

Environmental Conditions

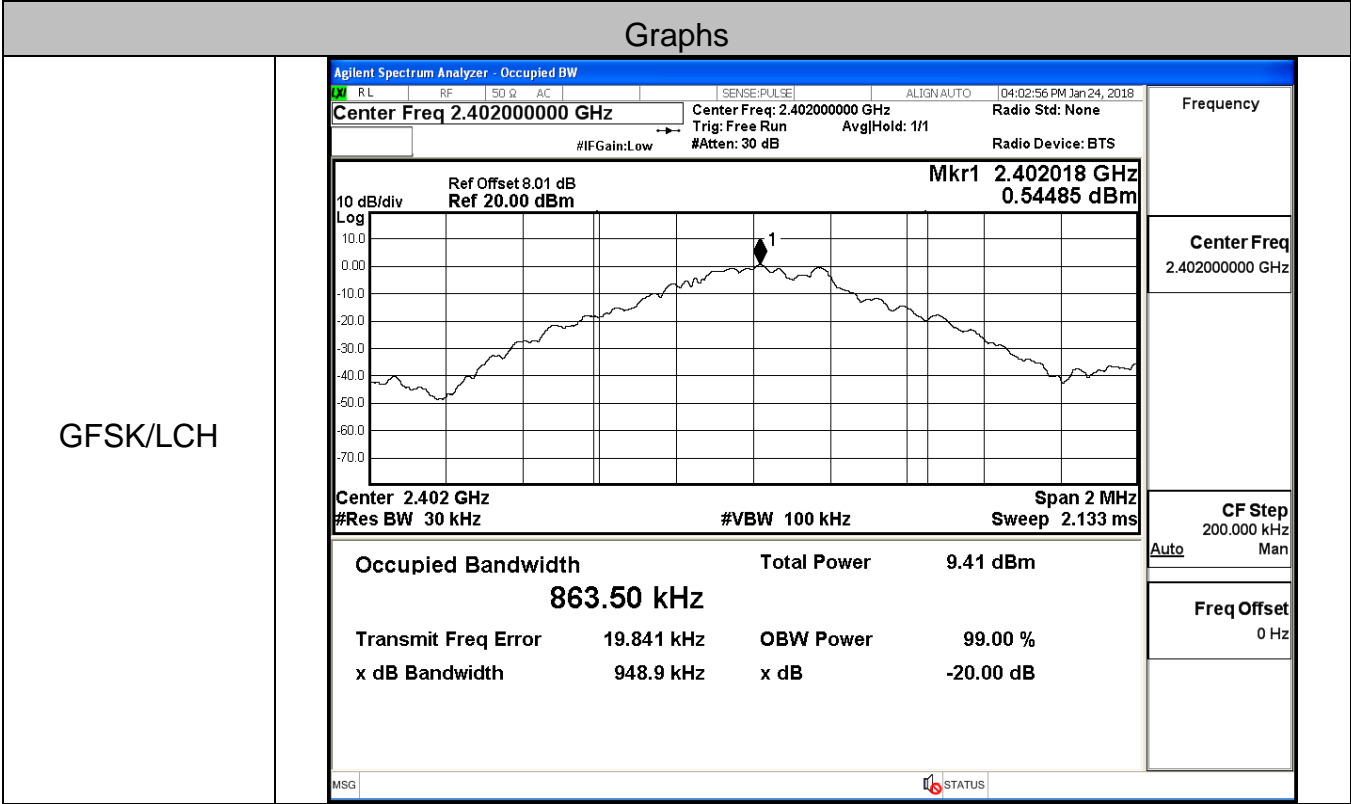
Temperature:	20.8 ° C
Relative Humidity:	52.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.xu
Supervised by:	Tom.Liu

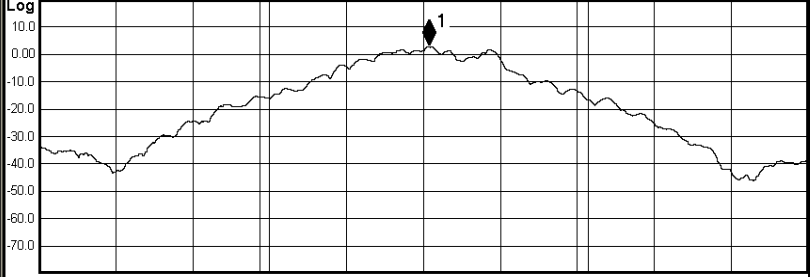
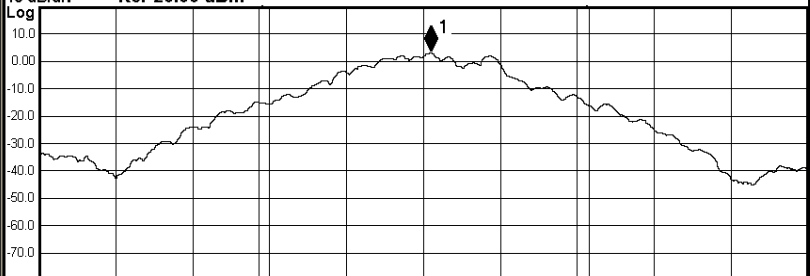
Appendix A): 20dB Bandwidth

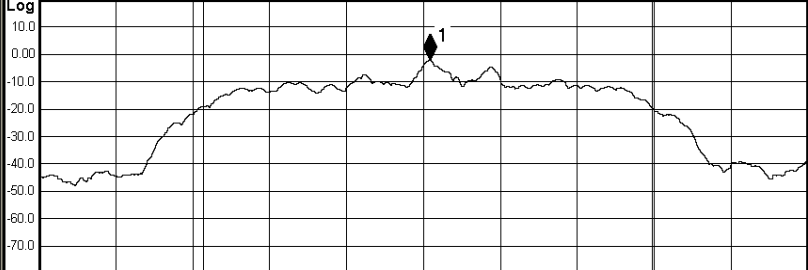
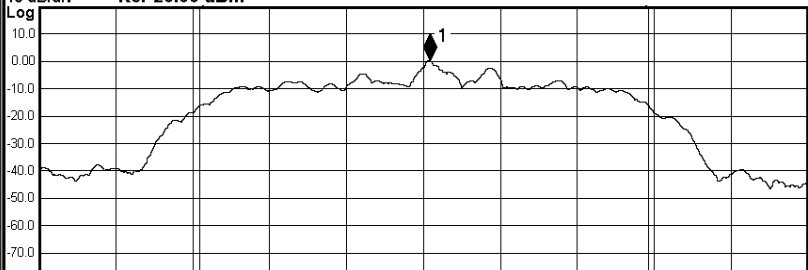
Test Result

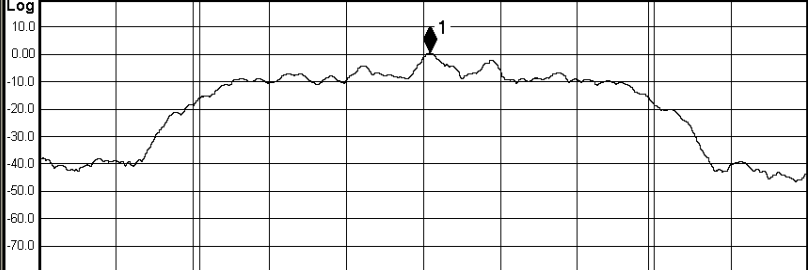
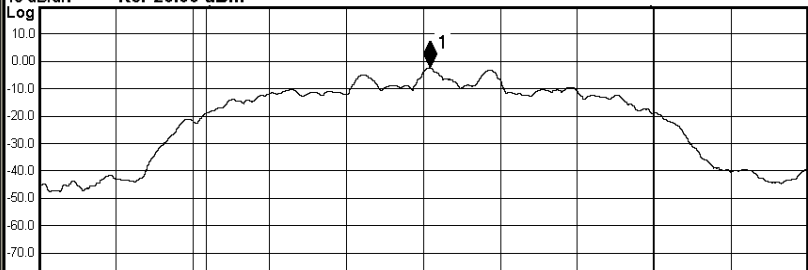
Mode	Channel.	20dB Bandwidth [MHz]	Verdict
GFSK	LCH	0.9489	PASS
GFSK	MCH	0.9457	PASS
GFSK	HCH	0.9443	PASS
π /4DQPSK	LCH	1.260	PASS
π /4DQPSK	MCH	1.229	PASS
π /4DQPSK	HCH	1.229	PASS
8DPSK	LCH	1.273	PASS
8DPSK	MCH	1.261	PASS
8DPSK	HCH	1.260	PASS

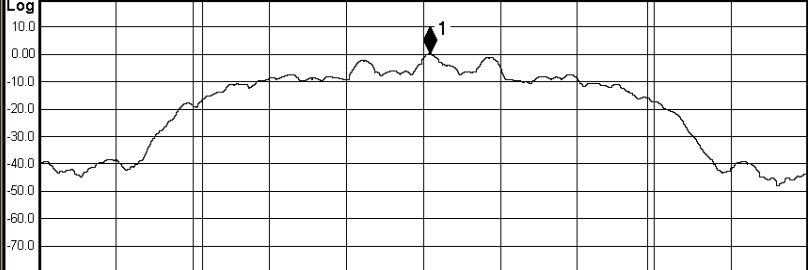
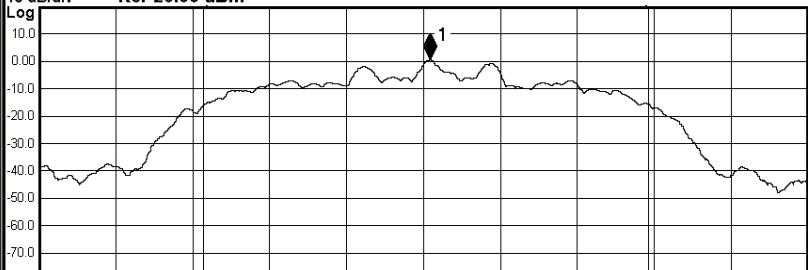
Test Graph



<div>GFSK/MCH</div>	<div><div><div>Agilent Spectrum Analyzer - Occupied BW</div><div><div><div><div>RL</div><div>RF</div><div>50 Ω</div><div>AC</div></div><div><div>SENSE:PULSE</div><div>ALIGN:AUTO</div><div>04:05:21 PM Jan 24, 2018</div></div></div><div><div>Center Freq 2.441000000 GHz</div><div>Center Freq: 2.441000000 GHz</div><div>Radio Std: None</div></div><div><div>#IFGain:Low</div><div>Trig: Free Run</div><div>Avg/Hold: 1/1</div></div><div><div></div><div>#Atten: 30 dB</div><div>Radio Device: BTS</div></div></div><div><div>10 dB/div</div><div>Ref Offset 8.01 dB</div><div>Ref 20.00 dBm</div><div>Mkr1 2.441014 GHz</div><div>2.7601 dBm</div></div><div></div><div><div>Center 2.441 GHz</div><div>#Res BW 30 kHz</div><div>#VBW 100 kHz</div><div>Span 2 MHz</div><div>Sweep 2.133 ms</div></div><div><div>Occupied Bandwidth</div><div>Total Power</div><div>11.7 dBm</div></div><div><div>853.01 kHz</div></div><div><div>Transmit Freq Error</div><div>1.628 kHz</div><div>OBW Power</div><div>99.00 %</div></div><div><div>x dB Bandwidth</div><div>945.7 kHz</div><div>x dB</div><div>-20.00 dB</div></div><div><div>MSG</div><div>STATUS</div></div></div><div><div>Frequency</div><div>Center Freq</div><div>2.441000000 GHz</div><div>CF Step</div><div>200.000 kHz</div><div>Auto</div><div>Man</div><div>Freq Offset</div><div>0 Hz</div></div></div>
<div>GFSK/HCH</div>	<div><div><div>Agilent Spectrum Analyzer - Occupied BW</div><div><div><div><div>RL</div><div>RF</div><div>50 Ω</div><div>AC</div></div><div><div>SENSE:PULSE</div><div>ALIGN:AUTO</div><div>04:07:12 PM Jan 24, 2018</div></div></div><div><div>Center Freq 2.480000000 GHz</div><div>Center Freq: 2.480000000 GHz</div><div>Radio Std: None</div></div><div><div>#IFGain:Low</div><div>Trig: Free Run</div><div>Avg/Hold: 1/1</div></div><div><div></div><div>#Atten: 30 dB</div><div>Radio Device: BTS</div></div></div><div><div>10 dB/div</div><div>Ref Offset 8.01 dB</div><div>Ref 20.00 dBm</div><div>Mkr1 2.48002 GHz</div><div>3.1219 dBm</div></div><div></div><div><div>Center 2.48 GHz</div><div>#Res BW 30 kHz</div><div>#VBW 100 kHz</div><div>Span 2 MHz</div><div>Sweep 2.133 ms</div></div><div><div>Occupied Bandwidth</div><div>Total Power</div><div>12.0 dBm</div></div><div><div>854.78 kHz</div></div><div><div>Transmit Freq Error</div><div>2.459 kHz</div><div>OBW Power</div><div>99.00 %</div></div><div><div>x dB Bandwidth</div><div>944.3 kHz</div><div>x dB</div><div>-20.00 dB</div></div><div><div>MSG</div><div>STATUS</div></div></div><div><div>Frequency</div><div>Center Freq</div><div>2.480000000 GHz</div><div>CF Step</div><div>200.000 kHz</div><div>Auto</div><div>Man</div><div>Freq Offset</div><div>0 Hz</div></div></div>

<div>$\pi/4$DQPSK/LCH</div>	<div><div>Agilent Spectrum Analyzer - Occupied BW</div><div><div><div>Center Freq 2.40200000 GHz</div><div>Center Freq: 2.402000000 GHz</div><div>Trig: Free Run</div><div>#Gain: Low</div><div>#Atten: 30 dB</div></div><div><div>Align: AUTO</div><div>04:10:10 PM Jan 24, 2018</div><div>Radio Std: None</div><div>Radio Device: BTS</div></div></div><div><div>10 dB/div</div><div>Ref Offset 8.01 dB</div><div>Ref 20.00 dBm</div><div>Mkr1 2.402016 GHz</div><div>-2.3080 dBm</div><div>Log</div><div></div></div><div><div>Center 2.402 GHz</div><div>#Res BW 30 kHz</div><div>#VBW 100 kHz</div><div>Span 2 MHz</div><div>Sweep 2.133 ms</div></div><div><div>Occupied Bandwidth</div><div>Total Power</div><div>5.66 dBm</div><div>1.1646 MHz</div></div><div><div>Transmit Freq Error</div><div>12.583 kHz</div><div>OBW Power</div><div>99.00 %</div><div>x dB Bandwidth</div><div>1.260 MHz</div><div>x dB</div><div>-20.00 dB</div></div><div><div>Frequency</div><div>Center Freq</div><div>2.40200000 GHz</div><div>CF Step</div><div>200.000 kHz</div><div>Auto</div><div>Man</div><div>Freq Offset</div><div>0 Hz</div></div><div><div>MSG</div><div>STATUS</div></div></div>
<div>$\pi/4$DQPSK/MCH</div>	<div><div>Agilent Spectrum Analyzer - Occupied BW</div><div><div><div>Center Freq 2.44100000 GHz</div><div>Center Freq: 2.441000000 GHz</div><div>Trig: Free Run</div><div>#Gain: Low</div><div>#Atten: 30 dB</div></div><div><div>Align: AUTO</div><div>04:12:31 PM Jan 24, 2018</div><div>Radio Std: None</div><div>Radio Device: BTS</div></div></div><div><div>10 dB/div</div><div>Ref Offset 8.01 dB</div><div>Ref 20.00 dBm</div><div>Mkr1 2.441018 GHz</div><div>0.18031 dBm</div><div>Log</div><div></div></div><div><div>Center 2.441 GHz</div><div>#Res BW 30 kHz</div><div>#VBW 100 kHz</div><div>Span 2 MHz</div><div>Sweep 2.133 ms</div></div><div><div>Occupied Bandwidth</div><div>Total Power</div><div>8.21 dBm</div><div>1.1617 MHz</div></div><div><div>Transmit Freq Error</div><div>2.364 kHz</div><div>OBW Power</div><div>99.00 %</div><div>x dB Bandwidth</div><div>1.229 MHz</div><div>x dB</div><div>-20.00 dB</div></div><div><div>Frequency</div><div>Center Freq</div><div>2.44100000 GHz</div><div>CF Step</div><div>200.000 kHz</div><div>Auto</div><div>Man</div><div>Freq Offset</div><div>0 Hz</div></div><div><div>MSG</div><div>STATUS</div></div></div>

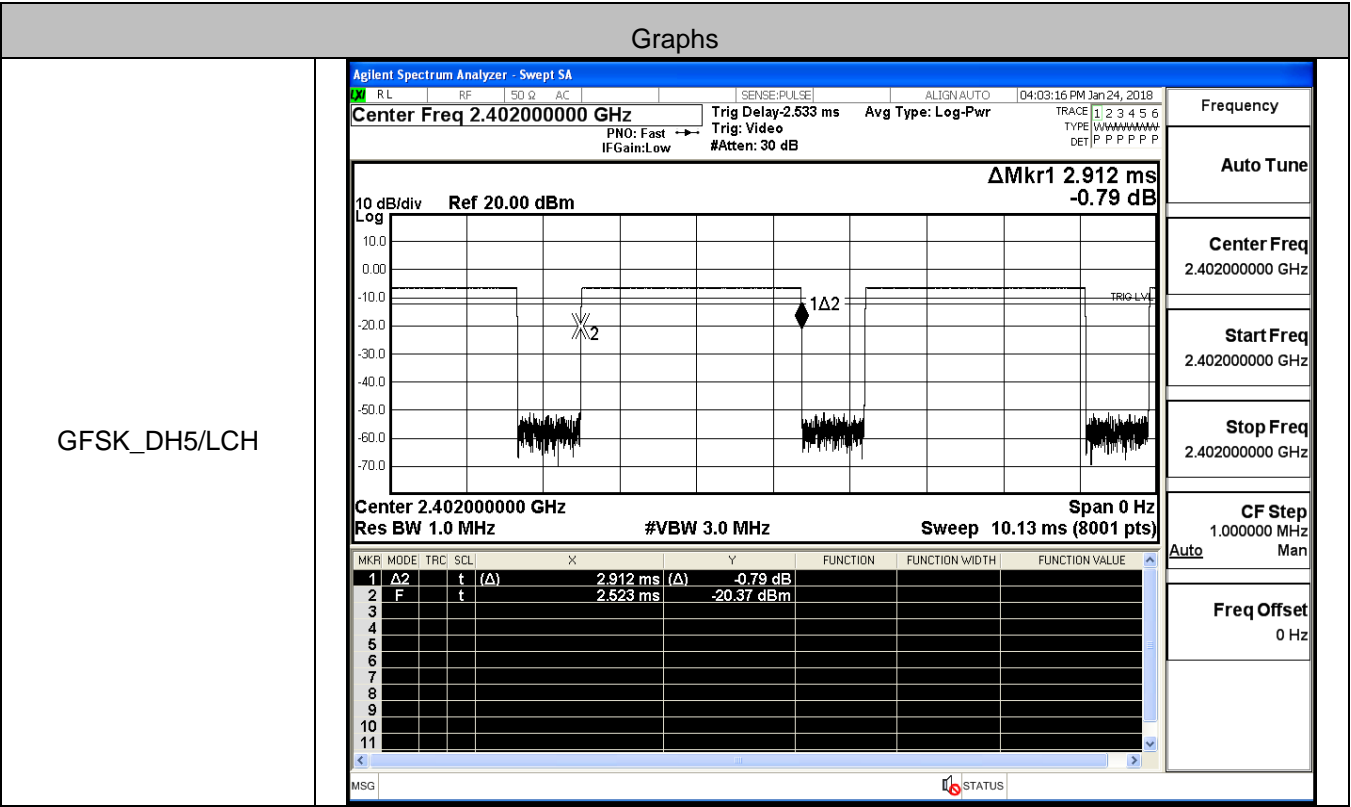
<div>π/4DQPSK/HCH</div>	<div><div><div>Agilent Spectrum Analyzer - Occupied BW</div><div><div><div>RL</div><div>RF</div><div>50 Ω</div><div>AC</div></div><div><div>SENSE:PULSE</div><div>ALIGN:AUTO</div><div>04:14:15 PM Jan 24, 2018</div></div></div><div><div>Center Freq 2.480000000 GHz</div><div>Center Freq: 2.480000000 GHz</div><div>Radio Std: None</div></div><div><div>#IFGain:Low</div><div>Trig: Free Run</div><div>Avg Hold: 1/1</div></div><div><div>Radio Device: BTS</div></div></div><div><div>10 dB/div</div><div>Ref Offset 8.01 dB</div><div>Ref 20.00 dBm</div><div>Mkr1 2.480018 GHz</div><div>0.47671 dBm</div><div></div><div><div>Center 2.48 GHz</div><div>#Res BW 30 kHz</div><div>#VBW 100 kHz</div><div>Span 2 MHz</div><div>Sweep 2.133 ms</div></div><div><div>Occupied Bandwidth</div><div>Total Power</div><div>8.52 dBm</div><div>1.1616 MHz</div></div><div><div>Transmit Freq Error</div><div>2.979 kHz</div><div>OBW Power</div><div>99.00 %</div></div><div><div>x dB Bandwidth</div><div>1.229 MHz</div><div>x dB</div><div>-20.00 dB</div></div></div><div><div>MSG</div><div>STATUS</div></div></div> <div><div>Frequency</div><div>Center Freq</div><div>2.480000000 GHz</div><div>CF Step</div><div>200.000 kHz</div><div>Auto</div><div>Man</div><div>Freq Offset</div><div>0 Hz</div></div>
<div>8DPSK/LCH</div>	<div><div><div>Agilent Spectrum Analyzer - Occupied BW</div><div><div><div>RL</div><div>RF</div><div>50 Ω</div><div>AC</div></div><div><div>SENSE:PULSE</div><div>ALIGN:AUTO</div><div>04:18:08 PM Jan 24, 2018</div></div></div><div><div>Center Freq 2.402000000 GHz</div><div>Center Freq: 2.402000000 GHz</div><div>Radio Std: None</div></div><div><div>#IFGain:Low</div><div>Trig: Free Run</div><div>Avg Hold: 1/1</div></div><div><div>Radio Device: BTS</div></div></div><div><div>10 dB/div</div><div>Ref Offset 8.01 dB</div><div>Ref 20.00 dBm</div><div>Mkr1 2.402018 GHz</div><div>-2.3172 dBm</div><div></div><div><div>Center 2.402 GHz</div><div>#Res BW 30 kHz</div><div>#VBW 100 kHz</div><div>Span 2 MHz</div><div>Sweep 2.133 ms</div></div><div><div>Occupied Bandwidth</div><div>Total Power</div><div>6.35 dBm</div><div>1.1567 MHz</div></div><div><div>Transmit Freq Error</div><div>17.388 kHz</div><div>OBW Power</div><div>99.00 %</div></div><div><div>x dB Bandwidth</div><div>1.273 MHz</div><div>x dB</div><div>-20.00 dB</div></div></div><div><div>MSG</div><div>STATUS</div></div></div> <div><div>Frequency</div><div>Center Freq</div><div>2.402000000 GHz</div><div>CF Step</div><div>200.000 kHz</div><div>Auto</div><div>Man</div><div>Freq Offset</div><div>0 Hz</div></div>

<div>8DPSK/MCH</div>	<div><div><div>Agilent Spectrum Analyzer - Occupied BW</div><div><div><div><div>RL</div><div>RF</div><div>50 Ω</div><div>AC</div></div><div><div>SENSE:PULSE</div><div>ALIGN:AUTO</div><div>04:20:29 PM Jan 24, 2018</div></div></div><div><div>Center Freq 2.441000000 GHz</div><div>Center Freq: 2.441000000 GHz</div><div>Radio Std: None</div></div><div><div>#IFGain:Low</div><div>Trig: Free Run</div><div>Avg Hold: 1/1</div></div><div><div>#Atten: 30 dB</div><div>Radio Device: BTS</div></div></div><div><div>10 dB/div</div><div>Ref Offset 8.01 dB</div><div>Ref 20.00 dBm</div><div>Mkr1 2.441018 GHz</div><div>0.20769 dBm</div><div></div><div><div>Center 2.441 GHz</div><div>#Res BW 30 kHz</div><div>#VBW 100 kHz</div><div>Span 2 MHz</div><div>Sweep 2.133 ms</div></div><div><div>Occupied Bandwidth</div><div>Total Power</div><div>8.88 dBm</div><div>1.1542 MHz</div></div><div><div>Transmit Freq Error</div><div>5.855 kHz</div><div>OBW Power</div><div>99.00 %</div></div><div><div>x dB Bandwidth</div><div>1.261 MHz</div><div>x dB</div><div>-20.00 dB</div></div></div><div><div>MSG</div><div>STATUS</div></div></div><div><div>Frequency</div><div>Center Freq</div><div>2.441000000 GHz</div><div>CF Step</div><div>200.000 kHz</div><div>Auto</div><div>Man</div><div>Freq Offset</div><div>0 Hz</div></div></div>
<div>8DPSK/HCH</div>	<div><div><div>Agilent Spectrum Analyzer - Occupied BW</div><div><div><div><div>RL</div><div>RF</div><div>50 Ω</div><div>AC</div></div><div><div>SENSE:PULSE</div><div>ALIGN:AUTO</div><div>04:22:08 PM Jan 24, 2018</div></div></div><div><div>Center Freq 2.480000000 GHz</div><div>Center Freq: 2.480000000 GHz</div><div>Radio Std: None</div></div><div><div>#IFGain:Low</div><div>Trig: Free Run</div><div>Avg Hold: 1/1</div></div><div><div>#Atten: 30 dB</div><div>Radio Device: BTS</div></div></div><div><div>10 dB/div</div><div>Ref Offset 8.01 dB</div><div>Ref 20.00 dBm</div><div>Mkr1 2.480018 GHz</div><div>0.47879 dBm</div><div></div><div><div>Center 2.48 GHz</div><div>#Res BW 30 kHz</div><div>#VBW 100 kHz</div><div>Span 2 MHz</div><div>Sweep 2.133 ms</div></div><div><div>Occupied Bandwidth</div><div>Total Power</div><div>9.13 dBm</div><div>1.1550 MHz</div></div><div><div>Transmit Freq Error</div><div>6.303 kHz</div><div>OBW Power</div><div>99.00 %</div></div><div><div>x dB Bandwidth</div><div>1.260 MHz</div><div>x dB</div><div>-20.00 dB</div></div></div><div><div>MSG</div><div>STATUS</div></div></div><div><div>Frequency</div><div>Center Freq</div><div>2.480000000 GHz</div><div>CF Step</div><div>200.000 kHz</div><div>Auto</div><div>Man</div><div>Freq Offset</div><div>0 Hz</div></div></div>

Appendix B): Dwell Time
Result Table

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.91	106.7	0.31	0.4	PASS
GFSK	DH5	MCH	2.91	106.7	0.31	0.4	PASS
GFSK	DH5	HCH	2.91	106.7	0.31	0.4	PASS
π /4DQPSK	2DH5	LCH	2.91	106.7	0.312	0.4	PASS
π /4DQPSK	2DH5	MCH	2.91	106.7	0.312	0.4	PASS
π /4DQPSK	2DH5	HCH	2.91	106.7	0.312	0.4	PASS
8DPSK	3DH5	LCH	2.91	106.7	0.312	0.4	PASS
8DPSK	3DH5	MCH	2.91	106.7	0.312	0.4	PASS
8DPSK	3DH5	HCH	2.91	106.7	0.312	0.4	PASS

Test Graph



GFSK DH5/MCH

GFSK DH5/HCH

π/4DQPSK
_2DH5/MCH

π/4DQPSK
2DH5/HCH

8DPSK 3DH5/LCH

8DPSK_3DH5/MCH

8DPSK_3DH5/HCH

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Q AC SENSE:PULSE ALIGN: AUTO 04:20:48 PM Jan 24, 2018

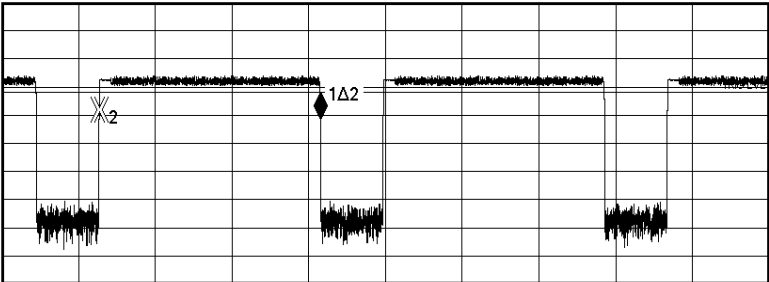
Center Freq 2.441000000 GHz Trig Delay: 2.533 ms Avg Type: Log-Pwr

PN0: Fast IF Gain: Low Trig: Video #Atten: 30 dB

TRACE 1 2 3 4 5 6 TYPE W W W W W W W W DET P P P P P P P

10 dB/div Ref 20.00 dBm

ΔMkr1 2.921 ms -3.53 dB



Center 2.441000000 GHz Span 0 Hz

Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	t	(Δ)	2.921 ms	(Δ)	-3.53 dB		
2	F	t		1.287 ms		-18.21 dBm		
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Q AC SENSE:PULSE ALIGN: AUTO 04:22:27 PM Jan 24, 2018

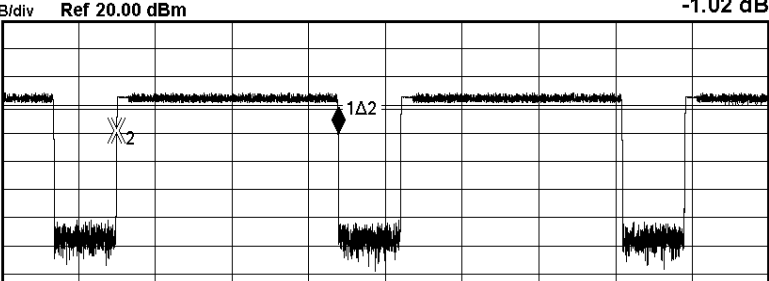
Center Freq 2.480000000 GHz Trig Delay: 2.533 ms Avg Type: Log-Pwr

PN0: Fast IF Gain: Low Trig: Video #Atten: 30 dB

TRACE 1 2 3 4 5 6 TYPE W W W W W W W W DET P P P P P P P

10 dB/div Ref 20.00 dBm

ΔMkr1 2.921 ms -1.02 dB



Center 2.480000000 GHz Span 0 Hz

Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	t	(Δ)	2.921 ms	(Δ)	-1.02 dB		
2	F	t		1.519 ms		-19.37 dBm		
3								
4								
5								
6								
7								
8								
9								
10								
11								

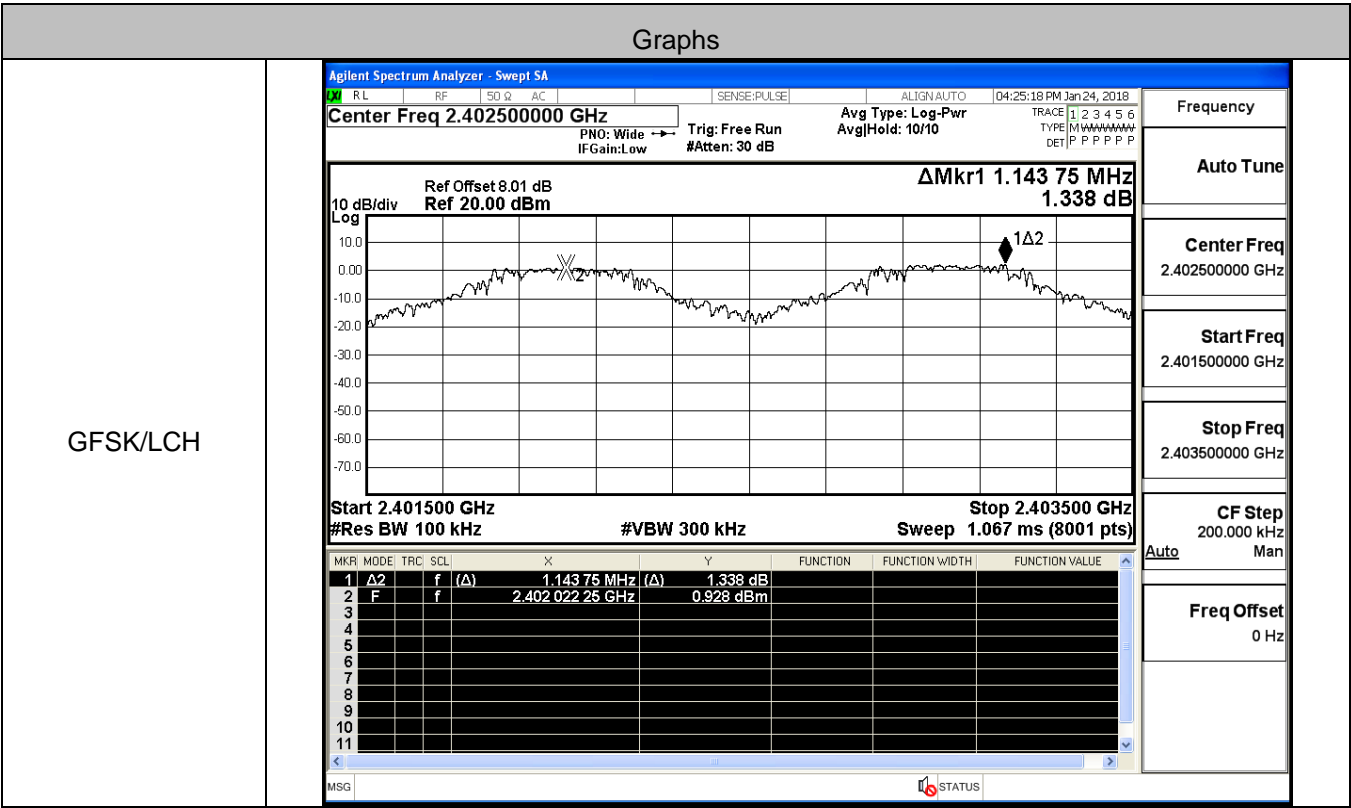
MSG STATUS

Appendix C): Carrier Frequency Separation

Result Table

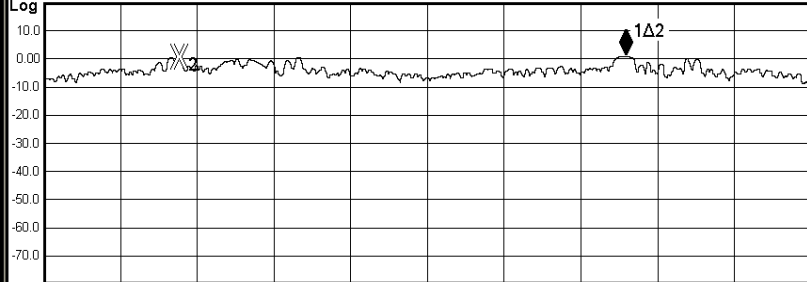
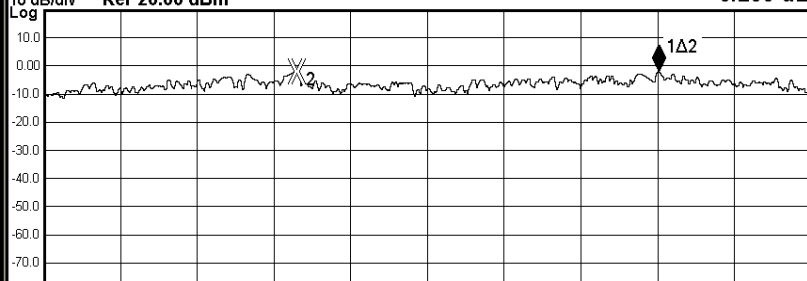
Mode	Channel.	Carrier Frequency Separation [MHz]	Verdict
GFSK	LCH	1.144	PASS
GFSK	MCH	0.982	PASS
GFSK	HCH	1.062	PASS
π /4DQPSK	LCH	1.156	PASS
π /4DQPSK	MCH	1.012	PASS
π /4DQPSK	HCH	1.164	PASS
8DPSK	LCH	0.944	PASS
8DPSK	MCH	1.008	PASS
8DPSK	HCH	1.298	PASS

Test Graph



GFSK/HCH

[illegible]

π/4DQPSK/HCH	<div><div><div>Agilent Spectrum Analyzer - Swept SA</div><div><div><div><div><div>RL</div><div>RF</div><div>50 Ω</div><div>AC</div></div><div>SENSE:PULSE</div><div>ALIGN: AUTO</div><div>04:32:18 PM Jan 24, 2018</div></div></div><div><div>Center Freq 2.479500000 GHz</div><div><div>PN0: Wide →</div><div>Trig: Free Run</div><div>#Avg Type: RMS</div></div><div><div>IFGain: Low</div><div>#Atten: 30 dB</div><div>Avg/Hold: 10/10</div></div></div><div><div>TRACE 1 2 3 4 5 6</div><div>TYPE M W W W W W W W W</div><div>DET P P P P P P P</div></div></div><div><div>Ref Offset 8.01 dB</div><div>Ref 20.00 dBm</div><div>ΔMkr1 1.164 MHz</div><div>0.156 dB</div></div><div><div>10 dB/div</div><div>Log</div><div></div></div><div><div>Start 2.478500 GHz</div><div>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Stop 2.480500 GHz</div><div>Sweep 1.000 ms (1001 pts)</div></div><div><table><tr><th>MKR</th><th>MODE</th><th>TRC</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>Δ2</td><td></td><td>f</td><td>(Δ)</td><td>1.164 MHz</td><td>(Δ)</td><td></td><td>0.156 dB</td></tr><tr><td>2</td><td>F</td><td></td><td>f</td><td></td><td>2.478 852 GHz</td><td></td><td></td><td>0.788 dBm</td></tr><tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></div><div><div>MSG</div><div>STATUS</div></div></div><div><div>Frequency</div><div>Auto Tune</div><div>Center Freq 2.479500000 GHz</div><div>Start Freq 2.478500000 GHz</div><div>Stop Freq 2.480500000 GHz</div><div>CF Step 200.000 kHz</div><div>Auto Man</div><div>Freq Offset 0 Hz</div></div></div>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	Δ2		f	(Δ)	1.164 MHz	(Δ)		0.156 dB	2	F		f		2.478 852 GHz			0.788 dBm	3									4									5									6									7									8									9									10									11									8DPSK/LCH	<div><div><div>Agilent Spectrum Analyzer - Swept SA</div><div><div><div><div><div>RL</div><div>RF</div><div>50 Ω</div><div>AC</div></div><div>SENSE:PULSE</div><div>ALIGN: AUTO</div><div>04:35:57 PM Jan 24, 2018</div></div></div><div><div>Center Freq 2.402500000 GHz</div><div><div>PN0: Wide →</div><div>Trig: Free Run</div><div>#Avg Type: RMS</div></div><div><div>IFGain: Low</div><div>#Atten: 30 dB</div><div>Avg/Hold: 10/10</div></div></div><div><div>TRACE 1 2 3 4 5 6</div><div>TYPE M W W W W W W W W</div><div>DET P P P P P P P</div></div></div><div><div>Ref Offset 8.01 dB</div><div>Ref 20.00 dBm</div><div>ΔMkr1 944 kHz</div><div>0.236 dB</div></div><div><div>10 dB/div</div><div>Log</div><div></div></div><div><div>Start 2.401500 GHz</div><div>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Stop 2.403500 GHz</div><div>Sweep 1.000 ms (1001 pts)</div></div><div><table><tr><th>MKR</th><th>MODE</th><th>TRC</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>Δ2</td><td></td><td>f</td><td>(Δ)</td><td>944 kHz</td><td>(Δ)</td><td></td><td>0.236 dB</td></tr><tr><td>2</td><td>F</td><td></td><td>f</td><td></td><td>2.402 160 GHz</td><td></td><td></td><td>-2.181 dBm</td></tr><tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></div><div><div>MSG</div><div>STATUS</div></div></div><div><div>Frequency</div><div>Auto Tune</div><div>Center Freq 2.402500000 GHz</div><div>Start Freq 2.401500000 GHz</div><div>Stop Freq 2.403500000 GHz</div><div>CF Step 200.000 kHz</div><div>Auto Man</div><div>Freq Offset 0 Hz</div></div></div>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	Δ2		f	(Δ)	944 kHz	(Δ)		0.236 dB	2	F		f		2.402 160 GHz			-2.181 dBm	3									4									5									6									7									8									9									10									11								
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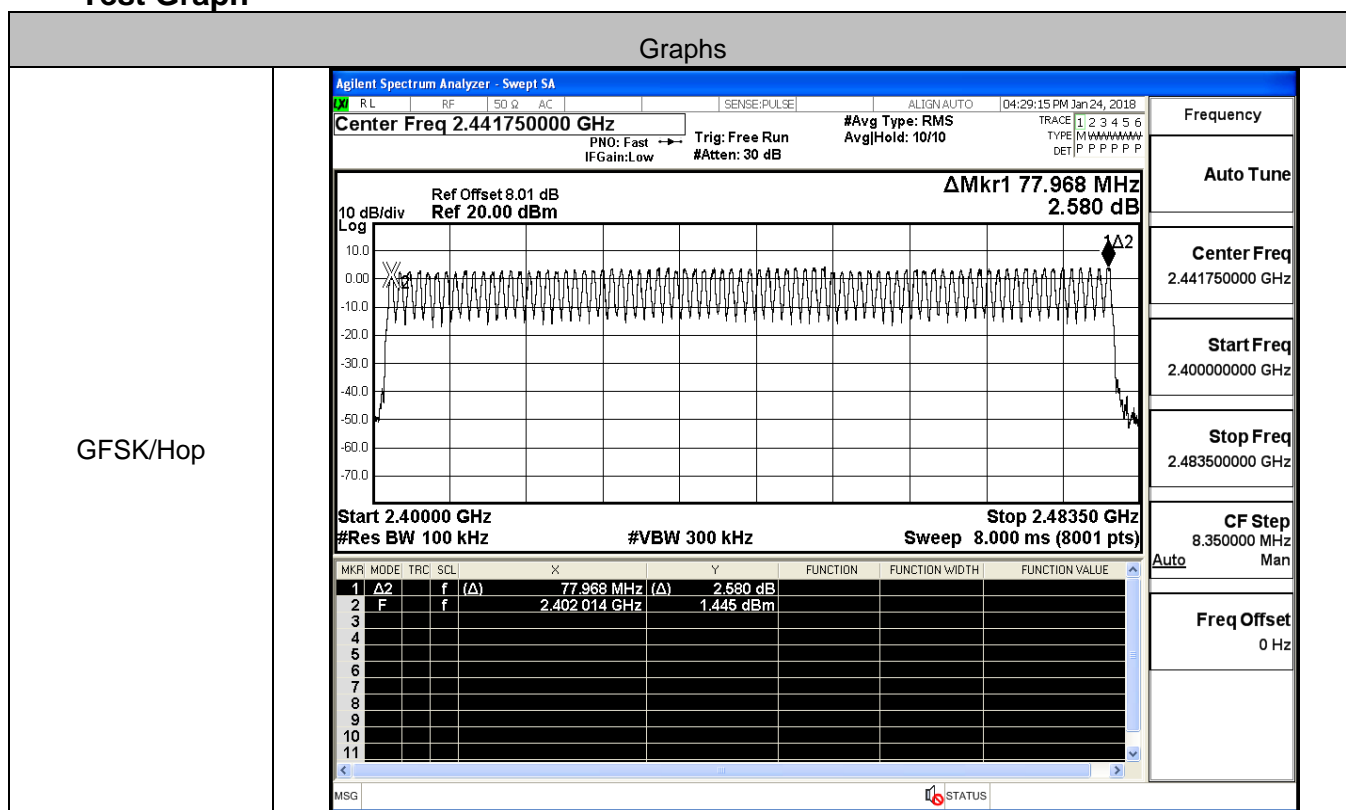
8DPSK/MCH8DPSK/HCH

Appendix D): Hopping Channel Number

Result Table

Mode	Channel.	Number of Hopping Channel	Verdict
GFSK	Hop	79	PASS
$\pi/4$ DQPSK	Hop	79	PASS
8DPSK	Hop	79	PASS

Test Graph

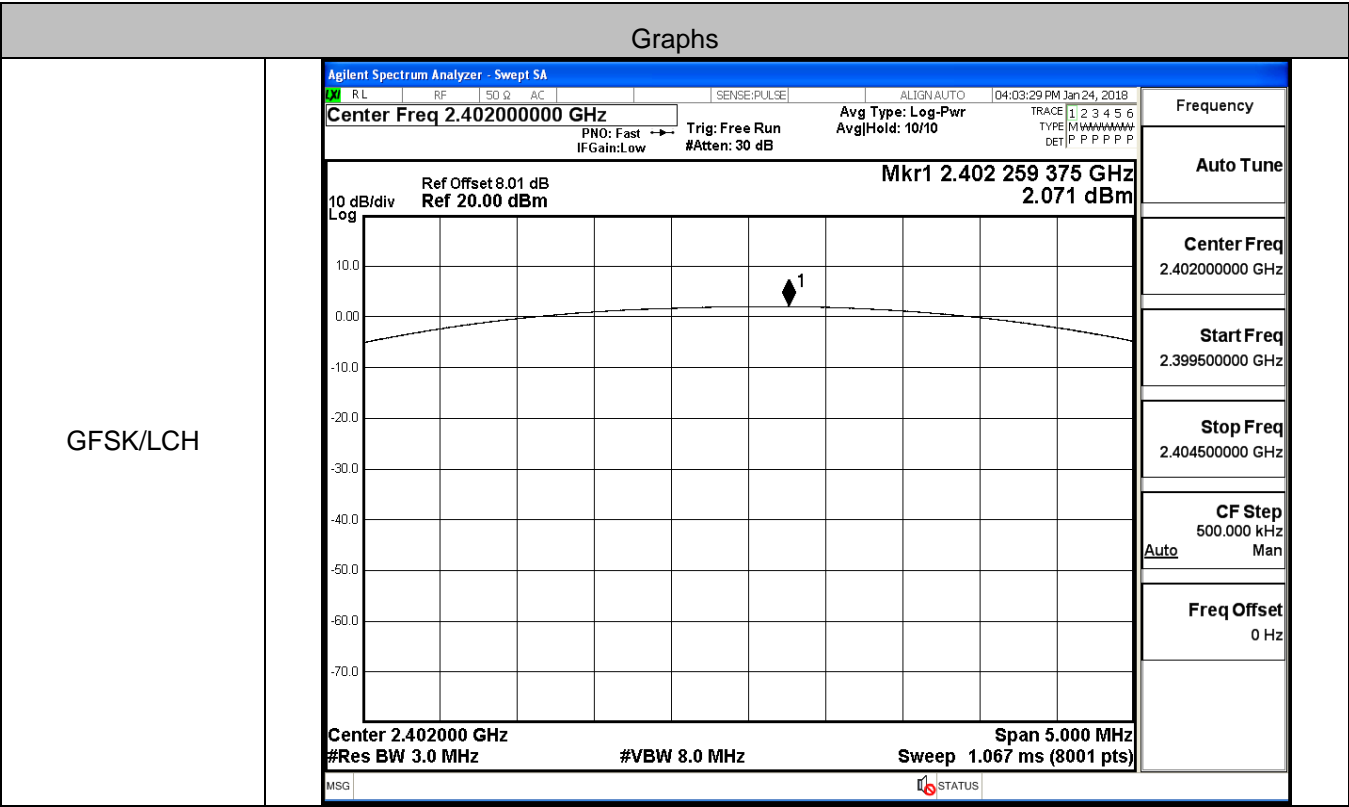


[illegible]

Appendix E): Conducted Peak Output Power
Result Table

Mode	Channel.	Maximum Peak Output Power [dBm]	Verdict
GFSK	LCH	2.071	PASS
GFSK	MCH	4.335	PASS
GFSK	HCH	4.650	PASS
$\pi/4$ DQPSK	LCH	-0.154	PASS
$\pi/4$ DQPSK	MCH	2.324	PASS
$\pi/4$ DQPSK	HCH	2.636	PASS
8DPSK	LCH	0.127	PASS
8DPSK	MCH	2.635	PASS
8DPSK	HCH	2.981	PASS

Test Graph



GFSK/MCH

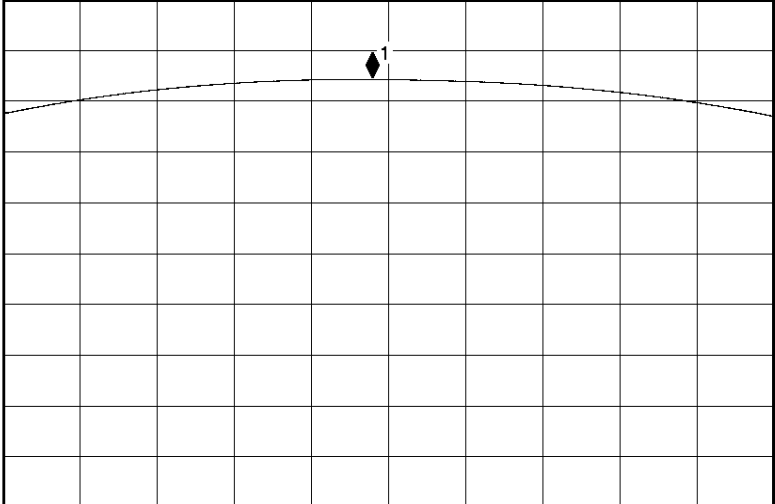
Agilent Spectrum Analyzer - Swept SA

Center Freq 2.441000000 GHz

Ref Offset 8.01 dB
Ref 20.00 dBm

Mkr1 2.440 895 625 GHz
4.335 dBm

10 dB/div
Log



Center 2.441000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Sweep 1.067 ms (8001 pts)

MSG STATUS

Frequency
Auto Tune
Center Freq 2.441000000 GHz
Start Freq 2.438500000 GHz
Stop Freq 2.443500000 GHz
CF Step 500.000 kHz Auto Man
Freq Offset 0 Hz

GFSK/HCH

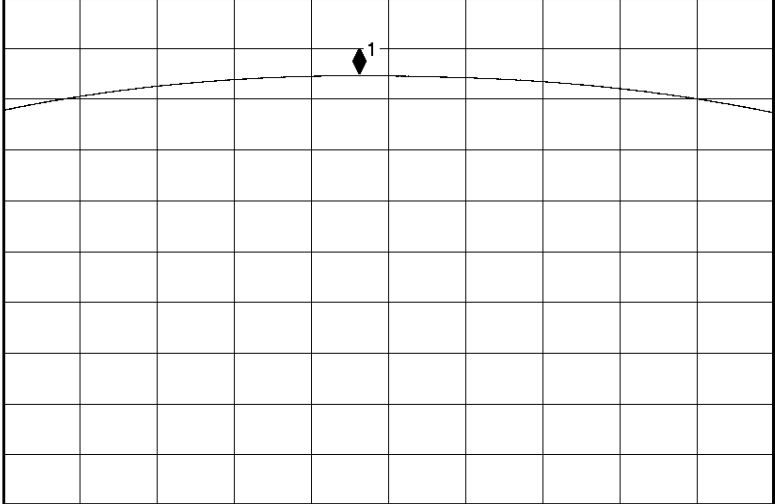
Agilent Spectrum Analyzer - Swept SA

Center Freq 2.480000000 GHz

Ref Offset 8.01 dB
Ref 20.00 dBm

Mkr1 2.479 811 250 GHz
4.650 dBm

10 dB/div
Log



Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Sweep 1.067 ms (8001 pts)

MSG STATUS

Frequency
Auto Tune
Center Freq 2.480000000 GHz
Start Freq 2.477500000 GHz
Stop Freq 2.482500000 GHz
CF Step 500.000 kHz Auto Man
Freq Offset 0 Hz

$\pi/4$ DQPSK/LCH

$\pi/4$ DQPSK/MCH

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.40200000 GHz
PNO: Fast IFGain: Low
Trig: Free Run #Atten: 30 dB
Avg Type: Log-Pwr AvgHld: 10/10
Mkr1 2.402 163 125 GHz -0.154 dBm

Ref Offset 8.01 dB
Ref 20.00 dBm

10 dB/div
Log

Center 2.402000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Sweep 1.067 ms (8001 pts)
Span 5.000 MHz

Frequency
Auto Tune
Center Freq 2.402000000 GHz
Start Freq 2.399500000 GHz
Stop Freq 2.404500000 GHz
CF Step 500.000 kHz
Auto Man
Freq Offset 0 Hz

Agilent Spectrum Analyzer - Swept SA

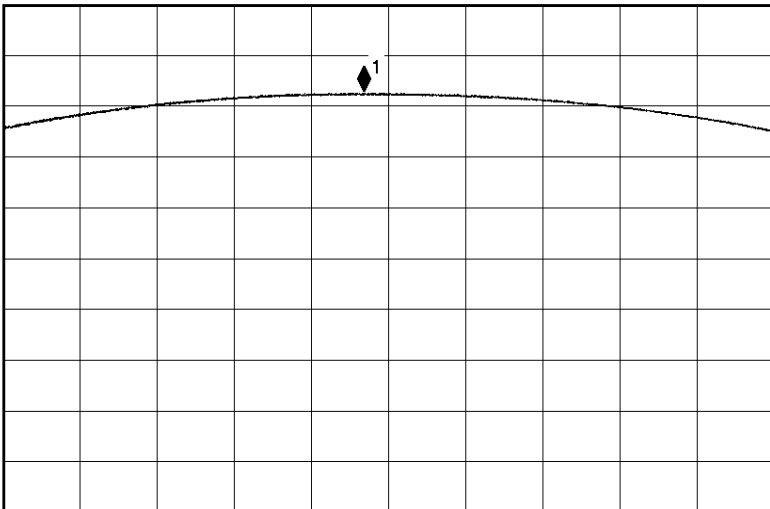
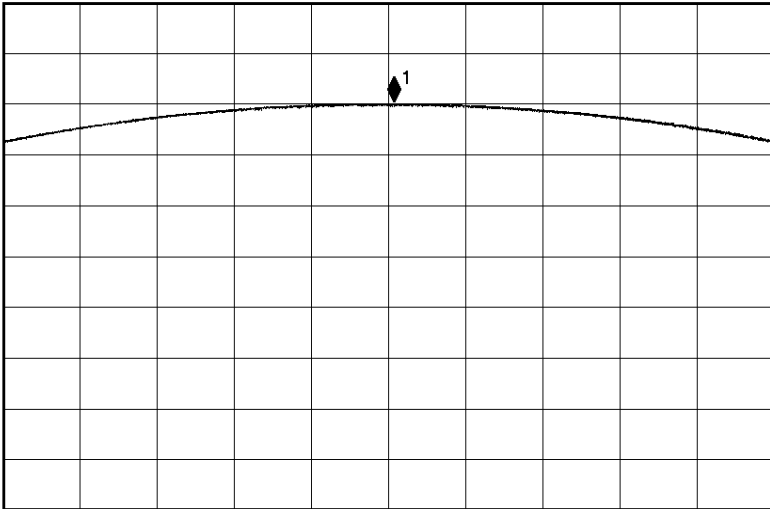
Center Freq 2.441000000 GHz
PNO: Fast IFGain: Low
Trig: Free Run #Atten: 30 dB
Avg Type: Log-Pwr AvgHld: 10/10
Mkr1 2.440 799 375 GHz 2.324 dBm

Ref Offset 8.01 dB
Ref 20.00 dBm

10 dB/div
Log

Center 2.441000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Sweep 1.067 ms (8001 pts)
Span 5.000 MHz

Frequency
Auto Tune
Center Freq 2.441000000 GHz
Start Freq 2.438500000 GHz
Stop Freq 2.443500000 GHz
CF Step 500.000 kHz
Auto Man
Freq Offset 0 Hz

$\pi/4$ DQPSK/HCH	<div><div>Agilent Spectrum Analyzer - Swept SA</div><div><div><div>RL</div><div>RF</div><div>50 Q</div><div>AC</div></div><div>SENSE:PULSE</div><div>ALIGN:AUTO</div><div>04:14:48 PM Jan 24, 2018</div></div><div><div>Center Freq 2.480000000 GHz</div><div>PNO: Fast → IFGain:Low</div><div>Trig: Free Run #Atten: 30 dB</div><div>Avg Type: Log-Pwr AvgHld: 10/10</div><div>TRACE 1 2 3 4 5 6 TYPE M W W W W W W W DET P P P P P P</div></div><div><div>10 dB/div</div><div>Ref Offset 8.01 dB</div><div>Ref 20.00 dBm</div><div>Mkr1 2.479 838 750 GHz 2.636 dBm</div></div><div></div><div><div>Center 2.480000 GHz</div><div>#Res BW 3.0 MHz</div><div>#VBW 8.0 MHz</div><div>Span 5.000 MHz</div><div>Sweep 1.067 ms (8001 pts)</div></div><div>MSGSTATUS</div></div>	<div><div>Frequency</div><div>Auto Tune</div><div>Center Freq 2.480000000 GHz</div><div>Start Freq 2.477500000 GHz</div><div>Stop Freq 2.482500000 GHz</div><div>CF Step 500.000 kHz AutoMan</div><div>Freq Offset 0 Hz</div></div>	
	8DPSK/LCH	<div><div>Agilent Spectrum Analyzer - Swept SA</div><div><div><div>RL</div><div>RF</div><div>50 Q</div><div>AC</div></div><div>SENSE:PULSE</div><div>ALIGN:AUTO</div><div>04:18:41 PM Jan 24, 2018</div></div><div><div>Center Freq 2.402000000 GHz</div><div>PNO: Fast → IFGain:Low</div><div>Trig: Free Run #Atten: 30 dB</div><div>Avg Type: Log-Pwr AvgHld: 10/10</div><div>TRACE 1 2 3 4 5 6 TYPE M W W W W W W W DET P P P P P P</div></div><div><div>10 dB/div</div><div>Ref Offset 8.01 dB</div><div>Ref 20.00 dBm</div><div>Mkr1 2.402 035 000 GHz 0.127 dBm</div></div><div></div><div><div>Center 2.402000 GHz</div><div>#Res BW 3.0 MHz</div><div>#VBW 8.0 MHz</div><div>Span 5.000 MHz</div><div>Sweep 1.067 ms (8001 pts)</div></div><div>MSGSTATUS</div></div>	<div><div>Frequency</div><div>Auto Tune</div><div>Center Freq 2.402000000 GHz</div><div>Start Freq 2.399500000 GHz</div><div>Stop Freq 2.404500000 GHz</div><div>CF Step 500.000 kHz AutoMan</div><div>Freq Offset 0 Hz</div></div>

8DPSK/MCH

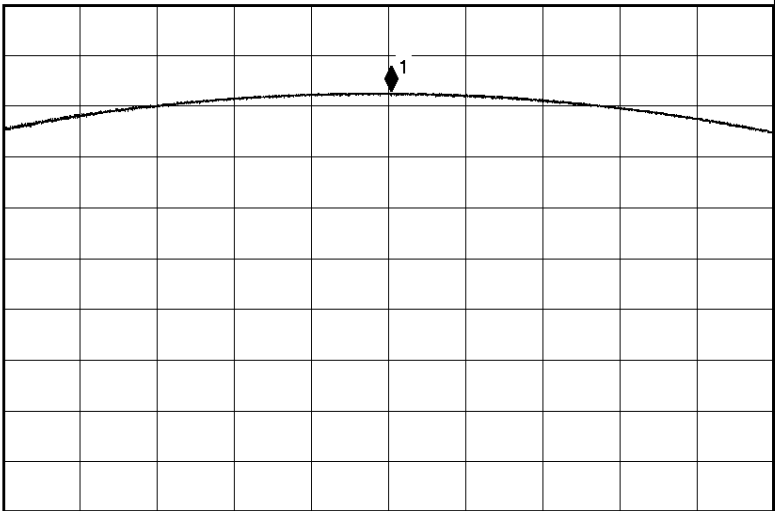
Agilent Spectrum Analyzer - Swept SA

Center Freq 2.441000000 GHz

Ref Offset 8.01 dB
Ref 20.00 dBm

Mkr1 2.441 020 000 GHz
2.635 dBm

10 dB/div
Log



Center 2.441000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Sweep 1.067 ms (8001 pts)

MSG STATUS

Frequency
Auto Tune
Center Freq 2.441000000 GHz
Start Freq 2.438500000 GHz
Stop Freq 2.443500000 GHz
CF Step 500.000 kHz Auto Man
Freq Offset 0 Hz

8DPSK/HCH

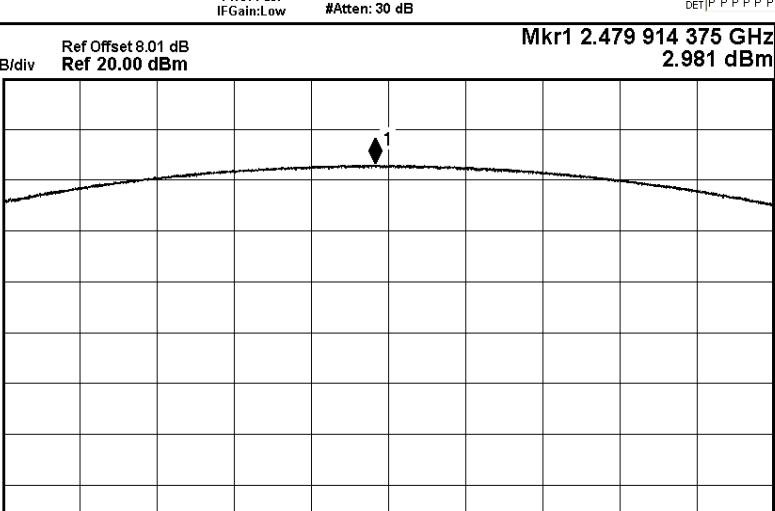
Agilent Spectrum Analyzer - Swept SA

Center Freq 2.480000000 GHz

Ref Offset 8.01 dB
Ref 20.00 dBm

Mkr1 2.479 914 375 GHz
2.981 dBm

10 dB/div
Log



Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Sweep 1.067 ms (8001 pts)

MSG STATUS

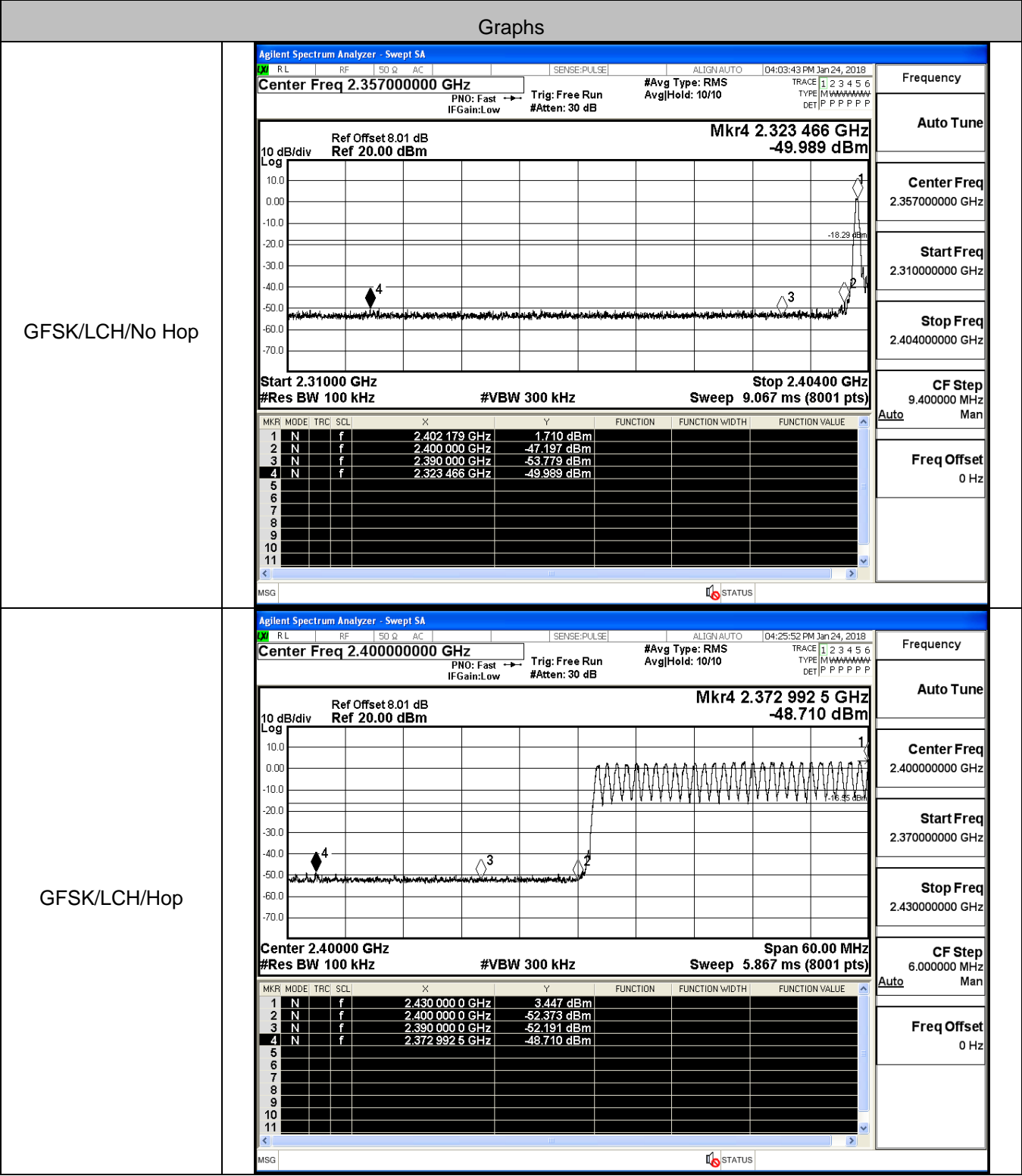
Frequency
Auto Tune
Center Freq 2.480000000 GHz
Start Freq 2.477500000 GHz
Stop Freq 2.482500000 GHz
CF Step 500.000 kHz Auto Man
Freq Offset 0 Hz

Appendix F): Band-edge for RF Conducted Emissions

Result Table

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	1.710	Off	-49.989	-18.29	PASS
			3.447	On	-48.710	-16.55	PASS
GFSK	HCH	2480	4.339	Off	-49.148	-15.66	PASS
			3.953	On	-48.020	-16.05	PASS
$\pi/4$ DQPSK	LCH	2402	-1.902	Off	-50.735	-21.9	PASS
			0.440	On	-49.561	-19.56	PASS
$\pi/4$ DQPSK	HCH	2480	0.994	Off	-50.129	-19.01	PASS
			0.947	On	-49.292	-19.05	PASS
8DPSK	LCH	2402	-1.787	Off	-50.282	-21.79	PASS
			0.292	On	-49.106	-19.71	PASS
8DPSK	HCH	2480	0.994	Off	-49.471	-19.01	PASS
			0.855	On	-49.250	-19.15	PASS

Test Graph



GFSK/HCH/No HopGFSK/HCH/Hop

$\pi/4$ DQPSK/LCH/No Hop

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.402 014 GHz	-1.902 dBm			
2	N		f	2.400 000 GHz	-51.995 dBm			
3	N		f	2.390 000 GHz	-53.010 dBm			
4	N		f	2.369 925 GHz	-50.735 dBm			

$\pi/4$ DQPSK/LCH/Hop

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.429 025 0 GHz	0.440 dBm			
2	N		f	2.400 000 0 GHz	-52.461 dBm			
3	N		f	2.390 000 0 GHz	-51.771 dBm			
4	N		f	2.383 657 5 GHz	-49.561 dBm			

$\pi/4$ DQPSK/HCH/No
Hop

π/4DQPSK/HCH/Hop

8DPSK/LCH/No Hop

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.402 179 GHz	-1.787 dBm			
2	N		f	2.400 000 GHz	-50.451 dBm			
3	N		f	2.390 000 GHz	-53.660 dBm			
4	N		f	2.385 823 GHz	-50.282 dBm			

8DPSK/LCH/Hop

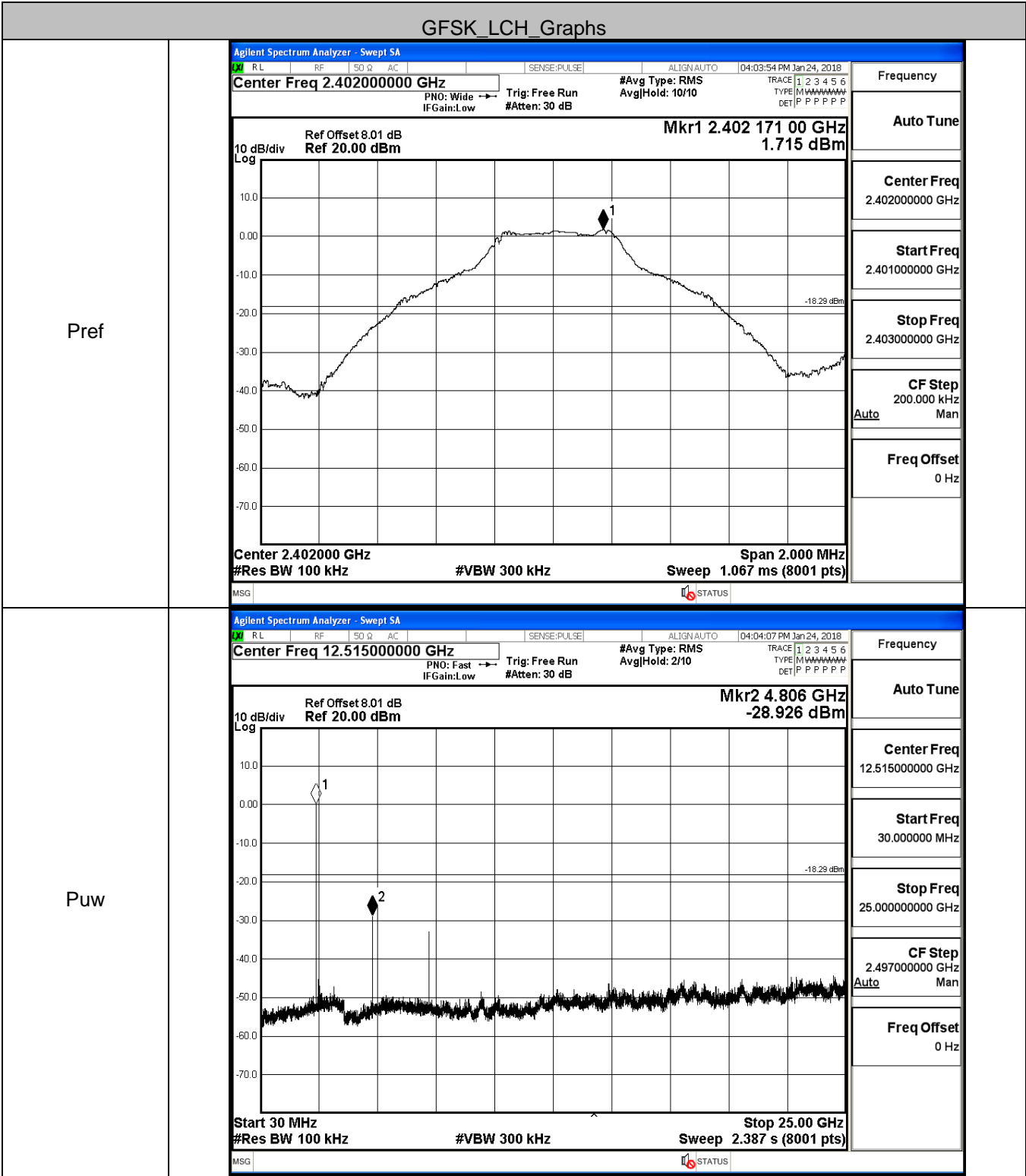
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.427 015 0 GHz	0.292 dBm			
2	N		f	2.400 000 0 GHz	-52.423 dBm			
3	N		f	2.390 000 0 GHz	-51.629 dBm			
4	N		f	2.374 650 0 GHz	-49.106 dBm			

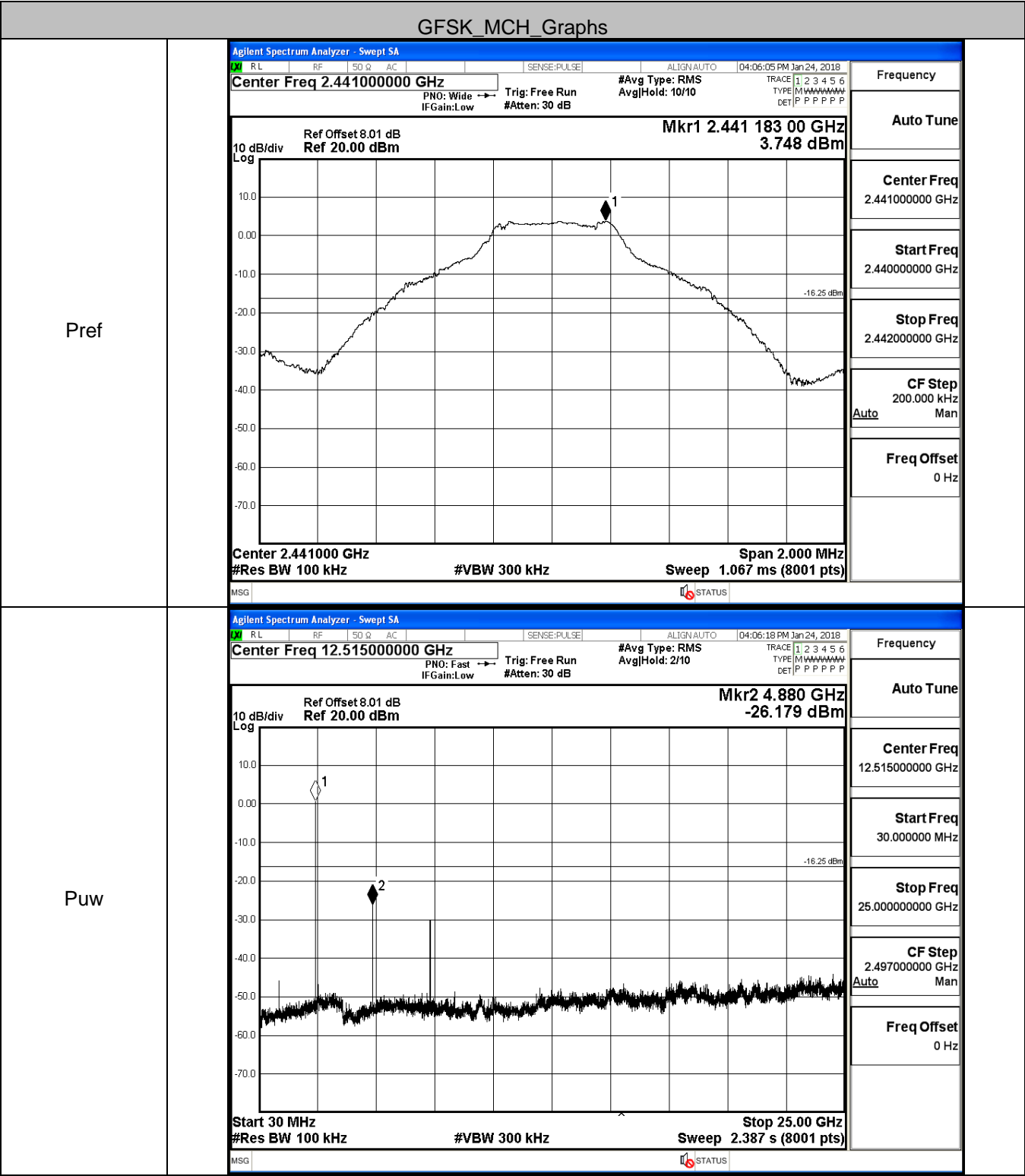
8DPSK/HCH/No Hop8DPSK/HCH/Hop

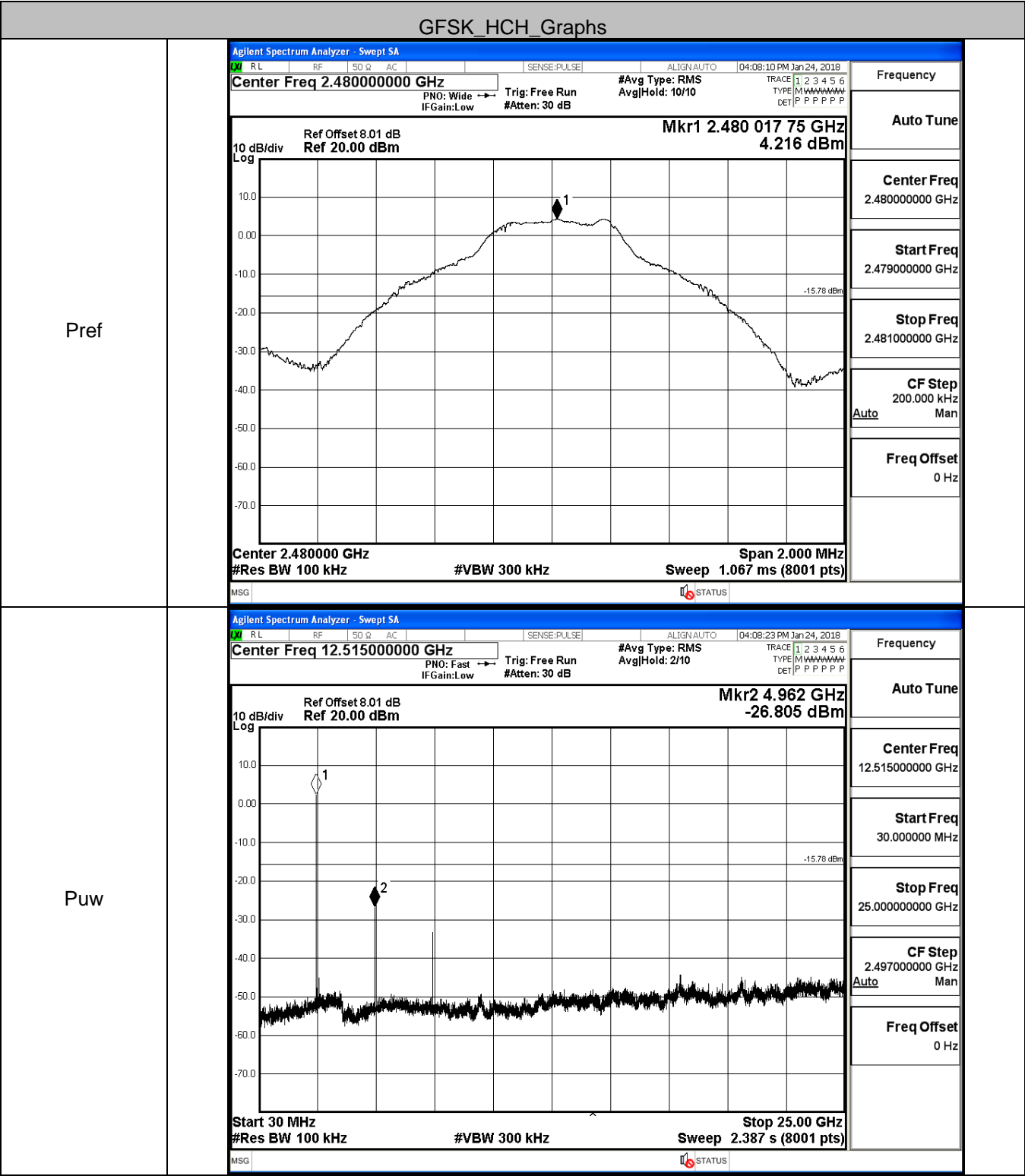
Appendix G): RF Conducted Spurious Emissions**Result Table**

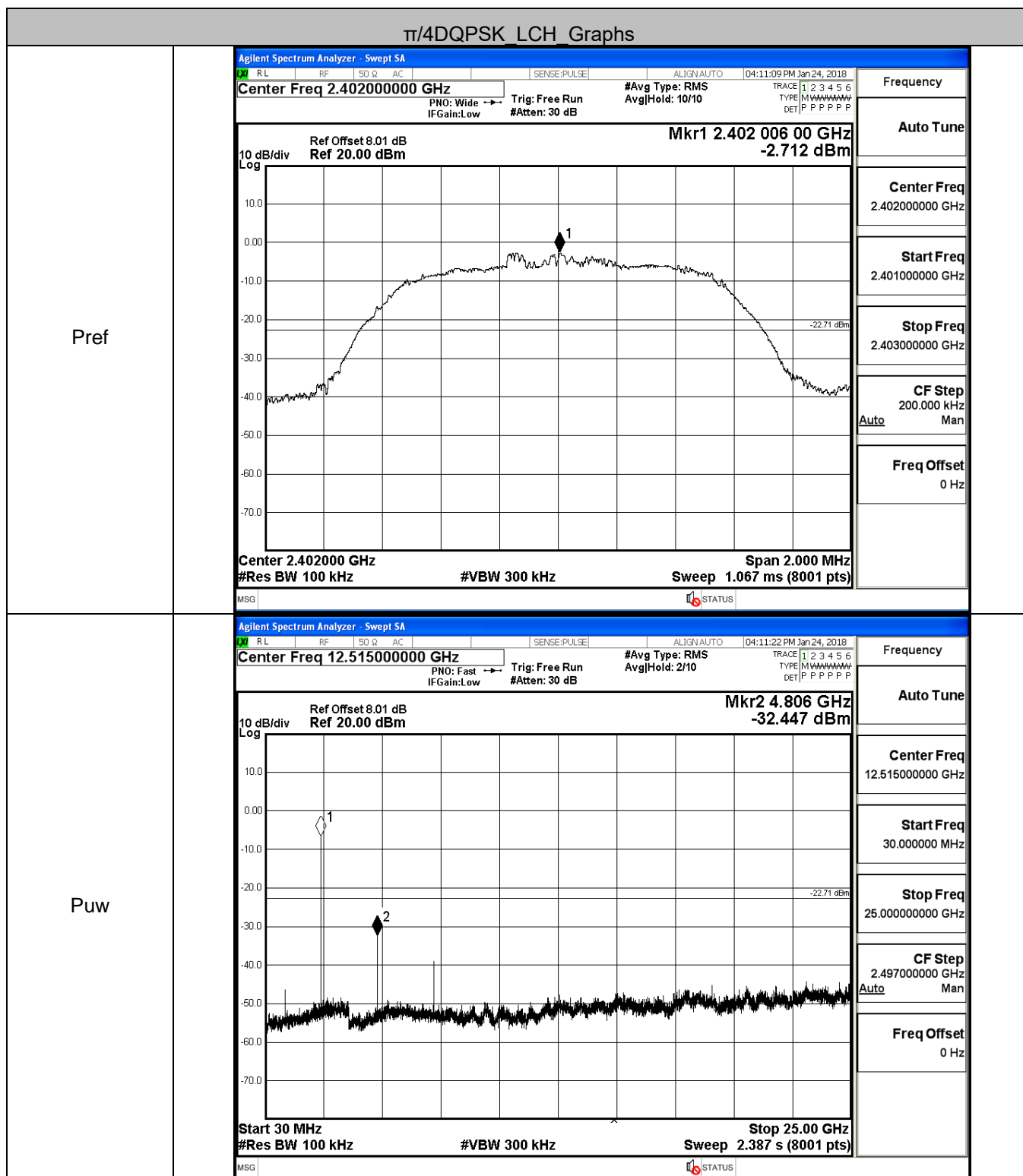
Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
GFSK	LCH	1.715	<Limit	PASS
GFSK	MCH	3.748	<Limit	PASS
GFSK	HCH	4.216	<Limit	PASS
$\pi/4$ DQPSK	LCH	-2.712	<Limit	PASS
$\pi/4$ DQPSK	MCH	0.629	<Limit	PASS
$\pi/4$ DQPSK	HCH	0.817	<Limit	PASS
8DPSK	LCH	-1.78	<Limit	PASS
8DPSK	MCH	0.621	<Limit	PASS
8DPSK	HCH	0.99	<Limit	PASS

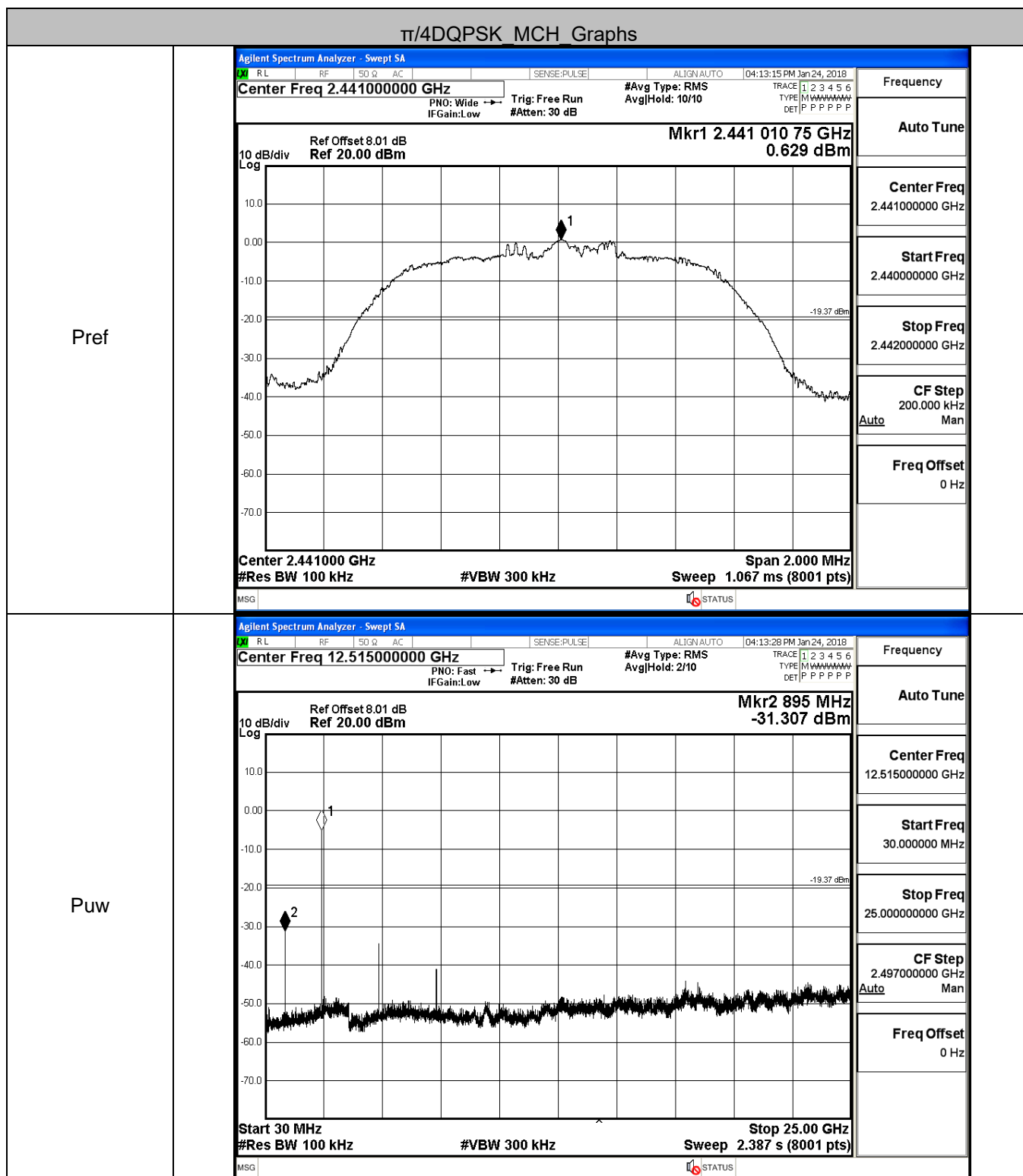
Test Graph

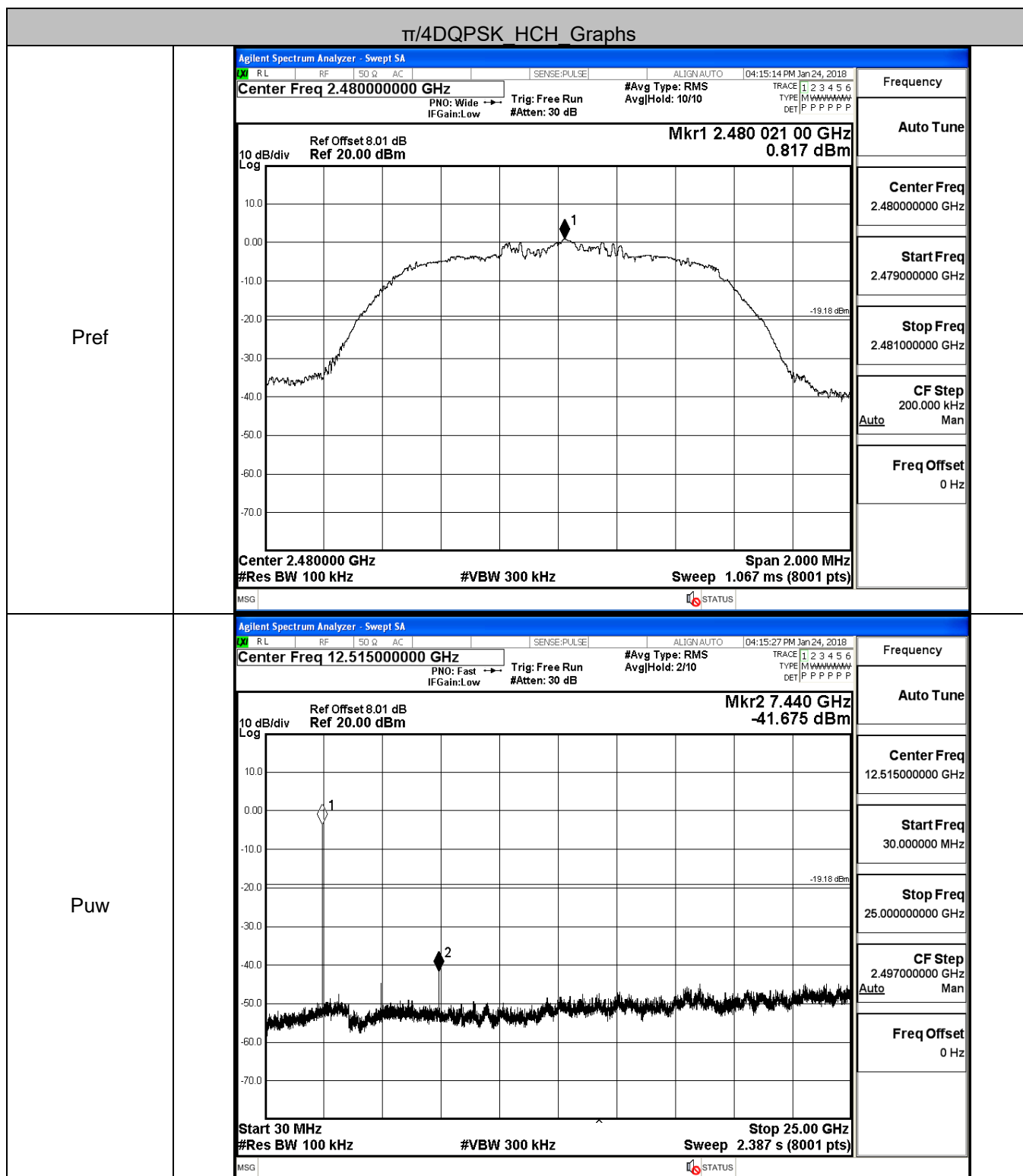


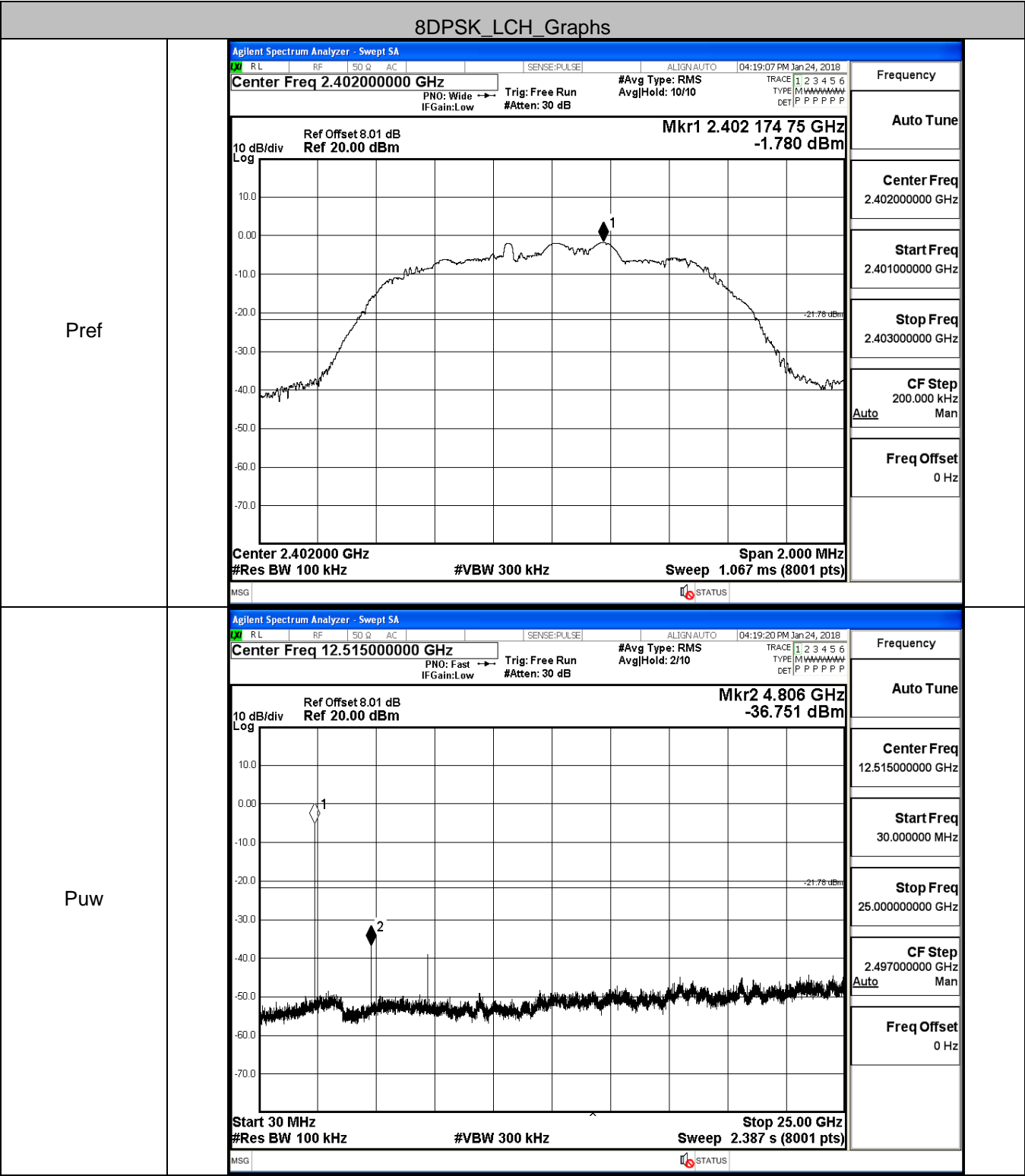


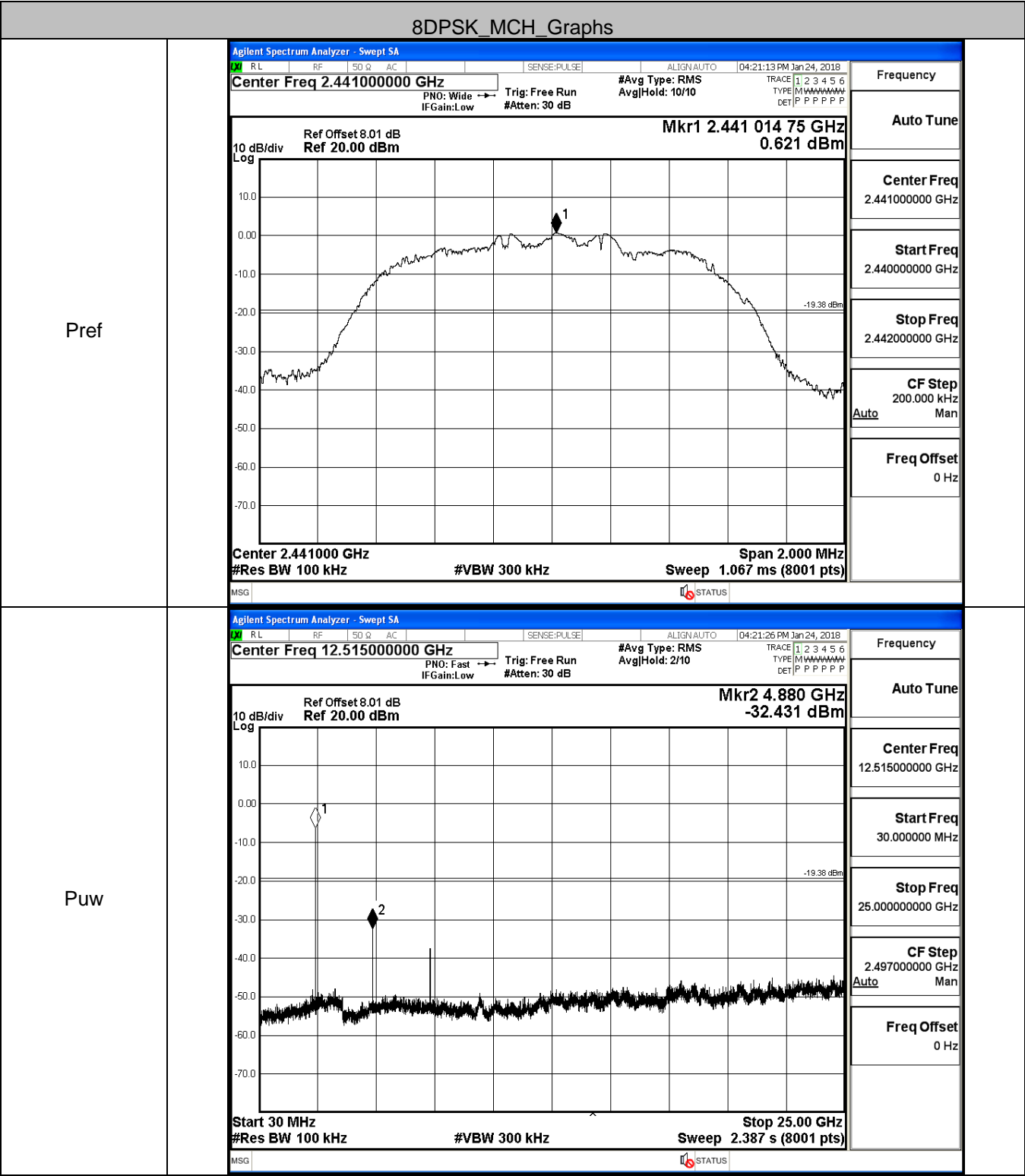


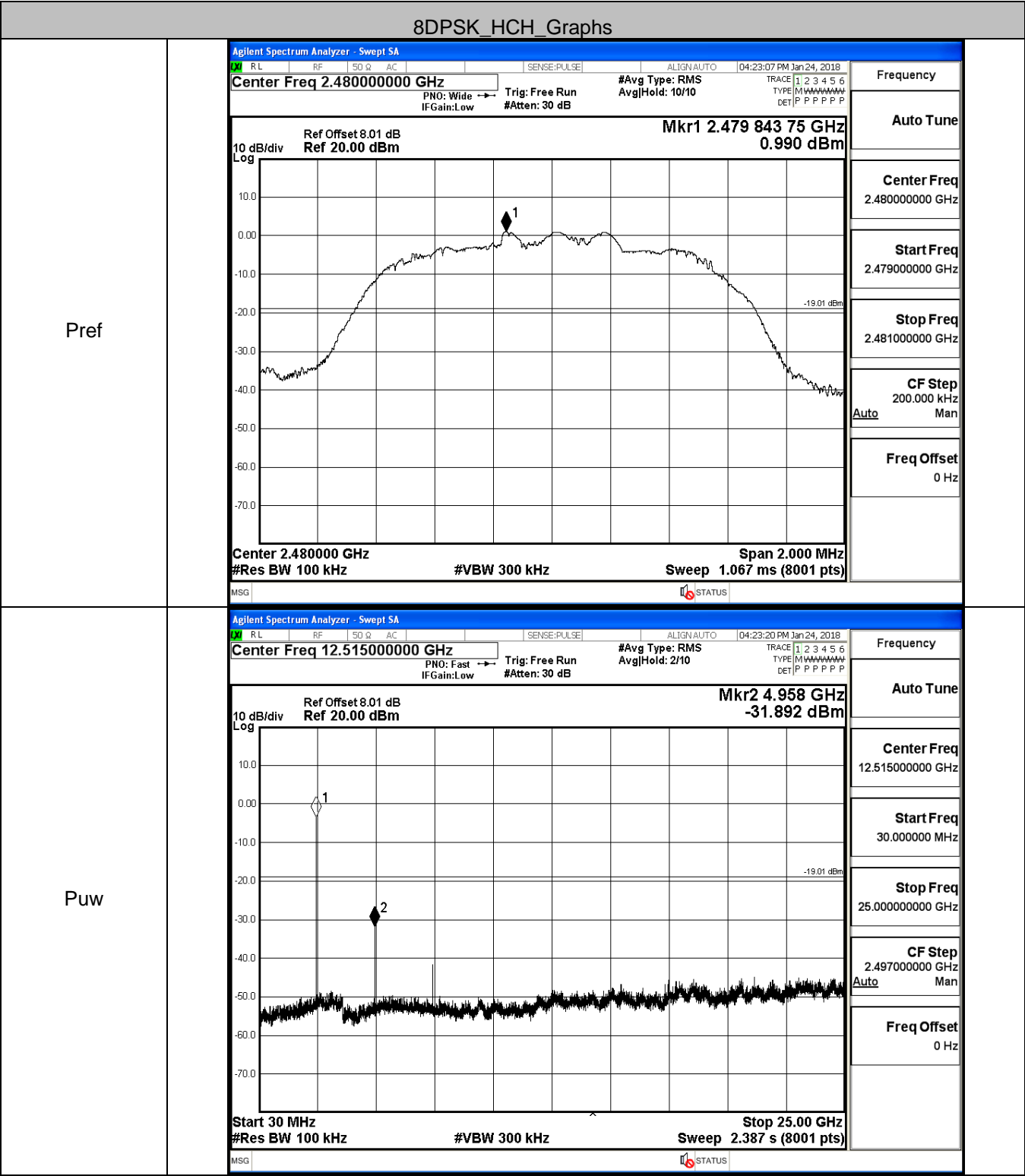












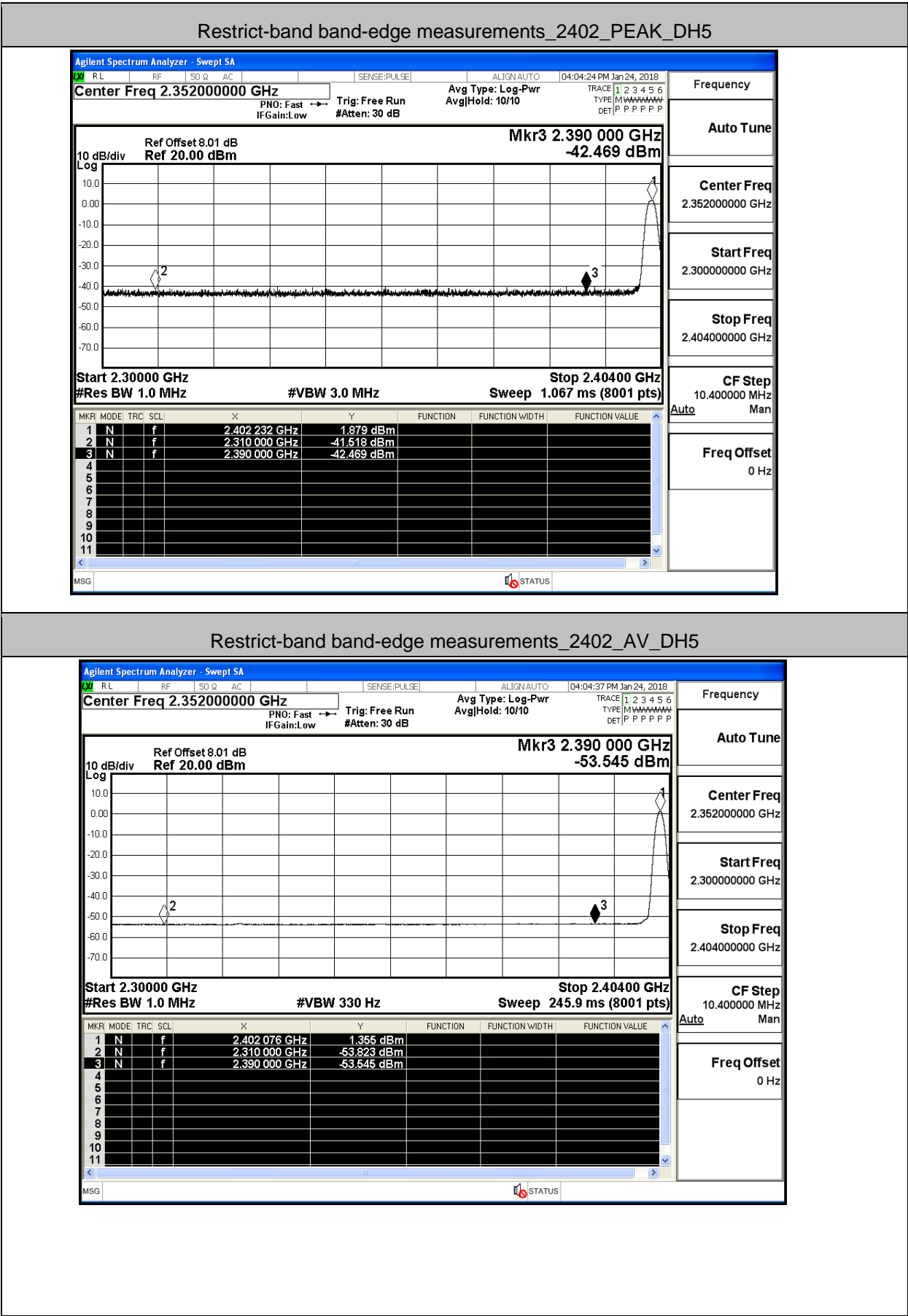
. Appendix H):Restrict-band band-edge measurements

Result Table

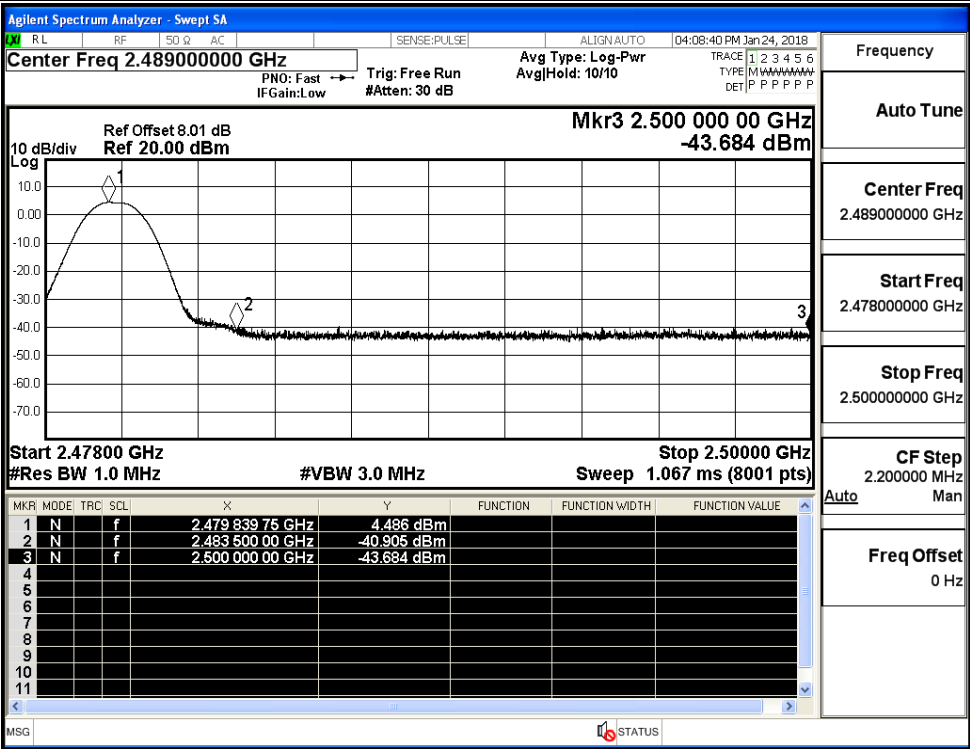
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK_DH5	On	2310.0	-41.52	2	0	53.74	PEAK	74	PASS
GFSK_DH5	On	2310.0	-53.82	2	0	41.43	AV	54	PASS
GFSK_DH5	On	2390.0	-42.47	2	0	52.79	PEAK	74	PASS
GFSK_DH5	On	2390.0	-53.55	2	0	41.71	AV	54	PASS
GFSK_DH5	On	2483.5	-40.91	2	0	54.35	PEAK	74	PASS
GFSK_DH5	On	2483.5	-51.17	2	0	44.08	AV	54	PASS
GFSK_DH5	On	2500.0	-43.68	2	0	51.57	PEAK	74	PASS
GFSK_DH5	On	2500.0	-53.07	2	0	42.19	AV	54	PASS
$\pi/4$ DQPSK_2DH5	On	2310.0	-43.37	2	0	51.89	PEAK	74	PASS
$\pi/4$ DQPSK_2DH5	On	2310.0	-53.92	2	0	41.34	AV	54	PASS
$\pi/4$ DQPSK_2DH5	On	2390.0	-43.91	2	0	51.35	PEAK	74	PASS
$\pi/4$ DQPSK_2DH5	On	2390.0	-53.63	2	0	41.63	AV	54	PASS
$\pi/4$ DQPSK_2DH5	On	2483.5	-42.63	2	0	52.63	PEAK	74	PASS
$\pi/4$ DQPSK_2DH5	On	2483.5	-52.70	2	0	42.55	AV	54	PASS

$\pi/4$ DQPSK_2DH5	On	2500.0	-42.83	2	0	52.43	PEAK	74	PAS S
$\pi/4$ DQPSK_2DH5	On	2500.0	-53.19	2	0	42.07	AV	54	PAS S
8DPSK_3DH5	On	2310.0	-44.84	2	0	50.42	PEAK	74	PAS S
8DPSK_3DH5	On	2310.0	-53.91	2	0	41.35	AV	54	PAS S
8DPSK_3DH5	On	2390.0	-44.01	2	0	51.25	PEAK	74	PAS S
8DPSK_3DH5	On	2390.0	-53.58	2	0	41.68	AV	54	PAS S
8DPSK_3DH5	On	2483.5	-43.70	2	0	51.56	PEAK	74	PAS S
8DPSK_3DH5	On	2483.5	-52.66	2	0	42.59	AV	54	PAS S
8DPSK_3DH5	On	2500.0	-42.85	2	0	52.41	PEAK	74	PAS S
8DPSK_3DH5	On	2500.0	-53.23	2	0	42.03	AV	54	PAS S

Test Graph



Restrict-band band-edge measurements_2480_PEAK_DH5



Restrict-band band-edge measurements_2480_AV_DH5

