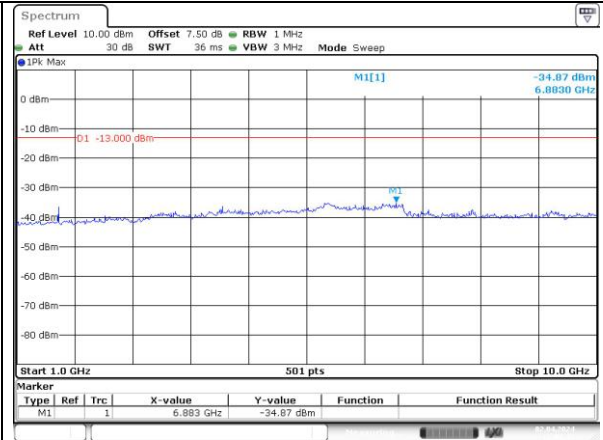
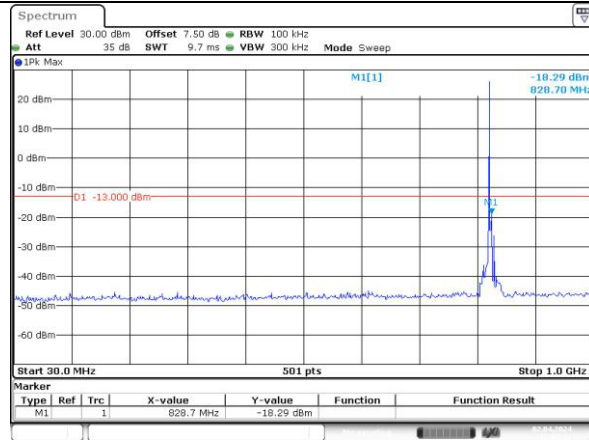


Spurious Emissions at Antenna Terminal

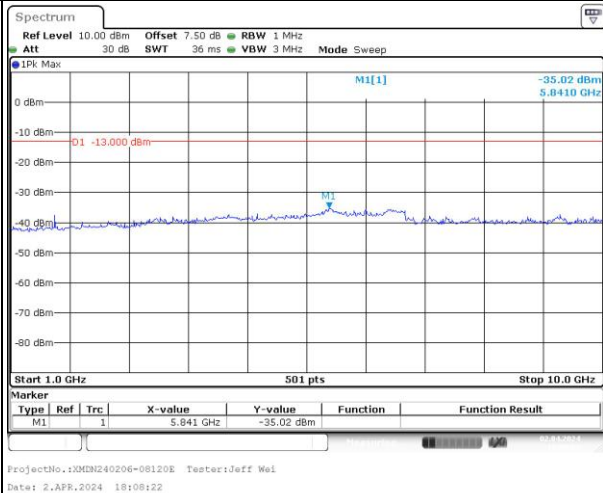
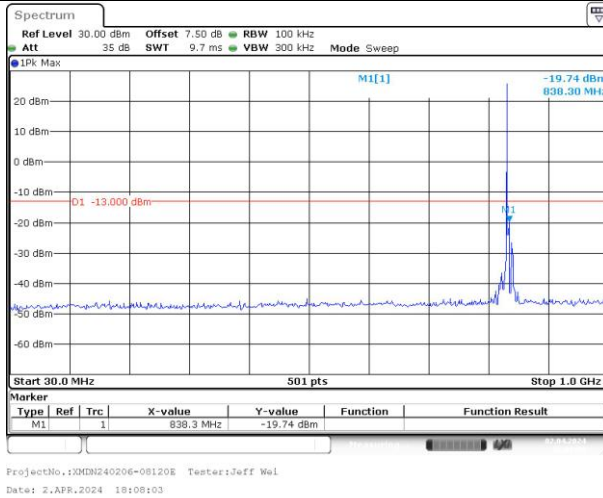
Channel

5MHz Bandwidth QPSK

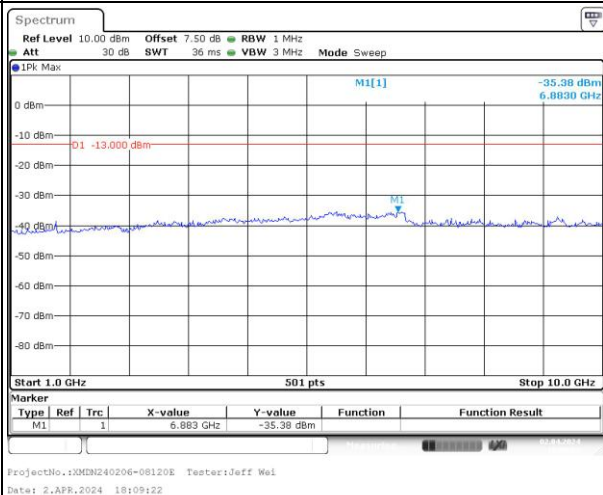
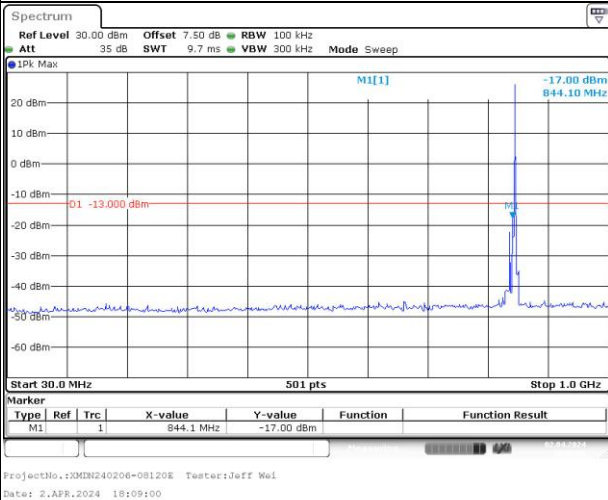
Lowest



Middle



Highest

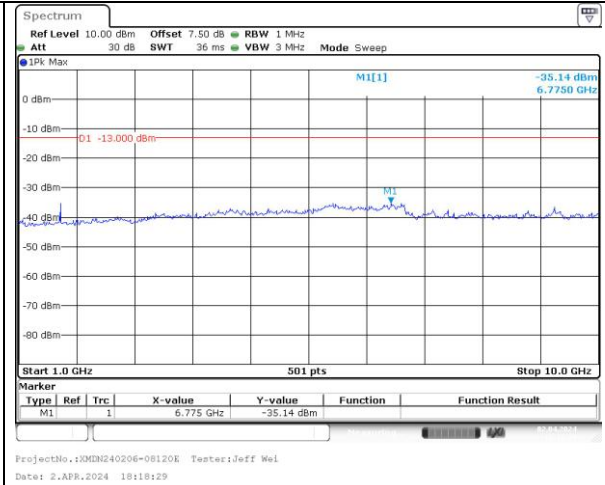
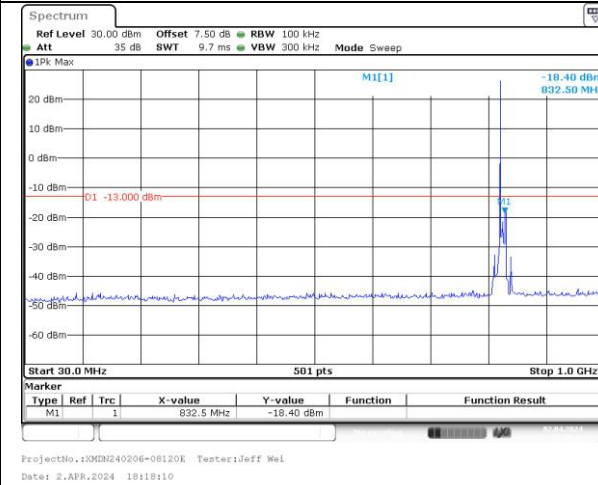


Spurious Emissions at Antenna Terminal

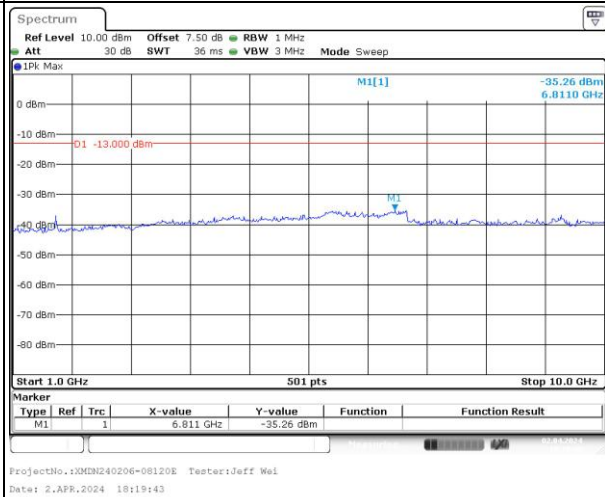
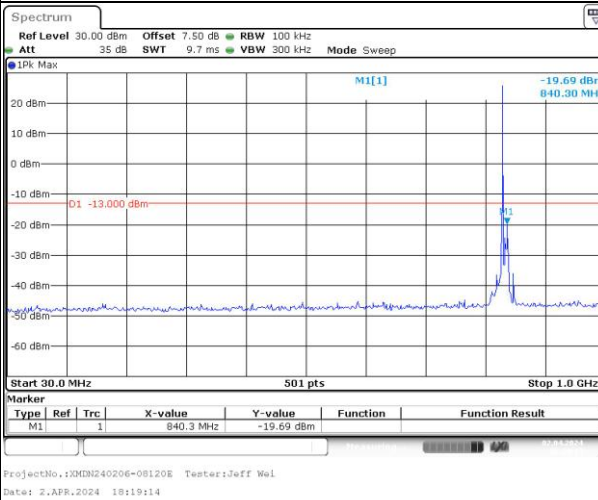
Channel

10MHz Bandwidth QPSK

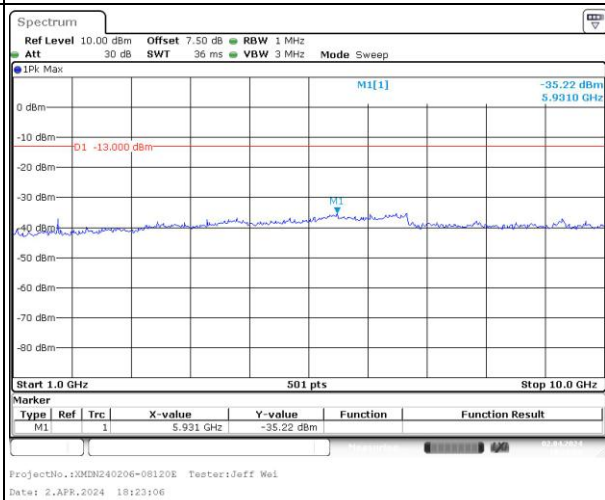
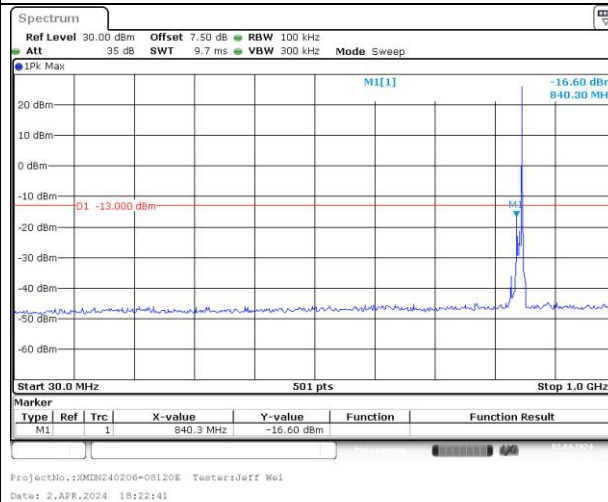
Lowest



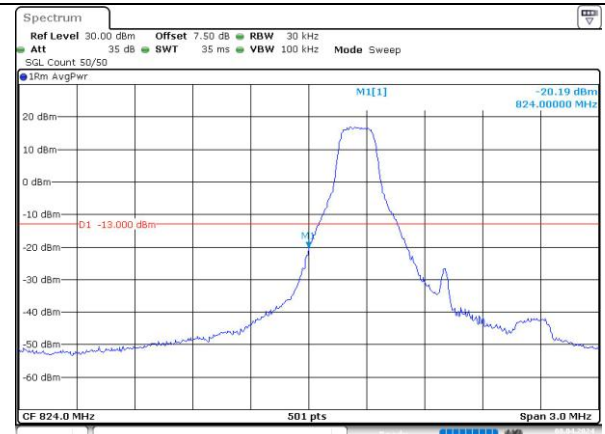
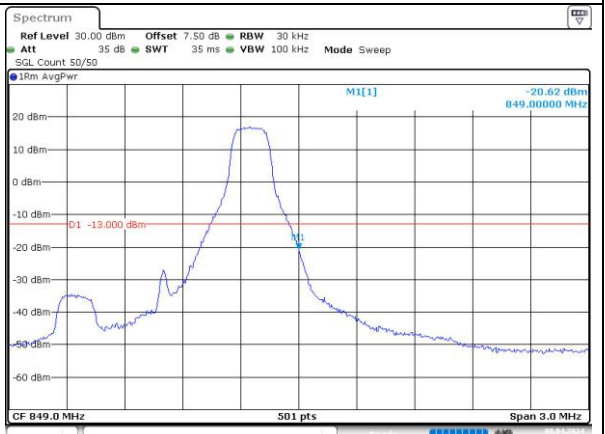
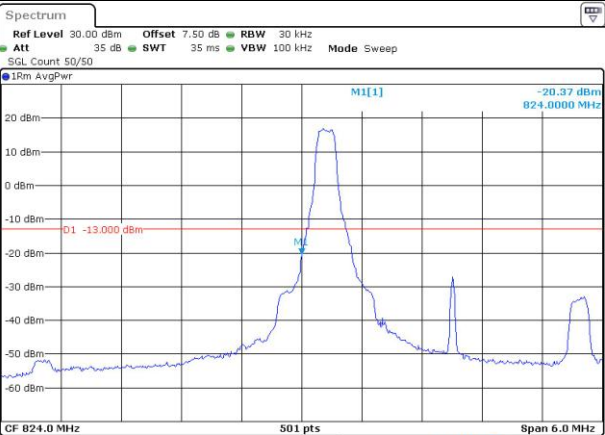
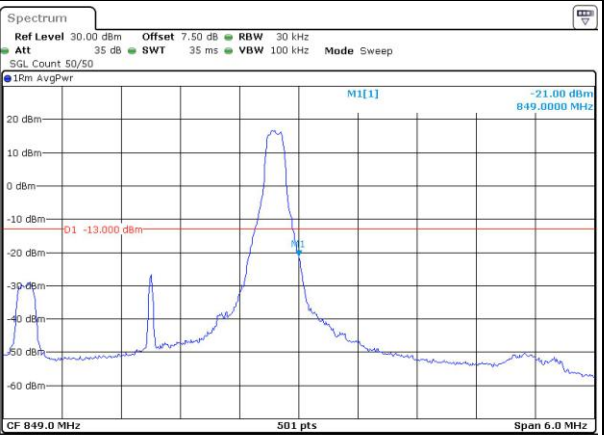
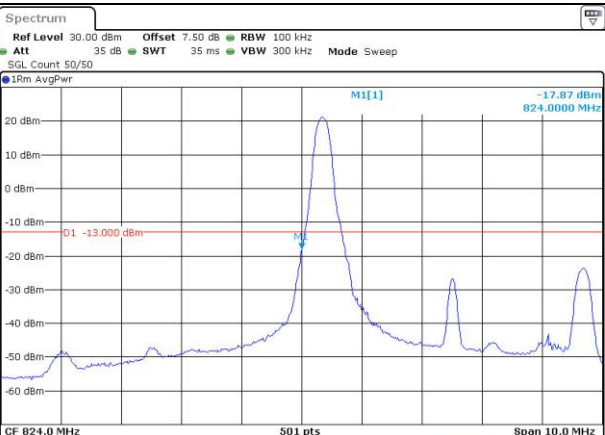
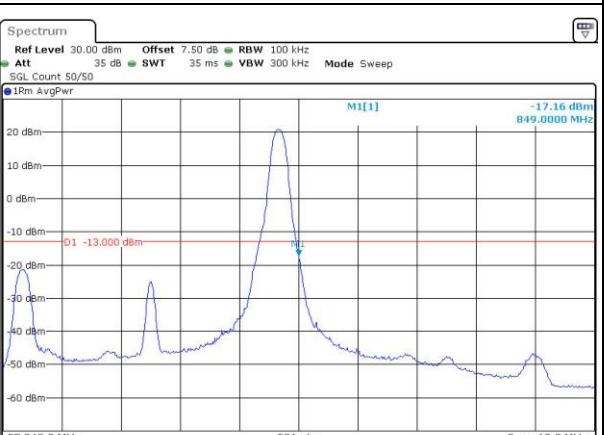
Middle



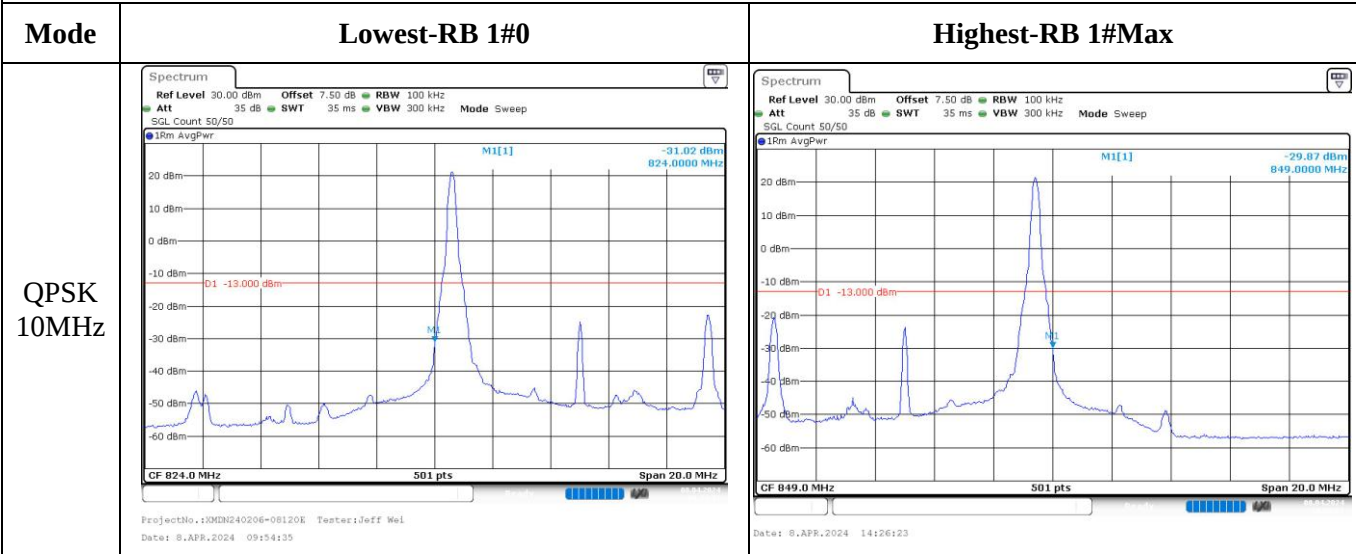
Highest



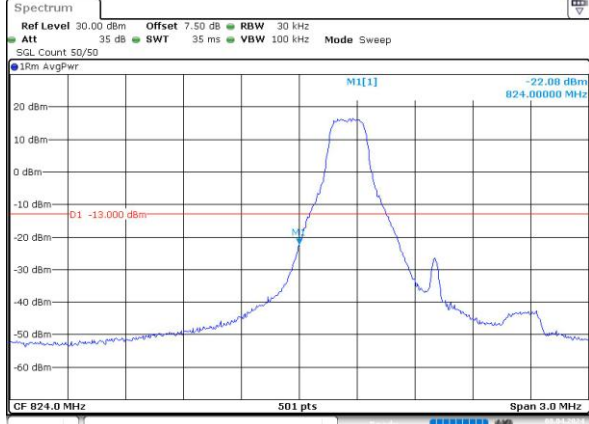
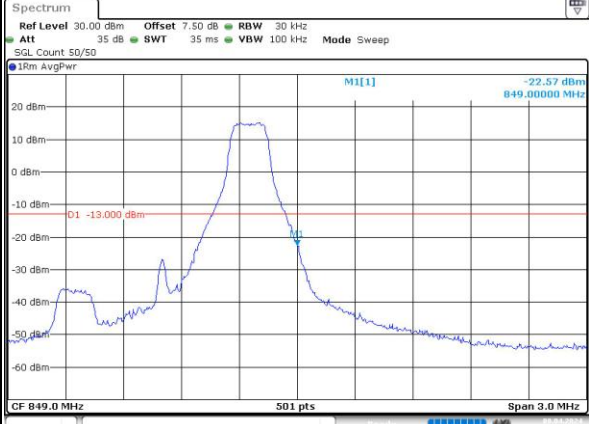
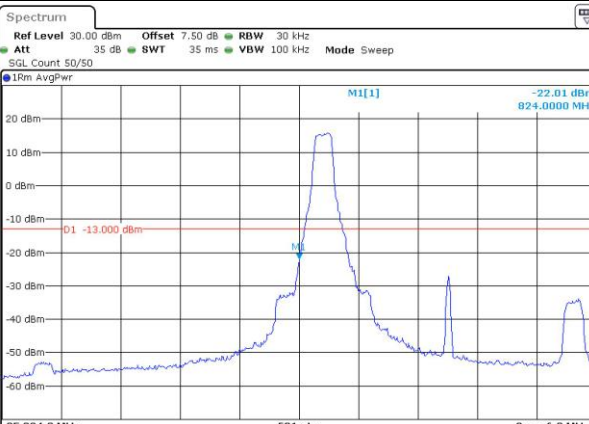
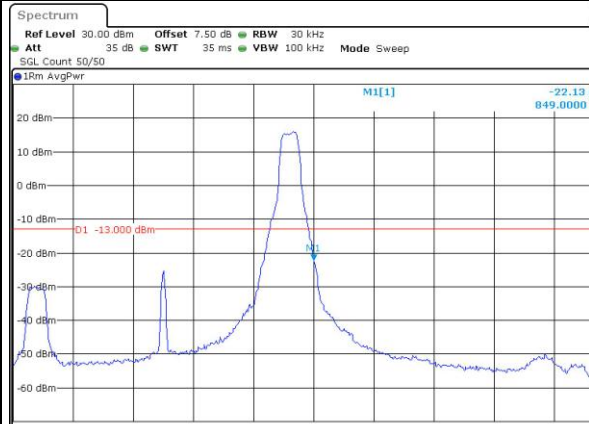
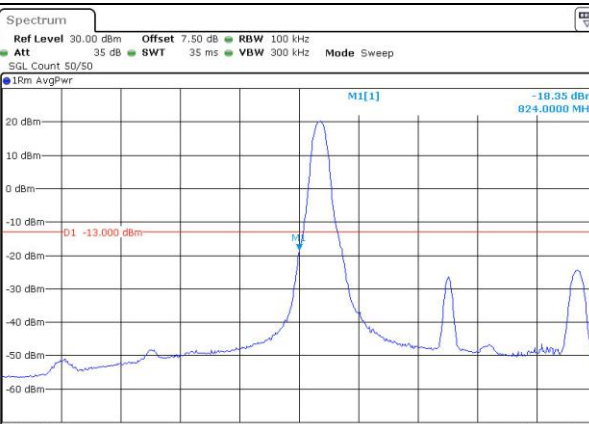
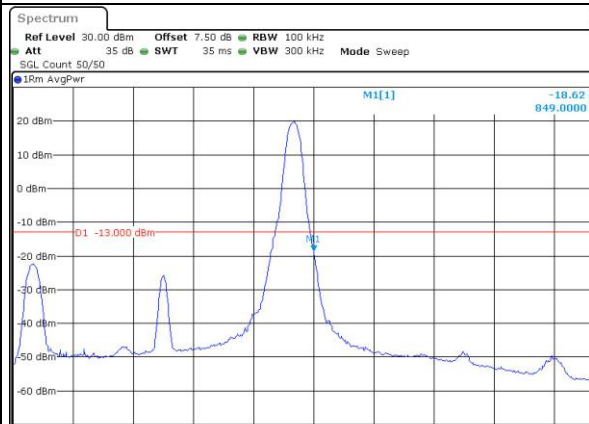
Out of band emission, Band Edge

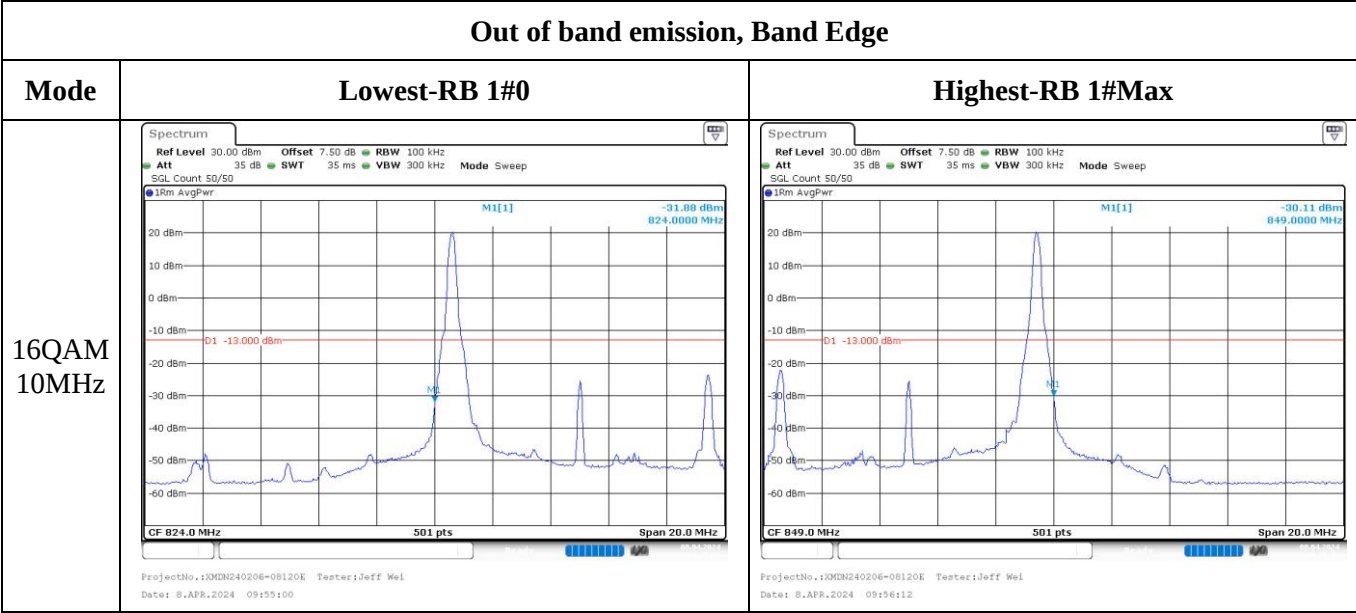
Mode	Lowest-RB 1#0	Highest-RB 1#Max
QPSK 1.4MHz	 ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 09:44:23	 ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 09:47:39
QPSK 3MHz	 ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 09:49:01	 ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 09:50:33
QPSK 5MHz	 ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 09:51:55	 ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 14:24:33

Out of band emission, Band Edge

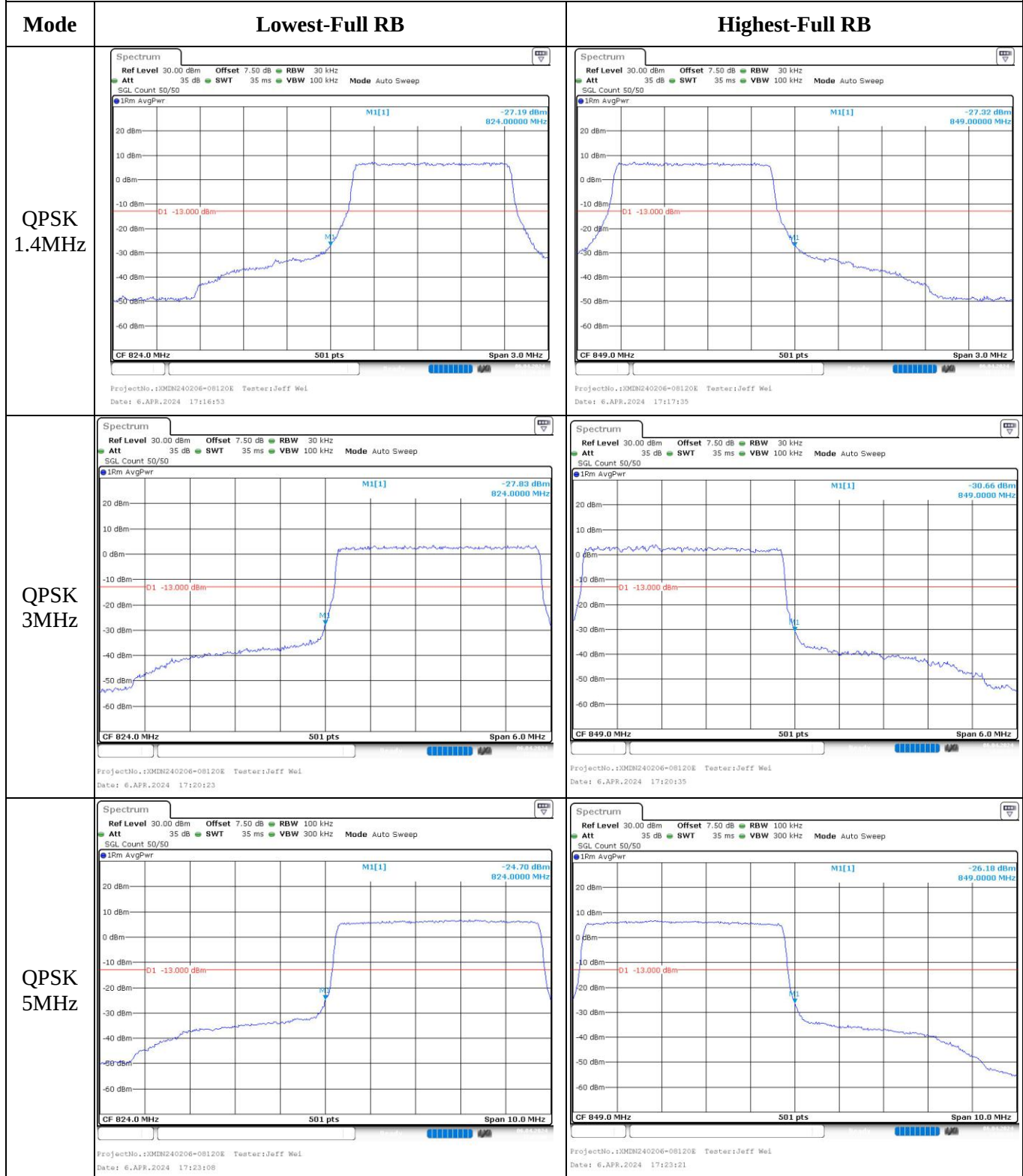


Out of band emission, Band Edge

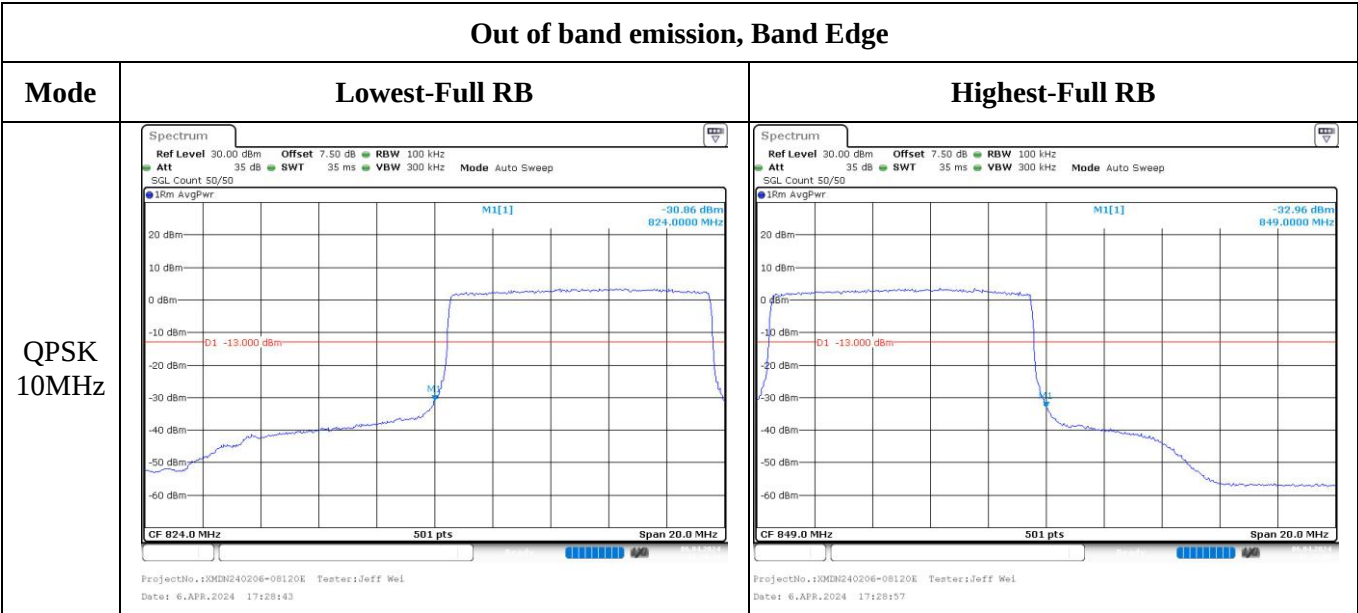
Mode	Lowest-RB 1#0	Highest-RB 1#Max
16QAM 1.4MHz	 Ref Level 30.00 dBm Offset 7.50 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr M1[1] -22.08 dBm 824.00000 MHz D1 -13.000 dBm CF 824.0 MHz 501 pts Span 3.0 MHz ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 09:46:16	 Ref Level 30.00 dBm Offset 7.50 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr M1[1] -22.57 dBm 849.00000 MHz D1 -13.000 dBm CF 849.0 MHz 501 pts Span 3.0 MHz ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 09:46:26
16QAM 3MHz	 Ref Level 30.00 dBm Offset 7.50 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr M1[1] -22.01 dBm 824.00000 MHz D1 -13.000 dBm CF 824.0 MHz 501 pts Span 6.0 MHz ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 09:49:51	 Ref Level 30.00 dBm Offset 7.50 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr M1[1] -22.13 dBm 849.00000 MHz D1 -13.000 dBm CF 849.0 MHz 501 pts Span 6.0 MHz ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 16:30:28
16QAM 5MHz	 Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr M1[1] -18.35 dBm 824.00000 MHz D1 -13.000 dBm CF 824.0 MHz 501 pts Span 10.0 MHz ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 09:52:22	 Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr M1[1] -18.62 dBm 849.00000 MHz D1 -13.000 dBm CF 849.0 MHz 501 pts Span 10.0 MHz ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 09:53:46



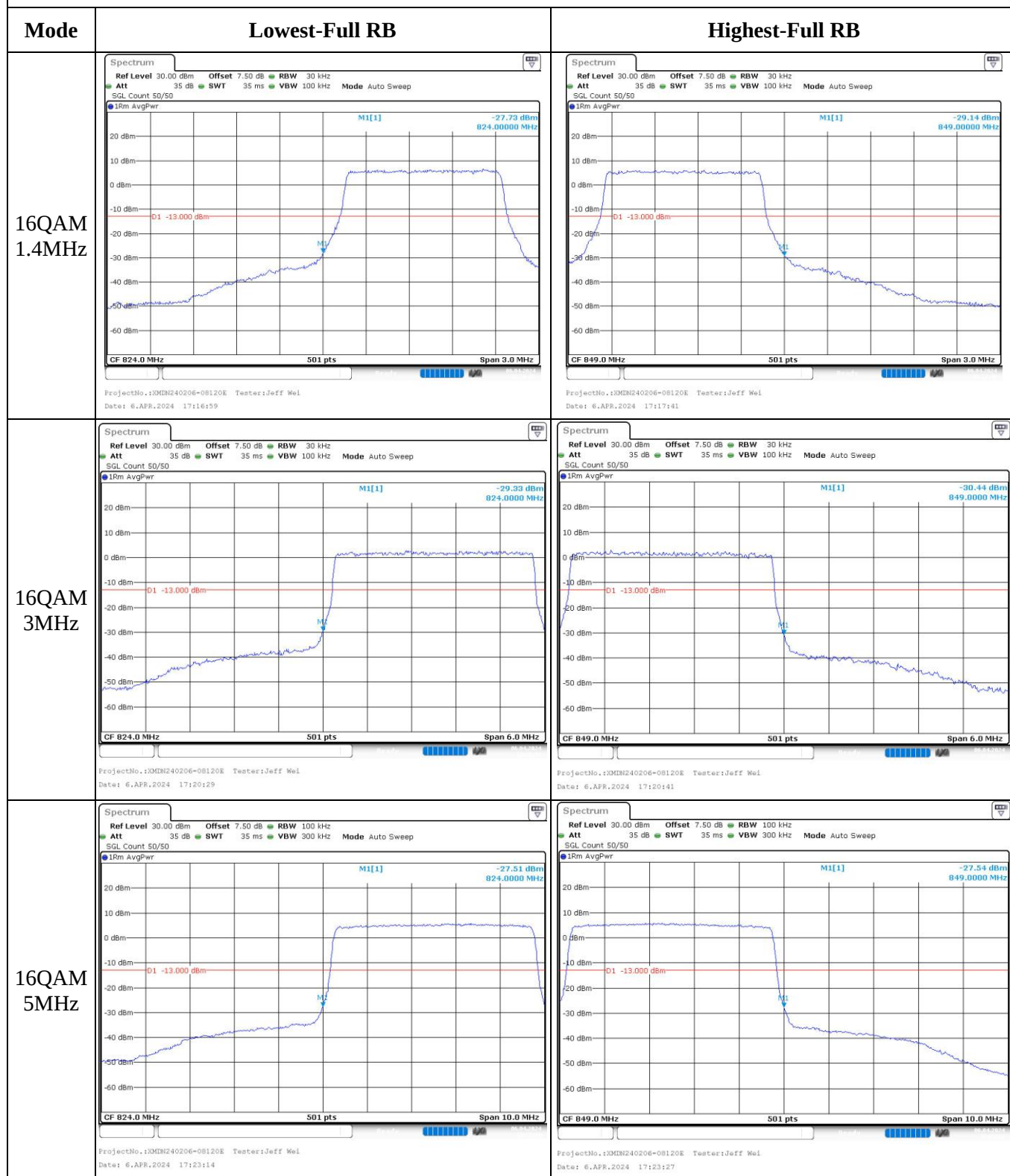
Out of band emission, Band Edge

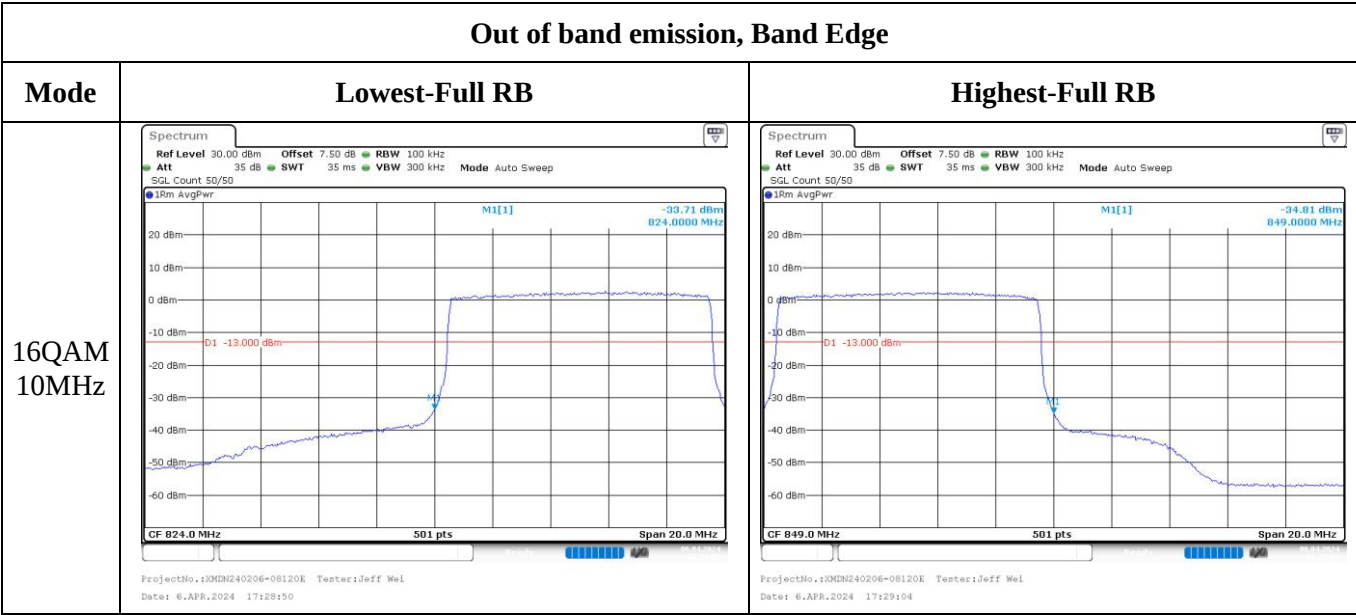


Out of band emission, Band Edge



Out of band emission, Band Edge





5.9 Antenna Port Test Data and Results for LTE Band 7

Serial Number:	2HPA-1	Test Date:	2024/4/1~2024/4/11
Test Site:	RF	Test Mode:	Transmitting
Tester:	Loge Long, Jeff Wei	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.1~26.9	Relative Humidity: (%)	49~72	ATM Pressure: (kPa)	100.2~101.1
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101461	2023/11/27	2024/11/26
Micro-Coax	Coaxial Cable	UFB205A	323308-024	2024/1/2	2025/1/1
Minl-Clrucits	Coaxial Power Splitters & Combiner	ZFRSC-183- S+	SF448201614	2024/2/25	2025/2/24
R&S	Wideband Radio Communication Tester	CMW500	110479	2023/10/18	2024/10/17
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30173	2023/10/18	2024/10/17
All-sun	Clamp Meter	EM305A	8348897	2023/8/3	2024/8/2
TDK-Lambda	DC Power Supply	Z+60-14	F-08-EM038- 1	N/A	N/A

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (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:**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	22.48	21.98	22.13	24.52	33
	RB1#13	22.67	22.54	22.07		
	RB1#24	22.5	22.27	22.12		
	RB15#0	21.82	21.35	21.17		
	RB15#10	21.76	21.39	21.28		
	RB25#0	21.64	21.35	21.17		
5MHz 16QAM	RB1#0	22.08	21.2	20.7	24.08	33
	RB1#13	22.23	21.29	20.78		
	RB1#24	21.76	20.85	21.23		
	RB15#0	20.47	20.43	19.51		
	RB15#10	20.43	20.41	19.51		
	RB25#0	20.44	20.39	20.15		
10MHz QPSK	RB1#0	22.84	21.77	22.22	24.82	33
	RB1#25	22.9	22.53	22.22		
	RB1#49	22.97	22.32	21.97		
	RB25#0	21.76	21.35	21.08		
	RB25#25	21.85	21.29	21.15		
	RB50#0	21.77	21.23	21.1		
10MHz 16QAM	RB1#0	22.22	21.33	21.56	24.47	33
	RB1#25	22.62	21.1	22.14		
	RB1#49	22.17	21.21	21.35		
	RB25#0	20.44	20.4	20.17		
	RB25#25	20.55	20.33	19.83		
	RB50#0	20.48	20.22	20.09		
15MHz QPSK	RB1#0	22.82	21.77	22.19	24.84	33
	RB1#38	22.99	22.45	22		
	RB1#74	22.82	22.27	21.86		
	RB36#0	21.61	21.17	21.04		
	RB36#39	21.68	21.19	21.04		
	RB75#0	21.59	21.2	21		
15MHz 16QAM	RB1#0	21.98	21.57	21.22	24.42	33
	RB1#38	22.57	22.08	21.28		
	RB1#74	21.95	21.63	20.37		
	RB36#0	20.33	19.86	19.89		
	RB36#39	20.39	19.99	19.84		
	RB75#0	20.24	20.05	19.88		
20MHz QPSK	RB1#0	20.89	19.85	20.92	24.73	33
	RB1#50	22.88	21.06	21.96		
	RB1#99	21.68	21.15	20.41		
	RB50#0	21.9	21.36	21.02		

20MHz 16QAM	RB50#50	21.66	21.16	21.01	24.29	33
	RB100#0	21.7	21.2	20.98		
	RB1#0	21.25	20.4	21.62		
	RB1#50	21.58	22.44	21.76		
	RB1#99	21.02	22.04	21.19		
	RB50#0	20.44	19.97	20		
	RB50#50	20.4	20.04	19.93		
	RB100#0	20.4	19.93	19.96		

Note:

EIRP=Conducted Power(dBm) - L_c(dB) + G_T(dBi)The result was calculated with the maximum combination of G_T - L_c**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	4.78	4.9	4.75	13
	RB100#0	3.97	4.17	4.03	13
20MHz 16QAM	RB1#0	5.54	5.74	5.22	13
	RB100#0	5.77	5.88	5.83	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	4.531	4.511	5	5.02	5
5MHz 16QAM	4.491	4.511	4.531	4.98	4.98	5.02
10MHz QPSK	8.942	8.942	8.942	9.8	9.76	9.72
10MHz 16QAM	8.942	8.942	8.942	9.72	9.72	9.68
15MHz QPSK	13.413	13.473	13.473	14.76	14.88	14.88
15MHz 16QAM	13.473	13.533	13.473	14.76	14.88	14.76
20MHz QPSK	17.884	17.884	17.884	19.36	19.76	19.36
20MHz 16QAM	17.884	17.964	17.964	19.52	19.36	19.44

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

Spurious Emissions at Antenna Terminal

Result:	Pass, Test was performed at RB1#0, please refer to the test plots of Spurious Emissions at Antenna Terminal.
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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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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	7.7	2501.135	2500.00	2568.936	2570
	-20	7.7	2501.135	2500.00	2568.918	2570
	-10	7.7	2501.126	2500.00	2568.939	2570
	0	7.7	2501.132	2500.00	2568.918	2570
	10	7.7	2501.111	2500.00	2568.921	2570
	20	7.7	2501.138	2500.00	2568.942	2570
	30	7.7	2501.159	2500.00	2568.945	2570
	40	7.7	2501.156	2500.00	2568.966	2570
	50	7.7	2501.144	2500.00	2568.963	2570
Frequency Stability vs. Voltage	20	6.8	2501.141	2500.00	2568.963	2570
	20	8.8	2501.156	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	7.7	2501.111	2500.00	2569.007	2570
	-20	7.7	2501.111	2500.00	2569.019	2570
	-10	7.7	2501.123	2500.00	2568.995	2570
	0	7.7	2501.123	2500.00	2568.995	2570
	10	7.7	2501.114	2500.00	2569.004	2570
	20	7.7	2501.138	2500.00	2569.022	2570
	30	7.7	2501.165	2500.00	2569.046	2570
	40	7.7	2501.144	2500.00	2569.040	2570
	50	7.7	2501.162	2500.00	2569.040	2570
Frequency Stability vs. Voltage	20	6.8	2501.162	2500.00	2569.037	2570
	20	8.8	2501.147	2500.00	2569.037	2570
					Result:	Pass

Test Plots:

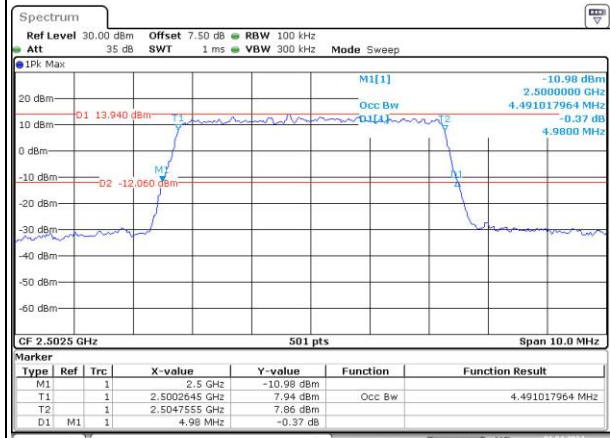
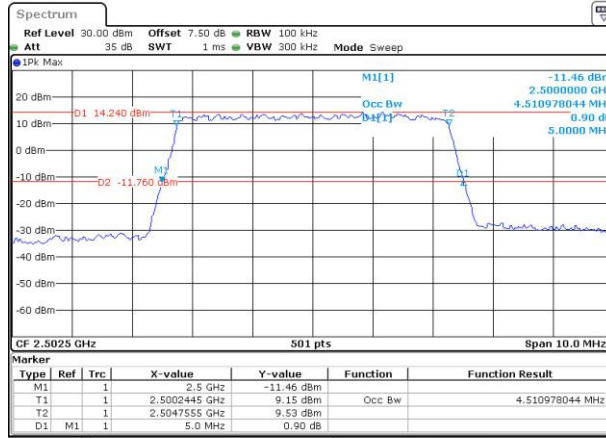
Occupied Bandwidth

Channel

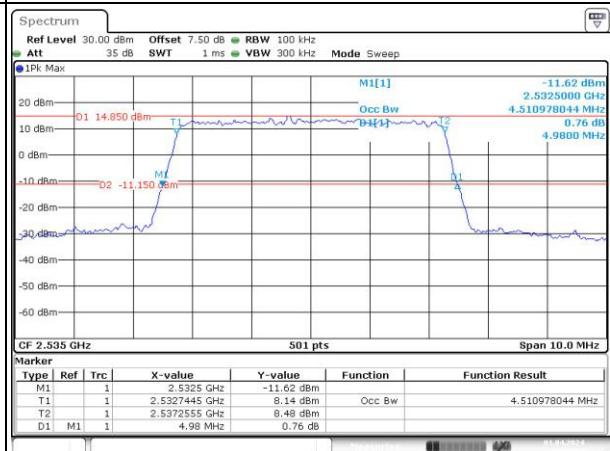
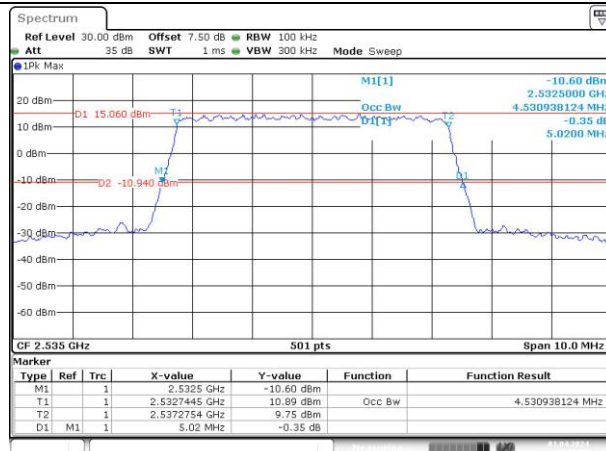
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

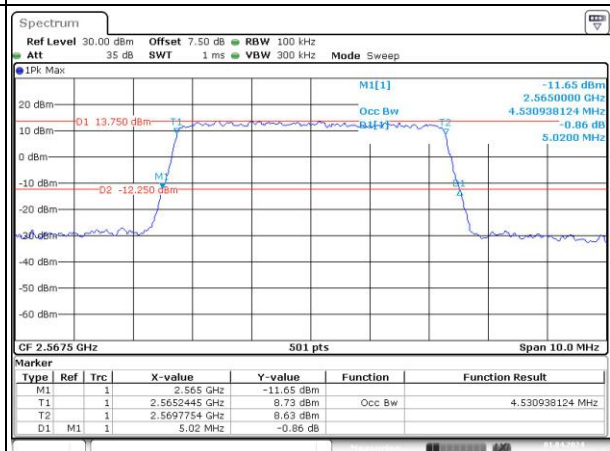
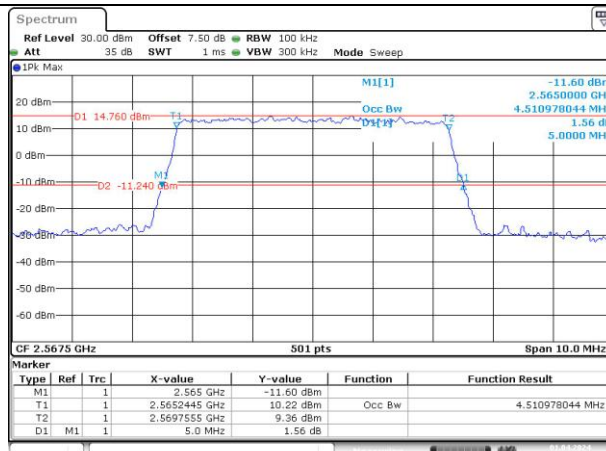
Lowest



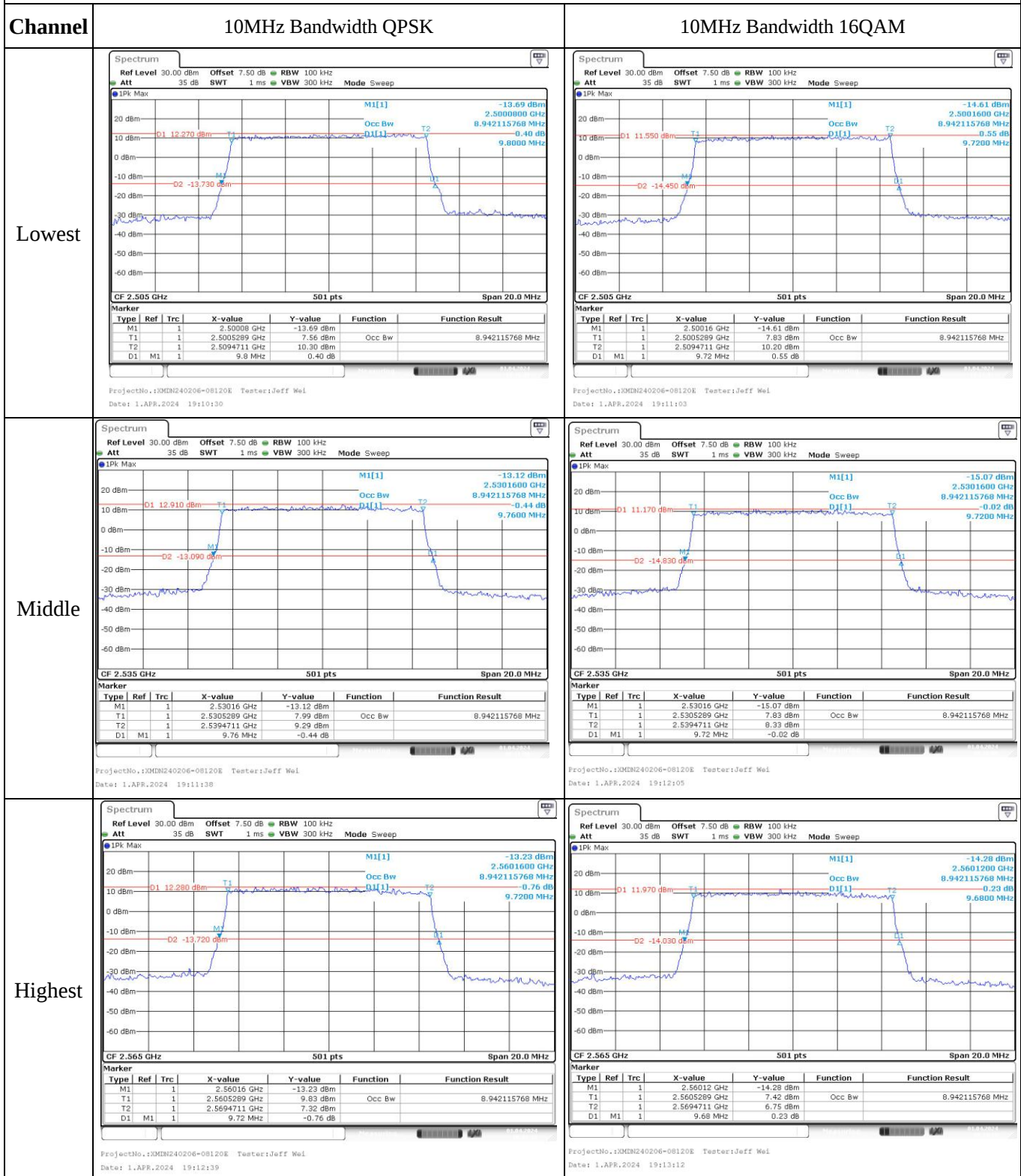
Middle



Highest



Occupied Bandwidth



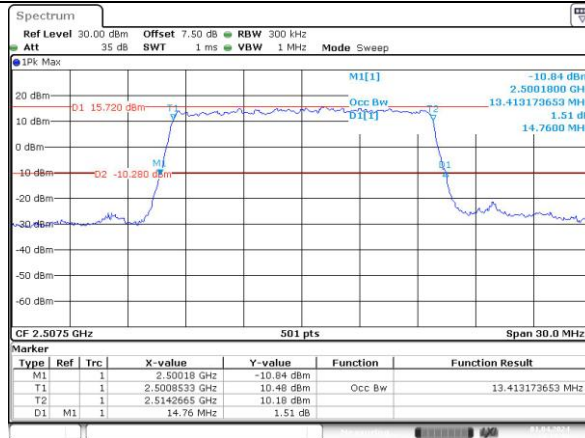
Occupied Bandwidth

Channel

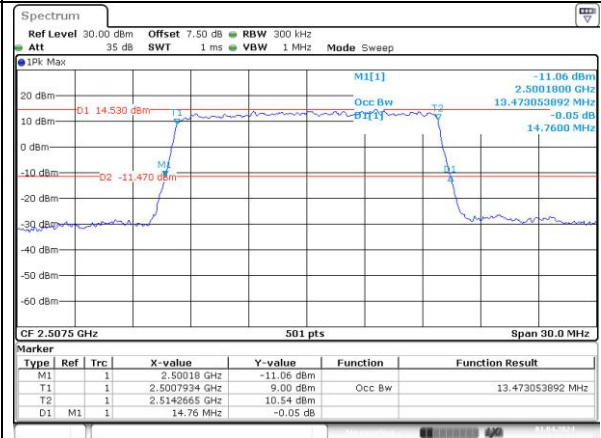
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

Lowest

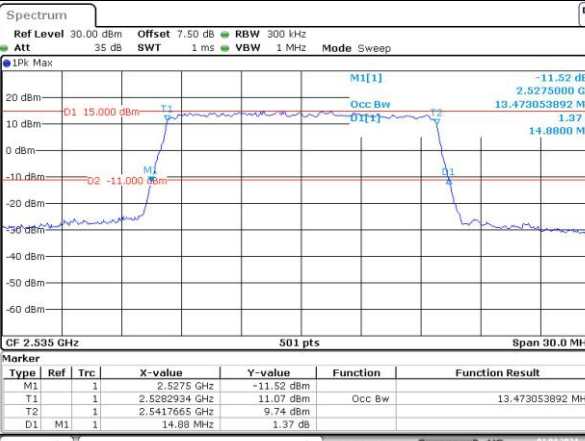


ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 1.APR.2024 19:15:01

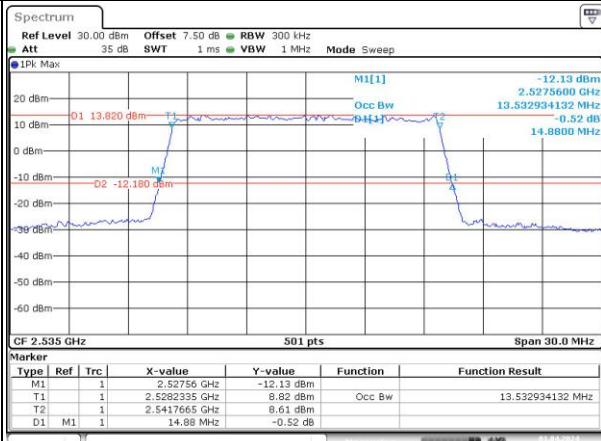


ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 1.APR.2024 19:15:12

Middle

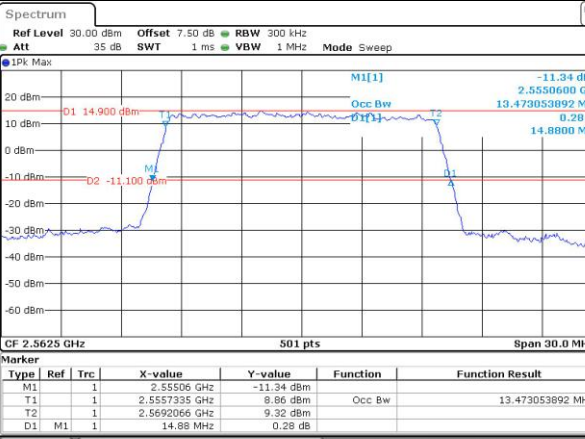


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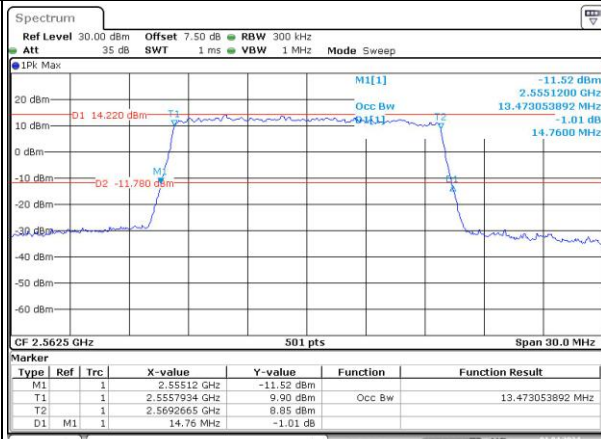


ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 1.APR.2024 19:16:16

Highest



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 1.APR.2024 19:17:22



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 1.APR.2024 19:17:57

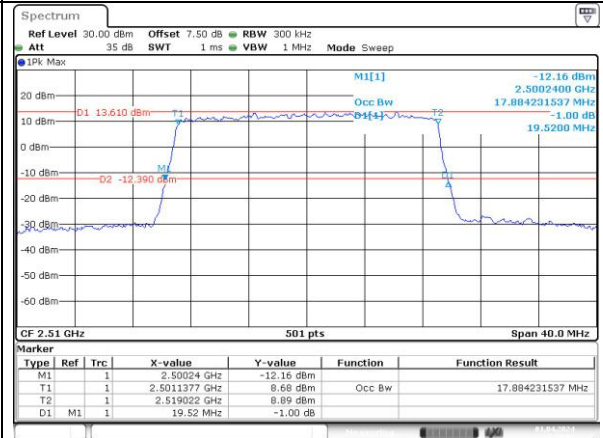
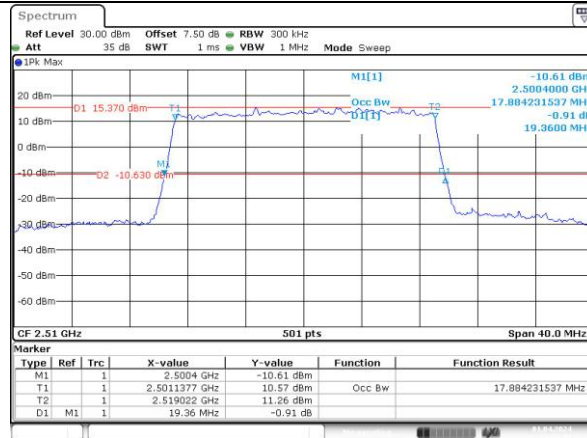
Occupied Bandwidth

Channel

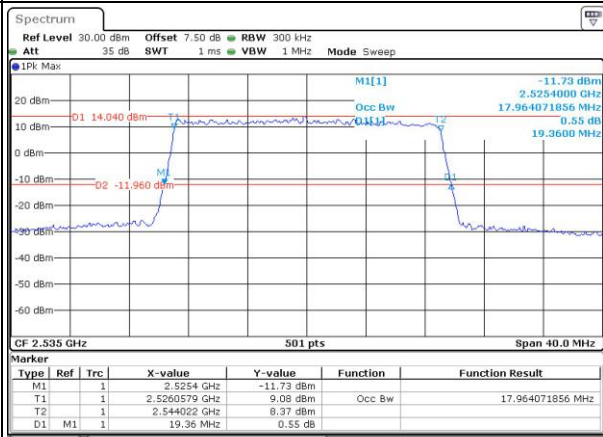
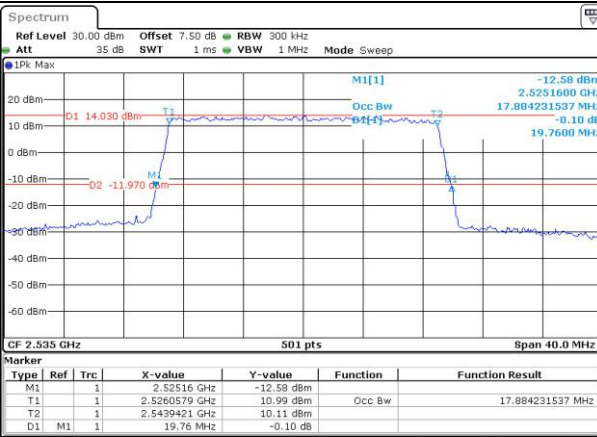
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

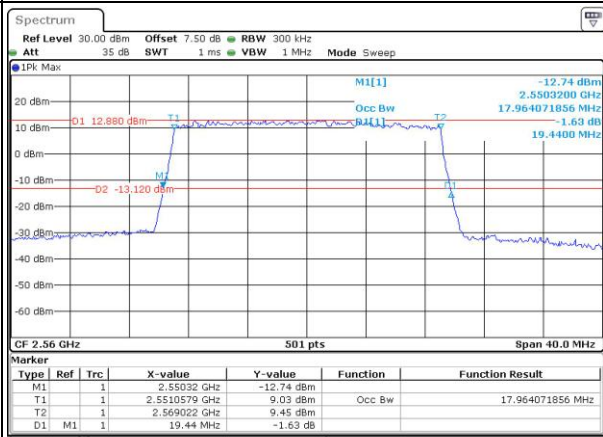
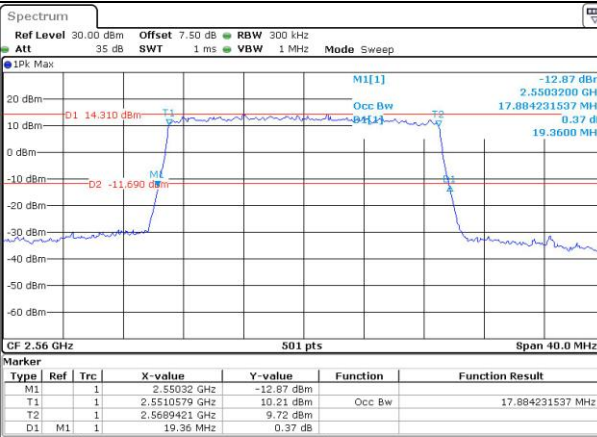
Lowest



Middle



Highest

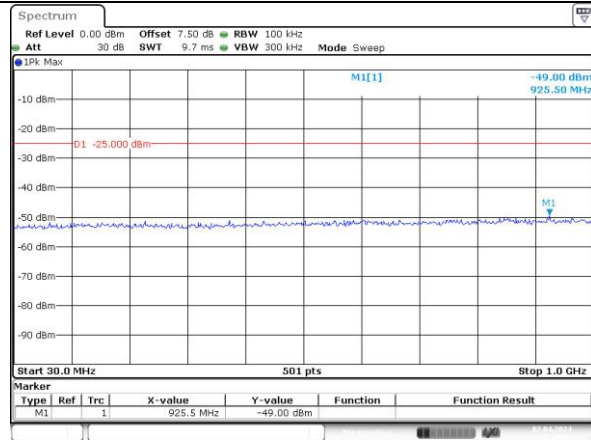


Spurious Emissions at Antenna Terminal

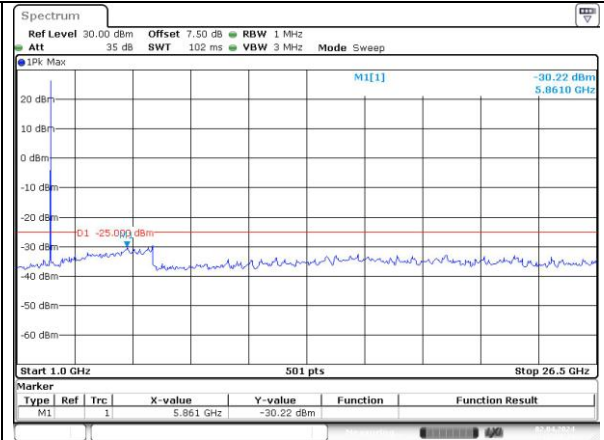
Channel

5MHz Bandwidth QPSK

Lowest

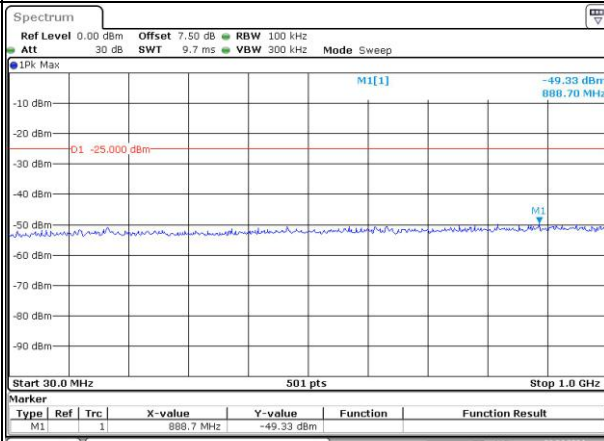


ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 18:24:09

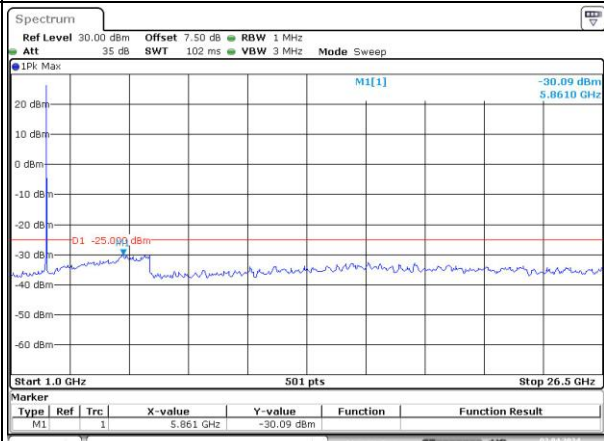


ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 18:24:24

Middle

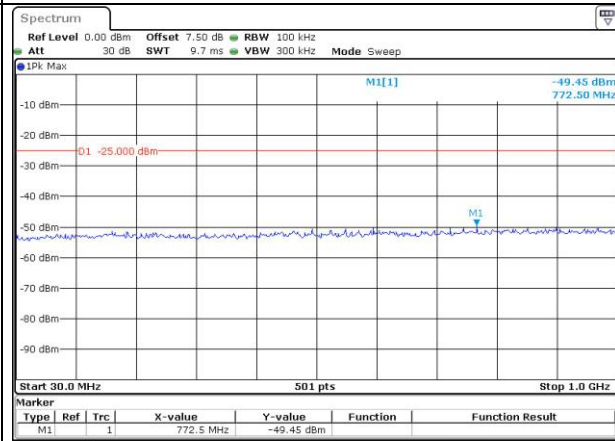


ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 18:24:53

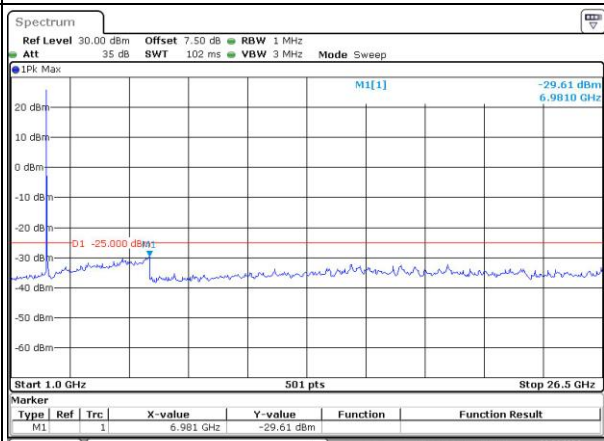


ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 18:25:22

Highest



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 18:25:49



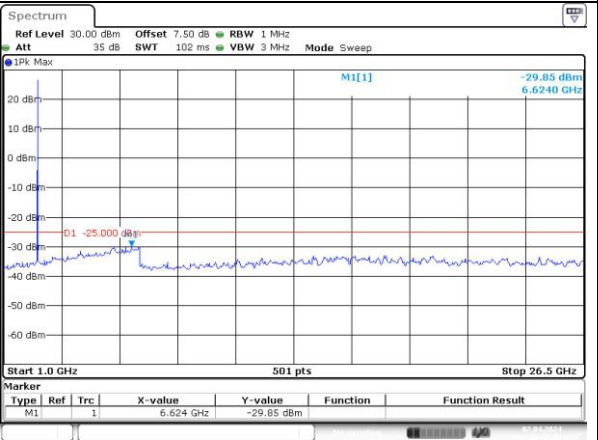
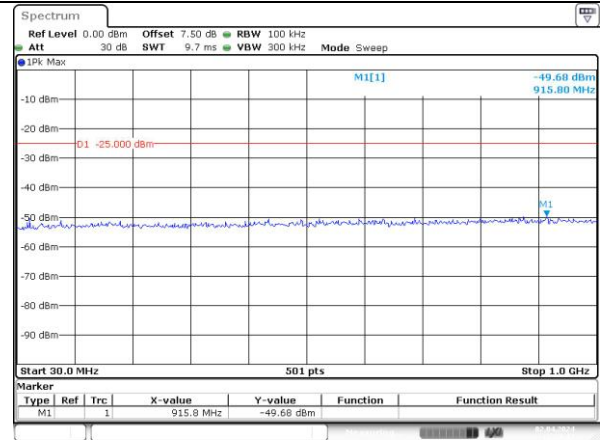
ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 18:26:04

Spurious Emissions at Antenna Terminal

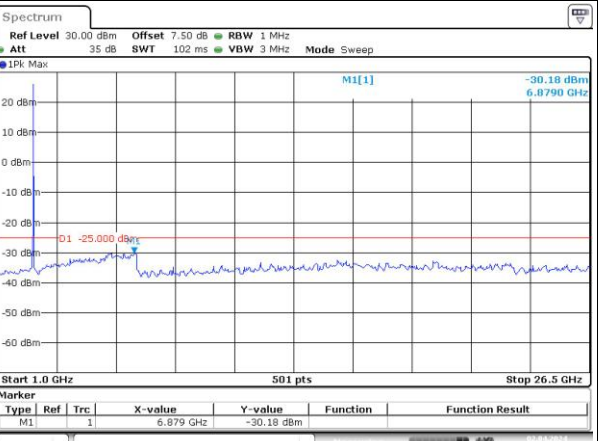
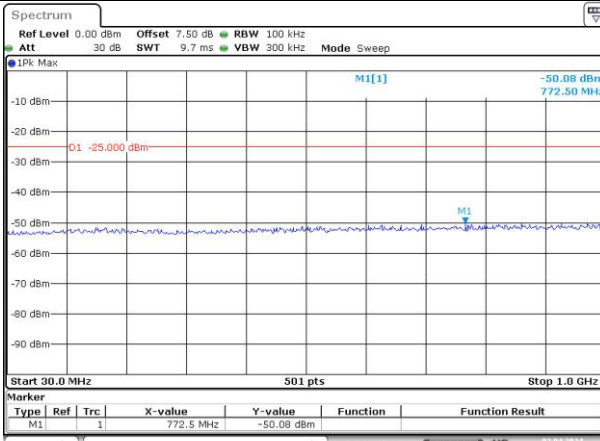
Channel

10MHz Bandwidth QPSK

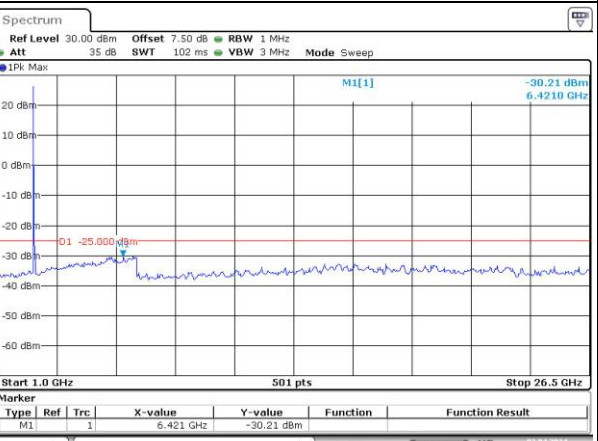
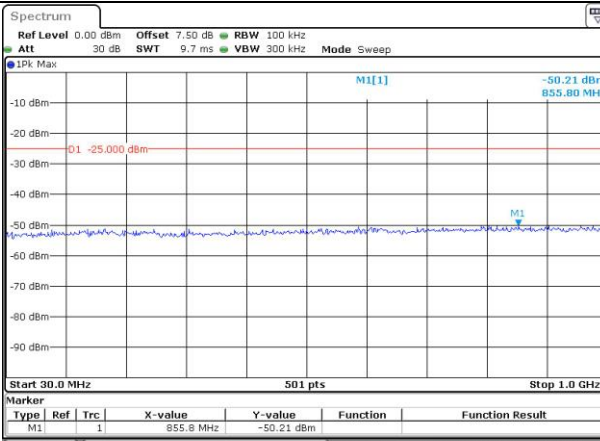
Lowest



Middle



Highest

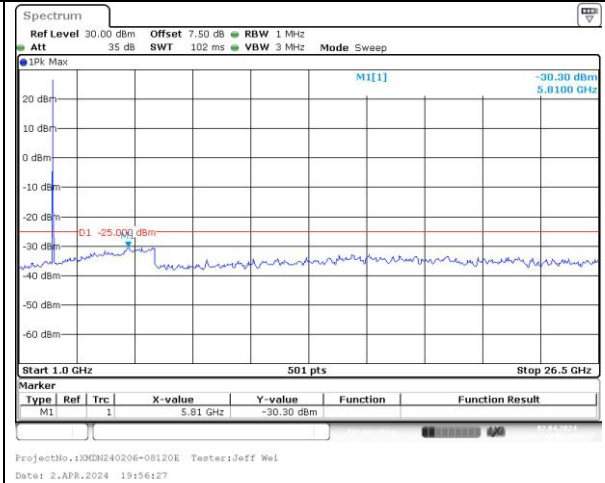
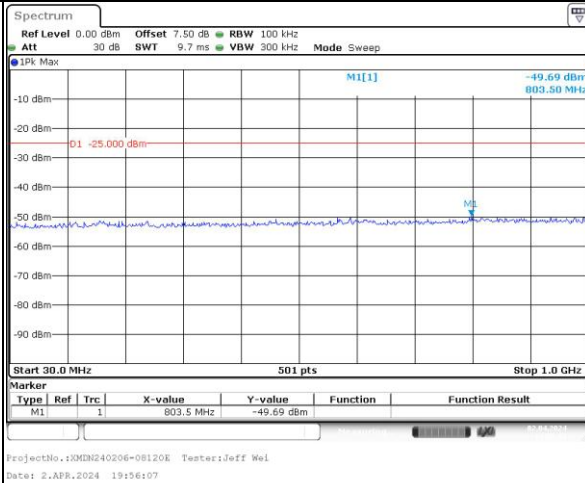


Spurious Emissions at Antenna Terminal

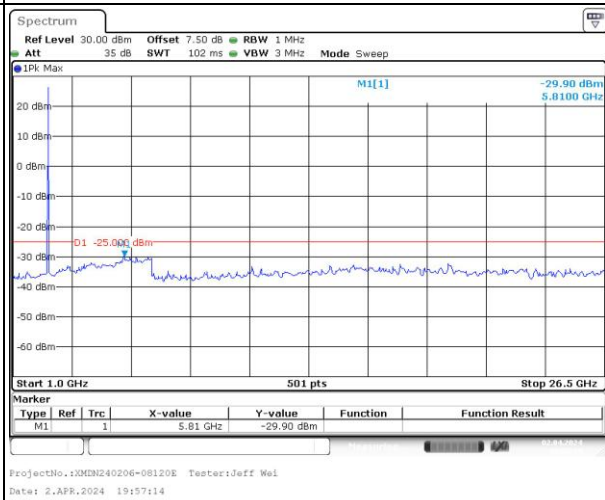
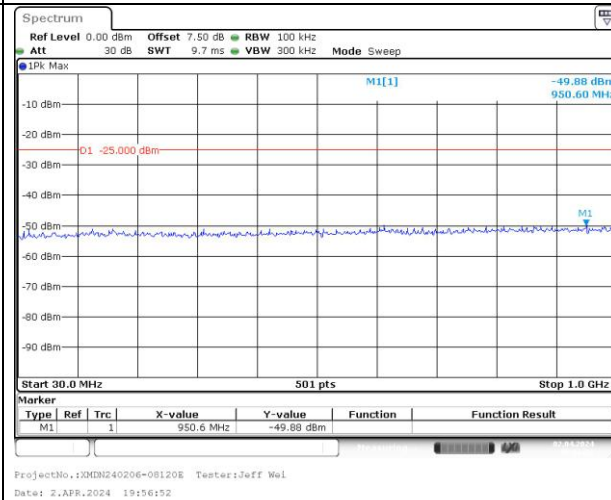
Channel

15MHz Bandwidth QPSK

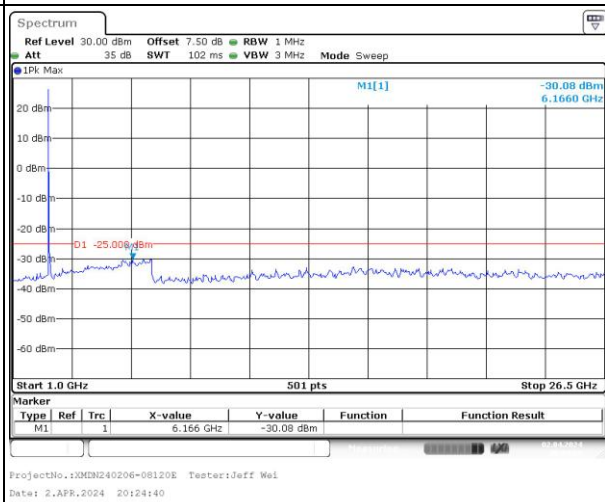
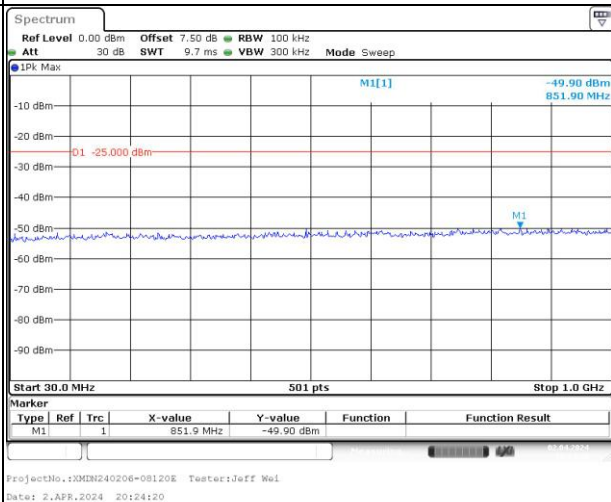
Lowest



Middle



Highest

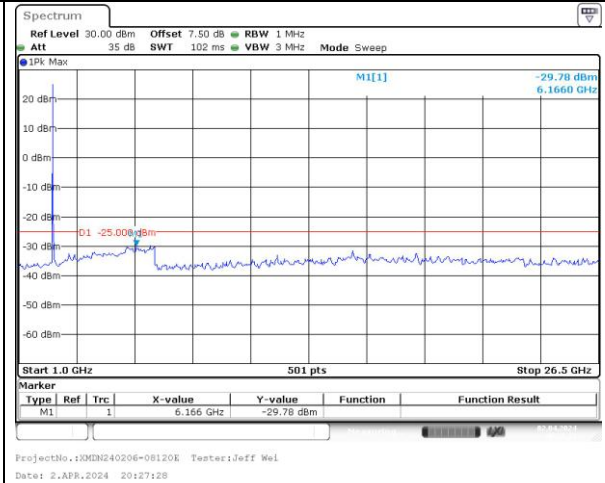
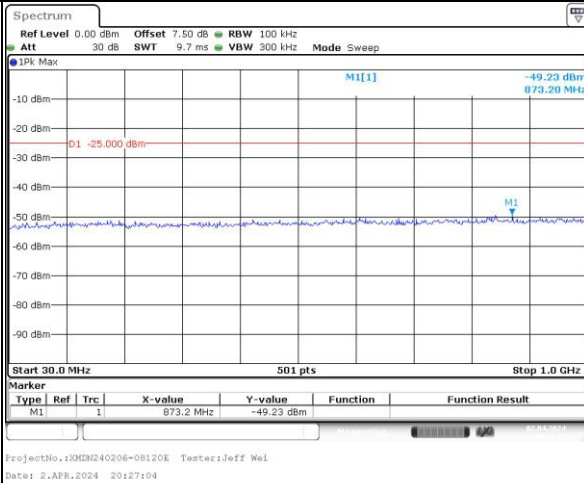


Spurious Emissions at Antenna Terminal

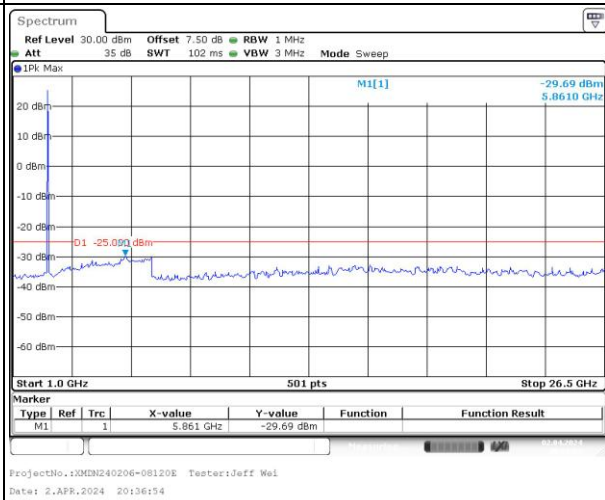
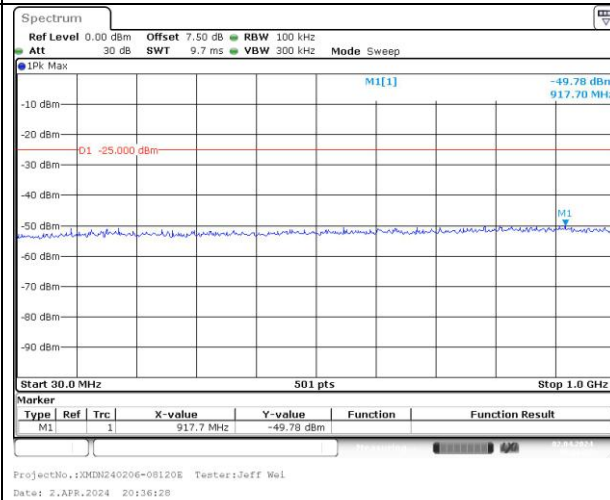
Channel

20MHz Bandwidth QPSK

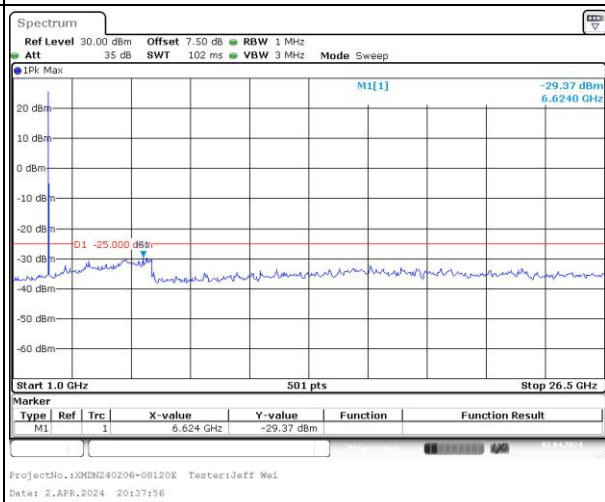
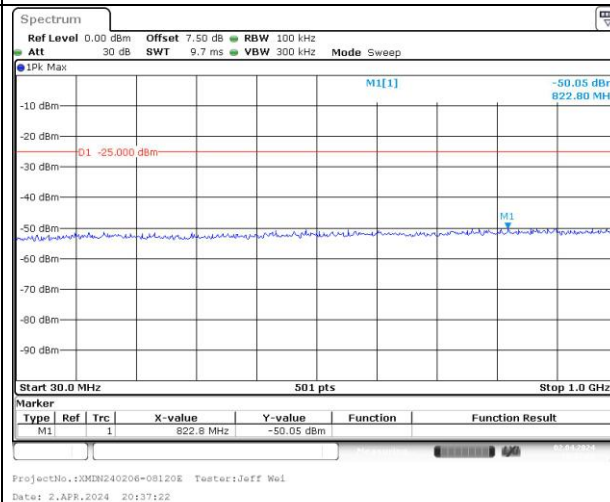
Lowest



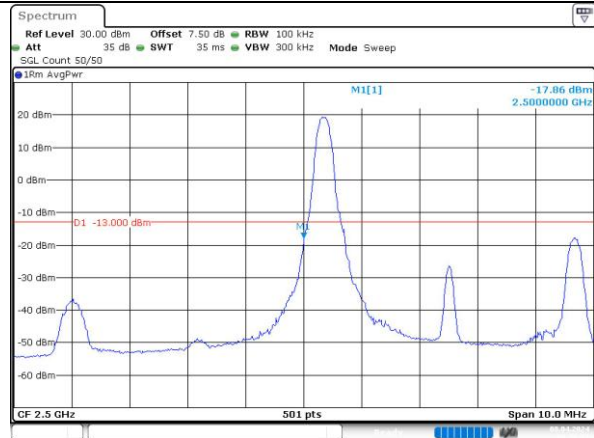
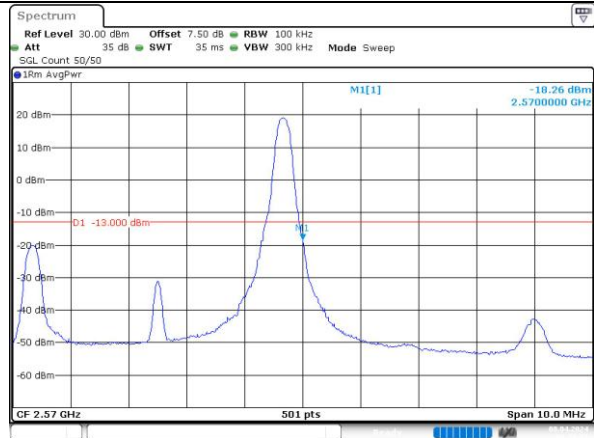
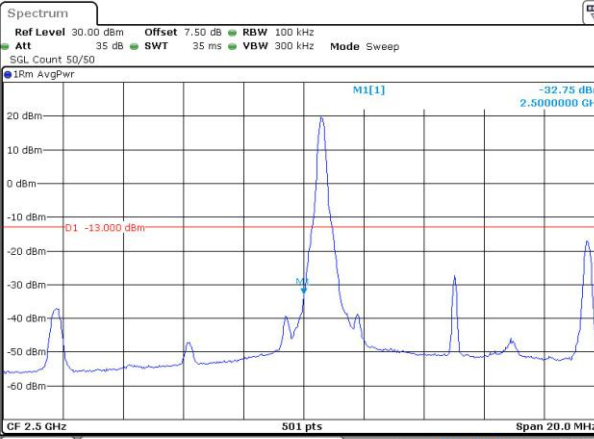
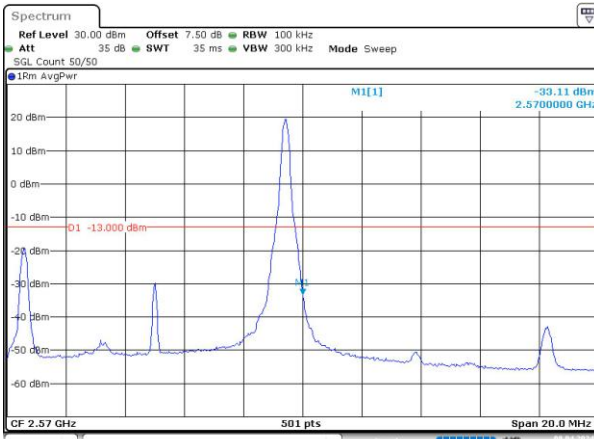
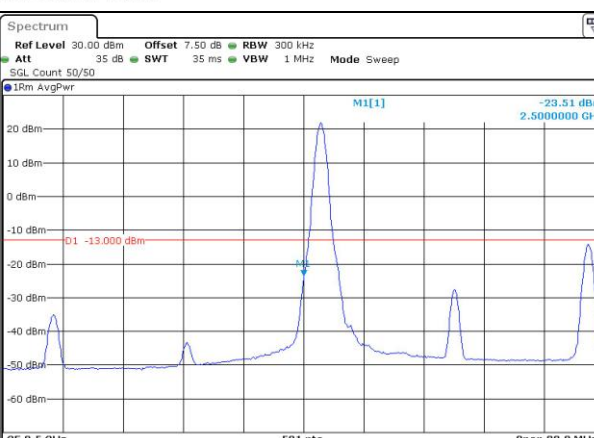
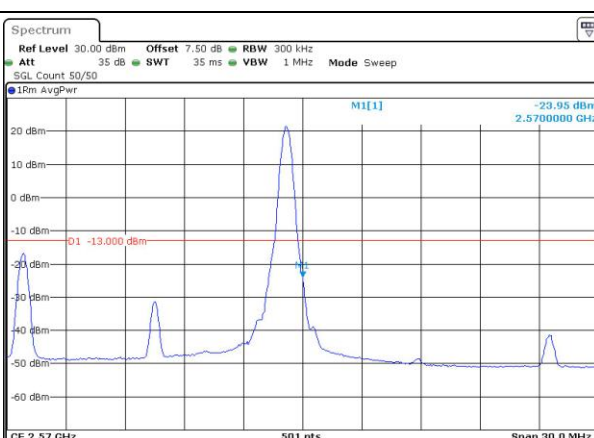
Middle



Highest



Out of band emission, Band Edge

Mode	Lowest-RB 1#0	Highest-RB 1#Max
QPSK 5MHz	 ProjectNo.: XMDN240206-08120E Tester: Jeff Wei Date: 8.APR.2024 09:56:53	 ProjectNo.: XMDN240206-08120E Tester: Jeff Wei Date: 8.APR.2024 09:58:01
QPSK 10MHz	 ProjectNo.: XMDN240206-08120E Tester: Jeff Wei Date: 8.APR.2024 09:59:11	 ProjectNo.: XMDN240206-08120E Tester: Jeff Wei Date: 8.APR.2024 10:00:12
QPSK 15MHz	 ProjectNo.: XMDN240206-08120E Tester: Jeff Wei Date: 8.APR.2024 10:01:23	 ProjectNo.: XMDN240206-08120E Tester: Jeff Wei Date: 8.APR.2024 10:02:20

