Appendix A

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

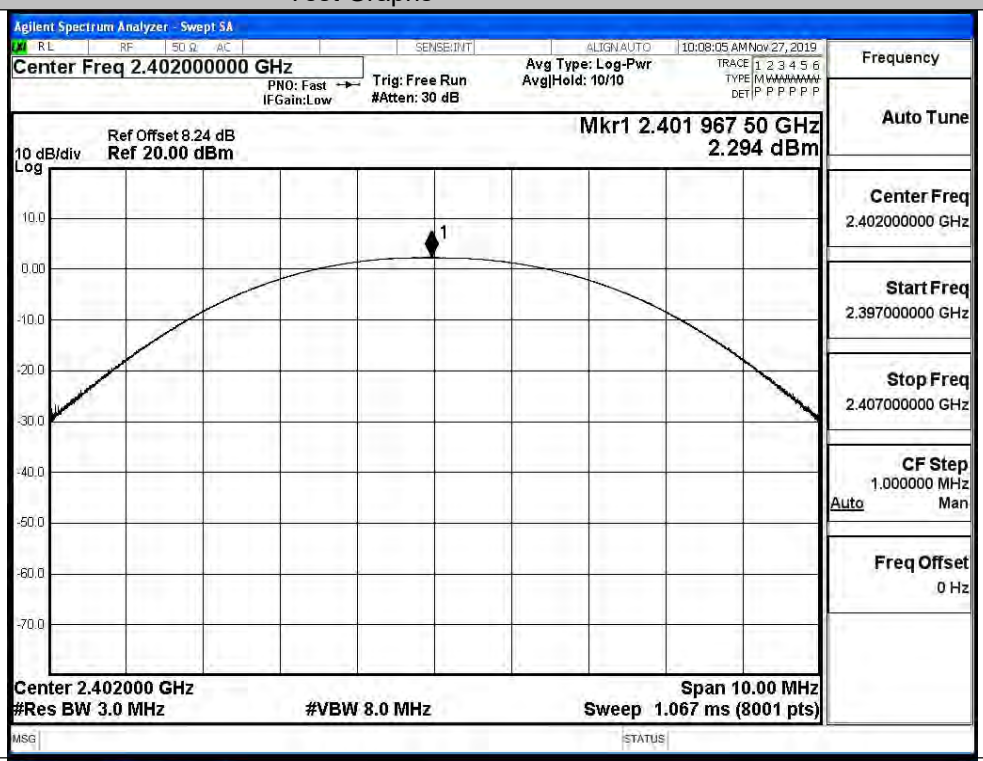
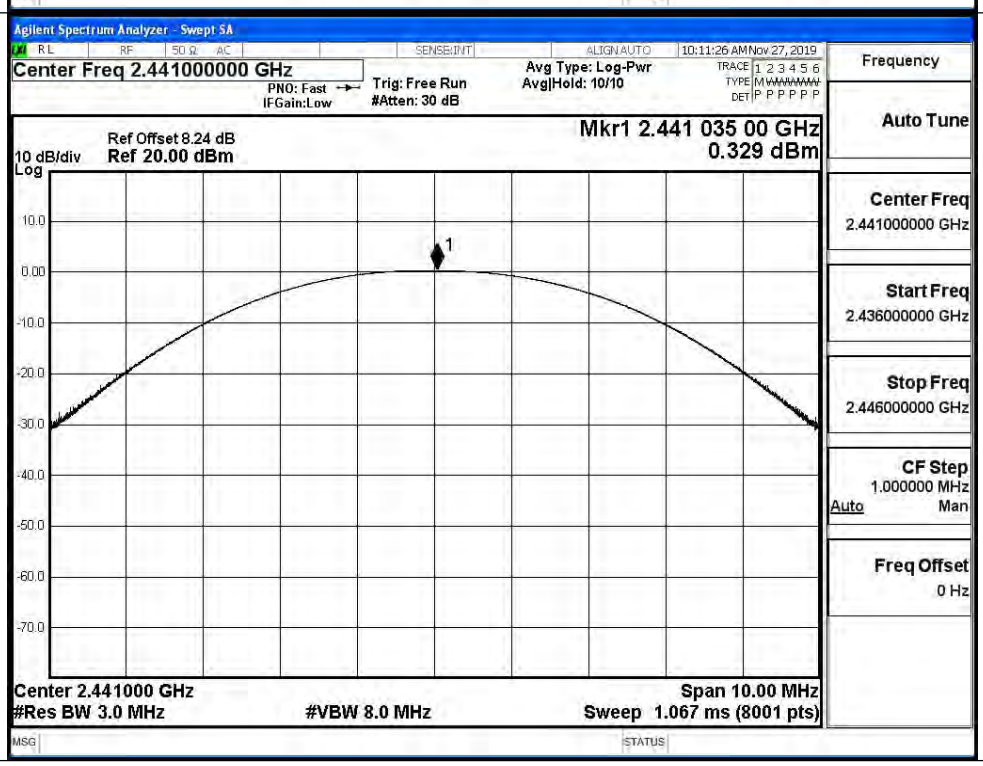
Product Name: Bluetooth Speaker
Trade Mark: N/A
Test Model: BT-1908

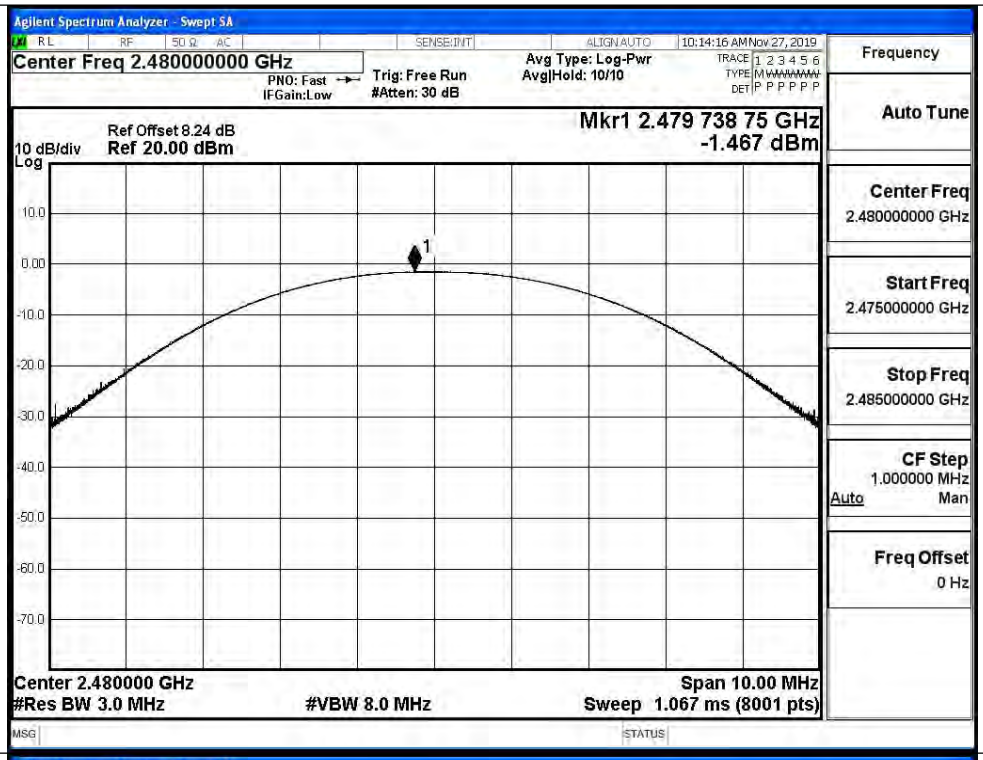
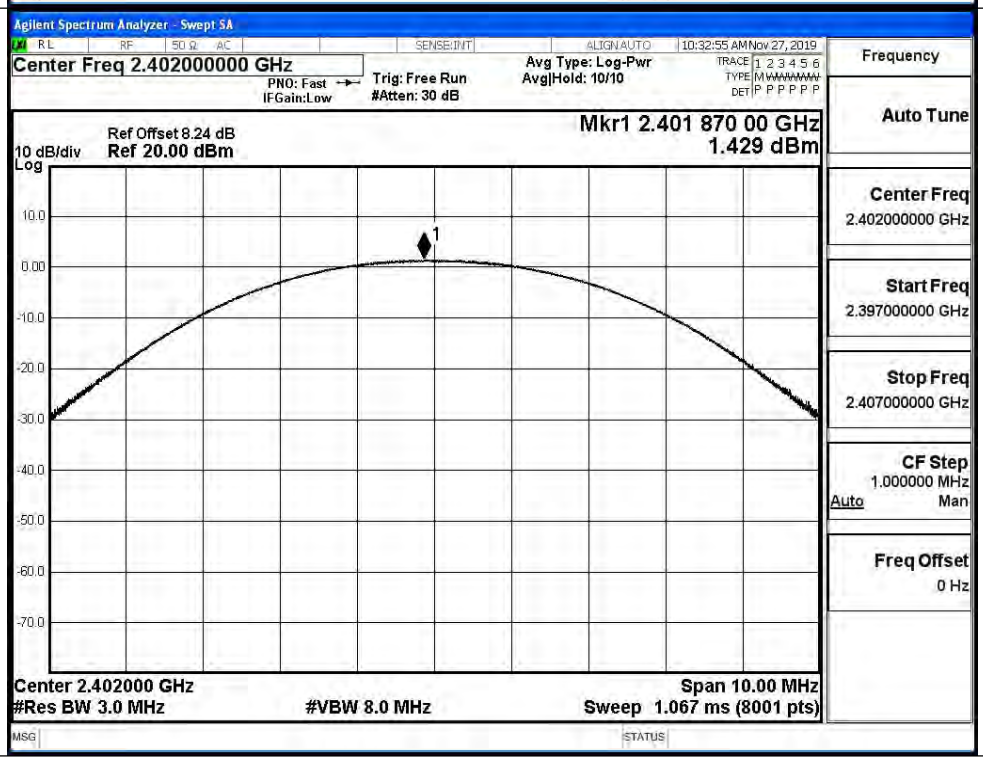
Environmental Conditions

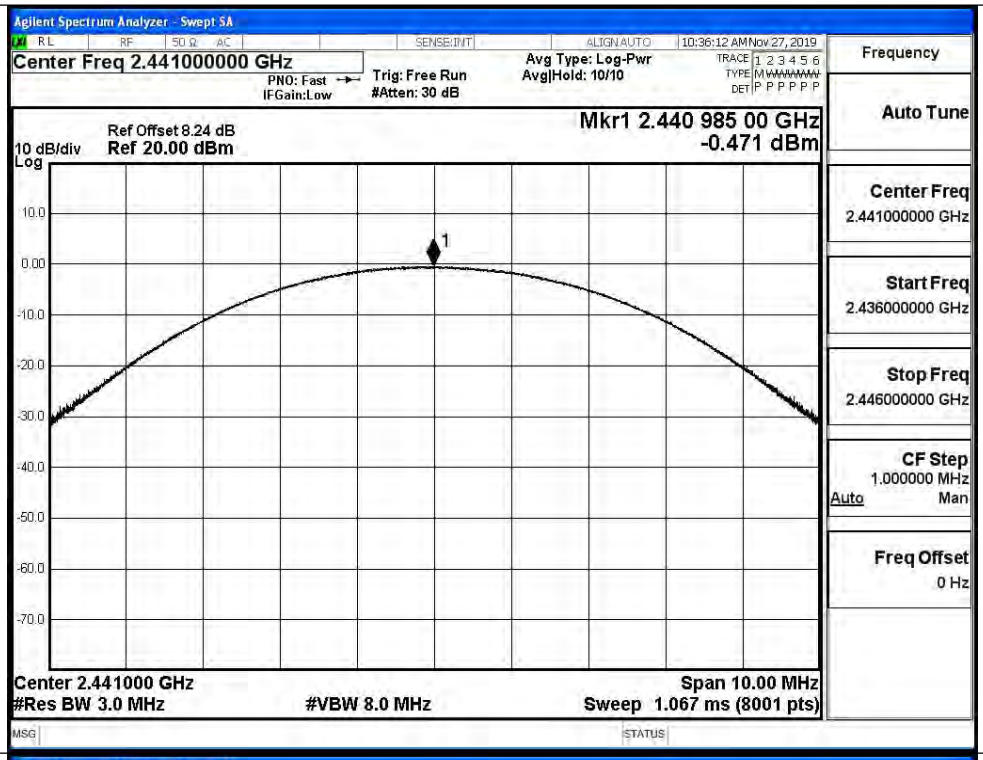
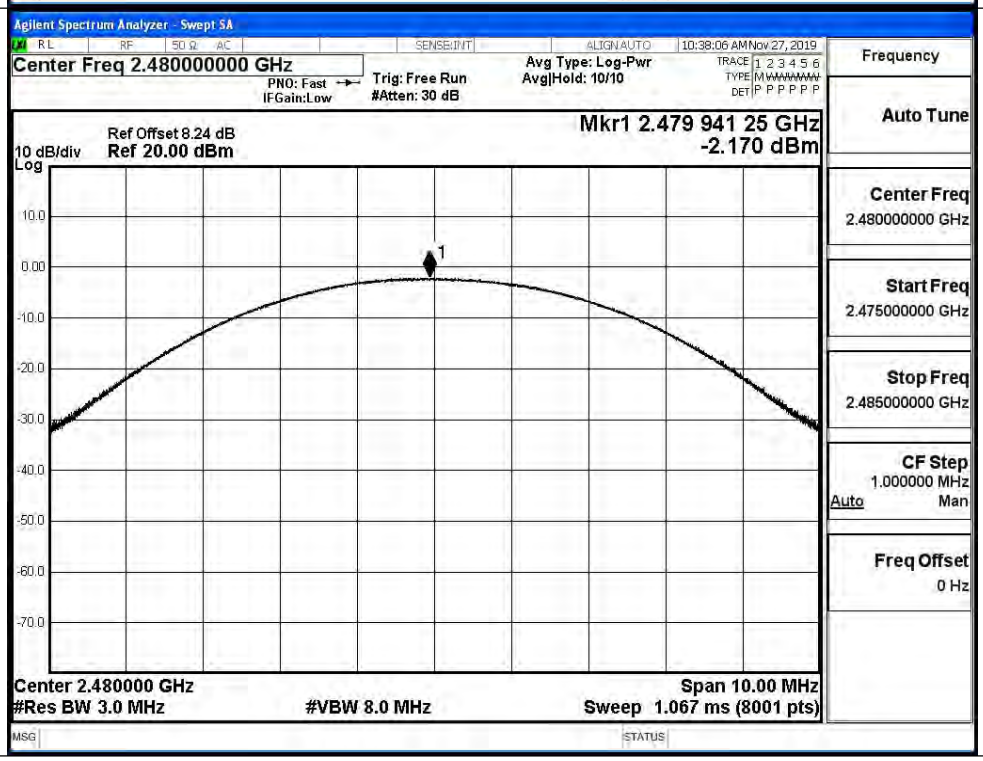
Temperature:	22.6 ° C
Relative Humidity:	53.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Scout Wu
Supervised by:	Tom.Liu

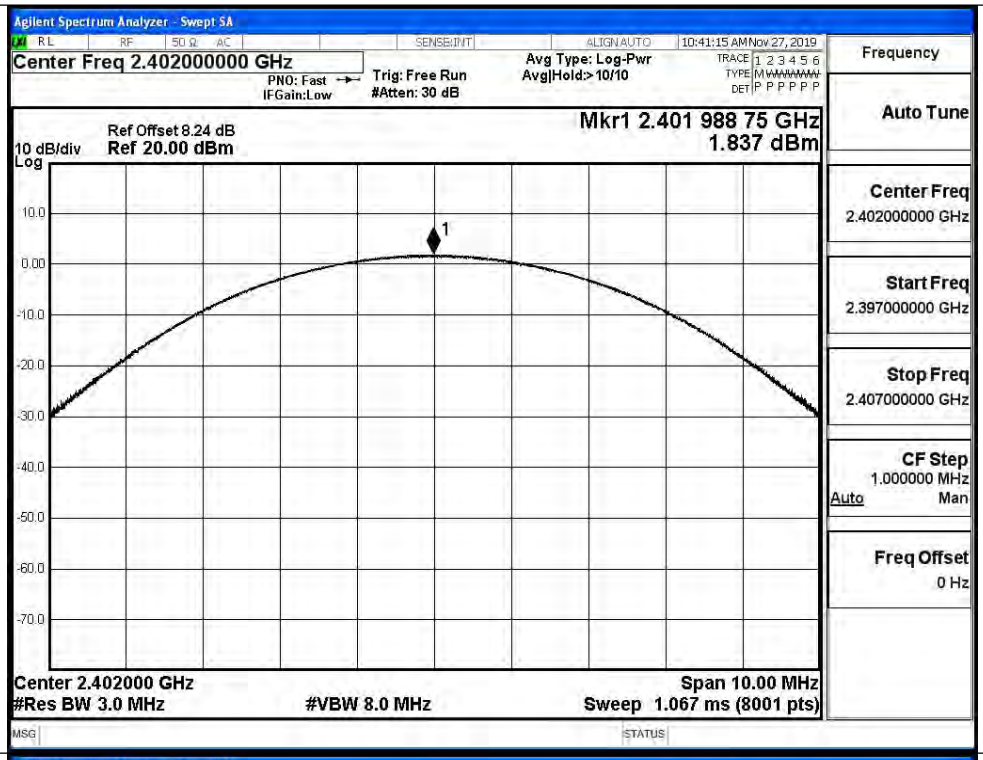
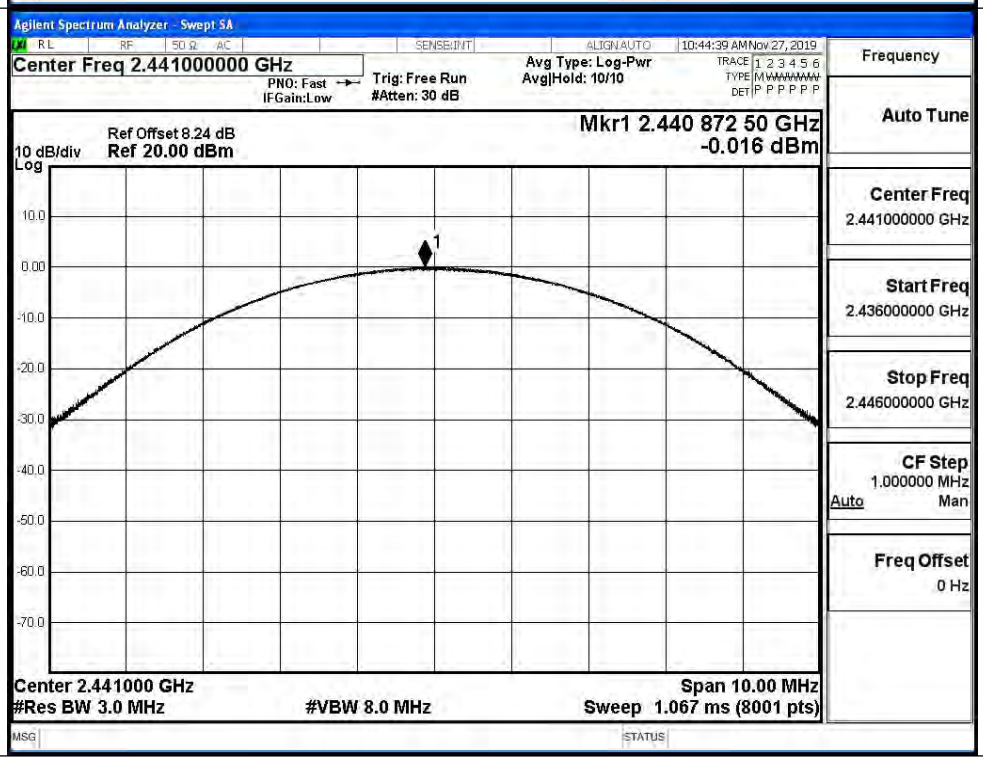
A.1 Maxmum Conducted Peak Output Power

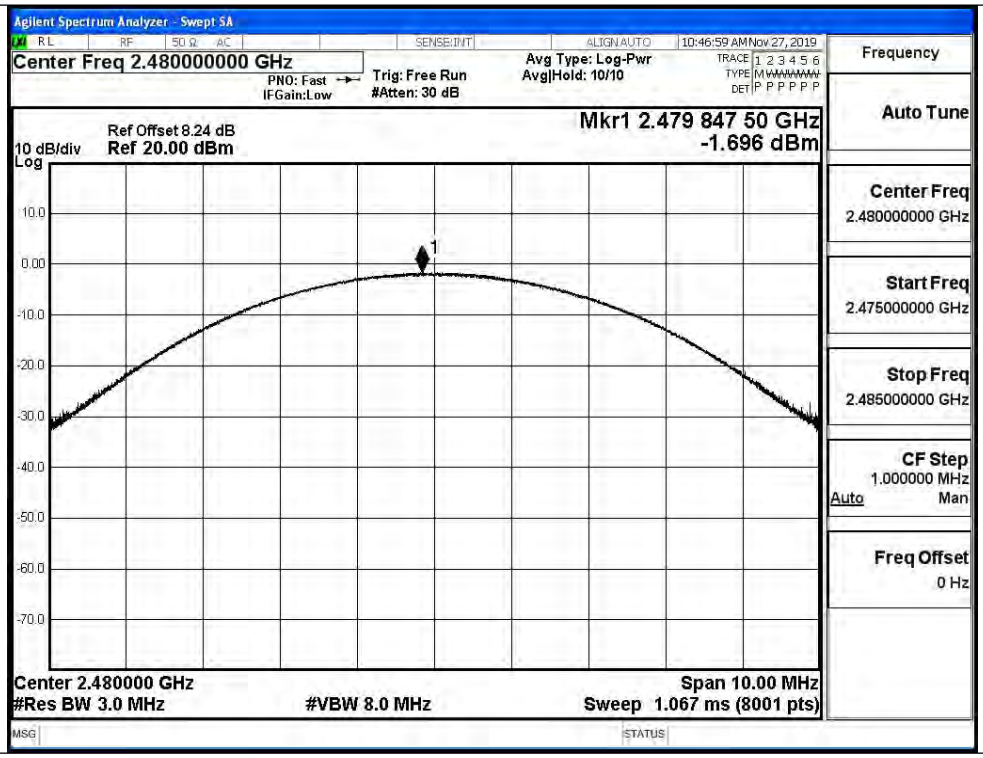
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.294	30	PASS
	MCH	0.329	30	PASS
	HCH	-1.467	30	PASS
π/4DQPSK	LCH	1.429	21	PASS
	MCH	-0.471	21	PASS
	HCH	-2.170	21	PASS
8DPSK	LCH	1.837	21	PASS
	MCH	-0.016	21	PASS
	HCH	-1.696	21	PASS

Test Graphs		
GFSK/LCH		
GFSK/MCH		

GFSK/HCH		
π/4DQPSK/LCH		

π/4DQPSK/MCH	
π/4DQPSK/HCH	

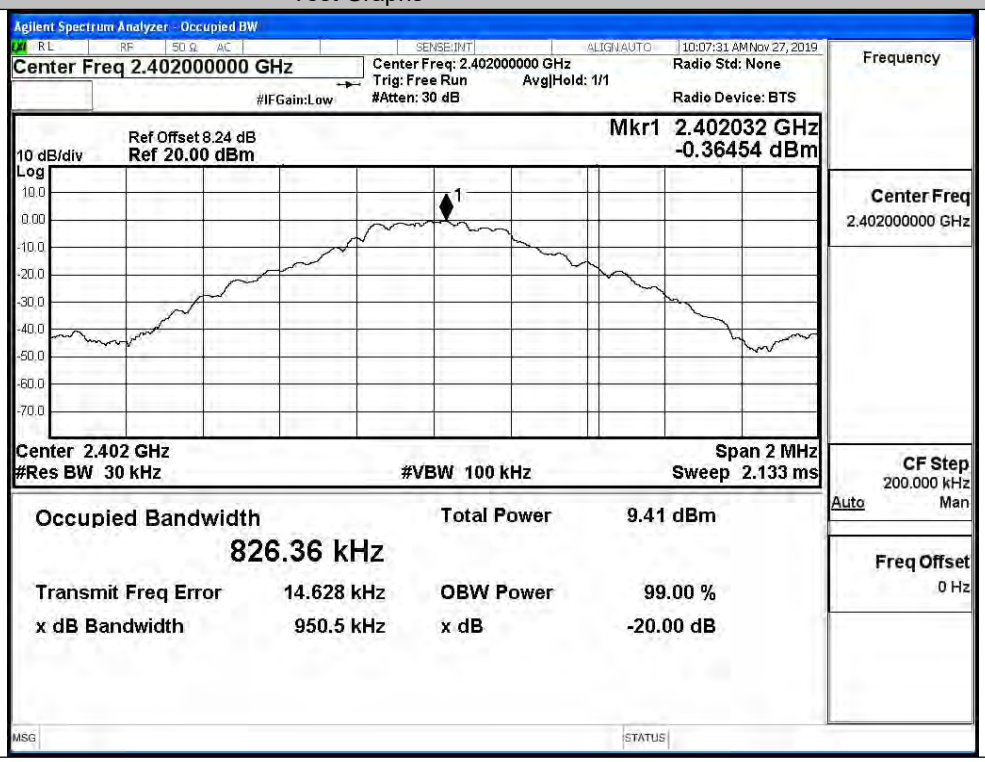
8DPSK/LCH	
8DPSK/MCH	

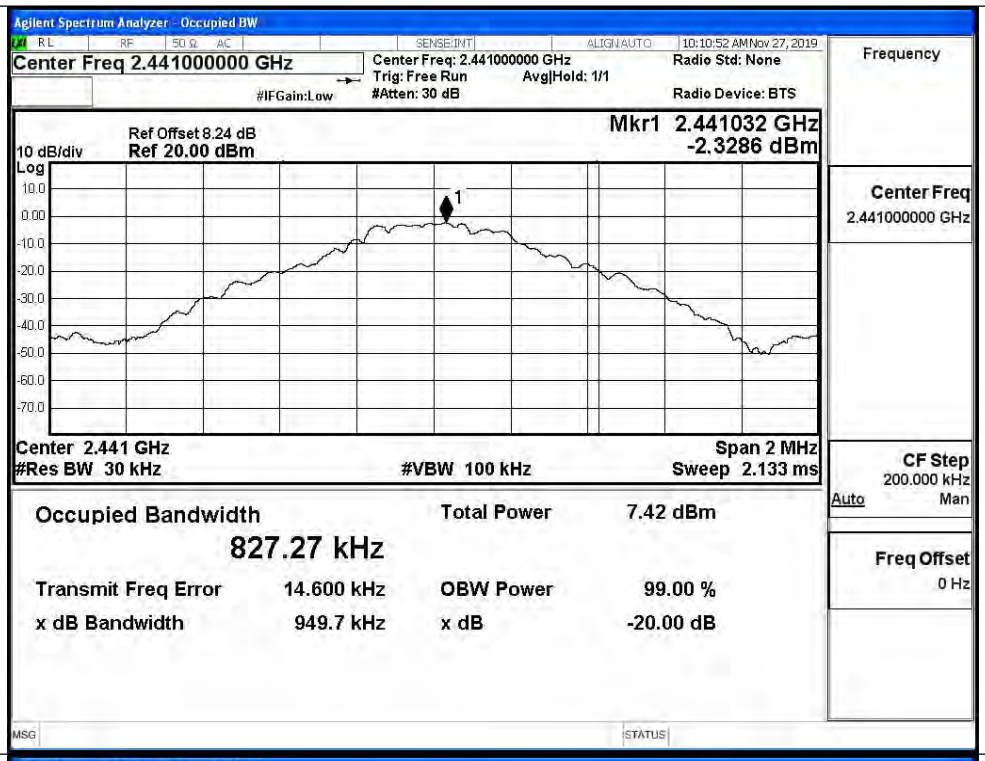
8DPSK/HCH	

Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/10
10:46:59 AM Nov 27, 2019
Ref Offset 8.24 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.479 847 50 GHz
-1.696 dBm
Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Span 10.00 MHz
Sweep 1.067 ms (8001 pts)
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.475000000 GHz
Stop Freq
2.485000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

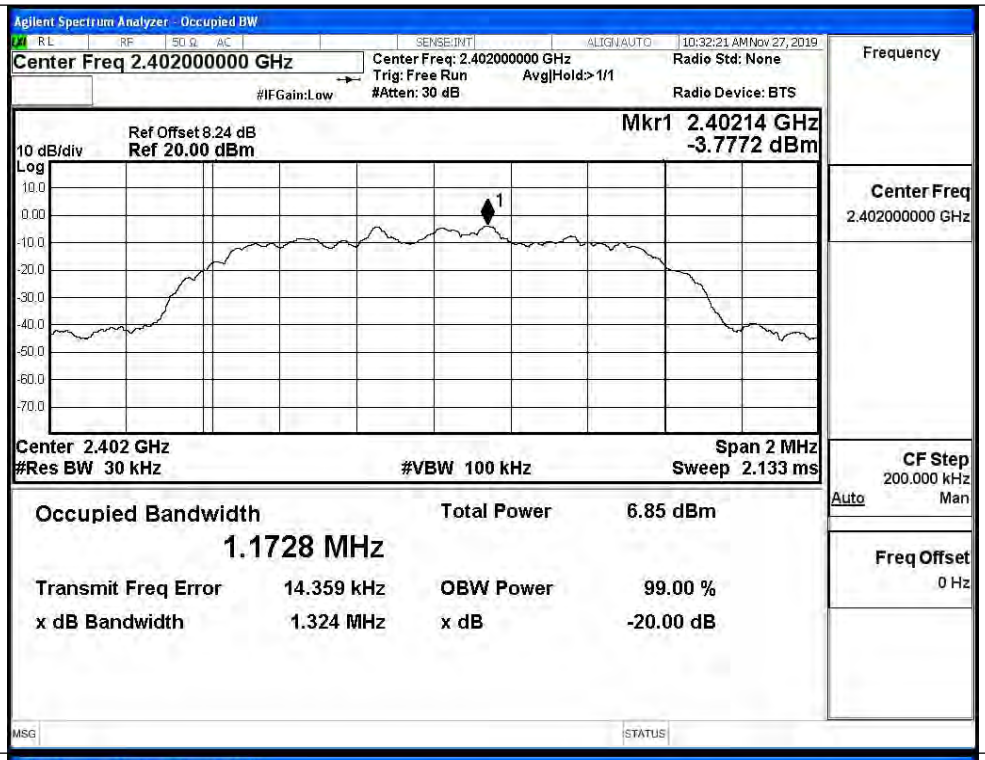
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9505	Not Specified	PASS
	MCH	0.9497	Not Specified	PASS
	HCH	0.9495	Not Specified	PASS
π/4DQPSK	LCH	1.324	Not Specified	PASS
	MCH	1.325	Not Specified	PASS
	HCH	1.324	Not Specified	PASS
8DPSK	LCH	1.299	Not Specified	PASS
	MCH	1.301	Not Specified	PASS
	HCH	1.300	Not Specified	PASS

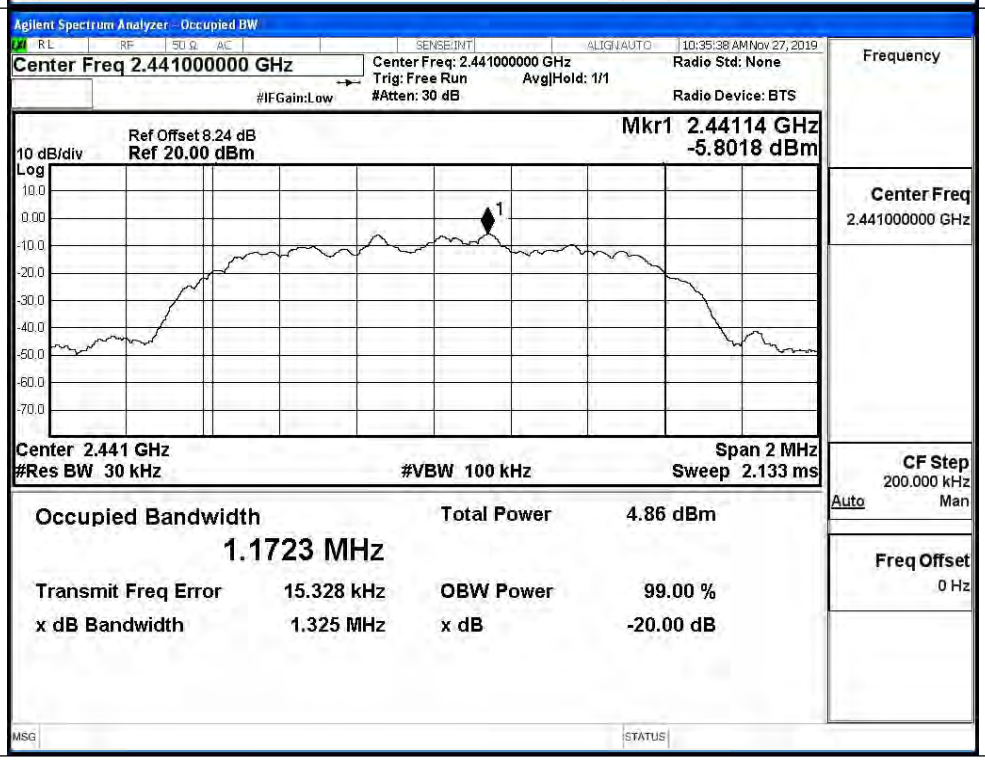
Test Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

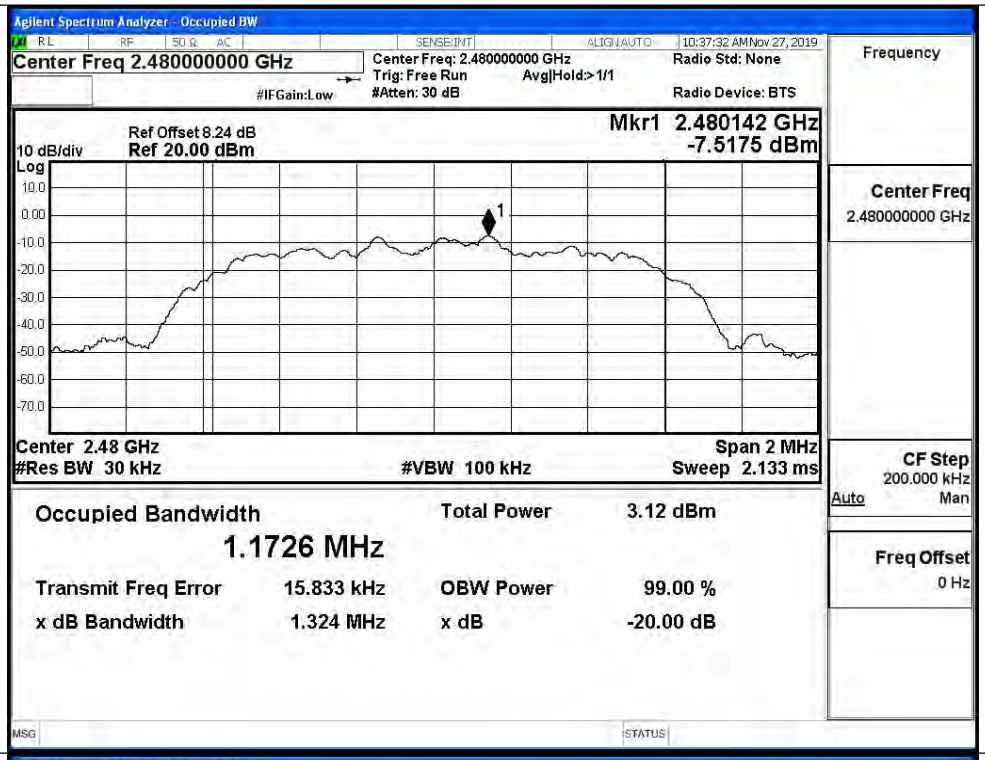
π/4DQPSK/LCH



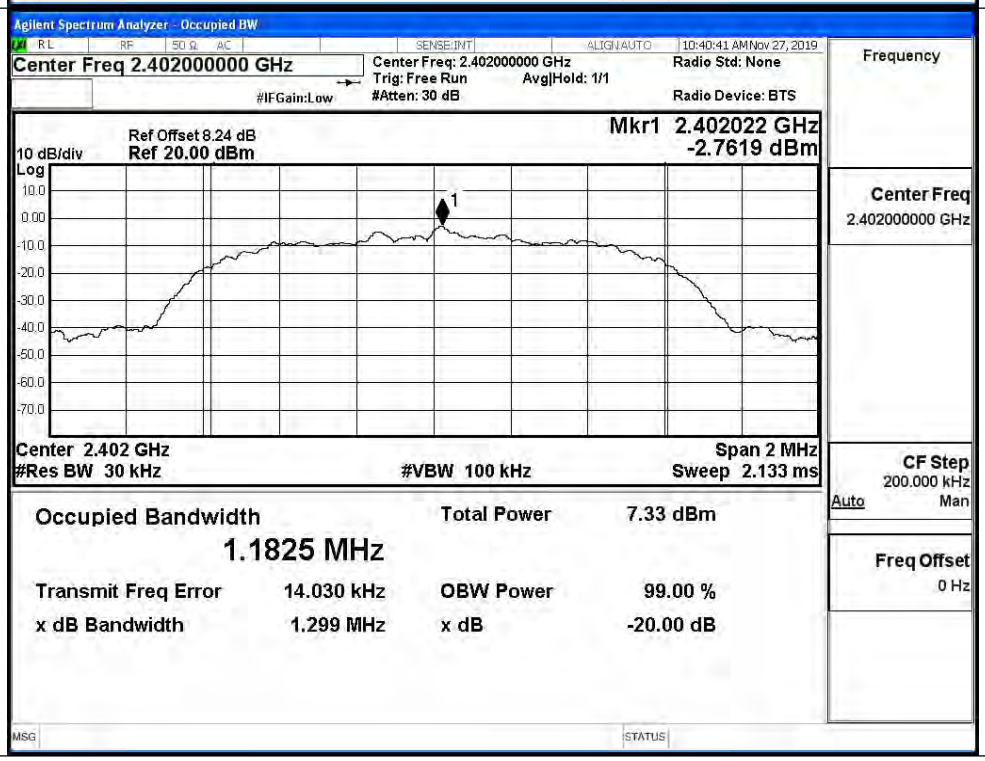
π/4DQPSK/MCH

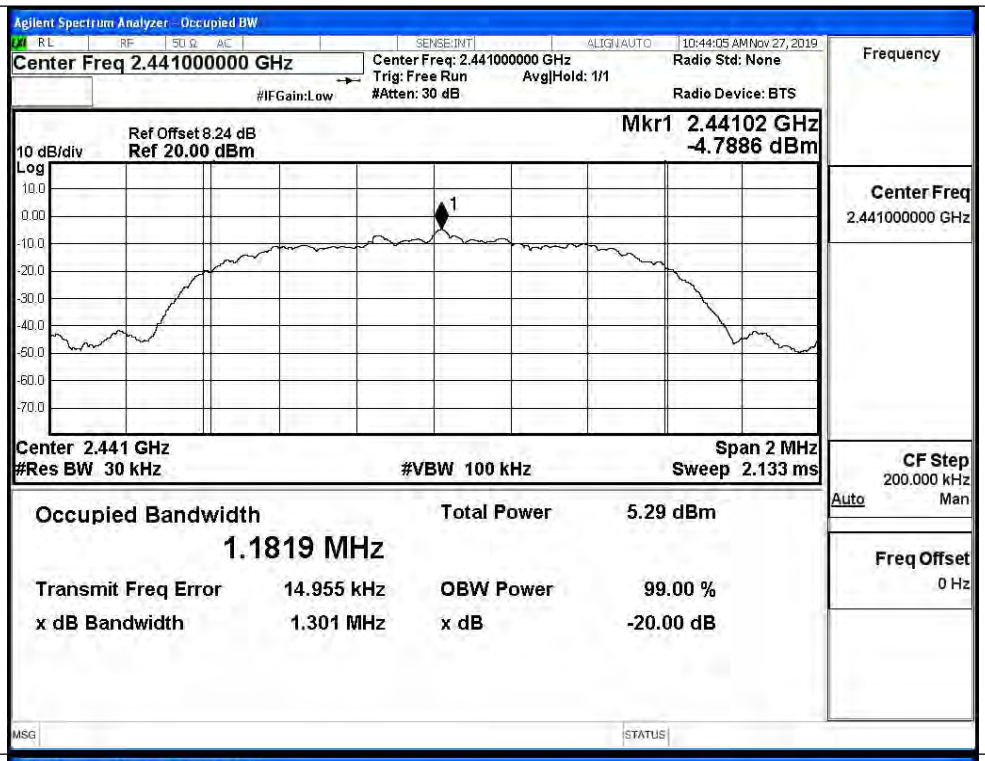
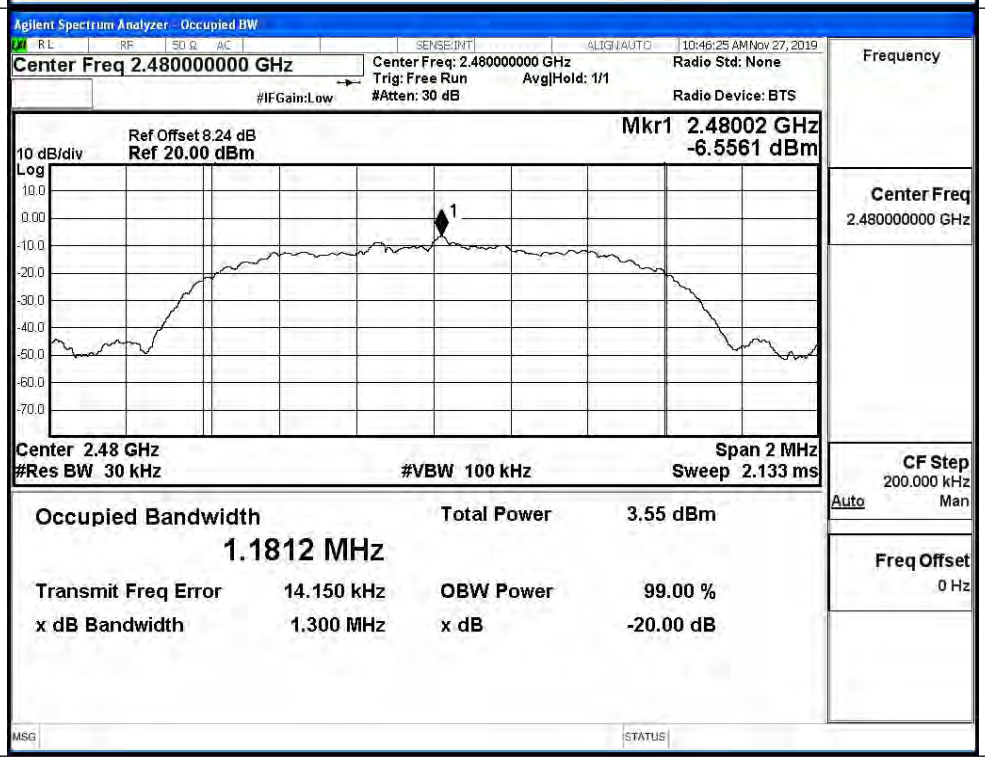


π/4DQPSK/HCH



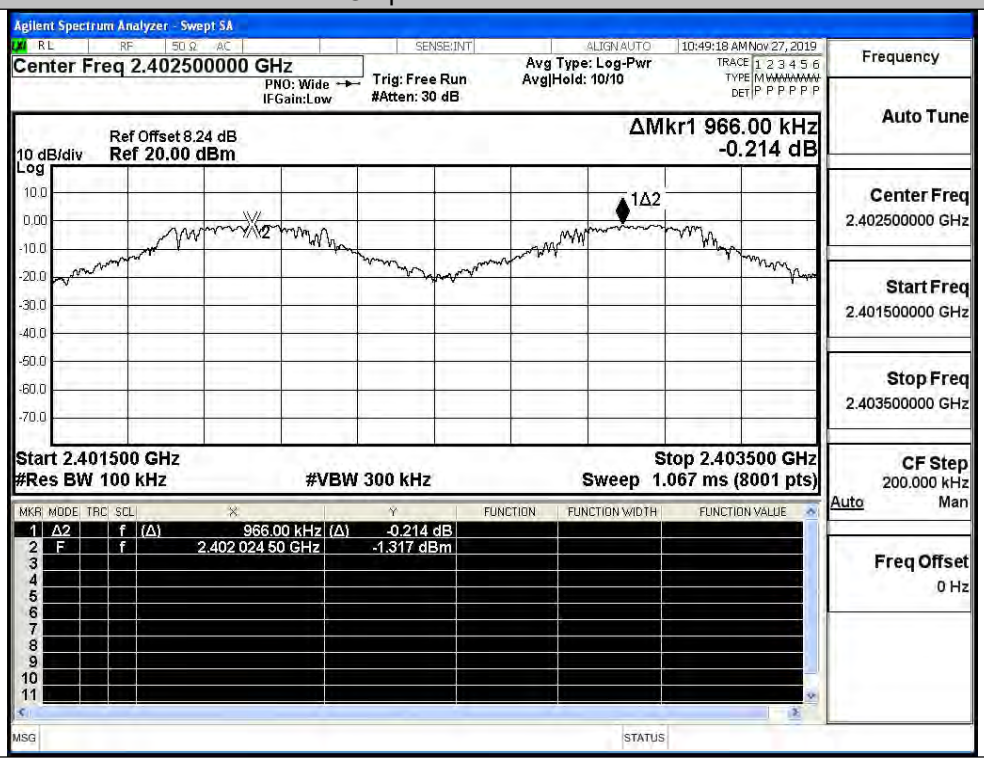
8DPSK/LCH



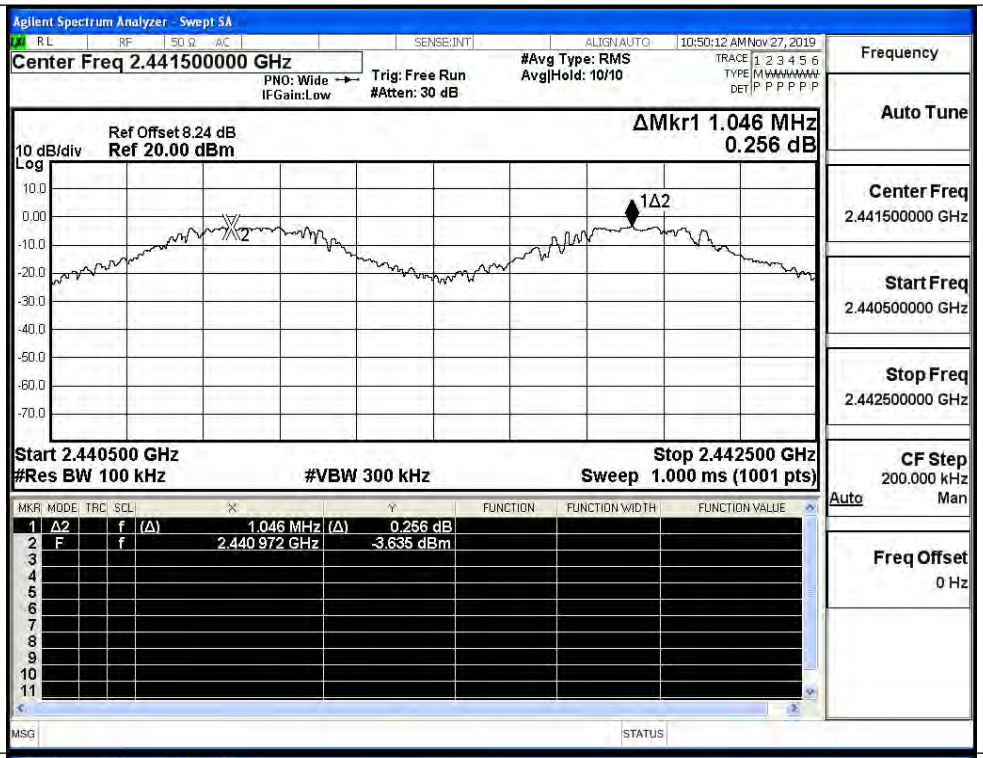
8DPSK/MCH	
8DPSK/HCH	

A.3 Carrier Frequency Separation

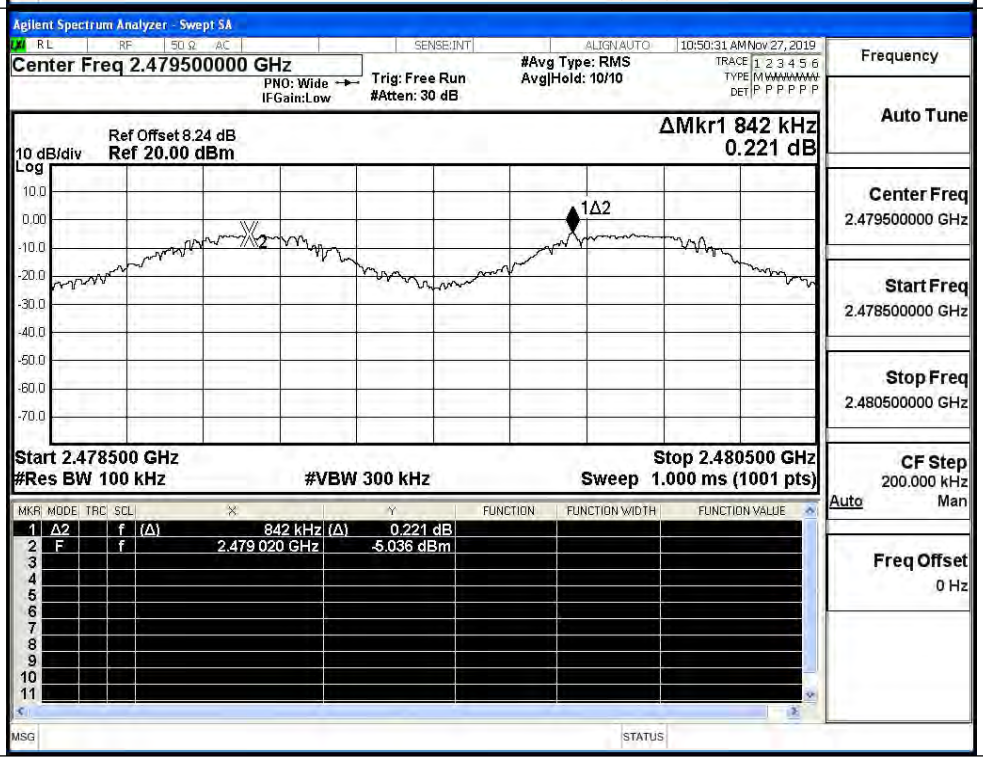
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.966	0.634	PASS
	MCH	1.046	0.634	PASS
	HCH	0.842	0.634	PASS
π/4DQPSK	LCH	1.158	0.883	PASS
	MCH	1.268	0.883	PASS
	HCH	0.888	0.883	PASS
8DPSK	LCH	0.974	0.867	PASS
	MCH	1.020	0.867	PASS
	HCH	0.932	0.867	PASS

Test Graphs		
GFSK/LCH		

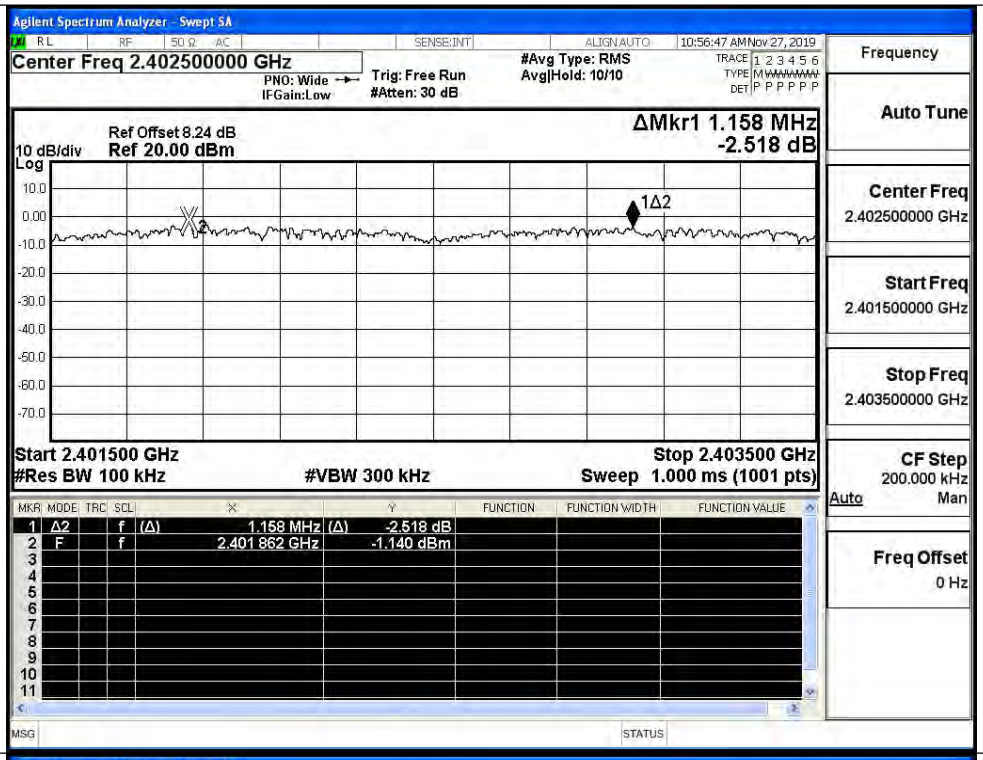
GFSK/MCH



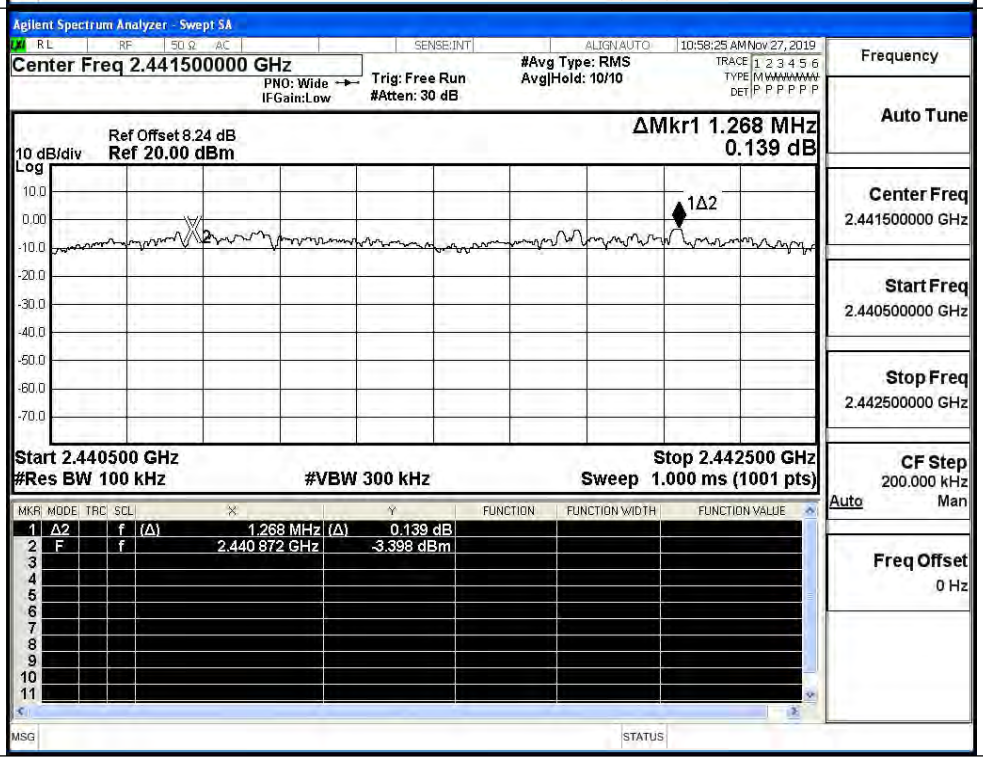
GFSK/HCH



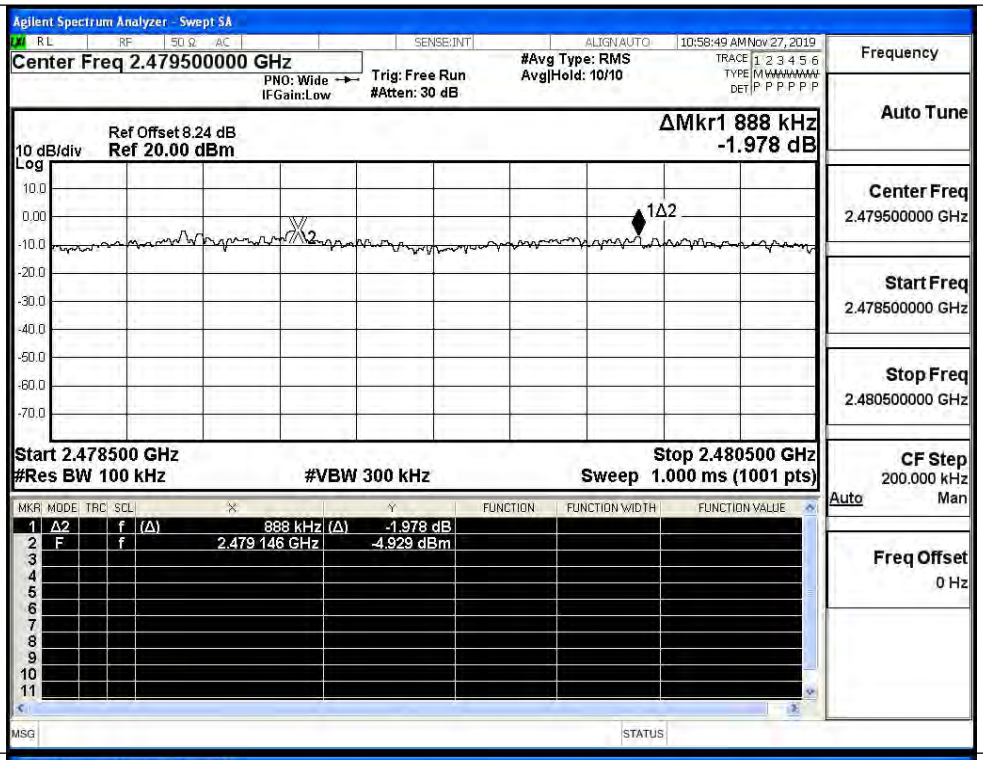
π/4DQPSK/LCH



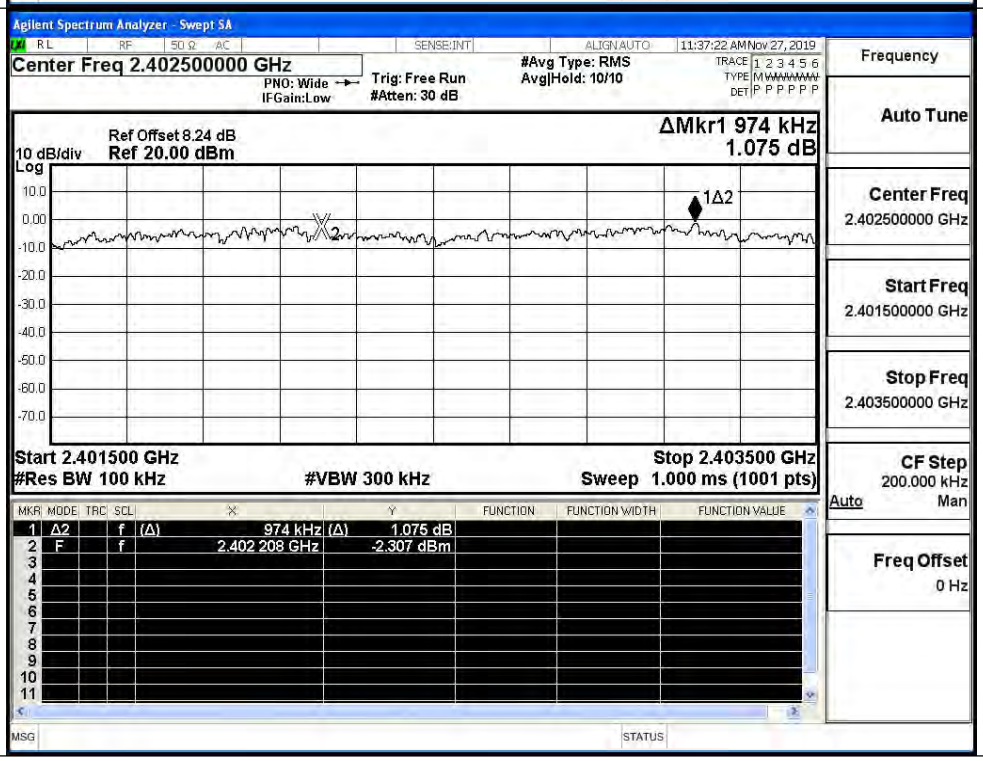
π/4DQPSK/MCH

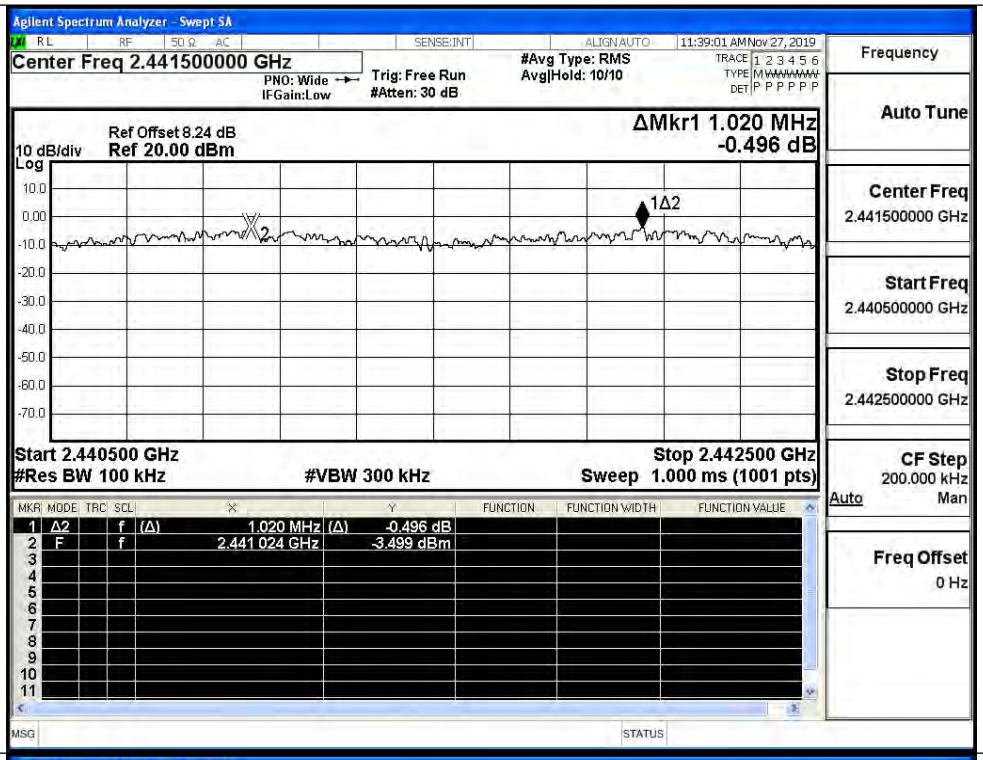
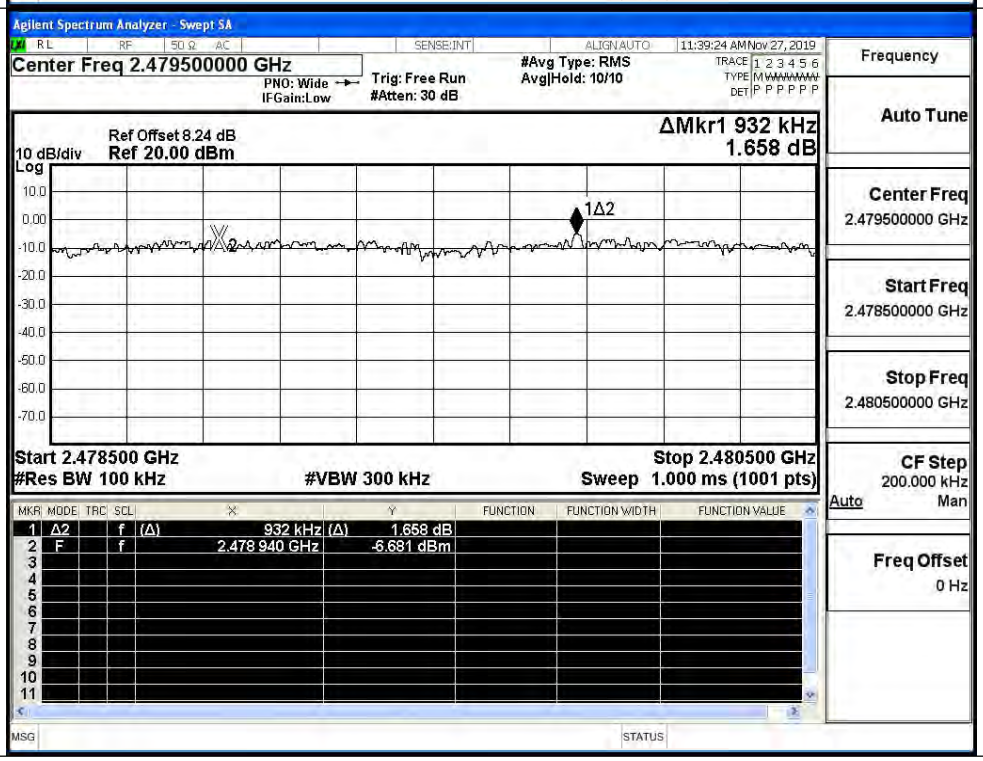


π/4DQPSK/HCH



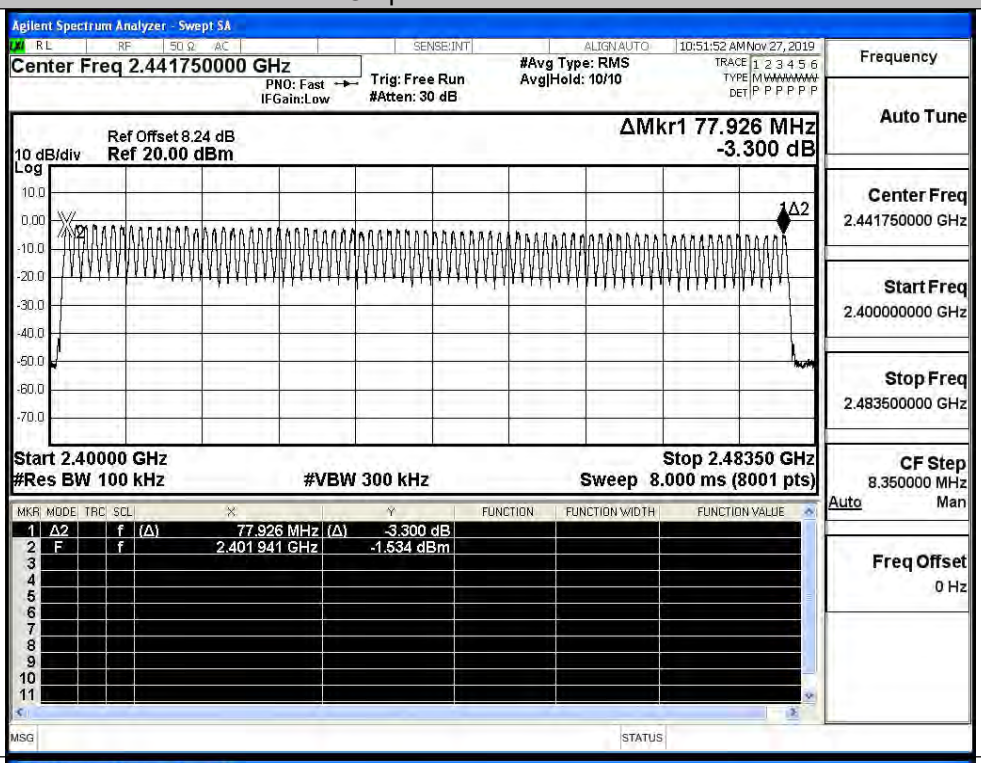
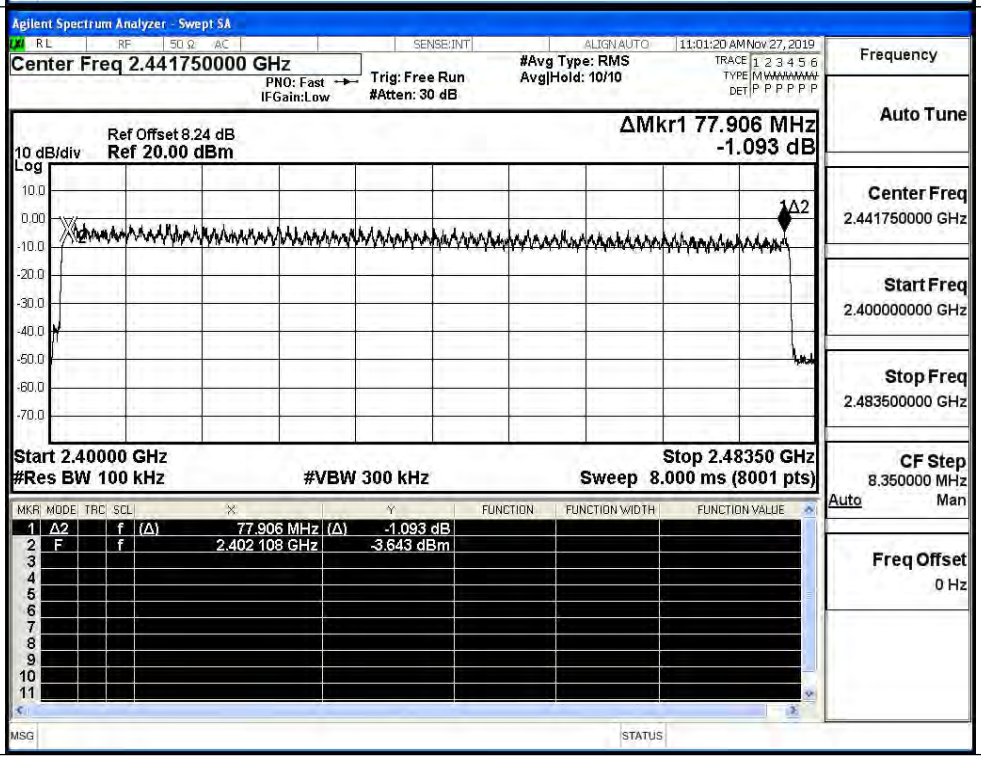
8DPSK/LCH

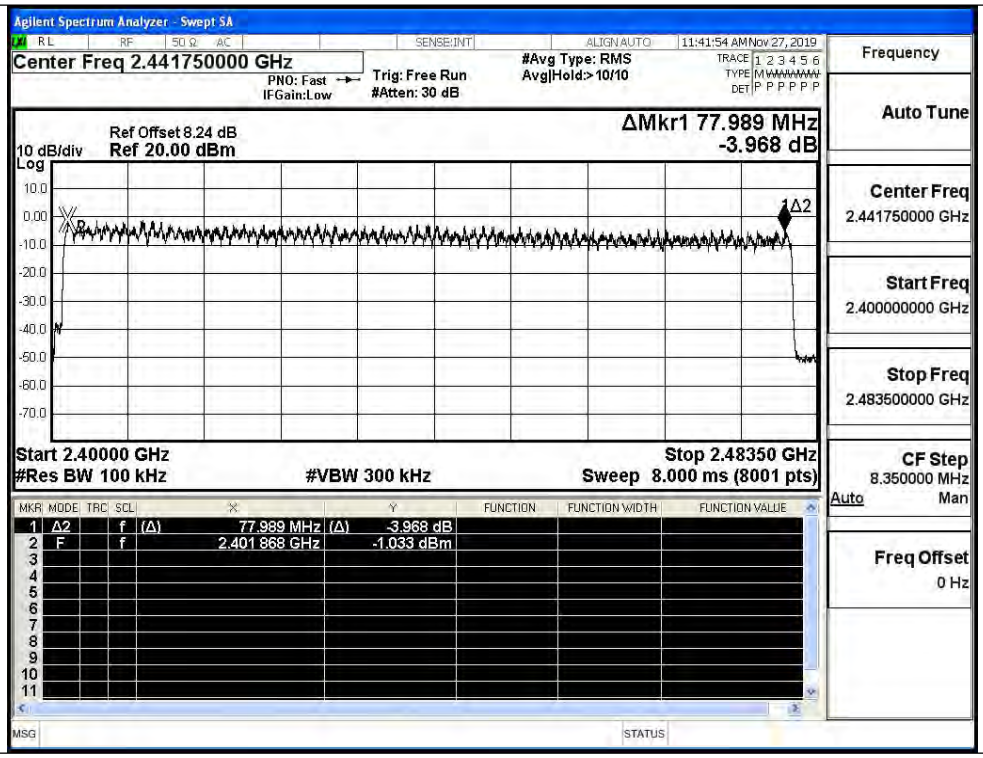


8DPSK/MCH		
8DPSK/HCH		

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

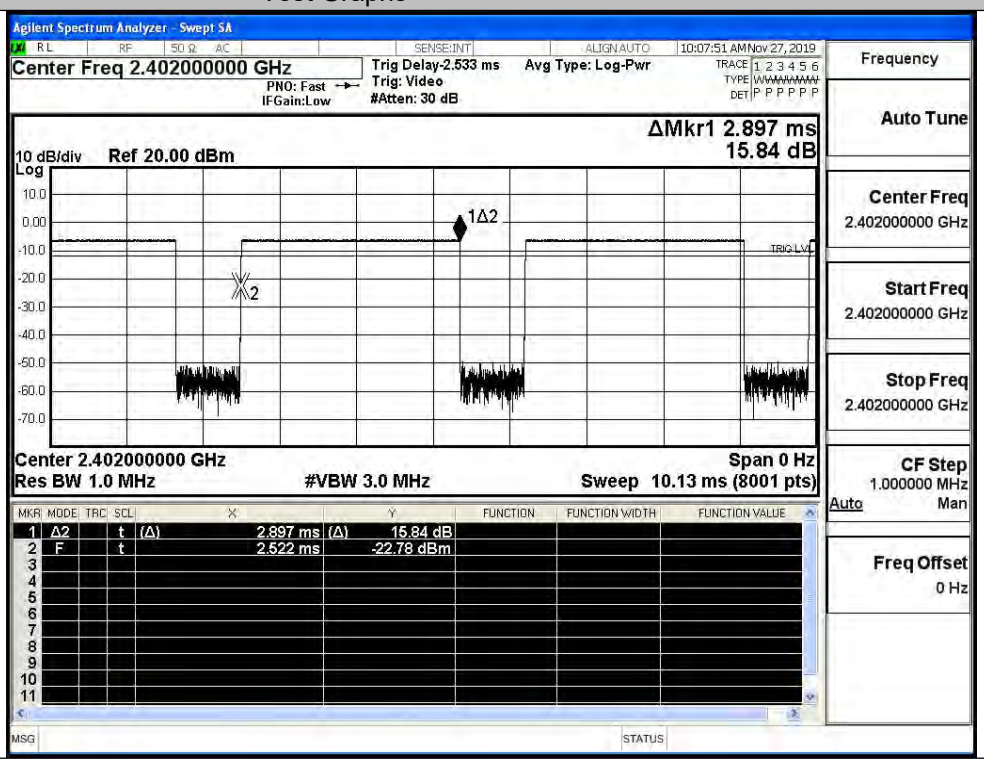
Test Graphs		
GFSK/Hop		
π/4DQPSK/Hop		

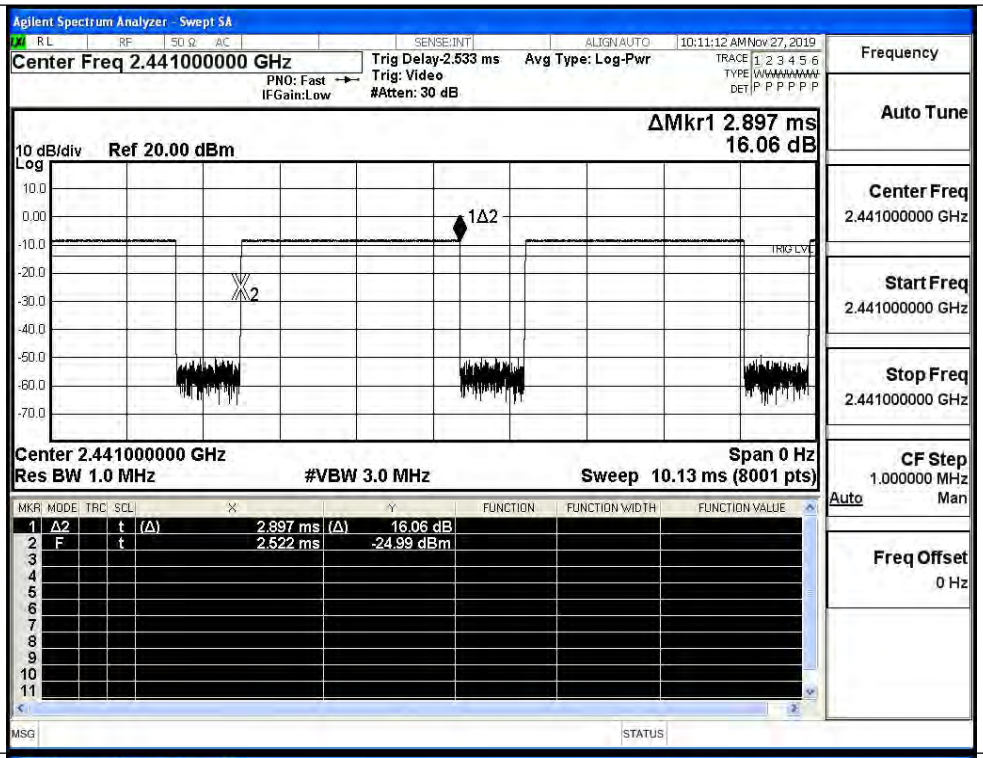
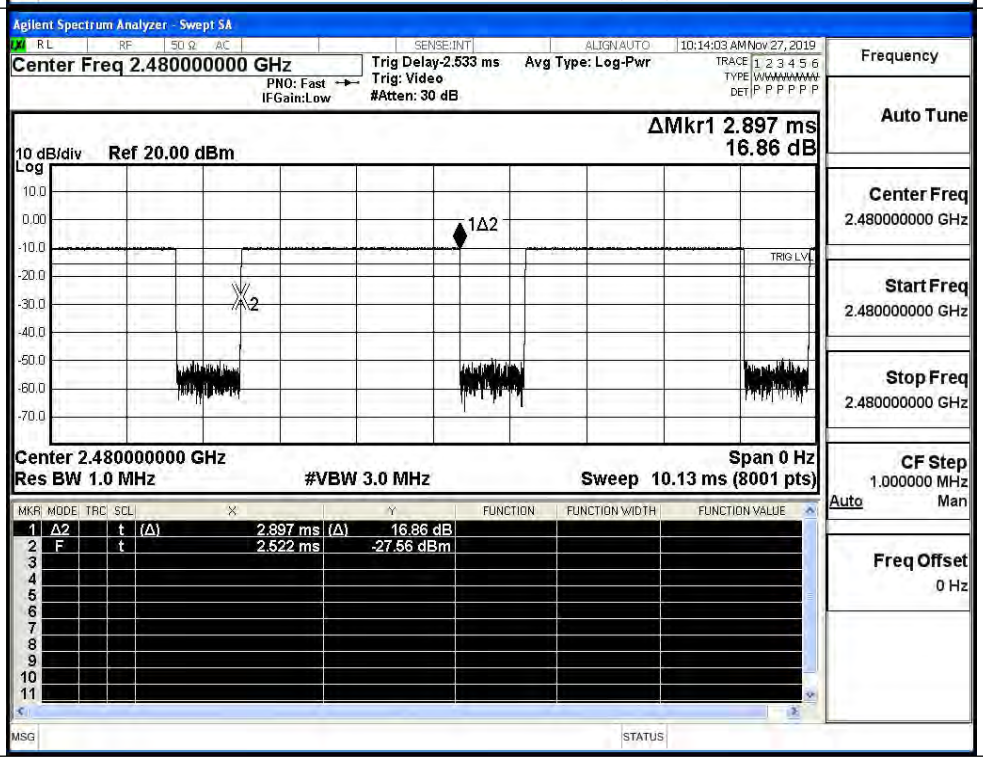
8DPSK/Hop	

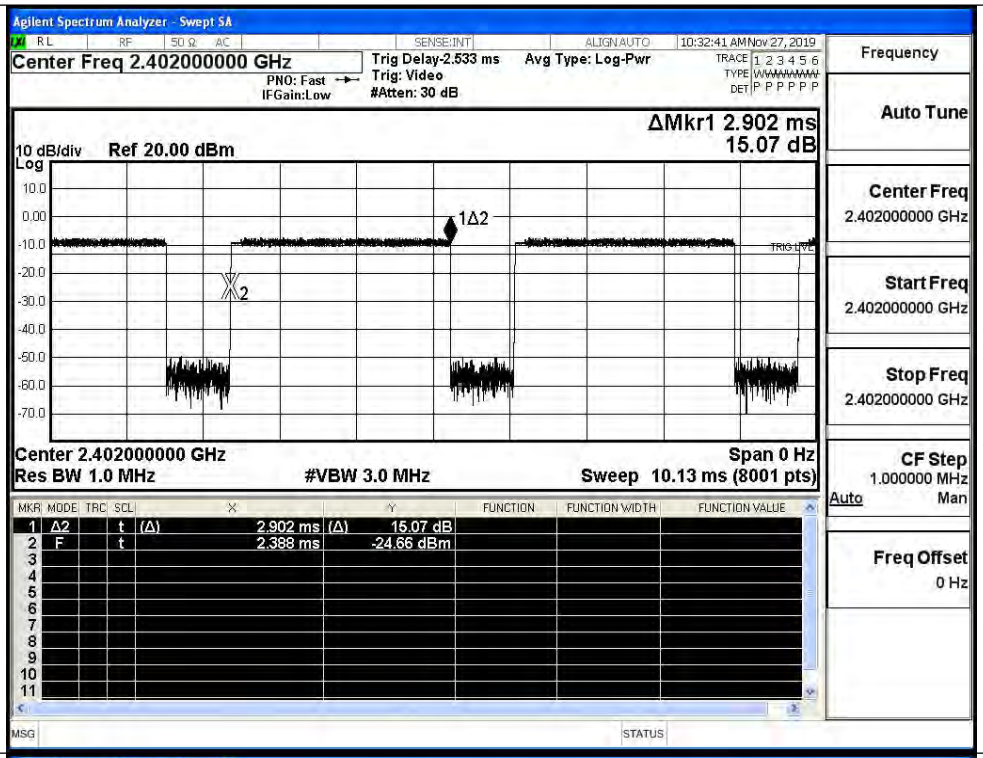
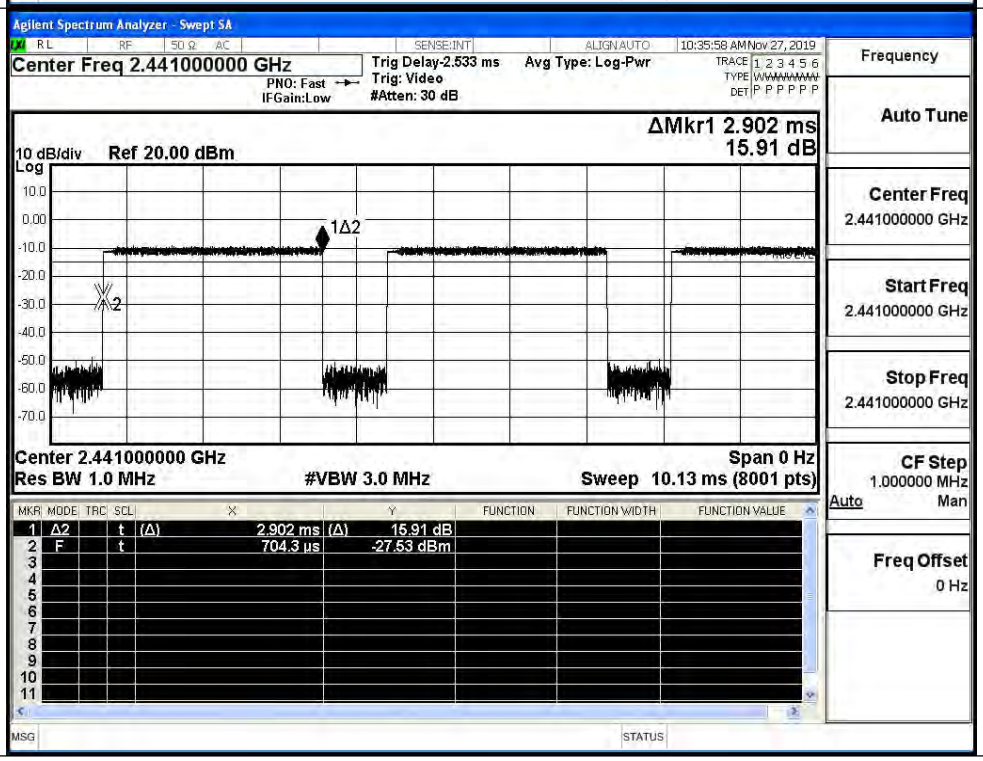
Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441750000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold:>10/10
11:41:54 AM Nov 27, 2019
Ref Offset 8.24 dB
10 dB/div
Ref 20.00 dBm
ΔMkr1 77.989 MHz
-3.968 dB
Start 2.40000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.48350 GHz
Sweep 8.000 ms (8001 pts)
1 Δ2 f (Δ) 77.989 MHz (Δ) -3.968 dB
2 F f 2.401 868 GHz -1.033 dBm
Frequency
Auto Tune
Center Freq 2.441750000 GHz
Start Freq 2.400000000 GHz
Stop Freq 2.483500000 GHz
CF Step 8.350000 MHz
Auto Man
Freq Offset 0 Hz

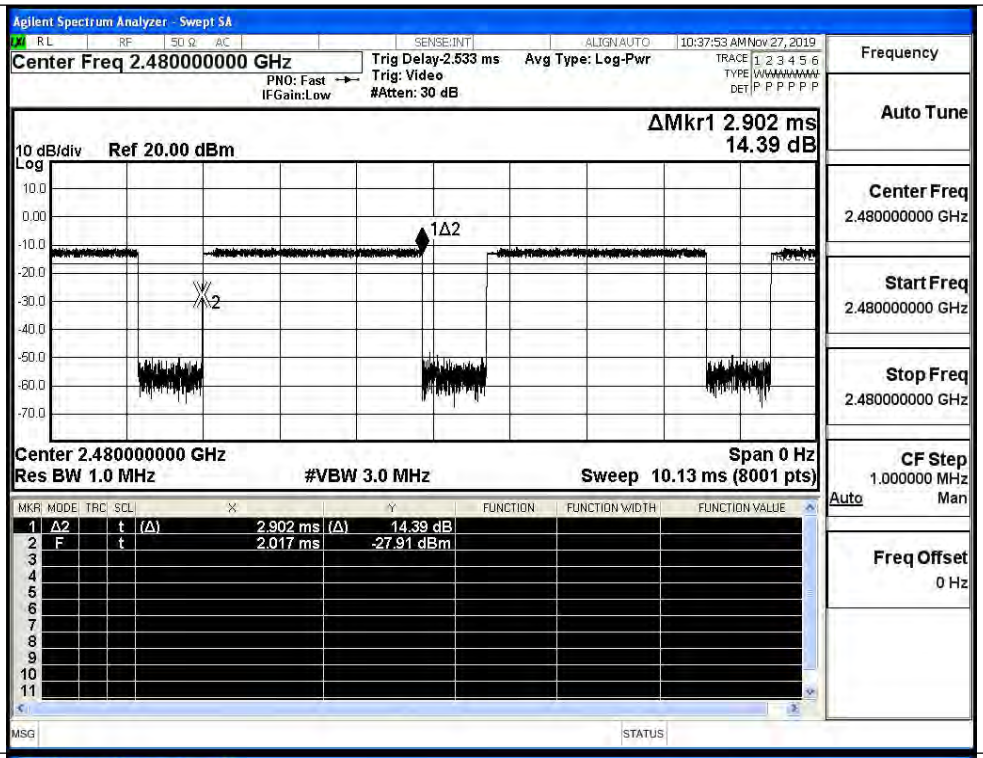
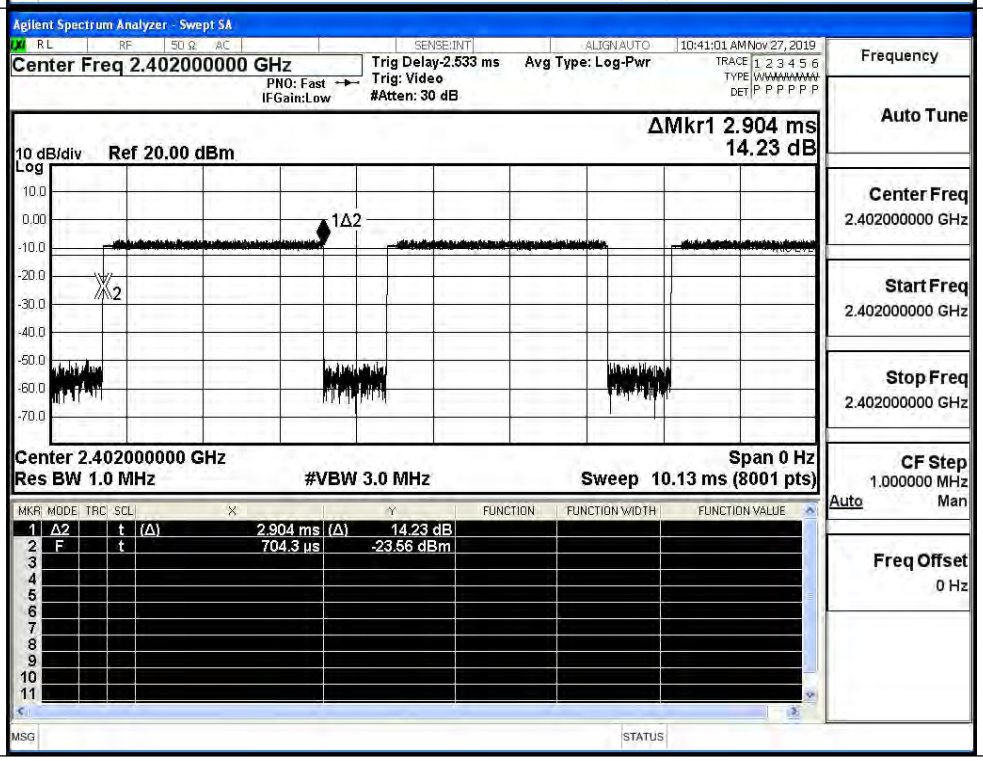
A.5 Dwell Time

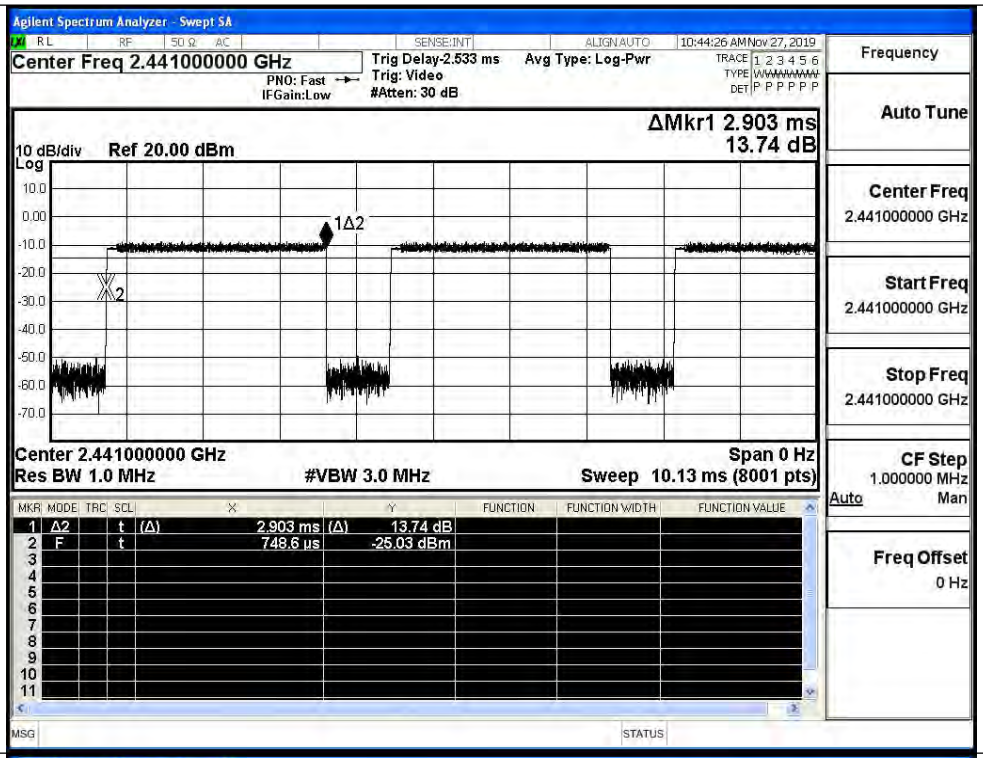
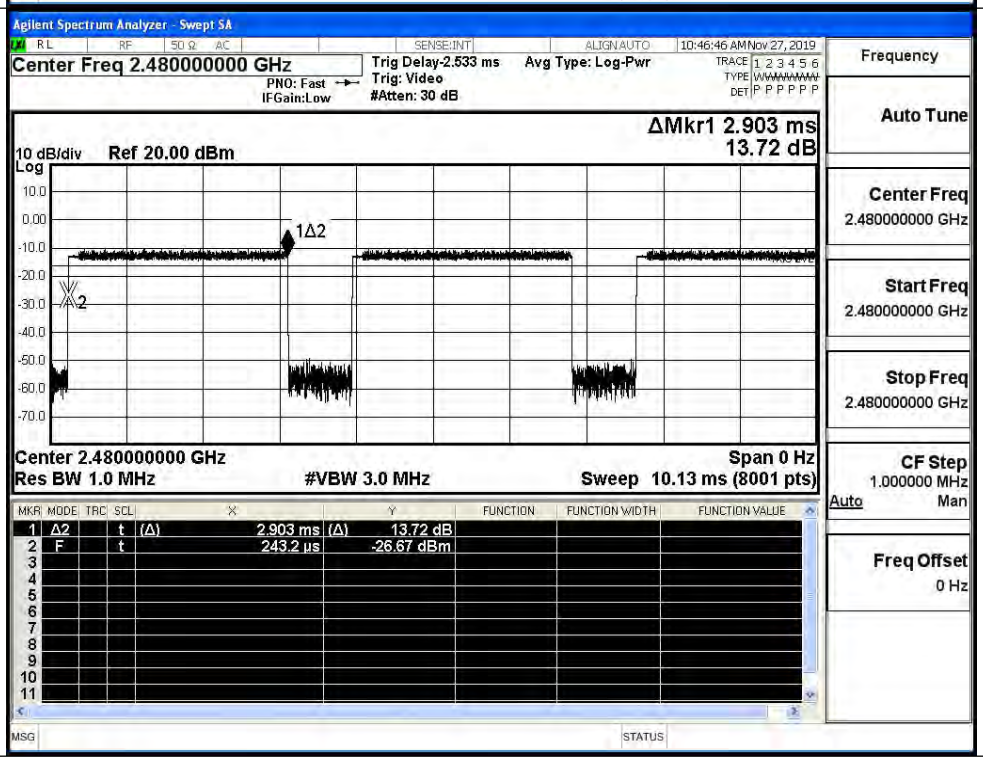
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.9	106.7	0.309	0.4	PASS
	DH5	MCH	2.9	106.7	0.309	0.4	PASS
	DH5	HCH	2.9	106.7	0.309	0.4	PASS
π/4DQPSK	2DH5	LCH	2.9	106.7	0.309	0.4	PASS
	2DH5	MCH	2.9	106.7	0.309	0.4	PASS
	2DH5	HCH	2.9	106.7	0.309	0.4	PASS
8DPSK	3DH5	LCH	2.9	106.7	0.309	0.4	PASS
	3DH5	MCH	2.9	106.7	0.309	0.4	PASS
	3DH5	HCH	2.9	106.7	0.309	0.4	PASS

Test Graphs	
GFSK_DH5/LCH	

GFSK_DH5/MCH	
GFSK_DH5/HCH	

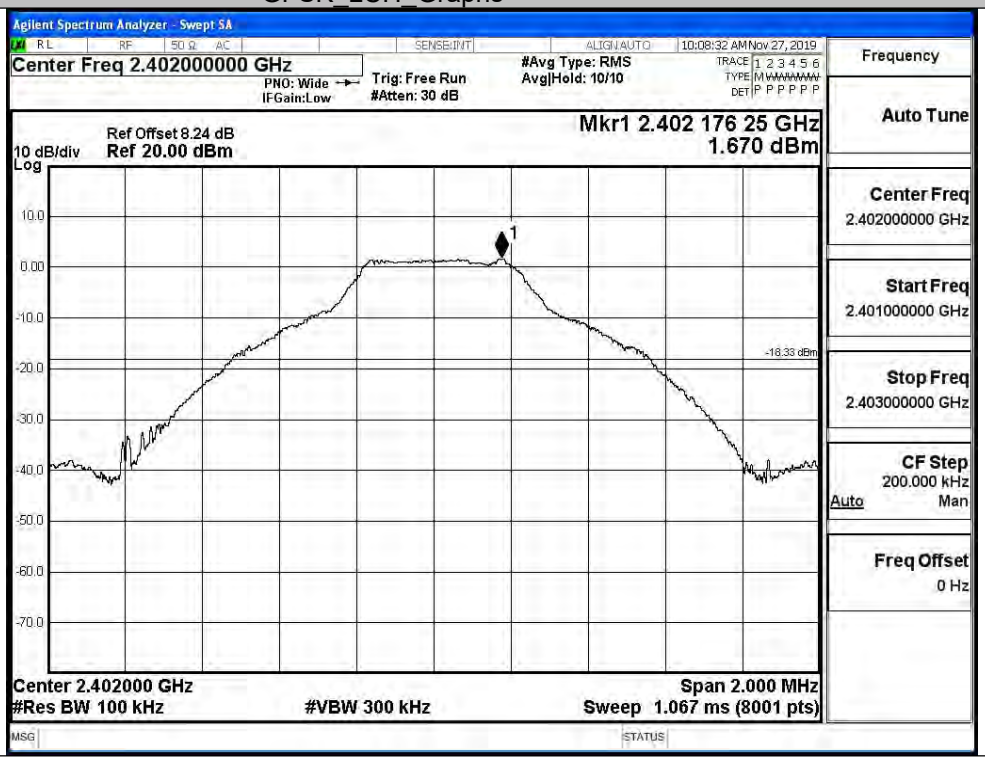
π/4DQPSK _2DH5/LCH	
π/4DQPSK _2DH5/MCH	

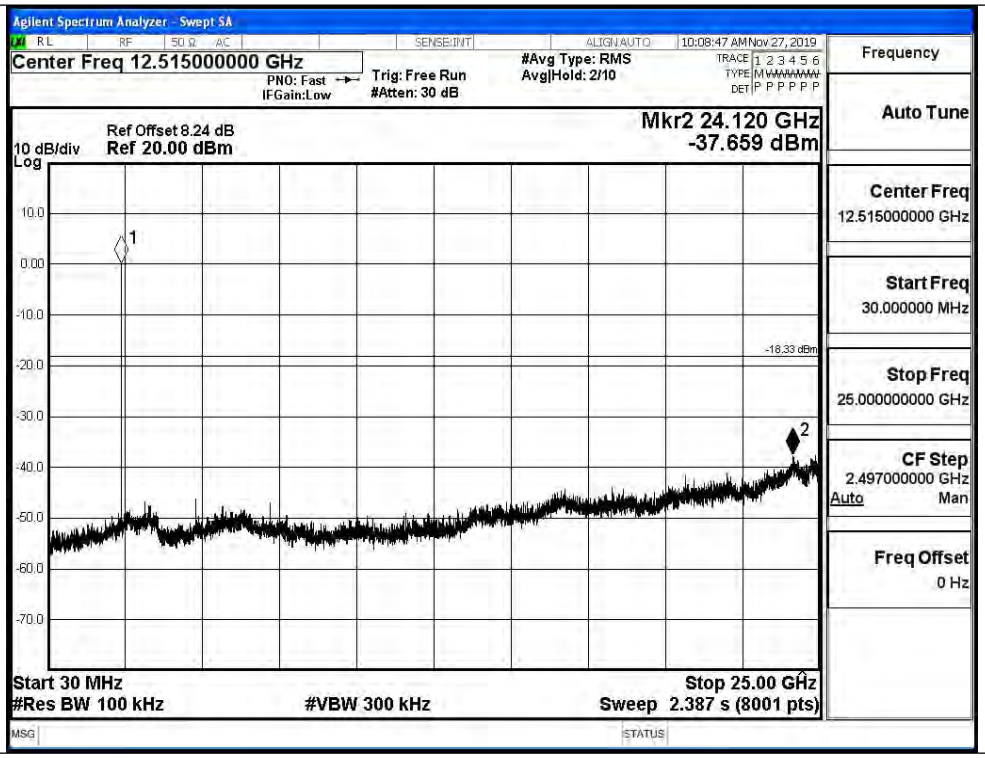
π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

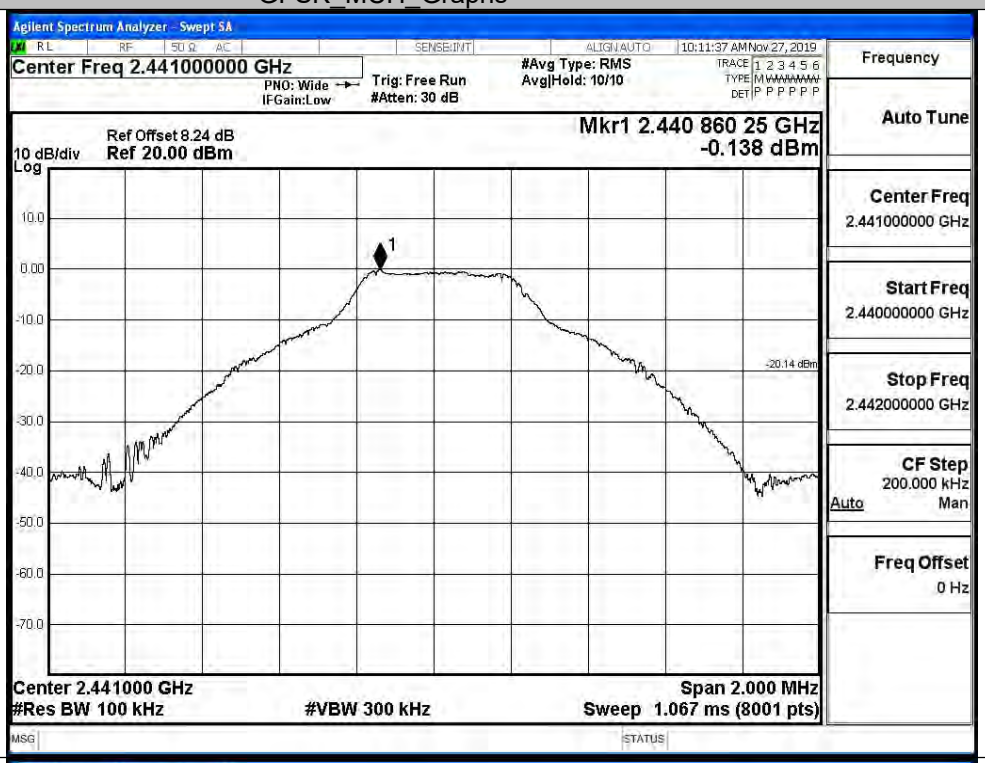
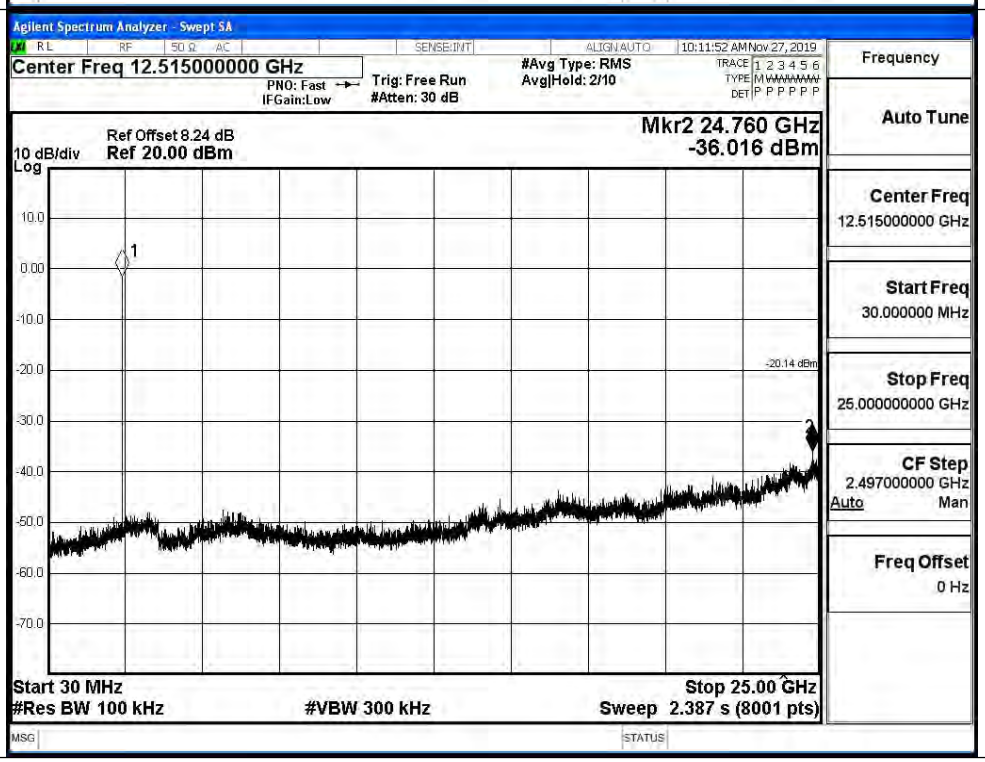
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.67	-37.659	-18.330	PASS
	MCH	-0.138	-36.016	-20.138	PASS
	HCH	-2.031	-37.711	-22.031	PASS
π/4DQPSK	LCH	-1.185	-37.284	-21.185	PASS
	MCH	-3.21	-37.543	-23.210	PASS
	HCH	-4.946	-37.089	-24.946	PASS
8DPSK	LCH	-1.107	-37.498	-21.107	PASS
	MCH	-3.056	-36.383	-23.056	PASS
	HCH	-4.818	-37.377	-24.818	PASS

GFSK_LCH_Graphs		
Pref		

Puw		

Agilent Spectrum Analyzer - Swept SA
Center Freq 12.515000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 2/10
10:08:47 AM Nov 27, 2019
Ref Offset 8.24 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr2 24.120 GHz
-37.659 dBm
-18.33 dBm
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.00 GHz
Sweep 2.387 s (8001 pts)
Frequency
Auto Tune
Center Freq
12.515000000 GHz
Start Freq
30.000000 MHz
Stop Freq
25.000000000 GHz
CF Step
2.497000000 GHz
Auto
Man
Freq Offset
0 Hz

GFSK_MCH_Graphs		
Pref		
Puw		

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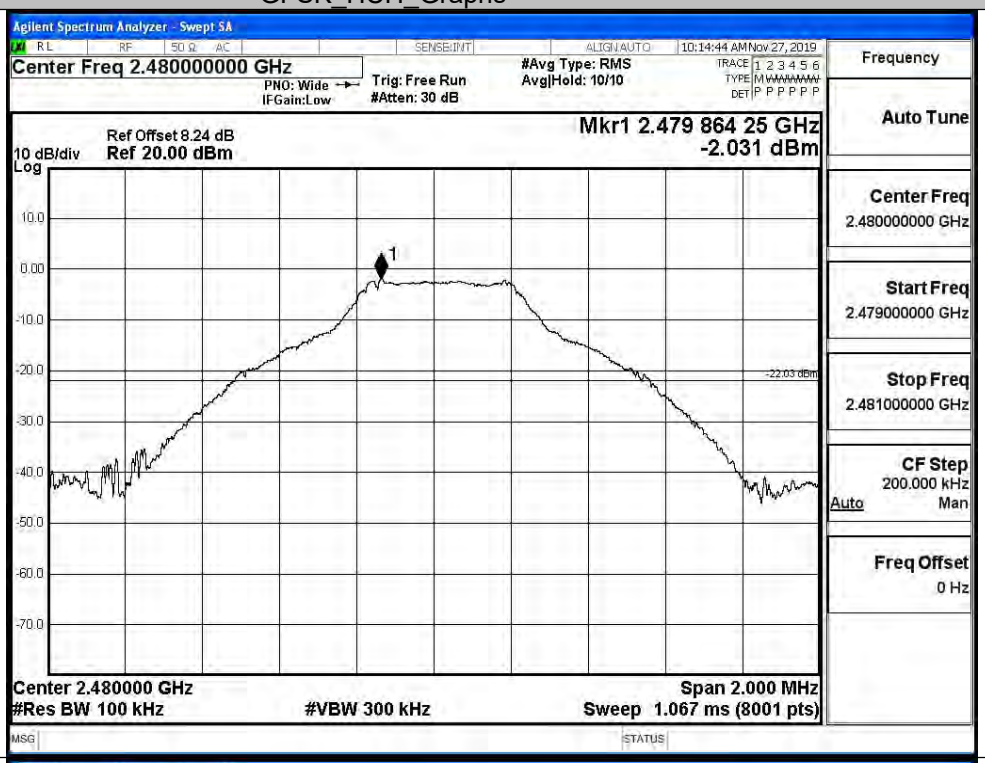
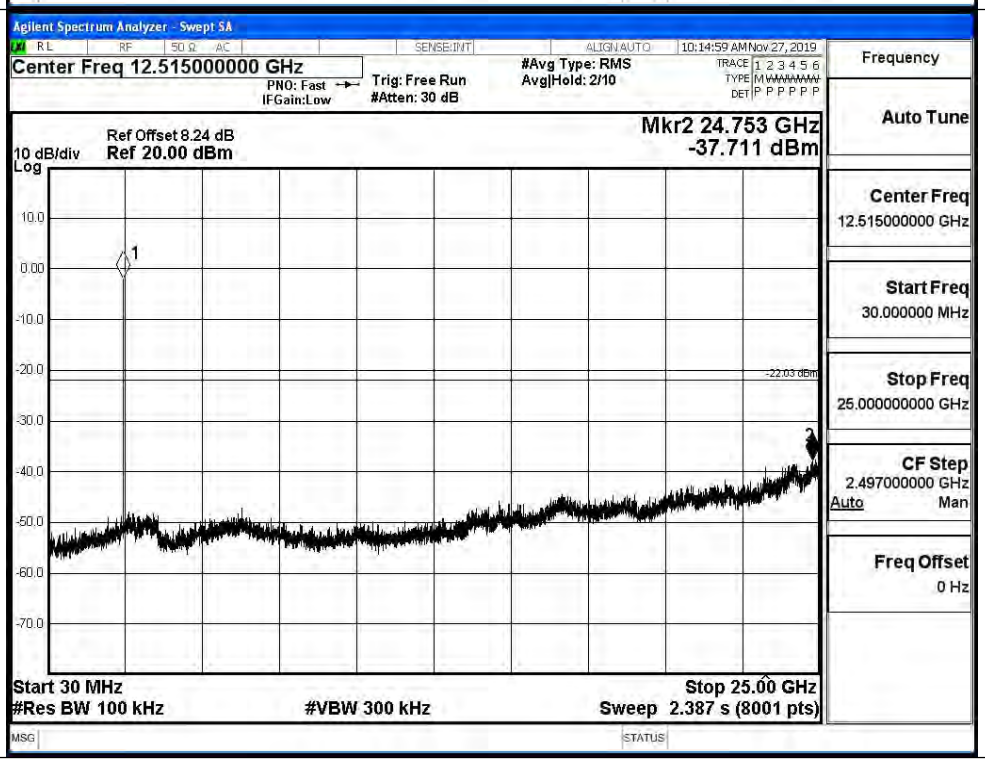
Pref		
Puw		

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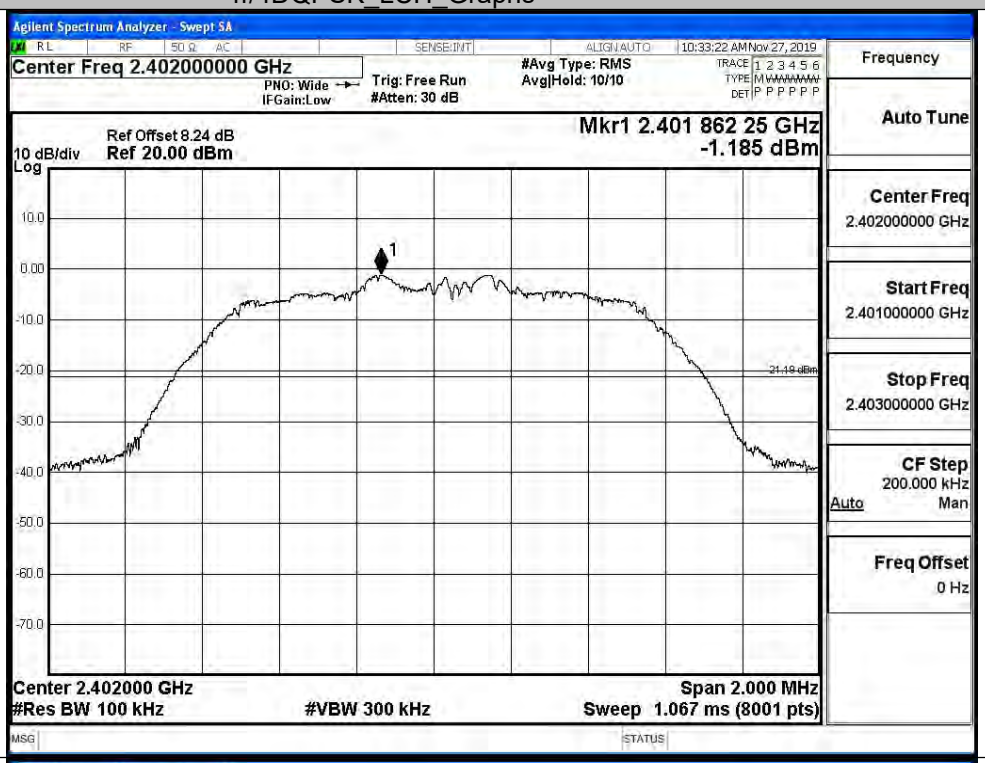
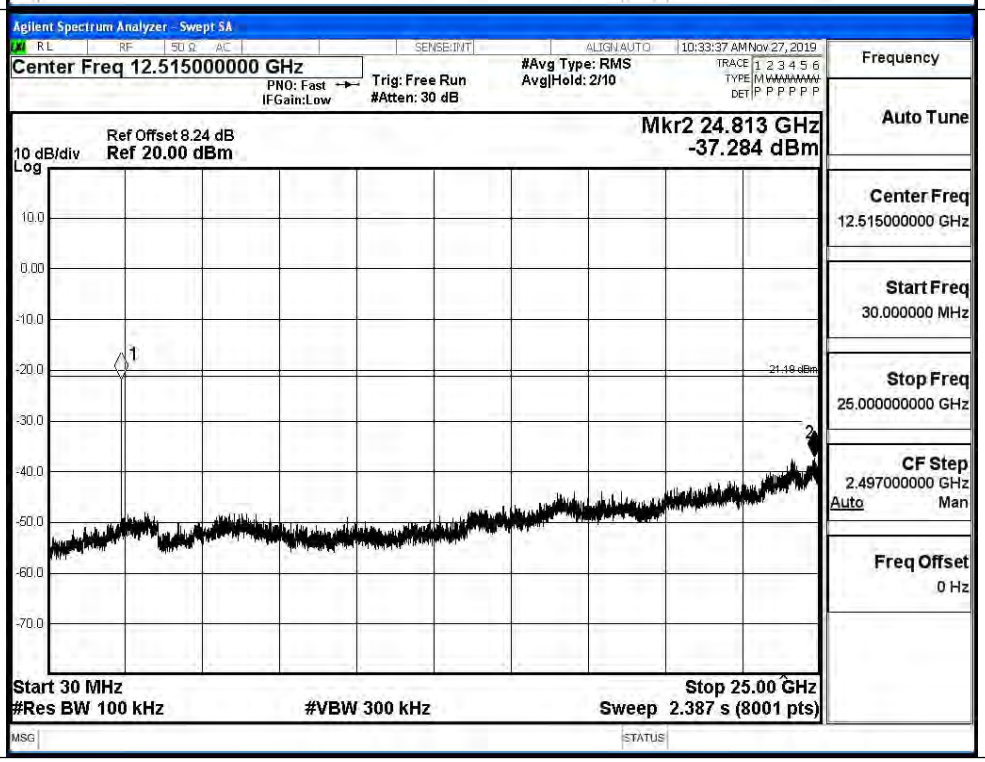
Pref		
Puw		

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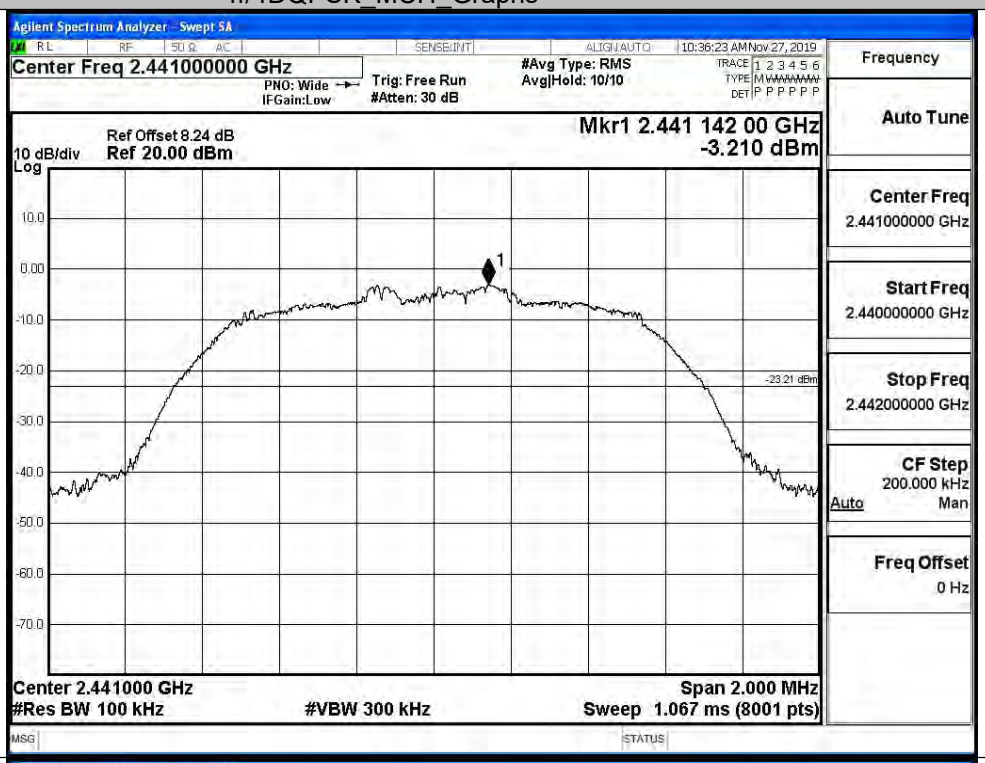
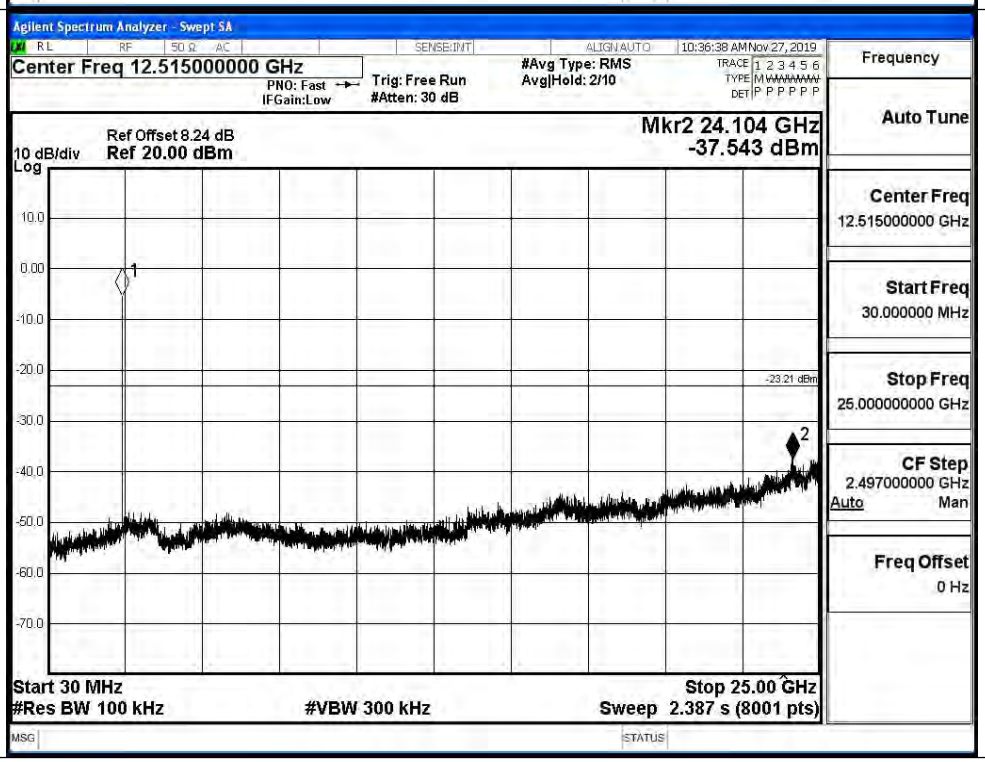
Pref			
Puw			

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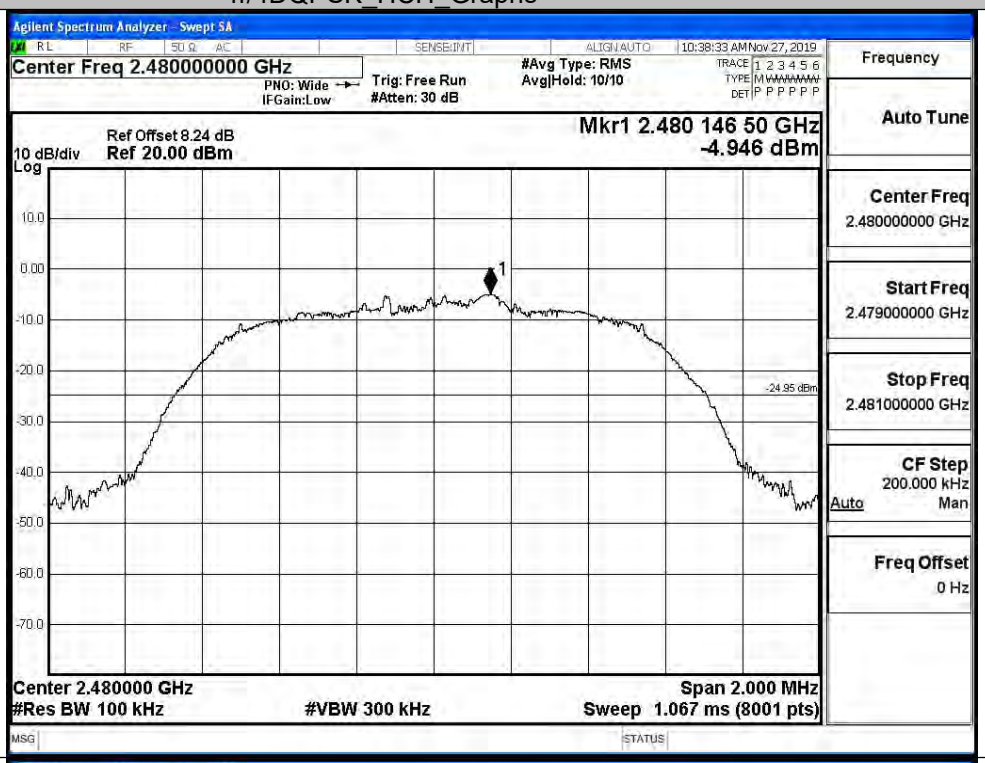
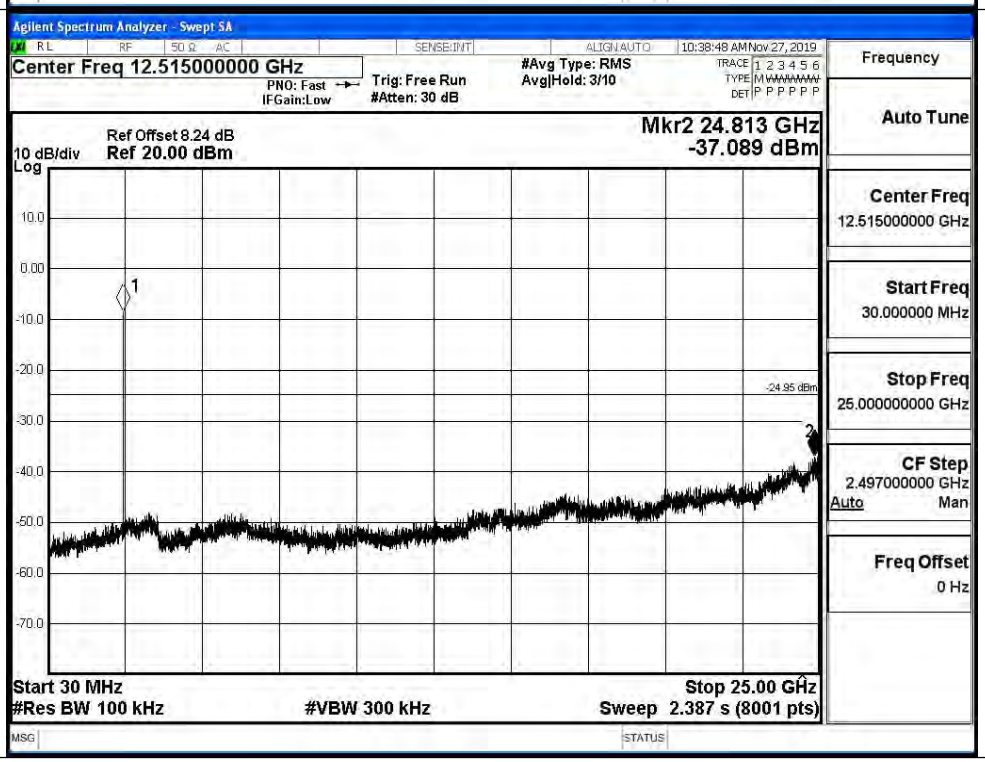
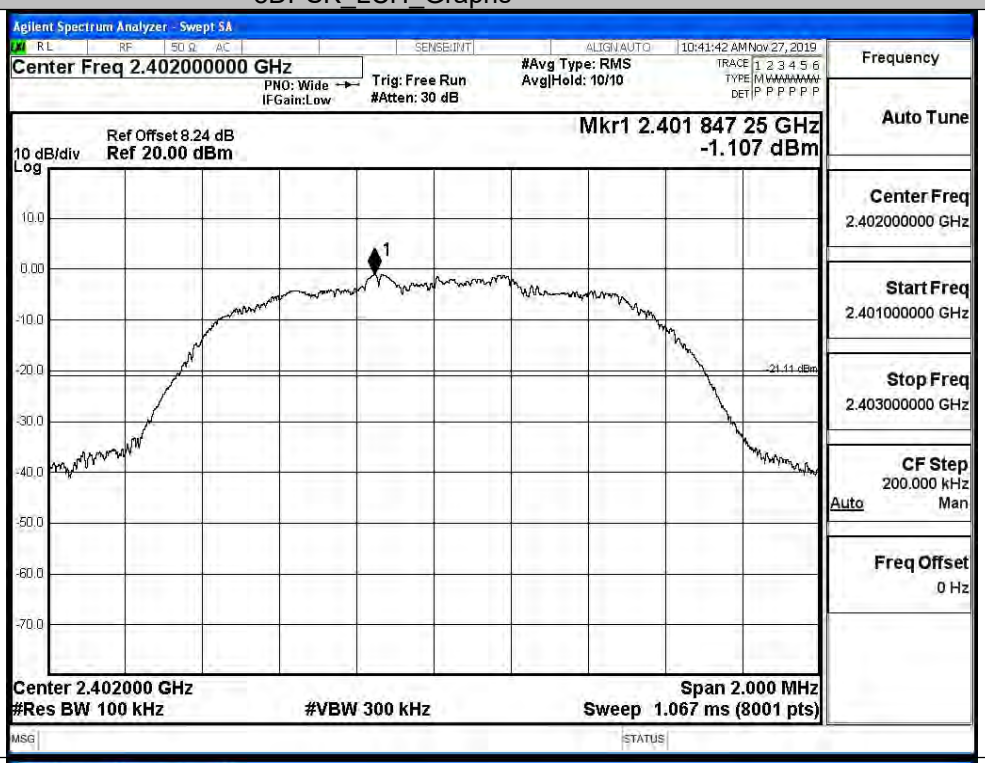
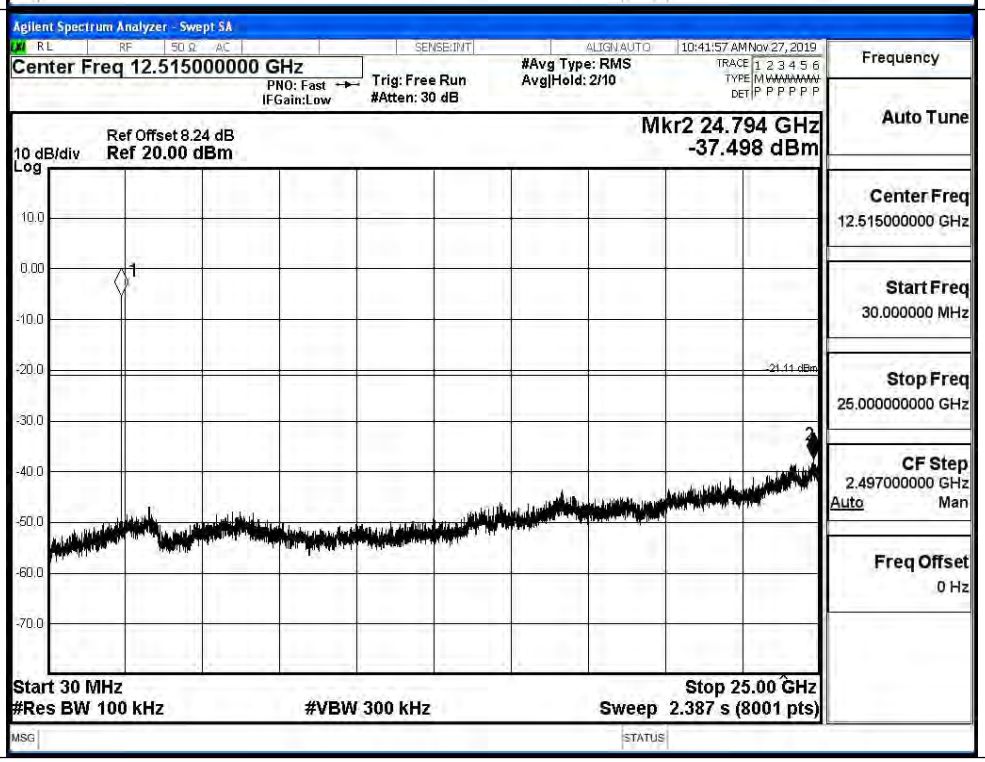
Pref		
Puw		

8DPSK_LCH_Graphs			
Pref			
Puw			

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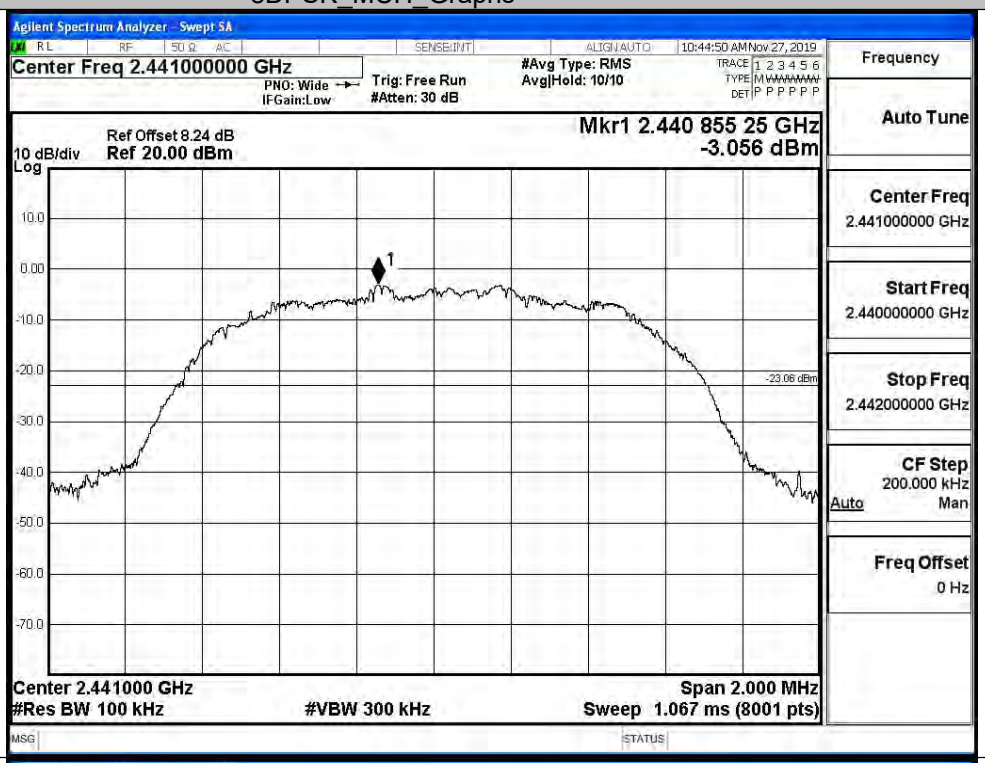
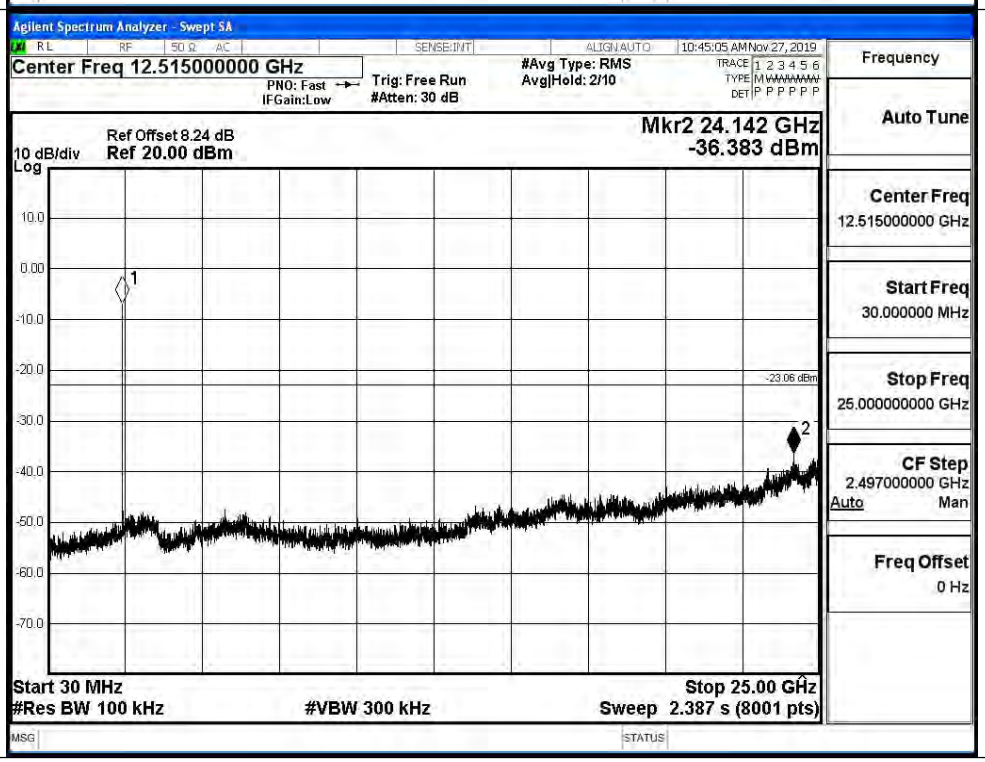
Pref		
Puw		

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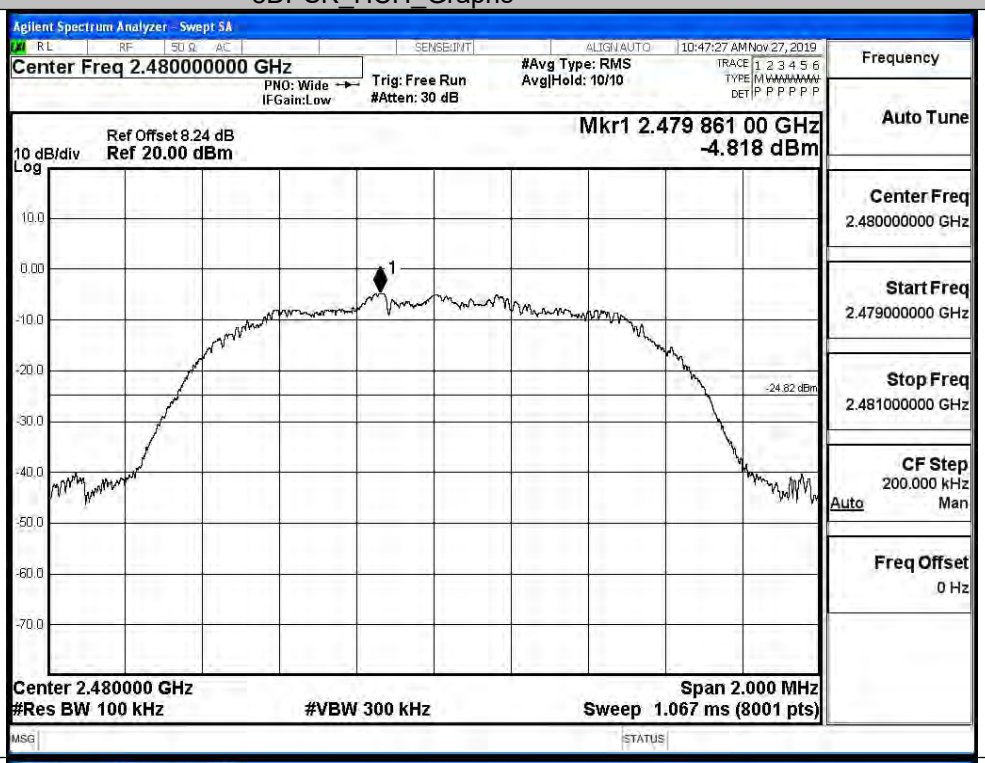
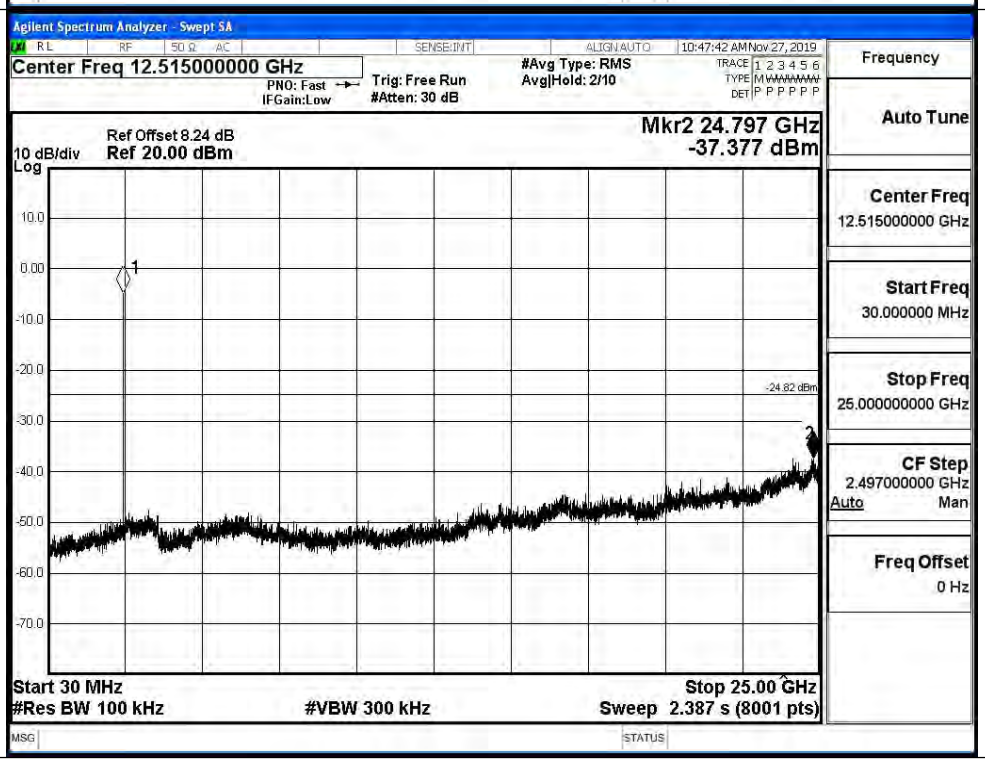
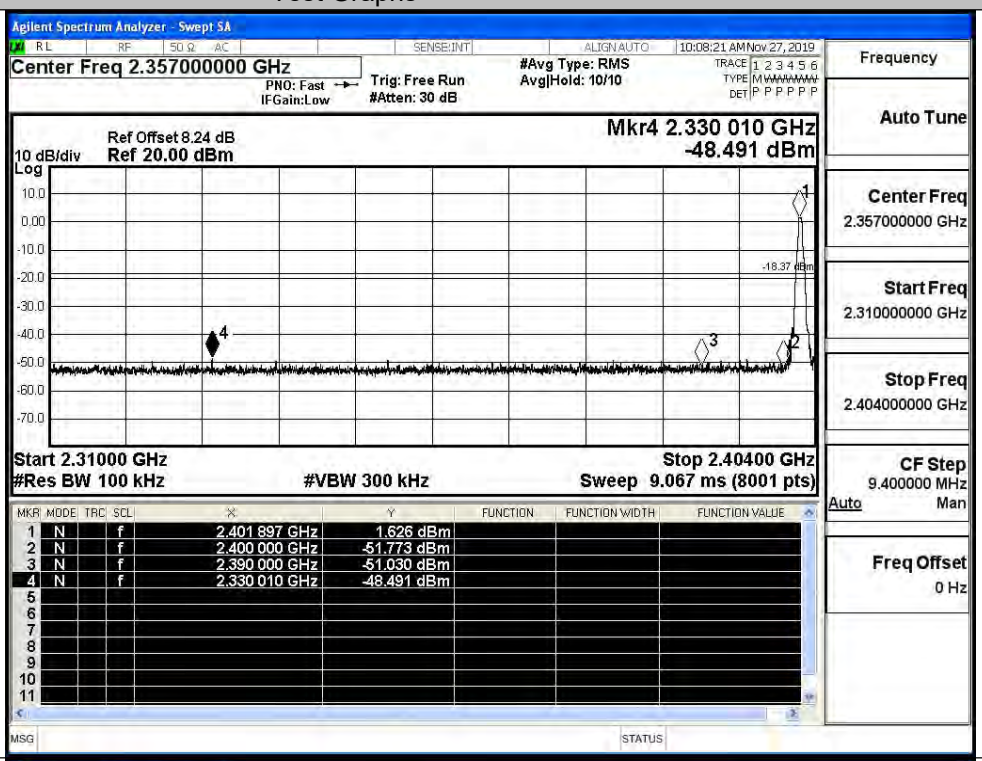
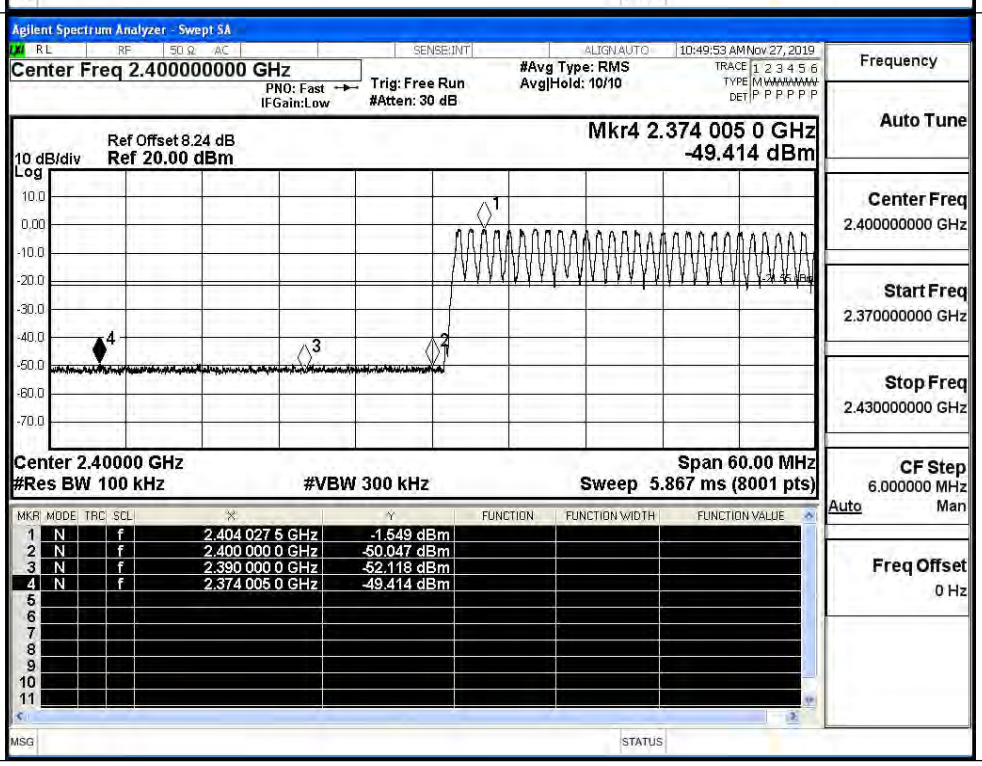
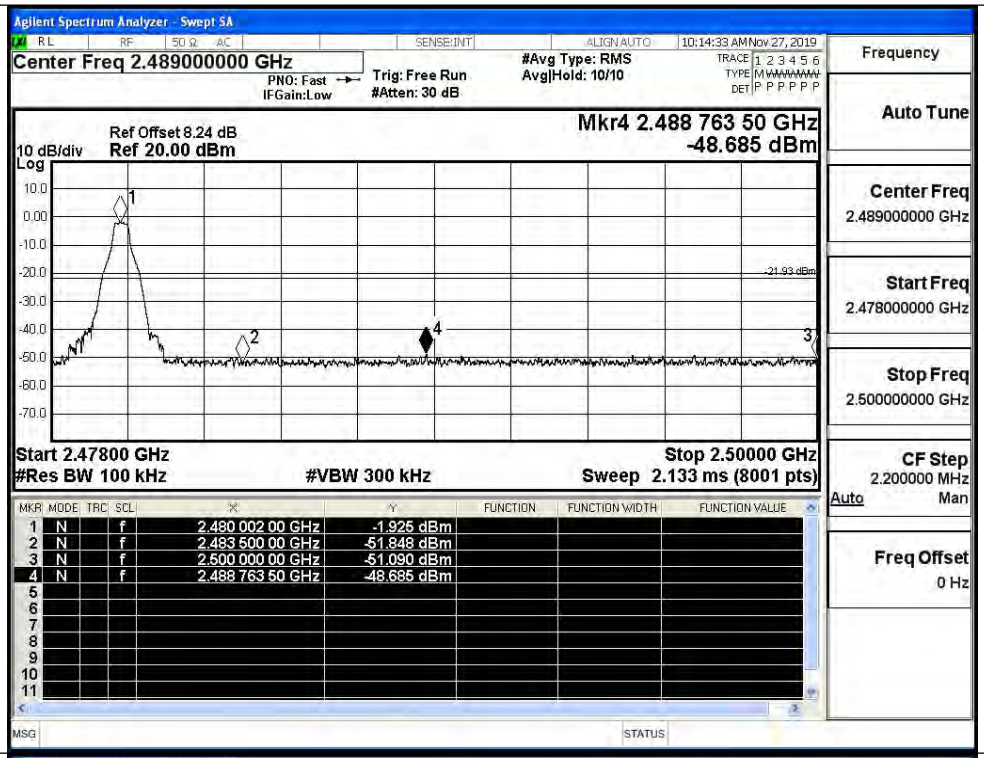
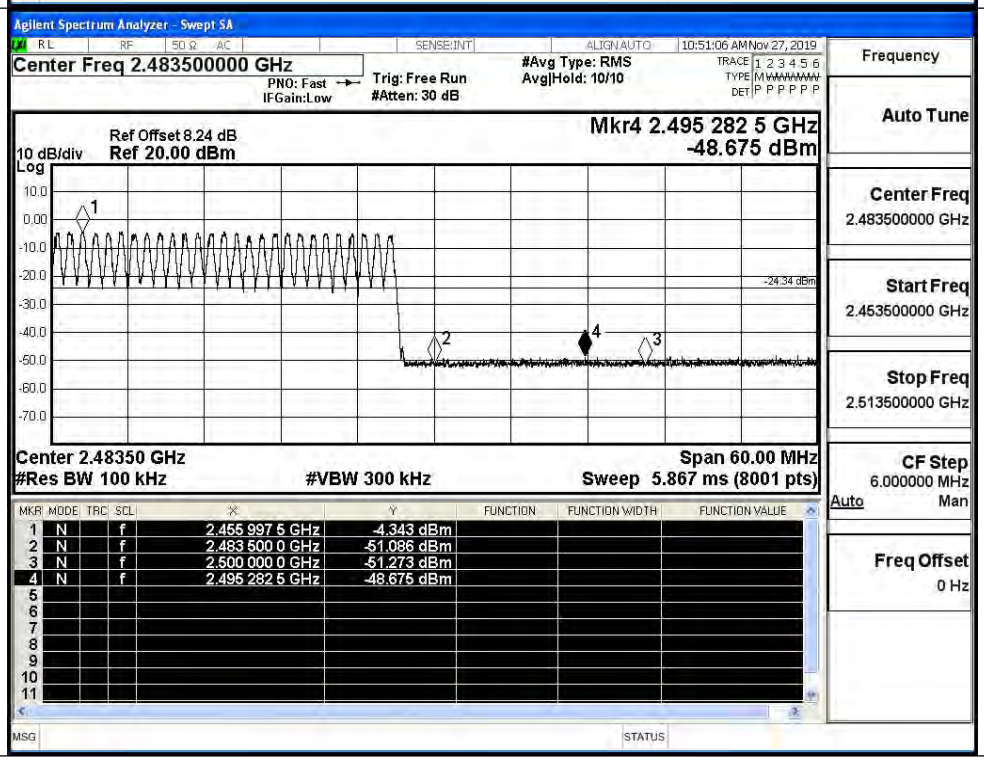
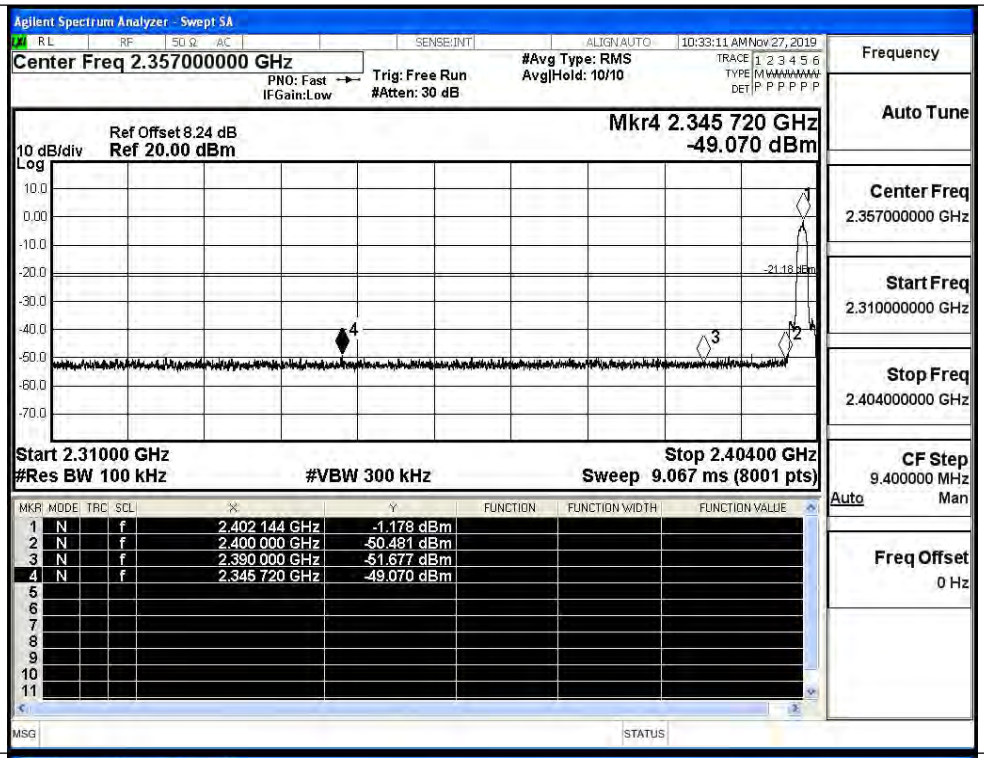
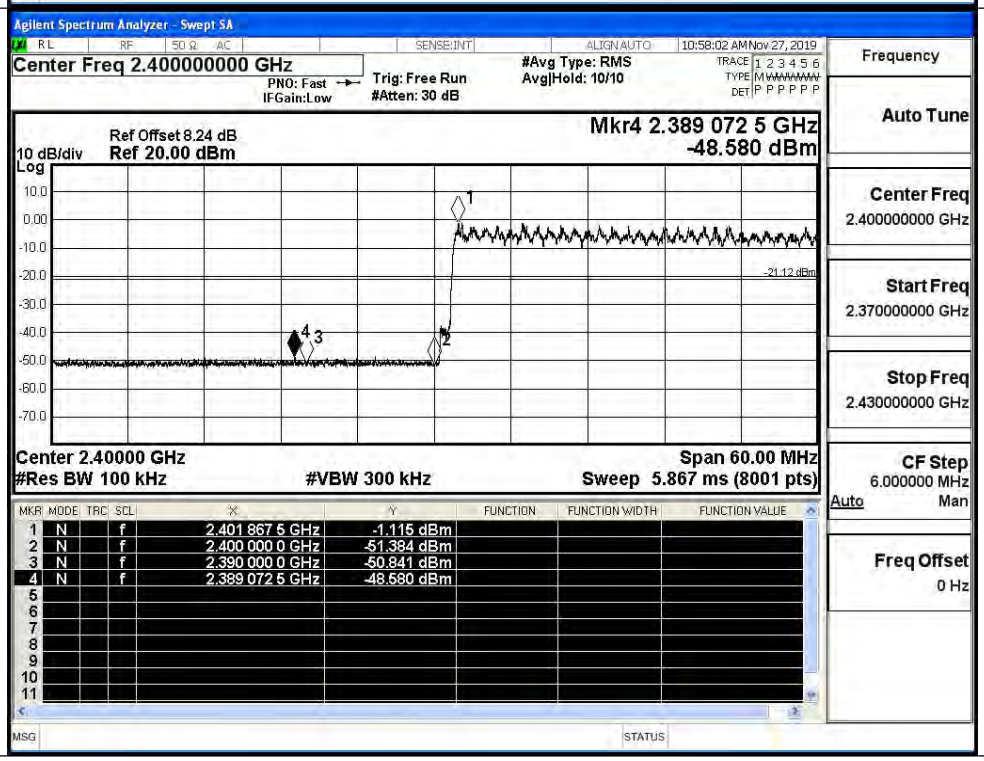
Pref		
Puw		

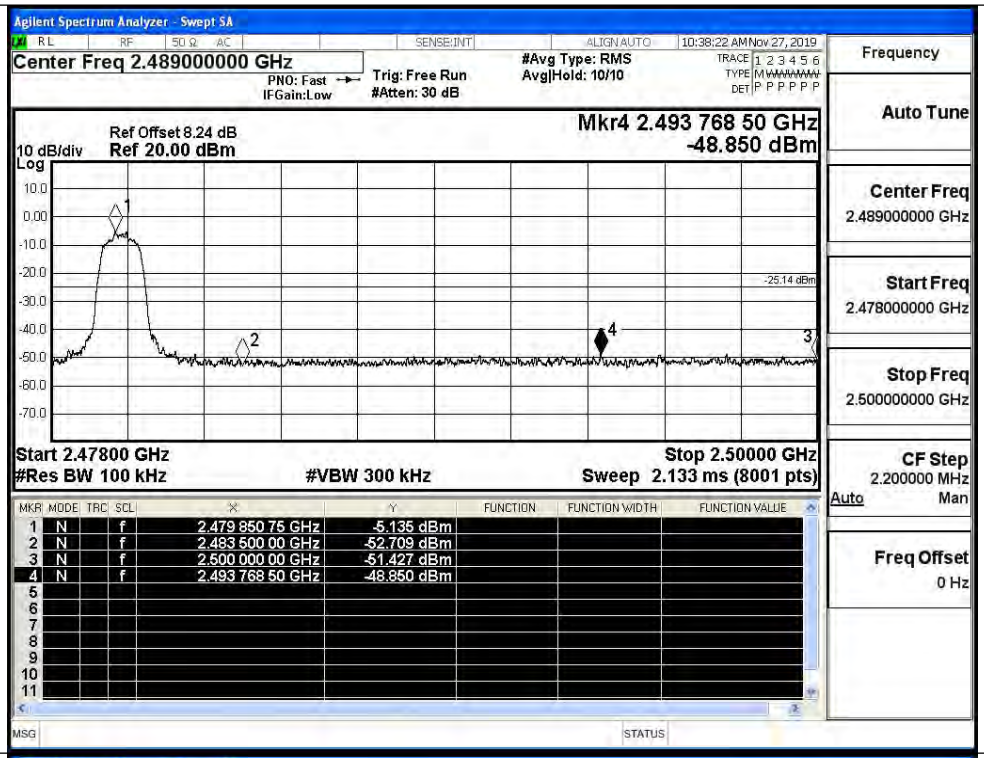
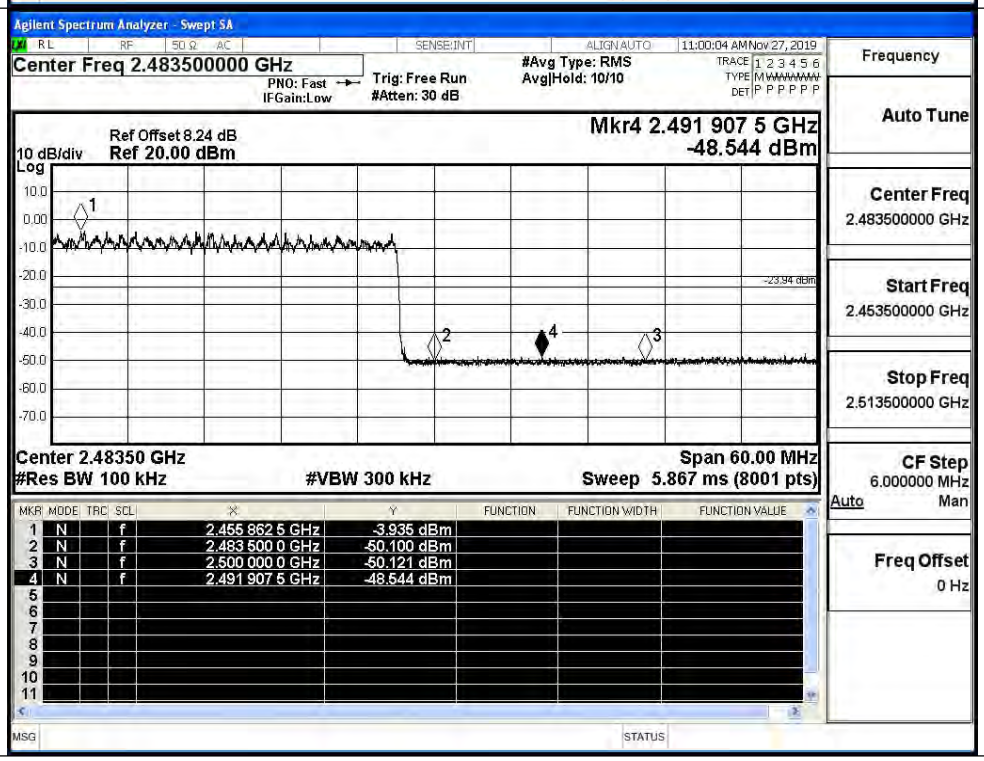
A.7 Band-edge for RF Conducted Emissions

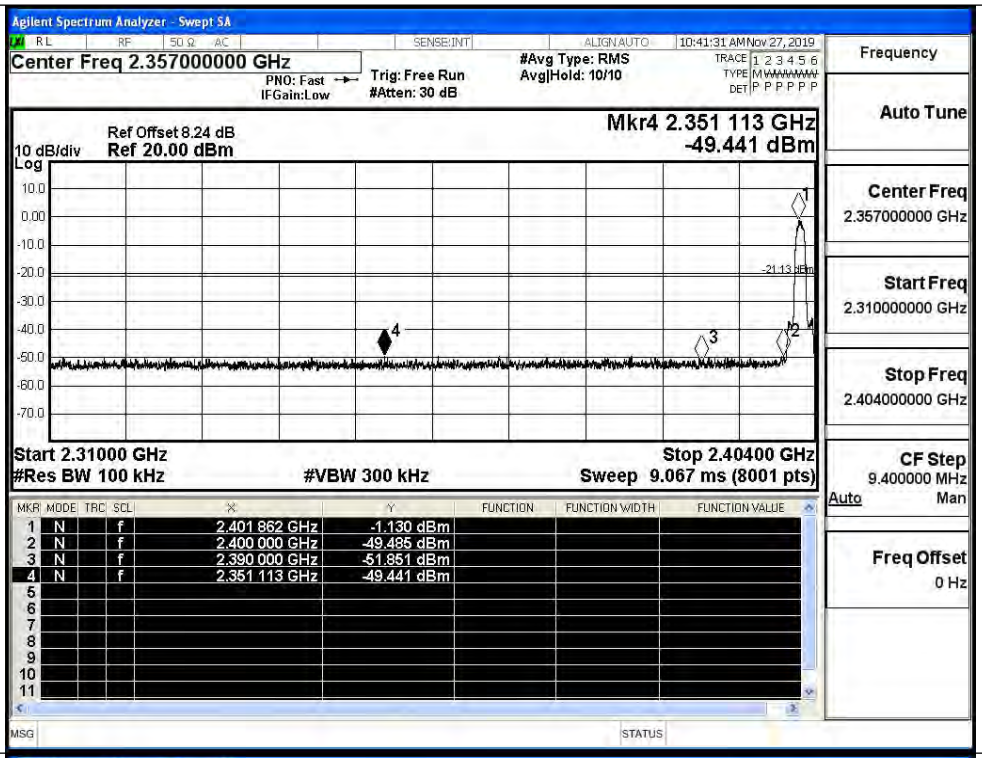
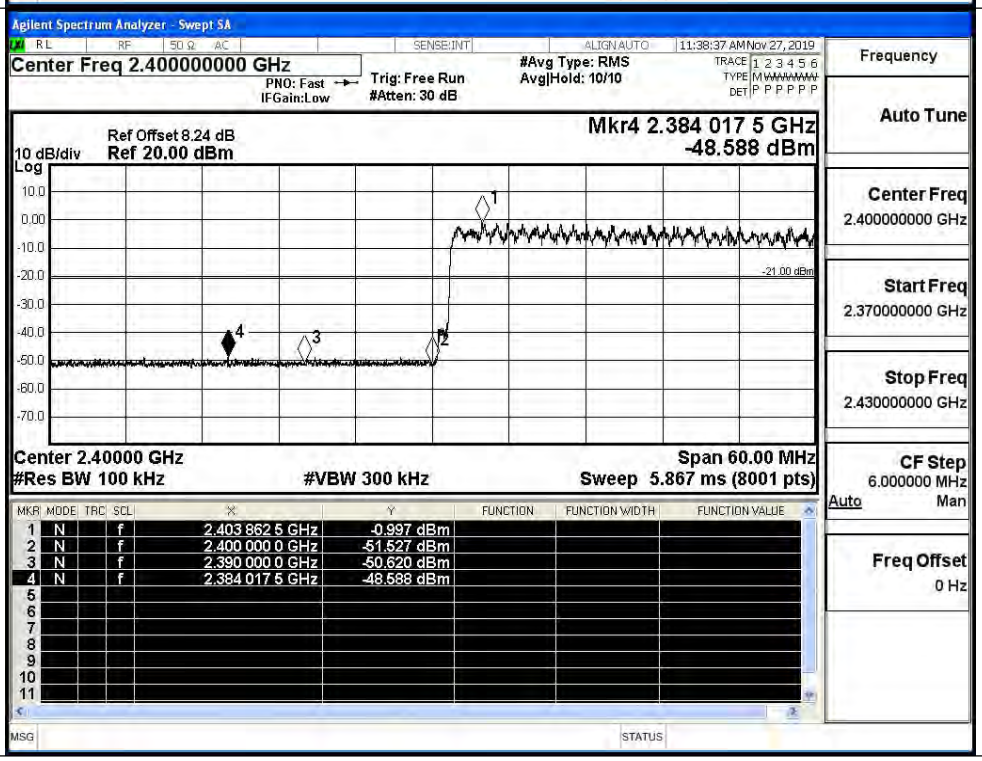
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	1.626	Off	-48.491	-18.37	PASS
			-1.549	On	-49.414	-21.55	PASS
	HCH	2480	-1.925	Off	-48.685	-21.93	PASS
			-4.343	On	-48.675	-24.34	PASS
π/4DQPSK	LCH	2402	-1.178	Off	-49.070	-21.18	PASS
			-1.115	On	-48.580	-21.12	PASS
	HCH	2480	-5.135	Off	-48.850	-25.14	PASS
			-3.935	On	-48.544	-23.94	PASS
8DPSK	LCH	2402	-1.130	Off	-49.441	-21.13	PASS
			-0.997	On	-48.588	-21	PASS
	HCH	2480	-4.707	Off	-49.263	-24.71	PASS
			-4.060	On	-48.144	-24.06	PASS

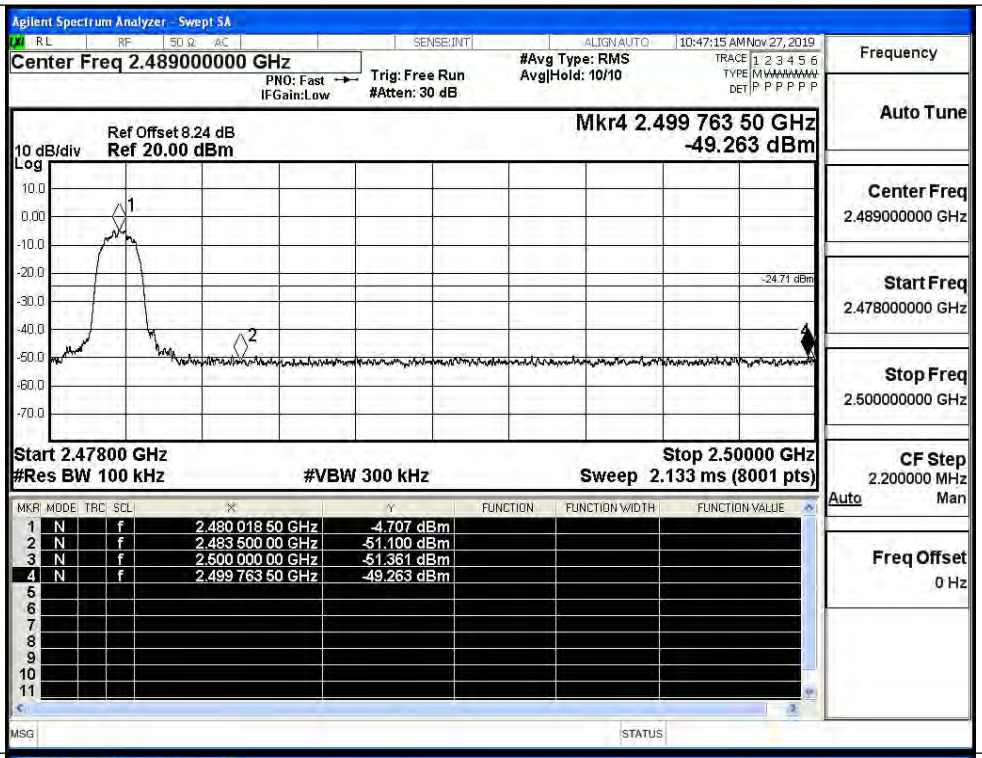
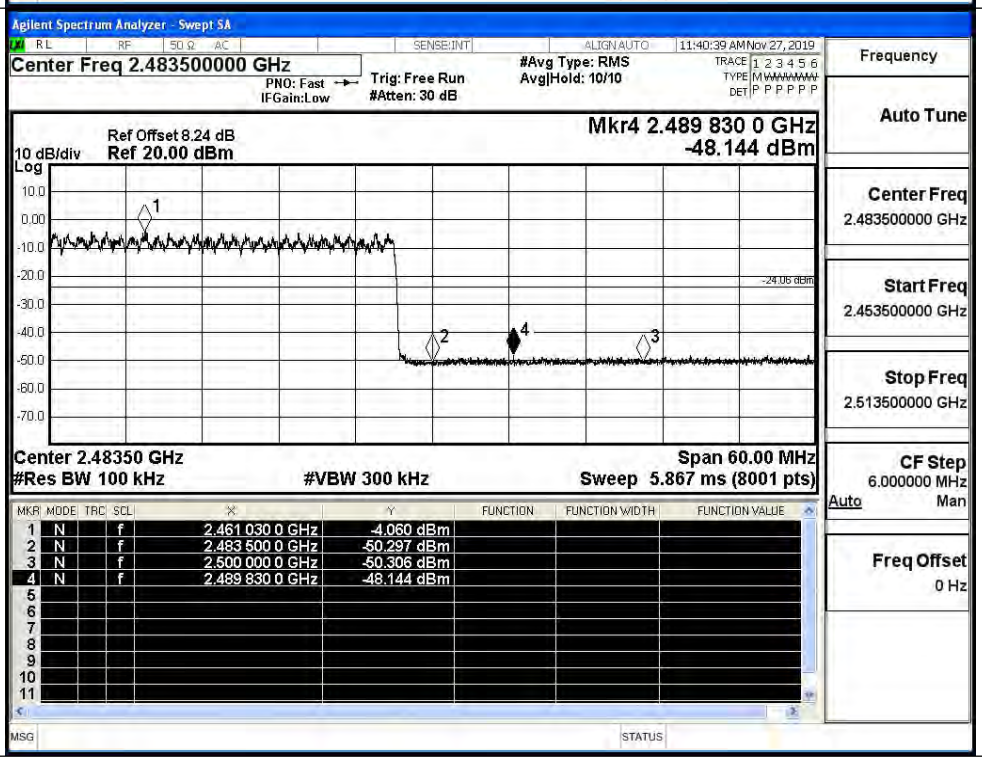
Test Graphs	
GFSK/LCH/No Hop	
GFSK/LCH/Hop	

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	

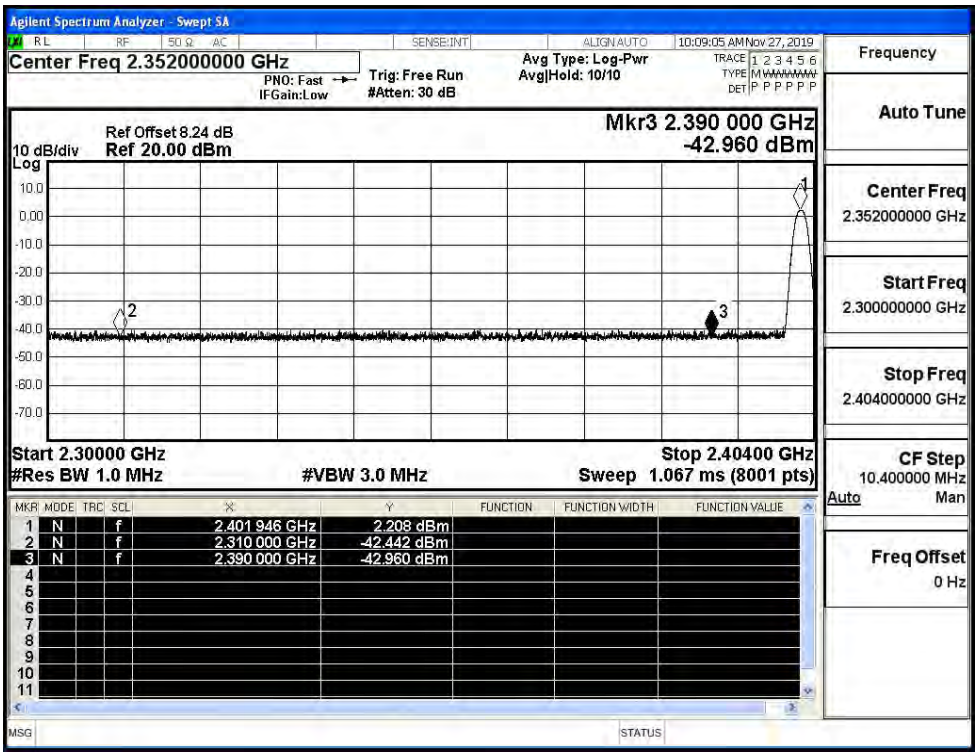
8DPSK/LCH/No Hop	
8DPSK/LCH/Hop	

8DPSK/HCH/No Hop	
8DPSK/HCH/Hop	

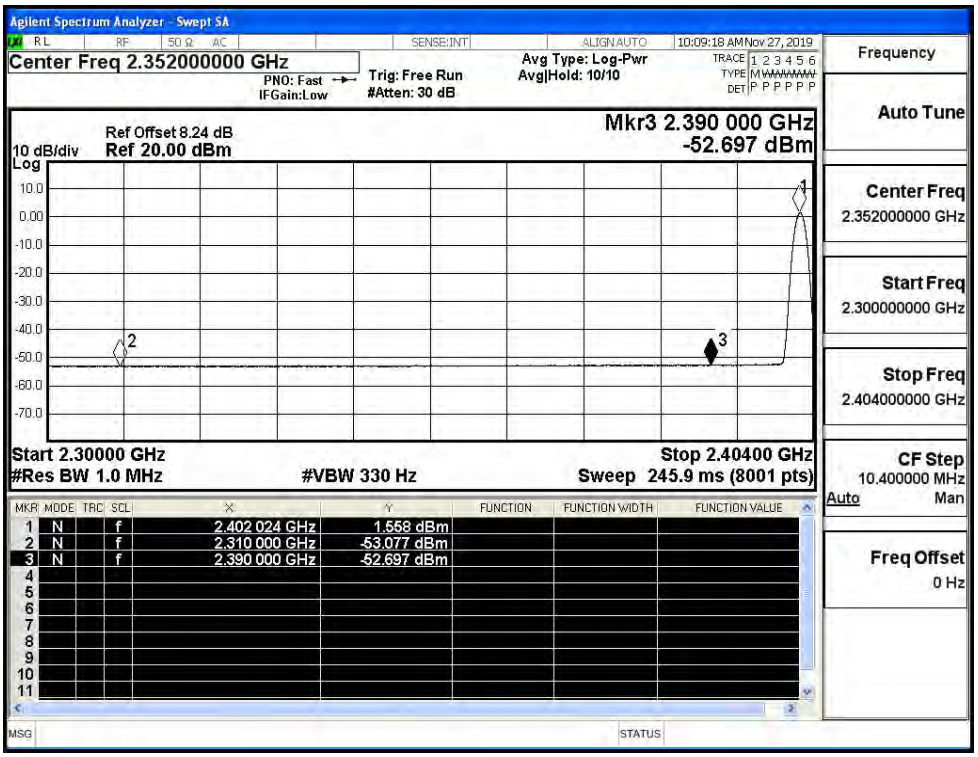
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.44	2.0	0	52.82	PEAK	74	PASS
	Off	2310.0	-53.08	2.0	0	42.18	AV	54	PASS
	Off	2390.0	-42.96	2.0	0	52.30	PEAK	74	PASS
	Off	2390.0	-52.70	2.0	0	42.56	AV	54	PASS
	Off	2483.5	-40.91	2.0	0	54.35	PEAK	74	PASS
	Off	2483.5	-52.22	2.0	0	43.04	AV	54	PASS
	Off	2500.0	-42.26	2.0	0	53.00	PEAK	74	PASS
	Off	2500.0	-52.05	2.0	0	43.21	AV	54	PASS
π/4DQPSK	Off	2310.0	-43.05	2.0	0	52.21	PEAK	74	PASS
	Off	2310.0	-53.02	2.0	0	42.24	AV	54	PASS
	Off	2390.0	-42.68	2.0	0	52.58	PEAK	74	PASS
	Off	2390.0	-52.74	2.0	0	42.52	AV	54	PASS
	Off	2483.5	-42.66	2.0	0	52.60	PEAK	74	PASS
	Off	2483.5	-52.32	2.0	0	42.94	AV	54	PASS
	Off	2500.0	-41.81	2.0	0	53.45	PEAK	74	PASS
	Off	2500.0	-52.13	2.0	0	43.13	AV	54	PASS
8DPSK	Off	2310.0	-42.26	2.0	0	52.99	PEAK	74	PASS
	Off	2310.0	-53.14	2.0	0	42.11	AV	54	PASS
	Off	2390.0	-42.16	2.0	0	53.10	PEAK	74	PASS
	Off	2390.0	-52.59	2.0	0	42.67	AV	54	PASS
	Off	2483.5	-42.71	2.0	0	52.55	PEAK	74	PASS
	Off	2483.5	-52.28	2.0	0	42.98	AV	54	PASS
	Off	2500.0	-42.22	2.0	0	53.04	PEAK	74	PASS
	Off	2500.0	-52.09	2.0	0	43.17	AV	54	PASS

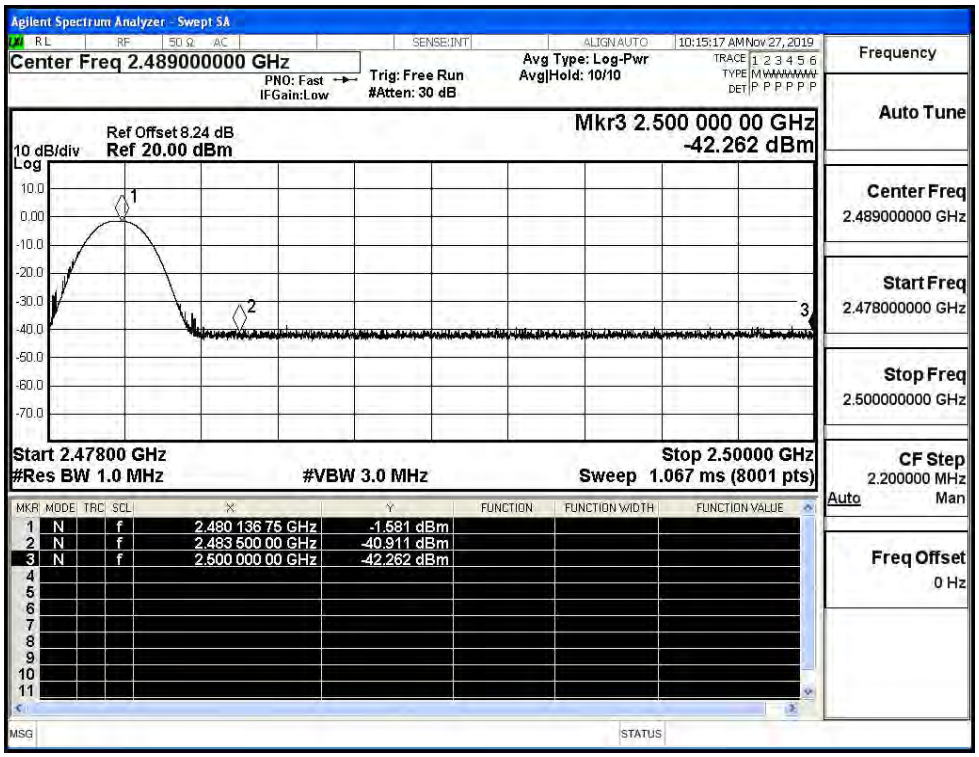
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



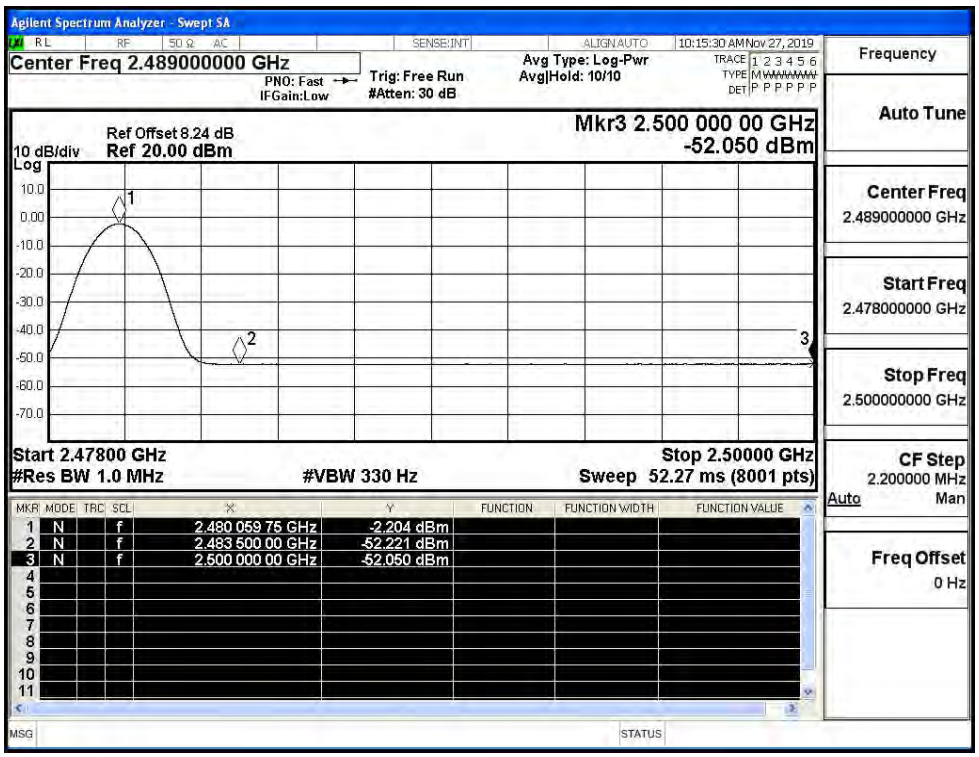
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



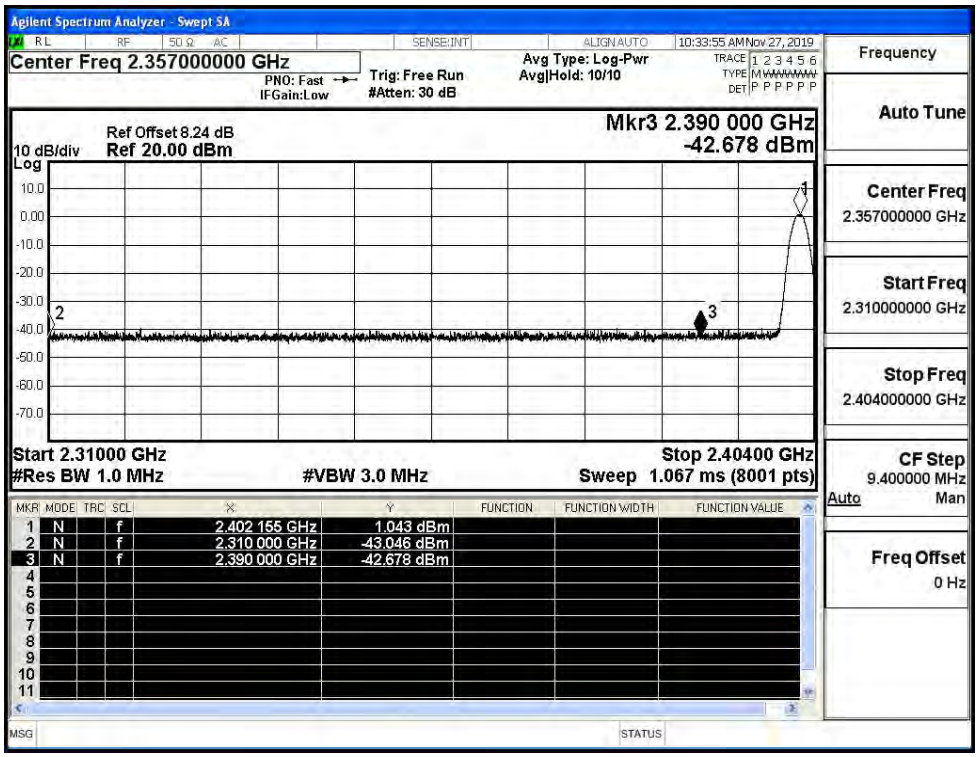
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



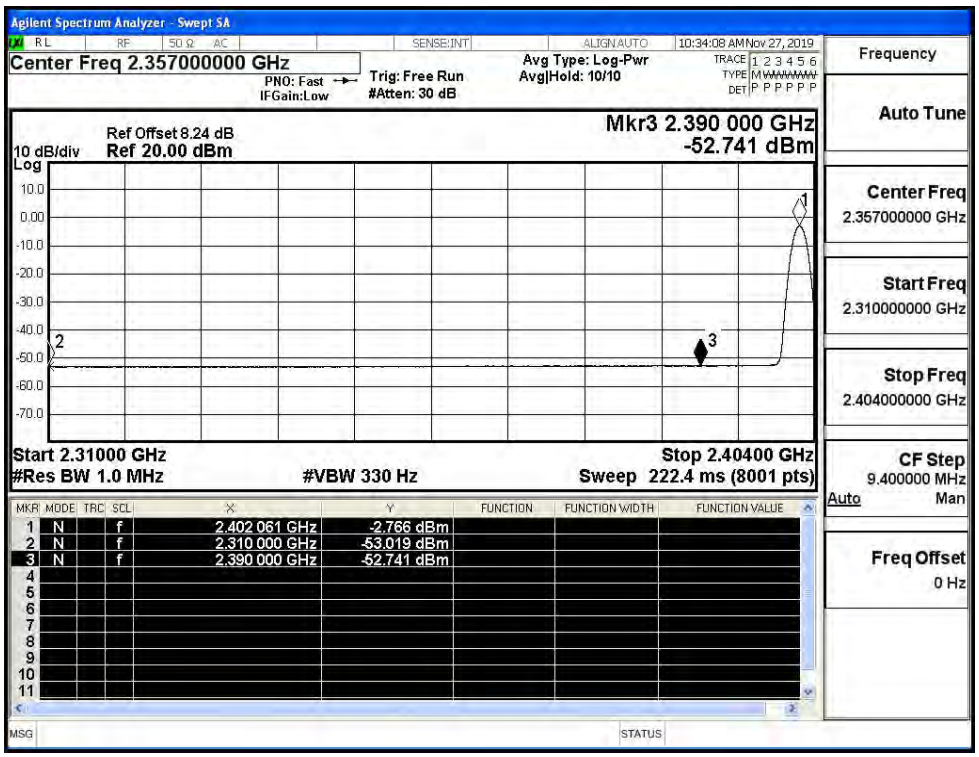
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



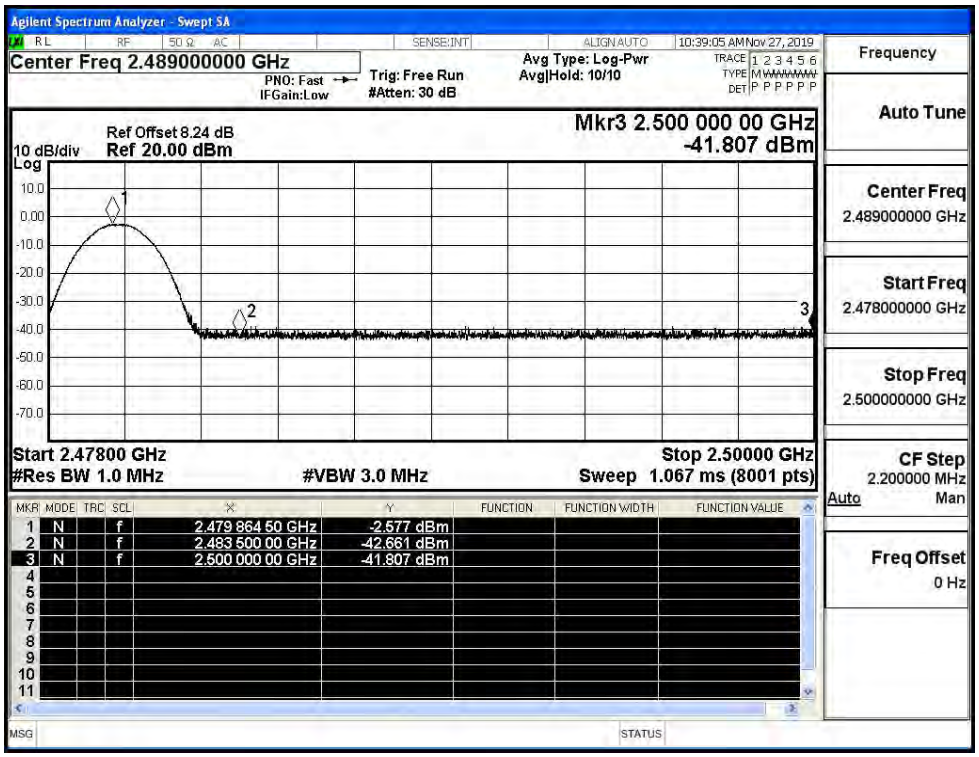
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



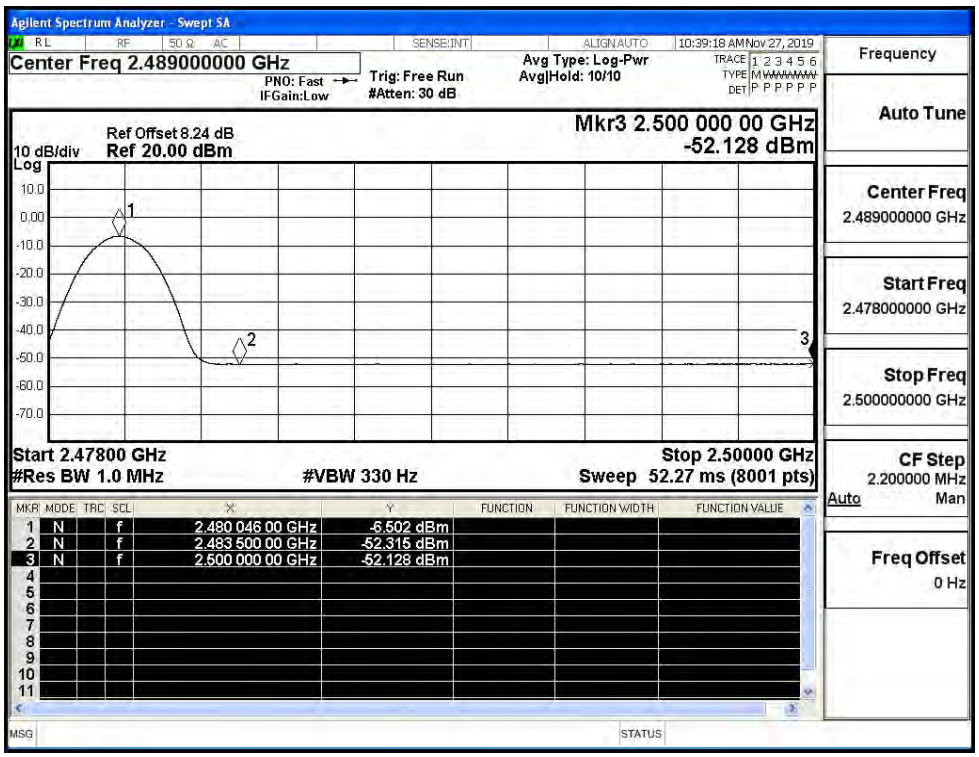
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



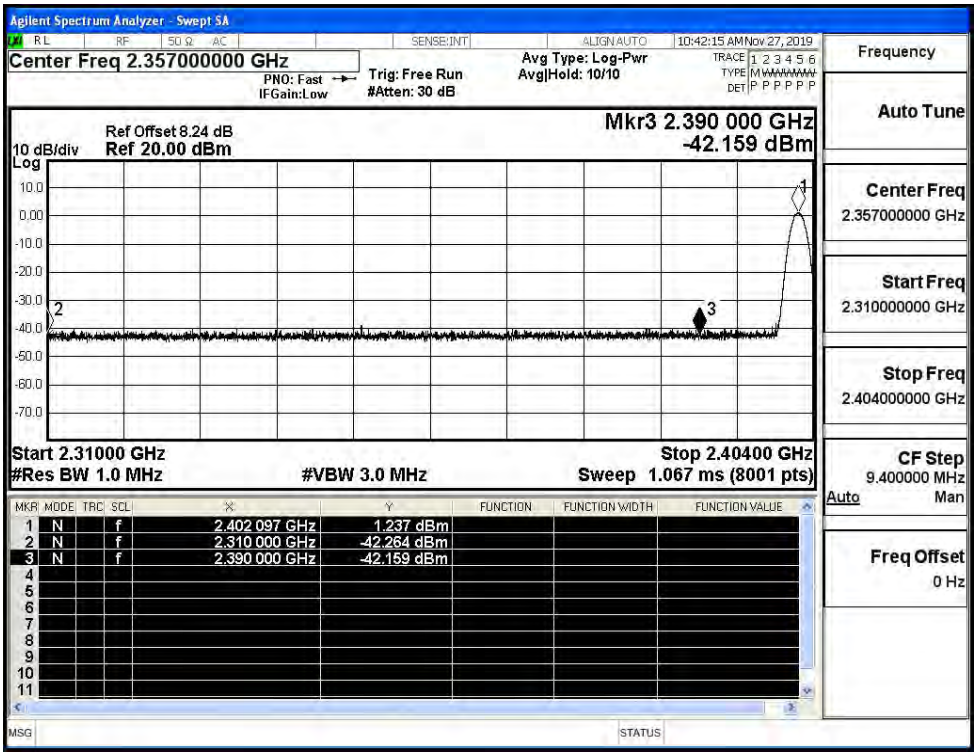
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



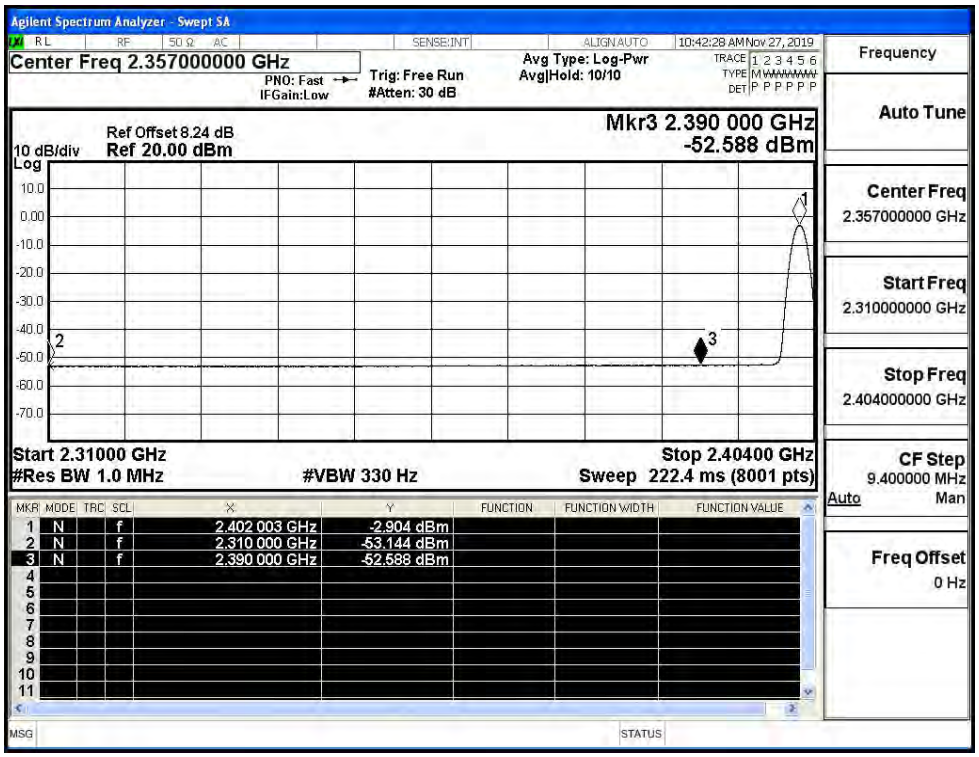
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



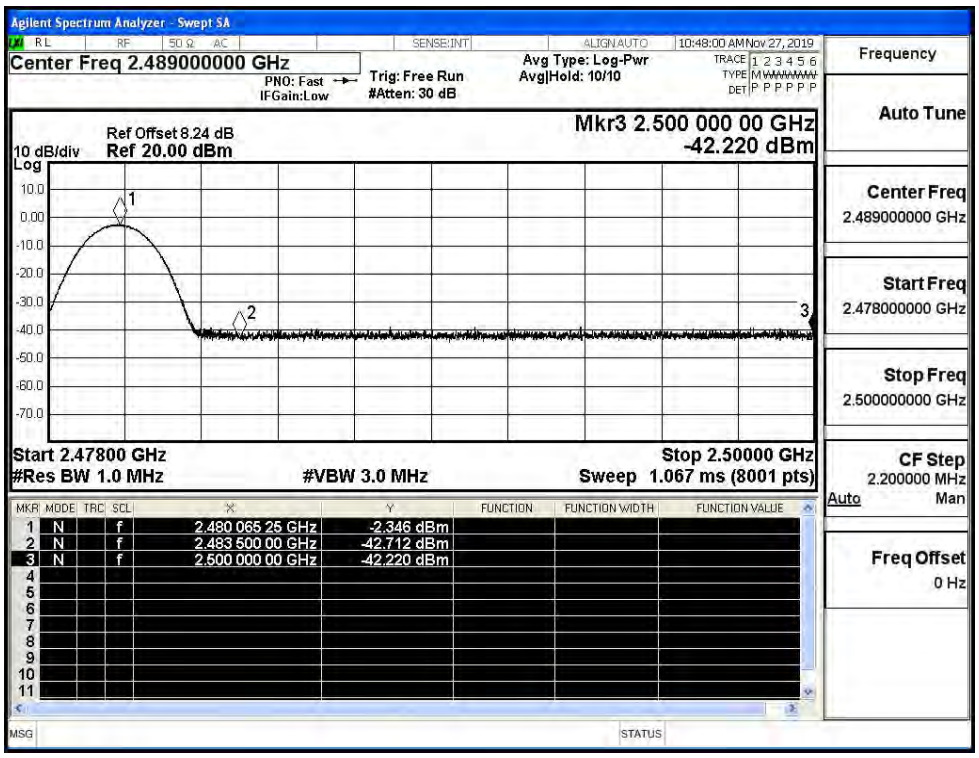
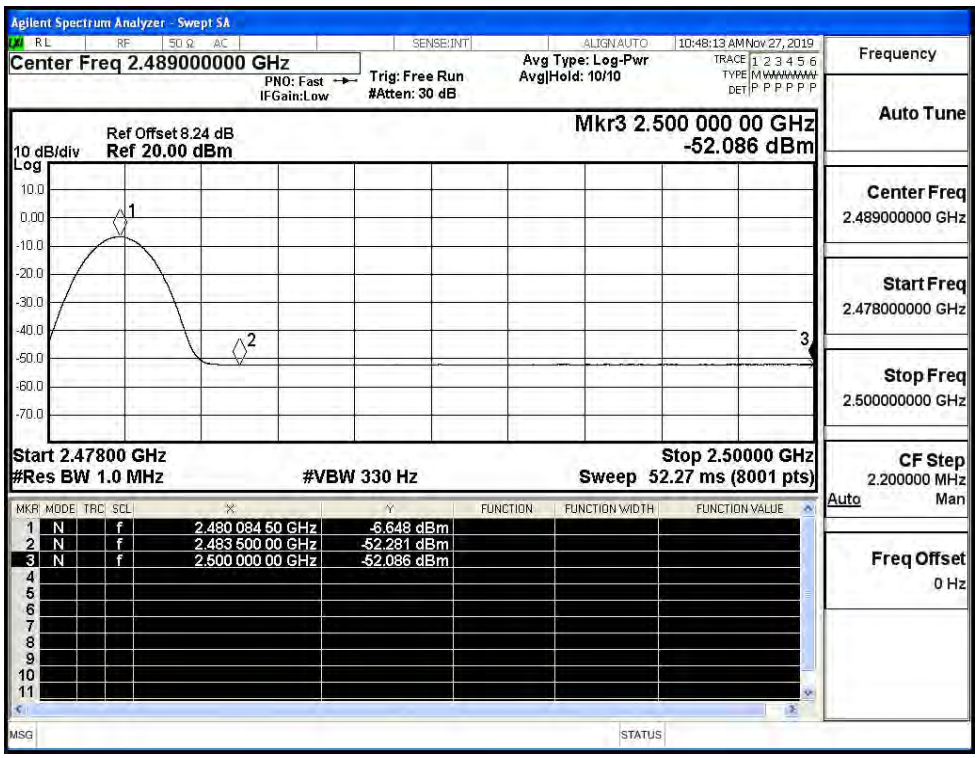
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)