Appendix A

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

Product Name: Sync Pro
Trade Mark: SOUL
Test Model: SS55

Environmental Conditions

Temperature:	23.2 ° C
Relative Humidity:	53.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Alisa Huang
Supervised by:	Wang Chuang

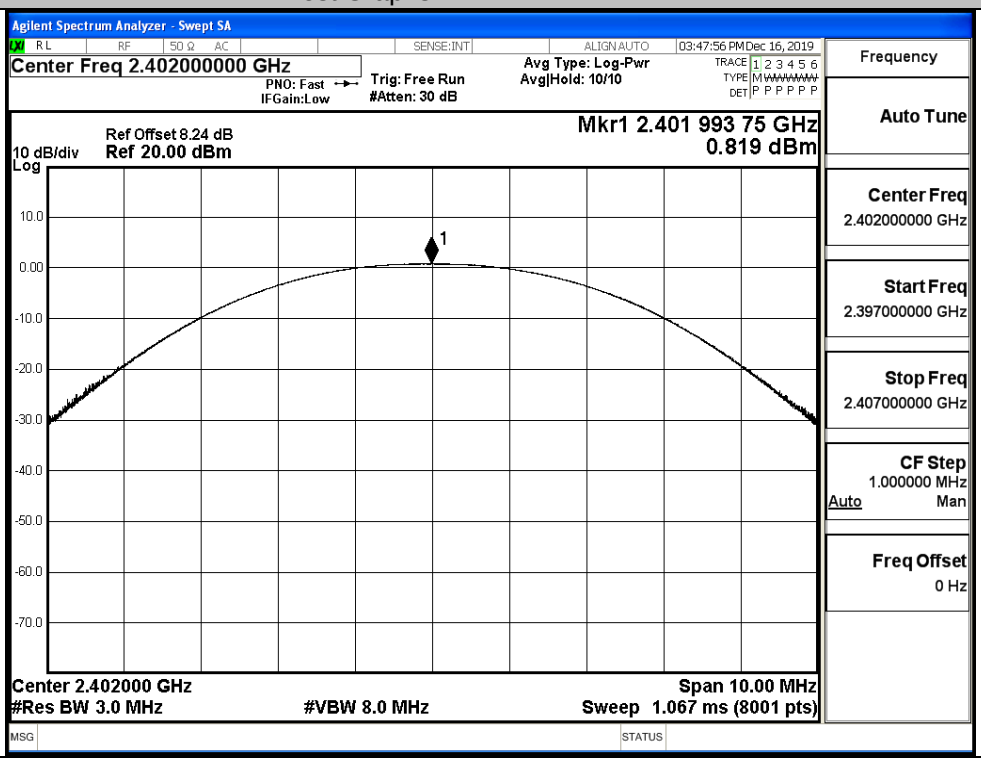
A.1 Maxmum Conducted Peak Output Power

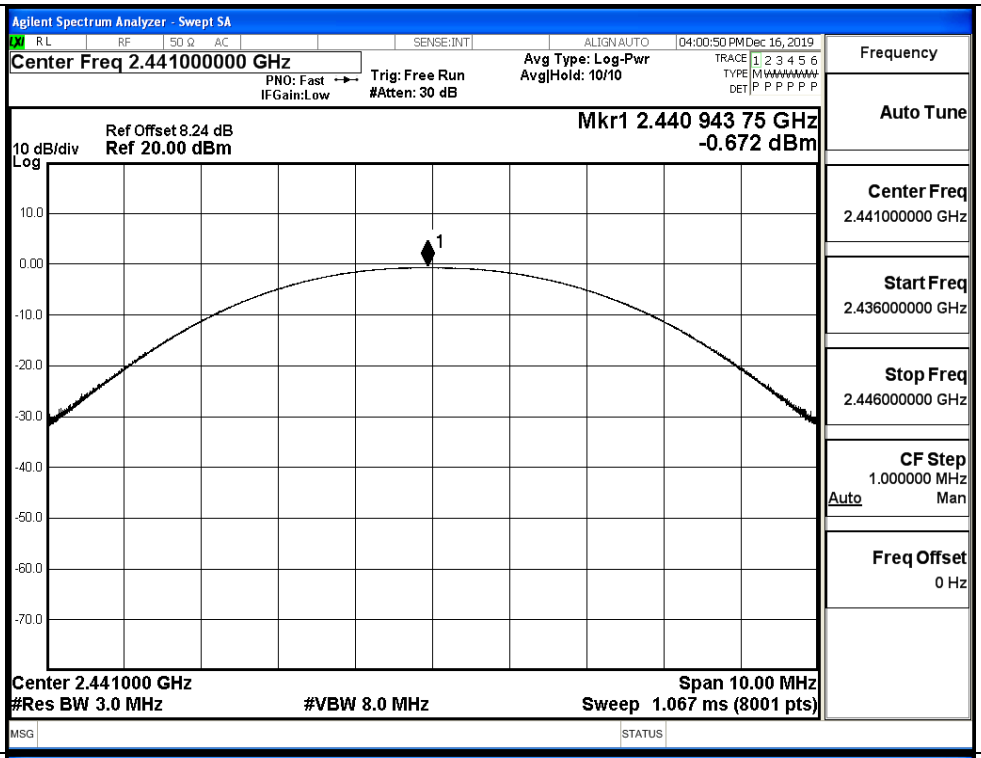
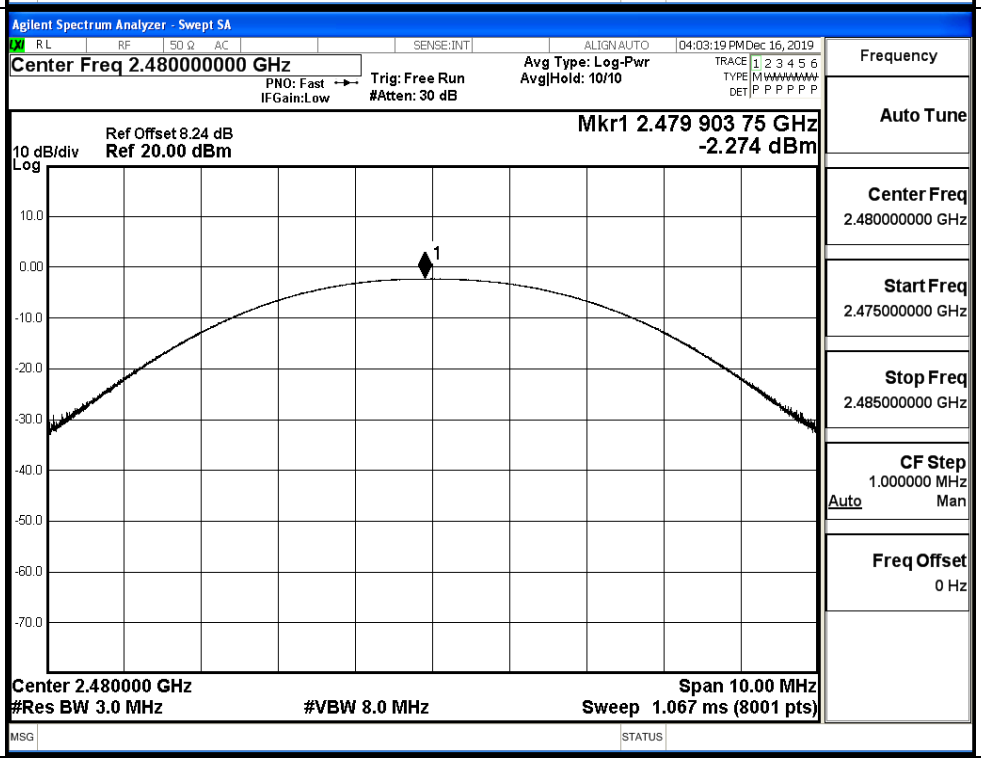
Left Ear

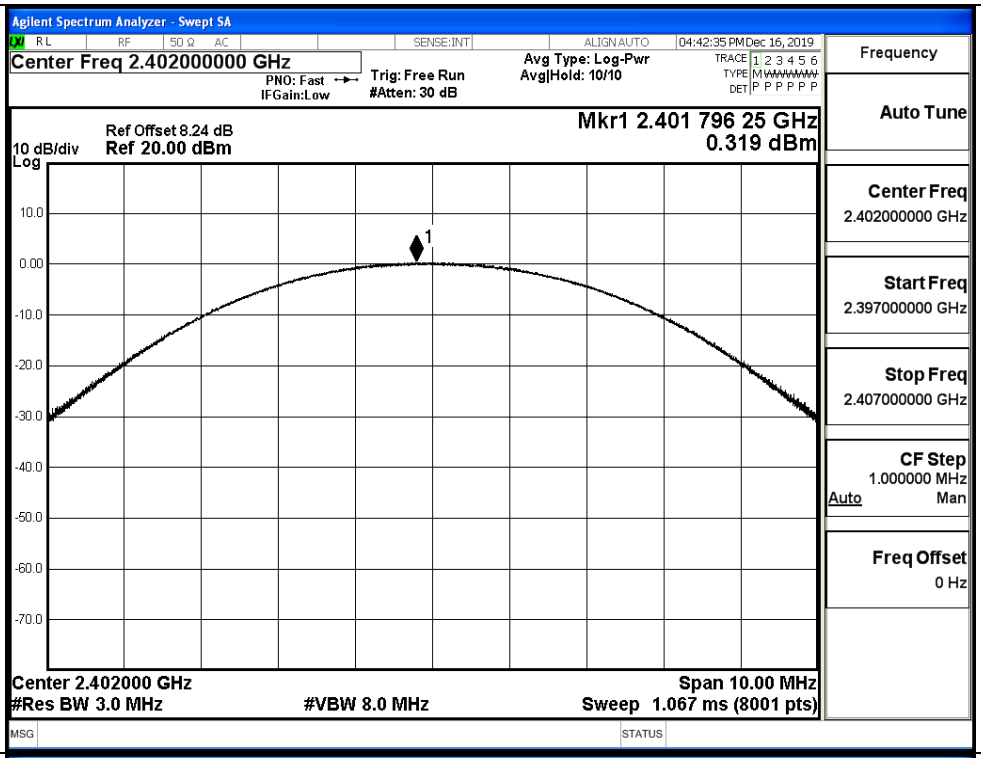
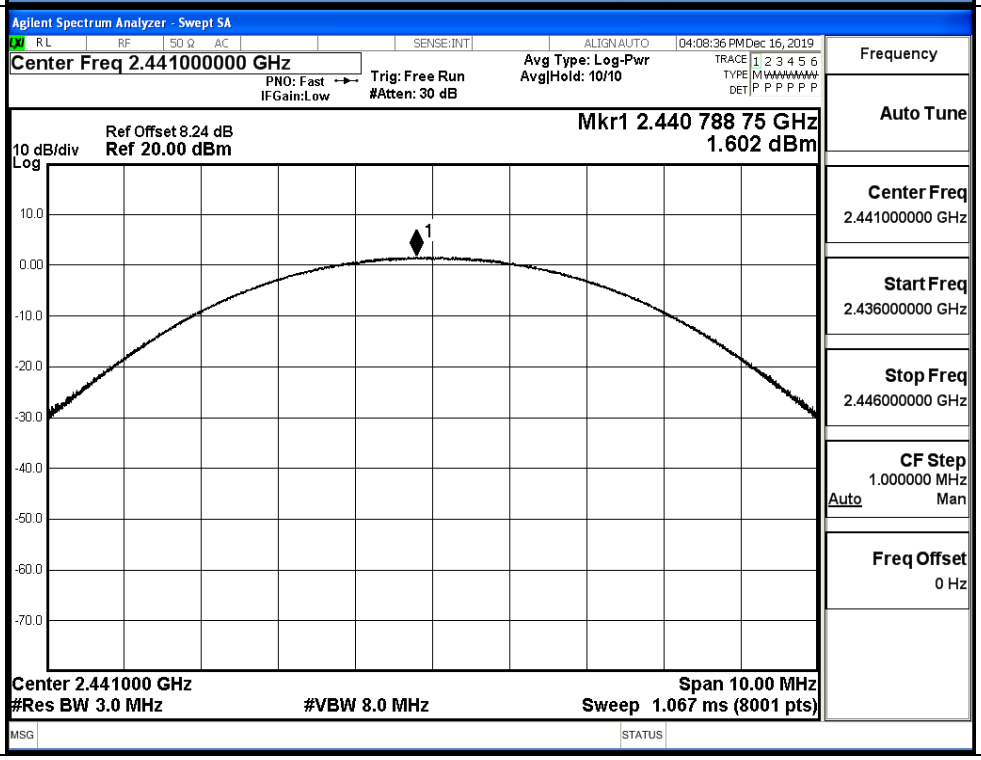
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.819	21	PASS
	MCH	-0.672	21	PASS
	HCH	-2.274	21	PASS
π/4DQPSK	LCH	0.319	21	PASS
	MCH	1.602	21	PASS
	HCH	-0.124	21	PASS
8DPSK	LCH	0.764	21	PASS
	MCH	2.102	21	PASS
	HCH	0.401	21	PASS

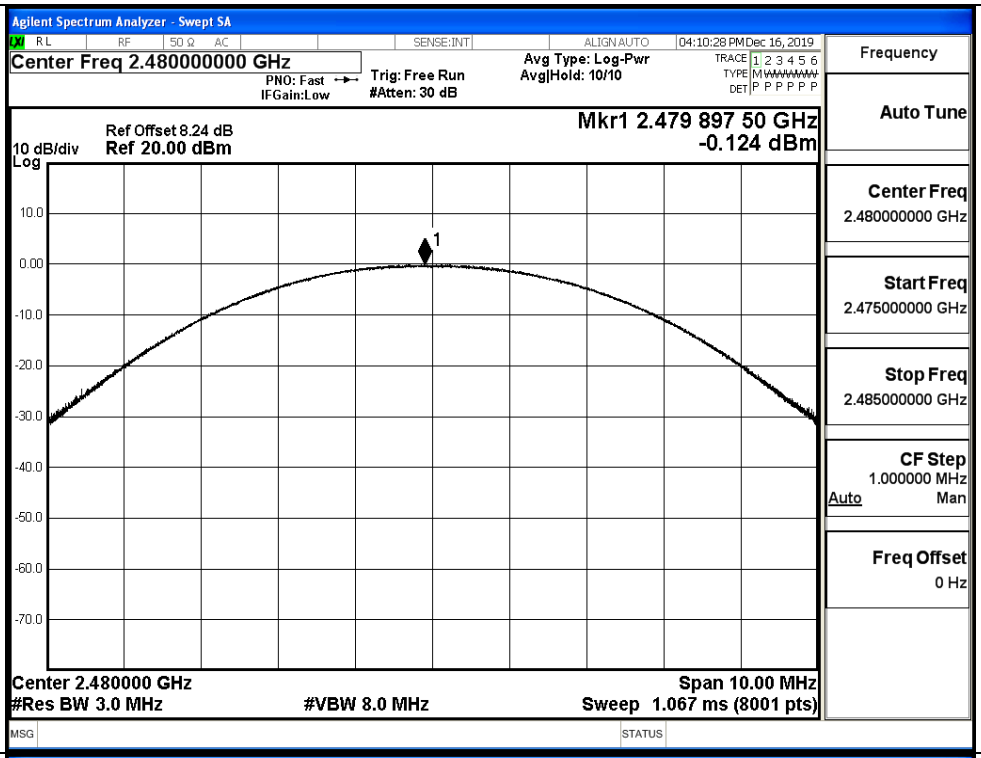
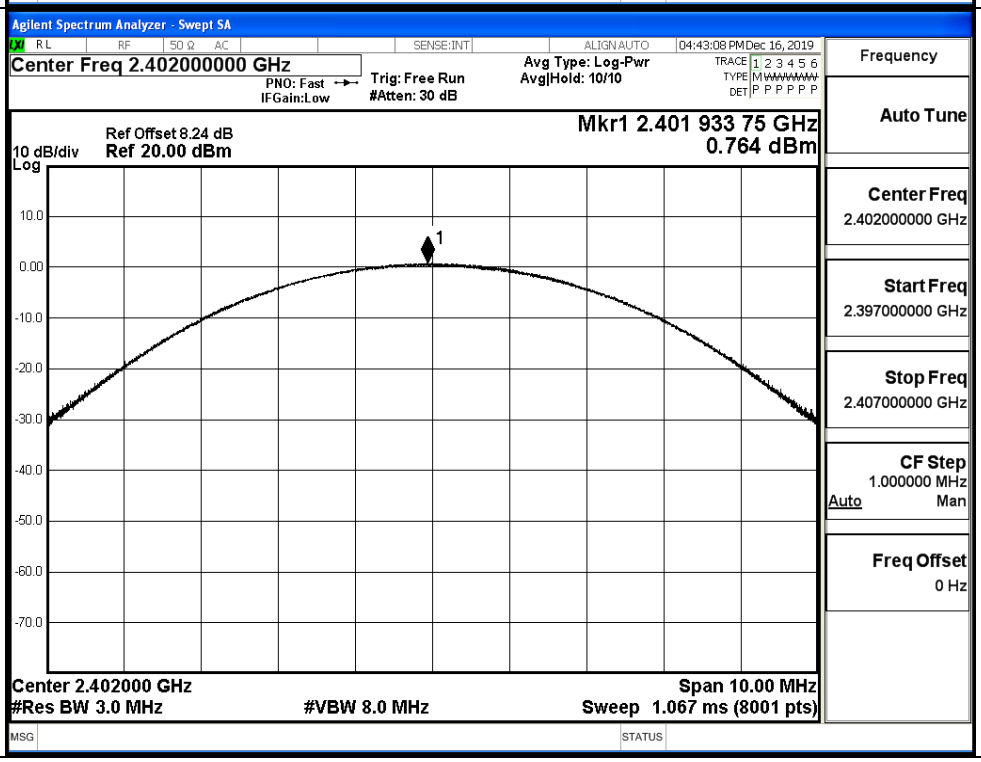
Test Graphs

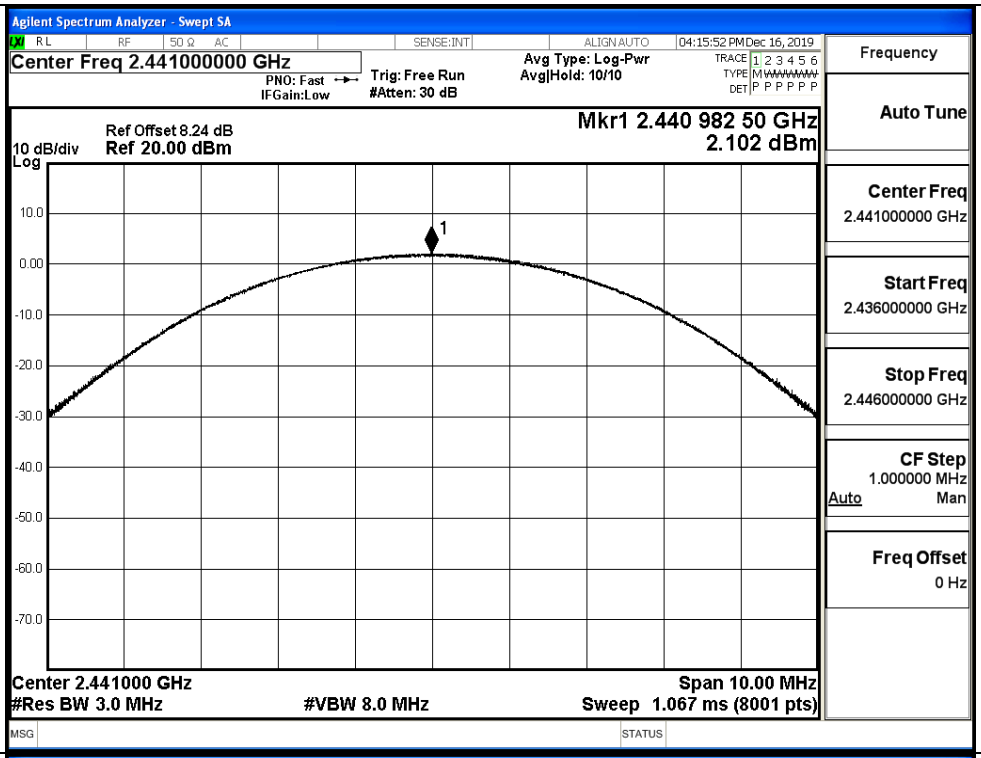
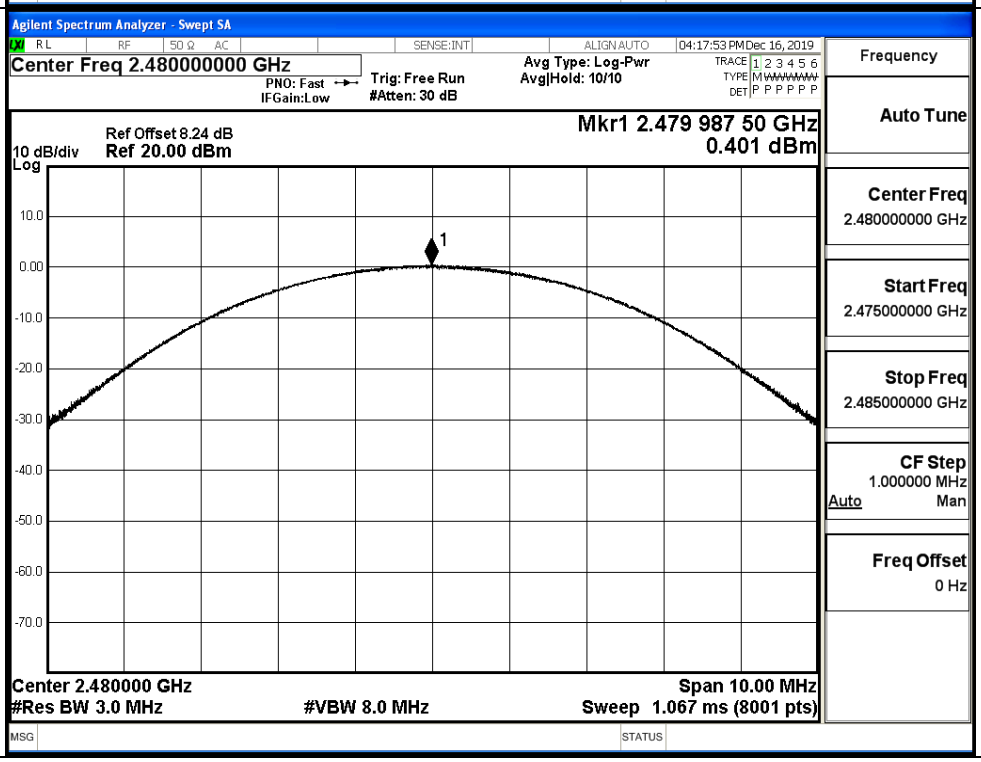
GFSK/LCH



GFSK/MCH	
GFSK/HCH	

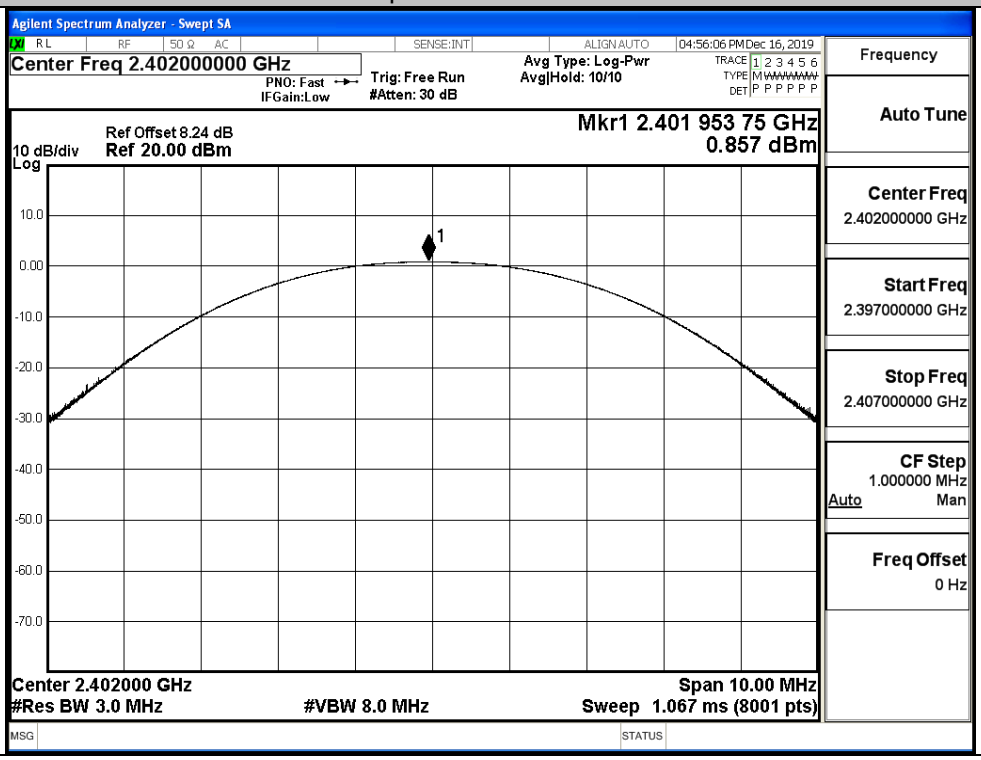
π/4DQPSK/LCH	
π/4DQPSK/MCH	

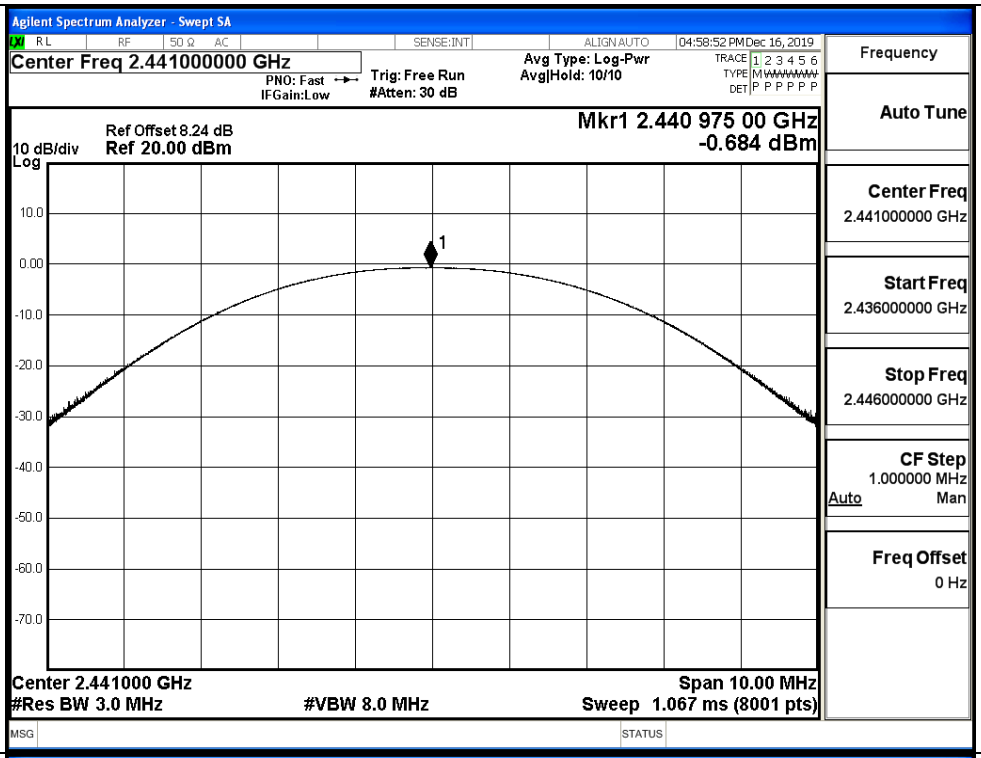
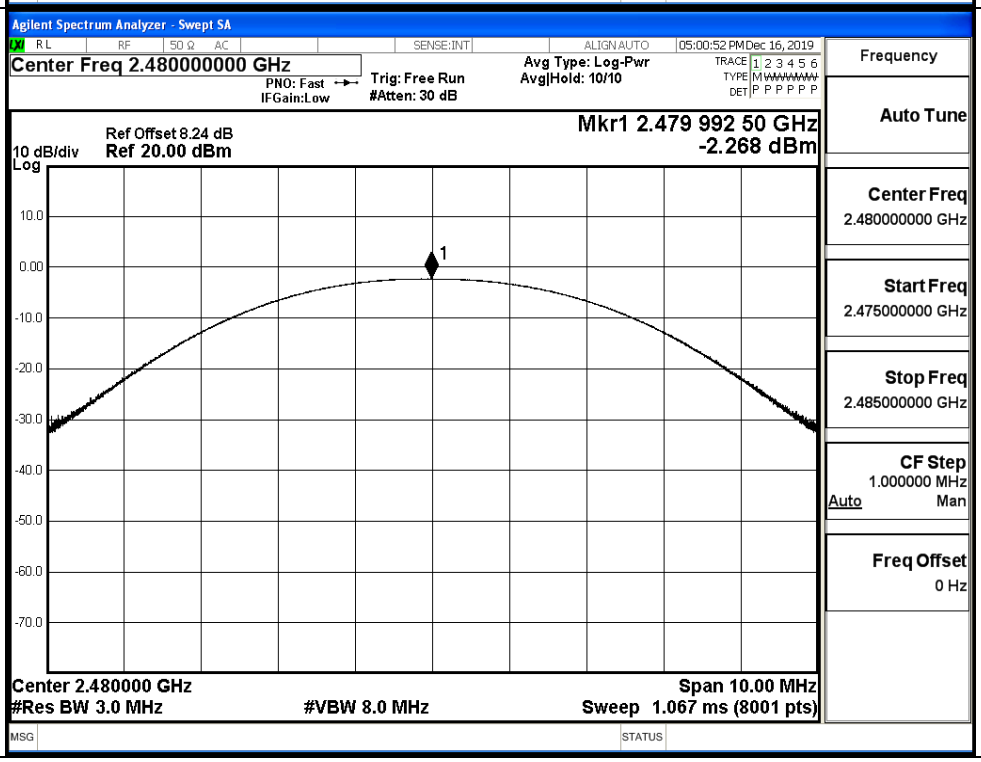
π/4DQPSK/HCH		
8DPSK/LCH		

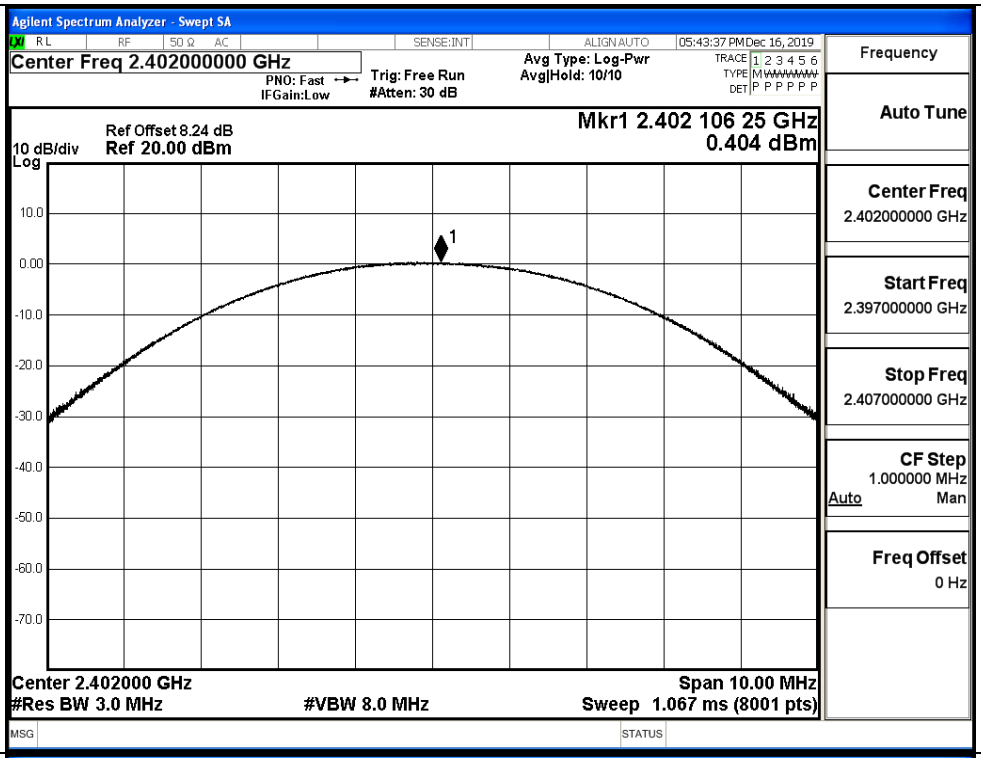
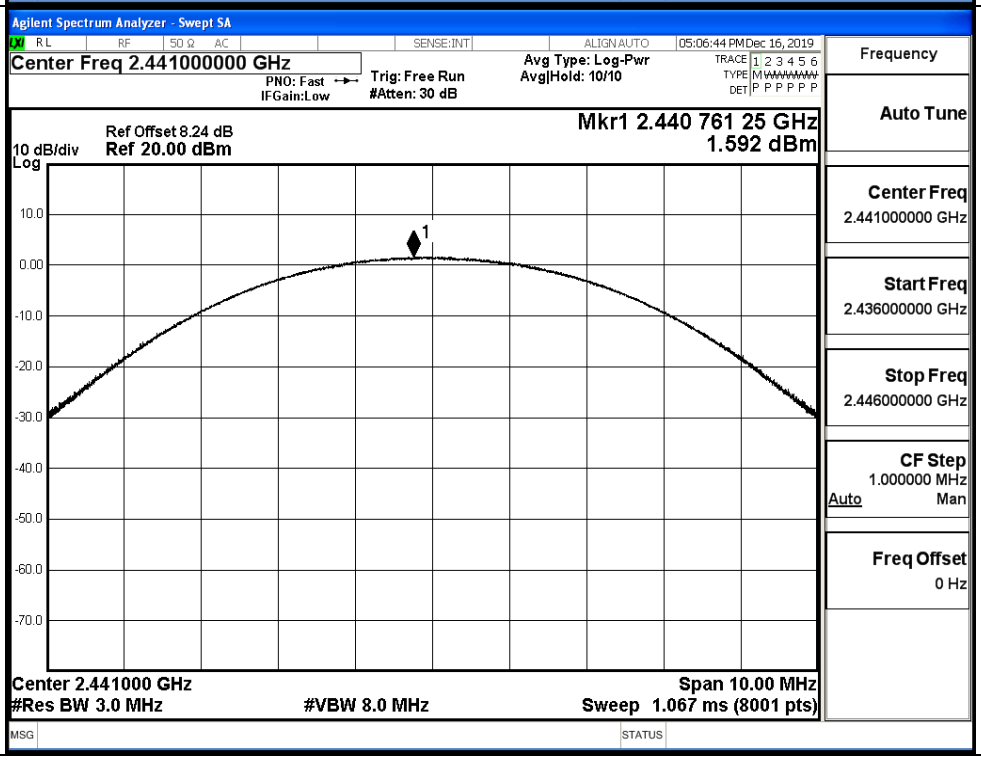
8DPSK/MCH	
8DPSK/HCH	

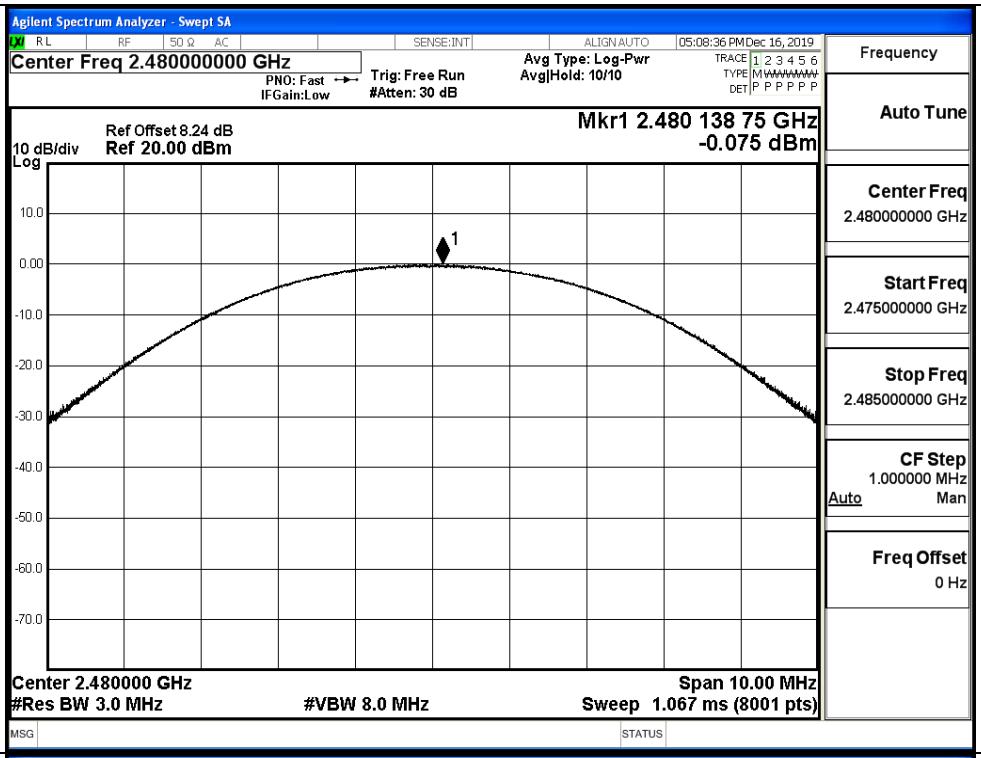
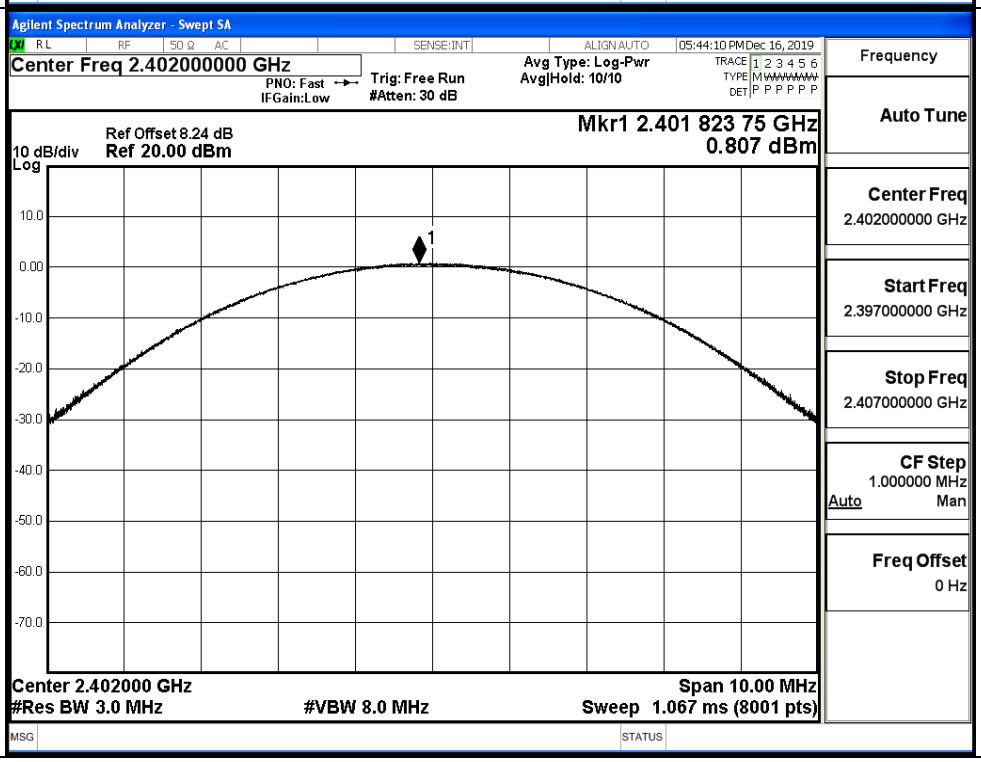
Right Ear

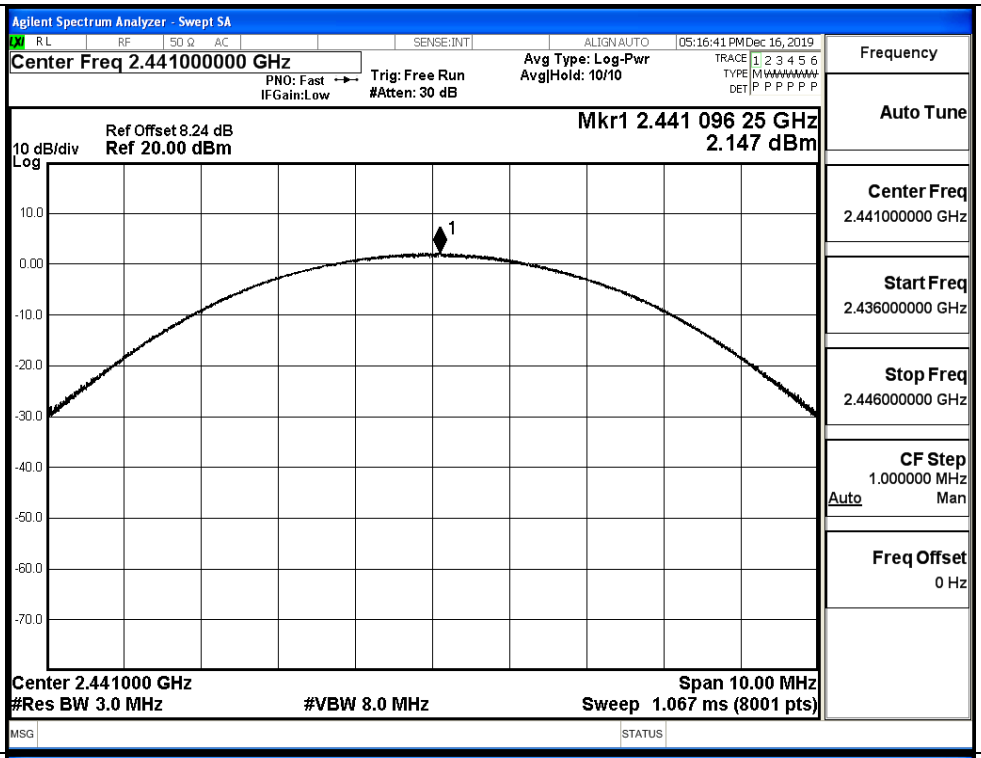
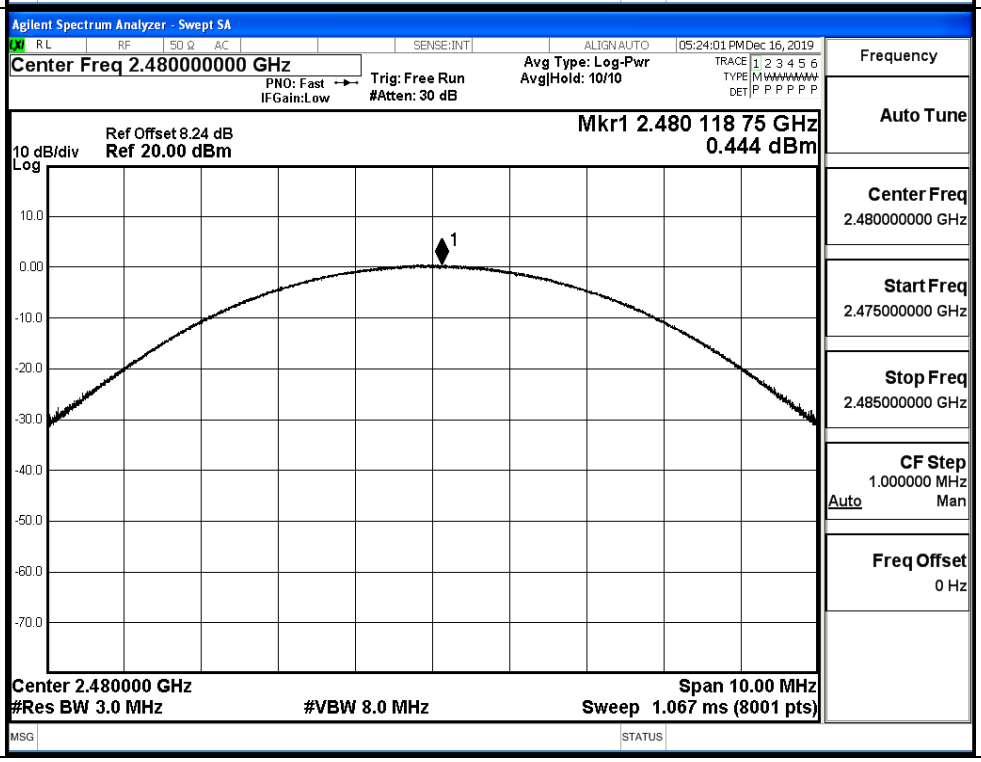
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.857	30	PASS
	MCH	-0.684	30	PASS
	HCH	-2.268	30	PASS
π/4DQPSK	LCH	0.404	21	PASS
	MCH	1.592	21	PASS
	HCH	-0.075	21	PASS
8DPSK	LCH	0.807	21	PASS
	MCH	2.147	21	PASS
	HCH	0.444	21	PASS

Test Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

π/4DQPSK/LCH	
π/4DQPSK/MCH	

π/4DQPSK/HCH	
8DPSK/LCH	

8DPSK/MCH	
8DPSK/HCH	

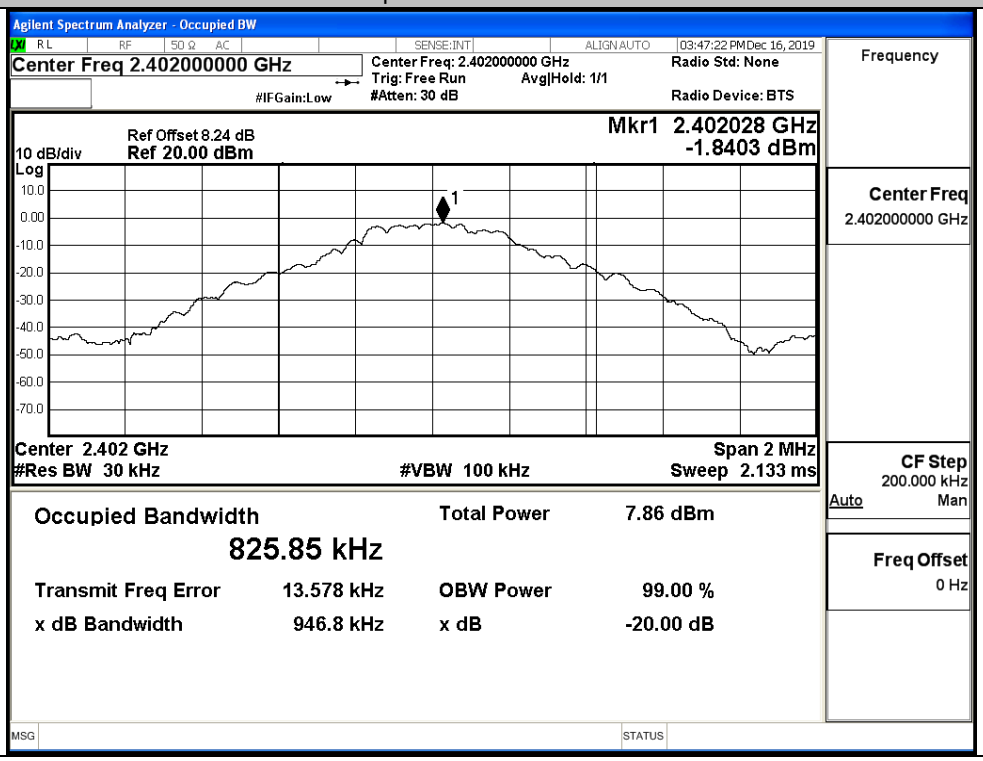
A.2 20dB Bandwidth

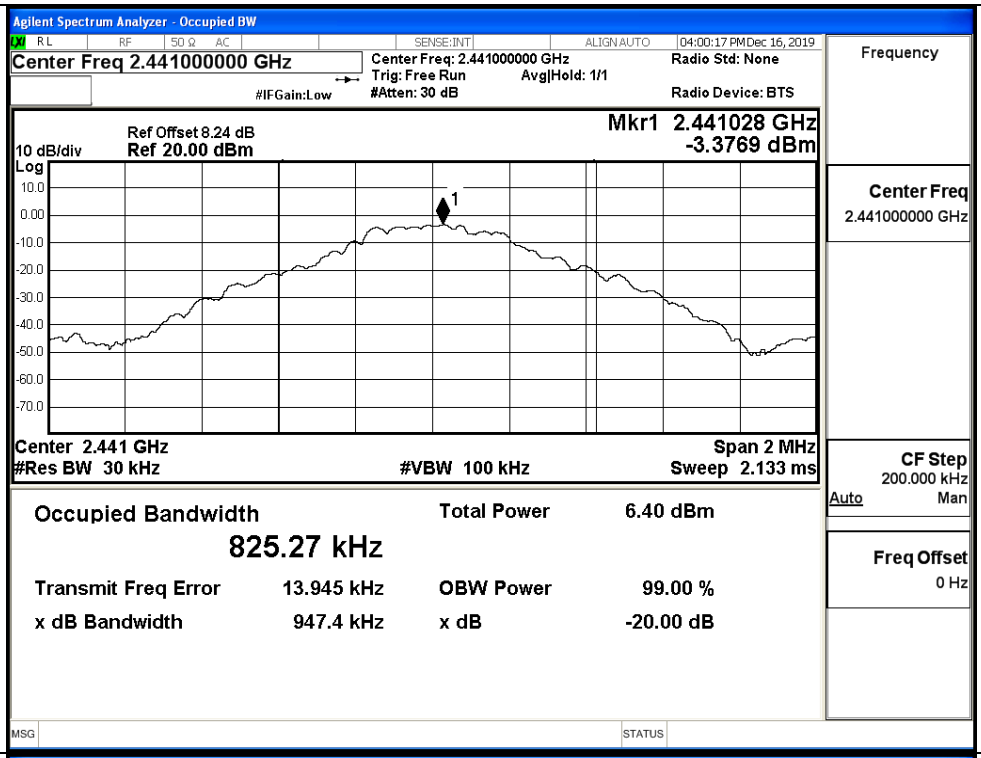
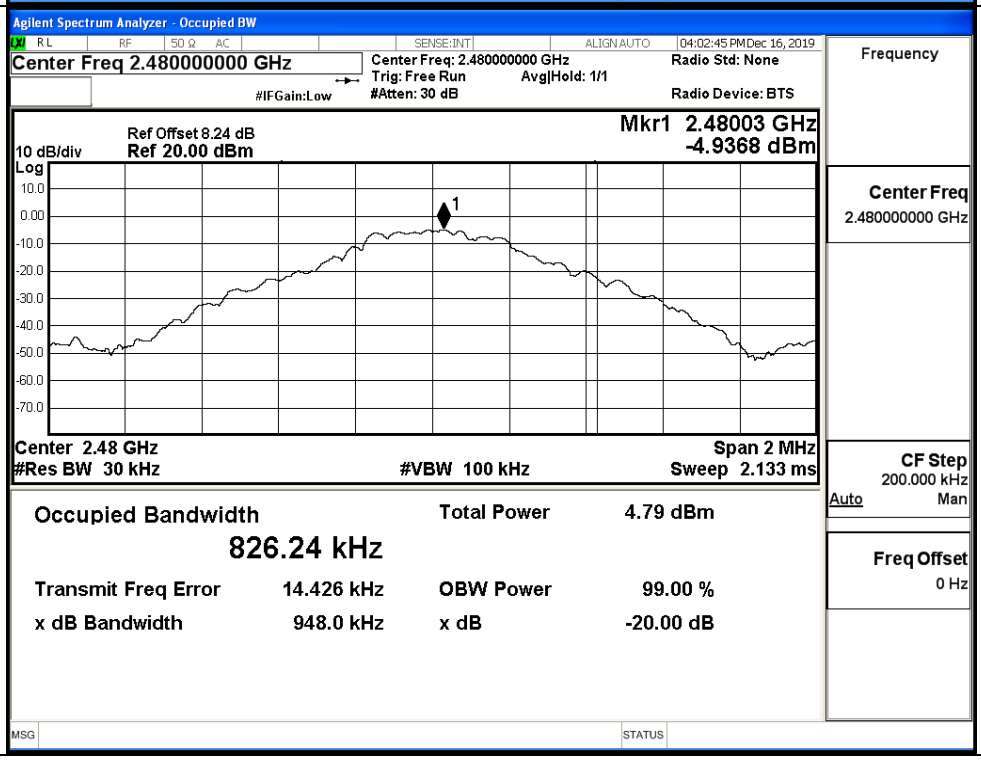
Left Ear

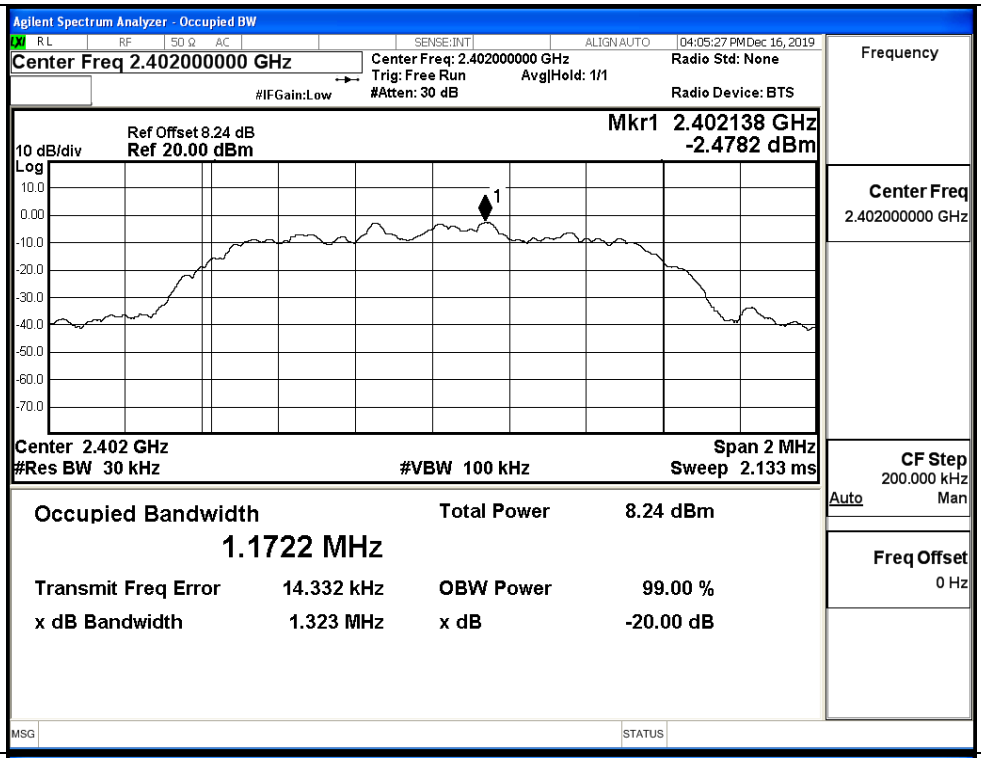
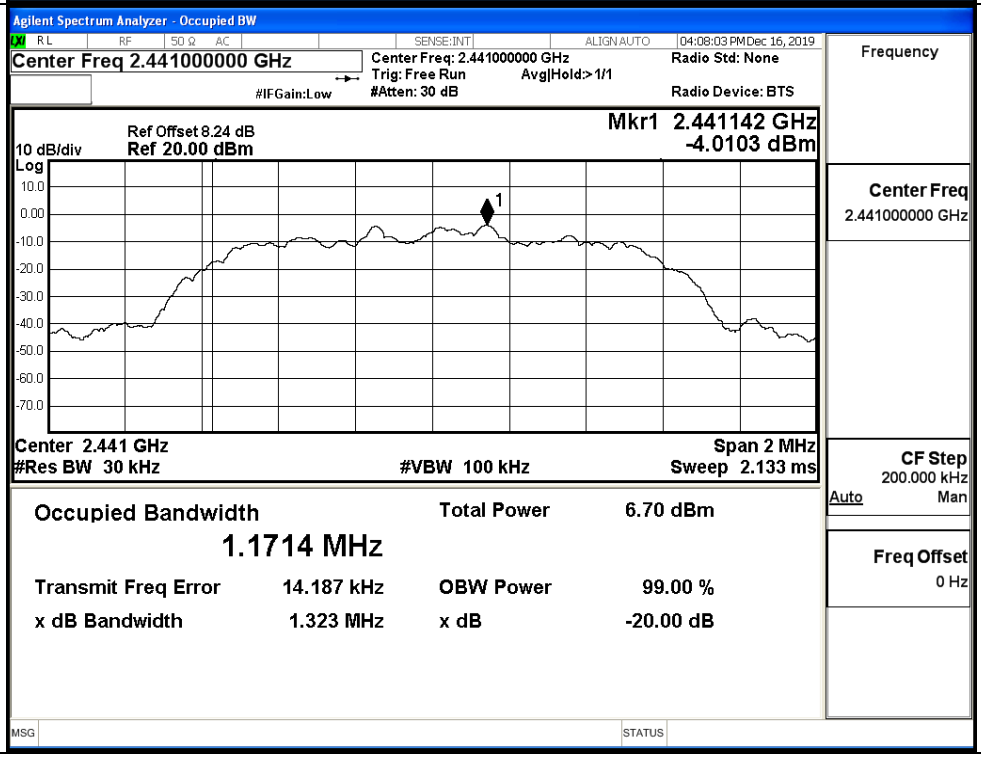
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9468	Not Specified	PASS
	MCH	0.9474	Not Specified	PASS
	HCH	0.9480	Not Specified	PASS
π/4DQPSK	LCH	1.323	Not Specified	PASS
	MCH	1.323	Not Specified	PASS
	HCH	1.324	Not Specified	PASS
8DPSK	LCH	1.287	Not Specified	PASS
	MCH	1.289	Not Specified	PASS
	HCH	1.291	Not Specified	PASS

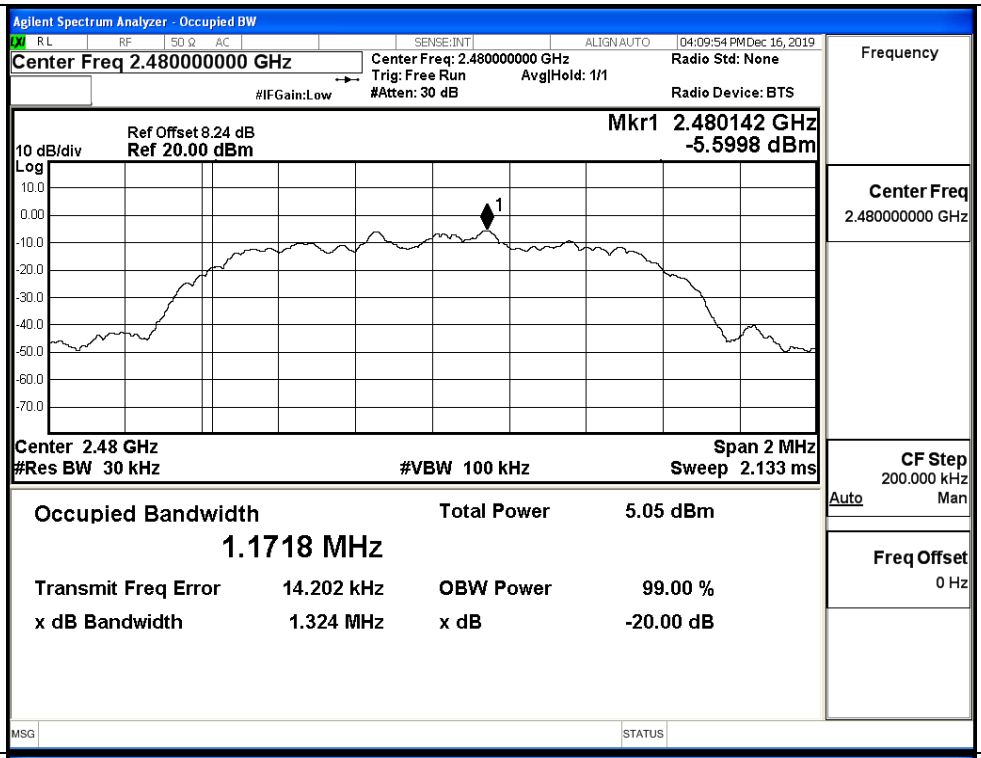
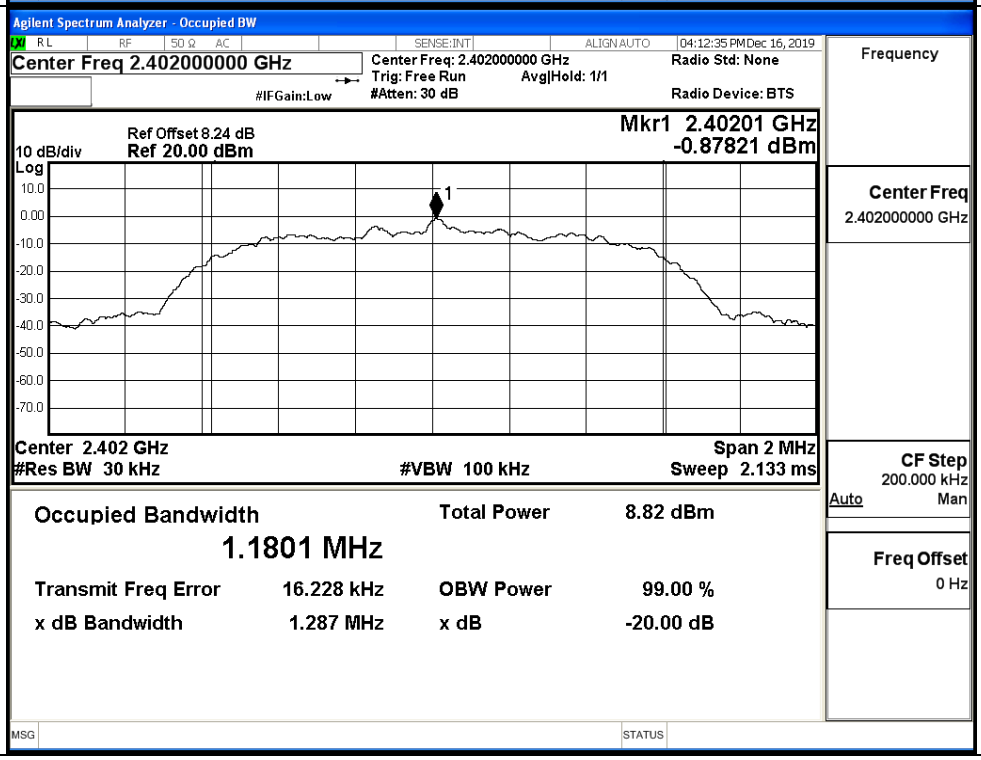
Test Graphs

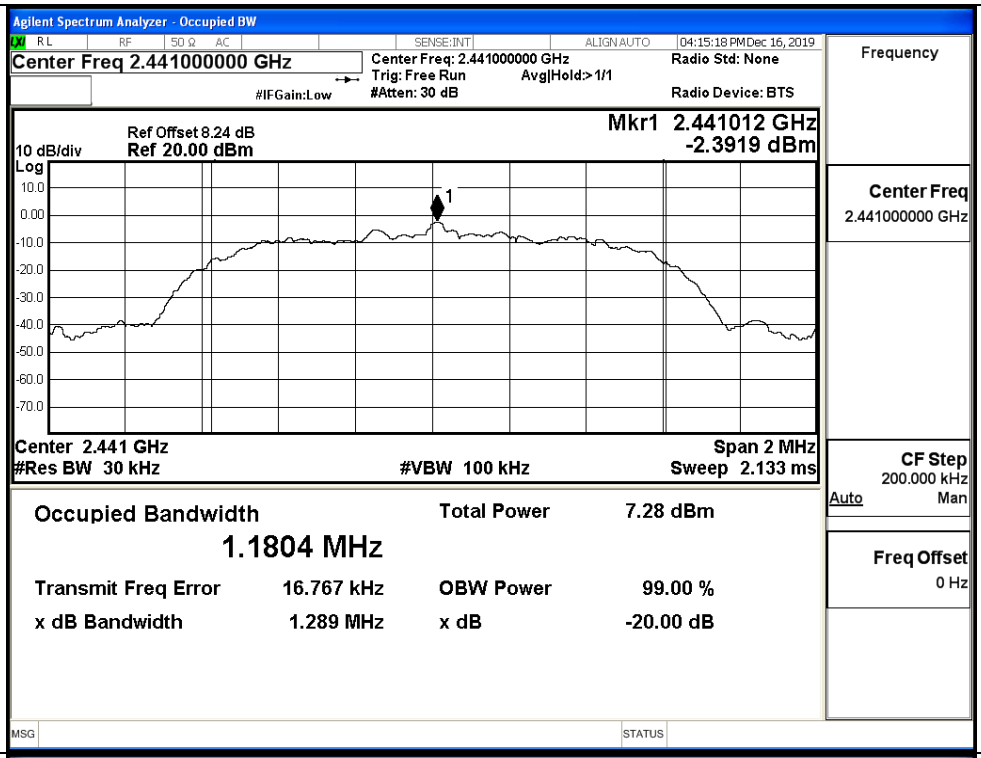
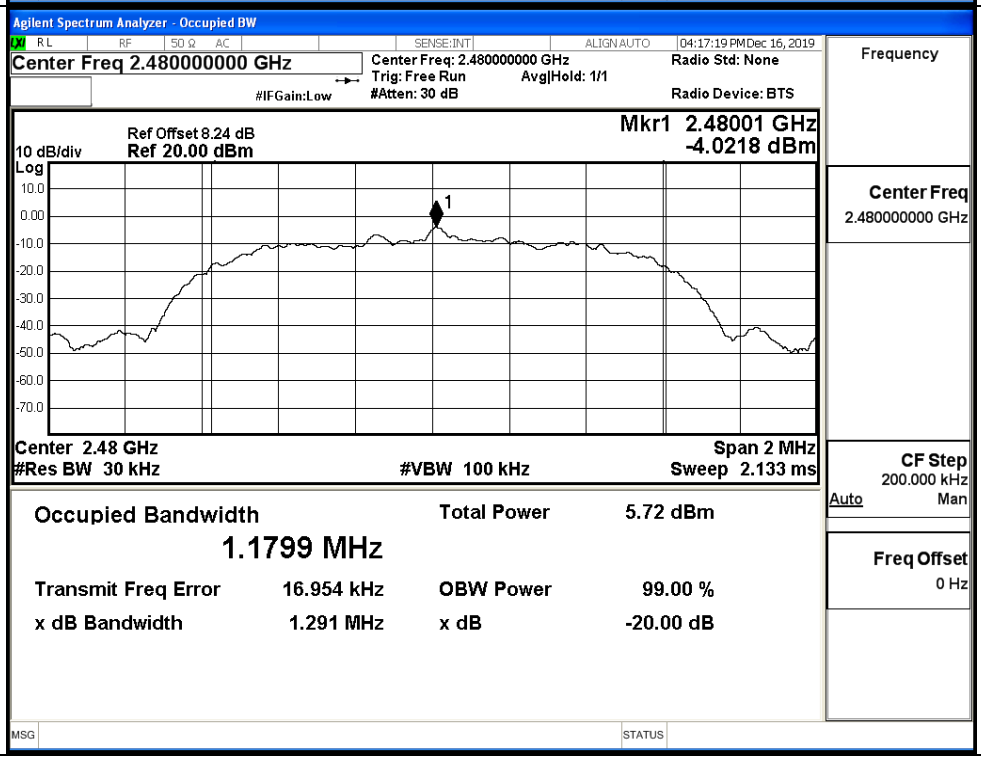
GFSK/LCH



GFSK/MCH	
GFSK/HCH	

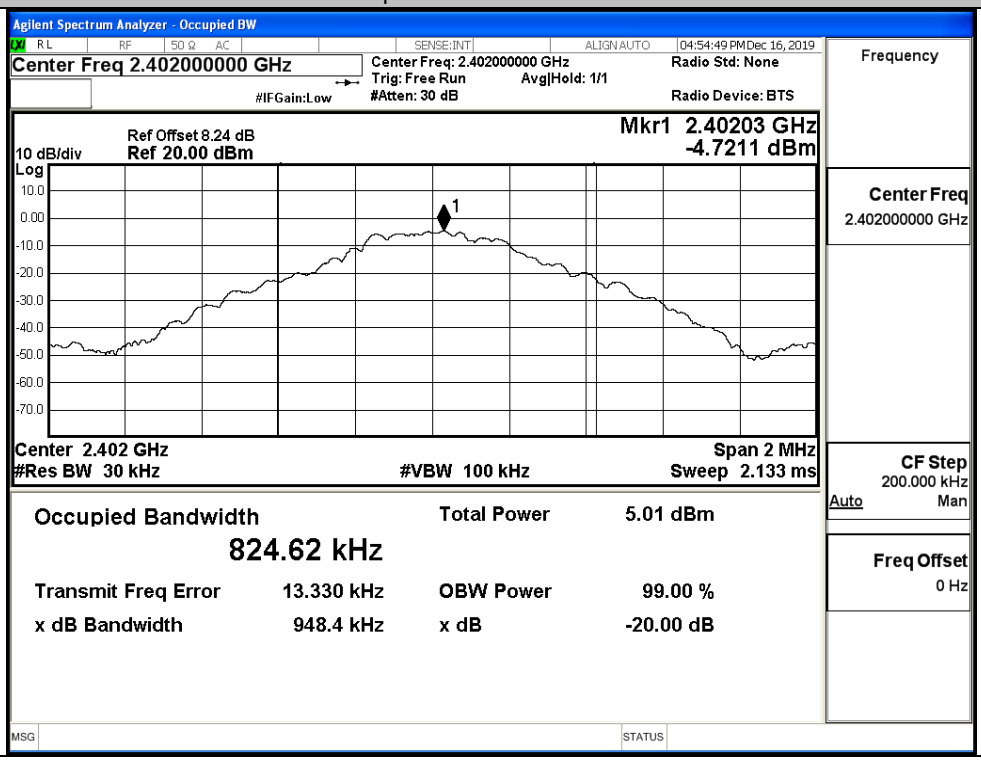
π/4DQPSK/LCH	
π/4DQPSK/MCH	

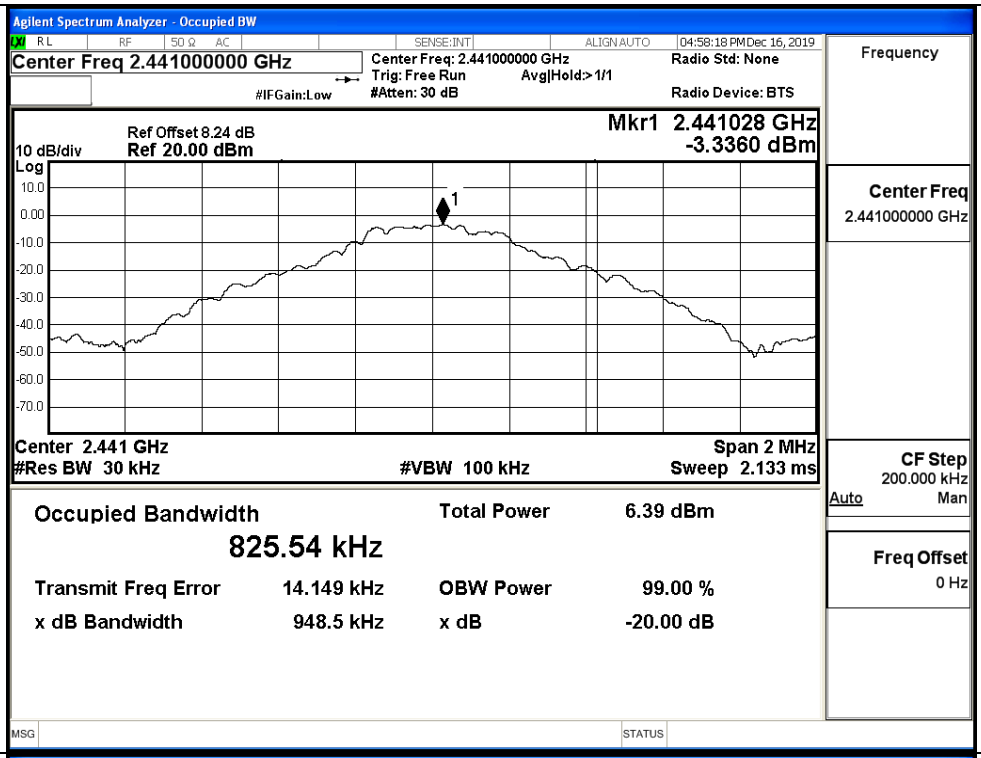
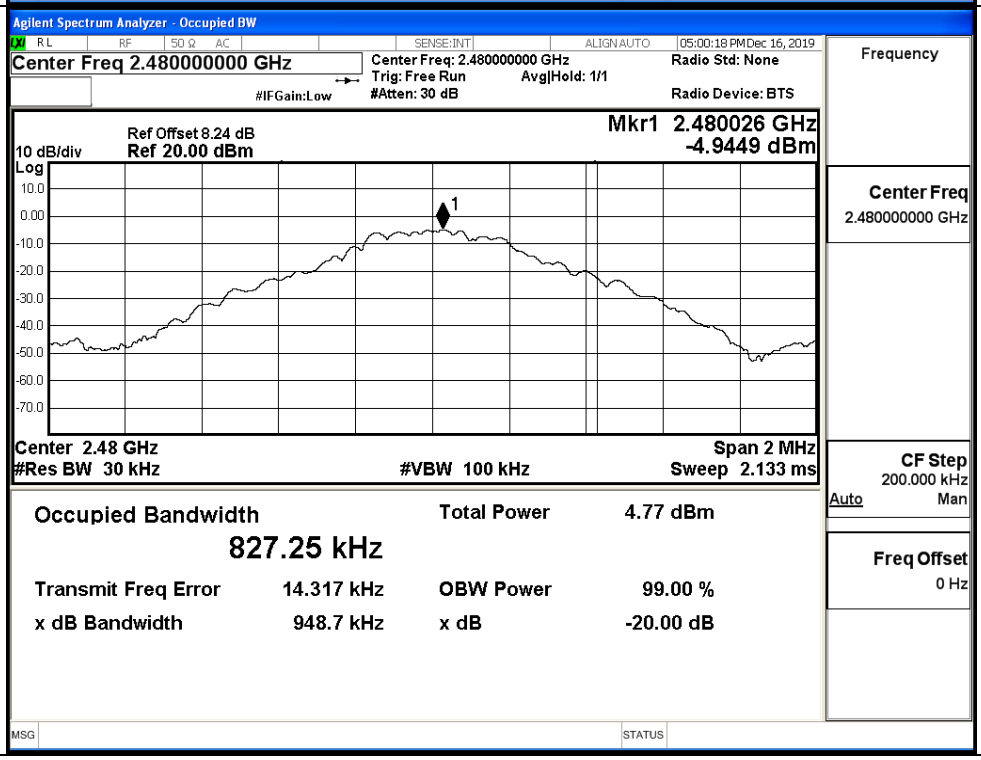
π/4DQPSK/HCH	
8DPSK/LCH	

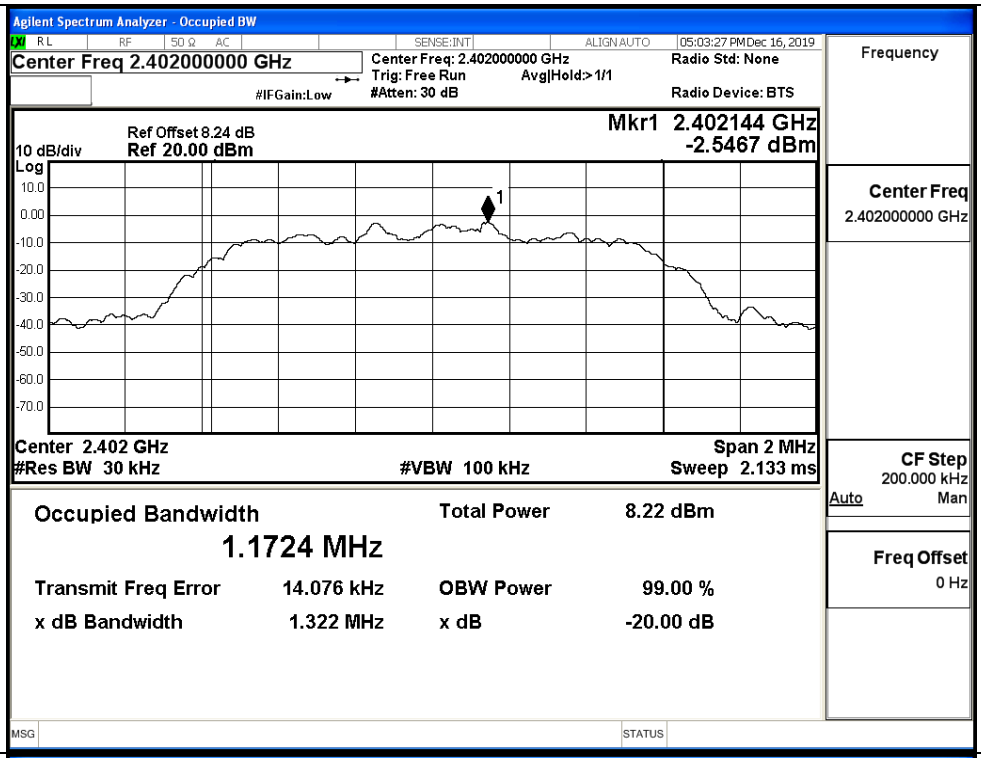
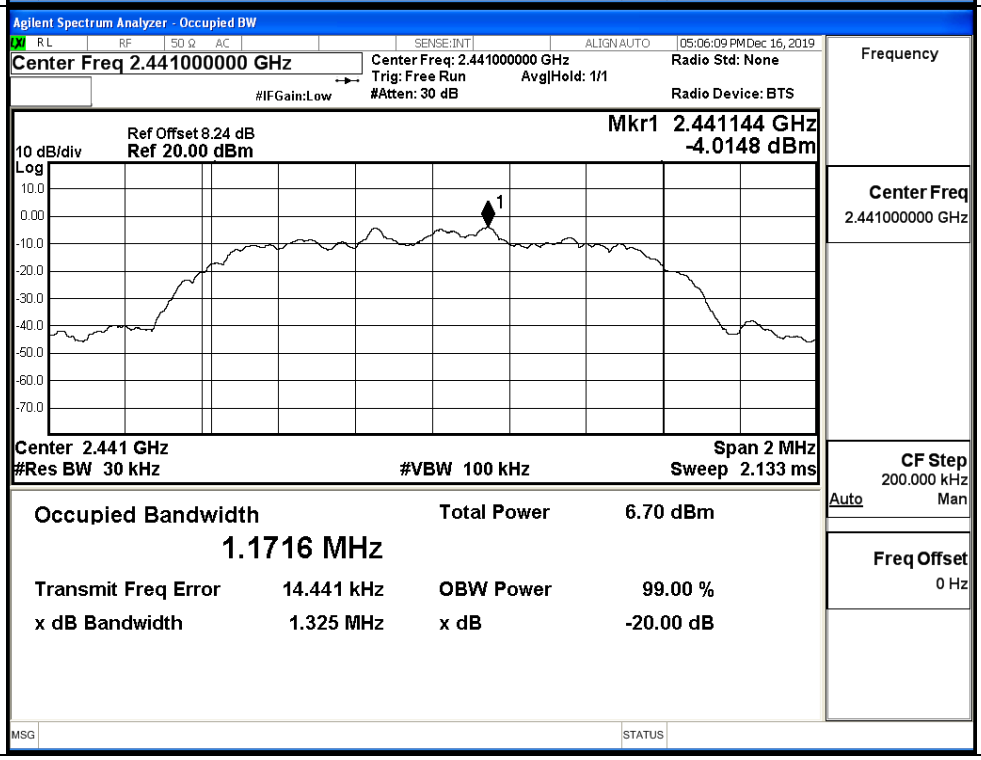
8DPSK/MCH	
8DPSK/HCH	

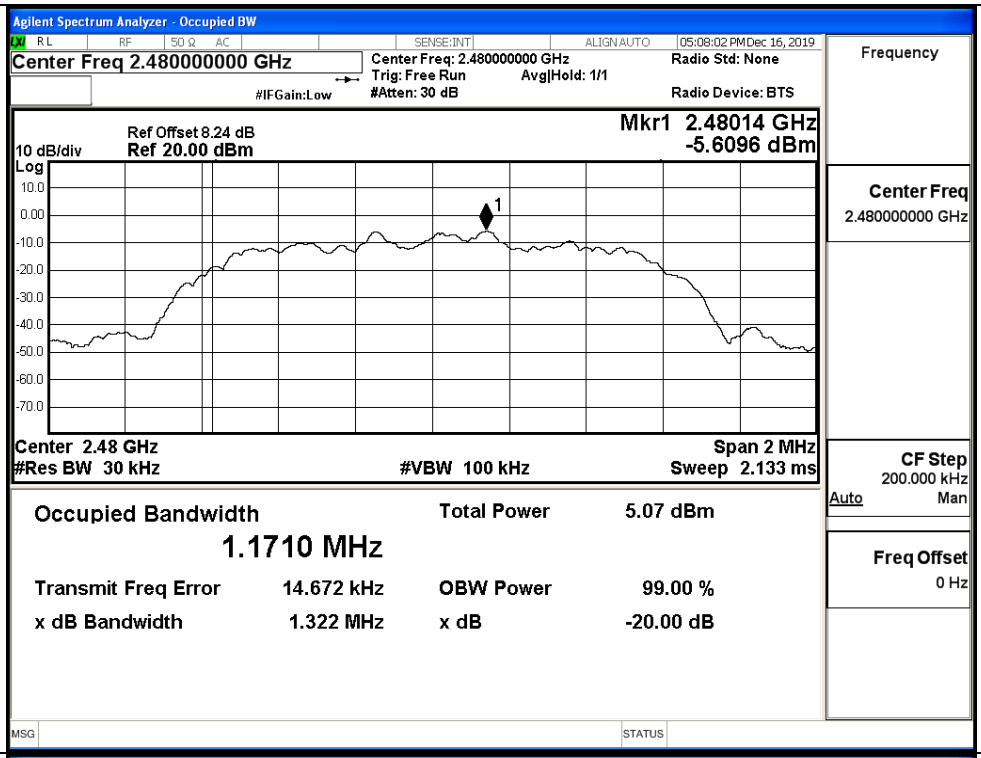
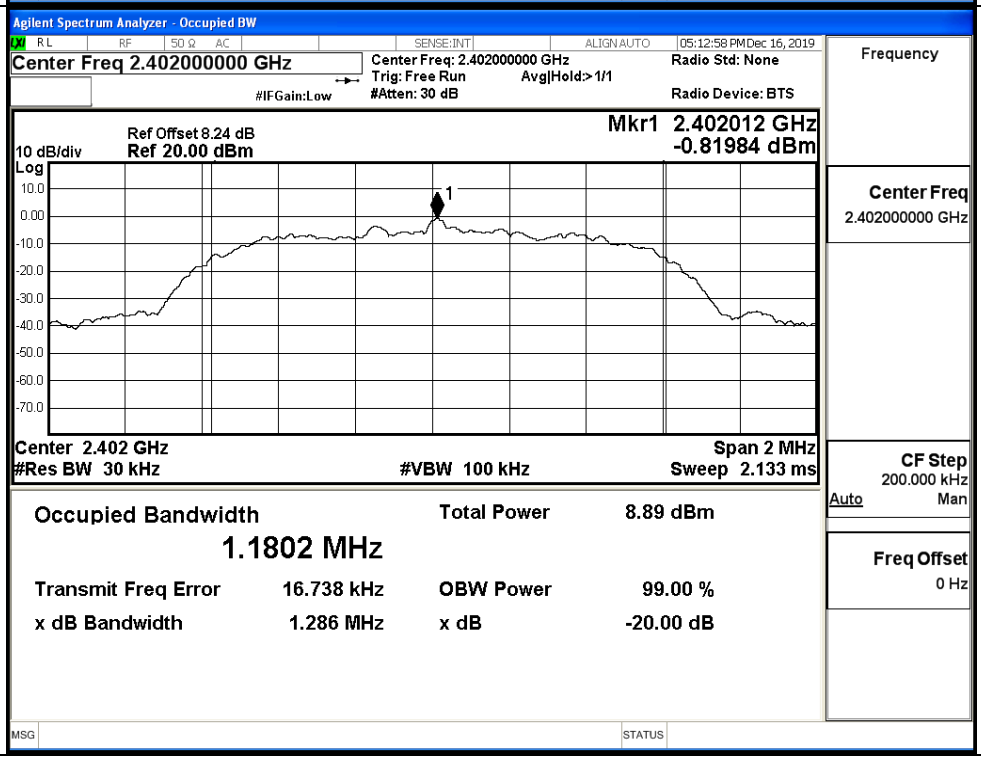
Right Ear

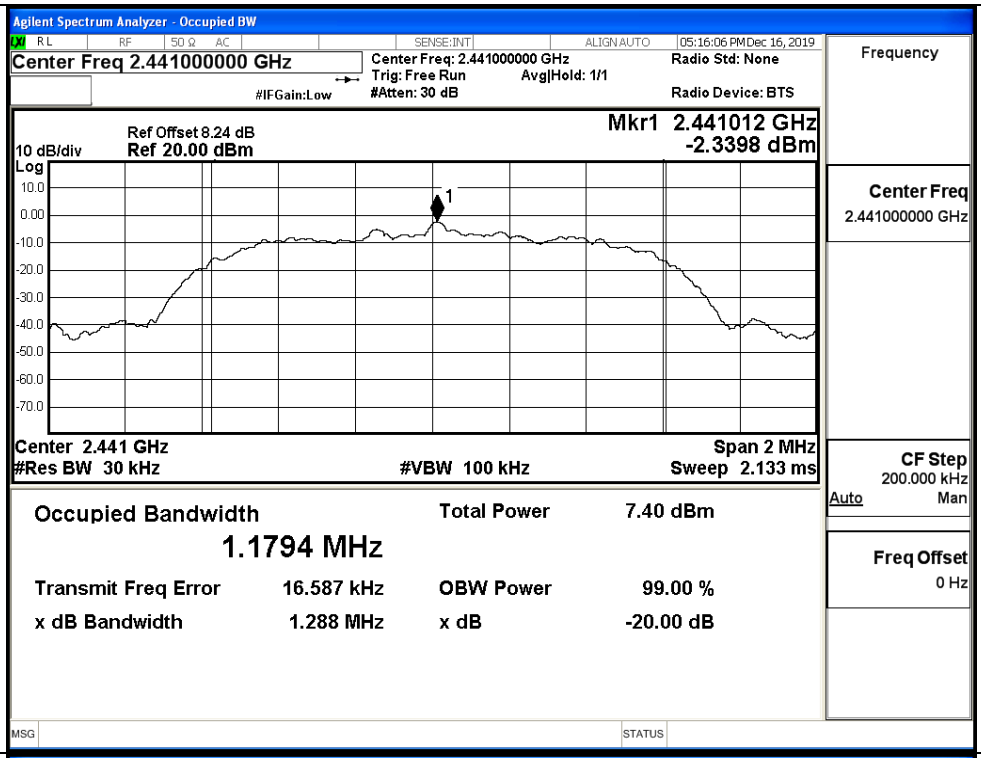
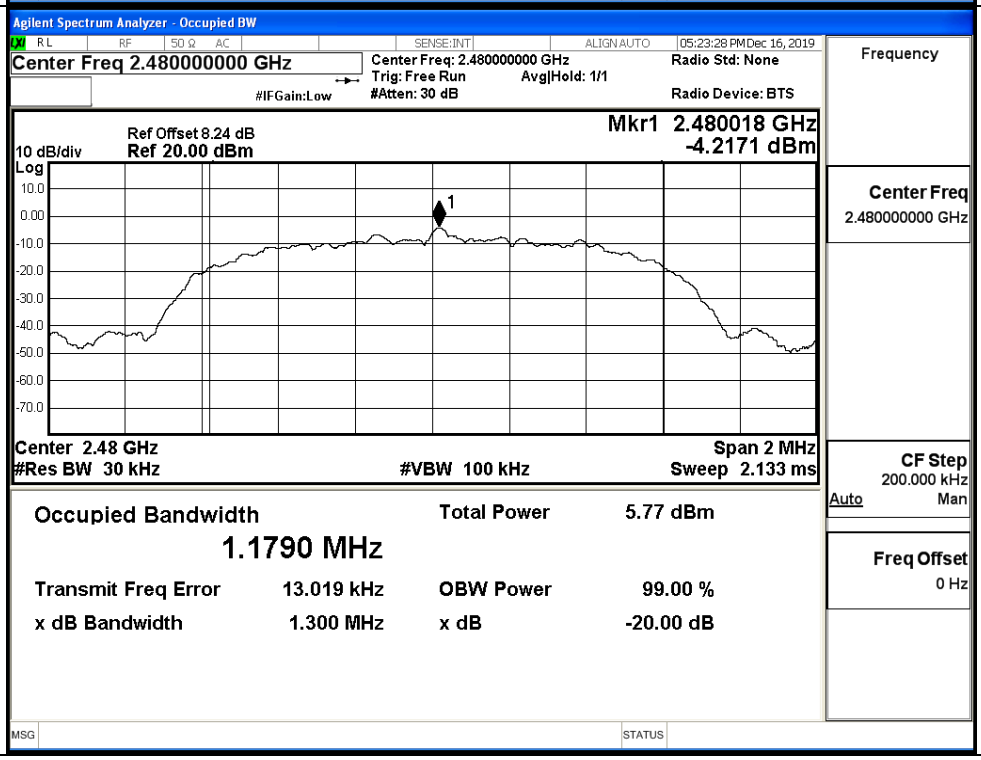
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9484	Not Specified	PASS
	MCH	0.9485	Not Specified	PASS
	HCH	0.9487	Not Specified	PASS
π/4DQPSK	LCH	1.322	Not Specified	PASS
	MCH	1.325	Not Specified	PASS
	HCH	1.322	Not Specified	PASS
8DPSK	LCH	1.286	Not Specified	PASS
	MCH	1.288	Not Specified	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	

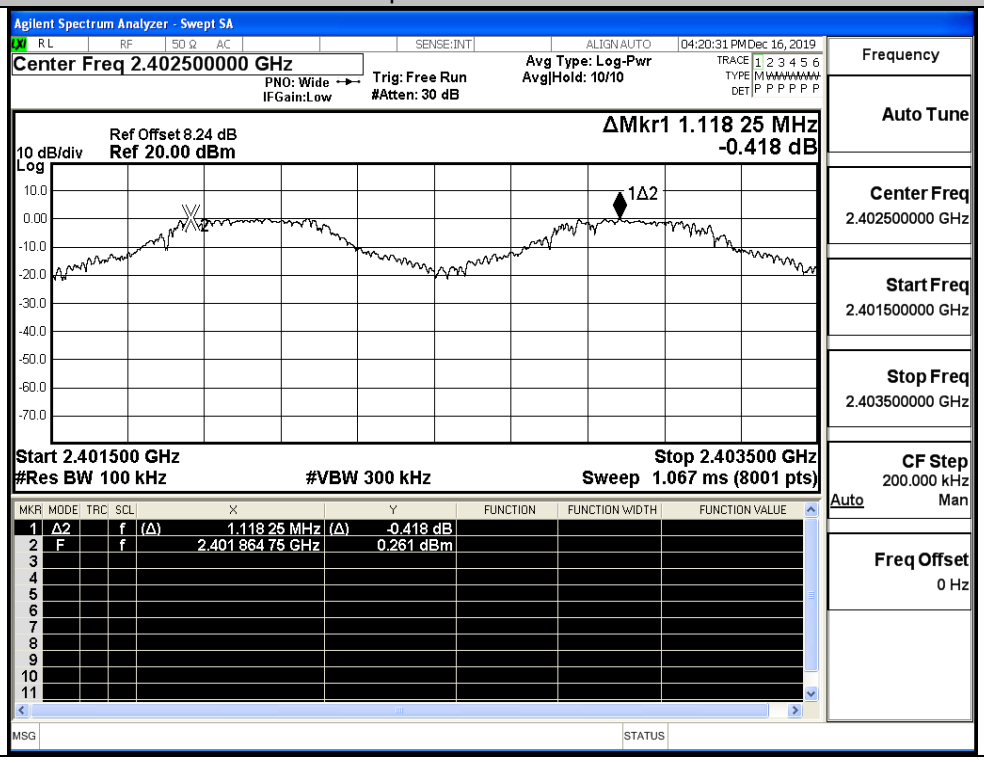
A.3 Carrier Frequency Separation

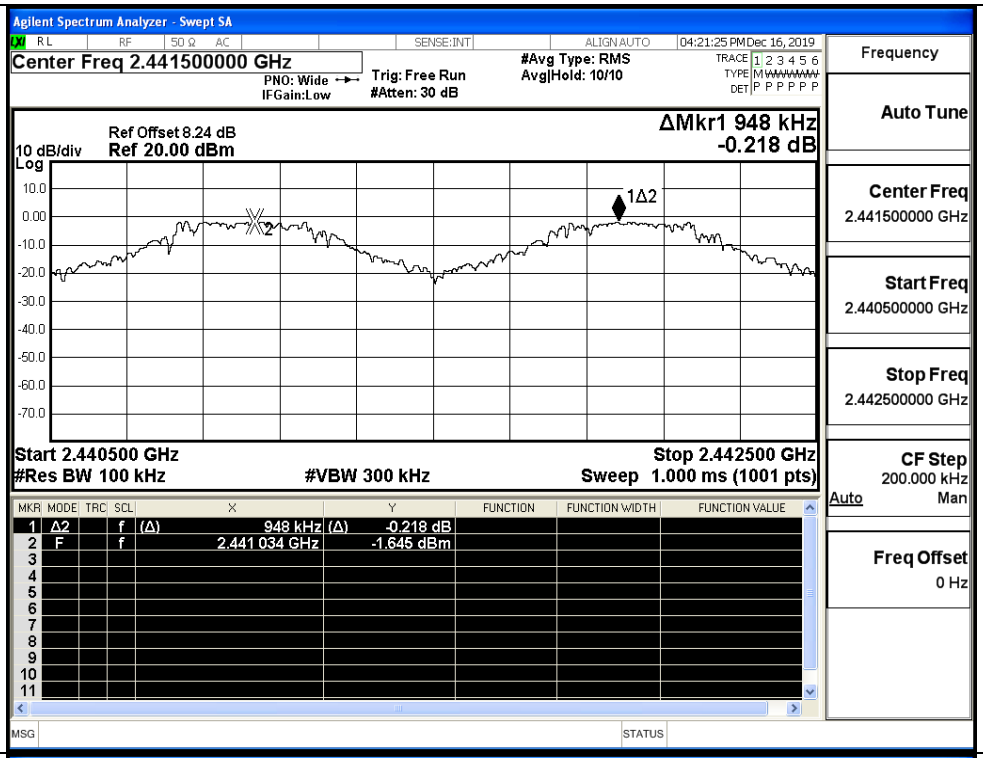
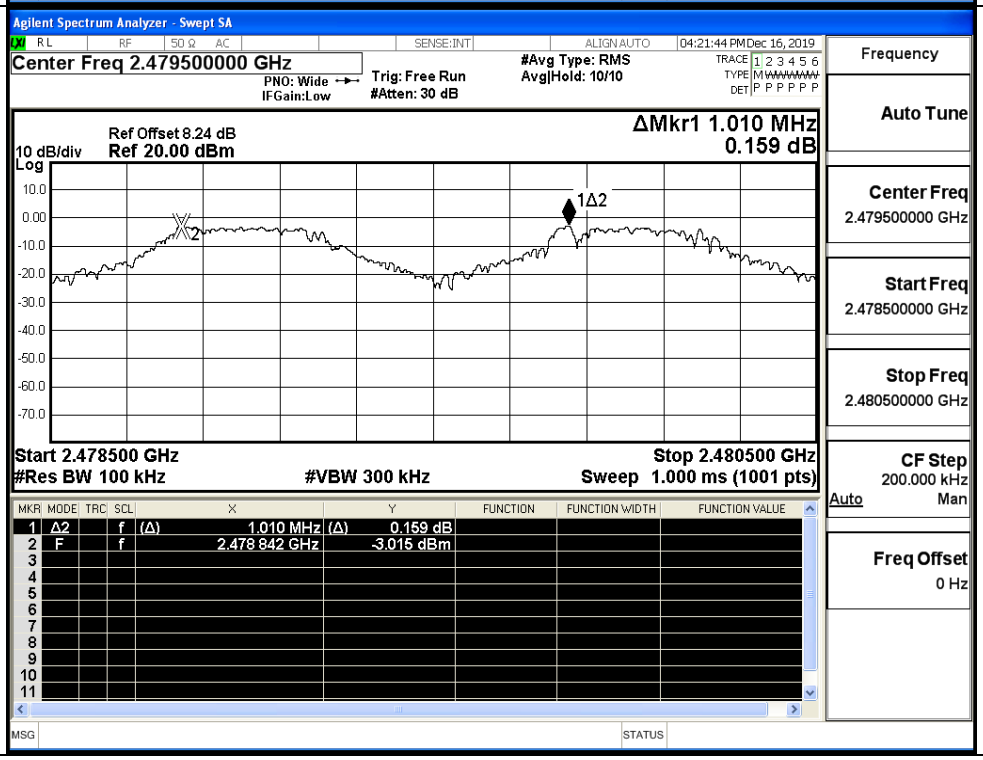
Left Ear

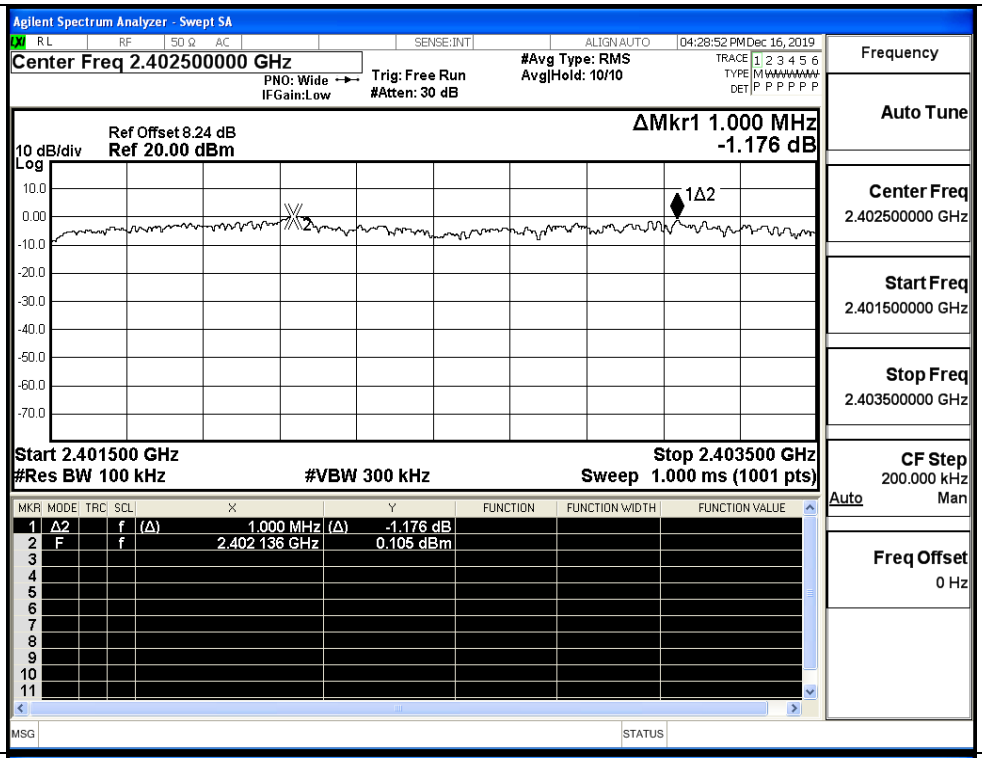
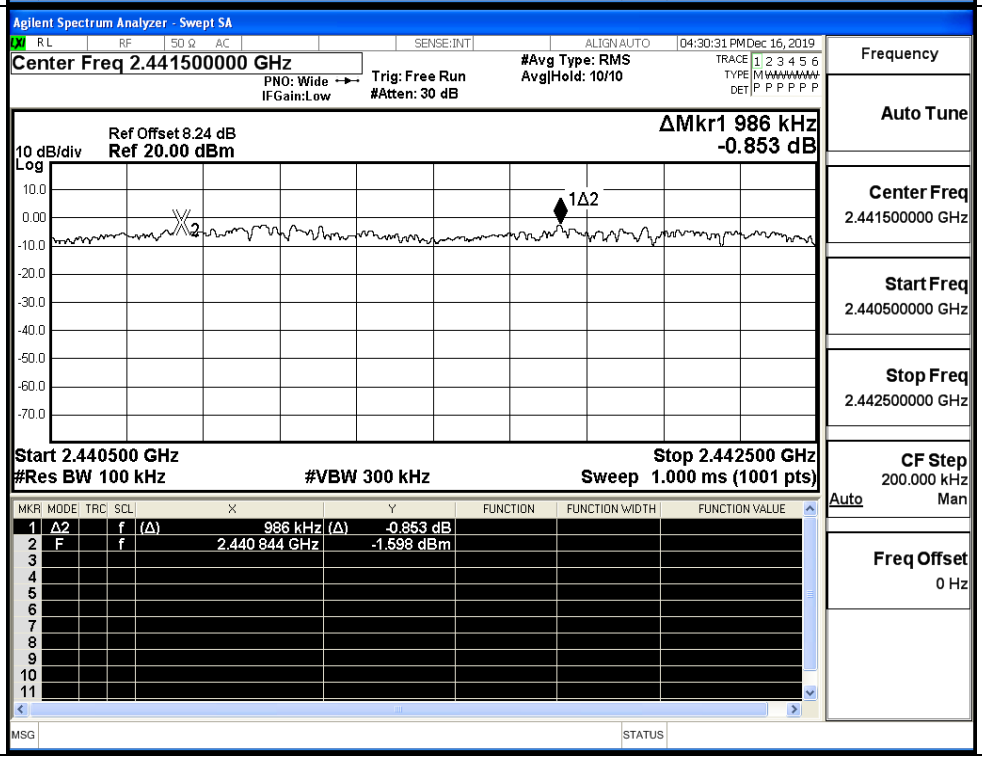
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.118	0.632	PASS
	MCH	0.948	0.632	PASS
	HCH	1.010	0.632	PASS
π/4DQPSK	LCH	1.000	0.883	PASS
	MCH	0.986	0.883	PASS
	HCH	1.028	0.883	PASS
8DPSK	LCH	1.014	0.861	PASS
	MCH	1.134	0.861	PASS
	HCH	1.074	0.861	PASS

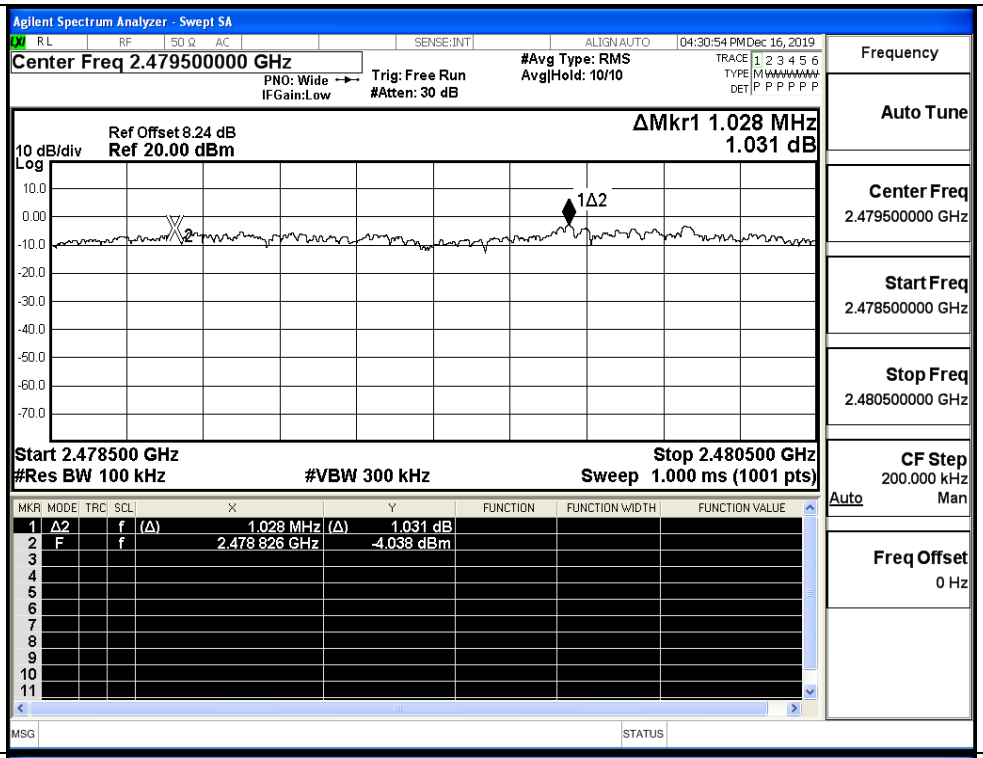
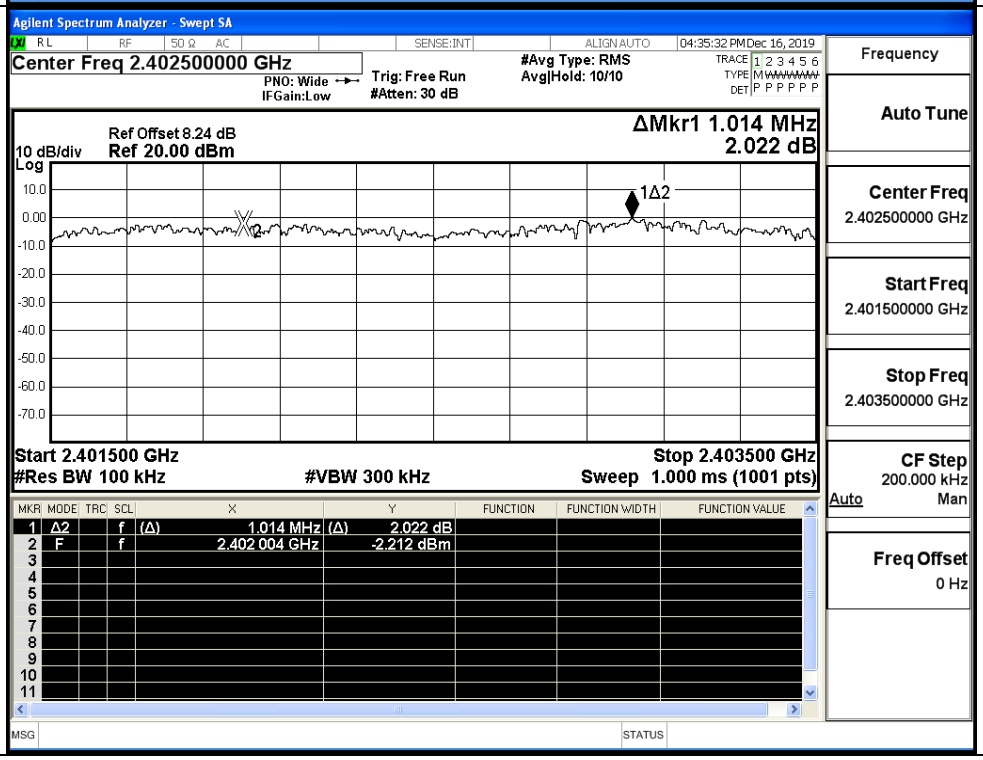
Test Graphs

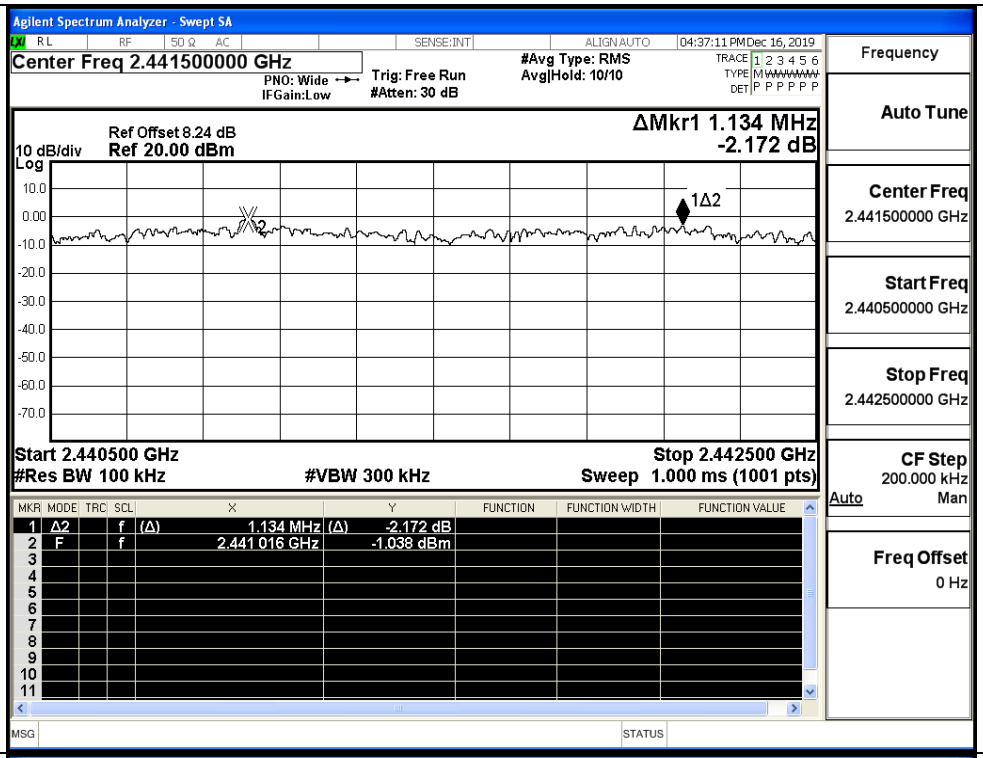
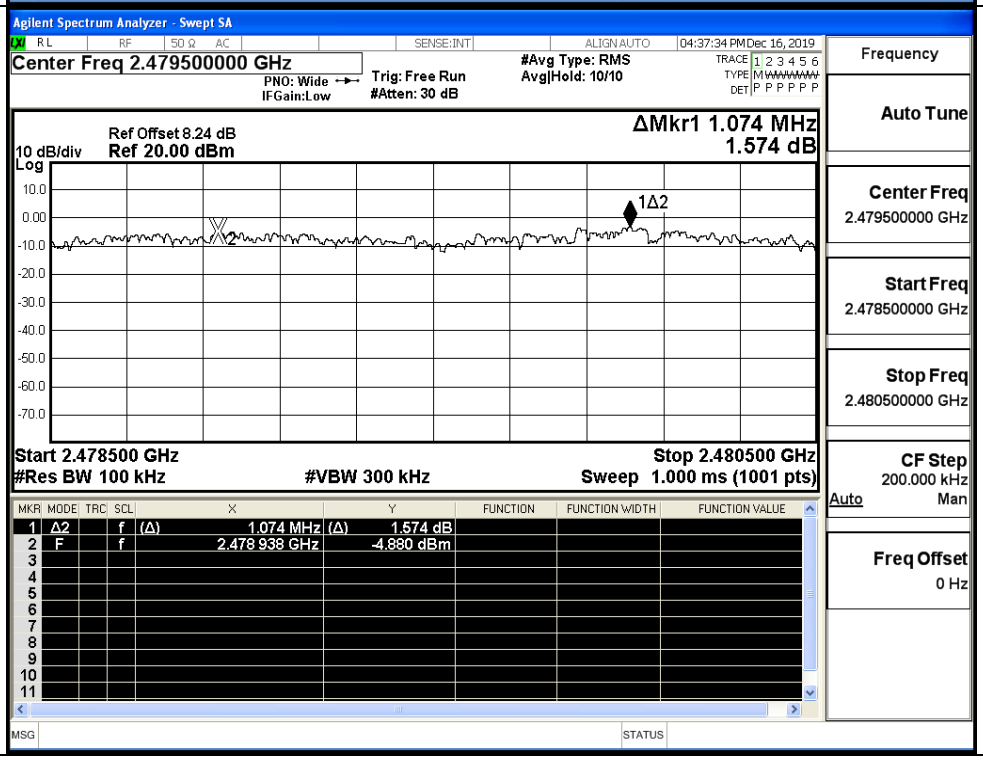
GFSK/LCH



GFSK/MCH	
GFSK/HCH	

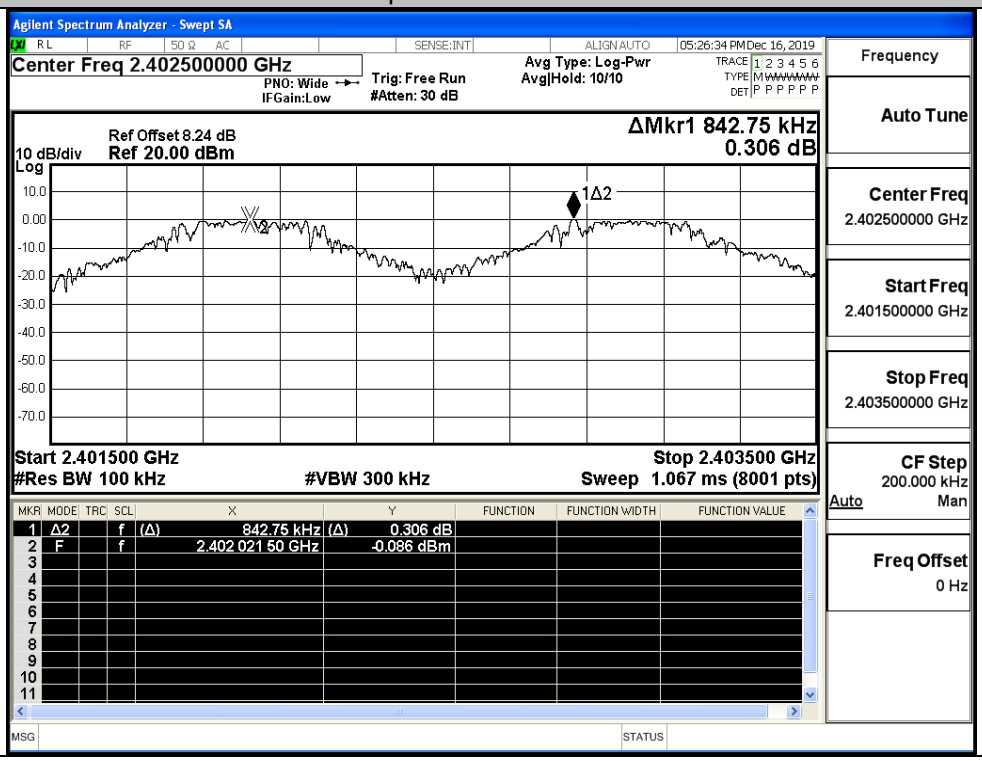
π/4DQPSK/LCH	
π/4DQPSK/MCH	

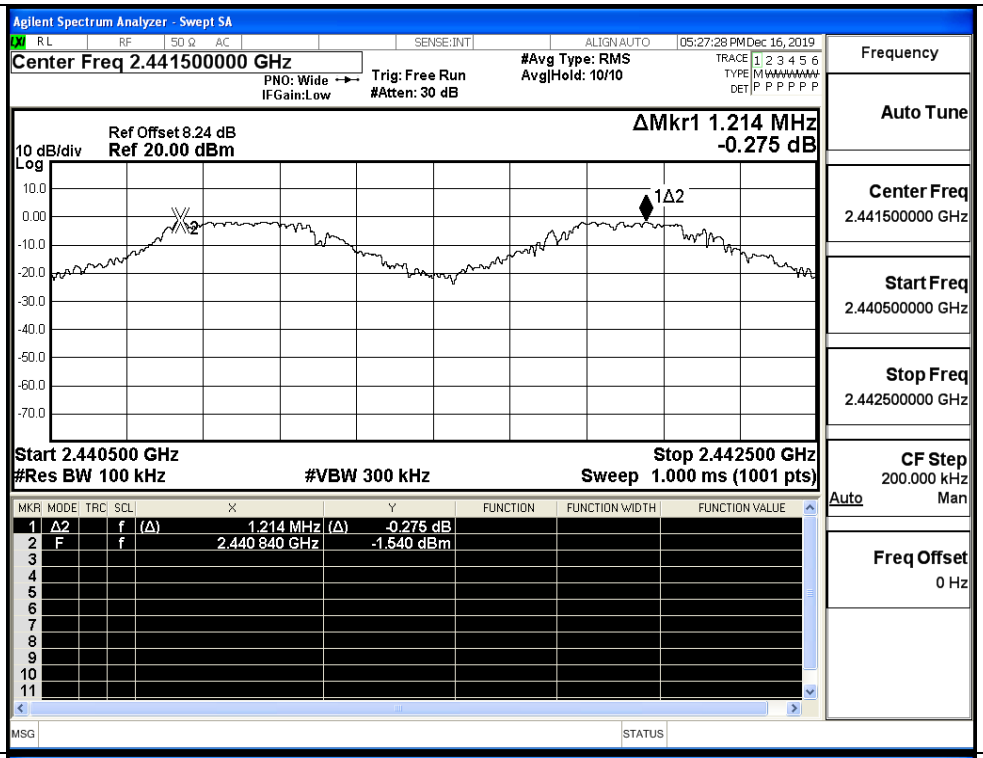
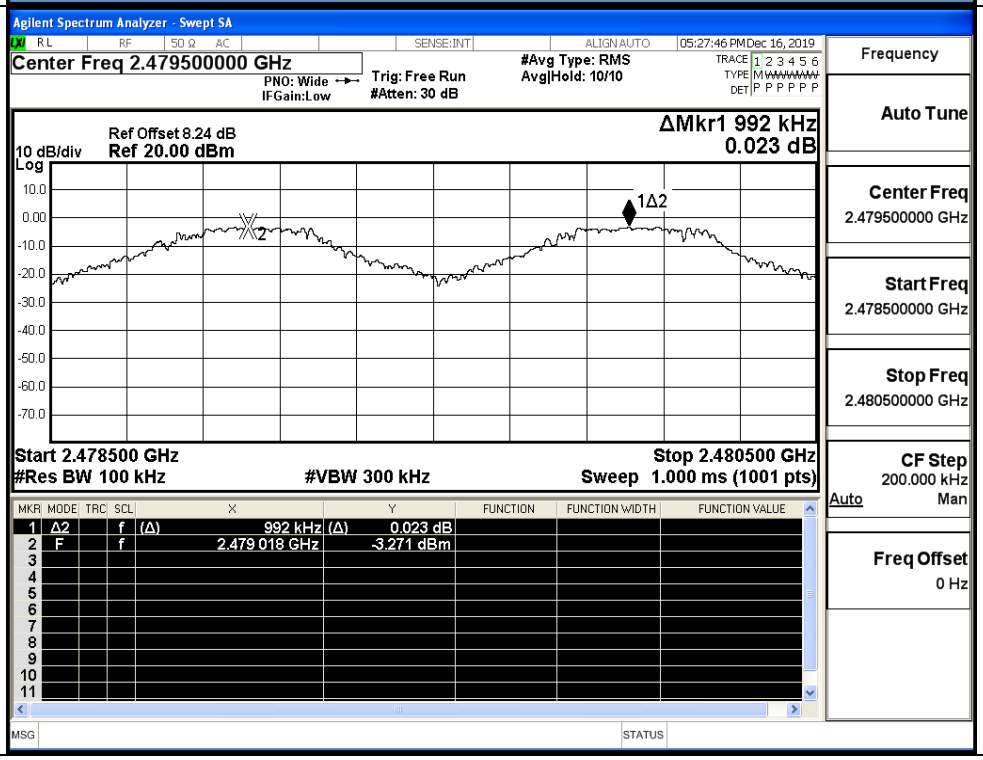
π/4DQPSK/HCH	
8DPSK/LCH	

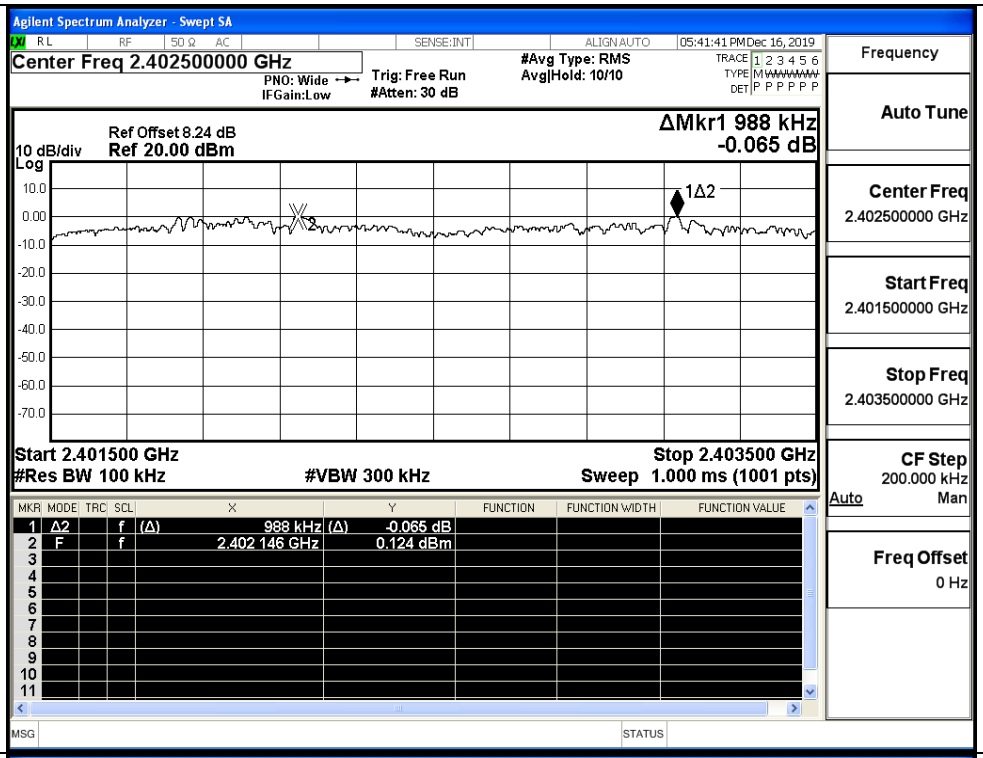
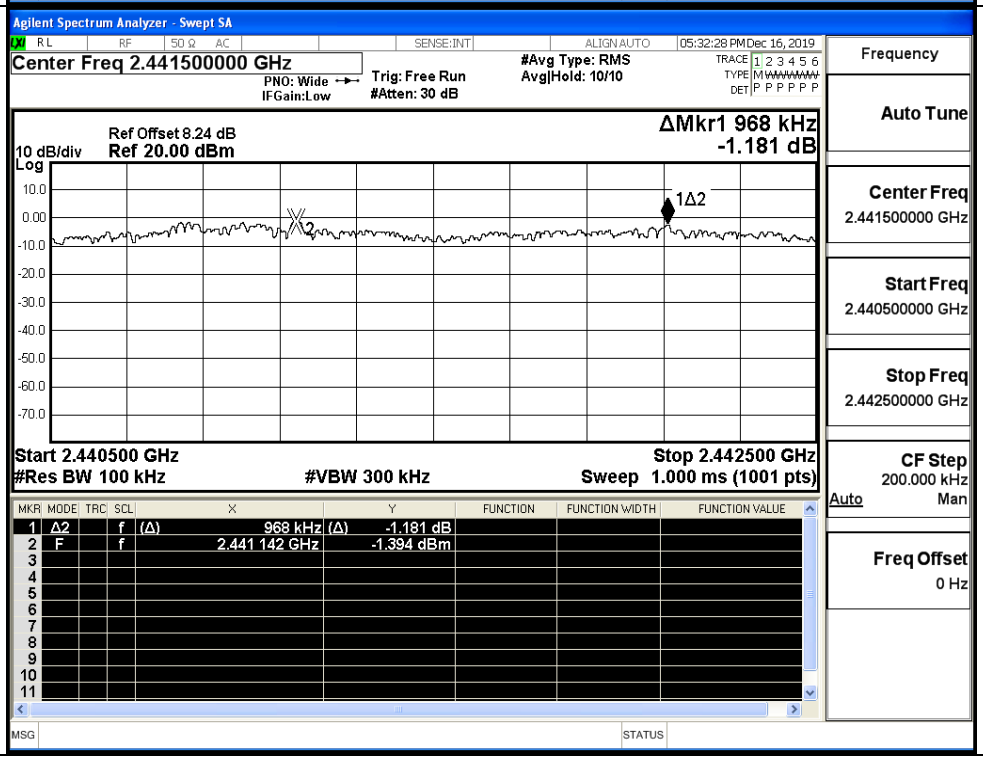
8DPSK/MCH	
8DPSK/HCH	

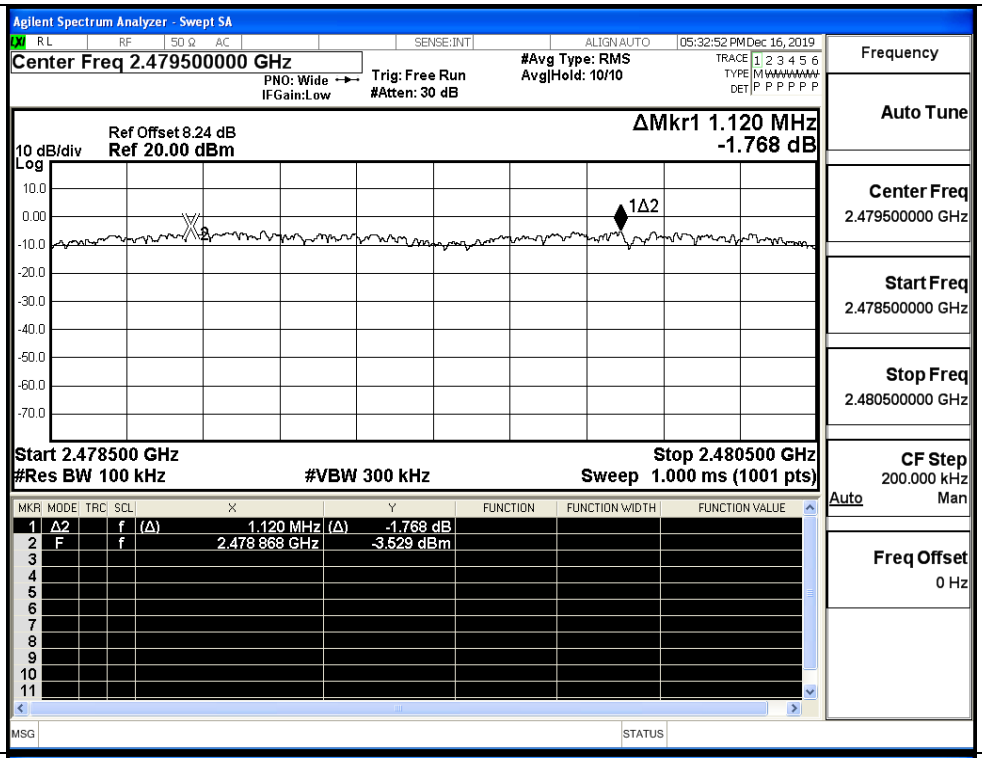
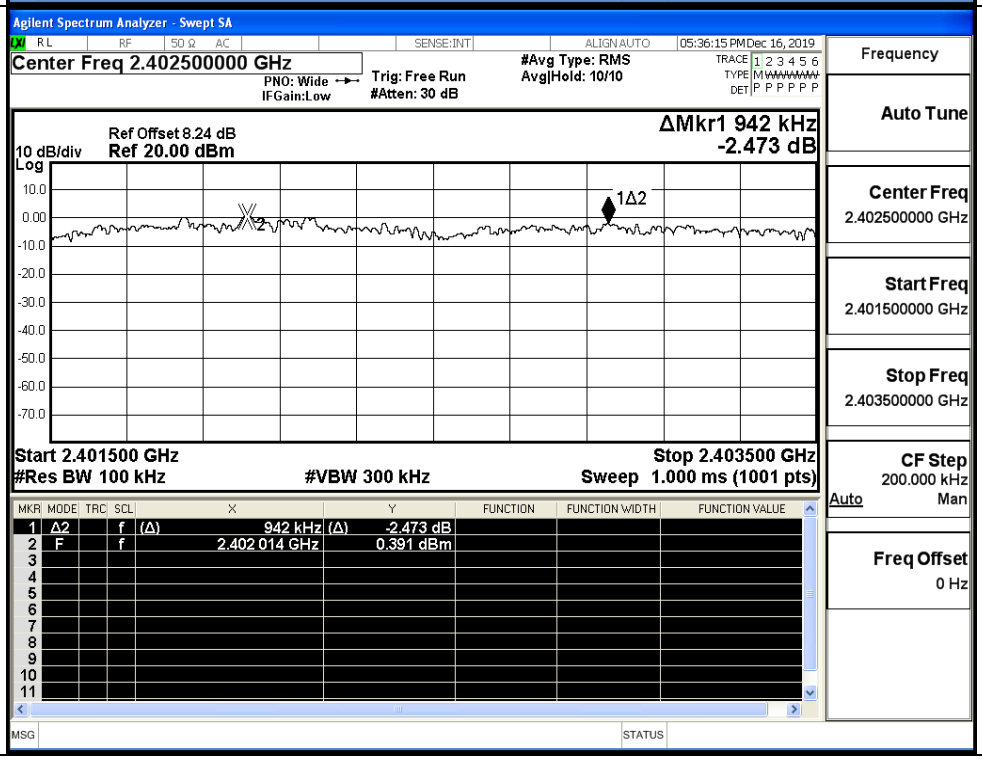
Right Ear

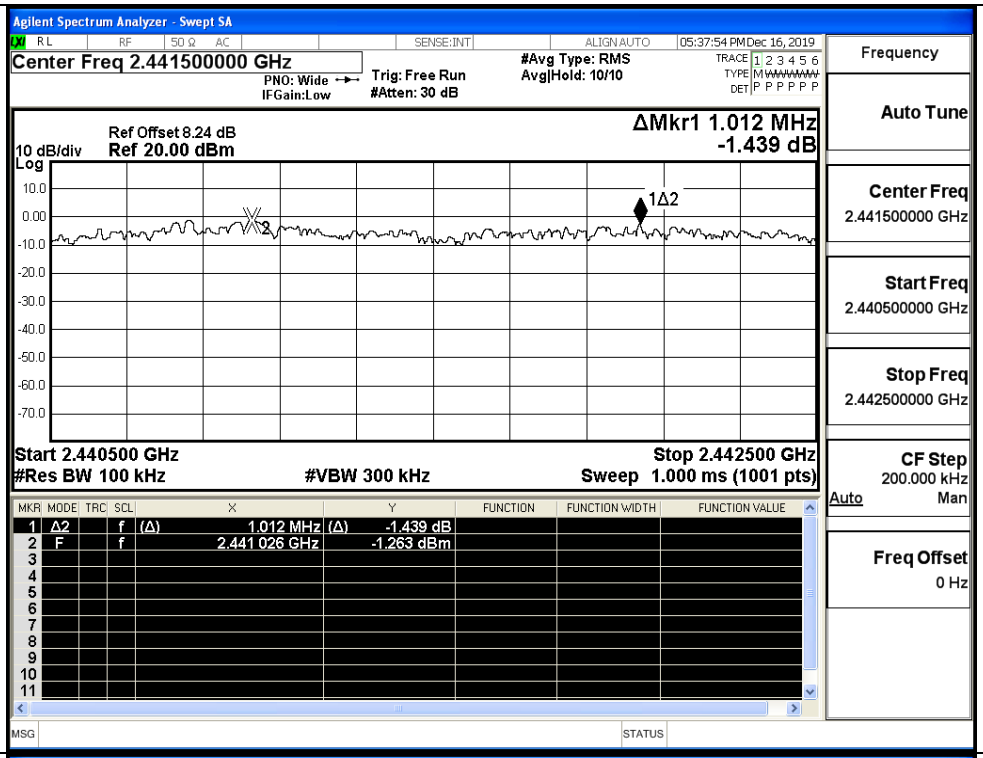
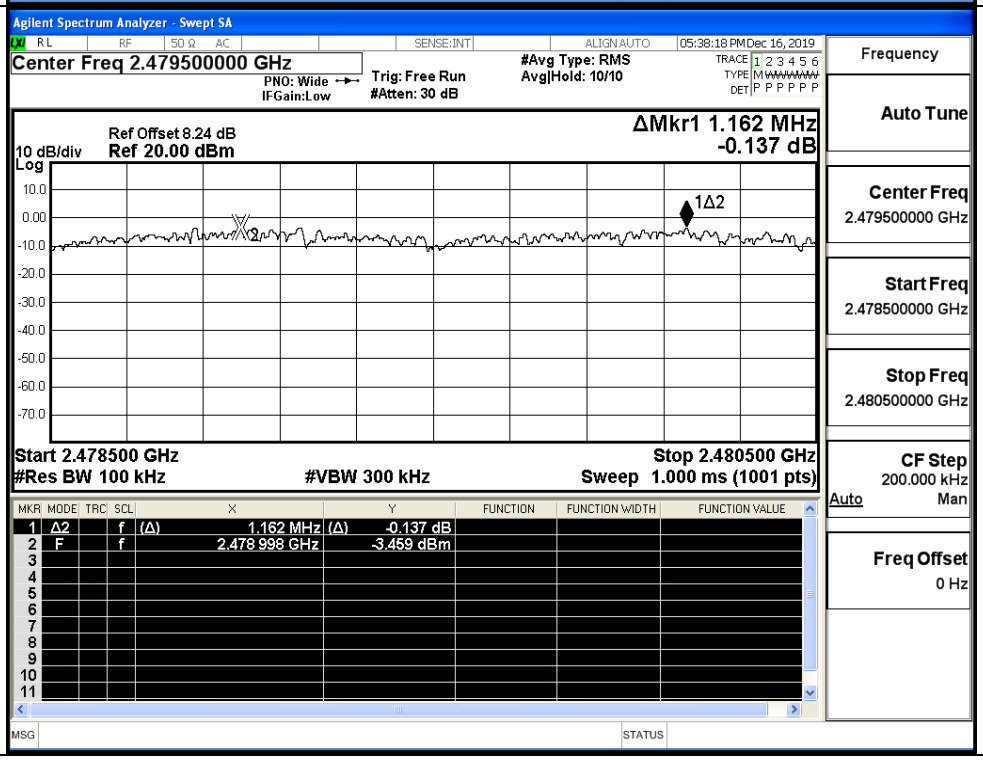
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.843	0.632	PASS
	MCH	1.214	0.632	PASS
	HCH	0.992	0.632	PASS
π/4DQPSK	LCH	0.988	0.883	PASS
	MCH	0.968	0.883	PASS
	HCH	1.120	0.883	PASS
8DPSK	LCH	0.942	0.867	PASS
	MCH	1.012	0.867	PASS
	HCH	1.162	0.867	PASS

Test Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

π/4DQPSK/LCH	
π/4DQPSK/MCH	

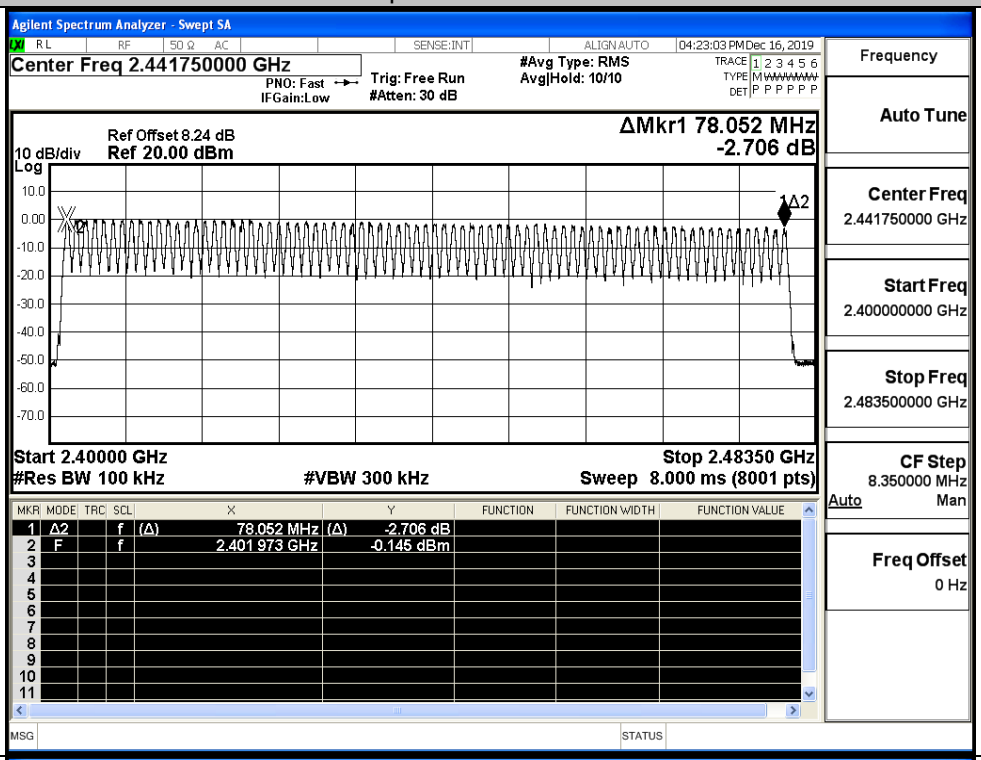
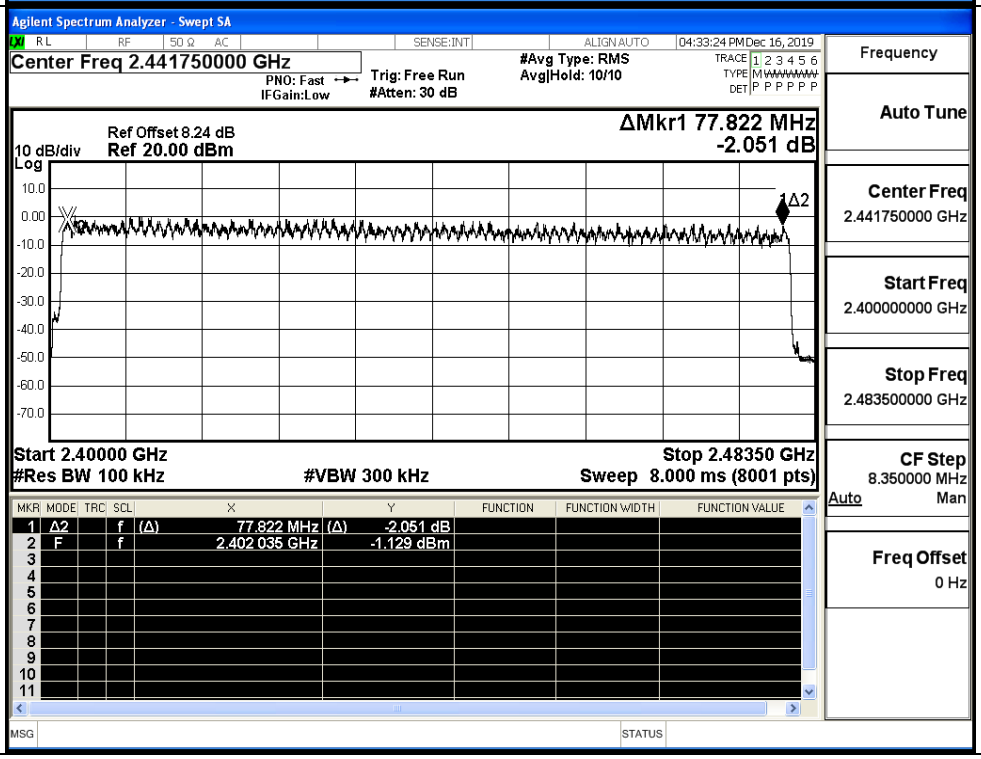
π/4DQPSK/HCH	
8DPSK/LCH	

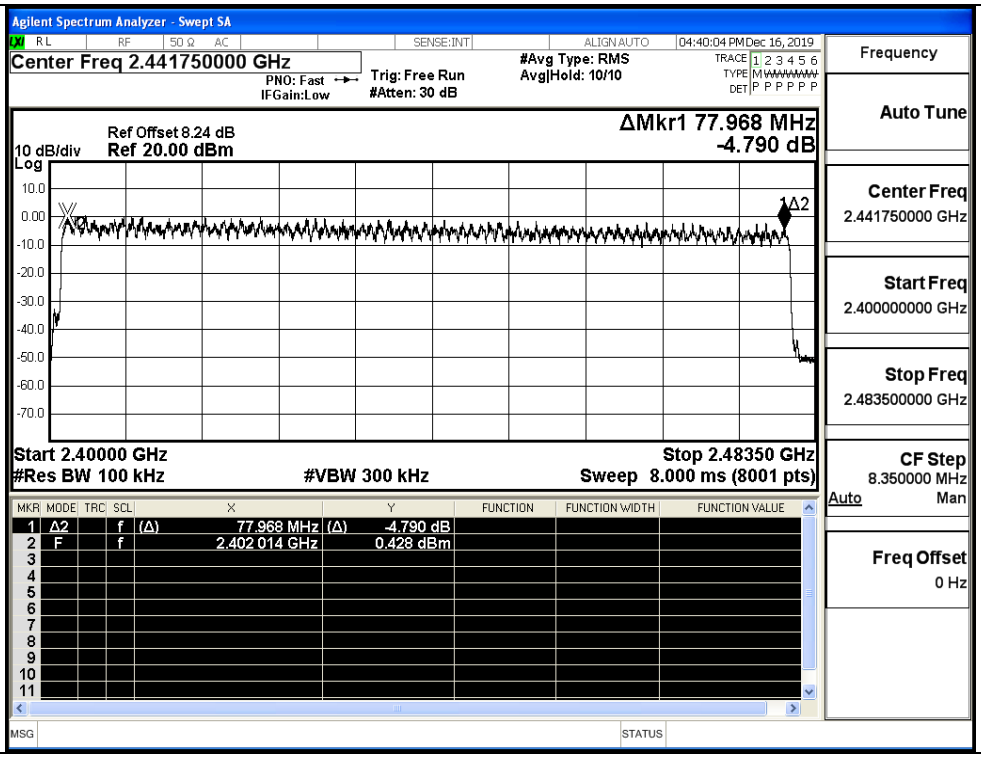
8DPSK/MCH	
8DPSK/HCH	

A.4 Hopping Channel Number

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

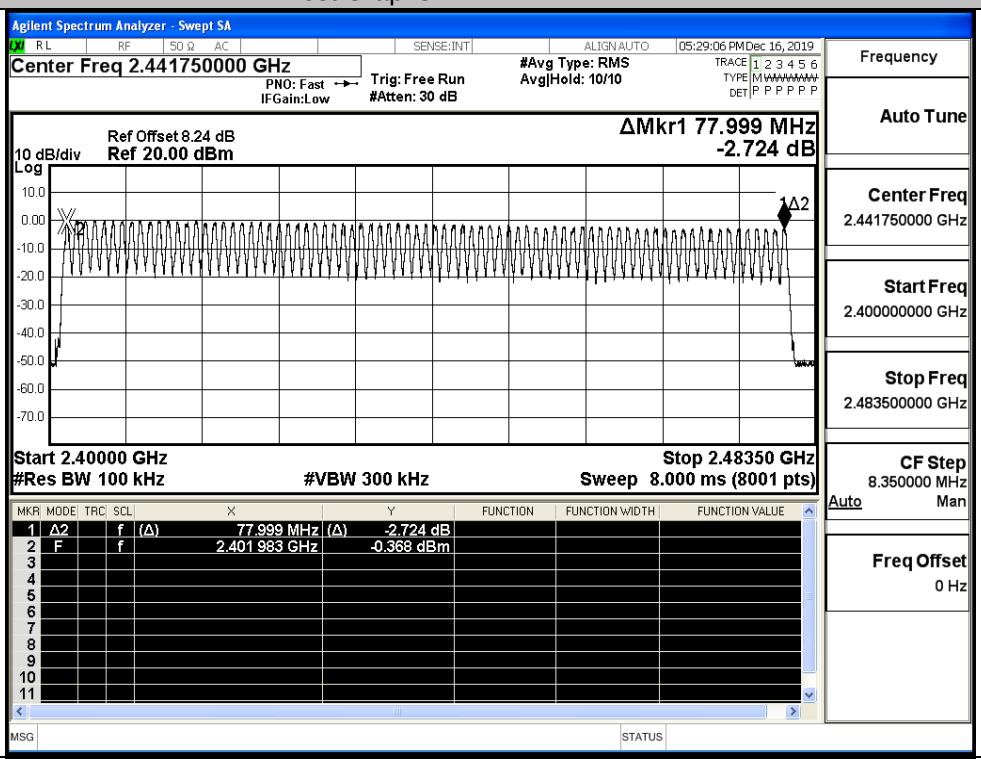
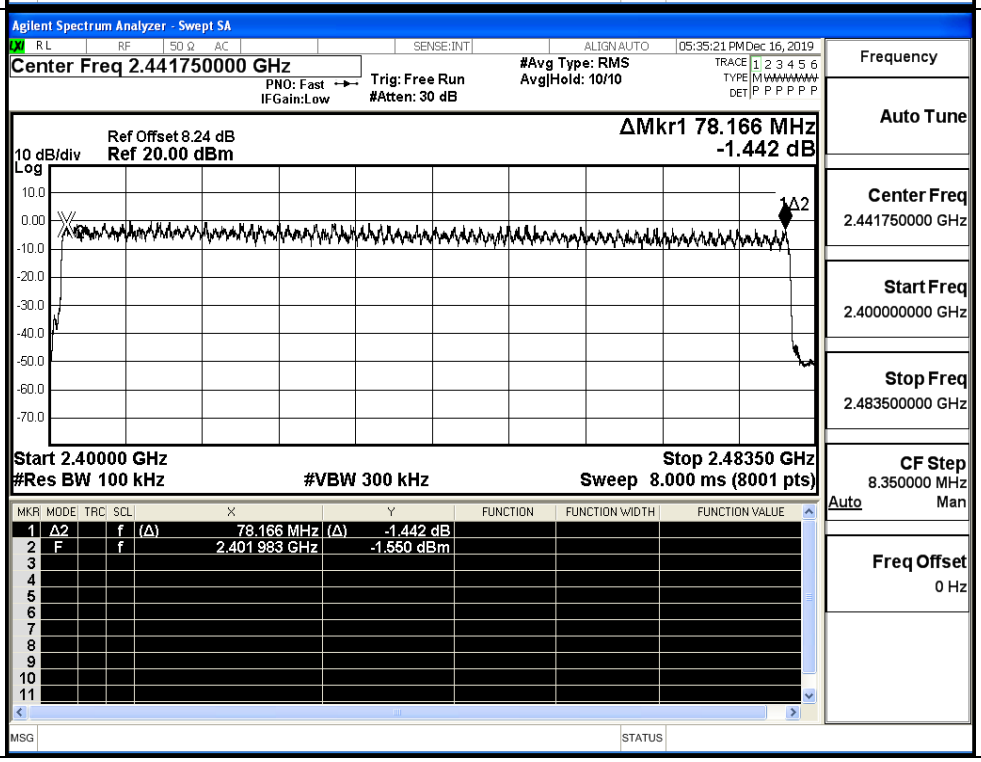
Test Graphs	
GFSK/Hop	
π/4DQPSK/Hop	

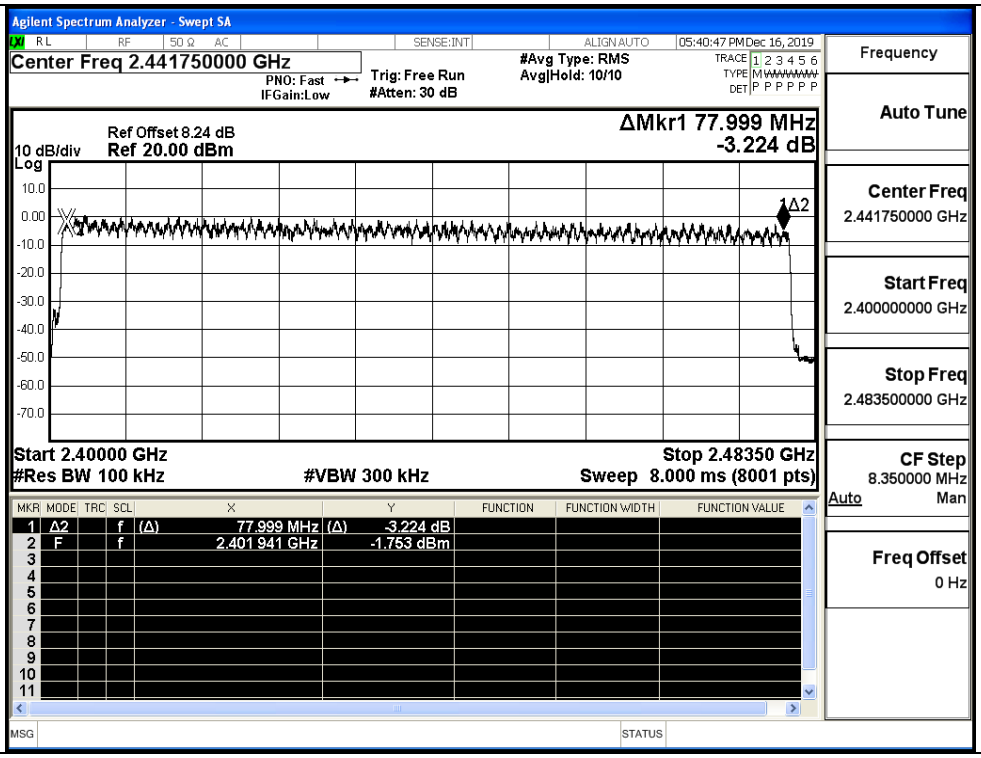
8DPSK/Hop	

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
04:40:04 PM Dec 16, 2019
Ref Offset 8.24 dB
10 dB/div
Ref 20.00 dBm
Log
ΔMkr1 77.968 MHz
-4.790 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) 77.968 MHz (Δ) -4.790 dB
2 F f 2.402 014 GHz 0.428 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

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	

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
05:40:47 PM Dec 16, 2019
Ref Offset 8.24 dB
10 dB/div
Log
Ref 20.00 dBm
ΔMkr1 77.999 MHz
-3.224 dB
1Δ2
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) 77.999 MHz (Δ) -3.224 dB
2 F f 2.401 941 GHz -1.753 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

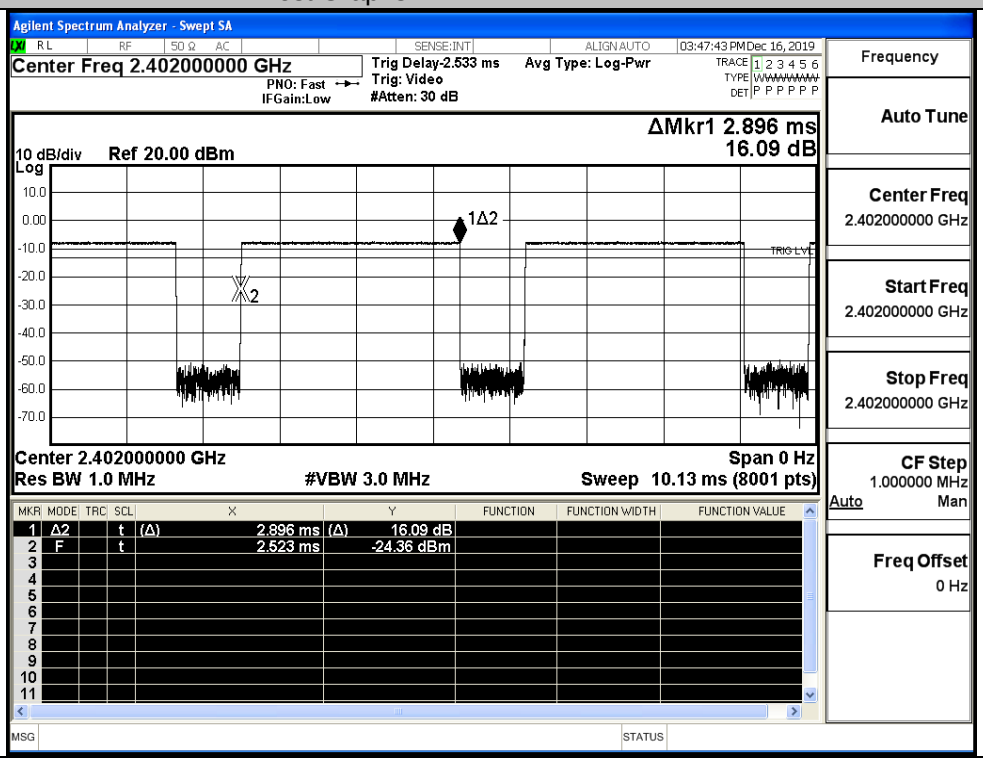
A.5 Dwell Time

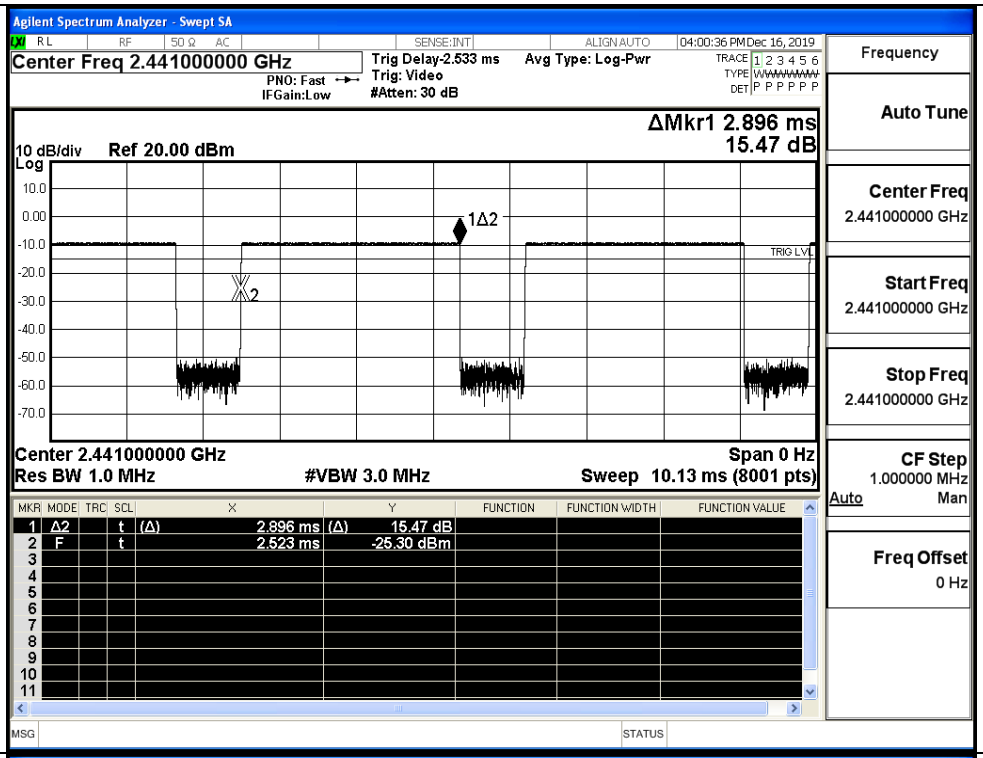
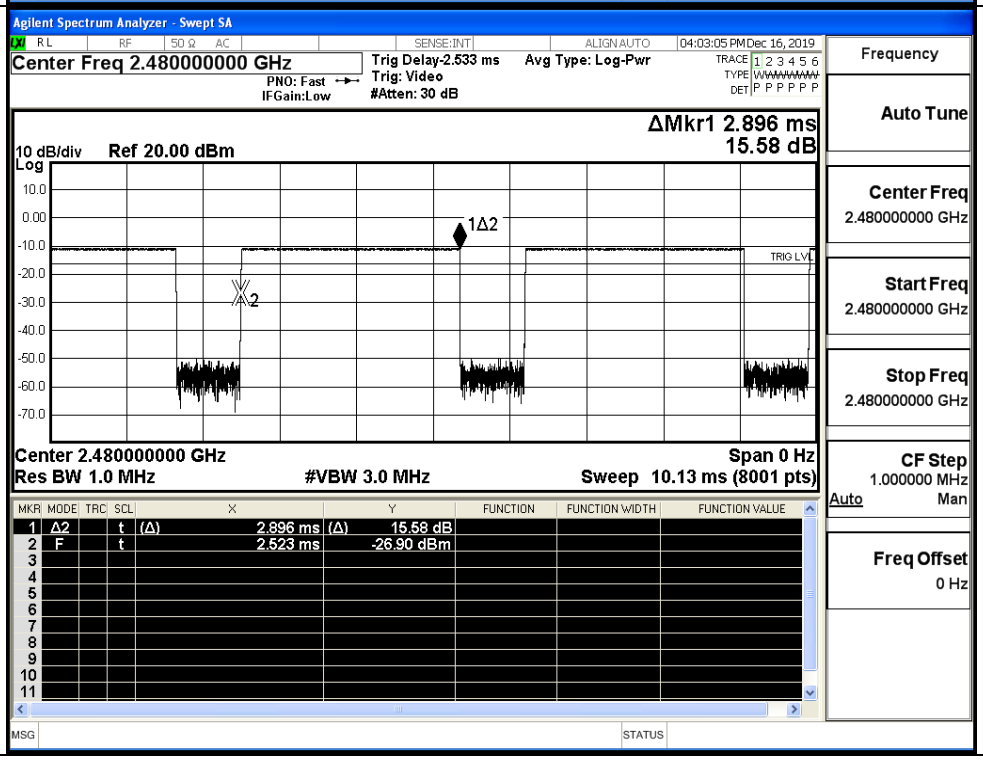
Left Ear

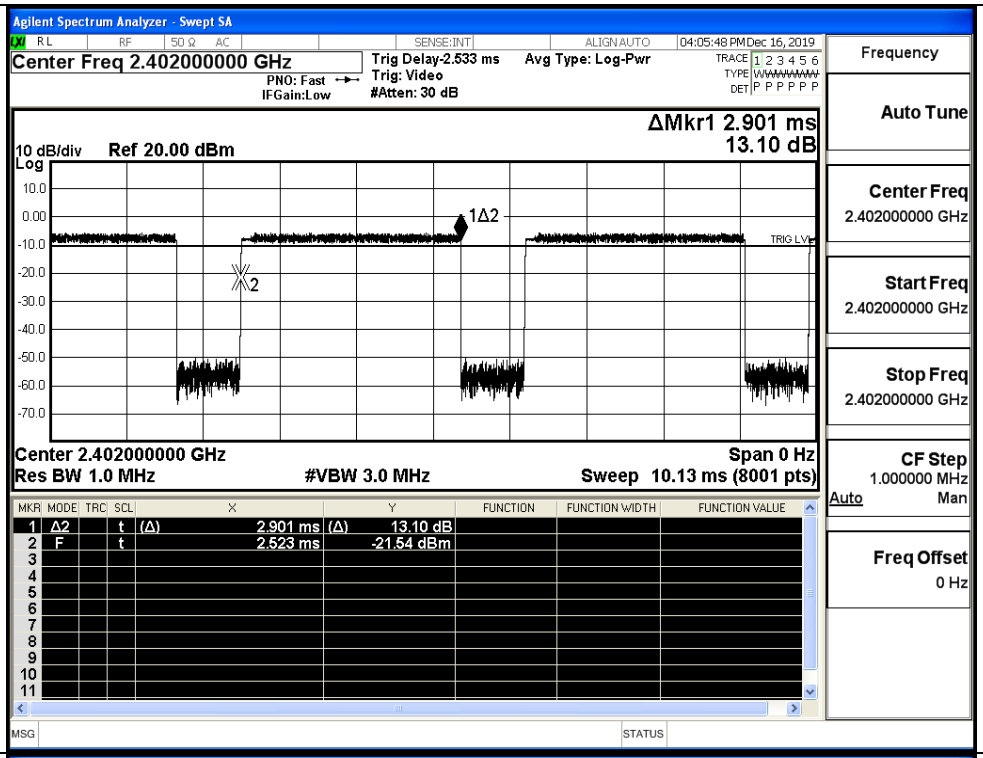
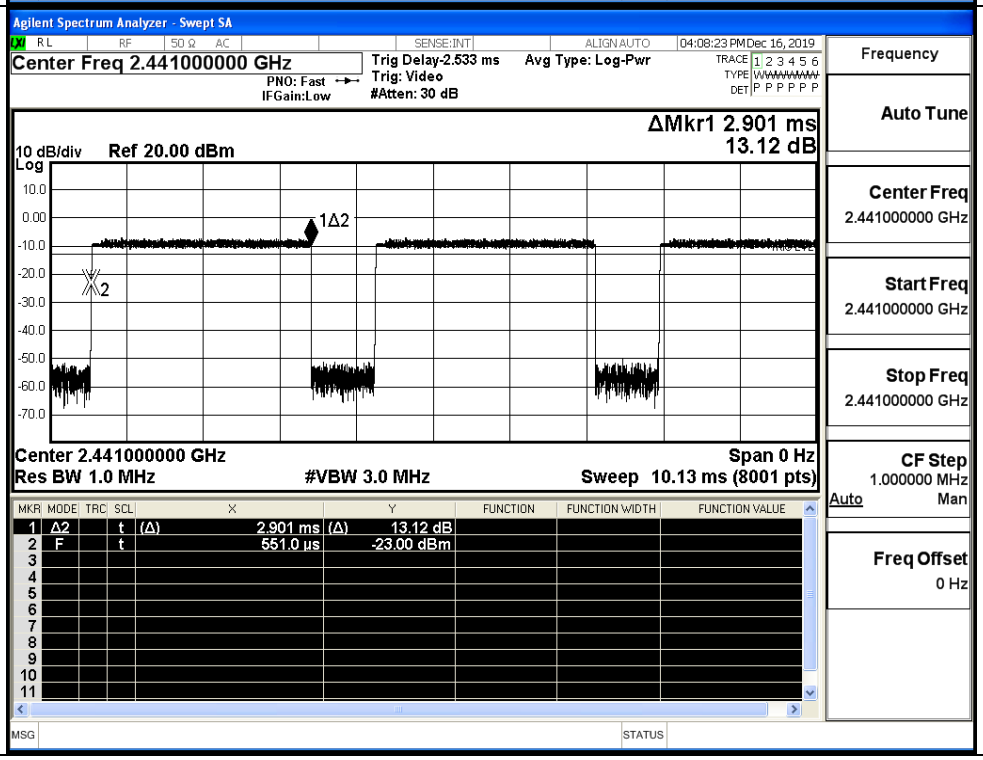
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.9	106.7	0.309	0.4	PASS
	DH5	MCH	2.9	106.7	0.309	0.4	PASS
	DH5	HCH	2.9	106.7	0.309	0.4	PASS
π/4DQPSK	2DH5	LCH	2.9	106.7	0.309	0.4	PASS
	2DH5	MCH	2.9	106.7	0.309	0.4	PASS
	2DH5	HCH	2.9	106.7	0.309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

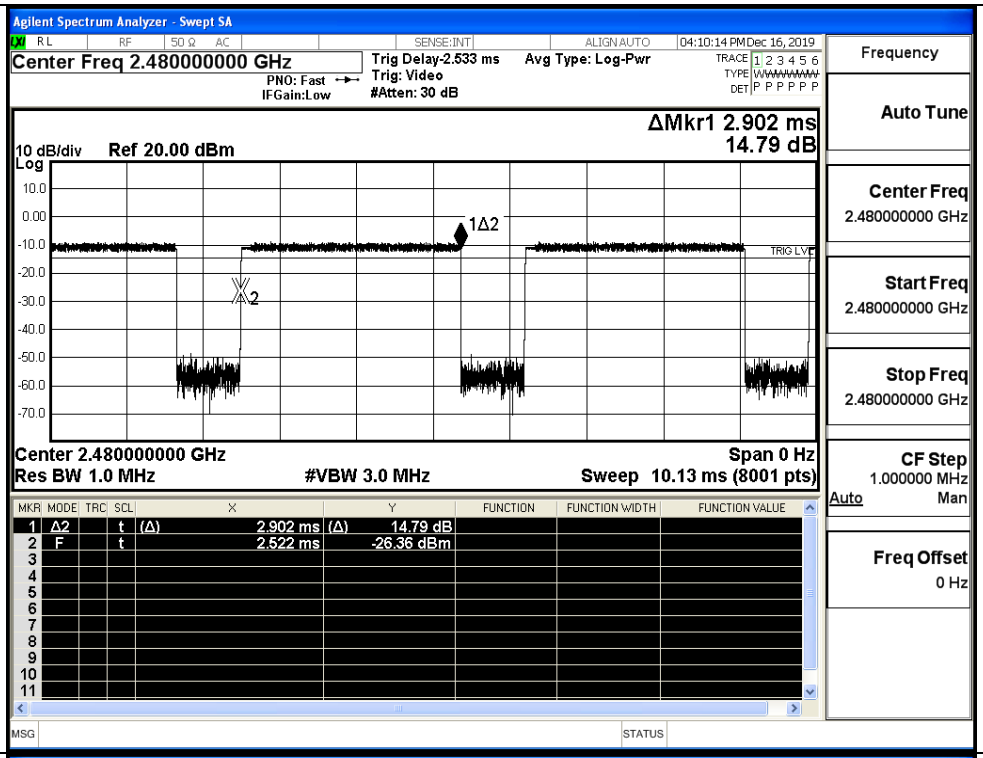
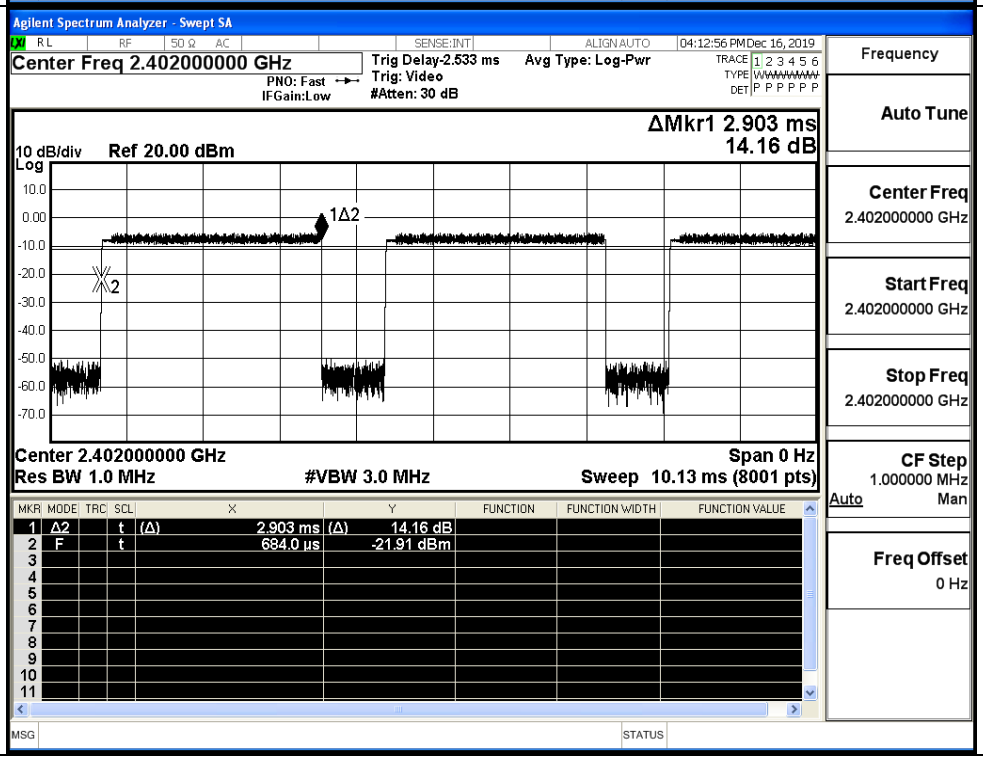
Test Graphs

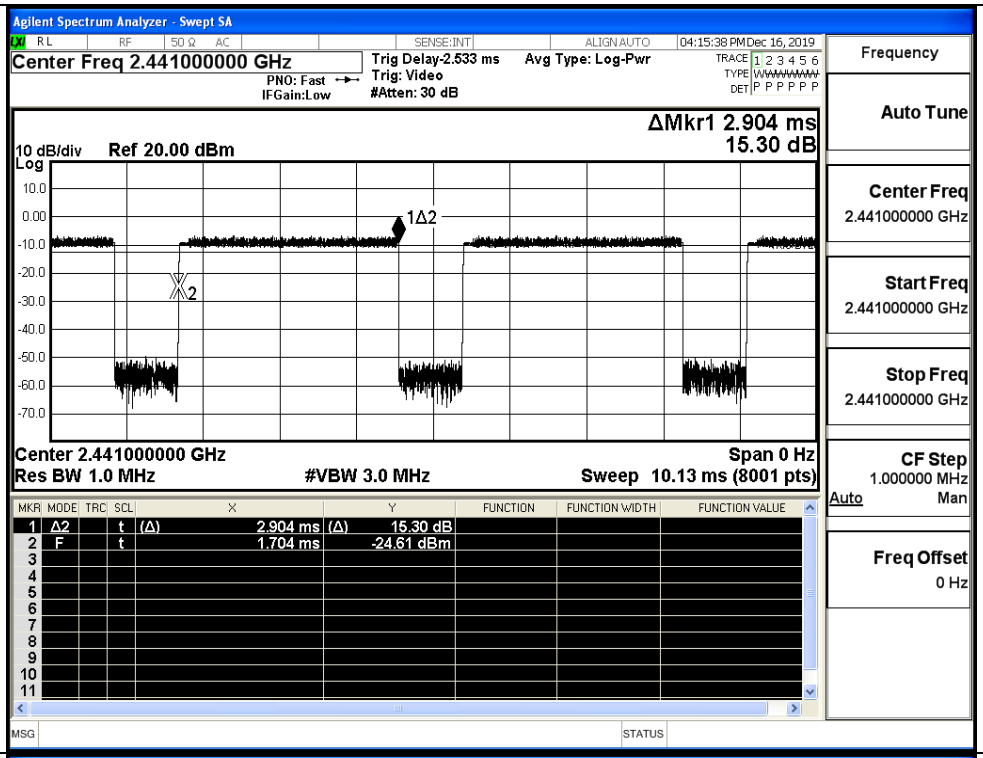
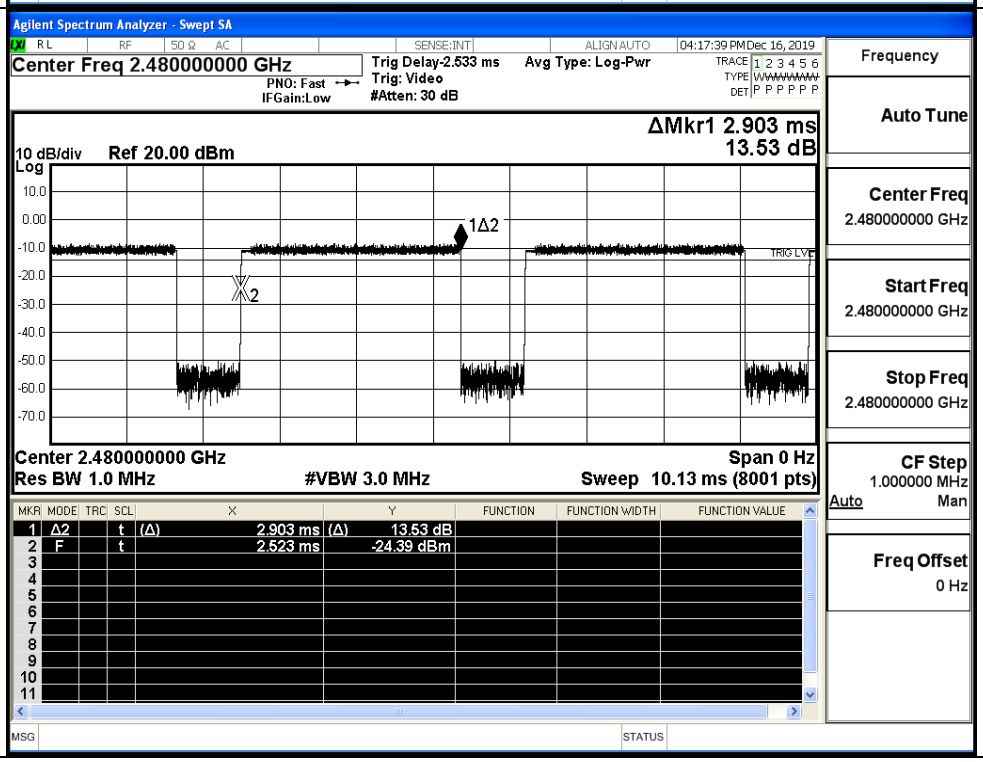
GFSK_DH5/LCH



GFSK_DH5/MCH	
GFSK_DH5/HCH	

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

π/4DQPSK _2DH5/HCH	
8DPSK _3DH5/LCH	

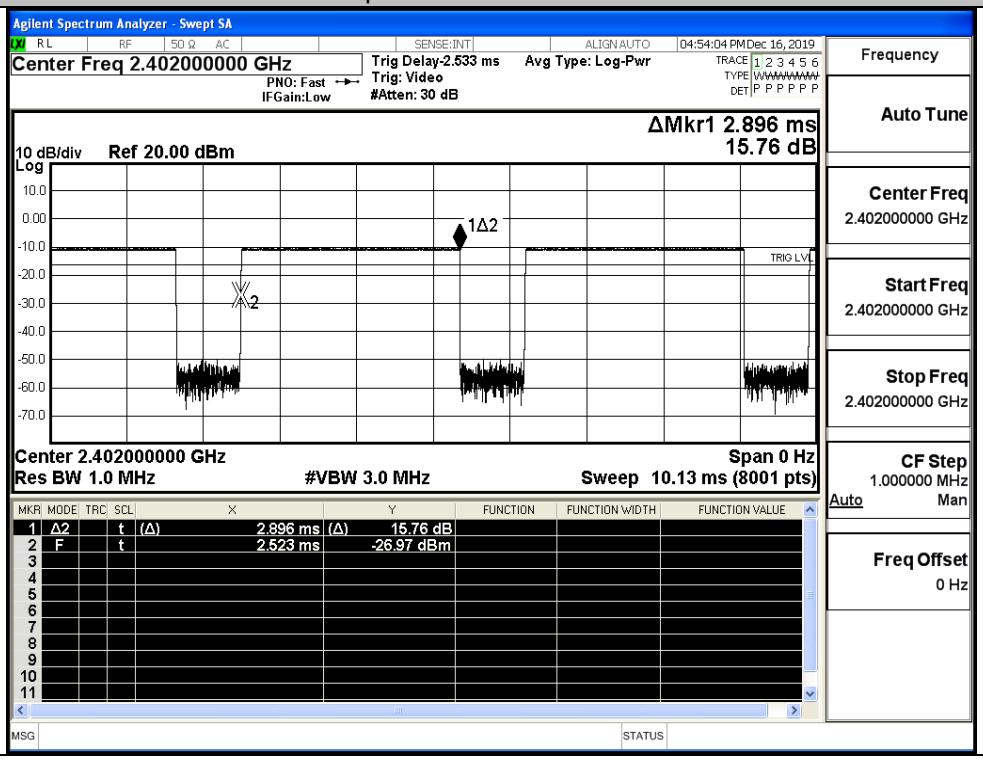
8DPSK _3DH5/MCH	
8DPSK _3DH5/HCH	

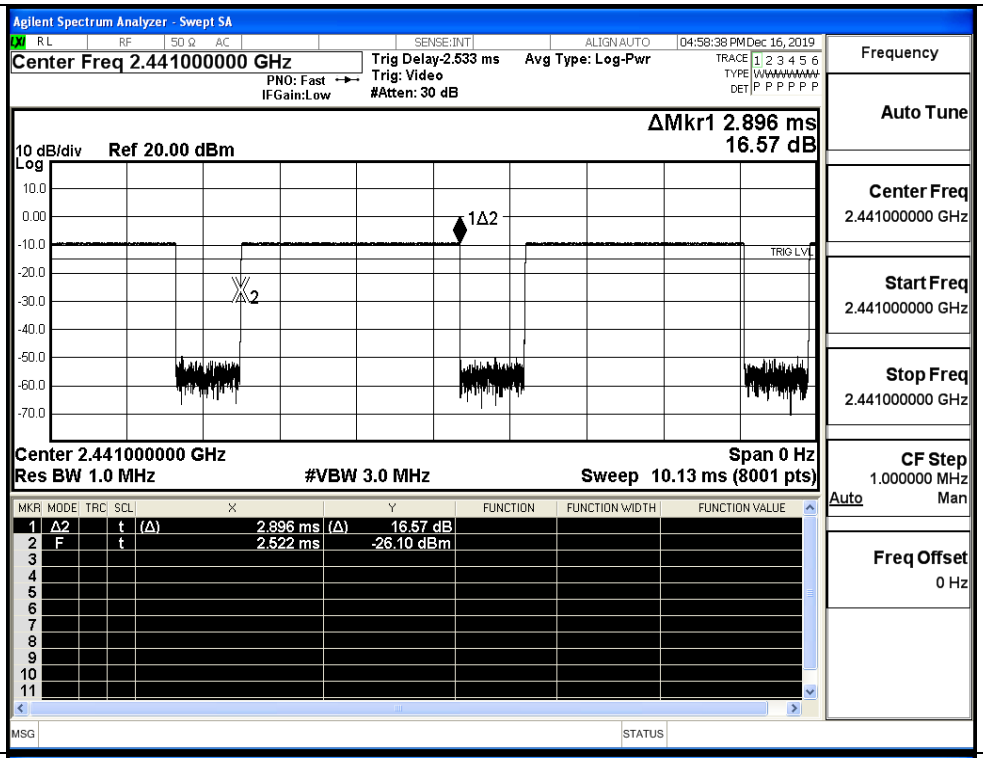
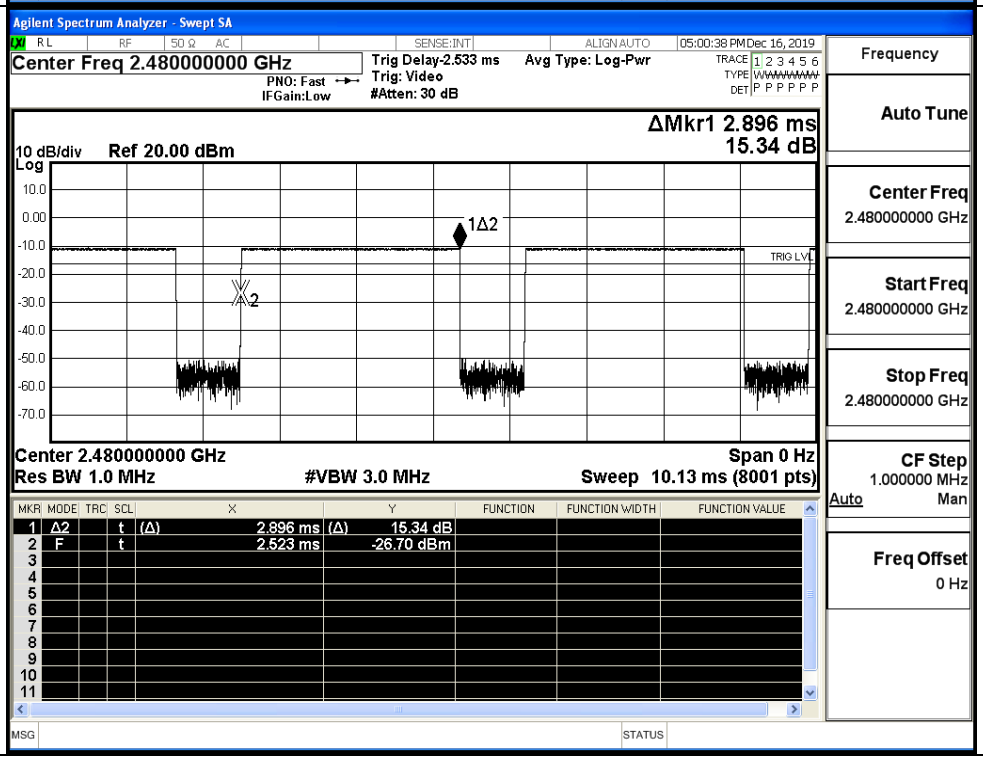
Right Ear

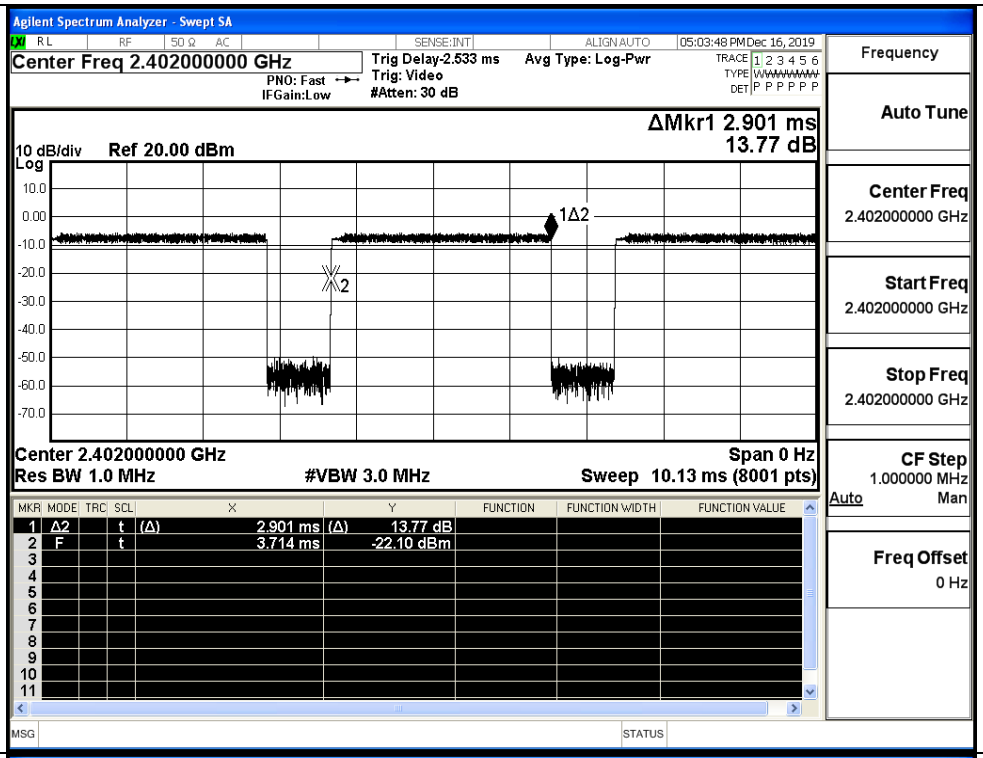
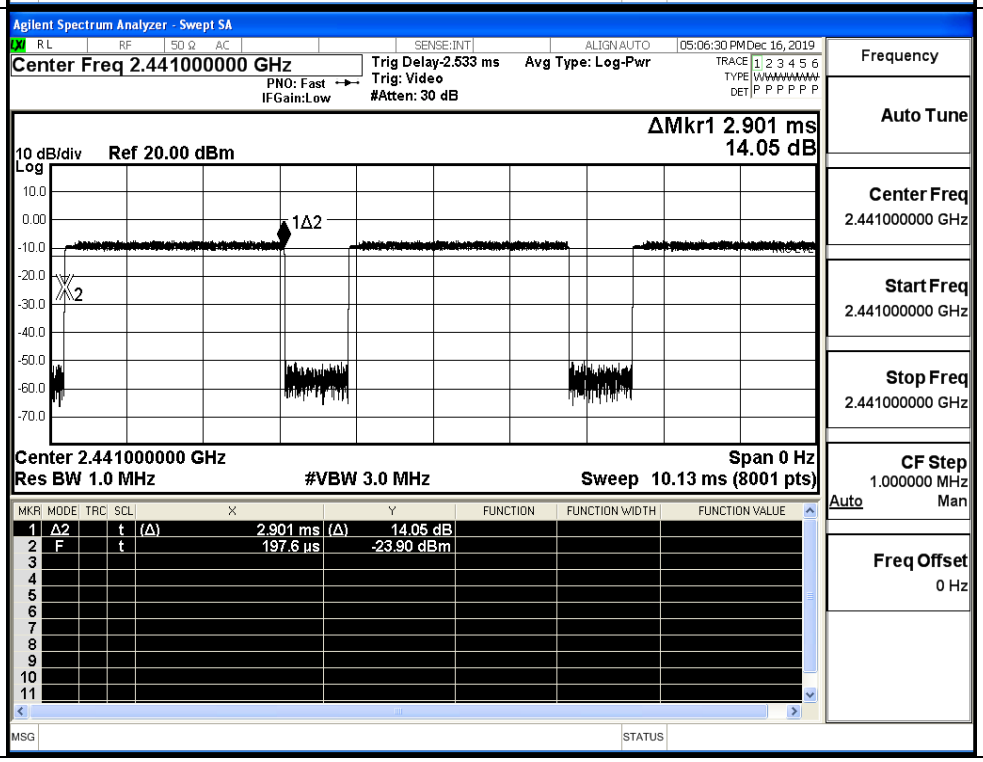
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.9	106.7	0.309	0.4	PASS
	DH5	MCH	2.9	106.7	0.309	0.4	PASS
	DH5	HCH	2.9	106.7	0.309	0.4	PASS
π/4DQPSK	2DH5	LCH	2.9	106.7	0.309	0.4	PASS
	2DH5	MCH	2.9	106.7	0.309	0.4	PASS
	2DH5	HCH	2.9	106.7	0.309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

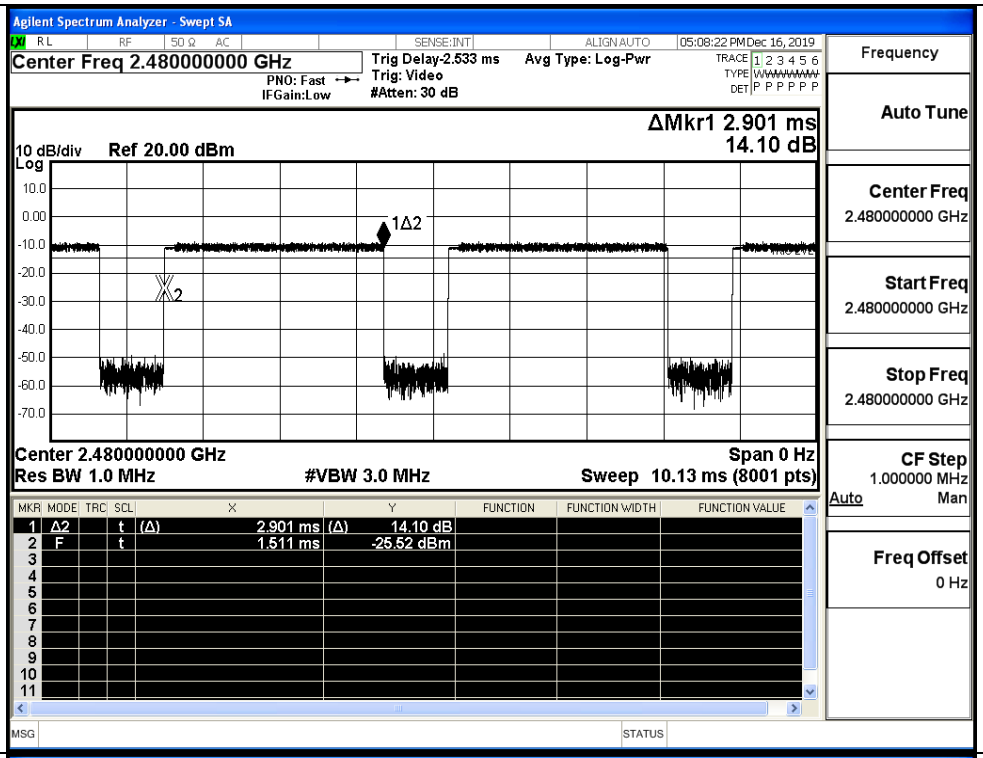
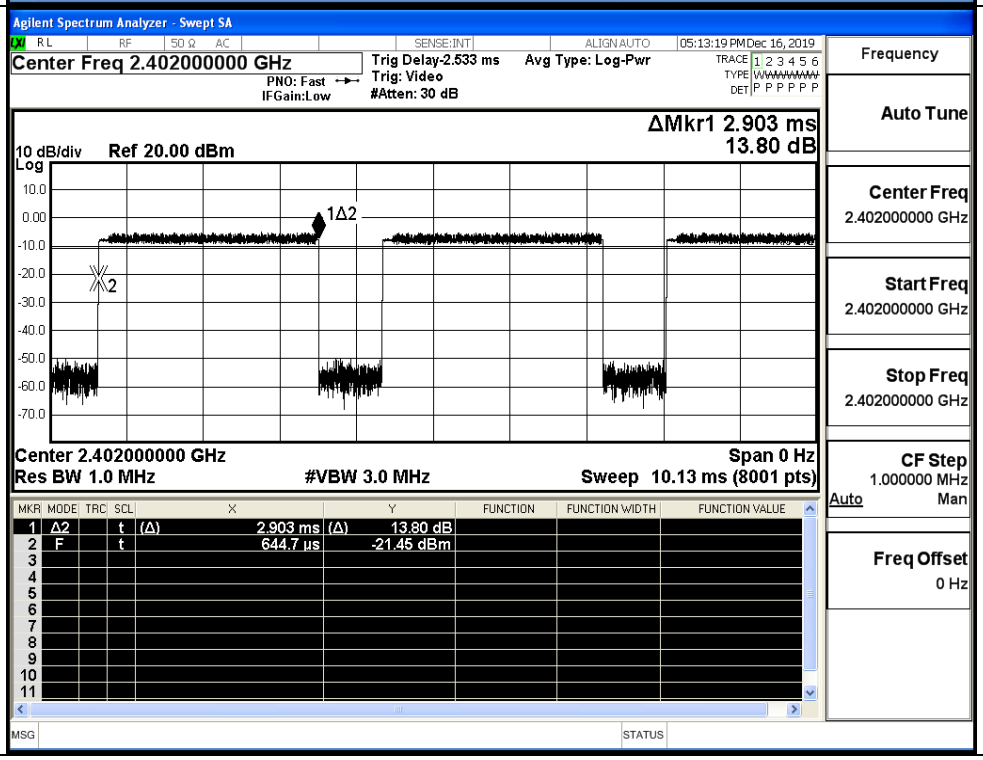
Test Graphs

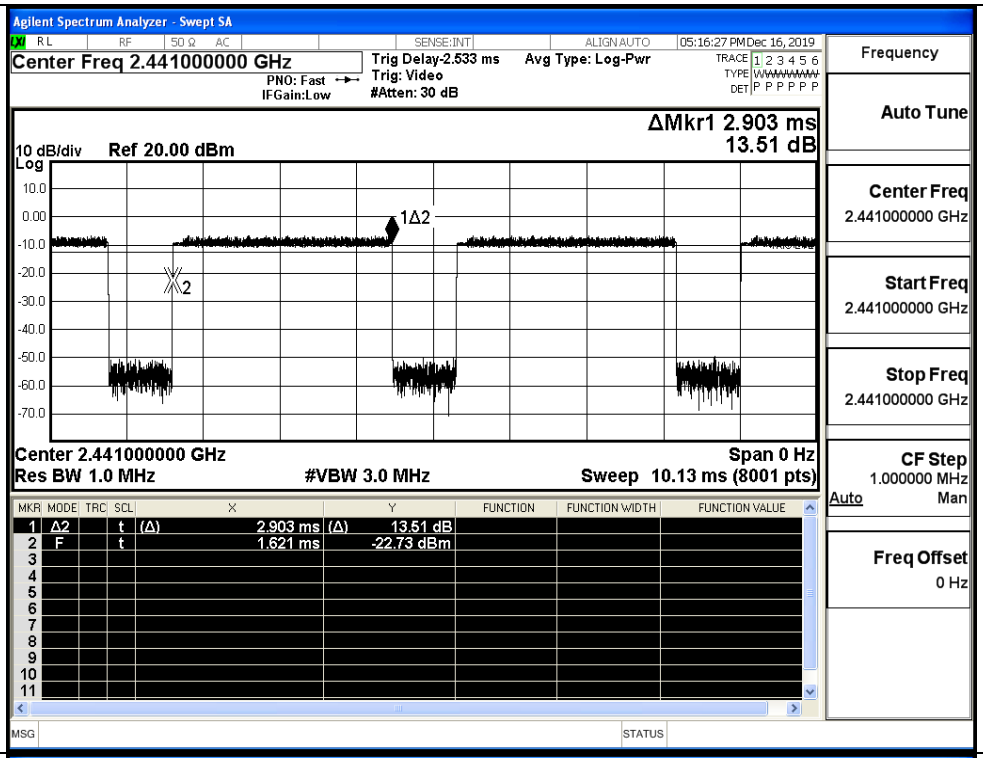
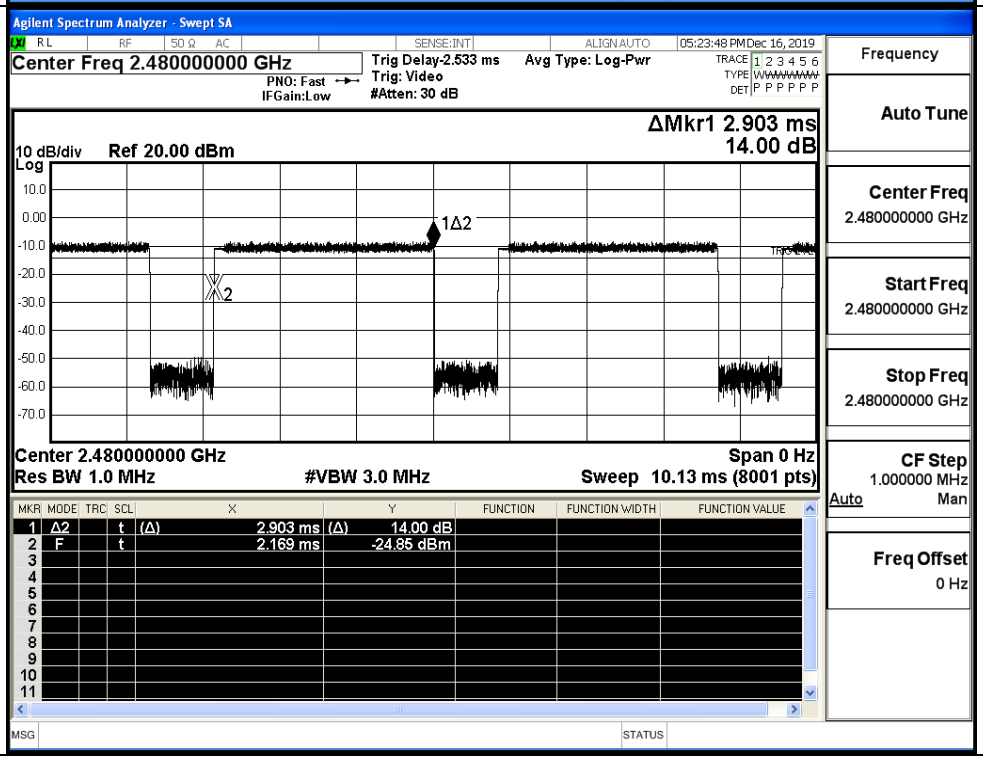
GFSK_DH5/LCH



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	

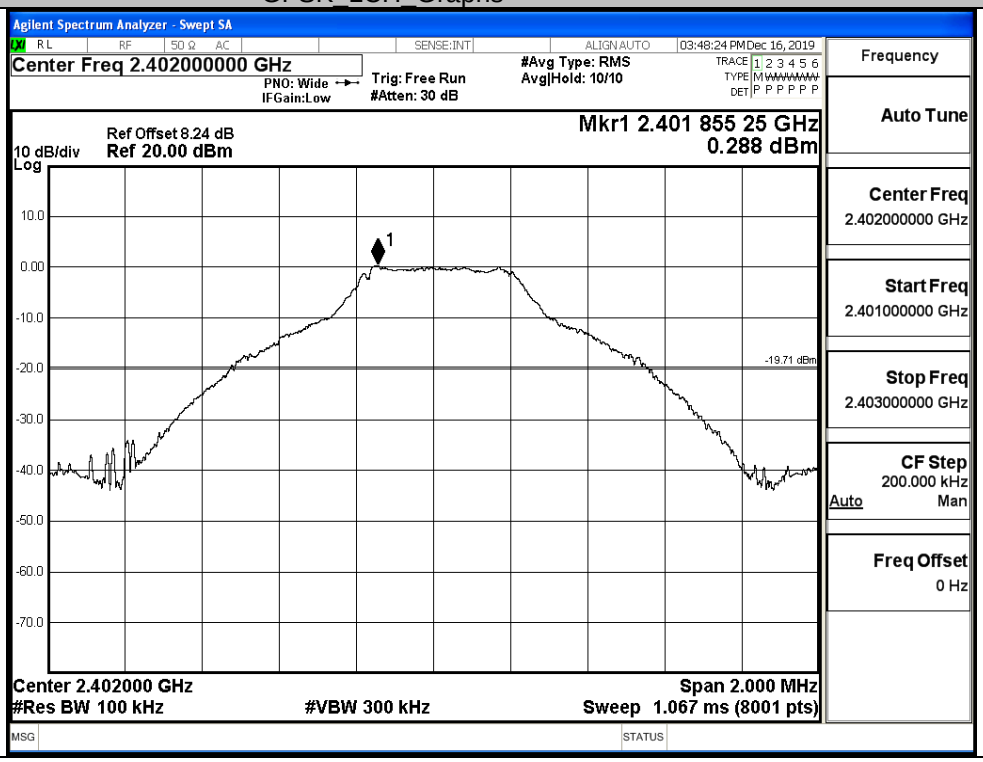
A.6 RF Conducted Spurious Emissions

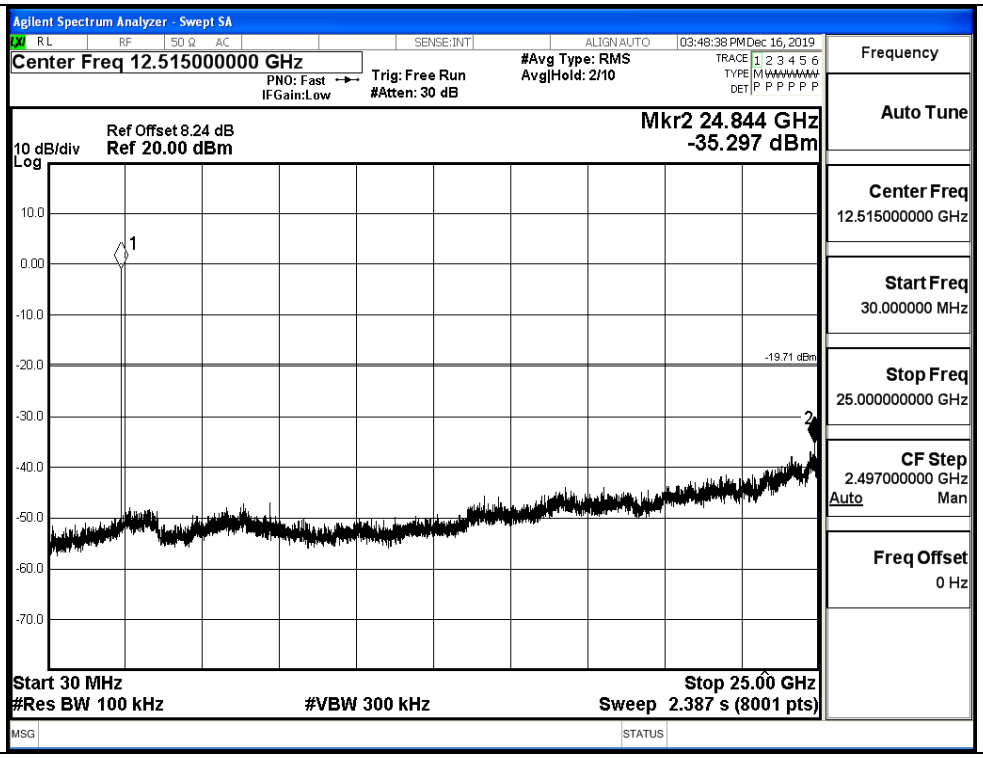
Left Ear

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.288	-35.297	-19.712	PASS
	MCH	-1.212	-37.678	-21.212	PASS
	HCH	-3.083	-37.132	-23.083	PASS
π/4DQPSK	LCH	0.148	-36.730	-19.852	PASS
	MCH	-1.403	-36.745	-21.403	PASS
	HCH	-3.183	-37.532	-23.183	PASS
8DPSK	LCH	0.471	-37.192	-19.529	PASS
	MCH	-1.373	-36.873	-21.373	PASS
	HCH	-2.636	-37.615	-22.636	PASS

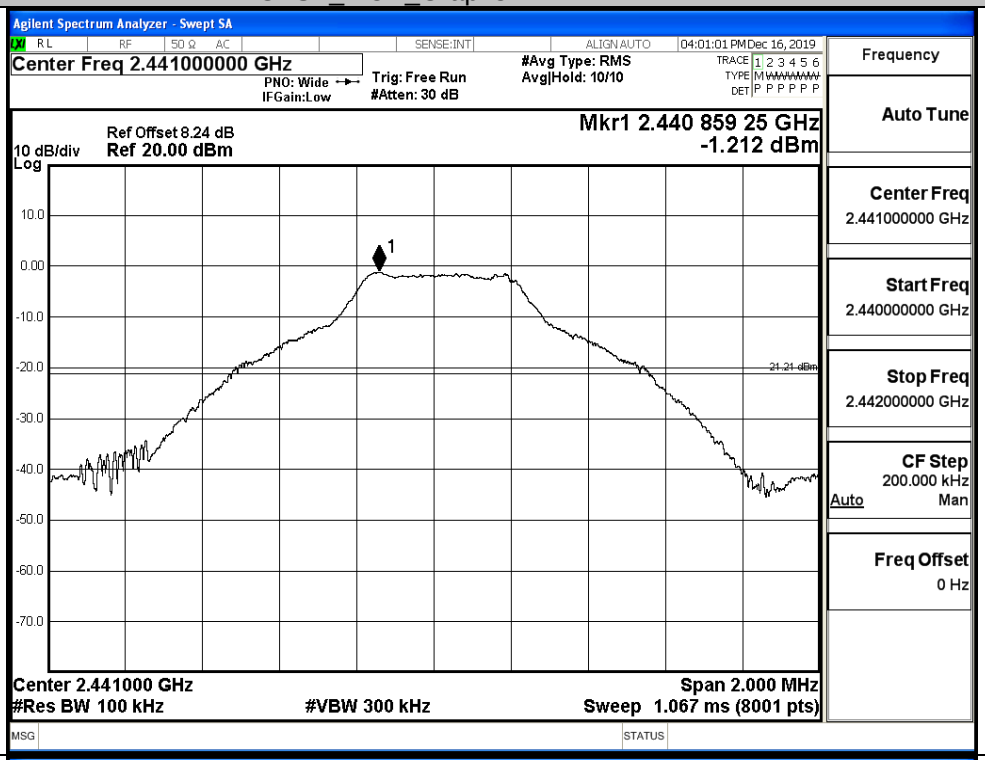
GFSK_LCH_Graphs

Pref



Puw		

Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
03:48:38 PM Dec 16, 2019
Center Freq 12.515000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 2/10
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 24.844 GHz
-35.297 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
1
2
-19.71 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