

## Appendix A: Test Result of Conducted Test

### 20dB Occupied Bandwidth

#### Test Result

Mode	Channel.	20dB Bandwidth [MHz]	99% OBW [MHz]	Verdict
GFSK	LCH	0.9597	0.87385	PASS
GFSK	MCH	0.9420	0.86503	PASS
GFSK	HCH	0.9442	0.86201	PASS
$\pi/4$ DQPSK	LCH	1.276	1.1747	PASS
$\pi/4$ DQPSK	MCH	1.304	1.1736	PASS
$\pi/4$ DQPSK	HCH	1.226	1.1681	PASS
8DPSK	LCH	1.277	1.1650	PASS
8DPSK	MCH	1.261	1.1664	PASS
8DPSK	HCH	1.344	1.2299	PASS

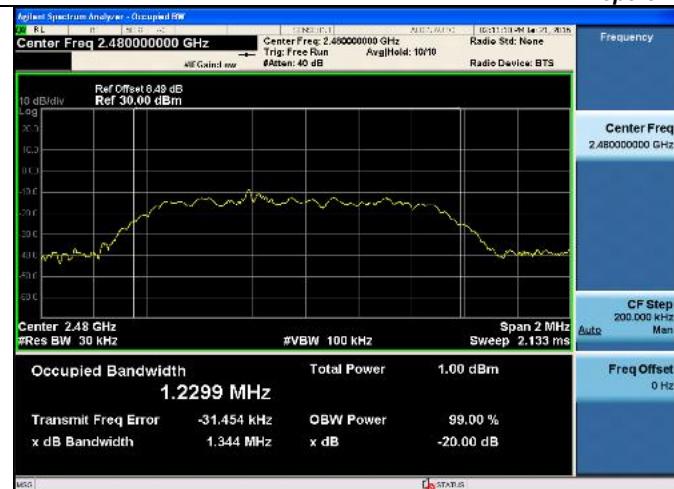
#### Test Graph



GFSK/HCH	 <p><b>Occupied Bandwidth:</b> 862.01 kHz  <b>Total Power:</b> 6.87 dBm  <b>Transmit Freq Error:</b> -9.524 kHz  <b>x dB Bandwidth:</b> 944.2 kHz  <b>OBW Power:</b> 99.00 %  <b>x dB:</b> -20.00 dB</p>
$\pi/4$ DQPSK/LCH	 <p><b>Occupied Bandwidth:</b> 1.1747 MHz  <b>Total Power:</b> 1.42 dBm  <b>Transmit Freq Error:</b> 1.073 kHz  <b>x dB Bandwidth:</b> 1.276 MHz  <b>OBW Power:</b> 99.00 %  <b>x dB:</b> -20.00 dB</p>
$\pi/4$ DQPSK/MCH	 <p><b>Occupied Bandwidth:</b> 1.1736 MHz  <b>Total Power:</b> 2.76 dBm  <b>Transmit Freq Error:</b> -9.402 kHz  <b>x dB Bandwidth:</b> 1.304 MHz  <b>OBW Power:</b> 99.00 %  <b>x dB:</b> -20.00 dB</p>

$\pi/4$ DQPSK/HCH	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.480000000 GHz</p> <p>Ref Offset 8.49 dB Ref 30.00 dBm</p> <p>Center 2.48 GHz #Res BW 30 kHz #VBW 100 kHz Span 2 MHz Sweep 2.133 ms</p> <p>Occupied Bandwidth 1.1681 MHz Total Power 3.58 dBm</p> <p>Transmit Freq Error -9.837 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 1.226 MHz x dB -20.00 dB</p>
$8$ DPSK/LCH	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.402000000 GHz</p> <p>Ref Offset 6.59 dB Ref 30.00 dBm</p> <p>Center 2.402 GHz #Res BW 30 kHz #VBW 100 kHz Span 2 MHz Sweep 2.133 ms</p> <p>Occupied Bandwidth 1.1650 MHz Total Power 2.22 dBm</p> <p>Transmit Freq Error 5.866 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 1.277 MHz x dB -20.00 dB</p>
$8$ DPSK/MCH	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.441000000 GHz</p> <p>Ref Offset 8.49 dB Ref 30.00 dBm</p> <p>Center 2.441 GHz #Res BW 30 kHz #VBW 100 kHz Span 2 MHz Sweep 2.133 ms</p> <p>Occupied Bandwidth 1.1664 MHz Total Power 3.64 dBm</p> <p>Transmit Freq Error -6.834 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 1.261 MHz x dB -20.00 dB</p>

8DPSK/HCH



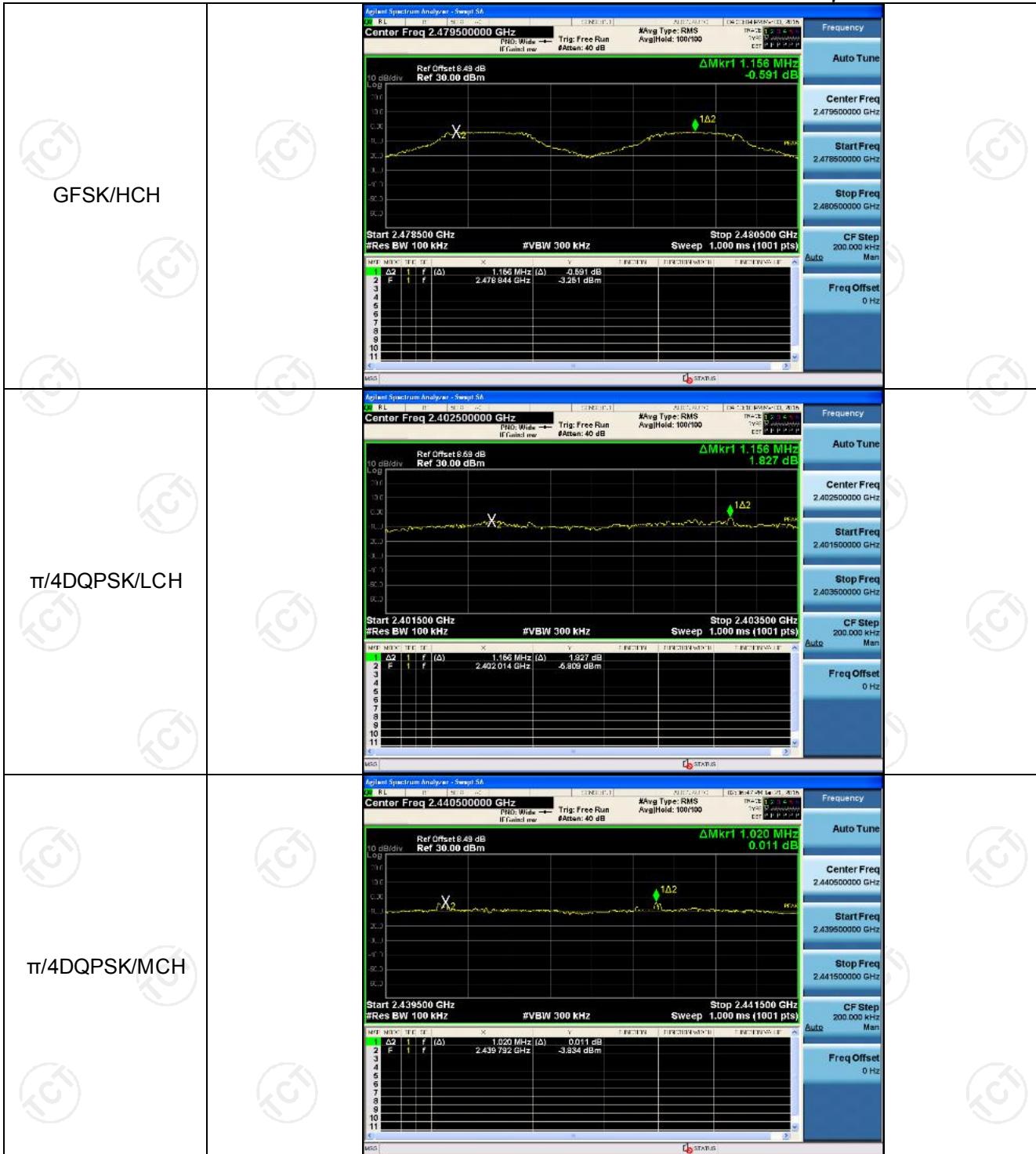
## Carrier Frequency Separation

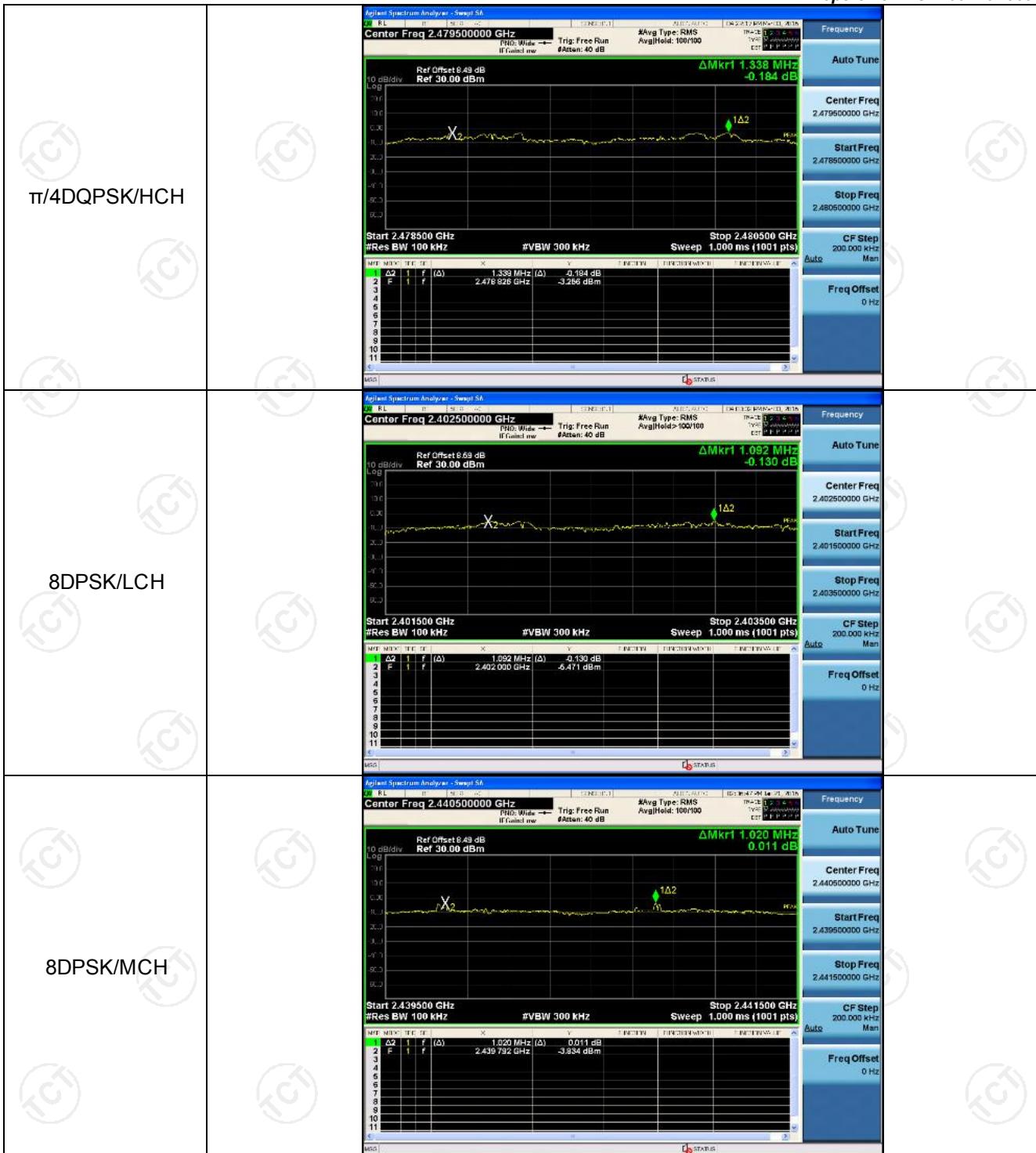
### Result Table

Mode	Channel.	Carrier Frequency Separation [MHz]	Verdict
GFSK	LCH	1.008	PASS
GFSK	MCH	1.190	PASS
GFSK	HCH	1.156	PASS
$\pi/4$ DQPSK	LCH	1.156	PASS
$\pi/4$ DQPSK	MCH	1.020	PASS
$\pi/4$ DQPSK	HCH	1.338	PASS
8DPSK	LCH	1.092	PASS
8DPSK	MCH	1.020	PASS
8DPSK	HCH	1.314	PASS

### Test Graph







8DPSK/HCH



## Dwell Time

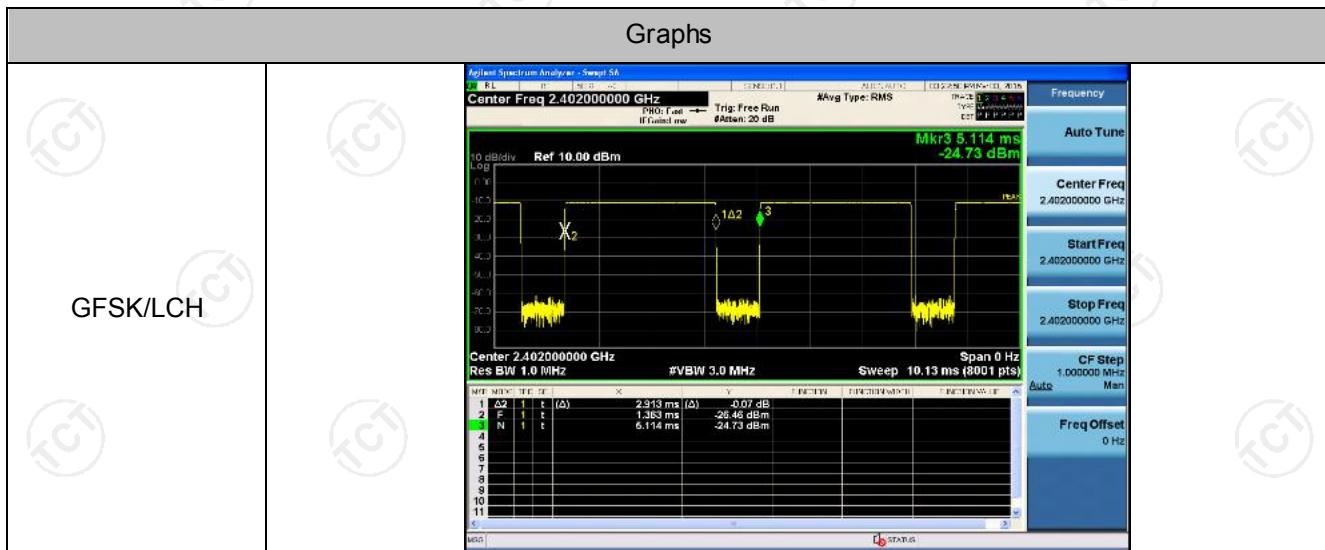
### Result Table

The Dwell Time=Burst Width\*Total Hops. The detailed calculations are showed as follows:

- The duration for dwell time calculation:  $0.4[\text{s}]*\text{hopping number}=0.4[\text{s}]*79[\text{ch}]=31.6[\text{s}*\text{ch}]$ ;
- The burst width [ms/hop/ch], which is directly measured, refers to the duration on one channel hop.
- The hops per second for all channels: The selected EUT Conf uses a slot type of 5-Tx&1-Rx and a hopping rate of 1600 [ch\*hop/s] for all channels. So the final hopping rate for all channels is  $1600/6=266.67 [\text{ch}*\text{hop}/\text{s}]$
- The hops per second on one channel:  $266.67 [\text{ch}*\text{hop}/\text{s}]/79 [\text{ch}]=3.38 [\text{hop}/\text{s}]$ ;
- The total hops for all channels within the dwell time calculation duration:  $3.38 [\text{hop}/\text{s}]*31.6[\text{s}*\text{ch}]=106.67 [\text{hop}*\text{ch}]$ ;
- The dwell time for all channels hopping:  $106.67 [\text{hop}*\text{ch}]*\text{Burst Width} [\text{ms}/\text{hop}/\text{ch}]$ .

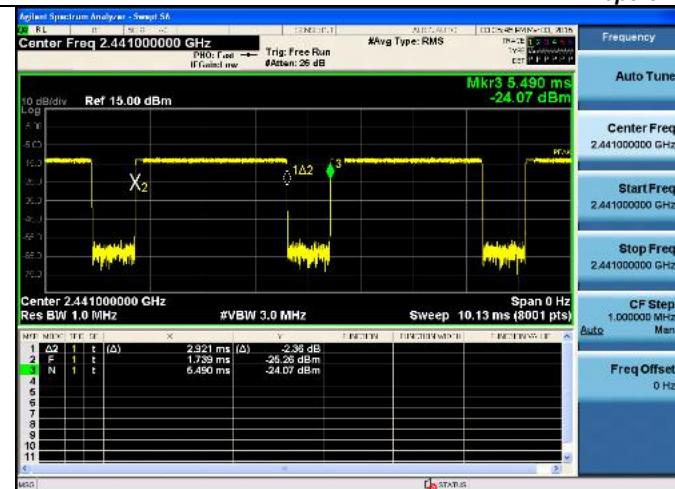
Mode	Chan nel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Duty Cycle [%]	Verdic t
GFSK	LCH	2.913	106.7	0.311	77.68	PASS
GFSK	MCH	2.913	106.7	0.311	77.70	PASS
GFSK	HCH	2.912	106.7	0.311	77.67	PASS
$\pi/4$ DQPSK	LCH	2.920	106.7	0.312	77.87	PASS
$\pi/4$ DQPSK	MCH	2.921	106.7	0.312	77.88	PASS
$\pi/4$ DQPSK	HCH	2.920	106.7	0.312	77.85	PASS
8DPSK	LCH	2.921	106.7	0.312	77.88	PASS
8DPSK	MCH	2.921	106.7	0.312	77.91	PASS
8DPSK	HCH	2.921	106.7	0.312	77.91	PASS

### Test Graph

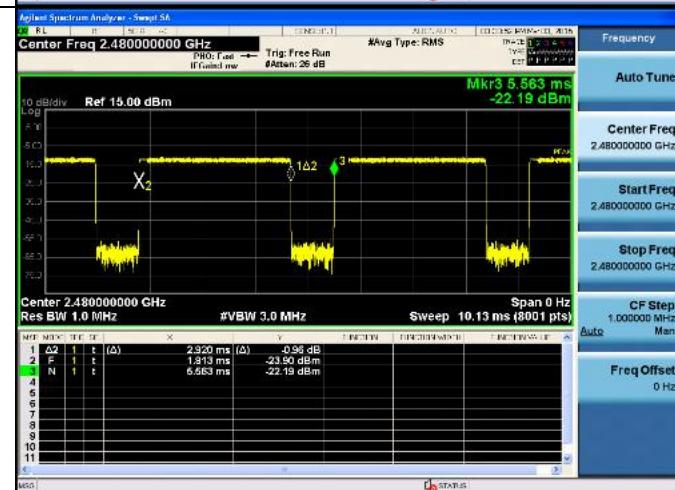




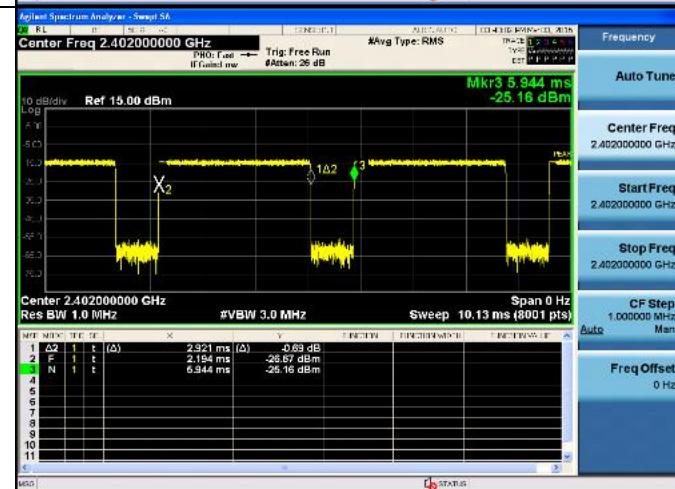
π/4DQPSK/MCH



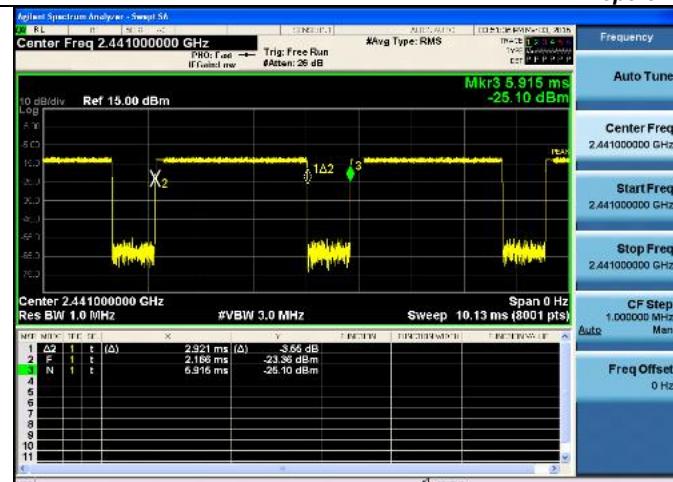
π/4DQPSK/HCH



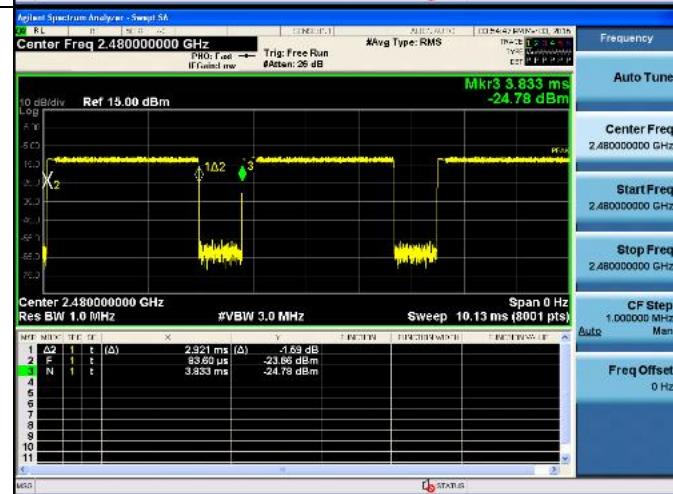
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

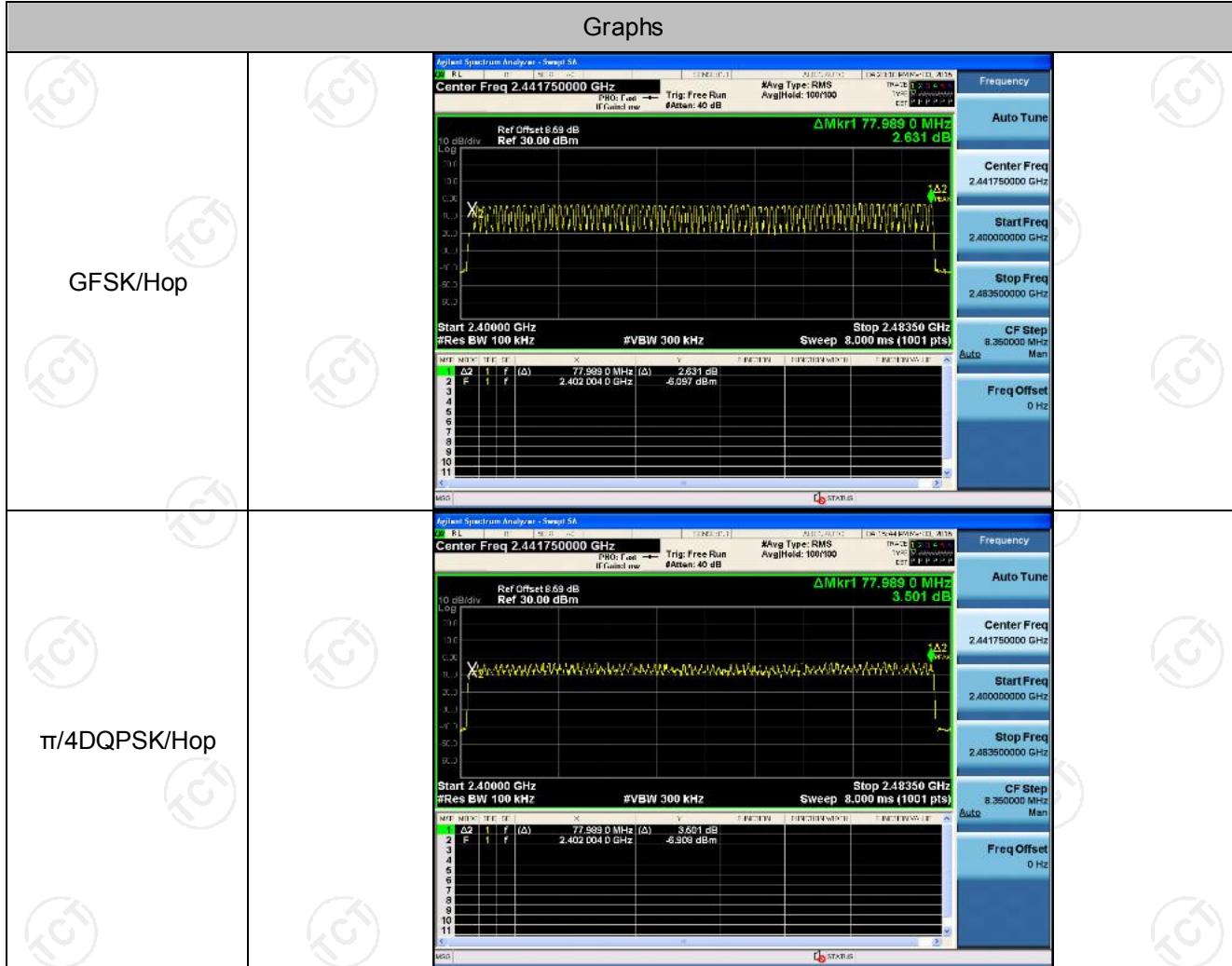


## Hopping Channel Number

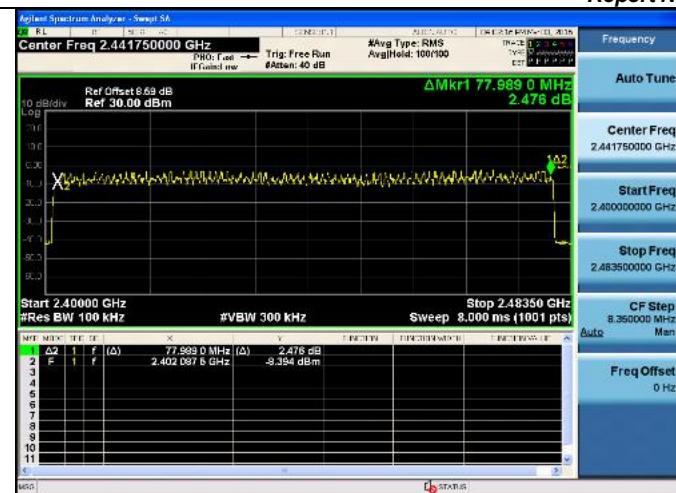
### Result Table

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

### Test Graph



8DPSK/Hop



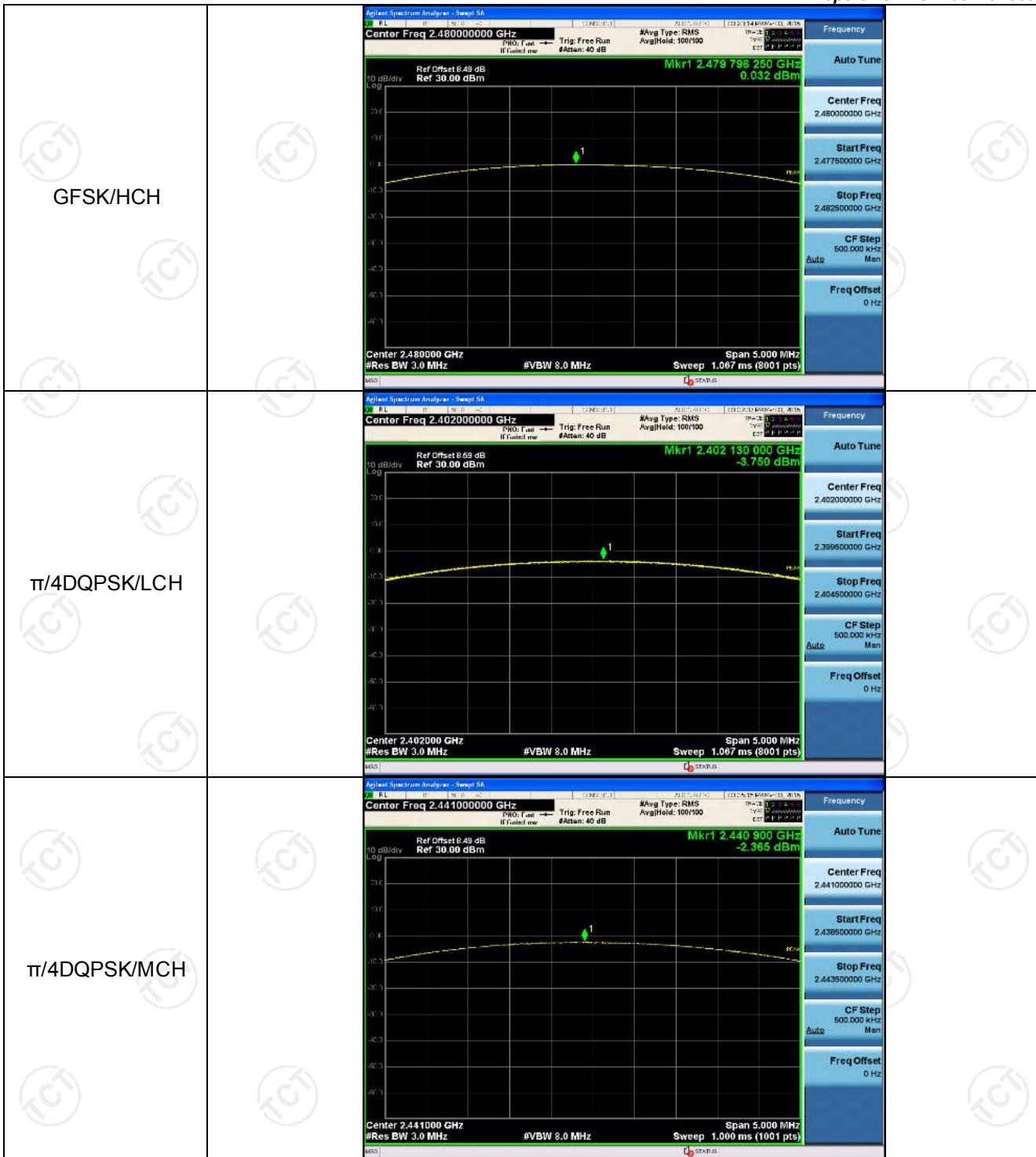
## Conducted Peak Output Power

### Result Table

Mode	Channel.	Maximum Peak Output Power [dBm]	Verdict
GFSK	LCH	-1.618	PASS
GFSK	MCH	-0.760	PASS
GFSK	HCH	0.032	PASS
$\pi/4$ DQPSK	LCH	-3.750	PASS
$\pi/4$ DQPSK	MCH	-2.365	PASS
$\pi/4$ DQPSK	HCH	-1.679	PASS
8DPSK	LCH	-3.361	PASS
8DPSK	MCH	-2.057	PASS
8DPSK	HCH	-1.370	PASS

### Test Graph







8DPSK/HCH

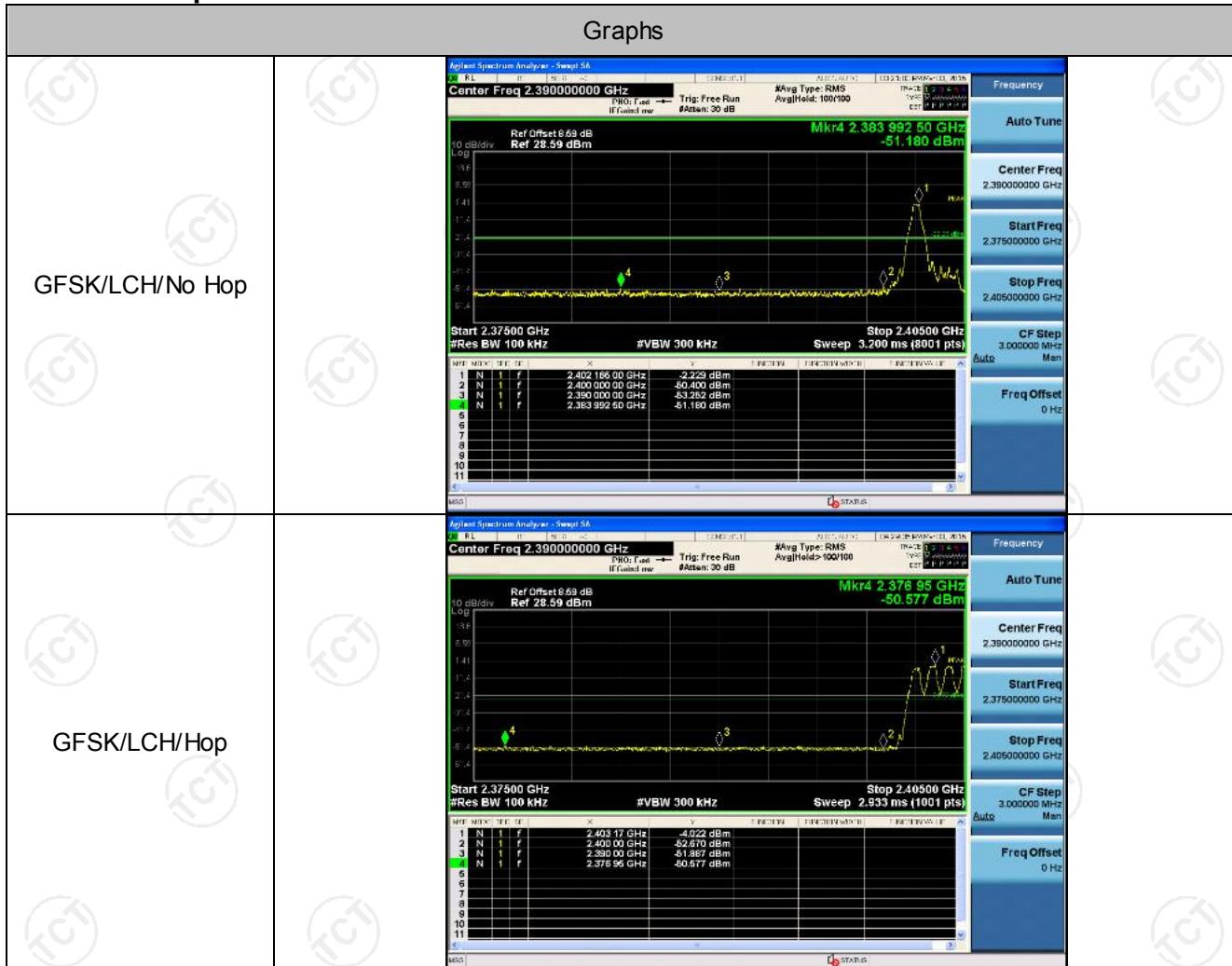


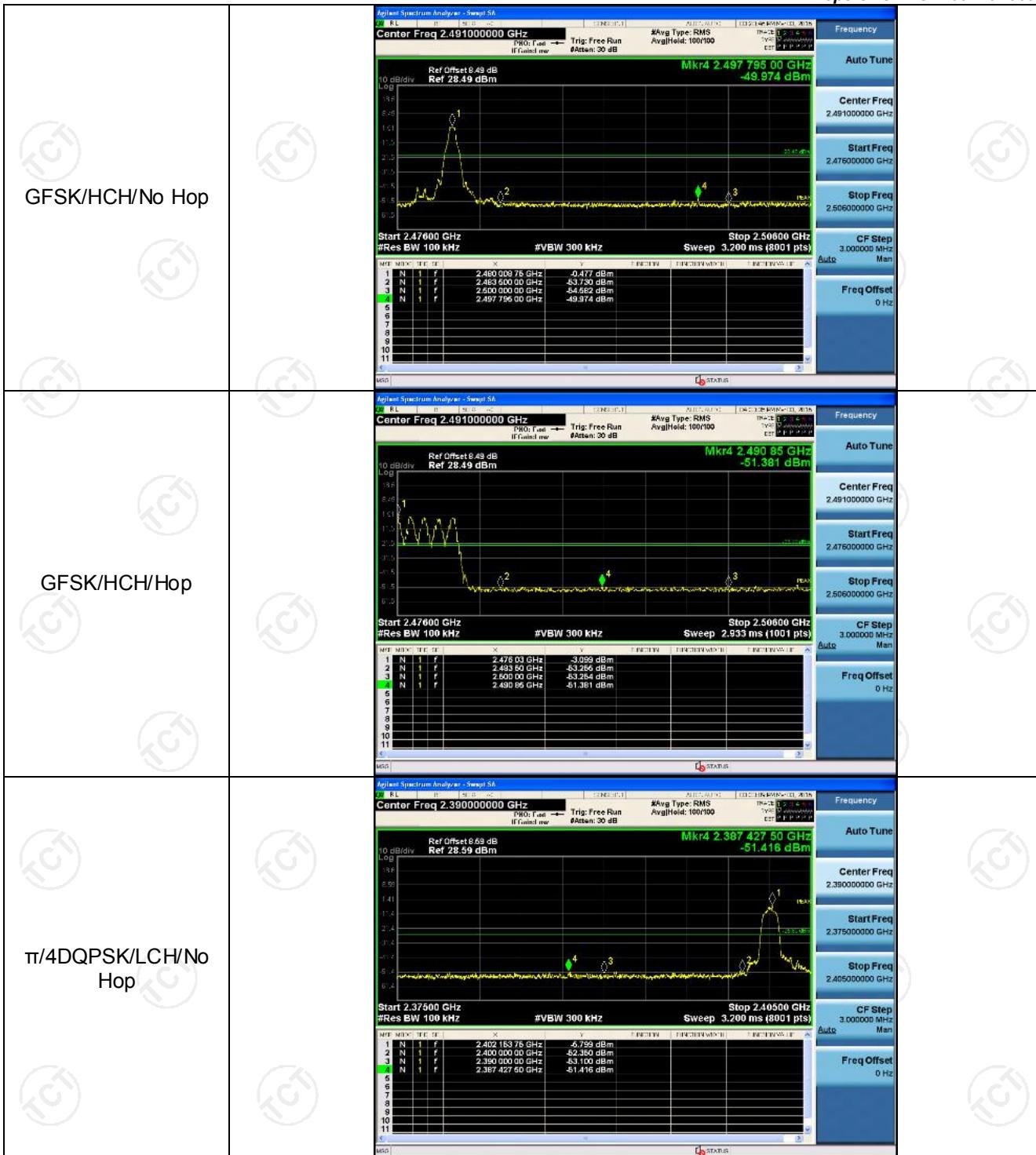
## Band-edge for RF Conducted Emissions

### Result Table

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-2.229	Off	-51.180	-22.23	PASS
			-4.022	On	-50.577	-24.02	PASS
GFSK	HCH	2480	-0.477	Off	-49.974	-20.48	PASS
			-3.099	On	-51.381	-23.1	PASS
$\pi/4$ DQPSK	LCH	2402	-5.799	Off	-51.416	-25.8	PASS
			-3.998	On	-50.893	-24	PASS
$\pi/4$ DQPSK	HCH	2480	-3.570	Off	-50.994	-23.57	PASS
			-3.292	On	-50.284	-23.29	PASS
8DPSK	LCH	2402	-5.383	Off	-50.601	-25.38	PASS
			-3.965	On	-50.242	-23.97	PASS
8DPSK	HCH	2480	-3.559	Off	-50.077	-23.56	PASS
			-3.109	On	-48.934	-23.11	PASS

### Test Graph



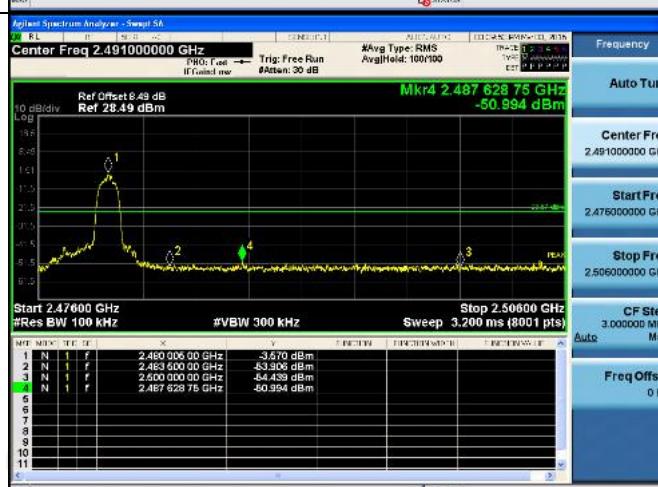


$\pi/4$ DQPSK/LCH/Hop



Frequency  
Auto Tune  
Center Freq  
2.390000000 GHz  
Start Freq  
2.375000000 GHz  
Stop Freq  
2.405000000 GHz  
CF Step  
3.000000 MHz  
Auto  
Freq Offset  
0 Hz

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



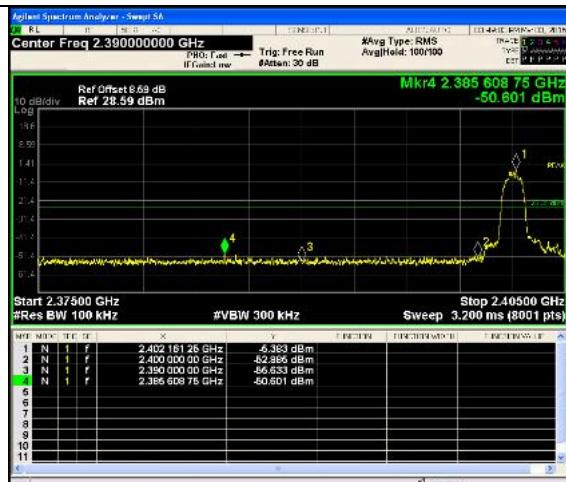
Frequency  
Auto Tune  
Center Freq  
2.491000000 GHz  
Start Freq  
2.476000000 GHz  
Stop Freq  
2.506000000 GHz  
CF Step  
3.000000 MHz  
Auto  
Freq Offset  
0 Hz

$\pi/4$ DQPSK/HCH/Hop



Frequency  
Auto Tune  
Center Freq  
2.491000000 GHz  
Start Freq  
2.476000000 GHz  
Stop Freq  
2.506000000 GHz  
CF Step  
3.000000 MHz  
Auto  
Freq Offset  
0 Hz

8DPSK/LCH/No Hop



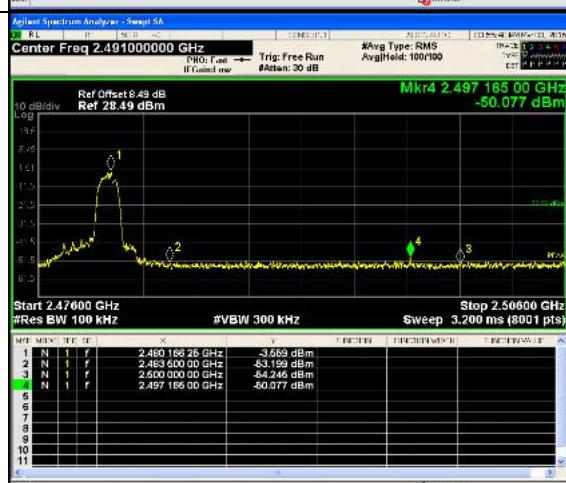
Frequency  
Auto Tune  
Center Freq  
2.390000000 GHz  
Start Freq  
2.375000000 GHz  
Stop Freq  
2.405000000 GHz  
CF Step  
3.000000 MHz  
Auto  
Freq Offset  
0 Hz

8DPSK/LCH/Hop



Frequency  
Auto Tune  
Center Freq  
2.390000000 GHz  
Start Freq  
2.375000000 GHz  
Stop Freq  
2.405000000 GHz  
CF Step  
3.000000 MHz  
Auto  
Freq Offset  
0 Hz

8DPSK/HCH/No Hop



Frequency  
Auto Tune  
Center Freq  
2.491000000 GHz  
Start Freq  
2.476000000 GHz  
Stop Freq  
2.506000000 GHz  
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3.000000 MHz  
Auto  
Freq Offset  
0 Hz

8DPSK/HCH/Hop

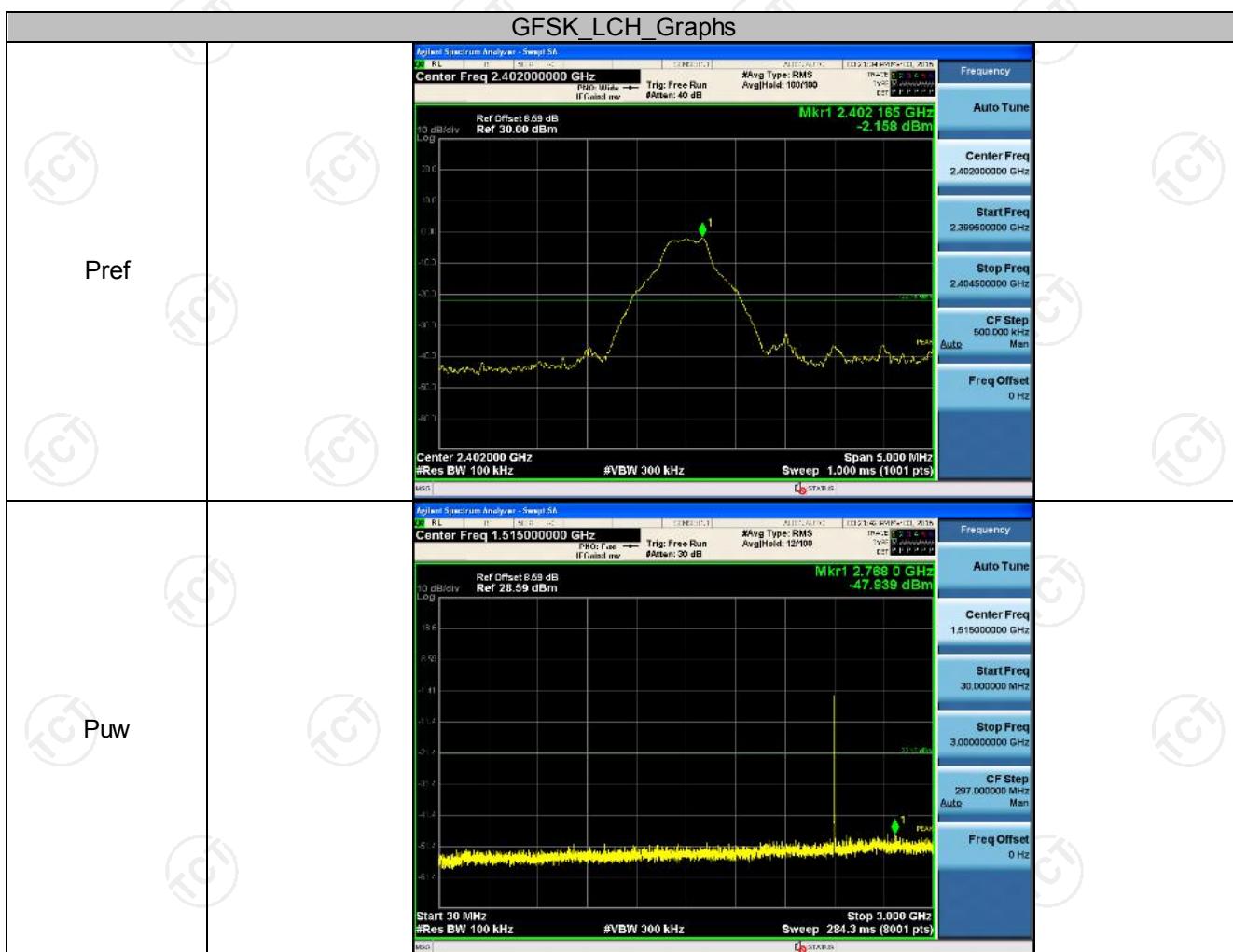


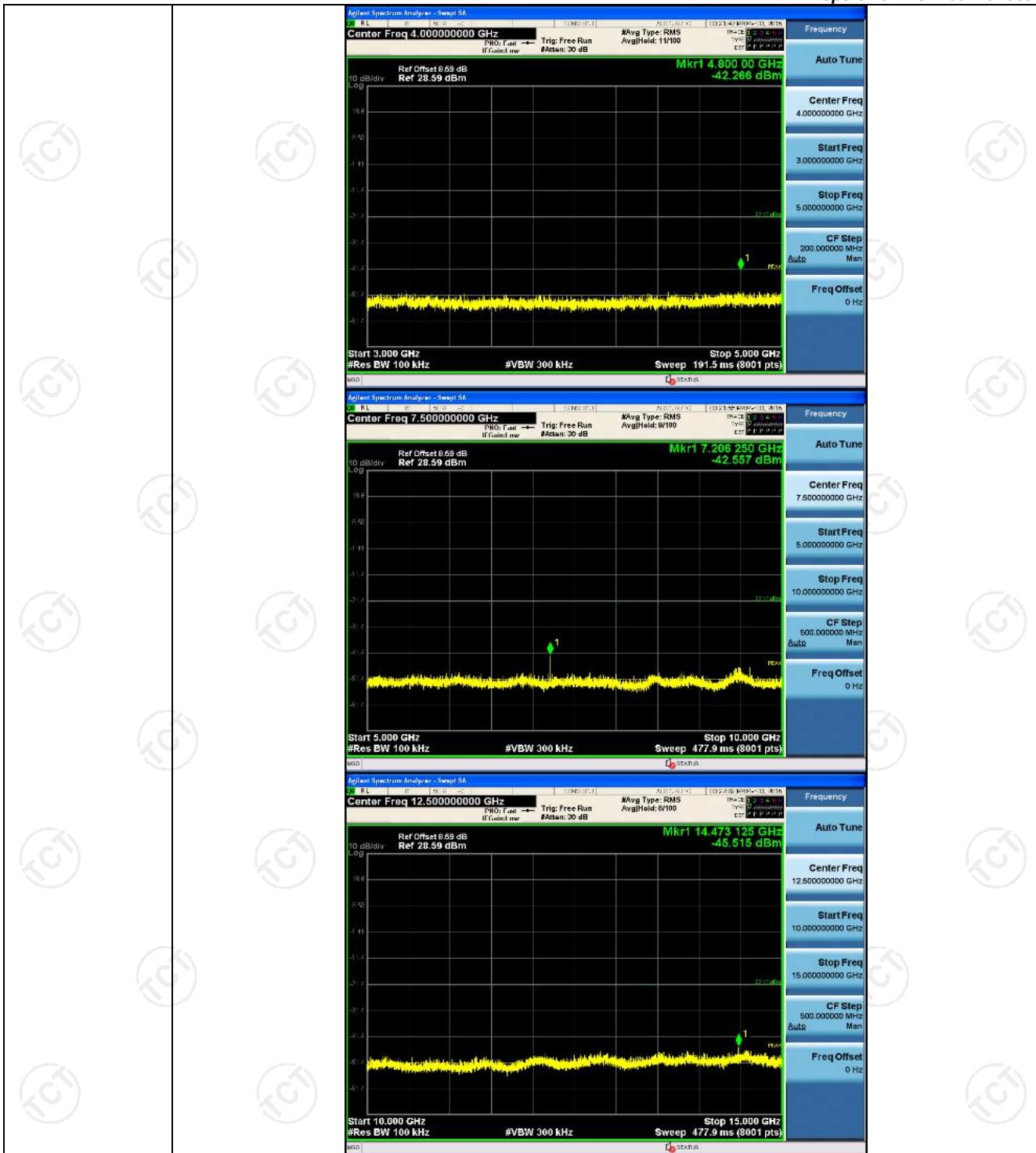
## RF Conducted Spurious Emissions

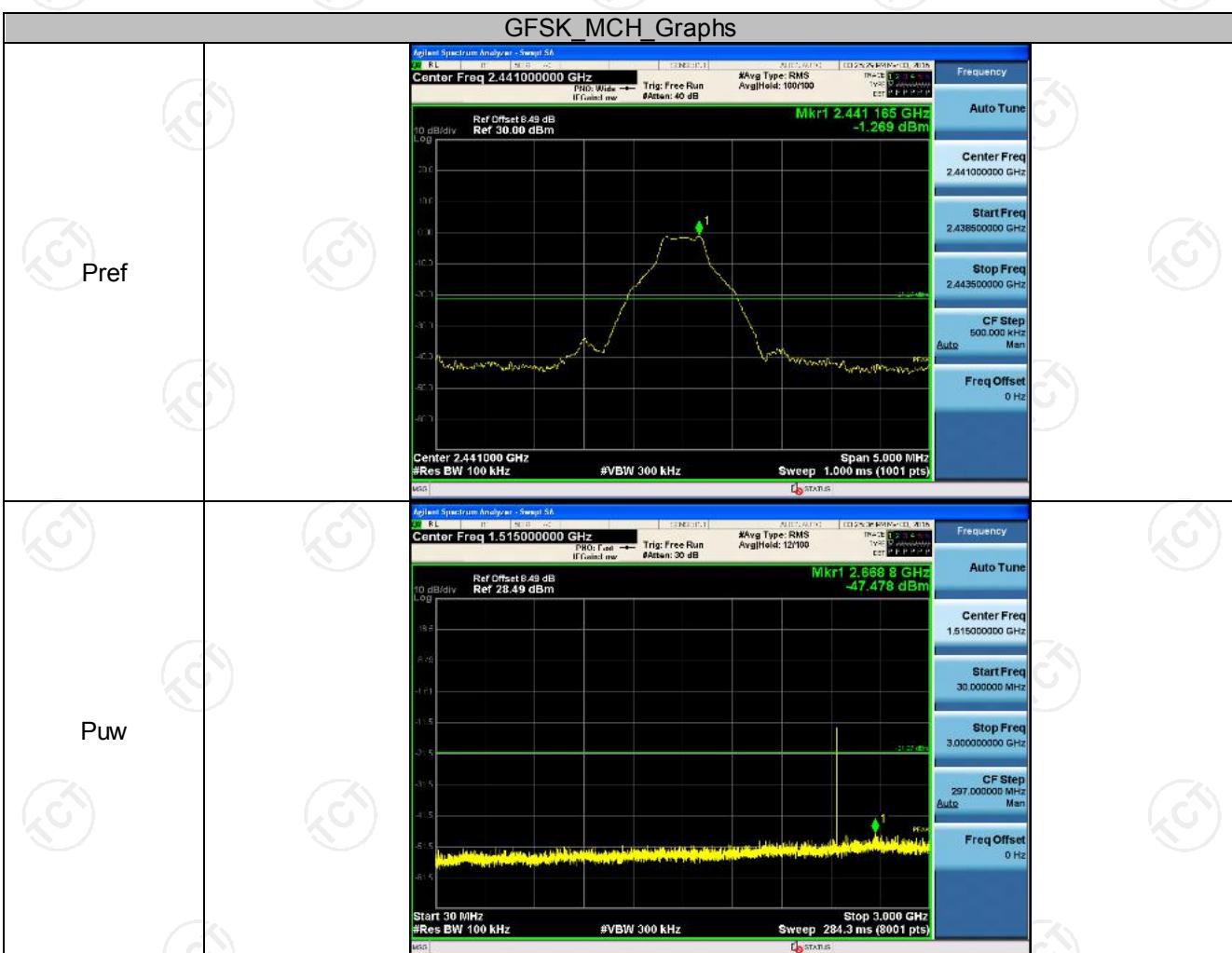
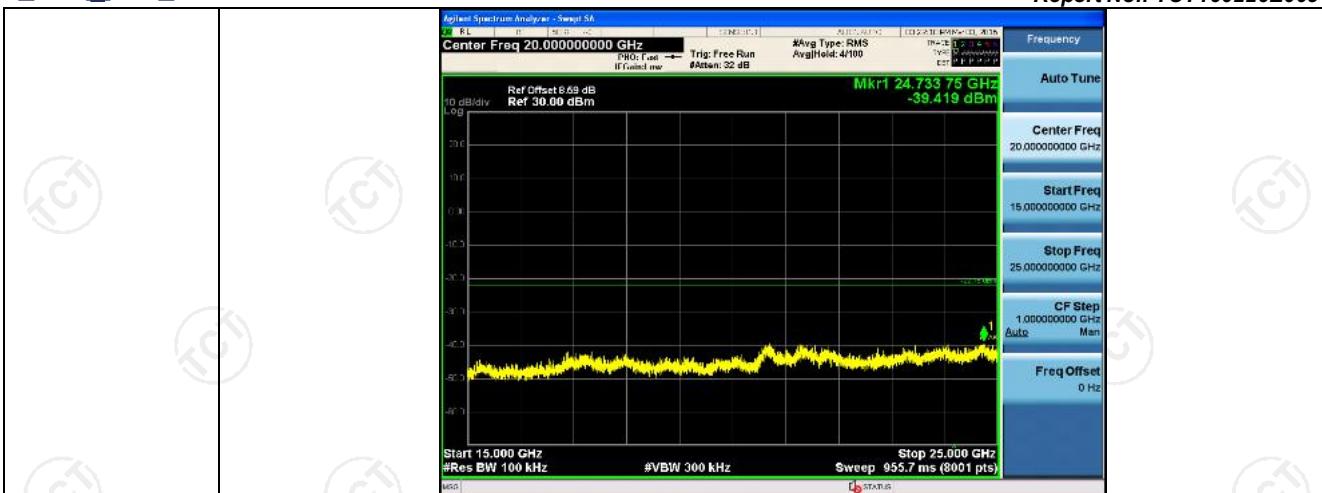
### Result Table

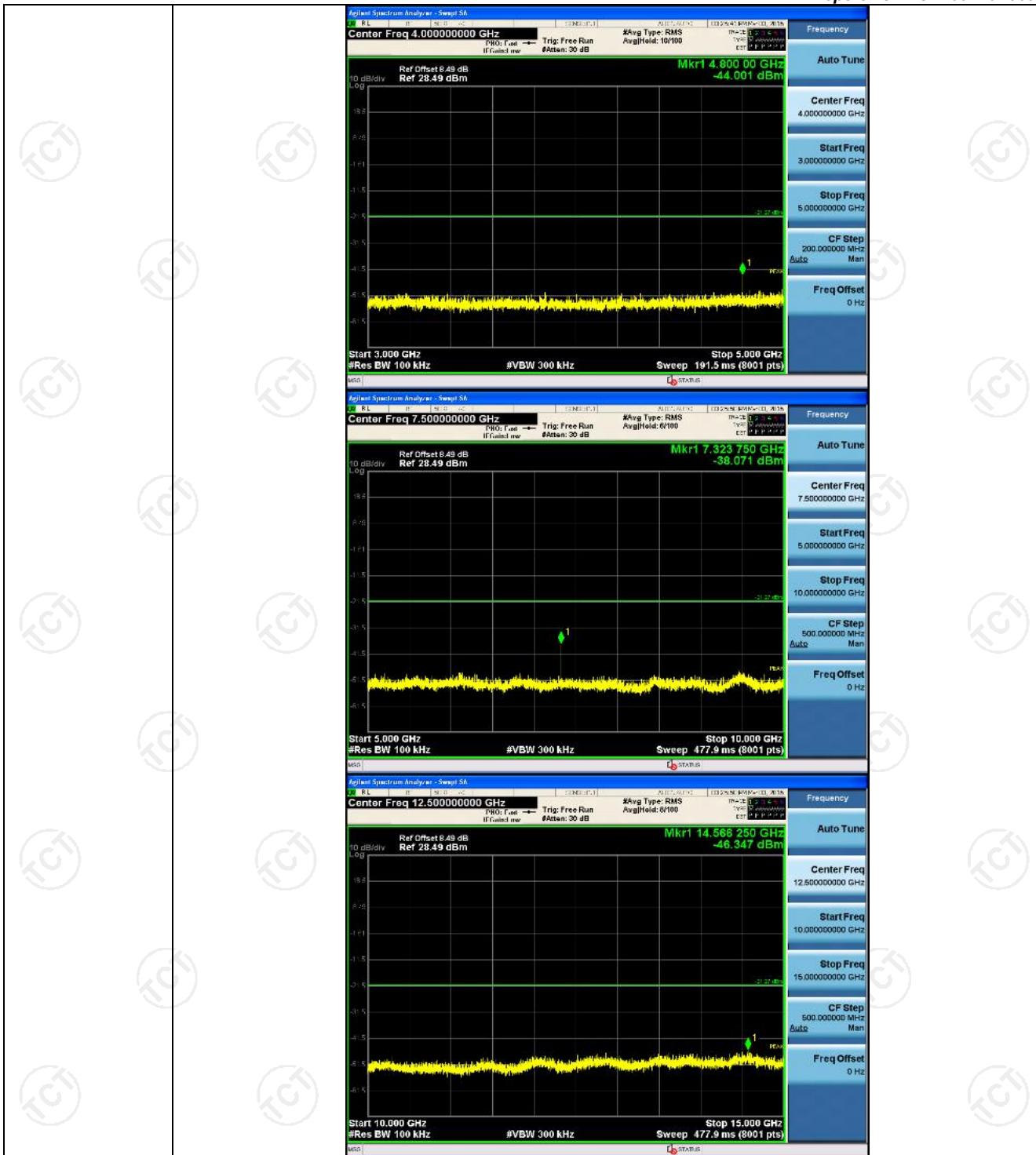
Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
GFSK	LCH	-2.158	<Limit	PASS
GFSK	MCH	-1.269	<Limit	PASS
GFSK	HCH	-0.528	<Limit	PASS
$\pi/4$ DQPSK	LCH	-5.523	<Limit	PASS
$\pi/4$ DQPSK	MCH	-4.012	<Limit	PASS
$\pi/4$ DQPSK	HCH	-3.364	<Limit	PASS
8DPSK	LCH	-5.352	<Limit	PASS
8DPSK	MCH	-3.948	<Limit	PASS
8DPSK	HCH	-3.422	<Limit	PASS

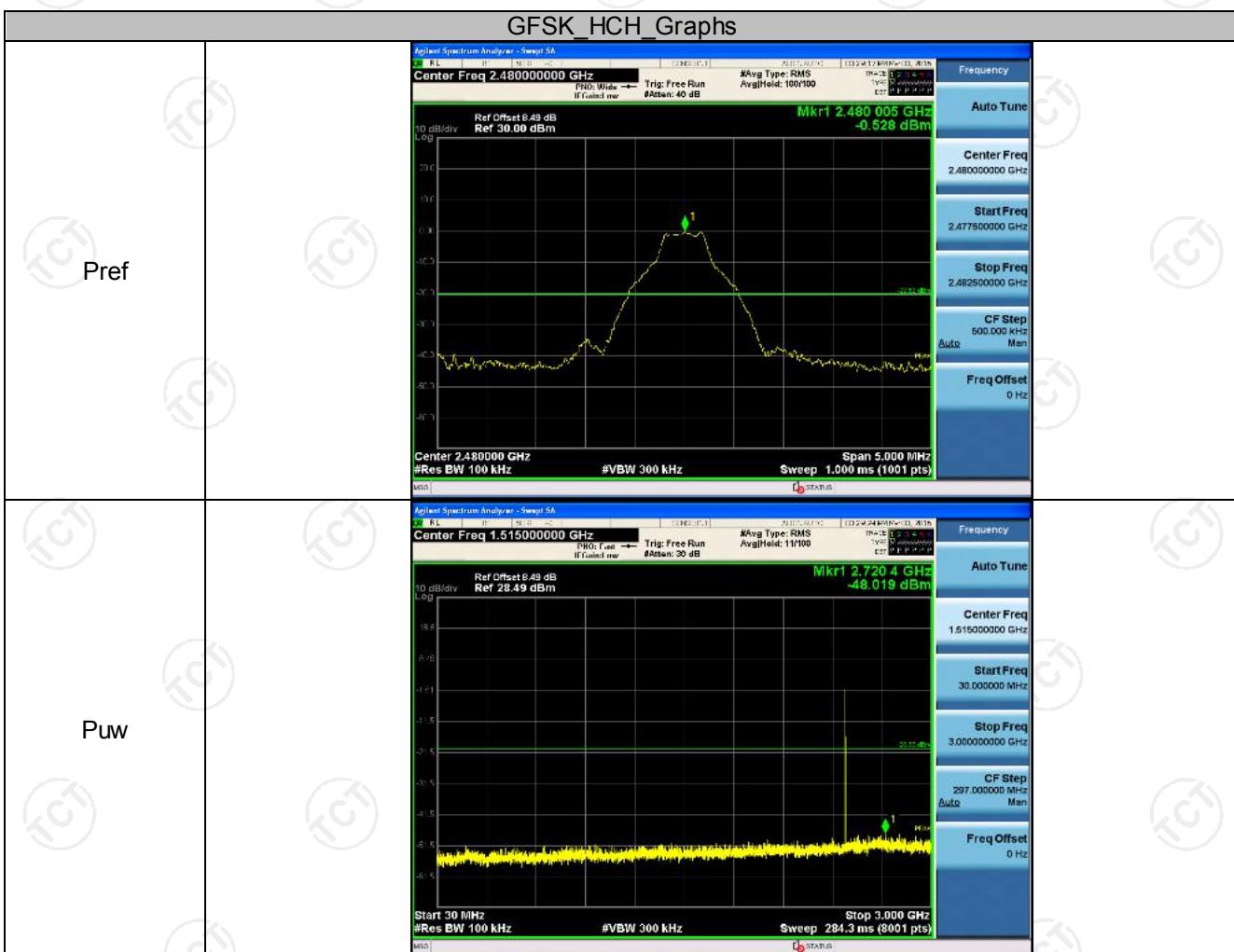
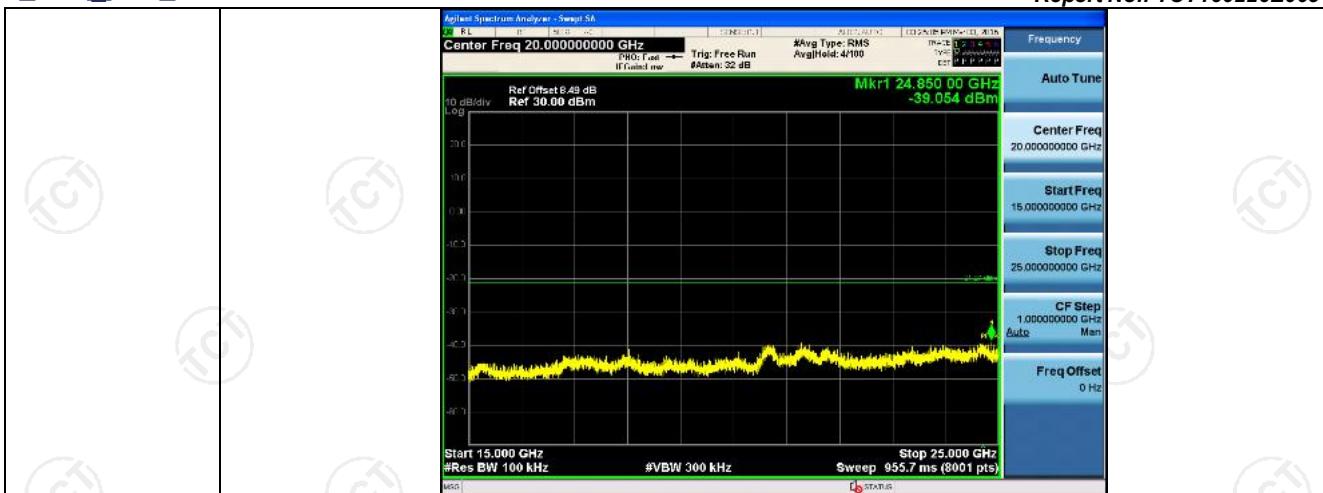
### Test Graph

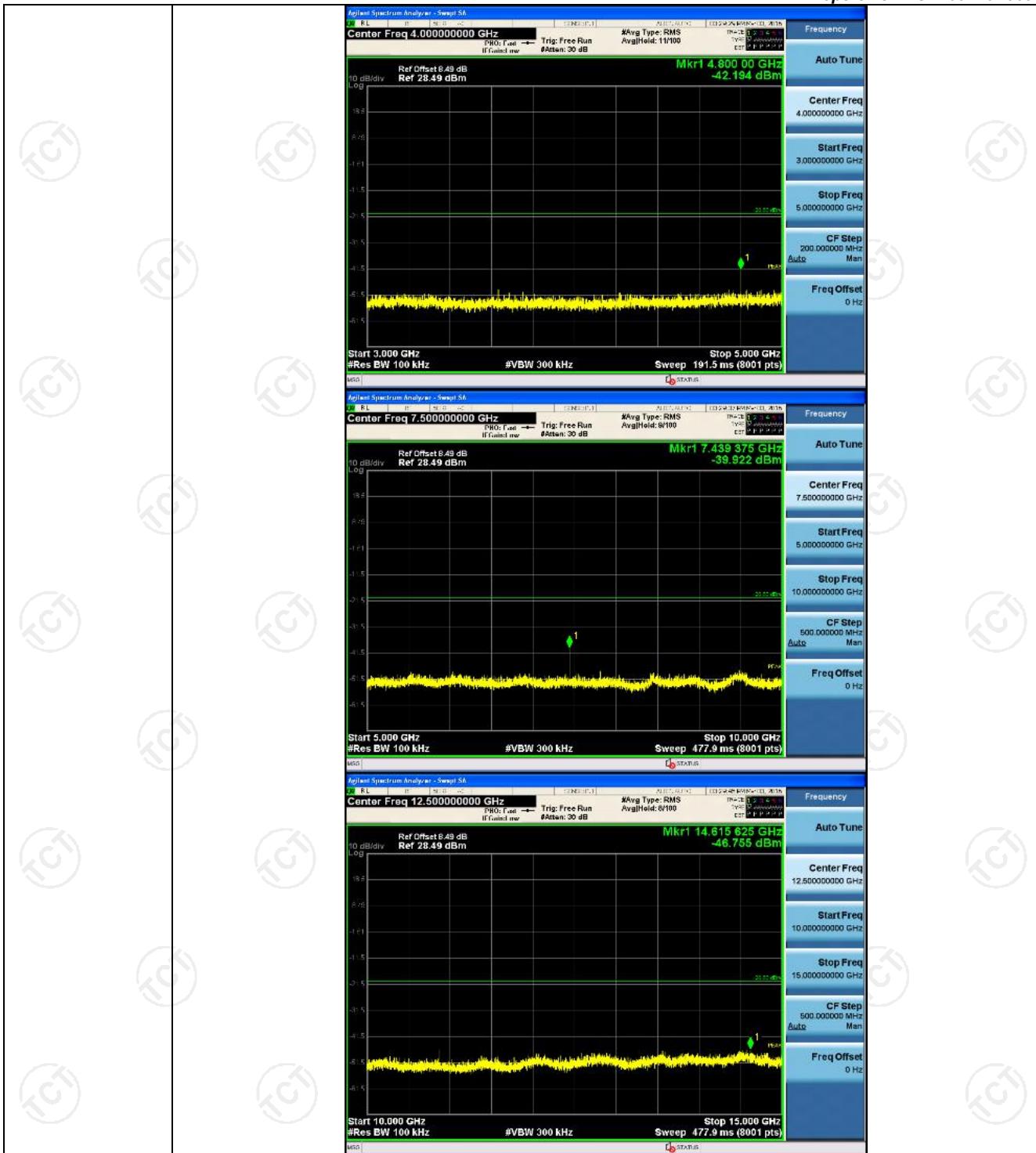


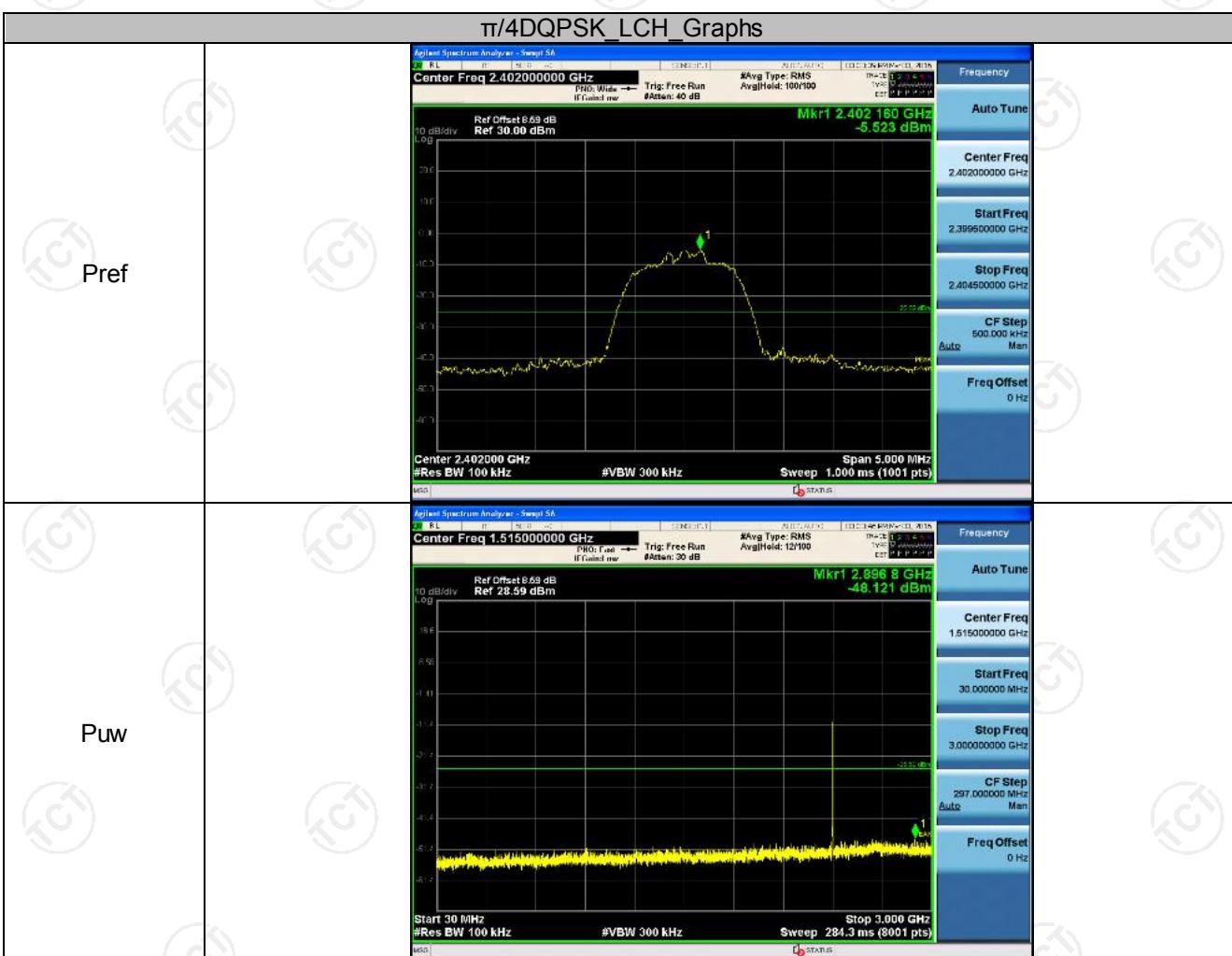
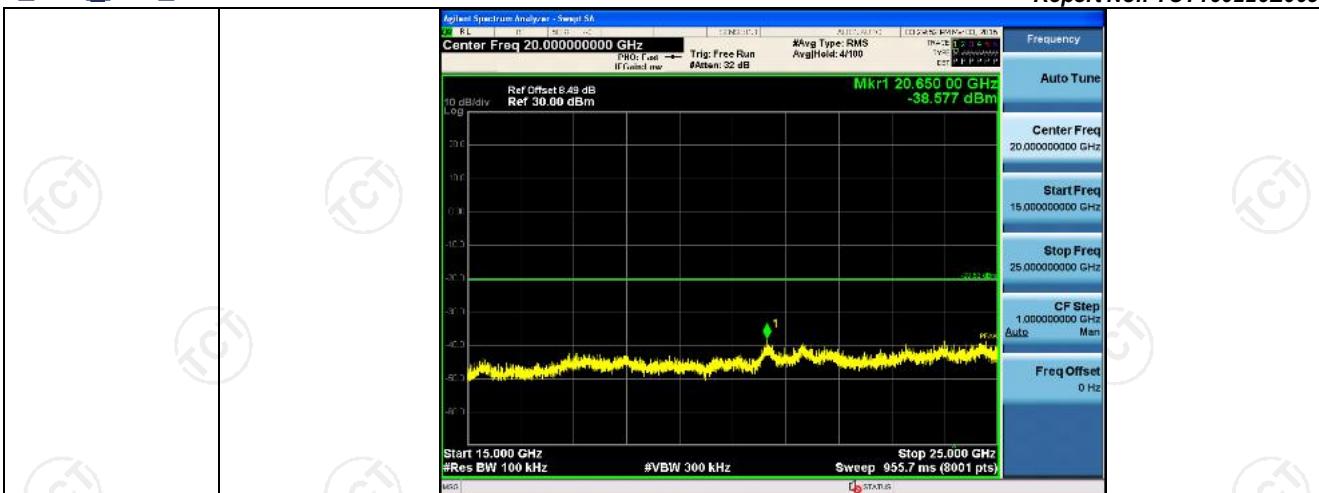


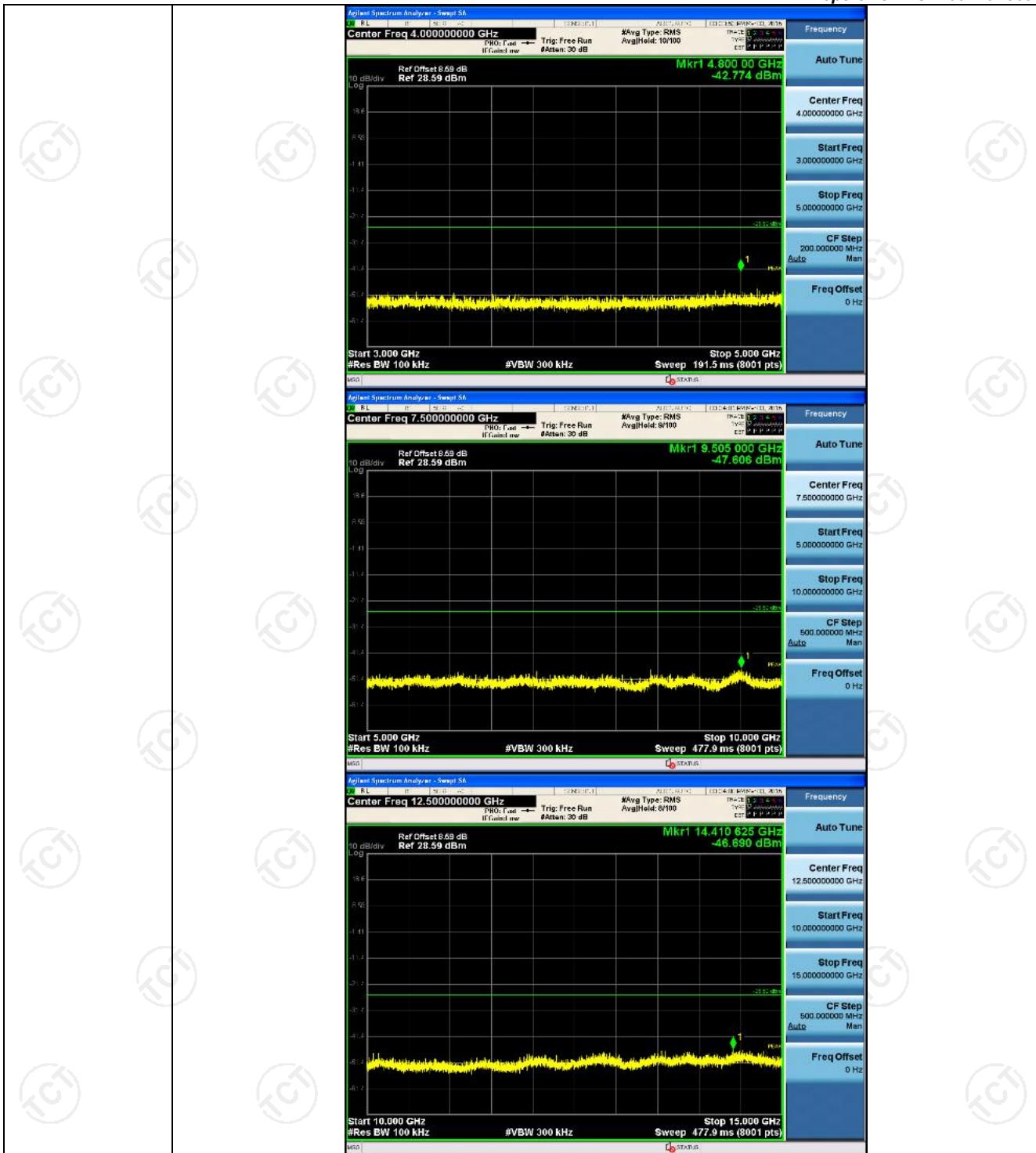


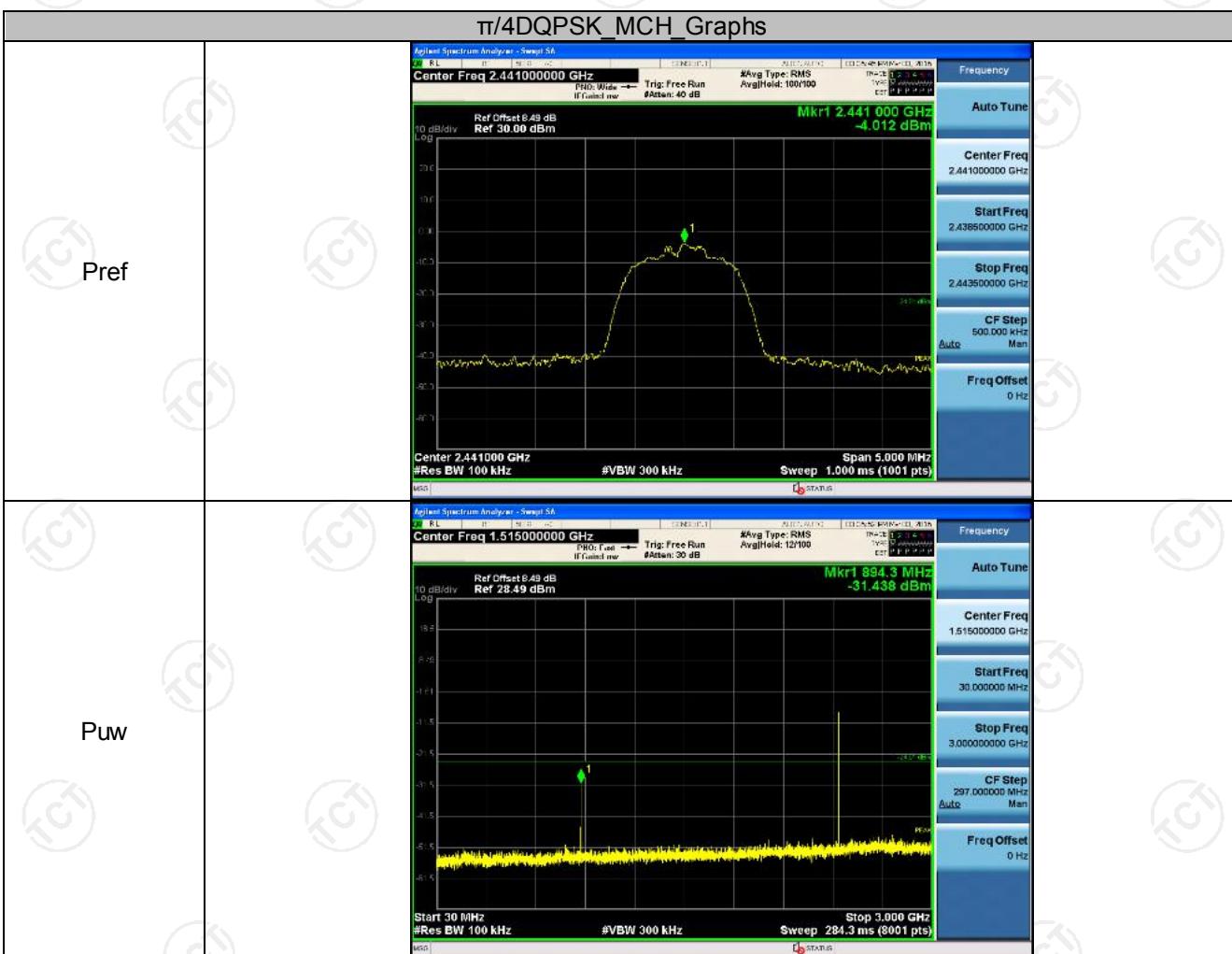
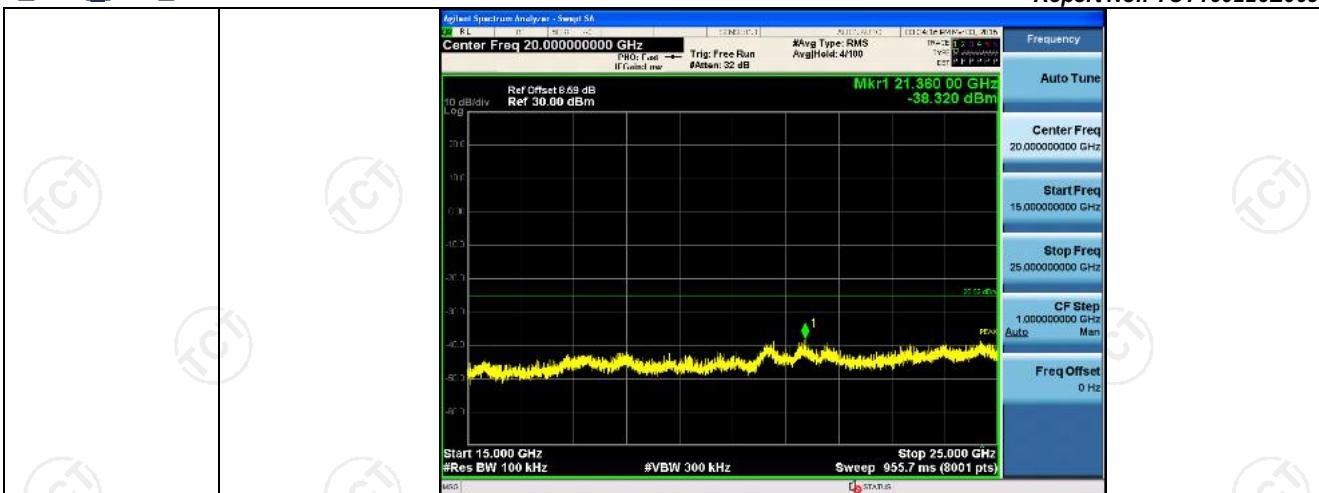


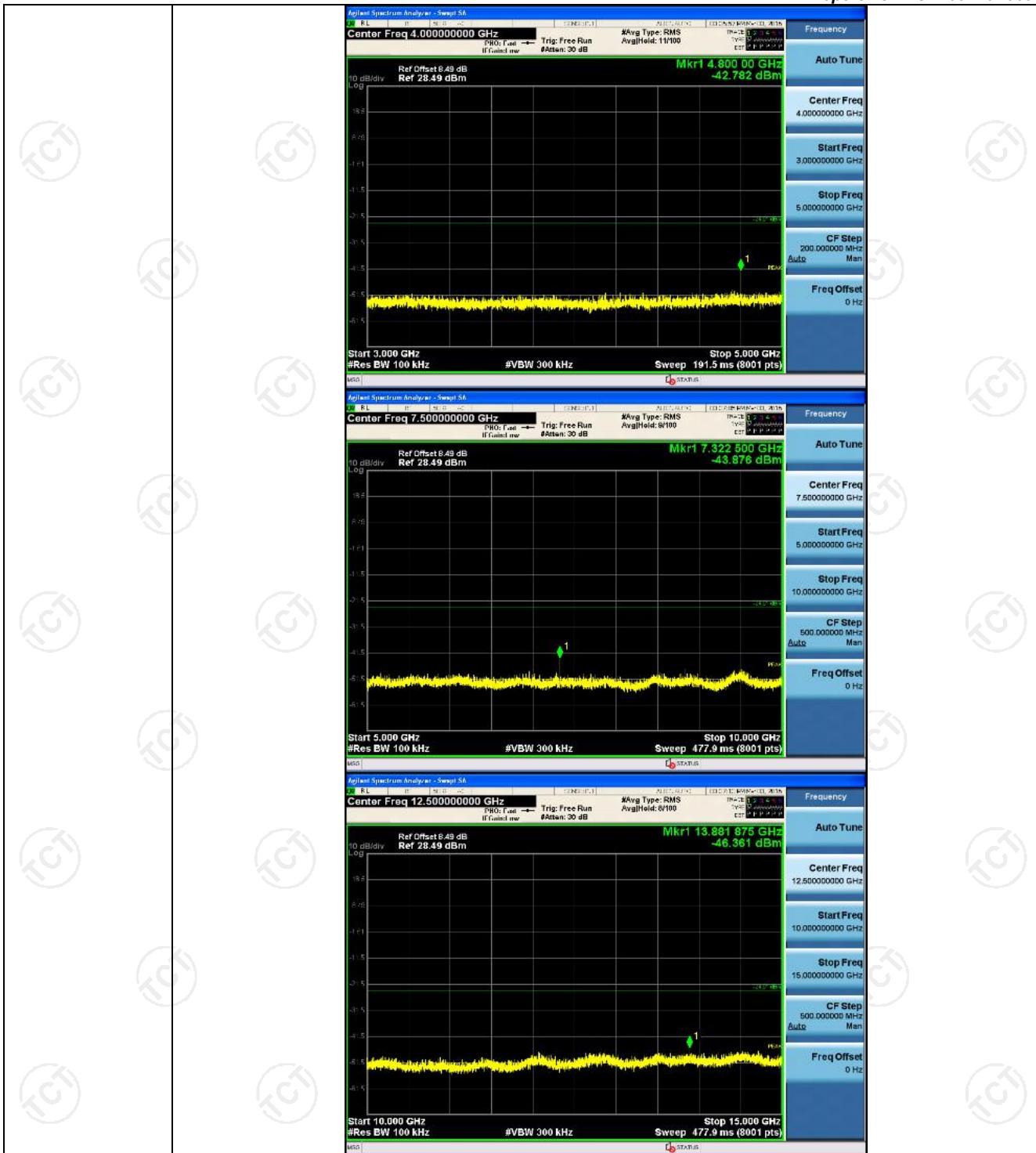


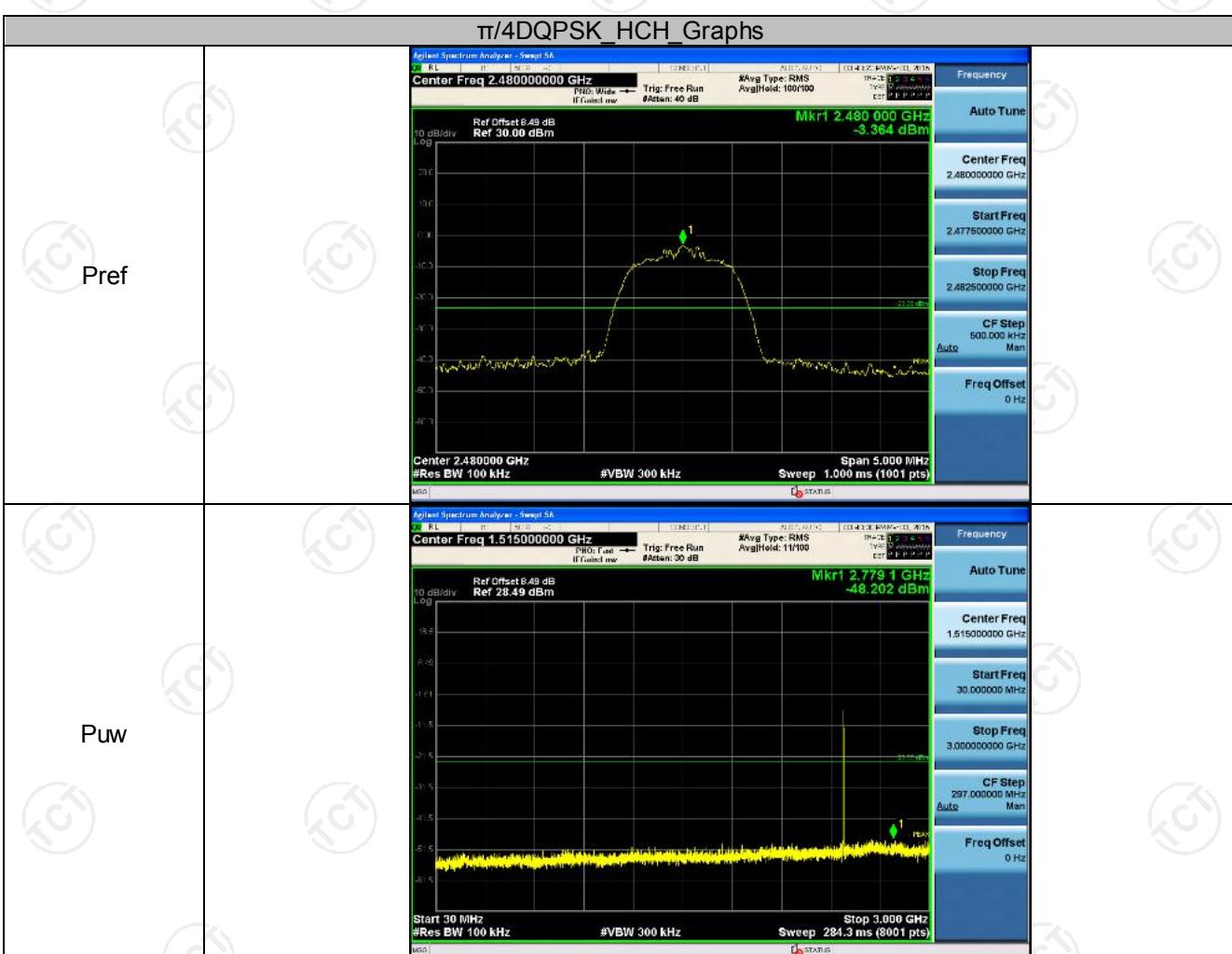
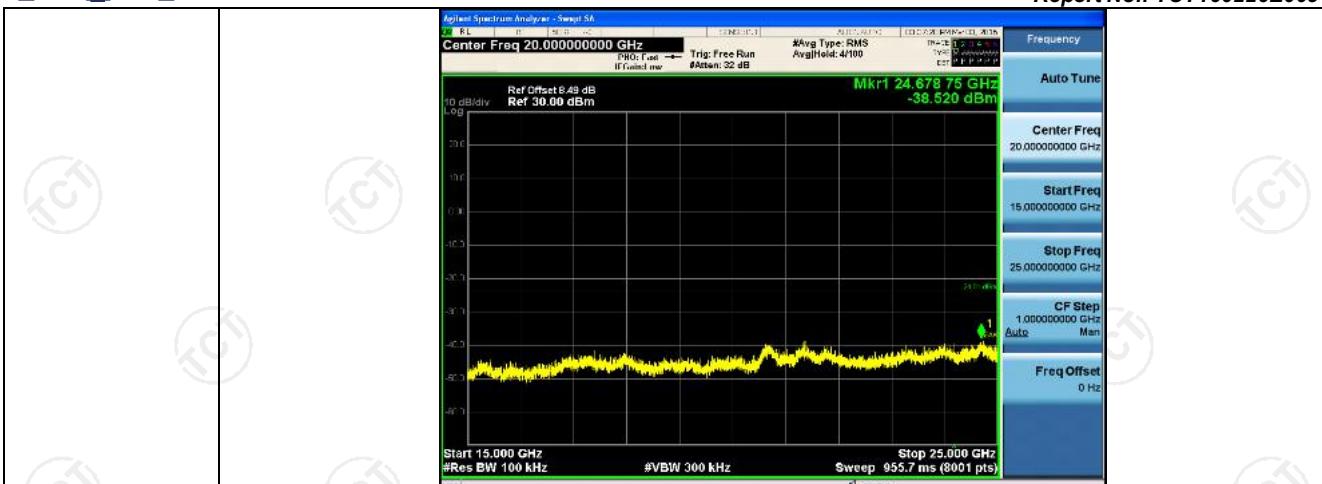


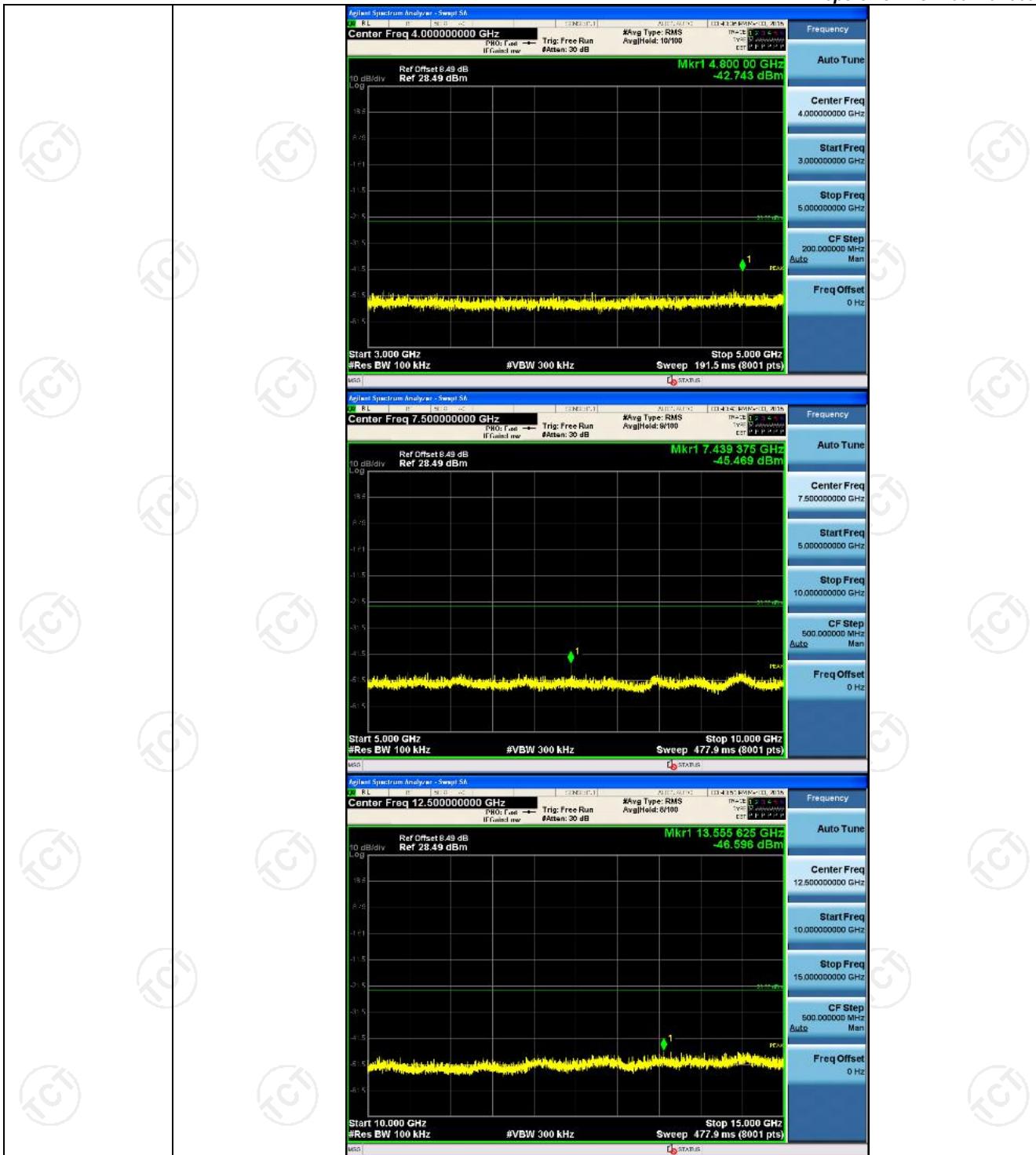


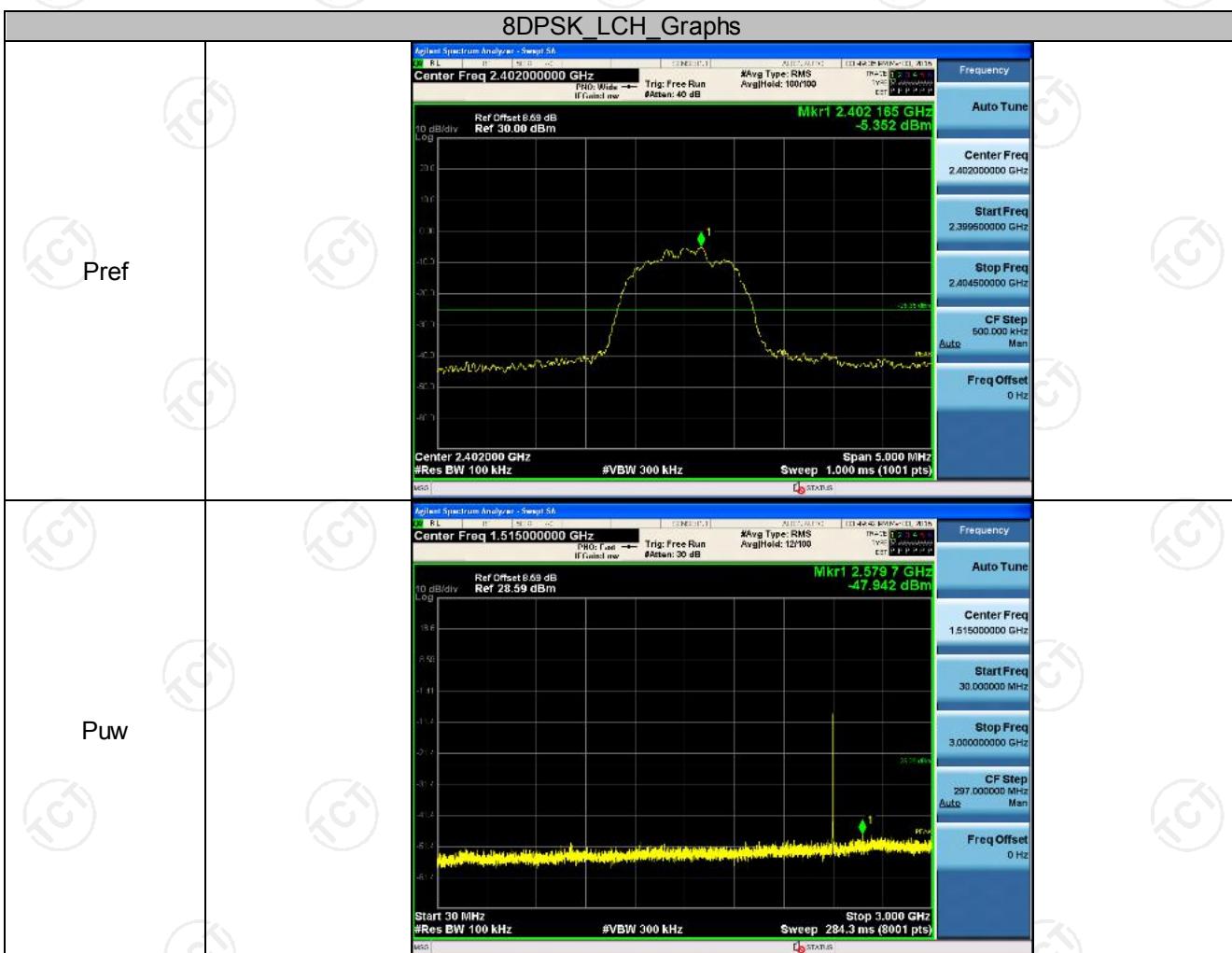
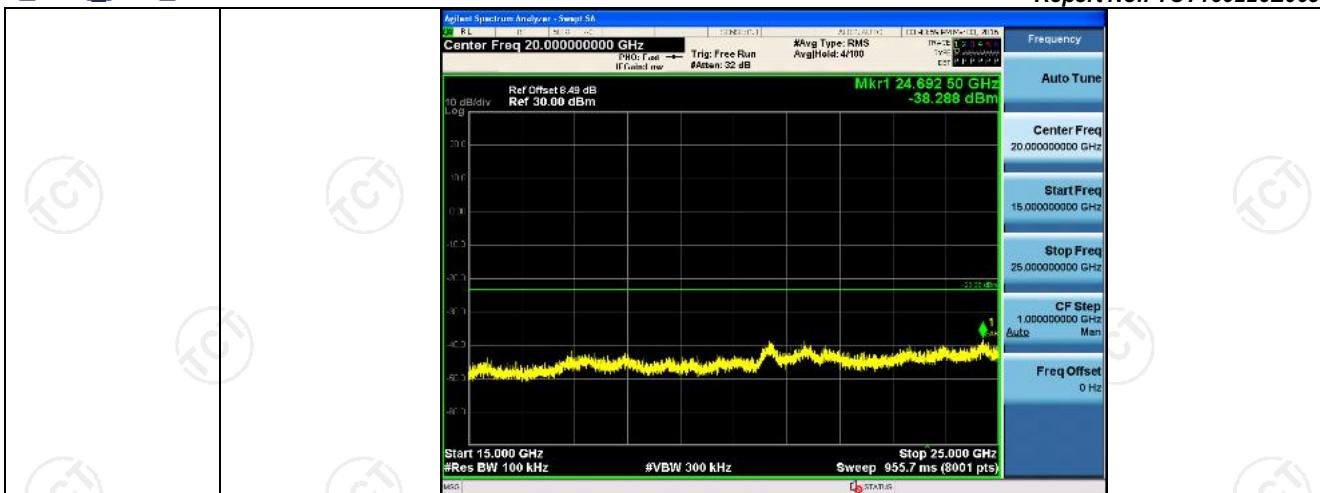


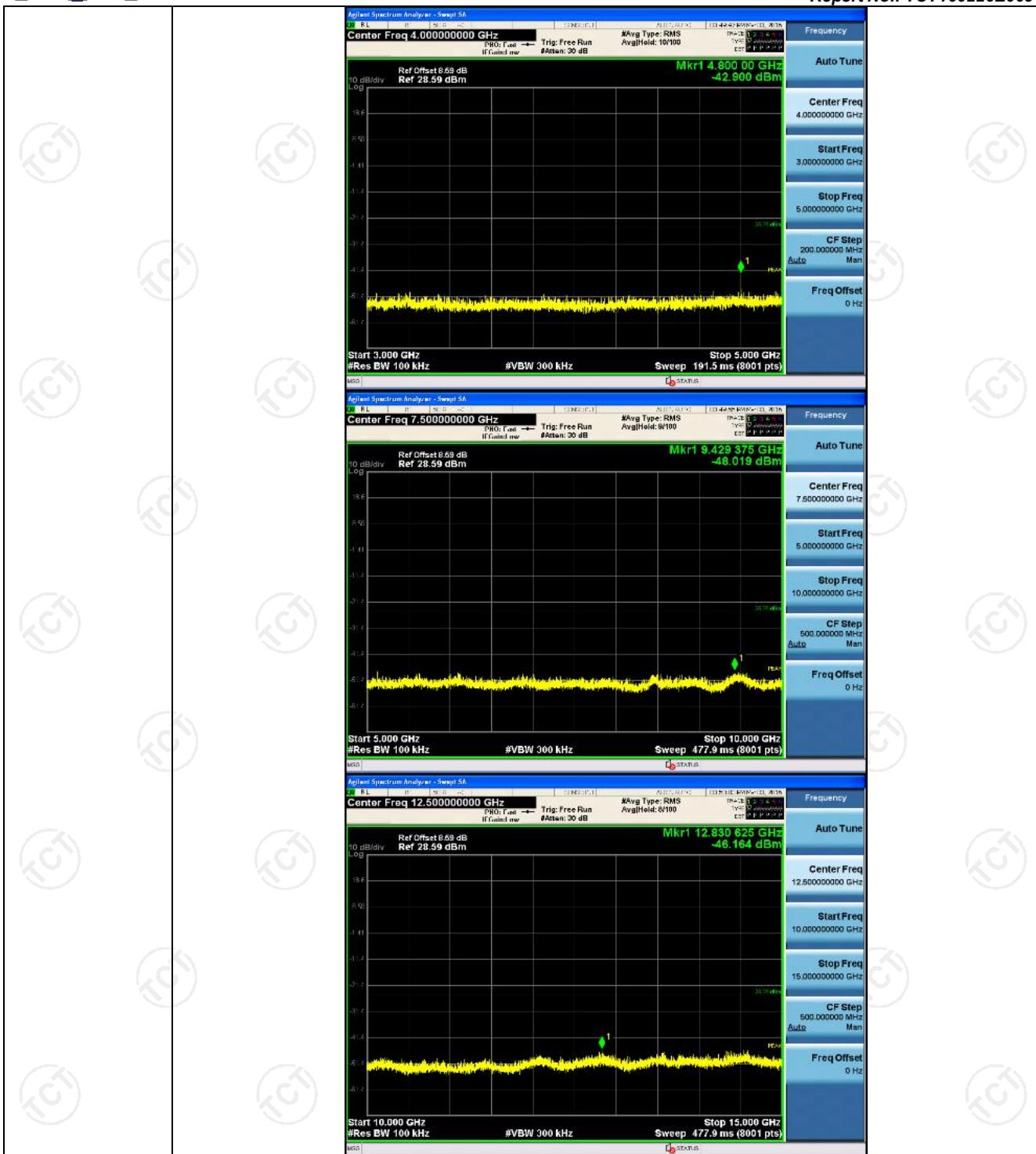


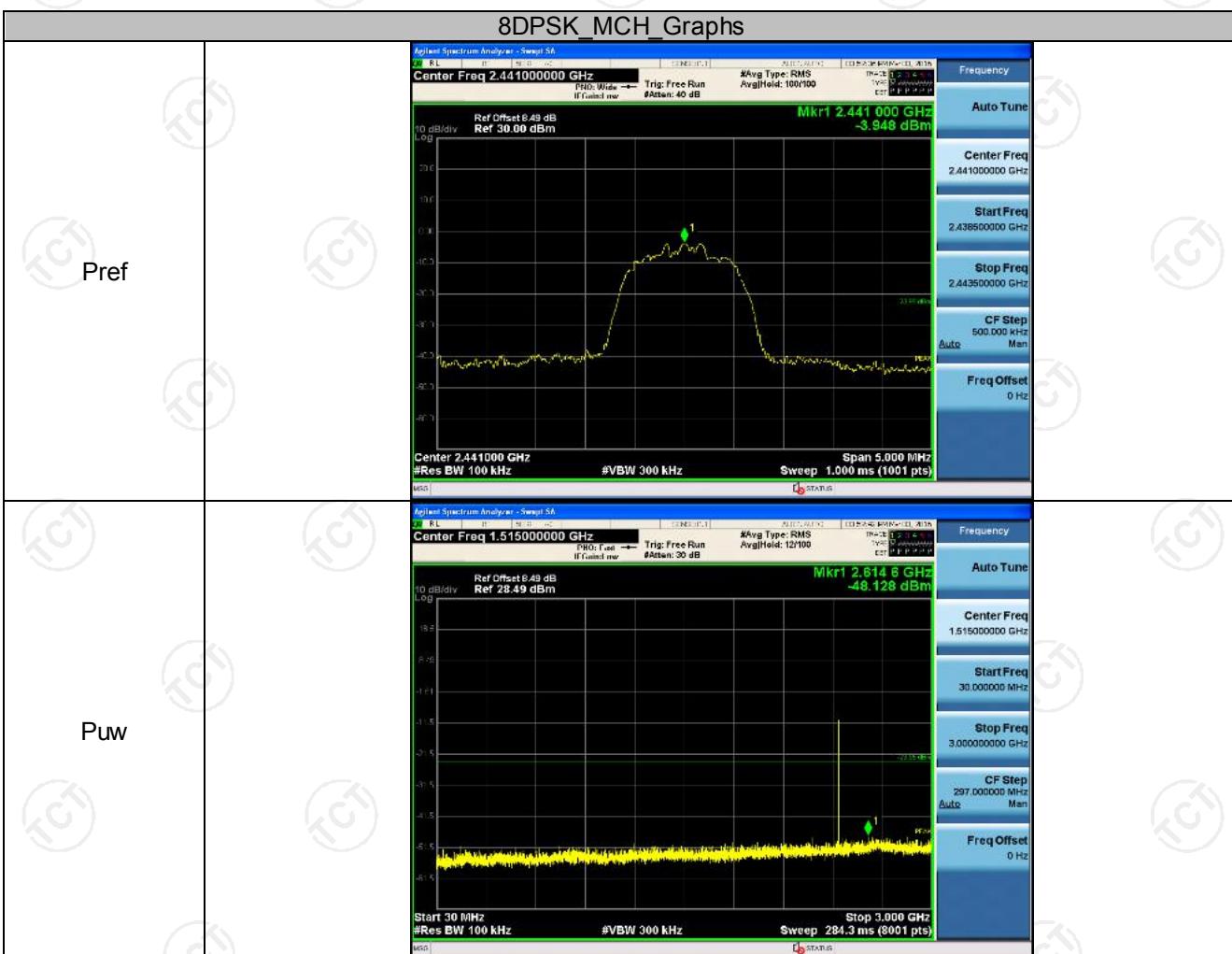
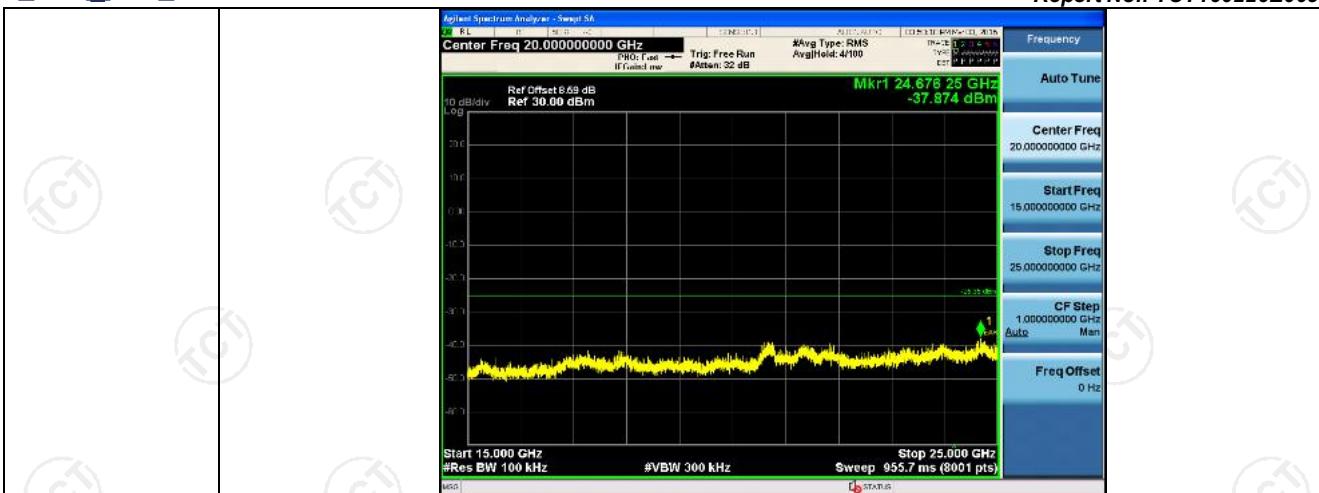


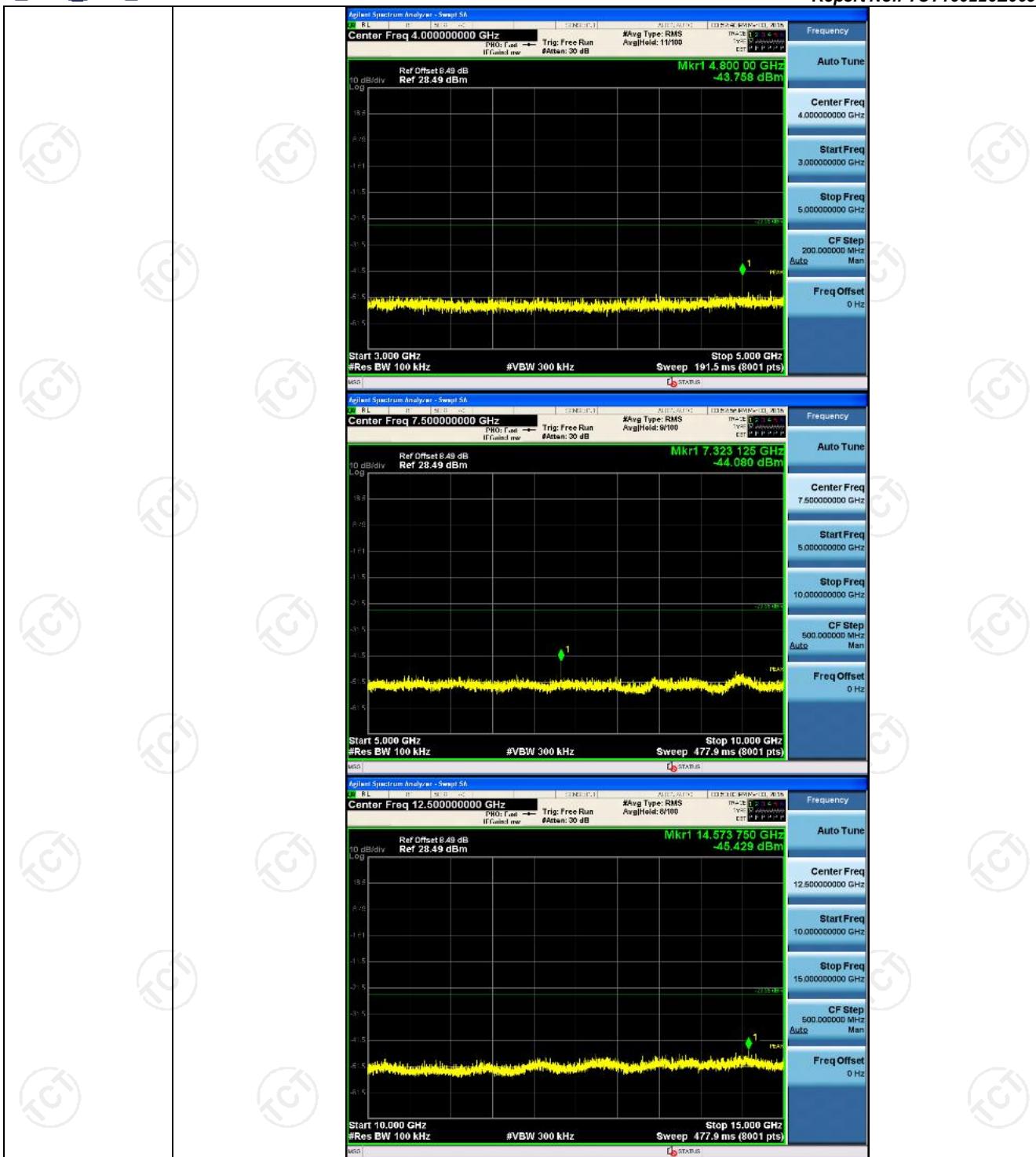


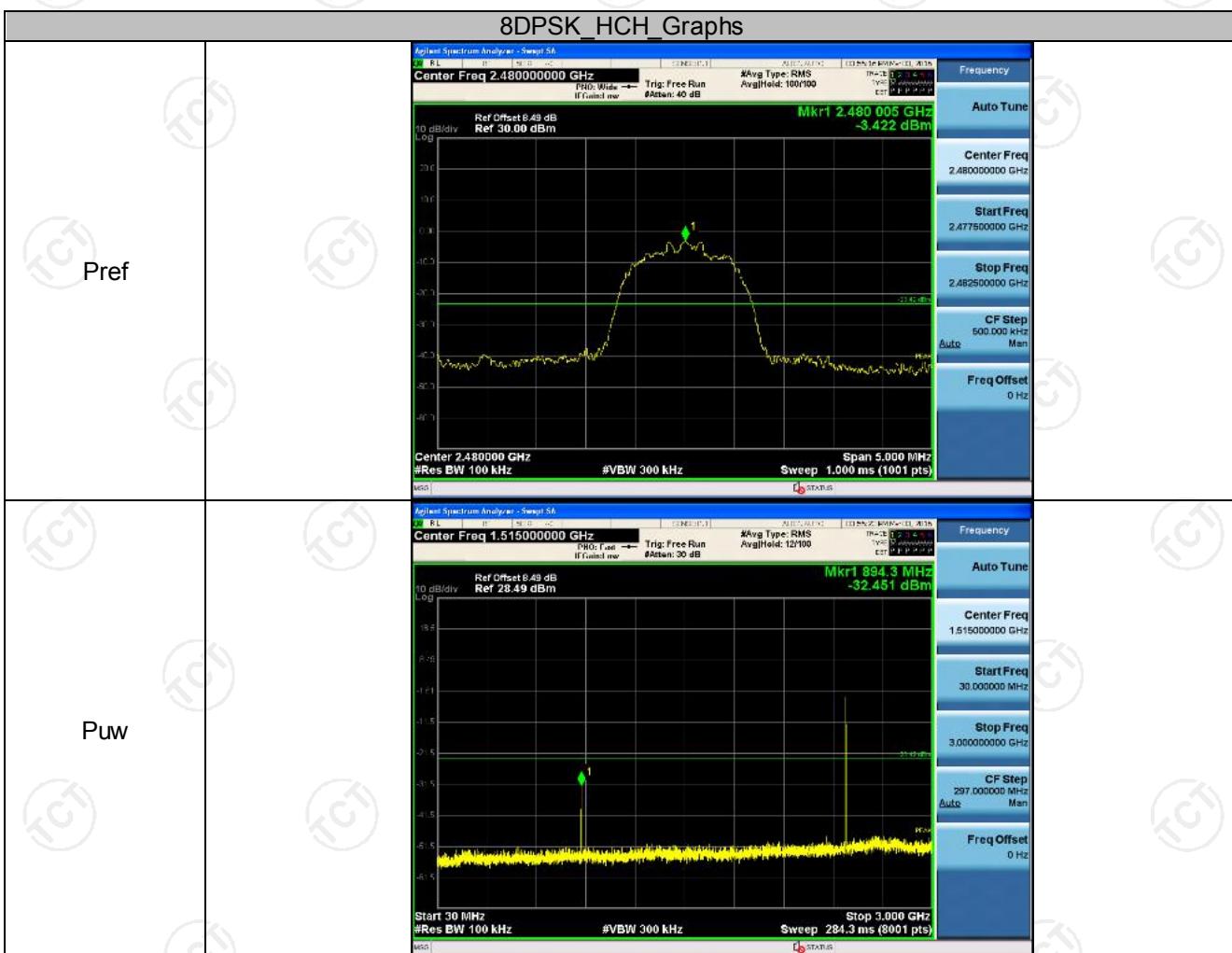
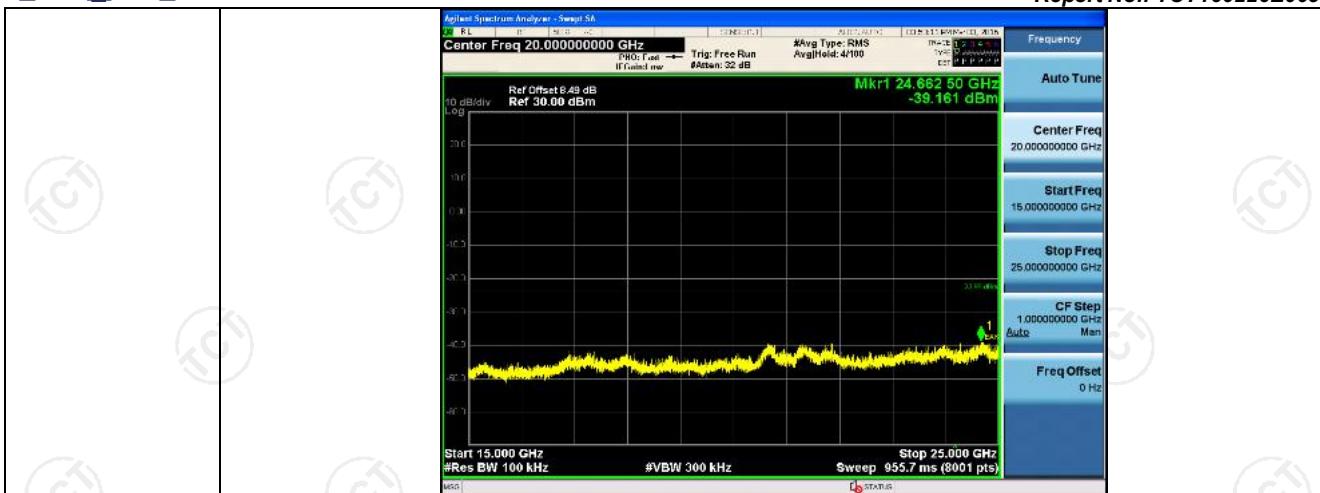


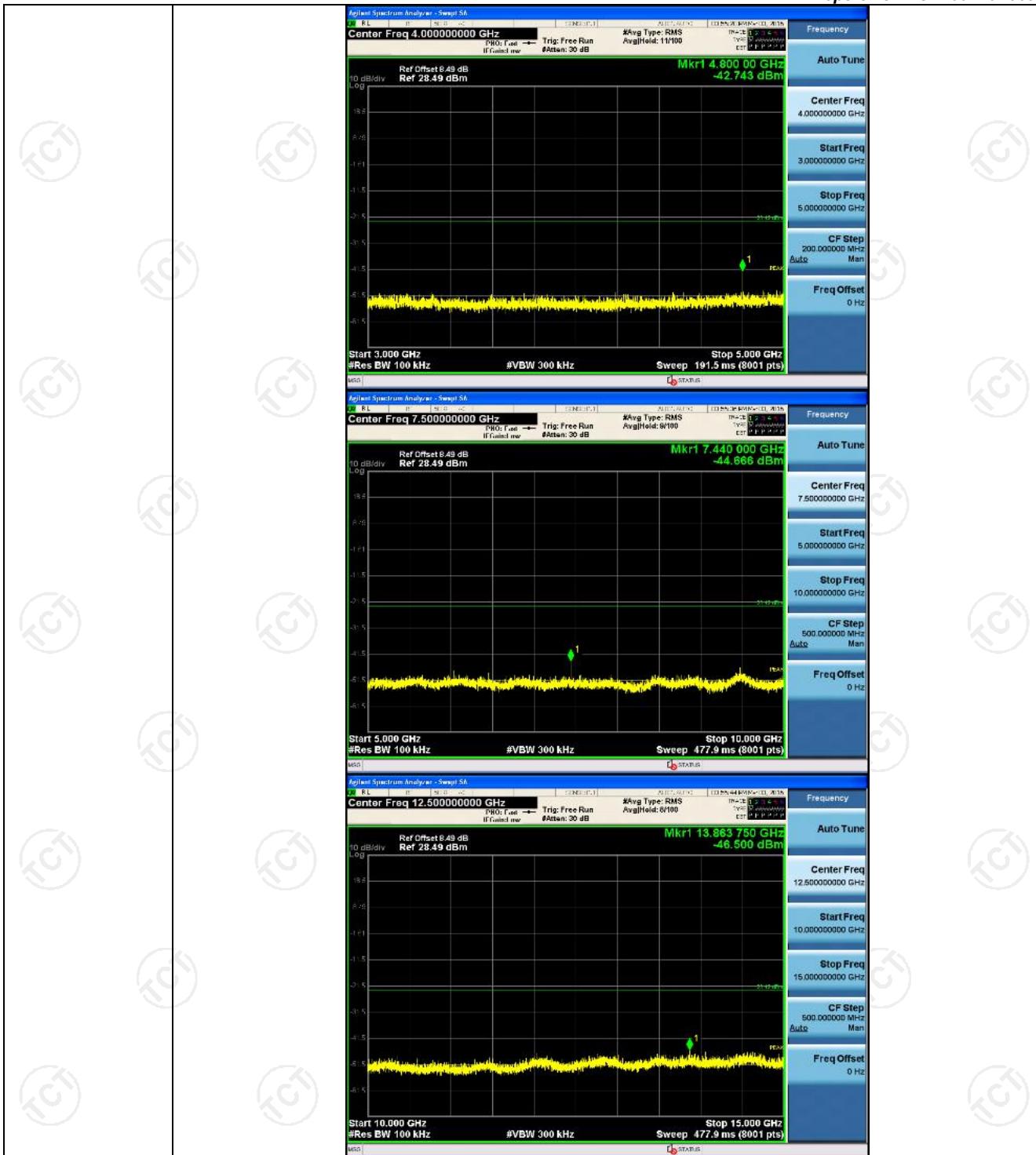


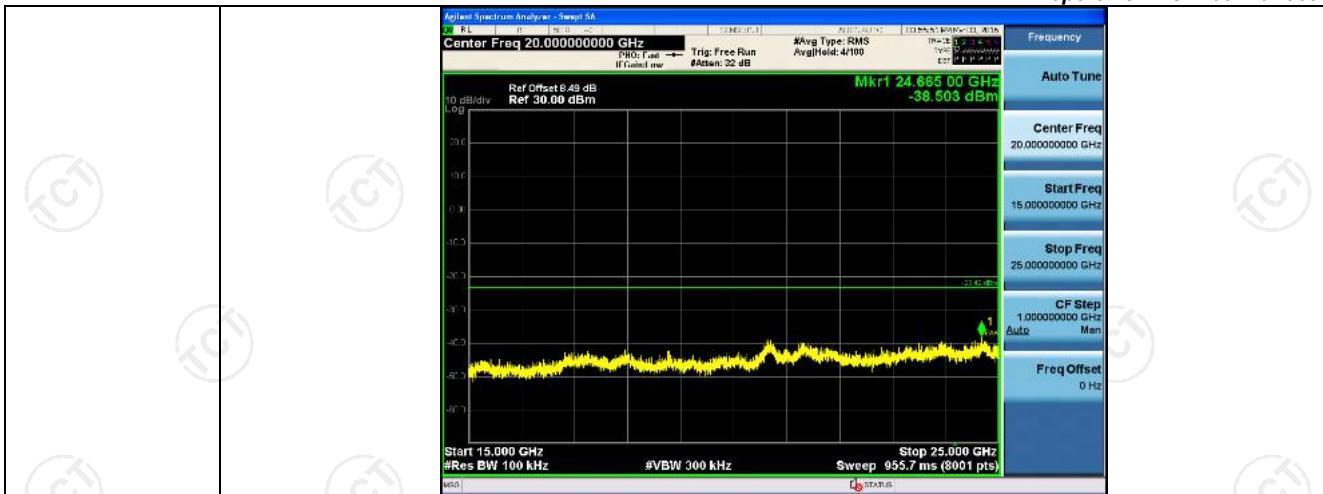












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