Appendix for Band 17

Product Name: Rugged Phone
Model No: MDT661

Appendix A: Average Power Output Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band17	5MHz	QPSK	23755	1RB#0	23.01	PASS
Band17	5MHz	QPSK	23755	1RB#12	23.13	PASS
Band17	5MHz	QPSK	23755	1RB#24	22.92	PASS
Band17	5MHz	QPSK	23755	12RB#0	22.12	PASS
Band17	5MHz	QPSK	23755	12RB#6	22.09	PASS
Band17	5MHz	QPSK	23755	12RB#13	22.09	PASS
Band17	5MHz	QPSK	23755	25RB#0	22.12	PASS
Band17	5MHz	QPSK	23790	1RB#0	22.89	PASS
Band17	5MHz	QPSK	23790	1RB#12	23.00	PASS
Band17	5MHz	QPSK	23790	1RB#24	22.82	PASS
Band17	5MHz	QPSK	23790	12RB#0	21.94	PASS
Band17	5MHz	QPSK	23790	12RB#6	21.95	PASS
Band17	5MHz	QPSK	23790	12RB#13	21.93	PASS
Band17	5MHz	QPSK	23790	25RB#0	21.98	PASS
Band17	5MHz	QPSK	23825	1RB#0	22.84	PASS
Band17	5MHz	QPSK	23825	1RB#12	22.95	PASS
Band17	5MHz	QPSK	23825	1RB#24	22.74	PASS
Band17	5MHz	QPSK	23825	12RB#0	21.94	PASS
Band17	5MHz	QPSK	23825	12RB#6	21.95	PASS
Band17	5MHz	QPSK	23825	12RB#13	21.77	PASS
Band17	5MHz	QPSK	23825	25RB#0	21.87	PASS
Band17	5MHz	16QAM	23755	1RB#0	21.92	PASS
Band17	5MHz	16QAM	23755	1RB#12	22.12	PASS
Band17	5MHz	16QAM	23755	1RB#24	21.91	PASS
Band17	5MHz	16QAM	23755	12RB#0	21.13	PASS
Band17	5MHz	16QAM	23755	12RB#6	21.10	PASS
Band17	5MHz	16QAM	23755	12RB#13	21.17	PASS
Band17	5MHz	16QAM	23755	25RB#0	21.19	PASS
Band17	5MHz	16QAM	23790	1RB#0	22.01	PASS
Band17	5MHz	16QAM	23790	1RB#12	22.13	PASS
Band17	5MHz	16QAM	23790	1RB#24	21.91	PASS

Band17	5MHz	16QAM	23790	12RB#0	20.97	PASS
Band17	5MHz	16QAM	23790	12RB#6	20.95	PASS
Band17	5MHz	16QAM	23790	12RB#13	20.96	PASS
Band17	5MHz	16QAM	23790	25RB#0	20.96	PASS
Band17	5MHz	16QAM	23825	1RB#0	21.77	PASS
Band17	5MHz	16QAM	23825	1RB#12	21.85	PASS
Band17	5MHz	16QAM	23825	1RB#24	21.72	PASS
Band17	5MHz	16QAM	23825	12RB#0	20.94	PASS
Band17	5MHz	16QAM	23825	12RB#6	20.94	PASS
Band17	5MHz	16QAM	23825	12RB#13	20.76	PASS
Band17	5MHz	16QAM	23825	25RB#0	20.86	PASS
Band17	10MHz	QPSK	23780	1RB#0	23.50	PASS
Band17	10MHz	QPSK	23780	1RB#24	23.59	PASS
Band17	10MHz	QPSK	23780	1RB#49	22.96	PASS
Band17	10MHz	QPSK	23780	25RB#0	22.06	PASS
Band17	10MHz	QPSK	23780	25RB#12	22.08	PASS
Band17	10MHz	QPSK	23780	25RB#25	22.04	PASS
Band17	10MHz	QPSK	23780	50RB#0	22.05	PASS
Band17	10MHz	QPSK	23790	1RB#0	23.07	PASS
Band17	10MHz	QPSK	23790	1RB#24	23.10	PASS
Band17	10MHz	QPSK	23790	1RB#49	22.79	PASS
Band17	10MHz	QPSK	23790	25RB#0	22.00	PASS
Band17	10MHz	QPSK	23790	25RB#12	21.96	PASS
Band17	10MHz	QPSK	23790	25RB#25	21.92	PASS
Band17	10MHz	QPSK	23790	50RB#0	21.90	PASS
Band17	10MHz	QPSK	23800	1RB#0	23.05	PASS
Band17	10MHz	QPSK	23800	1RB#24	23.06	PASS
Band17	10MHz	QPSK	23800	1RB#49	22.88	PASS
Band17	10MHz	QPSK	23800	25RB#0	21.91	PASS
Band17	10MHz	QPSK	23800	25RB#12	21.87	PASS
Band17	10MHz	QPSK	23800	25RB#25	21.78	PASS
Band17	10MHz	QPSK	23800	50RB#0	21.84	PASS
Band17	10MHz	16QAM	23780	1RB#0	22.67	PASS
Band17	10MHz	16QAM	23780	1RB#24	22.62	PASS
Band17	10MHz	16QAM	23780	1RB#49	21.92	PASS
Band17	10MHz	16QAM	23780	25RB#0	21.10	PASS
Band17	10MHz	16QAM	23780	25RB#12	21.11	PASS

Band17	10MHz	16QAM	23780	25RB#25	21.06	PASS
Band17	10MHz	16QAM	23780	50RB#0	21.04	PASS
Band17	10MHz	16QAM	23790	1RB#0	21.99	PASS
Band17	10MHz	16QAM	23790	1RB#24	22.01	PASS
Band17	10MHz	16QAM	23790	1RB#49	21.66	PASS
Band17	10MHz	16QAM	23790	25RB#0	21.01	PASS
Band17	10MHz	16QAM	23790	25RB#12	21.02	PASS
Band17	10MHz	16QAM	23790	25RB#25	20.90	PASS
Band17	10MHz	16QAM	23790	50RB#0	20.92	PASS
Band17	10MHz	16QAM	23800	1RB#0	21.85	PASS
Band17	10MHz	16QAM	23800	1RB#24	21.78	PASS
Band17	10MHz	16QAM	23800	1RB#49	21.68	PASS
Band17	10MHz	16QAM	23800	25RB#0	20.95	PASS
Band17	10MHz	16QAM	23800	25RB#12	20.96	PASS
Band17	10MHz	16QAM	23800	25RB#25	20.83	PASS
Band17	10MHz	16QAM	23800	50RB#0	20.82	PASS

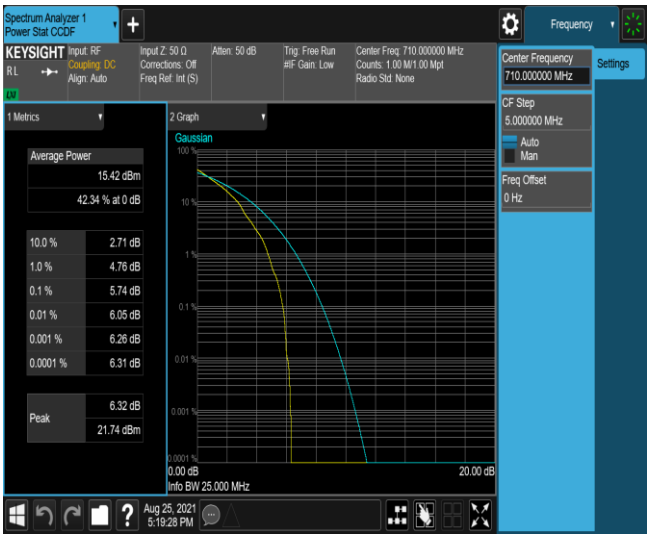
Appendix B: Peak-to-Average Ratio(CCDF)

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band17	5MHz	QPSK	23755	1RB#0	5.65	13	PASS
Band17	5MHz	QPSK	23755	25RB#0	6.13	13	PASS
Band17	5MHz	QPSK	23790	1RB#0	5.74	13	PASS
Band17	5MHz	QPSK	23790	25RB#0	5.75	13	PASS
Band17	5MHz	QPSK	23825	1RB#0	4.98	13	PASS
Band17	5MHz	QPSK	23825	25RB#0	5.41	13	PASS
Band17	5MHz	16QAM	23755	1RB#0	6.25	13	PASS
Band17	5MHz	16QAM	23755	25RB#0	6.84	13	PASS
Band17	5MHz	16QAM	23790	1RB#0	6.35	13	PASS
Band17	5MHz	16QAM	23790	25RB#0	6.46	13	PASS
Band17	5MHz	16QAM	23825	1RB#0	5.74	13	PASS
Band17	5MHz	16QAM	23825	25RB#0	6.16	13	PASS
Band17	10MHz	QPSK	23780	1RB#0	5.70	13	PASS
Band17	10MHz	QPSK	23780	50RB#0	5.76	13	PASS
Band17	10MHz	QPSK	23790	1RB#0	5.61	13	PASS
Band17	10MHz	QPSK	23790	50RB#0	5.70	13	PASS
Band17	10MHz	QPSK	23800	1RB#0	5.67	13	PASS
Band17	10MHz	QPSK	23800	50RB#0	5.68	13	PASS
Band17	10MHz	16QAM	23780	1RB#0	6.36	13	PASS
Band17	10MHz	16QAM	23780	50RB#0	6.53	13	PASS
Band17	10MHz	16QAM	23790	1RB#0	6.52	13	PASS
Band17	10MHz	16QAM	23790	50RB#0	6.50	13	PASS
Band17	10MHz	16QAM	23800	1RB#0	6.39	13	PASS
Band17	10MHz	16QAM	23800	50RB#0	6.42	13	PASS

Test Graphs

Band17-5MHz-QPSK-23755-1RB#0
Band17-5MHz-QPSK-23755-25RB#0
Band17-5MHz-QPSK-23790-1RB#0



Band17-5MHz-QPSK-23790-25RB#0

Band17-5MHz-QPSK-23825-1RB#0

Band17-5MHz-QPSK-23825-25RB#0

Band17-5MHz-16QAM-23755-1RB#0

Band17-5MHz-16QAM-23755-25RB#0

Band17-5MHz-16QAM-23790-1RB#0

Band17-5MHz-16QAM-23790-25RB#0

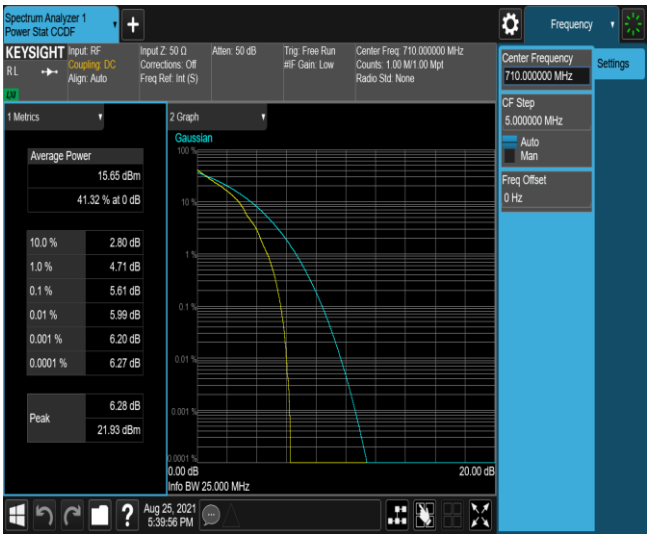
Band17-5MHz-16QAM-23825-1RB#0

Band17-5MHz-16QAM-23825-25RB#0

Band17-10MHz-QPSK-23780-1RB#0

Band17-10MHz-QPSK-23780-50RB#0

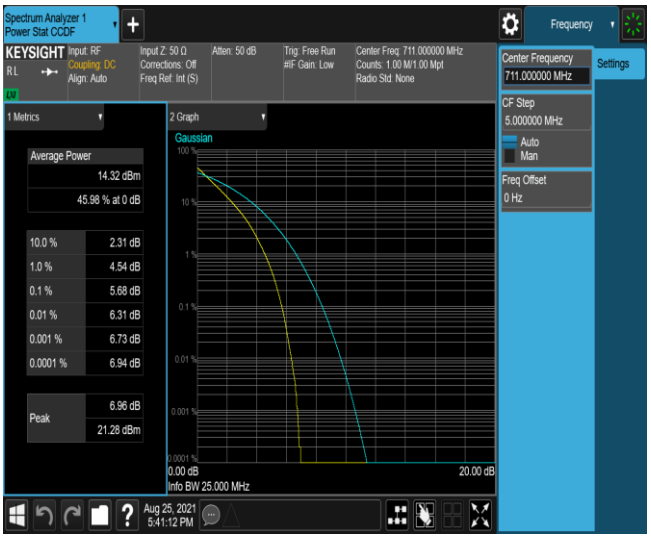
Band17-10MHz-QPSK-23790-1RB#0



Band17-10MHz-QPSK-23790-50RB#0

Band17-10MHz-QPSK-23800-1RB#0

Band17-10MHz-QPSK-23800-50RB#0



Band17-10MHz-16QAM-23780-1RB#0

Band17-10MHz-16QAM-23780-50RB#0

Band17-10MHz-16QAM-23790-1RB#0

Band17-10MHz-16QAM-23790-50RB#0

Band17-10MHz-16QAM-23800-1RB#0

Band17-10MHz-16QAM-23800-50RB#0

Spectrum Analyzer 1
Power Stat CCDF
Frequency
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
Atten: 50 dB
Trig: Free Run
#IF Gain: Low
Center Freq: 711.000000 MHz
Counts: 1.00 M/1.00 Mpt
Radio Std: None
Center Frequency
711.000000 MHz
Settings
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz
1 Metrics
Average Power
13.30 dBm
44.71 % at 0 dB
10.0 % 2.85 dB
1.0 % 5.10 dB
0.1 % 6.42 dB
0.01 % 7.09 dB
0.001 % 7.57 dB
0.0001 % 7.74 dB
Peak
7.75 dB
21.05 dBm
2 Graph
Gaussian
0.00 dB
20.00 dB
Info BW 25.000 MHz
Aug 25, 2021
5:41:25 PM

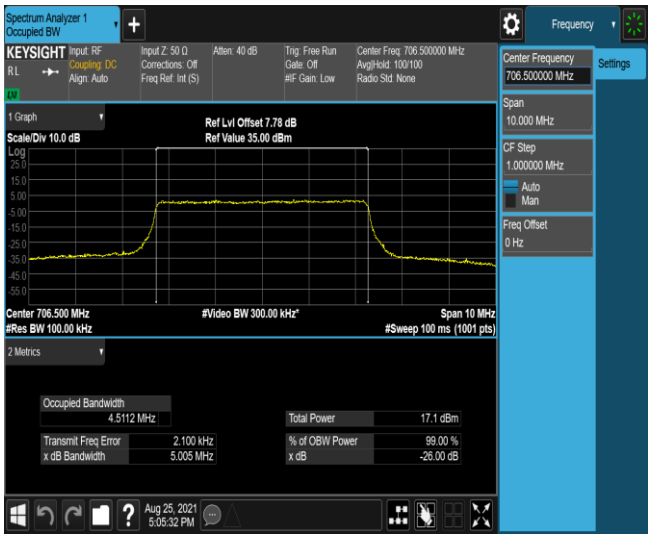
Appendix C: 26dB Bandwidth and Occupied Bandwidth

Test Result

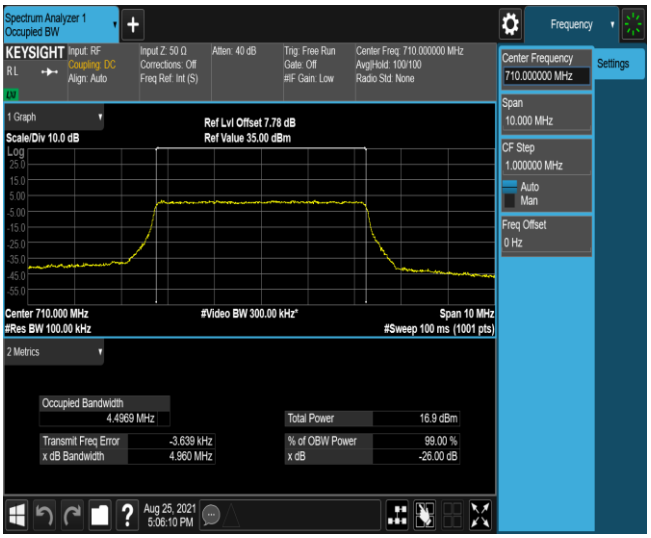
Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band17	5MHz	QPSK	23755	25RB#0	4.5112	5.005	PASS
Band17	5MHz	QPSK	23790	25RB#0	4.4969	4.960	PASS
Band17	5MHz	QPSK	23825	25RB#0	4.5068	4.944	PASS
Band17	5MHz	16QAM	23755	25RB#0	4.5103	4.925	PASS
Band17	5MHz	16QAM	23790	25RB#0	4.5053	4.918	PASS
Band17	5MHz	16QAM	23825	25RB#0	4.5033	4.995	PASS
Band17	10MHz	QPSK	23780	50RB#0	8.9818	9.605	PASS
Band17	10MHz	QPSK	23790	50RB#0	8.9786	9.576	PASS
Band17	10MHz	QPSK	23800	50RB#0	8.9693	9.615	PASS
Band17	10MHz	16QAM	23780	50RB#0	8.9722	9.579	PASS
Band17	10MHz	16QAM	23790	50RB#0	8.9567	9.539	PASS
Band17	10MHz	16QAM	23800	50RB#0	8.9625	9.573	PASS

Test Graphs

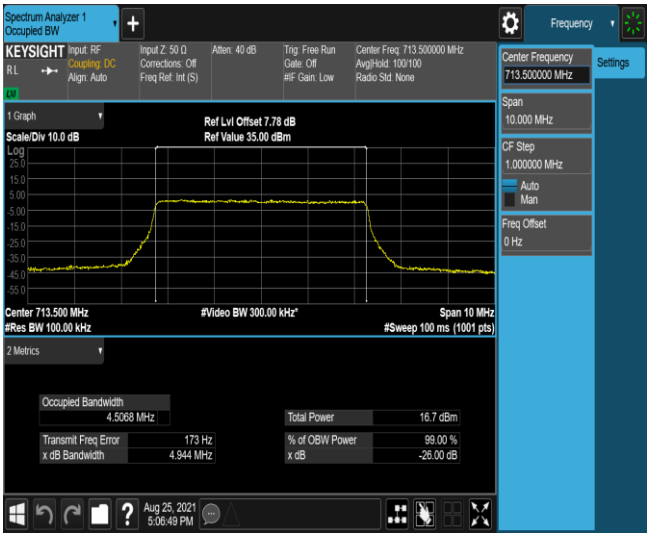
Band17-5MHz-QPSK-23755-25RB#0



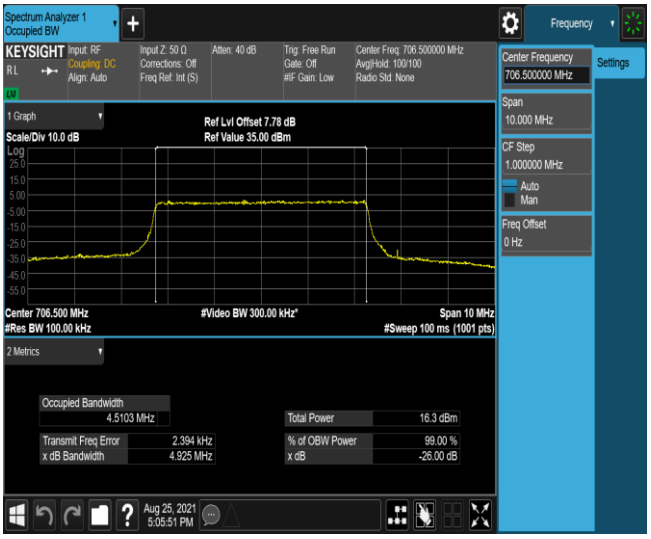
Band17-5MHz-QPSK-23790-25RB#0



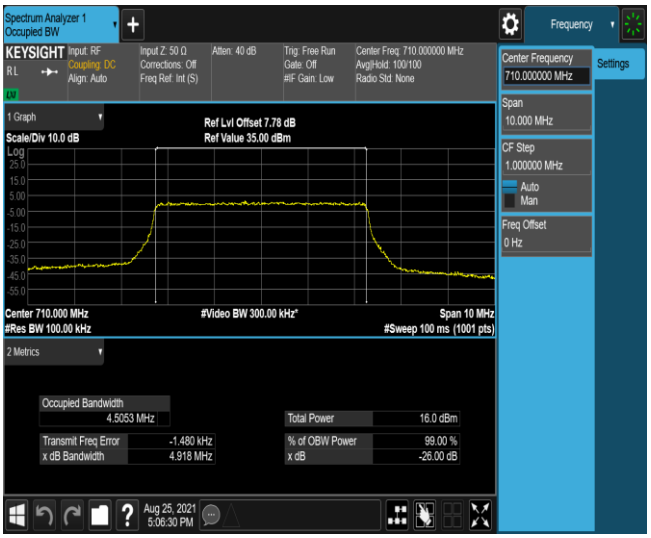
Band17-5MHz-QPSK-23825-25RB#0



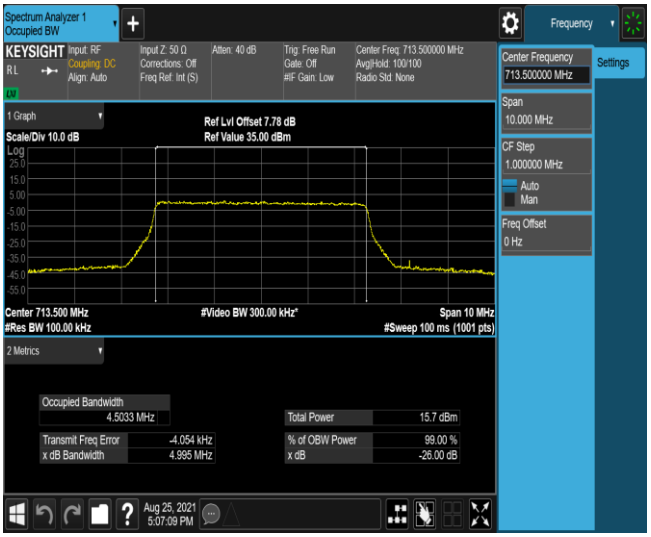
Band17-5MHz-16QAM-23755-25RB#0



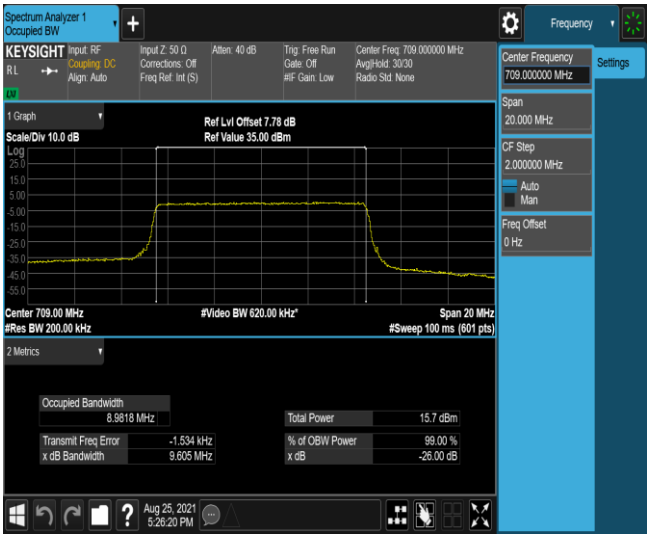
Band17-5MHz-16QAM-23790-25RB#0



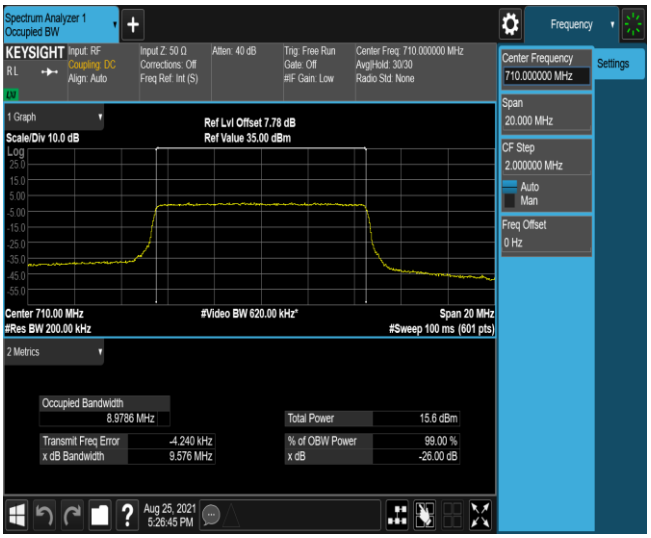
Band17-5MHz-16QAM-23825-25RB#0



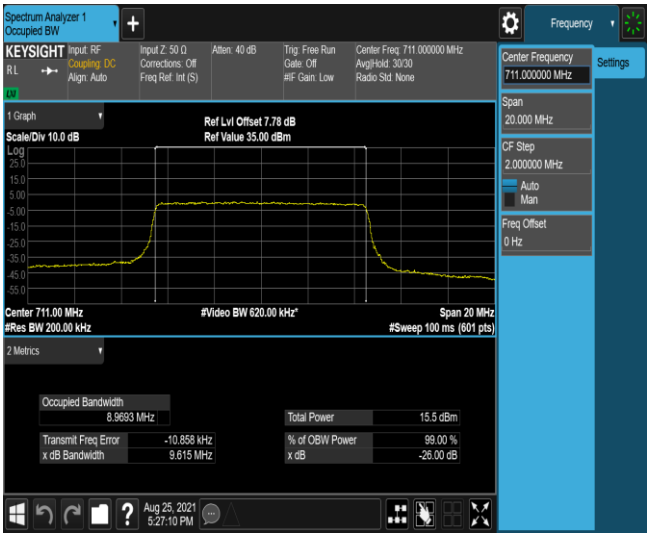
Band17-10MHz-QPSK-23780-50RB#0



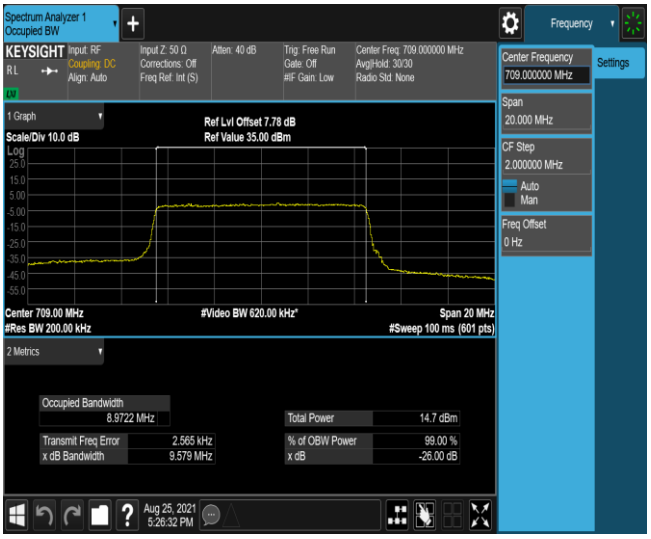
Band17-10MHz-QPSK-23790-50RB#0



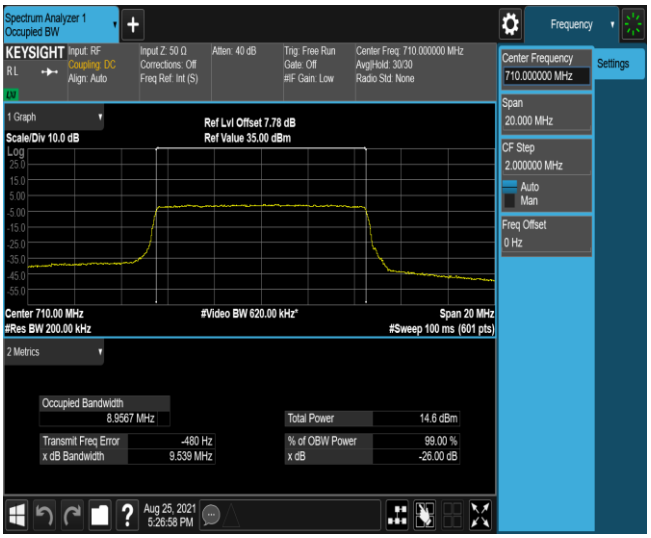
Band17-10MHz-QPSK-23800-50RB#0



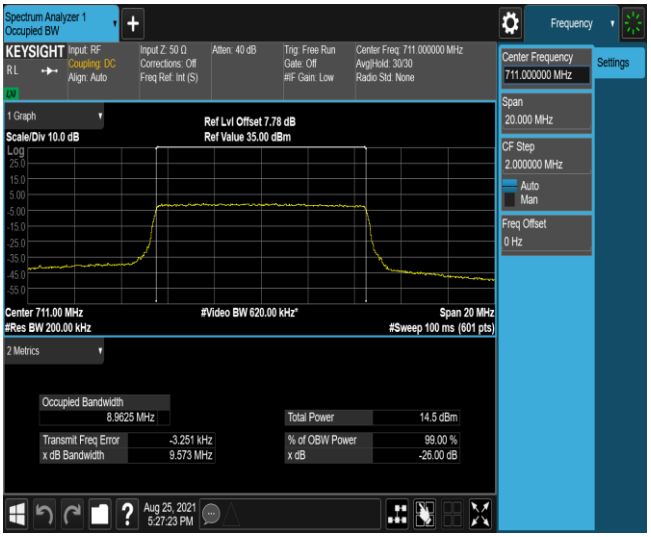
Band17-10MHz-16QAM-23780-50RB#0



Band17-10MHz-16QAM-23790-50RB#0



Band17-10MHz-16QAM-23800-50RB#0

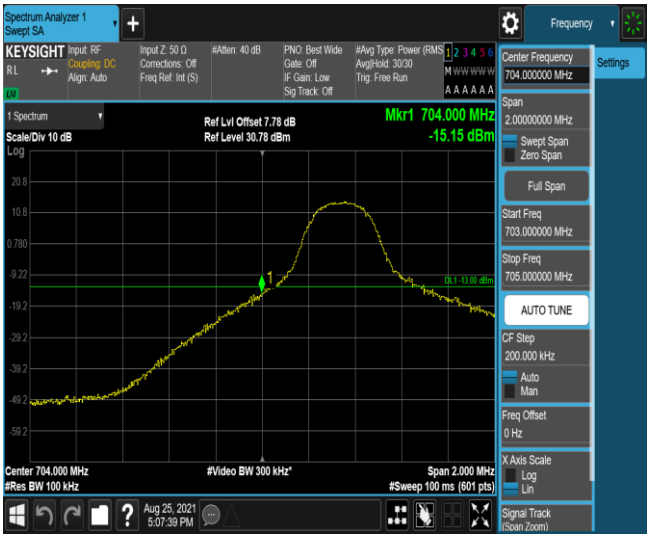
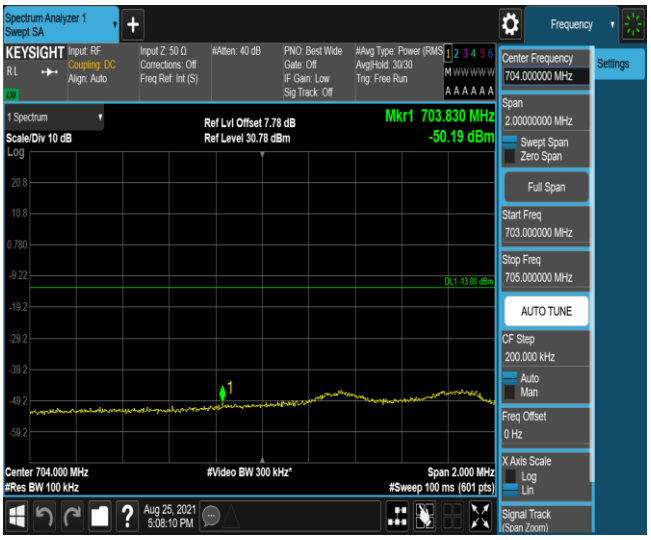


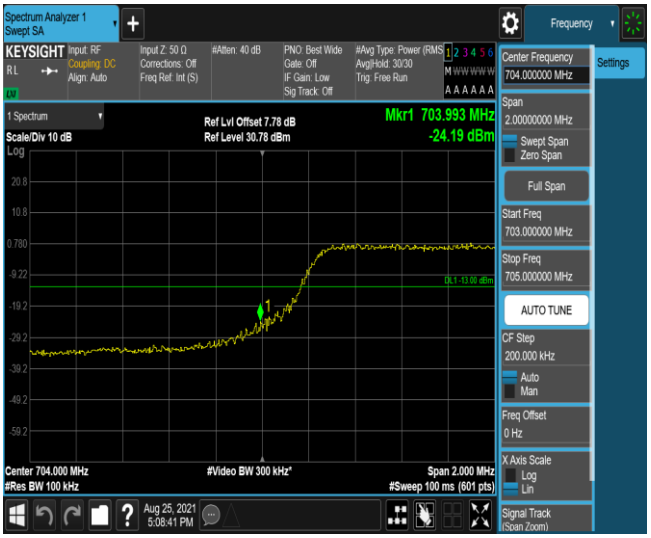
Appendix D: Band Edge

Test Result

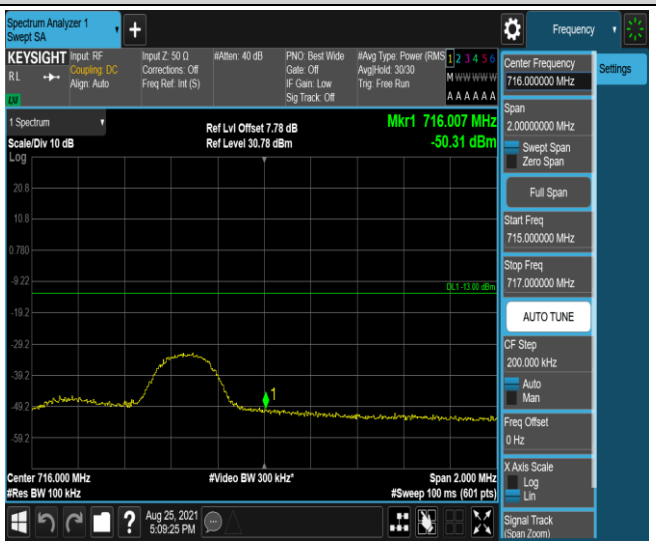
Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band17	5MHz	QPSK	23755	1RB#0	-15.15	PASS
Band17	5MHz	QPSK	23755	1RB#24	-50.19	PASS
Band17	5MHz	QPSK	23755	25RB#0	-24.19	PASS
Band17	5MHz	QPSK	23825	1RB#0	-50.31	PASS
Band17	5MHz	QPSK	23825	1RB#24	-15.14	PASS
Band17	5MHz	QPSK	23825	25RB#0	-26.45	PASS
Band17	5MHz	16QAM	23755	1RB#0	-14.62	PASS
Band17	5MHz	16QAM	23755	1RB#24	-49.86	PASS
Band17	5MHz	16QAM	23755	25RB#0	-26.14	PASS
Band17	5MHz	16QAM	23825	1RB#0	-49.39	PASS
Band17	5MHz	16QAM	23825	1RB#24	-15.50	PASS
Band17	5MHz	16QAM	23825	25RB#0	-28.00	PASS
Band17	10MHz	QPSK	23780	1RB#0	-20.24,-17.87	PASS
Band17	10MHz	QPSK	23780	1RB#49	-44.20,-49.15	PASS
Band17	10MHz	QPSK	23780	50RB#0	-30.65,-29.42	PASS
Band17	10MHz	QPSK	23800	1RB#0	-47.38,-48.12	PASS
Band17	10MHz	QPSK	23800	1RB#49	-17.65,-20.52	PASS
Band17	10MHz	QPSK	23800	50RB#0	-32.60,-35.64	PASS
Band17	10MHz	16QAM	23780	1RB#0	-20.13,-16.87	PASS
Band17	10MHz	16QAM	23780	1RB#49	-49.24,-48.93	PASS
Band17	10MHz	16QAM	23780	50RB#0	-33.05,-32.01	PASS
Band17	10MHz	16QAM	23800	1RB#0	-48.96,-49.33	PASS
Band17	10MHz	16QAM	23800	1RB#49	-17.56,-20.72	PASS
Band17	10MHz	16QAM	23800	50RB#0	-32.50,-34.97	PASS

Test Graphs

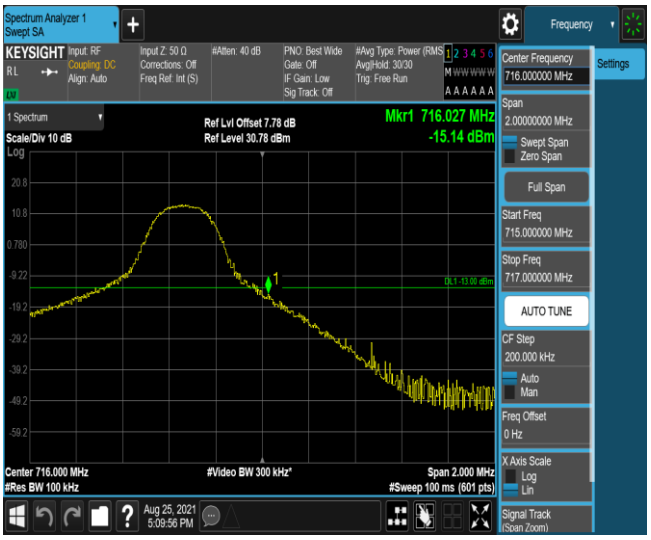
Band17-5MHz-QPSK-23755-1RB#0

Band17-5MHz-QPSK-23755-1RB#24

Band17-5MHz-QPSK-23755-25RB#0



Band17-5MHz-QPSK-23825-1RB#0

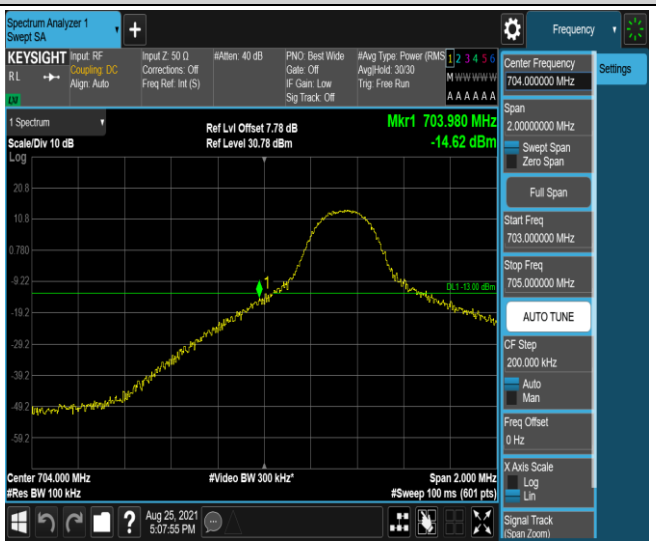


Band17-5MHz-QPSK-23825-1RB#24

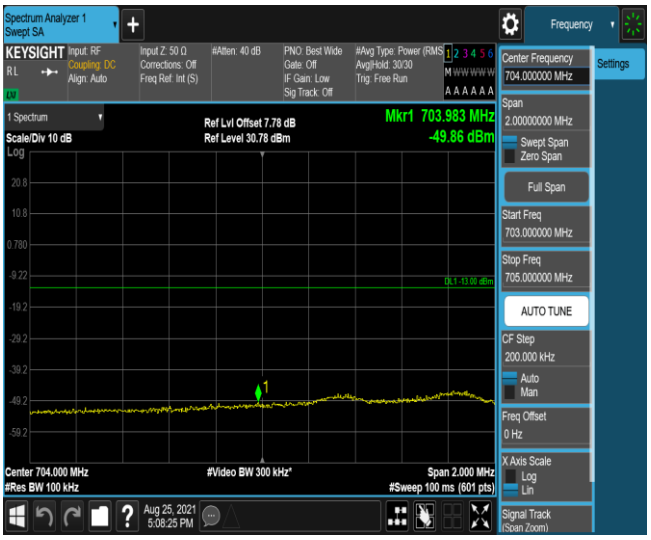


Band17-5MHz-QPSK-23825-25RB#0

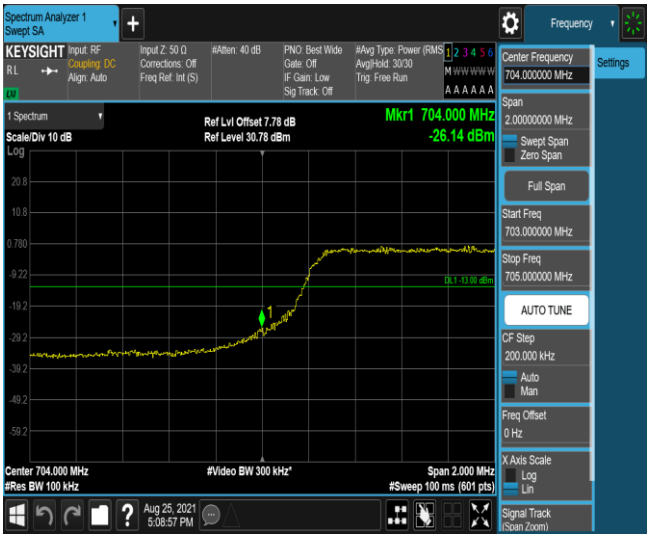
Band17-5MHz-16QAM-23755-1RB#0



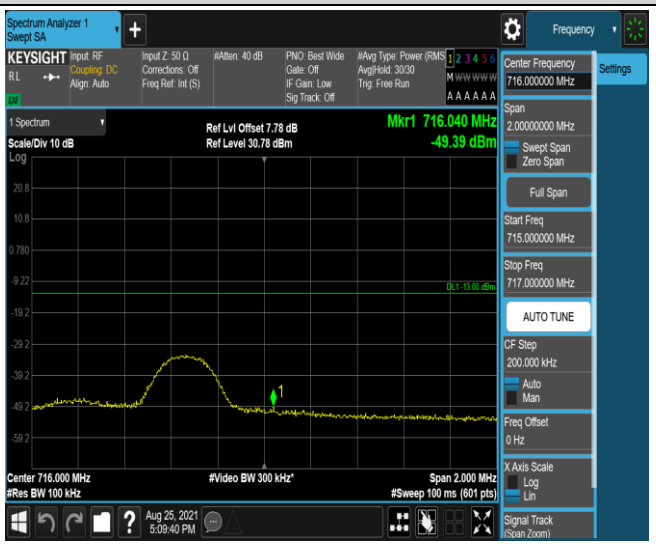
Band17-5MHz-16QAM-23755-1RB#24



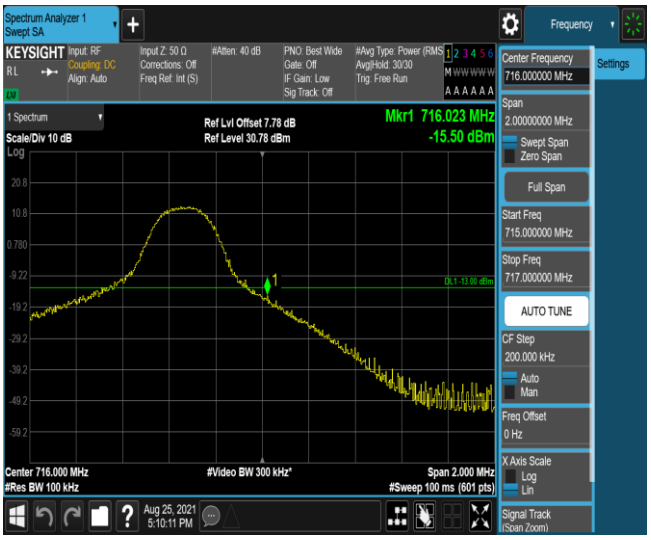
Band17-5MHz-16QAM-23755-25RB#0



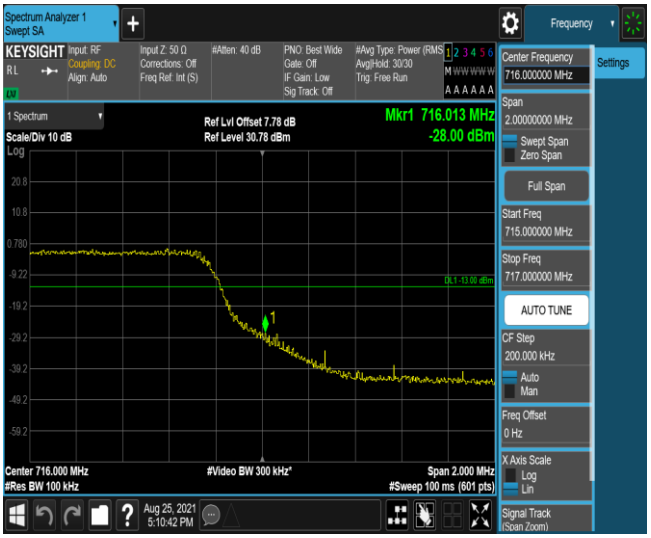
Band17-5MHz-16QAM-23825-1RB#0



Band17-5MHz-16QAM-23825-1RB#24

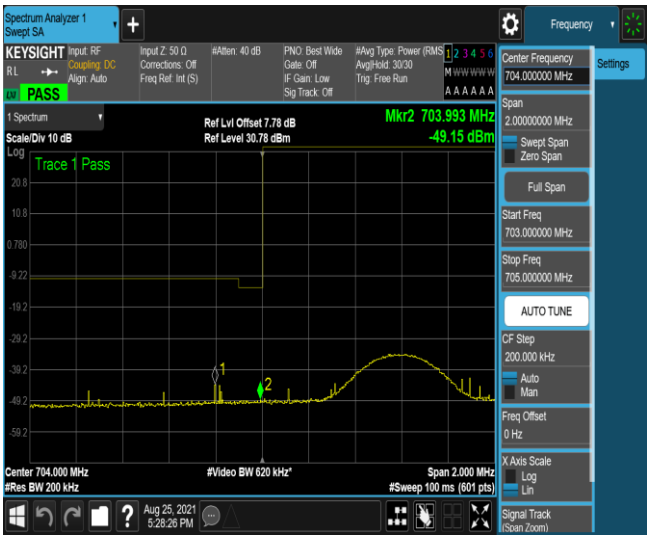


Band17-5MHz-16QAM-23825-25RB#0



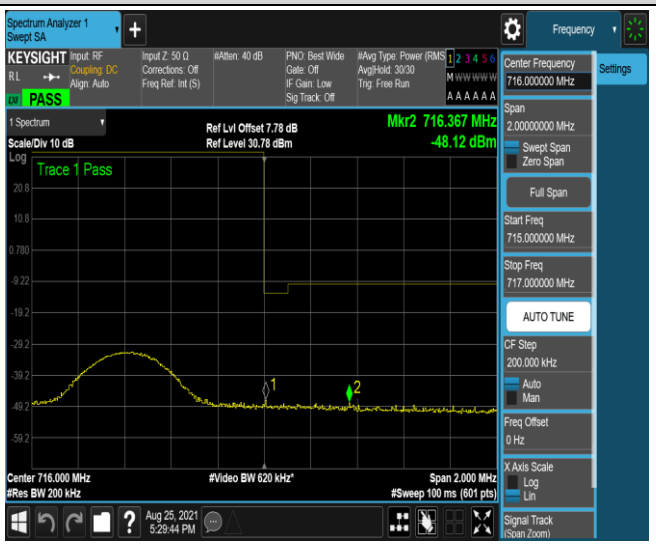
Band17-10MHz-QPSK-23780-1RB#0

Band17-10MHz-QPSK-23780-1RB#49



Band17-10MHz-QPSK-23780-50RB#0

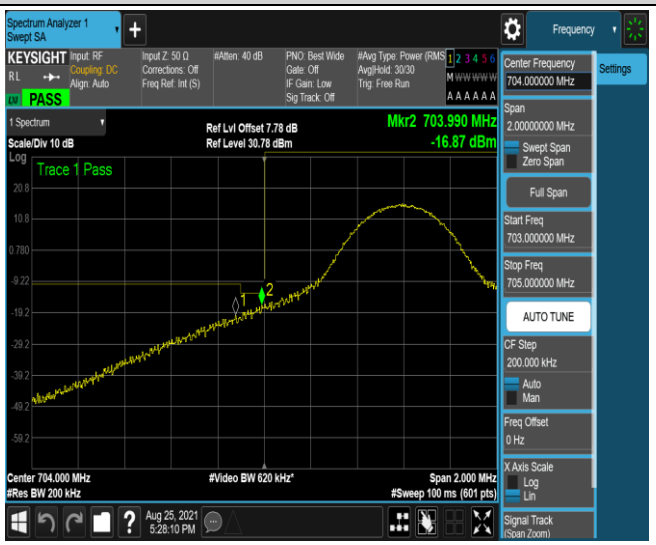
Band17-10MHz-QPSK-23800-1RB#0



Band17-10MHz-QPSK-23800-1RB#49

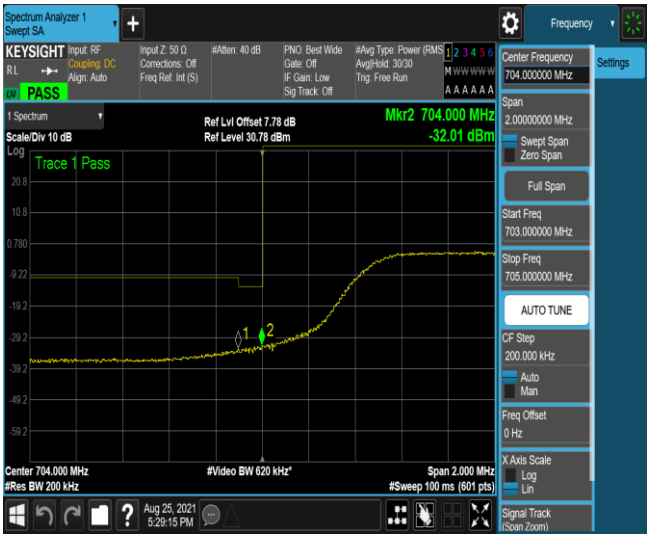
Band17-10MHz-QPSK-23800-50RB#0

Band17-10MHz-16QAM-23780-1RB#0

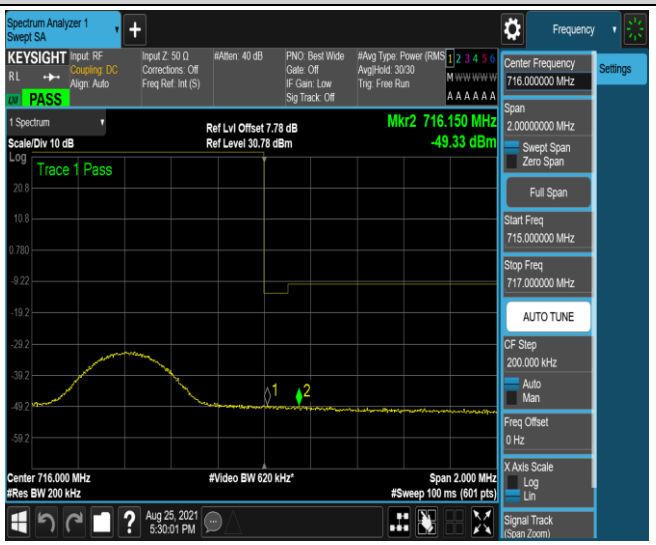


Band17-10MHz-16QAM-23780-1RB#49

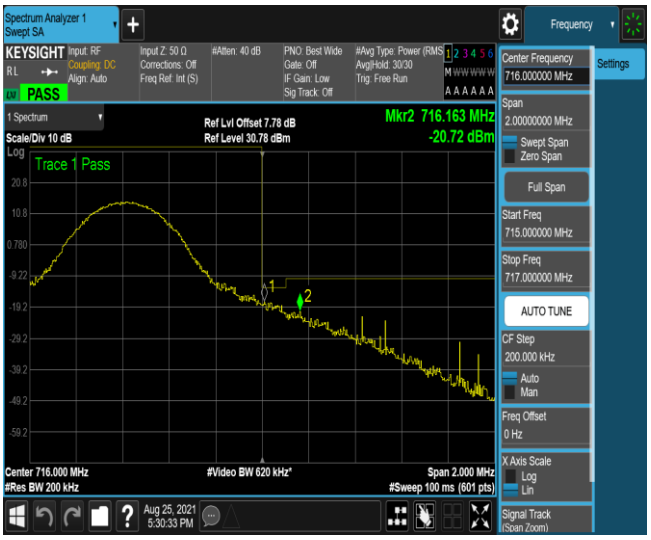
Band17-10MHz-16QAM-23780-50RB#0



Band17-10MHz-16QAM-23800-1RB#0



Band17-10MHz-16QAM-23800-1RB#49



Band17-10MHz-16QAM-23800-50RB#0

Spectrum Analyzer 1
Swept SA
KEYSIGHT
PASS
Frequency
Settings
Center Frequency
716.000000 MHz
Span
2.00000000 MHz
Swept Span
Zero Span
Full Span
Start Freq
715.000000 MHz
Stop Freq
717.000000 MHz
AUTO TUNE
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
X Axis Scale
Log
Lin
Signal Track
(Span Zoom)
1 Spectrum
Scale/Div 10 dB
Log
Ref Lvl Offset 7.78 dB
Ref Level 30.78 dBm
Mkr2 716.110 MHz
-34.97 dBm
Trace 1 Pass
Center 716.000 MHz
#Res BW 200 kHz
#Video BW 620 kHz*
Span 2.000 MHz
#Sweep 100 ms (601 pts)
Aug 25, 2021
5:31:05 PM