

Appendix A

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

Product Name: Sound bar, bluetooth Speaker

Trade Mark: Saiyin

Test Model: DS5101

FCC ID: 2AP93-DS5X

Environmental Conditions

Temperature:	22.7° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

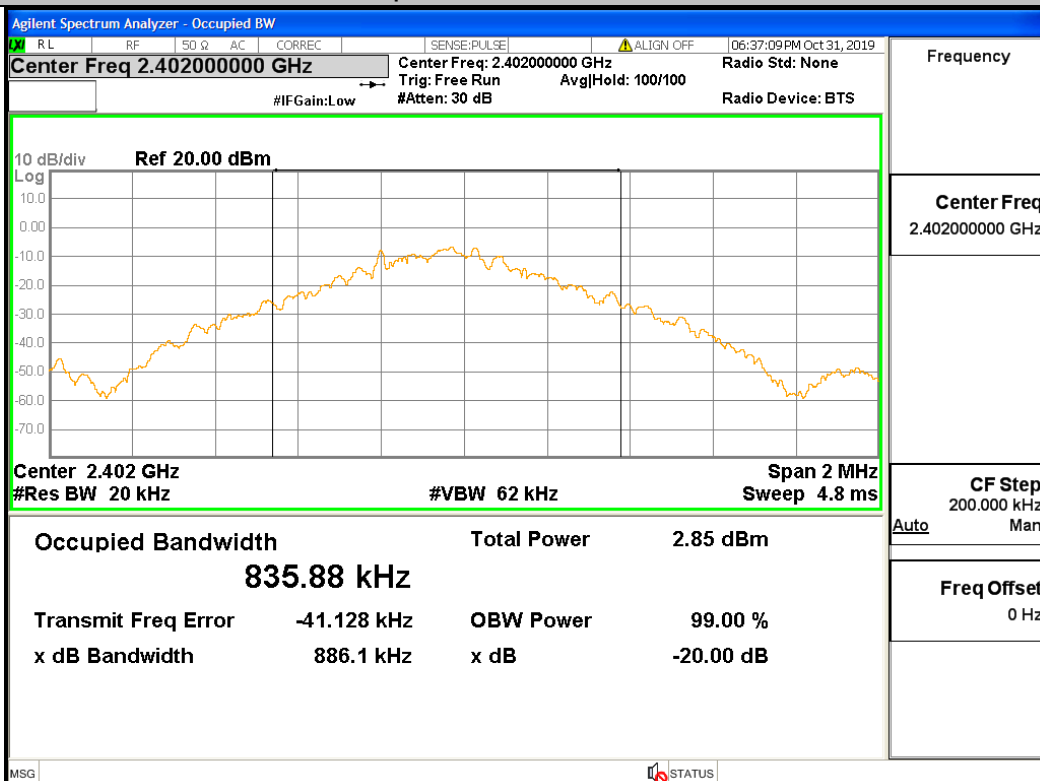
A.1 20 dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	0.886	Not Specified	PASS
GFSK	MCH	0.888	Not Specified	PASS
GFSK	HCH	0.862	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.321	Not Specified	PASS
$\pi/4$ DQPSK	MCH	1.279	Not Specified	PASS
$\pi/4$ DQPSK	HCH	1.320	Not Specified	PASS

Test Graph

Graphs

GFSK/LCH



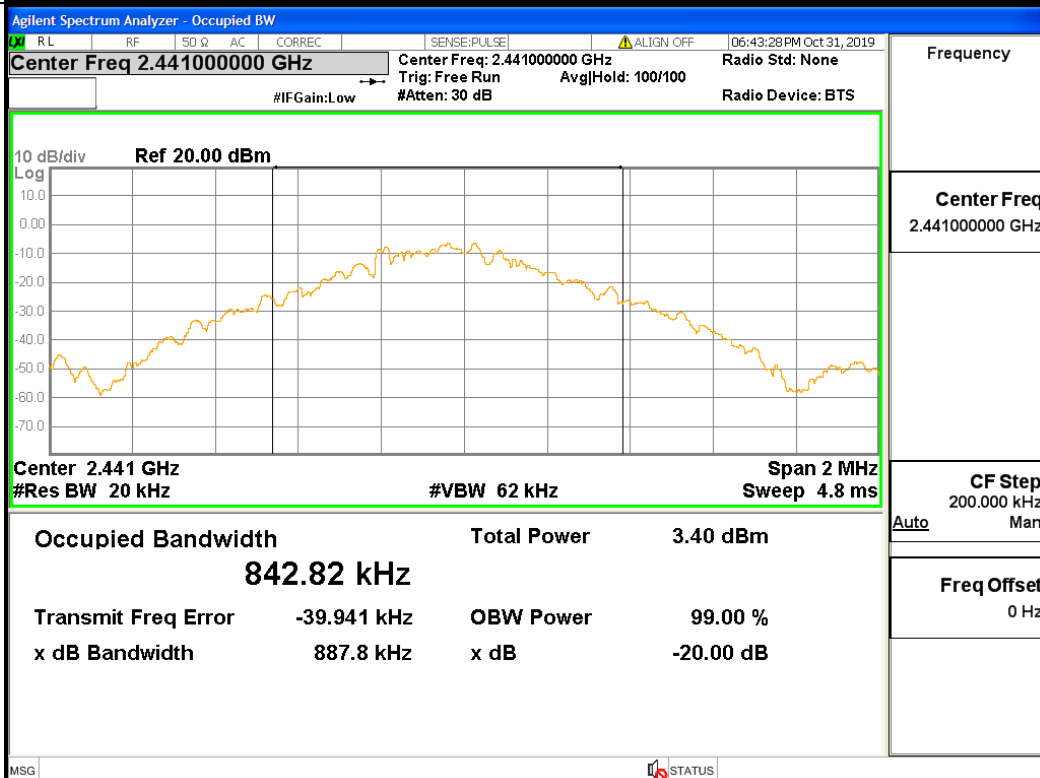
Frequency

Center Freq
2.40200000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

GFSK/MCH

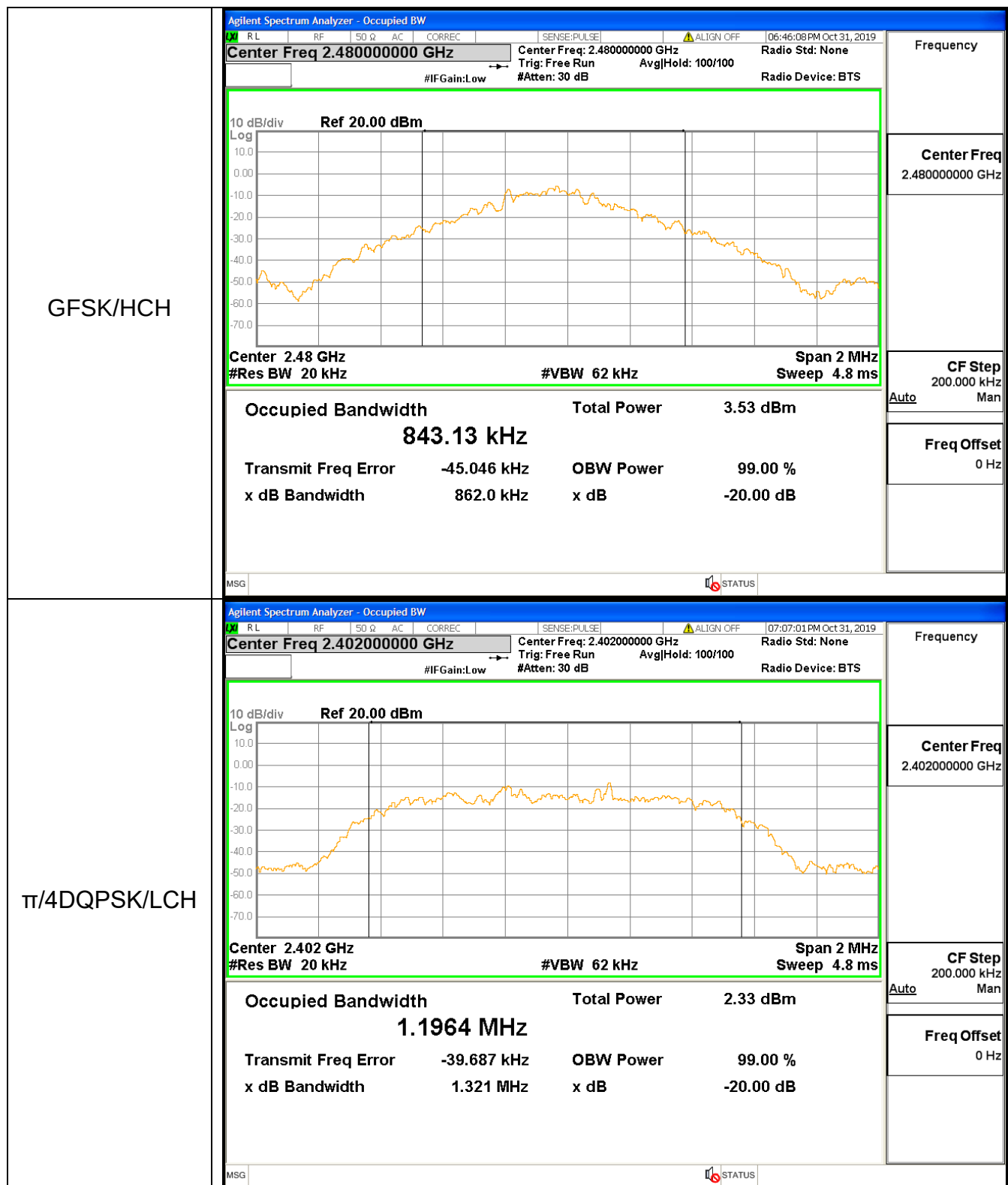


Frequency

Center Freq
2.44100000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

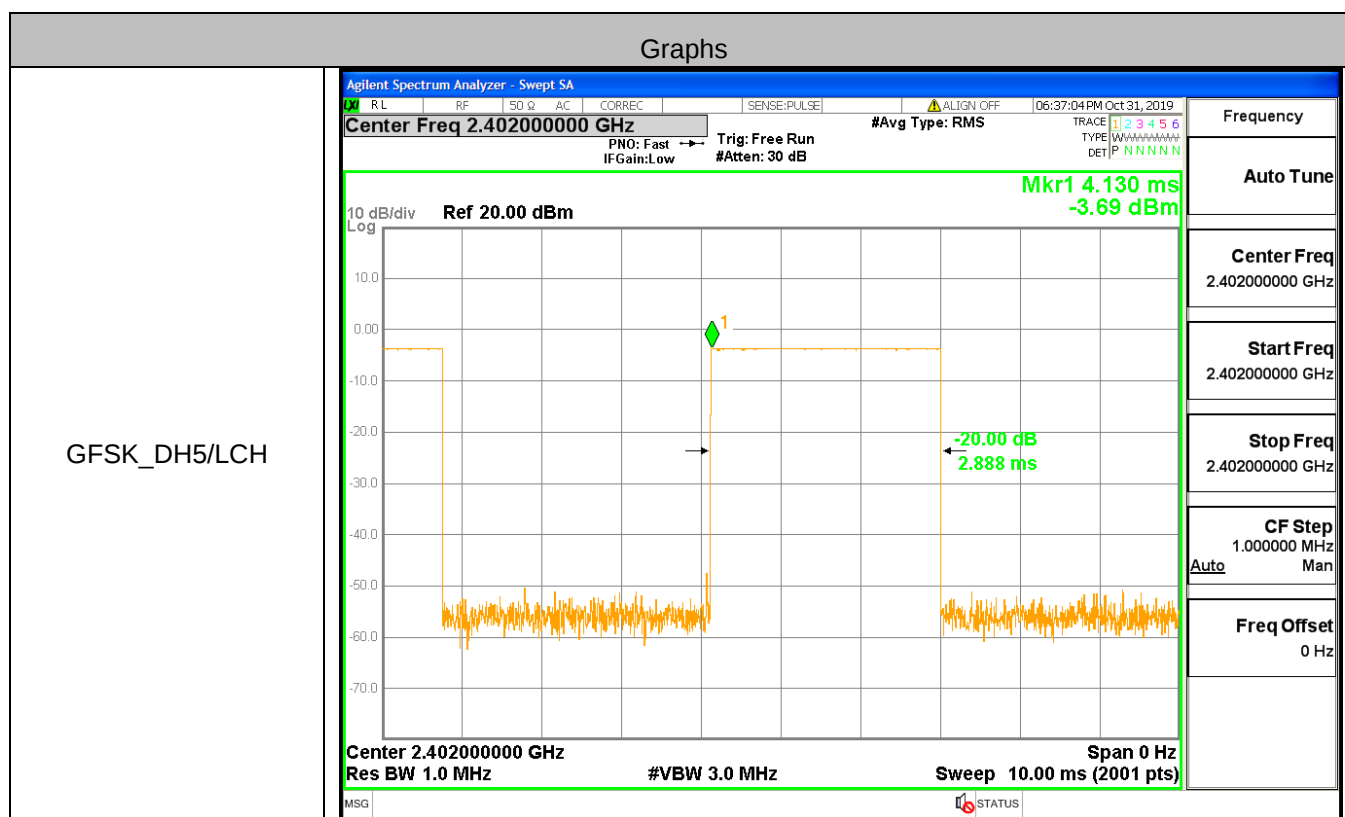


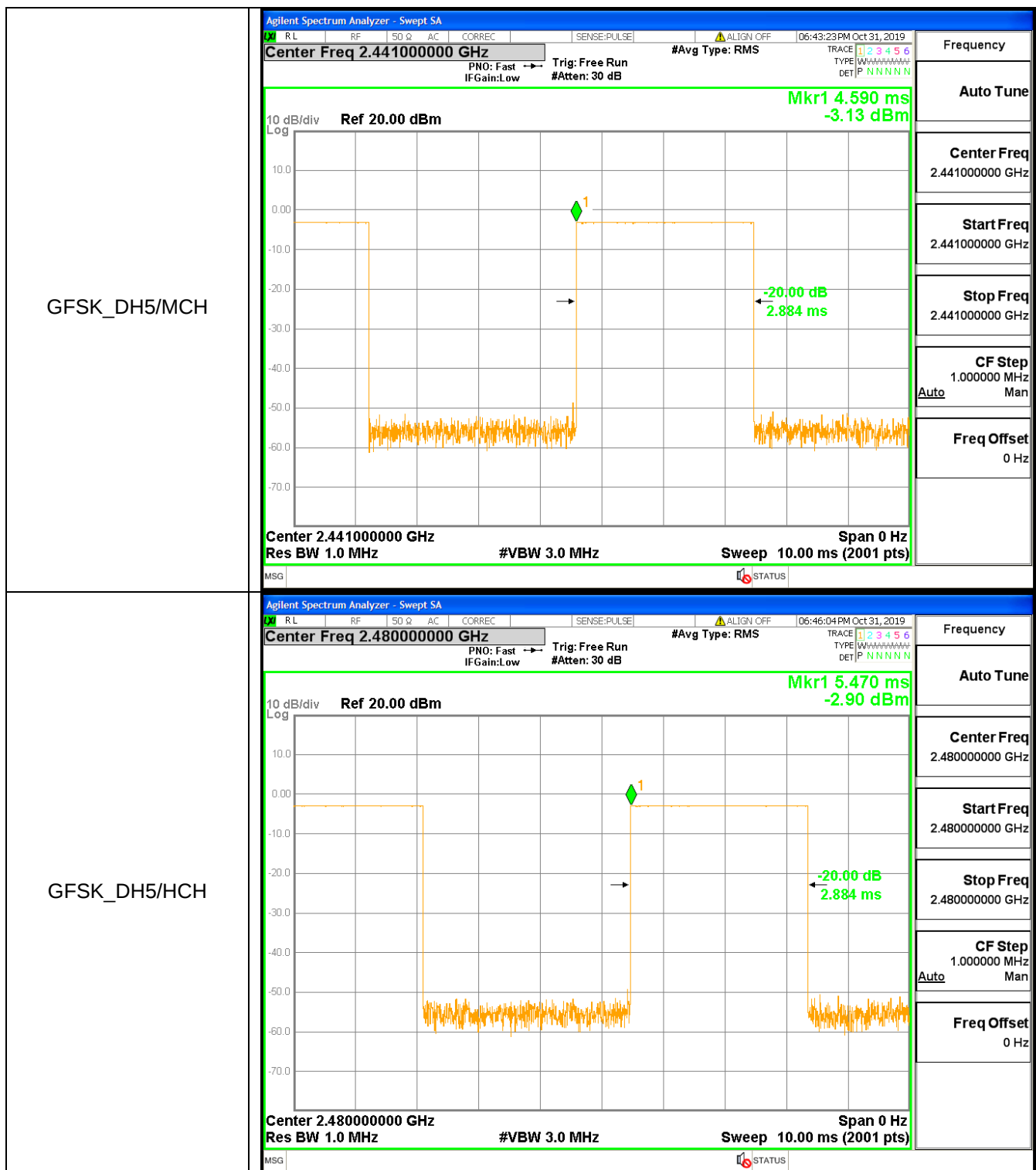


A.2 Dwell Time

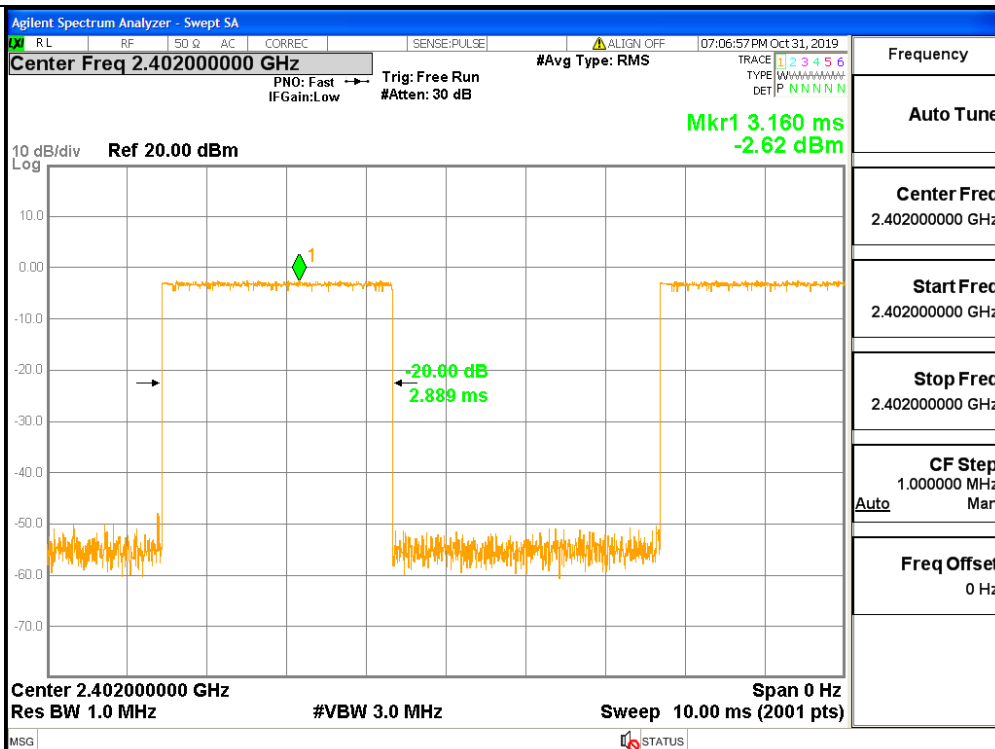
Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.002888	106.7	0.308104	0.4	PASS
GFSK	DH5	MCH	0.002884	106.7	0.307712	0.4	PASS
GFSK	DH5	HCH	0.002884	106.7	0.307711	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	0.002892	106.7	0.308549	0.4	PASS
$\pi/4$ DQPSK	2DH5	MCH	0.002889	106.7	0.308213	0.4	PASS
$\pi/4$ DQPSK	2DH5	HCH	0.002890	106.7	0.308375	0.4	PASS

Test Graph

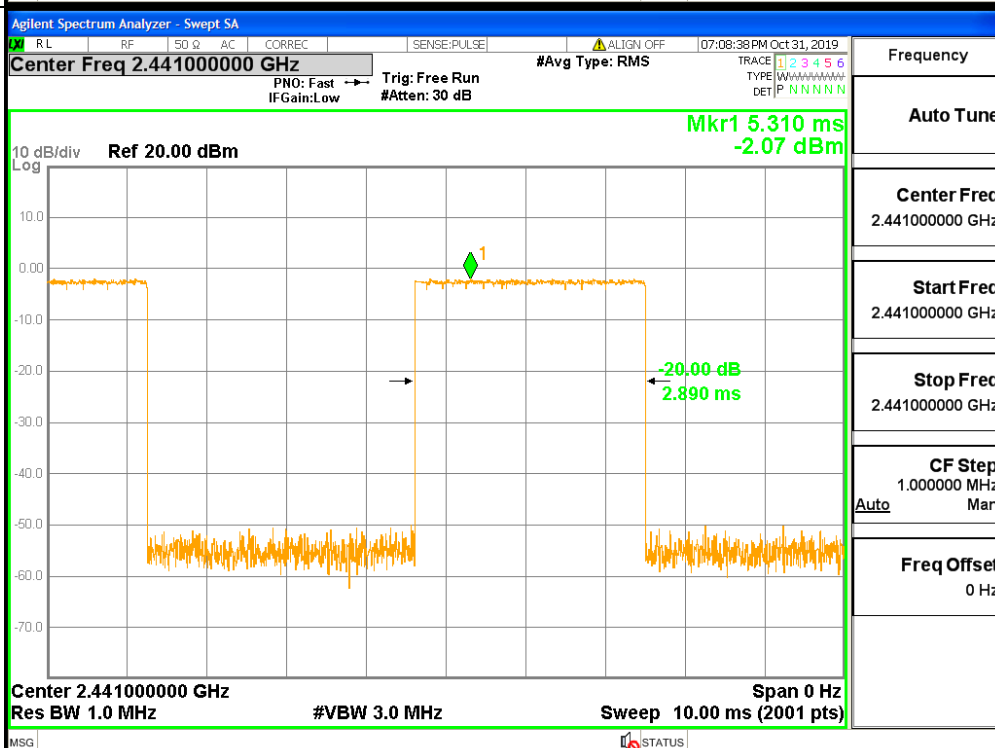




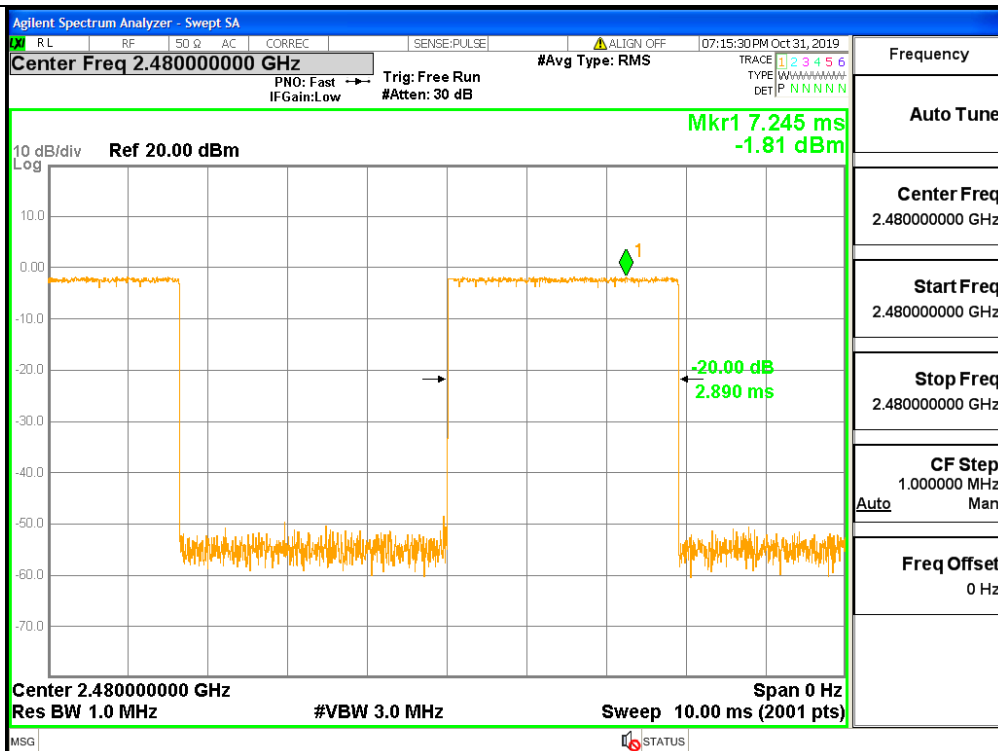
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH



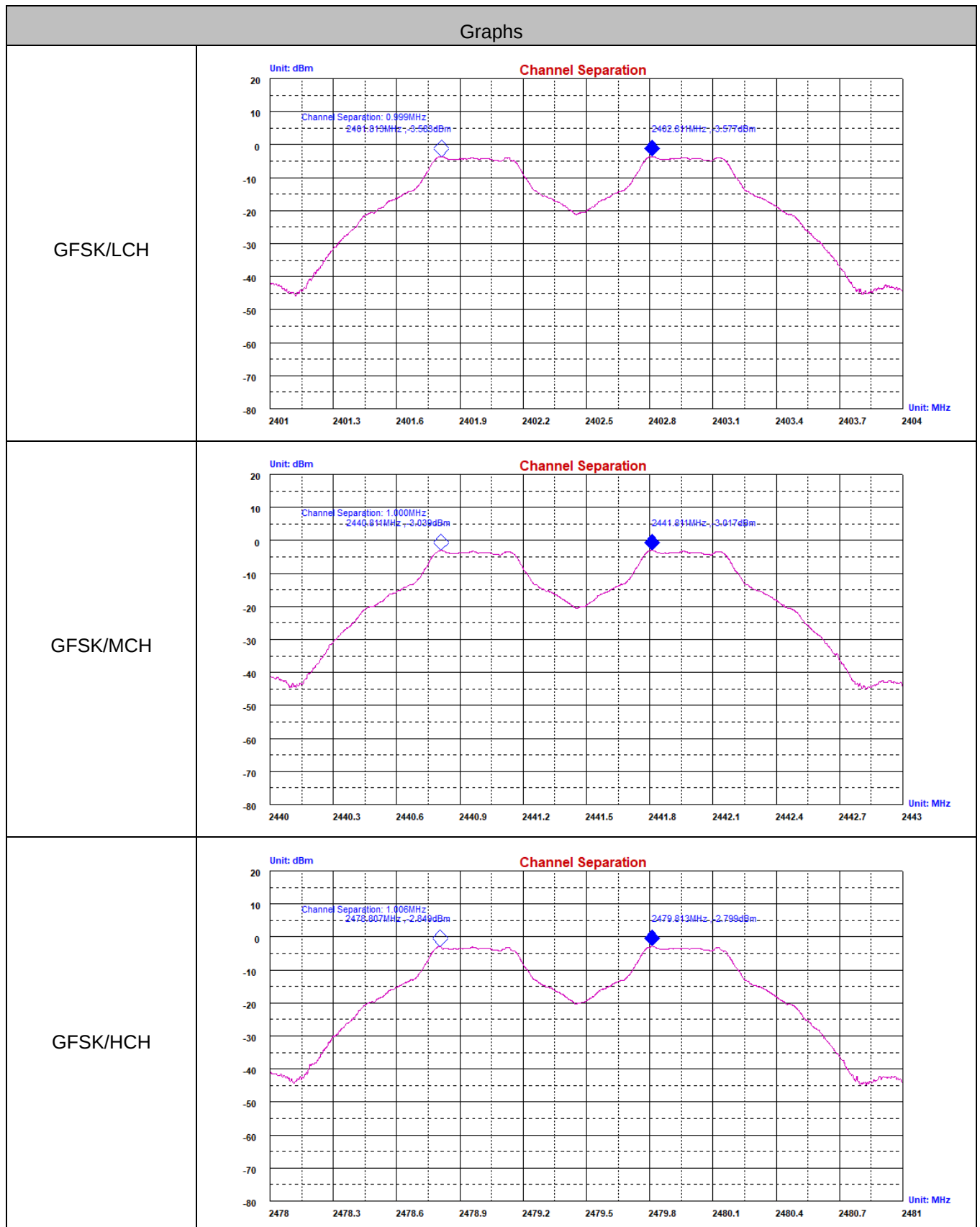
$\pi/4$ DQPSK
_2DH5/HCH

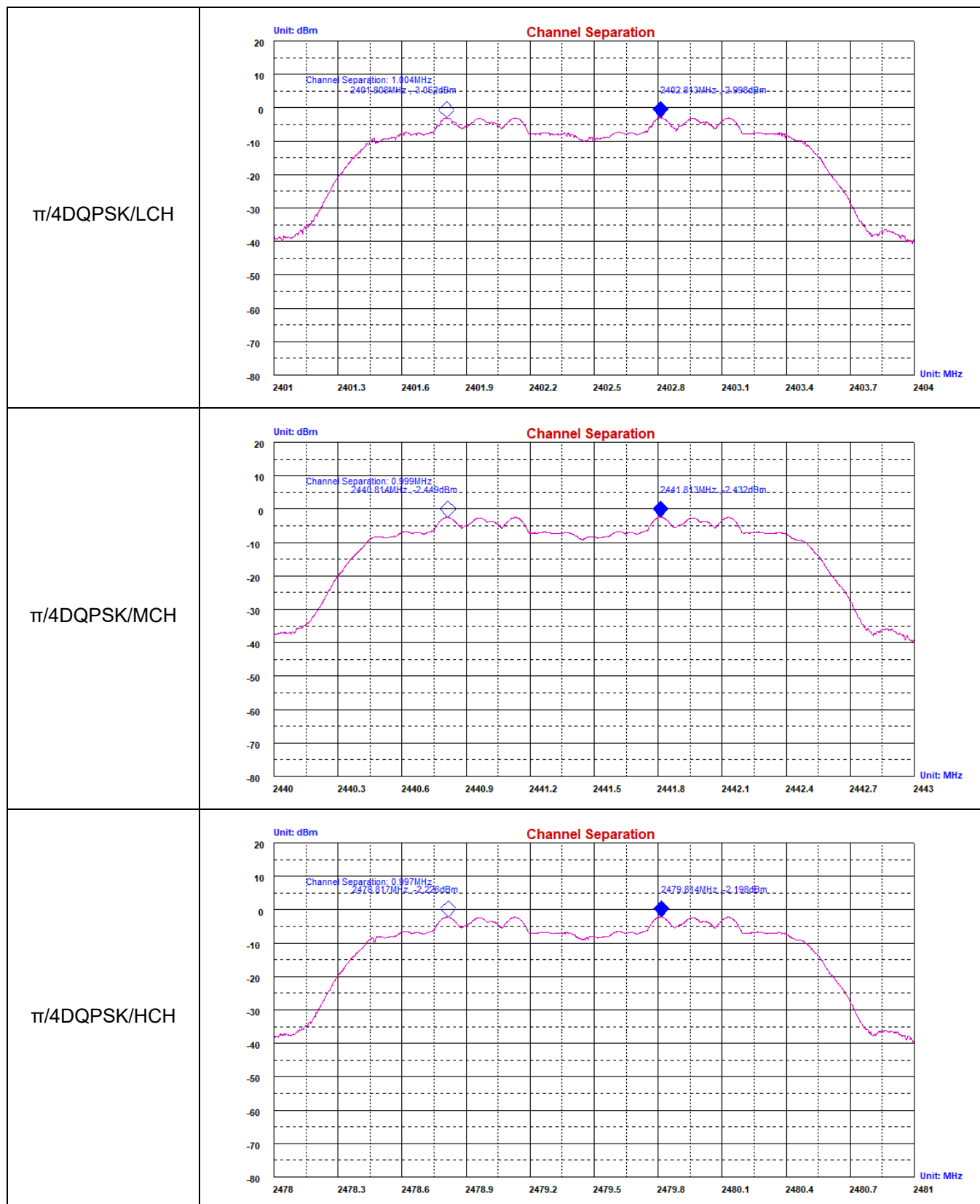


A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.999	0.591	PASS
GFSK	MCH	1.000	0.592	PASS
GFSK	HCH	1.006	0.575	PASS
$\pi/4$ DQPSK	LCH	1.004	0.881	PASS
$\pi/4$ DQPSK	MCH	0.999	0.853	PASS
$\pi/4$ DQPSK	HCH	0.997	0.880	PASS

Test Graph

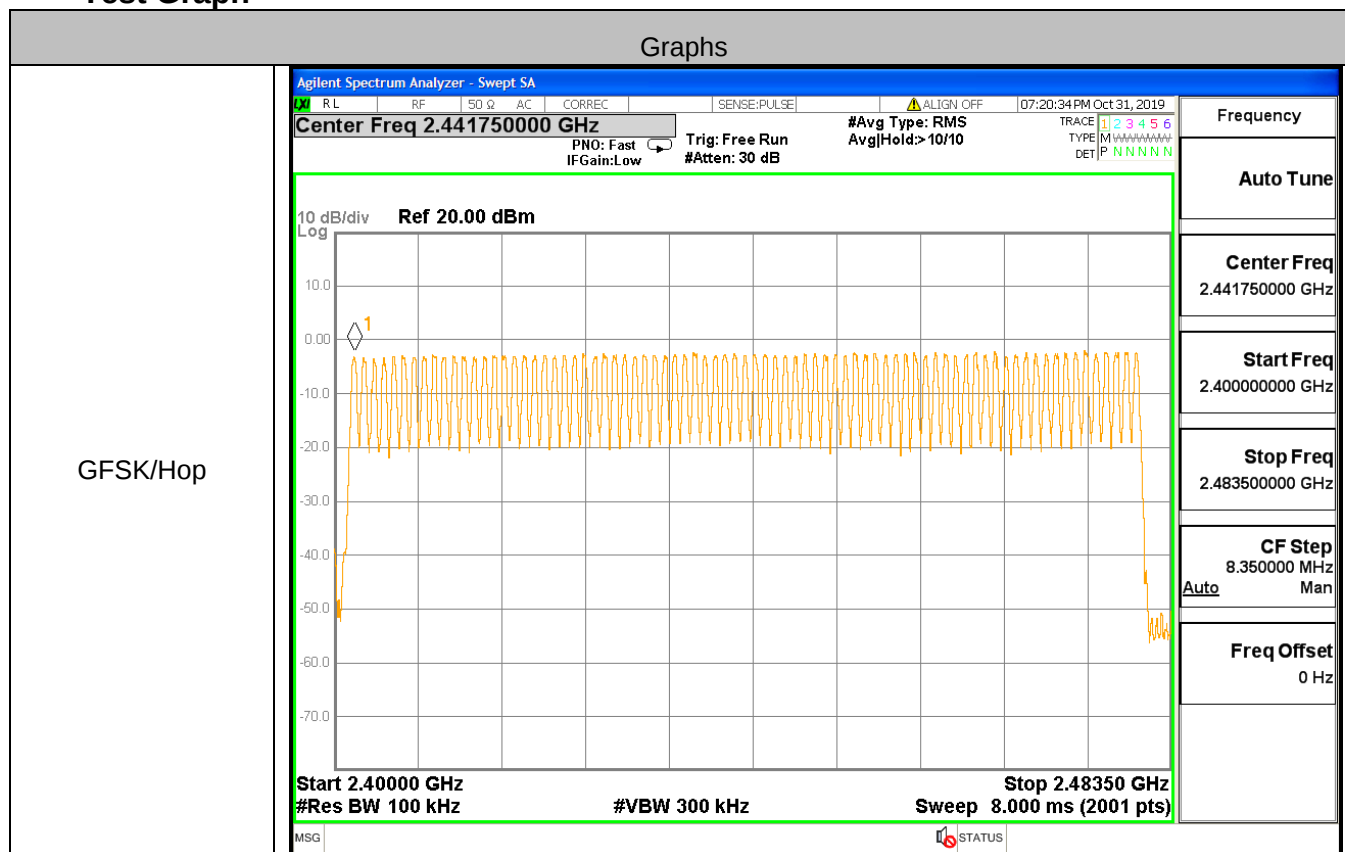


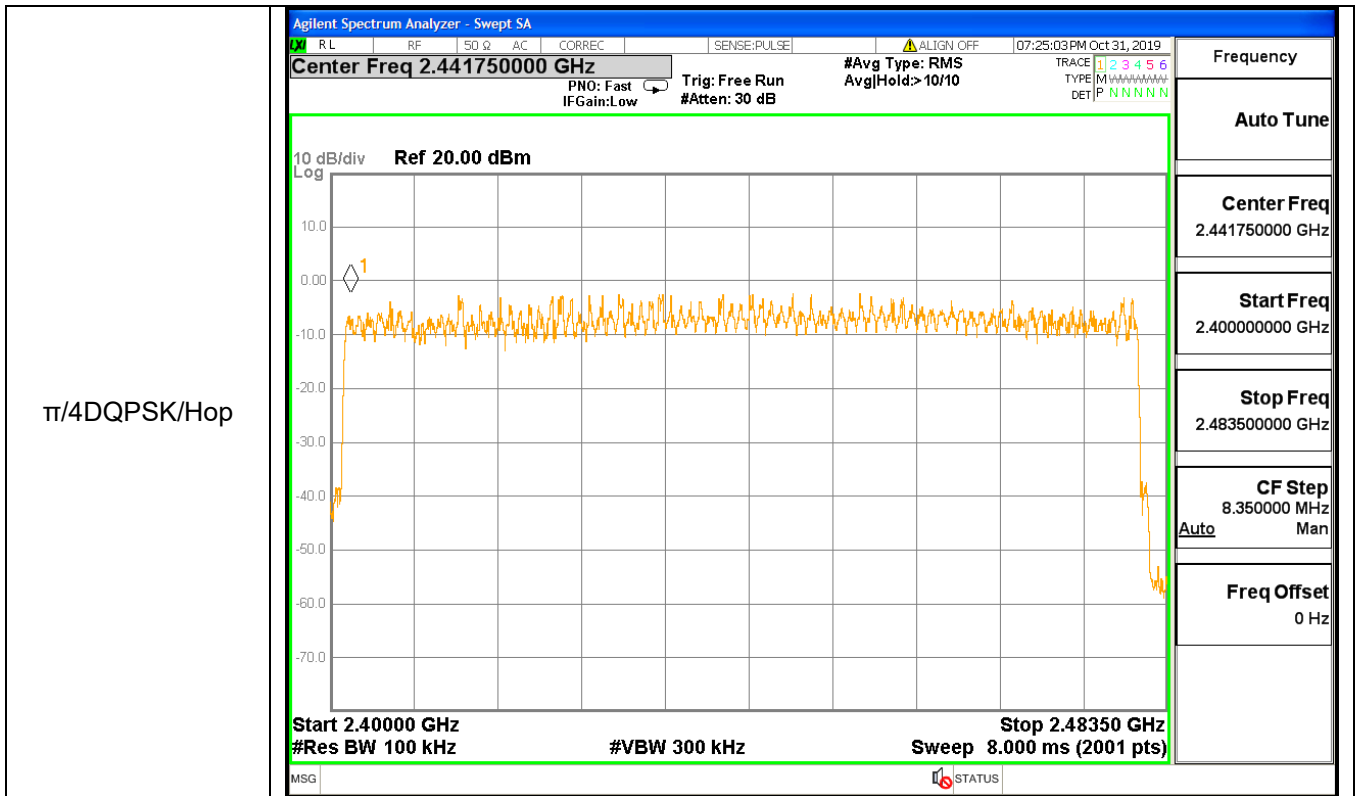


A.4 Hopping Channel Number

Mode	Channel.	Number of Hopping Channel[N]	Limit[N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS

Test Graph

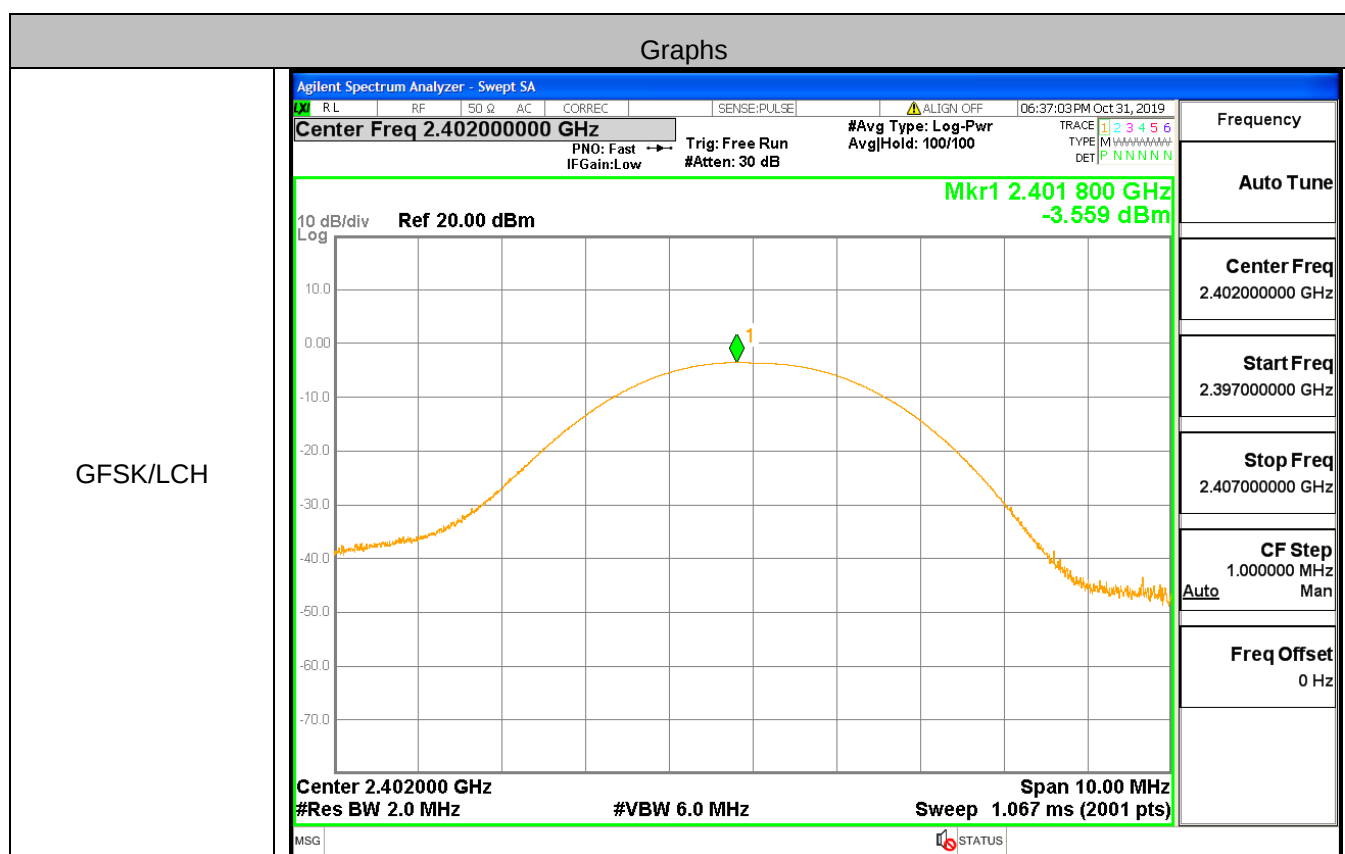


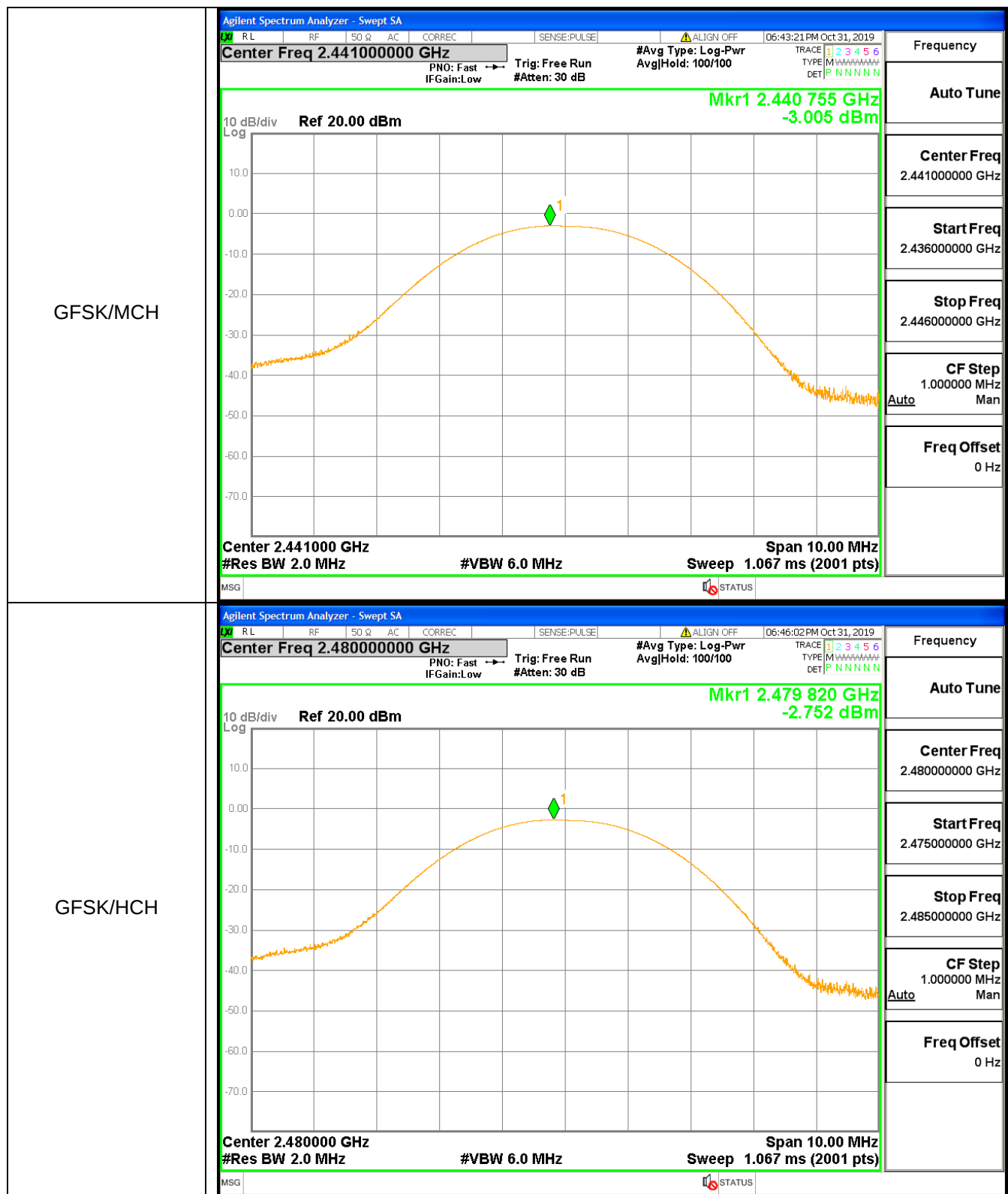


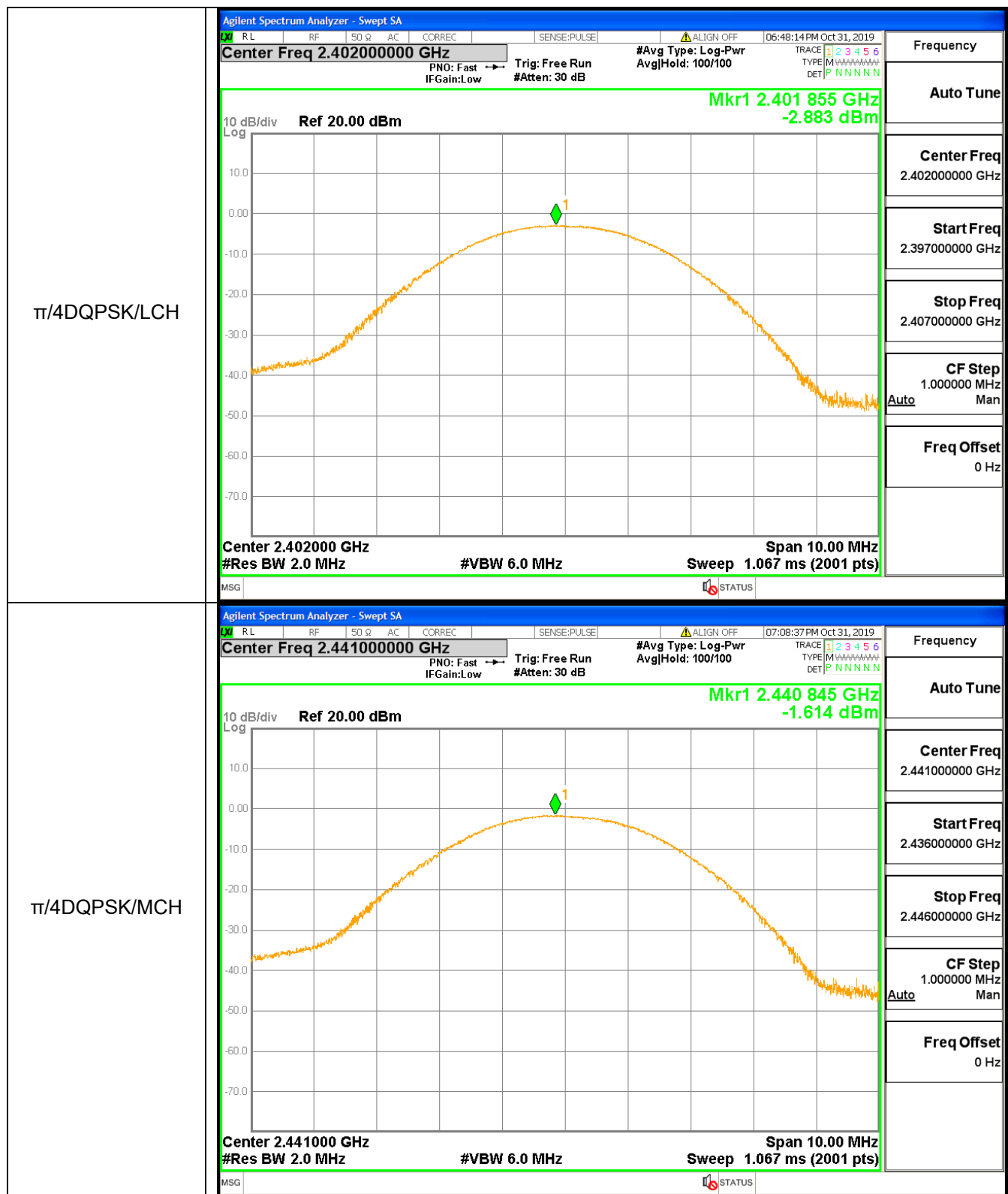
A.5 Conducted Peak Output Power

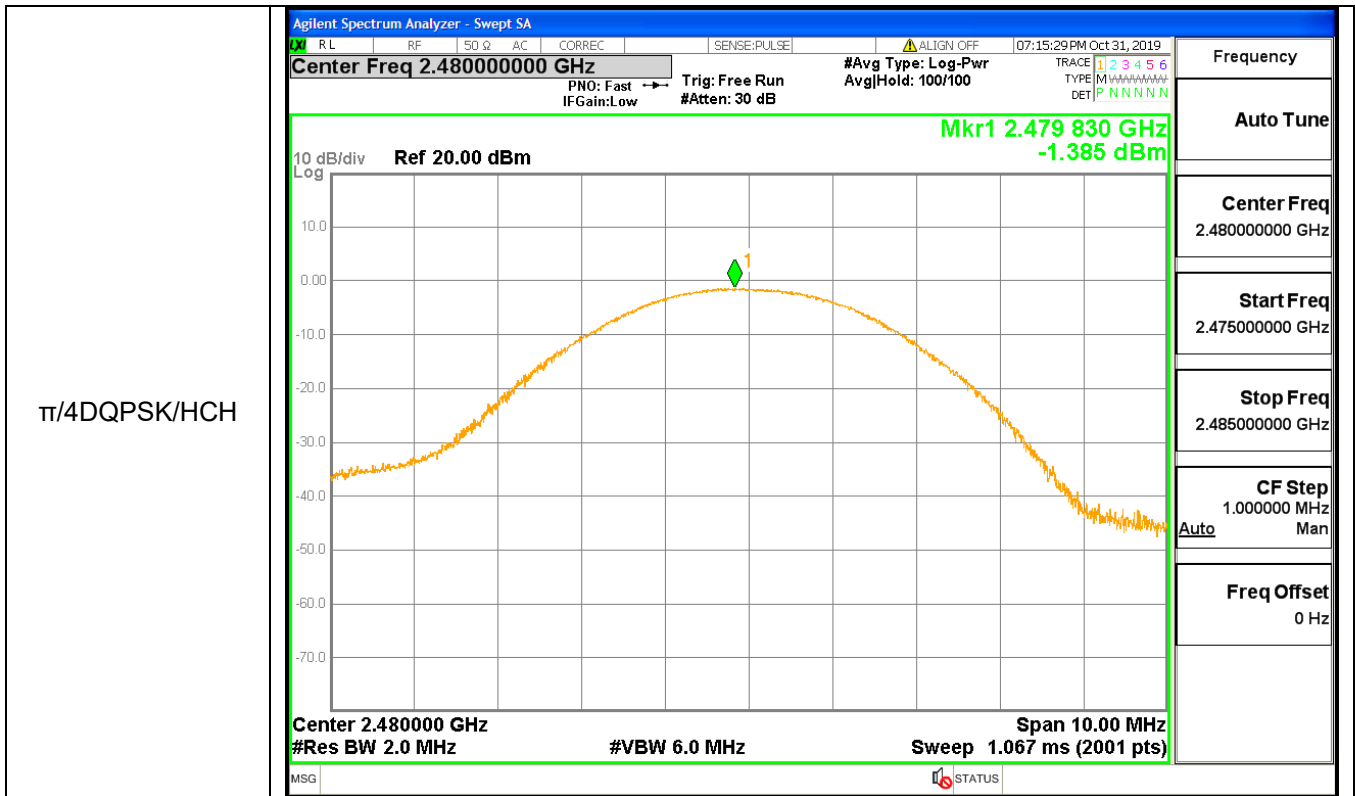
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-3.559	21	PASS
GFSK	MCH	-3.005	21	PASS
GFSK	HCH	-2.752	21	PASS
$\pi/4$ DQPSK	LCH	-2.256	21	PASS
$\pi/4$ DQPSK	MCH	-1.614	21	PASS
$\pi/4$ DQPSK	HCH	-1.385	21	PASS

Test Graph









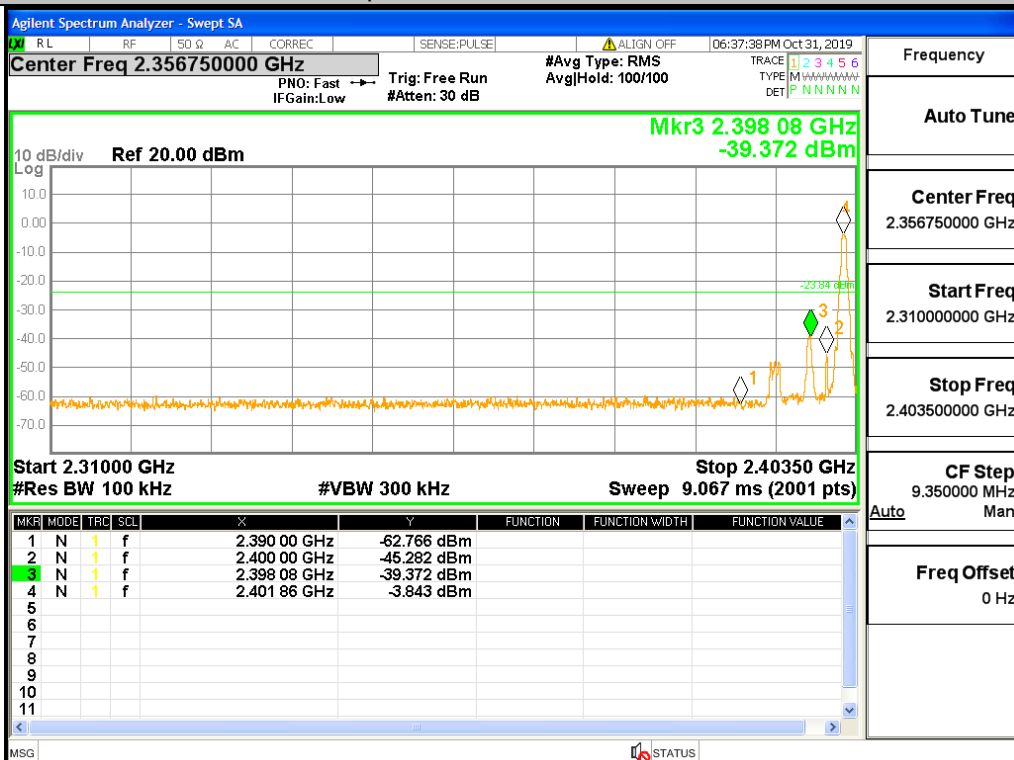
A.6 Band-edge for RF Conducted Emissions

Type	Carrier Frequency(MHz)	Frequency(MHz)	Carrier Frequency Power [dBm]	Bandedge Peak(dBm)	Upper limit(dBm)	Conclusion
1DH5	2402	2398.077	-3.843	-39.372	-23.843	Pass
1DH5	2480	2483.553	-2.778	-51.653	-22.778	Pass
2DH5	2402	2398.124	-6.358	-42.636	-26.358	Pass
2DH5	2480	2397.703	-6.112	-41.514	-26.112	Pass
1DH5-Hopping	2402	2484.413	-3.027	-52.783	-23.027	Pass
1DH5-Hopping	2480	2398.98	-2.579	-38.348	-22.579	Pass
2DH5-Hopping	2402	2483.98	-2.104	-50.293	-22.104	Pass
2DH5-Hopping	2480	2399.82	-2.601	-38.540	-22.601	Pass

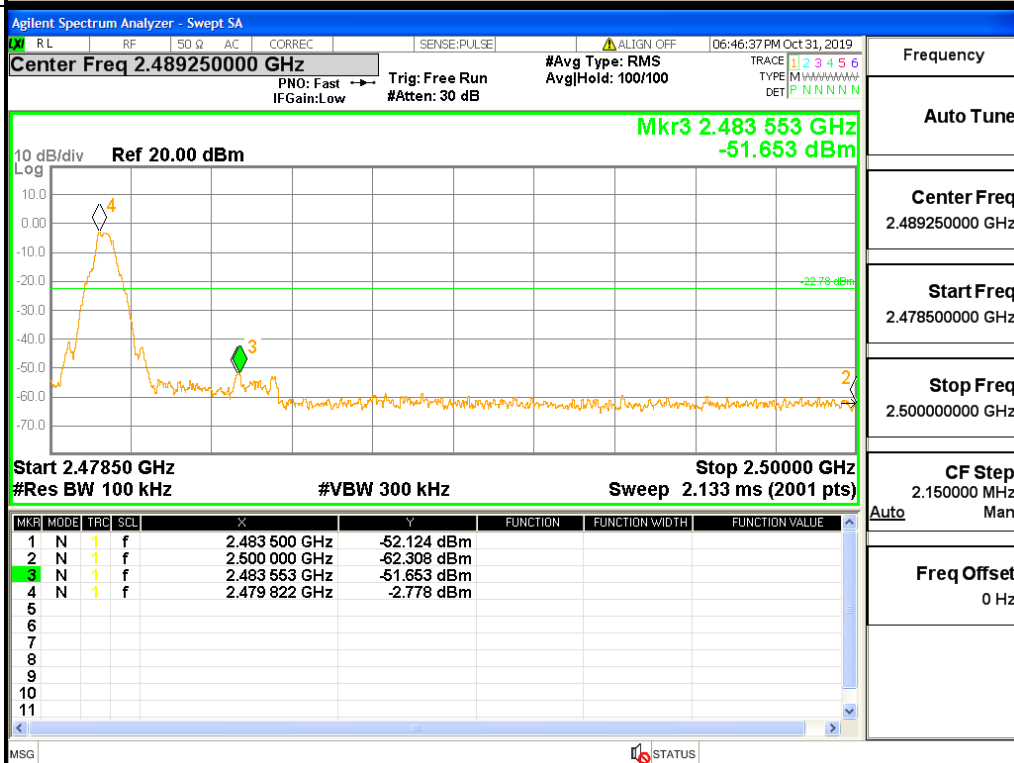
Test Graph

Graphs

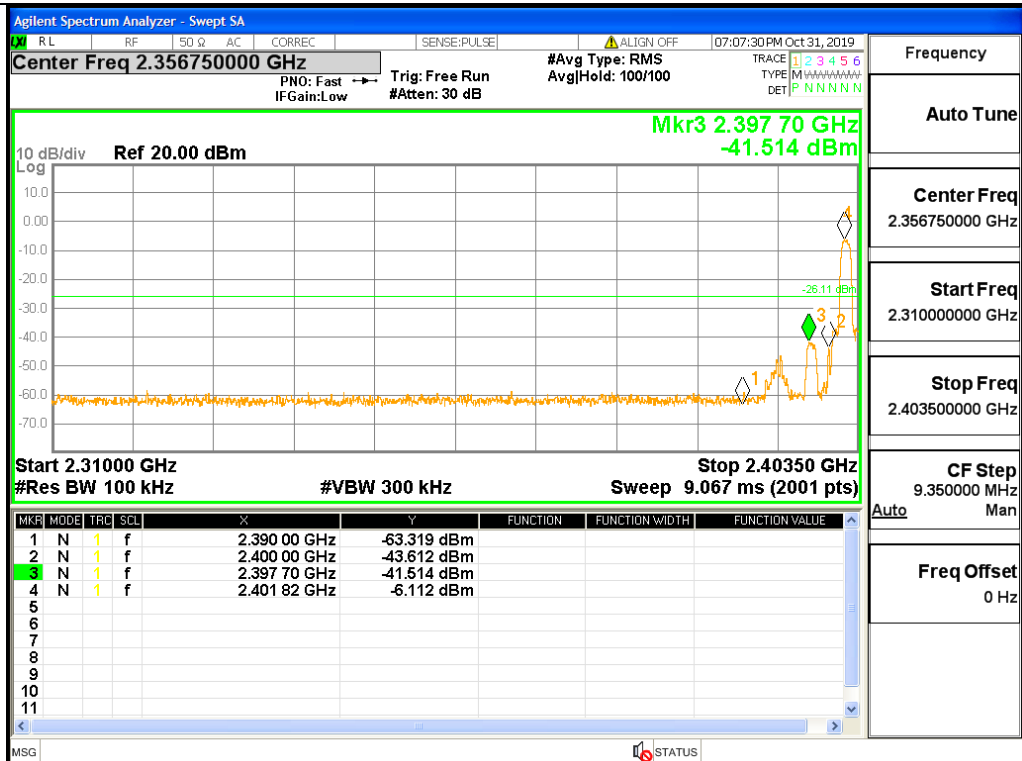
GFSK/LCH/No Hop



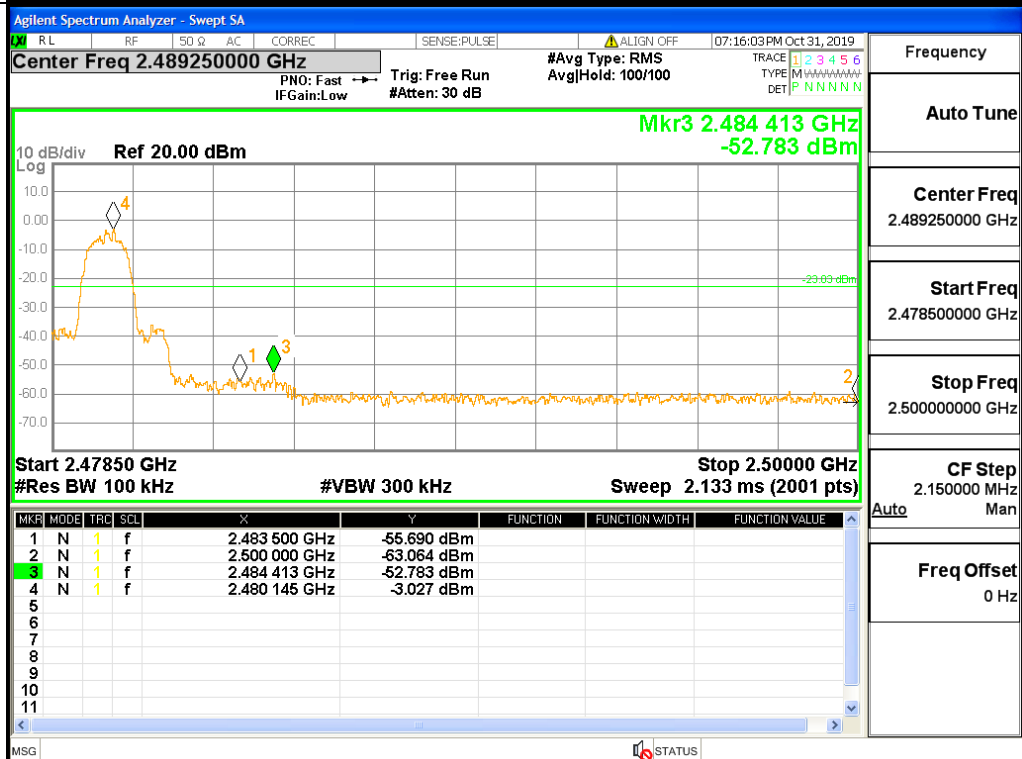
GFSK/HCH/No Hop



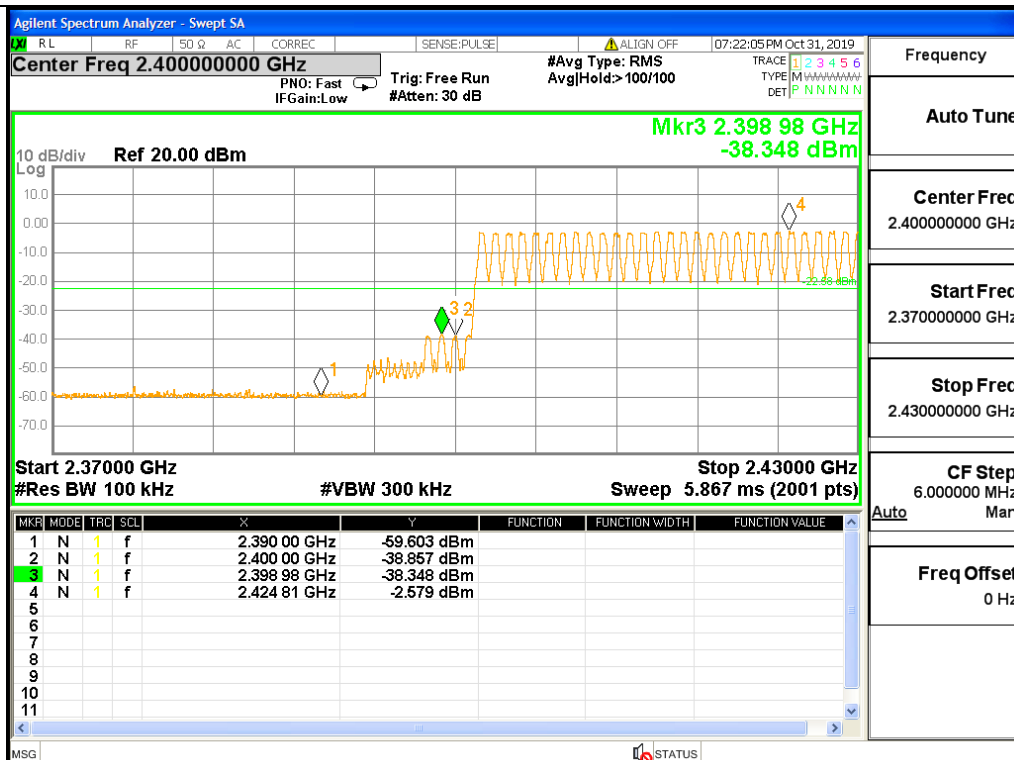
$\pi/4$ DQPSK/LCH/No
Hop



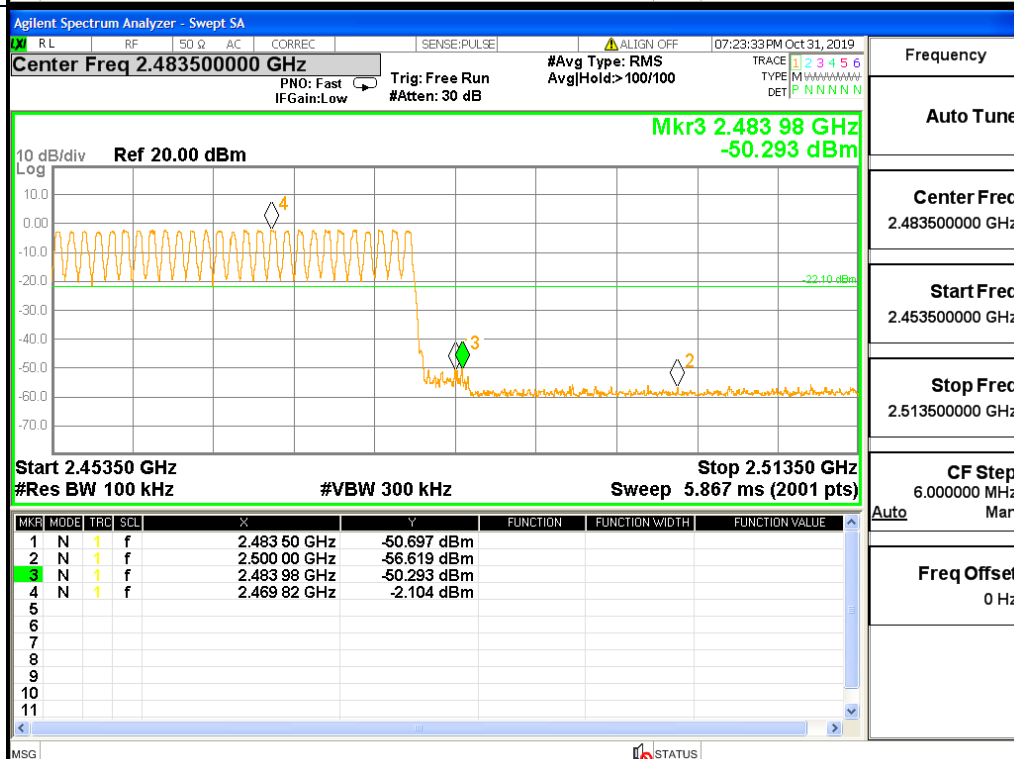
$\pi/4$ DQPSK/HCH/No
Hop

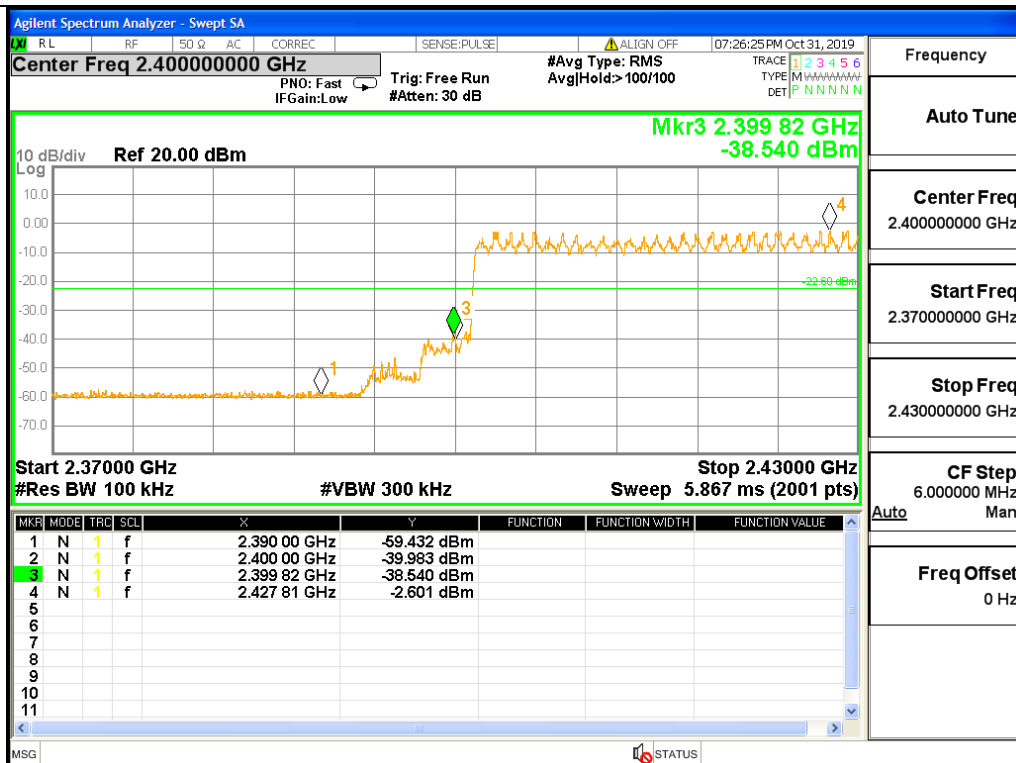
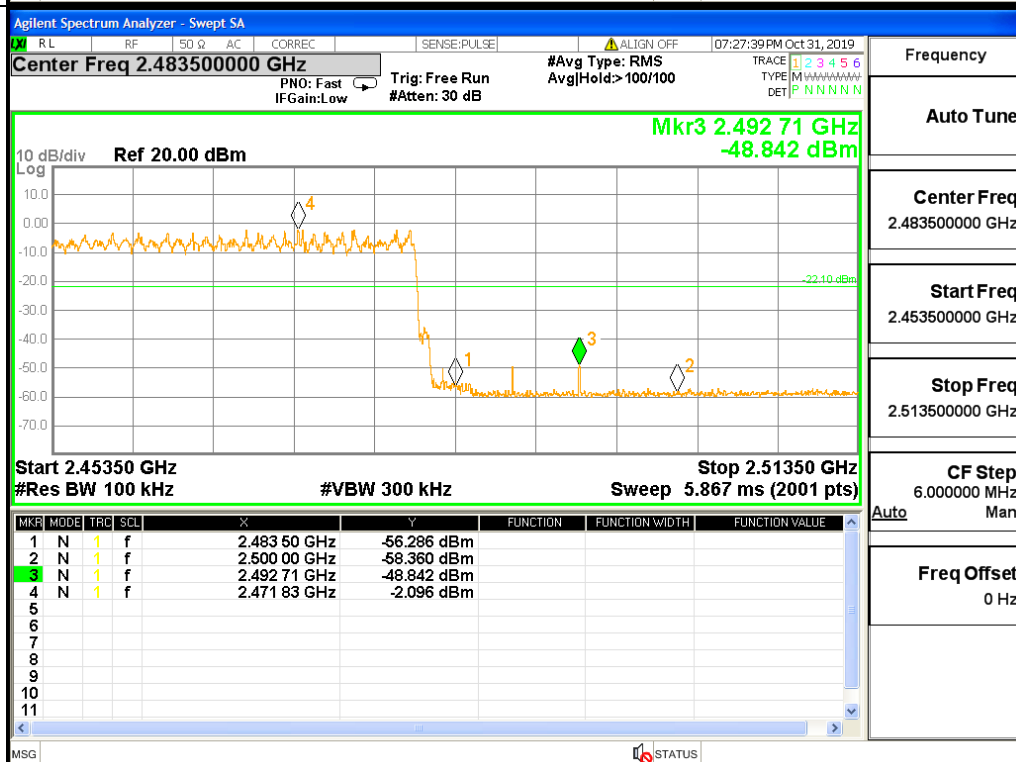


GFSK/LCH/Hop



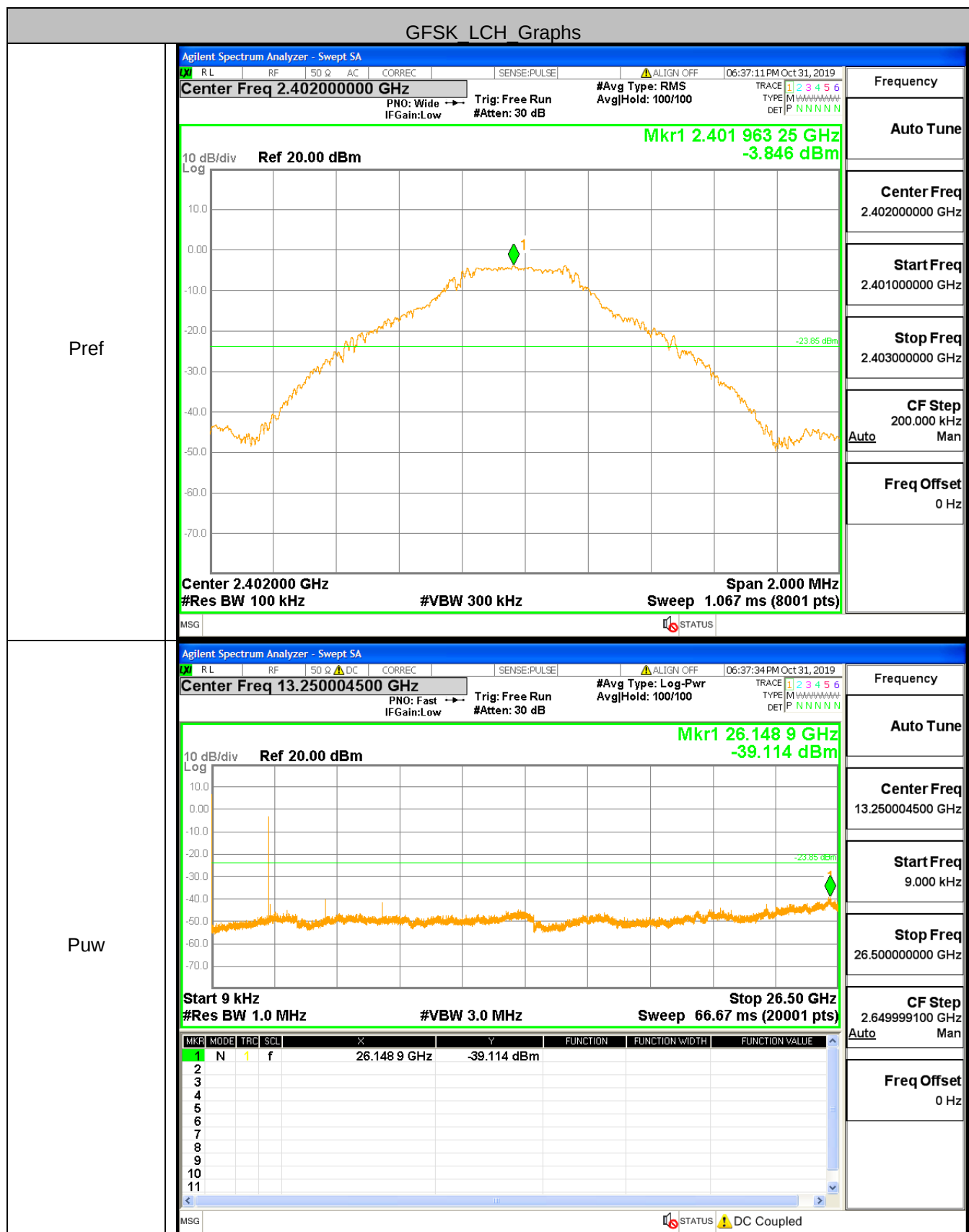
GFSK/HCH/Hop



$\pi/4$ DQPSK/LCH/Hop $\pi/4$ DQPSK/HCH/Hop

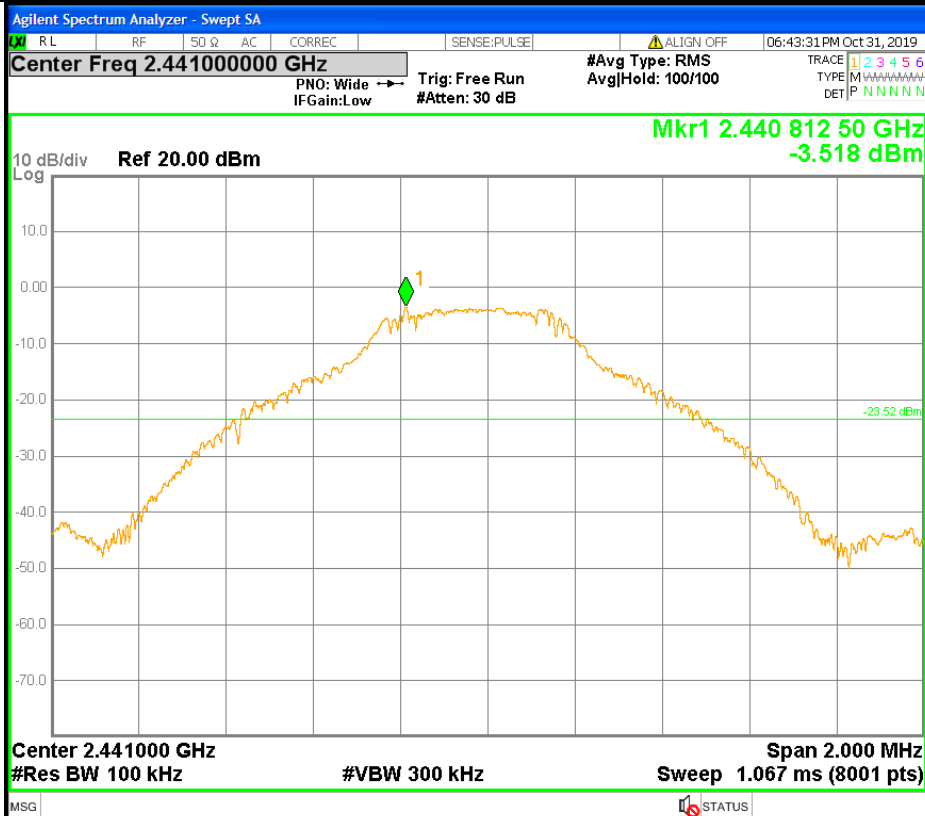
A.7 RF Conducted Spurious Emissions

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

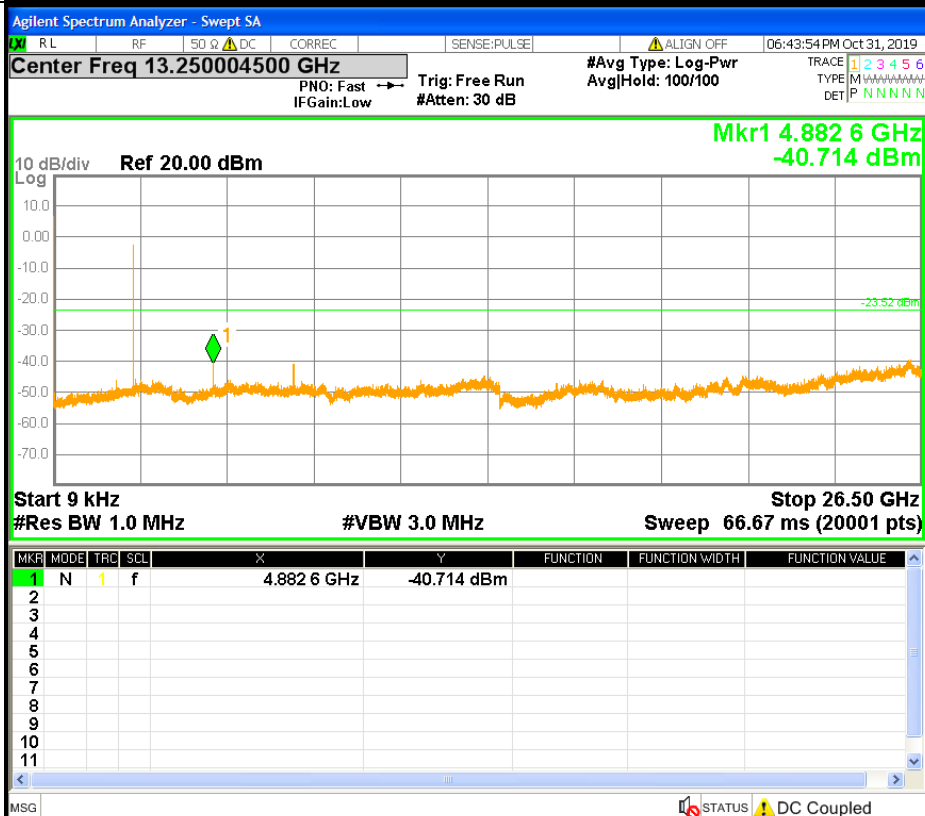
200.000 kHz

Auto

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

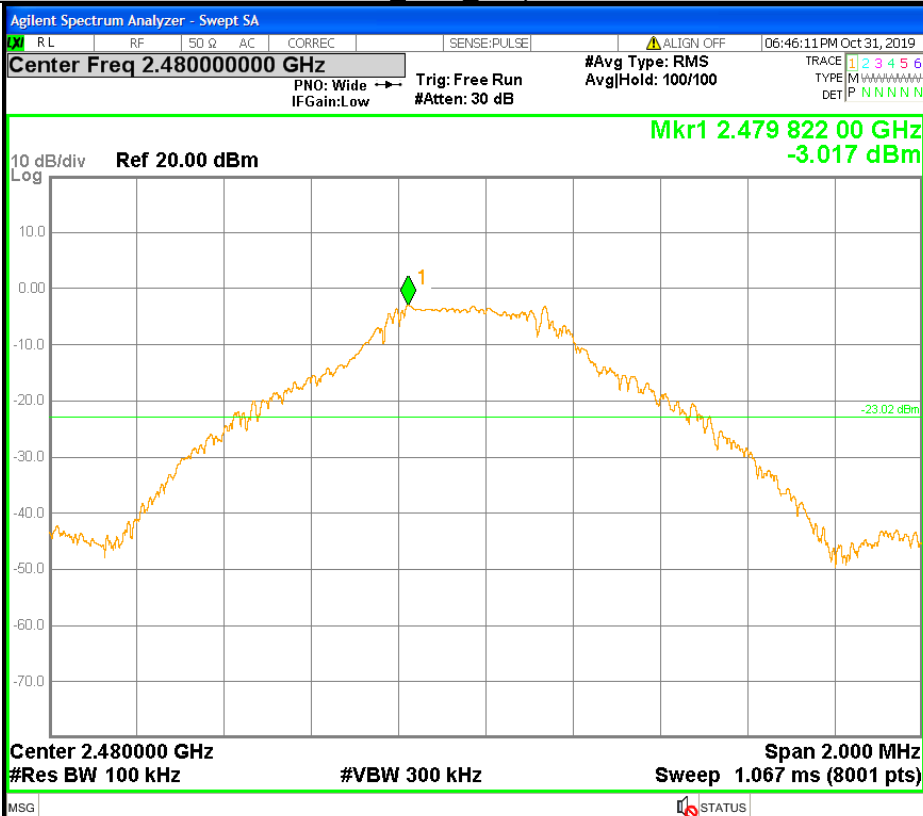
Auto

Freq Offset

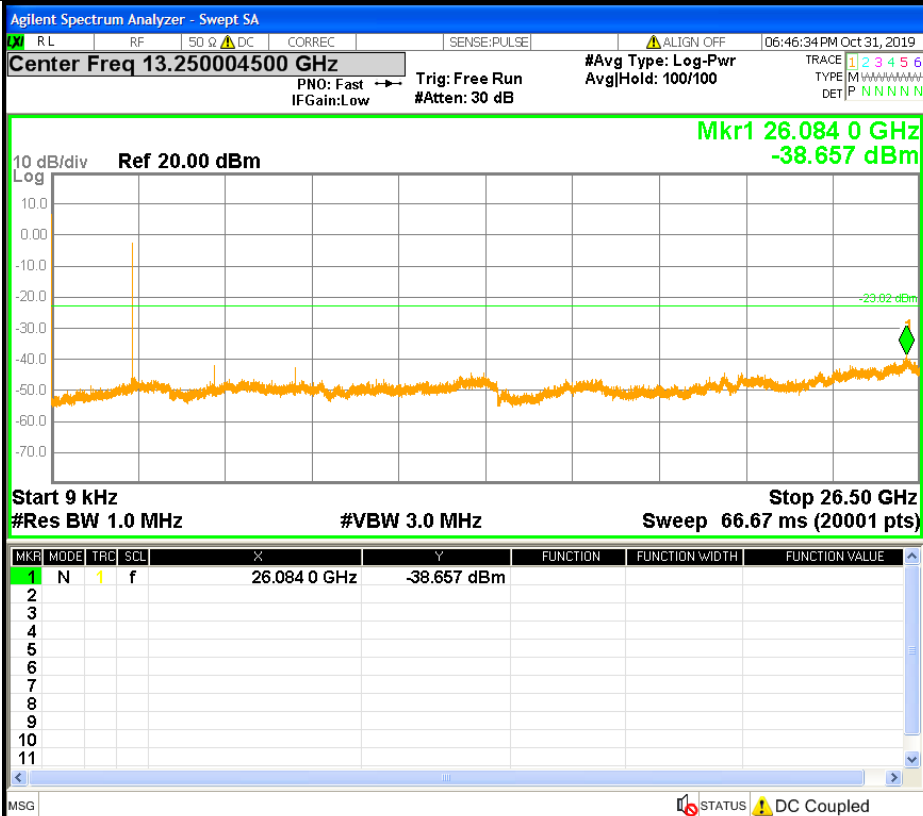
0 Hz

GFSK HCH Graphs

Pref

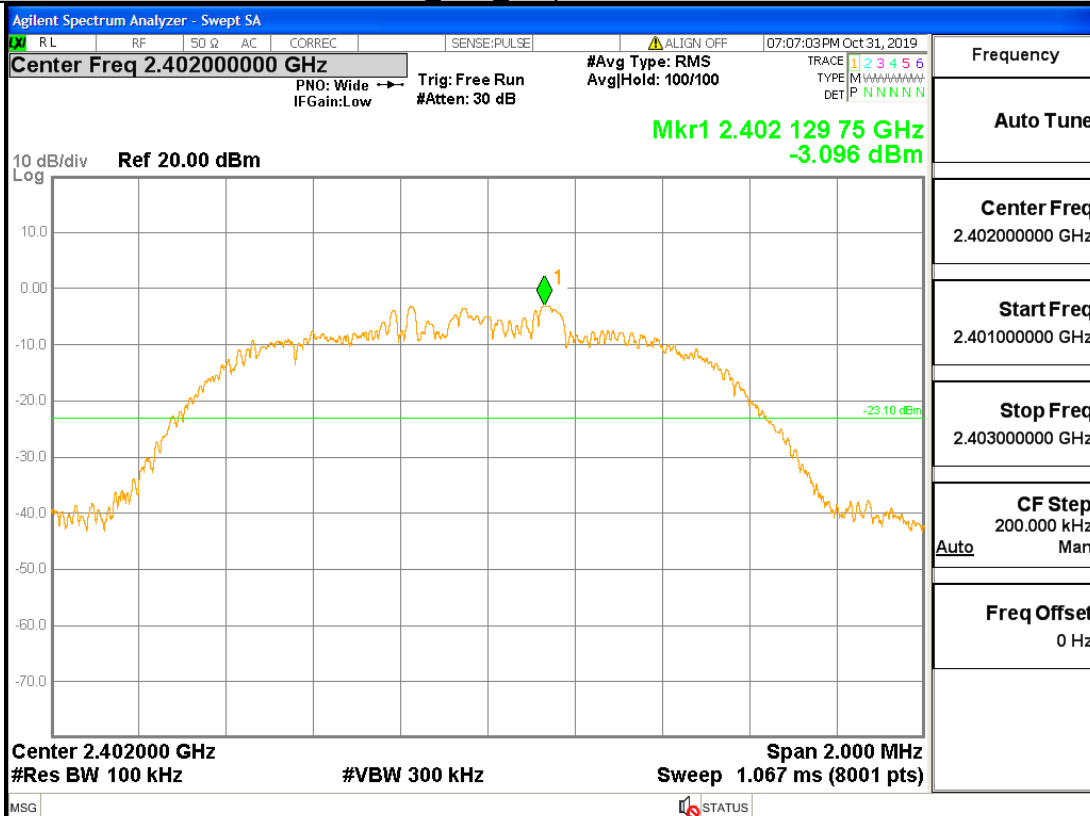


Puw

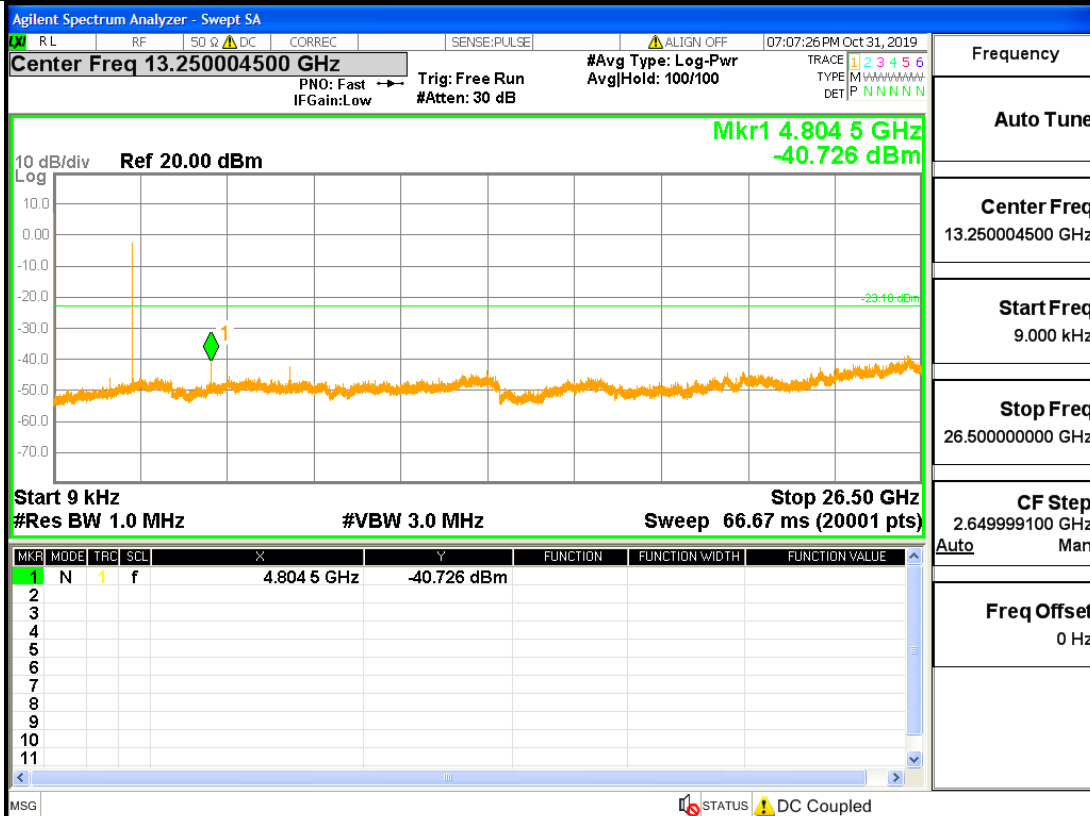


$\pi/4$ DQPSK LCH Graphs

Pref

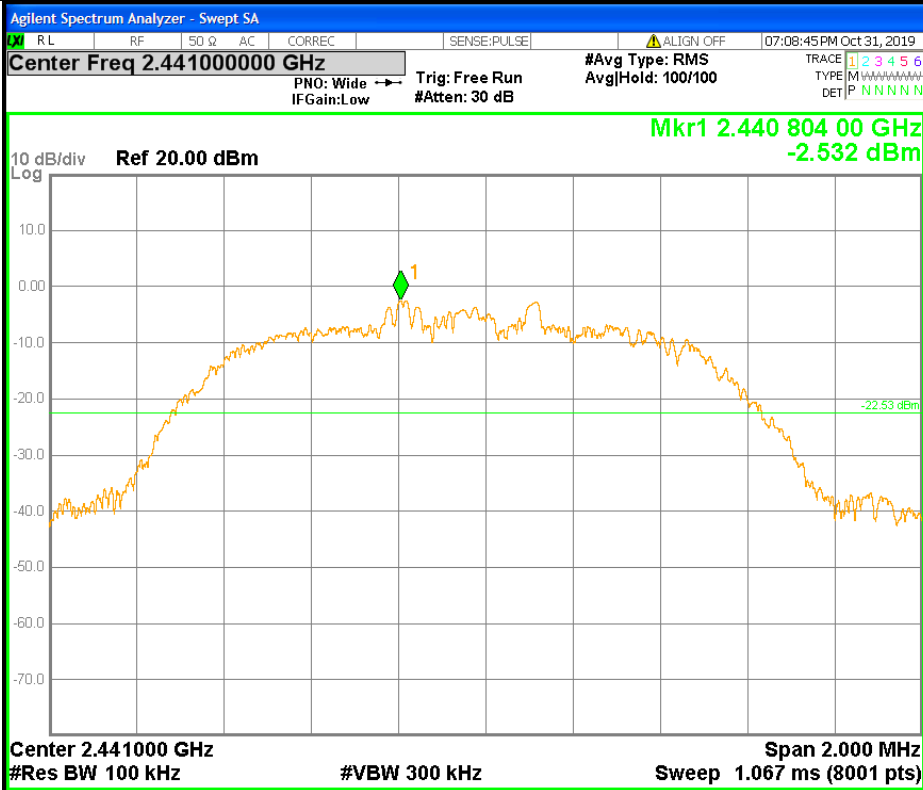


Puw

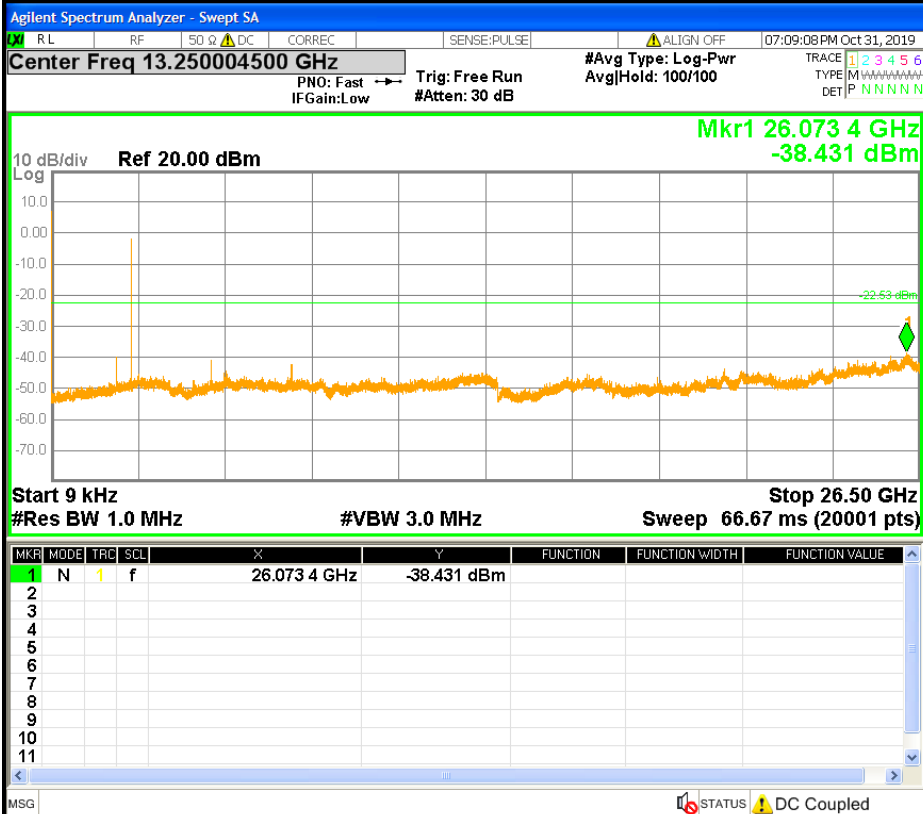


$\pi/4$ DQPSK MCH Graphs

Pref

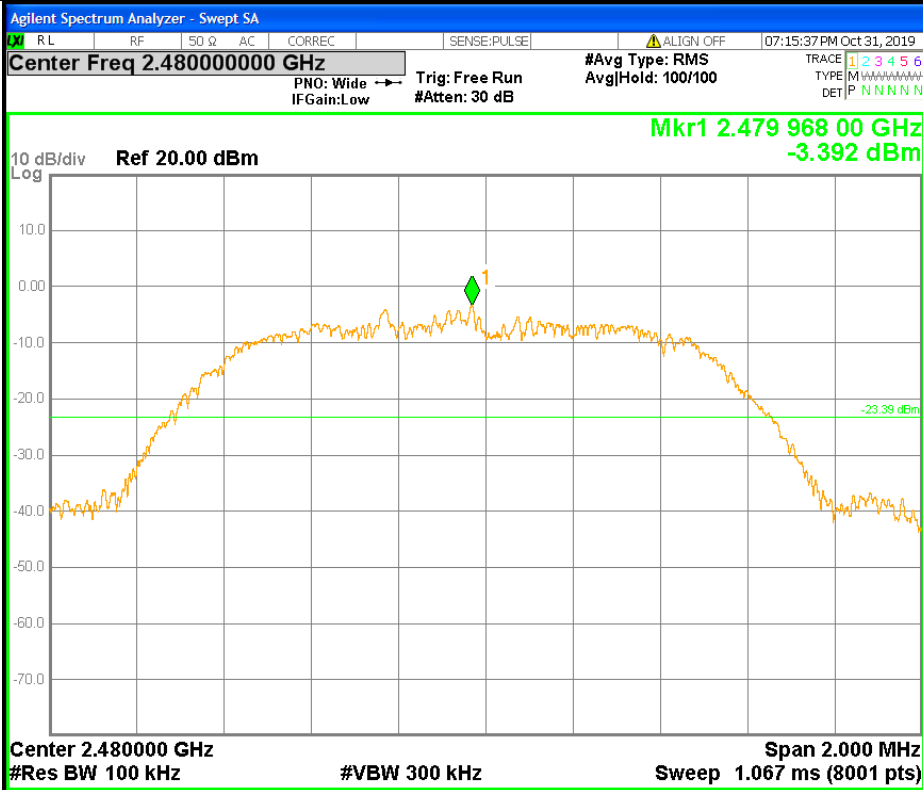


Puw

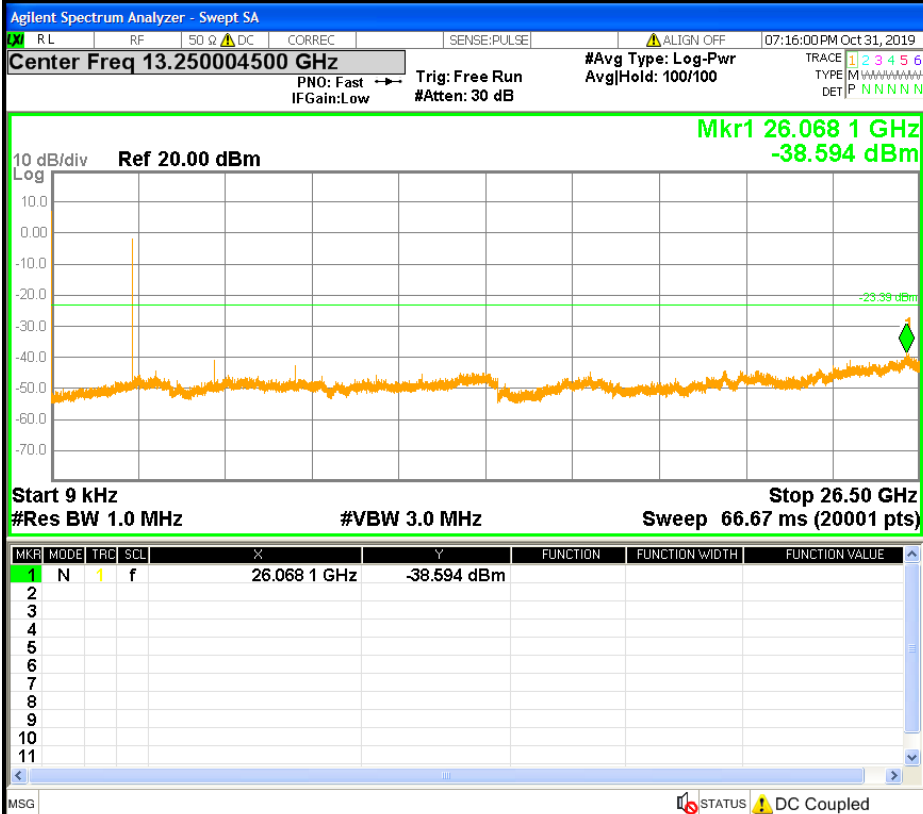


$\pi/4$ DQPSK HCH Graphs

Pref



Puw

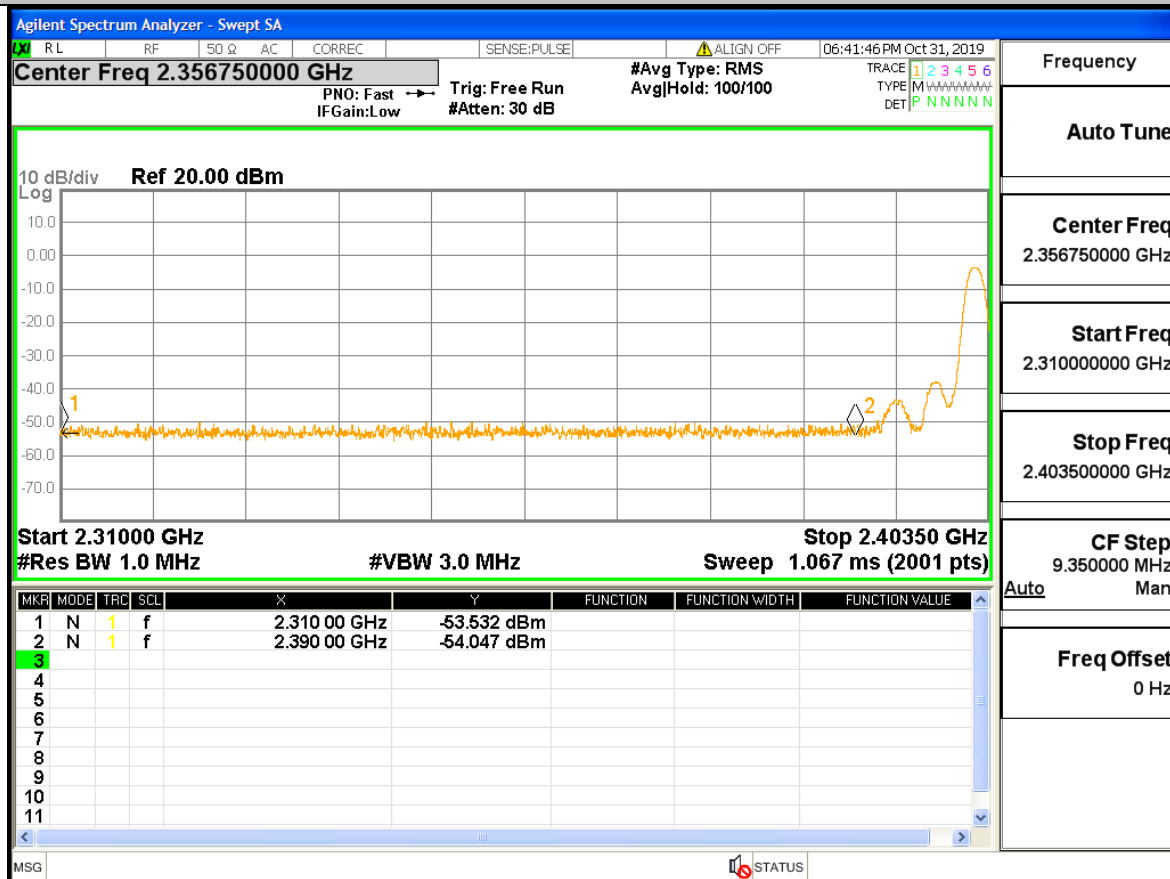


A.8 Restrict-band band-edge measurements

Type	Carrier Frequency (MHz)	Frequency(M Hz)	Gain (dBi)	Ground Factor(dB)	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2310	2.00	0.00	-53.53	43.67	74	Pass
1DH5	2480	2483.5	2.00	0.00	-46.00	51.20	74	Pass
2DH5	2402	2390	2.00	0.00	-51.83	45.37	74	Pass
2DH5	2480	2483.5	2.00	0.00	-46.01	51.19	74	Pass

Type	Carrier Frequency (MHz)	Frequency(M Hz)	Gain (dBi)	Ground Factor(dB)	Average Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2310	2.00	0.00	-59.63	37.57	54	Pass
1DH5	2480	2483.5	2.00	0.00	-51.86	45.34	54	Pass
2DH5	2402	2390	2.00	0.00	-59.08	38.12	54	Pass
2DH5	2480	2483.5	2.00	0.00	-52.74	44.46	54	Pass

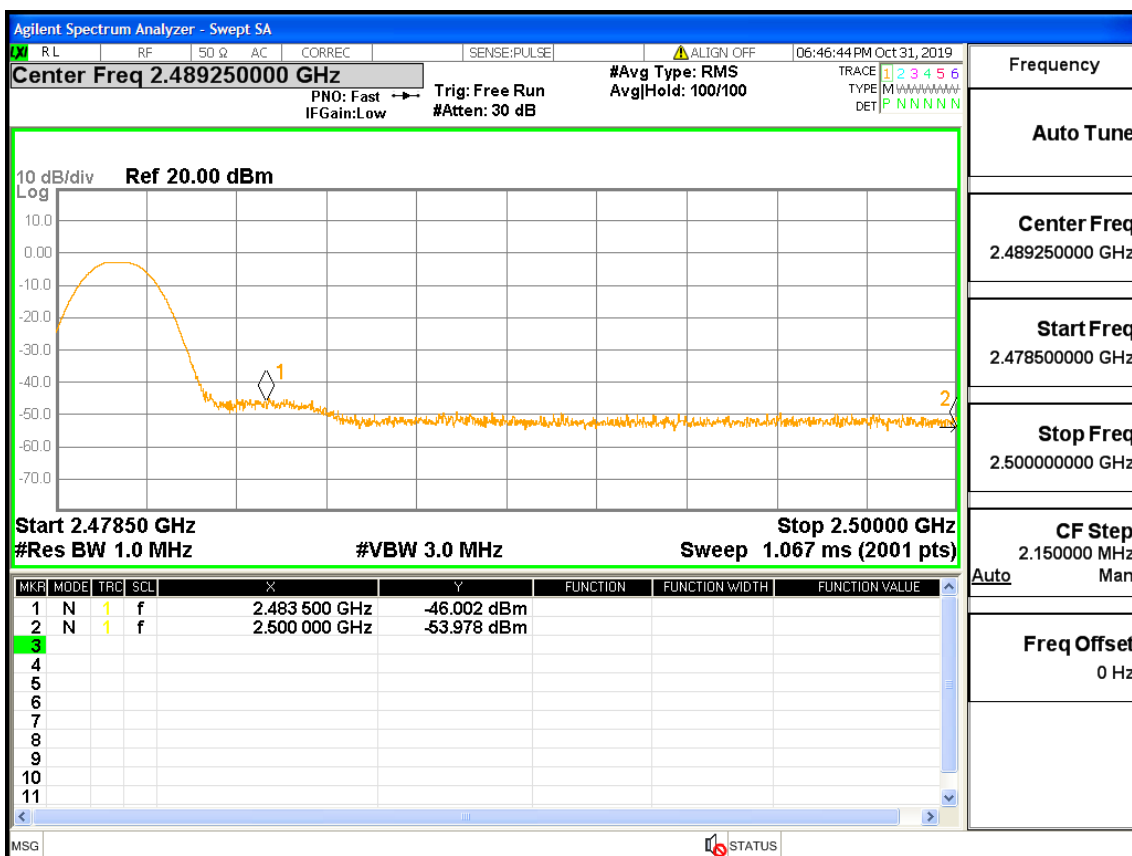
Restrict-band band-edge measurements_2402_PEAK_DH5



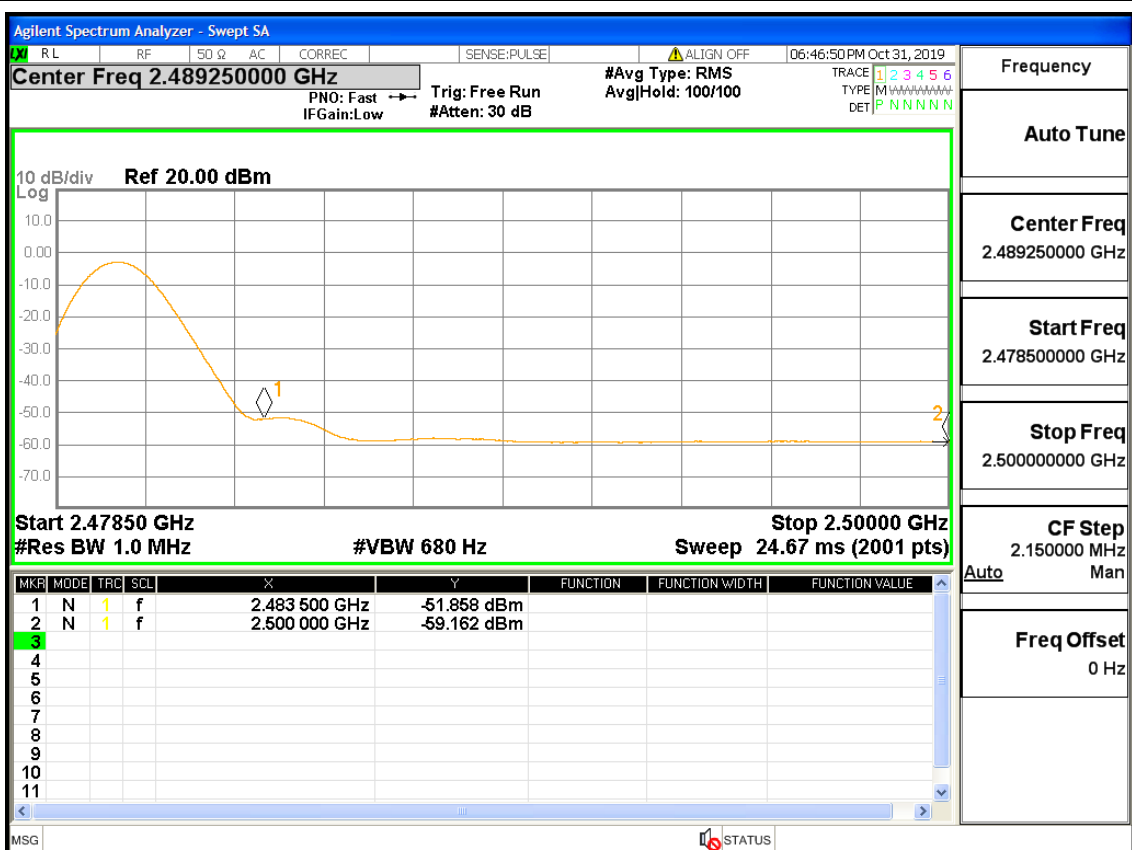
Restrict-band band-edge measurements_2402_AV_DH5



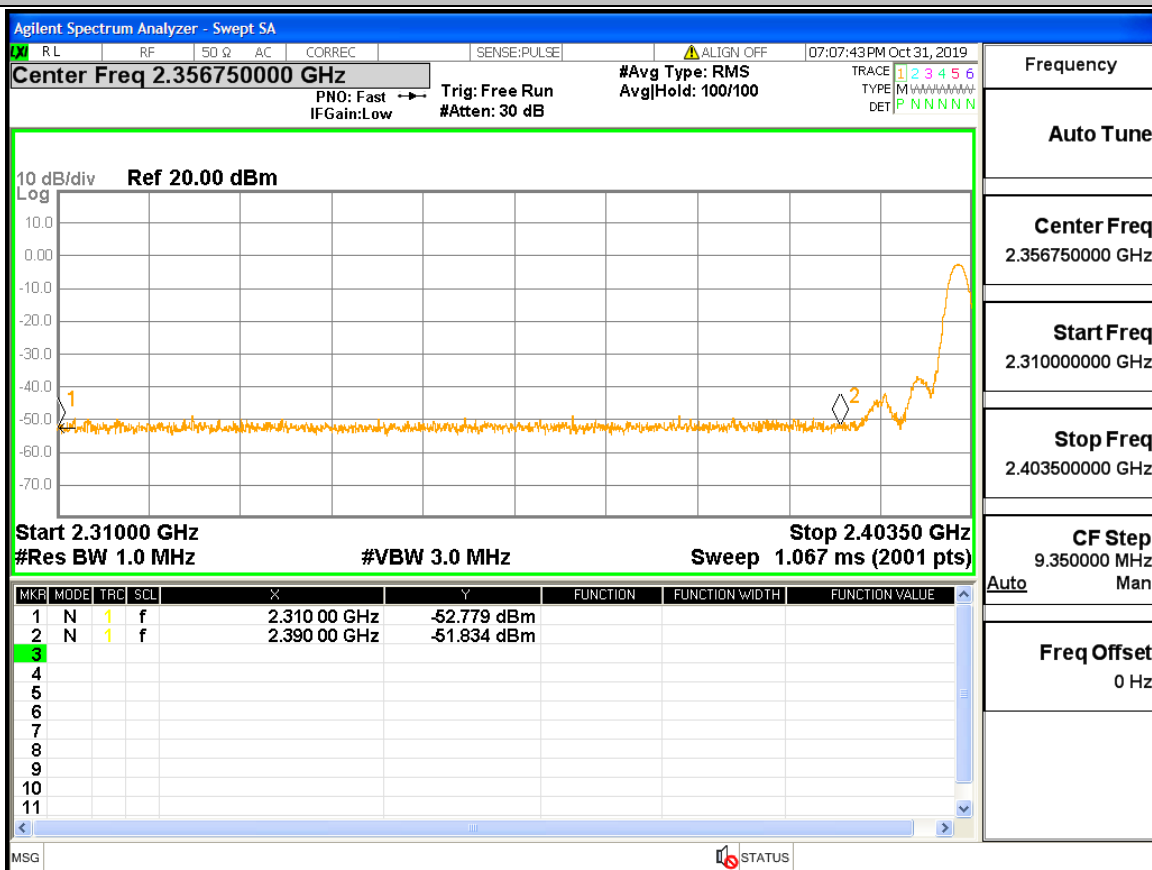
Restrict-band band-edge measurements_2480_PEAK_DH5



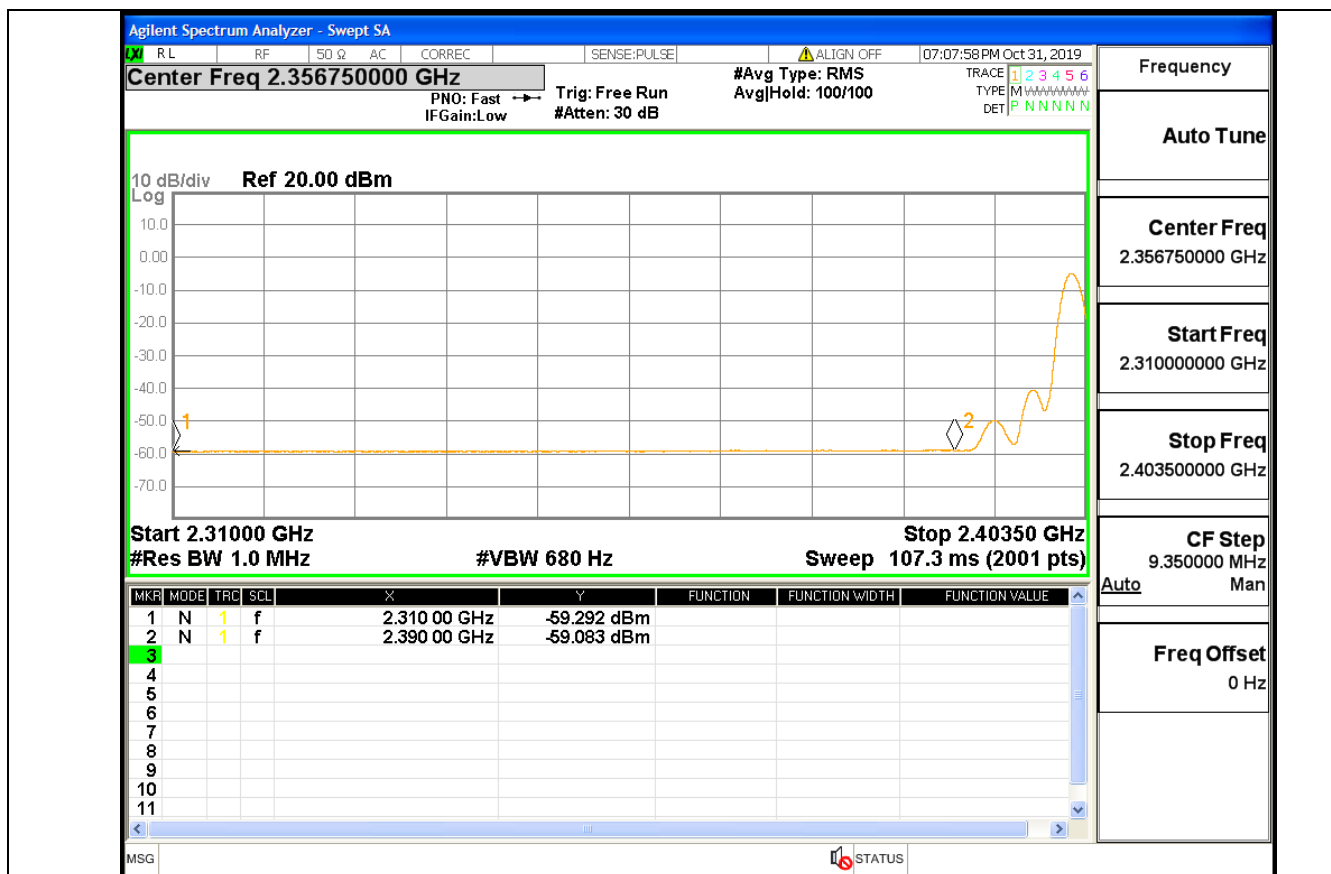
Restrict-band band-edge measurements_2480_AV_DH5



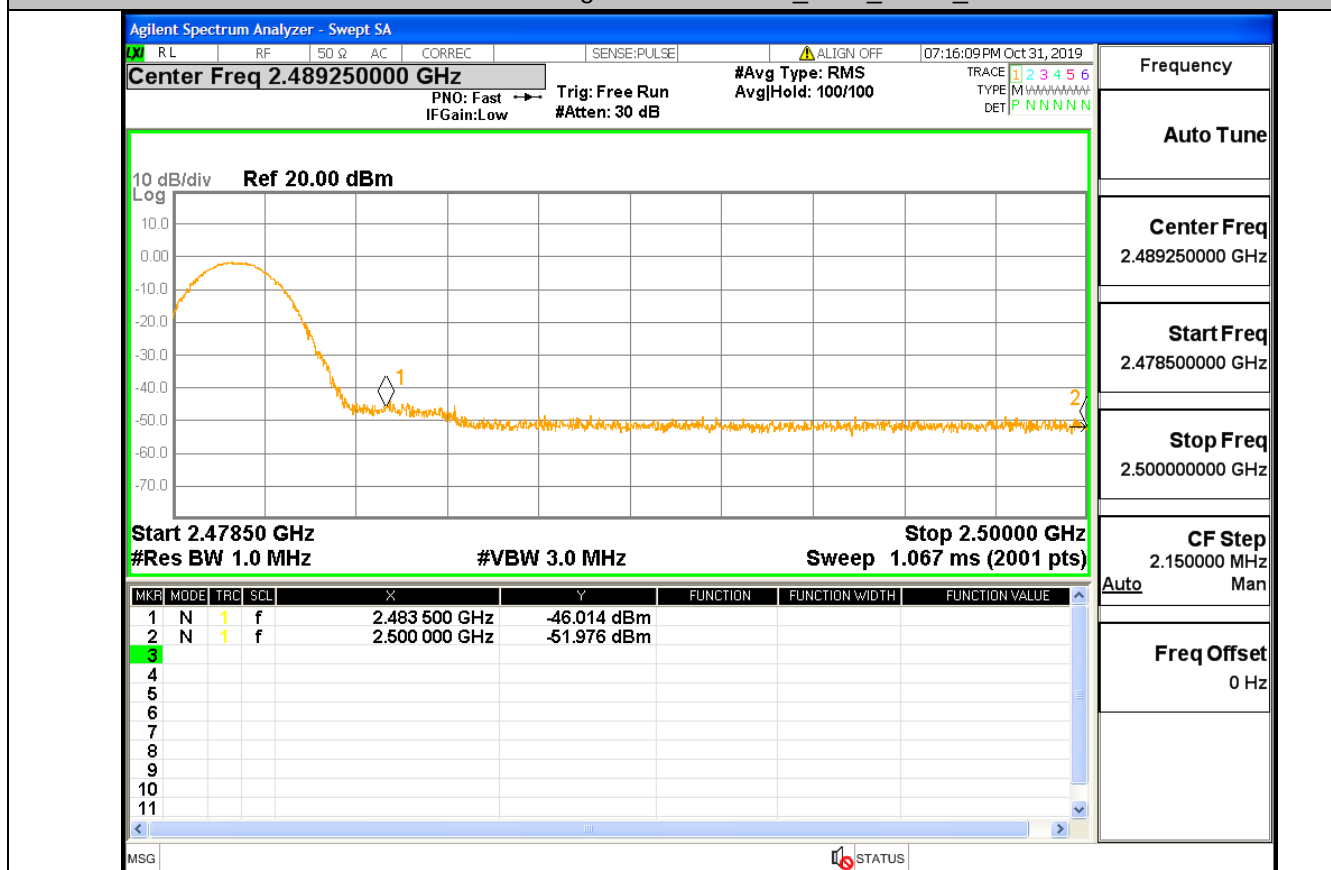
Restrict-band band-edge measurements_2402_PEAK_2DH5



Restrict-band band-edge measurements_2402_AV_2DH5



Restrict-band band-edge measurements_2480_PEAK_2DH5



Restrict-band band-edge measurements_2480_AV_2DH5

