Appendix A

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

Product Name: LumiCharge

Trade Mark: N/A

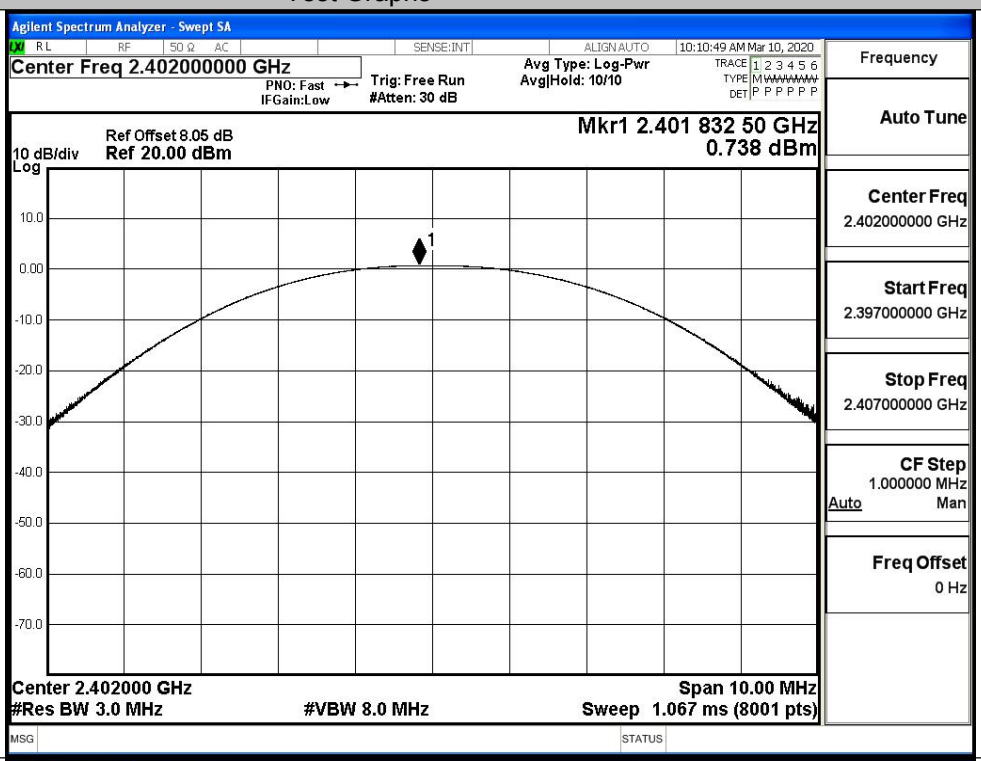
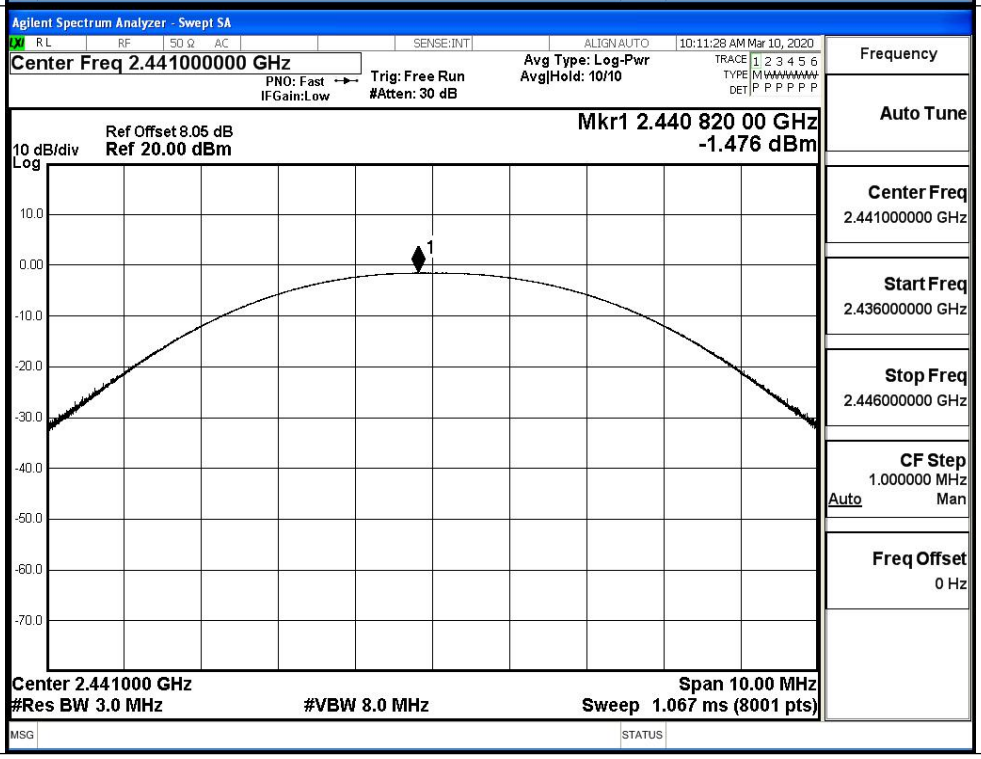
Test Model:LD

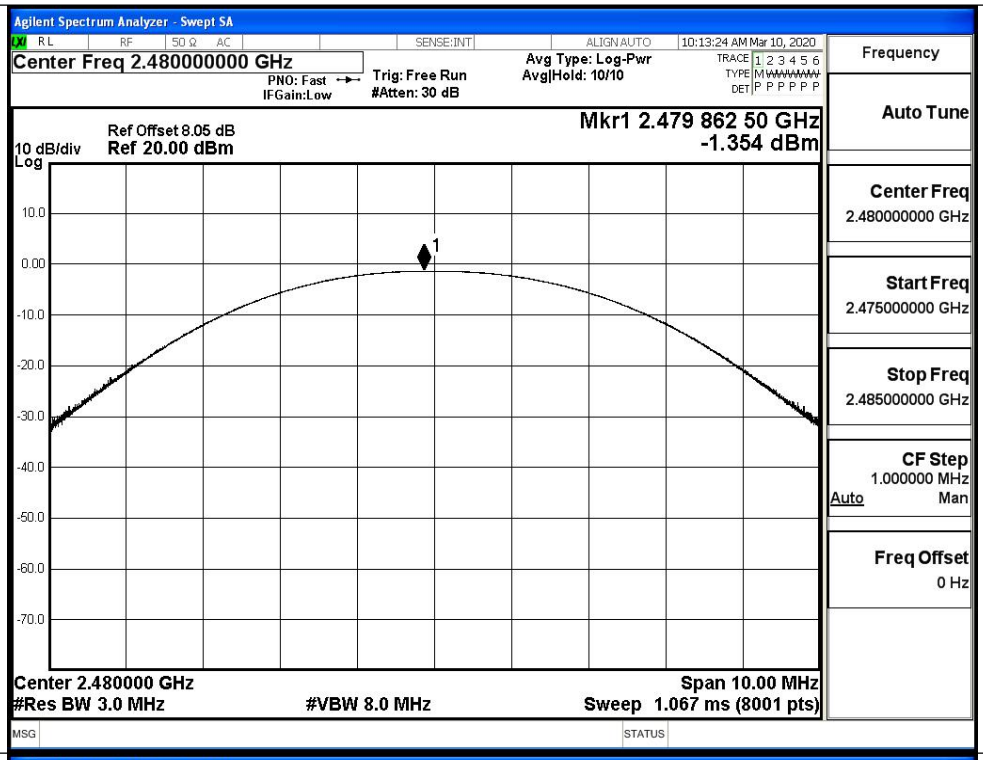
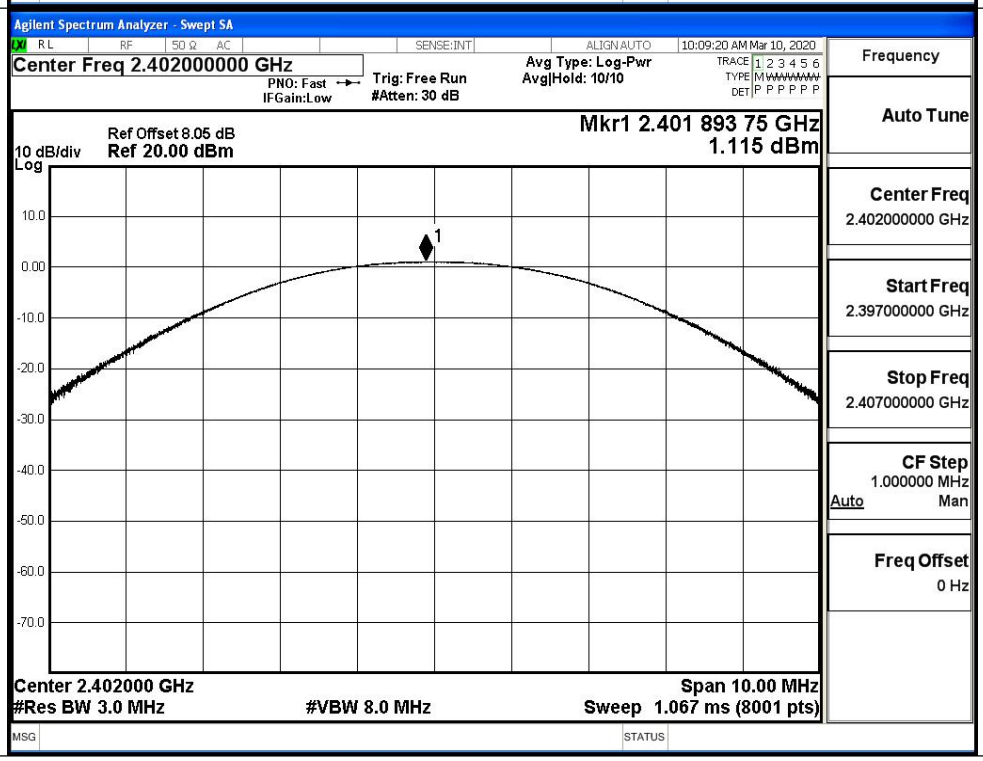
Environmental Conditions

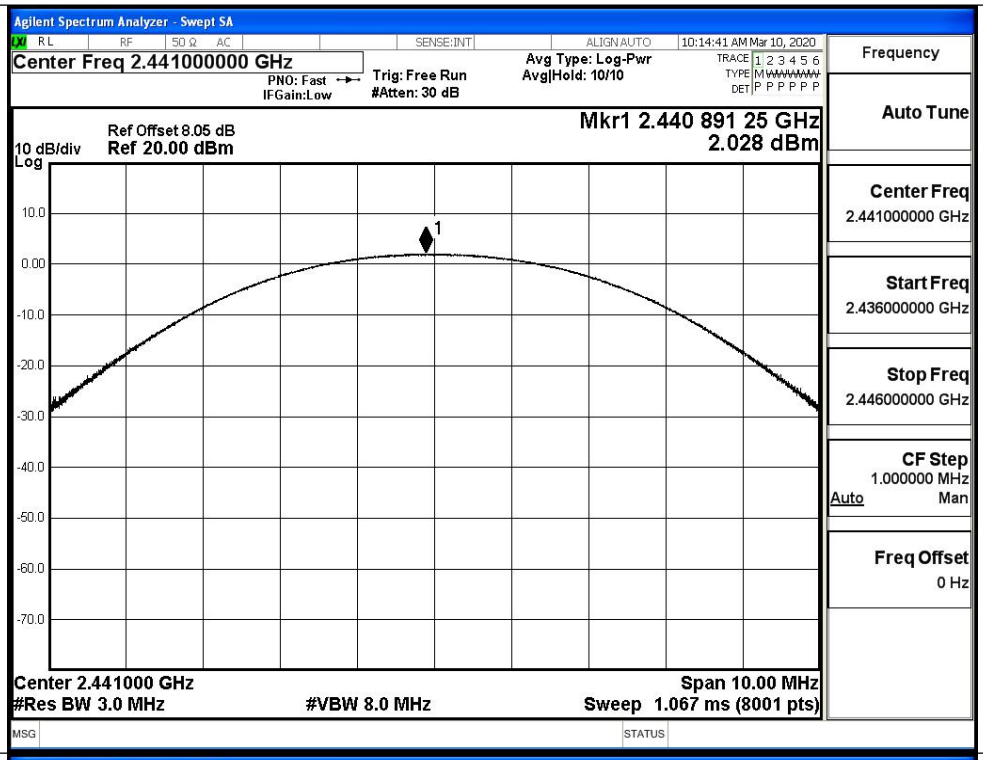
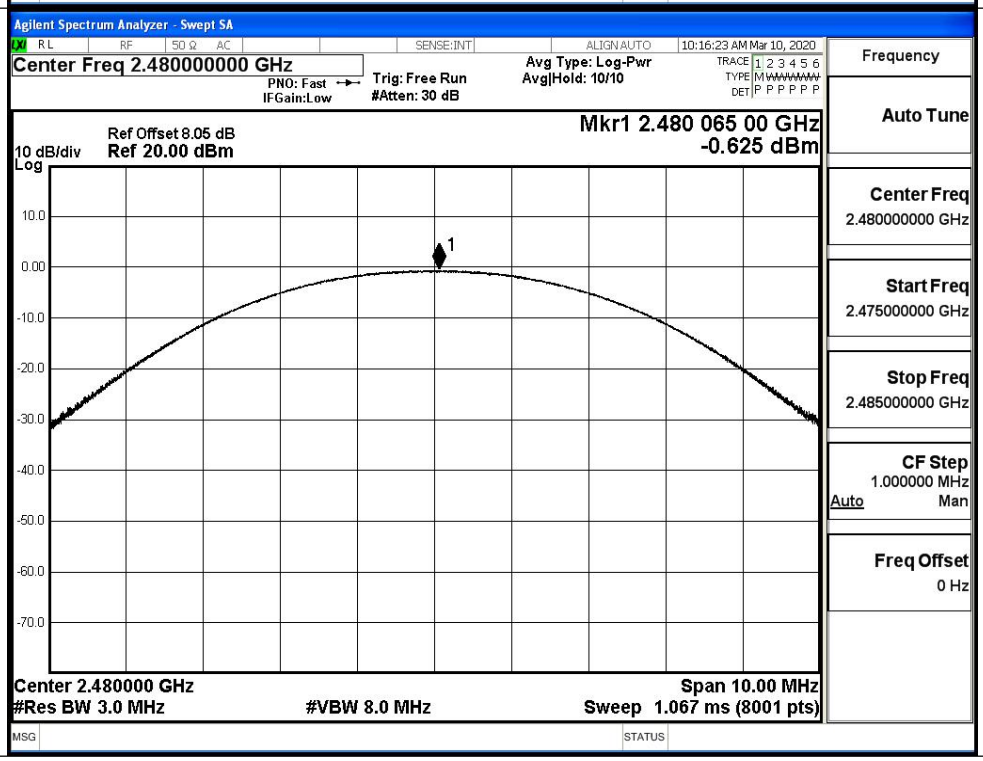
Temperature:	23.1° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	QUXIN
Supervised by:	Tom.Liu

A.1 Maxmum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.738	30	PASS
	MCH	-1.476	30	PASS
	HCH	-1.354	30	PASS
π/4DQPSK	LCH	1.115	21	PASS
	MCH	2.028	21	PASS
	HCH	-0.625	21	PASS

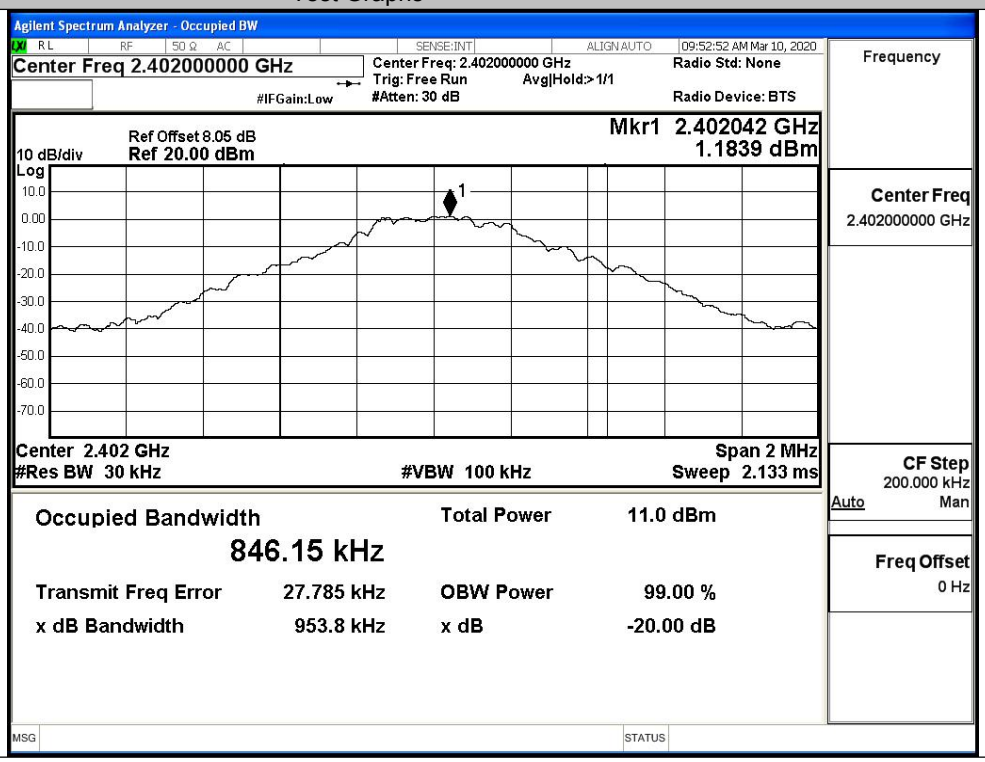
Test Graphs		
GFSK/LCH		
GFSK/MCH		

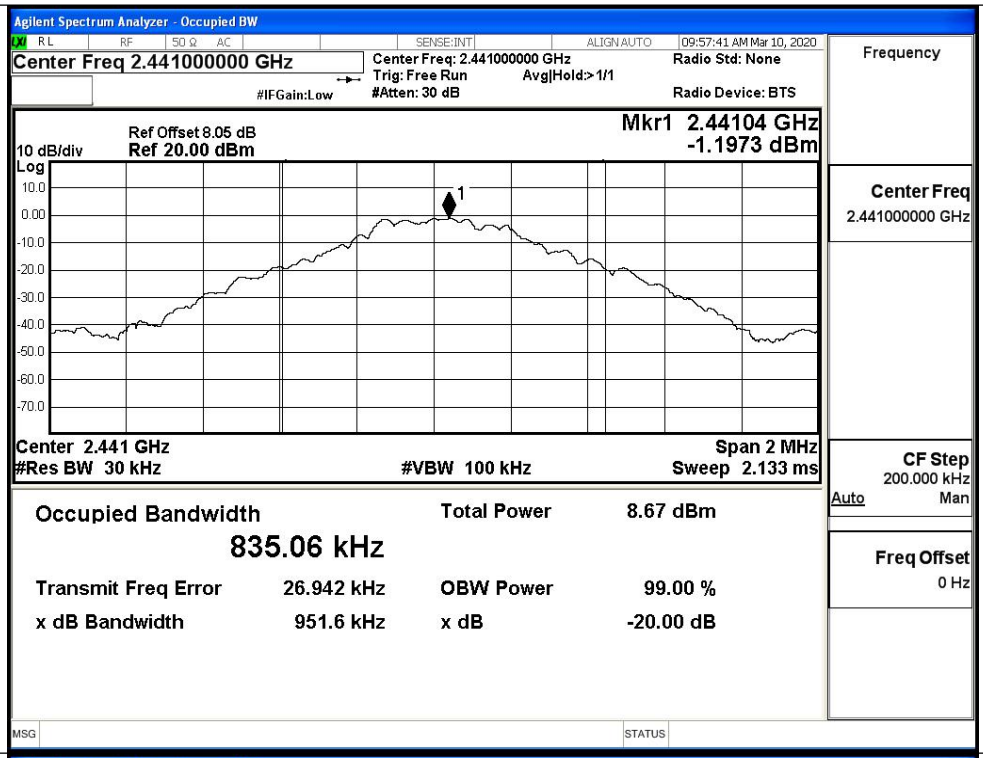
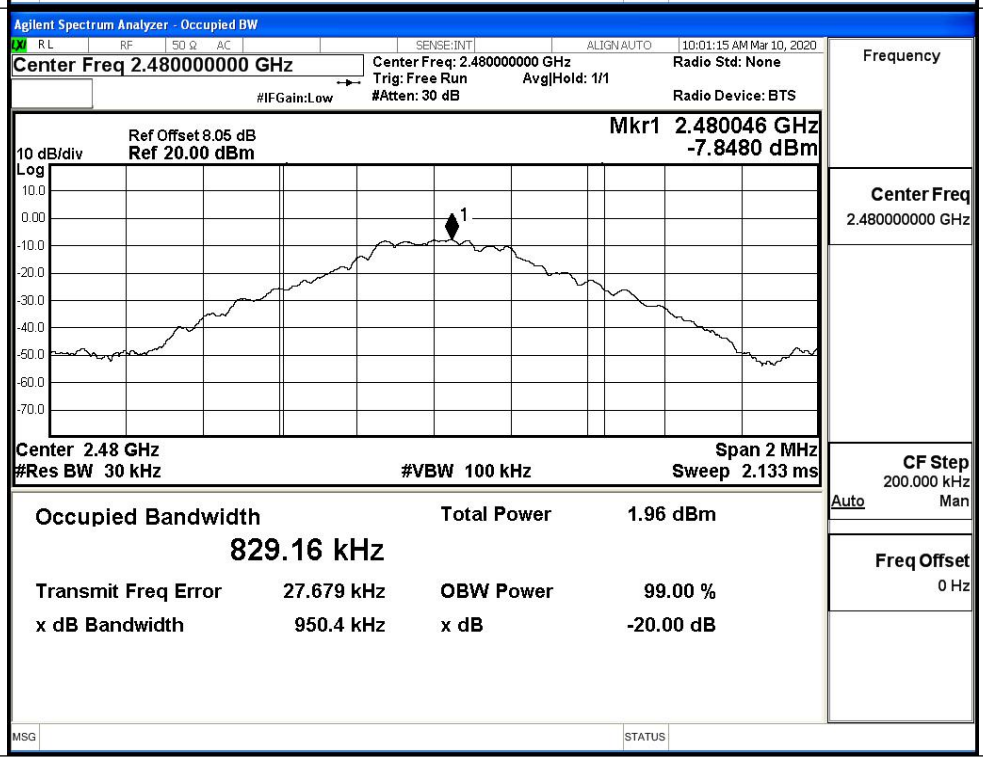
GFSK/HCH		
π/4DQPSK/LCH		

π/4DQPSK/MCH	
π/4DQPSK/HCH	

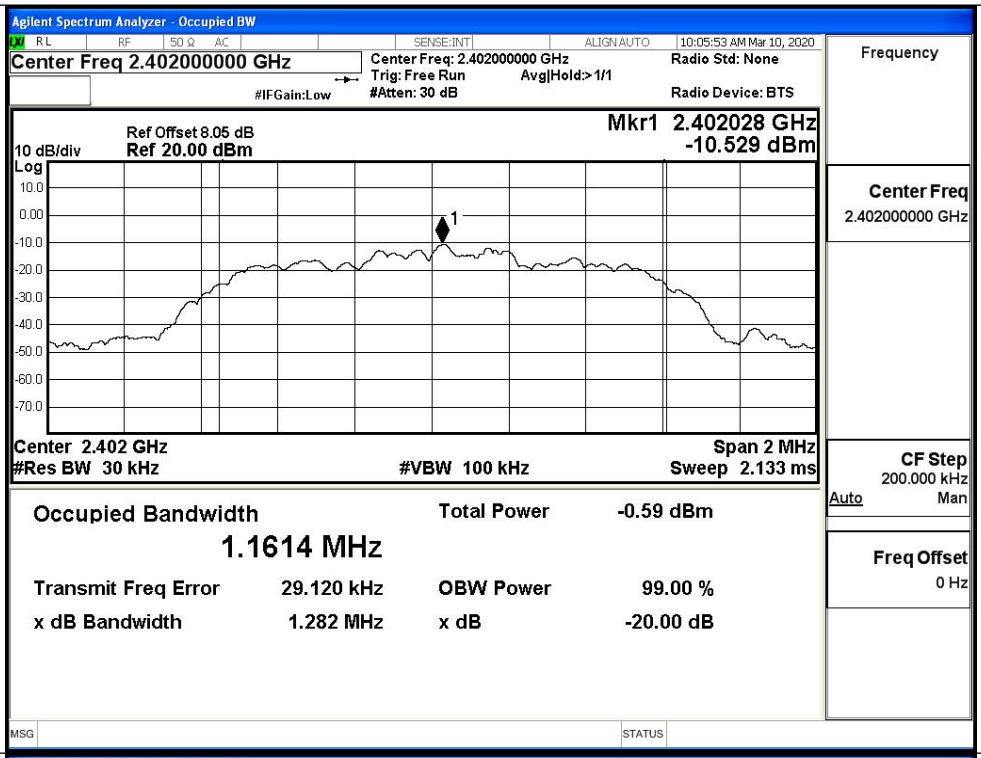
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9538	Not Specified	PASS
	MCH	0.9516	Not Specified	PASS
	HCH	0.9504	Not Specified	PASS
π/4DQPSK	LCH	1.282	Not Specified	PASS
	MCH	1.309	Not Specified	PASS
	HCH	1.311	Not Specified	PASS

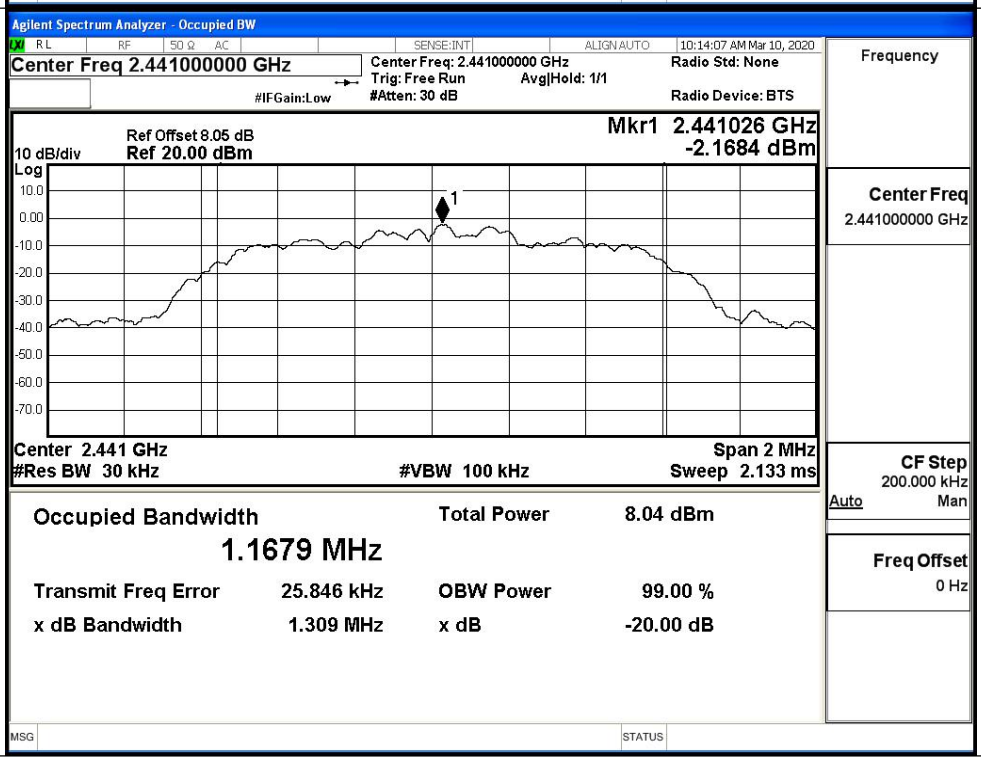
Test Graphs	
GFSK/LCH	

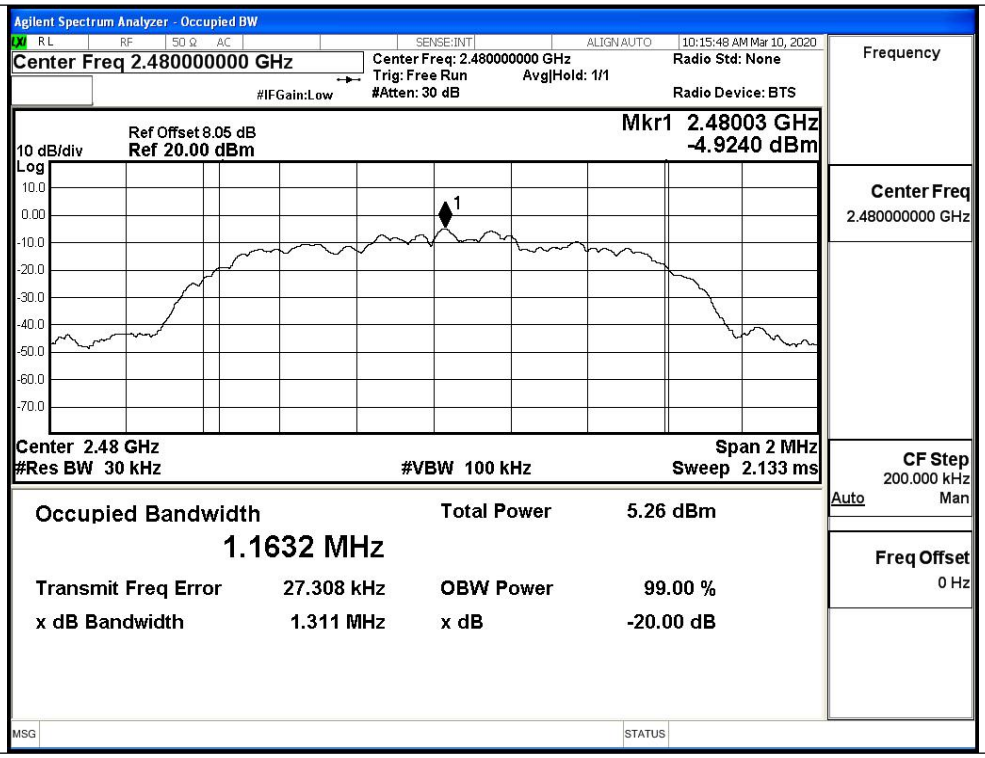
GFSK/MCH	
GFSK/HCH	

π/4DQPSK/LCH



π/4DQPSK/MCH

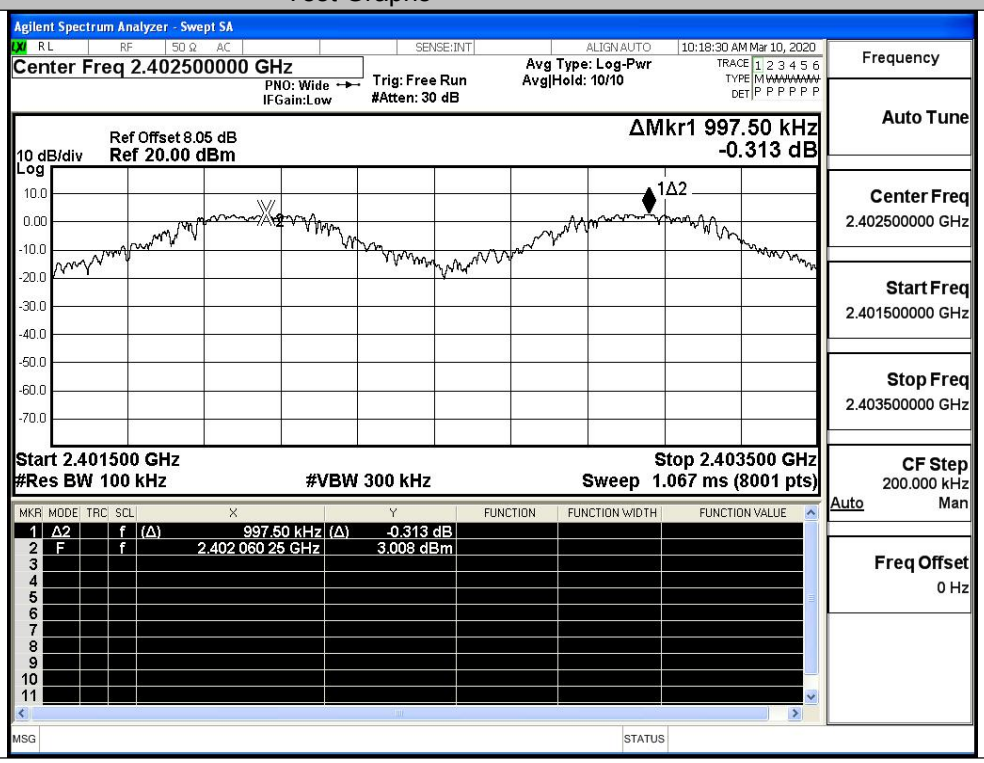


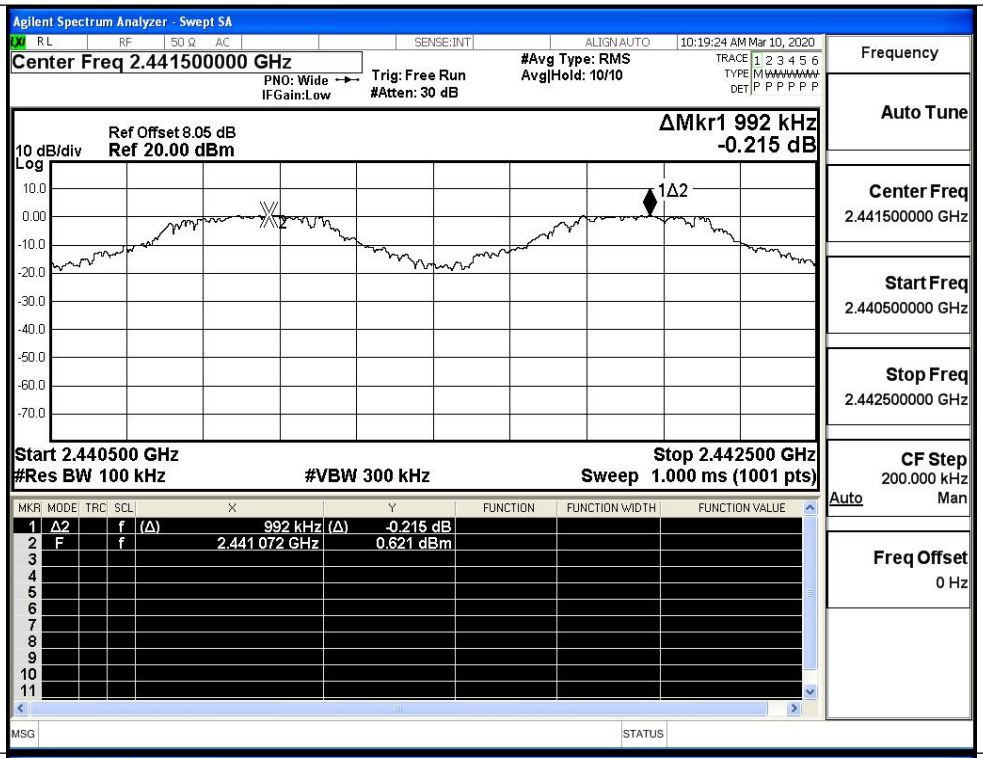
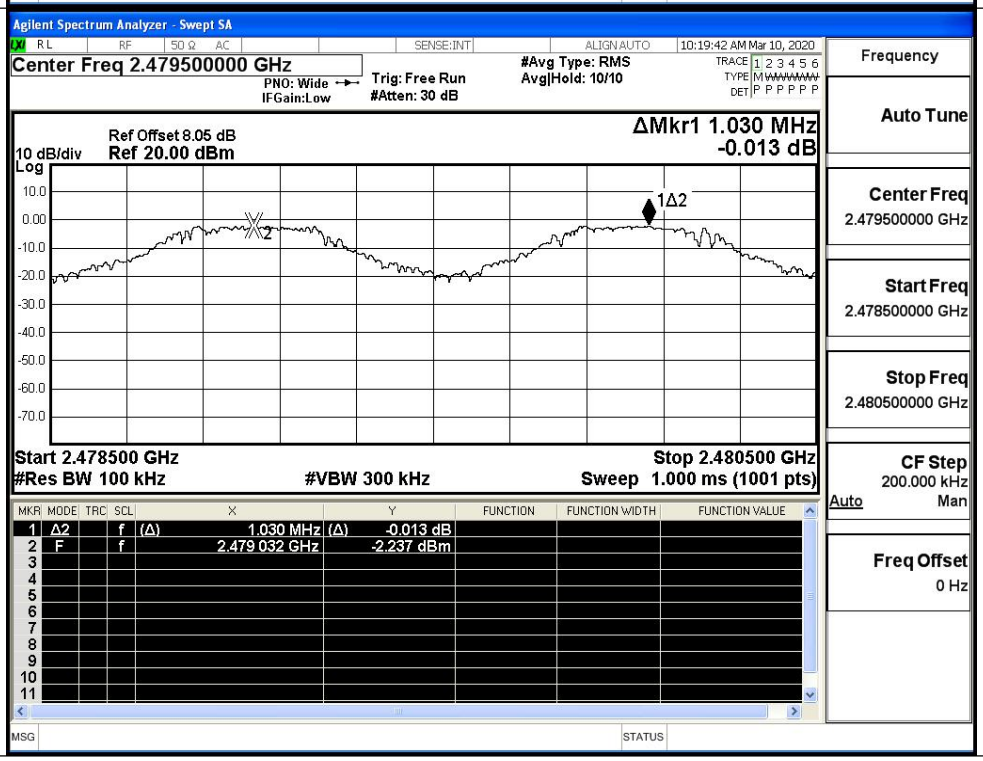
π/4DQPSK/HCH		

Agilent Spectrum Analyzer - Occupied BW
RL RF 50 Ω AC SENSE:INT ALIGN AUTO 10:15:48 AM Mar 10, 2020
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run Avg|Hold: 1/1
#Atten: 30 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 8.05 dB
10 dB/div Ref 20.00 dBm
Log
Mkr1 2.48003 GHz
-4.9240 dBm
Center Freq
2.480000000 GHz
Center 2.48 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
CF Step
200.000 kHz
Auto Man
Occupied Bandwidth
1.1632 MHz
Total Power 5.26 dBm
Transmit Freq Error 27.308 kHz
OBW Power 99.00 %
x dB Bandwidth 1.311 MHz
x dB -20.00 dB
Freq Offset
0 Hz
MSG
STATUS

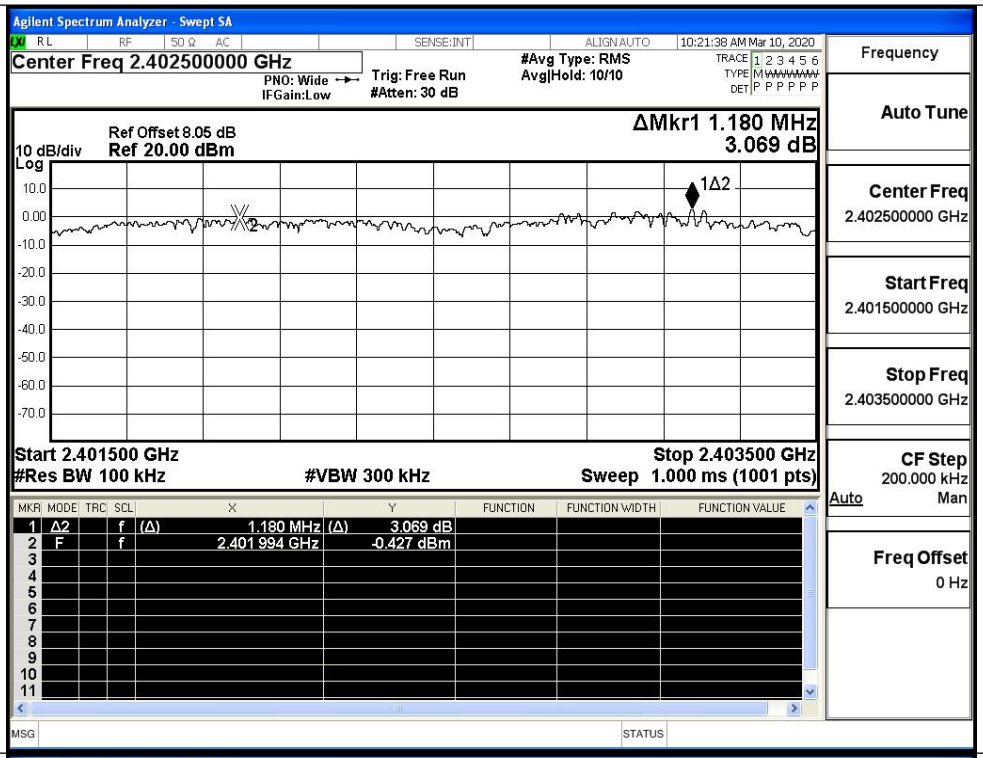
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.997	0.636	PASS
	MCH	0.992	0.634	PASS
	HCH	1.030	0.634	PASS
π/4DQPSK	LCH	1.180	0.855	PASS
	MCH	1.226	0.873	PASS
	HCH	1.184	0.873	PASS

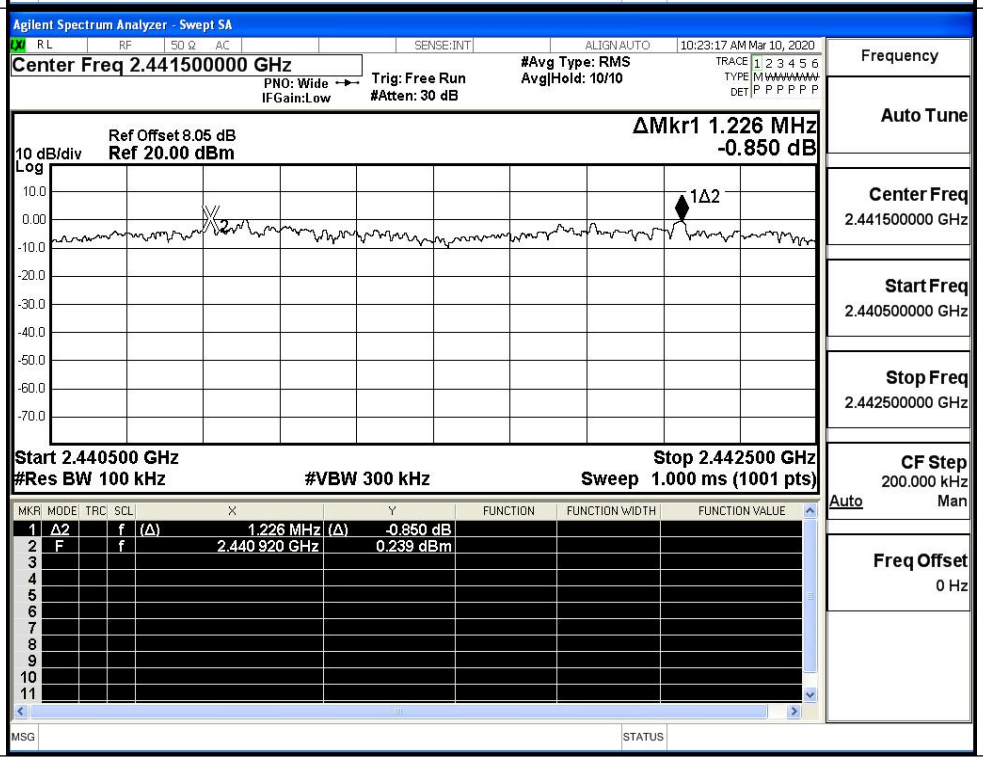
Test Graphs	
GFSK/LCH	

GFSK/MCH		
GFSK/HCH		

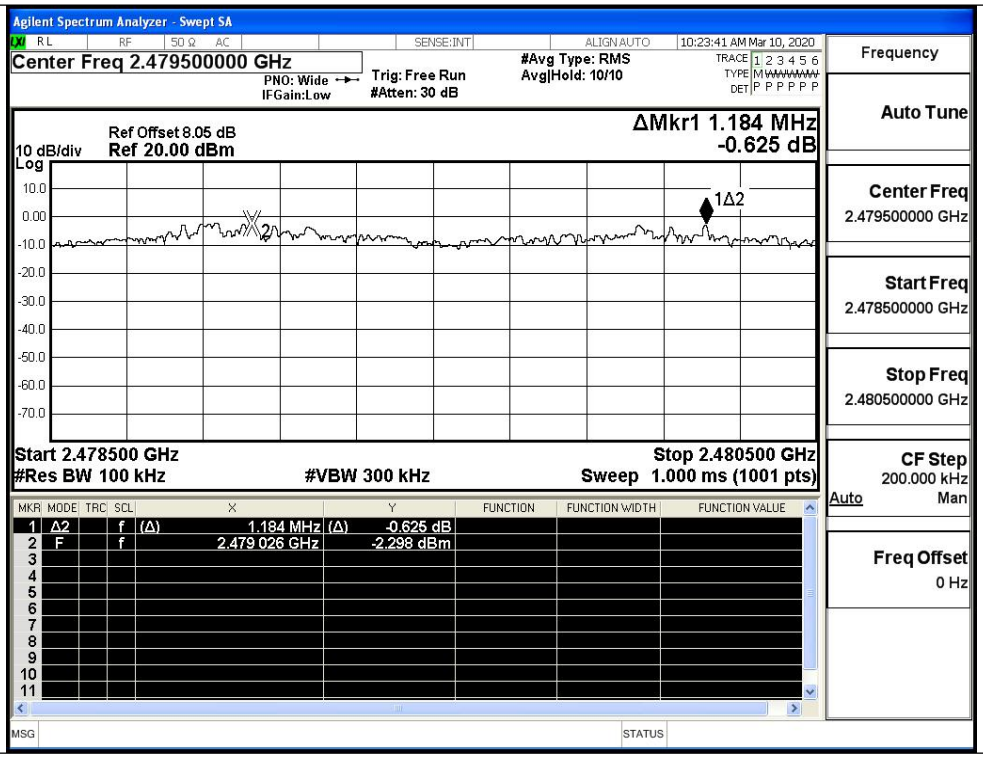
π/4DQPSK/LCH



π/4DQPSK/MCH

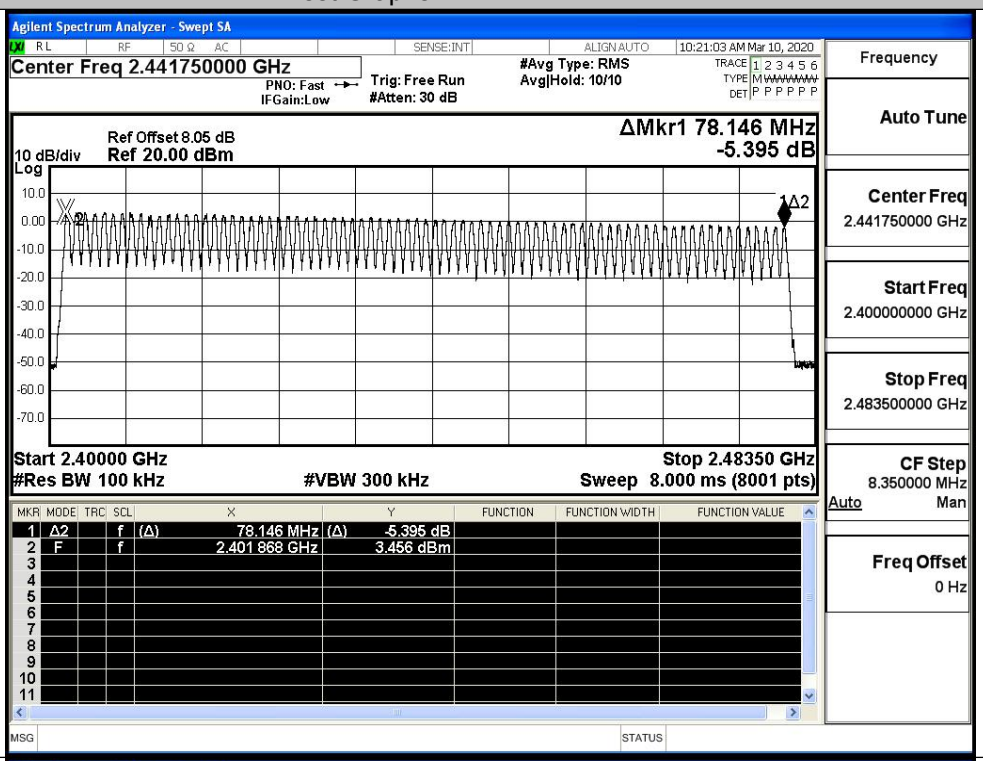
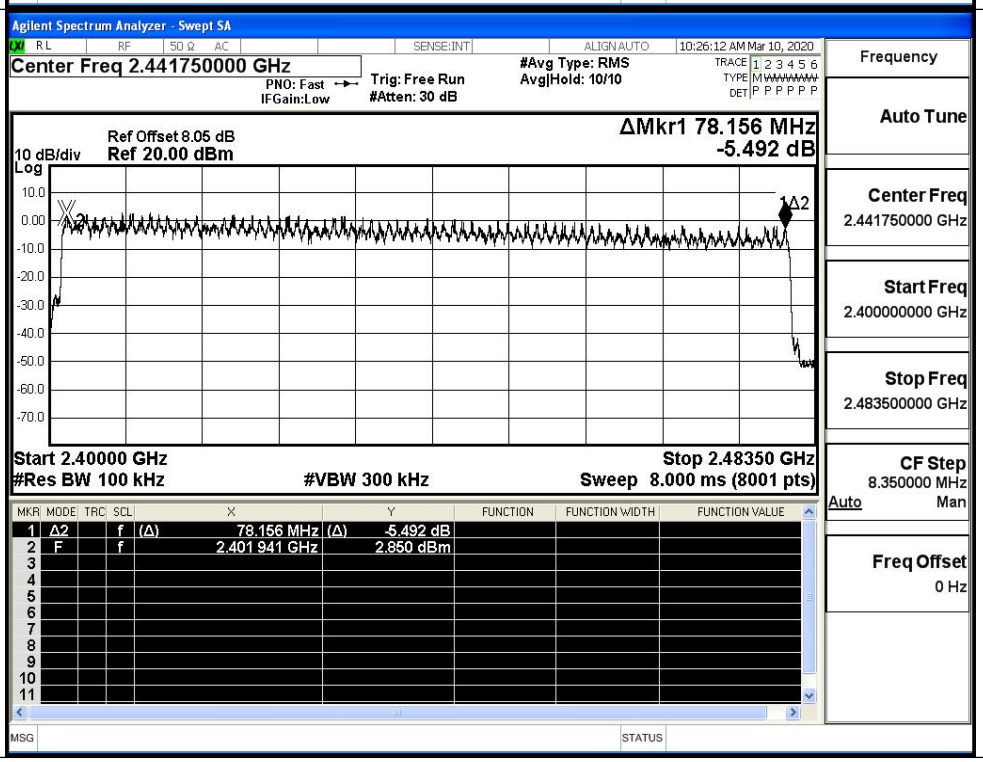


π/4DQPSK/HCH


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.479500000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
10:23:41 AM Mar 10, 2020
Ref Offset 8.05 dB
10 dB/div
Ref 20.00 dBm
ΔMkr1 1.184 MHz
-0.625 dB
Start 2.478500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.480500 GHz
Sweep 1.000 ms (1001 pts)
1 Δ2 f (Δ) 1.184 MHz (Δ) -0.625 dB
2 F f 2.479 026 GHz -2.298 dBm
Frequency
Auto Tune
Center Freq 2.479500000 GHz
Start Freq 2.478500000 GHz
Stop Freq 2.480500000 GHz
CF Step 200.000 kHz
Auto Man
Freq Offset 0 Hz

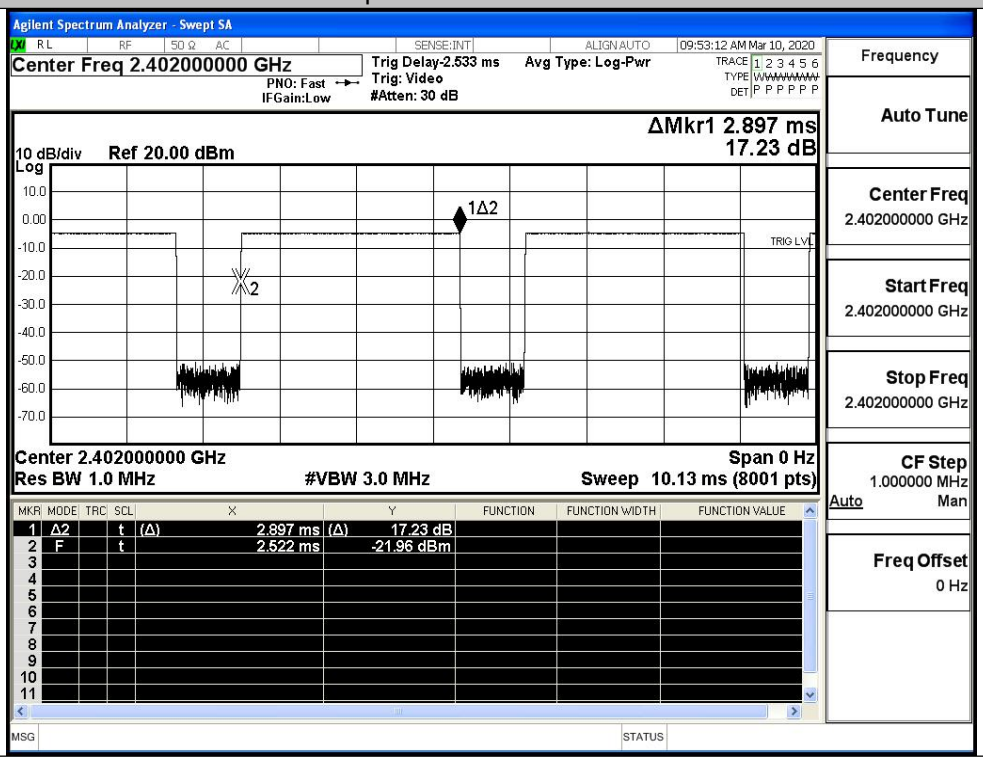
A.4 Hopping Channel Number

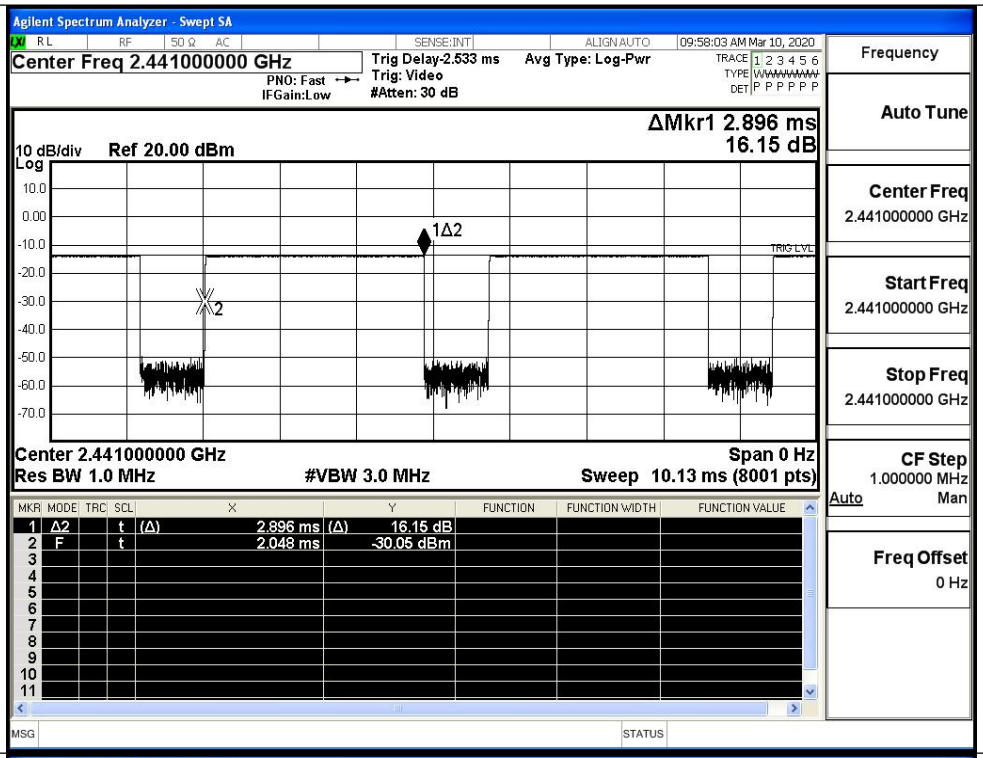
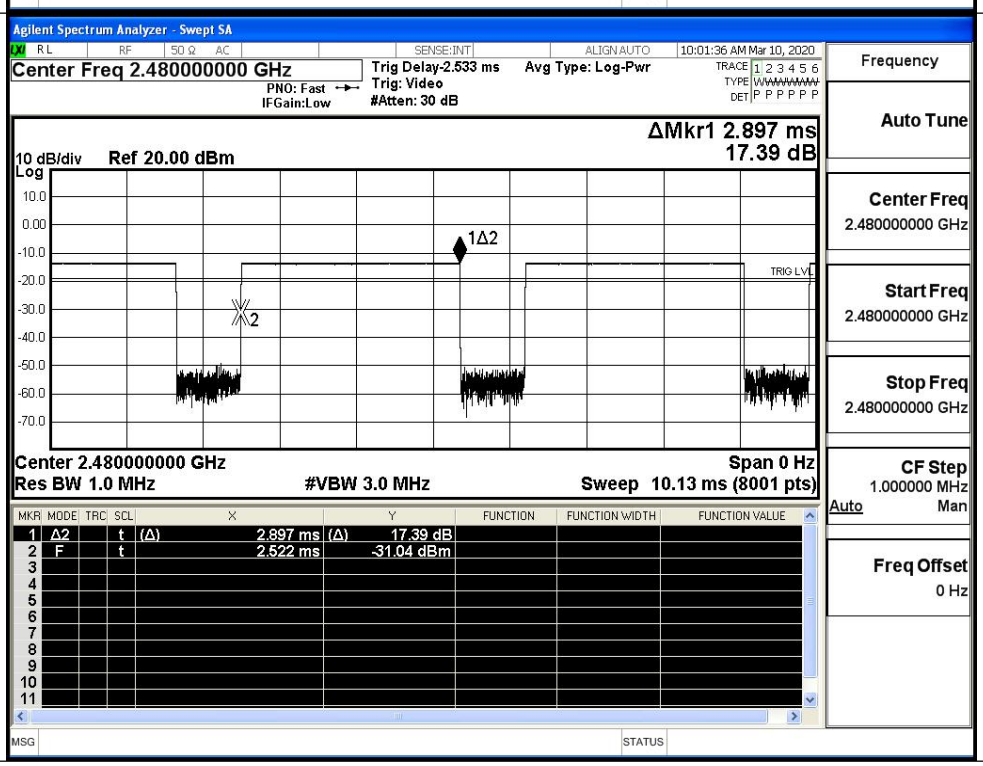
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
π/4DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs	
GFSK/Hop	
π/4DQPSK/Hop	

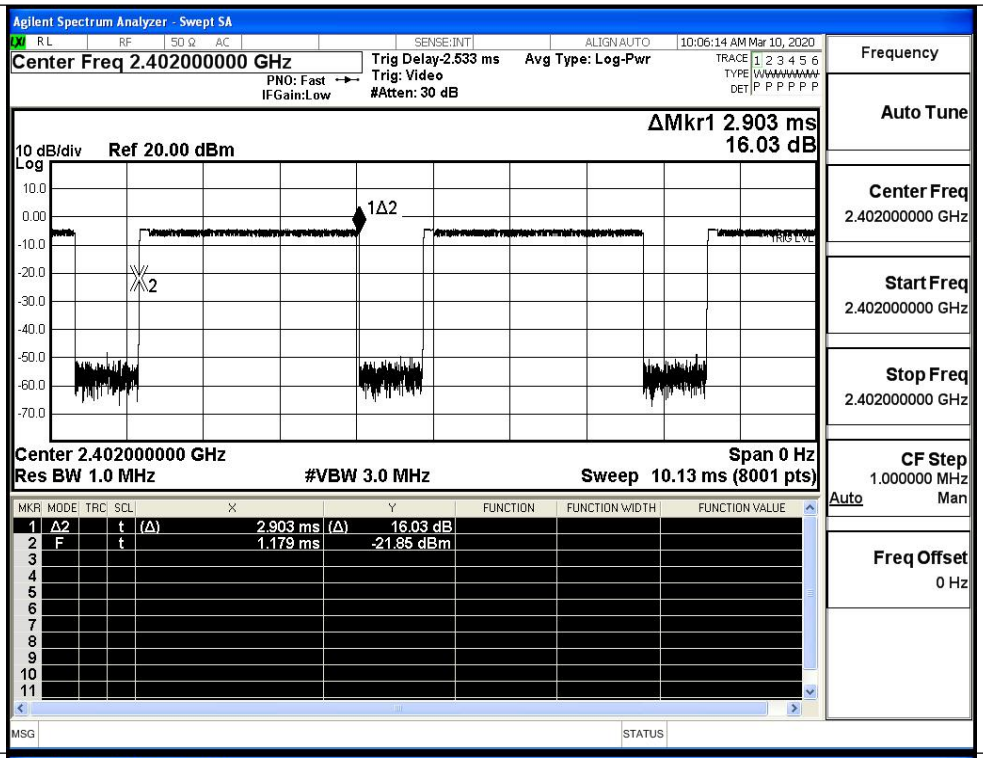
A.5 Dwell Time

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

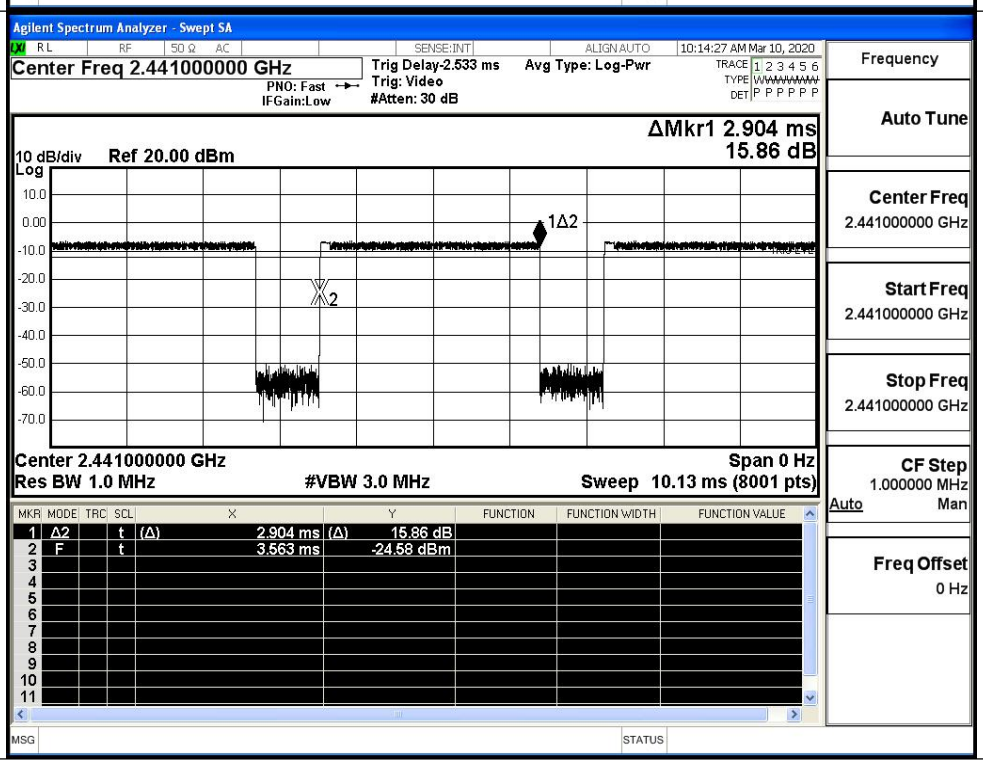
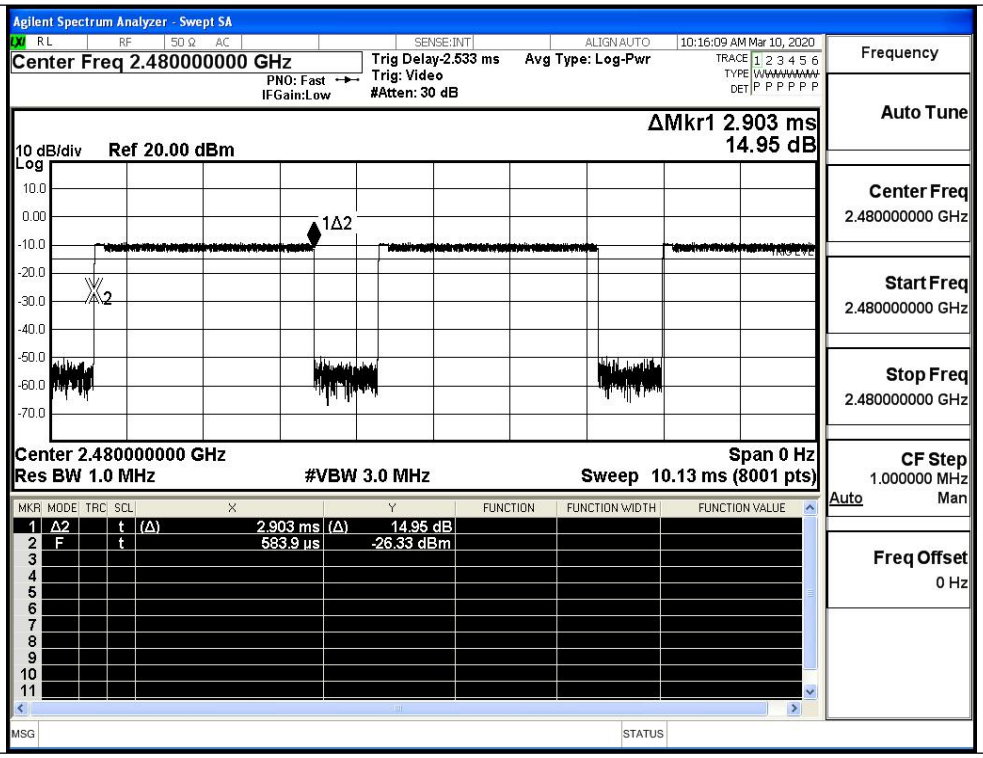
Test Graphs	
GFSK_DH5/LCH	

GFSK_DH5/MCH	
GFSK_DH5/HCH	

π/4DQPSK
_2DH5/LCH



π/4DQPSK
_2DH5/MCH



π/4DQPSK
_2DH5/HCH