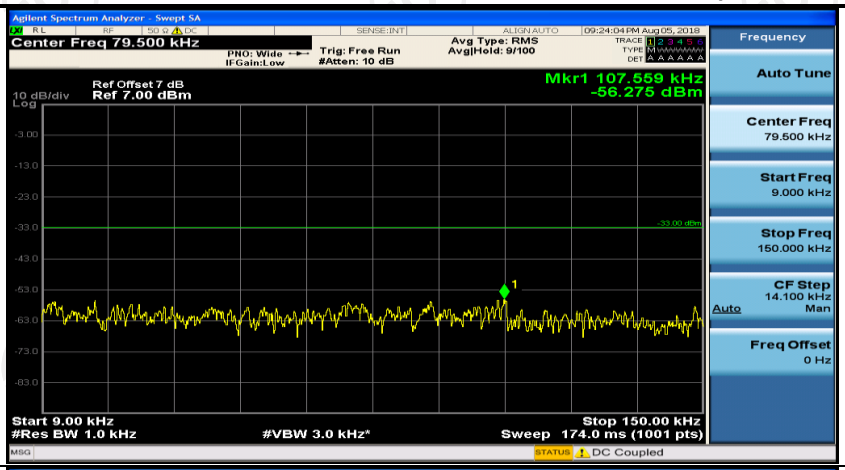
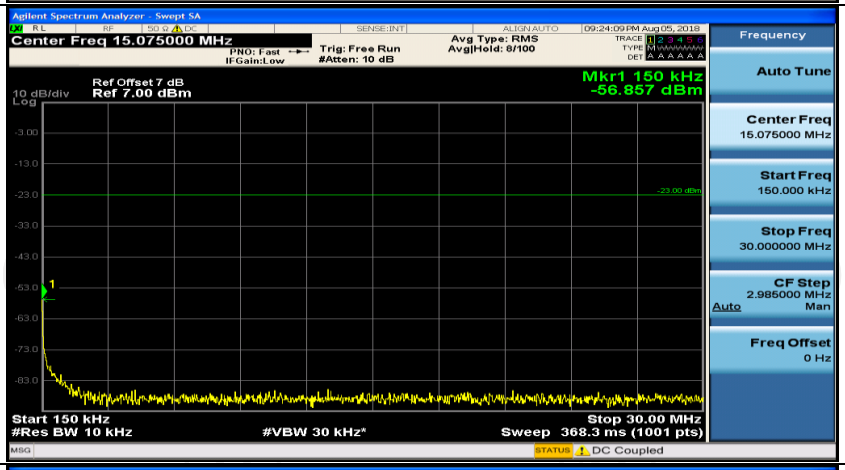
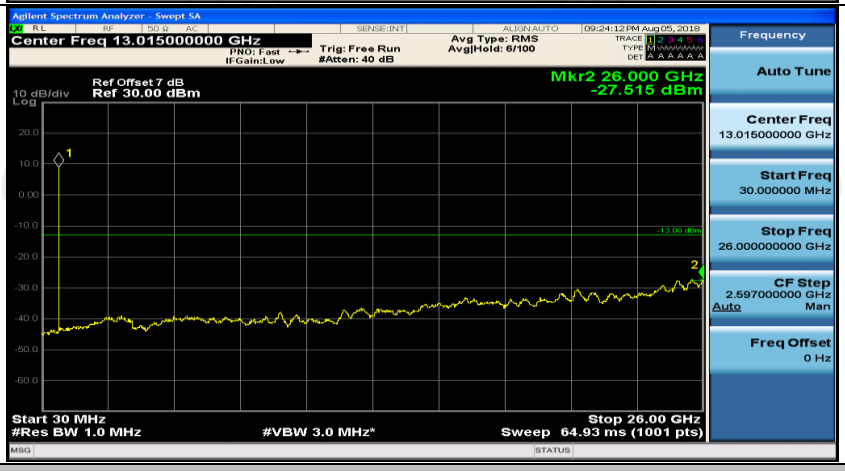
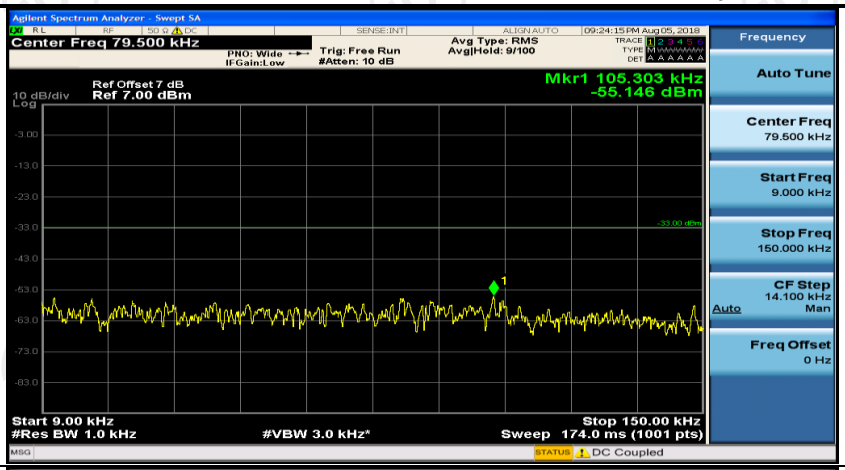
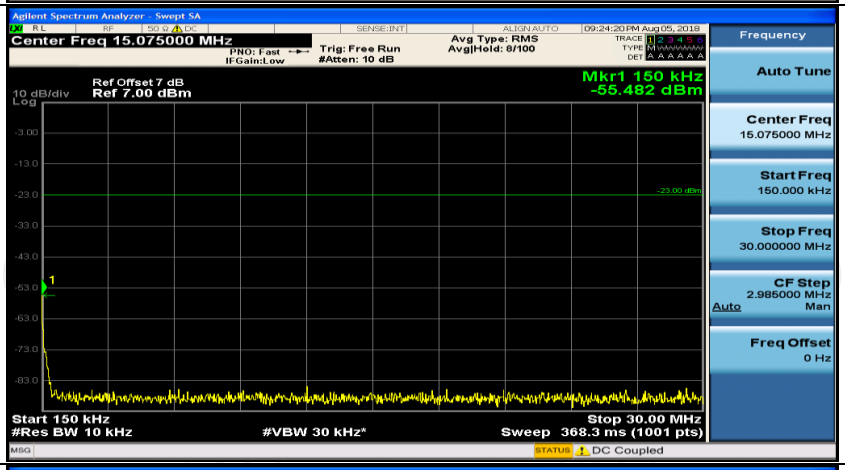


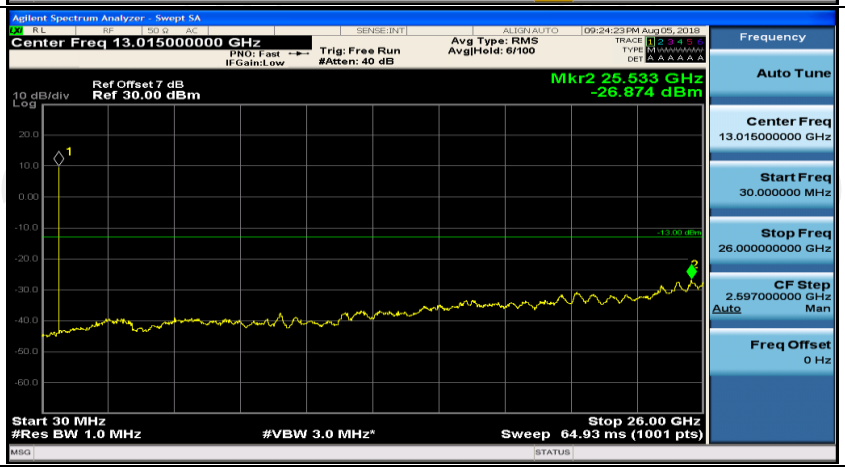




(Channel Bandwidth: 5 MHz)_LCH_16QAM_1RB#24







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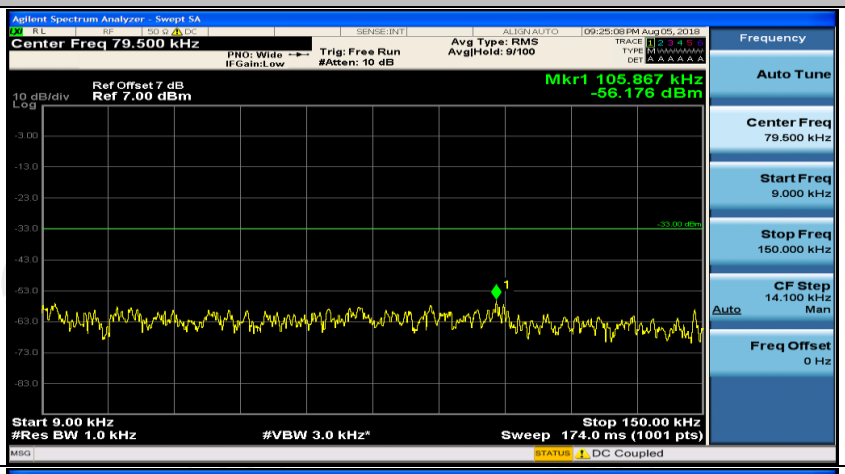
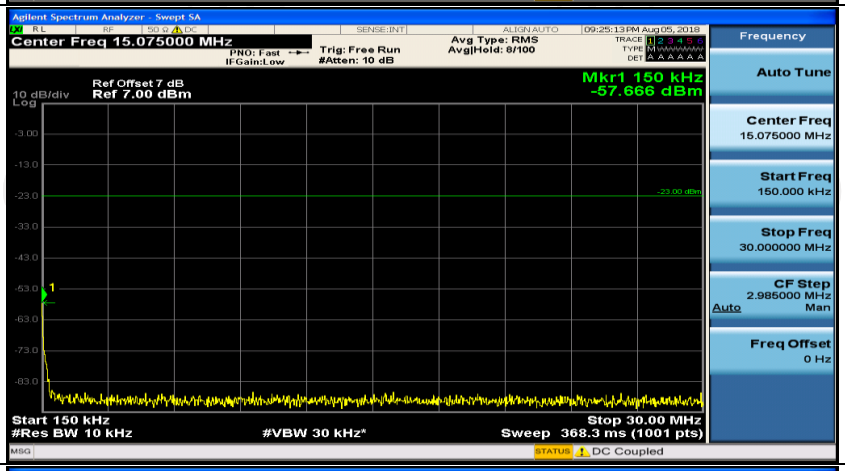
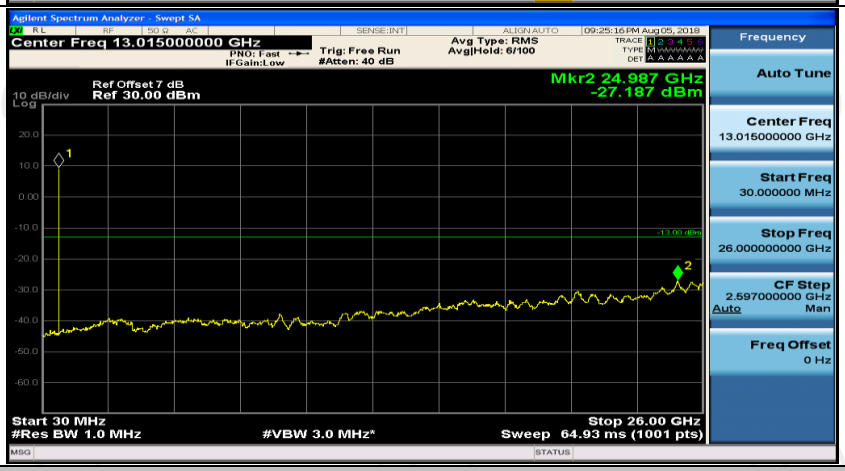
(Channel Bandwidth: 5 MHz)_MCH_16QAM_1RB#0

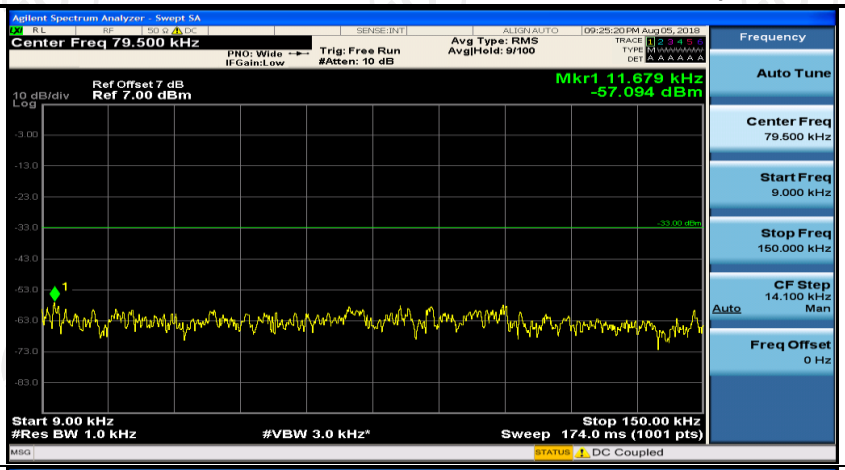


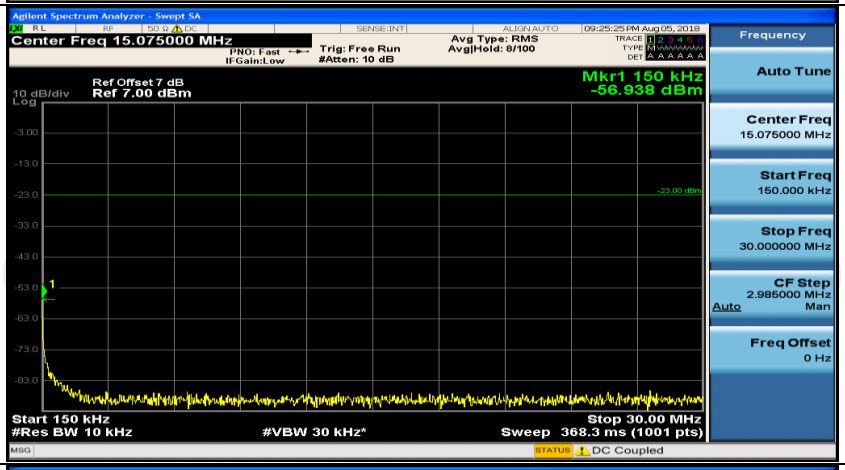


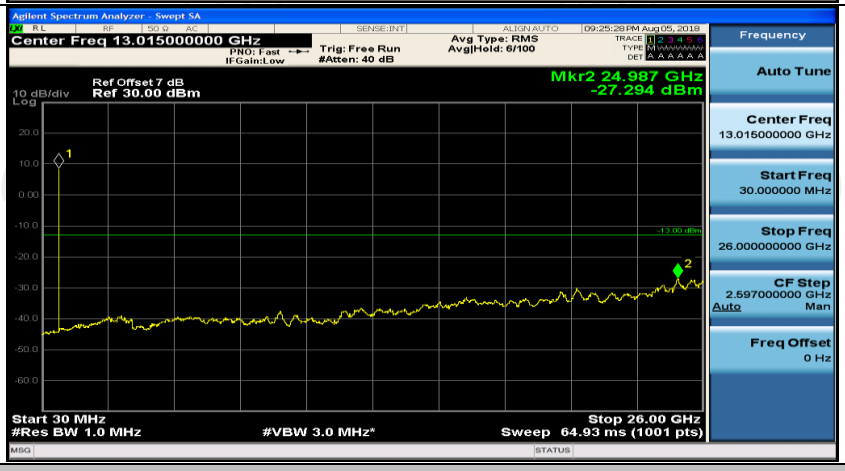


(Channel Bandwidth: 5 MHz)_MCH_16QAM_1RB#12

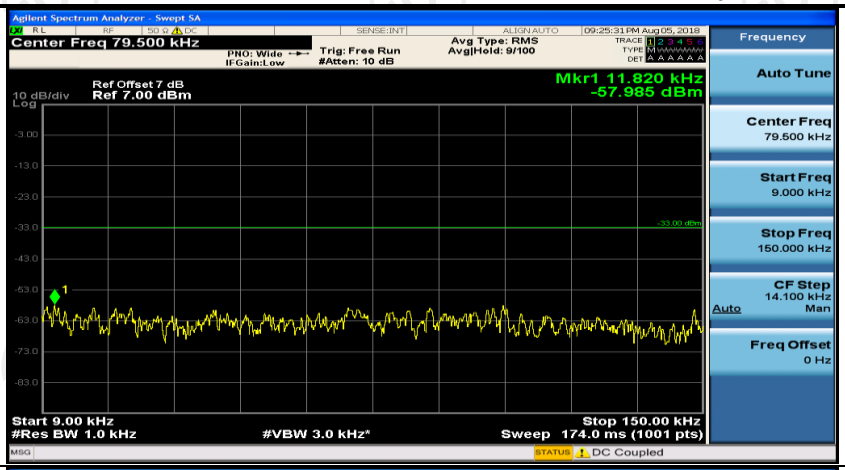
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

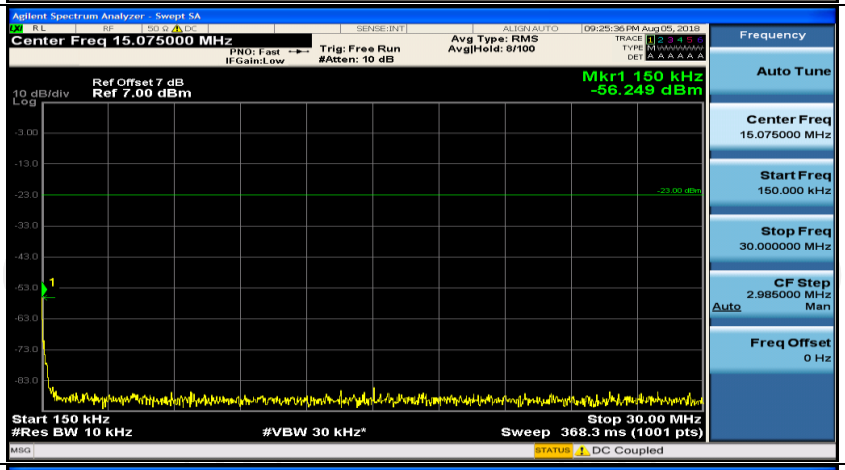


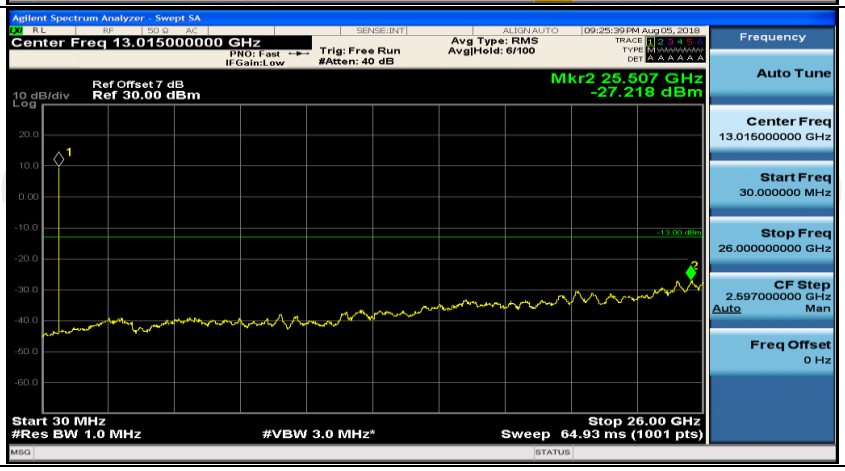




(Channel Bandwidth: 5 MHz)_MCH_16QAM_1RB#24







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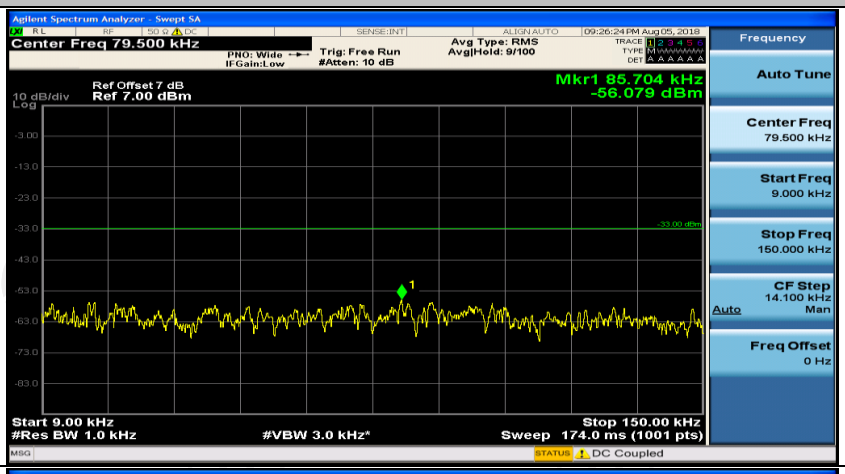
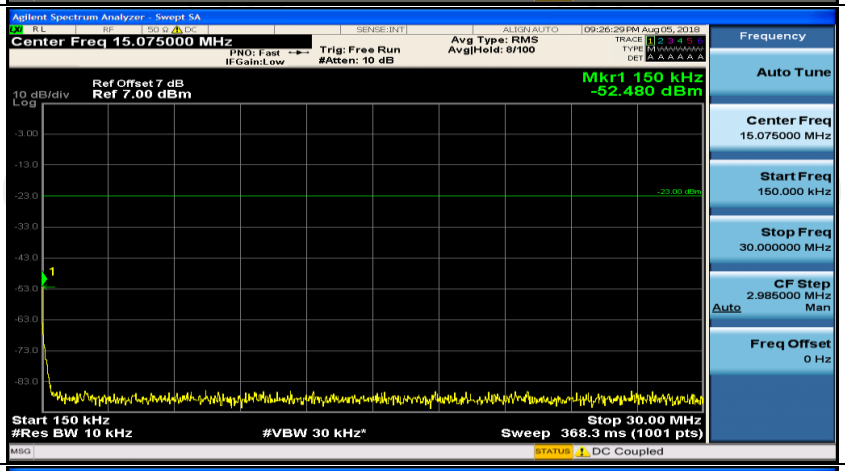
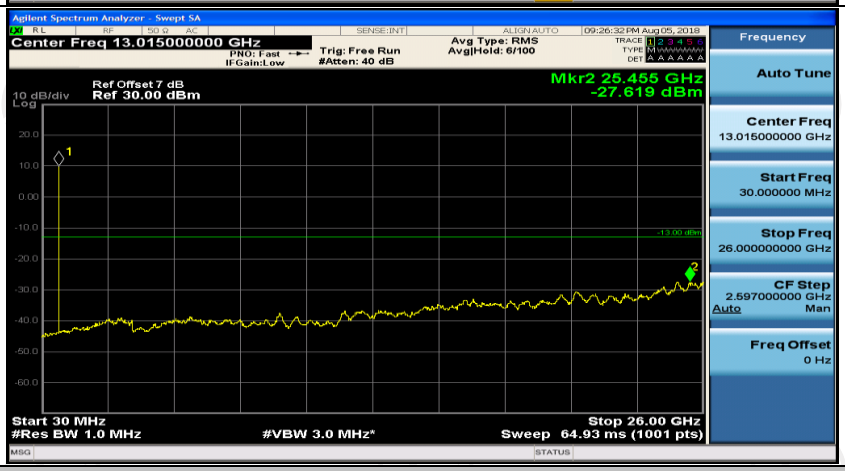
(Channel Bandwidth: 5 MHz)_HCH_16QAM_1RB#0







(Channel Bandwidth: 5 MHz)_HCH_16QAM_1RB#12

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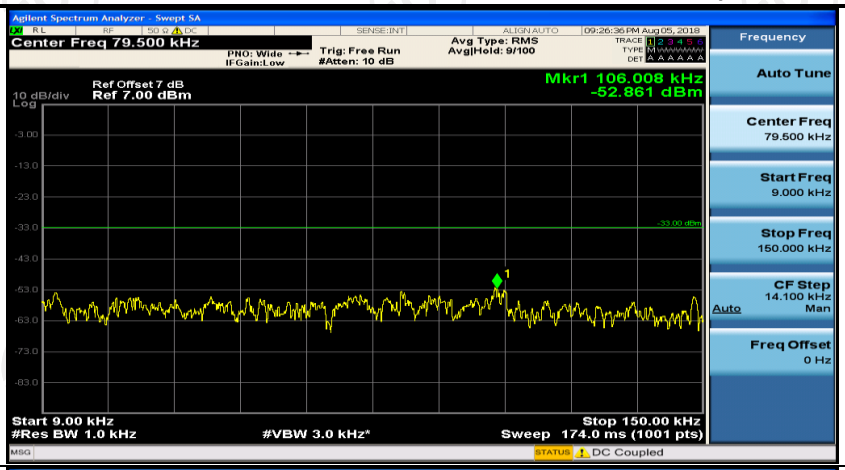
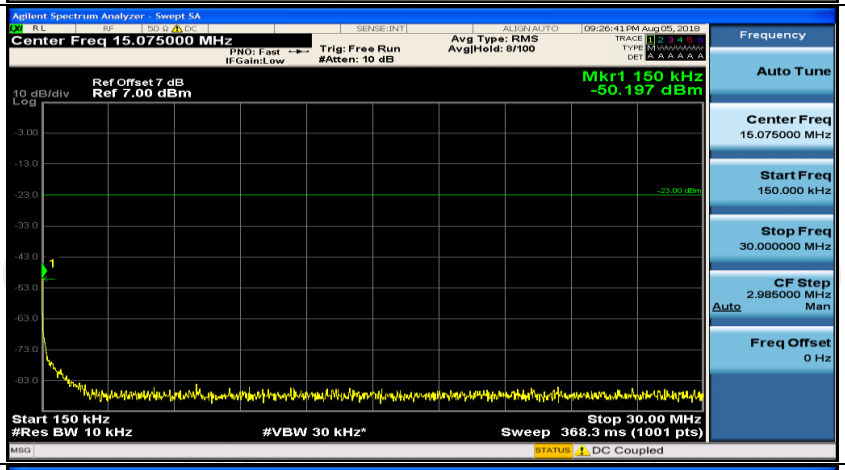
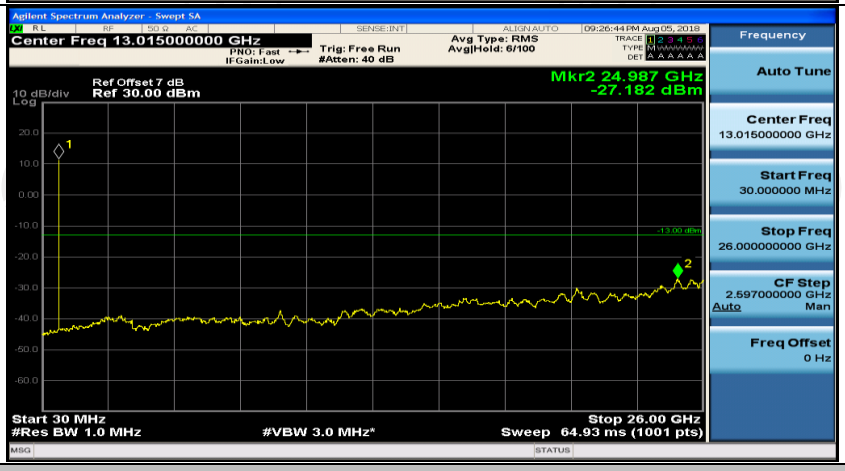
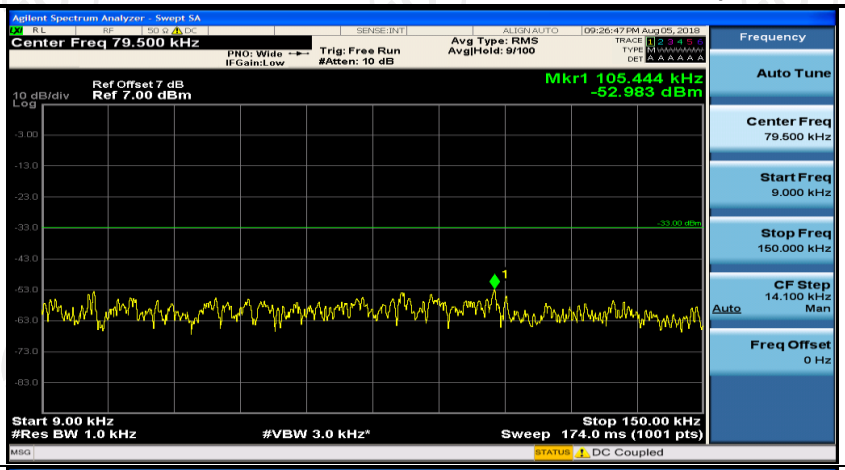
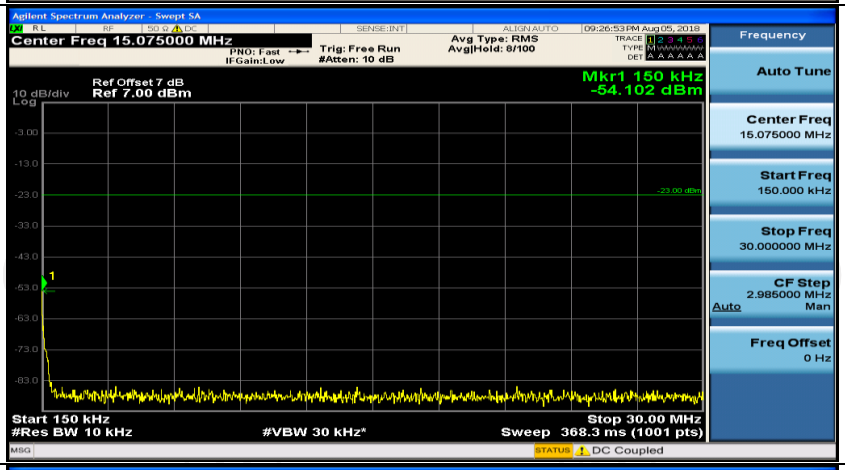


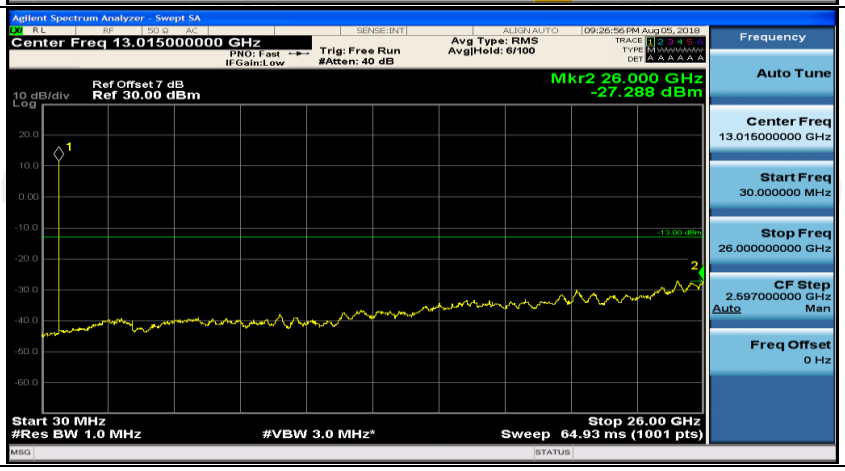




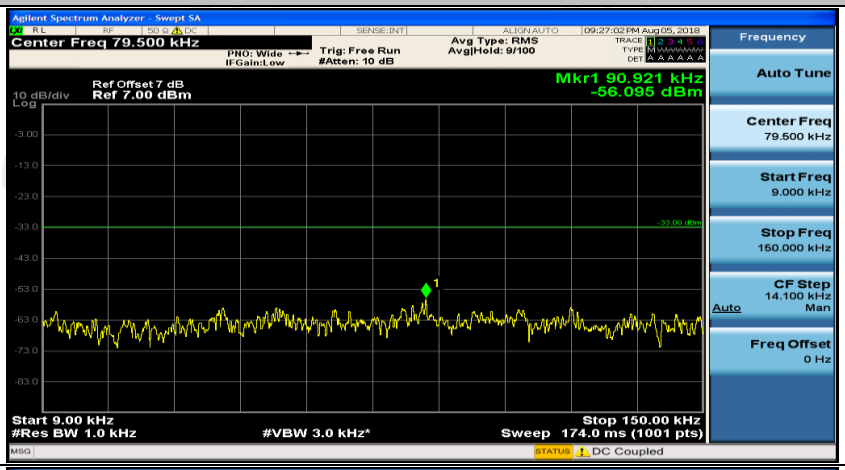
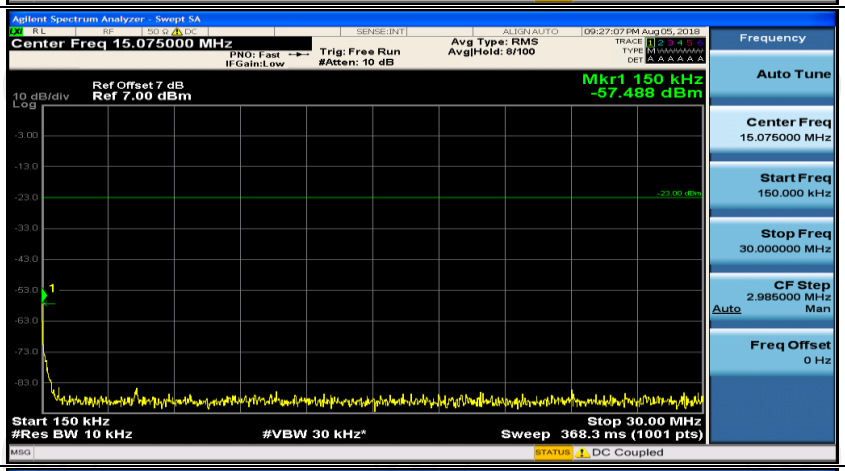
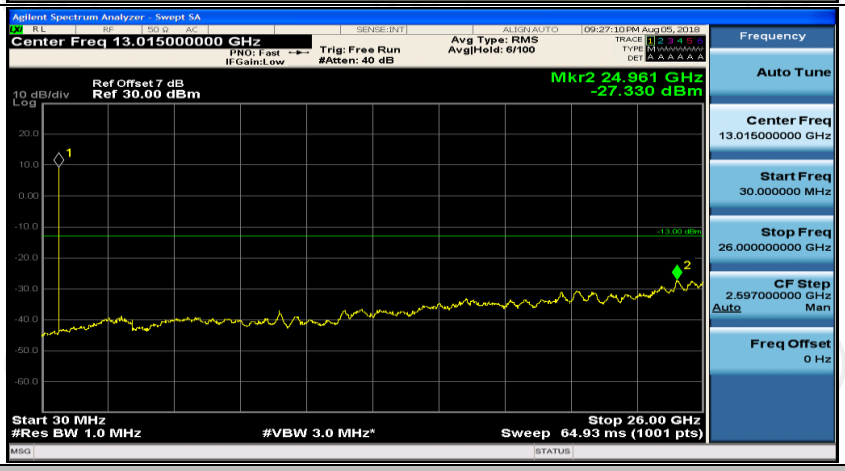
(Channel Bandwidth: 5 MHz)_HCH_16QAM_1RB#24


Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
09:26:47 PM Aug 05, 2018
Mkr1 105.444 kHz
-52.983 dBm
Ref Offset 7 dB
10 dB/div
Log
Ref 7.00 dBm
-33.00 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.0 ms (1001 pts)
DC Coupled
Frequency
Auto Tune
Center Freq
79.500 kHz
Start Freq
9.000 kHz
Stop Freq
150.000 kHz
CF Step
14.100 kHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 8/100
09:26:53 PM Aug 05, 2018
Mkr1 150 kHz
-54.102 dBm
Ref Offset 7 dB
10 dB/div
Log
Ref 7.00 dBm
-23.00 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.3 ms (1001 pts)
DC Coupled
Frequency
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 6/100
09:26:56 PM Aug 05, 2018
Mkr2 26.000 GHz
-27.288 dBm
Ref Offset 7 dB
10 dB/div
Log
Ref 30.00 dBm
-13.00 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.93 ms (1001 pts)
Frequency
Auto Tune
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz

Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz_LCH_QPSK_1RB#0



Channel Bandwidth: 10 MHz_LCH_QPSK_1RB#24

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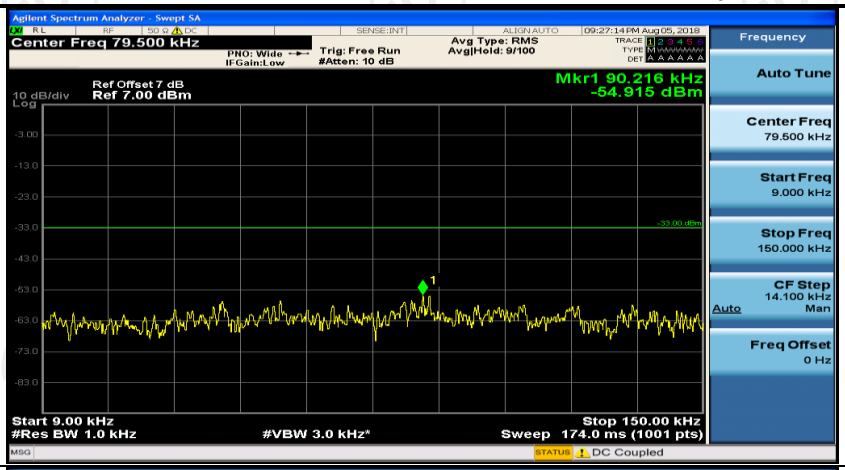
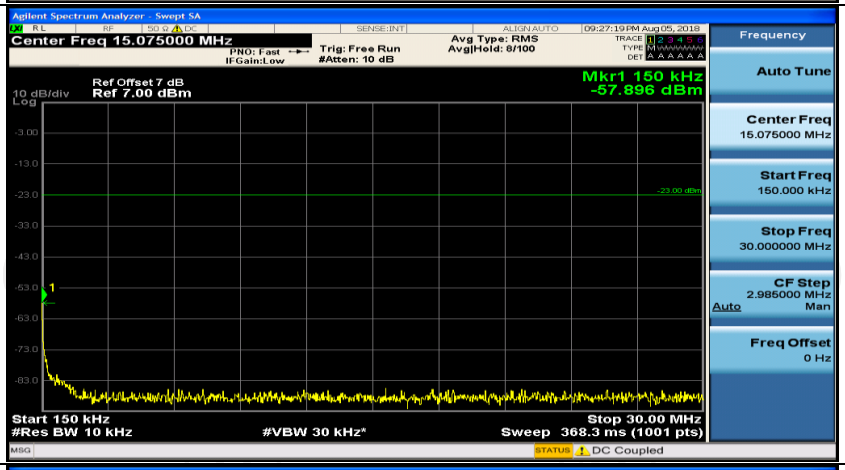
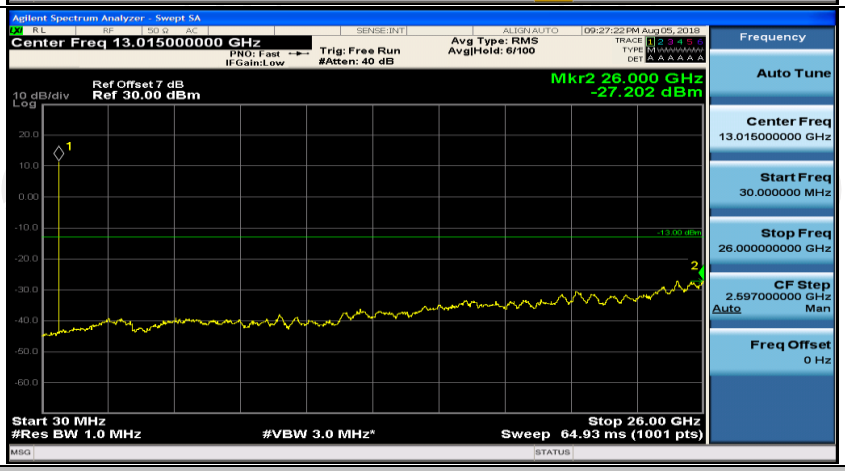
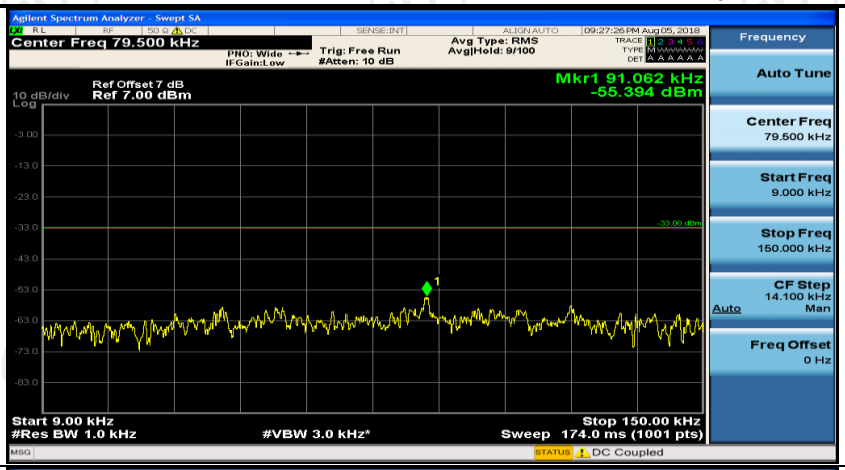
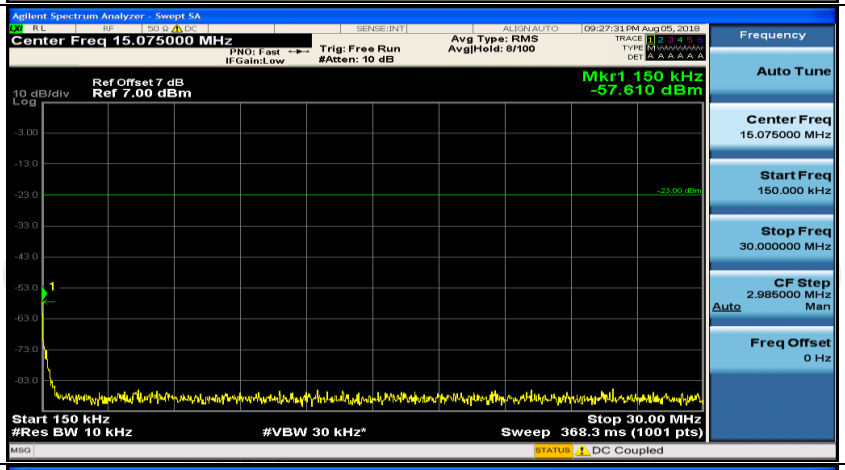


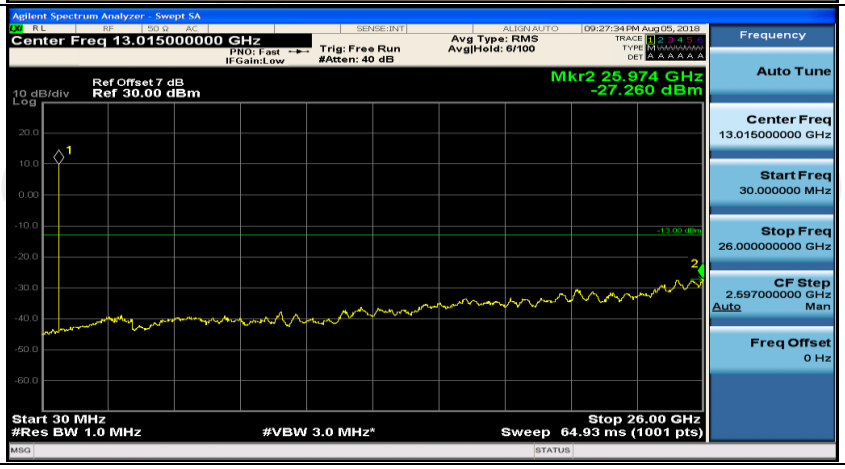




Channel Bandwidth: 10 MHz_LCH_QPSK_1RB#49







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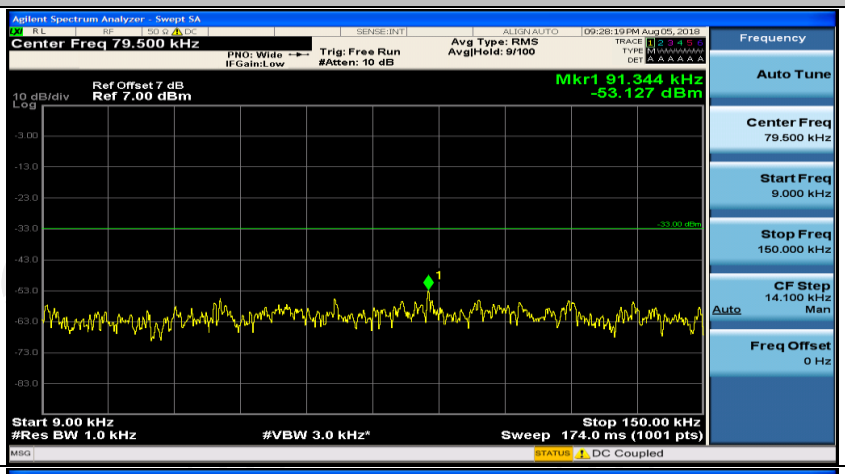
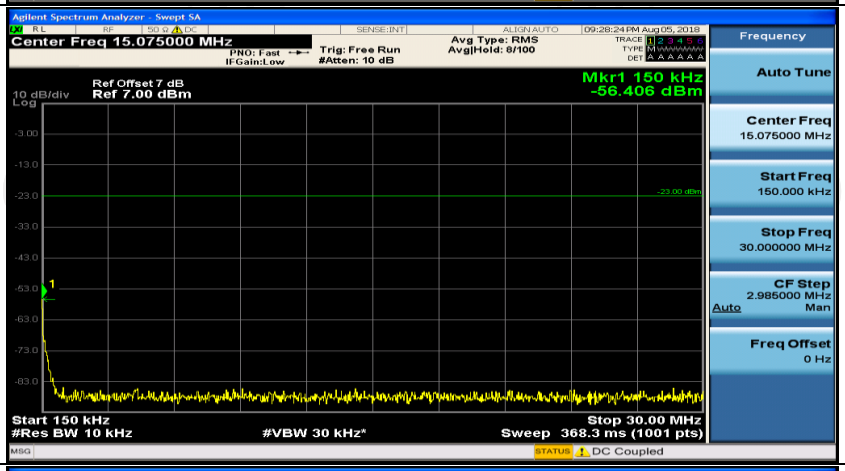
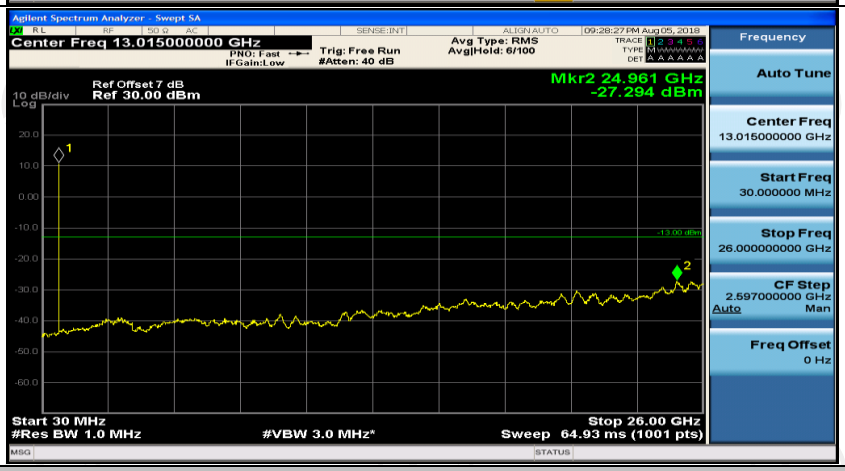
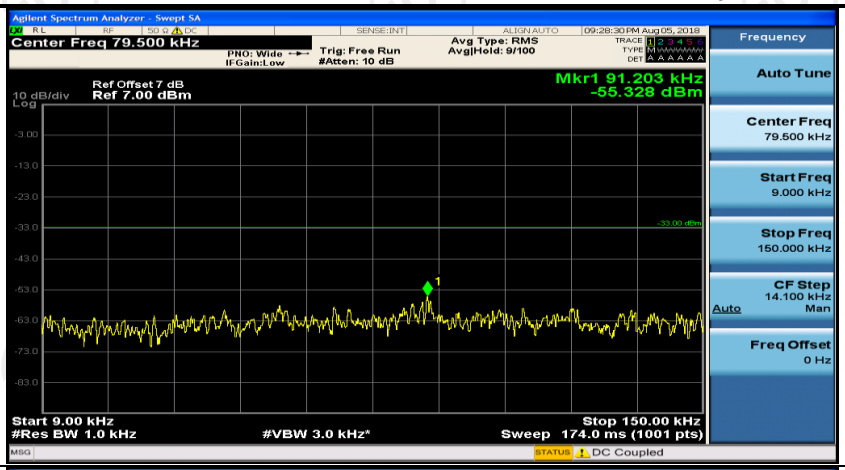
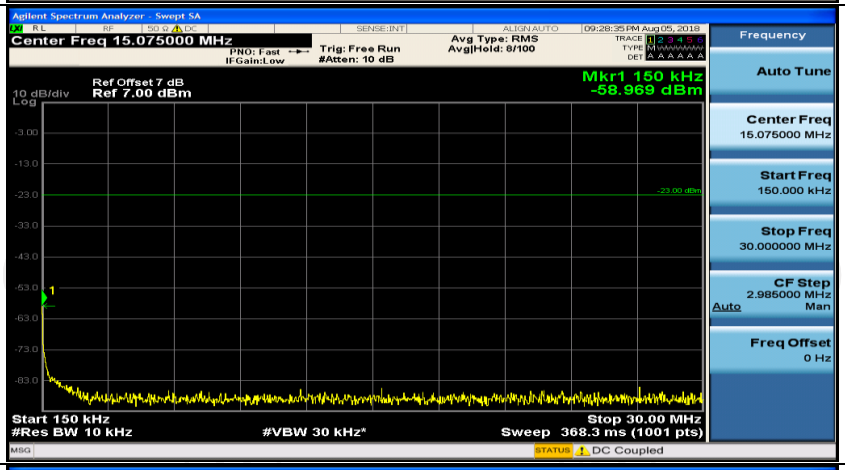
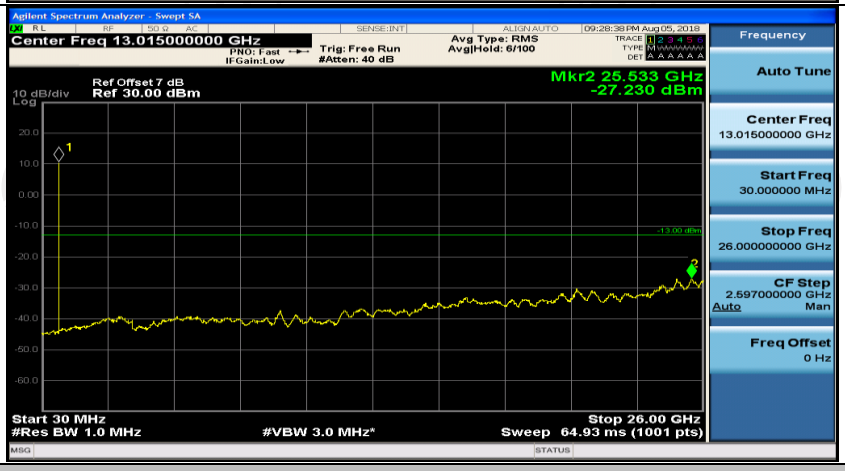
Channel Bandwidth: 10 MHz_MCH_QPSK_1RB#0



Channel Bandwidth: 10 MHz_MCH_QPSK_1RB#24

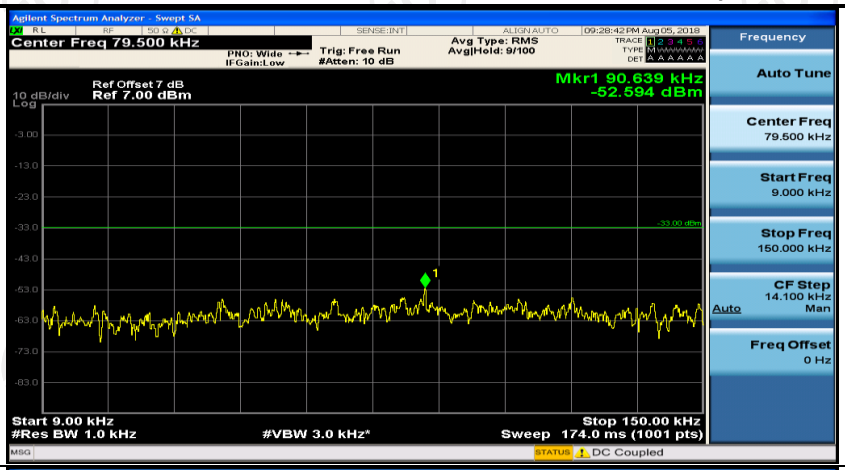
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

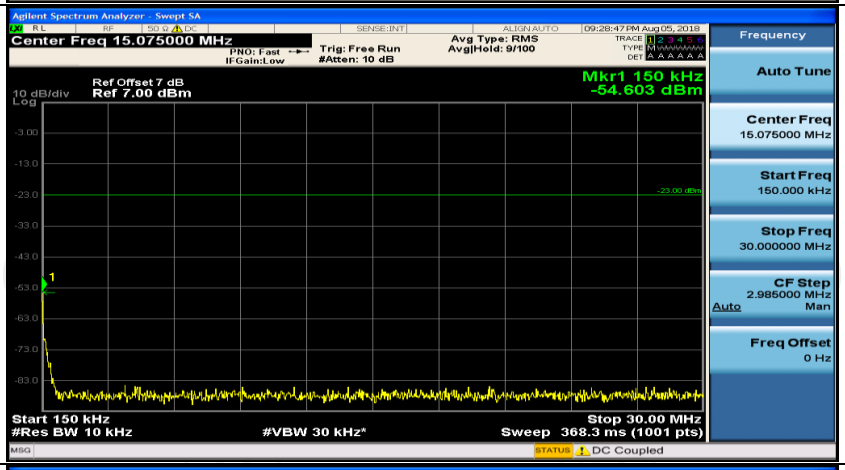


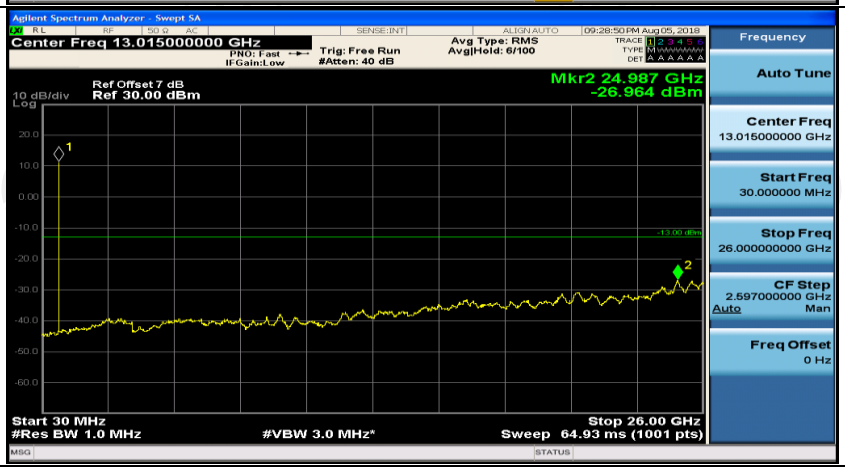


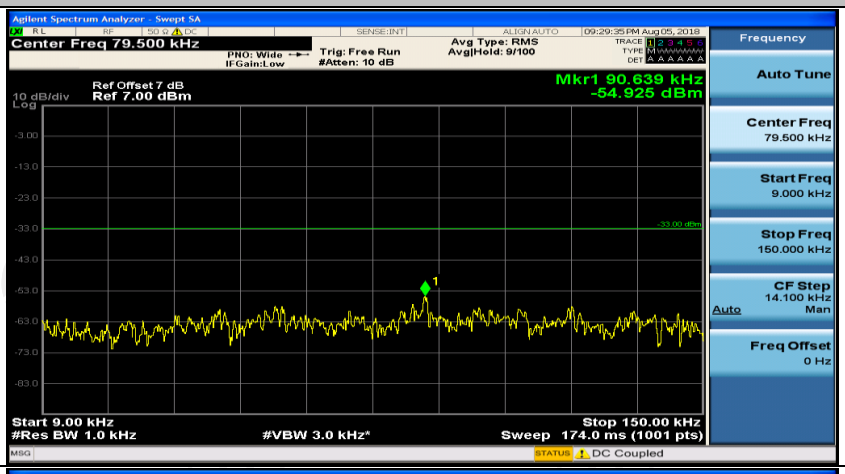
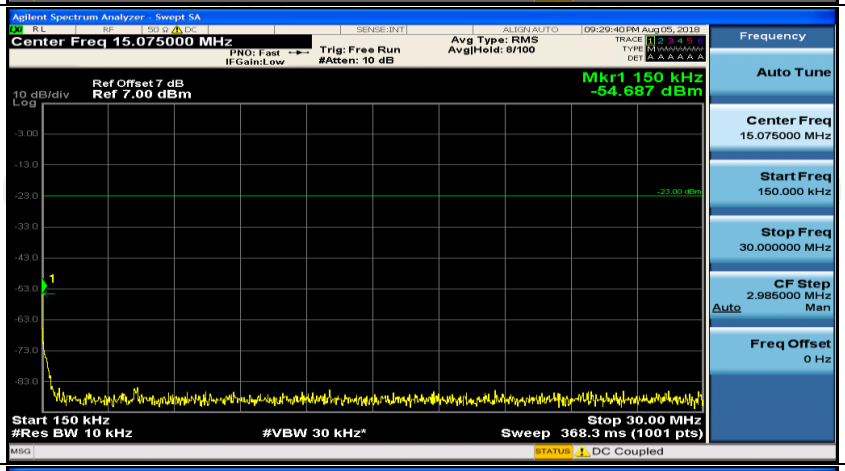
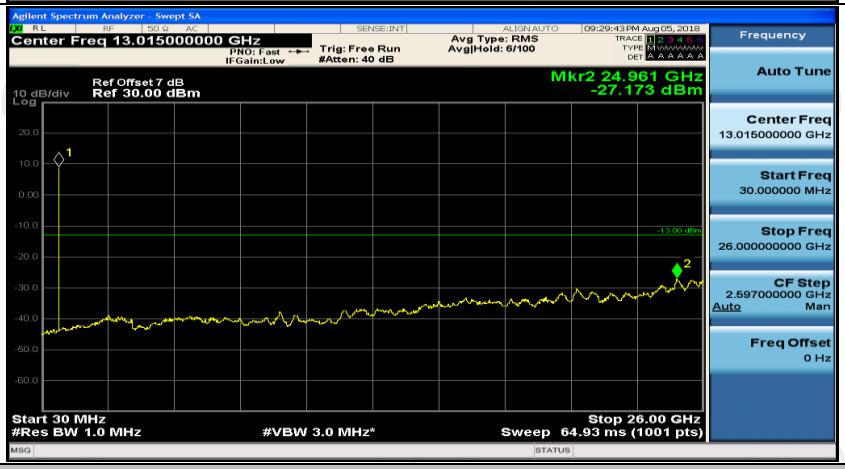


Channel Bandwidth: 10 MHz_MCH_QPSK_1RB#49

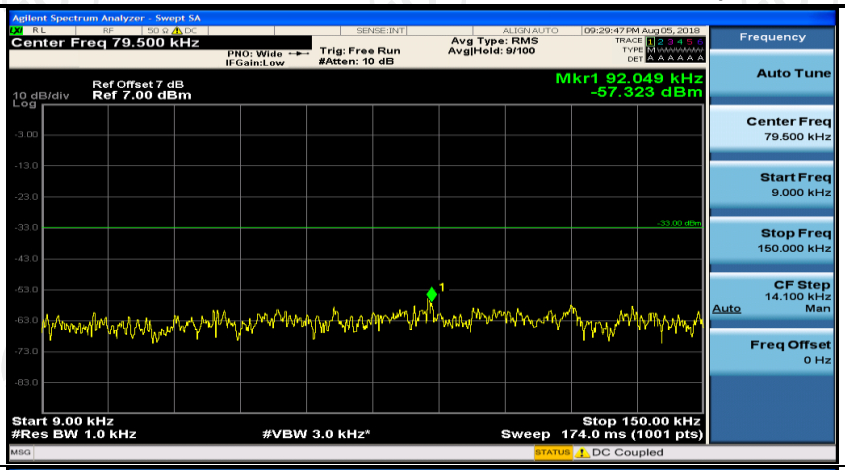

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
09:28:42 PM Aug 05, 2018
Mkr1 90.639 kHz
-52.594 dBm
Ref Offset 7 dB
10 dB/div
Log
Ref 7.00 dBm
-33.00 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.0 ms (1001 pts)
DC Coupled
Frequency
Auto Tune
Center Freq
79.500 kHz
Start Freq
9.000 kHz
Stop Freq
150.000 kHz
CF Step
14.100 kHz
Auto
Man
Freq Offset
0 Hz

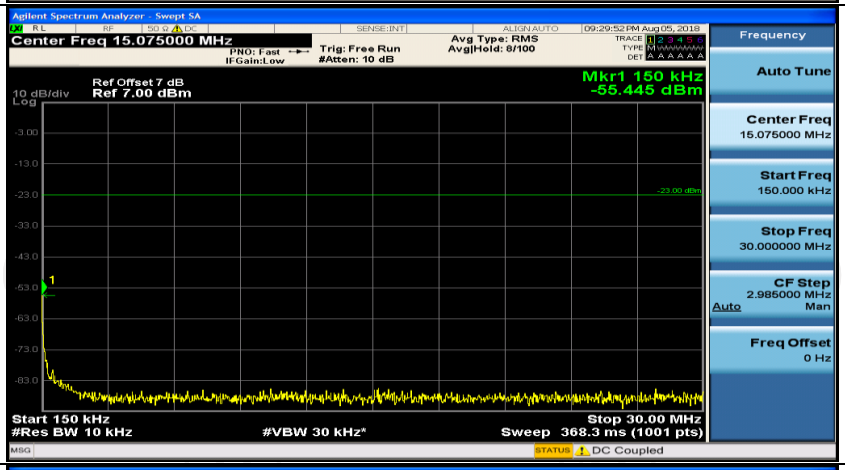

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
09:28:47 PM Aug 05, 2018
Mkr1 150 kHz
-54.603 dBm
Ref Offset 7 dB
10 dB/div
Log
Ref 7.00 dBm
-23.00 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.3 ms (1001 pts)
DC Coupled
Frequency
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz

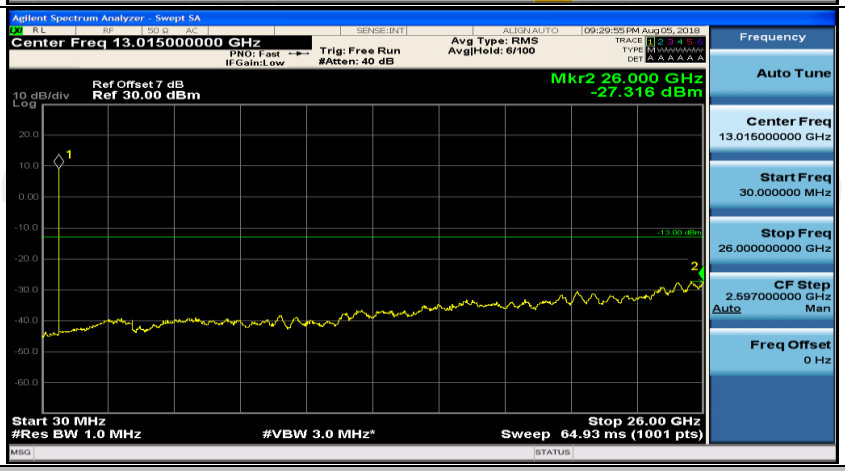

Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 6/100
09:28:50 PM Aug 05, 2018
Mkr2 24.987 GHz
-26.964 dBm
Ref Offset 7 dB
10 dB/div
Log
Ref 30.00 dBm
-13.00 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.93 ms (1001 pts)
Frequency
Auto Tune
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz

Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#0



Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#24

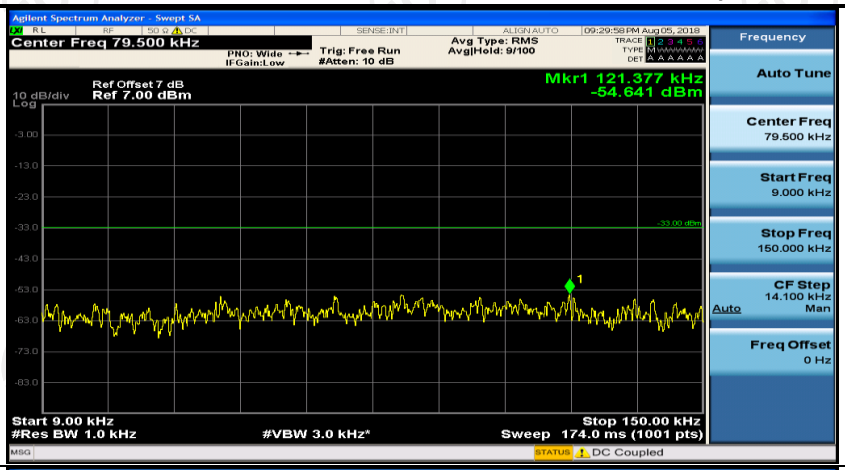
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

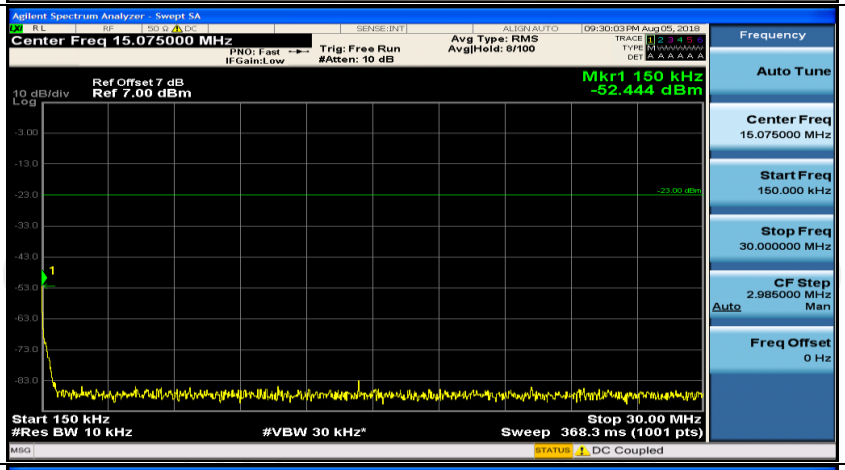


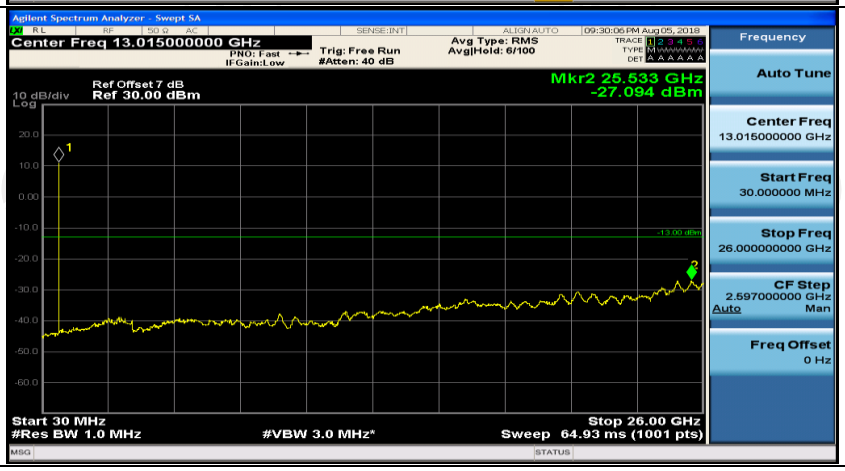




Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#49







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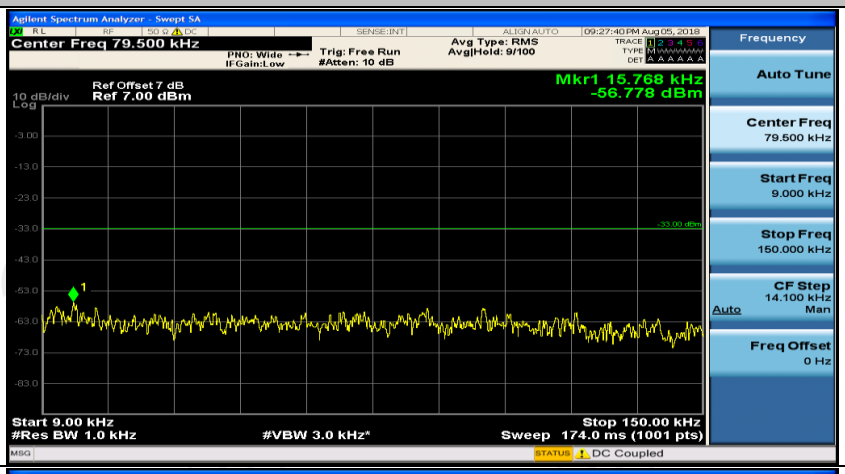
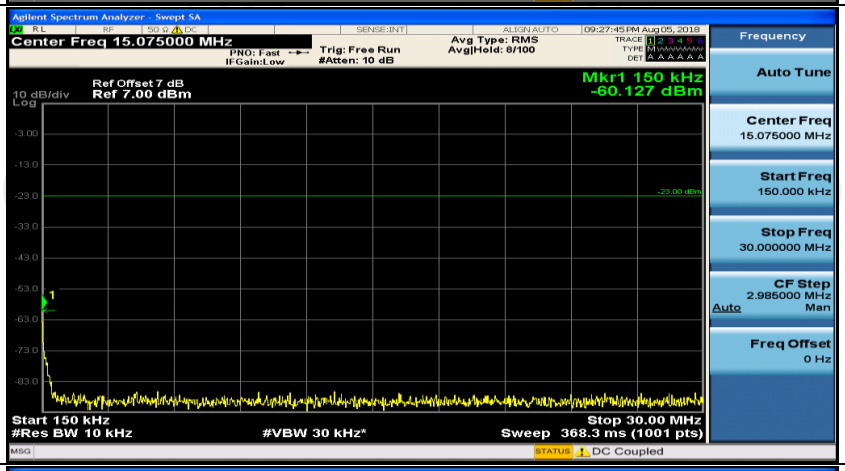
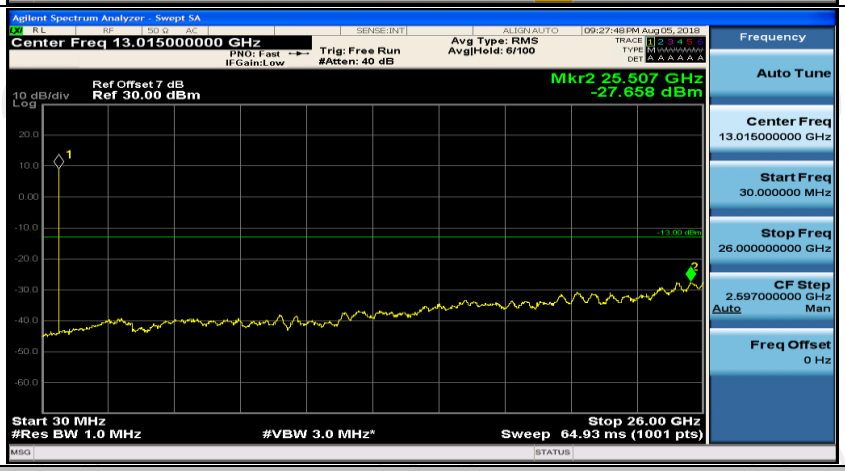
Channel Bandwidth: 10 MHz_LCH_16QAM_1RB#0



Channel Bandwidth: 10 MHz_LCH_16QAM_1RB#24

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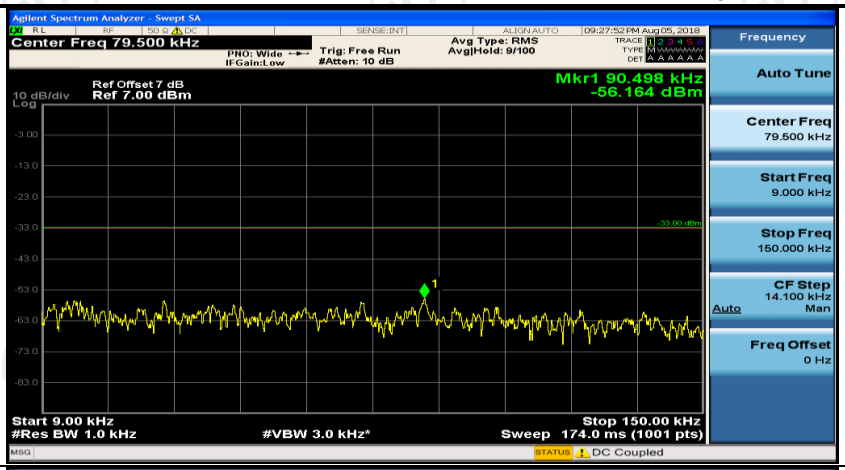

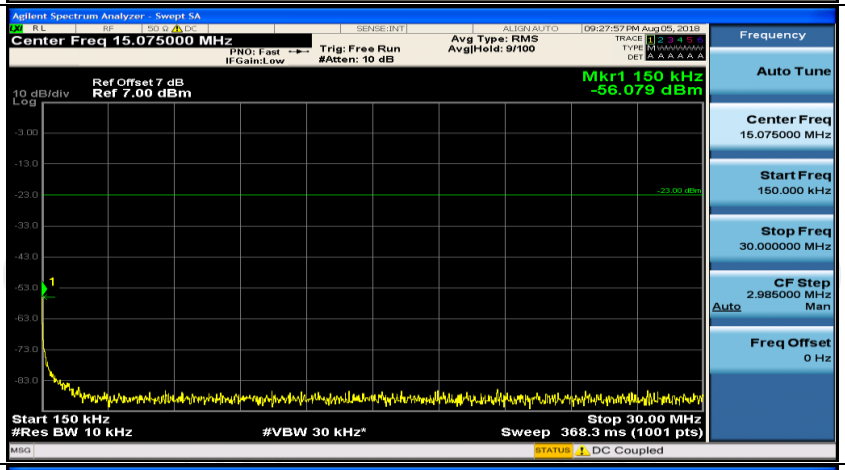

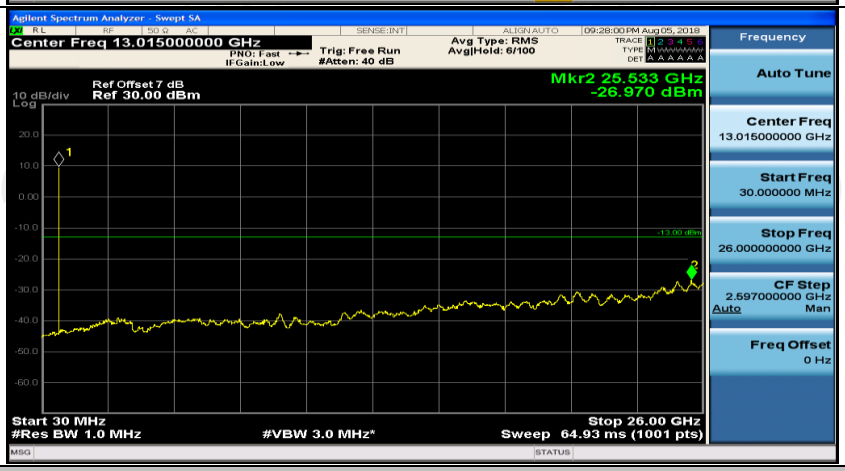

Channel Bandwidth: 10 MHz_LCH_16QAM_1RB#49

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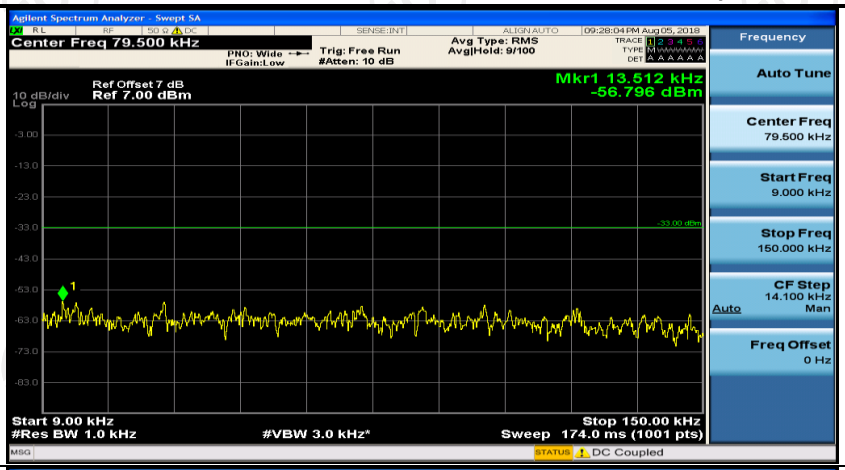
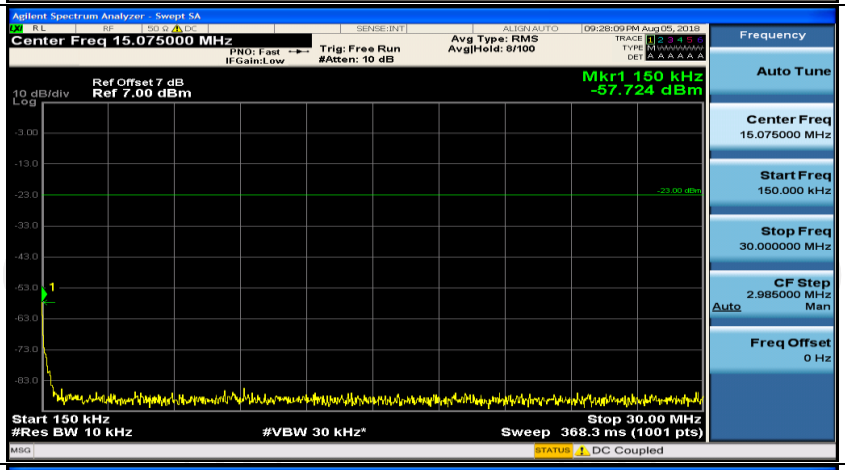
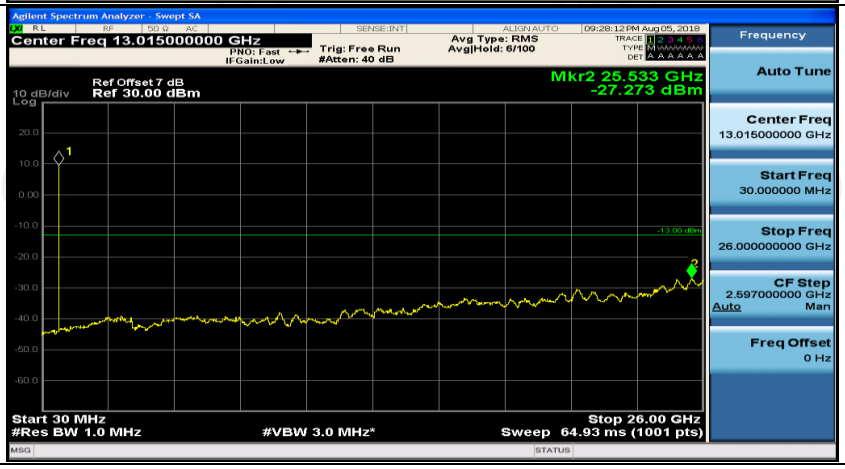
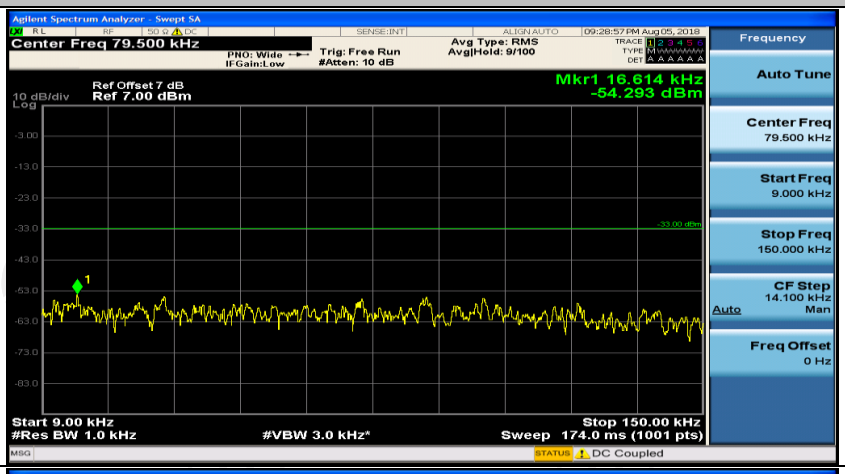
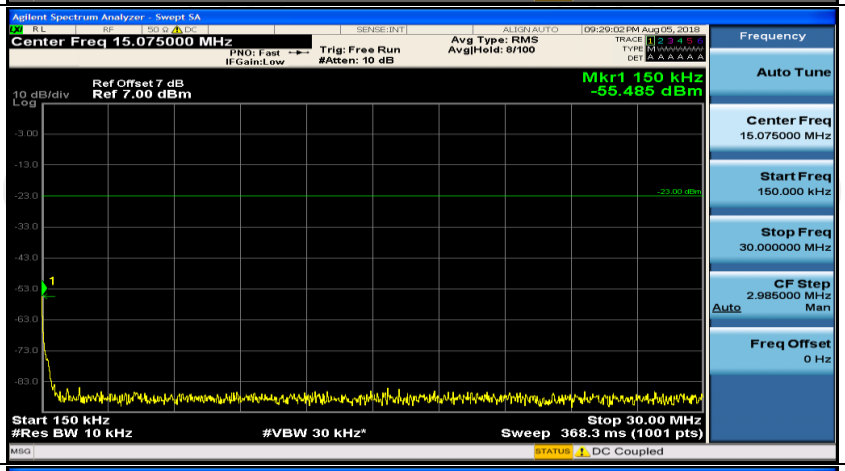
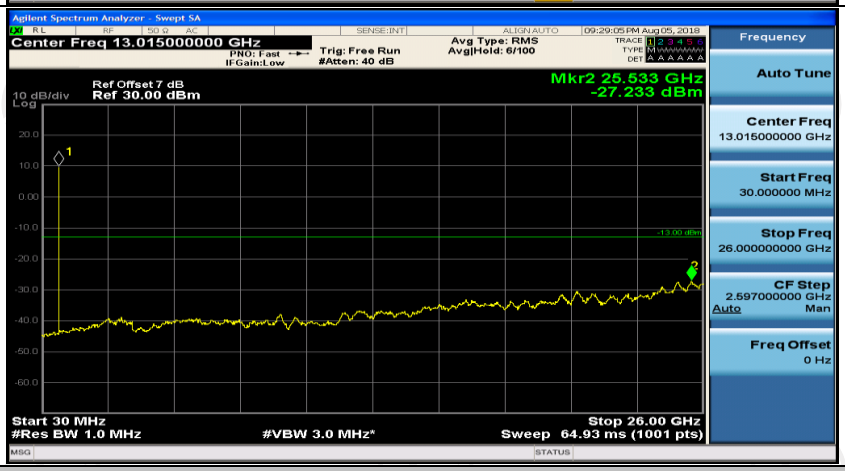
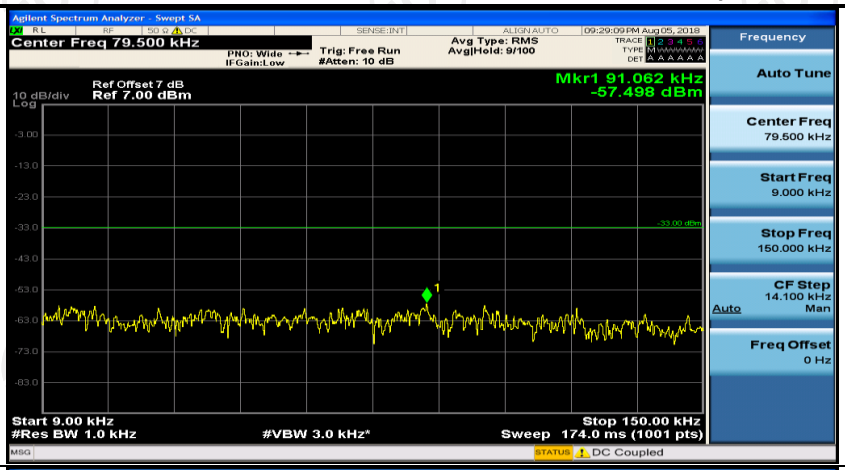
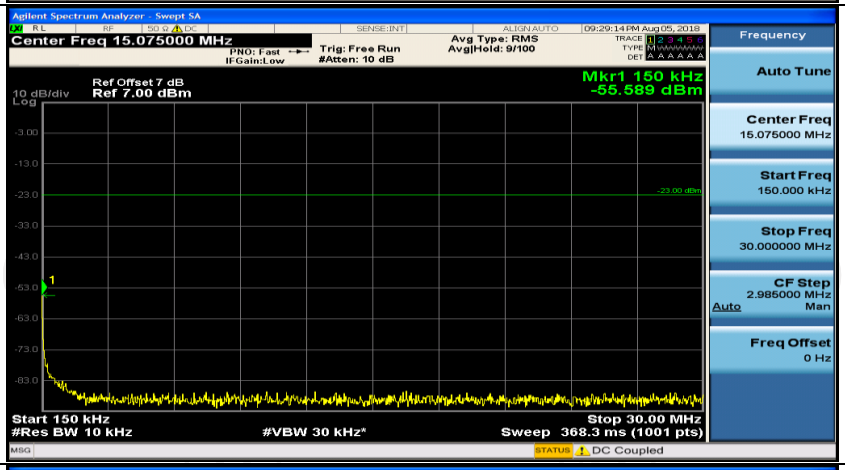

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
09:28:04 PM Aug 05, 2018
Mkr1 13.512 kHz
-56.796 dBm
Ref Offset 7 dB
10 dB/div
Ref 7.00 dBm
Log
-3.00
-13.0
-23.0
-33.0
-43.0
-53.0
-63.0
-73.0
-83.0
-33.00 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.0 ms (1001 pts)
DC Coupled
Frequency
Auto Tune
Center Freq
79.500 kHz
Start Freq
9.000 kHz
Stop Freq
150.000 kHz
CF Step
14.100 kHz
Auto
Man
Freq Offset
0 Hz

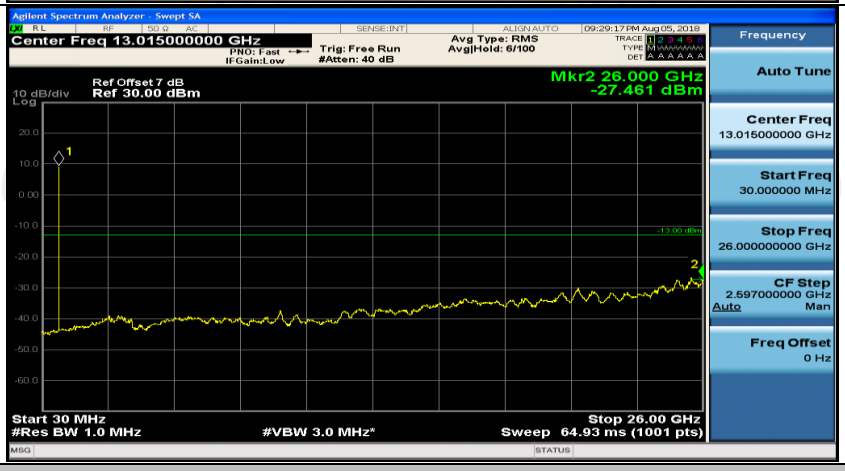

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 8/100
09:28:09 PM Aug 05, 2018
Mkr1 150 kHz
-57.724 dBm
Ref Offset 7 dB
10 dB/div
Ref 7.00 dBm
Log
-3.00
-13.0
-23.0
-33.0
-43.0
-53.0
-63.0
-73.0
-83.0
-23.00 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.3 ms (1001 pts)
DC Coupled
Frequency
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 6/100
09:28:12 PM Aug 05, 2018
Mkr2 25.533 GHz
-27.273 dBm
Ref Offset 7 dB
10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.93 ms (1001 pts)
Frequency
Auto Tune
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz

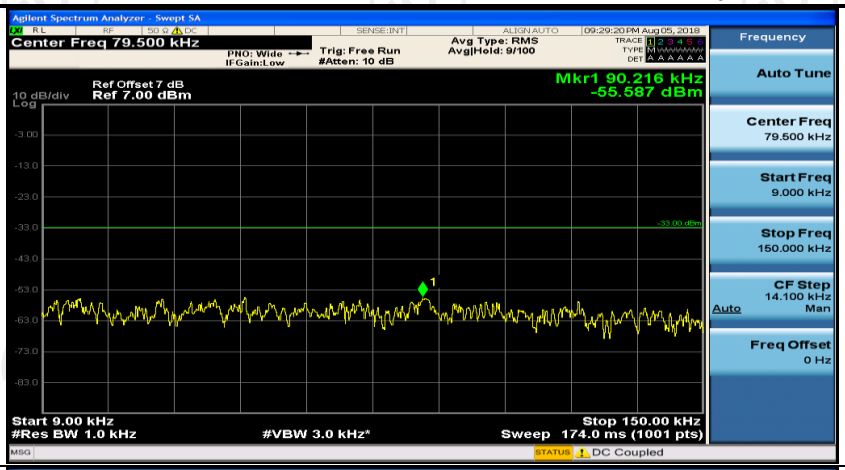
Channel Bandwidth: 10 MHz_MCH_16QAM_1RB#0



Channel Bandwidth: 10 MHz_MCH_16QAM_1RB#24

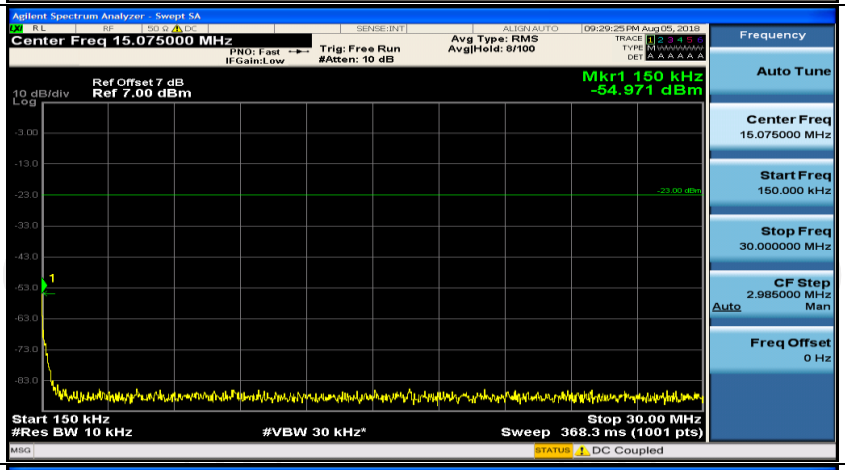


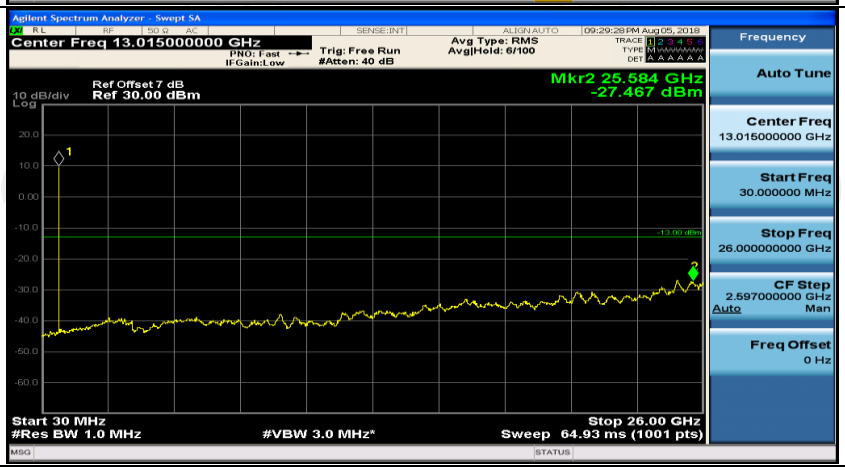




Channel Bandwidth: 10 MHz_MCH_16QAM_1RB#49







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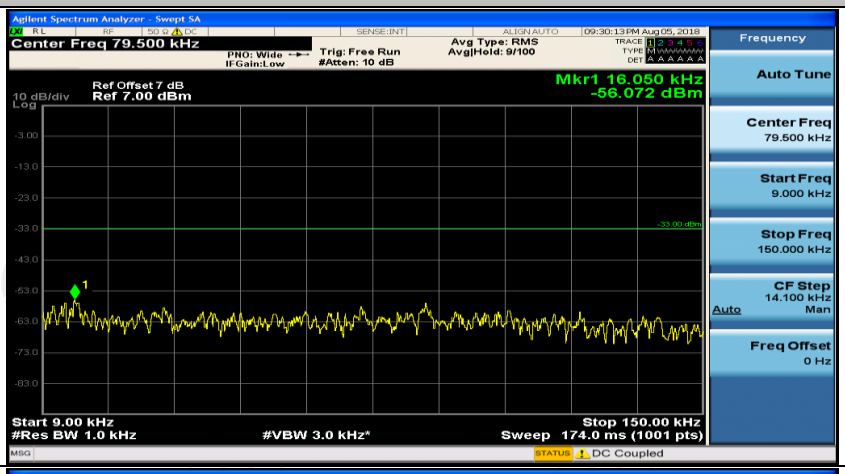
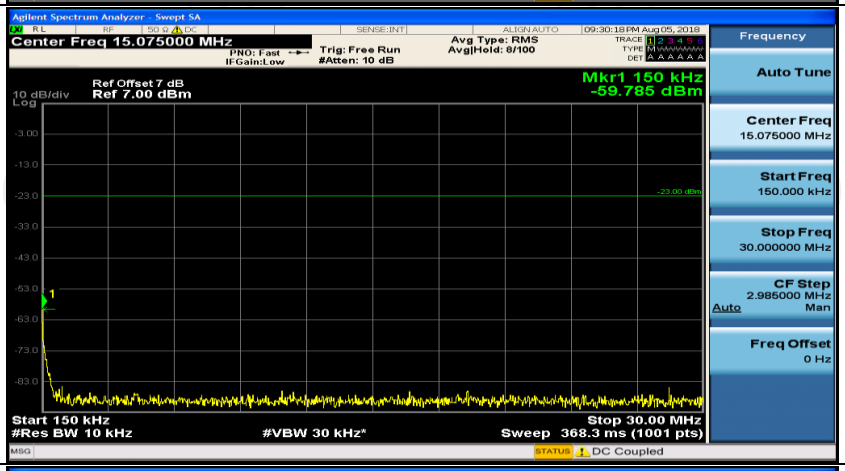
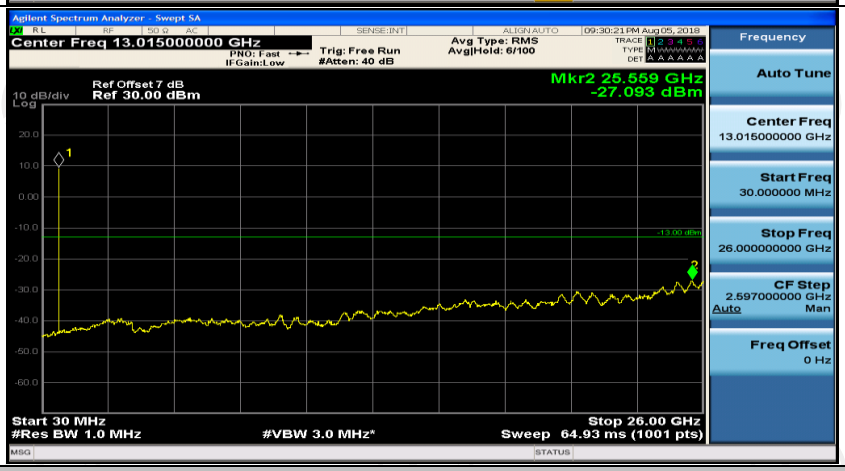
Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#0



Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#24

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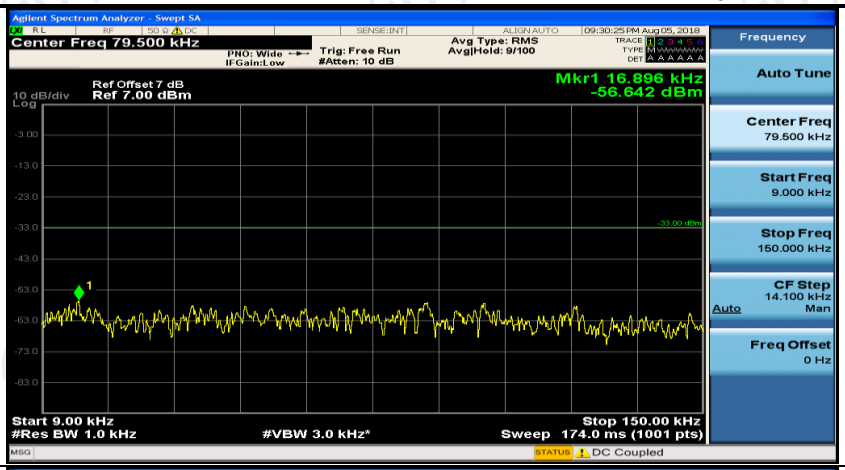
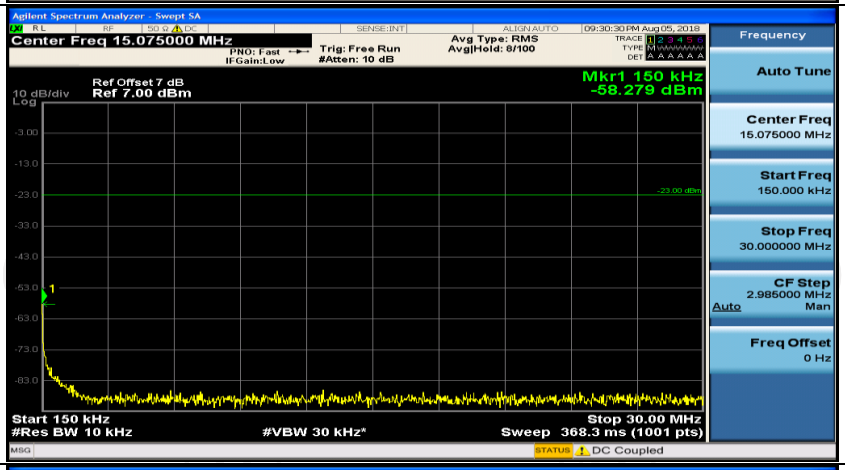
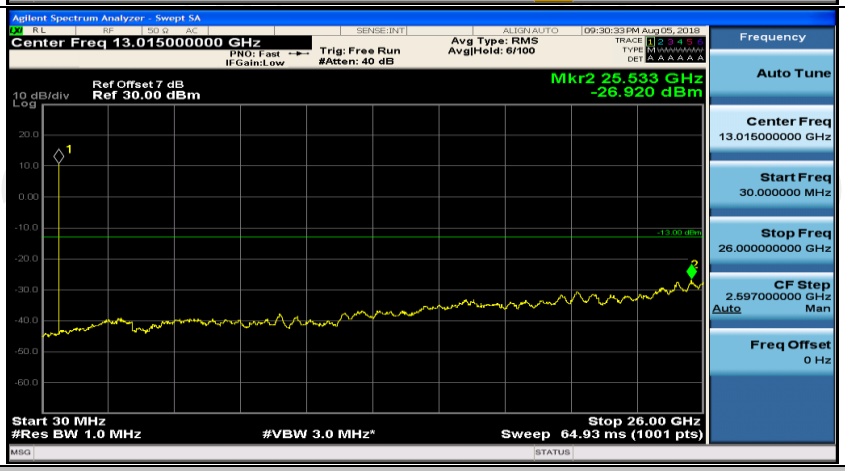
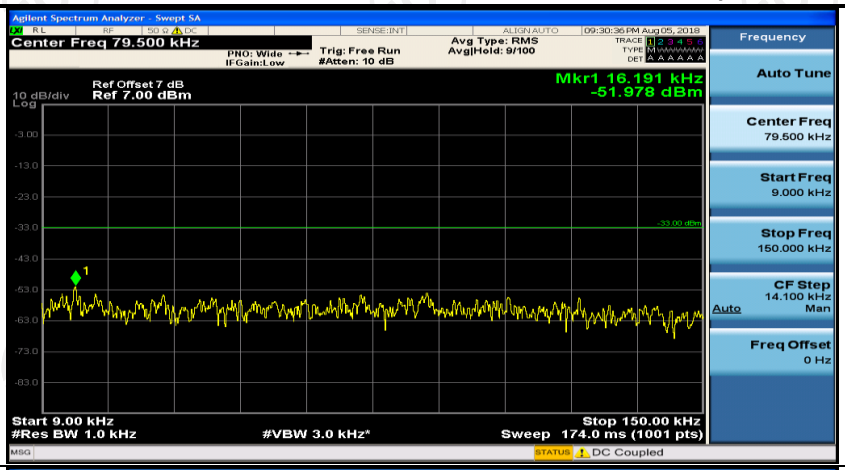
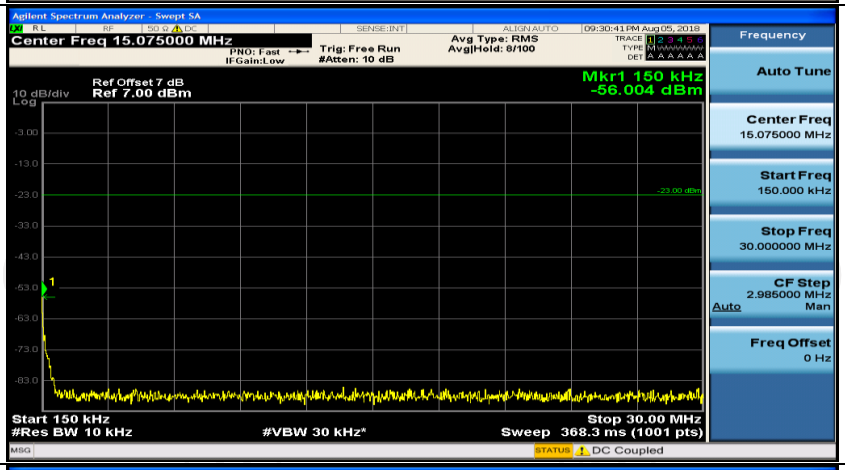


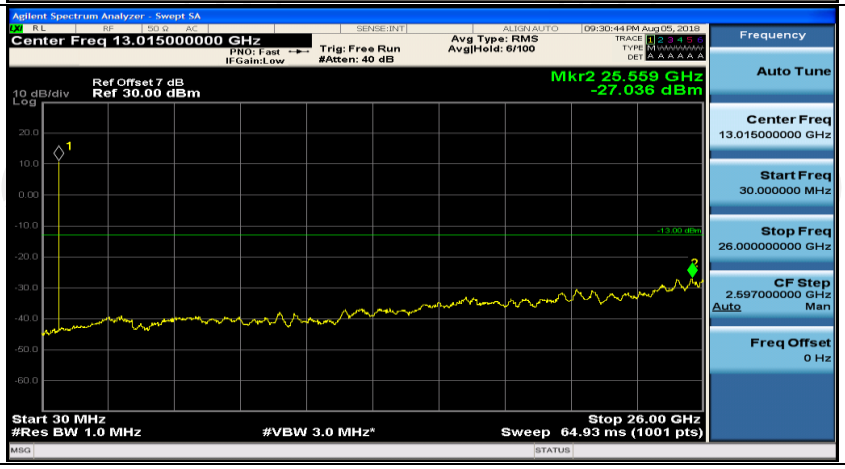




Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#49







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Appendix F: Frequency Stability

Test Result

Channel Bandwidth: 1.4 MHz

Channel Bandwidth: 1.4 MHz						
Voltage						
Modulation	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	3.3	25	0.002205	± 2.5	PASS
		3.7	25	-0.000879	± 2.5	PASS
		4.2	25	-0.001305	± 2.5	PASS
	MCH	3.3	25	0.000324	± 2.5	PASS
		3.7	25	0.000445	± 2.5	PASS
		4.2	25	0.000020	± 2.5	PASS
	HCH	3.3	25	-0.001163	± 2.5	PASS
		3.7	25	-0.000400	± 2.5	PASS
		4.2	25	-0.000735	± 2.5	PASS
16QAM	LCH	3.3	25	0.002103	± 2.5	PASS
		3.7	25	-0.002494	± 2.5	PASS
		4.2	25	-0.000673	± 2.5	PASS
	MCH	3.3	25	0.001779	± 2.5	PASS
		3.7	25	-0.000869	± 2.5	PASS
		4.2	25	-0.000546	± 2.5	PASS
	HCH	3.3	25	0.000501	± 2.5	PASS
		3.7	25	0.000840	± 2.5	PASS
		4.2	25	0.000284	± 2.5	PASS
Temperature						
Modulation	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	3.7	-30	0.000960	± 2.5	PASS
		3.7	-20	0.000980	± 2.5	PASS
		3.7	-10	0.002042	± 2.5	PASS
		3.7	0	0.000837	± 2.5	PASS
		3.7	10	-0.001558	± 2.5	PASS
		3.7	20	-0.002310	± 2.5	PASS
		3.7	30	-0.000184	± 2.5	PASS
		3.7	40	-0.001411	± 2.5	PASS
		3.7	50	-0.001063	± 2.5	PASS
	MCH	3.7	-30	0.000364	± 2.5	PASS
		3.7	-20	-0.000647	± 2.5	PASS
		3.7	-10	0.000748	± 2.5	PASS
		3.7	0	0.000364	± 2.5	PASS
		3.7	10	0.000240	± 2.5	PASS
		3.7	20	0.000142	± 2.5	PASS

		3.7	30	-0.000020	± 2.5	PASS
		3.7	40	0.000425	± 2.5	PASS
		3.7	50	-0.000384	± 2.5	PASS
	HCH	3.7	-30	-0.000501	± 2.5	PASS
		3.7	-20	-0.000060	± 2.5	PASS
		3.7	-10	-0.000902	± 2.5	PASS
		3.7	0	0.000521	± 2.5	PASS
		3.7	10	-0.001167	± 2.5	PASS
		3.7	20	-0.000805	± 2.5	PASS
		3.7	30	-0.000402	± 2.5	PASS
		3.7	40	-0.000785	± 2.5	PASS
		3.7	50	-0.000320	± 2.5	PASS
16QAM	LCH	3.7	-30	0.001327	± 2.5	PASS
		3.7	-20	0.000592	± 2.5	PASS
		3.7	-10	0.000653	± 2.5	PASS
		3.7	0	0.001593	± 2.5	PASS
		3.7	10	-0.001041	± 2.5	PASS
		3.7	20	-0.002678	± 2.5	PASS
		3.7	30	-0.003026	± 2.5	PASS
		3.7	40	-0.002106	± 2.5	PASS
		3.7	50	-0.002269	± 2.5	PASS
	MCH	3.7	-30	0.001254	± 2.5	PASS
		3.7	-20	-0.000101	± 2.5	PASS
		3.7	-10	0.001092	± 2.5	PASS
		3.7	0	0.001355	± 2.5	PASS
		3.7	10	0.000154	± 2.5	PASS
		3.7	20	-0.000425	± 2.5	PASS
		3.7	30	-0.000364	± 2.5	PASS
		3.7	40	0.000101	± 2.5	PASS
		3.7	50	-0.000404	± 2.5	PASS
	HCH	3.7	-30	-0.000441	± 2.5	PASS
		3.7	-20	0.001444	± 2.5	PASS
		3.7	-10	-0.000321	± 2.5	PASS
		3.7	0	0.000401	± 2.5	PASS
		3.7	10	-0.001006	± 2.5	PASS
		3.7	20	0.000080	± 2.5	PASS
		3.7	30	0.000423	± 2.5	PASS
		3.7	40	-0.000624	± 2.5	PASS
		3.7	50	-0.000940	± 2.5	PASS

Note: All bandwidth and modulation are tested, only the worst result is reported.

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Appendix G :Field Strength of Spurious Radiation Measurement

Test Result

Bandwidth:	1.4M		Test channel:	Lowest
Modulation:	QPSK		Temperature :	23~24°C
RB #:	1RB #0		Relative Humidity:	46~48%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1399.4	Vertical	-33.57	-13.00	PASS
2099.1	V	-42.62		
-	V	-		
1399.4	Horizontal	-32.35		
2099.1	H	-44.81		
-	H	-		
Bandwidth:	1.4M		Test channel:	Middle
Modulation:	QPSK		Temperature :	23~24°C
RB #:	1RB #0		Relative Humidity:	46~48%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1415	Vertical	-32.62	-13.00	PASS
2122.5	V	-42.54		
-	V	-		
1415	Horizontal	-35.12		
2122.5	H	-42.75		
-	H	-		
Bandwidth:	1.4M		Test channel:	Highest
Modulation:	QPSK		Temperature :	23~24°C
RB #:	1RB #0		Relative Humidity:	46~48%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1430.6	Vertical	-32.20	-13.00	PASS
2145.9	V	-41.63		
-	V	-		
1430.6	Horizontal	-32.27		
2145.9	H	-44.70		
-	H	-		

Bandwidth:	1.4M		Test channel:	Lowest
Modulation:	16QAM		Temperature :	23~24°C
RB #:	1RB #0		Relative Humidity:	46~48%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1399.4	Vertical	-32.35	-13.00	PASS
2099.1	V	-42.62		
-	V	-		
1399.4	Horizontal	-33.49		
2099.1	H	-46.35		
-	H	-		
Bandwidth:	1.4M		Test channel:	Middle
Modulation:	16QAM		Temperature :	23~24°C
RB #:	1RB #0		Relative Humidity:	46~48%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1415	Vertical	-31.65	-13.00	PASS
2122.5	V	-41.58		
-	V	-		
1415	Horizontal	-32.60		
2122.5	H	-43.82		
-	H	-		
Bandwidth:	1.4M		Test channel:	Highest
Modulation:	16QAM		Temperature :	23~24°C
RB #:	1RB #0		Relative Humidity:	46~48%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1430.6	Vertical	-33.54	-13.00	PASS
2145.9	V	-42.21		
-	V	-		
1430.6	Horizontal	-32.54		
2145.9	H	-44.25		
-	H	-		

Note: All bandwidth and modulation are tested, only the worst result is reported.

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