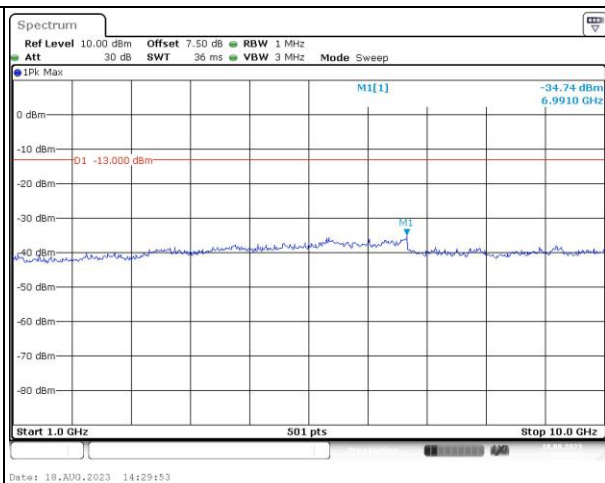
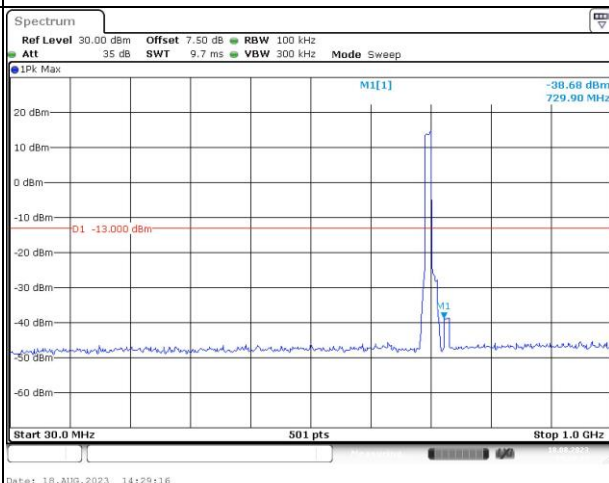


Spurious Emissions at Antenna Terminal

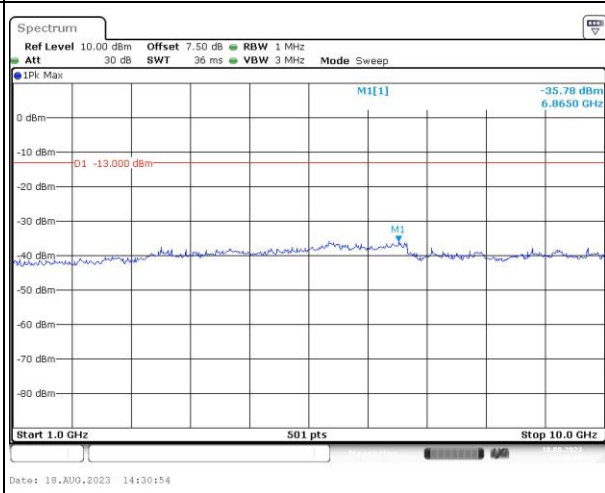
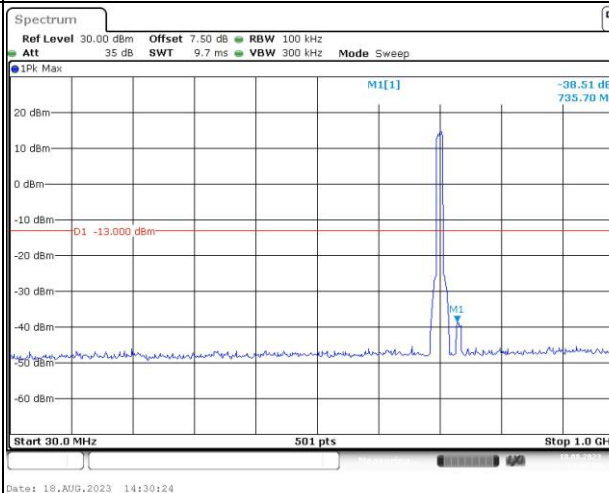
Channel

10MHz Bandwidth QPSK

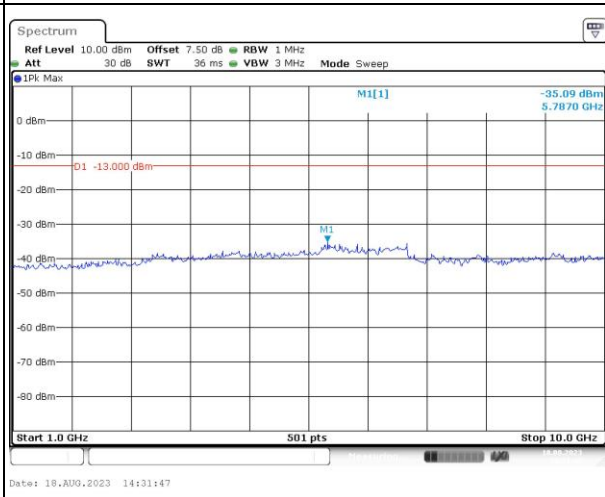
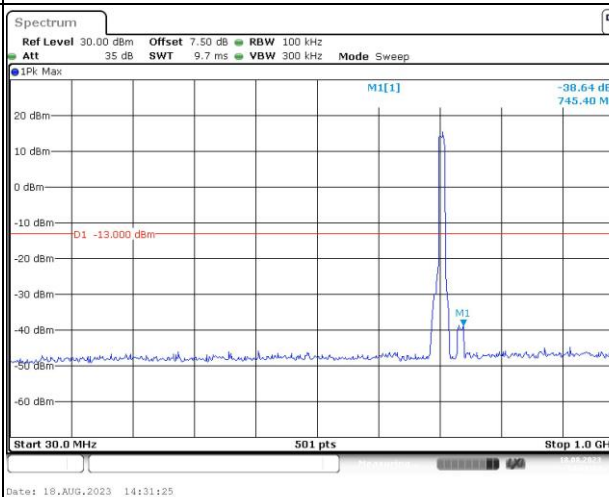
Lowest



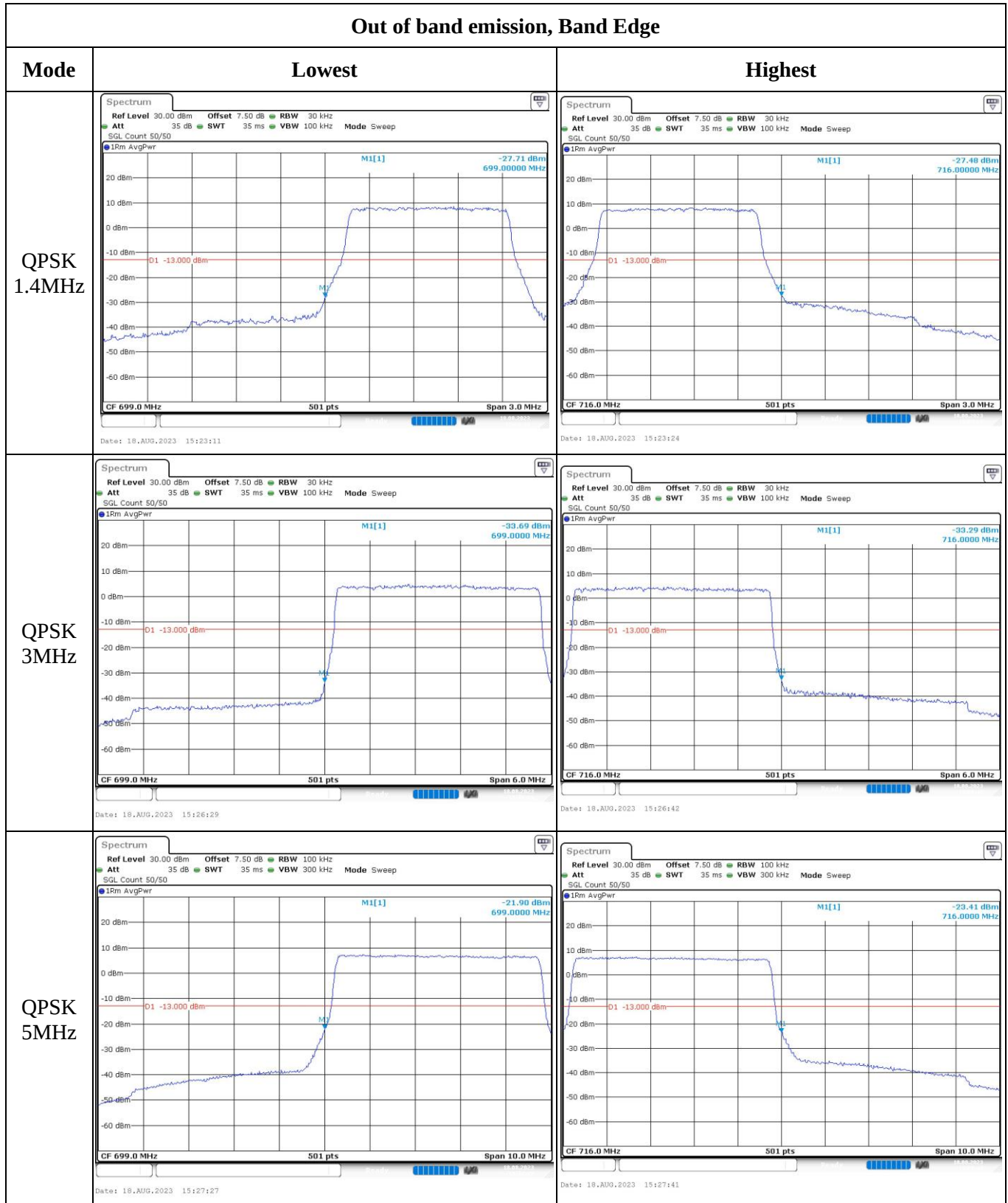
Middle



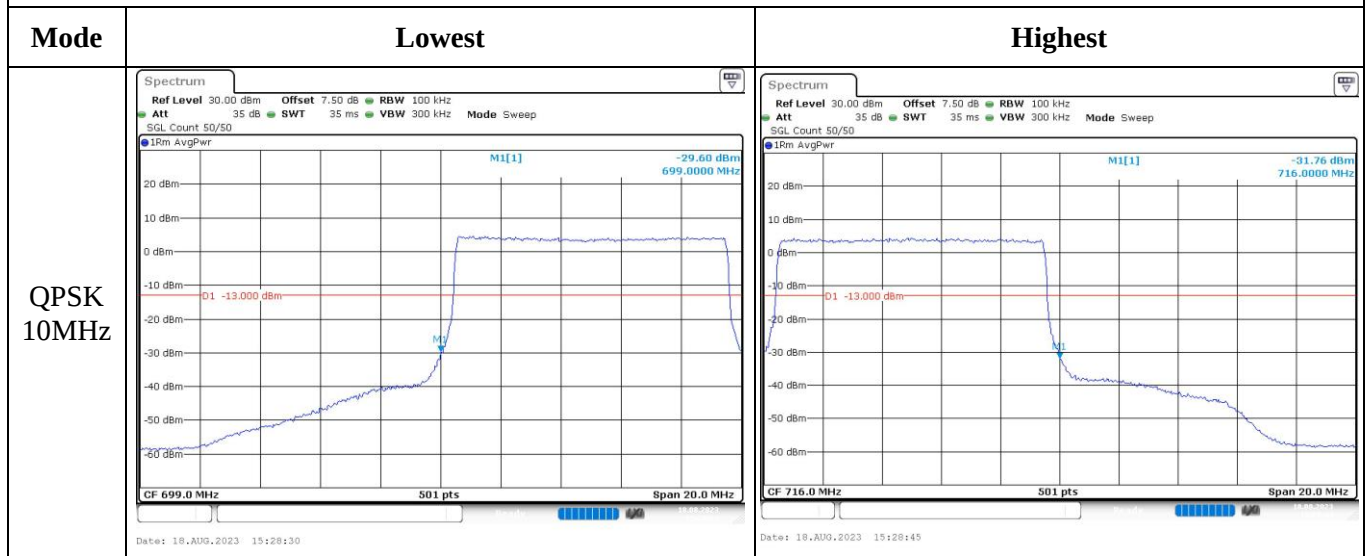
Highest



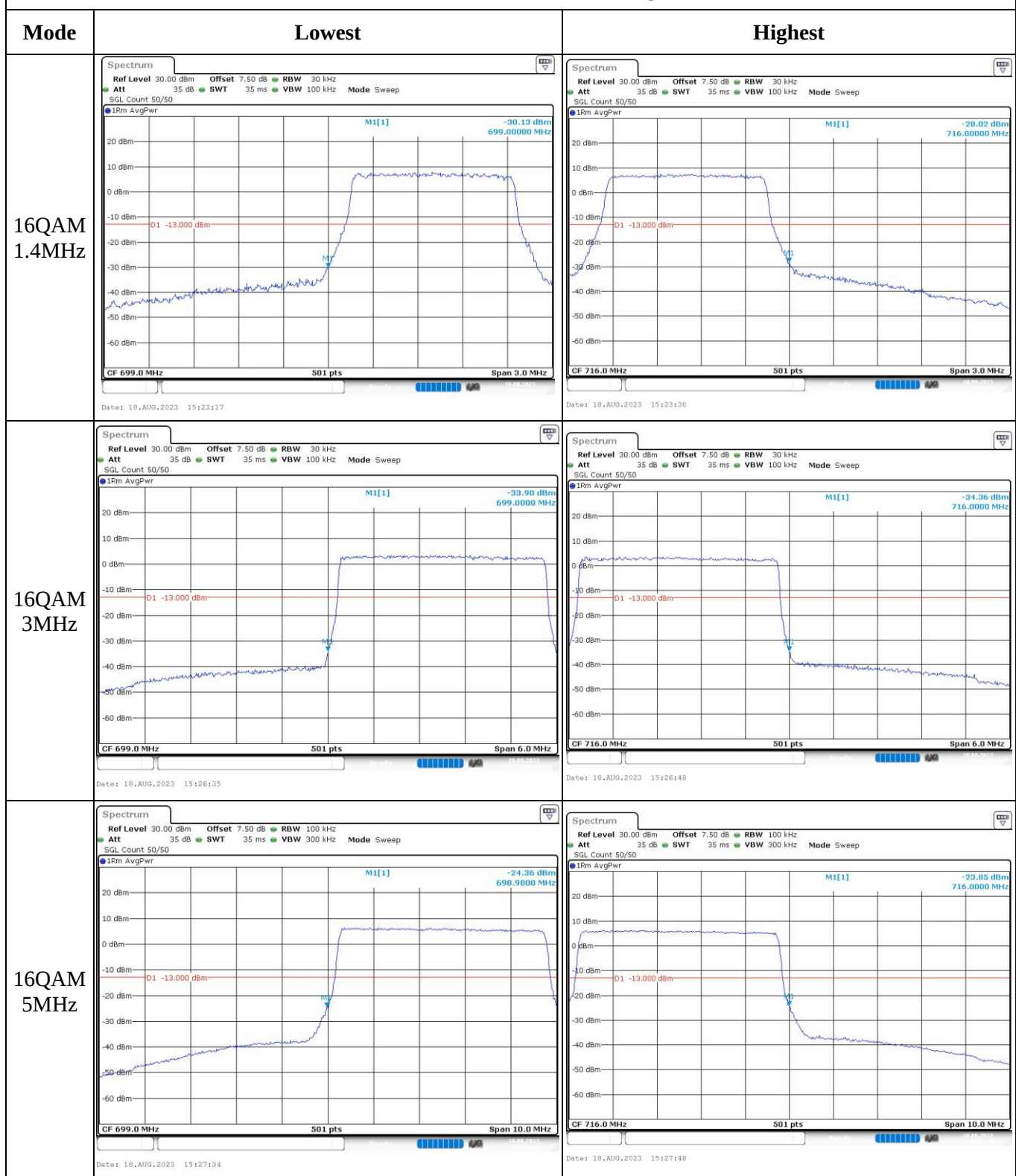
Out of band emission, Band Edge



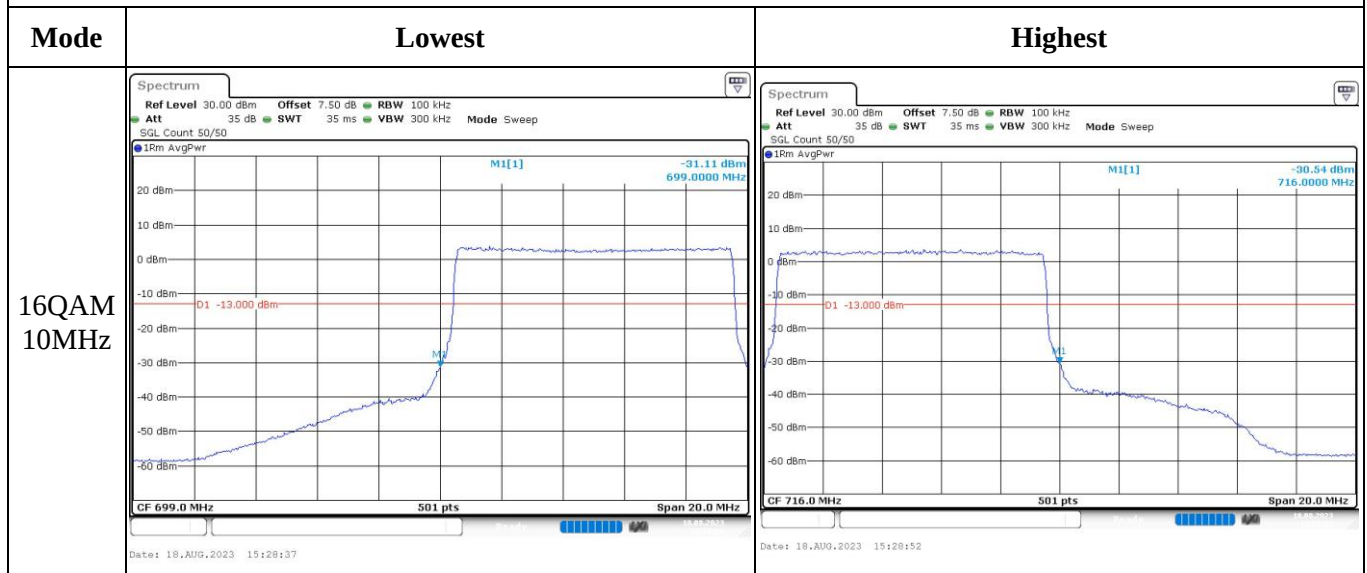
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.9 Antenna Port Test Data and Results for LTE Band 13

Serial Number:	29NT-1	Test Date:	2023/8/11~2023/9/22
Test Site:	RF	Test Mode:	Transmitting
Tester:	One Luo	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.3~27.5	Relative Humidity: (%)	42~59	ATM Pressure: (kPa)	99.6~100.3
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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	2023/7/15	2024/7/14
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	2023/7/15	2024/7/14
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

* 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	779.5	/	784.5
10MHz	/	782	/

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		
5MHz QPSK	RB1#0	23.66	/	23.58	18.44	34.77
	RB1#13	23.8	/	23.7		
	RB1#24	23.69	/	23.59		
	RB15#0	22.69	/	22.75		
	RB15#10	22.76	/	22.71		
	RB25#0	22.69	/	22.69		
5MHz 16QAM	RB1#0	22.92	/	22.52	17.7	34.77
	RB1#13	23.06	/	22.62		
	RB1#24	22.93	/	22.48		
	RB15#0	21.72	/	21.88		
	RB15#10	21.79	/	21.82		
	RB25#0	21.74	/	21.83		
10MHz QPSK	RB1#0	/	23.7	/	18.55	34.77
	RB1#25	/	23.91	/		
	RB1#49	/	23.74	/		
	RB25#0	/	22.73	/		
	RB25#25	/	22.75	/		
	RB50#0	/	22.76	/		
10MHz 16QAM	RB1#0	/	22.68	/	17.48	34.77
	RB1#25	/	22.84	/		
	RB1#49	/	22.69	/		
	RB25#0	/	21.9	/		
	RB25#25	/	21.92	/		
	RB50#0	/	21.84	/		

Note:

ERP= Conducted Power(dBm) - L_c(dB) + G_T(dBd)G_T(dBd)=G_T(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	/	4.23	/	13
	RB50#0	/	5.01	/	13
10MHz 16QAM	RB1#0	/	5.1	/	13
	RB50#0	/	5.94	/	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
5MHz QPSK	4.511	/	4.531	5.200	/	5.180
5MHz 16QAM	4.531	/	4.511	5.200	/	5.160
10MHz QPSK	/	8.942	/	/	9.960	/
10MHz 16QAM	/	8.982	/	/	9.880	/

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

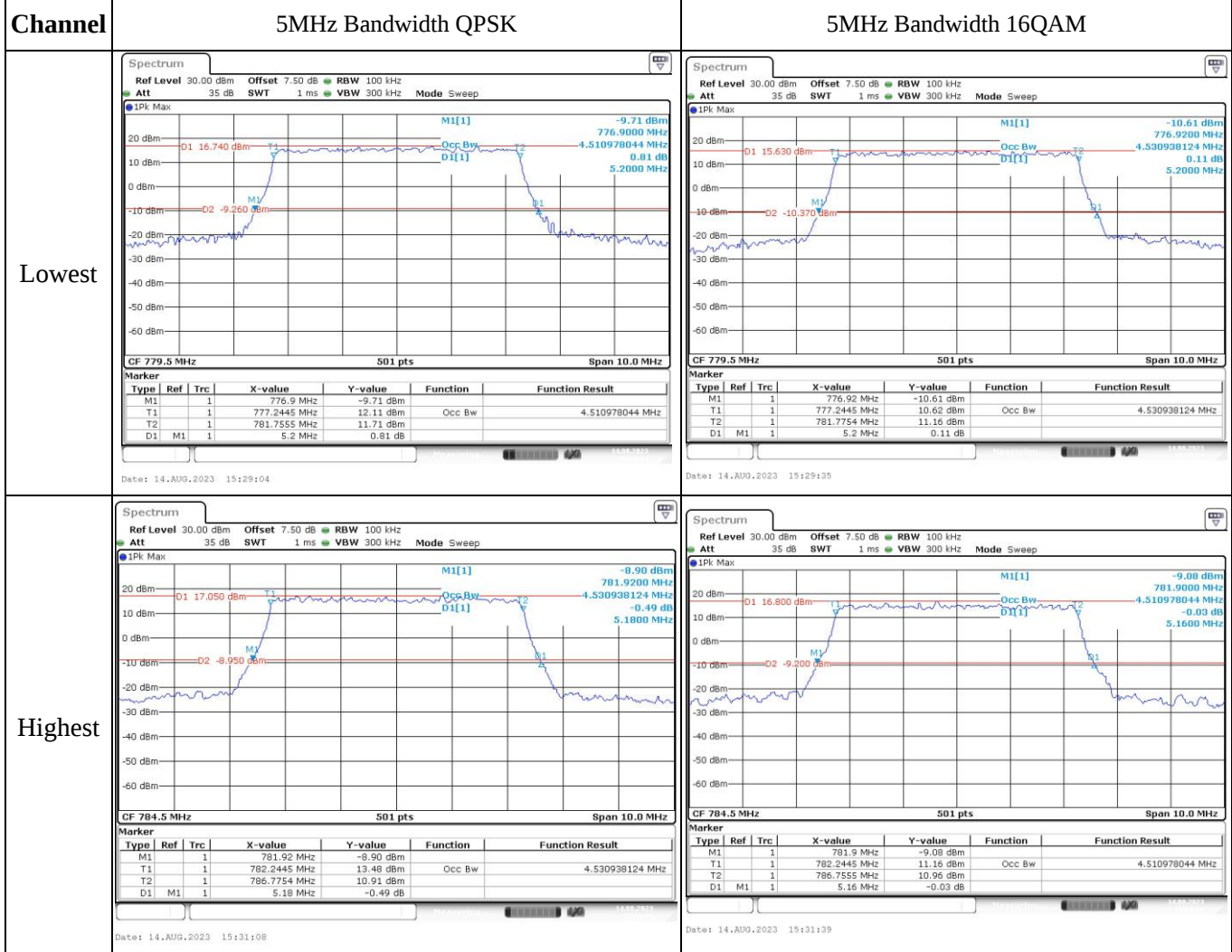
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
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FCC §2.1055, §27.54: Frequency Stability						
Test Mode:	10M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	777.253	777.00	786.772	787.00
	-20	3.8	777.217	777.00	786.795	787.00
	-10	3.8	777.270	777.00	786.728	787.00
	0	3.8	777.264	777.00	786.724	787.00
	10	3.8	777.297	777.00	786.738	787.00
	20	3.8	777.246	777.00	786.775	787.00
	30	3.8	777.273	777.00	786.758	787.00
	40	3.8	777.246	777.00	786.798	787.00
	50	3.8	777.262	777.00	786.799	787.00
Frequency Stability vs. Voltage	20	3.2	777.264	777.00	786.797	787.00
	20	4.35	777.222	777.00	786.780	787.00
					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	777.239	777.00	786.788	787.00
	-20	3.8	777.276	777.00	786.754	787.00
	-10	3.8	777.229	777.00	786.740	787.00
	0	3.8	777.206	777.00	786.745	787.00
	10	3.8	777.297	777.00	786.727	787.00
	20	3.8	777.246	777.00	786.775	787.00
	30	3.8	777.255	777.00	786.780	787.00
	40	3.8	777.265	777.00	786.782	787.00
	50	3.8	777.221	777.00	786.708	787.00
Frequency Stability vs. Voltage	20	3.2	777.204	777.00	786.719	787.00
	20	4.35	777.262	777.00	786.709	787.00
					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



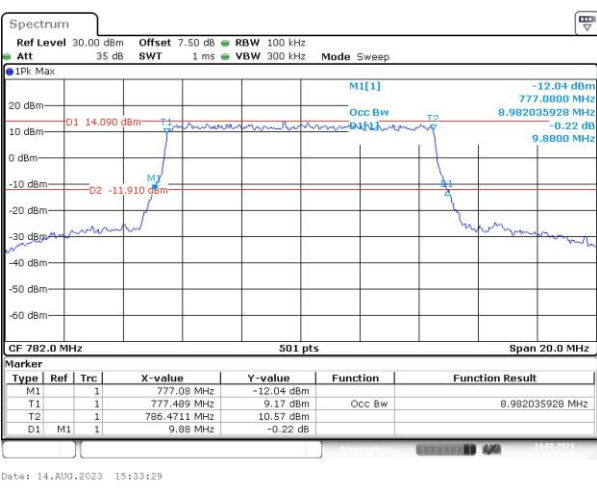
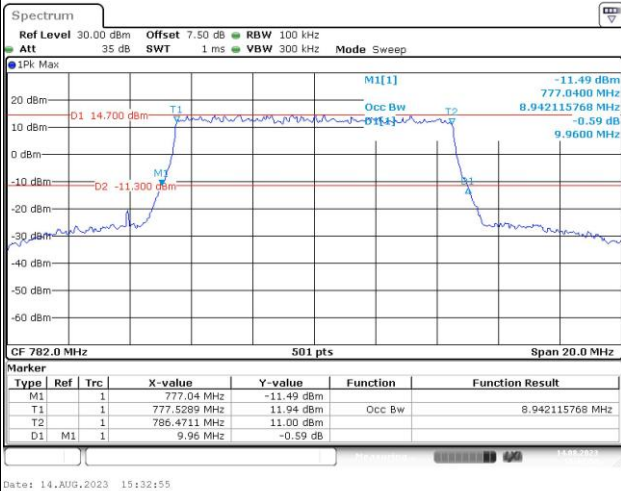
Occupied Bandwidth

Channel

10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

Middle

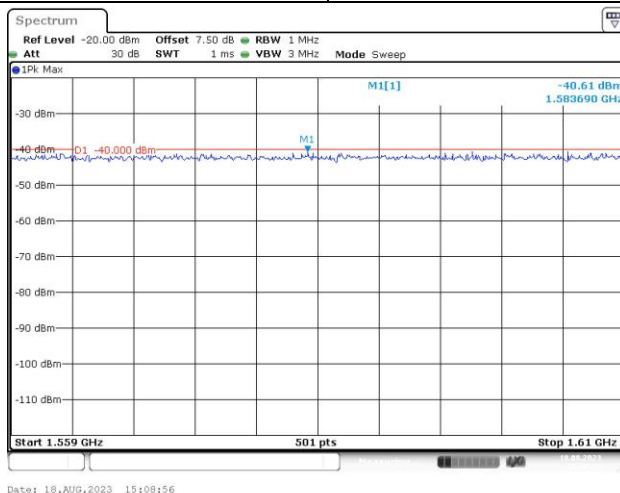
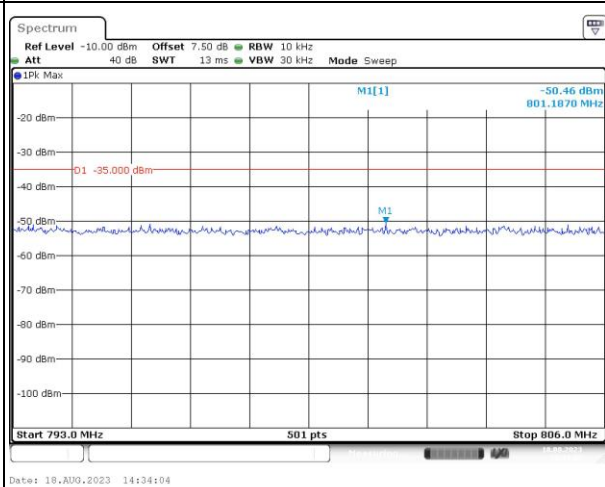
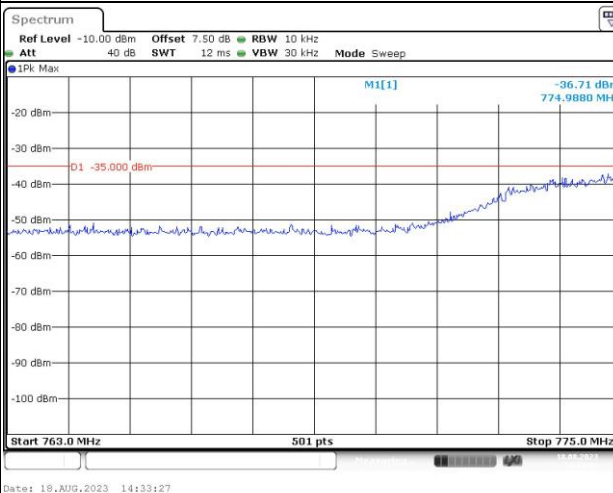
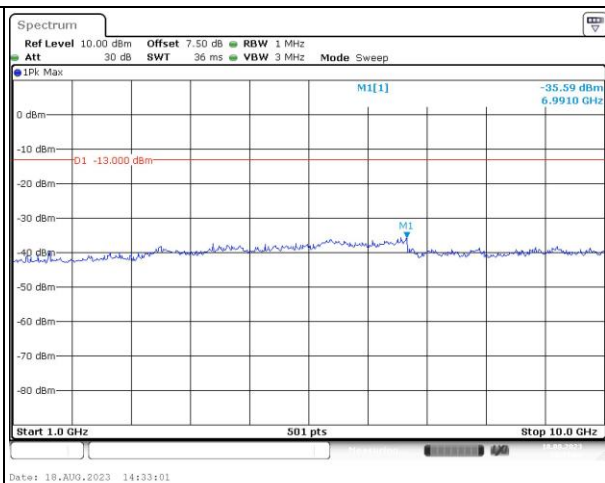
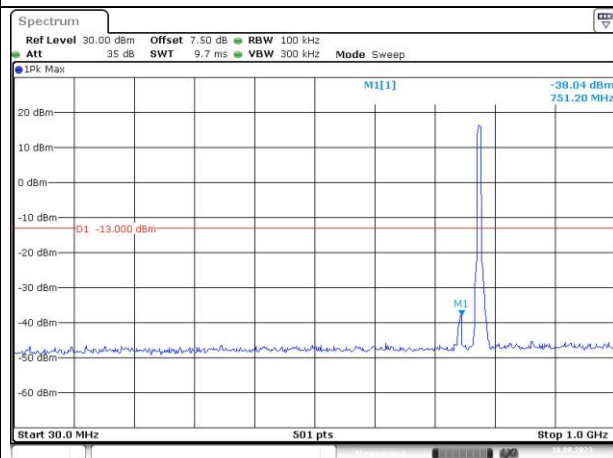


Spurious Emissions at Antenna Terminal

Channel

5MHz Bandwidth QPSK

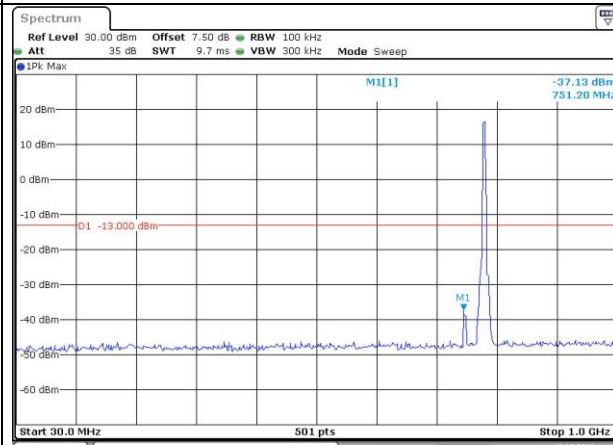
Lowest



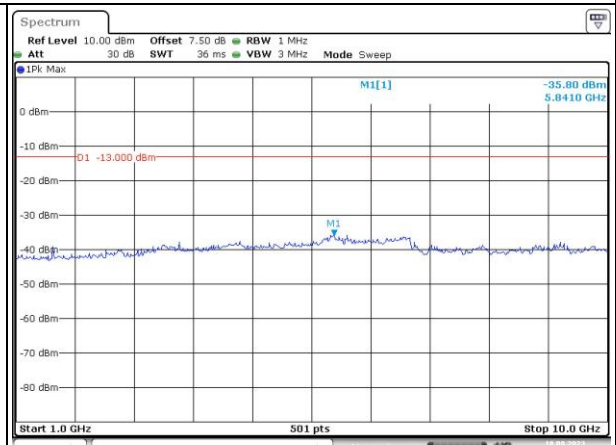
Spurious Emissions at Antenna Terminal

Channel

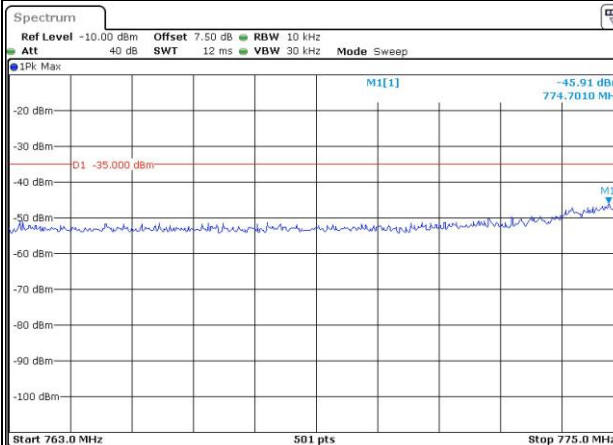
5MHz Bandwidth QPSK



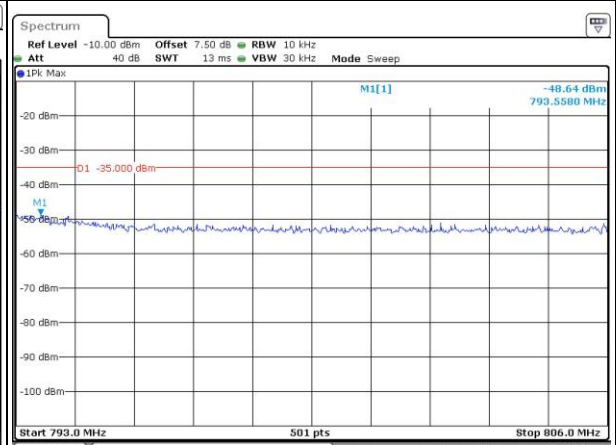
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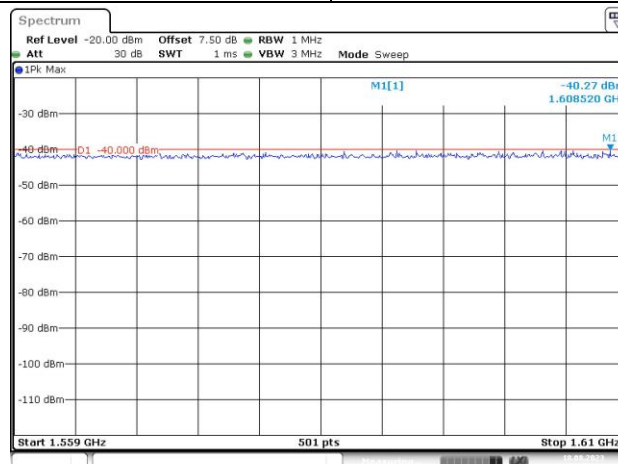
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Date: 18.AUG.2023 14:39:00



Date: 18.AUG.2023 14:39:26



Date: 18.AUG.2023 15:09:45

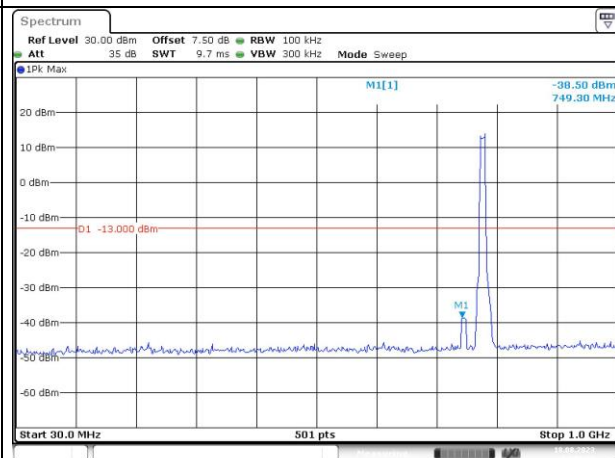
Highest

Spurious Emissions at Antenna Terminal

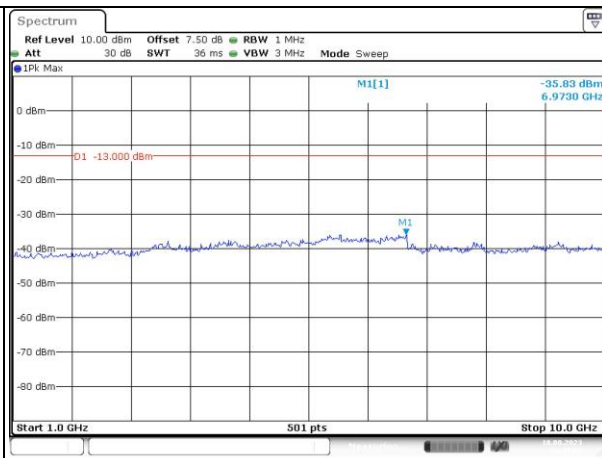
Channel

10MHz Bandwidth QPSK

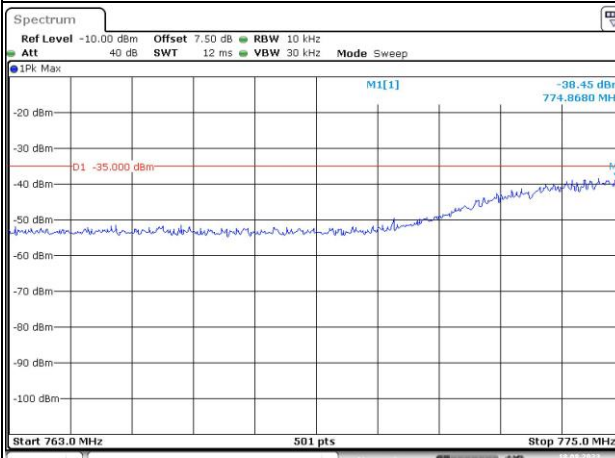
Middle



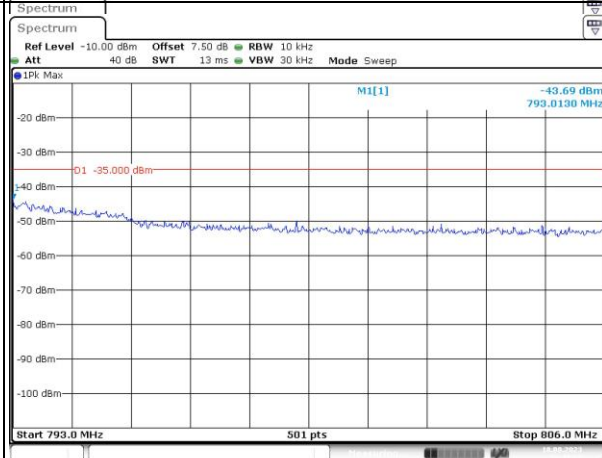
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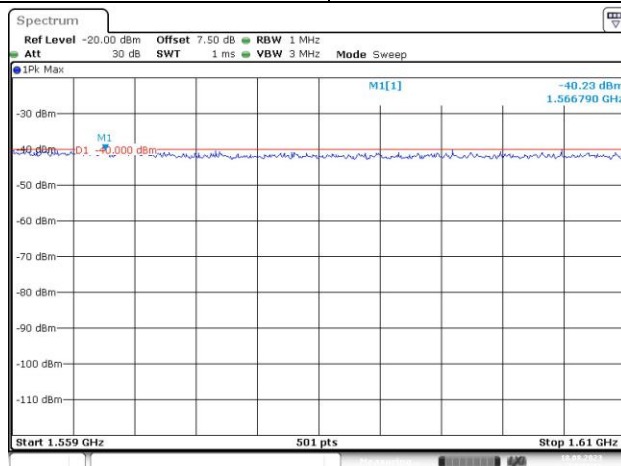
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Date: 18.AUG.2023 14:42:19

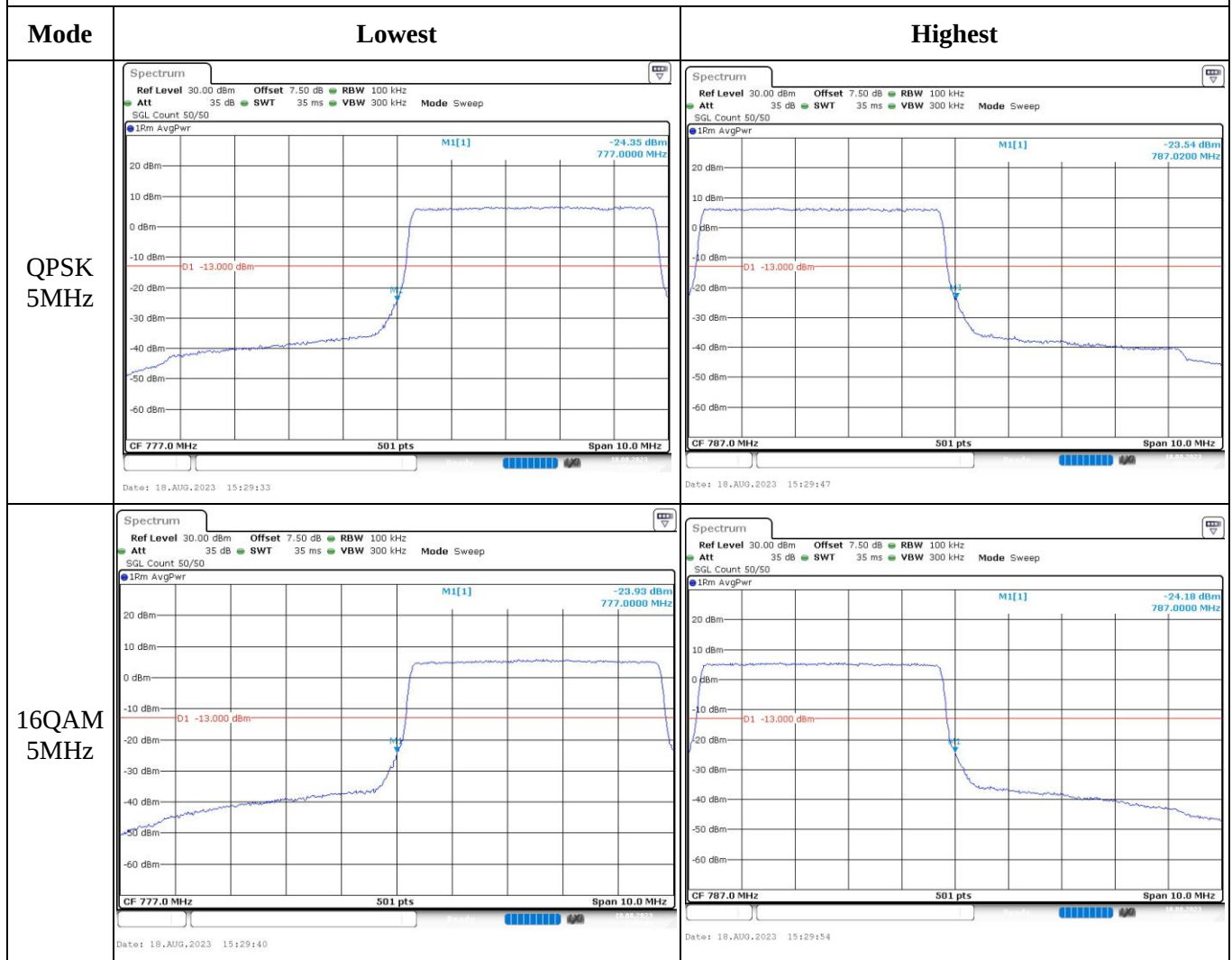


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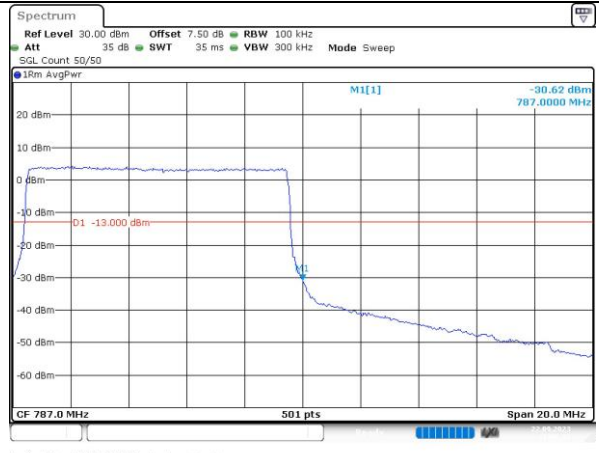
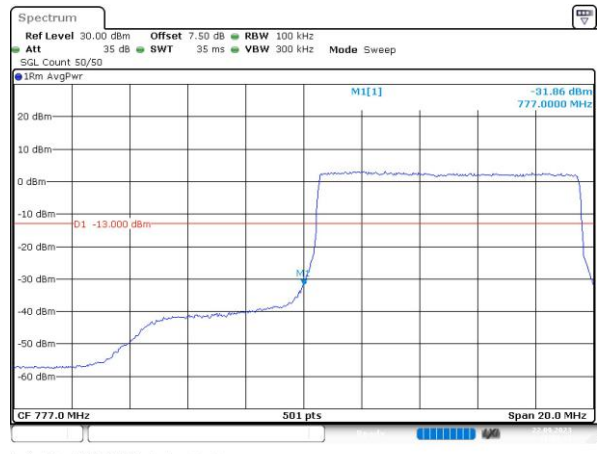
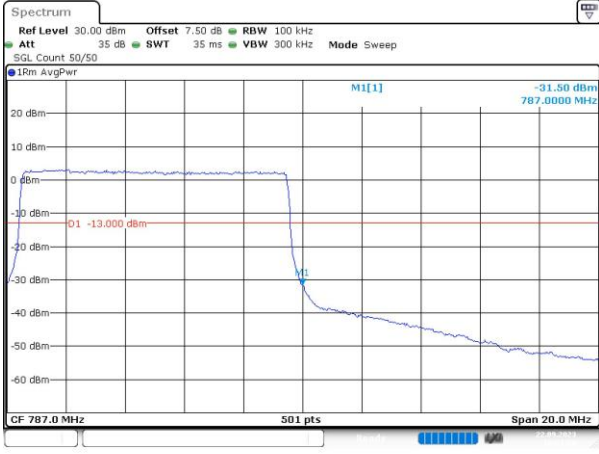


Date: 18.AUG.2023 14:43:18

Out of band emission, Band Edge



Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 10MHz	 ProjectNo.:CR230846189 Tester:One Luo Date: 22.SEP.2023 10:04:14	 ProjectNo.:CR230846189 Tester:One Luo Date: 22.SEP.2023 17:59:38
16QAM 10MHz	 ProjectNo.:CR230846189 Tester:One Luo Date: 22.SEP.2023 10:03:15	 ProjectNo.:CR230846189 Tester:One Luo Date: 22.SEP.2023 10:01:50

4.10 Antenna Port Test Data and Results for LTE Band 41

Serial Number:	29NT-1	Test Date:	2023/8/14~2023/9/27
Test Site:	RF	Test Mode:	Transmitting
Tester:	One Luo	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.3~27.5	Relative Humidity: (%)	42~59	ATM Pressure: (kPa)	99.6~100.5
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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	2023/7/15	2024/7/14
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	2023/7/15	2024/7/14
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

* 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	2498.5	2593	2687.5
10MHz	2501	2593	2685
15MHz	2503.5	2593	2682.5
20MHz	2506	2593	2680

Test Data:**FCC §2.1046; § 27.50(h)(2)****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		
5MHz QPSK	RB1#0	17.22	19.17	19.0	20.31	33
	RB1#13	17.35	19.30	19.16		
	RB1#24	17.21	19.16	19.03		
	RB15#0	16.26	18.14	18.11		
	RB15#10	16.21	18.12	18.05		
	RB25#0	16.22	18.13	18.04		
5MHz 16QAM	RB1#0	16.21	18.30	17.98	19.45	33
	RB1#13	16.35	18.44	18.13		
	RB1#24	17.19	18.31	18.00		
	RB15#0	16.29	17.14	17.03		
	RB15#10	16.24	17.1	16.97		
	RB25#0	16.29	17.07	17.11		
10MHz QPSK	RB1#0	18	19.12	19.07	20.46	33
	RB1#25	18.64	19.45	19.42		
	RB1#49	18.27	19.16	19.09		
	RB25#0	17.30	18.2	18.18		
	RB25#25	17.21	18.17	18.06		
	RB50#0	17.23	18.14	18.07		
10MHz 16QAM	RB1#0	17.31	18.22	17.9	19.56	33
	RB1#25	17.61	18.55	18.3		
	RB1#49	17	18.3	17.95		
	RB25#0	16.37	17.14	17.19		
	RB25#25	16.29	17.1	17.03		
	RB50#0	16.3	17.11	17.08		
15MHz QPSK	RB1#0	17.17	18.34	18.75	20.02	33
	RB1#38	17.36	18.6	19.01		
	RB1#74	17.16	18.45	18.83		
	RB36#0	16.4	17.53	17.97		
	RB36#39	16.29	17.58	17.88		
	RB75#0	16.30	17.58	17.95		
15MHz 16QAM	RB1#0	16.32	17.20	17.85	19.15	33
	RB1#38	16.54	17.46	18.14		
	RB1#74	16.31	17.30	17.97		
	RB36#0	15.32	16.41	16.91		
	RB36#39	15.26	16.40	16.85		
	RB75#0	15.27	16.48	16.87		
20MHz QPSK	RB1#0	17.21	18.22	18.53	20.14	33

	RB1#50	17.73	18.81	19.13		
	RB1#99	17.22	18.42	18.67		
	RB50#0	16.26	17.44	17.84		
	RB50#50	16.21	17.39	17.66		
	RB100#0	16.27	17.40	17.76		
20MHz 16QAM	RB1#0	16.38	17.17	17.48	19.09	33
	RB1#50	16.92	17.80	18.08		
	RB1#99	16.41	17.4	17.65		
	RB50#0	15.33	16.41	16.84		
	RB50#50	15.26	16.36	16.68		
	RB100#0	15.27	16.38	16.73		

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	8.72	7.88	8.35	13
	RB100#0	8.32	7.97	8.26	13
20MHz 16QAM	RB1#0	9.48	8.75	9.19	13
	RB100#0	9.88	9.59	9.8	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
5MHz QPSK	4.491	4.511	4.511	4.960	4.880	5.100
5MHz 16QAM	4.491	4.491	4.511	4.940	4.960	4.920
10MHz QPSK	8.942	8.982	8.942	9.720	9.640	9.680
10MHz 16QAM	8.942	8.942	8.942	9.640	9.520	9.560
15MHz QPSK	13.473	13.473	13.473	14.700	14.760	14.760
15MHz 16QAM	13.533	13.533	13.533	14.700	15.780	14.940
20MHz QPSK	17.964	17.964	17.884	19.760	19.280	19.200
20MHz 16QAM	17.964	17.964	17.884	21.280	19.280	19.360

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

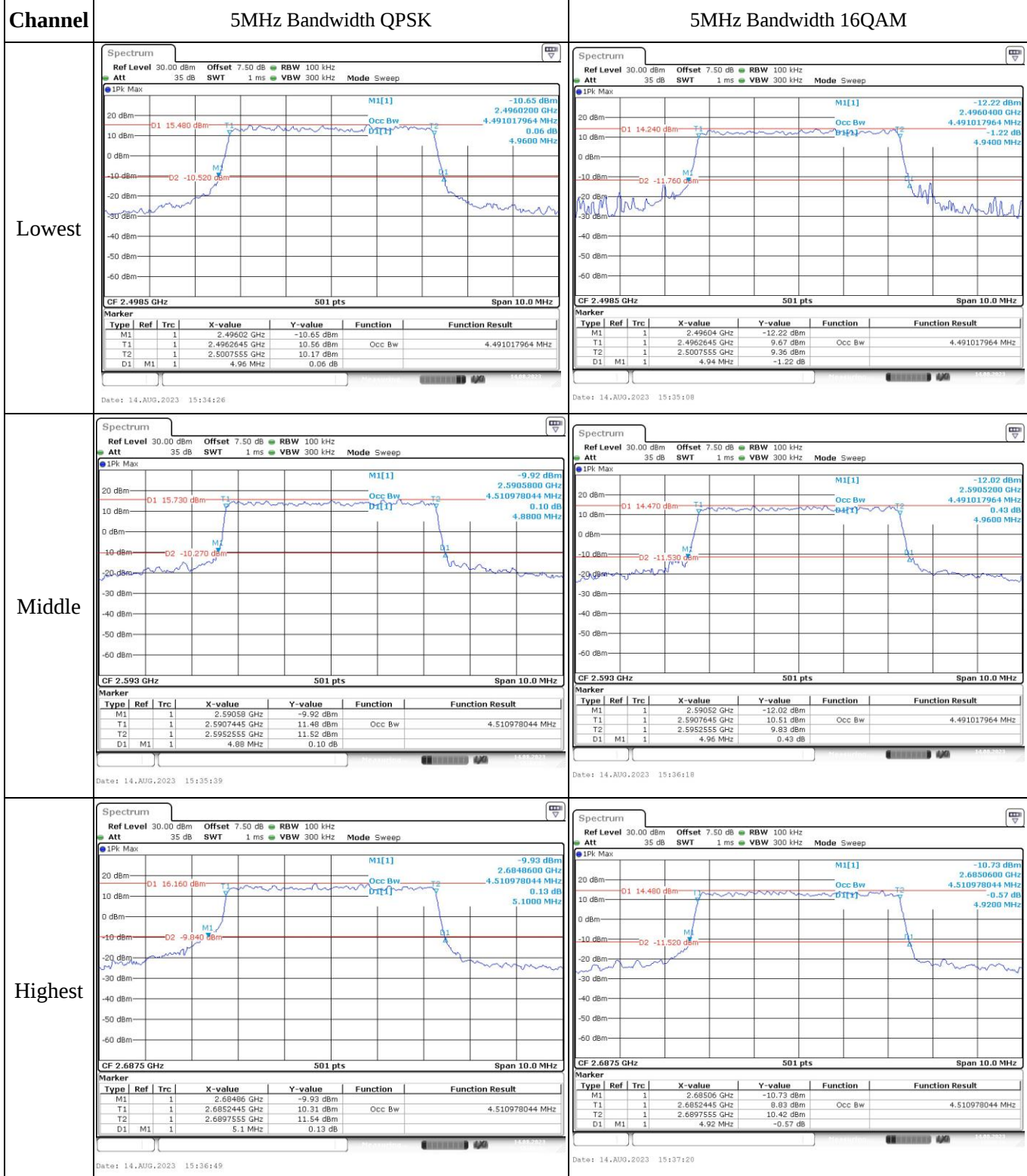
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
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FCC §2.1055, §27.54: Frequency Stability						
Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	2497.098	2496.00	2688.984	2690
	-20	3.8	2497.078	2496.00	2688.974	2690
	-10	3.8	2497.090	2496.00	2688.992	2690
	0	3.8	2497.009	2496.00	2688.931	2690
	10	3.8	2497.045	2496.00	2688.933	2690
	20	3.8	2497.579	2496.00	2688.942	2690
	30	3.8	2497.011	2496.00	2688.912	2690
	40	3.8	2497.089	2496.00	2688.975	2690
	50	3.8	2497.008	2496.00	2688.915	2690
Frequency Stability vs. Voltage	20	3.2	2497.077	2496.00	2688.979	2690
	20	4.35	2497.092	2496.00	2688.984	2690
					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	2497.099	2496.00	2688.933	2690
	-20	3.8	2497.026	2496.00	2688.983	2690
	-10	3.8	2497.069	2496.00	2688.918	2690
	0	3.8	2497.071	2496.00	2688.917	2690
	10	3.8	2497.088	2496.00	2688.970	2690
	20	3.8	2497.058	2496.00	2688.942	2690
	30	3.8	2497.000	2496.00	2688.953	2690
	40	3.8	2497.013	2496.00	2688.926	2690
	50	3.8	2497.074	2496.00	2688.945	2690
Frequency Stability vs. Voltage	20	3.2	2497.095	2496.00	2688.987	2690
	20	4.35	2497.014	2496.00	2688.987	2690
					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



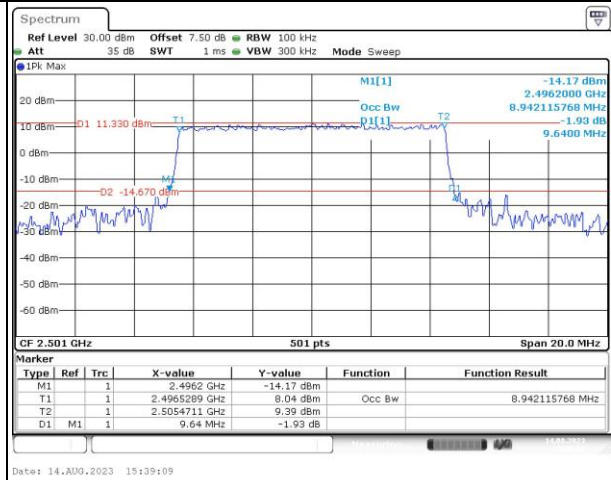
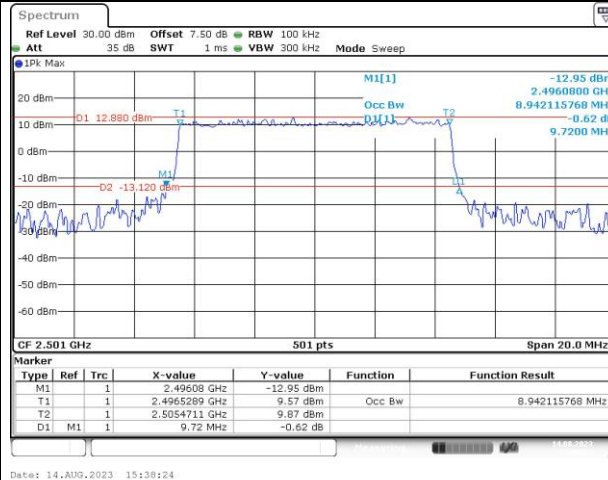
Occupied Bandwidth

Channel

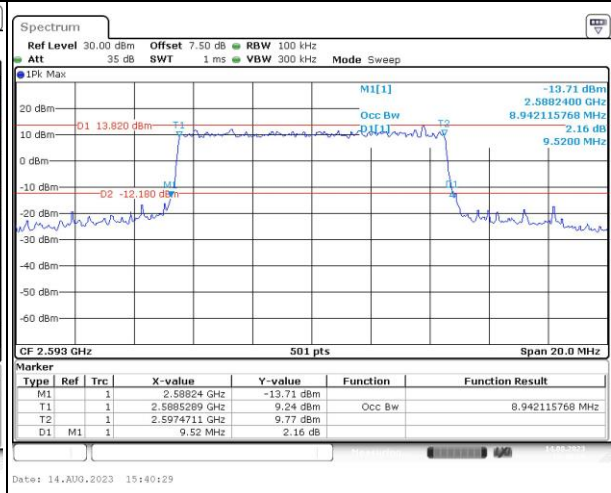
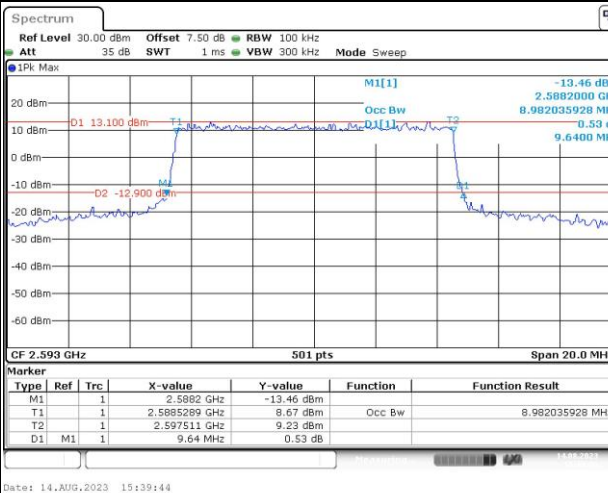
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

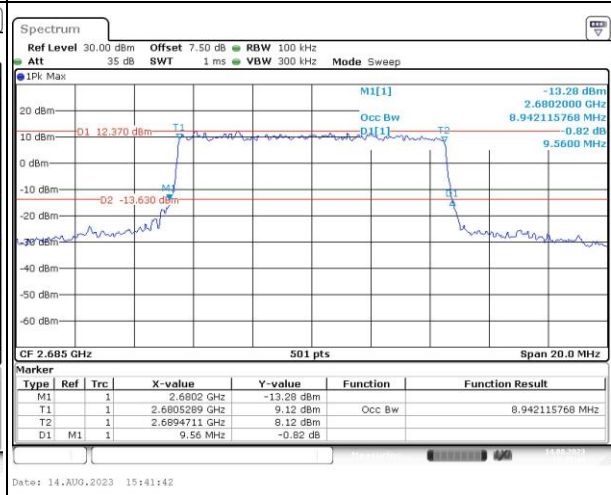
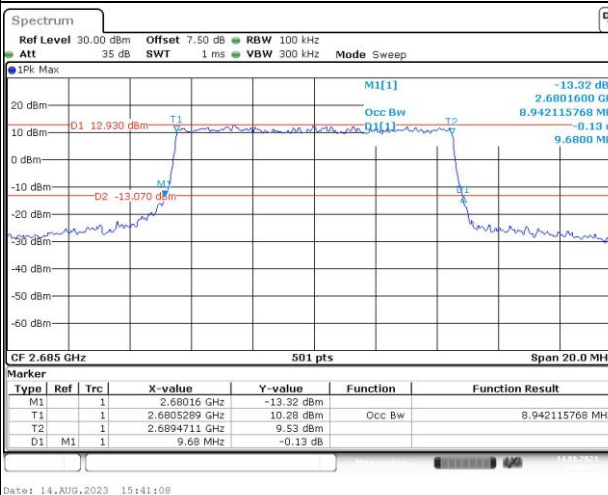
Lowest



Middle



Highest



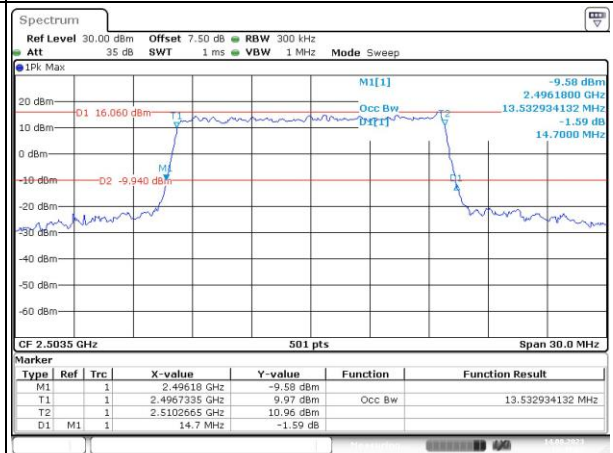
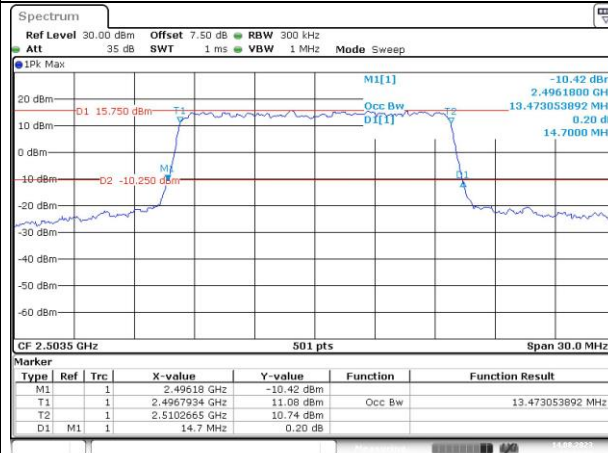
Occupied Bandwidth

Channel

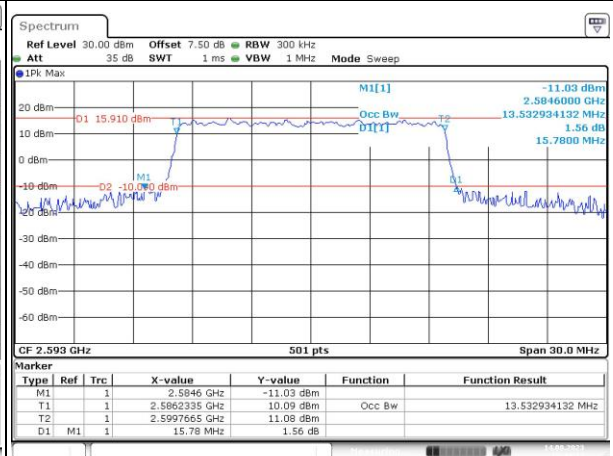
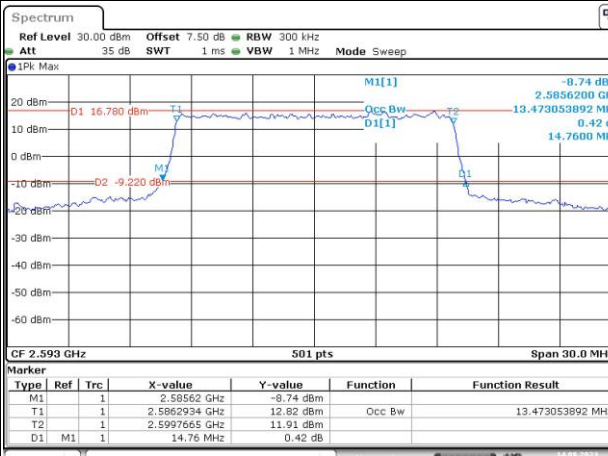
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

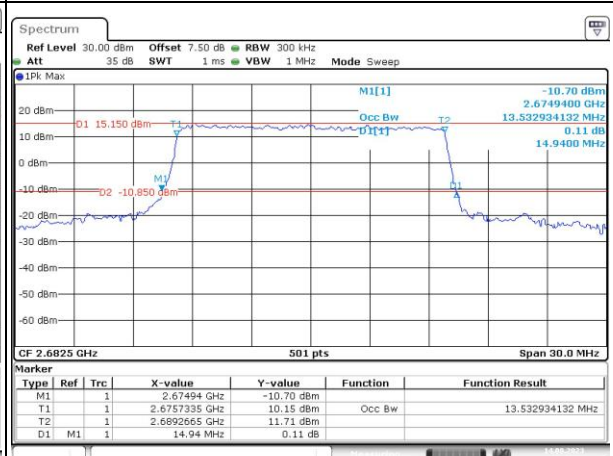
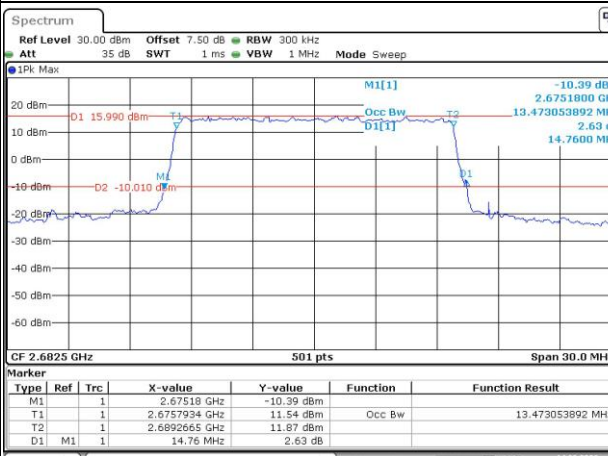
Lowest



Middle



Highest



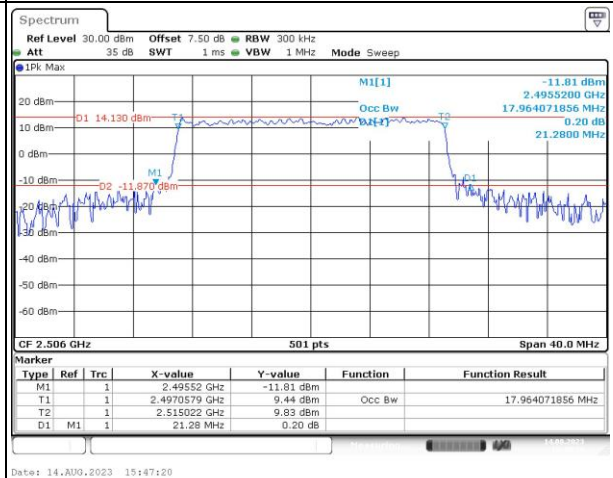
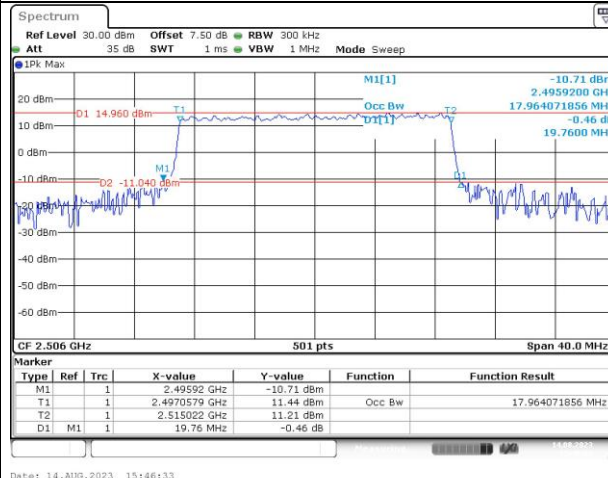
Occupied Bandwidth

Channel

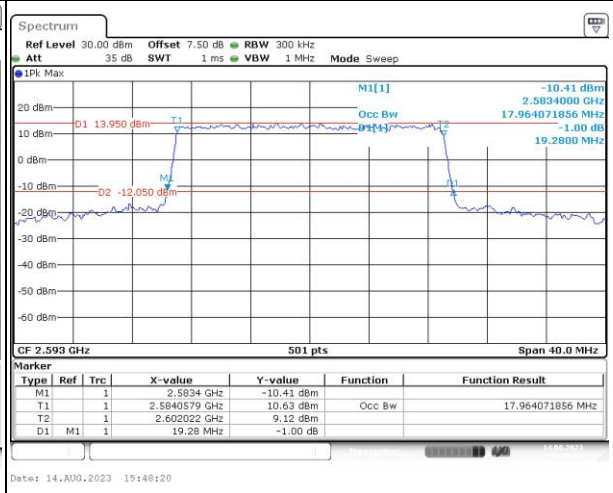
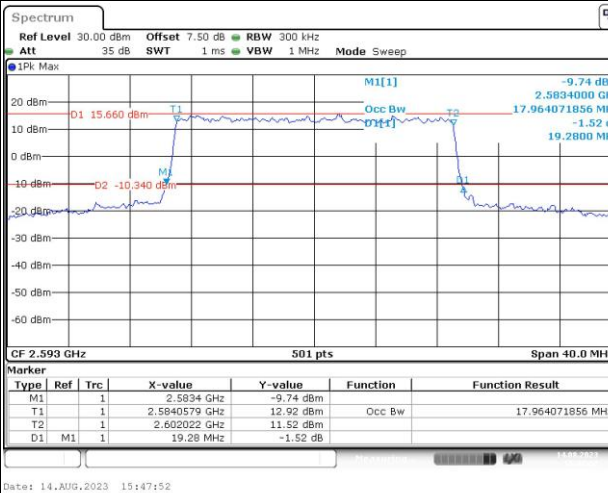
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

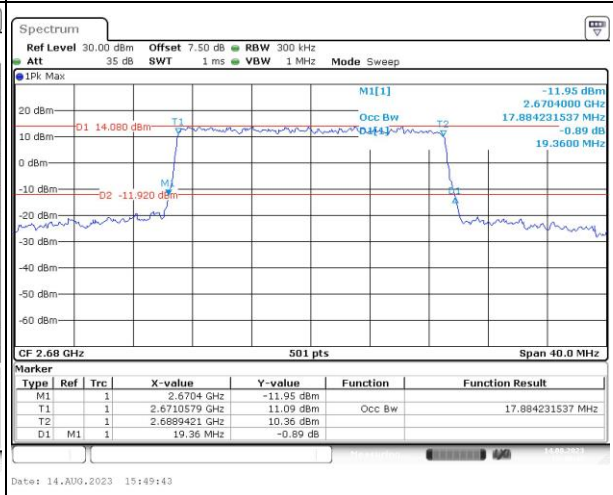
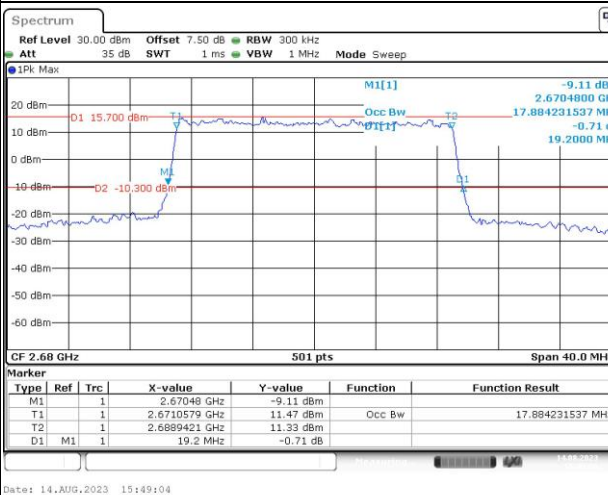
Lowest



Middle



Highest

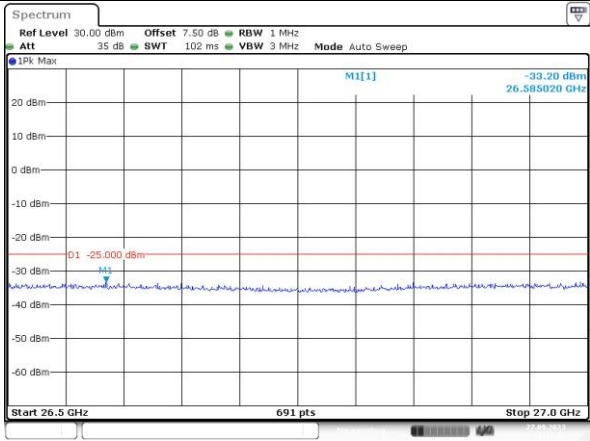
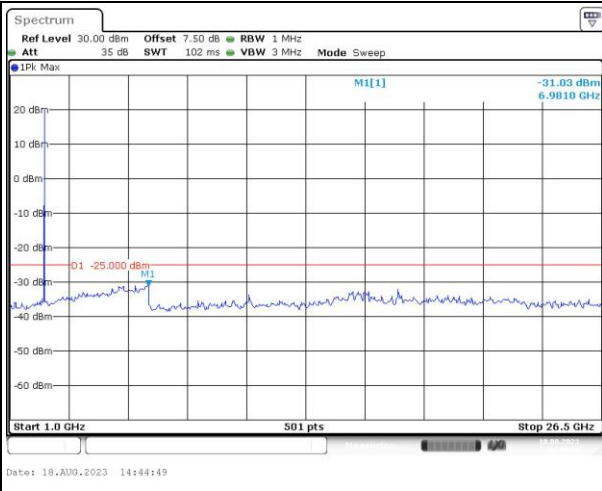
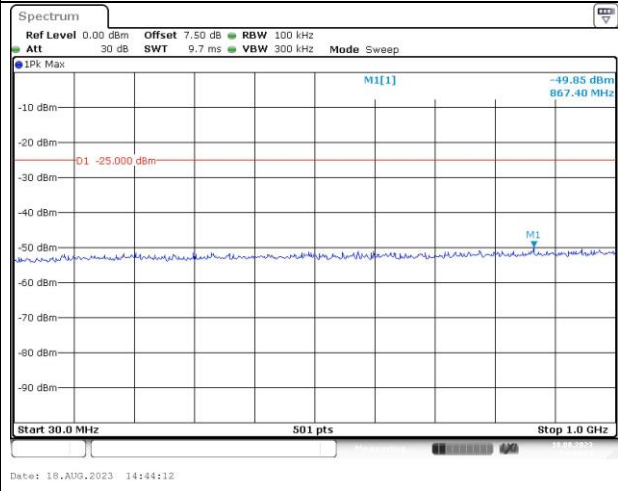


Spurious Emissions at Antenna Terminal

Channel

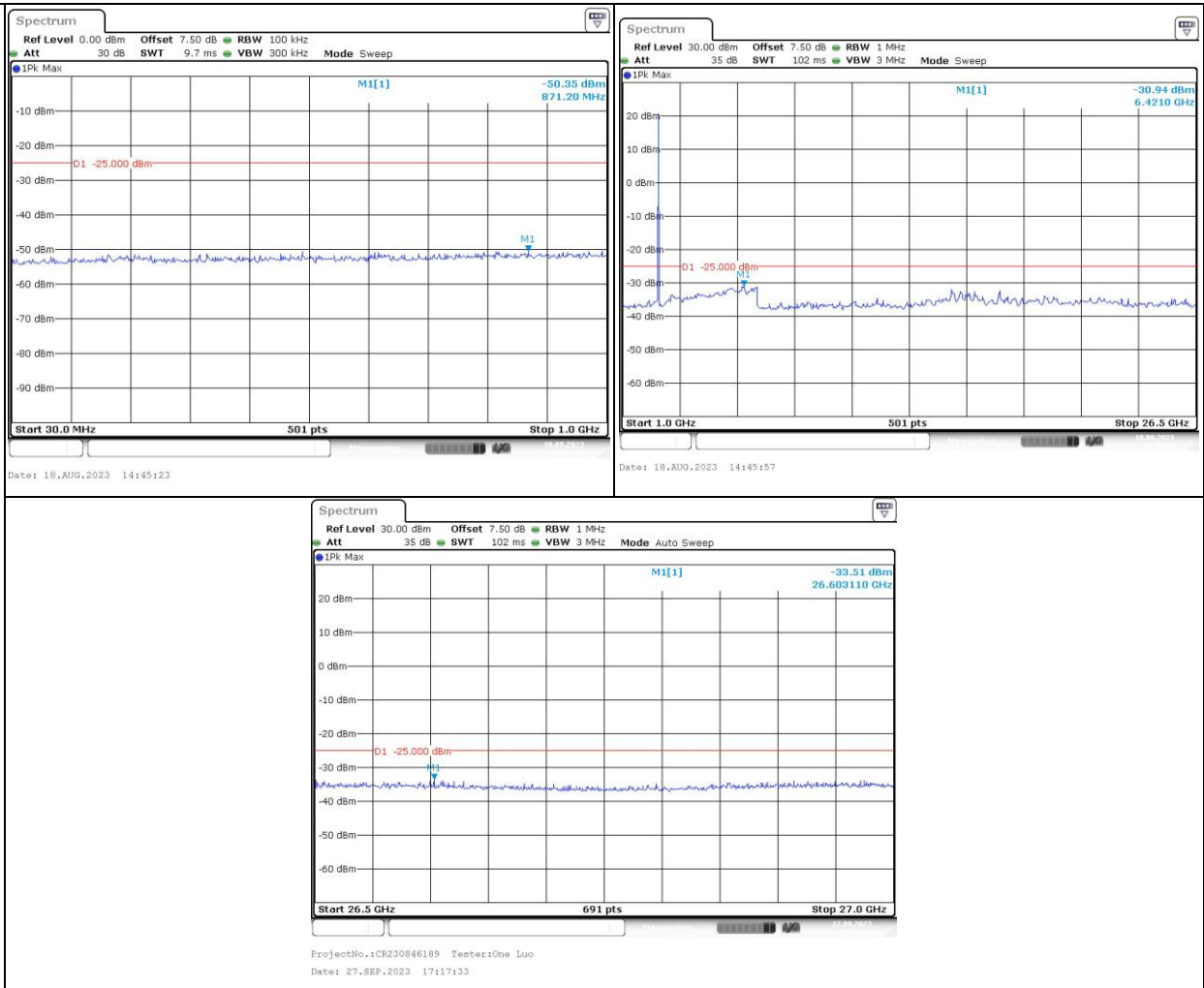
5MHz Bandwidth QPSK

Lowest

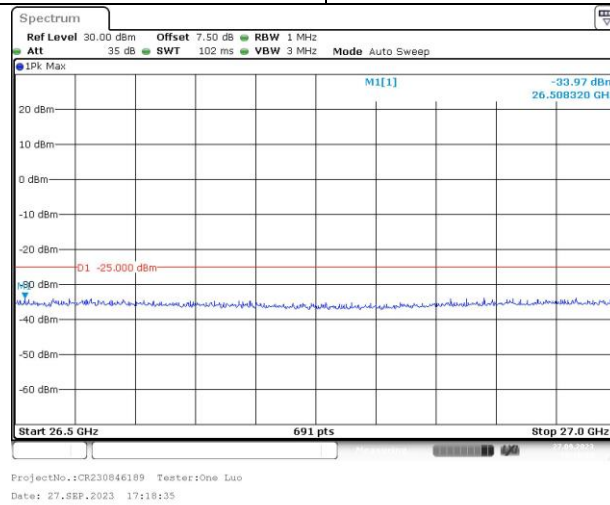
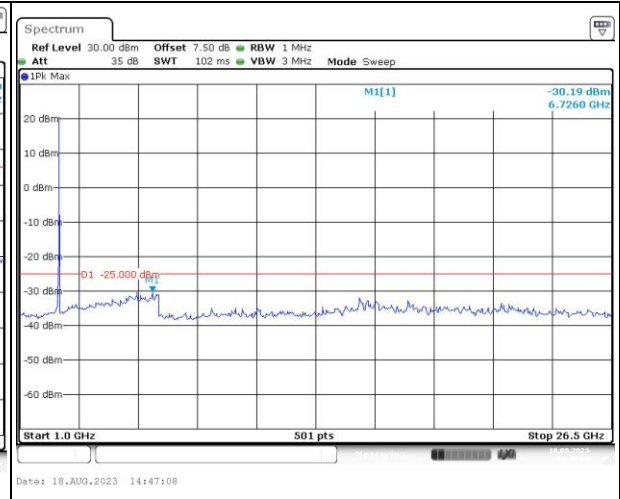
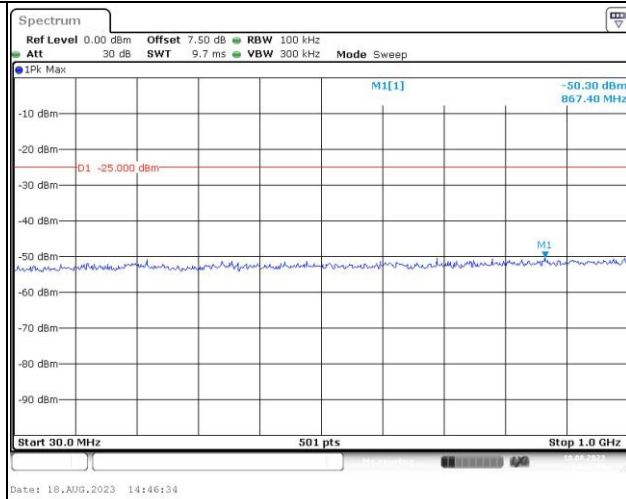


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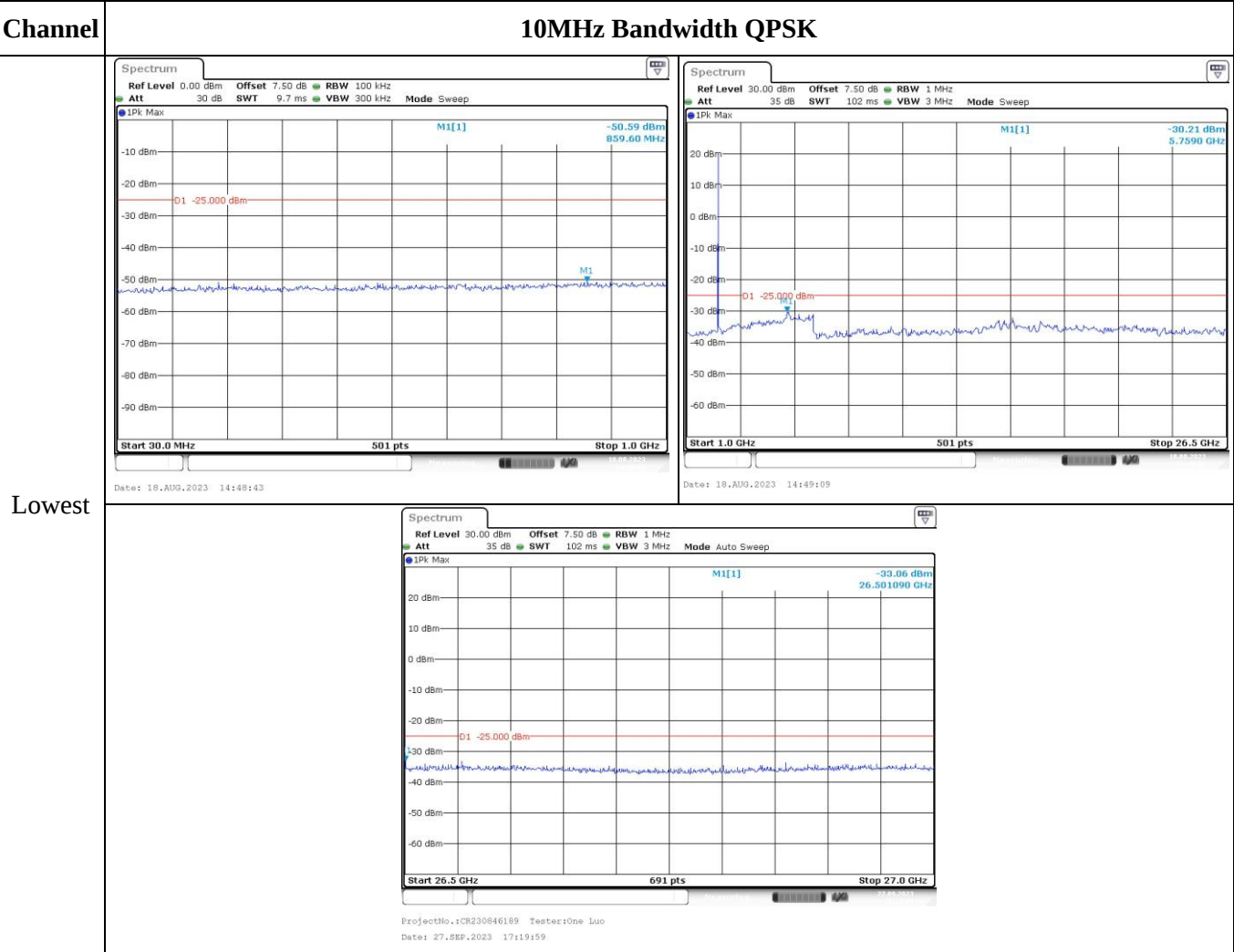
Middle



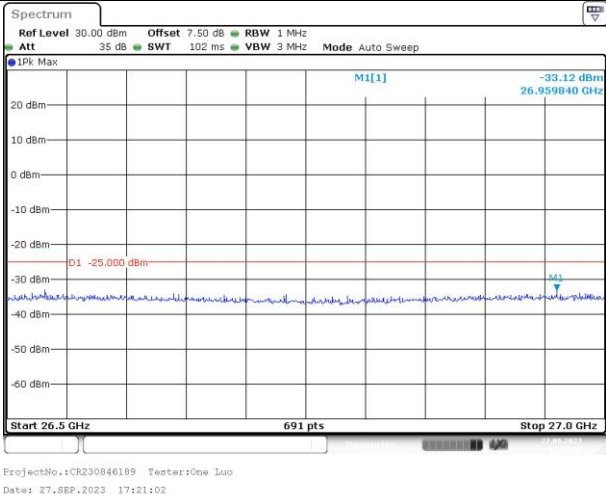
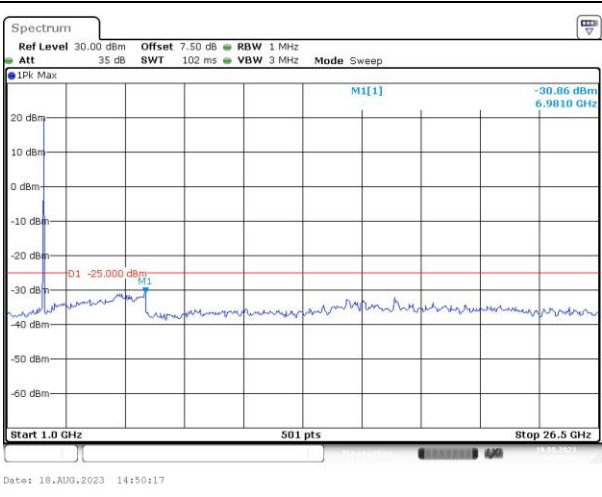
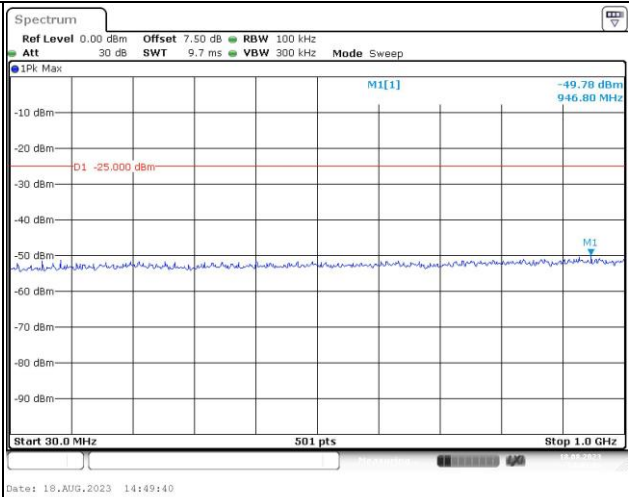
Highest



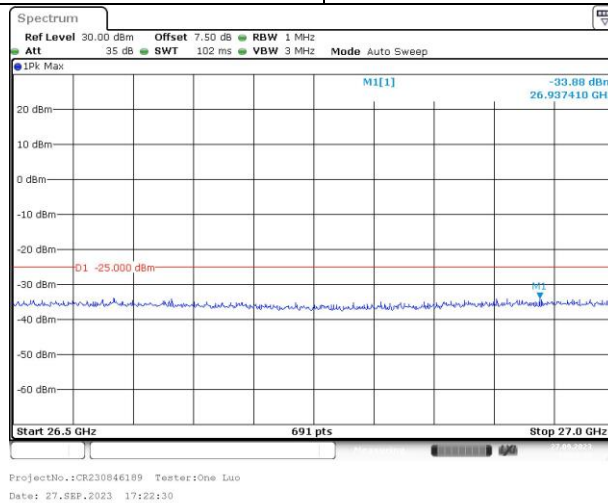
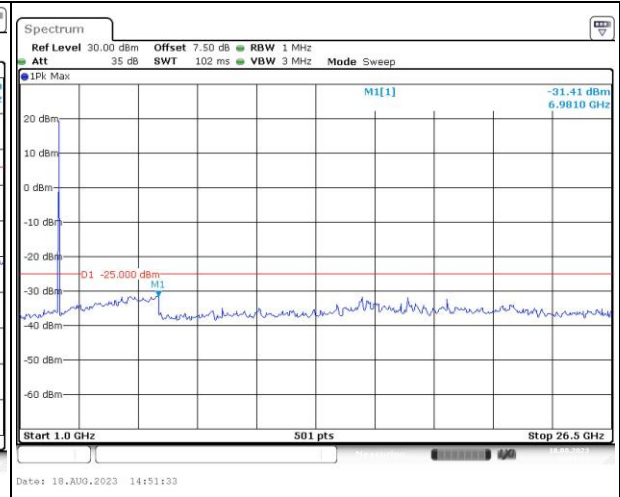
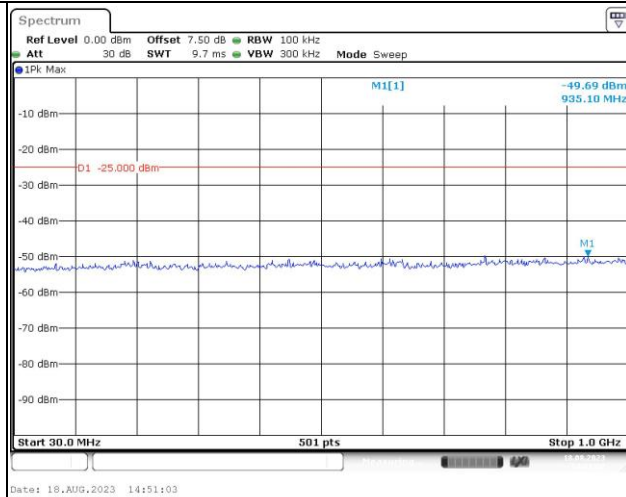
Spurious Emissions at Antenna Terminal



Middle



Highest

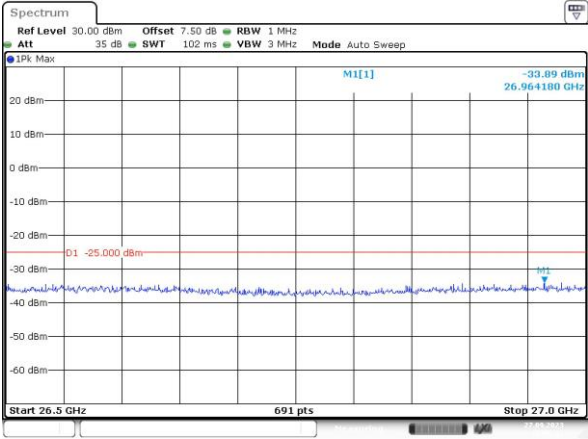
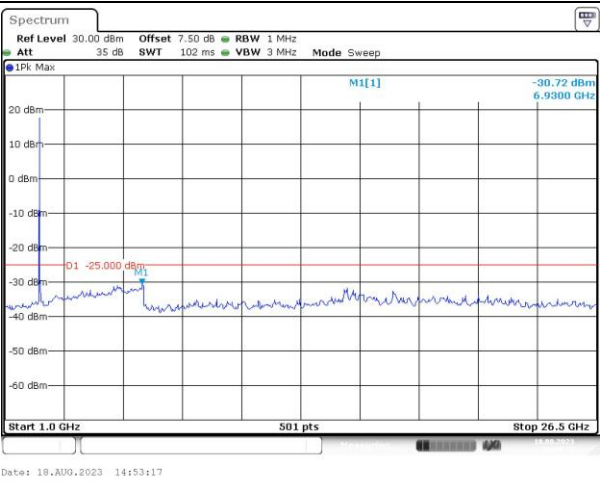
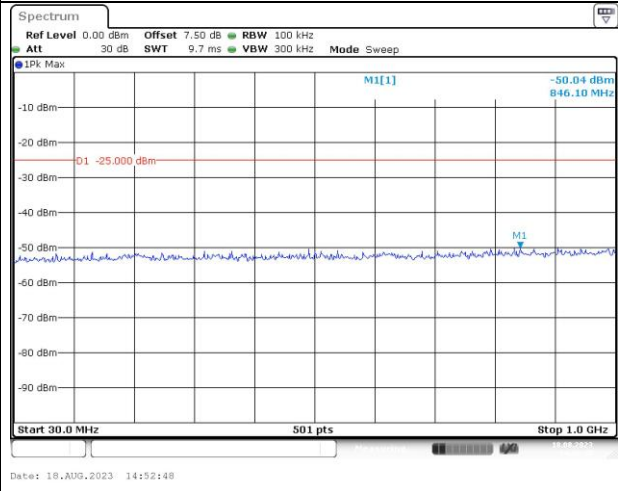


Spurious Emissions at Antenna Terminal

Channel

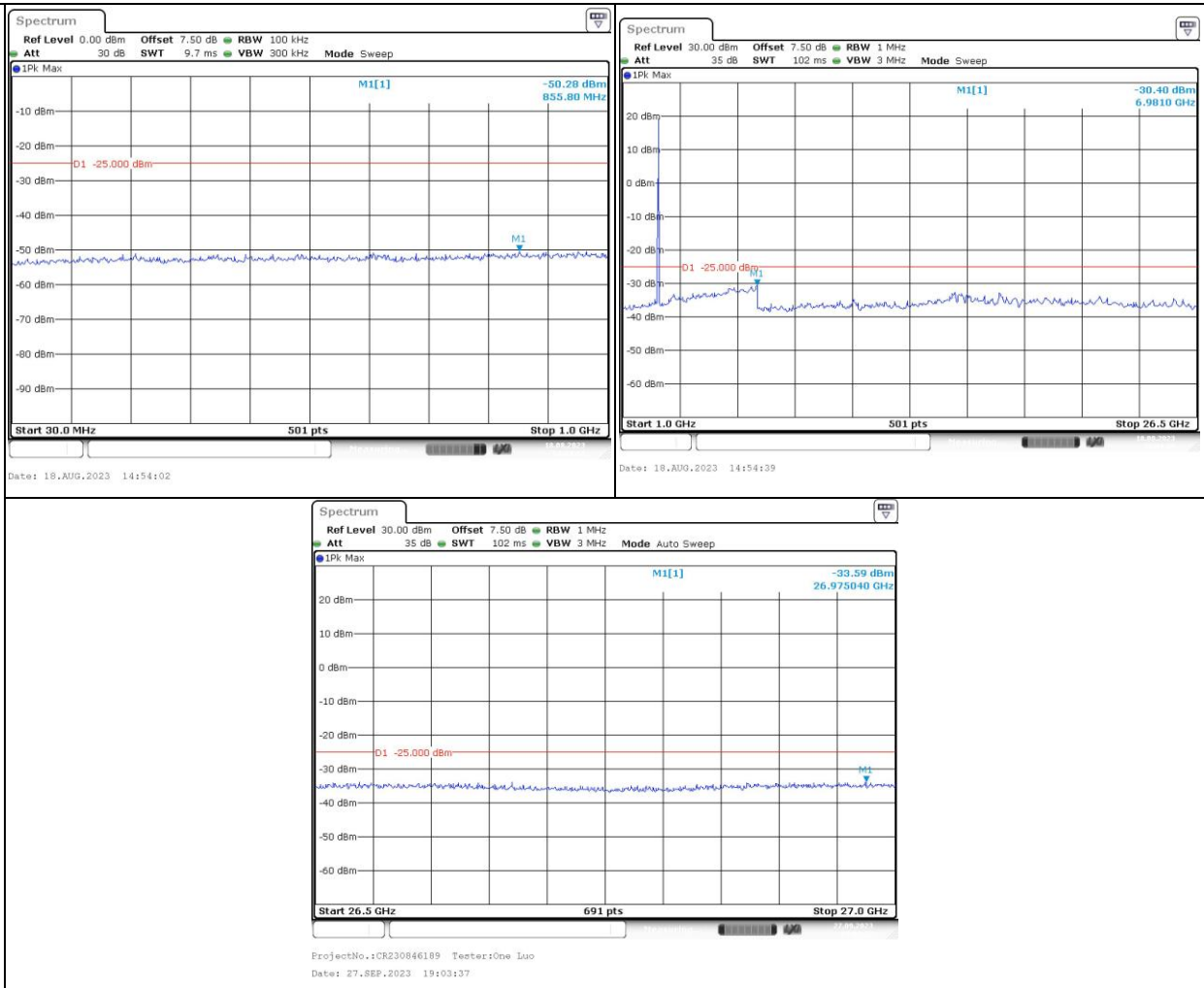
15MHz Bandwidth QPSK

Lowest



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Middle



Highest

