

Appendix A

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

Product Name: t-Seven True Wireless

Trade Mark: Jays

Test Model: T7TW01

Environmental Conditions

Temperature:	22.2° C
Relative Humidity:	53.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

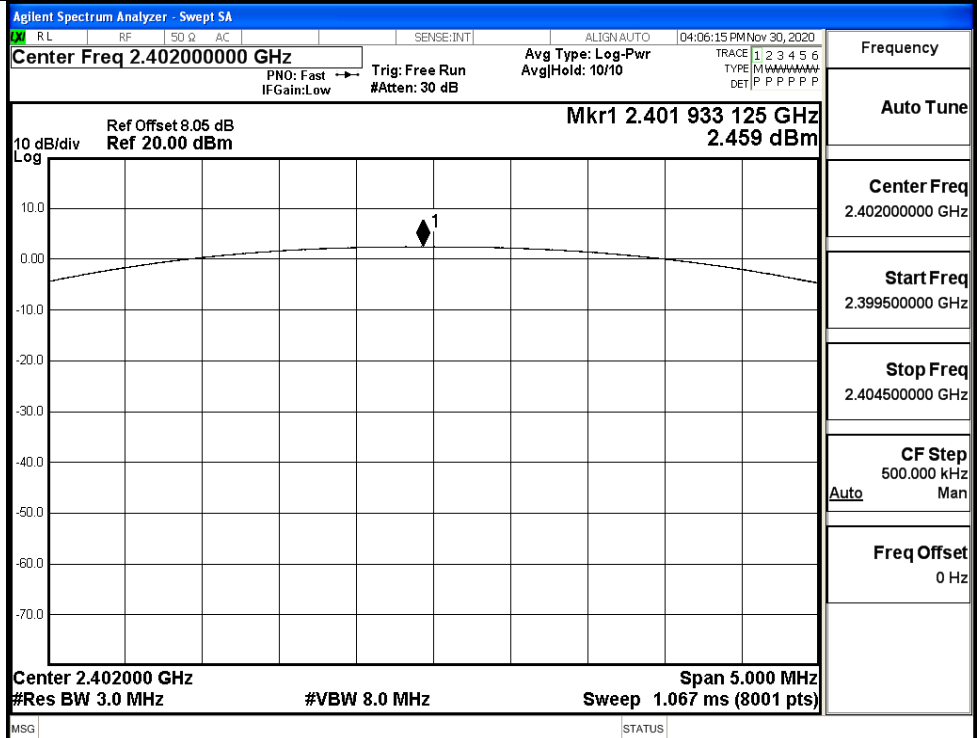
A.1 Maximum Conducted Peak Output Power

Right

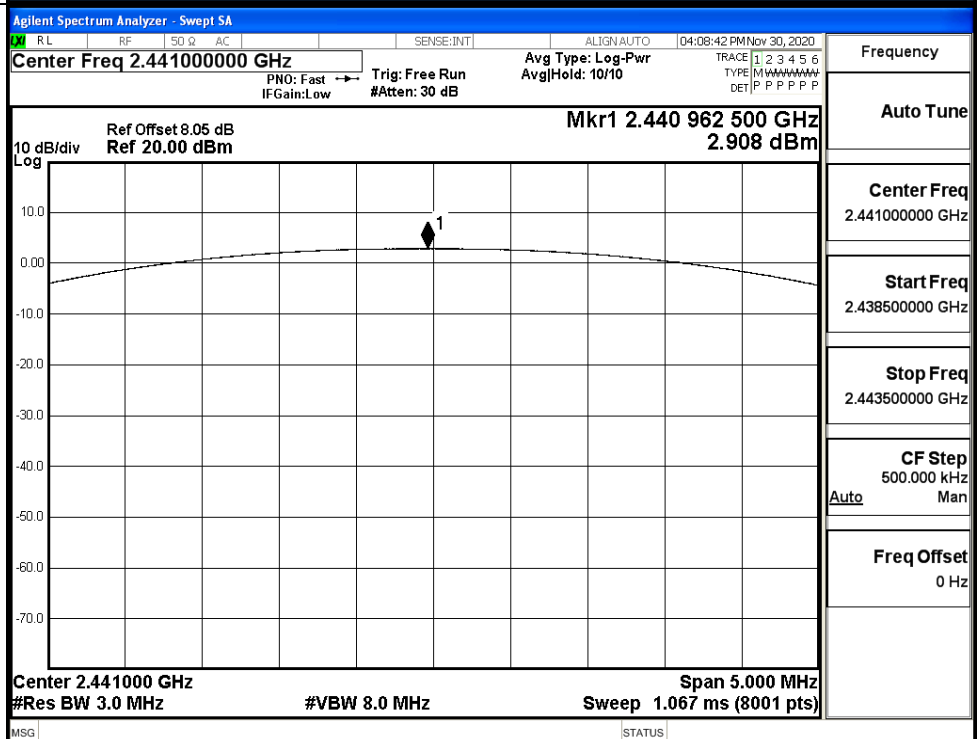
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.459	21	PASS
	MCH	2.908	21	PASS
	HCH	2.479	21	PASS
$\pi/4$ DQPSK	LCH	2.435	21	PASS
	MCH	2.836	21	PASS
	HCH	2.439	21	PASS
8DPSK	LCH	2.448	21	PASS
	MCH	2.855	21	PASS
	HCH	2.479	21	PASS

Test Graphs

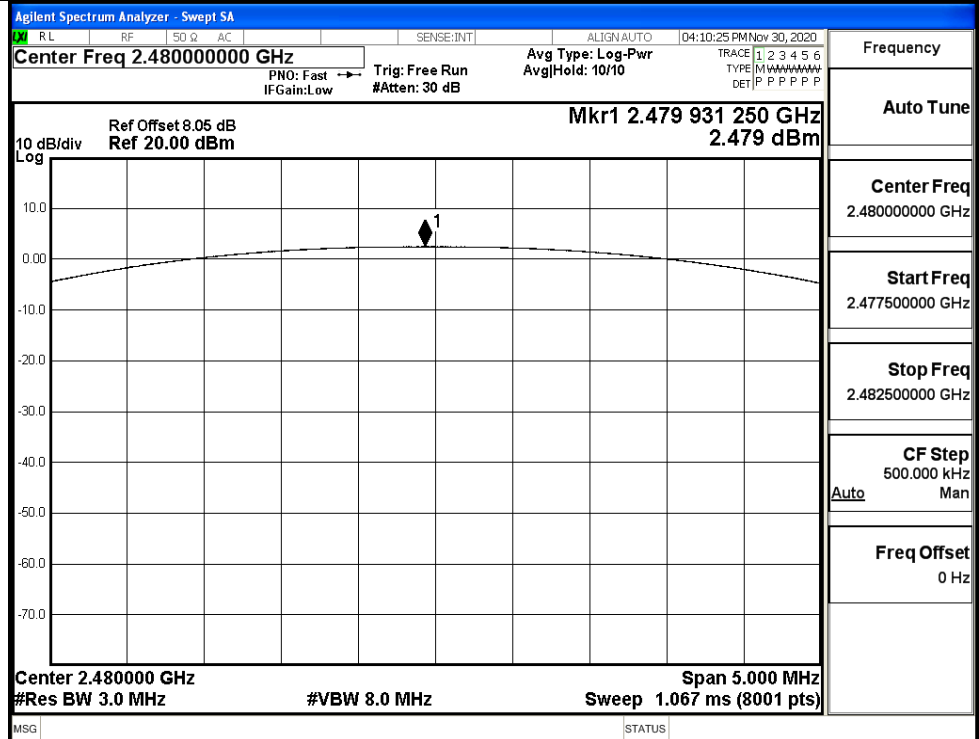
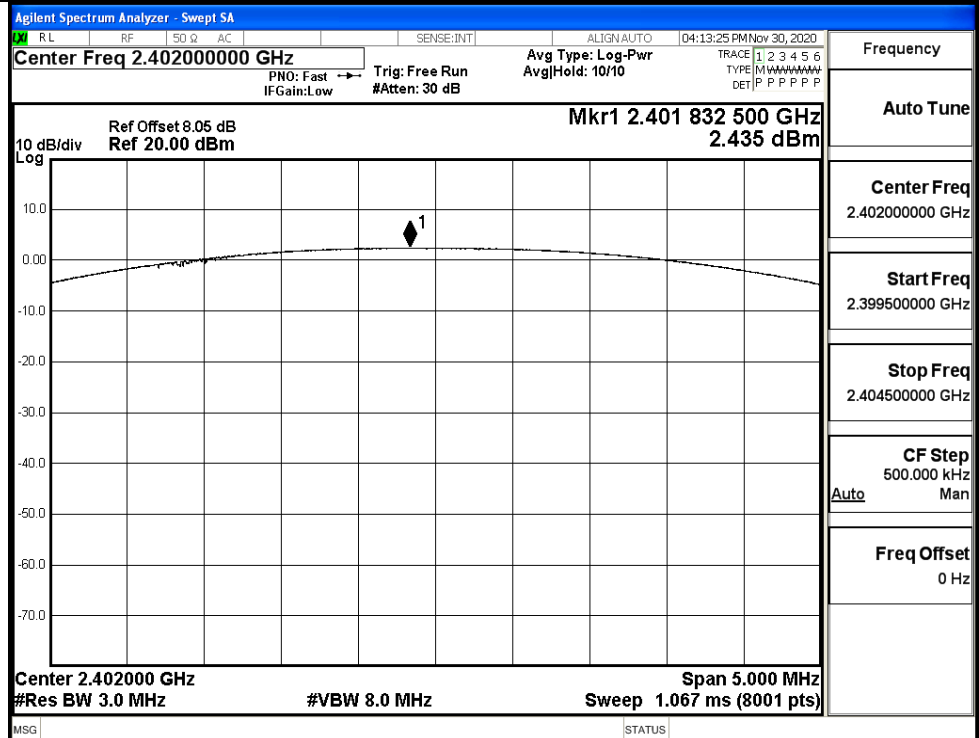
GFSK/LCH

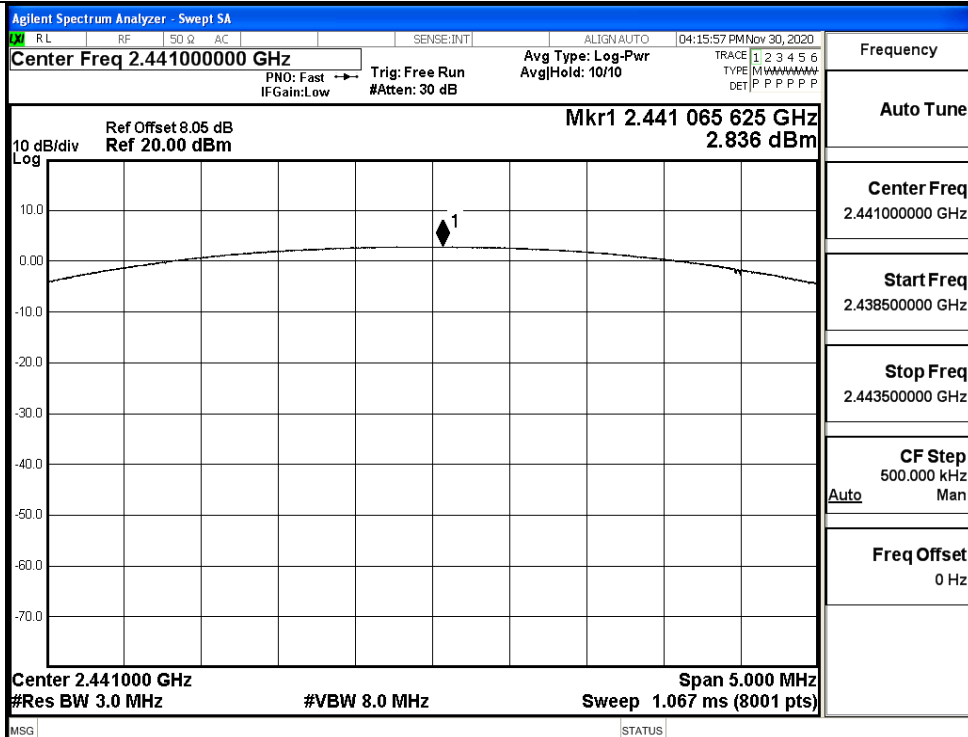
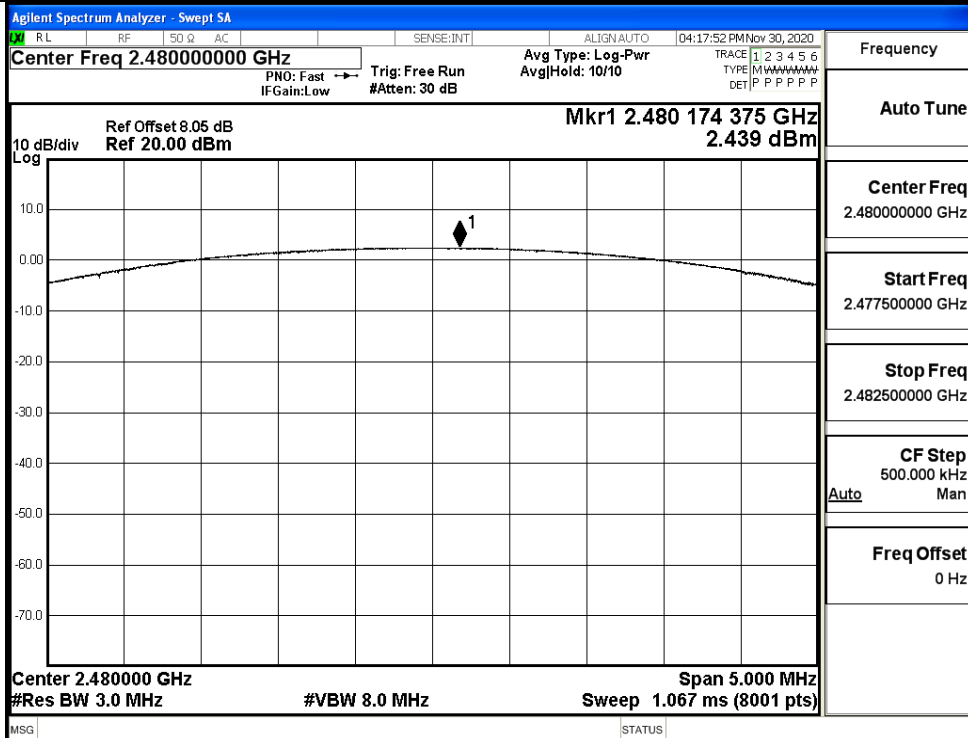


GFSK/MCH

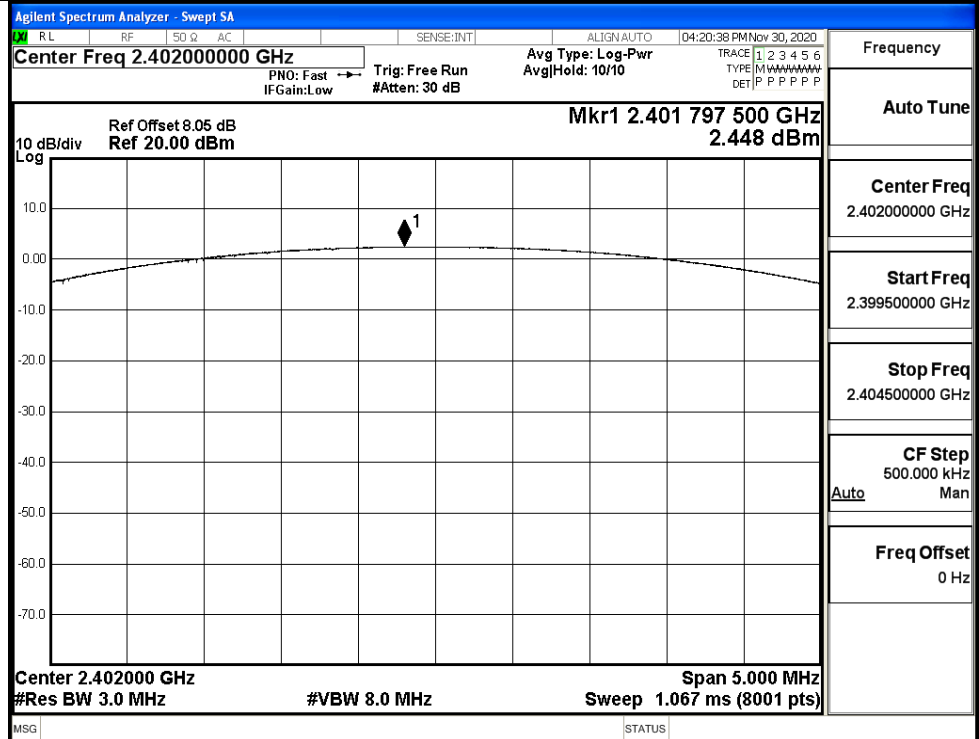


GFSK/HCH

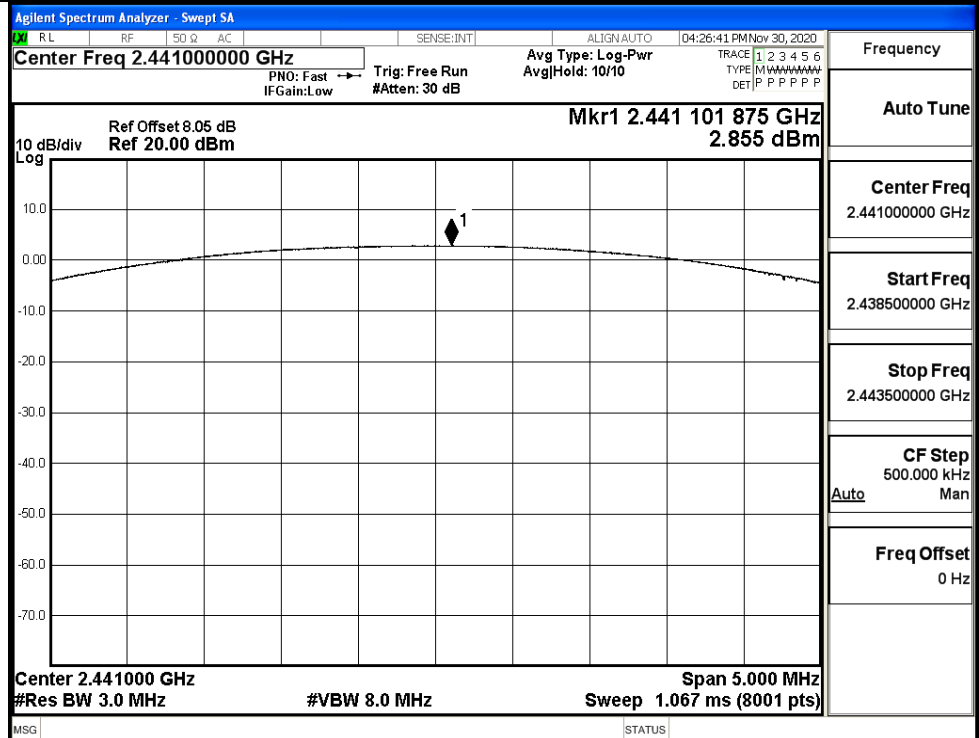
 $\pi/4$ DQPSK/LCH

π /4DQPSK/MCH π /4DQPSK/HCH

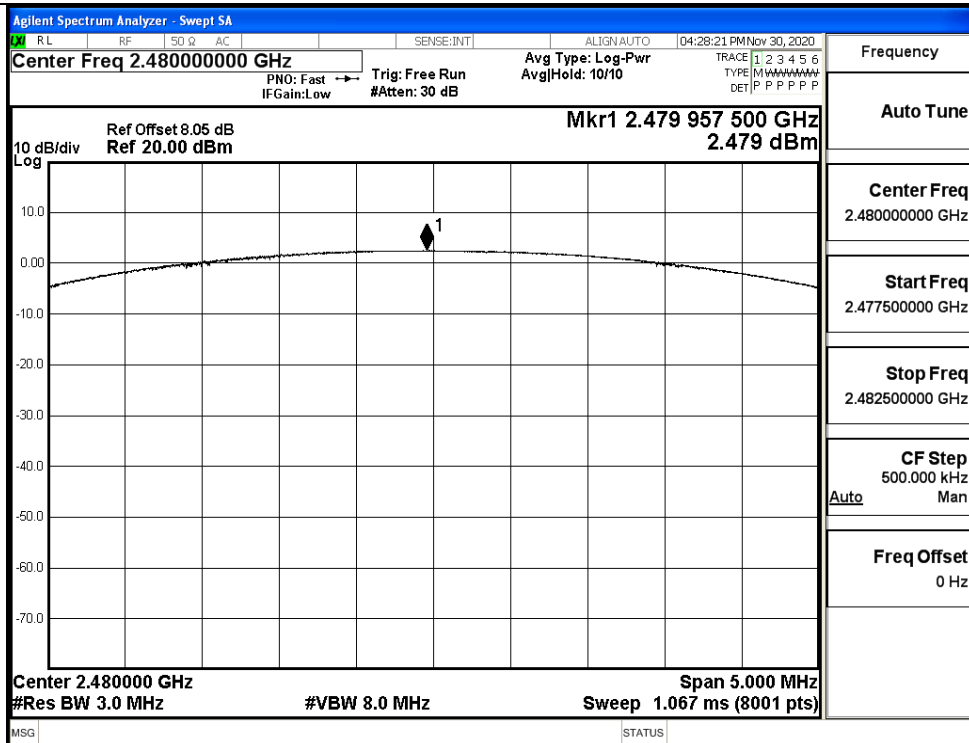
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

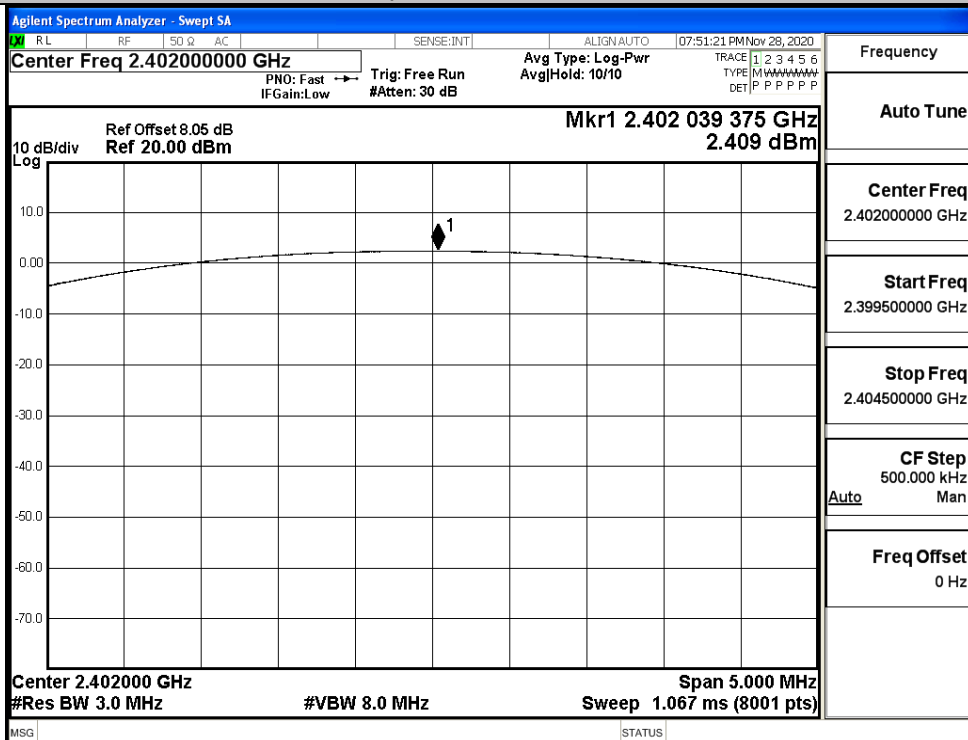


Left

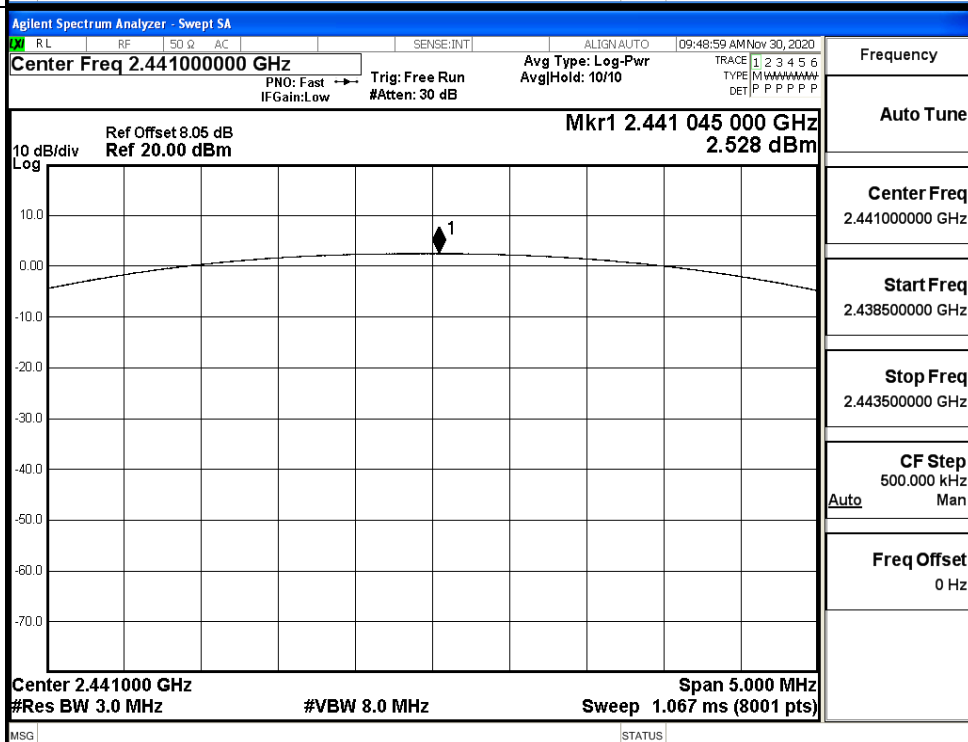
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.409	21	PASS
	MCH	2.528	21	PASS
	HCH	1.568	21	PASS
$\pi/4$ DQPSK	LCH	2.324	21	PASS
	MCH	2.385	21	PASS
	HCH	1.555	21	PASS
8DPSK	LCH	2.332	21	PASS
	MCH	2.378	21	PASS
	HCH	1.530	21	PASS

Test Graphs

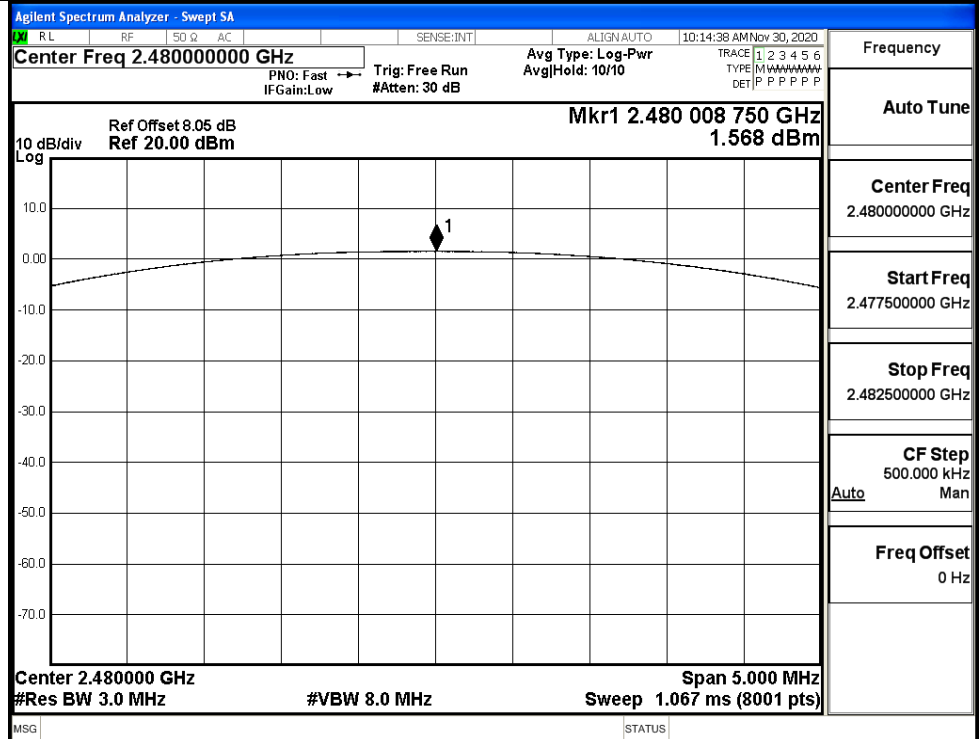
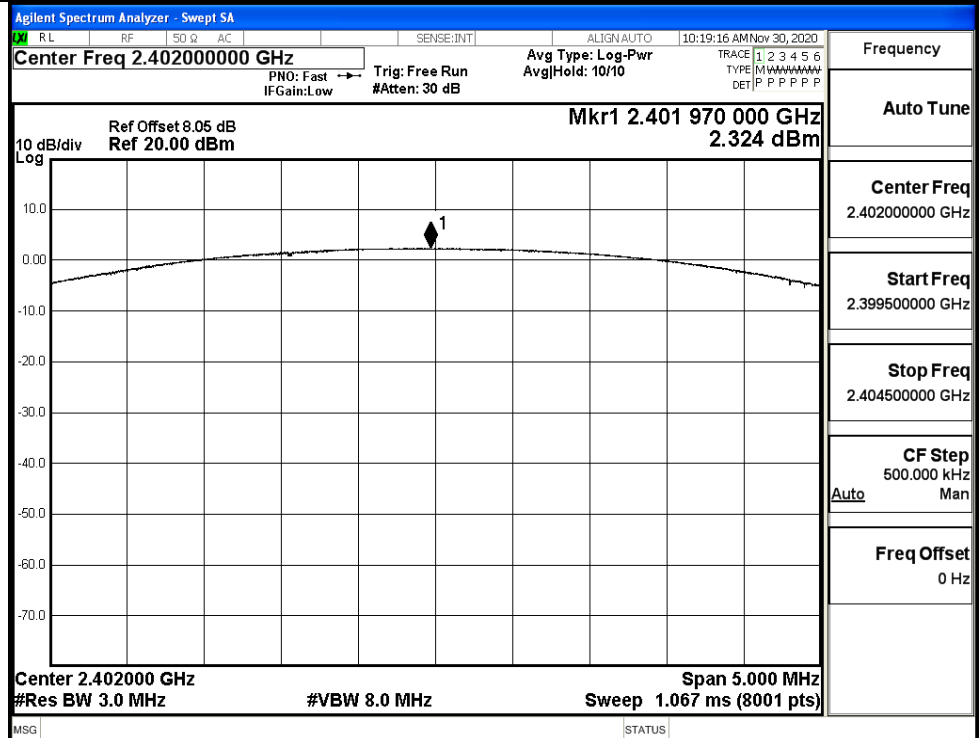
GFSK/LCH

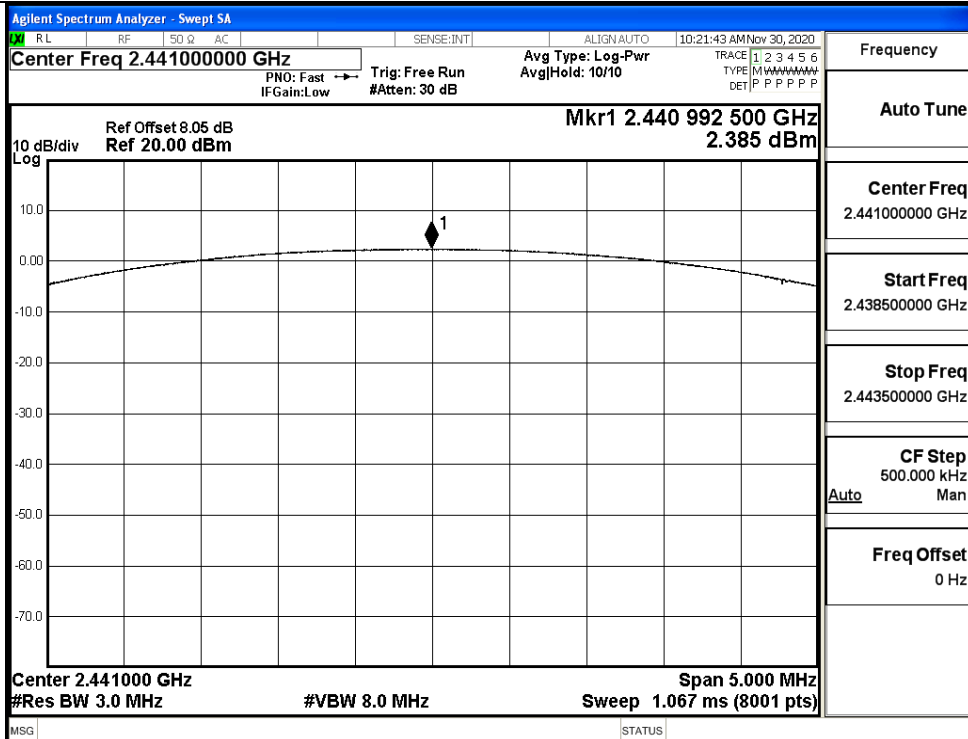
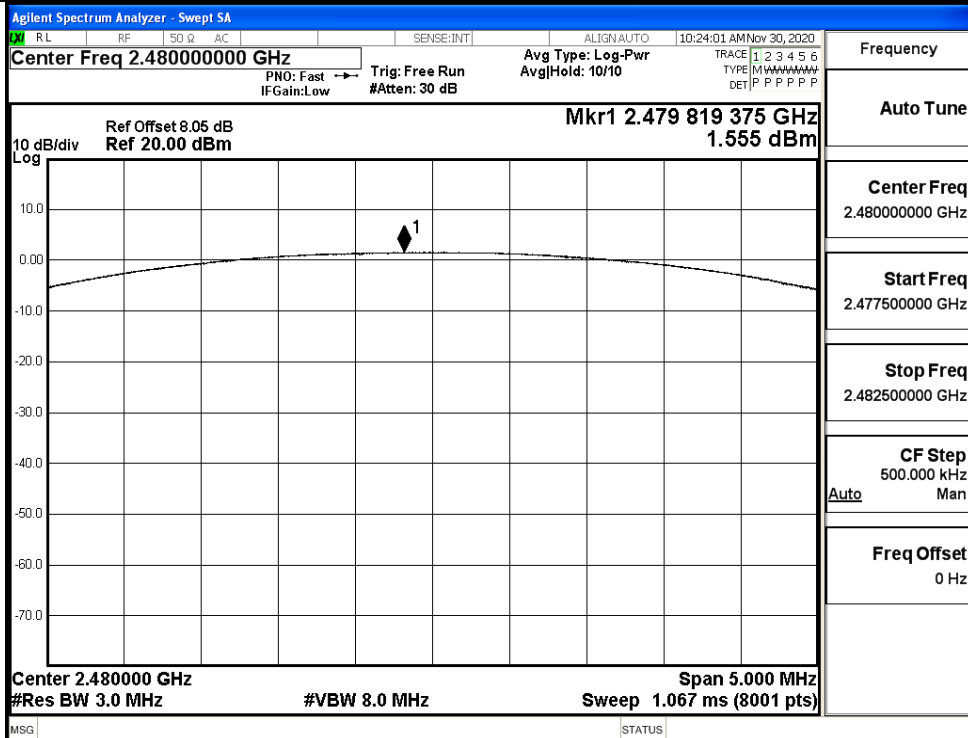


GFSK/MCH

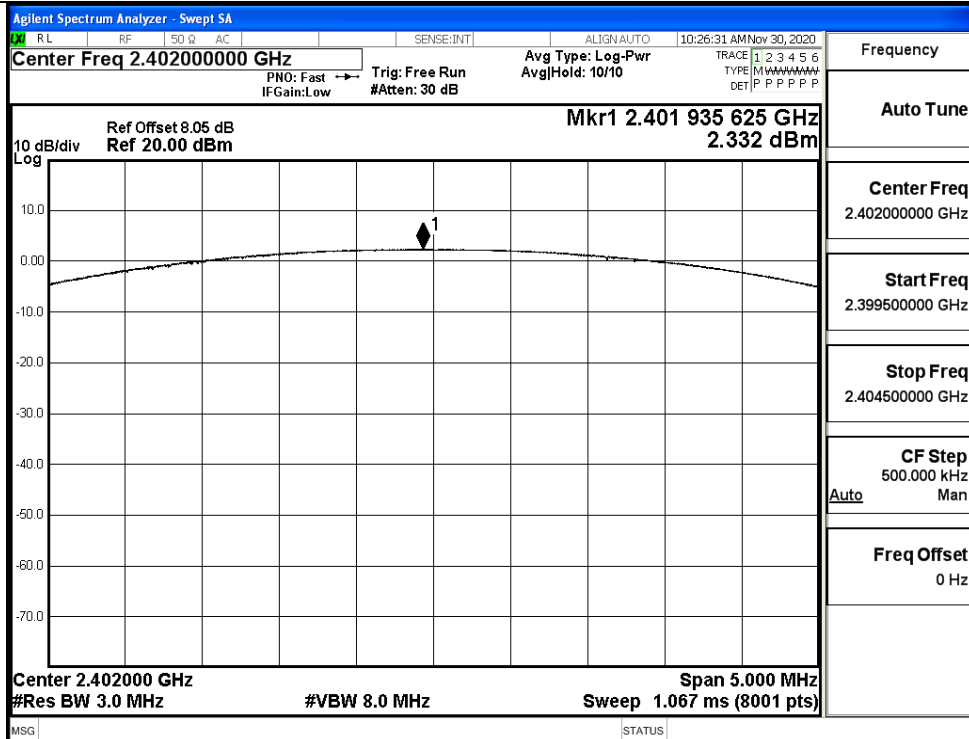


GFSK/HCH

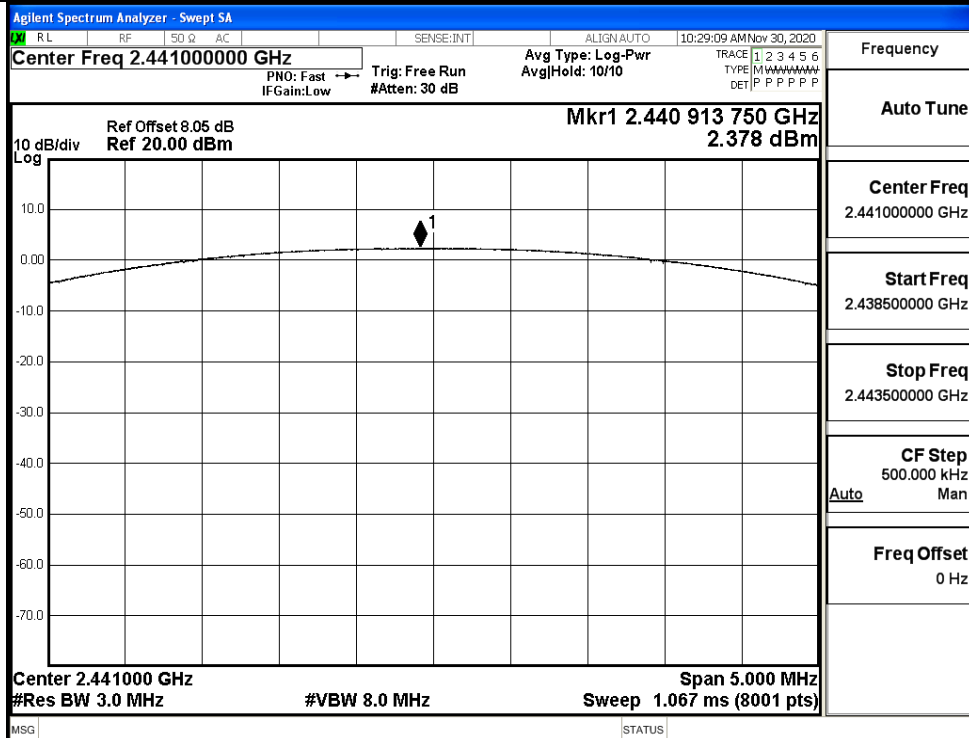
 π /4DQPSK/LCH

π /4DQPSK/MCH π /4DQPSK/HCH

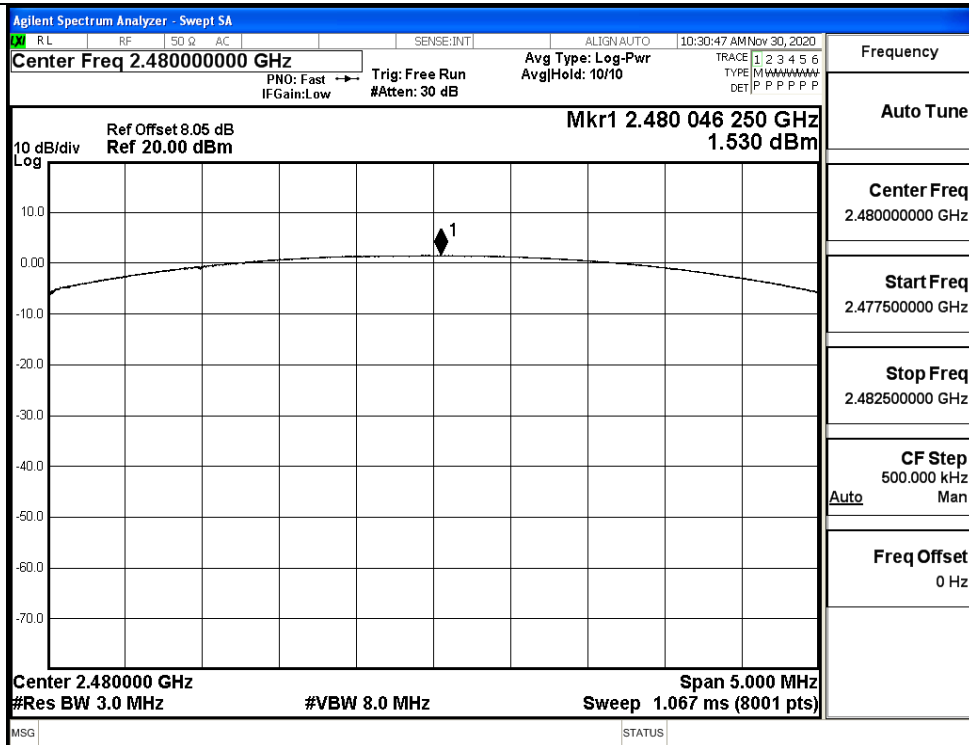
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

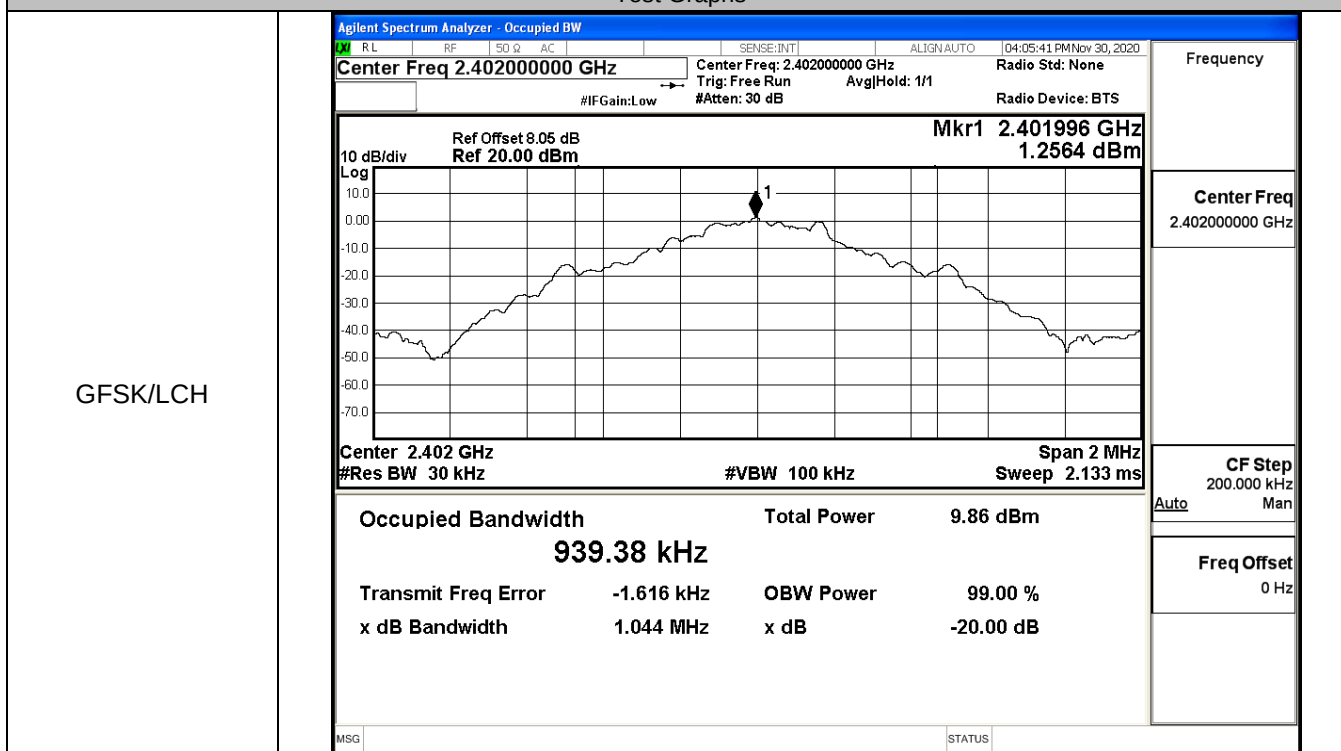


A.2 20dB Bandwidth

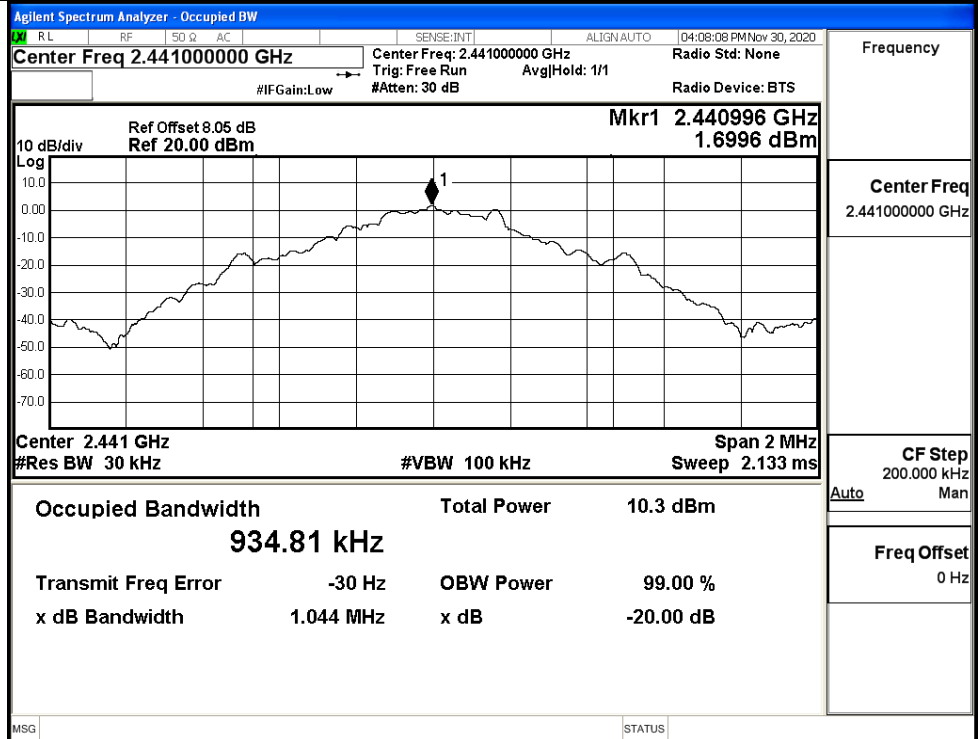
Right

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.044	Not Specified	PASS
	MCH	1.044	Not Specified	PASS
	HCH	1.045	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.187	Not Specified	PASS
	MCH	1.187	Not Specified	PASS
	HCH	1.187	Not Specified	PASS
8DPSK	LCH	1.195	Not Specified	PASS
	MCH	1.197	Not Specified	PASS
	HCH	1.236	Not Specified	PASS

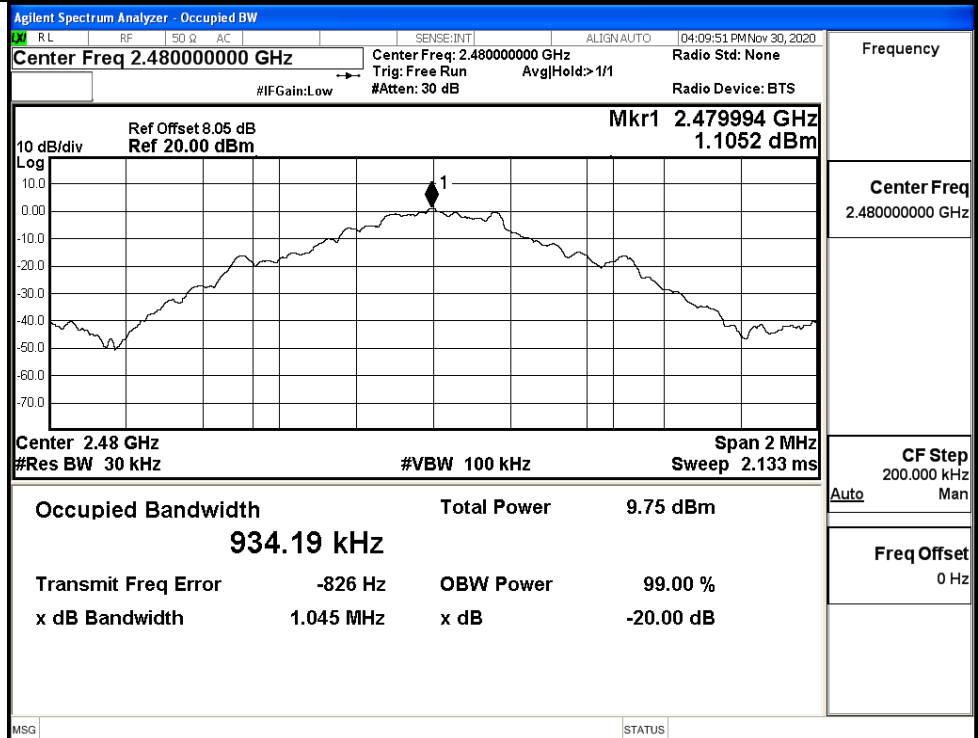
Test Graphs

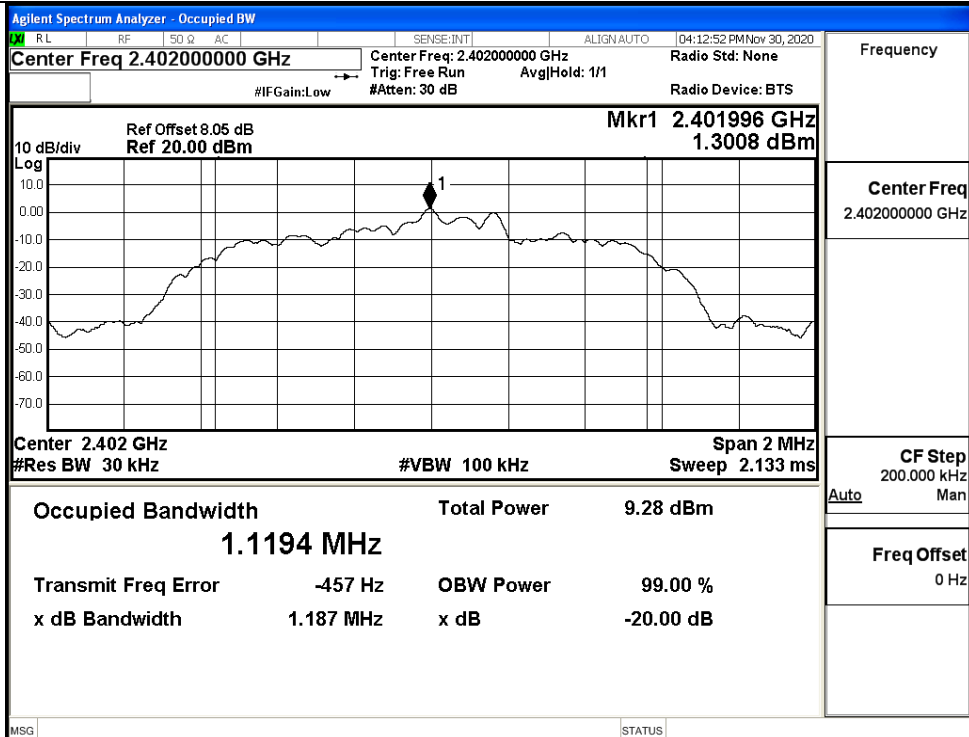


GFSK/MCH



GFSK/HCH

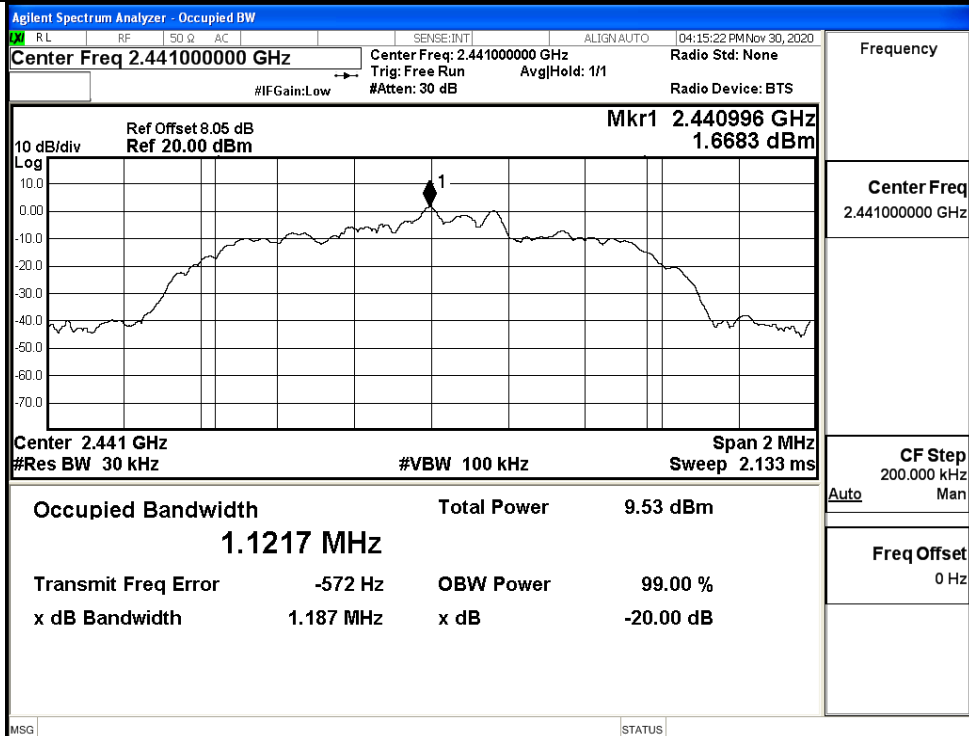


$\pi/4$ DQPSK/LCH

Frequency

Center Freq
2.40200000 GHzCF Step
200.000 kHz
Man

Auto

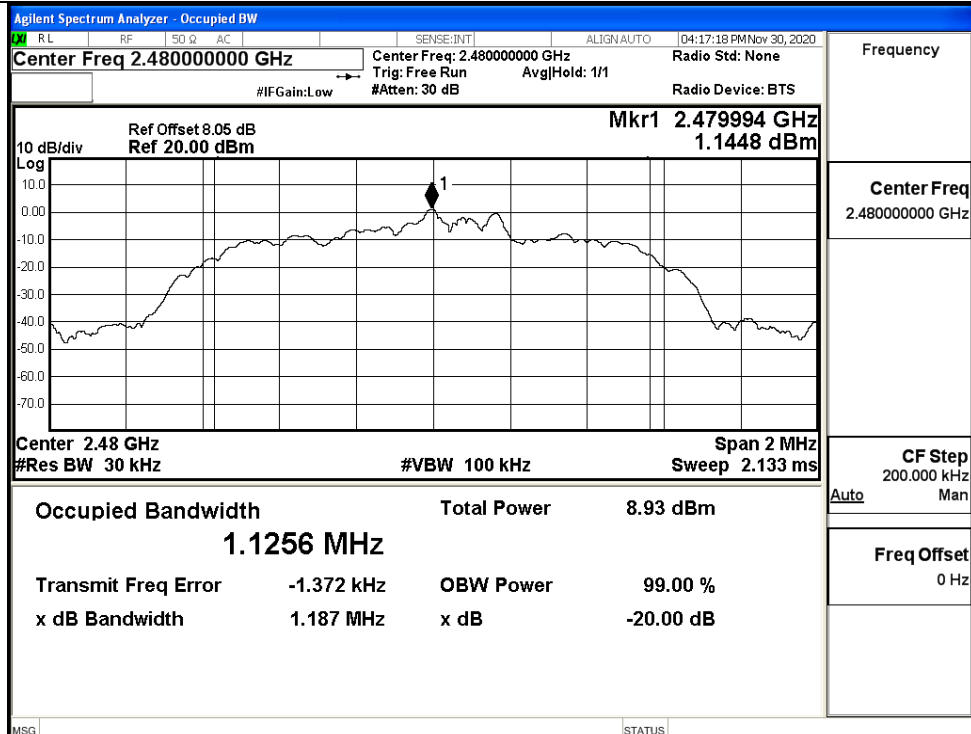
Freq Offset
0 Hz $\pi/4$ DQPSK/MCH

Frequency

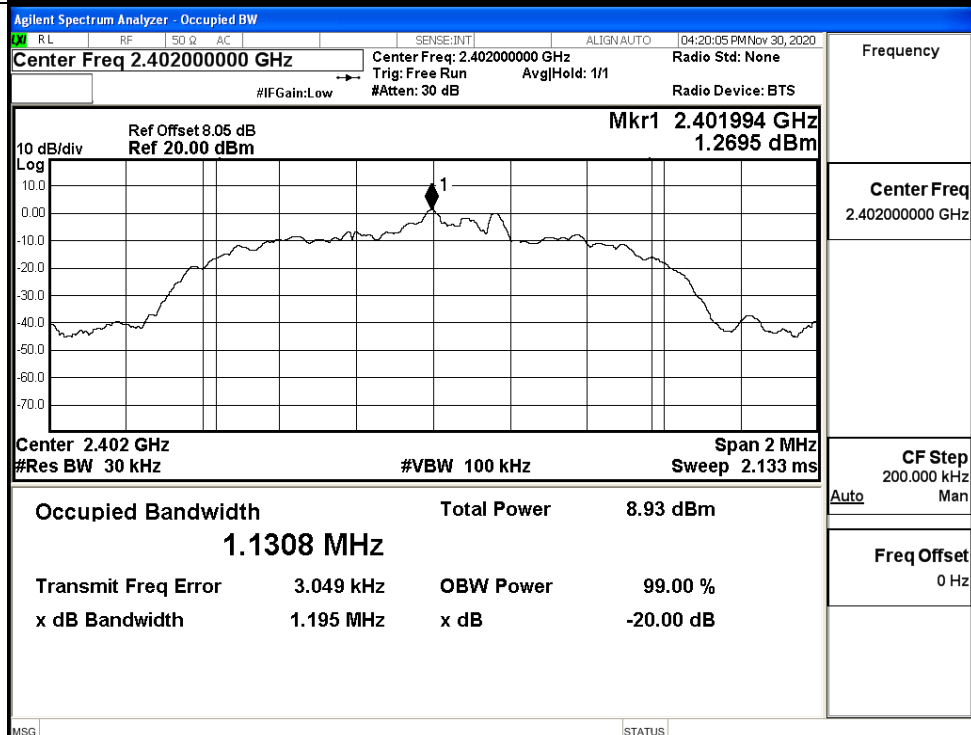
Center Freq
2.44100000 GHzCF Step
200.000 kHz
Man

Auto

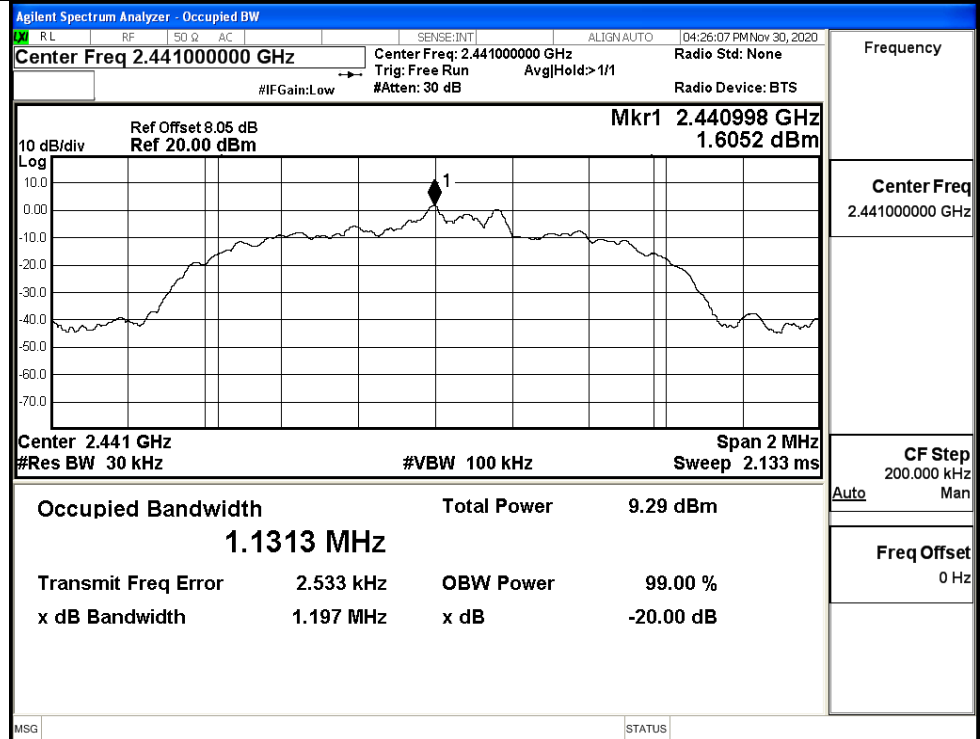
Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH

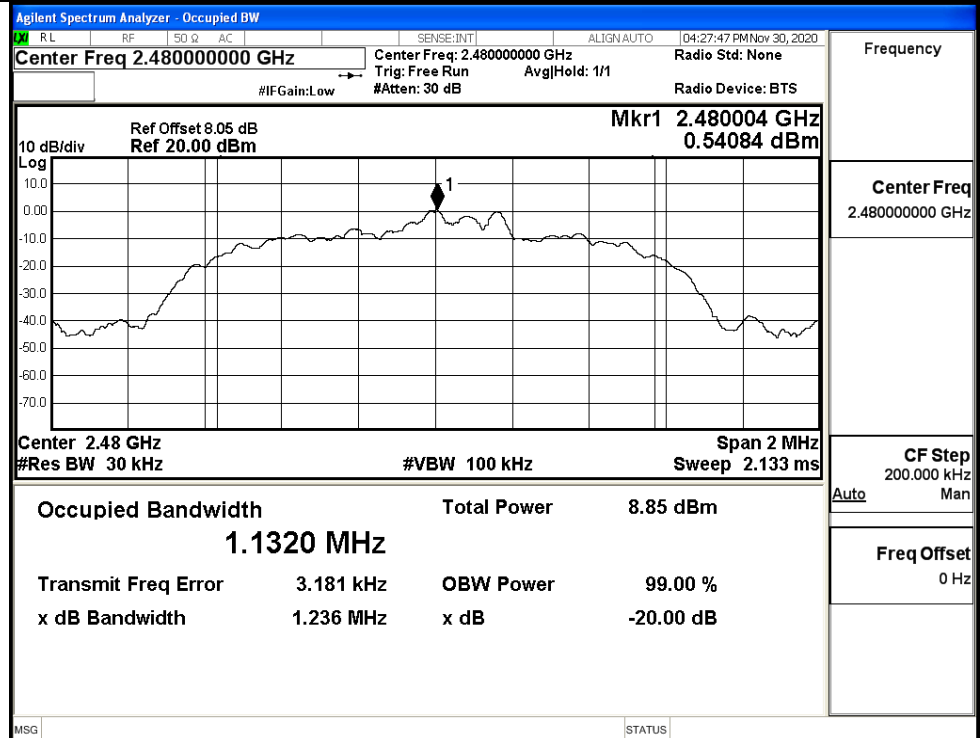
8DPSK/LCH



8DPSK/MCH



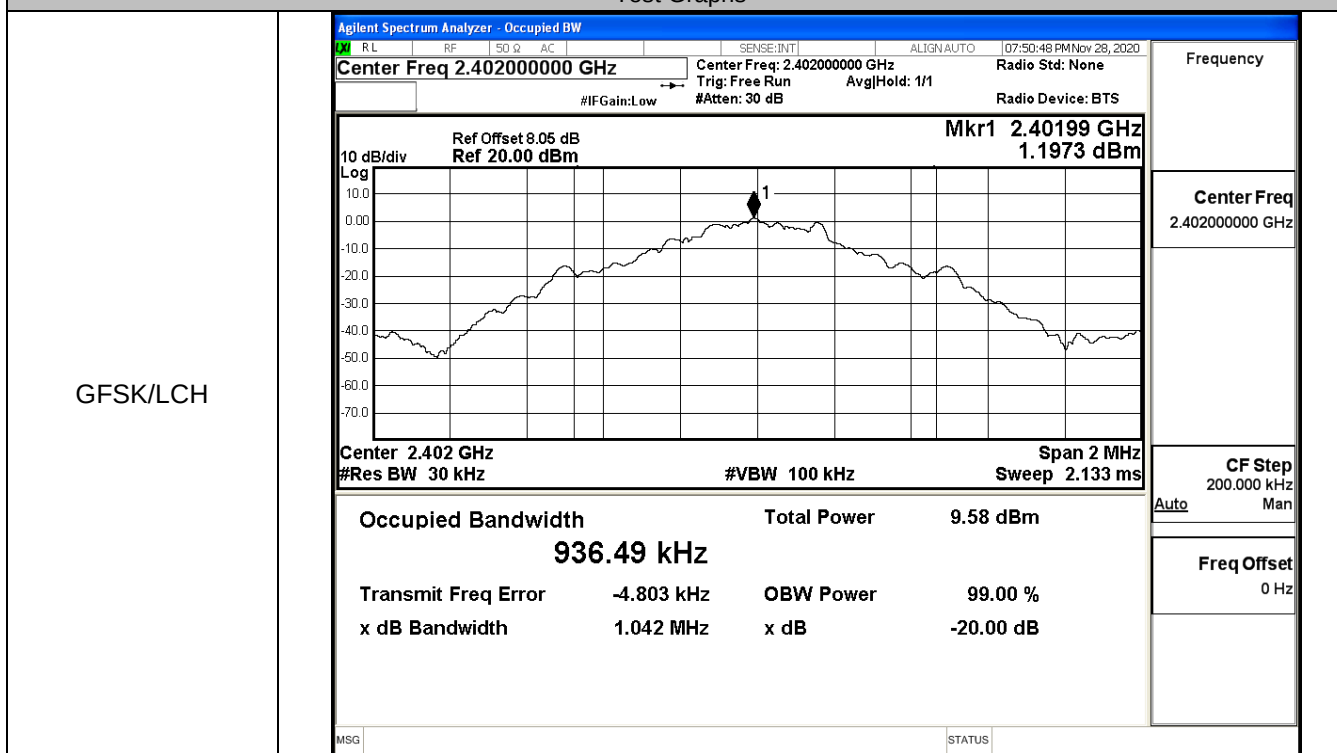
8DPSK/HCH



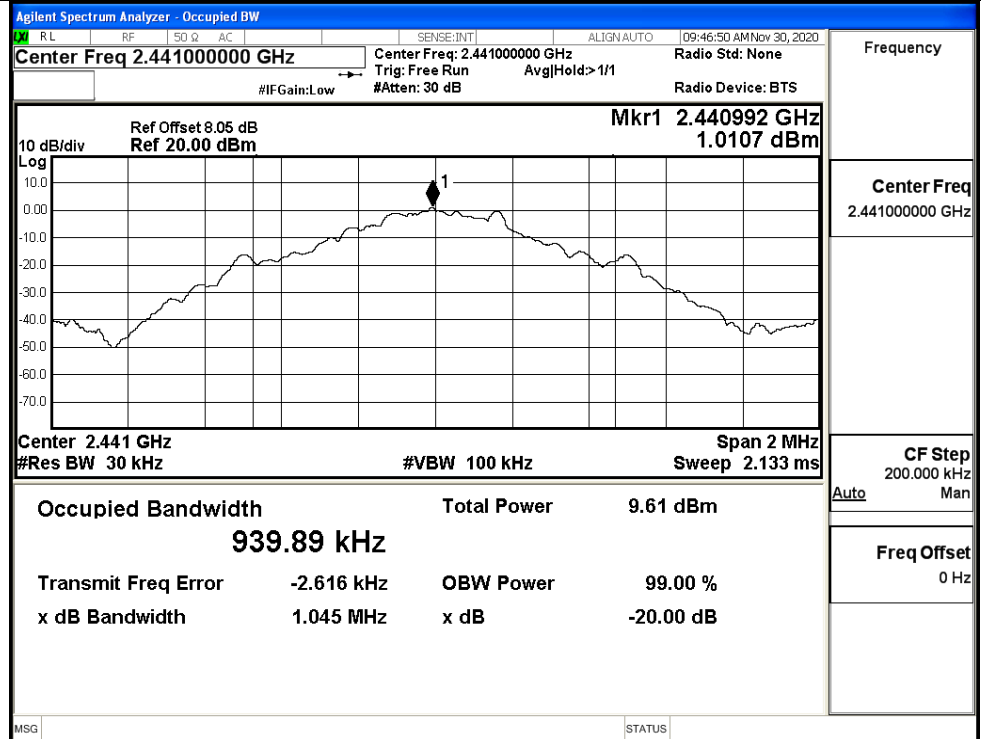
Left

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.042	Not Specified	PASS
	MCH	1.045	Not Specified	PASS
	HCH	1.024	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.186	Not Specified	PASS
	MCH	1.186	Not Specified	PASS
	HCH	1.187	Not Specified	PASS
8DPSK	LCH	1.195	Not Specified	PASS
	MCH	1.195	Not Specified	PASS
	HCH	1.197	Not Specified	PASS

Test Graphs



GFSK/MCH



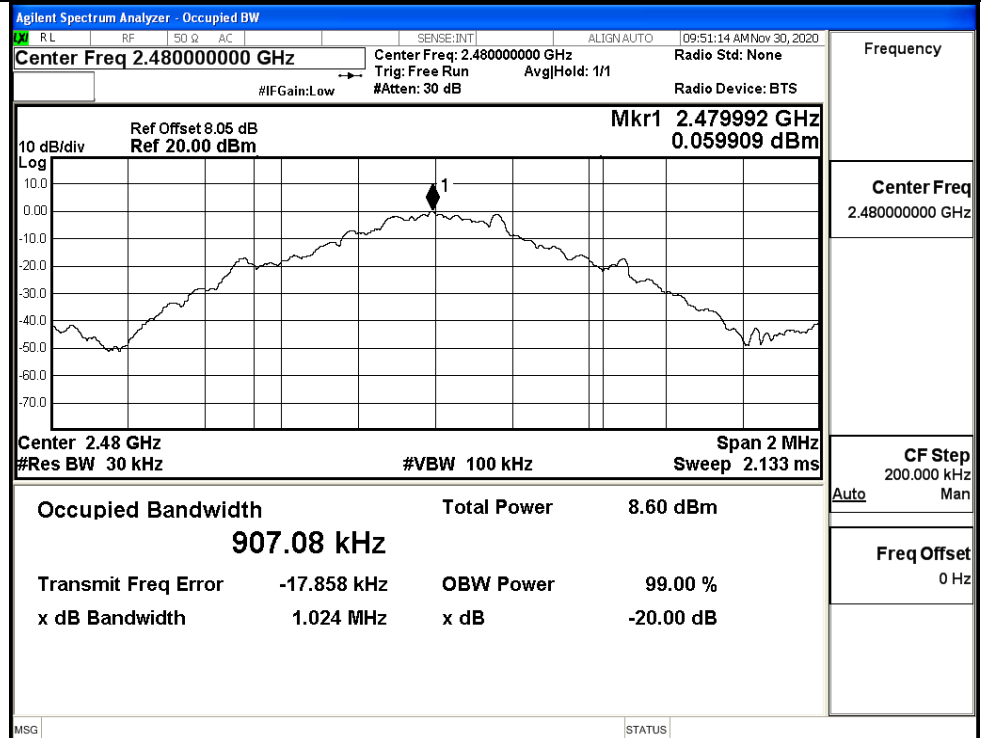
Frequency

Center Freq
2.441000000 GHzCF Step
200.000 kHz
Man

Auto

Freq Offset
0 Hz

GFSK/HCH

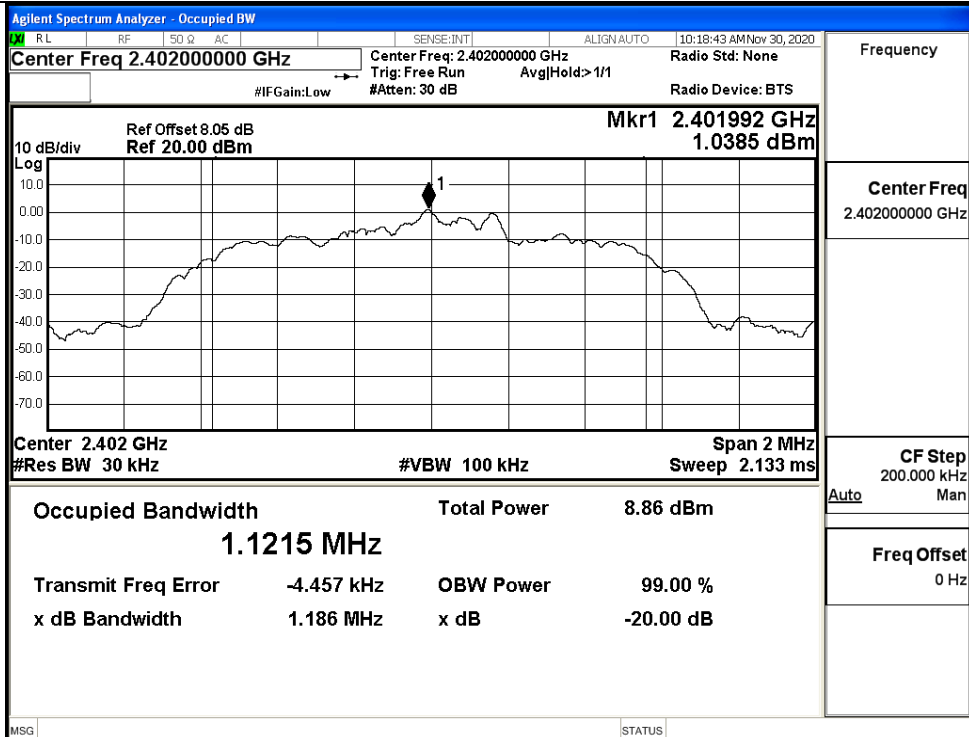


Frequency

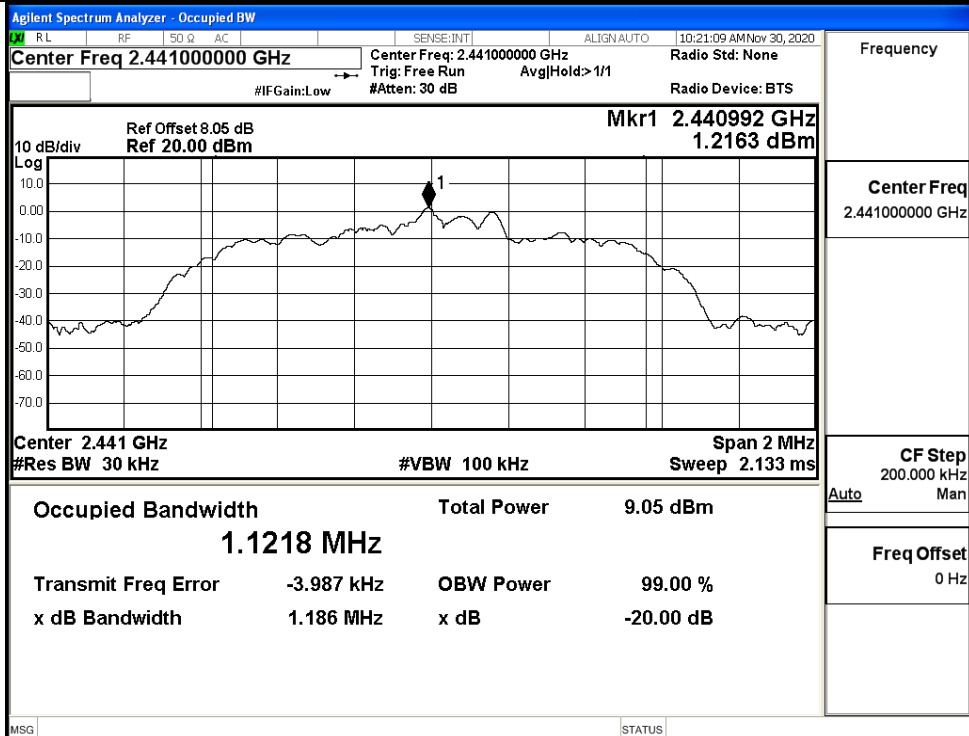
Center Freq
2.480000000 GHzCF Step
200.000 kHz
Man

Auto

Freq Offset
0 Hz

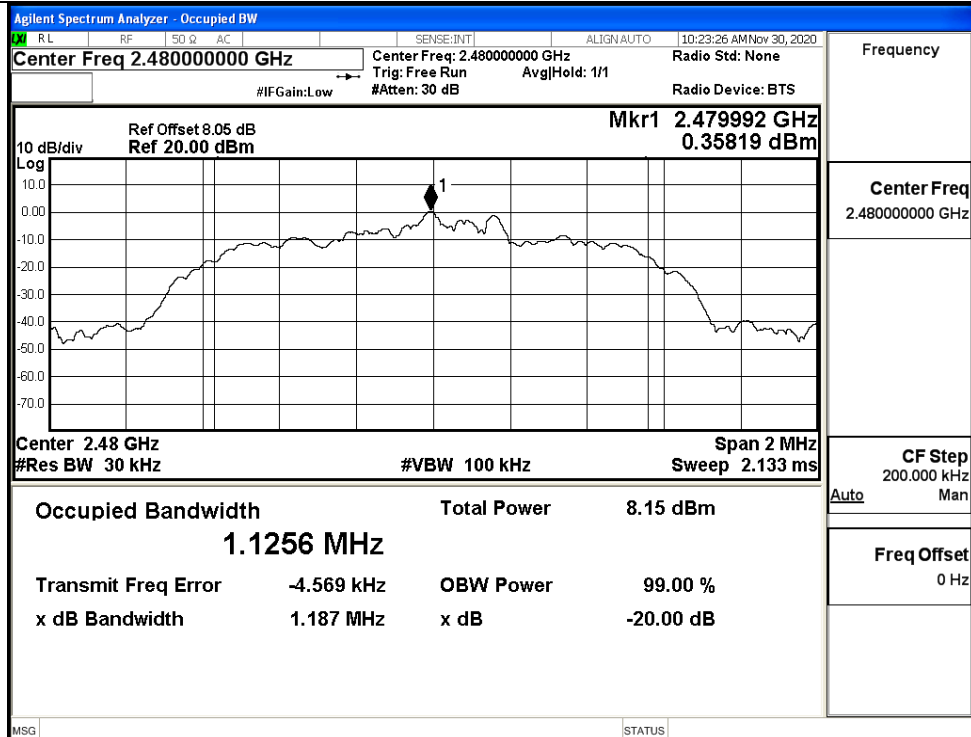
$\pi/4$ DQPSK/LCH

Frequency

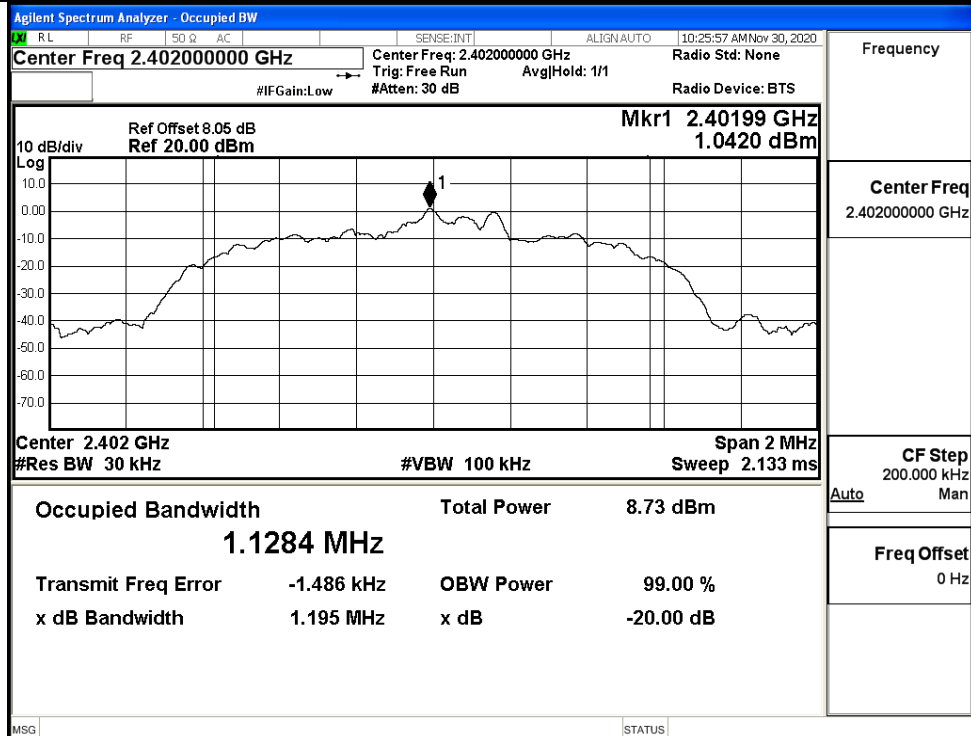
Center Freq
2.40200000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz $\pi/4$ DQPSK/MCH

Frequency

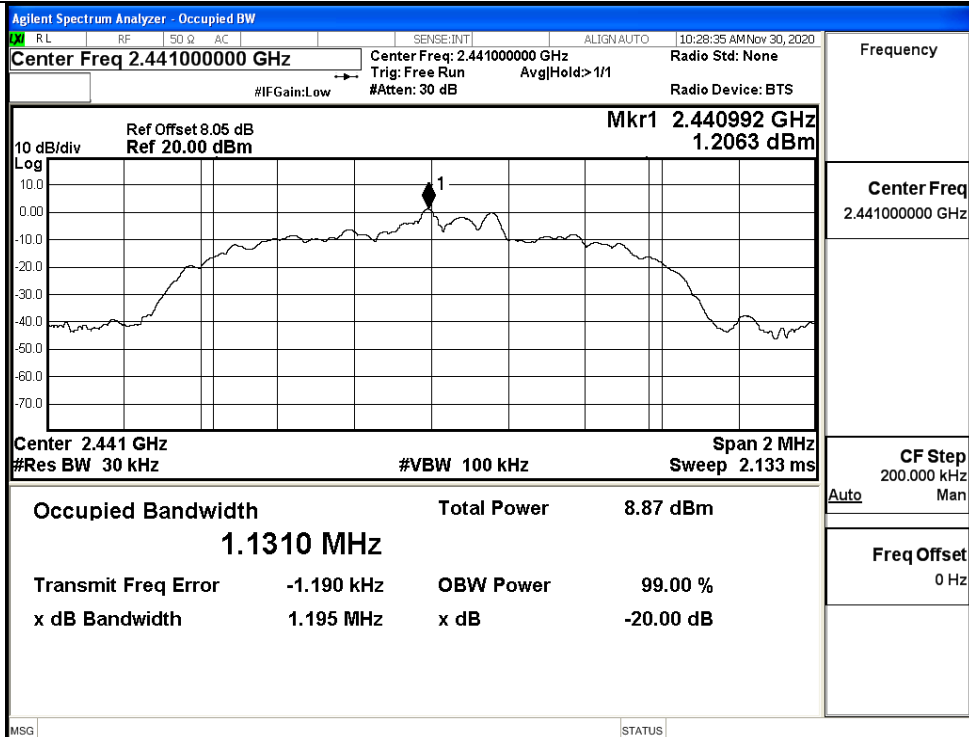
Center Freq
2.44100000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz

$\pi/4$ DQPSK/HCH

8DPSK/LCH



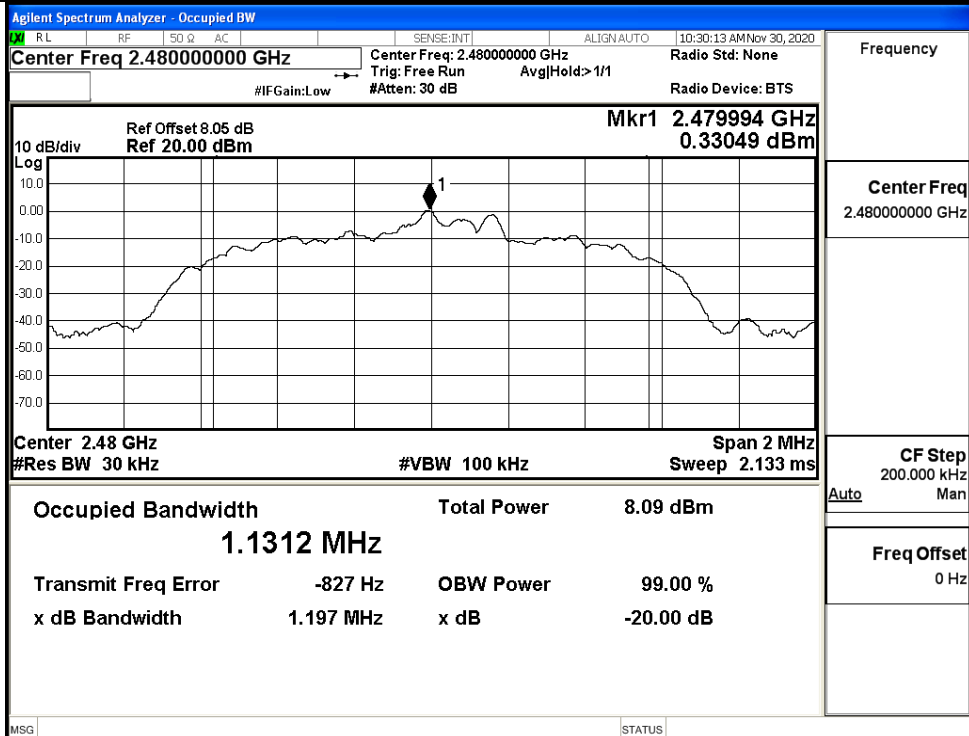
8DPSK/MCH



Frequency

Center Freq
2.441000000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz

8DPSK/HCH



Frequency

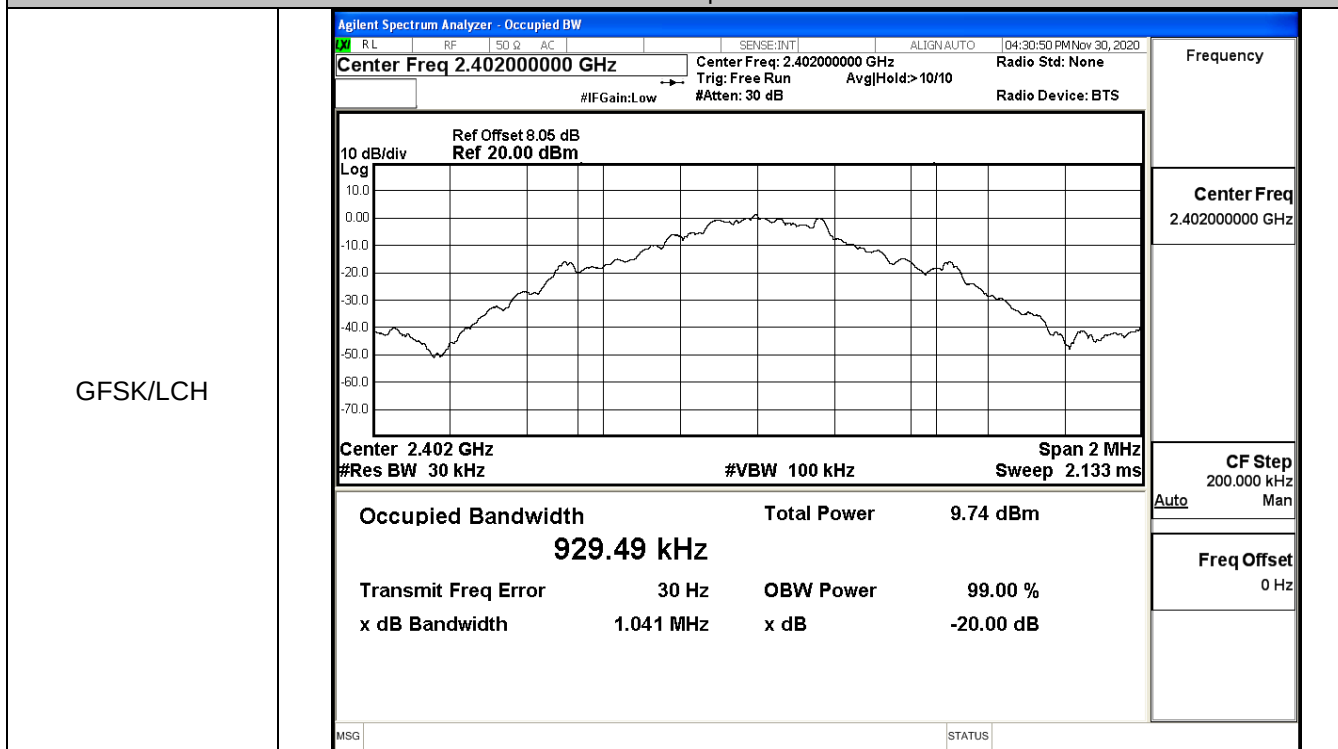
Center Freq
2.480000000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz

A.3 Occupied Bandwidth

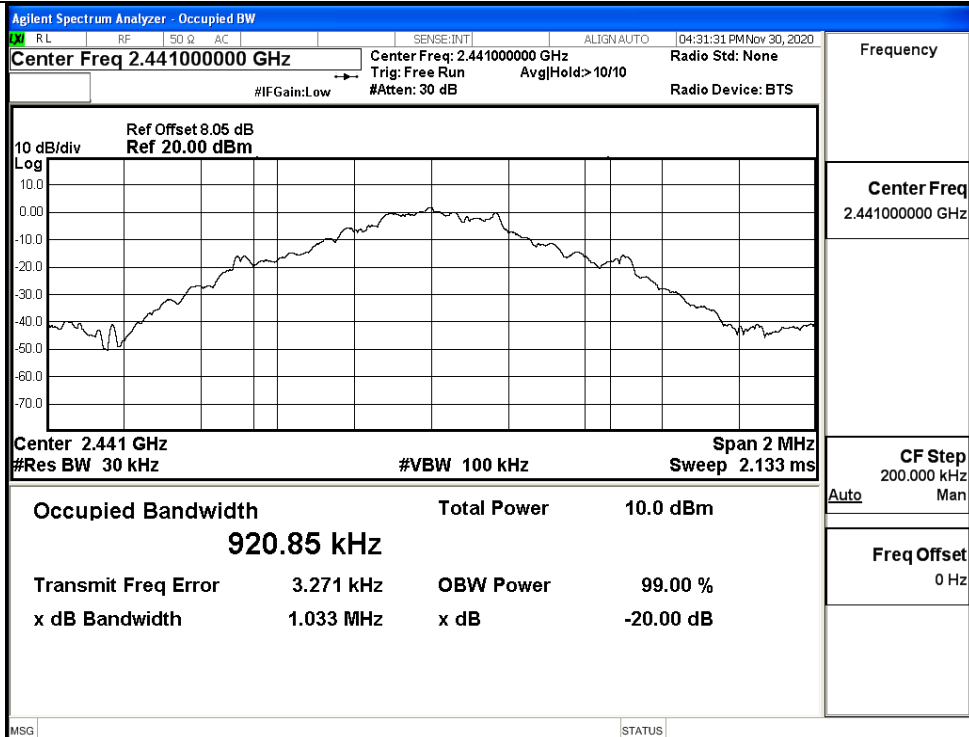
Right

Mode	Channel.	Occupied Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.92949	Not Specified	PASS
	MCH	0.92085	Not Specified	PASS
	HCH	0.94112	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.1219	Not Specified	PASS
	MCH	1.1264	Not Specified	PASS
	HCH	1.1267	Not Specified	PASS
8DPSK	LCH	1.1293	Not Specified	PASS
	MCH	1.1318	Not Specified	PASS
	HCH	1.1311	Not Specified	PASS

Test Graphs



GFSK/MCH



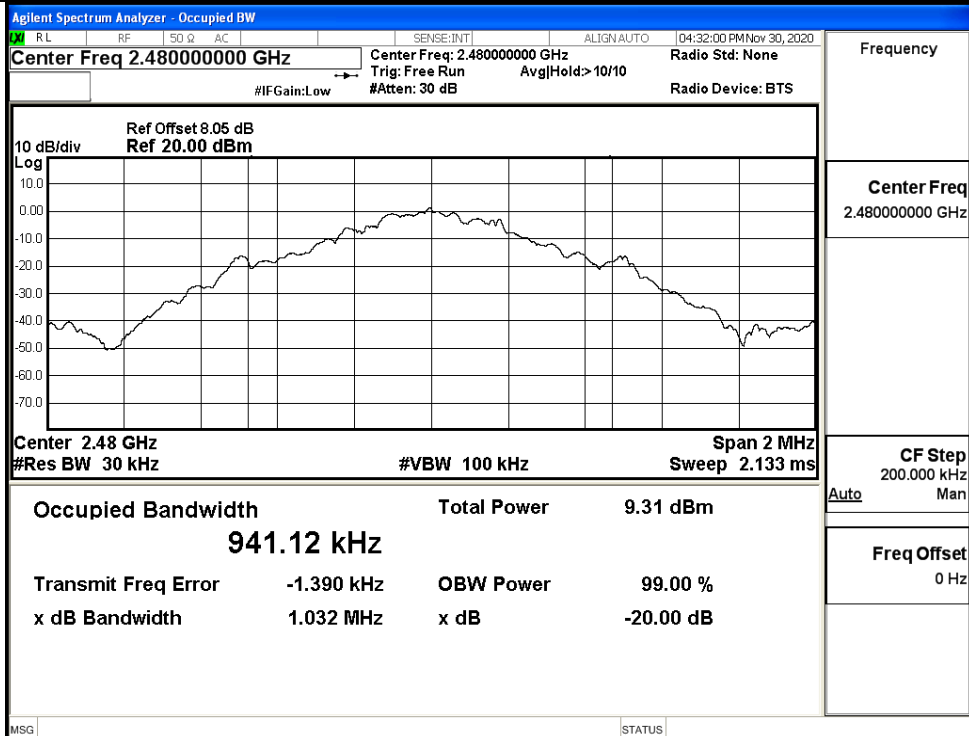
Frequency

Center Freq
2.441000000 GHzCF Step
200.000 kHz
Man

Auto

Freq Offset
0 Hz

GFSK/HCH

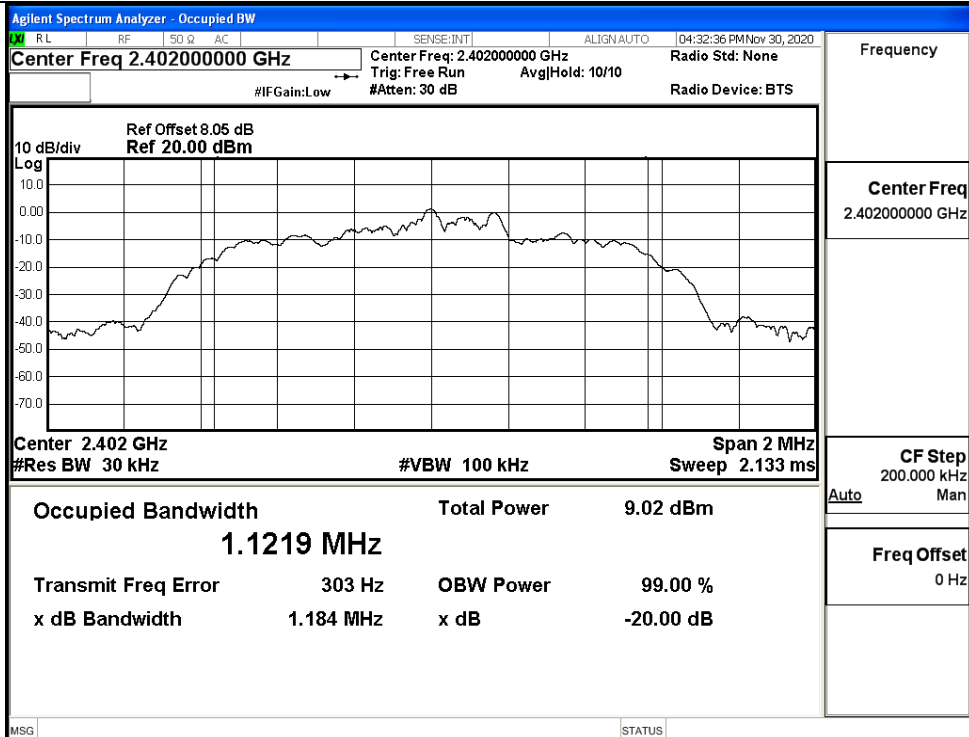
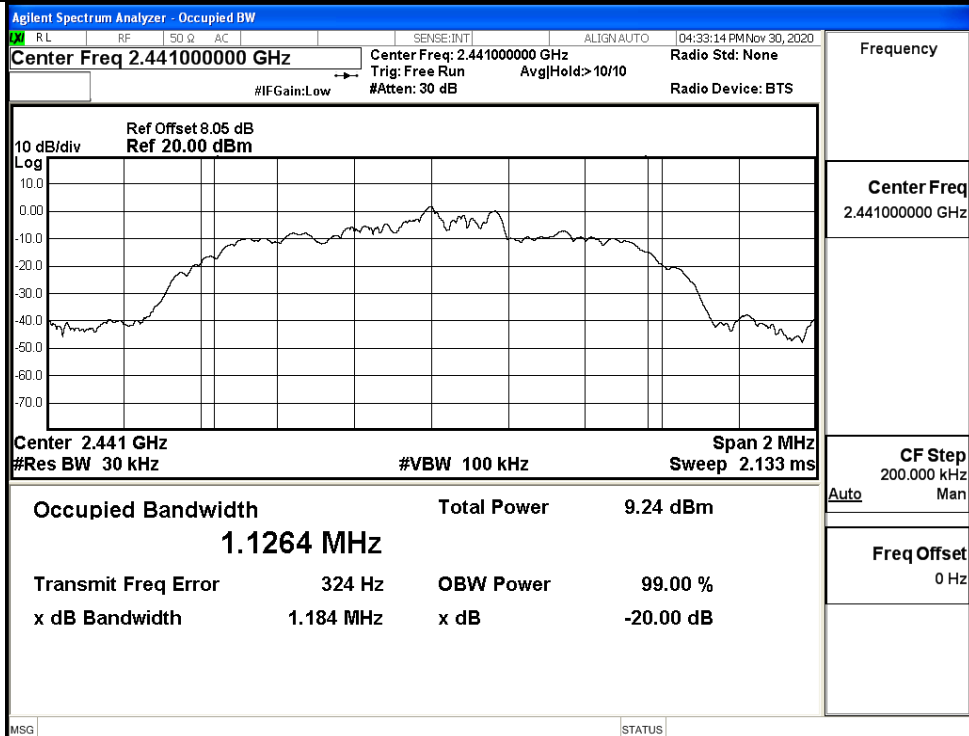


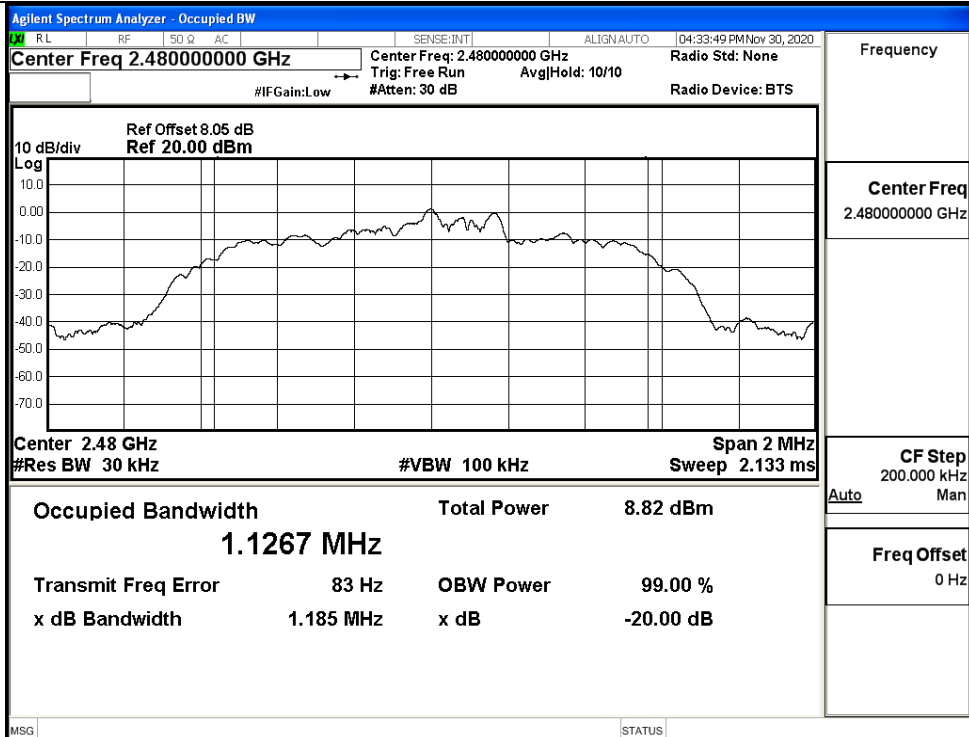
Frequency

Center Freq
2.480000000 GHzCF Step
200.000 kHz
Man

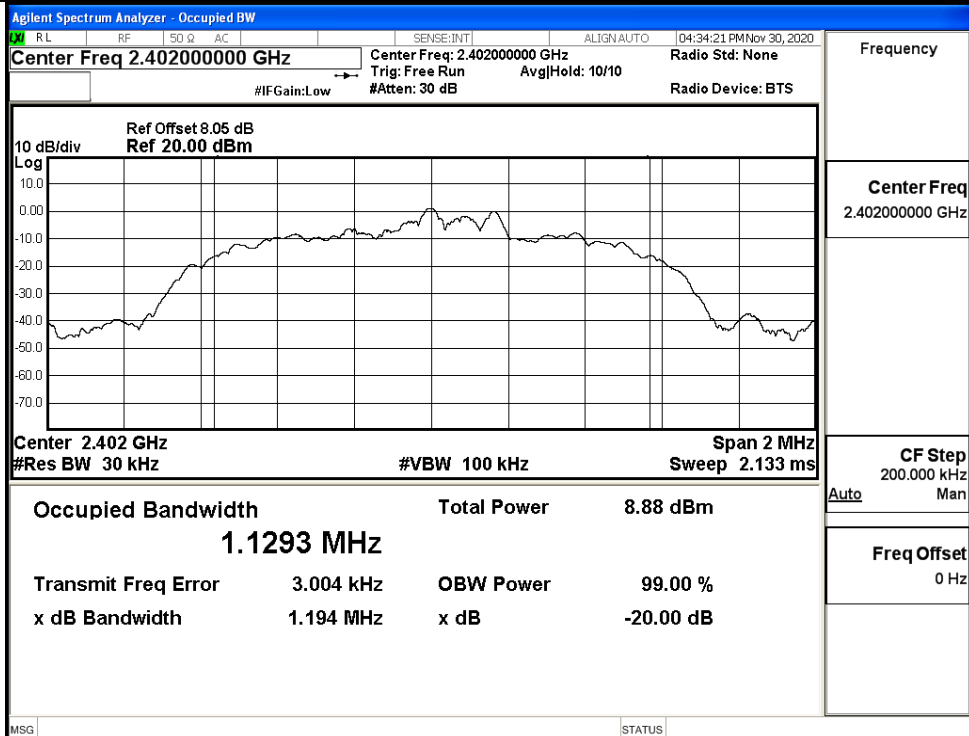
Auto

Freq Offset
0 Hz

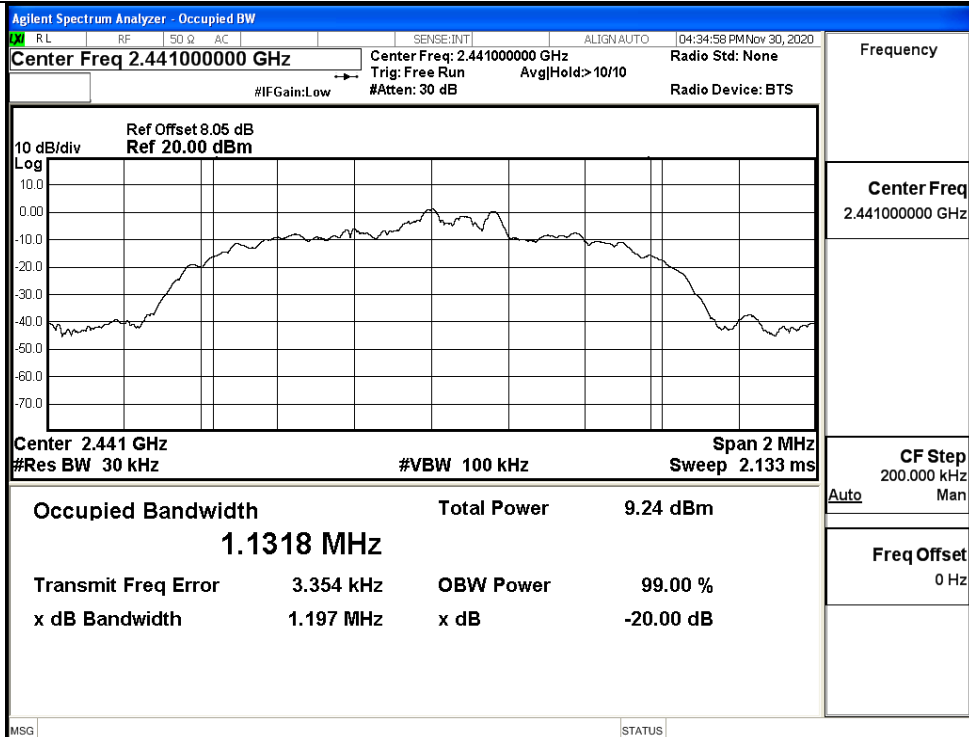
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

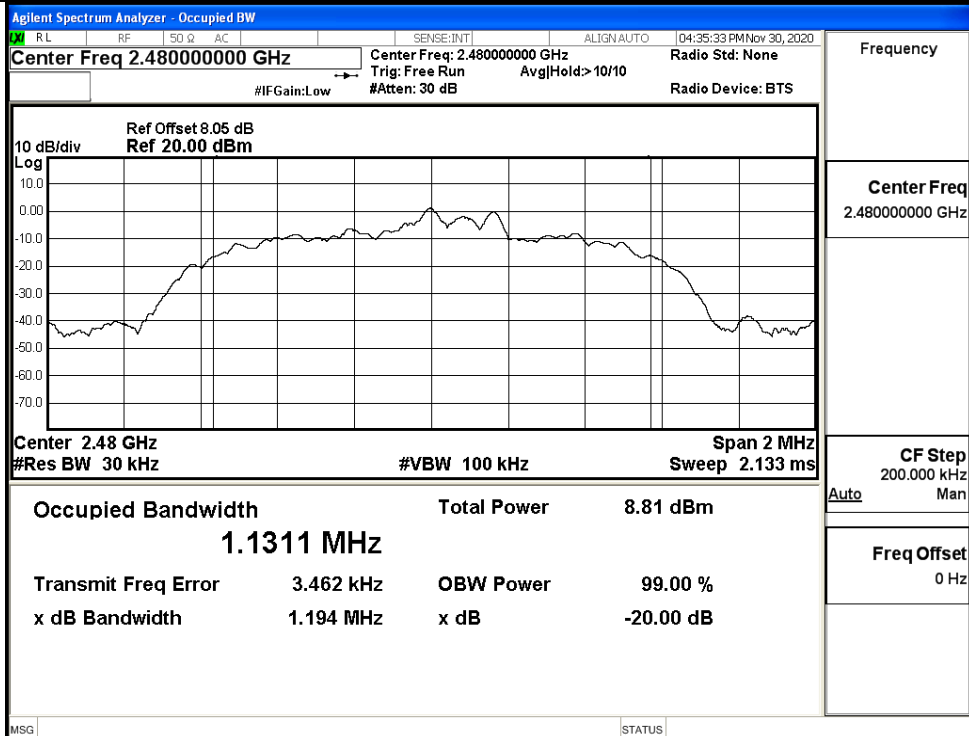
8DPSK/LCH



8DPSK/MCH



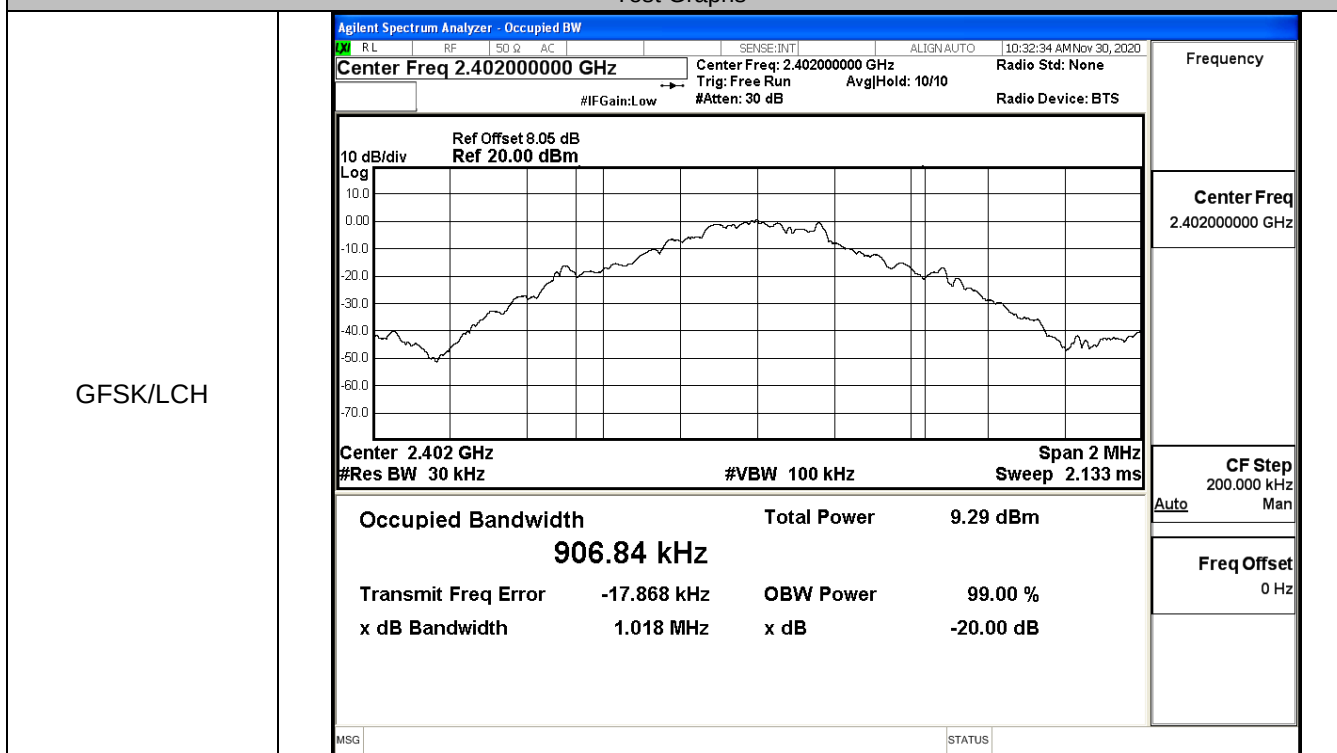
8DPSK/HCH



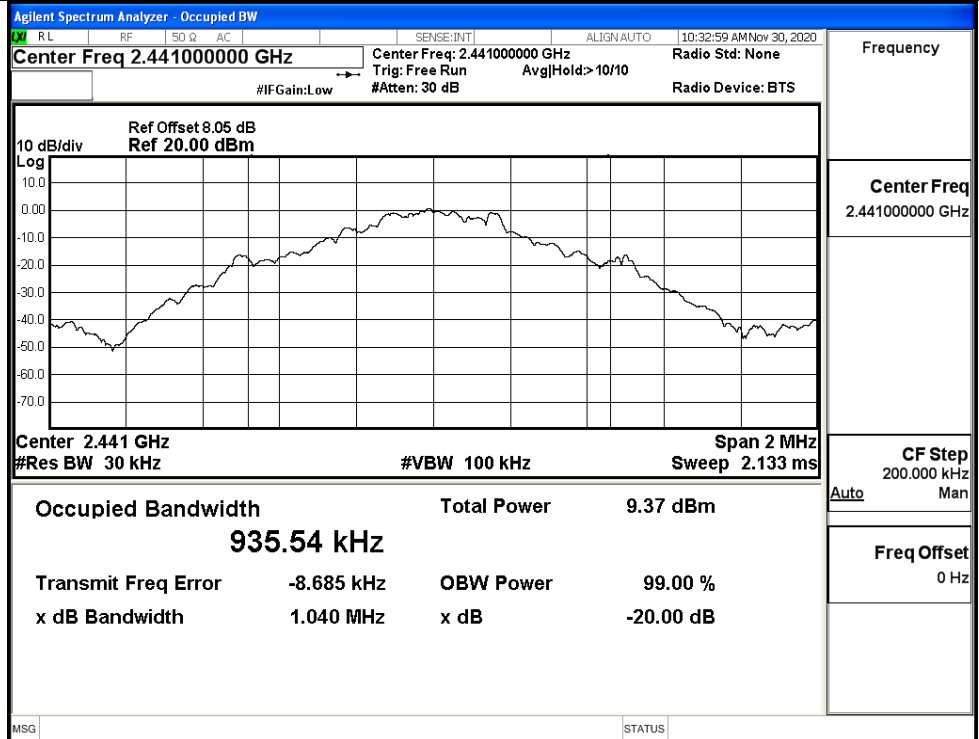
Left

Mode	Channel.	Occupied Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.90684	Not Specified	PASS
	MCH	0.93554	Not Specified	PASS
	HCH	0.93818	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.1316	Not Specified	PASS
	MCH	1.1224	Not Specified	PASS
	HCH	1.1235	Not Specified	PASS
8DPSK	LCH	1.1300	Not Specified	PASS
	MCH	1.1288	Not Specified	PASS
	HCH	1.1312	Not Specified	PASS

Test Graphs



GFSK/MCH



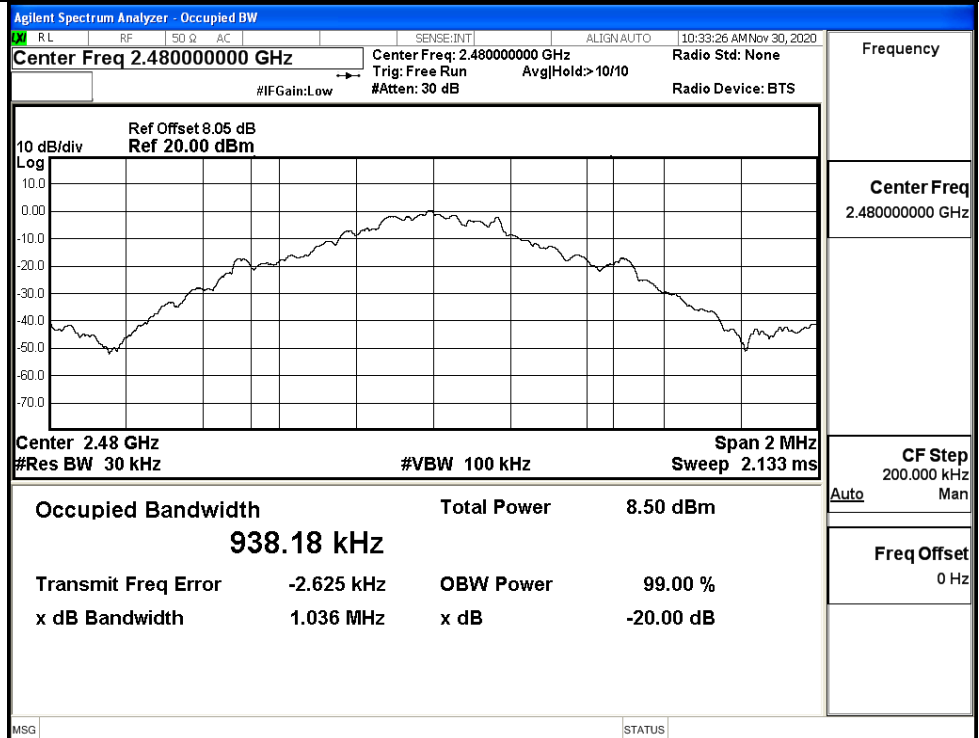
Frequency

Center Freq
2.441000000 GHzCF Step
200.000 kHz
Man

Auto

Freq Offset
0 Hz

GFSK/HCH

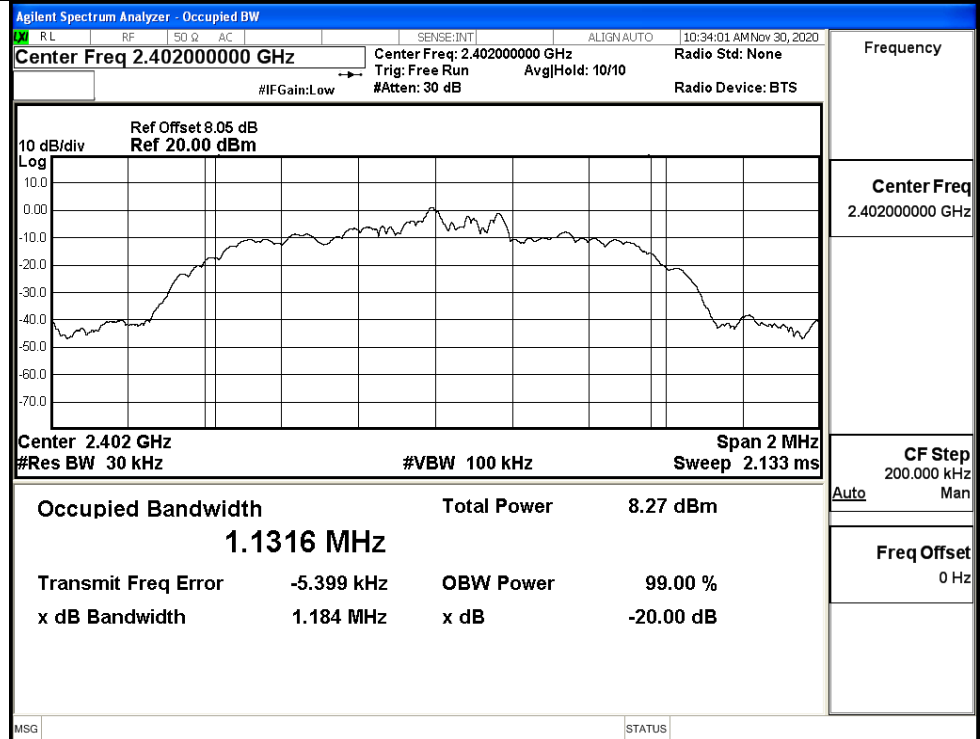
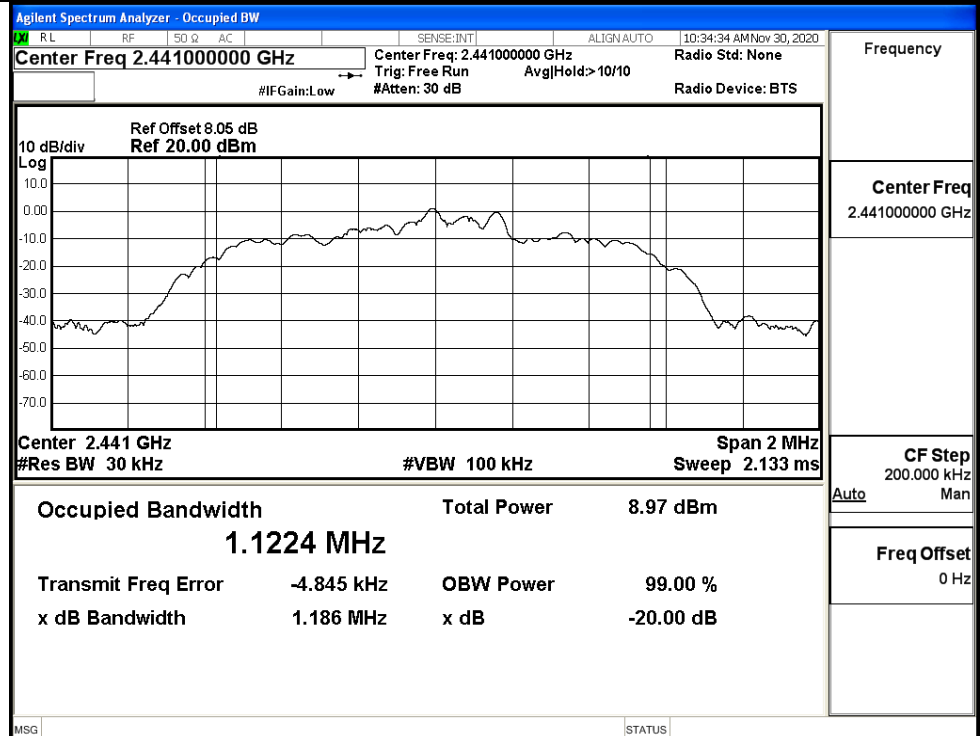


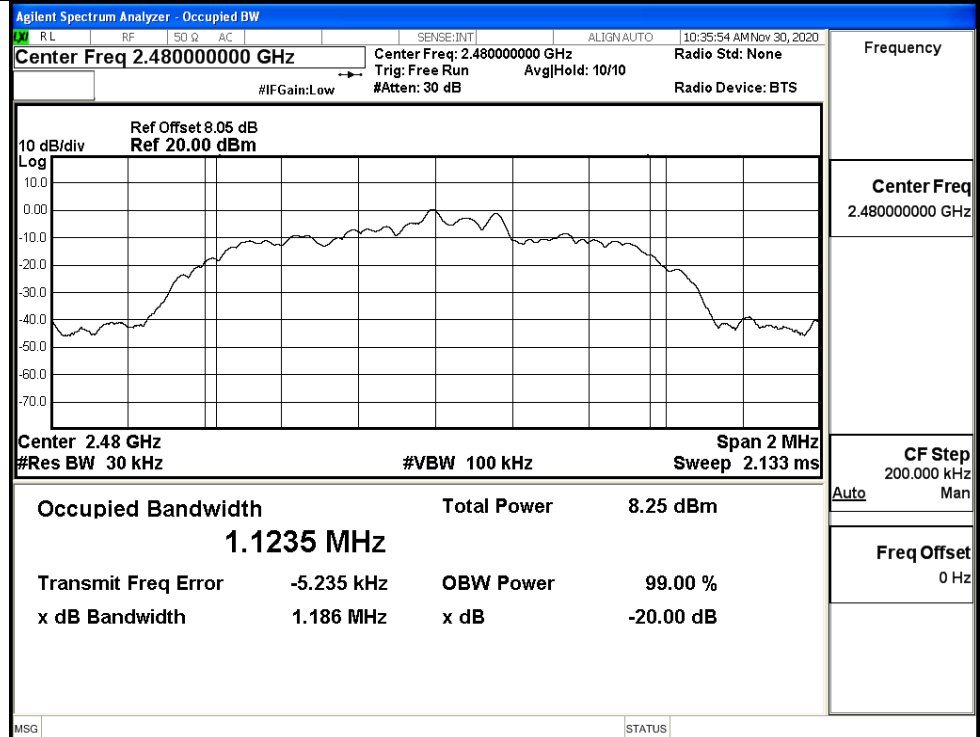
Frequency

Center Freq
2.480000000 GHzCF Step
200.000 kHz
Man

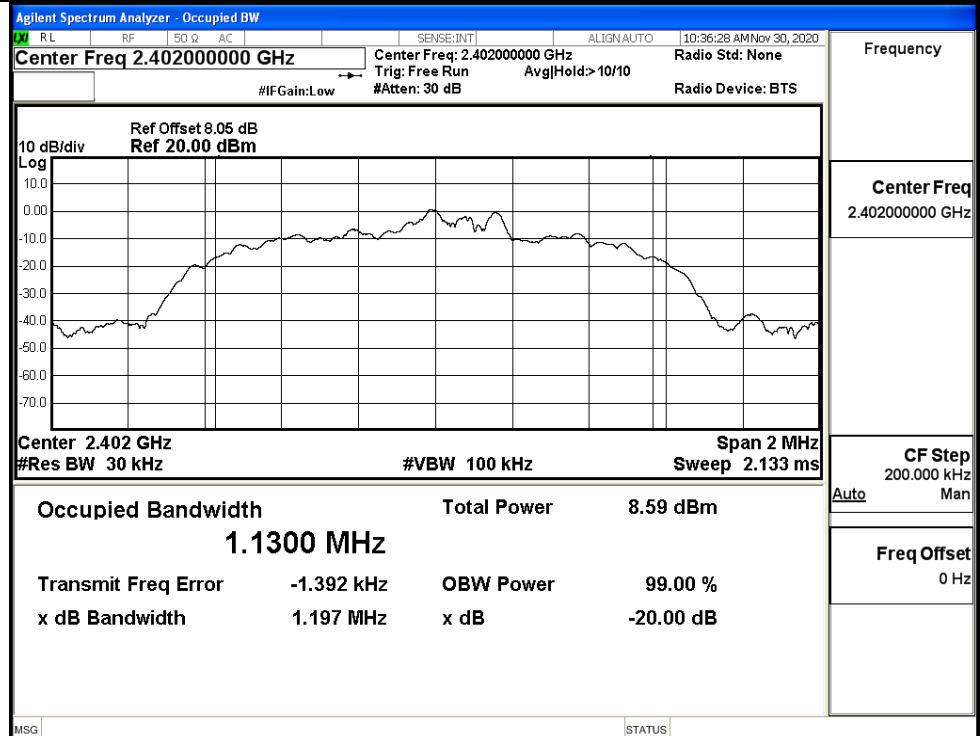
Auto

Freq Offset
0 Hz

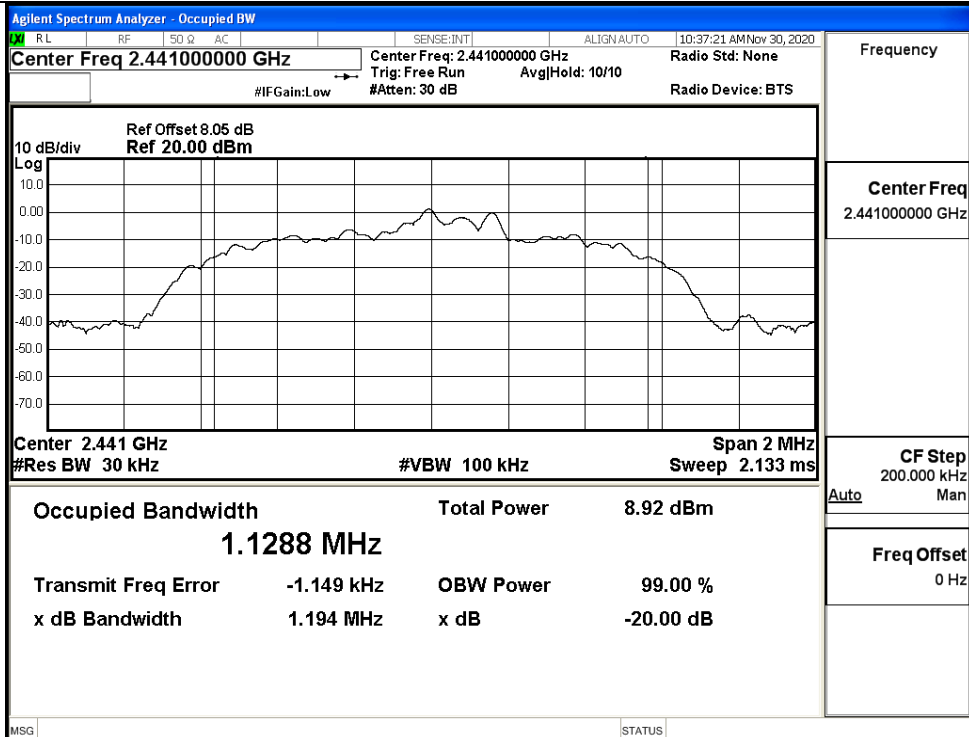
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

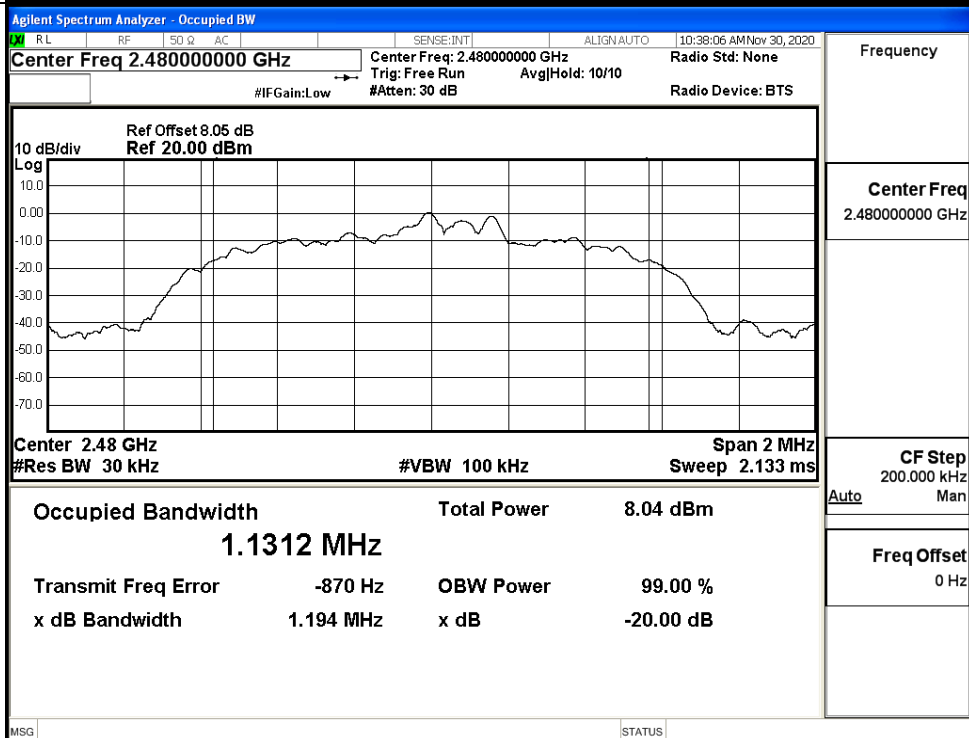
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



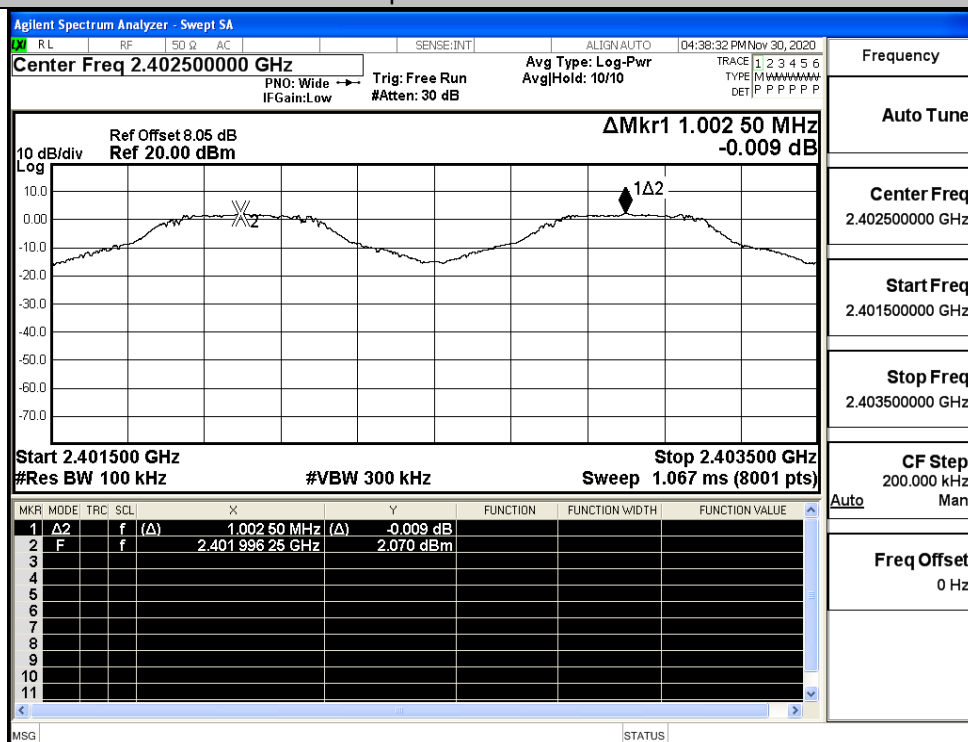
A.4 Carrier Frequency Separation

Right

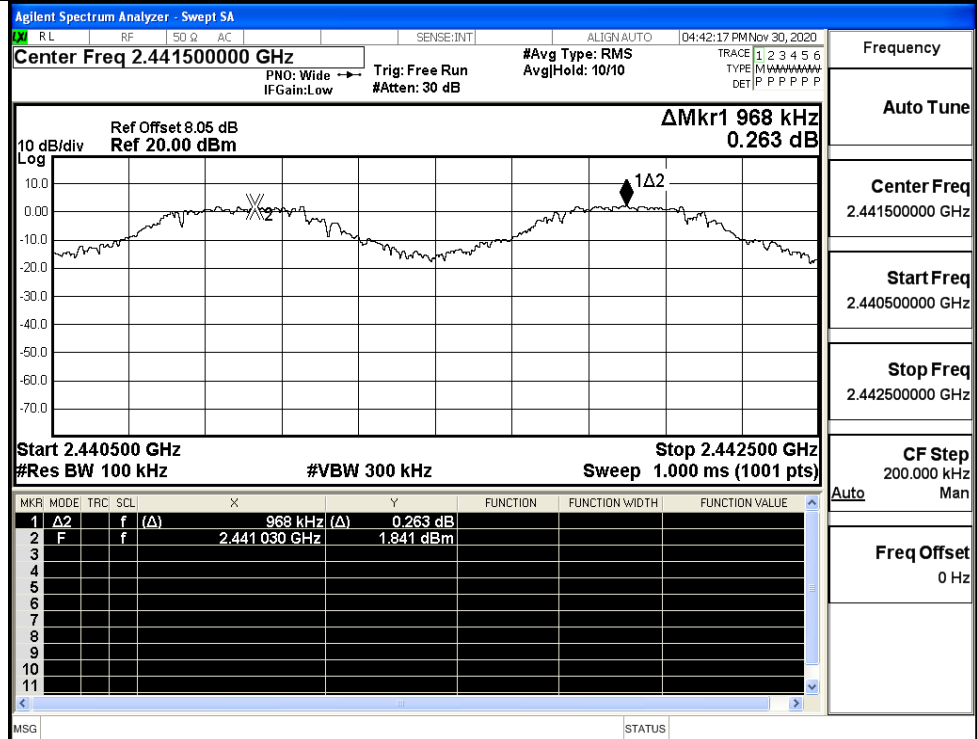
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.003	0.696	PASS
	MCH	0.968	0.696	PASS
	HCH	0.984	0.697	PASS
$\pi/4$ DQPSK	LCH	0.988	0.791	PASS
	MCH	0.998	0.791	PASS
	HCH	1.006	0.791	PASS
8DPSK	LCH	0.994	0.797	PASS
	MCH	0.998	0.798	PASS
	HCH	0.844	0.824	PASS

Test Graphs

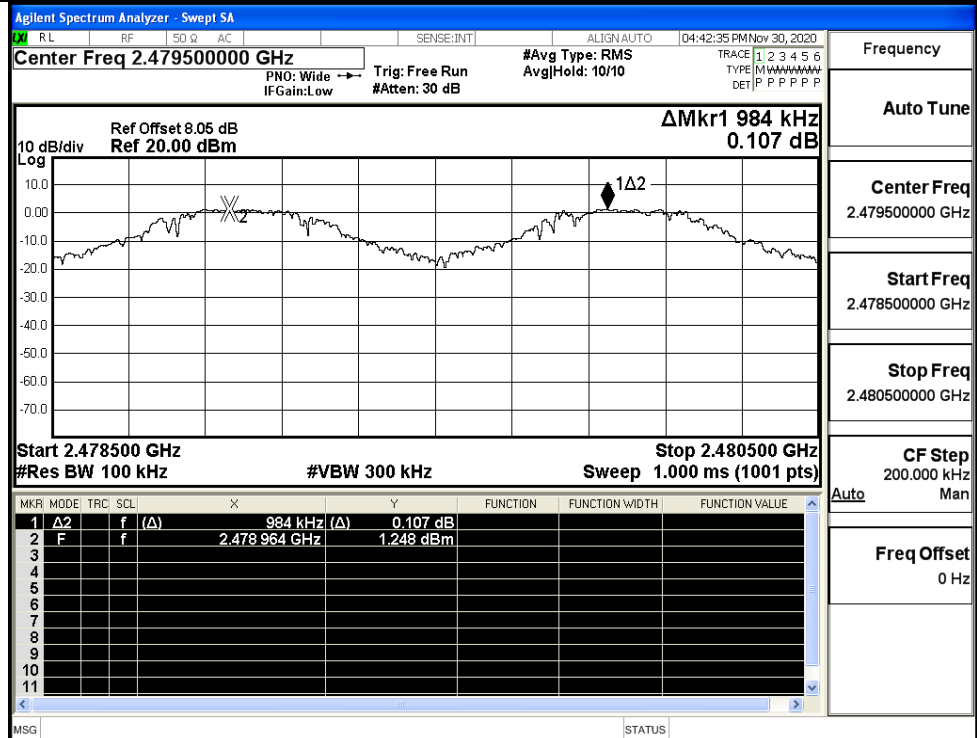
GFSK/LCH

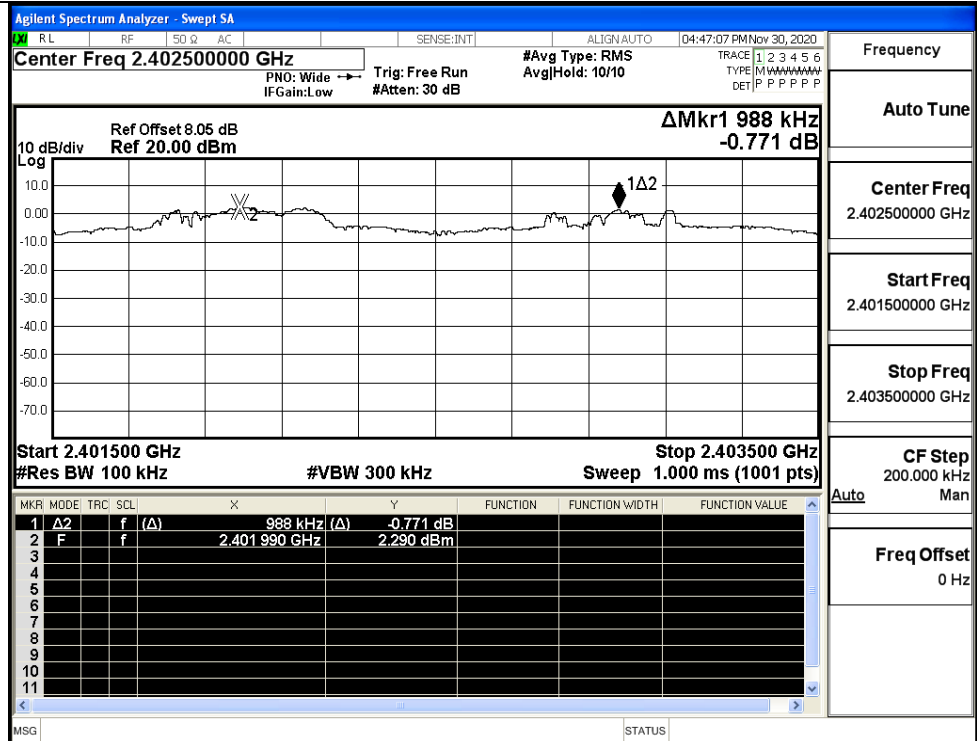
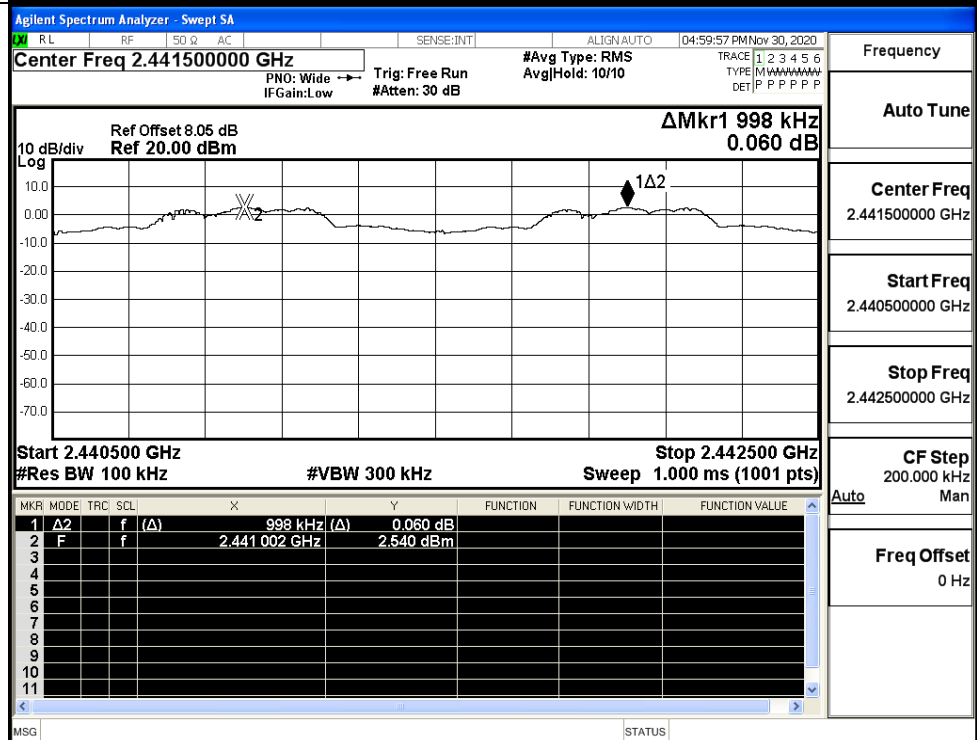


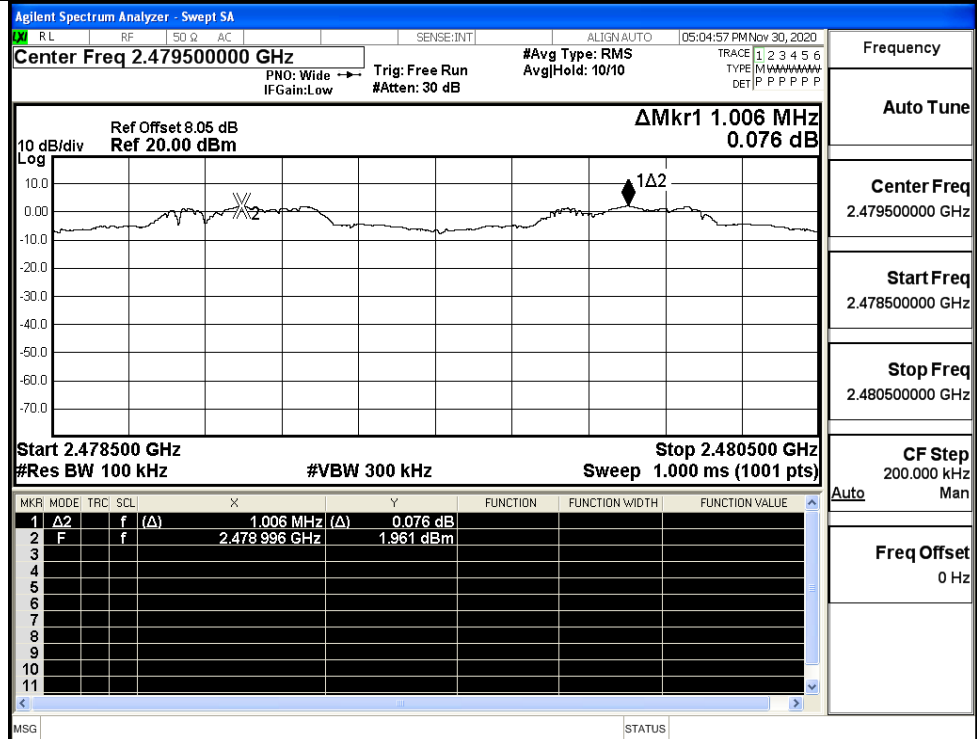
GFSK/MCH



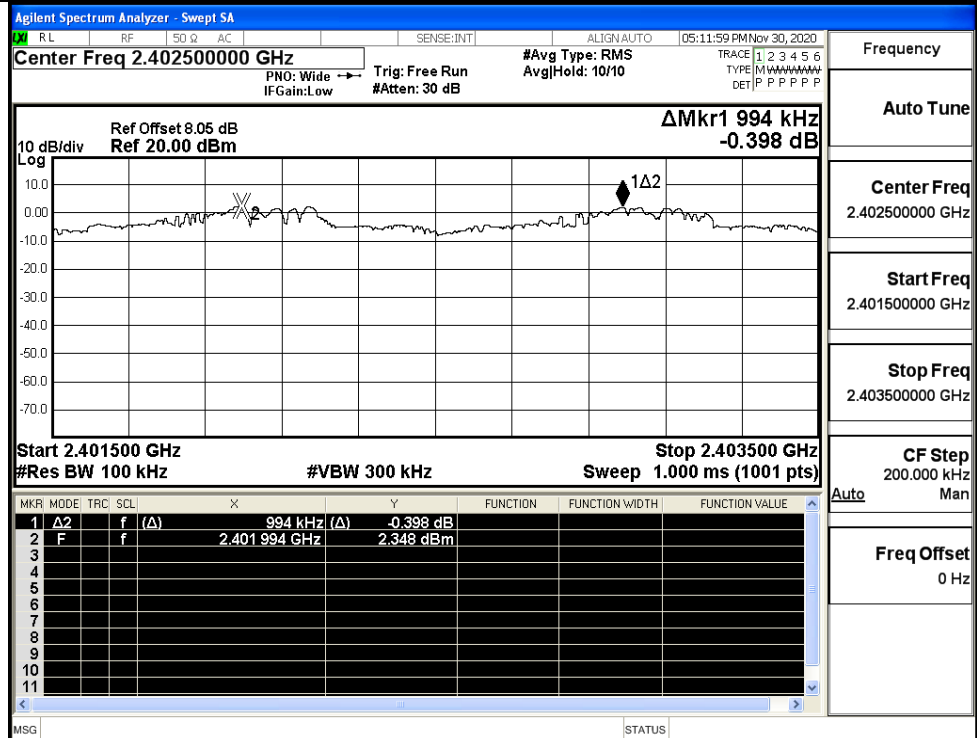
GFSK/HCH



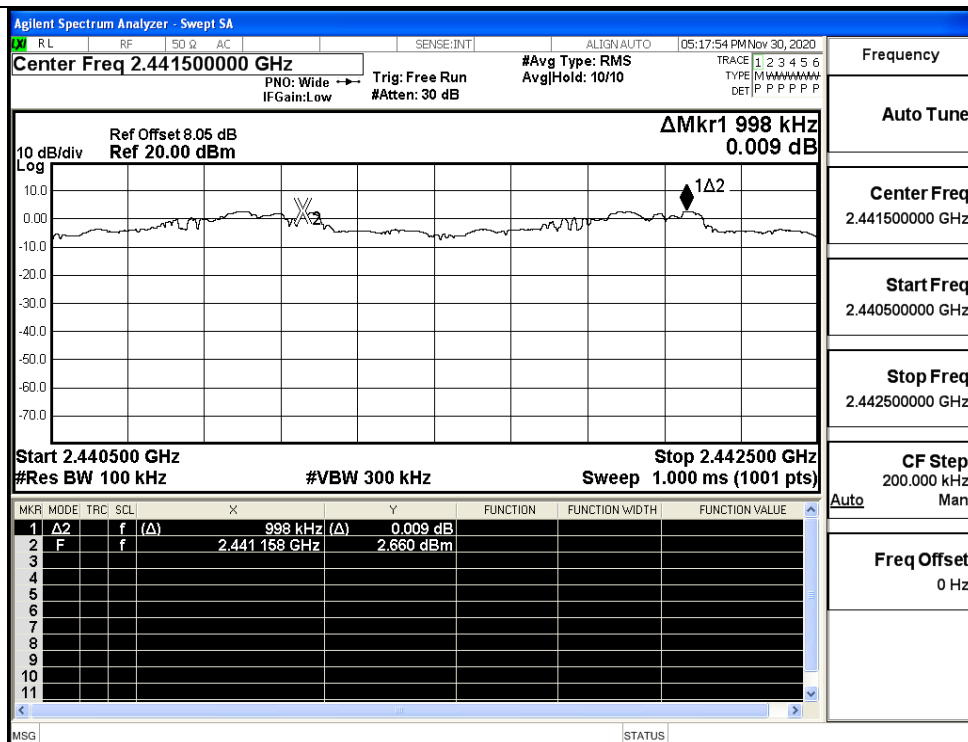
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

8DPSK/LCH



8DPSK/MCH



Frequency

Auto Tune

Center Freq
2.441500000 GHz

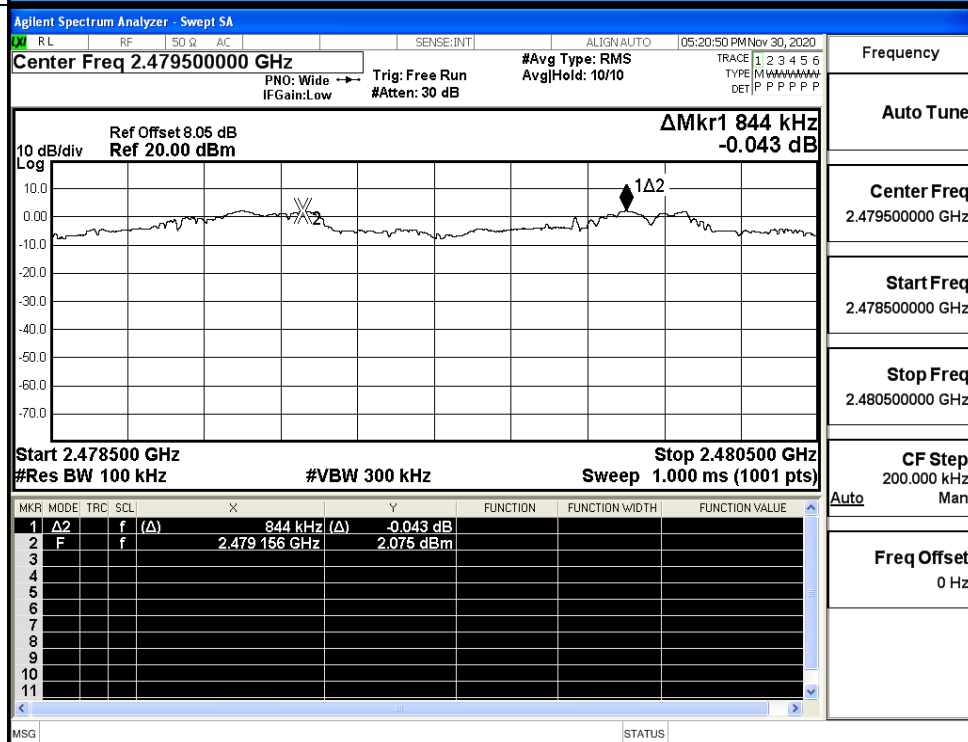
Start Freq
2.440500000 GHz

Stop Freq
2.442500000 GHz

CF Step
200.000 kHz
Man

Freq Offset
0 Hz

8DPSK/HCH



Frequency

Auto Tune

Center Freq
2.479500000 GHz

Start Freq
2.478500000 GHz

Stop Freq
2.480500000 GHz

CF Step
200.000 kHz
Man

Freq Offset
0 Hz

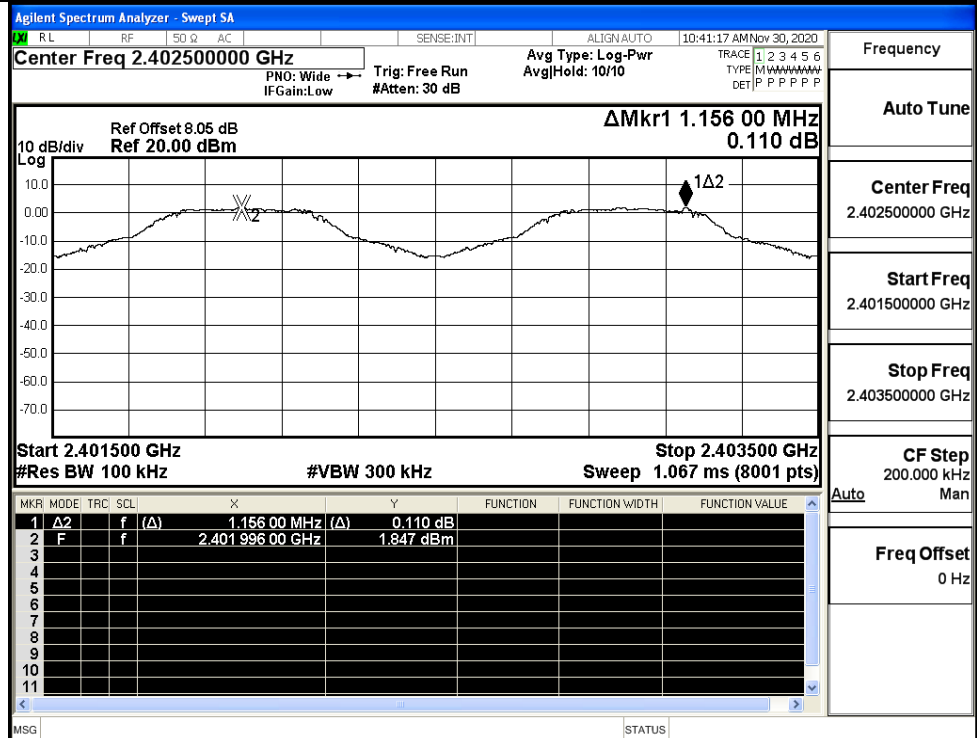
Left

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.156	0.695	PASS
	MCH	0.996	0.697	PASS
	HCH	1.004	0.683	PASS
π/4DQPSK	LCH	0.998	0.791	PASS
	MCH	0.974	0.791	PASS
	HCH	1.144	0.791	PASS

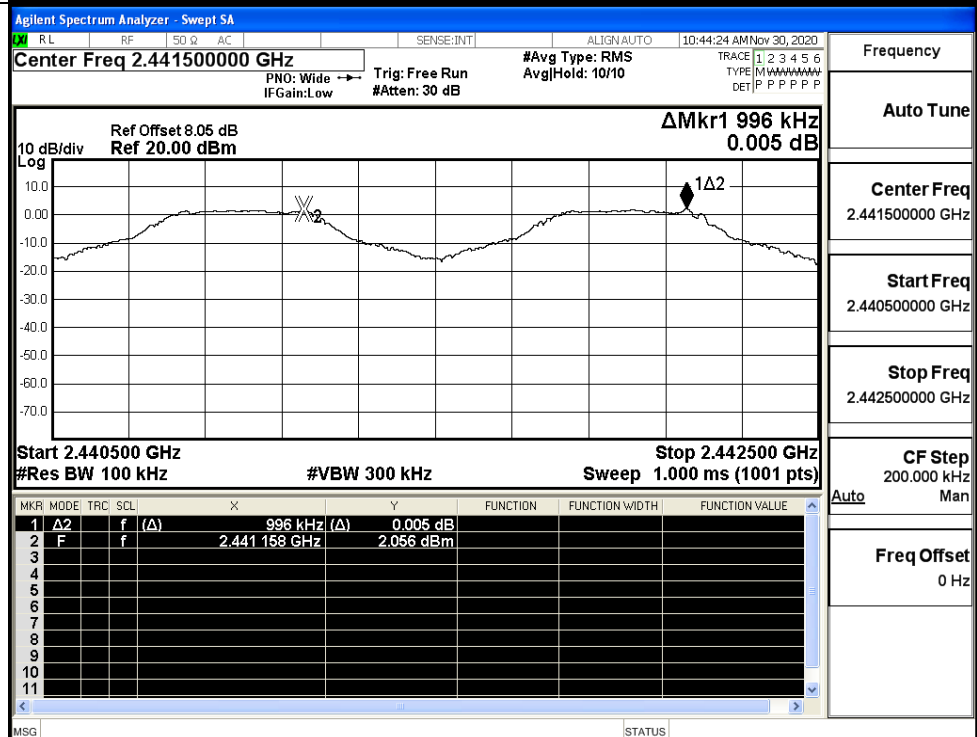
8DPSK	LCH	0.840	0.797	PASS
	MCH	0.982	0.797	PASS
	HCH	0.842	0.798	PASS

Test Graphs

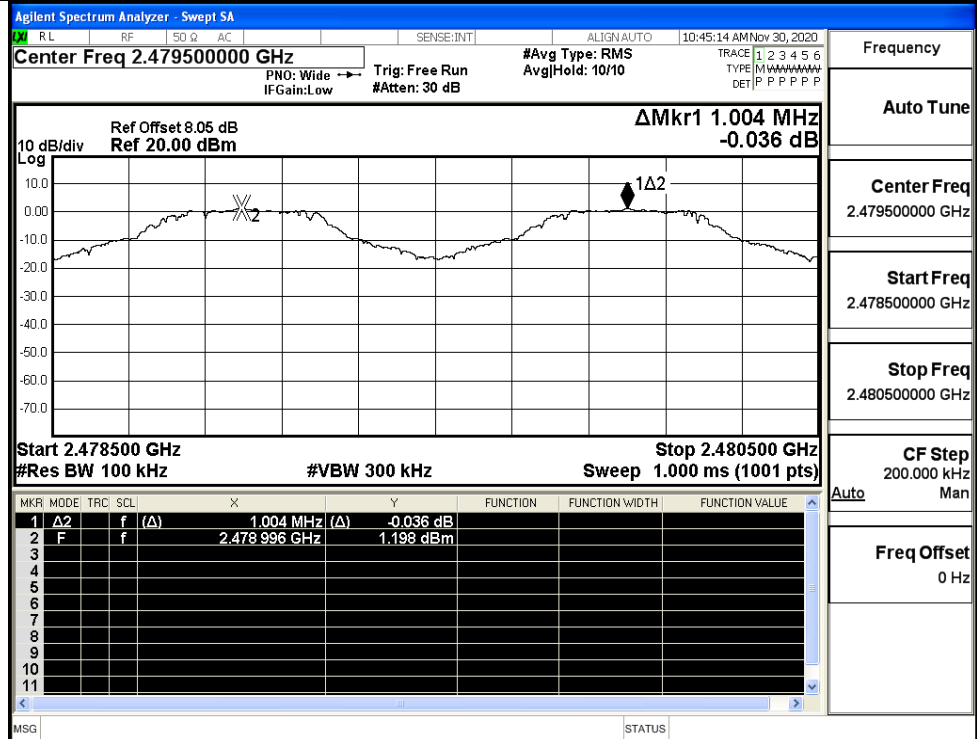
GFSK/LCH



GFSK/MCH



GFSK/HCH

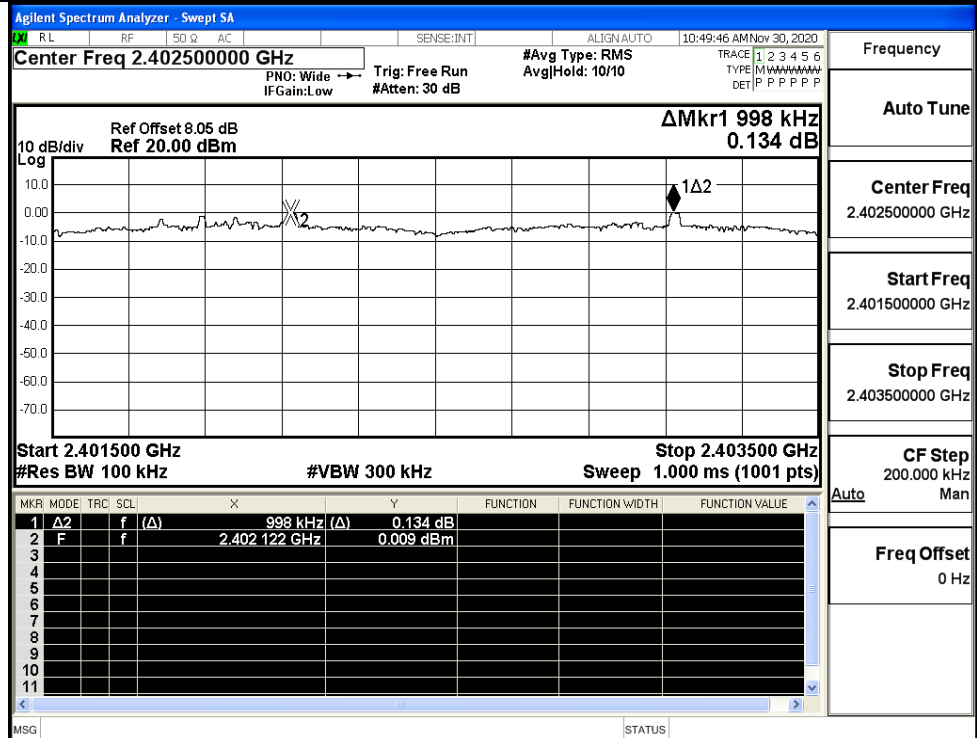


Frequency

Auto Tune

Center Freq
2.479500000 GHzStart Freq
2.478500000 GHzStop Freq
2.480500000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz

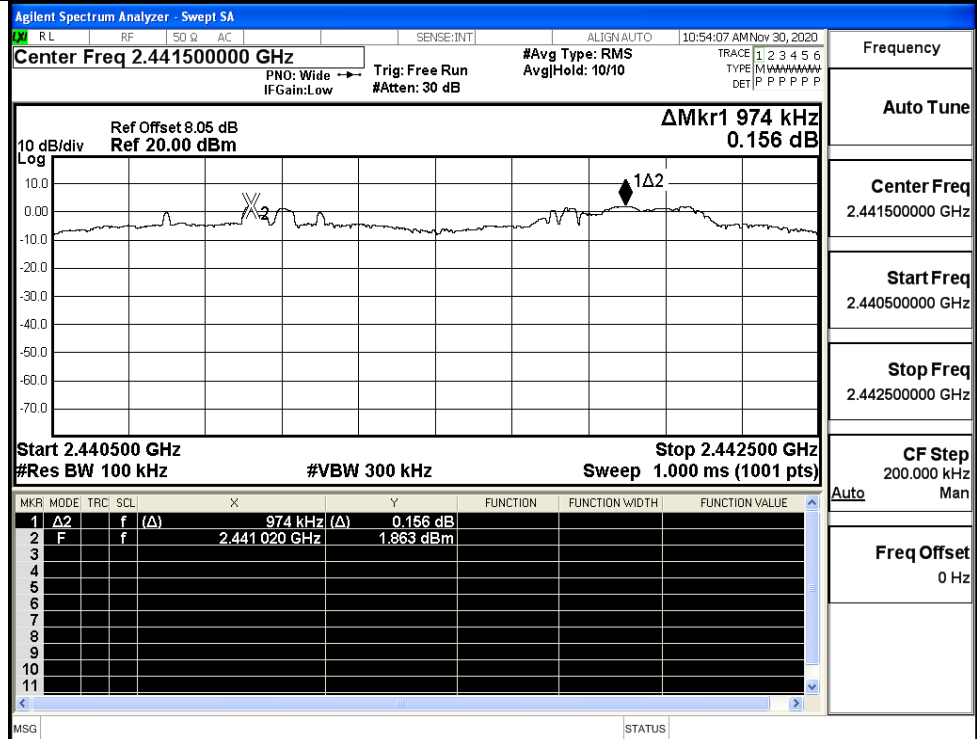
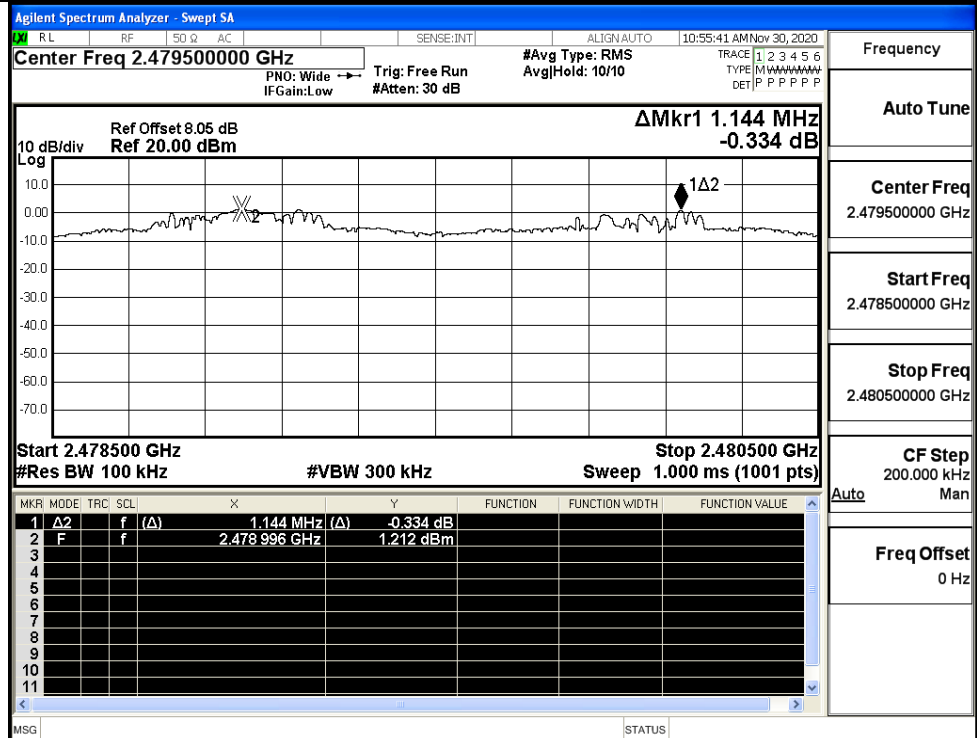
π/4DQPSK/LCH



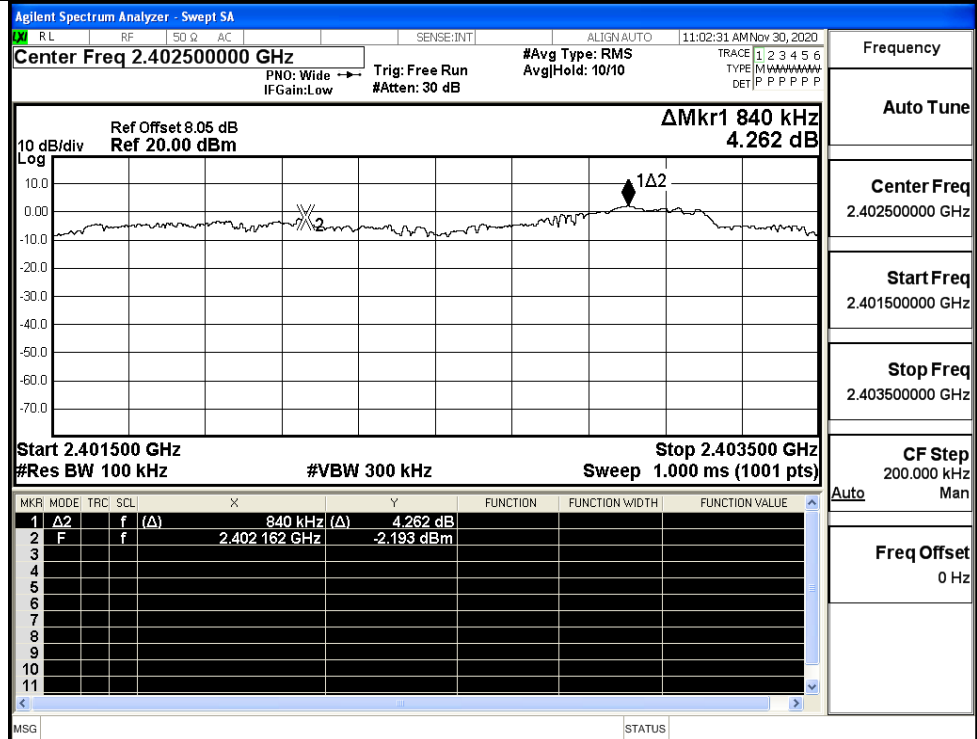
Frequency

Auto Tune

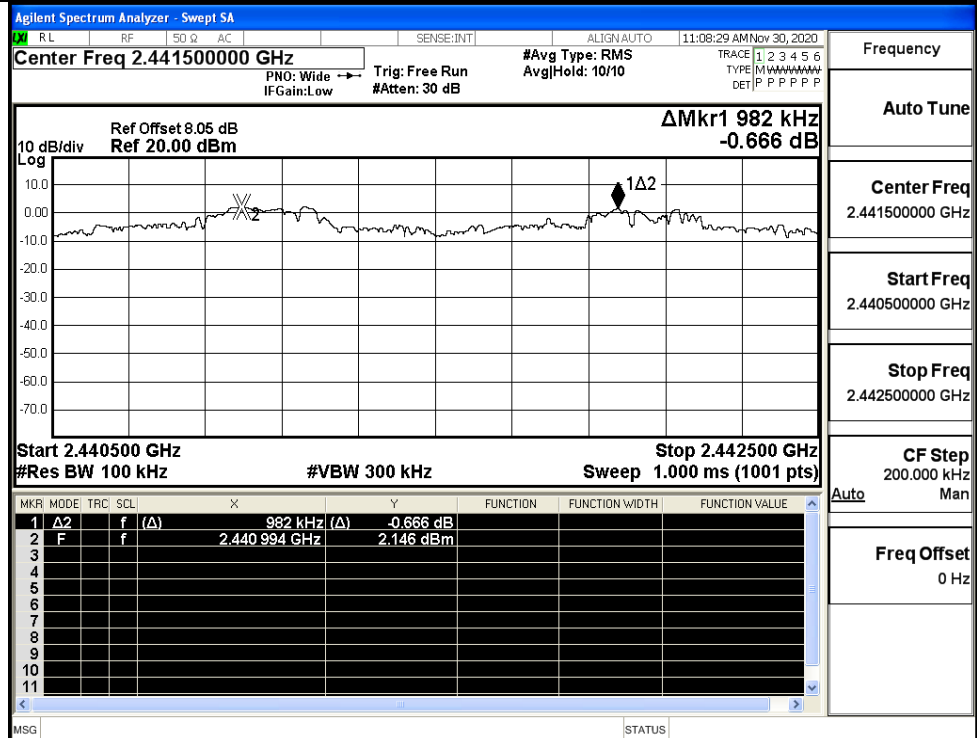
Center Freq
2.402500000 GHzStart Freq
2.401500000 GHzStop Freq
2.403500000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz

$\pi/4$ DQPSK/MCH $\pi/4$ DQPSK/HCH

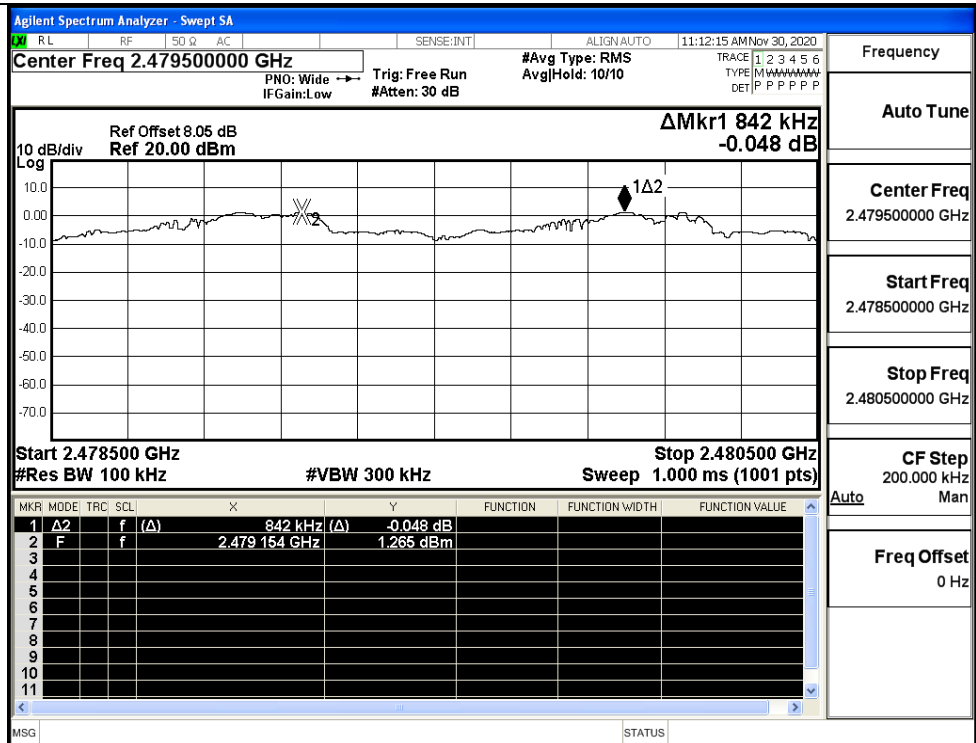
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



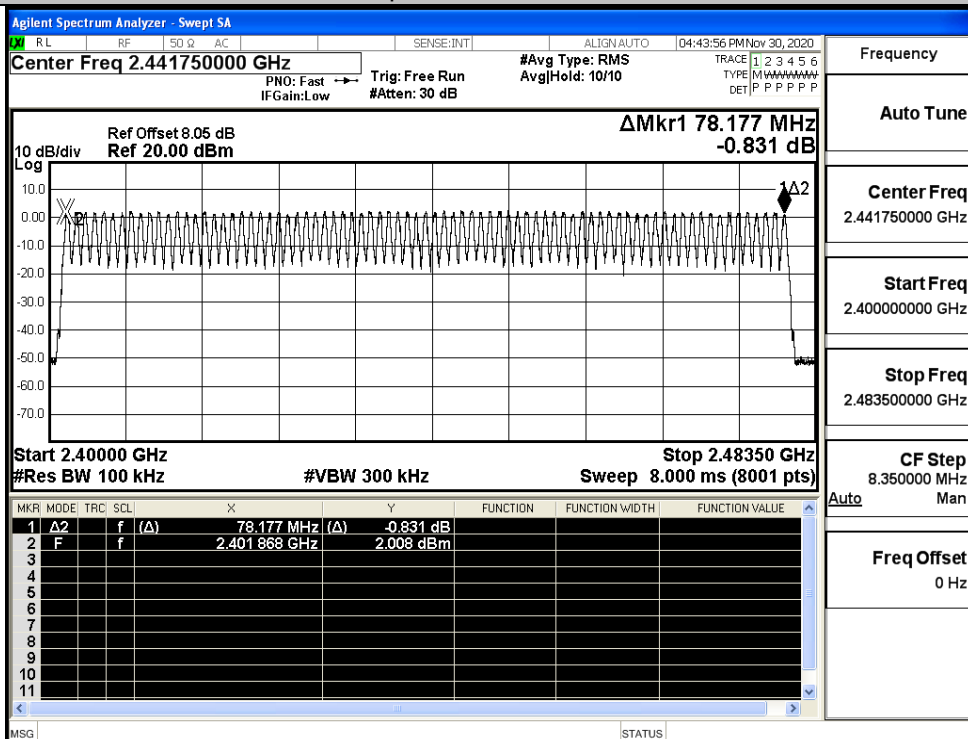
A.5 Hopping Channel Number

Right

Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

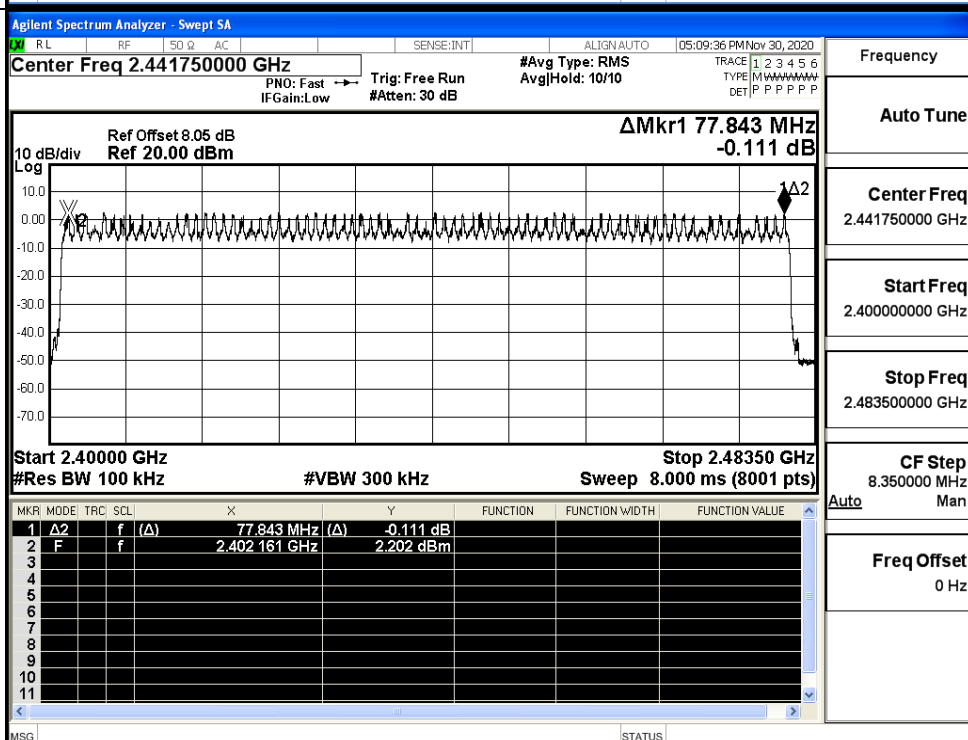
Test Graphs

GFSK/Hop



Frequency

Auto Tune

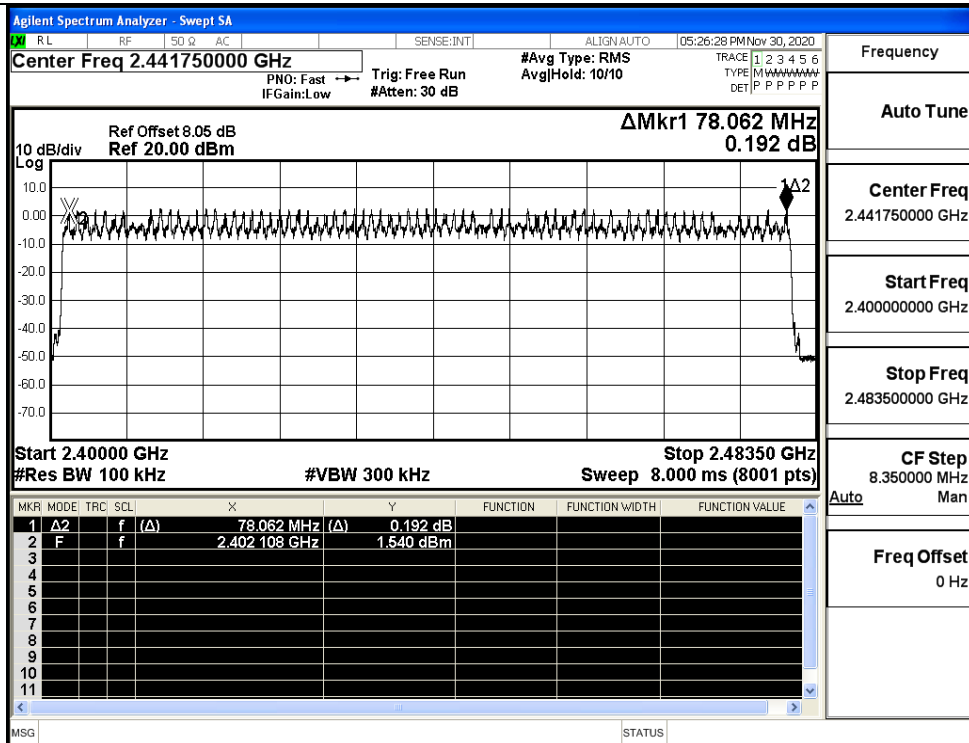
Center Freq
2.441750000 GHzStart Freq
2.400000000 GHzStop Freq
2.483500000 GHzCF Step
8.350000 MHz
ManFreq Offset
0 Hz $\pi/4$ DQPSK/Hop

Frequency

Auto Tune

Center Freq
2.441750000 GHzStart Freq
2.400000000 GHzStop Freq
2.483500000 GHzCF Step
8.350000 MHz
ManFreq Offset
0 Hz

8DPSK/Hop

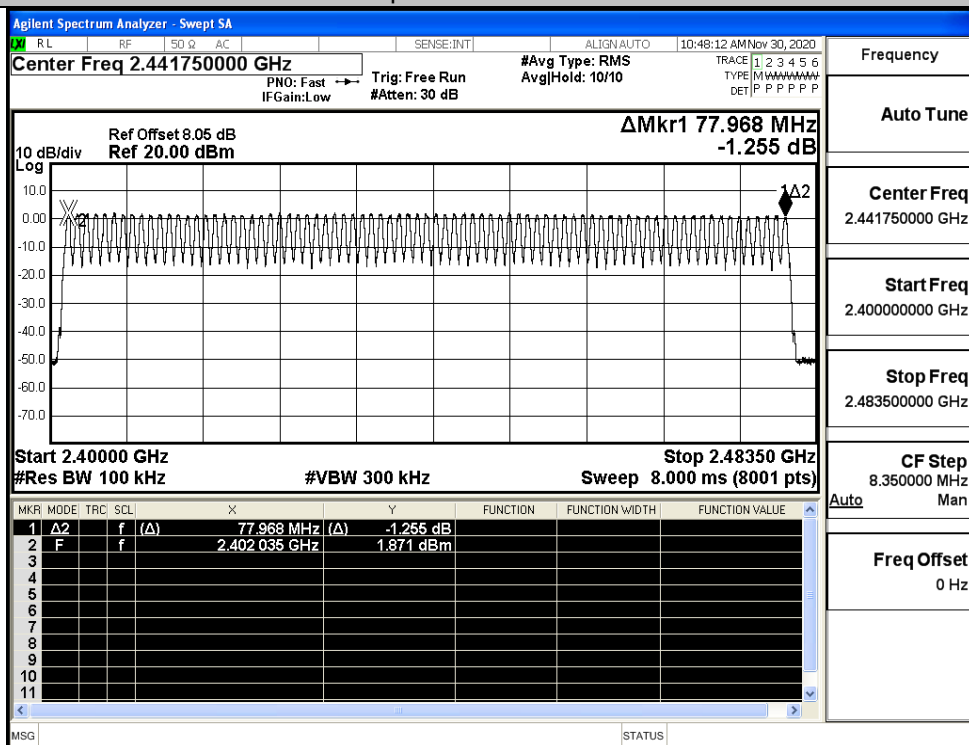


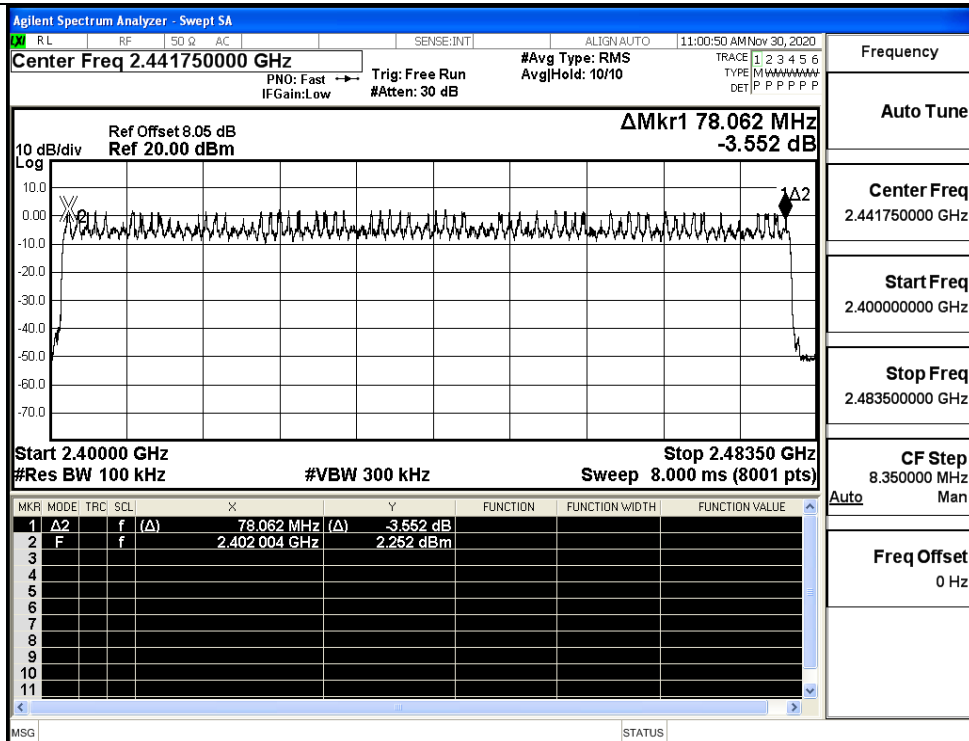
Left

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

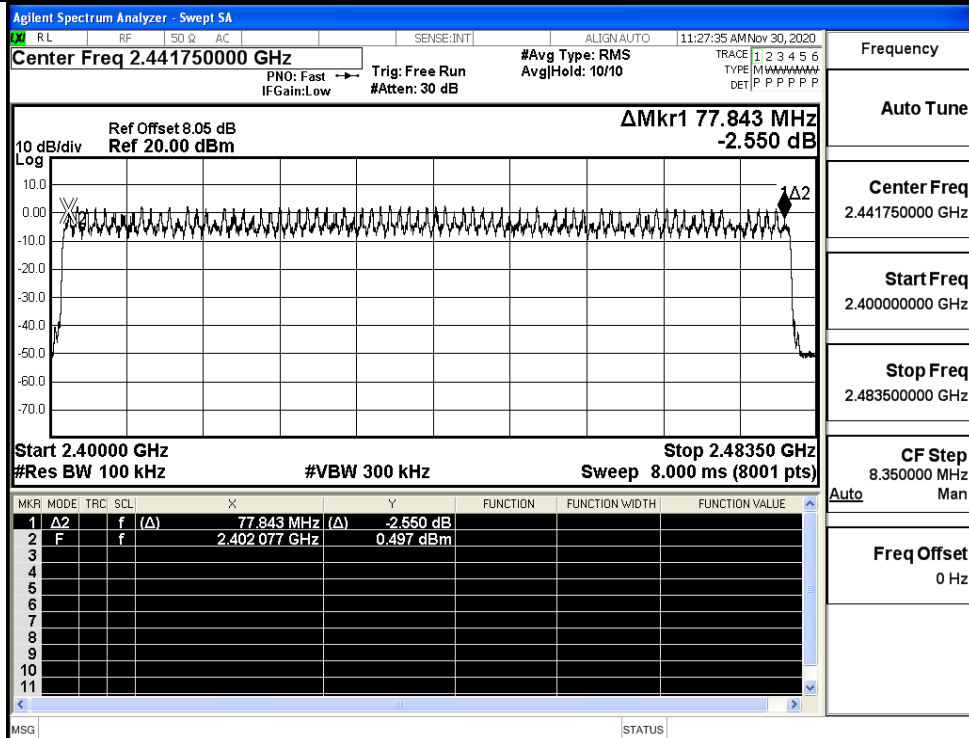
Test Graphs

GFSK/Hop



$\pi/4$ DQPSK/Hop

8DPSK/Hop



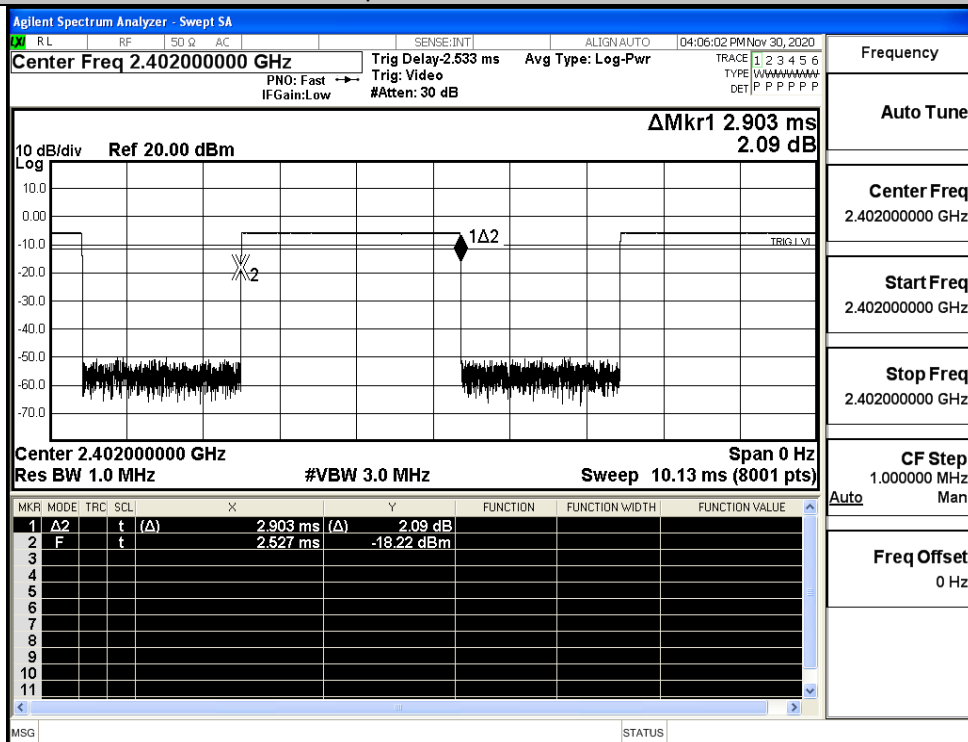
A.6 Dwell Time

Right

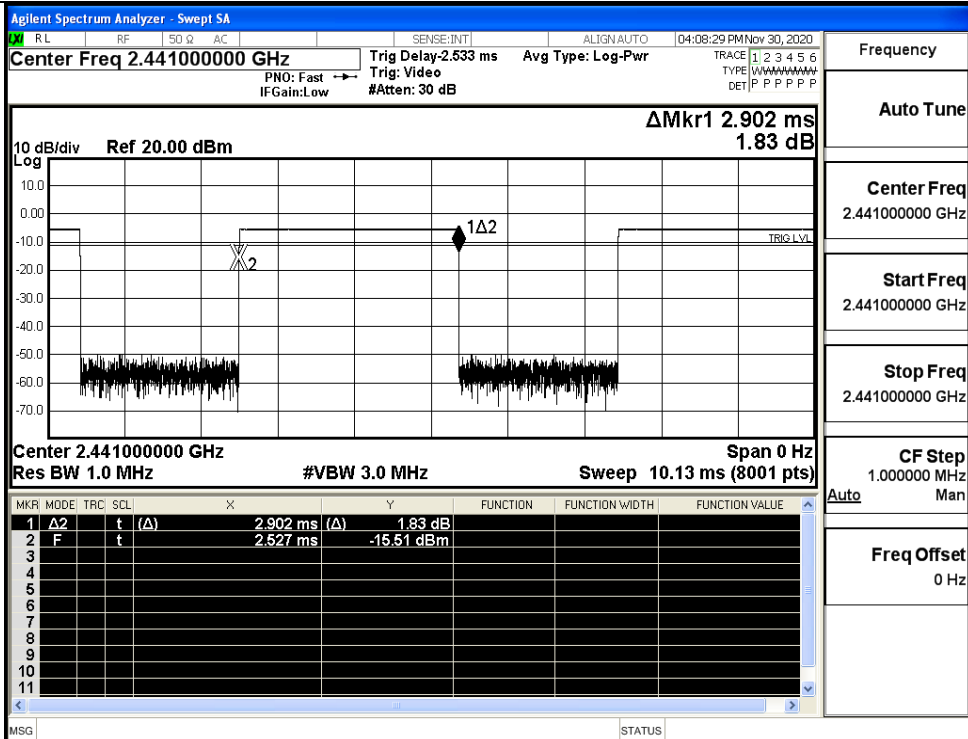
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.9	106.7	0.309	0.4	PASS
	DH5	MCH	2.9	106.7	0.309	0.4	PASS
	DH5	HCH	2.9	106.7	0.309	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.9	106.7	0.309	0.4	PASS
	2DH5	MCH	2.9	106.7	0.309	0.4	PASS
	2DH5	HCH	2.9	106.7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

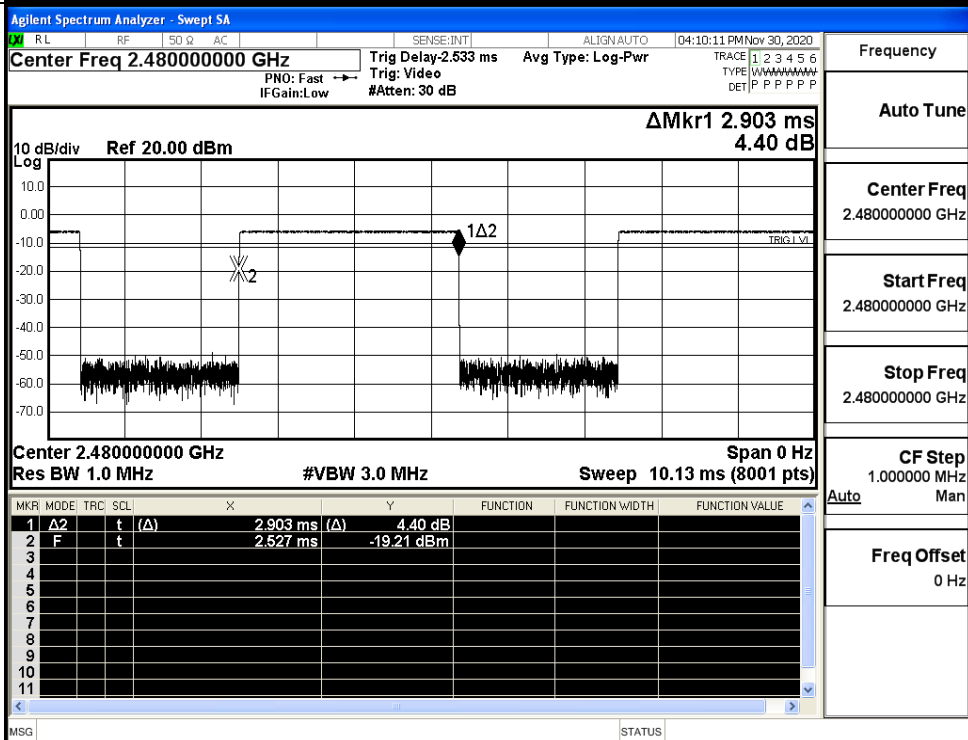
GFSK_DH5/LCH



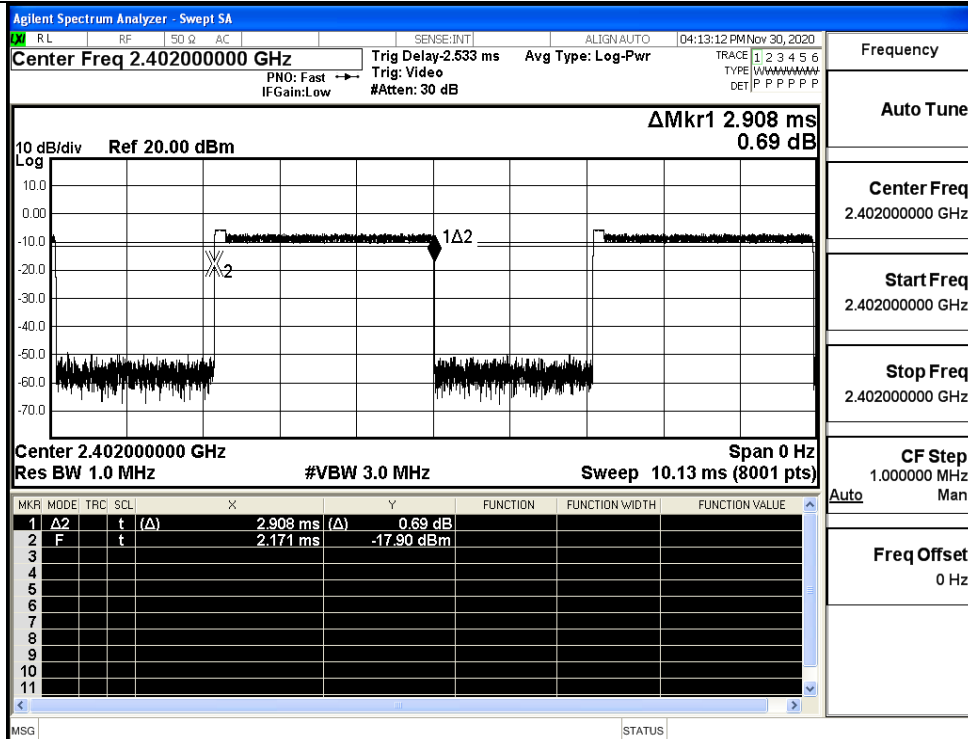
GFSK_DH5/MCH



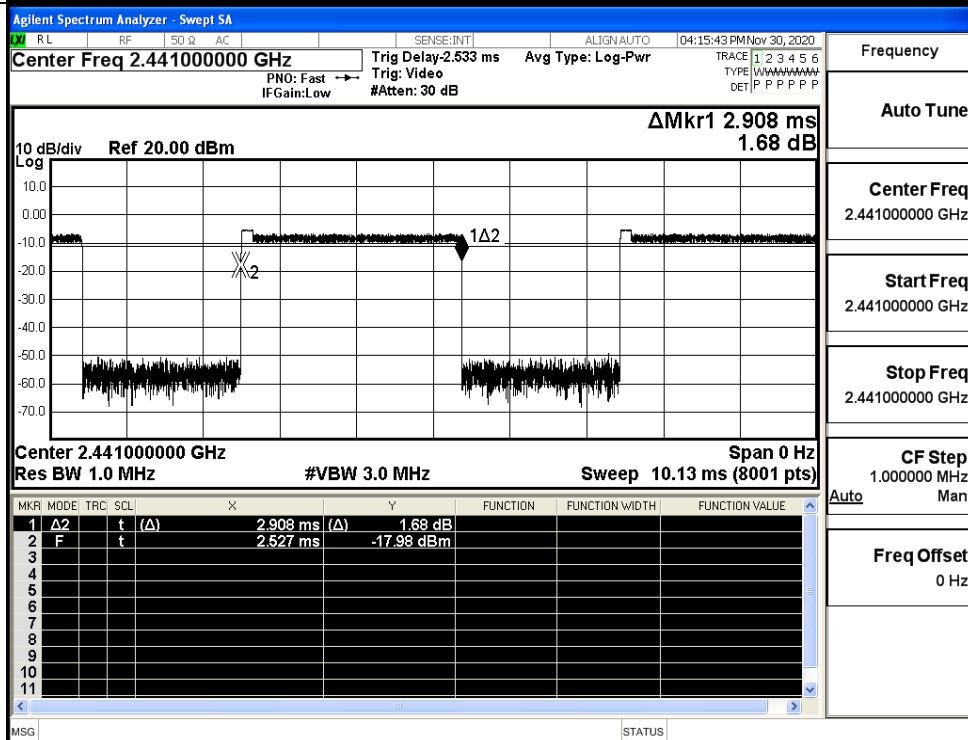
GFSK_DH5/HCH



$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH



[illegible]

Agilent Spectrum Analyzer - Swept SA

RL SO Q AC

SENSE:INT

ALIGN: AUTO

04:20:24 PM Nov 30, 2020

Center Freq 2.402000000 GHz

Trig Delay: 2.533 ms

Avg Type: Log-Pwr

Trace 1 2 3 4 5 6

TYPE: W W W W W W W W

DET: P P P P P P P P

PNO: Fast

IF Gain: Low

#Atten: 30 dB

Frequency

Auto Tune

Center Freq 2.402000000 GHz

Start Freq 2.402000000 GHz

Stop Freq 2.402000000 GHz

CF Step 1.000000 MHz

Auto Man

Freq Offset 0 Hz

10 dB/div Ref 20.00 dBm

ΔMkr1 2.910 ms

4.01 dB

Log

1Δ2

TRIG: LVL

Center 2.402000000 GHz

Res BW 1.0 MHz

#VBW 3.0 MHz

Sweep 10.13 ms (8001 pts)

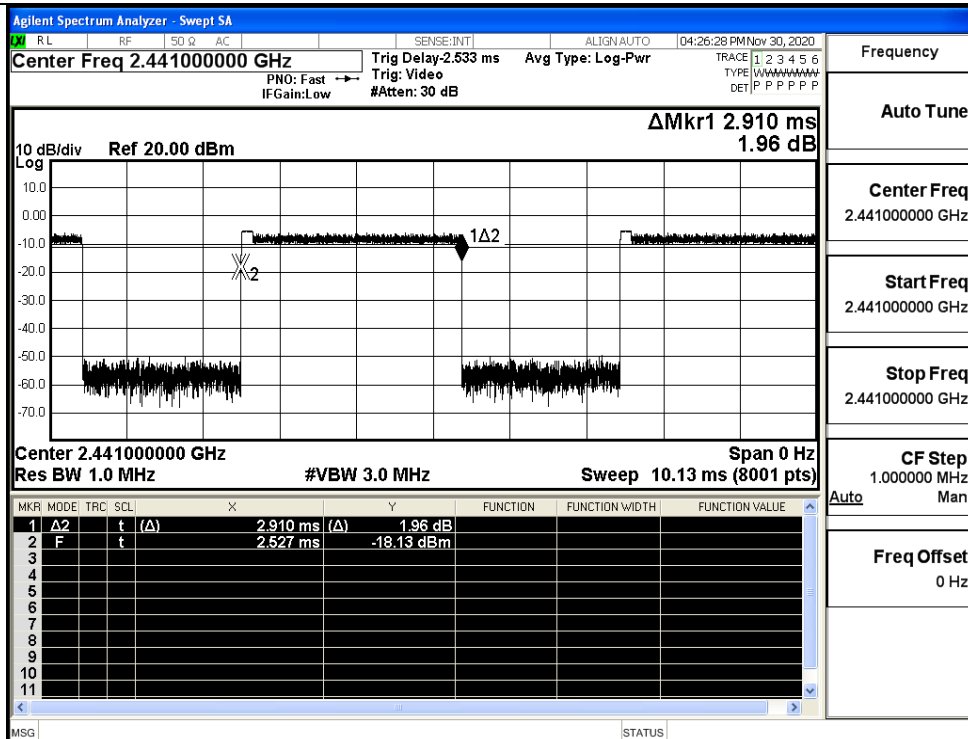
Span 0 Hz

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	t	(Δ)	2.910 ms	(Δ)	4.01 dB		
2	F	t		938.6 μs	-19.68 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

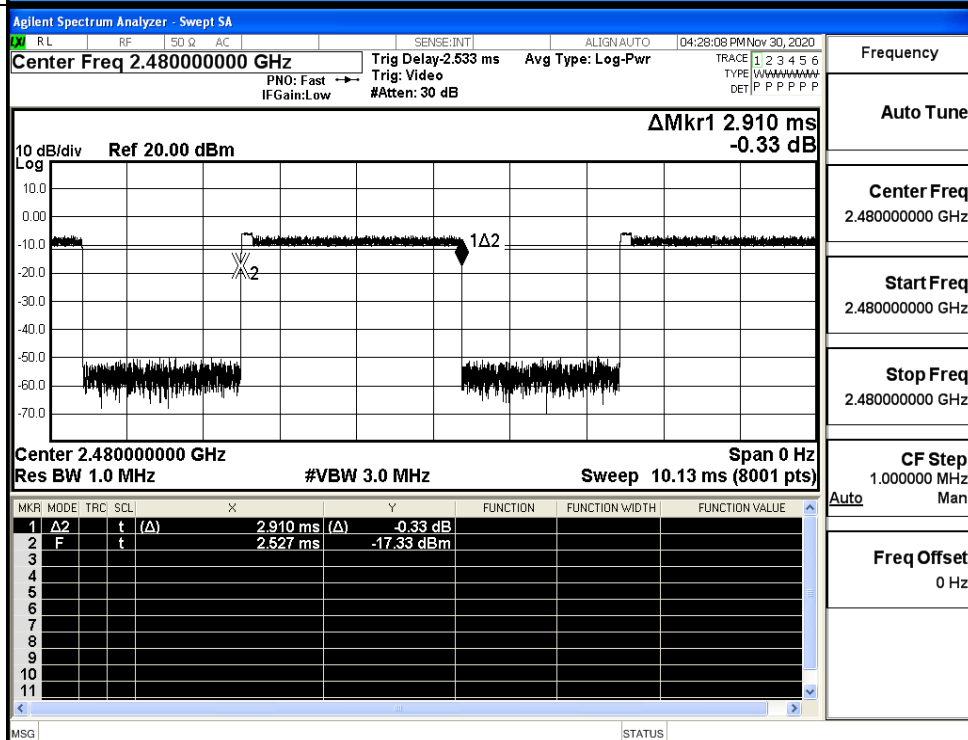
MSG

STATUS

8DPSK_3DH5/MCH



8DPSK_3DH5/HCH



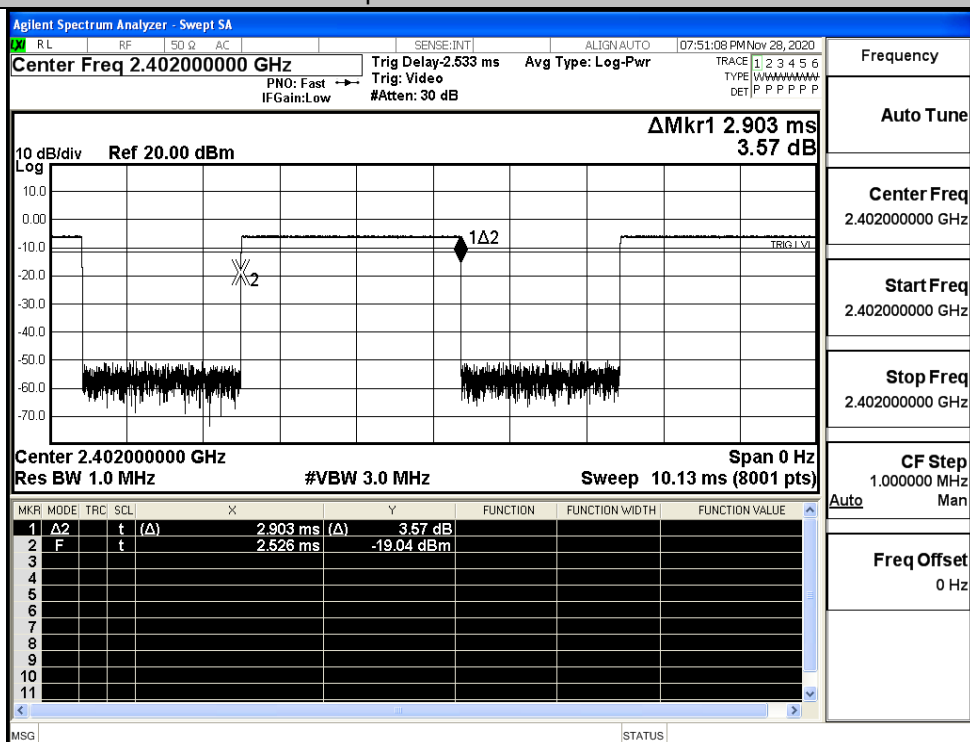
Left

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
$\pi/4$ DQPSK	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

