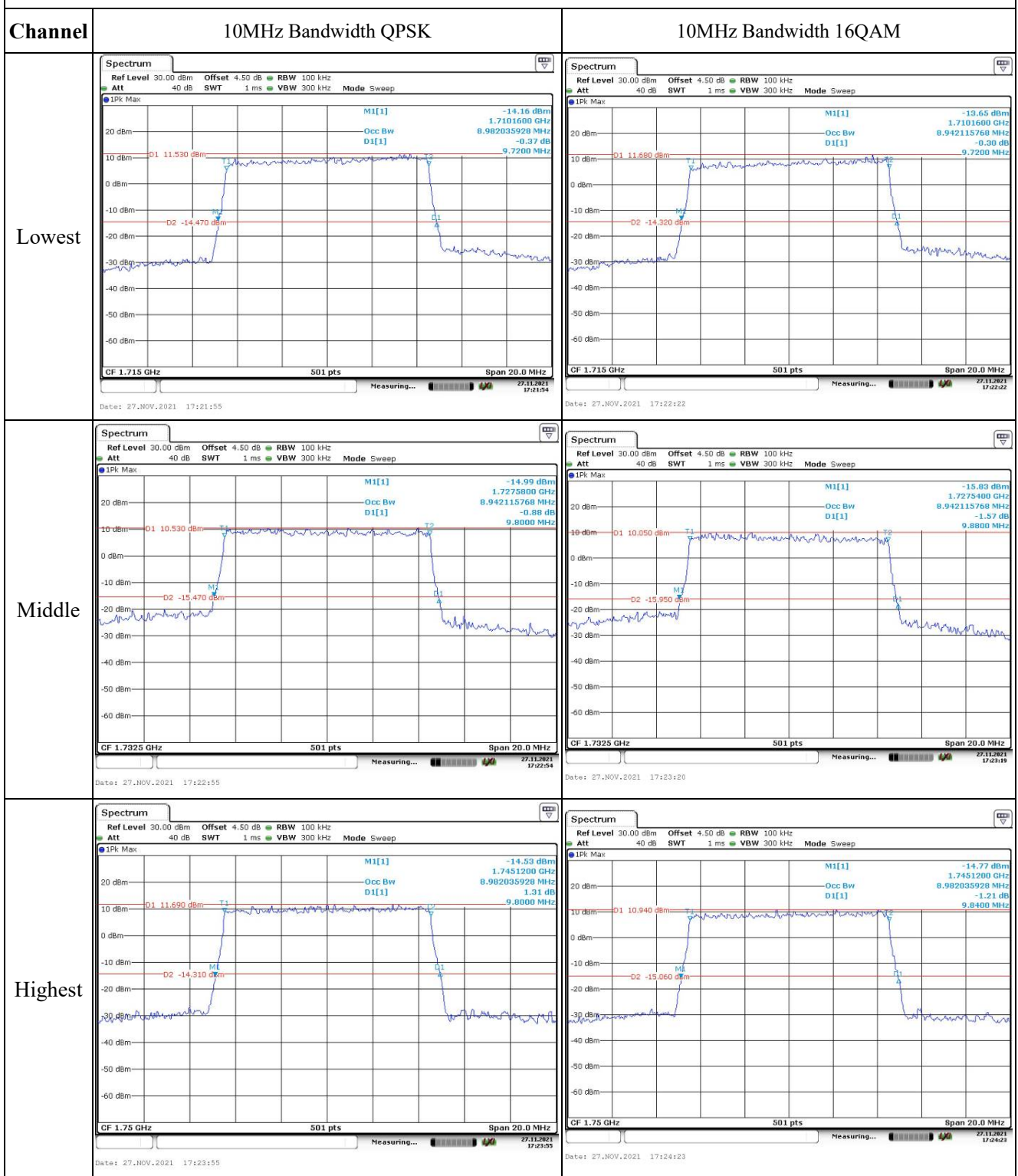


Occupied Bandwidth



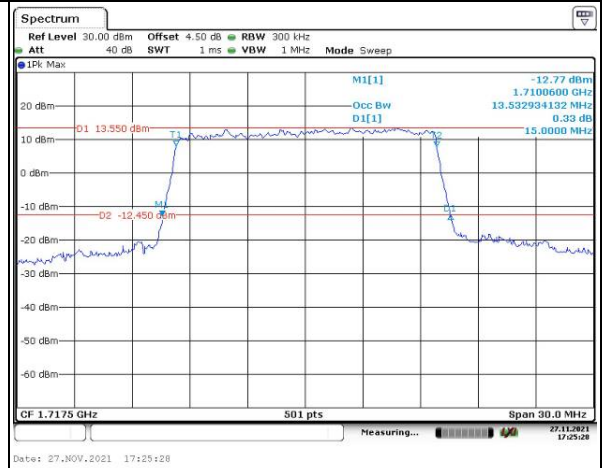
Occupied Bandwidth

Channel

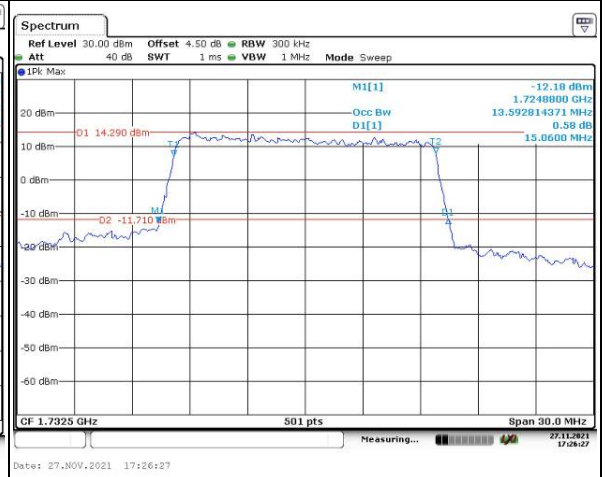
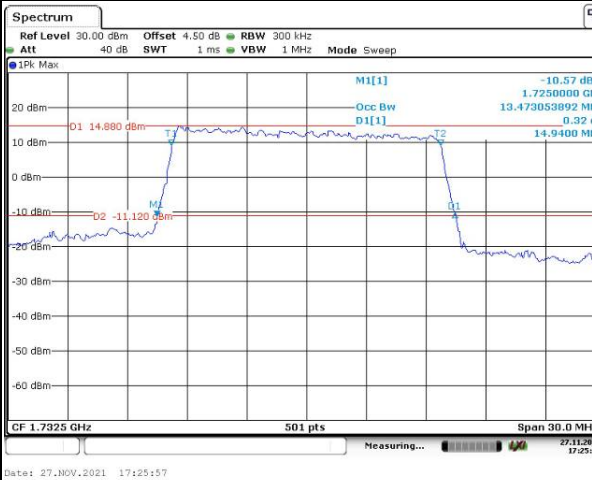
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

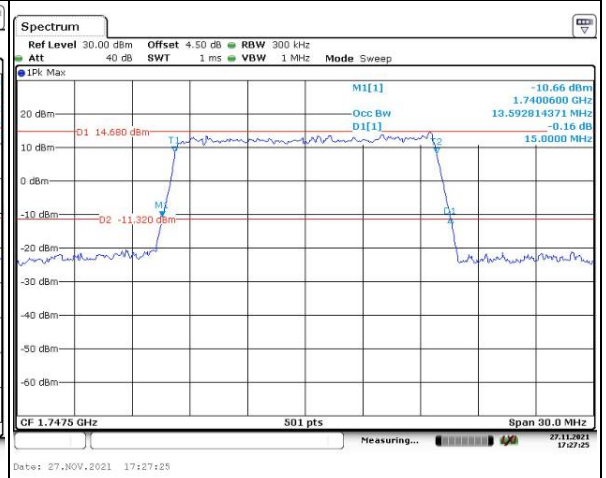
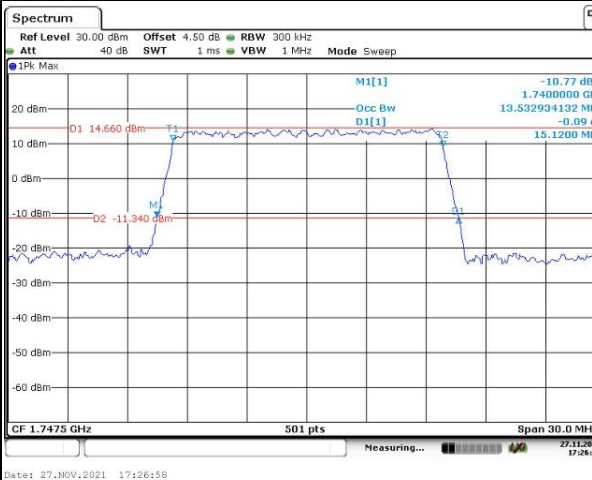
Lowest



Middle



Highest



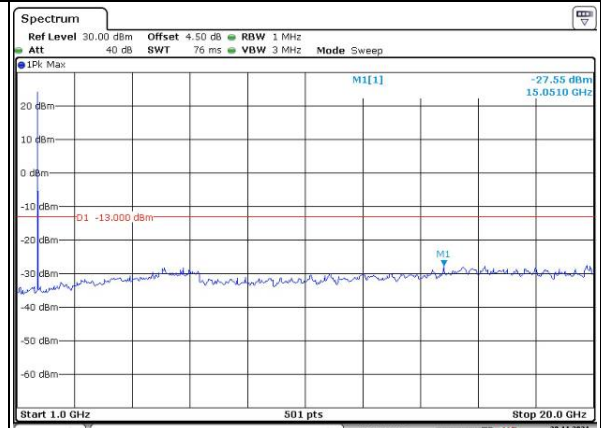
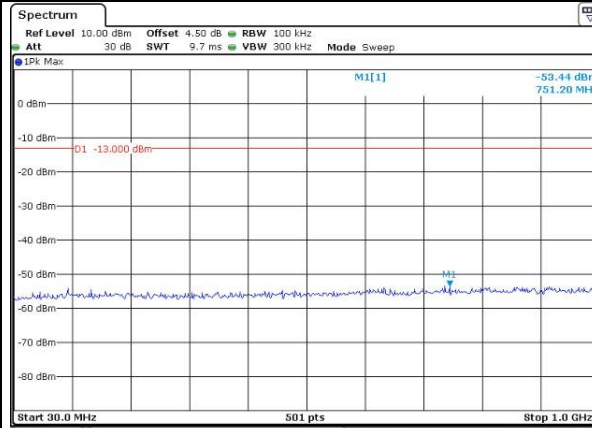
Occupied Bandwidth	
Channel	
Lowest	20MHz Bandwidth QPSK
	20MHz Bandwidth 16QAM
Middle	
Highest	

Spurious Emissions at Antenna Terminal

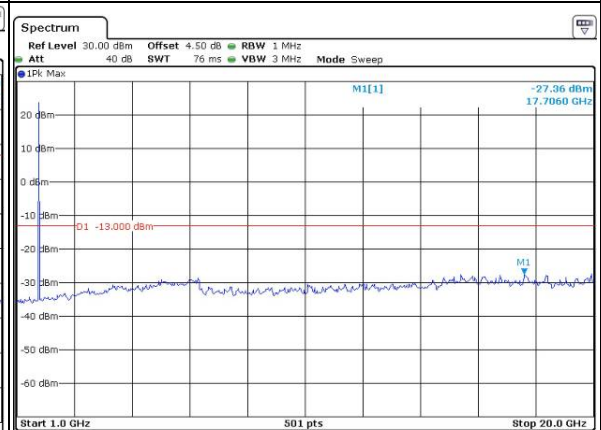
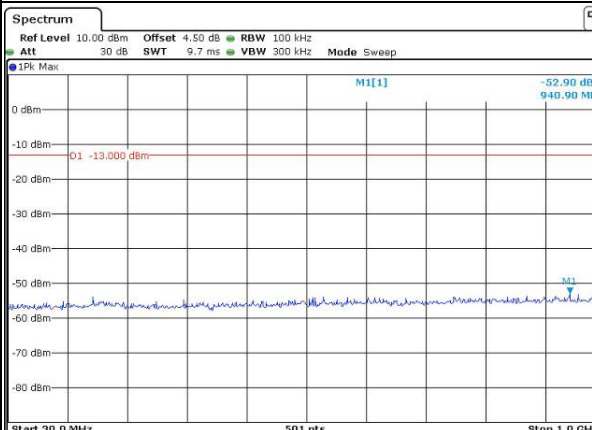
Channel

1.4MHz Bandwidth QPSK

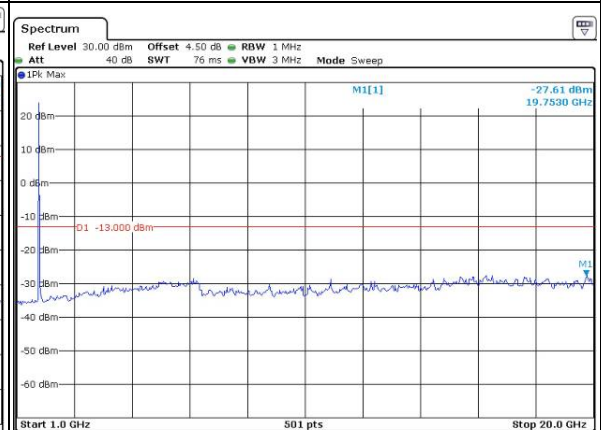
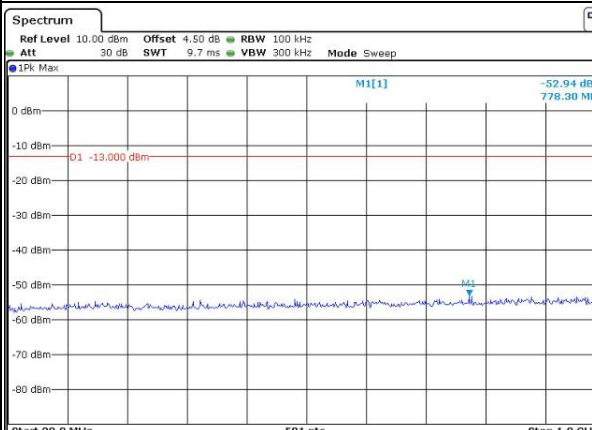
Lowest



Middle



Highest

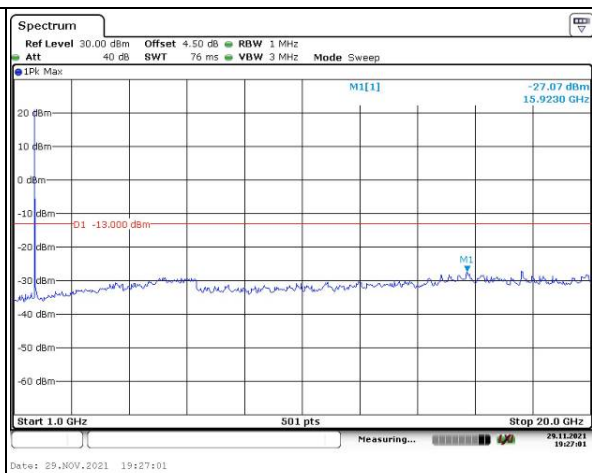
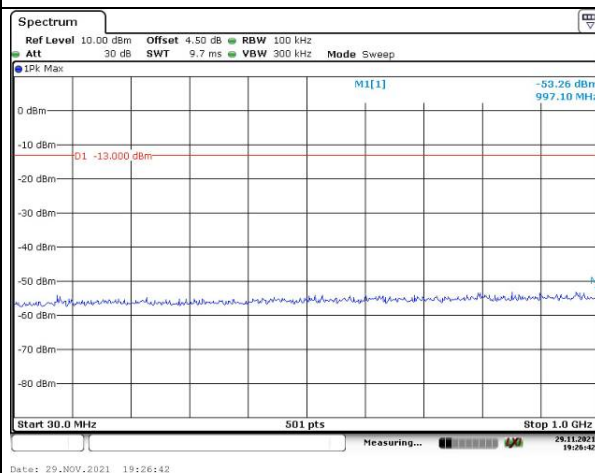


Spurious Emissions at Antenna Terminal

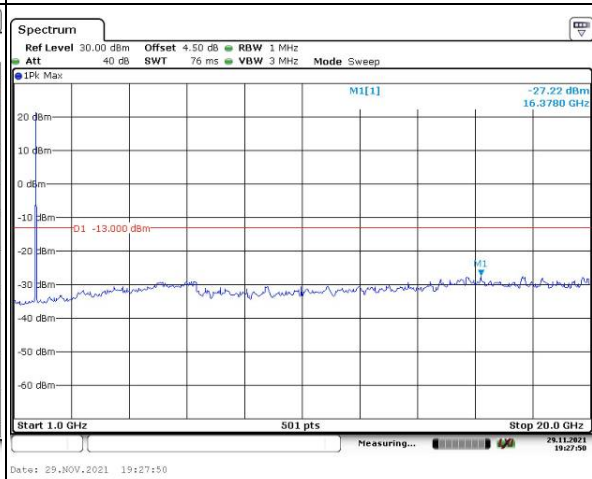
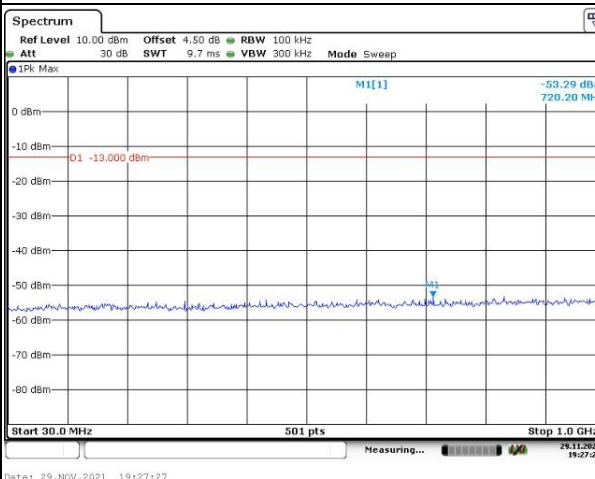
Channel

3MHz Bandwidth QPSK

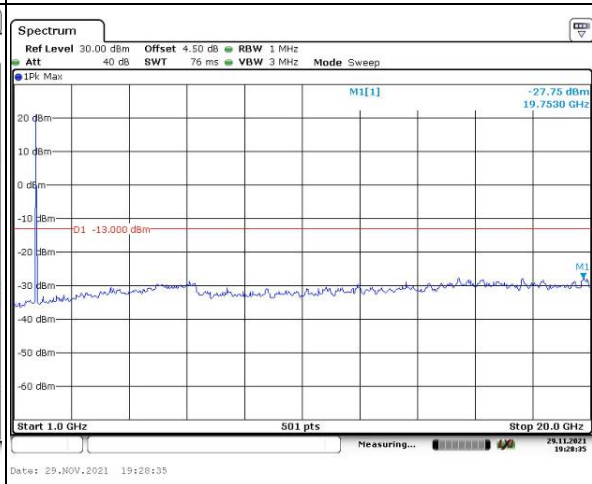
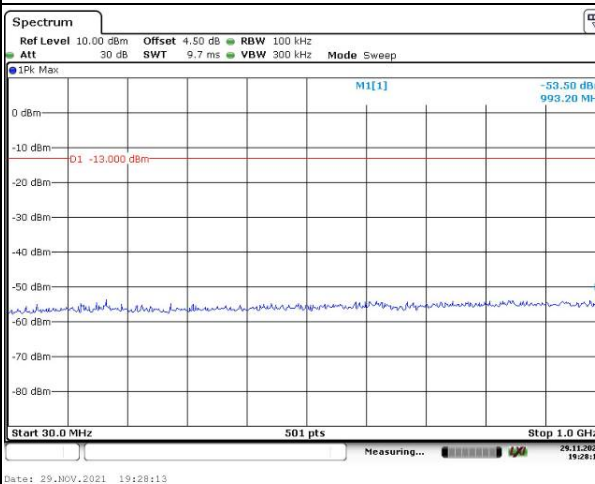
Lowest



Middle



Highest

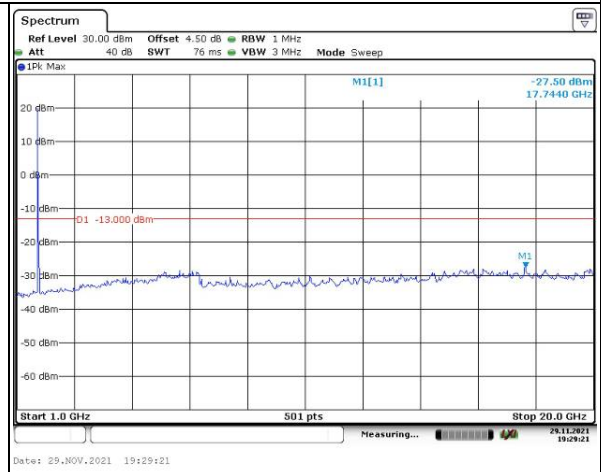
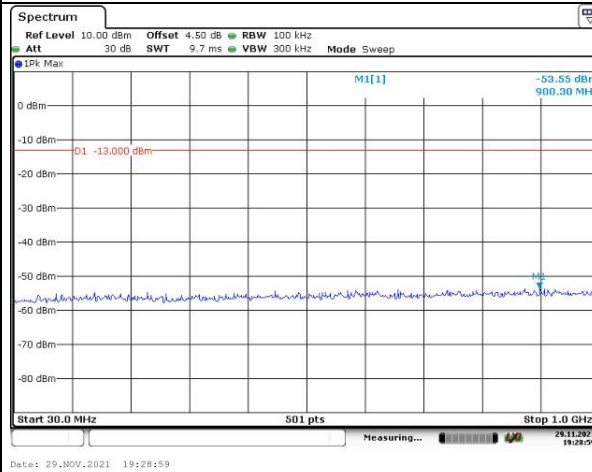


Spurious Emissions at Antenna Terminal

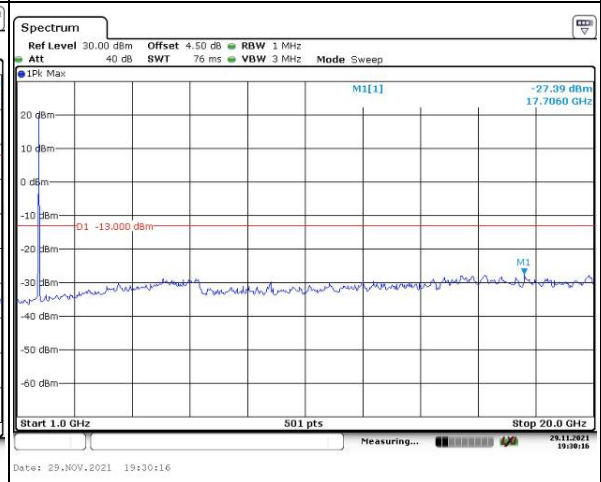
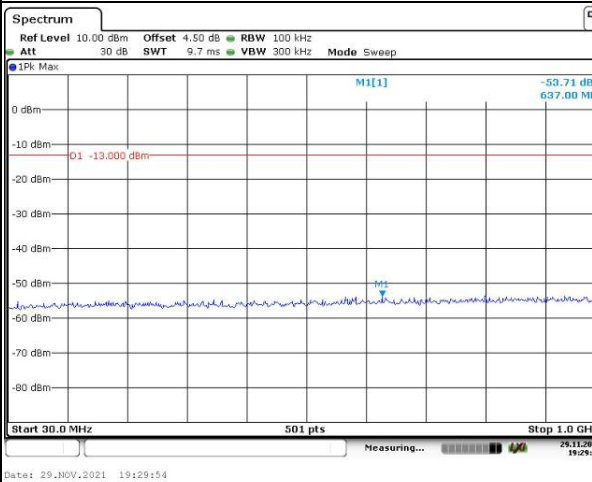
Channel

5MHz Bandwidth QPSK

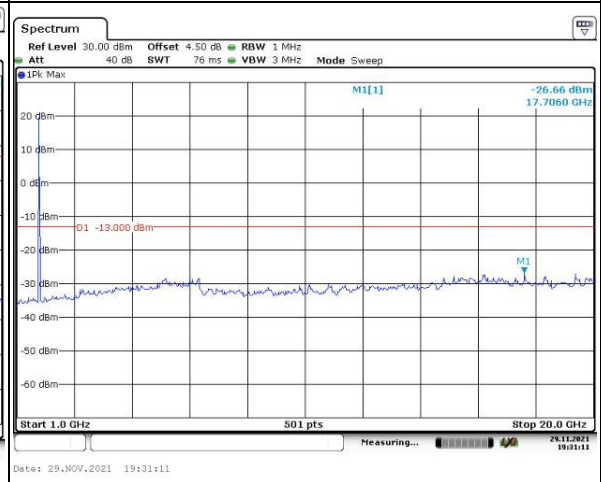
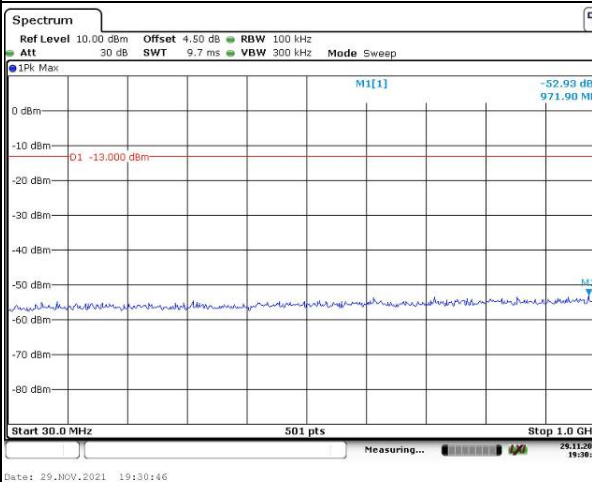
Lowest



Middle



Highest

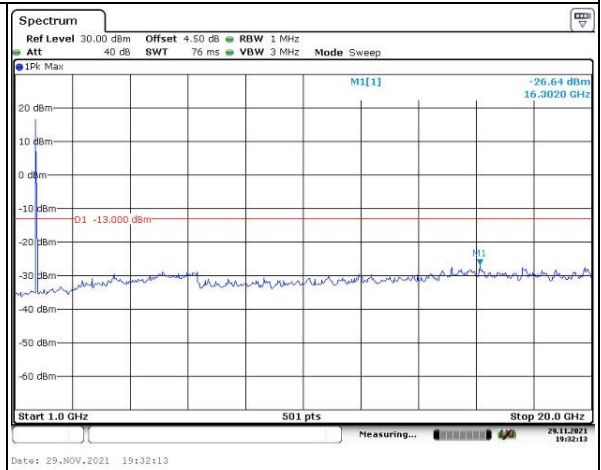
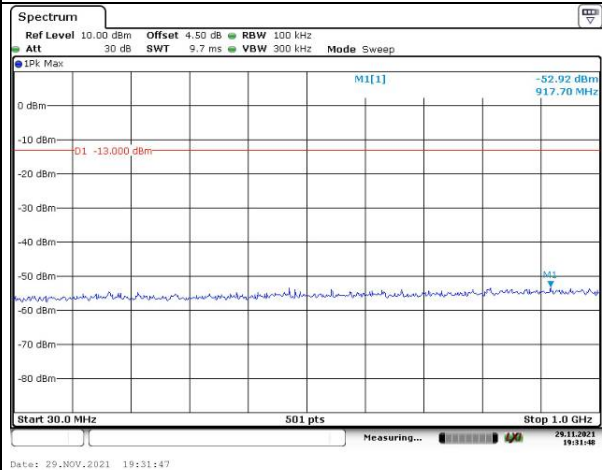


Spurious Emissions at Antenna Terminal

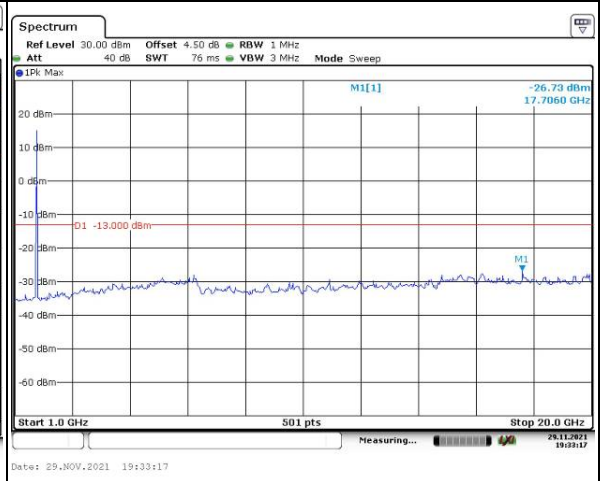
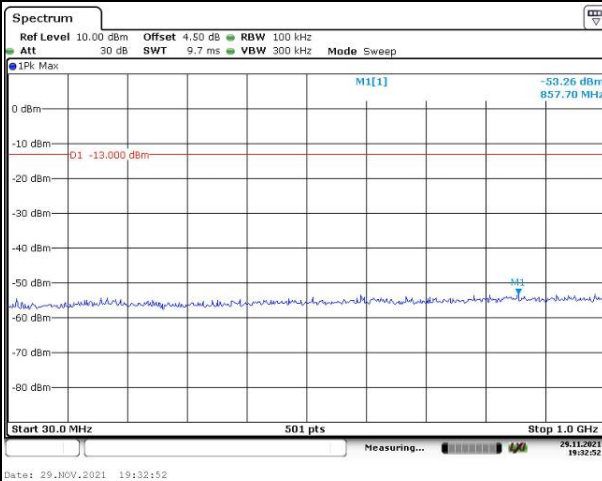
Channel

10MHz Bandwidth QPSK

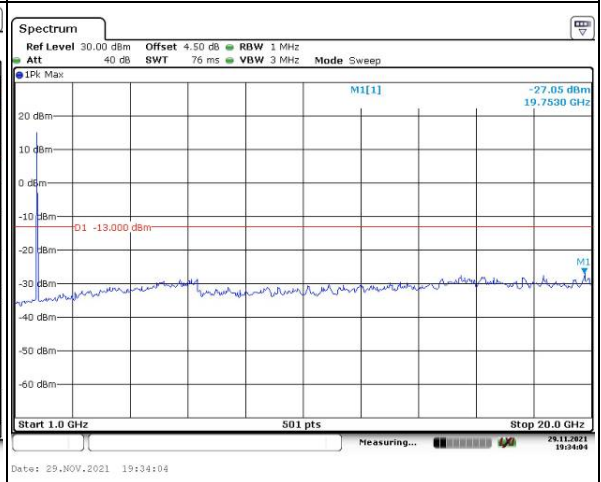
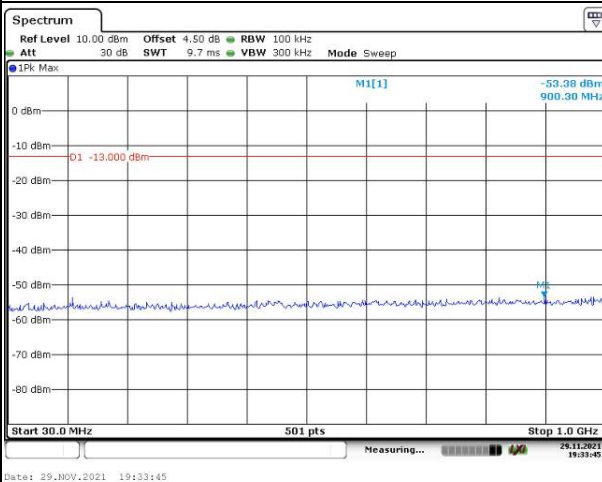
Lowest



Middle



Highest

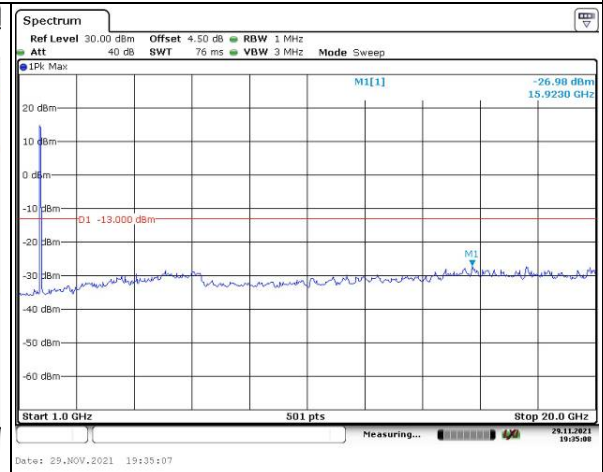
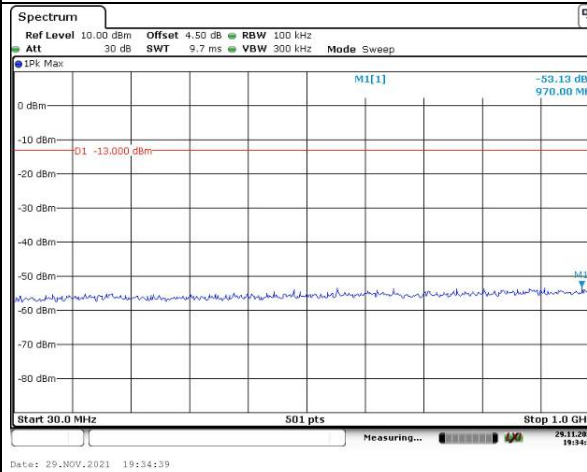


Spurious Emissions at Antenna Terminal

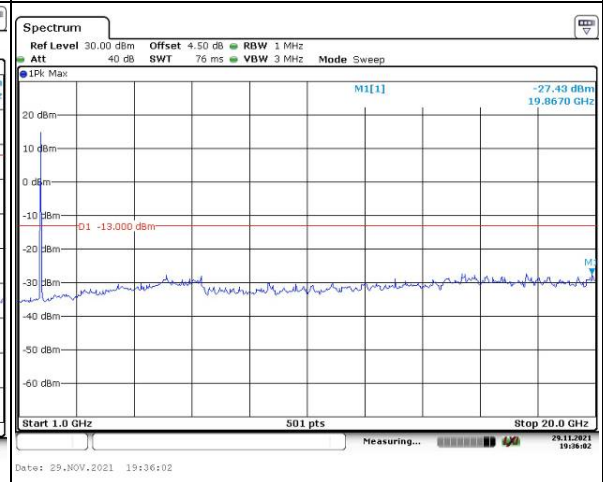
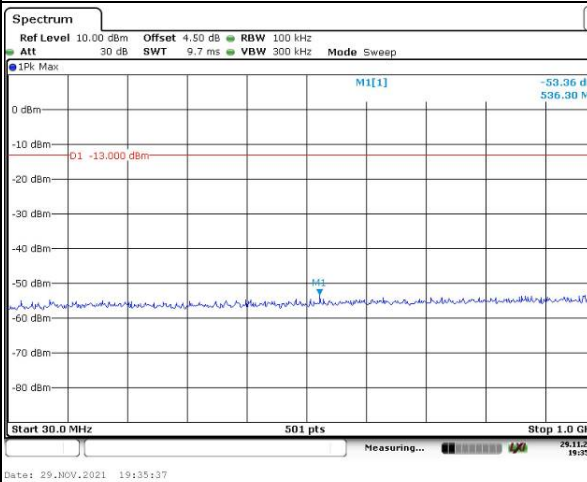
Channel

15MHz Bandwidth QPSK

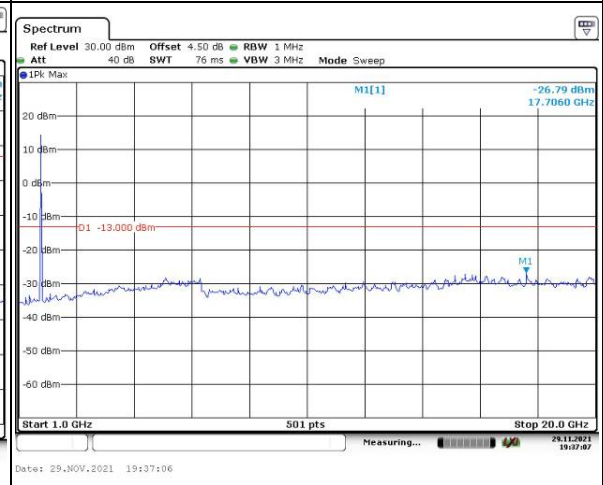
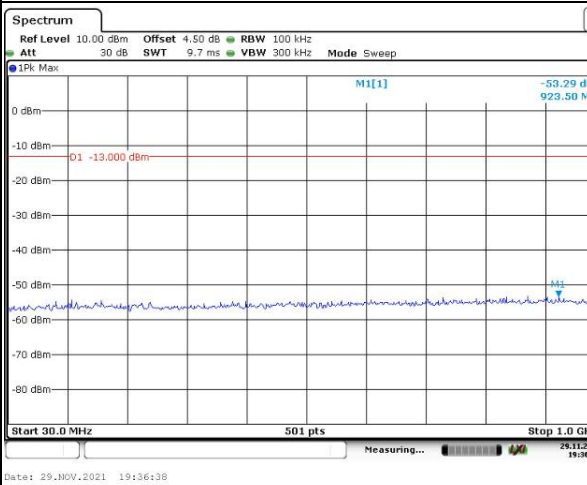
Lowest



Middle



Highest

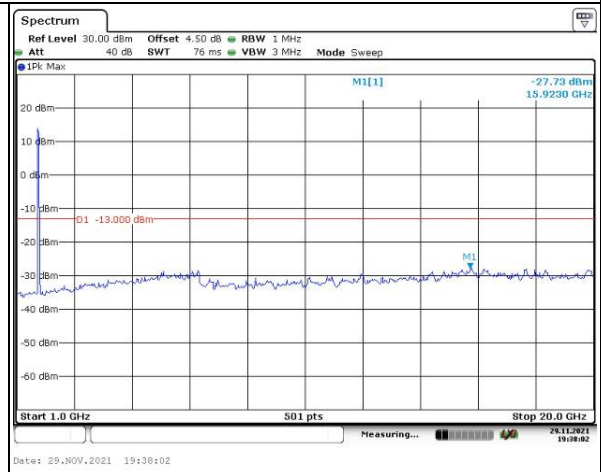
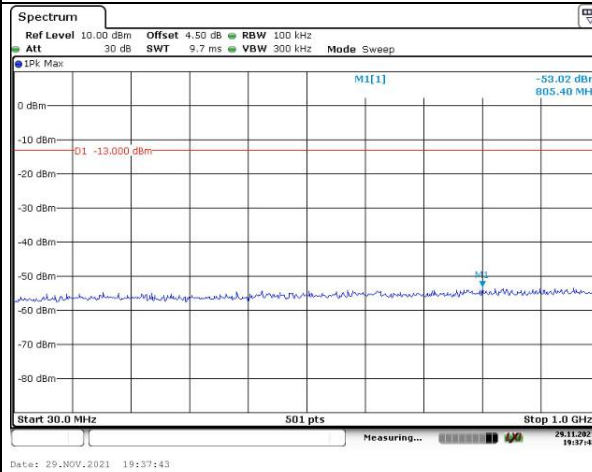


Spurious Emissions at Antenna Terminal

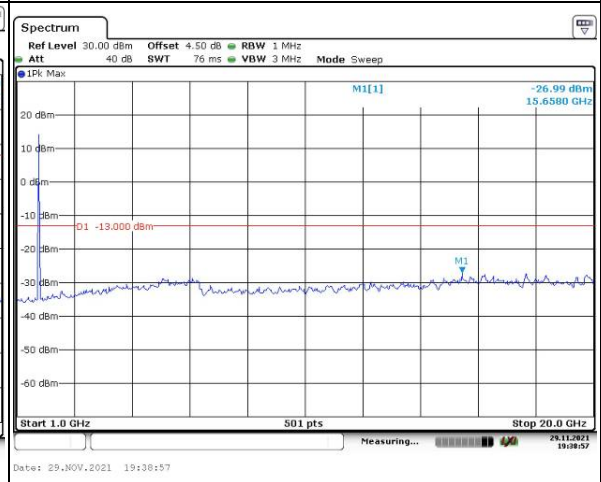
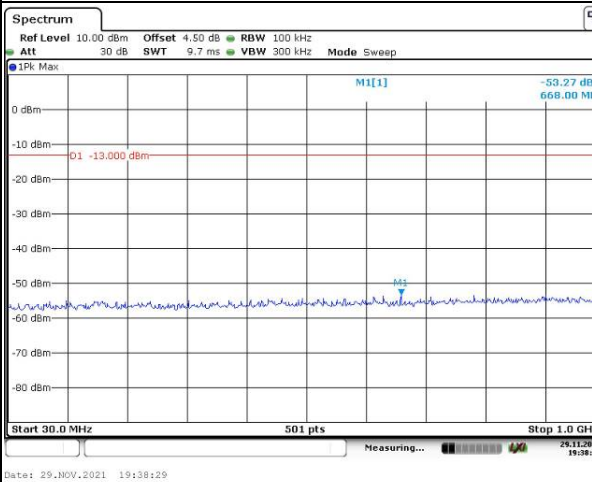
Channel

20MHz Bandwidth QPSK

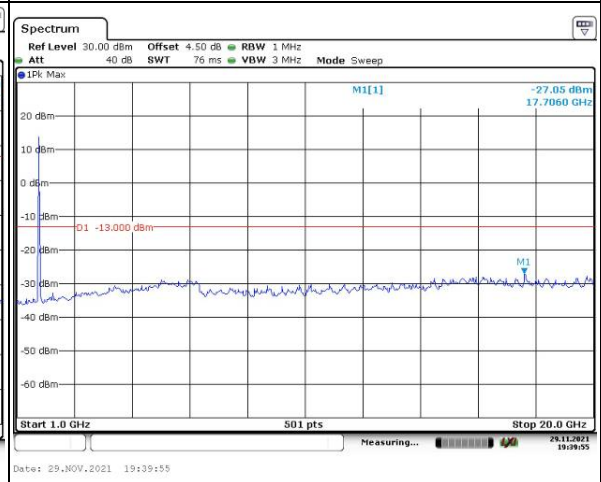
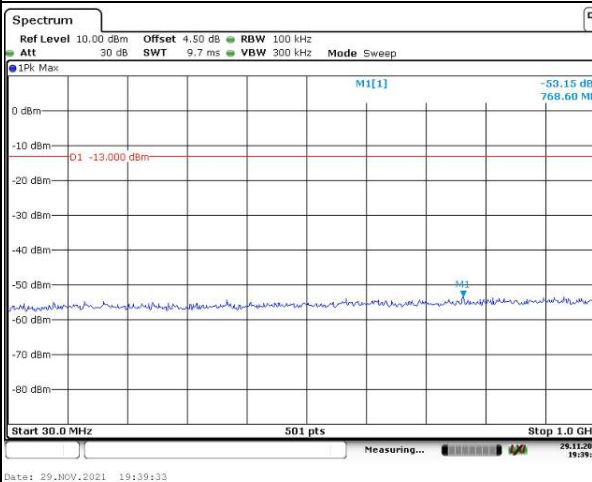
Lowest



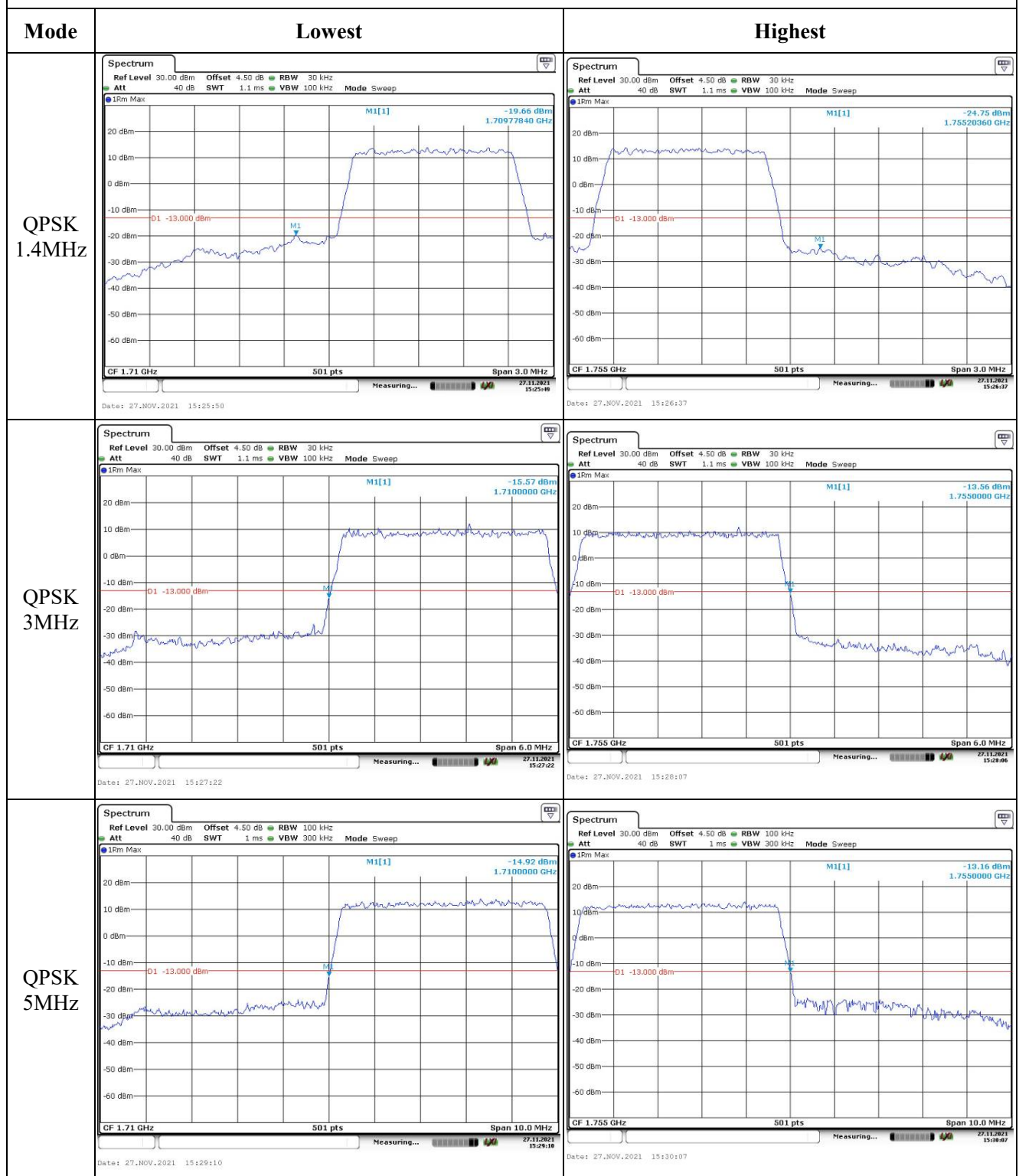
Middle



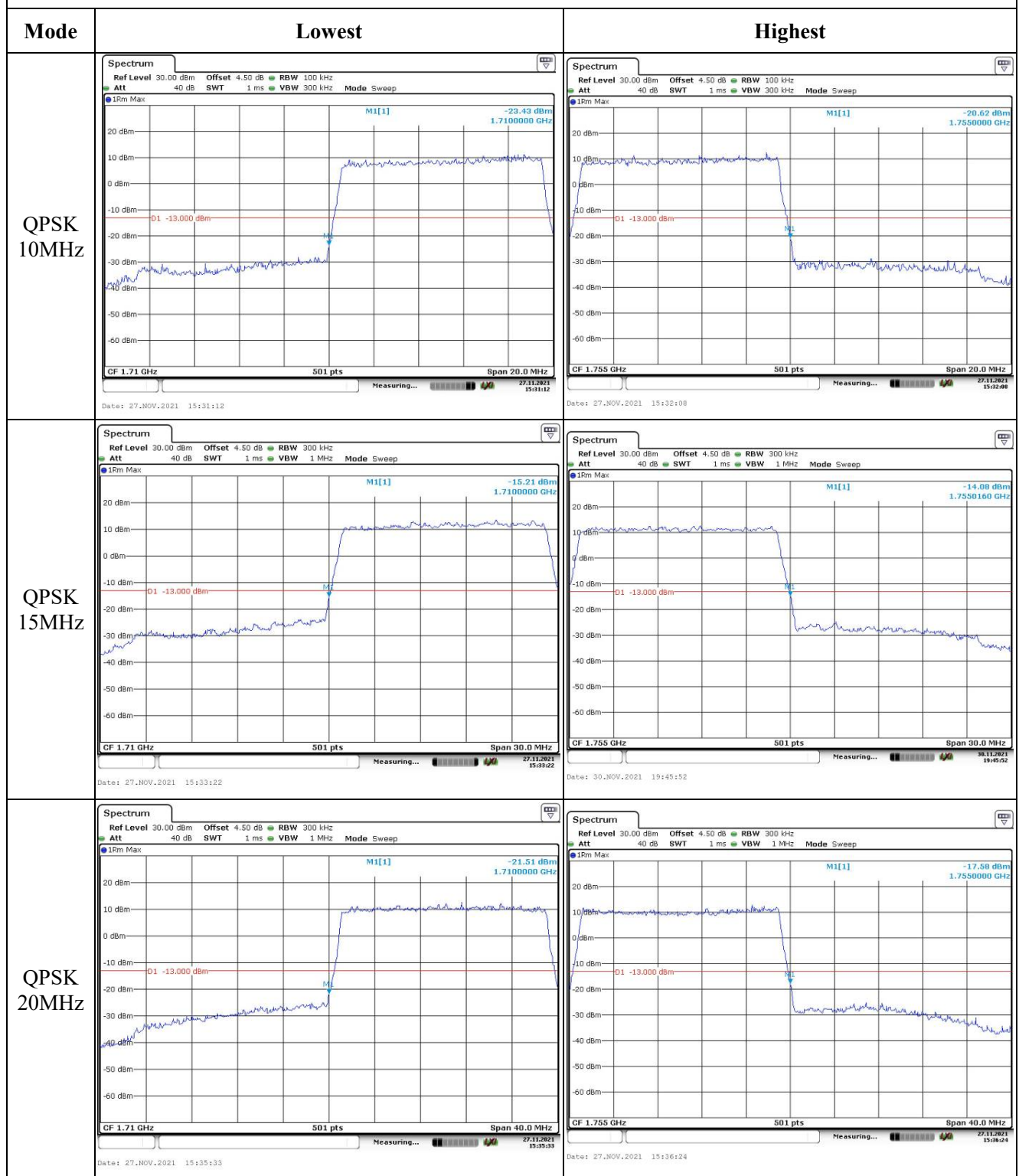
Highest



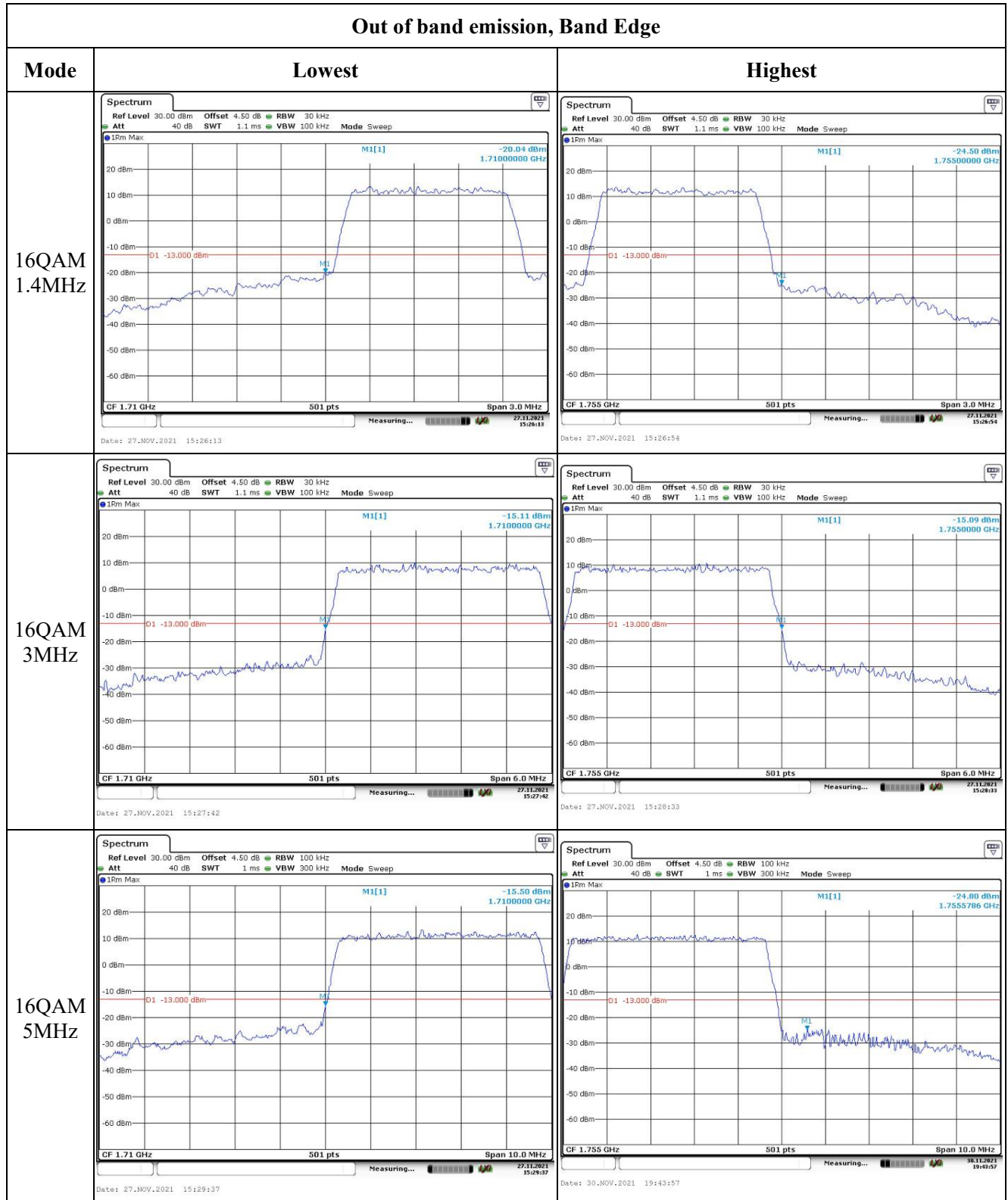
Out of band emission, Band Edge



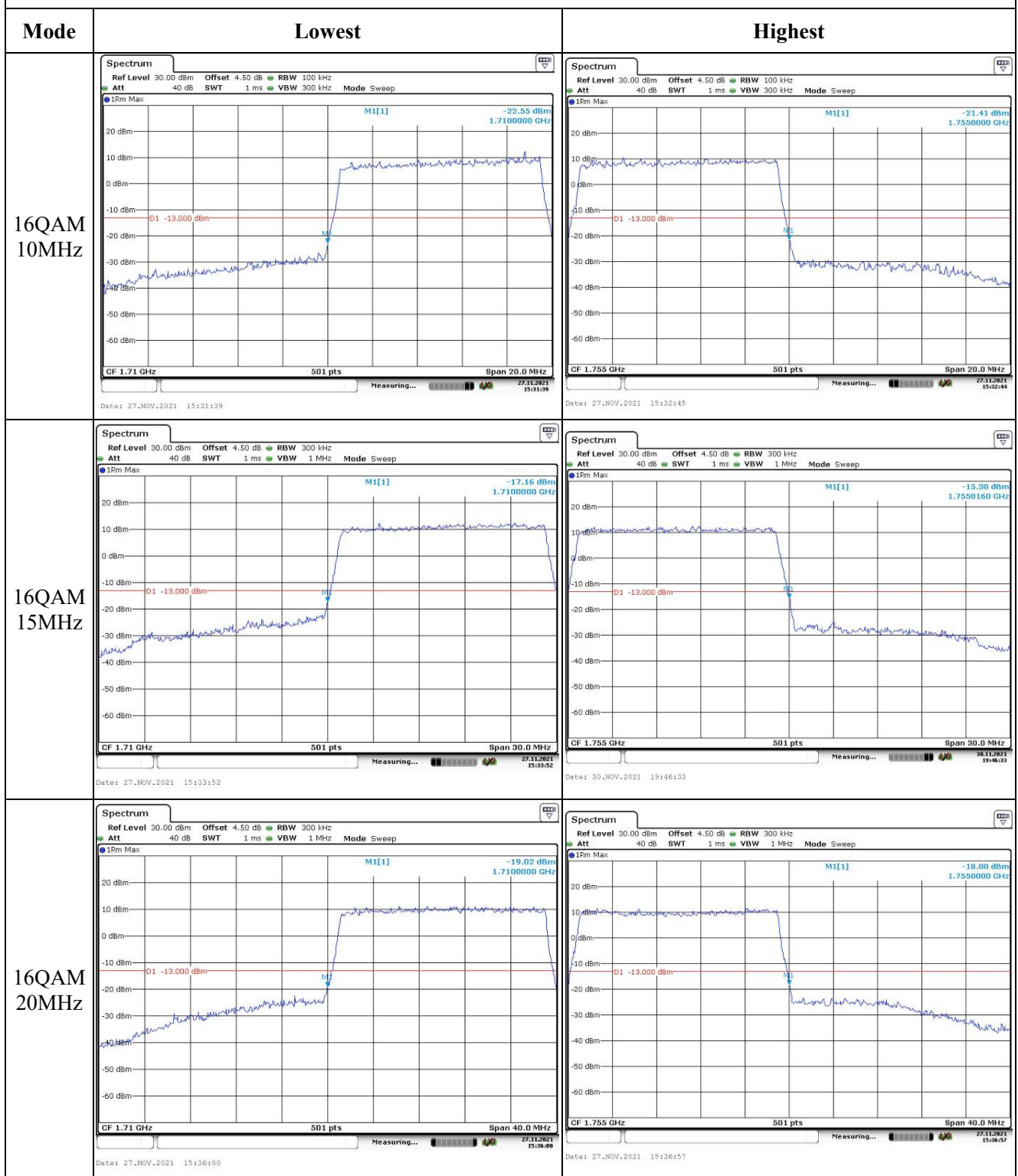
Out of band emission, Band Edge



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:	CR21110024-RF-S4	Test Date:	2021-11-27~2022-01-06
Test Site:	RF	Test Mode:	Transmitting
Tester:	Le Qiao	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	22.1~22.9	Relative Humidity: (%)	40~66	ATM Pressure: (kPa)	101.4~101.7
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	Spectrum Analyzer	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
R&S	Wideband Radio Communication Tester	CMW500	149218	2021/7/22	2022/7/21
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

* 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):	3	Antenna Gain (dBd):	0.85	Cable Loss (dB):	0.1
Operation Voltage(V _{DC}):					
Lowest:	3.5	Normal:	3.8	Highest:	4.35

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	23.38	23.36	23.53	24.36	38.45
	RB1#3	23.32	23.42	23.54		
	RB1#5	23.34	23.51	23.52		
	RB3#0	23.37	23.61	23.41		
	RB3#3	23.35	23.59	23.46		
	RB6#0	22.40	22.52	22.51		
1.4MHz 16QAM	RB1#0	22.77	23.12	21.99	23.89	38.45
	RB1#3	22.75	23.10	22.03		
	RB1#5	22.75	23.14	22.02		
	RB3#0	22.23	22.39	22.17		
	RB3#3	22.27	22.40	22.22		
	RB6#0	21.35	21.55	21.71		
3MHz QPSK	RB1#0	23.27	23.36	23.61	24.39	38.45
	RB1#8	23.20	23.43	23.58		
	RB1#14	23.26	23.45	23.64		
	RB6#0	22.39	22.48	22.50		
	RB6#9	22.50	22.48	22.45		
	RB15#0	22.18	22.48	22.37		
3MHz 16QAM	RB1#0	22.50	22.69	22.00	23.49	38.45
	RB1#8	22.43	22.72	21.94		
	RB1#14	22.64	22.74	22.07		
	RB6#0	21.47	21.66	21.50		
	RB6#9	21.50	21.65	21.64		
	RB15#0	21.38	21.55	21.41		
5MHz QPSK	RB1#0	23.29	23.55	23.35	24.46	38.45
	RB1#13	23.27	23.64	23.27		
	RB1#24	23.30	23.71	23.30		
	RB15#0	22.31	22.49	22.47		
	RB15#10	22.48	22.42	22.46		
	RB25#0	22.52	22.56	22.57		
5MHz 16QAM	RB1#0	21.77	22.40	22.50	23.26	38.45
	RB1#13	21.86	22.41	22.36		
	RB1#24	21.81	22.51	22.45		
	RB15#0	21.39	21.40	21.48		
	RB15#10	21.46	21.42	21.38		
	RB25#0	21.43	21.46	21.59		

10MHz QPSK	RB1#0	23.29	23.35	23.39	24.26	38.45
	RB1#25	23.33	23.47	23.40		
	RB1#49	23.45	23.51	23.41		
	RB25#0	22.47	22.57	22.45		
	RB25#25	22.41	22.39	22.52		
	RB50#0	22.37	22.58	22.33		
10MHz 16QAM	RB1#0	22.80	23.05	22.29	23.92	38.45
	RB1#25	22.78	23.13	22.20		
	RB1#49	22.79	23.17	22.31		
	RB25#0	21.36	21.57	21.67		
	RB25#25	21.46	21.61	21.60		
	RB50#0	21.47	21.48	21.47		
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	3.13	3.97	13
	RB50#0	4.20	4.35	4.38	13
10MHz 16QAM	RB1#0	4.93	4.17	4.61	13
	RB50#0	5.25	5.36	5.62	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	1.114	1.254	1.278	1.302
1.4MHz 16QAM	1.108	1.096	1.108	1.272	1.254	1.332
3MHz QPSK	2.707	2.695	2.695	3.000	3.012	2.940
3MHz 16QAM	2.695	2.695	2.695	3.024	3.012	2.952
5MHz QPSK	4.531	4.531	4.511	5.000	5.040	5.020
5MHz 16QAM	4.511	4.551	4.551	5.000	5.000	5.040
10MHz QPSK	8.981	8.942	8.942	9.880	9.840	9.720
10MHz 16QAM	8.942	8.981	8.942	9.800	9.840	9.840
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

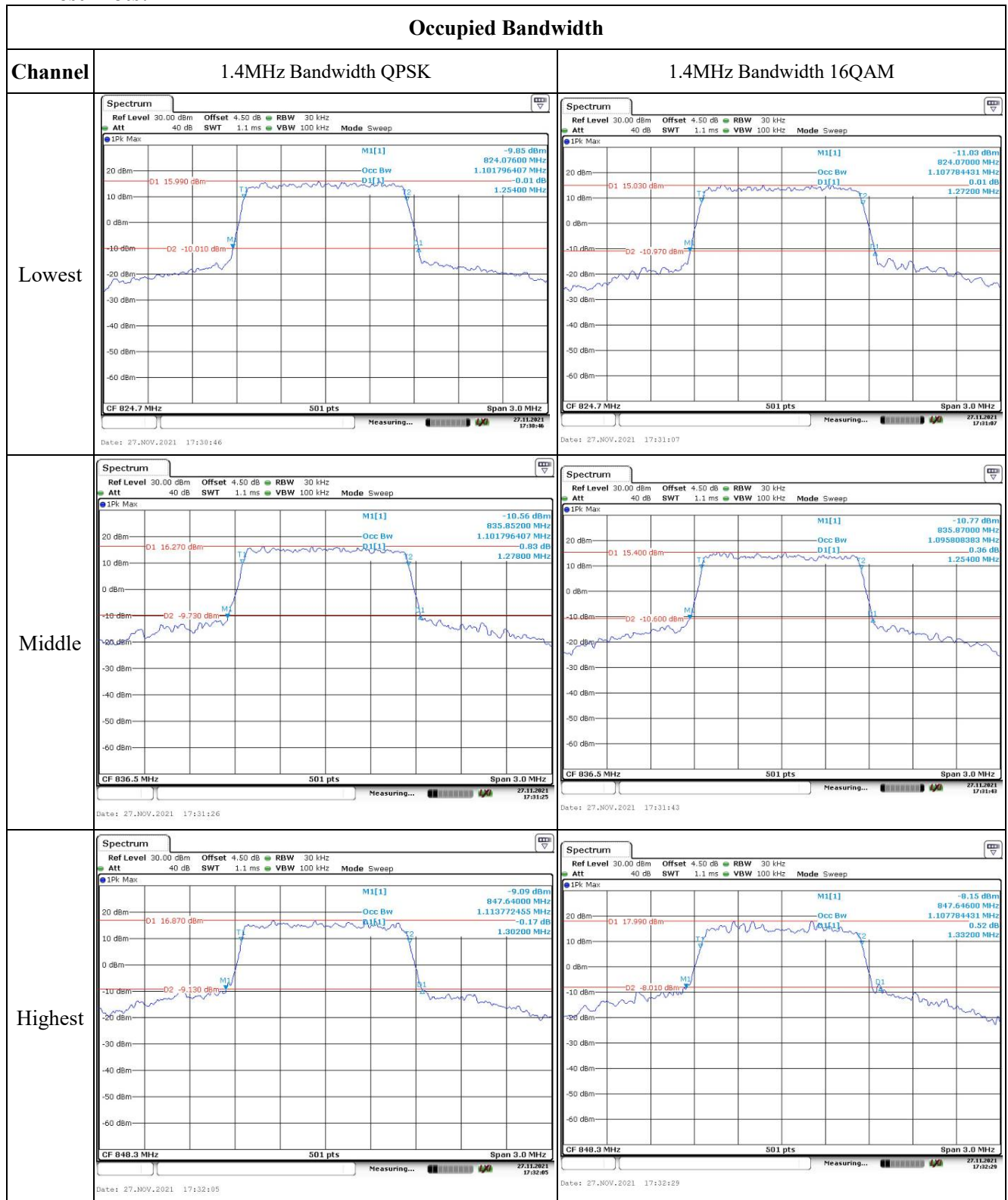
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
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FCC §2.1055, §22.355: Frequency Stability

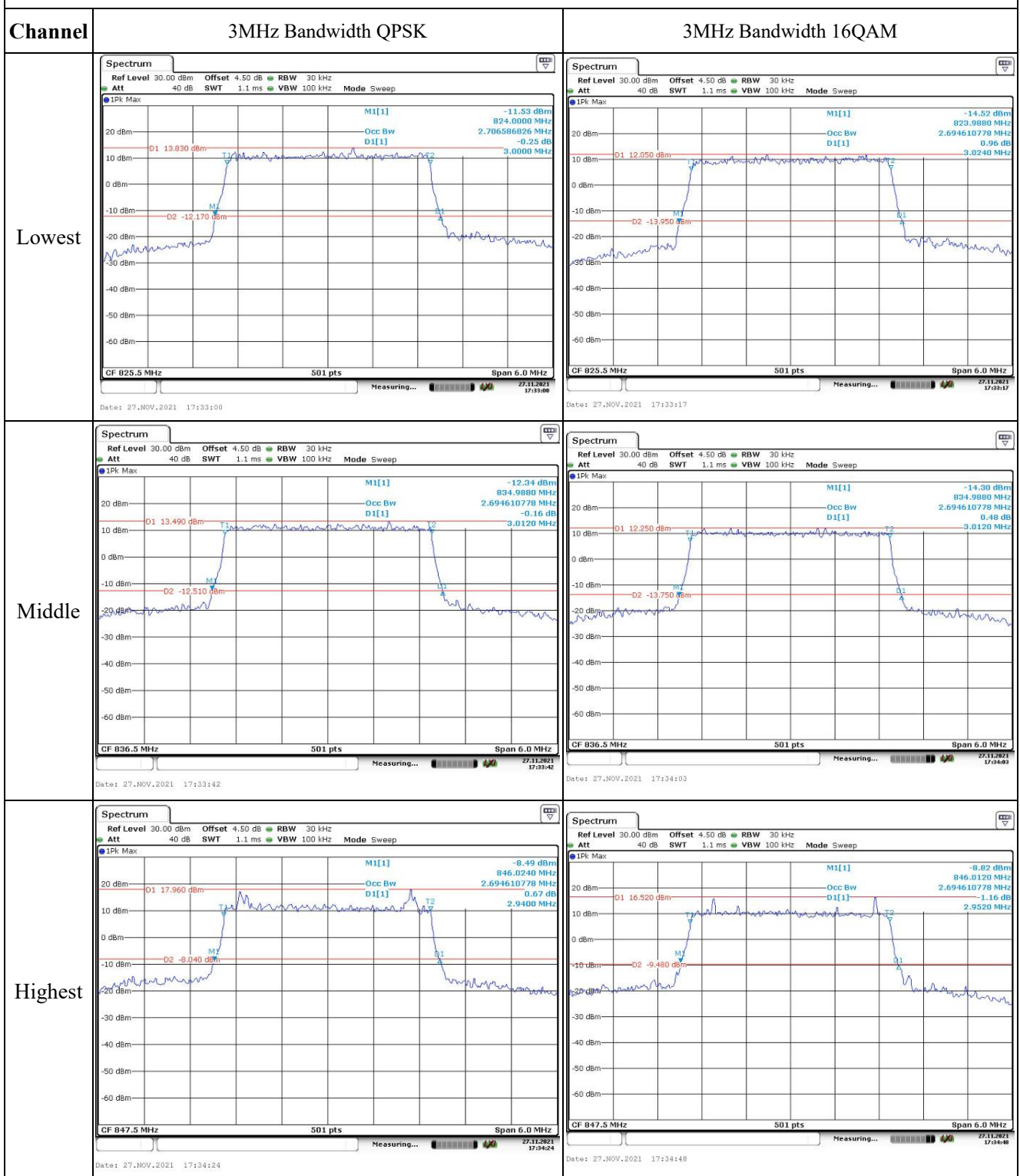
Test Mode:	10 MHz QPSK		Test Channel:	836.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.8	-10.47	-0.013	2.5
	-20	3.8	9.22	0.011	2.5
	-10	3.8	-8.73	-0.010	2.5
	0	3.8	-7.38	-0.009	2.5
	10	3.8	6.34	0.008	2.5
	20	3.8	-9.27	-0.011	2.5
	30	3.8	-8.46	-0.010	2.5
	40	3.8	7.44	0.009	2.5
	50	3.8	-7.38	-0.009	2.5
Frequency Stability vs. Voltage	20	3.5	-9.56	-0.011	2.5
	20	4.35	-5.53	-0.007	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	3.8	-46.01	-0.055	2.5
	-20	3.8	8.52	0.010	2.5
	-10	3.8	-9.15	-0.011	2.5
	0	3.8	6.27	0.007	2.5
	10	3.8	-5.58	-0.007	2.5
	20	3.8	-7.90	-0.009	2.5
	30	3.8	-8.31	-0.010	2.5
	40	3.8	7.90	0.009	2.5
	50	3.8	-6.20	-0.007	2.5
Frequency Stability vs. Voltage	20	3.5	8.42	0.010	2.5
	20	4.35	7.56	0.009	2.5
Result:				Pass	

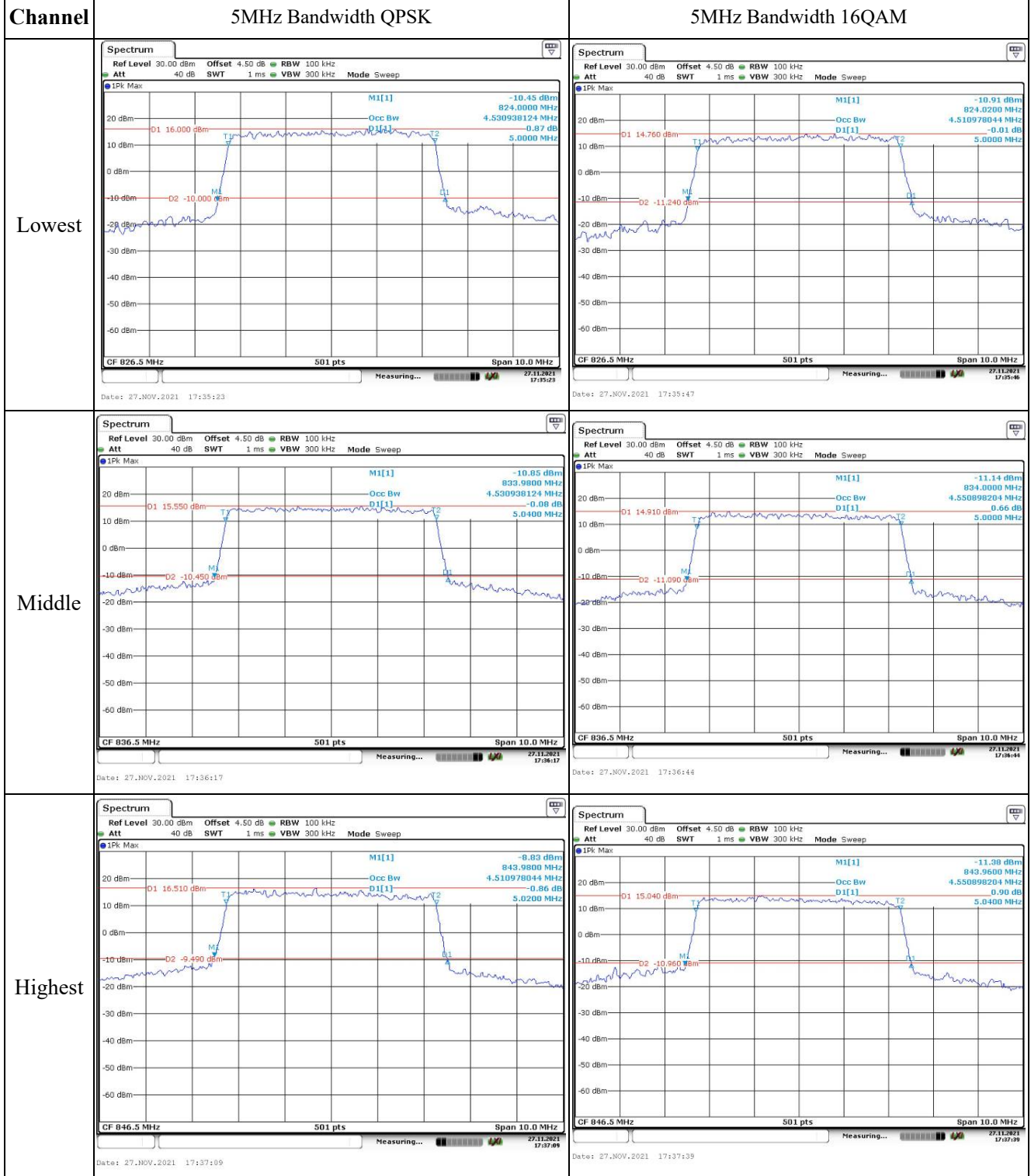
Test Plots:



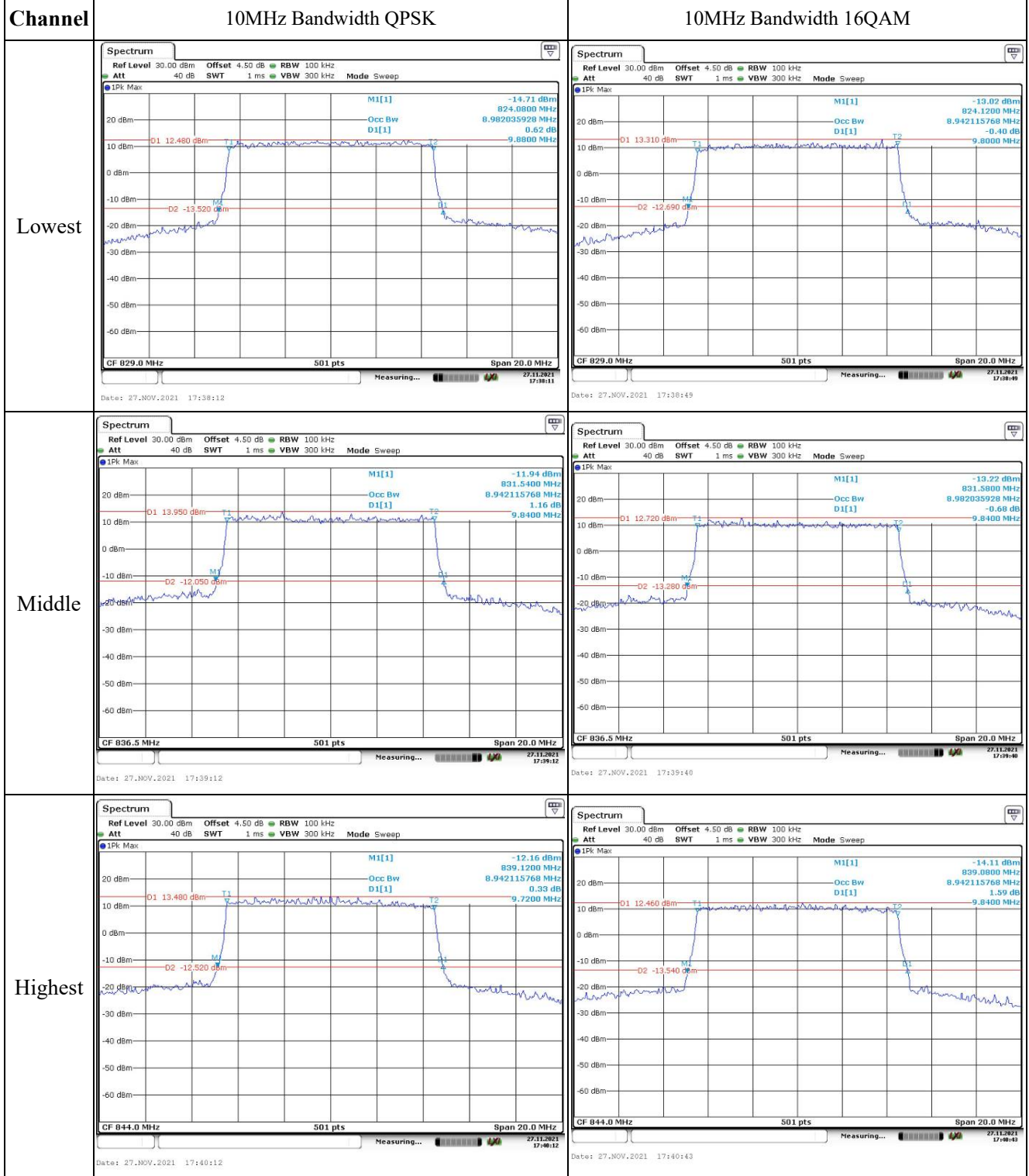
Occupied Bandwidth



Occupied Bandwidth



Occupied Bandwidth

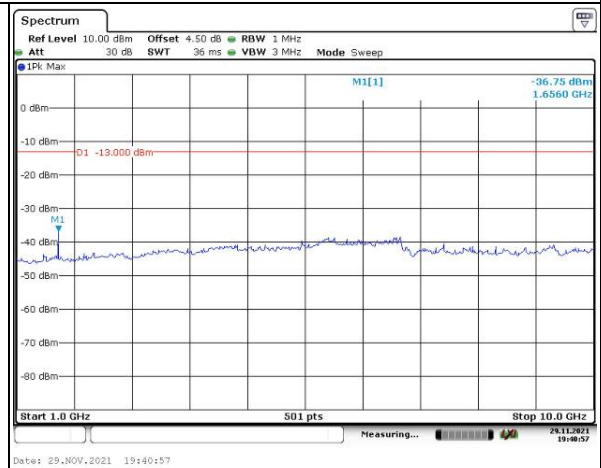
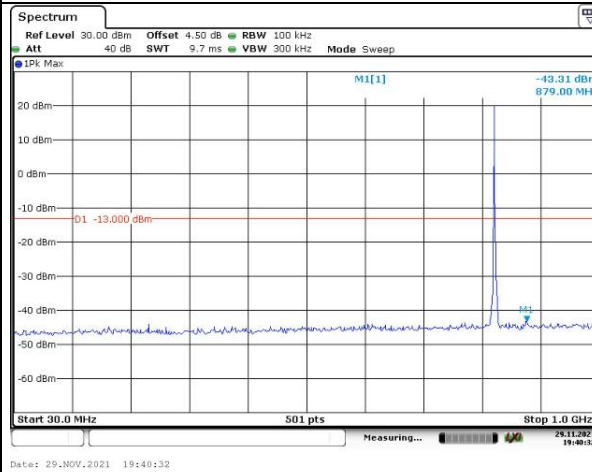


Spurious Emissions at Antenna Terminal

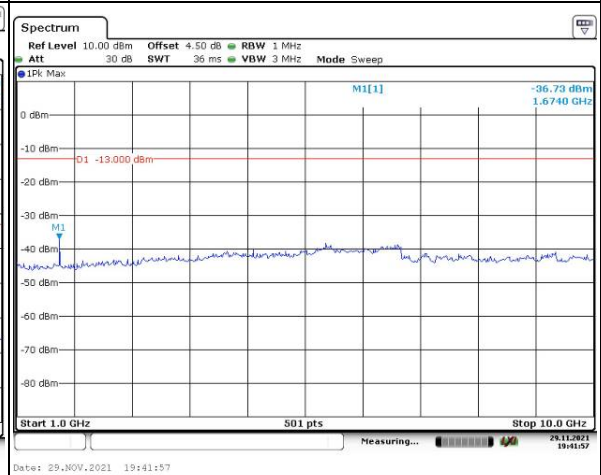
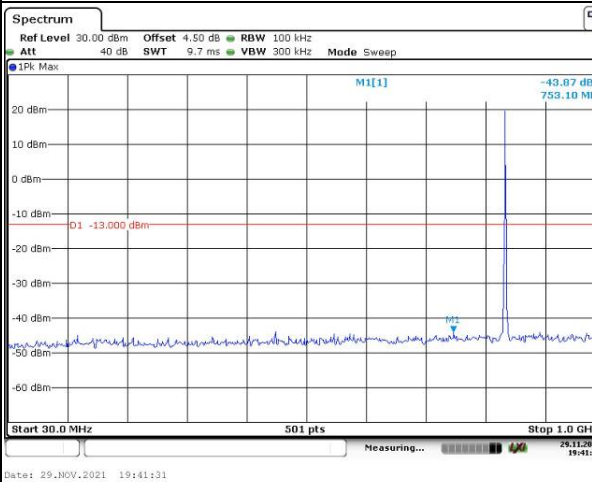
Channel

1.4MHz Bandwidth QPSK

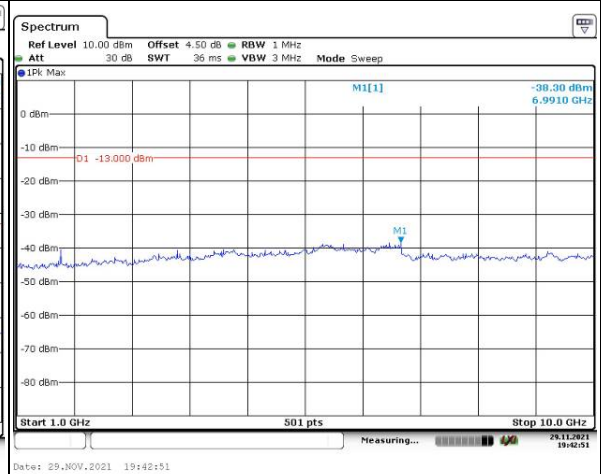
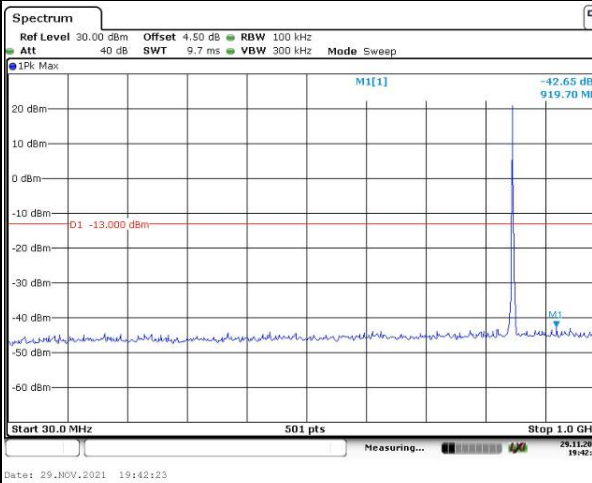
Lowest



Middle



Highest

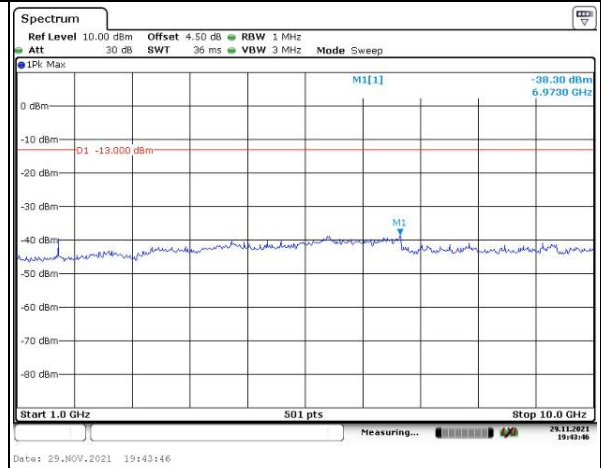
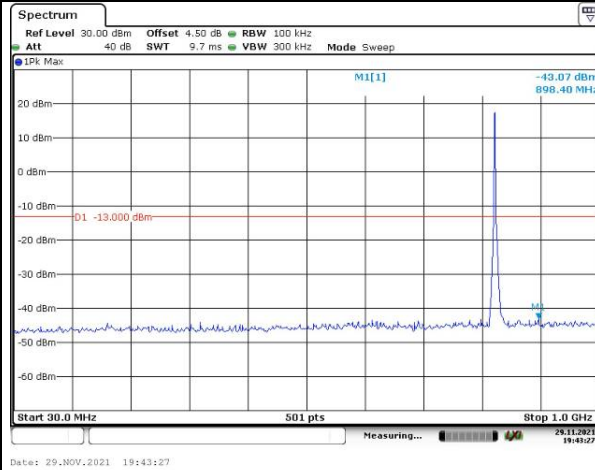


Spurious Emissions at Antenna Terminal

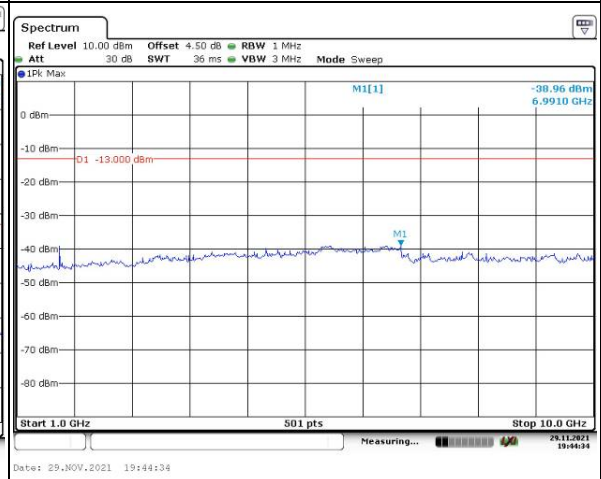
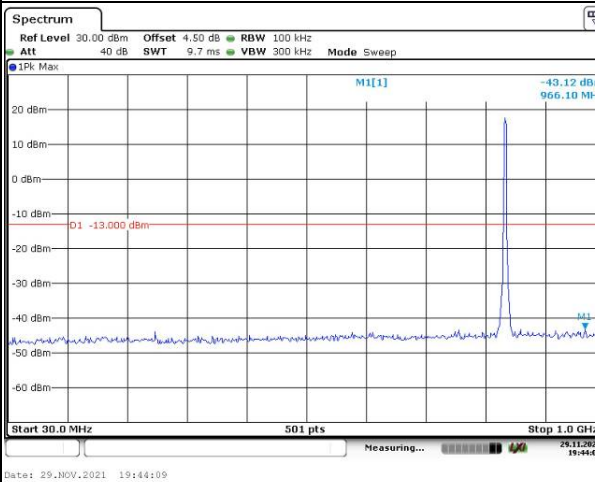
Channel

3MHz Bandwidth QPSK

Lowest



Middle



Highest

