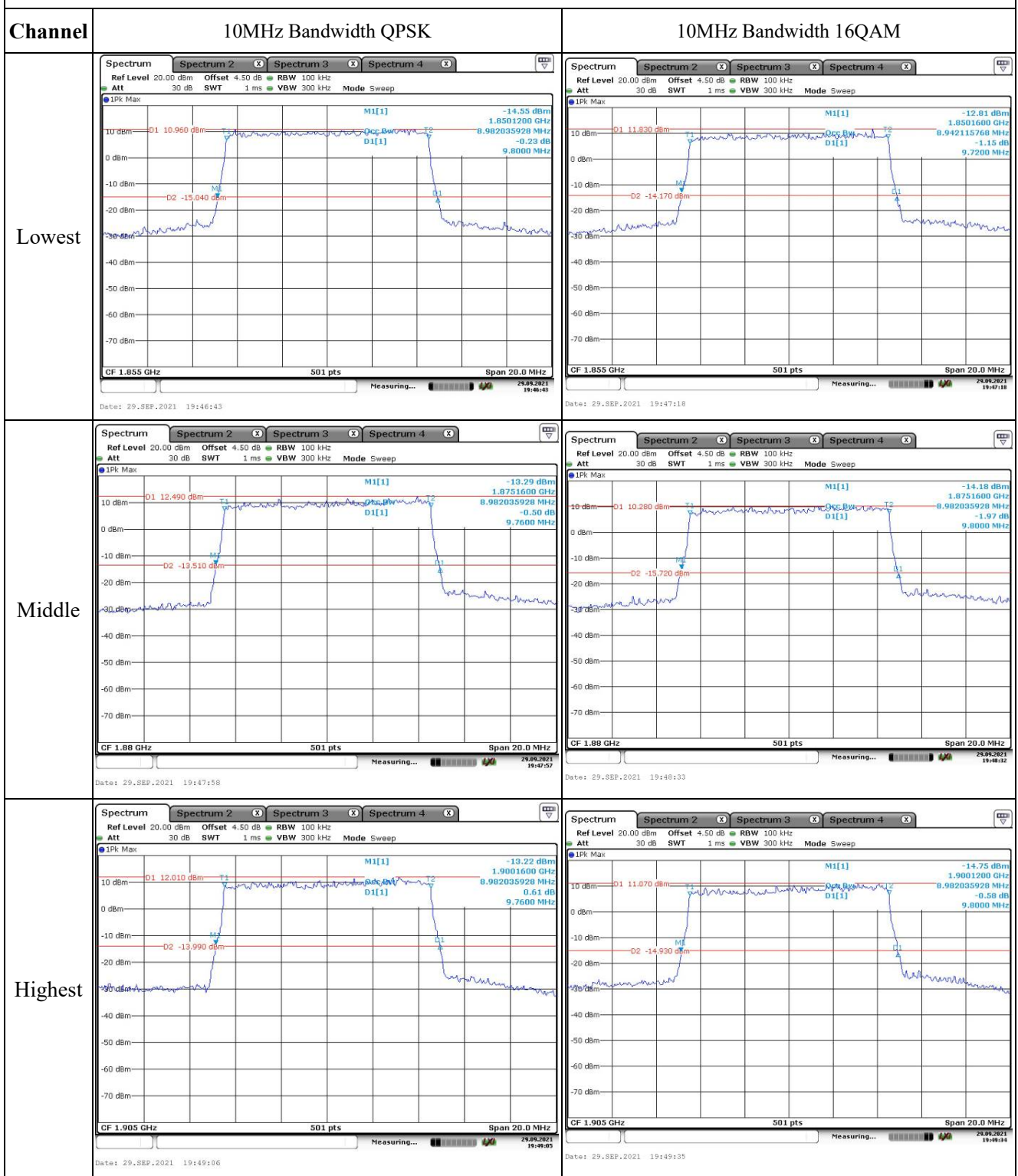


Occupied Bandwidth



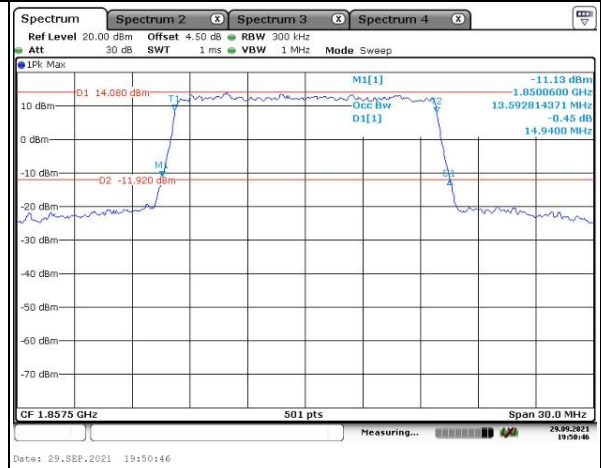
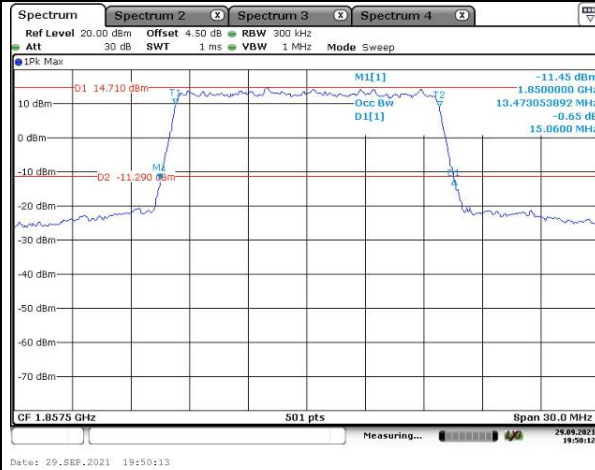
Occupied Bandwidth

Channel

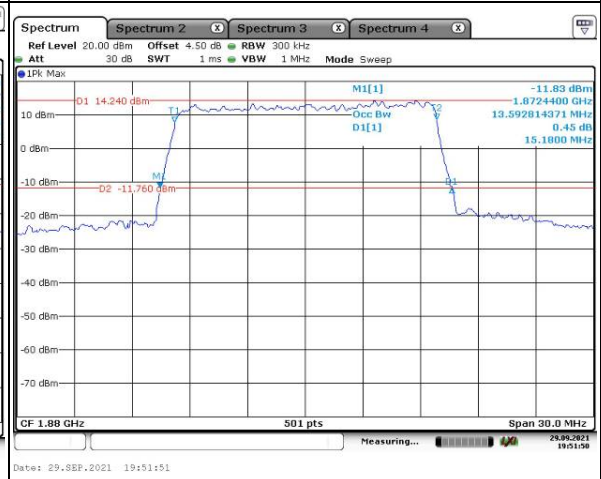
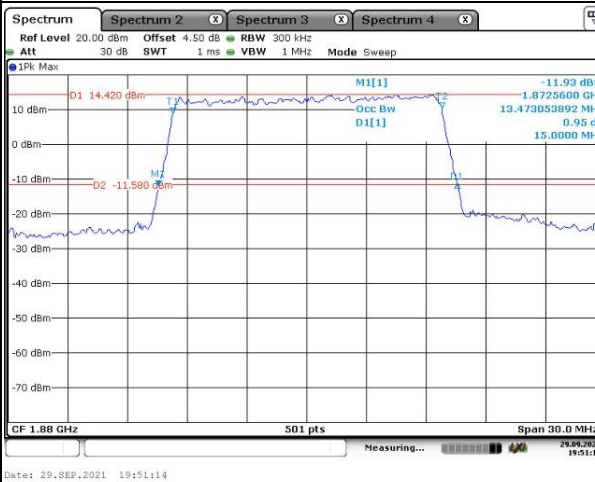
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

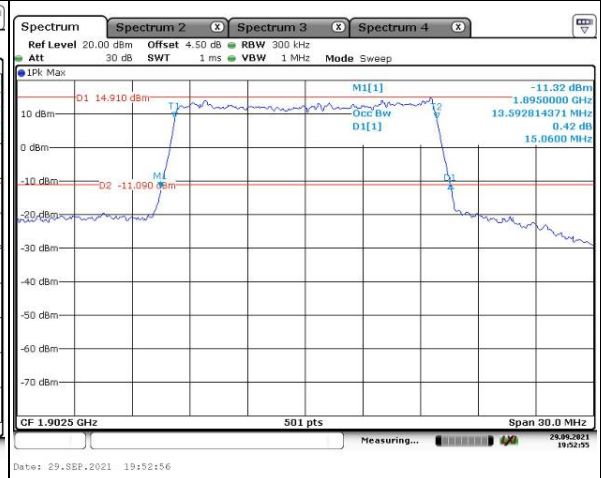
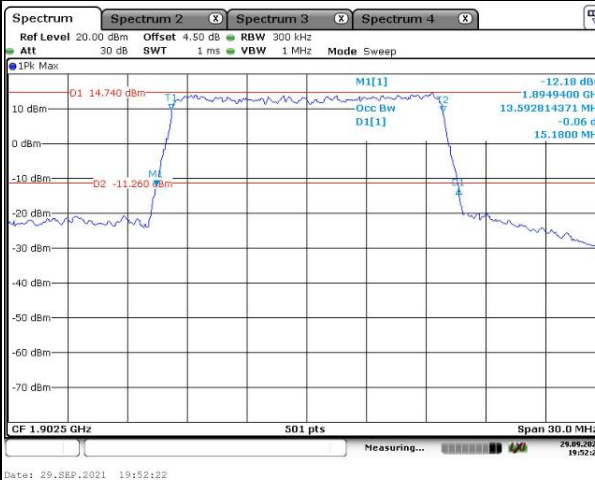
Lowest



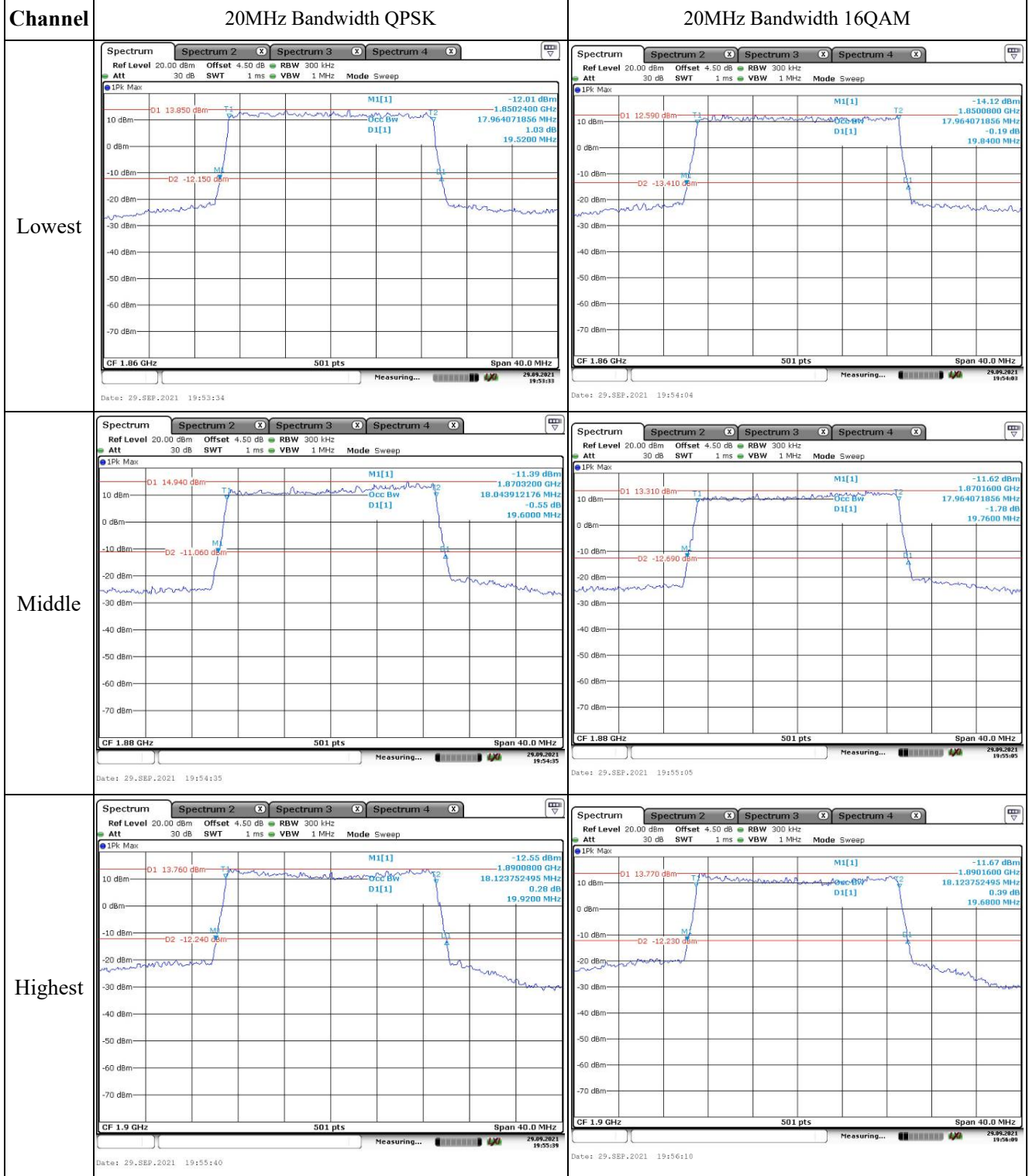
Middle



Highest



Occupied Bandwidth

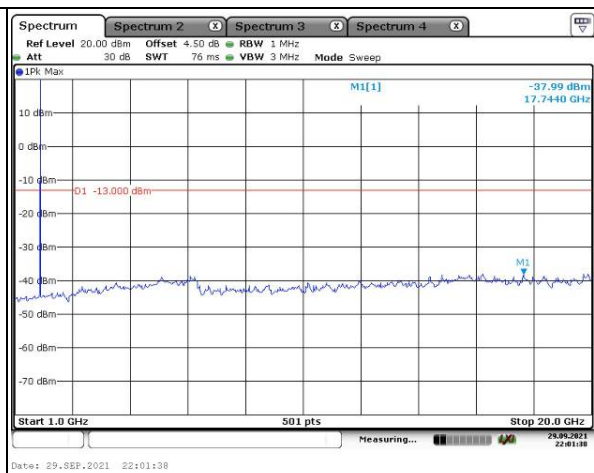
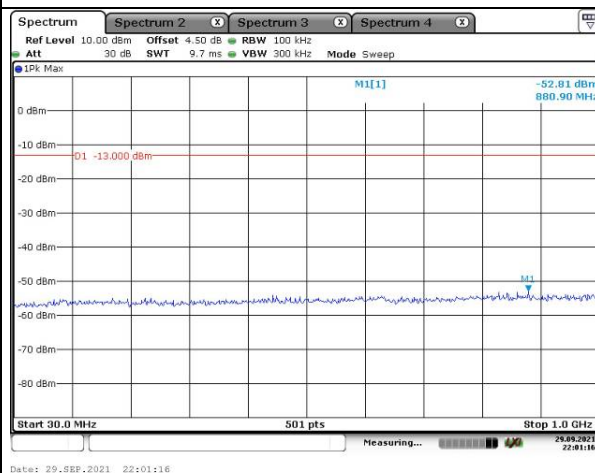


Spurious Emissions at Antenna Terminal

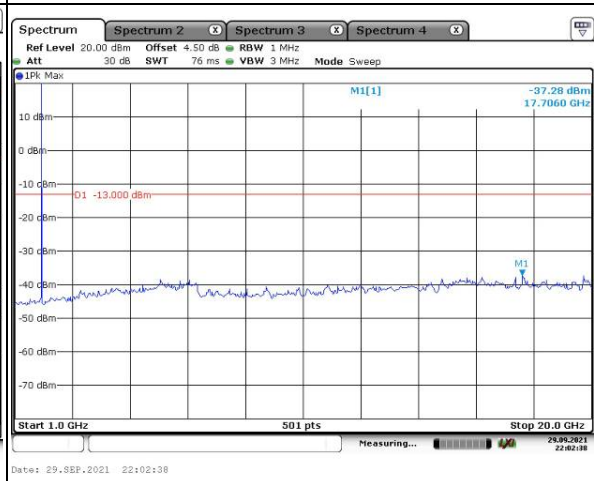
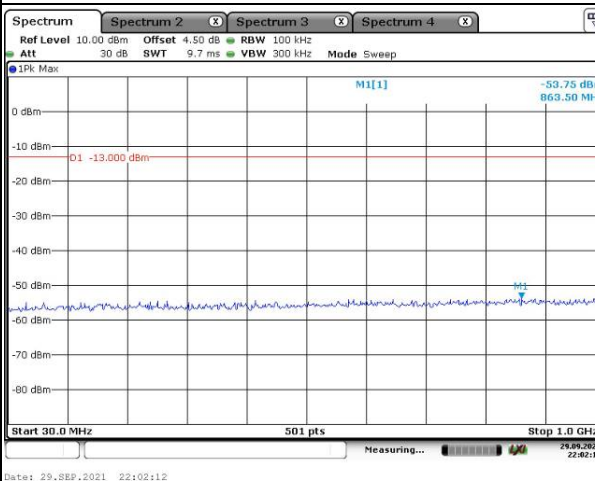
Channel

1.4MHz Bandwidth QPSK

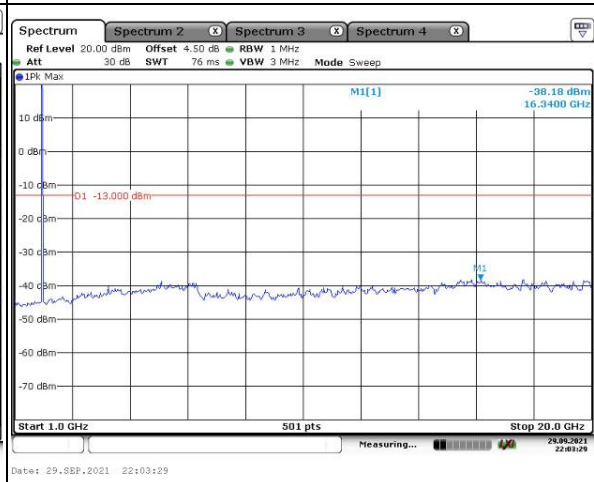
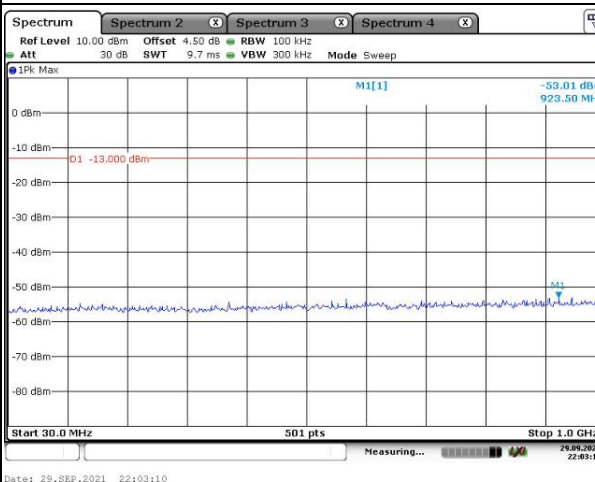
Lowest



Middle



Highest

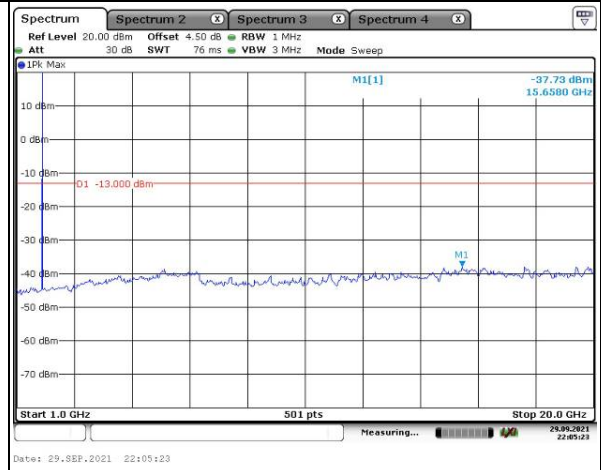
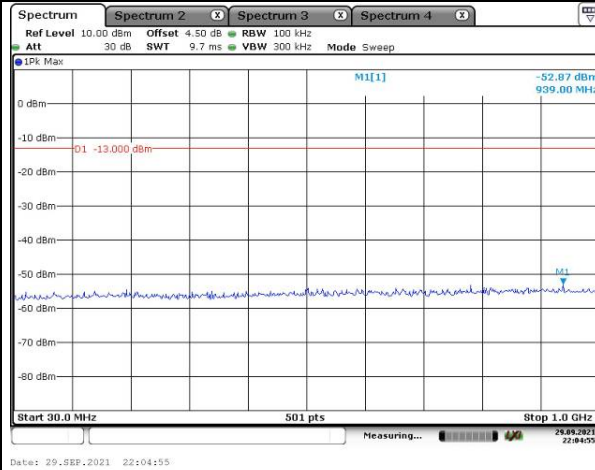


Spurious Emissions at Antenna Terminal

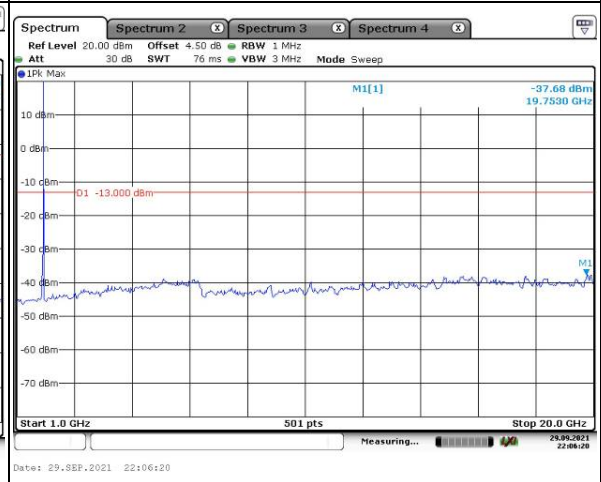
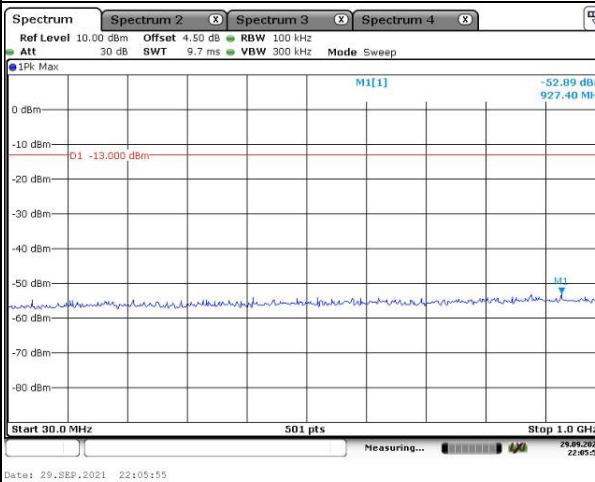
Channel

3MHz Bandwidth QPSK

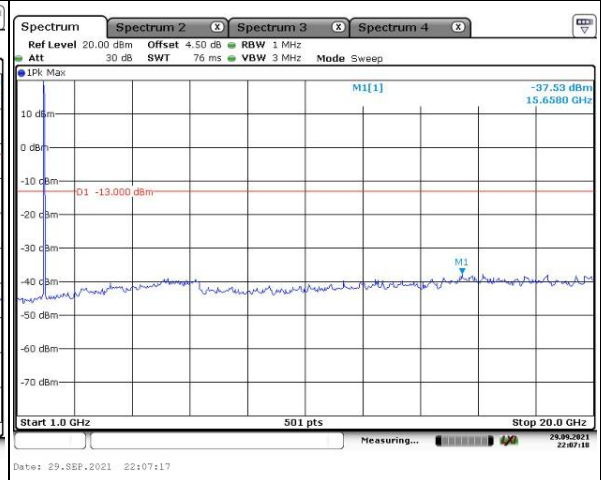
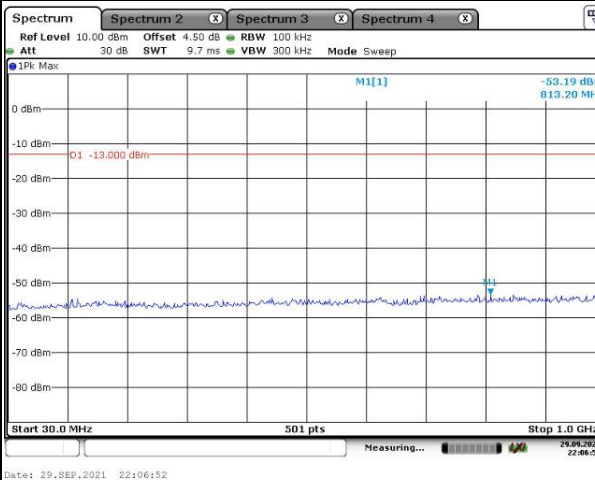
Lowest



Middle



Highest

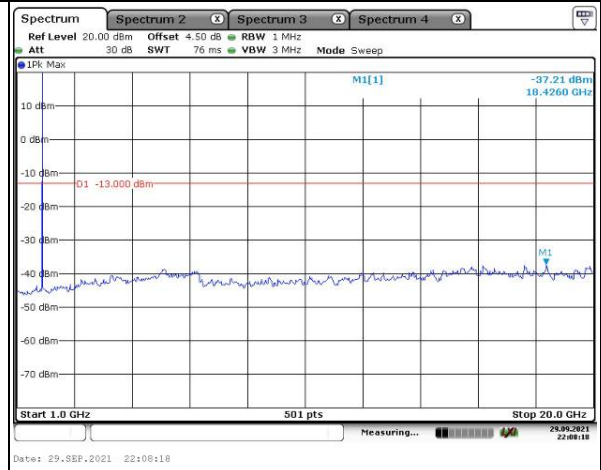
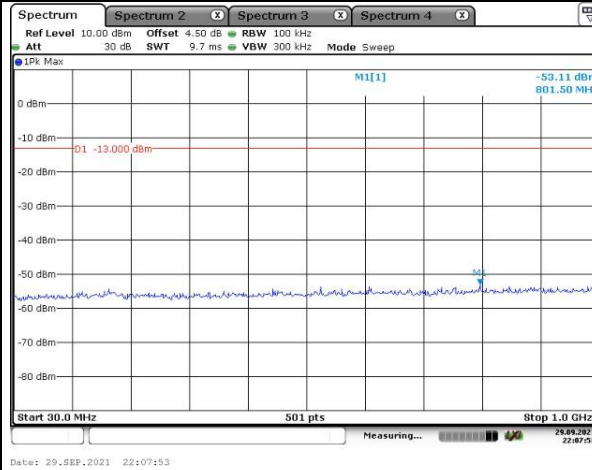


Spurious Emissions at Antenna Terminal

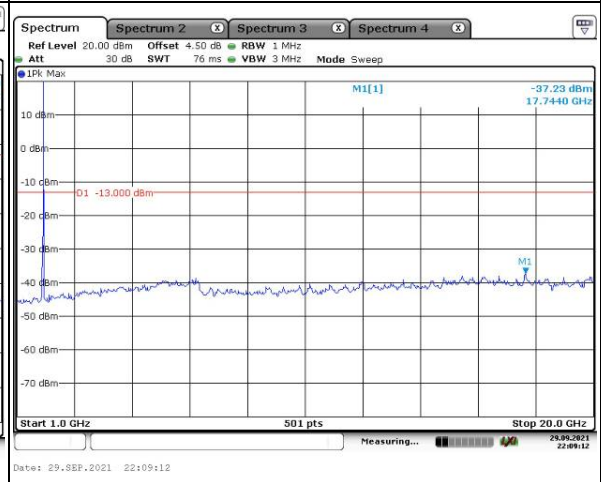
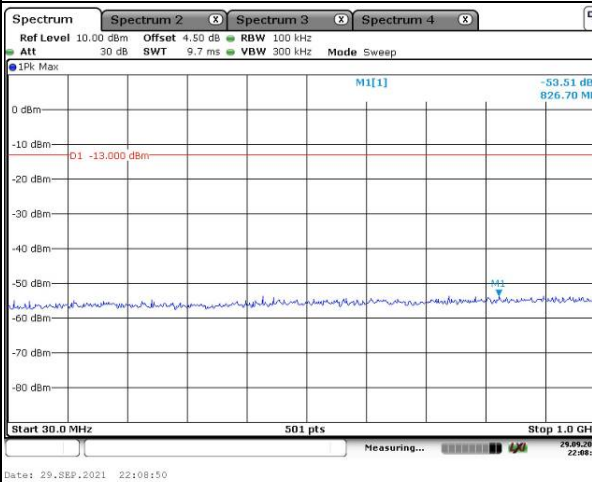
Channel

5MHz Bandwidth QPSK

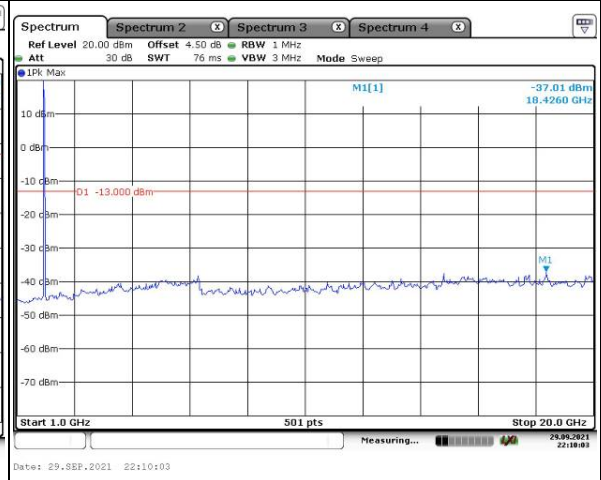
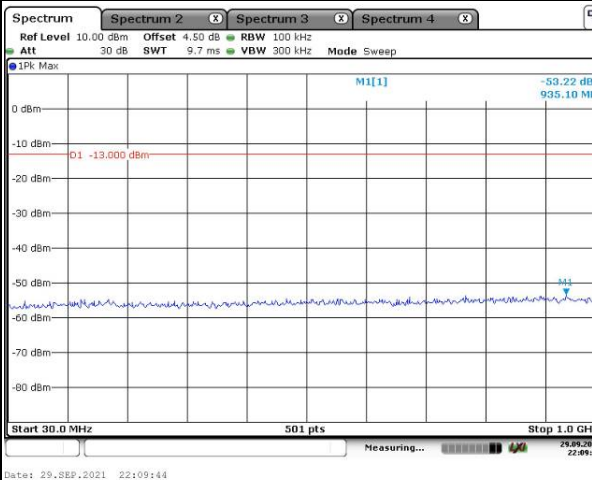
Lowest



Middle



Highest

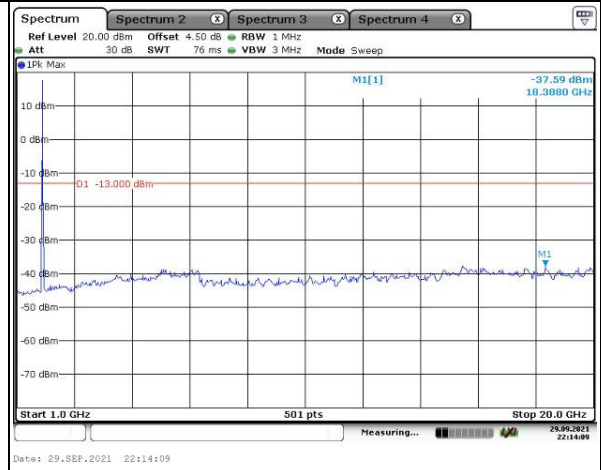
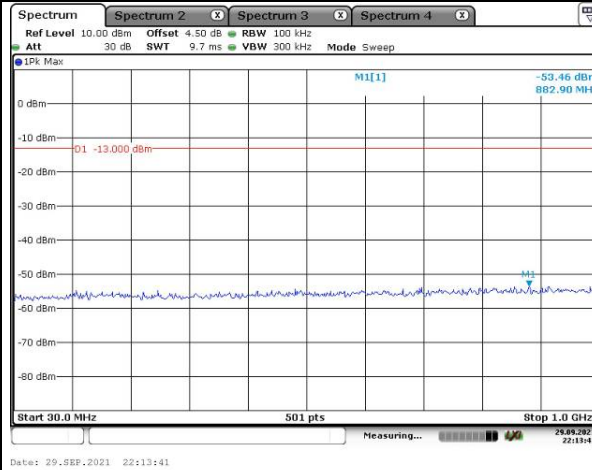


Spurious Emissions at Antenna Terminal

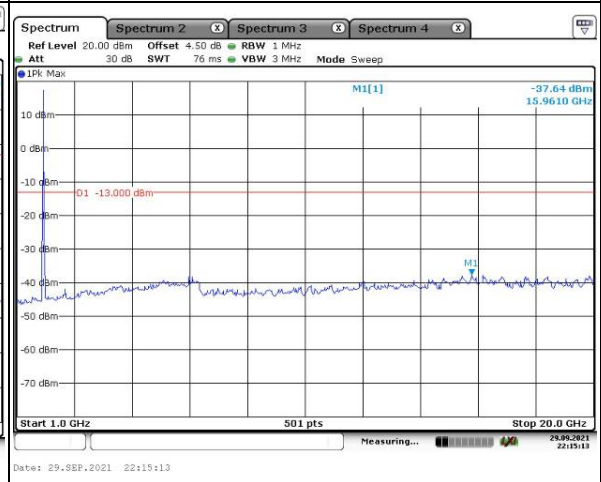
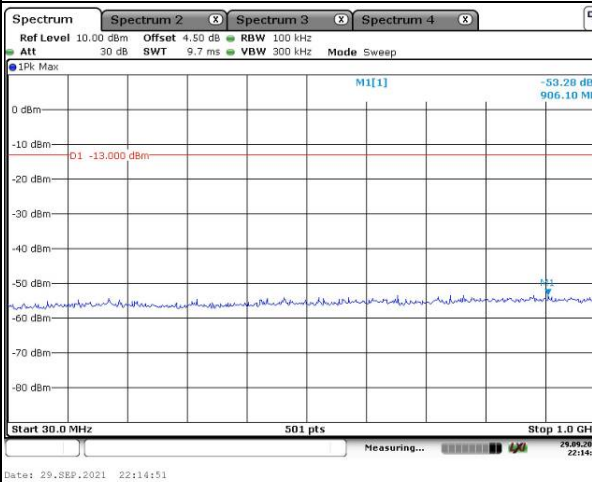
Channel

15MHz Bandwidth QPSK

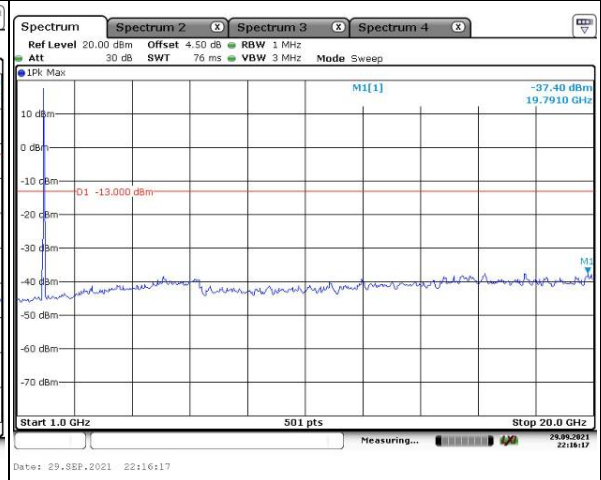
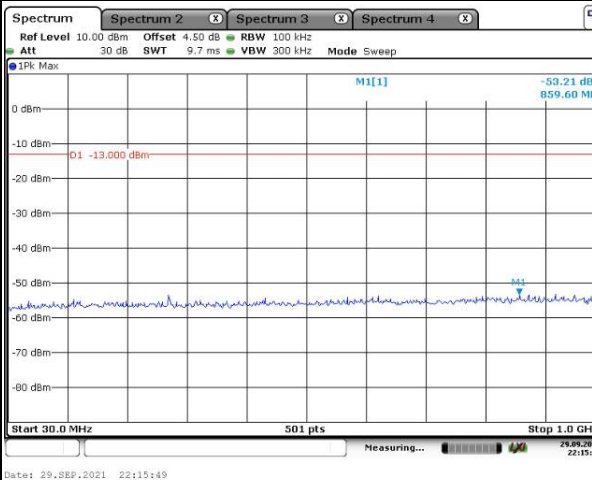
Lowest



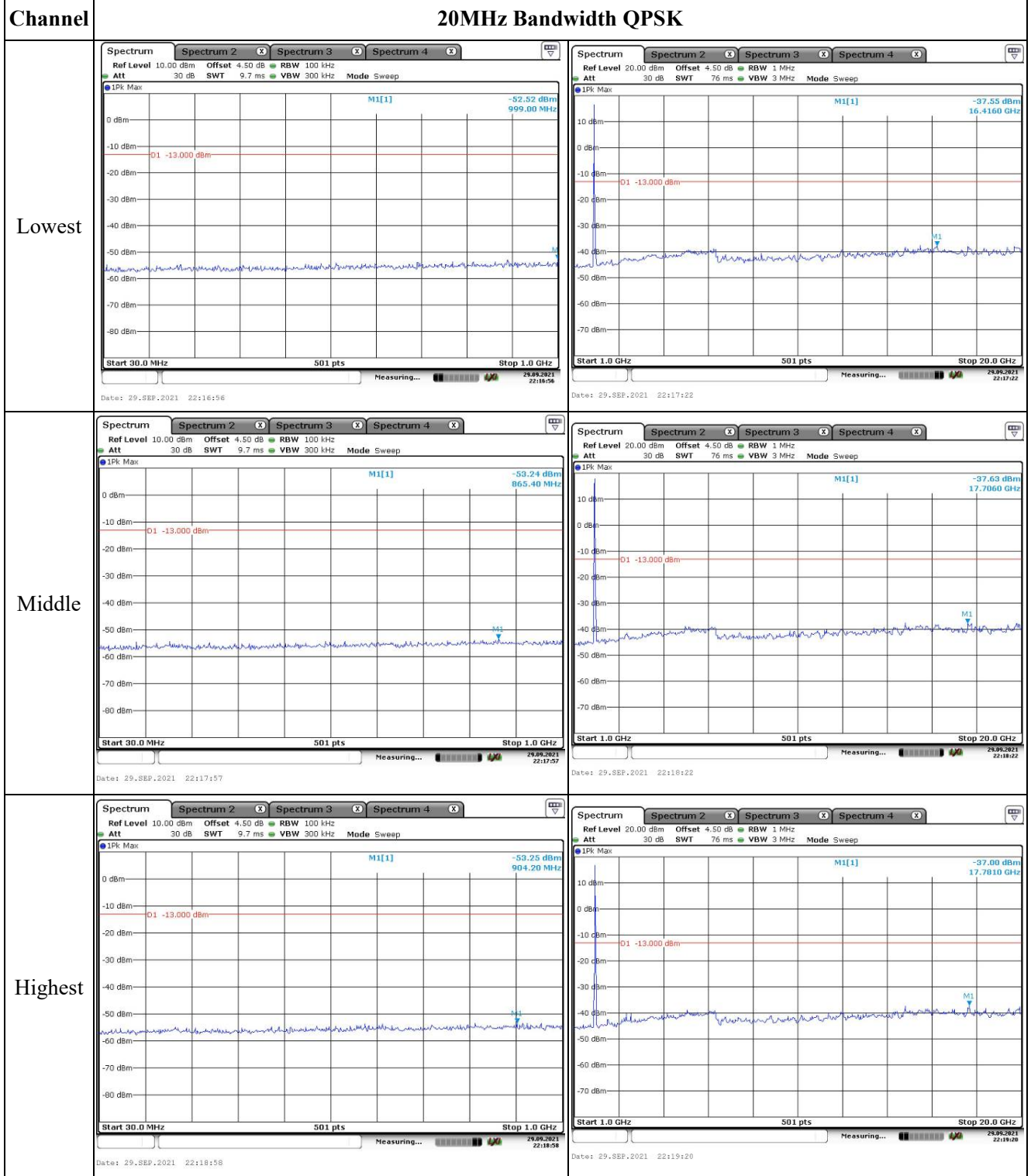
Middle



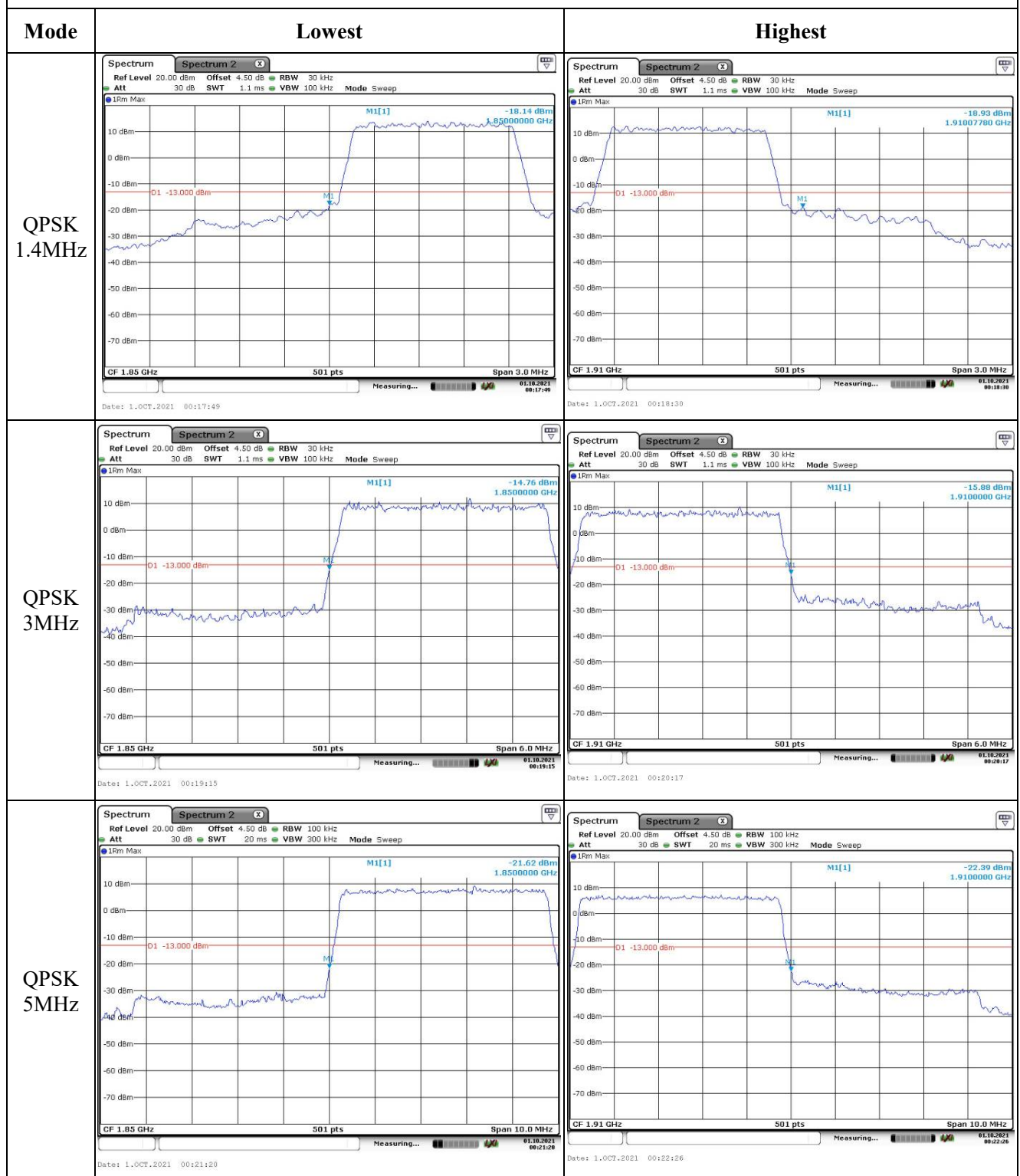
Highest



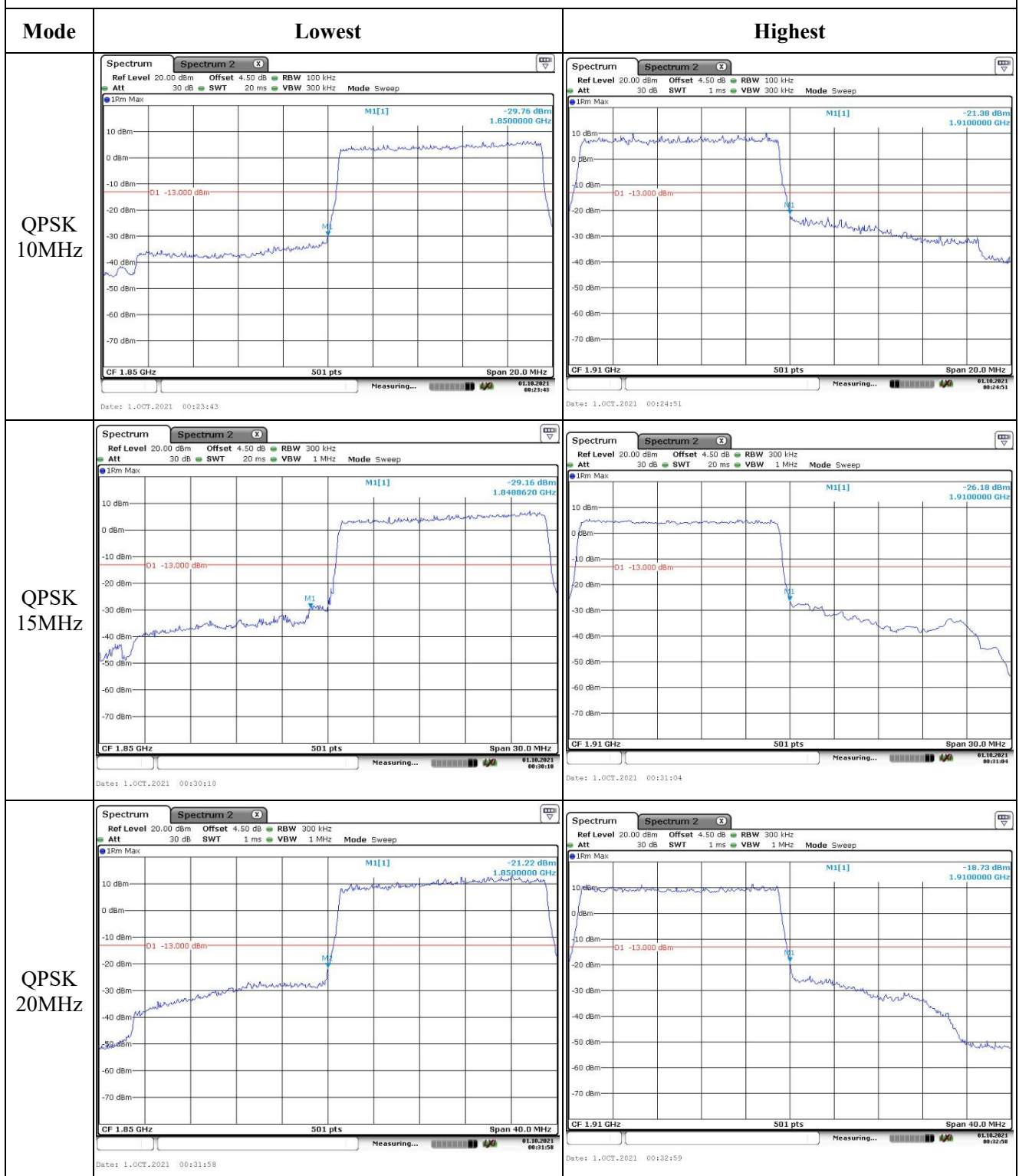
Spurious Emissions at Antenna Terminal



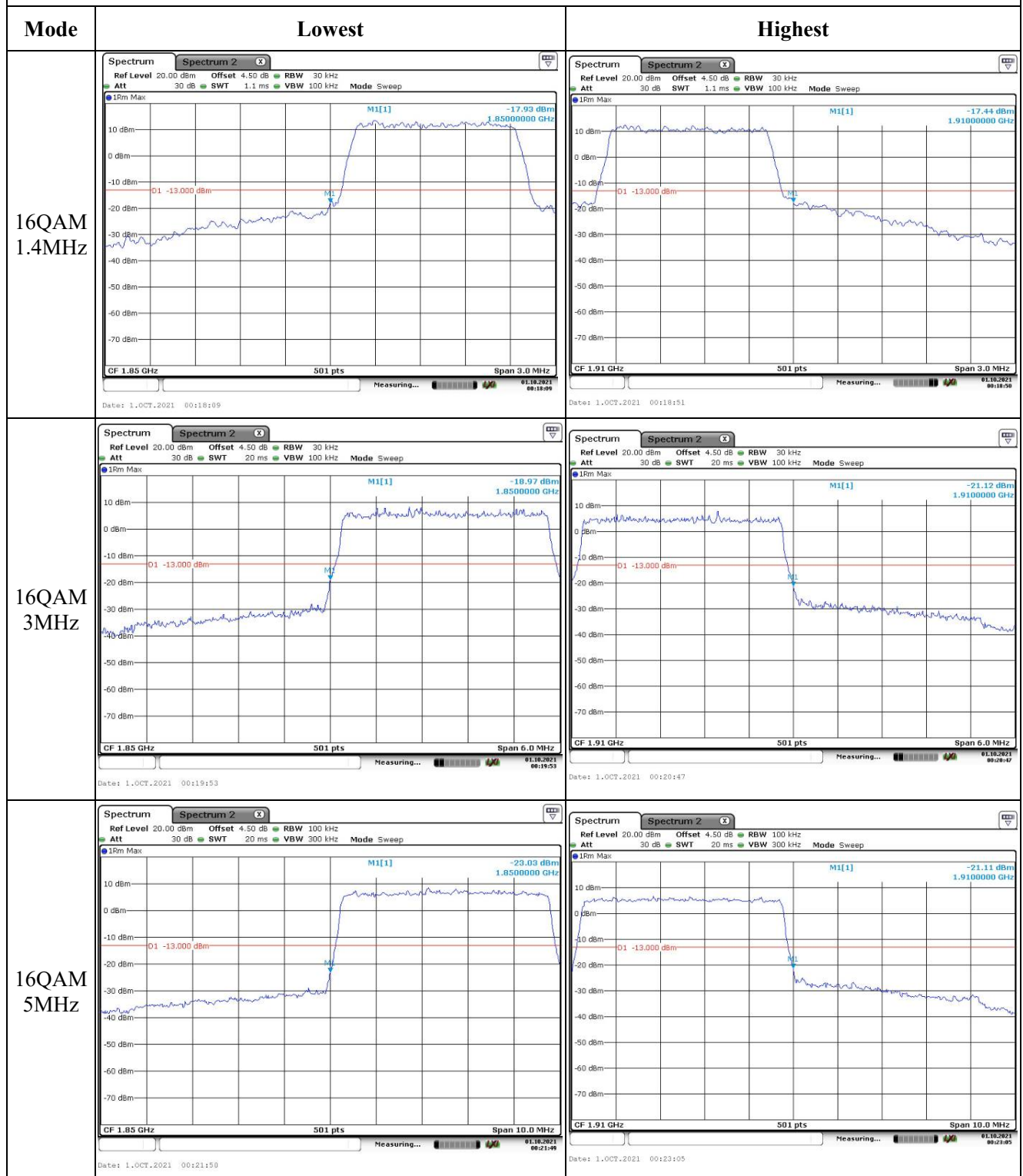
Out of band emission, Band Edge



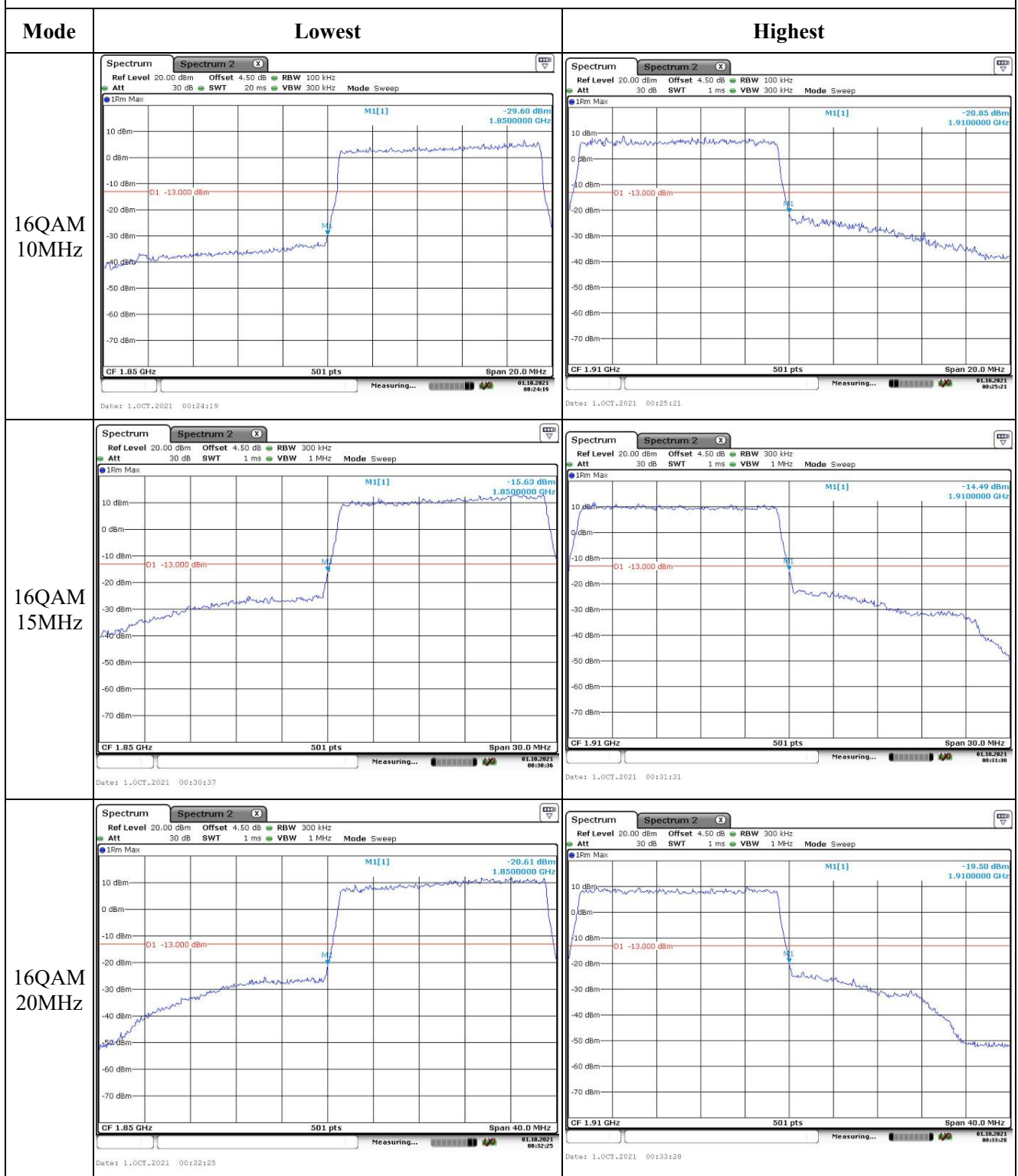
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.6 Antenna Port Test Data and Results for LTE Band 4:

Serial Number:	CR21090101-RF-S3/16	Test Date:	2021/09/29~2021/11/23
Test Site:	RF	Test Mode:	Transmitting
Tester:	Thor Lei	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	22.2~28.3	Relative Humidity: (%)	35~42	Temperature: (°C)	22.2~28.3
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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	2021/7/22	2022/7/21
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Coaxial Attenuators	53-20-34	LN751	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150	30026	2021/7/22	2022/7/22
UNI-T	Multimeter	UT39A+	C210582554	2021/9/30	2022/9/30
E-Microwave	Two-way Splitter	ODP-1-6	OE0120176	Each Time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2021/7/22	2022/7/21

* 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 4▲:

Antenna Gain (dBi):	1	Cable Loss (dB):	0.5
Operation Voltage(V _{DC}):			
Lowest:	3.5	Normal:	3.7
		Highest:	4.2

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	1710.7	1732.5	1754.3
3MHz	1711.5	1732.5	1753.5
5MHz	1712.5	1732.5	1752.5
10MHz	1715	1732.5	1750
15MHz	1717.5	1732.5	1747.5
20MHz	1720	1732.5	1745

Test Data:**FCC§2.1046;§ 27.50(d)(4)****RF Output Power:**

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
1.4MHz QPSK	RB1#0	22.56	22.54	22.69	23.19	30
	RB1#3	22.56	22.49	22.67		
	RB1#5	22.58	22.45	22.68		
	RB3#0	22.56	22.54	22.52		
	RB3#3	22.65	22.55	22.58		
	RB6#0	21.56	21.66	21.57		
1.4MHz 16QAM	RB1#0	22.24	22.3	21.6	22.8	30
	RB1#3	22.28	22.28	21.65		
	RB1#5	22.28	22.3	21.68		
	RB3#0	21.68	21.56	21.58		
	RB3#3	21.72	21.58	21.6		
	RB6#0	20.97	20.74	20.98		
3MHz QPSK	RB1#0	22.48	22.51	22.63	23.18	30
	RB1#8	22.44	22.45	22.68		
	RB1#14	22.42	22.49	22.63		
	RB6#0	21.57	21.6	21.48		
	RB6#9	21.6	21.58	21.49		
	RB15#0	21.52	21.58	21.57		
3MHz 16QAM	RB1#0	21.99	22.3	21.66	22.86	30
	RB1#8	21.94	22.33	21.62		
	RB1#14	22.04	22.36	21.61		
	RB6#0	20.72	20.75	20.96		
	RB6#9	20.65	20.77	21		
	RB15#0	20.86	20.71	20.73		
5MHz QPSK	RB1#0	22.57	22.61	22.38	23.23	30
	RB1#13	22.53	22.62	22.42		
	RB1#24	22.58	22.73	22.37		
	RB15#0	21.62	21.47	21.58		
	RB15#10	21.71	21.57	21.46		
	RB25#0	21.55	21.49	21.48		
5MHz 16QAM	RB1#0	20.91	21.85	21.19	22.37	30
	RB1#13	21.07	21.84	21.11		
	RB1#24	20.92	21.87	21.22		
	RB15#0	20.84	20.63	20.7		
	RB15#10	20.85	20.58	20.68		
	RB25#0	20.9	20.7	20.53		
10MHz QPSK	RB1#0	22.48	22.53	22.74	23.26	30
	RB1#25	22.54	22.54	22.76		

	RB1#49	22.49	22.6	22.67		
	RB25#0	21.6	21.54	21.49		
	RB25#25	21.62	21.59	21.47		
	RB50#0	21.56	21.57	21.57		
10MHz 16QAM	RB1#0	21.85	21.72	21.12	22.42	30
	RB1#25	21.87	21.75	21.28		
	RB1#49	21.92	21.66	21.13		
	RB25#0	20.73	20.78	20.79		
	RB25#25	20.78	20.81	20.81		
	RB50#0	20.8	20.75	20.76		
15MHz QPSK	RB1#0	22.48	22.51	22.5	23.01	30
	RB1#38	22.49	22.48	22.45		
	RB1#74	22.49	22.48	22.49		
	RB36#0	21.56	21.46	21.54		
	RB36#39	21.54	21.49	21.61		
	RB75#0	21.54	21.54	21.44		
15MHz 16QAM	RB1#0	21.87	21.82	22.17	22.77	30
	RB1#38	21.91	21.85	22.23		
	RB1#74	22	21.81	22.27		
	RB36#0	20.73	20.73	20.64		
	RB36#39	20.69	20.85	20.73		
	RB75#0	20.77	20.74	20.71		
20MHz QPSK	RB1#0	22.66	22.48	22.46	23.19	30
	RB1#50	22.65	22.45	22.44		
	RB1#99	22.69	22.51	22.56		
	RB50#0	21.6	21.57	21.5		
	RB50#50	21.59	21.57	21.67		
	RB100#0	21.54	21.53	21.55		
20MHz 16QAM	RB1#0	21.62	22.06	21.43	22.59	30
	RB1#50	21.61	22.05	21.52		
	RB1#99	22.08	22.09	21.72		
	RB50#0	20.79	20.77	20.73		
	RB50#50	20.93	20.79	20.8		
	RB100#0	20.8	20.74	20.72		

Note: EIRP=Conducted Power(dBm) - Cable loss(dB) + Antenna Gain(dBi)

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	
20MHz QPSK	RB1#0	4.9	4.41	4.9	13
	RB100#0	4.99	4.9	5.1	13
20MHz 16QAM	RB1#0	6.35	5.59	5.57	13
	RB100#0	5.83	5.83	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	1.096	1.266	1.254	1.26
1.4MHz 16QAM	1.096	1.102	1.108	1.26	1.254	1.266
3MHz QPSK	2.707	2.685	2.683	3.012	3.000	3.024
3MHz 16QAM	2.707	2.693	2.695	3.024	3.000	3.024
5MHz QPSK	4.531	4.511	4.511	5.000	5.000	4.98
5MHz 16QAM	4.511	4.531	4.551	5.000	5.020	5.000
10MHz QPSK	8.982	8.942	8.942	9.800	9.720	9.800
10MHz 16QAM	8.982	8.942	8.942	9.800	9.840	9.800
15MHz QPSK	13.533	13.473	13.473	15.000	15.000	15.120
15MHz 16QAM	13.533	13.533	13.473	15.000	15.180	15.060
20MHz QPSK	17.964	17.964	17.964	19.520	19.680	19.760
20MHz 16QAM	18.044	18.044	17.964	19.680	19.840	19.840

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

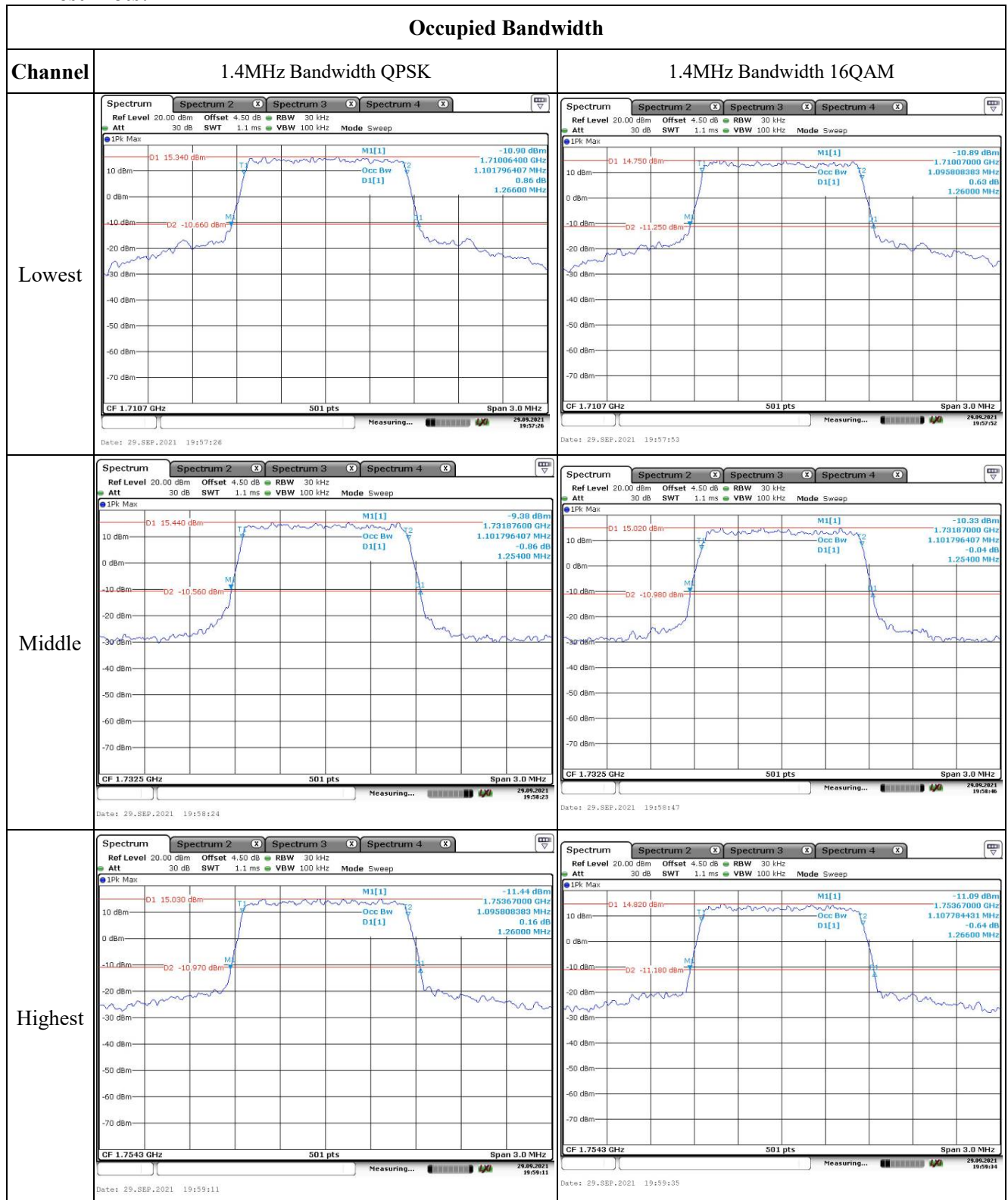
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
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FCC §2.1055, §27.54: Frequency Stability

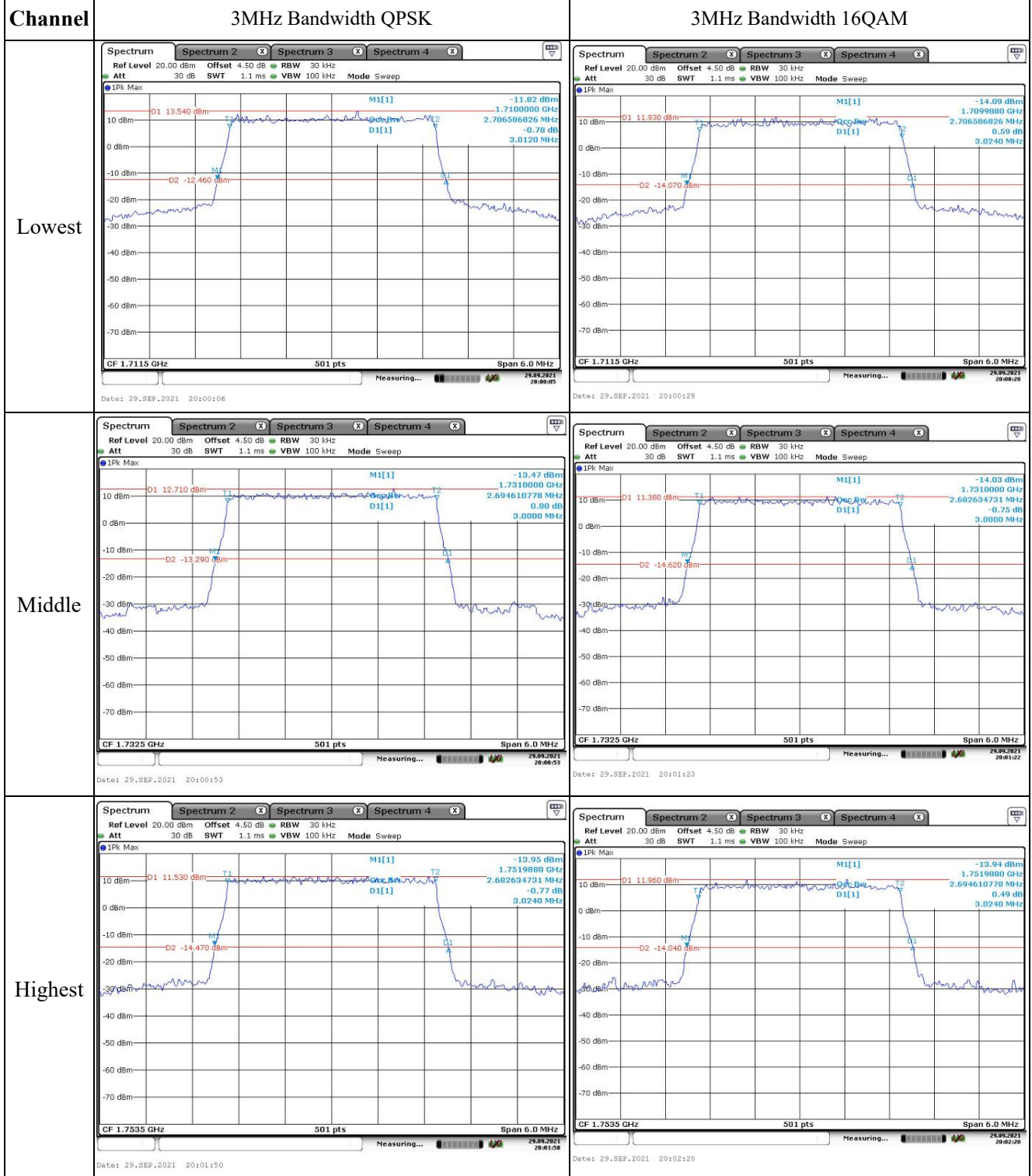
Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.7	1710.0374	1710.00	1754.6689	1755
	-20	3.7	1710.5289	1710.00	1754.4711	1755
	-10	3.7	1710.1122	1710.00	1754.9527	1755
	0	3.7	1710.3366	1710.00	1754.7162	1755
	10	3.7	1710.2618	1710.00	1754.6689	1755
	20	3.7	1710.2992	1710.00	1754.7635	1755
	30	3.7	1710.2618	1710.00	1754.6216	1755
	40	3.7	1710.1496	1710.00	1754.7162	1755
	50	3.7	1710.0374	1710.00	1754.8581	1755
Frequency Stability vs. Voltage	20	3.5	1710.0748	1710.00	1754.7635	1755
	20	4.2	1710.187	1710.00	1754.8108	1755
					Result:	Pass

Test Mode:	20M 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	3.7	1710.1496	1710.00	1754.7162	1755
	-20	3.7	1710.5289	1710.00	1754.4711	1755
	-10	3.7	1710.1122	1710.00	1754.7635	1755
	0	3.7	1710.3366	1710.00	1754.6689	1755
	10	3.7	1710.2618	1710.00	1754.8108	1755
	20	3.7	1710.0748	1710.00	1754.8108	1755
	30	3.7	1710.1122	1710.00	1754.7635	1755
	40	3.7	1710.0374	1710.00	1754.7162	1755
	50	3.7	1710.1122	1710.00	1754.7635	1755
Frequency Stability vs. Voltage	20	3.5	1710.2992	1710.00	1754.9054	1755
	20	4.2	1710.1122	1710.00	1754.6216	1755
					Result:	Pass

Test Plots:



Occupied Bandwidth



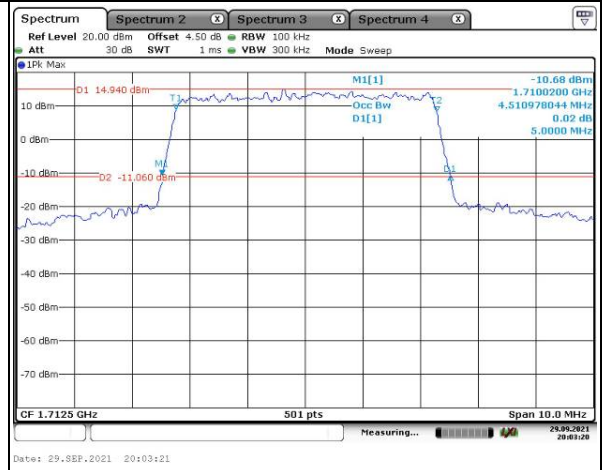
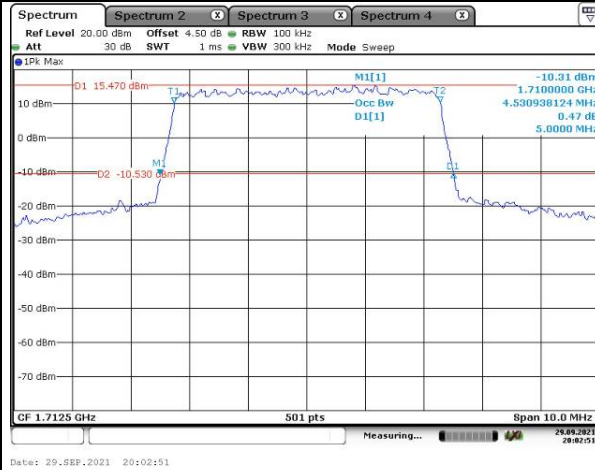
Occupied Bandwidth

Channel

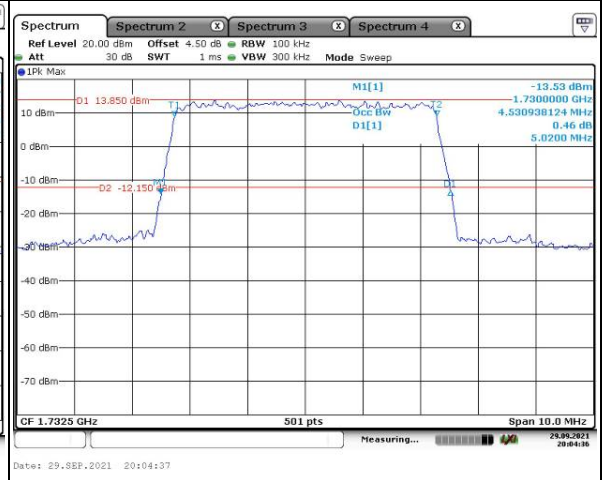
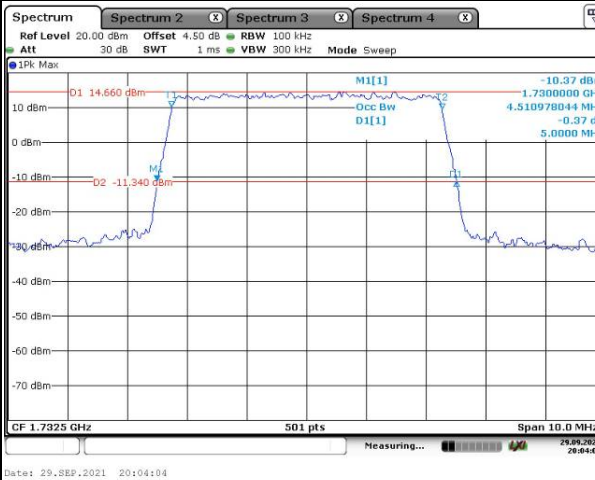
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

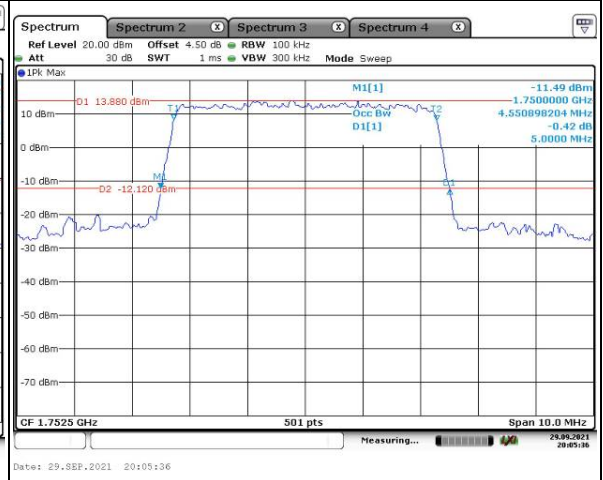
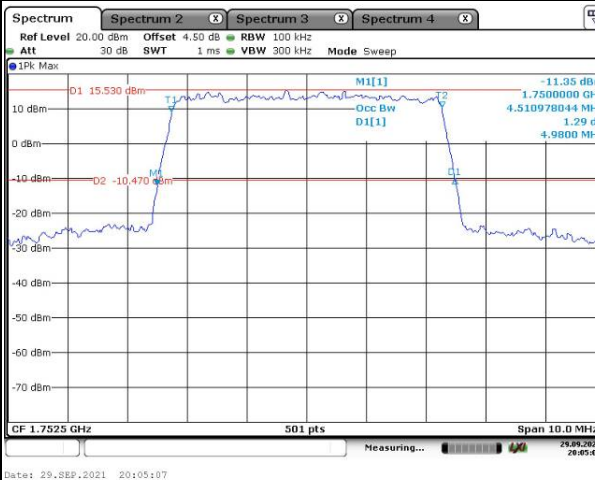
Lowest



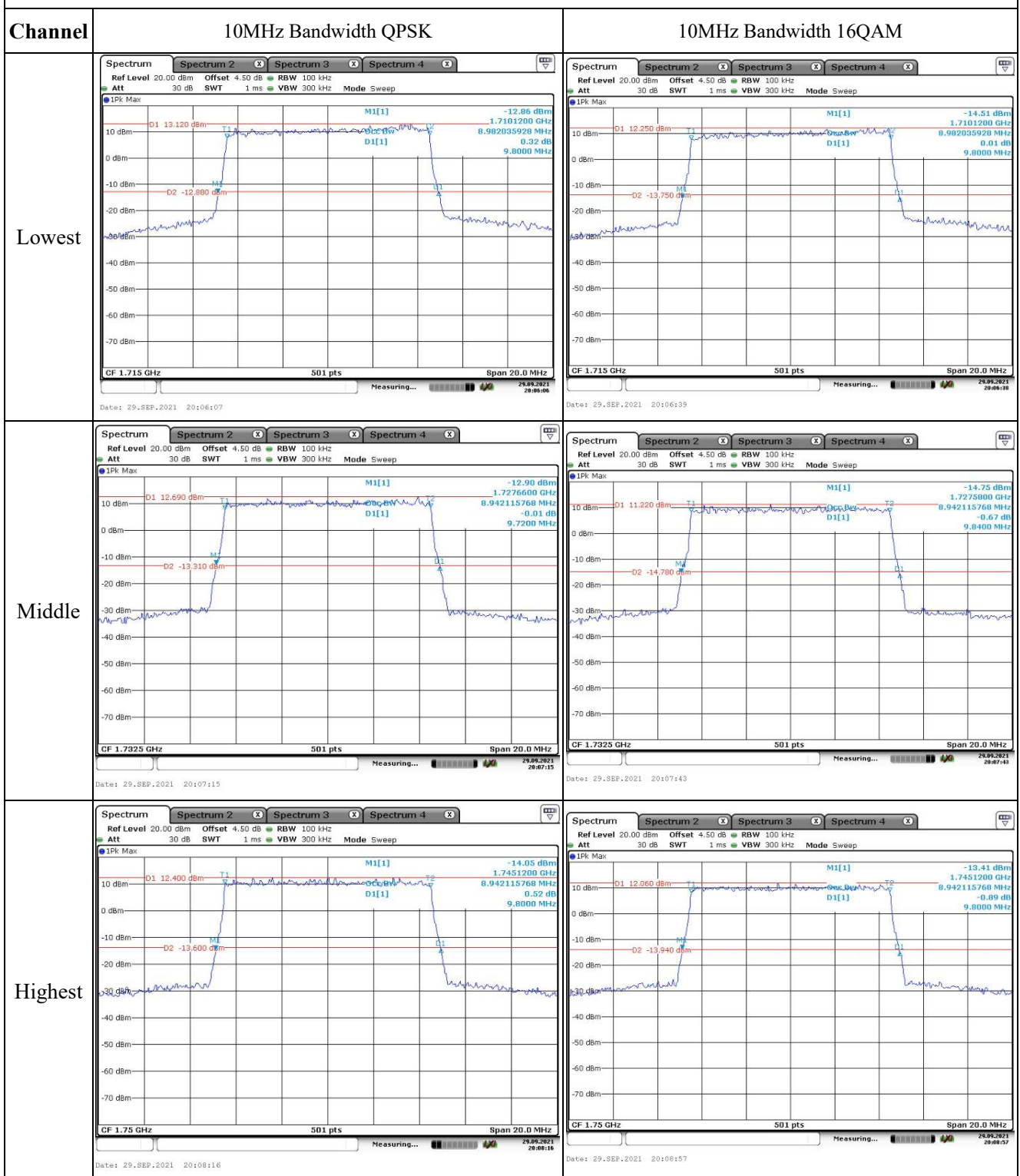
Middle



Highest



Occupied Bandwidth



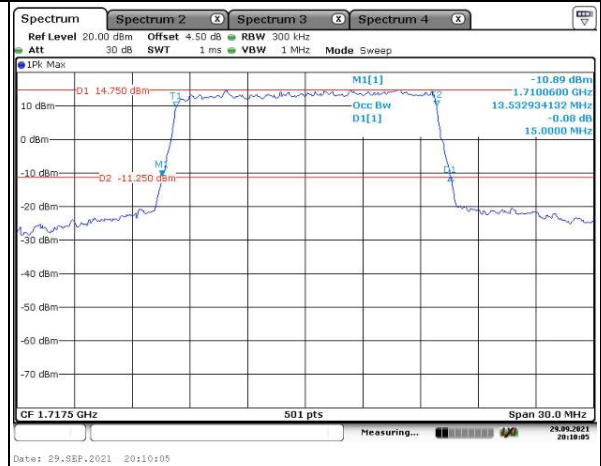
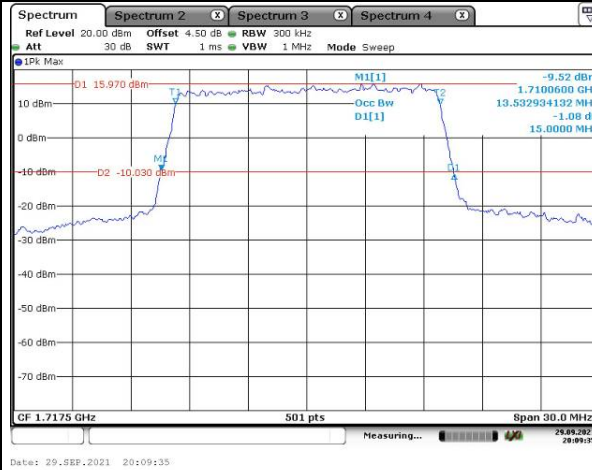
Occupied Bandwidth

Channel

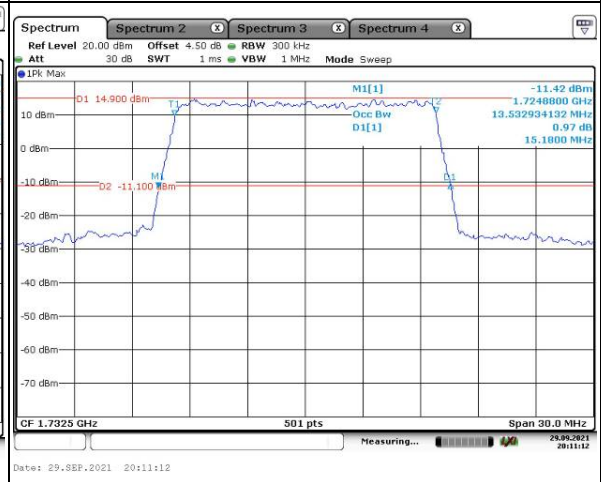
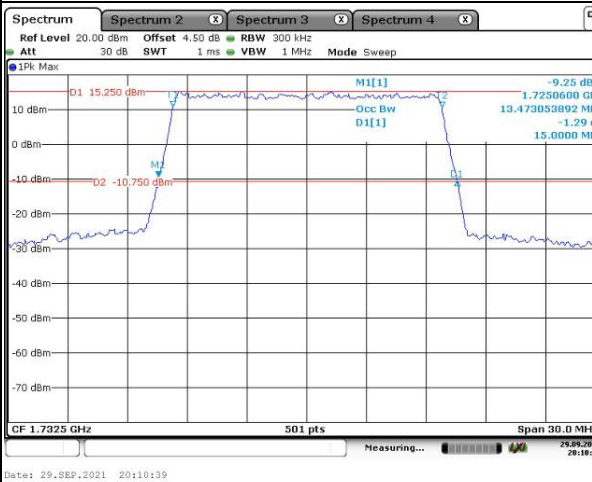
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

Lowest



Middle



Highest

