

Test Plots(Note: The 7.5dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):

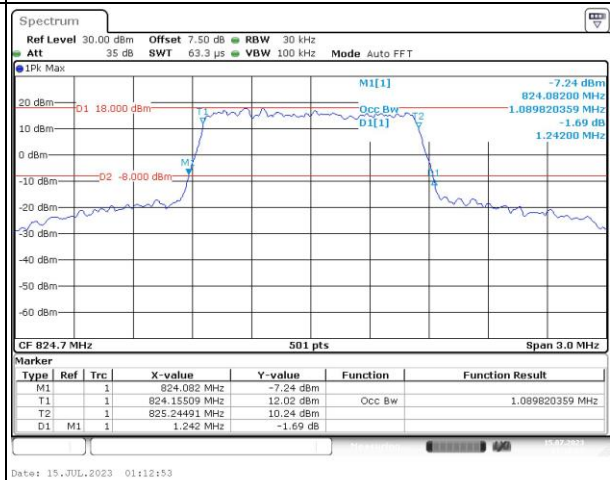
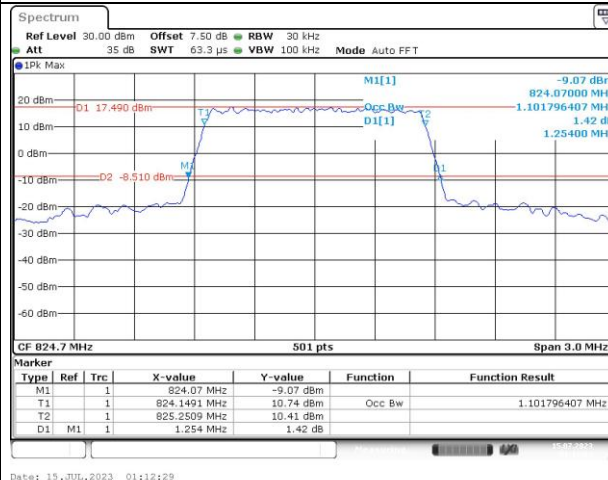
Occupied Bandwidth

Channel

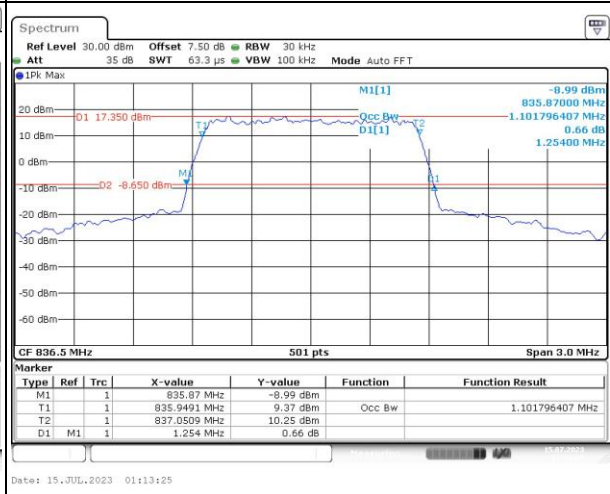
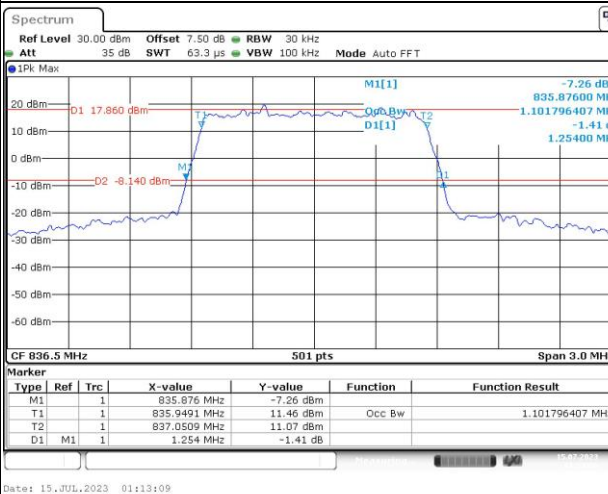
1.4MHz Bandwidth QPSK

1.4MHz Bandwidth 16QAM

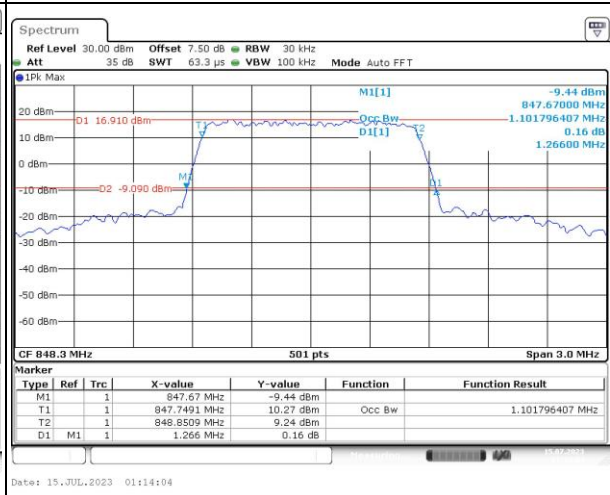
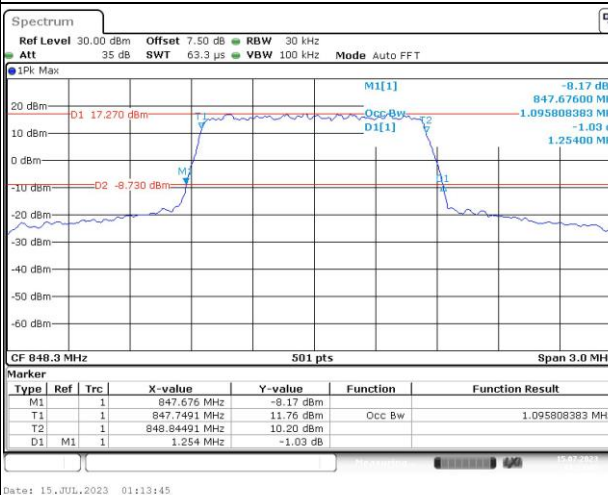
Lowest



Middle



Highest



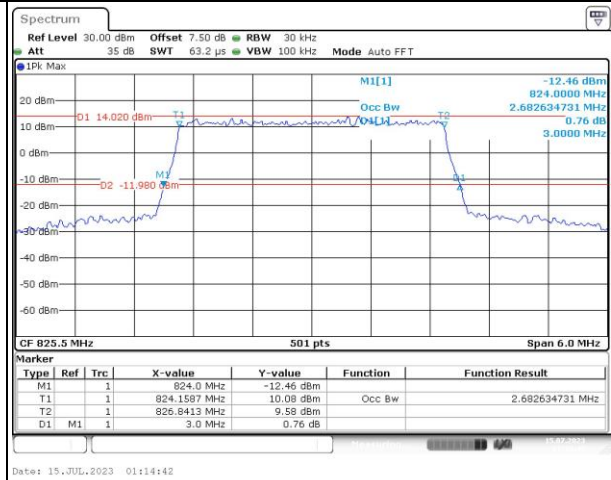
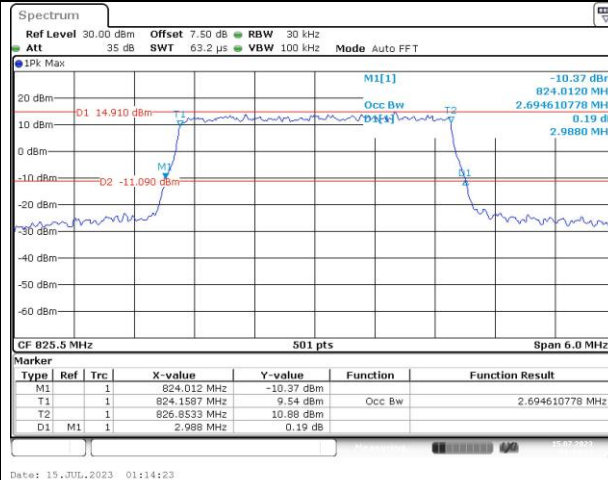
Occupied Bandwidth

Channel

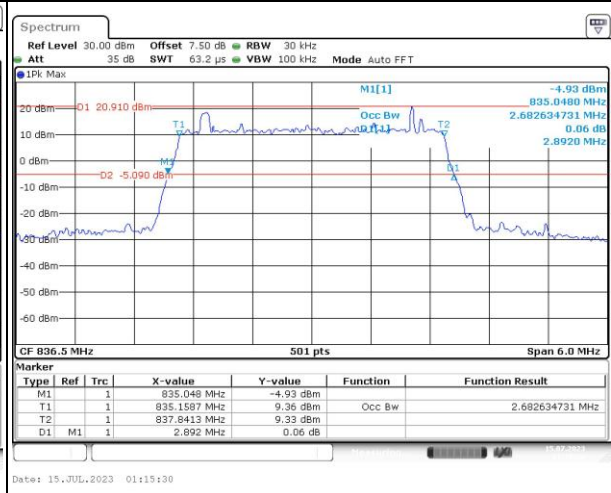
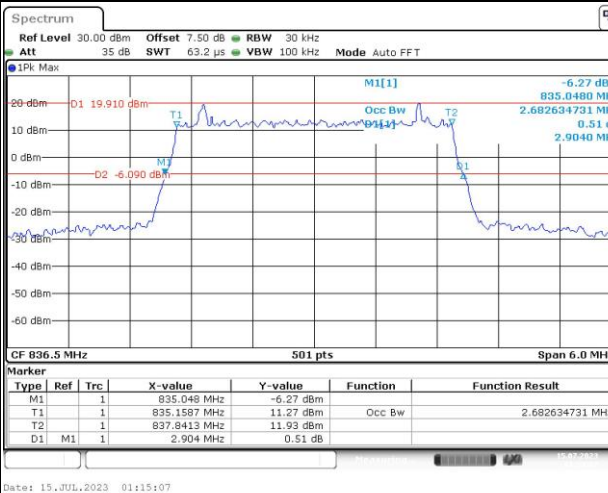
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

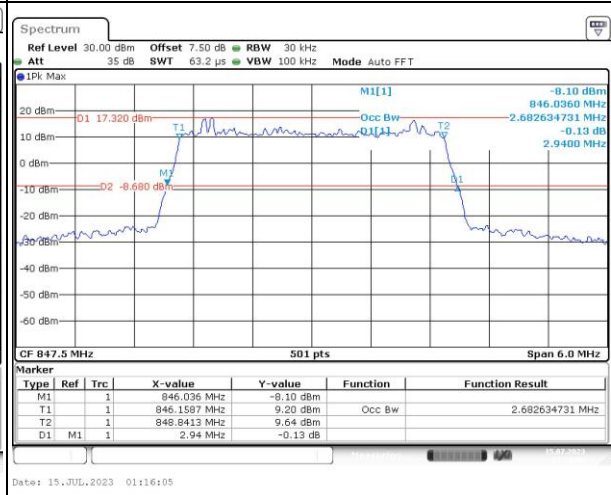
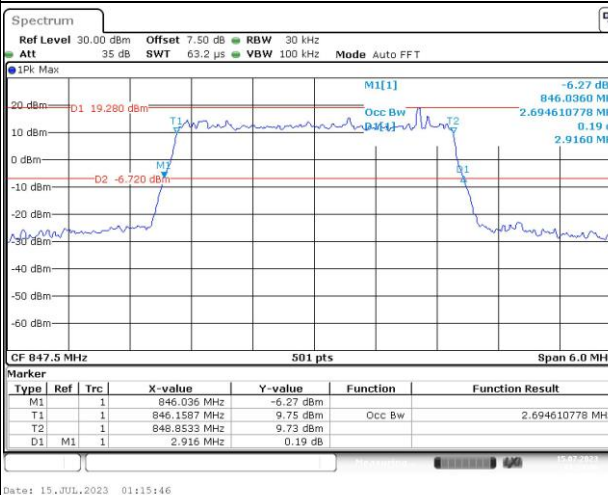
Lowest



Middle



Highest



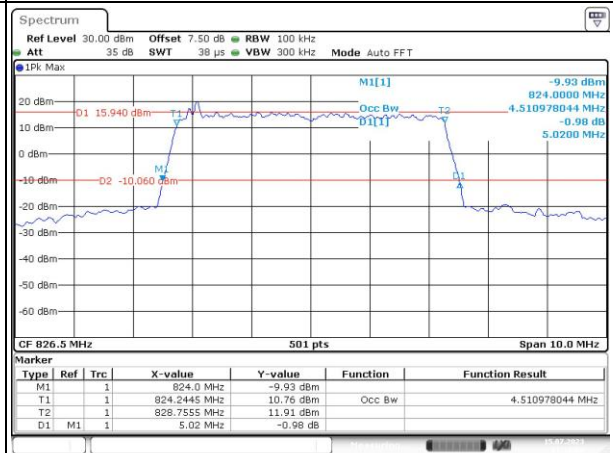
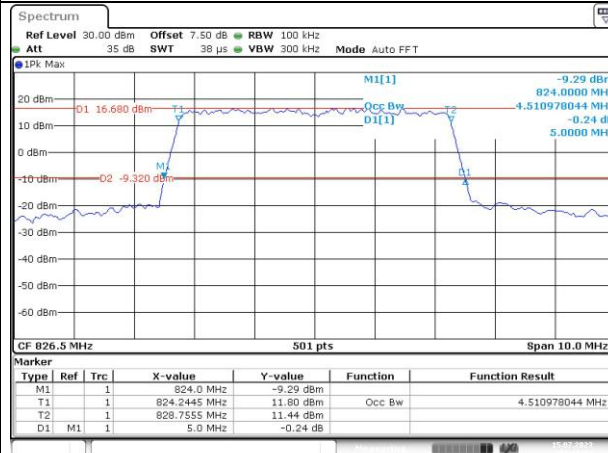
Occupied Bandwidth

Channel

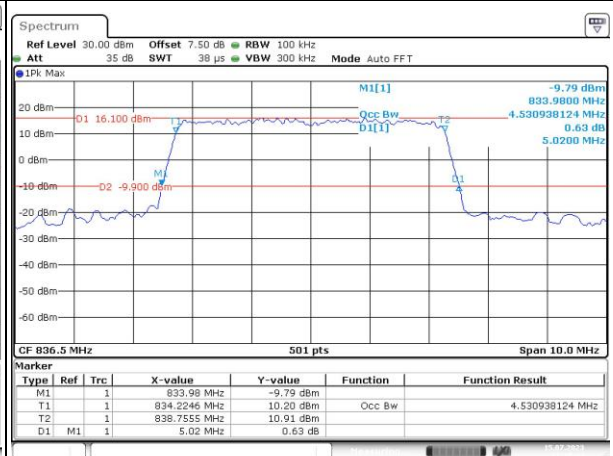
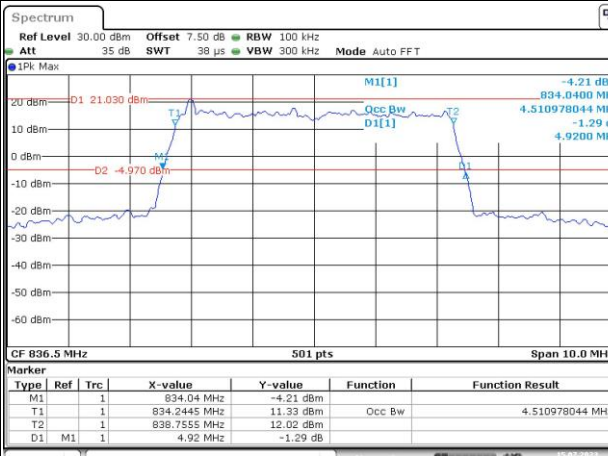
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

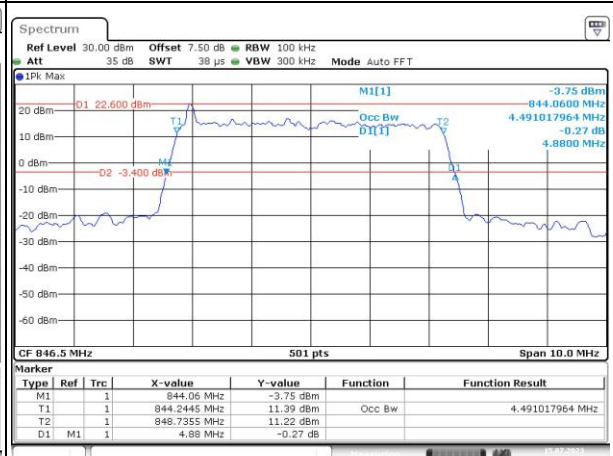
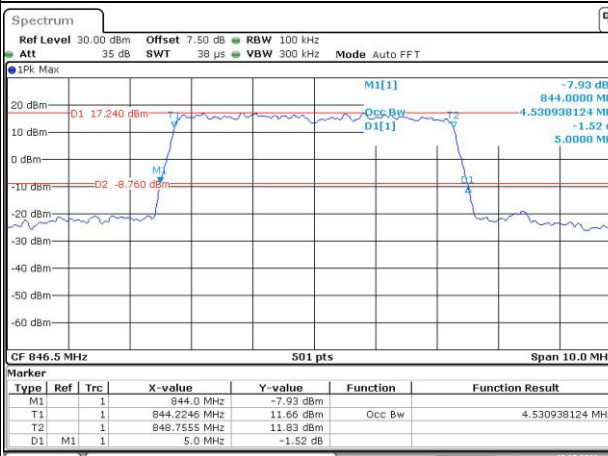
Lowest



Middle



Highest



Channel

10MHz Bandwidth 16QAM

Spectrum

Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz
 Att 35 dB SWT 56.9 μ s VBW 300 kHz Mode Auto FFT

1PK Max

20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm

CF 824.0 MHz 501 pts Span 20.0 MHz

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	824.08 MHz	-12.41 dBm		
T1		1	824.5289 MHz	10.39 dBm		
T2		1	893.4711 MHz	10.97 dBm		
D1	M1	1	9.8 MHz	0.32 dB		

Spectrum

Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz
 Att 35 dB SWT 56.9 μ s VBW 300 kHz Mode Auto FFT

1Pk Max

20 dBm
 10 dBm
 0 dBm
 -10 dBm
 -20 dBm
 -30 dBm
 -40 dBm
 -50 dBm
 -60 dBm

M1[1] -11.91 dBm
 831.5800 MHz
 8.942115768 MHz
 0.99 dB
 9.8400 MHz

O1 14.310 dBm
 T1
 Occ Bw
 O1[1]
 T2
 M1
 -11.590 dBm
 T1

CF 836.5 MHz 501 pts Span 20.0 MHz

Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1	1		1	831.58 MHz	-11.91 dBm		
T1	1		1	832.0289 MHz	10.33 dBm	Occ Bw	8.942115768 MHz
T2	1		1	840.9711 MHz	10.02 dBm		
D1	M1		1	9.84 MHz	0.99 dB		

15.07.2023

Date: 15.JUL.2023 01:20:37

Spectrum

Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz
 Att 35 dB SWI 56.9 μ s VBW 300 kHz Mode Auto FFT

1PK Main

M1[1] -4.40 dBm
 039.2000 MHz
 8.942115768 MHz
 0.57 dB
 9.4000 MHz

D1 22.120 dBm
 T1
 Occ Bw
 D4[3]
 T2
 D3
 -3.980 dBm

CF 844.0 MHz 501 pts Span 20.0 MHz

Marker

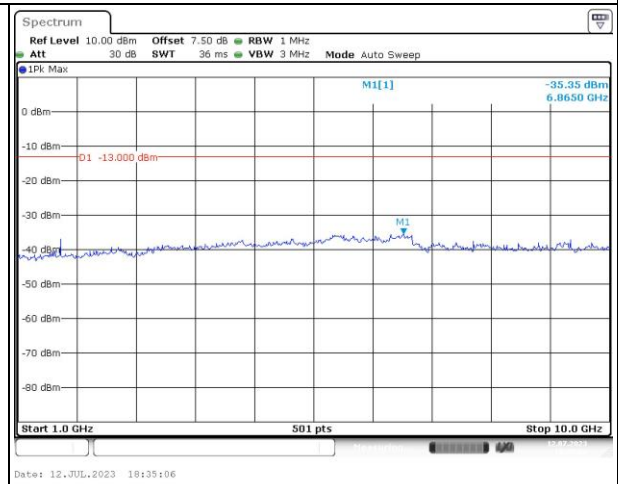
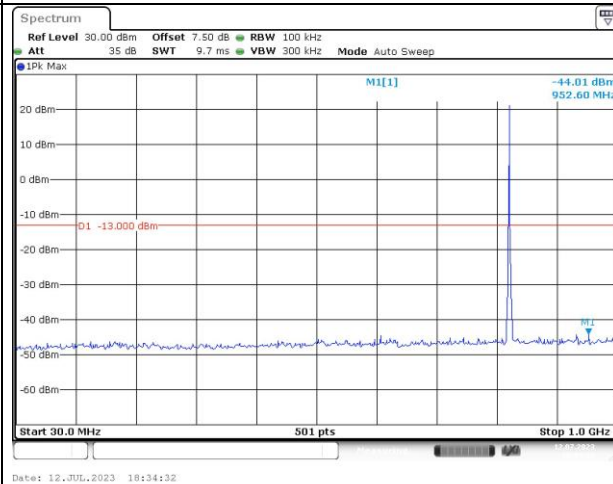
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1	1	1	839.28 MHz	-4.40 dBm		
T1	1	1	839.5289 MHz	10.82 dBm	Occ Bw	8.942115768 MHz
T2	1	1	848.4711 MHz	11.36 dBm		
D1	M1	1	9.4 MHz	0.57 dB		

Spurious Emissions at Antenna Terminal

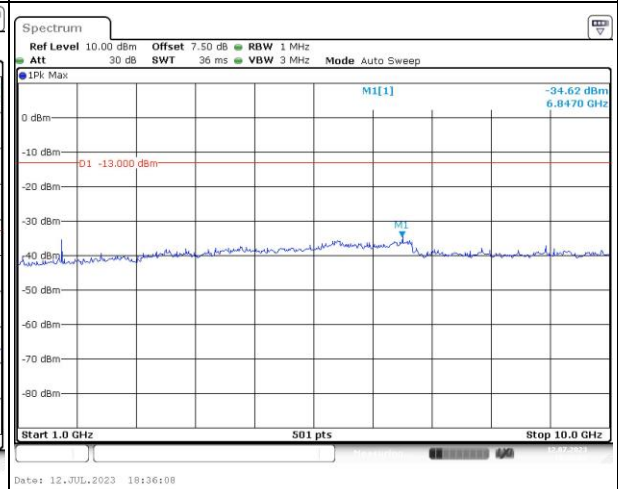
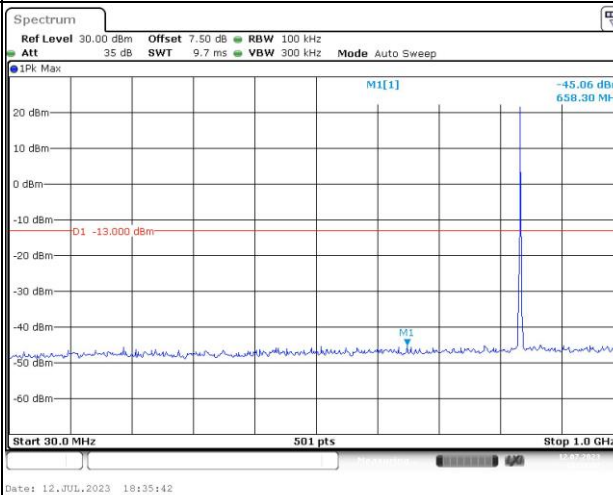
Channel

1.4MHz Bandwidth QPSK

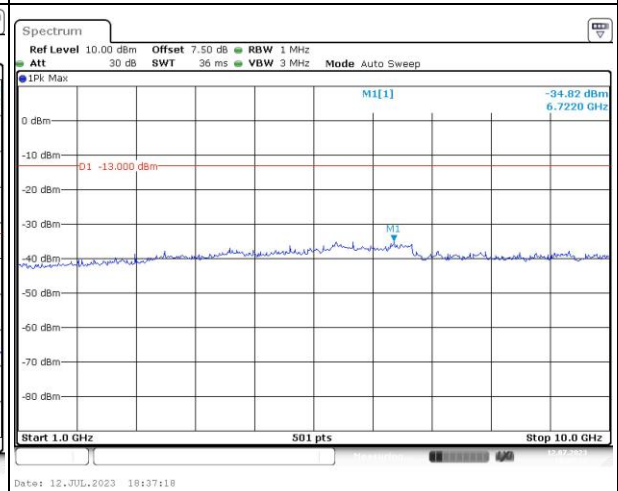
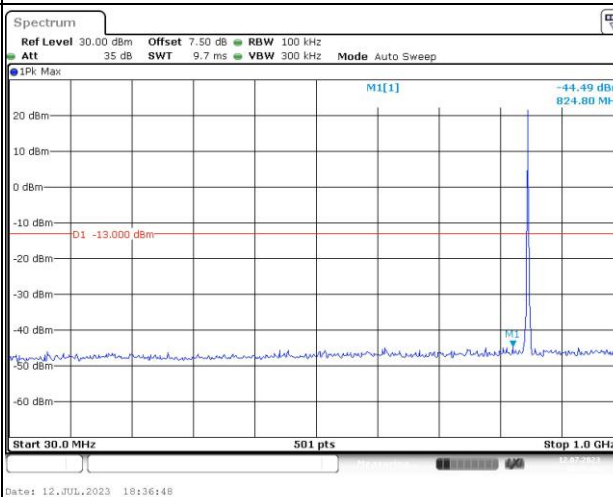
Lowest



Middle



Highest

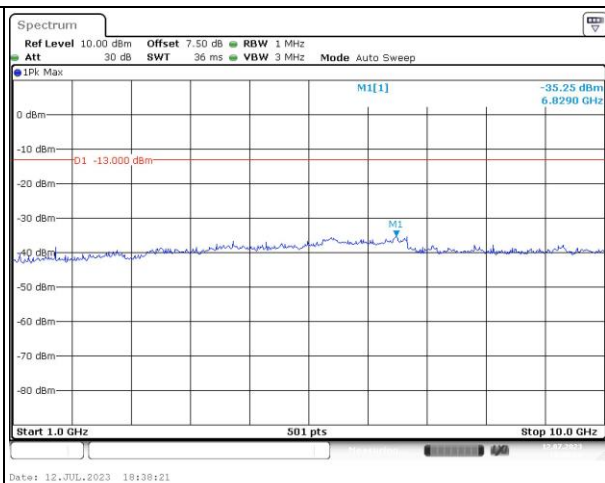
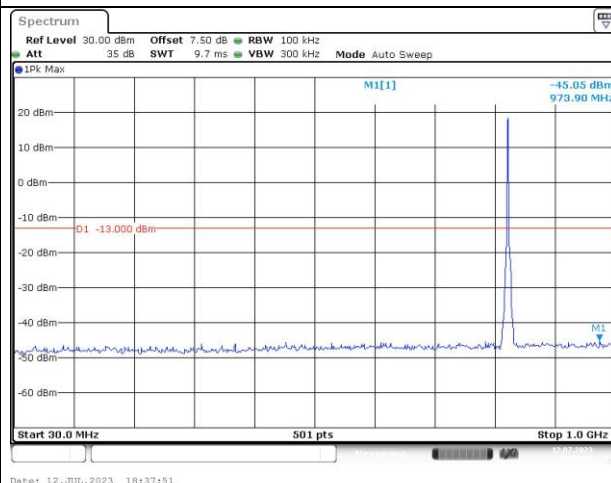


Spurious Emissions at Antenna Terminal

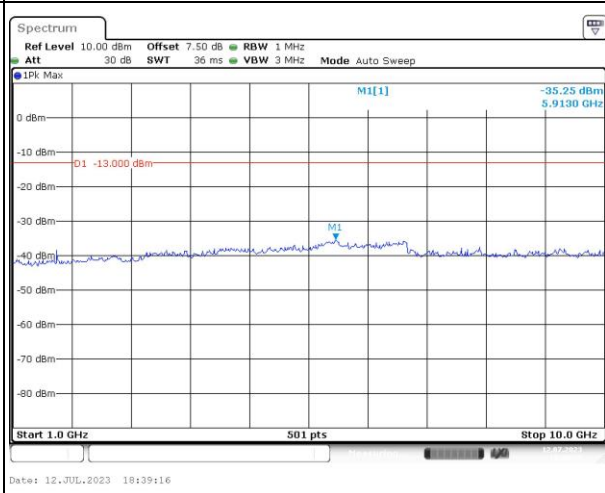
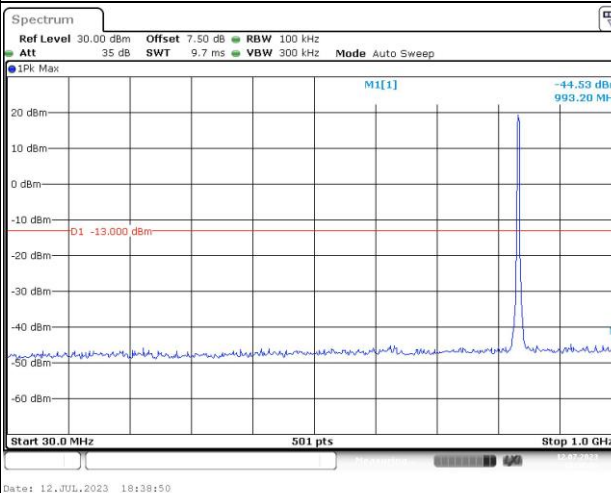
Channel

3MHz Bandwidth QPSK

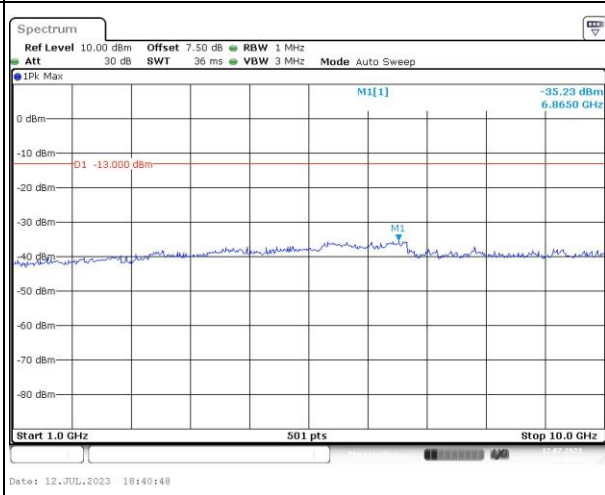
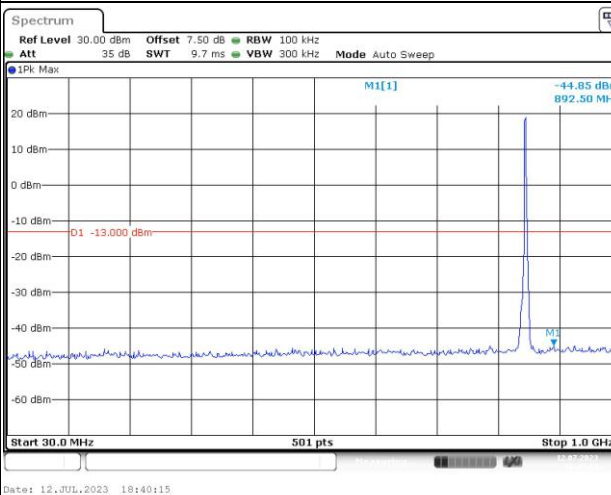
Lowest



Middle



Highest

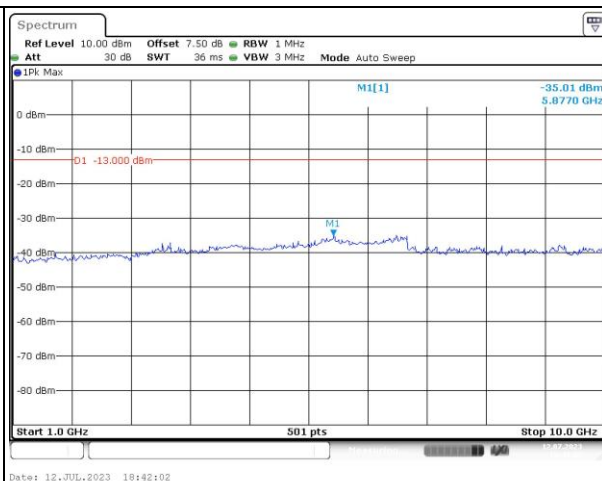
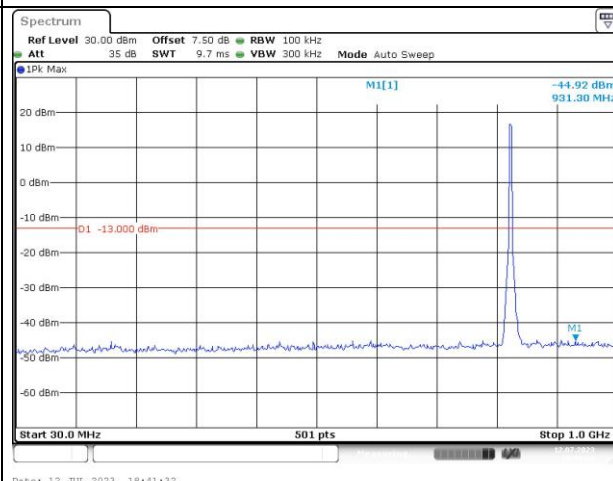


Spurious Emissions at Antenna Terminal

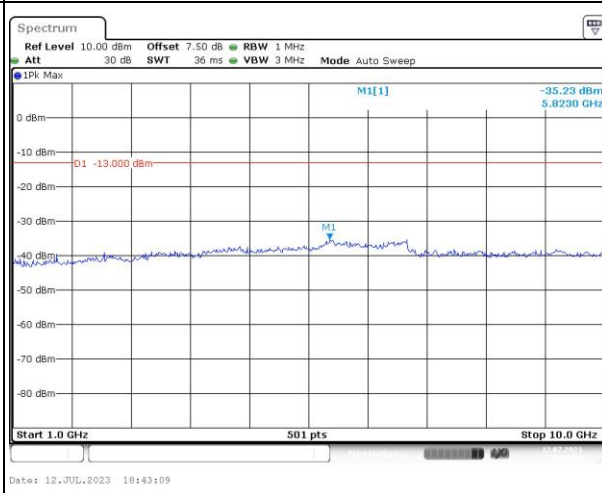
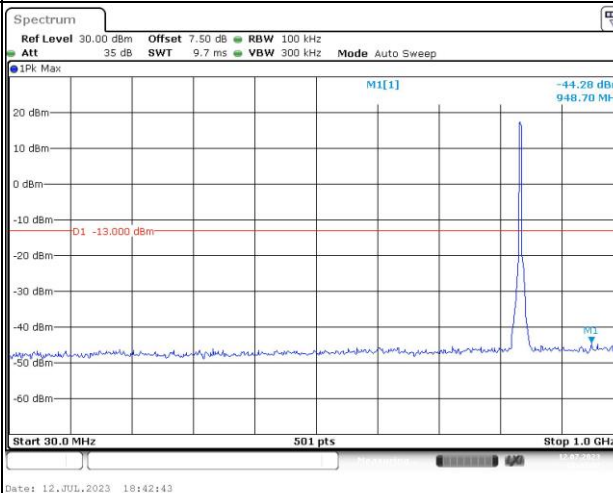
Channel

5MHz Bandwidth QPSK

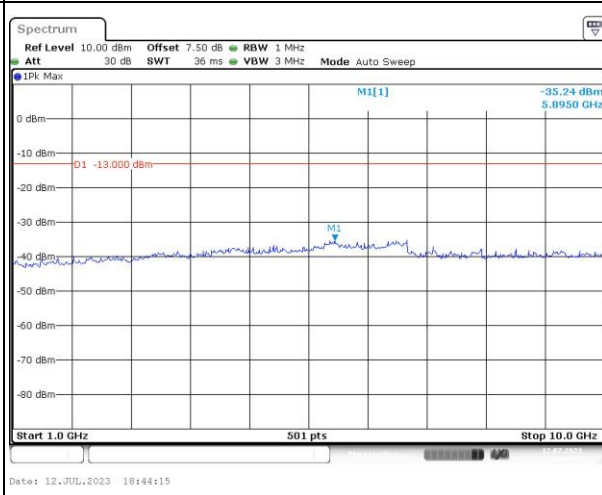
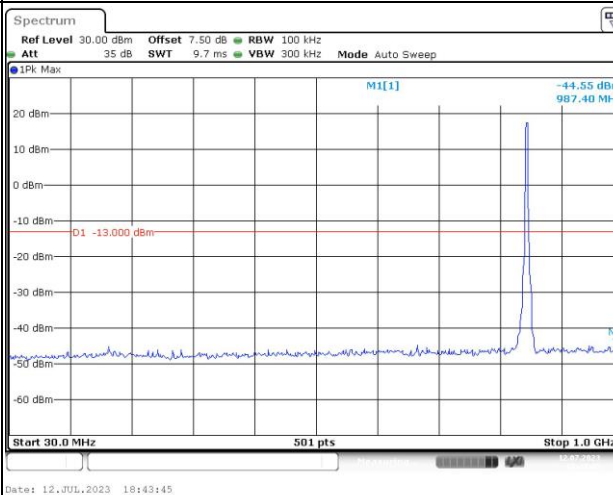
Lowest



Middle



Highest

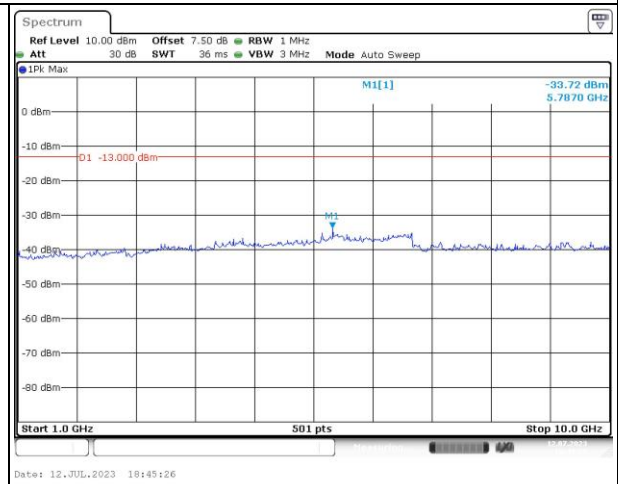
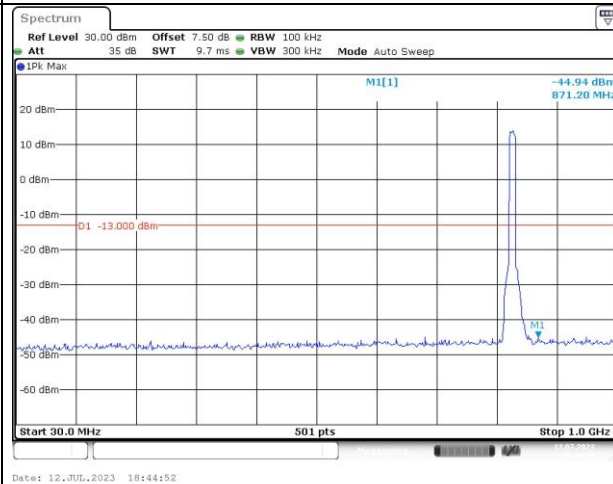


Spurious Emissions at Antenna Terminal

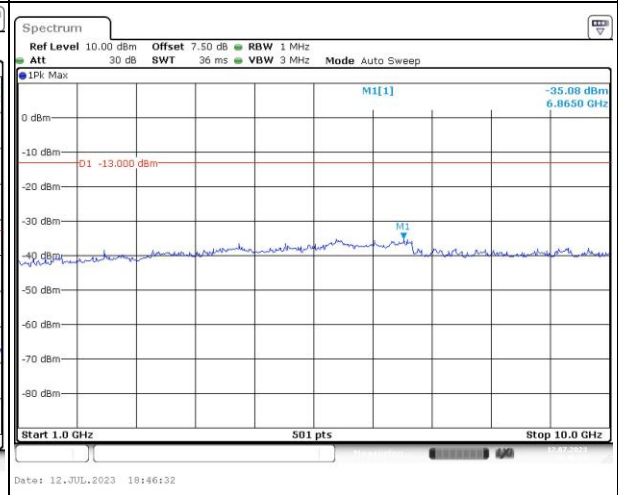
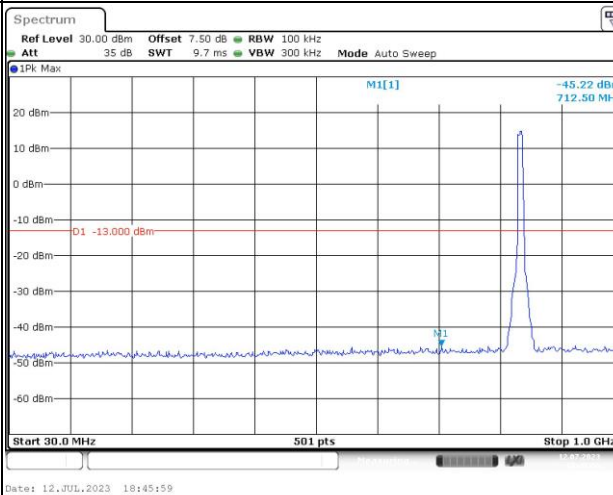
Channel

10MHz Bandwidth QPSK

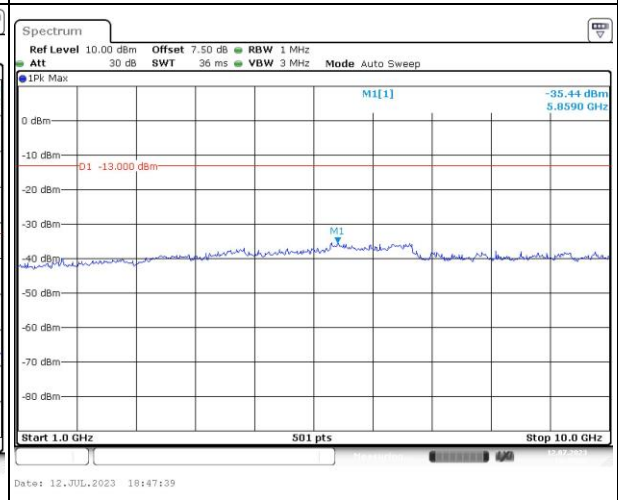
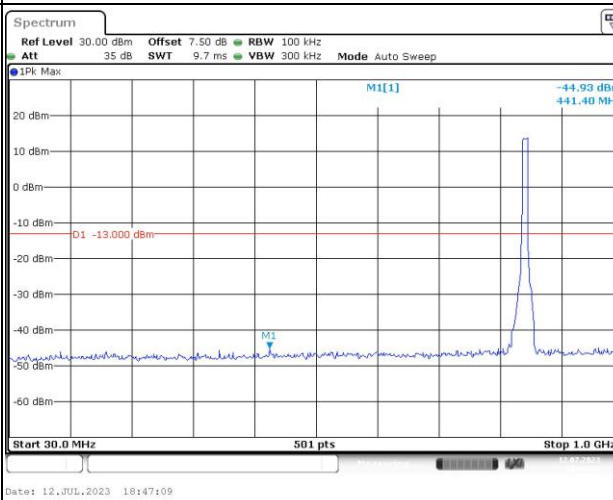
Lowest



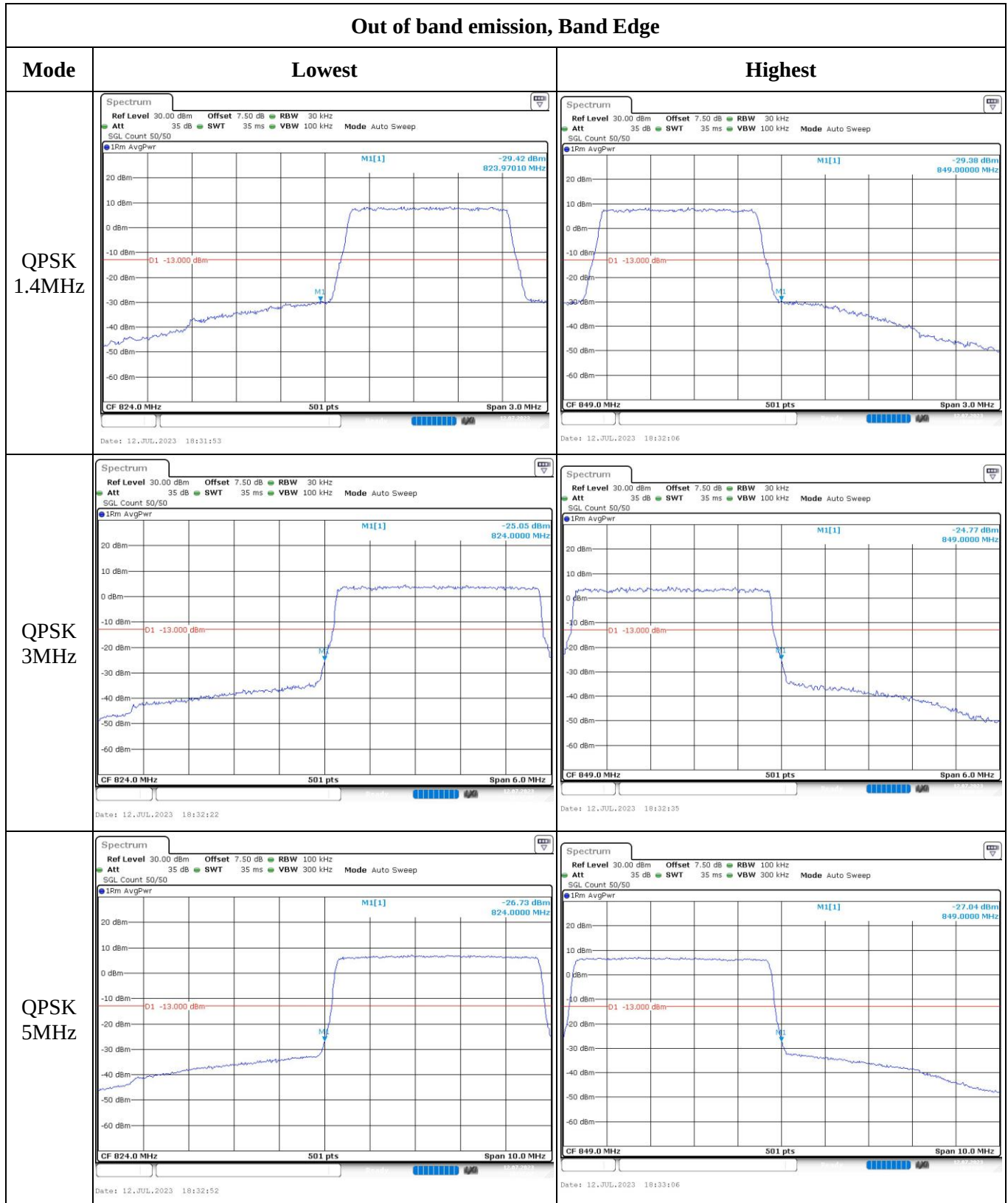
Middle



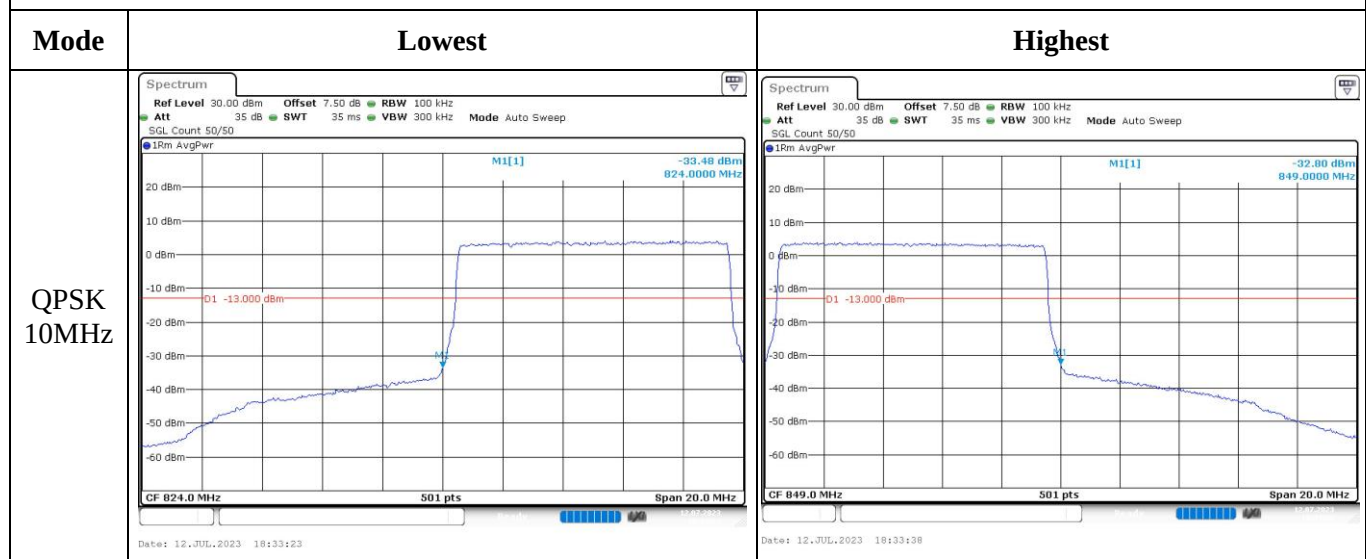
Highest



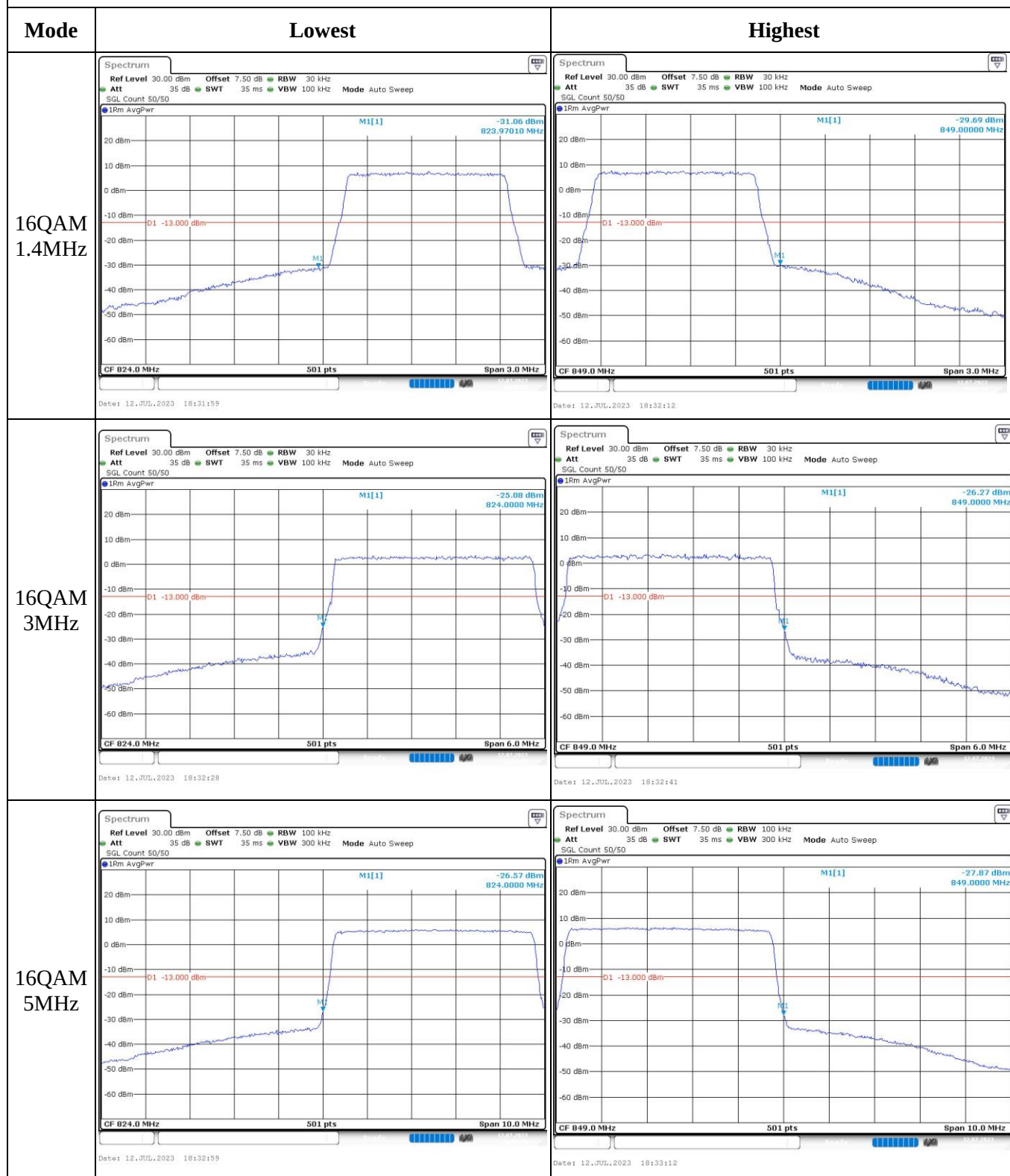
Out of band emission, Band Edge



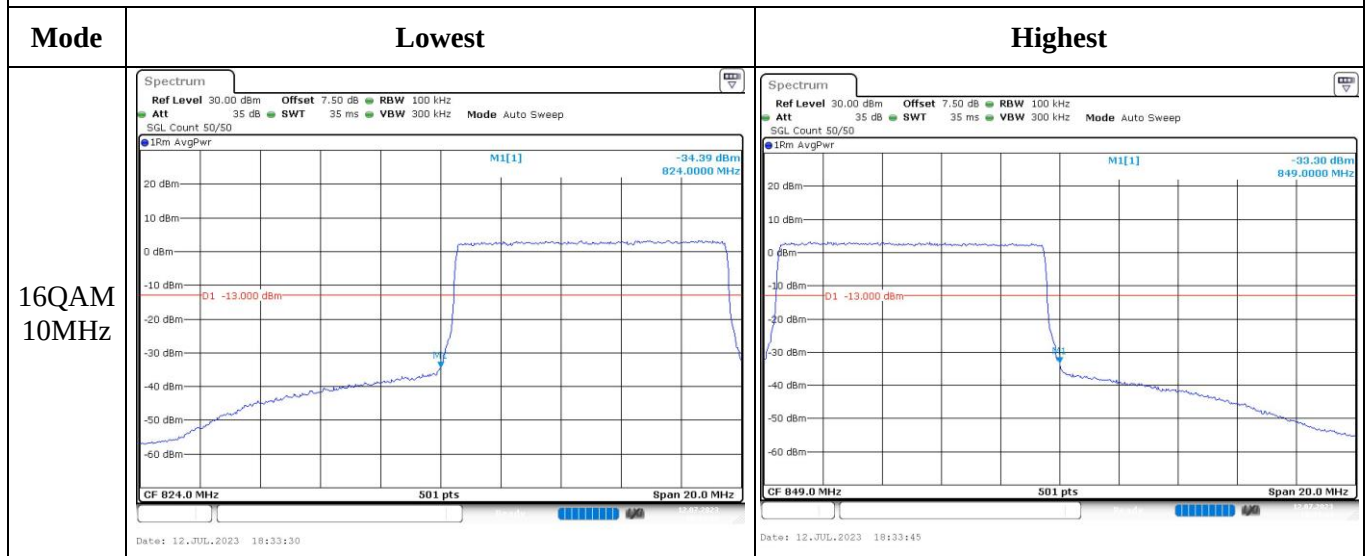
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.9 Antenna Port Test Data and Results for LTE Band 7

Serial Number:	27W6-1	Test Date:	2023/07/12~2023/07/15
Test Site:	RF	Test Mode:	Transmitting
Tester:	One Luo	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.4~26.8	Relative Humidity: (%)	49~52	ATM Pressure: (kPa)	99.3~100.3
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2022/07/15	2023/07/14
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Power Splitter	1515	RA914	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2022/07/15	2023/07/14
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/03/31	2024/03/30
UNI-T	Multimeter	UT39A+	C210582554	2022/09/29	2023/09/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A
R&S	Spectrum Analyzer	FSV40	101474	2023/07/15	2024/07/14
R&S	Wideband Radio Communication Tester	CMW500	149218	2023/07/15	2024/07/14

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
5MHz	2502.5	2535	2567.5
10MHz	2505	2535	2565
15MHz	2507.5	2535	2562.5
20MHz	2510	2535	2560

Test Data:**FCC §2.1046; § 27.50(h)(2)****RF Output Power:**

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
5MHz QPSK	RB1#0	22.35	22.38	22.37	23.4	33
	RB1#13	22.31	22.35	22.39		
	RB1#24	22.27	22.46	22.32		
	RB15#0	21.31	21.49	21.44		
	RB15#10	21.2	21.47	21.39		
	RB25#0	21.33	21.45	21.47		
5MHz 16QAM	RB1#0	21.36	21.07	20.79	22.34	33
	RB1#13	21.4	21.07	20.77		
	RB1#24	21.4	21.02	20.7		
	RB15#0	20.33	20.65	20.67		
	RB15#10	20.31	20.59	20.62		
	RB25#0	20.5	20.54	20.71		
10MHz QPSK	RB1#0	22.34	22.42	22.42	23.39	33
	RB1#25	22.34	22.41	22.45		
	RB1#49	22.41	22.43	22.36		
	RB25#0	21.27	21.4	21.48		
	RB25#25	21.32	21.39	21.43		
	RB50#0	21.3	21.51	21.48		
10MHz 16QAM	RB1#0	21.53	20.92	21.79	22.73	33
	RB1#25	21.44	20.97	21.79		
	RB1#49	21.52	20.97	21.68		
	RB25#0	20.52	20.72	20.62		
	RB25#25	20.59	20.81	20.6		
	RB50#0	20.61	20.64	20.59		
15MHz QPSK	RB1#0	22.26	22.33	22.35	23.4	33
	RB1#38	22.43	22.39	22.39		
	RB1#74	22.46	22.37	22.29		
	RB36#0	21.19	21.5	21.45		
	RB36#39	21.39	21.41	21.37		
	RB75#0	21.21	21.45	21.48		
15MHz 16QAM	RB1#0	21.69	21.89	21.81	22.98	33
	RB1#38	21.59	21.98	21.82		
	RB1#74	21.7	22.04	21.76		
	RB36#0	20.55	20.61	20.7		
	RB36#39	20.53	20.69	20.71		
	RB75#0	20.5	20.64	20.68		

20MHz QPSK	RB1#0	23.1	22.79	22.98	24.11	33
	RB1#50	23.05	22.9	23.04		
	RB1#99	23.17	22.93	22.96		
	RB50#0	21.25	21.45	21.49		
	RB50#50	21.41	21.51	21.47		
	RB100#0	21.33	21.48	21.5		
20MHz 16QAM	RB1#0	22.18	22.95	22.05	23.94	33
	RB1#50	22.08	22.96	22.02		
	RB1#99	22.19	23	21.99		
	RB50#0	20.39	20.65	20.7		
	RB50#50	20.56	20.67	20.73		
	RB100#0	20.39	20.72	20.61		

Note: EIRP=Conducted Power(dBm) - Lc(dB) + Gr(dBi)

Result: **Pass**

Peak-to-average Ratio(PAR)

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	5.10	5.10	4.12	13
	RB100#0	4.14	4.41	4	13
20MHz 16QAM	RB1#0	6.20	5.04	5.19	13
	RB100#0	5.74	5.97	5.62	13
Result:					Pass

FCC §2.1049, §27.53:Occupied Bandwidth

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
5MHz QPSK	4.511	4.511	4.531	4.840	5.02	5.000
5MHz 16QAM	4.511	4.511	4.531	4.940	4.900	5.000
10MHz QPSK	8.942	8.942	8.982	9.720	9.800	9.760
10MHz 16QAM	8.982	8.942	8.942	9.800	9.840	9.760
15MHz QPSK	13.473	13.533	13.473	14.700	14.880	14.700
15MHz 16QAM	13.473	13.533	13.533	14.700	14.700	14.760
20MHz QPSK	17.884	18.044	17.964	19.280	19.760	19.520
20MHz 16QAM	17.884	17.884	18.044	19.600	19.520	19.600

Note: The test plots please refer to the Plots of Occupied Bandwidth

FCC §2.1051, §27.53:Spurious Emissions at Antenna Terminal

Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.
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FCC §2.1051, §27.53: Out of band emission, Band Edge

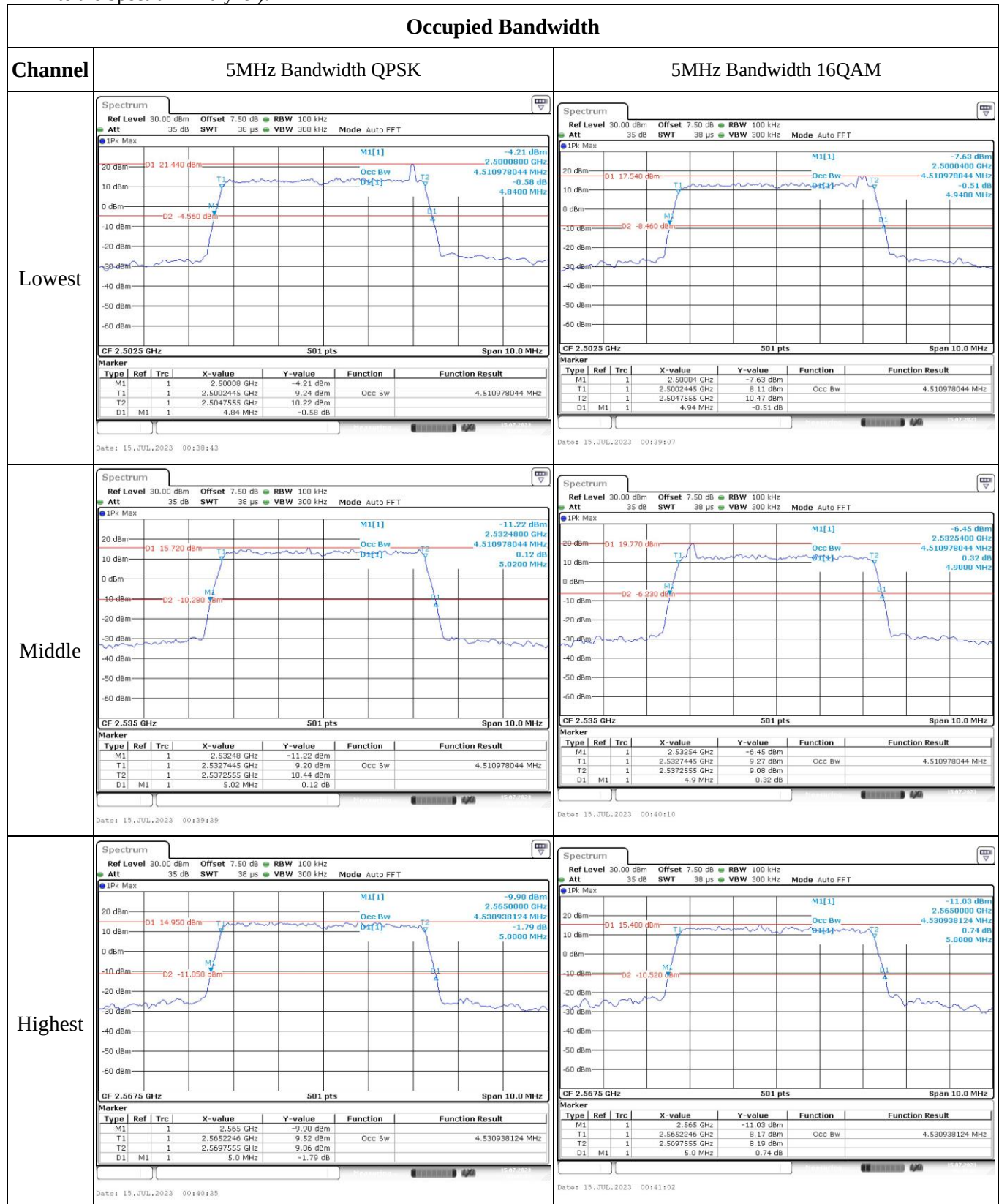
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
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FCC §2.1055, §27.54: Frequency Stability

Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.87	2501.088	2500.00	2568.910	2570
	-20	3.87	2501.073	2500.00	2568.950	2570
	-10	3.87	2501.075	2500.00	2568.979	2570
	0	3.87	2501.036	2500.00	2568.921	2570
	10	3.87	2501.073	2500.00	2568.952	2570
	20	3.87	2501.058	2500.00	2568.942	2570
	30	3.87	2501.004	2500.00	2569.000	2570
	40	3.87	2501.051	2500.00	2568.948	2570
	50	3.87	2501.006	2500.00	2568.940	2570
Frequency Stability vs. Voltage	20	3.3	2501.049	2500.00	2568.961	2570
	20	4.45	2501.016	2500.00	2568.948	2570
Result:					Pass	

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.87	2501.033	2500.00	2569.019	2570
	-20	3.87	2501.018	2500.00	2569.073	2570
	-10	3.87	2501.023	2500.00	2569.025	2570
	0	3.87	2501.049	2500.00	2569.078	2570
	10	3.87	2501.003	2500.00	2569.090	2570
	20	3.87	2501.058	2500.00	2569.022	2570
	30	3.87	2501.075	2500.00	2569.048	2570
	40	3.87	2501.053	2500.00	2569.000	2570
	50	3.87	2501.058	2500.00	2569.025	2570
Frequency Stability vs. Voltage	20	3.3	2501.070	2500.00	2569.079	2570
	20	4.45	2501.091	2500.00	2569.007	2570
Result:					Pass	

Test Plots(Note: The 7.5dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):



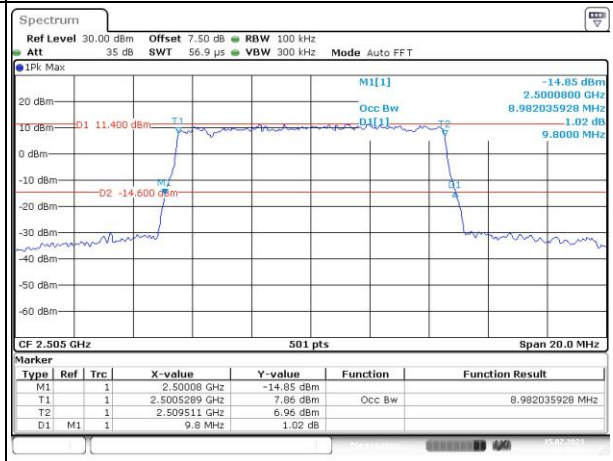
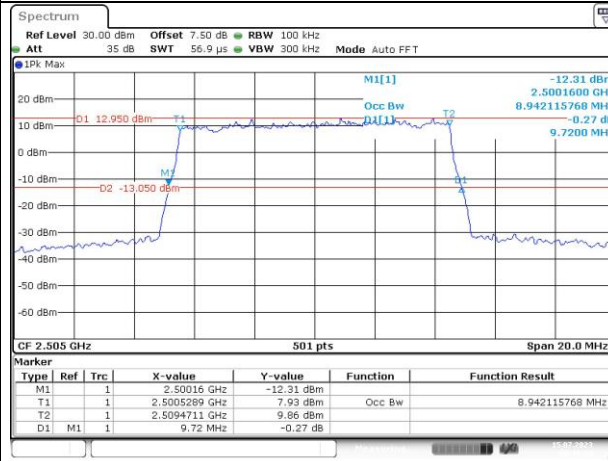
Occupied Bandwidth

Channel

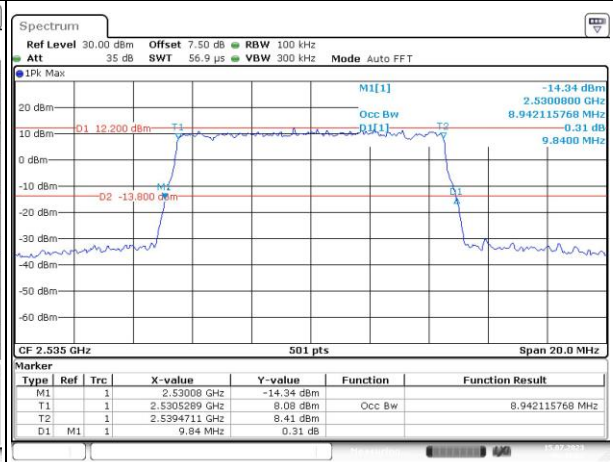
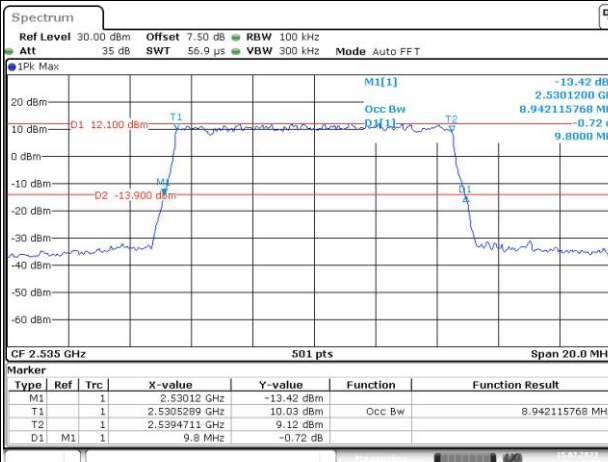
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

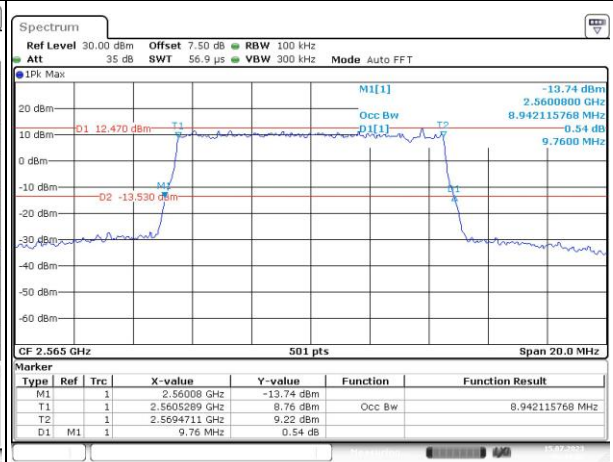
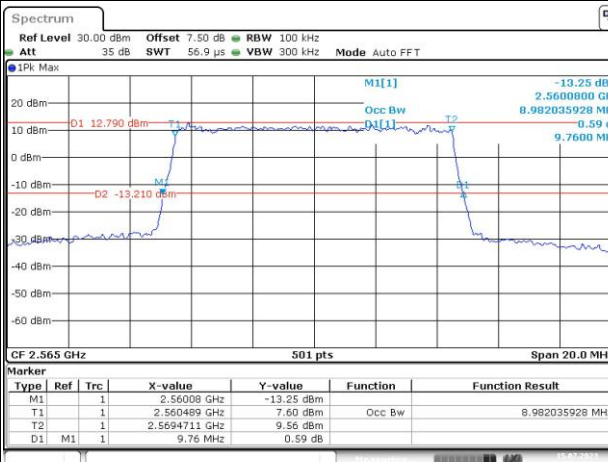
Lowest



Middle



Highest



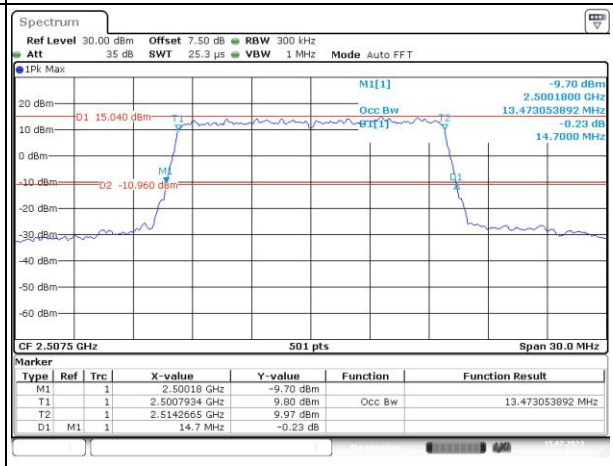
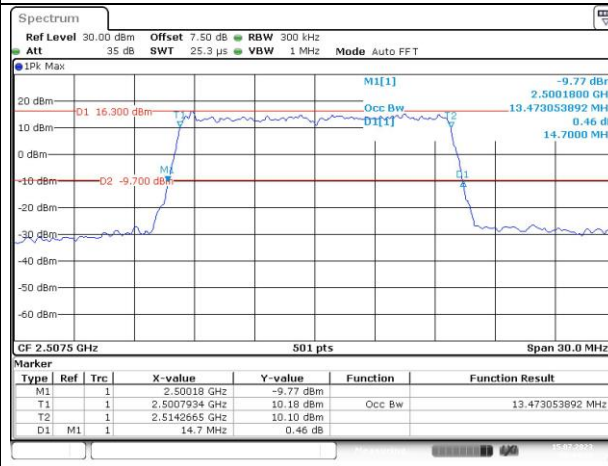
Occupied Bandwidth

Channel

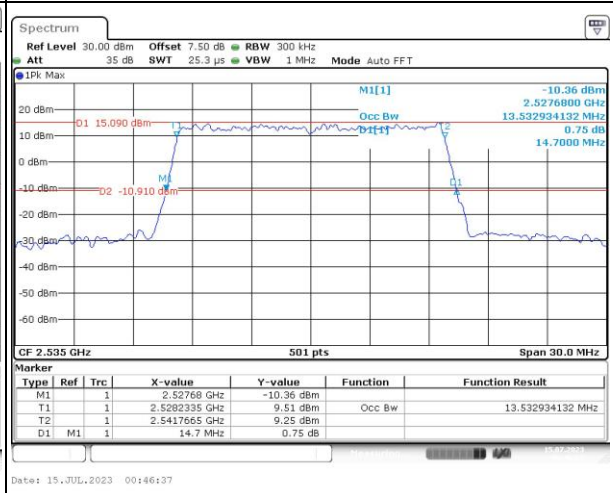
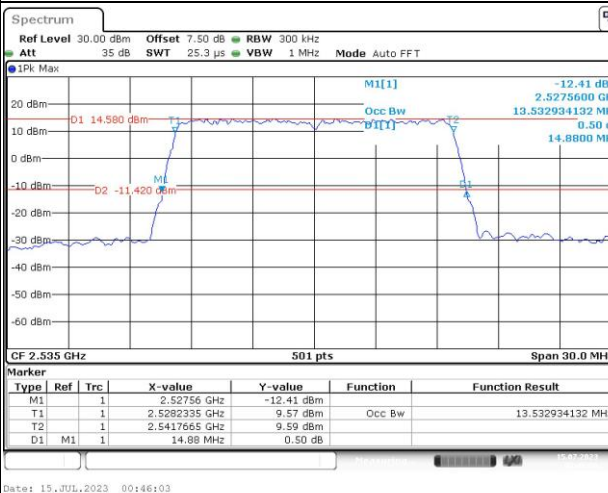
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

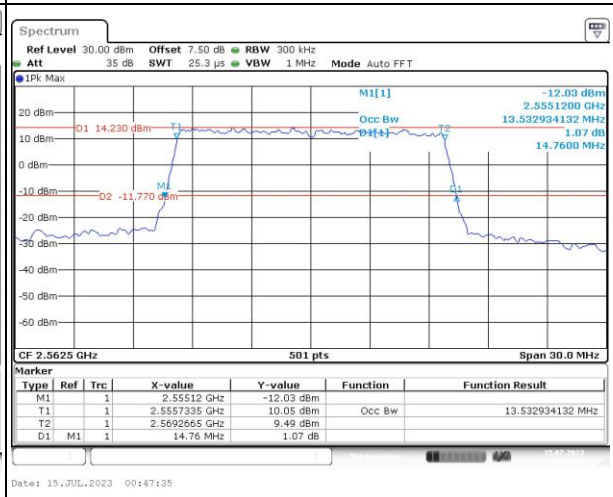
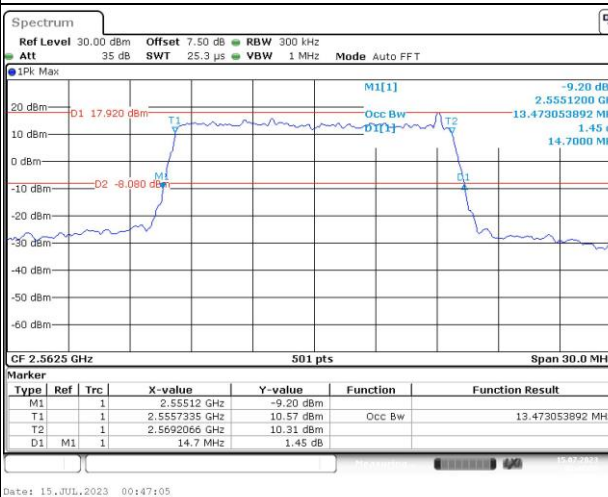
Lowest



Middle



Highest



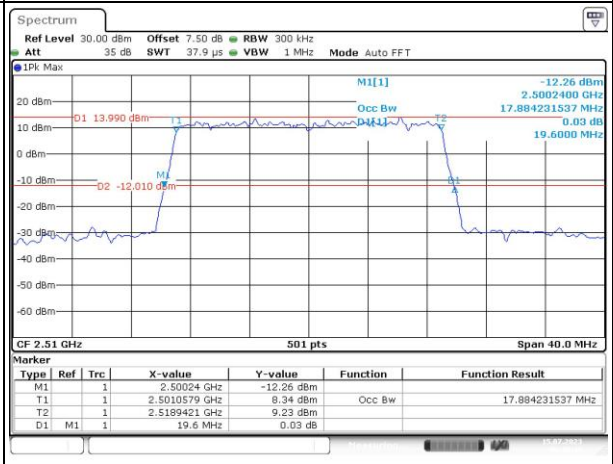
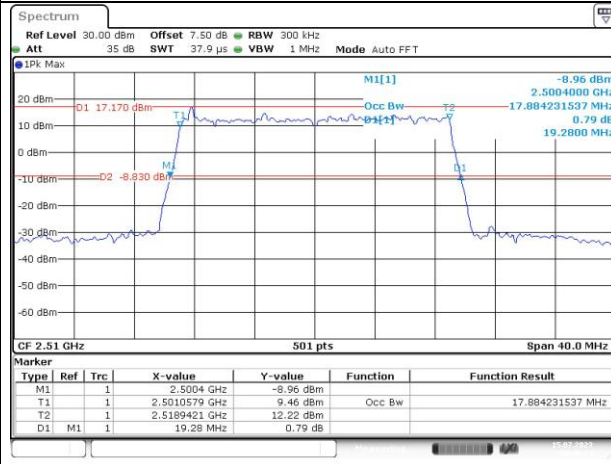
Occupied Bandwidth

Channel

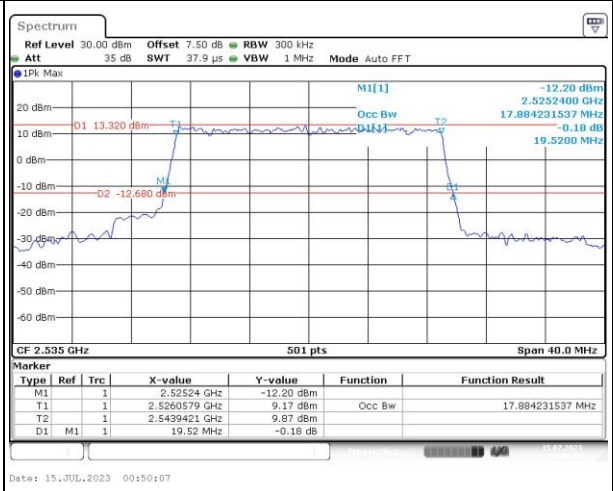
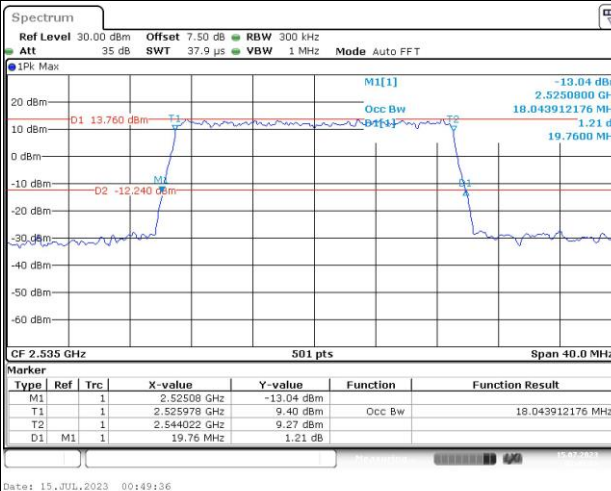
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

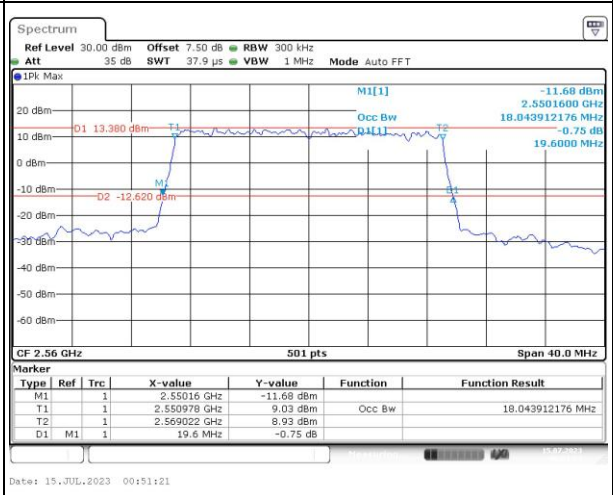
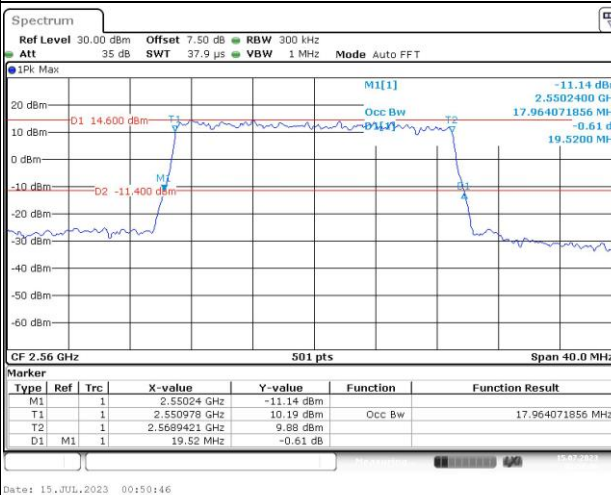
Lowest



Middle



Highest

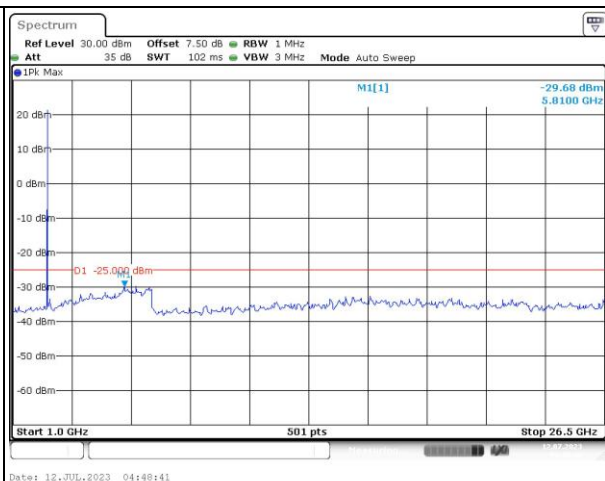
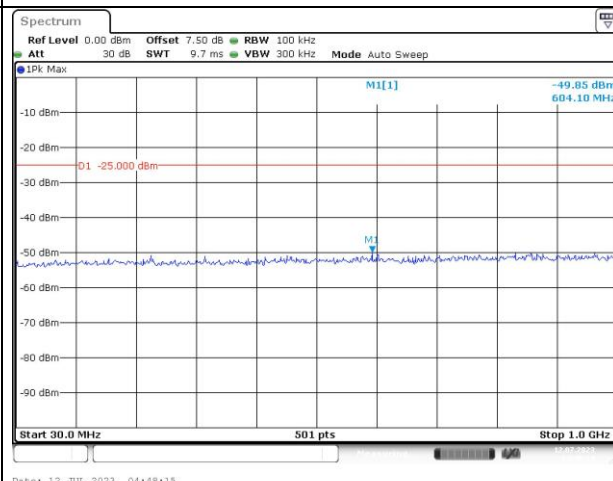


Spurious Emissions at Antenna Terminal

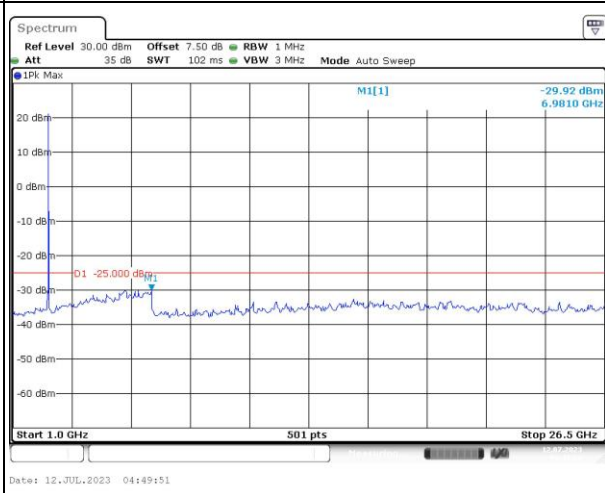
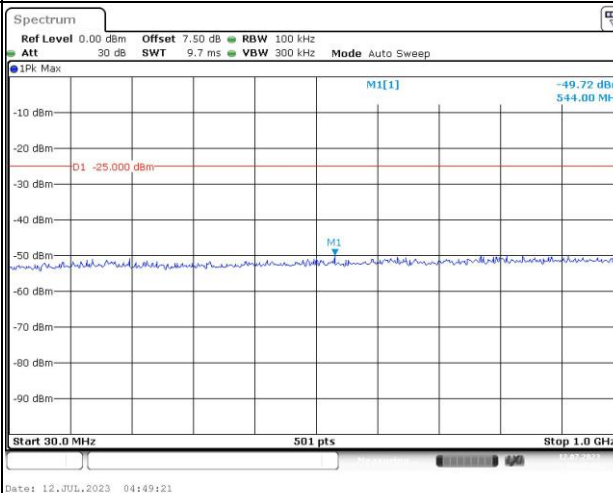
Channel

5MHz Bandwidth QPSK

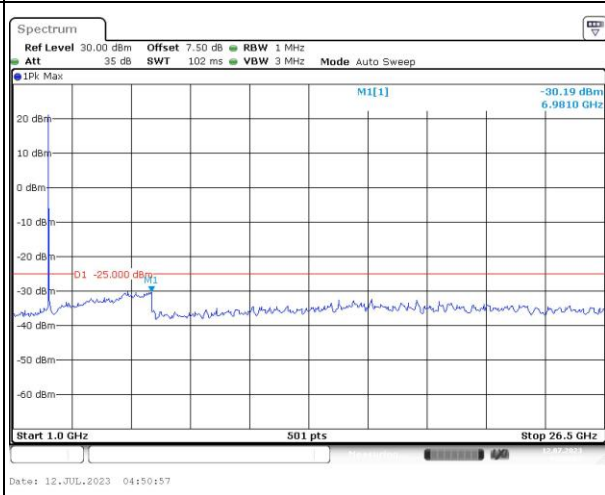
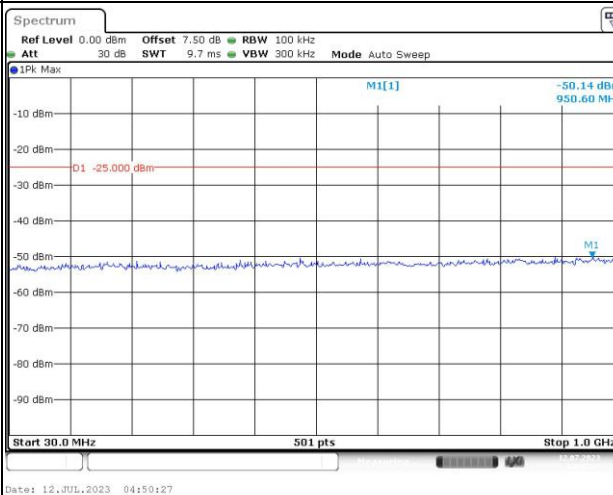
Lowest



Middle



Highest

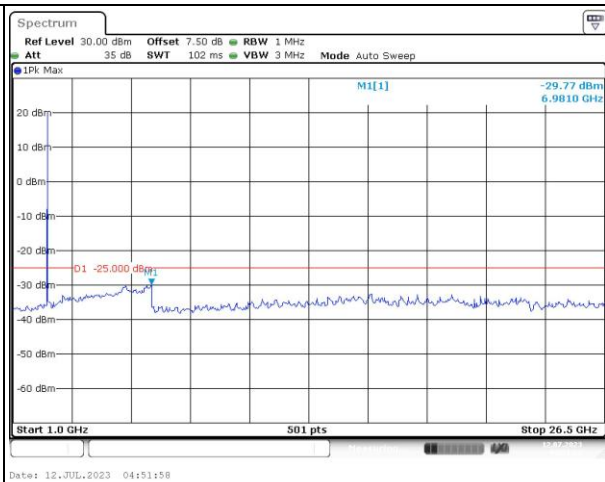
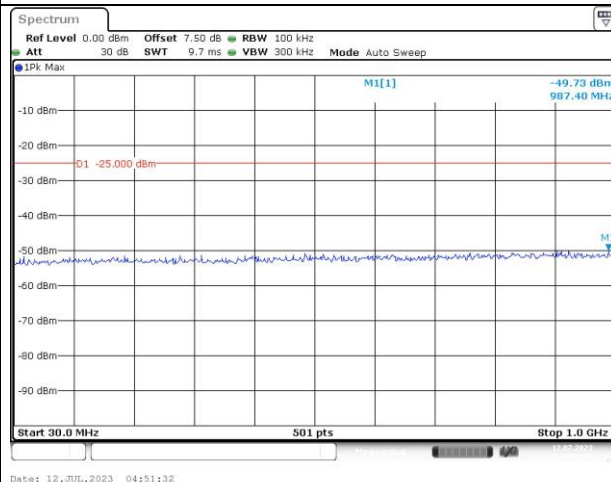


Spurious Emissions at Antenna Terminal

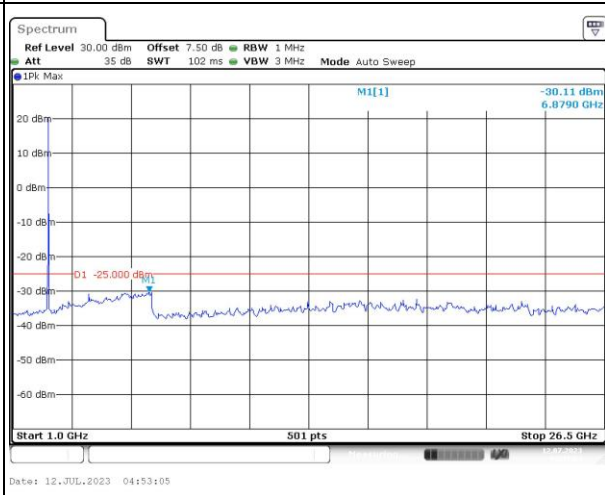
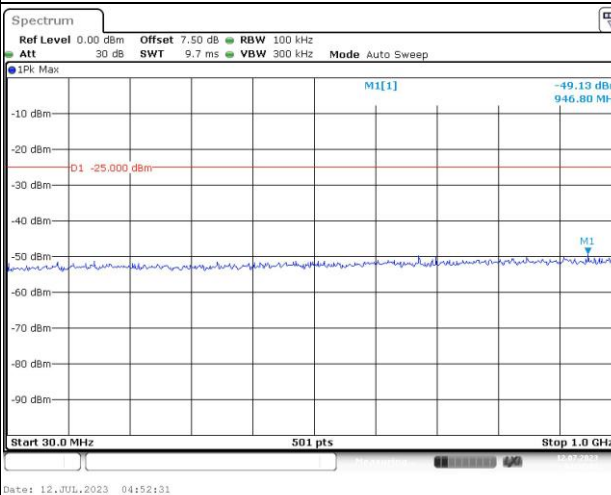
Channel

10MHz Bandwidth QPSK

Lowest



Middle



Highest

