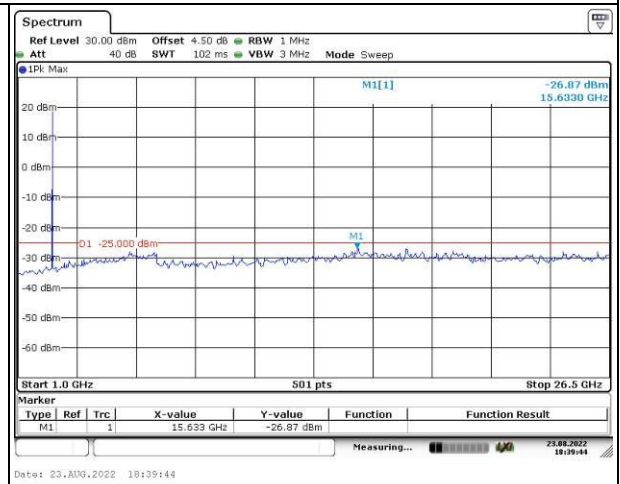
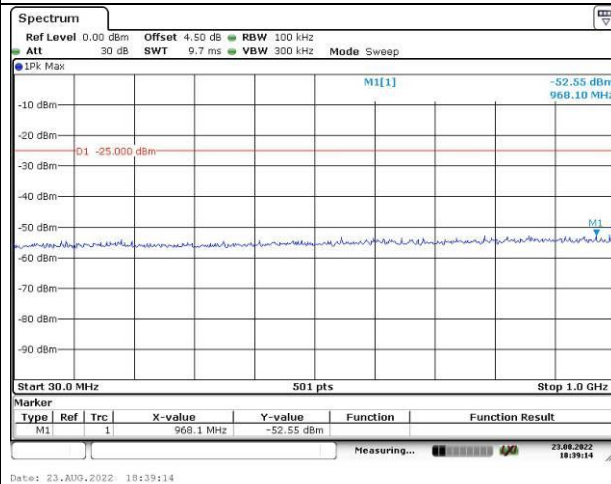


Spurious Emissions at Antenna Terminal

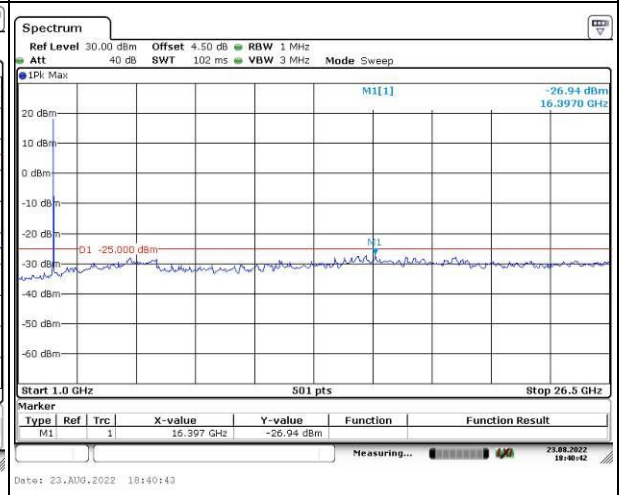
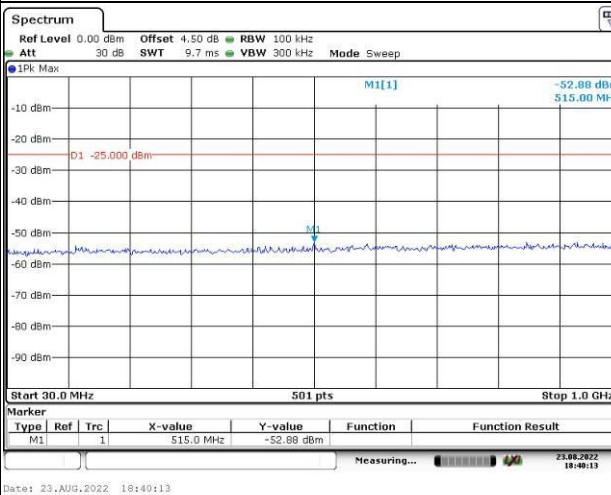
Channel

5MHz Bandwidth QPSK

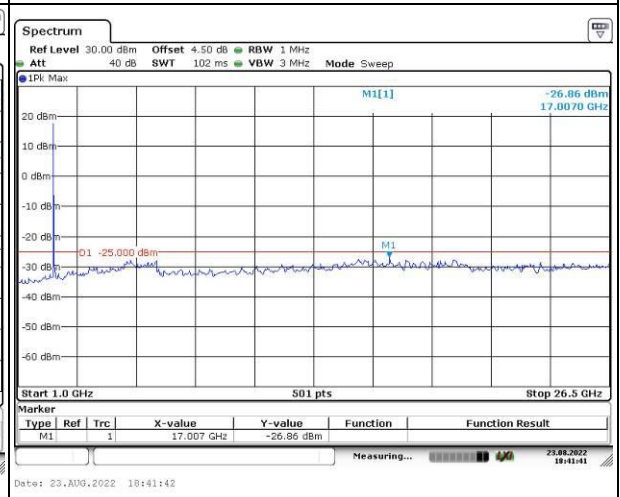
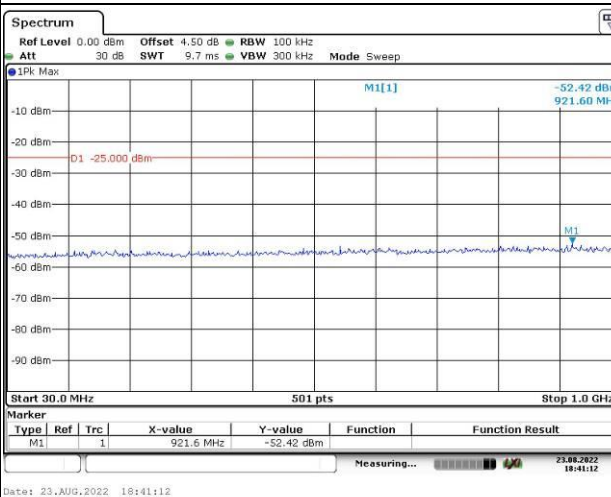
Lowest



Middle



Highest

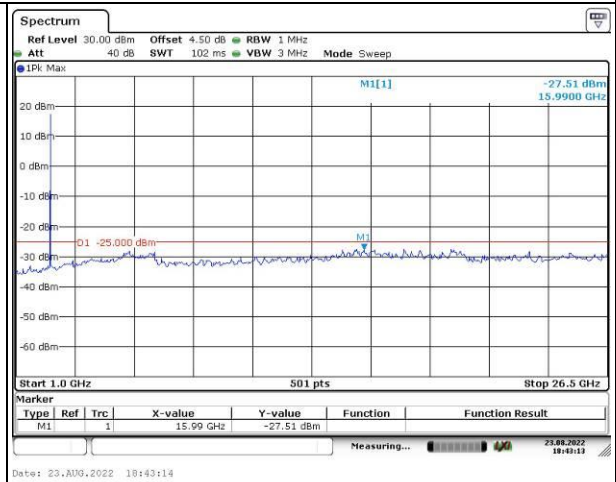
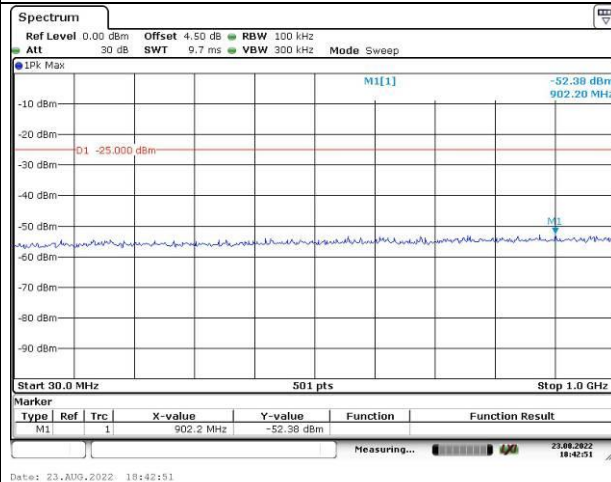


Spurious Emissions at Antenna Terminal

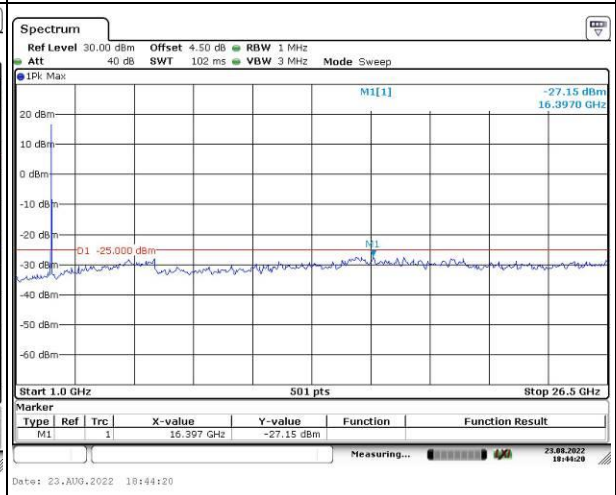
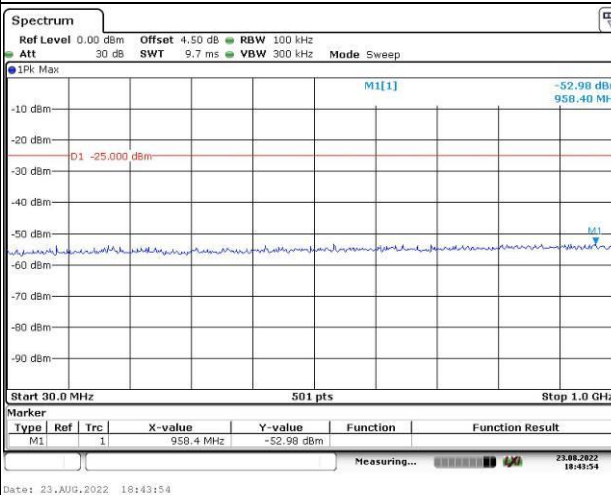
Channel

10MHz Bandwidth QPSK

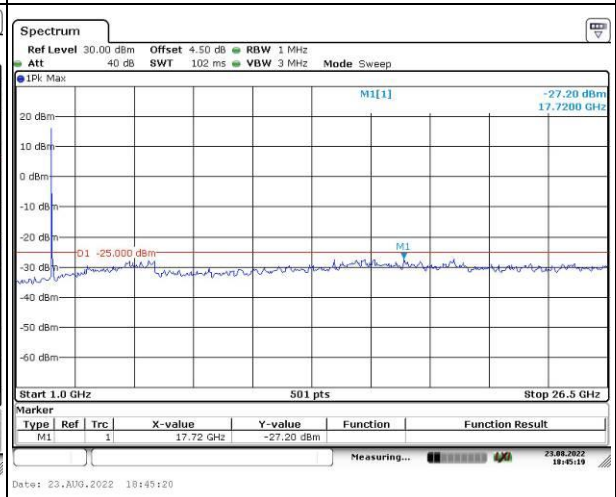
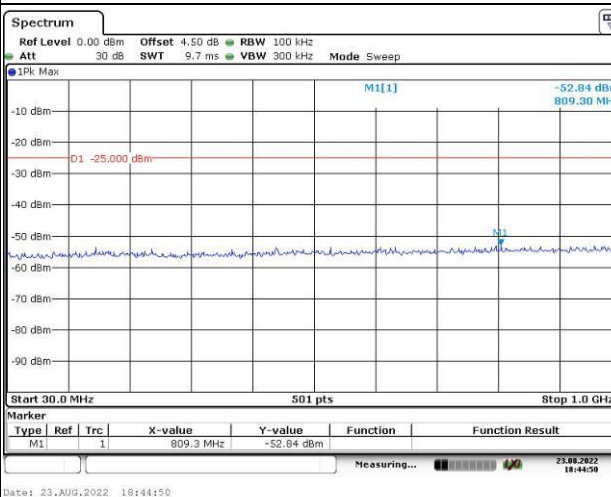
Lowest



Middle



Highest

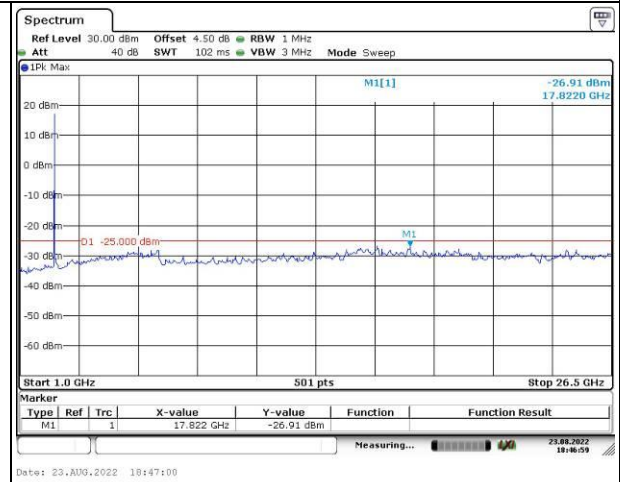
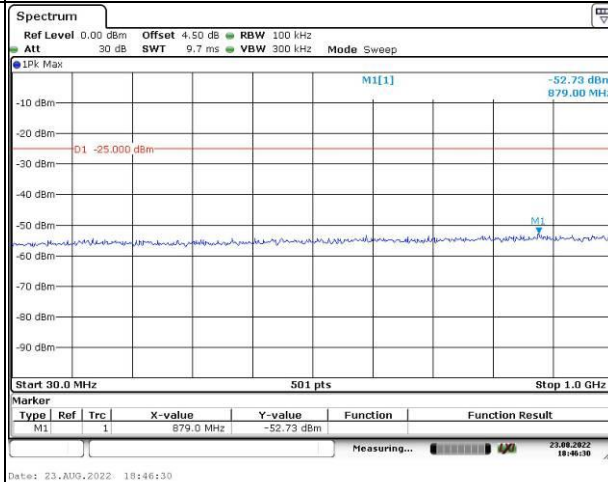


Spurious Emissions at Antenna Terminal

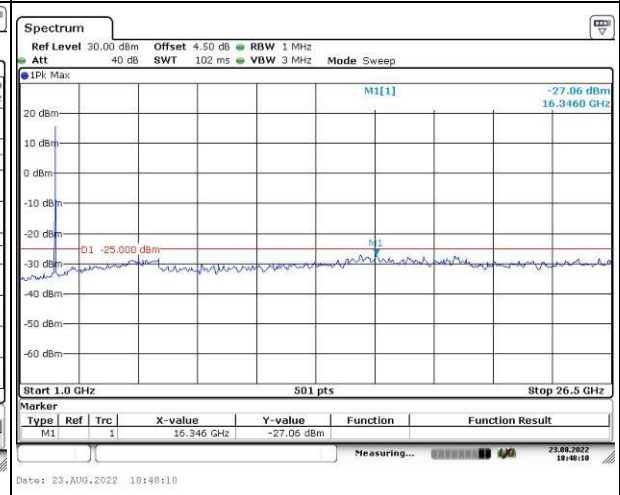
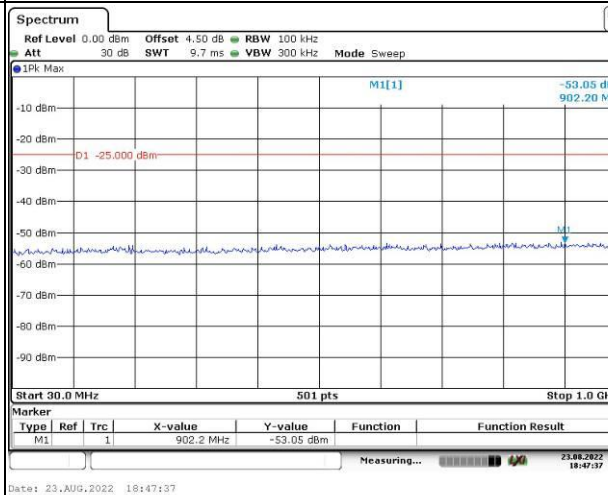
Channel

15MHz Bandwidth QPSK

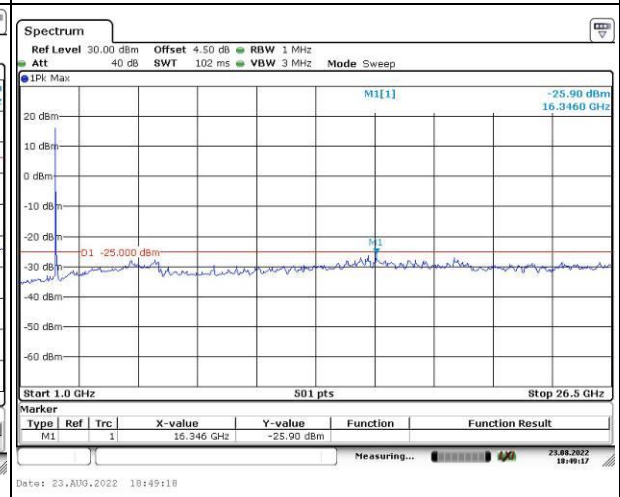
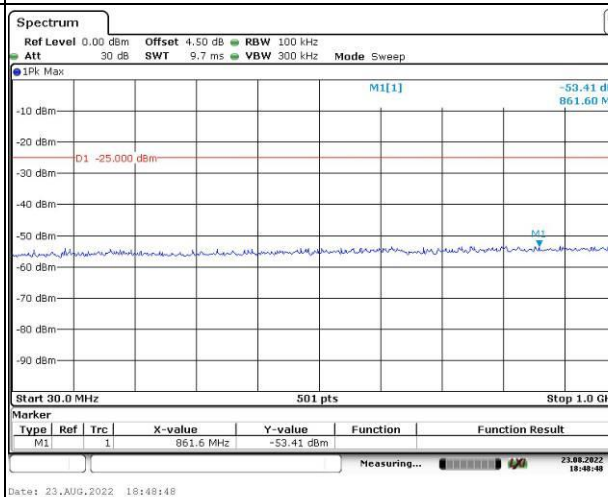
Lowest



Middle



Highest

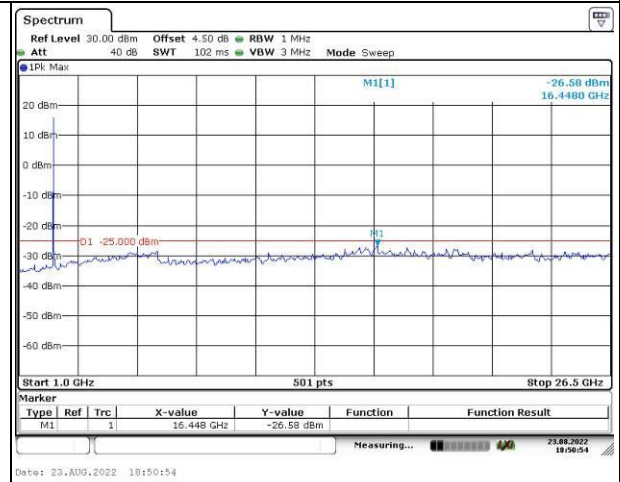
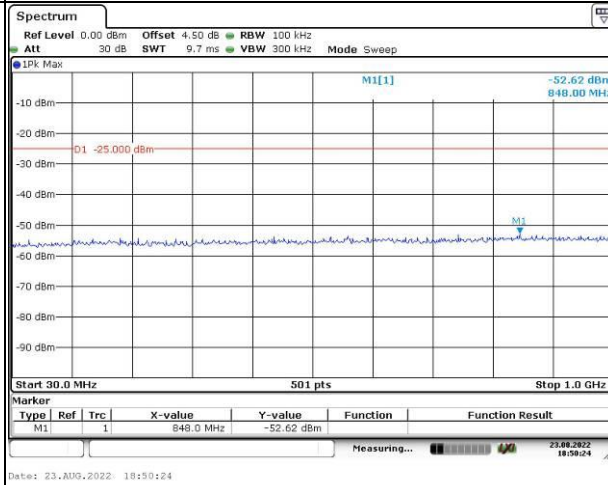


Spurious Emissions at Antenna Terminal

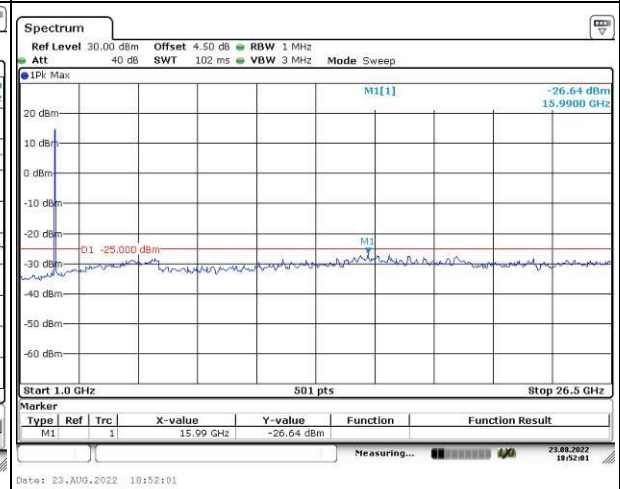
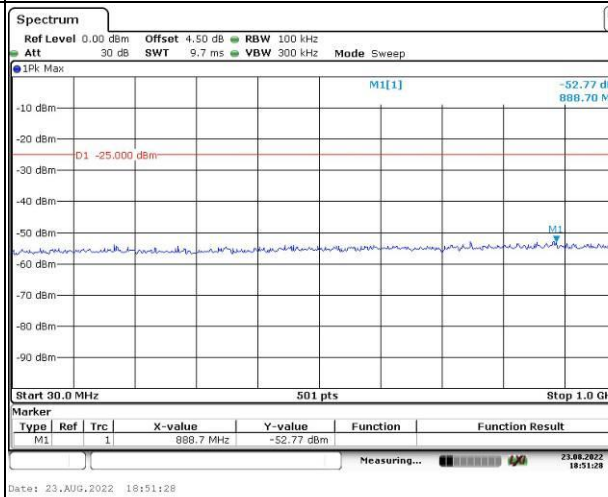
Channel

20MHz Bandwidth QPSK

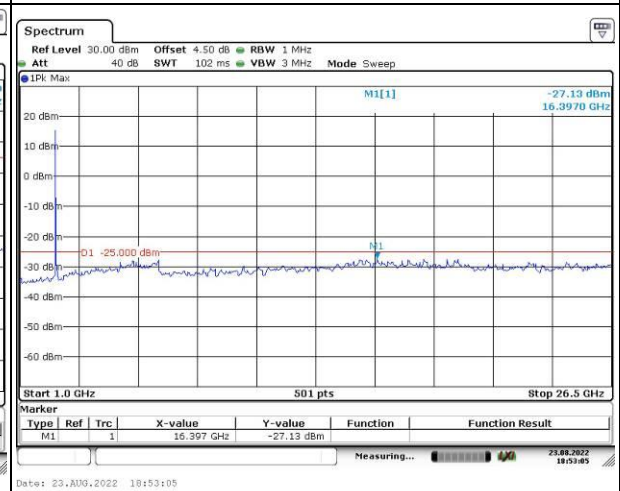
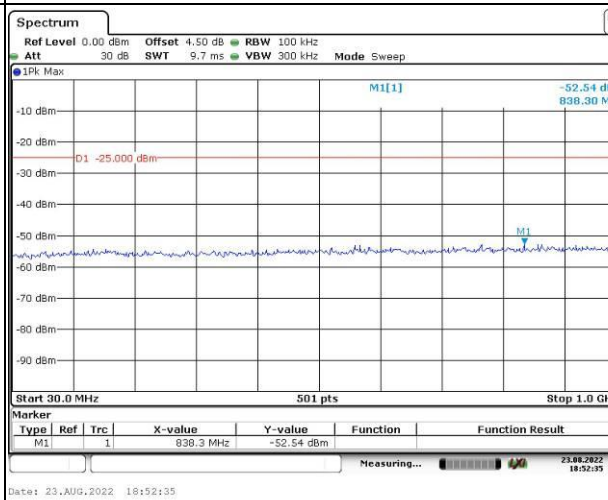
Lowest



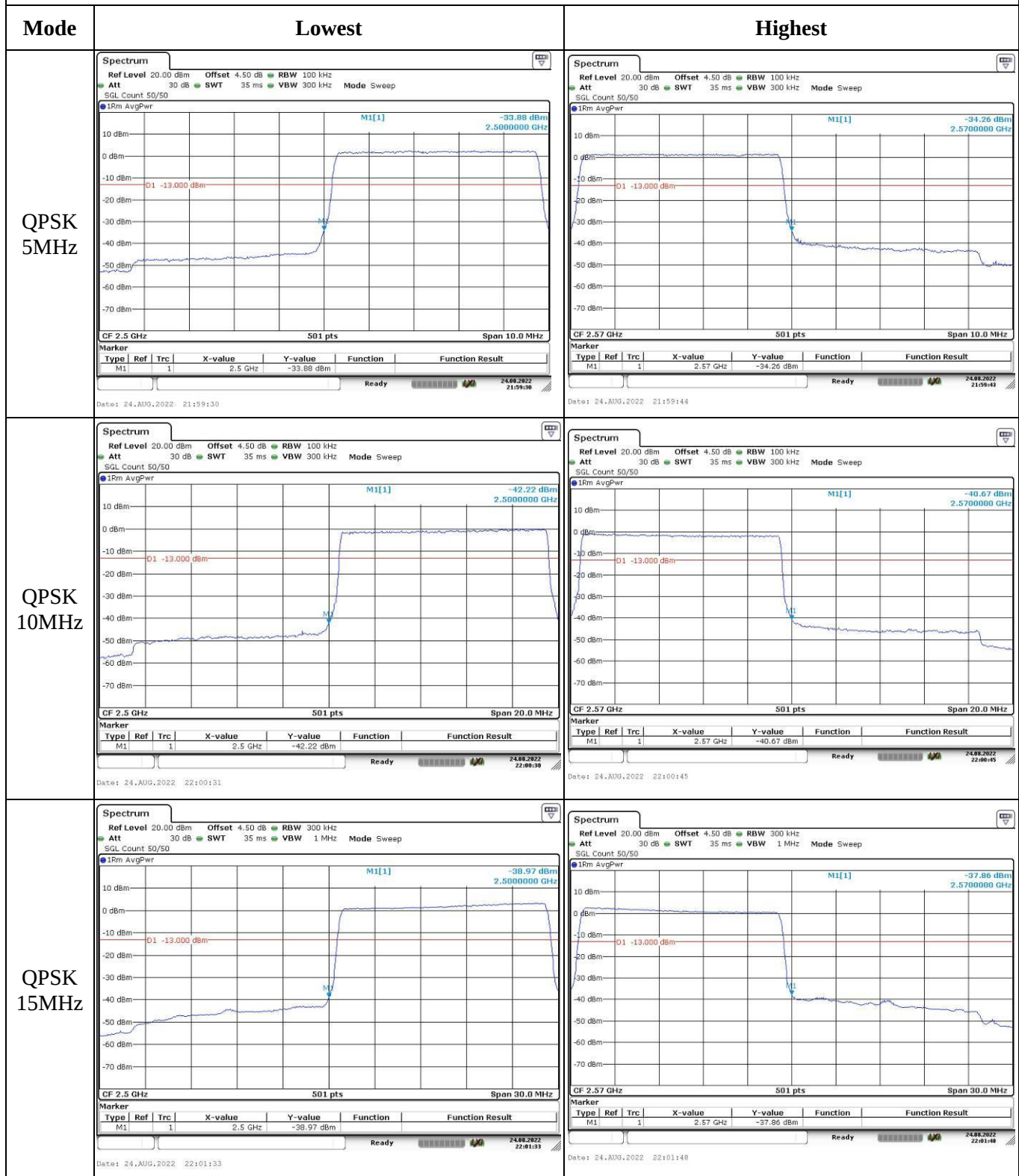
Middle



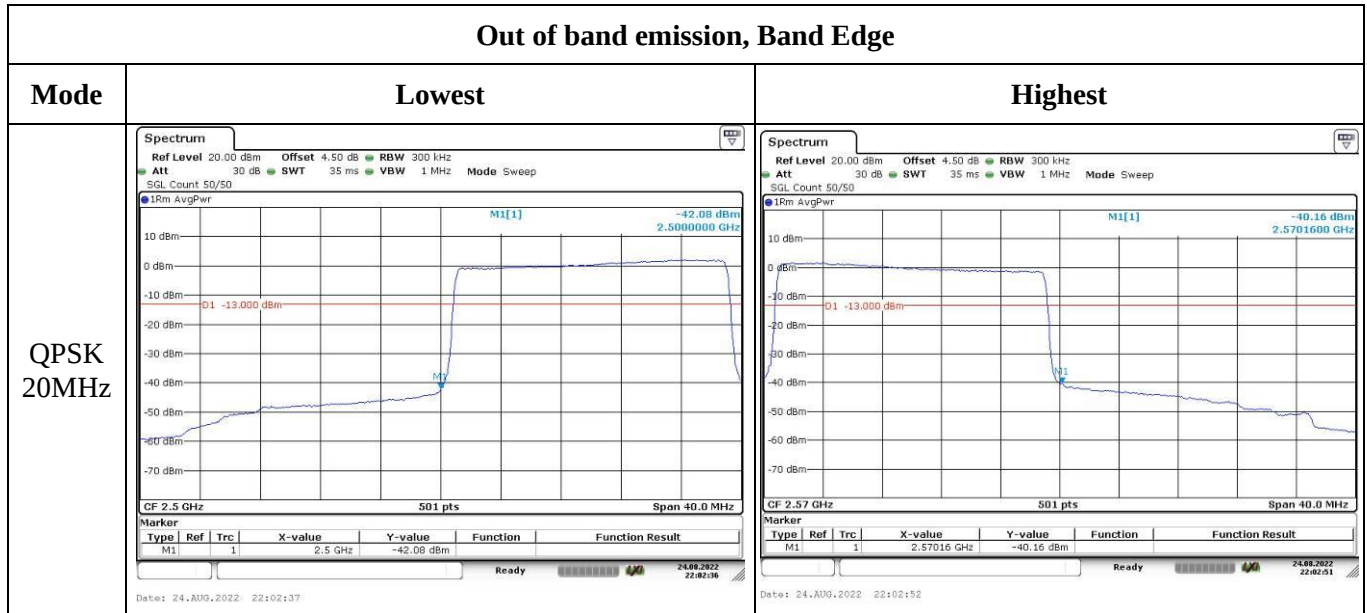
Highest



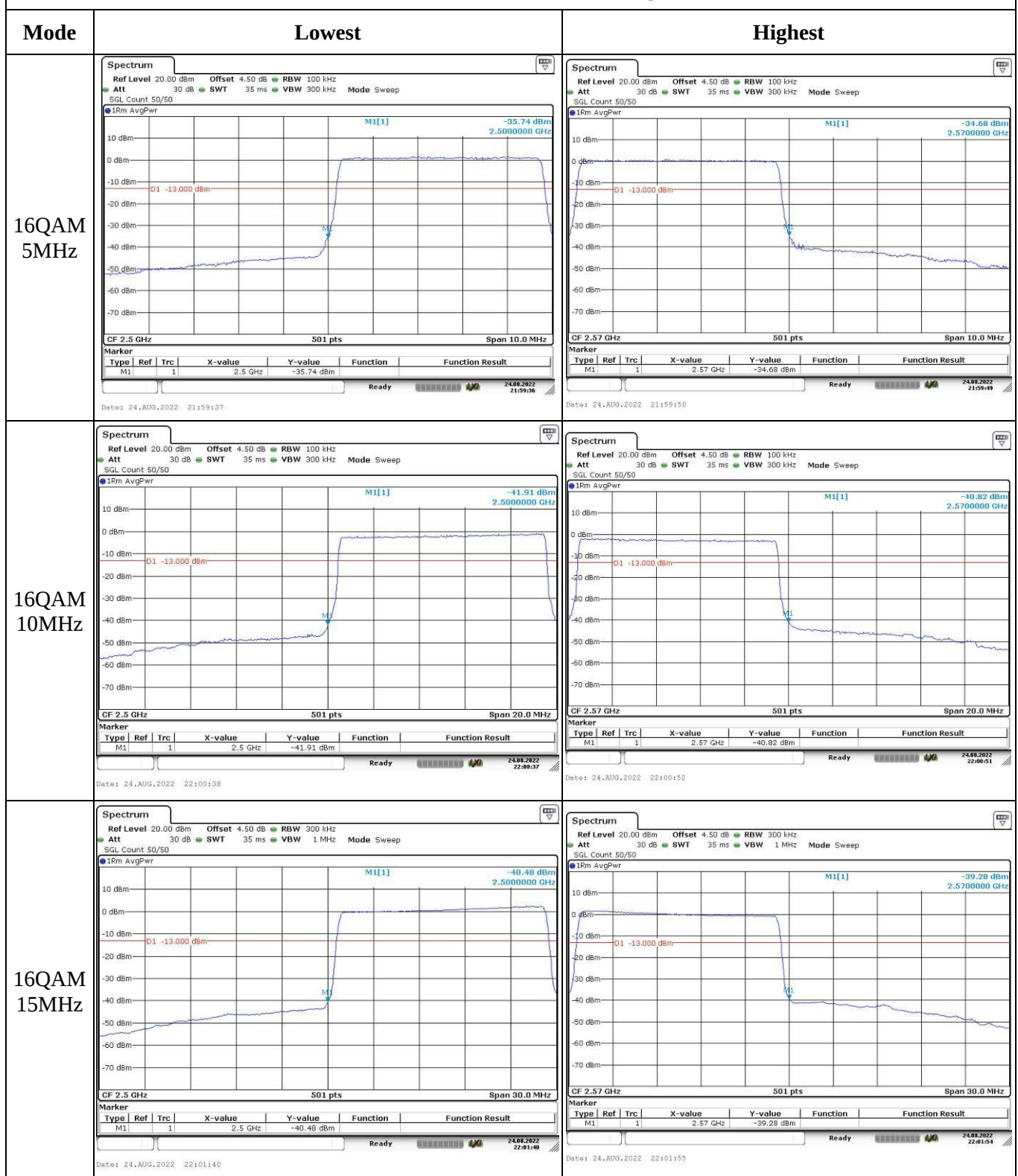
Out of band emission, Band Edge



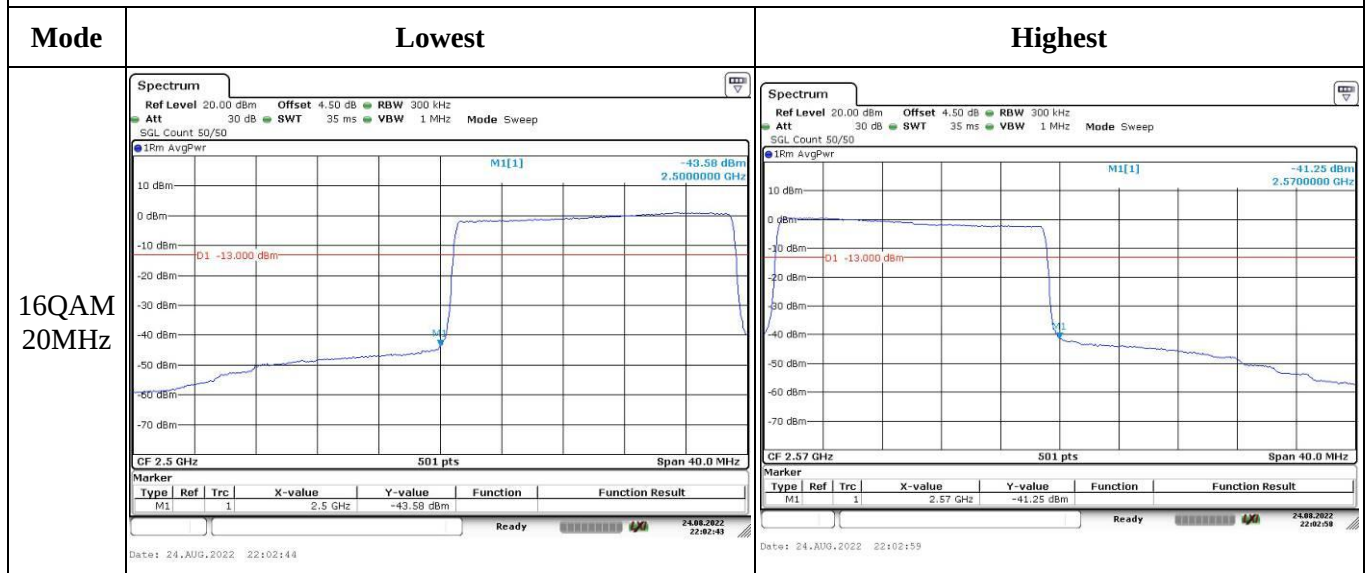
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.9 Antenna Port Test Data and Results for LTE Band 12

Serial Number:	CR22070052-RF-S1	Test Date:	2022-08-23~2022-08-25
Test Site:	RF	Test Mode:	Transmitting
Tester:	George Chen	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.3~25.8	Relative Humidity: (%)	51~59	ATM Pressure: (kPa)	100.2~100.8
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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	211002	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100003	Each time	N/A
Unknown	Coaxial tee connector	Unknown	2204004	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	2022-04-06	2023-04-05
UNI-T	Multimeter	UT39A+	C210582554	2021-09-30	2022-09-29
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).

EUT Information@ LTE Band 12▲:

Antenna Gain (dBi):	-2.7	Antenna Gain (dBd):	-4.85	Path Loss L _C (dB):	0.2
Operation Voltage(V _{DC}):					
Lowest:	3.5	Normal:	3.85	Highest:	4.4

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	22.44	22.4	22.37	17.51	34.77
	RB1#3	22.54	22.56	22.5		
	RB1#5	22.41	22.36	22.39		
	RB3#0	22.54	22.43	22.46		
	RB3#3	22.53	22.44	22.37		
	RB6#0	21.5	21.45	21.41		
1.4MHz 16QAM	RB1#0	21.61	21.37	21.29	16.68	34.77
	RB1#3	21.73	21.55	21.41		
	RB1#5	21.55	21.37	21.29		
	RB3#0	21.45	21.45	21.55		
	RB3#3	21.48	21.46	21.52		
	RB6#0	20.57	20.36	20.42		
3MHz QPSK	RB1#0	22.57	22.45	22.45	17.52	34.77
	RB1#8	22.48	22.4	22.42		
	RB1#14	22.54	22.37	22.45		
	RB6#0	21.45	21.41	21.37		
	RB6#9	21.44	21.38	21.46		
	RB15#0	21.51	21.38	21.41		
3MHz 16QAM	RB1#0	21.54	21.92	21.57	16.87	34.77
	RB1#8	21.53	21.86	21.55		
	RB1#14	21.54	21.9	21.48		
	RB6#0	20.41	20.43	20.41		
	RB6#9	20.43	20.43	20.44		
	RB15#0	20.54	20.43	20.39		
5MHz QPSK	RB1#0	22.43	22.35	22.32	17.51	34.77
	RB1#13	22.56	22.45	22.47		
	RB1#24	22.46	22.36	22.35		
	RB15#0	21.62	21.31	21.52		
	RB15#10	21.59	21.32	21.58		
	RB25#0	21.57	21.32	21.52		
5MHz 16QAM	RB1#0	21.72	21.45	21.24	16.82	34.77
	RB1#13	21.87	21.48	21.37		
	RB1#24	21.77	21.4	21.23		
	RB15#0	20.62	20.3	20.58		
	RB15#10	20.57	20.33	20.64		
	RB25#0	20.6	20.33	20.57		
10MHz QPSK	RB1#0	22.46	22.38	22.4	17.6	34.77
	RB1#25	22.65	22.62	22.58		
	RB1#49	22.48	22.4	22.48		

10MHz 16QAM	RB25#0	21.55	21.24	21.69	17	34.77
	RB25#25	21.78	21.21	21.52		
	RB50#0	21.68	21.21	21.64		
	RB1#0	21.44	21.96	21.48		
	RB1#25	21.66	22.05	21.73		
	RB1#49	21.48	22.01	21.56		
	RB25#0	20.66	20.22	20.65		
	RB25#25	20.83	20.24	20.55		
	RB50#0	20.7	20.22	20.65		

Note: ERP=Conducted Power(dBm) - Cable loss(dB) + Antenna Gain(dBd)

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	4.14	5.19	4.29	13
	RB50#0	5.13	4.87	5.07	13
10MHz 16QAM	RB1#0	4.93	6.06	5.33	13
	RB50#0	5.94	5.86	6.06	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	1.314	1.296	1.308
1.4MHz 16QAM	1.09	1.096	1.102	1.29	1.296	1.32
3MHz QPSK	2.683	2.683	2.683	2.88	2.868	2.892
3MHz 16QAM	2.683	2.683	2.683	2.892	2.868	2.88
5MHz QPSK	4.531	4.511	4.551	5.22	5.16	5.24
5MHz 16QAM	4.551	4.511	4.551	5.26	5.12	5.24
10MHz QPSK	8.982	8.942	8.982	9.92	9.88	9.96
10MHz 16QAM	9.022	8.942	8.982	9.96	9.76	9.88

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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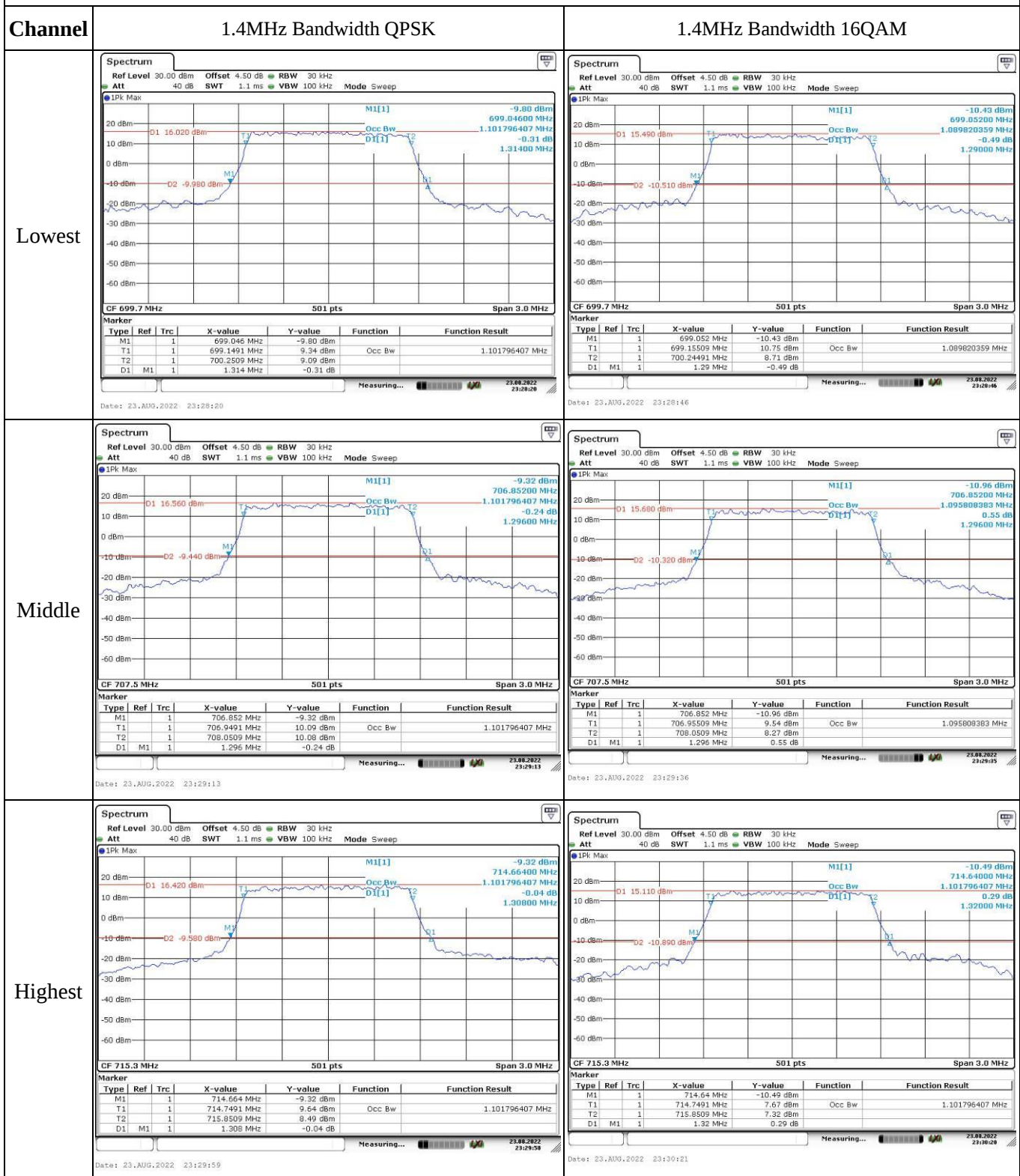
FCC §2.1055, §27.54: Frequency Stability

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	699.466	699.00	715.478	716.00
	-20	3.85	699.540	699.00	715.469	716.00
	-10	3.85	699.554	699.00	715.470	716.00
	0	3.85	699.530	699.00	715.467	716.00
	10	3.85	699.493	699.00	715.446	716.00
	20	3.85	699.529	699.00	715.471	716.00
	30	3.85	699.483	699.00	715.493	716.00
	40	3.85	699.466	699.00	715.466	716.00
	50	3.85	699.490	699.00	715.481	716.00
Frequency Stability vs. Voltage	20	3.5	699.549	699.00	715.477	716.00
	20	4.4	699.515	699.00	715.452	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	699.491	699.00	715.472	716.00
	-20	3.85	699.461	699.00	715.465	716.00
	-10	3.85	699.496	699.00	715.489	716.00
	0	3.85	699.431	699.00	715.515	716.00
	10	3.85	699.447	699.00	715.511	716.00
	20	3.85	699.489	699.00	715.511	716.00
	30	3.85	699.511	699.00	715.527	716.00
	40	3.85	699.489	699.00	715.499	716.00
	50	3.85	699.457	699.00	715.495	716.00
Frequency Stability vs. Voltage	20	3.5	699.433	699.00	715.502	716.00
	20	4.4	699.461	699.00	715.546	716.00
Result:					Pass	

Test Plots:

Occupied Bandwidth



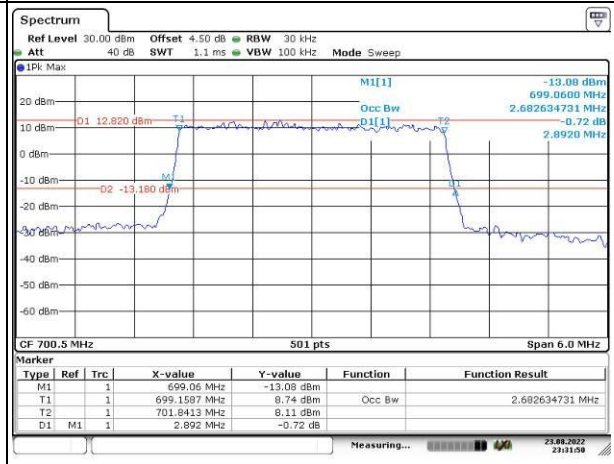
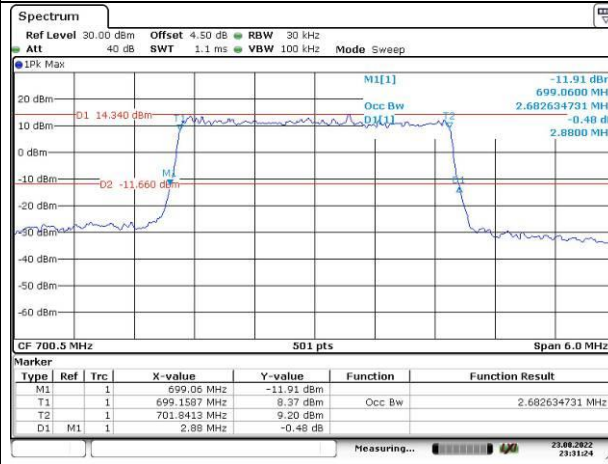
Occupied Bandwidth

Channel

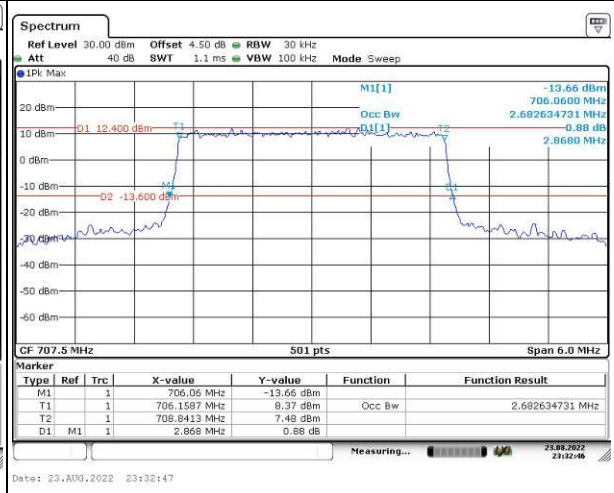
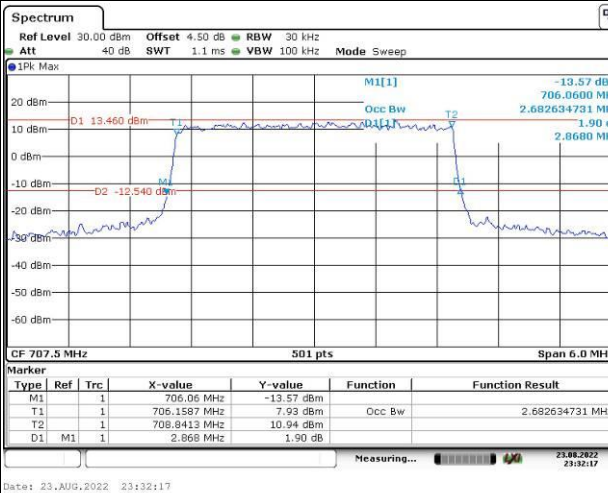
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

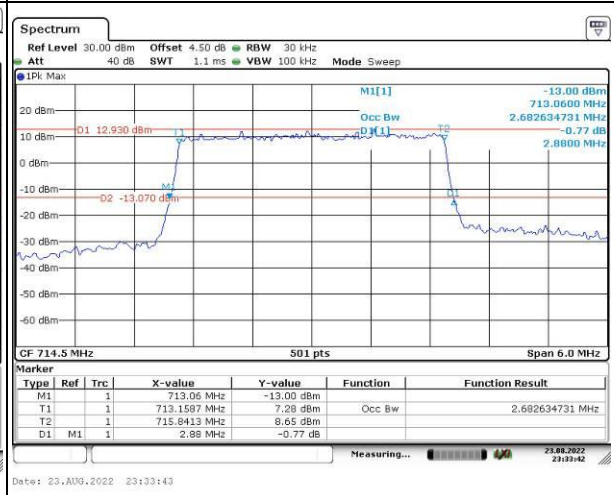
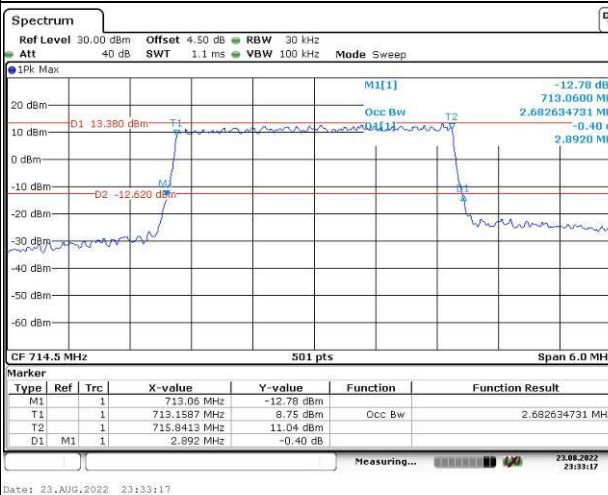
Lowest



Middle



Highest



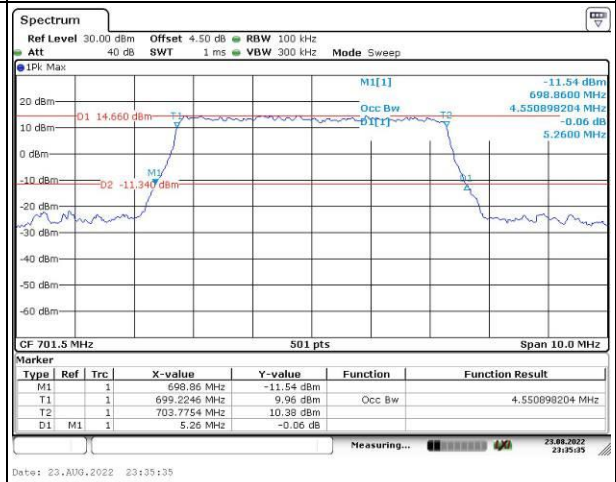
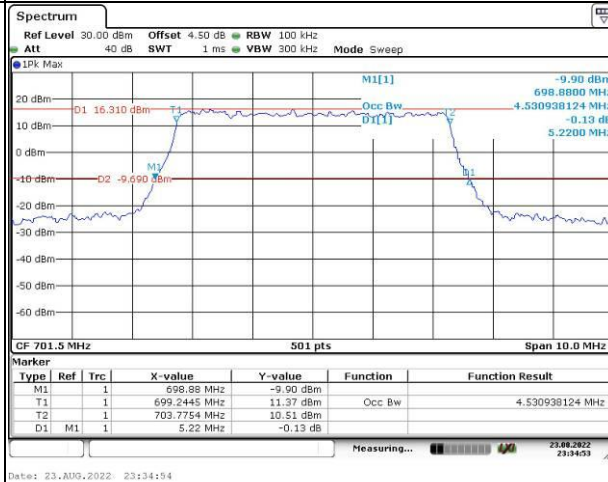
Occupied Bandwidth

Channel

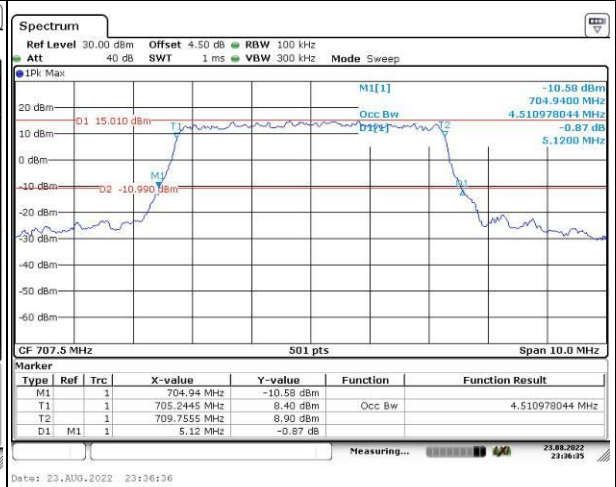
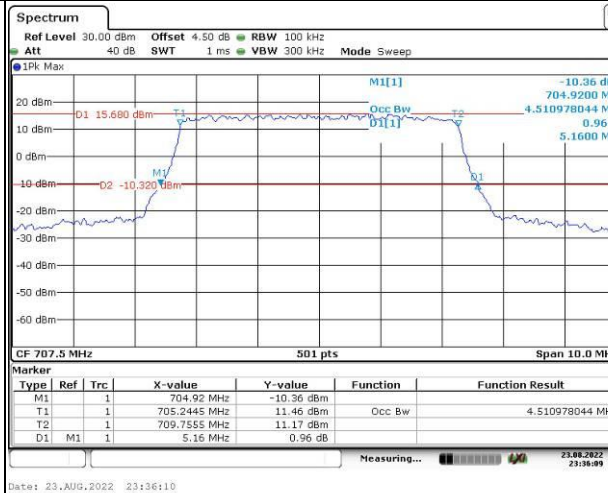
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

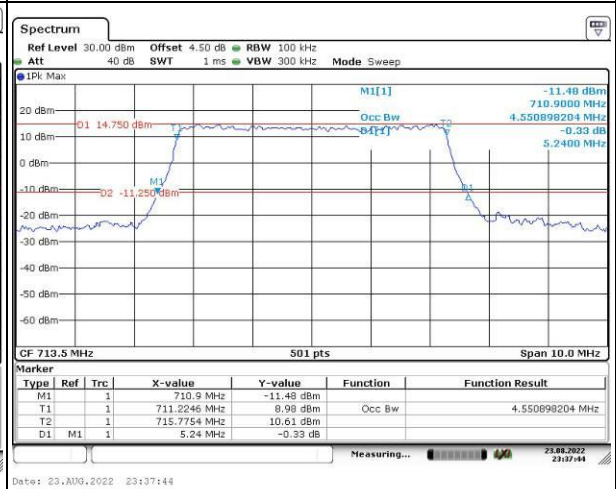
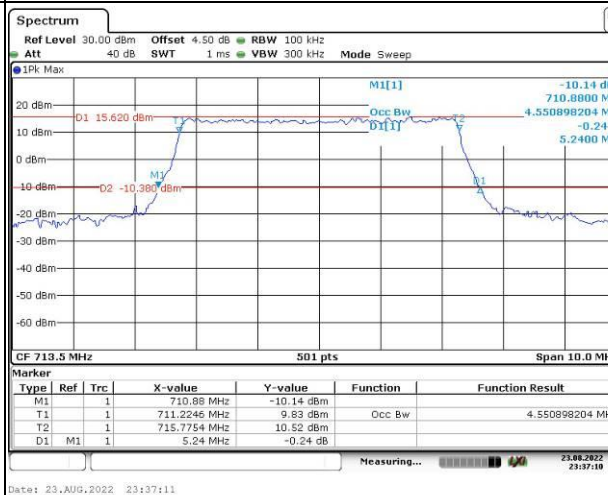
Lowest



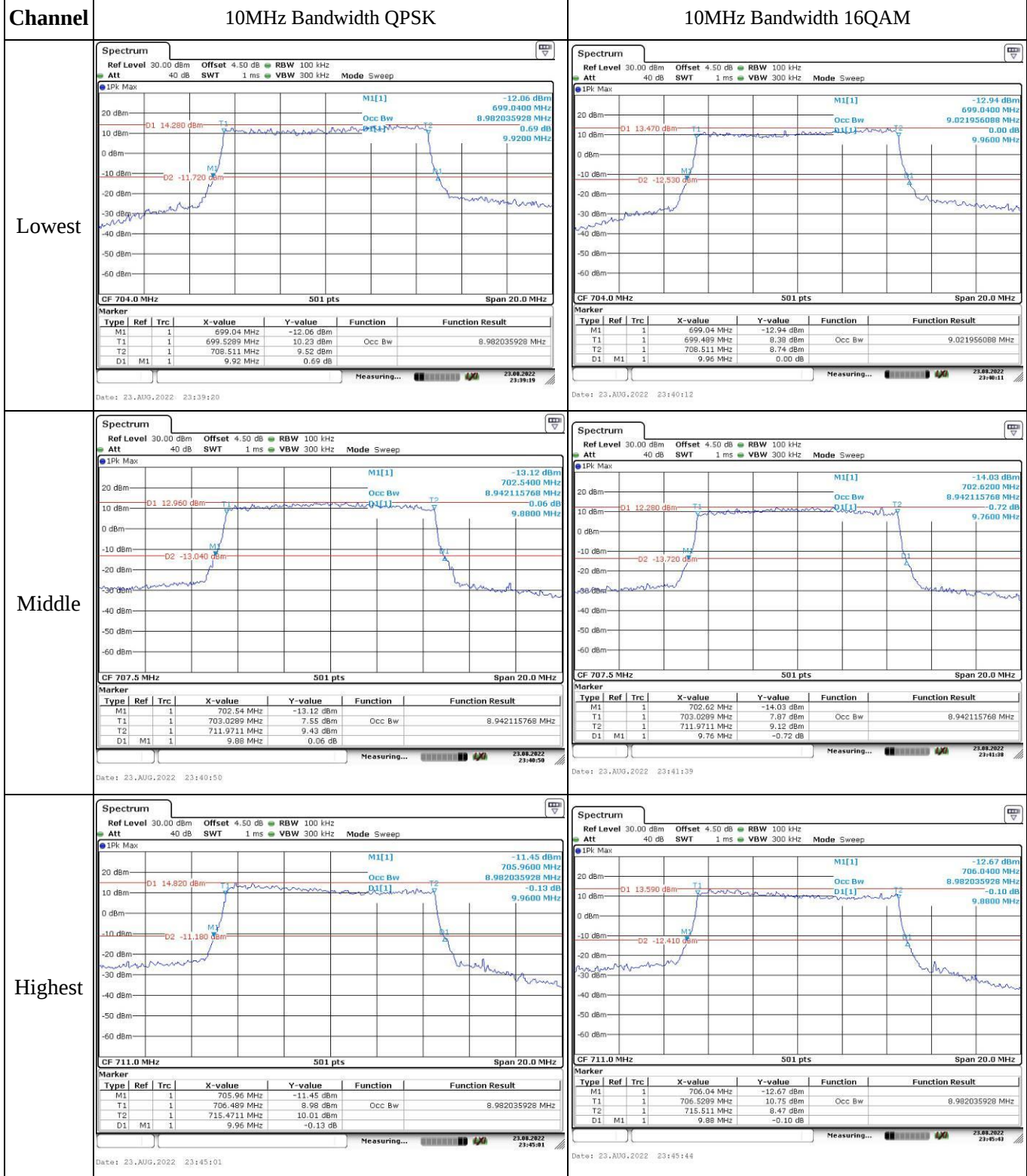
Middle



Highest



Occupied Bandwidth

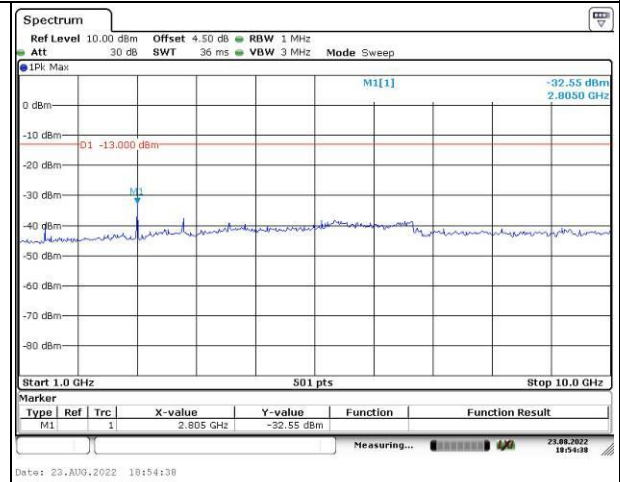
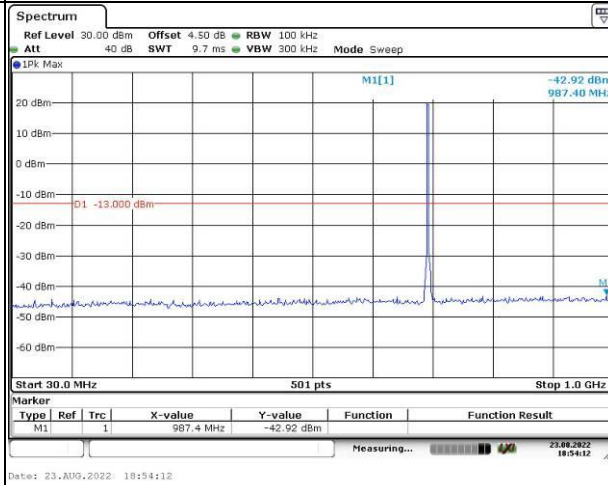


Spurious Emissions at Antenna Terminal

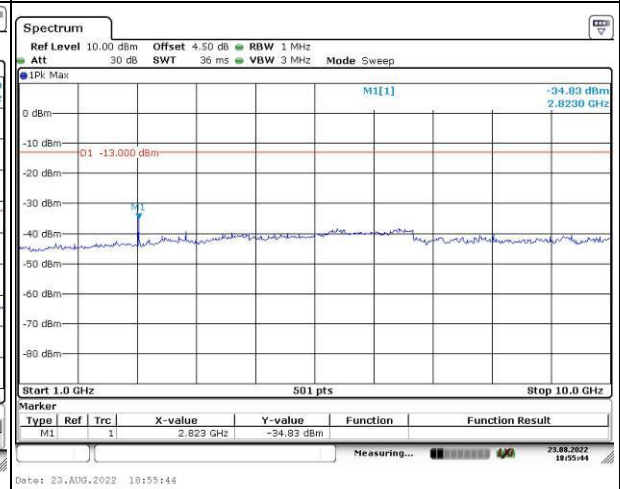
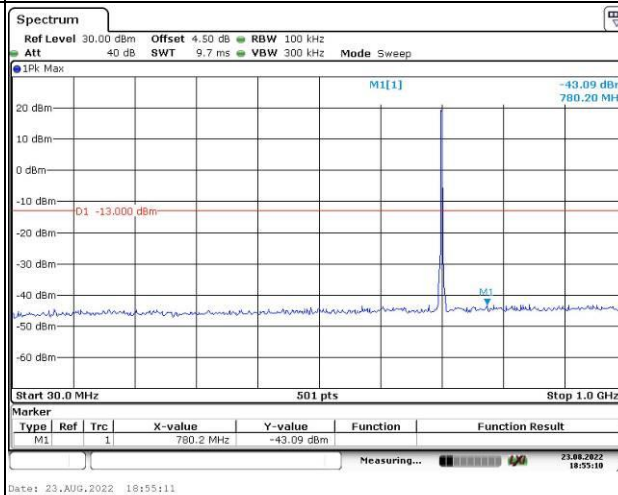
Channel

1.4MHz Bandwidth QPSK

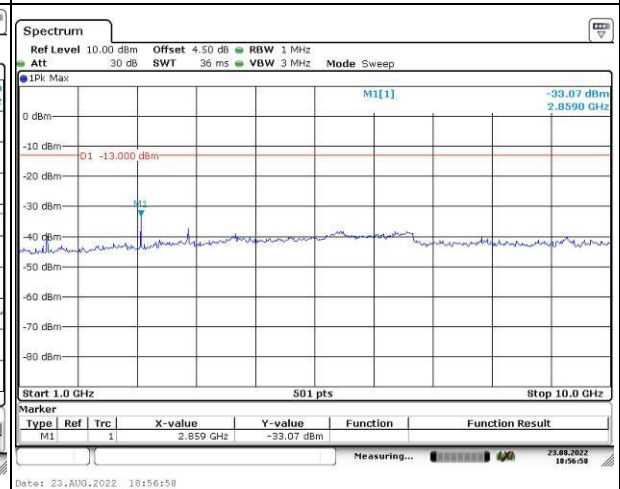
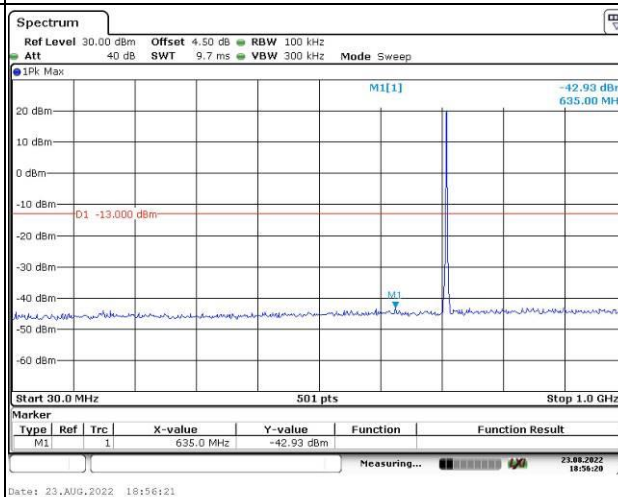
Lowest



Middle



Highest

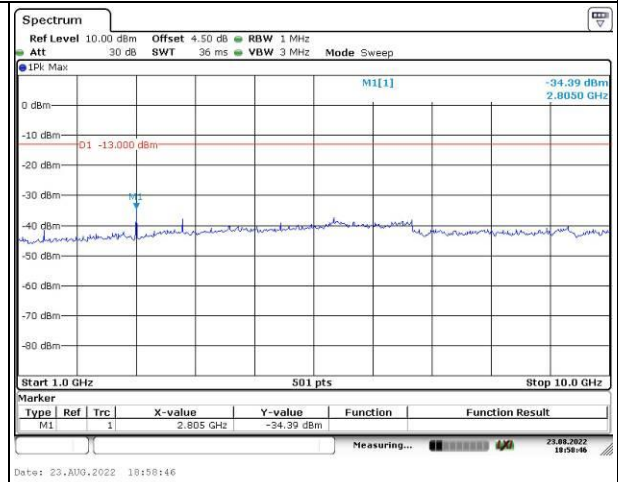
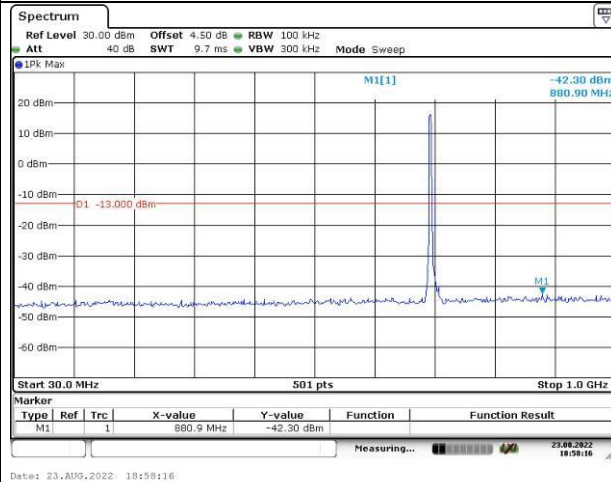


Spurious Emissions at Antenna Terminal

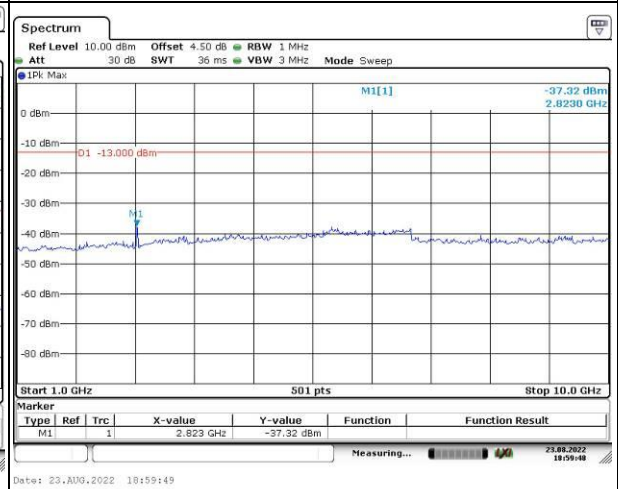
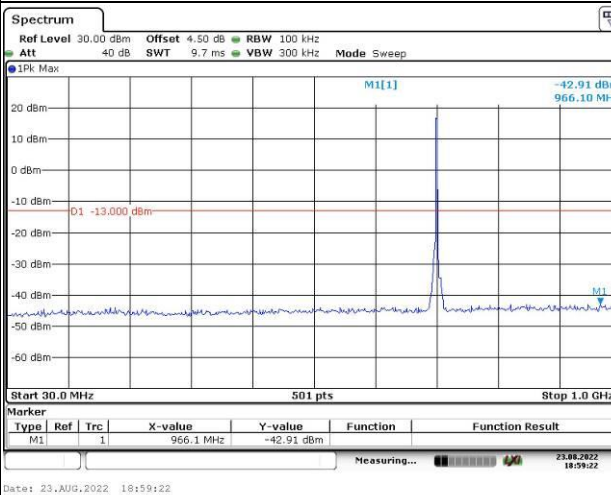
Channel

3MHz Bandwidth QPSK

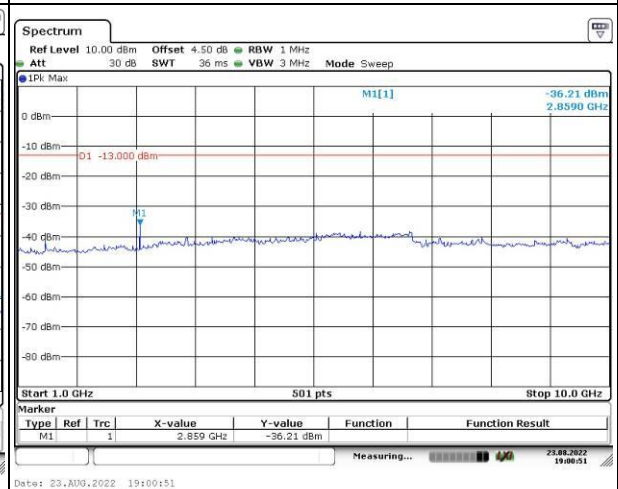
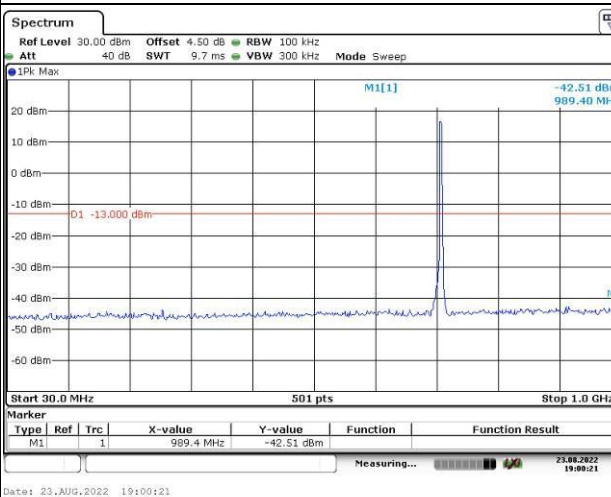
Lowest



Middle



Highest

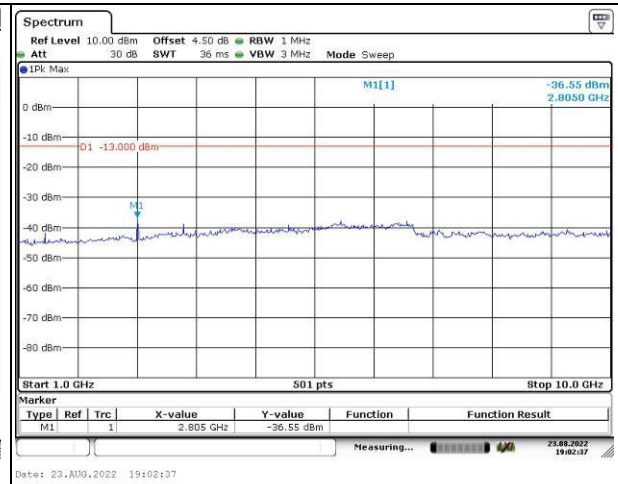
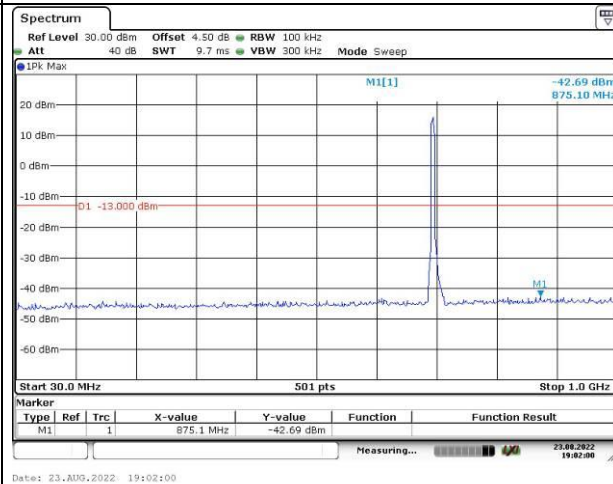


Spurious Emissions at Antenna Terminal

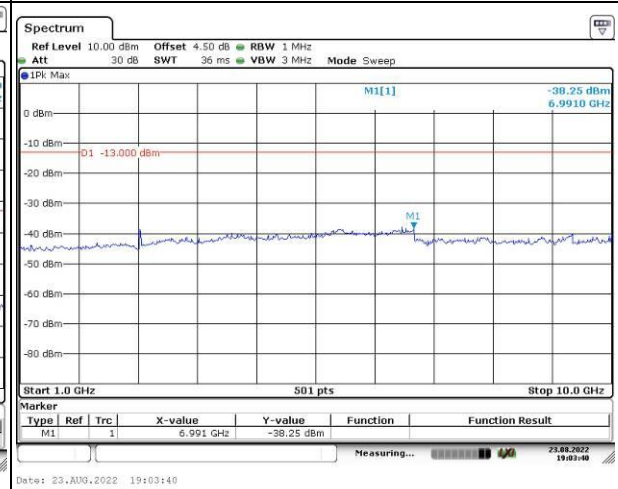
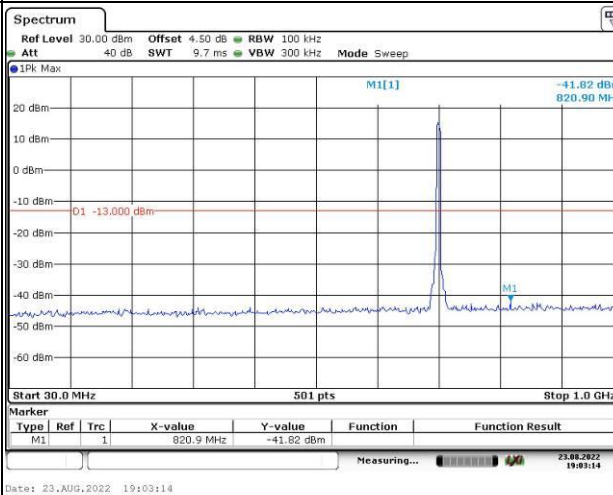
Channel

5MHz Bandwidth QPSK

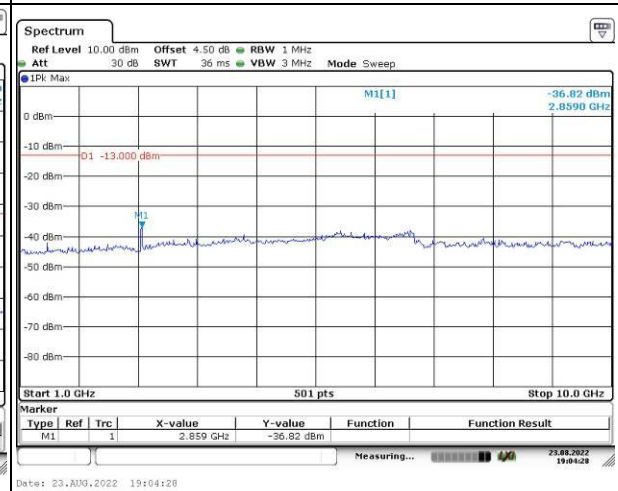
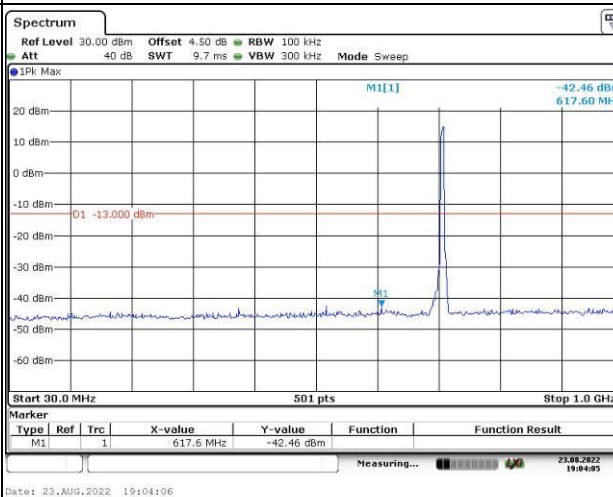
Lowest



Middle



Highest

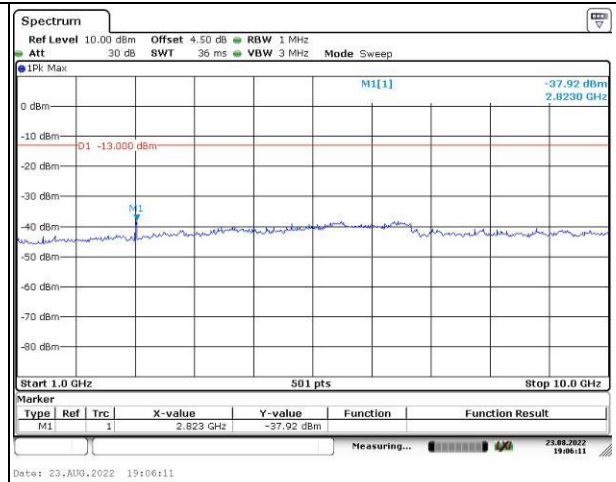
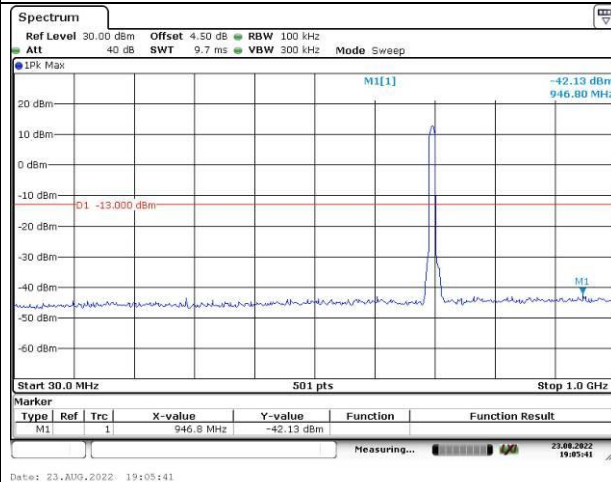


Spurious Emissions at Antenna Terminal

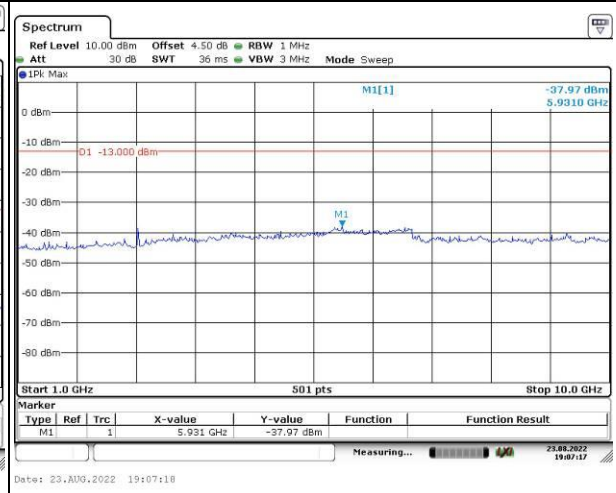
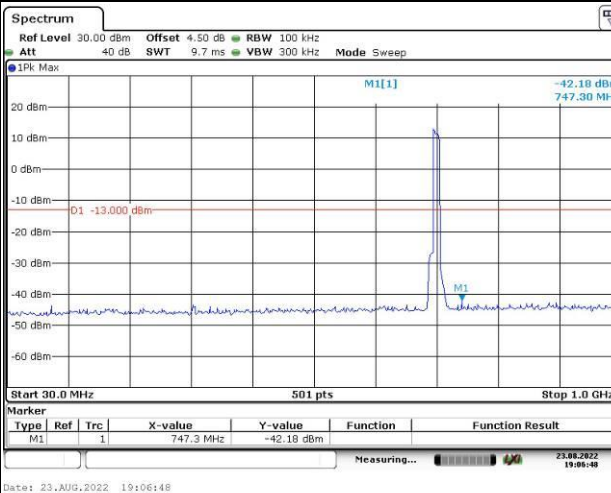
Channel

10MHz Bandwidth QPSK

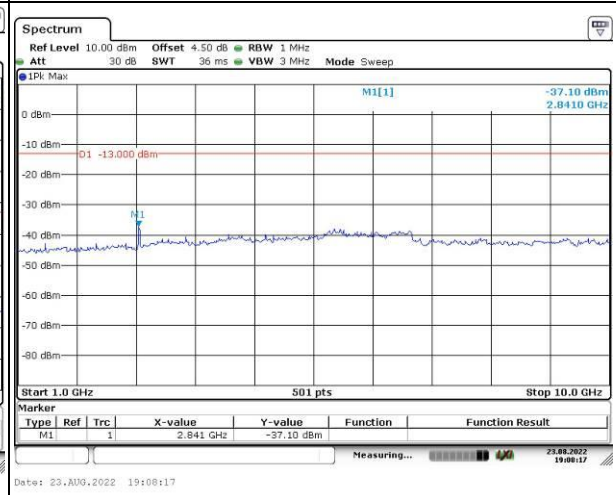
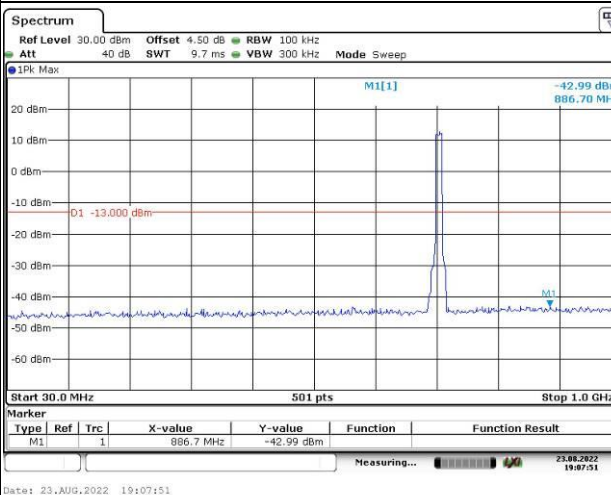
Lowest



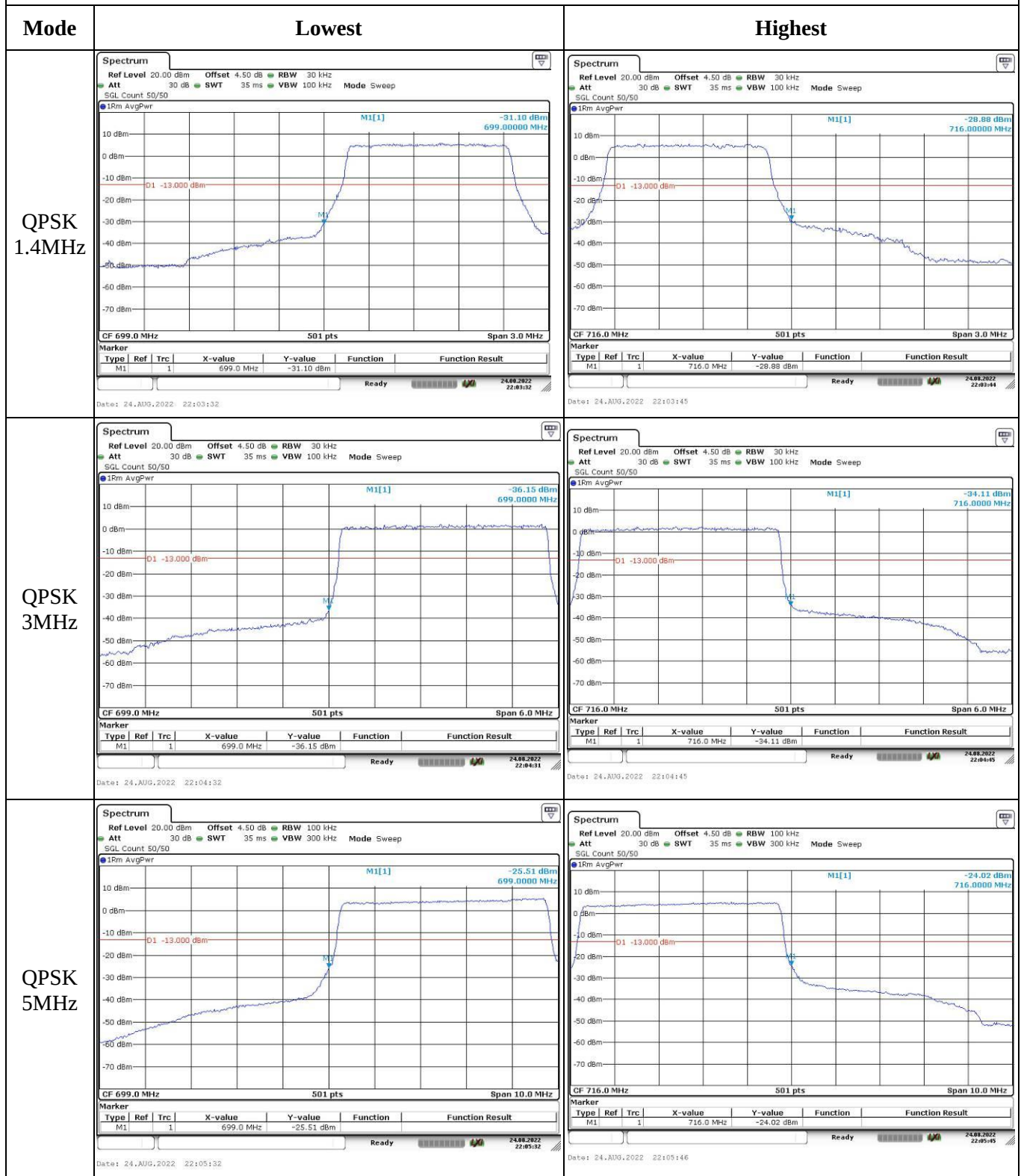
Middle



Highest



Out of band emission, Band Edge



Out of band emission, Band Edge

