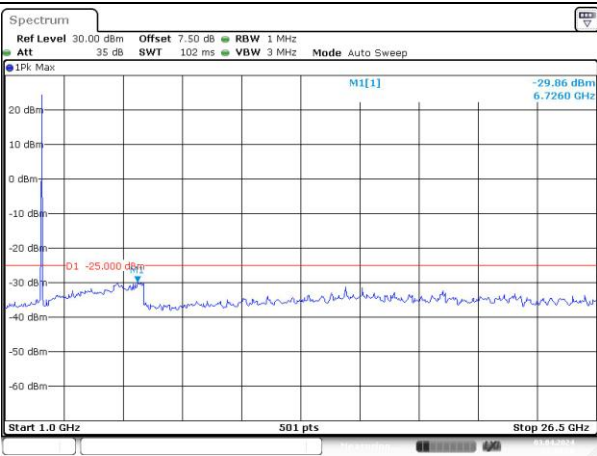
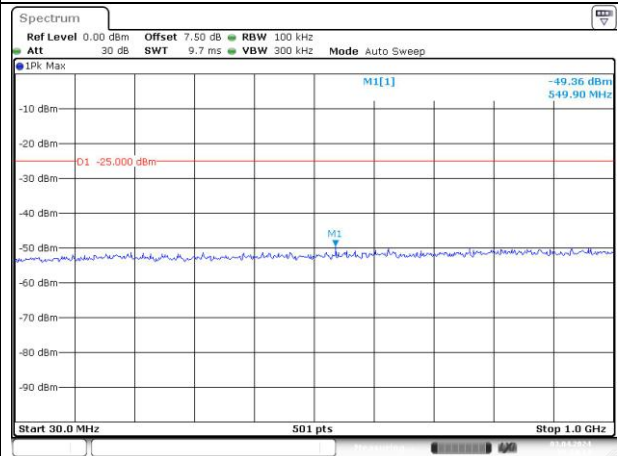


Spurious Emissions at Antenna Terminal

Channel

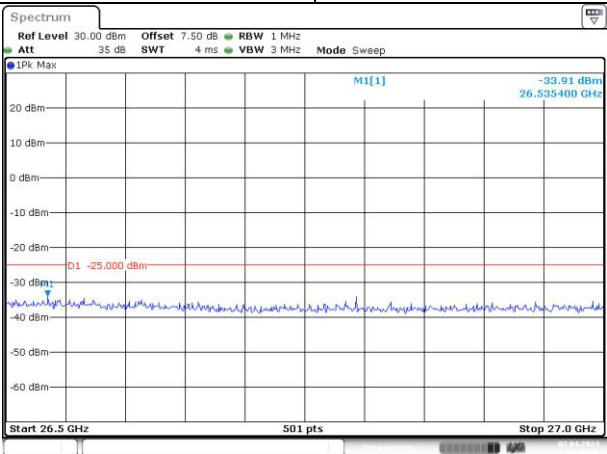
5MHz Bandwidth QPSK

Middle



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:34:14

ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:34:50



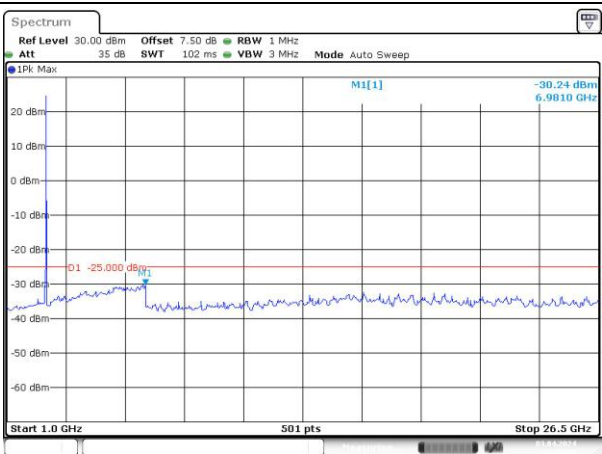
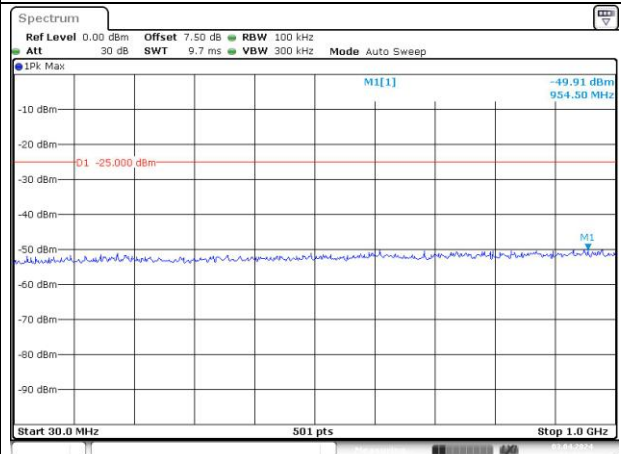
ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 10:46:45

Spurious Emissions at Antenna Terminal

Channel

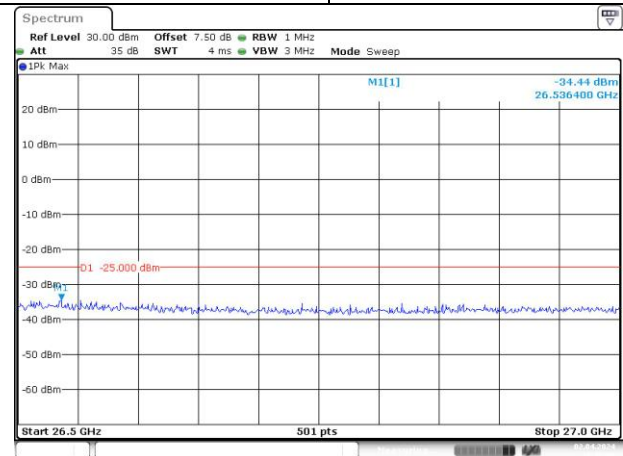
5MHz Bandwidth QPSK

Highest



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:35:17

ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:35:19



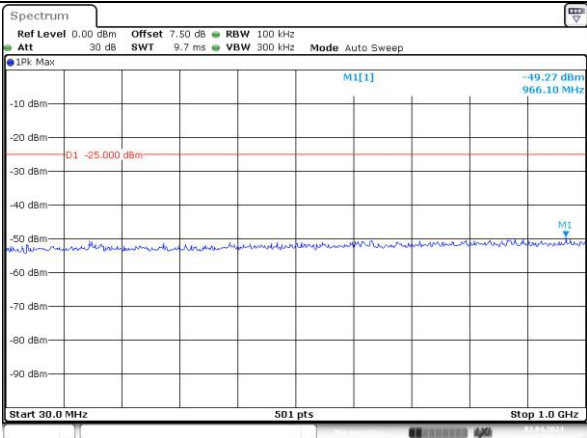
ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 10:46:56

Spurious Emissions at Antenna Terminal

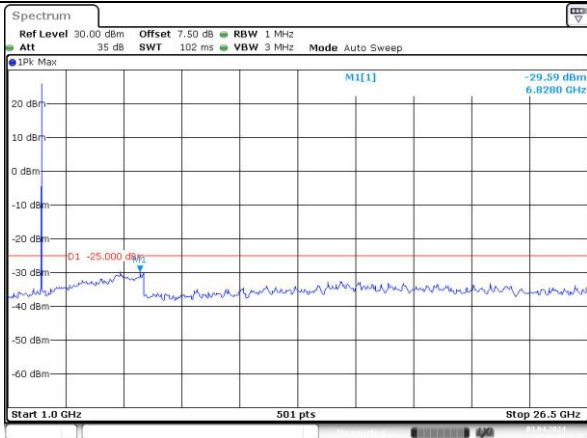
Channel

10MHz Bandwidth QPSK

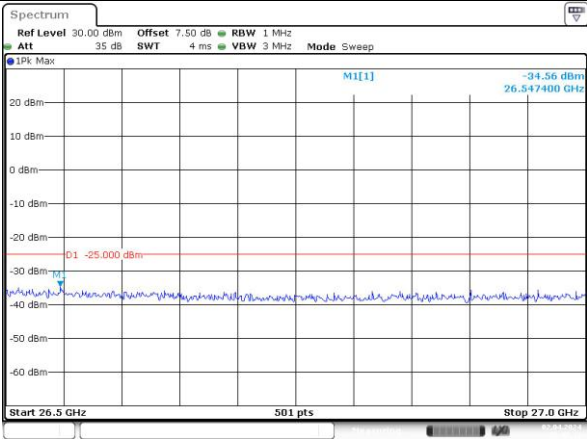
Lowest



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:36:46



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:37:08



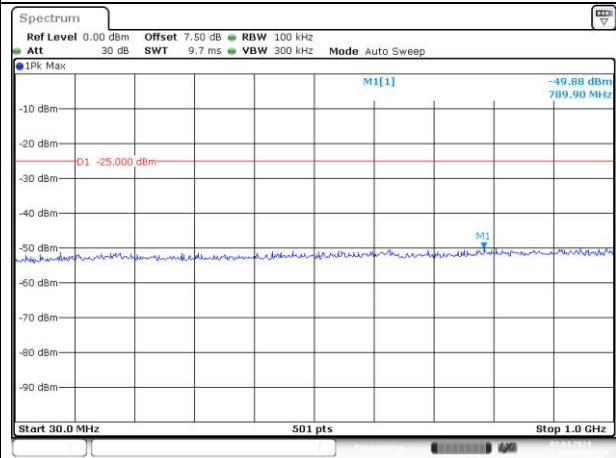
ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 10:47:11

Spurious Emissions at Antenna Terminal

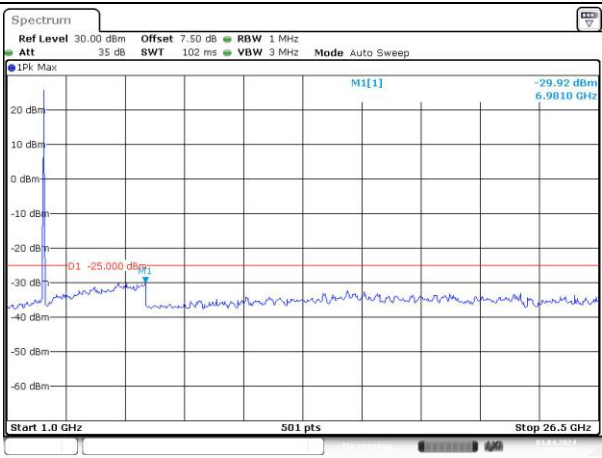
Channel

10MHz Bandwidth QPSK

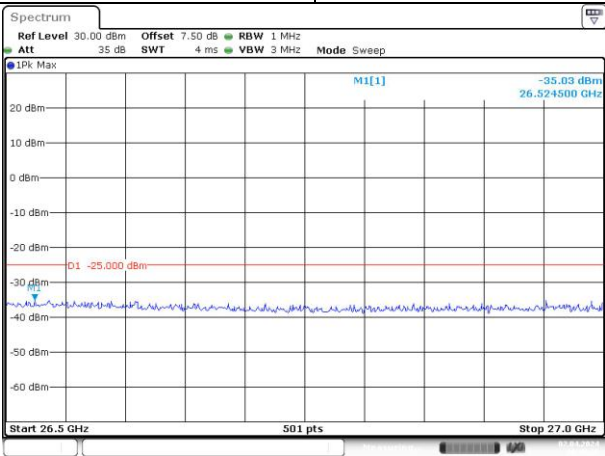
Middle



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:37:38



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:38:07



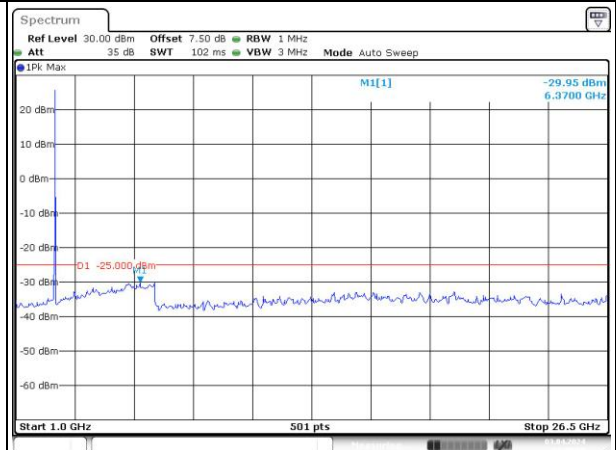
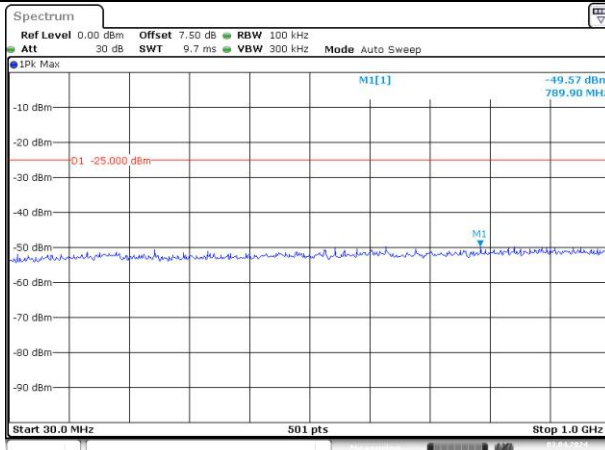
ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 10:47:20

Spurious Emissions at Antenna Terminal

Channel

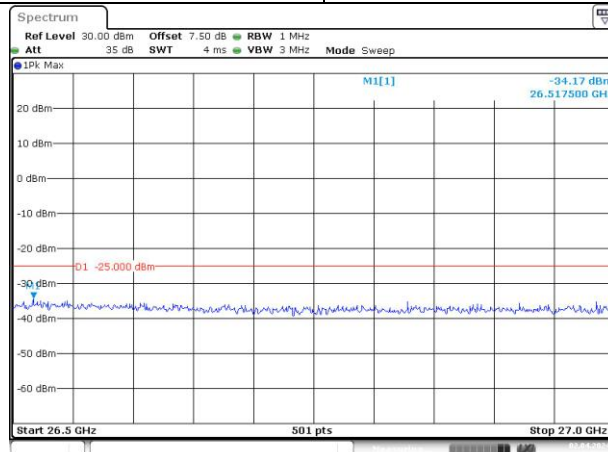
10MHz Bandwidth QPSK

Highest



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:38:37

ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:39:00



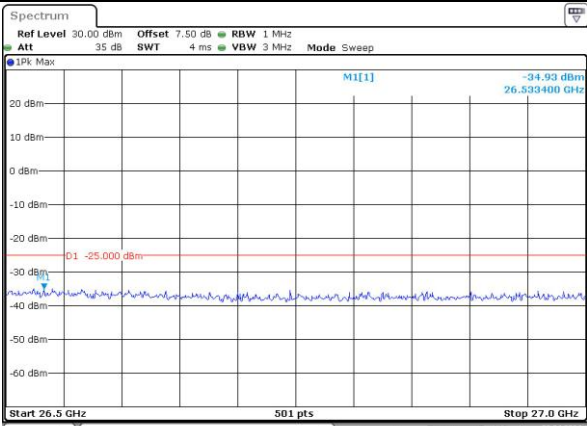
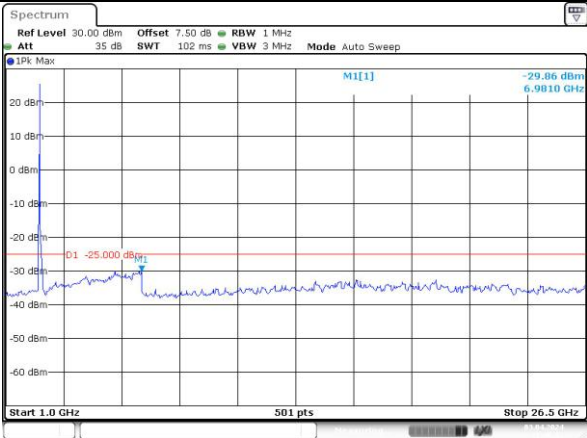
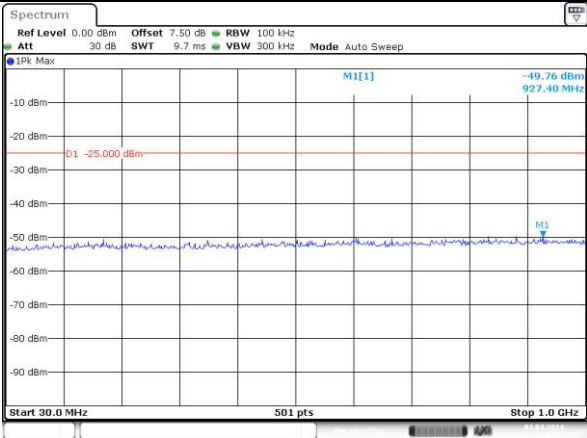
ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 10:47:29

Spurious Emissions at Antenna Terminal

Channel

15MHz Bandwidth QPSK

Lowest

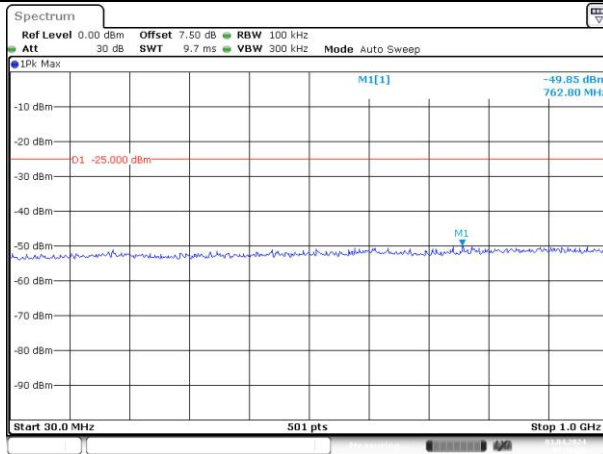


Spurious Emissions at Antenna Terminal

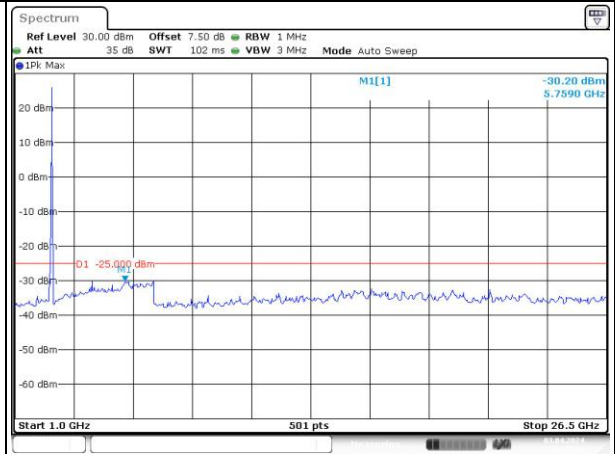
Channel

15MHz Bandwidth QPSK

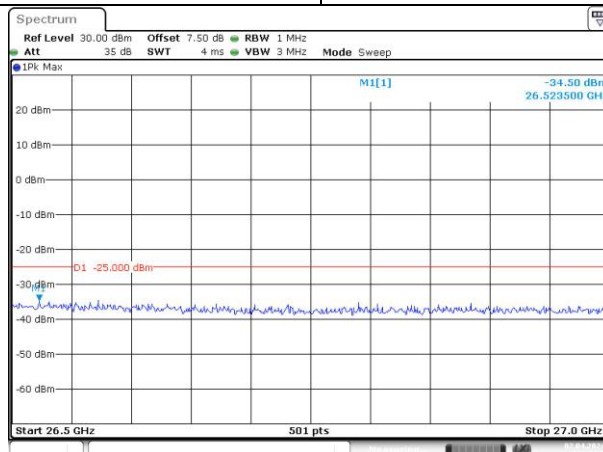
Middle



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:41:29



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:41:54



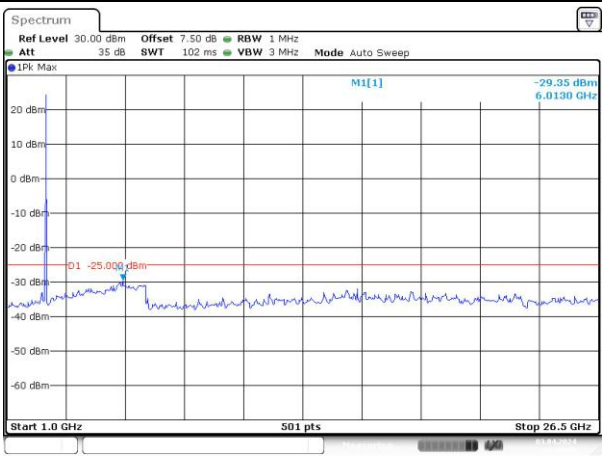
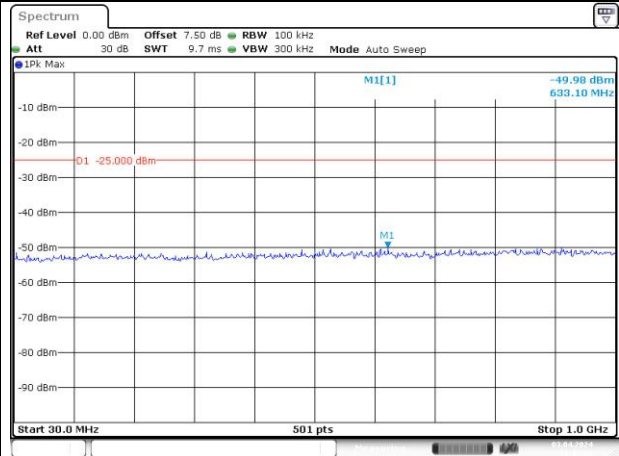
ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 10:47:47

Spurious Emissions at Antenna Terminal

Channel

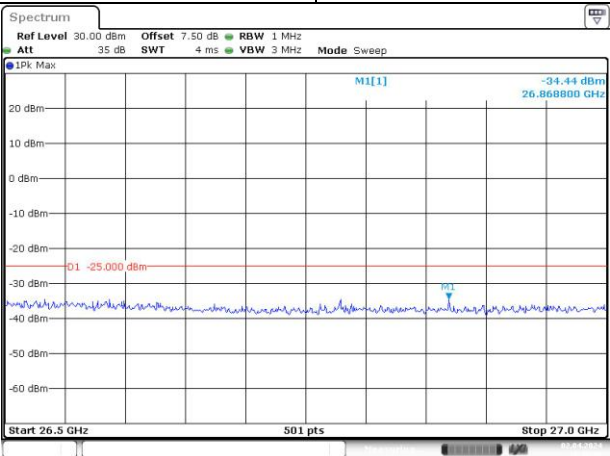
15MHz Bandwidth QPSK

Highest



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:42:27

ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:42:49



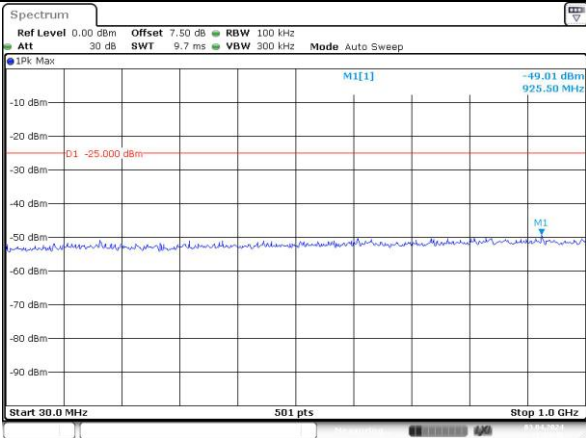
ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 10:47:57

Spurious Emissions at Antenna Terminal

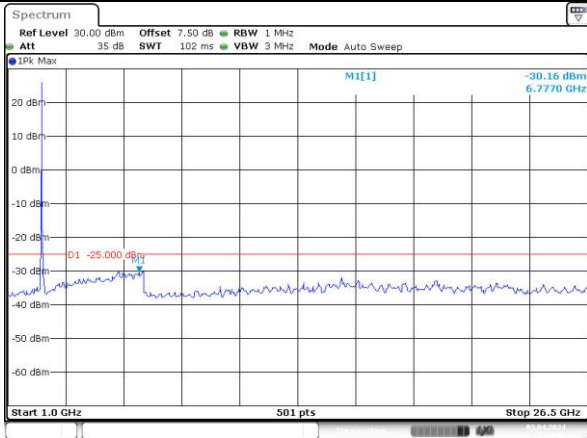
Channel

20MHz Bandwidth QPSK

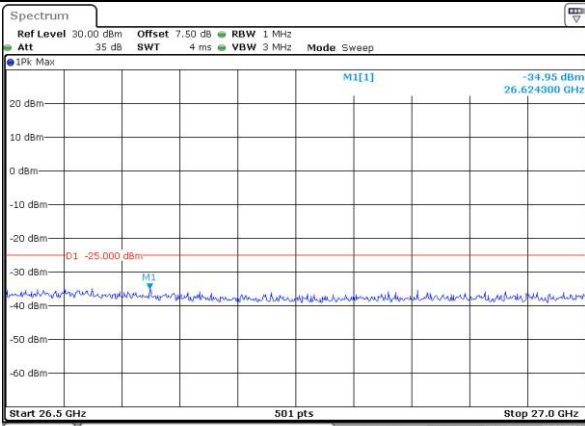
Lowest



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:53:45



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:54:07



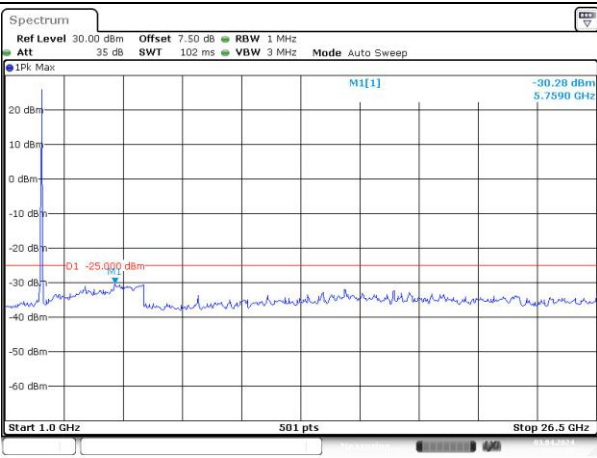
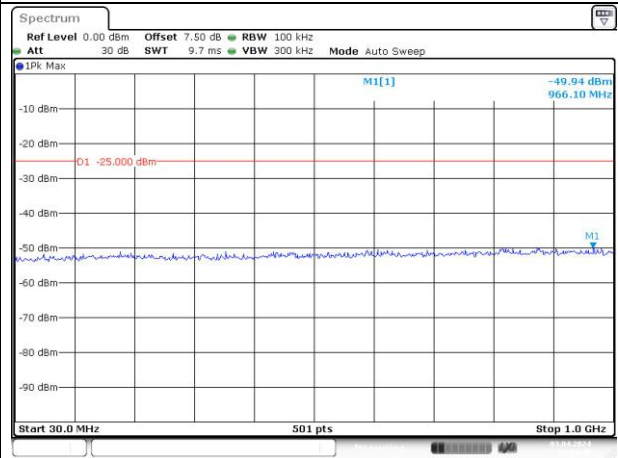
ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 10:48:07

Spurious Emissions at Antenna Terminal

Channel

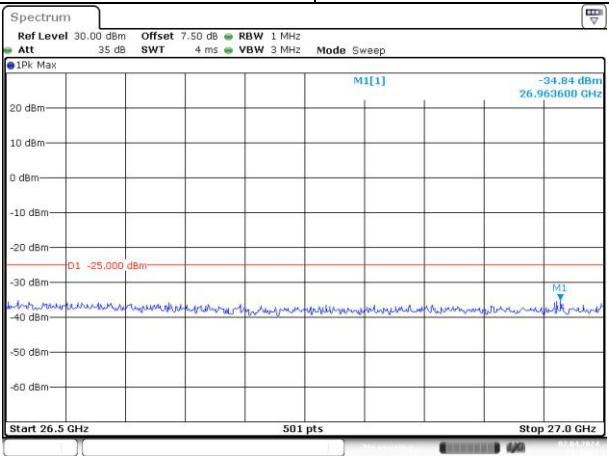
20MHz Bandwidth QPSK

Middle



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:54:45

ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:55:08



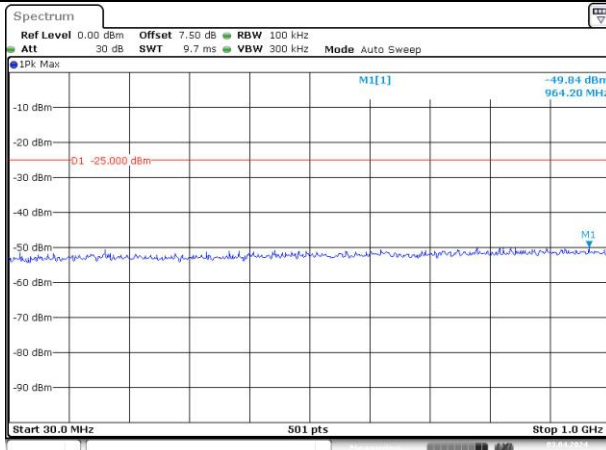
ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 10:48:22

Spurious Emissions at Antenna Terminal

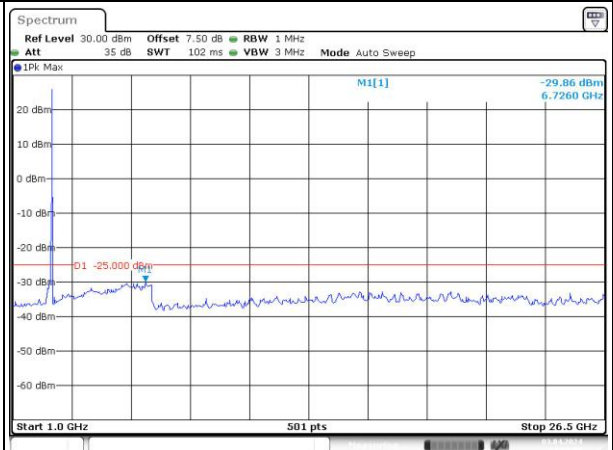
Channel

20MHz Bandwidth QPSK

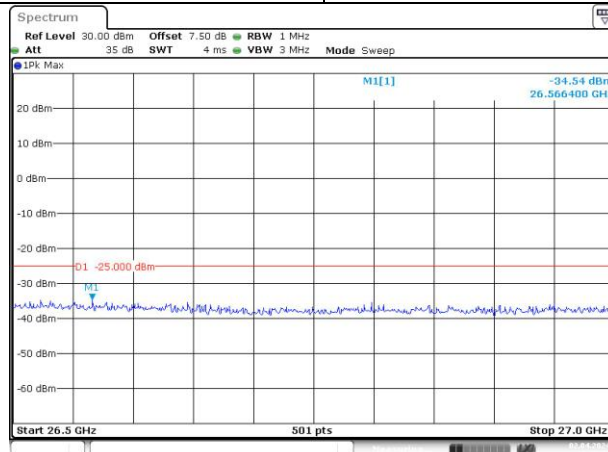
Highest



ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:55:40

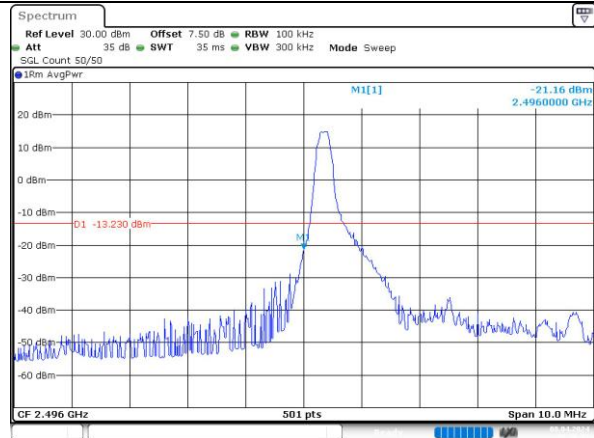
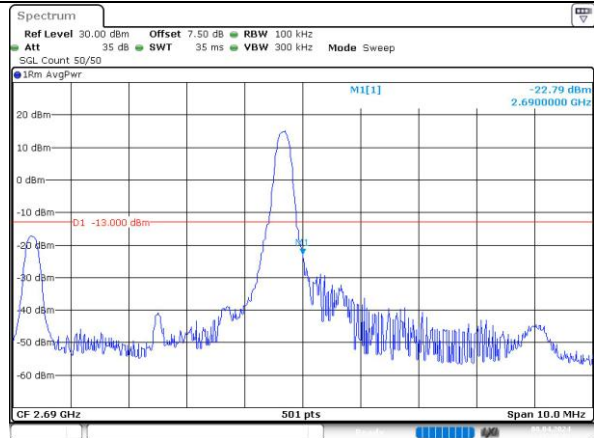
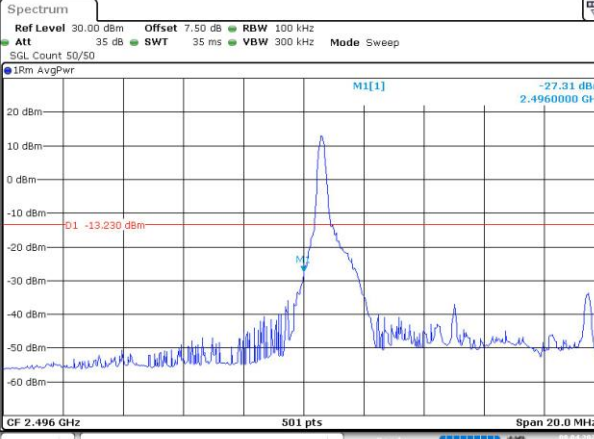
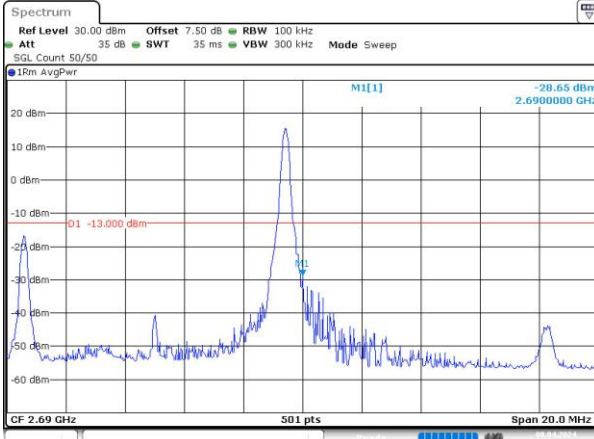
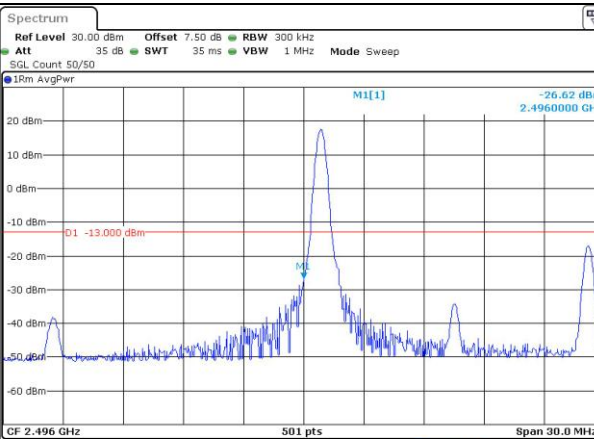
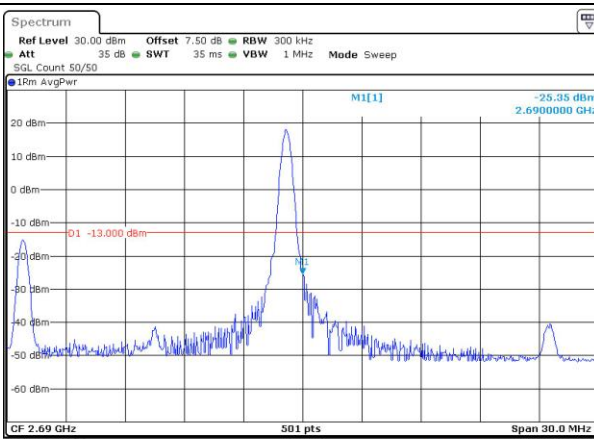


ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 3.APR.2024 21:56:06

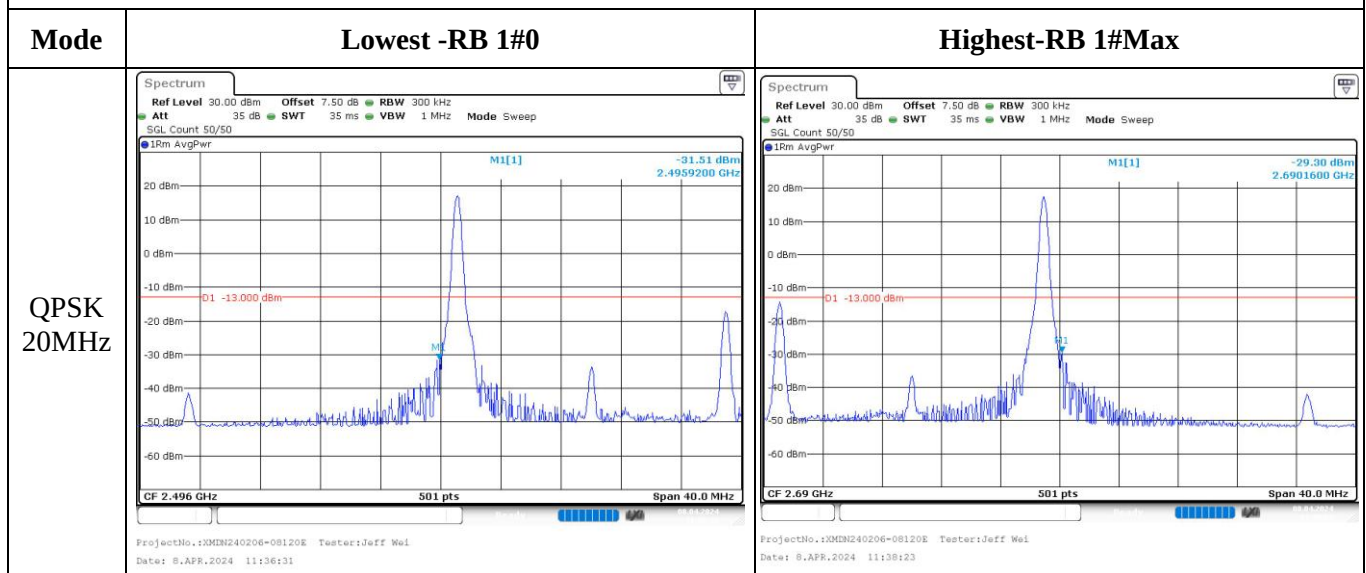


ProjectNo.:XMDN240206-08120E Tester:Jeff Wei
Date: 2.APR.2024 10:48:41

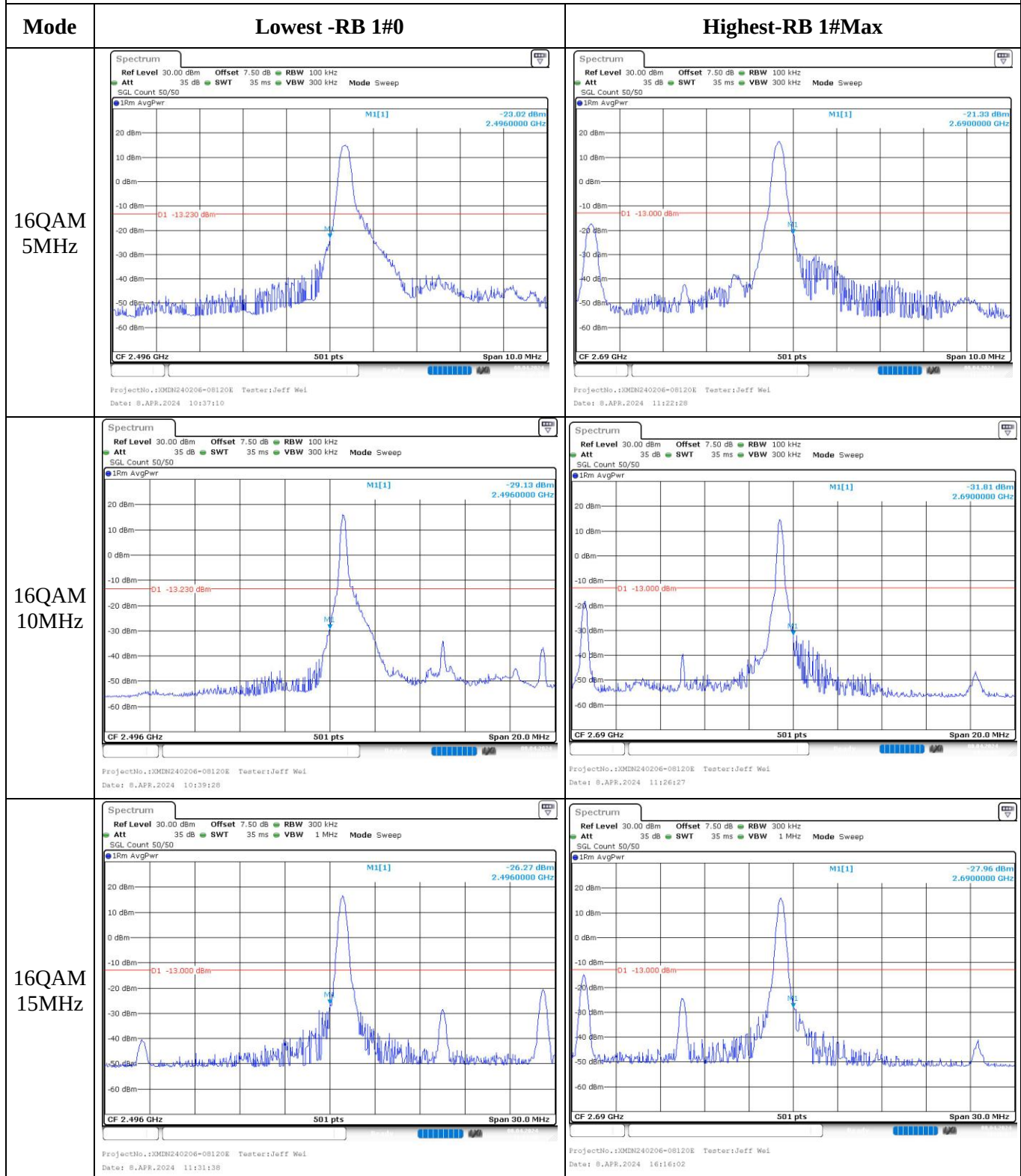
Out of band emission, Band Edge

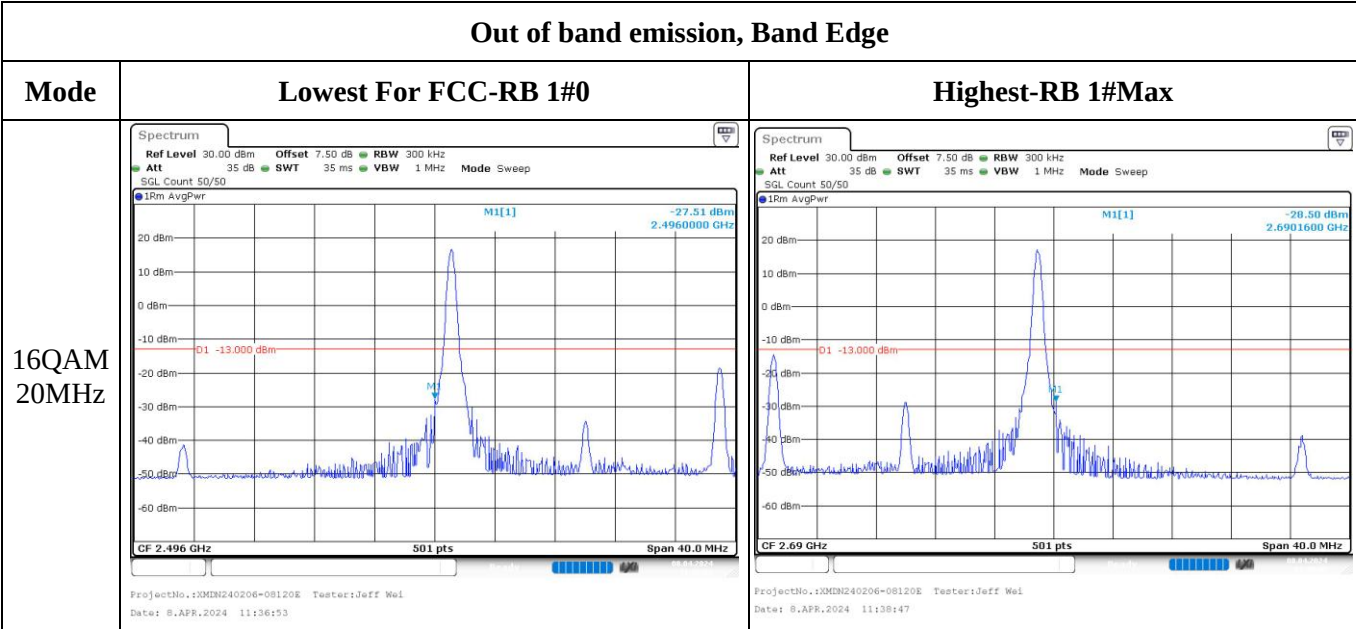
Mode	Lowest -RB 1#0	Highest-RB 1#Max
QPSK 5MHz	 Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr MI[1] -21.16 dBm 2.496000 GHz D1 -13.230 dBm CF 2.496 GHz 501 pts Span 10.0 MHz ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 10:36:39	 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 MI[1] -22.79 dBm 2.690000 GHz D1 -13.000 dBm CF 2.69 GHz 501 pts Span 10.0 MHz ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 11:20:52
QPSK 10MHz	 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 MI[1] -27.31 dBm 2.496000 GHz D1 -13.230 dBm CF 2.496 GHz 501 pts Span 20.0 MHz ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 10:39:07	 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 MI[1] -29.65 dBm 2.690000 GHz D1 -13.000 dBm CF 2.69 GHz 501 pts Span 20.0 MHz ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 11:20:53
QPSK 15MHz	 Ref Level 30.00 dBm Offset 7.50 dB RBW 300 kHz Att 35 dB SWT 35 ms VBW 1 MHz Mode Sweep SQL Count 50/50 1Rm AvgPwr MI[1] -26.62 dBm 2.496000 GHz D1 -13.000 dBm CF 2.496 GHz 501 pts Span 30.0 MHz ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 11:26:50	 Ref Level 30.00 dBm Offset 7.50 dB RBW 300 kHz Att 35 dB SWT 35 ms VBW 1 MHz Mode Sweep SQL Count 50/50 1Rm AvgPwr MI[1] -25.35 dBm 2.690000 GHz D1 -13.000 dBm CF 2.69 GHz 501 pts Span 30.0 MHz ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 11:32:03

Out of band emission, Band Edge

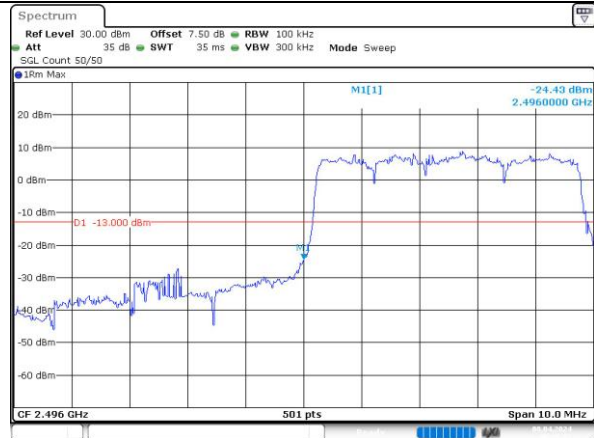
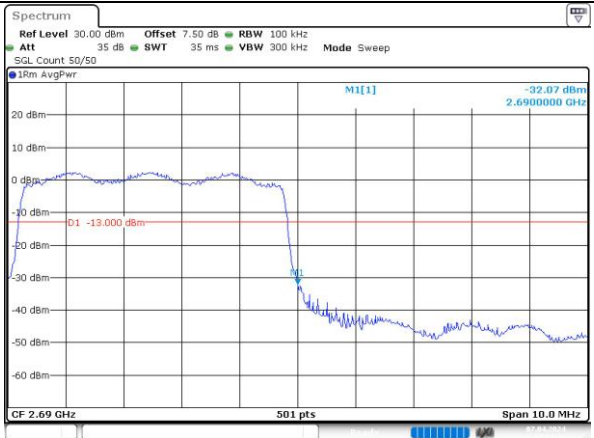
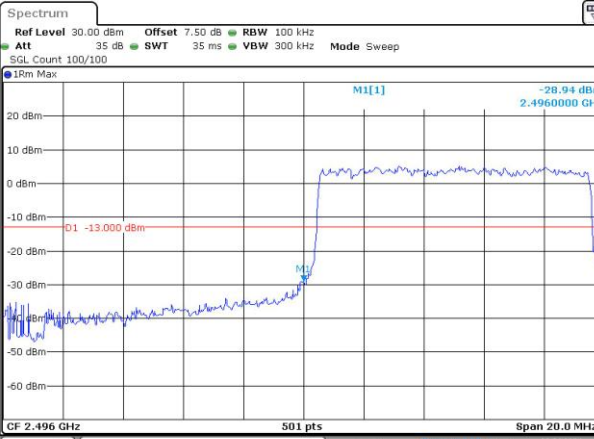
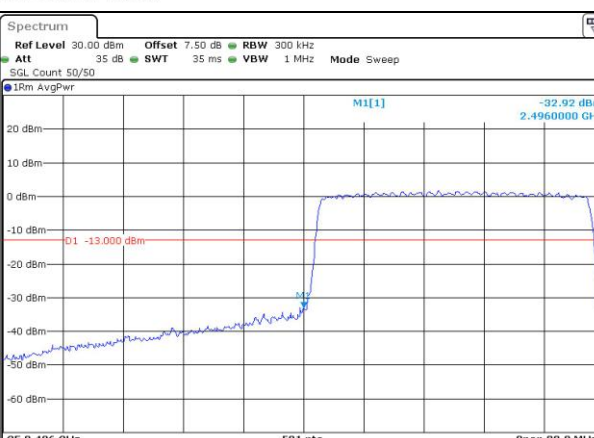
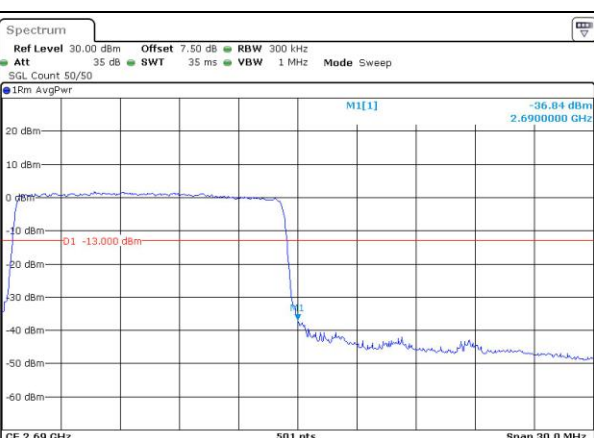


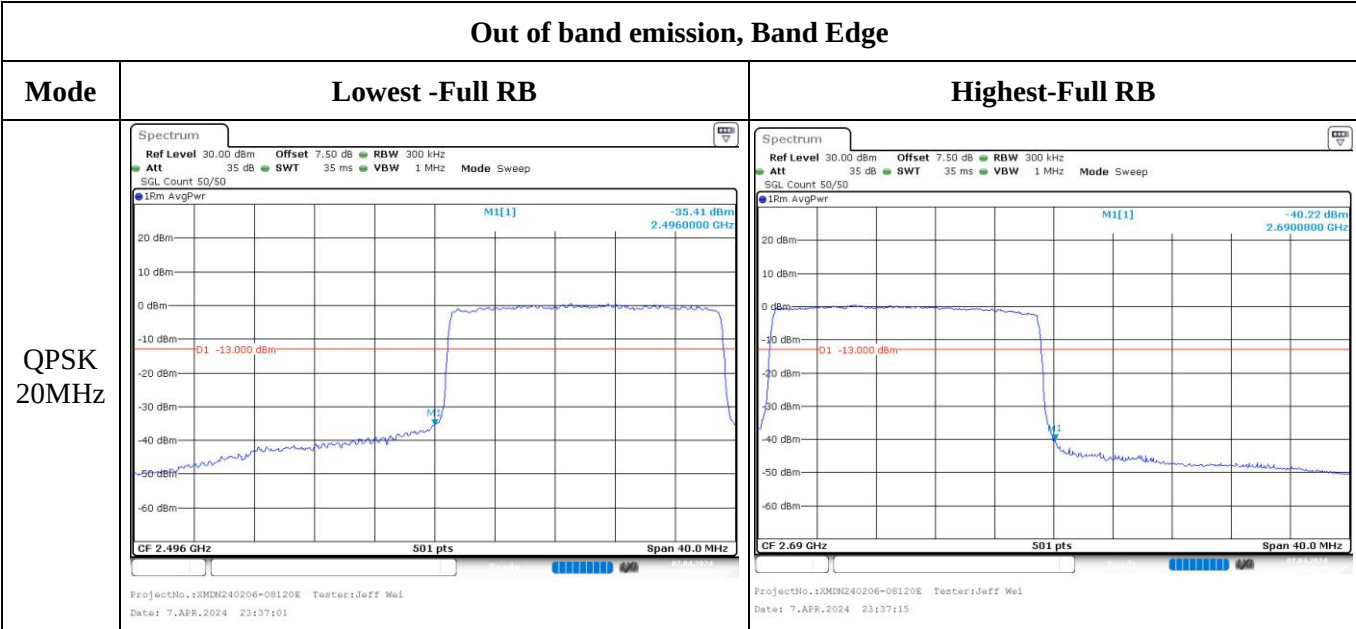
Out of band emission, Band Edge



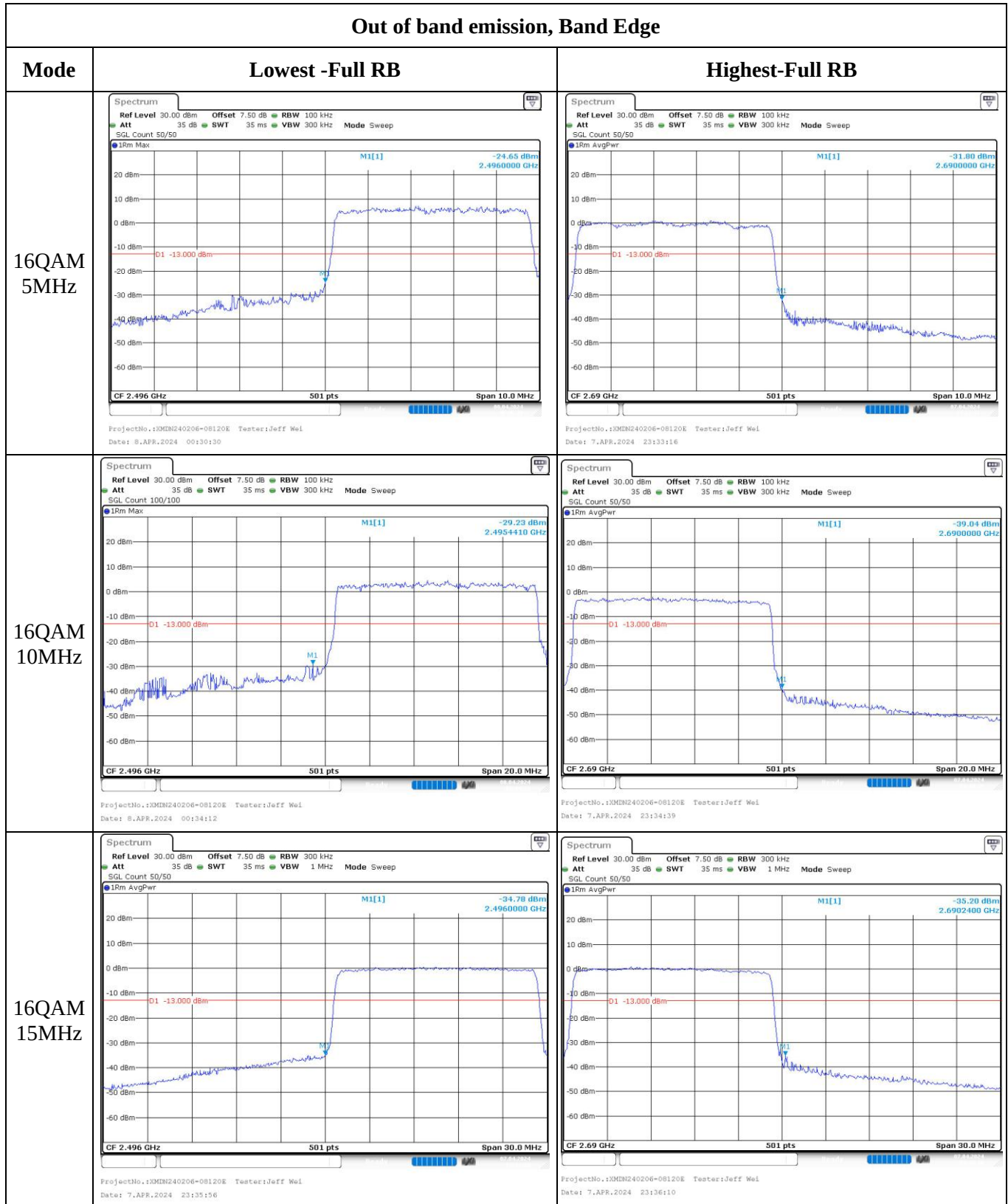


Out of band emission, Band Edge

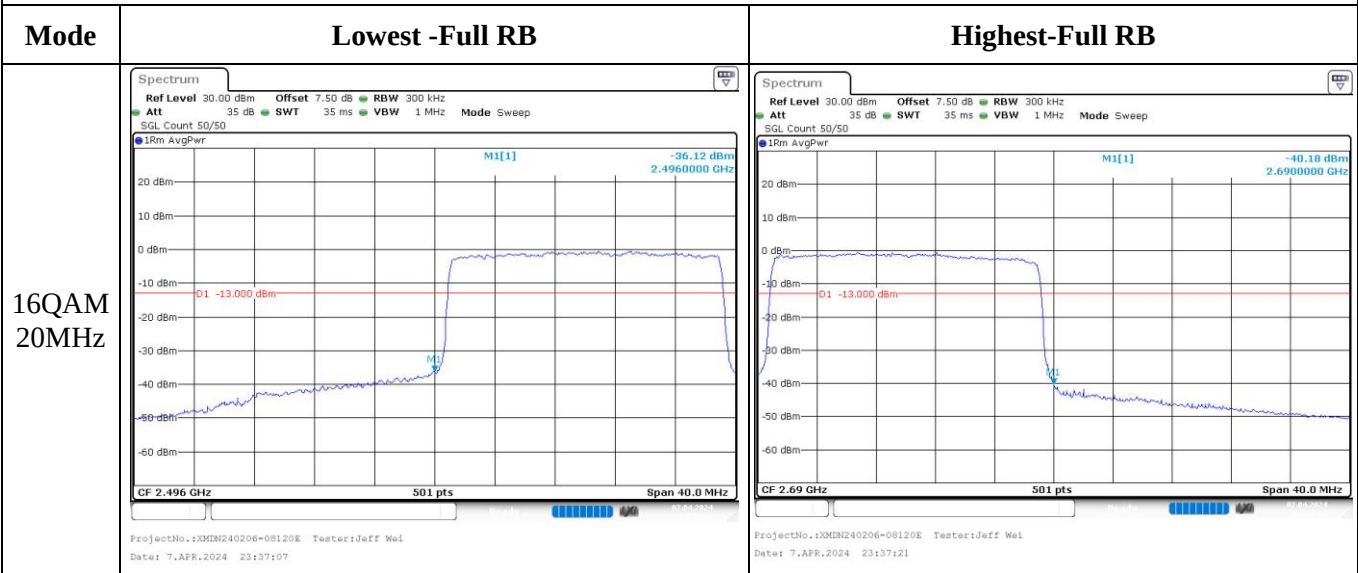
Mode	Lowest-Full RB	Highest-Full RB
QPSK 5MHz	 ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 00:29:152	 ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 7.APR.2024 23:13:110
QPSK 10MHz	 ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 8.APR.2024 00:37:116	 ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 7.APR.2024 23:13:132
QPSK 15MHz	 ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 7.APR.2024 23:13:150	 ProjectNo.:XMDN240206-08120E Tester:Jeff Wei Date: 7.APR.2024 23:13:103



Out of band emission, Band Edge



Out of band emission, Band Edge



5.16 Antenna Port Test Data and Results for LTE Band 66

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

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)
1.4MHz	1710.7	1745	1779.3
3MHz	1711.5	1745	1778.5
5MHz	1712.5	1745	1777.5
10MHz	1715	1745	1775
15MHz	1717.5	1745	1772.5
20MHz	1720	1745	1770

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		
1.4MHz QPSK	RB1#0	23.49	23.23	23.23	24.44	30
	RB1#3	23.51	23.13	23.3		
	RB1#5	23.26	22.93	23.12		
	RB3#0	23.4	22.74	22.99		
	RB3#3	23.21	22.77	22.93		
	RB6#0	22.4	21.72	22.12		
1.4MHz 16QAM	RB1#0	22.45	21.76	21.87	23.43	30
	RB1#3	22.5	21.84	21.98		
	RB1#5	22.41	21.7	22.04		
	RB3#0	22.43	21.59	22.14		
	RB3#3	22.33	21.49	22.07		
	RB6#0	21.42	20.69	21.23		
3MHz QPSK	RB1#0	23.31	22.82	22.85	24.24	30
	RB1#8	23.29	22.82	22.96		
	RB1#14	23.14	22.68	22.78		
	RB6#0	22.32	21.83	22.02		
	RB6#9	22.28	21.79	21.92		
	RB15#0	22.38	21.87	21.96		
3MHz 16QAM	RB1#0	22.18	22.22	22.08	23.25	30
	RB1#8	22.16	22.11	22.32		
	RB1#14	22.01	22.09	22.3		
	RB6#0	21.21	20.97	21.34		
	RB6#9	21.11	21.01	21.34		
	RB15#0	21.27	20.85	21.31		
5MHz QPSK	RB1#0	23.22	22.81	22.79	24.15	30
	RB1#13	23	22.7	22.87		
	RB1#24	23.05	22.44	22.63		
	RB15#0	22.3	21.78	22.02		
	RB15#10	22.23	21.81	21.99		
	RB25#0	22.23	21.74	21.96		
5MHz 16QAM	RB1#0	22.04	22.02	21.8	23.41	30
	RB1#13	22.06	22.48	22.06		
	RB1#24	21.33	21.98	21.76		
	RB15#0	21.12	20.73	20.99		
	RB15#10	20.96	20.79	20.96		
	RB25#0	21.12	20.83	20.96		
10MHz QPSK	RB1#0	23.39	23.26	22.98	24.49	30
	RB1#25	23.56	23.35	23.28		
	RB1#49	23.43	23.17	23		
	RB25#0	22.62	22.3	22.21		

	RB25#25	22.68	22.14	22.22		
	RB50#0	22.6	22.11	22.23		
10MHz 16QAM	RB1#0	23.07	22.27	22.57	24.08	30
	RB1#25	23.09	23	22.72		
	RB1#49	23.15	21.99	22.05		
	RB25#0	21.55	21.31	21.18		
	RB25#25	21.65	21.26	21.3		
	RB50#0	21.57	21.02	21.16		
15MHz QPSK	RB1#0	23.46	22.95	22.72	24.58	30
	RB1#38	23.65	22.86	22.88		
	RB1#74	23.44	22.8	22.93		
	RB36#0	22.54	22.1	21.91		
	RB36#39	22.53	21.89	21.98		
	RB75#0	22.37	21.97	22		
15MHz 16QAM	RB1#0	23.2	22.35	22.41	24.13	30
	RB1#38	23.09	21.82	23.14		
	RB1#74	23.12	21.13	21.77		
	RB36#0	21.5	20.9	20.95		
	RB36#39	21.26	20.87	20.95		
	RB75#0	21.4	21.01	20.94		
20MHz QPSK	RB1#0	23.12	23.13	23.06	24.3	30
	RB1#50	23.37	23.12	23.07		
	RB1#99	22.98	22.95	22.9		
	RB50#0	22.36	22.06	21.87		
	RB50#50	22.28	21.78	21.98		
	RB100#0	22.32	21.91	21.8		
20MHz 16QAM	RB1#0	22.4	22.09	22.52	24.13	30
	RB1#50	22.92	21.91	23.2		
	RB1#99	21.97	21.45	22.68		
	RB50#0	21.34	21.19	20.85		
	RB50#50	21.23	20.96	20.83		
	RB100#0	21.27	20.94	21.3		

Note:

$EIRP = \text{Conducted Power(dBm)} - L_c(\text{dB}) + G_T(\text{dBi})$

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	4.09	4.06	4.2	13
	RB100#0	3.8	3.77	3.8	13
20MHz 16QAM	RB1#0	4.99	4.7	5.16	13
	RB100#0	5.57	5.45	5.59	13
				Result:	Pass

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
1.4MHz QPSK	1.108	1.102	1.102	1.332	1.326	1.326
1.4MHz 16QAM	1.096	1.102	1.108	1.296	1.32	1.32
3MHz QPSK	2.695	2.695	2.695	2.964	2.952	2.952
3MHz 16QAM	2.683	2.695	2.683	2.952	2.952	2.964
5MHz QPSK	4.531	4.511	4.491	5	5.04	5
5MHz 16QAM	4.511	4.531	4.511	5	5.06	5.04
10MHz QPSK	8.942	8.942	8.942	9.68	9.84	9.76
10MHz 16QAM	8.942	8.942	8.942	9.72	9.72	9.72
15MHz QPSK	13.353	13.473	13.413	14.76	14.88	14.88
15MHz 16QAM	13.473	13.473	13.473	14.7	14.88	14.76
20MHz QPSK	17.804	17.964	17.884	19.28	19.68	19.28
20MHz 16QAM	17.884	17.964	17.884	19.44	19.52	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.

Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

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	1711.135	1710.00	1778.936	1780
	-20	7.7	1711.114	1710.00	1778.936	1780
	-10	7.7	1711.114	1710.00	1778.924	1780
	0	7.7	1711.123	1710.00	1778.930	1780
	10	7.7	1711.120	1710.00	1778.927	1780
	20	7.7	1711.138	1710.00	1778.942	1780
	30	7.7	1711.156	1710.00	1778.954	1780
	40	7.7	1711.159	1710.00	1778.957	1780
	50	7.7	1711.156	1710.00	1778.957	1780
Frequency Stability vs. Voltage	20	6.8	1711.144	1710.00	1778.963	1780
	20	8.8	1711.159	1710.00	1778.945	1780
					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	1711.049	1710.00	1778.915	1780
	-20	7.7	1711.043	1710.00	1778.915	1780
	-10	7.7	1711.055	1710.00	1778.933	1780
	0	7.7	1711.034	1710.00	1778.933	1780
	10	7.7	1711.043	1710.00	1778.939	1780
	20	7.7	1711.058	1710.00	1778.942	1780
	30	7.7	1711.070	1710.00	1778.948	1780
	40	7.7	1711.082	1710.00	1778.963	1780
	50	7.7	1711.073	1710.00	1778.966	1780
Frequency Stability vs. Voltage	20	6.8	1711.079	1710.00	1778.945	1780
	20	8.8	1711.070	1710.00	1778.948	1780
					Result:	Pass

Test Plots:

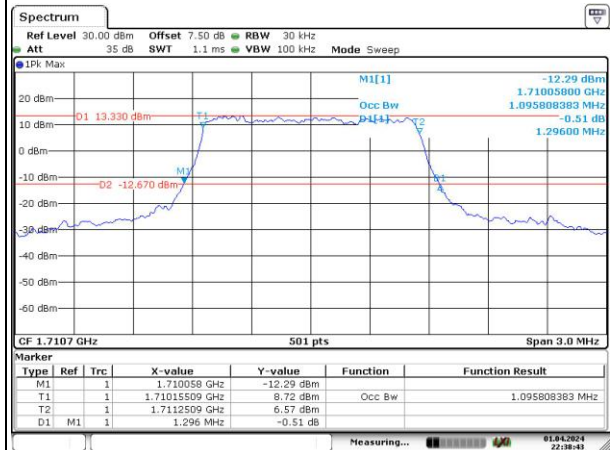
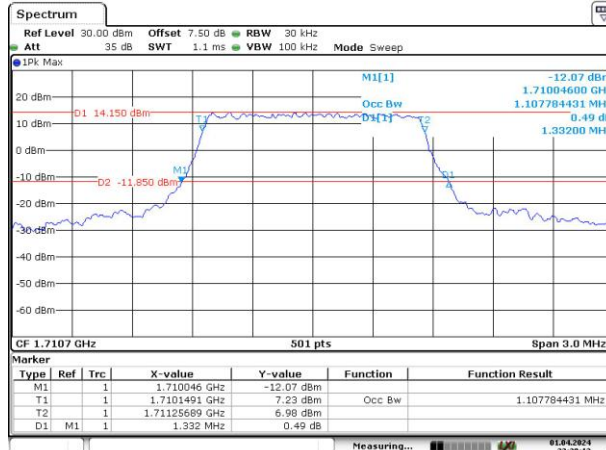
Occupied Bandwidth

Channel

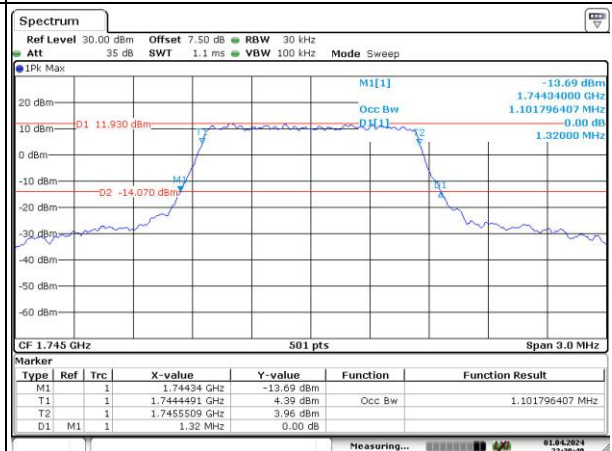
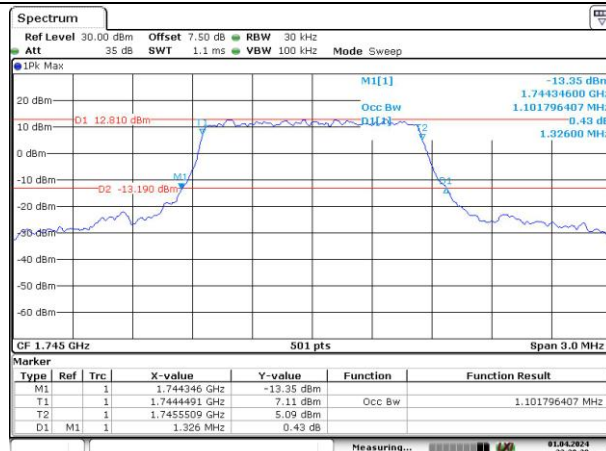
1.4MHz Bandwidth QPSK

1.4MHz Bandwidth 16QAM

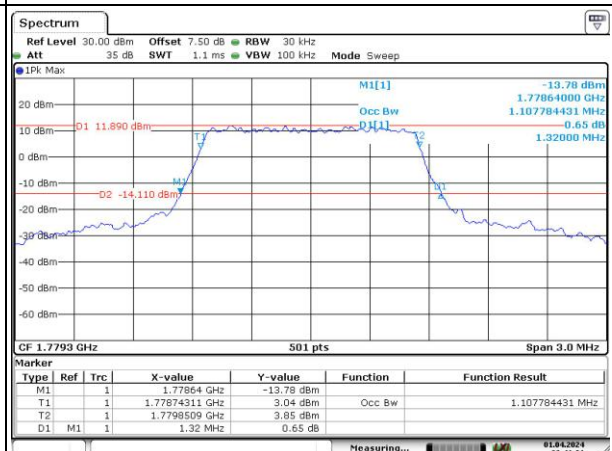
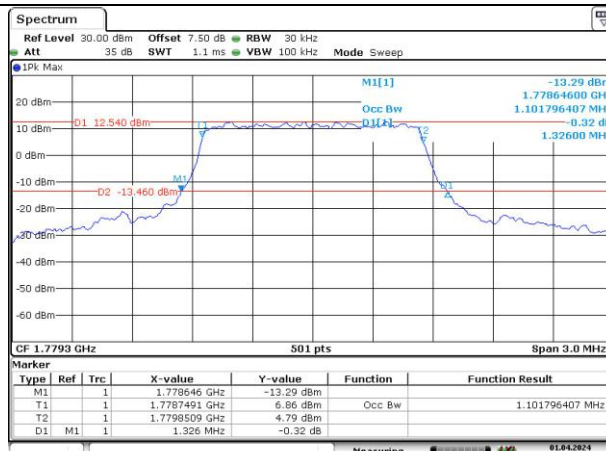
Lowest



Middle



Highest



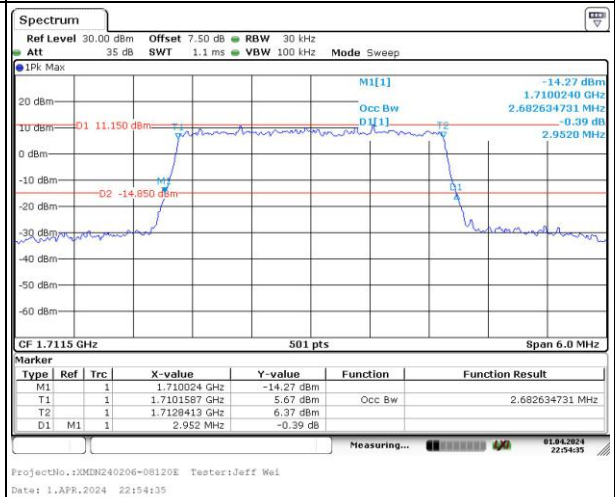
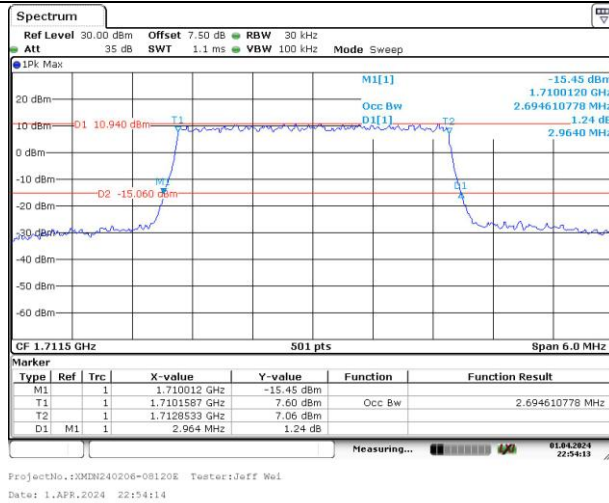
Occupied Bandwidth

Channel

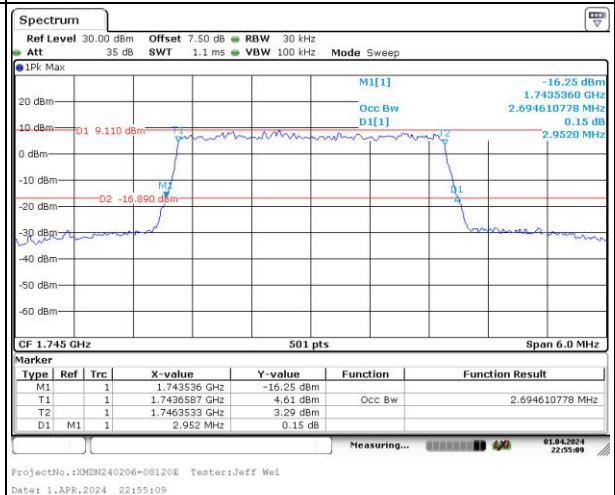
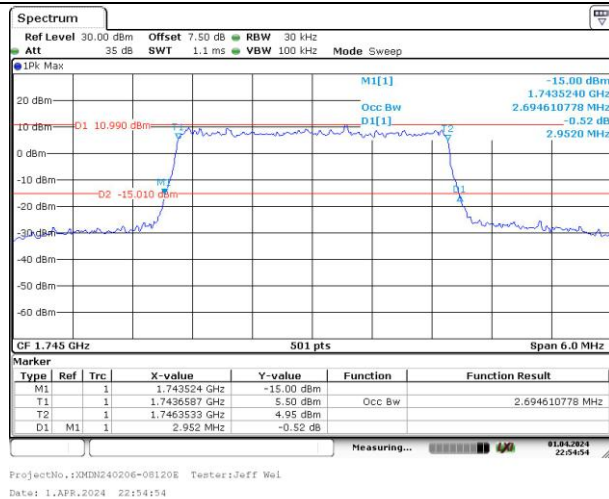
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

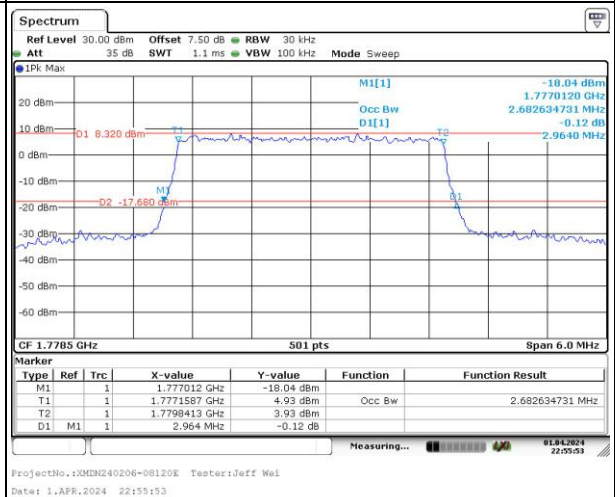
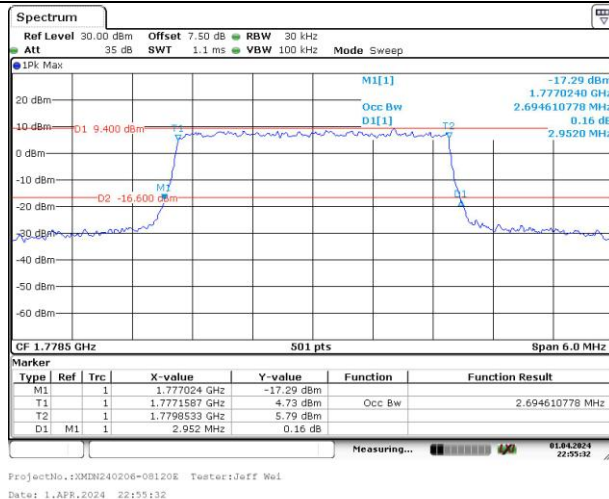
Lowest



Middle



Highest



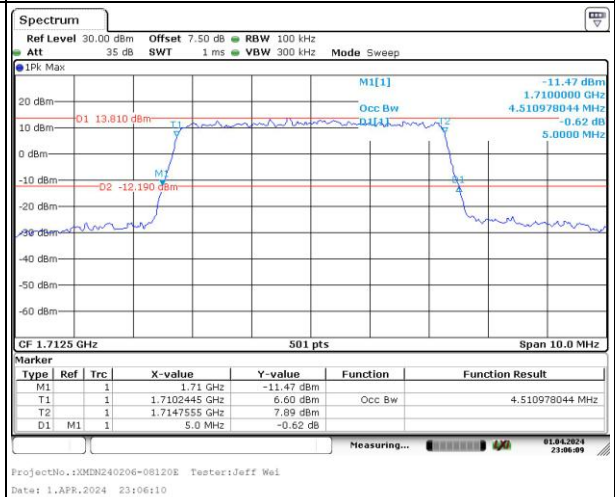
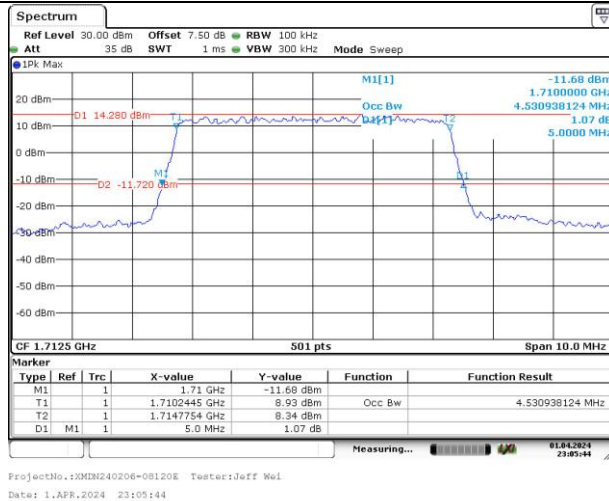
Occupied Bandwidth

Channel

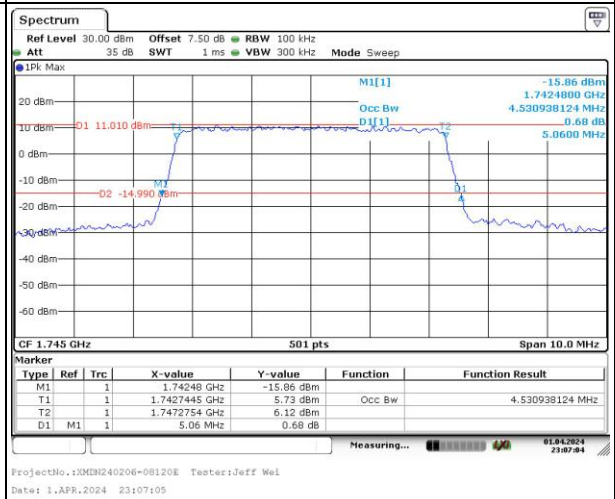
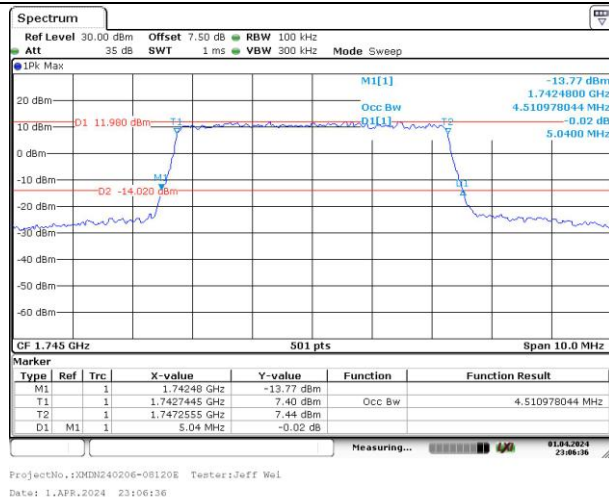
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

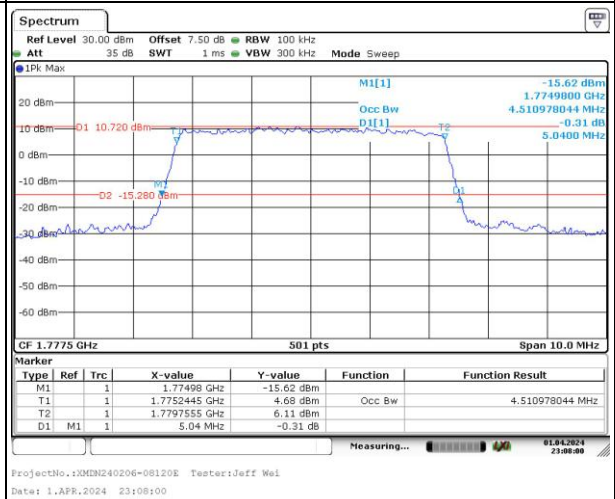
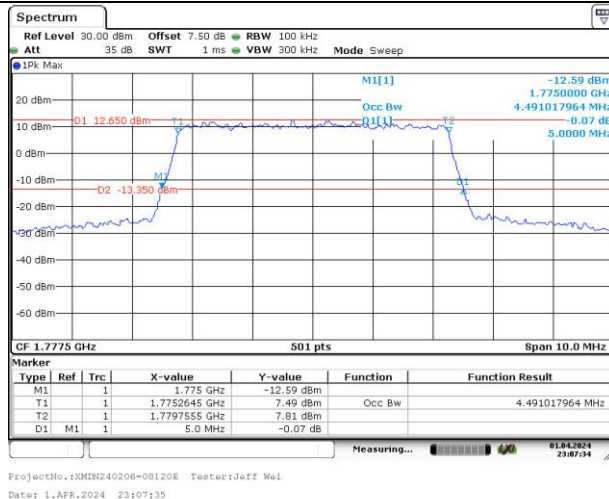
Lowest



Middle



Highest



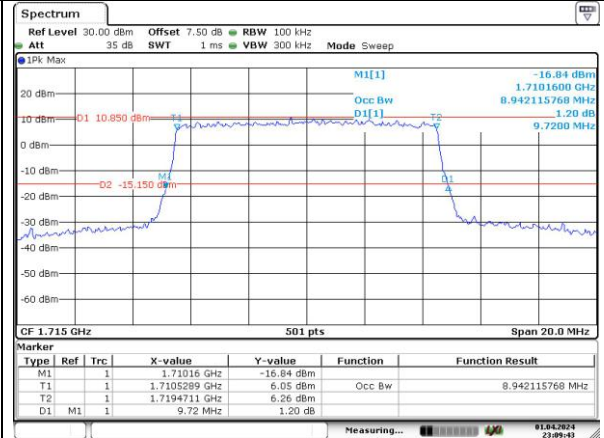
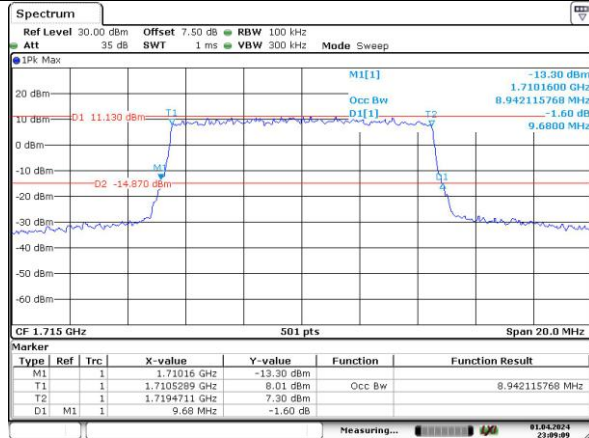
Occupied Bandwidth

Channel

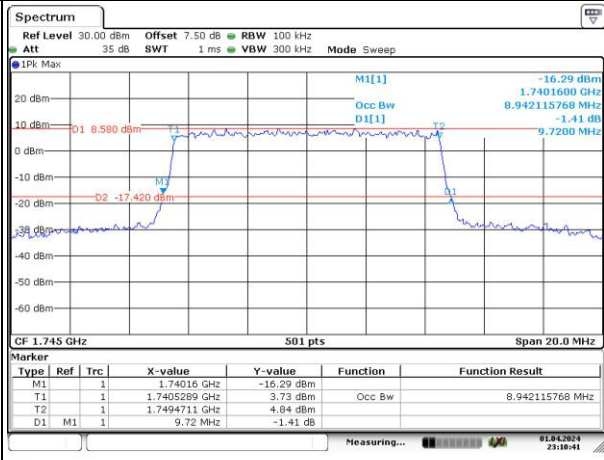
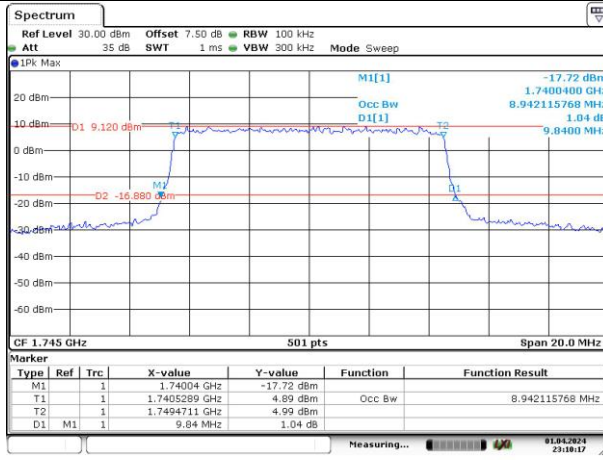
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

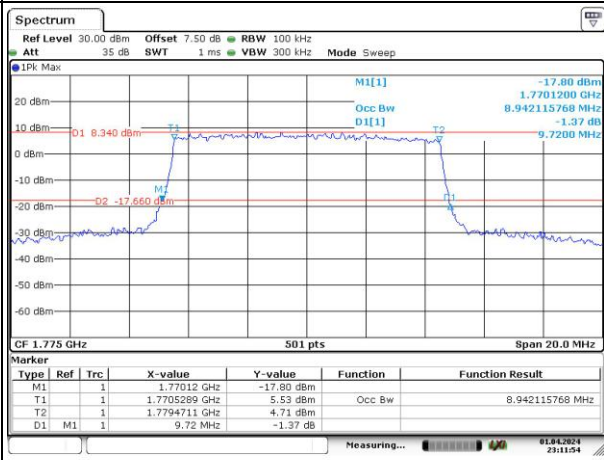
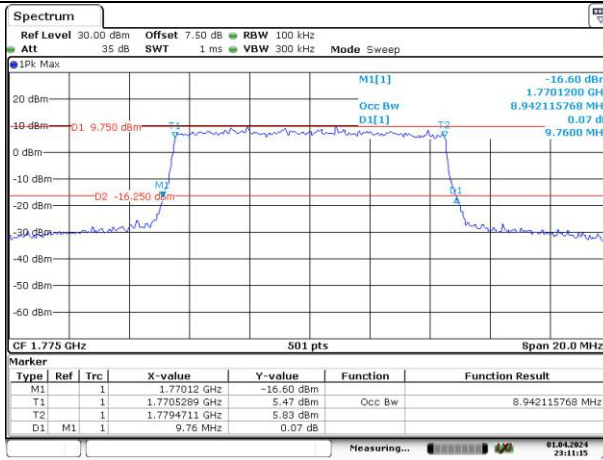
Lowest



Middle



Highest



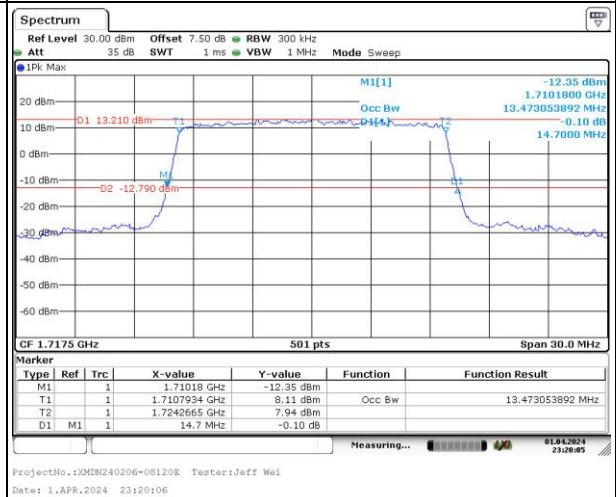
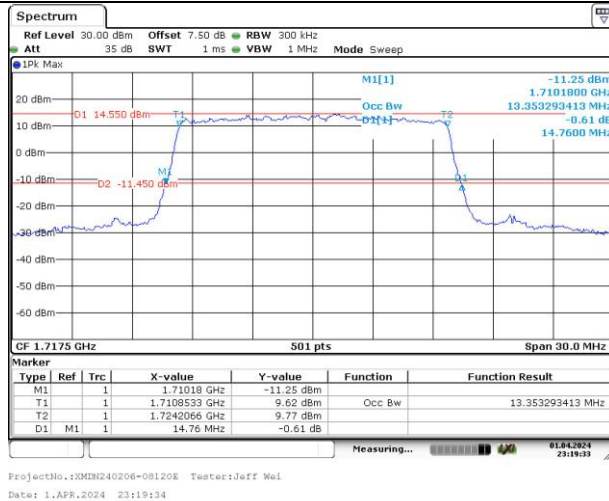
Occupied Bandwidth

Channel

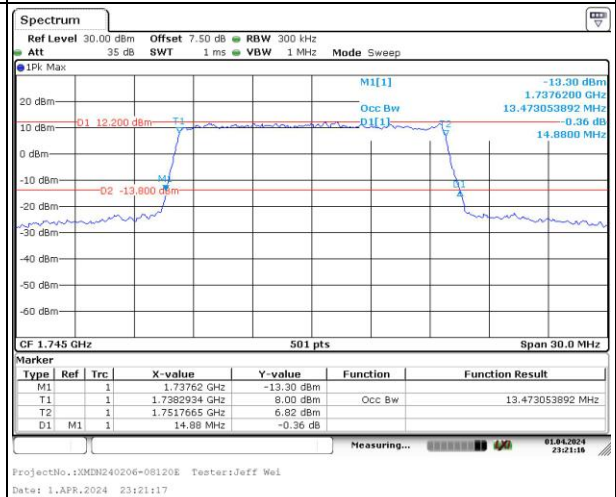
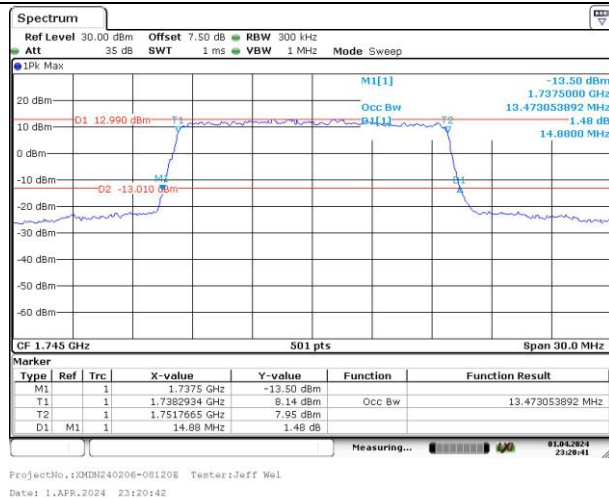
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

Lowest



Middle



Highest

