

Appendix A

RF Test Data for BT V4.2(BDR/EDR) (Conducted Measurement)

Product Name: Bluetooth Speaker

Trade Mark: N/A

Test Model: S20

Environmental Conditions

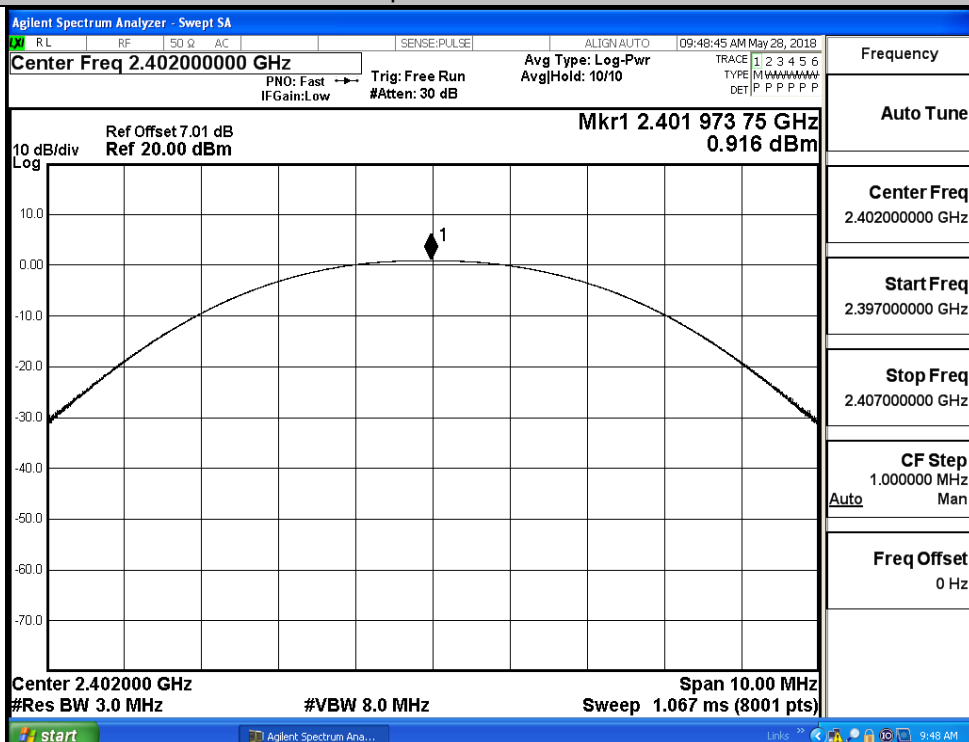
Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond Lu
Supervised by:	Jayden.Zhuo

A.1 Maximum Conducted Peak Output Power

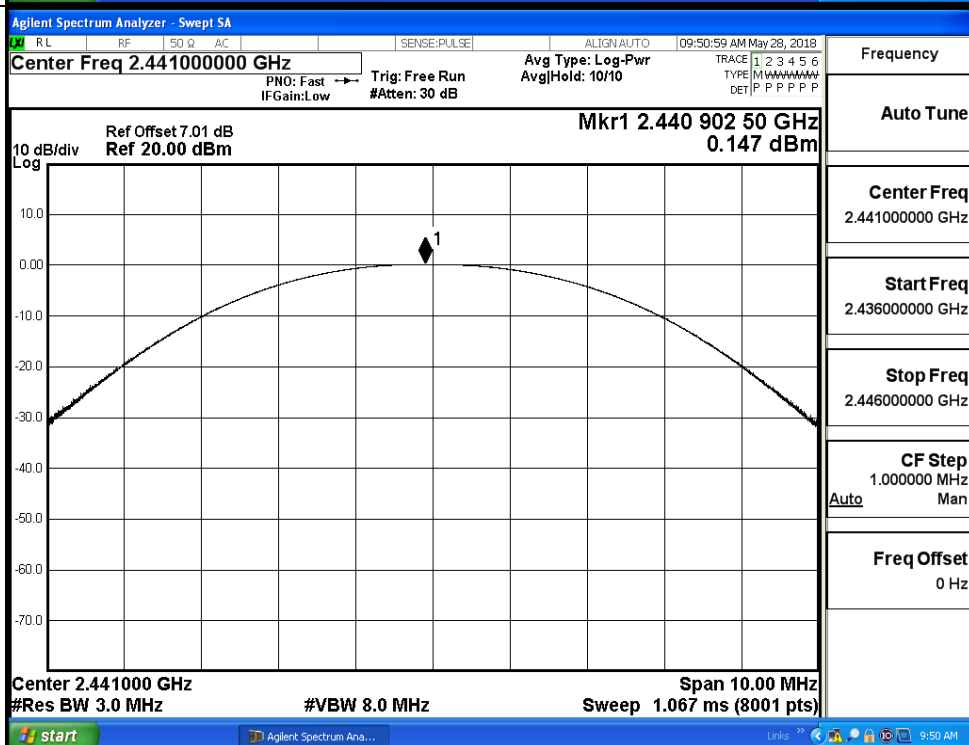
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.916	21	PASS
	MCH	0.147	21	PASS
	HCH	-0.171	21	PASS
$\pi/4$ DQPSK	LCH	0.429	21	PASS
	MCH	-0.441	21	PASS
	HCH	-0.748	21	PASS
8DPSK	LCH	0.657	21	PASS
	MCH	-0.217	21	PASS
	HCH	-0.581	21	PASS

Test Graphs

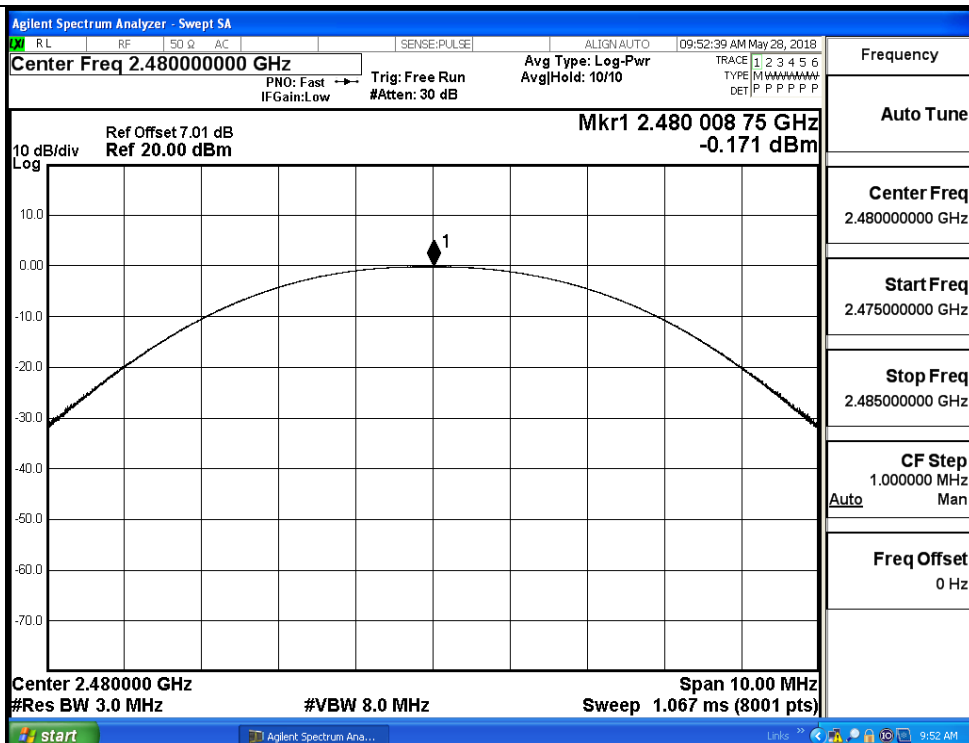
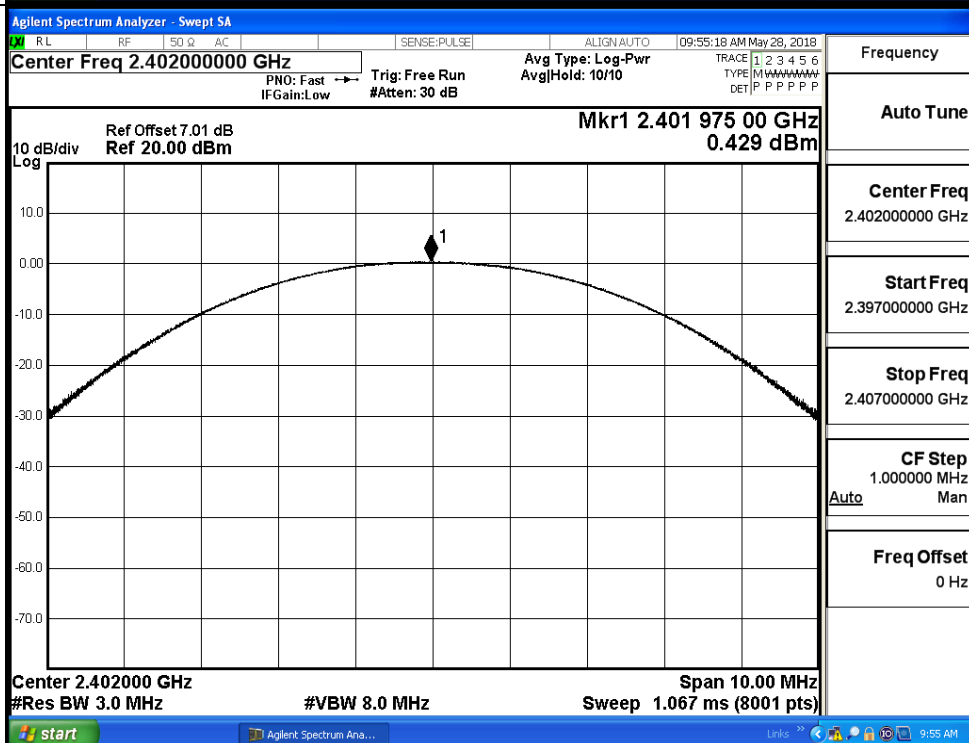
GFSK/LCH

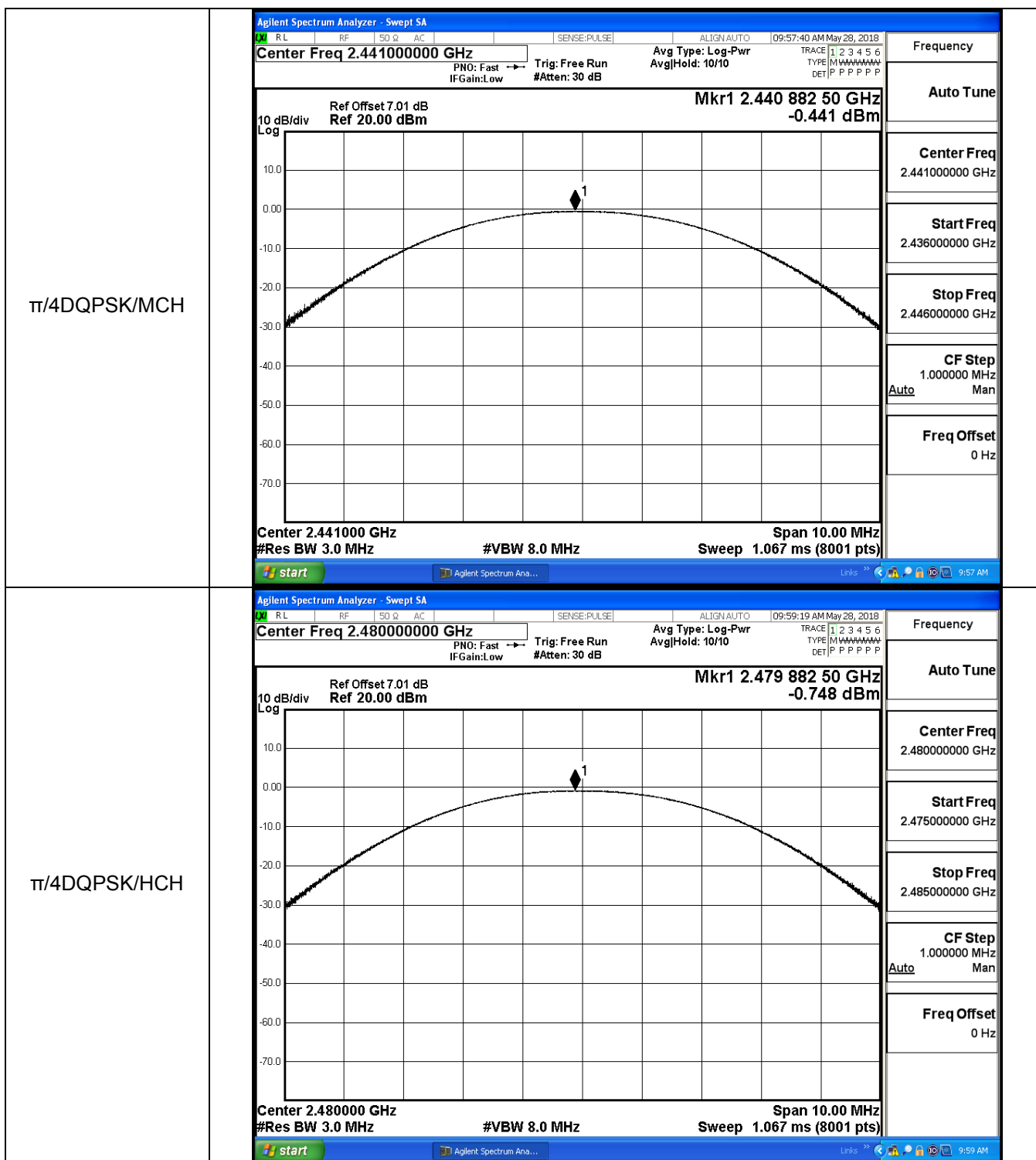


GFSK/MCH

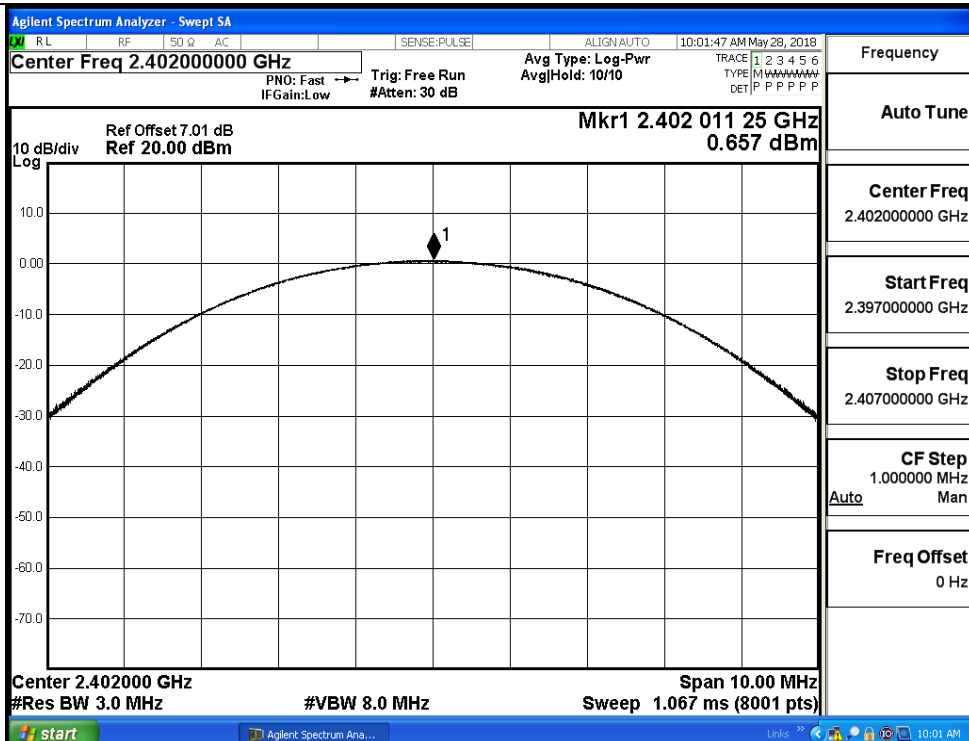


GFSK/HCH

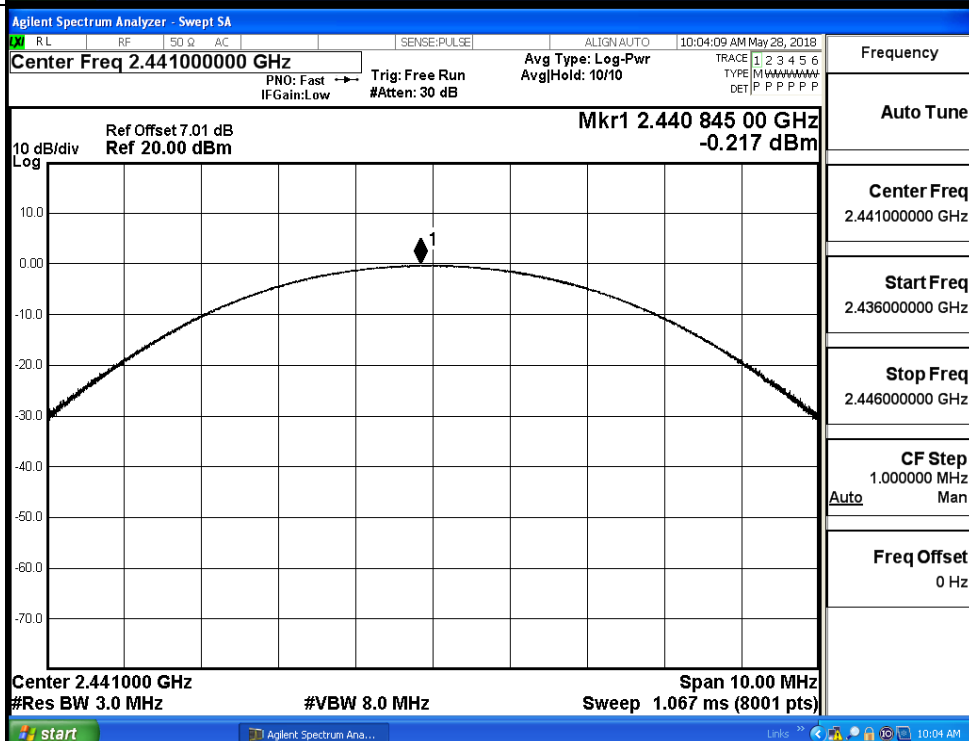
 π /4DQPSK/LCH



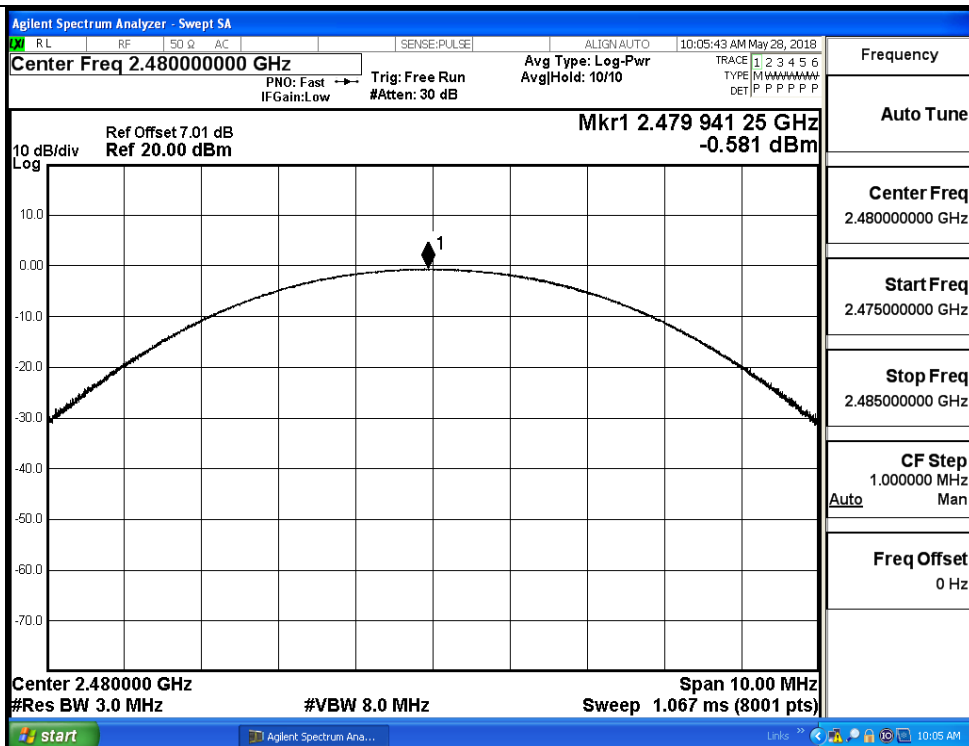
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

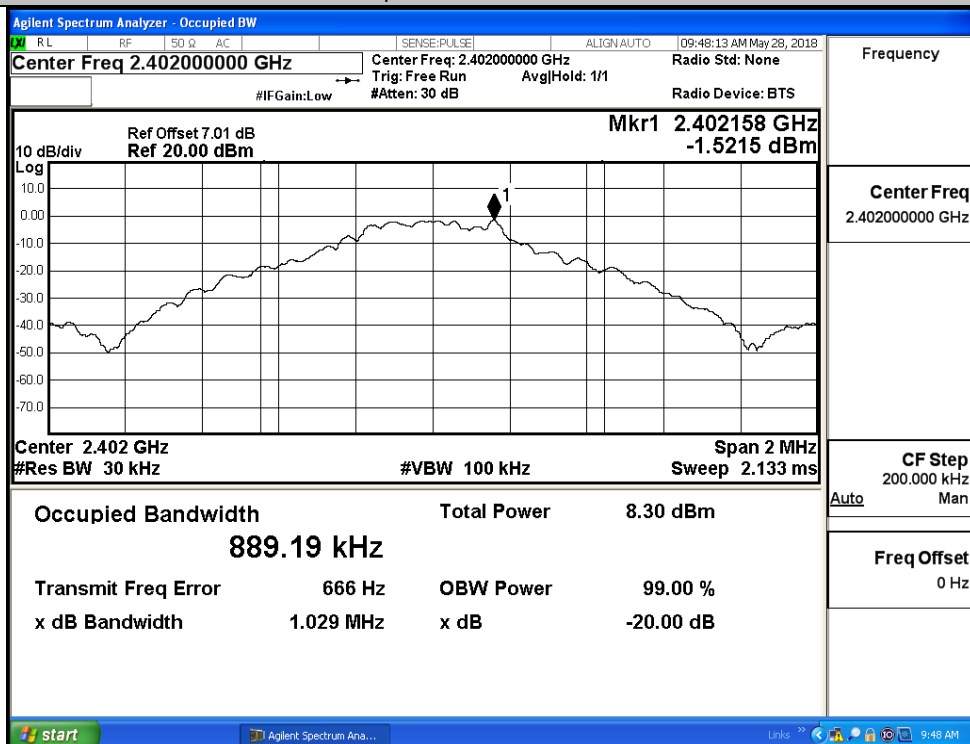


A.2 20dB Bandwidth

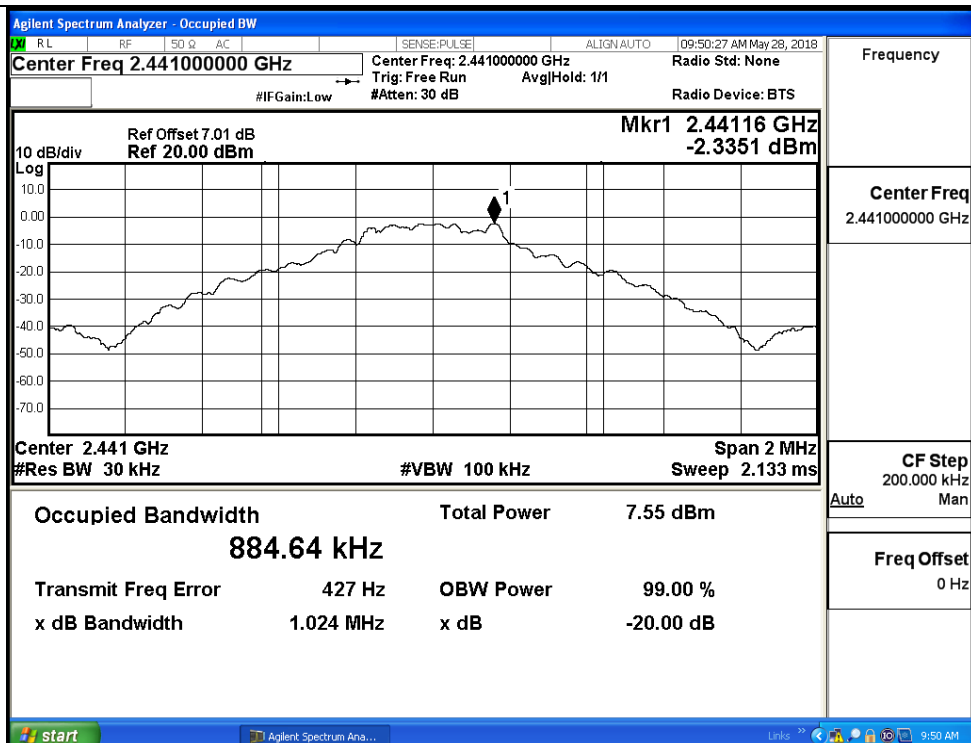
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.029	Not Specified	PASS
	MCH	1.024	Not Specified	PASS
	HCH	0.9753	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.290	Not Specified	PASS
	MCH	1.296	Not Specified	PASS
	HCH	1.294	Not Specified	PASS
8DPSK	LCH	1.300	Not Specified	PASS
	MCH	1.299	Not Specified	PASS
	HCH	1.300	Not Specified	PASS

Test Graphs

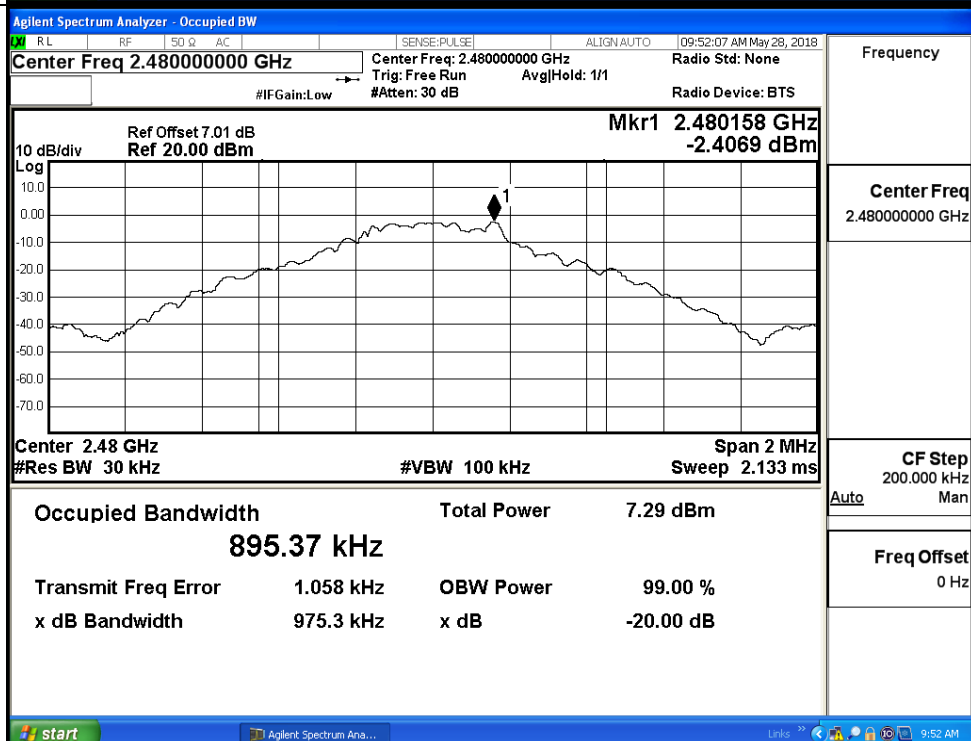
GFSK/LCH

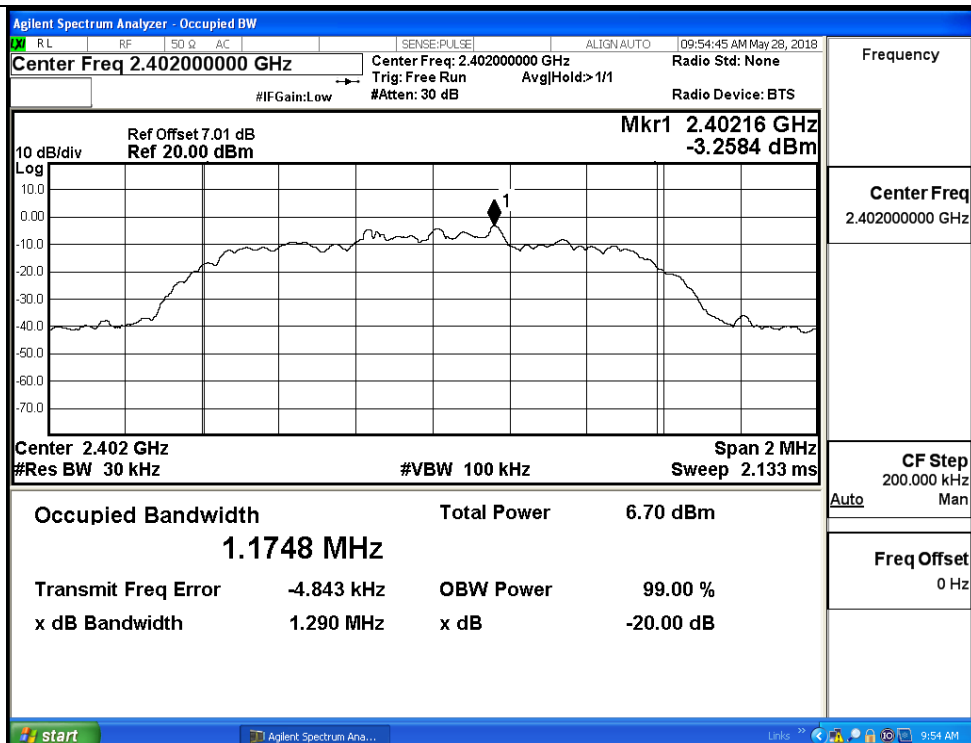


GFSK/MCH



GFSK/HCH

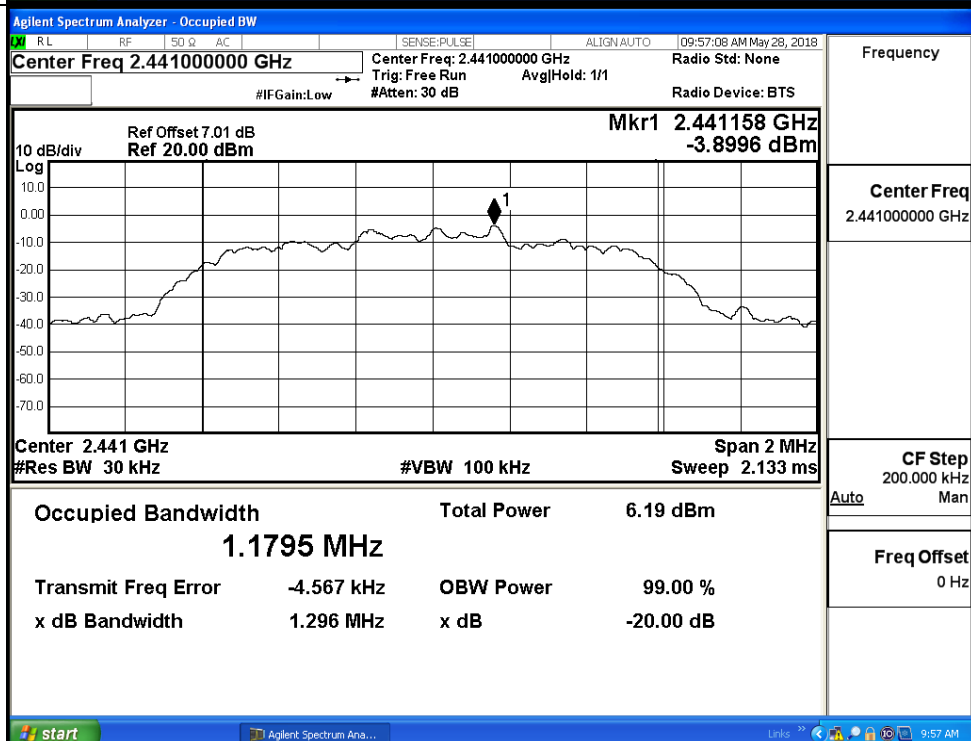


$\pi/4$ DQPSK/LCH

Frequency

Center Freq
2.402000000 GHzCF Step
200.000 kHz
Man

Auto

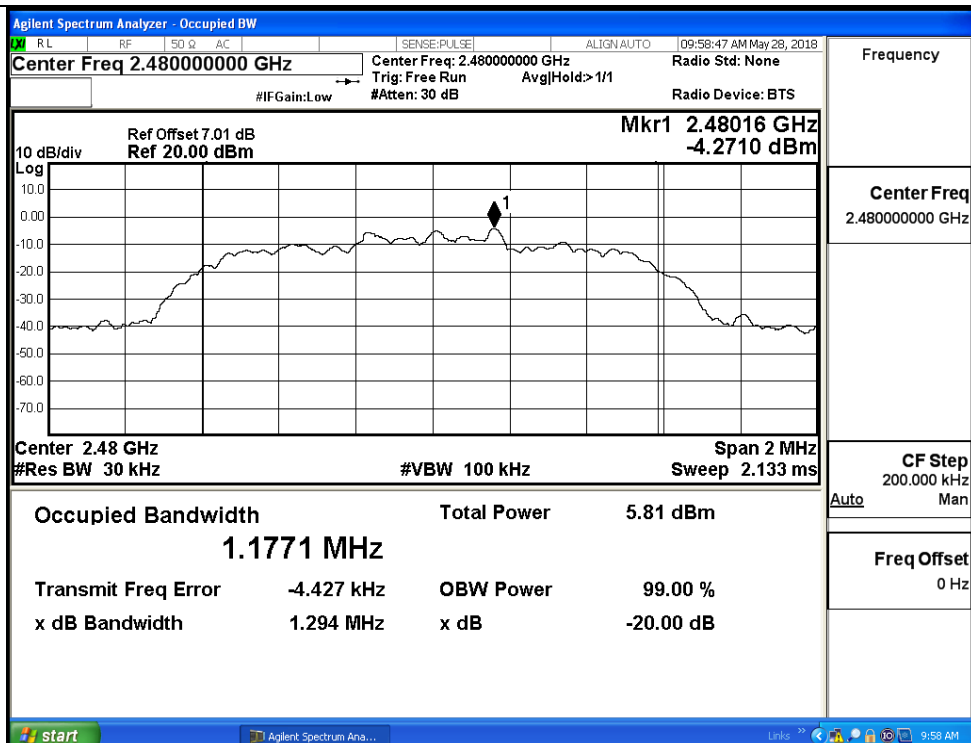
Freq Offset
0 Hz $\pi/4$ DQPSK/MCH

Frequency

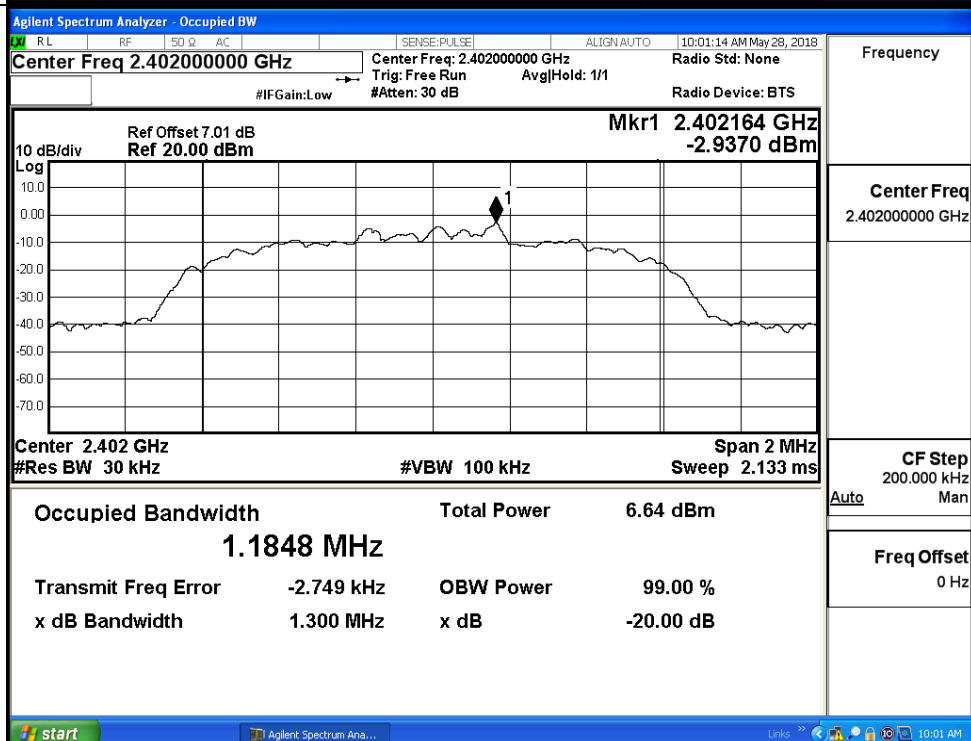
Center Freq
2.441000000 GHzCF Step
200.000 kHz
Man

Auto

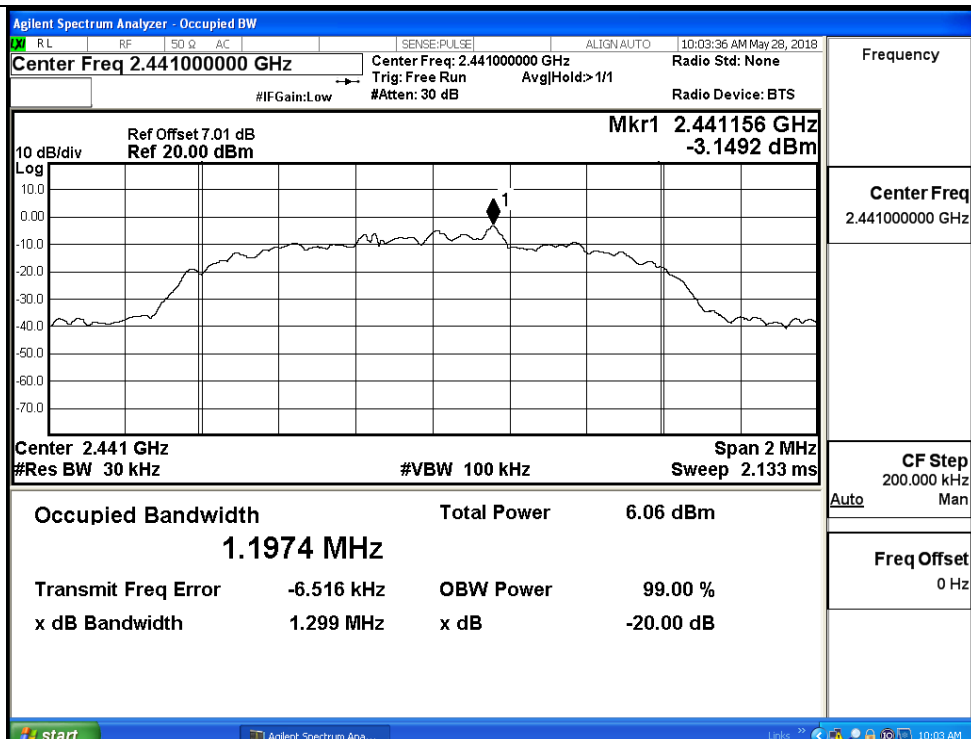
Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH

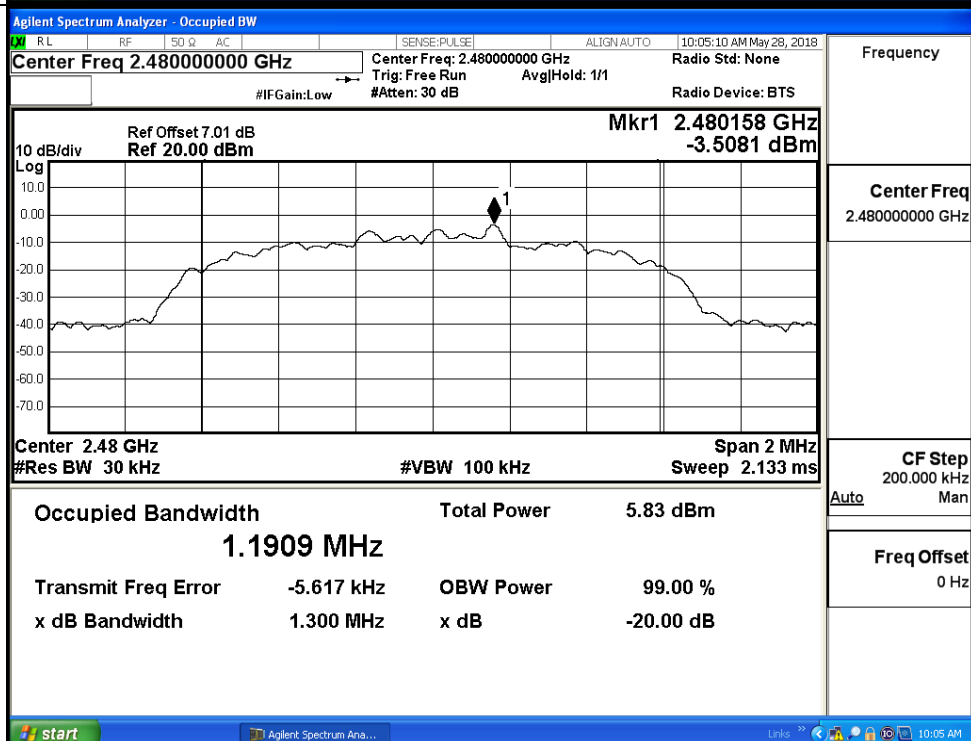
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

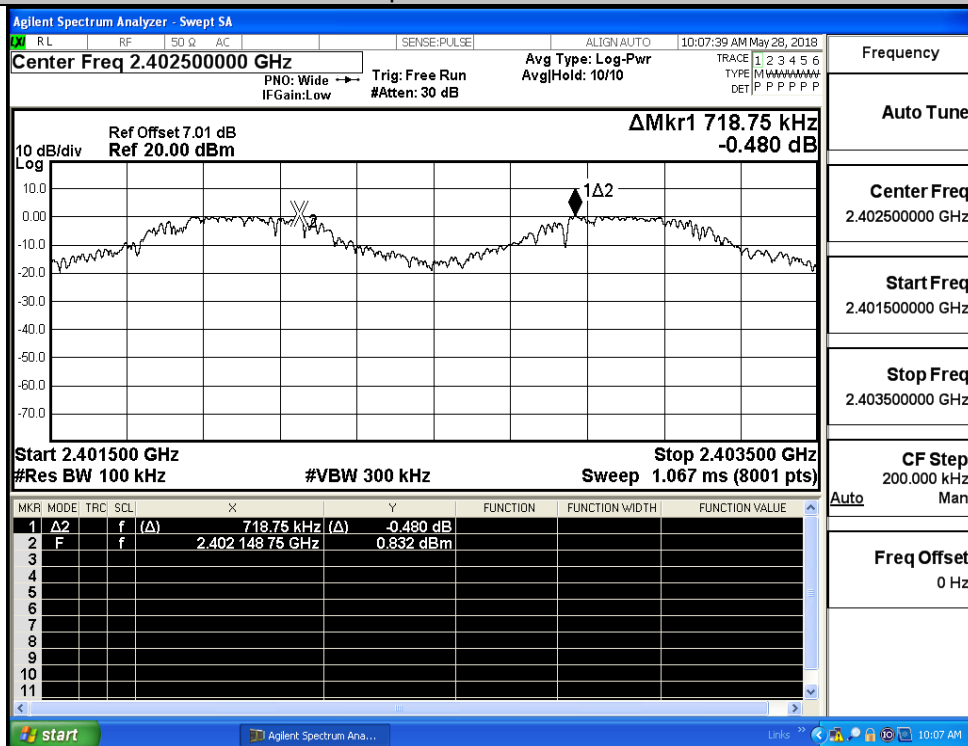


A.3 Carrier Frequency Separation

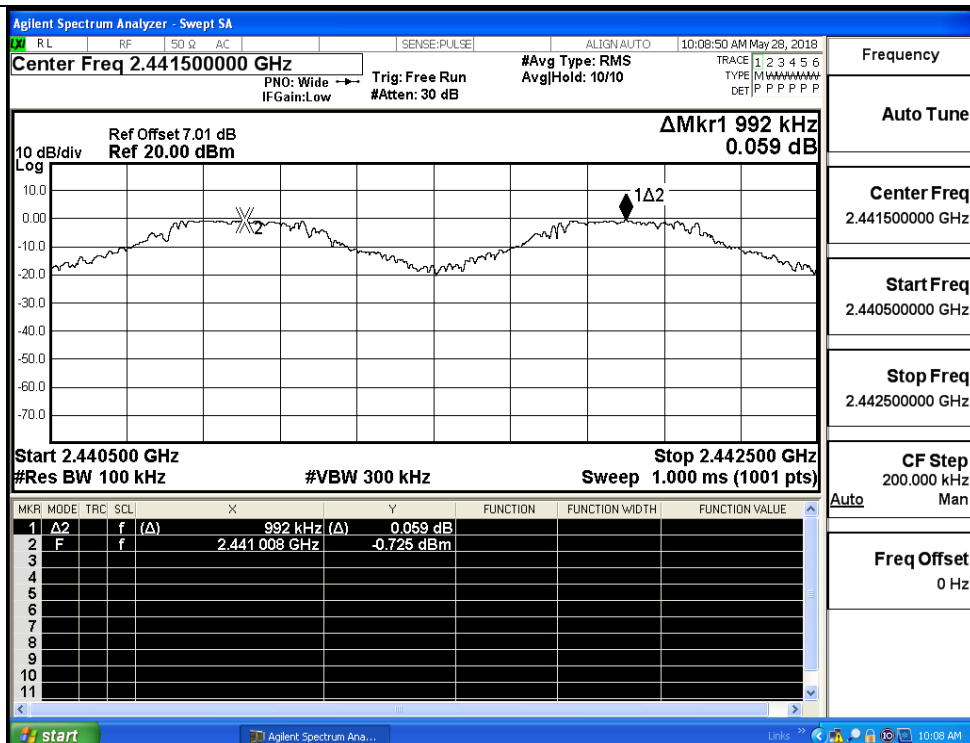
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.719	0.686	PASS
	MCH	0.992	0.686	PASS
	HCH	1.182	0.686	PASS
$\pi/4$ DQPSK	LCH	1.032	0.864	PASS
	MCH	0.990	0.864	PASS
	HCH	0.870	0.864	PASS
8DPSK	LCH	1.200	0.867	PASS
	MCH	1.274	0.867	PASS
	HCH	0.986	0.867	PASS

Test Graphs

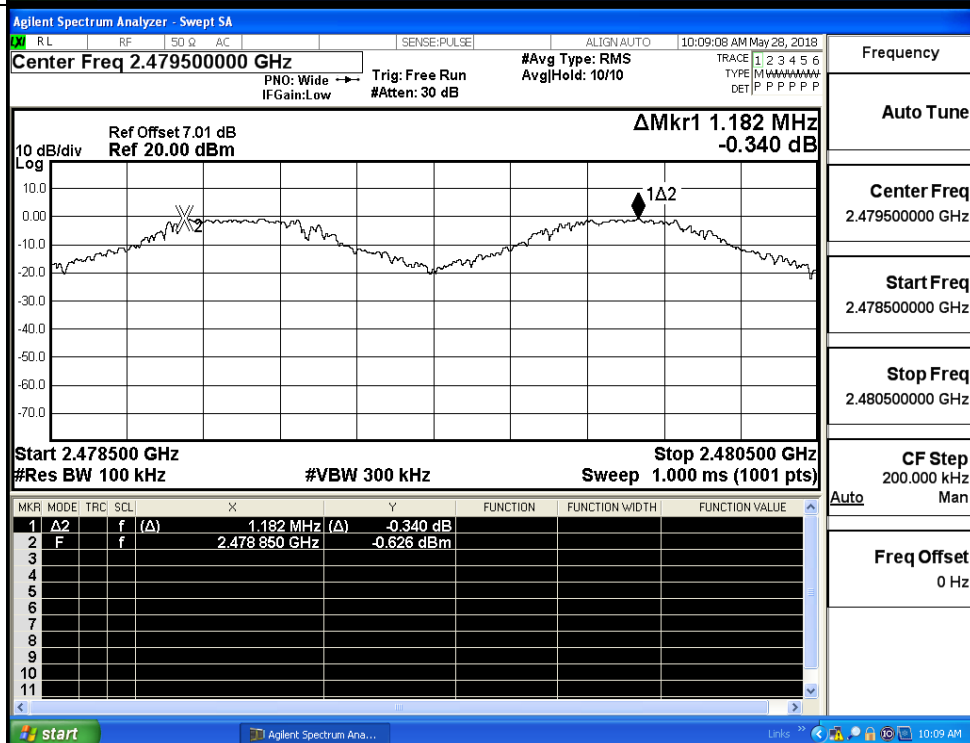
GFSK/LCH

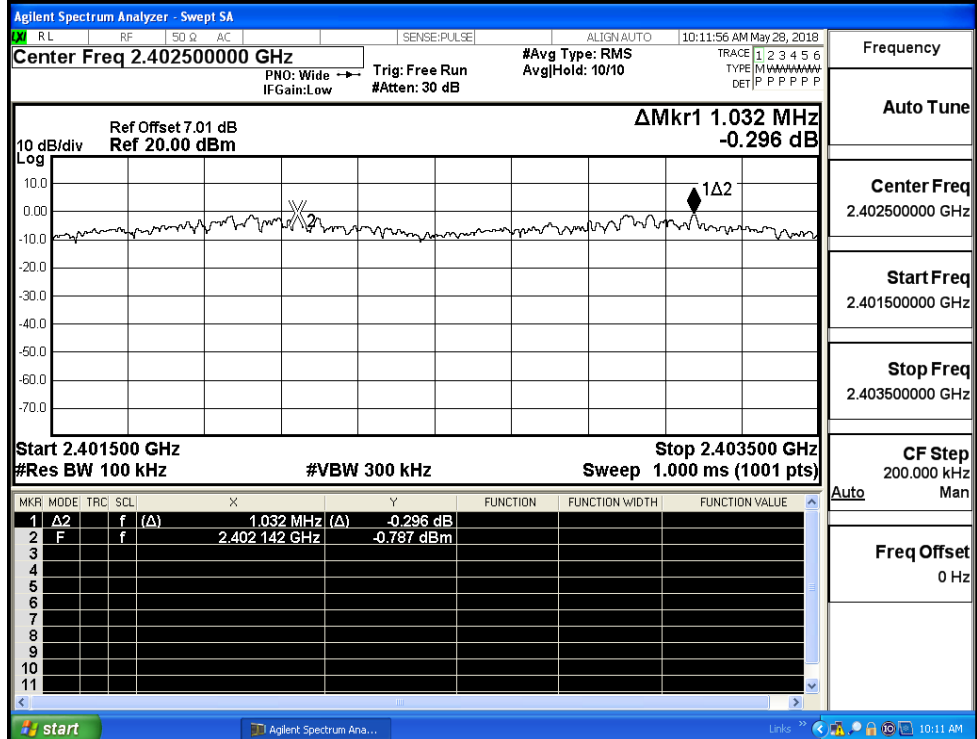
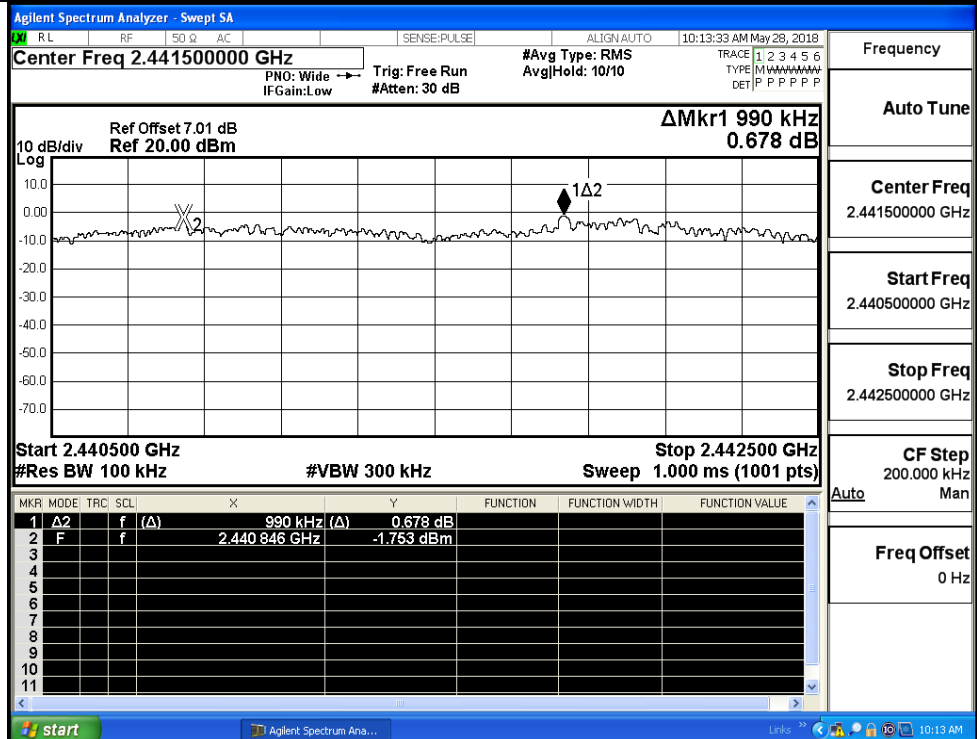


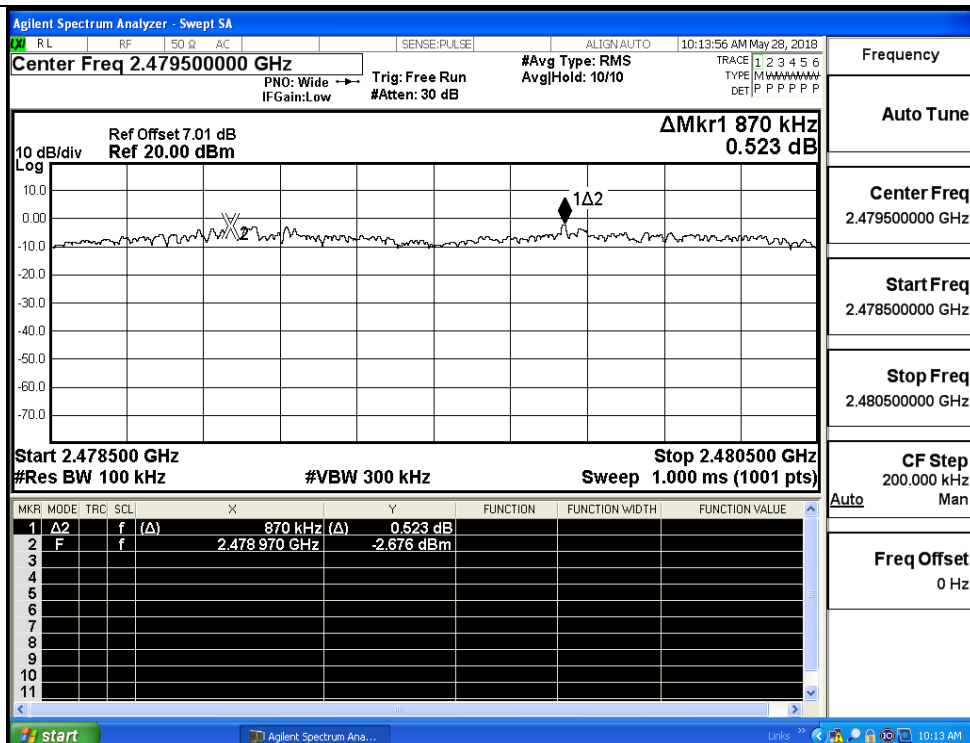
GFSK/MCH



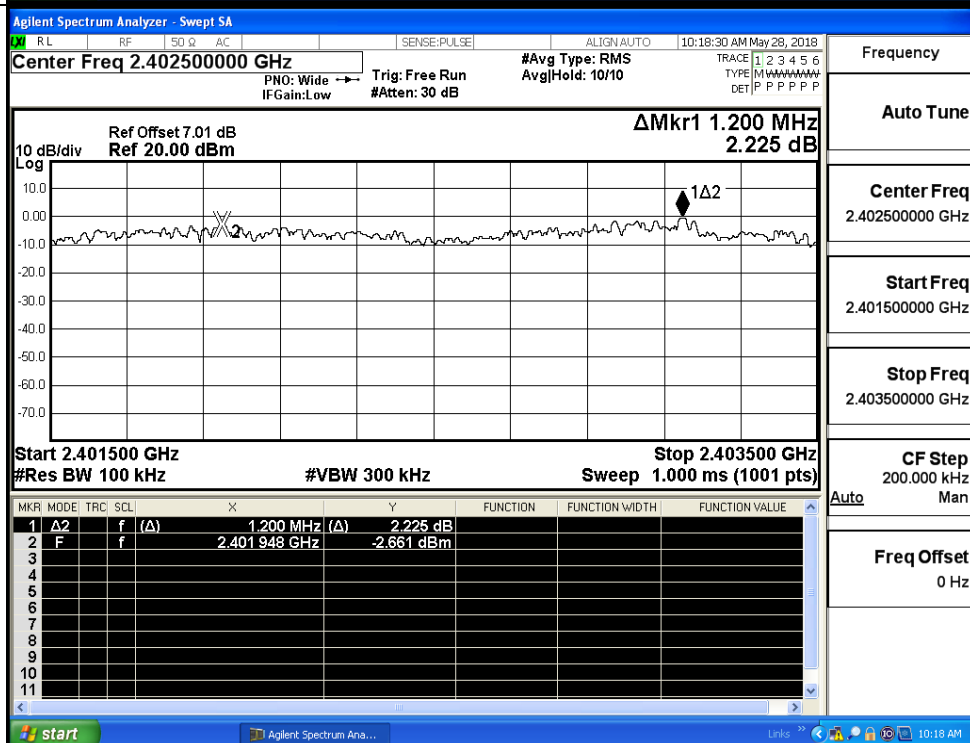
GFSK/HCH

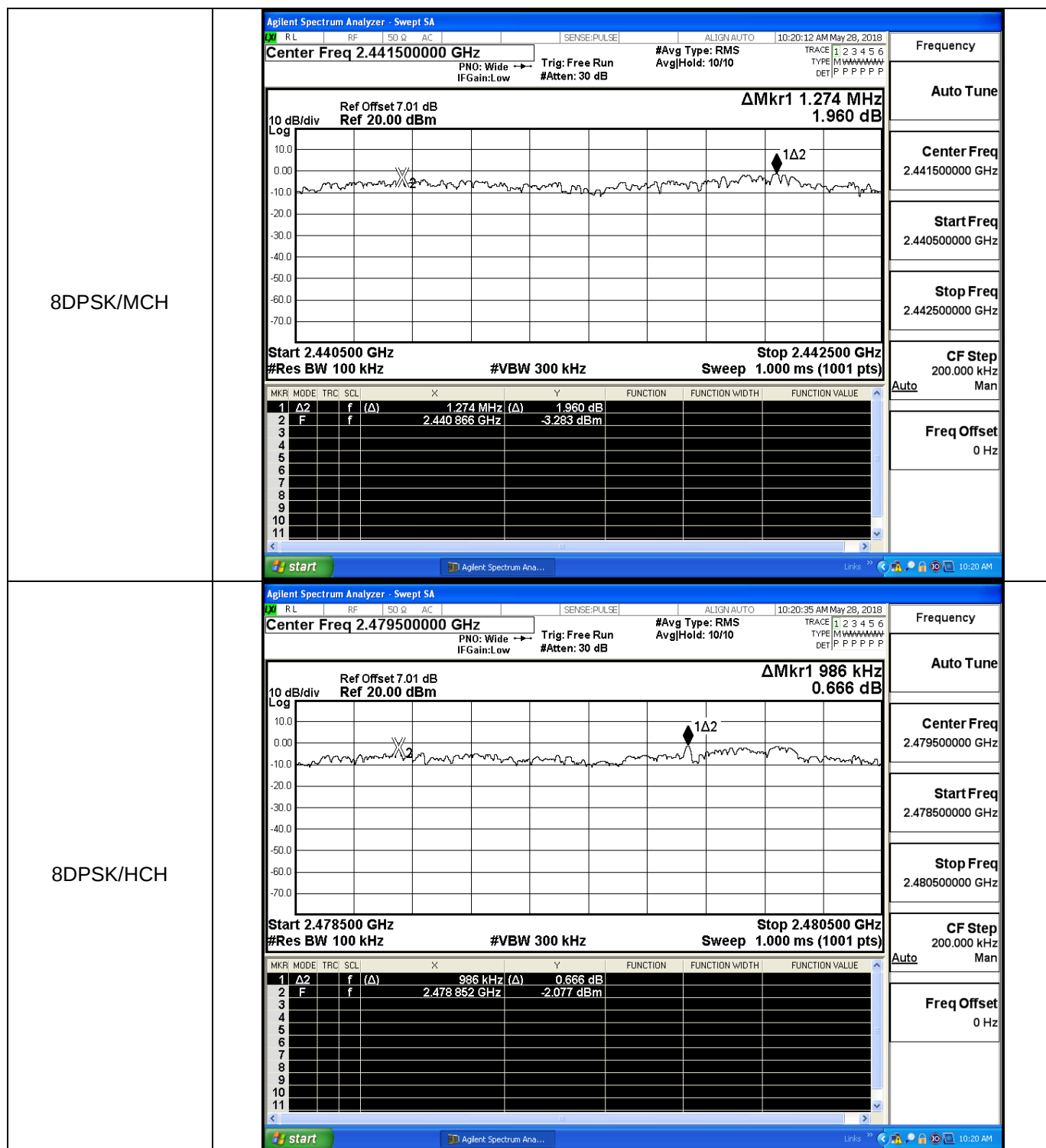


$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

8DPSK/LCH



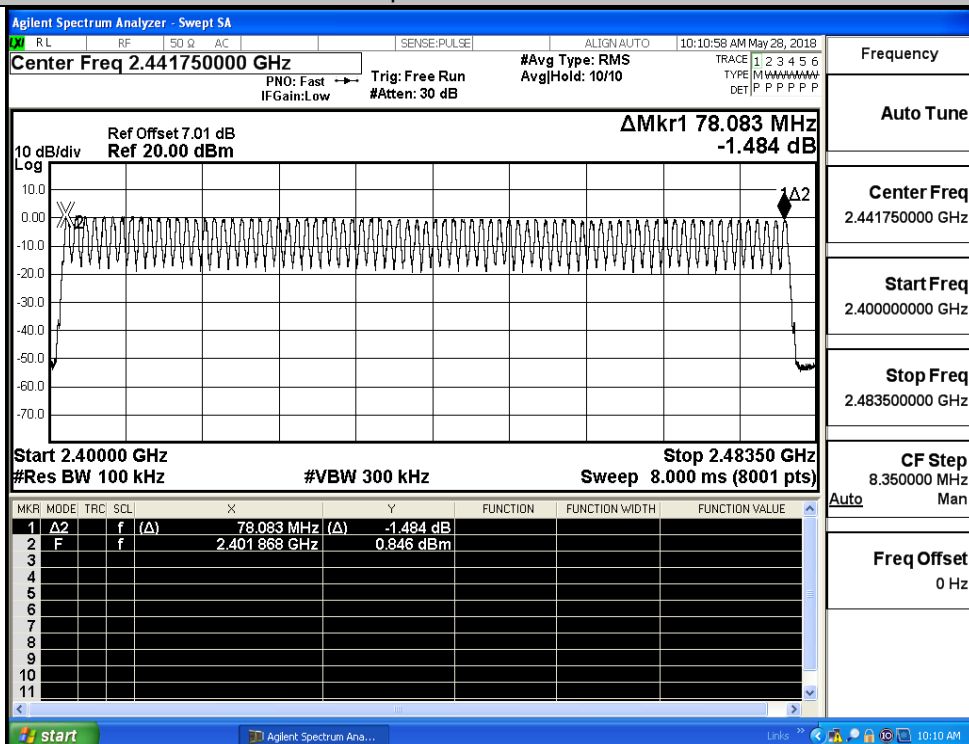


A.4 Hopping Channel Number

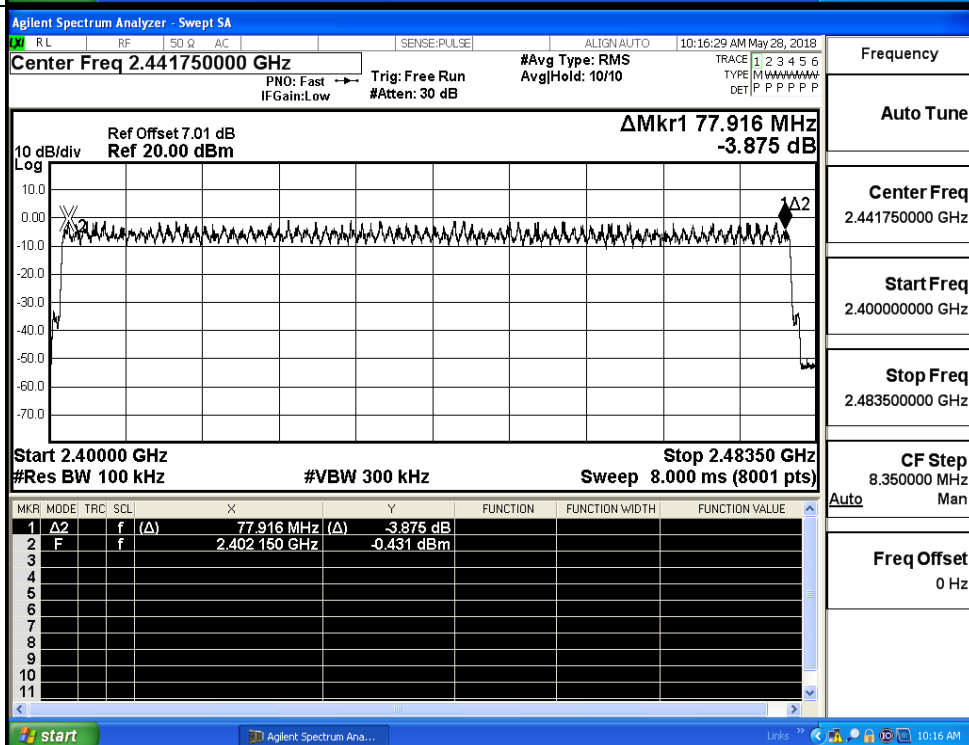
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
π/4DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

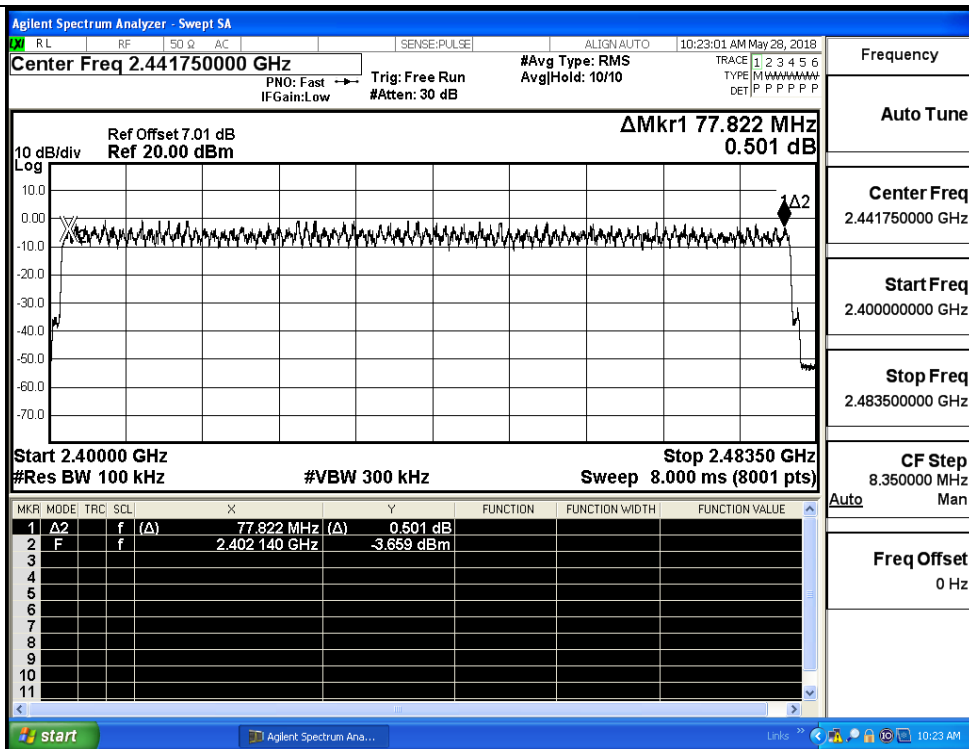
GFSK/Hop



π/4DQPSK/Hop



8DPSK/Hop

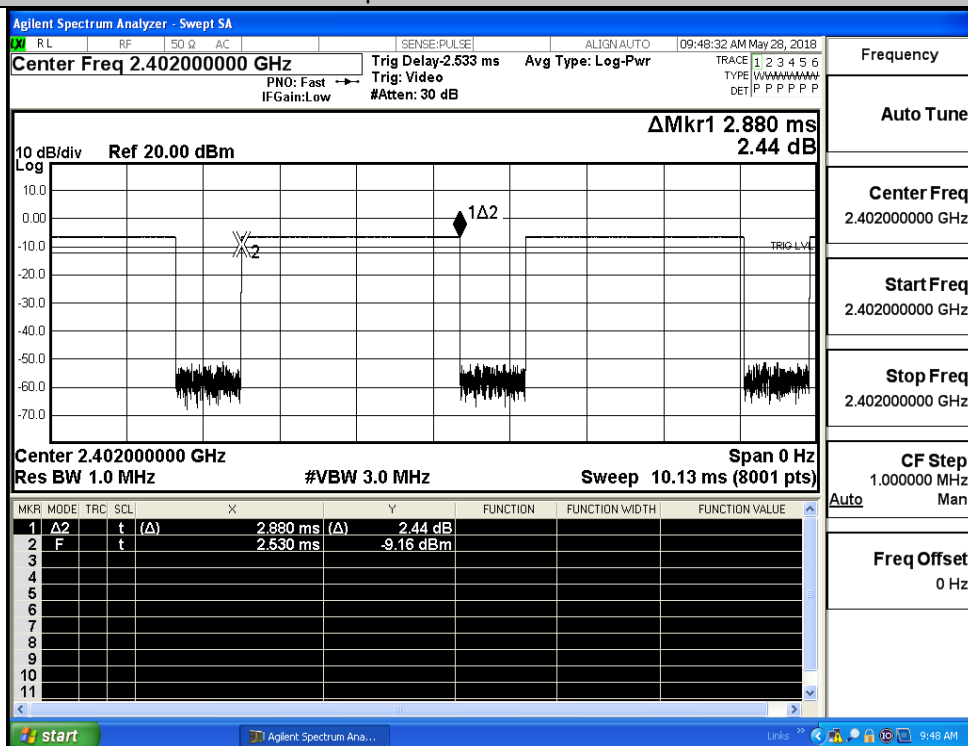


A.5 Dwell Time

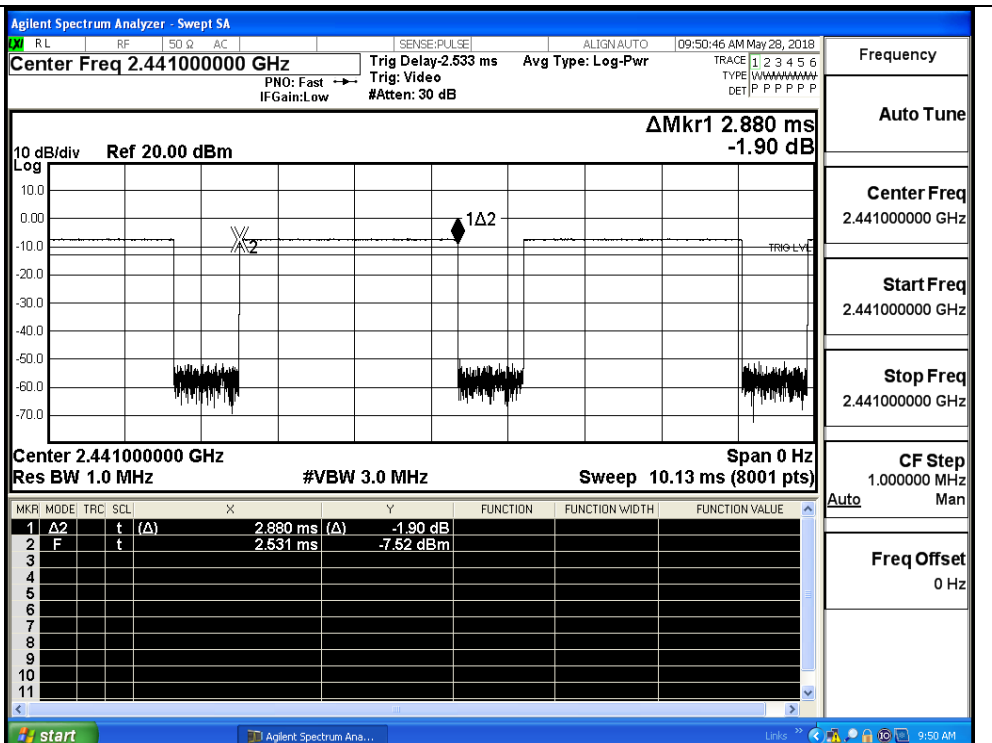
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS
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

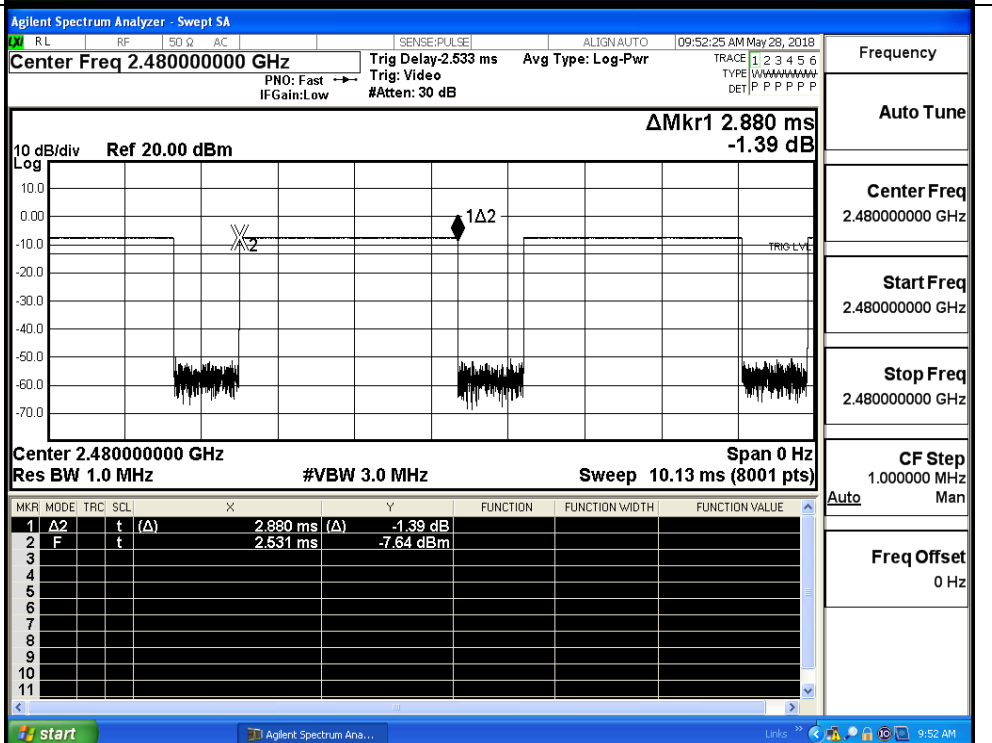
GFSK_DH5/LCH

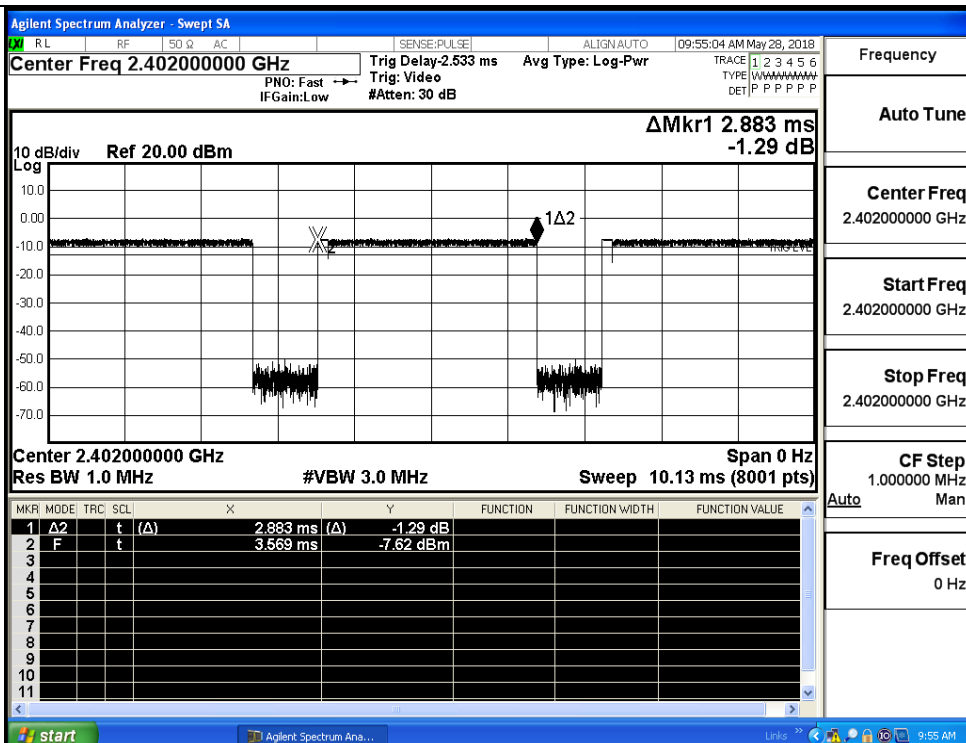
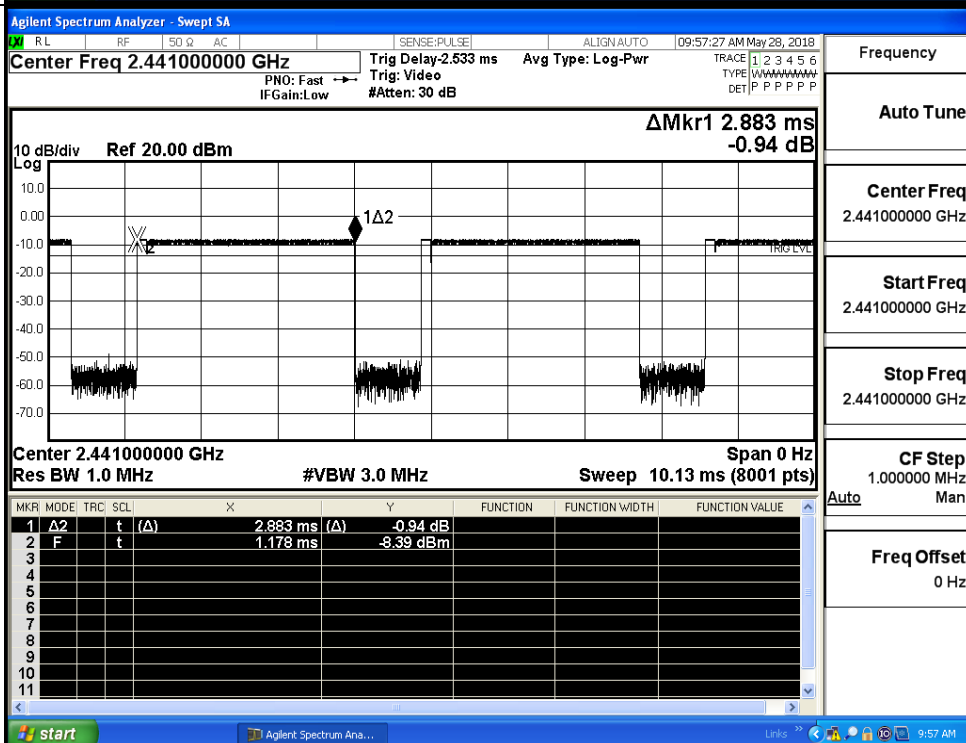


GFSK_DH5/MCH

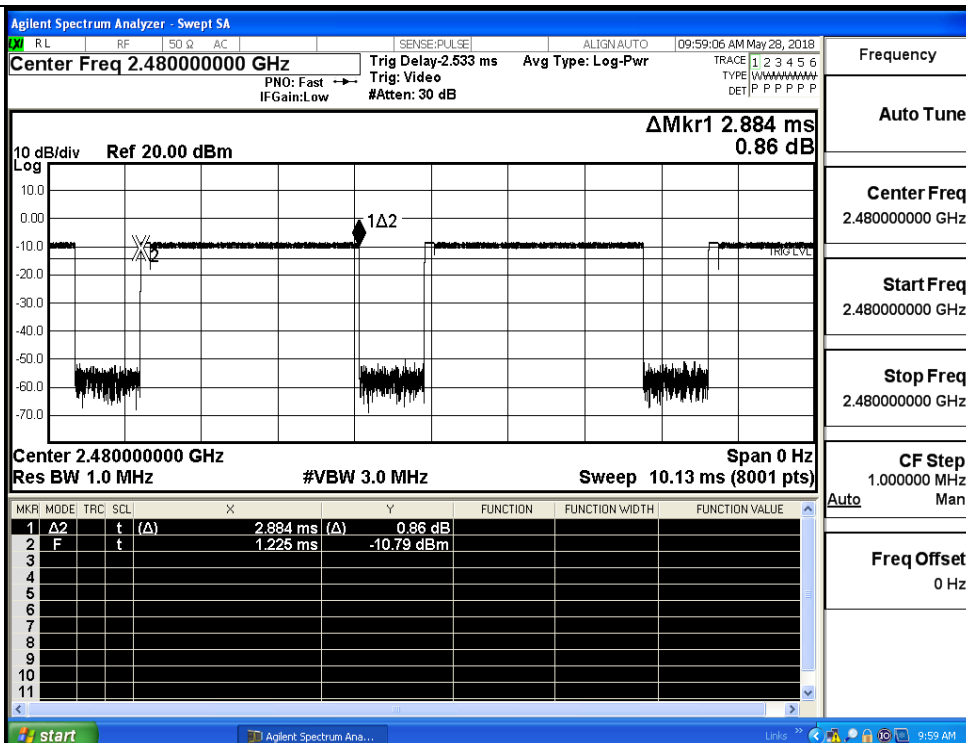


GFSK_DH5/HCH

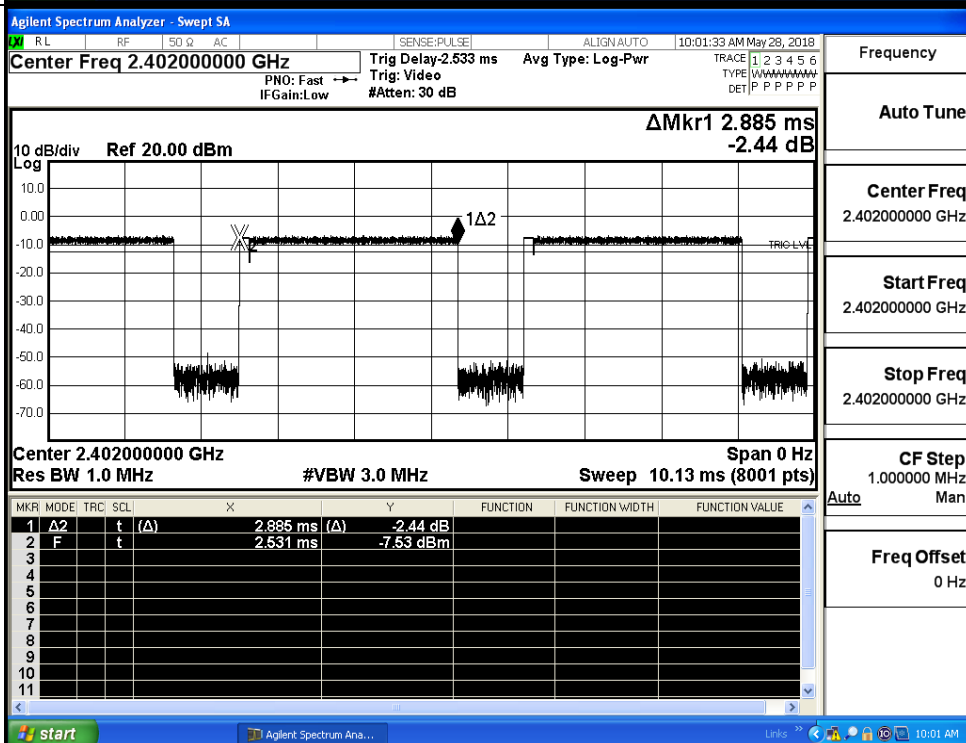


$\pi/4$ DQPSK
_2DH5/LCH $\pi/4$ DQPSK
_2DH5/MCH

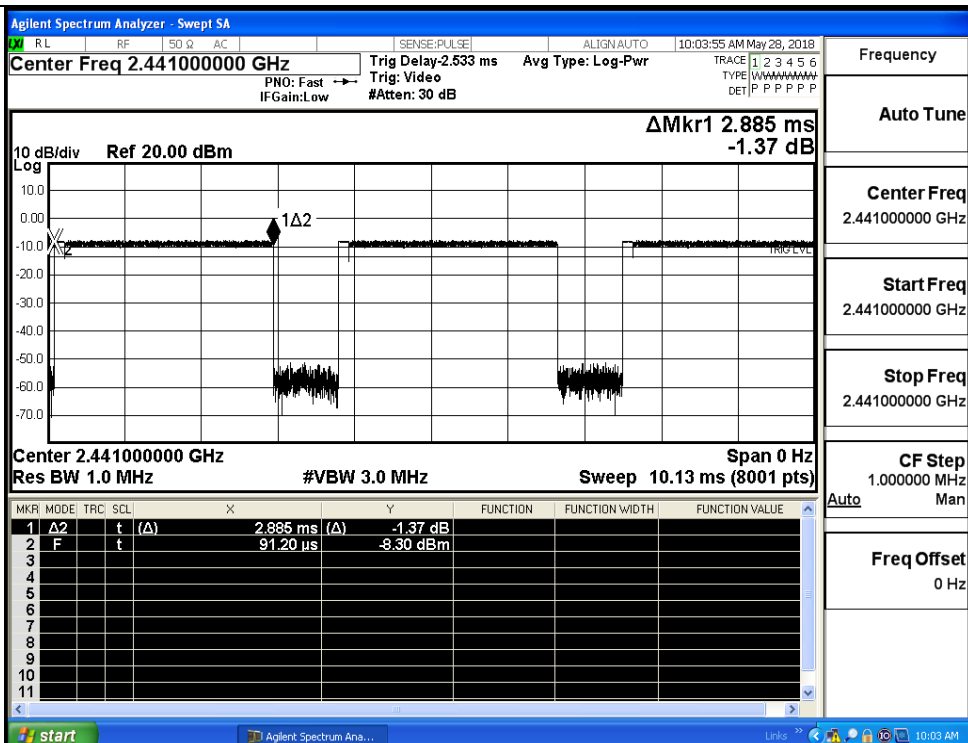
$\pi/4$ DQPSK
_2DH5/HCH



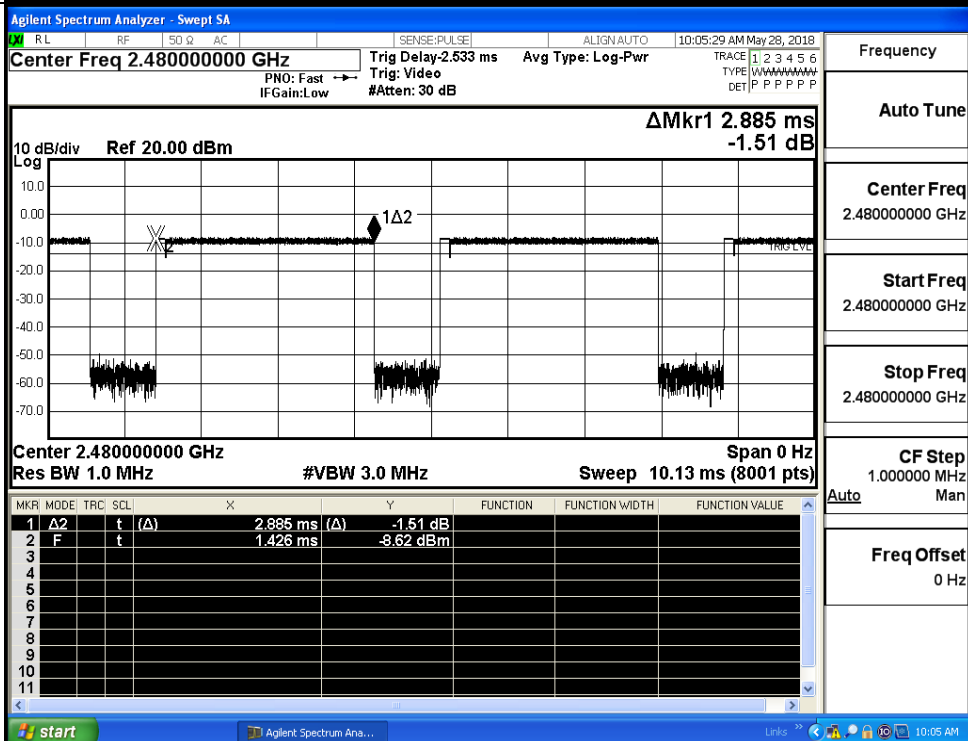
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



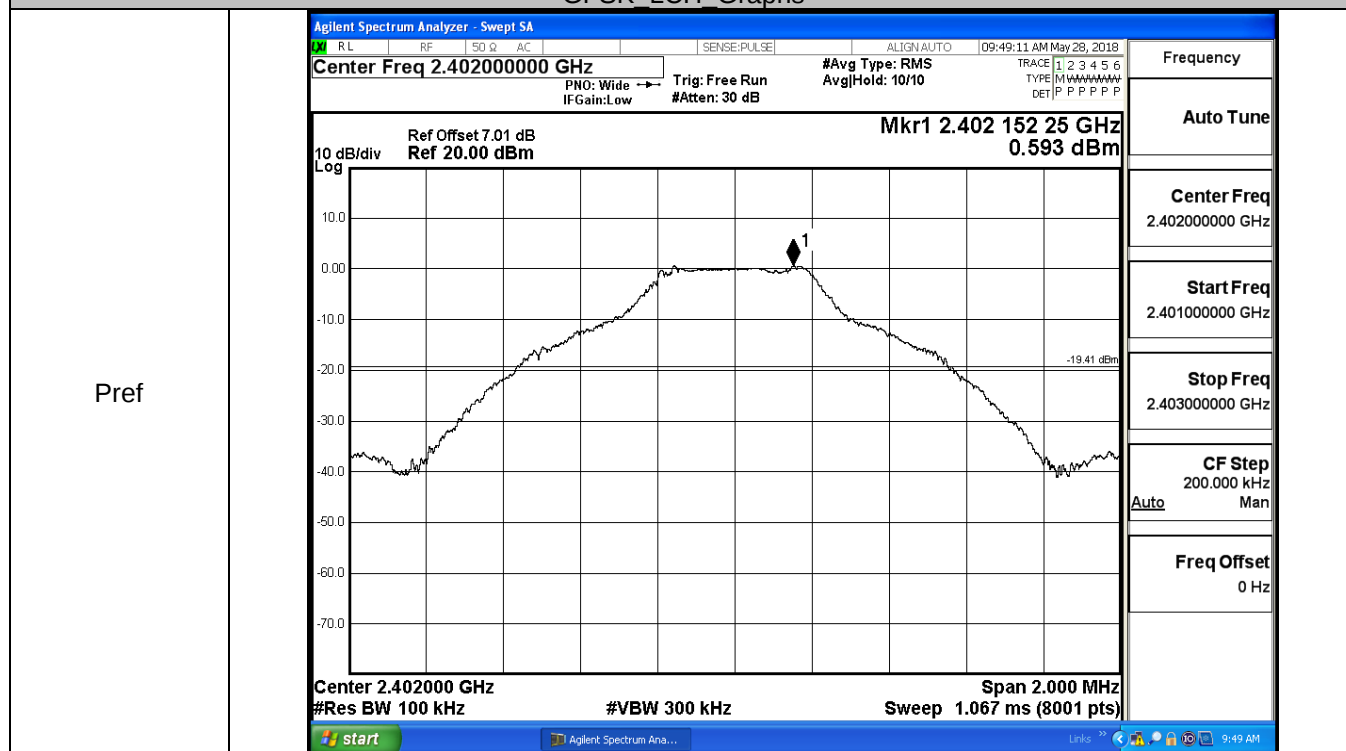
8DPSK_3DH5/HCH



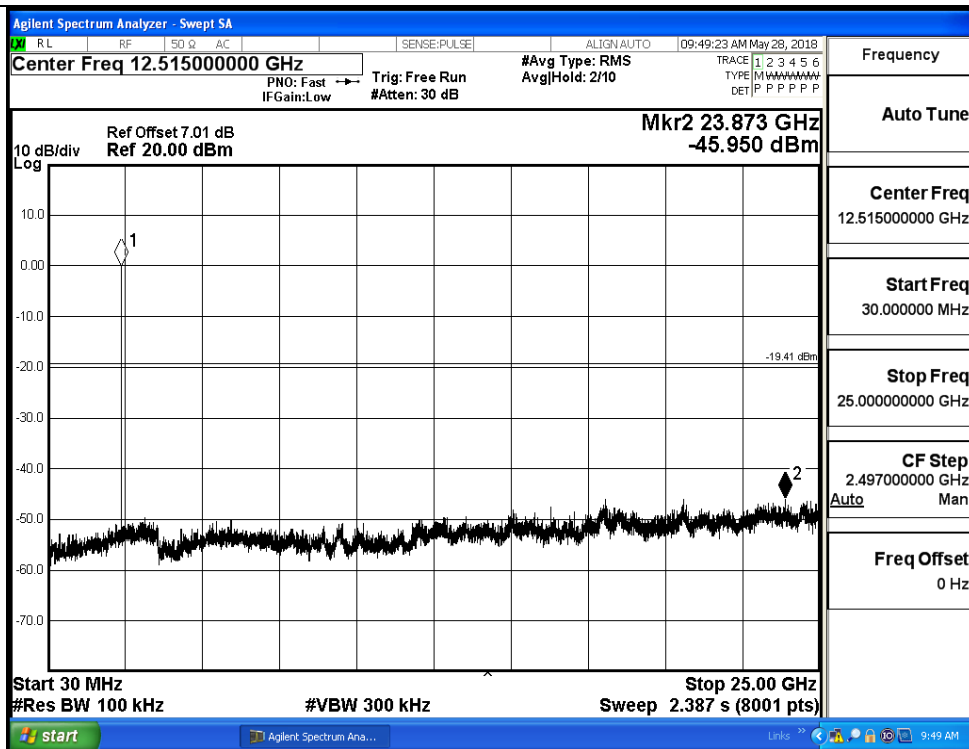
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.593	-45.950	-19.407	PASS
	MCH	-0.051	-46.439	-20.051	PASS
	HCH	-0.379	-45.575	-20.379	PASS
$\pi/4$ DQPSK	LCH	-0.625	-45.916	-20.625	PASS
	MCH	-1.261	-46.053	-21.261	PASS
	HCH	-1.515	-45.784	-21.515	PASS
8DPSK	LCH	-0.896	-45.948	-20.896	PASS
	MCH	-1.134	-46.250	-21.134	PASS
	HCH	-1.439	-45.175	-21.439	PASS

GFSK LCH Graphs

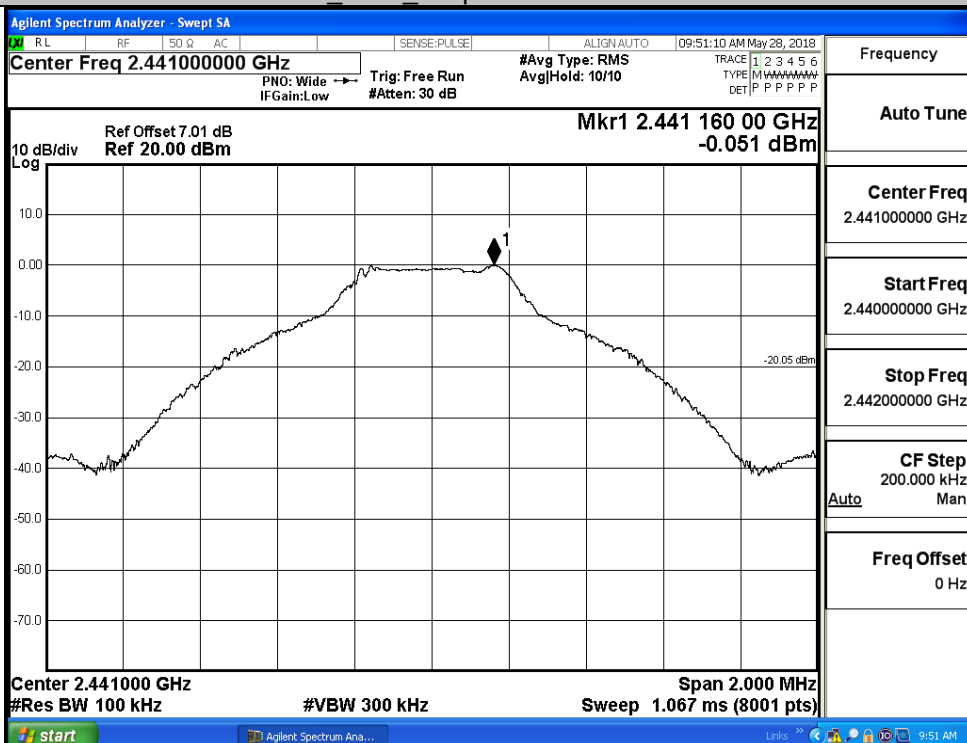


Puw

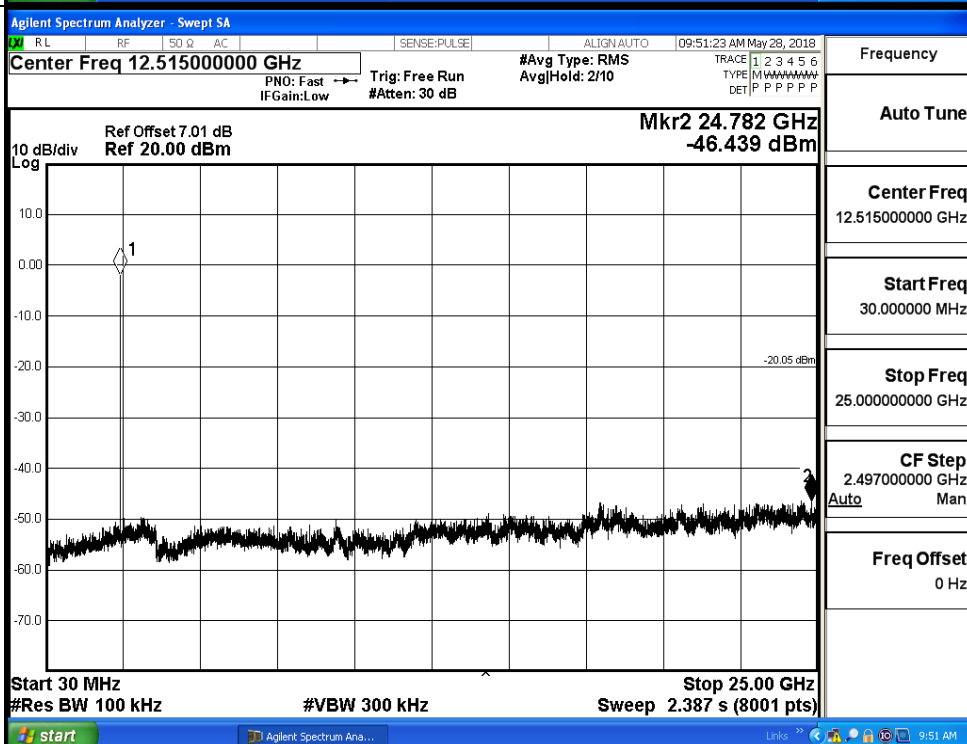


GFSK MCH_Graphs

Pref

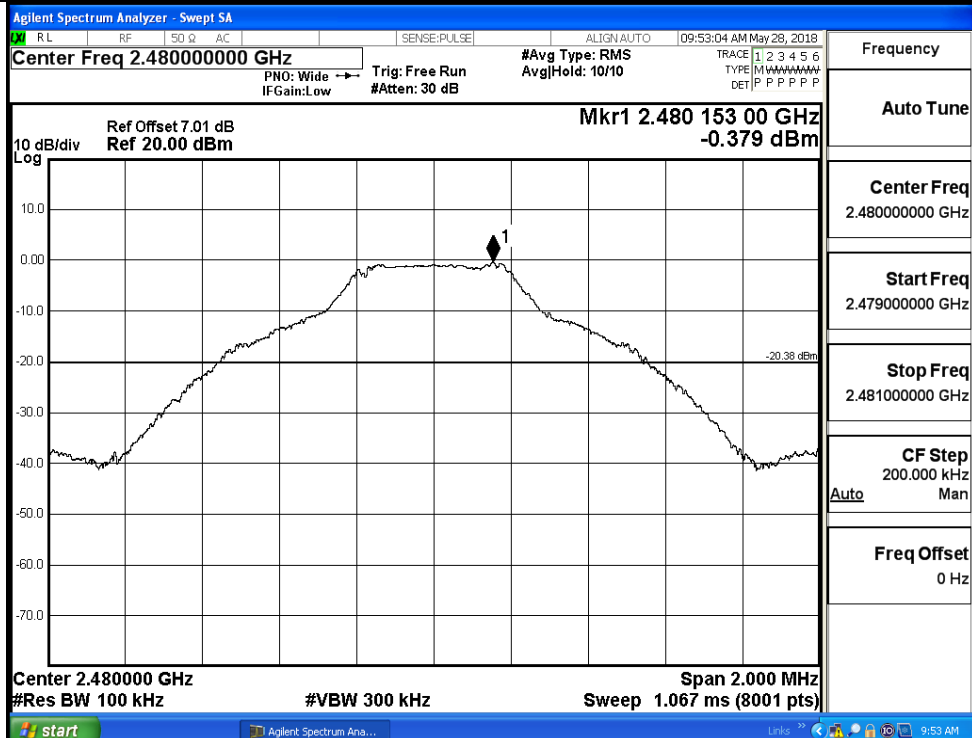


Puw

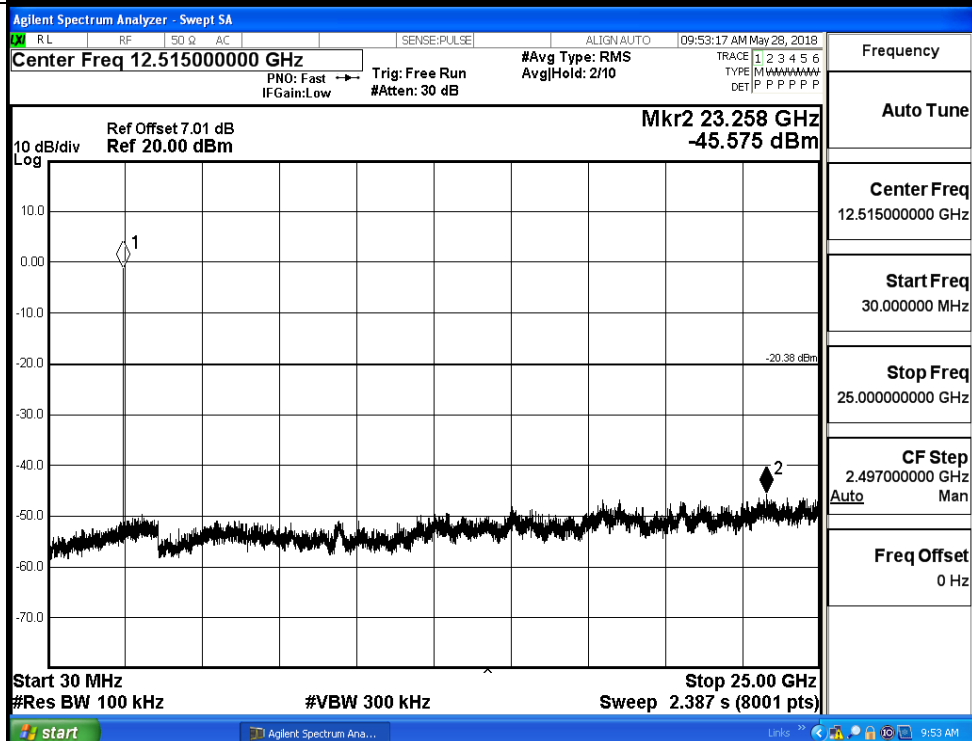


GFSK HCH Graphs

Pref

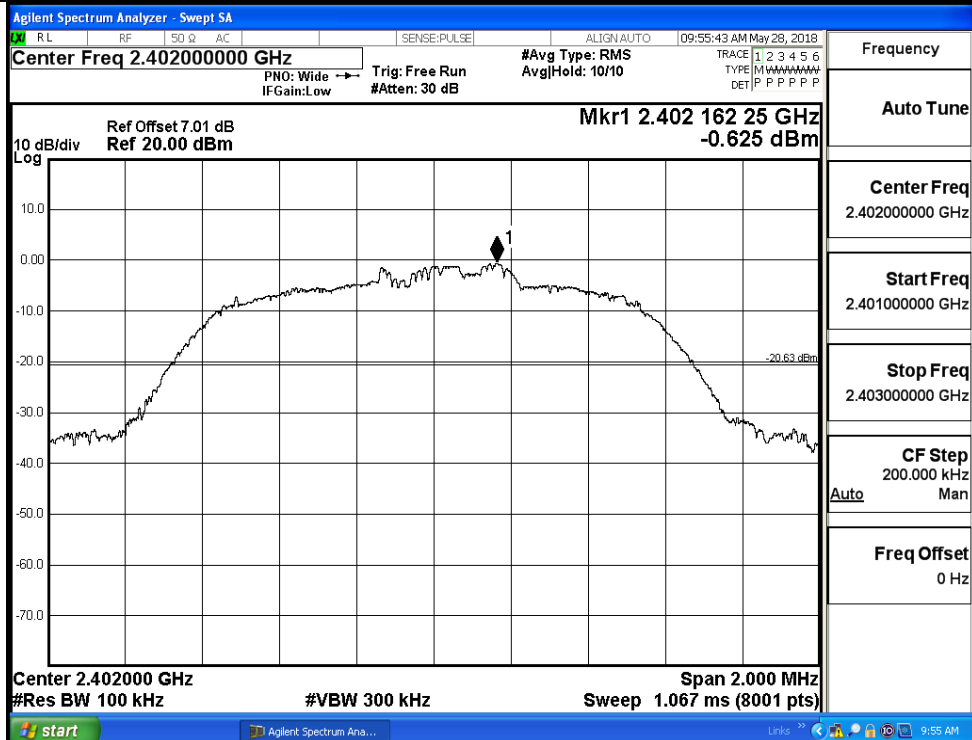


Puw

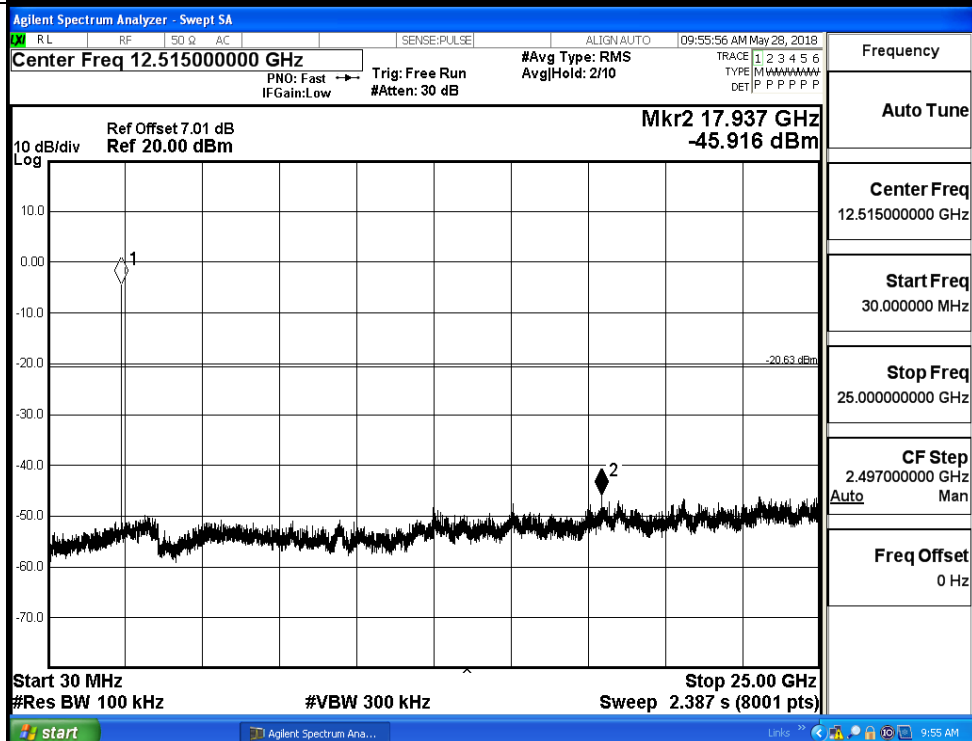


$\pi/4$ DQPSK LCH_Graphs

Pref

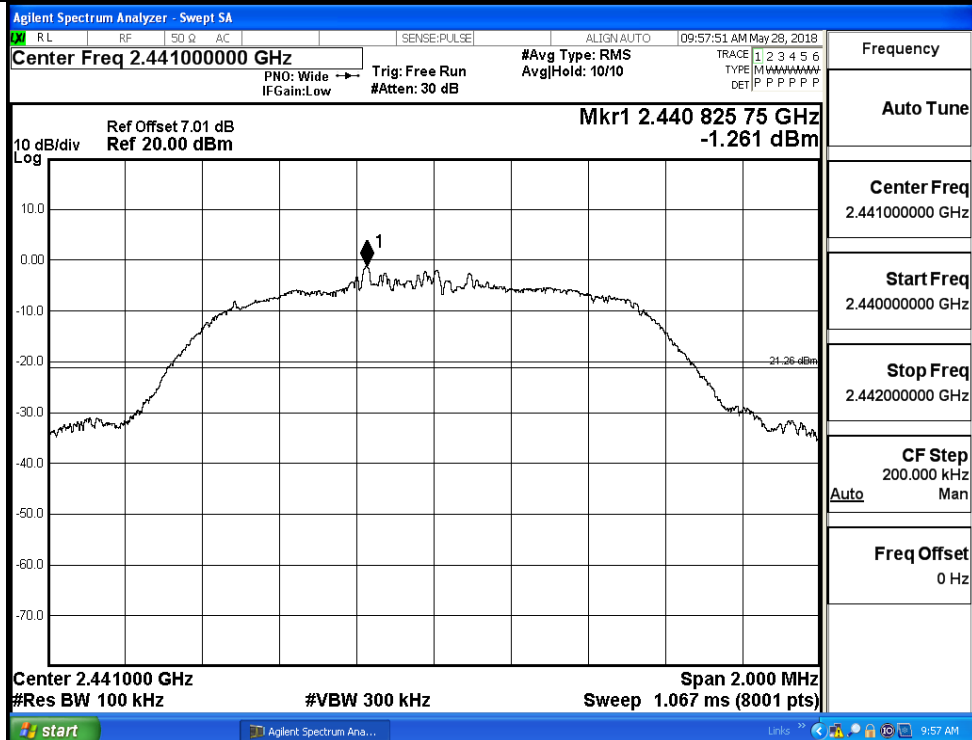


Puw

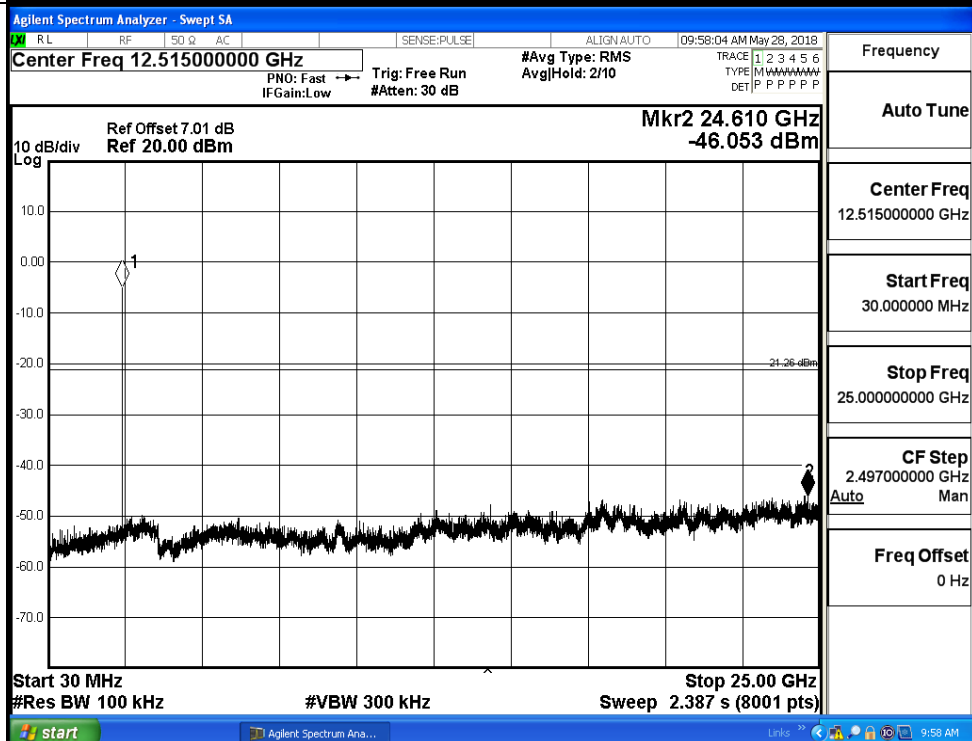


$\pi/4$ DQPSK_MCH_Graphs

Pref

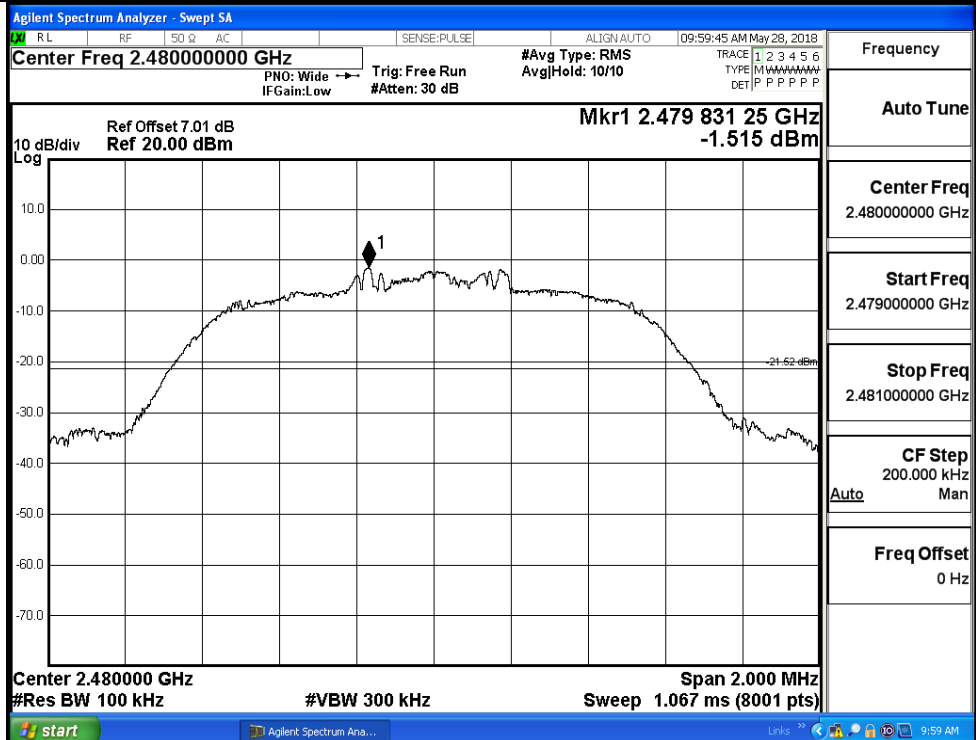


Puw

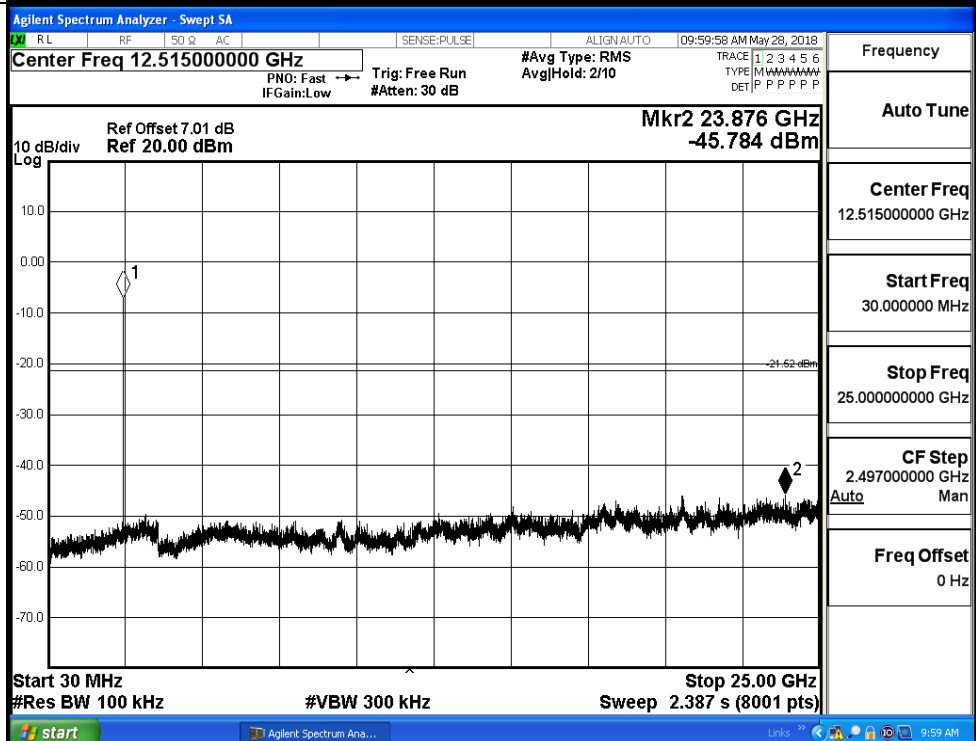


$\pi/4$ DQPSK_HCH_Graphs

Pref

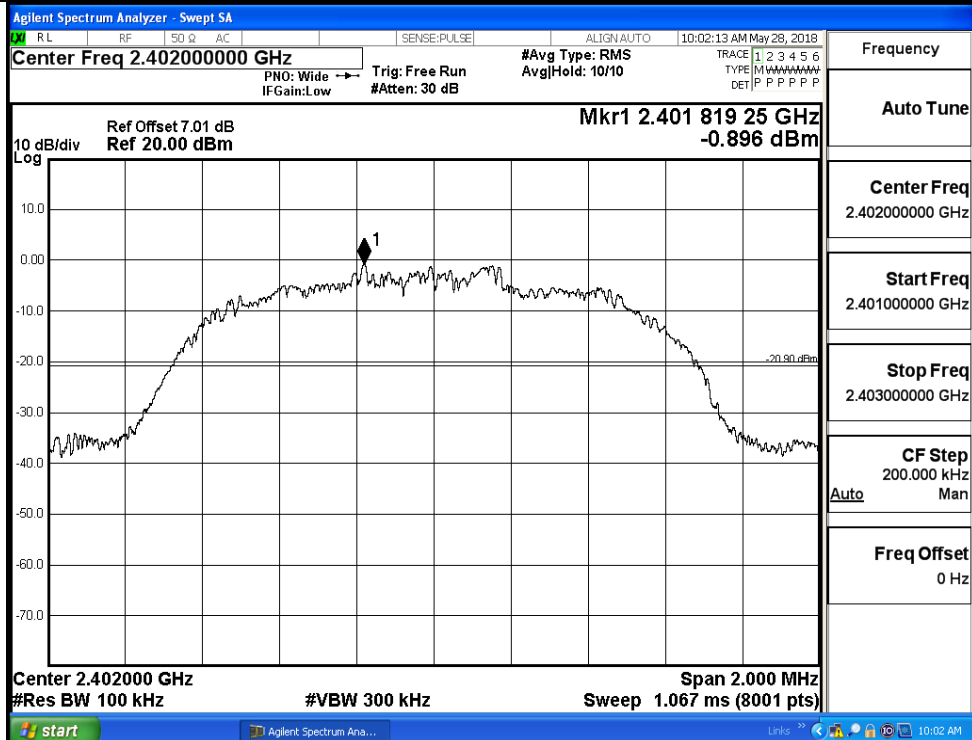


Puw

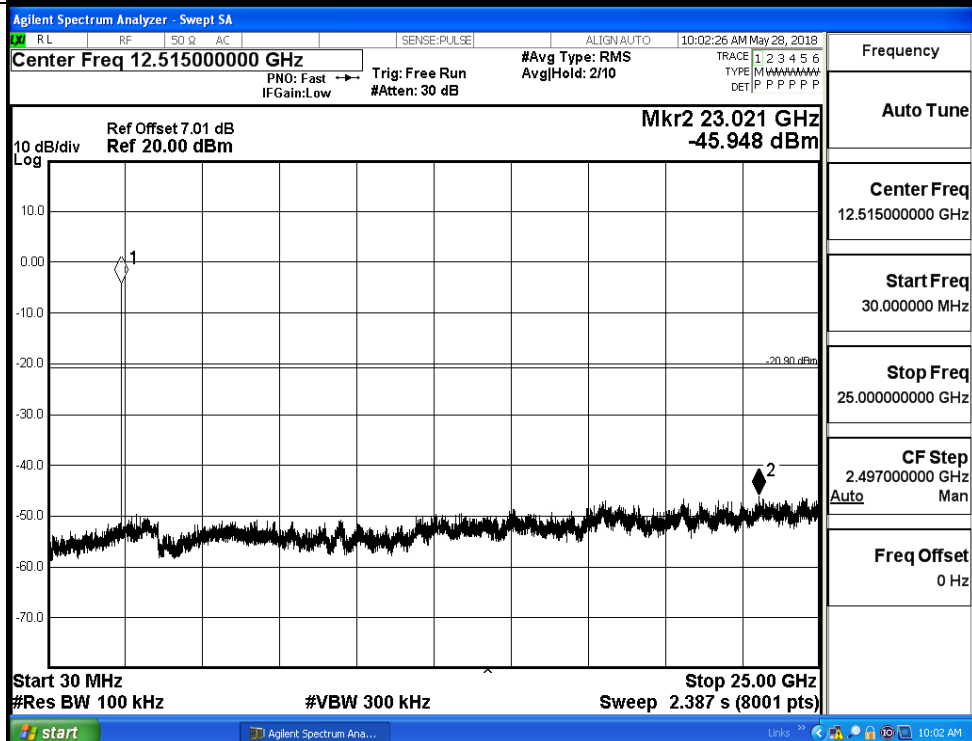


8DPSK_LCH_Graphs

Pref

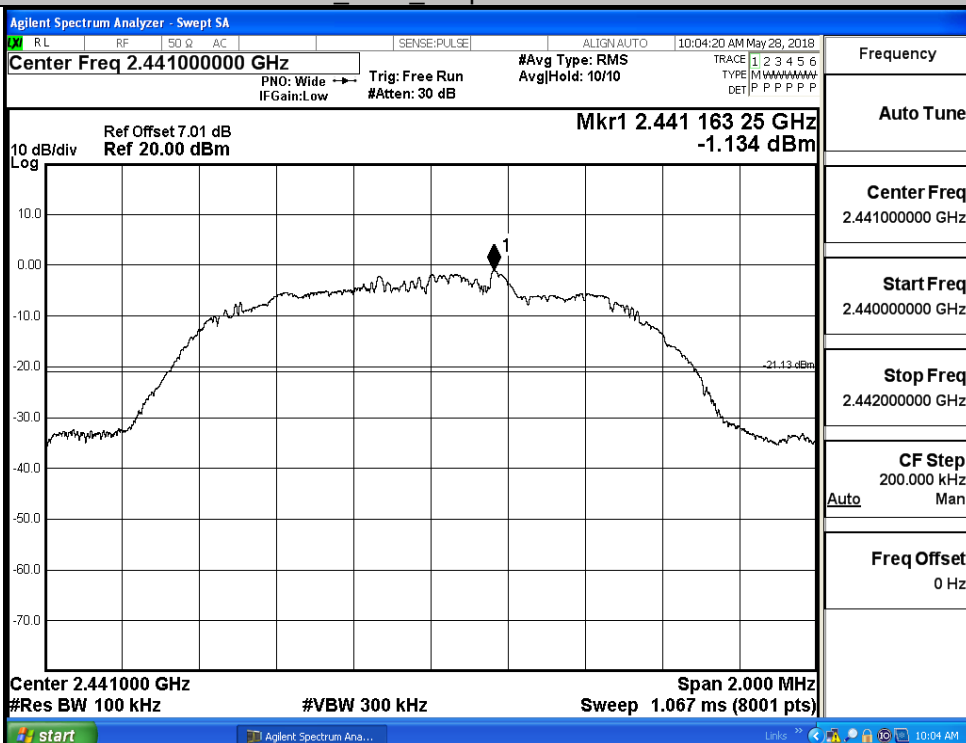


Puw

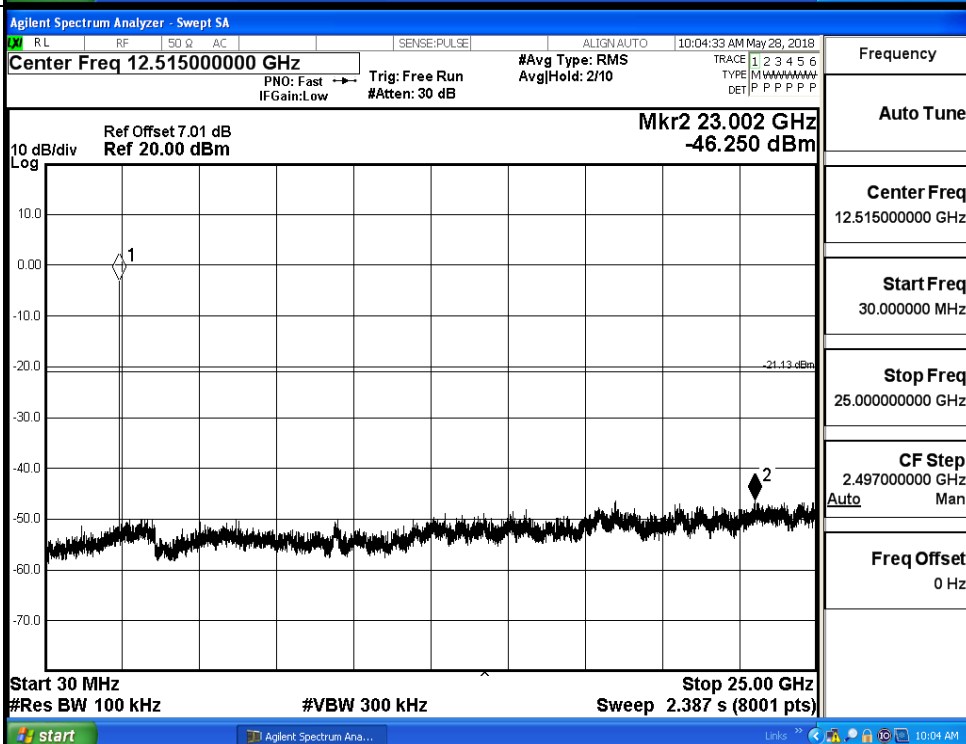


8DPSK MCH_Graphs

Pref

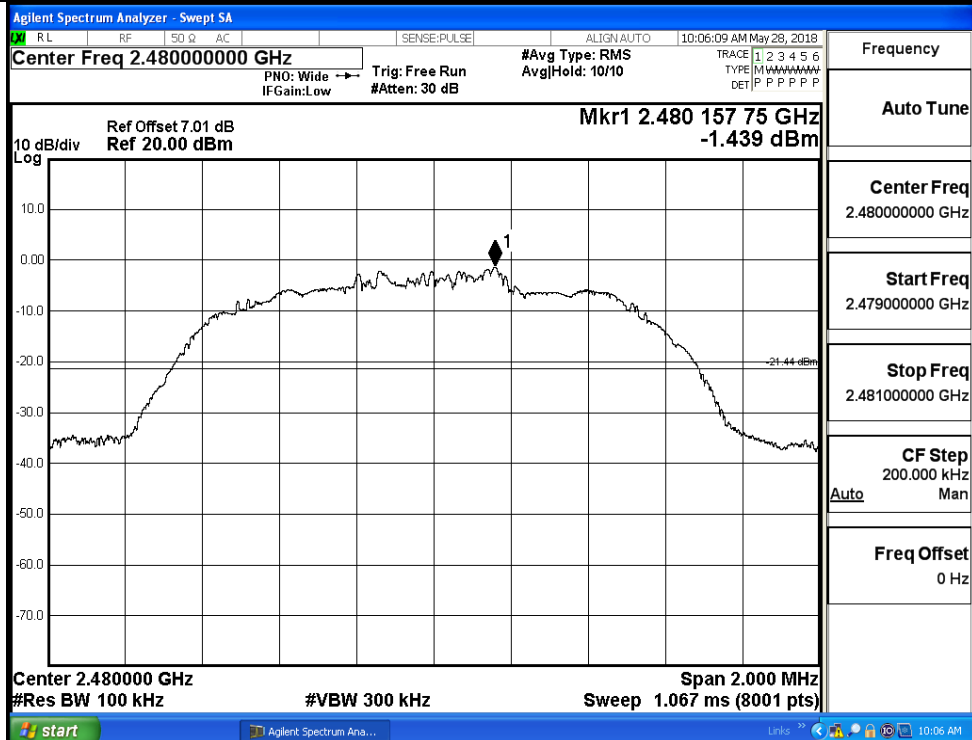


Puw

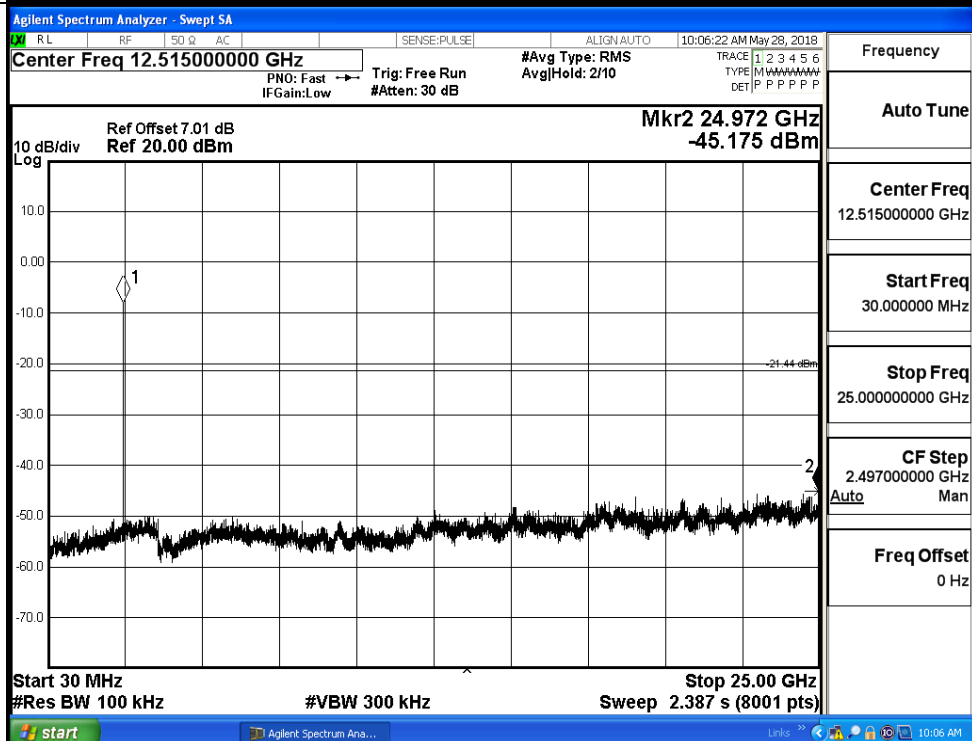


8DPSK_HCH_Graphs

Pref



Puw

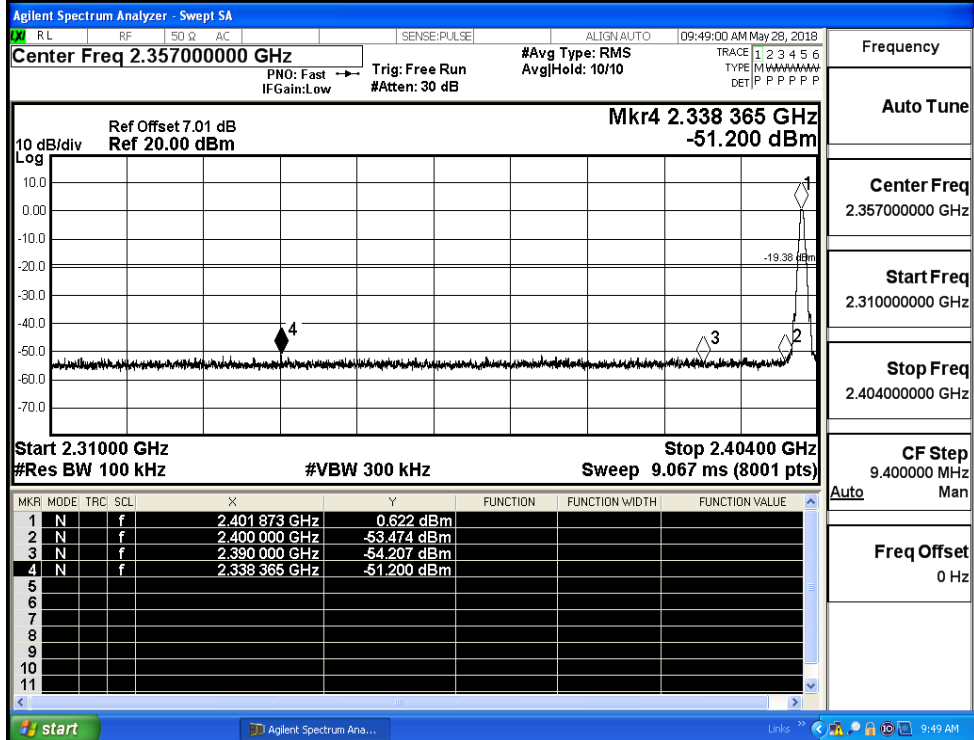


A.7 Band-edge for RF Conducted Emissions

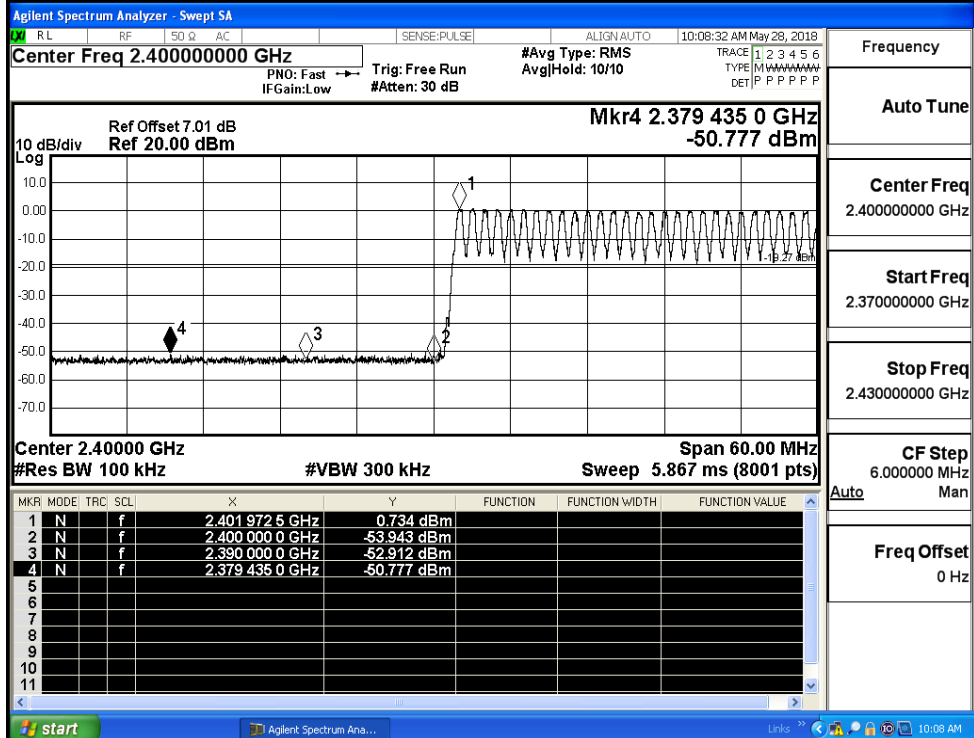
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.622	Off	-51.200	-19.38	PASS
			0.734	On	-50.777	-19.27	PASS
	HCH	2480	-0.291	Off	-51.045	-20.29	PASS
			-0.532	On	-50.611	-20.53	PASS
π /4DQPSK	LCH	2402	-1.594	Off	-50.835	-21.59	PASS
			-0.847	On	-50.355	-20.85	PASS
	HCH	2480	-1.347	Off	-51.397	-21.35	PASS
			-1.395	On	-49.386	-21.4	PASS
8DPSK	LCH	2402	-0.419	Off	-50.997	-20.42	PASS
			-0.523	On	-50.502	-20.52	PASS
	HCH	2480	-1.523	Off	-51.343	-21.52	PASS
			-1.247	On	-50.789	-21.25	PASS

Test Graphs

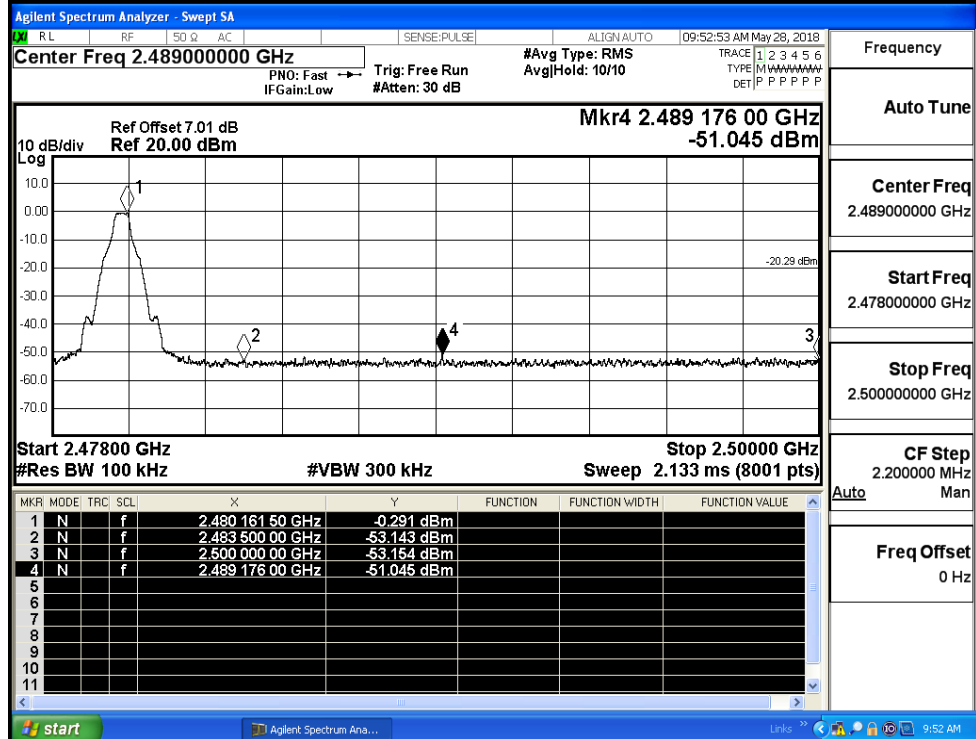
GFSK/LCH/No Hop



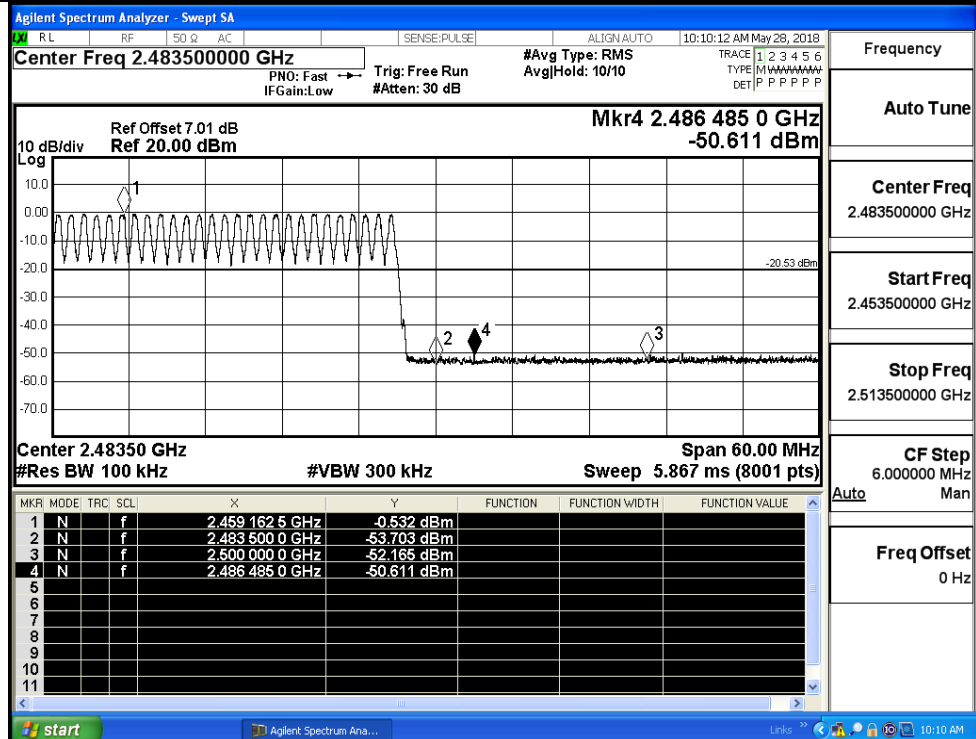
GFSK/LCH/Hop



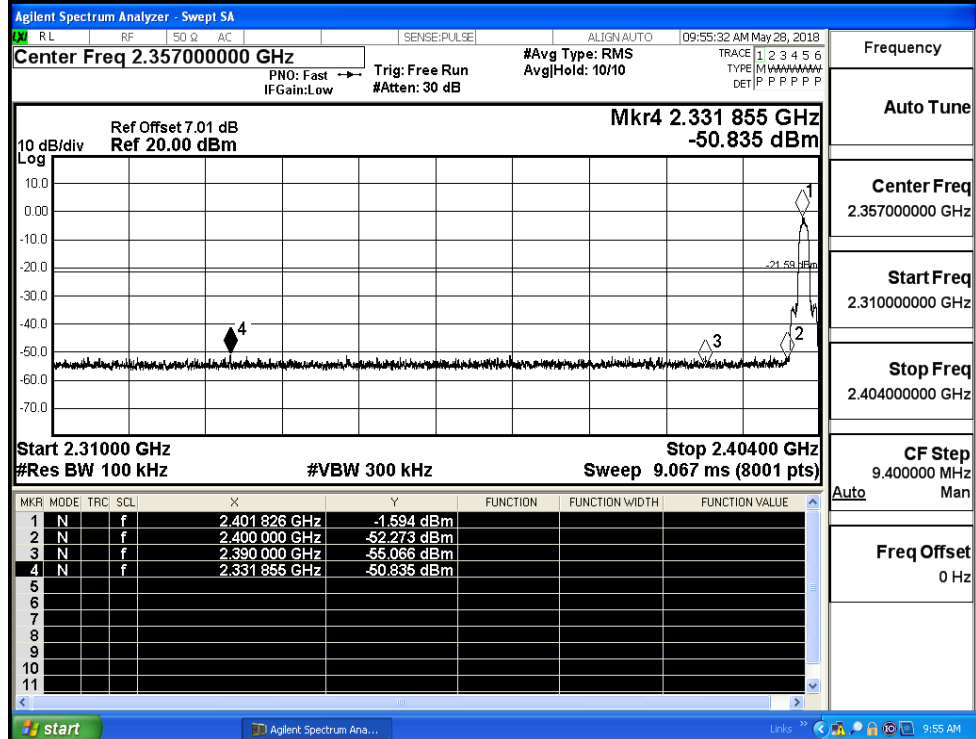
GFSK/HCH/No Hop



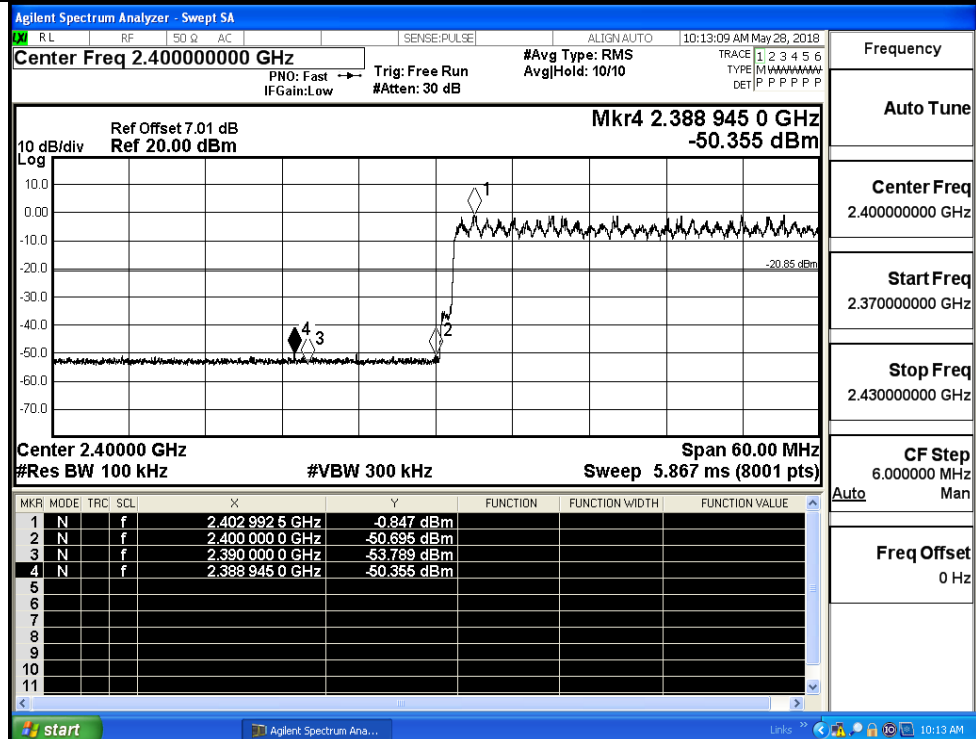
GFSK/HCH/Hop



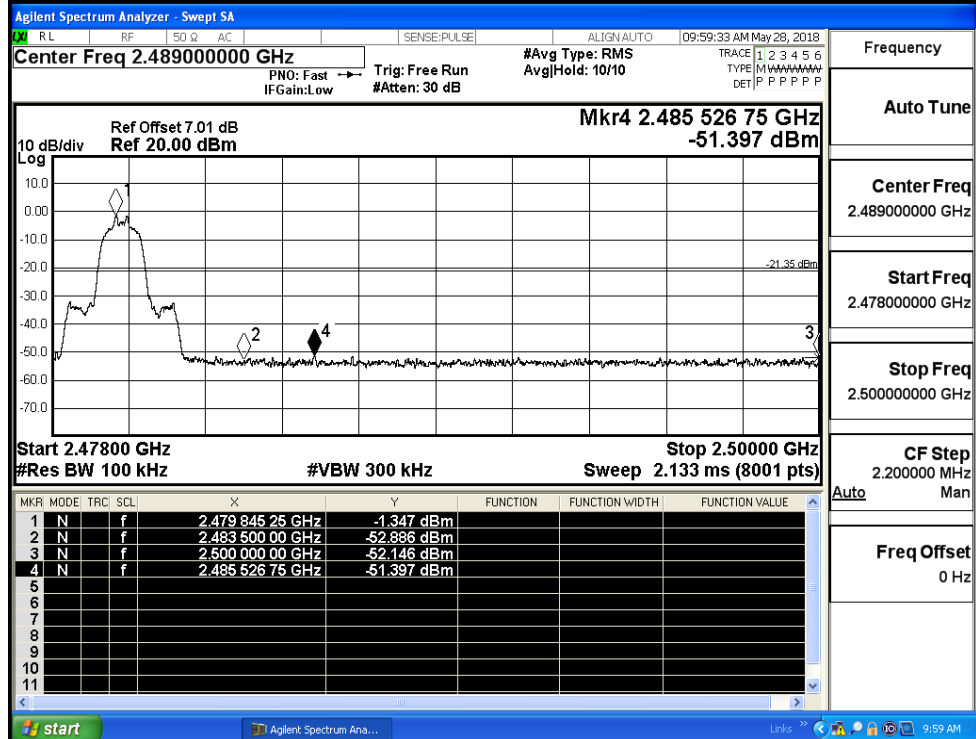
$\pi/4$ DQPSK/LCH/No
Hop



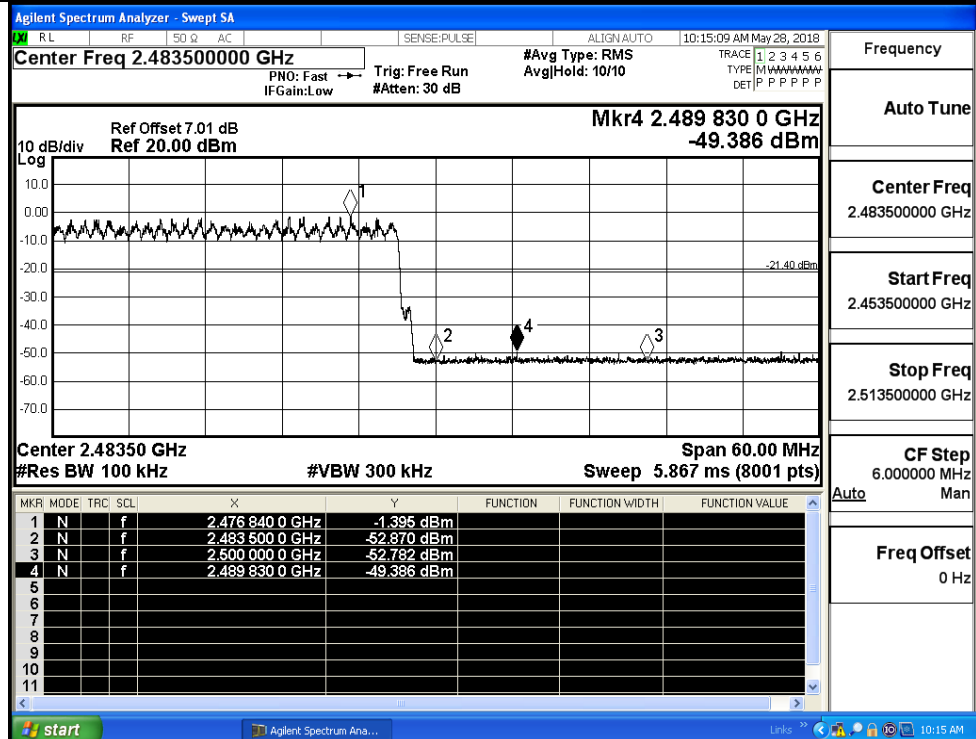
$\pi/4$ DQPSK/LCH/Hop



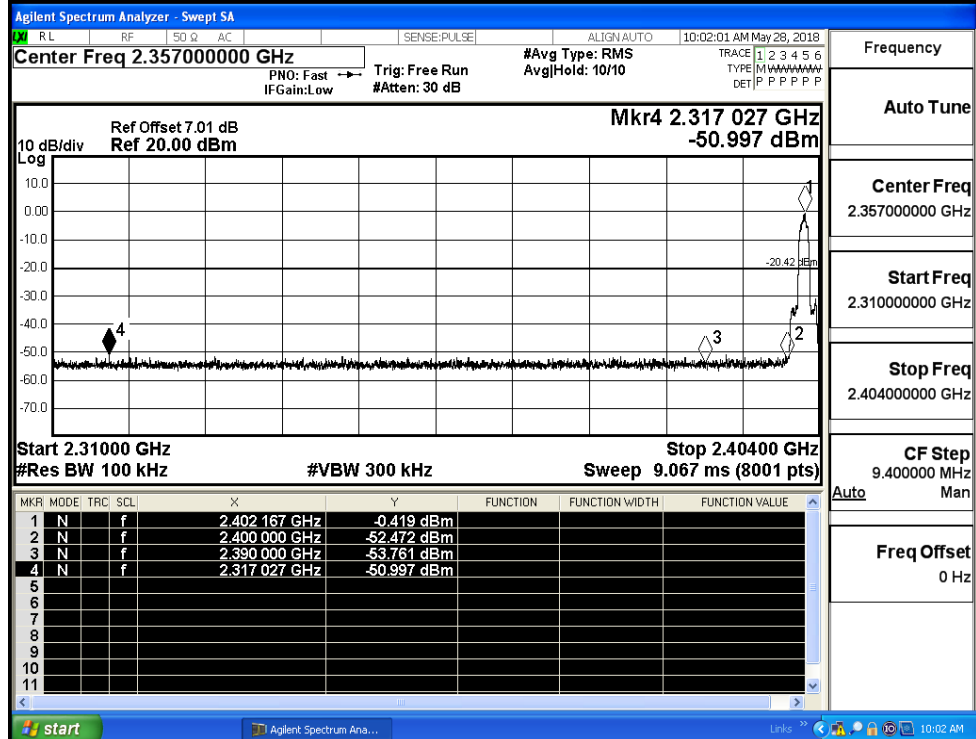
$\pi/4$ DQPSK/HCH/No
Hop



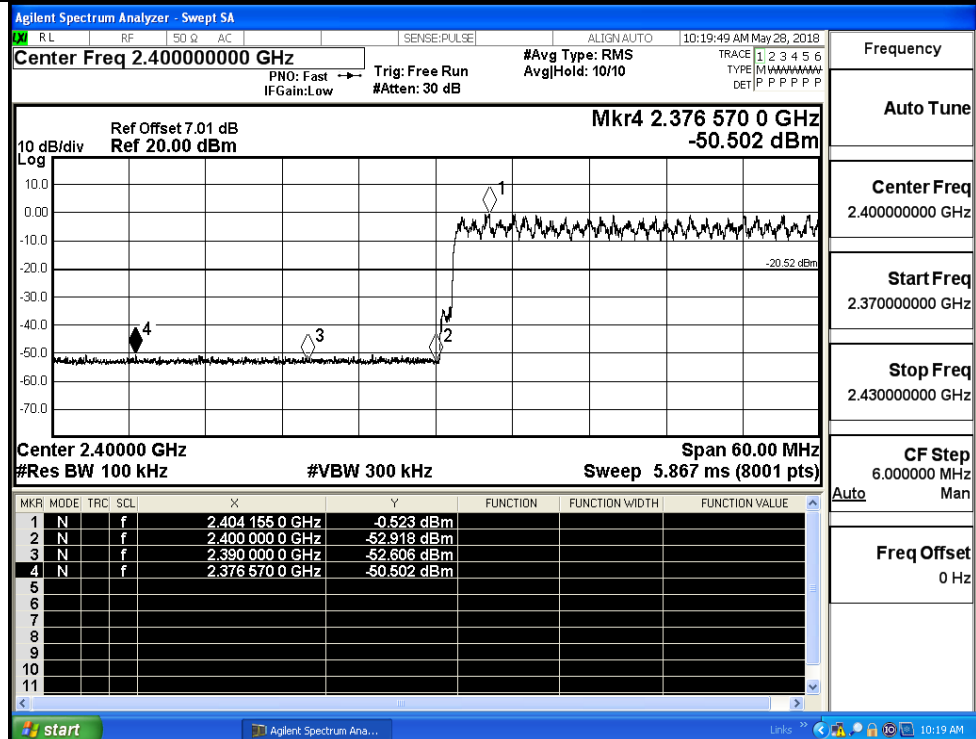
$\pi/4$ DQPSK/HCH/Hop



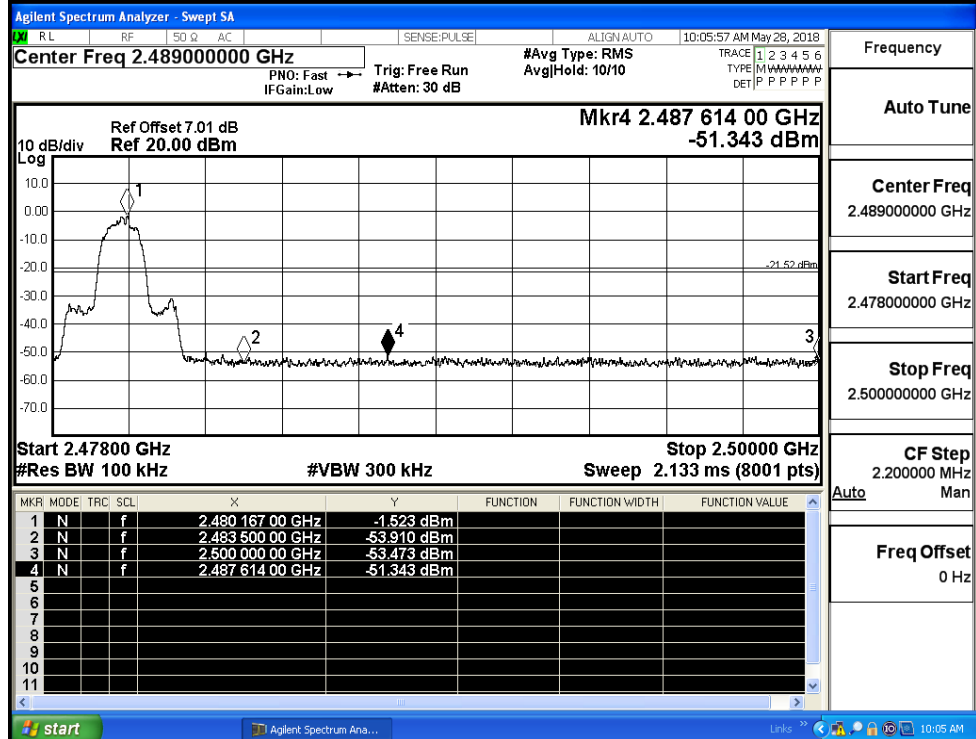
8DPSK/LCH/No Hop



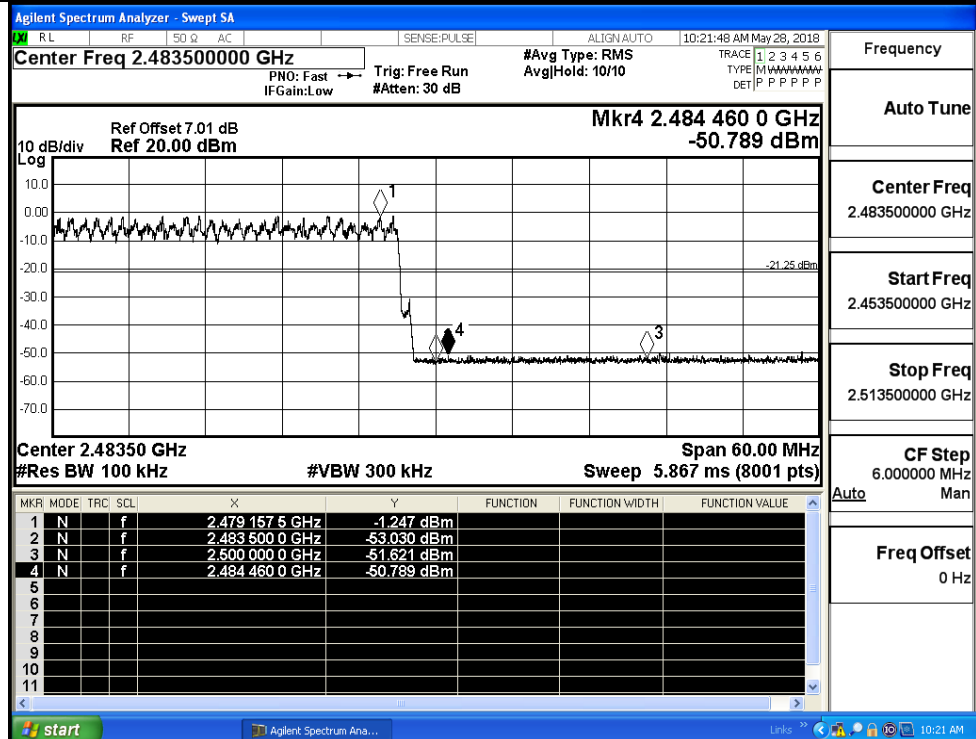
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



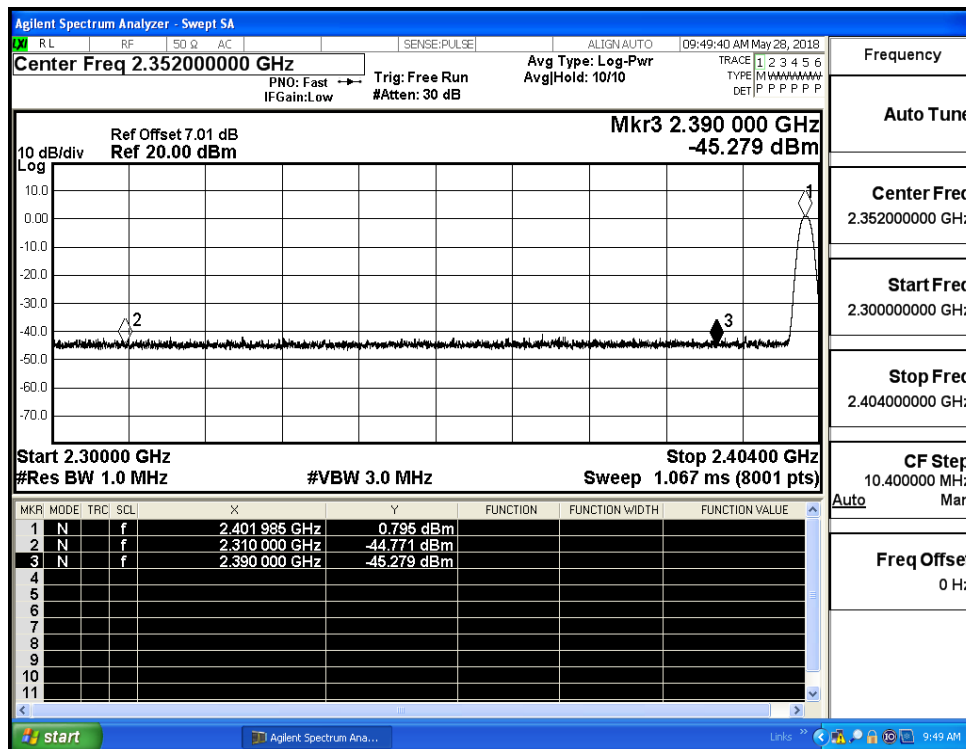
8DPSK/HCH/Hop



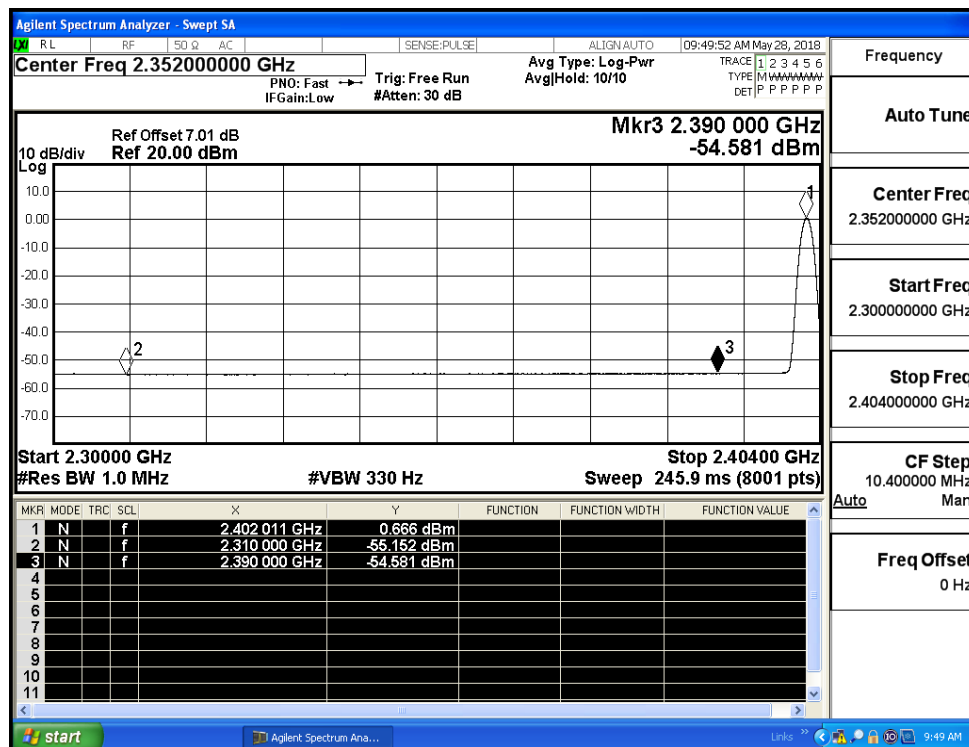
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.77	2.0	0	52.49	PEAK	74	PASS
	Off	2310.0	-55.15	2.0	0	42.11	AV	54	PASS
	Off	2390.0	-45.28	2.0	0	51.98	PEAK	74	PASS
	Off	2390.0	-54.58	2.0	0	42.68	AV	54	PASS
	Off	2483.5	-43.93	2.0	0	53.33	PEAK	74	PASS
	Off	2483.5	-54.44	2.0	0	42.82	AV	54	PASS
	Off	2500.0	-43.46	2.0	0	53.80	PEAK	74	PASS
	Off	2500.0	-54.33	2.0	0	42.93	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.37	2.0	0	53.88	PEAK	74	PASS
	Off	2310.0	-54.95	2.0	0	42.31	AV	54	PASS
	Off	2390.0	-45.60	2.0	0	51.66	PEAK	74	PASS
	Off	2390.0	-54.70	2.0	0	42.56	AV	54	PASS
	Off	2483.5	-44.27	2.0	0	52.99	PEAK	74	PASS
	Off	2483.5	-54.23	2.0	0	43.03	AV	54	PASS
	Off	2500.0	-43.30	2.0	0	53.96	PEAK	74	PASS
	Off	2500.0	-54.33	2.0	0	42.93	AV	54	PASS
8DPSK	Off	2310.0	-45.32	2.0	0	51.94	PEAK	74	PASS
	Off	2310.0	-54.92	2.0	0	42.34	AV	54	PASS
	Off	2390.0	-44.65	2.0	0	52.60	PEAK	74	PASS
	Off	2390.0	-54.66	2.0	0	42.60	AV	54	PASS
	Off	2483.5	-44.75	2.0	0	52.51	PEAK	74	PASS
	Off	2483.5	-54.14	2.0	0	43.12	AV	54	PASS
	Off	2500.0	-45.00	2.0	0	52.26	PEAK	74	PASS
	Off	2500.0	-54.36	2.0	0	42.90	AV	54	PASS

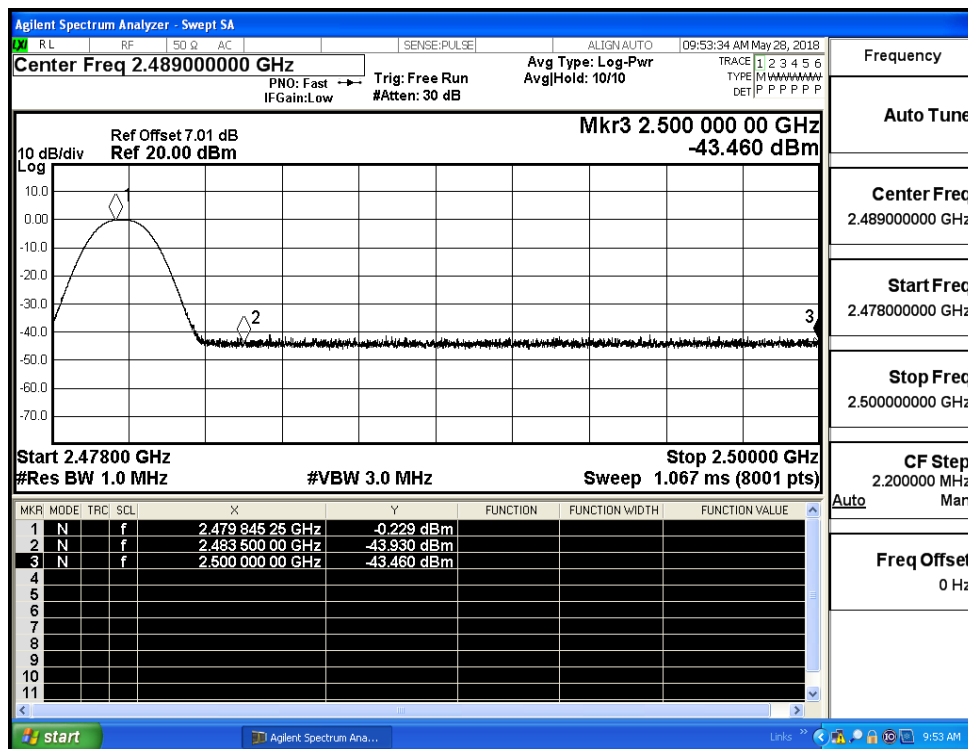
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



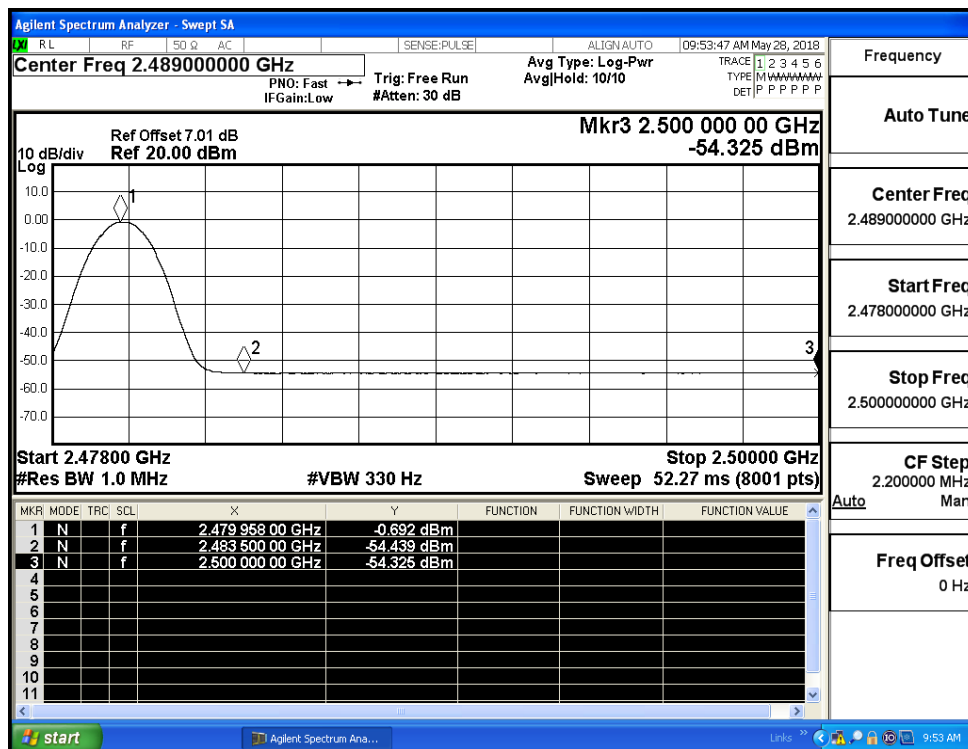
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

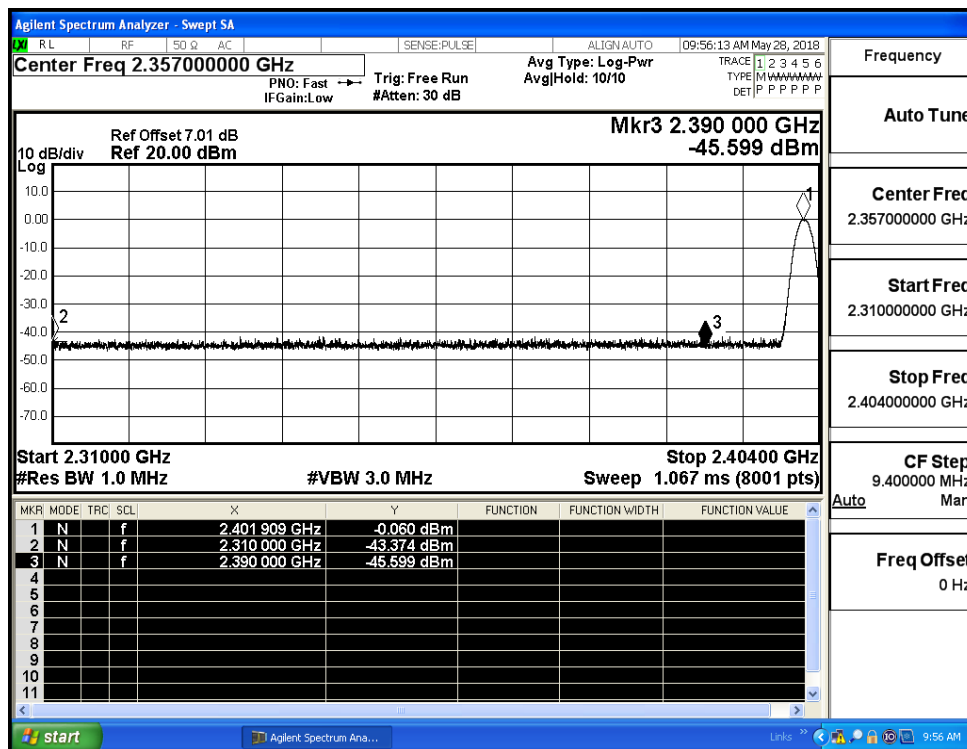
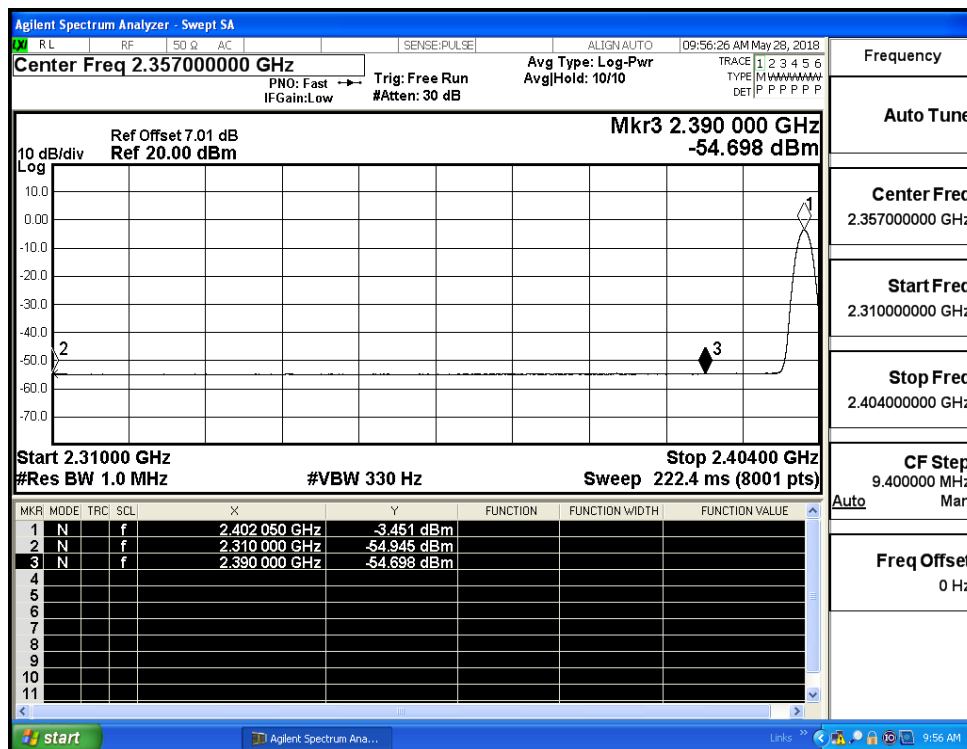


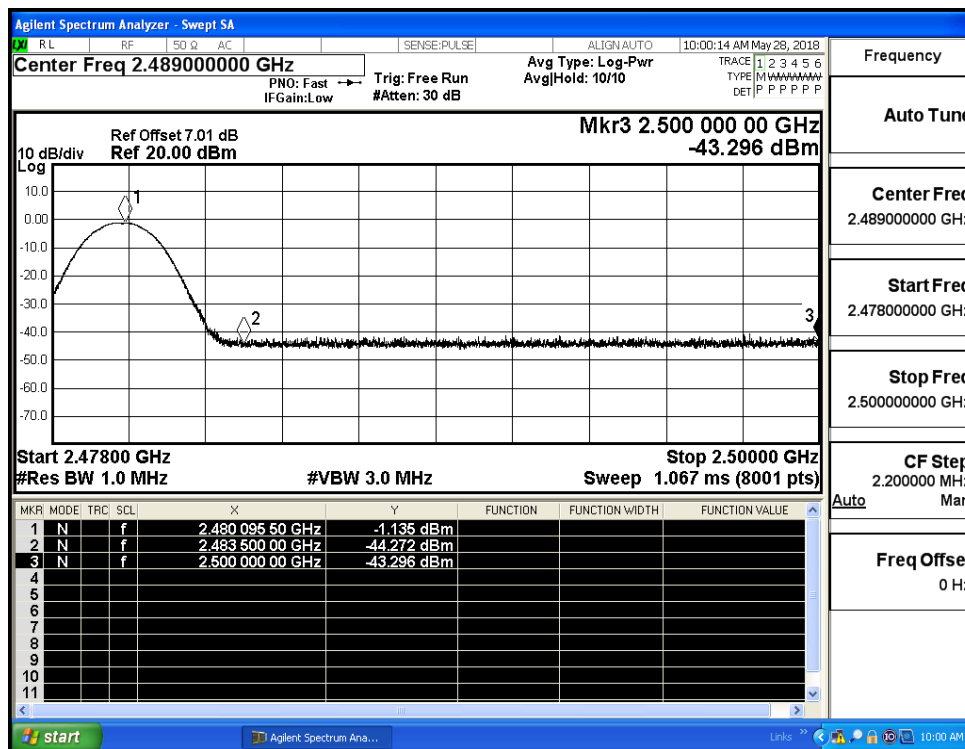
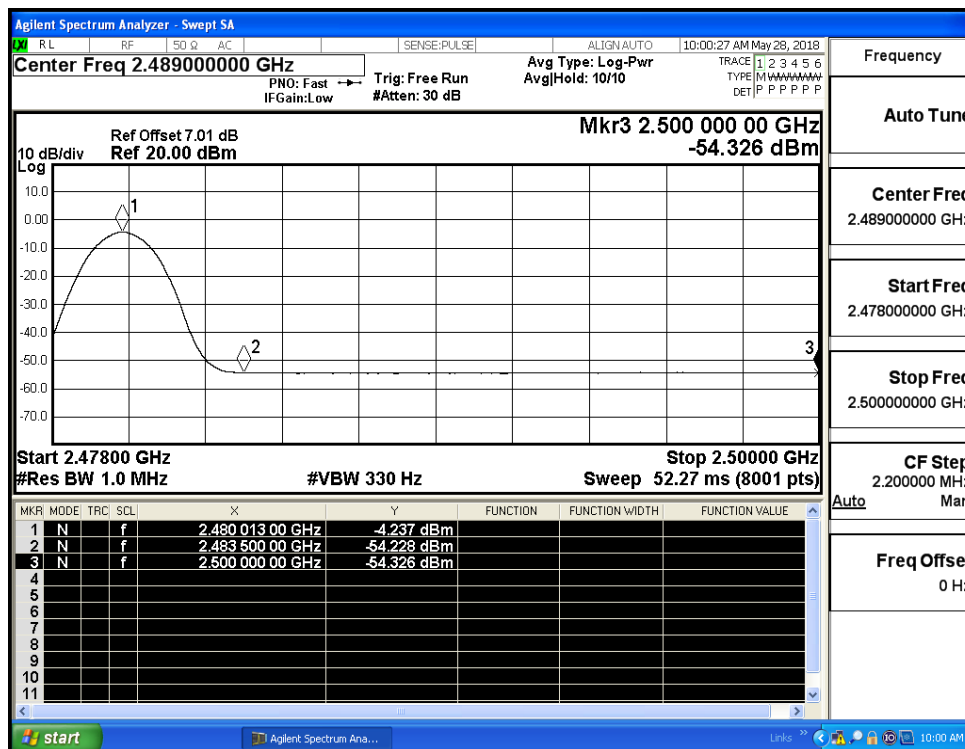
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



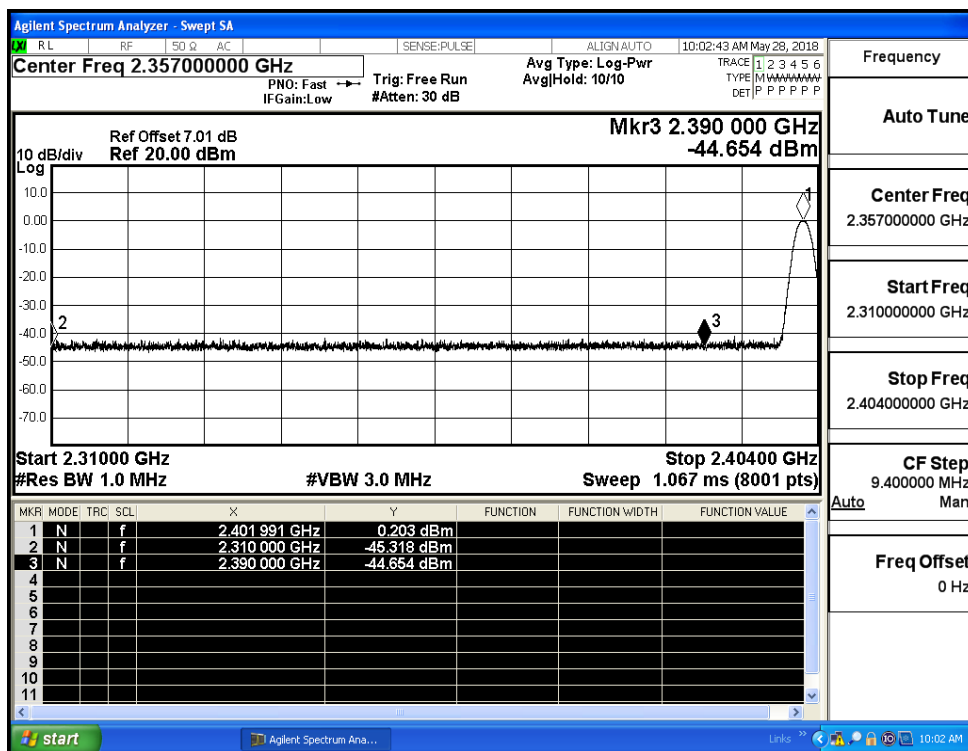
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



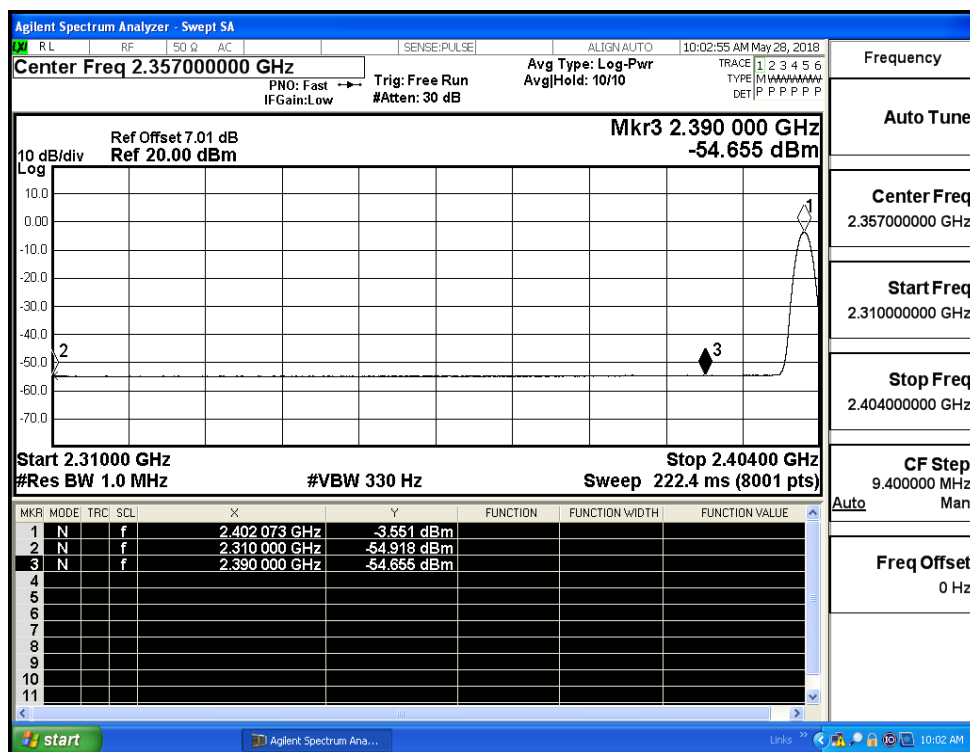
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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

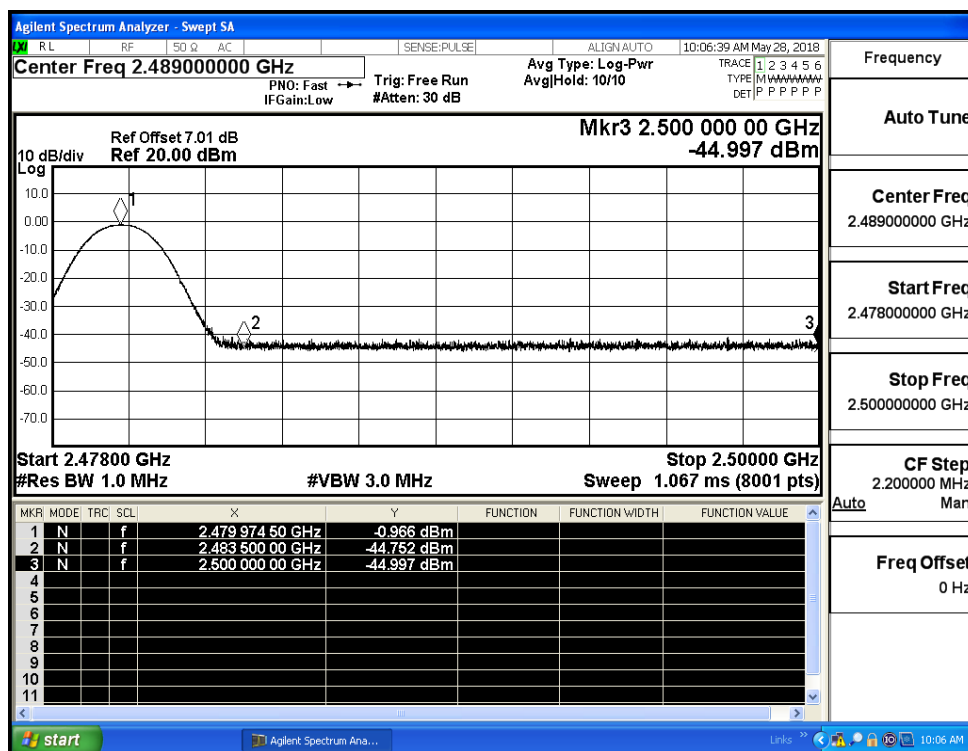
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (Low Channel)



Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (High Channel)



Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (High Channel)

