Appendix A
RF Test Data for BT(BDR/EDR) (Conducted Measurement)

Product Name: TRUE WIRELESS EARBUDS

Trade Mark: SOUNDMATES

Test Model: RT27

FCC ID: 2ATOY-RT27

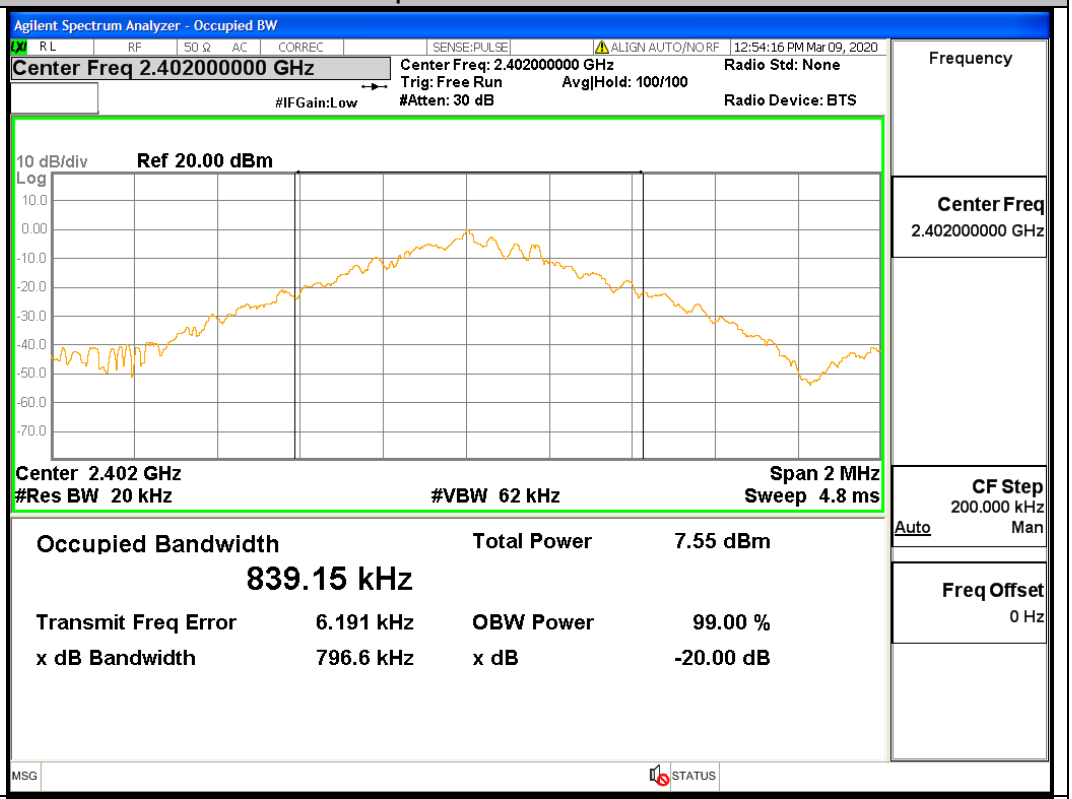
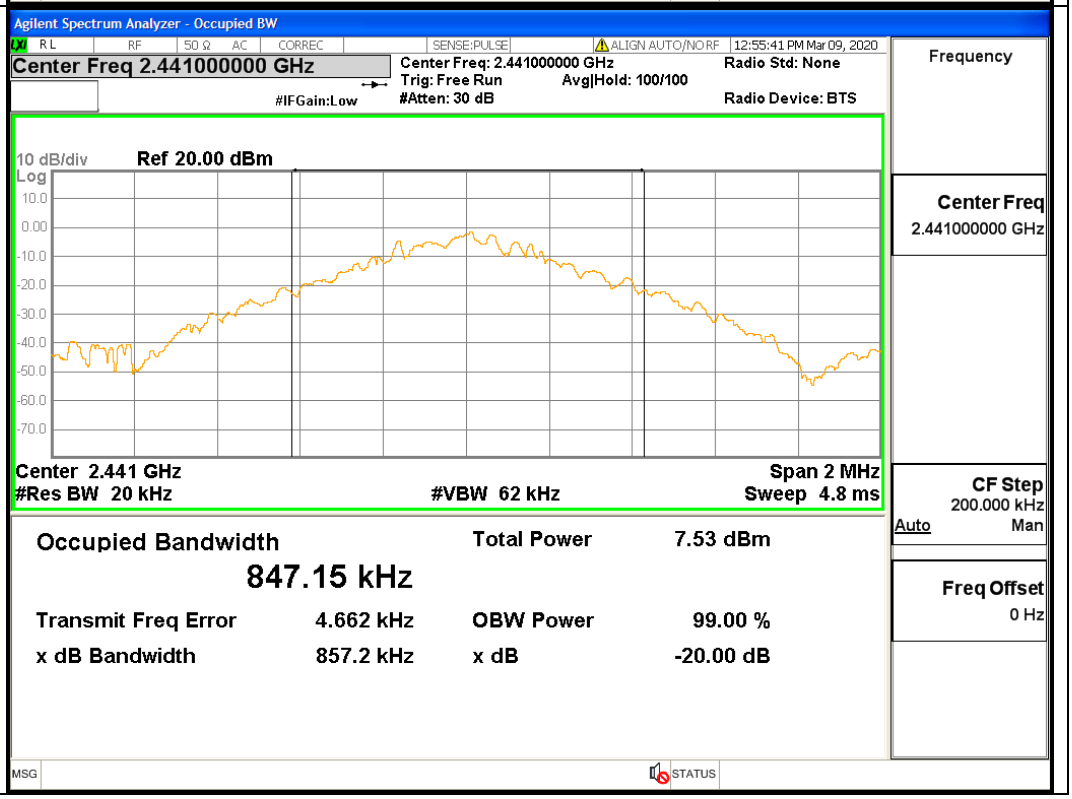
Environmental Conditions

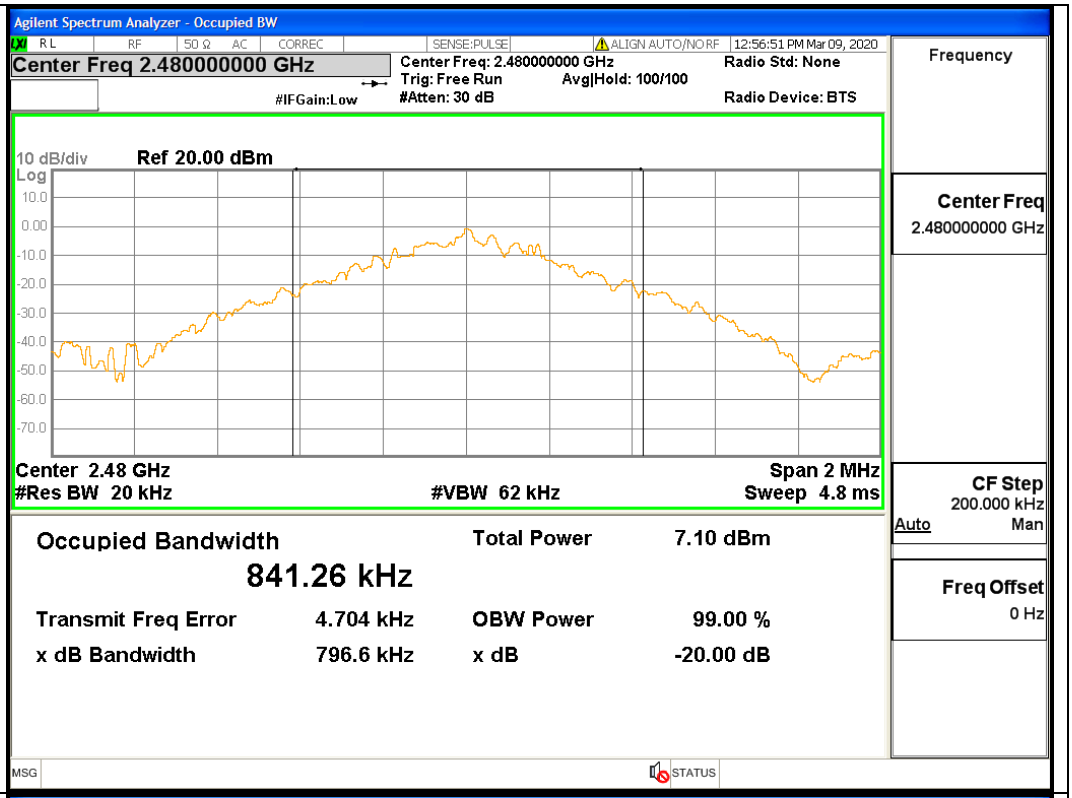
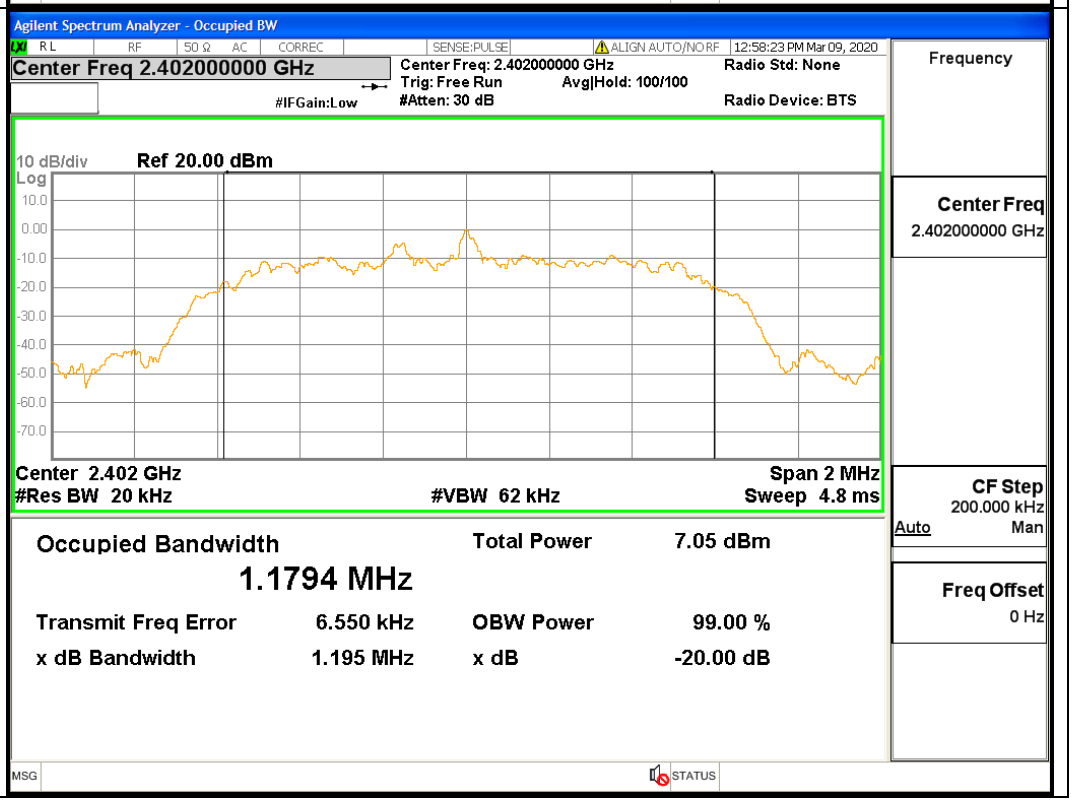
Temperature:	22.8° C
Relative Humidity:	56%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen

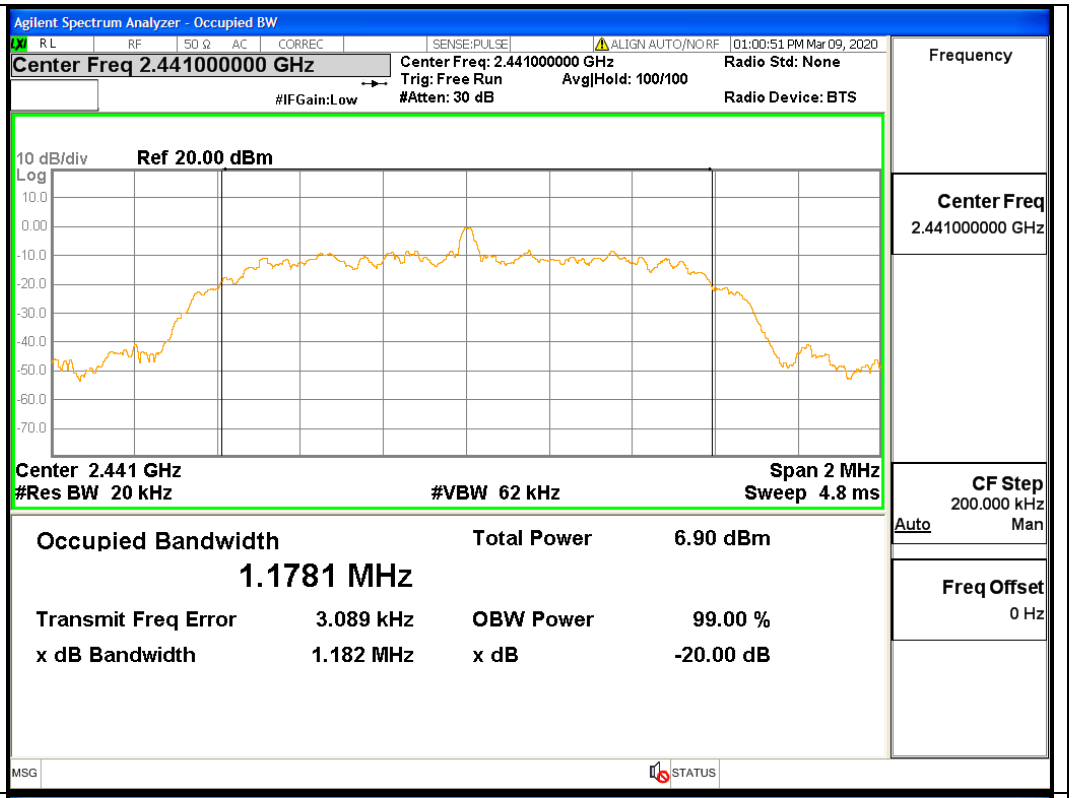
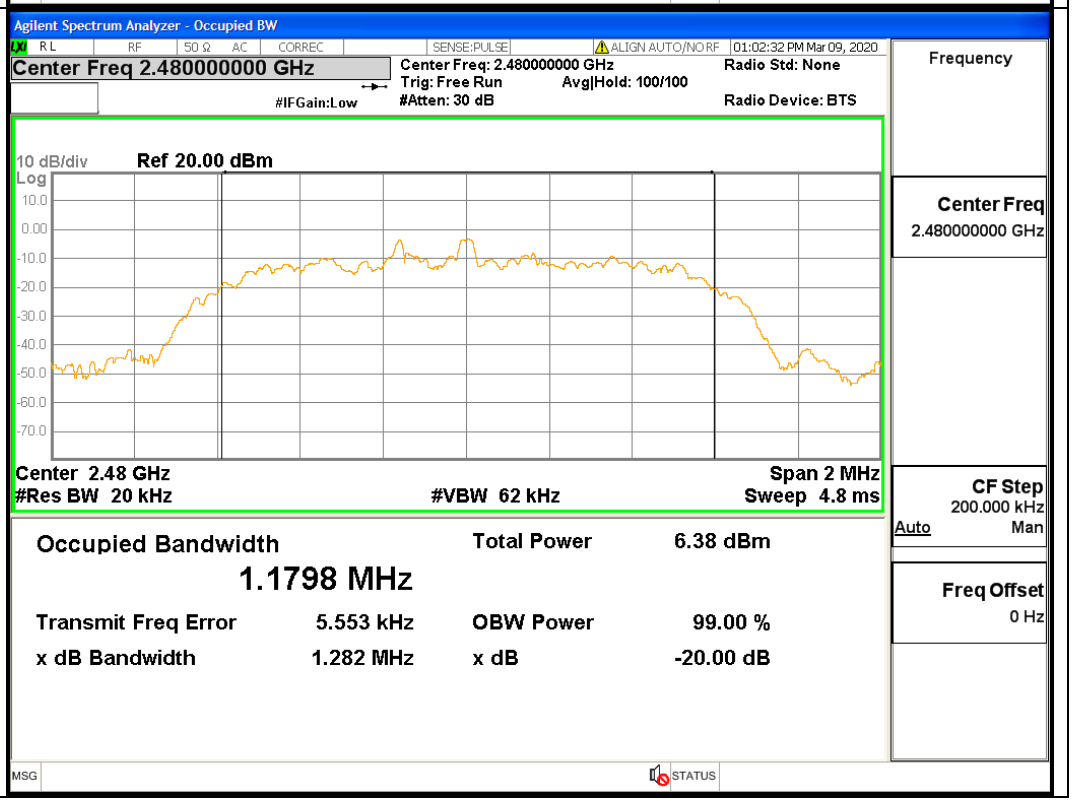
A.1 20 dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	0.797	Not Specified	PASS
GFSK	MCH	0.857	Not Specified	PASS
GFSK	HCH	0.797	Not Specified	PASS
π/4DQPSK	LCH	1.195	Not Specified	PASS
π/4DQPSK	MCH	1.182	Not Specified	PASS
π/4DQPSK	HCH	1.282	Not Specified	PASS

Test Graph

Graphs	
GFSK/LCH	
GFSK/MCH	

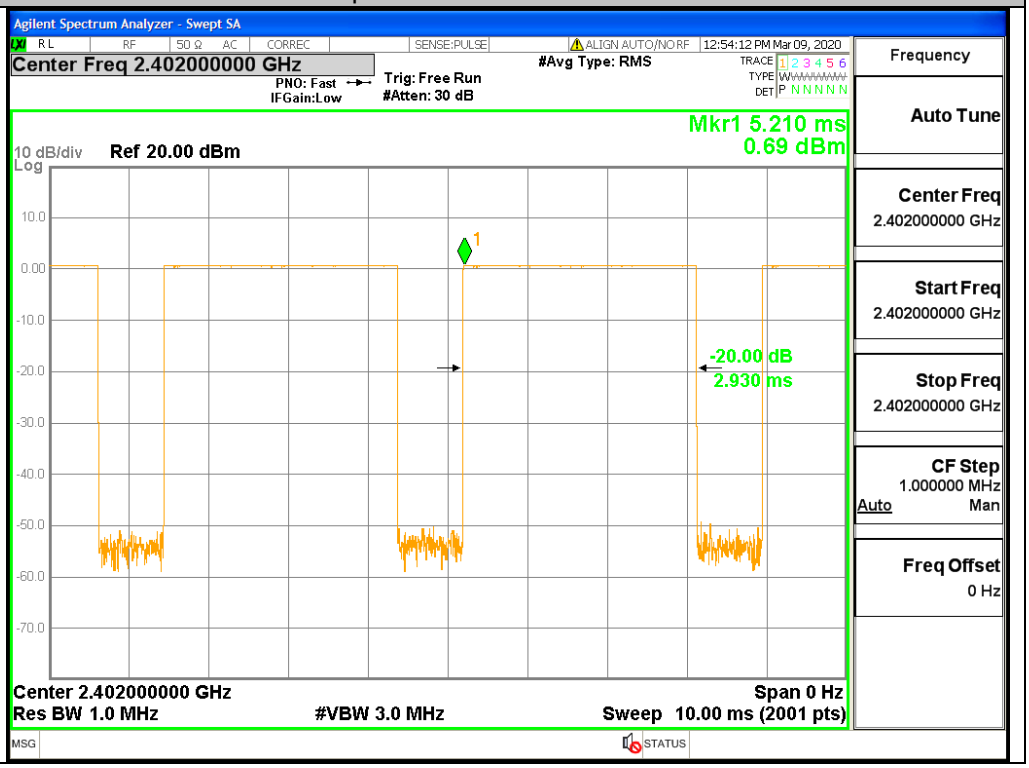
GFSK/HCH	
π/4DQPSK/LCH	

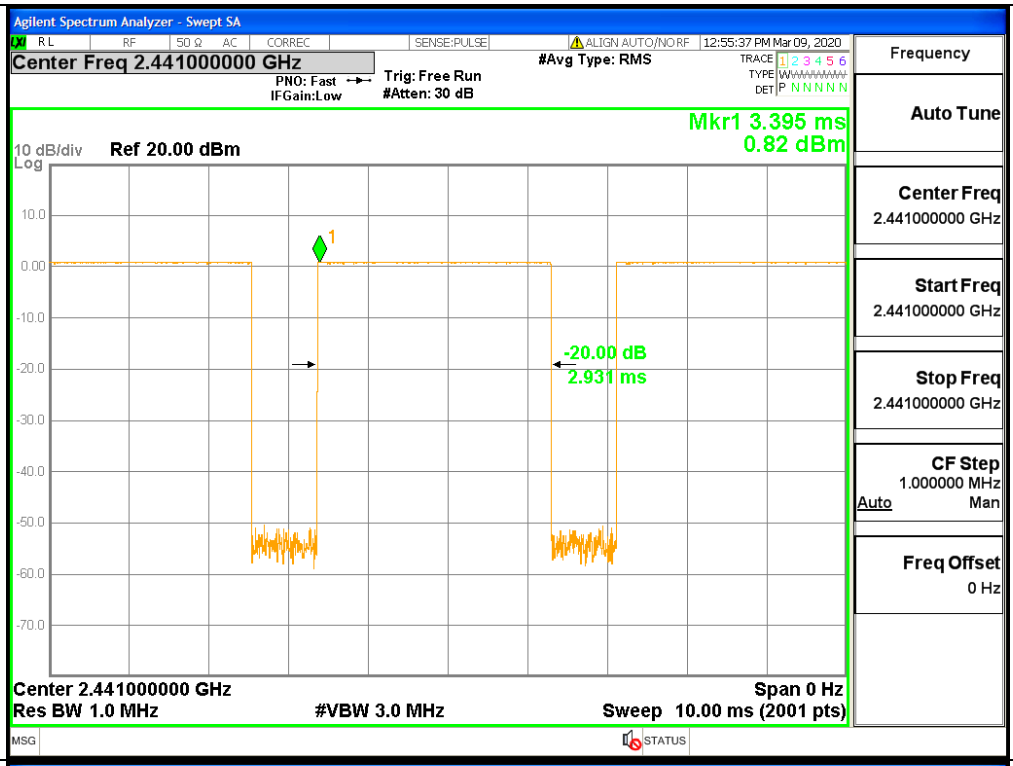
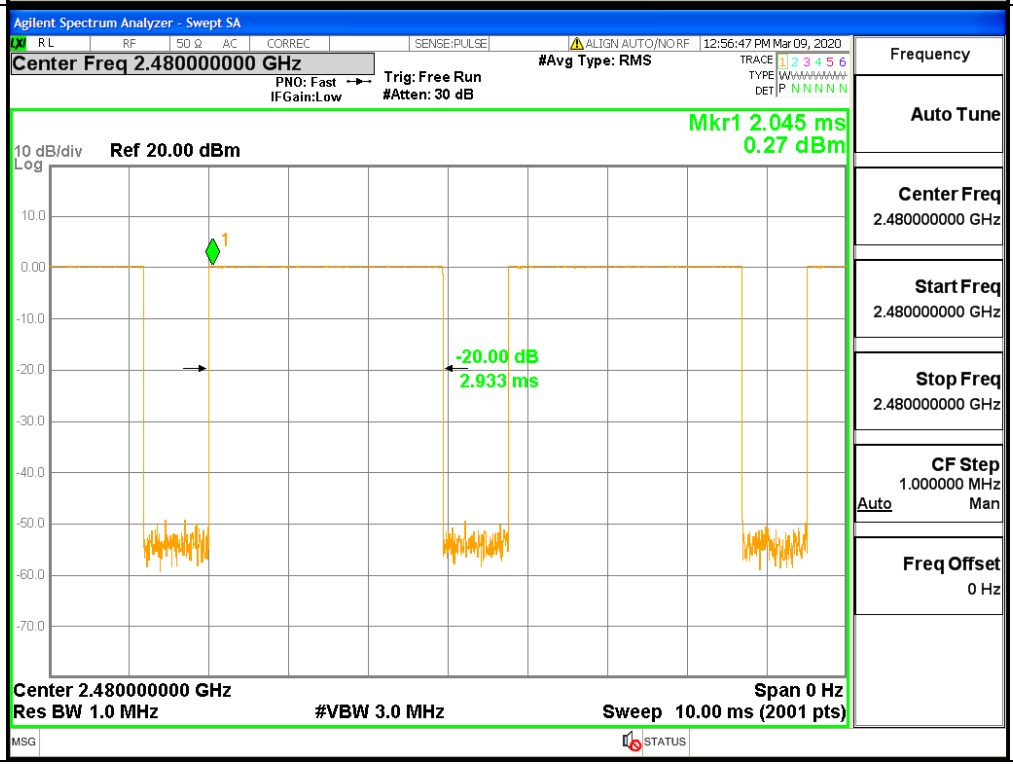
π/4DQPSK/MCH	
π/4DQPSK/HCH	

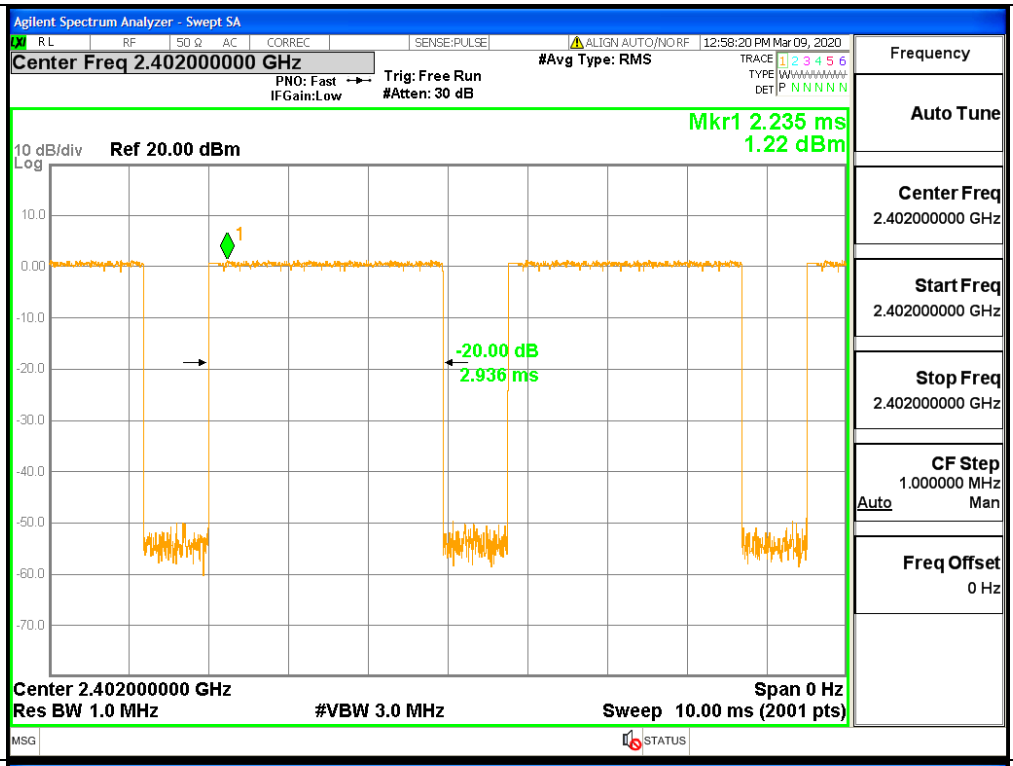
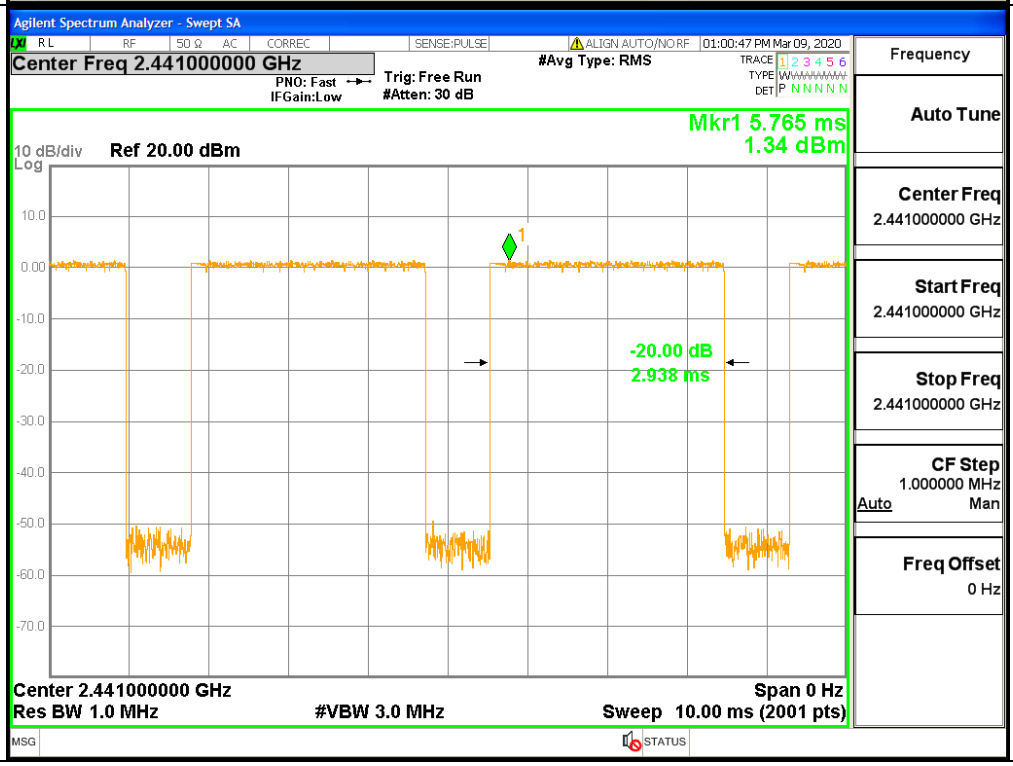
A.2 Dwell Time

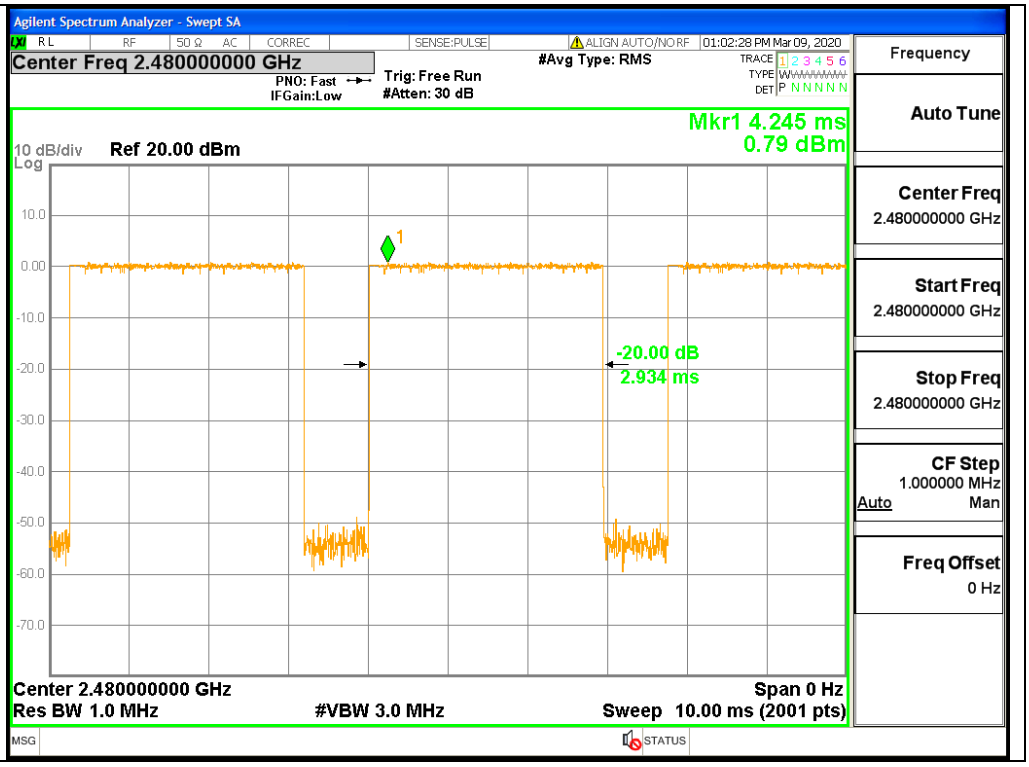
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.930	106.7	0.313	0.4	PASS
GFSK	DH5	MCH	2.931	106.7	0.313	0.4	PASS
GFSK	DH5	HCH	2.933	106.7	0.313	0.4	PASS
π/4DQPSK	2DH5	LCH	2.936	106.7	0.313	0.4	PASS
π/4DQPSK	2DH5	MCH	2.938	106.7	0.313	0.4	PASS
π/4DQPSK	2DH5	HCH	2.934	106.7	0.313	0.4	PASS

Test Graph

Graphs	
GFSK_DH5/LCH	

GFSK_DH5/MCH	
GFSK_DH5/HCH	

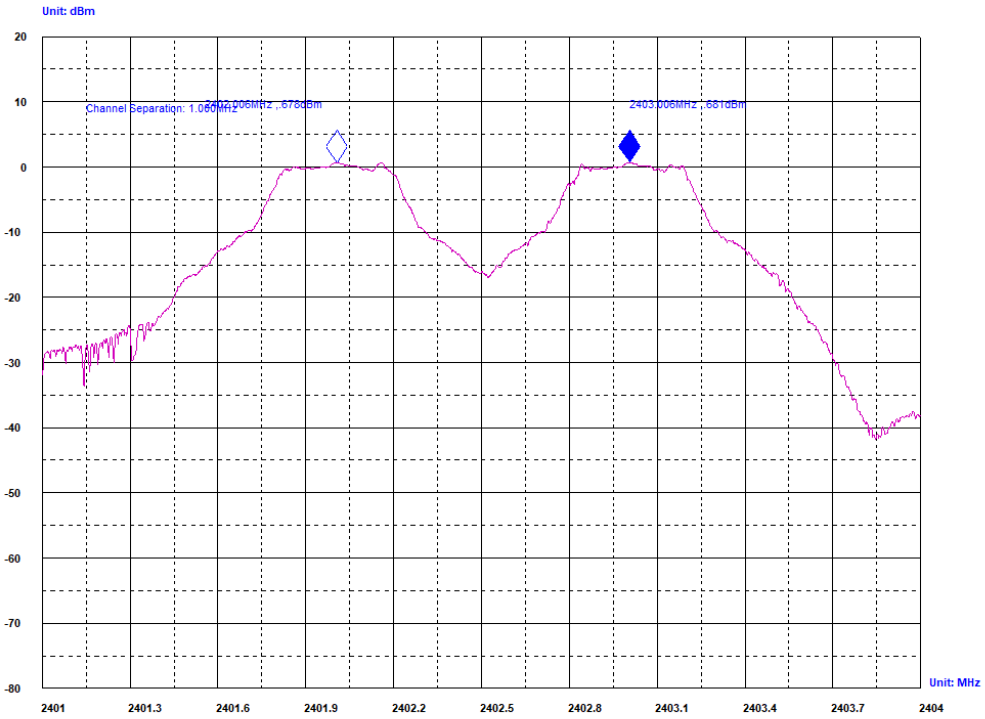
π/4DQPSK _2DH5/LCH	
π/4DQPSK _2DH5/MCH	

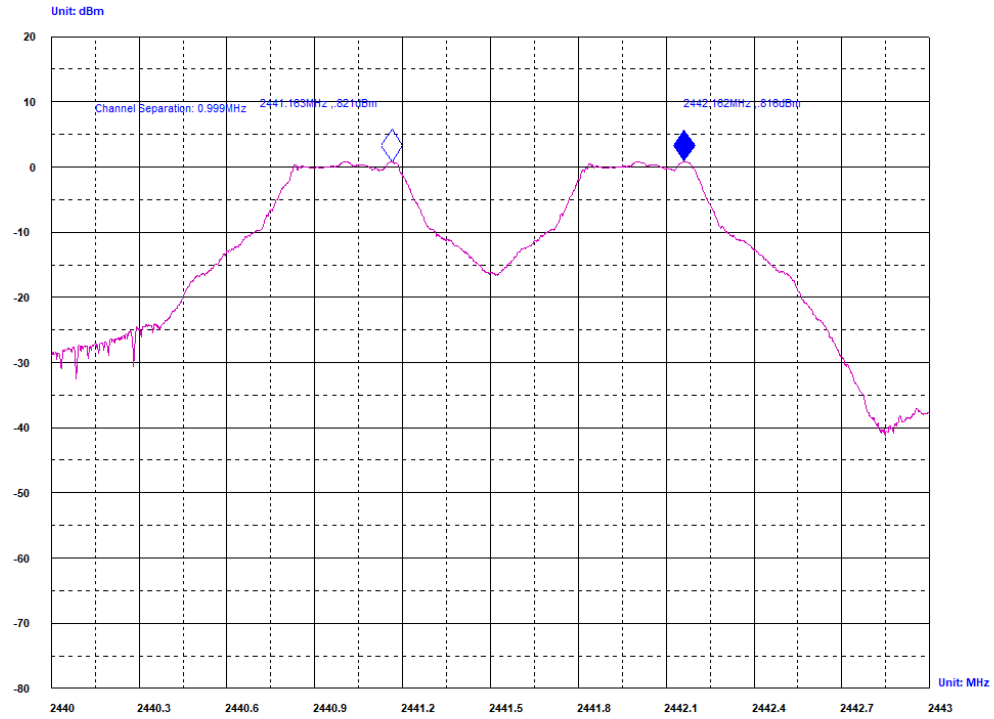
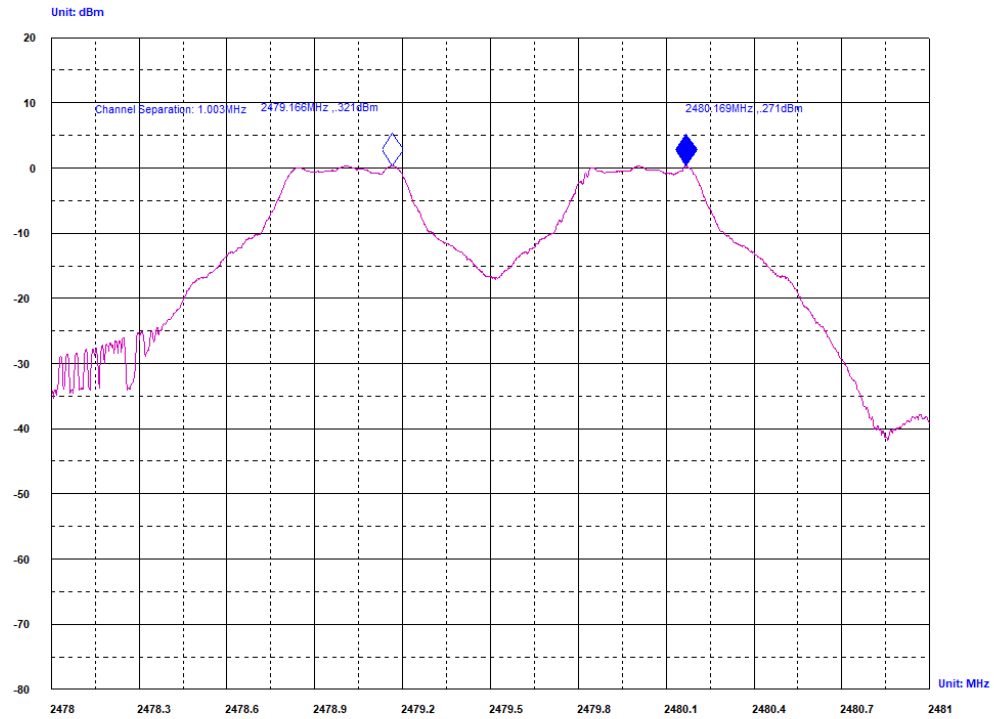
π/4DQPSK _2DH5/HCH	

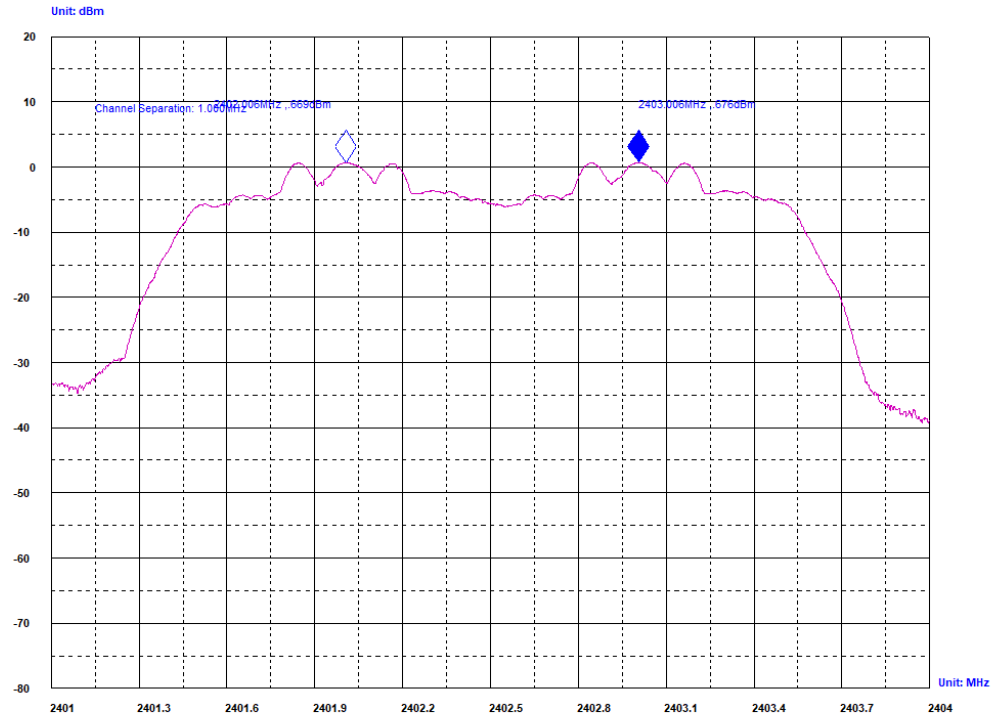
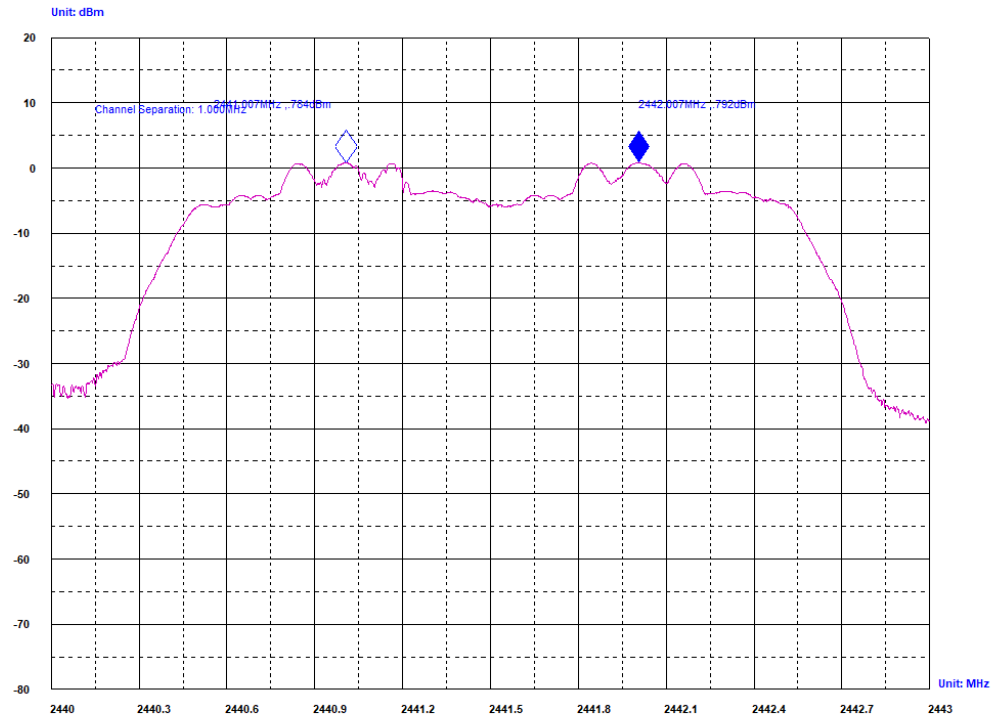
A.3 Carrier Frequency Separation

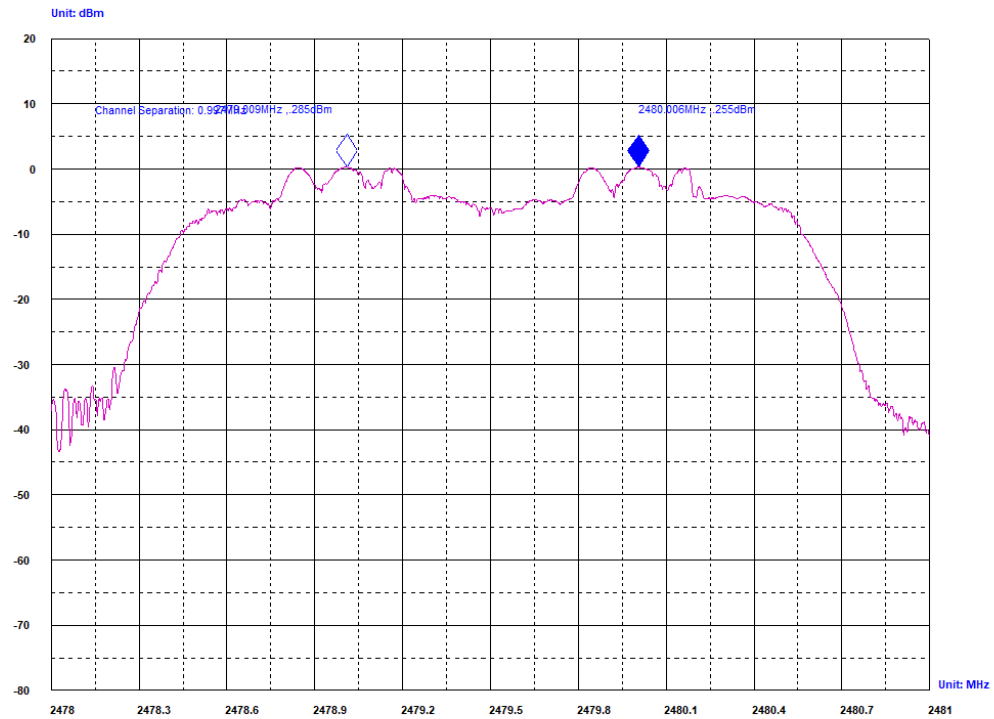
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.000	0.531	PASS
GFSK	MCH	0.999	0.571	PASS
GFSK	HCH	1.003	0.531	PASS
π/4DQPSK	LCH	1.000	0.797	PASS
π/4DQPSK	MCH	1.000	0.788	PASS
π/4DQPSK	HCH	0.997	0.855	PASS

Test Graph

Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

π/4DQPSK/LCH	
π/4DQPSK/MCH	

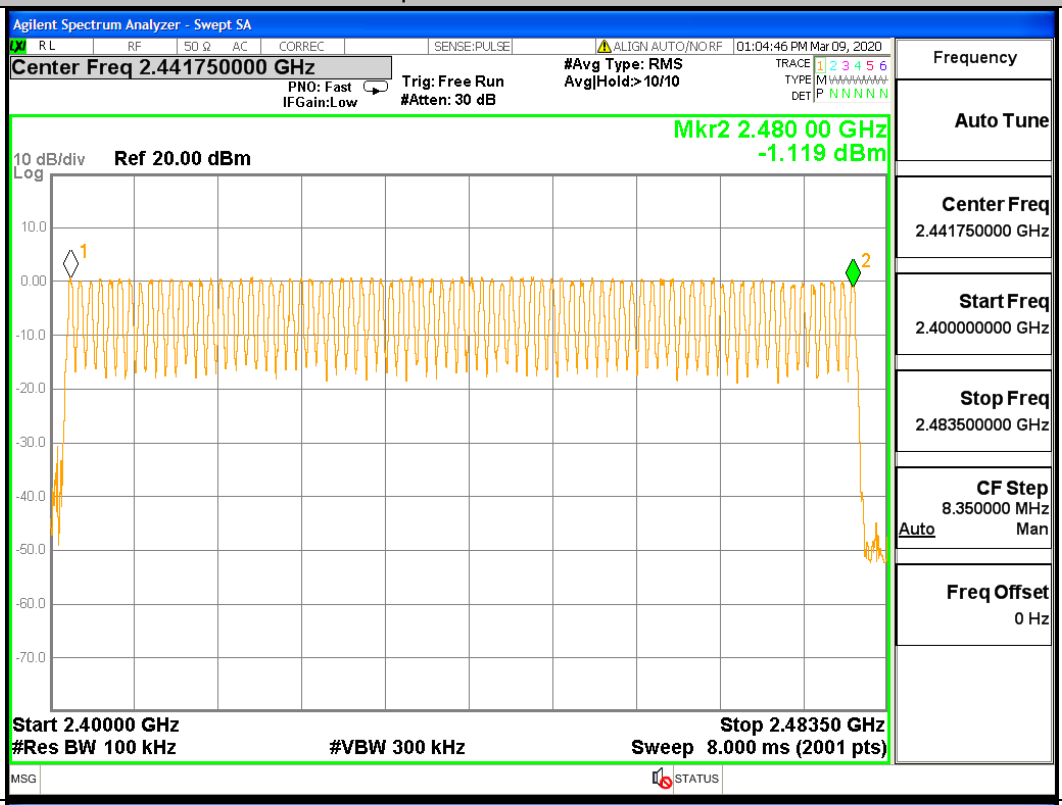
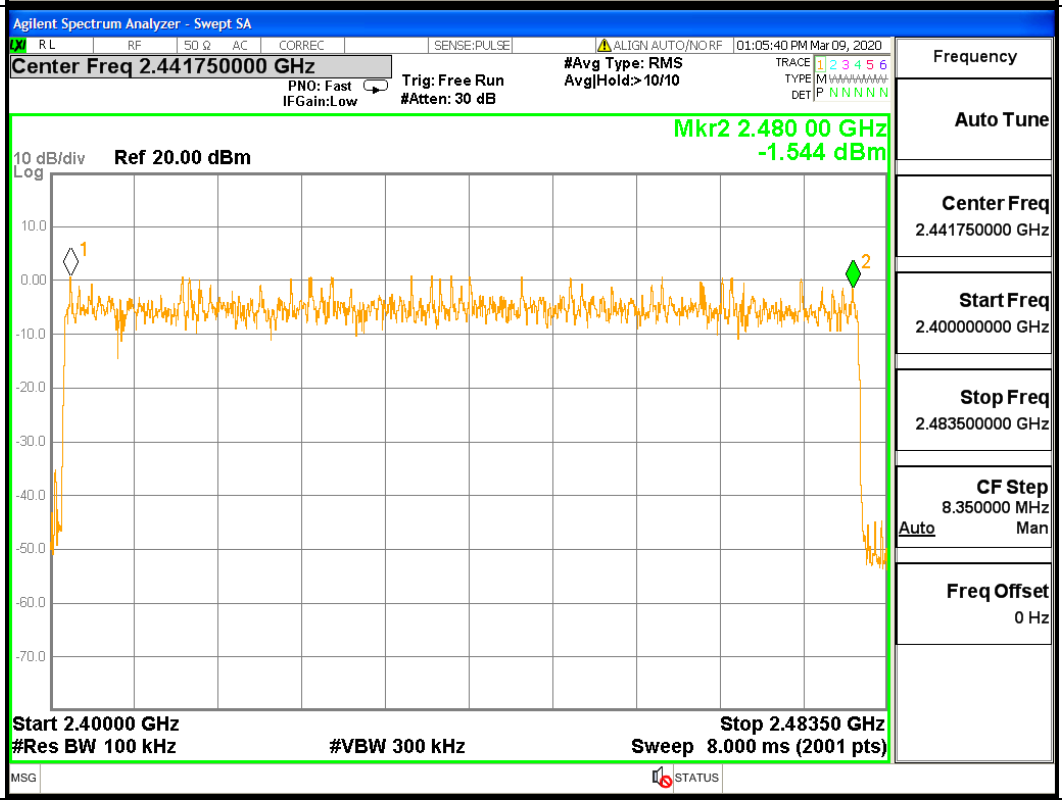
π/4DQPSK/HCH	

Unit: dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
2480.006MHz , 255dBm
2478
2478.3
2478.6
2478.9
2479.2
2479.5
2479.8
2480.1
2480.4
2480.7
2481
Unit: MHz

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

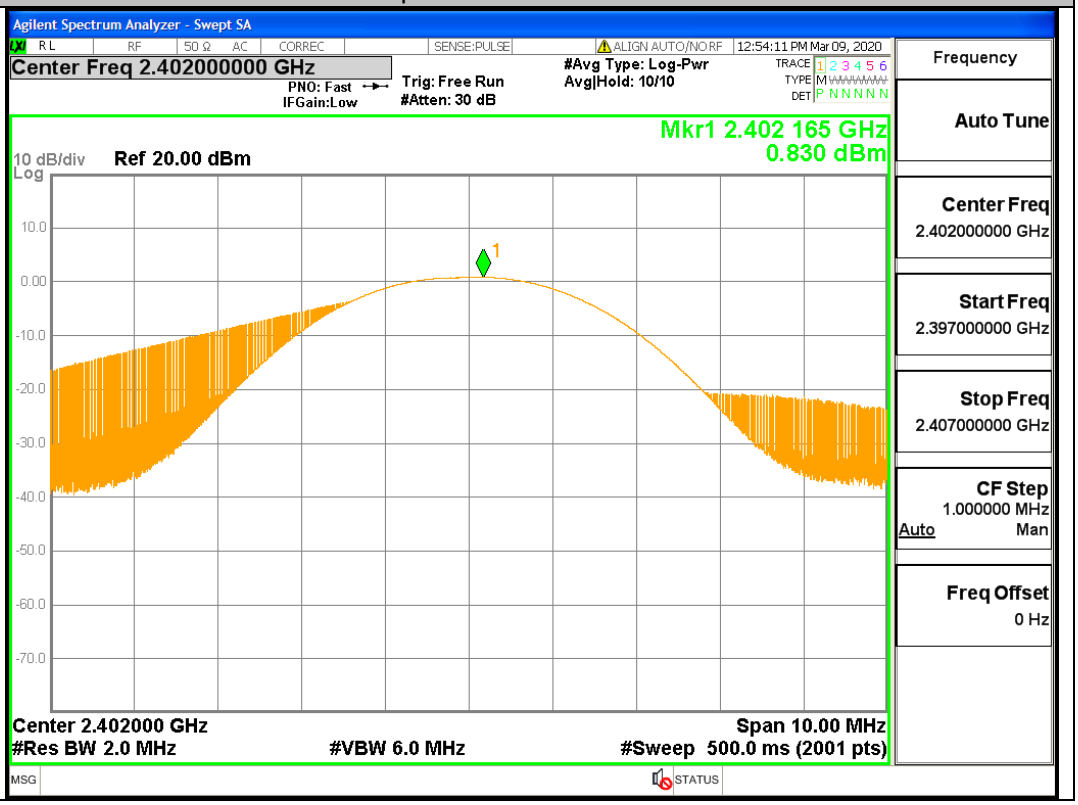
Test Graph

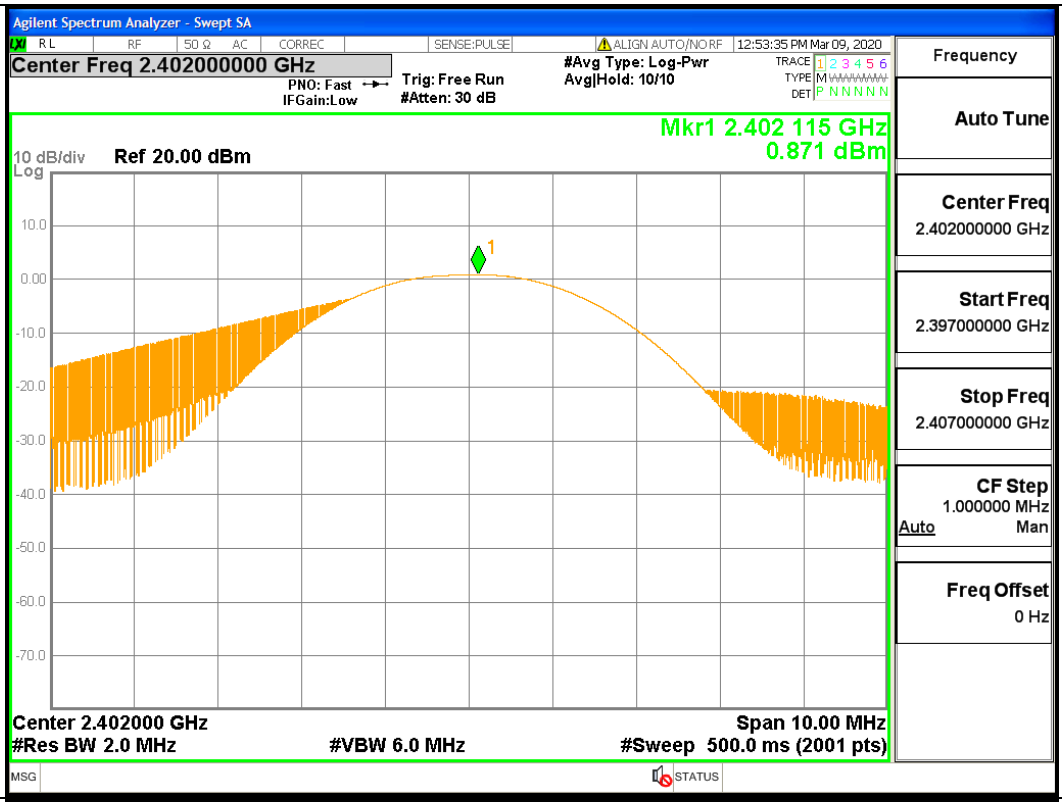
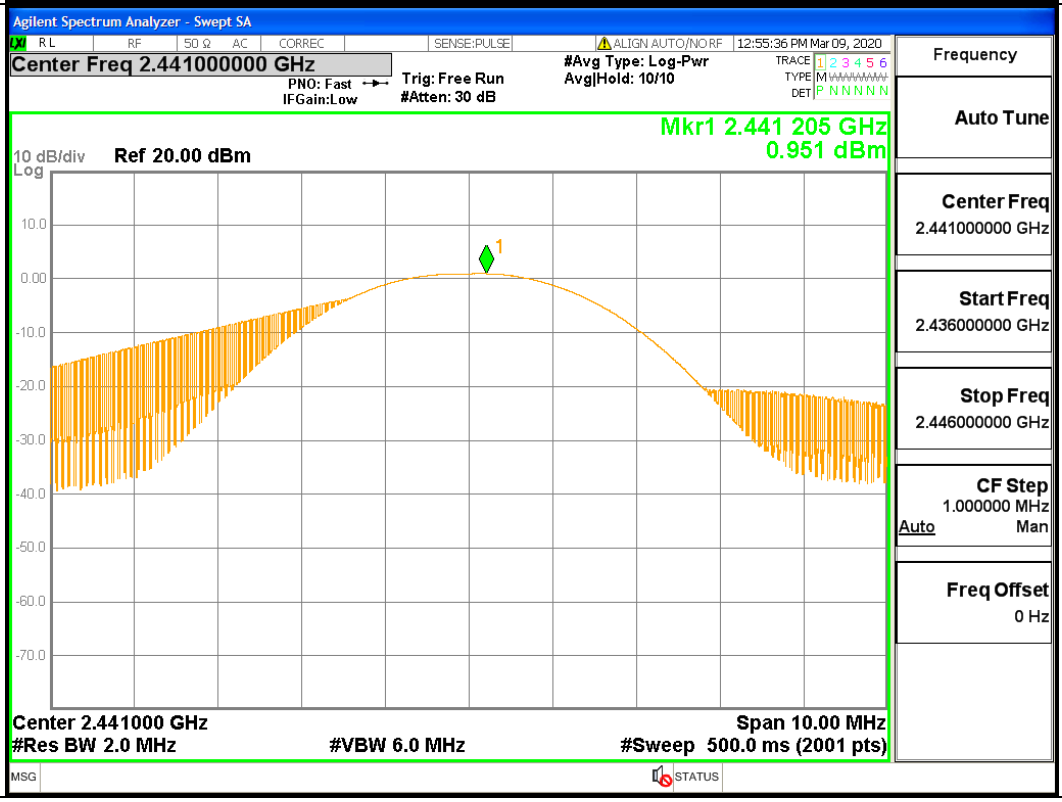
Graphs	
GFSK/Hop	
π/4DQPSK/Hop	

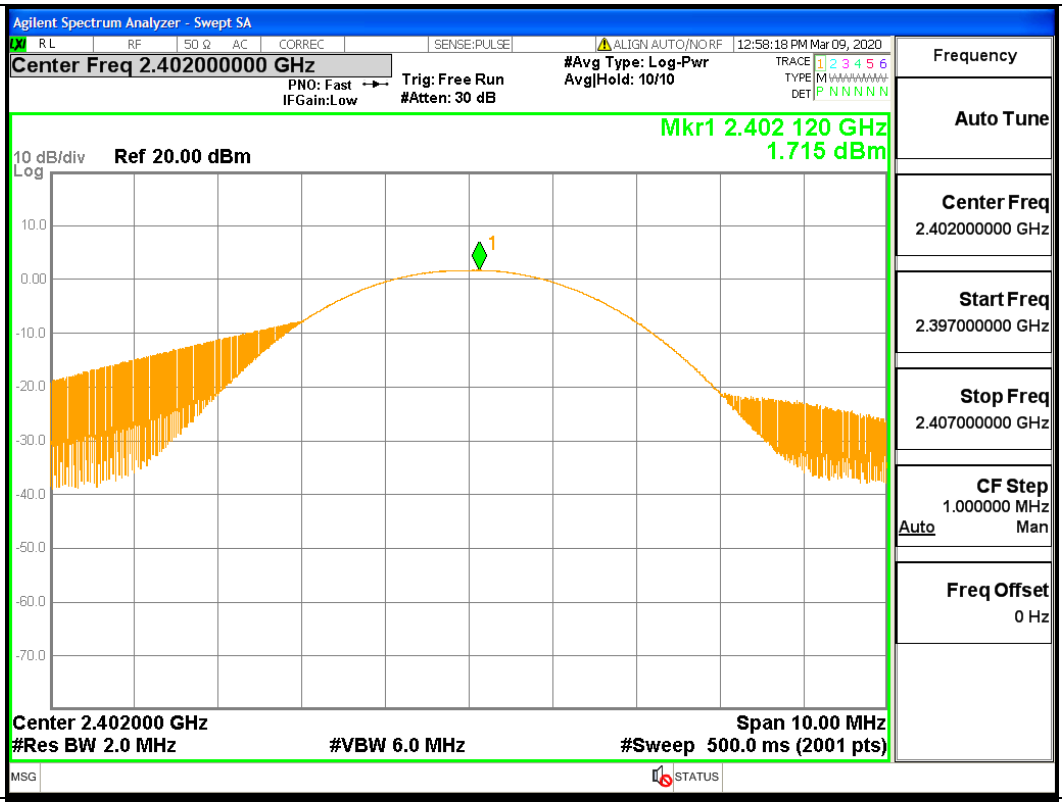
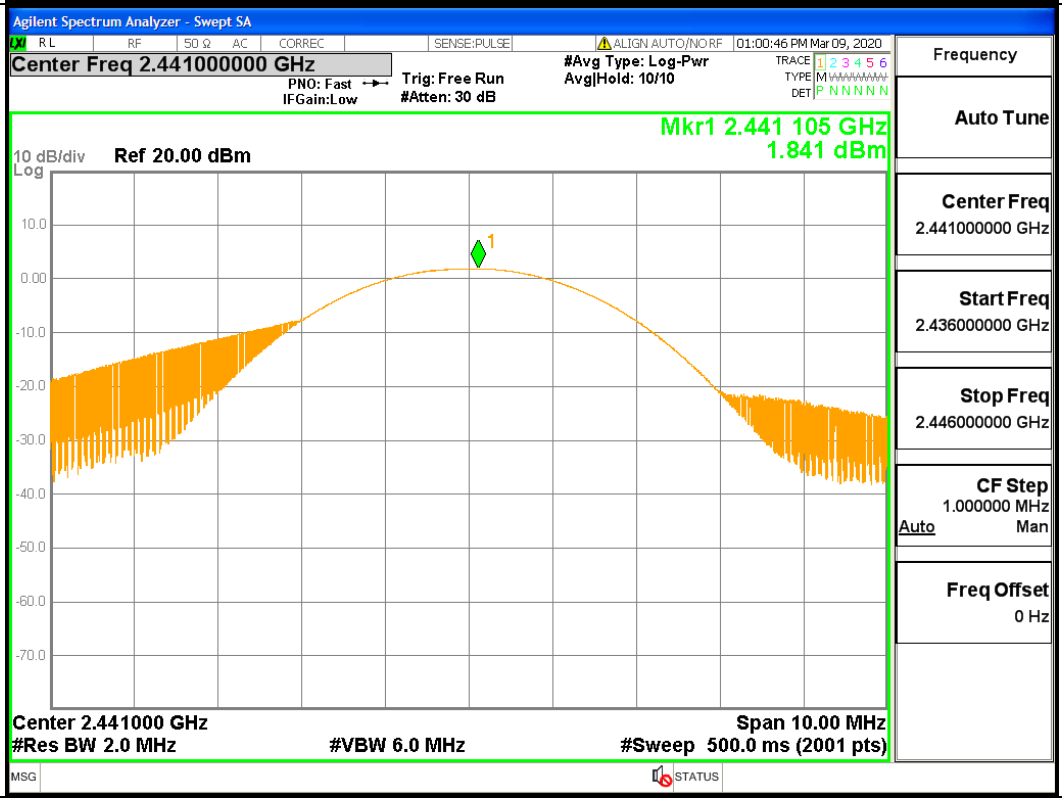
A.5 Conducted Peak Output Power

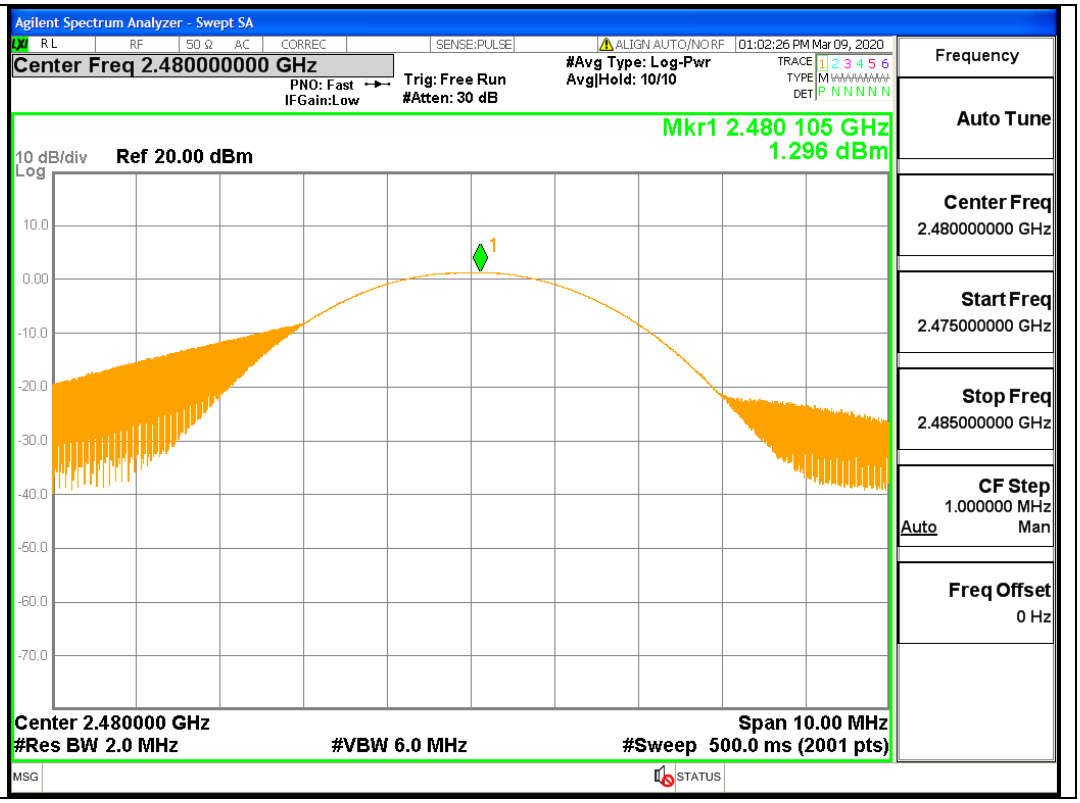
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.830	21	PASS
GFSK	MCH	0.951	21	PASS
GFSK	HCH	0.391	21	PASS
π/4DQPSK	LCH	1.715	21	PASS
π/4DQPSK	MCH	1.841	21	PASS
π/4DQPSK	HCH	1.296	21	PASS

Test Graph

Graphs	
GFSK/LCH	

GFSK/MCH	
GFSK/HCH	

π/4DQPSK/LCH	
π/4DQPSK/MCH	

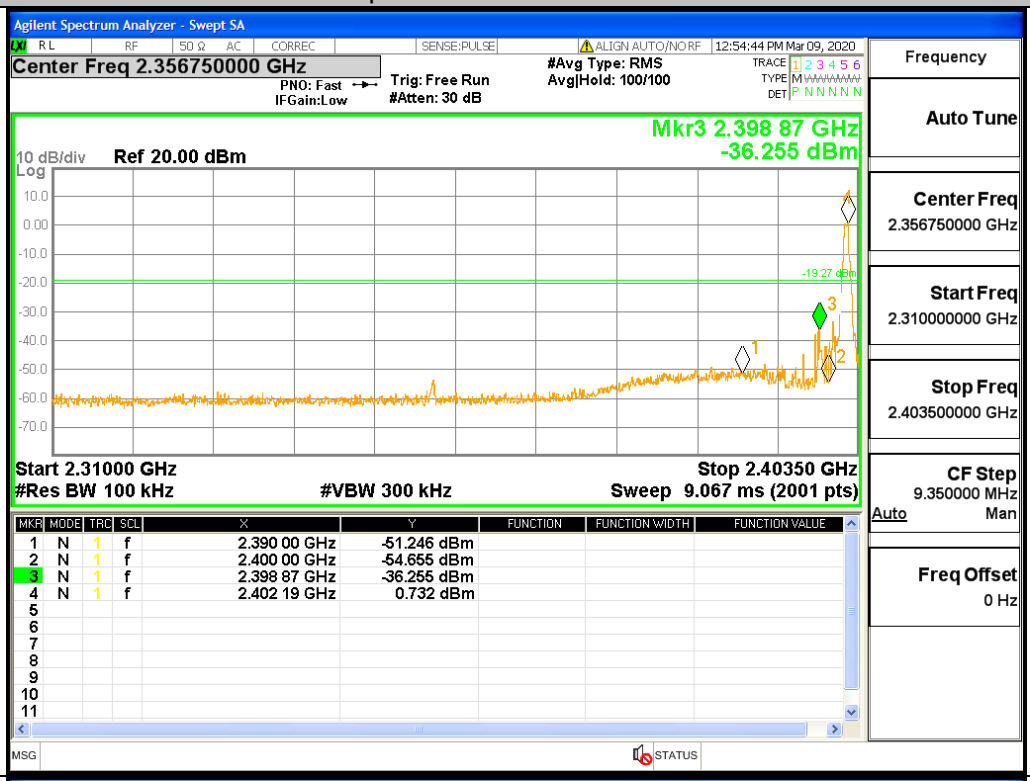
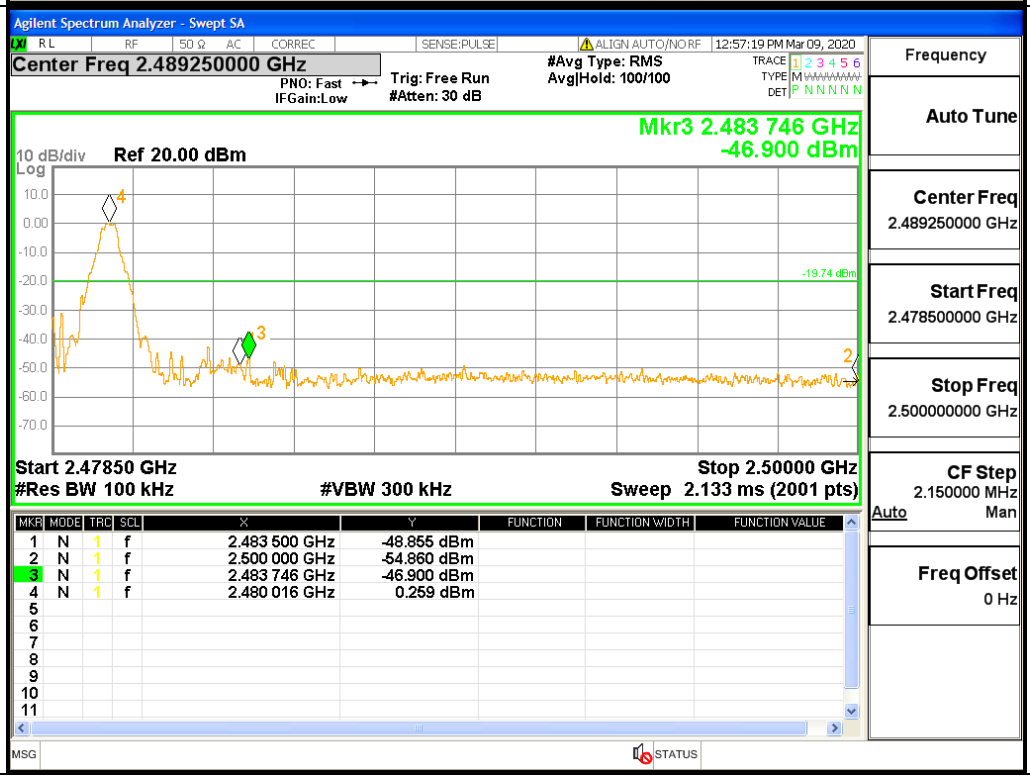
π/4DQPSK/HCH	

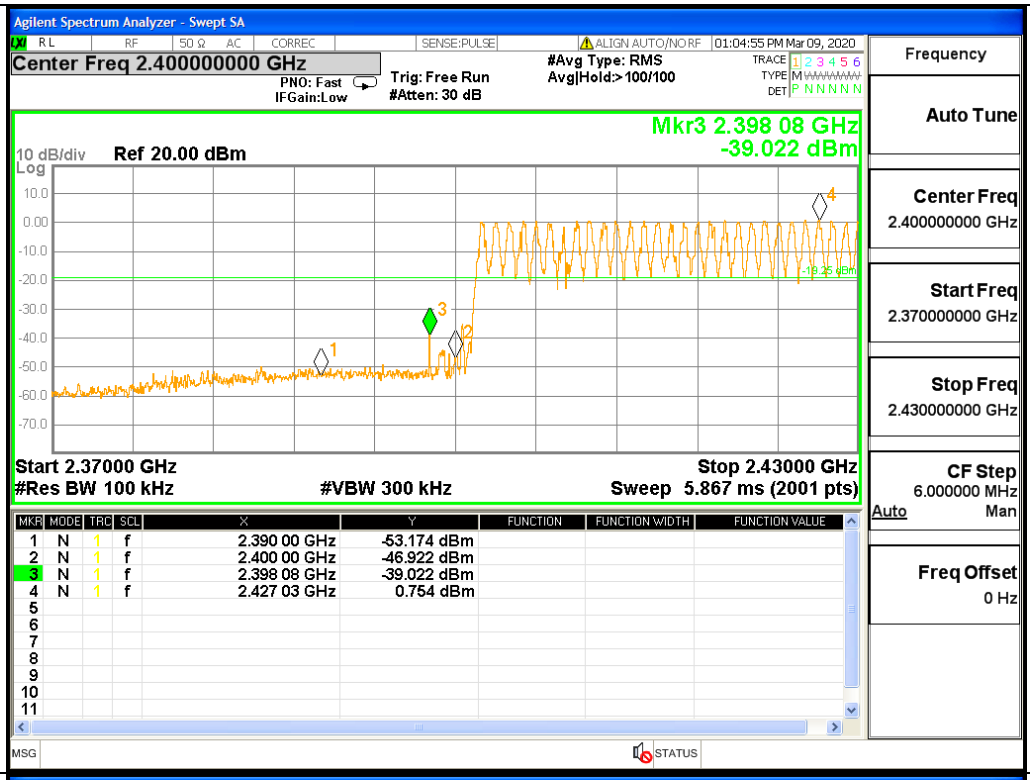
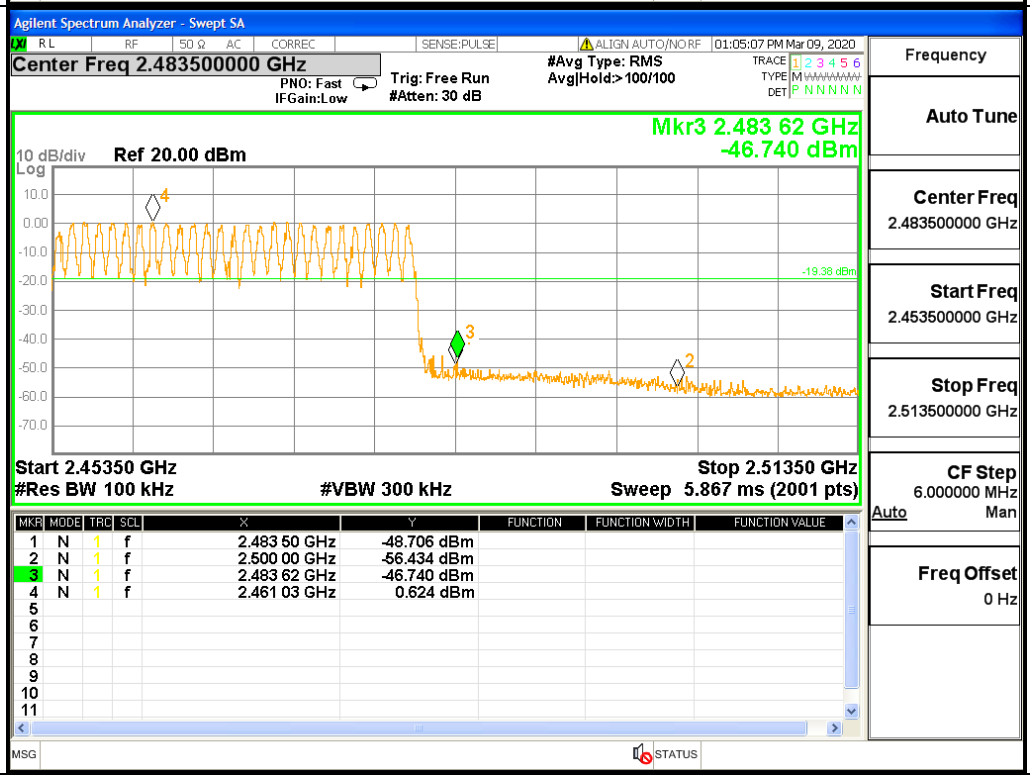
Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
CORREC
SENSE:PULSE
ALIGN AUTO/NO RF
01:02:26 PM Mar 09, 2020
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: Log-Pwr
Avg|Hold: 10/10
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 2.480 105 GHz
1.296 dBm
10 dB/div
Log
Ref 20.00 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 2.0 MHz
#VBW 6.0 MHz
Span 10.00 MHz
#Sweep 500.0 ms (2001 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

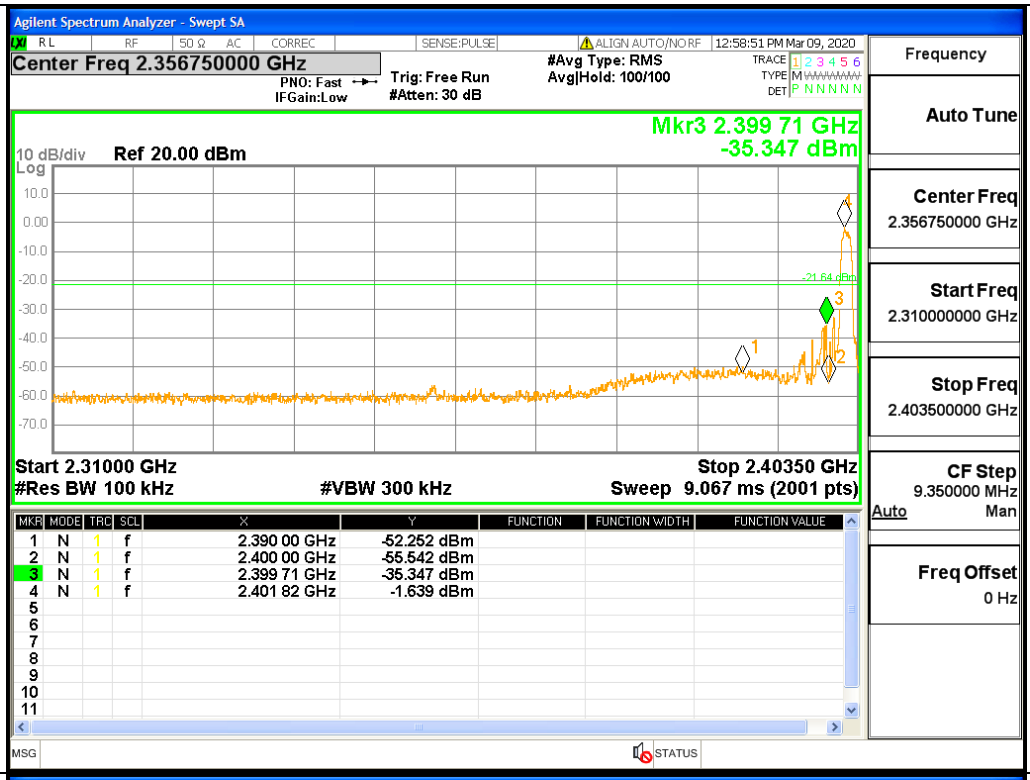
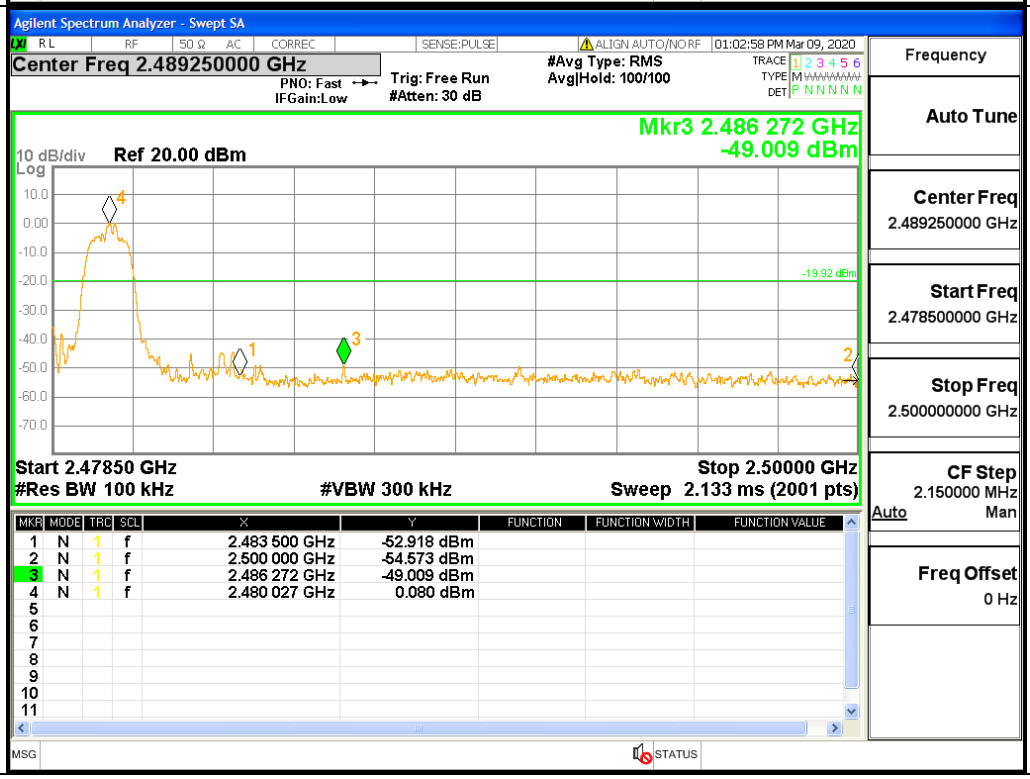
A.6 Band-edge for RF Conducted Emissions

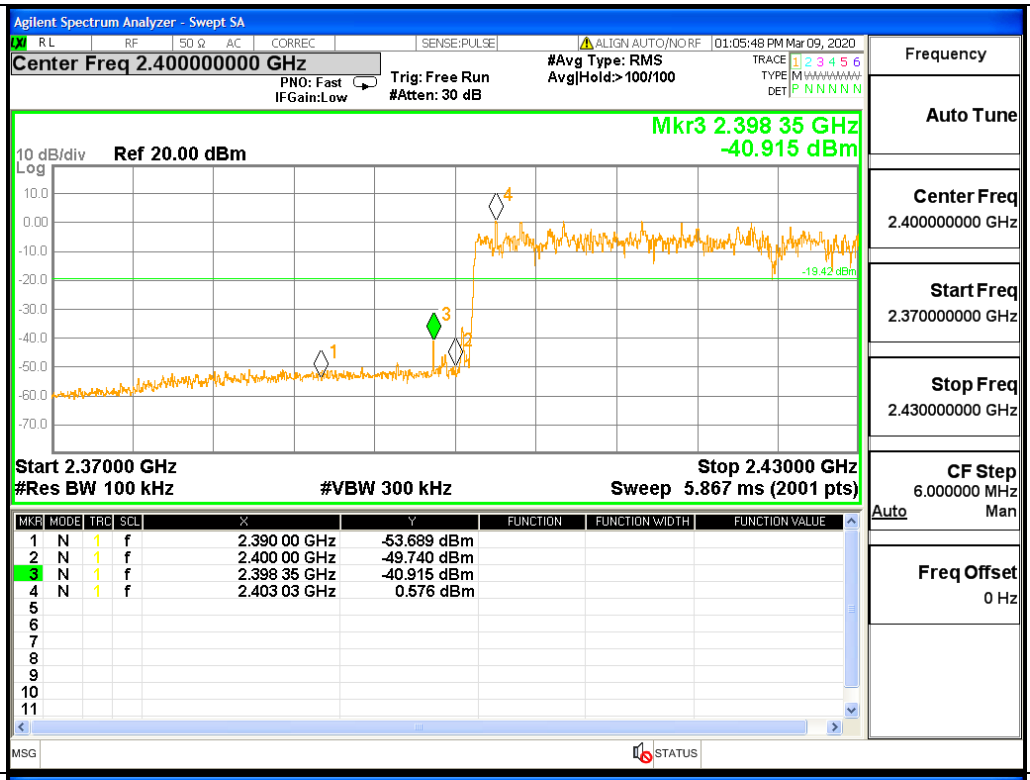
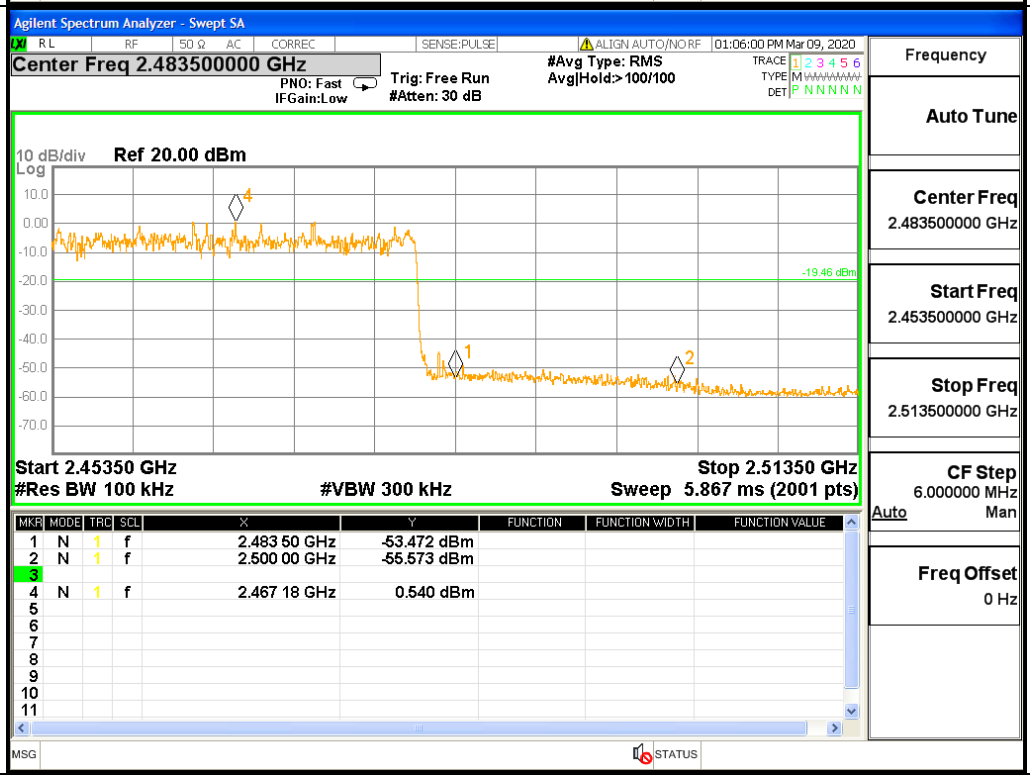
Type	Carrier Frequency(MHz)	Frequency(MHz)	Carrier Frequency Power [dBm]	Bandedge Peak(dBm)	Upper limit(dBm)	Conclusion
1DH5	2402	2398.872	0.732	-36.255	-19.268	Pass
1DH5	2480	2483.746	0.259	-46.9	-19.741	Pass
2DH5	2402	2399.713	-1.639	-35.347	-21.639	Pass
2DH5	2480	2486.272	0.08	-49.009	-19.92	Pass
1DH5-Hopping	2402	2398.08	0.754	-39.022	-19.246	Pass
1DH5-Hopping	2480	2483.62	0.624	-46.74	-19.376	Pass
2DH5-Hopping	2402	2398.35	0.576	-40.915	-19.424	Pass
2DH5-Hopping	2480	2483.5	0.54	-53.47	-19.46	Pass

Test Graph

Graphs	
GFSK/LCH/No Hop	
GFSK/HCH/No Hop	

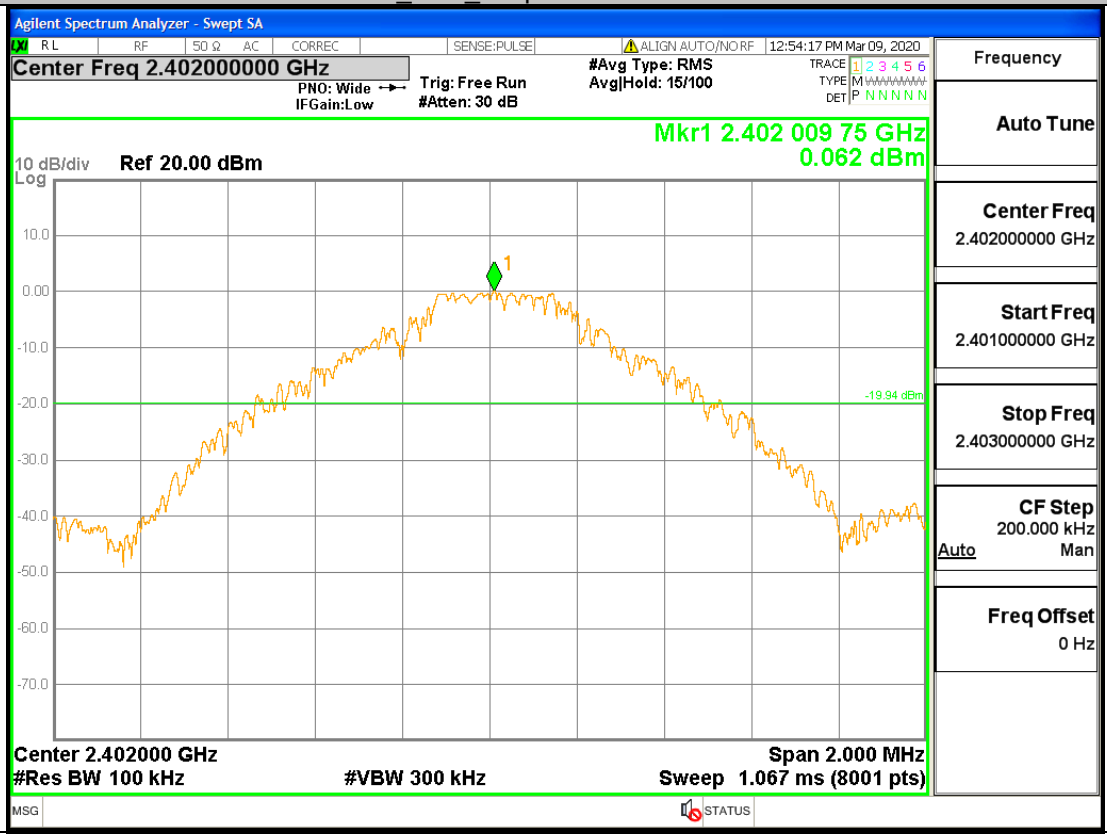
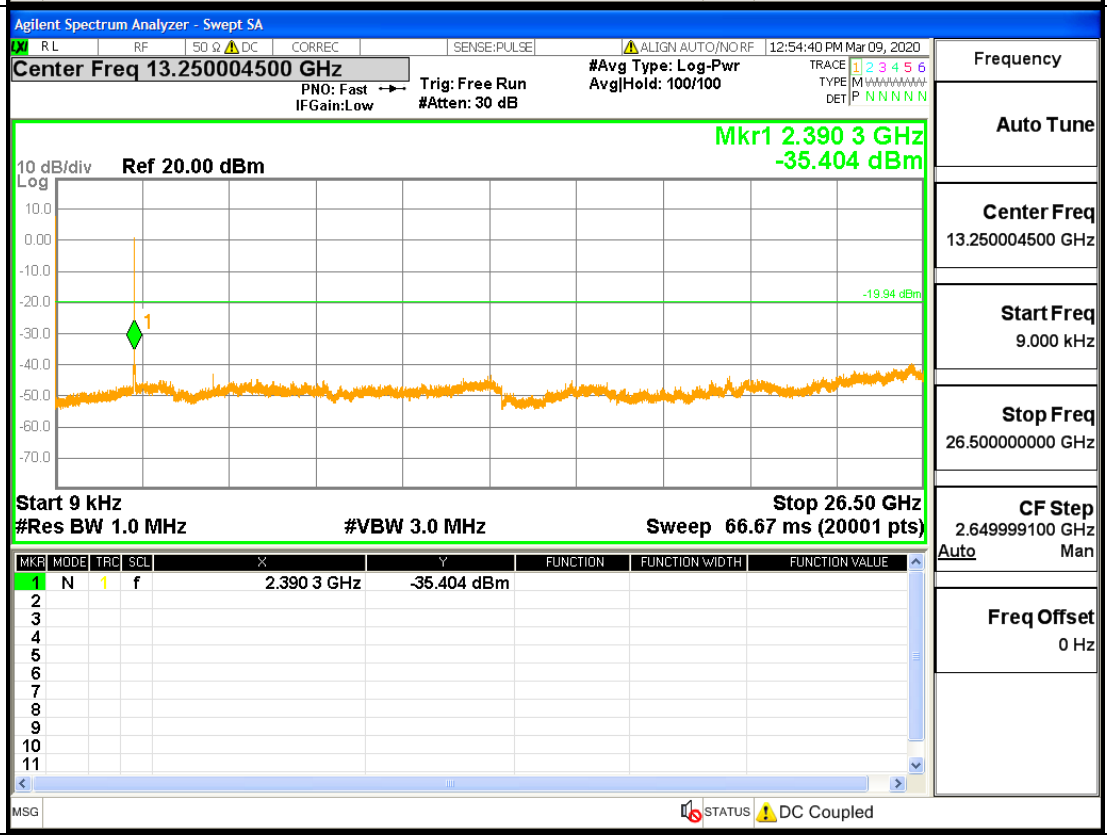
π/4DQPSK/LCH/No Hop	
π/4DQPSK/HCH/No Hop	

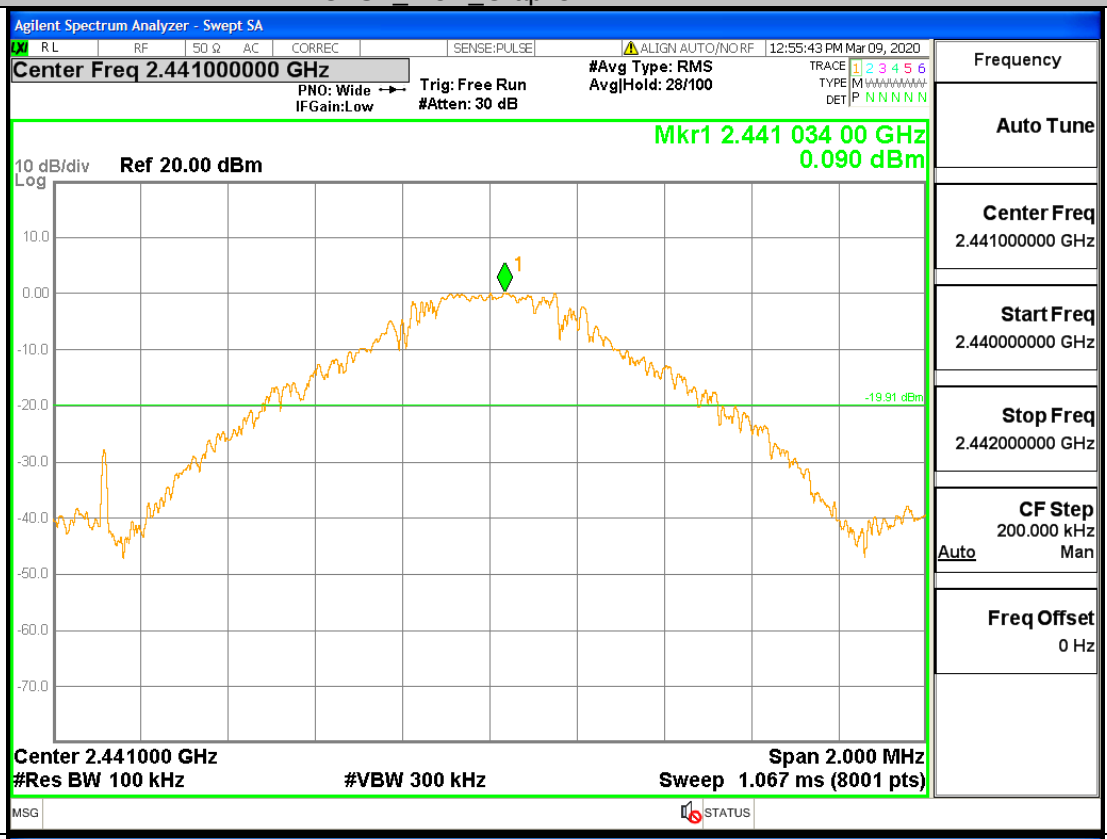
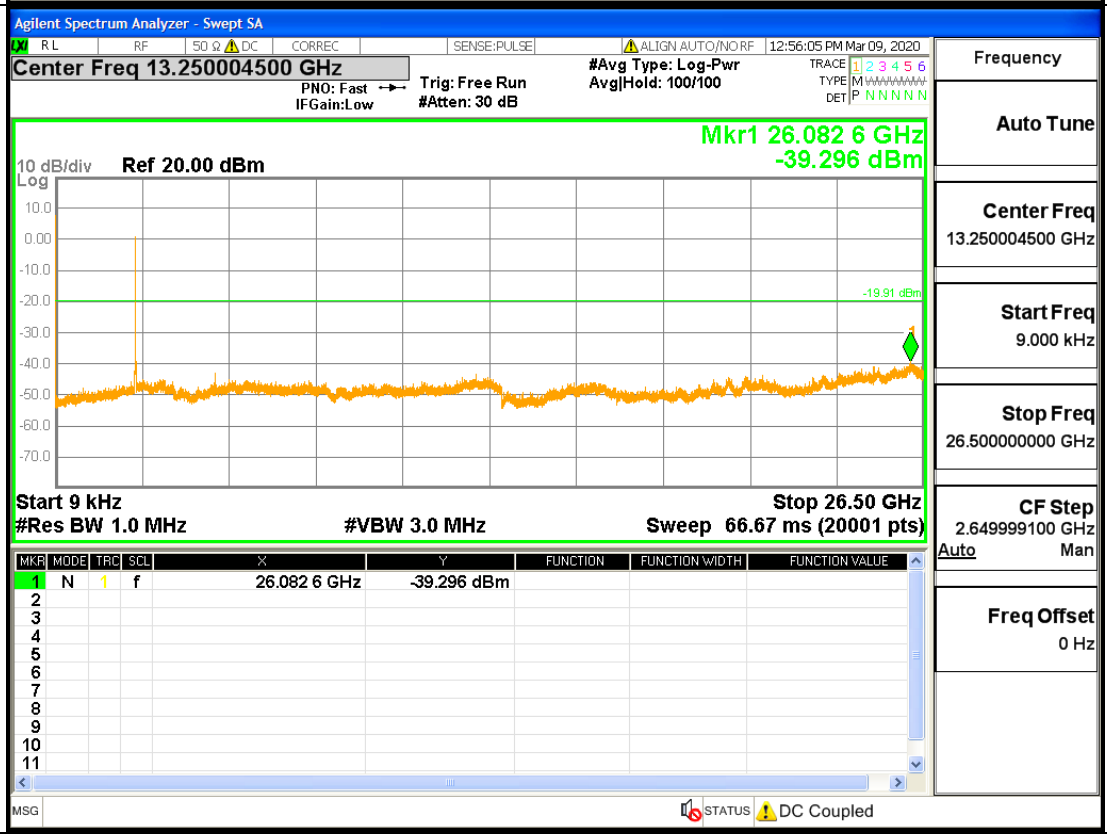
GFSK/LCH/Hop	
GFSK/HCH/Hop	

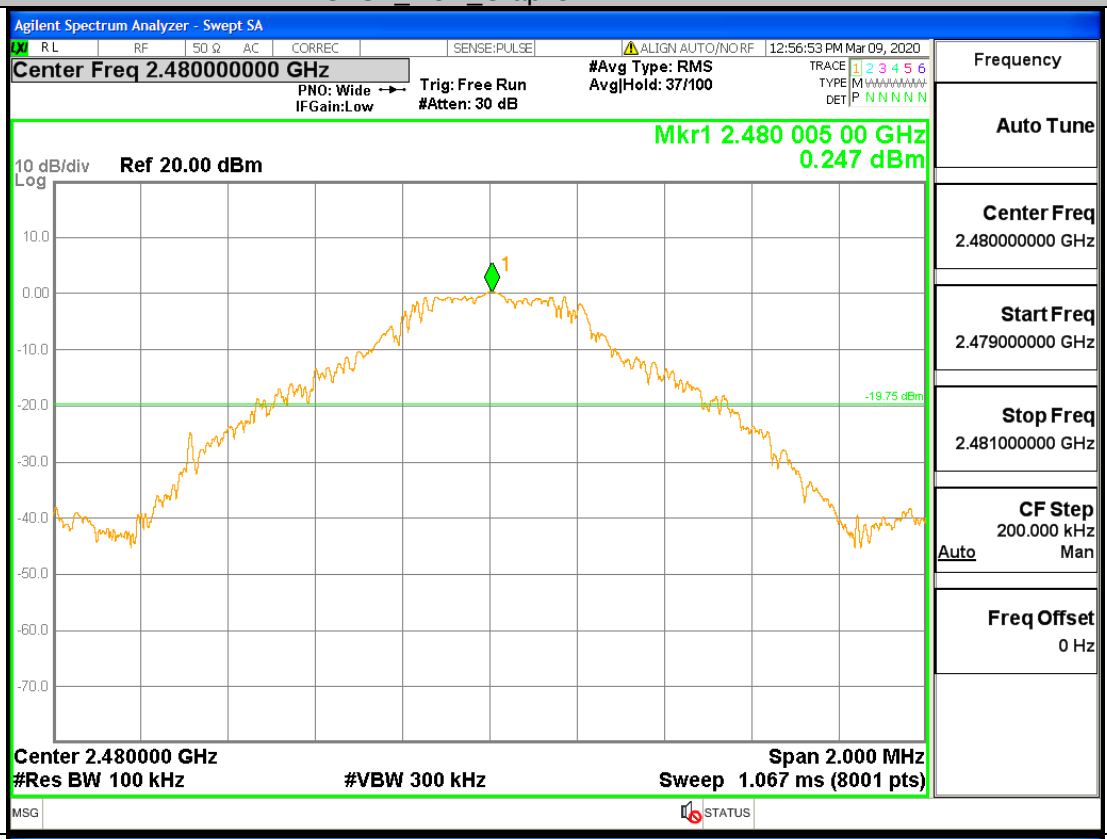
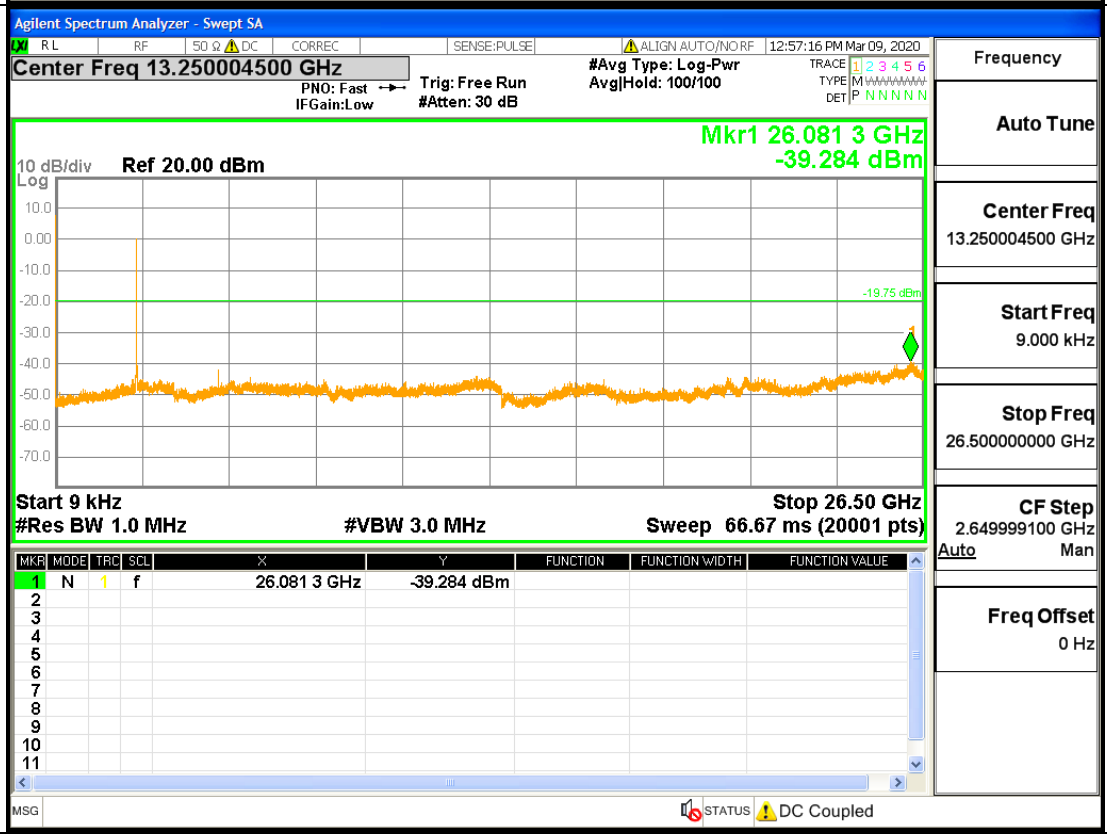
π/4DQPSK/LCH/Hop	
π /4DQPSK/HCH/Hop	

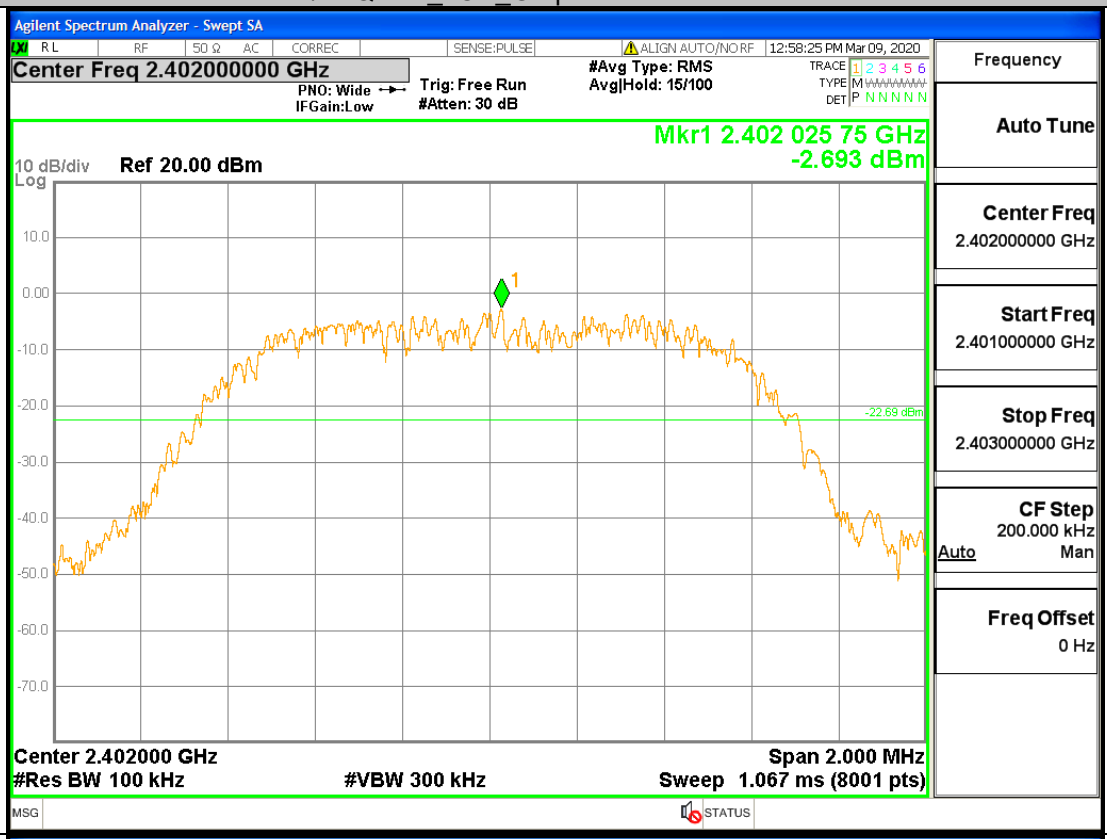
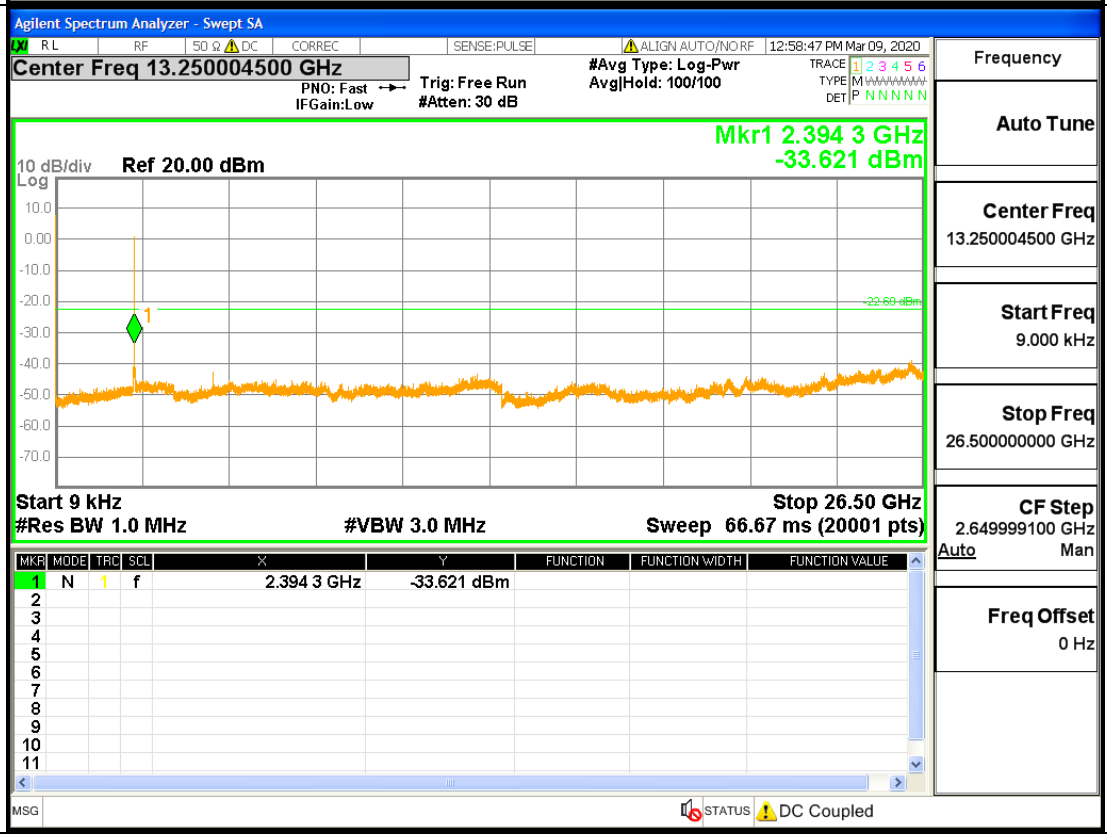
A.7 RF Conducted Spurious Emissions

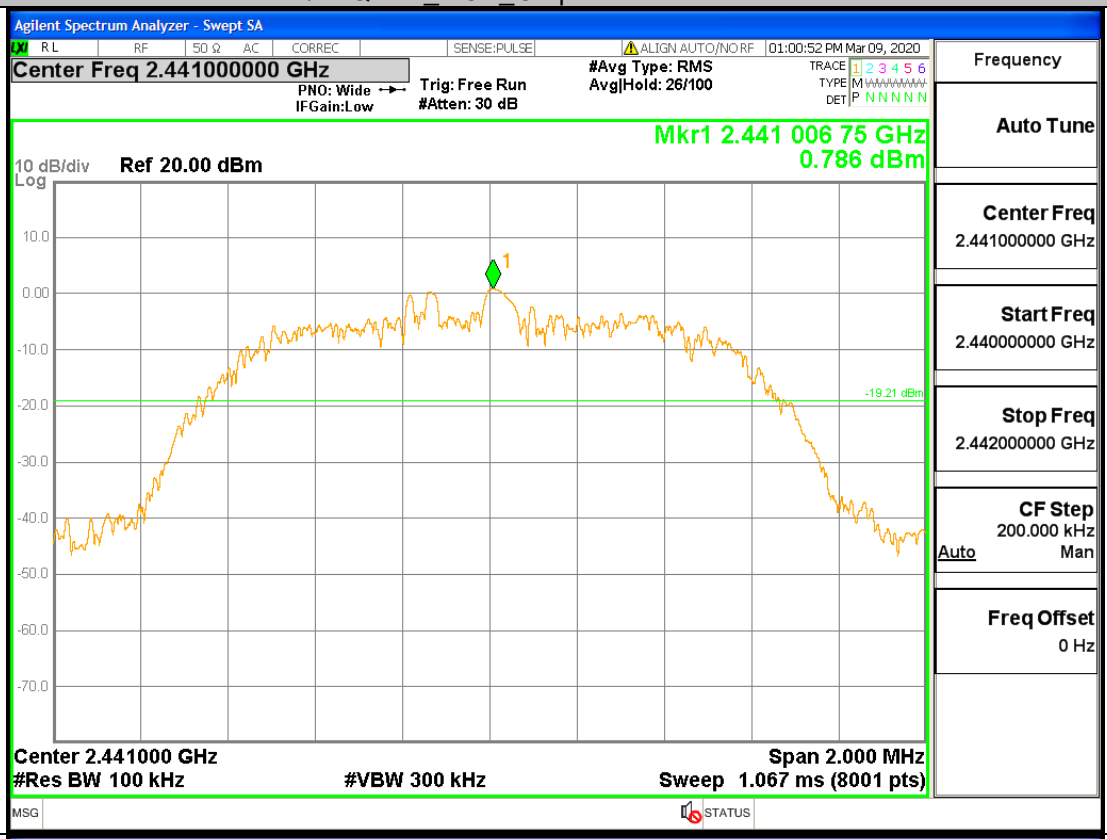
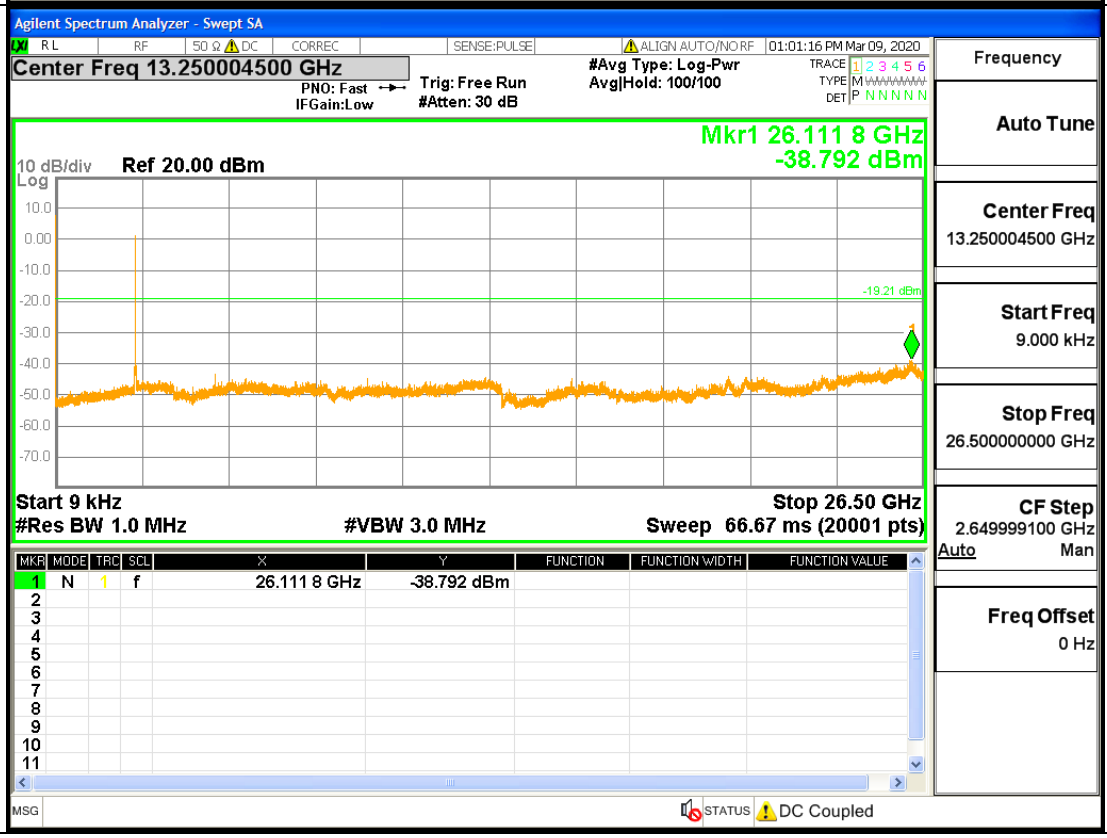
Test Graph

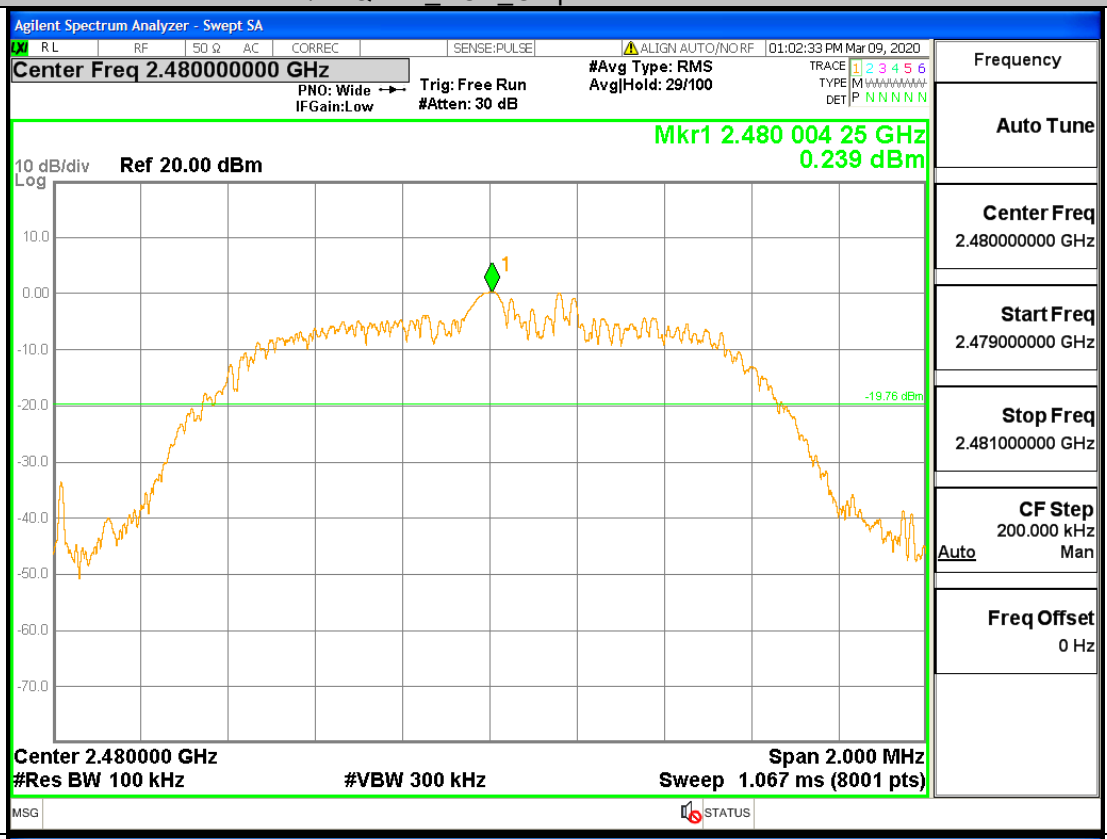
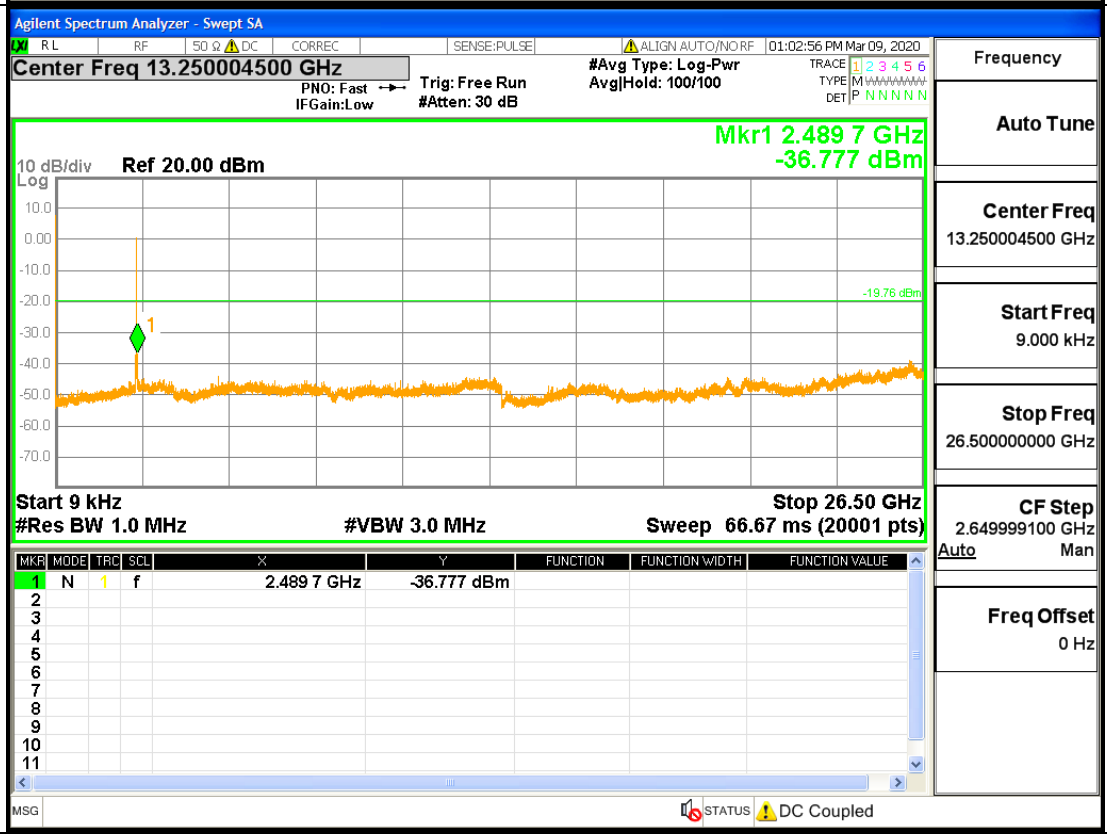
GFSK_LCH_Graphs	
Pref	
Puw	

GFSK_MCH_Graphs	
Pref	
Puw	

GFSK_HCH_Graphs	
Pref	
Puw	

π/4DQPSK_LCH_Graphs	
Pref	
Puw	

π/4DQPSK_MCH_Graphs	
Pref	
Puw	

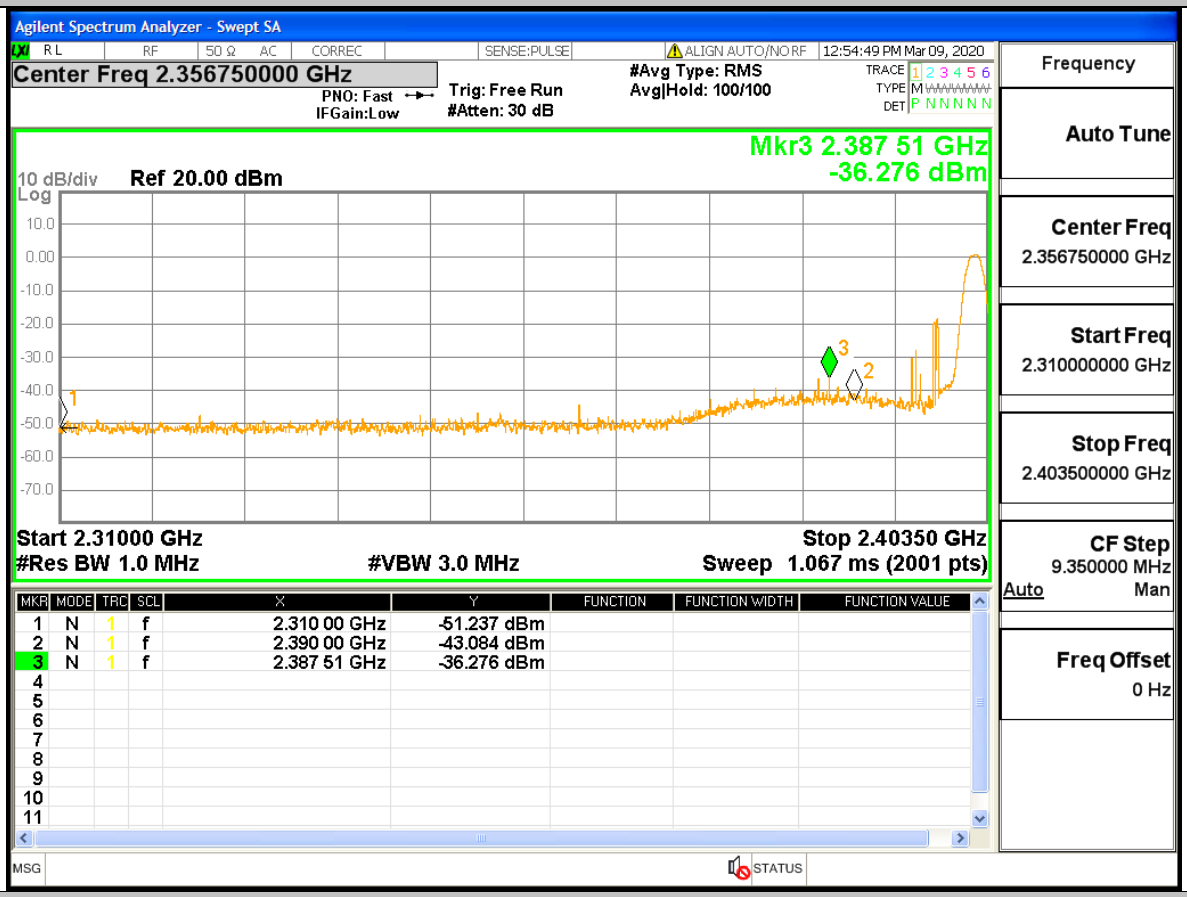
π/4DQPSK_HCH_Graphs	
Pref	
Puw	

A.8 Restrict-band band-edge measurements

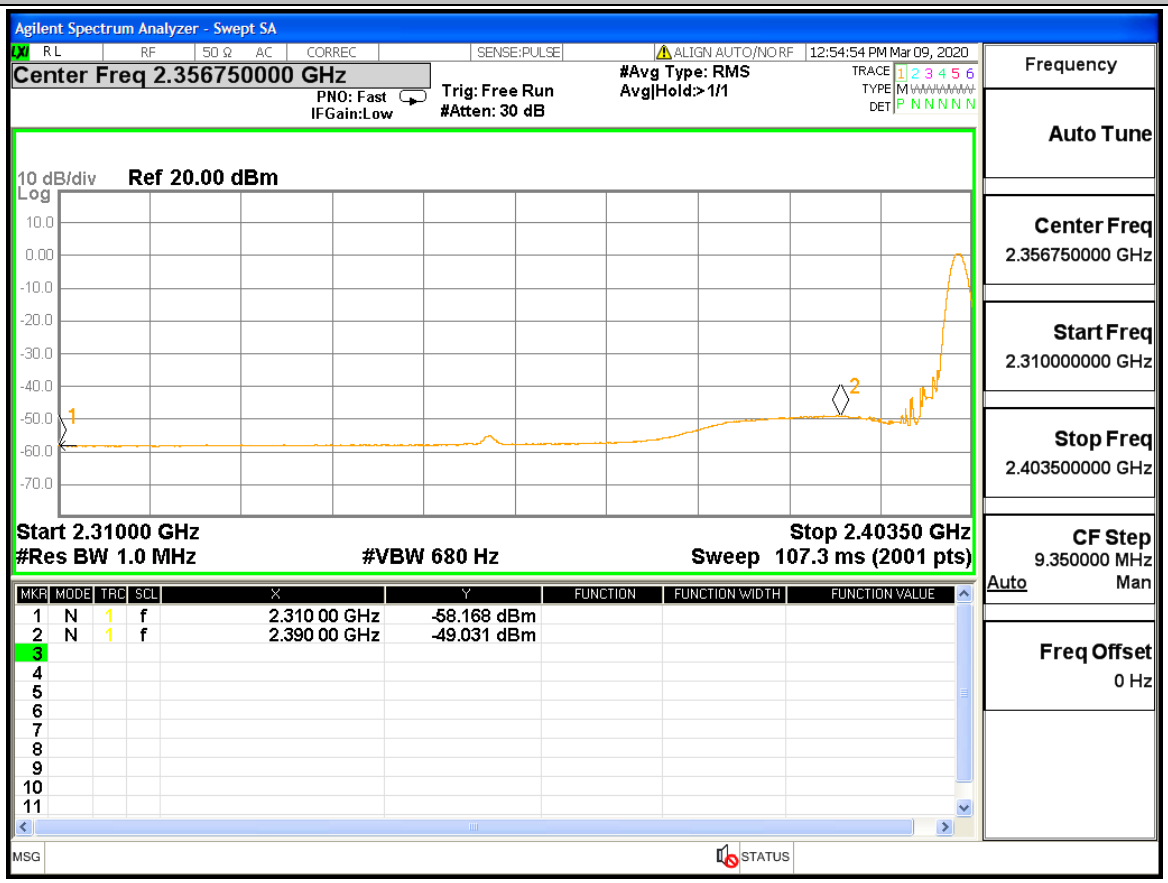
Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2387.512	2.00	0.00	-36.276	60.924	74	Pass
1DH5	2480	2484.832	2.00	0.00	-30.167	67.033	74	Pass
2DH5	2402	2389.288	2.00	0.00	-37.532	59.668	74	Pass
2DH5	2480	2484.918	2.00	0.00	-33.412	63.788	74	Pass

Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Average Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2387.512	2.00	0.00	-49.031	48.169	54	Pass
1DH5	2480	2484.832	2.00	0.00	-47.317	49.883	54	Pass
2DH5	2402	2389.288	2.00	0.00	-49.008	48.192	54	Pass
2DH5	2480	2484.918	2.00	0.00	-48.469	48.731	54	Pass

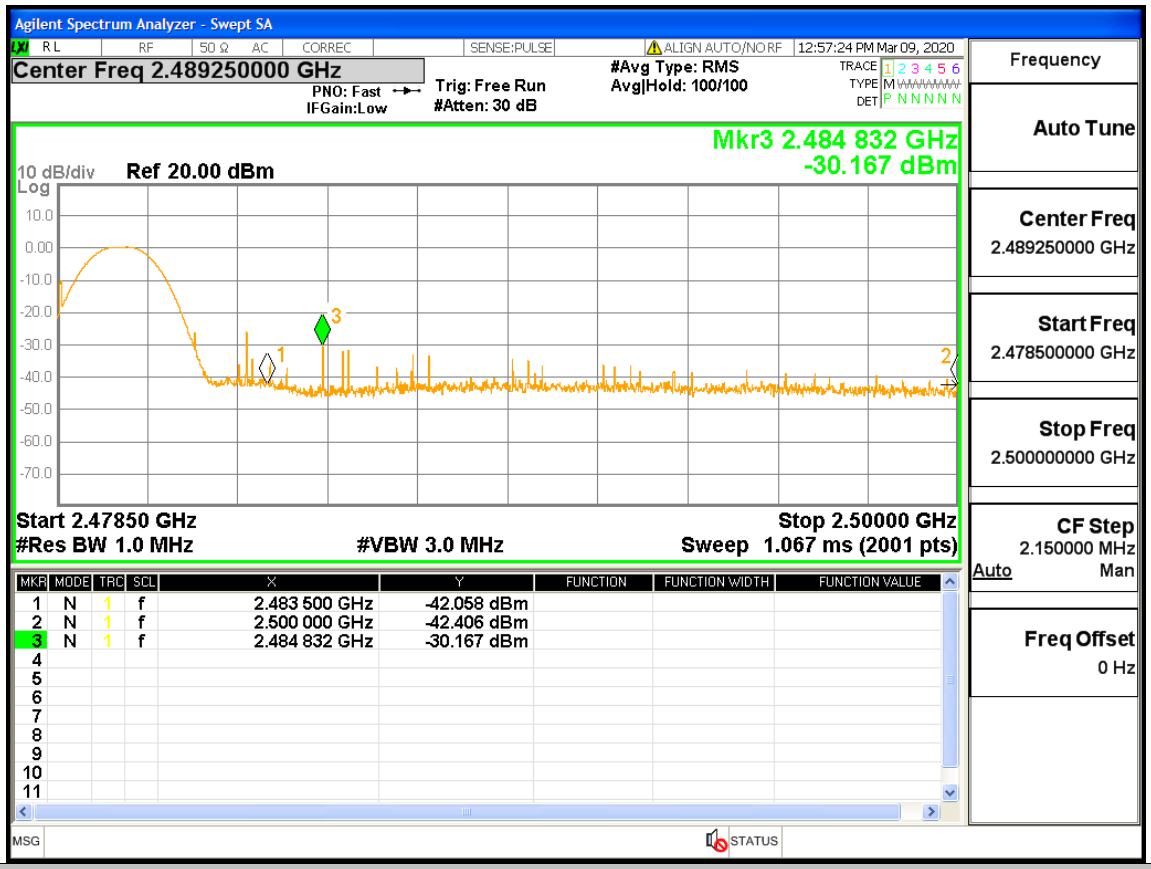
Restrict-band band-edge measurements_2402_PEAK_DH5



Restrict-band band-edge measurements_2402_AV_DH5



Restrict-band band-edge measurements_2480_PEAK_DH5



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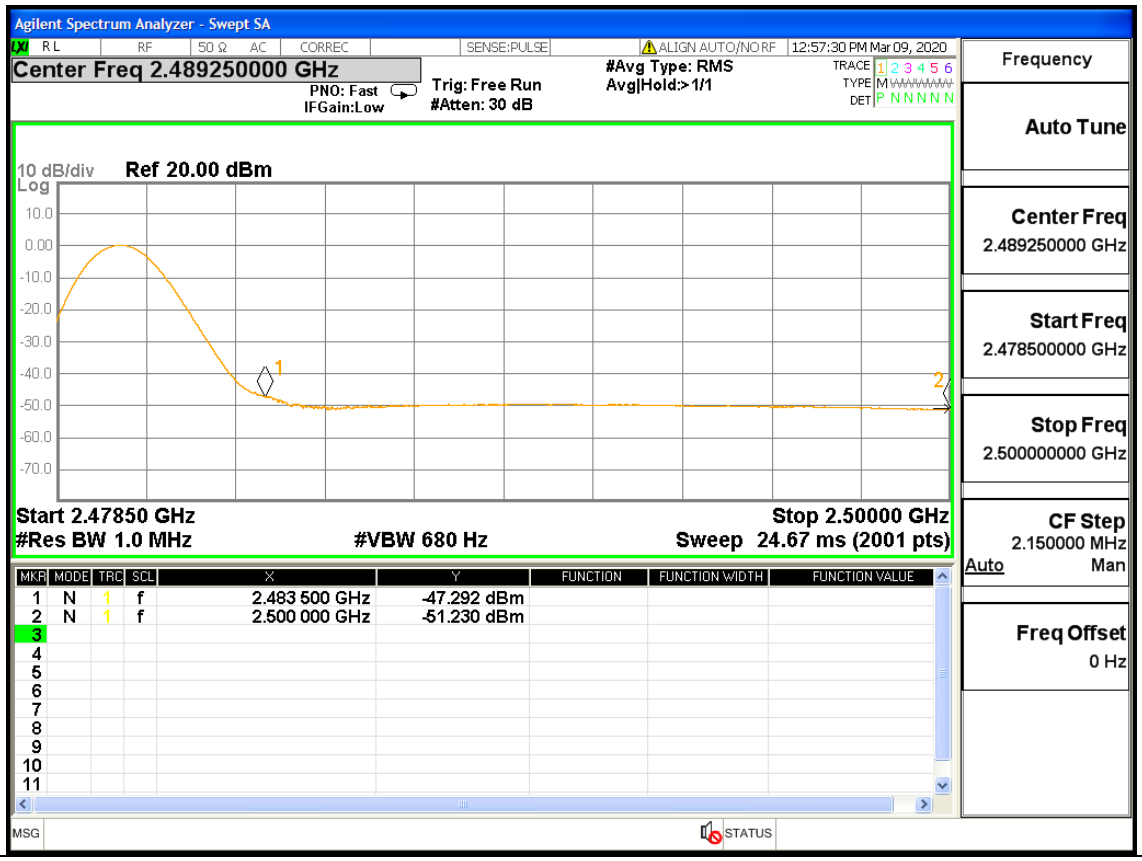

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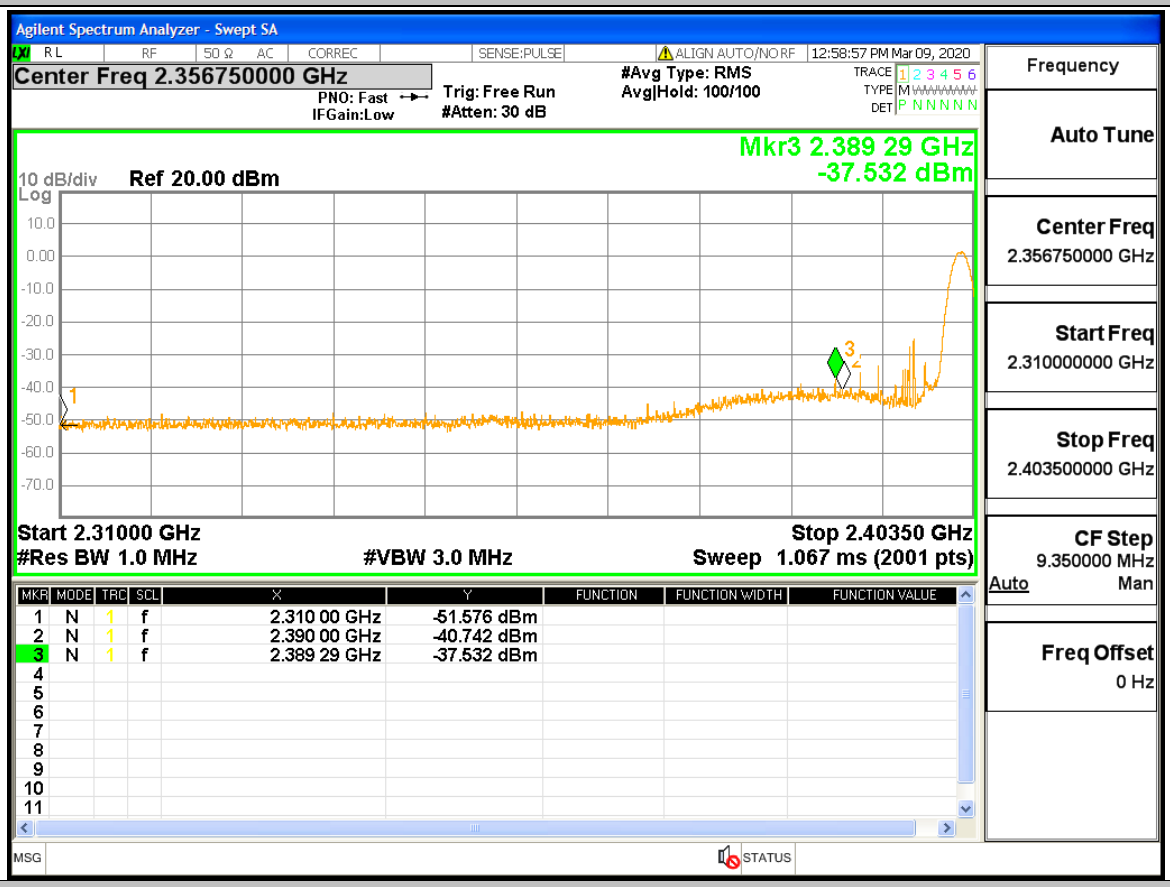
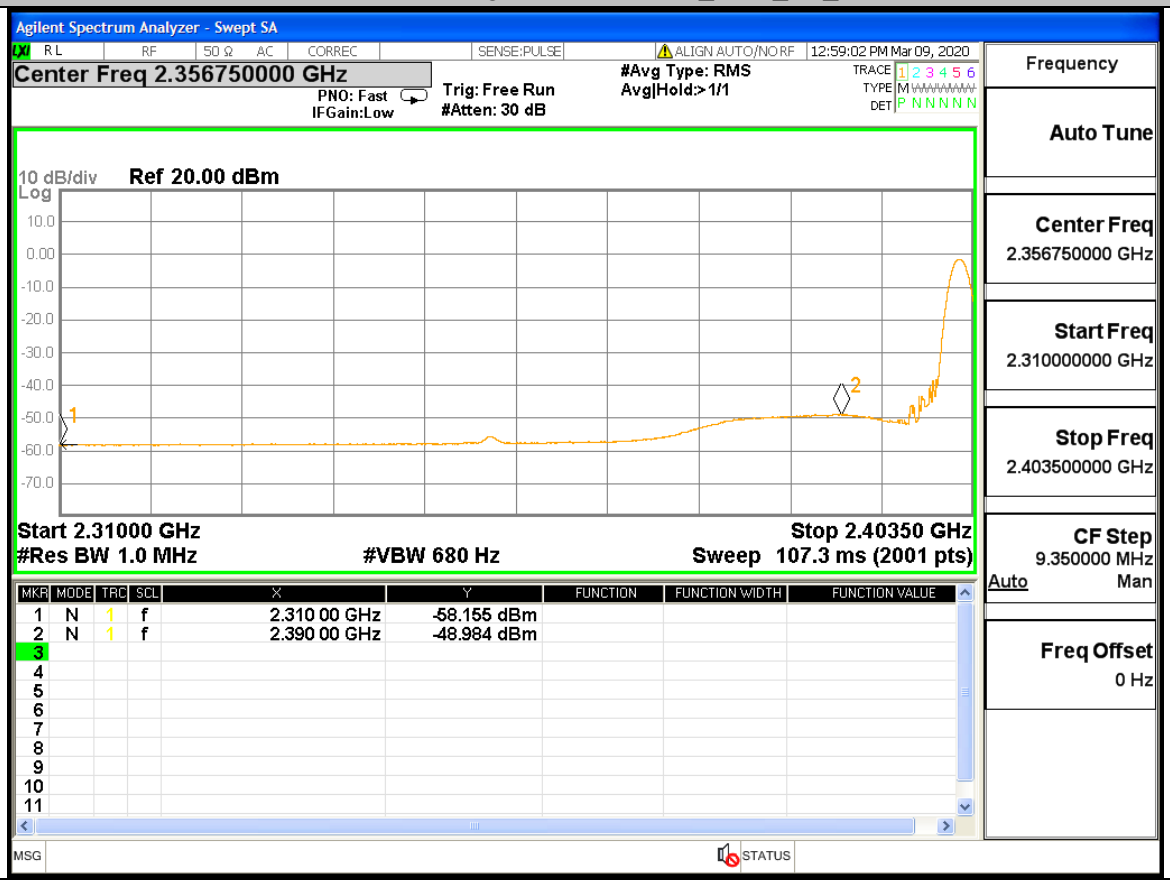
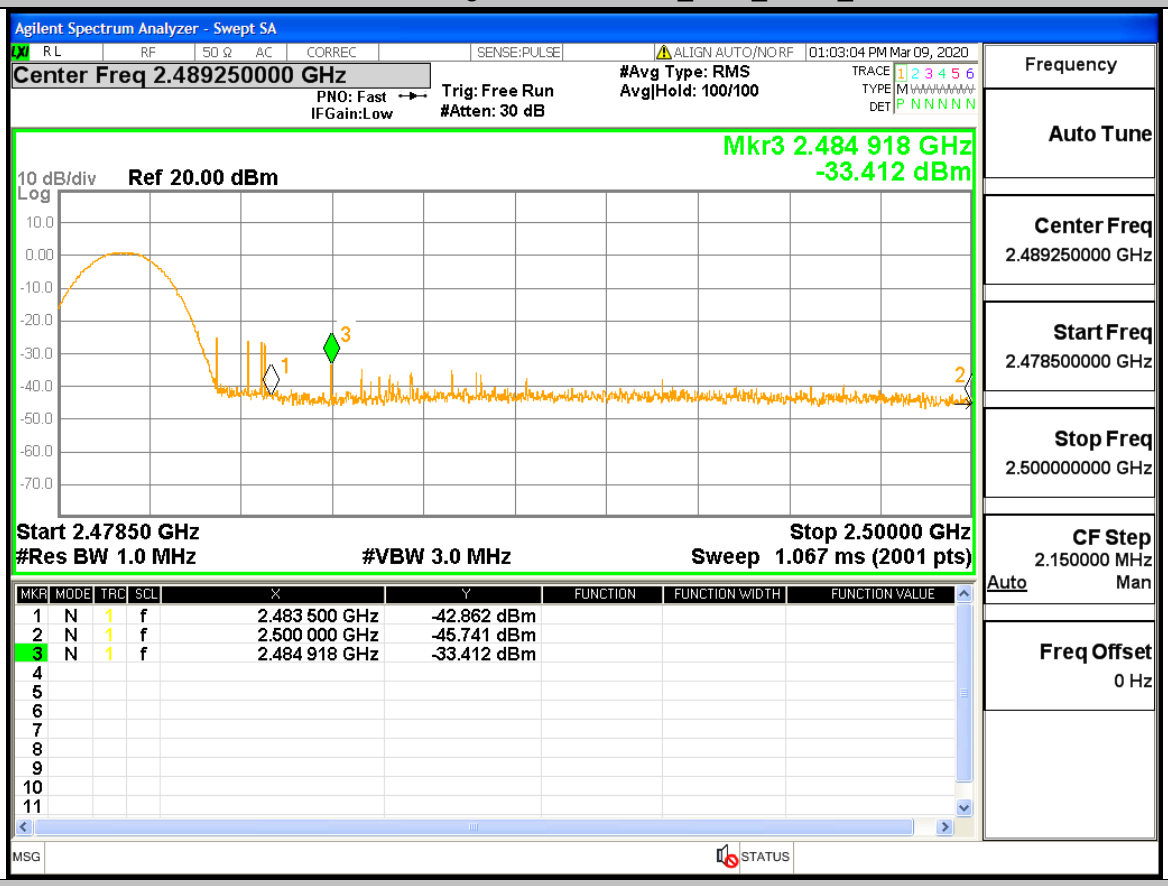


Restrict-band band-edge measurements_2402_AV_2DH5



Restrict-band band-edge measurements_2480_PEAK_2DH5



Restrict-band band-edge measurements_2480_AV_2DH5