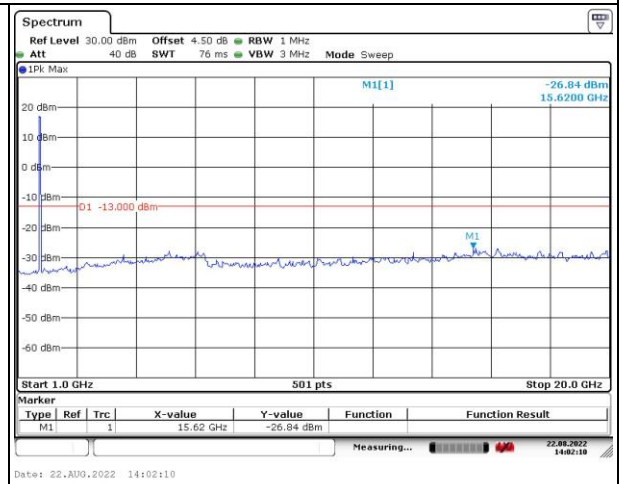
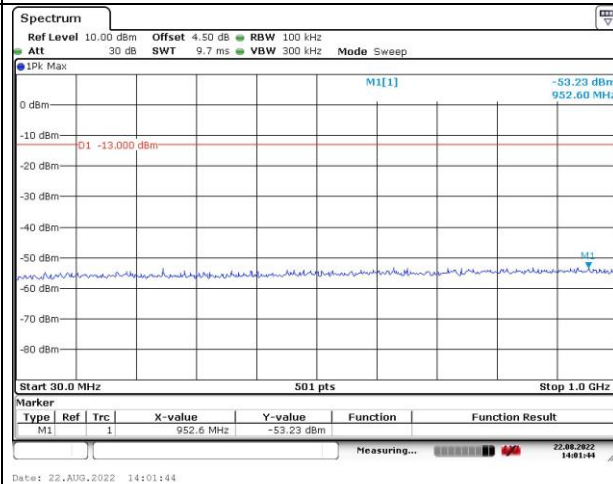


Spurious Emissions at Antenna Terminal

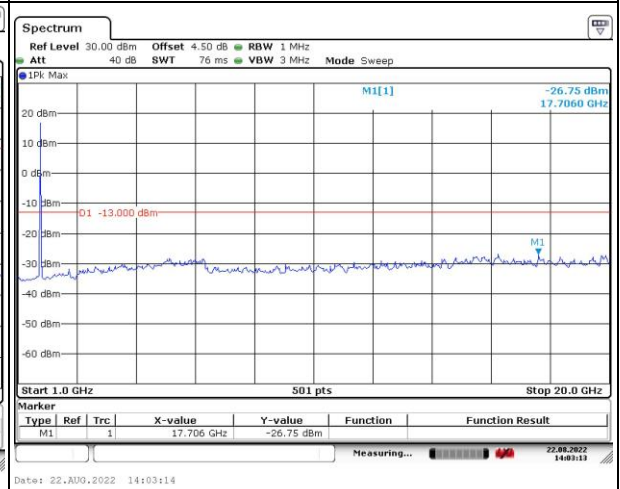
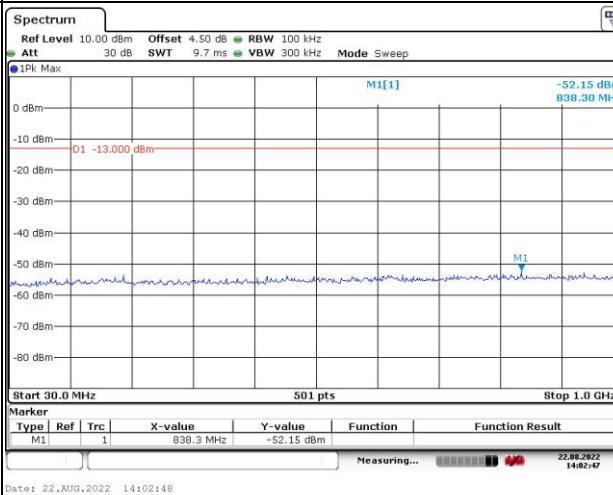
Channel

15MHz Bandwidth QPSK

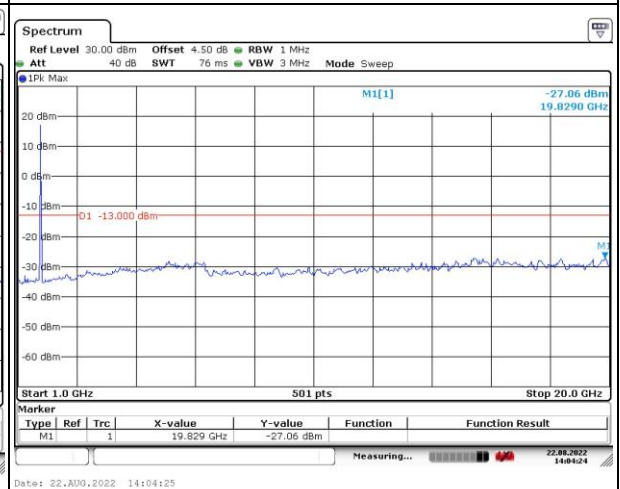
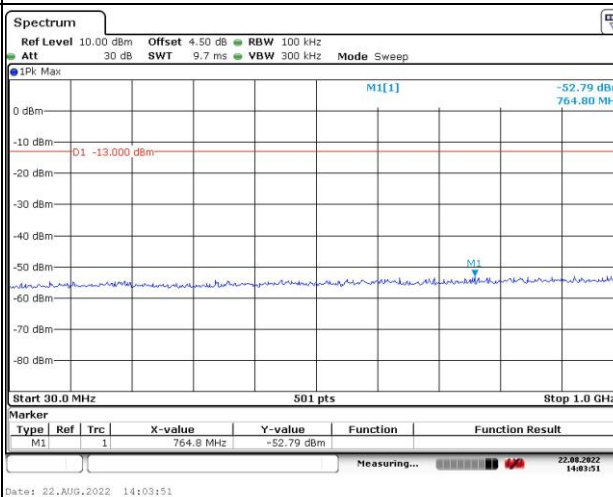
Lowest



Middle



Highest

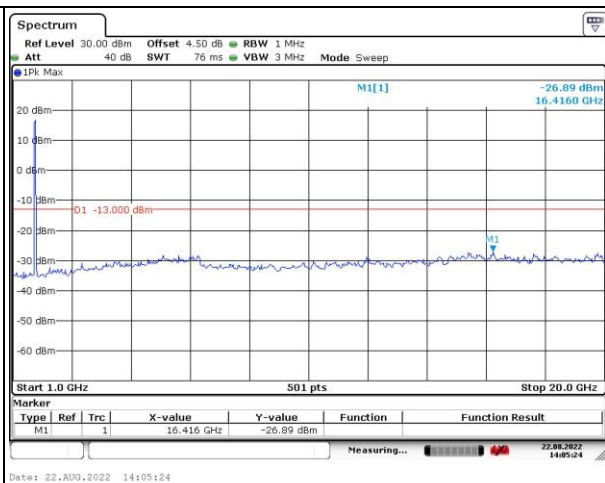
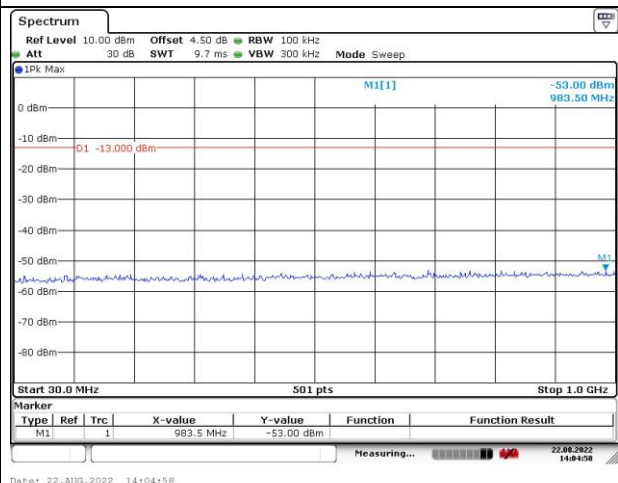


Spurious Emissions at Antenna Terminal

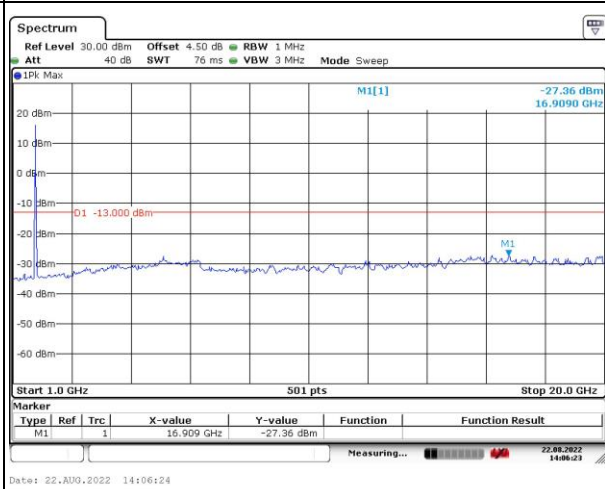
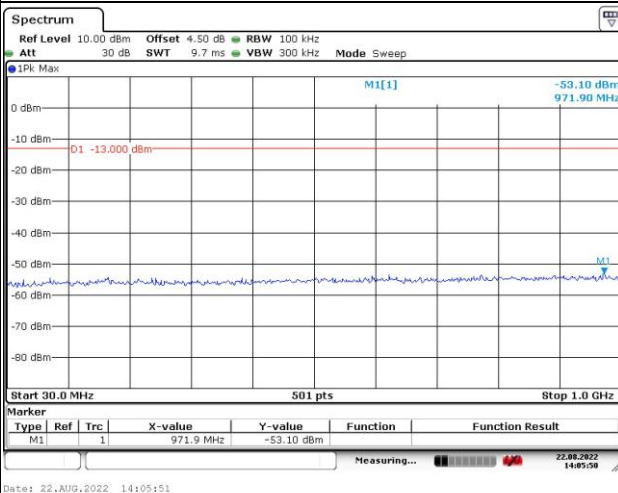
Channel

20MHz Bandwidth QPSK

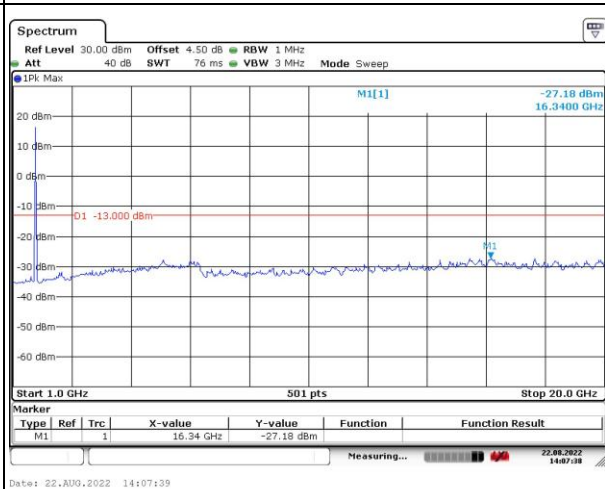
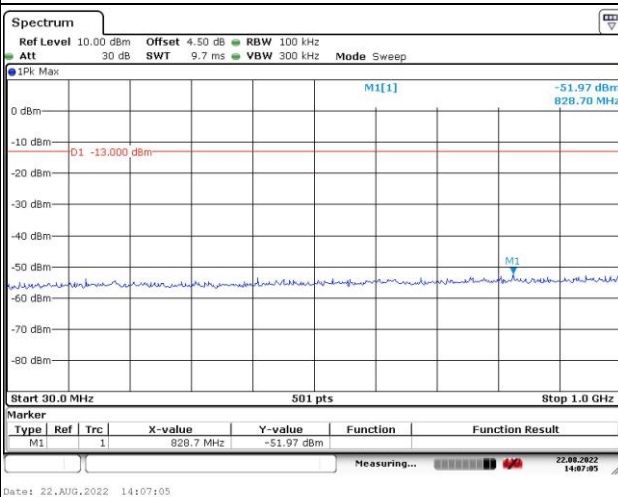
Lowest



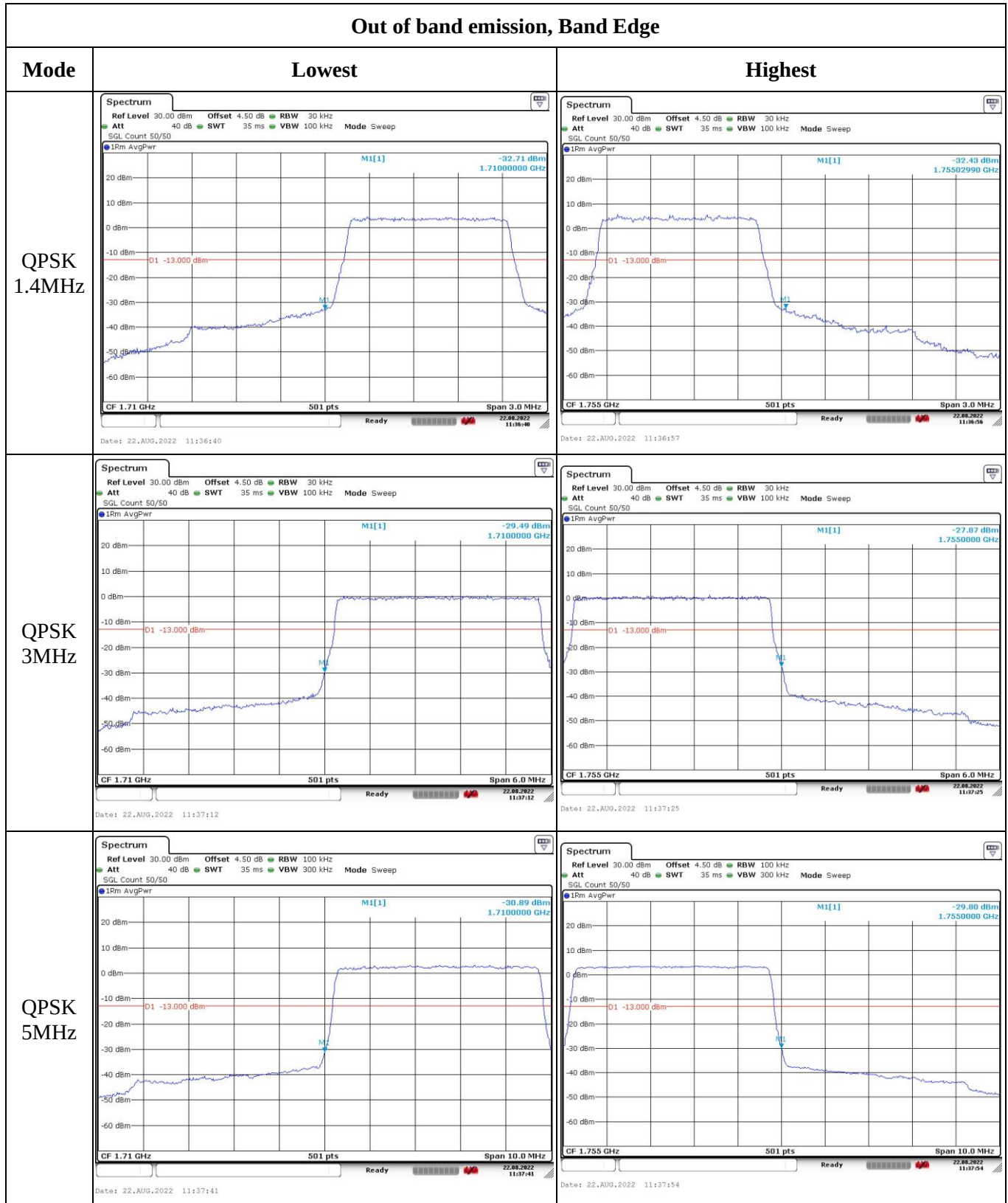
Middle



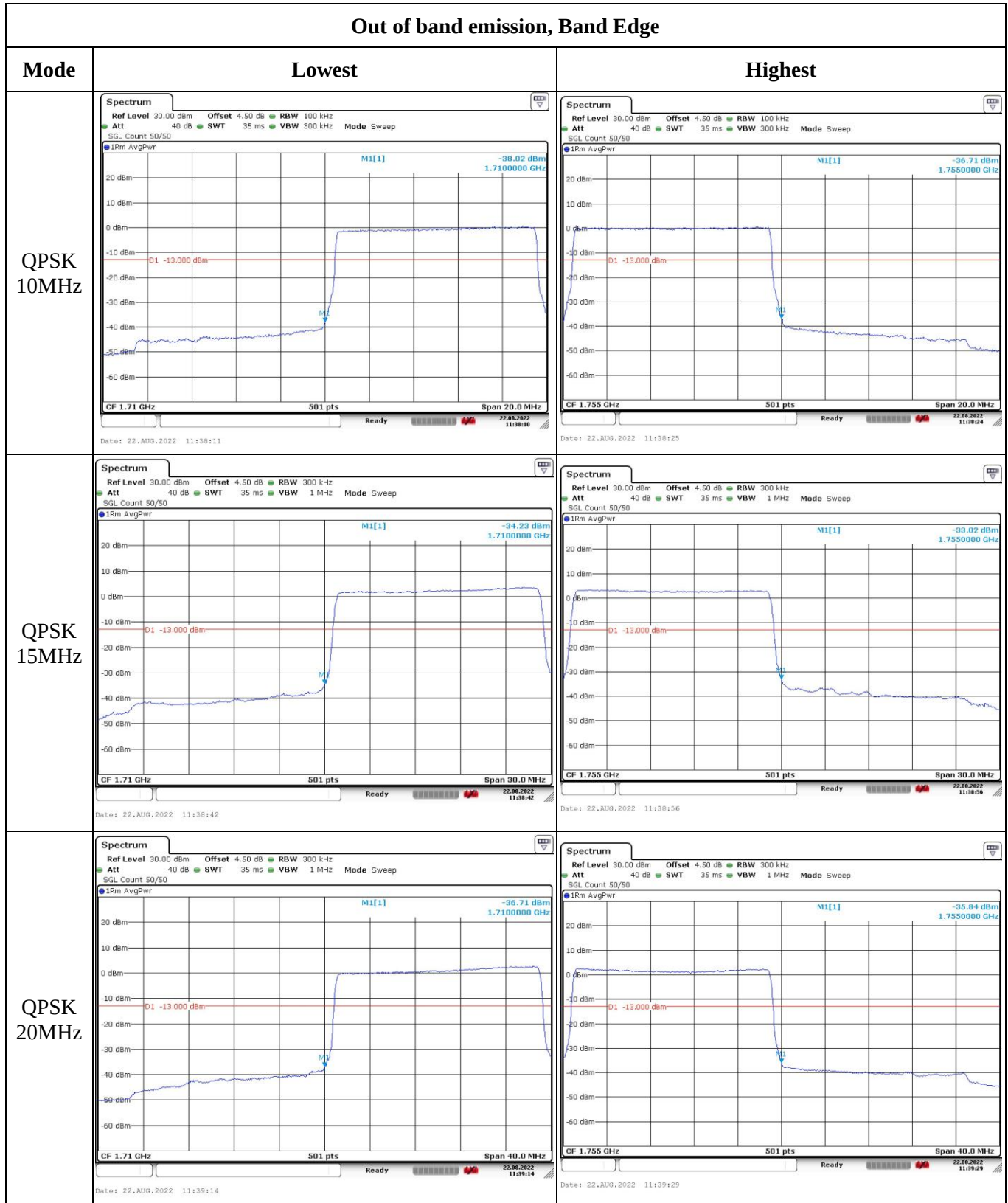
Highest



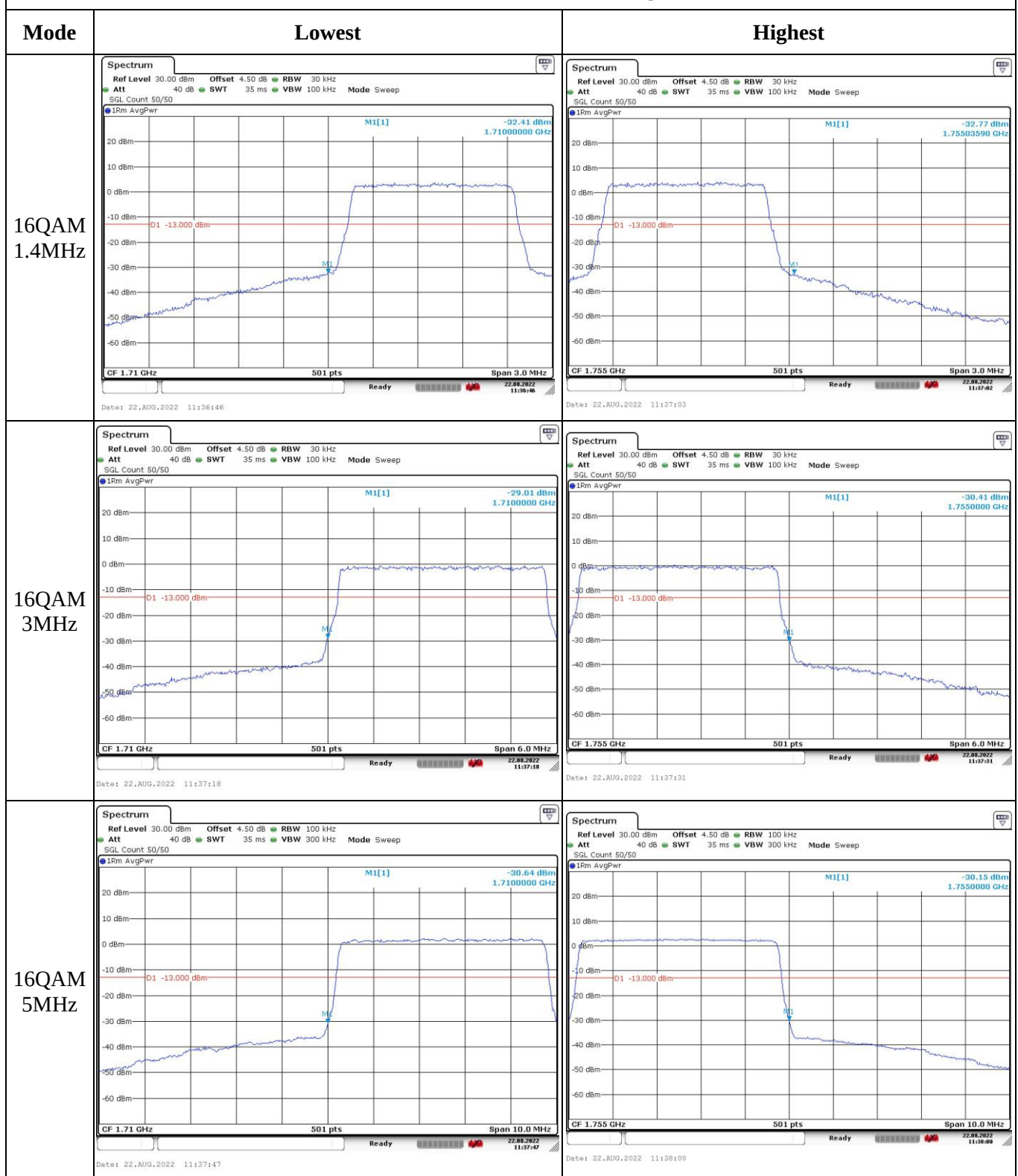
Out of band emission, Band Edge



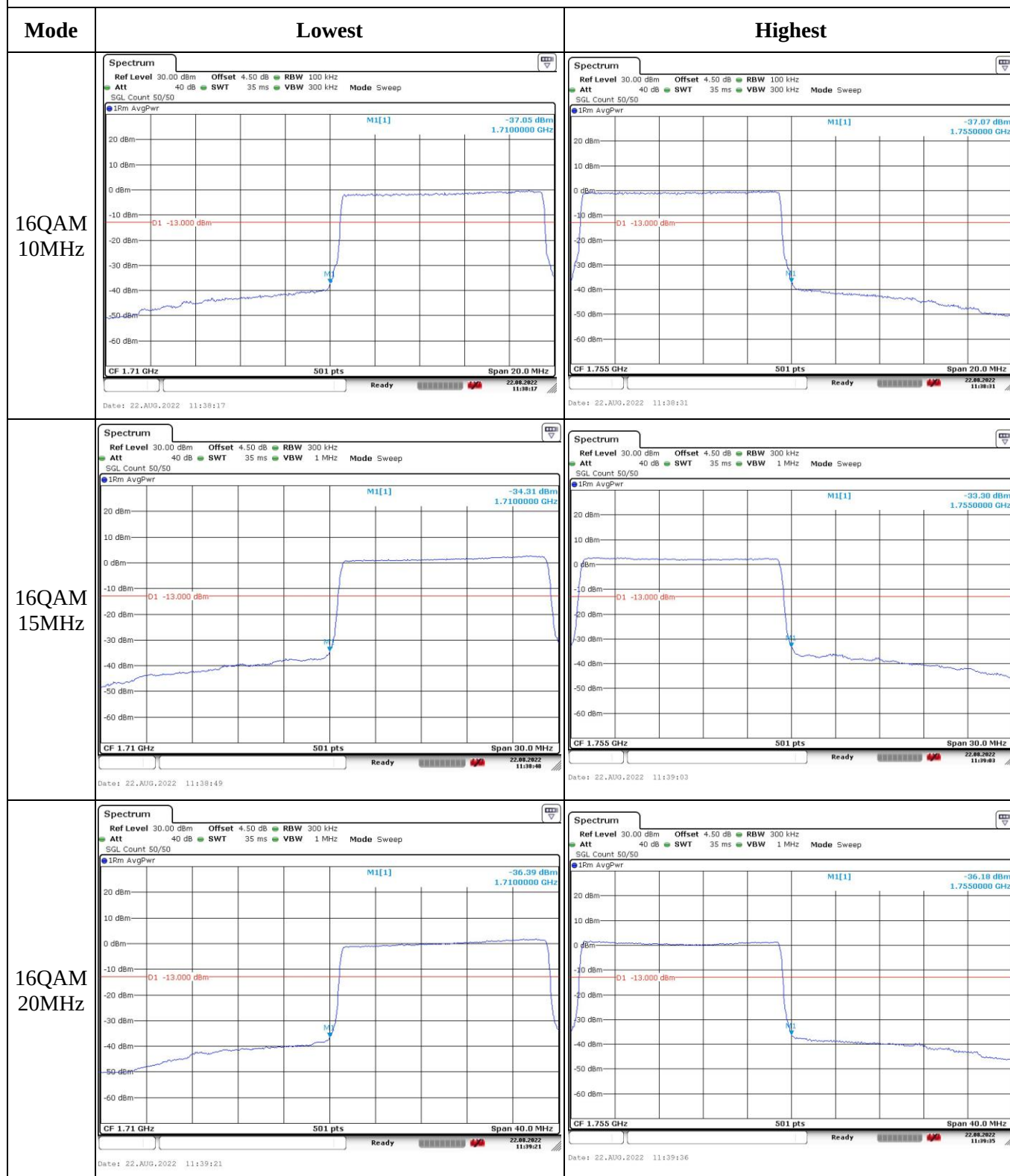
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.8 Antenna Port Test Data and Results for LTE Band 5

Serial Number:	CR22080020-RF-S1	Test Date:	2022/08/22~2022/08/30
Test Site:	RF	Test Mode:	Transmitting
Tester:	Rinka Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	27.8	Relative Humidity: (%)	54	ATM Pressure: (kPa)	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	211002	Each time	N/A
zhuoxiang	Coaxial Cable	SMA-178	211003	Each time	N/A
Mini-Circuits	DC Block	SS402	SJ0100003	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
Weinschel	Power splitter	1515	RA915	2022-08-07	2023-08-06

* 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 5▲:

Antenna Gain (dBi):	-1	Antenna Gain (dBd):	-3.15	Cable Loss (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	824.7	836.5	848.3
3MHz	825.5	836.5	847.5
5MHz	826.5	836.5	846.5
10MHz	829	836.5	844

Test Data:**FCC §2.1046; § 22.913 (a)****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	22.65	22.59	22.87	19.52	38.45
	RB1#3	22.58	22.63	22.87		
	RB1#5	22.6	22.64	22.83		
	RB3#0	22.71	22.71	22.79		
	RB3#3	22.75	22.51	22.73		
	RB6#0	21.69	21.47	21.8		
1.4MHz 16QAM	RB1#0	22.08	22.22	21.43	19.1	38.45
	RB1#3	22.13	22.39	21.33		
	RB1#5	22.03	22.45	21.33		
	RB3#0	21.72	21.65	21.41		
	RB3#3	21.72	21.64	21.53		
	RB6#0	20.87	20.74	21.02		
3MHz QPSK	RB1#0	22.8	22.71	22.77	19.49	38.45
	RB1#8	22.75	22.74	22.78		
	RB1#14	22.75	22.84	22.78		
	RB6#0	21.8	21.67	21.76		
	RB6#9	21.82	21.91	21.77		
	RB15#0	21.76	21.78	21.8		
3MHz 16QAM	RB1#0	22.51	21.53	22.02	19.16	38.45
	RB1#8	22.47	21.39	22.02		
	RB1#14	22.43	21.48	22		
	RB6#0	20.87	20.86	21.26		
	RB6#9	20.8	20.94	20.81		
	RB15#0	20.8	20.76	21.29		
5MHz QPSK	RB1#0	22.93	22.67	22.78	19.58	38.45
	RB1#13	22.79	22.71	22.77		
	RB1#24	22.75	22.76	22.68		
	RB15#0	21.85	21.65	21.8		
	RB15#10	21.64	21.84	21.68		
	RB25#0	21.66	21.82	21.75		
5MHz 16QAM	RB1#0	21.82	21.41	20.91	18.47	38.45
	RB1#13	21.72	21.37	20.93		
	RB1#24	21.8	21.45	20.99		
	RB15#0	20.62	20.72	20.86		
	RB15#10	20.53	20.77	21.24		
	RB25#0	20.72	20.62	21.35		
10MHz QPSK	RB1#0	22.82	22.81	22.65	19.6	38.45
	RB1#25	22.75	22.72	22.63		
	RB1#49	22.95	22.77	22.74		

10MHz 16QAM	RB25#0	21.6	21.66	21.68	18.62	38.45
	RB25#25	21.69	21.86	21.8		
	RB50#0	21.69	21.89	21.68		
	RB1#0	21.89	21.26	21.89		
	RB1#25	21.83	21.3	21.87		
	RB1#49	21.94	21.31	21.97		
	RB25#0	20.71	20.77	20.8		
	RB25#25	20.88	20.87	21.23		
	RB50#0	20.75	20.78	20.77		

Note:

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

Cable loss is the loss of RF cable form test point to the EUT transmission antenna

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	4.75	4.75	4.12	13
	RB50#0	5.07	4.78	4.96	13
10MHz 16QAM	RB1#0	5.83	5.8	5.36	13
	RB50#0	6.2	5.8	5.83	13
				Result:	Pass

FCC §2.1049, §22.905: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	1.09	1.254	1.26	1.22
1.4MHz 16QAM	1.102	1.09	1.102	1.266	1.25	1.254
3MHz QPSK	2.695	2.695	2.695	3	3.012	2.988
3MHz 16QAM	2.683	2.683	2.695	3	3.024	3.012
5MHz QPSK	4.511	4.491	4.511	5	5	5
5MHz 16QAM	4.511	4.531	4.511	5	5.02	5
10MHz QPSK	8.942	8.942	8.942	9.76	9.8	9.8
10MHz 16QAM	8.942	8.942	8.942	9.8	9.84	9.76

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

FCC §2.1051, §22.917(a):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, §22.917(a):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, §22.355: Frequency Stability

Test Mode:	10 MHz QPSK		Test Channel:	836.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.85	3	0.004	2.5
	-20	3.85	7	0.008	2.5
	-10	3.85	5	0.006	2.5
	0	3.85	56	0.067	2.5
	10	3.85	11	0.013	2.5
	20	3.85	57	0.068	2.5
	30	3.85	23	0.027	2.5
	40	3.85	7	0.008	2.5
	50	3.85	9	0.011	2.5
Frequency Stability vs. Voltage	20	3.5	2	0.002	2.5
	20	4.4	4	0.005	2.5
				Result:	Pass

Test Mode:	10 MHz 16QAM		Test Channel:	836.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.85	8	0.010	2.5
	-20	3.85	7	0.008	2.5
	-10	3.85	8	0.010	2.5
	0	3.85	64	0.077	2.5
	10	3.85	35	0.042	2.5
	20	3.85	54	0.065	2.5
	30	3.85	11	0.013	2.5
	40	3.85	3	0.004	2.5
	50	3.85	4	0.005	2.5
Frequency Stability vs. Voltage	20	3.5	3	0.004	2.5
	20	4.4	5	0.006	2.5
				Result:	Pass

Test Plots:

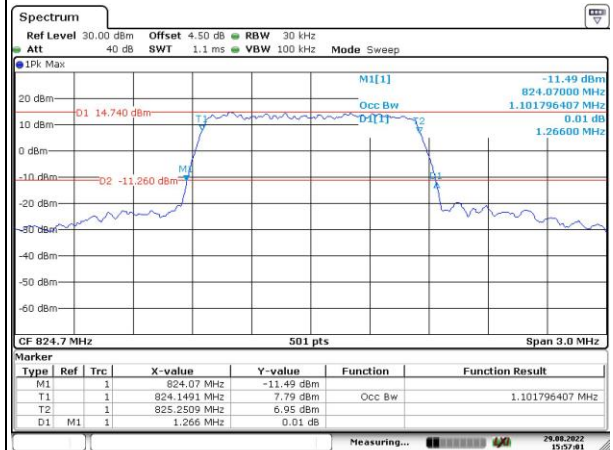
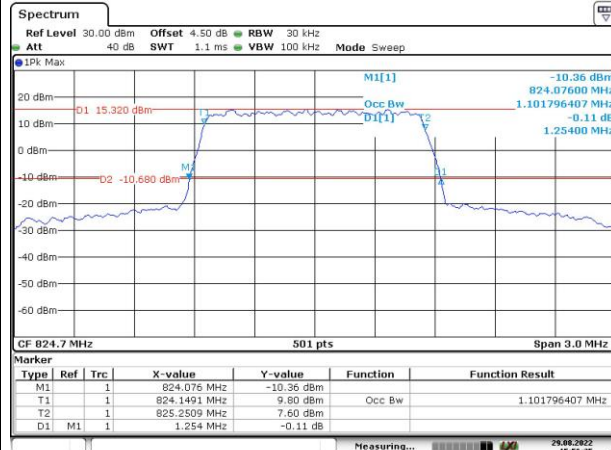
Occupied Bandwidth

Channel

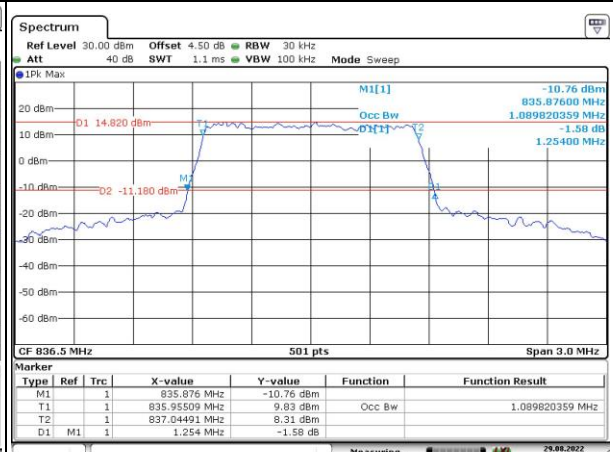
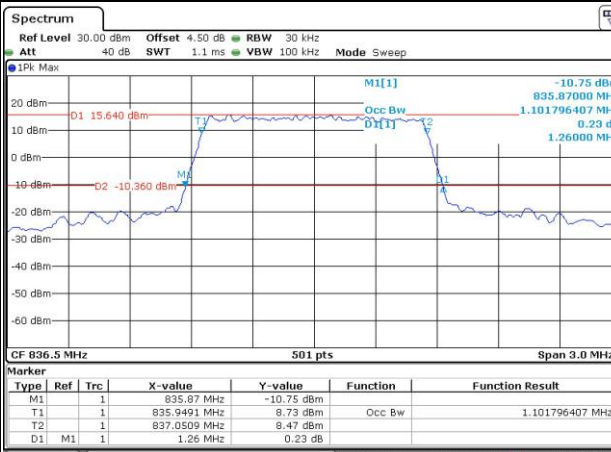
1.4MHz Bandwidth QPSK

1.4MHz Bandwidth 16QAM

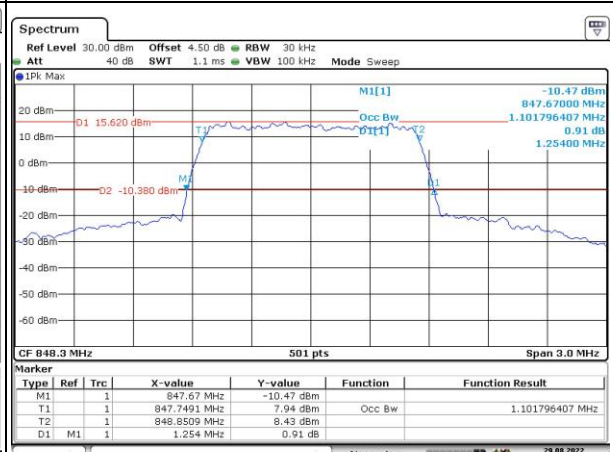
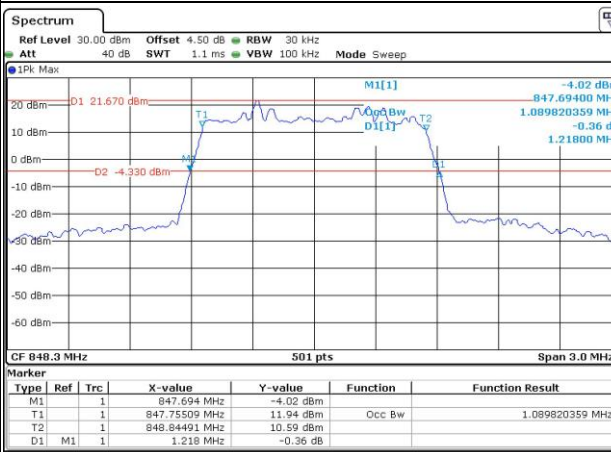
Lowest



Middle



Highest



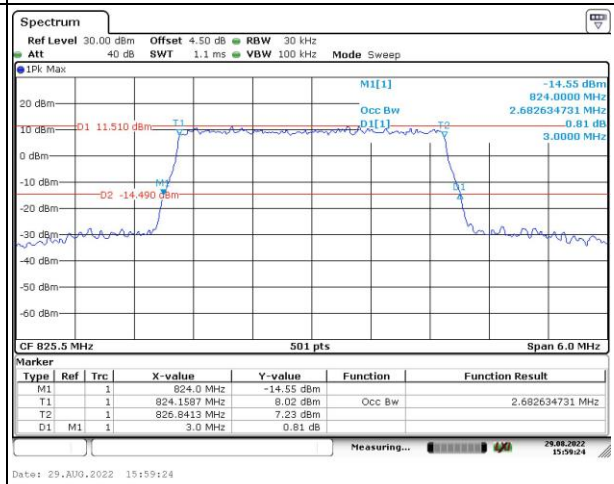
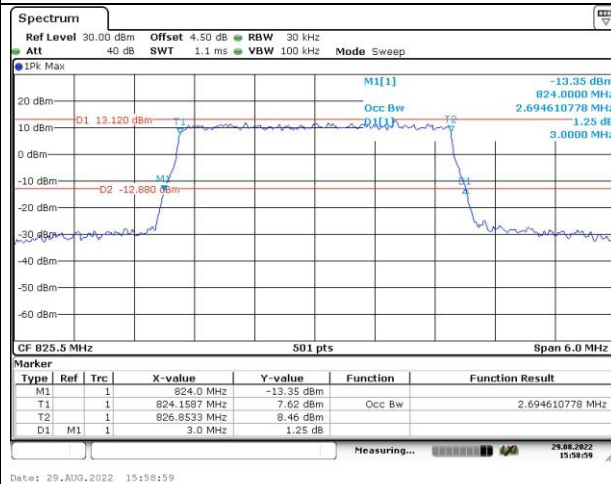
Occupied Bandwidth

Channel

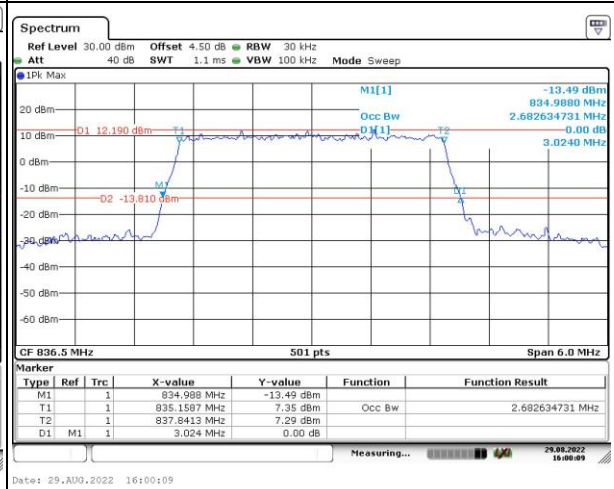
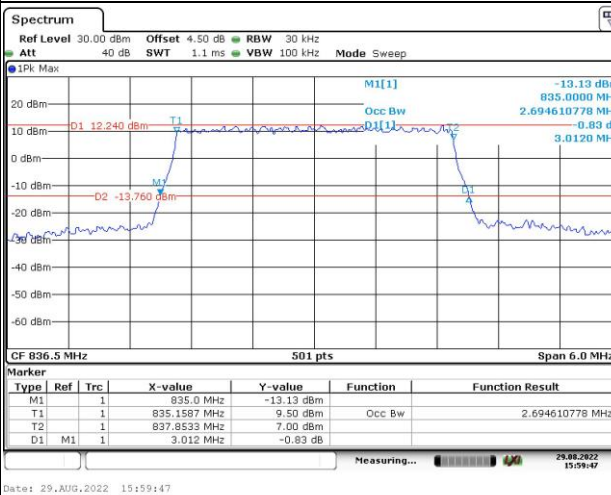
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

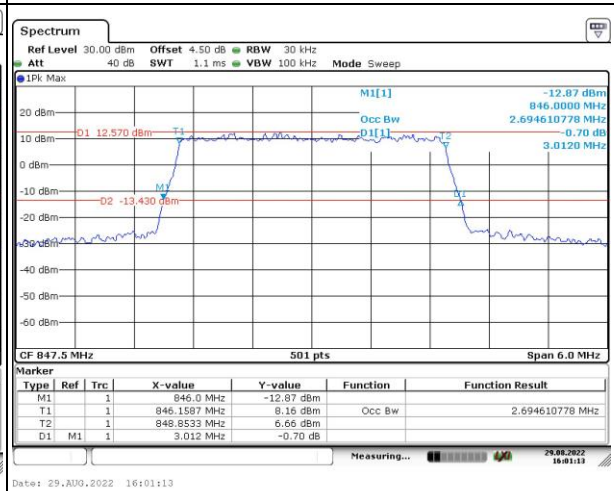
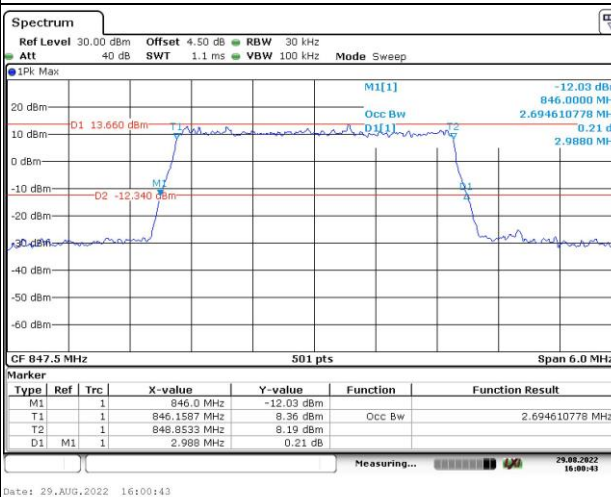
Lowest



Middle



Highest



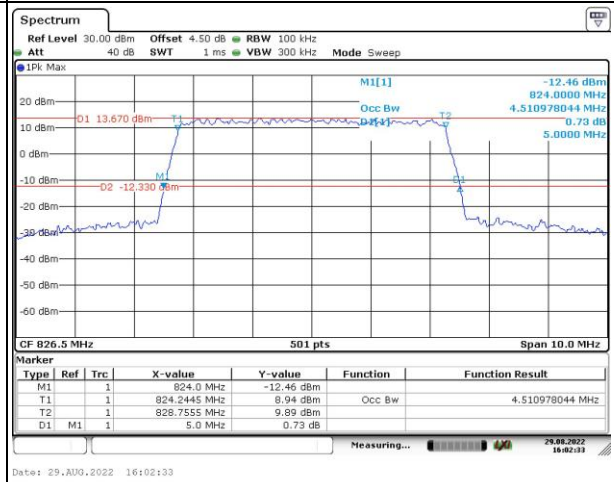
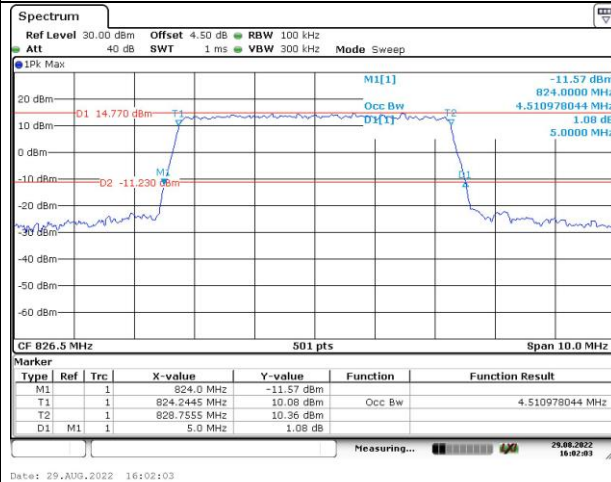
Occupied Bandwidth

Channel

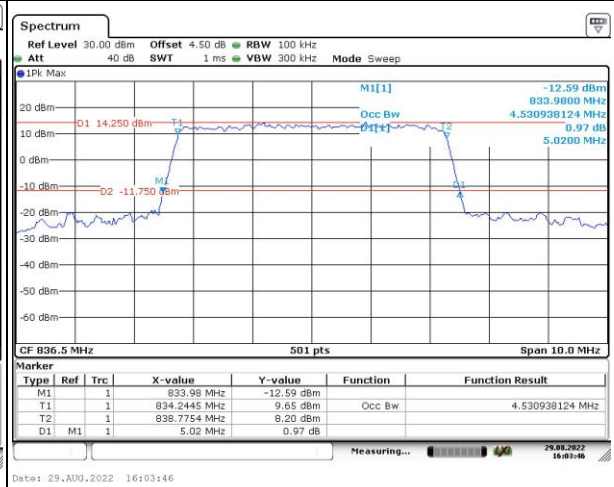
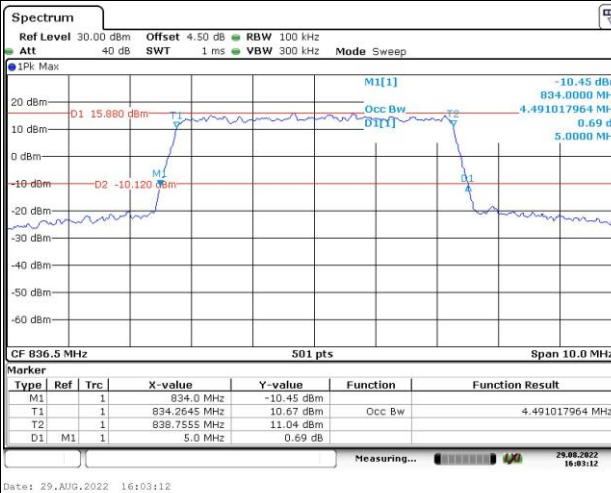
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

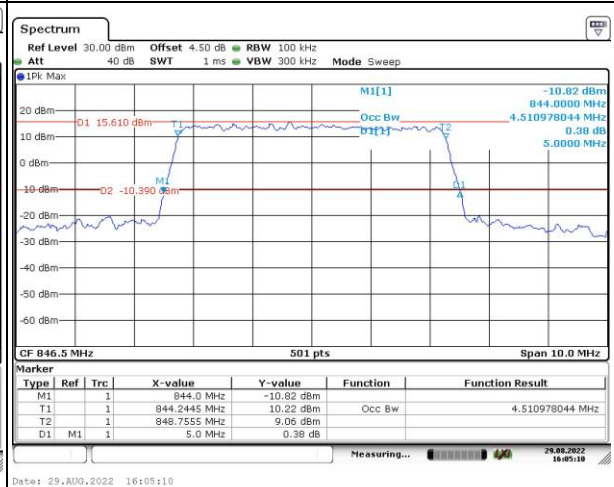
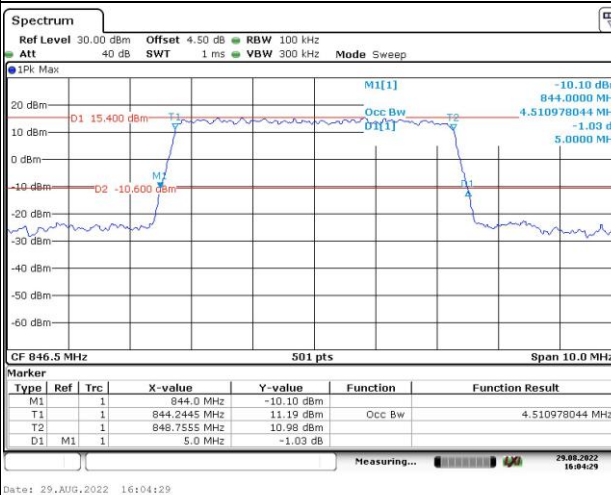
Lowest



Middle



Highest



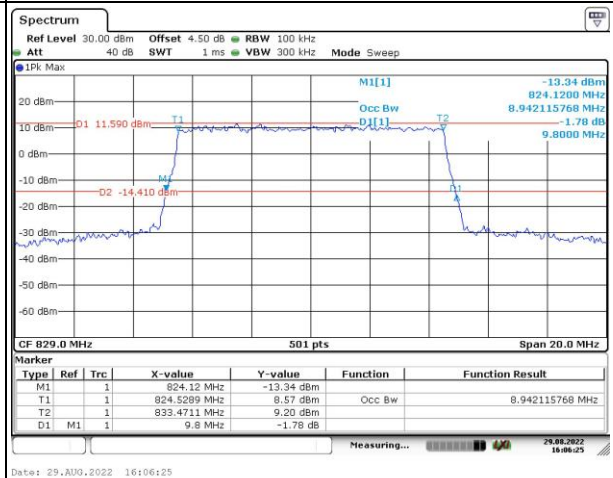
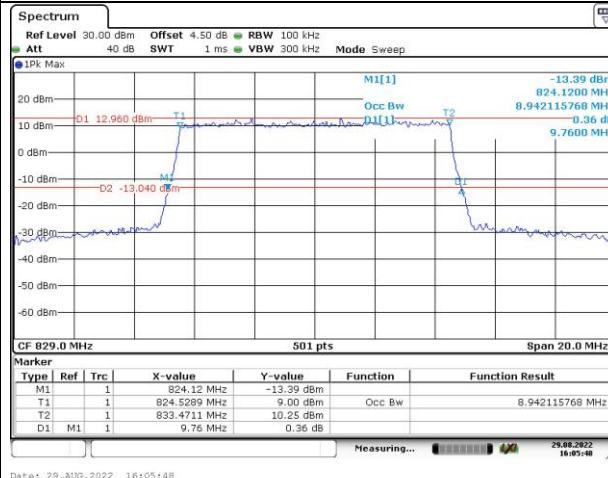
Occupied Bandwidth

Channel

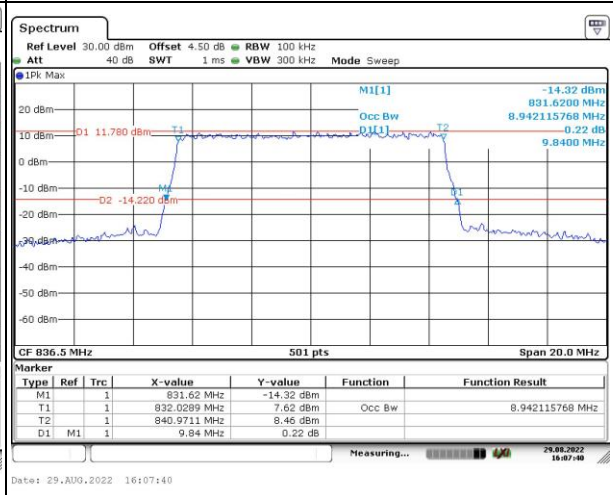
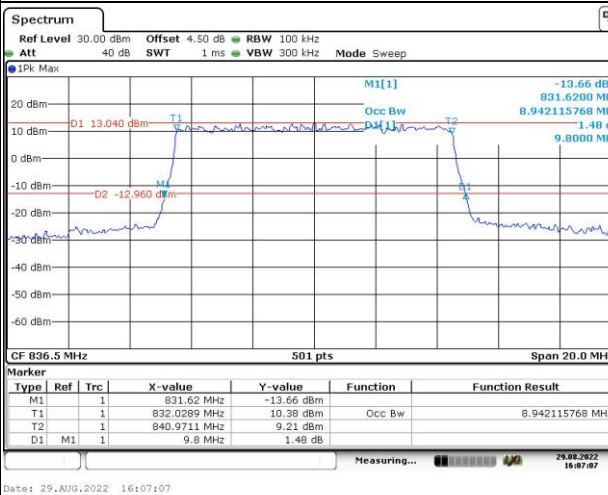
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

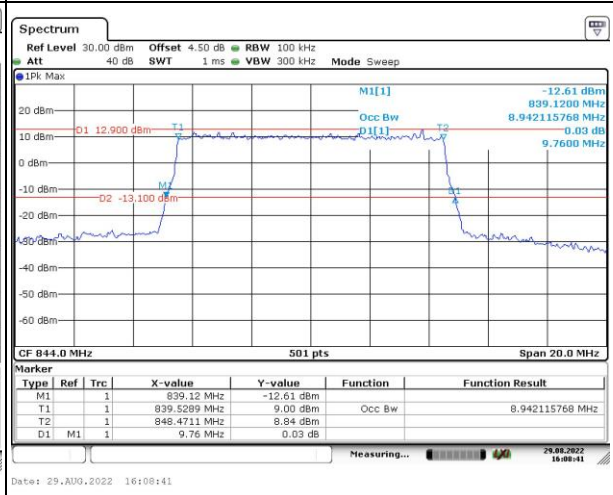
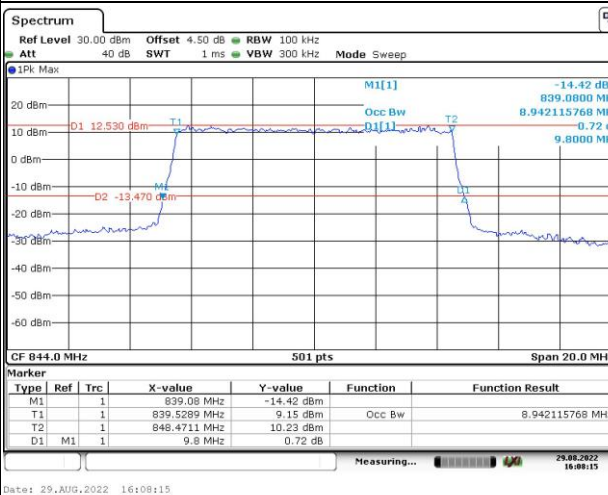
Lowest



Middle



Highest

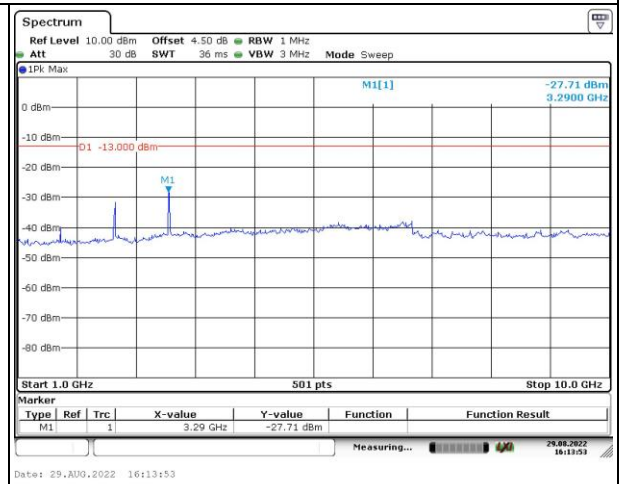
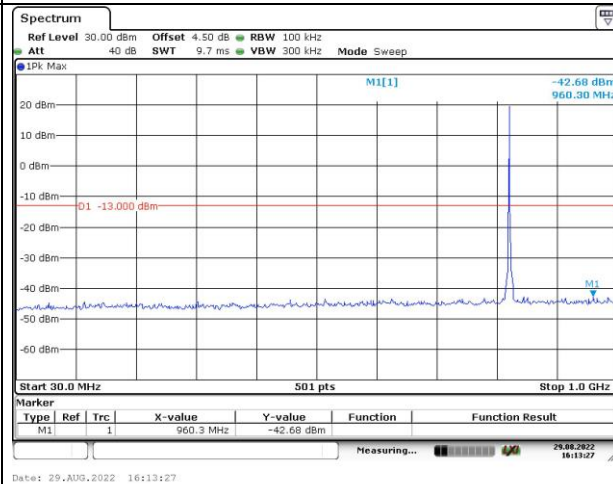


Spurious Emissions at Antenna Terminal

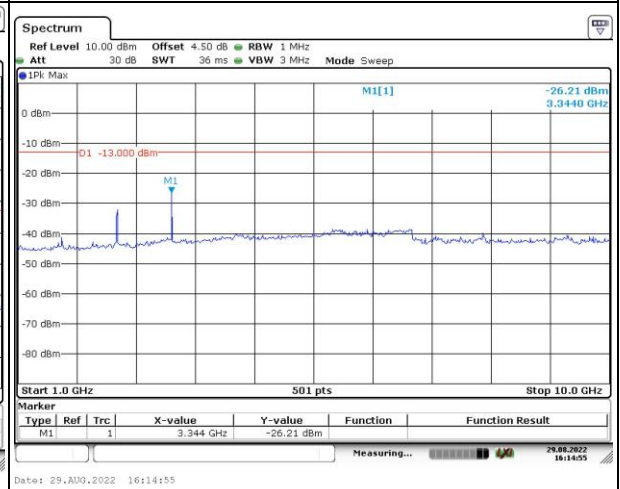
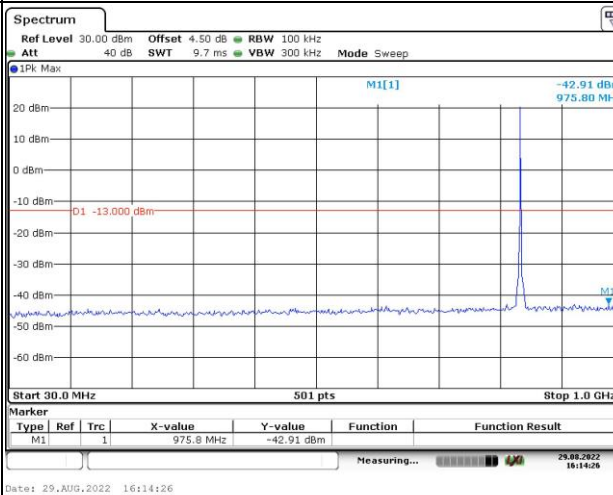
Channel

1.4MHz Bandwidth QPSK

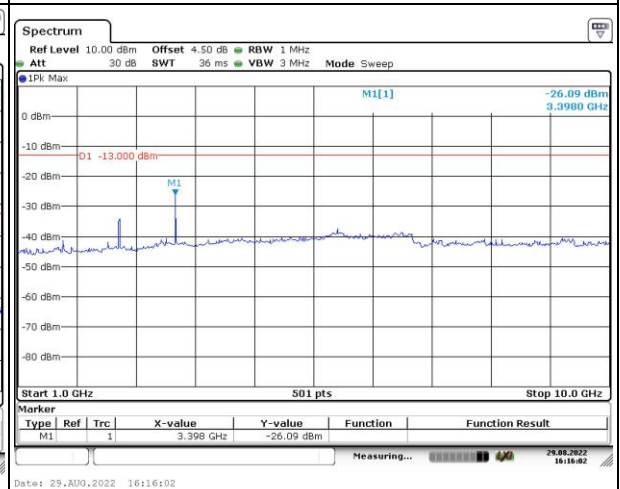
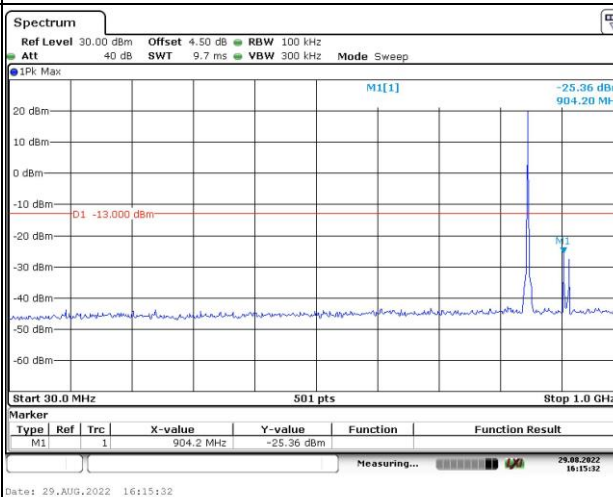
Lowest



Middle



Highest

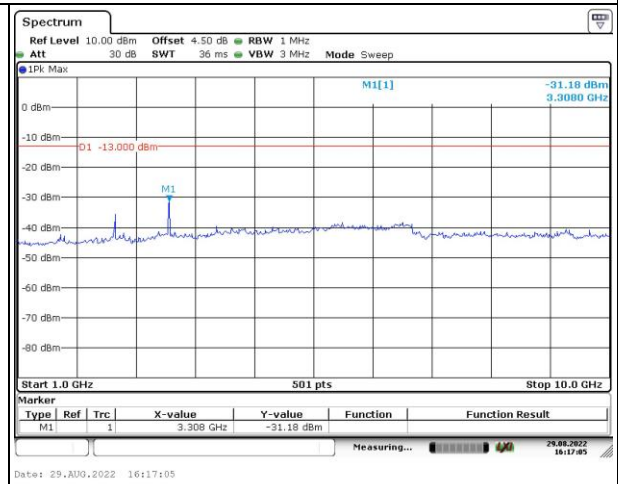
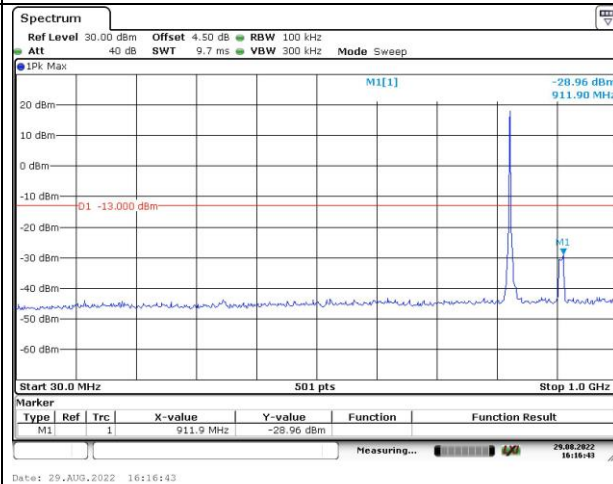


Spurious Emissions at Antenna Terminal

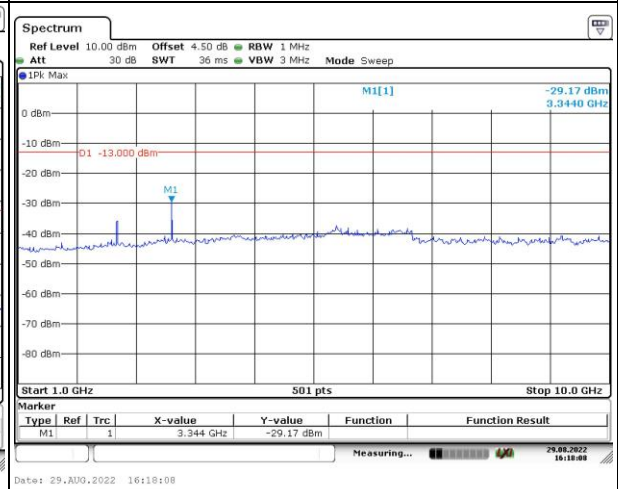
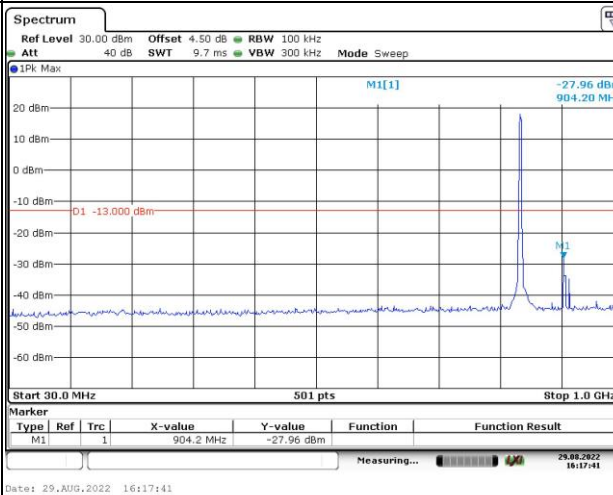
Channel

3MHz Bandwidth QPSK

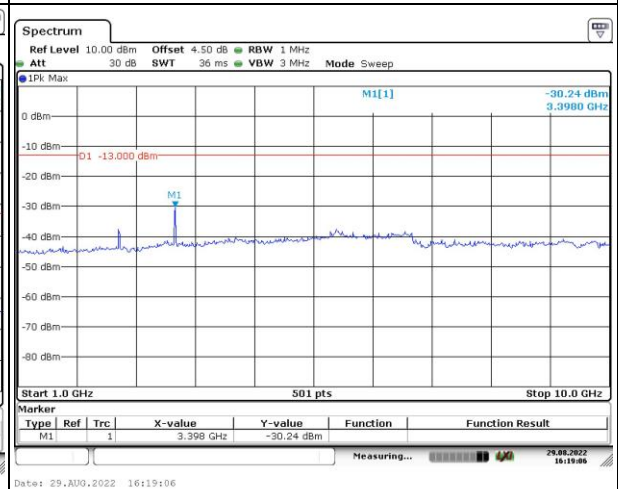
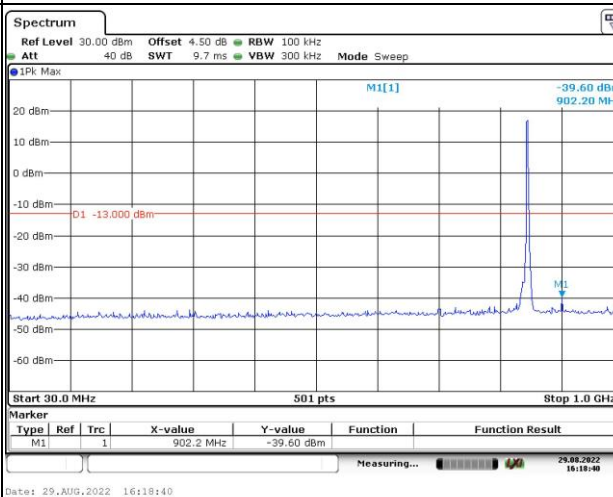
Lowest



Middle



Highest

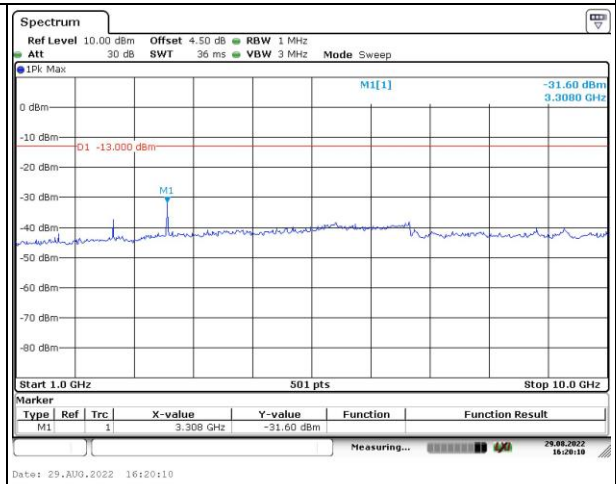
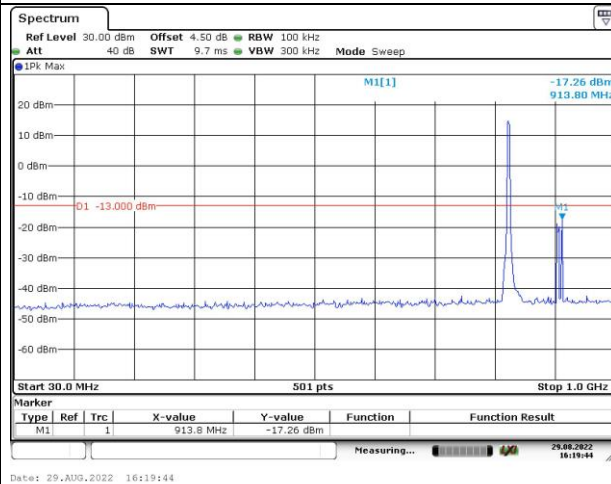


Spurious Emissions at Antenna Terminal

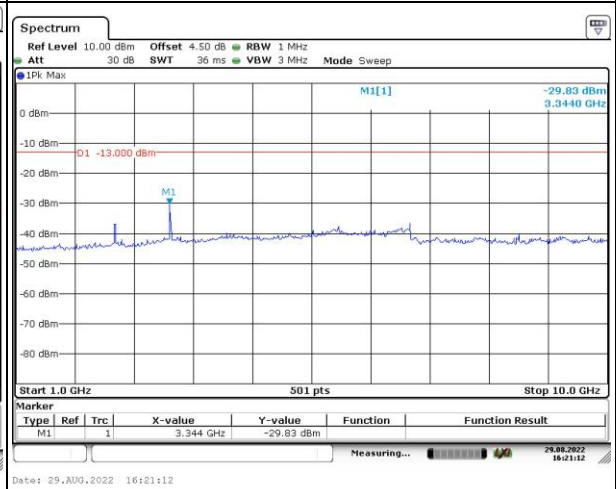
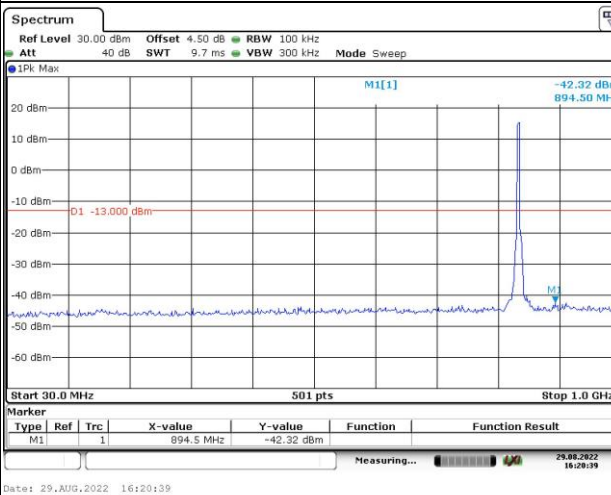
Channel

5MHz Bandwidth QPSK

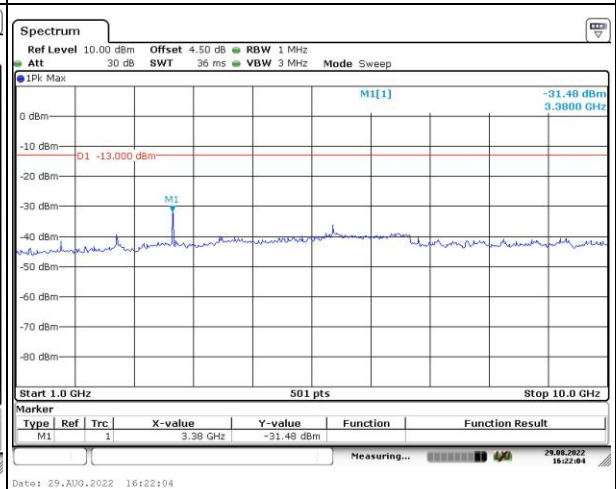
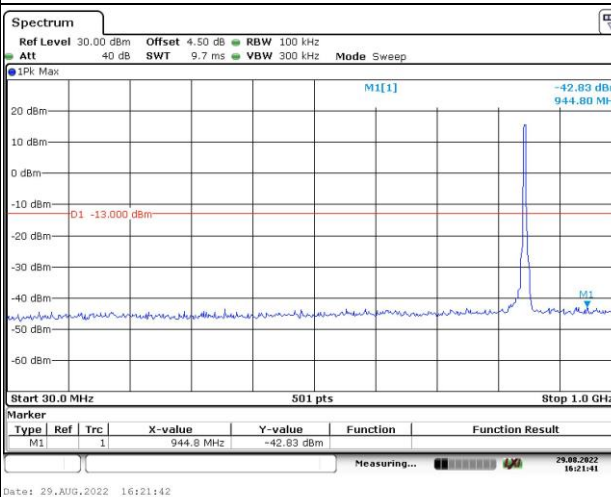
Lowest



Middle



Highest

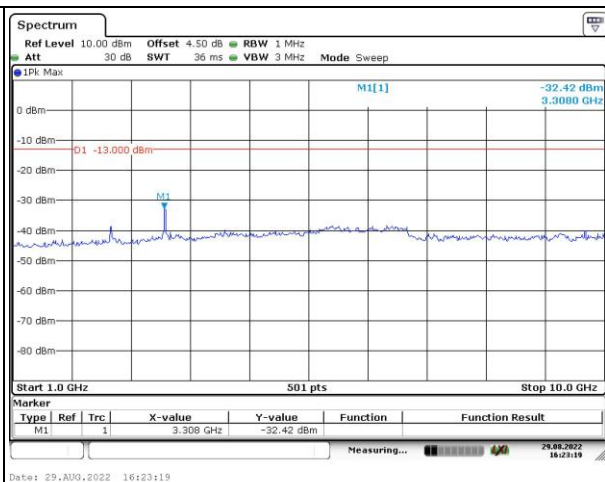
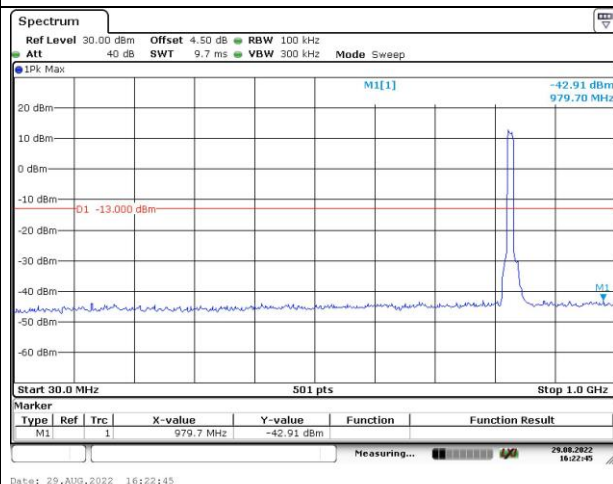


Spurious Emissions at Antenna Terminal

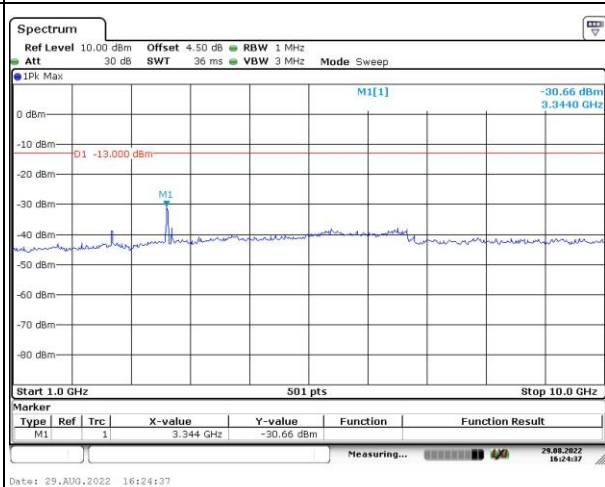
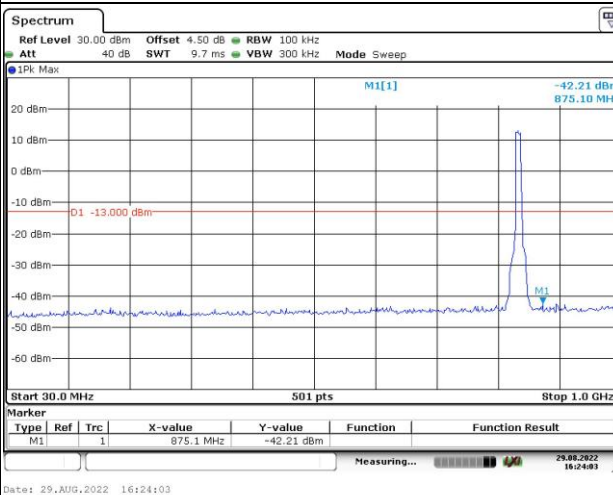
Channel

10MHz Bandwidth QPSK

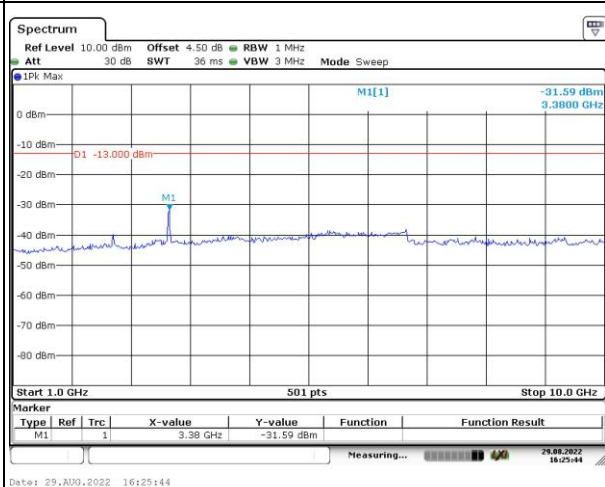
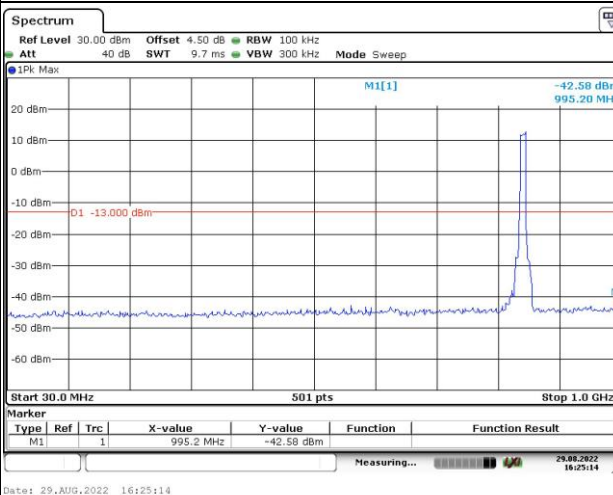
Lowest



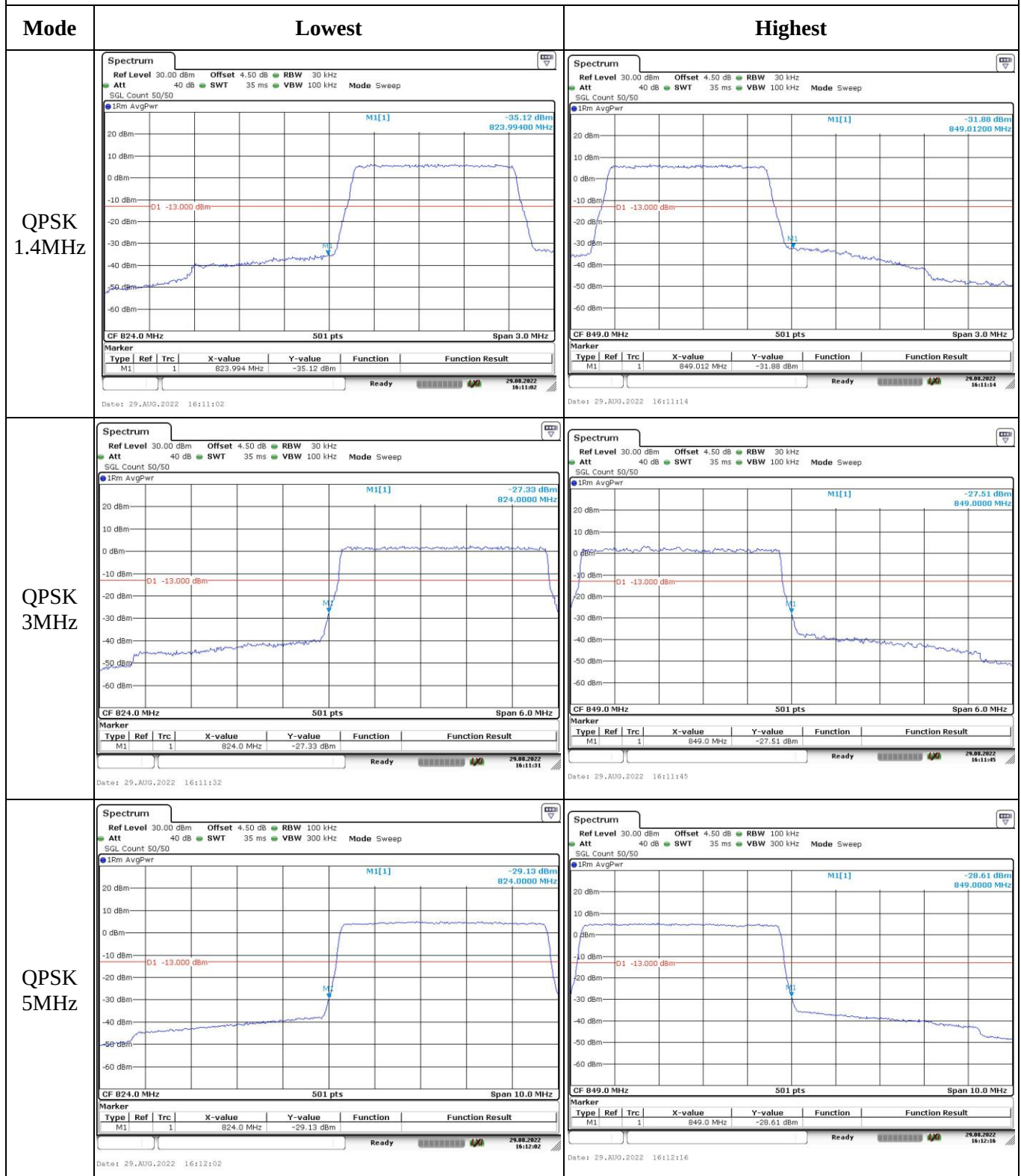
Middle



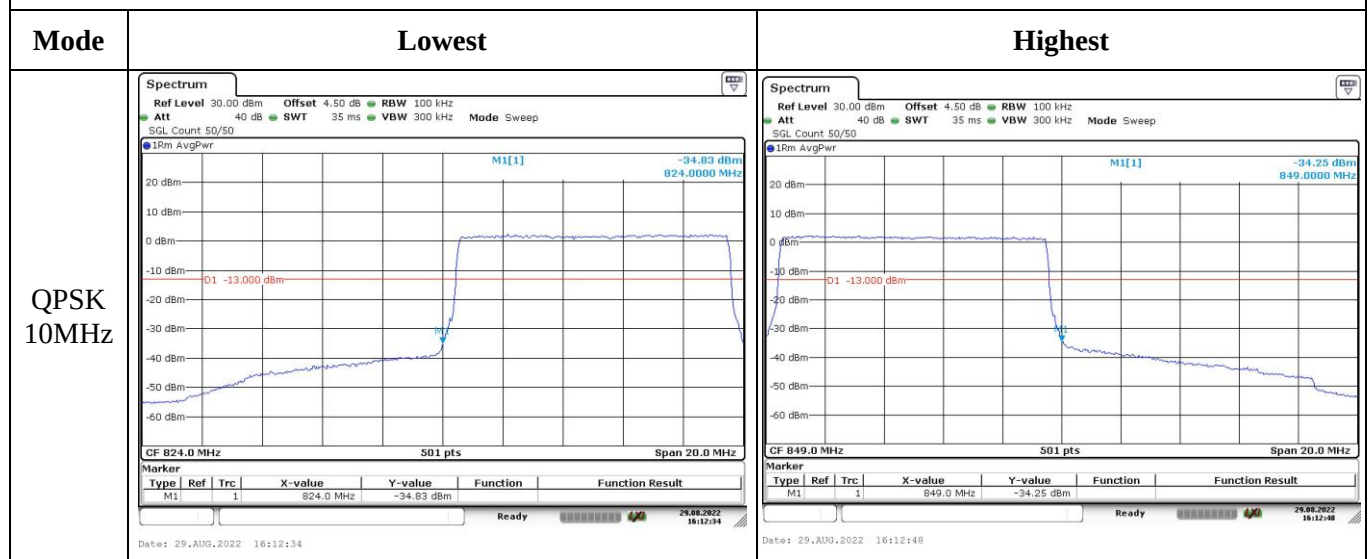
Highest



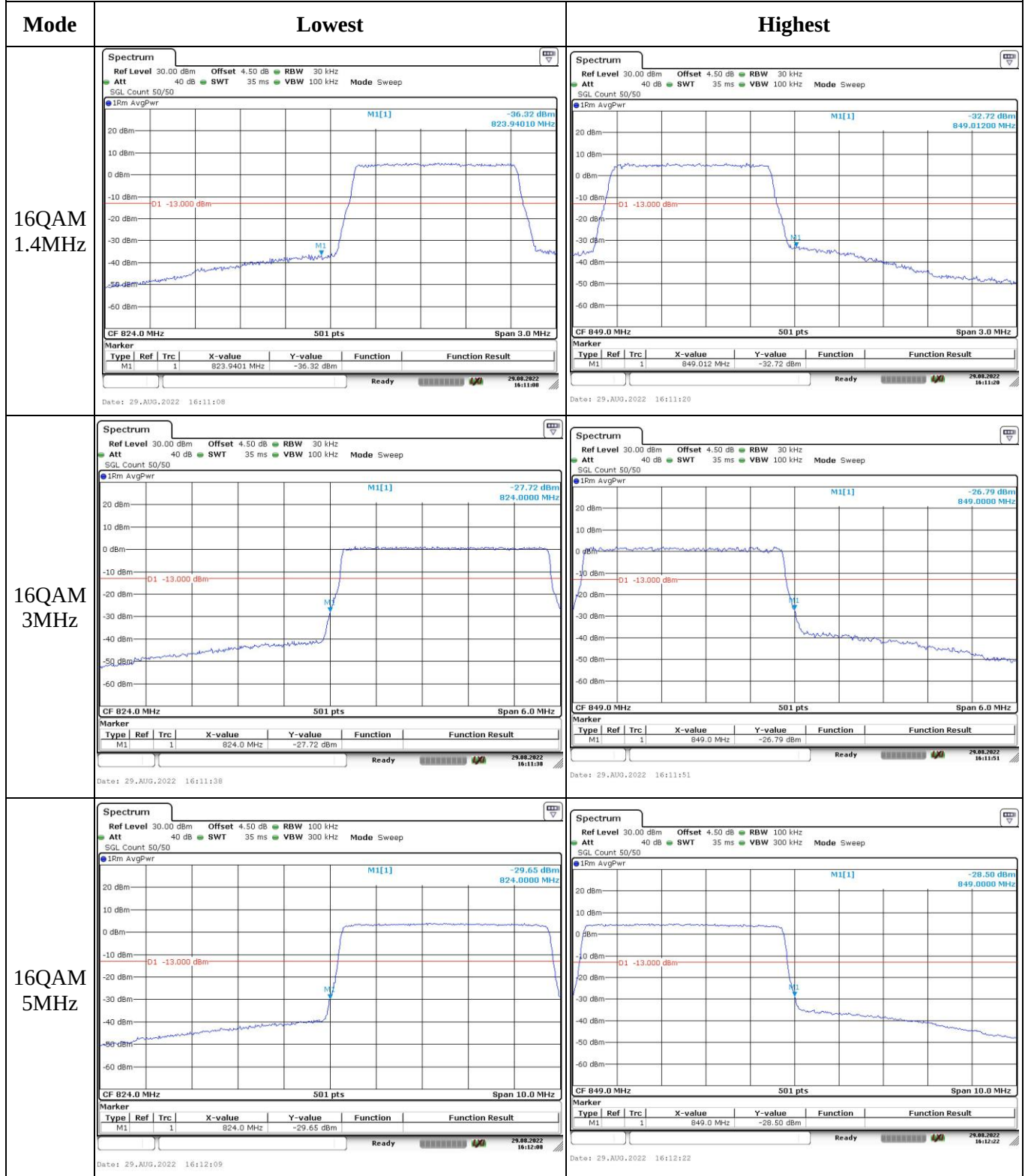
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge

