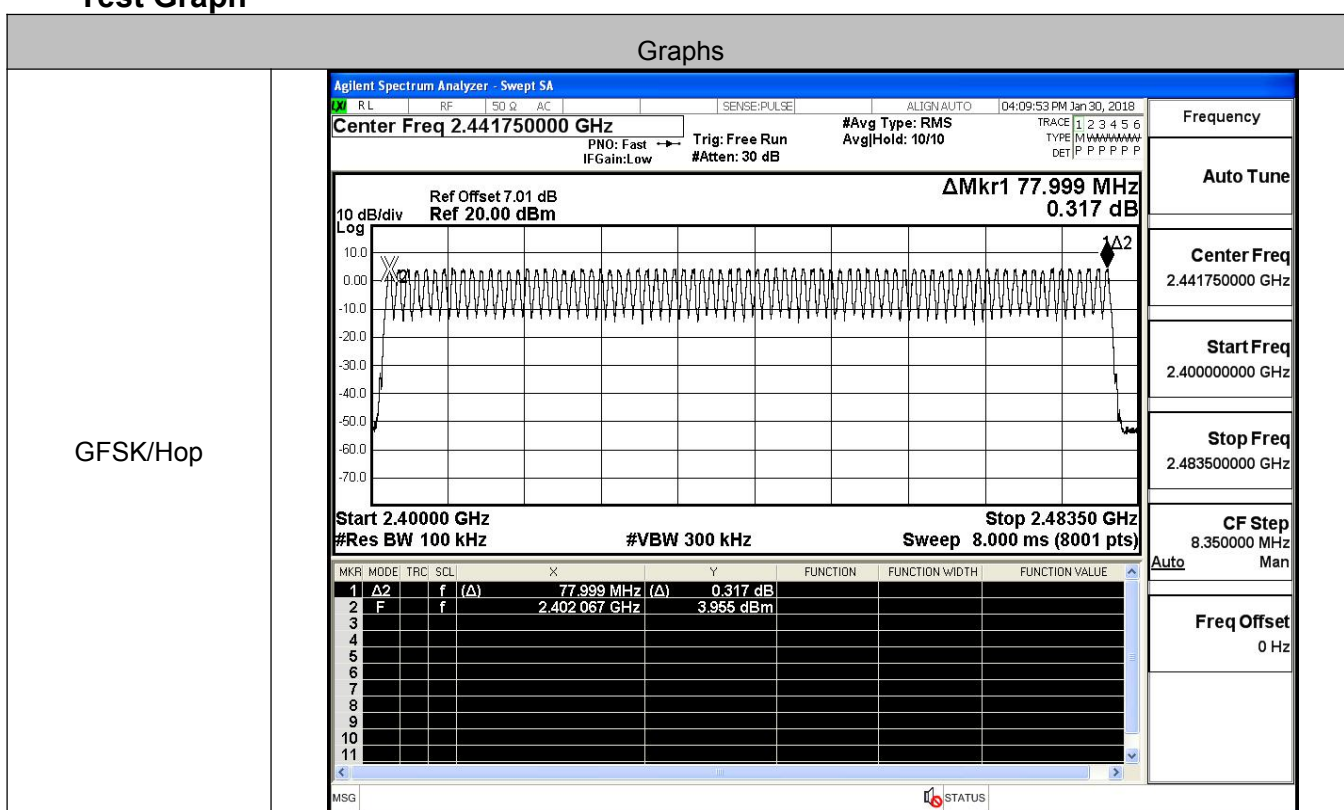


A.4 Hopping Channel Number Result Table

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

Test Graph



$\pi/4$DQPSK/Hop
--

Agilent Spectrum Analyzer - Swept SA

RL

RF

SO Q

AC

SENSE:PULSE

ALIGN:AUTO

04:14:59 PM Jan 30, 2018

Center Freq 2.441750000 GHz

PNO: Fast
IFGain:Low

Trig: Free Run
#Atten: 30 dB

#Avg Type: RMS
AvgHld: 10/10

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

10 dB/div

Ref Offset 7.01 dB

Ref 20.00 dBm

Δ Mkr1 78.125 MHz
-1.553 dB

Start 2.40000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 2.48350 GHz

Sweep 8.000 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ 2	f	(Δ)	78.125 MHz	(Δ)	-1.553 dB		
2	F	f		2.402 014 GHz		1.393 dBm		
3								
4								
5								
6								
7								
8								
9								
10								
11								

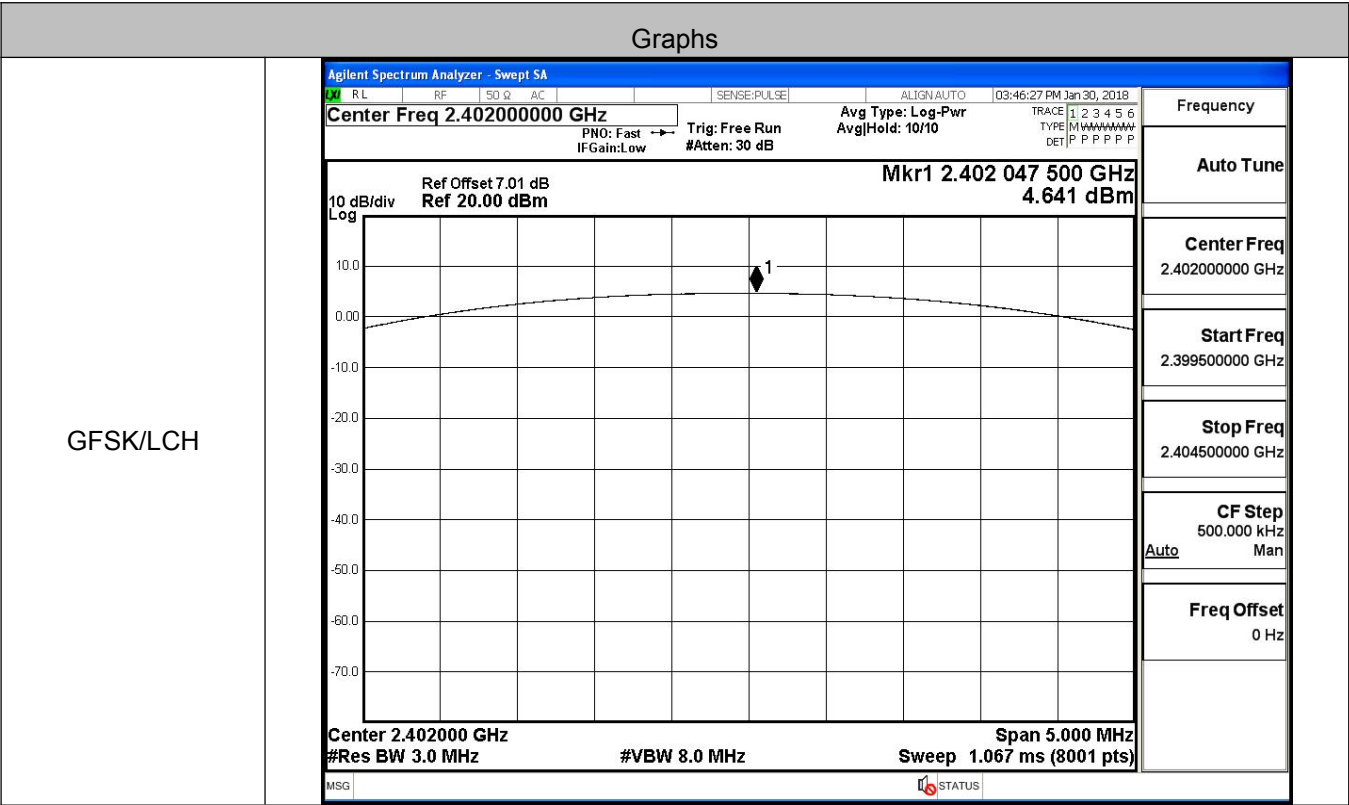
MSG

STATUS

A.5 Conducted Peak Output Power
Result Table

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	4.641	21	PASS
GFSK	MCH	4.852	21	PASS
GFSK	HCH	4.832	21	PASS
$\pi/4$ DQPSK	LCH	4.408	21	PASS
$\pi/4$ DQPSK	MCH	4.646	21	PASS
$\pi/4$ DQPSK	HCH	4.664	21	PASS
8DPSK	LCH	4.632	21	PASS
8DPSK	MCH	4.872	21	PASS
8DPSK	HCH	4.833	21	PASS

Test Graph



GFSK/MCH

GFSK/HCH

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

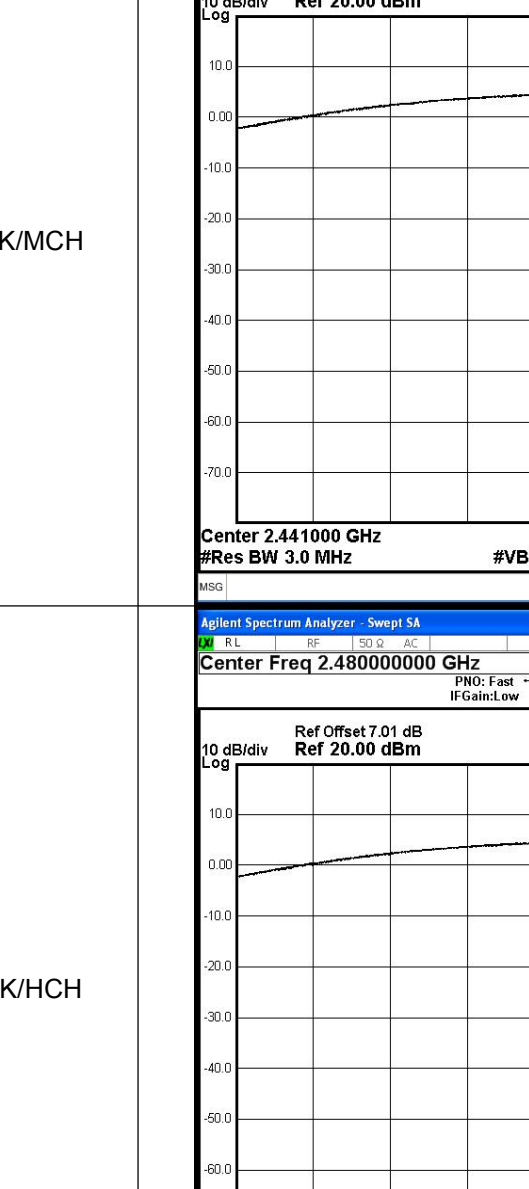
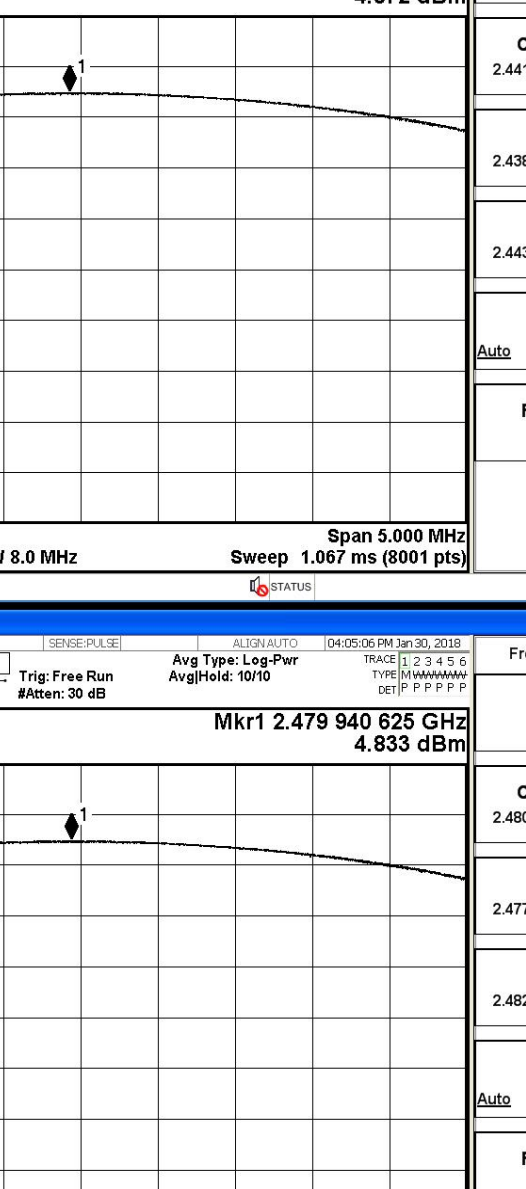
Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.477500000 GHz
Stop Freq	2.482500000 GHz
CF Step	500.000 kHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK/LCH

$\pi/4$ DQPSK/MCH

The figure consists of two vertically stacked Agilent Spectrum Analyzer screenshots. Both are set to 'Swept SA' mode. The top screenshot is for the LCH channel, showing a center frequency of 2.40200000 GHz and a marker at 2.402084375 GHz with a power of 4.408 dBm. The bottom screenshot is for the MCH channel, showing a center frequency of 2.44100000 GHz and a marker at 2.441138750 GHz with a power of 4.646 dBm. Both plots have a 10 dB/div scale and a 5.000 MHz span. The right side of each plot shows a table of parameters including Frequency, Auto Tune, Center Freq, Start Freq, Stop Freq, CF Step, and Freq Offset.

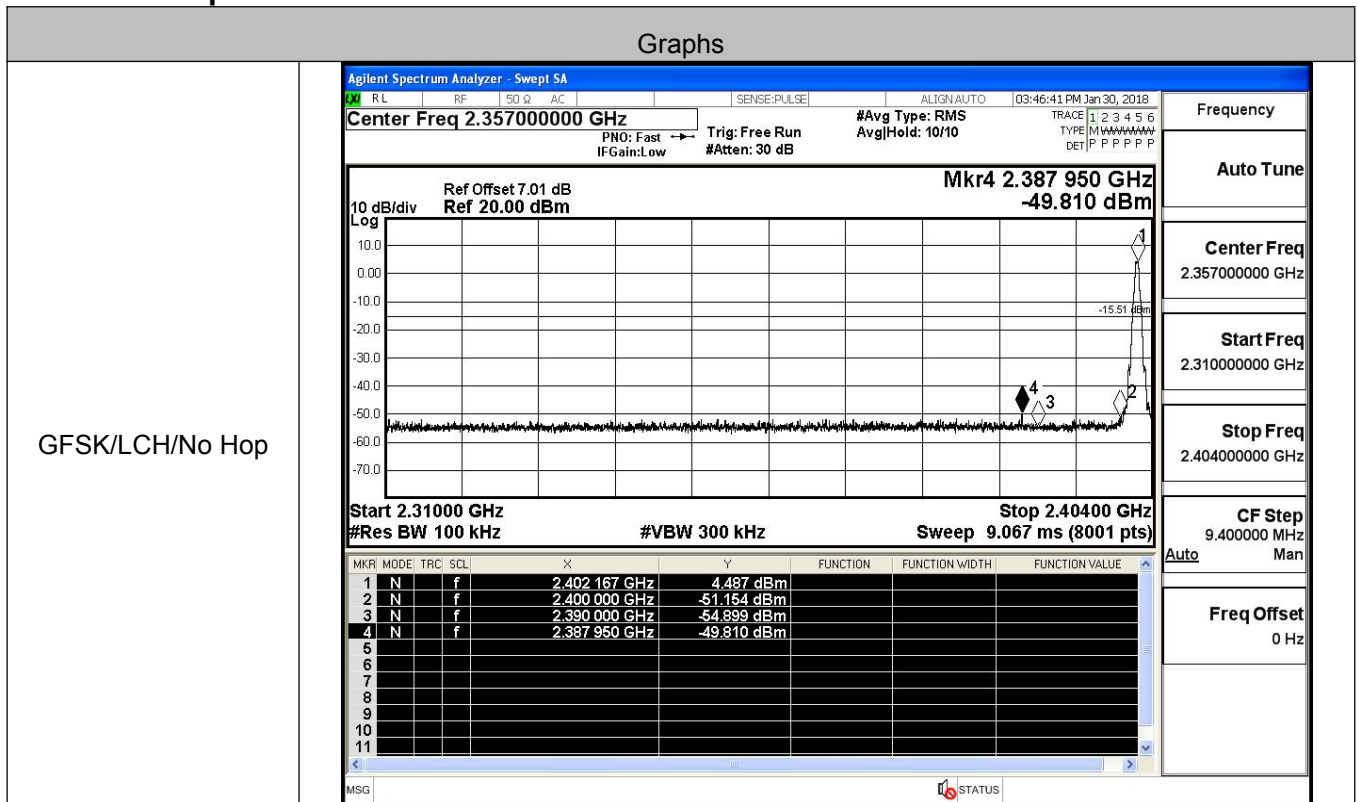
[illegible]

8DPSK/MCH	8DPSK/HCH
 Agilent Spectrum Analyzer - Swept SA Center Freq 2.44100000 GHz Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.440 924 375 GHz 4.872 dBm 10 dB/div Log Center 2.441000 GHz #Res BW 3.0 MHz #VBW 8.0 MHz Sweep 1.067 ms (8001 pts) 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	 Agilent Spectrum Analyzer - Swept SA Center Freq 2.480000000 GHz Ref Offset 7.01 dB Ref 20.00 dBm Mkr1 2.479 940 625 GHz 4.833 dBm 10 dB/div Log Center 2.480000 GHz #Res BW 3.0 MHz #VBW 8.0 MHz Sweep 1.067 ms (8001 pts) 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

A.6 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	4.487	Off	-49.810	-15.51	PASS
			4.298	On	-50.905	-15.7	PASS
GFSK	HCH	2480	4.543	Off	-50.668	-15.46	PASS
			4.640	On	-50.811	-15.36	PASS
$\pi/4$ DQPSK	LCH	2402	3.367	Off	-51.172	-16.63	PASS
			3.639	On	-50.659	-16.36	PASS
$\pi/4$ DQPSK	HCH	2480	3.803	Off	-51.715	-16.2	PASS
			3.733	On	-50.558	-16.27	PASS
8DPSK	LCH	2402	2.910	Off	-51.174	-17.09	PASS
			3.584	On	-50.892	-16.42	PASS
8DPSK	HCH	2480	3.709	Off	-51.155	-16.29	PASS
			3.717	On	-50.530	-16.28	PASS

Test Graph



Agilent Spectrum Analyzer - Swept SA

Center Freq **2.40000000 GHz** PNO: Fast IFGain: Low Trig: Free Run #Atten: 30 dB #Avg Type: RMS AvgHold: 10/10 04:08:00 PM Jan 30, 2018

Ref Offset 7.01 dB Ref 20.00 dBm Mkr4 2.389 207 5 GHz -50.905 dBm

10 dB/div Log

Center 2.40000 GHz Span 60.00 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 5.867 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.428 957 5 GHz	4.298 dBm			
2	N		f	2.400 000 0 GHz	-53.772 dBm			
3	N		f	2.390 000 0 GHz	-53.806 dBm			
4	N		f	2.389 207 5 GHz	-50.905 dBm			

MSG STATUS

Frequency

Auto Tune

Center Freq 2.40000000 GHz

Start Freq 2.370000000 GHz

Stop Freq 2.430000000 GHz

CF Step 6.000000 MHz Man

Freq Offset 0 Hz

Agilent Spectrum Analyzer - Swept SA

Center Freq **2.489000000 GHz** PNO: Fast IFGain: Low Trig: Free Run #Atten: 30 dB #Avg Type: RMS AvgHold: 10/10 03:50:37 PM Jan 30, 2018

Ref Offset 7.01 dB Ref 20.00 dBm Mkr4 2.496 471 75 GHz -50.668 dBm

10 dB/div Log

Start 2.47800 GHz Stop 2.50000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.133 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.480 164 25 GHz	4.543 dBm			
2	N		f	2.483 500 00 GHz	-53.995 dBm			
3	N		f	2.500 000 00 GHz	-52.768 dBm			
4	N		f	2.496 471 75 GHz	-50.668 dBm			

MSG STATUS

Frequency

Auto Tune

Center Freq 2.489000000 GHz

Start Freq 2.478000000 GHz

Stop Freq 2.500000000 GHz

CF Step 2.200000 MHz Man

Freq Offset 0 Hz

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.48350000 GHz

Ref Offset 7.01 dB
Ref 20.00 dBm

Mkr4 2.484 467 5 GHz
-50.811 dBm

10 dB/div
Log

Start 2.48350 GHz
#Res BW 100 kHz

Stop 2.51350 GHz
#VBW 300 kHz

Sweep 5.867 ms (8001 pts)

Span 60.00 MHz

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	f		2.469 167 5 GHz	4.640 dBm			
2	N	f		2.483 500 0 GHz	-53.509 dBm			
3	N	f		2.500 000 0 GHz	-52.933 dBm			
4	N	f		2.484 467 5 GHz	-50.811 dBm			

MSG STATUS

Frequency

Auto Tune

Center Freq
2.483500000 GHz

Start Freq
2.453500000 GHz

Stop Freq
2.513500000 GHz

CF Step
6.000000 MHz

Freq Offset
0 Hz

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.357000000 GHz

Ref Offset 7.01 dB
Ref 20.00 dBm

Mkr4 2.367 211 GHz
-51.172 dBm

10 dB/div
Log

Start 2.31000 GHz
#Res BW 100 kHz

Stop 2.40400 GHz
#VBW 300 kHz

Sweep 9.067 ms (8001 pts)

Span 90.00 MHz

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	f		2.402 038 GHz	3.367 dBm			
2	N	f		2.400 000 GHz	-50.228 dBm			
3	N	f		2.390 000 GHz	-54.611 dBm			
4	N	f		2.367 211 GHz	-51.172 dBm			

MSG STATUS

Frequency

Auto Tune

Center Freq
2.357000000 GHz

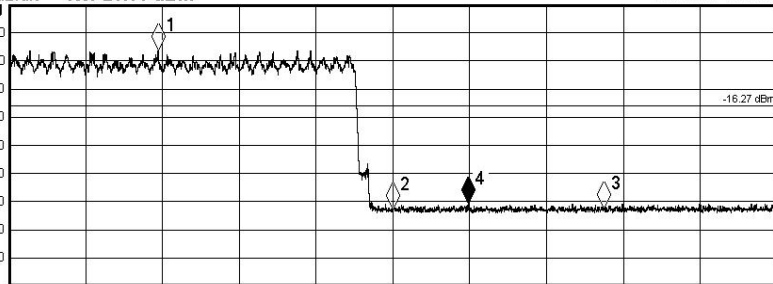
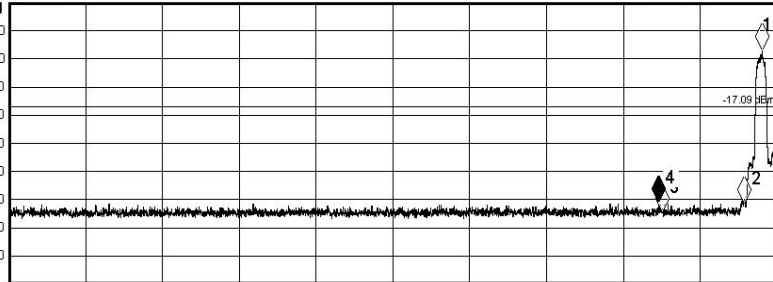
Start Freq
2.310000000 GHz

Stop Freq
2.404000000 GHz

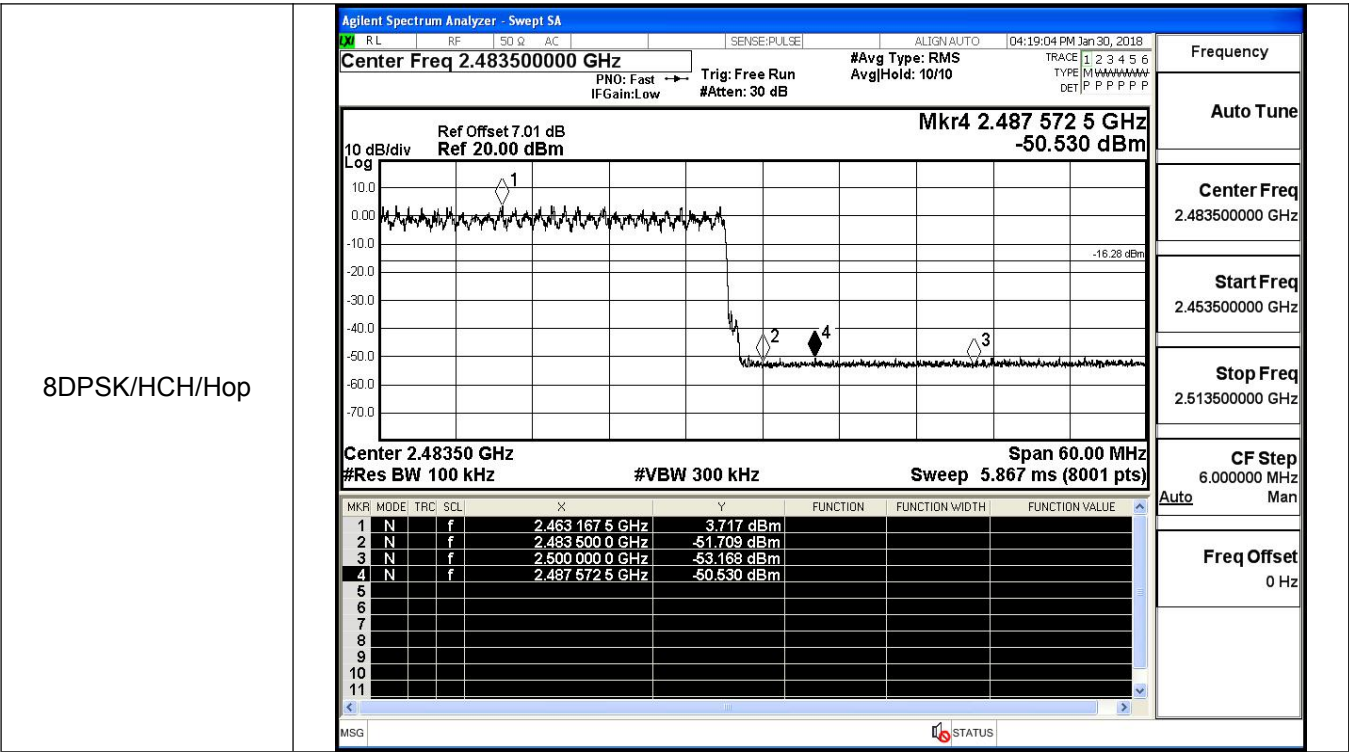
CF Step
9.400000 MHz

Freq Offset
0 Hz

$\pi/4$DQPSK/LCH/Hop
--

$\pi/4$ DQPSK/HCH/Hop	Agilent Spectrum Analyzer - Swept SA RL RF 50 Q AC SENSE:PULSE ALIGN:AUTO 04:13:45 PM Jan 30, 2018 Center Freq 2.483500000 GHz PNO: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB #Avg Type: RMS Avg/Hold: 10/10 TRACE 1 2 3 4 5 6 TYPE M W W W W W W W DET P P P P P P Ref Offset 7.01 dB Ref 20.00 dBm Mkr4 2.489 395 0 GHz -50.558 dBm 10 dB/div Log  Center 2.48350 GHz #Res BW 100 kHz #VBW 300 kHz Span 60.00 MHz Sweep 5.867 ms (8001 pts) <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>N</td><td></td><td>f</td><td>2.465 162 5 GHz</td><td>3.733 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td></td><td>f</td><td>2.483 500 0 GHz</td><td>-52.776 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td></td><td>f</td><td>2.500 000 0 GHz</td><td>-52.593 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td></td><td>f</td><td>2.489 395 0 GHz</td><td>-50.558 dBm</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> MSG STATUS	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N		f	2.465 162 5 GHz	3.733 dBm				2	N		f	2.483 500 0 GHz	-52.776 dBm				3	N		f	2.500 000 0 GHz	-52.593 dBm				4	N		f	2.489 395 0 GHz	-50.558 dBm				5									6									7									8									9									10									11									Frequency Auto Tune Center Freq 2.483500000 GHz Start Freq 2.453500000 GHz Stop Freq 2.513500000 GHz CF Step 6.000000 MHz Auto Freq Offset 0 Hz
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8DPSK/LCH/No Hop	Agilent Spectrum Analyzer - Swept SA RL RF 50 Q AC SENSE:PULSE ALIGN:AUTO 04:01:16 PM Jan 30, 2018 Center Freq 2.357000000 GHz PNO: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB #Avg Type: RMS Avg/Hold: 10/10 TRACE 1 2 3 4 5 6 TYPE M W W W W W W W DET P P P P P P Ref Offset 7.01 dB Ref 20.00 dBm Mkr4 2.389 512 GHz -51.174 dBm 10 dB/div Log  Start 2.31000 GHz #Res BW 100 kHz #VBW 300 kHz Stop 2.40400 GHz Sweep 9.067 ms (8001 pts) <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>N</td><td></td><td>f</td><td>2.402 144 GHz</td><td>2.910 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td></td><td>f</td><td>2.400 000 GHz</td><td>-51.333 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td></td><td>f</td><td>2.390 000 GHz</td><td>-54.317 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td></td><td>f</td><td>2.389 512 GHz</td><td>-51.174 dBm</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> MSG STATUS	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N		f	2.402 144 GHz	2.910 dBm				2	N		f	2.400 000 GHz	-51.333 dBm				3	N		f	2.390 000 GHz	-54.317 dBm				4	N		f	2.389 512 GHz	-51.174 dBm				5									6									7									8									9									10									11									Frequency Auto Tune Center Freq 2.357000000 GHz Start Freq 2.310000000 GHz Stop Freq 2.404000000 GHz CF Step 9.400000 MHz Auto Freq Offset 0 Hz
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8DPSK/HCH/No Hop



A.7 RF Conducted Spurious Emissions
Result Table

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit[dBm]	Verdict
GFSK	LCH	4.380	-45.279	-15.620	PASS
GFSK	MCH	4.557	-45.200	-15.443	PASS
GFSK	HCH	4.442	-45.445	-15.558	PASS
$\pi/4$ DQPSK	LCH	3.378	-45.553	-16.622	PASS
$\pi/4$ DQPSK	MCH	3.304	-45.265	-16.696	PASS
$\pi/4$ DQPSK	HCH	3.579	-45.911	-16.421	PASS
8DPSK	LCH	2.837	-45.489	-17.163	PASS
8DPSK	MCH	3.072	-45.750	-16.928	PASS
8DPSK	HCH	3.658	-45.545	-16.342	PASS

Test Graph

