Appendix A

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

Product Name: WIRELESS SPORT EARBUDS
Trade Mark: N/A
Test Model: 17LY86BK

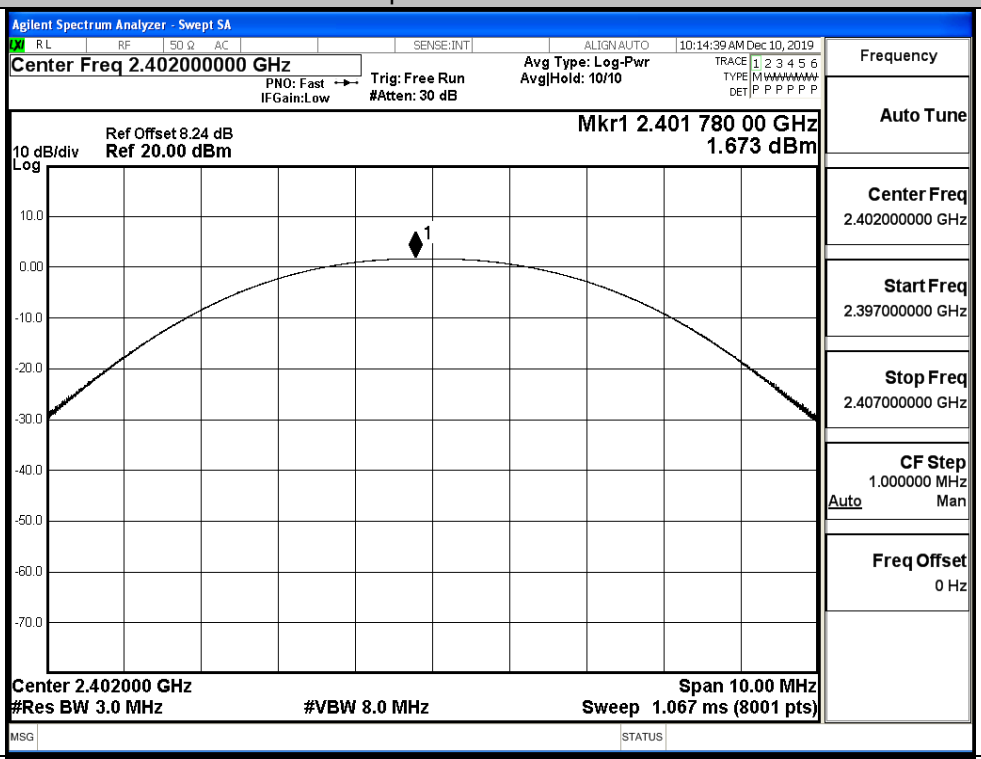
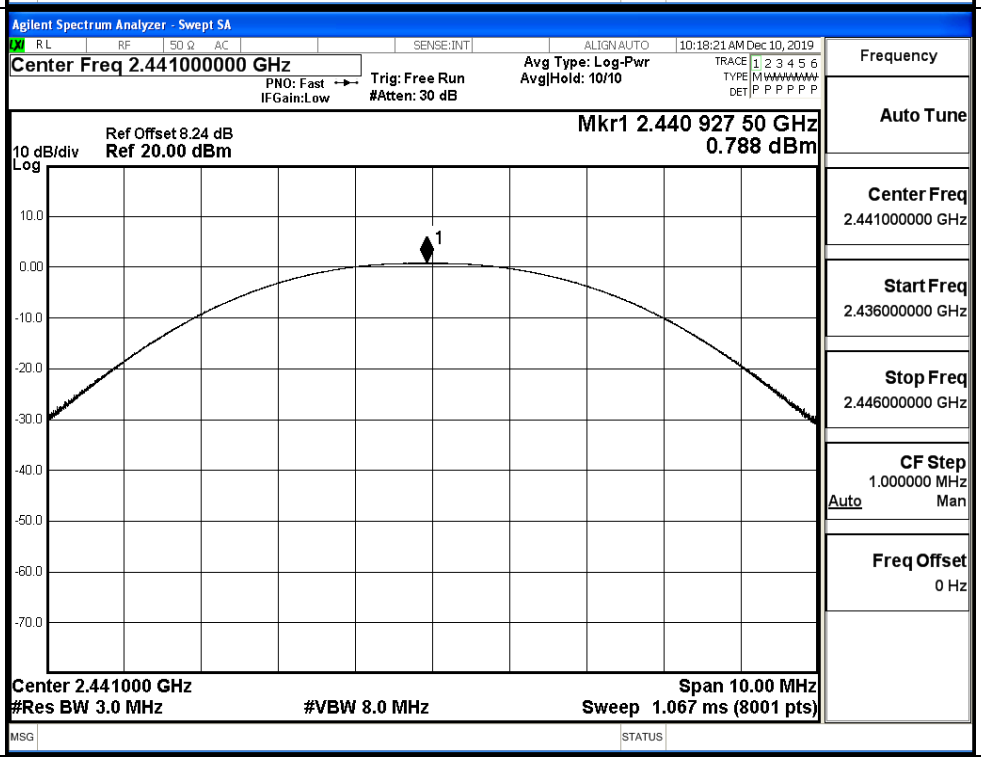
Environmental Conditions

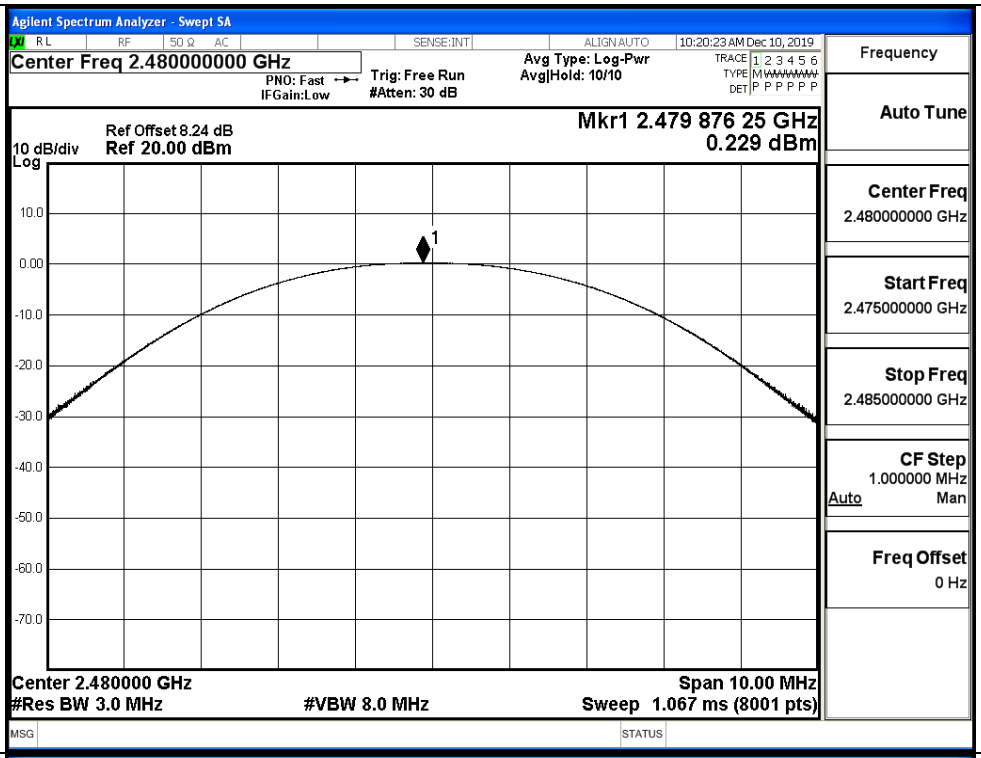
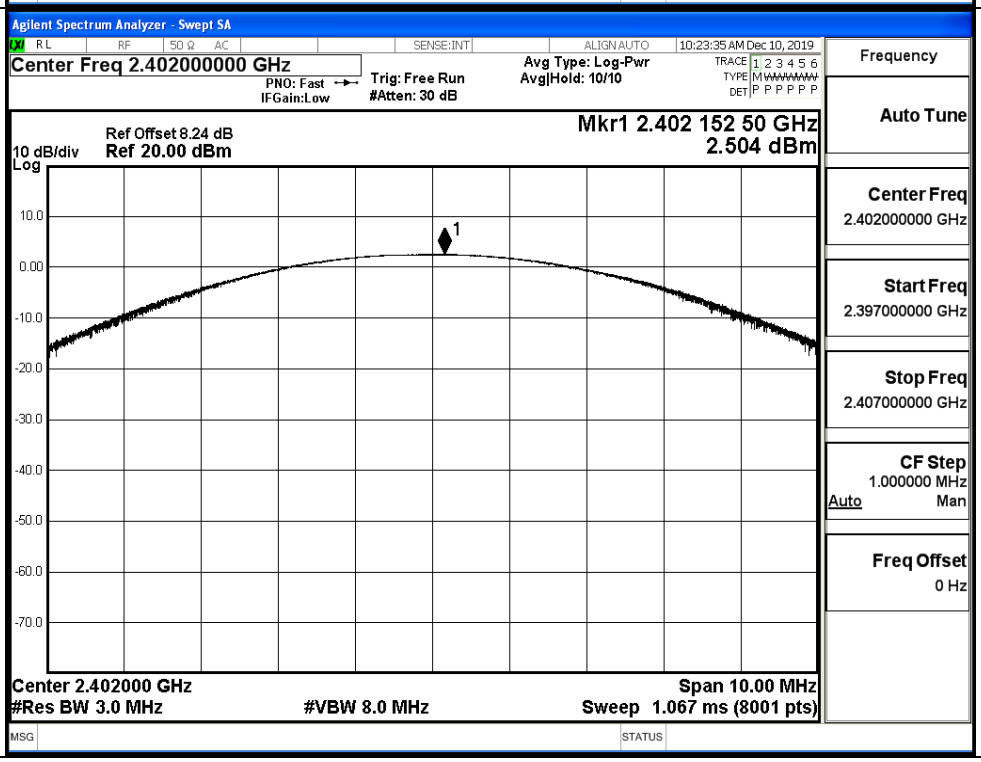
Temperature:	24.3 ° C
Relative Humidity:	53.1%
ATM Pressure:	100.0 kPa
Test Engineer:	QuXin
Supervised by:	Wang.Chuang

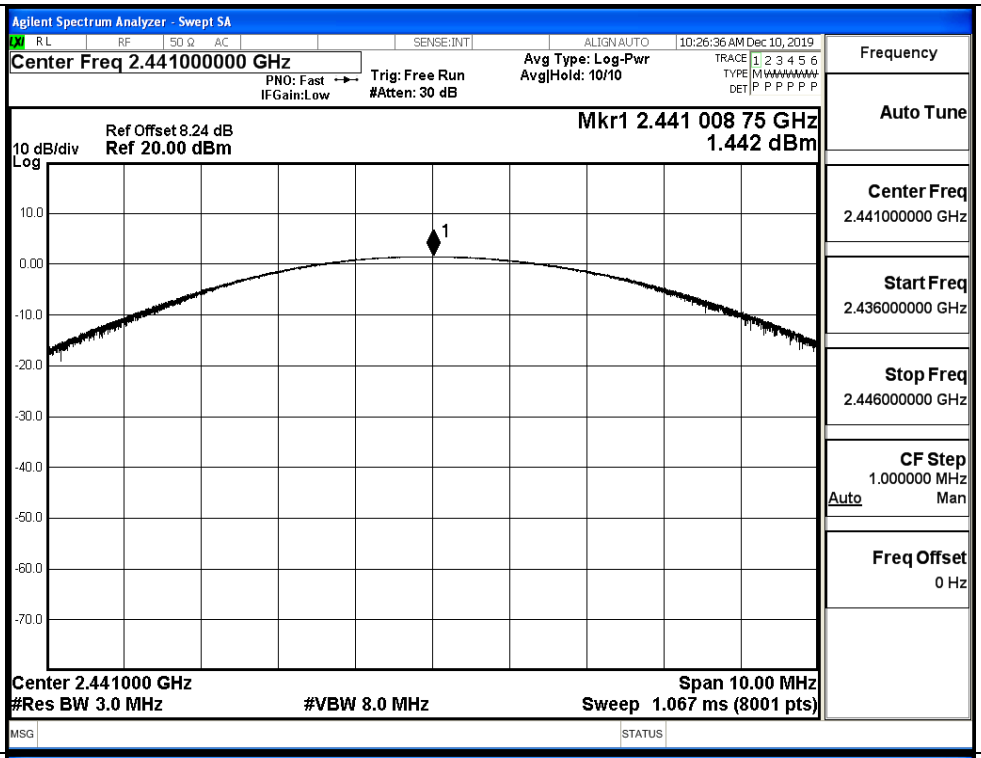
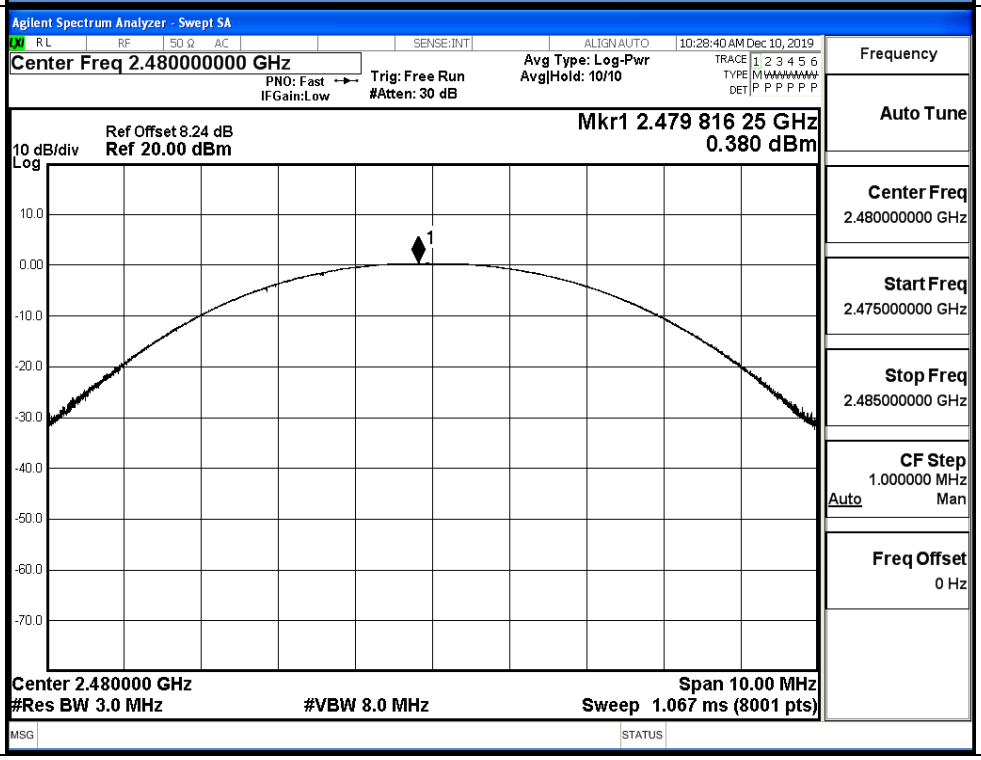
A.1 Maxmum Conducted Peak Output Power

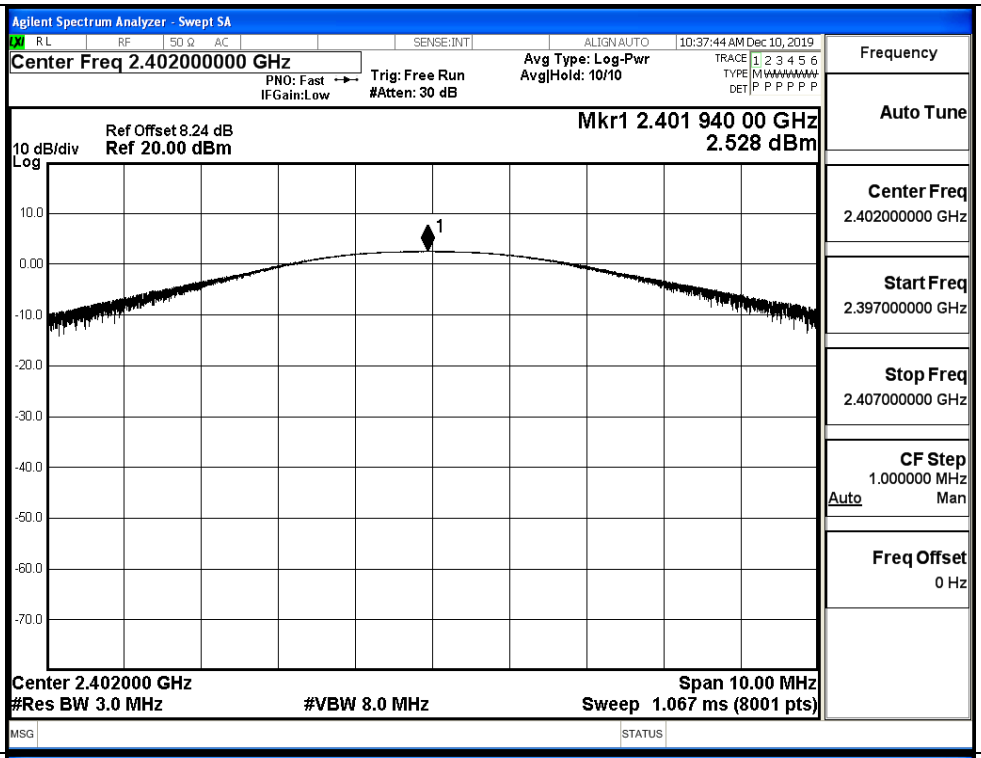
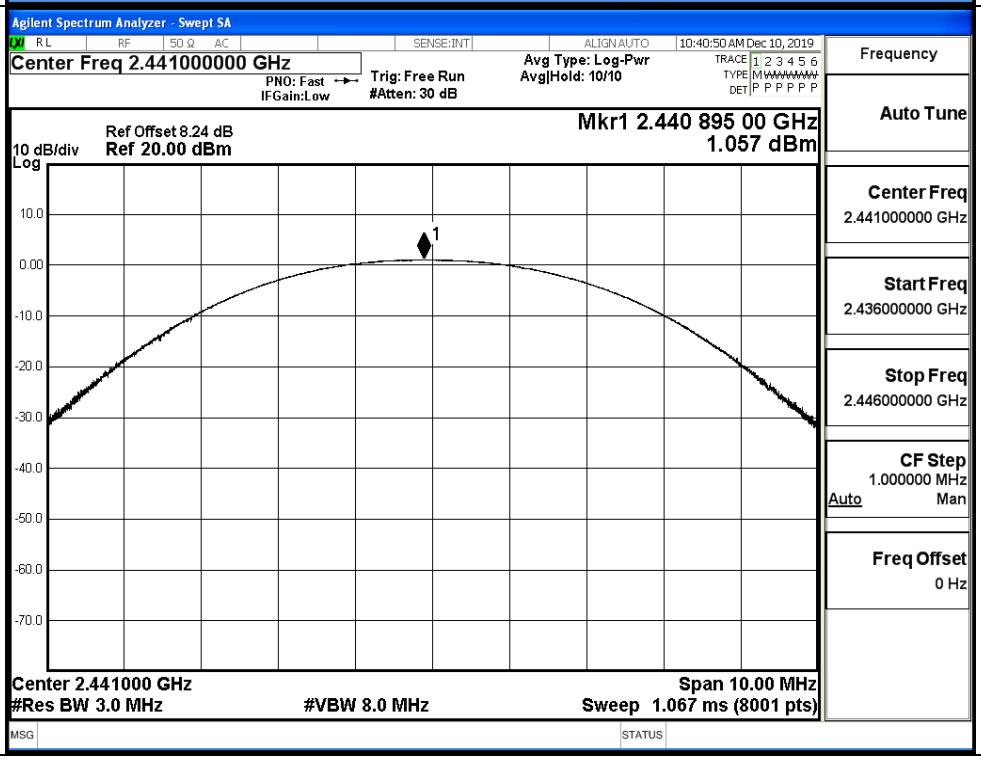
Left Ear

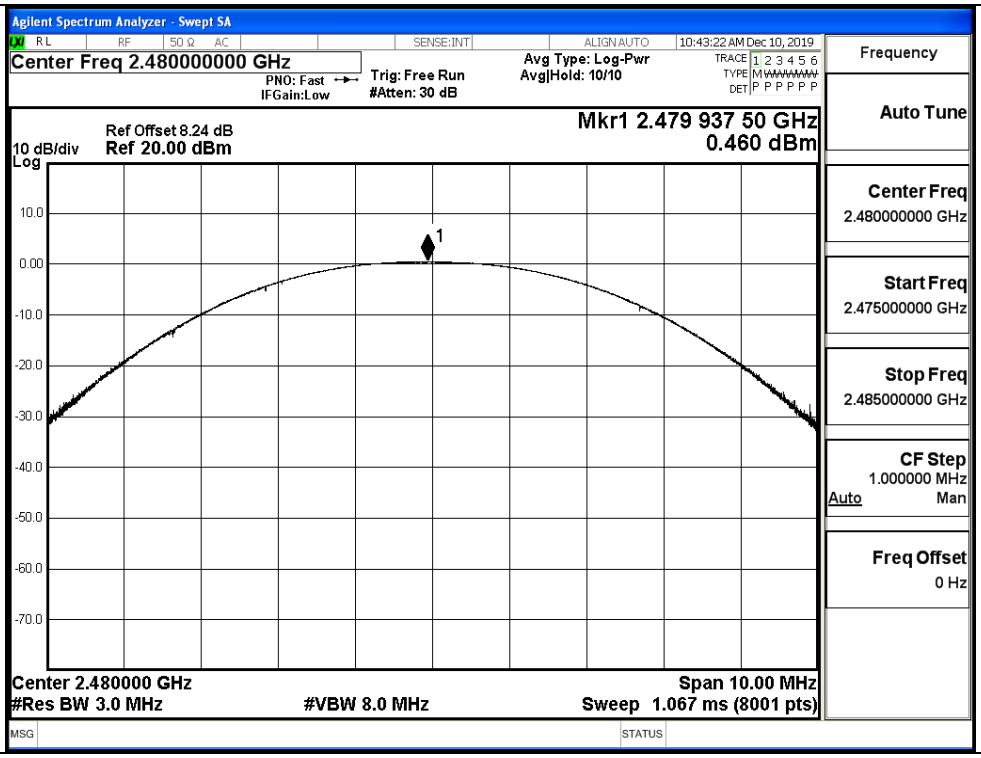
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.673	30	PASS
	MCH	0.788	30	PASS
	HCH	0.229	30	PASS
π/4DQPSK	LCH	2.504	21	PASS
	MCH	1.442	21	PASS
	HCH	0.380	21	PASS
8DPSK	LCH	2.528	21	PASS
	MCH	1.057	21	PASS
	HCH	0.460	21	PASS

Test Graphs		
GFSK/LCH		
GFSK/MCH		

GFSK/HCH	
π/4DQPSK/LCH	

π/4DQPSK/MCH		
π/4DQPSK/HCH		

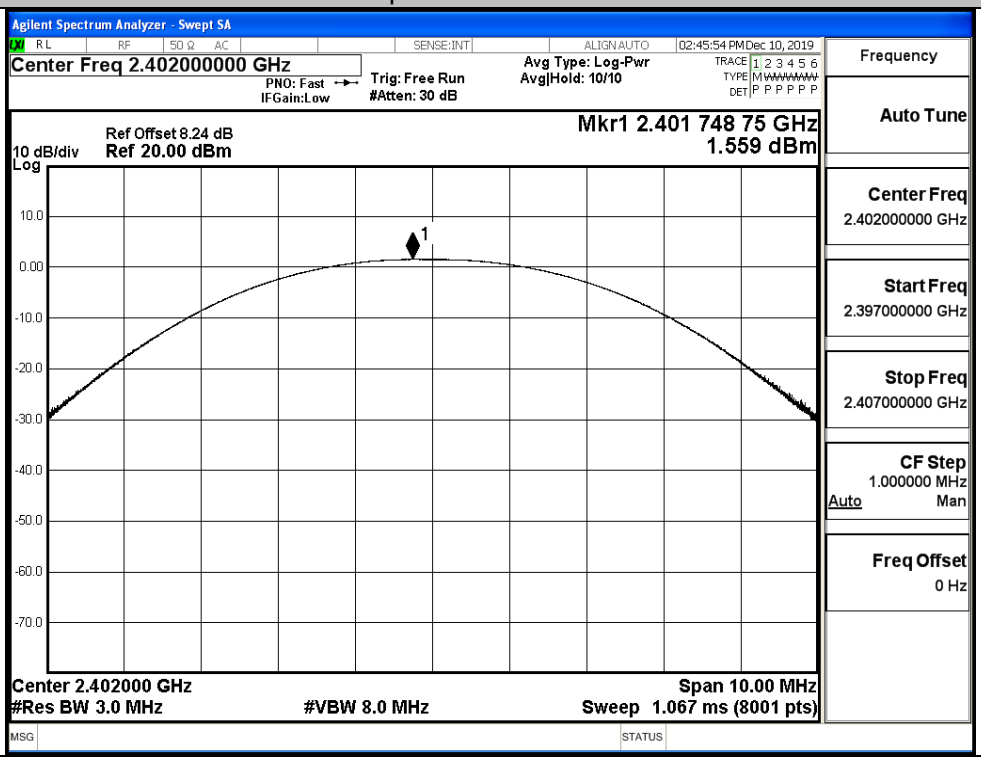
8DPSK/LCH		
8DPSK/MCH		

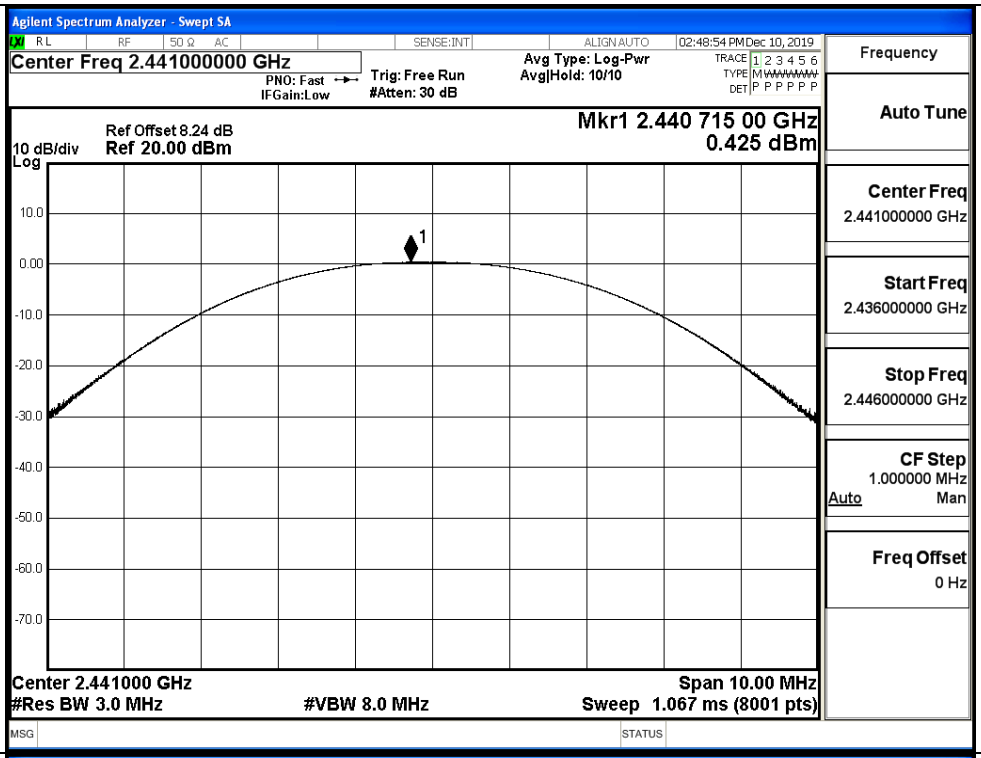
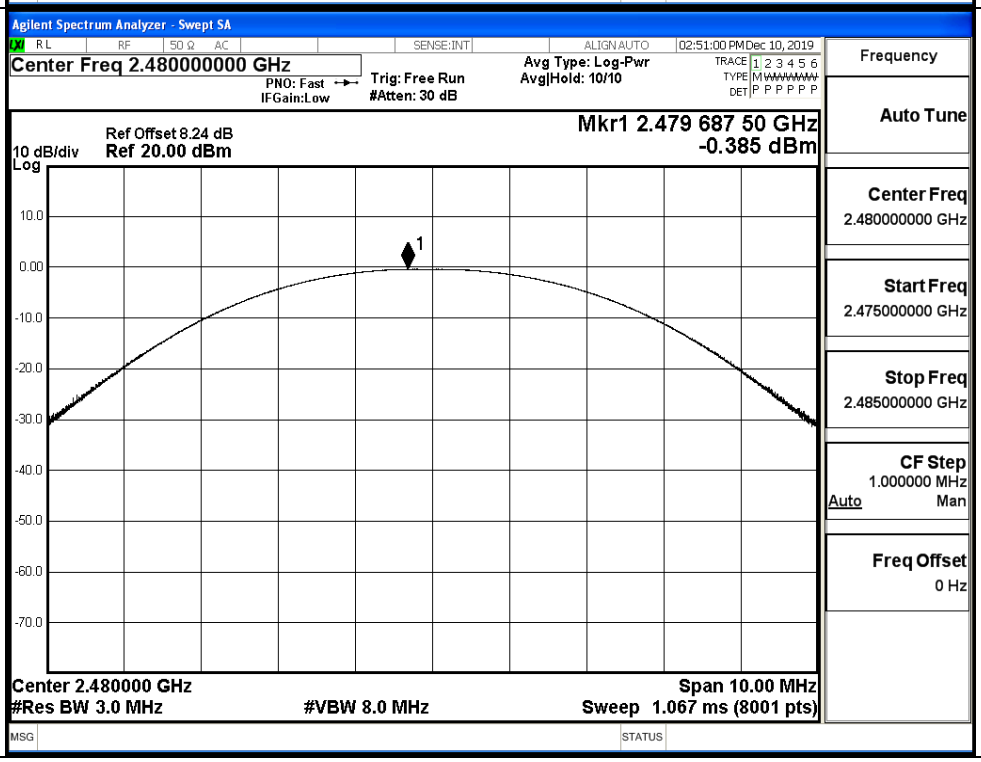
8DPSK/HCH	

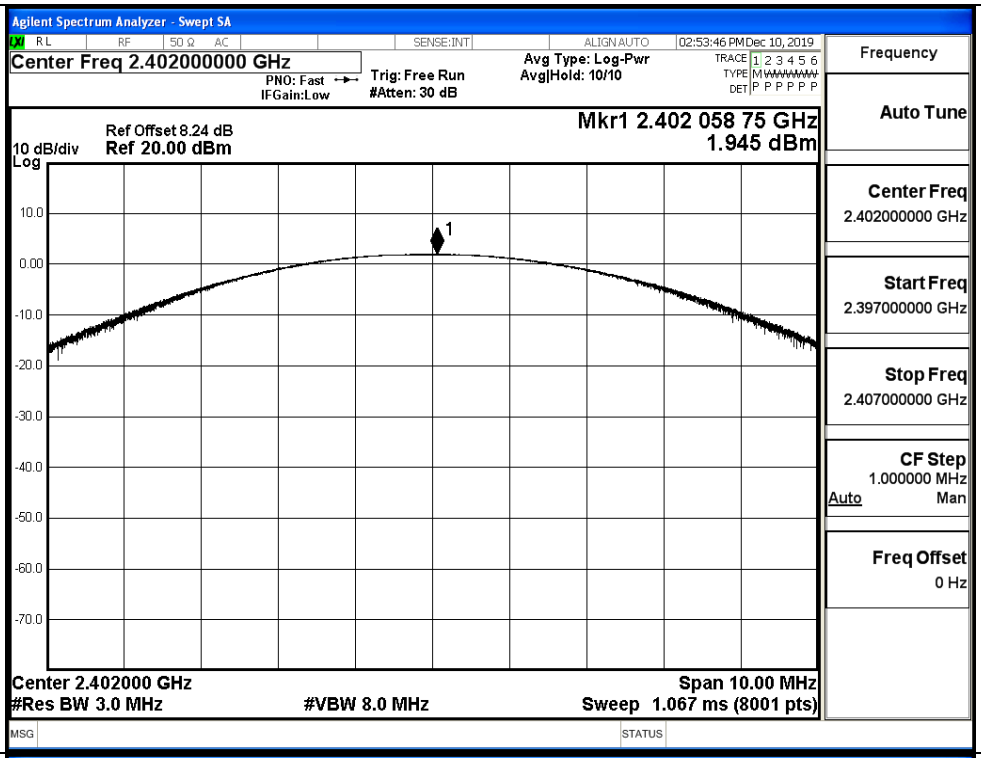
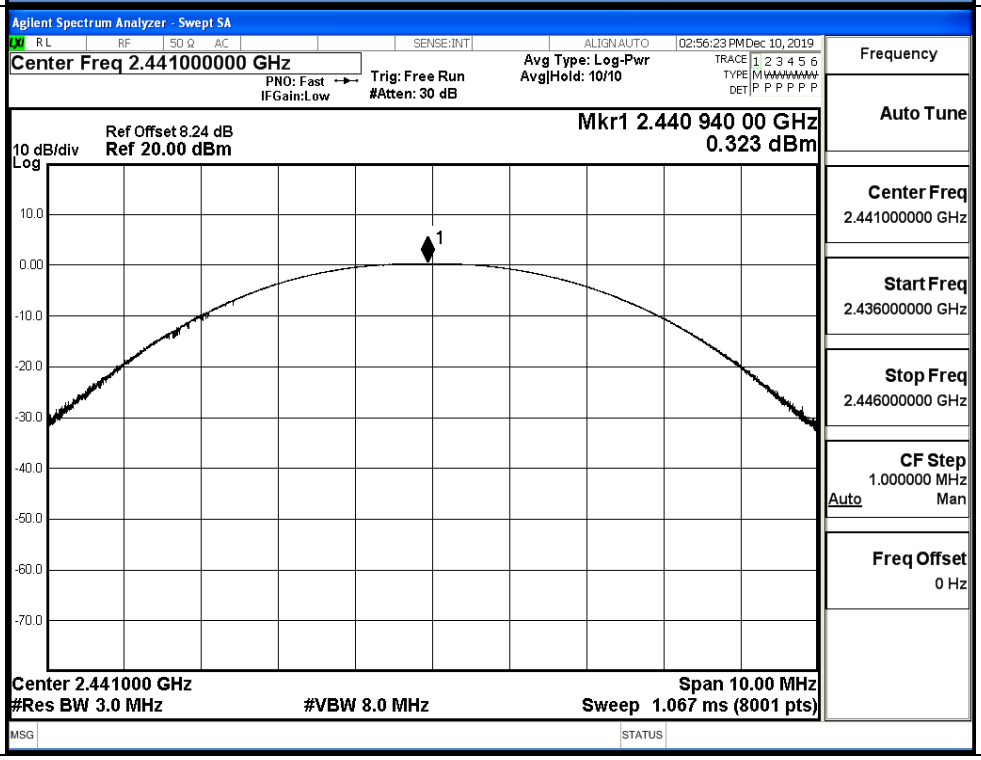
Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
10:43:22 AM Dec 10, 2019
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/10
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P
Ref Offset 8.24 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.479 937 50 GHz
0.460 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Span 10.00 MHz
Sweep 1.067 ms (8001 pts)
MSG
STATUS
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

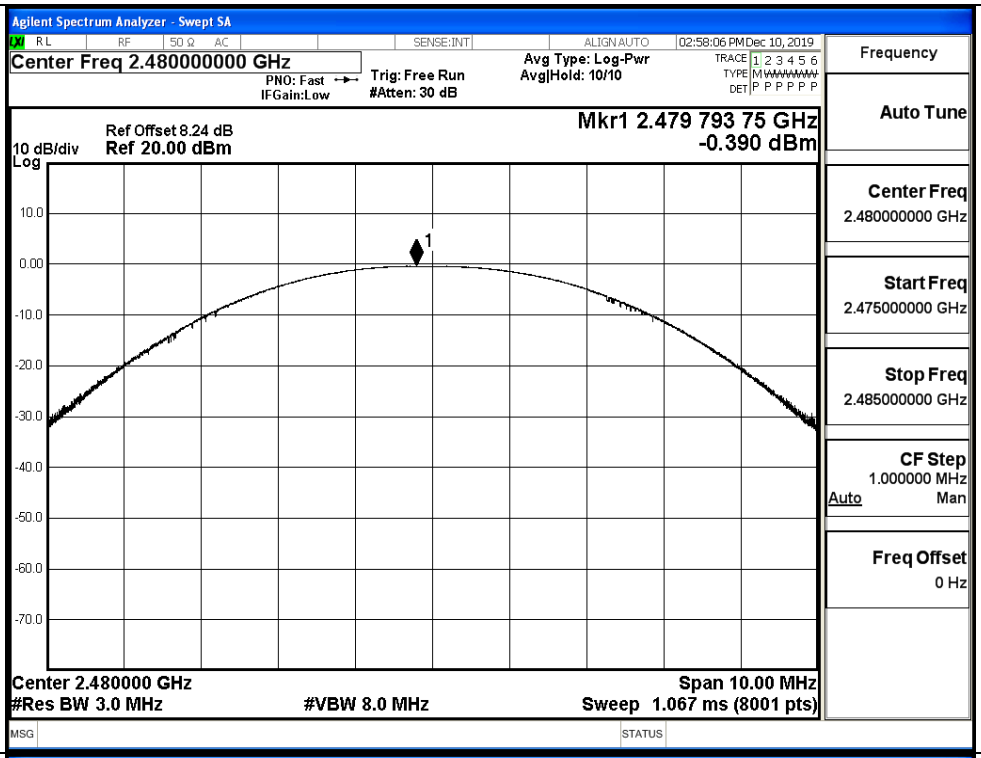
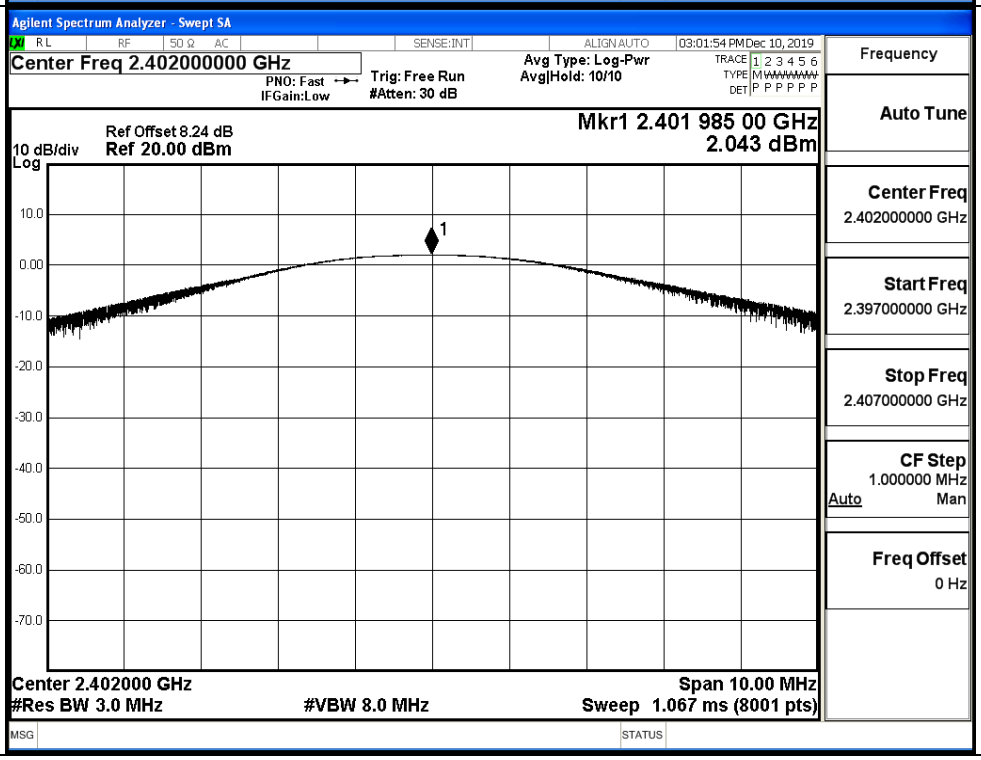
Right Ear

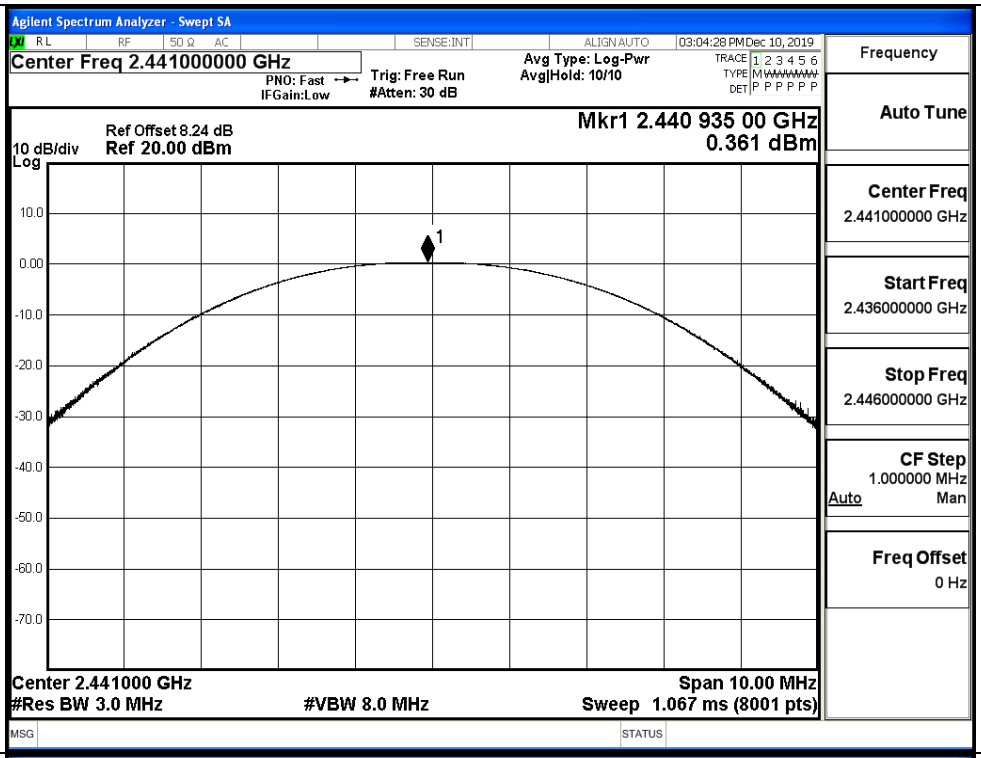
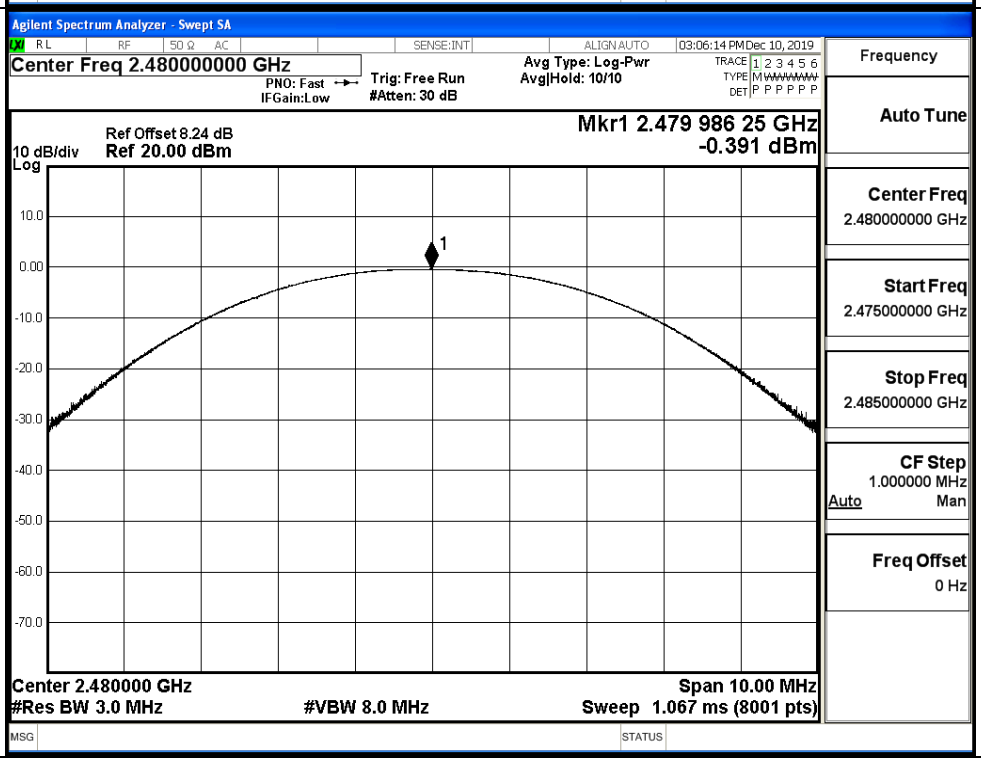
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.559	30	PASS
	MCH	0.425	30	PASS
	HCH	-0.385	30	PASS
π/4DQPSK	LCH	1.945	21	PASS
	MCH	0.323	21	PASS
	HCH	-0.390	21	PASS
8DPSK	LCH	2.043	21	PASS
	MCH	0.361	21	PASS
	HCH	-0.391	21	PASS

Test Graphs	
GFSK/LCH	

GFSK/MCH		
GFSK/HCH		

π/4DQPSK/LCH		
π/4DQPSK/MCH		

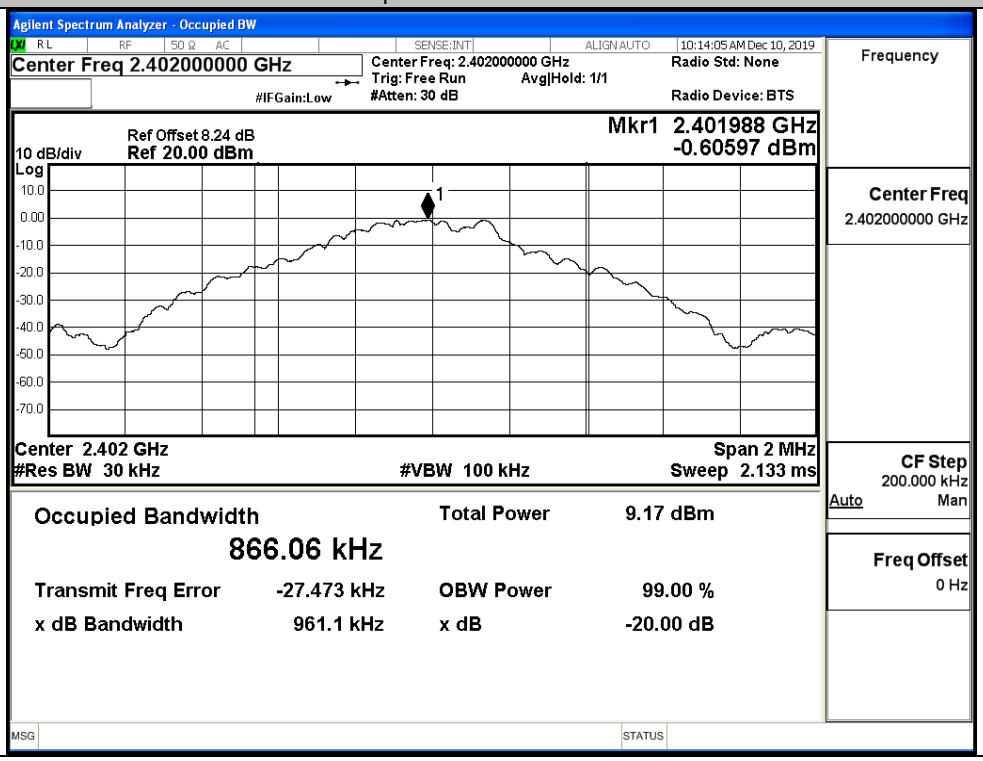
π/4DQPSK/HCH		
8DPSK/LCH		

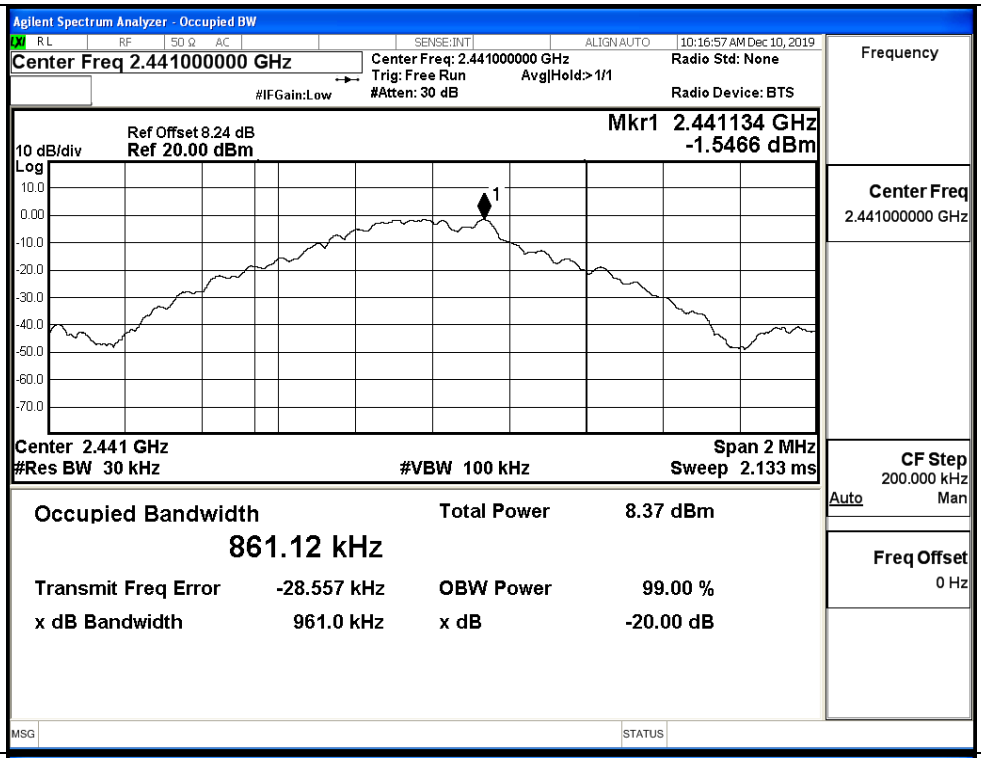
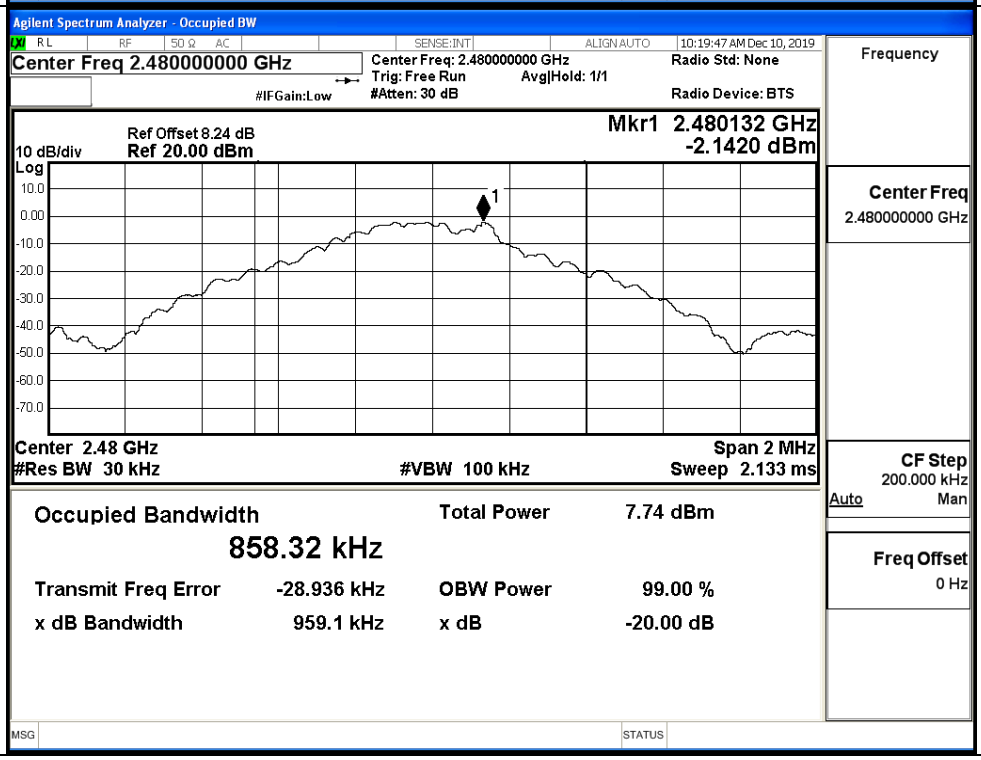
8DPSK/MCH	
8DPSK/HCH	

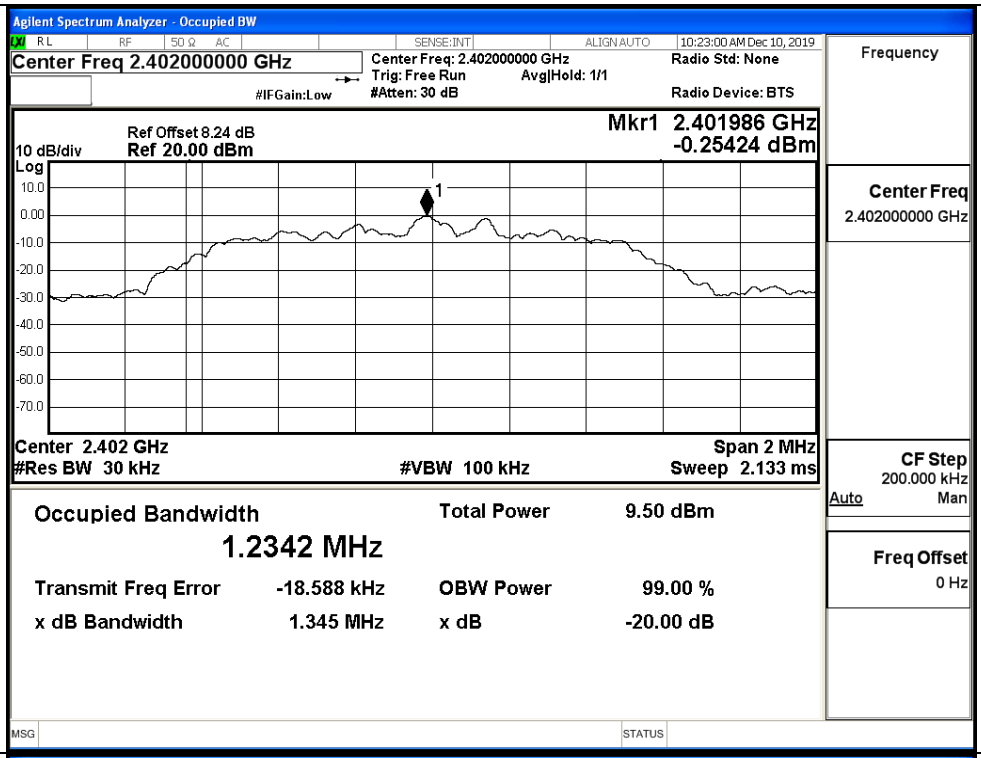
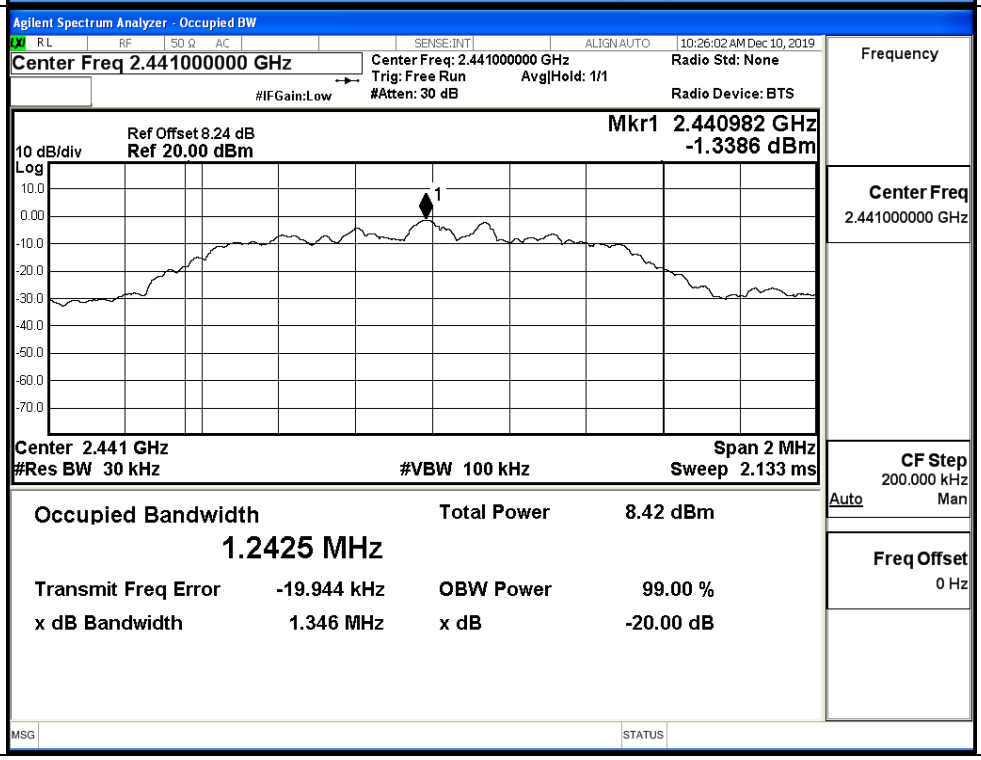
A.2 20dB Bandwidth

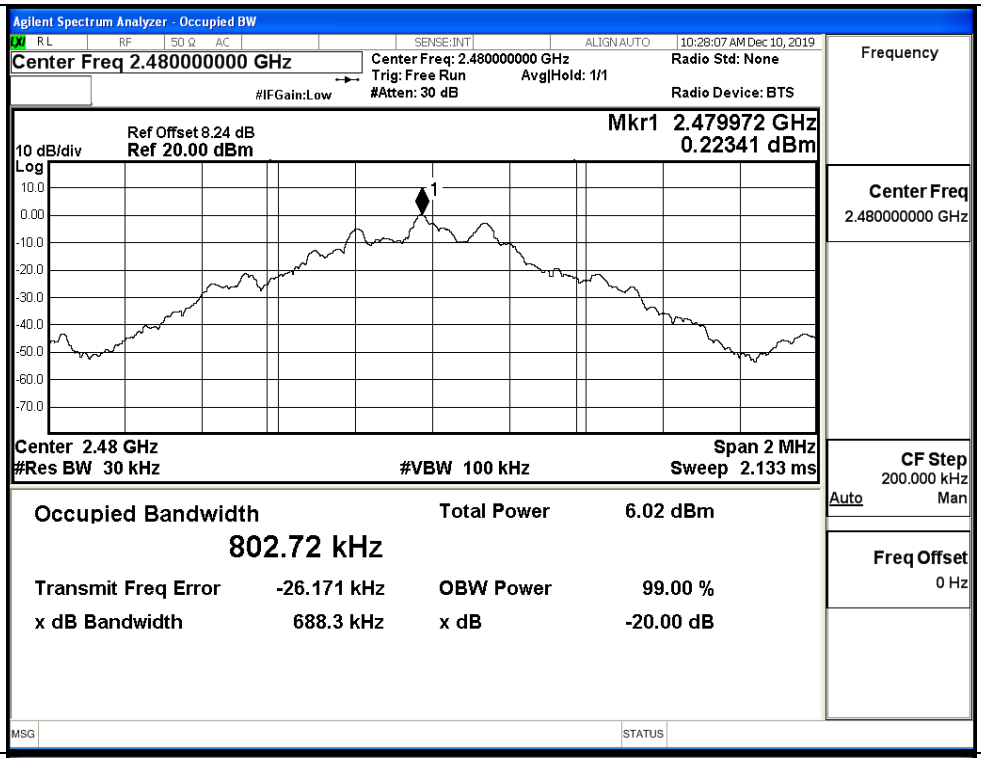
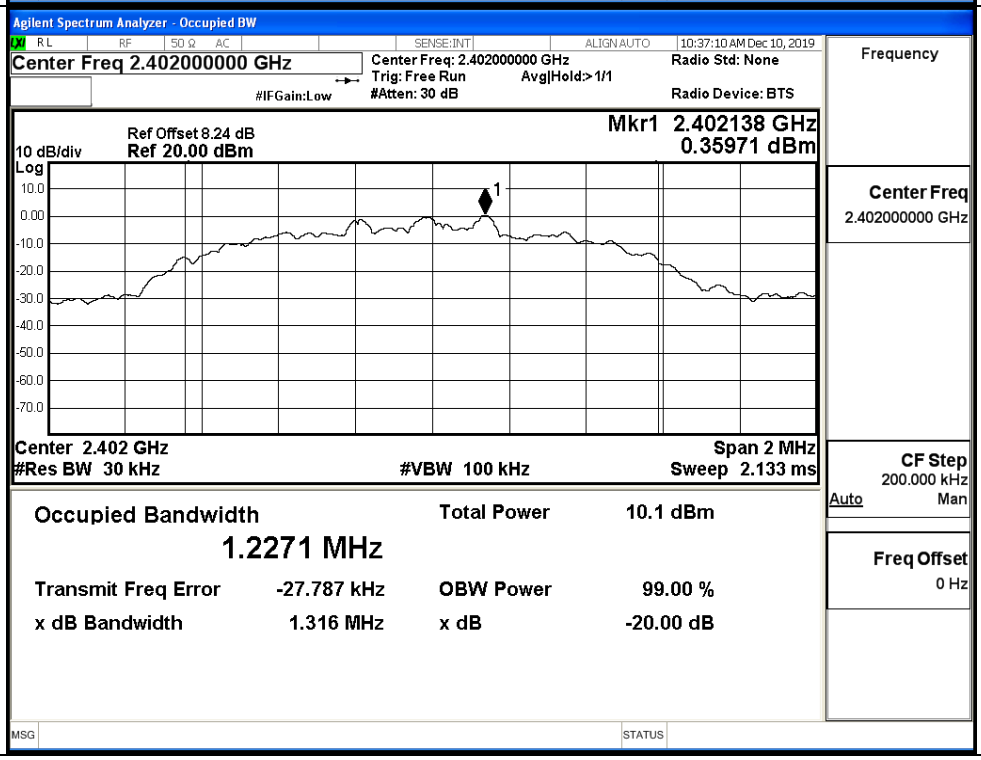
Left Ear

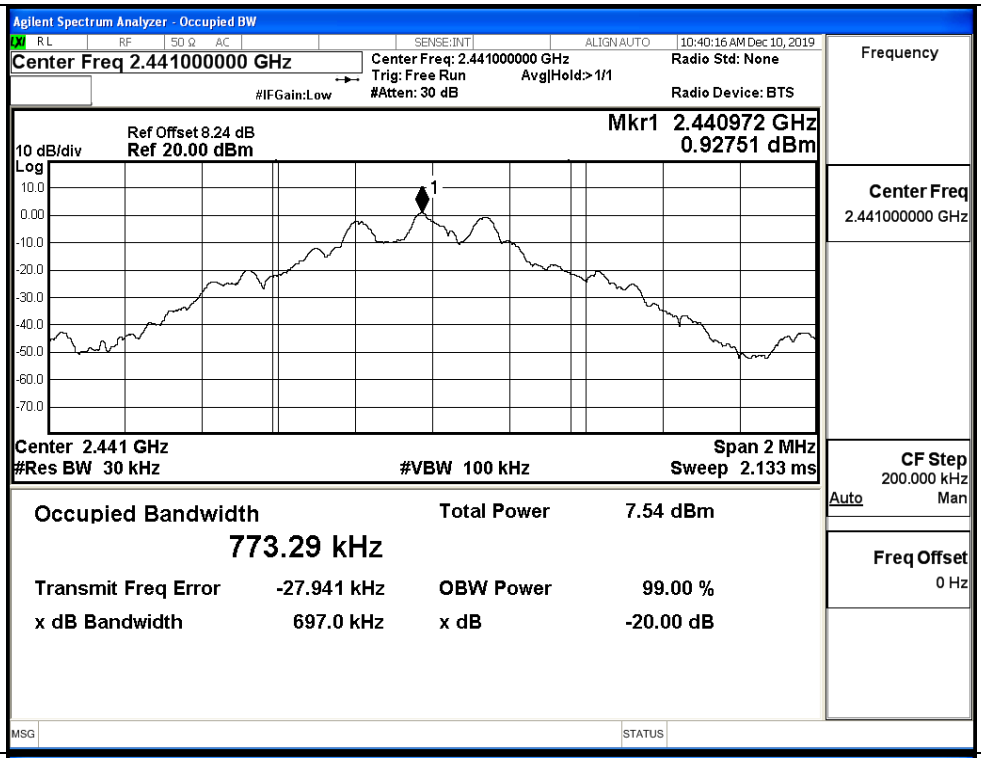
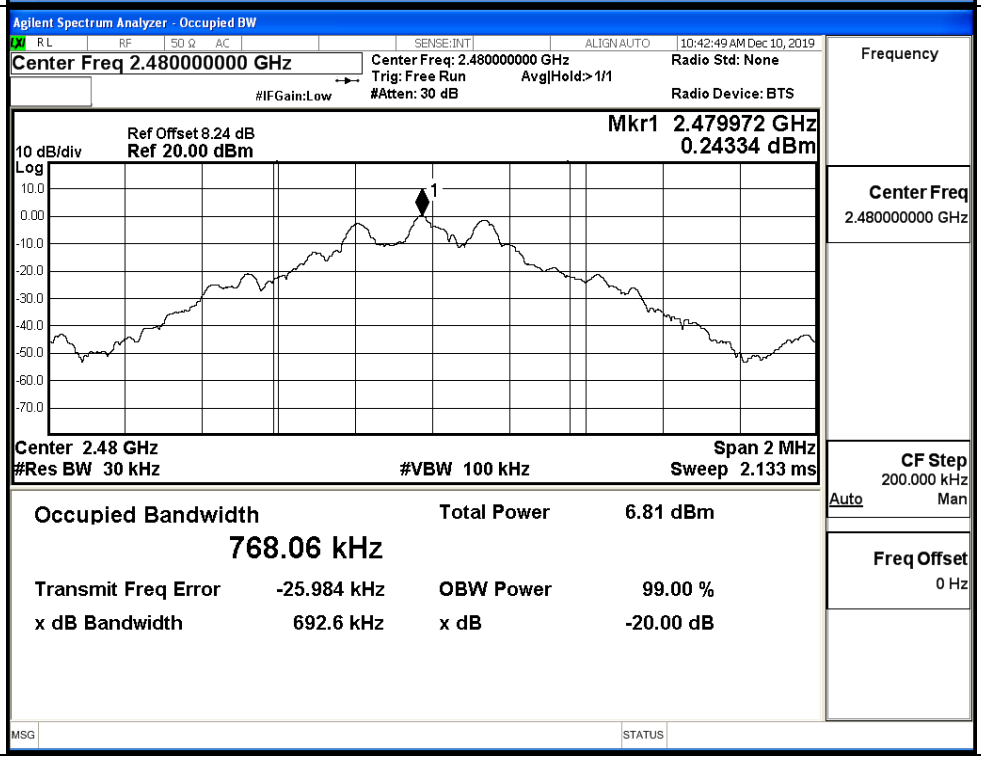
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9611	Not Specified	PASS
	MCH	0.9610	Not Specified	PASS
	HCH	0.9591	Not Specified	PASS
π/4DQPSK	LCH	1.345	Not Specified	PASS
	MCH	1.346	Not Specified	PASS
	HCH	0.6883	Not Specified	PASS
8DPSK	LCH	1.316	Not Specified	PASS
	MCH	0.6970	Not Specified	PASS
	HCH	0.6926	Not Specified	PASS

Test Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

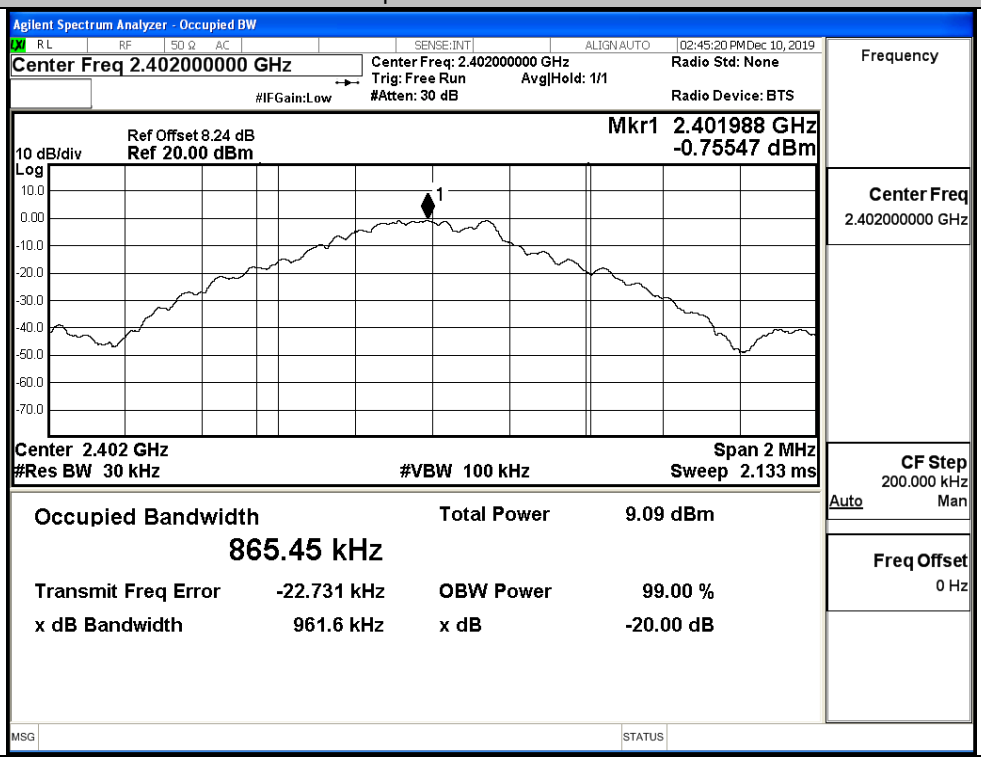
π/4DQPSK/LCH	
π/4DQPSK/MCH	

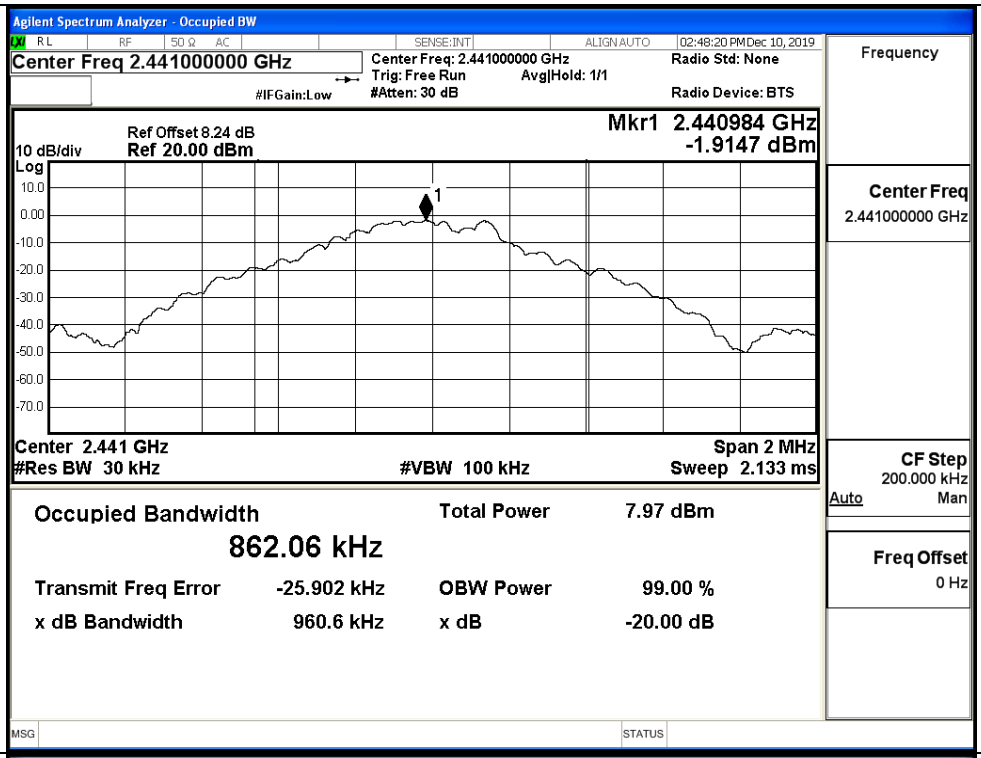
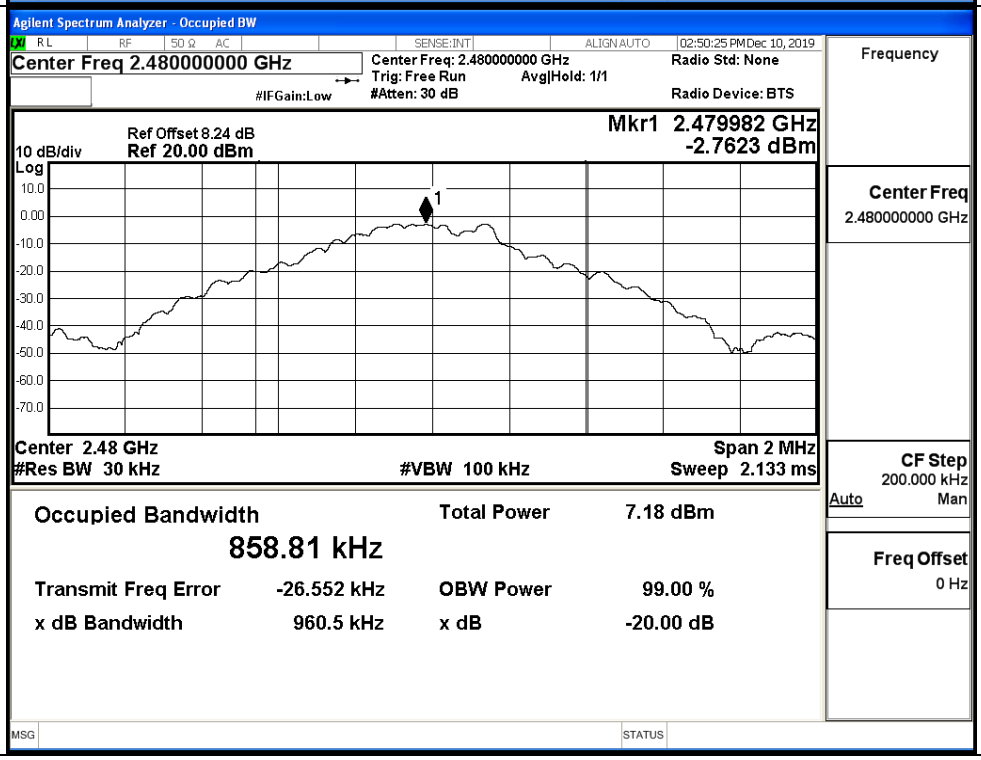
π/4DQPSK/HCH	
8DPSK/LCH	

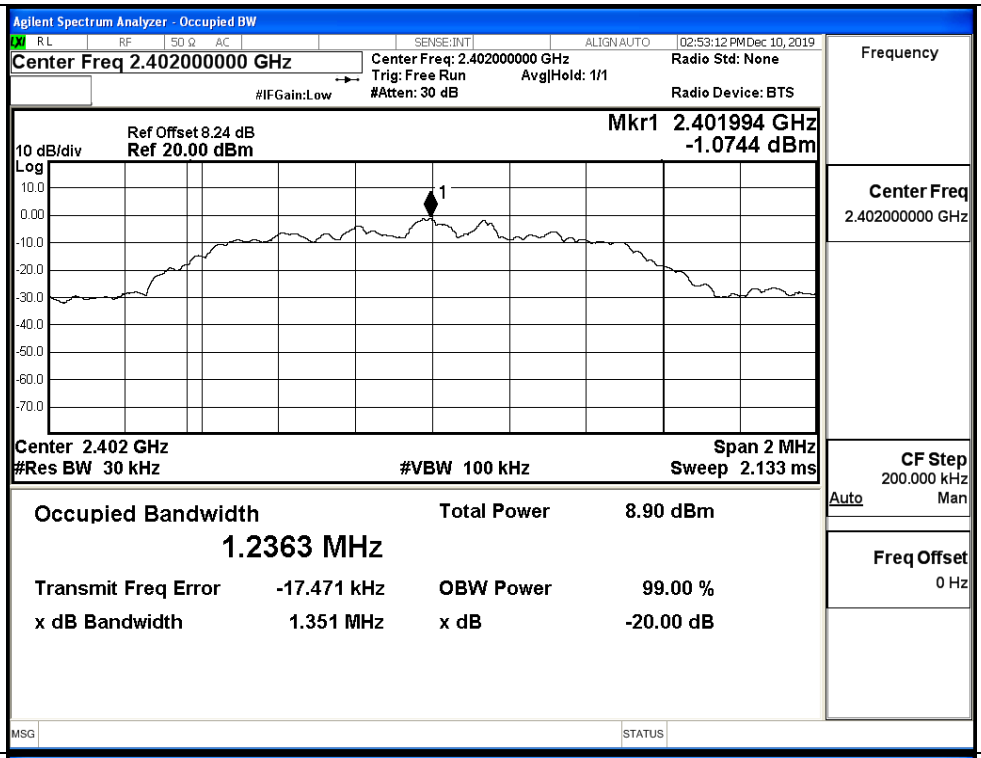
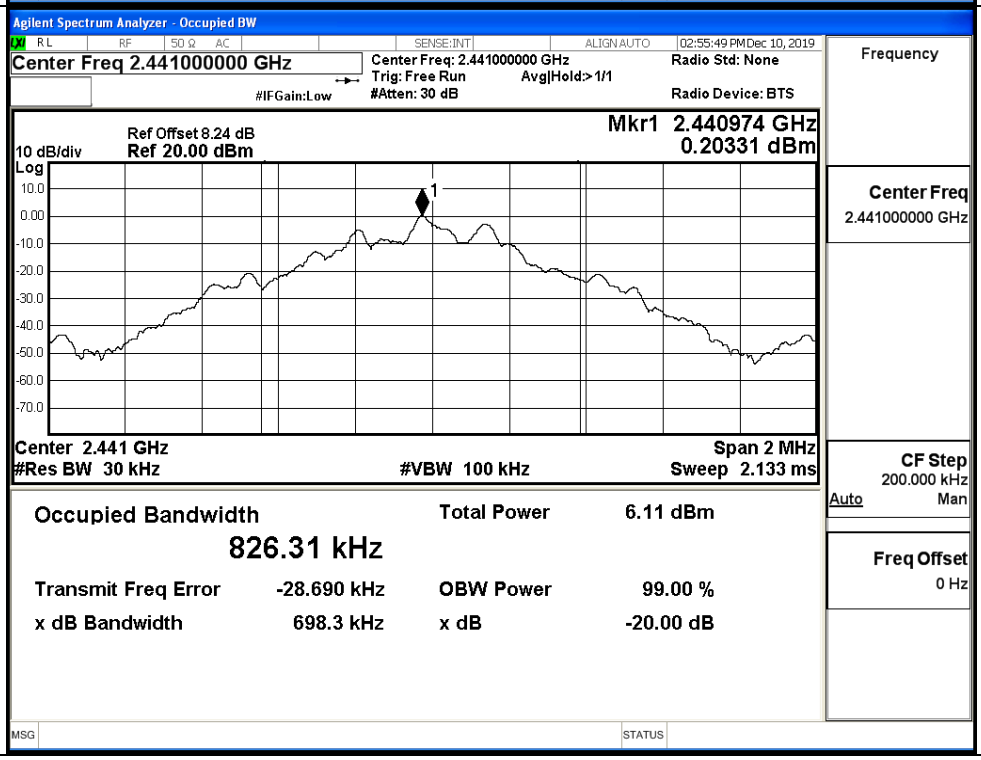
8DPSK/MCH	
8DPSK/HCH	

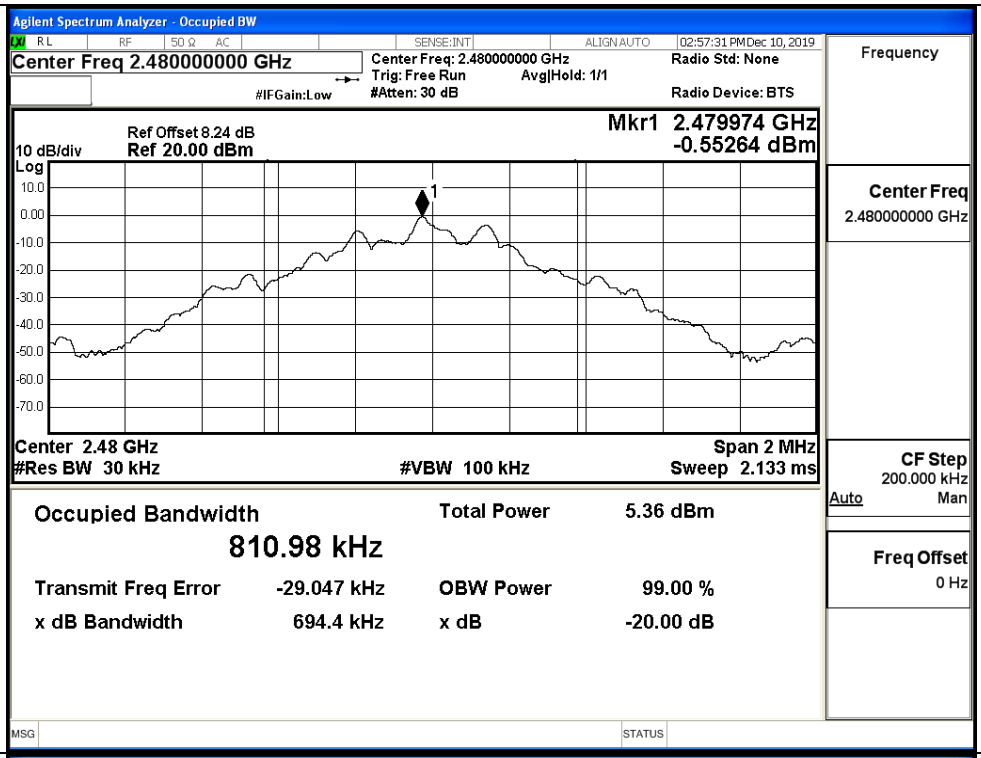
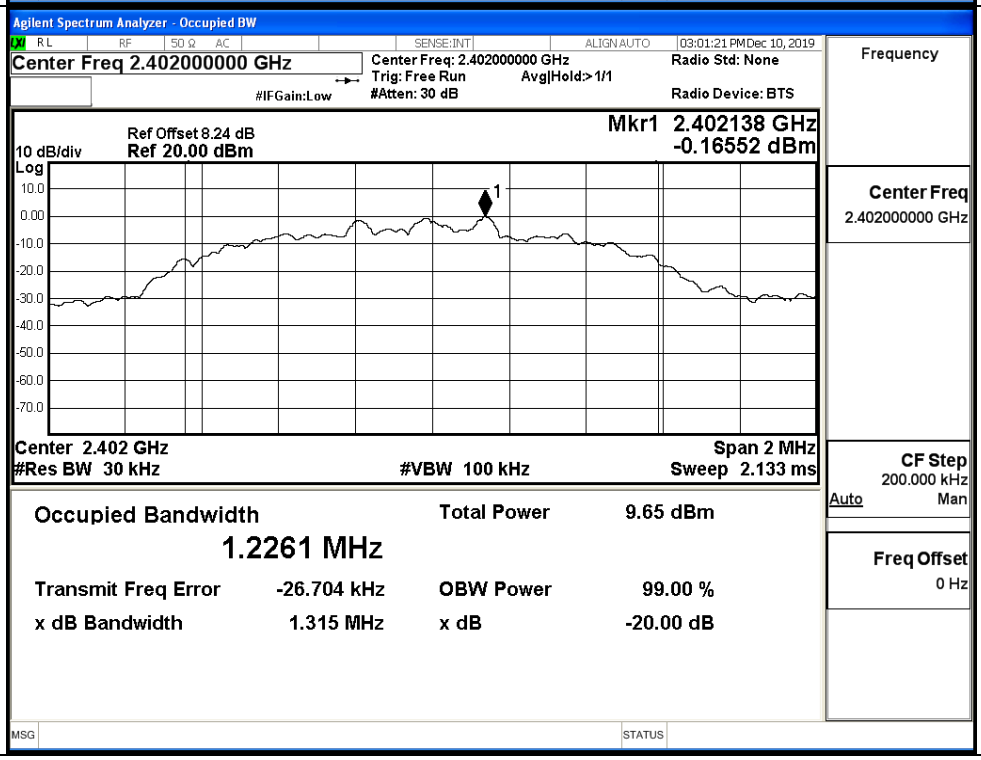
Right Ear

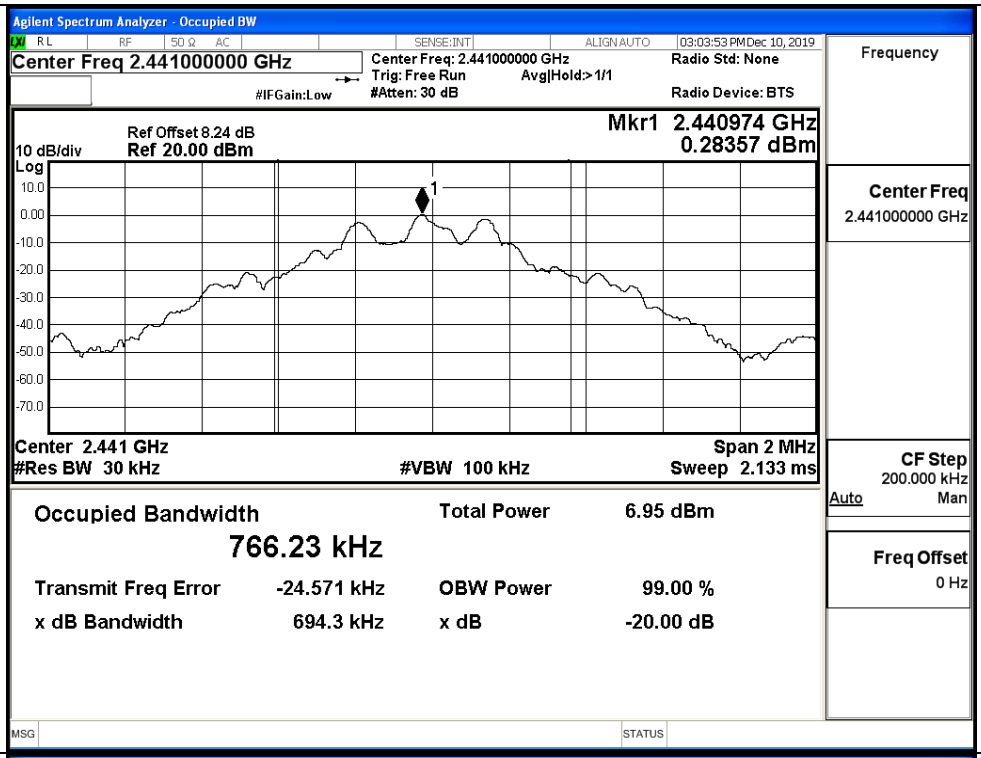
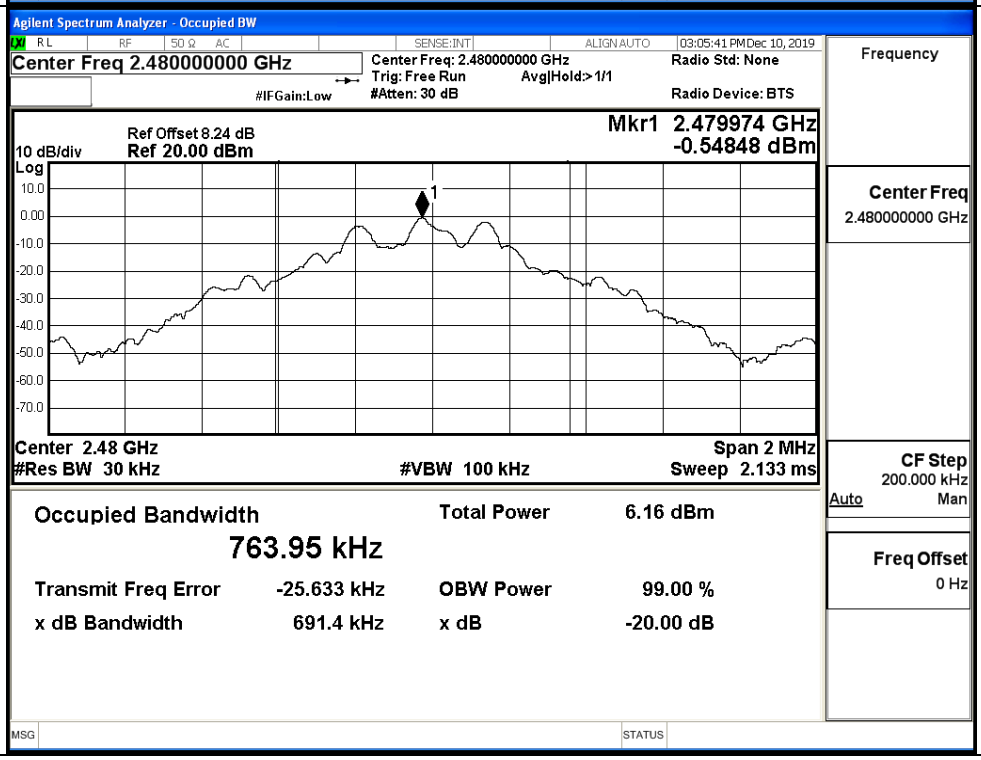
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9616	Not Specified	PASS
	MCH	0.9606	Not Specified	PASS
	HCH	0.9605	Not Specified	PASS
π/4DQPSK	LCH	1.351	Not Specified	PASS
	MCH	0.6983	Not Specified	PASS
	HCH	0.6944	Not Specified	PASS
8DPSK	LCH	1.315	Not Specified	PASS
	MCH	0.6943	Not Specified	PASS
	HCH	0.6914	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	

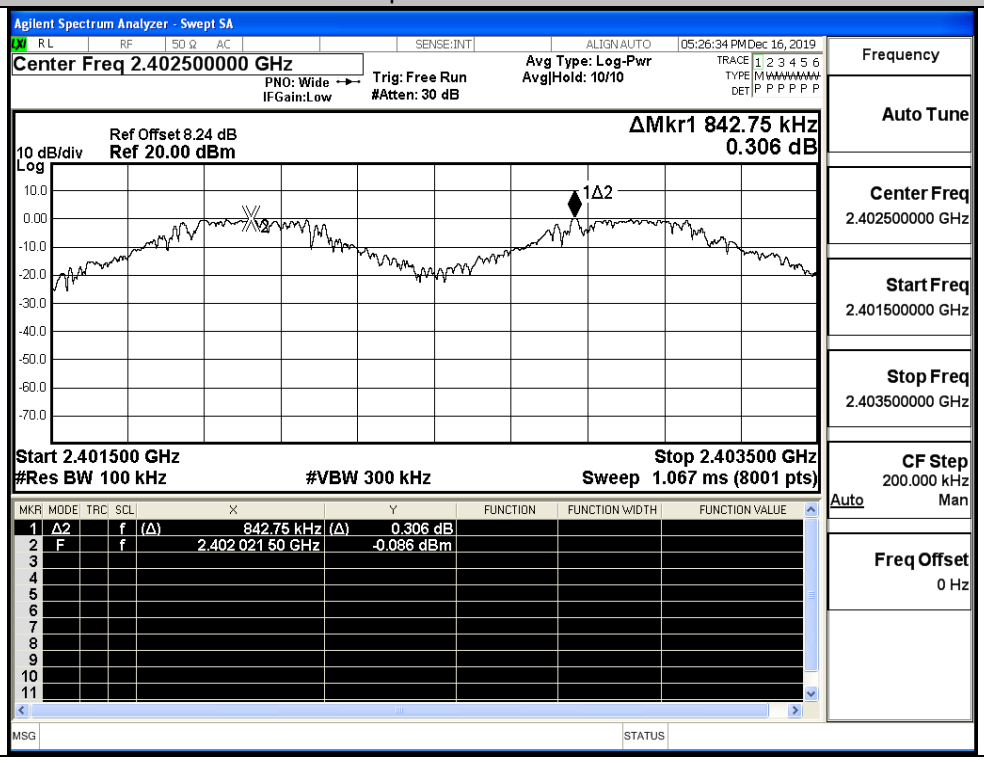
A.3 Carrier Frequency Separation

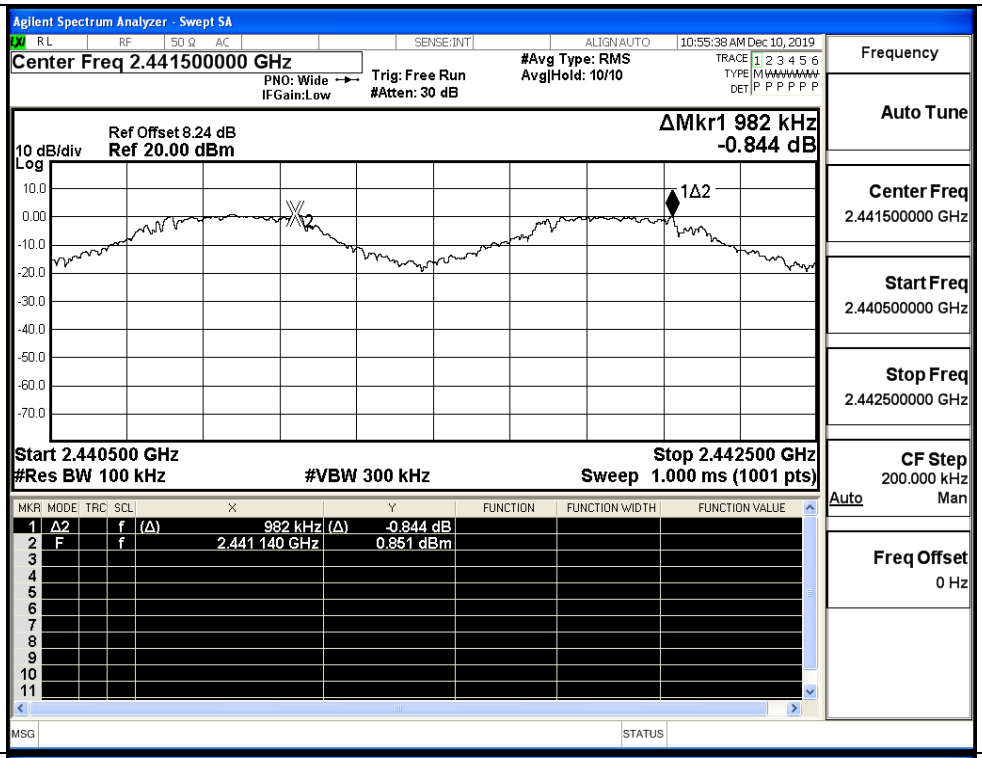
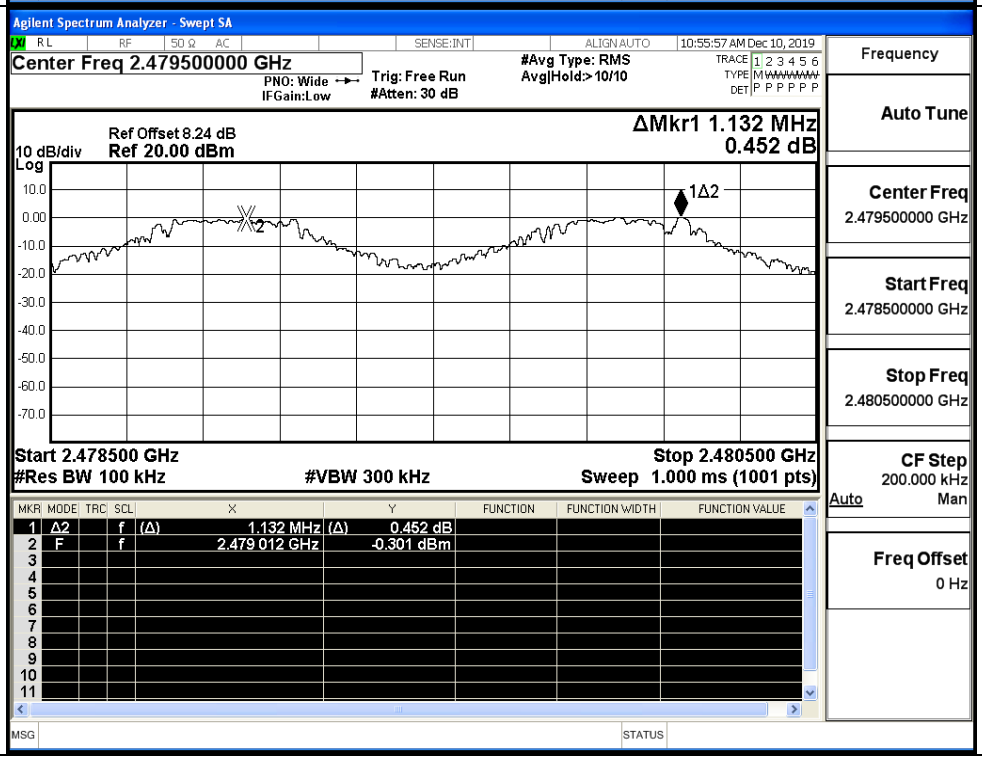
Left Ear

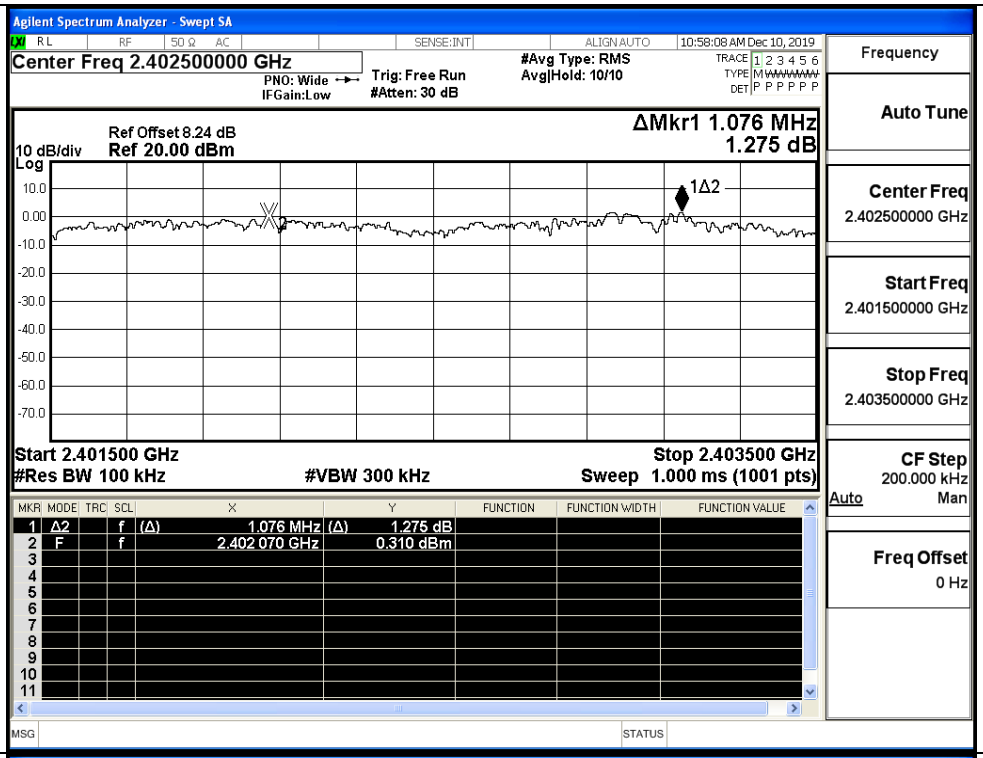
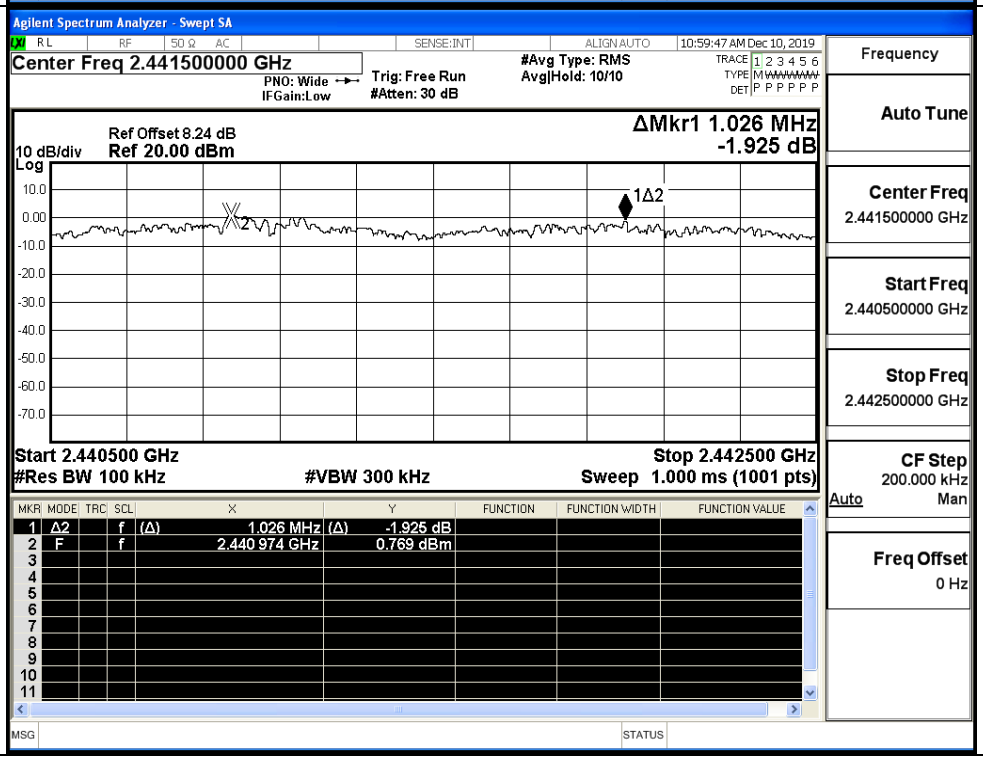
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.843	0.641	PASS
	MCH	0.982	0.641	PASS
	HCH	1.132	0.641	PASS
π/4DQPSK	LCH	1.076	0.897	PASS
	MCH	1.026	0.897	PASS
	HCH	0.986	0.897	PASS
8DPSK	LCH	1.190	0.877	PASS
	MCH	1.036	0.877	PASS
	HCH	1.212	0.877	PASS

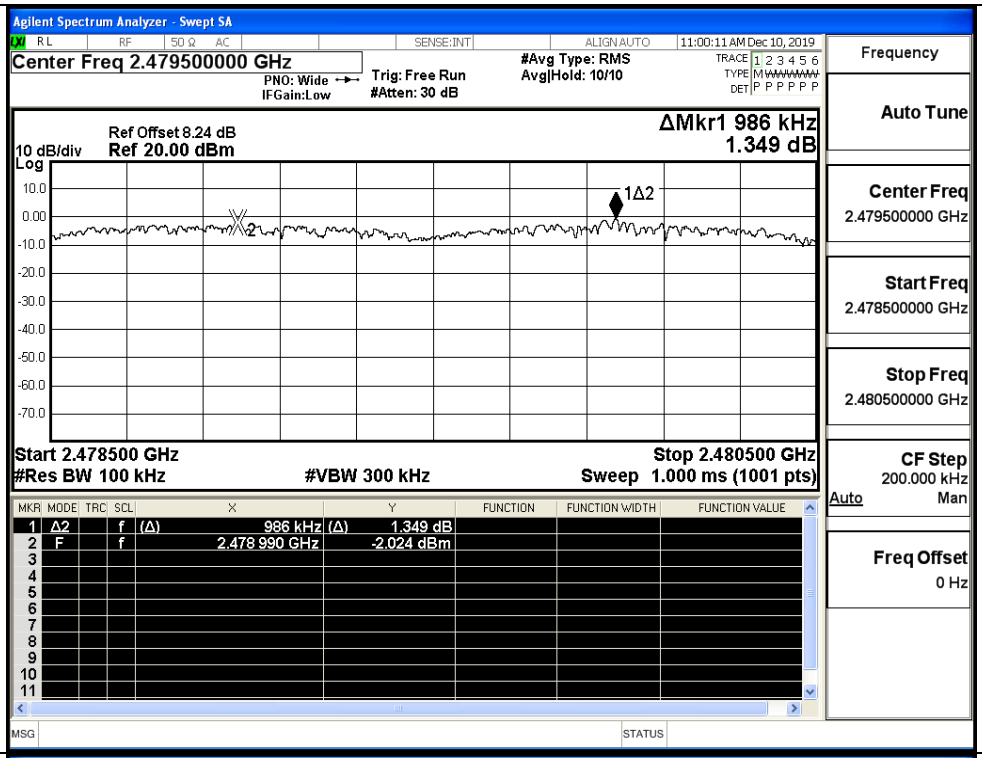
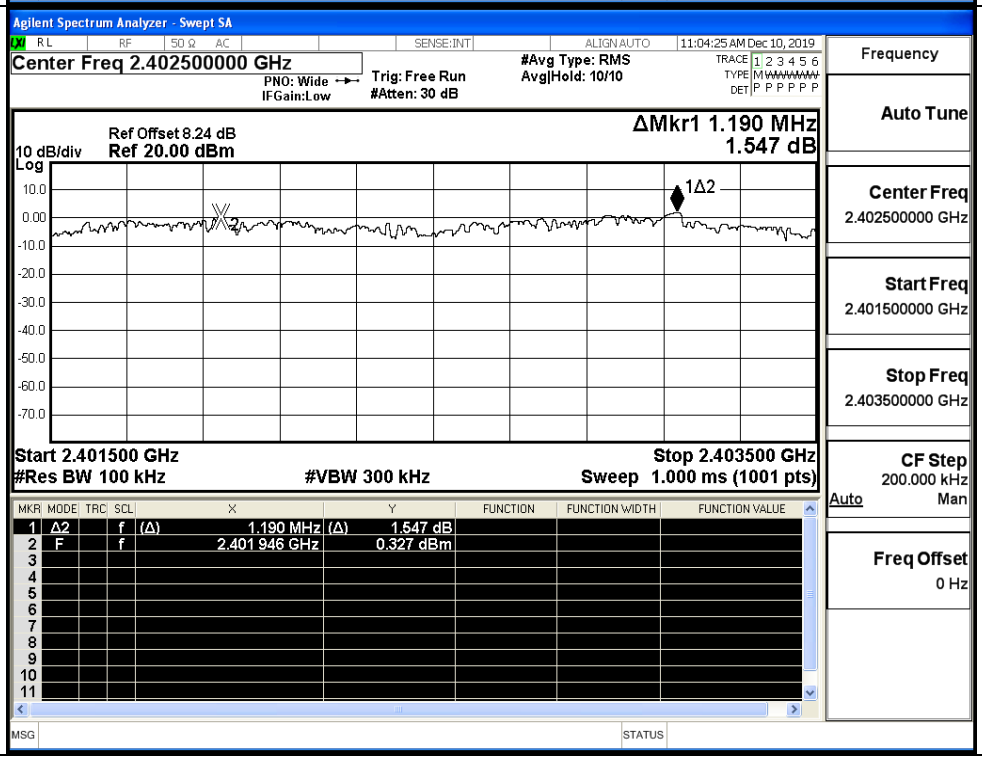
Test Graphs

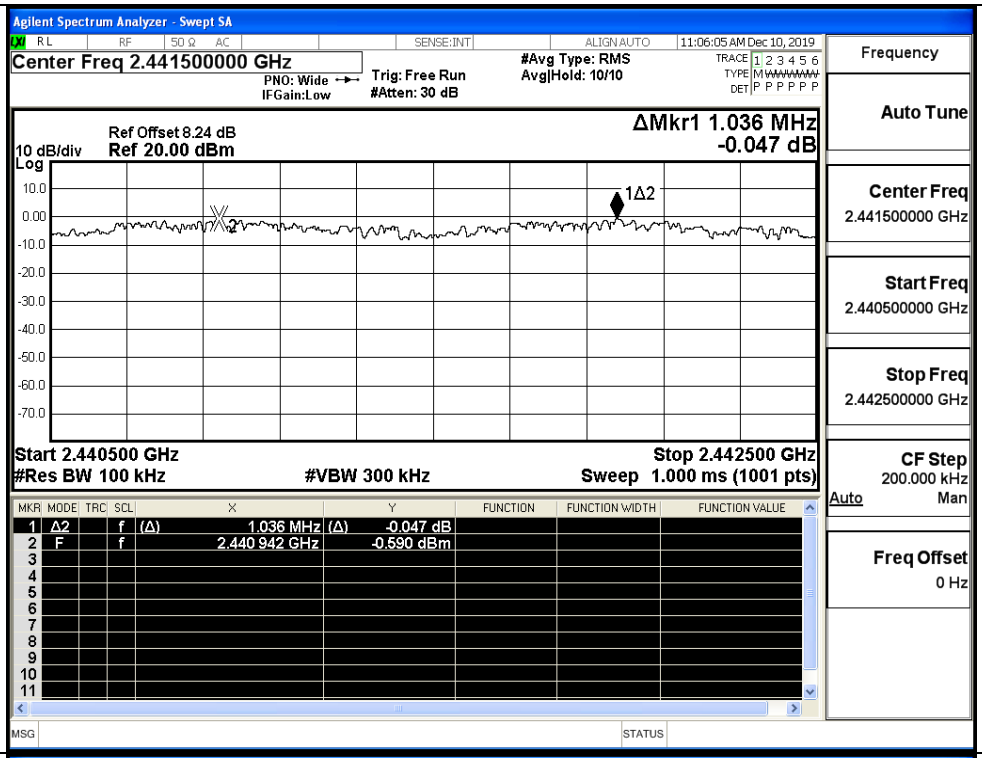
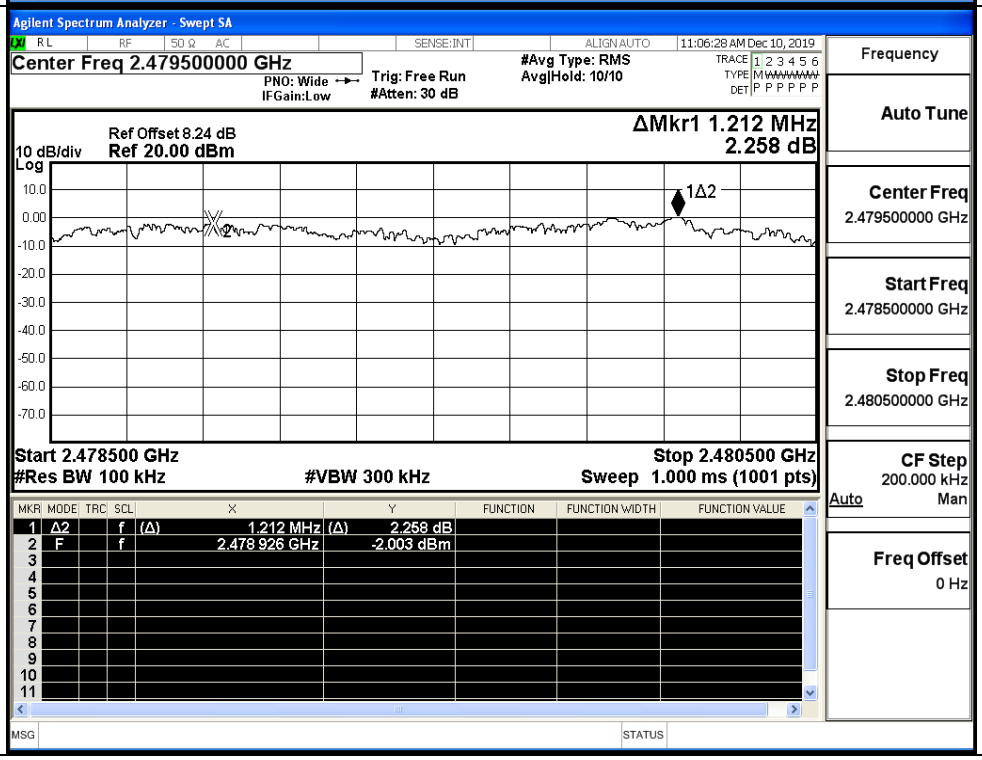
GFSK/LCH



GFSK/MCH	
GFSK/HCH	

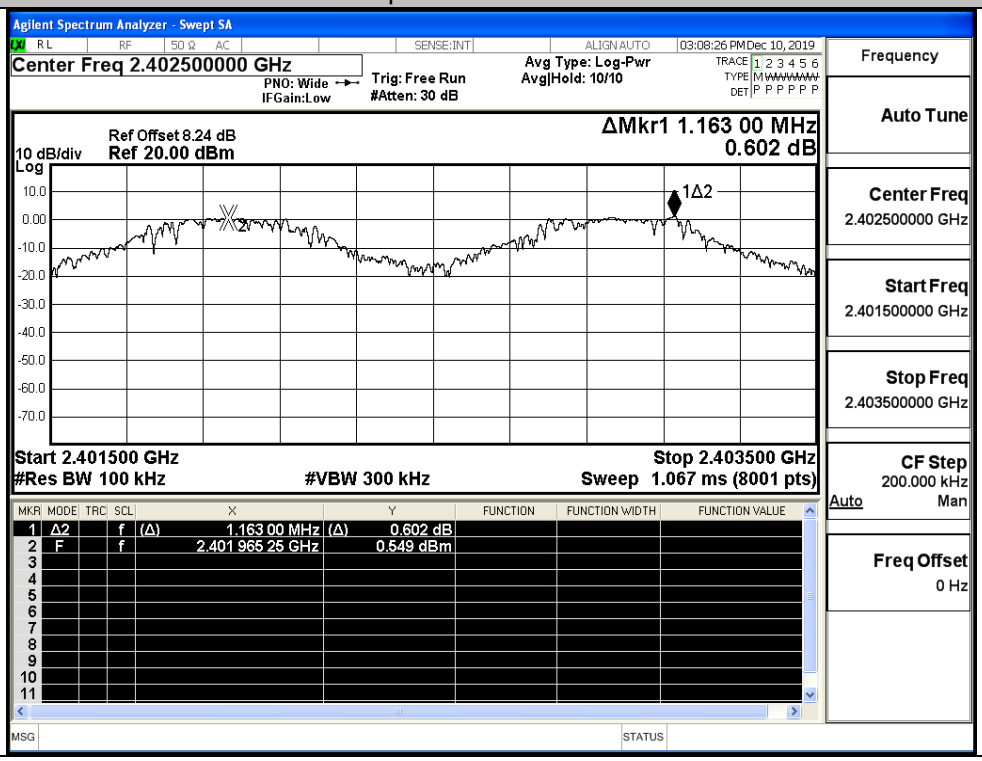
π/4DQPSK/LCH	
π/4DQPSK/MCH	

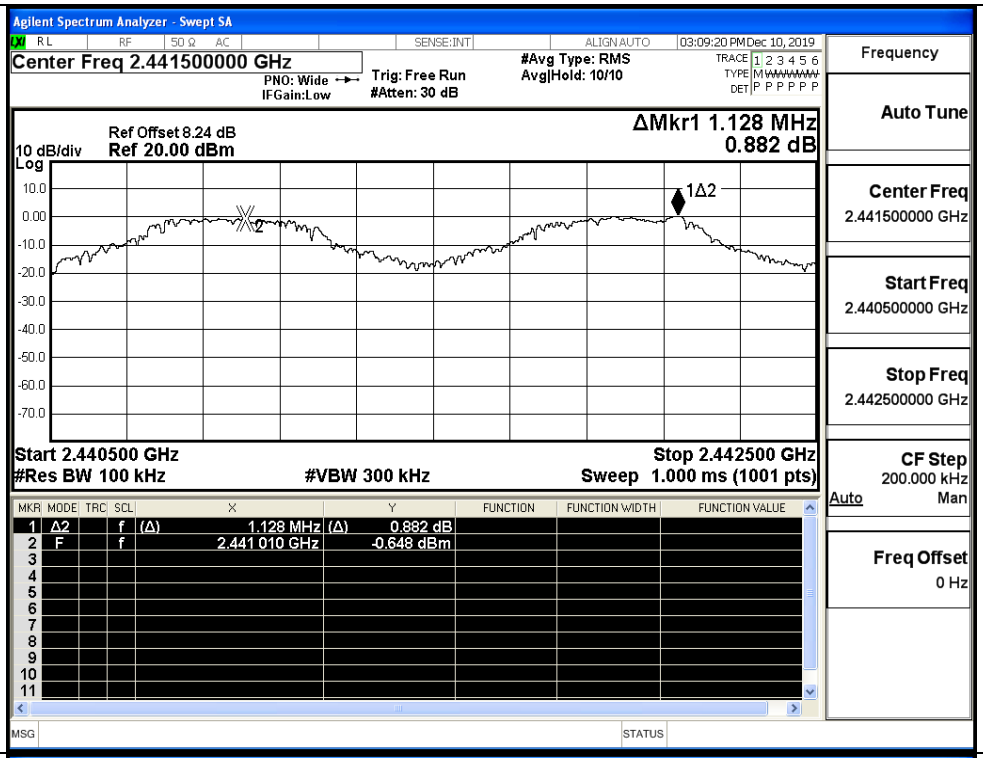
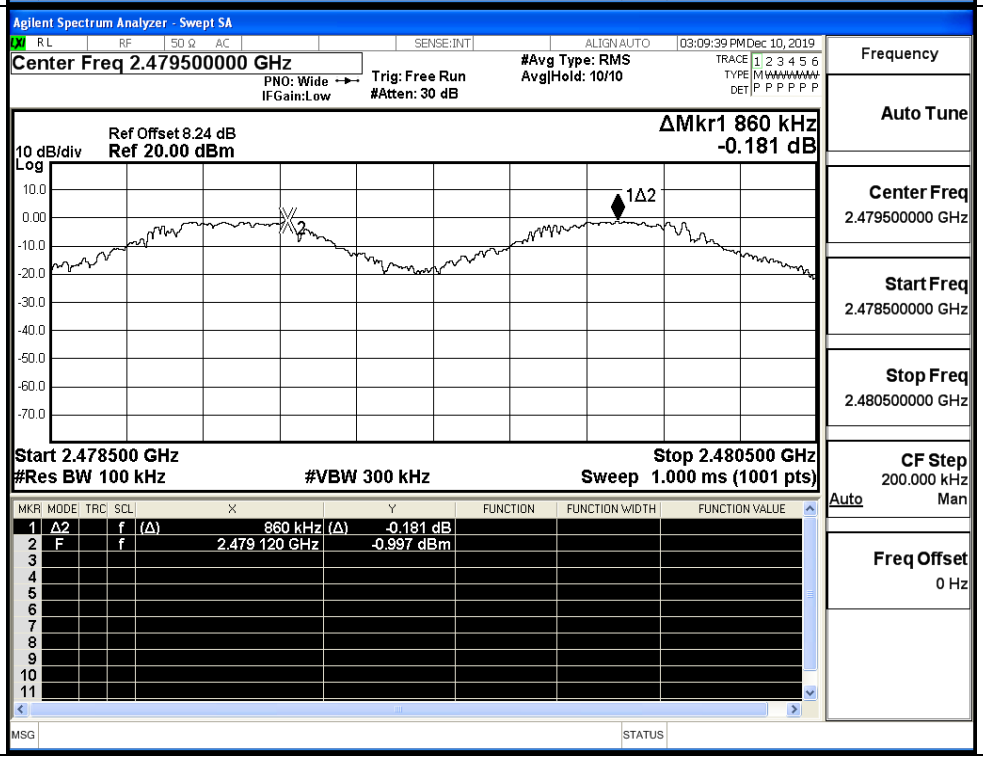
π/4DQPSK/HCH	
8DPSK/LCH	

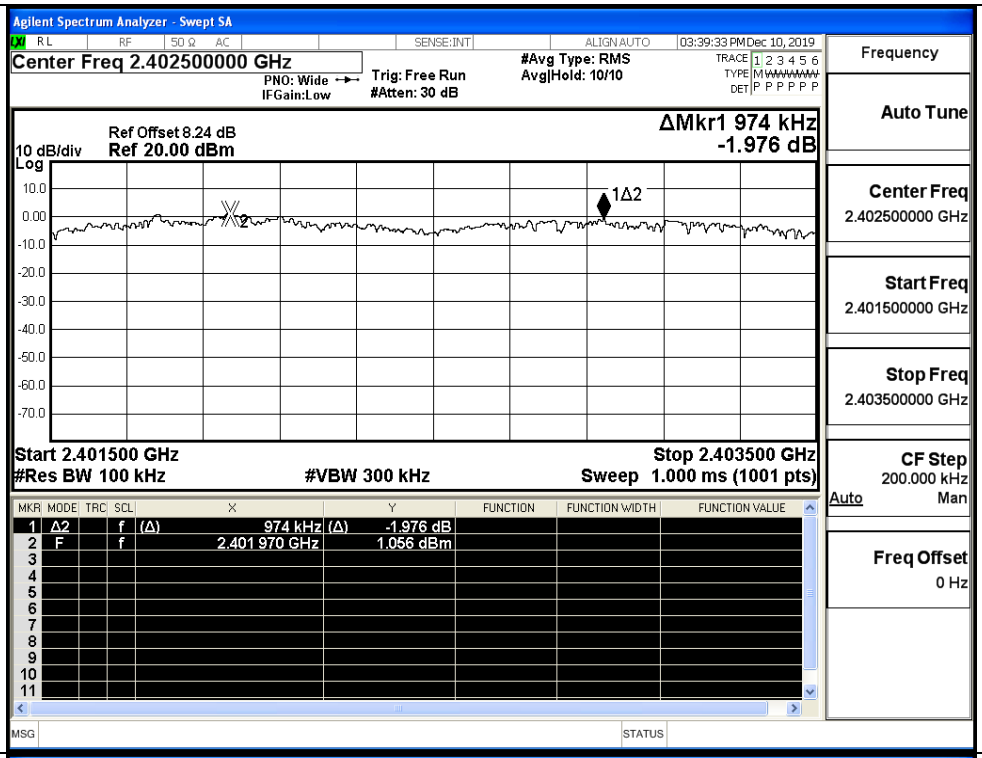
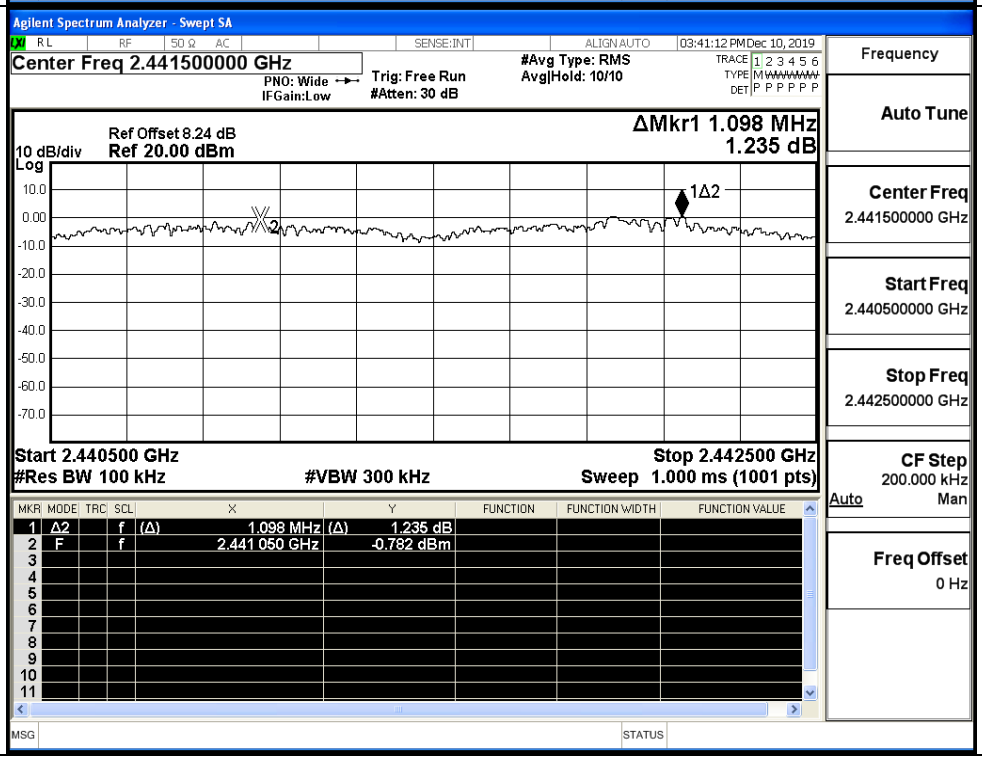
8DPSK/MCH	
8DPSK/HCH	

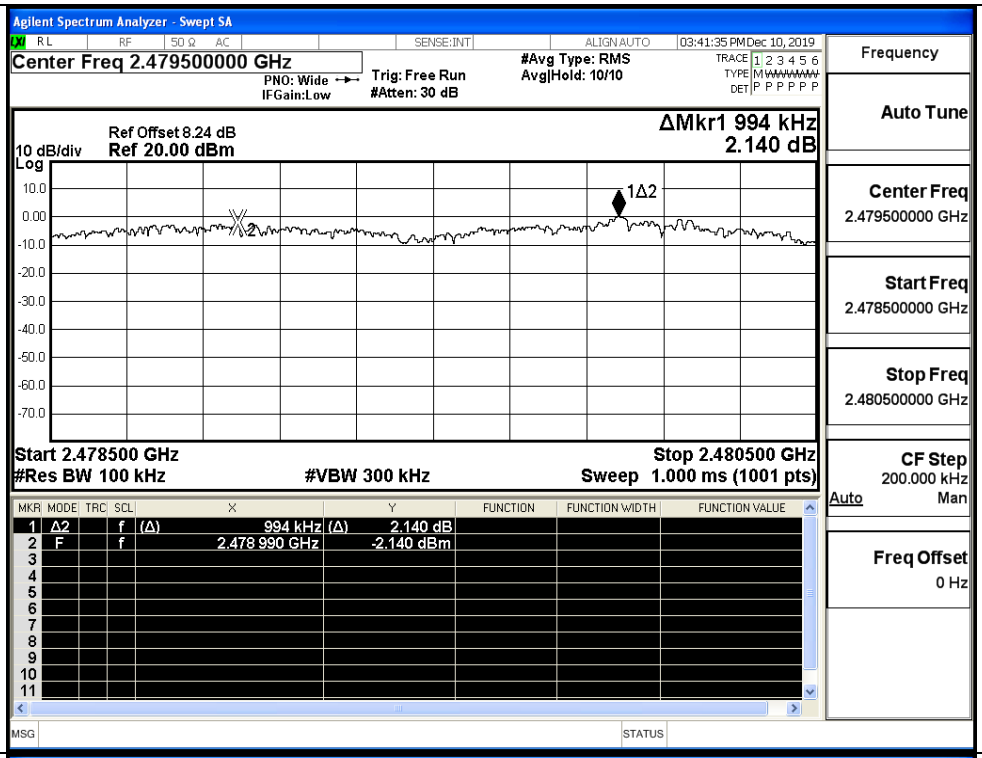
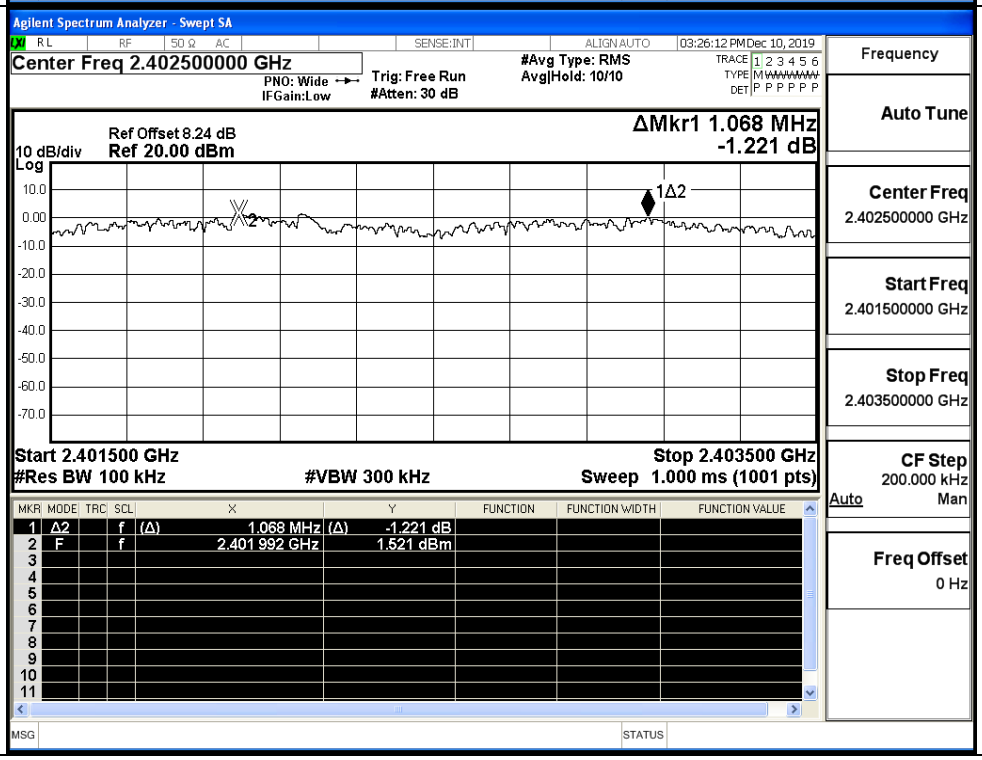
Right Ear

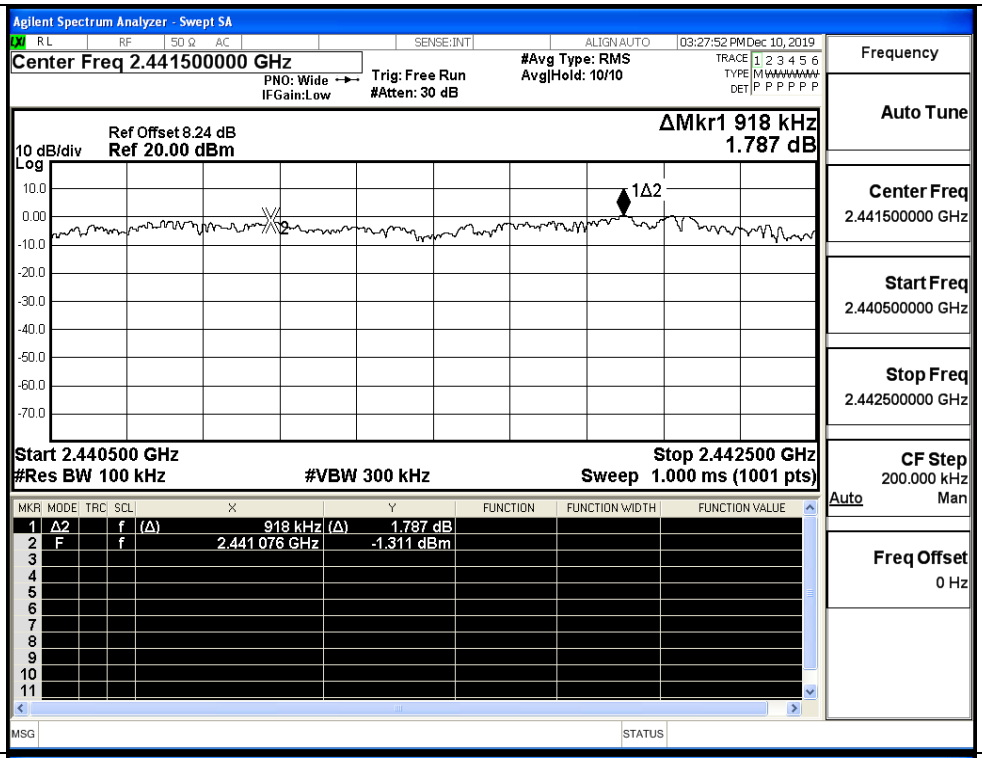
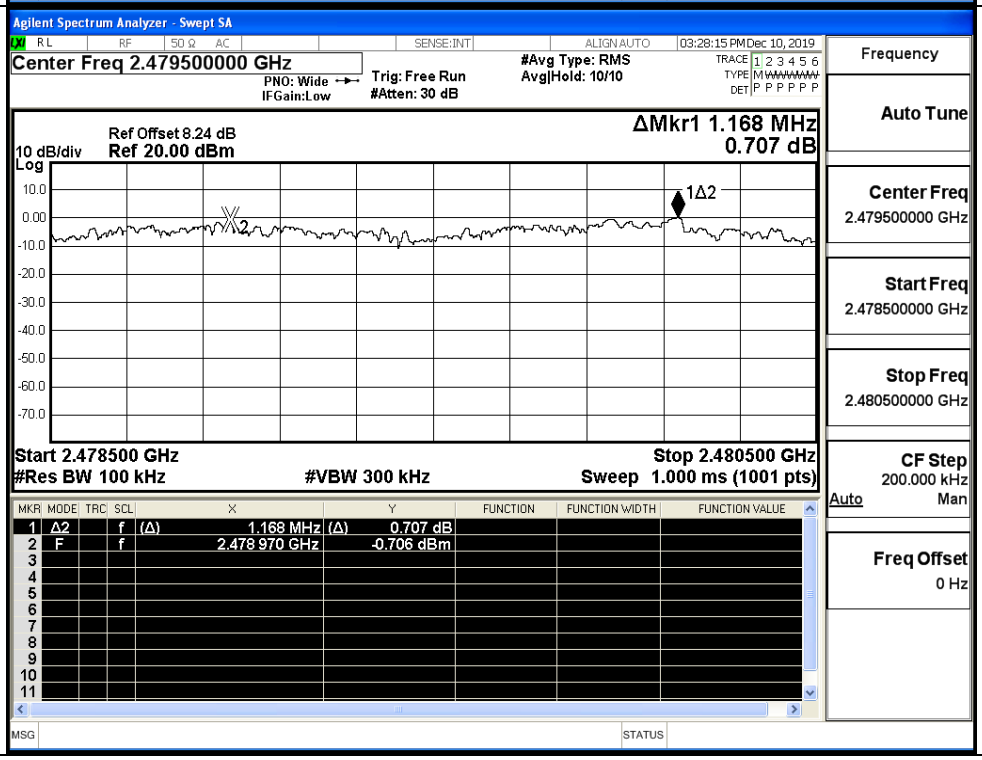
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.163	0.641	PASS
	MCH	1.128	0.641	PASS
	HCH	0.860	0.641	PASS
π/4DQPSK	LCH	0.974	0.901	PASS
	MCH	1.098	0.901	PASS
	HCH	0.994	0.901	PASS
8DPSK	LCH	1.068	0.877	PASS
	MCH	0.918	0.877	PASS
	HCH	1.168	0.877	PASS

Test Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

π/4DQPSK/LCH	
π/4DQPSK/MCH	

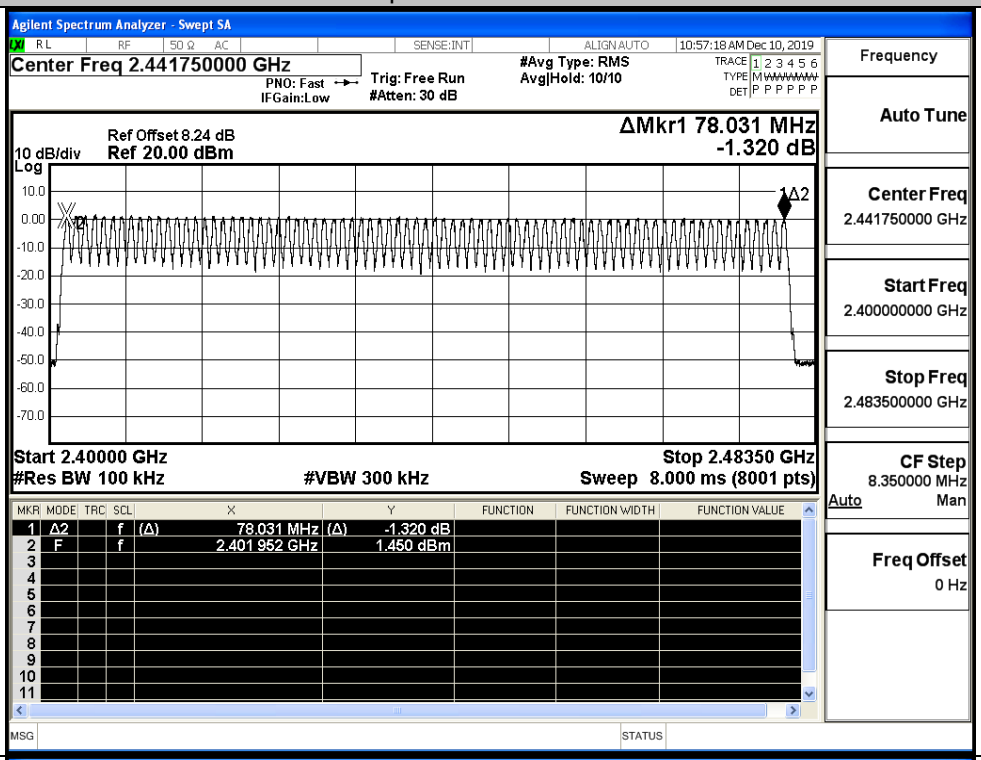
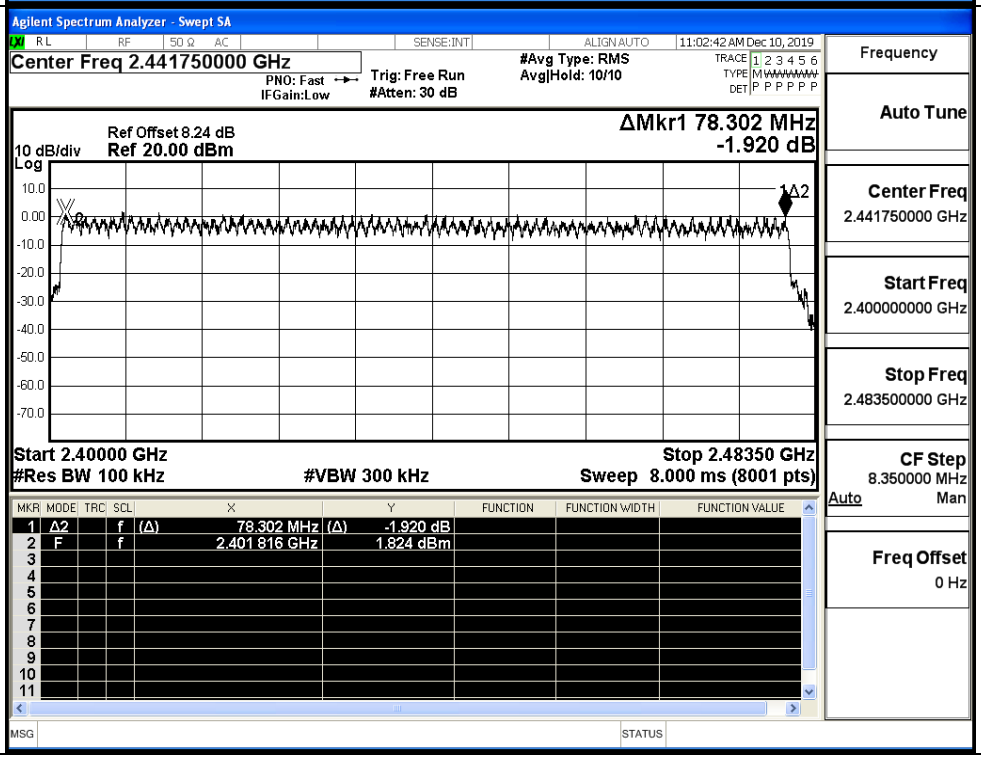
π/4DQPSK/HCH	
8DPSK/LCH	

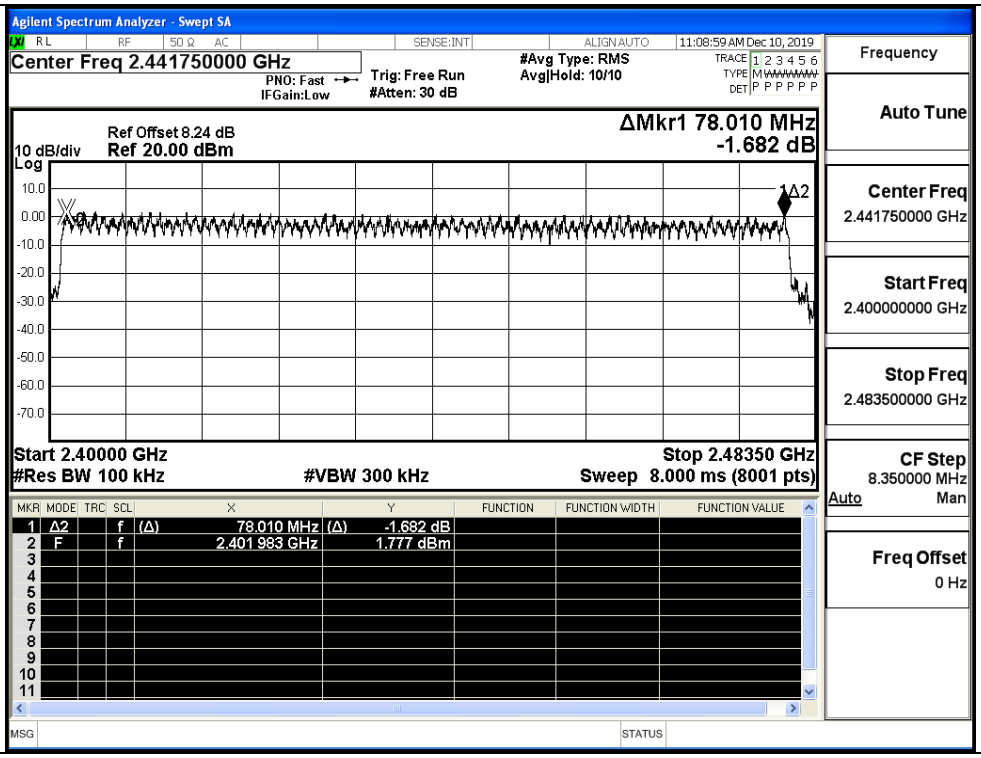
8DPSK/MCH	
8DPSK/HCH	

A.4 Hopping Channel Number

Left Ear

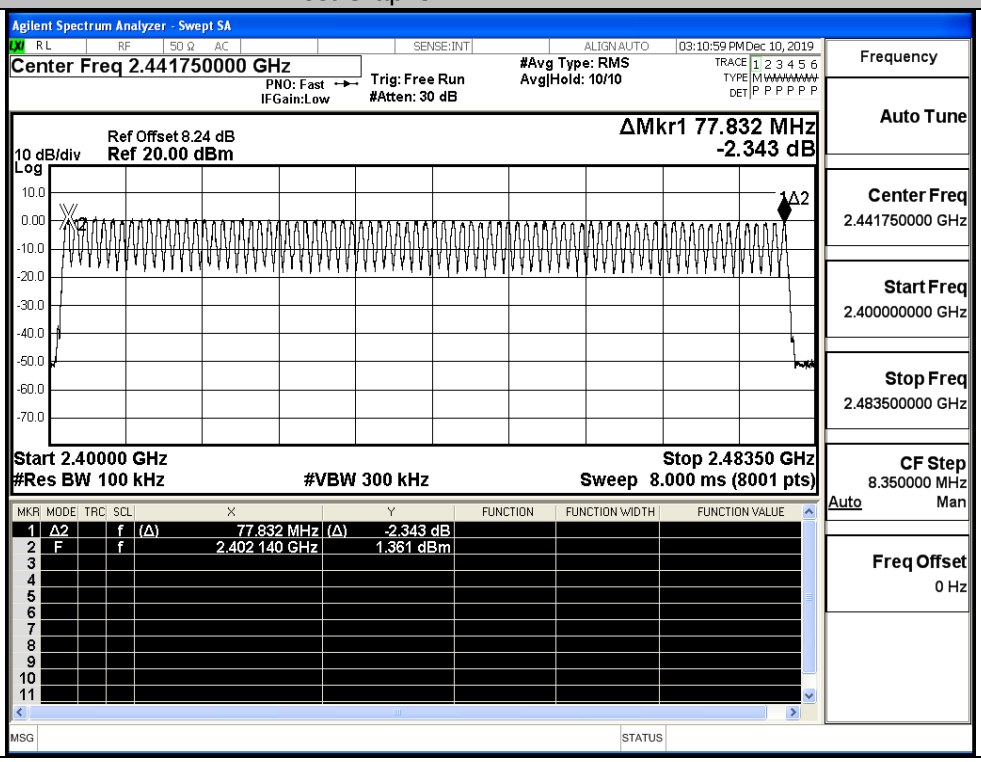
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
π/4DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

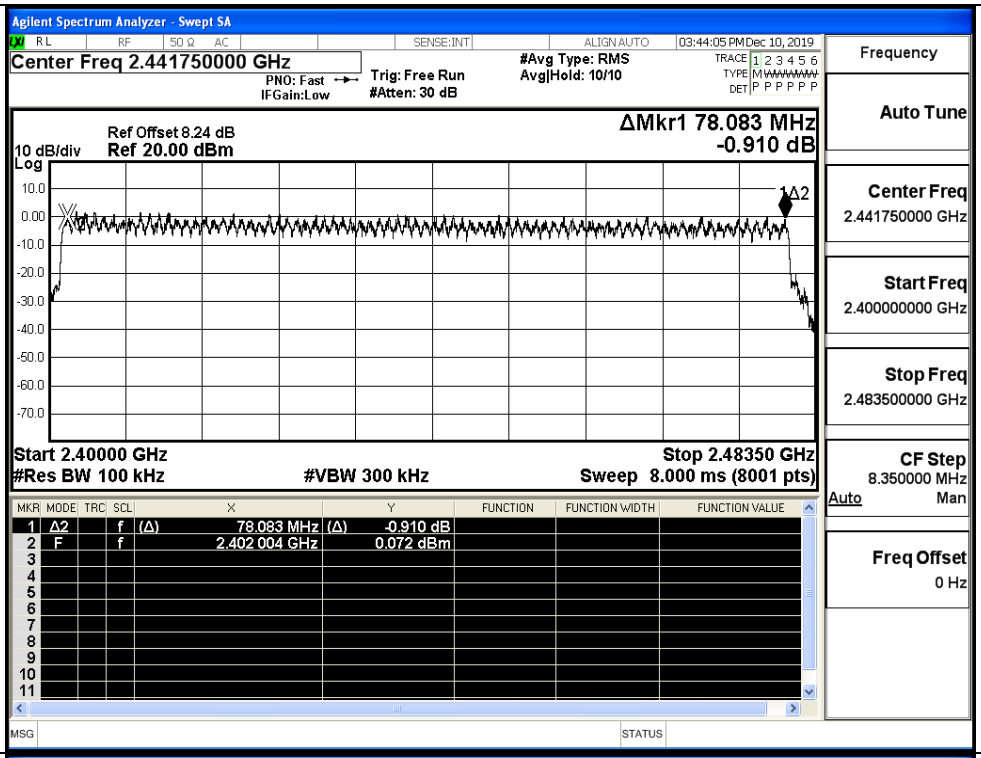
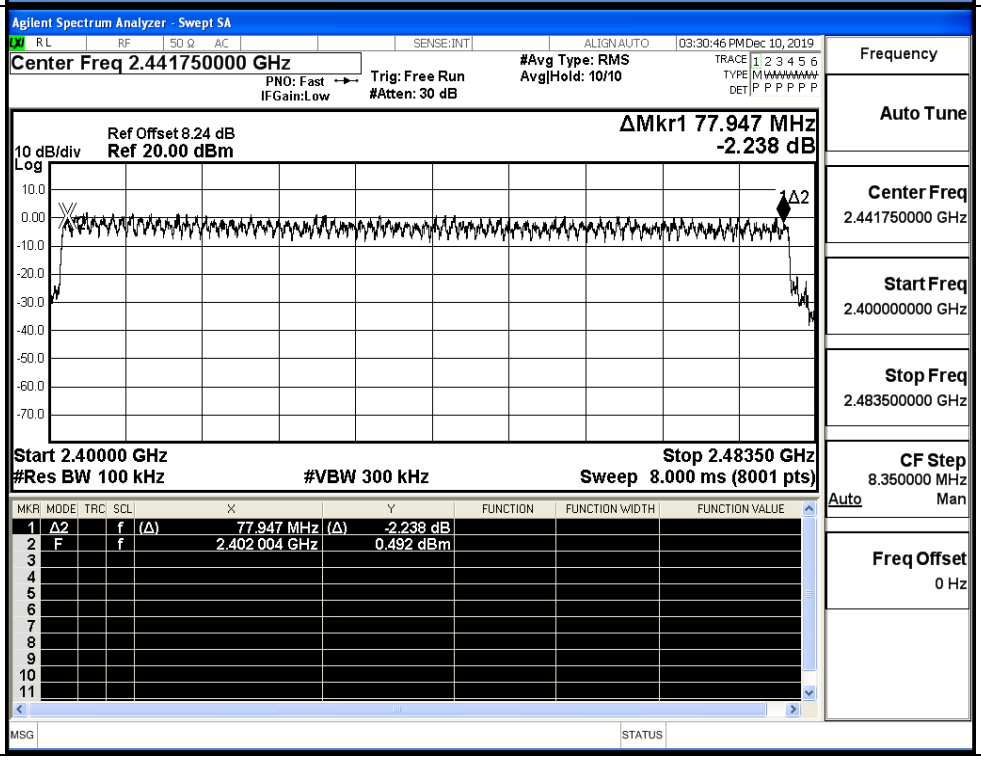
Test Graphs	
GFSK/Hop	
π/4DQPSK/Hop	

8DPSK/Hop	

Right Ear

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	

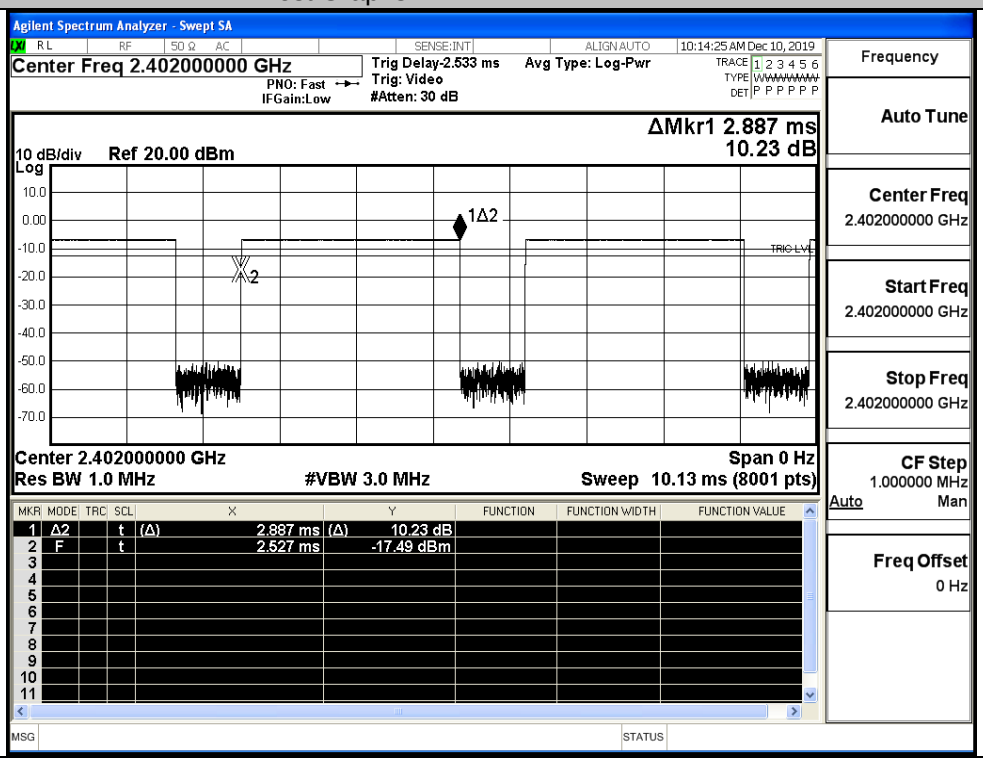
A.5 Dwell Time

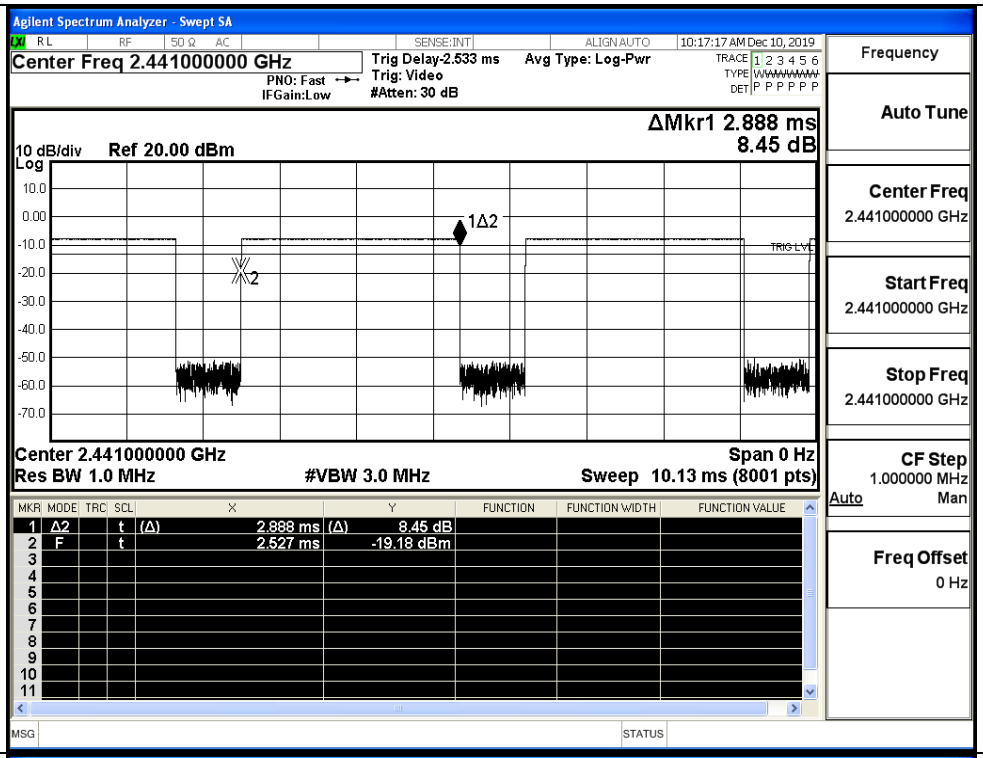
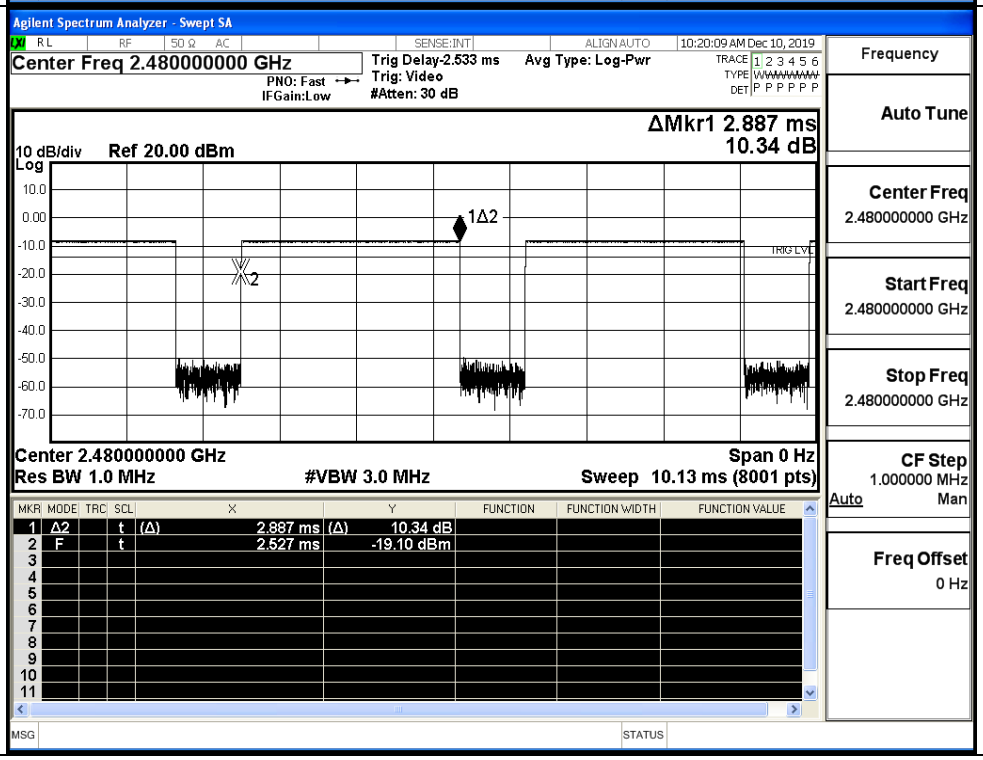
Left Ear

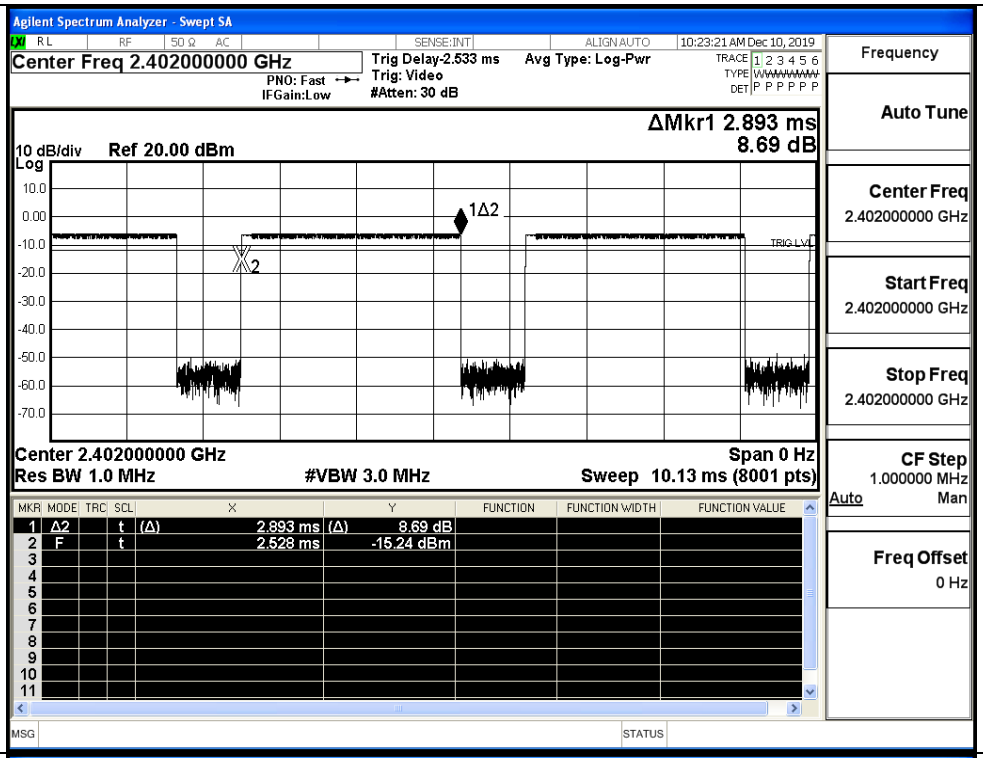
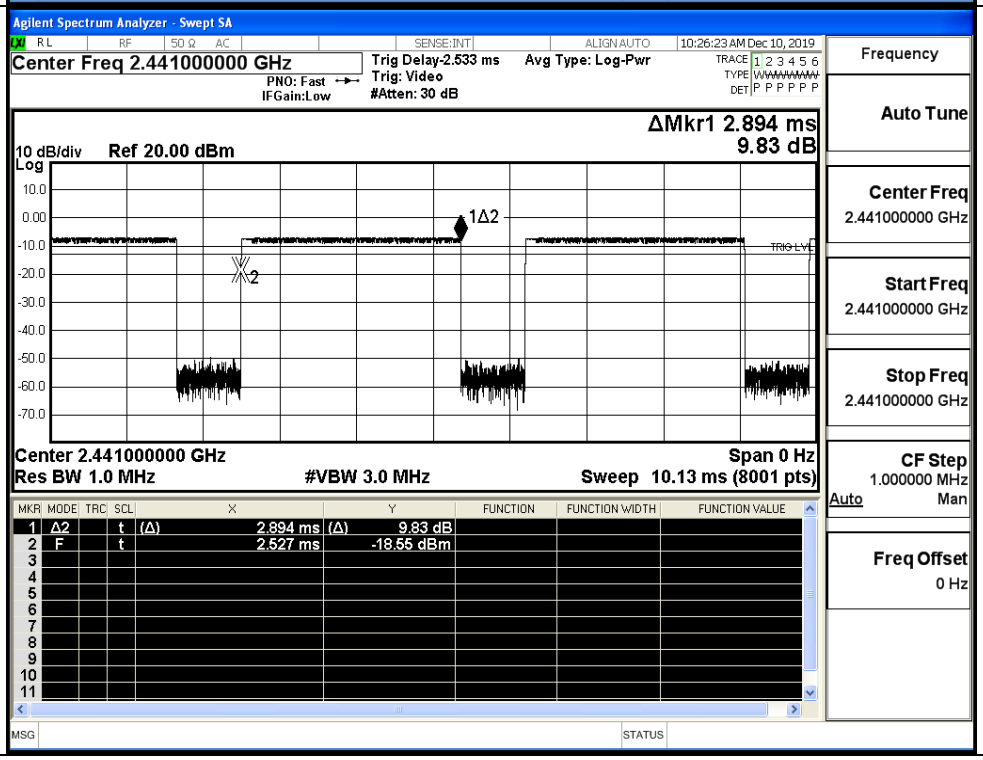
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.89	106.7	0.308	0.4	PASS
	DH5	MCH	2.89	106.7	0.308	0.4	PASS
	DH5	HCH	2.89	106.7	0.308	0.4	PASS
π/4DQPSK	2DH5	LCH	2.89	106.7	0.308	0.4	PASS
	2DH5	MCH	2.89	106.7	0.308	0.4	PASS
	2DH5	HCH	2.89	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.89	106.7	0.308	0.4	PASS
	3DH5	MCH	2.89	106.7	0.308	0.4	PASS
	3DH5	HCH	2.89	106.7	0.308	0.4	PASS

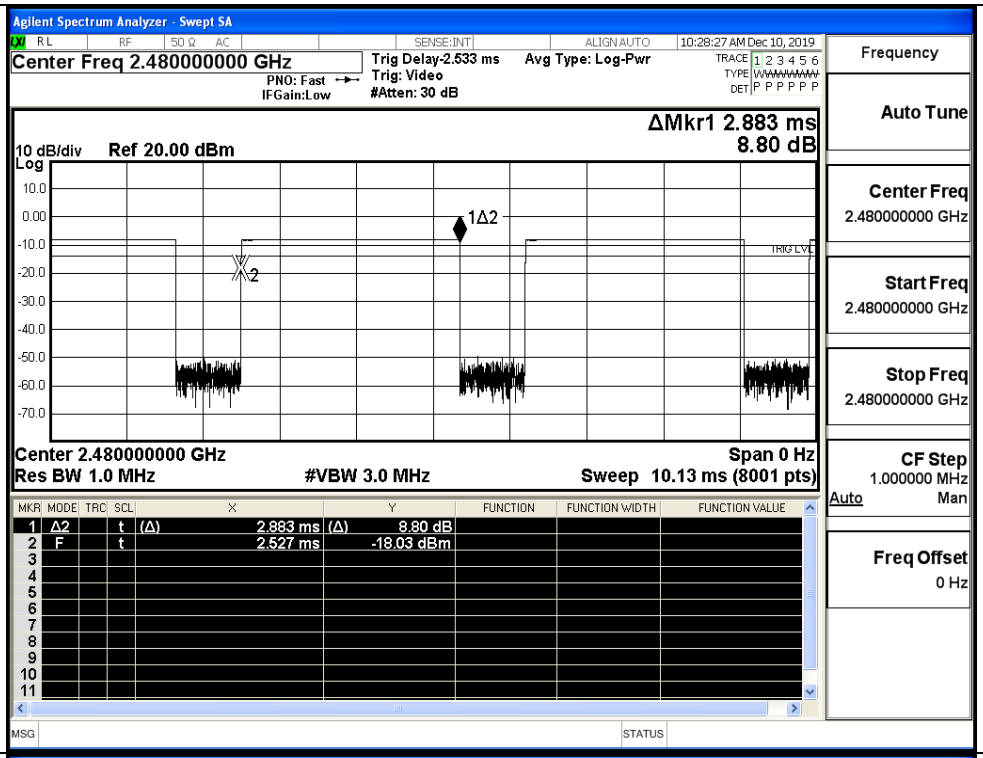
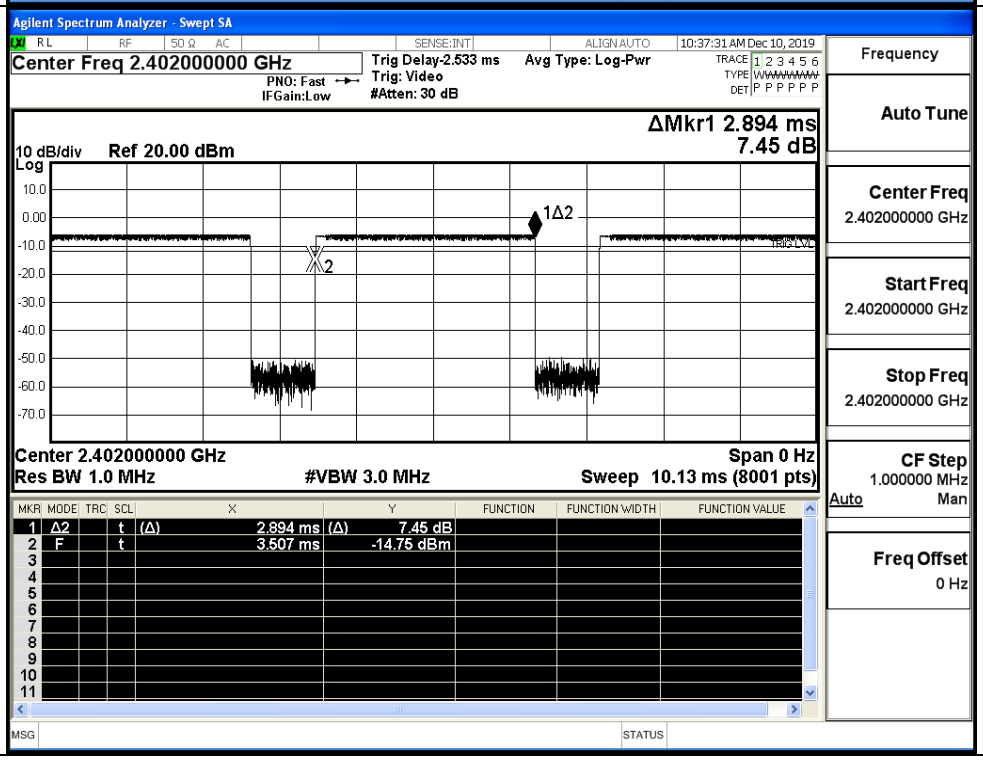
Test Graphs

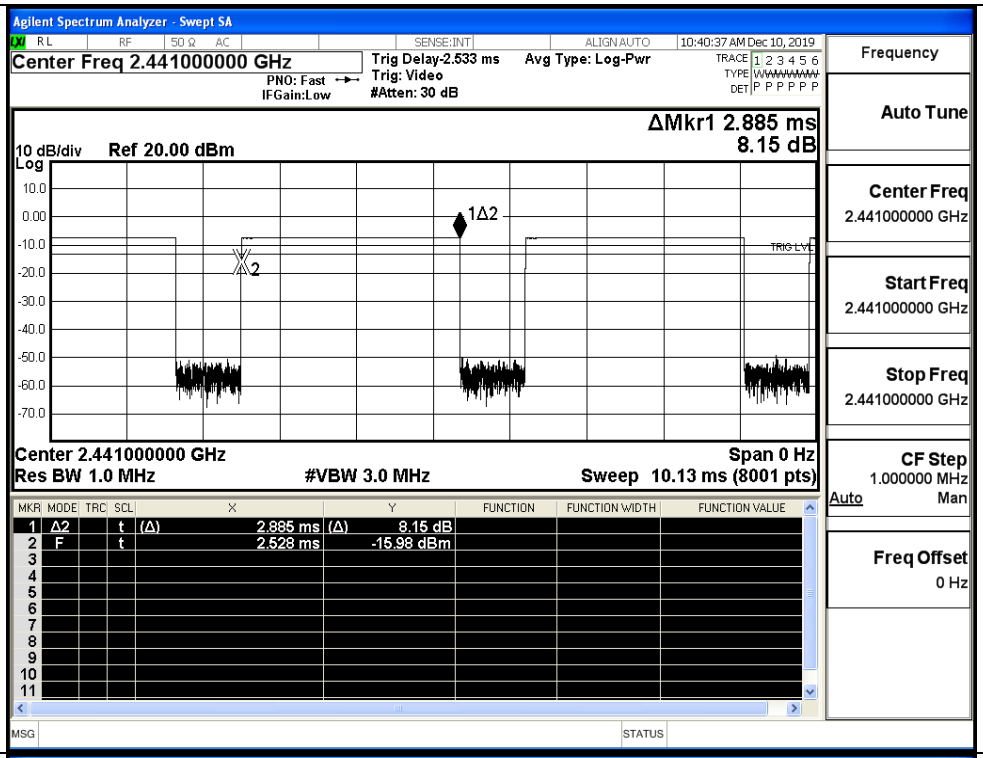
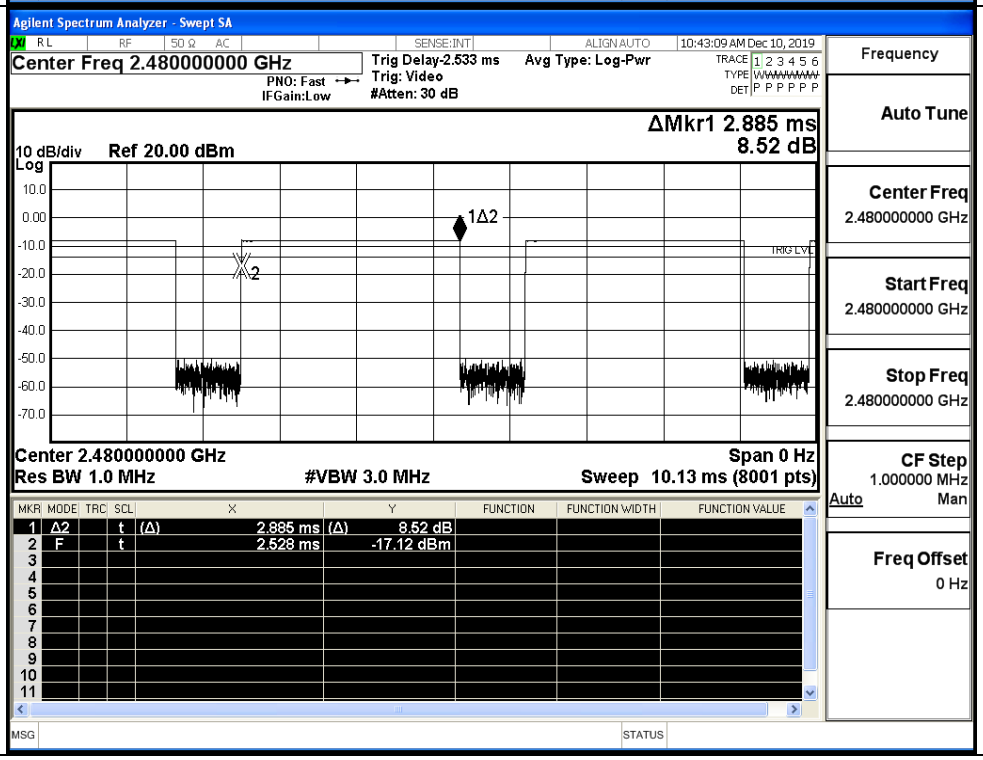
GFSK_DH5/LCH



GFSK_DH5/MCH	
GFSK_DH5/HCH	

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

π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

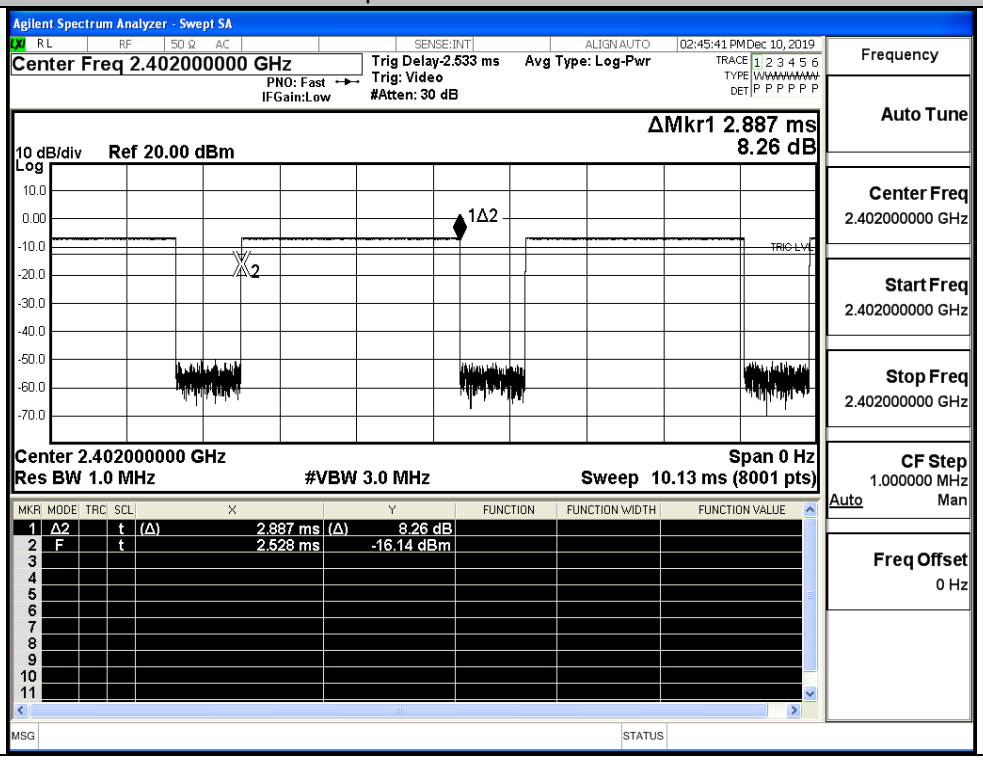
8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

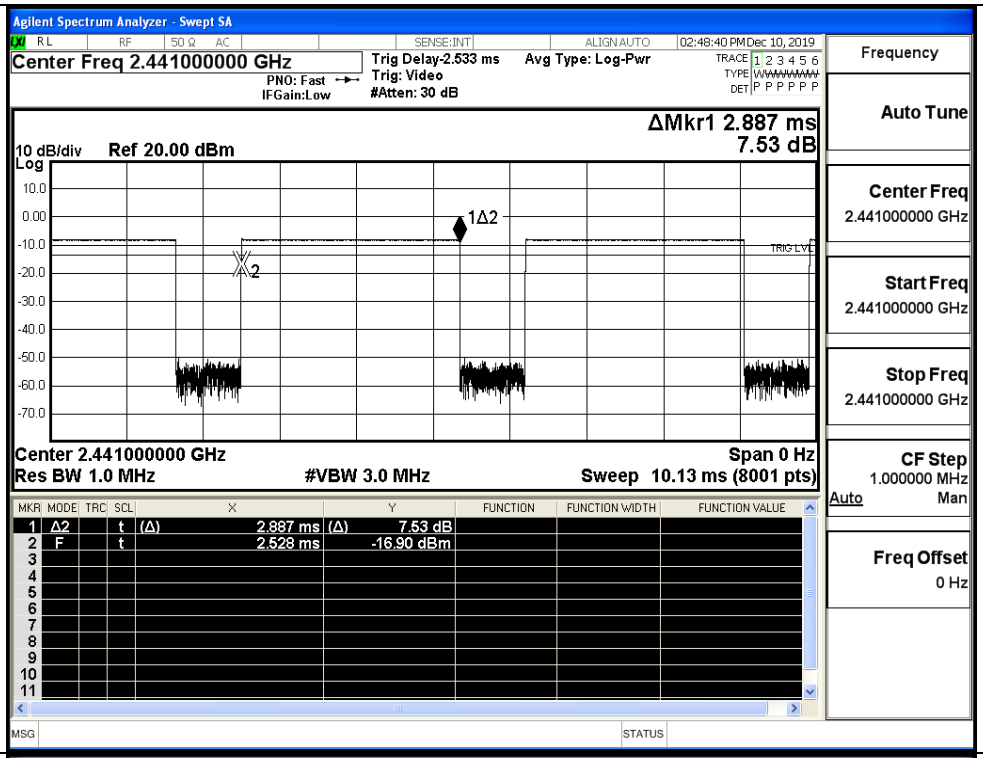
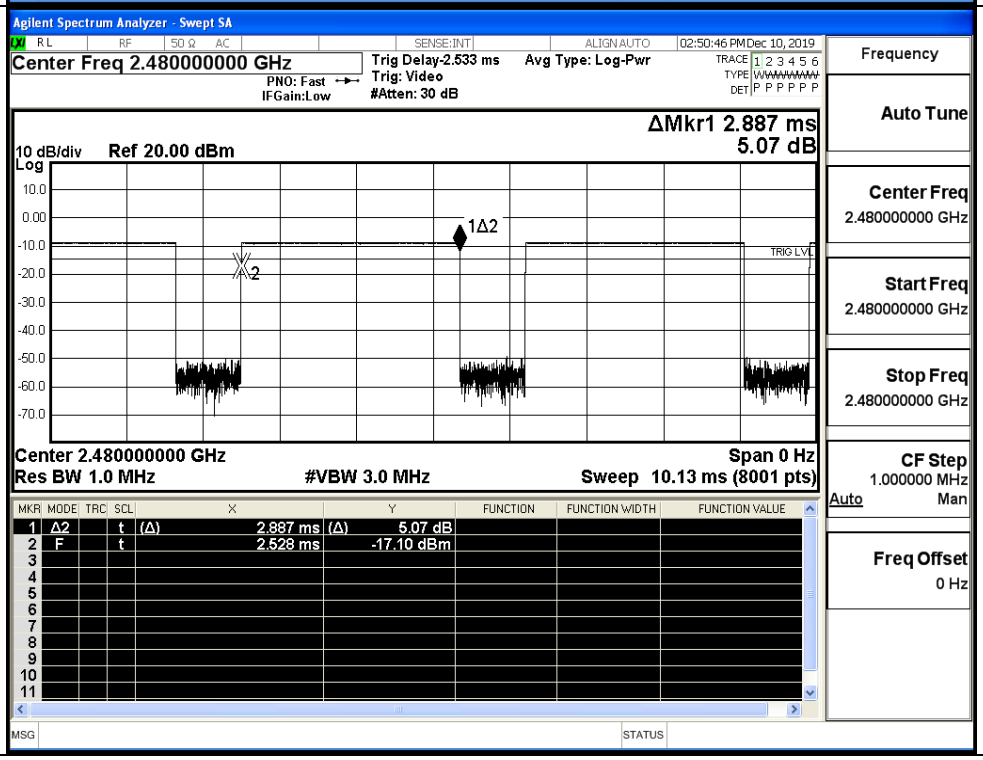
Right Ear

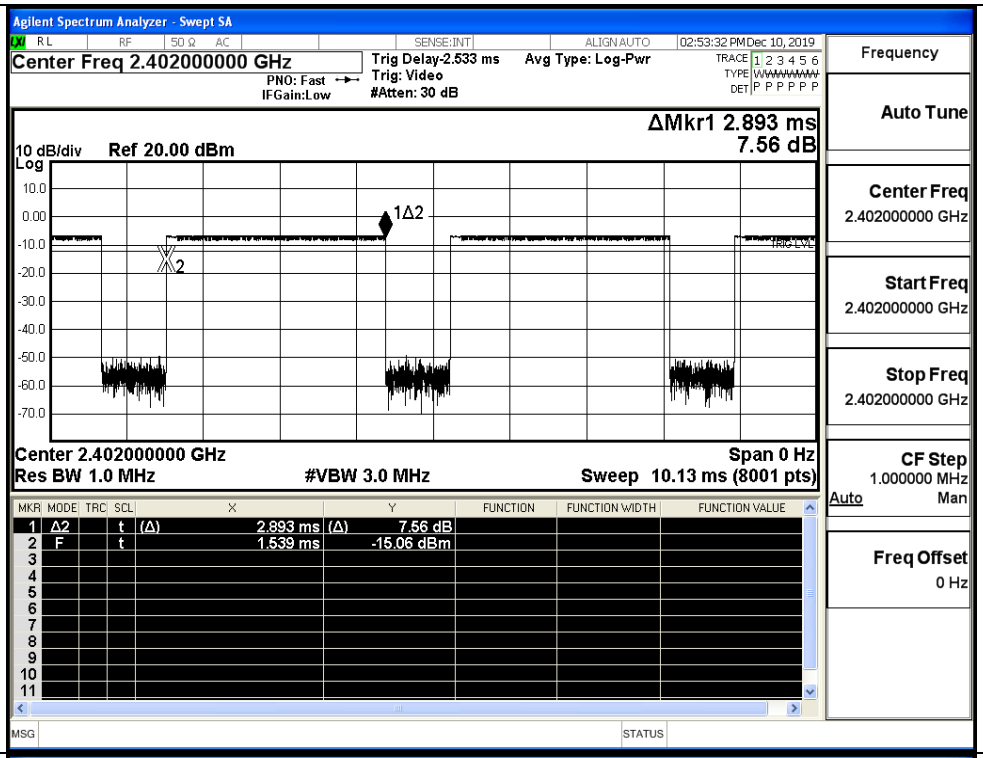
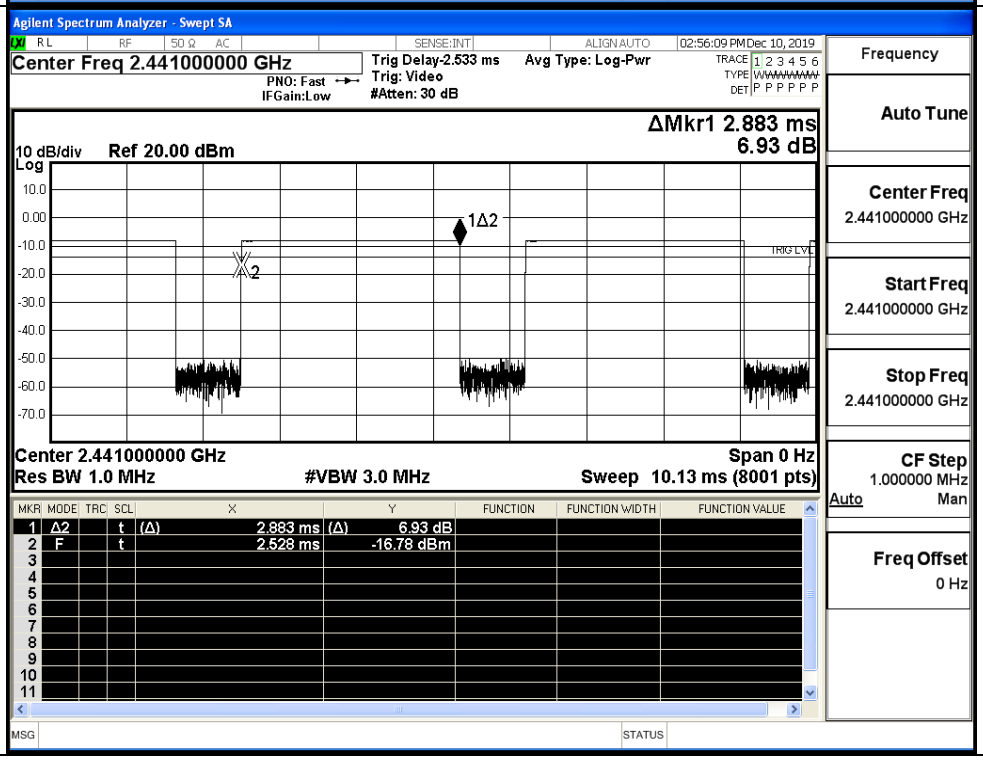
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.89	106.7	0.308	0.4	PASS
	DH5	MCH	2.89	106.7	0.308	0.4	PASS
	DH5	HCH	2.89	106.7	0.308	0.4	PASS
π/4DQPSK	2DH5	LCH	2.89	106.7	0.308	0.4	PASS
	2DH5	MCH	2.89	106.7	0.307	0.4	PASS
	2DH5	HCH	2.89	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.89	106.7	0.308	0.4	PASS
	3DH5	MCH	2.89	106.7	0.308	0.4	PASS
	3DH5	HCH	2.89	106.7	0.308	0.4	PASS

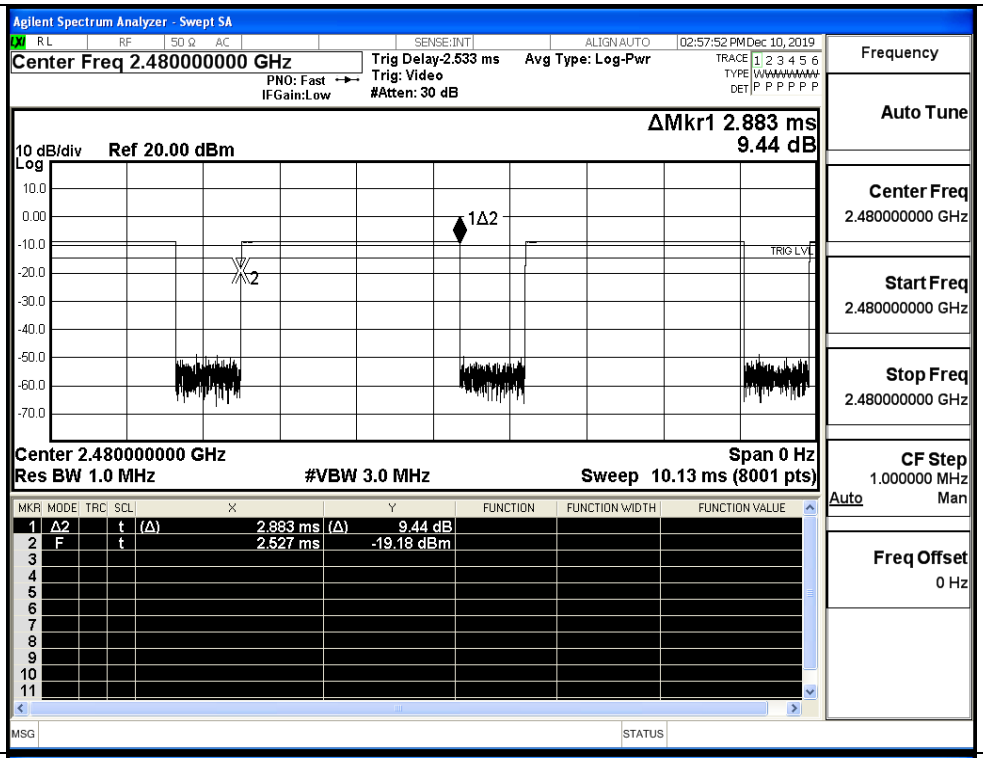
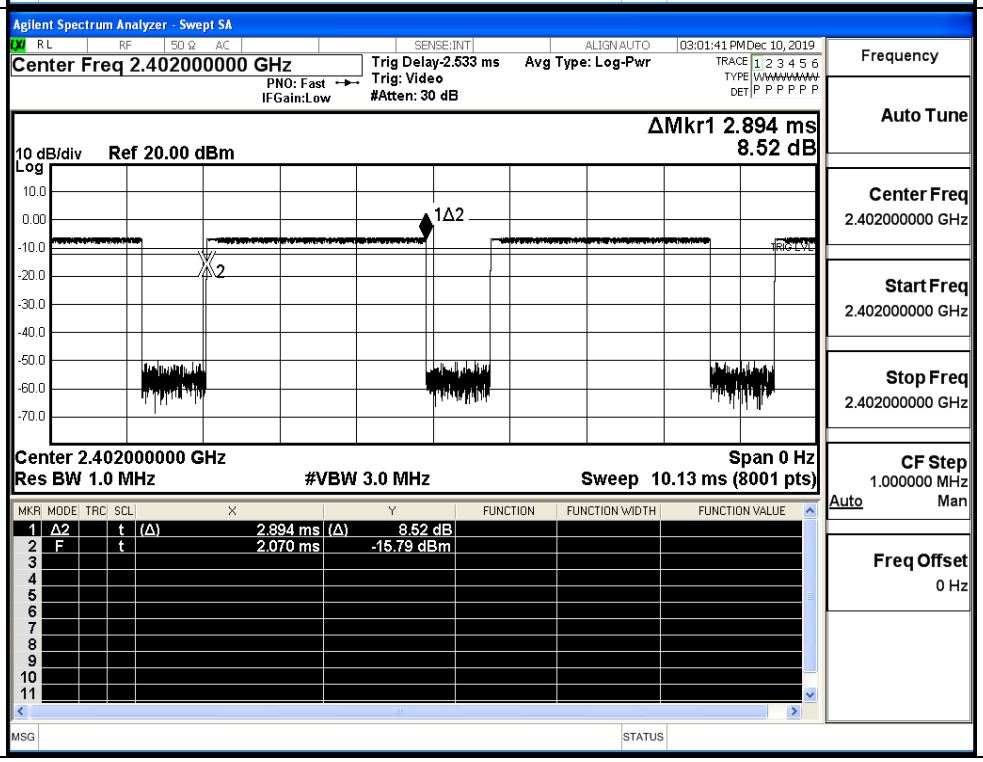
Test Graphs

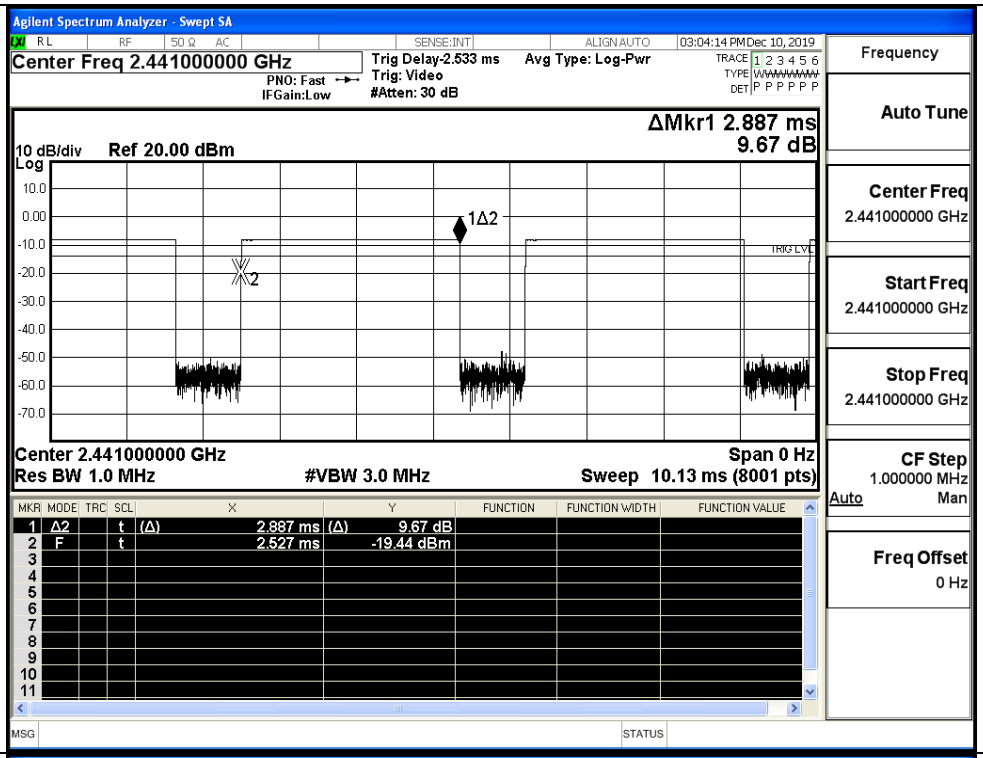
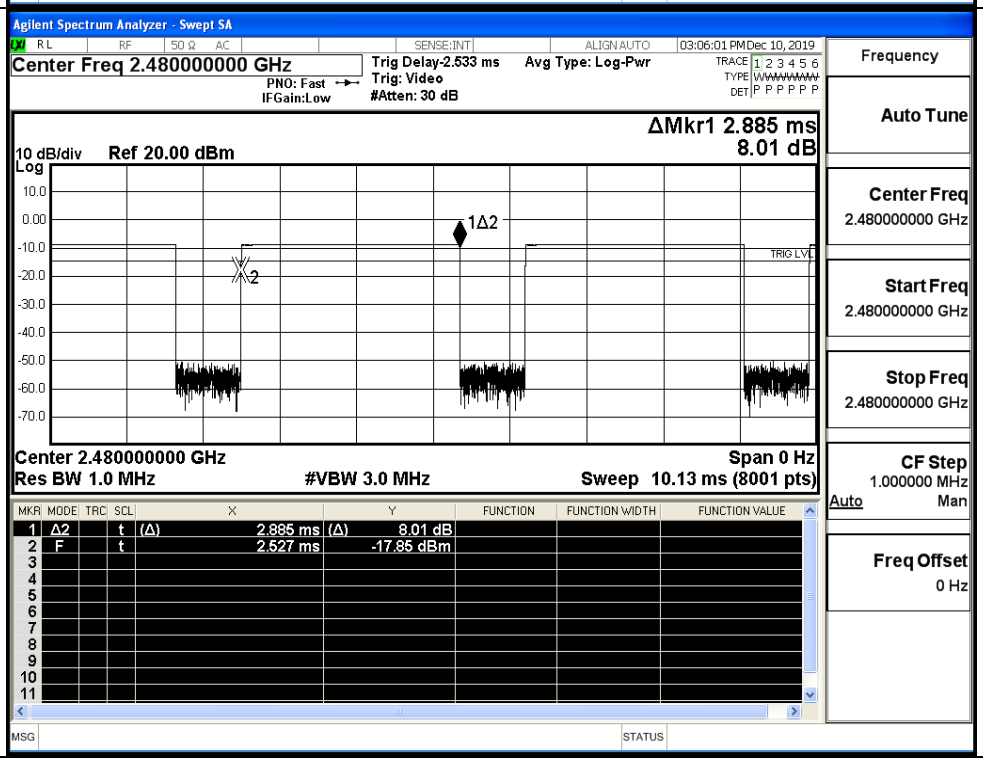
GFSK_DH5/LCH



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	

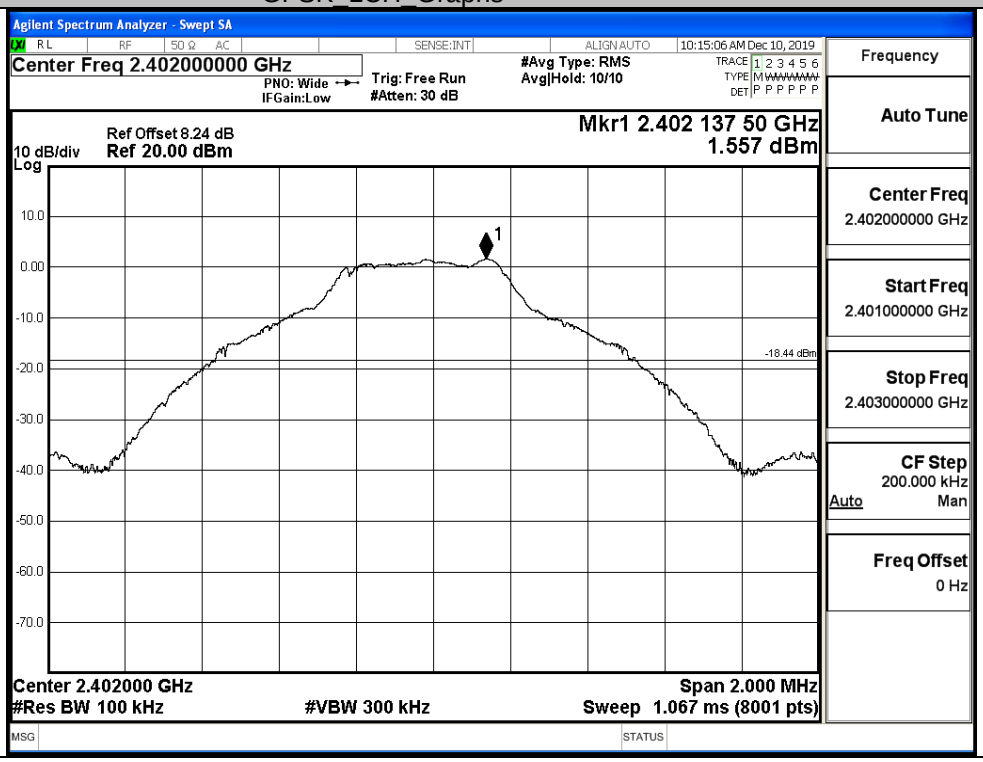
A.6 RF Conducted Spurious Emissions

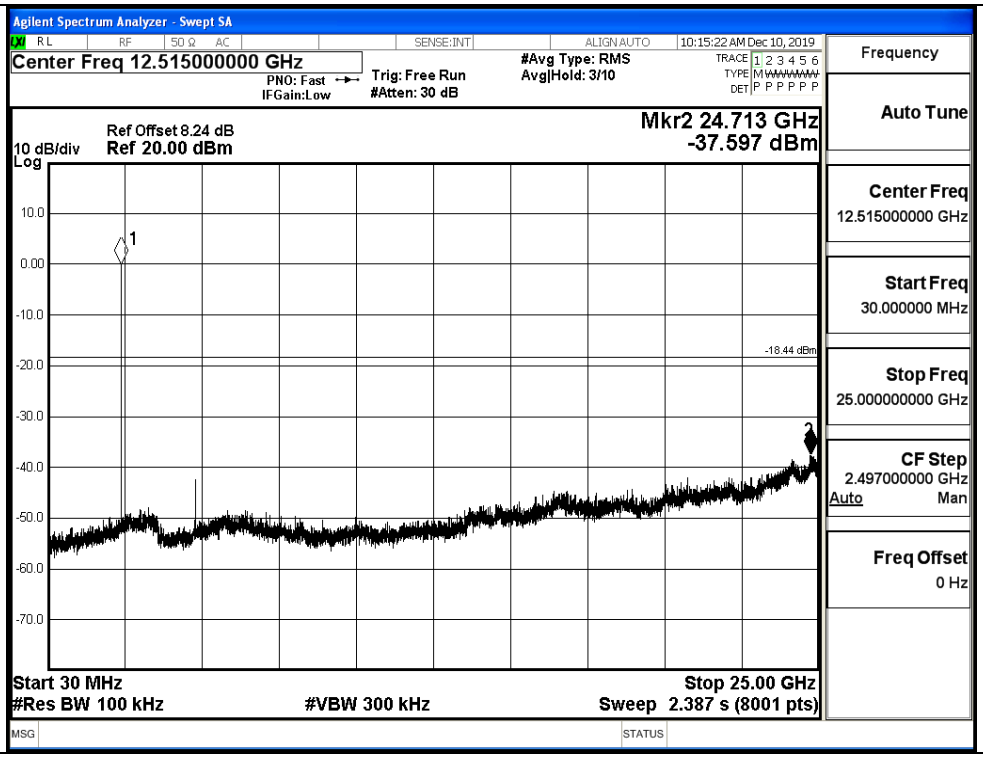
Left Ear

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.557	-37.597	-18.443	PASS
	MCH	0.432	-37.802	-19.568	PASS
	HCH	0.072	-36.246	-19.928	PASS
π/4DQPSK	LCH	1.844	-37.522	-18.156	PASS
	MCH	0.673	-36.719	-19.327	PASS
	HCH	0.182	-38.027	-19.818	PASS
8DPSK	LCH	1.955	-37.085	-18.045	PASS
	MCH	0.903	-37.648	-19.097	PASS
	HCH	0.292	-36.909	-19.708	PASS

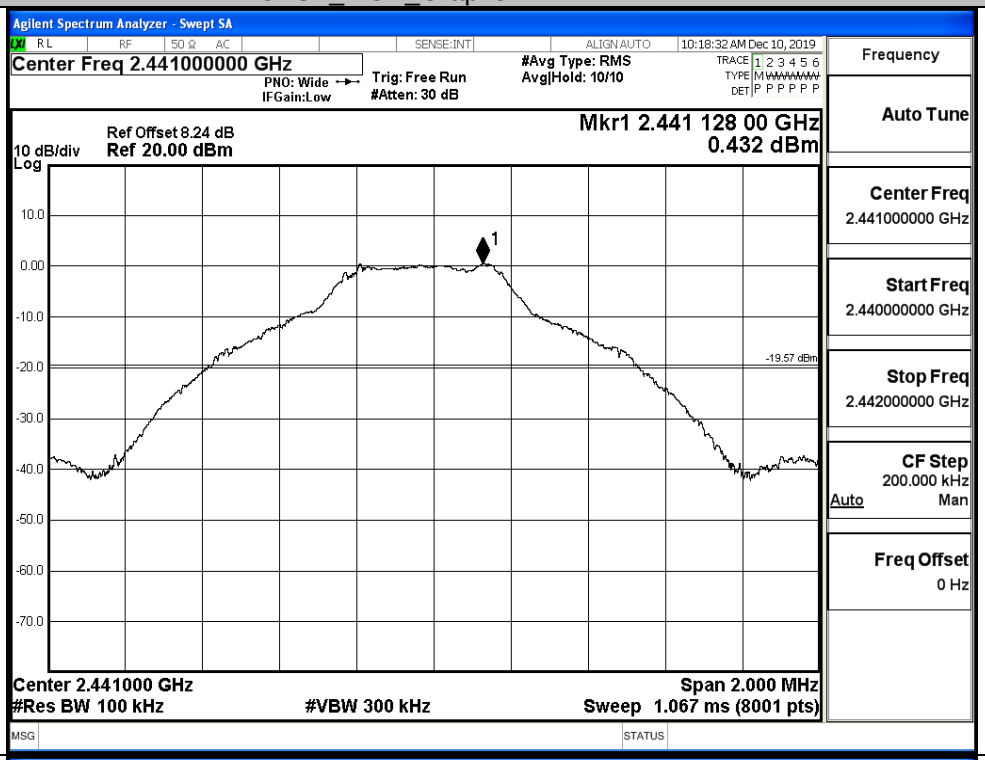
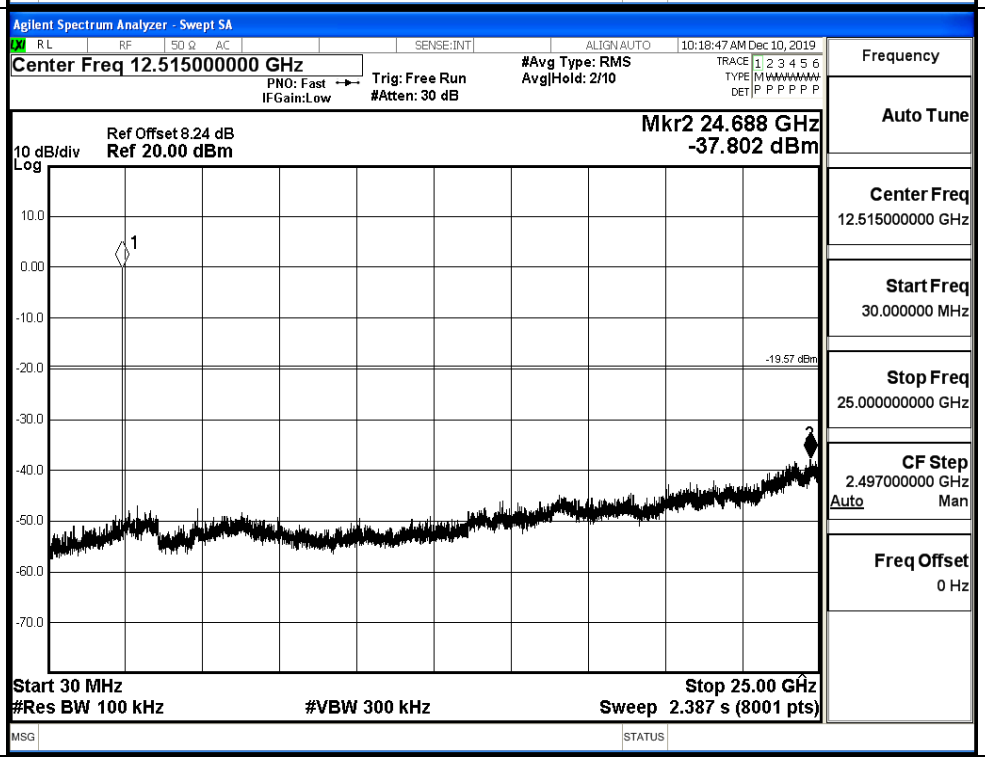
GFSK_LCH_Graphs

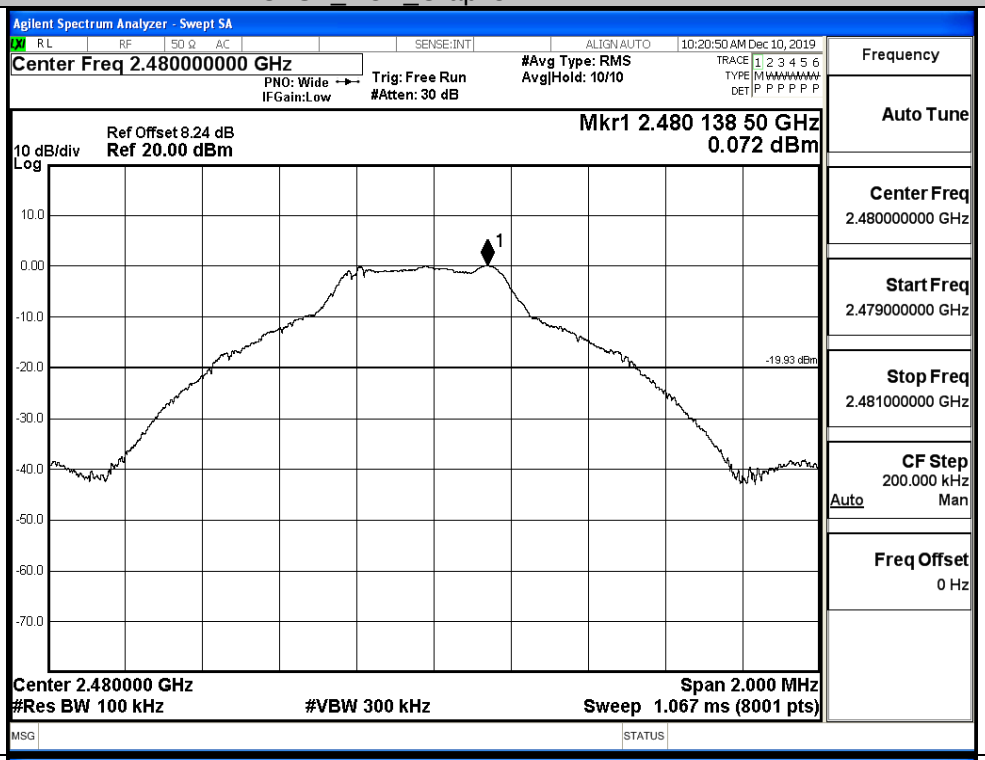
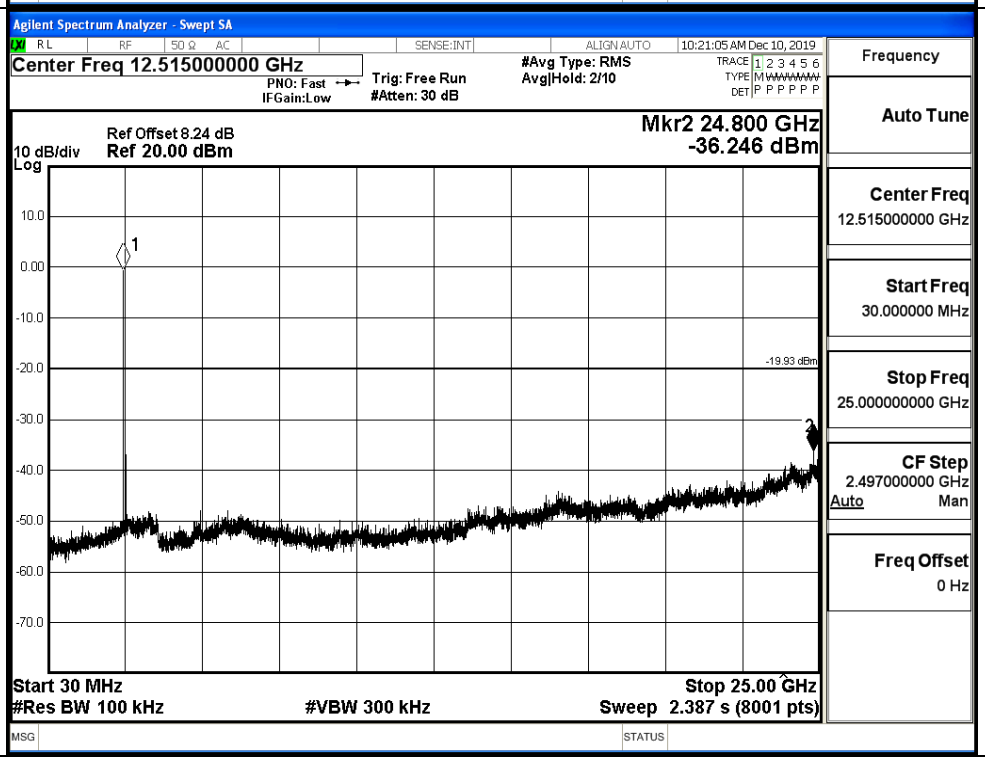
Pref

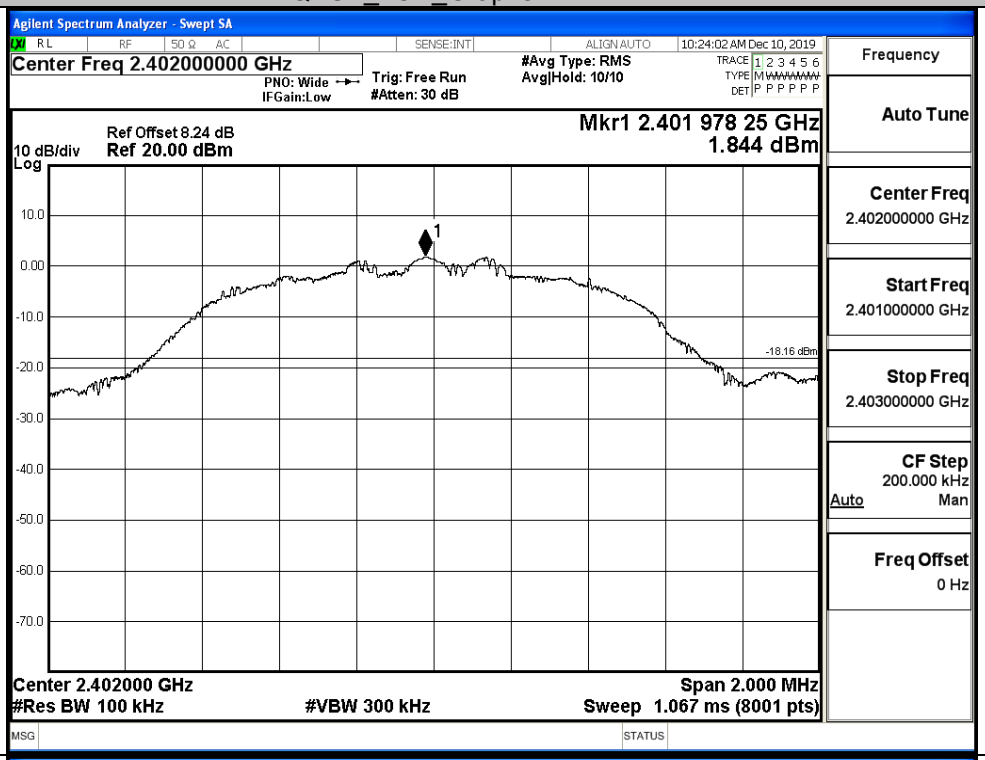
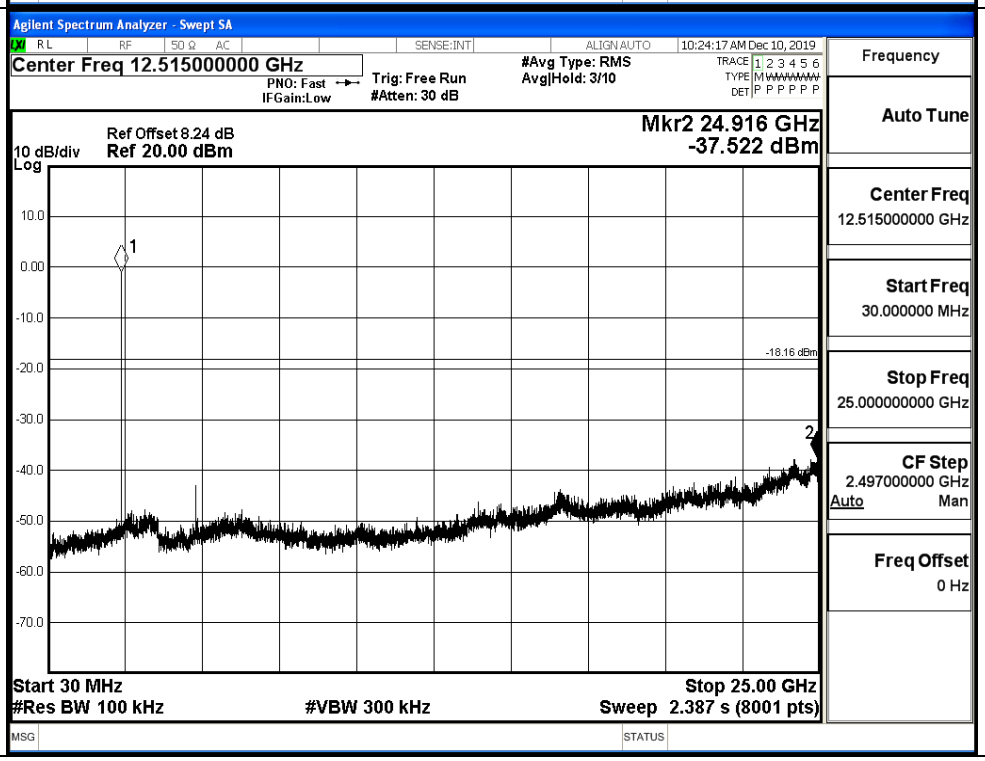


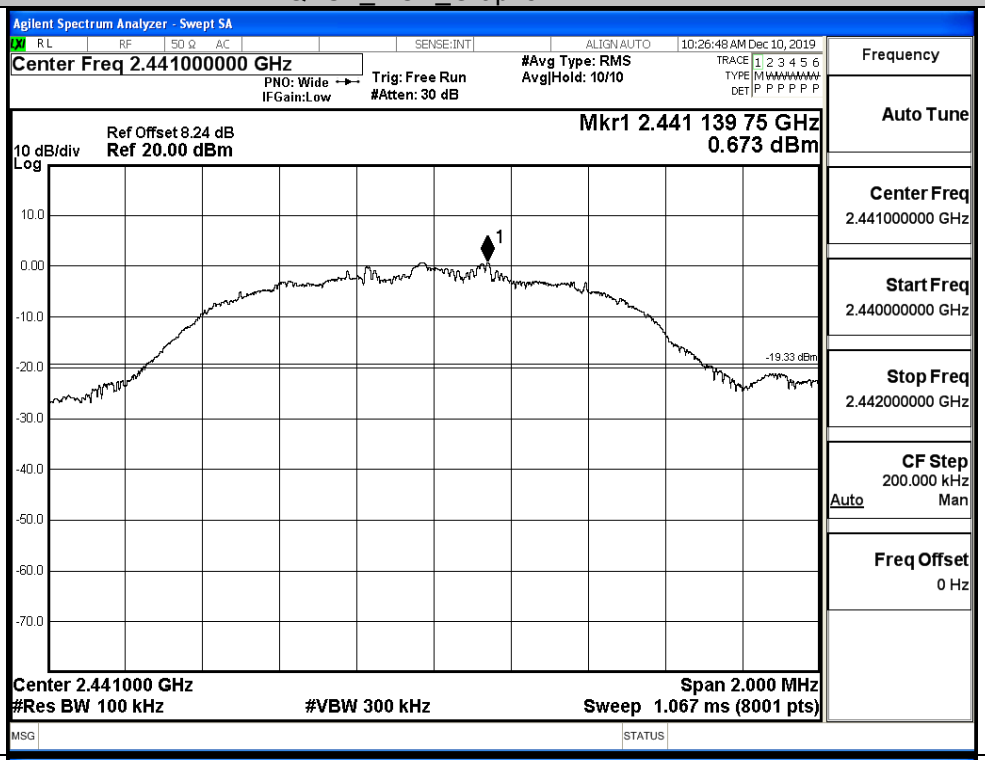
Puw		

Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
10:15:22 AM Dec 10, 2019
Center Freq 12.515000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 3/10
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P
Ref Offset 8.24 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr2 24.713 GHz
-37.597 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-18.44 dBm
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.00 GHz
Sweep 2.387 s (8001 pts)
MSG
STATUS
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			

GFSK_HCH_Graphs			
Pref			
Puw			

π/4DQPSK_LCH_Graphs			
Pref			
Puw			

π/4DQPSK_MCH_Graphs			
Pref			
Puw