

[illegible]

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Q AC SENSE:INT ALIGN:AUTO 11:27:33 AM Dec 10, 2019

Center Freq 2.441000000 GHz Trig Delay: 2.533 ms Avg Type: Log-Pwr
 PNO: Fast IF Gain: Low Trig: Video #Atten: 30 dB

TRACE 1 2 3 4 5 6
 TYPE W W W W W W
 DET P P P P P P

Frequency
Auto Tune

Center Freq
 2.441000000 GHz

Start Freq
 2.441000000 GHz

Stop Freq
 2.441000000 GHz

CF Step
 1.000000 MHz
 Auto Man

Freq Offset
 0 Hz

ΔMkr1 2.883 ms
9.25 dB

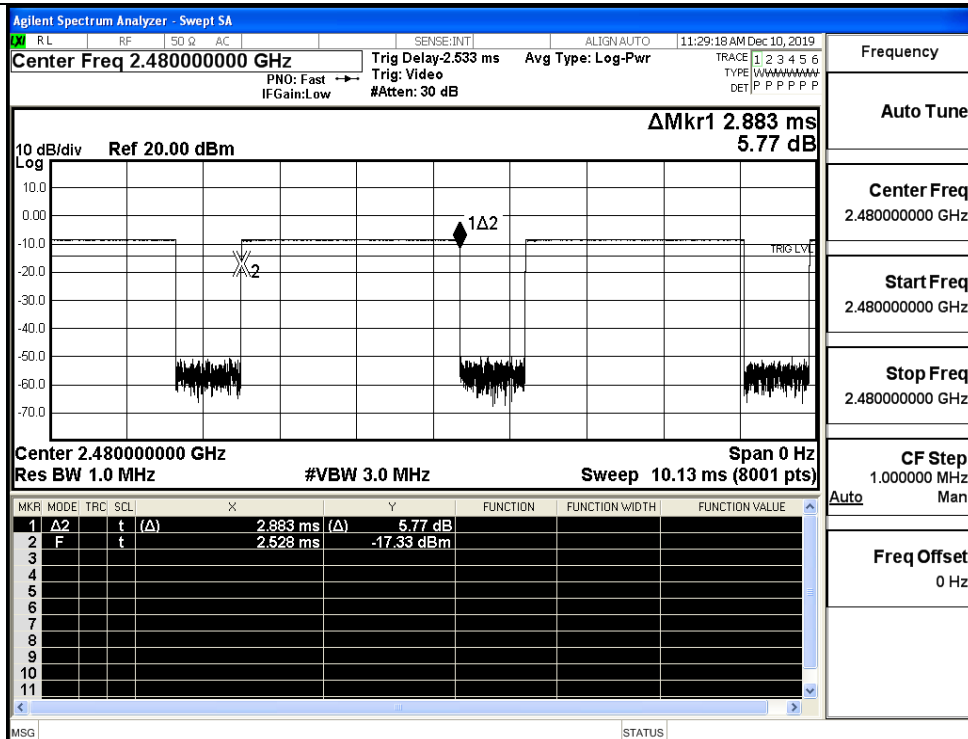
Ref 20.00 dBm

10 dB/div Log

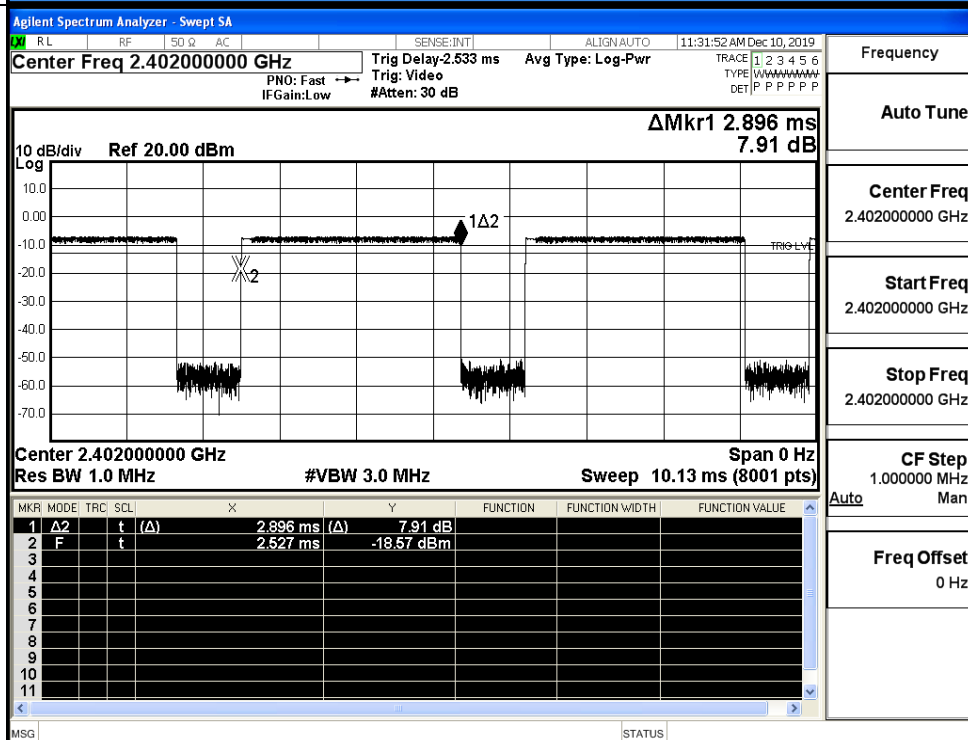
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	t	(Δ)	2.883 ms	(Δ) 9.25 dB			
2	F	t		2.527 ms	-18.21 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

Center 2.441000000 GHz **#VBW 3.0 MHz** **Span 0 Hz**
Res BW 1.0 MHz **Sweep 10.13 ms (8001 pts)**

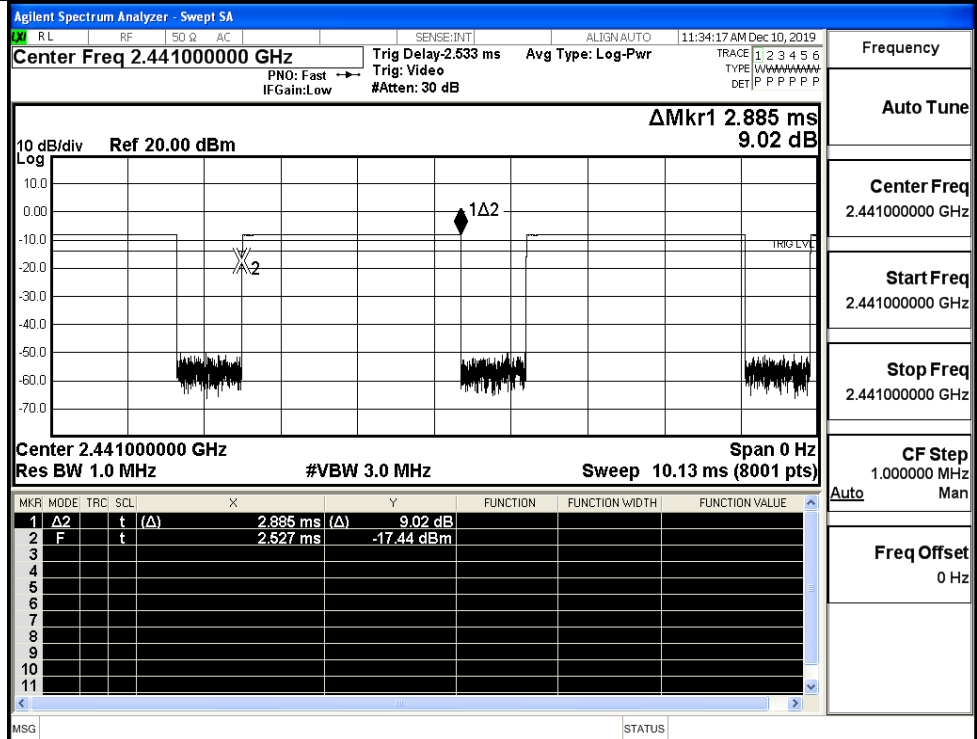
$\pi/4$ DQPSK
_2DH5/HCH



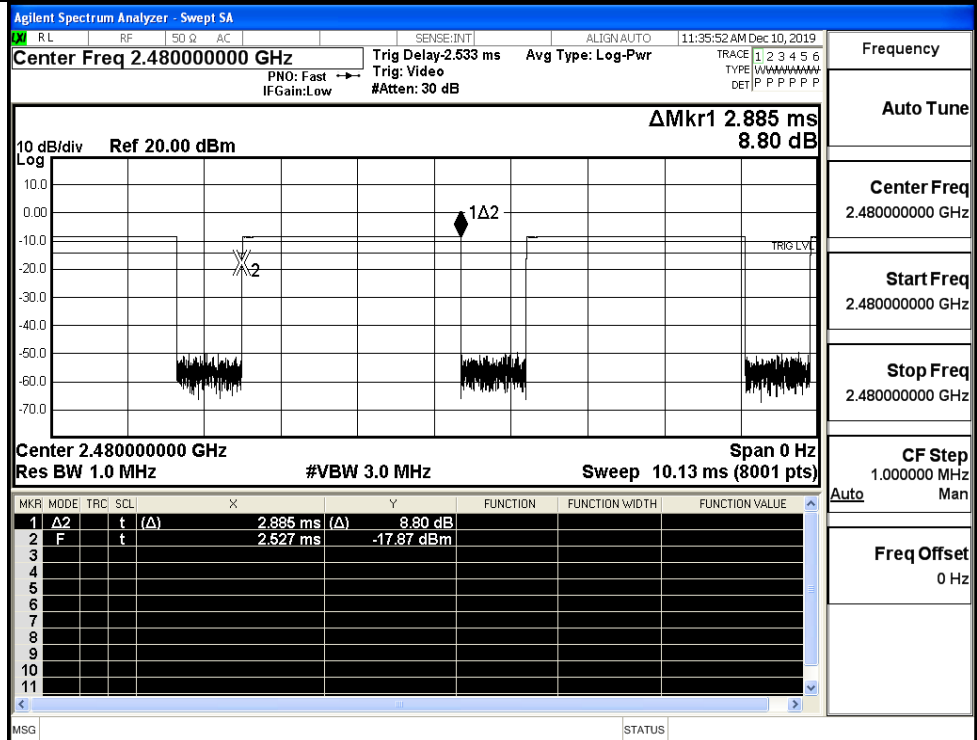
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



8DPSK_3DH5/HCH



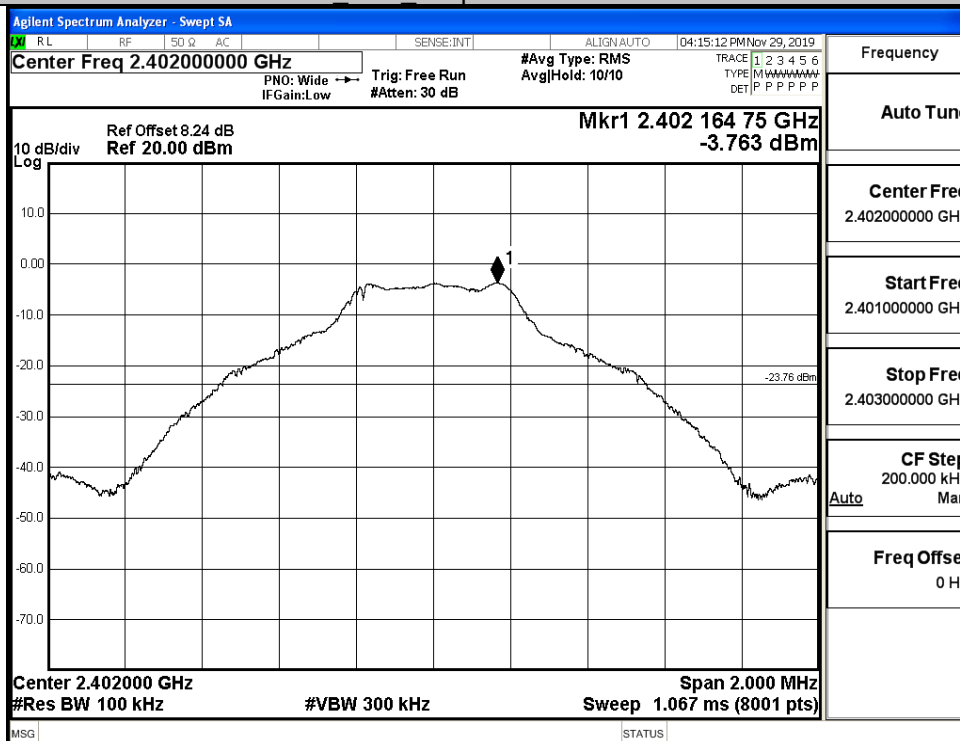
A.6 RF Conducted Spurious Emissions

L

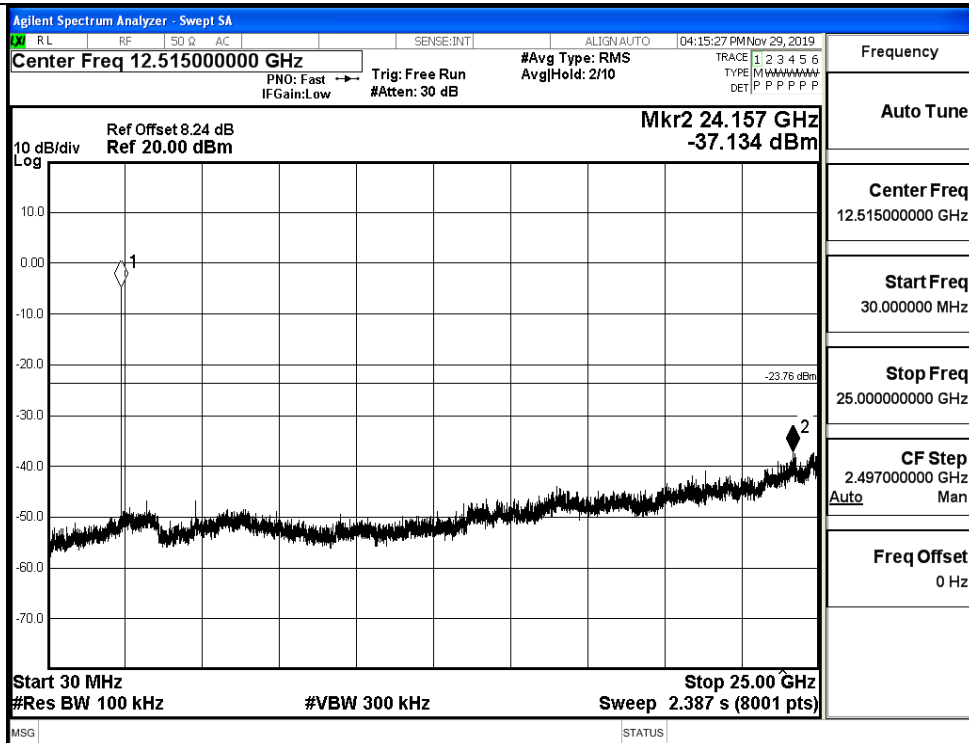
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-3.763	-37.134	-23.763	PASS
	MCH	-4.801	-37.020	-24.801	PASS
	HCH	-4.895	-37.482	-24.895	PASS
$\pi/4$ DQPSK	LCH	-1.551	-37.319	-21.551	PASS
	MCH	-2.953	-31.590	-22.953	PASS
	HCH	-4.667	-37.138	-24.667	PASS
8DPSK	LCH	-1.493	-29.120	-21.493	PASS
	MCH	-2.897	-31.623	-22.897	PASS
	HCH	-4.599	-29.885	-24.599	PASS

GFSK LCH Graphs

Pref

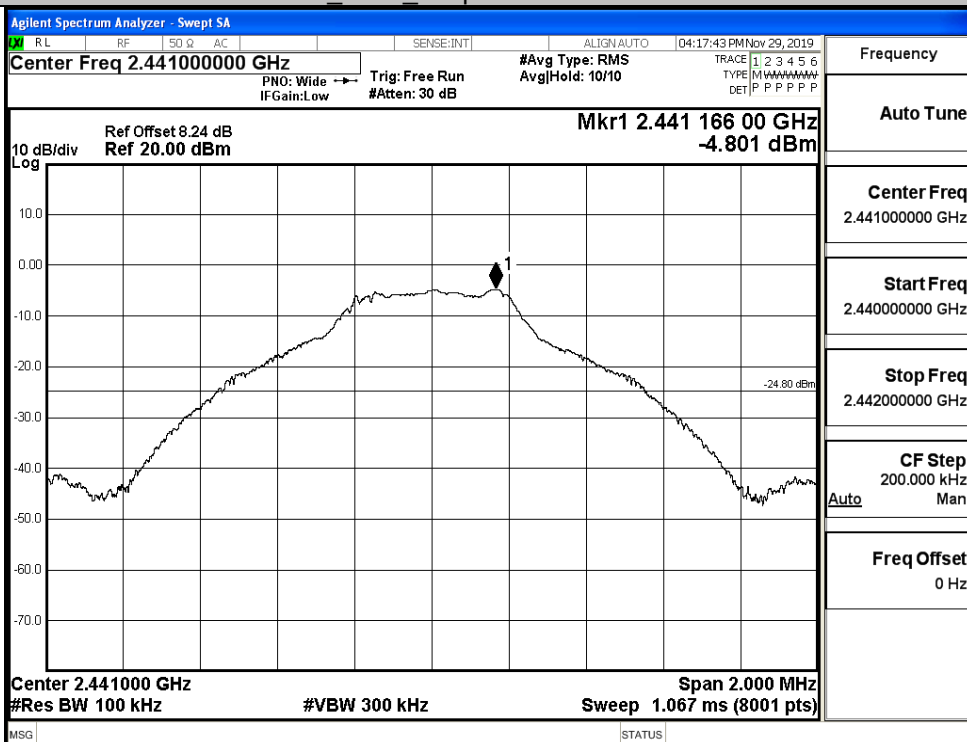


Puw

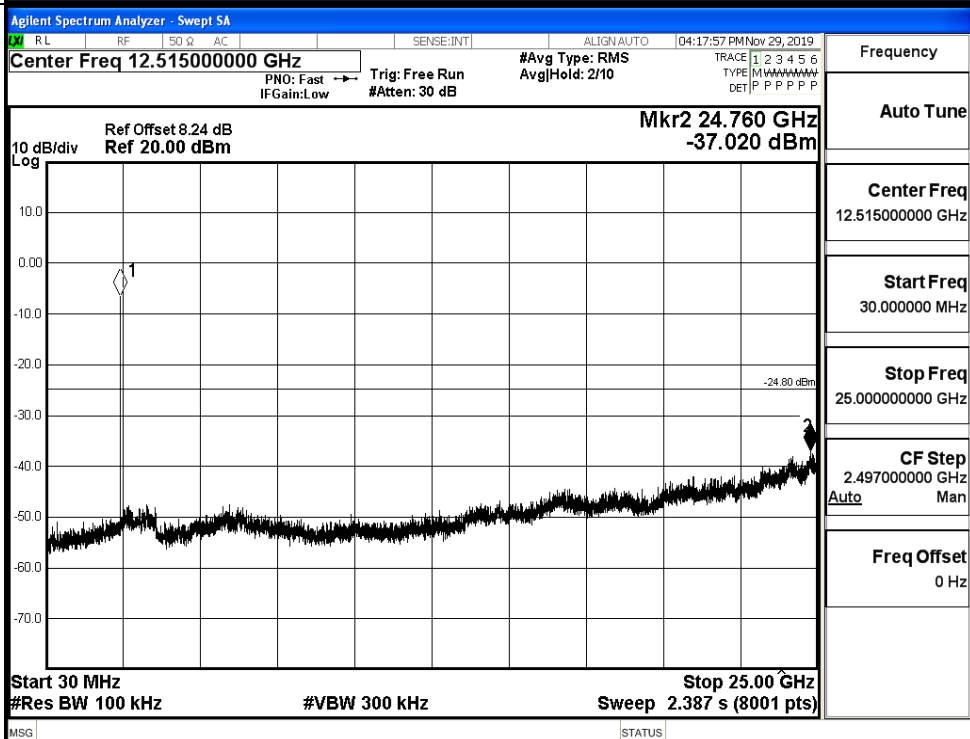


GFSK_MCH_Graphs

Pref

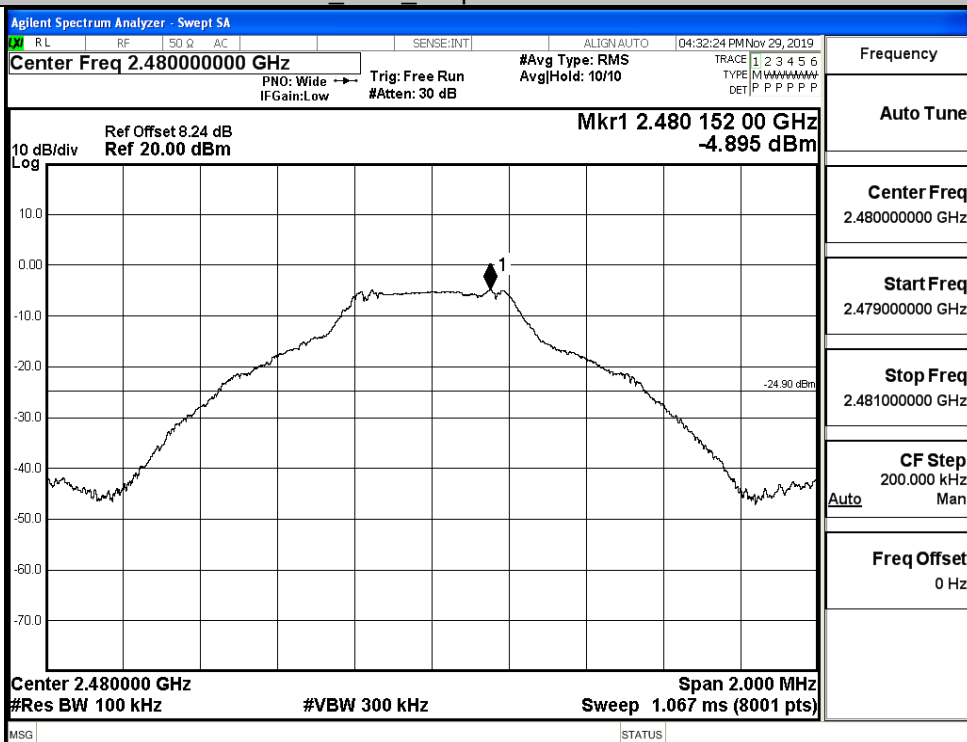


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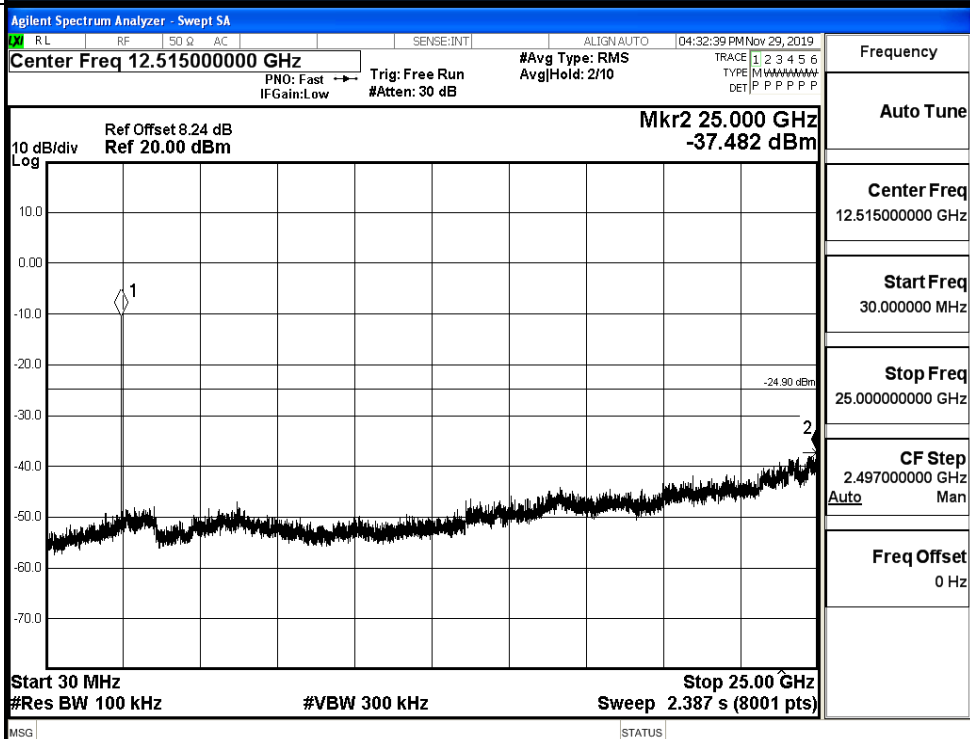


GFSK HCH Graphs

Pref

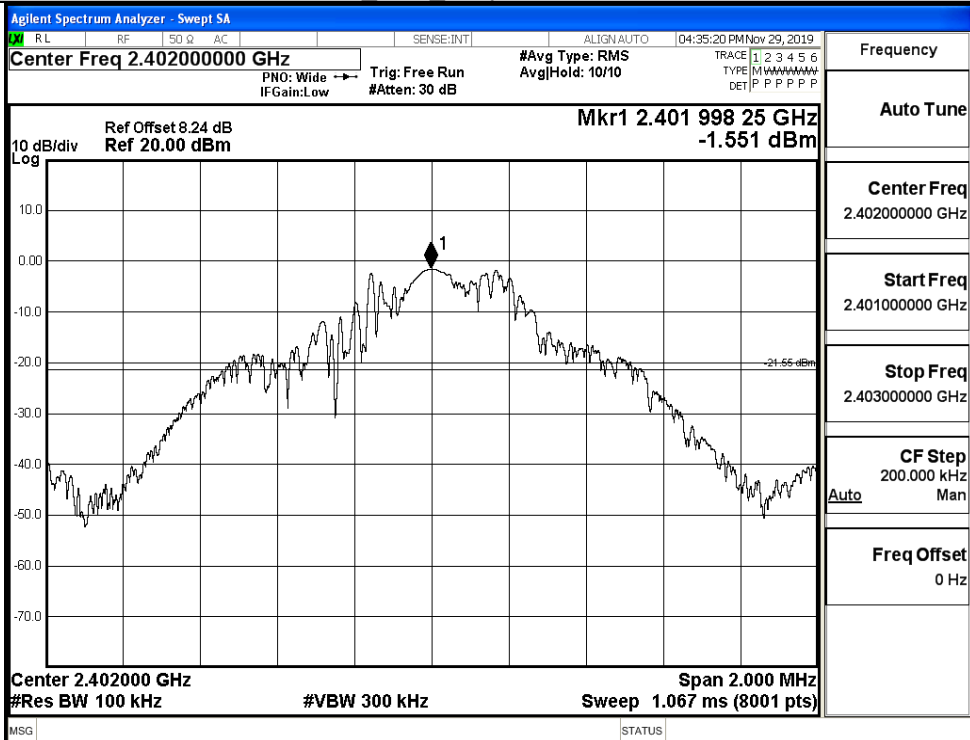


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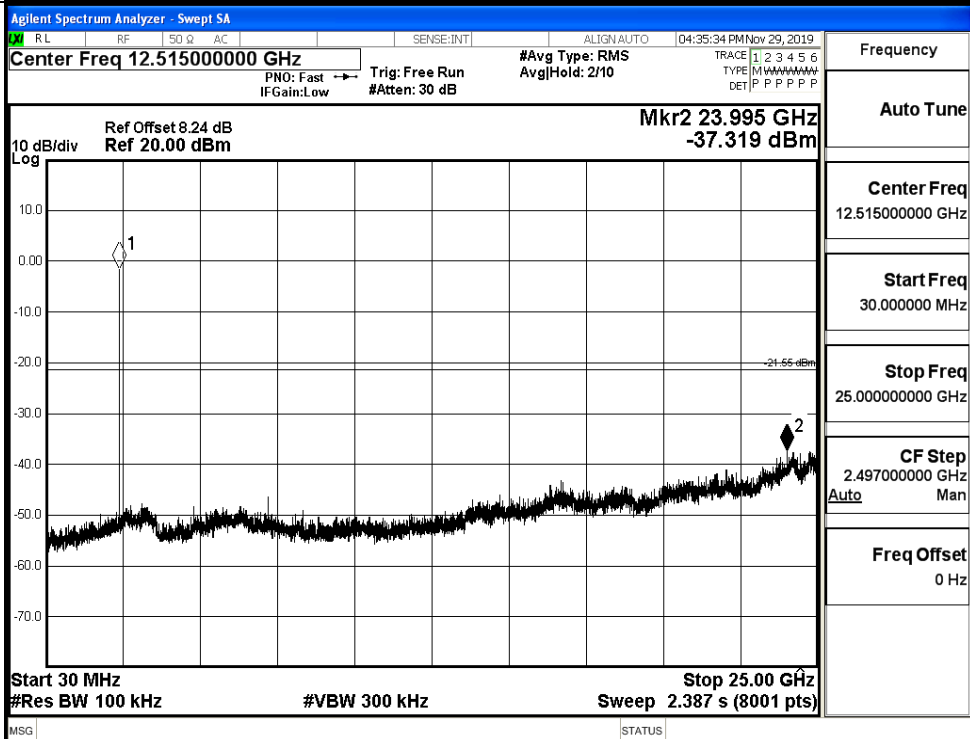


π /4DQPSK_LCH_Graphs

Pref

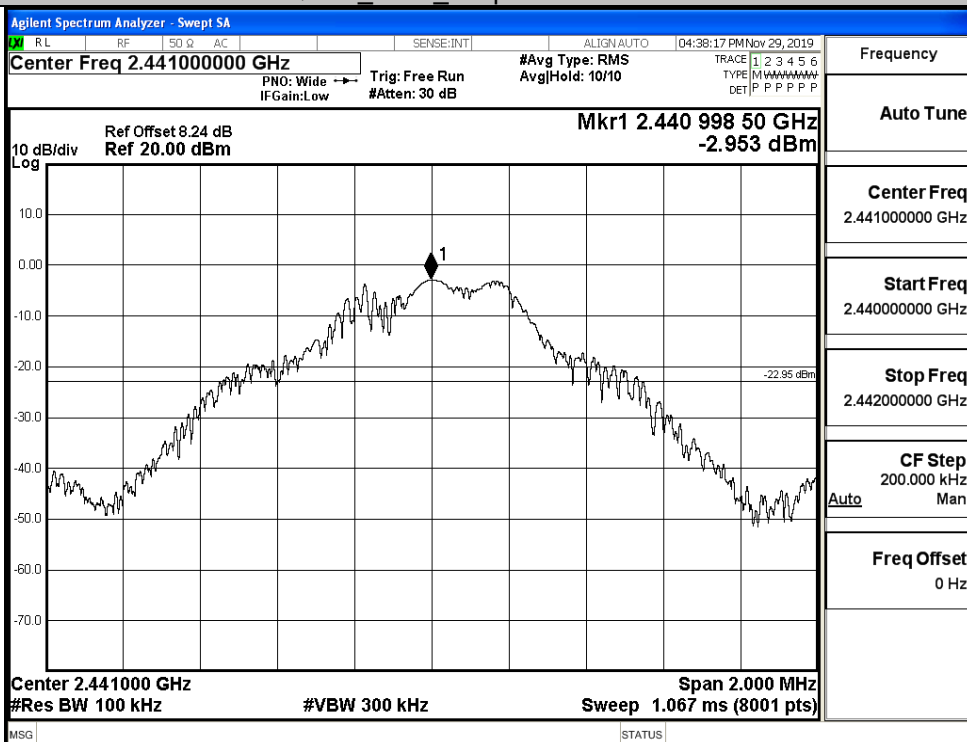


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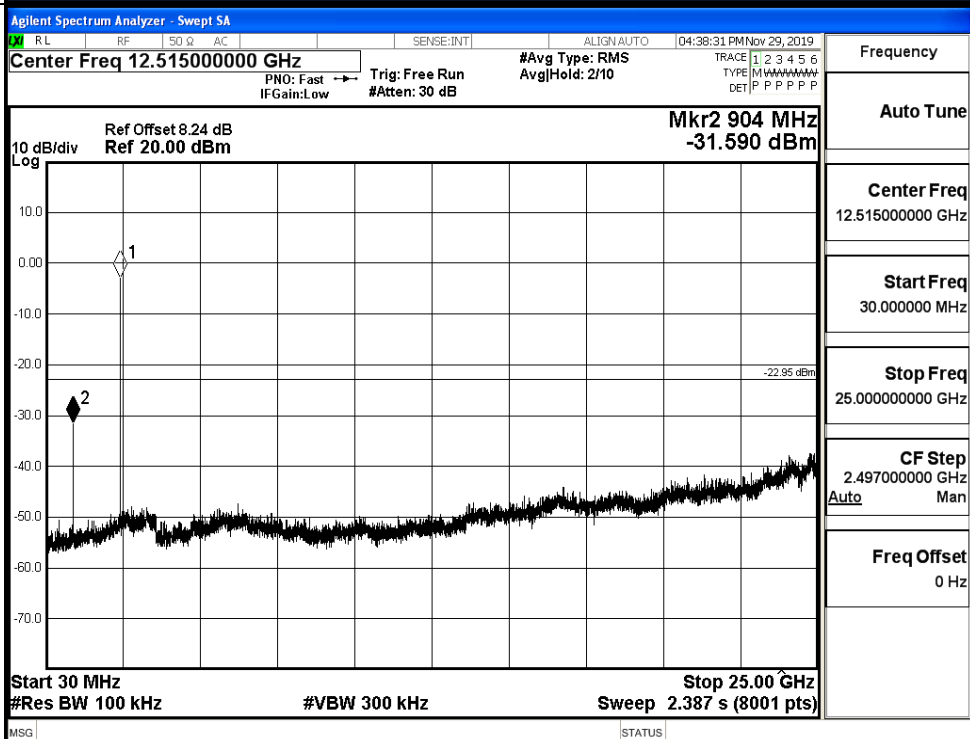


π /4DQPSK_MCH_Graphs

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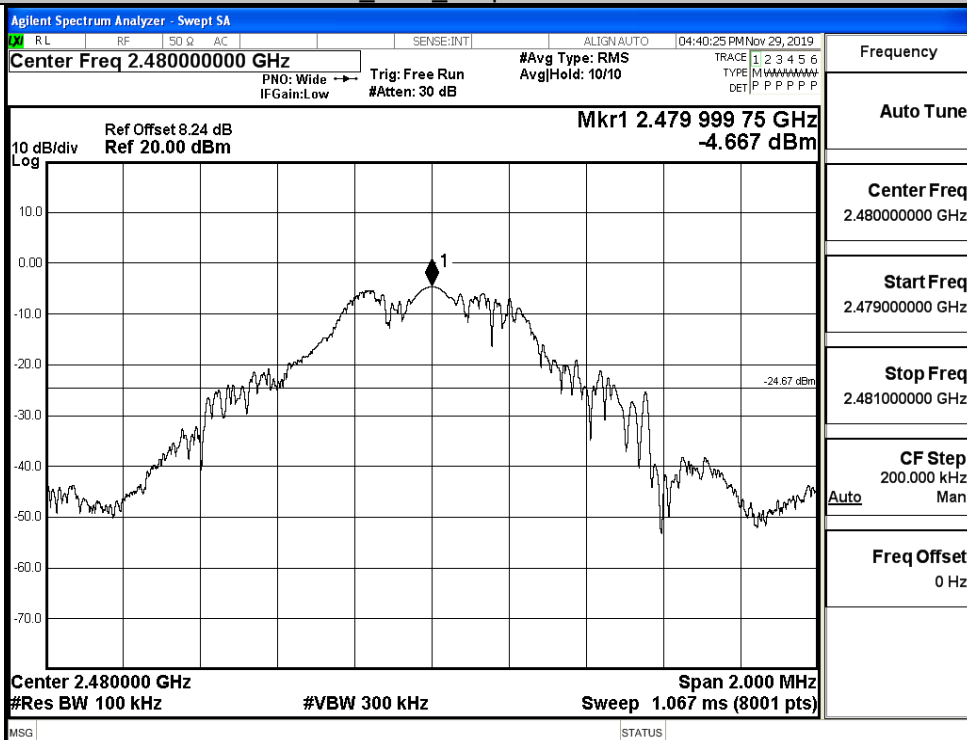


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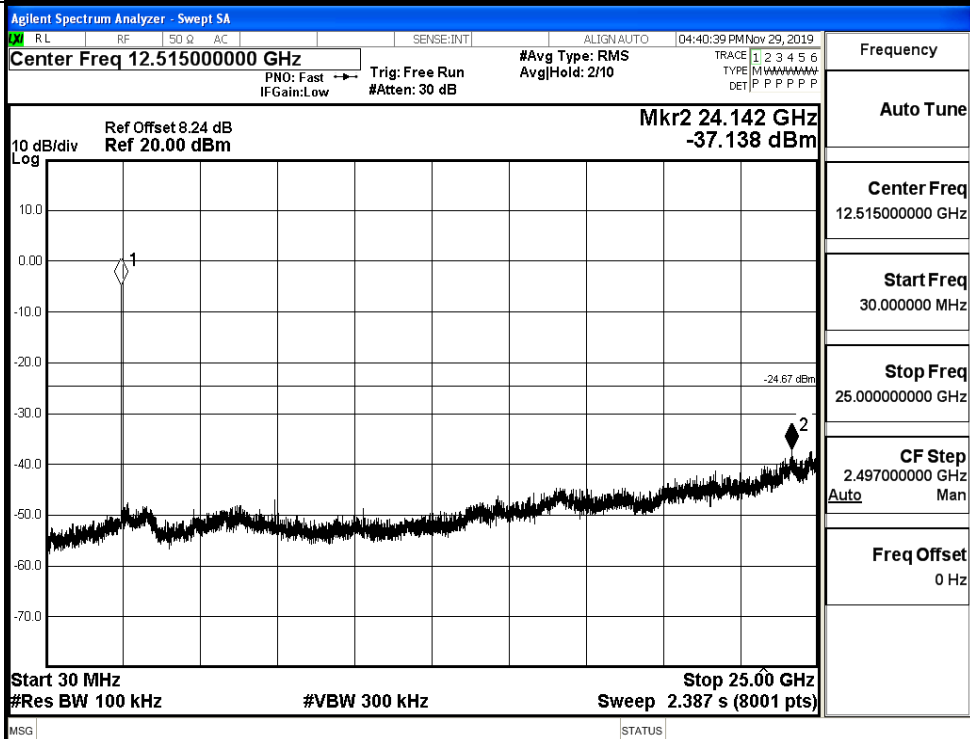


π /4DQPSK_HCH_Graphs

Pref

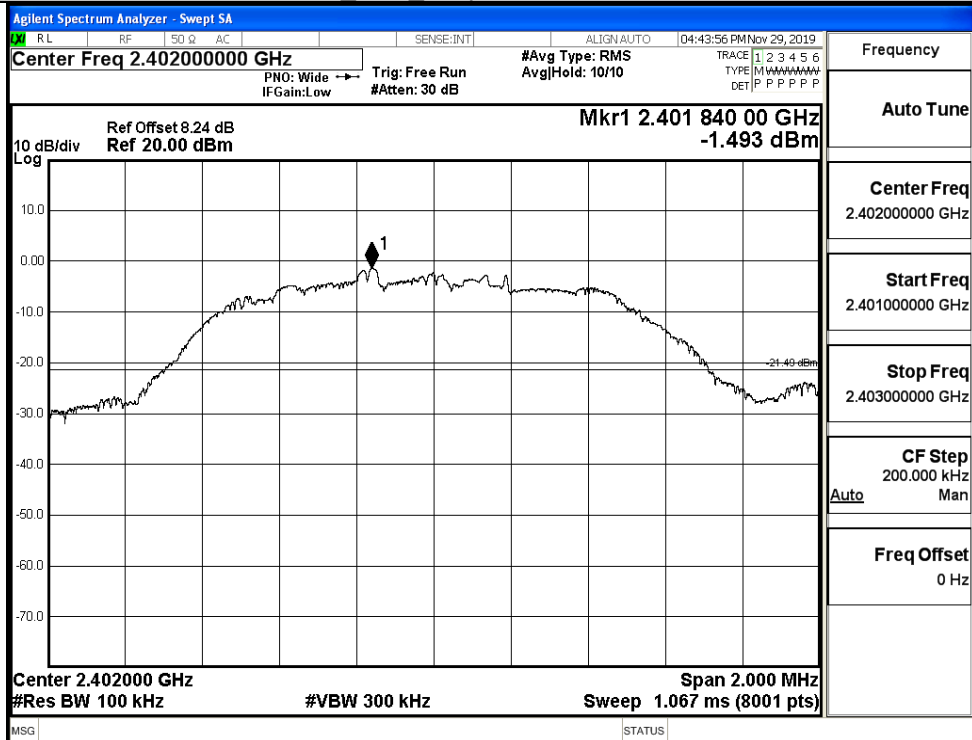


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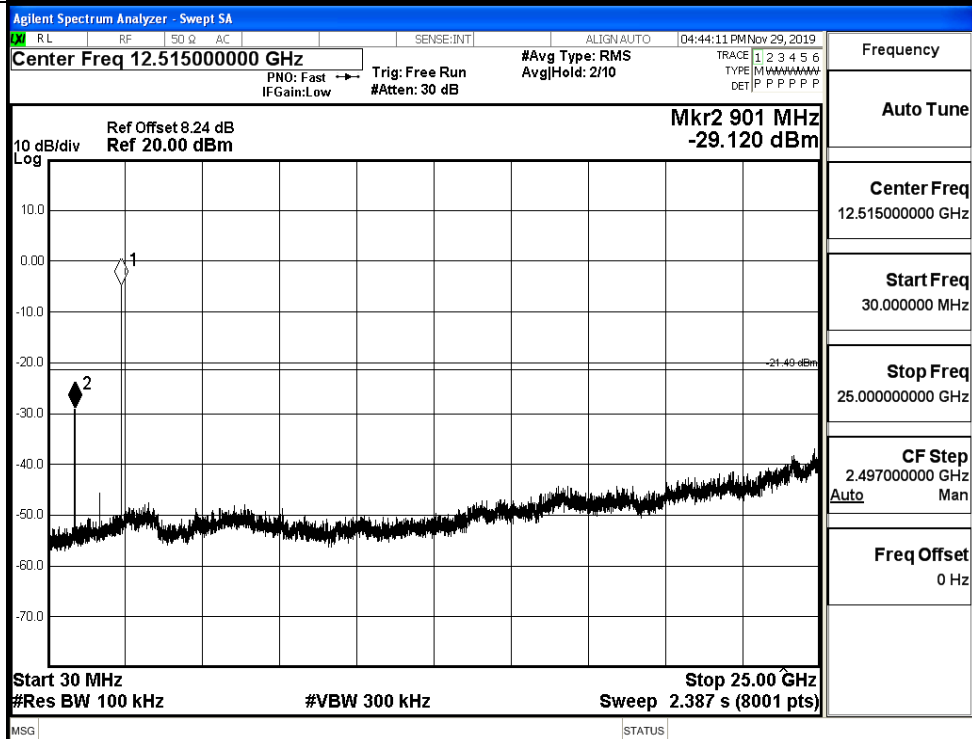


8DPSK_LCH_Graphs

Pref

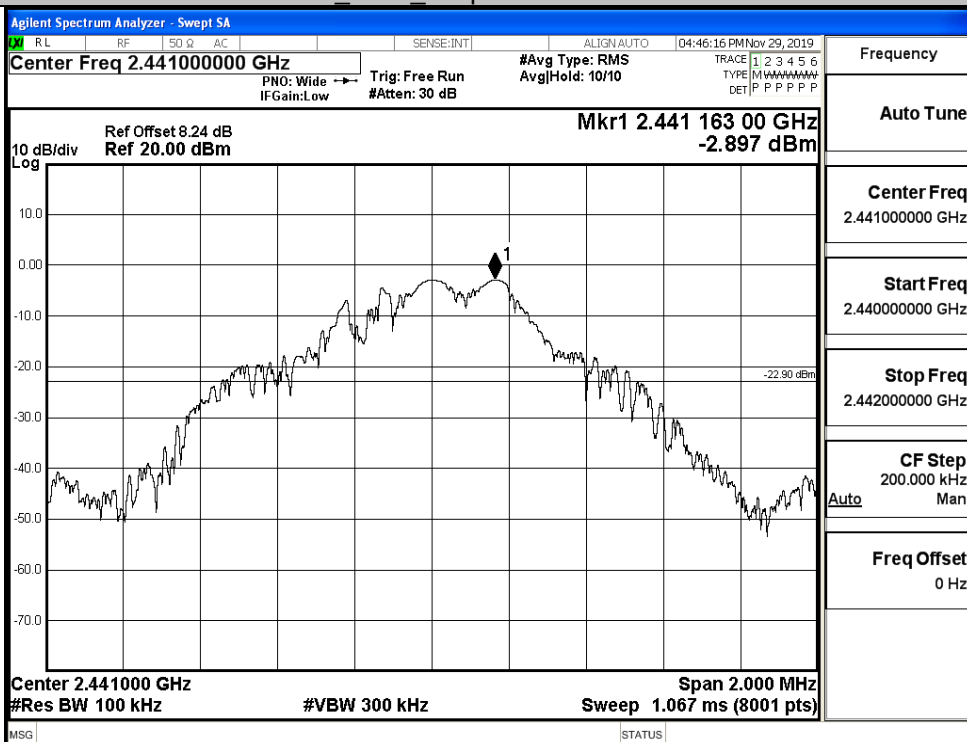


Puw

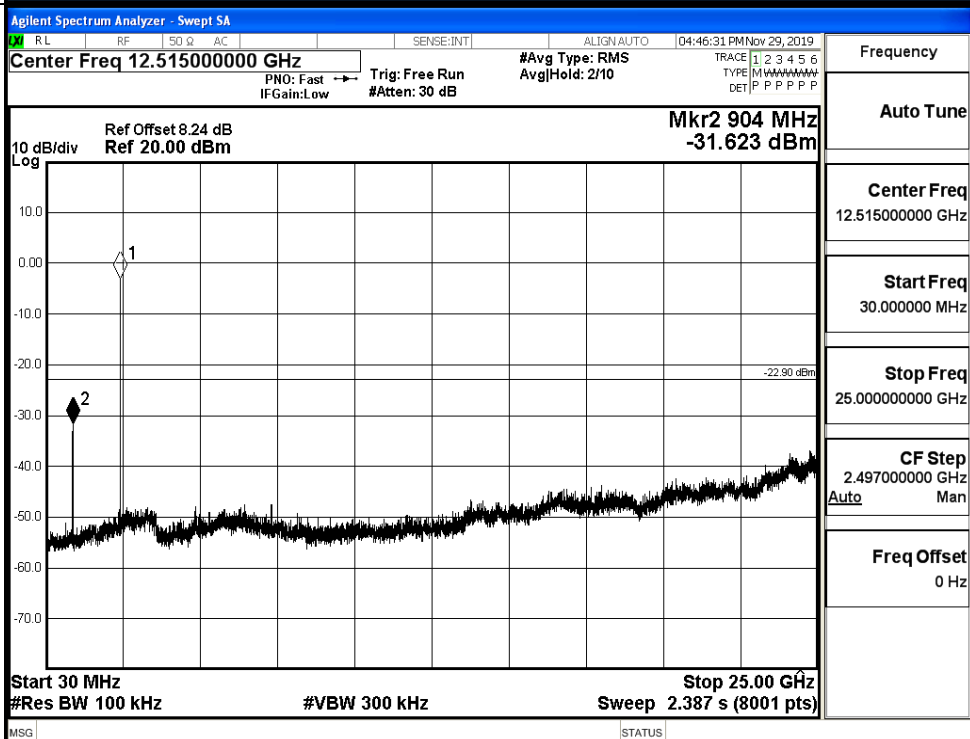


8DPSK_MCH_Graphs

Pref

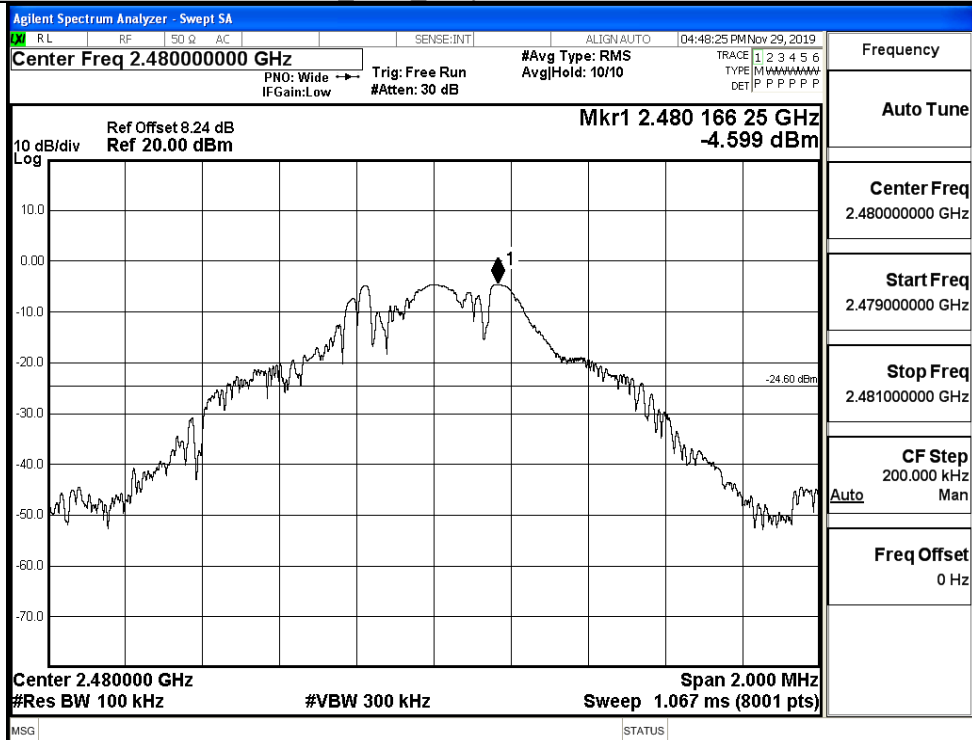


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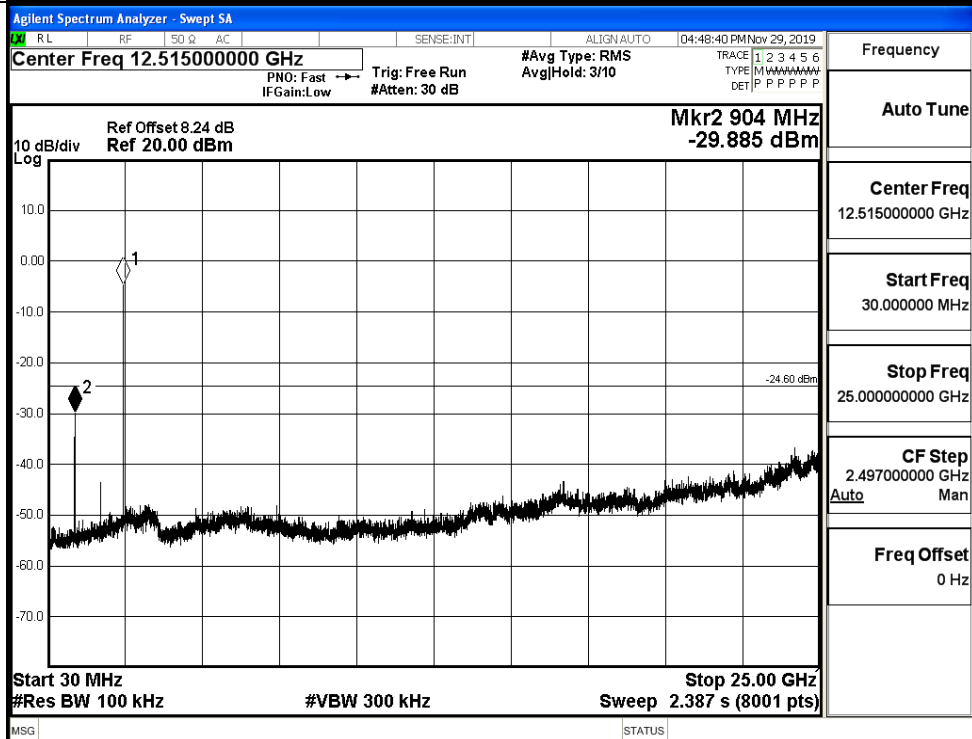


8DPSK_HCH_Graphs

Pref



Puw

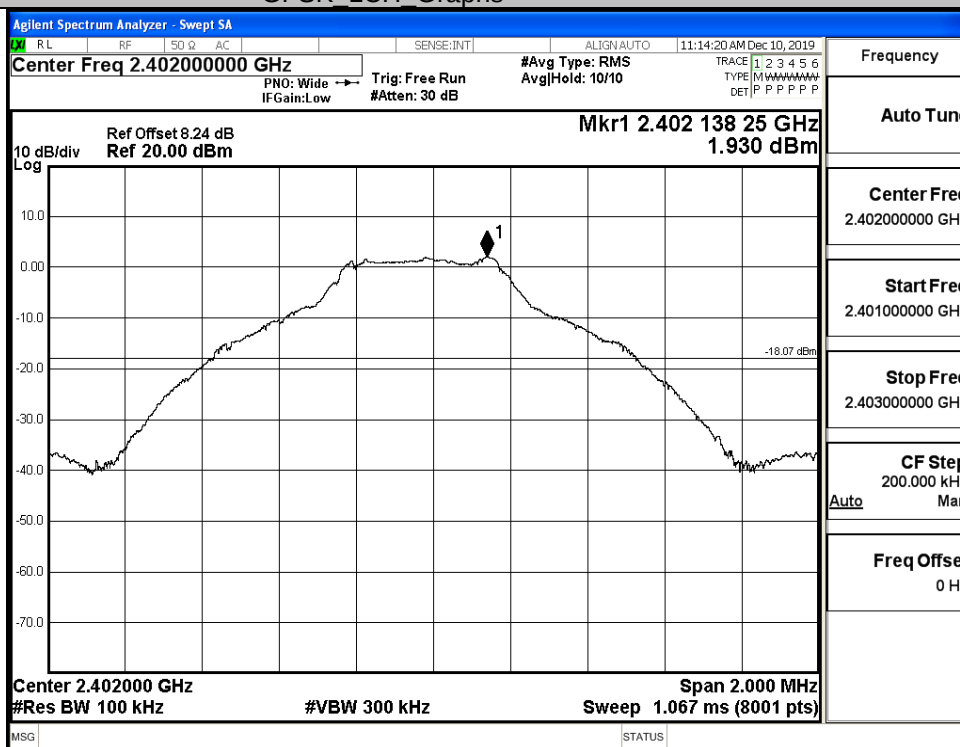


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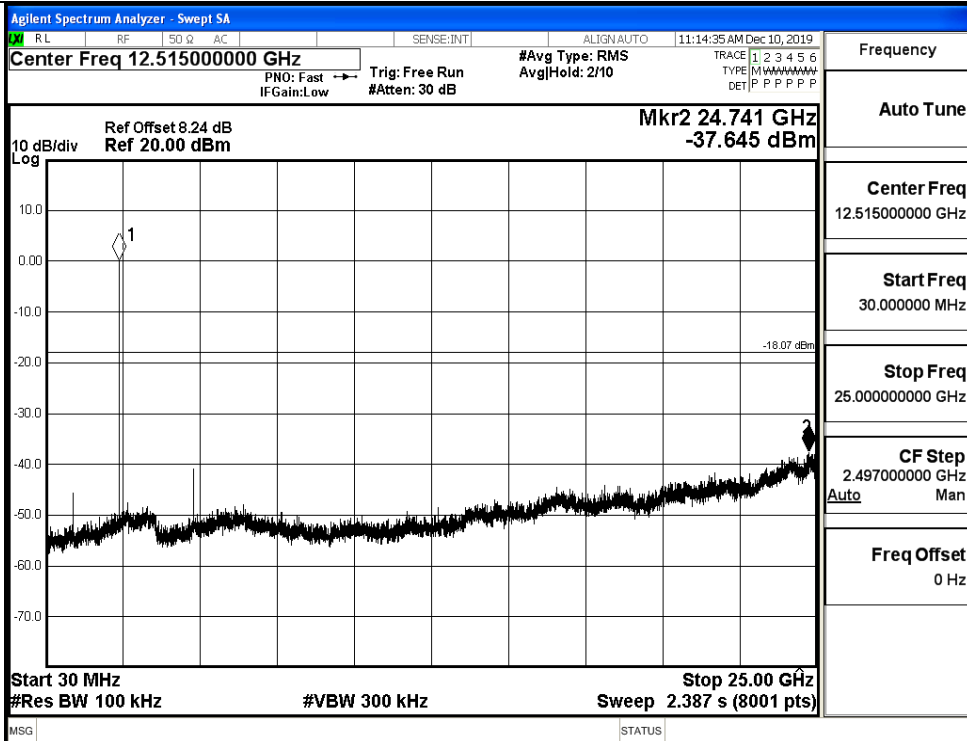
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.93	-37.645	-18.070	PASS
	MCH	0.688	-36.989	-19.312	PASS
	HCH	0.193	-35.585	-19.807	PASS
$\pi/4$ DQPSK	LCH	0.872	-29.178	-19.128	PASS
	MCH	0.194	-37.904	-19.806	PASS
	HCH	-0.31	-37.402	-20.310	PASS
8DPSK	LCH	0.512	-30.744	-19.488	PASS
	MCH	0.156	-29.670	-19.844	PASS
	HCH	-0.199	-37.241	-20.199	PASS

GFSK LCH Graphs

Pref

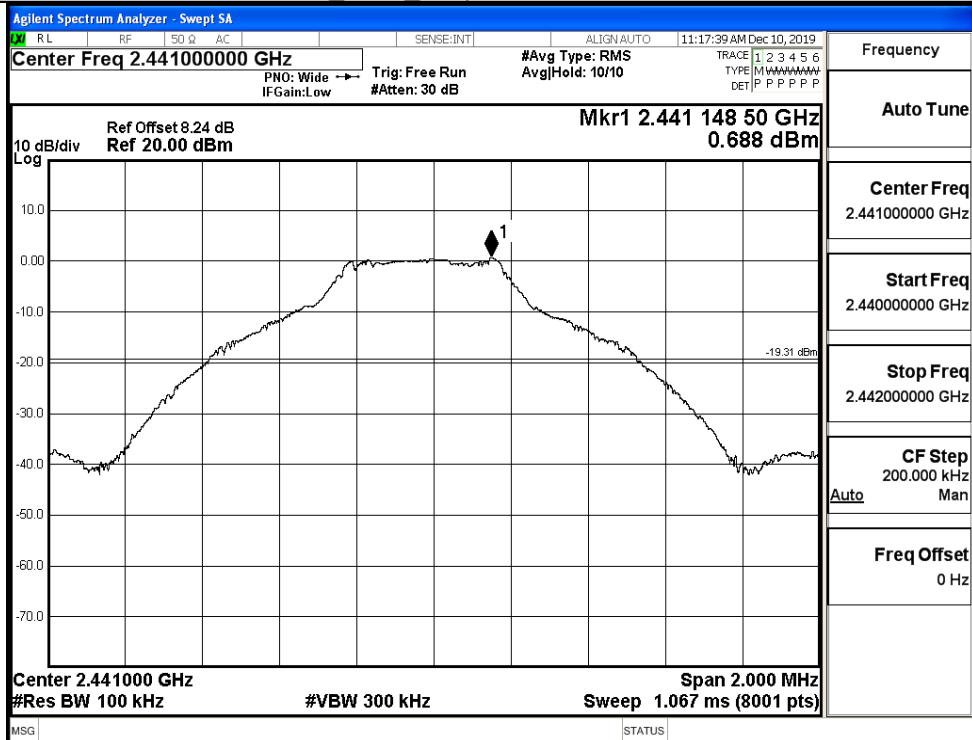


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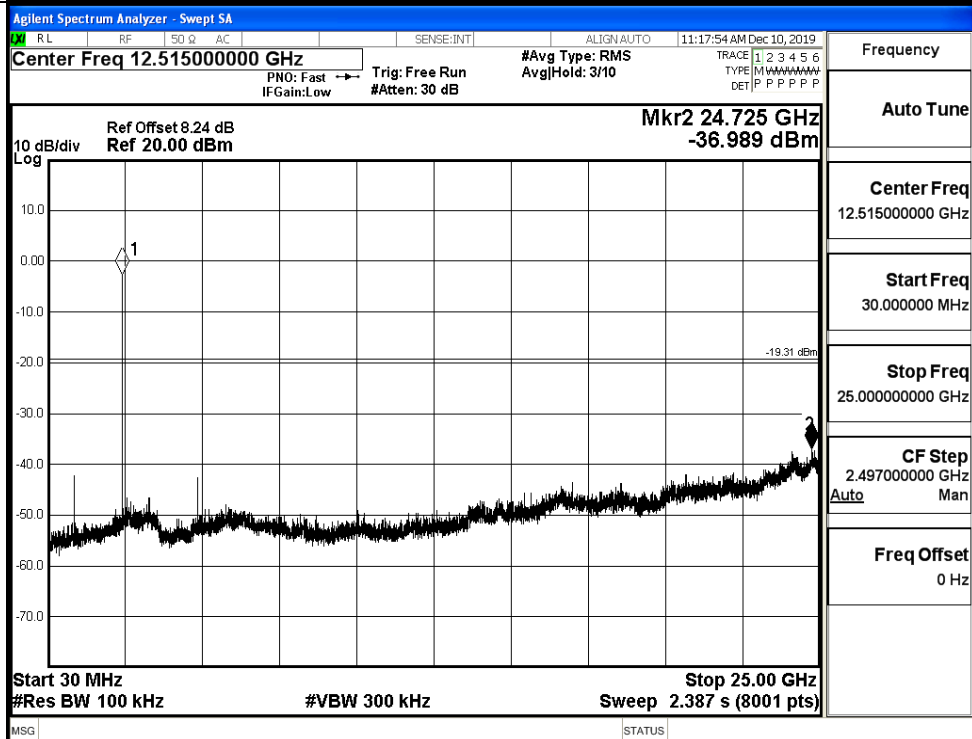


GFSK_MCH_Graphs

Pref

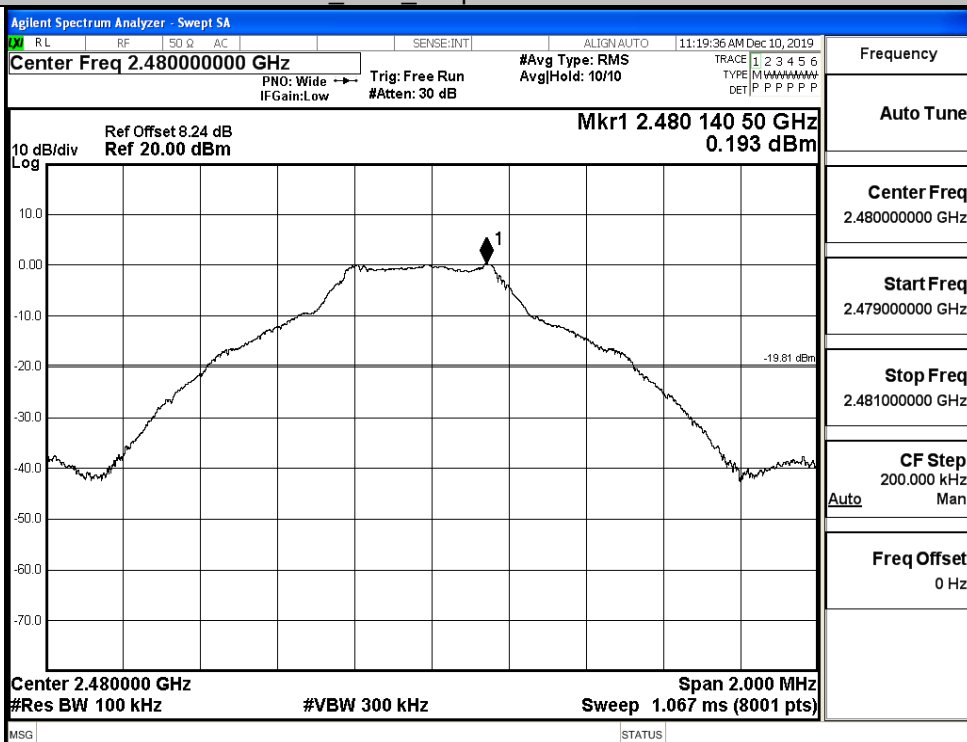


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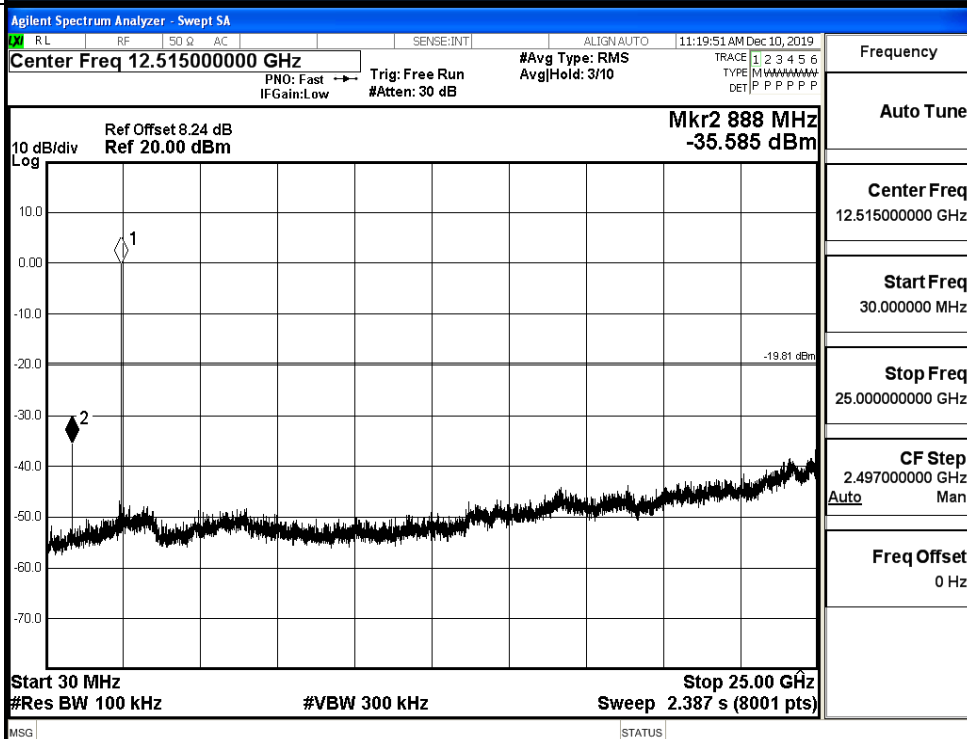


GFSK HCH Graphs

Pref

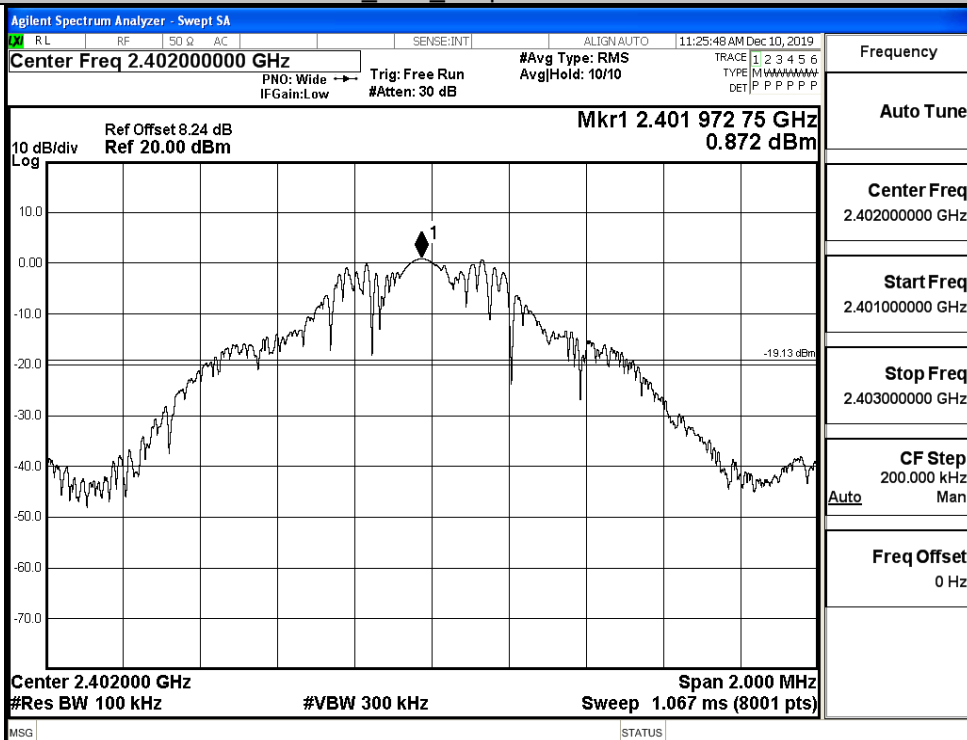


Puw

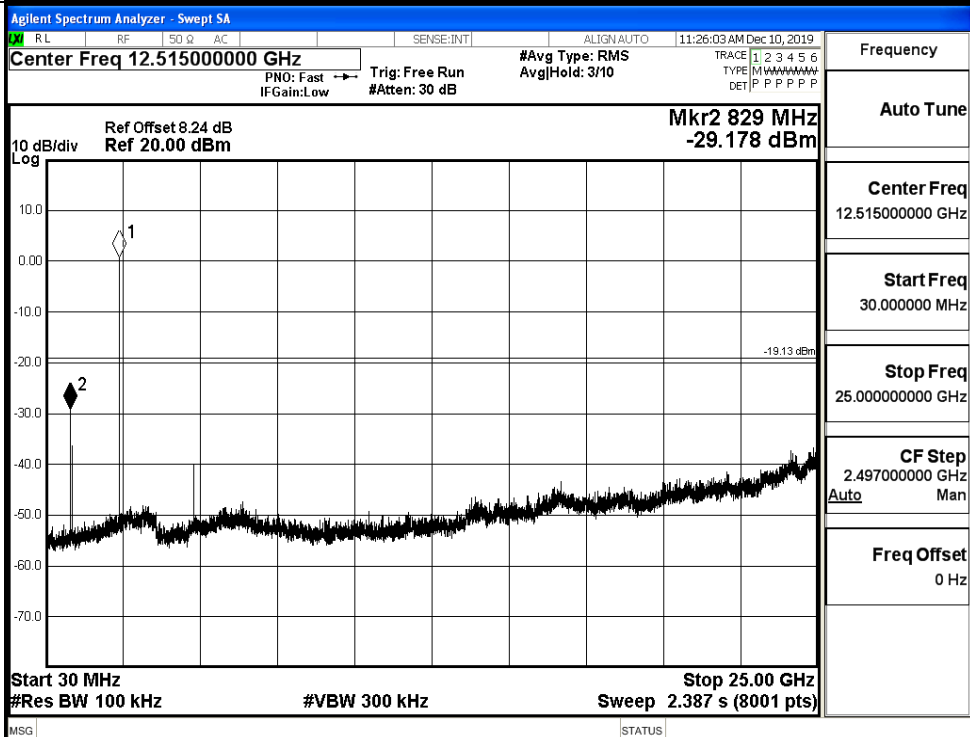


π /4DQPSK_LCH_Graphs

Pref

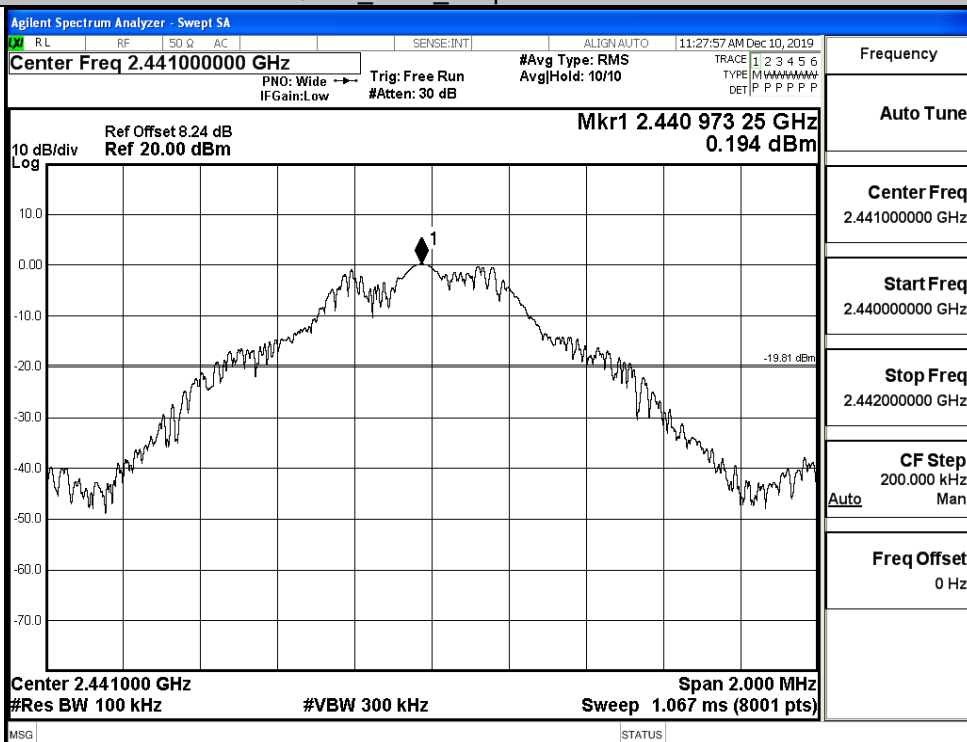


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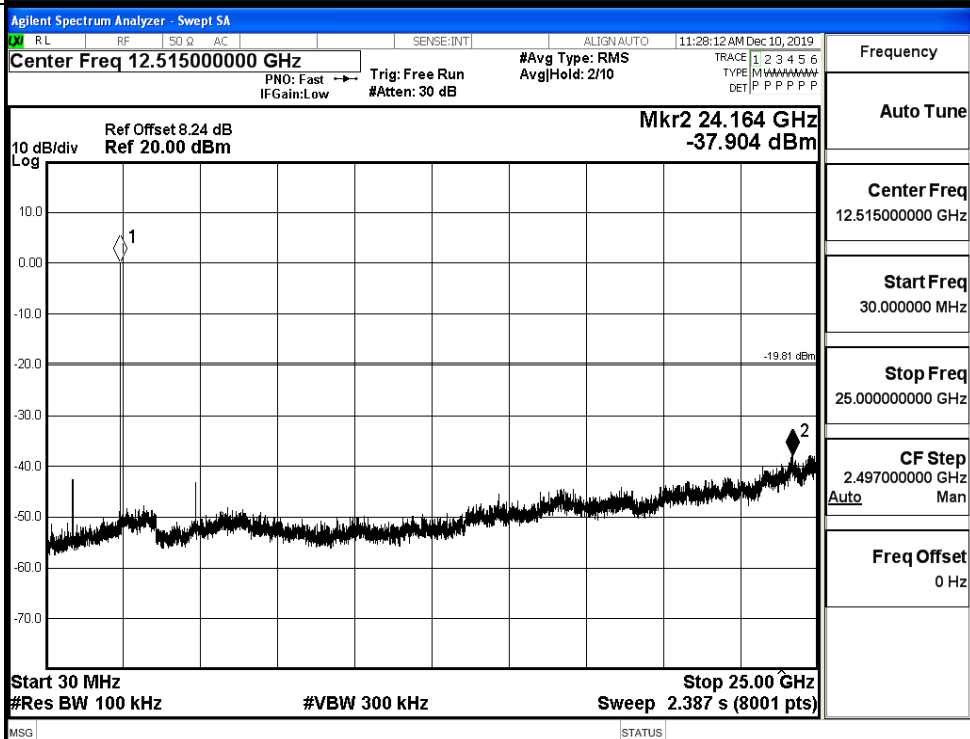


π /4DQPSK_MCH_Graphs

Pref

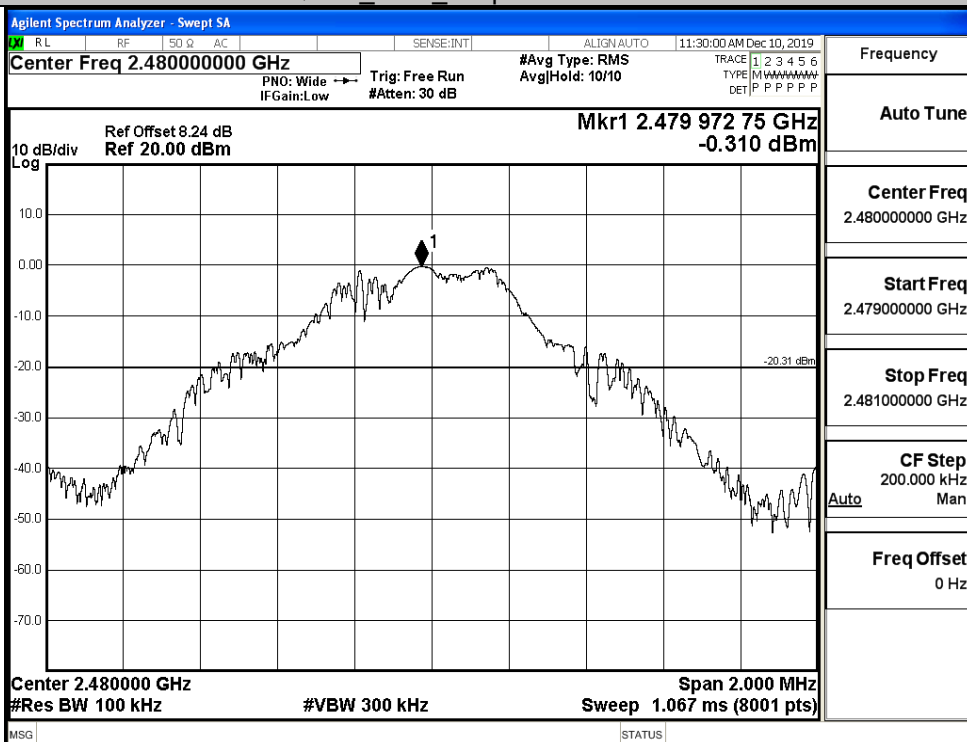


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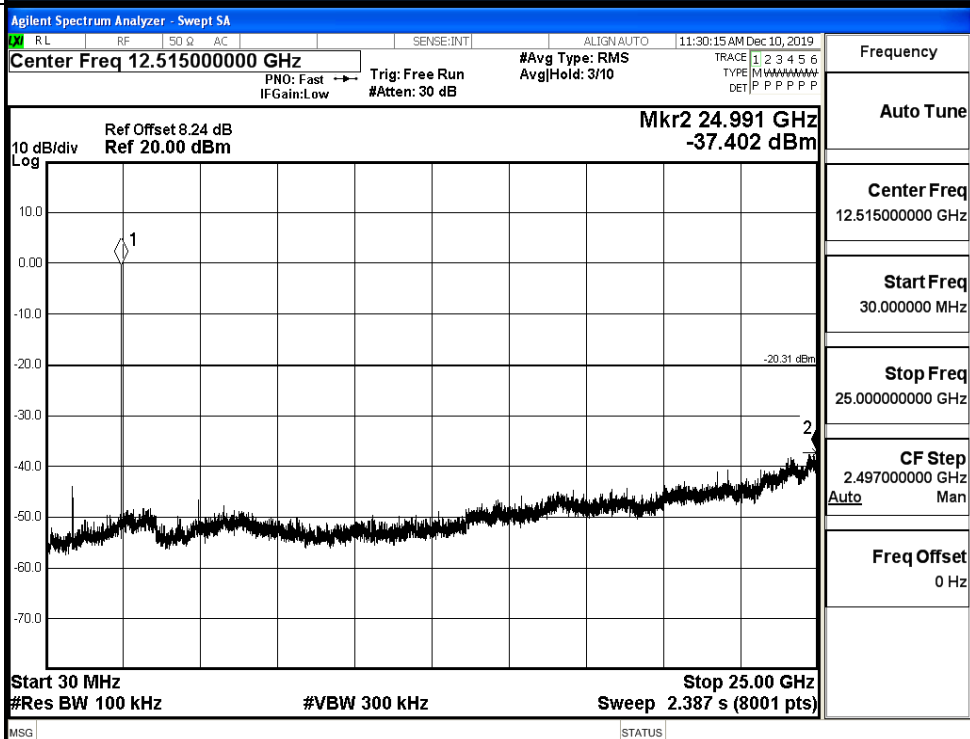


$\pi/4$ DQPSK_HCH_Graphs

Pref

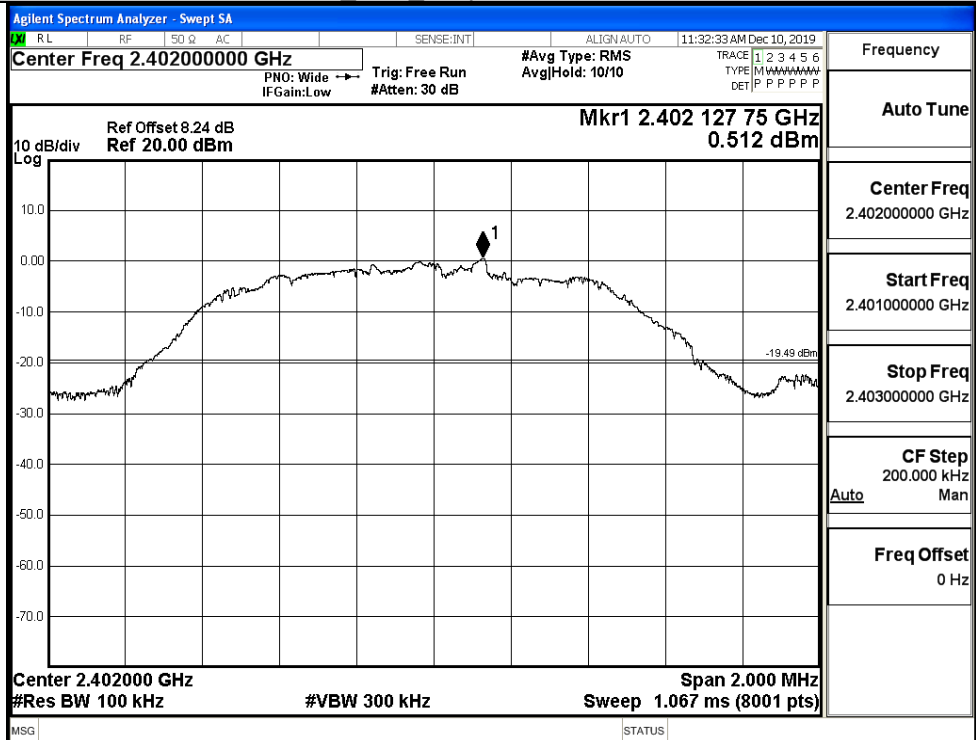


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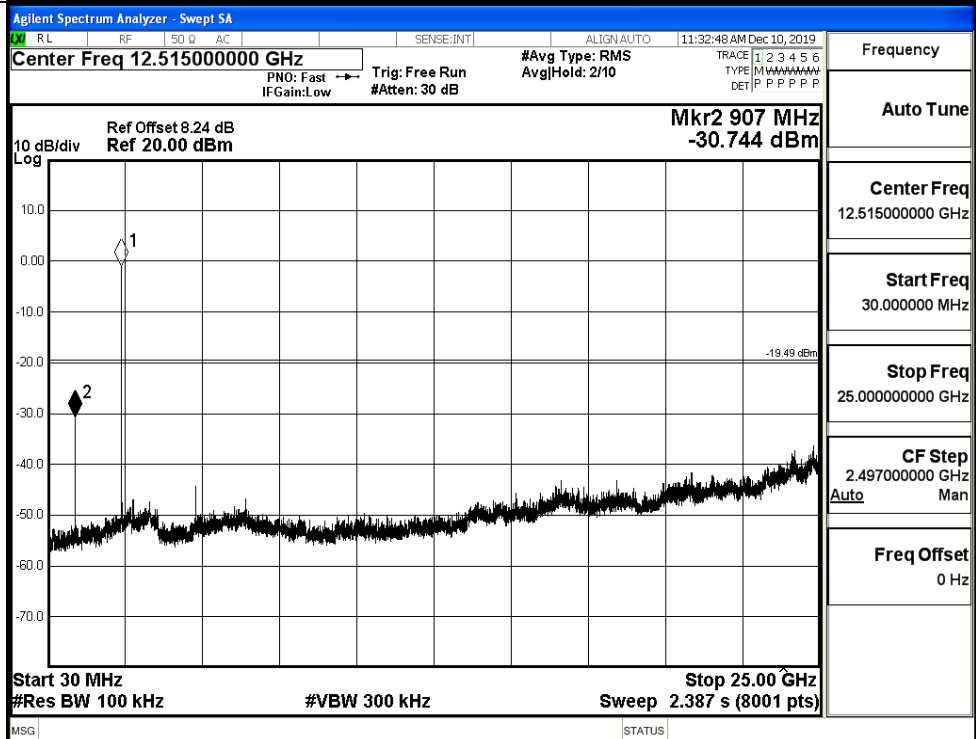


8DPSK_LCH_Graphs

Pref

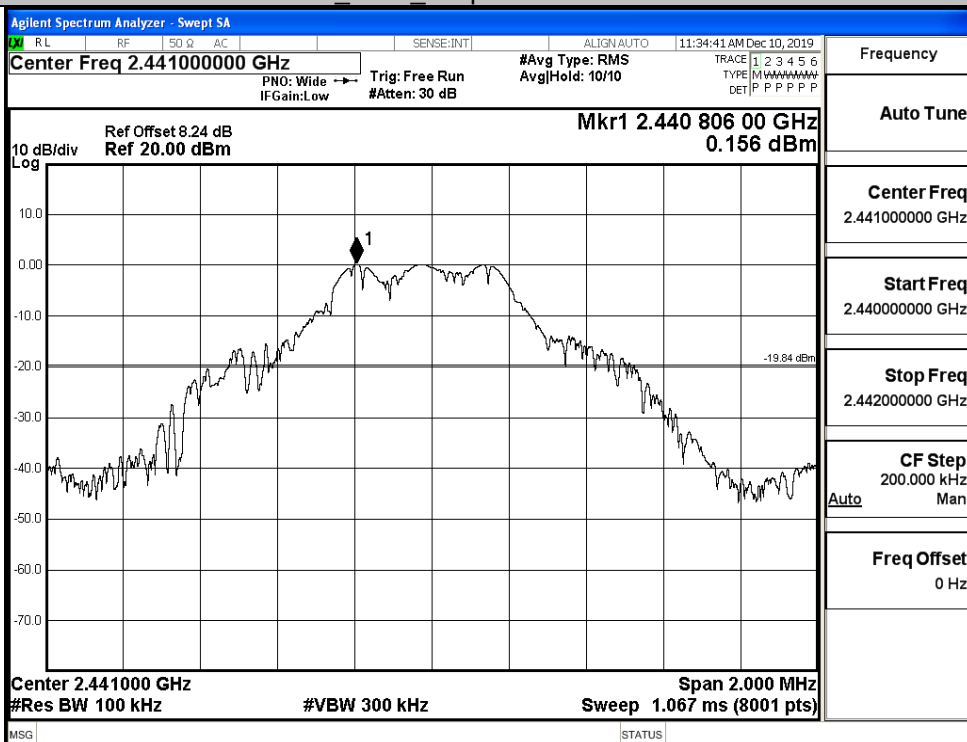


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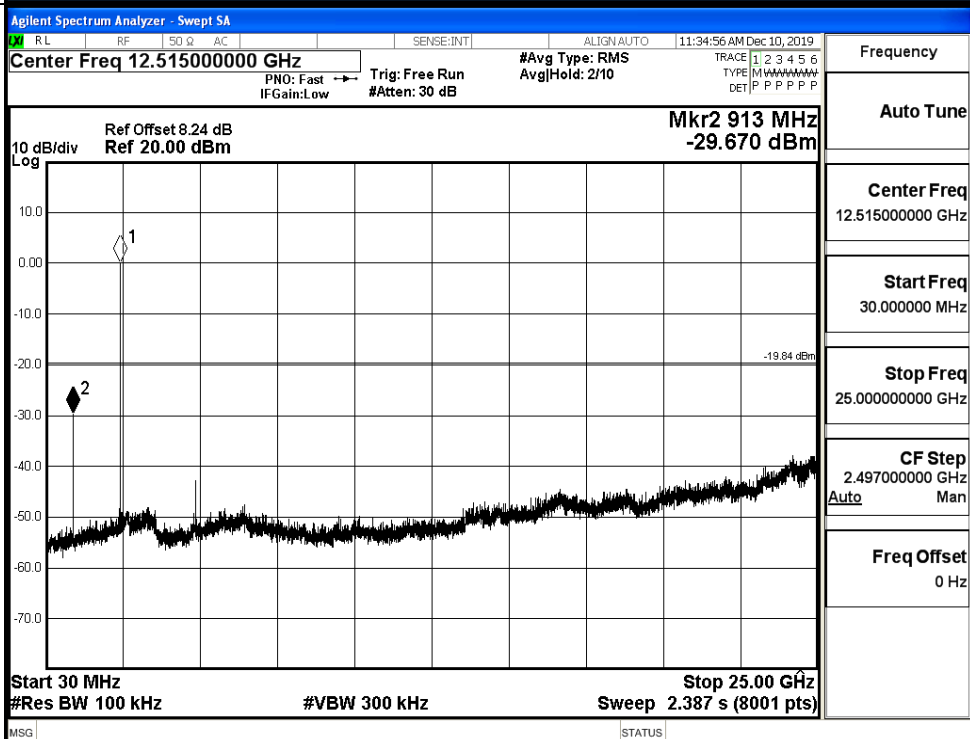


8DPSK_MCH_Graphs

Pref

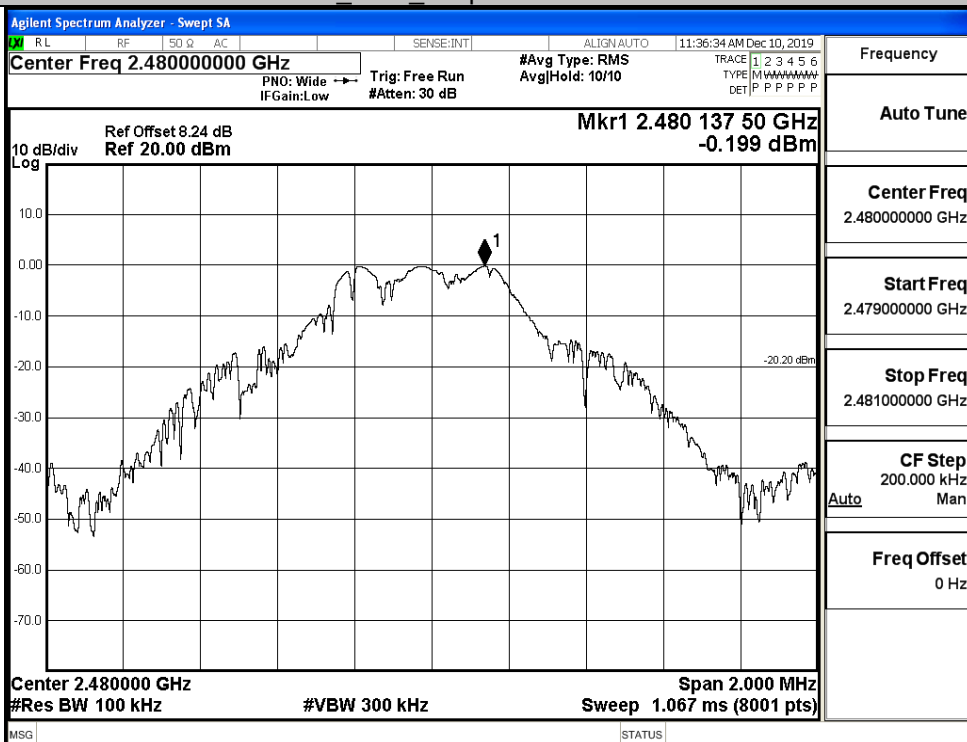


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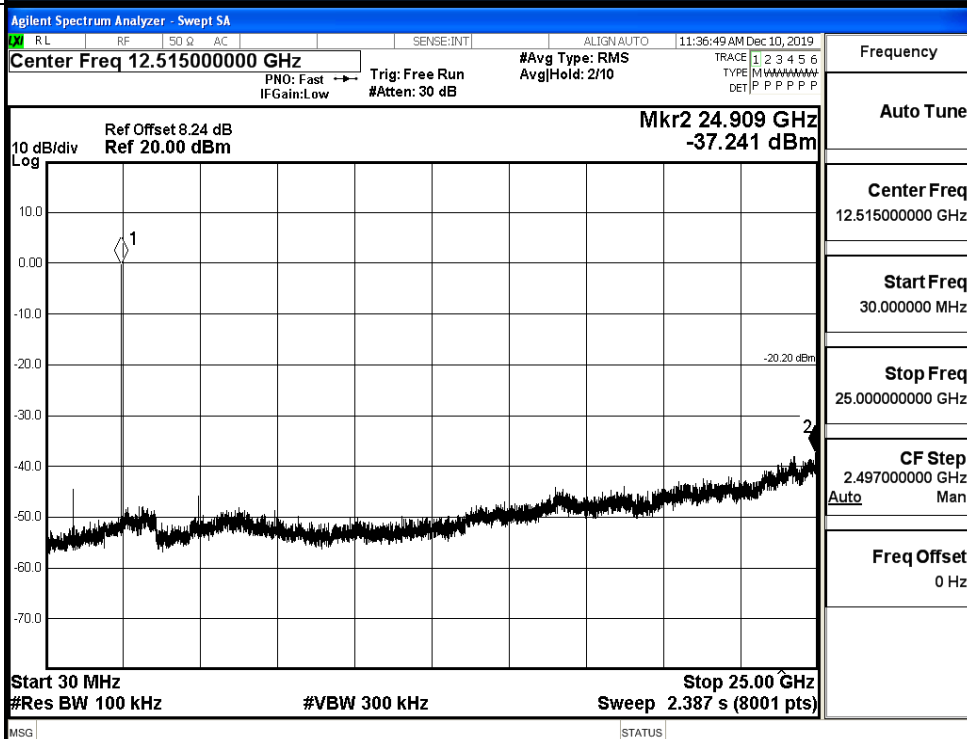


8DPSK_HCH_Graphs

Pref



Puw



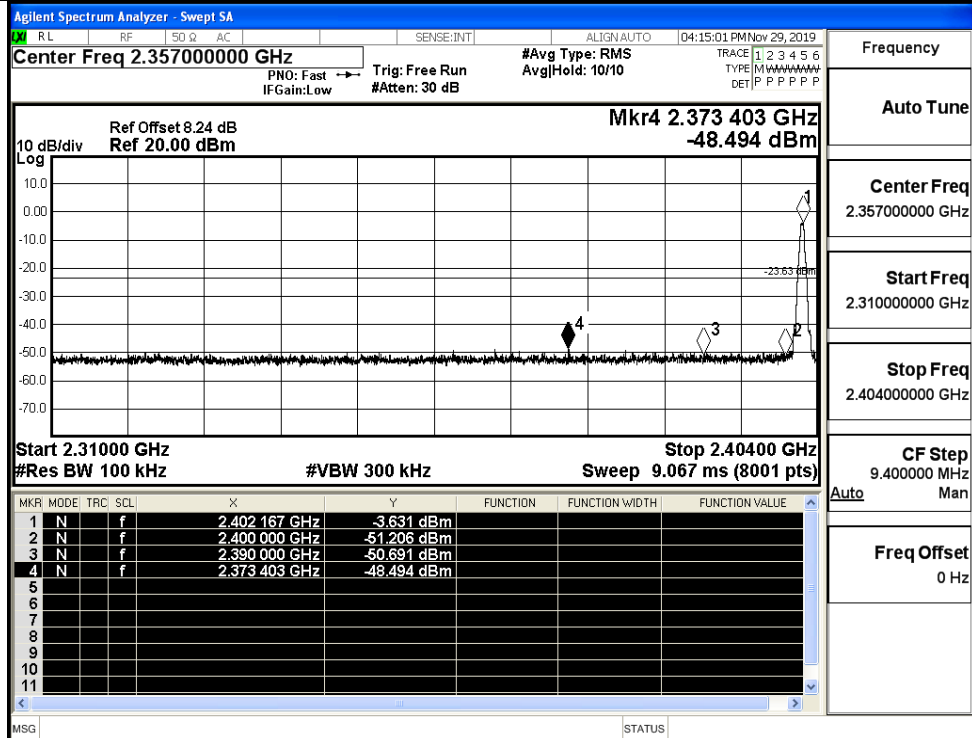
A.7 Band-edge for RF Conducted Emissions

L

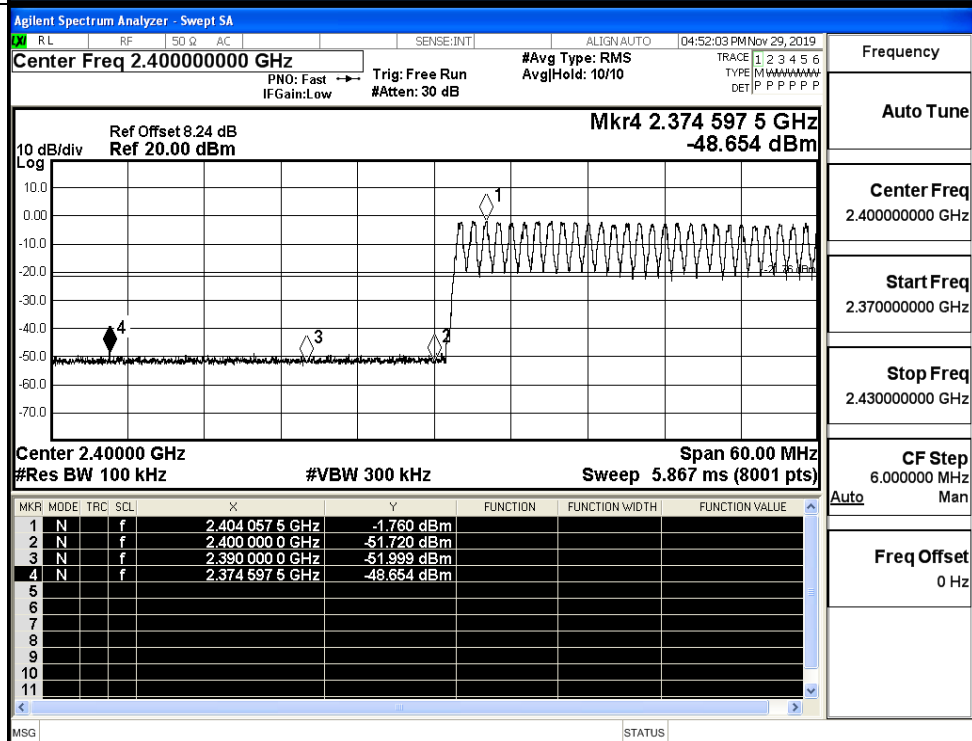
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-3.631	Off	-48.494	-23.63	PASS
			-1.760	On	-48.654	-21.76	PASS
	HCH	2480	-4.602	Off	-49.290	-24.6	PASS
			-4.129	On	-48.328	-24.13	PASS
$\pi/4$ DQPSK	LCH	2402	-1.500	Off	-48.355	-21.5	PASS
			-1.212	On	-48.912	-21.21	PASS
	HCH	2480	-4.634	Off	-47.824	-24.63	PASS
			-3.415	On	-47.705	-23.42	PASS
8DPSK	LCH	2402	-2.959	Off	-49.230	-22.96	PASS
			-1.265	On	-48.752	-21.27	PASS
	HCH	2480	-4.482	Off	-49.075	-24.48	PASS
			-3.388	On	-38.580	-23.39	PASS

Test Graphs

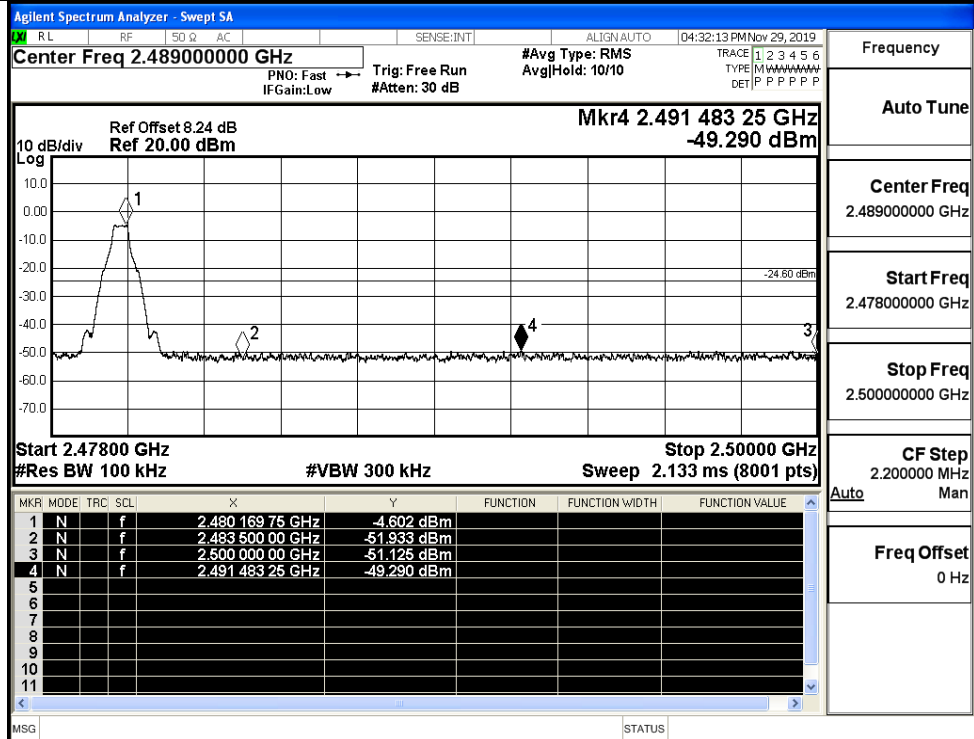
GFSK/LCH/No Hop



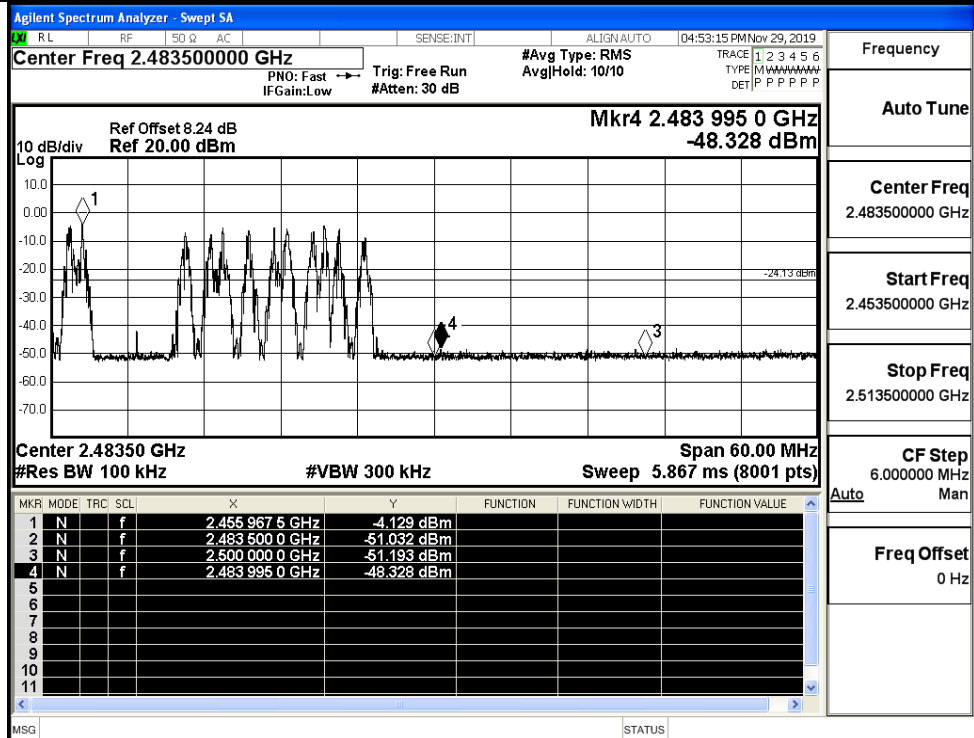
GFSK/LCH/Hop



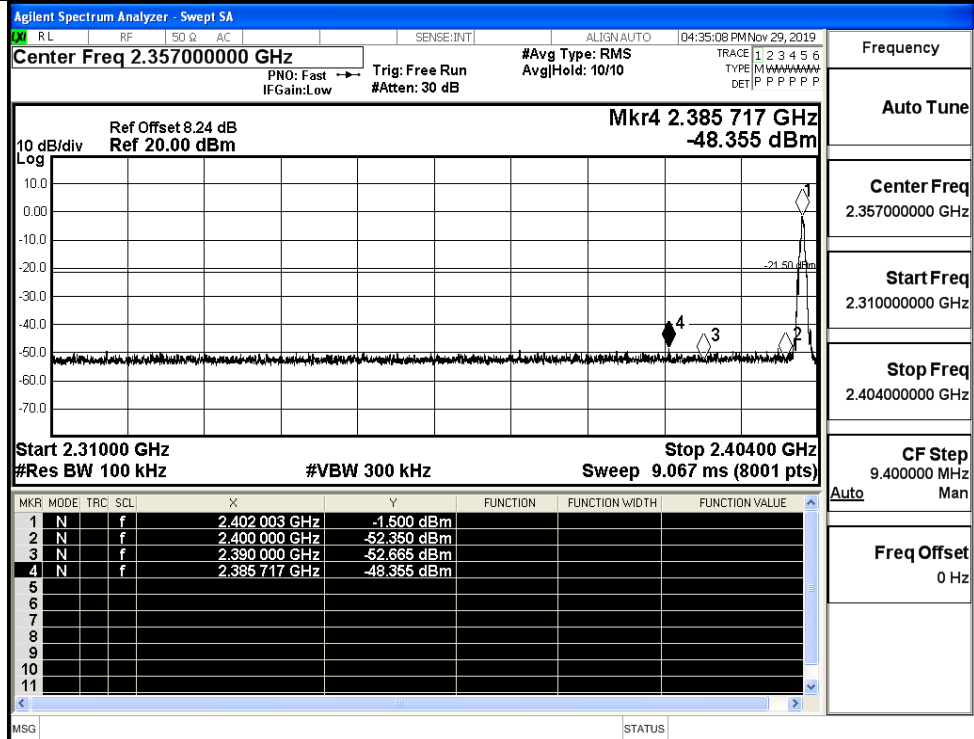
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

Start Freq
2.310000000 GHz

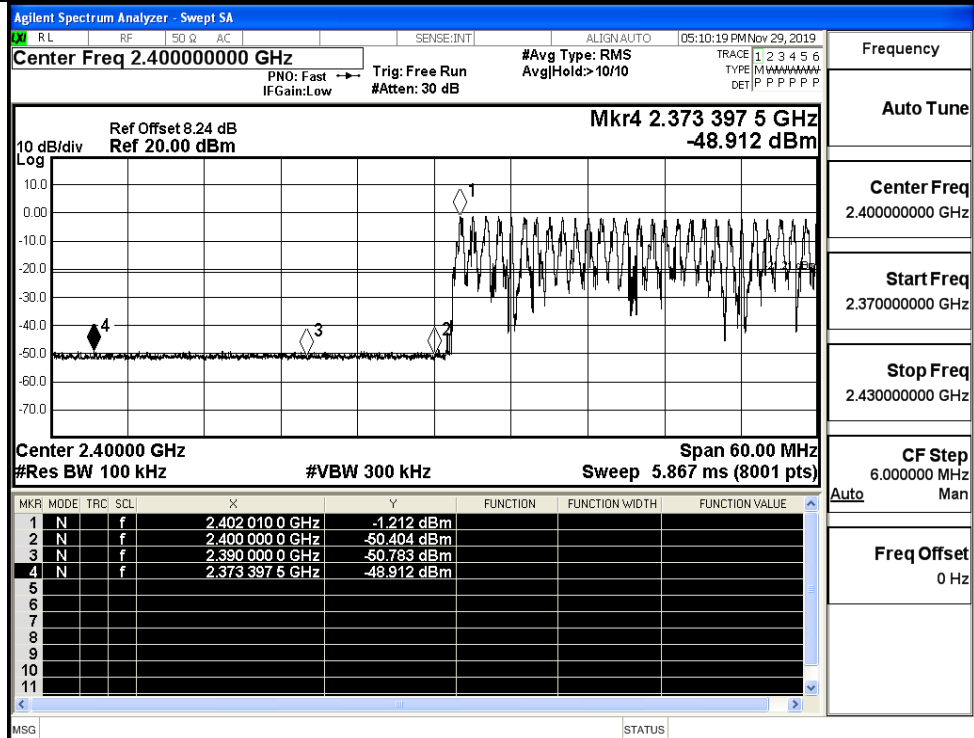
Stop Freq
2.404000000 GHz

CF Step
9.400000 MHz

Auto Man

Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH/Hop



Frequency

Auto Tune

Center Freq
2.400000000 GHz

Start Freq
2.370000000 GHz

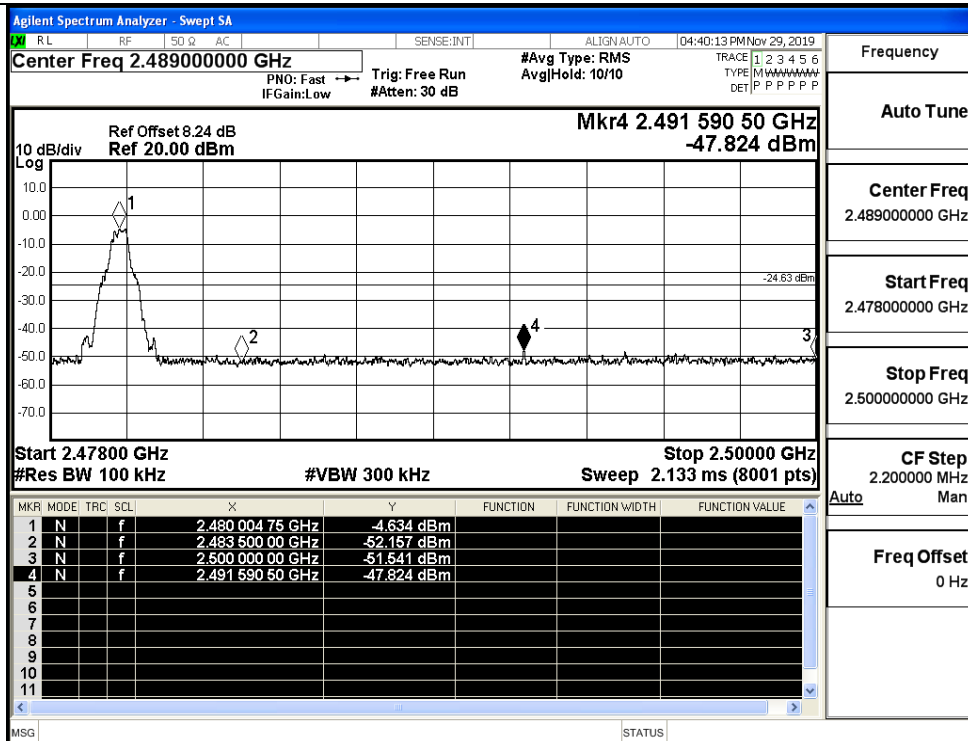
Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz

Auto Man

Freq Offset
0 Hz

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

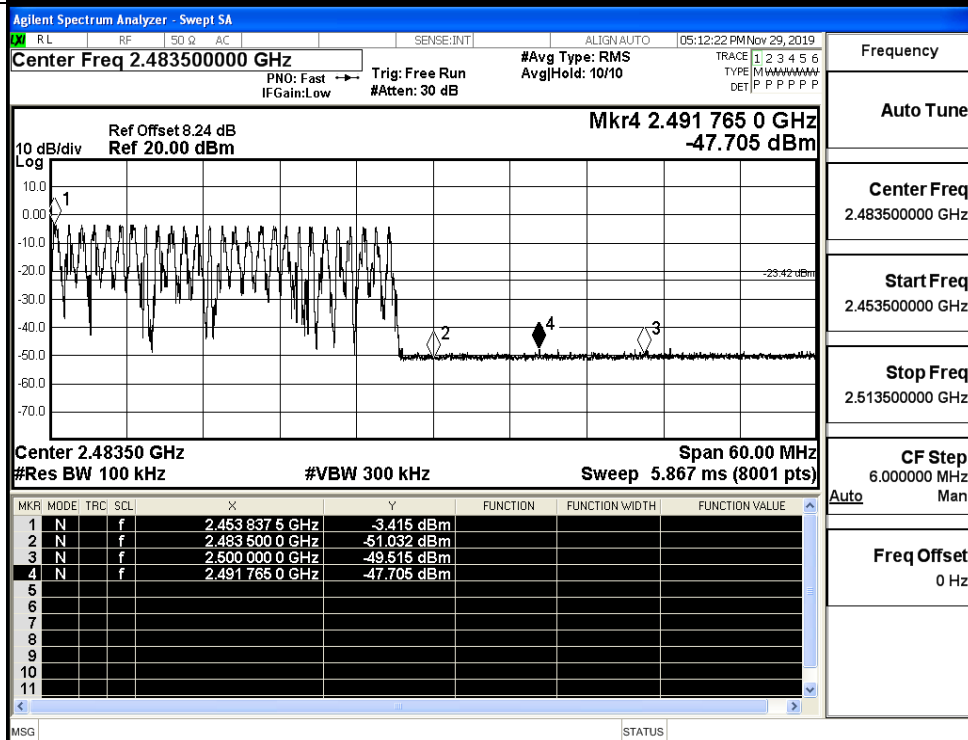


Frequency

Auto Tune

Center Freq
2.489000000 GHzStart Freq
2.478000000 GHzStop Freq
2.500000000 GHzCF Step
2.200000 MHz
Auto ManFreq Offset
0 Hz

$\pi/4$ DQPSK/HCH/Hop

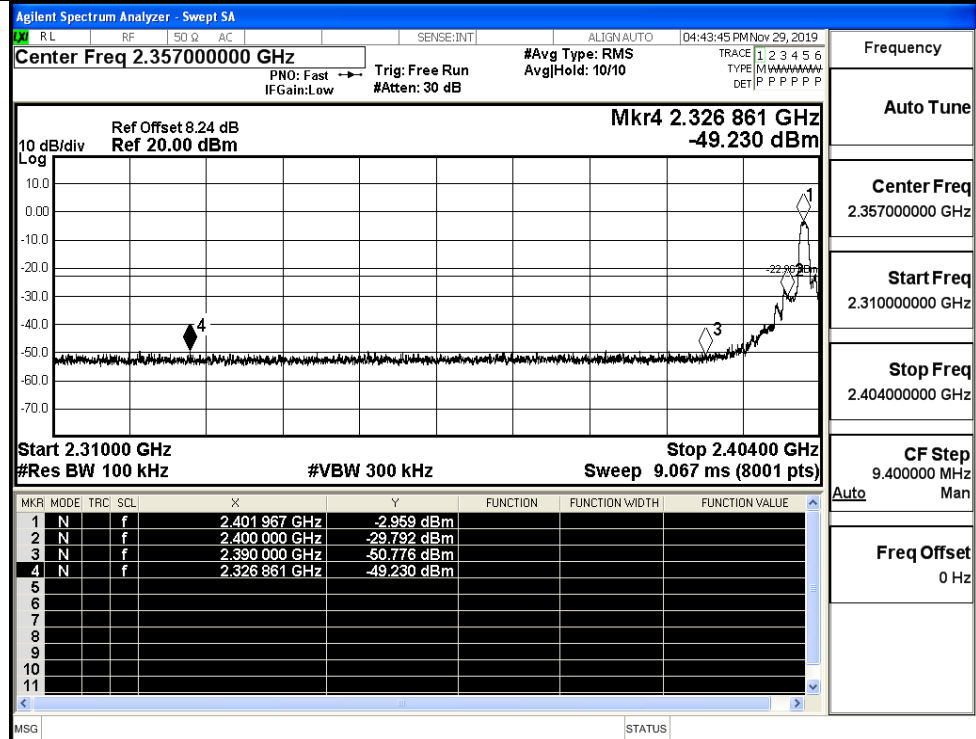


Frequency

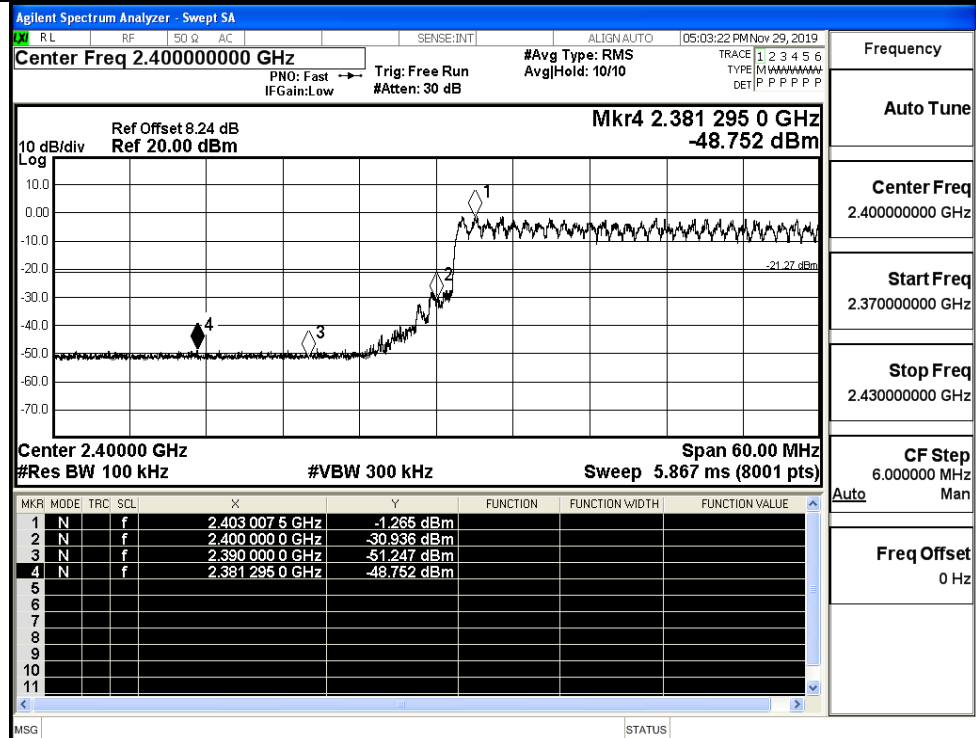
Auto Tune

Center Freq
2.483500000 GHzStart Freq
2.453500000 GHzStop Freq
2.513500000 GHzCF Step
6.000000 MHz
Auto ManFreq Offset
0 Hz

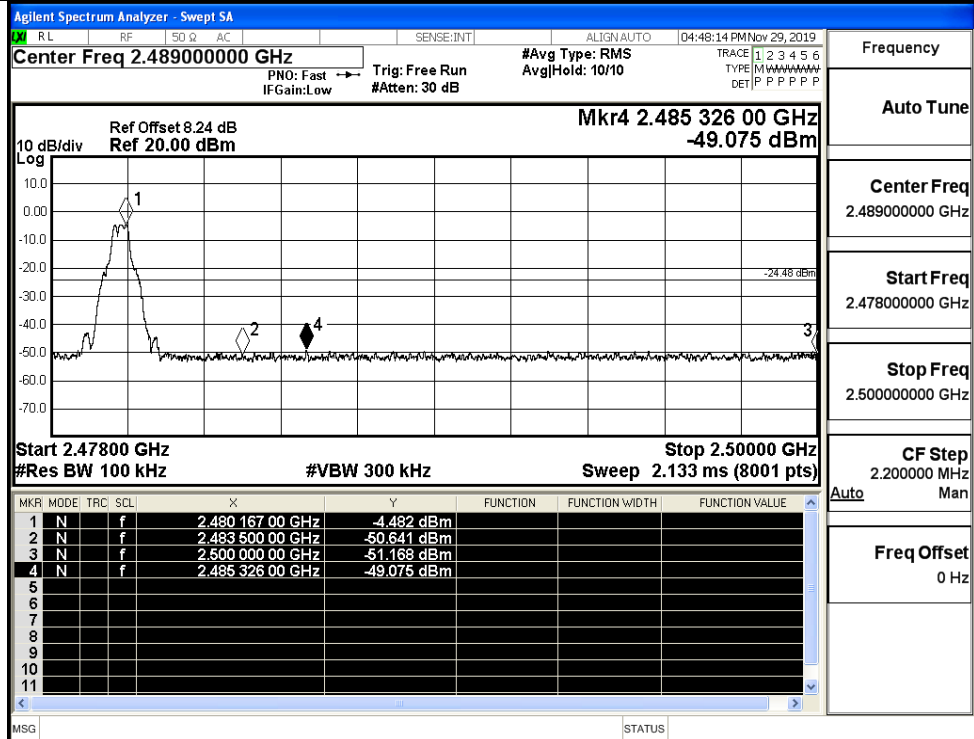
8DPSK/LCH/No Hop



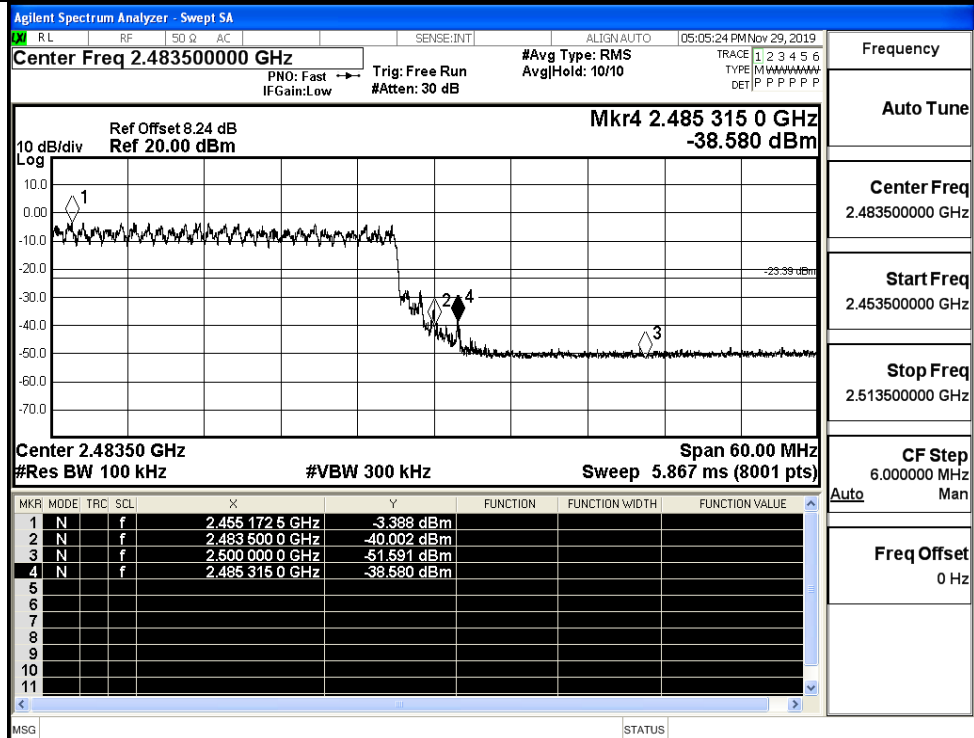
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



8DPSK/HCH/Hop

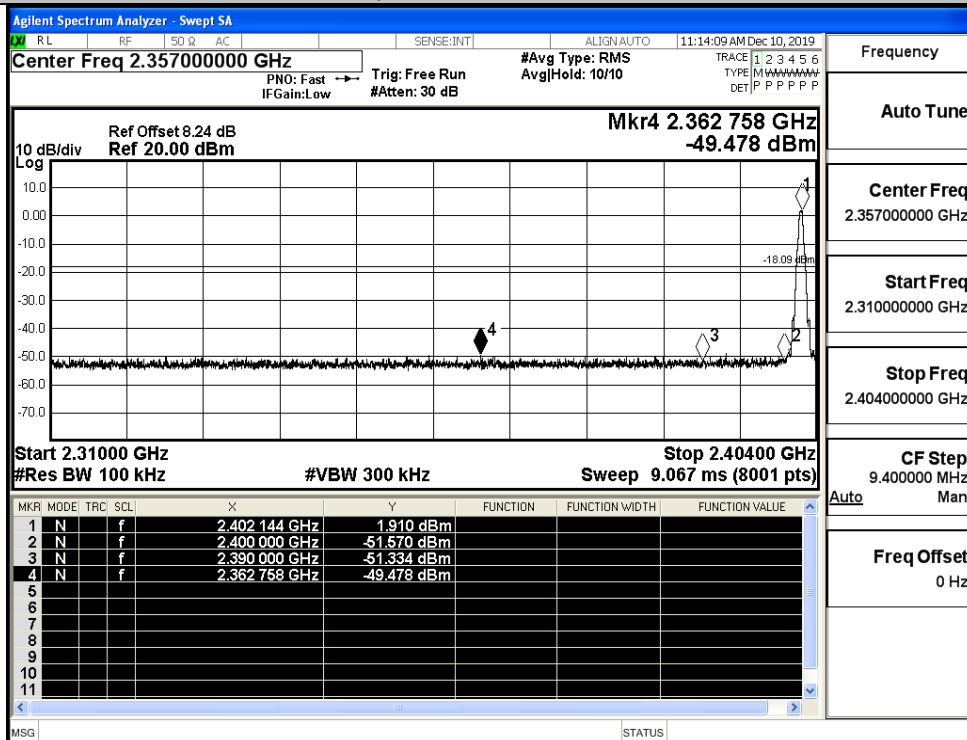


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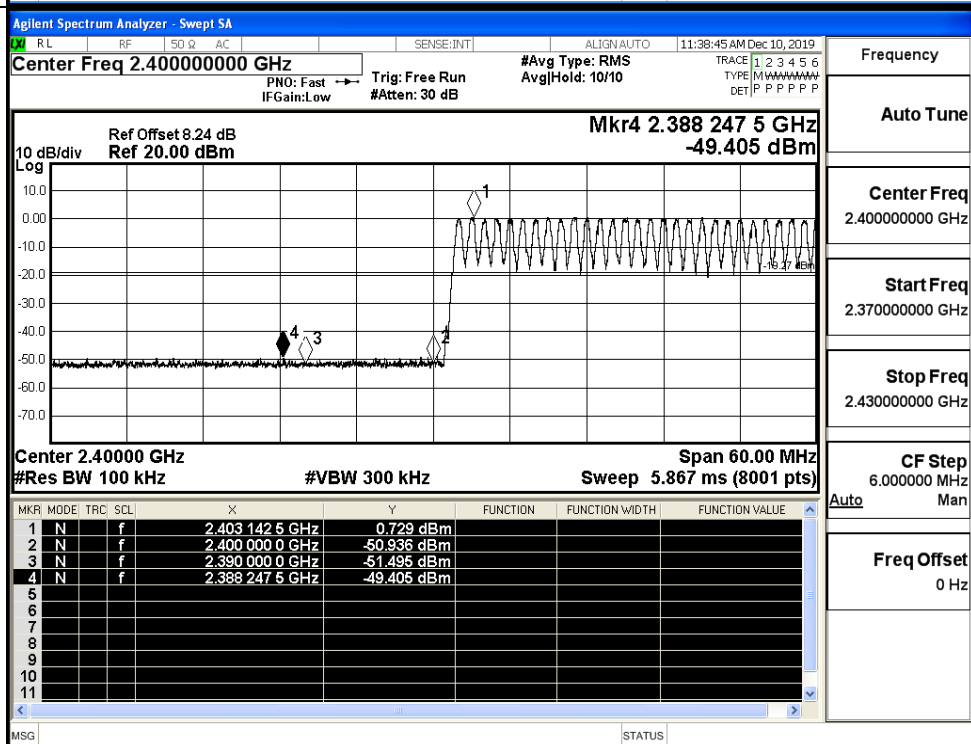
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	1.910	Off	-49.478	-18.09	PASS
			0.729	On	-49.405	-19.27	PASS
	HCH	2480	0.355	Off	-48.892	-19.65	PASS
			0.088	On	-48.504	-19.91	PASS
$\pi/4$ DQPSK	LCH	2402	0.839	Off	-49.532	-19.16	PASS
			5.365	On	-48.932	-14.64	PASS
	HCH	2480	-0.287	Off	-48.998	-20.29	PASS
			4.849	On	-48.092	-15.15	PASS
8DPSK	LCH	2402	0.637	Off	-49.200	-19.36	PASS
			5.344	On	-48.714	-14.66	PASS
	HCH	2480	-0.106	Off	-48.998	-20.11	PASS
			4.706	On	-48.092	-15.29	PASS

Test Graphs

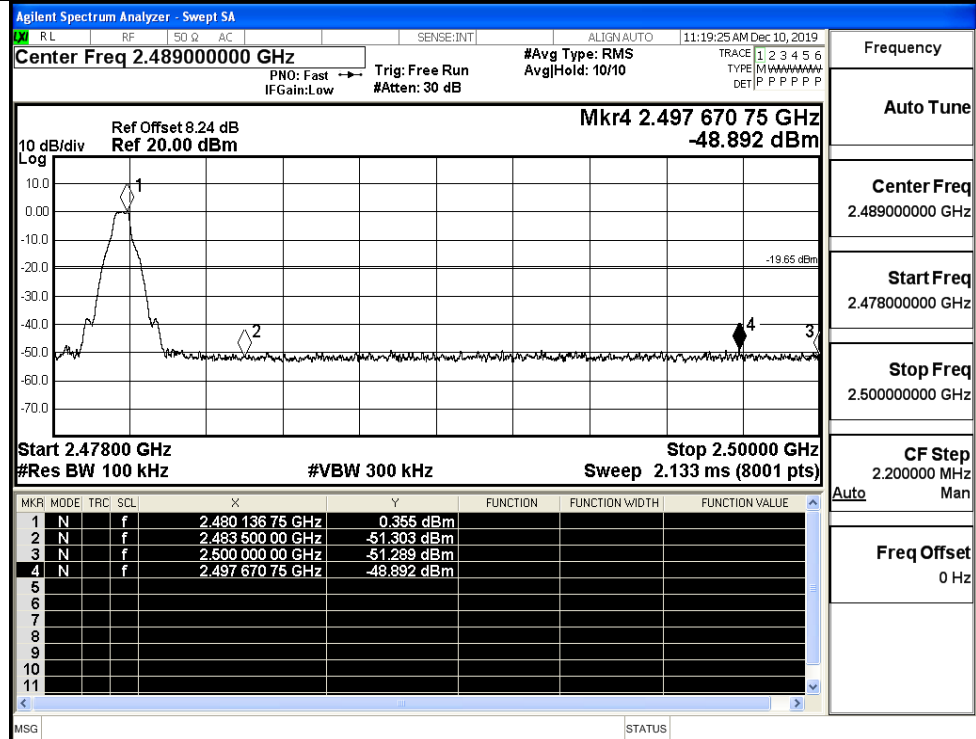
GFSK/LCH/No Hop



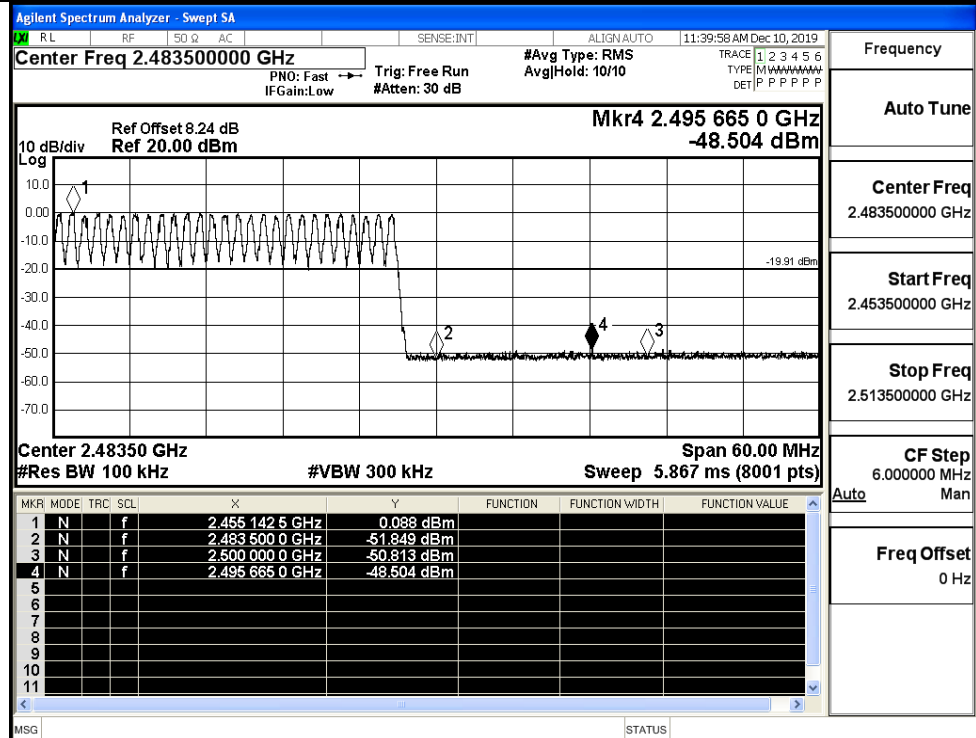
GFSK/LCH/Hop



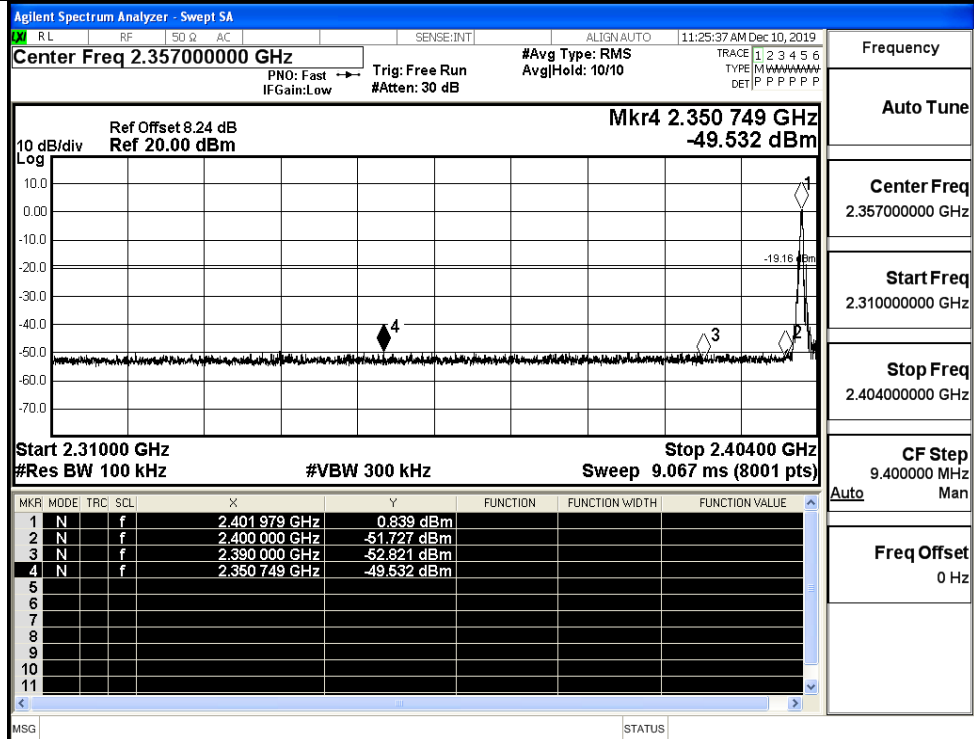
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

Start Freq
2.310000000 GHz

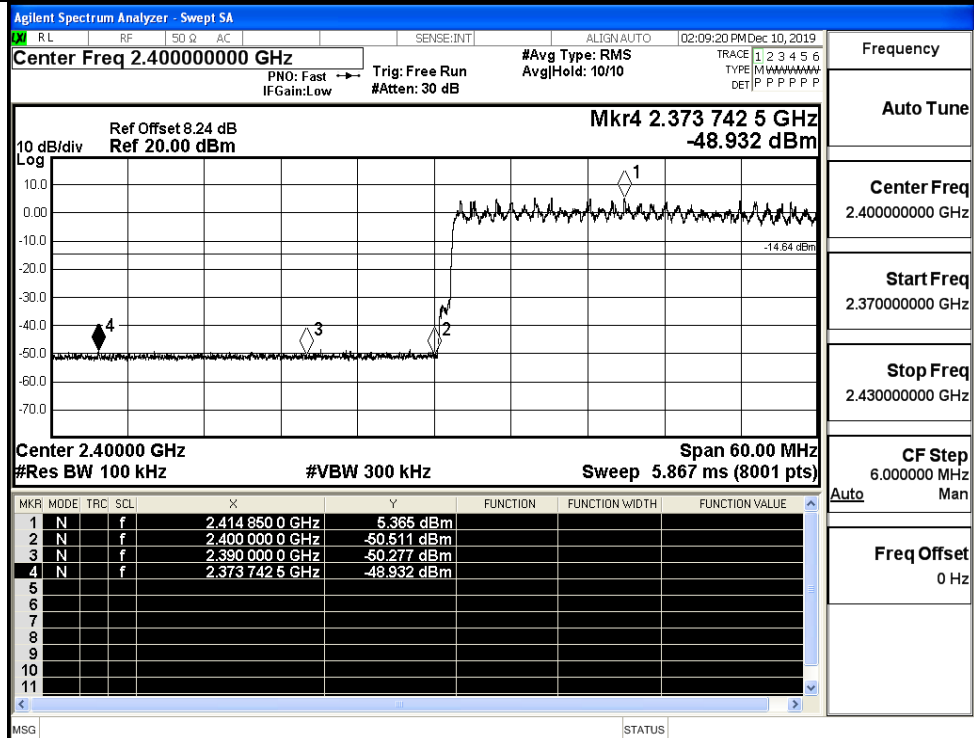
Stop Freq
2.404000000 GHz

CF Step
9.400000 MHz

Auto Man

Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH/Hop



Frequency

Auto Tune

Center Freq
2.400000000 GHz

Start Freq
2.370000000 GHz

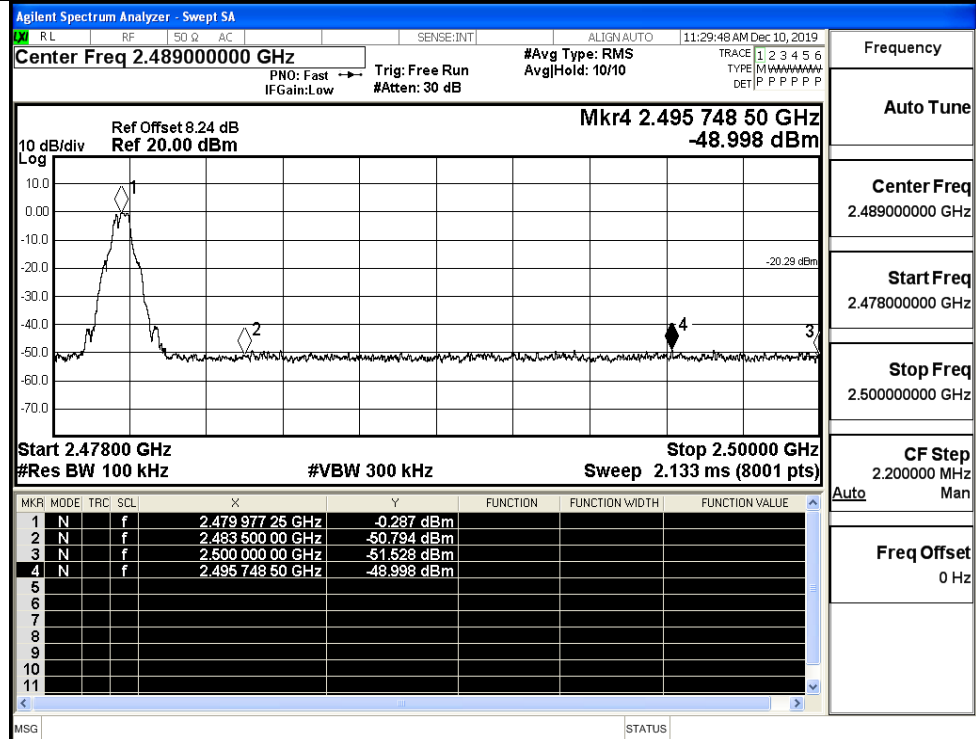
Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz

Auto Man

Freq Offset
0 Hz

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



Frequency

Auto Tune

Center Freq
2.489000000 GHz

Start Freq
2.478000000 GHz

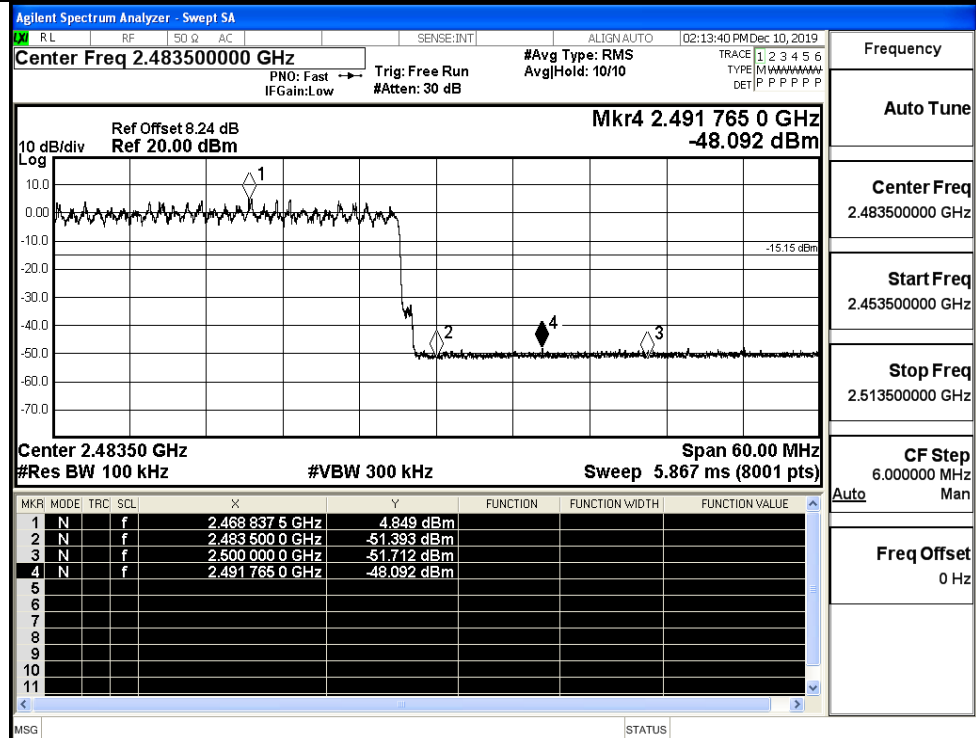
Stop Freq
2.500000000 GHz

CF Step
2.200000 MHz

Auto Man

Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH/Hop



Frequency

Auto Tune

Center Freq
2.483500000 GHz

Start Freq
2.453500000 GHz

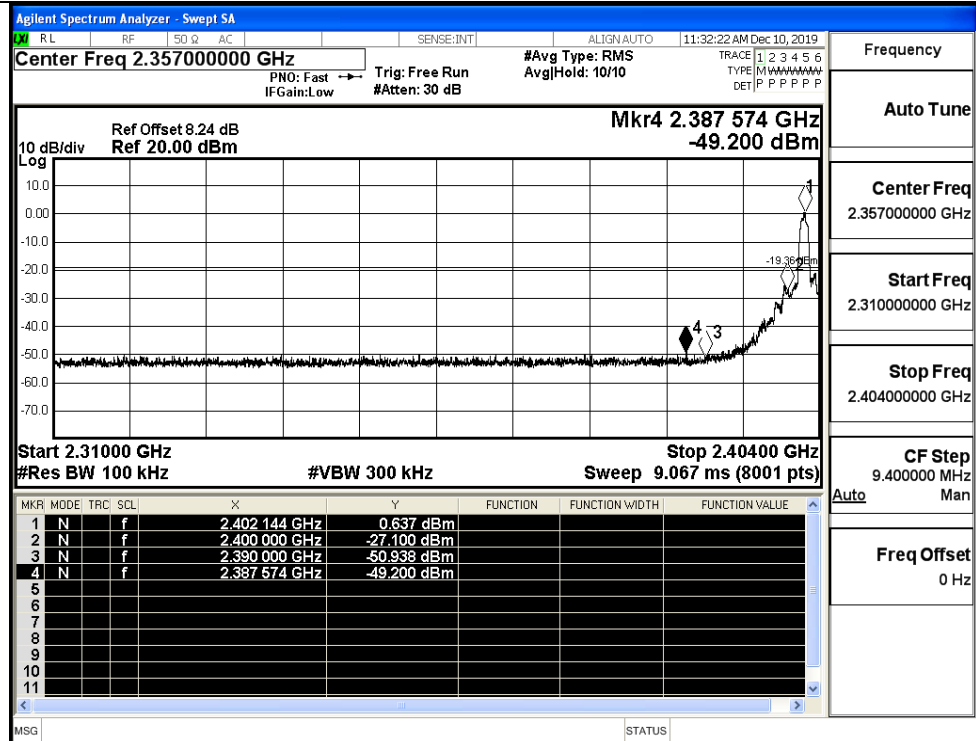
Stop Freq
2.513500000 GHz

CF Step
6.000000 MHz

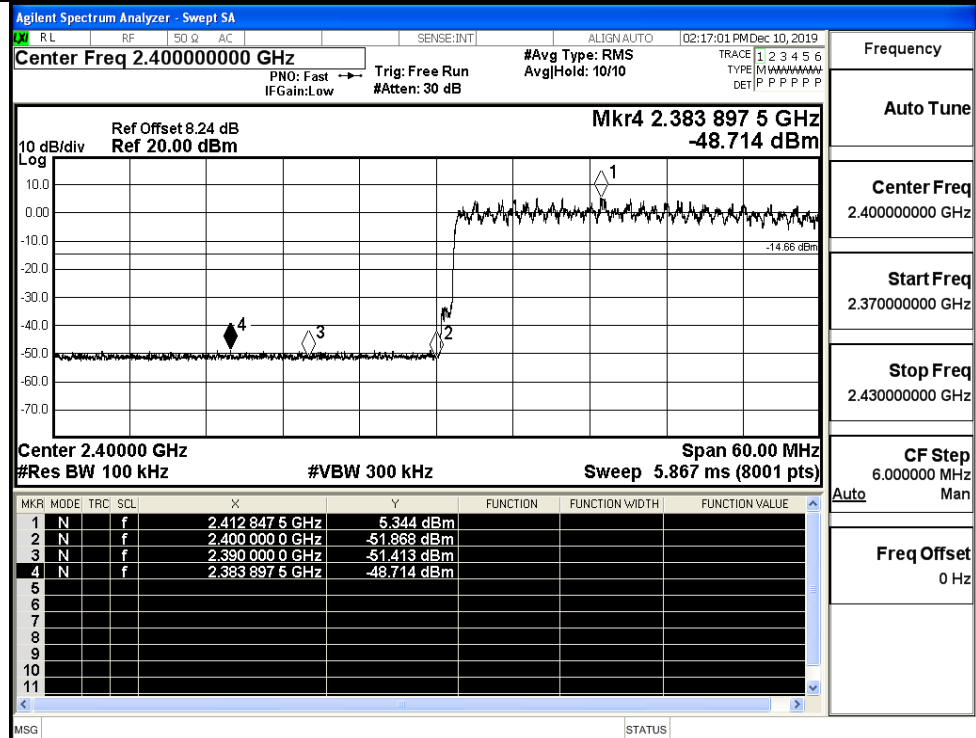
Auto Man

Freq Offset
0 Hz

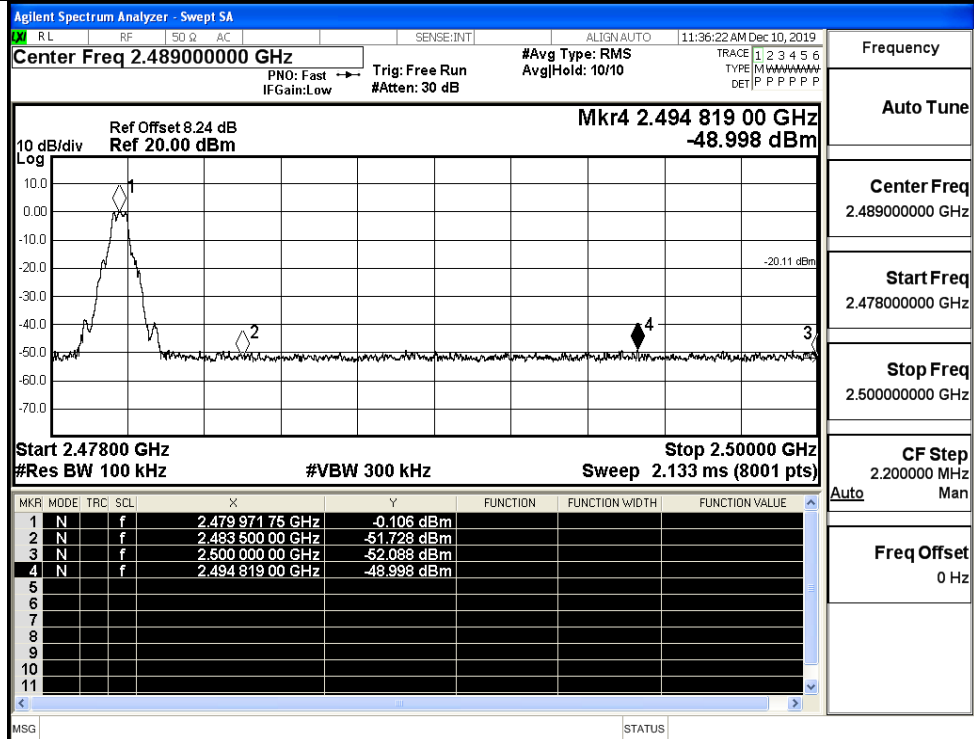
8DPSK/LCH/No Hop



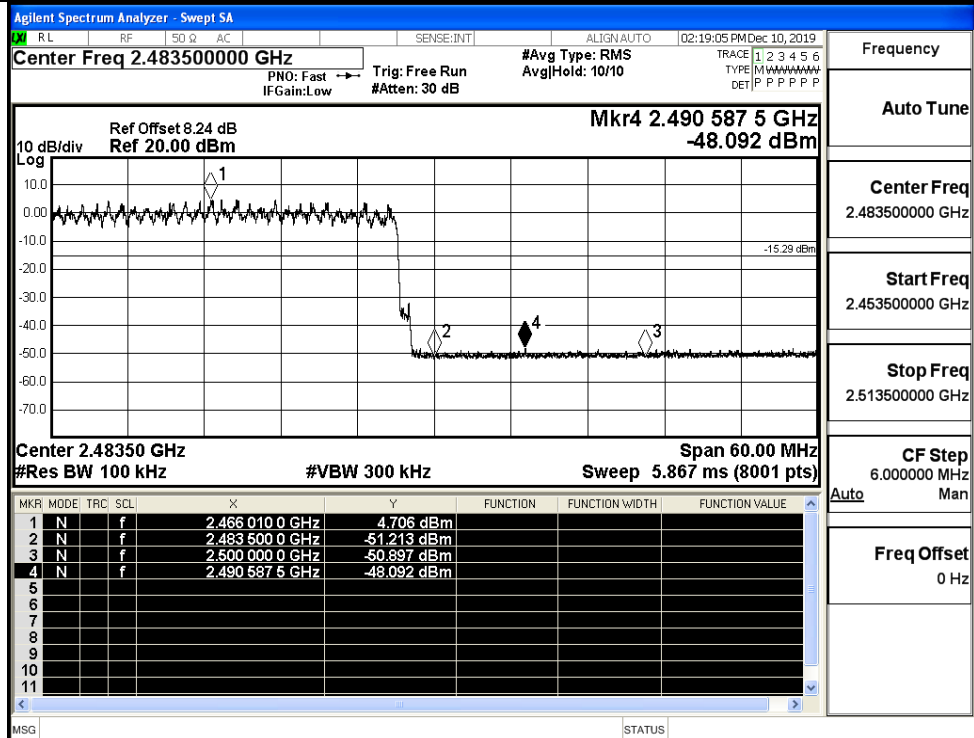
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



8DPSK/HCH/Hop

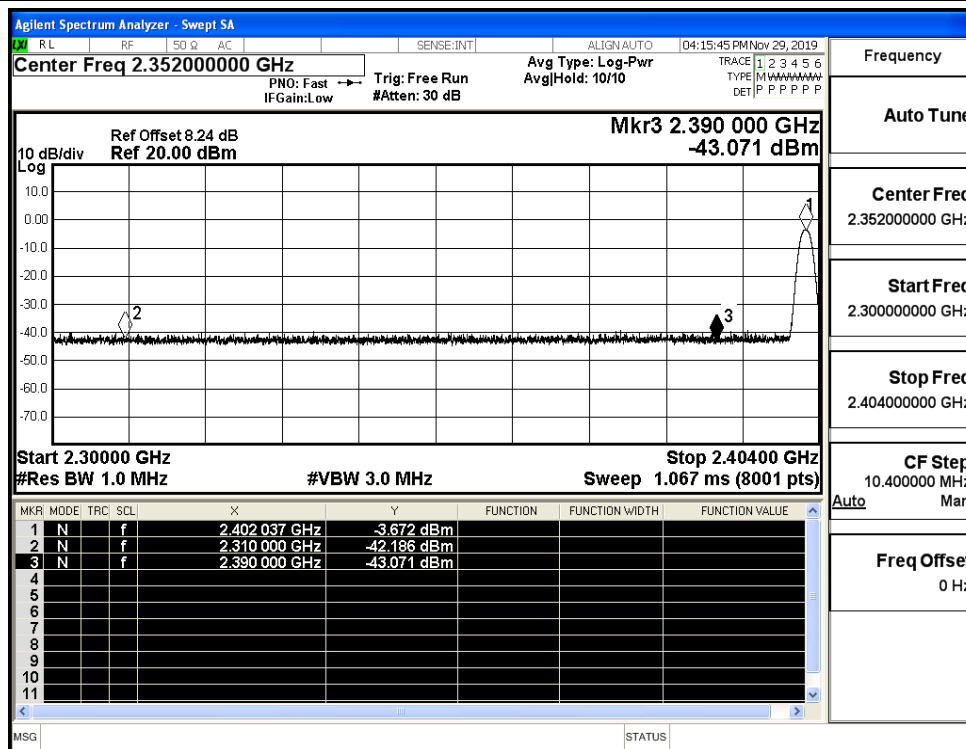


A.8 Restrict-band band-edge measurements

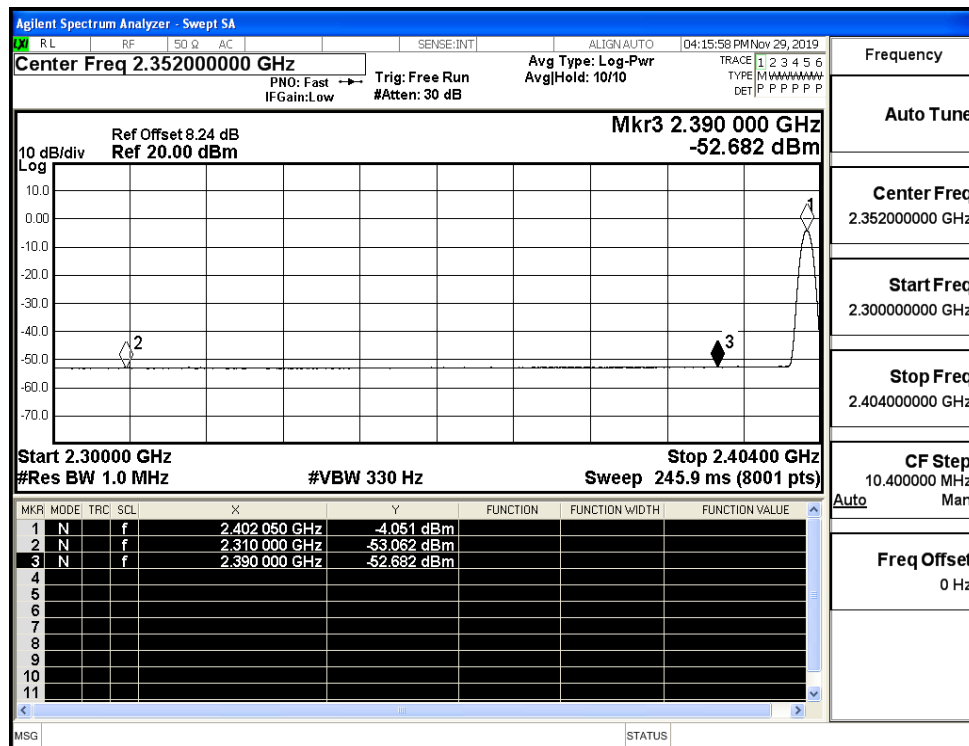
L

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.19	2.28	0	53.07	PEAK	74	PASS
	Off	2310.0	-53.06	2.28	0	42.20	AV	54	PASS
	Off	2390.0	-43.07	2.28	0	52.19	PEAK	74	PASS
	Off	2390.0	-52.68	2.28	0	42.58	AV	54	PASS
	Off	2483.5	-42.51	2.28	0	52.75	PEAK	74	PASS
	Off	2483.5	-52.11	2.28	0	43.15	AV	54	PASS
	Off	2500.0	-42.33	2.28	0	52.93	PEAK	74	PASS
	Off	2500.0	-52.03	2.28	0	43.22	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.45	2.28	0	51.81	PEAK	74	PASS
	Off	2310.0	-53.01	2.28	0	42.25	AV	54	PASS
	Off	2390.0	-42.41	2.28	0	52.85	PEAK	74	PASS
	Off	2390.0	-52.62	2.28	0	42.64	AV	54	PASS
	Off	2483.5	-41.13	2.28	0	54.13	PEAK	74	PASS
	Off	2483.5	-52.25	2.28	0	43.01	AV	54	PASS
	Off	2500.0	-42.83	2.28	0	52.43	PEAK	74	PASS
	Off	2500.0	-52.11	2.28	0	43.15	AV	54	PASS
8DPSK	Off	2310.0	-42.40	2.28	0	52.86	PEAK	74	PASS
	Off	2310.0	-52.96	2.28	0	42.29	AV	54	PASS
	Off	2390.0	-42.36	2.28	0	52.89	PEAK	74	PASS
	Off	2390.0	-52.20	2.28	0	43.06	AV	54	PASS
	Off	2483.5	-41.95	2.28	0	53.31	PEAK	74	PASS
	Off	2483.5	-52.21	2.28	0	43.05	AV	54	PASS
	Off	2500.0	-41.99	2.28	0	53.27	PEAK	74	PASS
	Off	2500.0	-51.91	2.28	0	43.35	AV	54	PASS

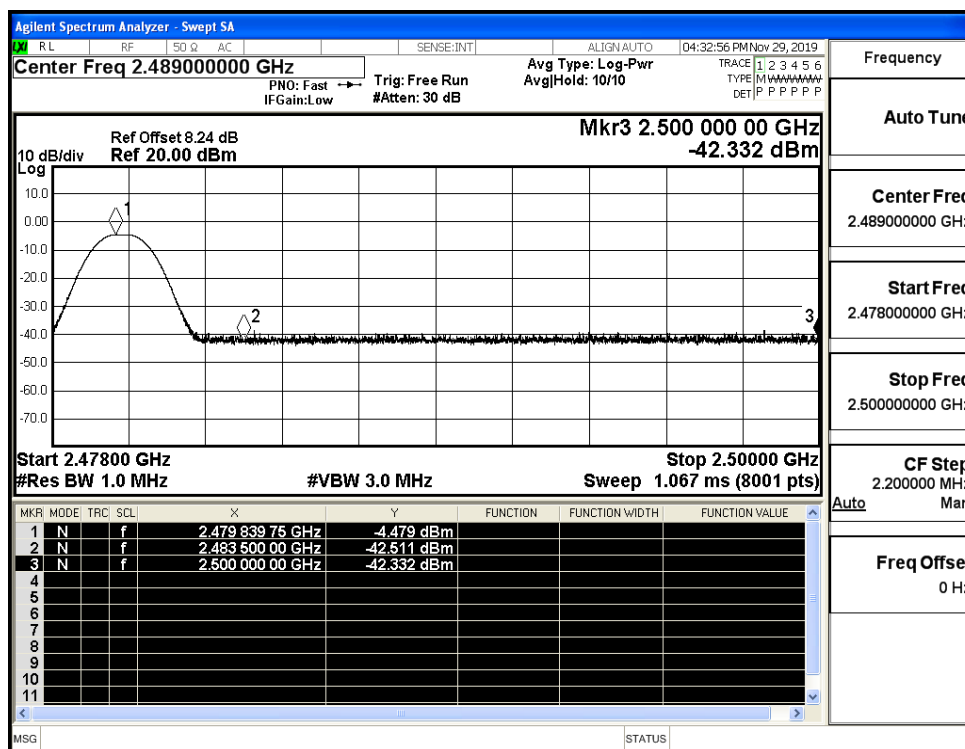
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



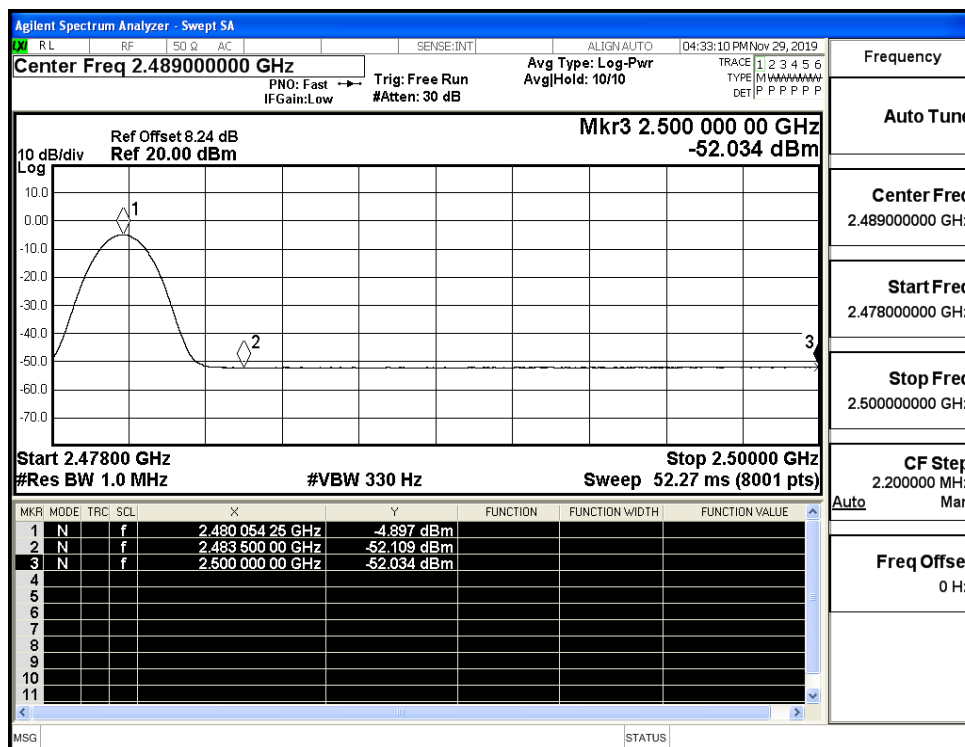
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

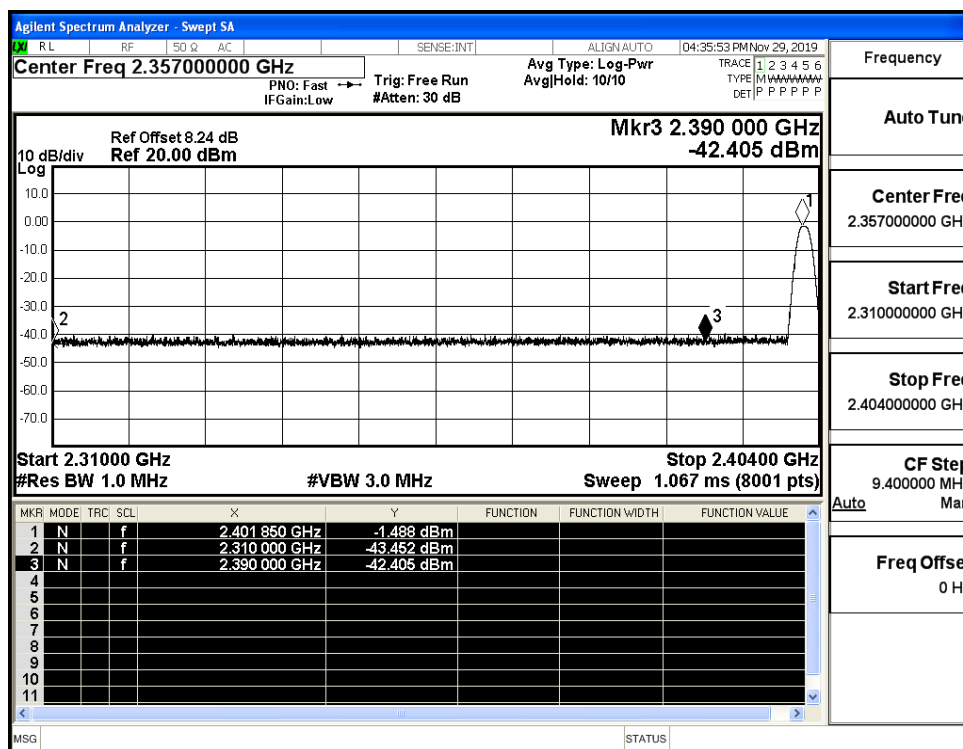
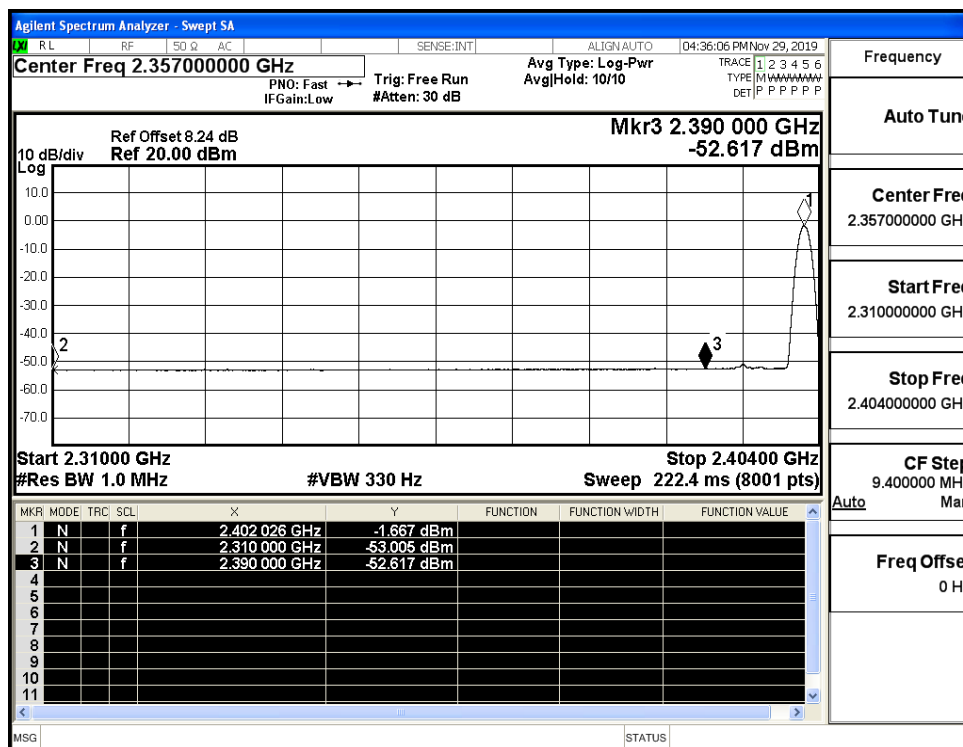


Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)

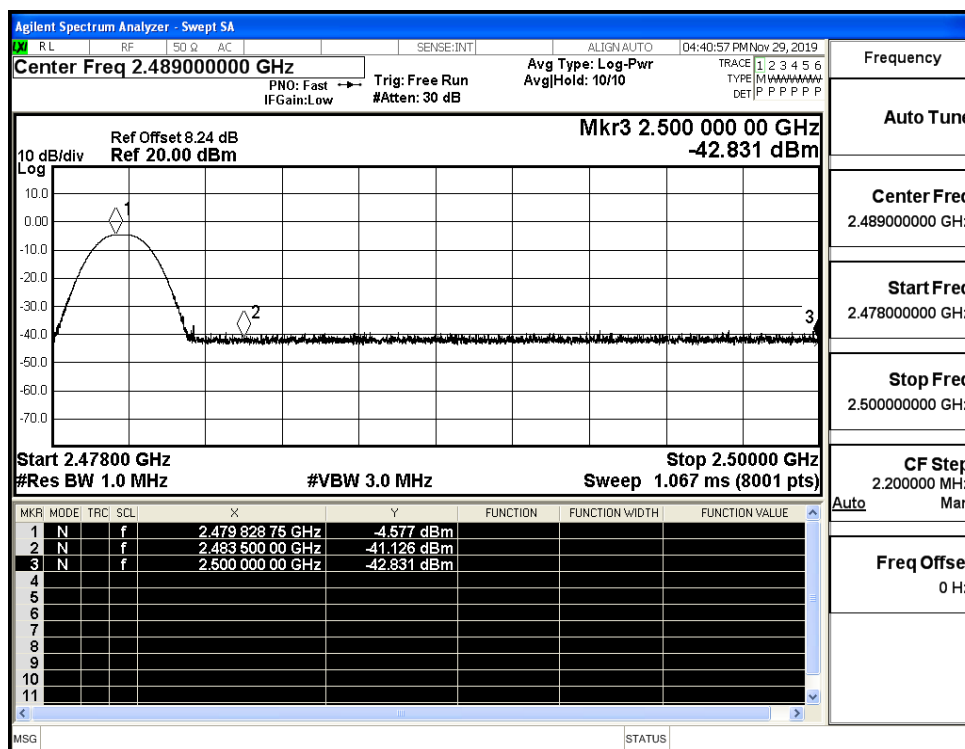


Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)

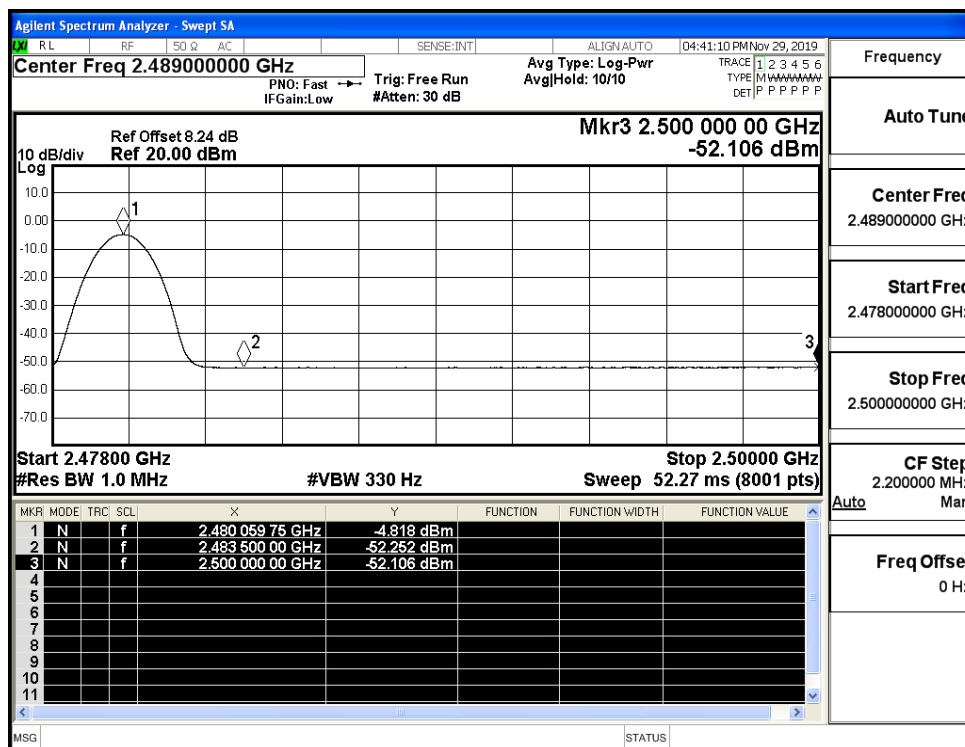


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

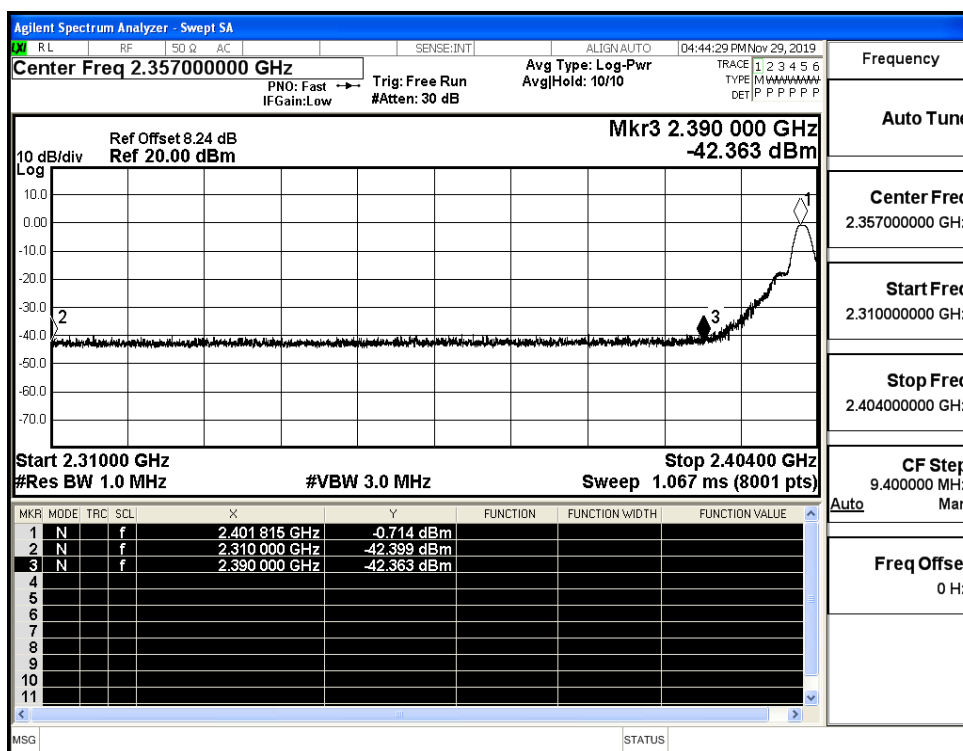
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



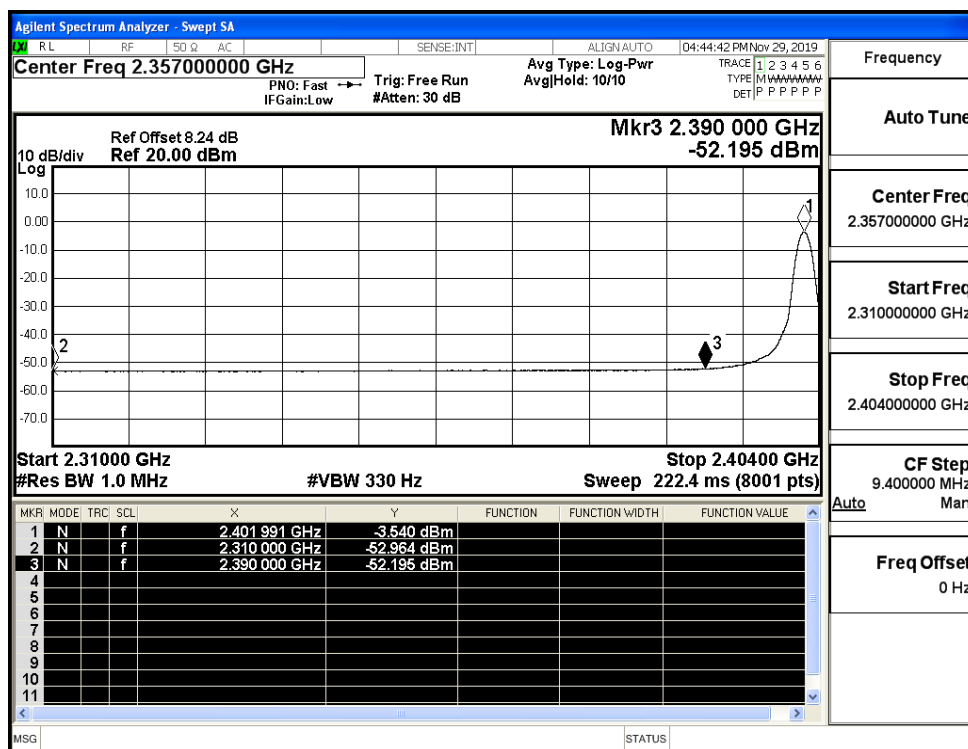
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



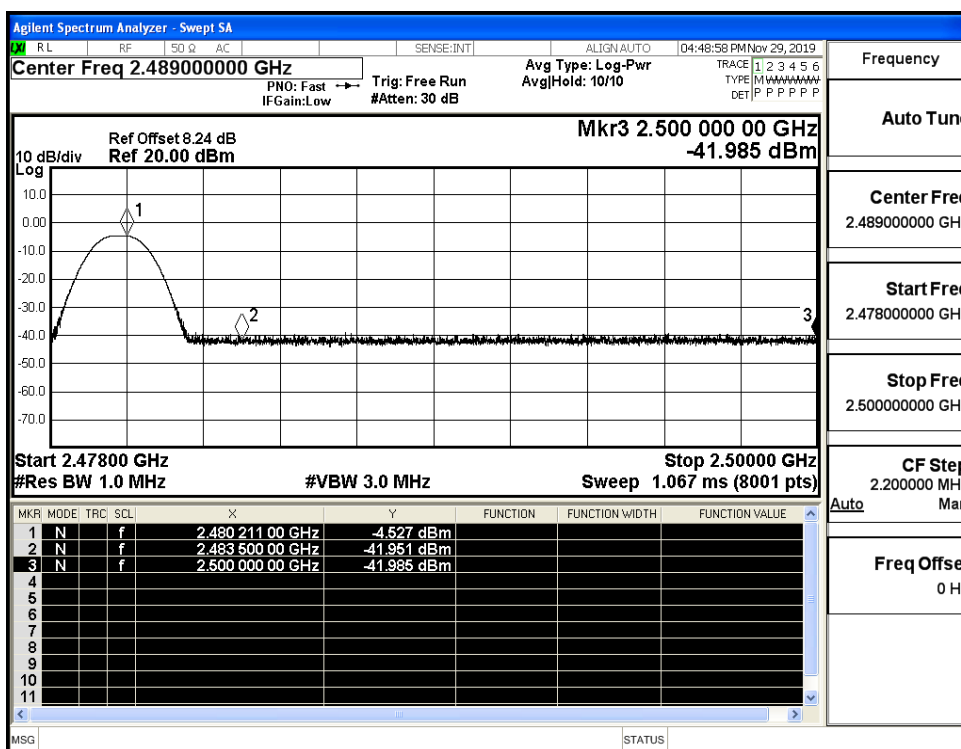
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



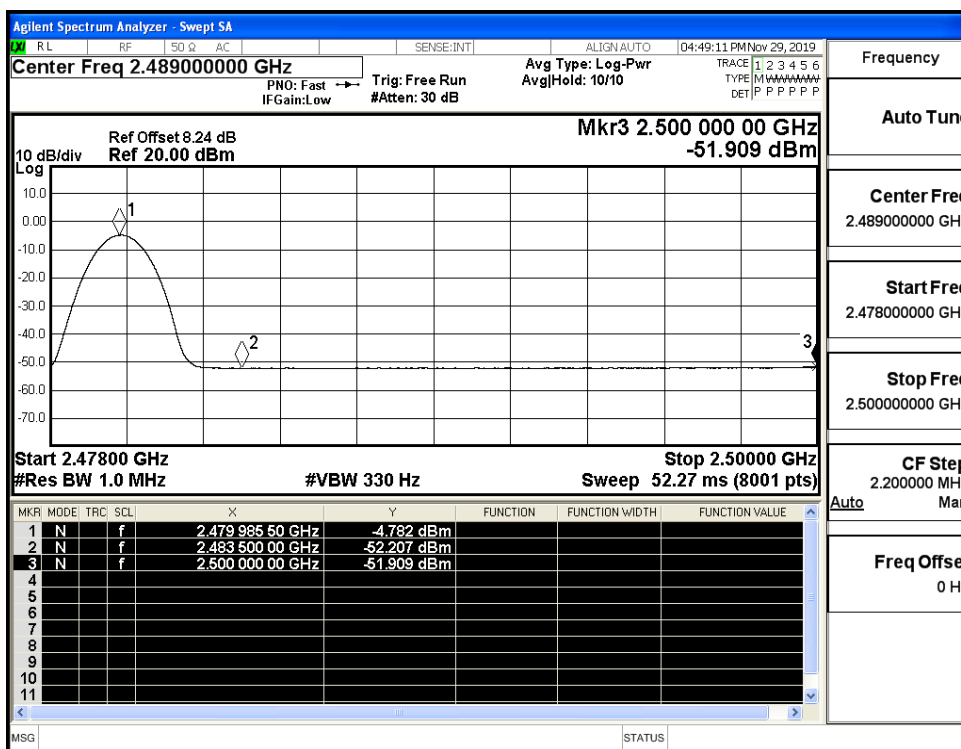
Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (Low Channel)



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



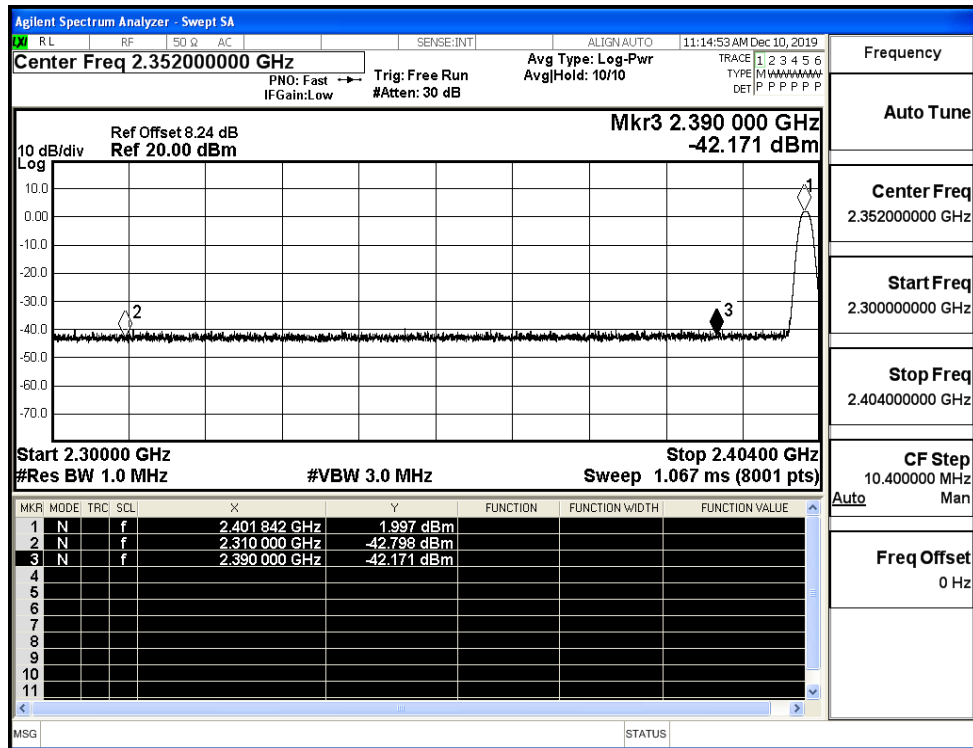
Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (High Channel)



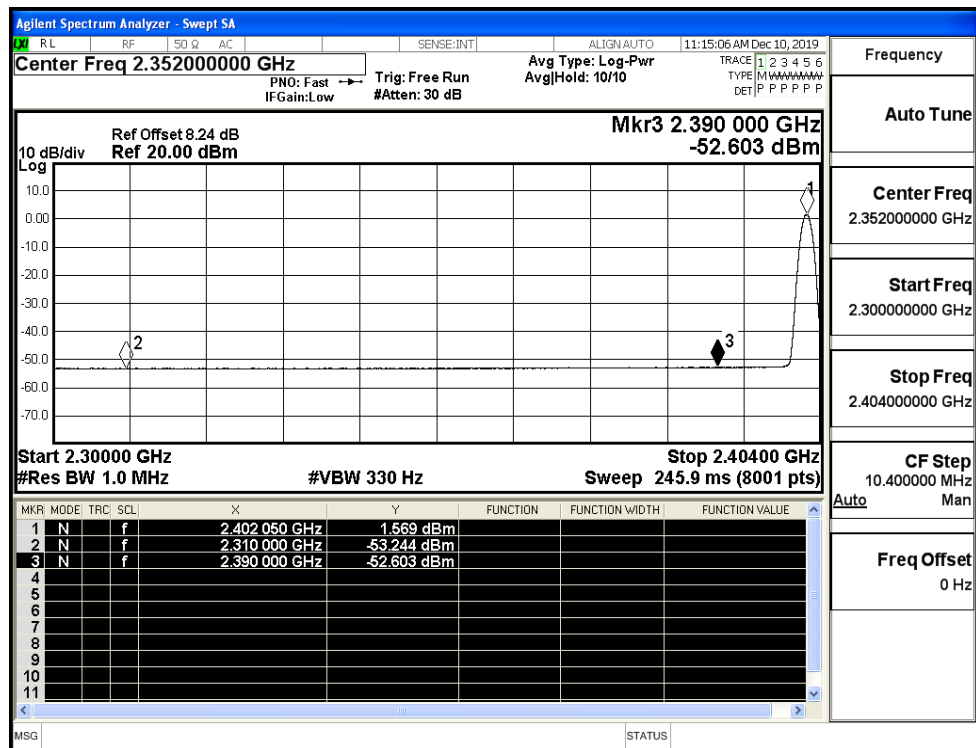
R

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.80	2.28	0	52.46	PEAK	74	PASS
	Off	2310.0	-53.24	2.28	0	42.01	AV	54	PASS
	Off	2390.0	-42.17	2.28	0	53.09	PEAK	74	PASS
	Off	2390.0	-52.60	2.28	0	42.65	AV	54	PASS
	Off	2483.5	-42.52	2.28	0	52.74	PEAK	74	PASS
	Off	2483.5	-52.35	2.28	0	42.91	AV	54	PASS
	Off	2500.0	-42.20	2.28	0	53.06	PEAK	74	PASS
	Off	2500.0	-52.22	2.28	0	43.04	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.47	2.28	0	51.79	PEAK	74	PASS
	Off	2310.0	-53.20	2.28	0	42.06	AV	54	PASS
	Off	2390.0	-42.69	2.28	0	52.57	PEAK	74	PASS
	Off	2390.0	-52.73	2.28	0	42.52	AV	54	PASS
	Off	2483.5	-41.77	2.28	0	53.48	PEAK	74	PASS
	Off	2483.5	-52.42	2.28	0	42.84	AV	54	PASS
	Off	2500.0	-41.89	2.28	0	53.37	PEAK	74	PASS
	Off	2500.0	-52.20	2.28	0	43.06	AV	54	PASS
8DPSK	Off	2310.0	-42.74	2.28	0	52.52	PEAK	74	PASS
	Off	2310.0	-53.25	2.28	0	42.01	AV	54	PASS
	Off	2390.0	-41.92	2.28	0	53.34	PEAK	74	PASS
	Off	2390.0	-52.49	2.28	0	42.77	AV	54	PASS
	Off	2483.5	-41.32	2.28	0	53.94	PEAK	74	PASS
	Off	2483.5	-52.31	2.28	0	42.95	AV	54	PASS
	Off	2500.0	-41.73	2.28	0	53.53	PEAK	74	PASS
	Off	2500.0	-52.20	2.28	0	43.06	AV	54	PASS

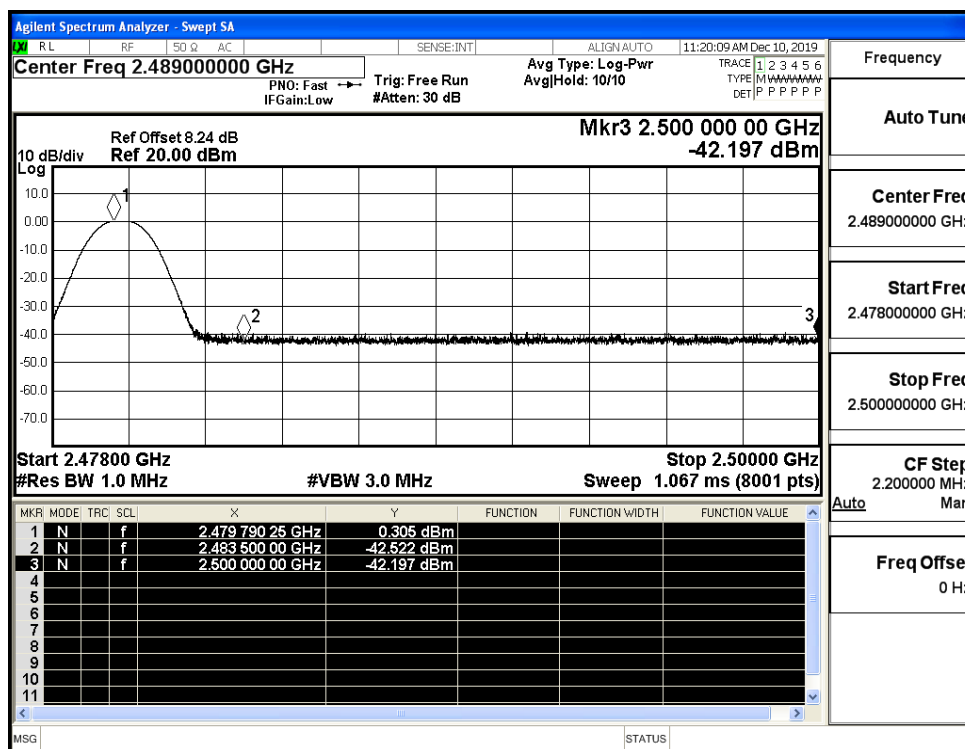
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



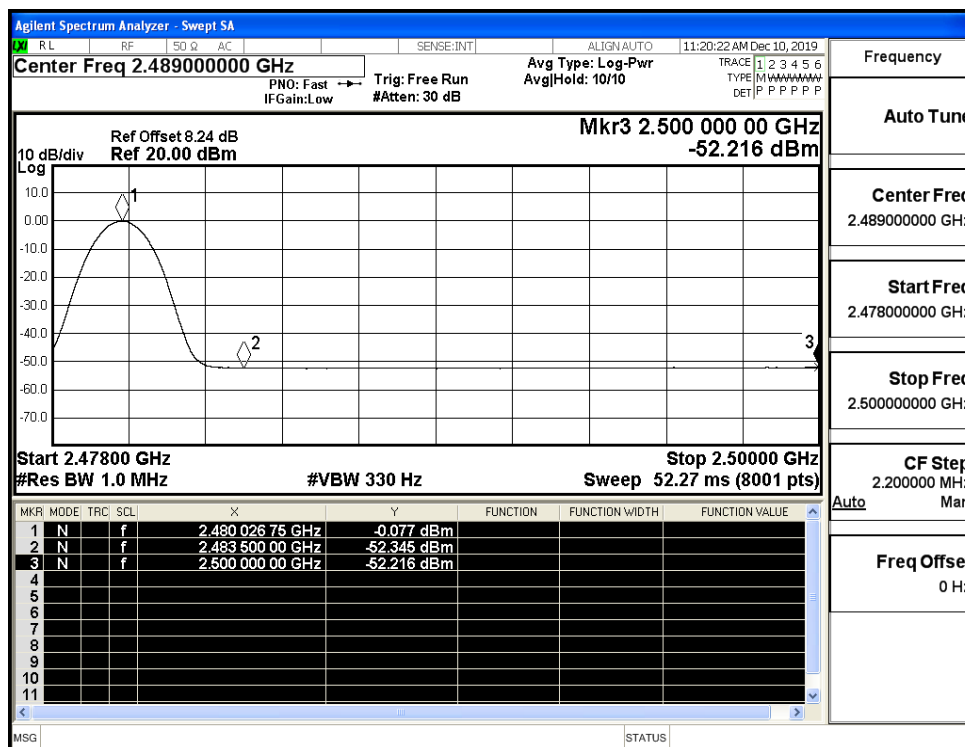
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

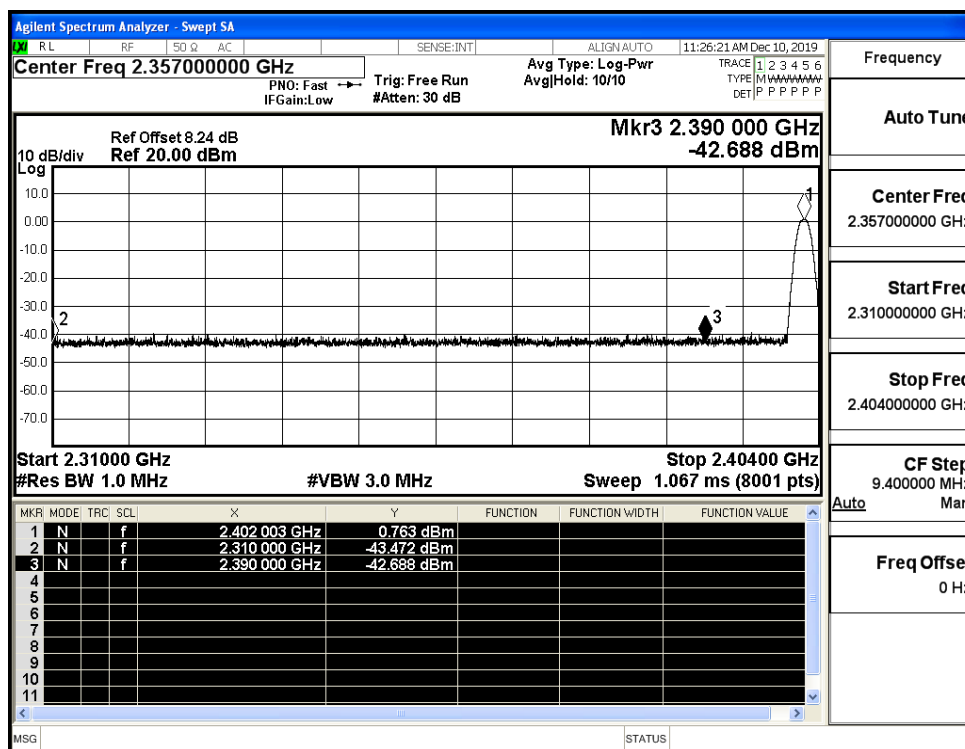
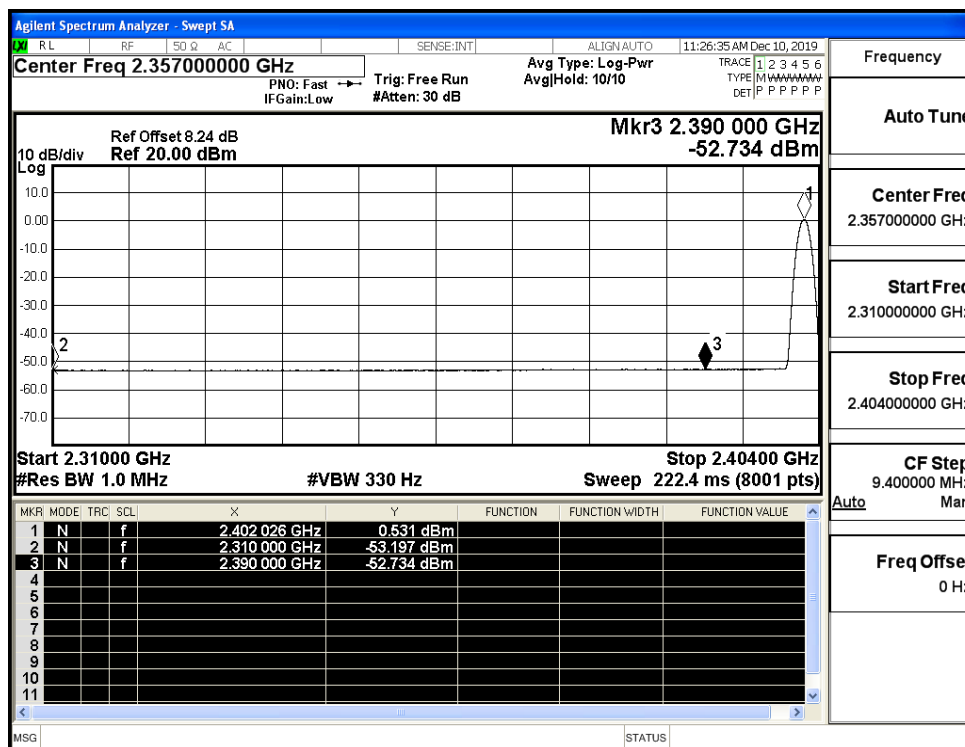


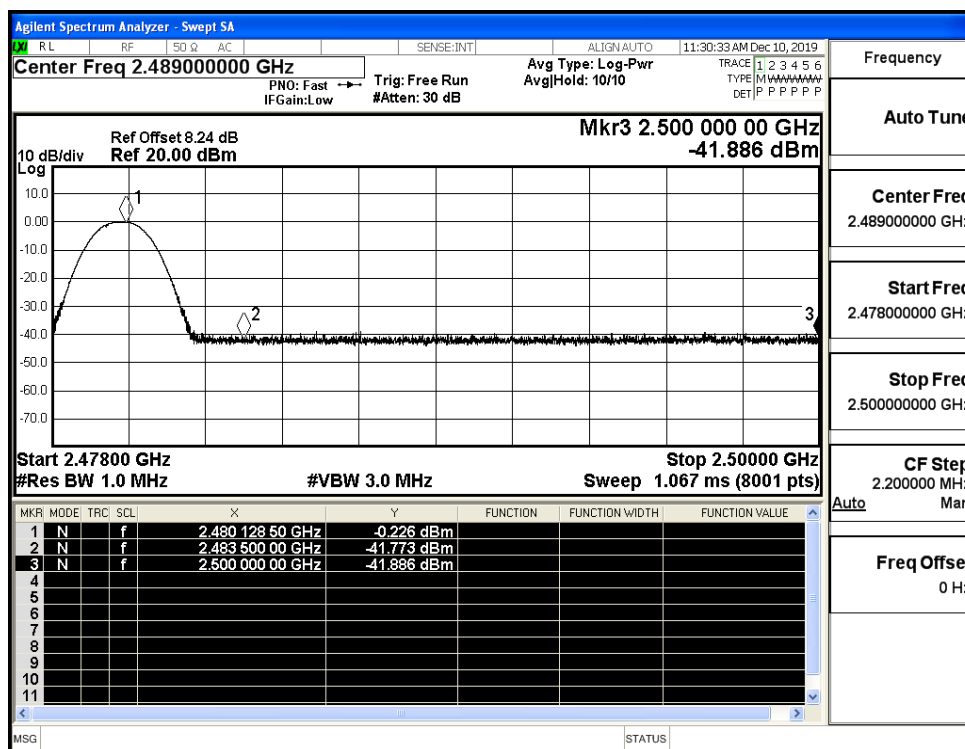
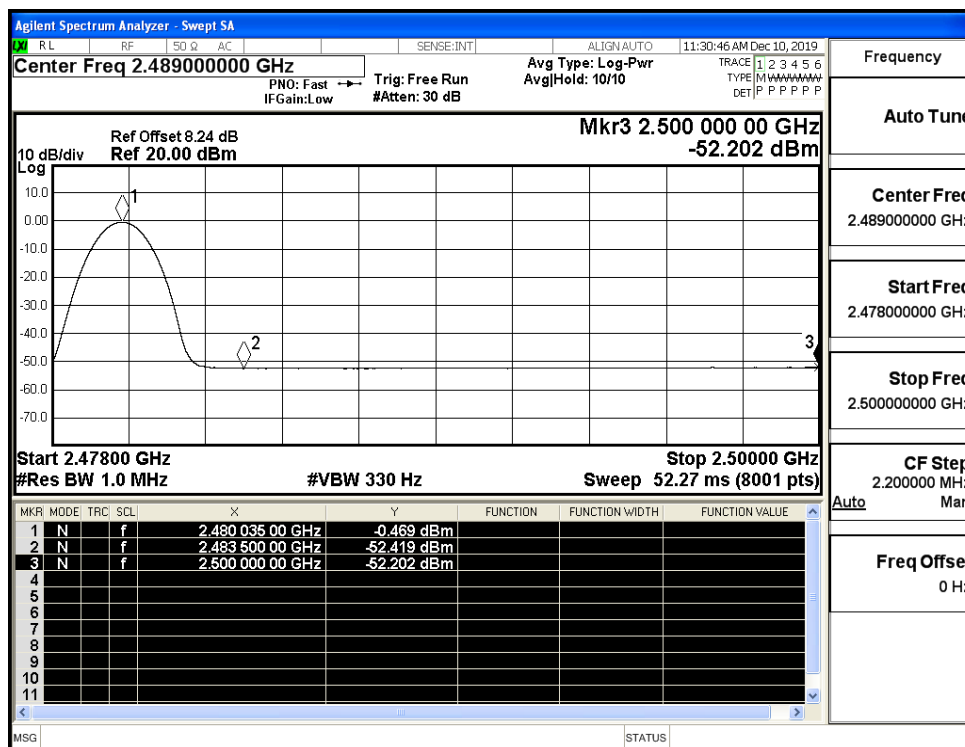
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



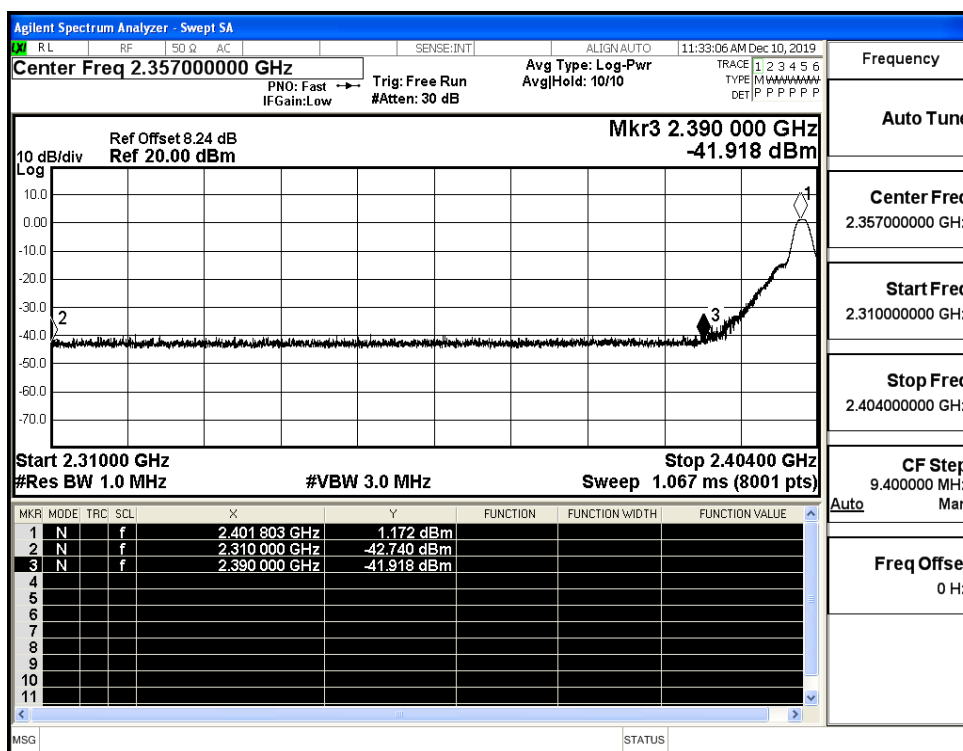
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



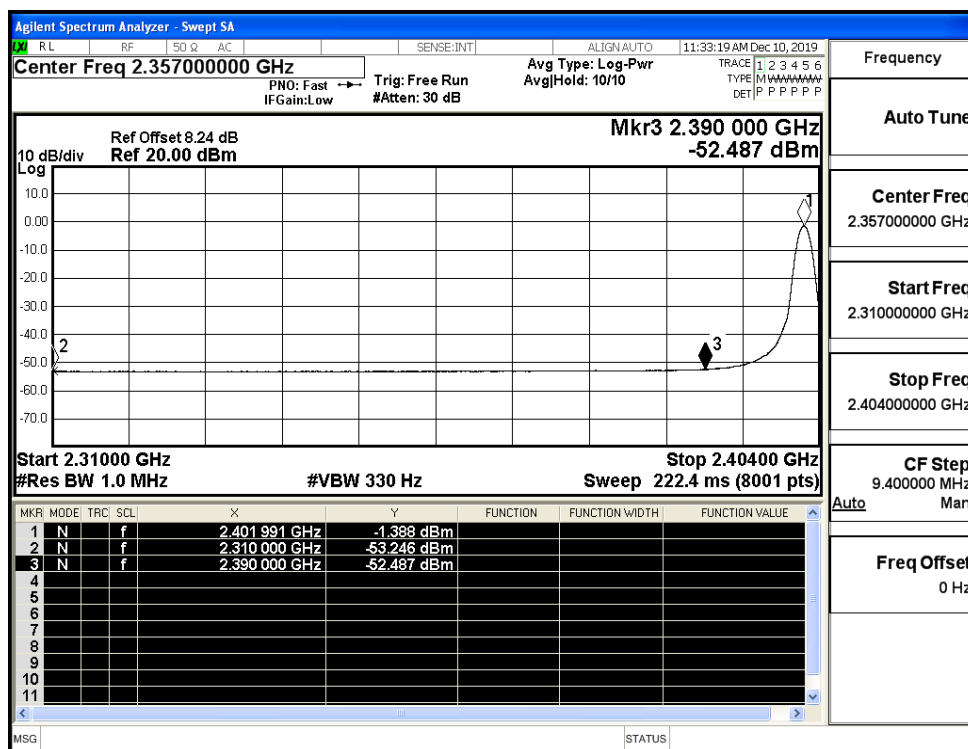
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

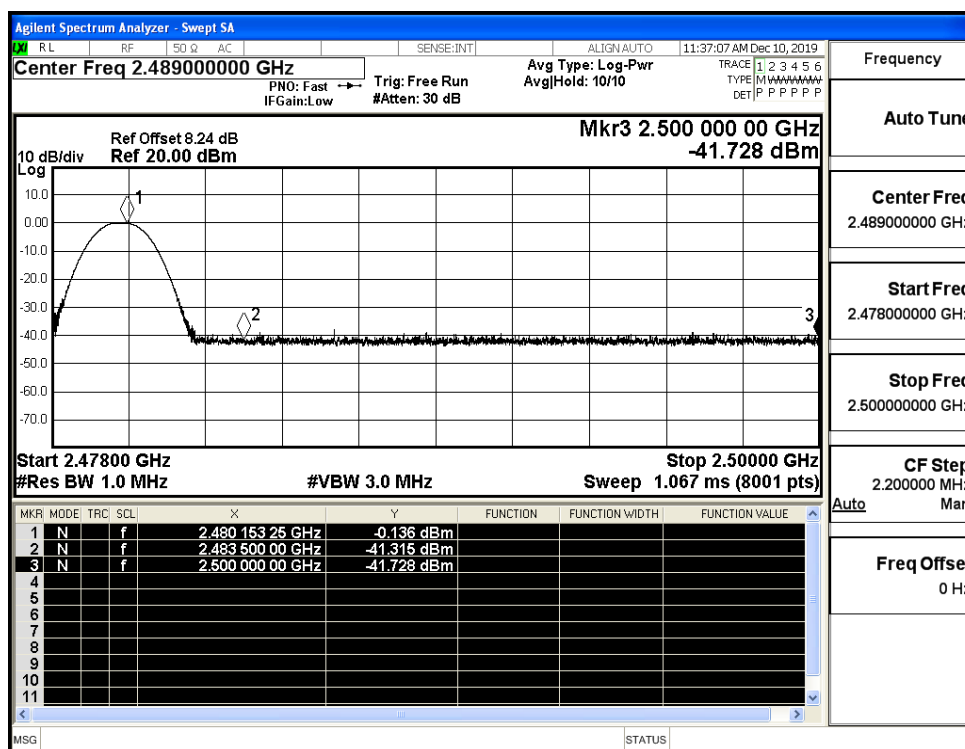
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

