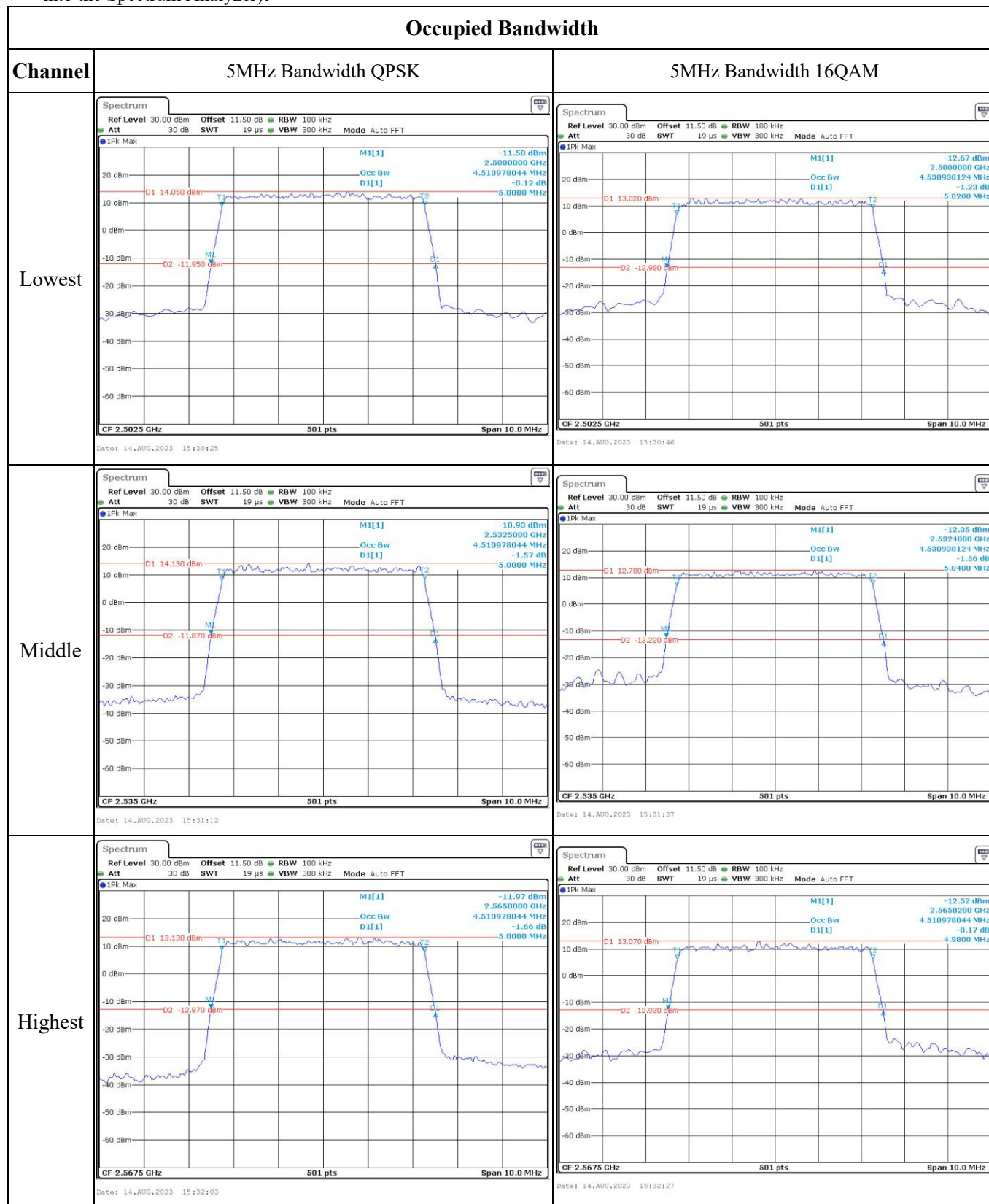


FCC §2.1055, §27.54: Frequency Stability

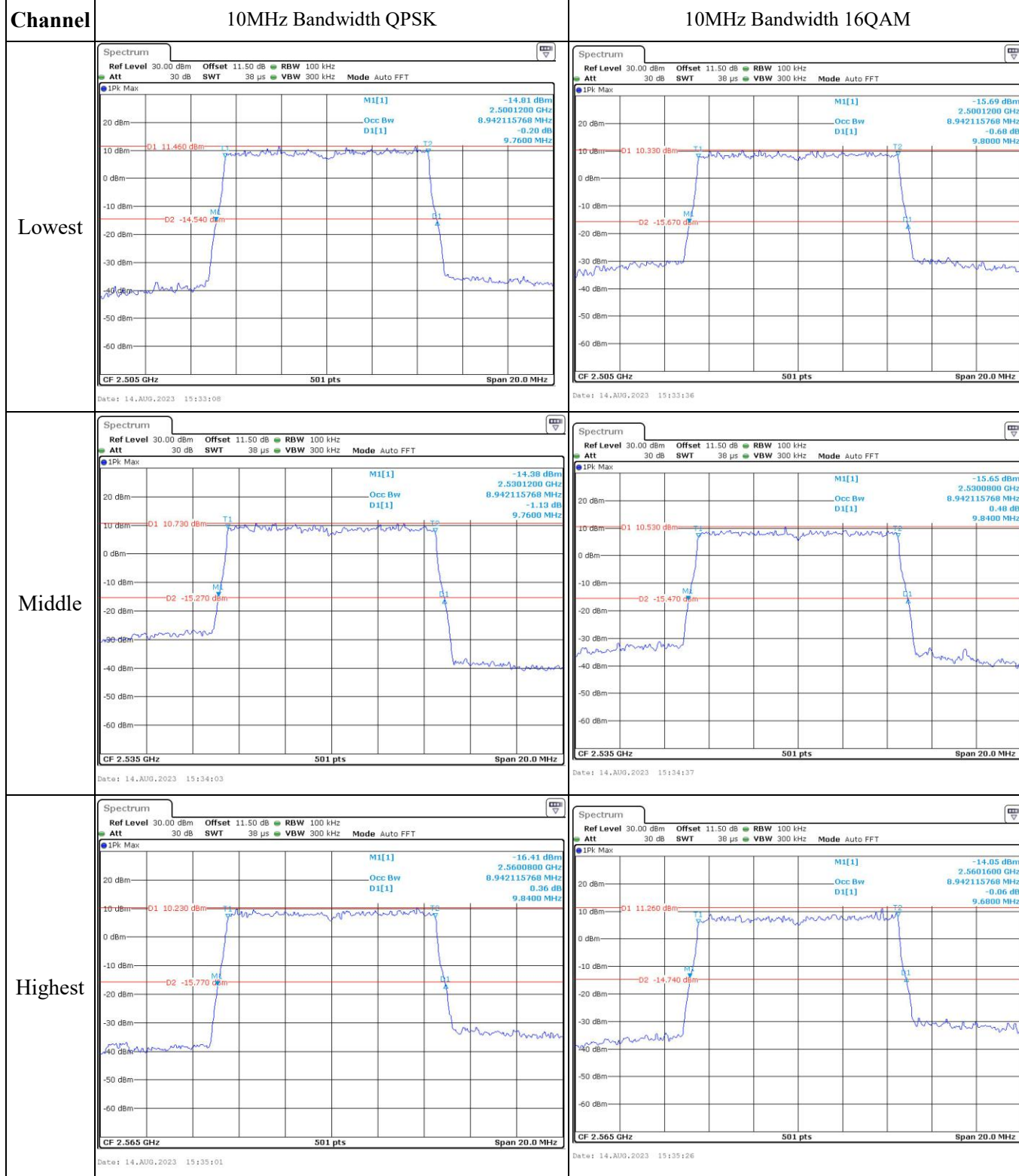
Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	2500.780	2500.00	2569.917	2570
	-20	3.85	2500.834	2500.00	2569.936	2570
	-10	3.85	2500.893	2500.00	2569.910	2570
	0	3.85	2500.412	2500.00	2569.914	2570
	10	3.85	2500.711	2500.00	2569.936	2570
	20	3.85	2500.349	2500.00	2569.972	2570
	30	3.85	2500.265	2500.00	2569.944	2570
	40	3.85	2500.492	2500.00	2569.987	2570
	50	3.85	2500.697	2500.00	2569.948	2570
Frequency Stability vs. Voltage	20	3.35	2500.275	2500.00	2569.932	2570
	20	4.4	2500.689	2500.00	2569.979	2570
					Result:	Pass

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	2500.187	2500.00	2569.917	2570
	-20	3.85	2500.253	2500.00	2569.964	2570
	-10	3.85	2500.312	2500.00	2569.919	2570
	0	3.85	2500.212	2500.00	2569.907	2570
	10	3.85	2500.198	2500.00	2569.963	2570
	20	3.85	2500.300	2500.00	2569.963	2570
	30	3.85	2500.191	2500.00	2569.958	2570
	40	3.85	2500.313	2500.00	2569.952	2570
	50	3.85	2500.382	2500.00	2569.933	2570
Frequency Stability vs. Voltage	20	3.35	2500.168	2500.00	2569.934	2570
	20	4.4	2500.292	2500.00	2569.907	2570
					Result:	Pass

Test Plots(Note: The 11.5dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):



Occupied Bandwidth



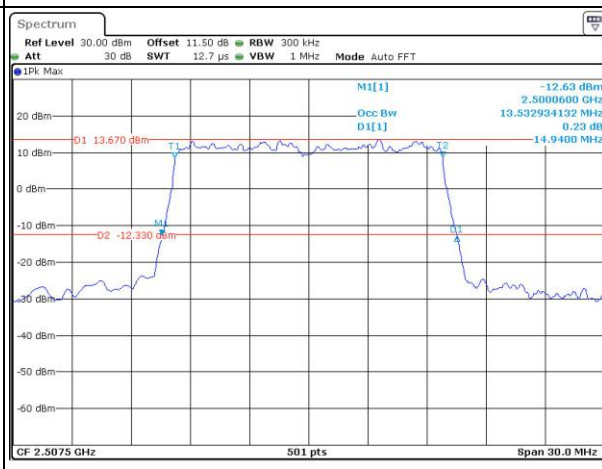
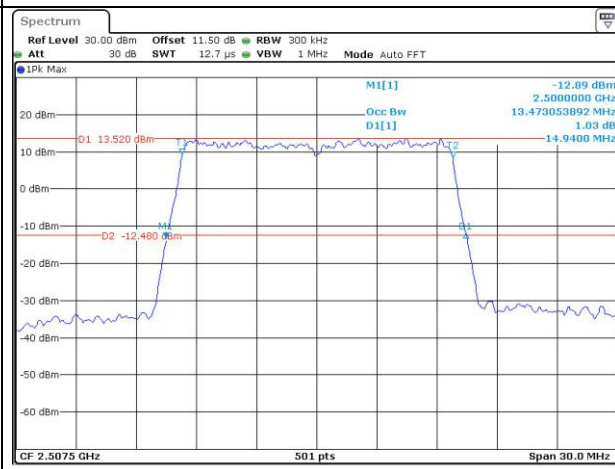
Occupied Bandwidth

Channel

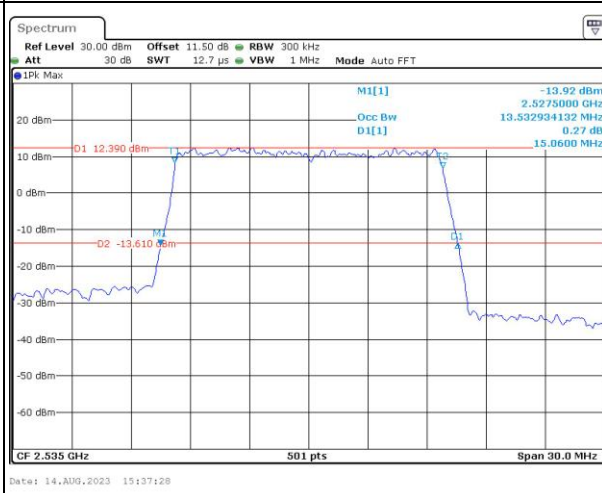
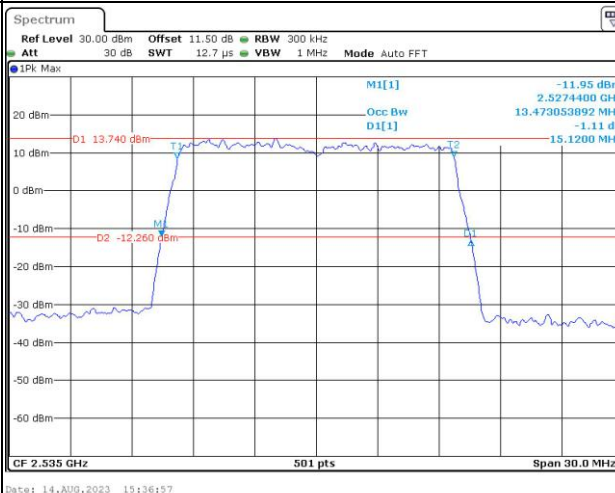
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

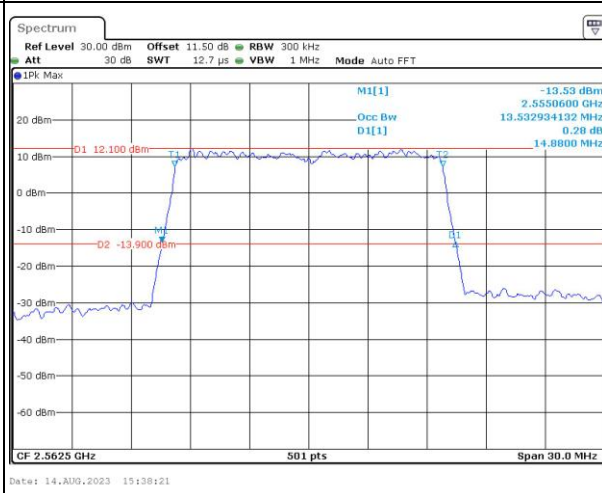
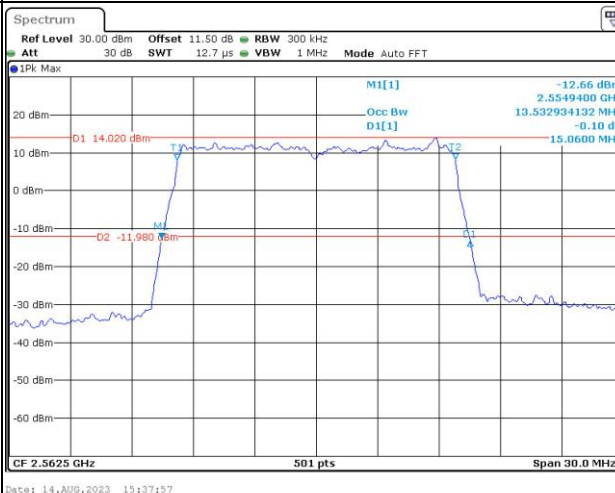
Lowest



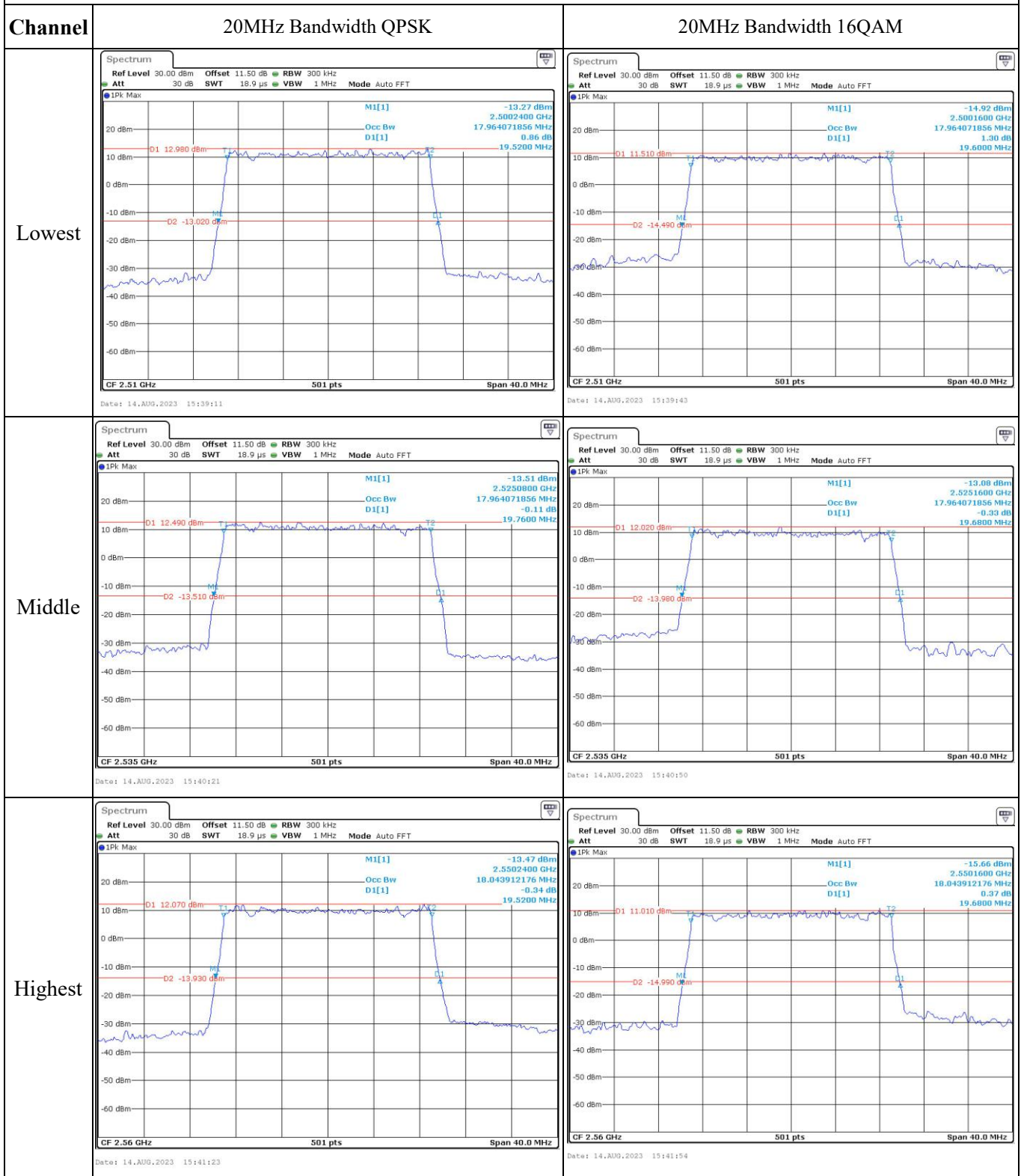
Middle



Highest



Occupied Bandwidth

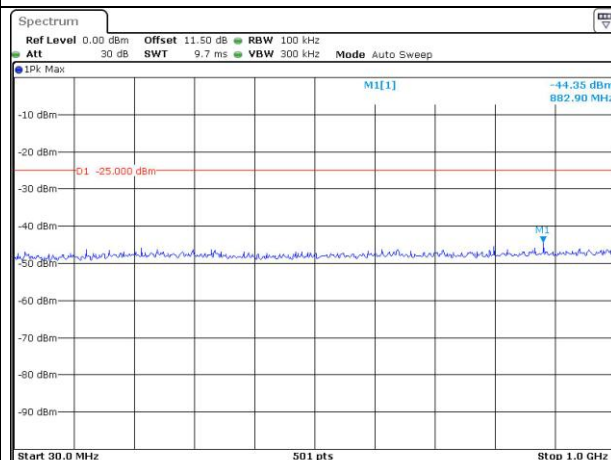


Spurious Emissions at Antenna Terminal

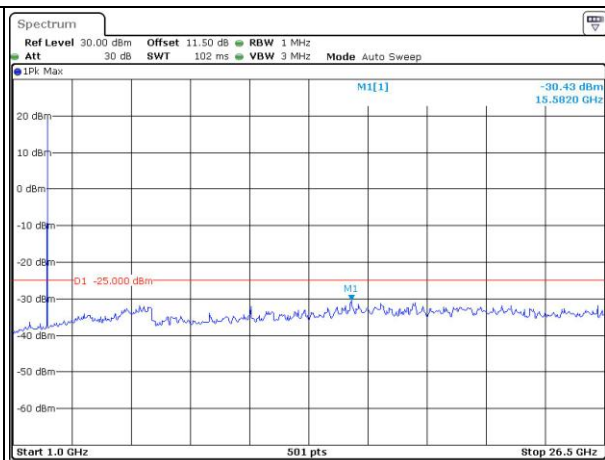
Channel

5MHz Bandwidth QPSK

Lowest

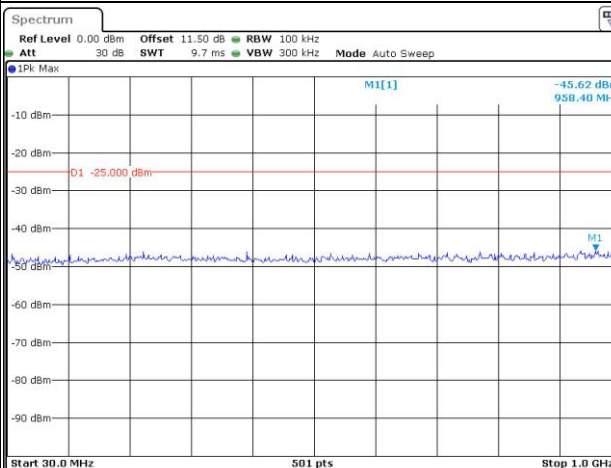


Date: 14.AUG.2023 17:07:28

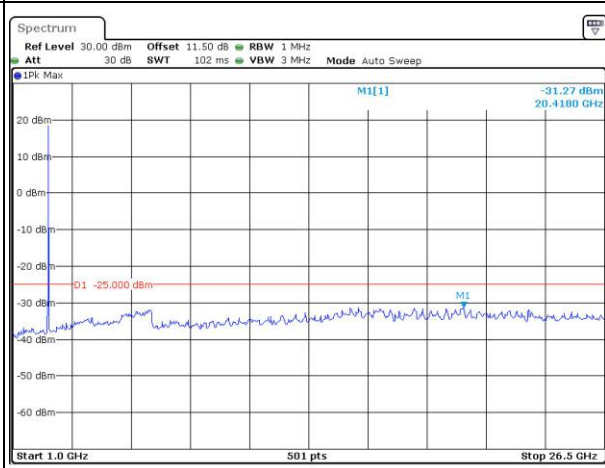


Date: 14.AUG.2023 17:07:51

Middle

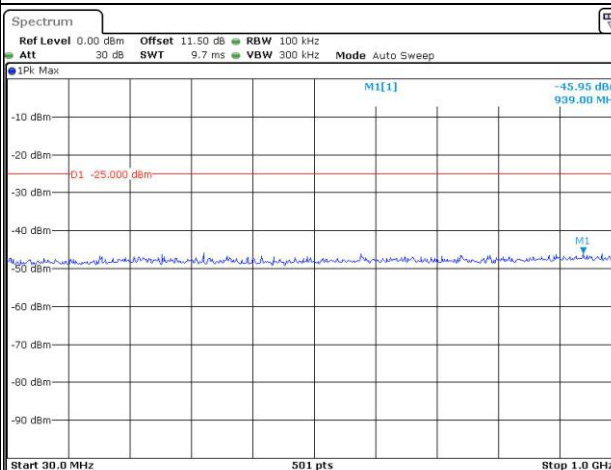


Date: 14.AUG.2023 17:08:21

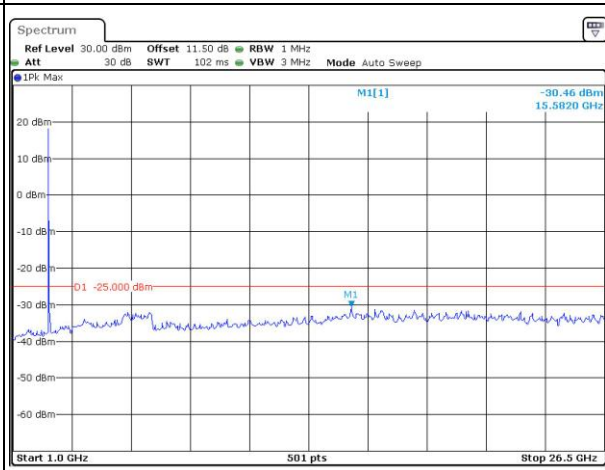


Date: 14.AUG.2023 17:09:00

Highest



Date: 14.AUG.2023 17:09:31



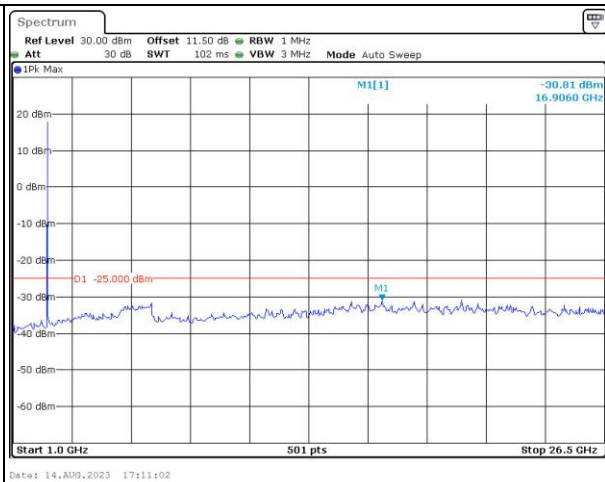
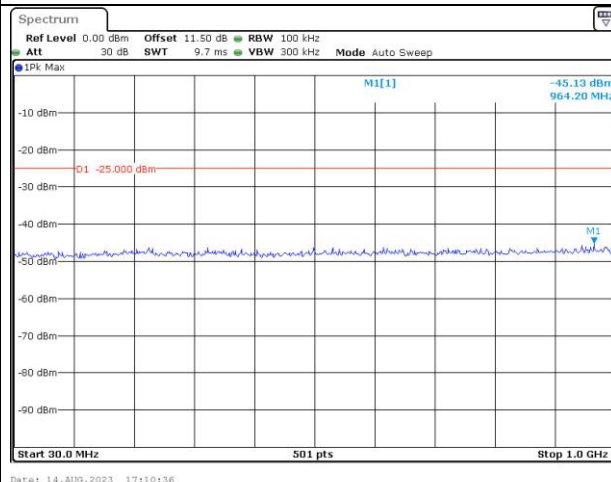
Date: 14.AUG.2023 17:09:54

Spurious Emissions at Antenna Terminal

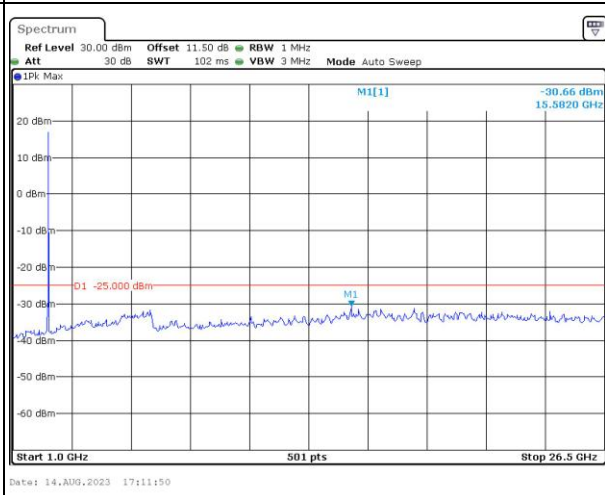
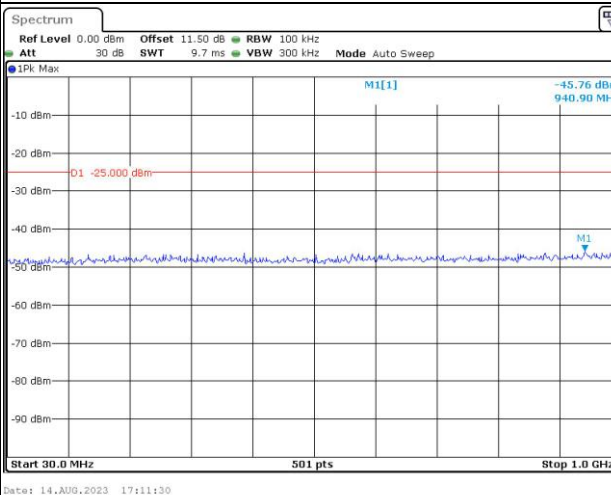
Channel

10MHz Bandwidth QPSK

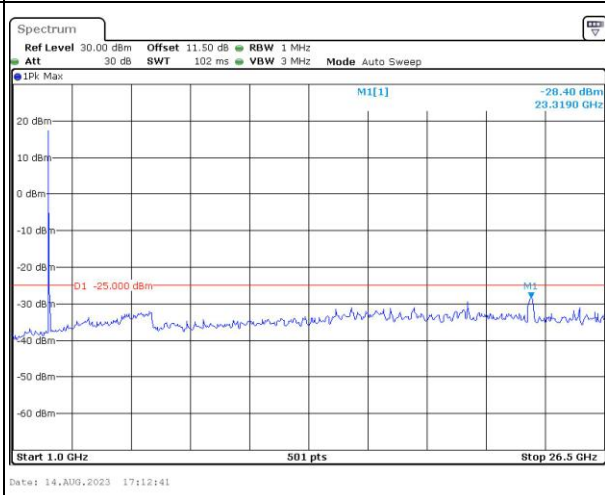
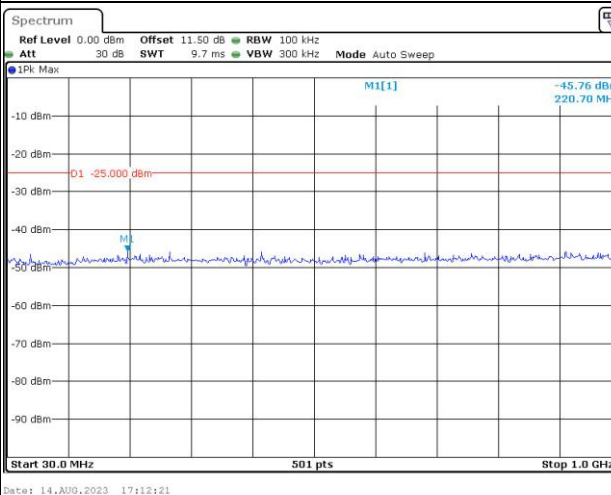
Lowest



Middle



Highest

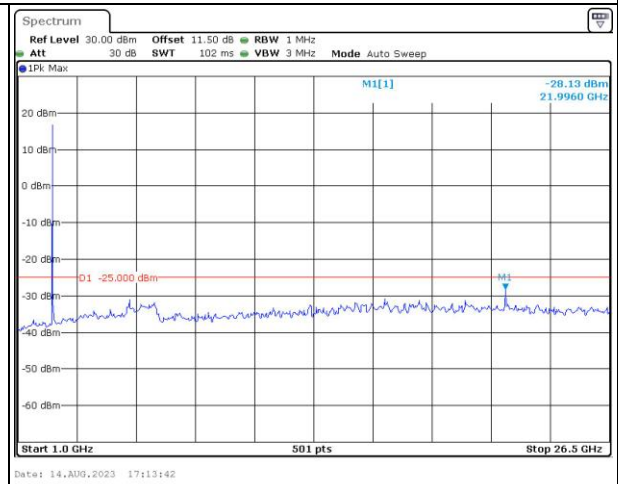
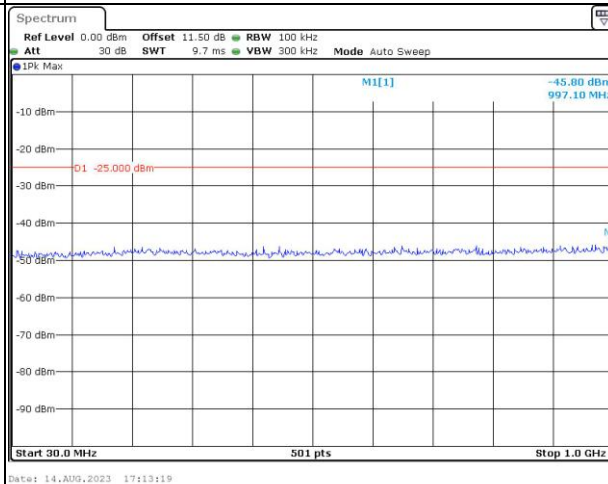


Spurious Emissions at Antenna Terminal

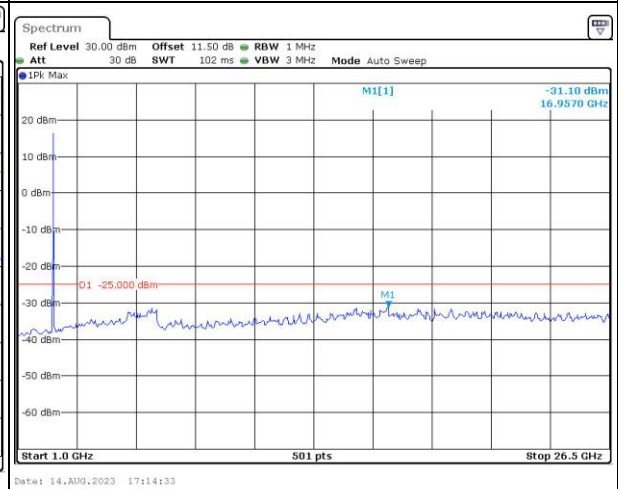
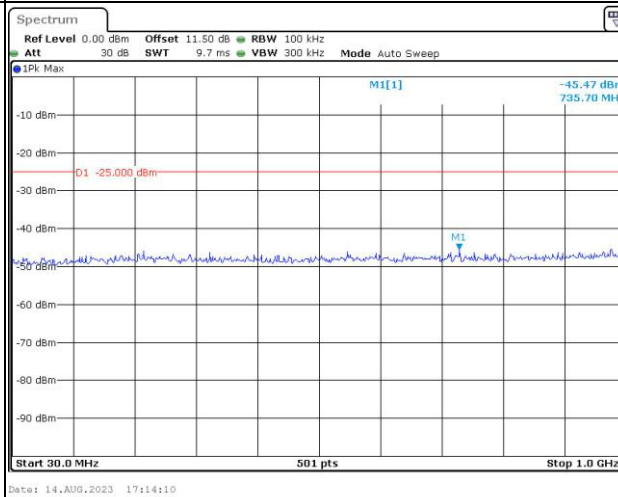
Channel

15MHz Bandwidth QPSK

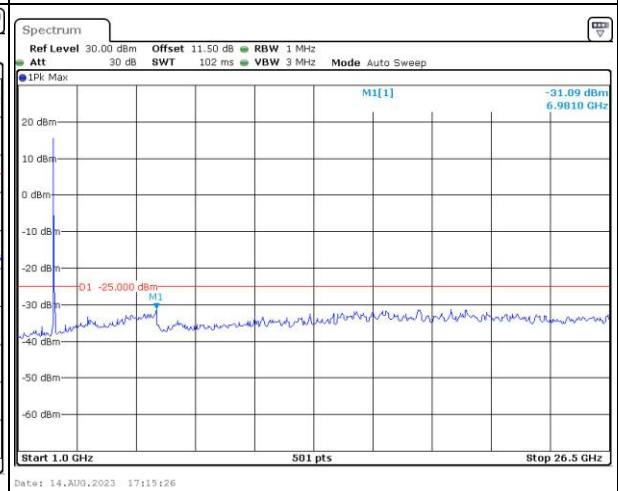
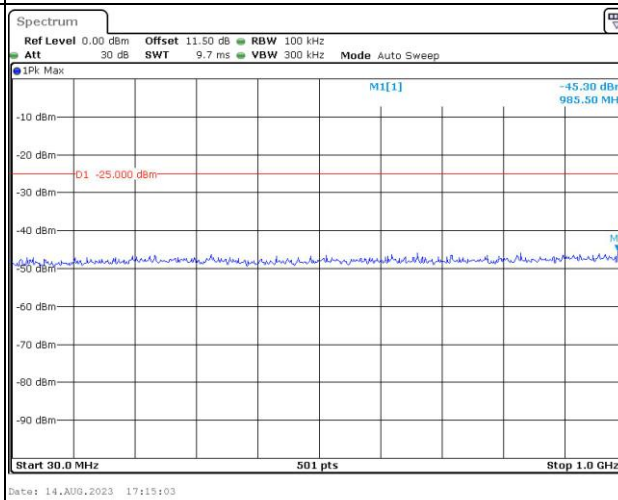
Lowest



Middle



Highest

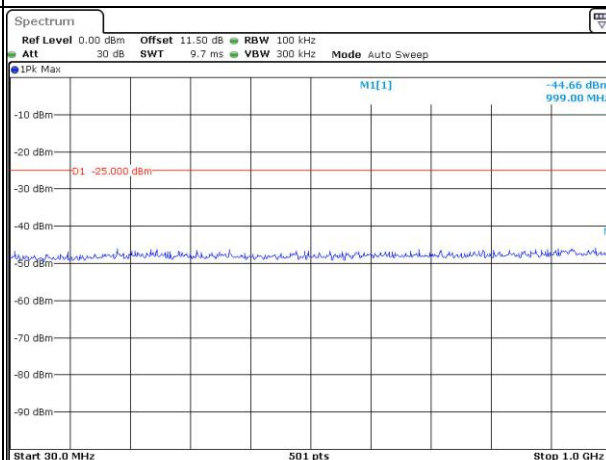


Spurious Emissions at Antenna Terminal

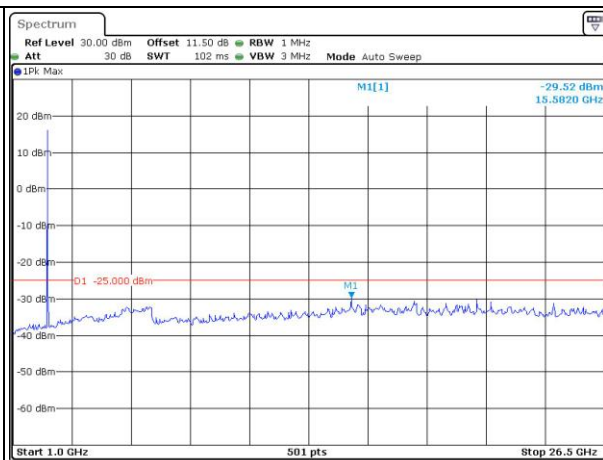
Channel

20MHz Bandwidth QPSK

Lowest

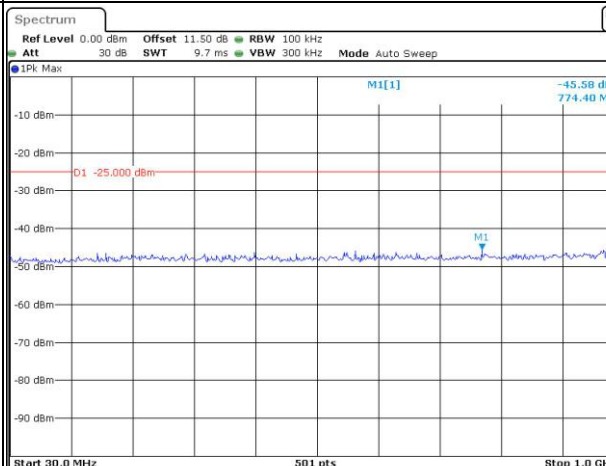


Date: 14.AUG.2023 17:16:05

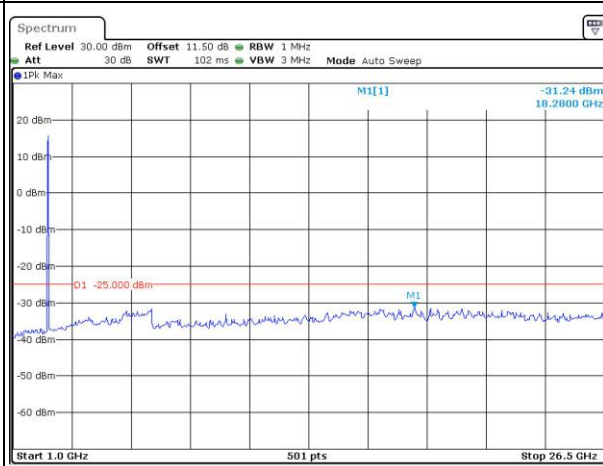


Date: 14.AUG.2023 17:16:38

Middle

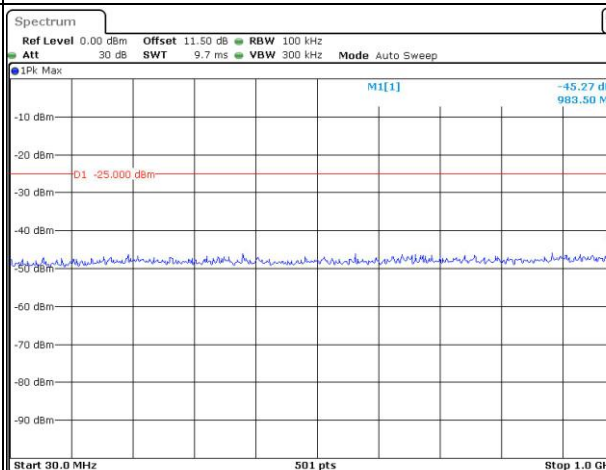


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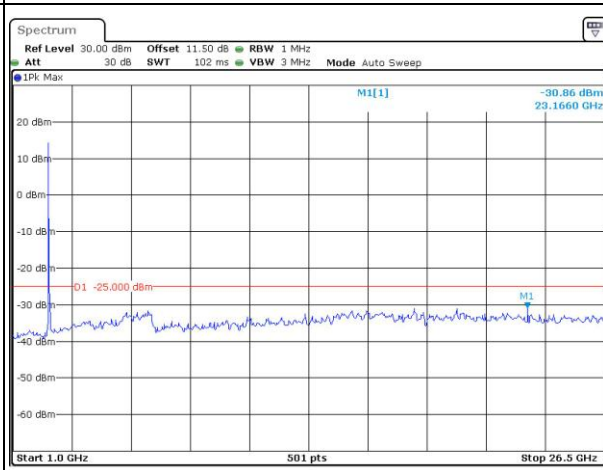


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Highest

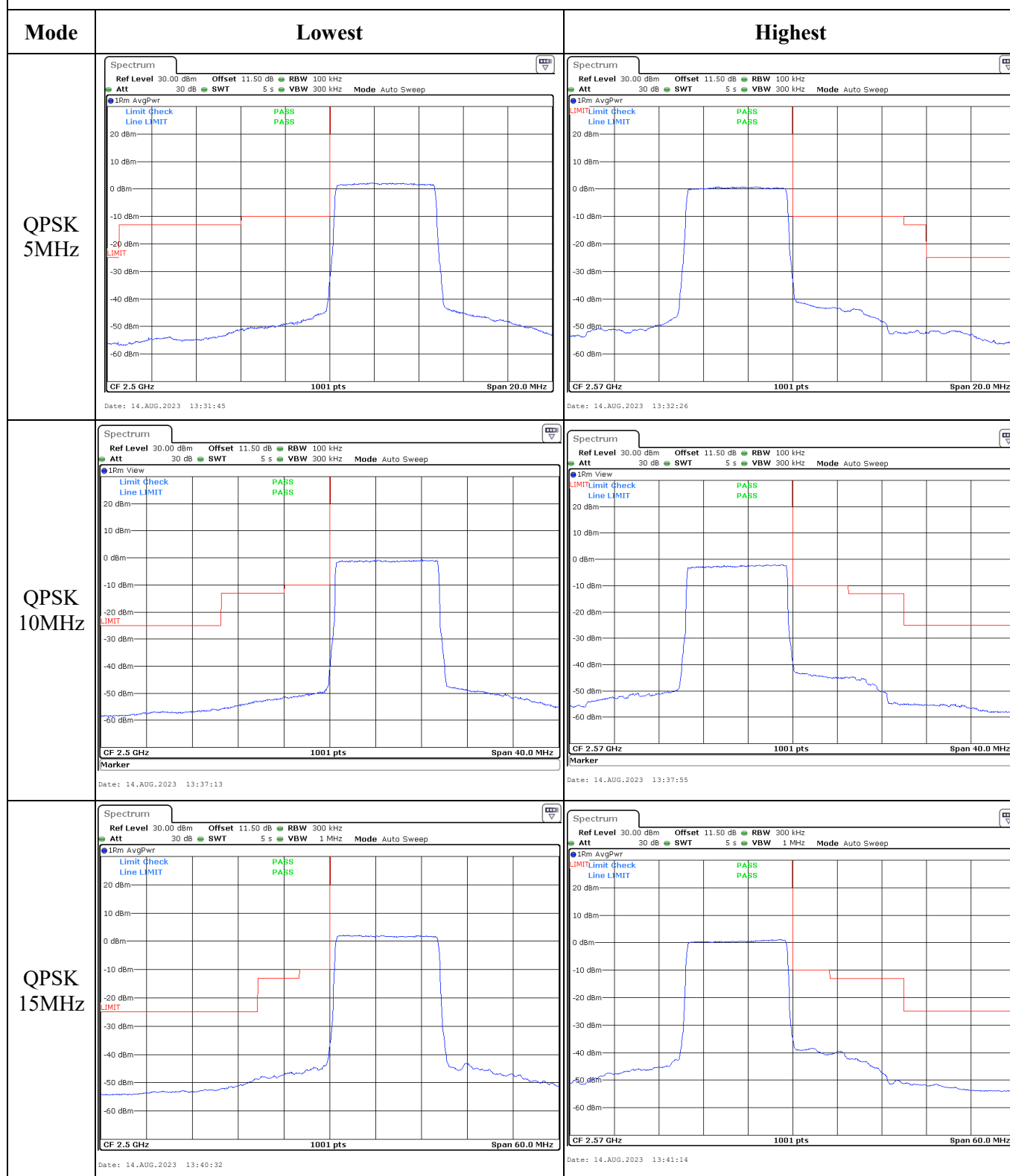


Date: 14.AUG.2023 17:18:16



Date: 14.AUG.2023 17:18:39

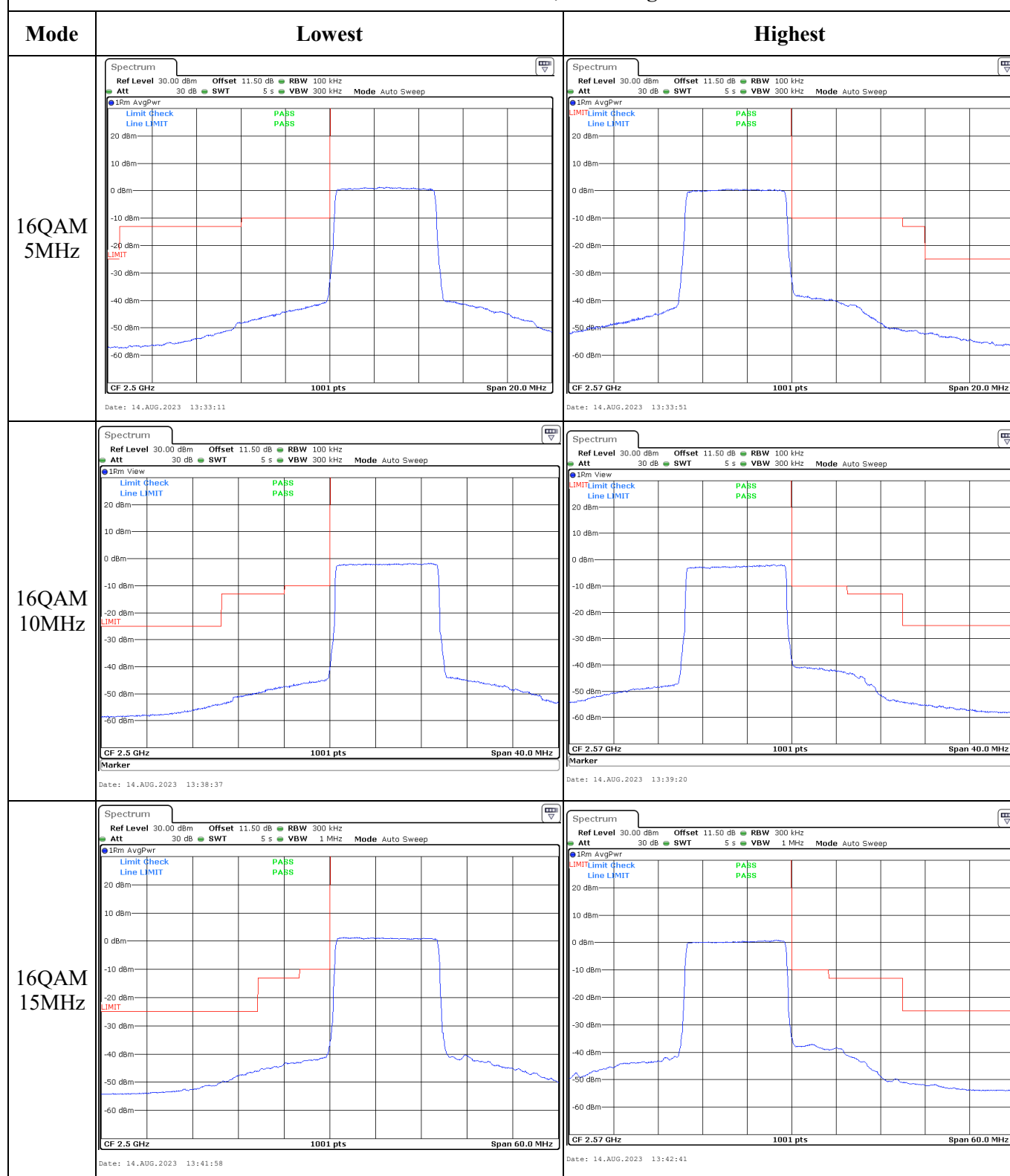
Out of band emission, Band Edge



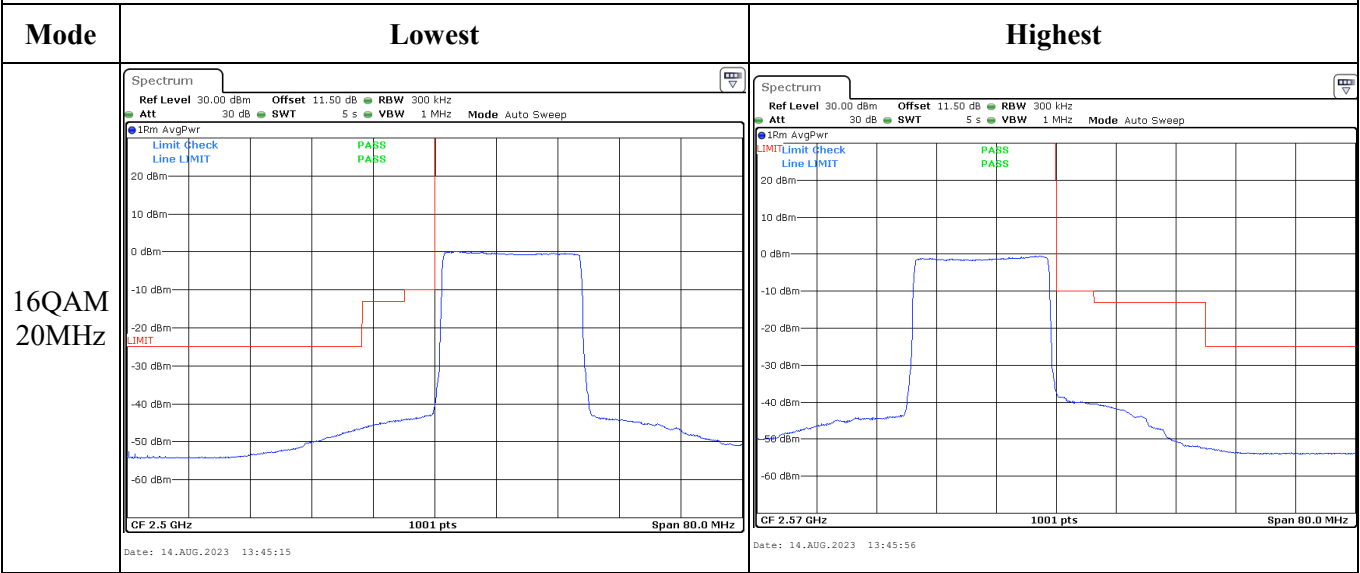
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.10 Antenna Port Test Data and Results for LTE Band 12

Serial Number:	2A4I-1	Test Date:	2023/8/13-2023/8/14
Test Site:	RF	Test Mode:	Transmitting
Tester:	Panda Sun	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.3~25.6	Relative Humidity: (%)	64-68	ATM Pressure: (kPa)	101
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40-N	102259	2023/4/18	2024/4/17
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A

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

Test Frequency for Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
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	23.02	23.32	23.27	15.20	34.77
	RB1#3	23.06	23.47	23.11		
	RB1#5	23.11	23.42	23.12		
	RB3#0	23.12	23.55	23.29		
	RB3#3	23.32	23.5	23.2		
	RB6#0	22.18	22.5	22.15		
1.4MHz 16QAM	RB1#0	22.75	22.07	22.63	14.46	34.77
	RB1#3	22.81	22.16	22.51		
	RB1#5	22.75	22.22	22.62		
	RB3#0	21.96	22.6	22.3		
	RB3#3	22	22.59	22.32		
	RB6#0	21.18	21.69	21.38		
3MHz QPSK	RB1#0	23	23.36	23.28	15.13	34.77
	RB1#8	23.08	23.48	23.29		
	RB1#14	23.11	23.46	23.19		
	RB6#0	22.16	22.32	22.27		
	RB6#9	22.2	22.48	22.18		
	RB15#0	22.18	22.42	22.16		
3MHz 16QAM	RB1#0	22.83	22.14	22.54	14.58	34.77
	RB1#8	22.82	22.13	22.5		
	RB1#14	22.93	22.14	22.45		
	RB6#0	21.23	21.58	21.2		
	RB6#9	21.32	21.7	21.19		
	RB15#0	21.17	21.51	21.29		
5MHz QPSK	RB1#0	23.09	23.52	23.37	15.17	34.77
	RB1#13	23.21	23.39	23.33		
	RB1#24	23.34	23.31	23.12		
	RB15#0	22.11	22.35	22.31		
	RB15#10	22.23	22.44	22.12		
	RB25#0	22.14	22.37	22.16		
5MHz 16QAM	RB1#0	22.14	21.93	21.39	14.04	34.77
	RB1#13	22.21	21.98	21.33		
	RB1#24	22.39	21.85	21.29		
	RB15#0	20.99	21.39	21.81		
	RB15#10	21.09	21.48	21.32		
	RB25#0	21.21	21.41	21.32		
10MHz QPSK	RB1#0	23.22	23.21	23.41	15.23	34.77

	RB1#25	23.42	23.46	23.24		
	RB1#49	23.58	23.27	23.24		
	RB25#0	22.09	22.5	22.55		
	RB25#25	22.44	22.36	22.26		
	RB50#0	22.3	22.56	22.4		
10MHz 16QAM	RB1#0	22.23	21.62	22.5	14.15	34.77
	RB1#25	22.39	21.95	22.37		
	RB1#49	22.5	21.79	22.3		
	RB25#0	21.19	21.47	21.41		
	RB25#25	21.45	21.49	21.26		
	RB50#0	21.38	21.43	21.32		

Note: ERP= Conducted Power(dBm) - Lc(dB) + G_T(dBd)
G_T(dBd)=G_T(dBi)-2.15

Result:	Pass
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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	4.46	3.68	3.77	13
	RB50#0	4.84	4.96	4.81	13
10MHz 16QAM	RB1#0	5.54	4.87	4.96	13
	RB50#0	5.68	5.88	5.86	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	1.254	1.248	1.254
1.4MHz 16QAM	1.090	1.100	1.108	1.248	1.254	1.260
3MHz QPSK	2.695	2.695	2.707	2.988	3.012	3.000
3MHz 16QAM	2.683	2.707	2.695	3.000	3.036	3.012
5MHz QPSK	4.511	4.511	4.531	5.000	5.000	4.980
5MHz 16QAM	4.531	4.531	4.511	5.000	5.020	4.980
10MHz QPSK	8.942	9.022	8.942	9.720	9.840	9.720
10MHz 16QAM	8.942	9.022	8.942	9.800	9.920	9.720

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

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

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

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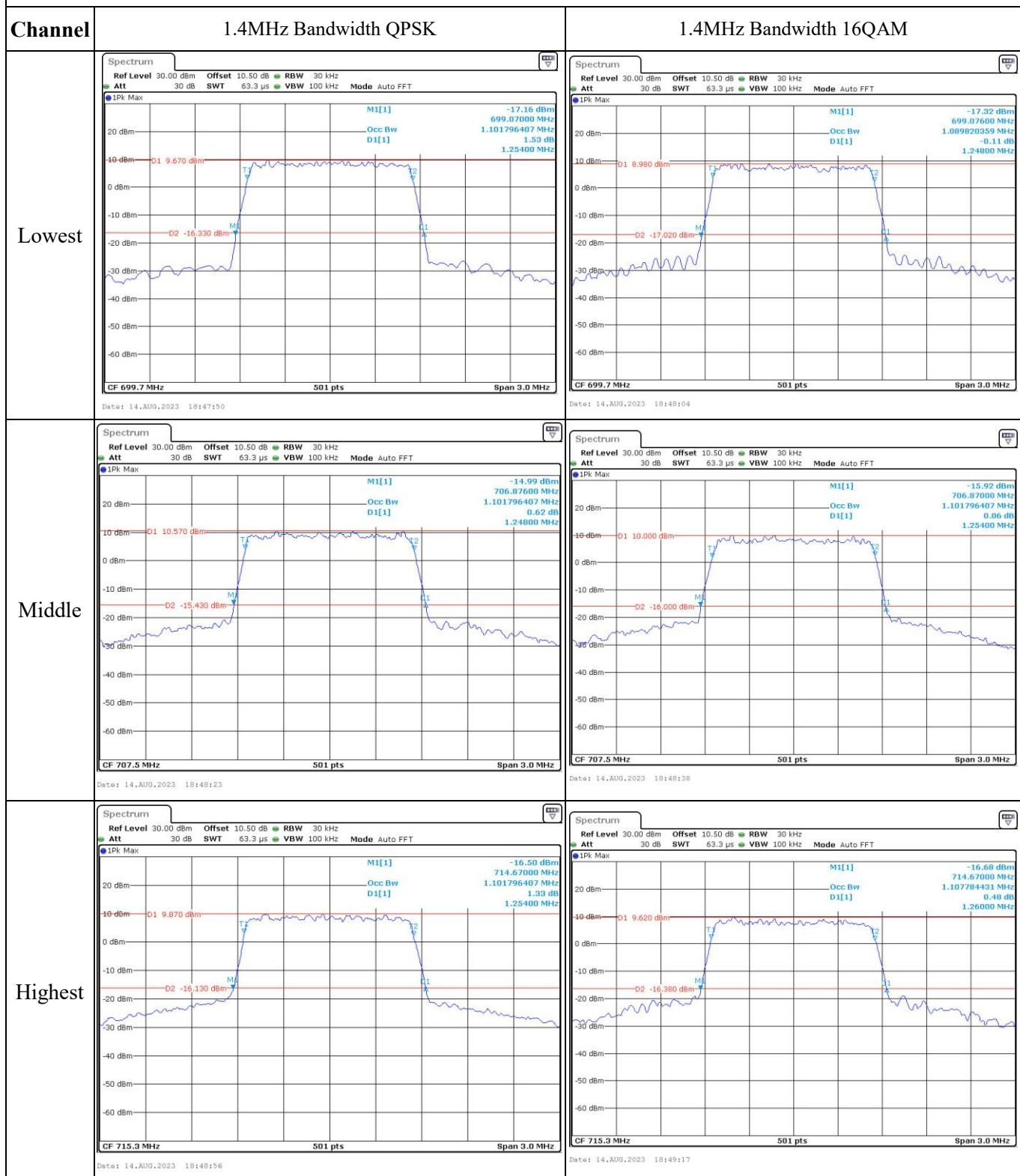
FCC §2.1055, §27.54: Frequency Stability

Test Mode:	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	3.85	699.143	699.00	715.890	716.00
	-20	3.85	699.137	699.00	715.874	716.00
	-10	3.85	699.132	699.00	715.841	716.00
	0	3.85	699.150	699.00	715.873	716.00
	10	3.85	699.141	699.00	715.834	716.00
	20	3.85	699.139	699.00	715.829	716.00
	30	3.85	699.147	699.00	715.823	716.00
	40	3.85	699.136	699.00	715.826	716.00
	50	3.85	699.152	699.00	715.843	716.00
Frequency Stability vs. Voltage	20	3.35	699.136	699.00	715.870	716.00
	20	4.4	699.140	699.00	715.871	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	3.85	699.140	699.00	715.844	716.00
	-20	3.85	699.134	699.00	715.825	716.00
	-10	3.85	699.131	699.00	715.836	716.00
	0	3.85	699.128	699.00	715.835	716.00
	10	3.85	699.133	699.00	715.836	716.00
	20	3.85	699.141	699.00	715.847	716.00
	30	3.85	699.140	699.00	715.834	716.00
	40	3.85	699.138	699.00	715.835	716.00
	50	3.85	699.142	699.00	715.826	716.00
Frequency Stability vs. Voltage	20	3.35	699.129	699.00	715.846	716.00
	20	4.4	699.127	699.00	715.847	716.00
Result:					Pass	

Test Plots(Note: The 10.5 dB is the Insertion loss of the RF cable and Power Splitter, which was offset into the Spectrum Analyzer):

Occupied Bandwidth



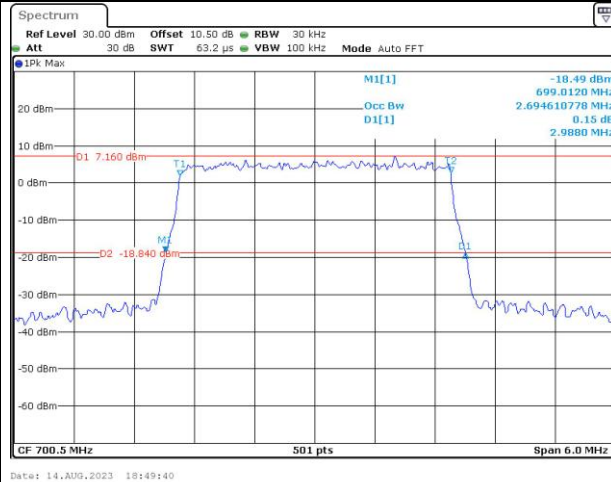
Occupied Bandwidth

Channel

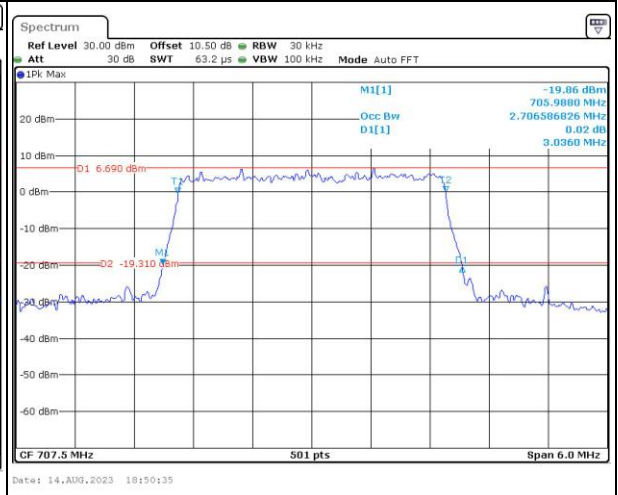
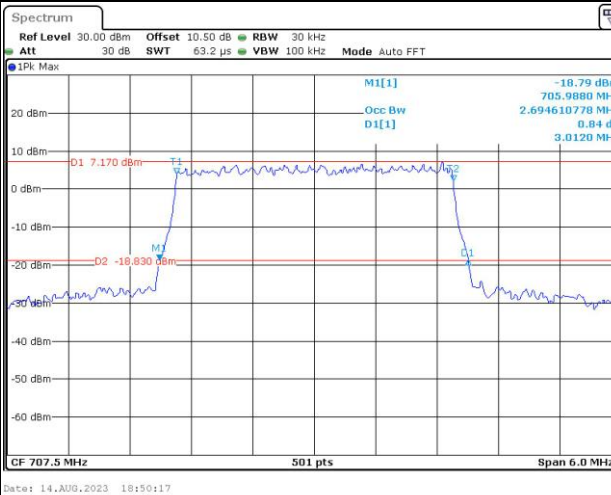
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

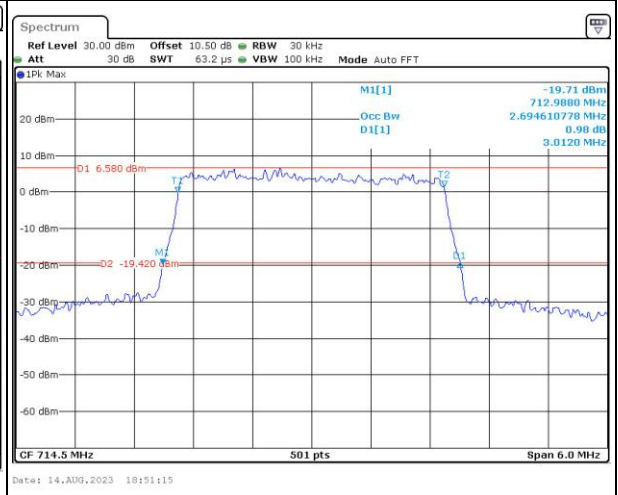
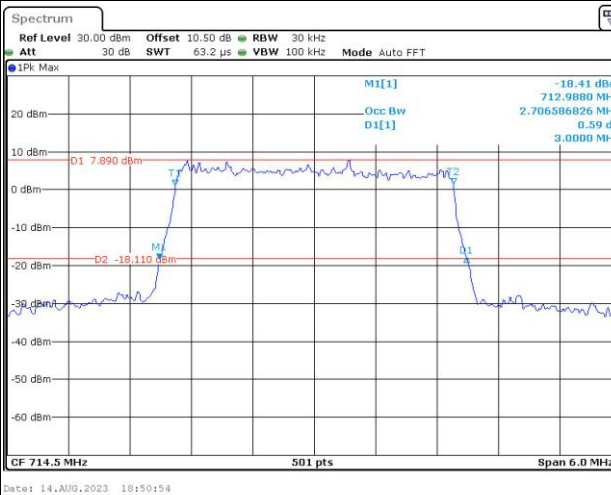
Lowest



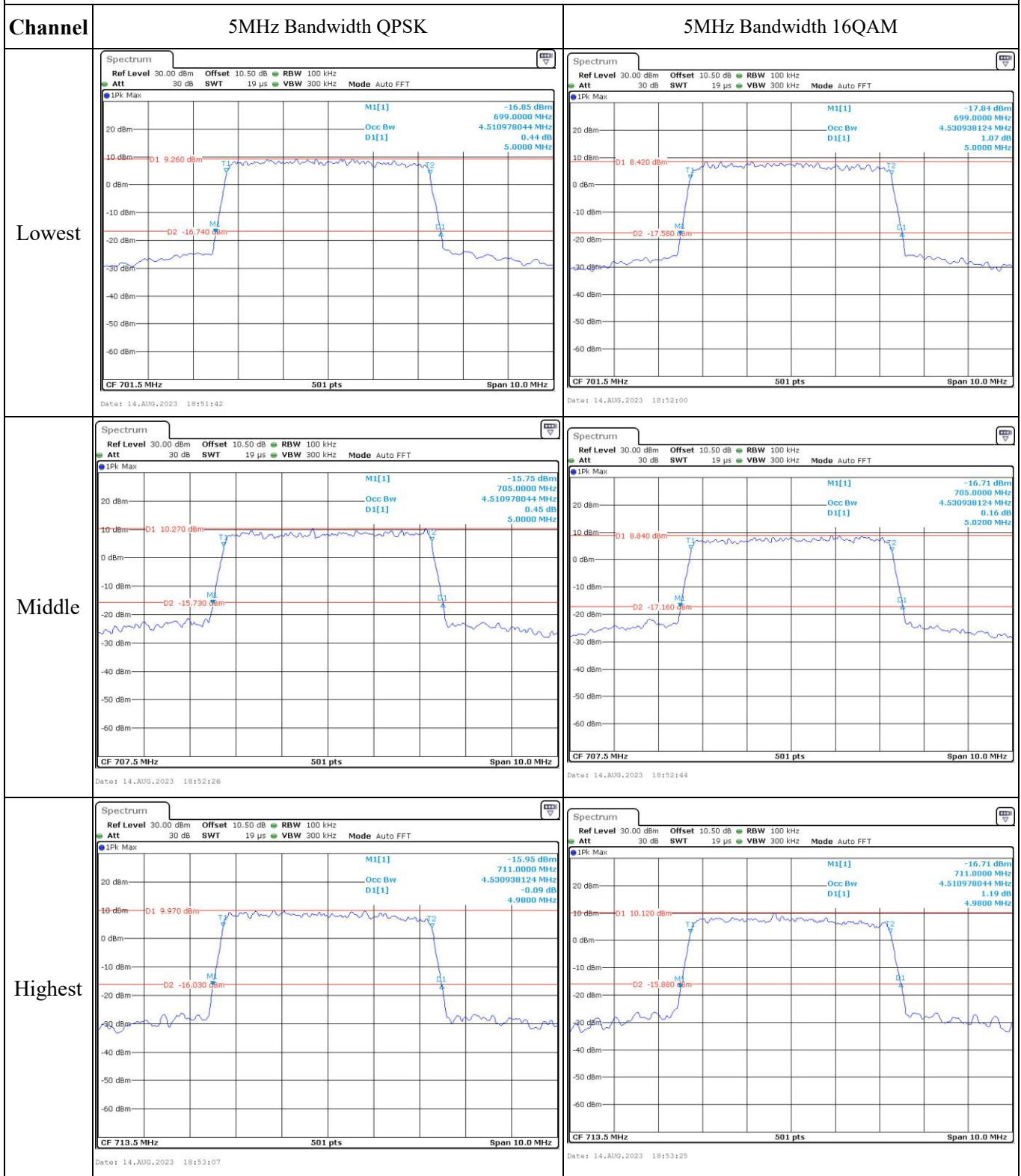
Middle



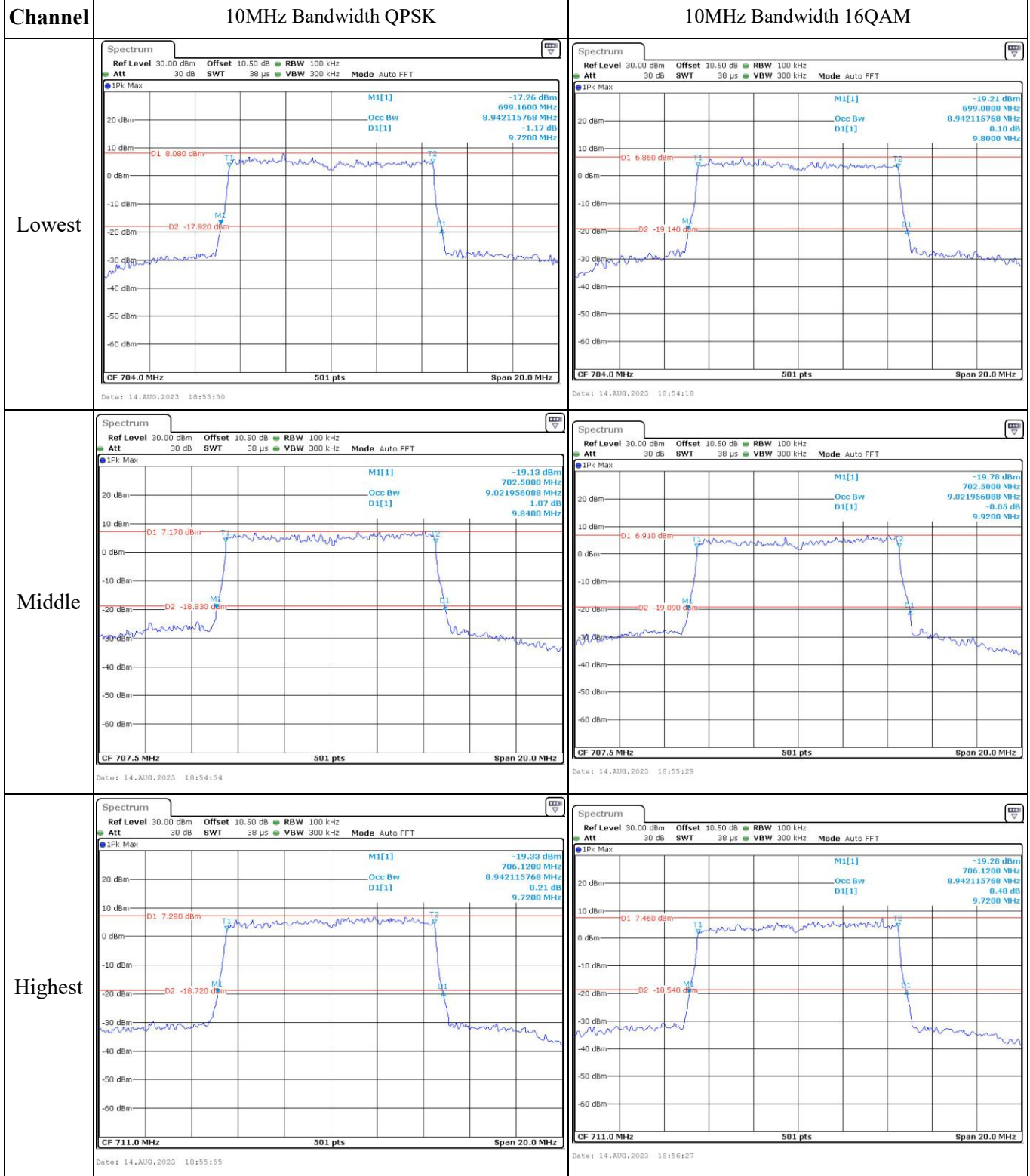
Highest



Occupied Bandwidth



Occupied Bandwidth

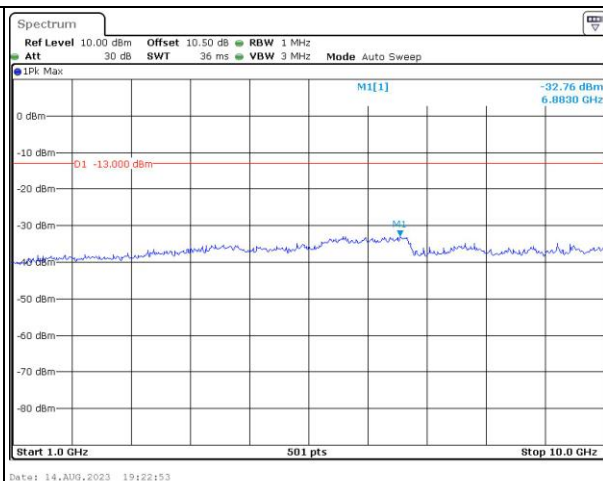
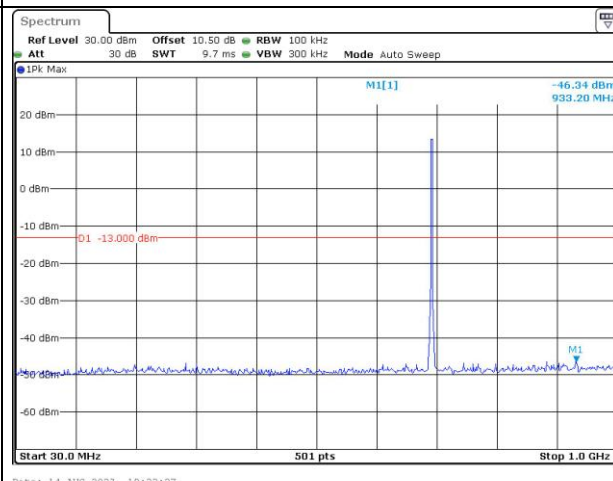


Spurious Emissions at Antenna Terminal

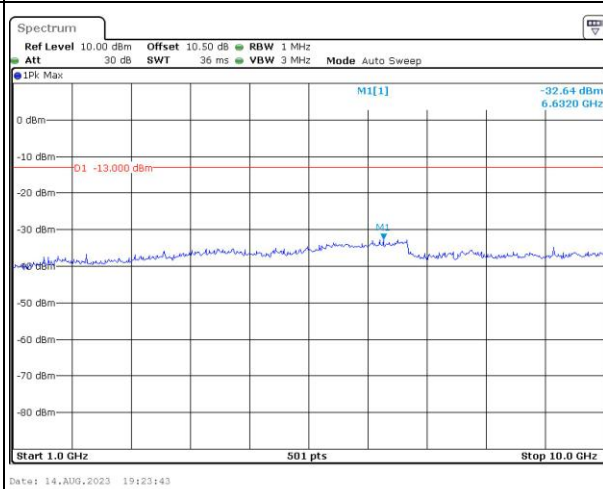
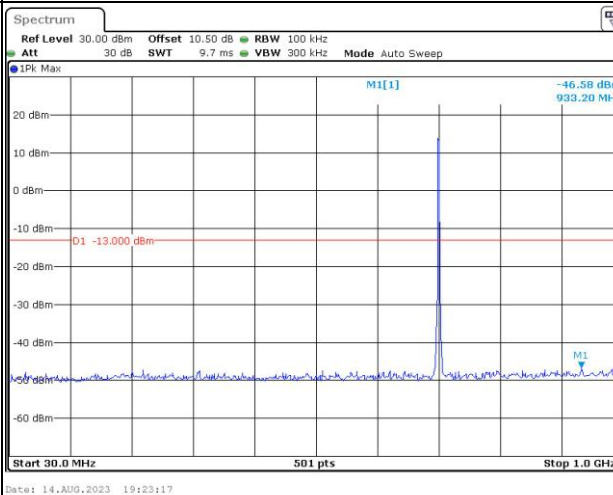
Channel

1.4MHz Bandwidth QPSK

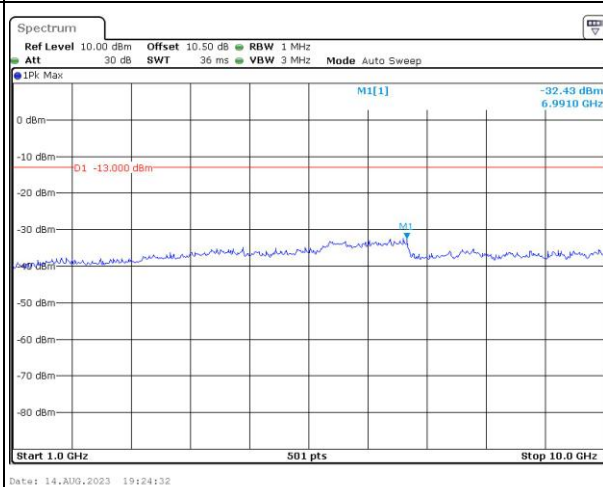
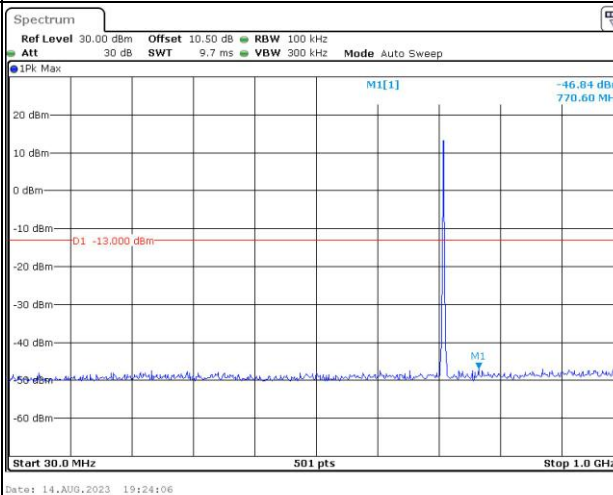
Lowest



Middle



Highest

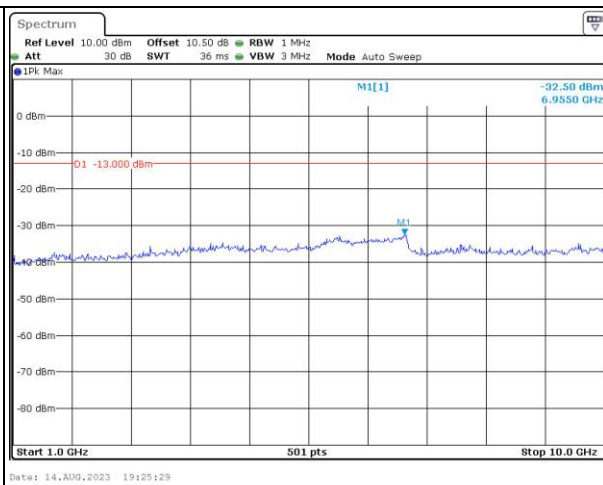
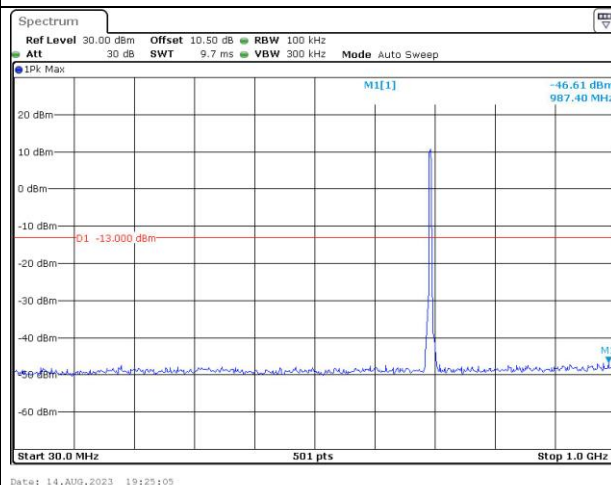


Spurious Emissions at Antenna Terminal

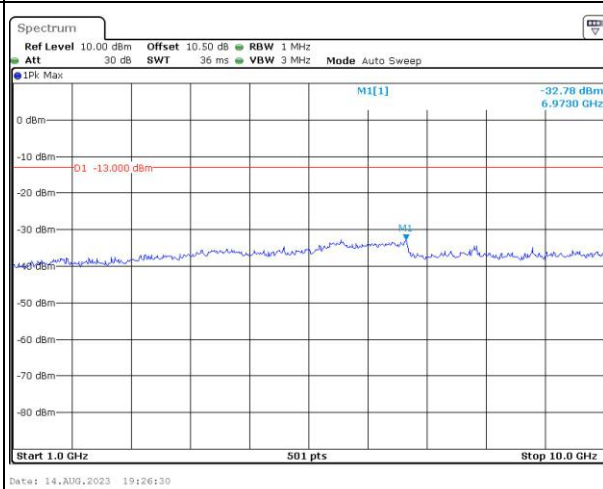
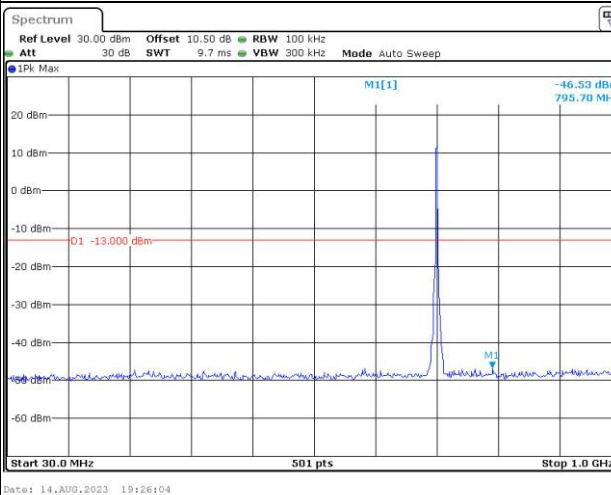
Channel

3MHz Bandwidth QPSK

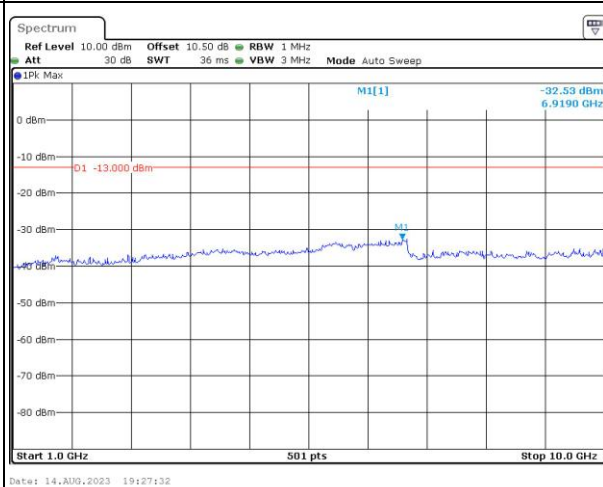
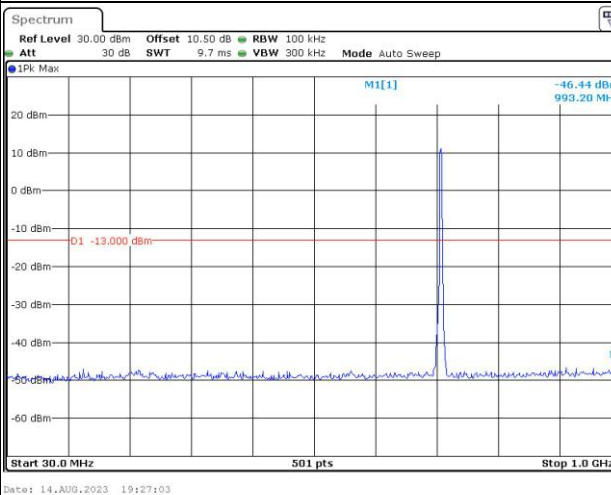
Lowest



Middle



Highest

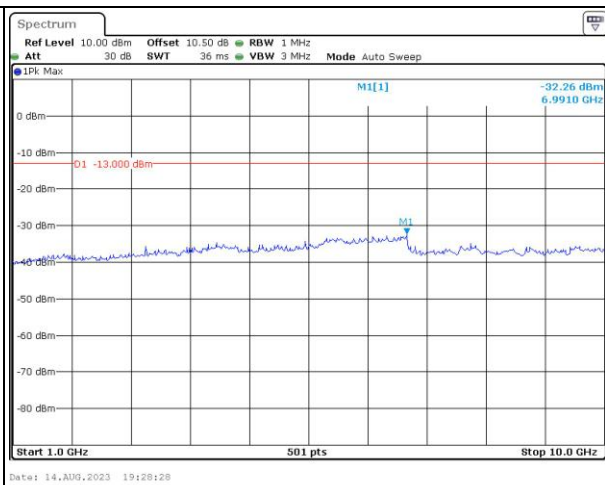
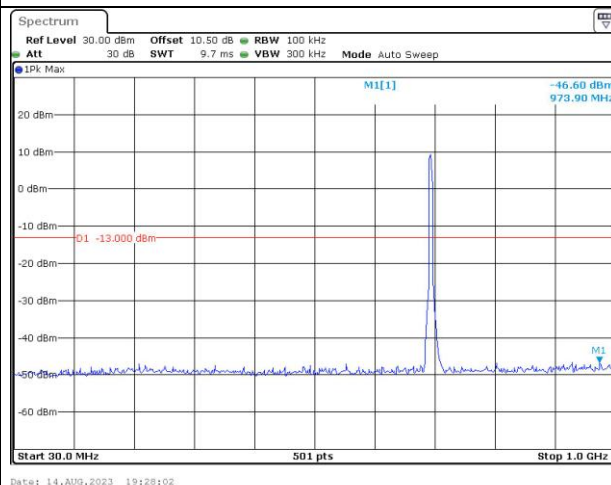


Spurious Emissions at Antenna Terminal

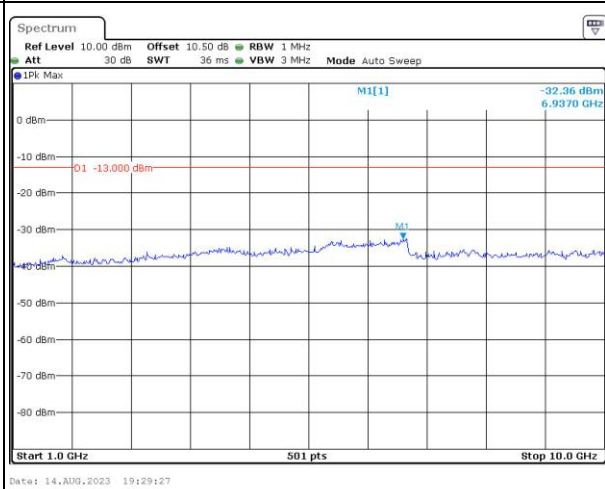
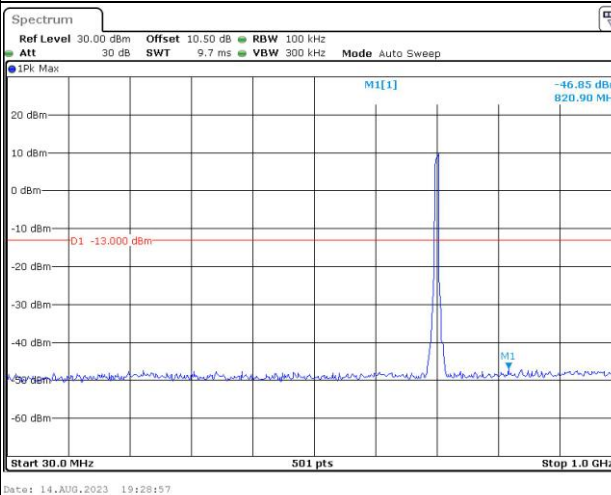
Channel

5MHz Bandwidth QPSK

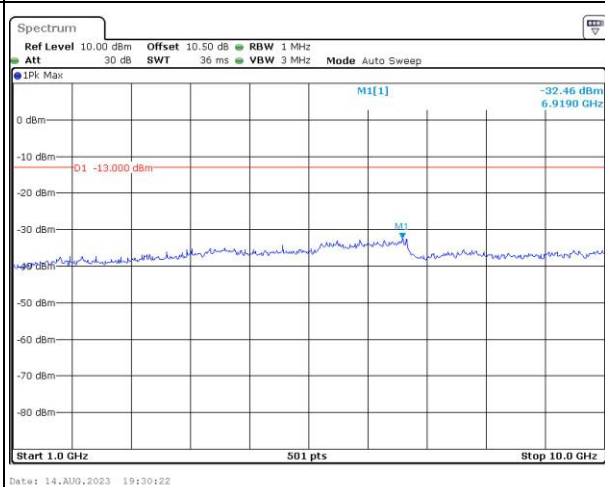
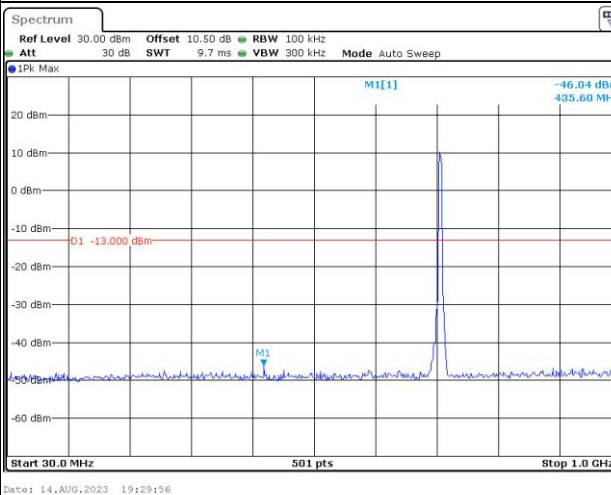
Lowest



Middle



Highest

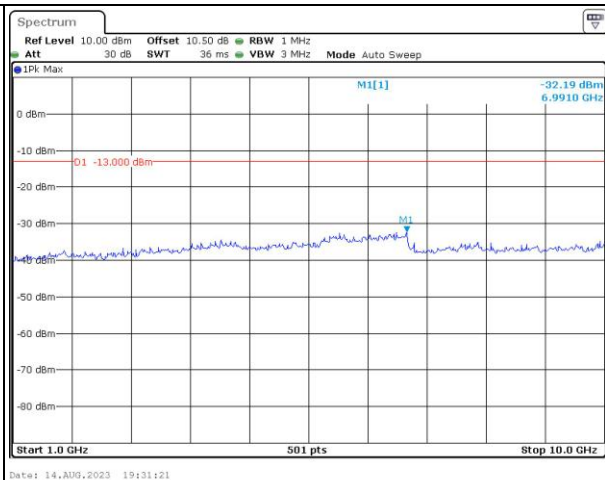
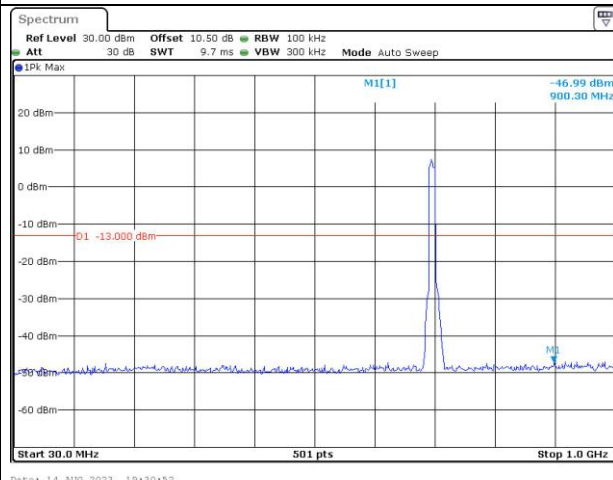


Spurious Emissions at Antenna Terminal

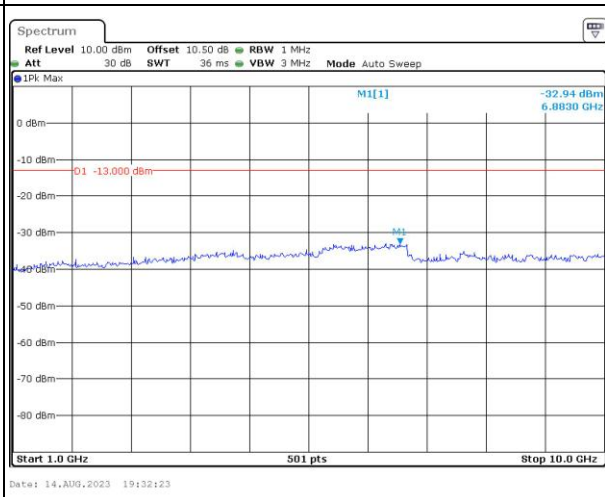
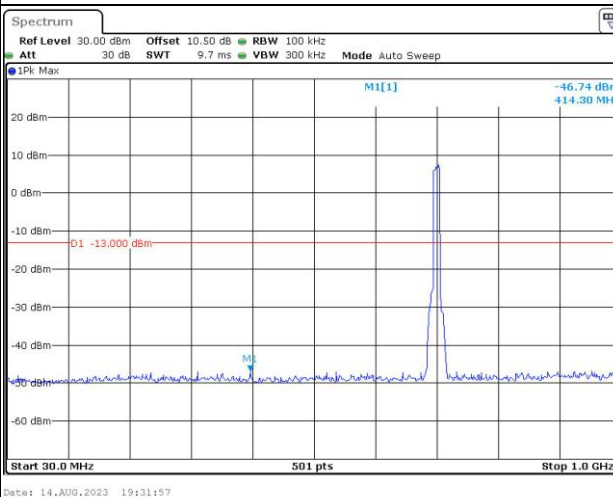
Channel

10MHz Bandwidth QPSK

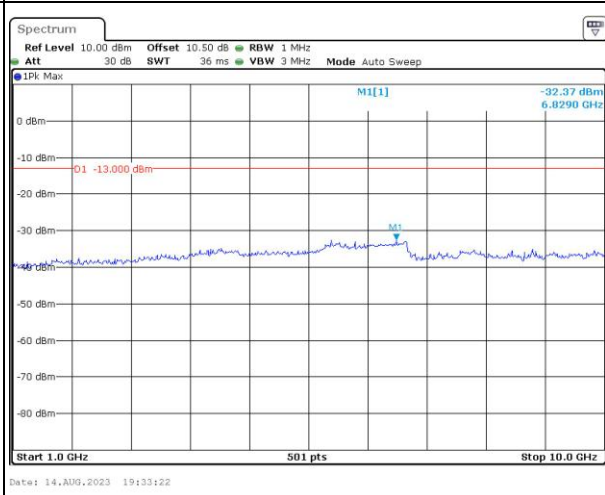
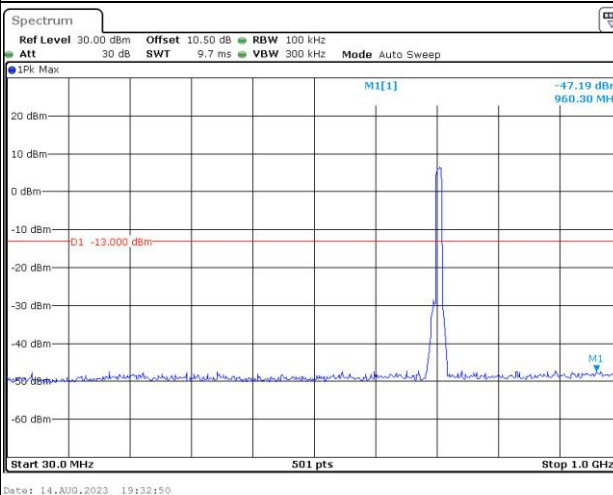
Lowest



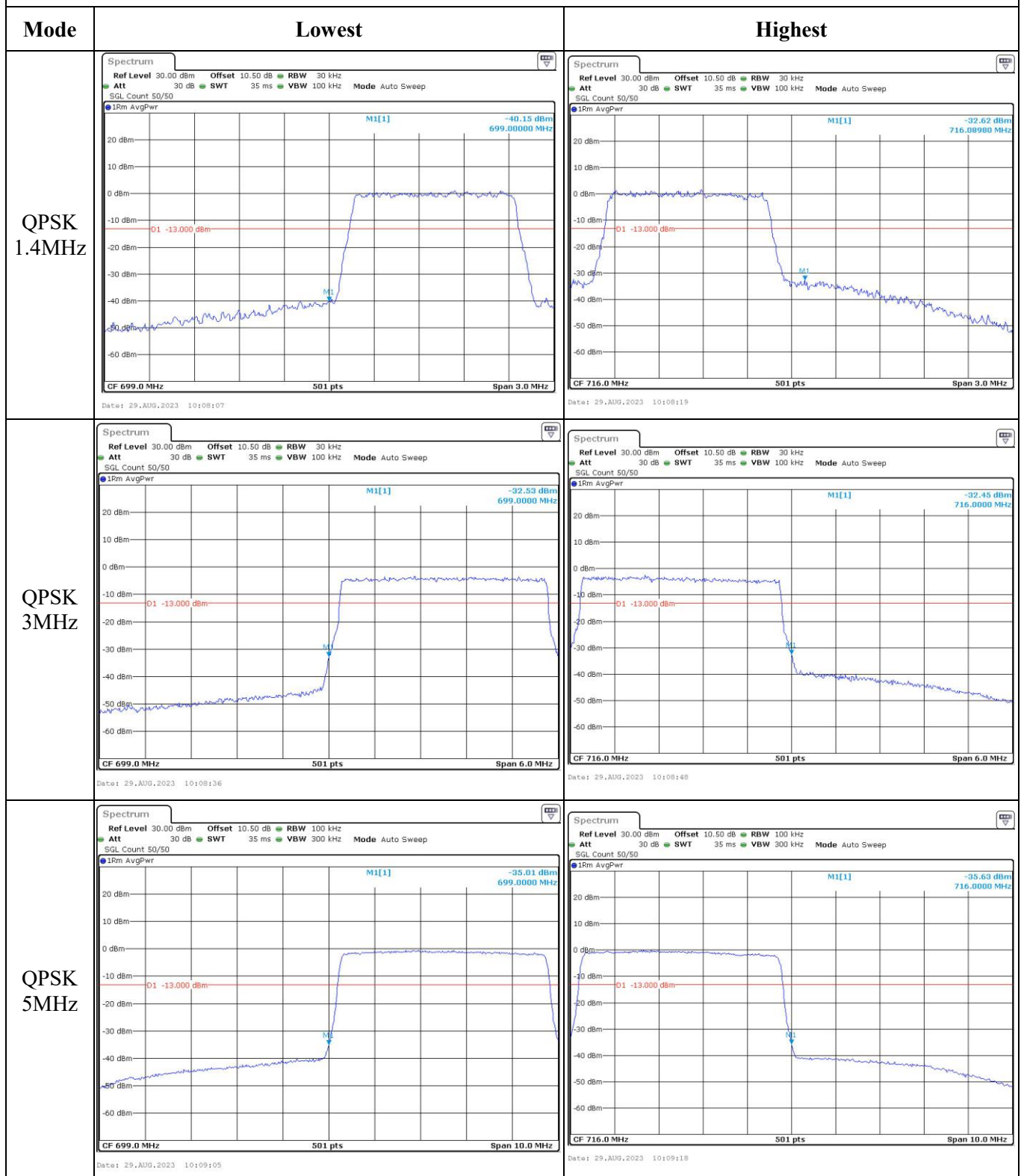
Middle



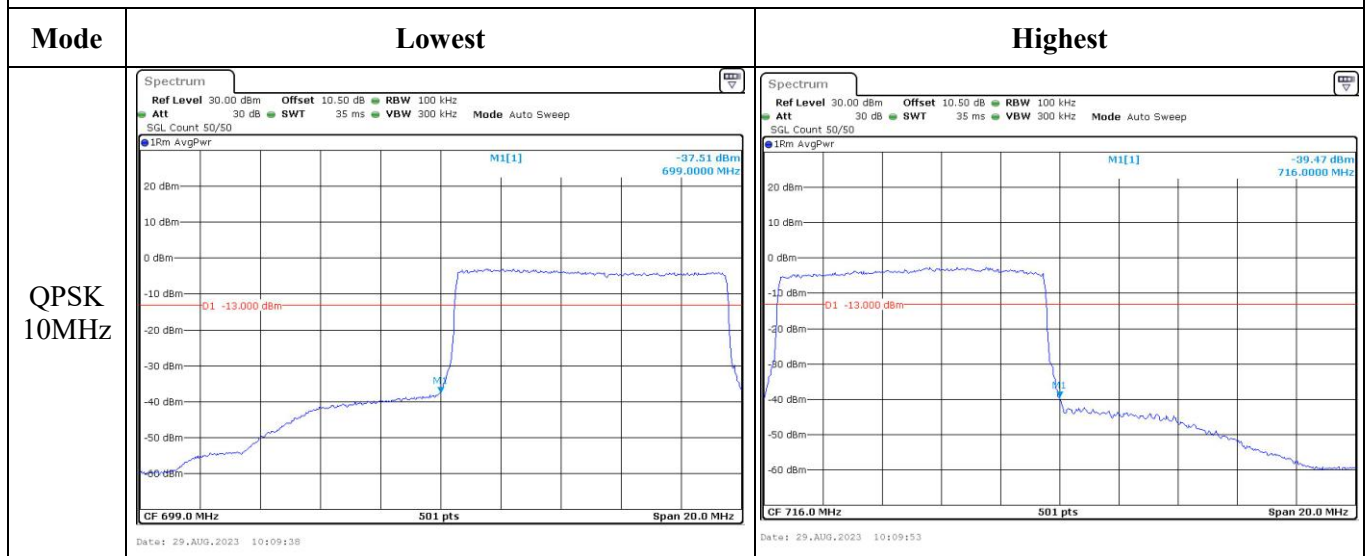
Highest



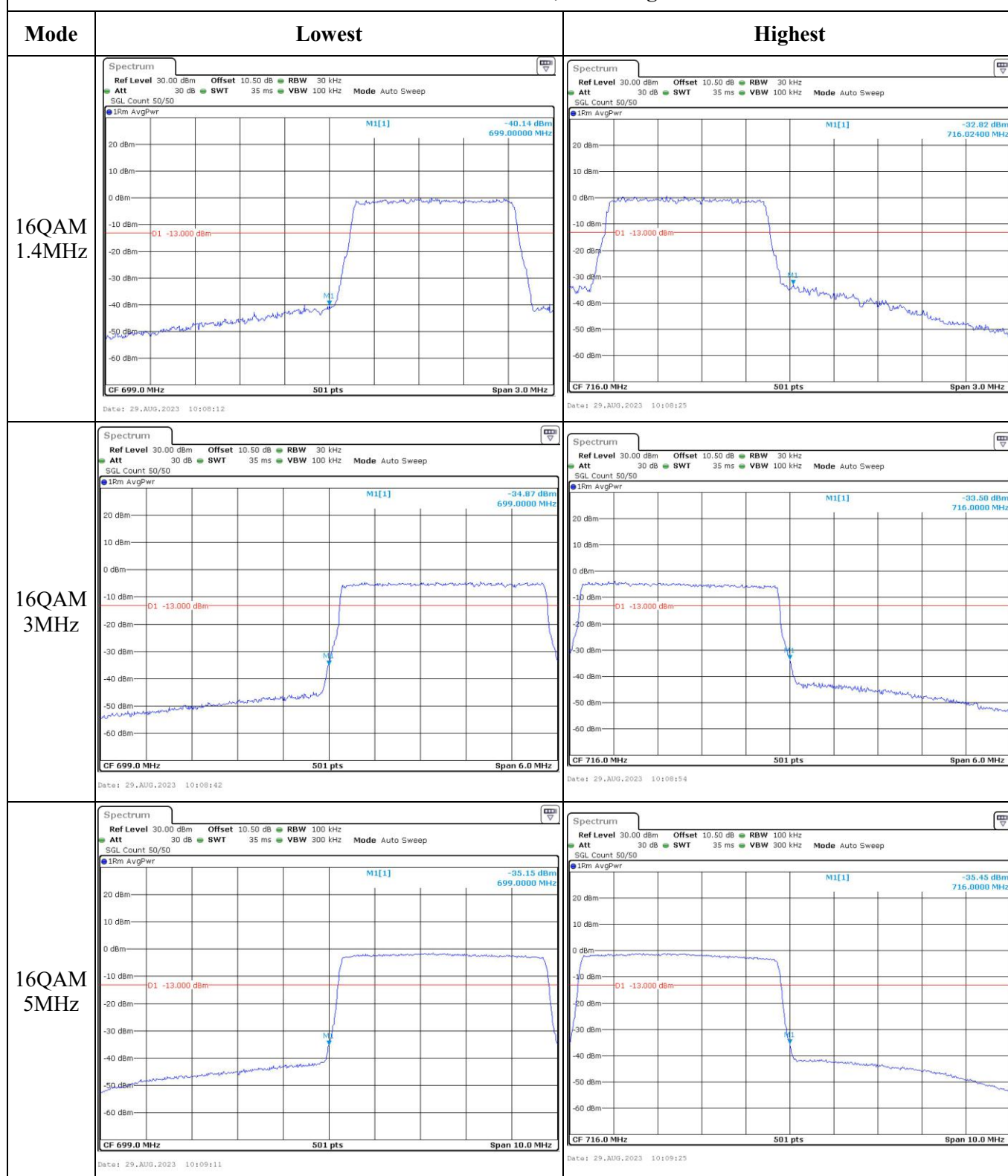
Out of band emission, Band Edge



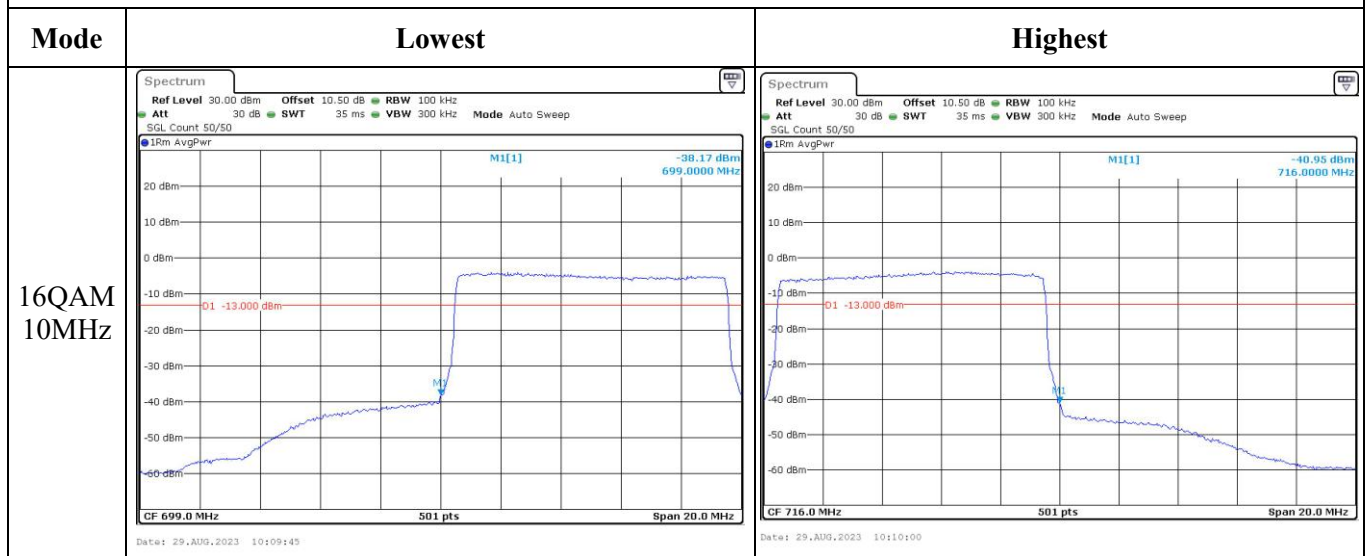
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.11 Antenna Port Test Data and Results for LTE Band 17

Serial Number:	2A4I-1	Test Date:	2023/8/13-2023/8/14
Test Site:	RF	Test Mode:	Transmitting
Tester:	Panda Sun	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.3~25.6	Relative Humidity: (%)	64-68	ATM Pressure: (kPa)	101
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40-N	102259	2023/4/18	2024/4/17
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A

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

Test Frequency for Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
5MHz	706.5	710	713.5
10MHz	709	710	711