

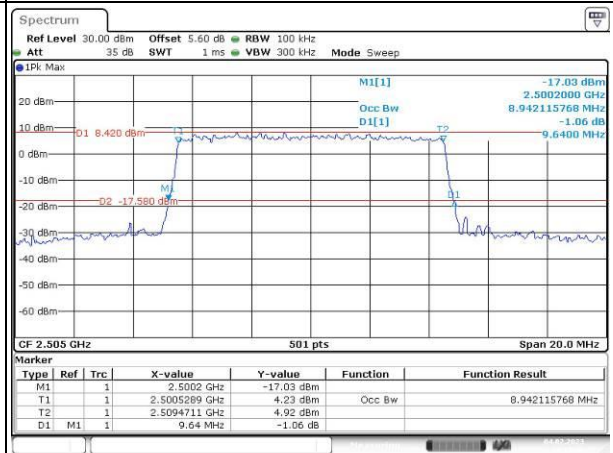
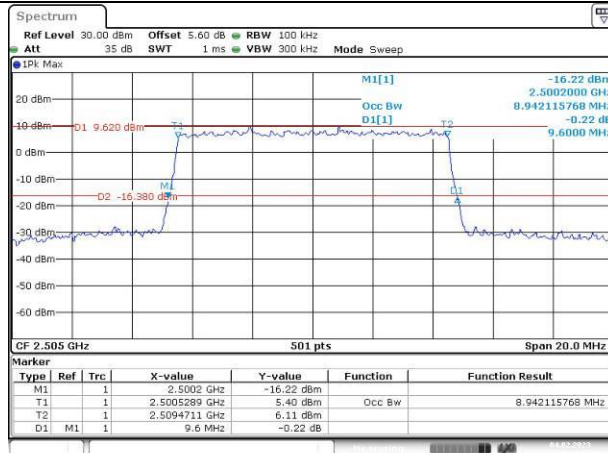
Occupied Bandwidth

Channel

10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

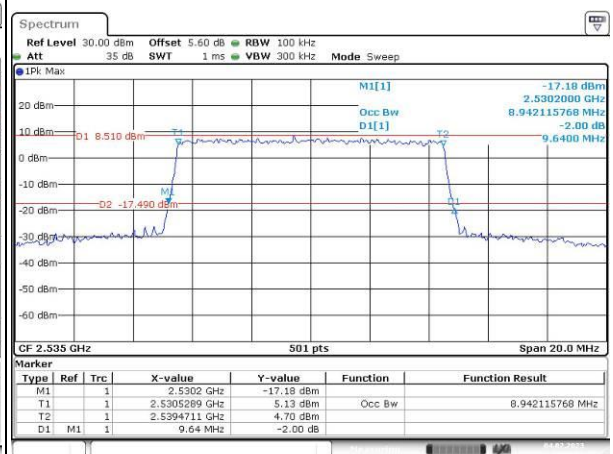
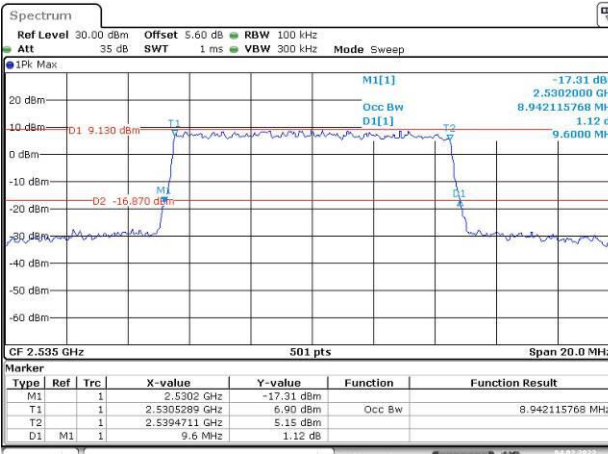
Lowest



Date: 4.FEB.2023 18:19:02

Date: 4.FEB.2023 18:19:40

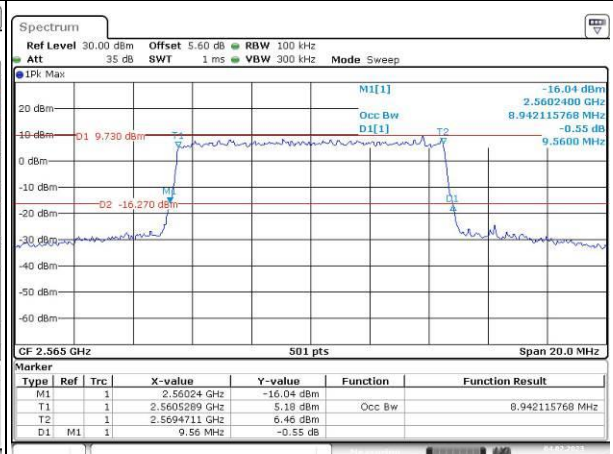
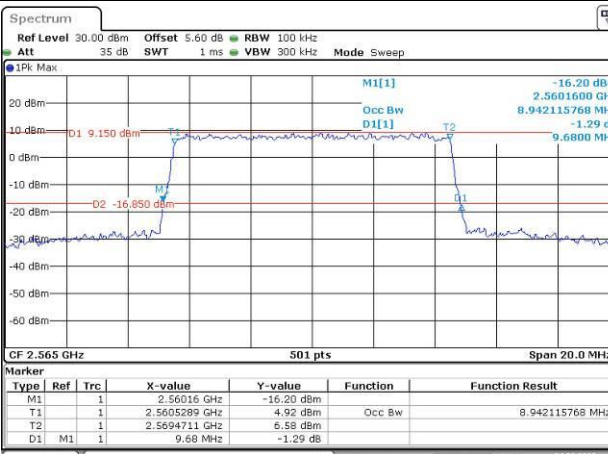
Middle



Date: 4.FEB.2023 18:20:12

Date: 4.FEB.2023 18:20:50

Highest



Date: 4.FEB.2023 18:21:30

Date: 4.FEB.2023 18:22:05

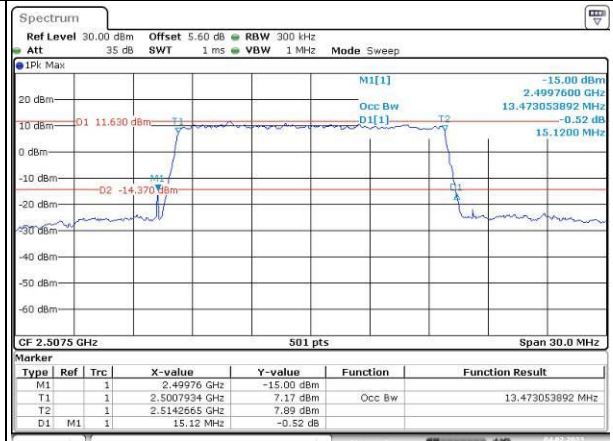
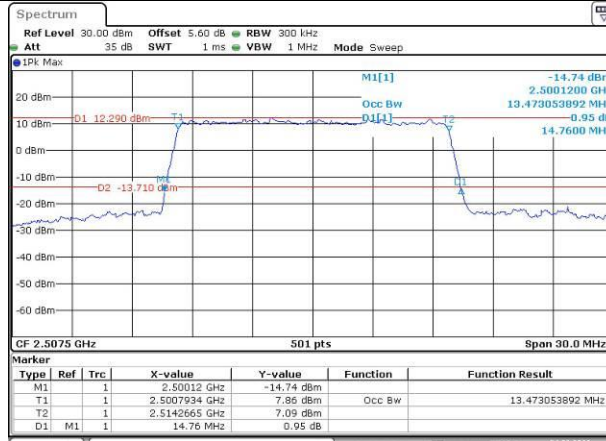
Occupied Bandwidth

Channel

15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

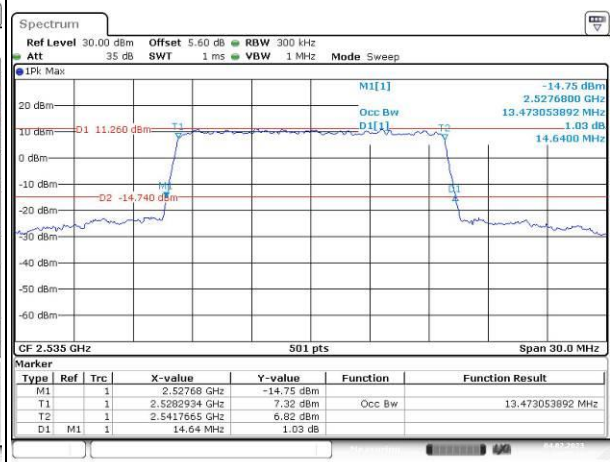
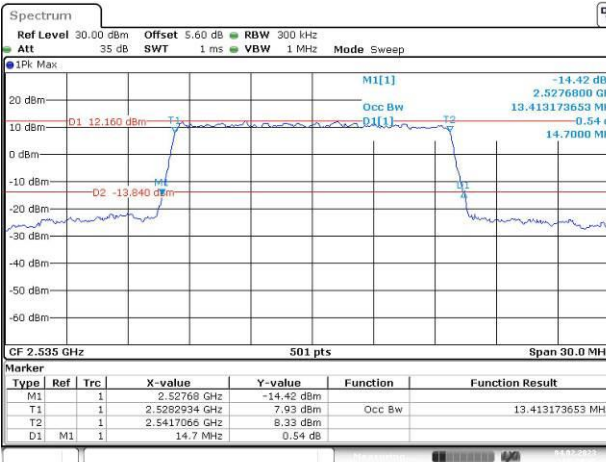
Lowest



Date: 4.FEB.2023 18:23:43

Date: 4.FEB.2023 18:24:17

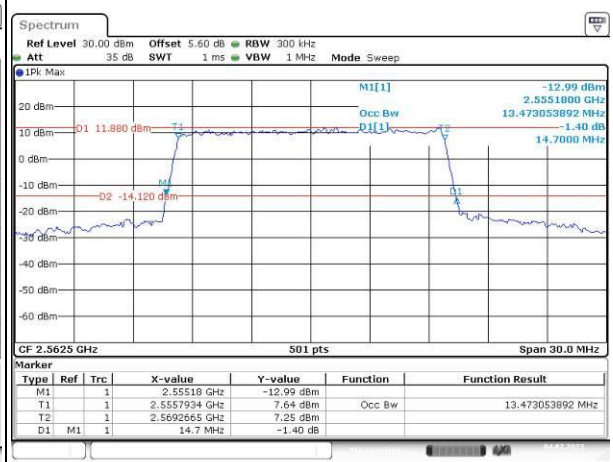
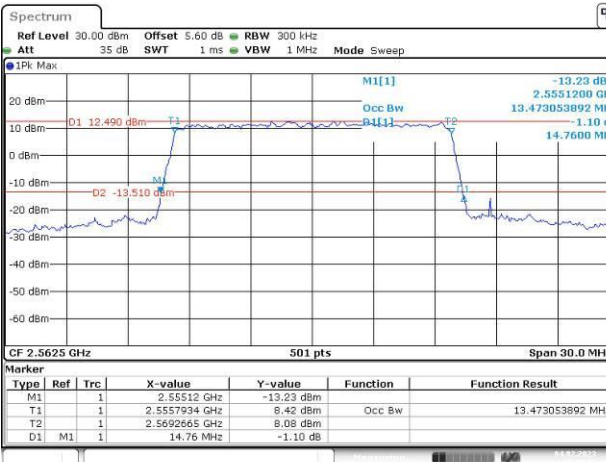
Middle



Date: 4.FEB.2023 18:24:45

Date: 4.FEB.2023 18:25:19

Highest



Date: 4.FEB.2023 18:25:50

Date: 4.FEB.2023 18:26:24

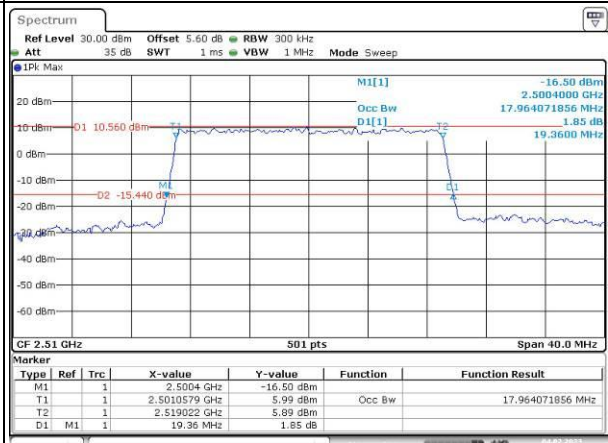
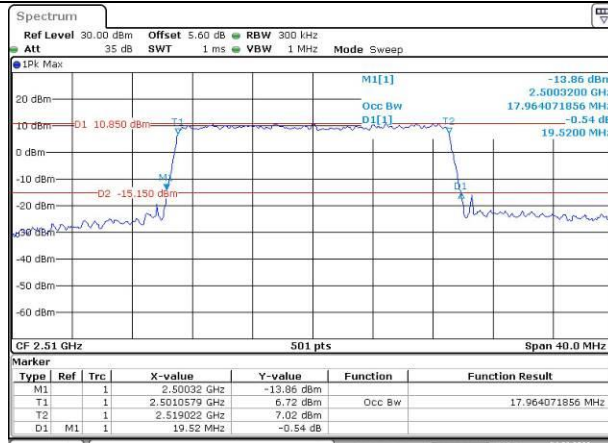
Occupied Bandwidth

Channel

20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

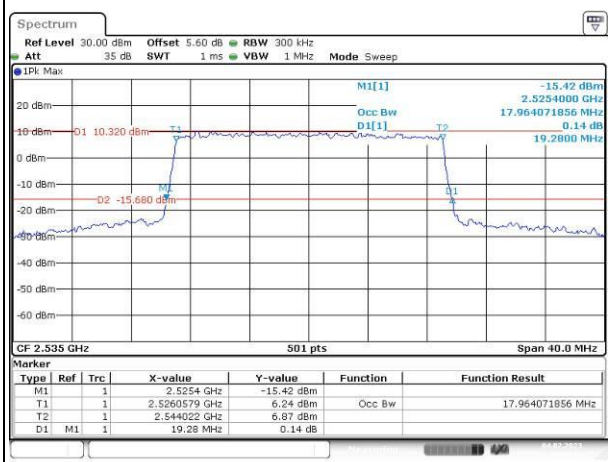
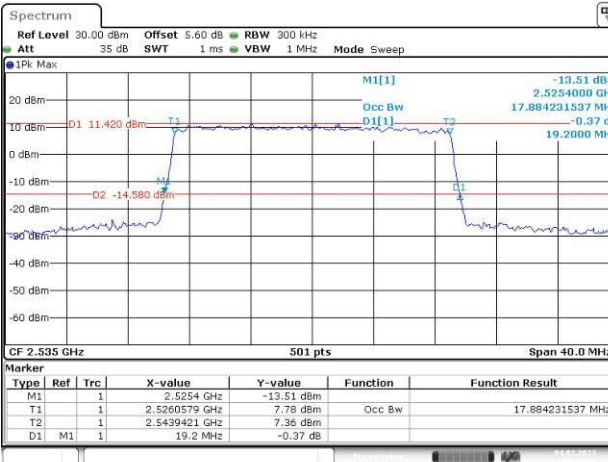
Lowest



Date: 4.FEB.2023 18:28:03

Date: 4.FEB.2023 18:28:34

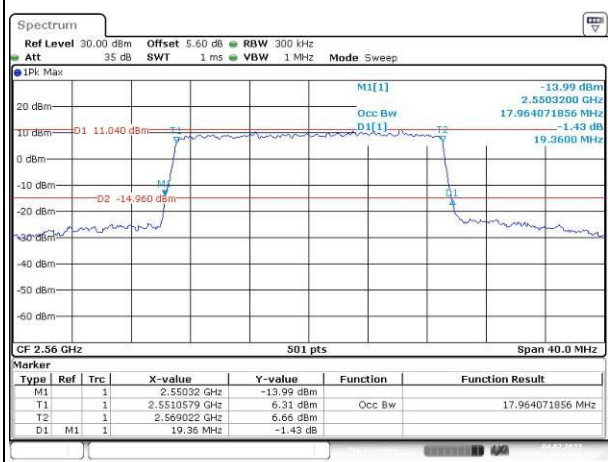
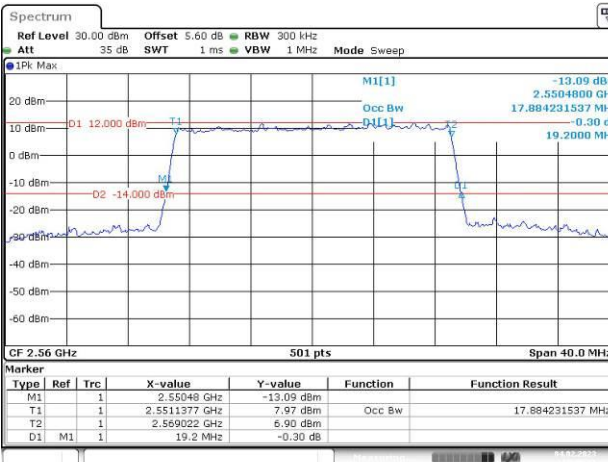
Middle



Date: 4.FEB.2023 18:29:09

Date: 4.FEB.2023 18:29:39

Highest



Date: 4.FEB.2023 18:30:11

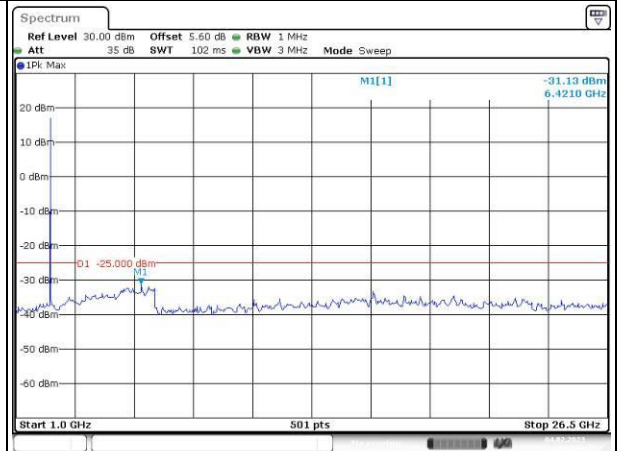
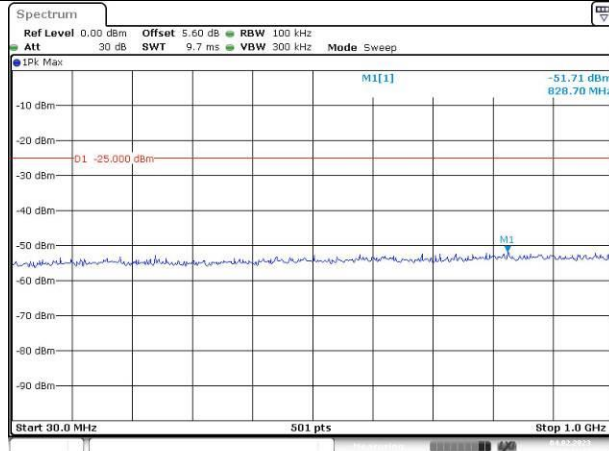
Date: 4.FEB.2023 18:30:49

Spurious Emissions at Antenna Terminal

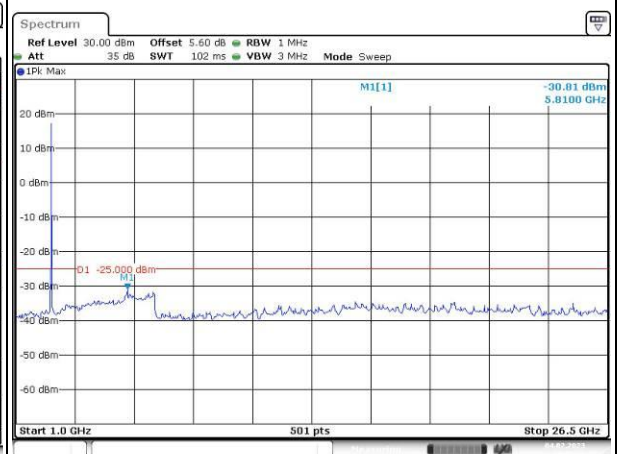
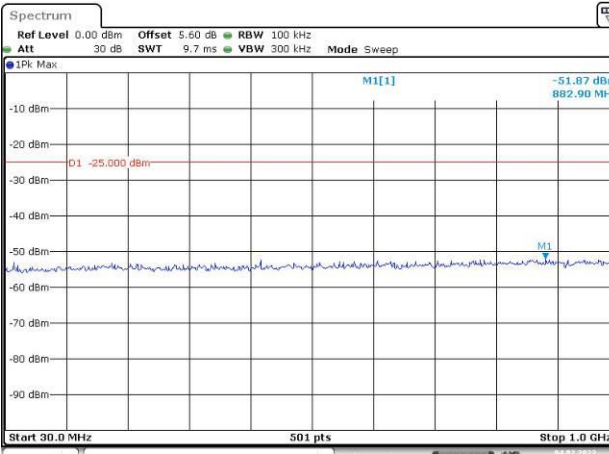
Channel

5MHz Bandwidth QPSK

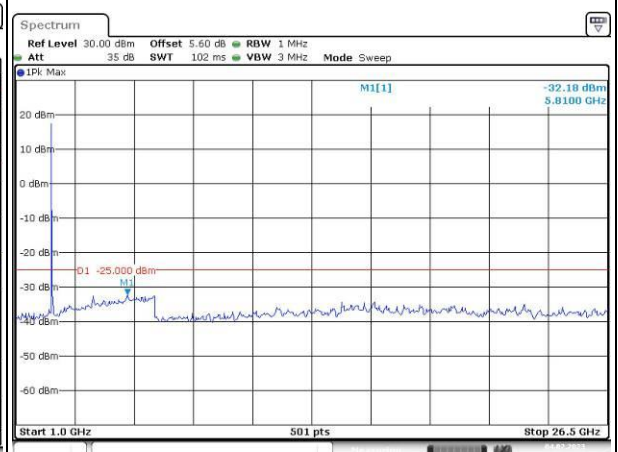
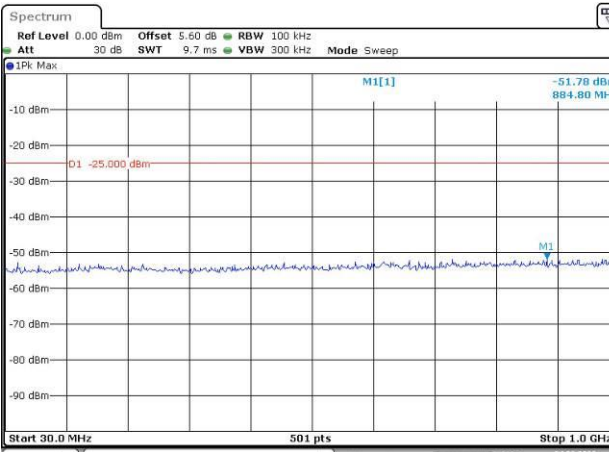
Lowest



Middle



Highest

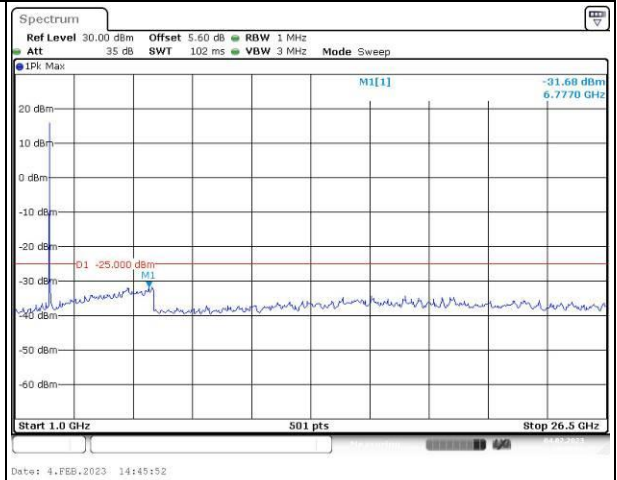
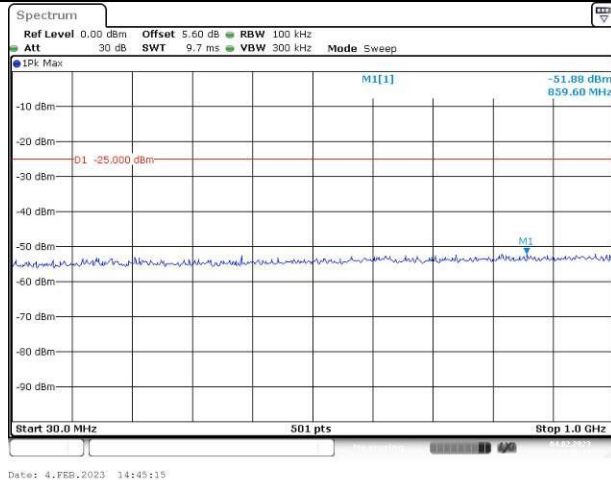


Spurious Emissions at Antenna Terminal

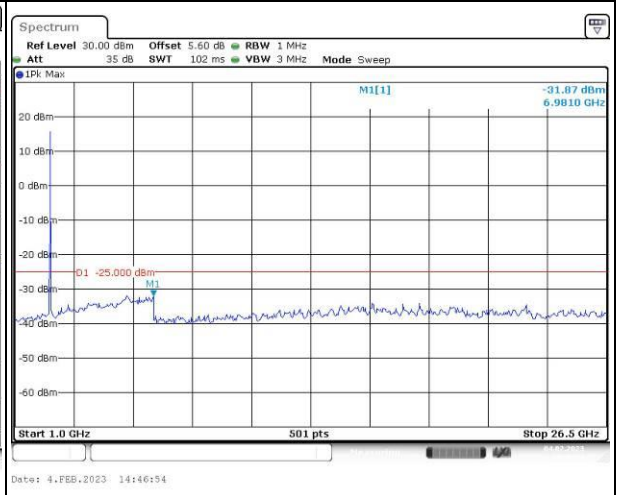
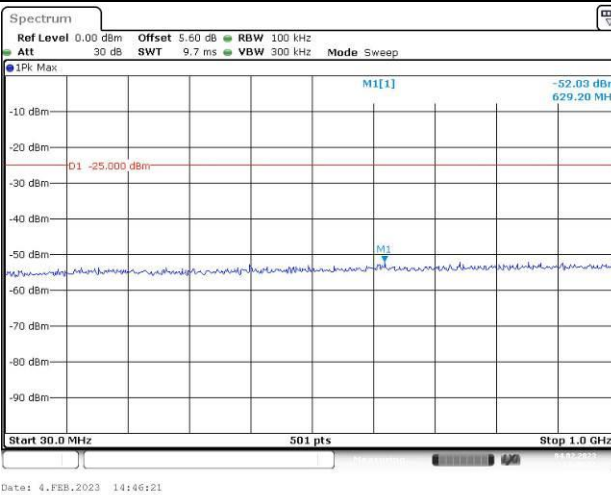
Channel

10MHz Bandwidth QPSK

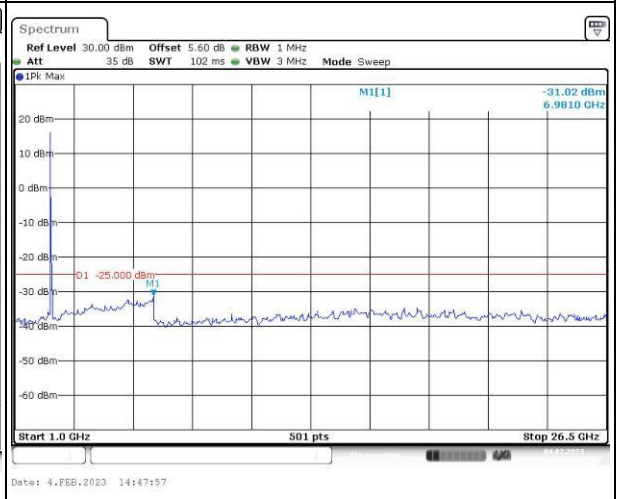
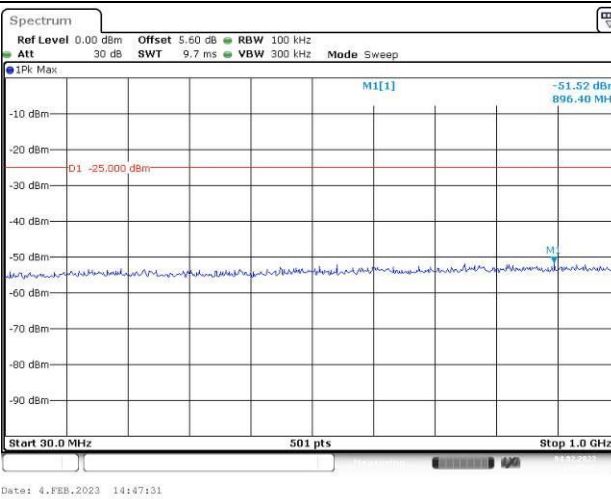
Lowest



Middle



Highest

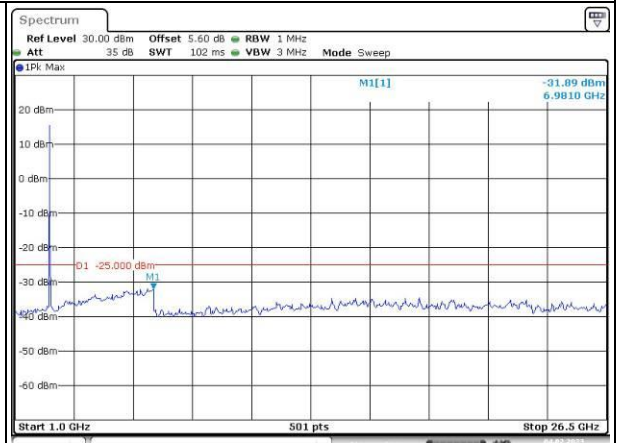
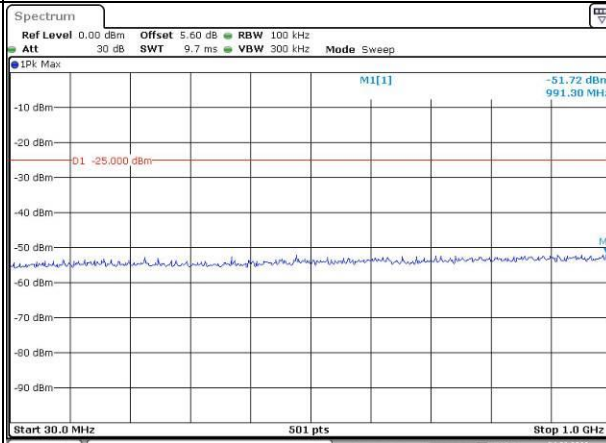


Spurious Emissions at Antenna Terminal

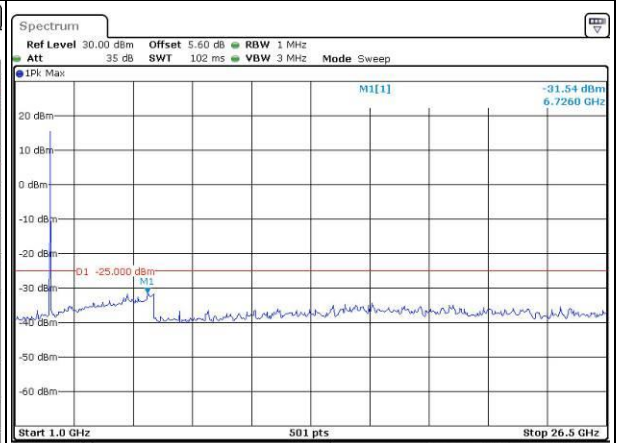
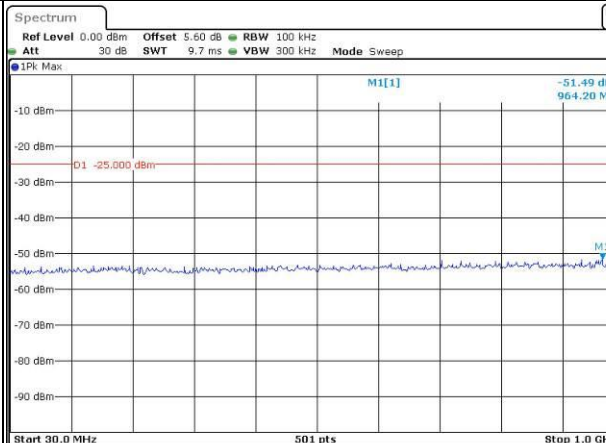
Channel

15MHz Bandwidth QPSK

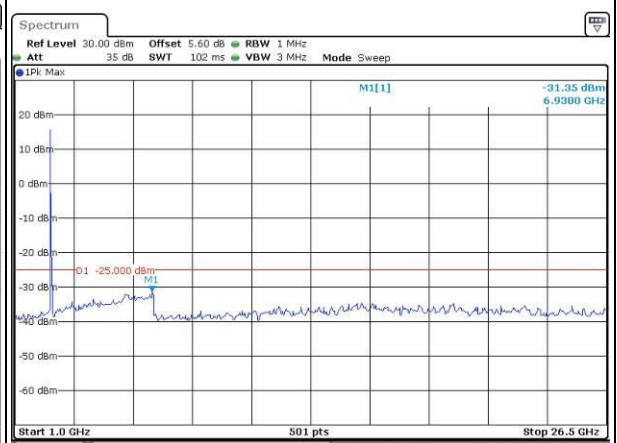
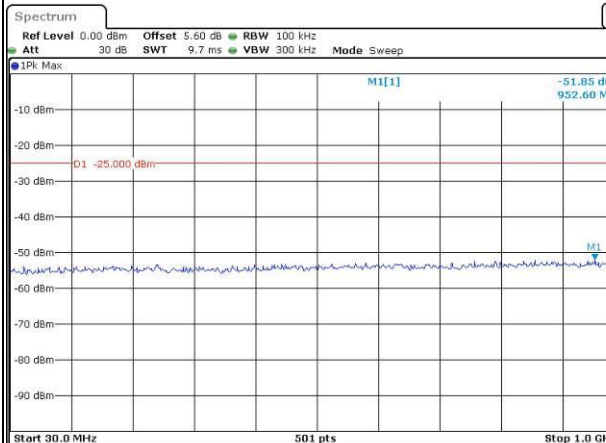
Lowest



Middle



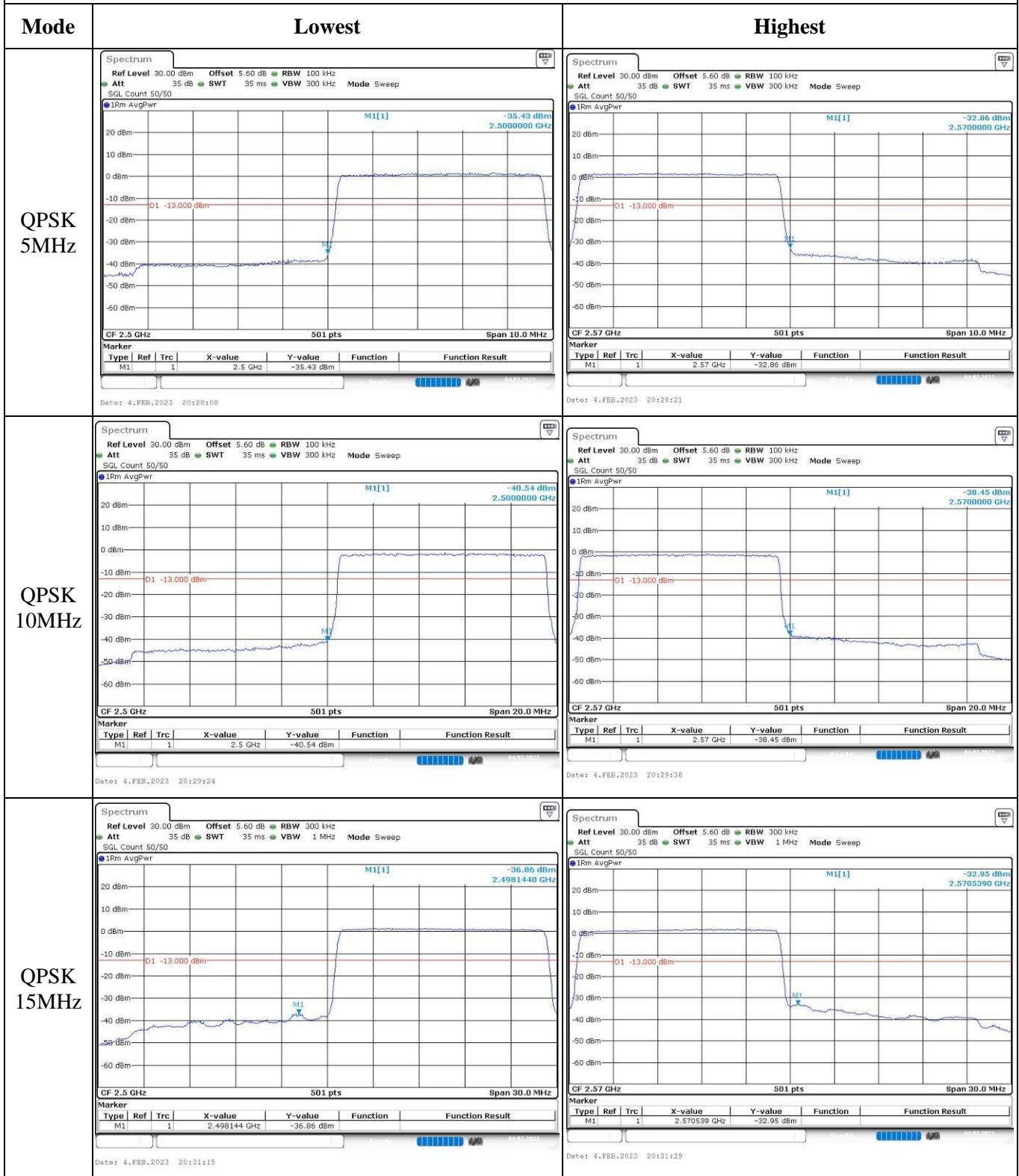
Highest



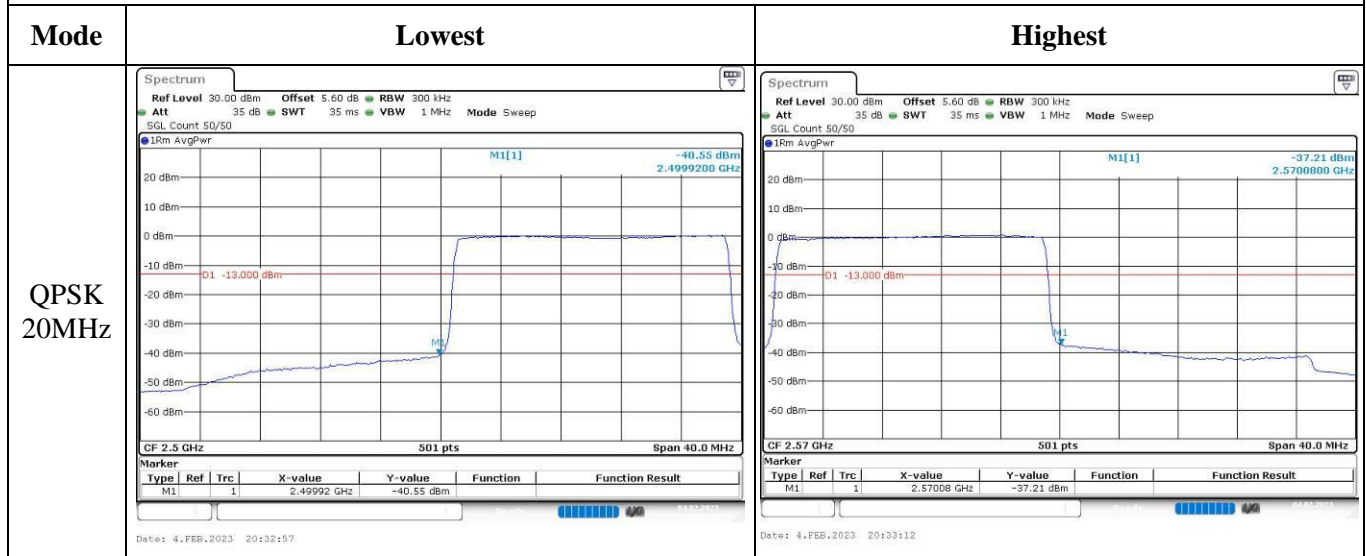
Spurious Emissions at Antenna Terminal

Channel	20MHz Bandwidth QPSK	
Lowest	<p>Ref Level 0.00 dBm Offset 5.60 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Sweep</p> <p>IPk Max M1[1] -51.79 dBm 865.40 MHz</p> <p>D1 -25.000 dBm</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>Date: 4.FEB.2023 14:53:35</p>	<p>Ref Level 30.00 dBm Offset 5.60 dB RBW 1 MHz Att 35 dB SWT 102 ms VBW 3 MHz Mode Sweep</p> <p>IPk Max M1[1] -32.06 dBm 5.8100 GHz</p> <p>D1 -25.000 dBm</p> <p>Start 1.0 GHz 501 pts Stop 26.5 GHz</p> <p>Date: 4.FEB.2023 14:54:05</p>
	<p>Ref Level 0.00 dBm Offset 5.60 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Sweep</p> <p>IPk Max M1[1] -51.73 dBm 793.80 MHz</p> <p>D1 -25.000 dBm</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>Date: 4.FEB.2023 14:54:42</p>	<p>Ref Level 30.00 dBm Offset 5.60 dB RBW 1 MHz Att 35 dB SWT 102 ms VBW 3 MHz Mode Sweep</p> <p>IPk Max M1[1] -32.02 dBm 5.8610 GHz</p> <p>D1 -25.000 dBm</p> <p>Start 1.0 GHz 501 pts Stop 26.5 GHz</p> <p>Date: 4.FEB.2023 14:55:12</p>
Highest	<p>Ref Level 0.00 dBm Offset 5.60 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Sweep</p> <p>IPk Max M1[1] -51.80 dBm 913.80 MHz</p> <p>D1 -25.000 dBm</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>Date: 4.FEB.2023 14:55:45</p>	<p>Ref Level 30.00 dBm Offset 5.60 dB RBW 1 MHz Att 35 dB SWT 102 ms VBW 3 MHz Mode Sweep</p> <p>IPk Max M1[1] -31.72 dBm 5.8610 GHz</p> <p>D1 -25.000 dBm</p> <p>Start 1.0 GHz 501 pts Stop 26.5 GHz</p> <p>Date: 4.FEB.2023 14:56:15</p>

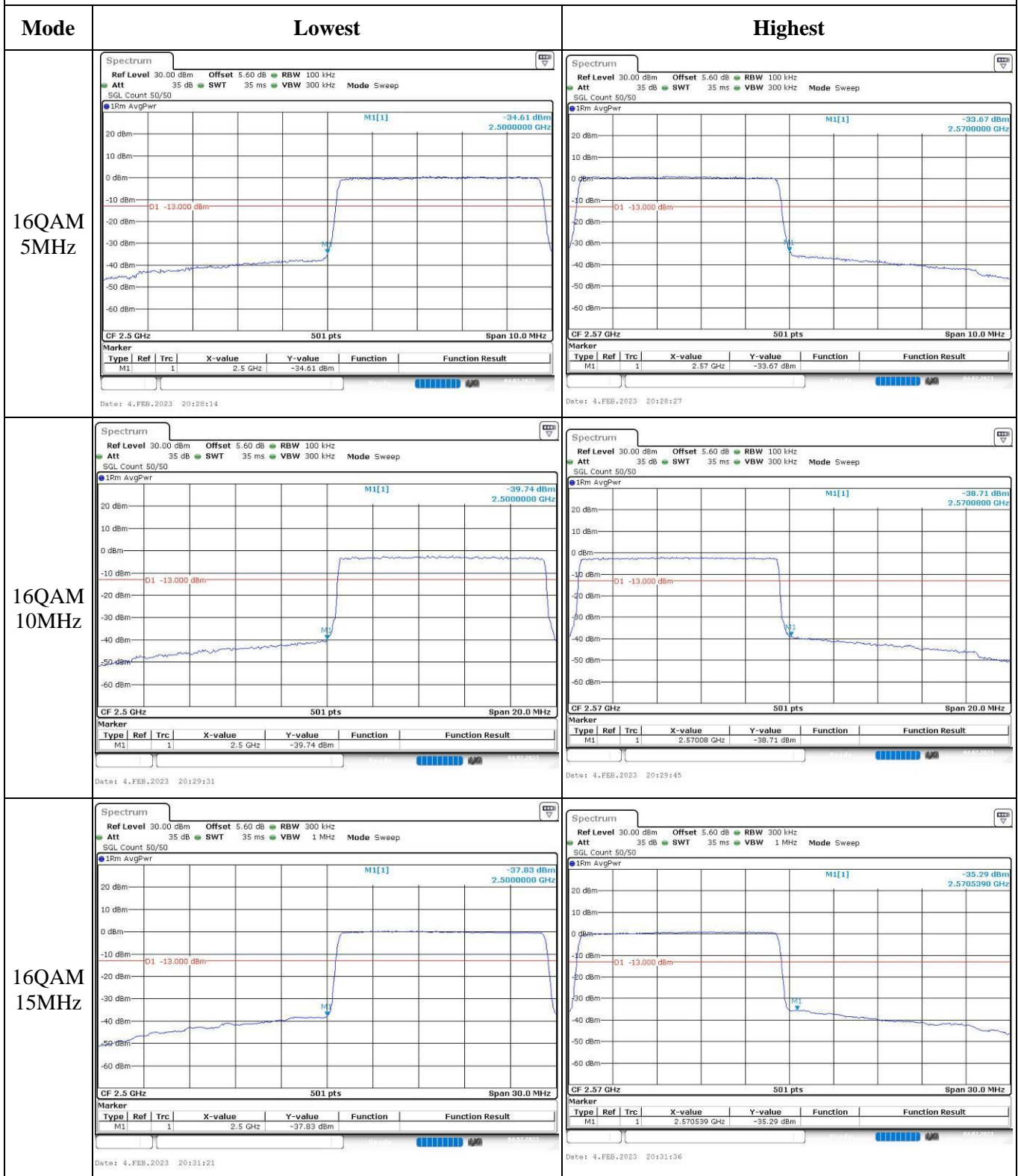
Out of band emission, Band Edge



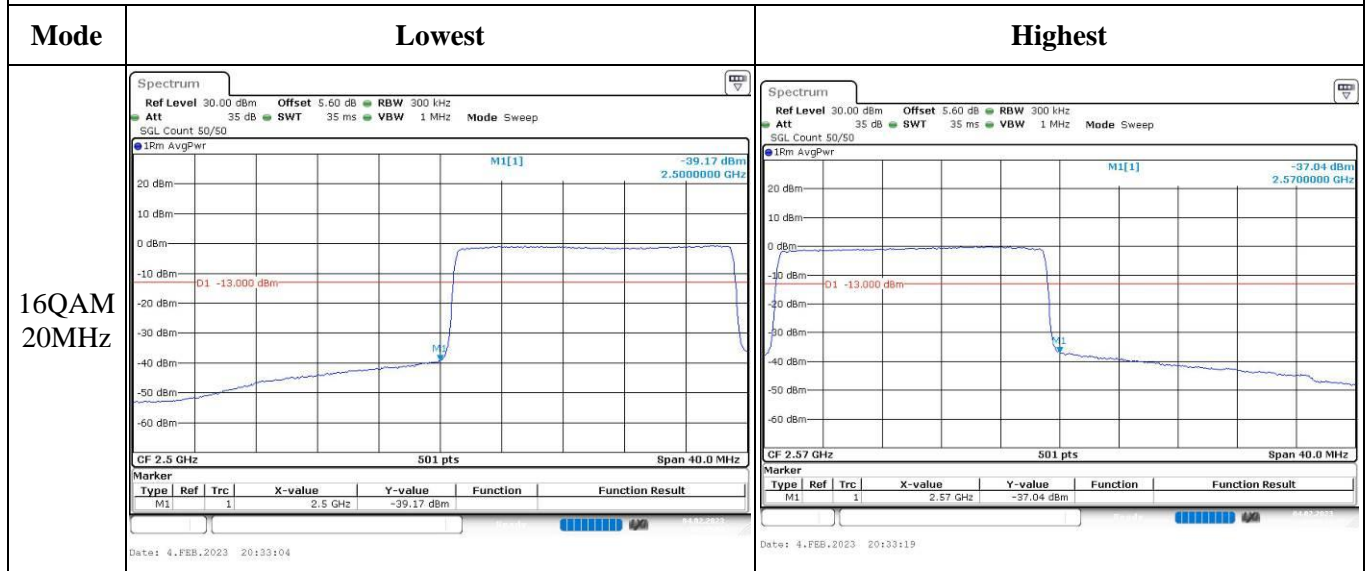
Out of band emission, Band Edge



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:	1ZLT	Test Date:	2023/02/04
Test Site:	RF	Test Mode:	Transmitting
Tester:	George Chen	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	21.3	Relative Humidity: (%)	42	ATM Pressure: (kPa)	101.2
----------------------	------	---------------------------	----	------------------------	-------

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	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	2022/04/06	2023/04/05
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2022/09/29	2023/09/28
UNI-T	Multimeter	UT39A+	C210582554	2022/07/15	2023/07/14
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)
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	22.93	23.01	23.09	15.02	34.77
	RB1#3	23.01	23.06	23.18		
	RB1#5	23.02	23.02	23.12		
	RB3#0	23	23.13	23.18		
	RB3#3	23.08	23.19	23.17		
	RB6#0	22.14	22.19	22.27		
1.4MHz 16QAM	RB1#0	22.11	22.05	22.04	14.15	34.77
	RB1#3	22.19	22.13	22.15		
	RB1#5	22.14	22.03	22.05		
	RB3#0	22.06	22.23	22.31		
	RB3#3	22.14	22.27	22.32		
	RB6#0	21.21	21.22	21.34		
3MHz QPSK	RB1#0	22.74	22.98	23	14.9	34.77
	RB1#8	22.95	23.02	23.07		
	RB1#14	22.87	22.93	23.01		
	RB6#0	22.01	22.07	22.17		
	RB6#9	22.13	22.06	22.19		
	RB15#0	22.08	22.12	22.16		
3MHz 16QAM	RB1#0	22.53	22.03	21.92	14.51	34.77
	RB1#8	22.68	22.2	22.03		
	RB1#14	22.48	22.09	21.96		
	RB6#0	21.16	21.14	21.14		
	RB6#9	21.21	21.25	21.2		
	RB15#0	21.15	21.12	21.19		
5MHz QPSK	RB1#0	23.11	23.2	23.11	15.16	34.77
	RB1#13	23.3	23.33	23.31		
	RB1#24	23.3	23.26	23.23		
	RB15#0	22.1	22.21	22.23		
	RB15#10	22.16	22.26	22.18		
	RB25#0	22.2	22.27	22.19		
5MHz 16QAM	RB1#0	21.98	22.5	22.21	14.5	34.77
	RB1#13	22.24	22.67	22.33		
	RB1#24	22.19	22.54	22.32		
	RB15#0	21.15	21.17	21.28		
	RB15#10	21.2	21.29	21.23		
	RB25#0	21.21	21.32	21.24		

10MHz QPSK	RB1#0	23.07	23.16	23.19	15.18	34.77
	RB1#25	23.34	23.24	23.29		
	RB1#49	23.35	23.27	23.35		
	RB25#0	22.15	22.19	22.1		
	RB25#25	22.28	22.3	22.17		
	RB50#0	22.18	22.29	22.13		
10MHz 16QAM	RB1#0	22.14	22.72	22.35	14.79	34.77
	RB1#25	22.35	22.96	22.4		
	RB1#49	22.3	22.88	22.46		
	RB25#0	21.23	21.32	21.14		
	RB25#25	21.43	21.48	21.21		
	RB50#0	21.24	21.32	21.19		

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	5.77	5.8	5.86	13
	RB50#0	5.86	5.8	5.42	13
10MHz 16QAM	RB1#0	6.46	6.64	6.9	13
	RB50#0	6.75	6.7	6.41	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	1.108	1.102	1.29	1.314	1.284
1.4MHz 16QAM	1.102	1.096	1.102	1.32	1.284	1.29
3MHz QPSK	2.695	2.683	2.683	2.916	2.94	2.928
3MHz 16QAM	2.683	2.683	2.683	2.952	2.94	2.952
5MHz QPSK	4.511	4.491	4.511	5	4.94	4.94
5MHz 16QAM	4.511	4.531	4.511	4.94	4.96	4.9
10MHz QPSK	8.942	8.942	8.942	9.68	9.64	9.56
10MHz 16QAM	8.902	8.982	8.942	9.52	9.6	9.6

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.

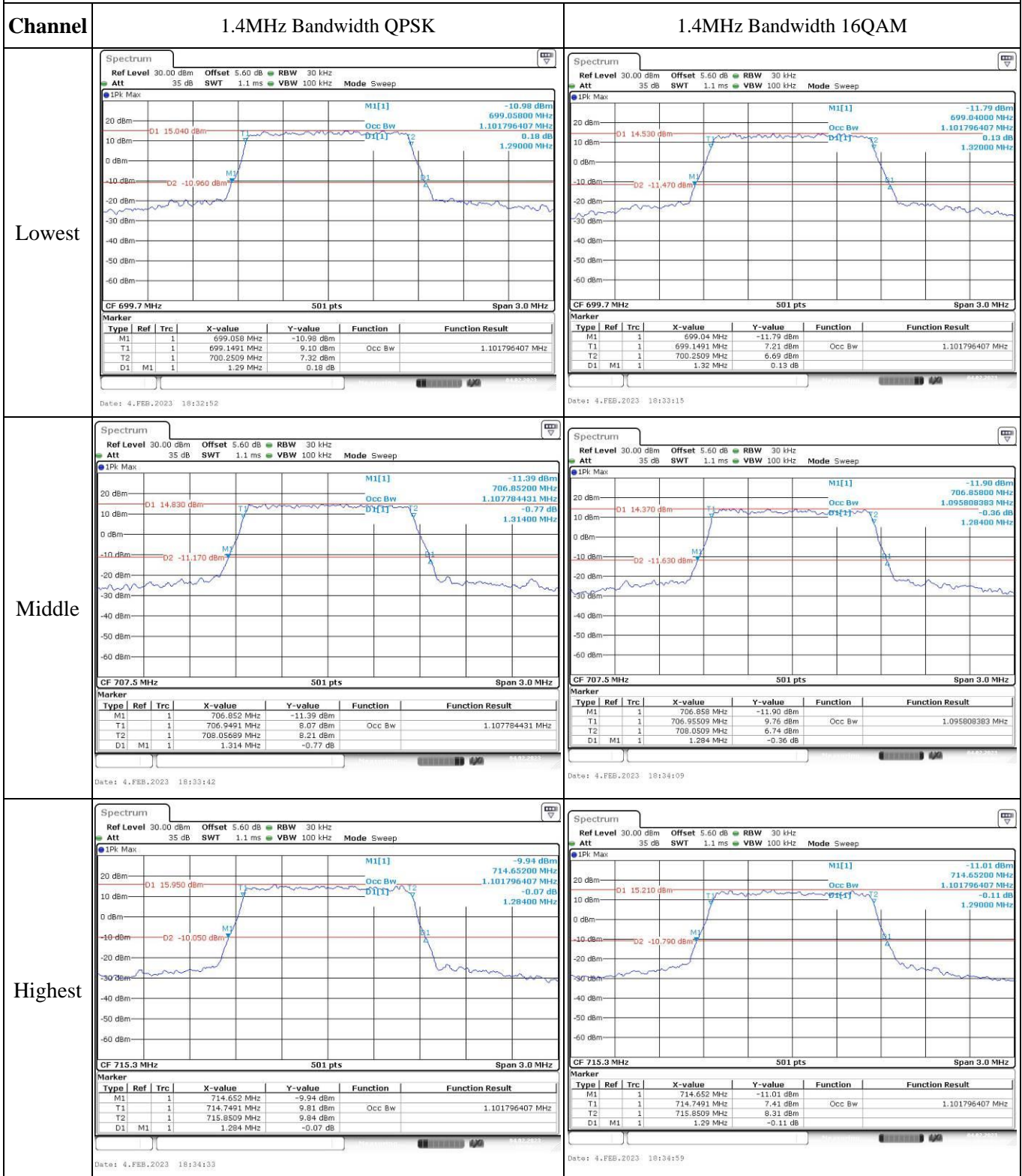
FCC §2.1051, §27.53:Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

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	3.89	699.521	699.00	715.442	716.00
	-20	3.89	699.585	699.00	715.423	716.00
	-10	3.89	699.583	699.00	715.466	716.00
	0	3.89	699.546	699.00	715.440	716.00
	10	3.89	699.534	699.00	715.498	716.00
	20	3.89	699.529	699.00	715.471	716.00
	30	3.89	699.573	699.00	715.479	716.00
	40	3.89	699.522	699.00	715.428	716.00
Frequency Stability vs. Voltage	20	3.45	699.508	699.00	715.454	716.00
	20	4.48	699.513	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	3.89	699.585	699.00	715.476	716.00
	-20	3.89	699.524	699.00	715.493	716.00
	-10	3.89	699.591	699.00	715.482	716.00
	0	3.89	699.592	699.00	715.403	716.00
	10	3.89	699.518	699.00	715.409	716.00
	20	3.89	699.569	699.00	715.471	716.00
	30	3.89	699.516	699.00	715.411	716.00
	40	3.89	699.532	699.00	715.435	716.00
	50	3.89	699.536	699.00	715.493	716.00
Frequency Stability vs. Voltage	20	3.45	699.579	699.00	715.490	716.00
	20	4.48	699.544	699.00	715.427	716.00
					Result:	Pass

Test Plots(Note: The 5.6dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):

Occupied Bandwidth



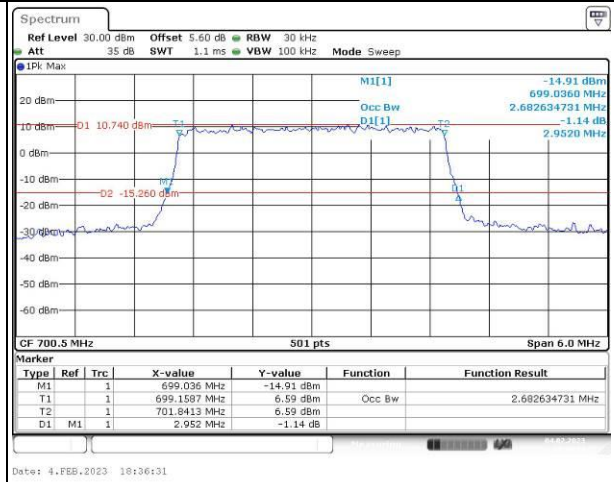
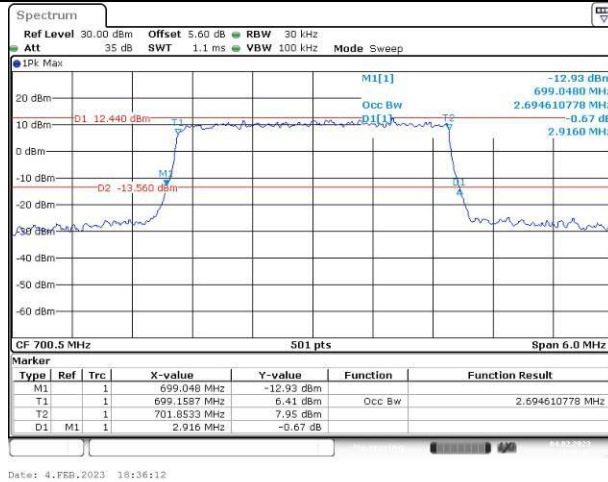
Occupied Bandwidth

Channel

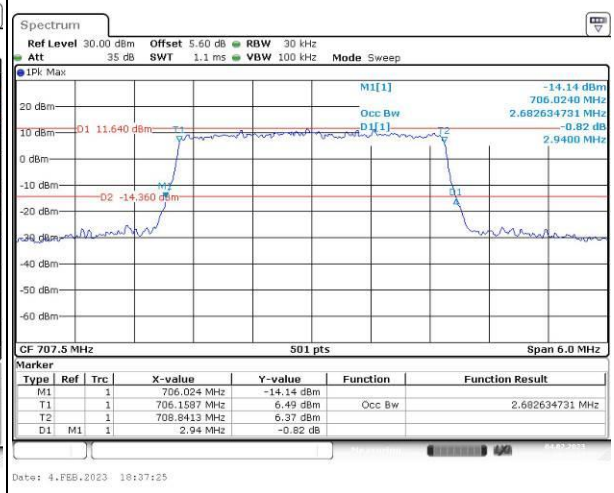
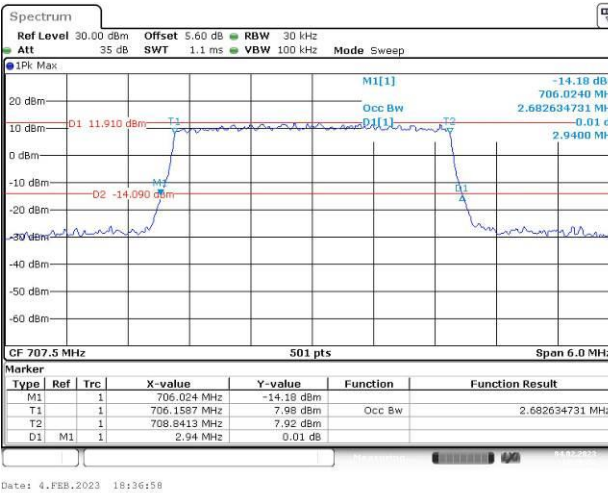
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

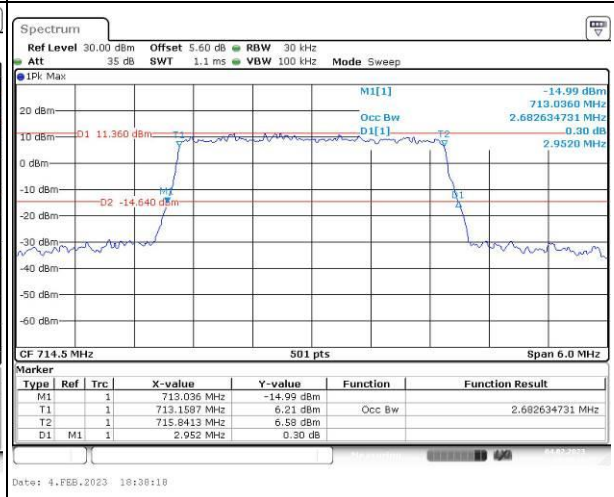
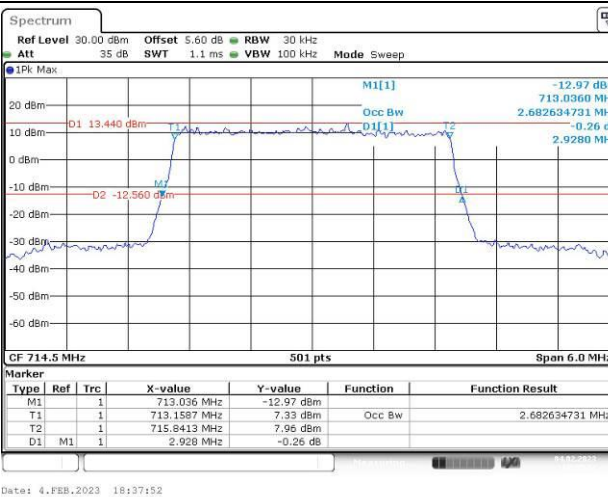
Lowest



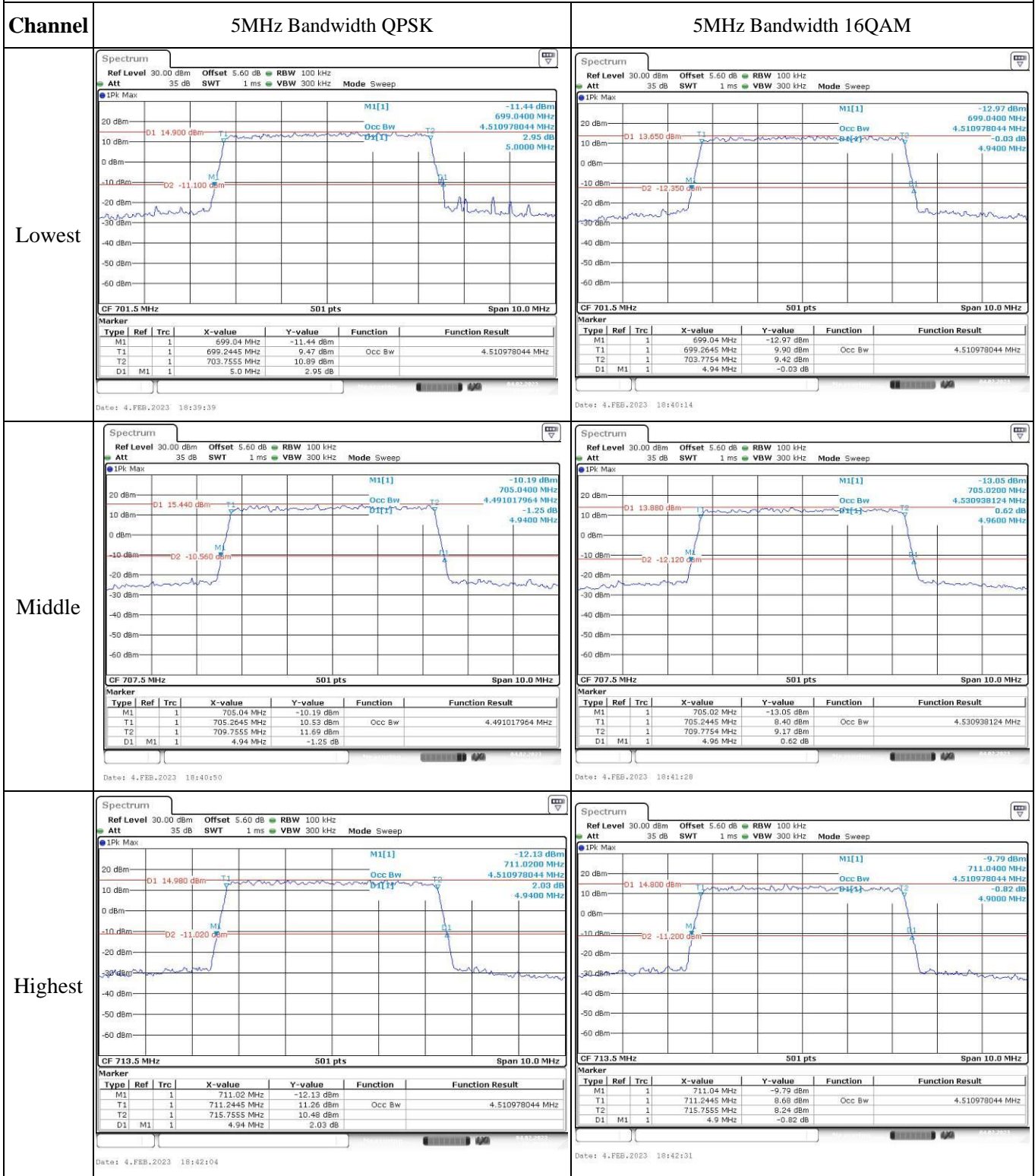
Middle



Highest



Occupied Bandwidth



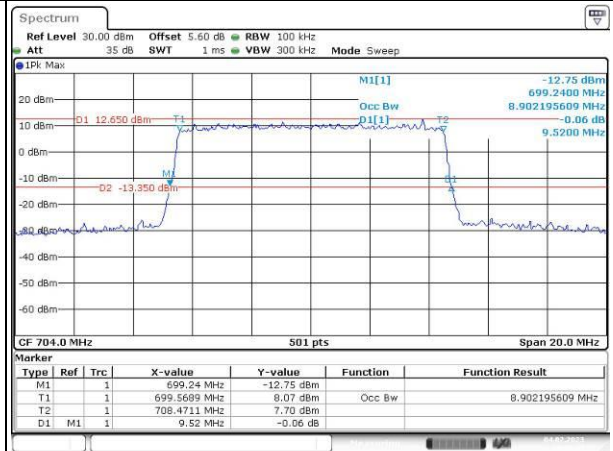
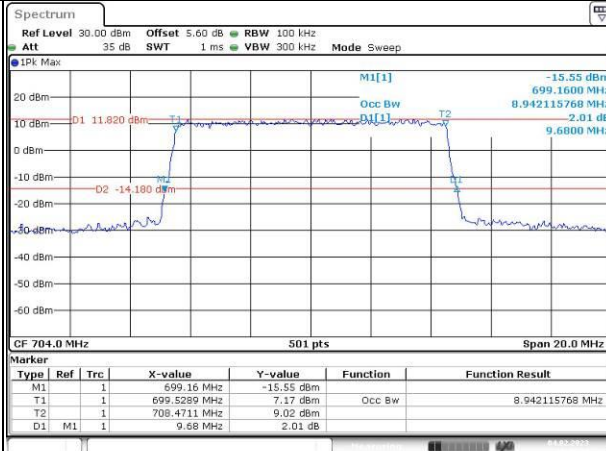
Occupied Bandwidth

Channel

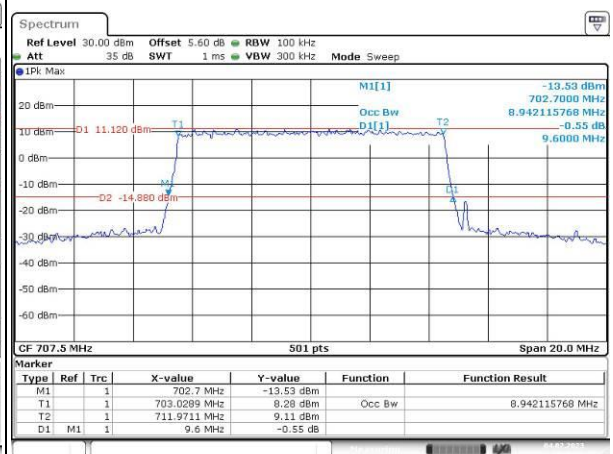
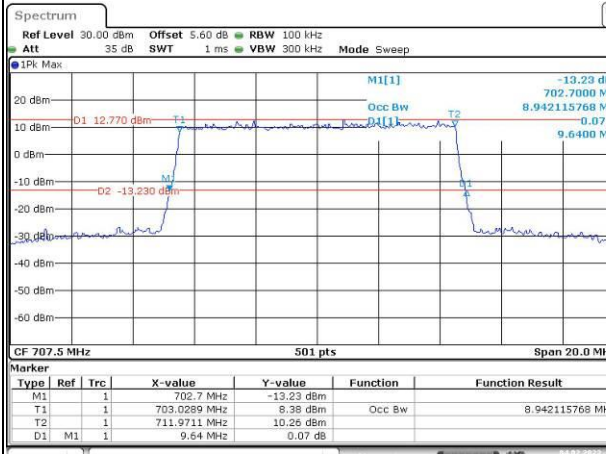
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

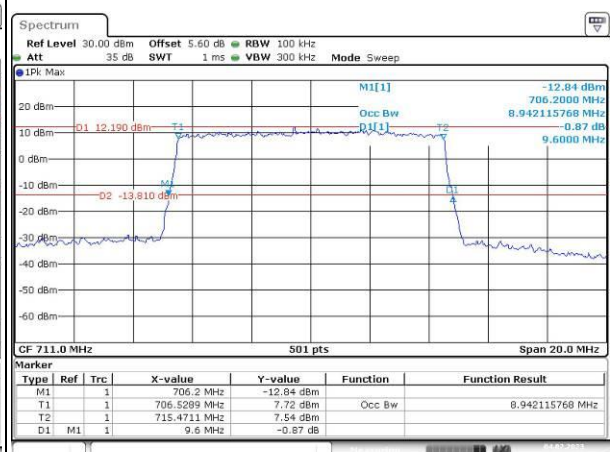
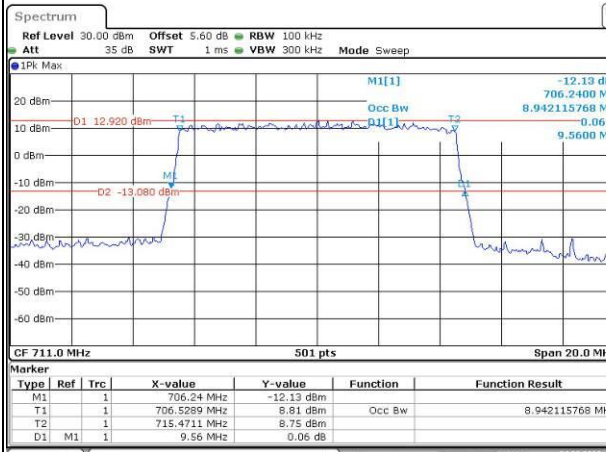
Lowest



Middle



Highest

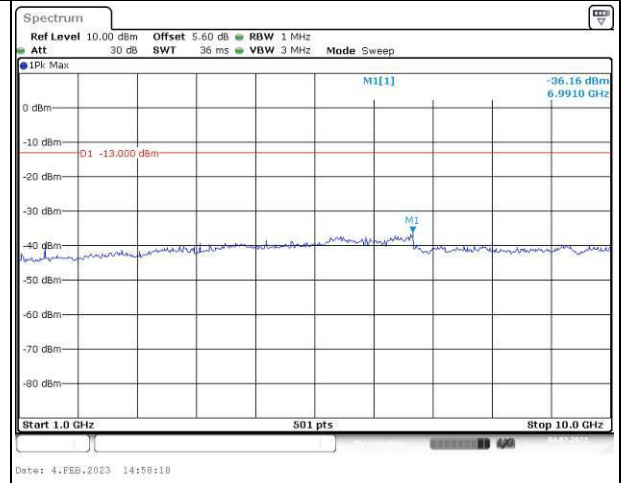
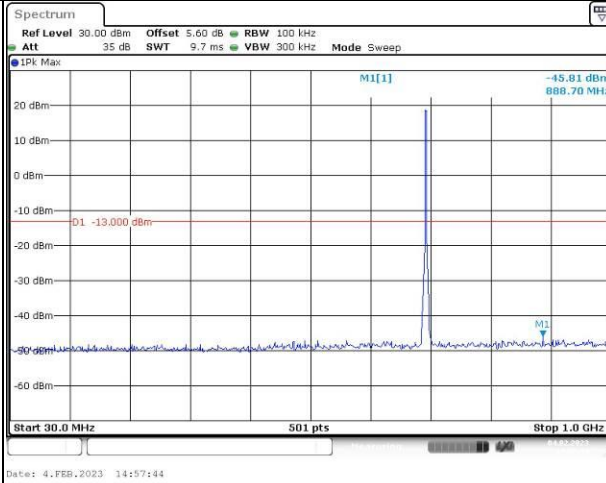


Spurious Emissions at Antenna Terminal

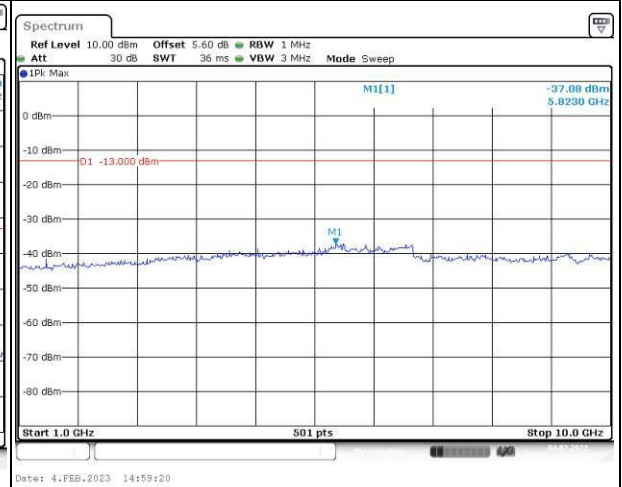
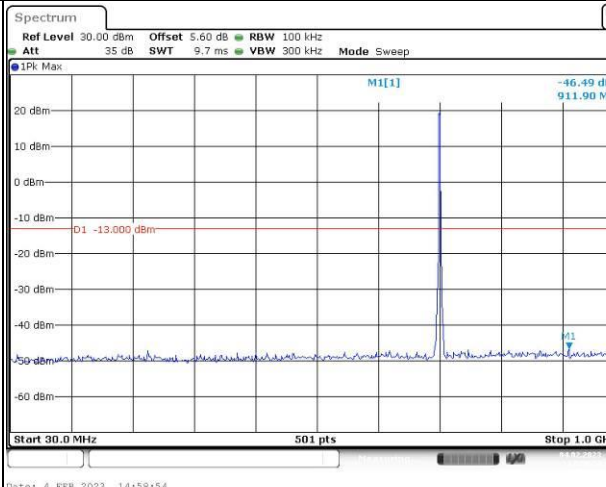
Channel

1.4MHz Bandwidth QPSK

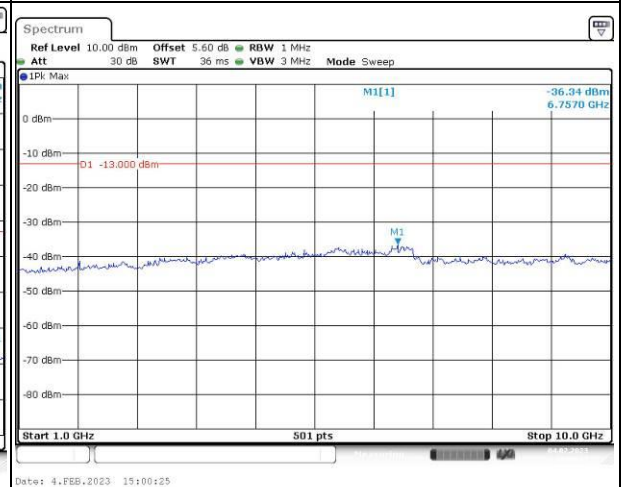
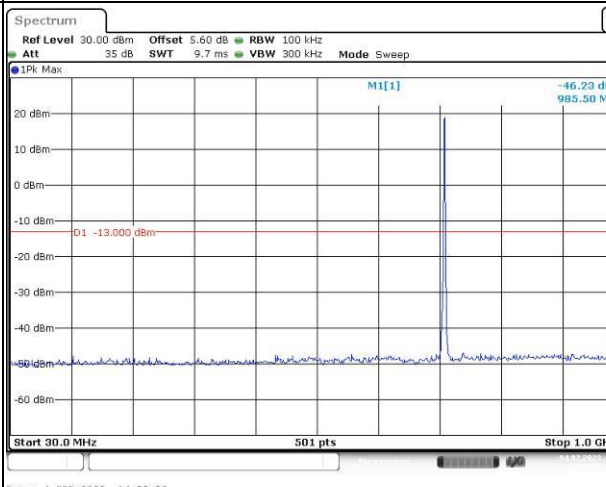
Lowest



Middle



Highest

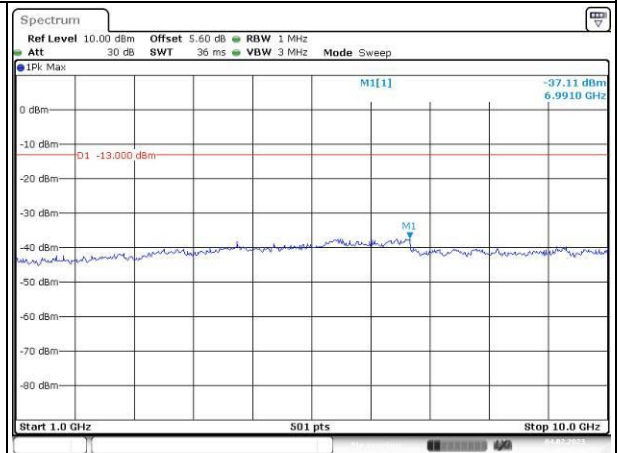
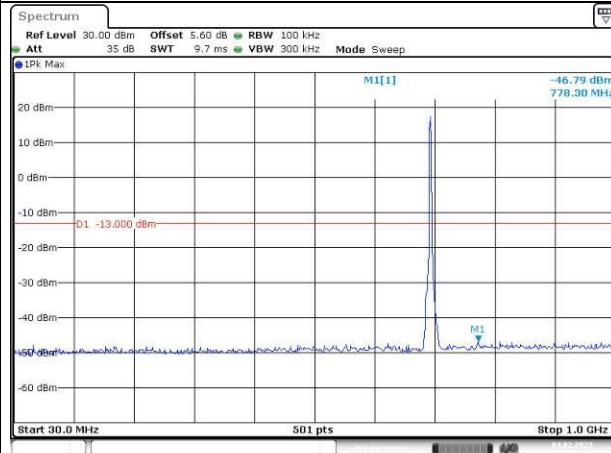


Spurious Emissions at Antenna Terminal

Channel

3MHz Bandwidth QPSK

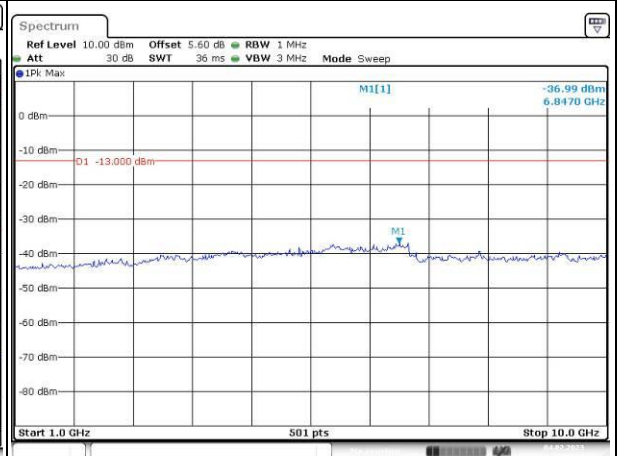
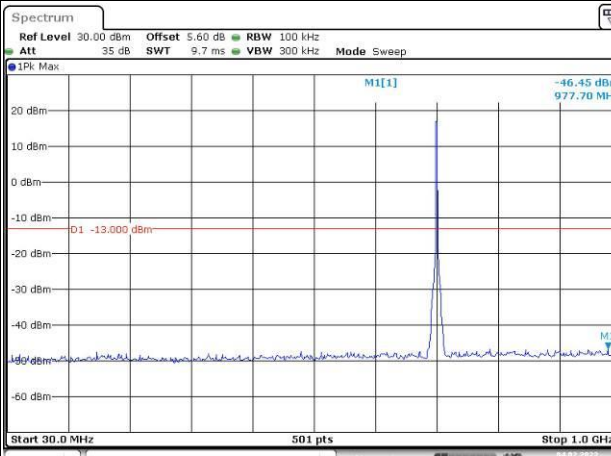
Lowest



Date: 4.FEB.2023 15:01:46

Date: 4.FEB.2023 15:02:12

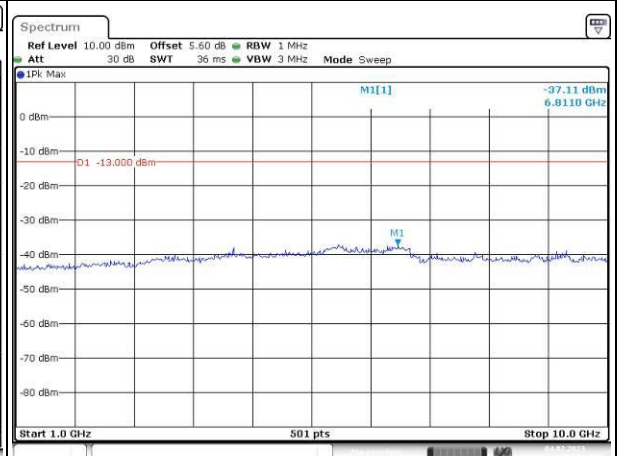
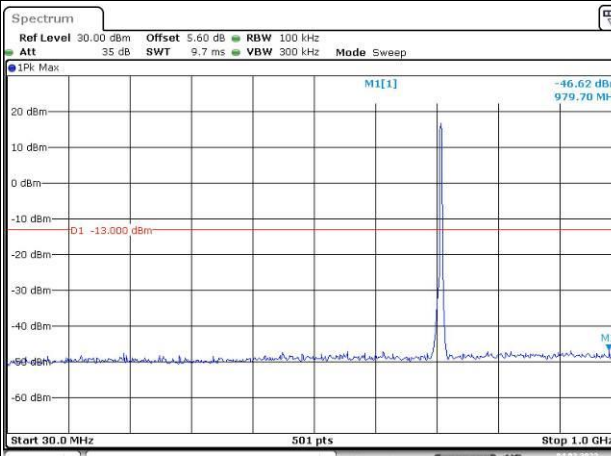
Middle



Date: 4.FEB.2023 15:02:52

Date: 4.FEB.2023 15:03:25

Highest



Date: 4.FEB.2023 15:03:57

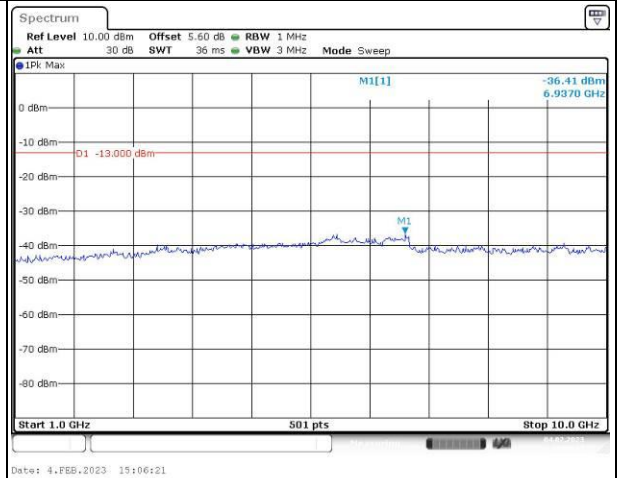
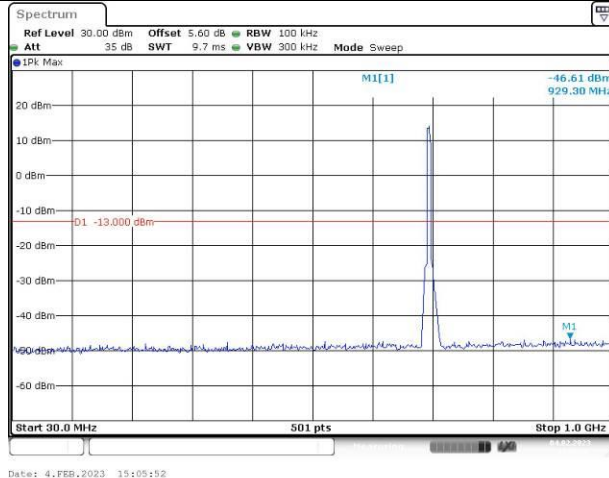
Date: 4.FEB.2023 15:04:30

Spurious Emissions at Antenna Terminal

Channel

5MHz Bandwidth QPSK

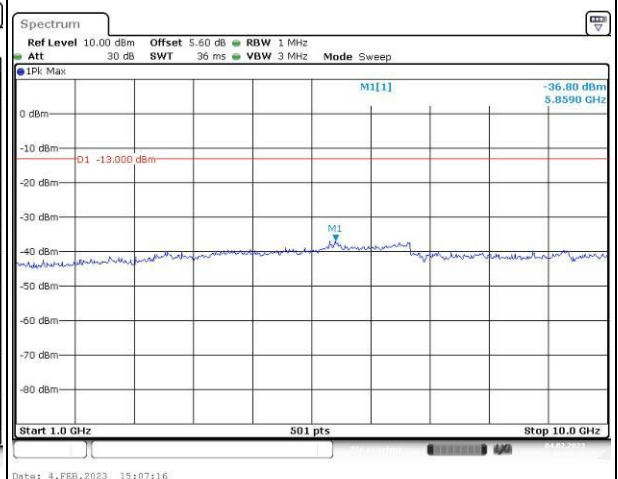
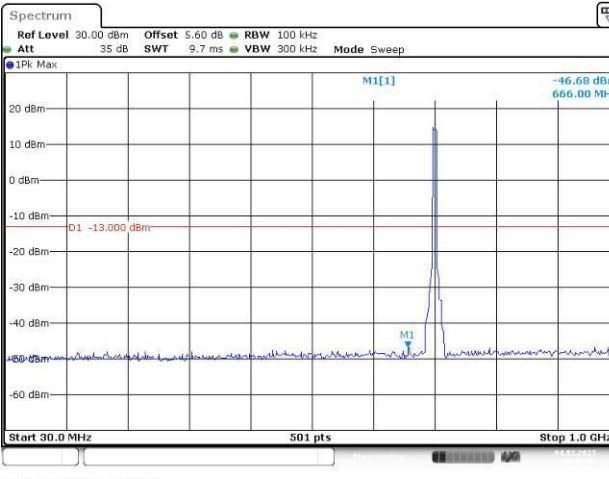
Lowest



Date: 4.FEB.2023 15:05:52

Date: 4.FEB.2023 15:06:21

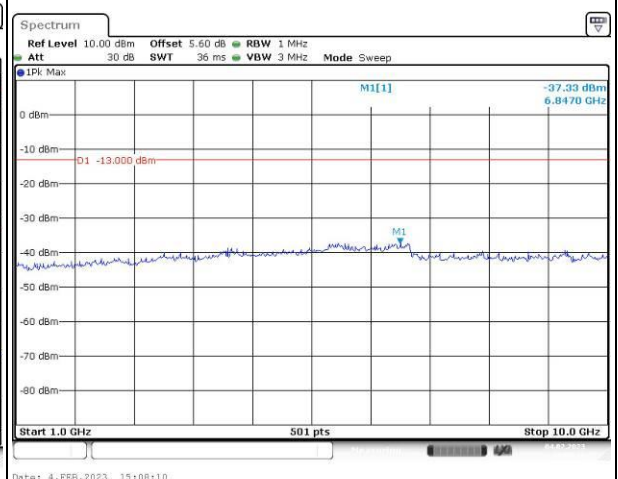
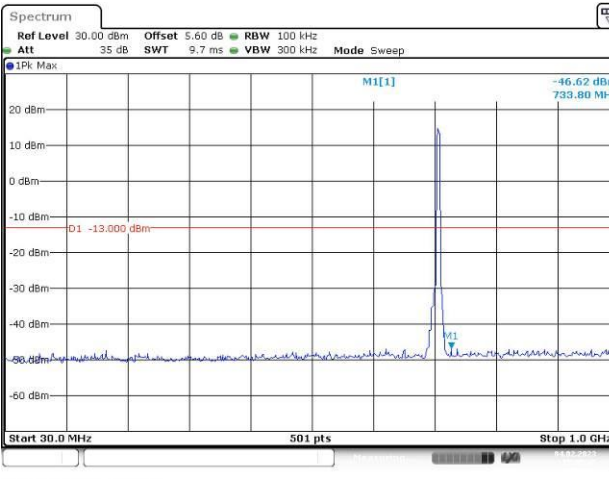
Middle



Date: 4.FEB.2023 15:06:50

Date: 4.FEB.2023 15:07:16

Highest



Date: 4.FEB.2023 15:07:45

Date: 4.FEB.2023 15:08:10