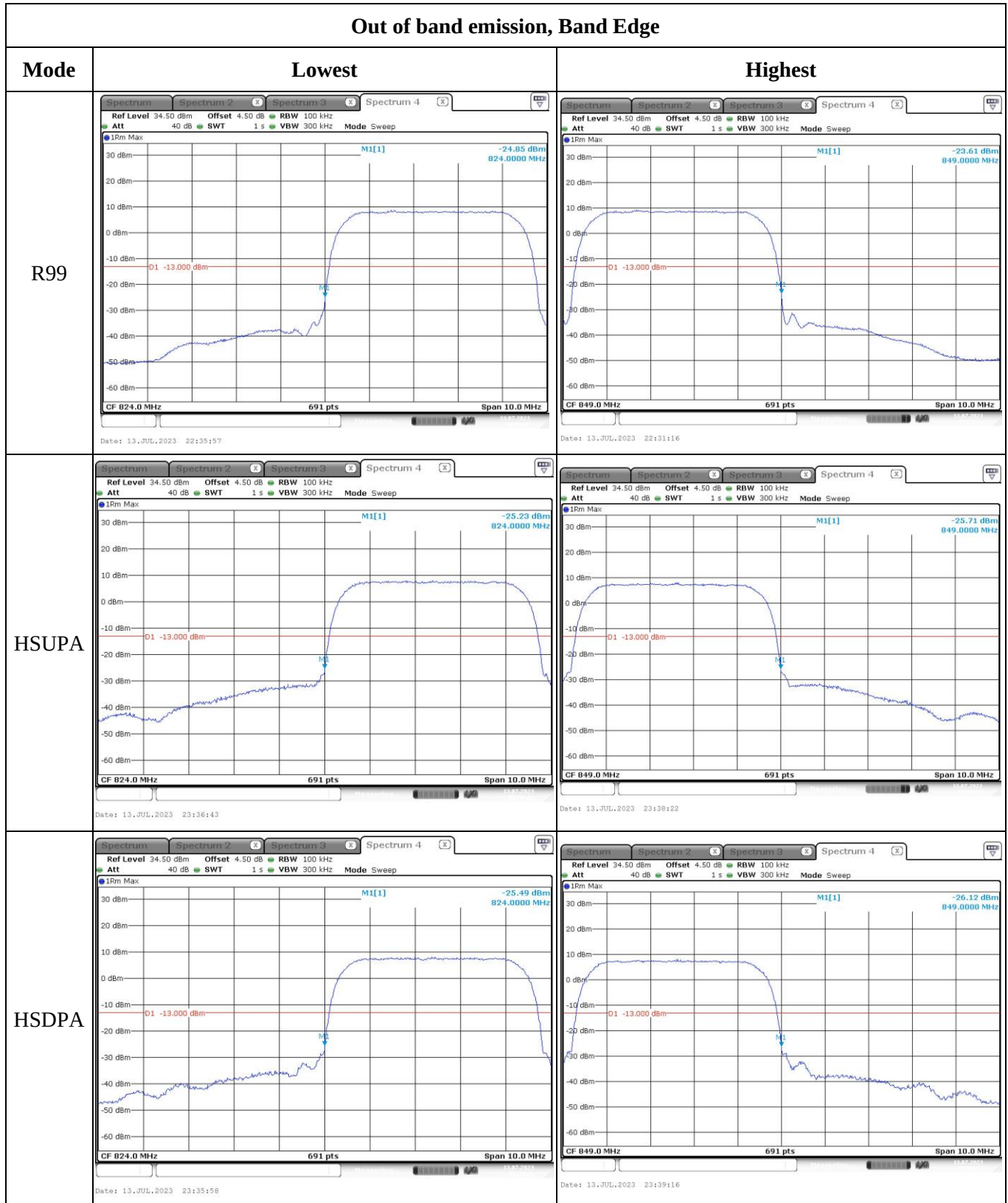


Out of band emission, Band Edge



4.6 Antenna Port Test Data and Results for LTE Band 2

Serial Number:	27W6-1	Test Date:	2023/07/12~2023/07/15
Test Site:	RF	Test Mode:	Transmitting
Tester:	One Luo	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.4~26.8	Relative Humidity: (%)	49~52	ATM Pressure: (kPa)	99.3~100.3
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2022/07/15	2023/07/14
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Power Splitter	1515	RA914	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2022/07/15	2023/07/14
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/03/31	2024/03/30
UNI-T	Multimeter	UT39A+	C210582554	2022/09/29	2023/09/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A
R&S	Spectrum Analyzer	FSV40	101474	2023/07/15	2024/07/14
R&S	Wideband Radio Communication Tester	CMW500	149218	2023/07/15	2024/07/14

* 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	1850.7	1880	1909.3
3MHz	1851.5	1880	1908.5
5MHz	1852.5	1880	1907.5
10MHz	1855	1880	1905
15MHz	1857.5	1880	1902.5
20MHz	1860	1880	1900

Test Data:**FCC §2.1046; § 24.232****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	23.23	23.34	23.47	25.47	33
	RB1#3	23.23	23.42	23.49		
	RB1#5	23.19	23.46	23.54		
	RB3#0	23.29	23.5	23.64		
	RB3#3	23.35	23.47	23.63		
	RB6#0	22.24	22.4	22.55		
1.4MHz 16QAM	RB1#0	23.01	22.93	22.41	25.03	33
	RB1#3	23.1	22.99	22.4		
	RB1#5	23.2	23	22.42		
	RB3#0	22.45	22.74	22.83		
	RB3#3	22.49	22.78	22.82		
	RB6#0	21.77	21.67	21.95		
3MHz QPSK	RB1#0	23.27	23.39	23.48	25.34	33
	RB1#8	23.3	23.36	23.51		
	RB1#14	23.26	23.37	23.5		
	RB6#0	22.34	22.42	22.52		
	RB6#9	22.37	22.46	22.57		
	RB15#0	22.28	22.52	22.51		
3MHz 16QAM	RB1#0	23.12	22.35	23.07	24.99	33
	RB1#8	23.16	22.31	23.04		
	RB1#14	23.16	22.31	23.07		
	RB6#0	21.52	21.77	21.63		
	RB6#9	21.54	21.72	21.63		
	RB15#0	21.48	21.61	21.92		
5MHz QPSK	RB1#0	23.35	23.39	23.56	25.42	33
	RB1#13	23.39	23.44	23.59		
	RB1#24	23.44	23.42	23.48		
	RB15#0	22.33	22.39	22.55		
	RB15#10	22.35	22.54	22.5		
	RB25#0	22.31	22.54	22.5		
5MHz 16QAM	RB1#0	22.6	22.2	21.75	24.45	33
	RB1#13	22.58	22.17	21.71		
	RB1#24	22.62	22.31	21.77		
	RB15#0	21.42	21.63	21.79		
	RB15#10	21.47	21.7	21.85		
	RB25#0	21.52	21.56	21.88		

10MHz QPSK	RB1#0	23.39	23.49	23.37	25.34	33
	RB1#25	23.42	23.39	23.41		
	RB1#49	23.47	23.51	23.47		
	RB25#0	22.24	22.44	22.59		
	RB25#25	22.43	22.52	22.63		
	RB50#0	22.28	22.49	22.49		
10MHz 16QAM	RB1#0	22.48	21.87	22.91	24.76	33
	RB1#25	22.56	21.89	22.93		
	RB1#49	22.57	21.87	22.92		
	RB25#0	21.59	21.81	21.68		
	RB25#25	21.69	21.79	21.75		
	RB50#0	21.65	21.61	21.81		
15MHz QPSK	RB1#0	23.44	23.3	23.33	25.4	33
	RB1#38	23.44	23.35	23.46		
	RB1#74	23.57	23.39	23.51		
	RB36#0	22.33	22.37	22.5		
	RB36#39	22.41	22.47	22.63		
	RB75#0	22.3	22.46	22.57		
15MHz 16QAM	RB1#0	22.43	22.81	22.8	24.78	33
	RB1#38	22.54	22.93	22.85		
	RB1#74	22.64	22.95	22.94		
	RB36#0	21.61	21.59	21.86		
	RB36#39	21.71	21.73	21.92		
	RB75#0	21.59	21.66	21.77		
20MHz QPSK	RB1#0	23.46	23.42	23.49	25.53	33
	RB1#50	23.54	23.46	23.67		
	RB1#99	23.57	23.58	23.7		
	RB50#0	22.4	22.37	22.48		
	RB50#50	22.41	22.49	22.59		
	RB100#0	22.32	22.41	22.46		
20MHz 16QAM	RB1#0	22.43	23.27	22.68	25.29	33
	RB1#50	22.4	23.31	22.75		
	RB1#99	22.59	23.46	22.91		
	RB50#0	21.51	21.59	21.75		
	RB50#50	21.61	21.65	21.89		
	RB100#0	21.43	21.73	21.72		

Note: EIRP=Conducted Power(dBm) - Lc(dB) + Gr(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	5.86	5.86	5.74	13
	RB100#0	4.43	3.77	4.26	13
20MHz 16QAM	RB1#0	6.93	6.35	6.81	13
	RB100#0	6.00	5.88	5.91	13
Result:					Pass

FCC §2.1049, §24.238: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	1.096	1.102	1.108	1.260	1.260	1.260
1.4MHz 16QAM	1.108	1.09	1.102	1.266	1.254	1.260
3MHz QPSK	2.695	2.683	2.695	2.856	2.904	2.988
3MHz 16QAM	2.683	2.683	2.695	2.892	2.928	3.012
5MHz QPSK	4.511	4.511	4.531	4.960	5.000	4.98
5MHz 16QAM	4.511	4.511	4.511	5.020	5.020	5.000
10MHz QPSK	8.942	8.942	8.942	9.760	9.800	9.440
10MHz 16QAM	8.942	8.942	8.942	9.800	9.840	9.720
15MHz QPSK	13.473	13.533	13.473	14.820	14.820	14.520
15MHz 16QAM	13.533	13.533	13.413	14.820	14.760	14.280
20MHz QPSK	17.884	18.044	17.884	18.960	19.680	19.520
20MHz 16QAM	18.044	17.884	17.964	19.760	18.096	19.600
Note: The test plots please refer to the Plots of Occupied Bandwidth						

FCC §2.1051, § 24.238 (a):Spurious Emissions at Antenna Terminal	
Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.

FCC §2.1051, § 24.238 (a):Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

FCC §2.1055, §24.235: 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	3.87	1851.032	1850.000	1908.968	1910.000
	-20	3.87	1851.020	1850.000	1908.944	1910.000
	-10	3.87	1851.074	1850.000	1908.909	1910.000
	0	3.87	1851.036	1850.000	1908.905	1910.000
	10	3.87	1851.074	1850.000	1908.935	1910.000
	20	3.87	1851.058	1850.000	1908.942	1910.000
	30	3.87	1851.088	1850.000	1908.929	1910.000
	40	3.87	1851.017	1850.000	1908.930	1910.000
	50	3.87	1851.017	1850.000	1908.940	1910.000
Frequency Stability vs. Voltage	20	3.3	1851.090	1850.000	1908.975	1910.000
	20	4.45	1851.006	1850.000	1908.922	1910.000
					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	3.87	1850.966	1850.000	1909.064	1910.000
	-20	3.87	1850.978	1850.000	1909.056	1910.000
	-10	3.87	1850.952	1850.000	1909.078	1910.000
	0	3.87	1850.991	1850.000	1909.029	1910.000
	10	3.87	1850.996	1850.000	1909.095	1910.000
	20	3.87	1850.978	1850.000	1909.022	1910.000
	30	3.87	1850.957	1850.000	1909.043	1910.000
	40	3.87	1850.982	1850.000	1909.100	1910.000
	50	3.87	1851.000	1850.000	1909.055	1910.000
Frequency Stability vs. Voltage	20	3.3	1850.993	1850.000	1909.040	1910.000
	20	4.45	1850.992	1850.000	1909.026	1910.000
					Result:	Pass

Test Plots(Note: The 7.5dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):

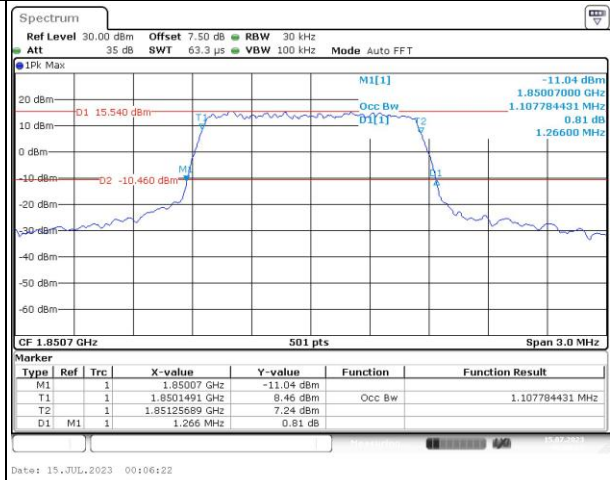
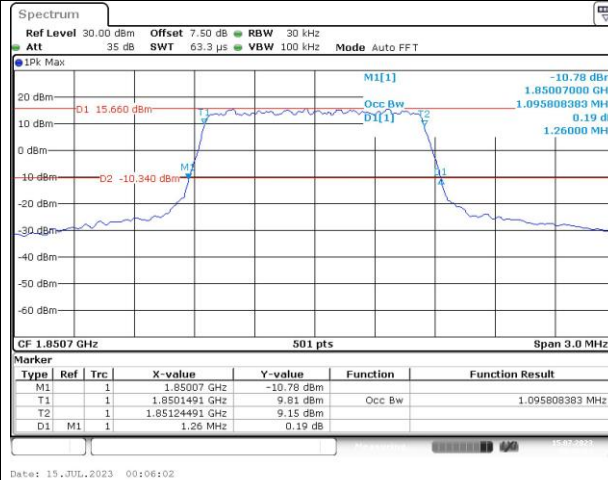
Occupied Bandwidth

Channel

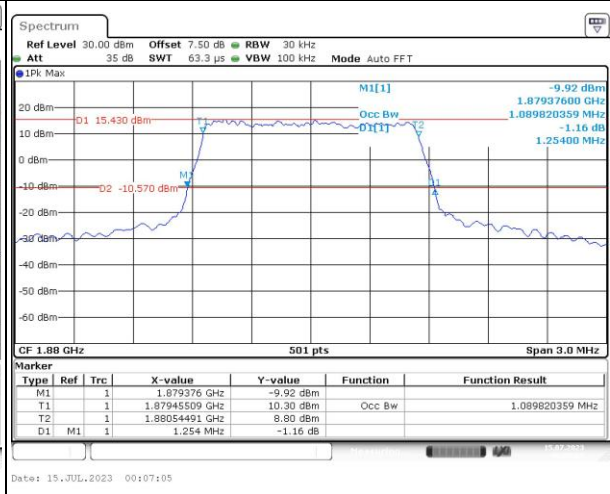
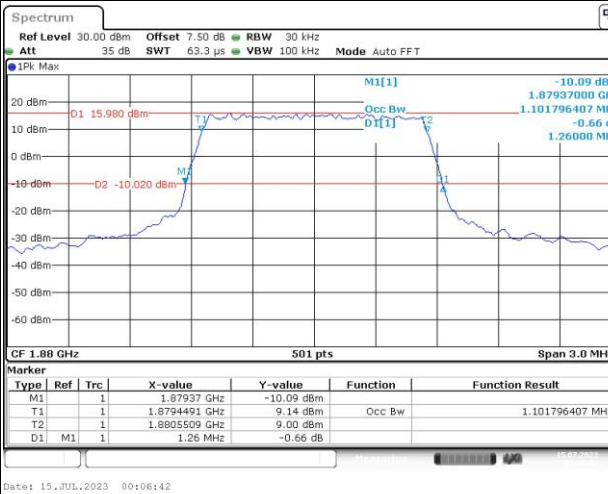
1.4MHz Bandwidth QPSK

1.4MHz Bandwidth 16QAM

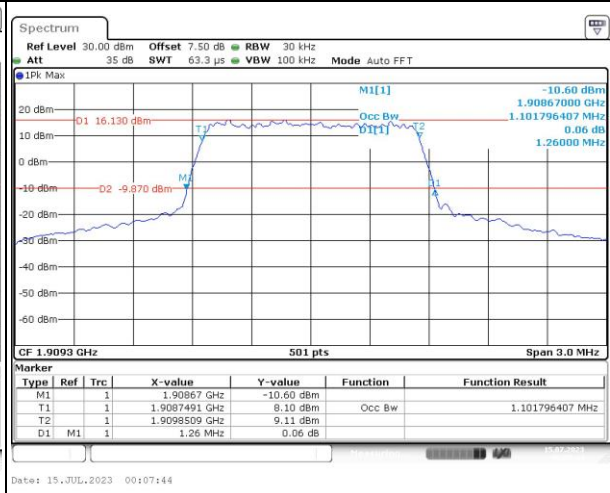
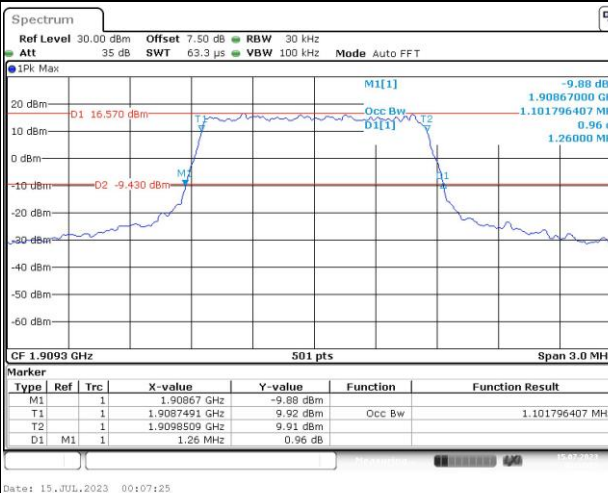
Lowest



Middle



Highest



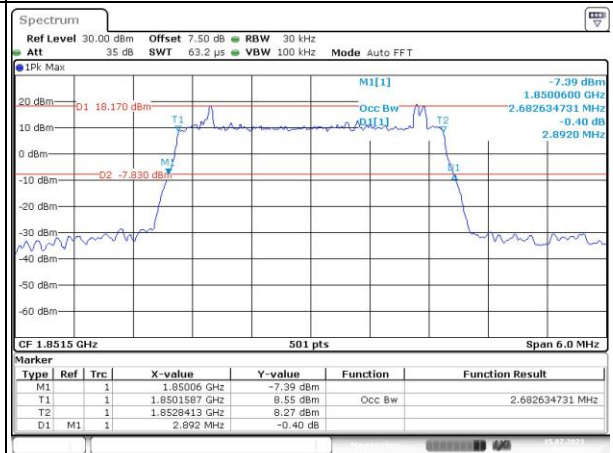
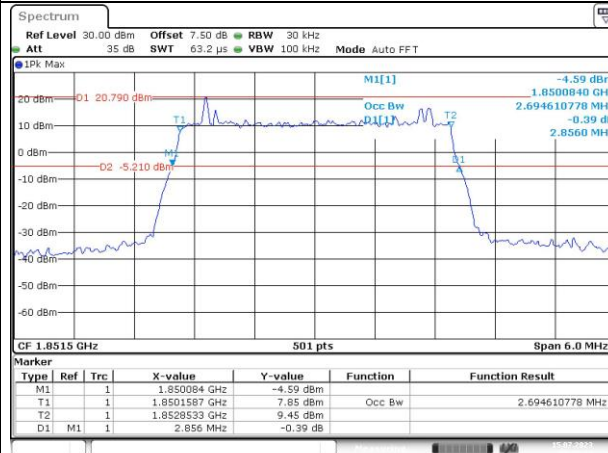
Occupied Bandwidth

Channel

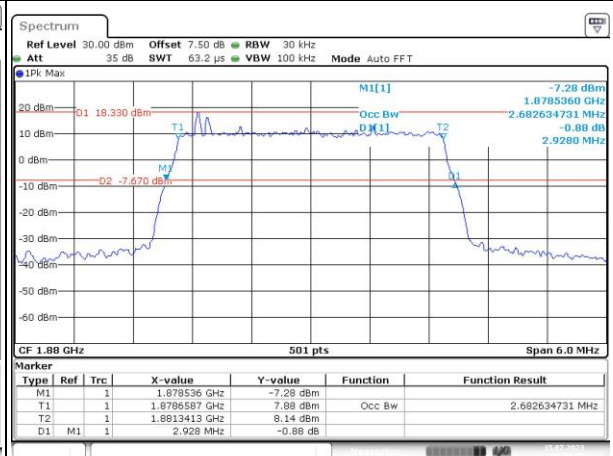
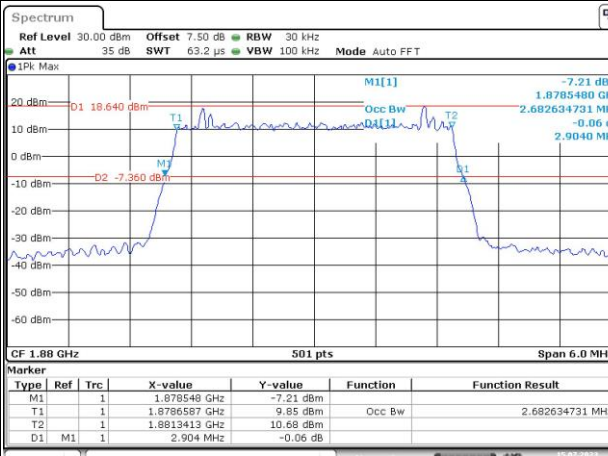
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

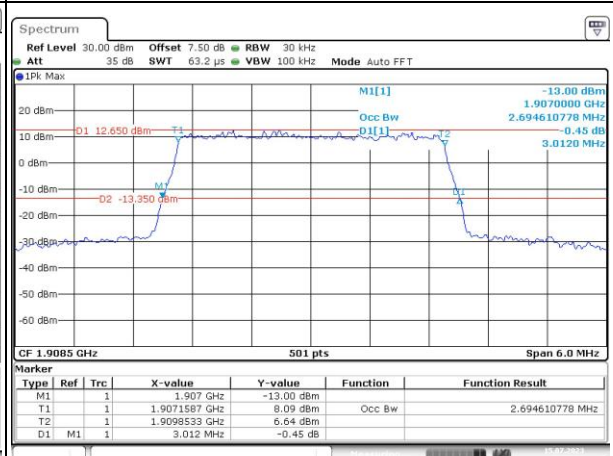
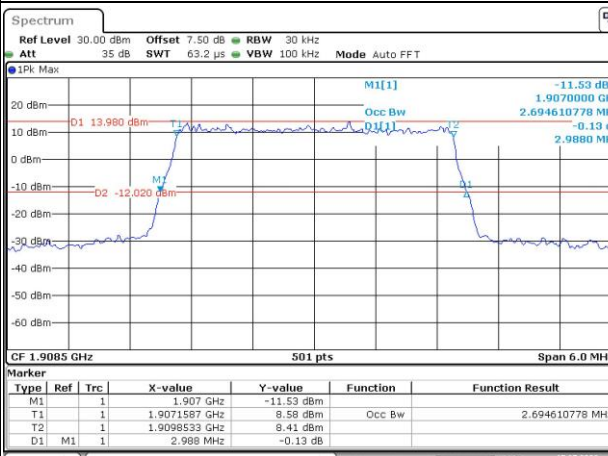
Lowest



Middle



Highest



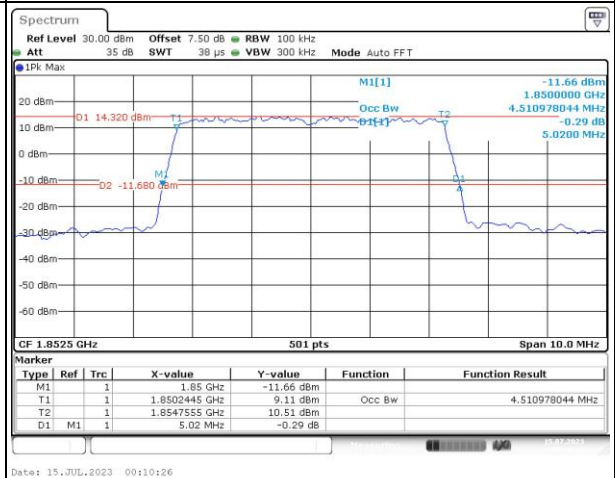
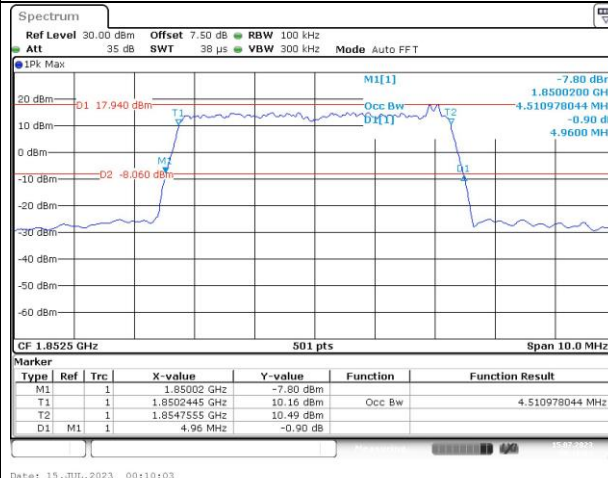
Occupied Bandwidth

Channel

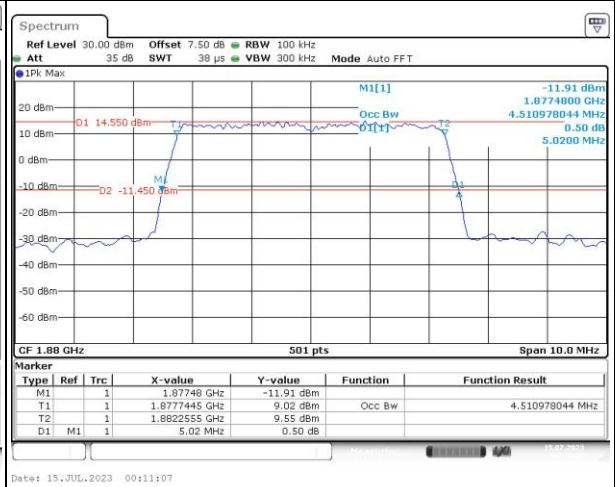
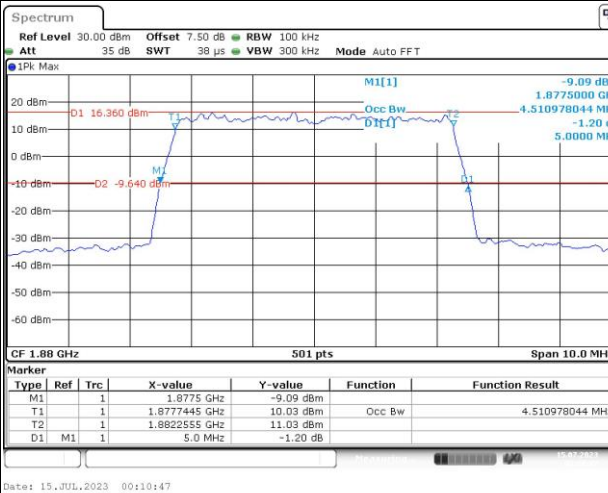
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

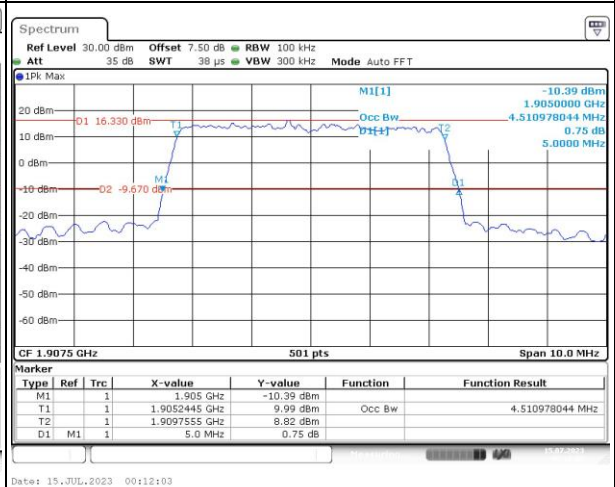
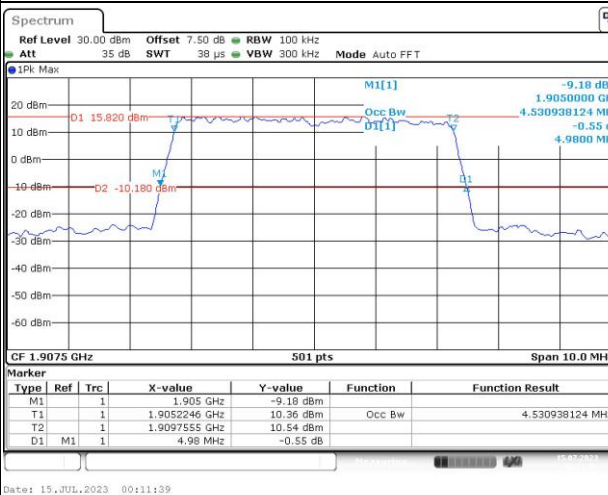
Lowest



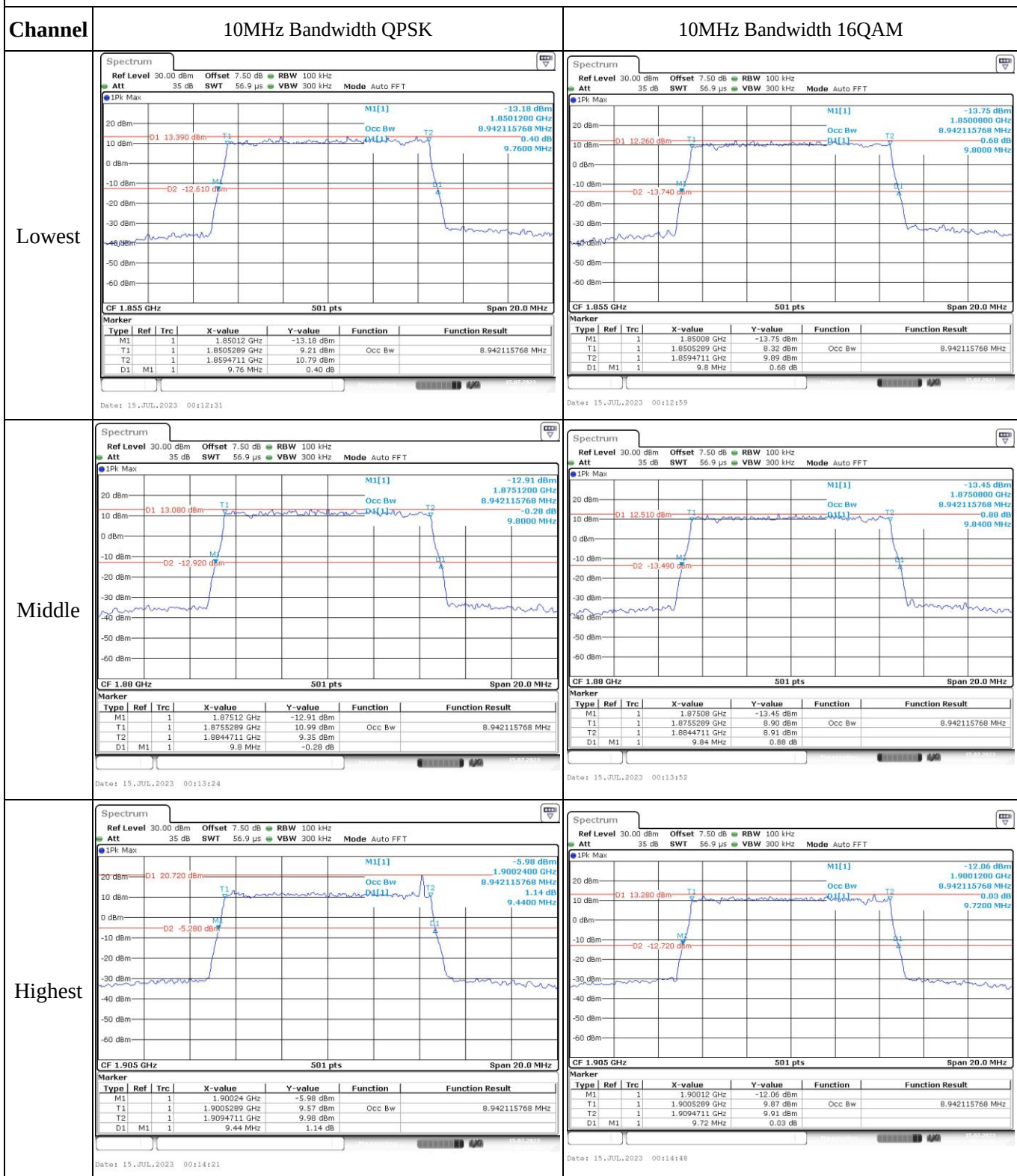
Middle



Highest



Occupied Bandwidth



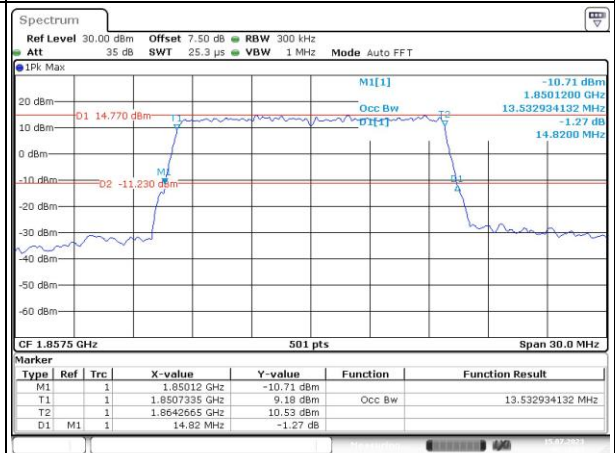
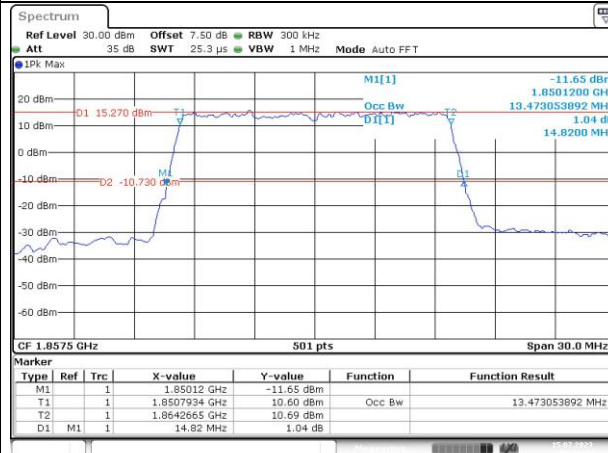
Occupied Bandwidth

Channel

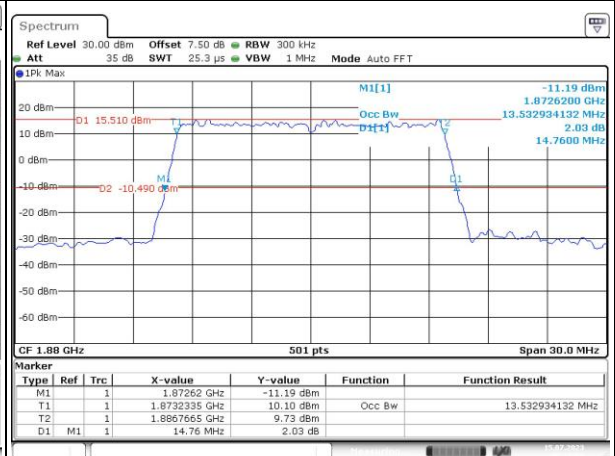
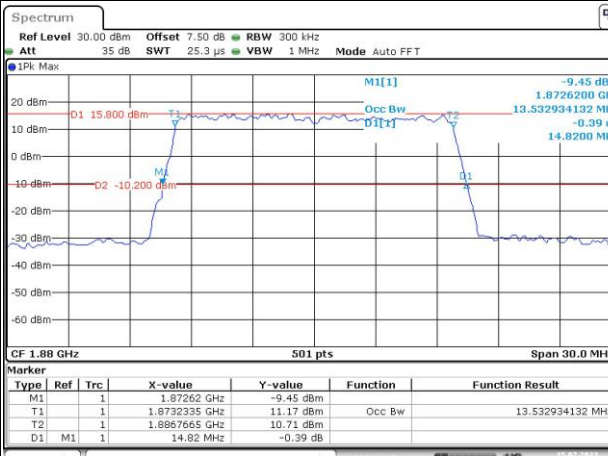
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

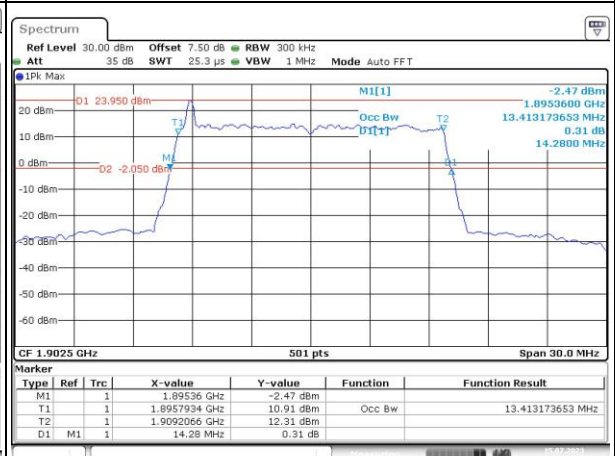
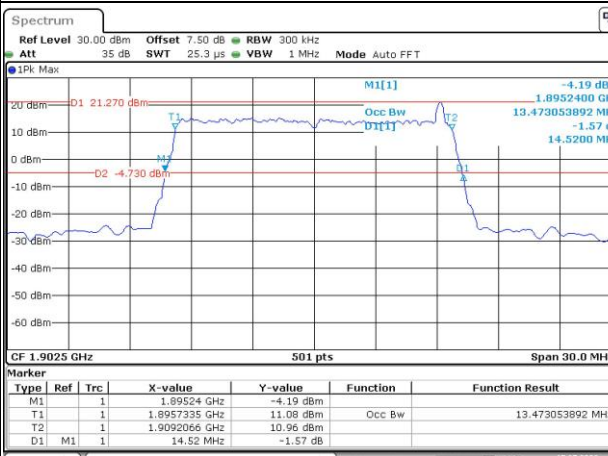
Lowest



Middle



Highest



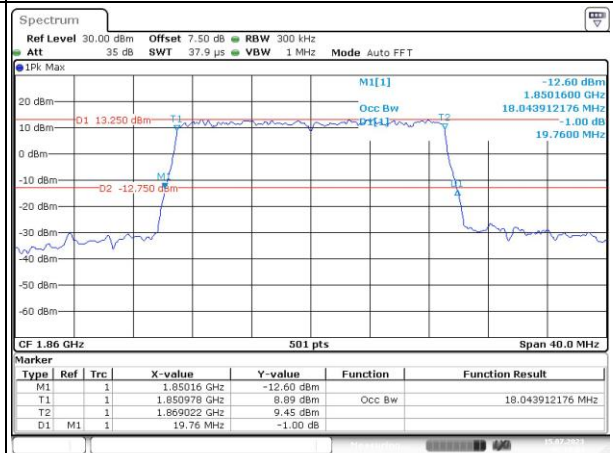
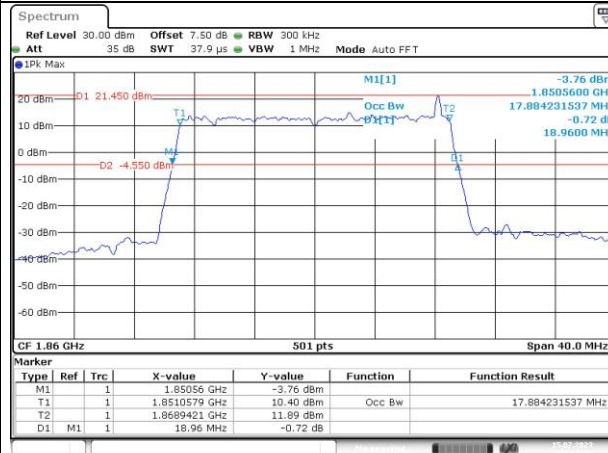
Occupied Bandwidth

Channel

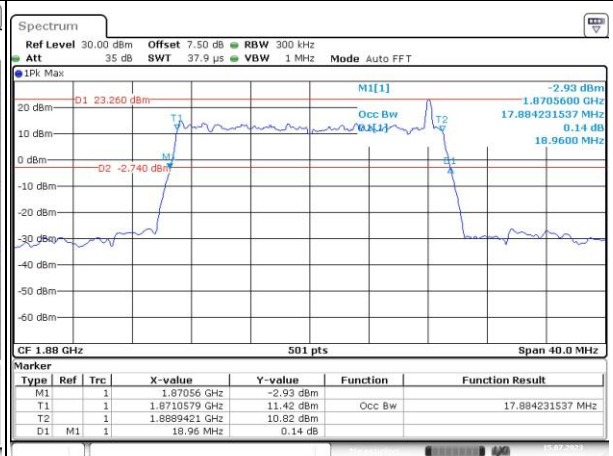
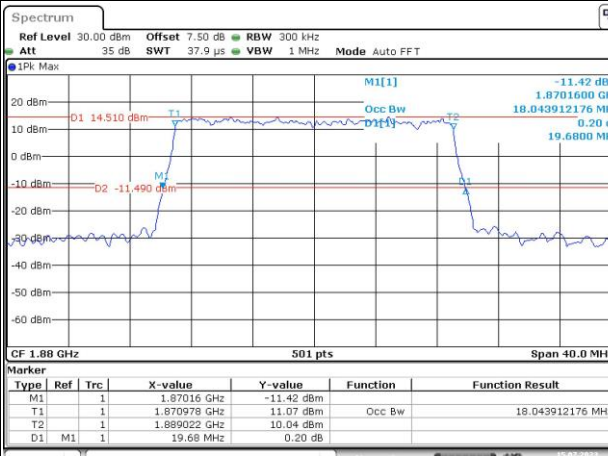
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

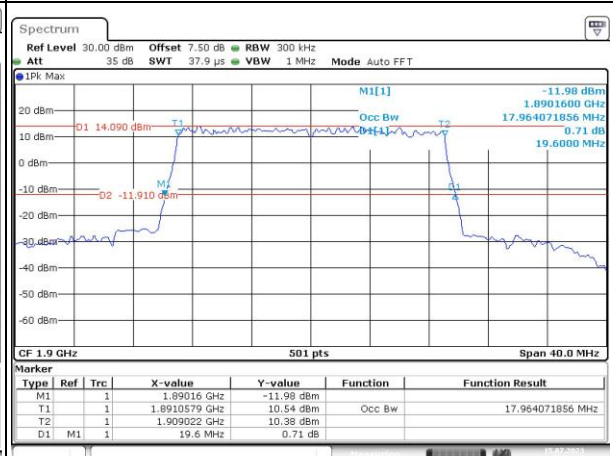
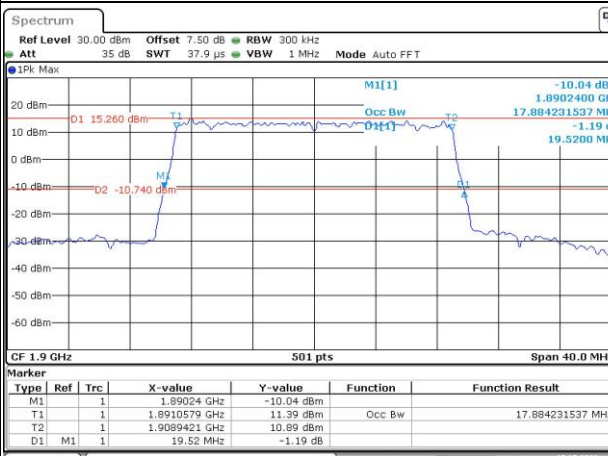
Lowest



Middle



Highest

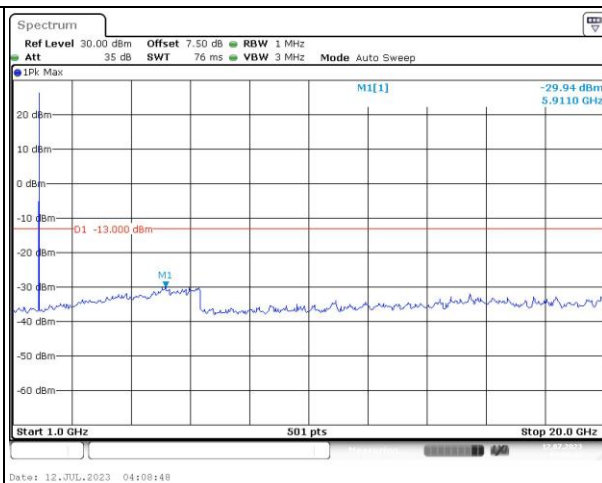
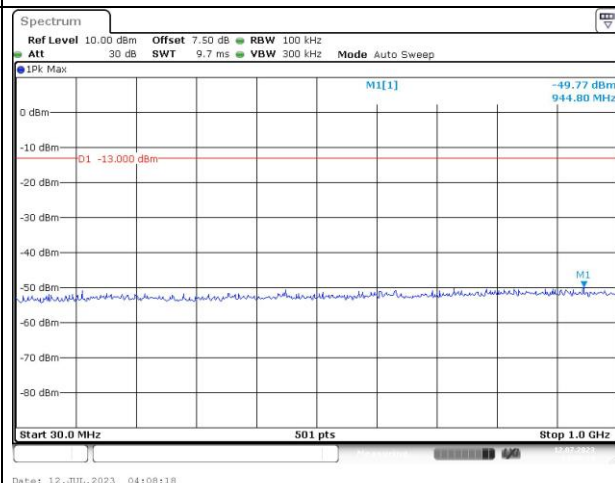


Spurious Emissions at Antenna Terminal

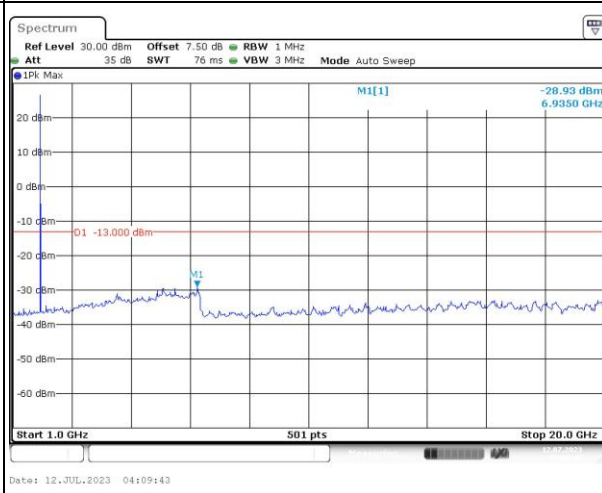
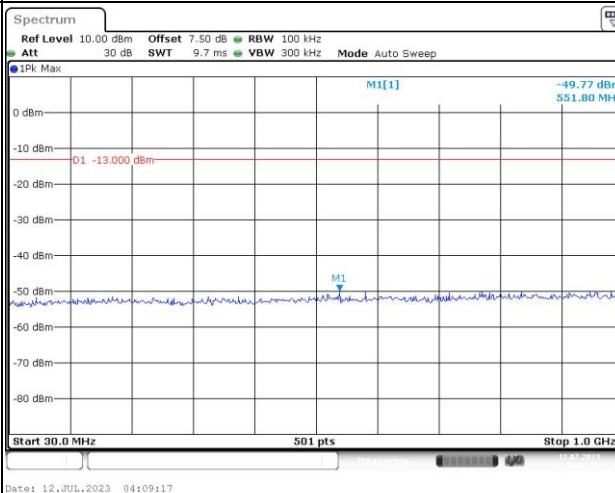
Channel

1.4MHz Bandwidth QPSK

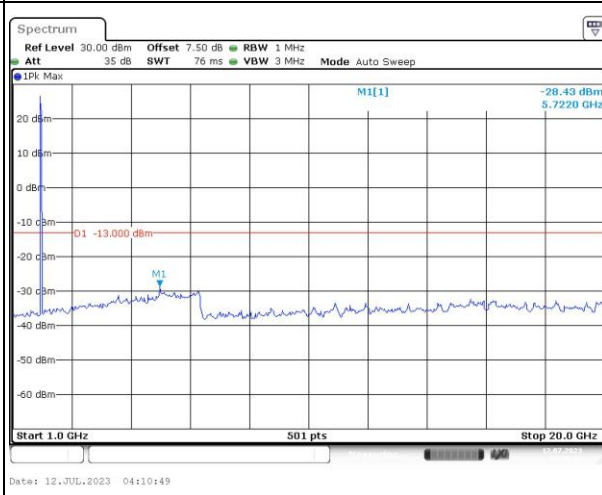
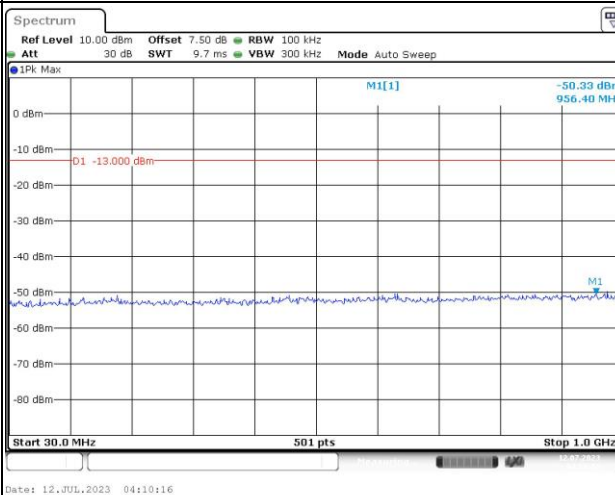
Lowest



Middle



Highest

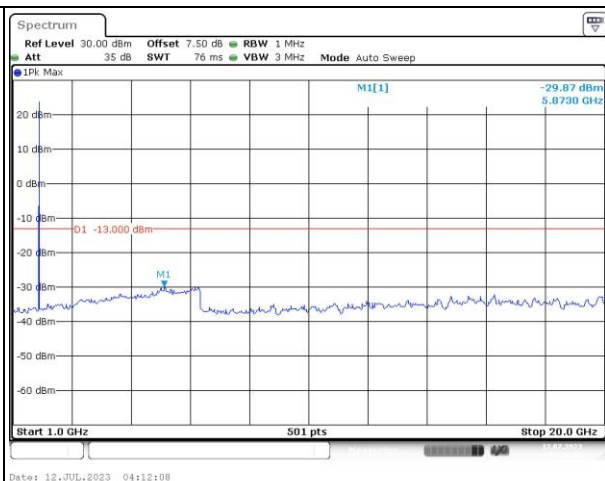
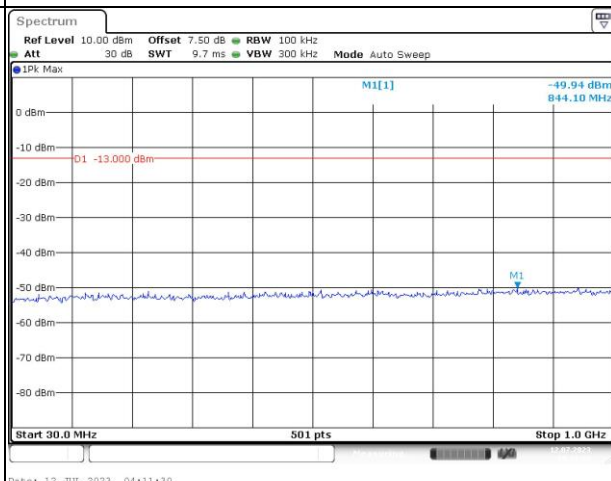


Spurious Emissions at Antenna Terminal

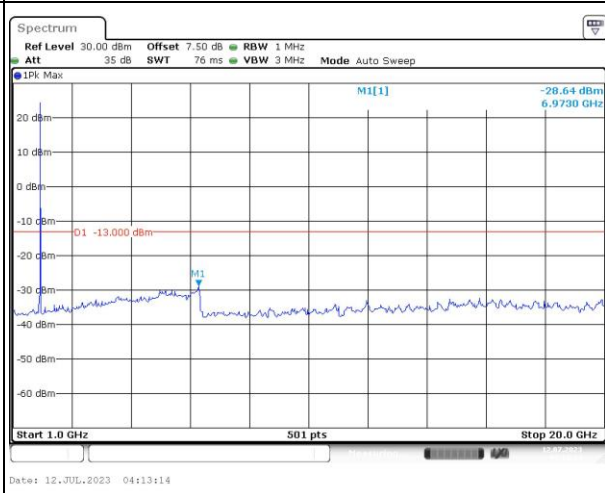
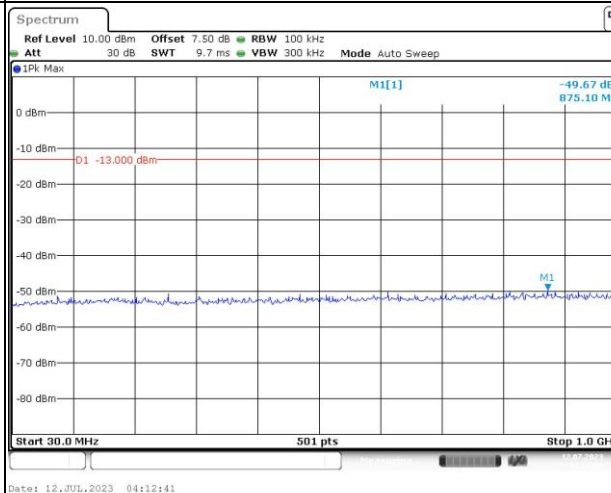
Channel

3MHz Bandwidth QPSK

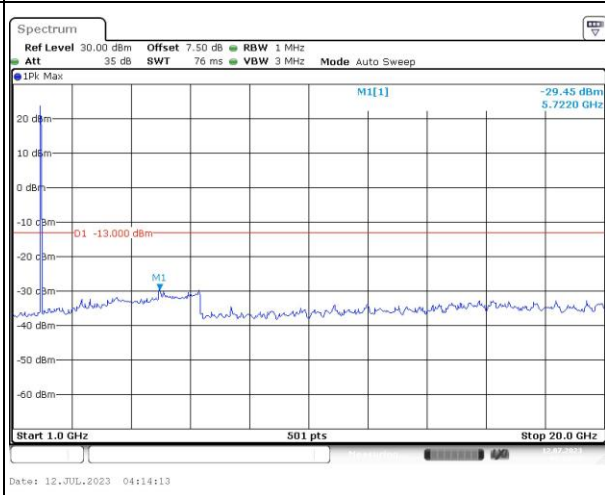
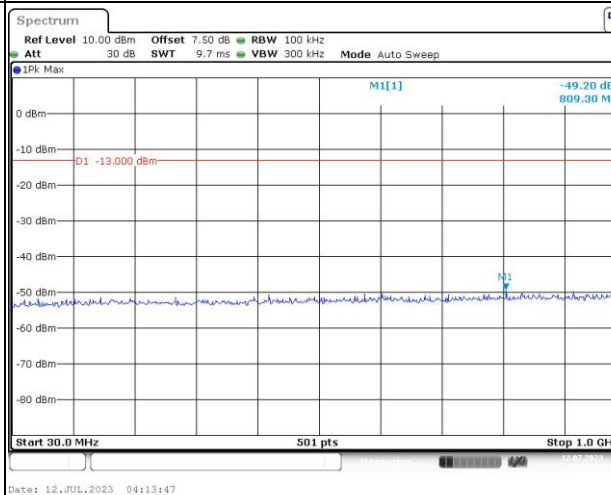
Lowest



Middle



Highest

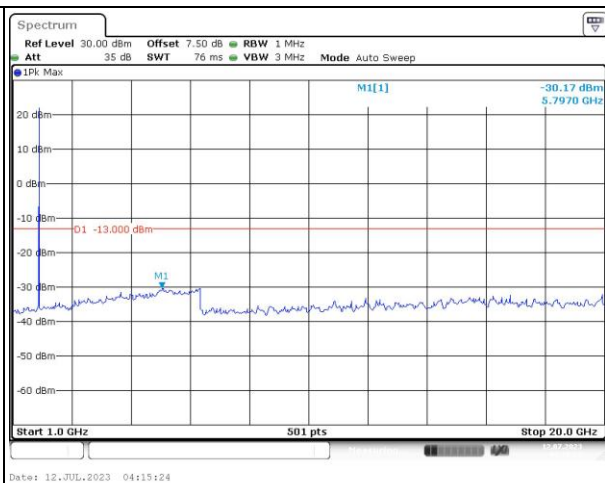
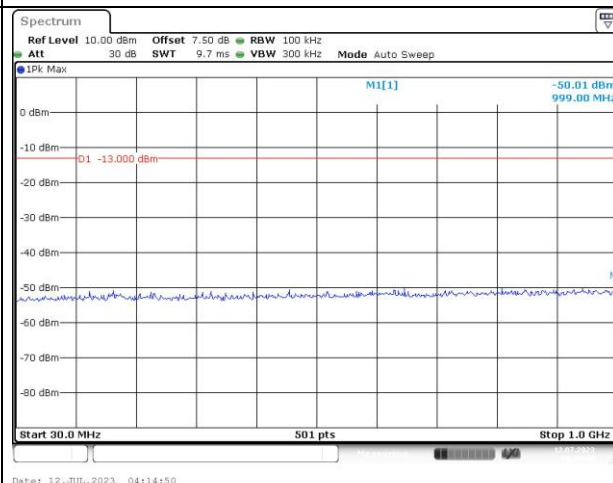


Spurious Emissions at Antenna Terminal

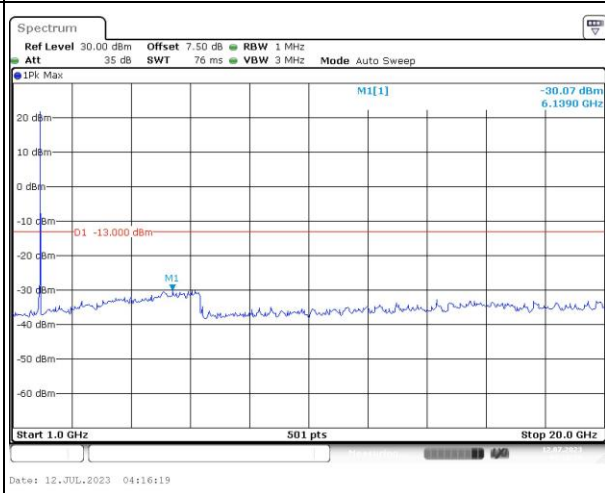
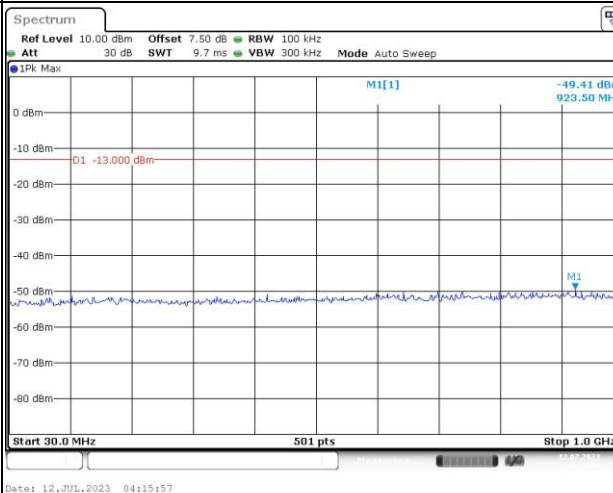
Channel

5MHz Bandwidth QPSK

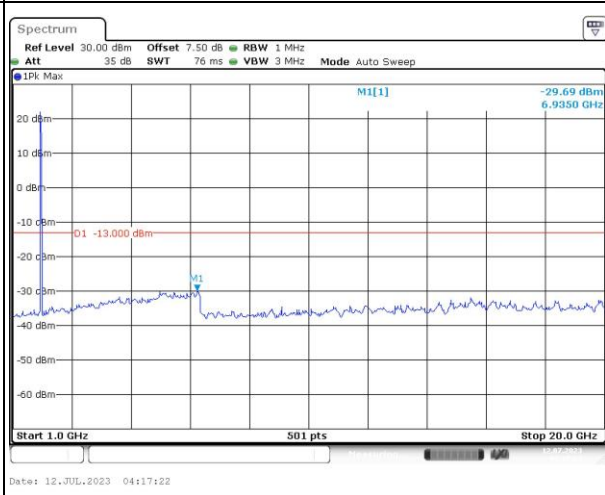
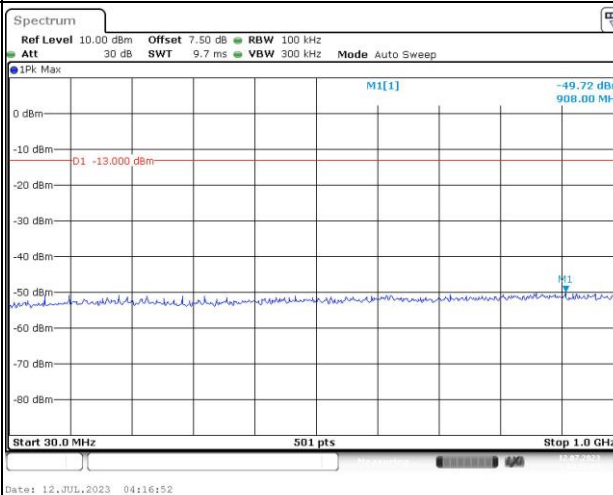
Lowest



Middle



Highest

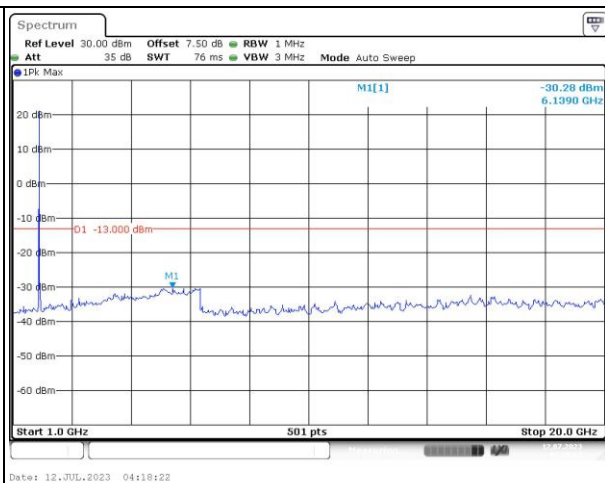
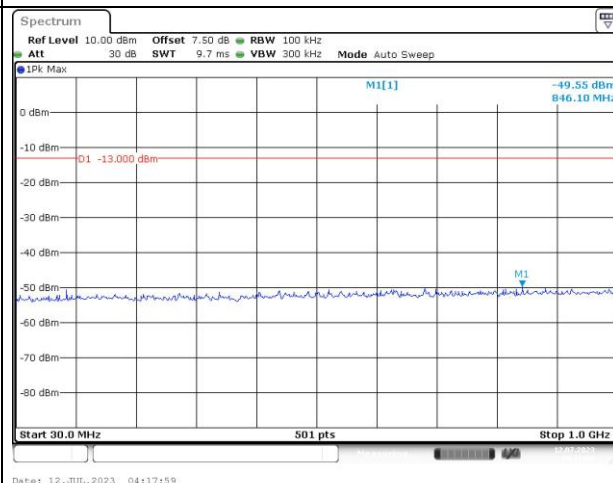


Spurious Emissions at Antenna Terminal

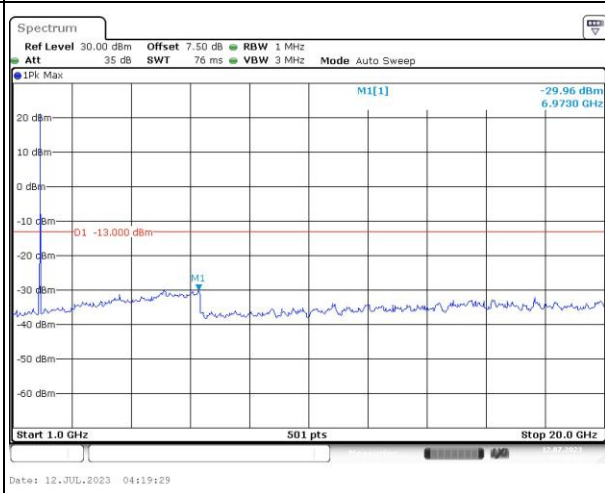
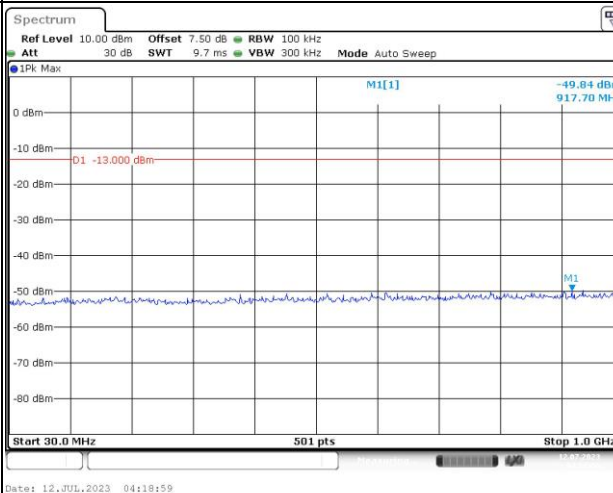
Channel

10MHz Bandwidth QPSK

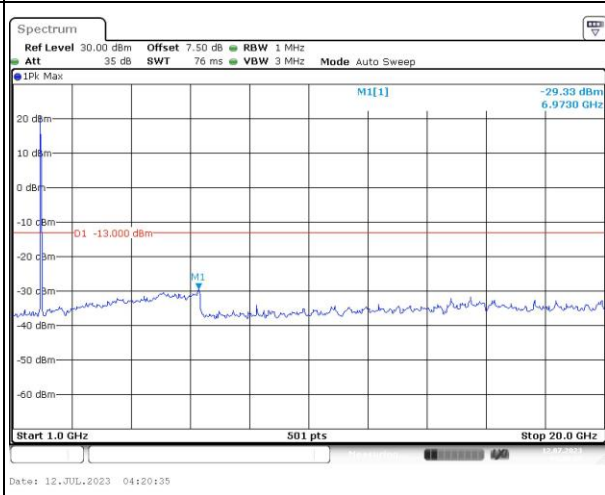
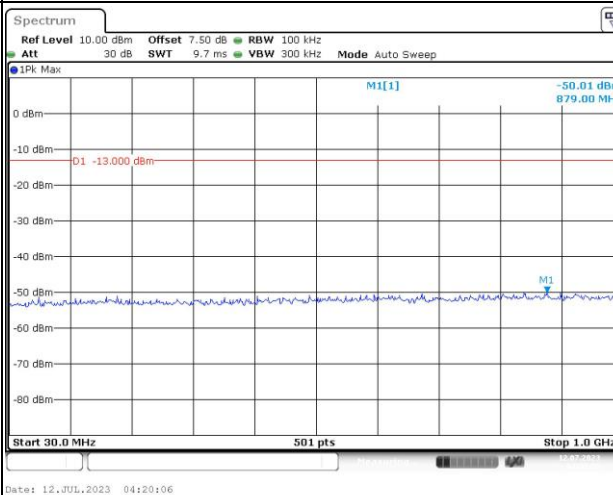
Lowest



Middle



Highest

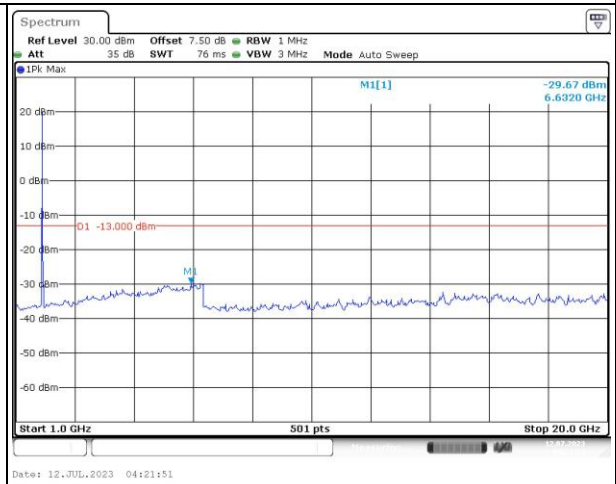
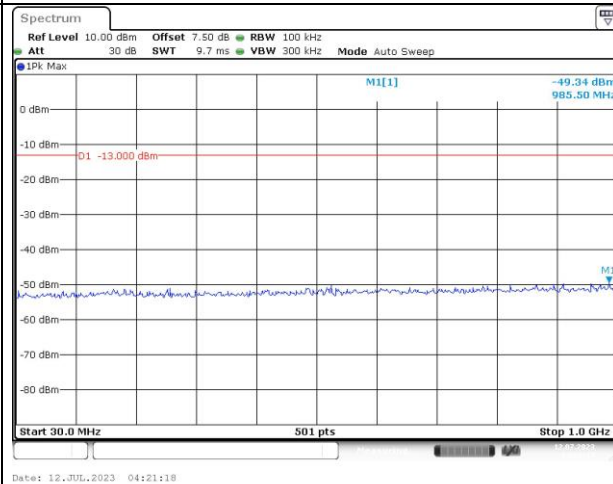


Spurious Emissions at Antenna Terminal

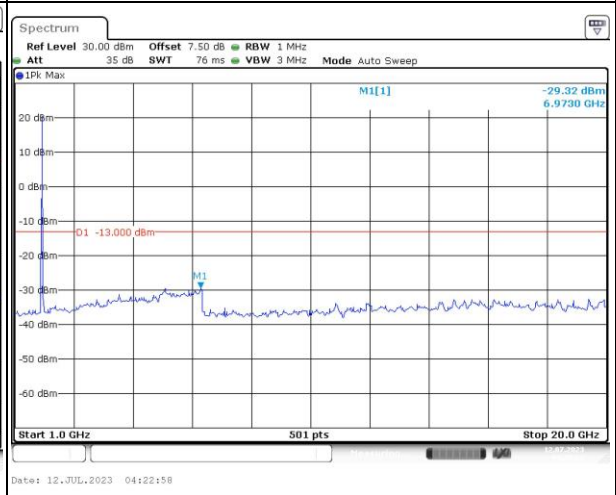
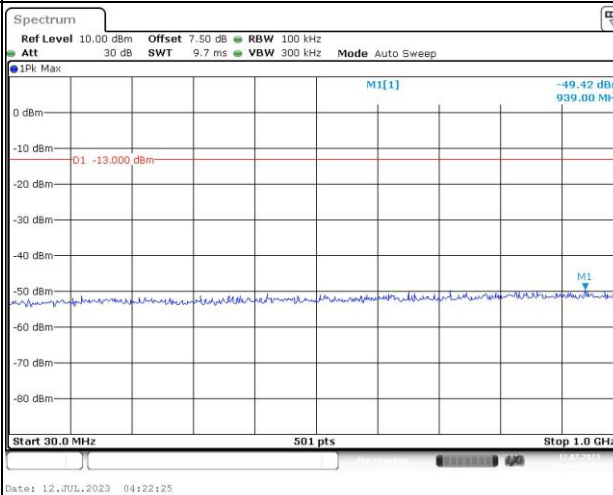
Channel

15MHz Bandwidth QPSK

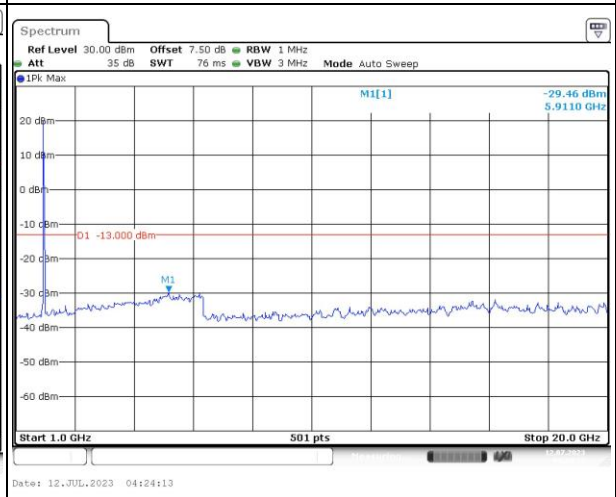
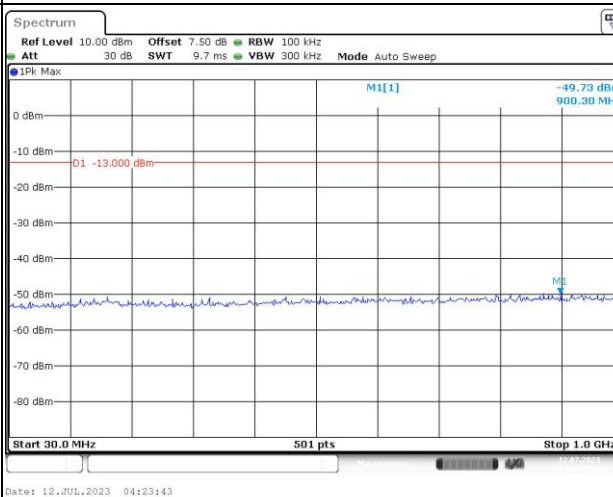
Lowest



Middle



Highest

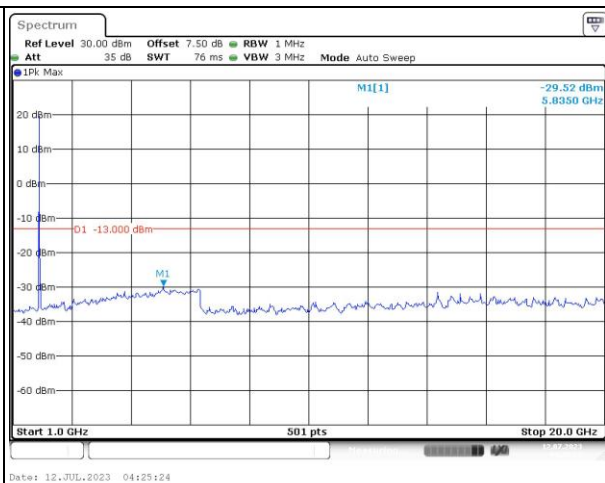
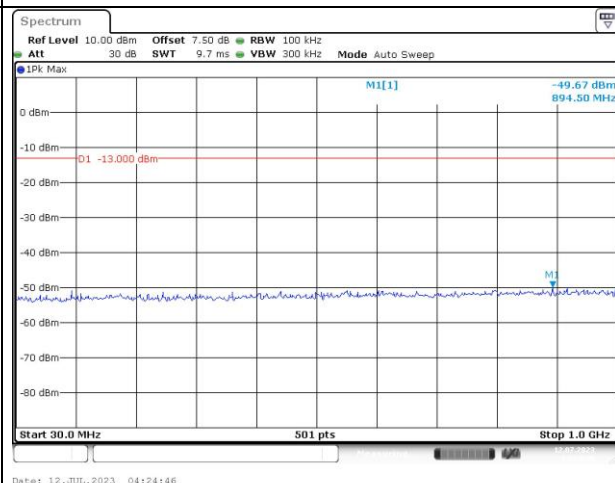


Spurious Emissions at Antenna Terminal

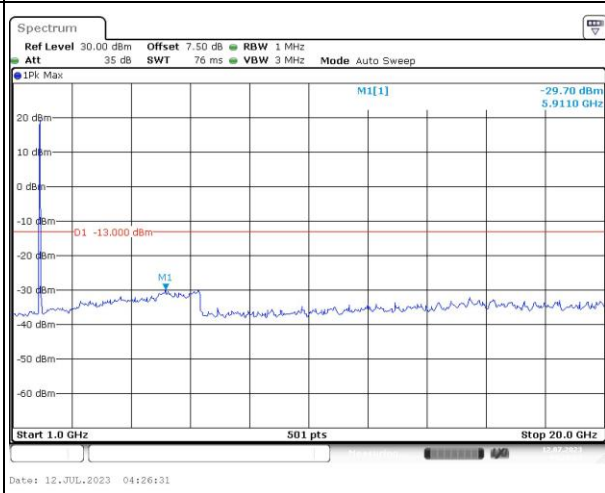
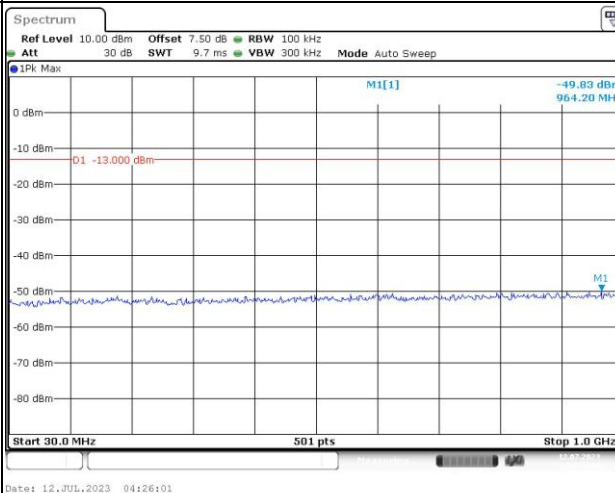
Channel

20MHz Bandwidth QPSK

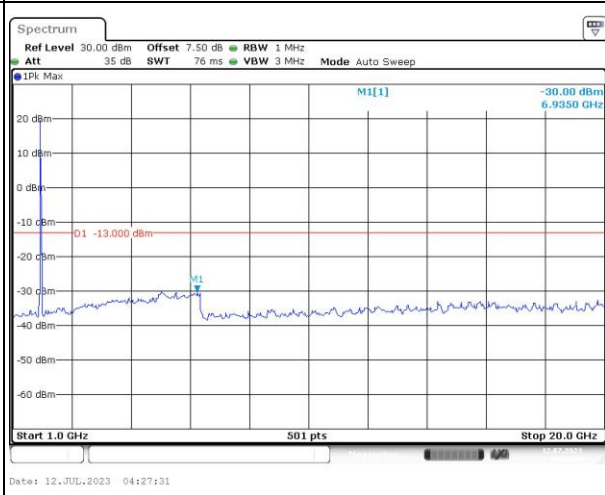
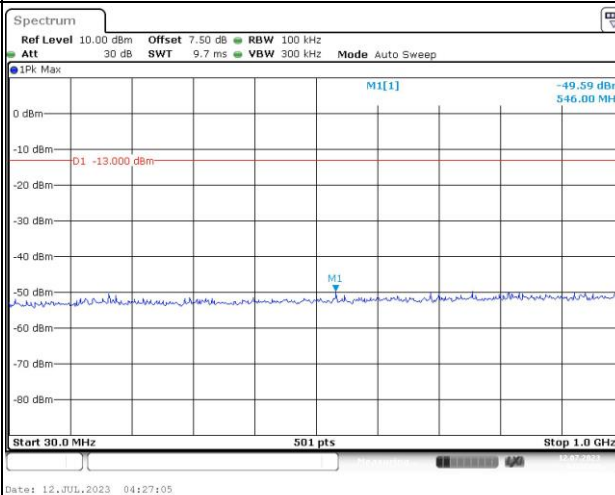
Lowest



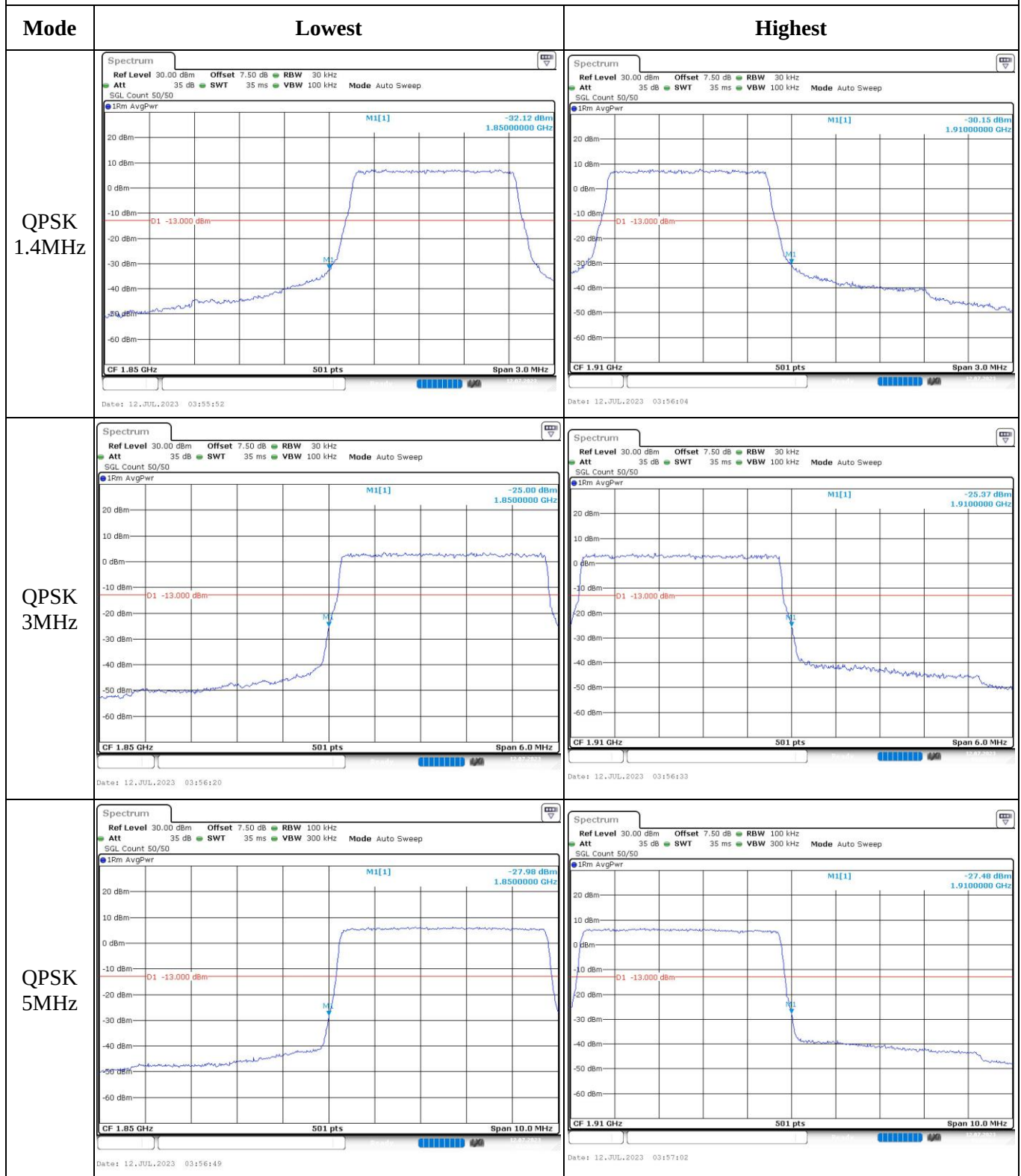
Middle



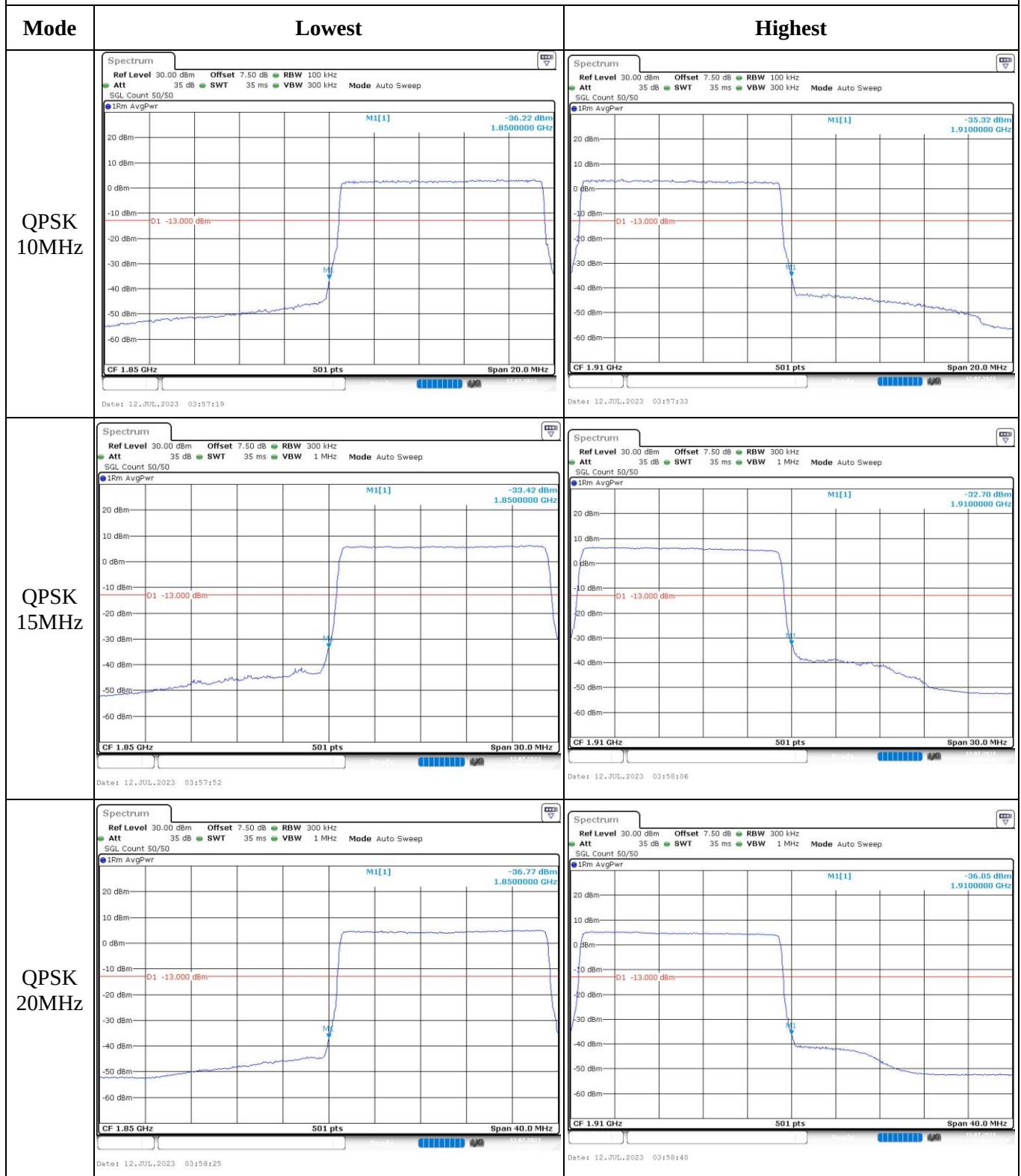
Highest



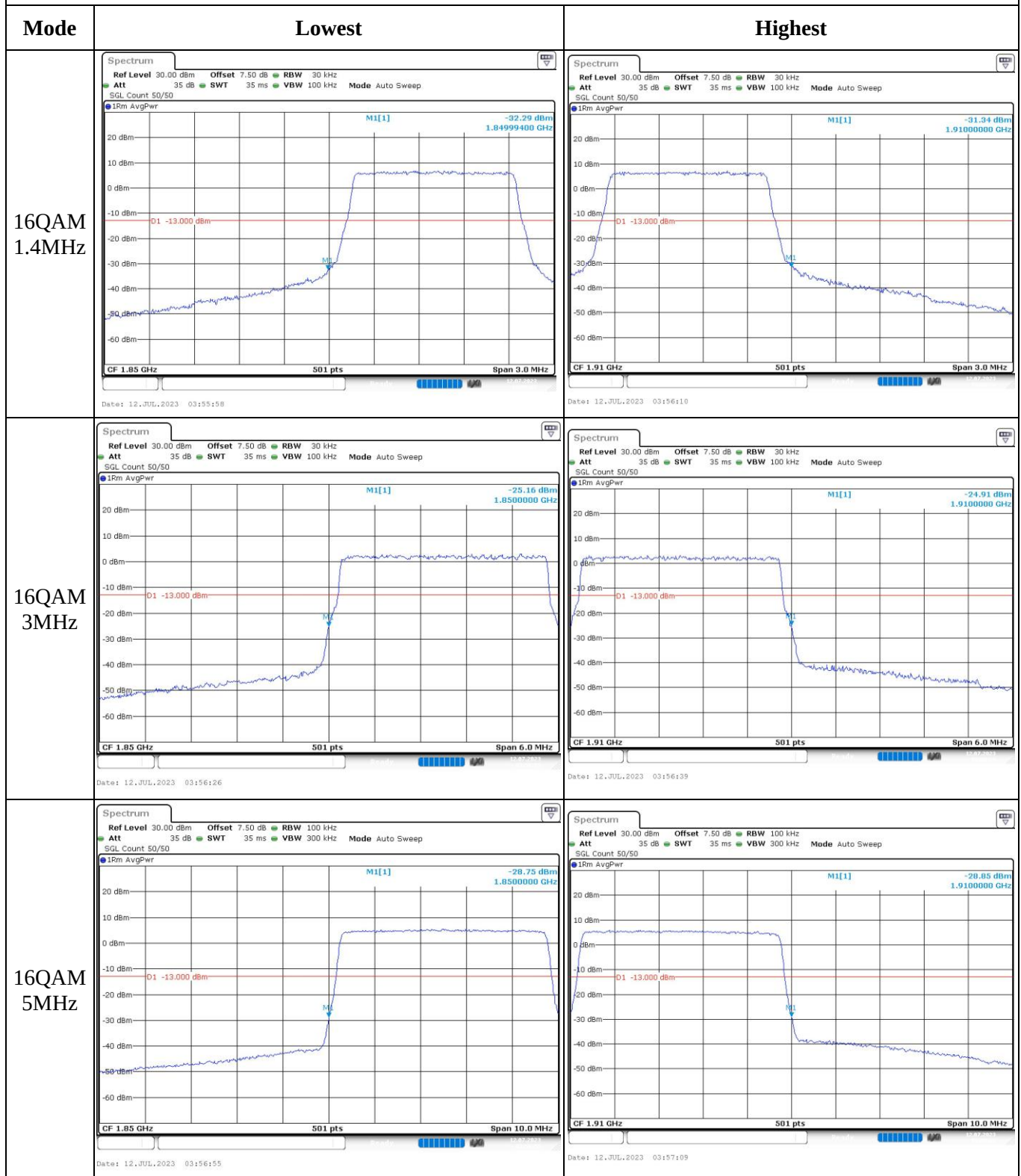
Out of band emission, Band Edge



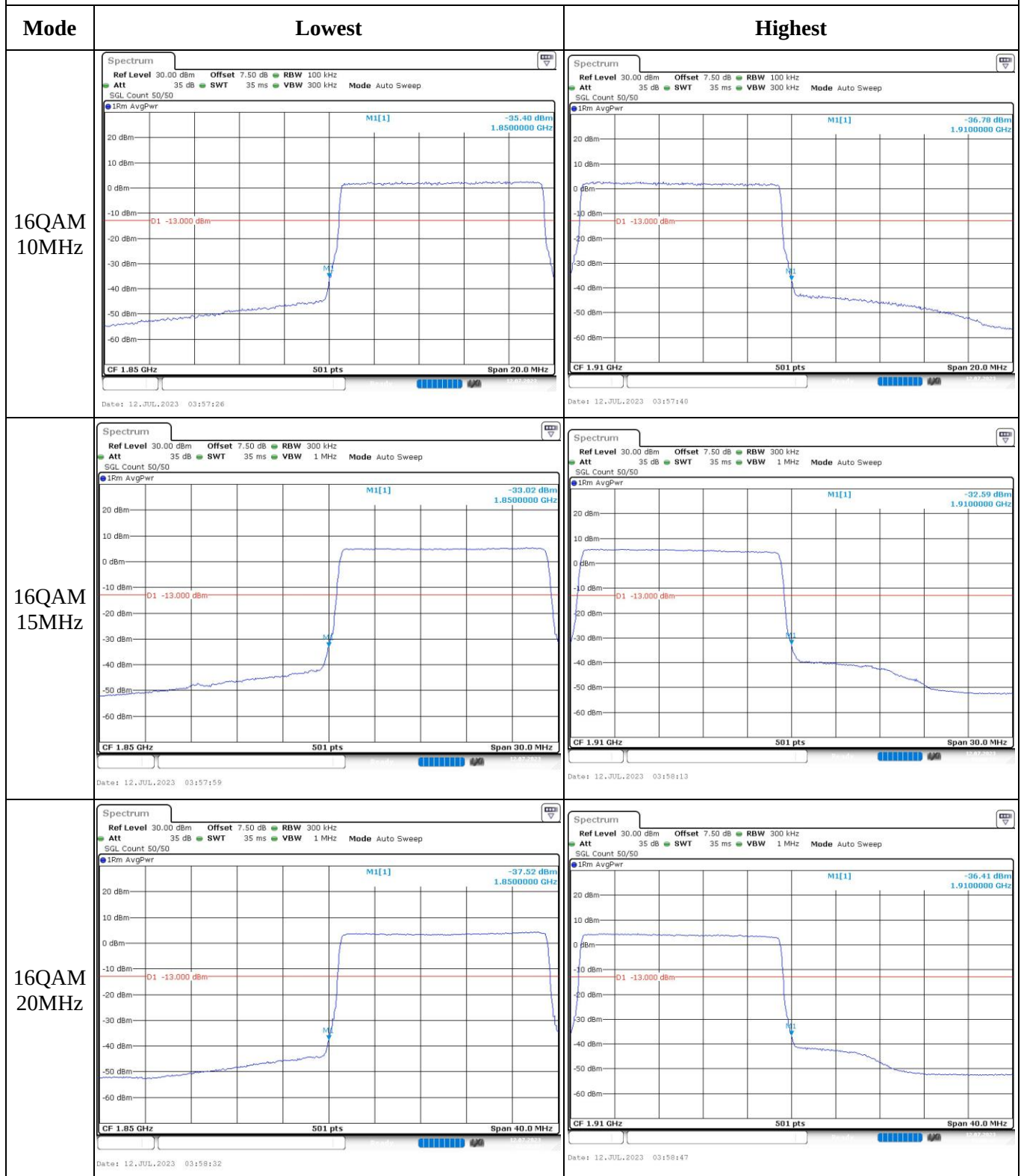
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.7 Antenna Port Test Data and Results for LTE Band 4

Serial Number:	27W6-1	Test Date:	2023/07/12~2023/07/15
Test Site:	RF	Test Mode:	Transmitting
Tester:	One Luo	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.4~26.8	Relative Humidity: (%)	49~52	ATM Pressure: (kPa)	99.3~100.3
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2022/07/15	2023/07/14
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Power Splitter	1515	RA914	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2022/07/15	2023/07/14
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/03/31	2024/03/30
UNI-T	Multimeter	UT39A+	C210582554	2022/09/29	2023/09/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A
R&S	Spectrum Analyzer	FSV40	101474	2023/07/15	2024/07/14
R&S	Wideband Radio Communication Tester	CMW500	149218	2023/07/15	2024/07/14

** 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	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