freq 13.250004500 GHz
Start Freq 9.000 kHz
Stop Freq 26.500000000 GHz
CF Step 2.649999100 GHz Auto Man
Freq Offset 0 Hz

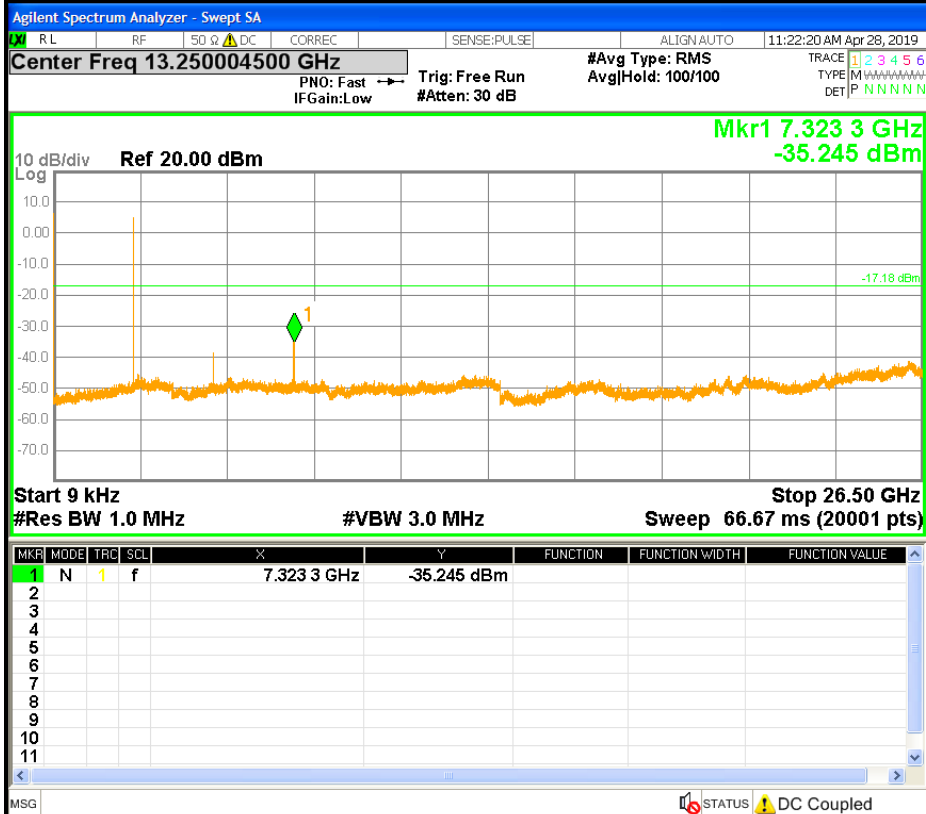
$\pi/4$ DQPSK MCH Graphs

Pref



Frequency
Auto Tune
Center Freq 2.441000000 GHz
Start Freq 2.440000000 GHz
Stop Freq 2.442000000 GHz
CF Step 200.000 kHz Auto Man
Freq Offset 0 Hz

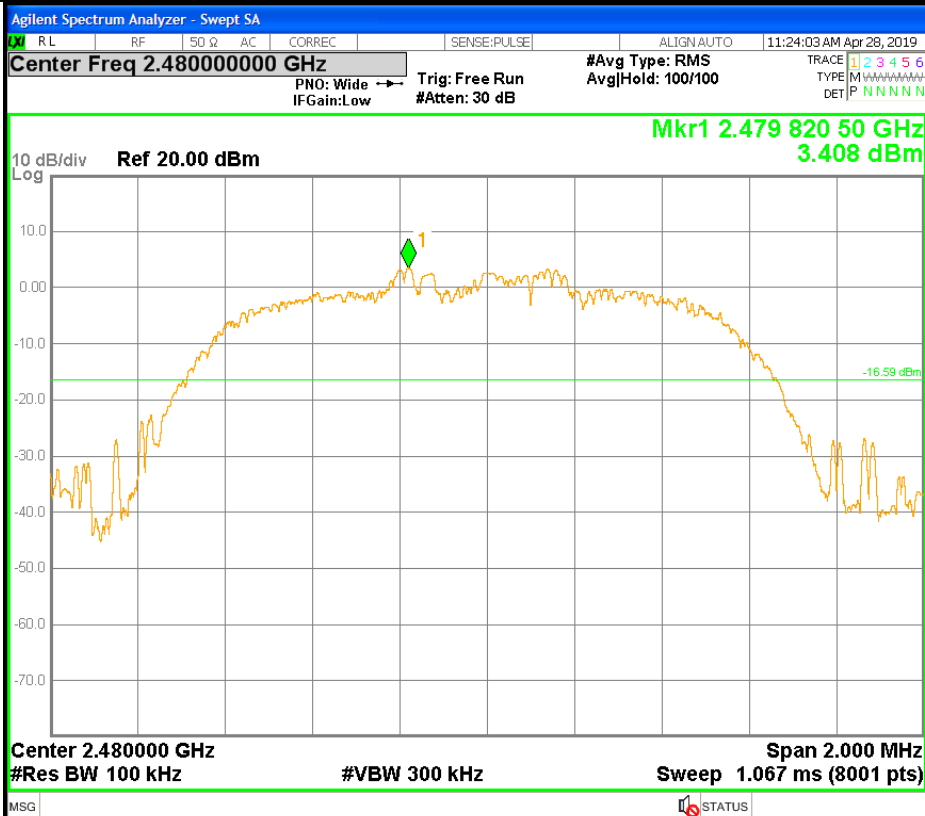
Puw



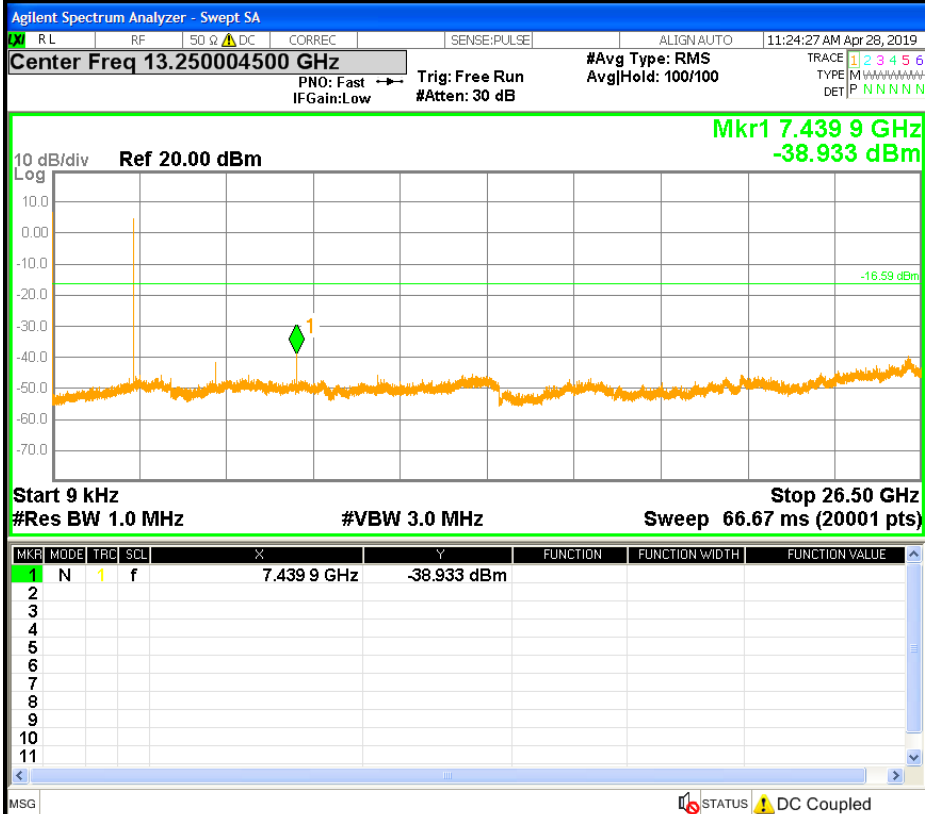
Frequency
Auto Tune
Center Freq 13.250004500 GHz
Start Freq 9.000 kHz
Stop Freq 26.500000000 GHz
CF Step 2.649999100 GHz Auto Man
Freq Offset 0 Hz

$\pi/4$ DQPSK HCH Graphs

Pref

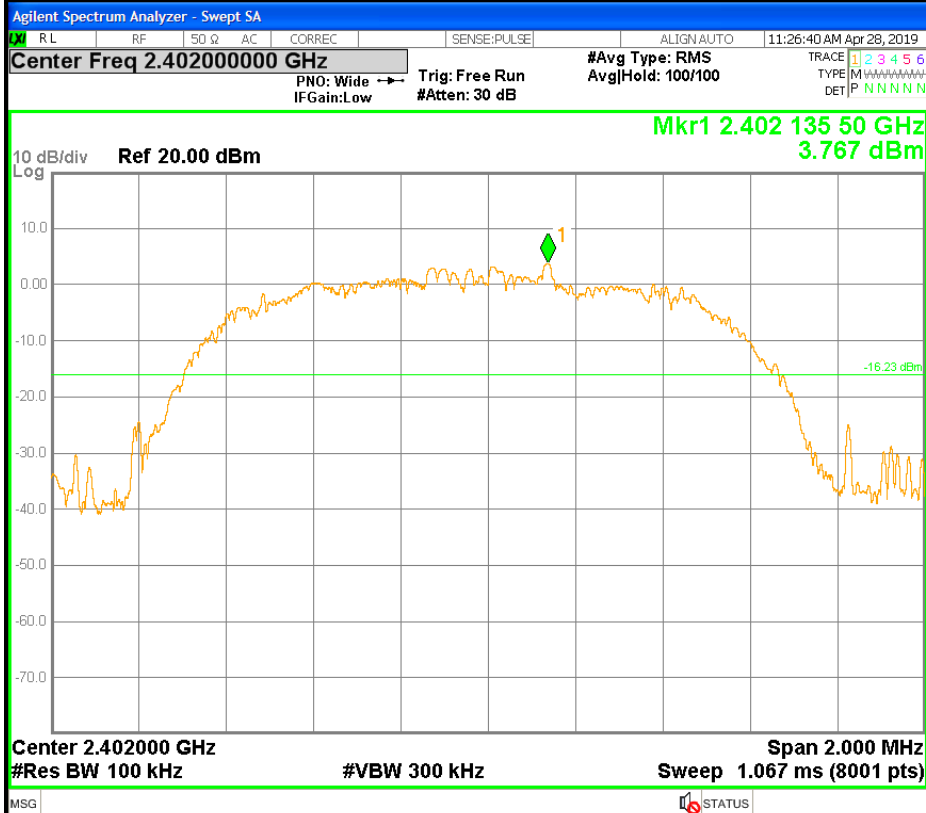


Puw



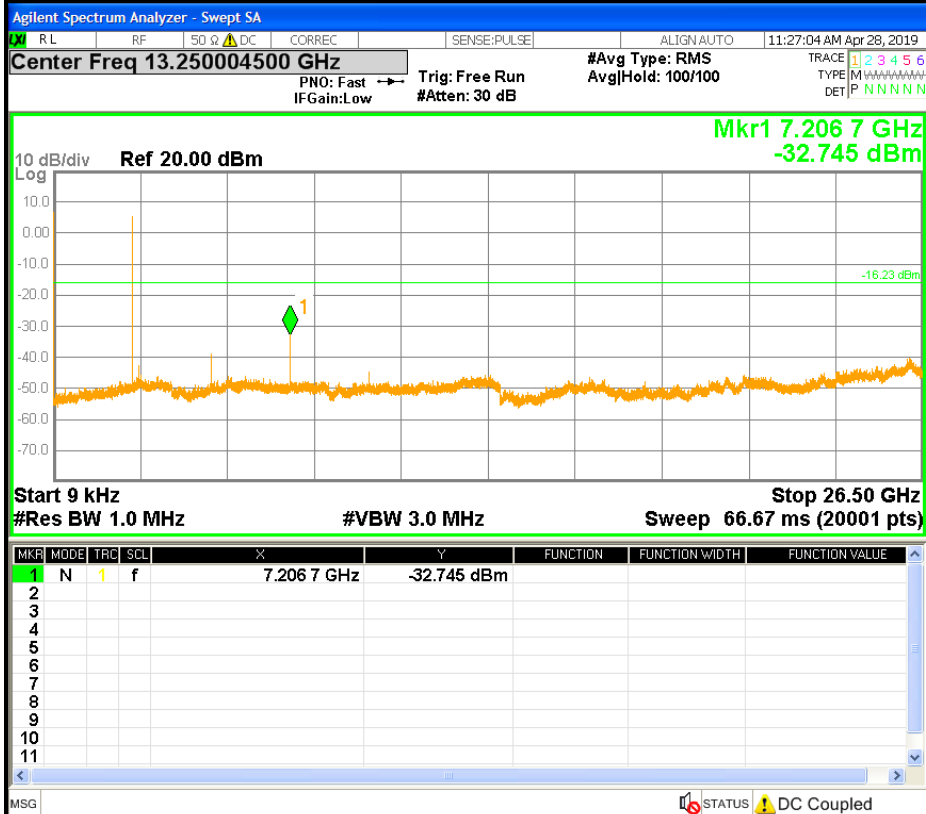
8DPSK LCH_Graphs

Pref



Frequency
Auto Tune
Center Freq 2.402000000 GHz
Start Freq 2.401000000 GHz
Stop Freq 2.403000000 GHz
CF Step 200.000 kHz Auto Man
Freq Offset 0 Hz

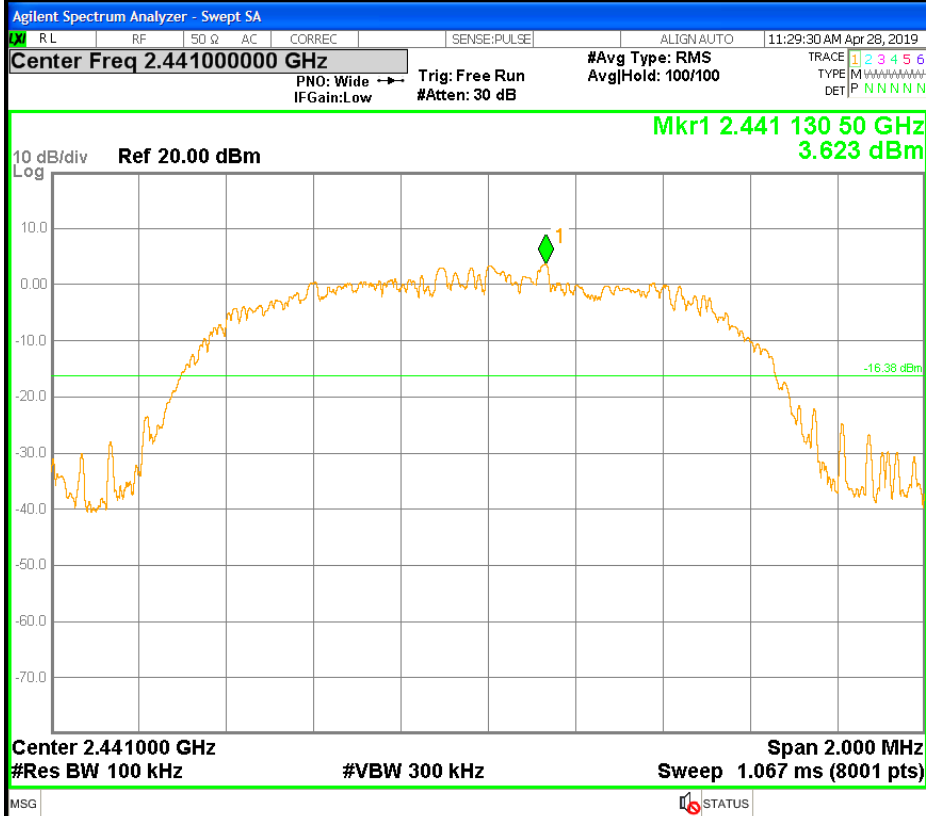
Puw



Frequency
Auto Tune
Center Freq 13.250004500 GHz
Start Freq 9.000 kHz
Stop Freq 26.500000000 GHz
CF Step 2.649999100 GHz Auto Man
Freq Offset 0 Hz

8DPSK_MCH_Graphs

Pref



Frequency

Auto Tune

Center Freq
2.441000000 GHz

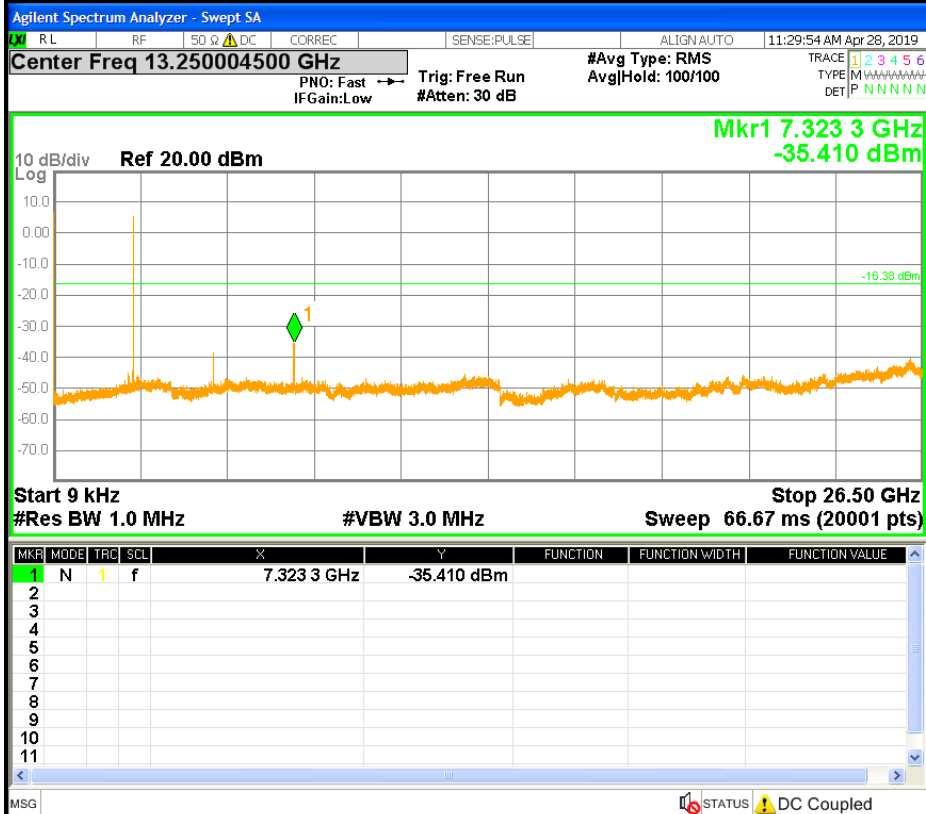
Start Freq
2.440000000 GHz

Stop Freq
2.442000000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

Puw



Frequency

Auto Tune

Center Freq
13.250004500 GHz

Start Freq
9.000 kHz

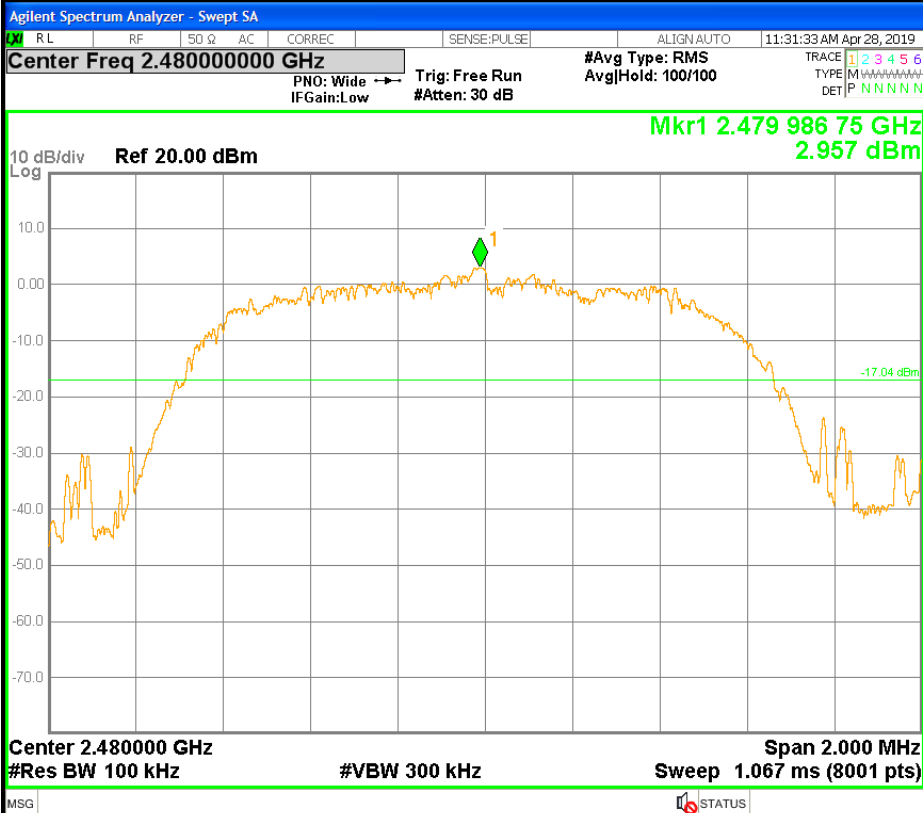
Stop Freq
26.500000000 GHz

CF Step
2.649999100 GHz
Auto Man

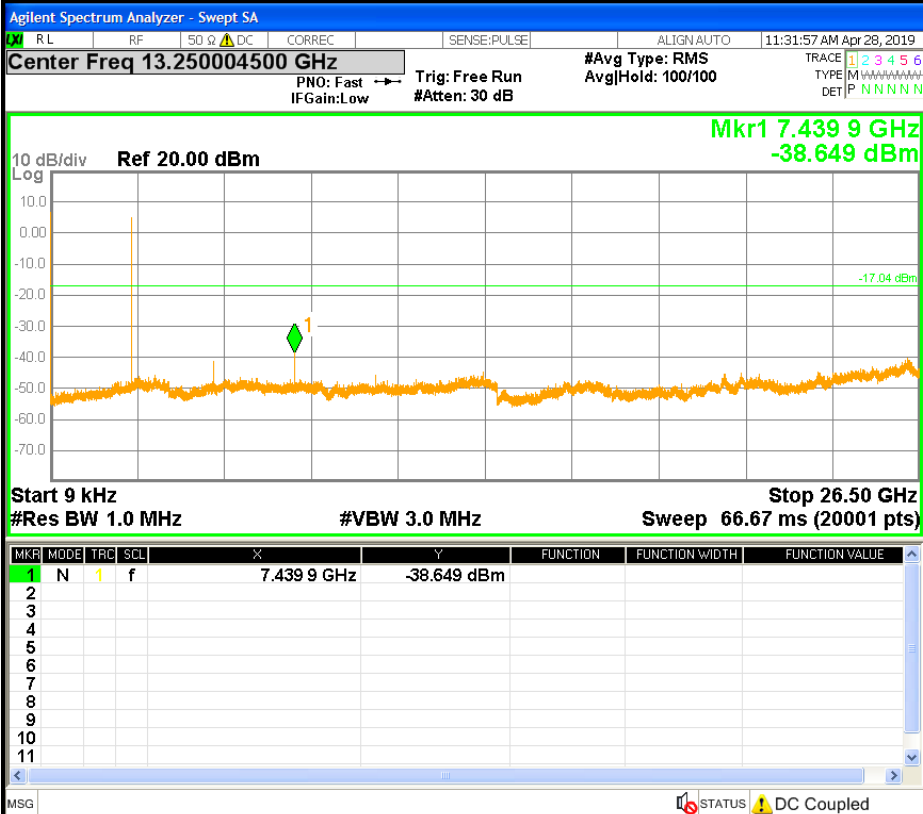
Freq Offset
0 Hz

8DPSK HCH_Graphs

Pref



Puw

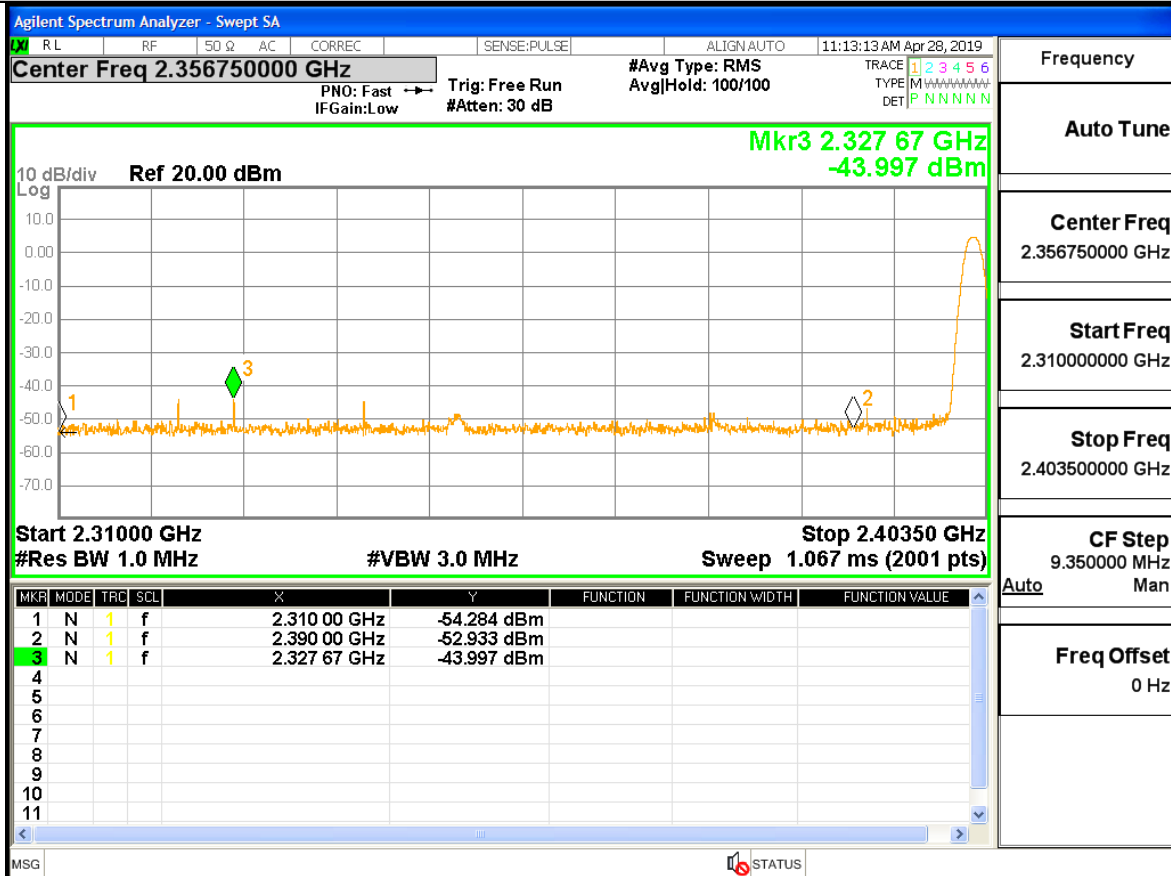


A.8 Restrict-band band-edge measurements

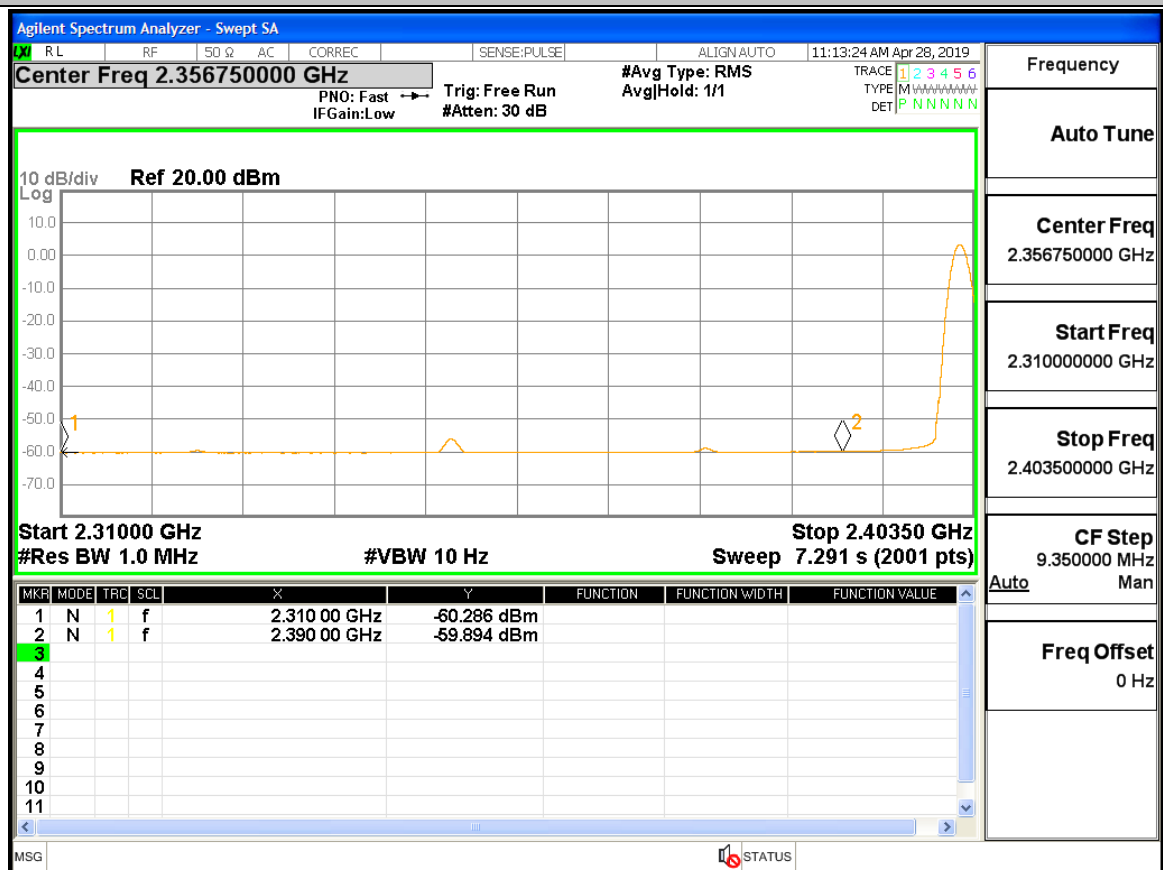
Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2327.67	2.00	0.00	-44.00	53.20	74	Pass
1DH5	2480	2494.97	2.00	0.00	-42.52	54.68	74	Pass
2DH5	2402	2349.92	2.00	0.00	-48.58	48.62	74	Pass
2DH5	2480	2495.21	2.00	0.00	-44.36	52.84	74	Pass
3DH5	2402	2361.99	2.00	0.00	-45.86	51.34	74	Pass
3DH5	2480	2494.30	2.00	0.00	-45.89	51.31	74	Pass

Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Average Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2390.00	2.00	0.00	-59.89	37.31	54	Pass
1DH5	2480	2483.50	2.00	0.00	-55.10	42.10	54	Pass
2DH5	2402	2390.00	2.00	0.00	-59.87	37.33	54	Pass
2DH5	2480	2483.50	2.00	0.00	-54.38	42.82	54	Pass
3DH5	2402	2390.00	2.00	0.00	-59.88	37.32	54	Pass
3DH5	2480	2483.50	2.00	0.00	-54.40	42.80	54	Pass

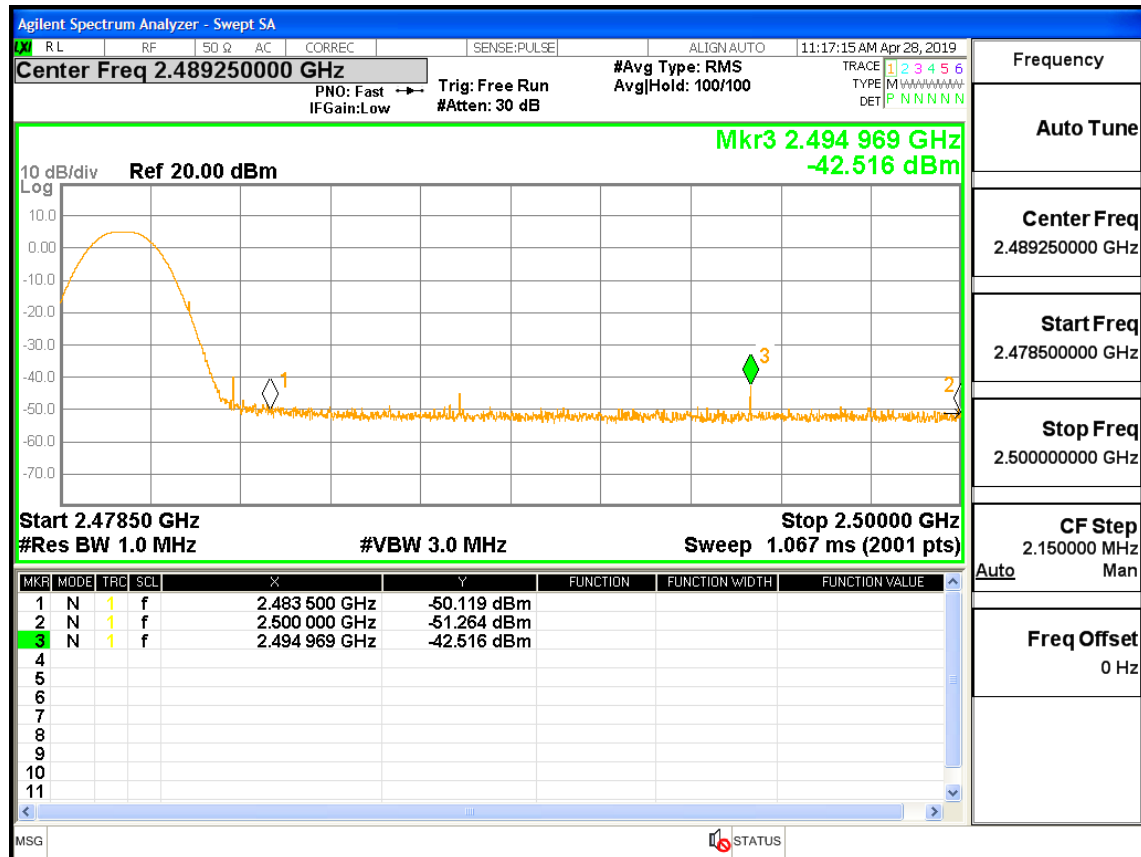
Restrict-band band-edge measurements 2402 PEAK DH5



Restrict-band band-edge measurements 2402 AV DH5



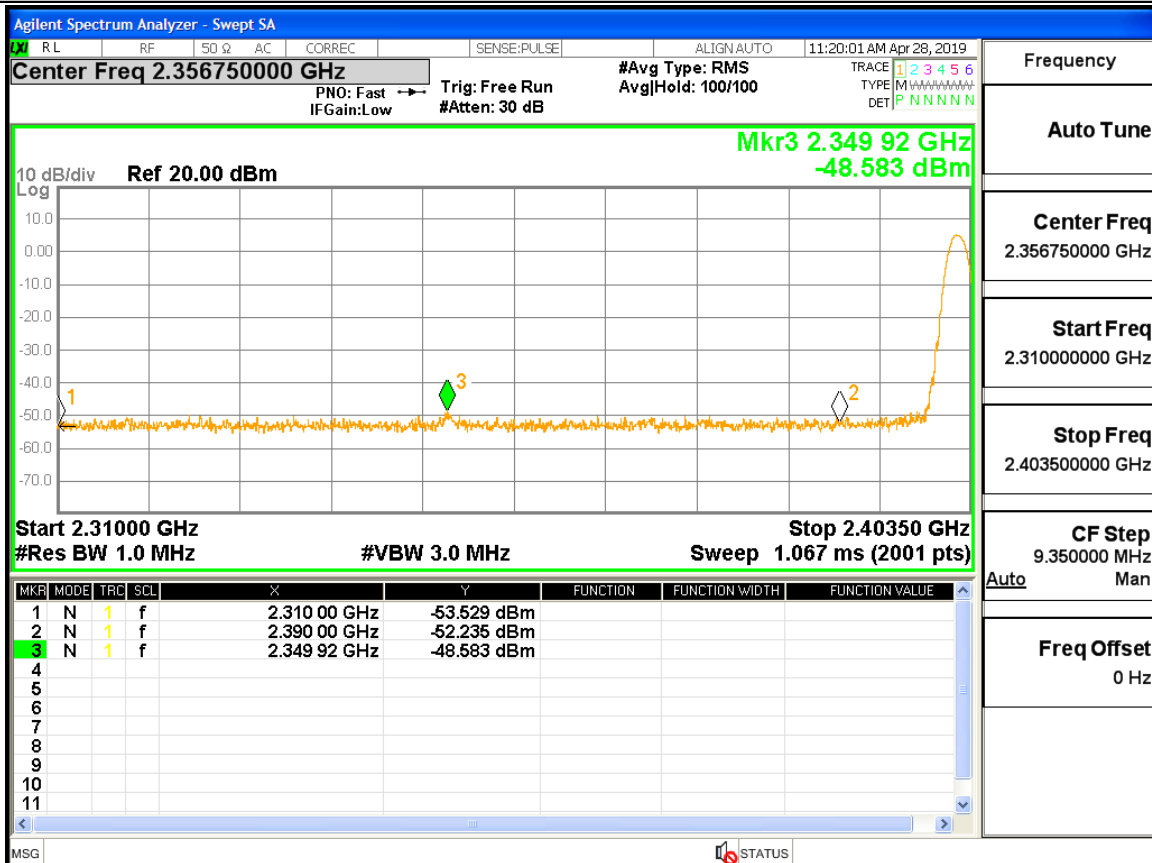
Restrict-band band-edge measurements_2480_PEAK_DH5



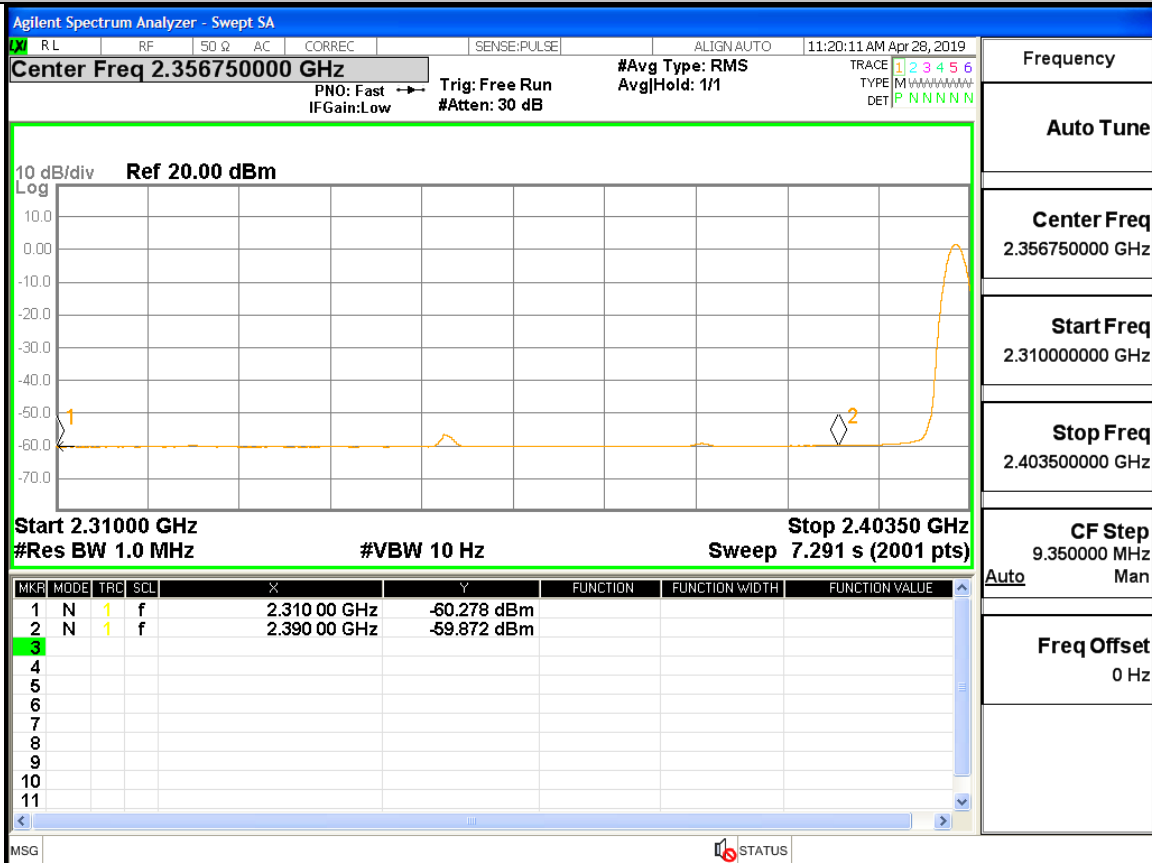
Restrict-band band-edge measurements_2480_AV_DH5



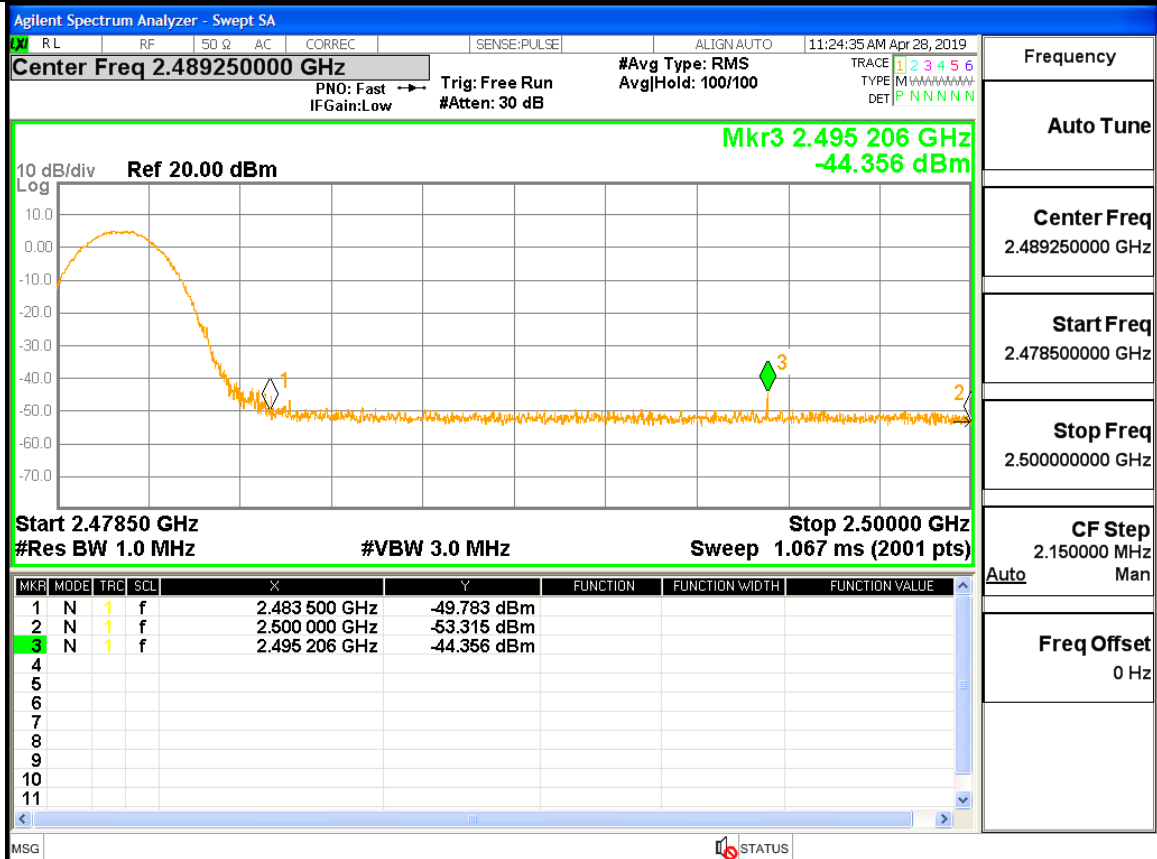
Restrict-band band-edge measurements 2402 PEAK 2DH5



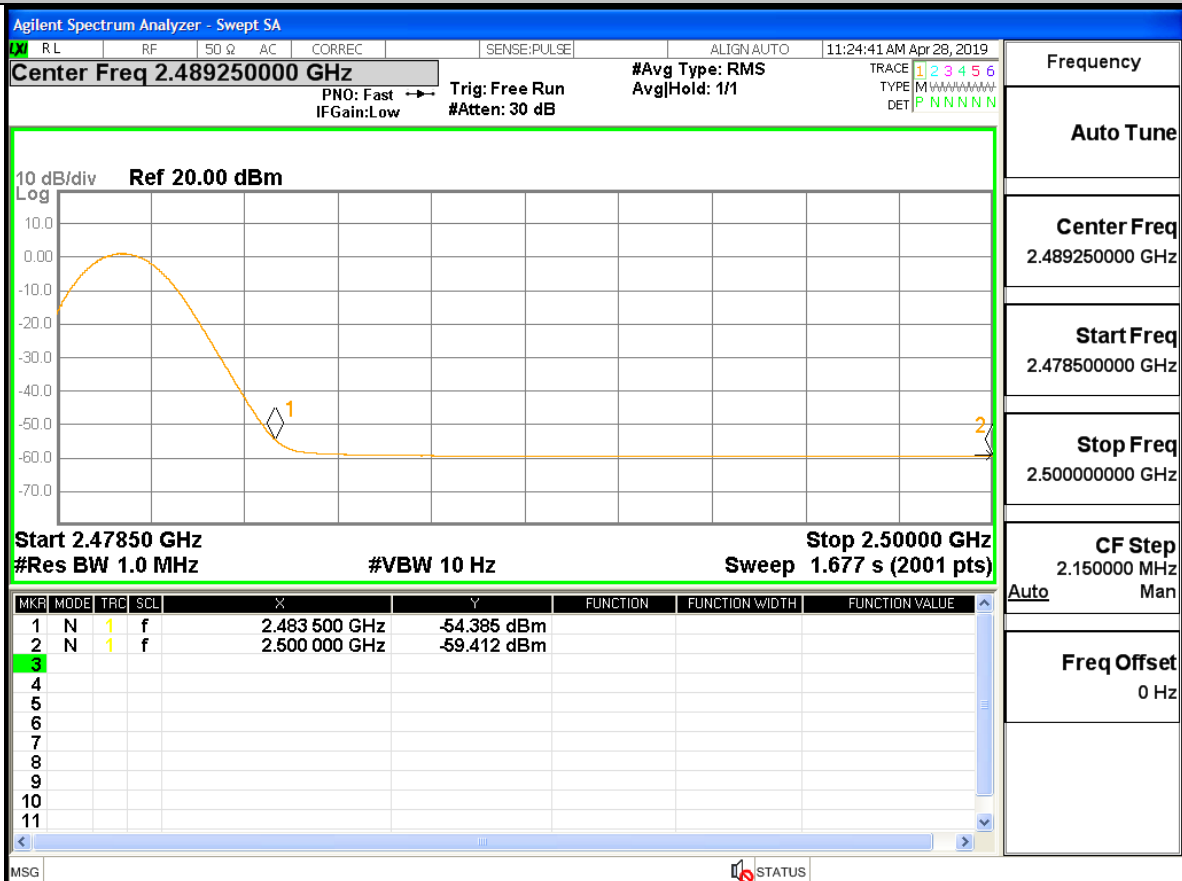
Restrict-band band-edge measurements 2402 AV 2DH5



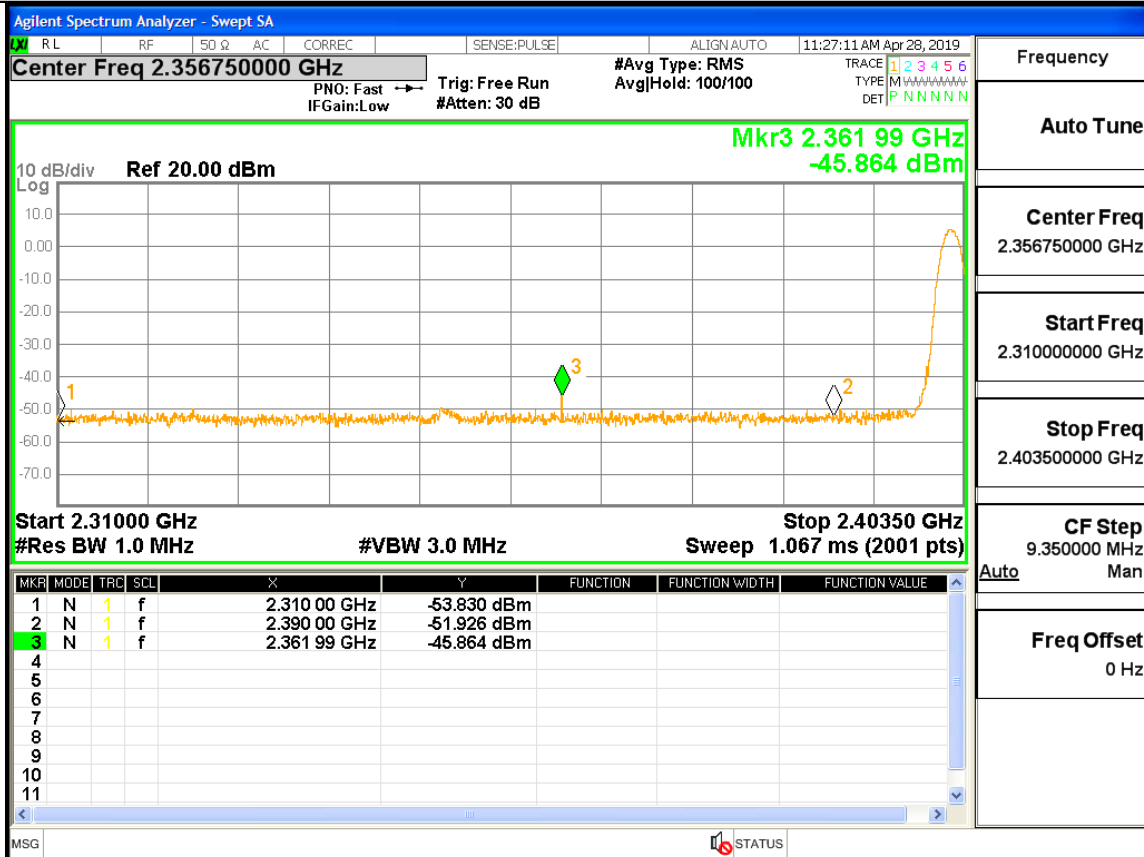
Restrict-band band-edge measurements_2480_PEAK_2DH5



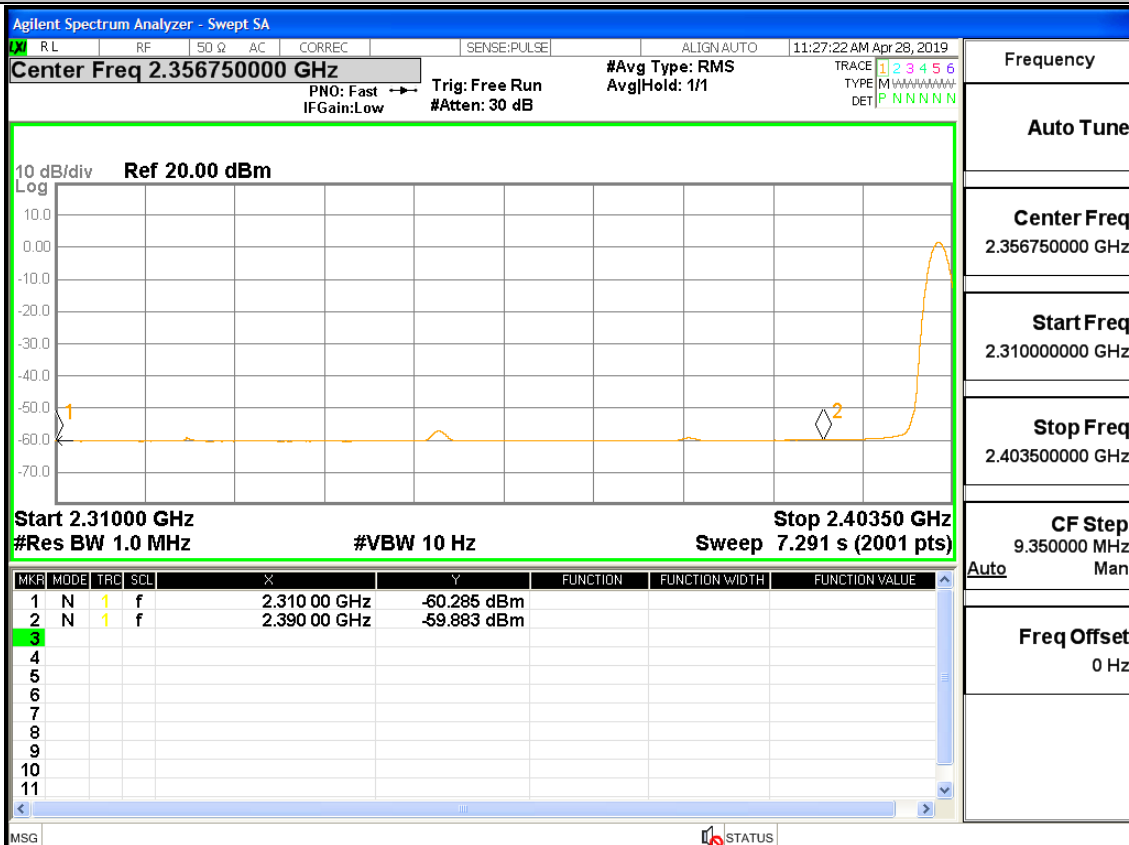
Restrict-band band-edge measurements_2480_AV_2DH5



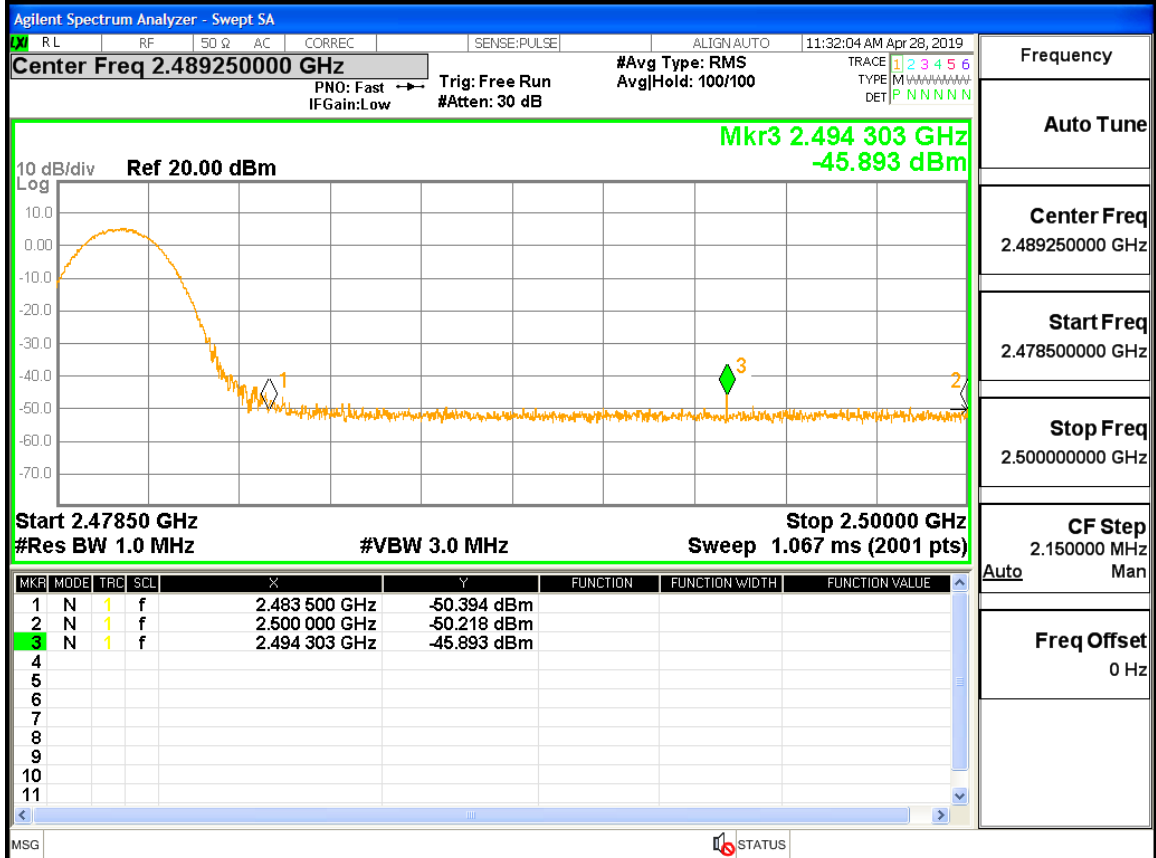
Restrict-band band-edge measurements_2402_PEAK_3DH5



Restrict-band band-edge measurements_2402_AV_3DH5



Restrict-band band-edge measurements_2480_PEAK_3DH5



Restrict-band band-edge measurements_2480_AV_3DH5

