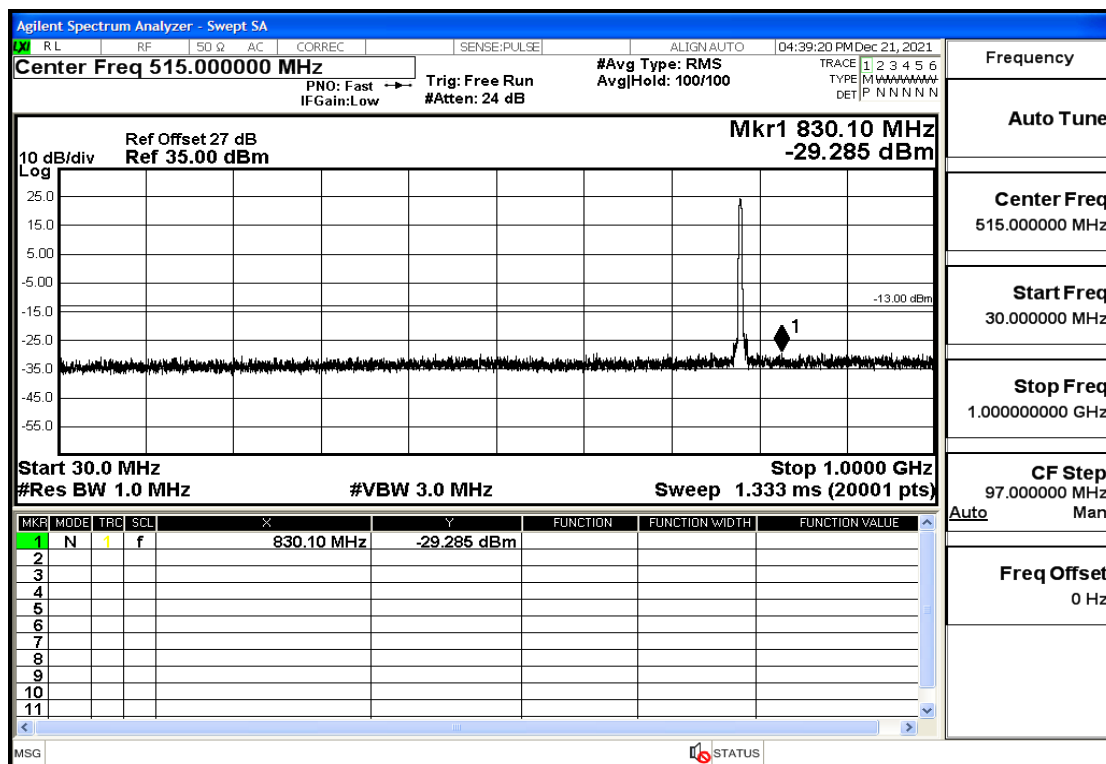
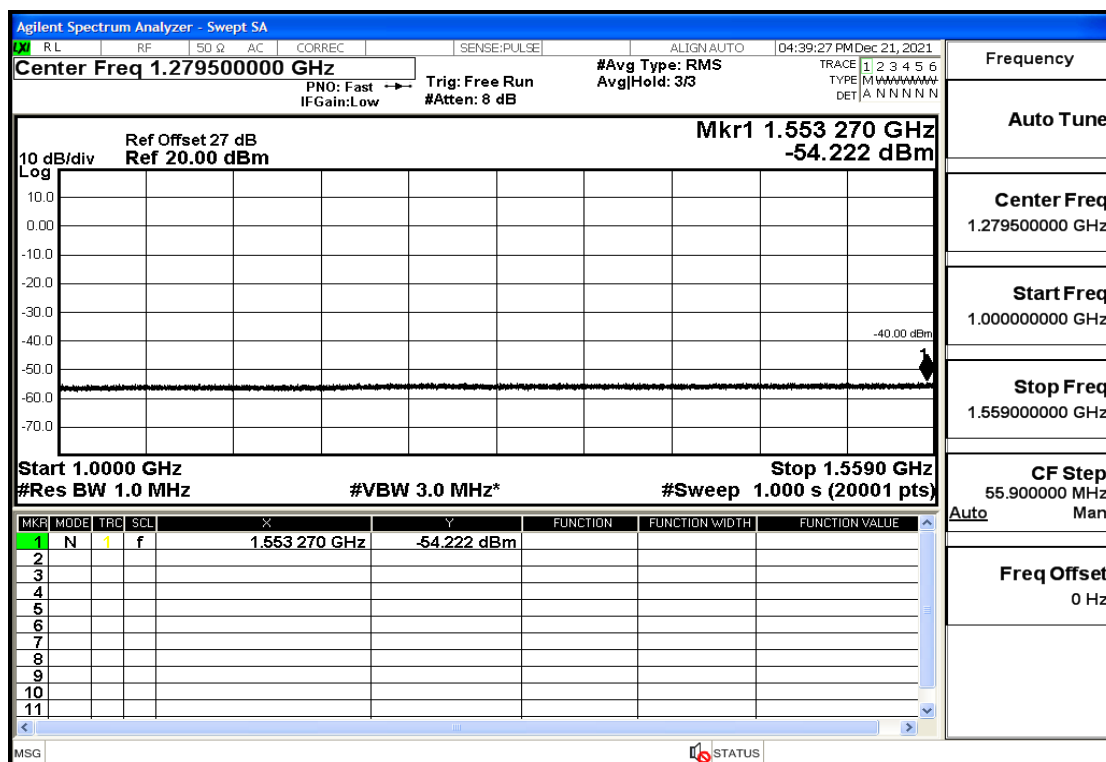


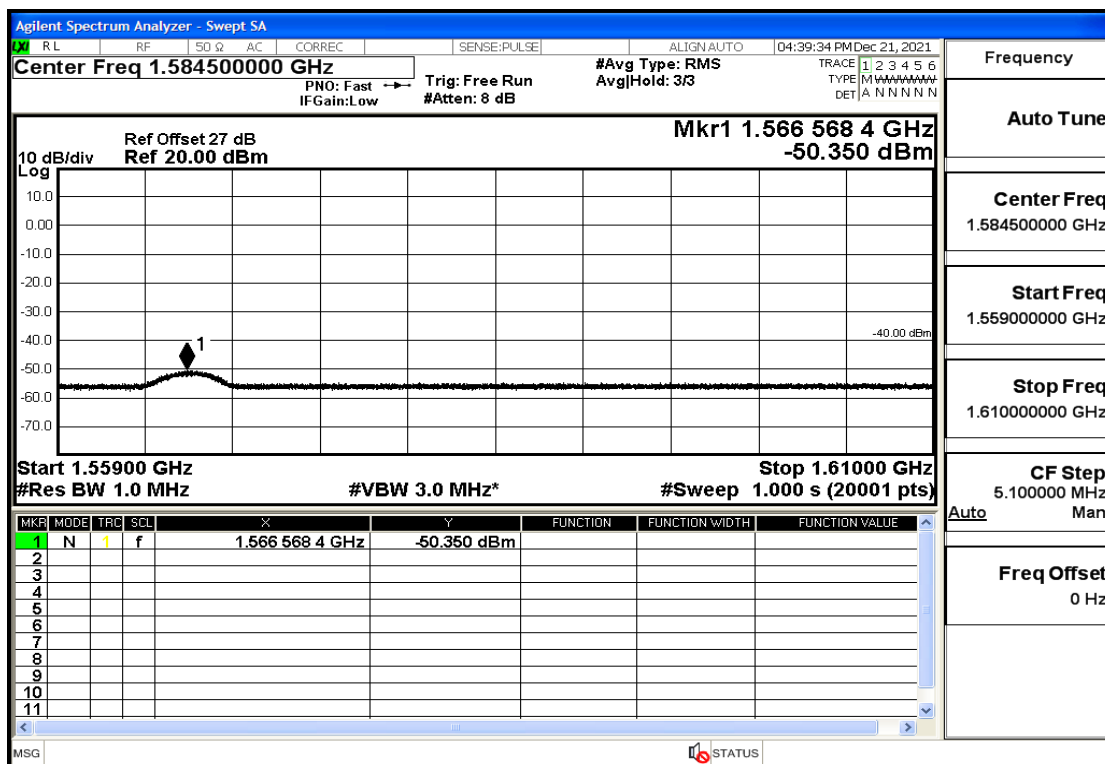
OB13-5-784.5-QPSK-12#LOW@30mHz-1GHz@Pass



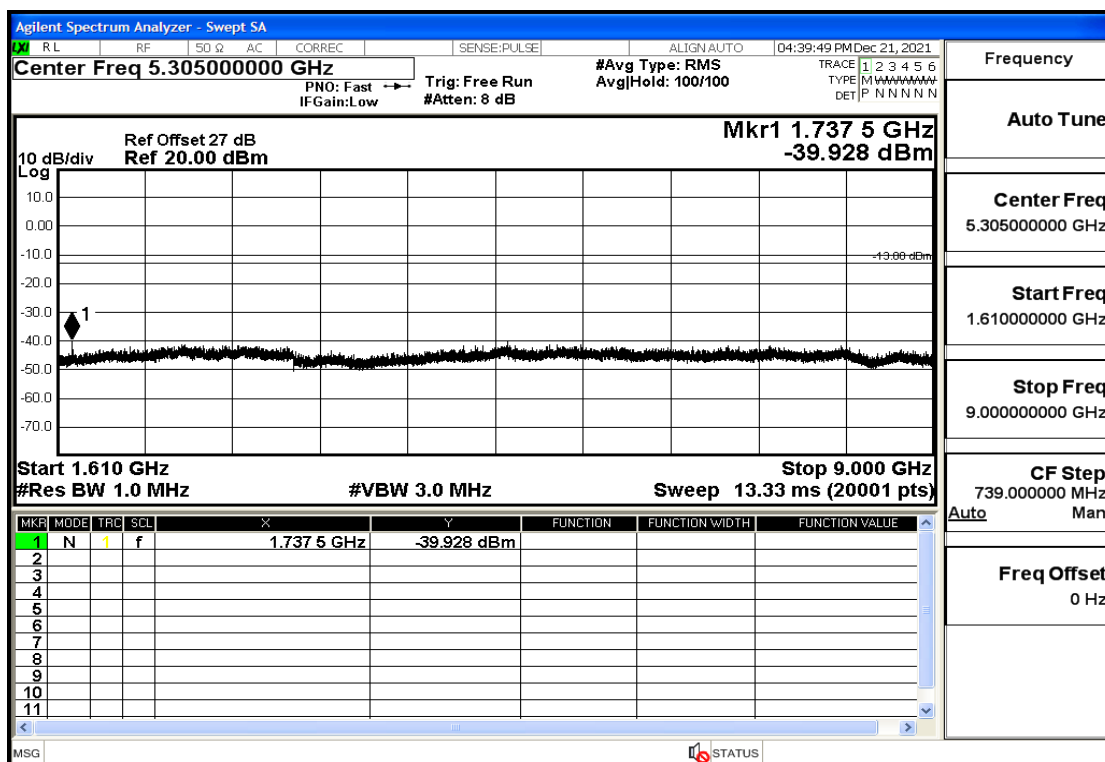
OB13-5-784.5-QPSK-12#LOW@1GHz-1.559GHz@Pass



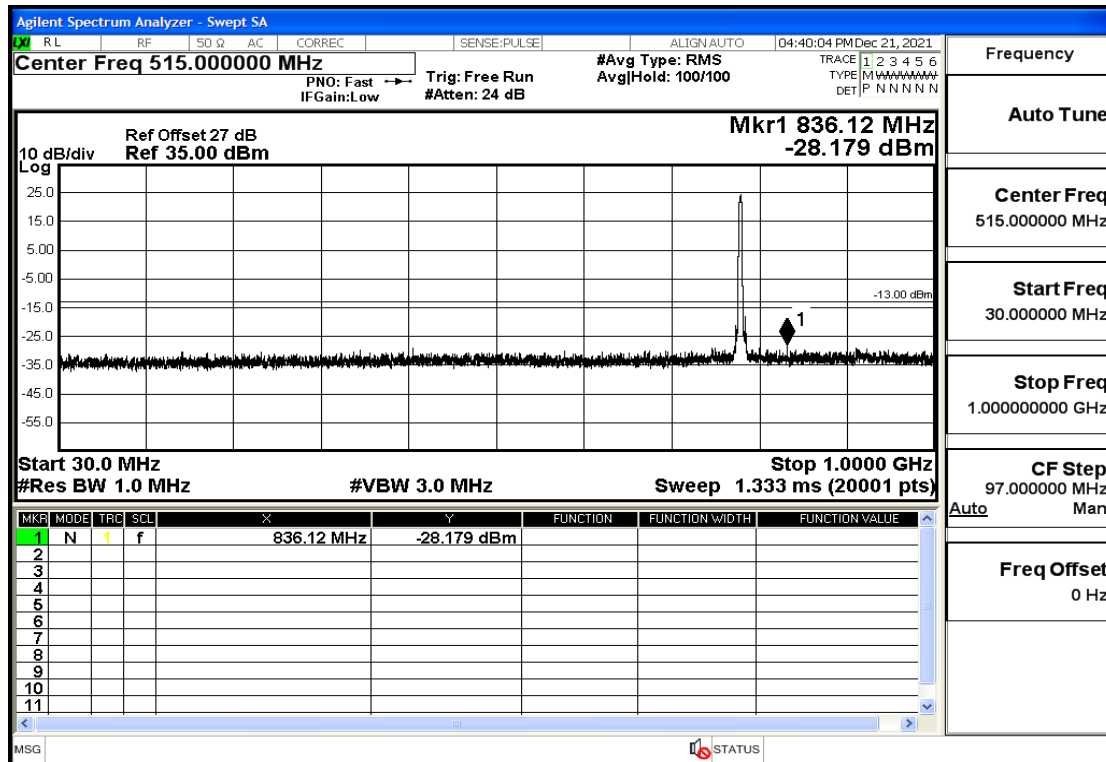
OB13-5-784.5-QPSK-12#LOW@1.559GHz-1.61GHz@Pass



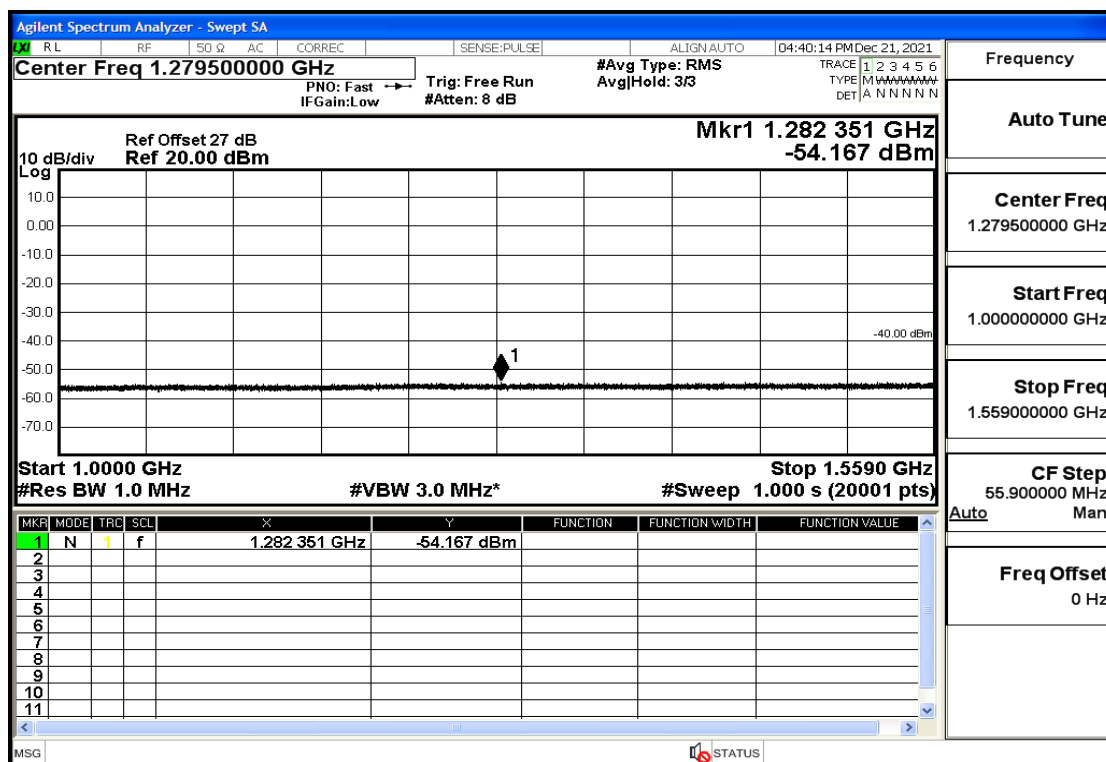
OB13-5-784.5-QPSK-12#LOW@1.61GHz-9GHz@Pass



OB13-5-784.5-QPSK-12#MID@30mHz-1GHz@Pass



OB13-5-784.5-QPSK-12#MID@1GHz-1.559GHz@Pass



Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC CORREC SENSE/PULSE ALIGN AUTO 04:40:21 PM Dec 21, 2021

Center Freq 1.584500000 GHz PNO: Fast → Trig: Free Run #Avg Type: RMS Avg|Hold: 3/3

IF Gain: Low #Atten: 8 dB

TRACE 1 2 3 4 5 6
TYPE M M M M M M M M
DET A N N N N N N

Ref Offset 27 dB
Ref 20.00 dBm

Mkr1 1.566 688 3 GHz
-50.337 dBm

10 dB/div
Log

Start 1.55900 GHz Stop 1.61000 GHz
#Res BW 1.0 MHz #VBW 3.0 MHz* #Sweep 1.000 s (20001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	1.566 688 3 GHz	-50.337 dBm			
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

Frequency
Auto Tune
Center Freq
1.584500000 GHz
Start Freq
1.559000000 GHz
Stop Freq
1.610000000 GHz
CF Step
5.100000 MHz
Man
Auto
Freq Offset
0 Hz

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN AUTO 04:40:36 PM Dec 21, 2021

Center Freq 5.30500000 GHz PNO: Fast IF Gain: Low Trig: Free Run #Atten: 8 dB #Avg Type: RMS Avg/Hold: 100/100

TRACE 1 2 3 4 5 6
TYPE M U A N N N N N
DET P N N N N N N

Ref Offset 27 dB
Ref 20.00 dBm

Mkr1 8.219 2 GHz
-40.864 dBm

10 dB/div
Log

Start 1.610 GHz Stop 9.000 GHz
#Res BW 1.0 MHz #VBW 3.0 MHz Sweep 13.33 ms (20001 pts)

MRK	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	8.219 2 GHz	-40.864 dBm			
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

Frequency

Auto Tune

Center Freq
5.30500000 GHz

Start Freq
1.61000000 GHz

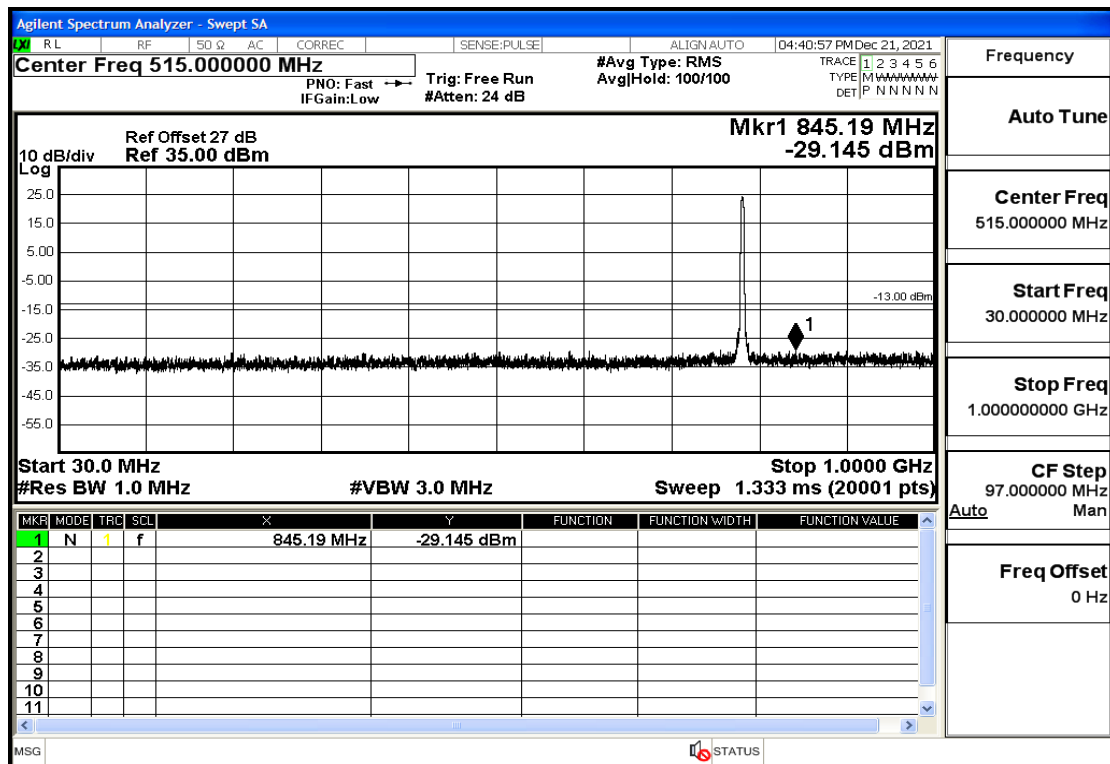
Stop Freq
9.00000000 GHz

CF Stop
739.000000 MHz
Man

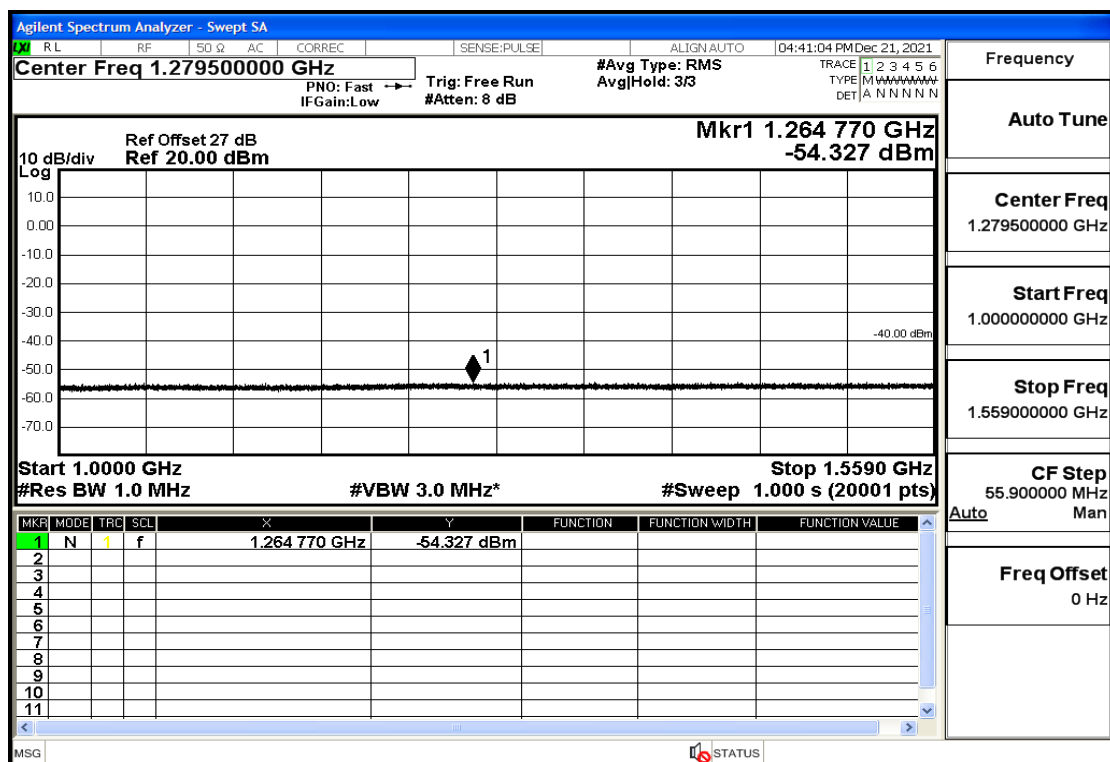
Auto

Freq Offset
0 Hz

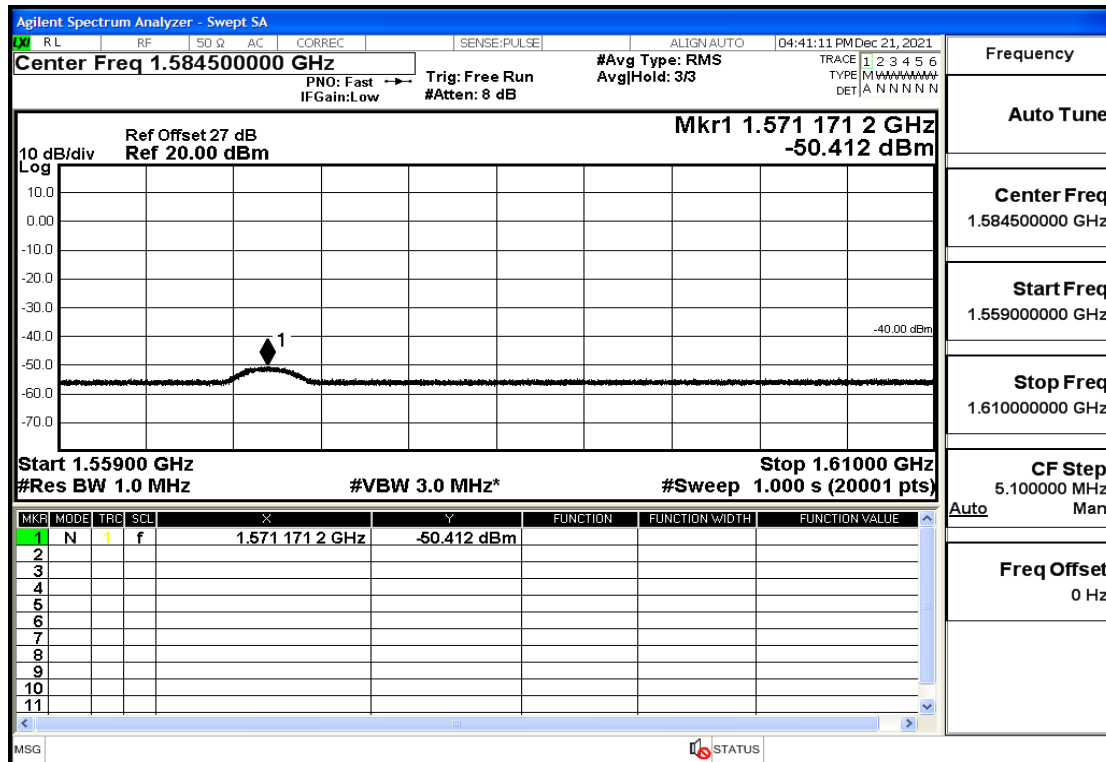
OB13-5-784.5-QPSK-12#HIGH@30mHz-1GHz@Pass



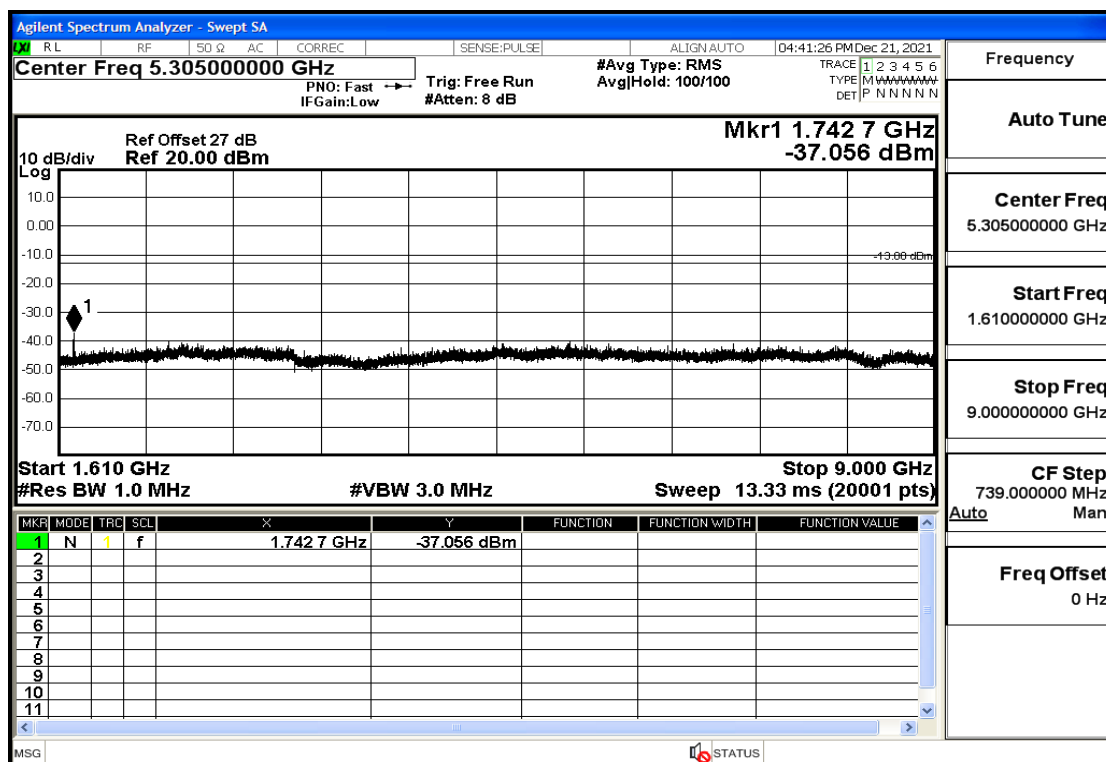
OB13-5-784.5-QPSK-12#HIGH@1GHz-1.559GHz@Pass



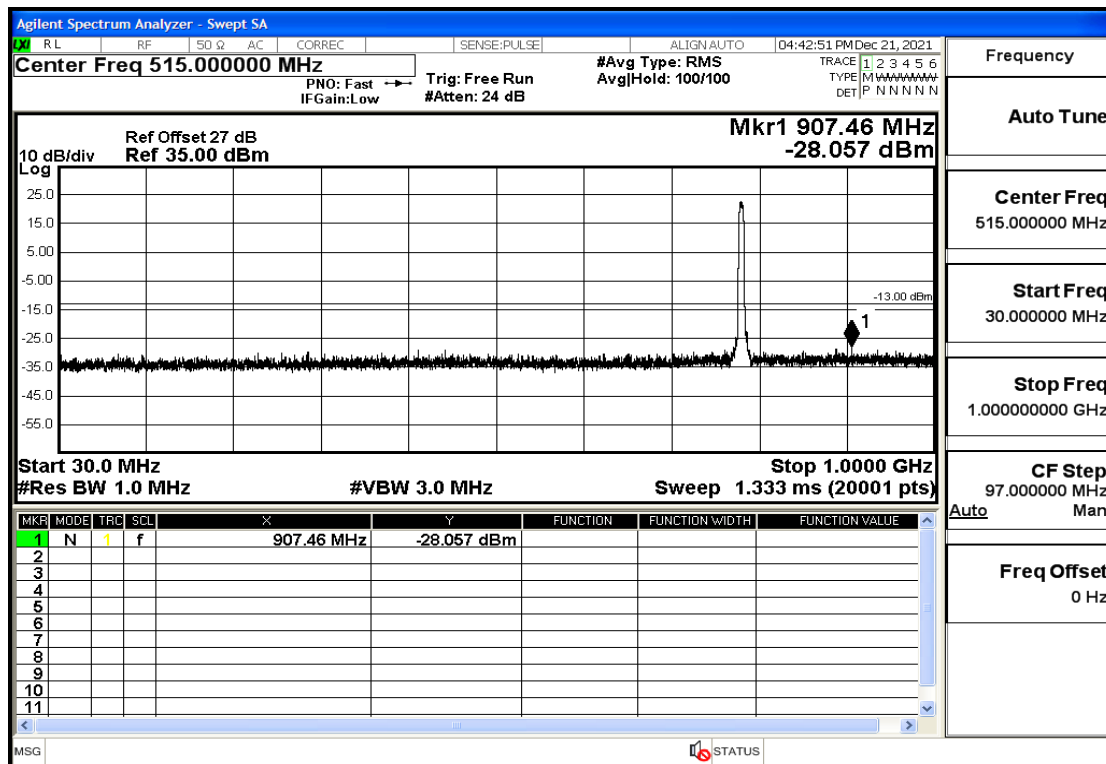
OB13-5-784.5-QPSK-12#HIGH@1.559GHz-1.61GHz@Pass



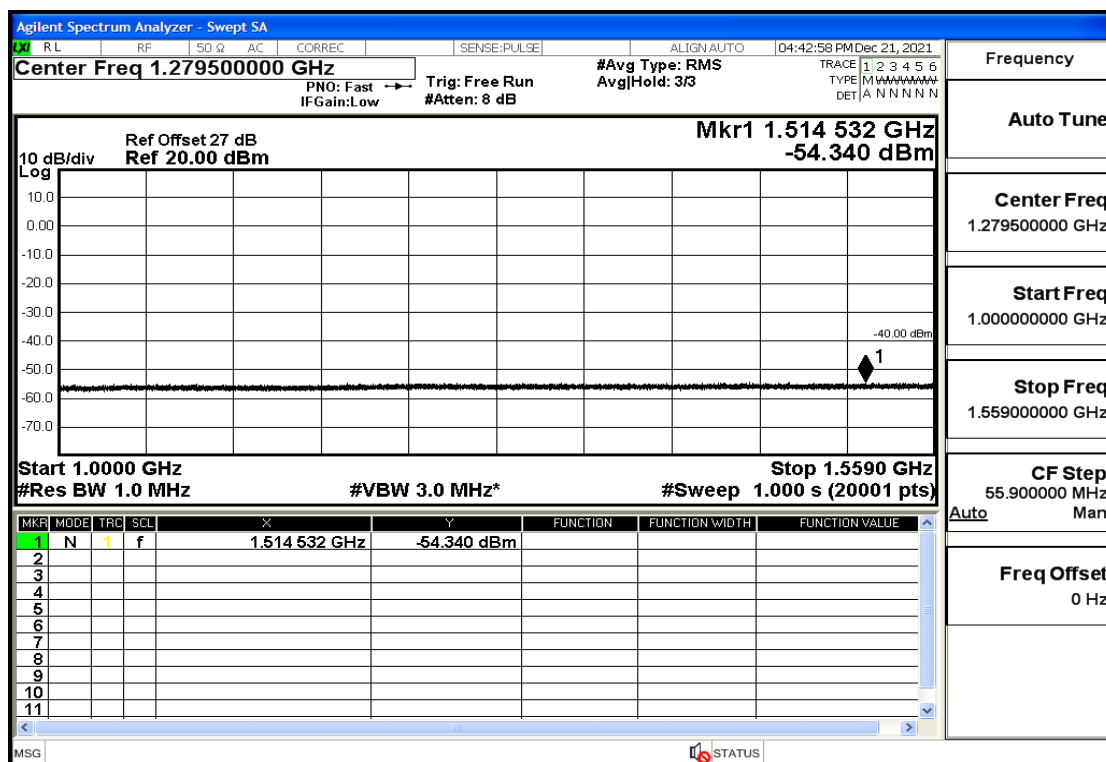
OB13-5-784.5-QPSK-12#HIGH@1.61GHz-9GHz@Pass



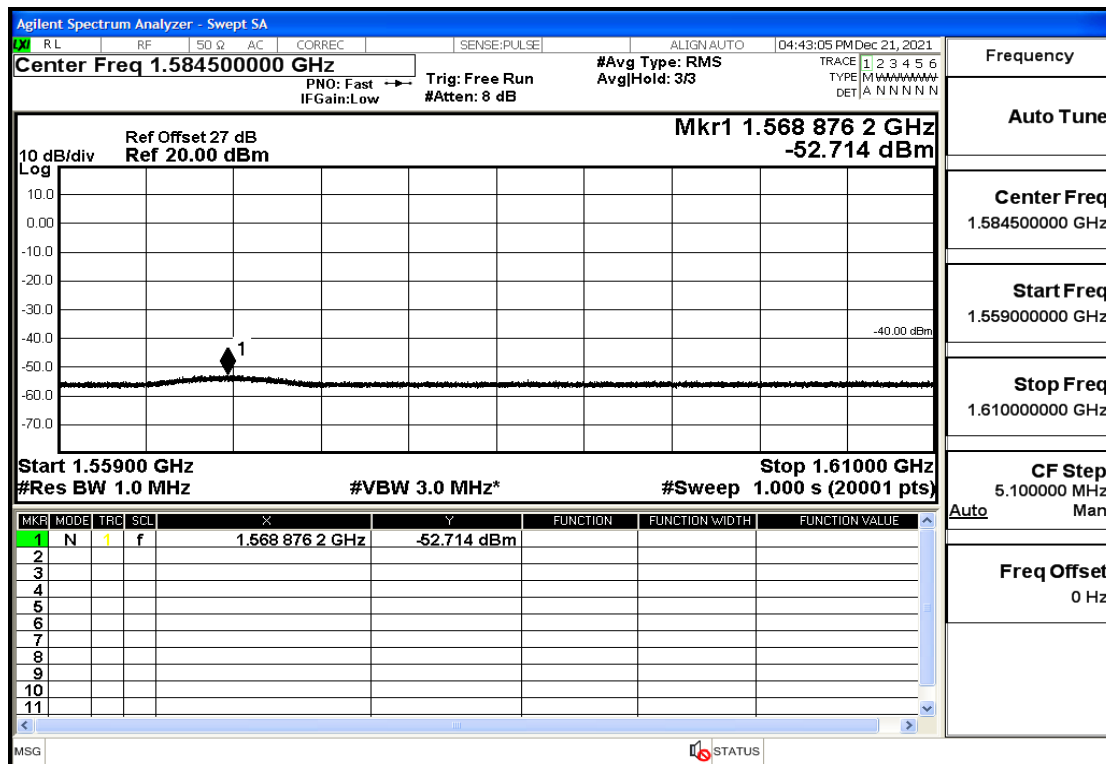
OB13-5-784.5-Q16-25#LOW@30mHz-1GHz@Pass



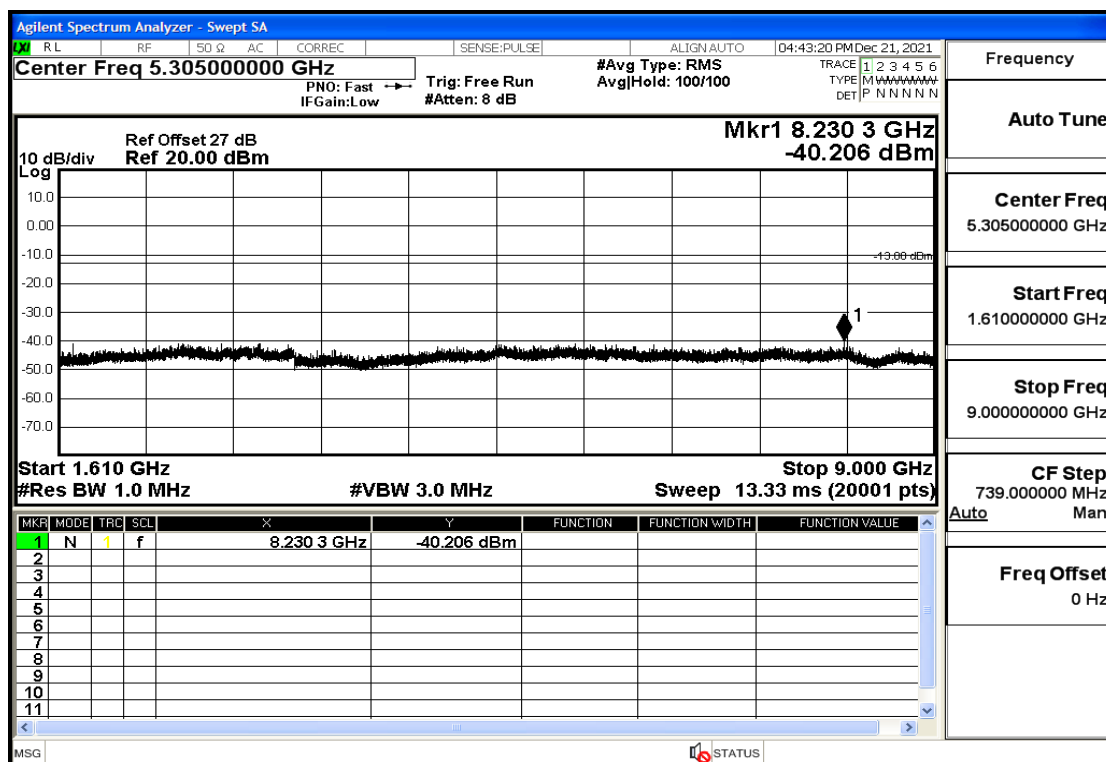
OB13-5-784.5-Q16-25#LOW@1GHz-1.559GHz@Pass



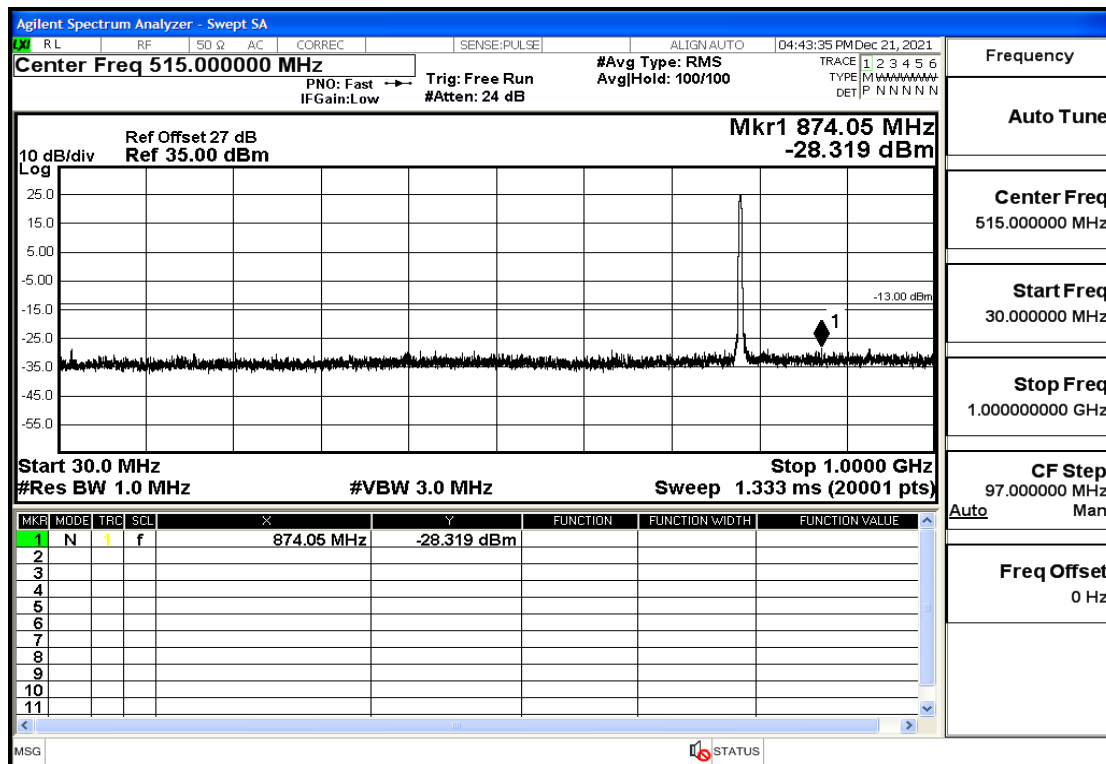
OB13-5-784.5-Q16-25#LOW@1.559GHz-1.61GHz@Pass



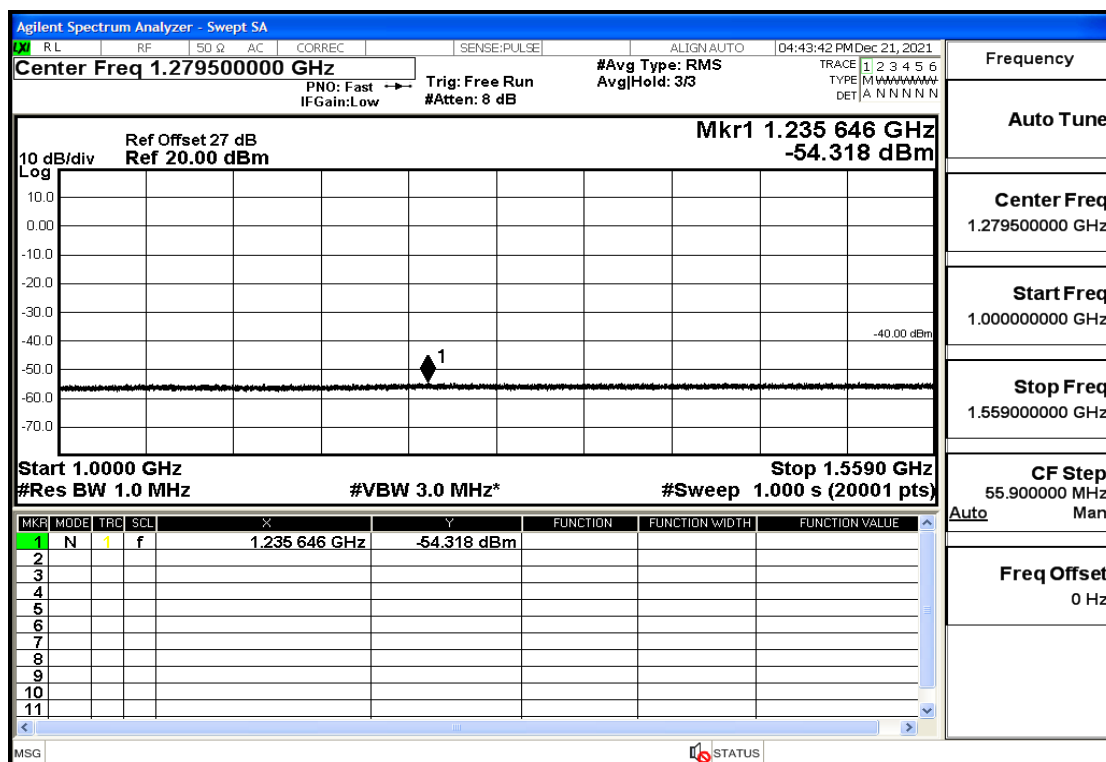
OB13-5-784.5-Q16-25#LOW@1.61GHz-9GHz@Pass



OB13-5-784.5-Q16-12#LOW@30mHz-1GHz@Pass



OB13-5-784.5-Q16-12#LOW@1GHz-1.559GHz@Pass



Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC CORREC SENSE/PULSE ALIGN AUTO 04:43:50 PM Dec 21, 2021

Center Freq 1.584500000 GHz

PNO: Fast IF Gain: Low Trig: Free Run #Atten: 8 dB #Avg Type: RMS Avg/Hold: 3/3

TRACE 1 2 3 4 5 6
TYPE [M] [W] [A] [V] [P] [S] [F] [D]
DET [A] [N] [N] [N] [N] [N]

Ref Offset 27 dB Ref 20.00 dBm Mkr1 1.566 981 5 GHz -51.385 dBm

10 dB/div Log

Start 1.55900 GHz Stop 1.61000 GHz
#Res BW 1.0 MHz #VBW 3.0 MHz* #Sweep 1.000 s (20001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	1.566 981 5 GHz	-51.385 dBm			
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG

STATUS

Frequency

Auto Tune

Center Freq
1.584500000 GHz

Start Freq
1.559000000 GHz

Stop Freq
1.610000000 GHz

CF Step
5.100000 MHz

Auto Man

Freq Offset
0 Hz

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN AUTO 04:44:05 PM Dec 21, 2021

Center Freq 5.305000000 GHz PNO: Fast IF Gain: Low Trig: Free Run #Atten: 8 dB #Avg Type: RMS Avg/Hold: 100/100

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

Ref Offset 27 dB
Ref 20.00 dBm

Mkr1 3.074 0 GHz
-40.604 dBm

10 dB/div
Log

Start 1.610 GHz Stop 9.000 GHz
#Res BW 1.0 MHz #VBW 3.0 MHz Sweep 13.33 ms (20001 pts)

MkR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	3.074 0 GHz	-40.604 dBm			
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

Frequency

Auto Tune

Center Freq
5.305000000 GHz

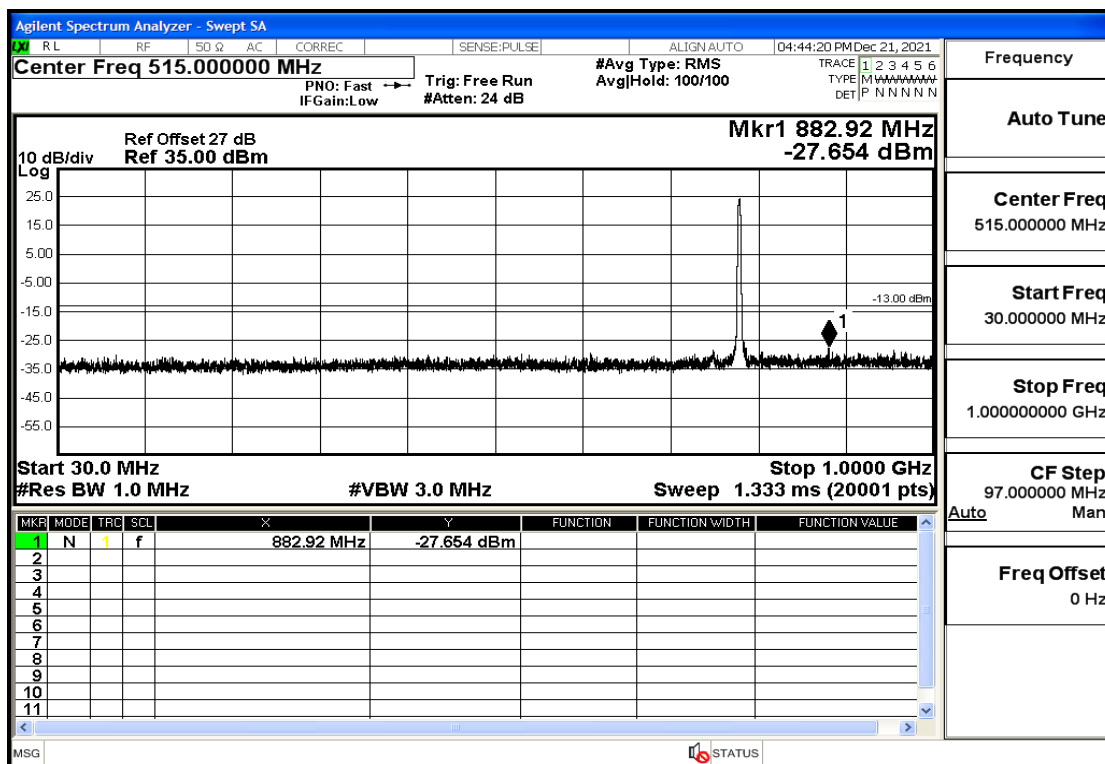
Start Freq
1.610000000 GHz

Stop Freq
9.000000000 GHz

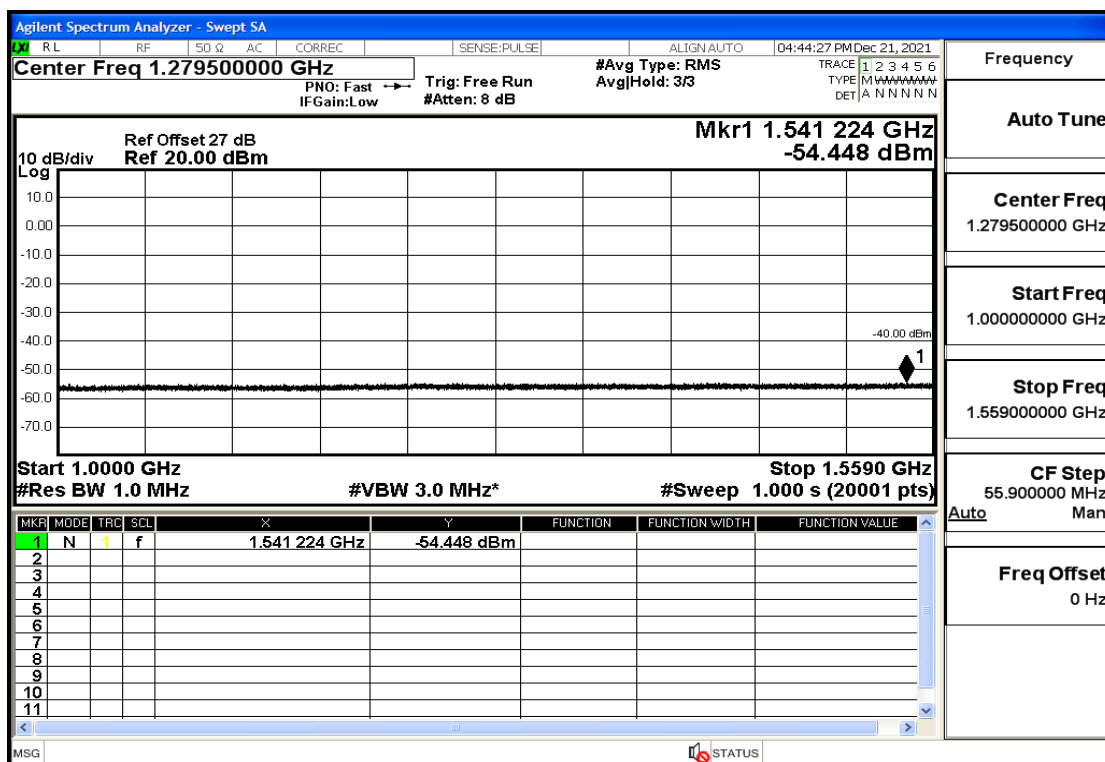
CF Stop
739.000000 MHz
Man

Freq Offset
0 Hz

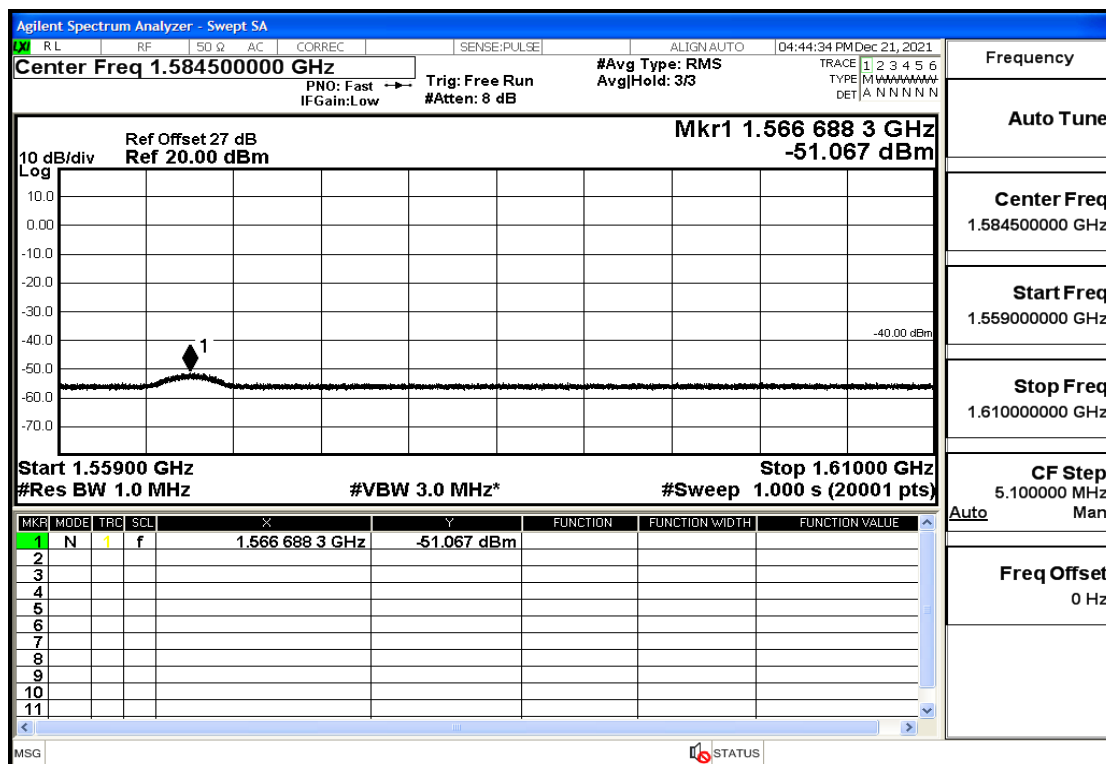
OB13-5-784.5-Q16-12#MID@30mHz-1GHz@Pass



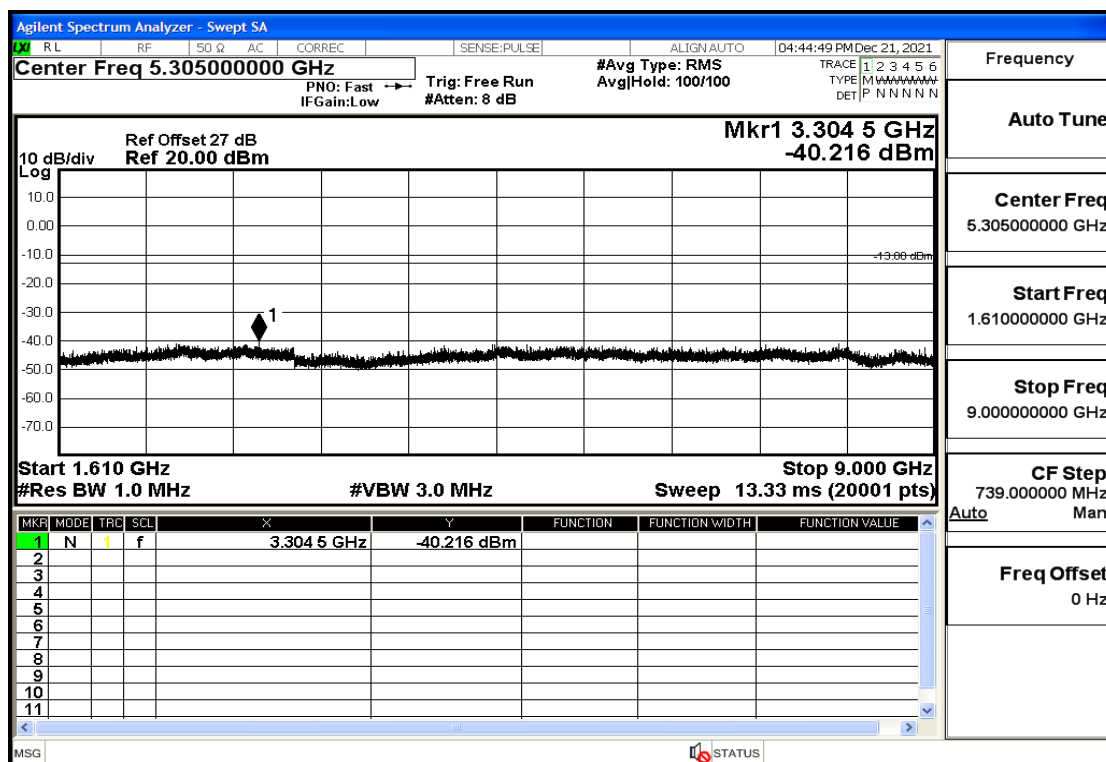
OB13-5-784.5-Q16-12#MID@1GHz-1.559GHz@Pass



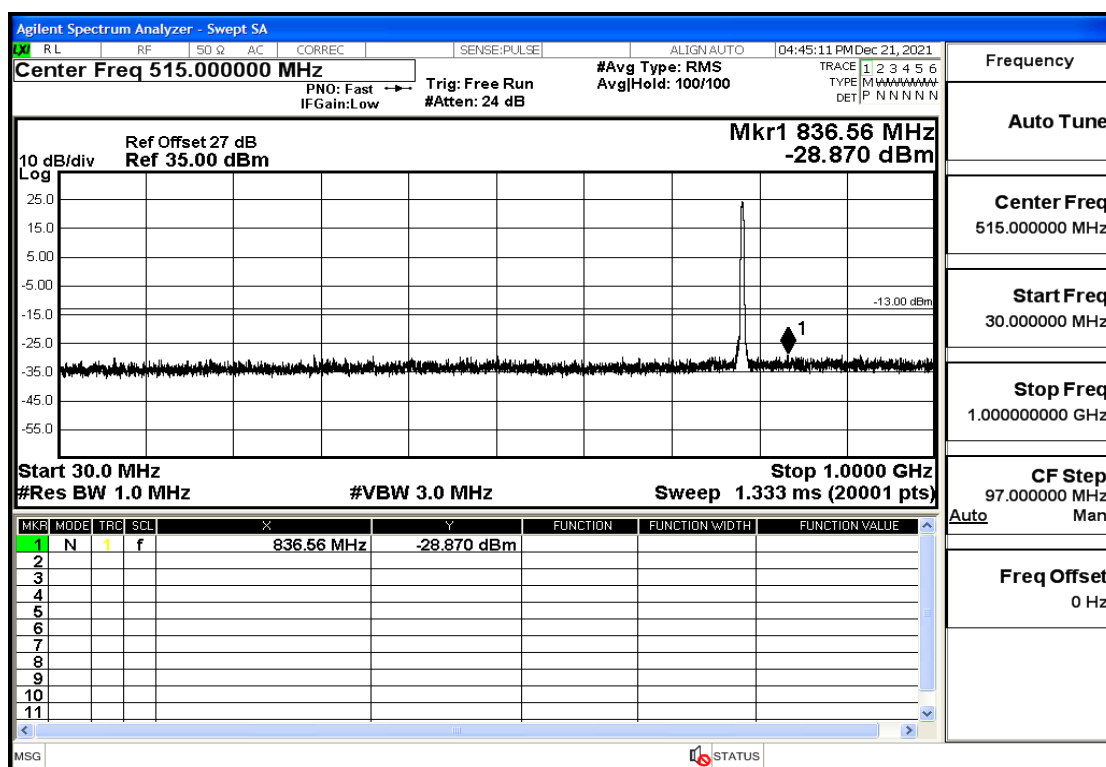
OB13-5-784.5-Q16-12#MID@1.559GHz-1.61GHz@Pass



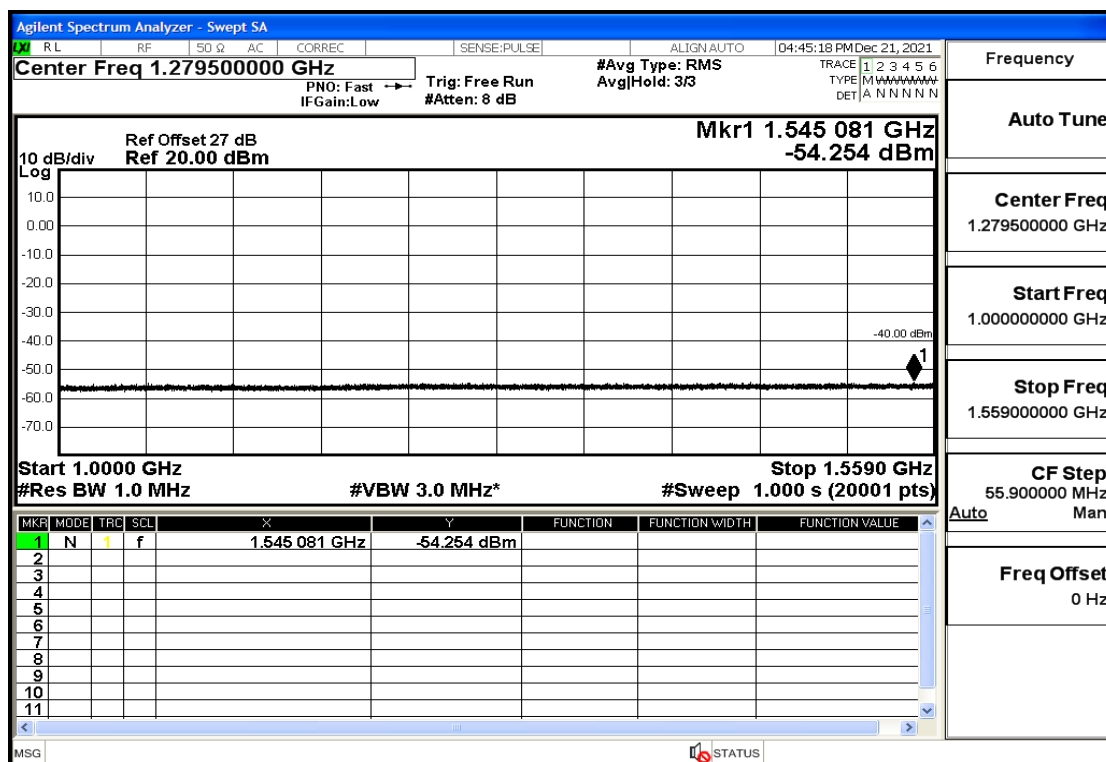
OB13-5-784.5-Q16-12#MID@1.61GHz-9GHz@Pass



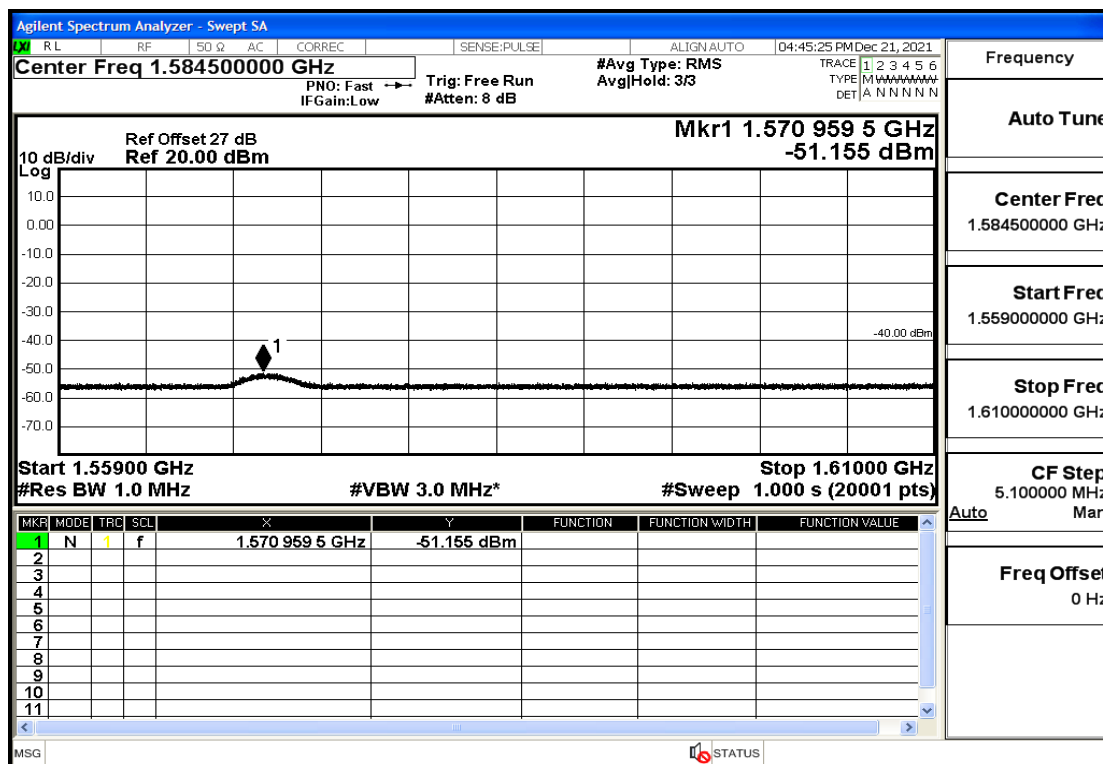
OB13-5-784.5-Q16-12#HIGH@30mHz-1GHz@Pass



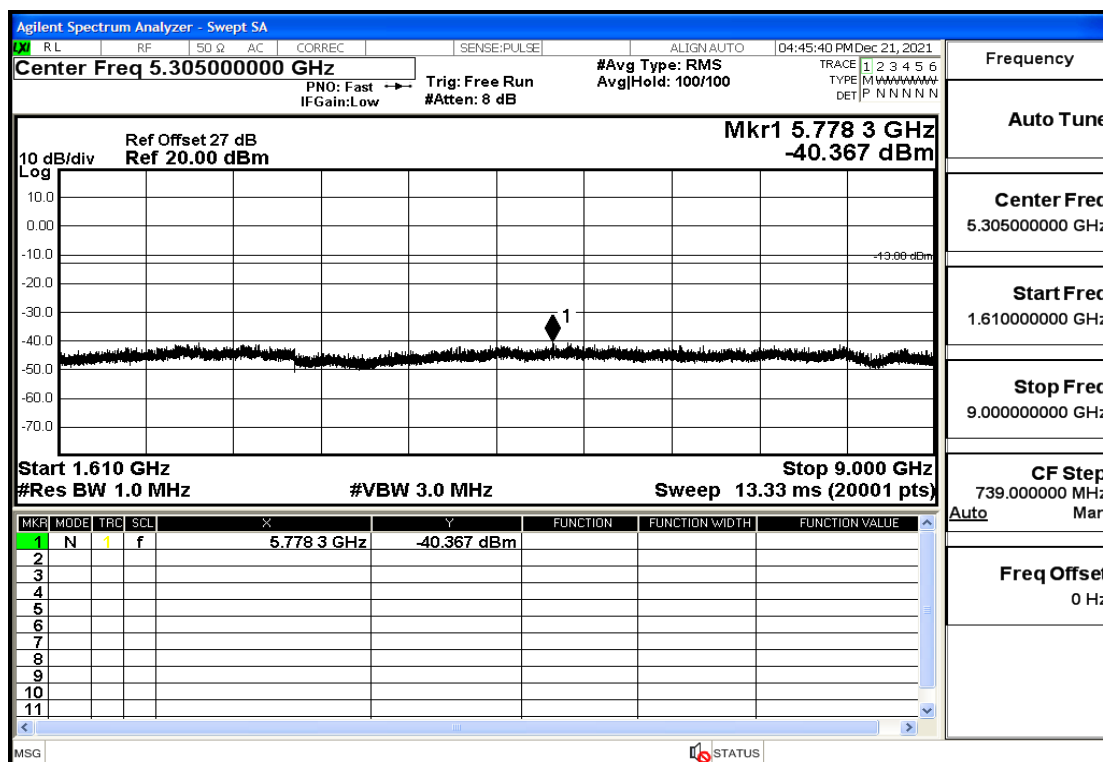
OB13-5-784.5-Q16-12#HIGH@1GHz-1.559GHz@Pass



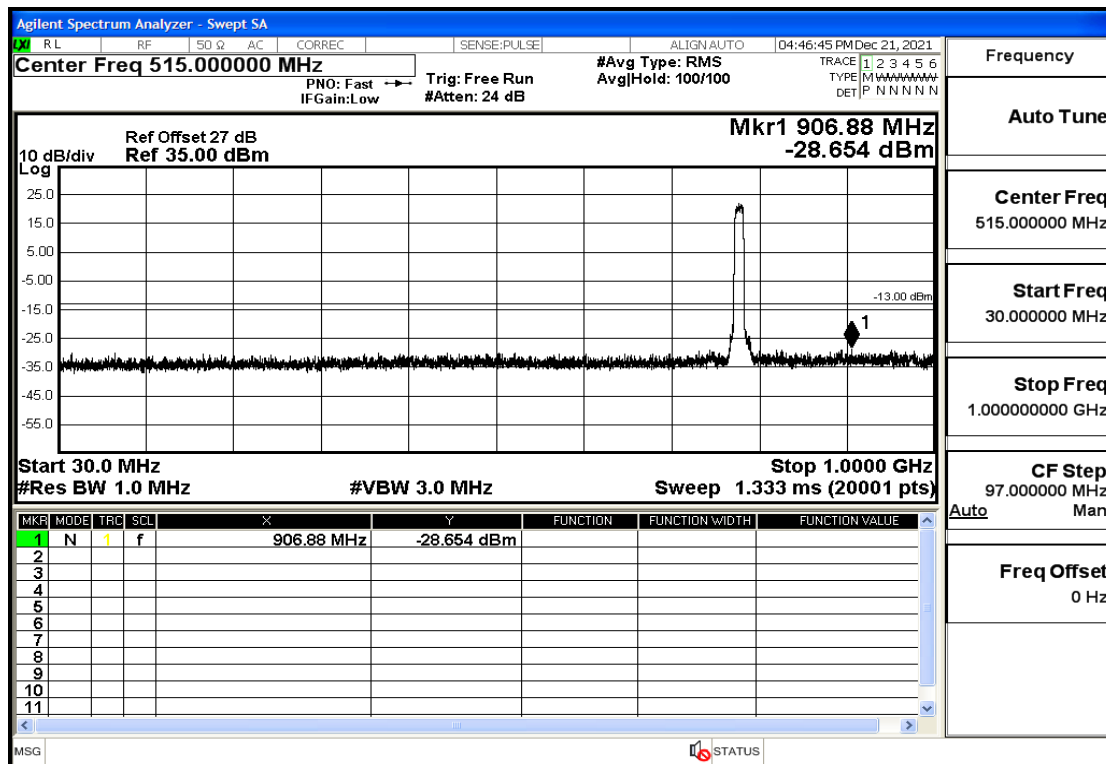
OB13-5-784.5-Q16-12#HIGH@1.559GHz-1.61GHz@Pass



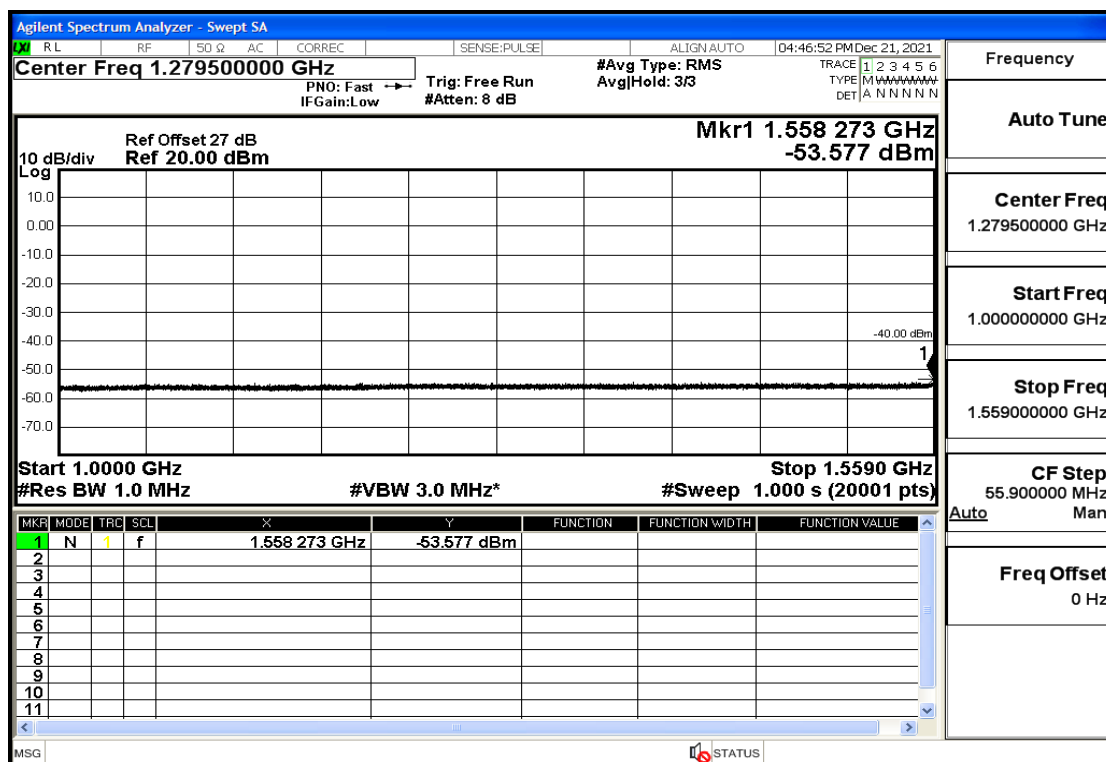
OB13-5-784.5-Q16-12#HIGH@1.61GHz-9GHz@Pass



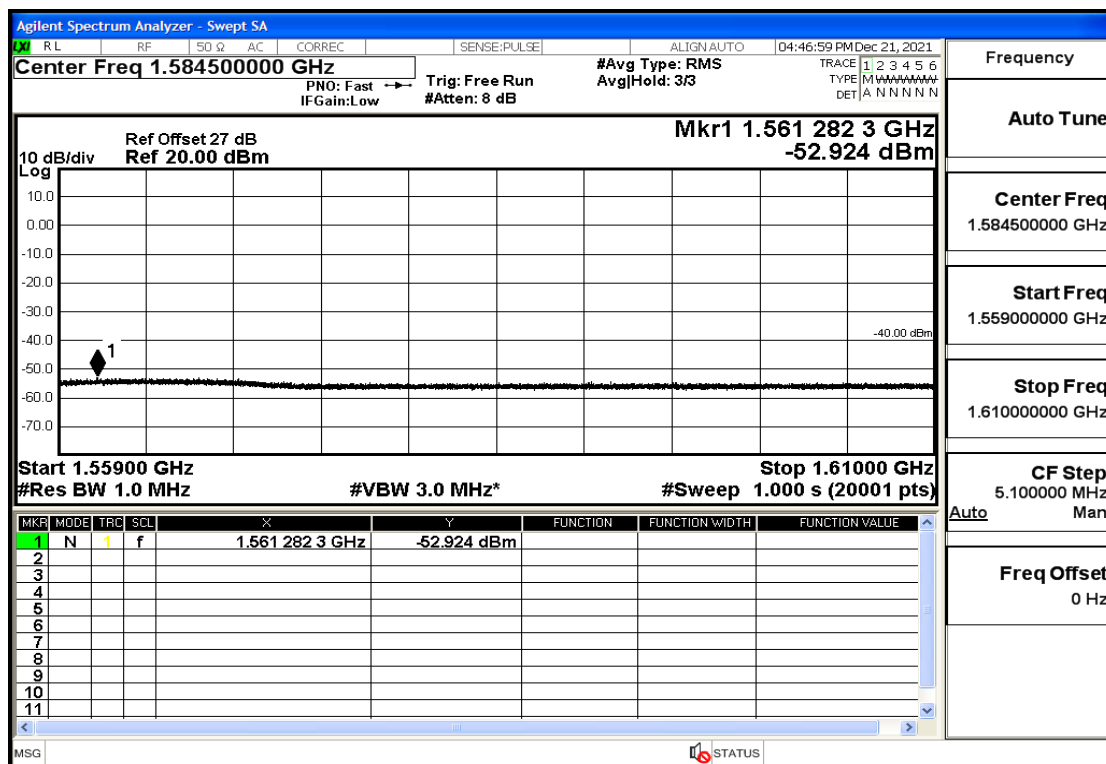
OB13-10-782-QPSK-50#LOW@30mHz-1GHz@Pass



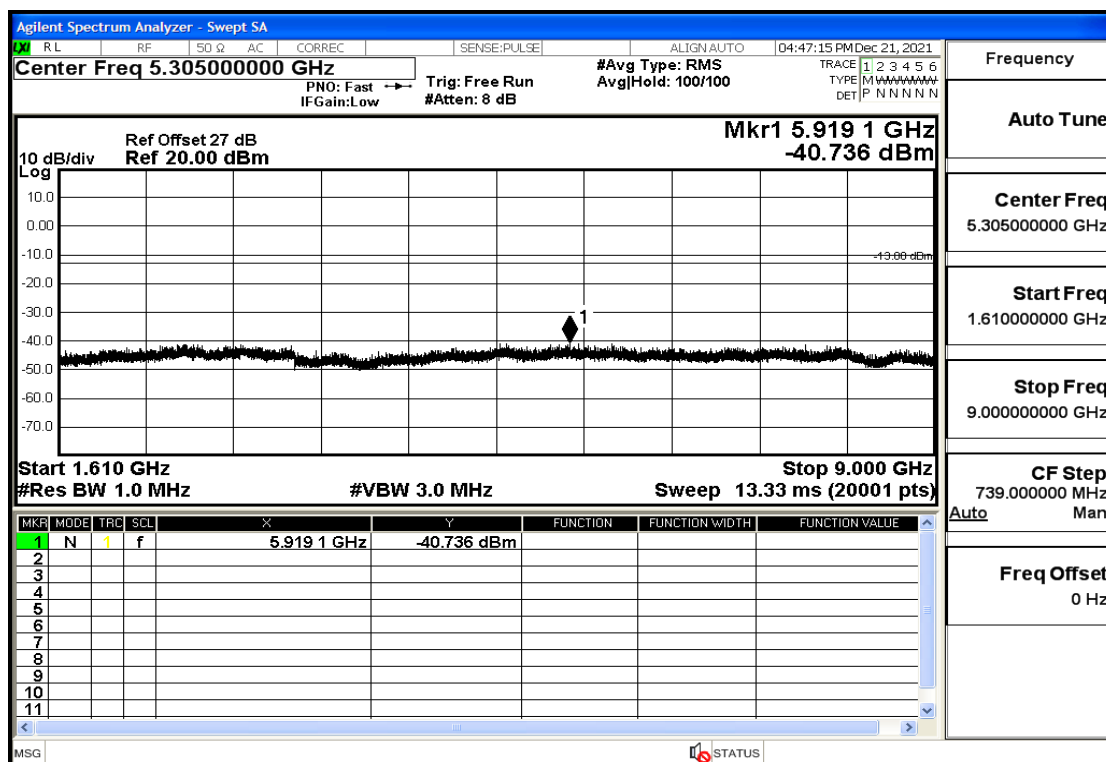
OB13-10-782-QPSK-50#LOW@1GHz-1.559GHz@Pass



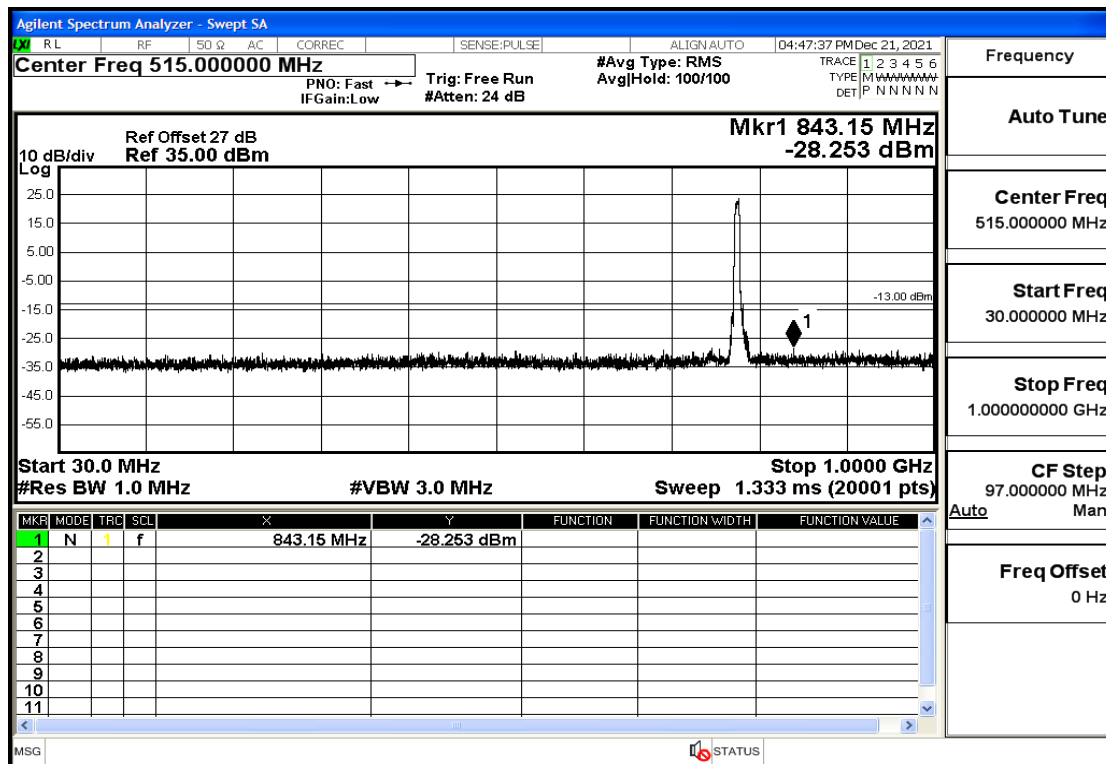
OB13-10-782-QPSK-50#LOW@1.559GHz-1.61GHz@Pass



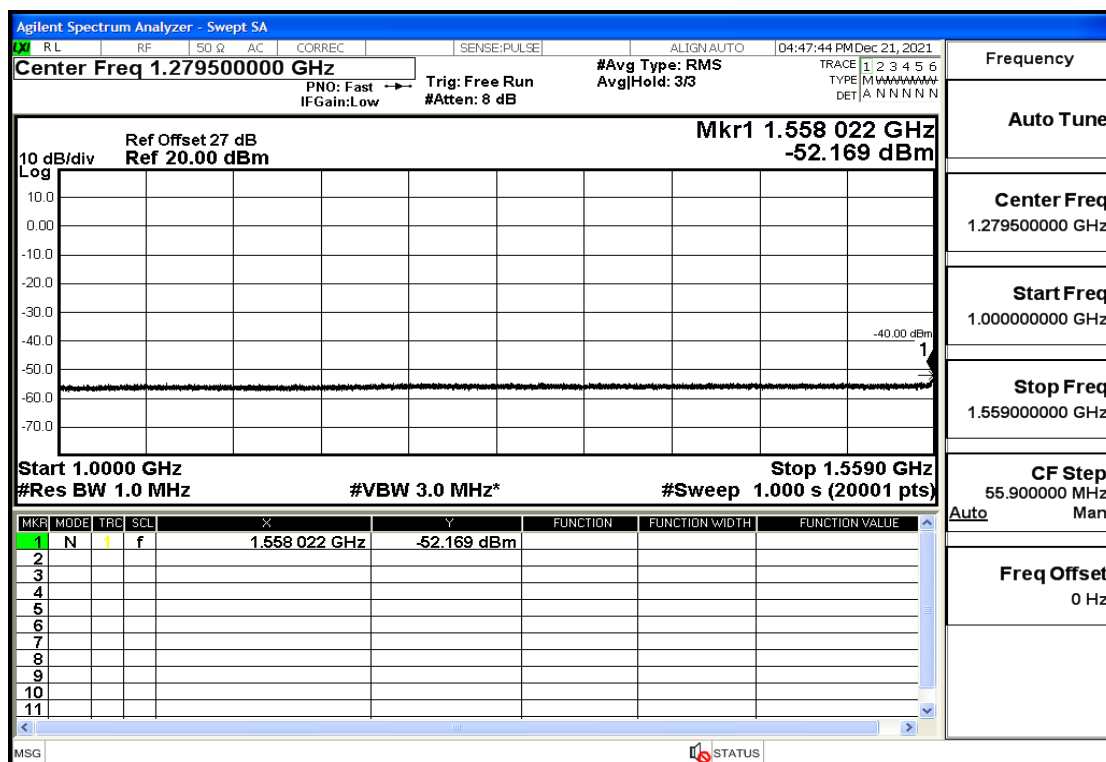
OB13-10-782-QPSK-50#LOW@1.61GHz-9GHz@Pass



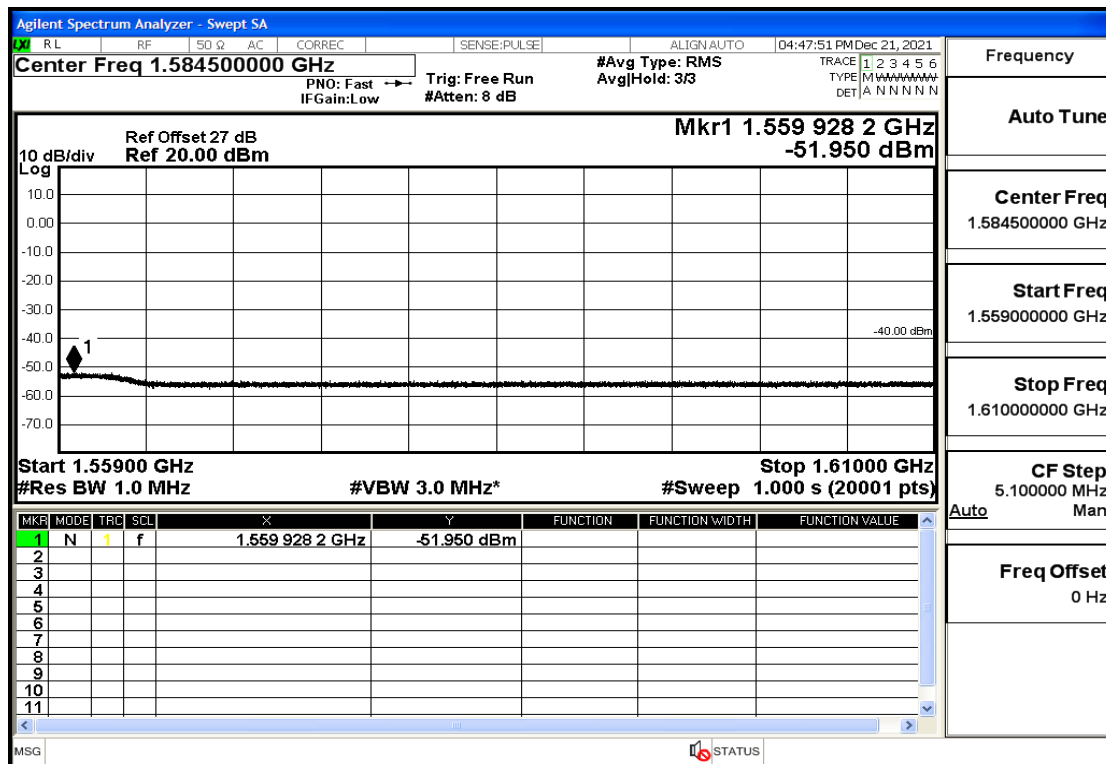
OB13-10-782-QPSK-25#LOW@30mHz-1GHz@Pass



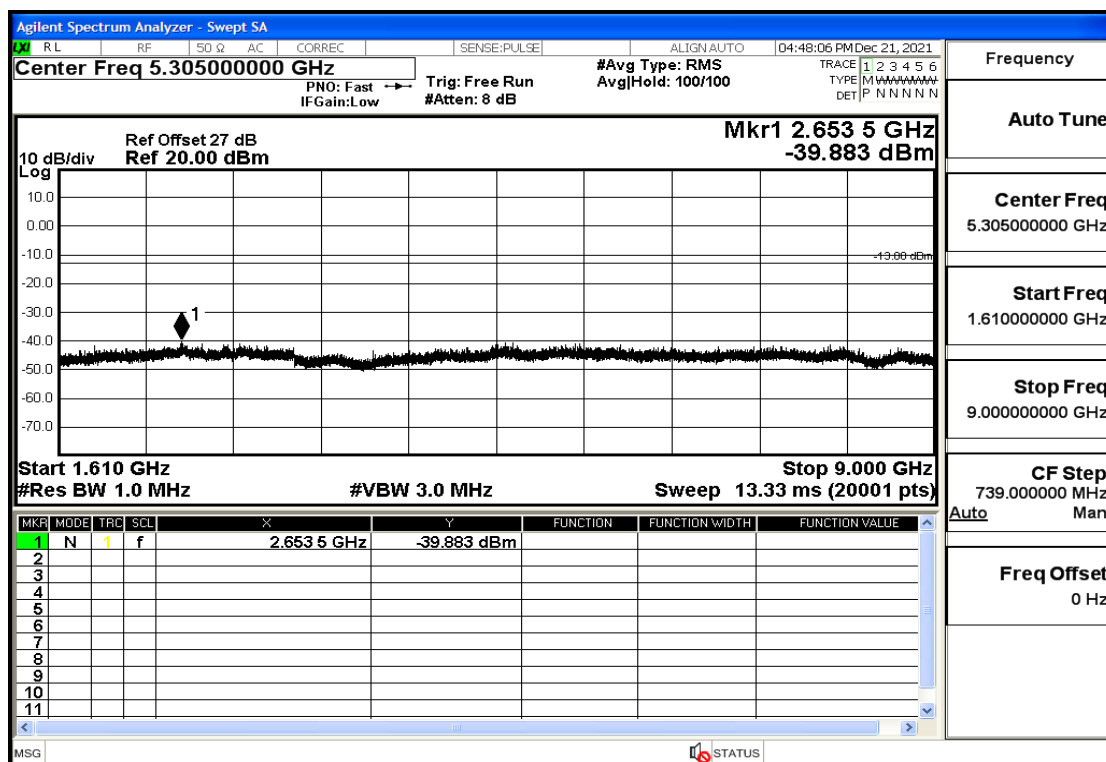
OB13-10-782-QPSK-25#LOW@1GHz-1.559GHz@Pass



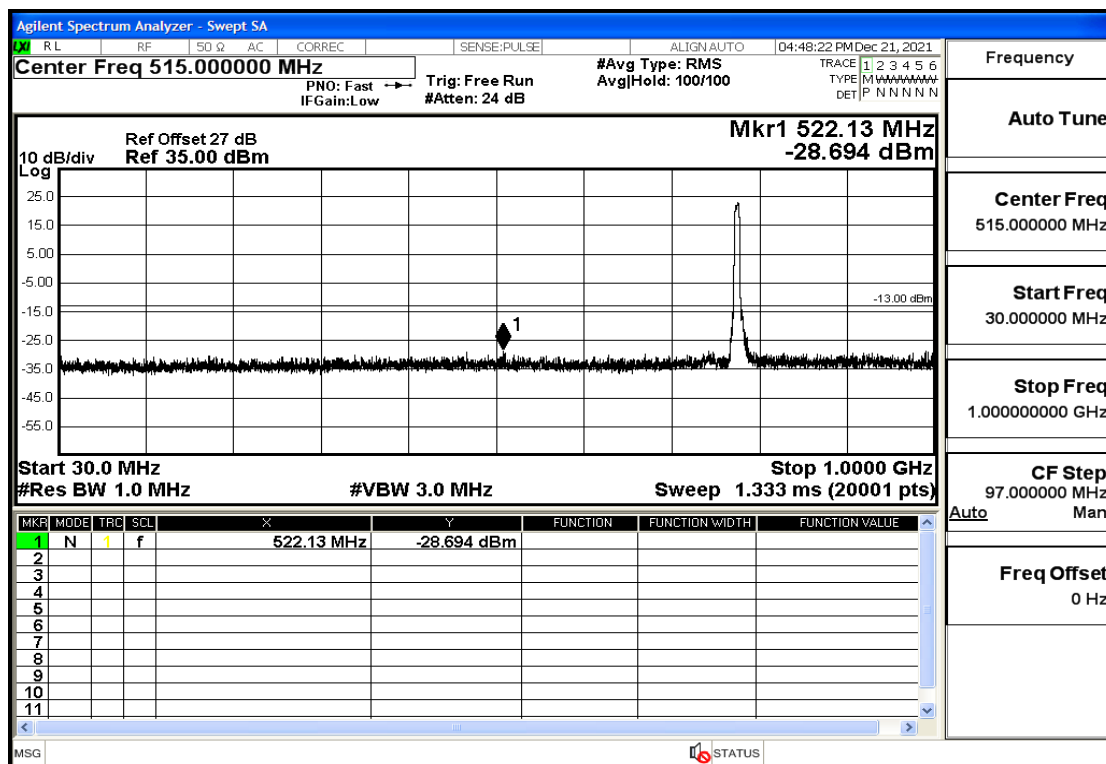
OB13-10-782-QPSK-25#LOW@1.559GHz-1.61GHz@Pass



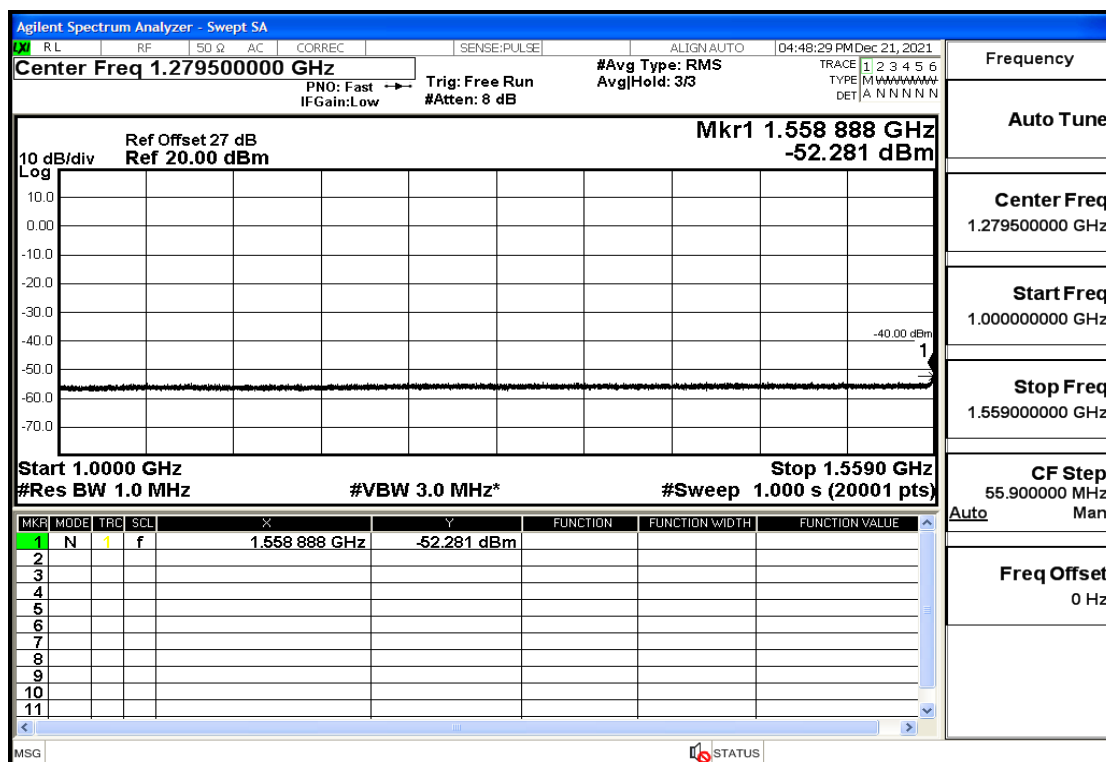
OB13-10-782-QPSK-25#LOW@1.61GHz-9GHz@Pass



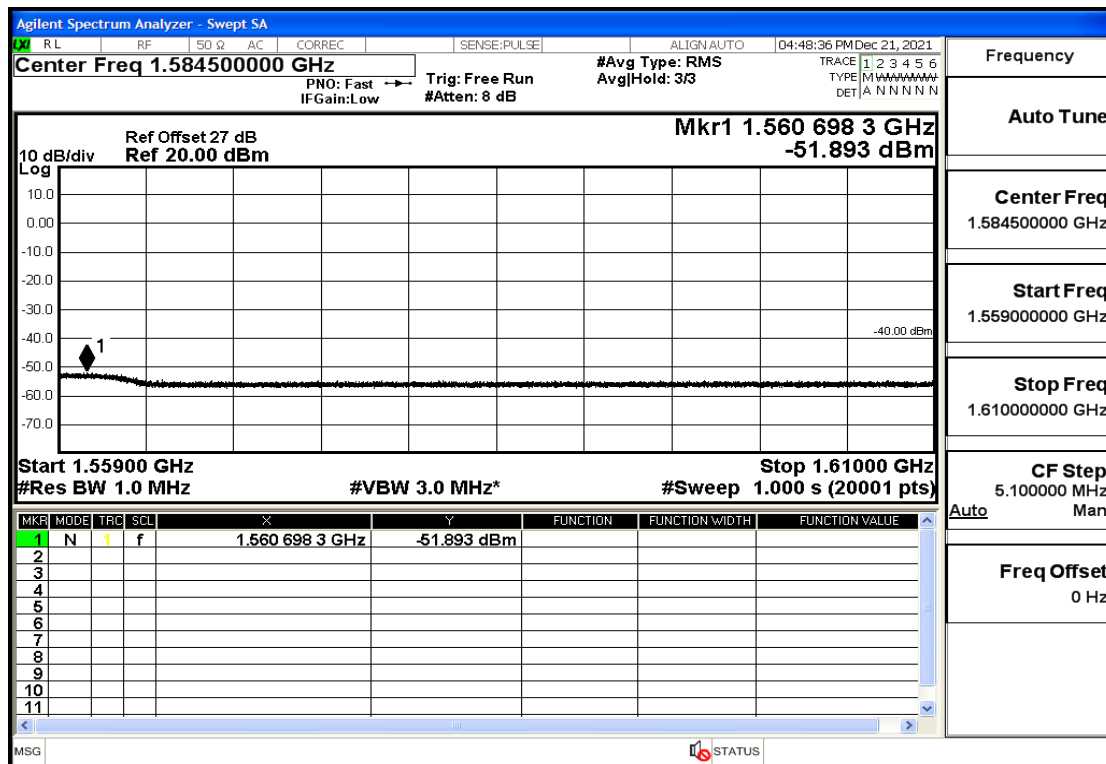
OB13-10-782-QPSK-25#MID@30mHz-1GHz@Pass



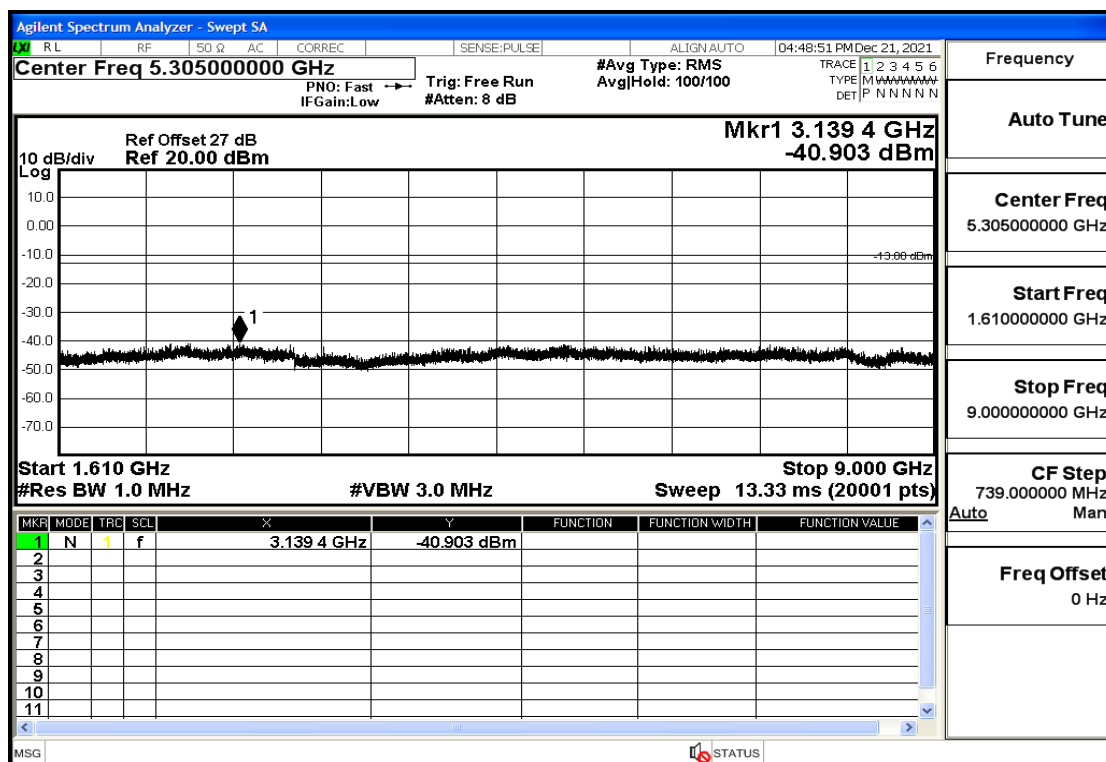
OB13-10-782-QPSK-25#MID@1GHz-1.559GHz@Pass



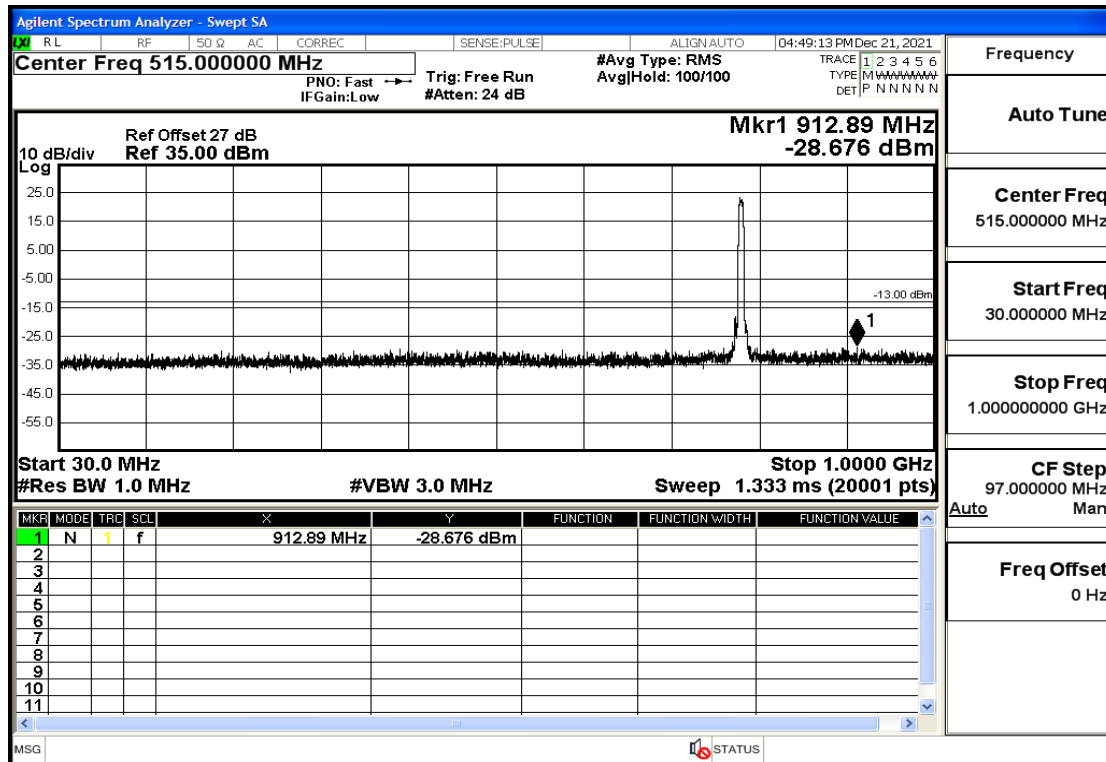
OB13-10-782-QPSK-25#MID@1.559GHz-1.61GHz@Pass



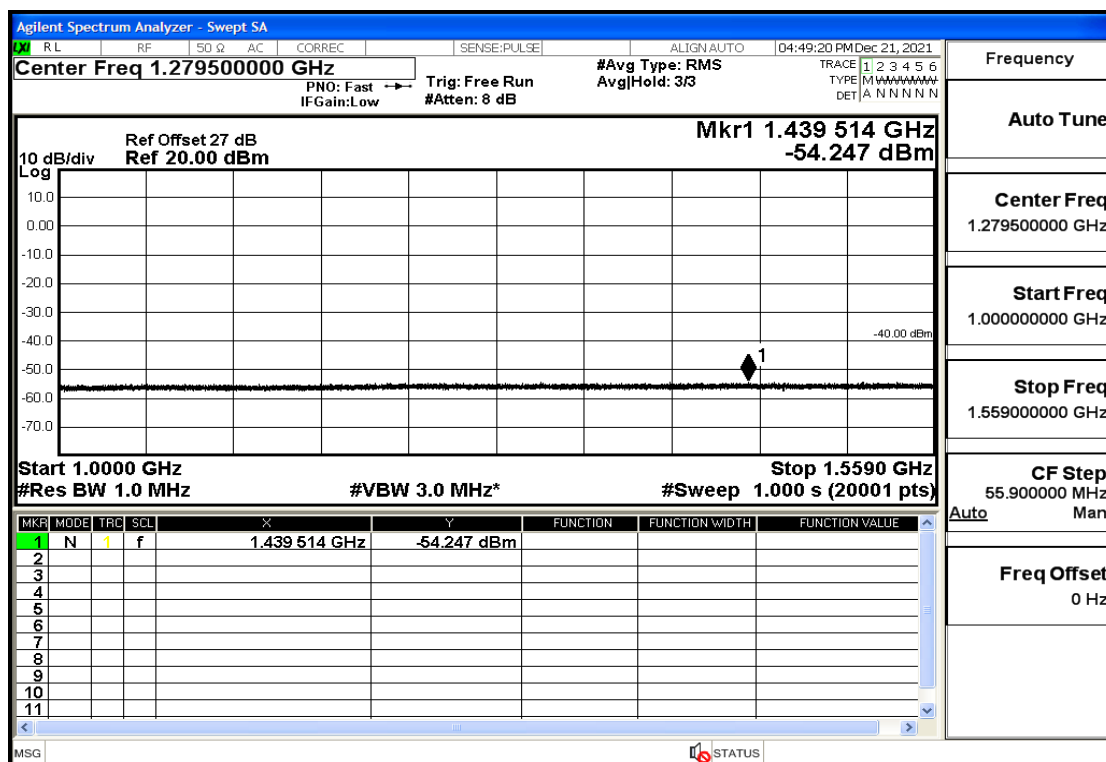
OB13-10-782-QPSK-25#MID@1.61GHz-9GHz@Pass



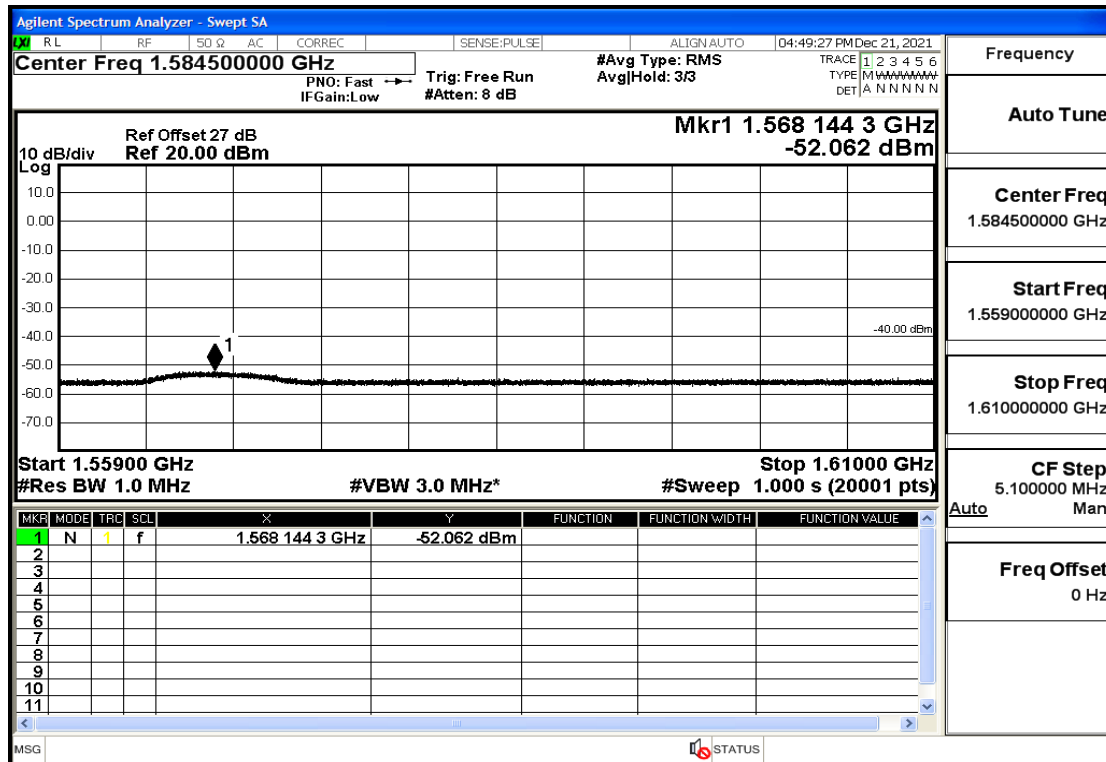
OB13-10-782-QPSK-25#HIGH@30mHz-1GHz@Pass



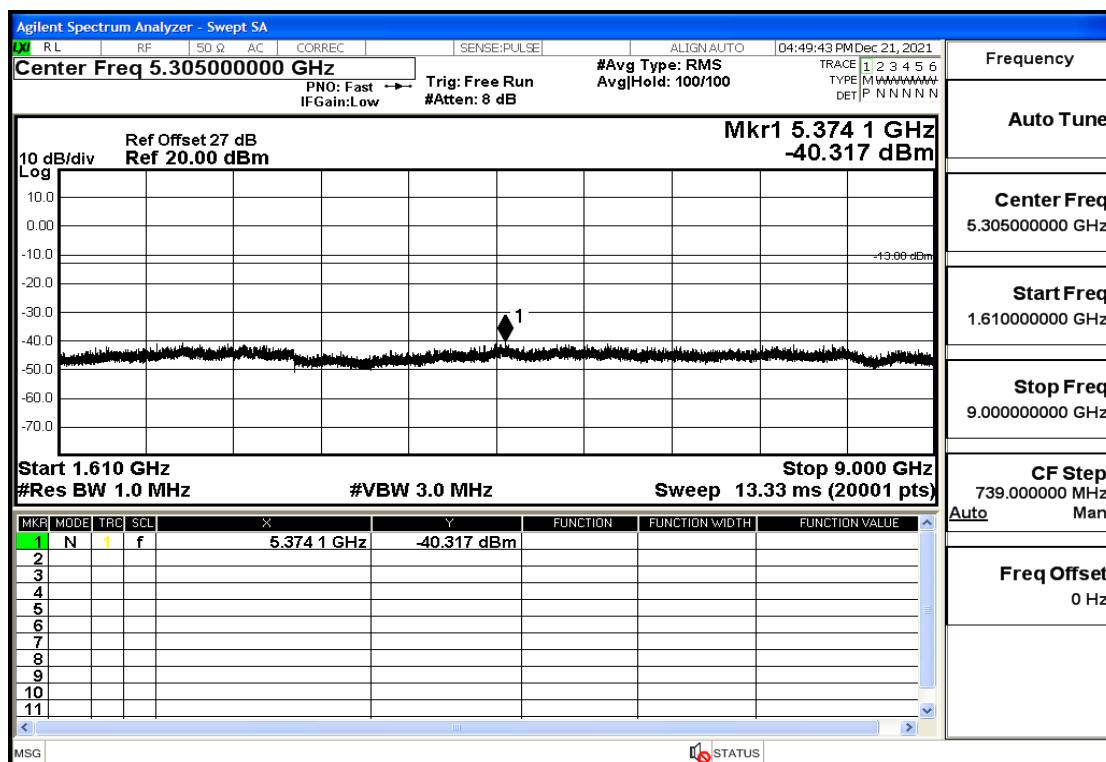
OB13-10-782-QPSK-25#HIGH@1GHz-1.559GHz@Pass



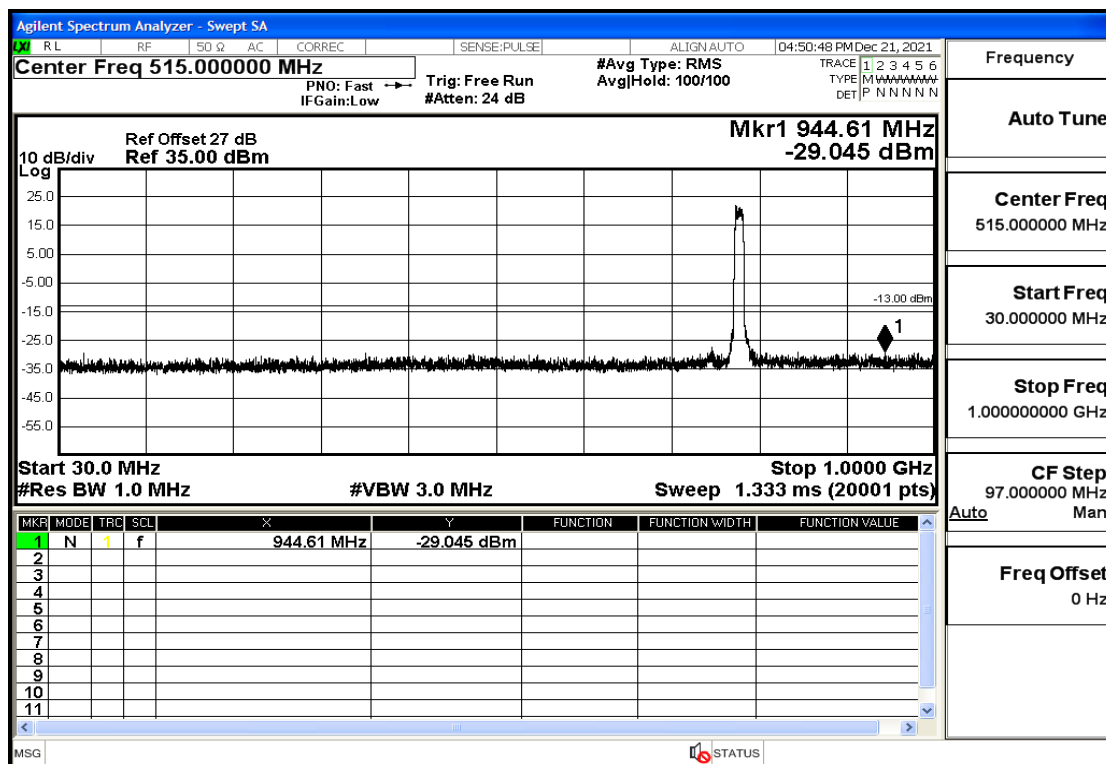
OB13-10-782-QPSK-25#HIGH@1.559GHz-1.61GHz@Pass



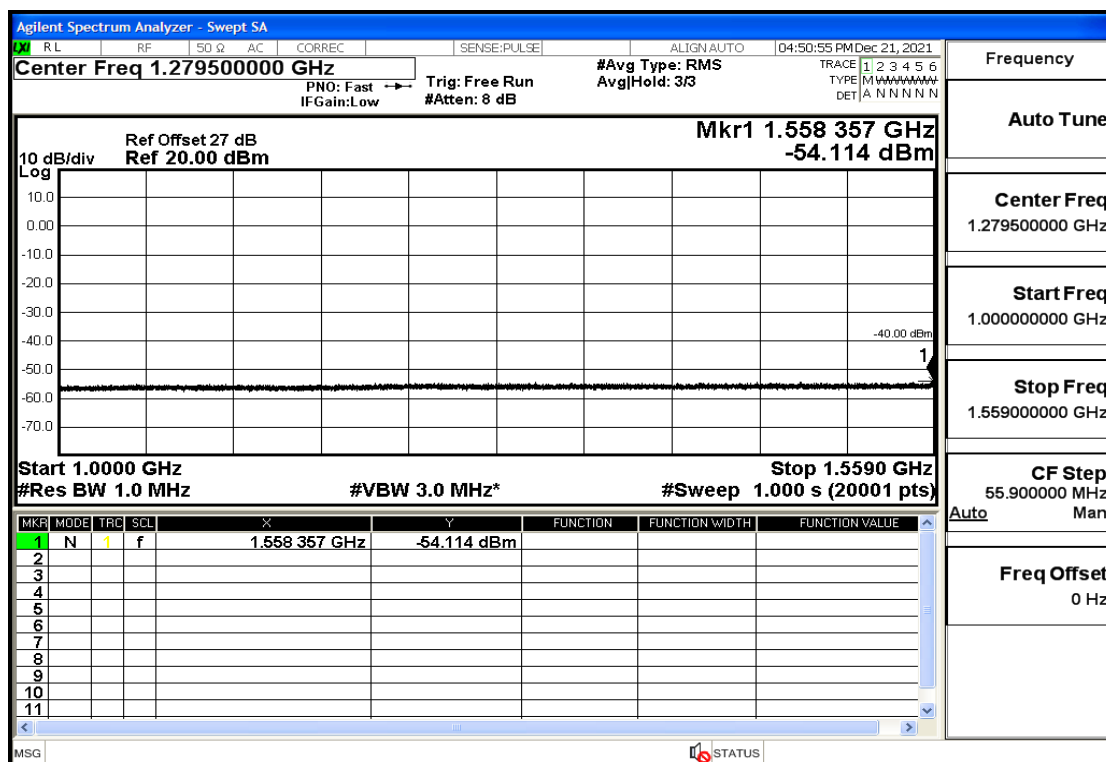
OB13-10-782-QPSK-25#HIGH@1.61GHz-9GHz@Pass



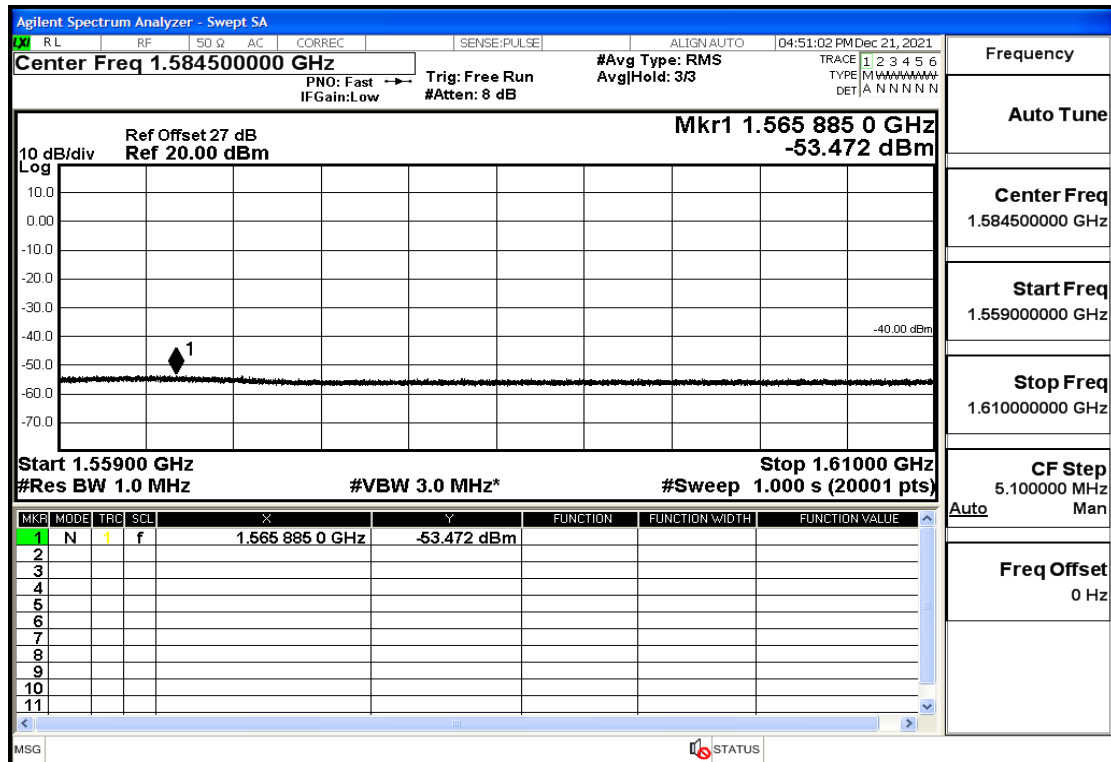
OB13-10-782-Q16-50#LOW@30mHz-1GHz@Pass



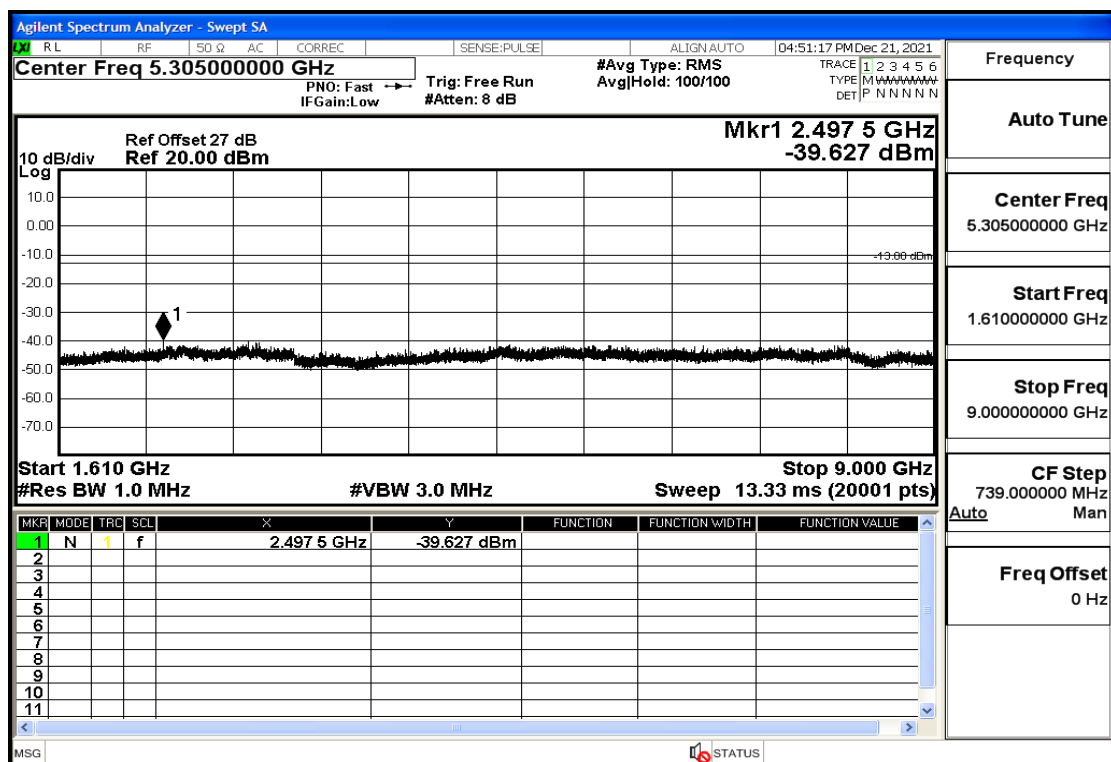
OB13-10-782-Q16-50#LOW@1GHz-1.559GHz@Pass



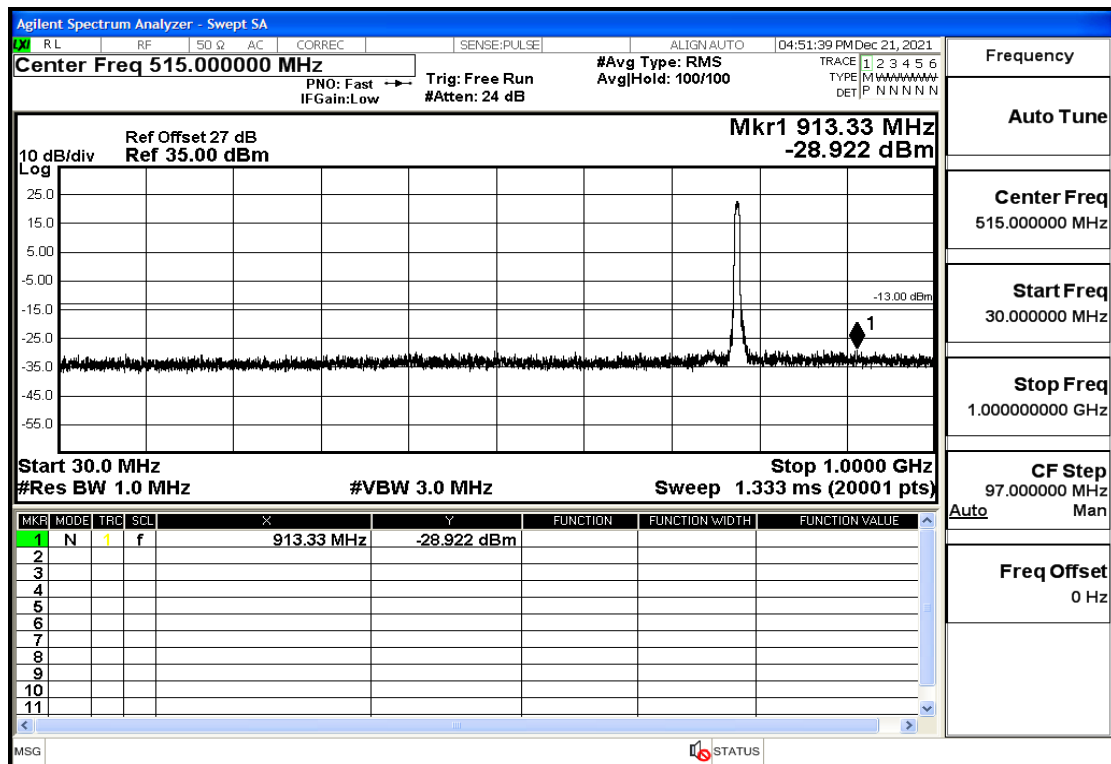
OB13-10-782-Q16-50#LOW@1.559GHz-1.61GHz@Pass



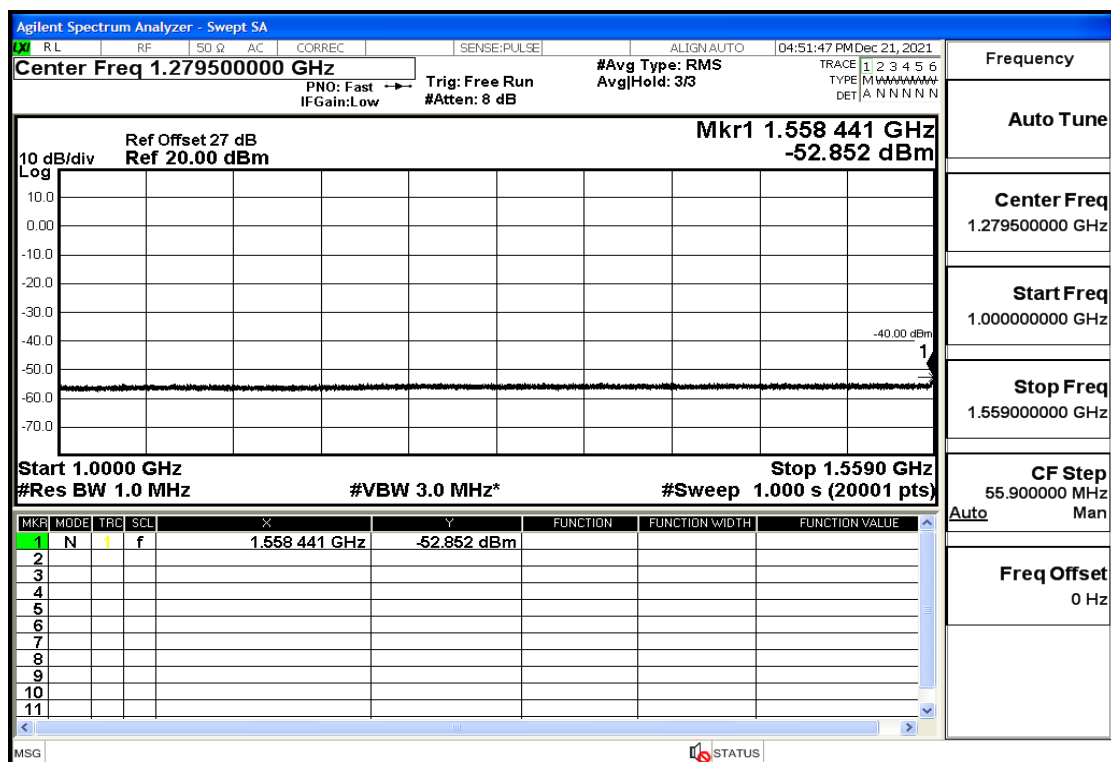
OB13-10-782-Q16-50#LOW@1.61GHz-9GHz@Pass



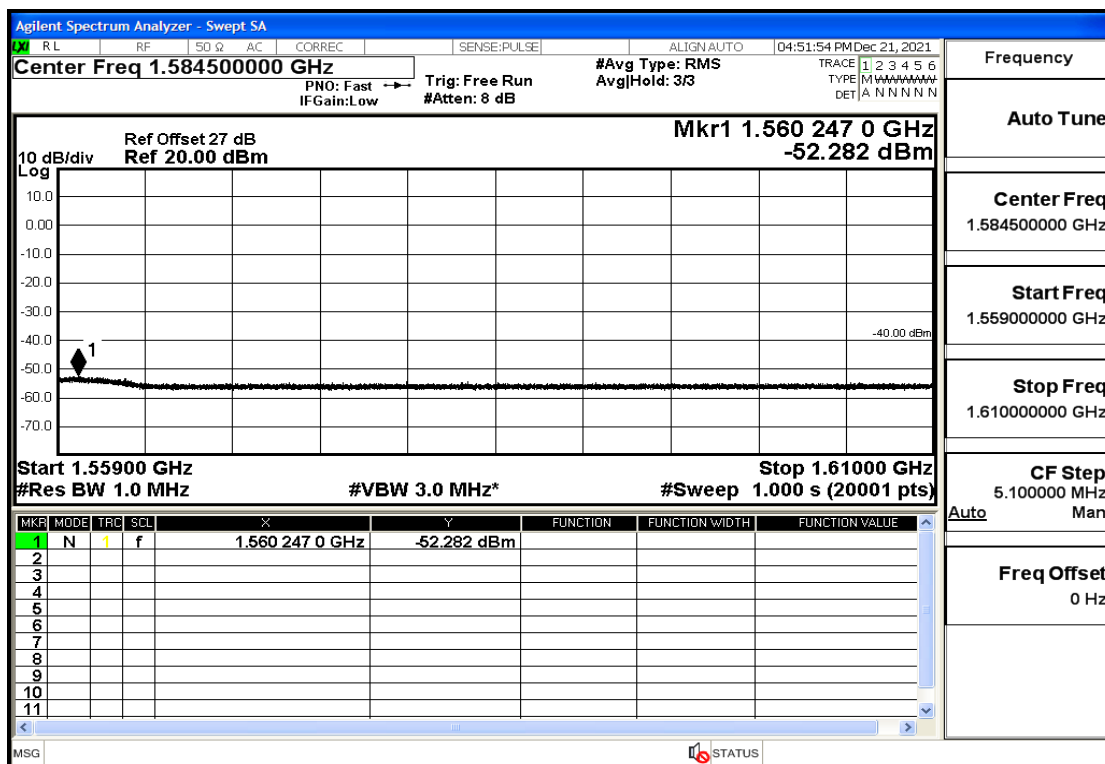
OB13-10-782-Q16-25#LOW@30mHz-1GHz@Pass



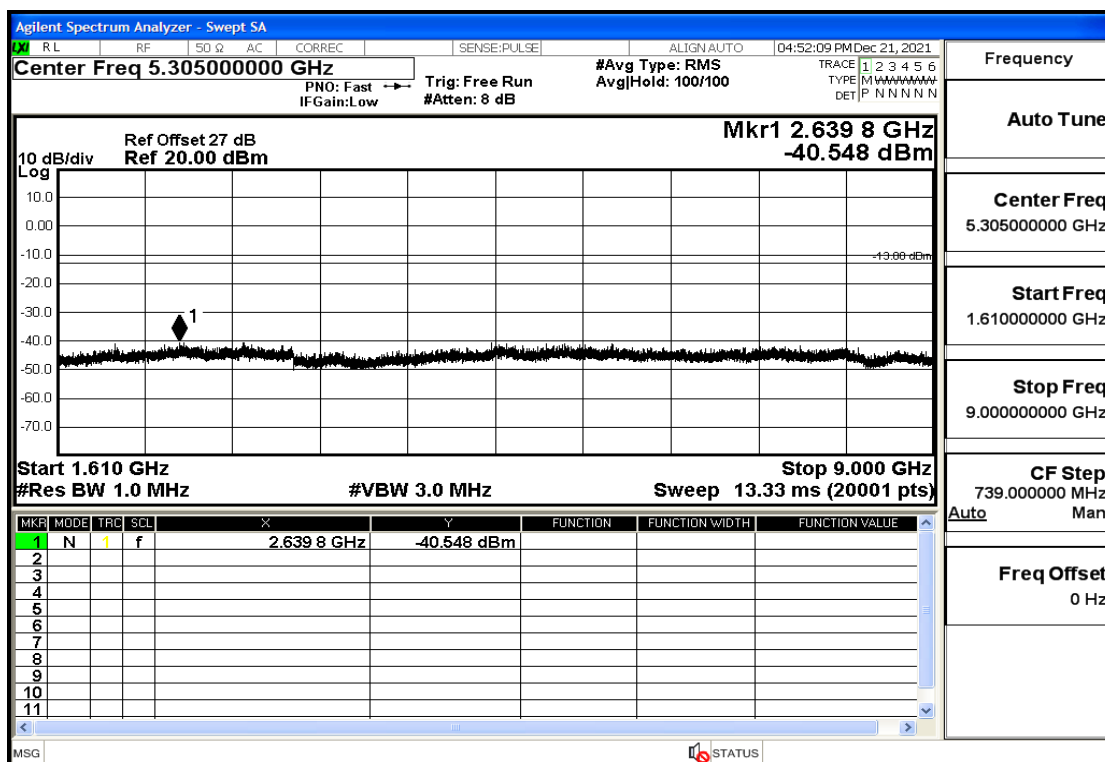
OB13-10-782-Q16-25#LOW@1GHz-1.559GHz@Pass



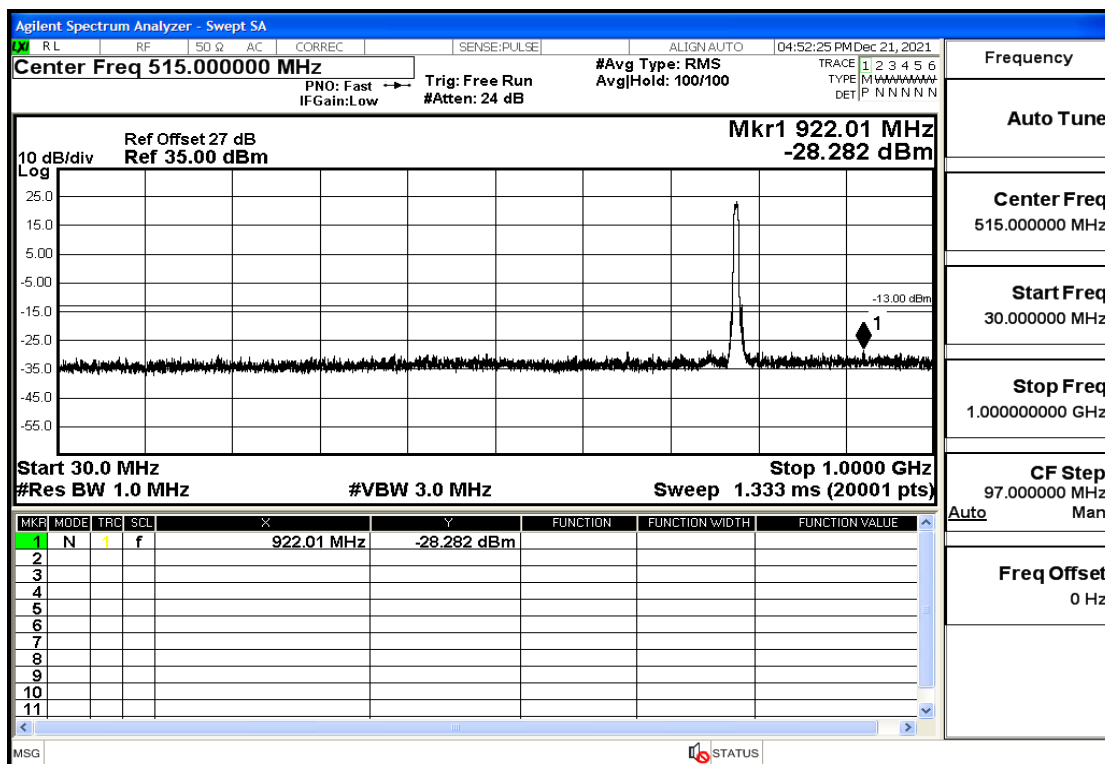
OB13-10-782-Q16-25#LOW@1.559GHz-1.61GHz@Pass



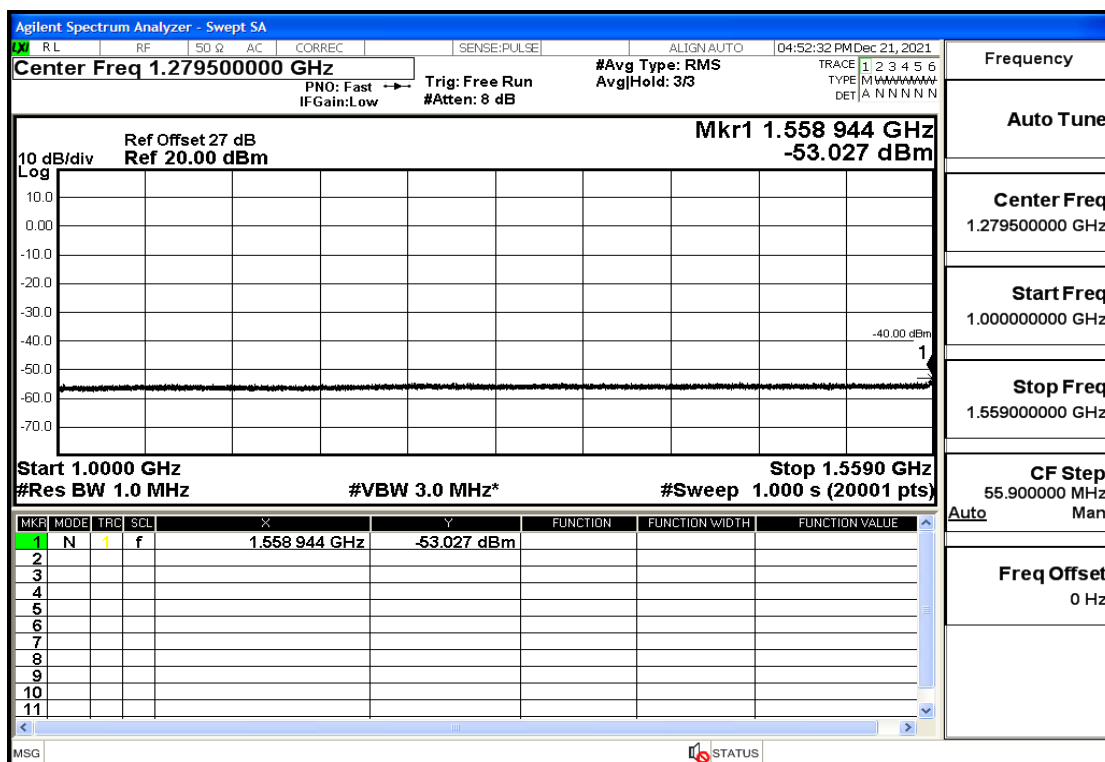
OB13-10-782-Q16-25#LOW@1.61GHz-9GHz@Pass



OB13-10-782-Q16-25#MID@30mHz-1GHz@Pass



OB13-10-782-Q16-25#MID@1GHz-1.559GHz@Pass



Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN:AUTO 04:52:39 PM Dec 21, 2021

Center Freq 1.584500000 GHz PNO: Fast IFGain:Low Trig: Free Run #Atten: 8 dB #Avg Type: RMS AvgHold: 3/3

TRACE 1, 2, 3, 4, 5, 6 TYPE: MAAAAAAN DET: A N N N N N

Ref Offset 27 dB Ref 20.00 dBm Mkr1 1.559 262 7 GHz -52.562 dBm

10 dB/div Log

Start 1.55900 GHz Stop 1.61000 GHz
#Res BW 1.0 MHz #VBW 3.0 MHz* #Sweep 1.000 s (20001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	1.559 262 7 GHz	-52.562 dBm			
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

Frequency

Auto Tune

Center Freq
1.584500000 GHz

Start Freq
1.559000000 GHz

Stop Freq
1.610000000 GHz

CF Step
5.100000 MHz

Auto Man

Freq Offset
0 Hz

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC CORREC SENSE:PULSE ALIGN:AUTO 04:52:54 PM Dec 21, 2021

Center Freq 5.305000000 GHz PNO: Fast IFGain:Low Trig: Free Run #Atten: 8 dB #Avg Type: RMS AvgHold: 100/100

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

Ref Offset 27 dB
Ref 20.00 dBm

Mkr1 3.591 3 GHz
-40.858 dBm

10 dB/div
Log

Start 1.610 GHz Stop 9.000 GHz
#Res BW 1.0 MHz #VBW 3.0 MHz Sweep 13.33 ms (20001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	f		3.591 3 GHz	-40.858 dBm			
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

Frequency

Auto Tune

Center Freq
5.305000000 GHz

Start Freq
1.610000000 GHz

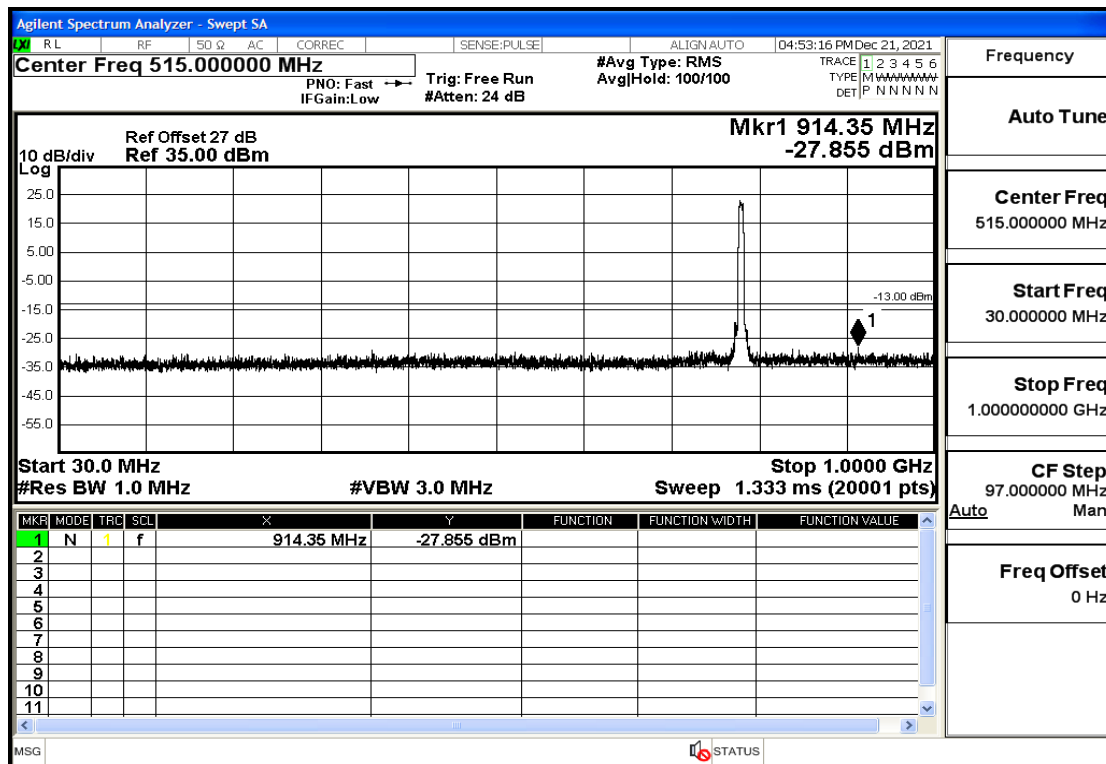
Stop Freq
9.000000000 GHz

CF Step
739.000000 MHz

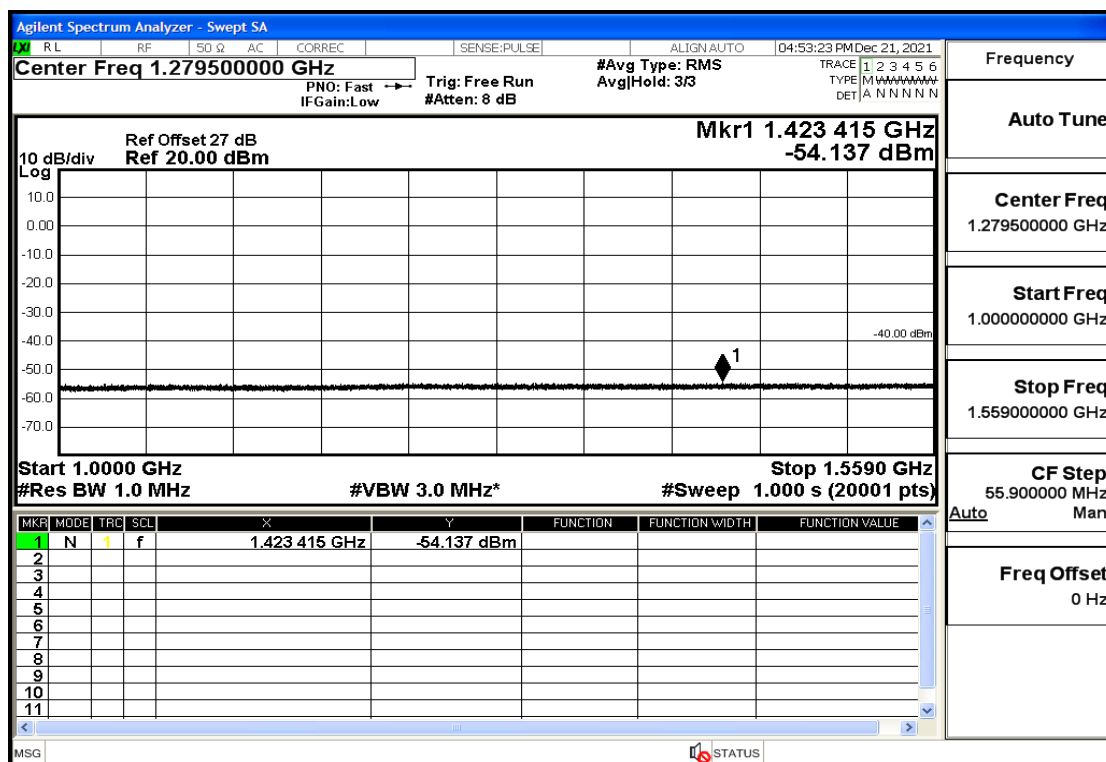
Auto Man

Freq Offset
0 Hz

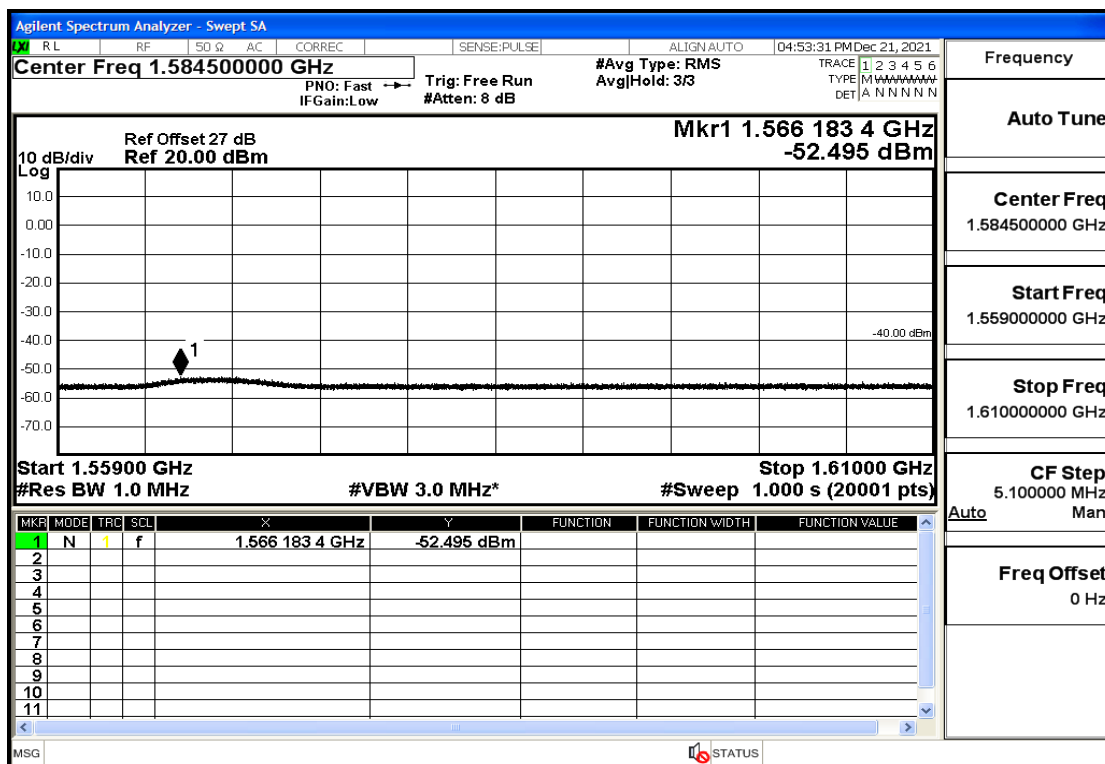
OB13-10-782-Q16-25#HIGH@30mHz-1GHz@Pass



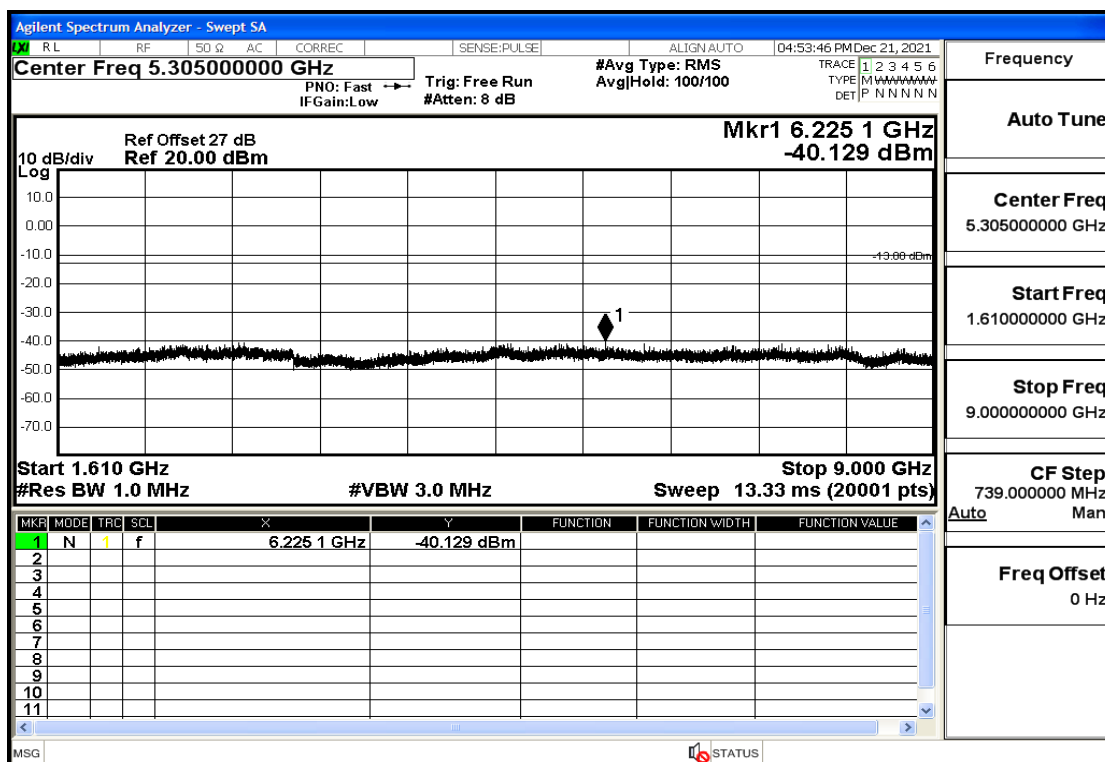
OB13-10-782-Q16-25#HIGH@1GHz-1.559GHz@Pass



OB13-10-782-Q16-25#HIGH@1.559GHz-1.61GHz@Pass



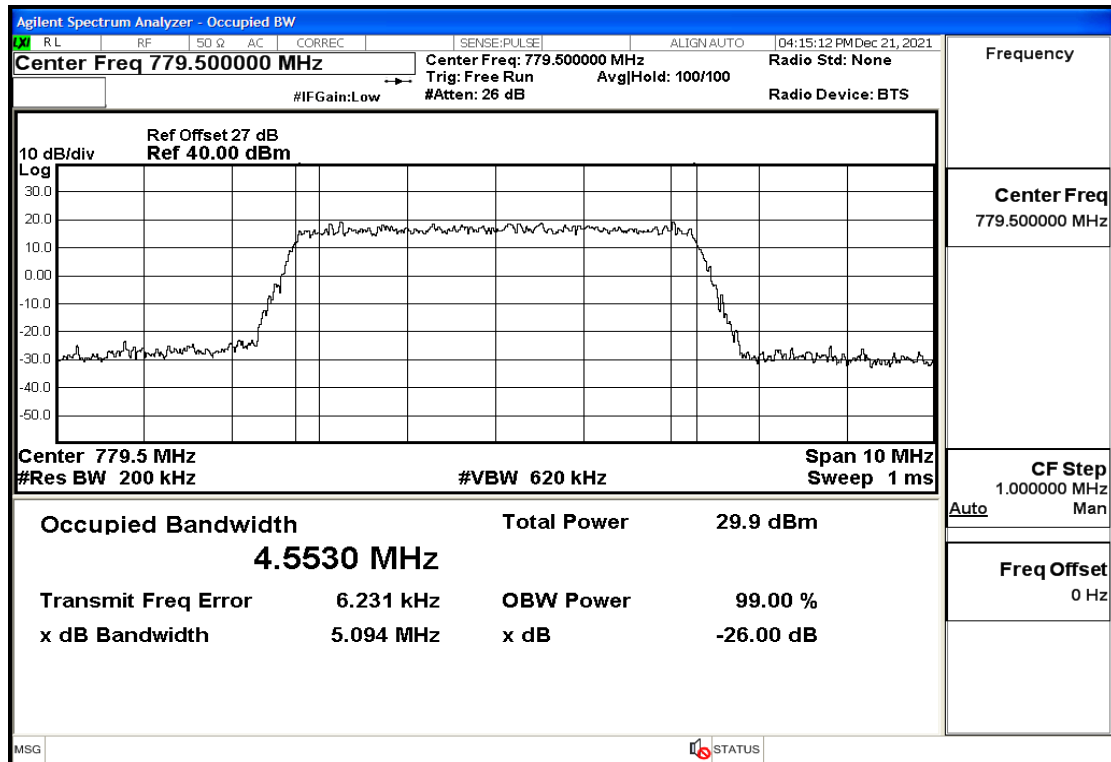
OB13-10-782-Q16-25#HIGH@1.61GHz-9GHz@Pass



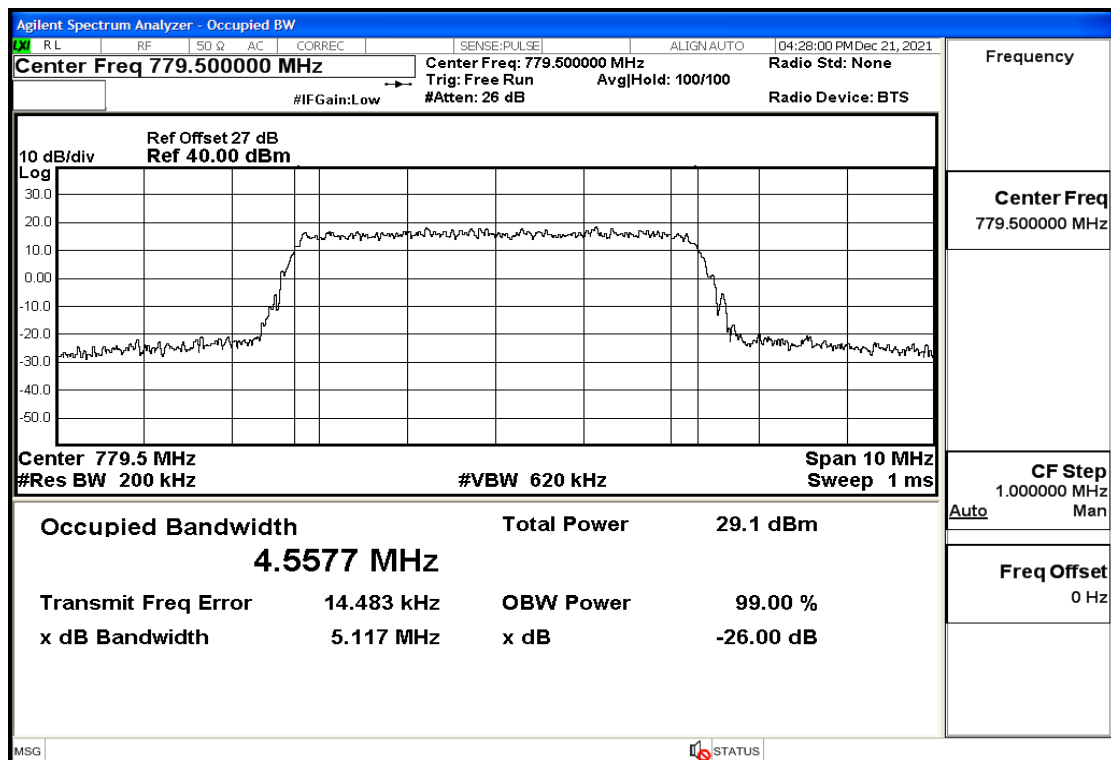
Emission bandwidth and OBW

Band	Bandwidth(MHz)	UL Frequency(MHz)	Modulation	RB Size	RB Offset	Occupied Bandwidth(KHz)	Emission Bandwidth(KHz)	Limit
Band13	5	779.5	QPSK	25	LOW	4553	5094	No limit
Band13	5	779.5	16QAM	25	LOW	4557.7	5117	No limit
Band13	5	782	QPSK	25	LOW	4558.5	5079	No limit
Band13	5	782	16QAM	25	LOW	4569.4	5055	No limit
Band13	5	784.5	QPSK	25	LOW	4559	5066	No limit
Band13	5	784.5	16QAM	25	LOW	4573.8	5092	No limit
Band13	10	782	QPSK	50	LOW	9045.9	10030	No limit
Band13	10	782	16QAM	50	LOW	9027.9	10040	No limit

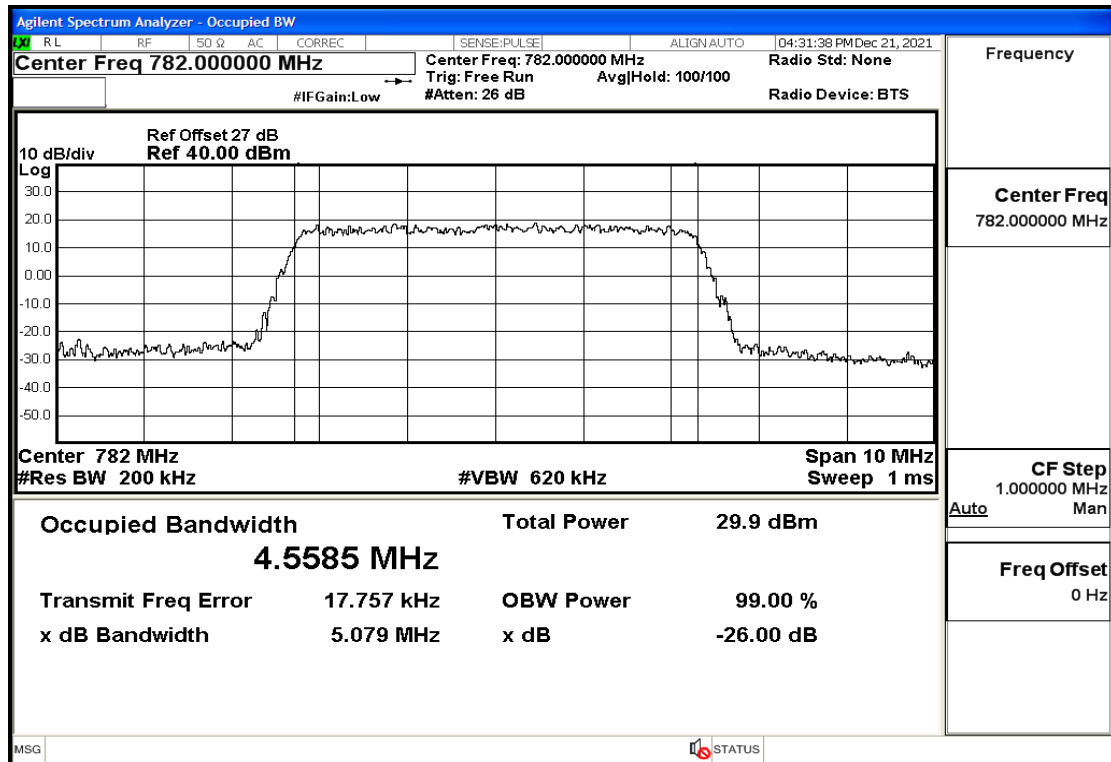
Band13-5-779.5-QPSK-25#LOW@26dB and 99PCT Bandwidth



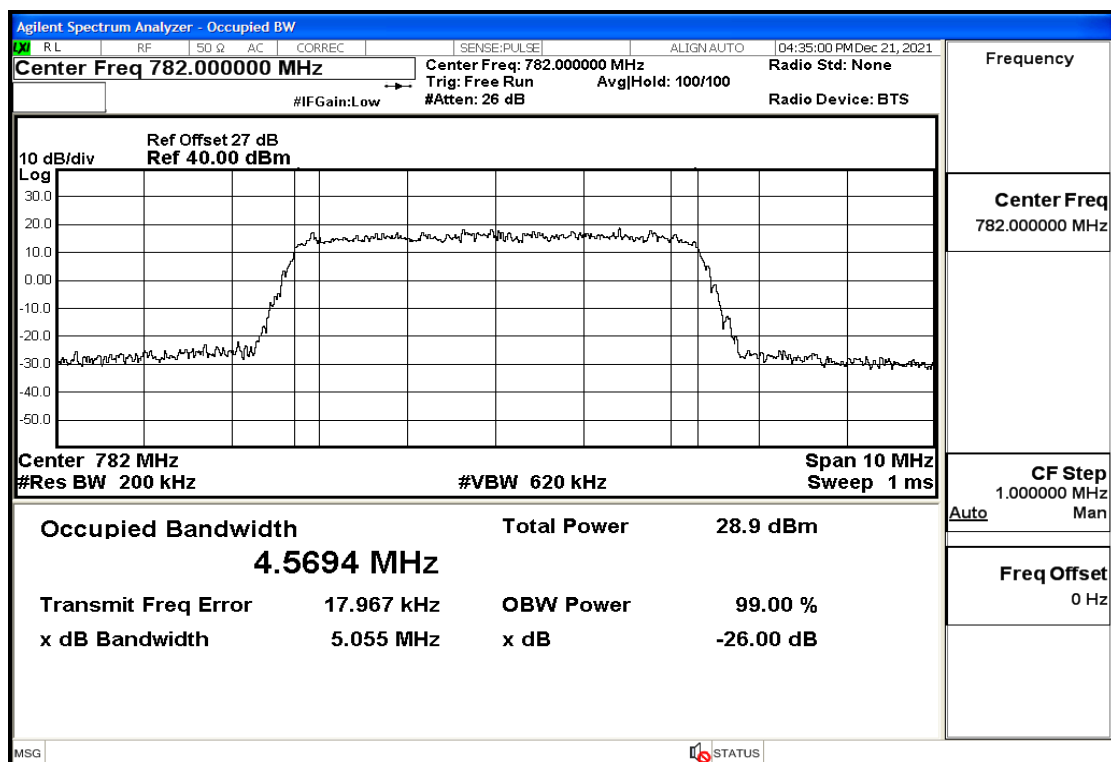
Band13-5-779.5-16QAM-25#LOW@26dB and 99PCT Bandwidth



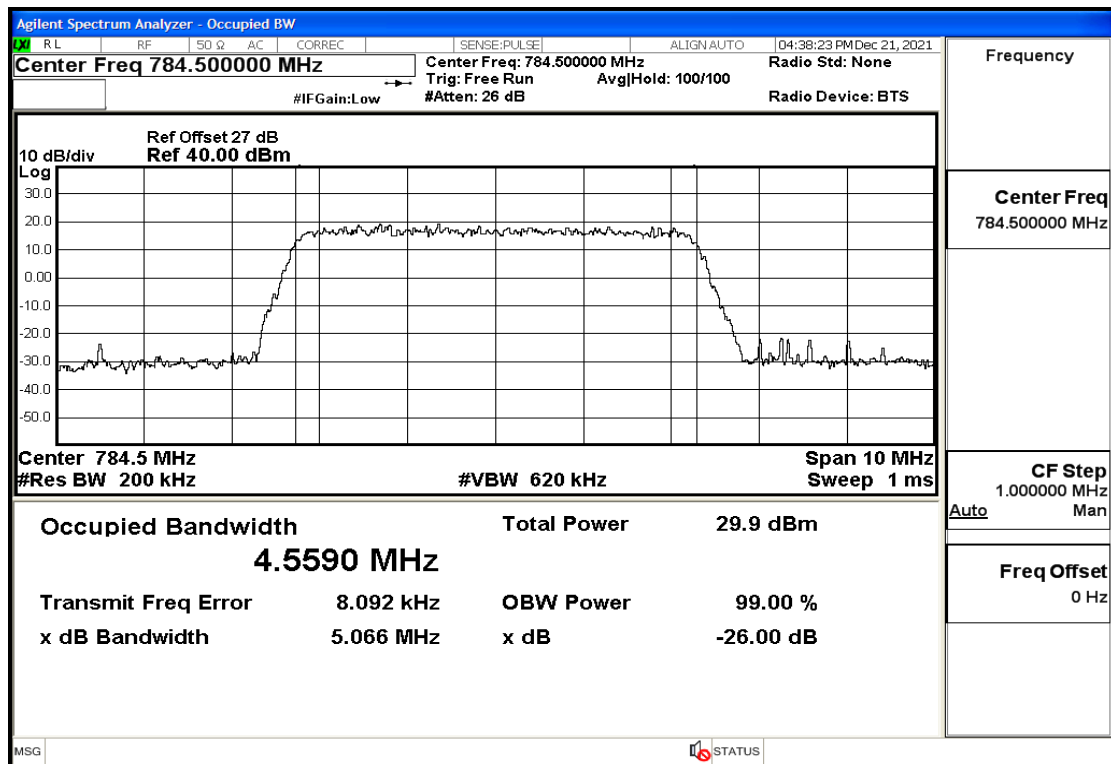
Band13-5-782-QPSK-25#LOW@26dB and 99PCT Bandwidth



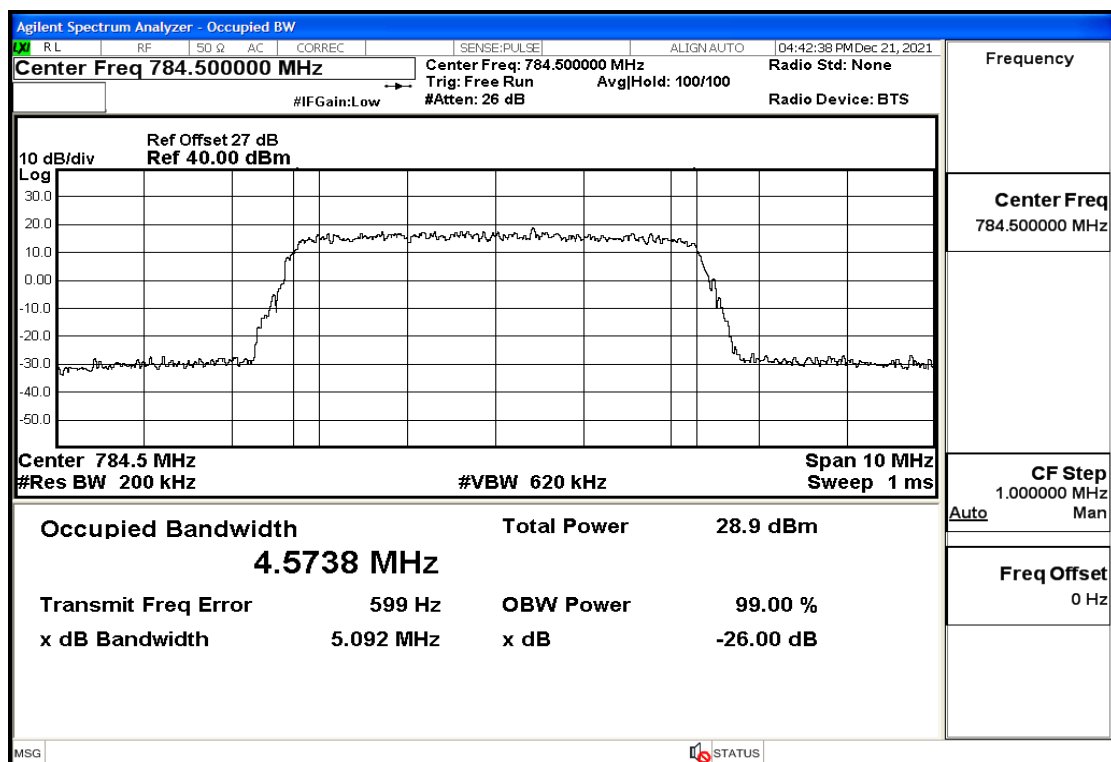
Band13-5-782-16QAM-25#LOW@26dB and 99PCT Bandwidth



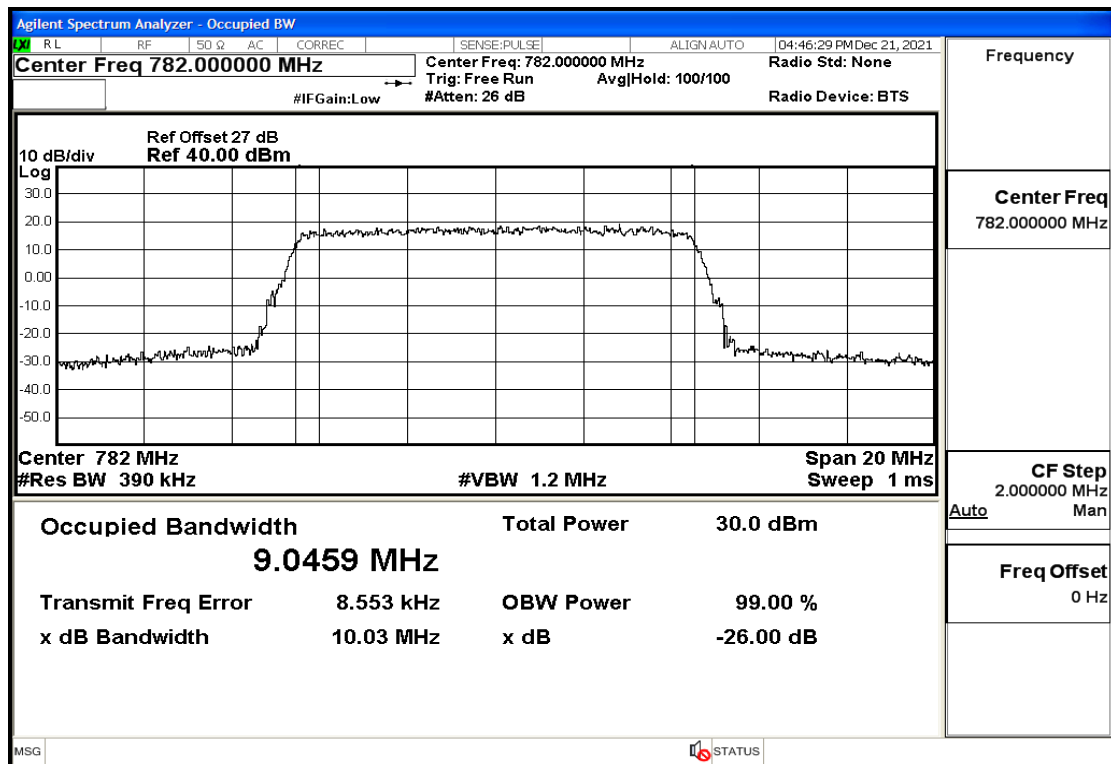
Band13-5-784.5-QPSK-25#LOW@26dB and 99PCT Bandwidth



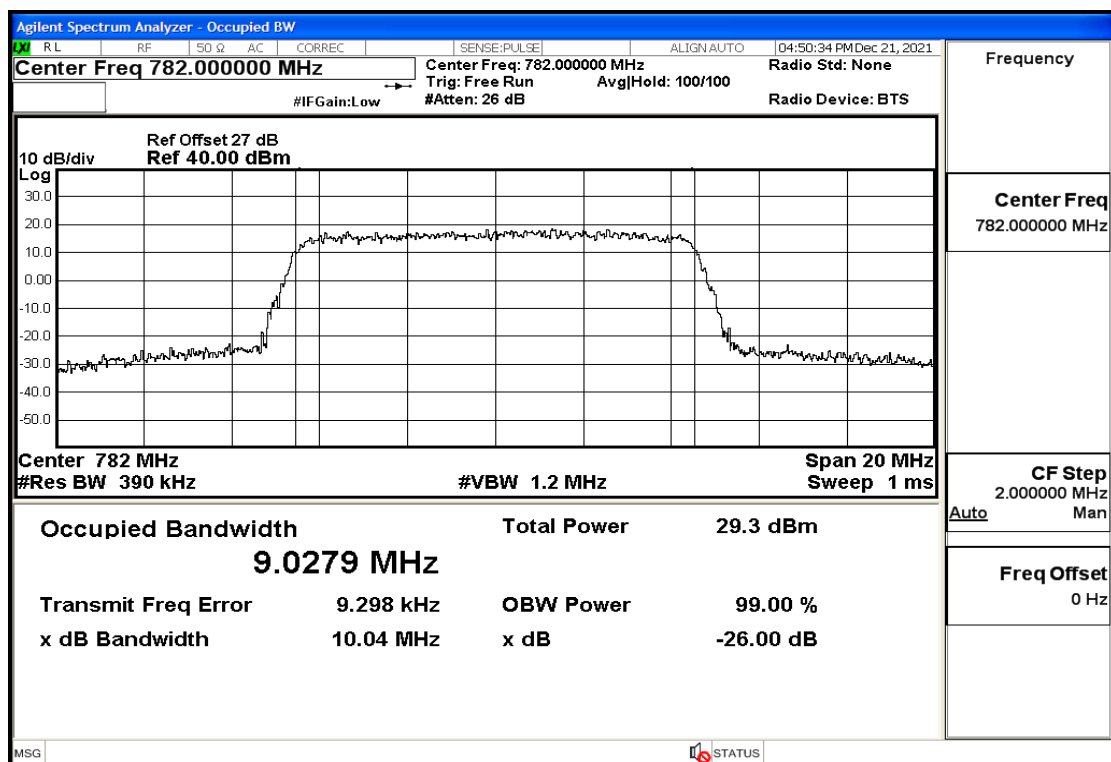
Band13-5-784.5-16QAM-25#LOW@26dB and 99PCT Bandwidth



Band13-10-782-QPSK-50#LOW@26dB and 99PCT Bandwidth



Band13-10-782-16QAM-50#LOW@26dB and 99PCT Bandwidth



Frequency Stability

Test Conditions		LTE Band 13 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 5MHz	2.5ppm
		Deviation (ppm)	Result
50	Normal Voltage	0.0694	PASS
40	Normal Voltage	0.0324	
30	Normal Voltage	0.0179	
20(Ref.)	Normal Voltage	0.0276	
10	Normal Voltage	0.0597	
0	Normal Voltage	0.0165	
-10	Normal Voltage	0.0402	
-20	Normal Voltage	0.0326	
-30	Normal Voltage	0.0163	
20	Maximum Voltage	0.0163	
20	Normal Voltage	0.0292	
20	Battery End Point	0.0623	

Peak and Average Power

Band	Bandwidth(MHz)	UL Frequency(MHz)	Modulation	RB Size	RB Offset	Average Power	Peak Power	Peak to Average(dB)	limit(dB)	AntGain(dBi)	ERP/EIRP(dBm)	Limit(dBm)	Conclusion
Band13	5	779.5	QPSK	25	LOW	22.6	29.22	6.62	13	0.3	20.75	34.8	Pass
Band13	5	779.5	QPSK	12	LOW	22.52	29.03	6.51	13	0.3	20.67	34.8	Pass
Band13	5	779.5	QPSK	12	MID	22.52	29.1	6.58	13	0.3	20.67	34.8	Pass
Band13	5	779.5	QPSK	12	HIGH	22.52	29.05	6.53	13	0.3	20.67	34.8	Pass
Band13	5	779.5	QPSK	1	LOW	23.32	29.54	6.22	13	0.3	21.47	34.8	Pass
Band13	5	779.5	QPSK	1	MID	23.49	29.58	6.09	13	0.3	21.64	34.8	Pass
Band13	5	779.5	QPSK	1	HIGH	23.25	29.59	6.34	13	0.3	21.4	34.8	Pass
Band13	5	779.5	16QAM	25	LOW	21.52	29.73	8.21	13	0.3	19.67	34.8	Pass
Band13	5	779.5	16QAM	12	LOW	21.45	29.12	7.67	13	0.3	19.6	34.8	Pass
Band13	5	779.5	16QAM	12	MID	21.56	28.84	7.28	13	0.3	19.71	34.8	Pass
Band13	5	779.5	16QAM	12	HIGH	21.58	29.19	7.61	13	0.3	19.73	34.8	Pass
Band13	5	779.5	16QAM	1	LOW	22.34	29.51	7.17	13	0.3	20.49	34.8	Pass
Band13	5	779.5	16QAM	1	MID	22.65	29.73	7.08	13	0.3	20.8	34.8	Pass
Band13	5	779.5	16QAM	1	HIGH	22.2	29.5	7.3	13	0.3	20.35	34.8	Pass
Band13	5	782	QPSK	25	LOW	22.42	29.08	6.66	13	0.3	20.57	34.8	Pass
Band13	5	782	QPSK	12	LOW	22.57	29.47	6.9	13	0.3	20.72	34.8	Pass
Band13	5	782	QPSK	12	MID	22.57	29.37	6.8	13	0.3	20.72	34.8	Pass
Band13	5	782	QPSK	12	HIGH	22.58	28.85	6.27	13	0.3	20.73	34.8	Pass
Band13	5	782	QPSK	1	LOW	23.27	30.16	6.89	13	0.3	21.42	34.8	Pass
Band13	5	782	QPSK	1	MID	23.56	29.85	6.29	13	0.3	21.71	34.8	Pass
Band13	5	782	QPSK	1	HIGH	23.36	29.59	6.23	13	0.3	21.51	34.8	Pass
Band13	5	782	16QAM	25	LOW	21.79	29.48	7.69	13	0.3	19.94	34.8	Pass
Band13	5	782	16QAM	12	LOW	21.41	29.51	8.1	13	0.3	19.56	34.8	Pass
Band13	5	782	16QAM	12	MID	21.4	29.53	8.13	13	0.3	19.55	34.8	Pass
Band13	5	782	16QAM	12	HIGH	21.53	29.24	7.71	13	0.3	19.68	34.8	Pass
Band13	5	782	16QAM	1	LOW	22.02	28.49	6.47	13	0.3	20.17	34.8	Pass
Band13	5	782	16QAM	1	MID	22.41	28.67	6.26	13	0.3	20.56	34.8	Pass
Band13	5	782	16QAM	1	HIGH	21.94	28.03	6.09	13	0.3	20.09	34.8	Pass
Band13	5	784.5	QPSK	25	LOW	22.49	29.17	6.68	13	0.3	20.64	34.8	Pass
Band13	5	784.5	QPSK	12	LOW	22.54	29.17	6.63	13	0.3	20.69	34.8	Pass
Band13	5	784.5	QPSK	12	MID	22.46	29.19	6.73	13	0.3	20.61	34.8	Pass
Band13	5	784.5	QPSK	12	HIGH	22.57	29.09	6.52	13	0.3	20.72	34.8	Pass
Band13	5	784.5	QPSK	1	LOW	23.22	29.17	5.95	13	0.3	21.37	34.8	Pass
Band13	5	784.5	QPSK	1	MID	23.29	28.75	5.46	13	0.3	21.44	34.8	Pass
Band13	5	784.5	QPSK	1	HIGH	23.38	29.11	5.73	13	0.3	21.53	34.8	Pass
Band13	5	784.5	16QAM	25	LOW	21.4	29.43	8.03	13	0.3	19.55	34.8	Pass
Band13	5	784.5	16QAM	12	LOW	21.42	28.6	7.18	13	0.3	19.57	34.8	Pass
Band13	5	784.5	16QAM	12	MID	21.35	28.43	7.08	13	0.3	19.5	34.8	Pass
Band13	5	784.5	16QAM	12	HIGH	21.35	28.25	6.9	13	0.3	19.5	34.8	Pass
Band13	5	784.5	16QAM	1	LOW	23.33	29.6	6.27	13	0.3	21.48	34.8	Pass

Band13	5	784.5	16QAM	1	MID	23.4	29.12	5.72	13	0.3	21.55	34.8	Pass
Band13	5	784.5	16QAM	1	HIGH	22.36	28.59	6.23	13	0.3	20.51	34.8	Pass
Band13	10	782	QPSK	50	LOW	22.37	28.85	6.48	13	0.3	20.52	34.8	Pass
Band13	10	782	QPSK	25	LOW	22.6	29.64	7.04	13	0.3	20.75	34.8	Pass
Band13	10	782	QPSK	25	MID	22.52	29.63	7.11	13	0.3	20.67	34.8	Pass
Band13	10	782	QPSK	25	HIGH	22.56	29.21	6.65	13	0.3	20.71	34.8	Pass
Band13	10	782	QPSK	1	LOW	23.57	29.3	5.73	13	0.3	21.72	34.8	Pass
Band13	10	782	QPSK	1	MID	23.75	29.23	5.48	13	0.3	21.9	34.8	Pass
Band13	10	782	QPSK	1	HIGH	23.34	28.75	5.41	13	0.3	21.49	34.8	Pass
Band13	10	782	16QAM	50	LOW	21.51	29.32	7.81	13	0.3	19.66	34.8	Pass
Band13	10	782	16QAM	25	LOW	21.38	29.4	8.02	13	0.3	19.53	34.8	Pass
Band13	10	782	16QAM	25	MID	21.38	29.46	8.08	13	0.3	19.53	34.8	Pass
Band13	10	782	16QAM	25	HIGH	21.47	29.05	7.58	13	0.3	19.62	34.8	Pass
Band13	10	782	16QAM	1	LOW	22.34	29.55	7.21	13	0.3	20.49	34.8	Pass
Band13	10	782	16QAM	1	MID	23.08	29.84	6.76	13	0.3	21.23	34.8	Pass
Band13	10	782	16QAM	1	HIGH	22.8	29.38	6.58	13	0.3	20.95	34.8	Pass