

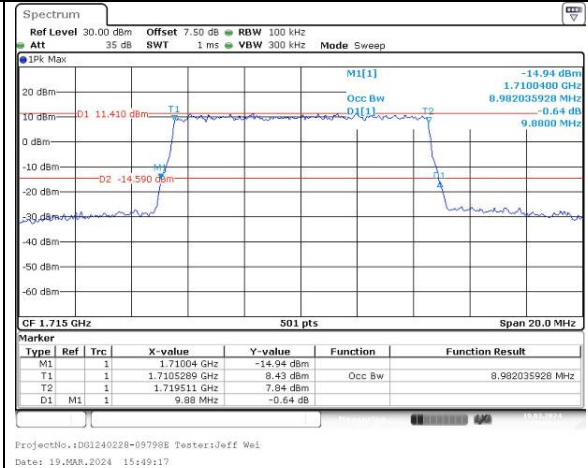
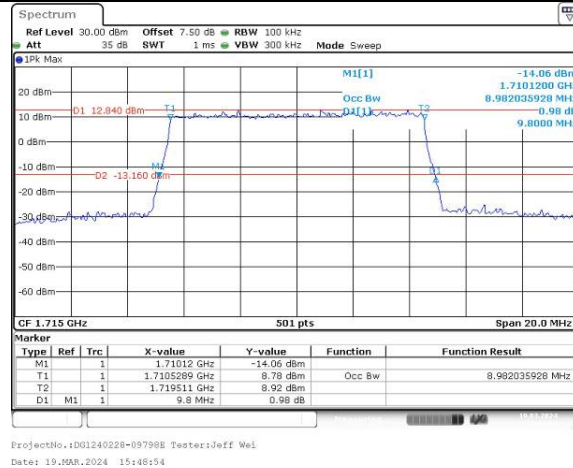
Occupied Bandwidth

Channel

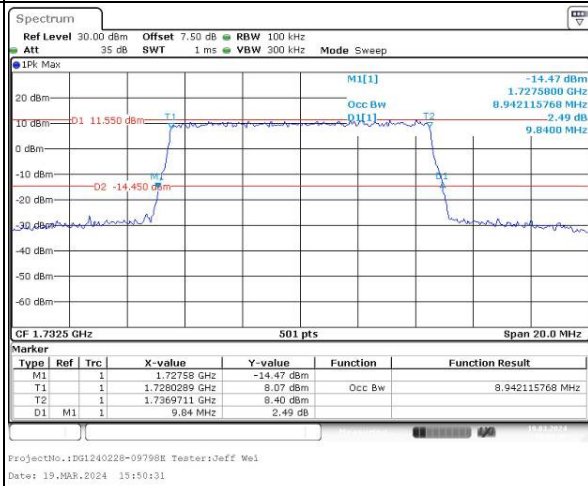
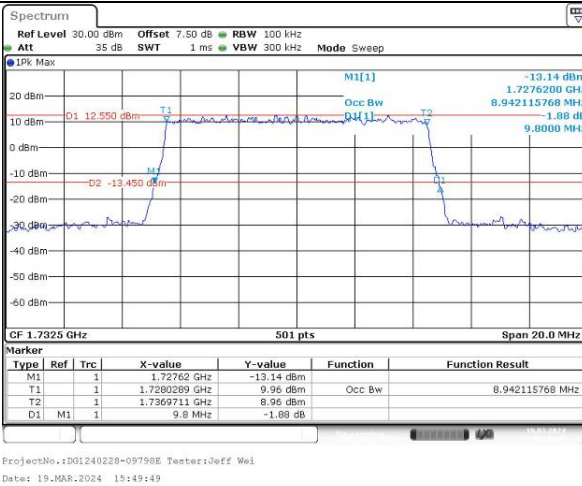
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

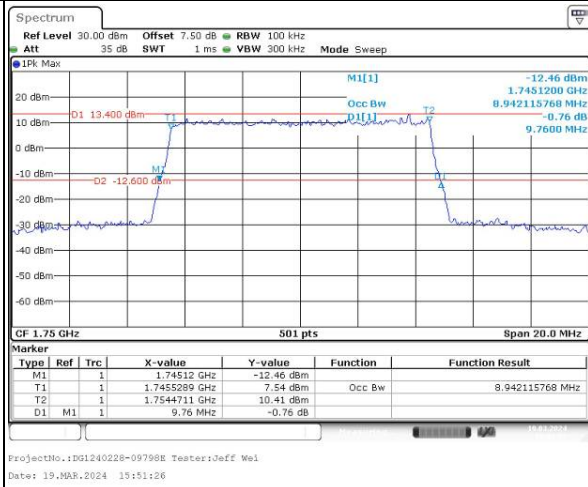
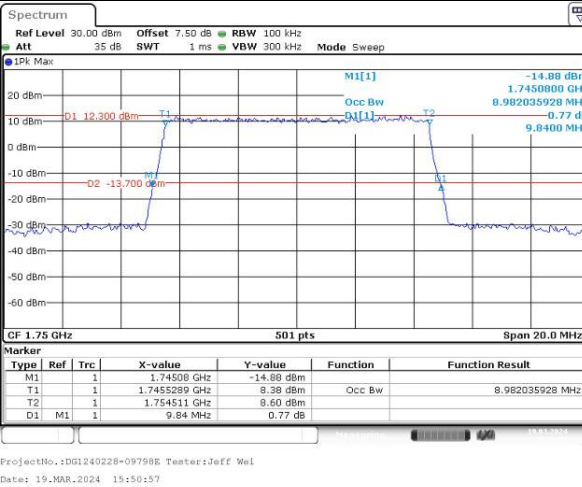
Lowest



Middle



Highest



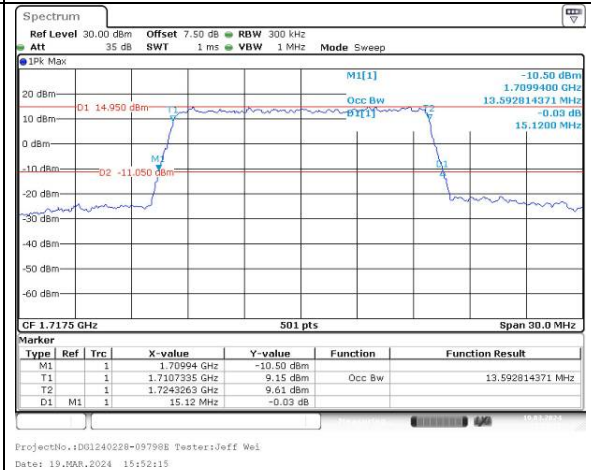
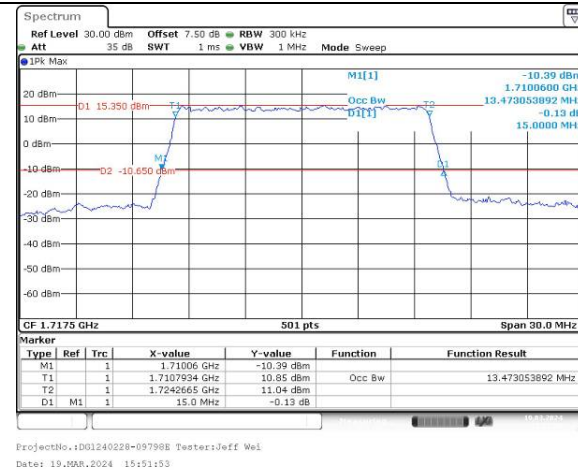
Occupied Bandwidth

Channel

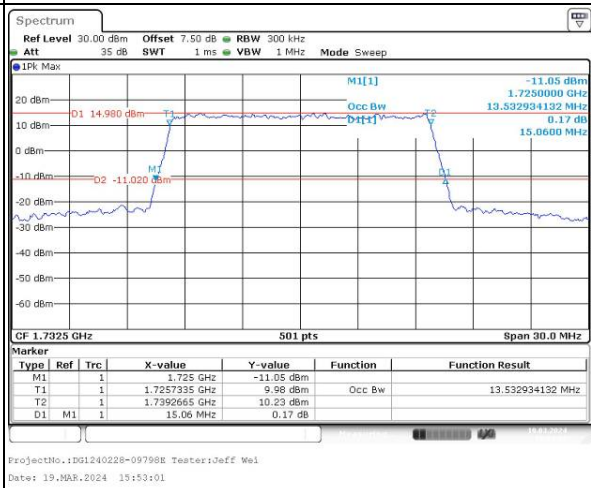
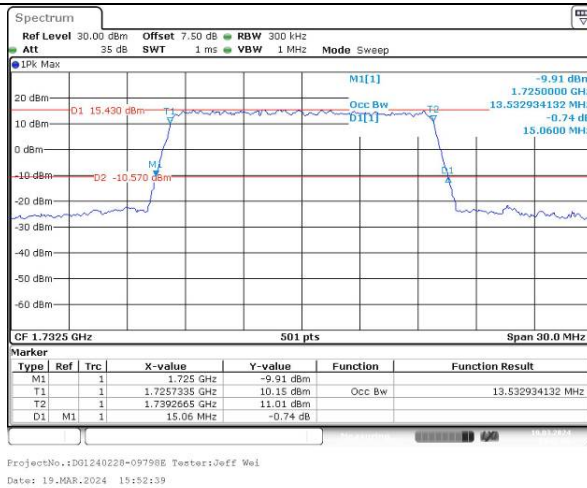
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

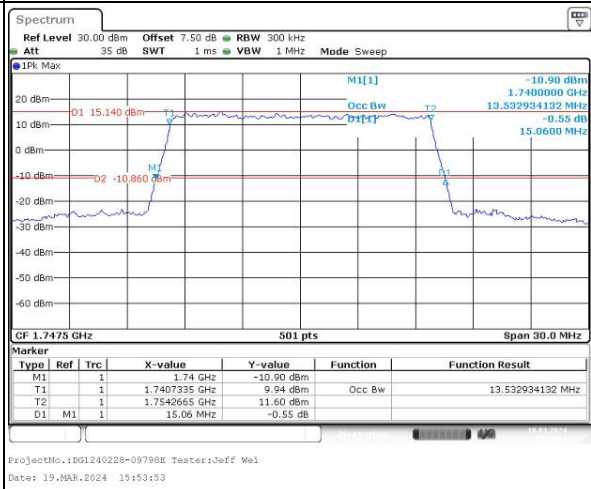
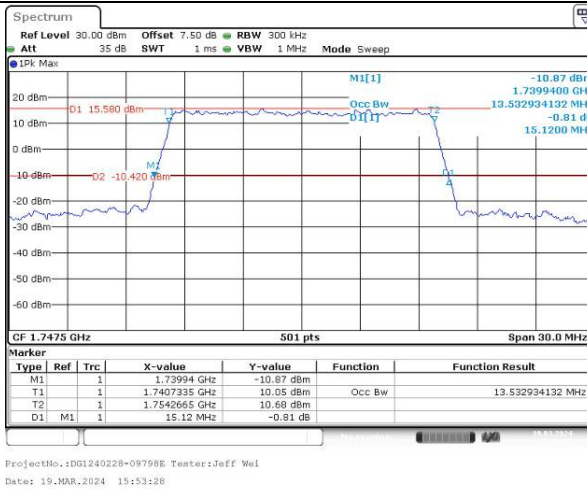
Lowest



Middle



Highest



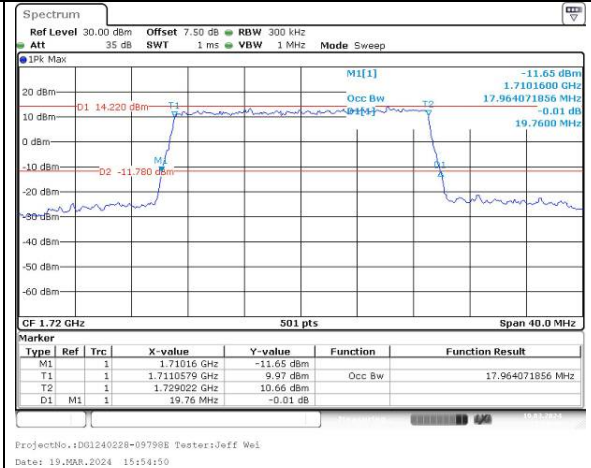
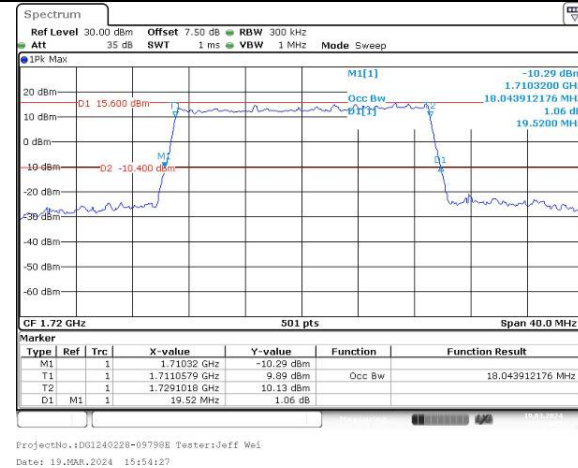
Occupied Bandwidth

Channel

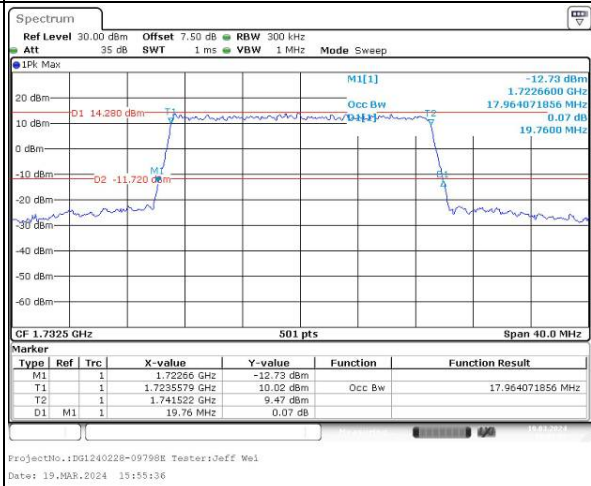
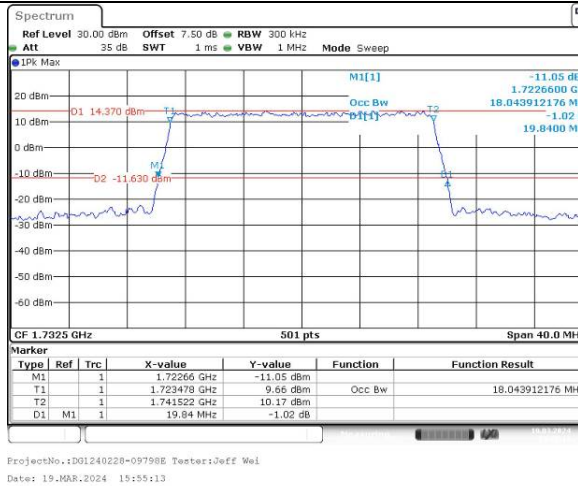
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

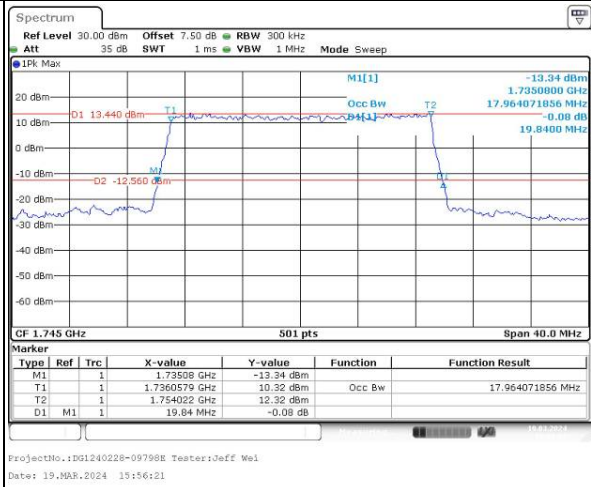
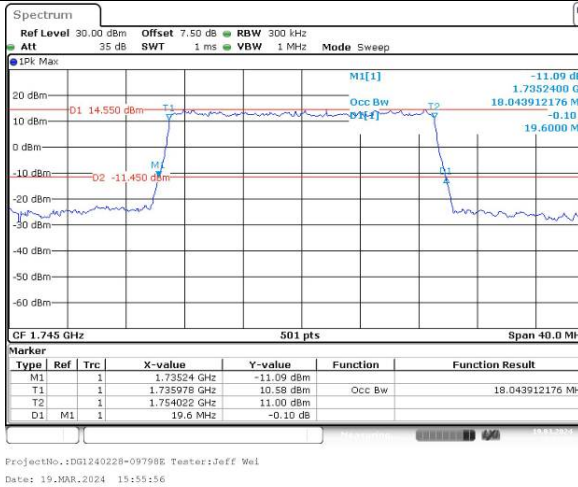
Lowest



Middle



Highest

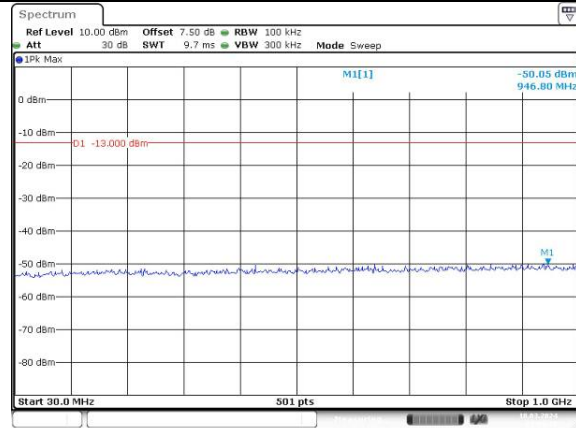


Spurious Emissions at Antenna Terminal

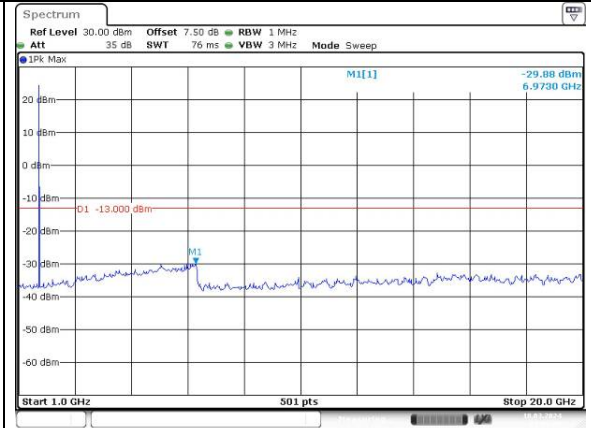
Channel

1.4MHz Bandwidth QPSK

Lowest

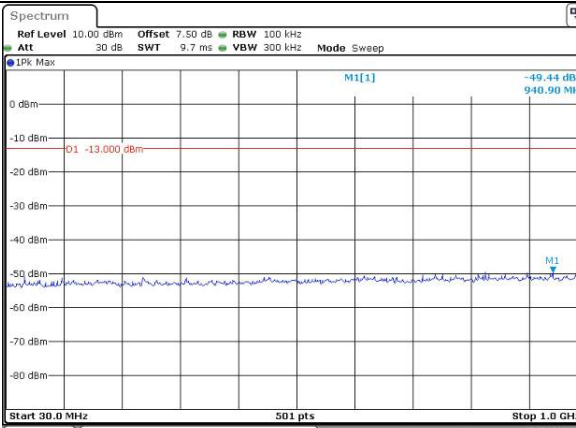


ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:56:11

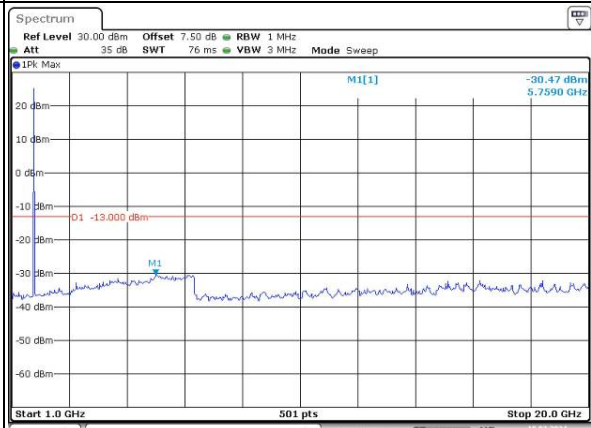


ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:56:30

Middle

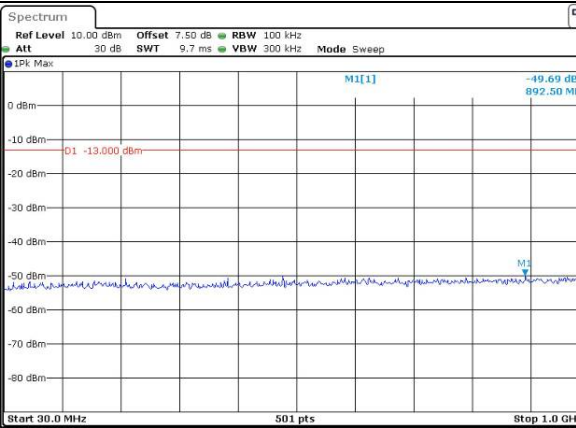


ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:56:57

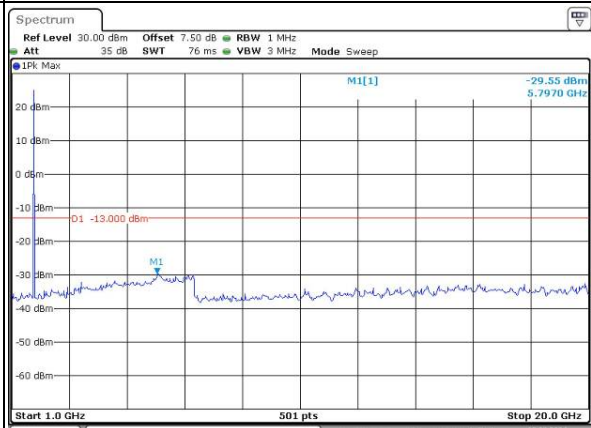


ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:57:19

Highest



ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:57:44



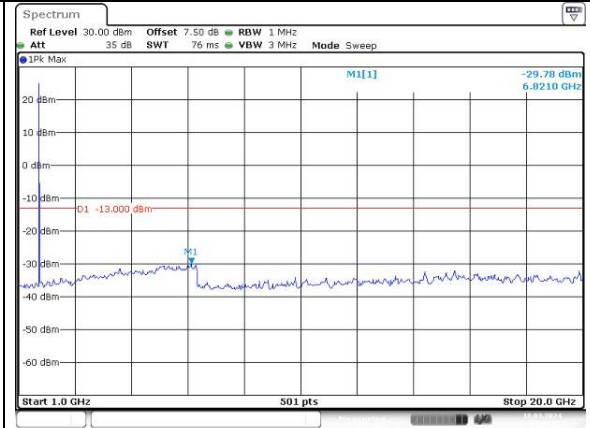
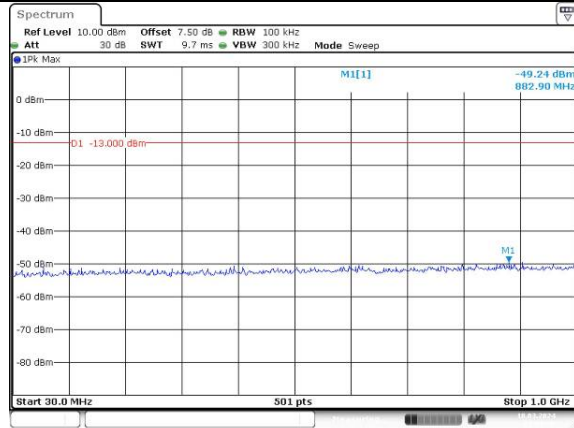
ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:58:06

Spurious Emissions at Antenna Terminal

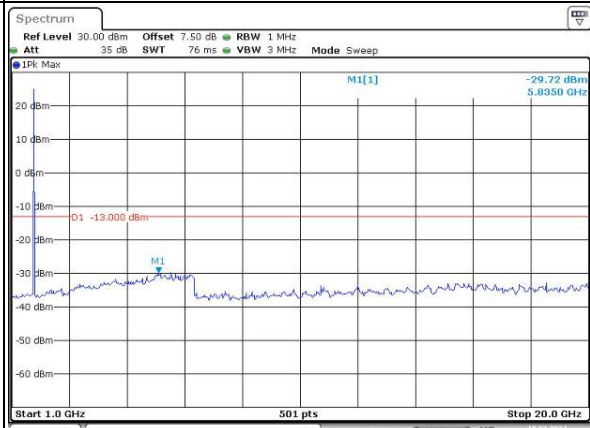
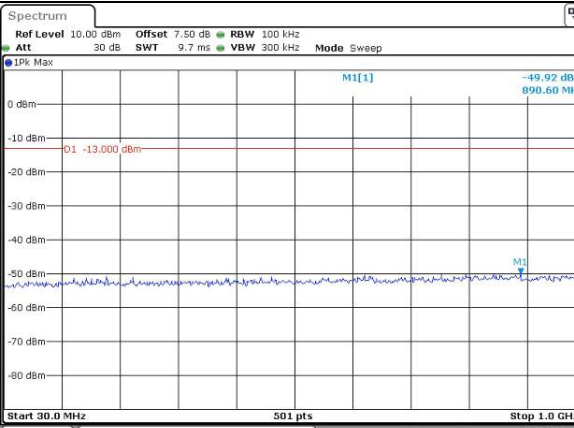
Channel

3MHz Bandwidth QPSK

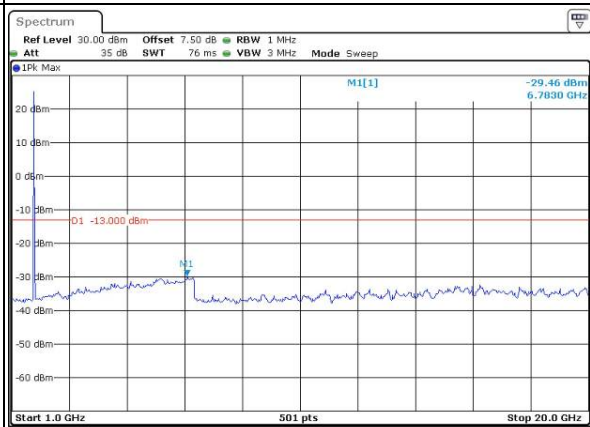
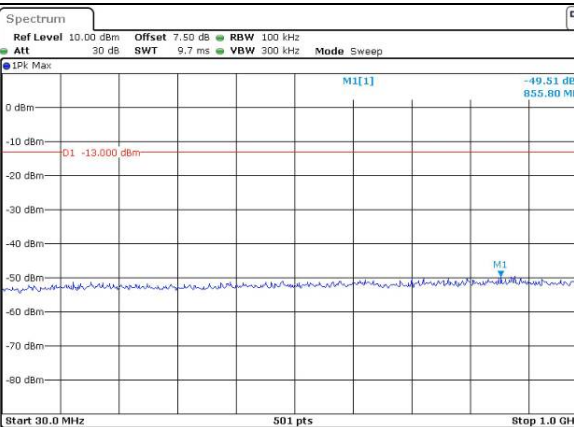
Lowest



Middle



Highest

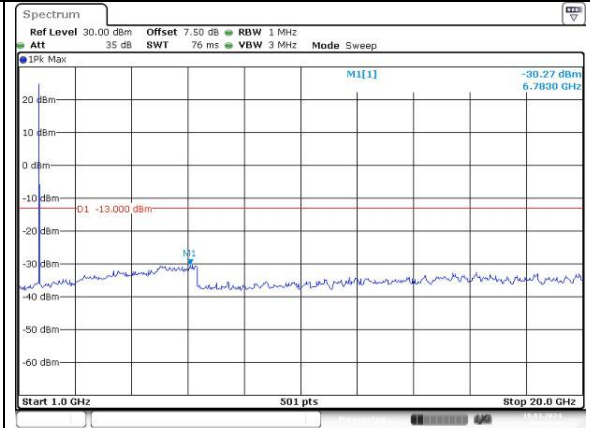
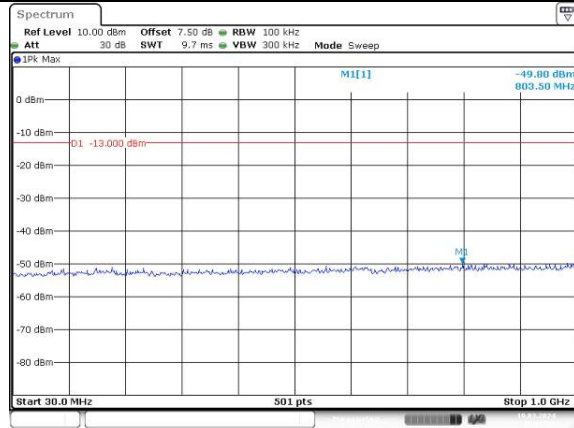


Spurious Emissions at Antenna Terminal

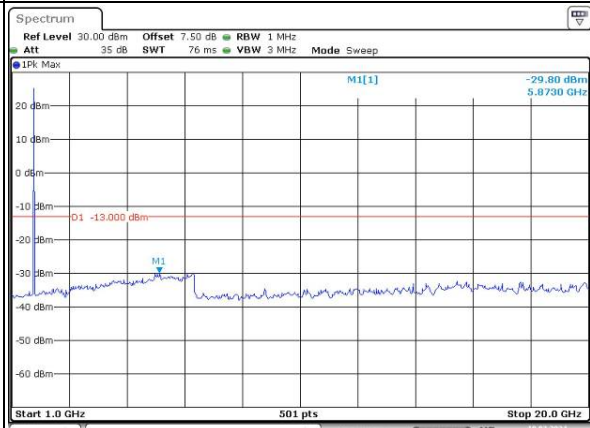
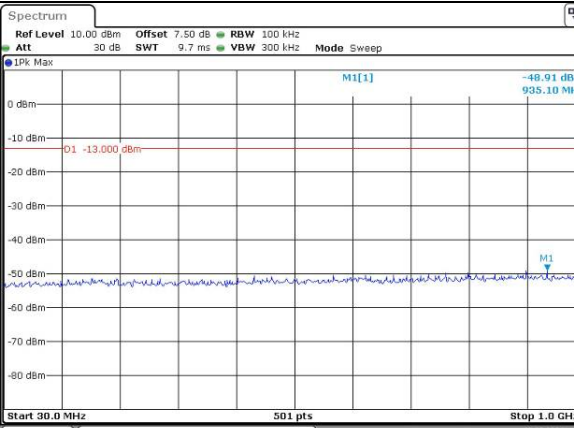
Channel

5MHz Bandwidth QPSK

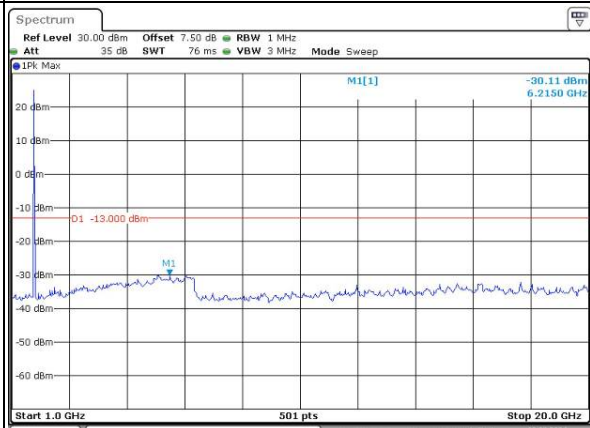
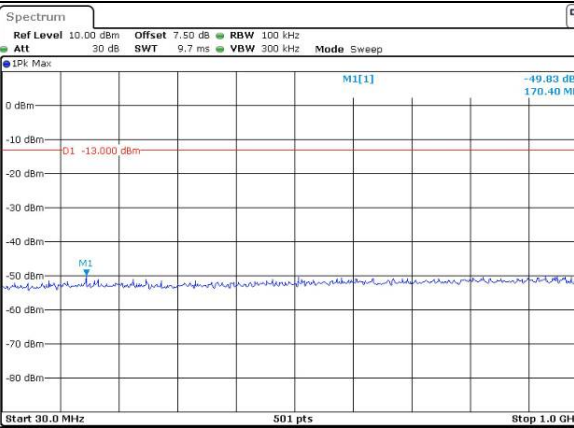
Lowest



Middle



Highest

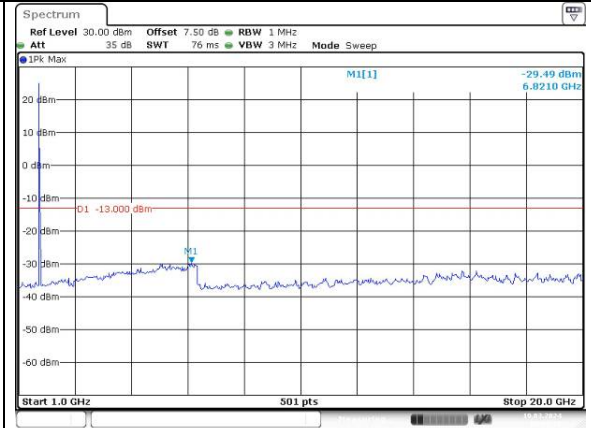
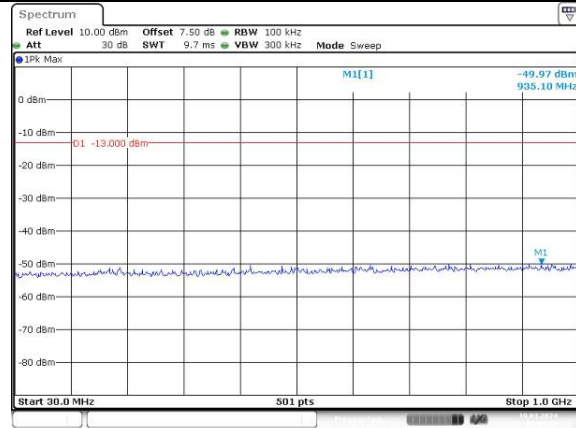


Spurious Emissions at Antenna Terminal

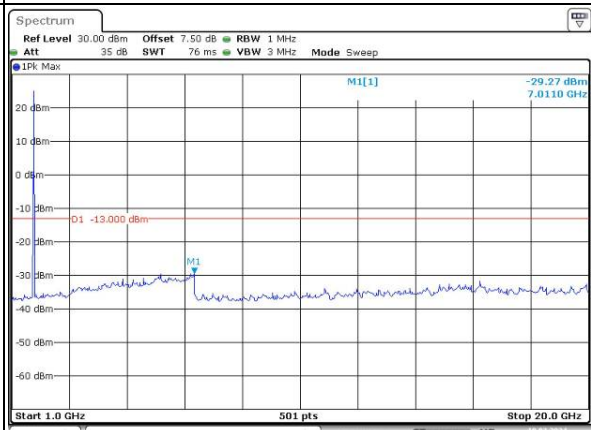
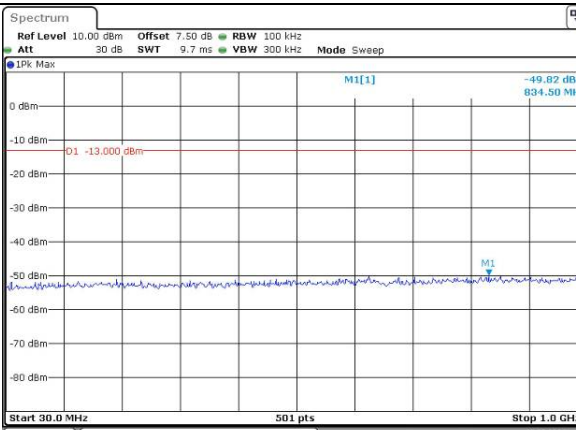
Channel

10MHz Bandwidth QPSK

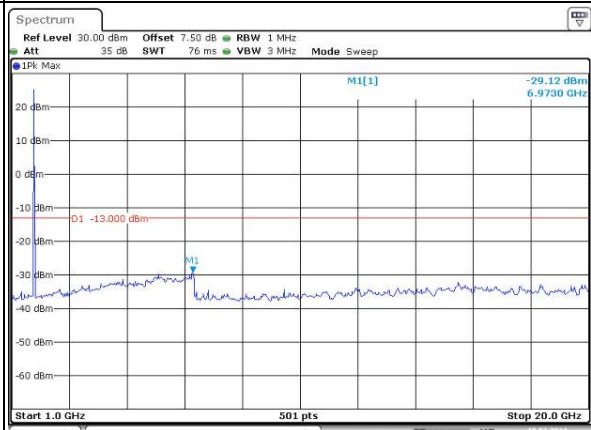
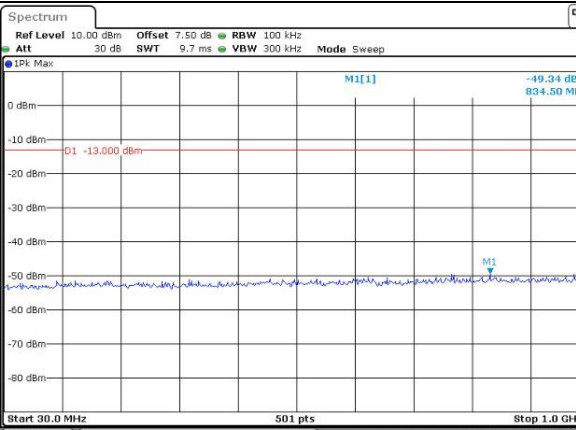
Lowest



Middle



Highest

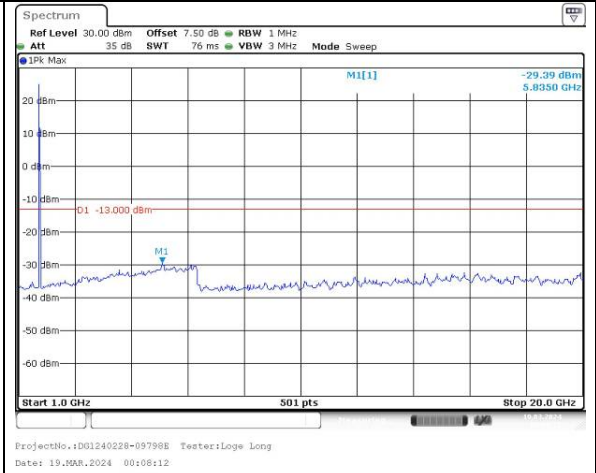
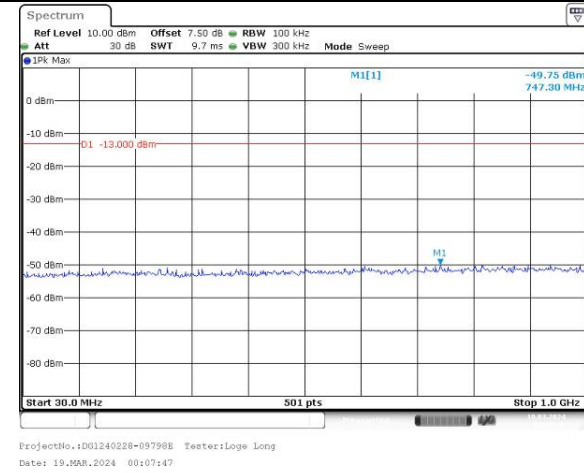


Spurious Emissions at Antenna Terminal

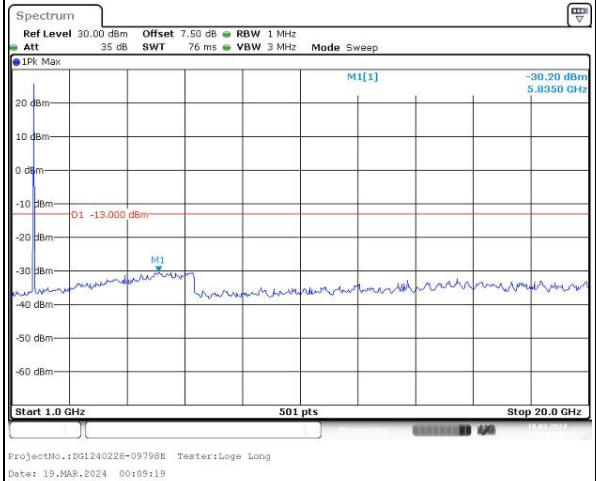
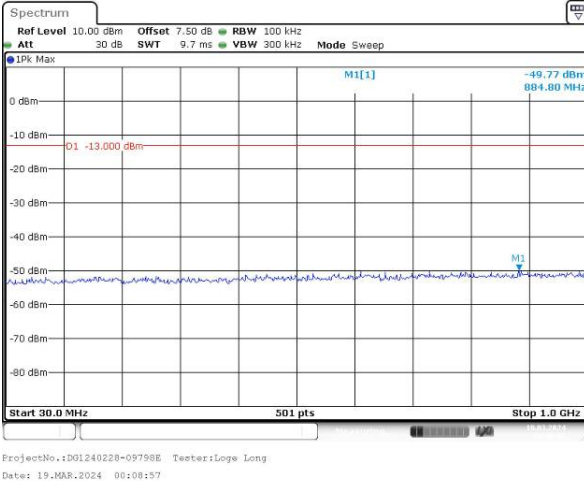
Channel

15MHz Bandwidth QPSK

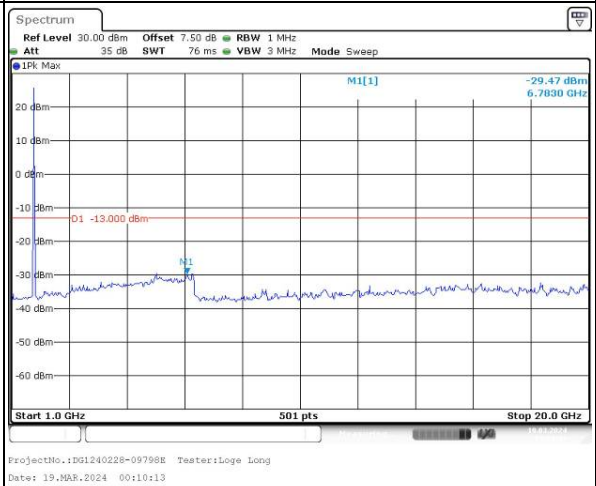
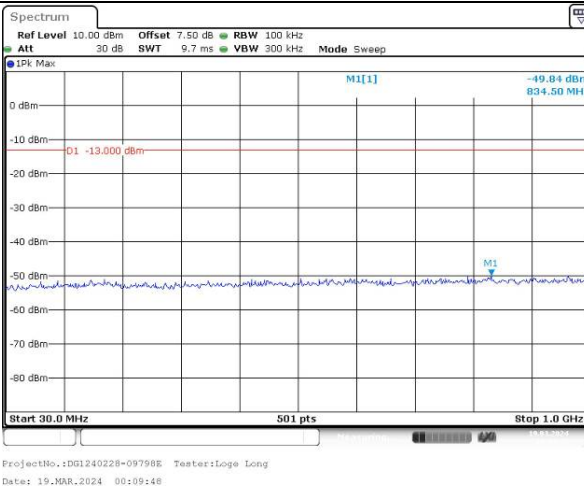
Lowest



Middle



Highest

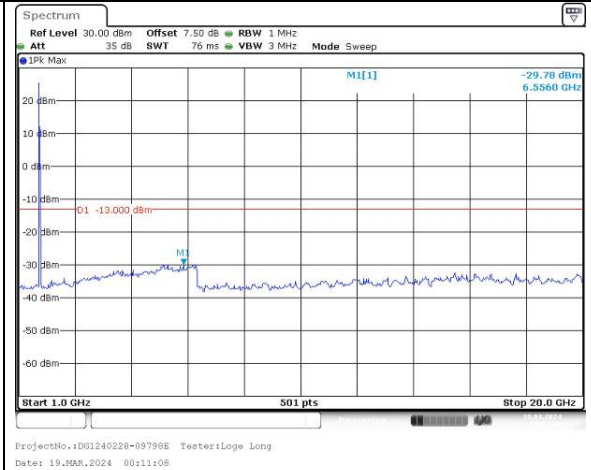
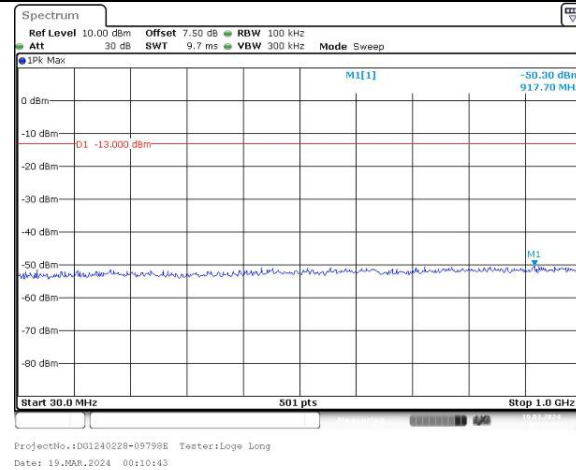


Spurious Emissions at Antenna Terminal

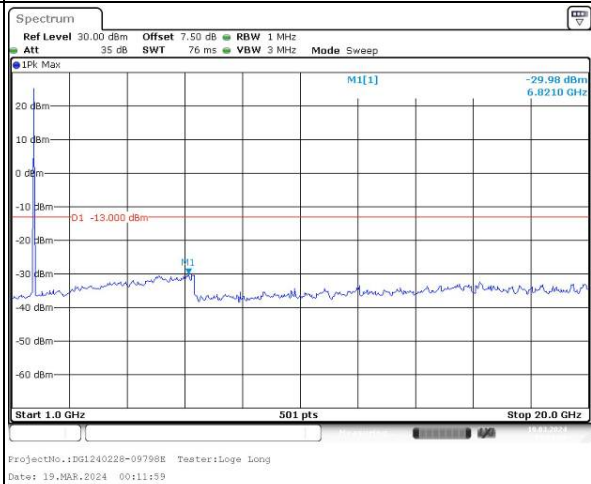
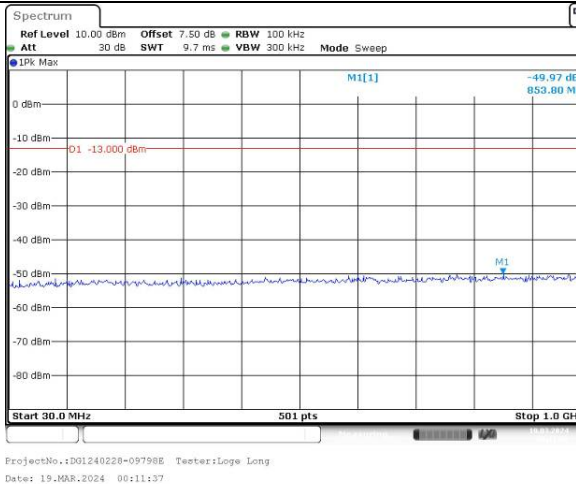
Channel

20MHz Bandwidth QPSK

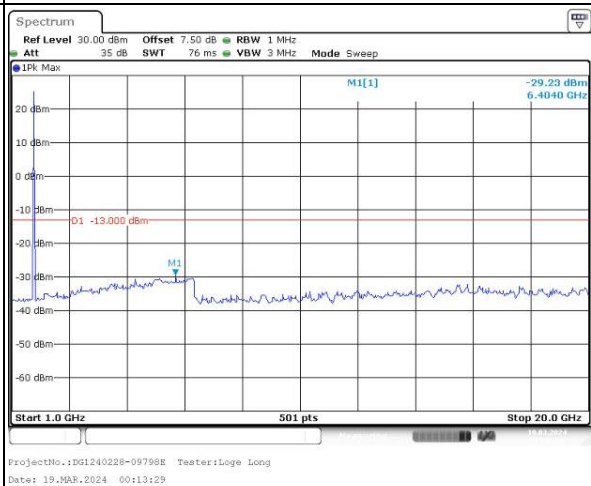
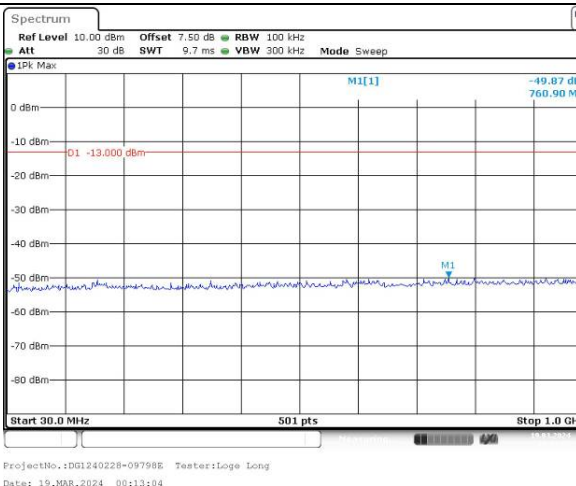
Lowest



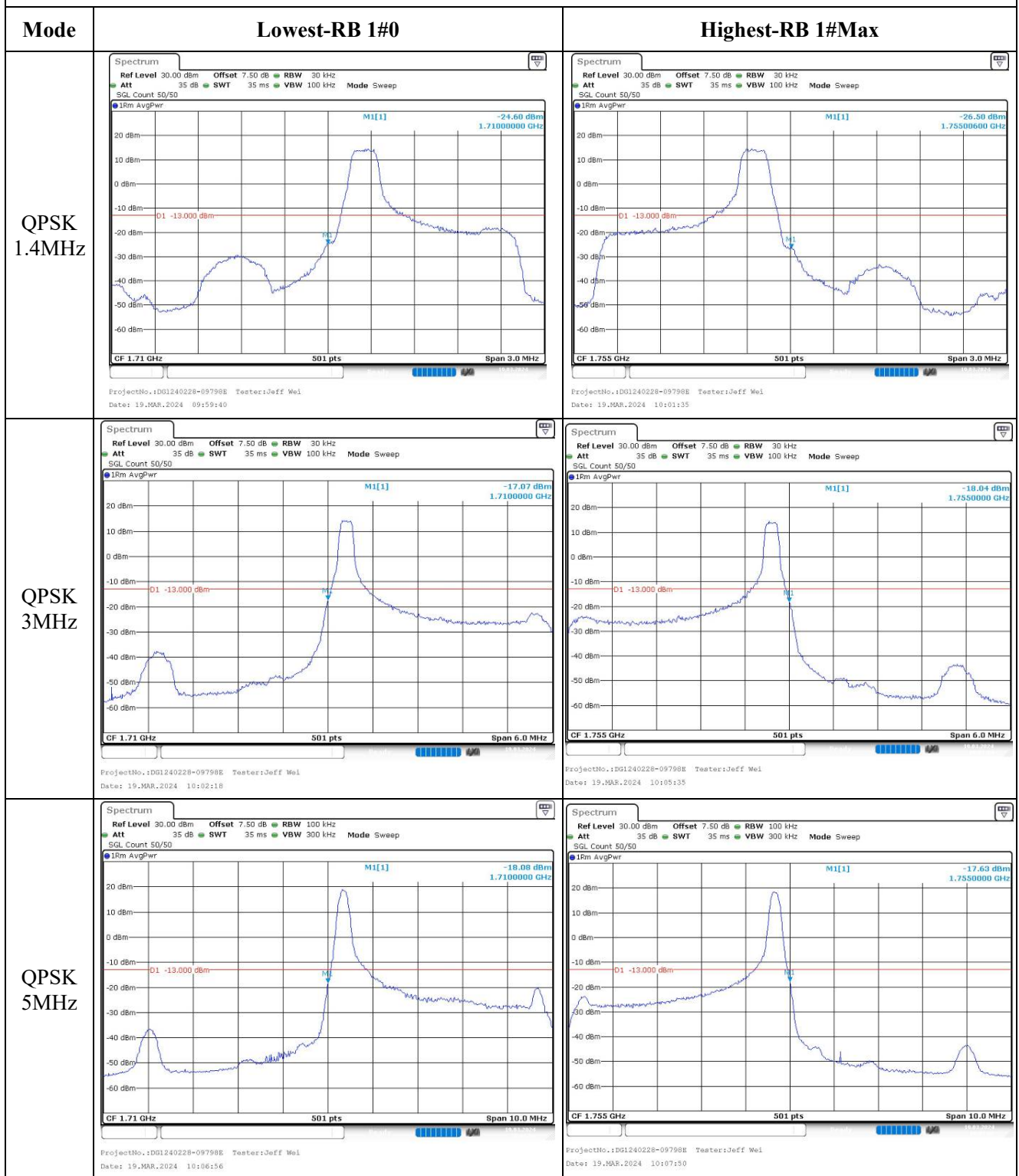
Middle



Highest



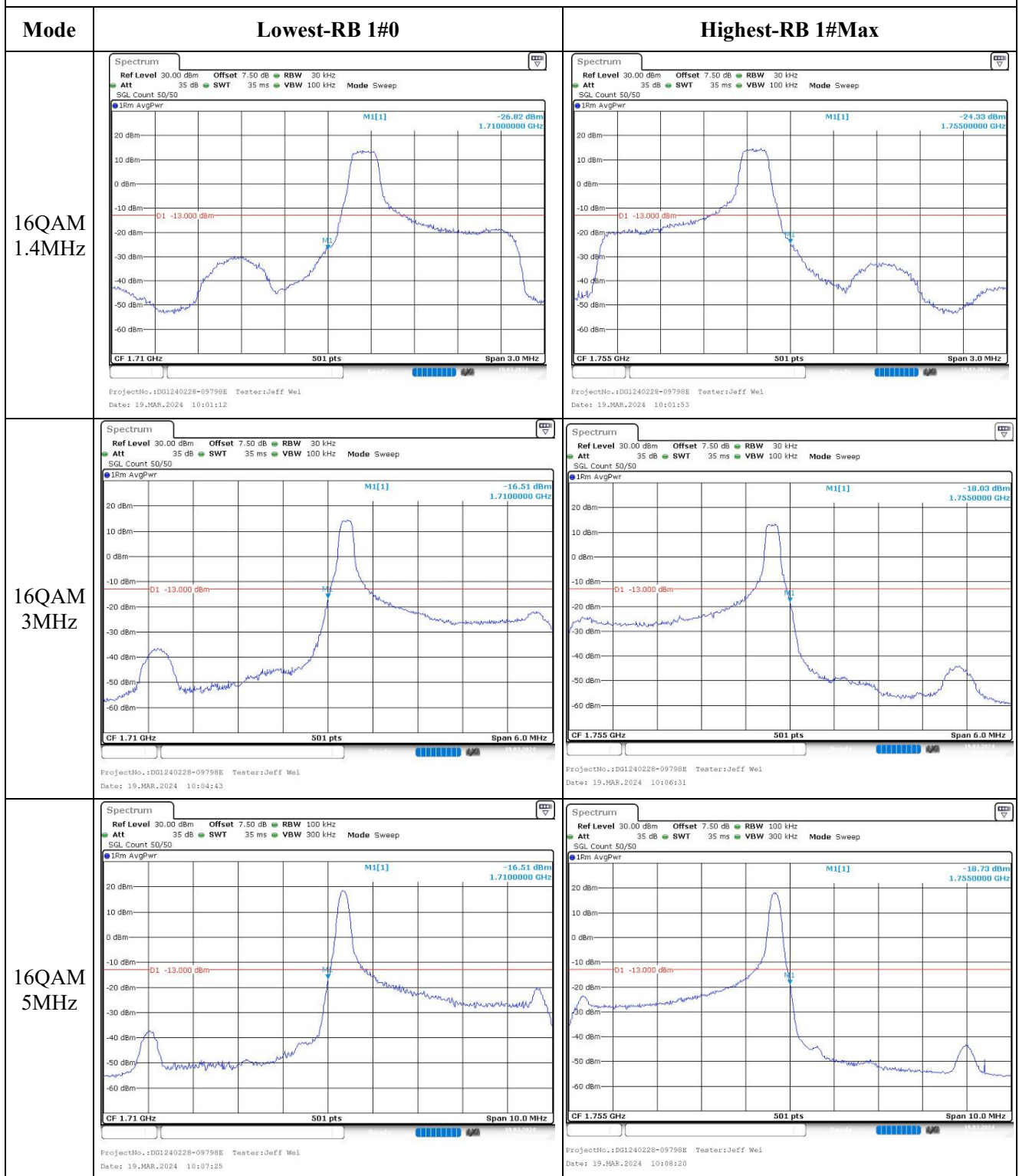
Out of band emission, Band Edge



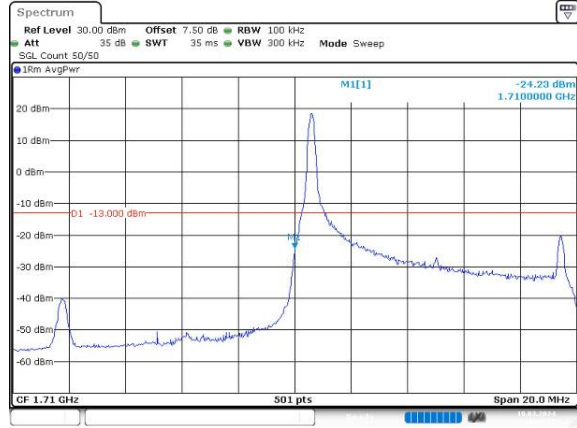
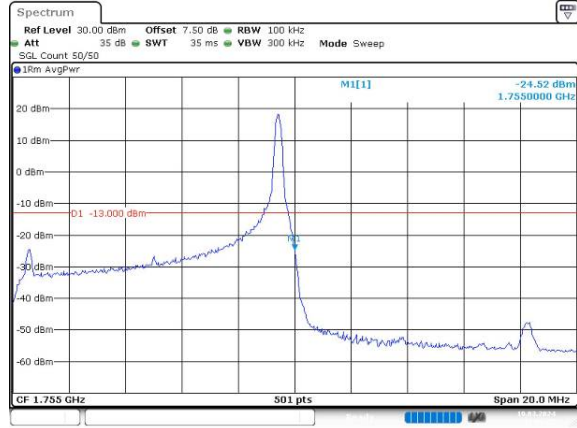
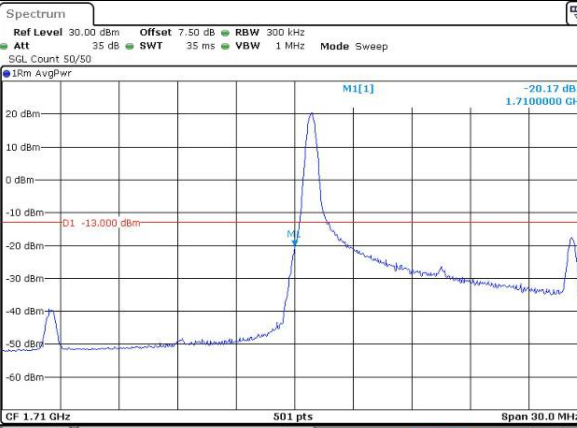
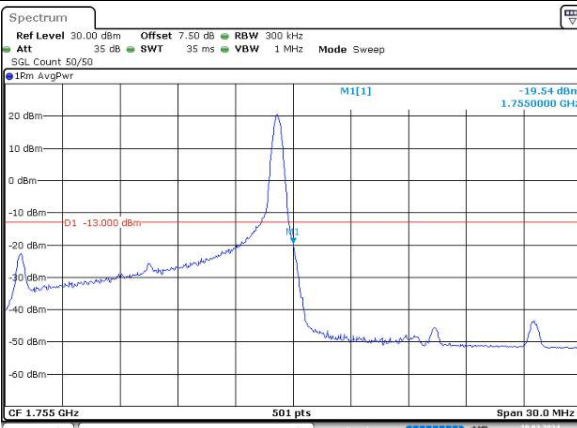
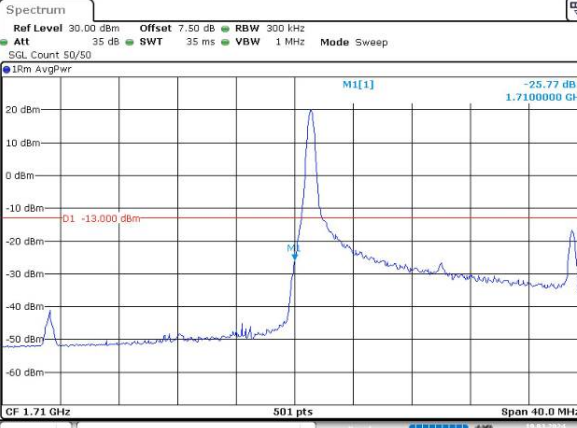
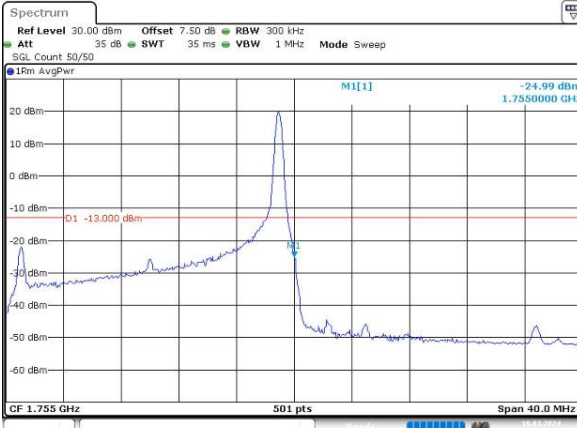
Out of band emission, Band Edge

Mode	Lowest-RB 1#0	Highest-RB 1#Max
QPSK 10MHz	ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:08:40	ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 11:05:54
QPSK 15MHz	ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:10:17	ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:10:50
QPSK 20MHz	ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:11:33	ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:12:25

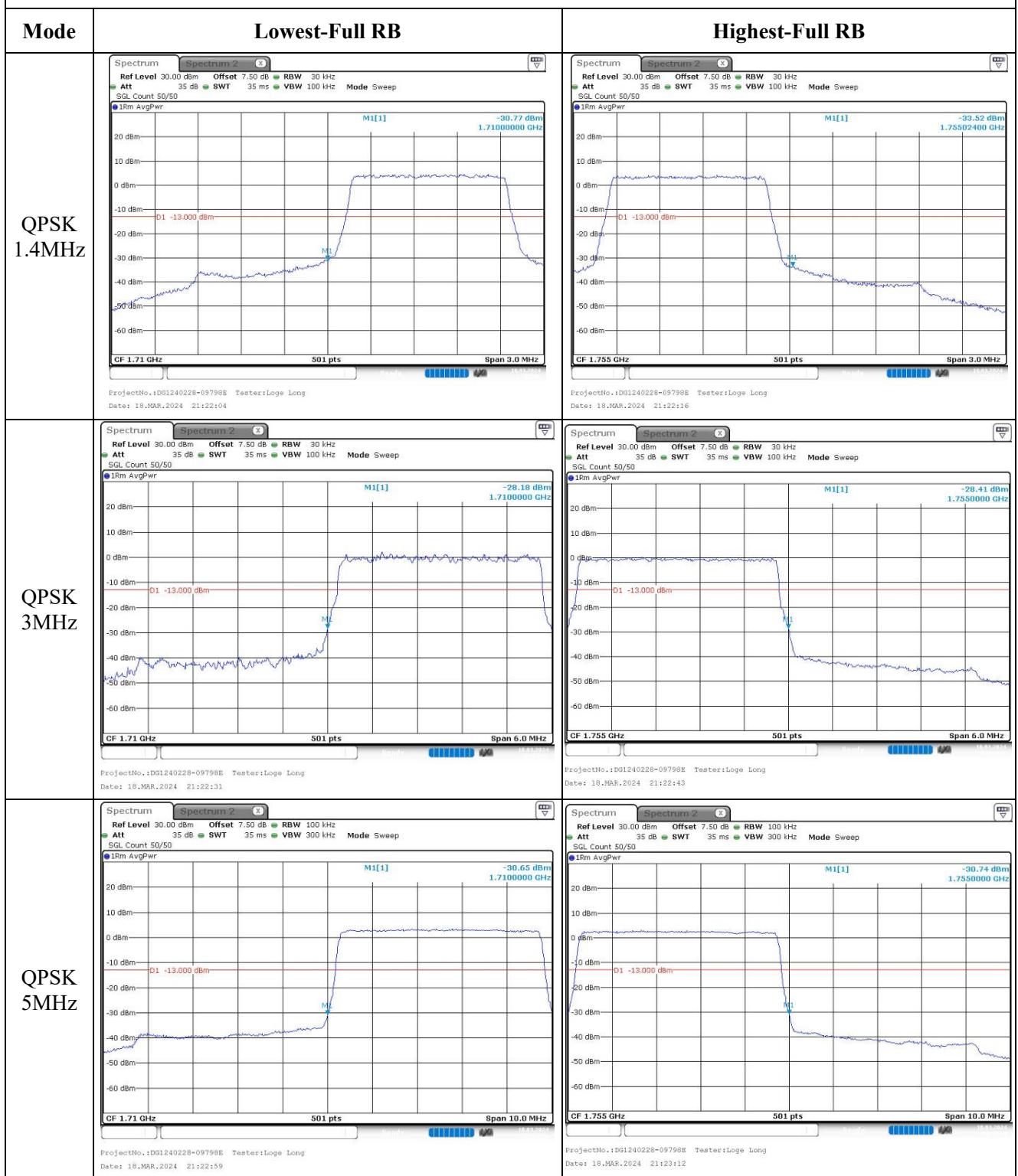
Out of band emission, Band Edge



Out of band emission, Band Edge

Mode	Lowest-RB 1#0	Highest-RB 1#Max
16QAM 10MHz	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:09:16	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 11:06:27
16QAM 15MHz	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:10:32	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:11:10
16QAM 20MHz	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:11:57	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 11:10:09

Out of band emission, Band Edge



Out of band emission, Band Edge

Mode	Lowest-Full RB	Highest-Full RB
QPSK 10MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:23:28	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:23:41
QPSK 15MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:23:57	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:24:11
QPSK 20MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:24:27	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:24:41

Out of band emission, Band Edge

Mode	Lowest-Full RB	Highest-Full RB
16QAM 1.4MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:22:09	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:22:21
16QAM 3MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:22:37	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:22:49
16QAM 5MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:23:05	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:23:17

Out of band emission, Band Edge

Mode	Lowest-Full RB	Highest-Full RB
16QAM 10MHz		
16QAM 15MHz		
16QAM 20MHz		

5.6 Antenna Port Test Data and Results for LTE Band 12

Serial Number:	2145-3	Test Date:	2024/3/18~2024/3/19
Test Site:	RF	Test Mode:	Transmitting
Tester:	Loge Long, Jeff Wei	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	23.4~23.7	Relative Humidity: (%)	63~64	ATM Pressure: (kPa)	100.9~101.4
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Minl-Circuits	Coaxial Power Splitters & Combiner	ZFRSC-183-S+	SF448201614	2024/2/25	2025/2/24
R&S	Wideband Radio Communication Tester	CMW500	149216	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
R&S	Spectrum Analyzer	FSV40	101461	2023/11/27	2024/11/26
TDK-Lambda	DC Power Supply	Z+60-14	F-08-EM038-1	N/A	N/A
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	2023/9/1	2024/8/31
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	2023/9/1	2024/8/31

* 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	699.7	707.5	715.3
3MHz	700.5	707.5	714.5
5MHz	701.5	707.5	713.5
10MHz	704	707.5	711

Test Data:**FCC§2.1046;§ 27.50(c) (10)****RF Output Power:**

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
1.4MHz QPSK	RB1#0	22.84	22.93	23.09	19.26	34.77
	RB1#3	22.96	23	23		
	RB1#5	22.99	22.98	23.02		
	RB3#0	23	22.98	22.89		
	RB3#3	23	22.94	22.88		
	RB6#0	21.9	21.9	21.97		
1.4MHz 16QAM	RB1#0	22.57	22.57	22.1	18.83	34.77
	RB1#3	22.51	22.49	21.9		
	RB1#5	22.66	22.54	22.07		
	RB3#0	21.84	21.9	21.97		
	RB3#3	21.96	21.86	21.92		
	RB6#0	20.86	21.1	20.97		
3MHz QPSK	RB1#0	23.07	22.9	22.81	19.24	34.77
	RB1#8	22.93	22.94	22.85		
	RB1#14	22.93	22.98	22.9		
	RB6#0	21.91	21.99	22.01		
	RB6#9	21.87	21.81	21.91		
	RB15#0	21.94	21.91	21.94		
3MHz 16QAM	RB1#0	22.82	21.9	22.68	18.99	34.77
	RB1#8	22.57	21.92	22.65		
	RB1#14	22.82	21.93	22.6		
	RB6#0	20.92	21.14	20.93		
	RB6#9	20.83	21.21	20.86		
	RB15#0	20.82	21.04	21.01		
5MHz QPSK	RB1#0	23.07	22.73	22.8	19.24	34.77
	RB1#13	22.94	22.82	22.78		
	RB1#24	22.97	22.67	22.74		
	RB15#0	21.99	21.87	21.79		
	RB15#10	21.88	21.89	22.01		
	RB25#0	21.89	21.94	21.92		
5MHz 16QAM	RB1#0	22.44	22.24	21.63	18.61	34.77
	RB1#13	22.3	22.2	21.64		
	RB1#24	22.3	22.23	21.52		
	RB15#0	20.64	20.83	20.93		
	RB15#10	20.67	20.87	20.94		
	RB25#0	20.67	20.85	21.08		
10MHz QPSK	RB1#0	22.96	22.93	22.8	19.19	34.77
	RB1#25	23.02	22.9	22.81		
	RB1#49	23.02	22.9	22.89		

10MHz 16QAM	RB25#0	21.9	21.92	21.83	19.34	34.77
	RB25#25	21.92	21.88	21.96		
	RB50#0	21.93	21.88	21.81		
	RB1#0	23.11	22.03	22.77		
	RB1#25	23.17	22.02	22.58		
	RB1#49	22.99	21.94	22.68		
	RB25#0	20.78	21.15	21.04		
	RB25#25	21.05	21.03	20.95		
	RB50#0	21.42	21.06	20.94		

Note:

ERP= Conducted Power(dBm) - Lc(dB) + Gr(dBd)

Gr(dBd)=Gr(dBi)-2.15

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	
10MHz QPSK	RB1#0	5.19	5.16	5.3	13
	RB50#0	5.28	5.51	5.39	13
10MHz 16QAM	RB1#0	5.97	5.62	5.86	13
	RB50#0	6.17	6.41	6.29	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
1.4MHz QPSK	1.102	1.096	1.102	1.26	1.248	1.254
1.4MHz 16QAM	1.102	1.102	1.096	1.254	1.266	1.254
3MHz QPSK	2.695	2.695	2.707	3.012	3.012	3
3MHz 16QAM	2.683	2.695	2.683	3	3.024	2.988
5MHz QPSK	4.511	4.531	4.511	5.02	4.98	4.98
5MHz 16QAM	4.531	4.531	4.511	5	5.02	4.98
10MHz QPSK	8.942	8.982	8.982	9.8	9.84	9.8
10MHz 16QAM	8.942	8.982	8.982	9.8	9.84	9.72

Note: Test was performed at full RB. The test plots please refer to the Plots of Occupied Bandwidth

FCC §2.1051, §27.53: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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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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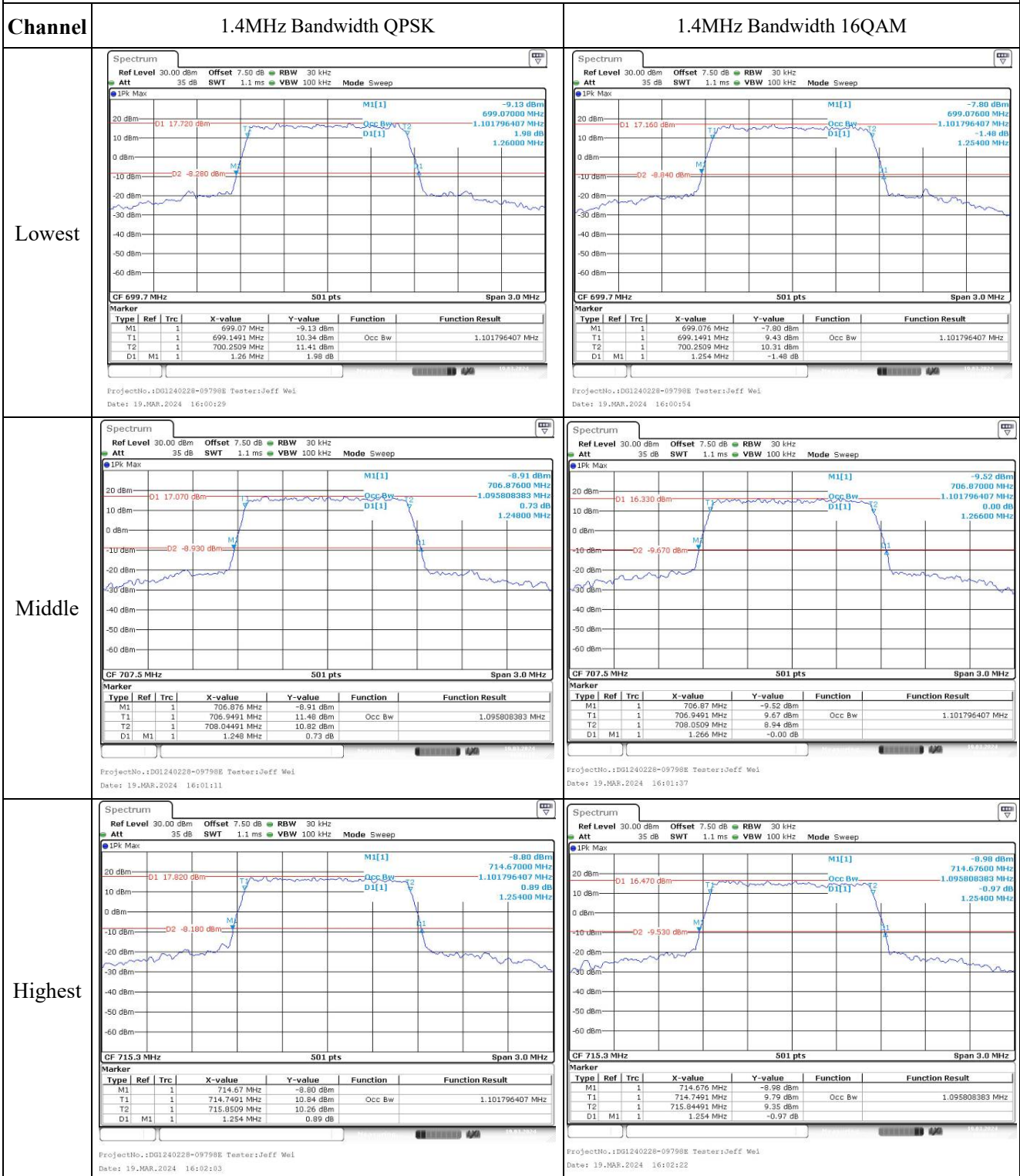
FCC §2.1055, §27.54: Frequency Stability

Test Mode:	10M 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	3.8	699.478	699.00	715.487	716.00
	-20	3.8	699.508	699.00	715.490	716.00
	-10	3.8	699.526	699.00	715.508	716.00
	0	3.8	699.517	699.00	715.493	716.00
	10	3.8	699.505	699.00	715.484	716.00
	20	3.8	699.529	699.00	715.511	716.00
	30	3.8	699.538	699.00	715.532	716.00
	40	3.8	699.541	699.00	715.523	716.00
	50	3.8	699.547	699.00	715.538	716.00
Frequency Stability vs. Voltage	20	3.6	699.556	699.00	715.526	716.00
	20	4.35	699.538	699.00	715.529	716.00
					Result:	Pass

Test Mode:	10M 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	3.8	699.508	699.00	715.499	716.00
	-20	3.8	699.517	699.00	715.496	716.00
	-10	3.8	699.508	699.00	715.487	716.00
	0	3.8	699.505	699.00	715.484	716.00
	10	3.8	699.526	699.00	715.496	716.00
	20	3.8	699.529	699.00	715.511	716.00
	30	3.8	699.532	699.00	715.535	716.00
	40	3.8	699.532	699.00	715.529	716.00
	50	3.8	699.550	699.00	715.529	716.00
Frequency Stability vs. Voltage	20	3.6	699.553	699.00	715.514	716.00
	20	4.35	699.550	699.00	715.532	716.00
					Result:	Pass

Test Plots:

Occupied Bandwidth



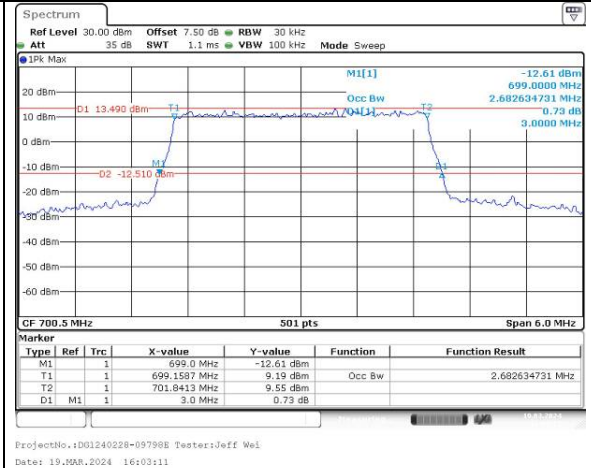
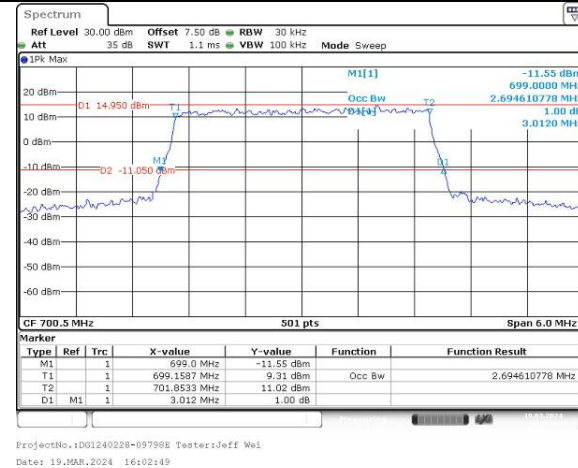
Occupied Bandwidth

Channel

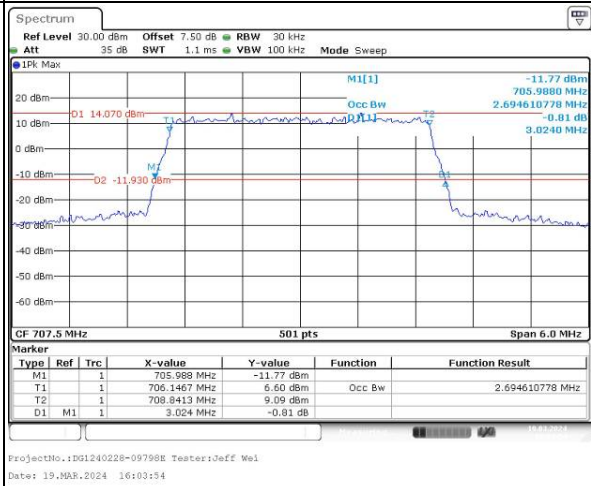
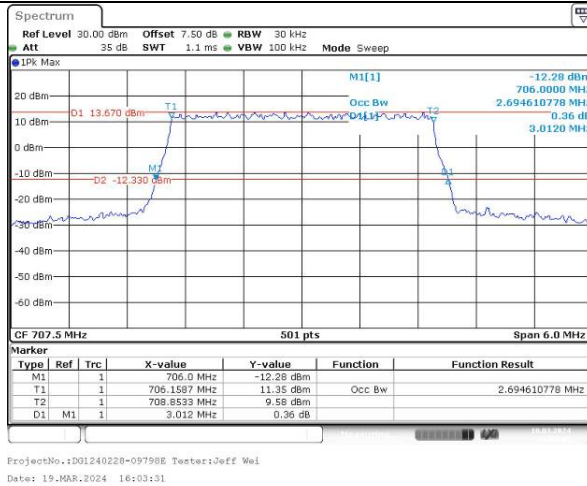
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

Lowest



Middle



Highest

