

Occupied Bandwidth

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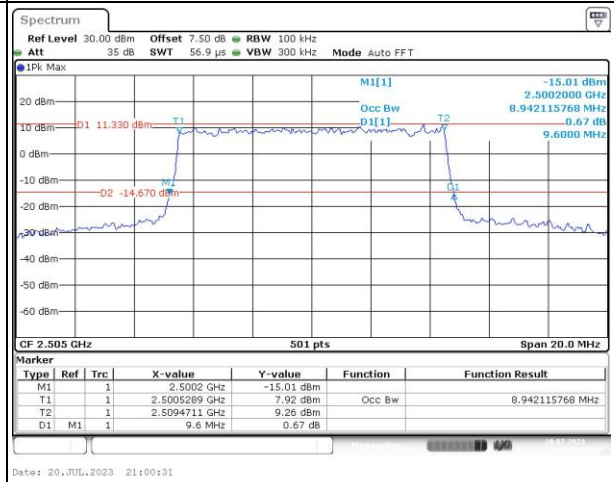
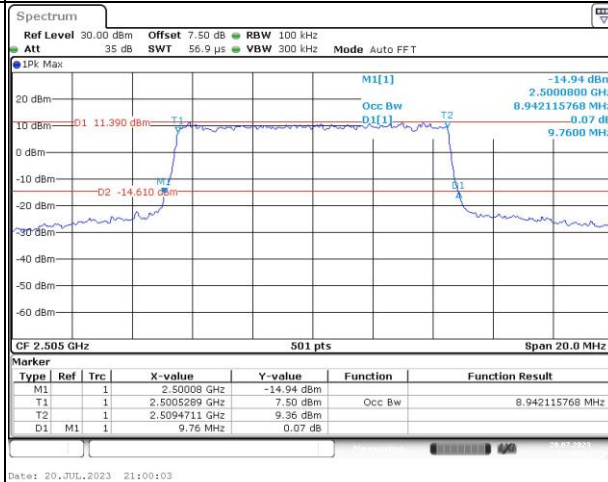
Occupied Bandwidth

Channel

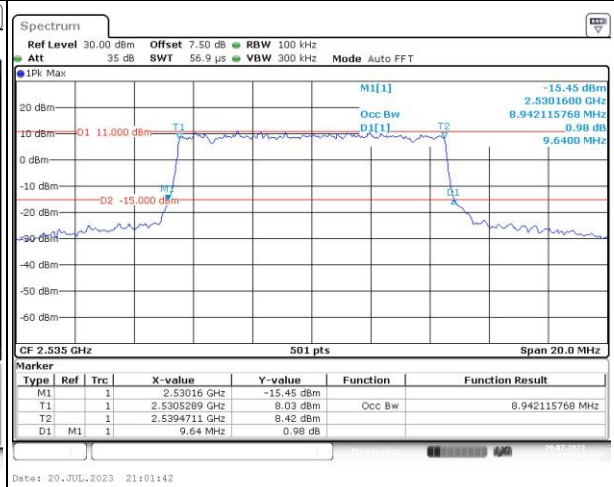
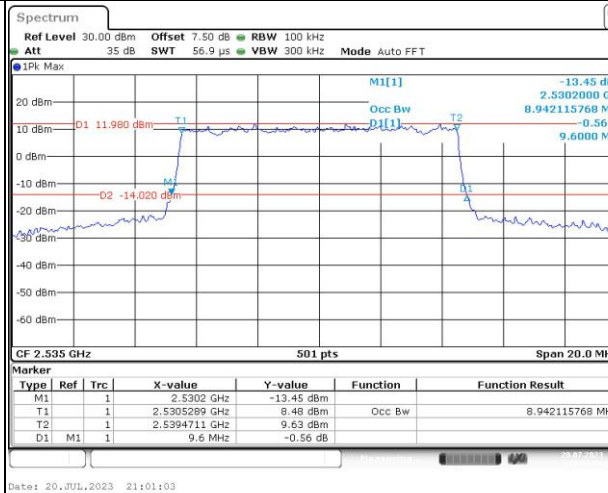
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

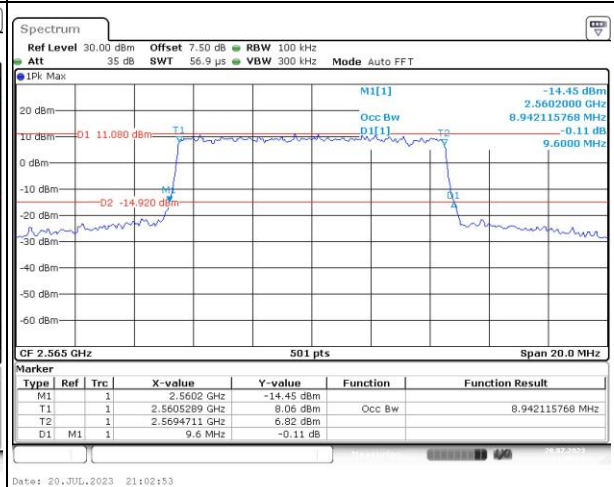
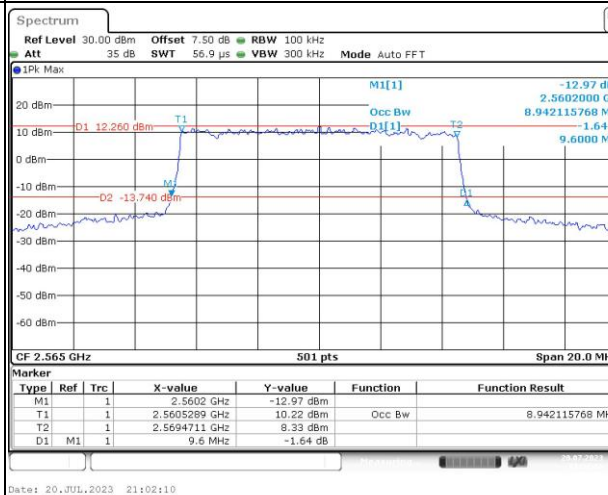
Lowest



Middle



Highest



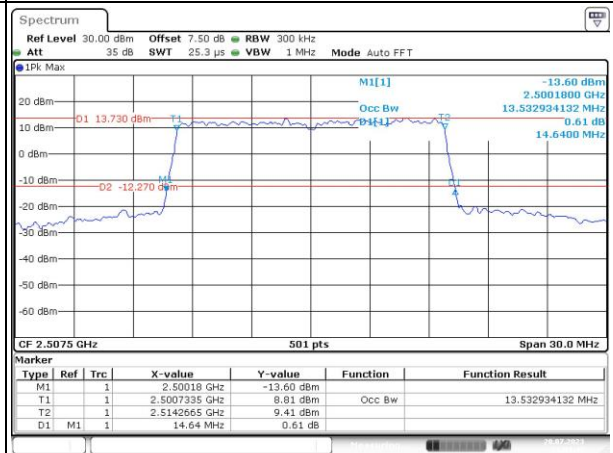
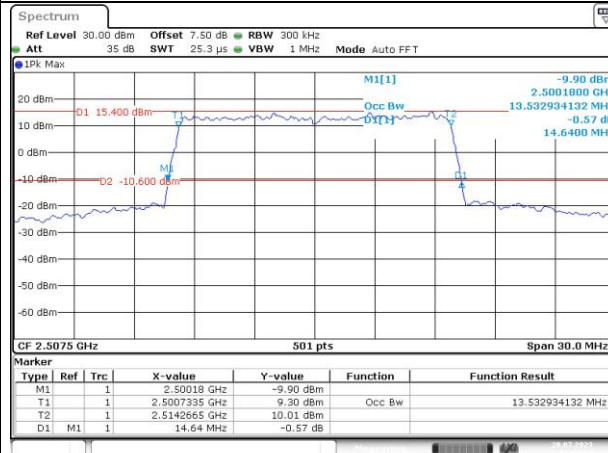
Occupied Bandwidth

Channel

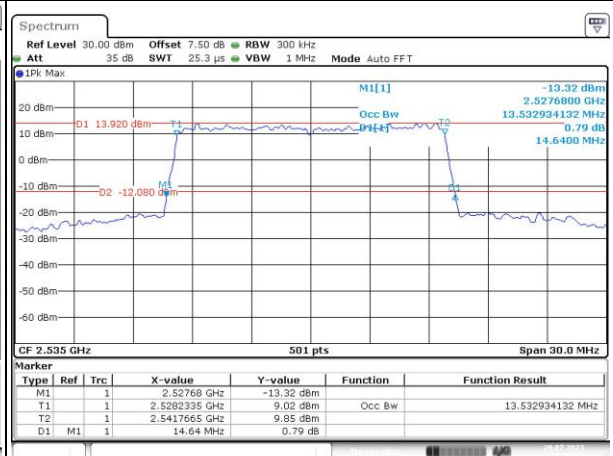
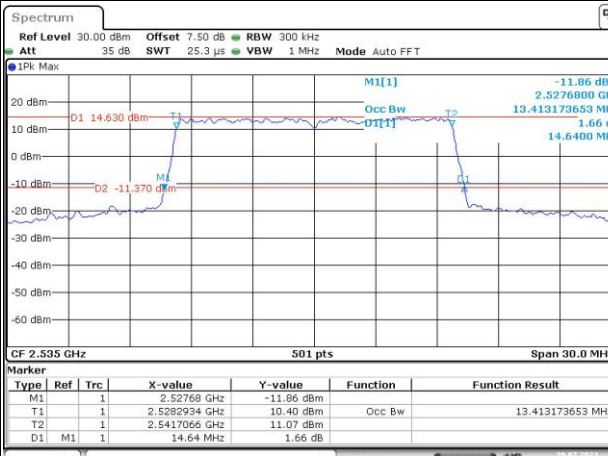
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

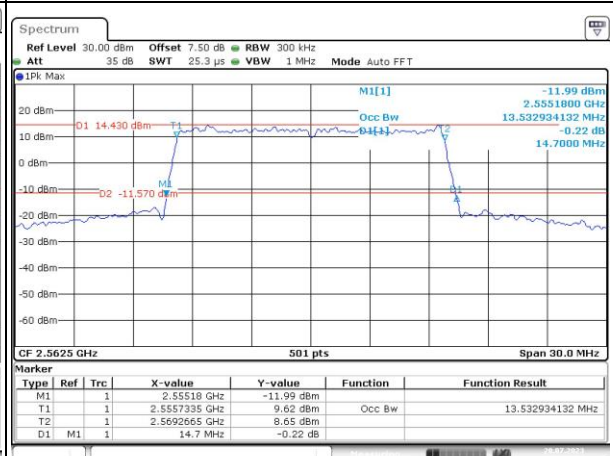
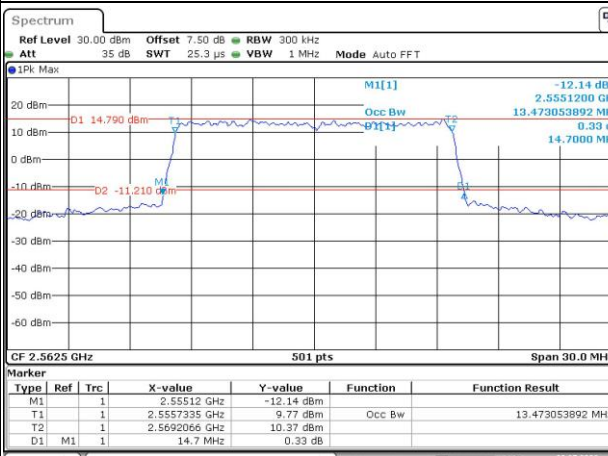
Lowest



Middle



Highest



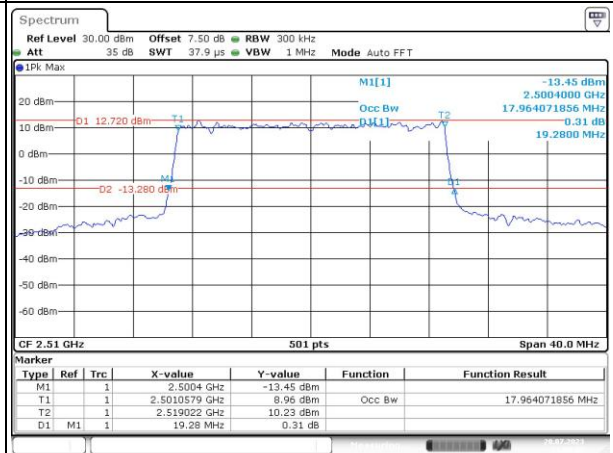
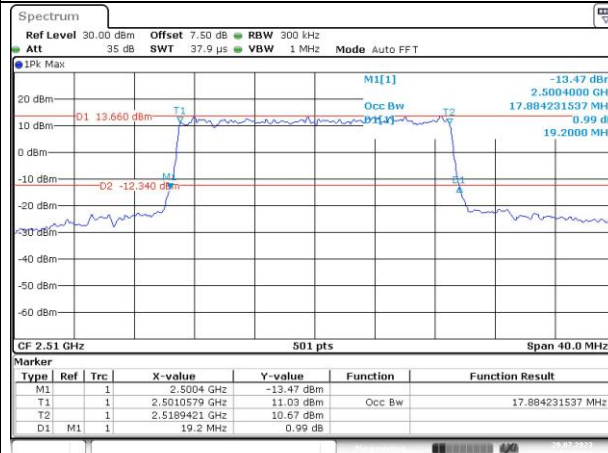
Occupied Bandwidth

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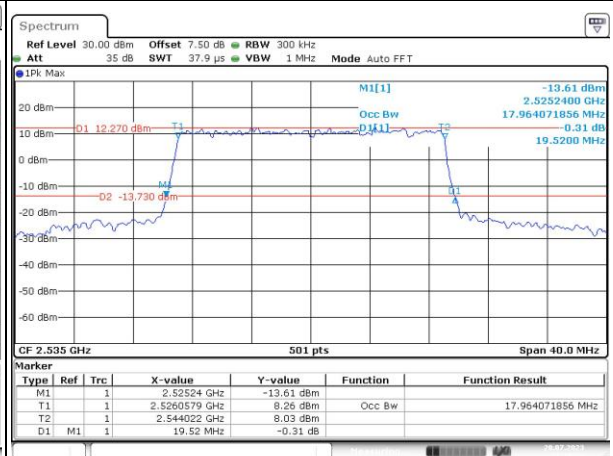
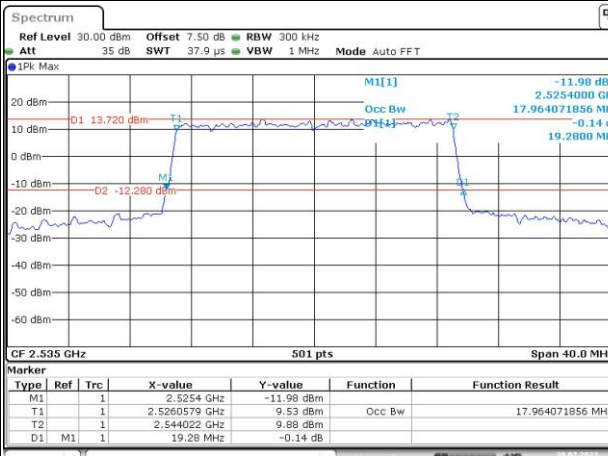
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

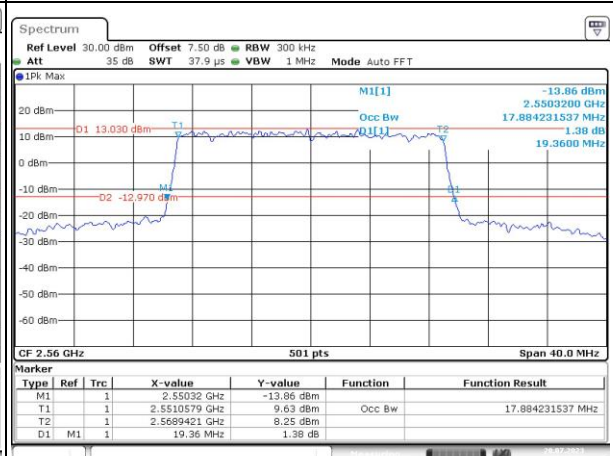
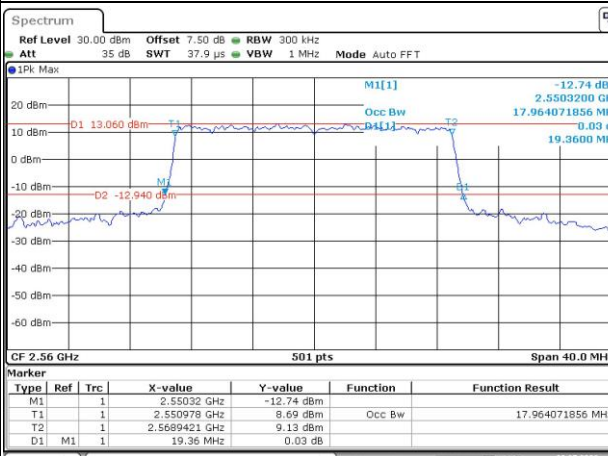
Lowest



Middle



Highest

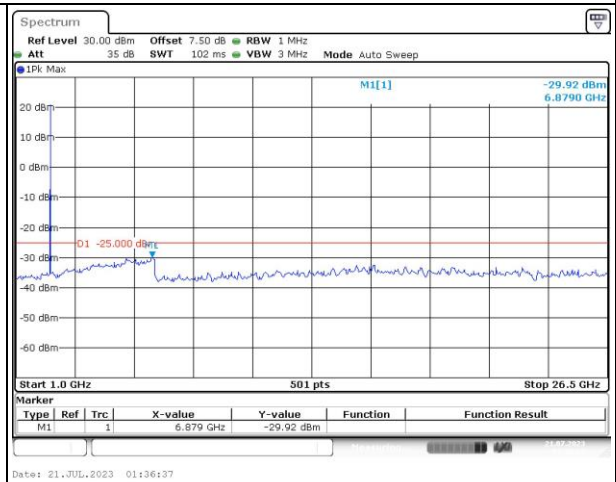
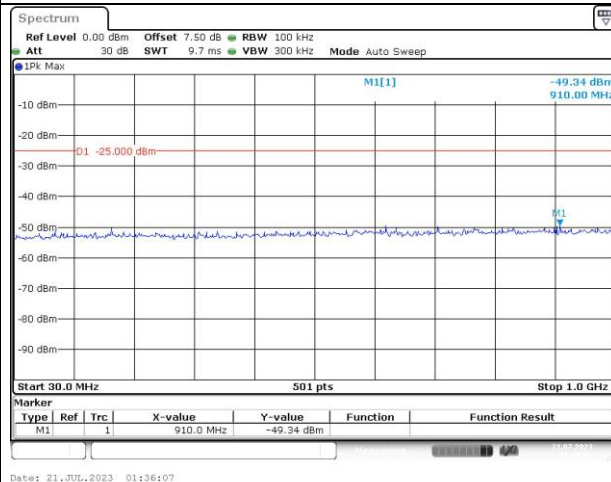


Spurious Emissions at Antenna Terminal

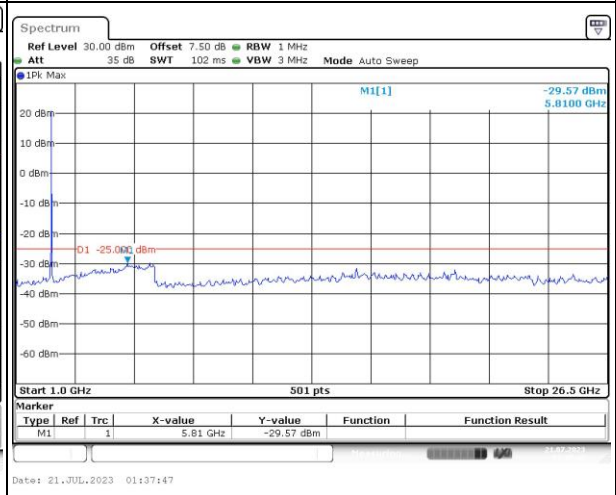
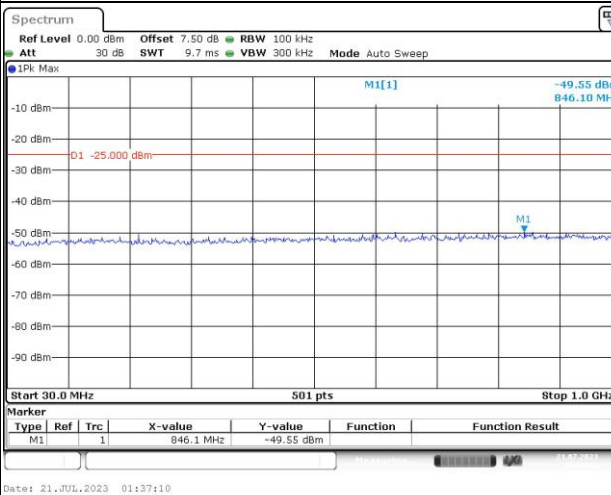
Channel

5MHz Bandwidth QPSK

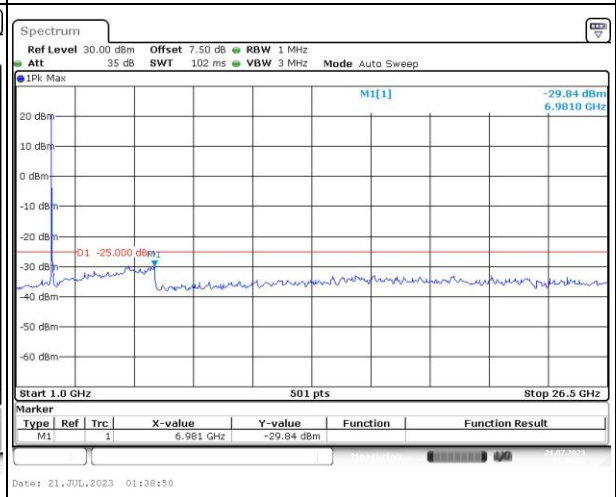
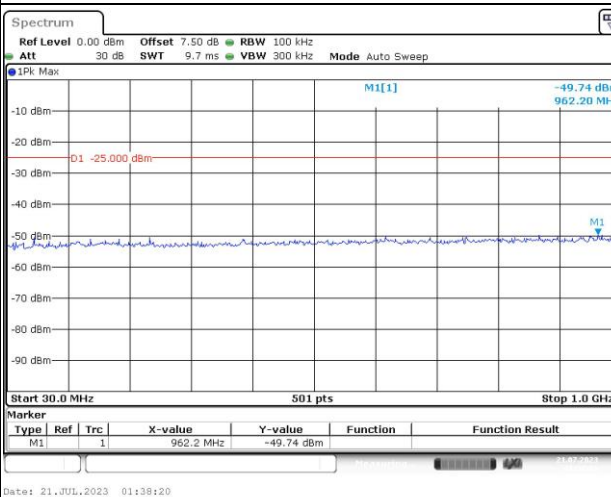
Lowest



Middle



Highest

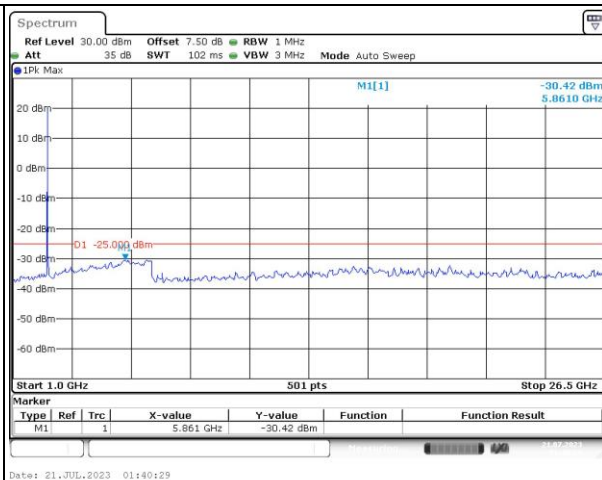
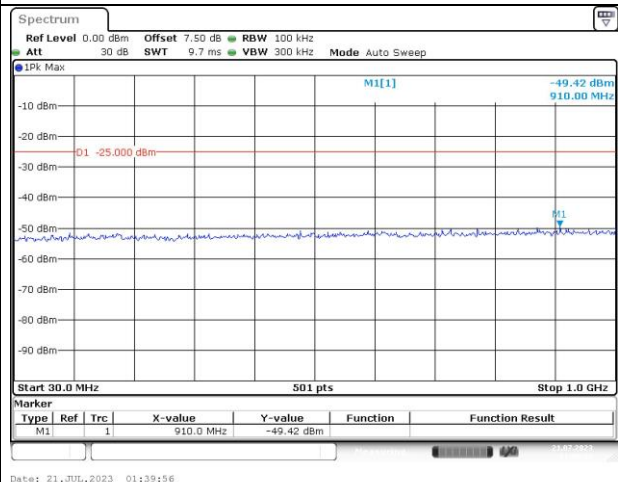


Spurious Emissions at Antenna Terminal

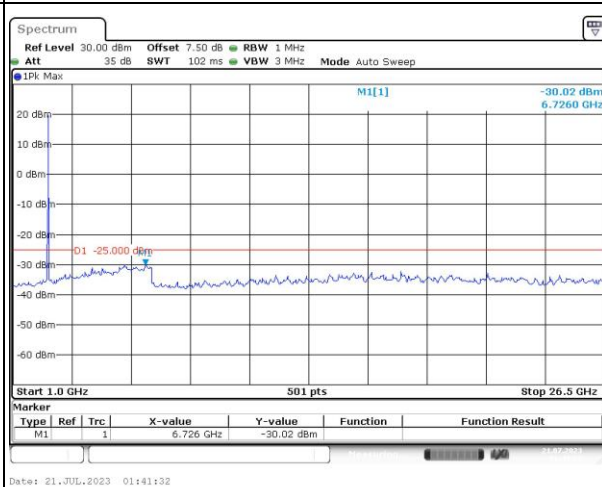
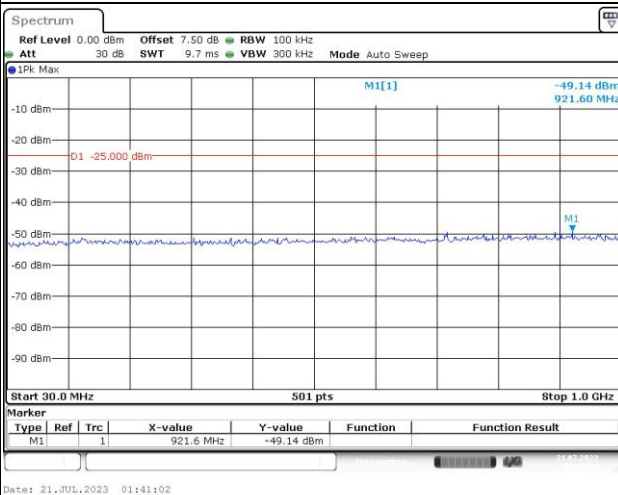
Channel

10MHz Bandwidth QPSK

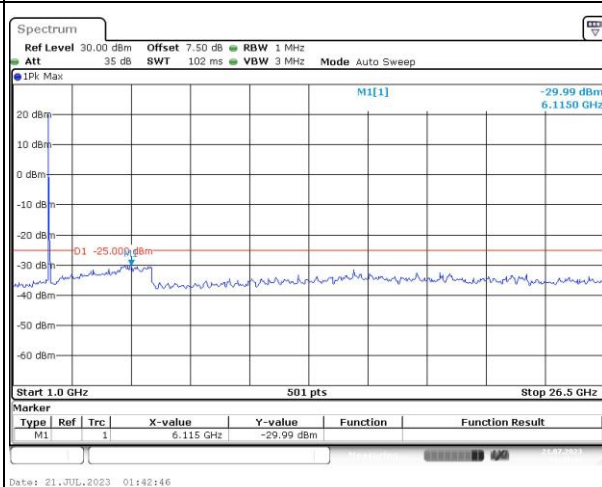
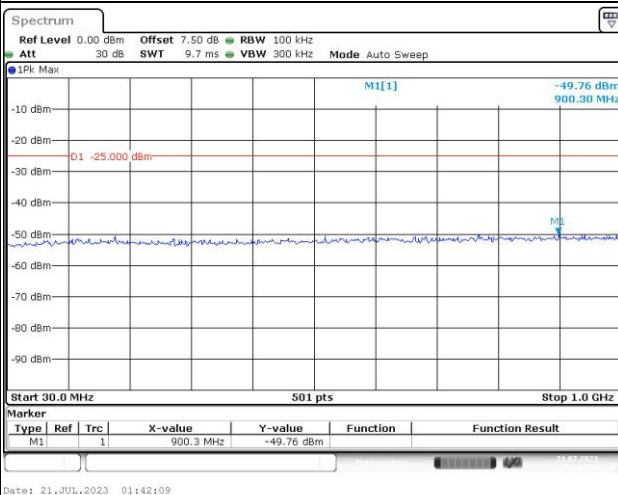
Lowest



Middle



Highest

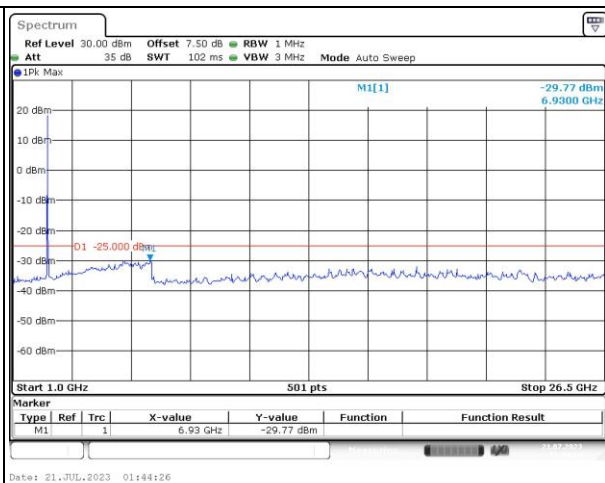
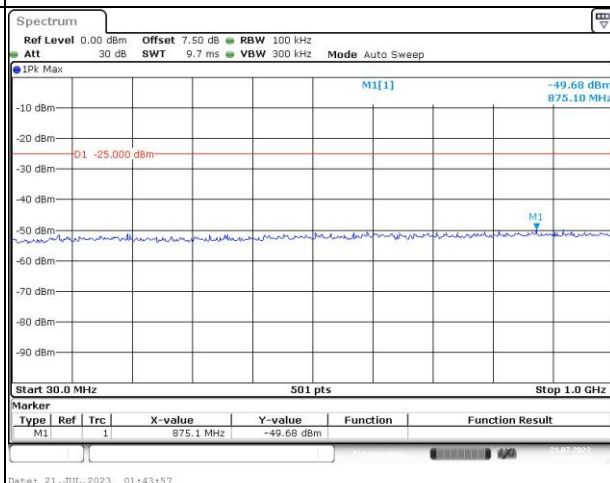


Spurious Emissions at Antenna Terminal

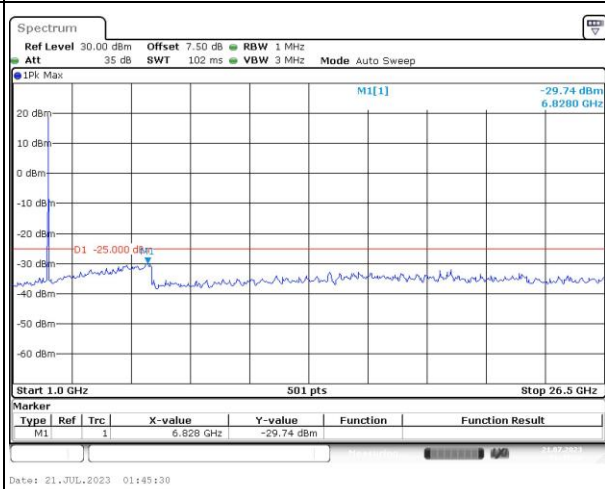
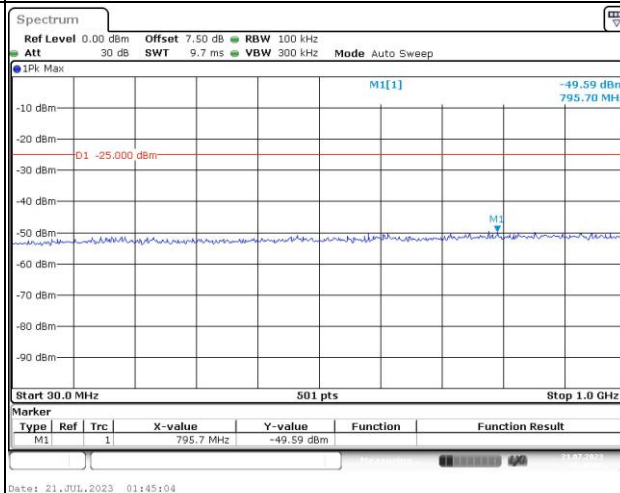
Channel

15MHz Bandwidth QPSK

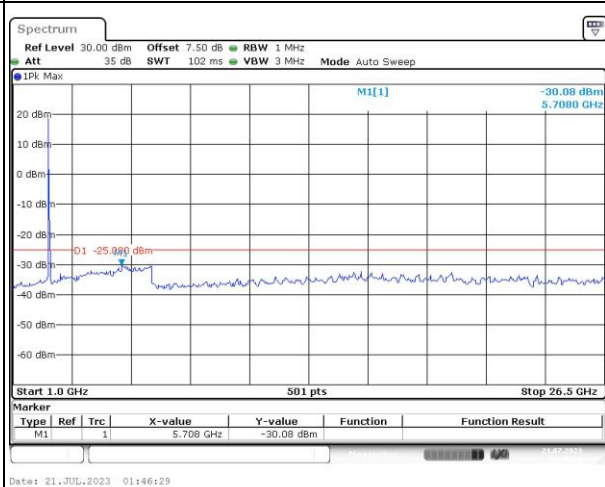
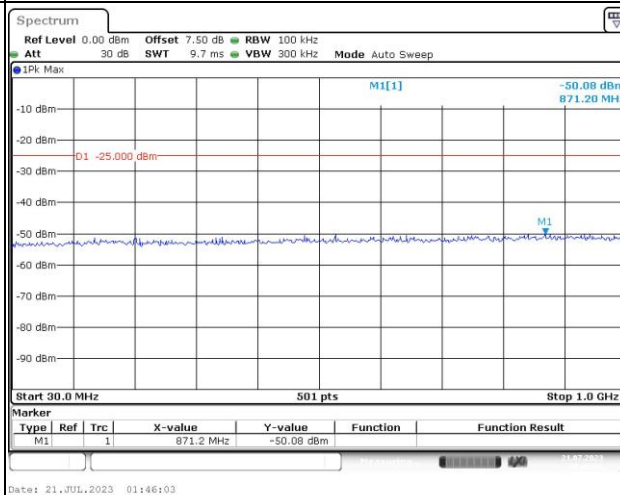
Lowest



Middle



Highest

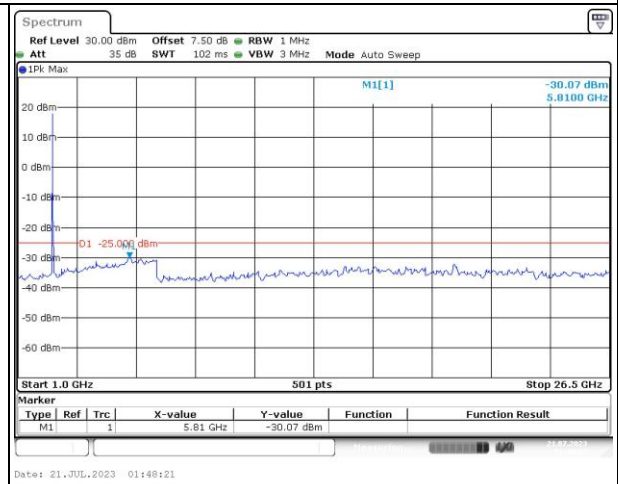
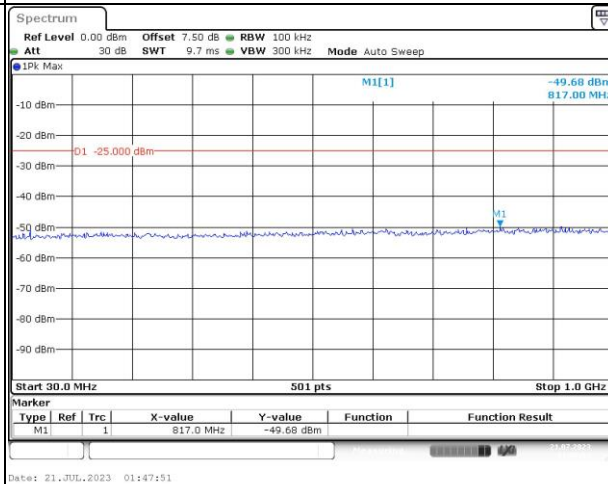


Spurious Emissions at Antenna Terminal

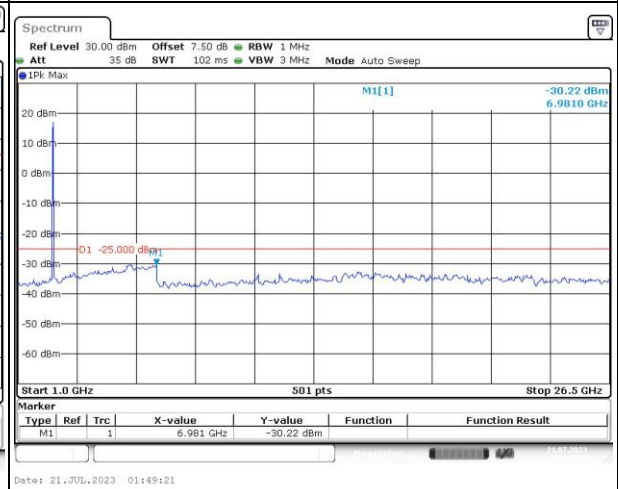
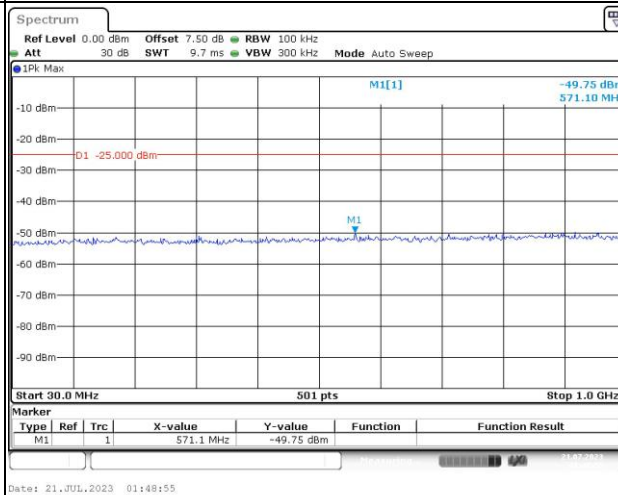
Channel

20MHz Bandwidth QPSK

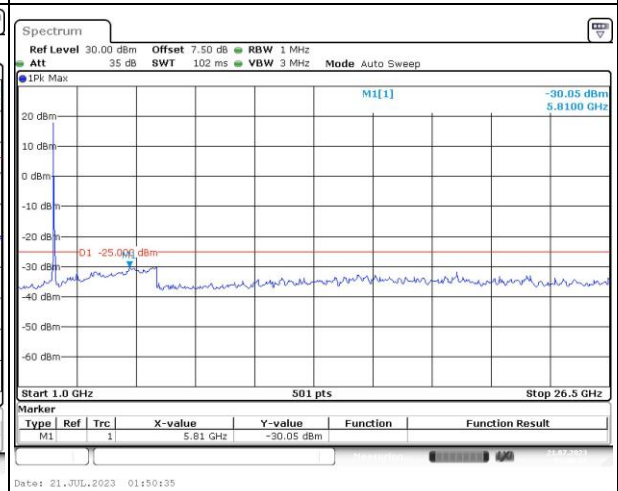
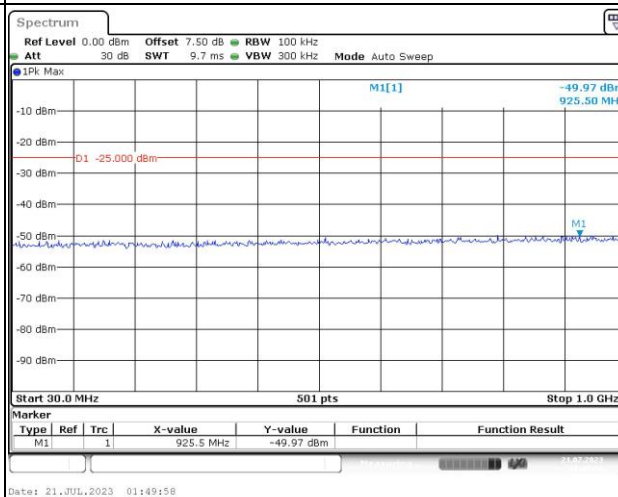
Lowest



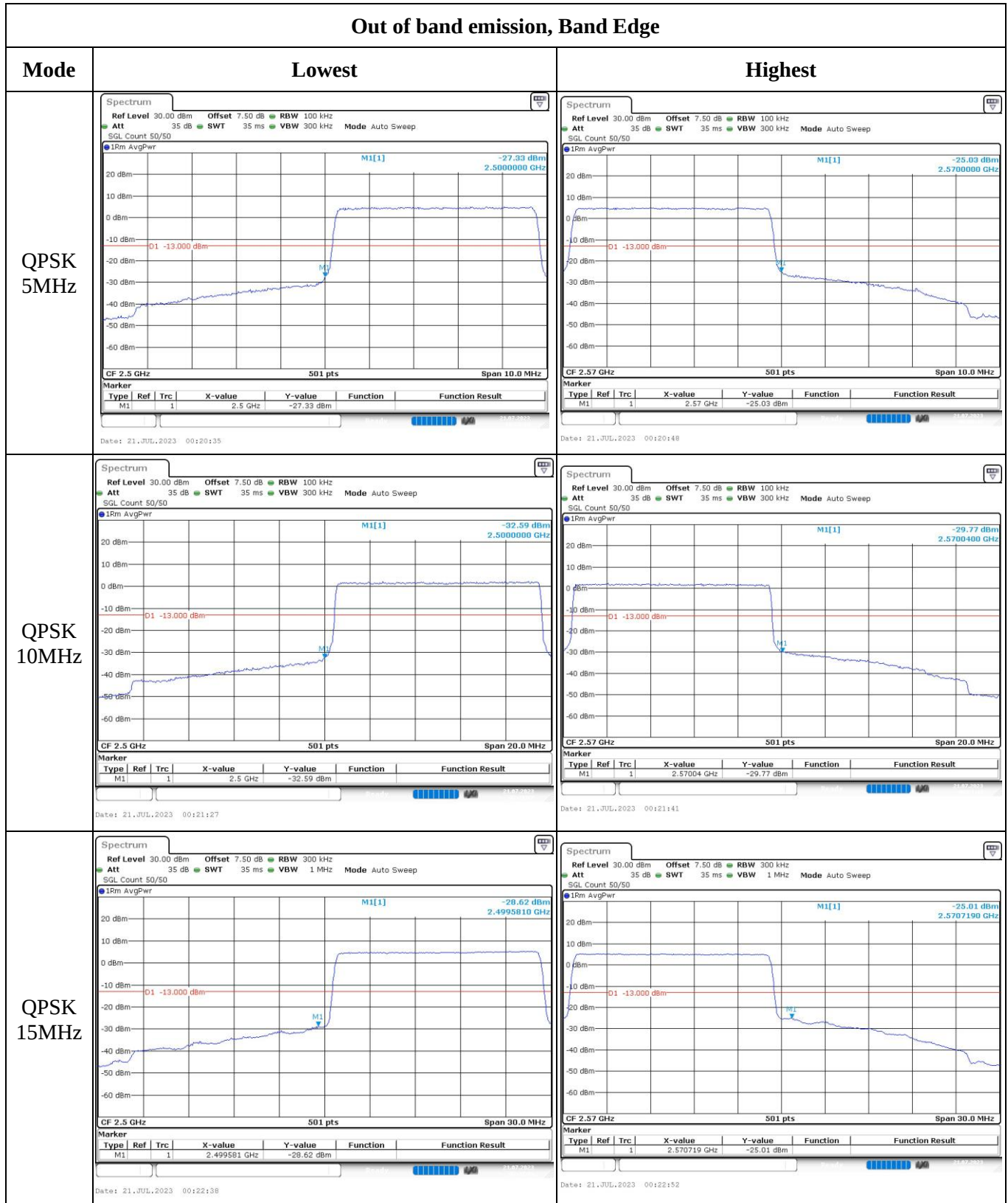
Middle



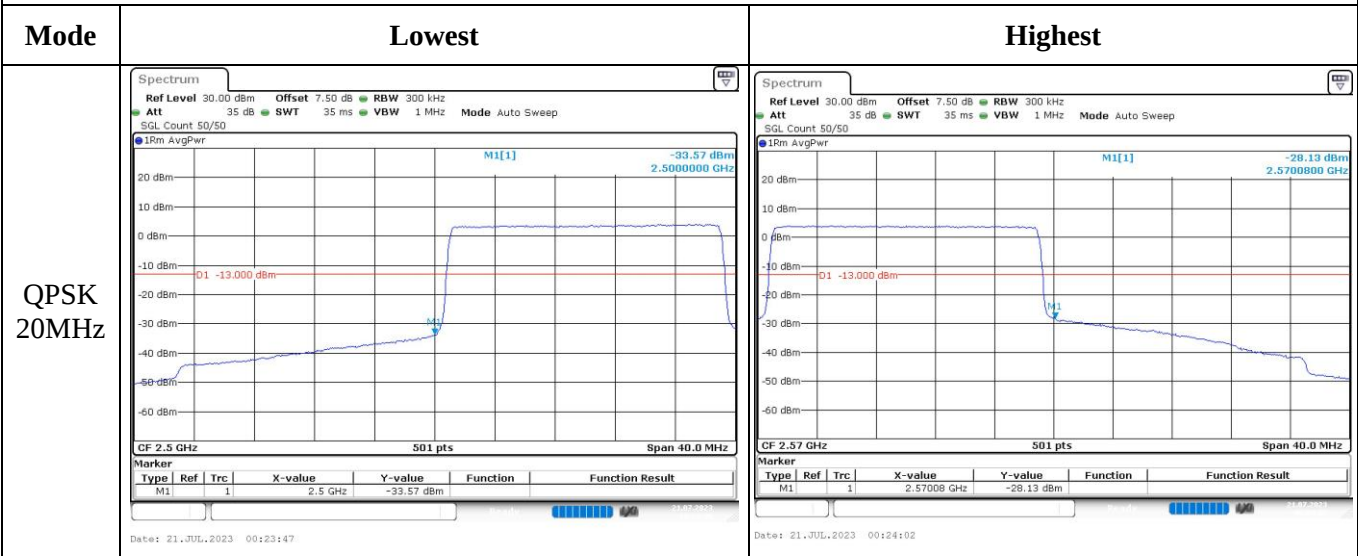
Highest



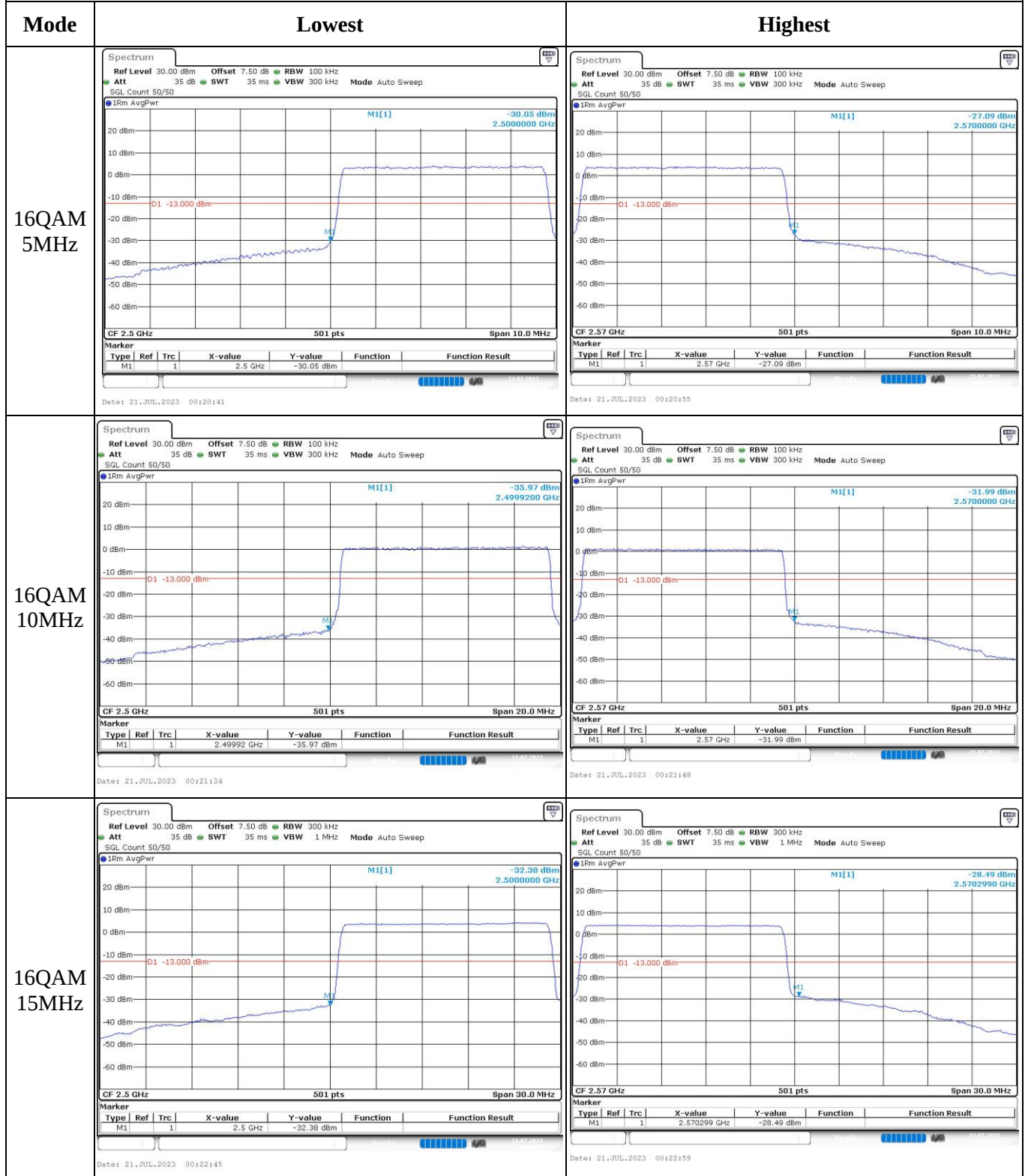
Out of band emission, Band Edge



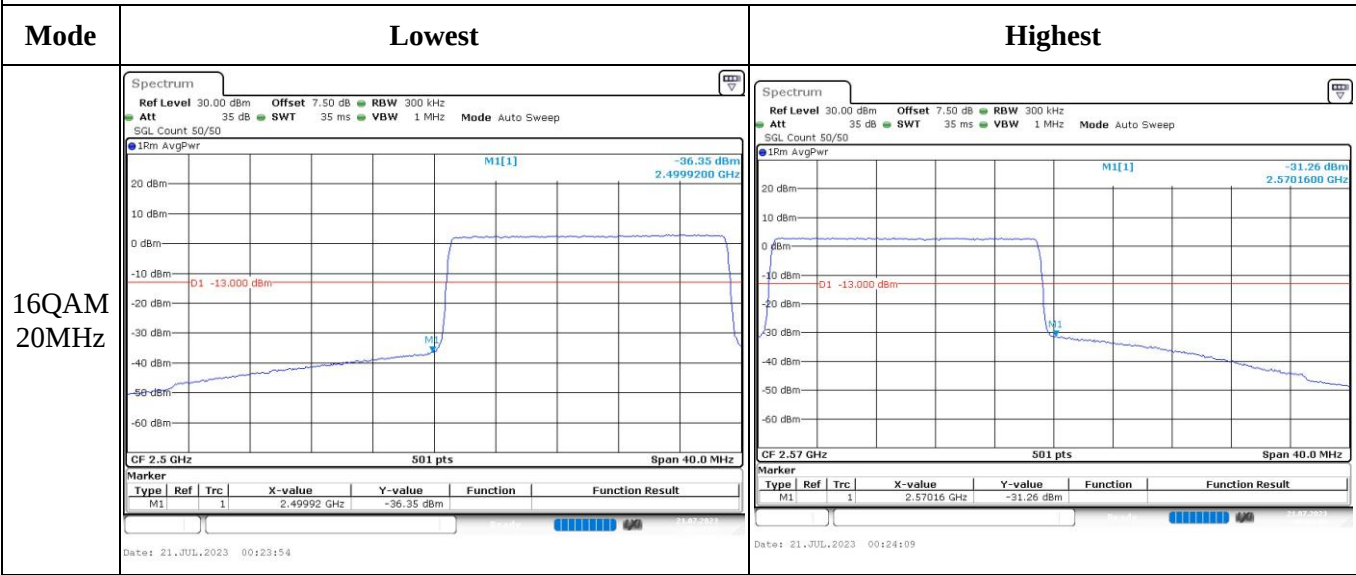
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.10 Antenna Port Test Data and Results for LTE Band 12

Serial Number:	287E_1	Test Date:	2023/7/17~2023/7/28
Test Site:	RF	Test Mode:	Transmitting
Tester:	One Luo	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.8~27.2	Relative Humidity: (%)	46~55	ATM Pressure: (kPa)	99.1~100.3
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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
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	23.84	23.71	23.69	18.14	34.77
	RB1#3	23.99	23.91	23.88		
	RB1#5	23.81	23.72	23.7		
	RB3#0	23.89	23.8	23.78		
	RB3#3	23.8	23.78	23.72		
	RB6#0	22.92	22.82	22.78		
1.4MHz 16QAM	RB1#0	23	22.73	22.65	17.27	34.77
	RB1#3	23.12	22.94	22.77		
	RB1#5	22.95	22.77	22.64		
	RB3#0	22.92	22.87	22.87		
	RB3#3	22.88	22.84	22.87		
	RB6#0	21.93	21.75	21.8		
3MHz QPSK	RB1#0	23.92	23.82	23.79	18.07	34.77
	RB1#8	23.84	23.8	23.77		
	RB1#14	23.81	23.8	23.81		
	RB6#0	22.89	22.87	22.77		
	RB6#9	22.9	22.79	22.79		
	RB15#0	22.88	22.85	22.75		
3MHz 16QAM	RB1#0	23.46	22.98	22.79	17.61	34.77
	RB1#8	23.42	22.93	22.75		
	RB1#14	23.38	22.94	22.73		
	RB6#0	21.92	21.83	21.76		
	RB6#9	21.87	21.84	21.78		
	RB15#0	21.89	21.78	21.83		
5MHz QPSK	RB1#0	23.82	23.66	23.69	18.02	34.77
	RB1#13	23.87	23.8	23.78		
	RB1#24	23.8	23.7	23.67		
	RB15#0	22.85	22.86	22.81		
	RB15#10	22.9	22.81	22.73		
	RB25#0	22.85	22.82	22.74		
5MHz 16QAM	RB1#0	23.11	22.82	22.54	17.33	34.77
	RB1#13	23.18	22.88	22.62		
	RB1#24	23.11	22.73	22.55		
	RB15#0	21.8	21.89	21.89		
	RB15#10	21.84	21.81	21.78		
	RB25#0	21.82	21.84	21.86		
10MHz QPSK	RB1#0	23.82	23.78	23.72	18.17	34.77
	RB1#25	24.02	23.95	23.91		
	RB1#49	23.81	23.8	23.8		

10MHz 16QAM	RB25#0	22.82	22.82	22.79	17.5	34.77
	RB25#25	22.9	22.77	22.75		
	RB50#0	22.85	22.8	22.78		
	RB1#0	23.01	22.78	23.27		
	RB1#25	23.14	22.98	23.35		
	RB1#49	22.97	22.78	23.26		
	RB25#0	21.82	21.84	21.9		
	RB25#25	21.88	21.88	21.82		
	RB50#0	21.86	21.81	21.84		

Note:

ERP= Conducted Power(dBm) - Lc(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	4.64	4.72	4.26	13
	RB50#0	5.01	4.9	4.87	13
10MHz 16QAM	RB1#0	5.45	5.65	4.99	13
	RB50#0	5.91	5.86	5.83	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	1.096	1.102	1.102	1.296	1.302	1.296
1.4MHz 16QAM	1.096	1.09	1.096	1.32	1.29	1.29
3MHz QPSK	2.695	2.683	2.683	2.868	2.892	2.88
3MHz 16QAM	2.683	2.683	2.683	2.88	2.88	2.892
5MHz QPSK	4.551	4.531	4.511	5.2	5.22	5.16
5MHz 16QAM	4.511	4.551	4.551	5.16	5.2	5.24
10MHz QPSK	8.982	8.942	8.982	10.04	9.8	9.88
10MHz 16QAM	8.942	8.942	8.982	9.76	9.88	9.92

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

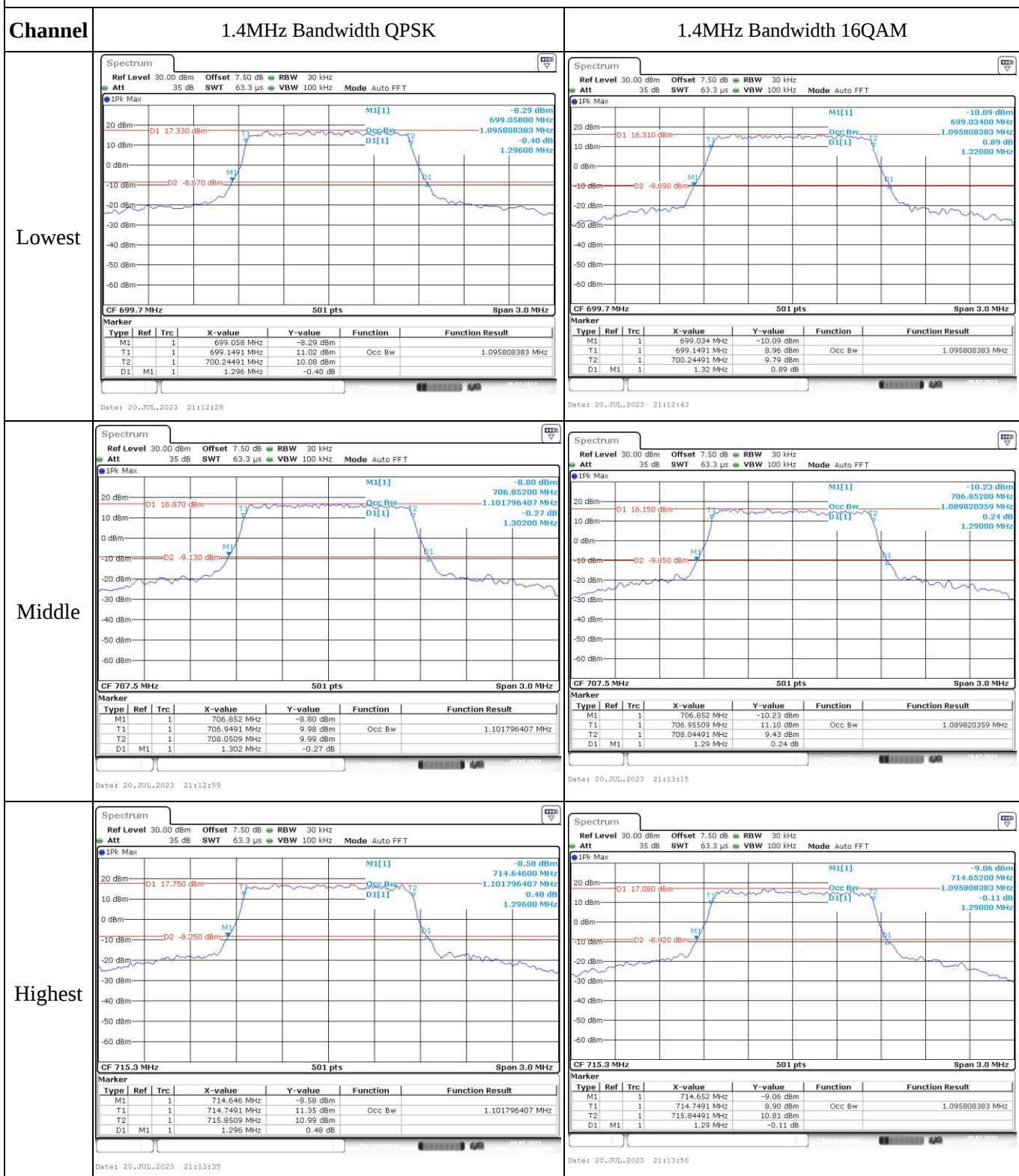
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
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FCC §2.1055, §27.54: Frequency Stability						
Test Mode:	10M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.78	699.495	699.00	715.496	716.00
	-20	3.78	699.472	699.00	715.429	716.00
	-10	3.78	699.411	699.00	715.478	716.00
	0	3.78	699.488	699.00	715.423	716.00
	10	3.78	699.459	699.00	715.465	716.00
	20	3.78	699.489	699.00	715.471	716.00
	30	3.78	699.455	699.00	715.475	716.00
	40	3.78	699.457	699.00	715.437	716.00
	50	3.78	699.435	699.00	715.462	716.00
Frequency Stability vs. Voltage	20	3.6	699.465	699.00	715.434	716.00
	20	4.4	699.449	699.00	715.446	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	3.78	699.504	699.00	715.402	716.00
	-20	3.78	699.546	699.00	715.494	716.00
	-10	3.78	699.534	699.00	715.423	716.00
	0	3.78	699.531	699.00	715.461	716.00
	10	3.78	699.524	699.00	715.489	716.00
	20	3.78	699.529	699.00	715.471	716.00
	30	3.78	699.511	699.00	715.434	716.00
	40	3.78	699.545	699.00	715.482	716.00
	50	3.78	699.551	699.00	715.424	716.00
Frequency Stability vs. Voltage	20	3.6	699.537	699.00	715.419	716.00
	20	4.4	699.526	699.00	715.401	716.00
					Result:	Pass

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

Occupied Bandwidth



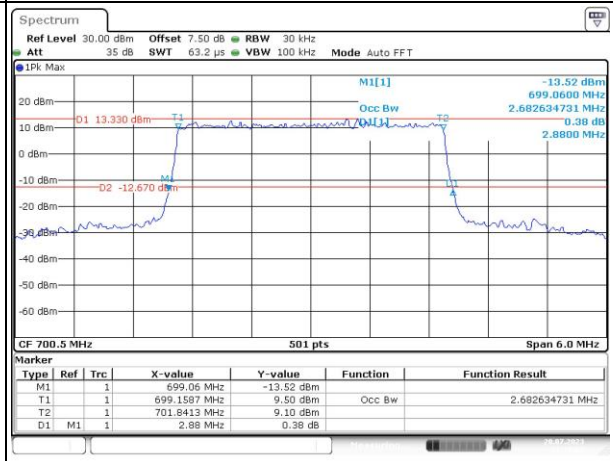
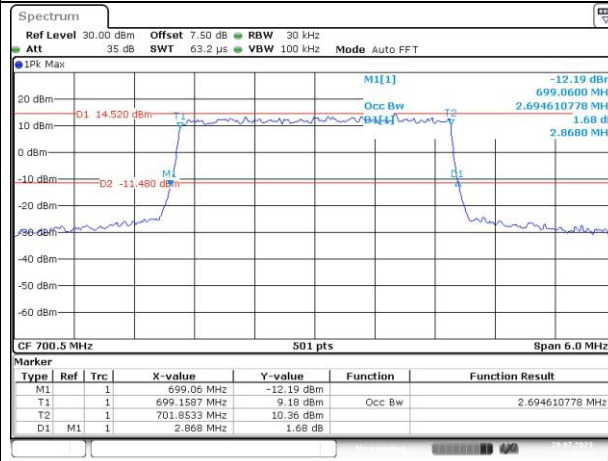
Occupied Bandwidth

Channel

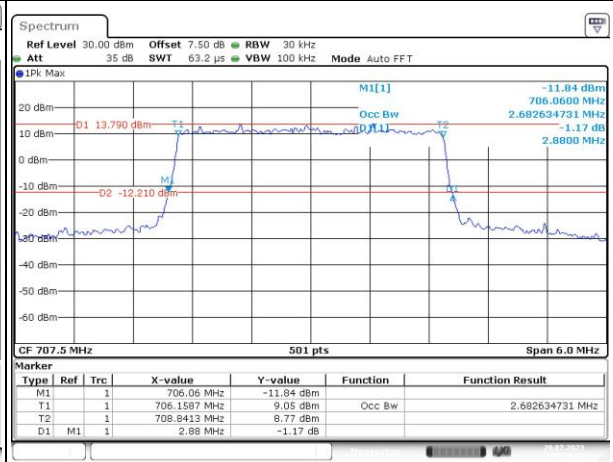
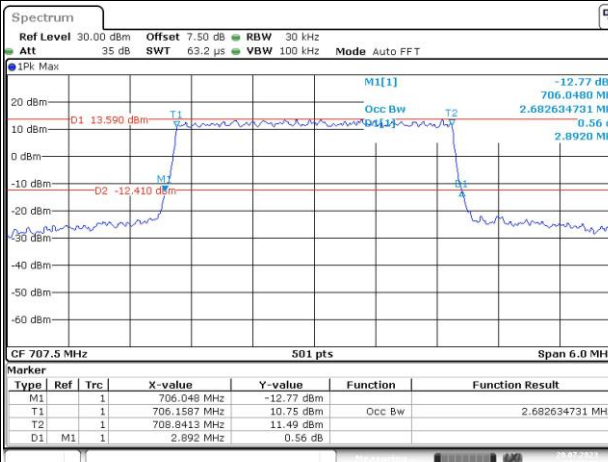
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

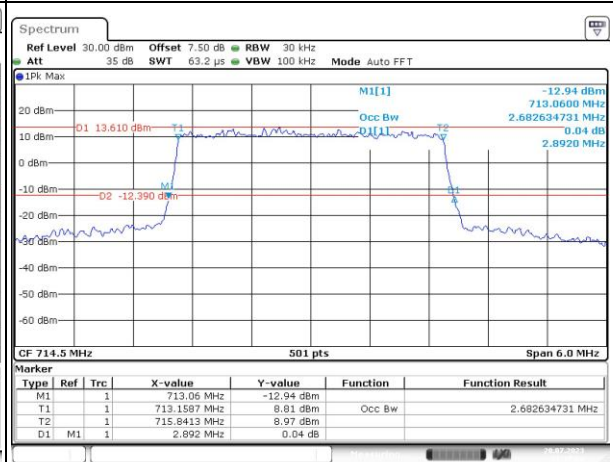
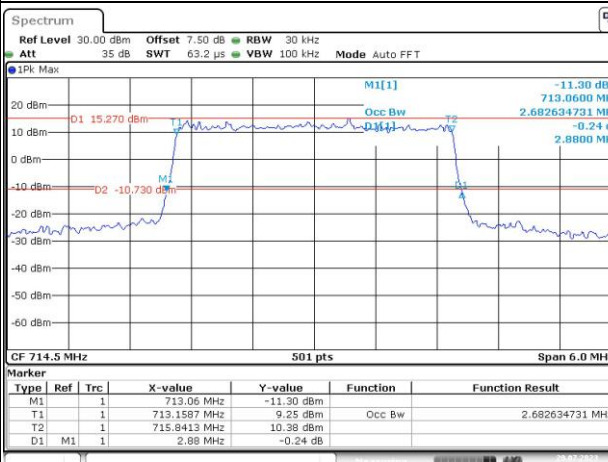
Lowest



Middle



Highest



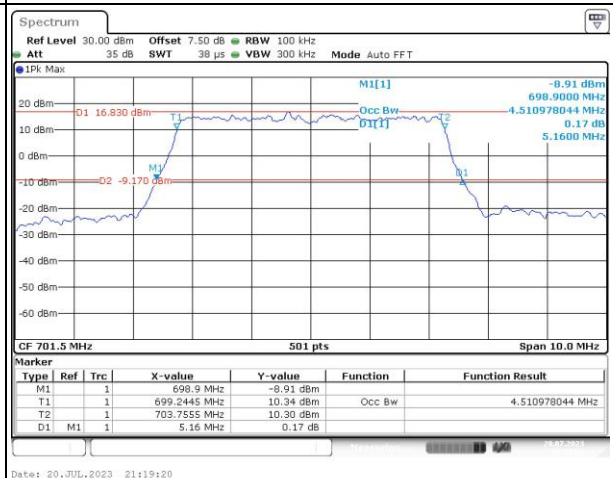
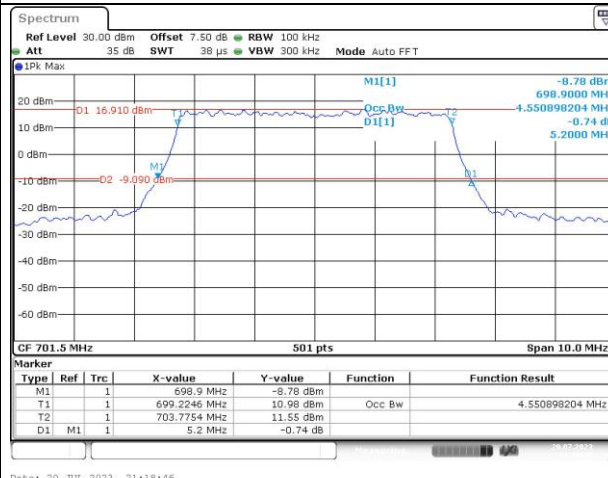
Occupied Bandwidth

Channel

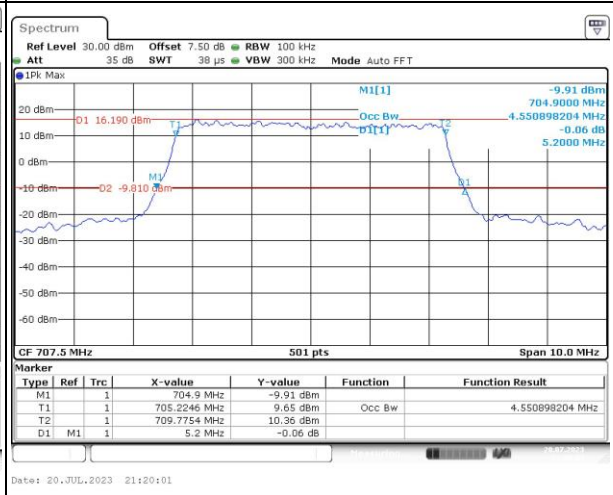
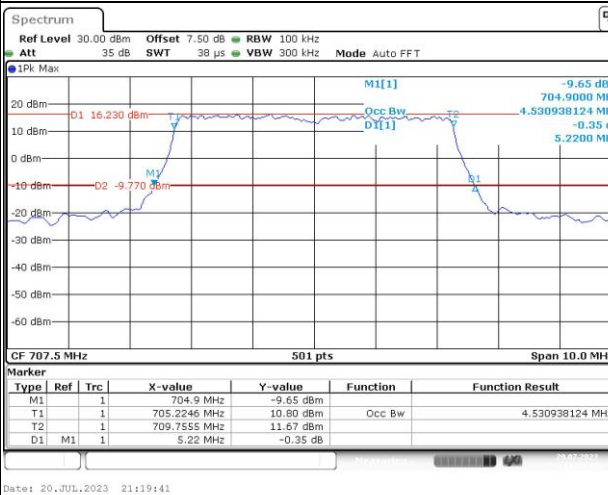
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

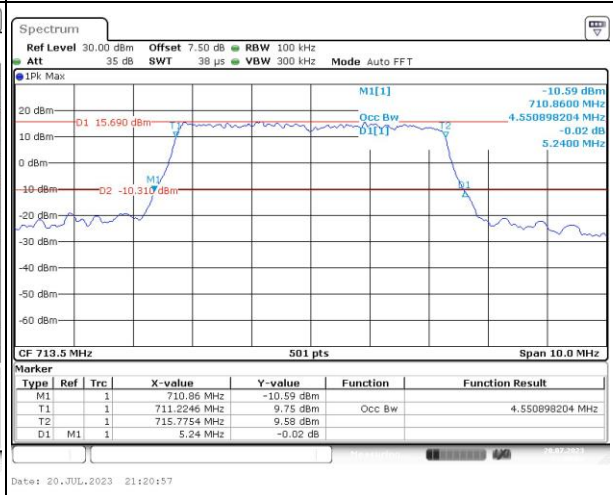
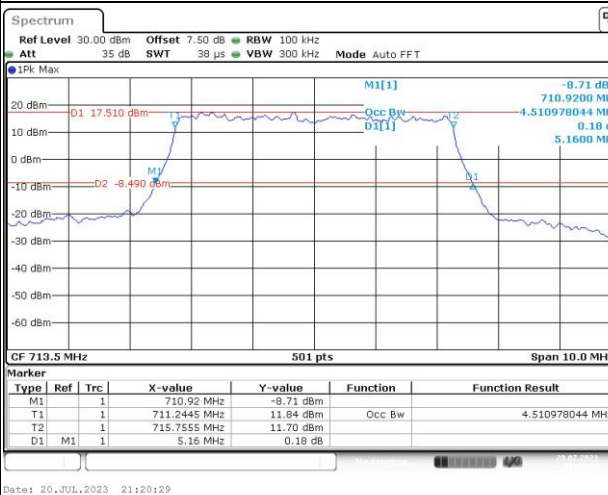
Lowest



Middle



Highest



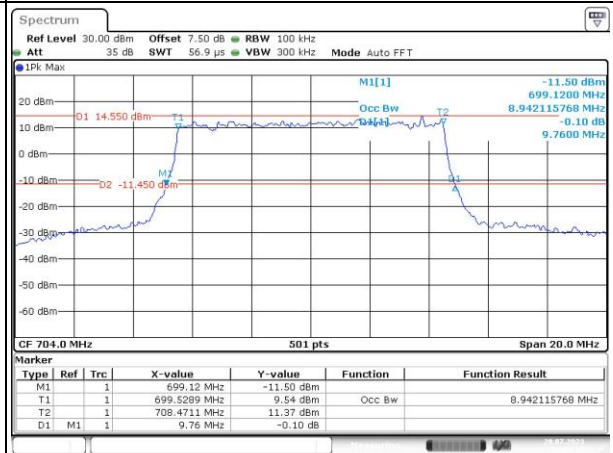
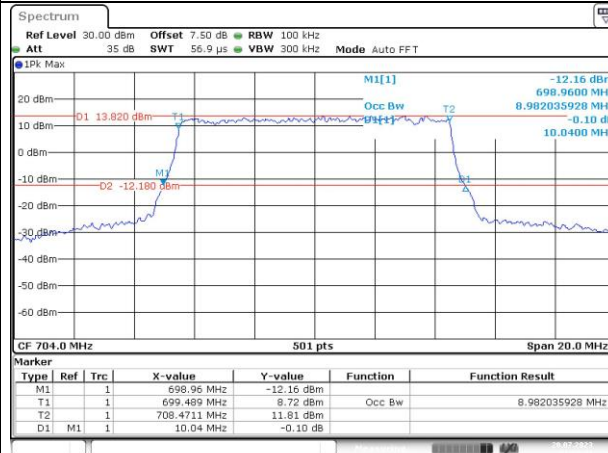
Occupied Bandwidth

Channel

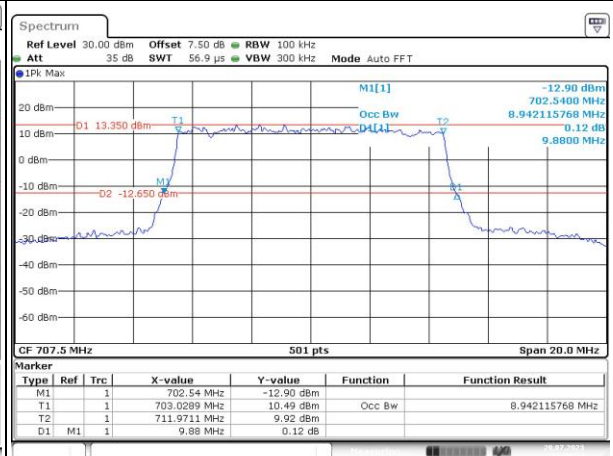
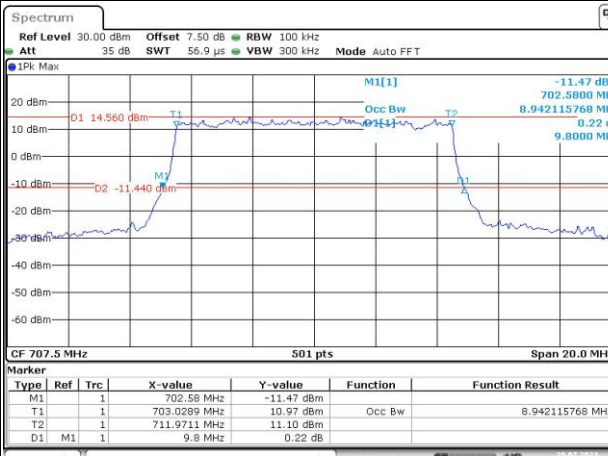
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

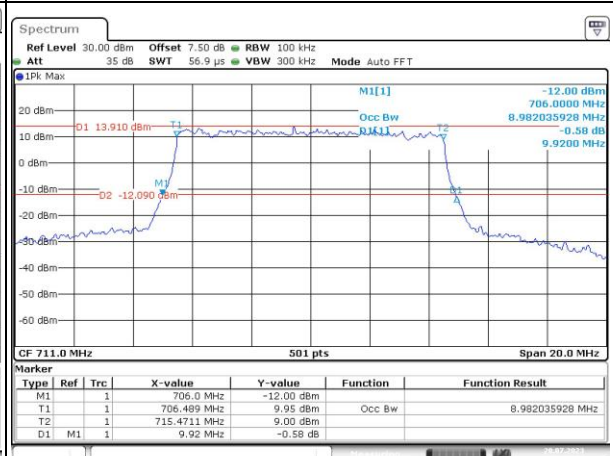
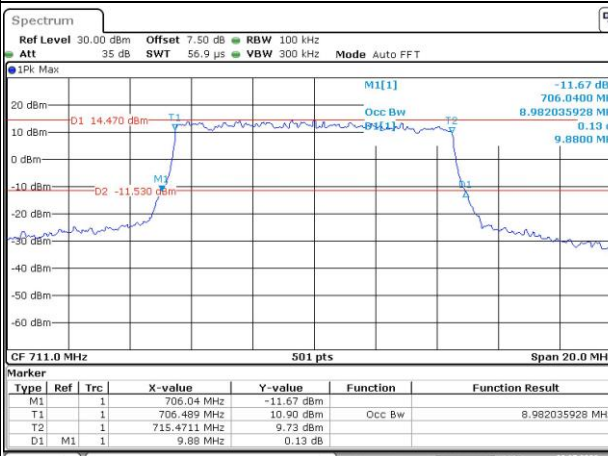
Lowest



Middle



Highest

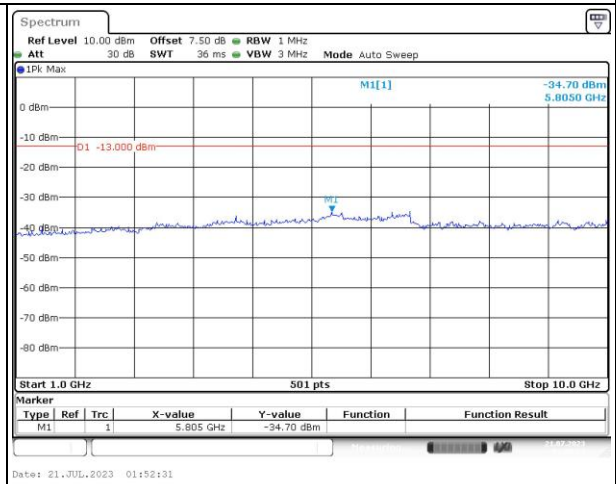
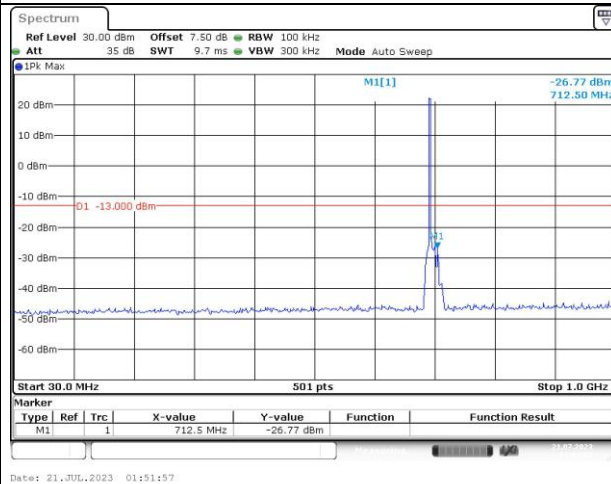


Spurious Emissions at Antenna Terminal

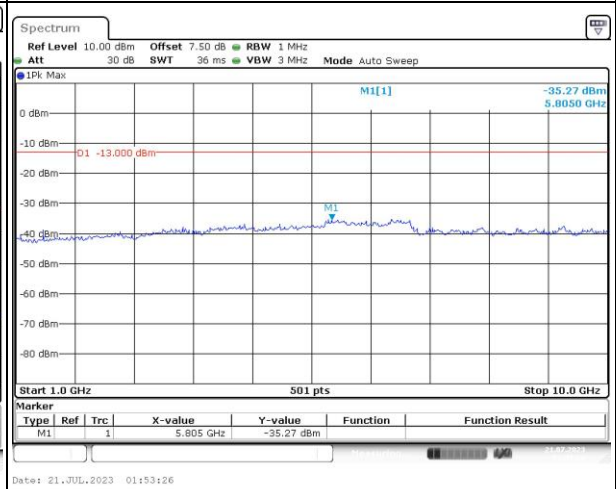
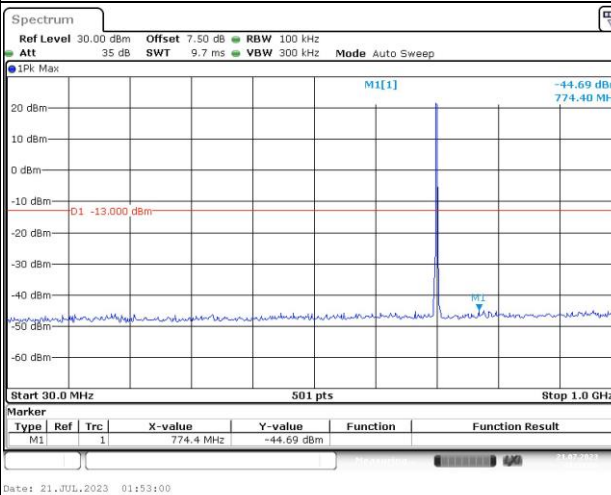
Channel

1.4MHz Bandwidth QPSK

Lowest



Middle



Highest

