

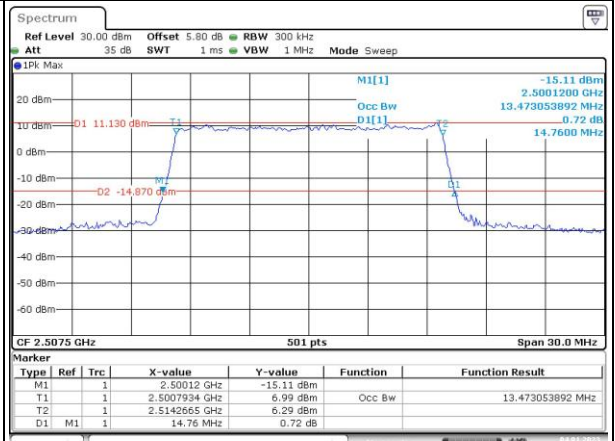
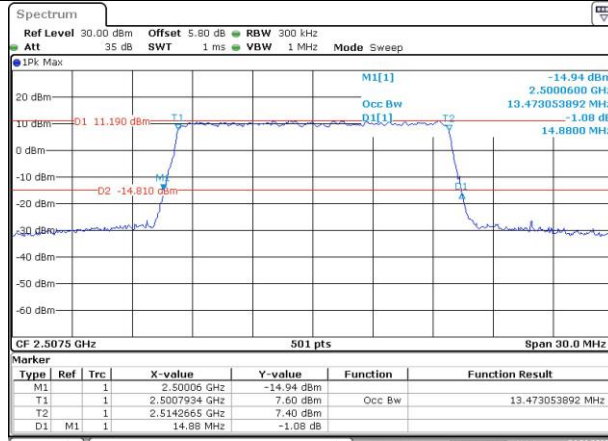
Occupied Bandwidth

Channel

15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

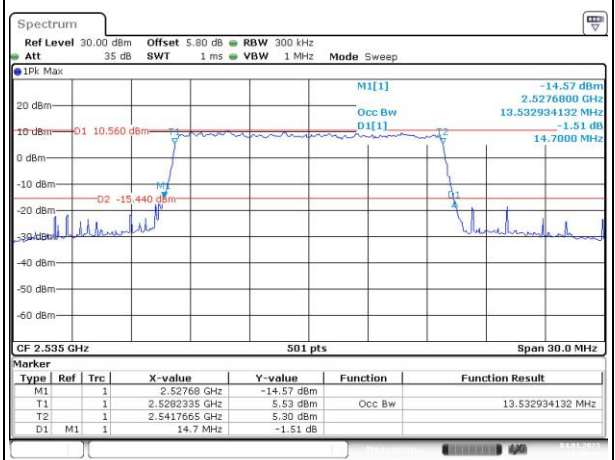
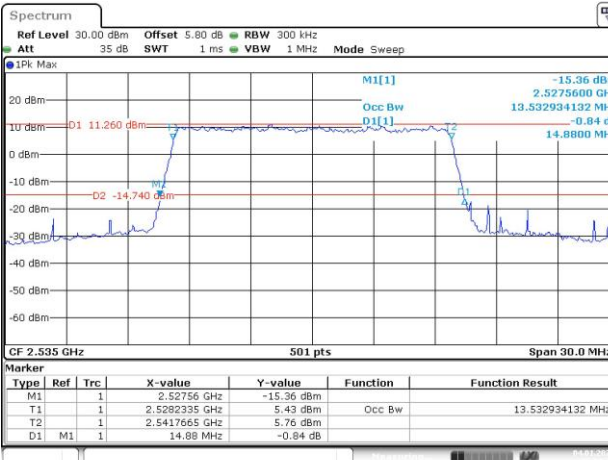
Lowest



Date: 4.JAN.2023 16:37:14

Date: 4.JAN.2023 16:37:47

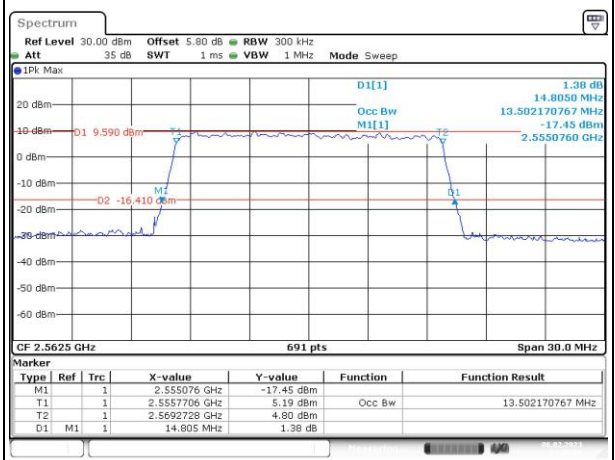
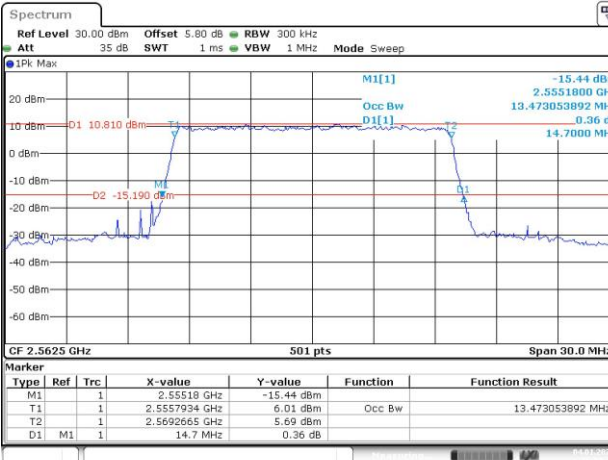
Middle



Date: 4.JAN.2023 16:38:18

Date: 4.JAN.2023 16:38:45

Highest



Date: 4.JAN.2023 16:39:13

Date: 6.FEB.2023 11:57:59

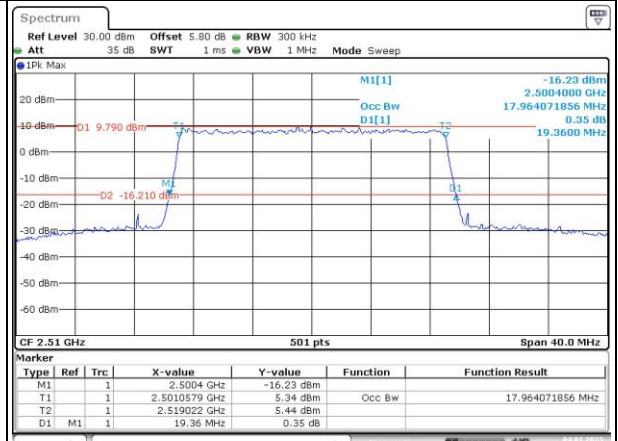
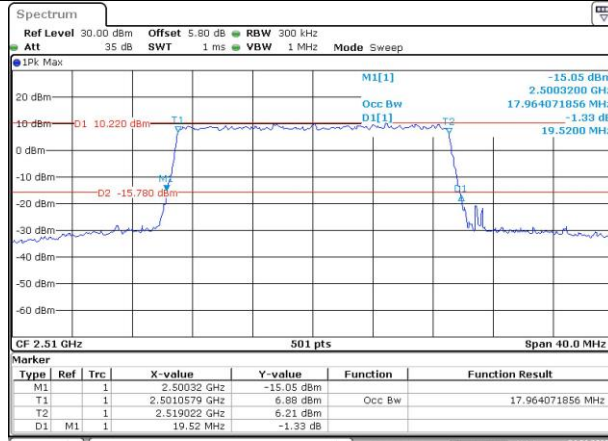
Occupied Bandwidth

Channel

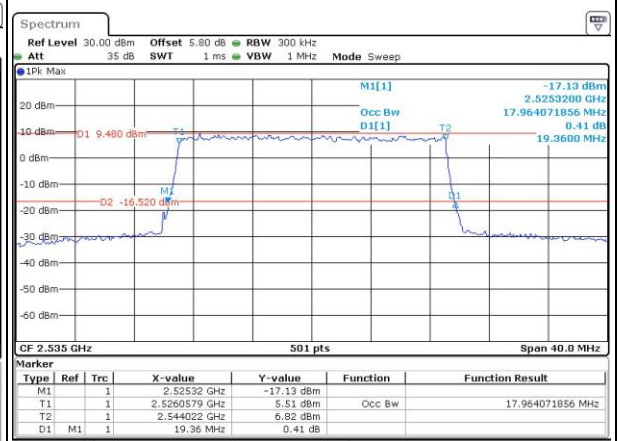
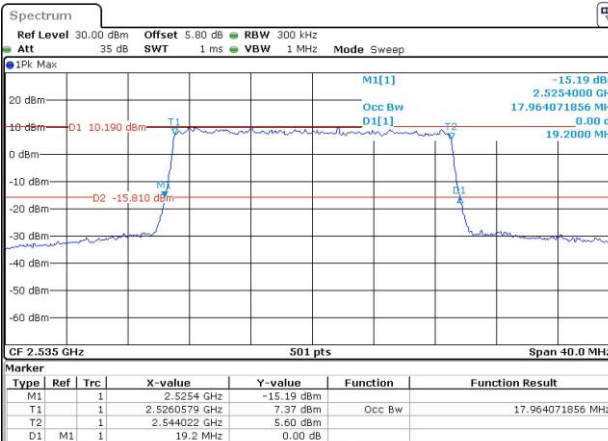
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

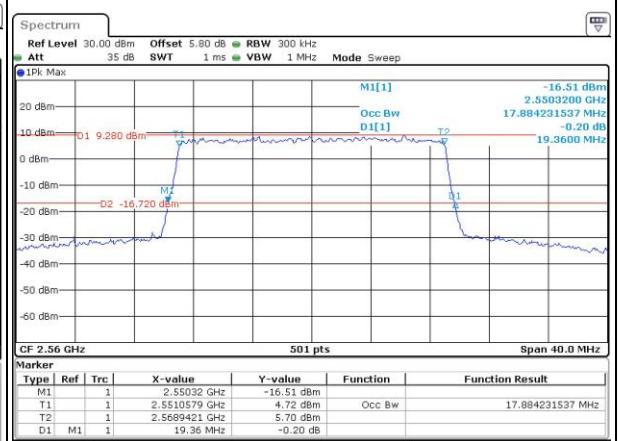
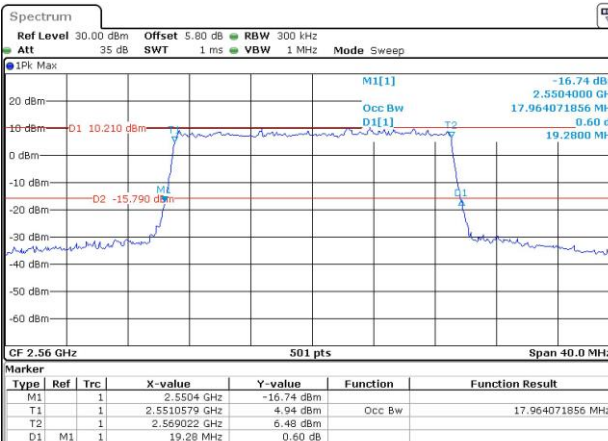
Lowest



Middle



Highest

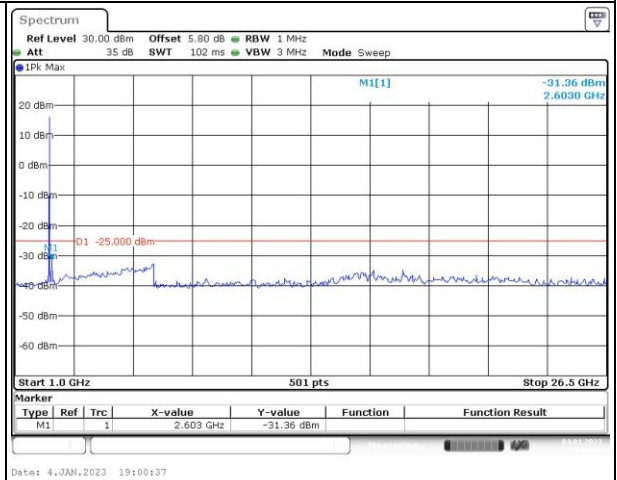
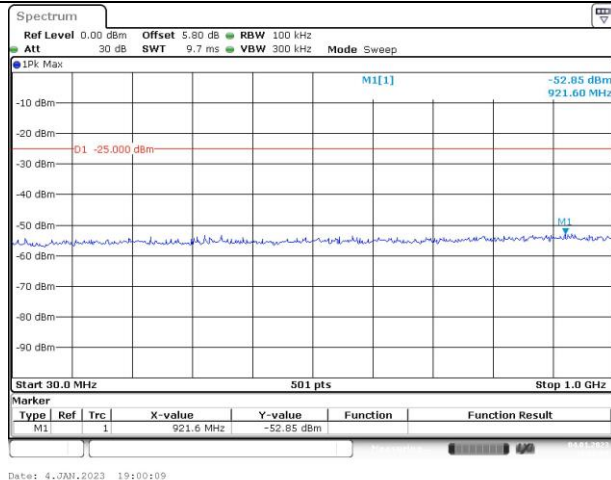


Spurious Emissions at Antenna Terminal

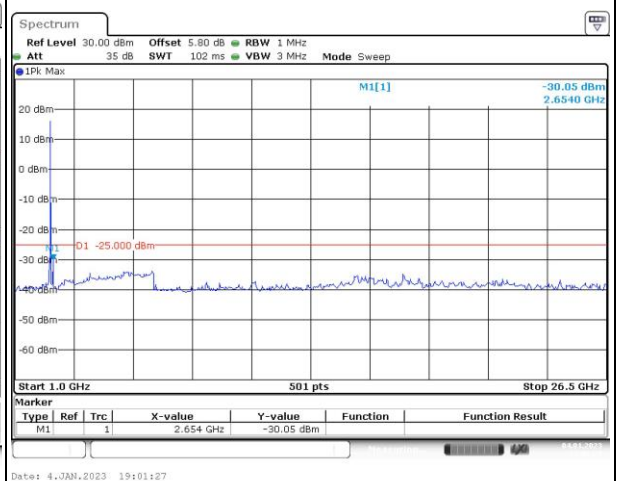
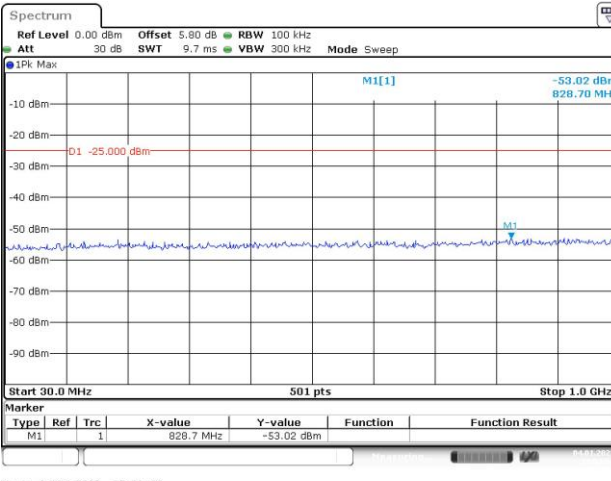
Channel

5MHz Bandwidth QPSK

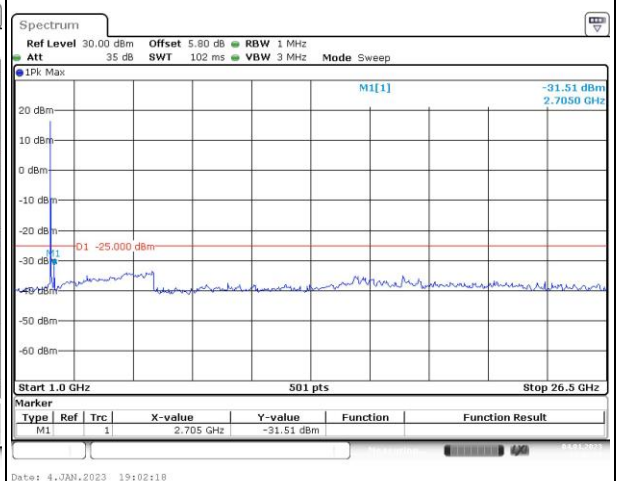
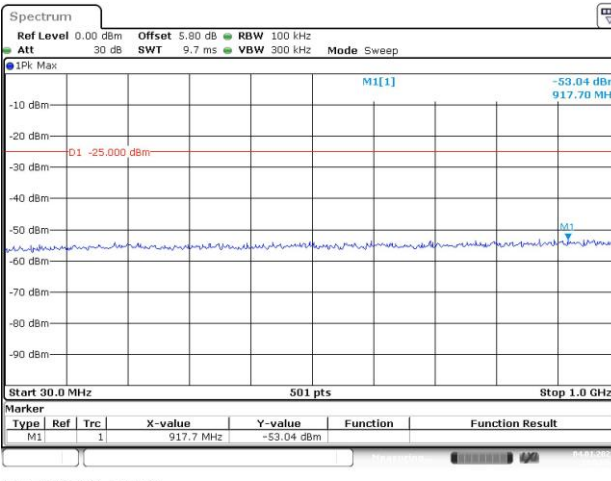
Lowest



Middle



Highest

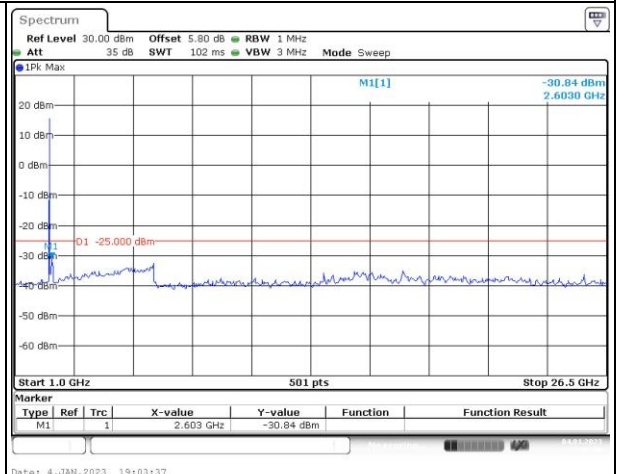
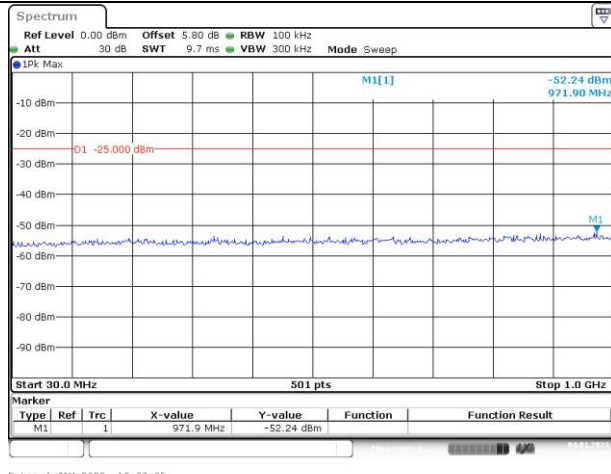


Spurious Emissions at Antenna Terminal

Channel

10MHz Bandwidth QPSK

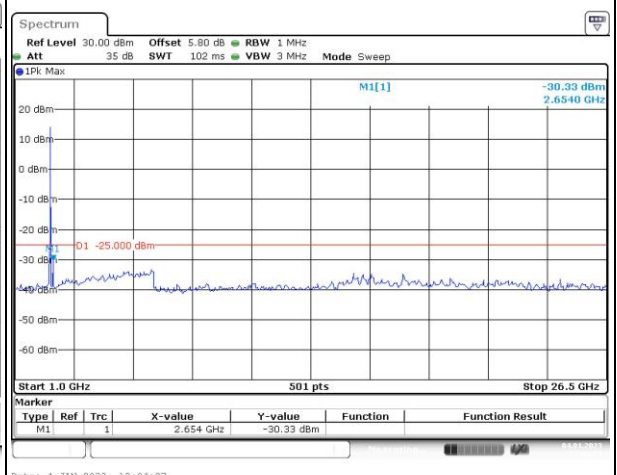
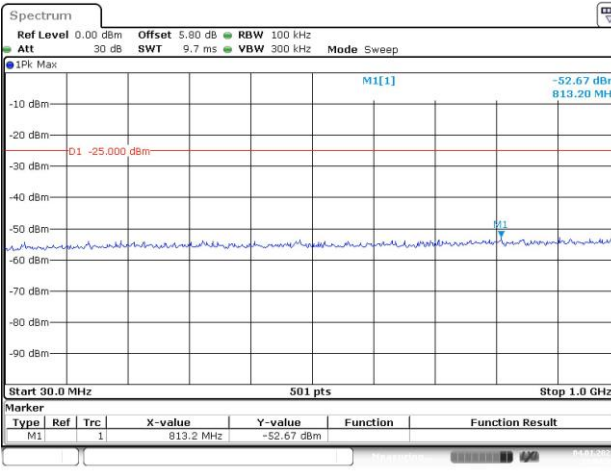
Lowest



Date: 4.JAN.2023 19:03:05

Date: 4.JAN.2023 19:03:37

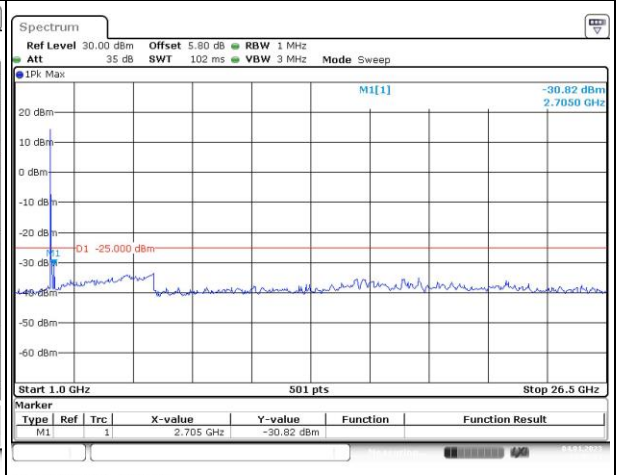
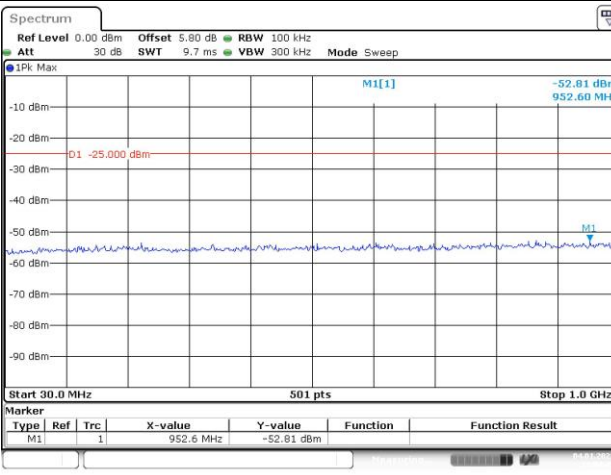
Middle



Date: 4.JAN.2023 19:04:05

Date: 4.JAN.2023 19:04:27

Highest



Date: 4.JAN.2023 19:04:50

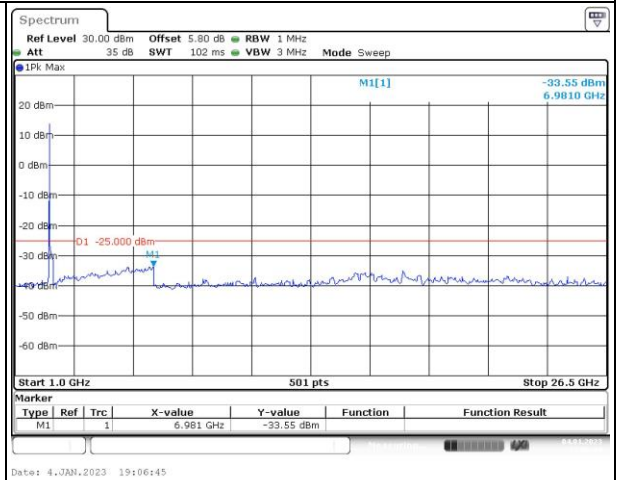
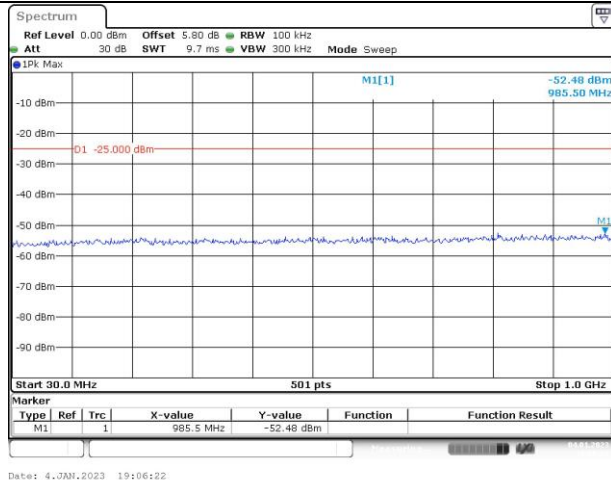
Date: 4.JAN.2023 19:05:12

Spurious Emissions at Antenna Terminal

Channel

15MHz Bandwidth QPSK

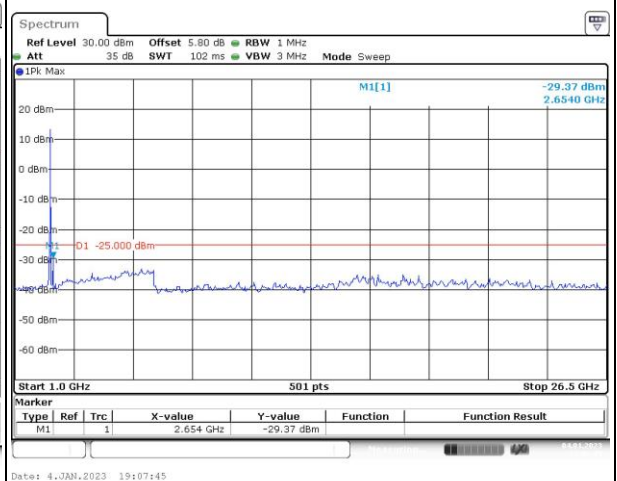
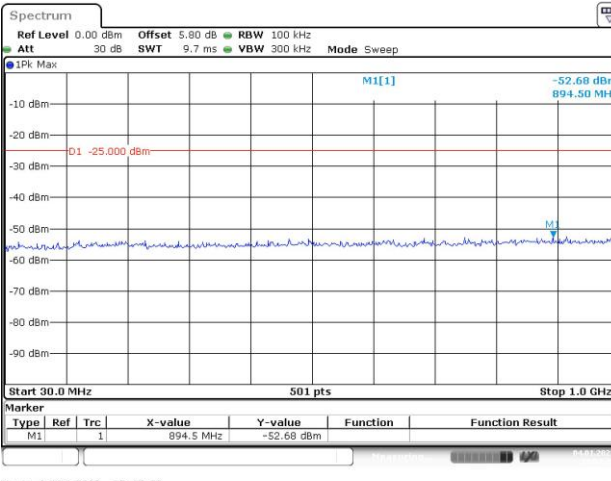
Lowest



Date: 4.JAN.2023 19:06:22

Date: 4.JAN.2023 19:06:45

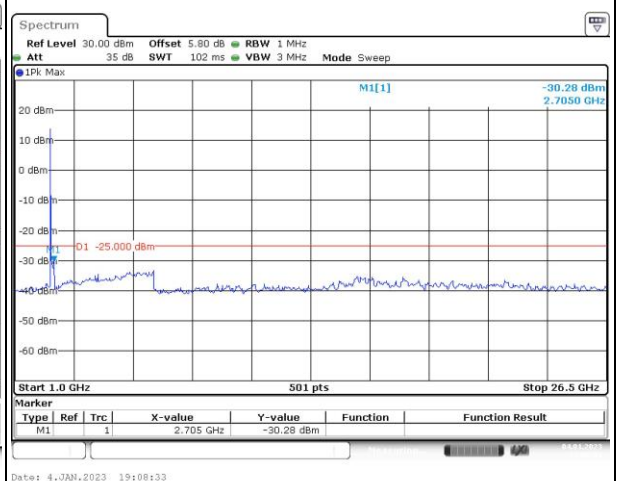
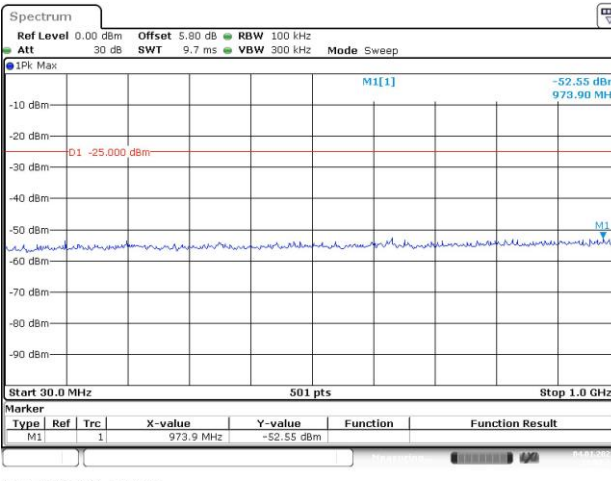
Middle



Date: 4.JAN.2023 19:07:20

Date: 4.JAN.2023 19:07:45

Highest



Date: 4.JAN.2023 19:08:11

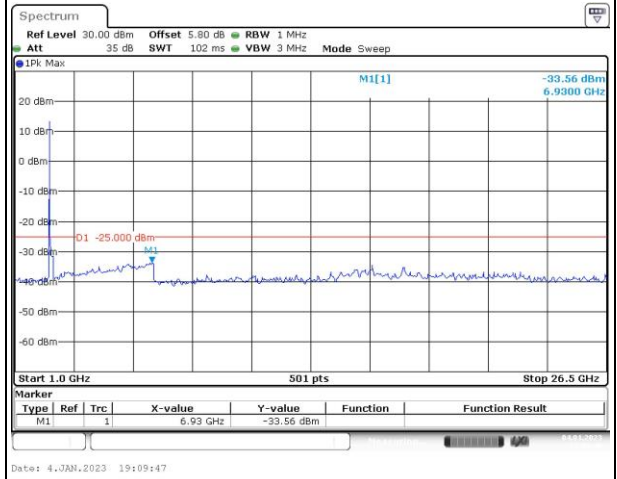
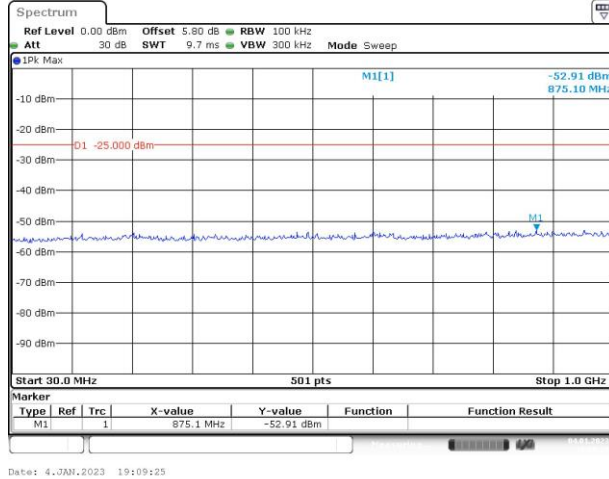
Date: 4.JAN.2023 19:08:33

Spurious Emissions at Antenna Terminal

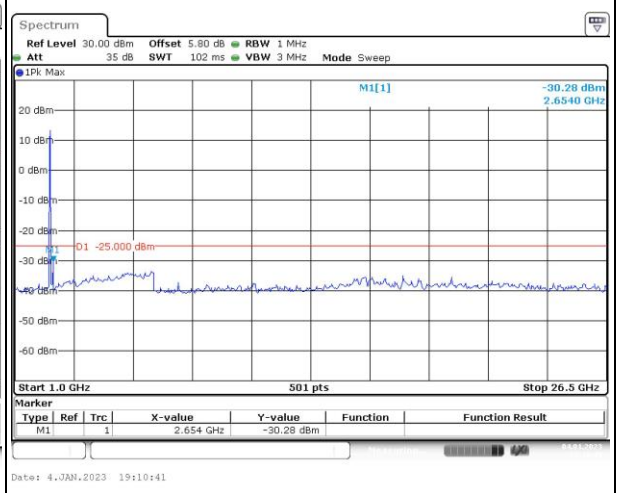
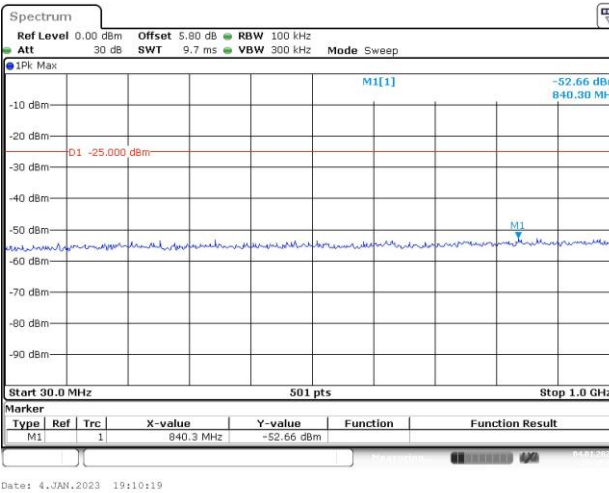
Channel

20MHz Bandwidth QPSK

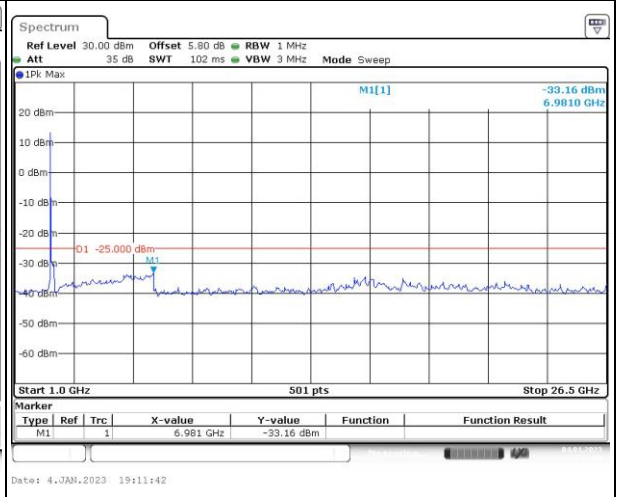
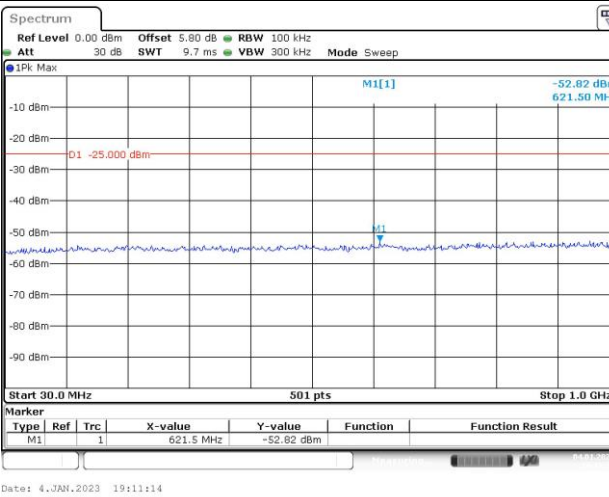
Lowest



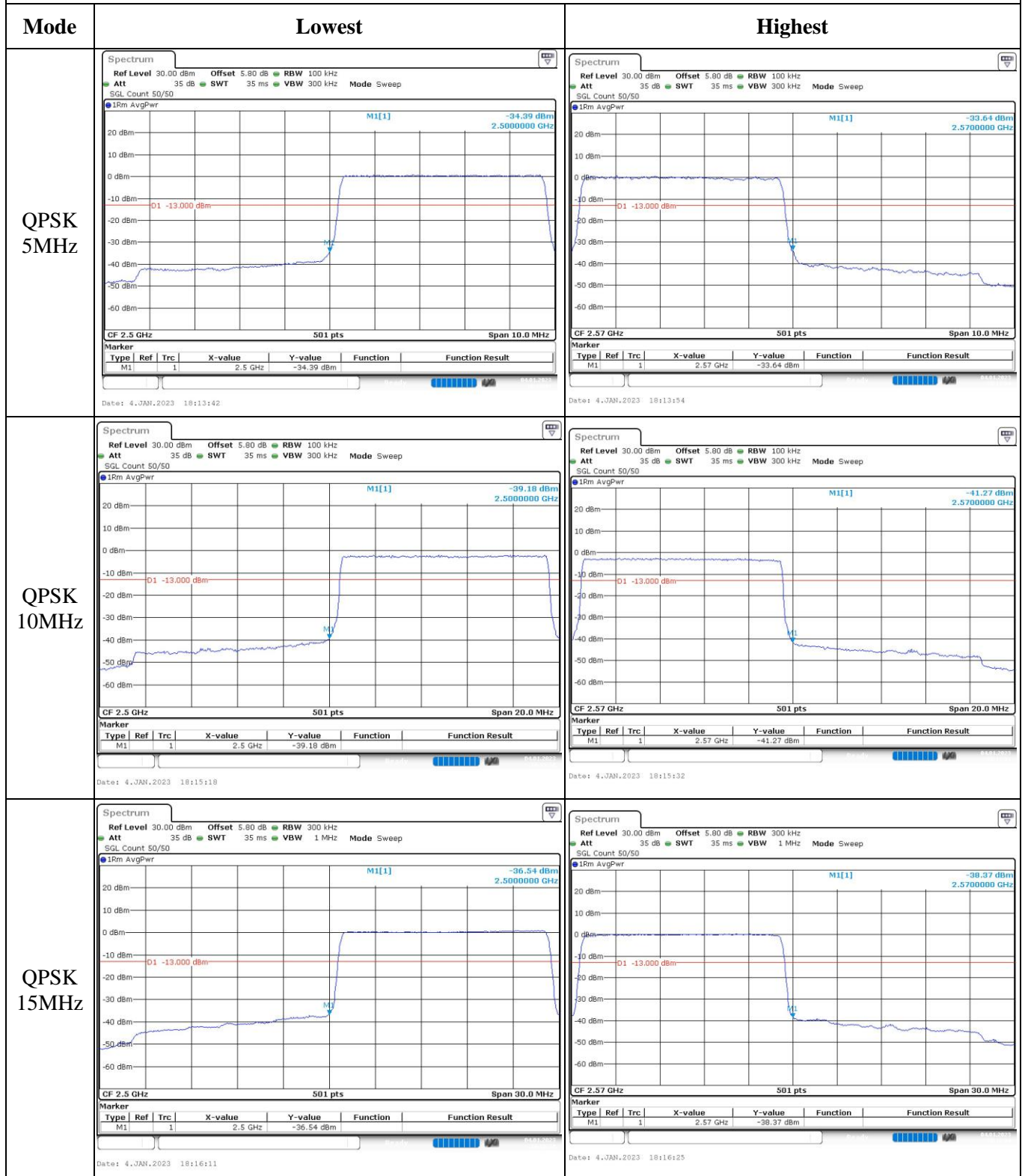
Middle



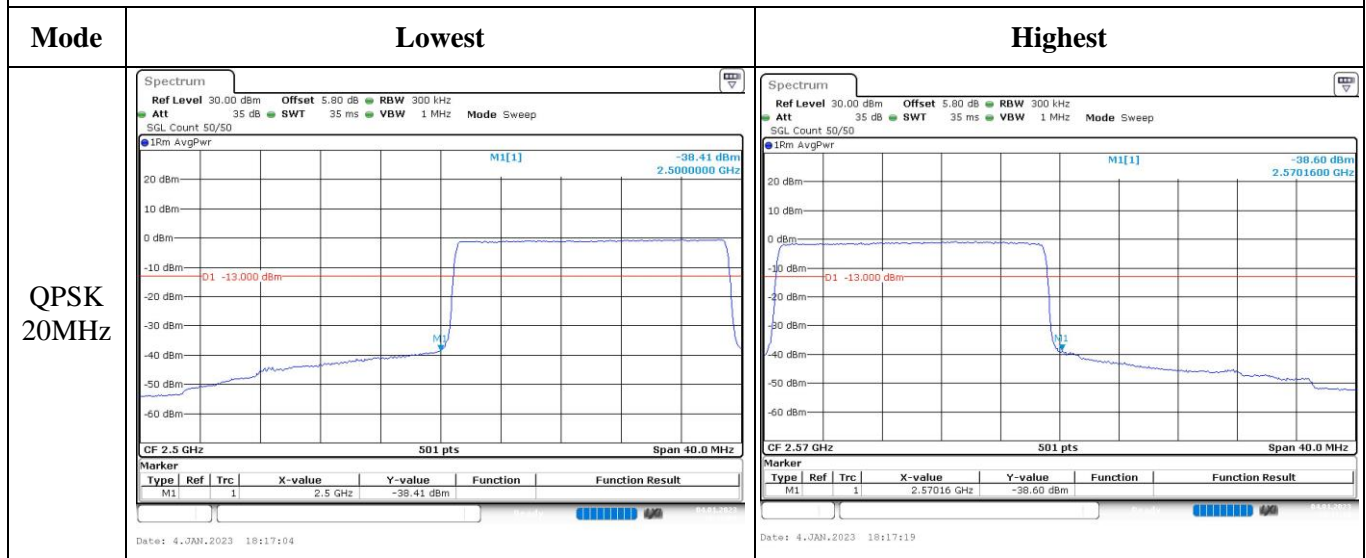
Highest



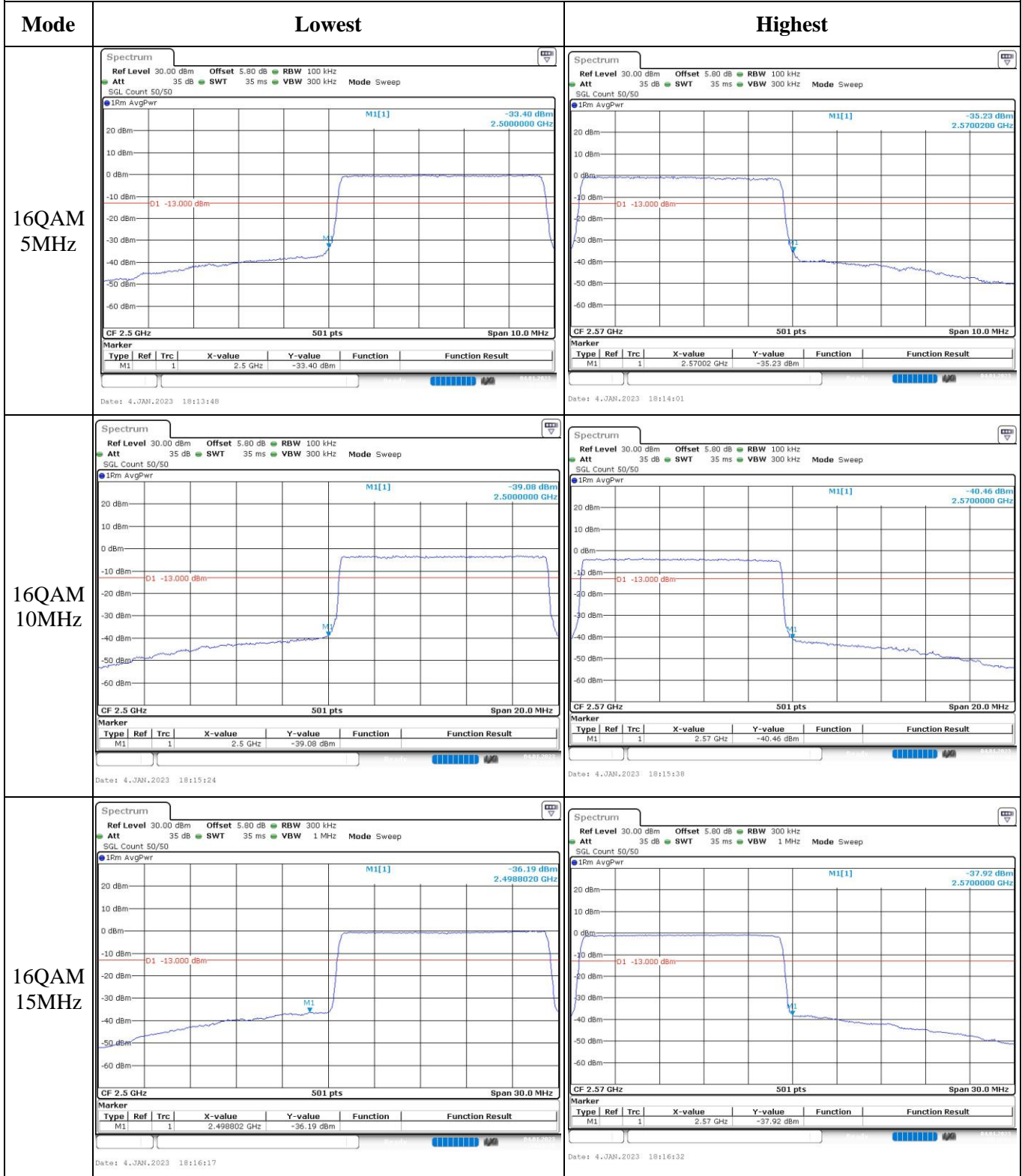
Out of band emission, Band Edge



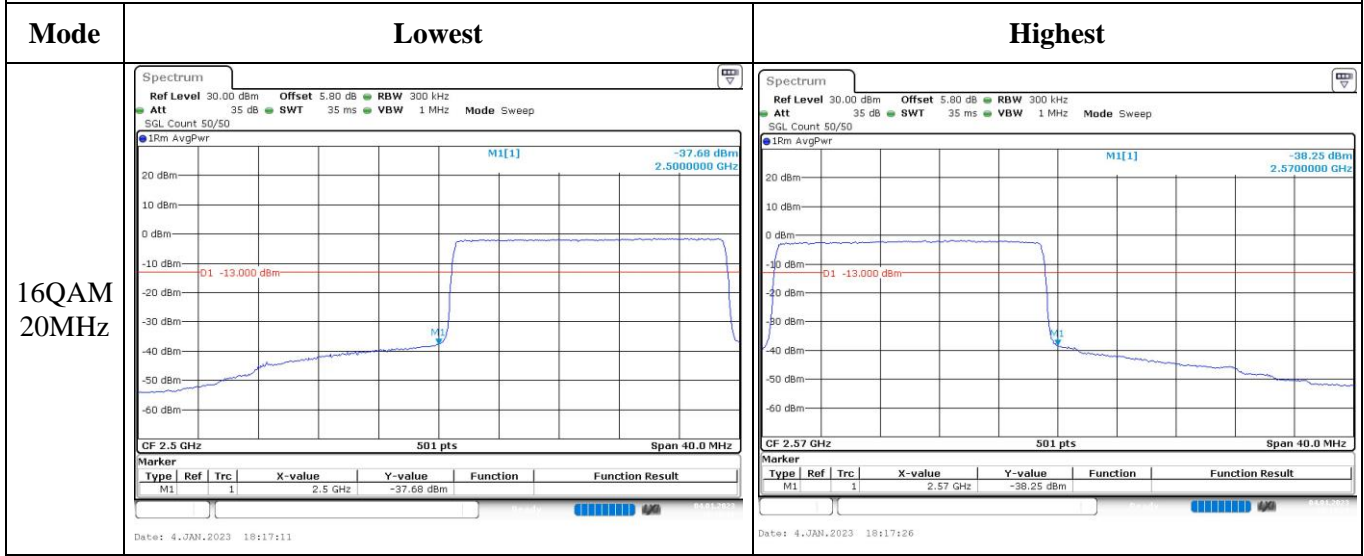
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.8 Antenna Port Test Data and Results for LTE Band 12

Serial Number:	CR221264592-RF-S1	Test Date:	2023/1/4~2023/1/12
Test Site:	RF	Test Mode:	Transmitting
Tester:	George Chen	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	21.3~24.8	Relative Humidity: (%)	38~55	ATM Pressure: (kPa)	101.1~101.9
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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	2022/7/15	2023/7/14
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	2022/4/6	2023/4/5
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2022/9/29	2023/9/28
UNI-T	Multimeter	UT39A+	C210582554	N/A	N/A
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	2022/7/15	2023/7/14

* 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	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:

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	23.35	23.37	23.35	19.23	34.77
	RB1#3	23.5	23.49	23.55		
	RB1#5	23.33	23.35	23.35		
	RB3#0	23.41	23.42	23.38		
	RB3#3	23.36	23.47	23.4		
	RB6#0	22.42	22.42	22.43		
1.4MHz 16QAM	RB1#0	22.35	22.44	22.3	18.34	34.77
	RB1#3	22.51	22.66	22.54		
	RB1#5	22.34	22.51	22.34		
	RB3#0	22.57	22.38	22.44		
	RB3#3	22.57	22.46	22.42		
	RB6#0	21.4	21.44	21.34		
3MHz QPSK	RB1#0	23.43	23.4	23.36	19.11	34.77
	RB1#8	23.35	23.38	23.39		
	RB1#14	23.4	23.32	23.39		
	RB6#0	22.3	22.35	22.37		
	RB6#9	22.29	22.37	22.39		
	RB15#0	22.37	22.38	22.36		
3MHz 16QAM	RB1#0	22.43	22.98	22.47	18.66	34.77
	RB1#8	22.3	22.92	22.51		
	RB1#14	22.36	22.91	22.52		
	RB6#0	21.28	21.45	21.38		
	RB6#9	21.25	21.38	21.42		
	RB15#0	21.39	21.45	21.33		
5MHz QPSK	RB1#0	23.32	23.36	23.31	19.12	34.77
	RB1#13	23.42	23.44	23.38		
	RB1#24	23.36	23.33	23.34		
	RB15#0	22.31	22.52	22.39		
	RB15#10	22.43	22.44	22.29		
	RB25#0	22.37	22.45	22.32		
5MHz 16QAM	RB1#0	22.37	22.19	22.59	18.29	34.77
	RB1#13	22.51	22.34	22.61		
	RB1#24	22.39	22.2	22.58		
	RB15#0	21.32	21.54	21.35		
	RB15#10	21.43	21.47	21.28		
	RB25#0	21.33	21.51	21.32		
10MHz QPSK	RB1#0	23.34	23.35	23.42	19.22	34.77
	RB1#25	23.54	23.5	23.54		
	RB1#49	23.32	23.37	23.41		

	RB25#0	22.42	22.61	22.4		
	RB25#25	22.41	22.59	22.35		
	RB50#0	22.36	22.52	22.38		
10MHz 16QAM	RB1#0	22.94	22.51	22.41	18.8	34.77
	RB1#25	23.12	22.71	22.53		
	RB1#49	22.91	22.5	22.38		
	RB25#0	21.48	21.62	21.48		
	RB25#25	21.39	21.6	21.48		
	RB50#0	21.41	21.57	21.41		

Note:

ERP= Conducted Power(dBm) - Lc(dB) + Gr(dBd)

Gr(dBd)=Gr(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	4.87	5.19	5.45	13
	RB50#0	5.39	5.48	5.33	13
10MHz 16QAM	RB1#0	5.59	6.03	6.41	13
	RB50#0	6.35	6.35	6.26	13
Result:					Pass

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	1.108	1.102	1.108	1.416	1.38	1.35
1.4MHz 16QAM	1.096	1.108	1.102	1.296	1.374	1.296
3MHz QPSK	2.683	2.683	2.683	2.88	2.904	2.88
3MHz 16QAM	2.683	2.683	2.683	2.868	2.892	2.88
5MHz QPSK	4.531	4.531	4.511	5.18	5.24	5.16
5MHz 16QAM	4.511	4.551	4.551	5.08	5.2	5.18
10MHz QPSK	8.942	8.982	8.982	10.52	9.88	10.32
10MHz 16QAM	8.942	8.982	8.982	10.2	10	10.28

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

Spurious Emissions at Antenna Terminal**Result: Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**

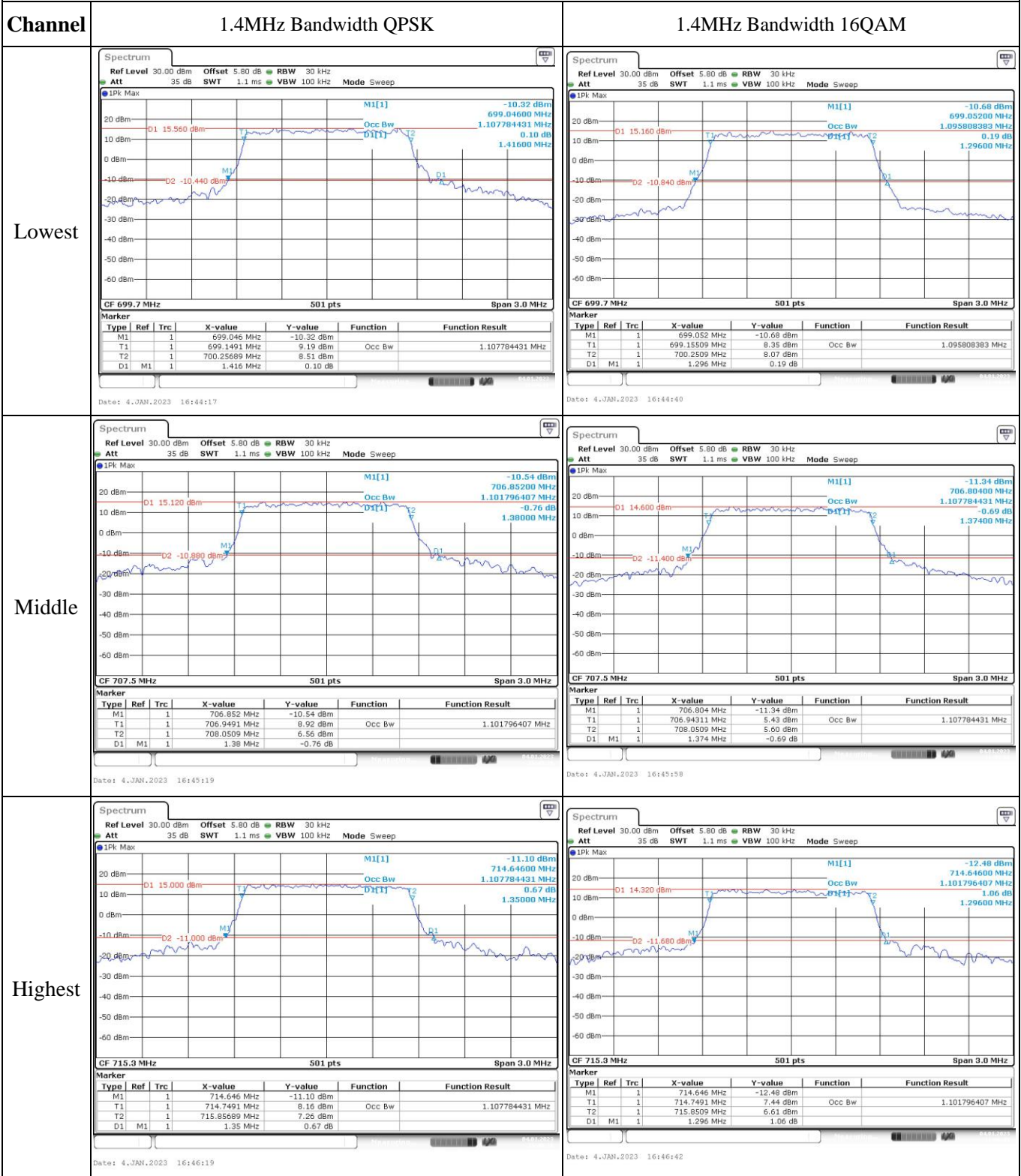
Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

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	699.573	699.00	715.513	716.00
	-20	3.85	699.535	699.00	715.537	716.00
	-10	3.85	699.587	699.00	715.560	716.00
	0	3.85	699.575	699.00	715.526	716.00
	10	3.85	699.592	699.00	715.588	716.00
	20	3.85	699.529	699.00	715.511	716.00
	30	3.85	699.507	699.00	715.541	716.00
	40	3.85	699.563	699.00	715.513	716.00
Frequency Stability vs. Voltage	20	3.45	699.548	699.00	715.553	716.00
	20	4.4	699.588	699.00	715.567	716.00
					Result:	Pass

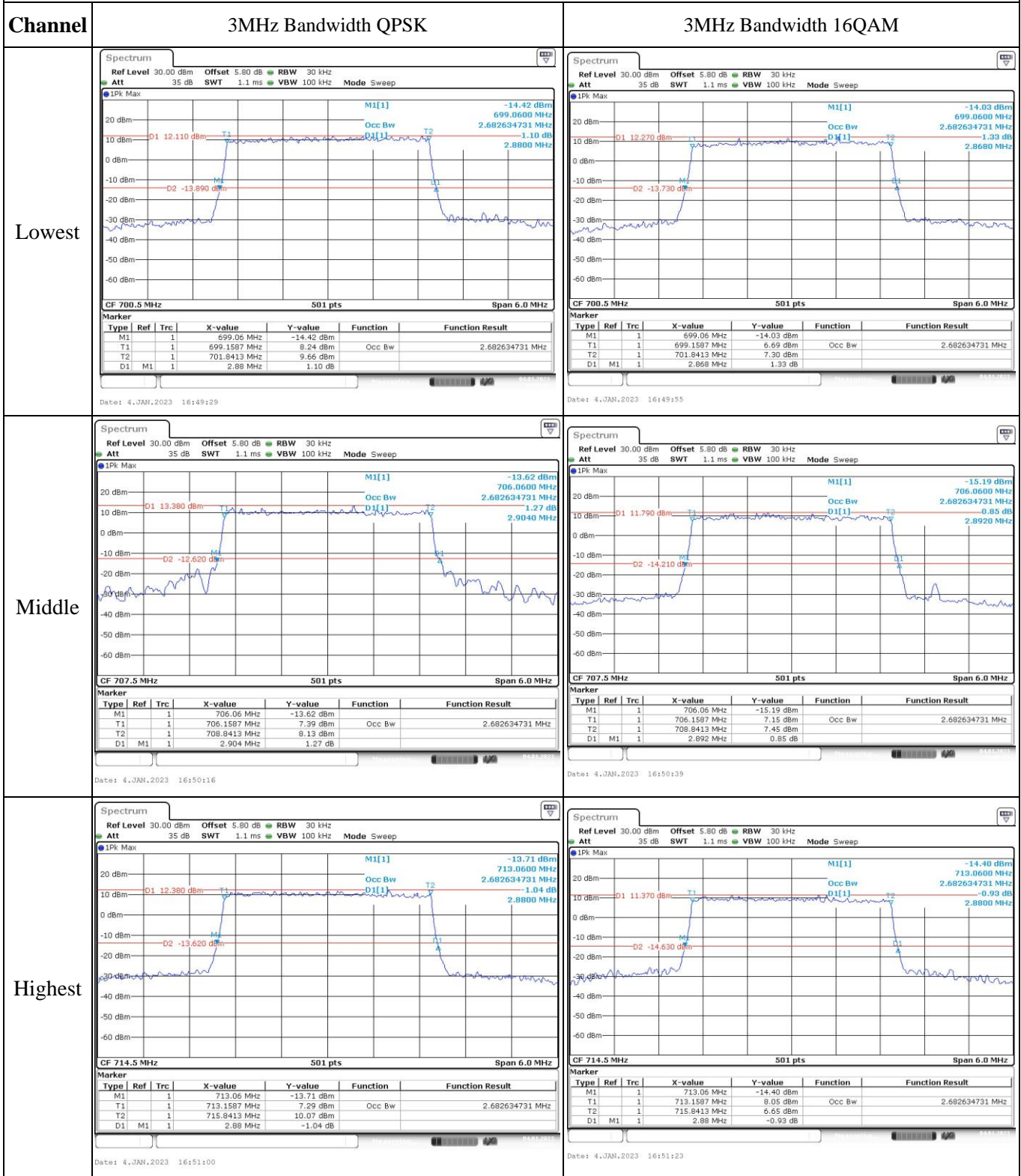
Test Mode:	10M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature(°C)	Voltage(V _{DC})	Lower Edge(MHz)		Upper Edge(MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	699.516	699.00	715.562	716.00
	-20	3.85	699.517	699.00	715.588	716.00
	-10	3.85	699.545	699.00	715.554	716.00
	0	3.85	699.546	699.00	715.523	716.00
	10	3.85	699.573	699.00	715.559	716.00
	20	3.85	699.529	699.00	715.511	716.00
	30	3.85	699.550	699.00	715.539	716.00
	40	3.85	699.566	699.00	715.574	716.00
Frequency Stability vs. Voltage	20	3.45	699.582	699.00	715.508	716.00
	20	4.4	699.512	699.00	715.525	716.00
					Result:	Pass

Test Plots:

Occupied Bandwidth



Occupied Bandwidth



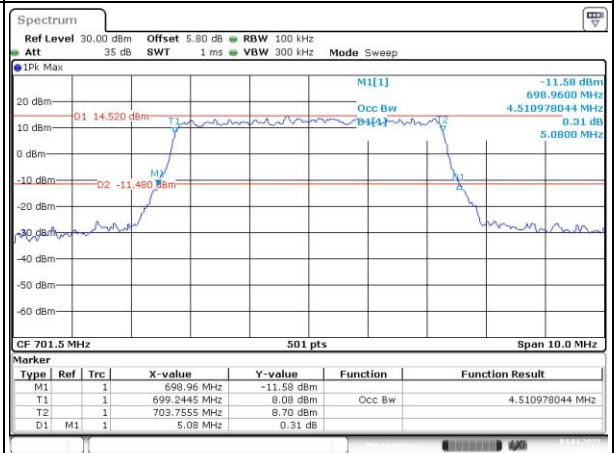
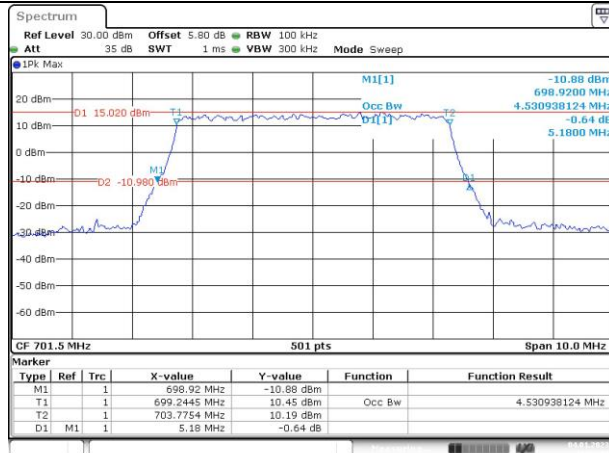
Occupied Bandwidth

Channel

5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

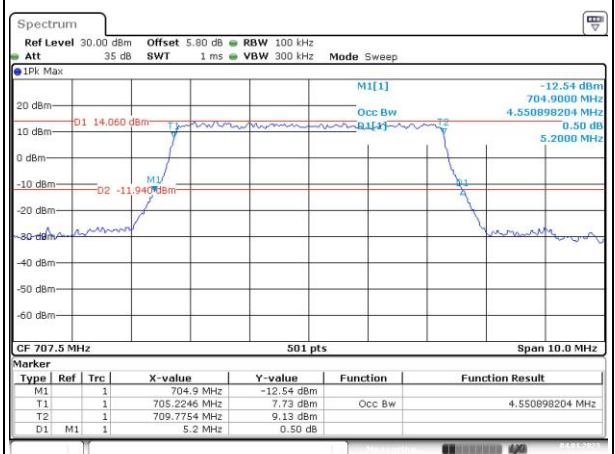
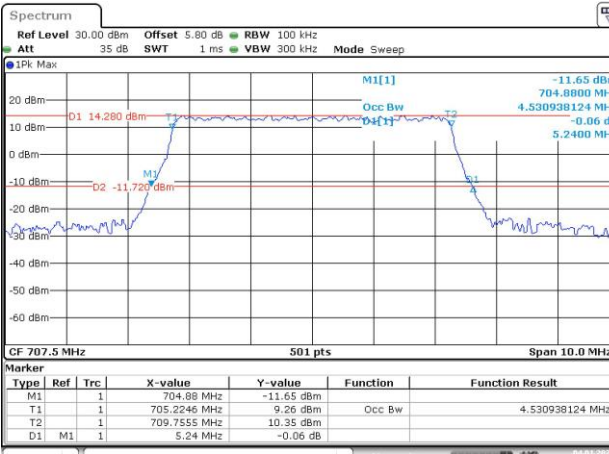
Lowest



Date: 4.JAN.2023 16:52:14

Date: 4.JAN.2023 16:53:01

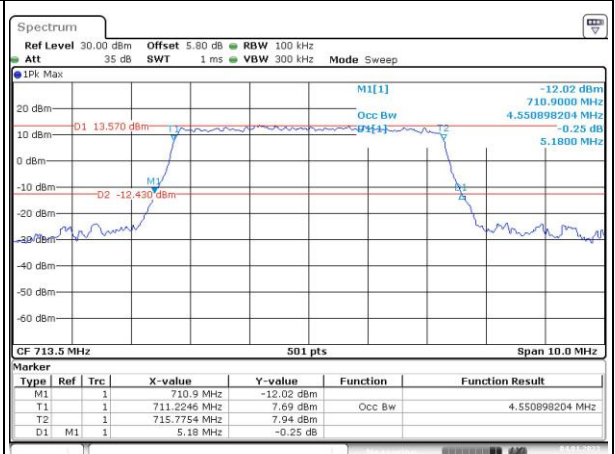
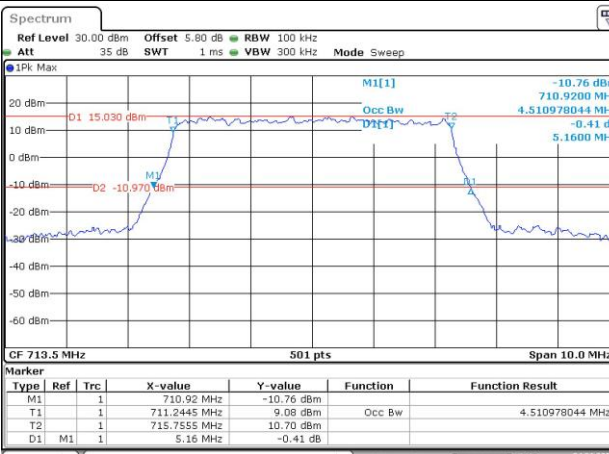
Middle



Date: 4.JAN.2023 16:53:11

Date: 4.JAN.2023 16:53:55

Highest



Date: 4.JAN.2023 16:54:29

Date: 4.JAN.2023 16:54:56

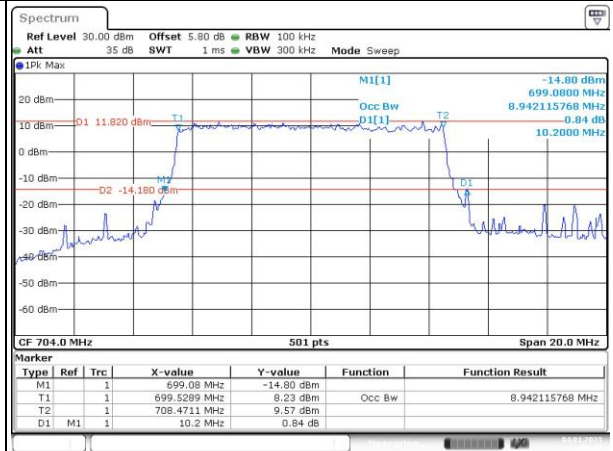
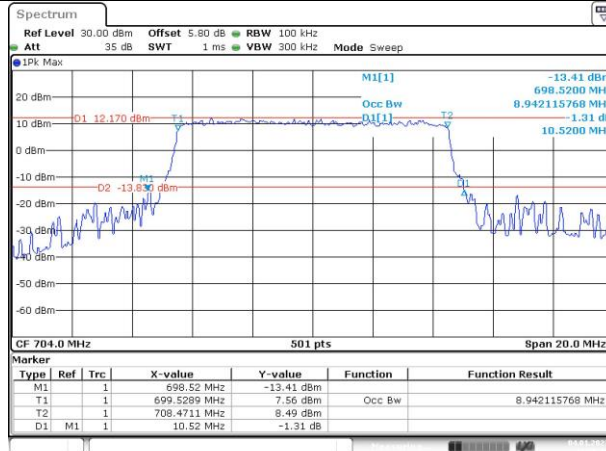
Occupied Bandwidth

Channel

10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

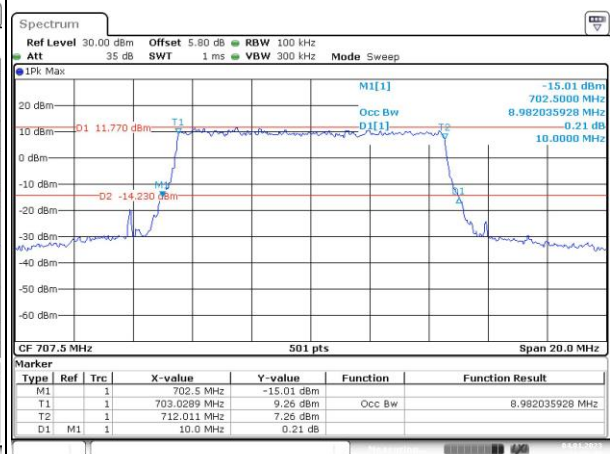
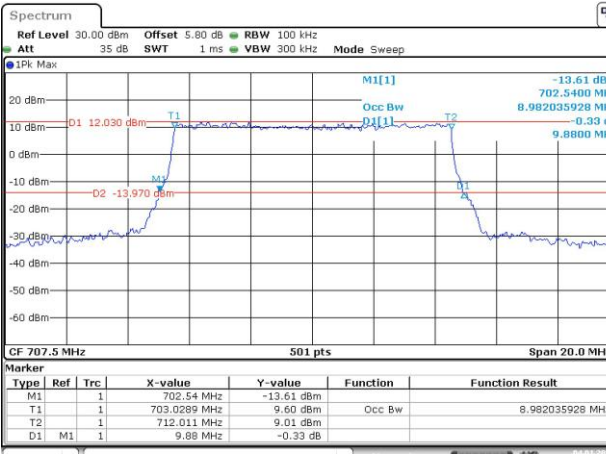
Lowest



Date: 4.JAN.2023 16:56:10

Date: 4.JAN.2023 16:56:44

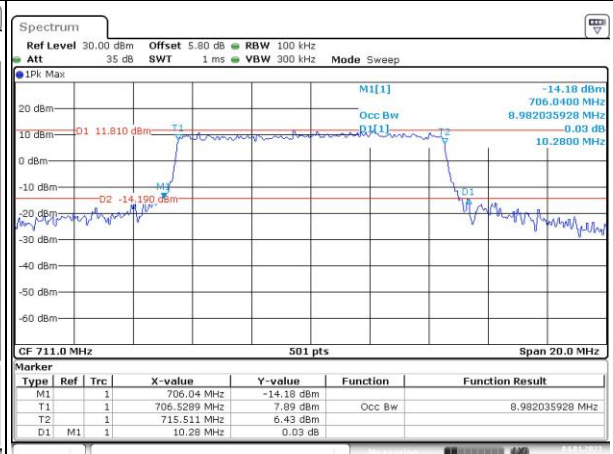
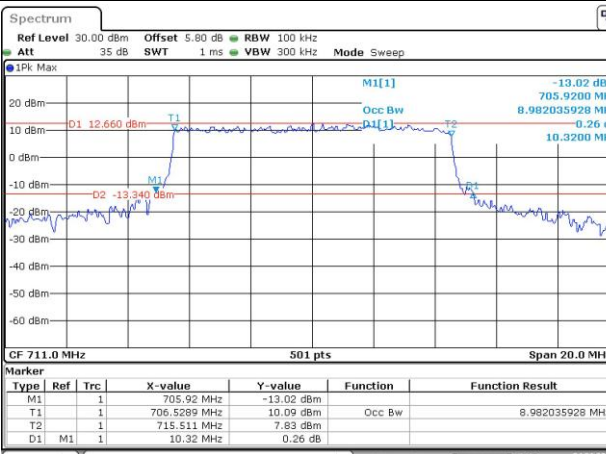
Middle



Date: 4.JAN.2023 16:57:12

Date: 4.JAN.2023 16:57:49

Highest



Date: 4.JAN.2023 16:58:39

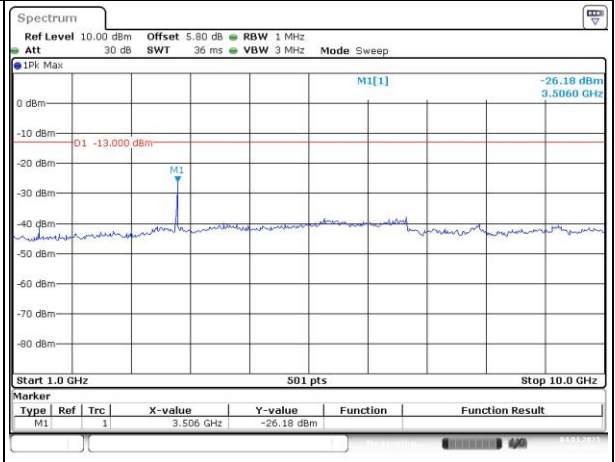
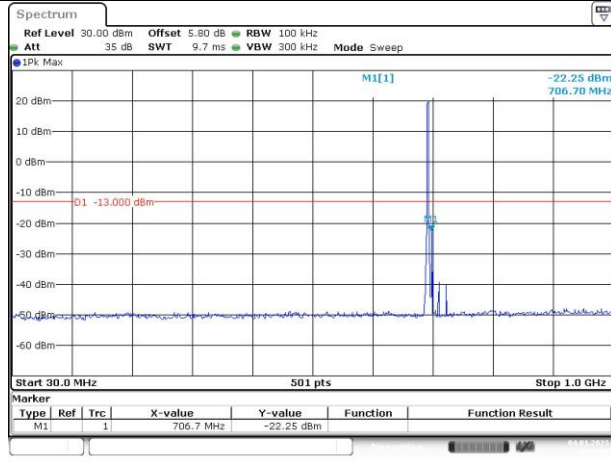
Date: 4.JAN.2023 16:59:19

Spurious Emissions at Antenna Terminal

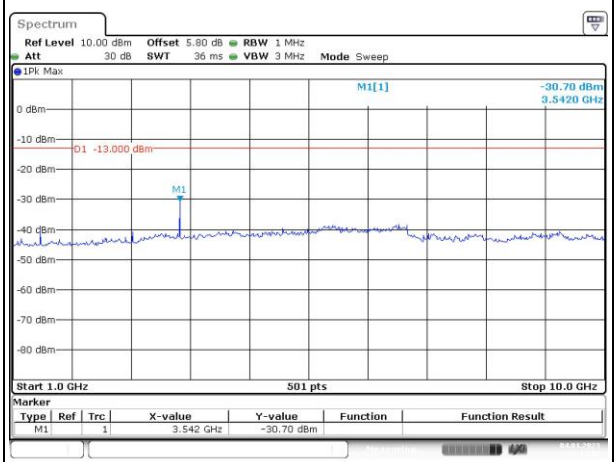
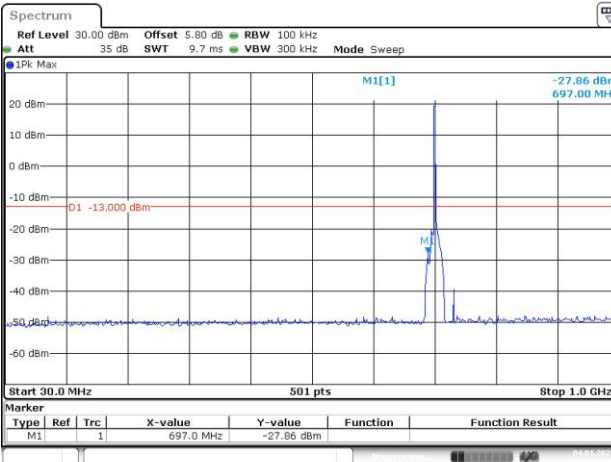
Channel

1.4MHz Bandwidth QPSK

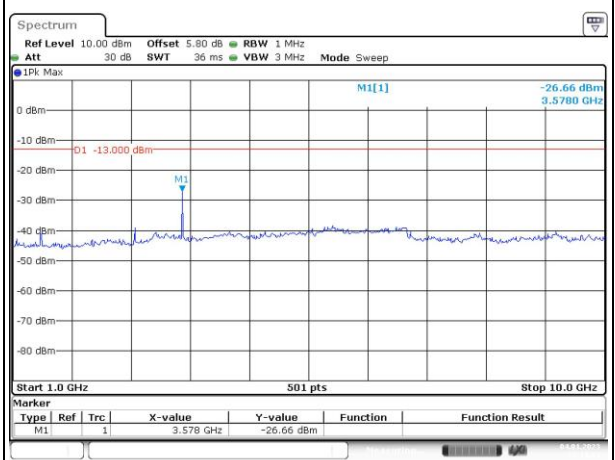
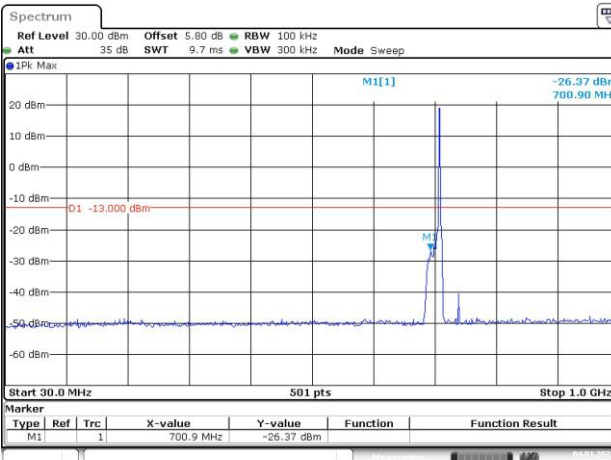
Lowest



Middle



Highest

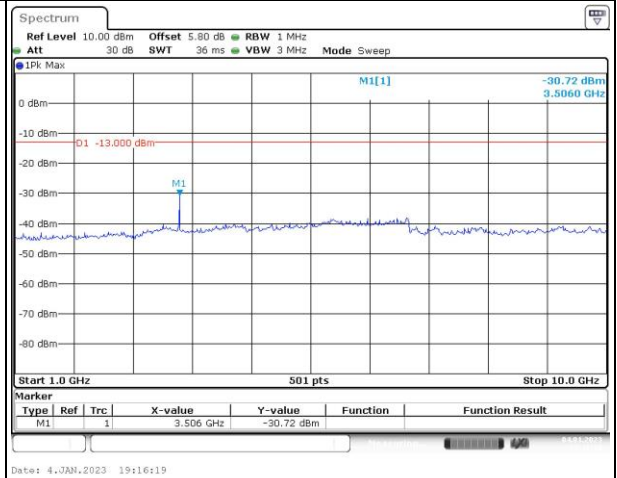
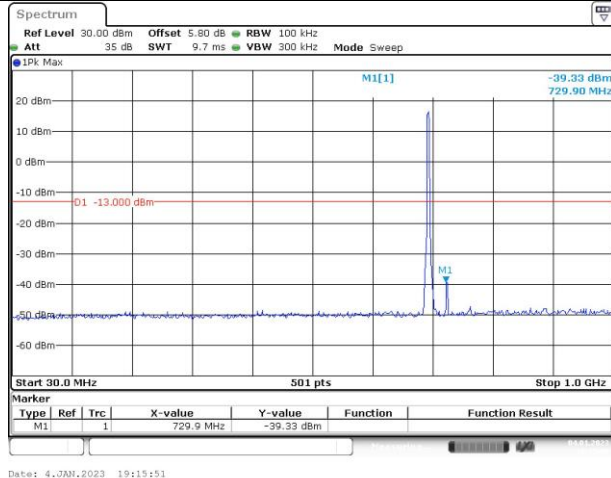


Spurious Emissions at Antenna Terminal

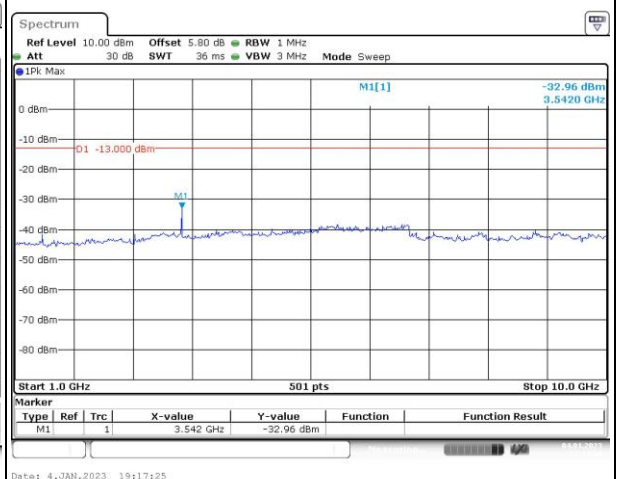
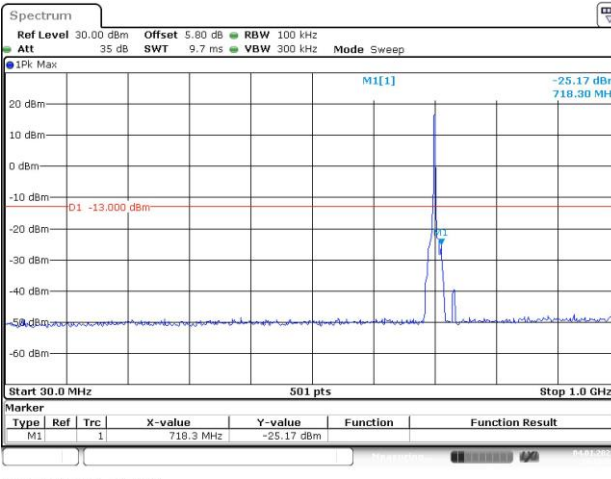
Channel

3MHz Bandwidth QPSK

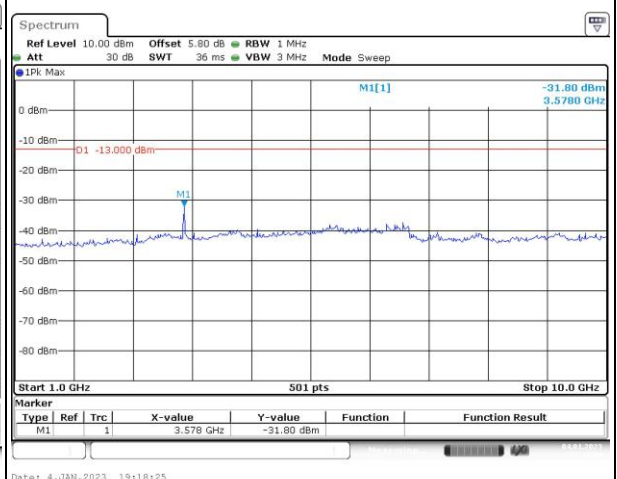
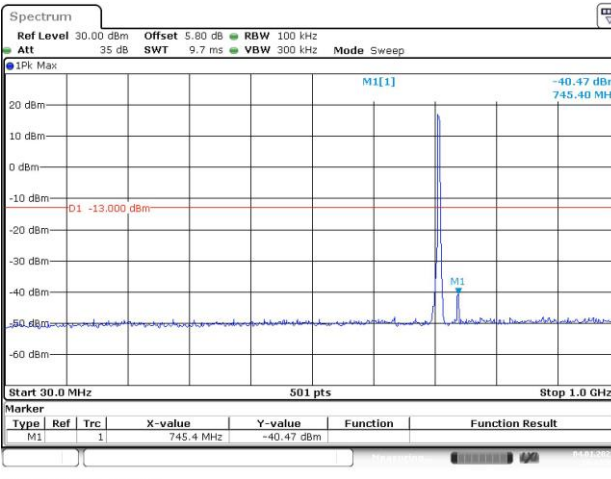
Lowest



Middle



Highest

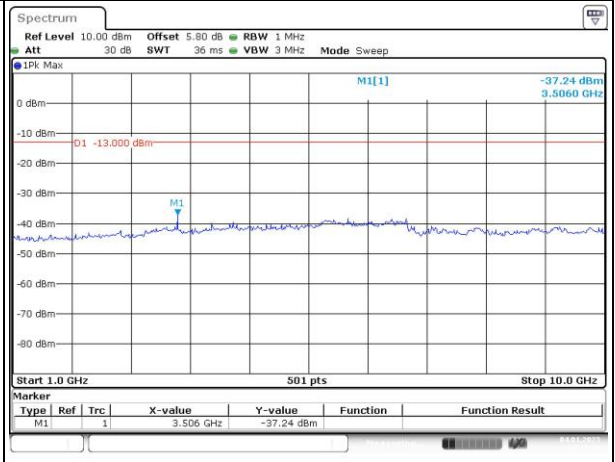
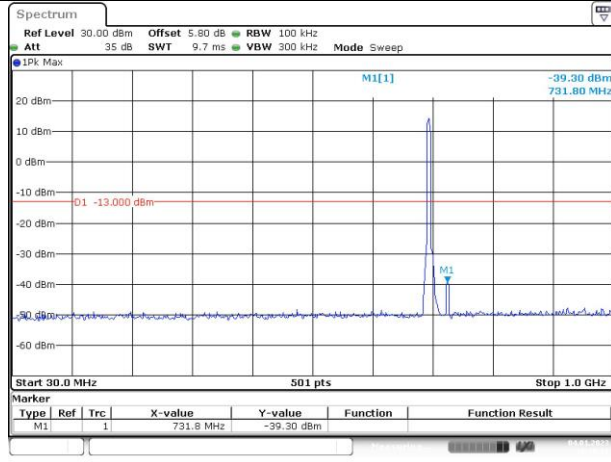


Spurious Emissions at Antenna Terminal

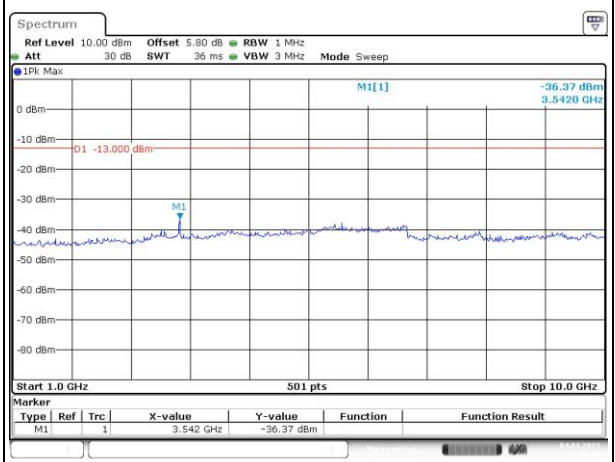
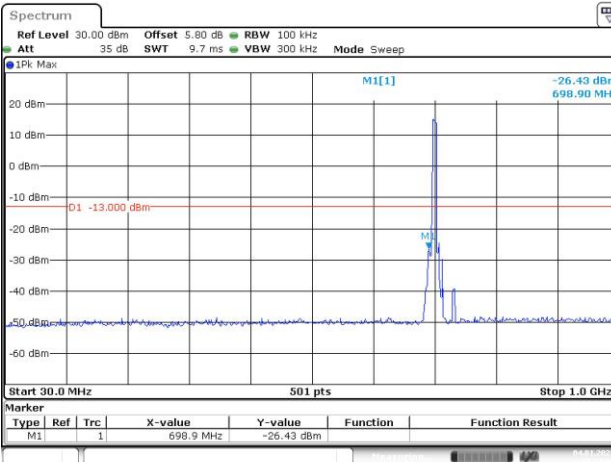
Channel

5MHz Bandwidth QPSK

Lowest



Middle



Highest

