

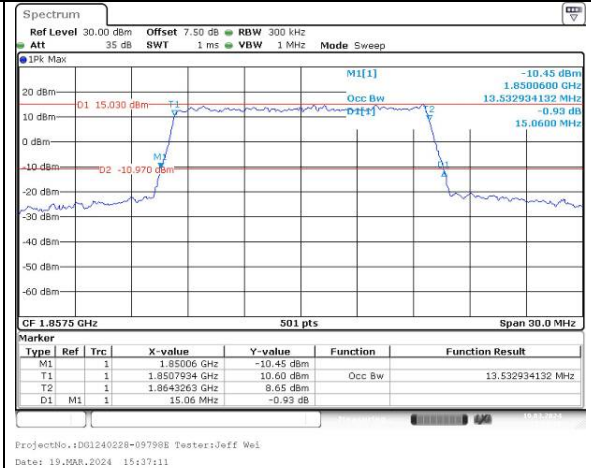
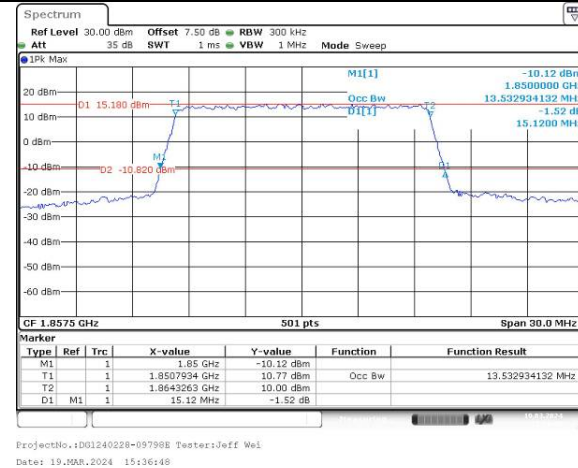
Occupied Bandwidth

Channel

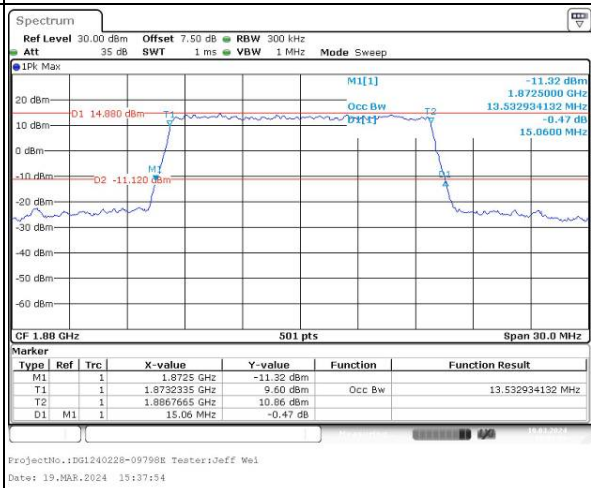
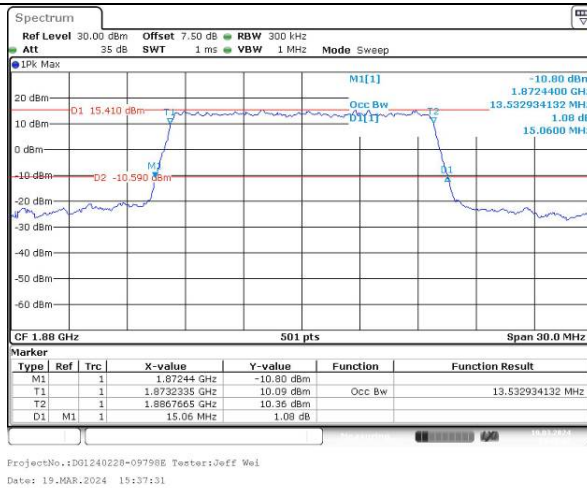
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

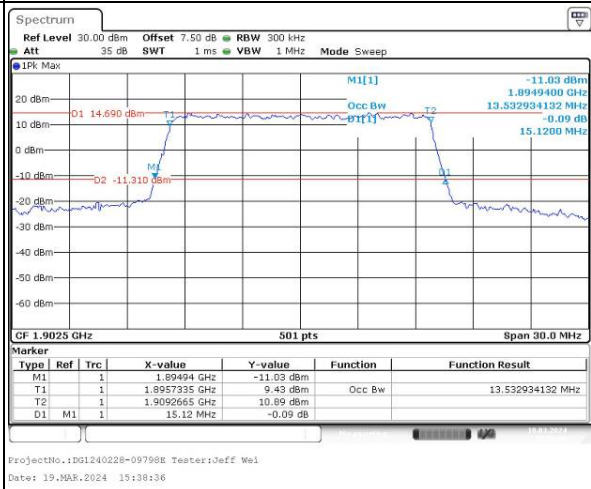
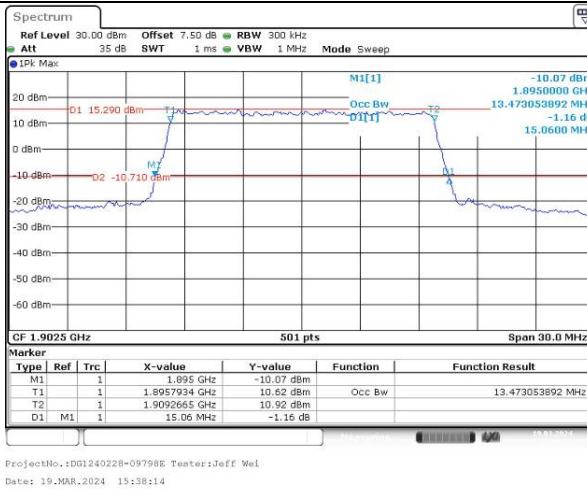
Lowest



Middle



Highest



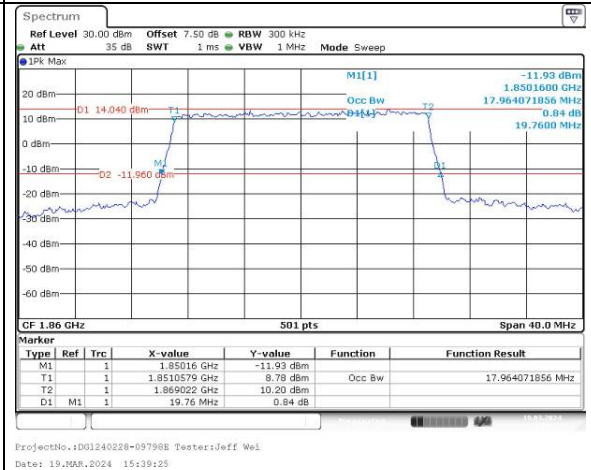
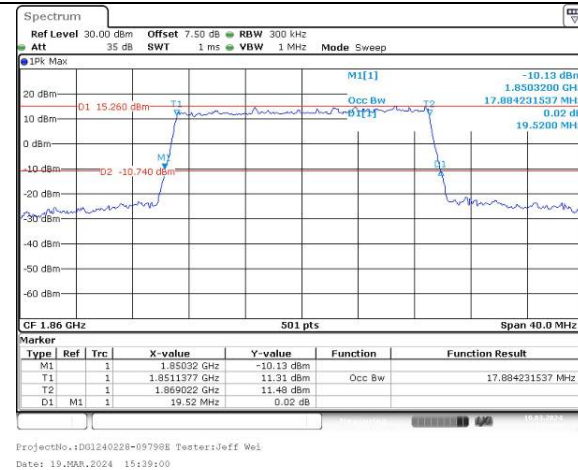
Occupied Bandwidth

Channel

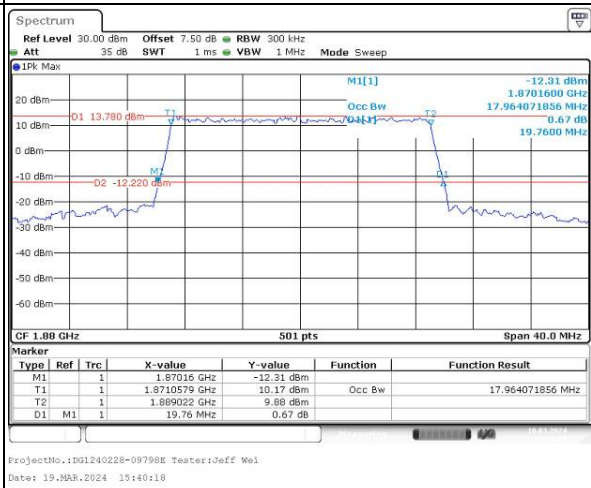
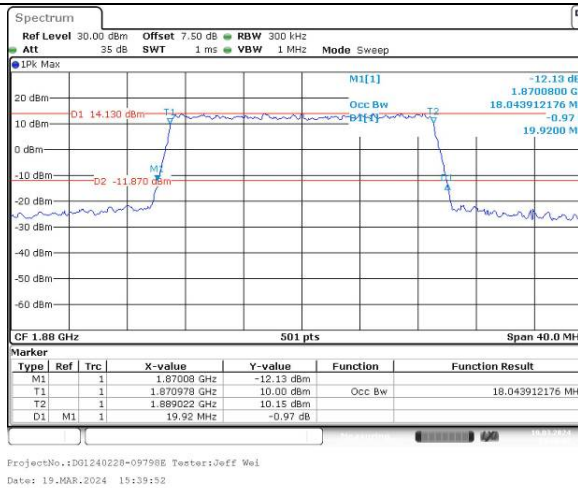
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

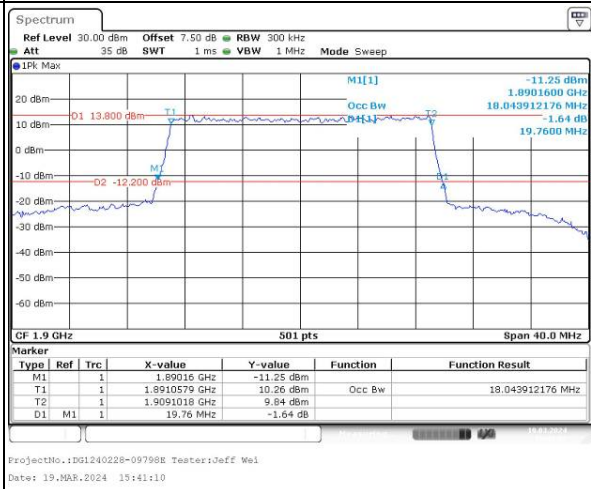
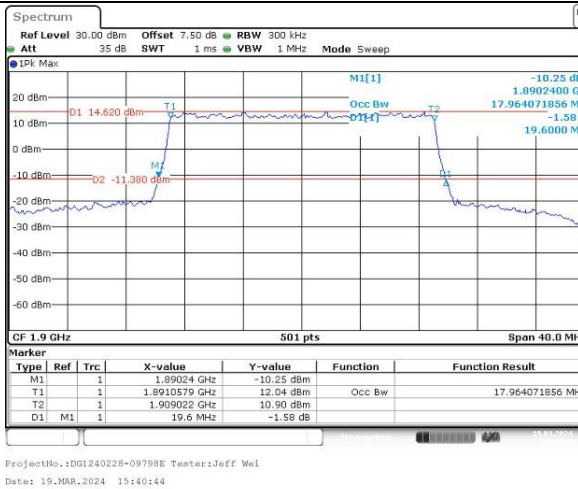
Lowest



Middle



Highest

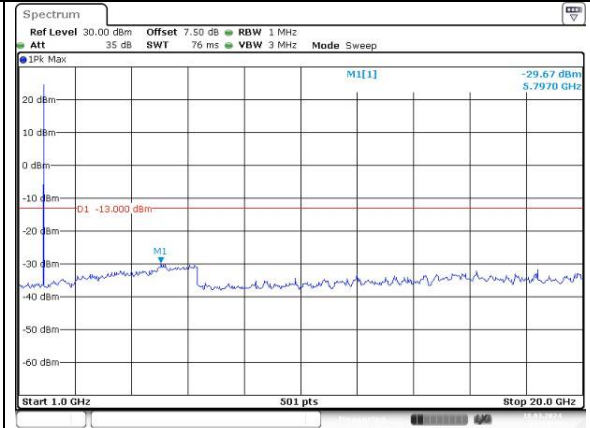
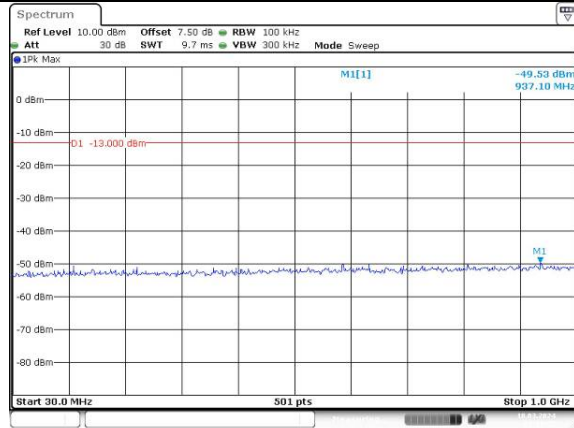


Spurious Emissions at Antenna Terminal

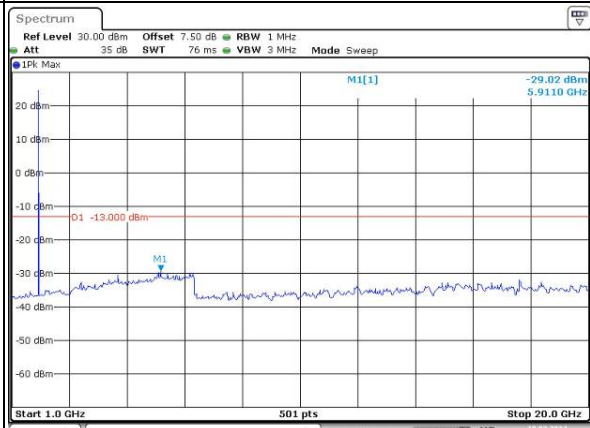
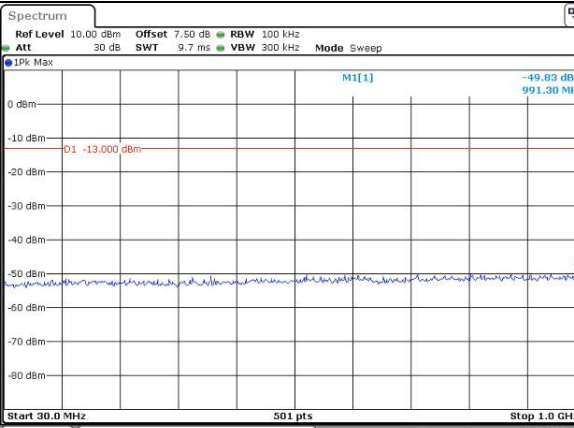
Channel

1.4MHz Bandwidth QPSK

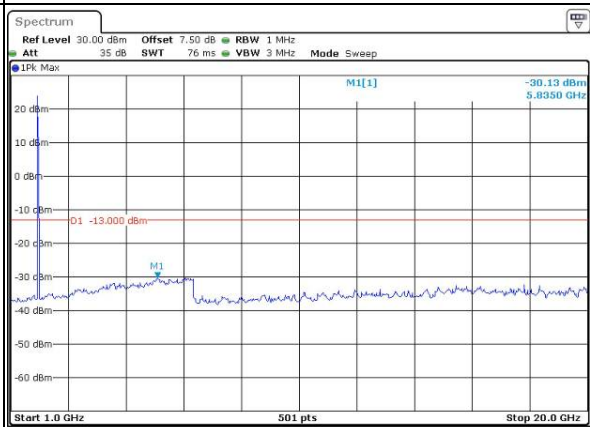
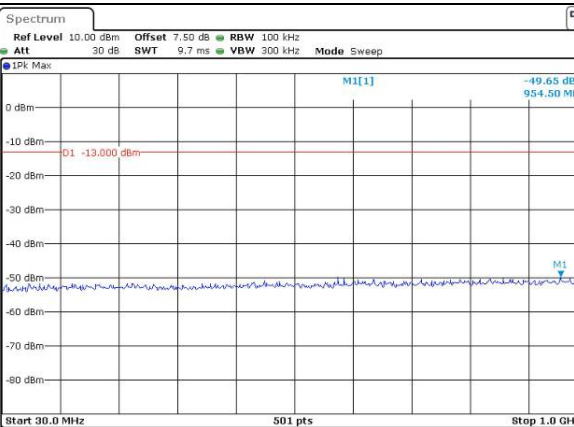
Lowest



Middle



Highest

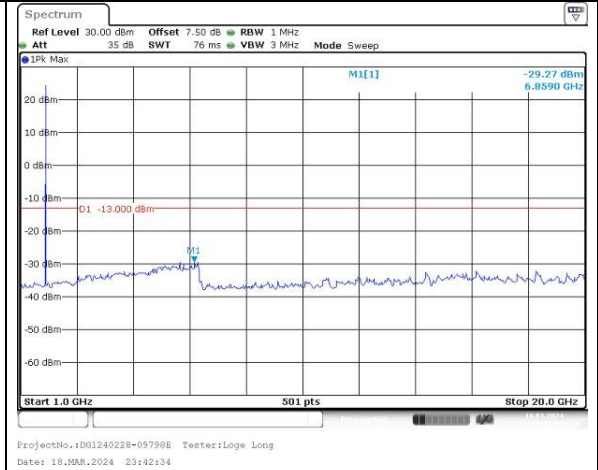
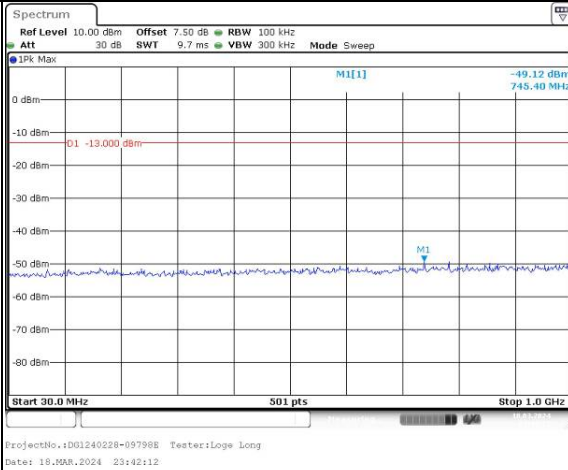


Spurious Emissions at Antenna Terminal

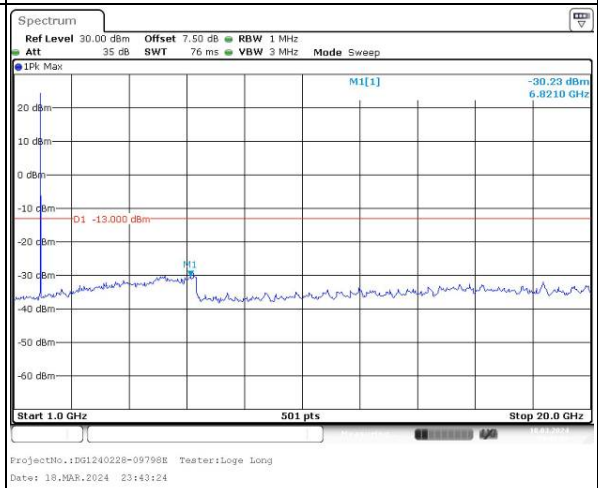
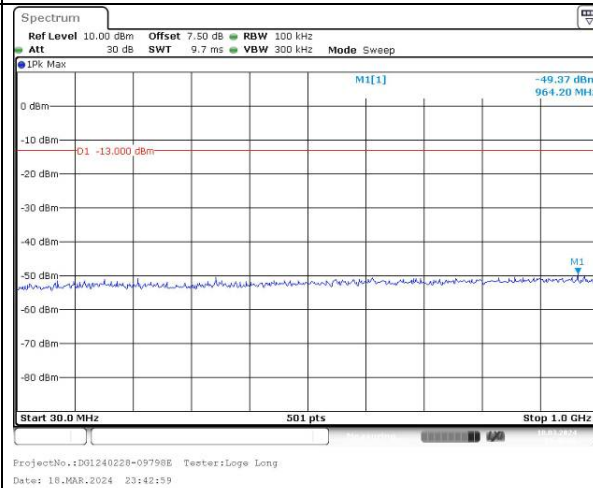
Channel

3MHz Bandwidth QPSK

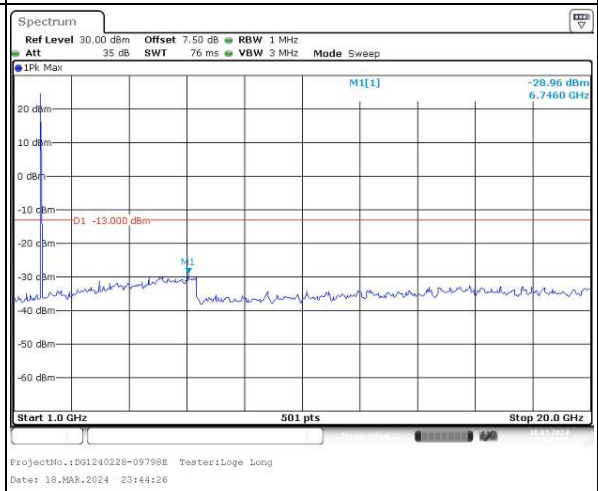
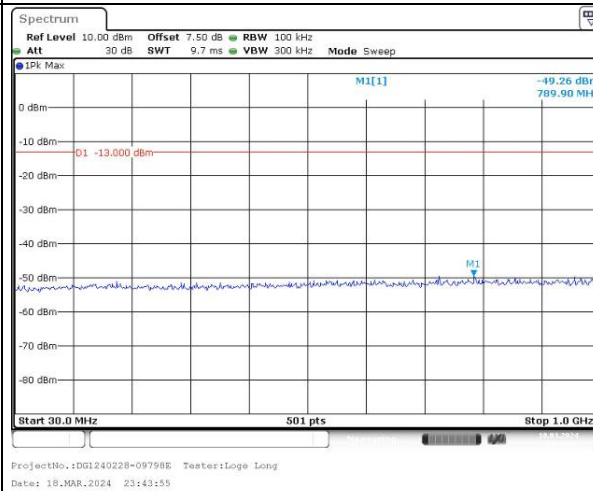
Lowest



Middle



Highest

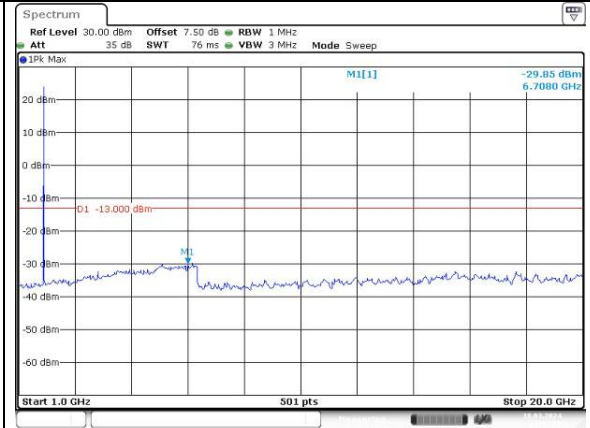
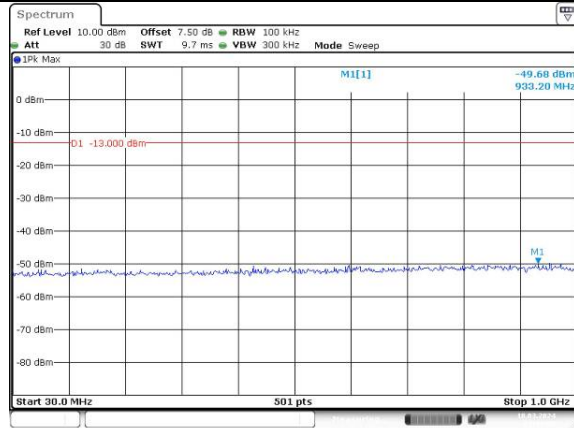


Spurious Emissions at Antenna Terminal

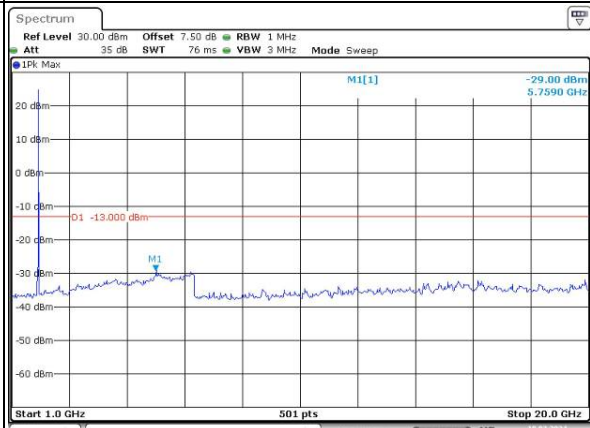
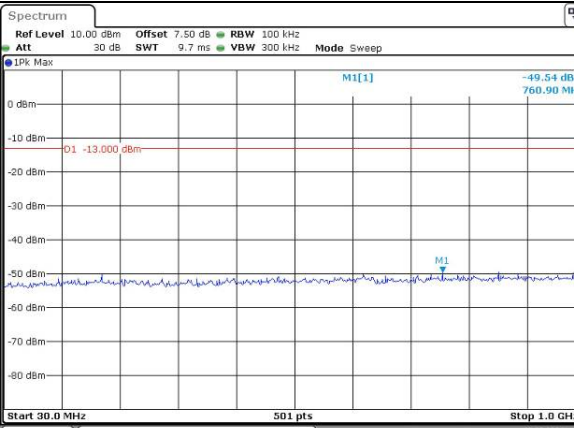
Channel

5MHz Bandwidth QPSK

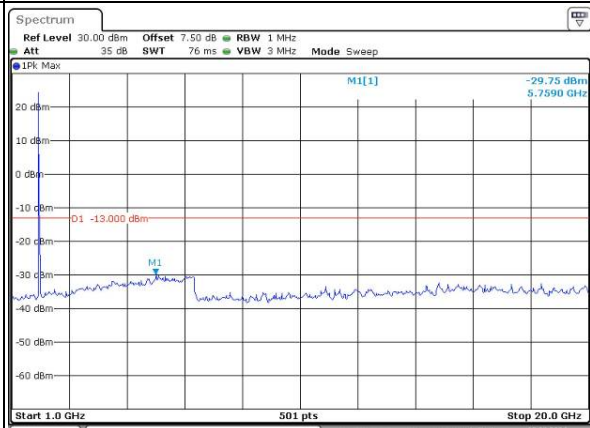
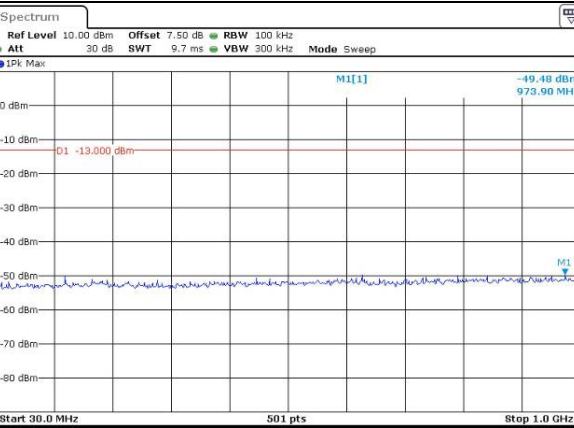
Lowest



Middle



Highest

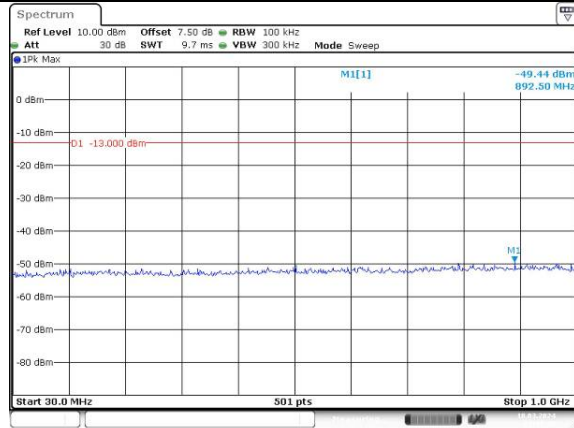


Spurious Emissions at Antenna Terminal

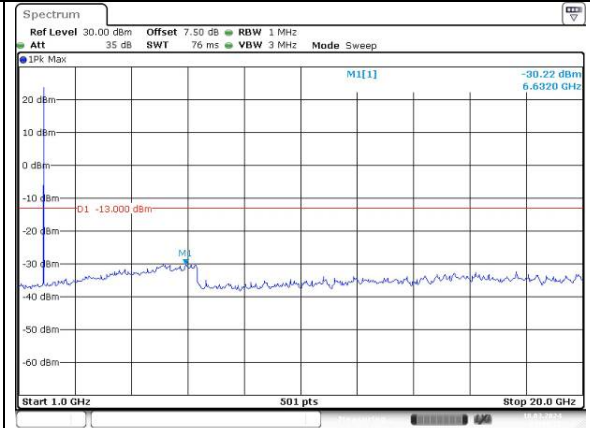
Channel

10MHz Bandwidth QPSK

Lowest

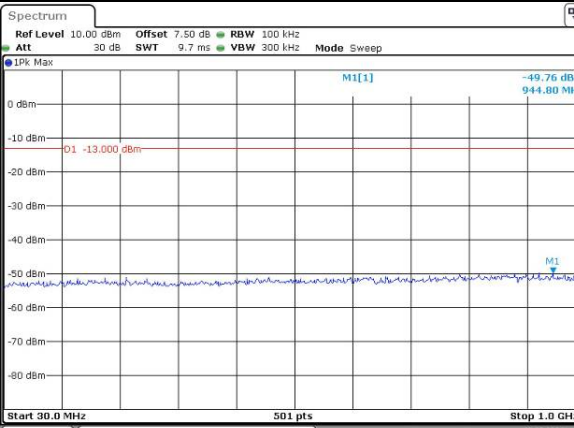


ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:47:48

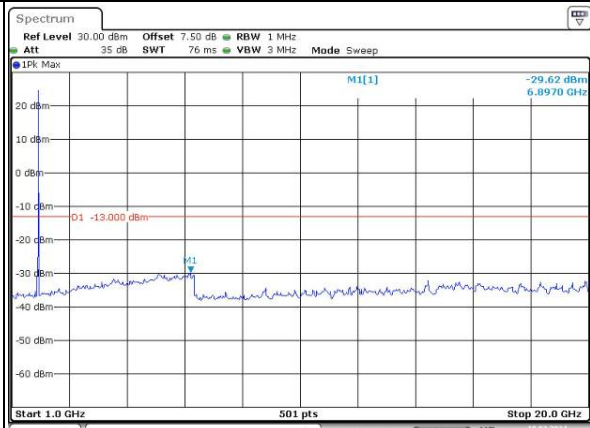


ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:48:13

Middle

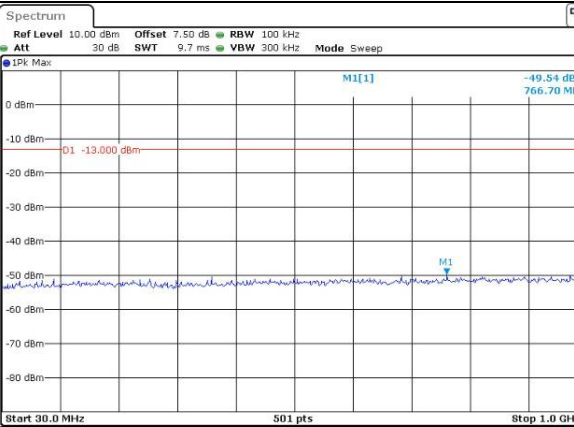


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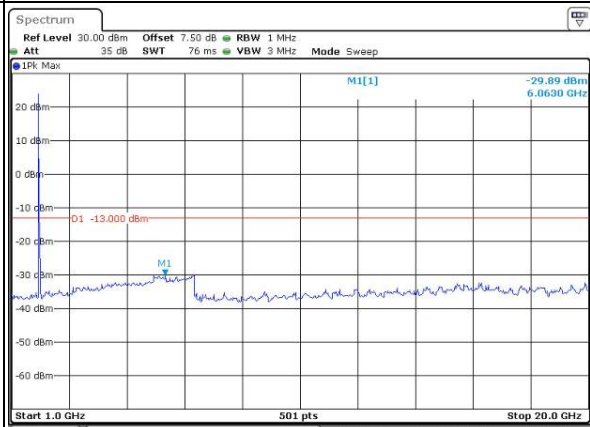


ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:49:06

Highest



ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:49:38



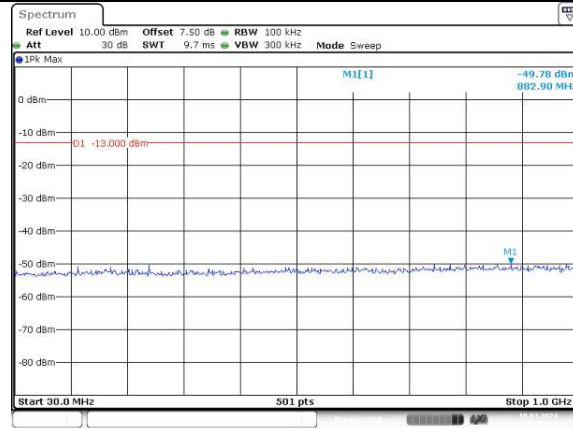
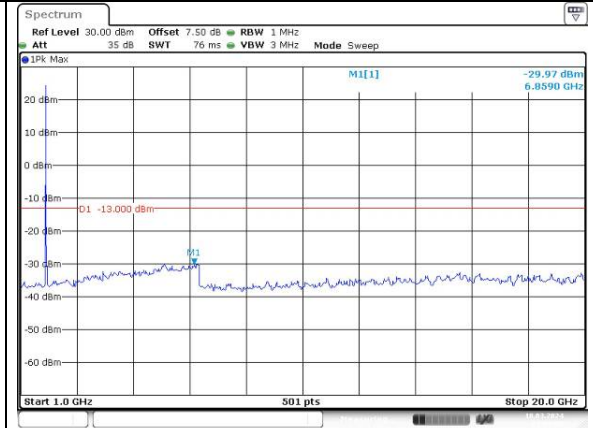
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Date: 18.MAR.2024 23:50:03

Spurious Emissions at Antenna Terminal

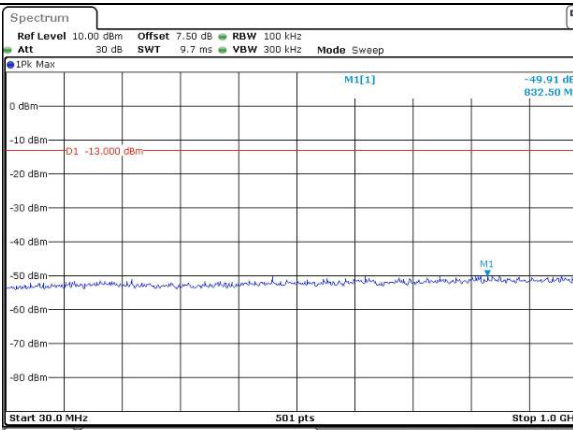
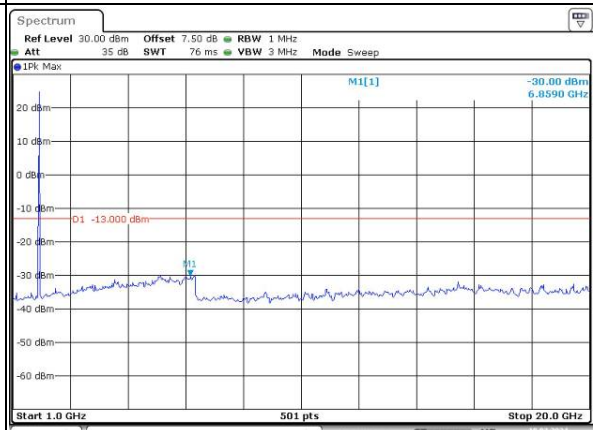
Channel

15MHz Bandwidth QPSK

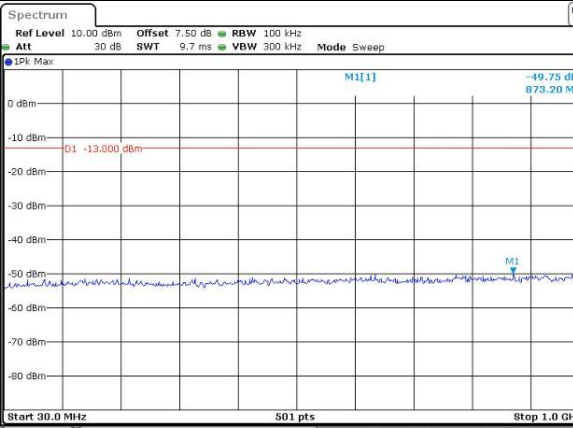
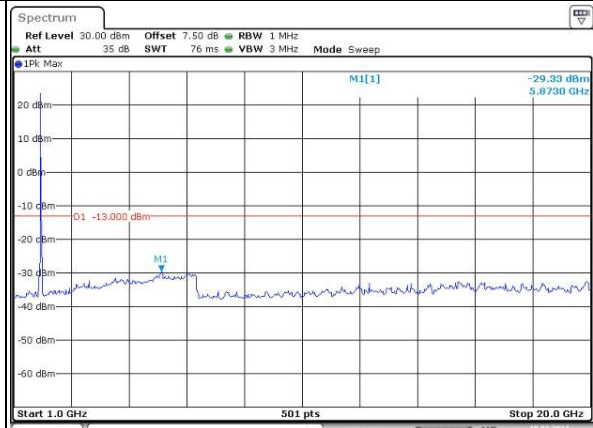
Lowest

ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:50:35ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:50:54

Middle

ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:51:23ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:51:48

Highest

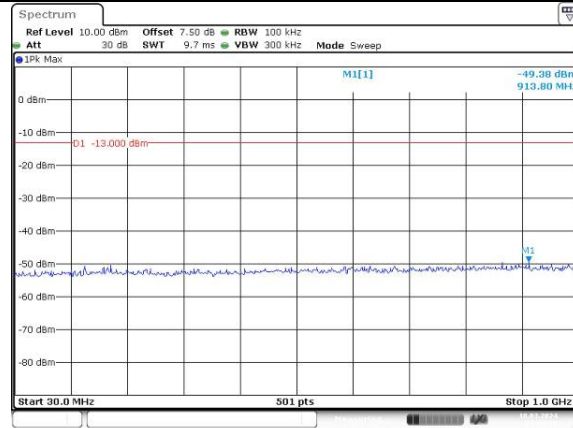
ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:52:13ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:52:42

Spurious Emissions at Antenna Terminal

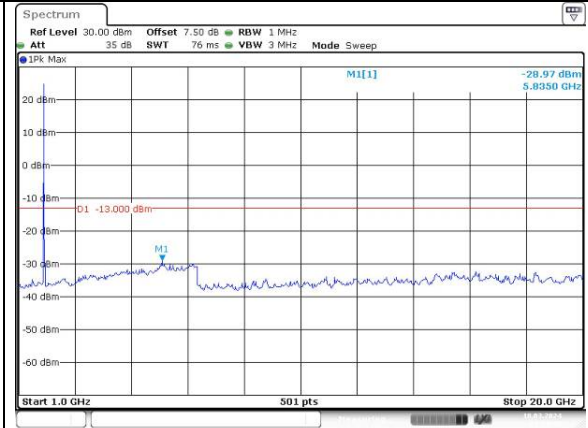
Channel

20MHz Bandwidth QPSK

Lowest

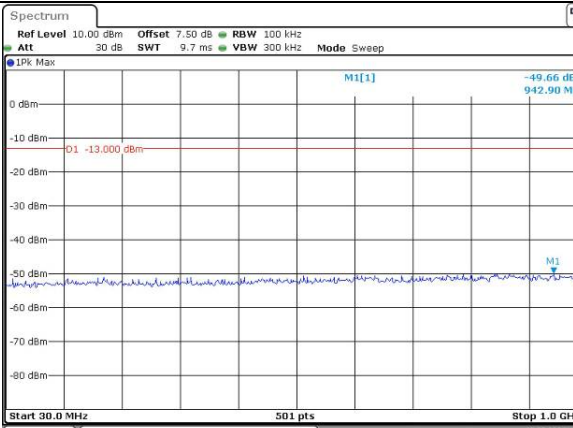


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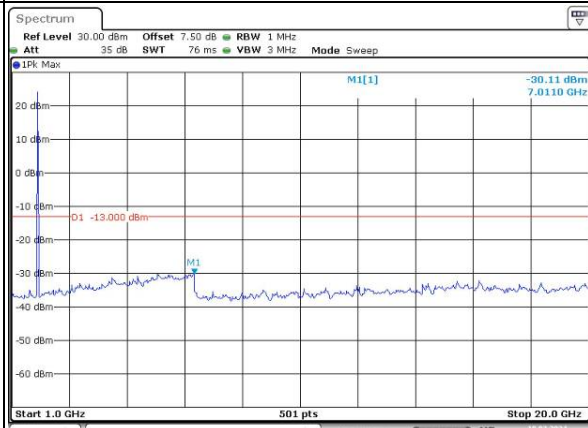


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Date: 18.MAR.2024 23:53:43

Middle

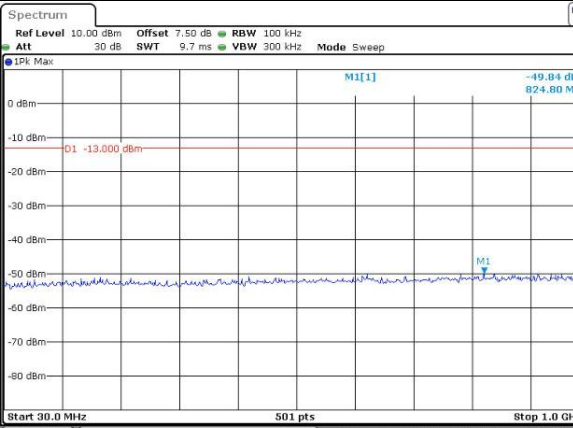


ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:54:15

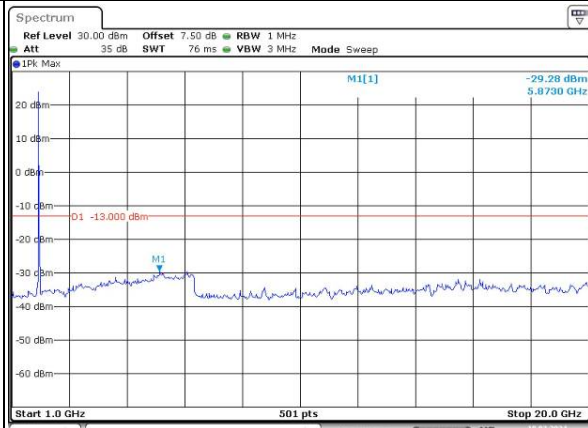


ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:54:37

Highest

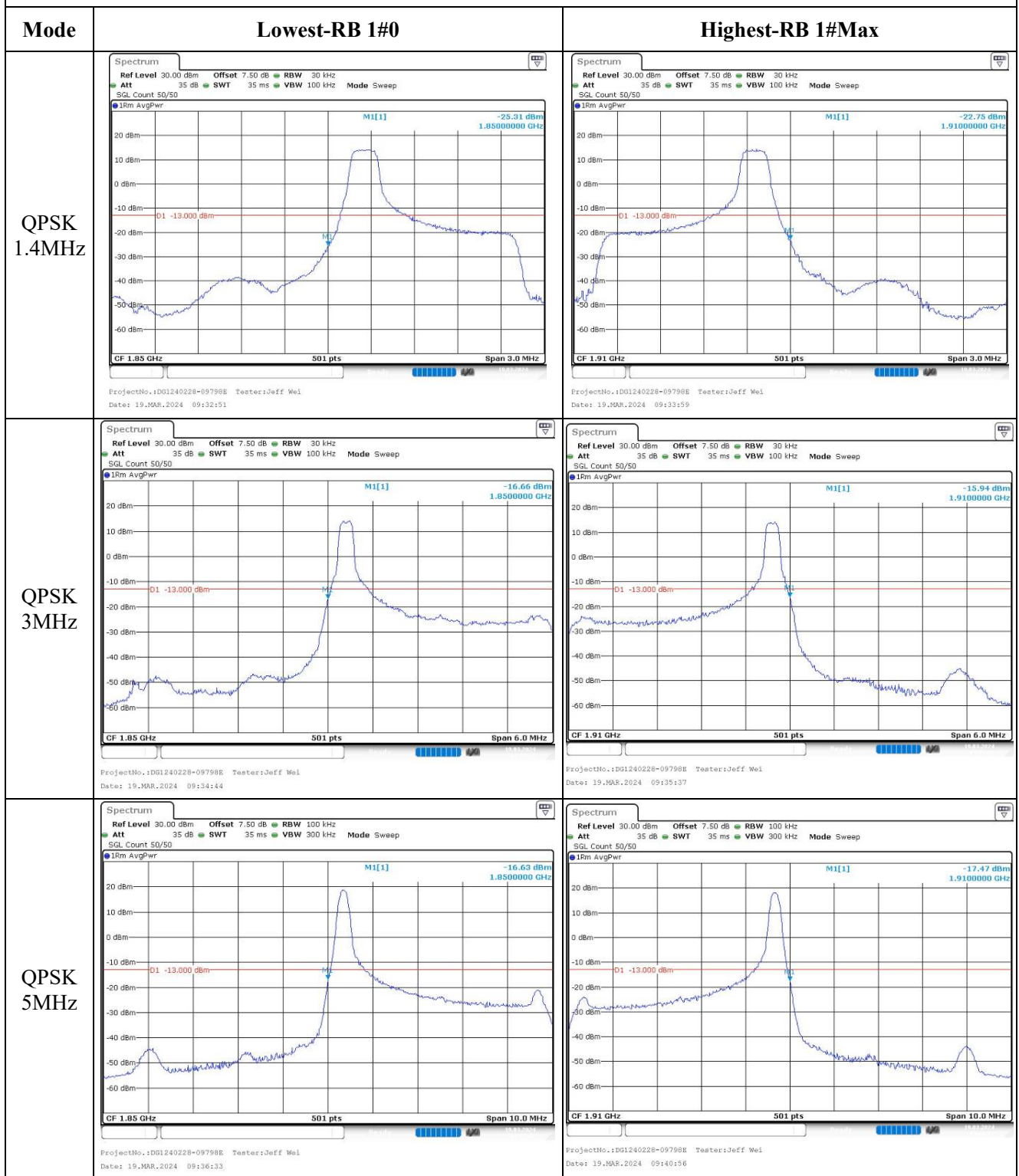


ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:55:09

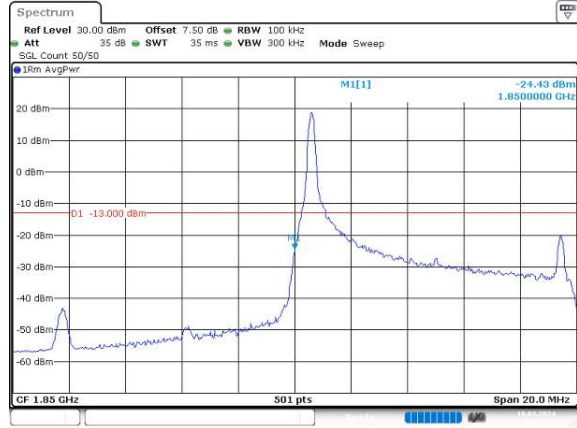
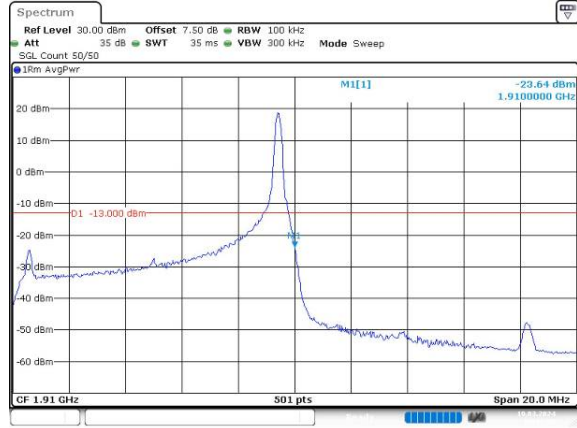
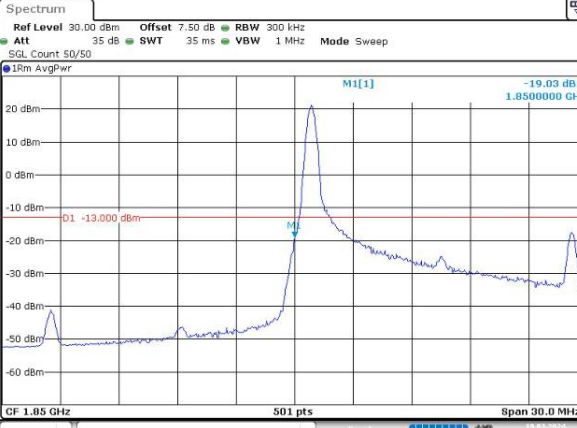
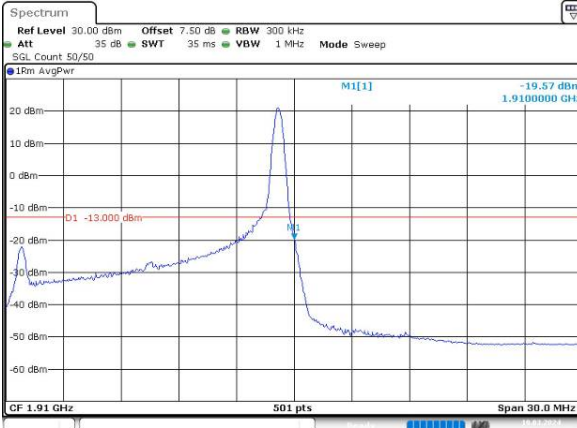
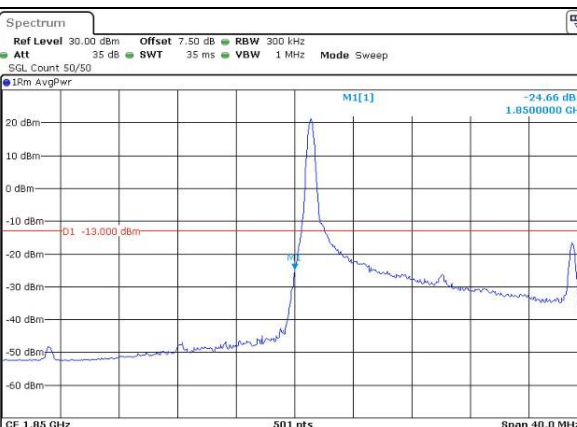
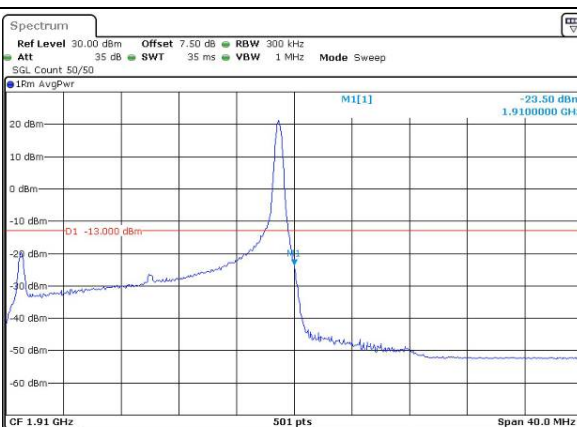


ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 18.MAR.2024 23:55:34

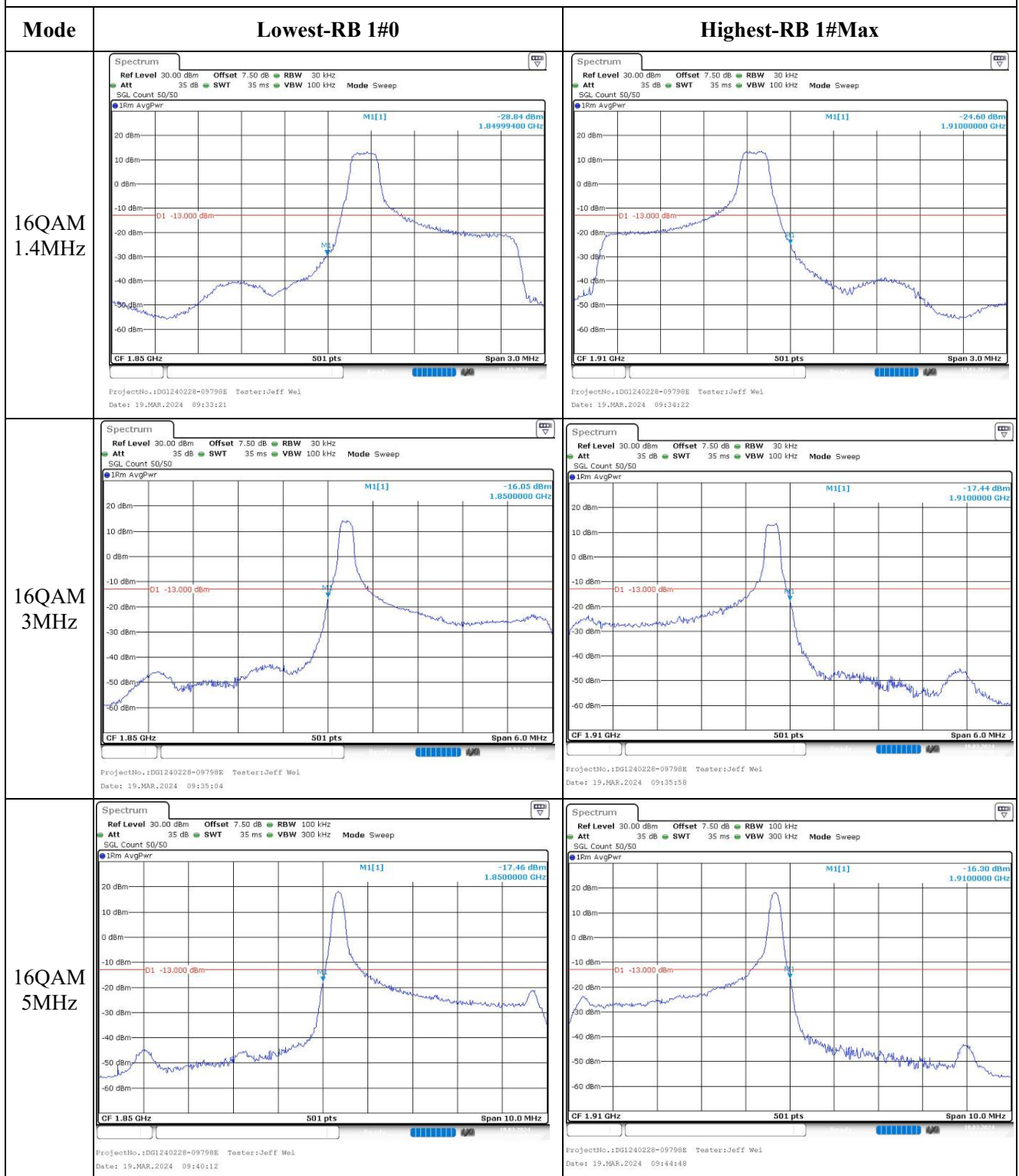
Out of band emission, Band Edge



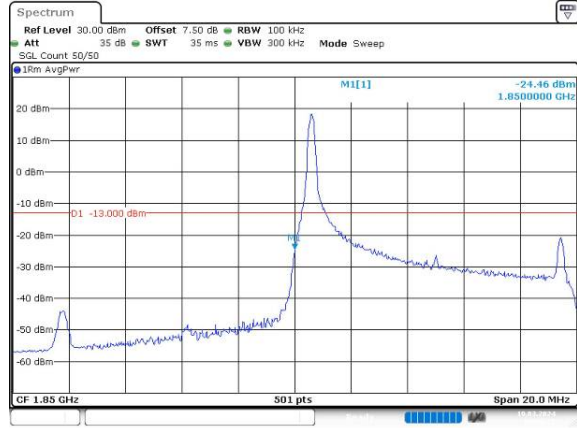
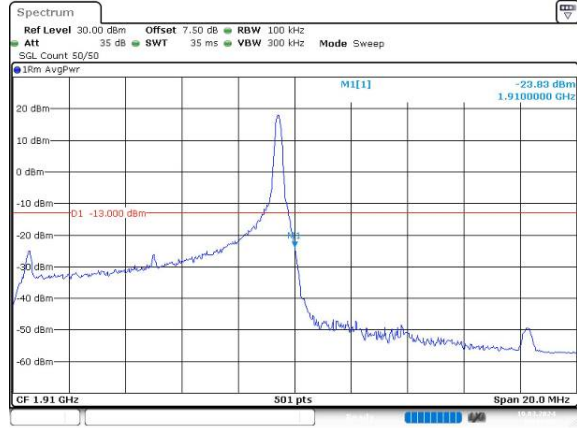
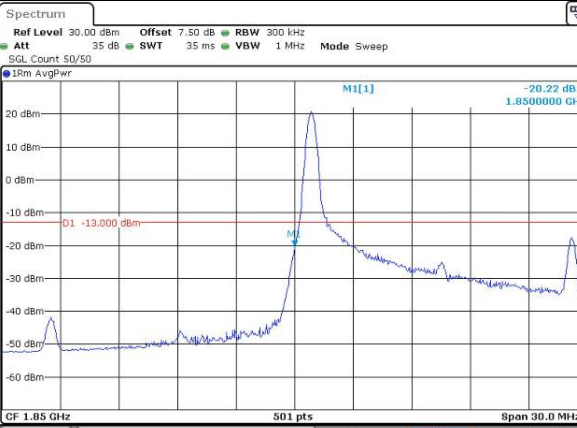
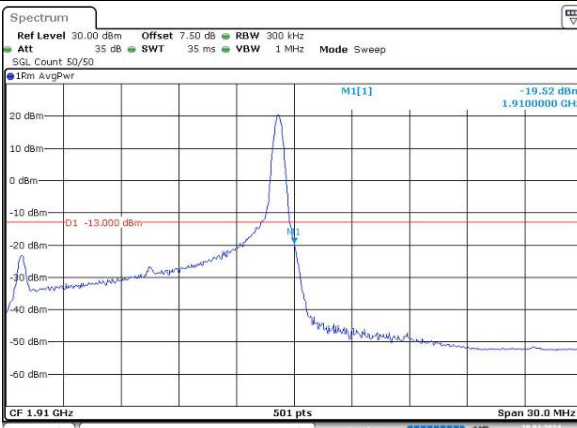
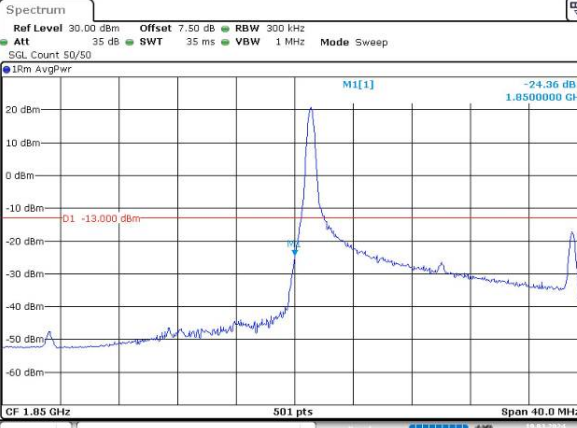
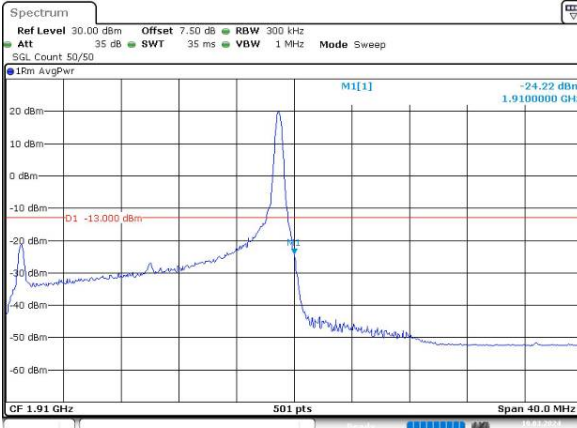
Out of band emission, Band Edge

Mode	Lowest-RB 1#0	Highest-RB 1#Max
QPSK 10MHz	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 09:45:25	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 09:47:21
QPSK 15MHz	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 09:48:40	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 09:51:12
QPSK 20MHz	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 09:54:39	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 09:56:05

Out of band emission, Band Edge



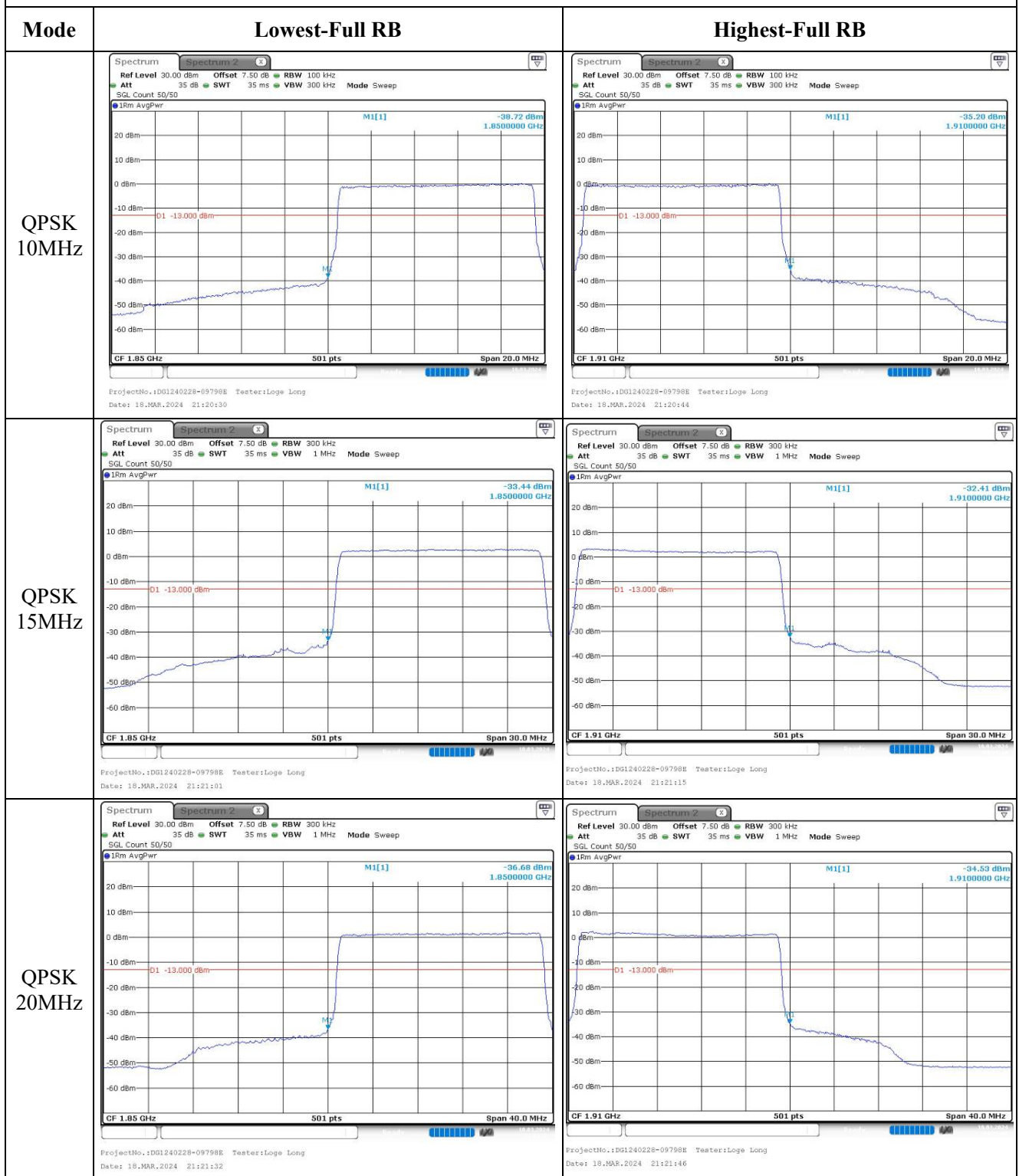
Out of band emission, Band Edge

Mode	Lowest-RB 1#0	Highest-RB 1#Max
16QAM 10MHz	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 09:46:16	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 09:48:01
16QAM 15MHz	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 09:49:03	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 09:53:56
16QAM 20MHz	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 09:55:34	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 11:02:42

Out of band emission, Band Edge

Mode	Lowest-Full RB	Highest-Full RB
QPSK 1.4MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:19:05	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:19:17
QPSK 3MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:19:33	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:19:45
QPSK 5MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:20:01	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:20:14

Out of band emission, Band Edge



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 21:19:11	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:19:23
16QAM 3MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:19:38	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:19:51
16QAM 5MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:20:07	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:20:19

Out of band emission, Band Edge

Mode	Lowest-Full RB	Highest-Full RB
16QAM 10MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:20:36	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:20:50
16QAM 15MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:21:07	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:21:21
16QAM 20MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:21:39	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18.MAR.2024 21:21:53

5.5 Antenna Port Test Data and Results for LTE Band 4

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	1710.7	1732.5	1754.3
3MHz	1711.5	1732.5	1753.5
5MHz	1712.5	1732.5	1752.5
10MHz	1715	1732.5	1750
15MHz	1717.5	1732.5	1747.5
20MHz	1720	1732.5	1745

Test Data:**FCC§2.1046;§ 27.50(d)(4)****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	21.93	21.77	21.67	23.51	30
	RB1#3	21.87	21.81	21.64		
	RB1#5	21.93	21.78	21.6		
	RB3#0	21.81	21.76	21.65		
	RB3#3	21.86	21.78	21.61		
	RB6#0	20.79	20.74	20.51		
1.4MHz 16QAM	RB1#0	21.53	20.75	21.4	23.63	30
	RB1#3	21.51	20.75	21.39		
	RB1#5	21.55	20.74	22.05		
	RB3#0	21	20.66	20.72		
	RB3#3	21.01	20.62	20.83		
	RB6#0	20.01	19.86	19.72		
3MHz QPSK	RB1#0	21.87	21.75	21.54	23.47	30
	RB1#8	21.86	21.78	21.53		
	RB1#14	21.89	21.65	21.59		
	RB6#0	20.76	20.7	20.51		
	RB6#9	20.72	20.74	20.5		
	RB15#0	20.78	20.74	20.59		
3MHz 16QAM	RB1#0	21.44	20.73	21.21	23.02	30
	RB1#8	21.41	20.68	21.13		
	RB1#14	21.44	20.68	21.07		
	RB6#0	19.95	19.83	19.64		
	RB6#9	20.09	19.82	19.55		
	RB15#0	19.81	19.85	19.67		
5MHz QPSK	RB1#0	21.94	21.7	21.6	23.52	30
	RB1#13	21.88	21.59	21.56		
	RB1#24	21.85	21.61	21.5		
	RB15#0	20.73	20.68	20.66		
	RB15#10	20.71	20.73	20.56		
	RB25#0	20.81	20.66	20.57		
5MHz 16QAM	RB1#0	21.33	21.37	20.5	22.95	30
	RB1#13	21.37	21.29	20.34		
	RB1#24	21.33	21.35	20.36		
	RB15#0	19.7	19.73	19.74		
	RB15#10	19.71	19.72	19.63		
	RB25#0	19.8	19.85	19.67		
10MHz QPSK	RB1#0	21.87	21.77	21.62	23.45	30
	RB1#25	21.76	21.79	21.72		
	RB1#49	21.79	21.81	21.45		

	RB25#0	20.85	20.67	20.73		
	RB25#25	20.72	20.67	20.55		
	RB50#0	20.85	20.78	20.69		
10MHz 16QAM	RB1#0	22.08	20.77	21.44	23.69	30
	RB1#25	22.08	20.7	21.46		
	RB1#49	22.11	20.7	21.31		
	RB25#0	19.88	19.96	19.72		
	RB25#25	19.86	19.9	19.58		
	RB50#0	19.86	19.77	19.68		
15MHz QPSK	RB1#0	21.87	21.65	21.75	23.45	30
	RB1#38	21.78	21.6	21.7		
	RB1#74	21.84	21.5	21.61		
	RB36#0	20.85	20.75	20.67		
	RB36#39	20.85	20.71	20.55		
	RB75#0	20.77	20.75	20.8		
15MHz 16QAM	RB1#0	22.14	21.54	21.58	23.75	30
	RB1#38	22.12	21.5	21.55		
	RB1#74	22.17	21.46	21.44		
	RB36#0	19.86	19.87	19.88		
	RB36#39	19.88	19.88	19.9		
	RB75#0	19.83	19.85	19.88		
20MHz QPSK	RB1#0	22	21.89	21.98	23.58	30
	RB1#50	21.88	21.82	21.92		
	RB1#99	21.94	21.8	21.83		
	RB50#0	20.88	20.87	20.68		
	RB50#50	20.84	20.72	20.74		
	RB100#0	20.79	20.79	20.76		
20MHz 16QAM	RB1#0	21.38	22.21	20.97	23.79	30
	RB1#50	21.37	22.05	20.91		
	RB1#99	21.35	22.04	20.83		
	RB50#0	19.91	19.85	19.93		
	RB50#50	19.86	19.8	19.88		
	RB100#0	19.78	19.95	19.8		

Note: EIRP=Conducted Power(dBm) - Lc(dB) + G_T(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	4.58	5.33	4.75	13
	RB100#0	5.36	5.33	5.16	13
20MHz 16QAM	RB1#0	5.1	6	5.07	13
	RB100#0	6.29	6.2	6.03	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	1.102	1.102	1.266	1.26	1.254
1.4MHz 16QAM	1.096	1.102	1.108	1.254	1.26	1.266
3MHz QPSK	2.695	2.695	2.695	3.012	3.012	3
3MHz 16QAM	2.695	2.695	2.695	3.024	3.024	3.024
5MHz QPSK	4.511	4.491	4.511	5	4.98	5
5MHz 16QAM	4.551	4.551	4.511	5.02	5	4.98
10MHz QPSK	8.982	8.942	8.982	9.8	9.8	9.84
10MHz 16QAM	8.982	8.942	8.942	9.88	9.84	9.76
15MHz QPSK	13.473	13.533	13.533	15	15.06	15.12
15MHz 16QAM	13.593	13.533	13.533	15.12	15.06	15.06
20MHz QPSK	18.044	18.044	18.044	19.52	19.84	19.6
20MHz 16QAM	17.964	17.964	17.964	19.76	19.76	19.84

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:	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	3.8	1711.013	1710.00	1753.998	1755
	-20	3.8	1711.034	1710.00	1754.016	1755
	-10	3.8	1711.037	1710.00	1754.010	1755
	0	3.8	1711.049	1710.00	1753.995	1755
	10	3.8	1711.040	1710.00	1754.019	1755
	20	3.8	1711.058	1710.00	1754.022	1755
	30	3.8	1711.064	1710.00	1754.034	1755
	40	3.8	1711.070	1710.00	1754.028	1755
	50	3.8	1711.085	1710.00	1754.037	1755
Frequency Stability vs. Voltage	20	3.8	1711.067	1710.00	1754.043	1755
	20	4.35	1711.085	1710.00	1754.028	1755
					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	3.8	1711.028	1710.00	1753.998	1755
	-20	3.8	1711.055	1710.00	1754.013	1755
	-10	3.8	1711.031	1710.00	1754.010	1755
	0	3.8	1711.049	1710.00	1753.998	1755
	10	3.8	1711.034	1710.00	1754.001	1755
	20	3.8	1711.058	1710.00	1754.022	1755
	30	3.8	1711.082	1710.00	1754.028	1755
	40	3.8	1711.085	1710.00	1754.031	1755
	50	3.8	1711.067	1710.00	1754.037	1755
Frequency Stability vs. Voltage	20	3.8	1711.067	1710.00	1754.043	1755
	20	4.35	1711.073	1710.00	1754.031	1755
					Result:	Pass

Test Plots:

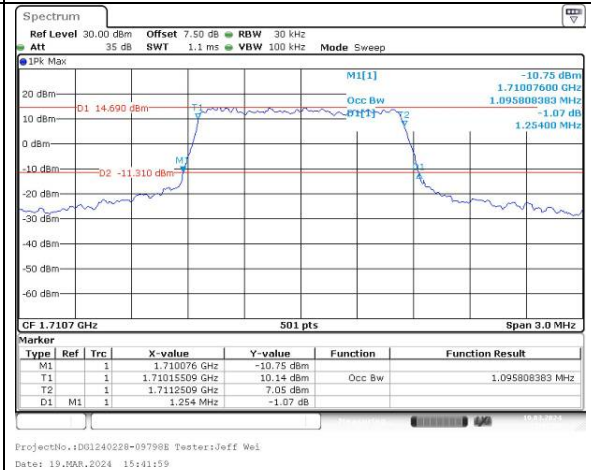
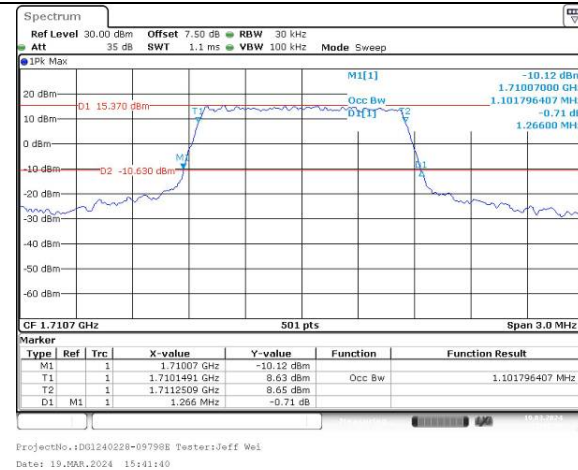
Occupied Bandwidth

Channel

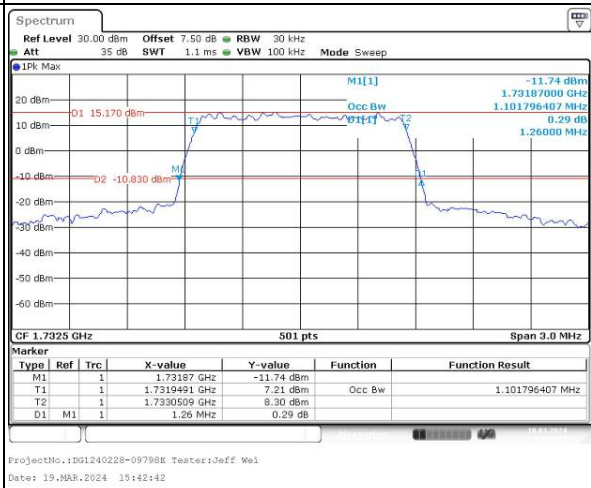
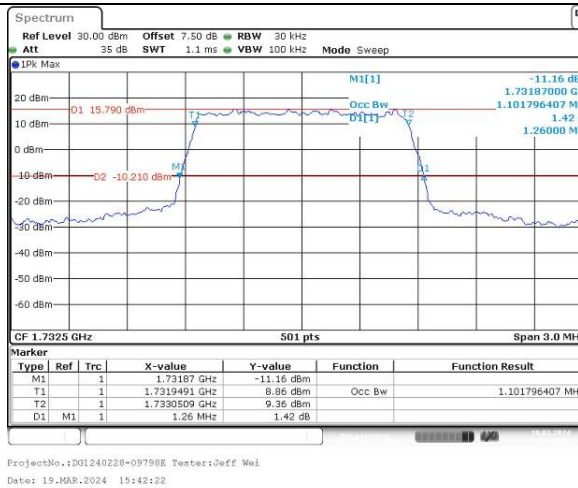
1.4MHz Bandwidth QPSK

1.4MHz Bandwidth 16QAM

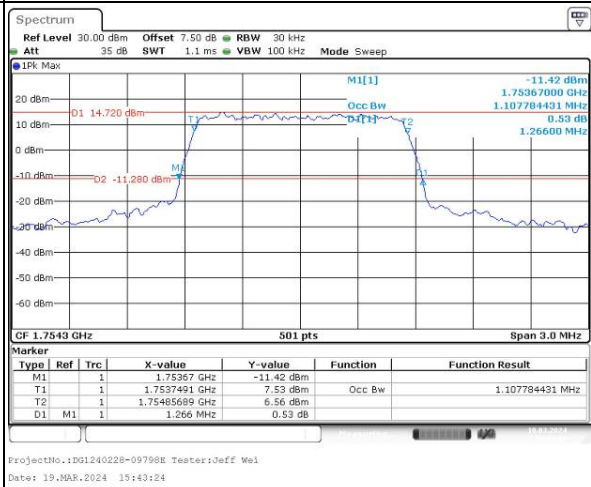
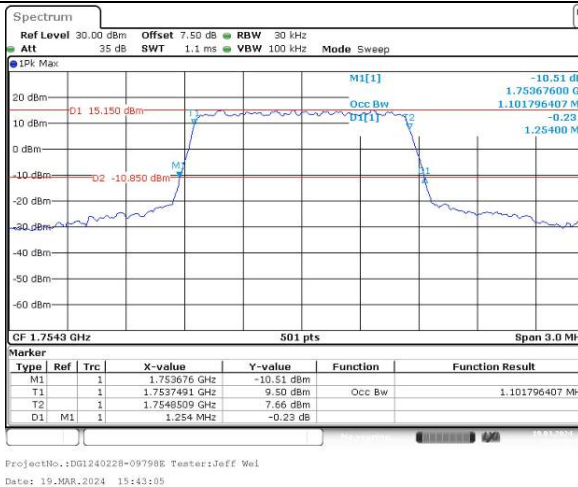
Lowest



Middle



Highest



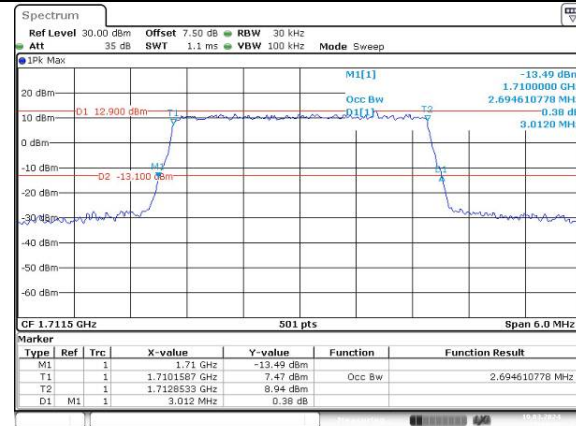
Occupied Bandwidth

Channel

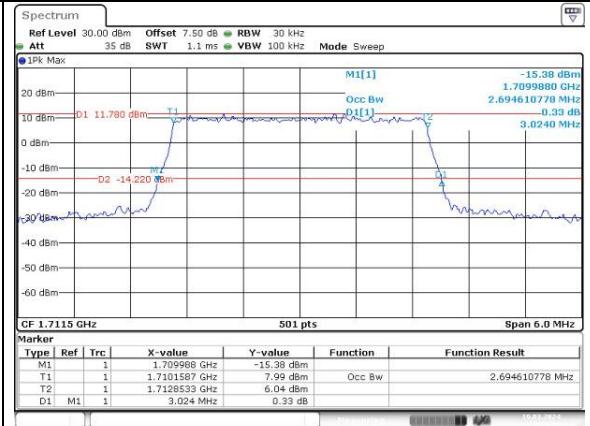
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

Lowest

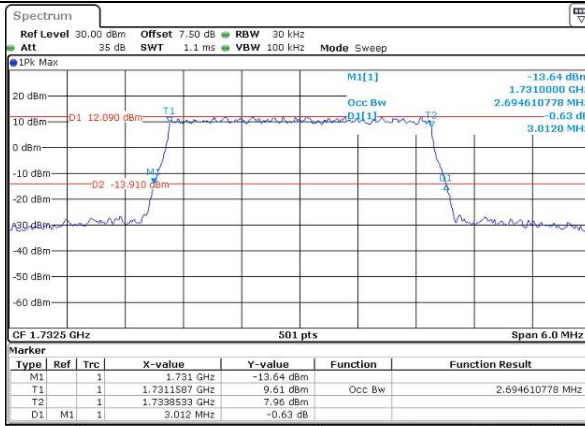


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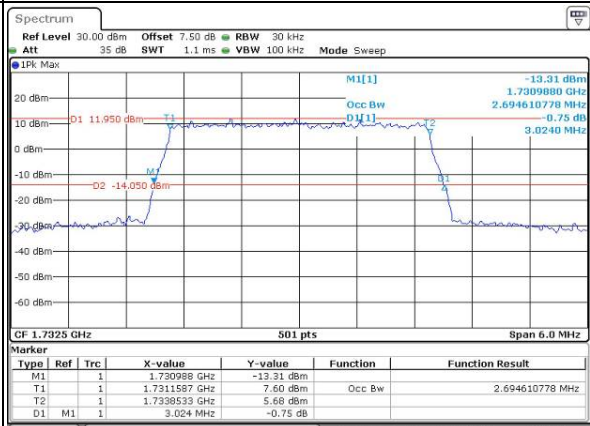


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Middle

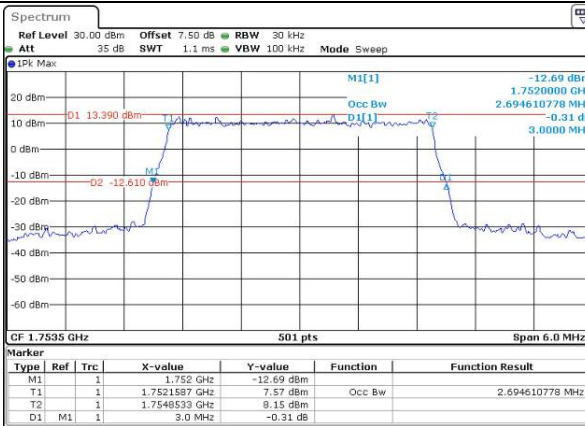


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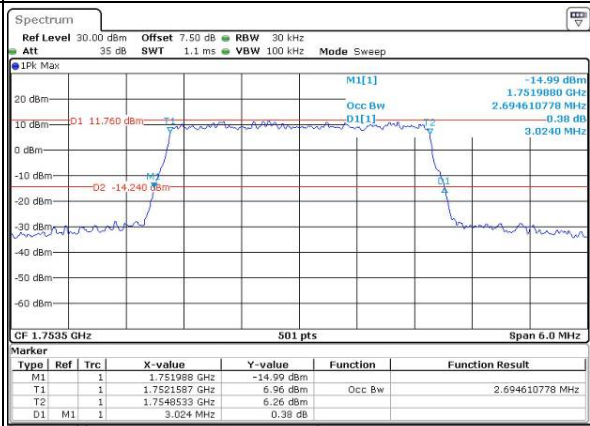


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Date: 19.MAR.2024 15:44:59

Highest



ProjectNo.:DG1240228-09798E Tester:Jeff Wei
Date: 19.MAR.2024 15:45:19



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Date: 19.MAR.2024 15:45:38

Occupied Bandwidth

