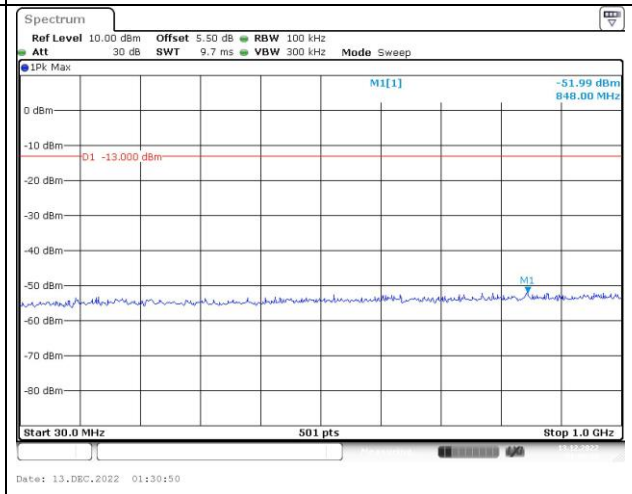
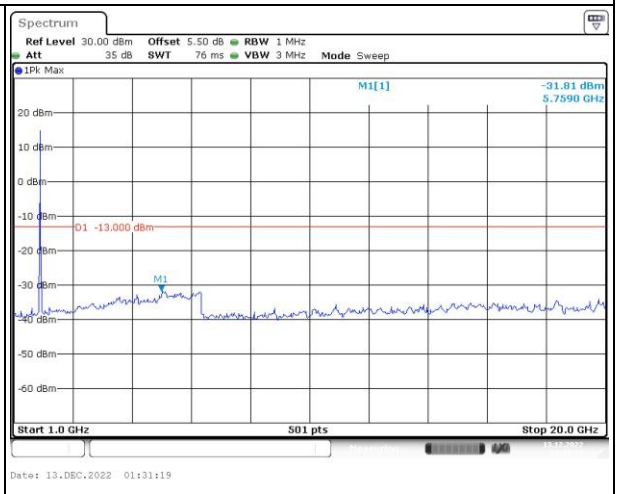
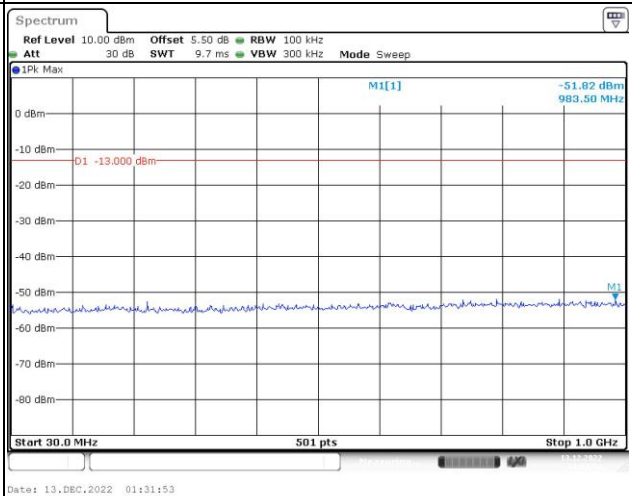
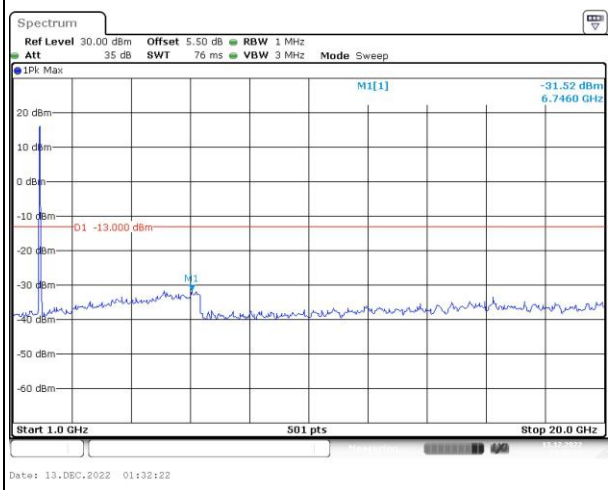
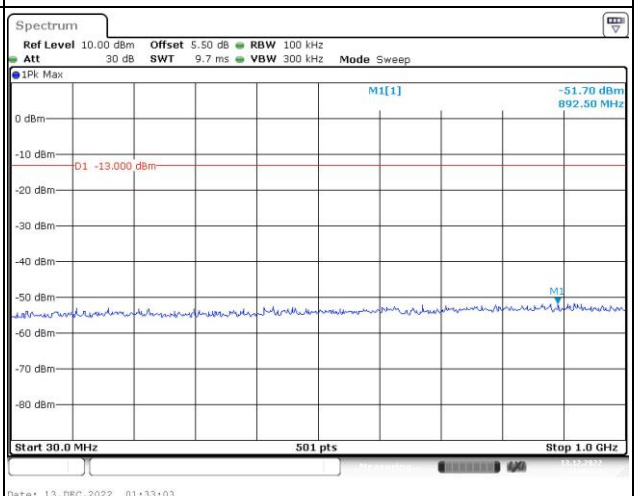
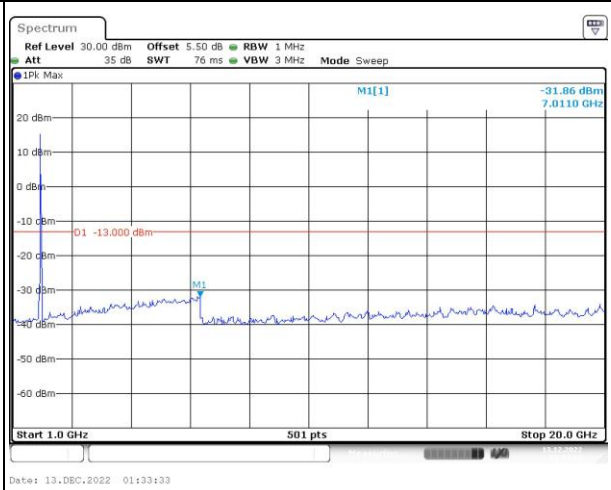
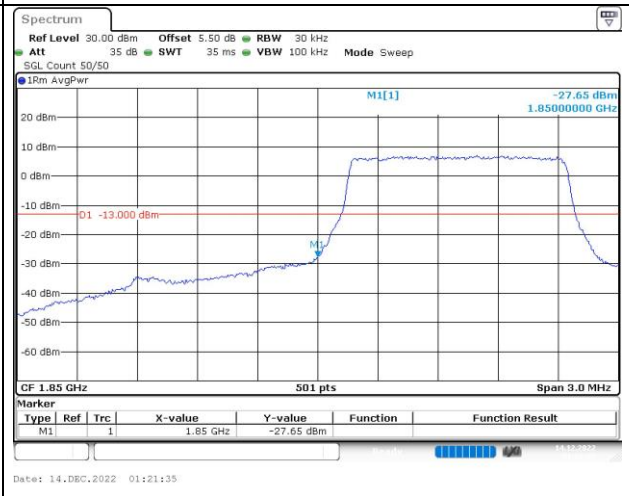
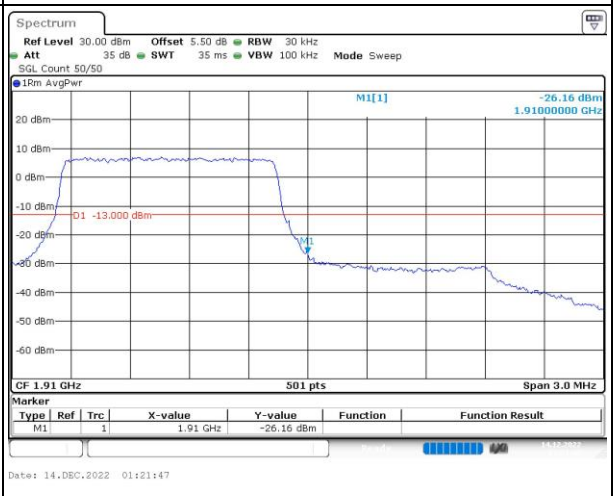
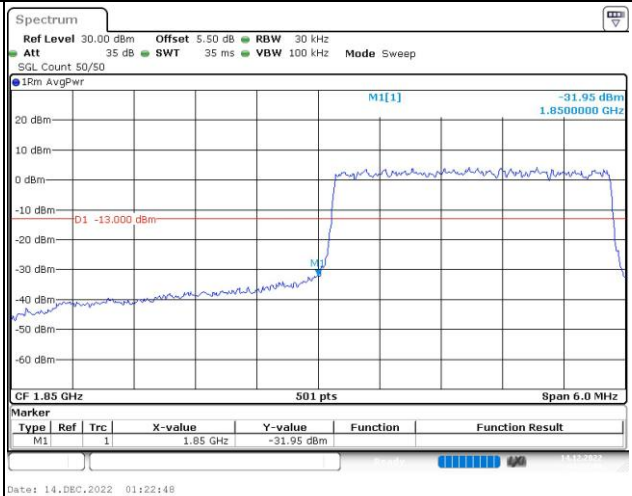
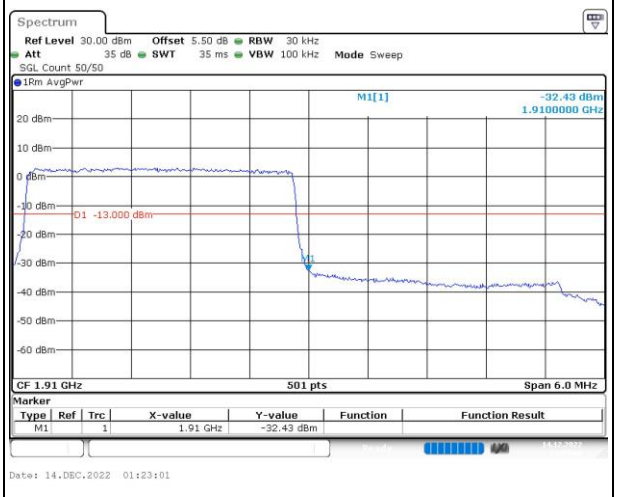
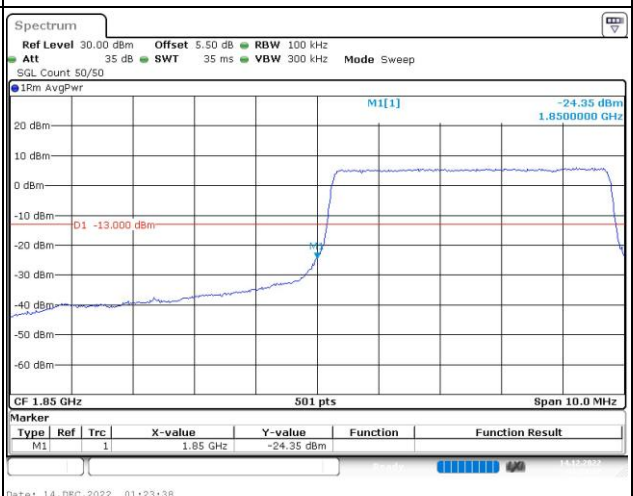
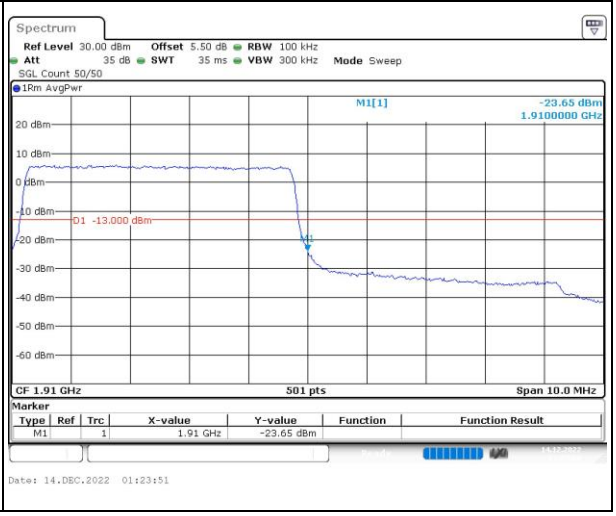
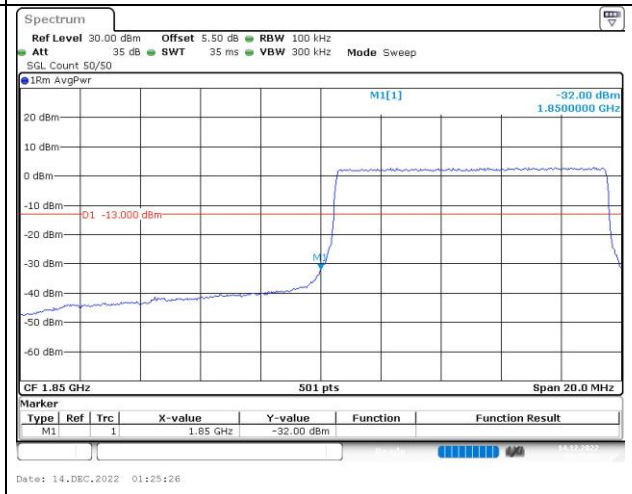
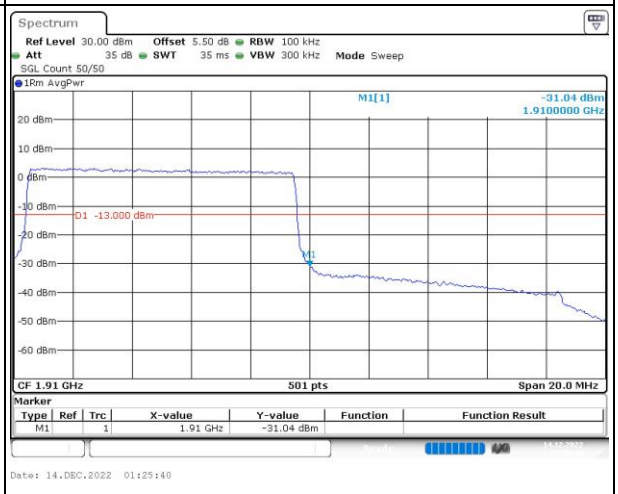
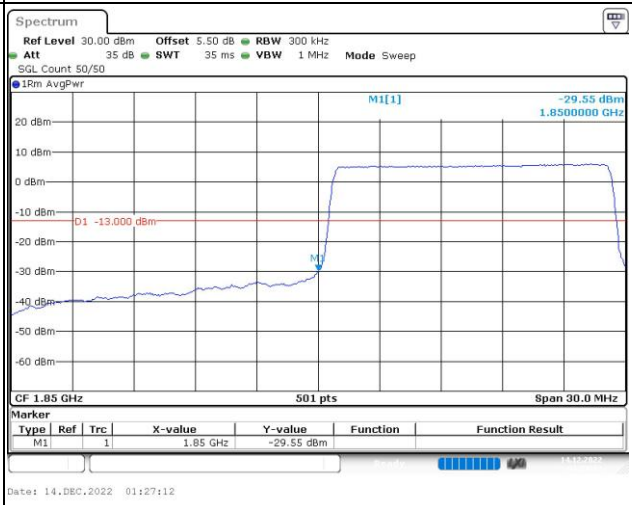
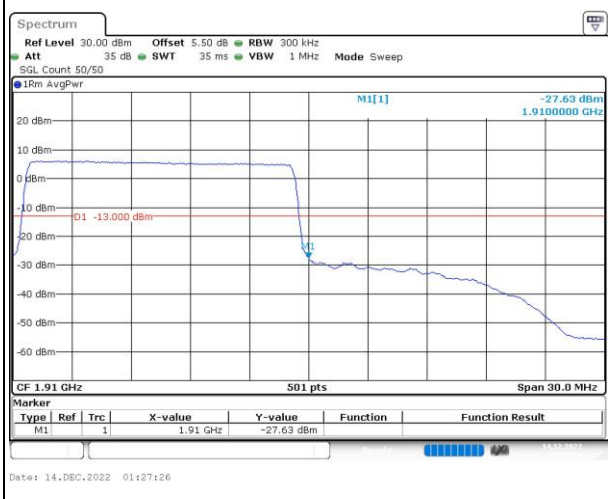
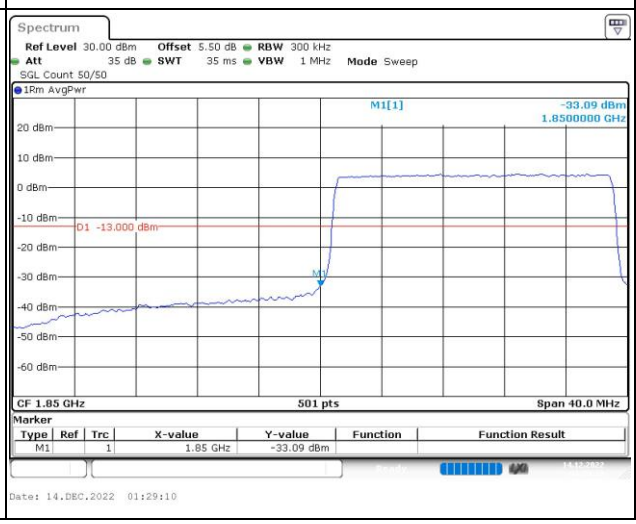
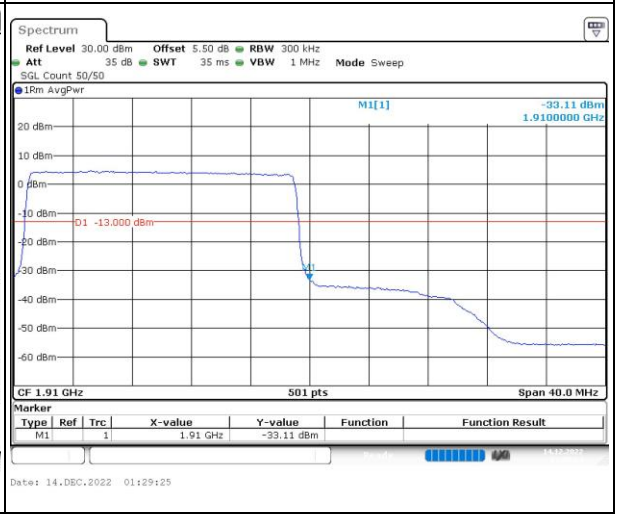
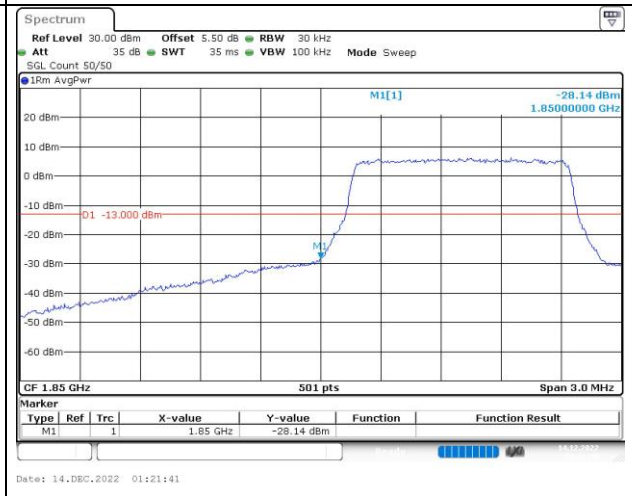
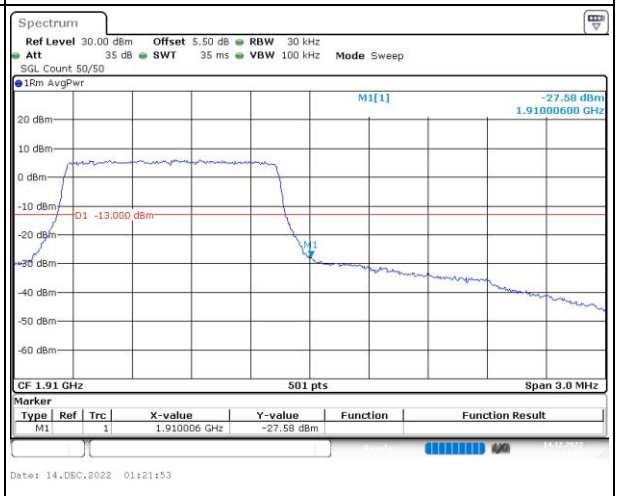
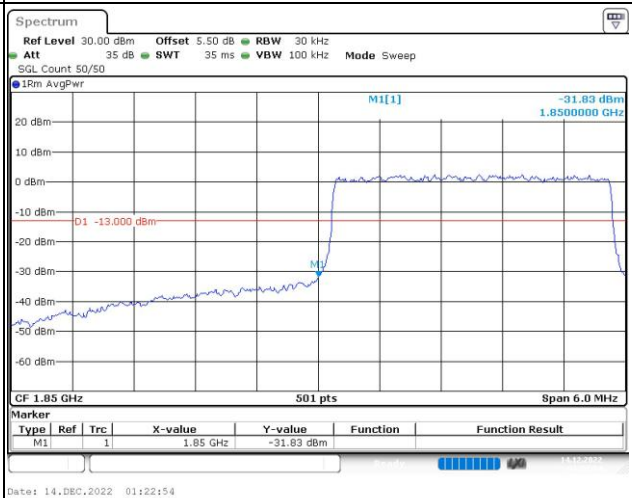
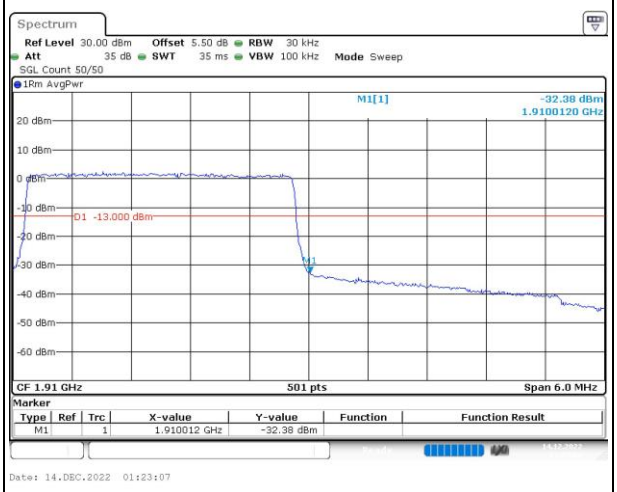
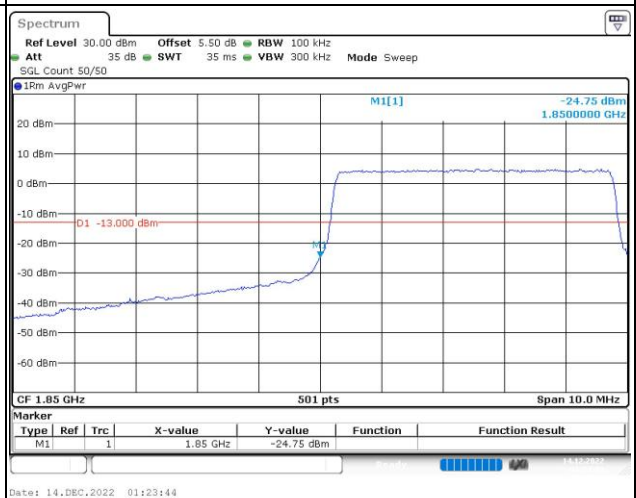
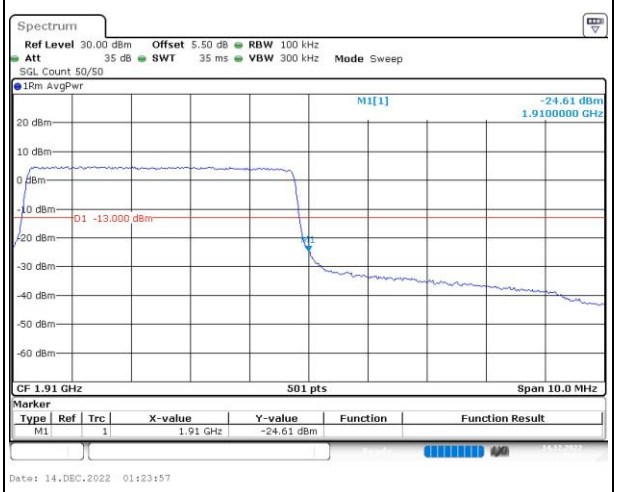
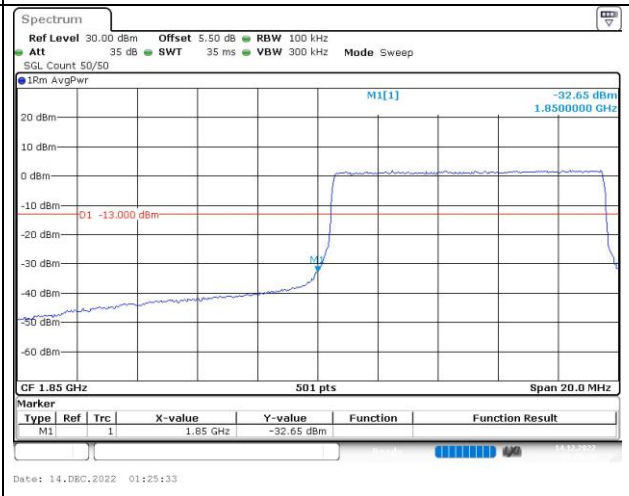
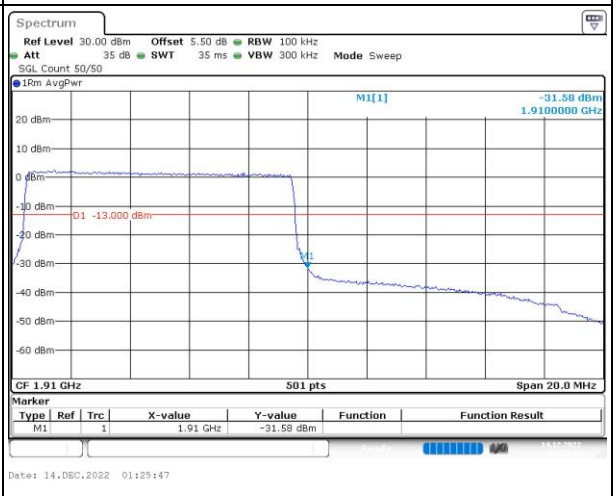
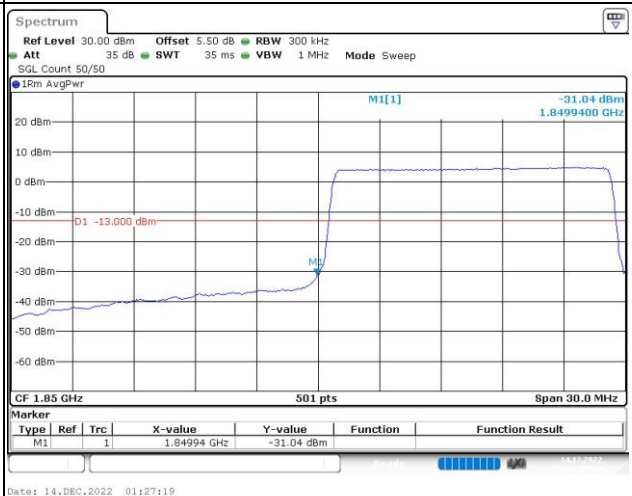
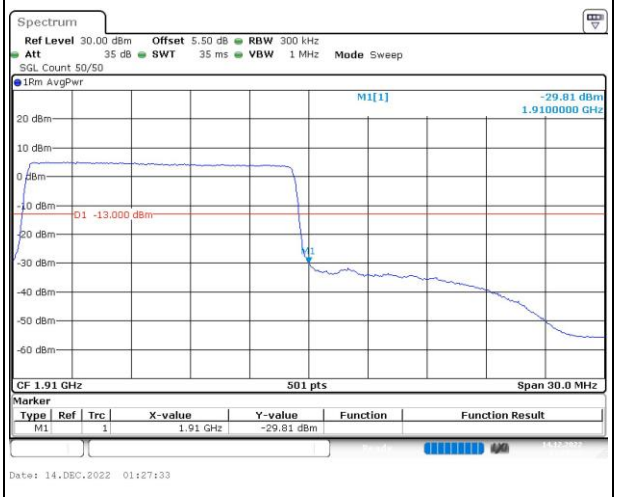
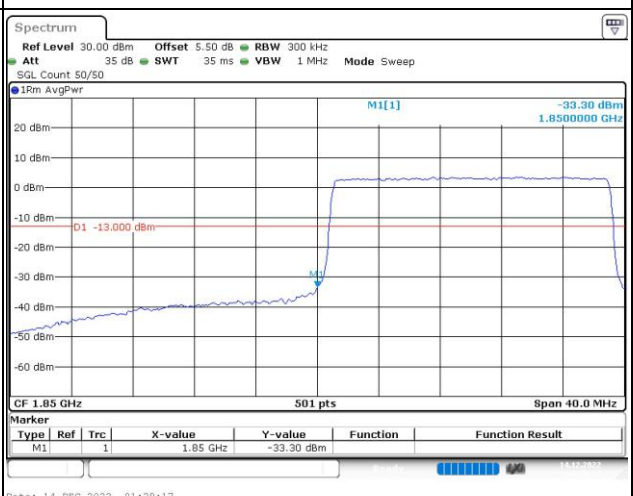
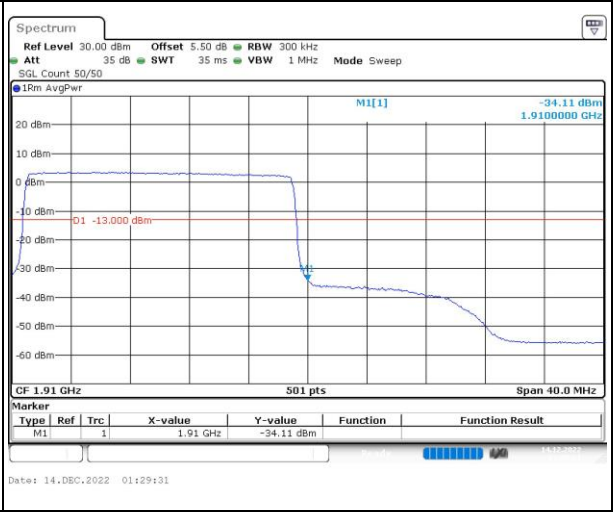
Spurious Emissions at Antenna Terminal		
Channel	**20MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
QPSK 1.4MHz		
QPSK 3MHz		
QPSK 5MHz		

Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
QPSK 10MHz		
QPSK 15MHz		
QPSK 20MHz		

Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
16QAM 1.4MHz		
16QAM 3MHz		
16QAM 5MHz		

Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
16QAM 10MHz		
16QAM 15MHz		
16QAM 20MHz		

4.7 Antenna Port Test Data and Results for LTE Band 4

Serial Number:	1TSA	Test Date:	2022/12/13~2022/12/20
Test Site:	RF	Test Mode:	Transmitting
Tester:	George chen	Test Result:	**Pass**

Environmental Conditions:					
Temperature: (℃)	21.2~24.3	Relative Humidity: (%)	36~49	ATM Pressure: (kPa)	100.6~101.8

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	2022/4/6	2023/4/5
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
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	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	23.16	23.1	23.07	24.12	30
	RB1#3	23.32	23.32	23.28		
	RB1#5	23.16	23.12	23.08		
	RB3#0	23.32	23.24	23.21		
	RB3#3	23.3	23.25	23.23		
	RB6#0	22.19	22.16	22.14		
1.4MHz 16QAM	RB1#0	22.27	22.11	22.14	23.32	30
	RB1#3	22.48	22.28	22.28		
	RB1#5	22.33	22.16	22.14		
	RB3#0	22.33	22.32	22.48		
	RB3#3	22.32	22.32	22.52		
	RB6#0	21.26	21.11	21.2		
3MHz QPSK	RB1#0	23.19	23.12	23.16	23.99	30
	RB1#8	23.18	23.13	23.13		
	RB1#14	23.16	23.09	23.12		
	RB6#0	22.1	22.09	22.06		
	RB6#9	22.11	22.06	22.05		
	RB15#0	22.24	22.14	22.18		
3MHz 16QAM	RB1#0	22.22	22.68	22.28	23.48	30
	RB1#8	22.25	22.65	22.34		
	RB1#14	22.19	22.65	22.27		
	RB6#0	21.08	21.17	21.13		
	RB6#9	21.1	21.16	21.18		
	RB15#0	21.32	21.24	21.14		
5MHz QPSK	RB1#0	23.12	23.07	23	24.04	30
	RB1#13	23.24	23.17	23.12		
	RB1#24	23.1	23.09	23.02		
	RB15#0	22.18	22.16	22.23		
	RB15#10	22.25	22.16	22.2		
	RB25#0	22.22	22.13	22.17		
5MHz 16QAM	RB1#0	22.04	22.35	22.08	23.27	30
	RB1#13	22.13	22.47	22.22		
	RB1#24	22.03	22.35	22.13		

	RB15#0	21.32	21.16	21.26		
	RB15#10	21.32	21.15	21.26		
	RB25#0	21.27	21.14	21.2		
10MHz QPSK	RB1#0	23.15	23.16	23.1	24.13	30
	RB1#25	23.33	23.3	23.26		
	RB1#49	23.11	23.14	23.11		
	RB25#0	22.24	22.23	22.23		
	RB25#25	22.25	22.23	22.18		
	RB50#0	22.25	22.21	22.22		
10MHz 16QAM	RB1#0	22.77	22.25	22.15	23.72	30
	RB1#25	22.92	22.43	22.27		
	RB1#49	22.71	22.26	22.12		
	RB25#0	21.31	21.25	21.34		
	RB25#25	21.37	21.25	21.3		
	RB50#0	21.31	21.23	21.24		
15MHz QPSK	RB1#0	23.08	23.08	23.02	24.02	30
	RB1#38	23.22	23.2	23.12		
	RB1#74	23.1	23.11	23.05		
	RB36#0	22.19	22.18	22.27		
	RB36#39	22.23	22.23	22.27		
	RB75#0	22.22	22.27	22.31		
15MHz 16QAM	RB1#0	22.23	22.51	22.58	23.52	30
	RB1#38	22.36	22.54	22.72		
	RB1#74	22.22	22.46	22.67		
	RB36#0	21.24	21.22	21.27		
	RB36#39	21.32	21.22	21.24		
	RB75#0	21.26	21.2	21.26		
20MHz QPSK	RB1#0	22.95	22.96	22.79	24.16	30
	RB1#50	23.33	23.36	23.23		
	RB1#99	22.94	22.96	22.83		
	RB50#0	22.15	22.14	22.18		
	RB50#50	22.25	22.17	22.14		
	RB100#0	22.24	22.17	22.18		
20MHz 16QAM	RB1#0	22.25	22.14	22.4	23.63	30
	RB1#50	22.64	22.56	22.83		
	RB1#99	22.23	22.14	22.45		
	RB50#0	21.18	21.13	21.17		
	RB50#50	21.26	21.16	21.17		
	RB100#0	21.24	21.17	21.2		
Note: EIRP=Conducted Power(dBm) - L_C(dB) + G_T(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	5.59	4.64	5.01	13
	RB100#0	4.14	4.06	4.41	13
20MHz 16QAM	RB1#0	6.72	5.22	5.8	13
	RB100#0	5.88	5.77	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	1.108	1.102	1.096	1.326	1.296	1.308
1.4MHz 16QAM	1.096	1.102	1.108	1.296	1.296	1.332
3MHz QPSK	2.683	2.683	2.695	2.892	2.88	2.904
3MHz 16QAM	2.683	2.683	2.683	2.88	2.88	2.904
5MHz QPSK	4.531	4.511	4.511	5.16	5.18	5.18
5MHz 16QAM	4.531	4.511	4.551	5.24	5.18	5.24
10MHz QPSK	8.982	8.942	8.982	9.88	9.92	9.92
10MHz 16QAM	8.982	8.942	8.982	9.88	9.96	9.88
15MHz QPSK	13.533	13.473	13.533	15.18	15.18	15.3
15MHz 16QAM	13.533	13.533	13.533	15.24	15.12	15.18
20MHz QPSK	17.964	17.964	17.964	19.92	19.6	19.68
20MHz 16QAM	17.884	17.964	18.044	19.68	19.76	19.84
Note: The test plots please refer to the Plots of Occupied Bandwidth						

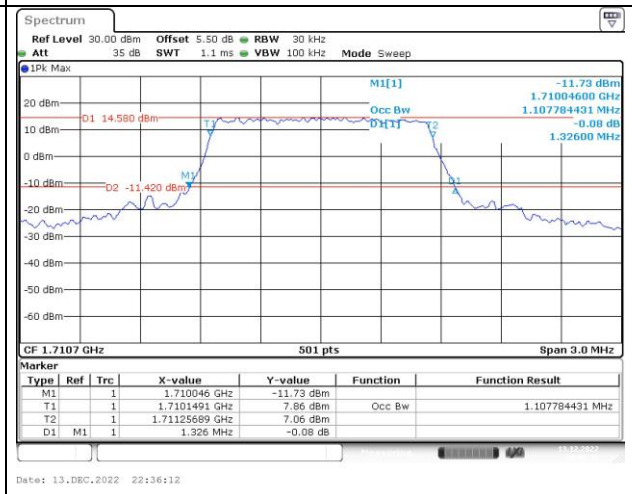
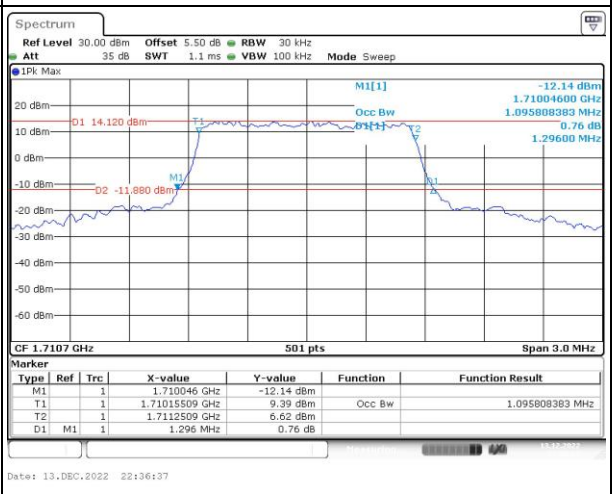
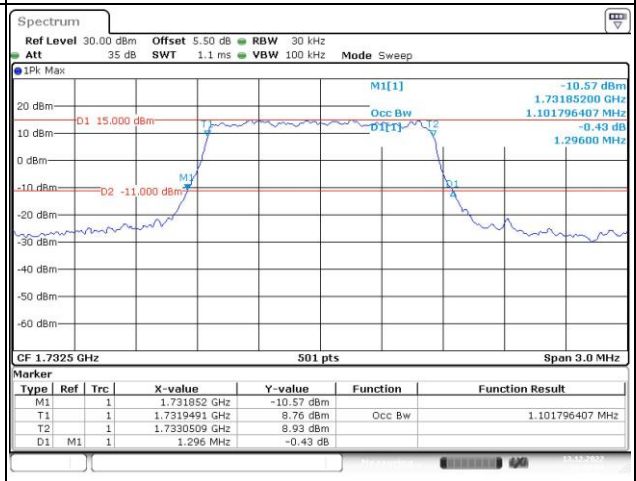
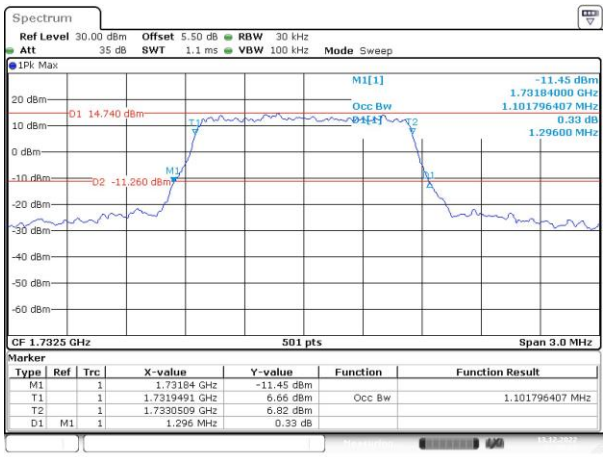
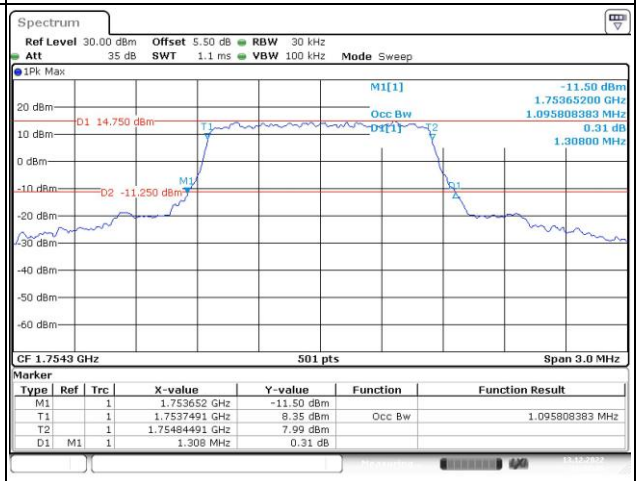
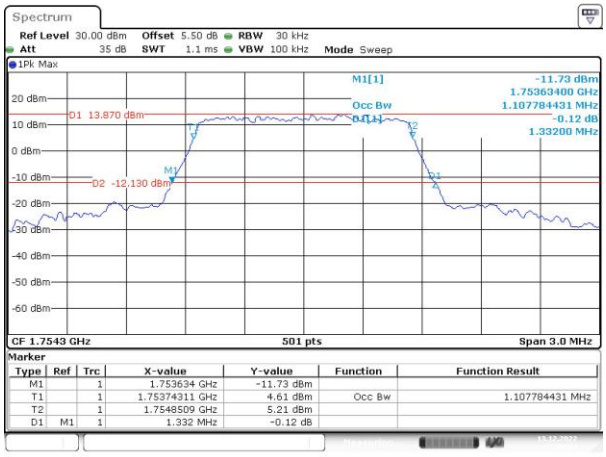
FCC §2.1051, § 27.53:Spurious Emissions at Antenna Terminal	
Result:	**Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**

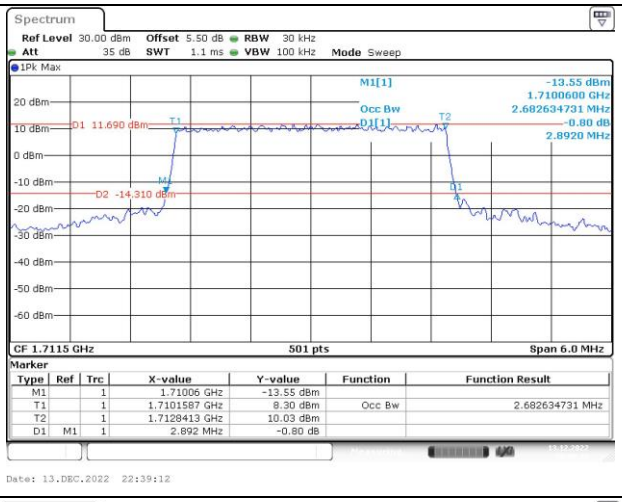
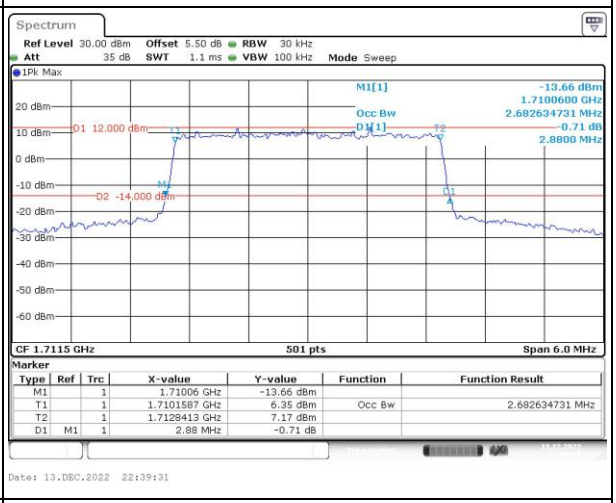
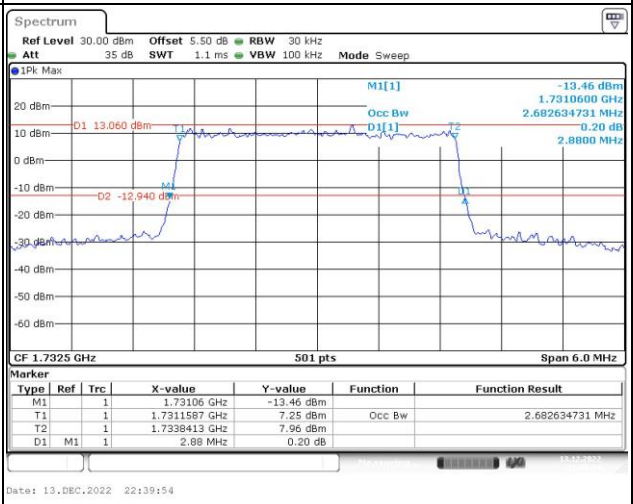
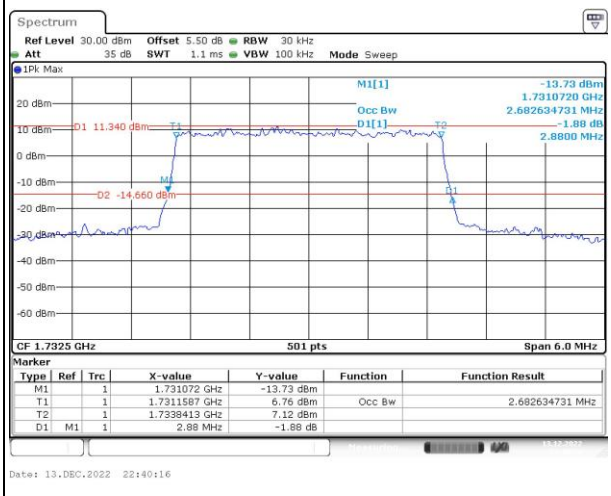
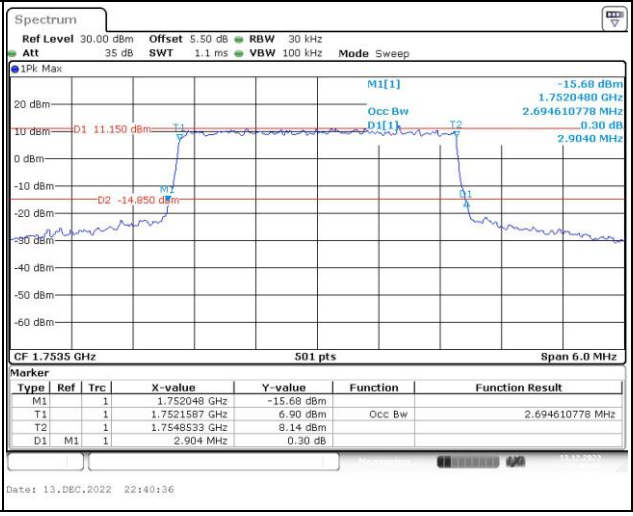
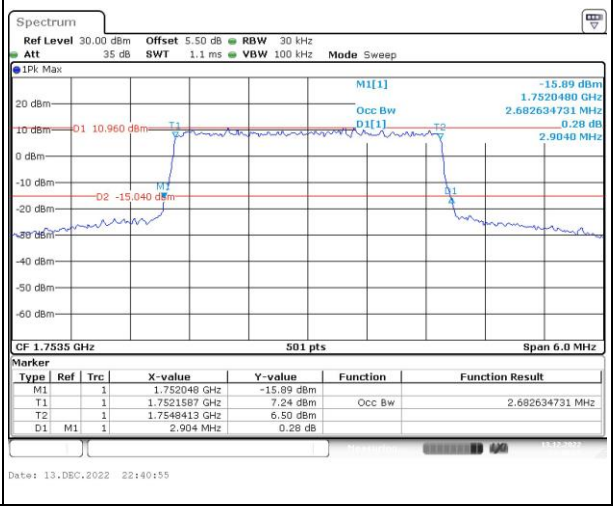
FCC §2.1051, § 27.53:Out of band emission, Band Edge	
Result:	**Pass, Please refer to the test plots of Out of band emission, Band Edge.**

FCC §2.1055, §27.54: Frequency Stability						
Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.7	1711.065	1710.00	1754.025	1755
	-20	3.7	1711.091	1710.00	1754.024	1755
	-10	3.7	1711.083	1710.00	1754.018	1755
	0	3.7	1711.060	1710.00	1754.064	1755
	10	3.7	1711.065	1710.00	1754.033	1755
	20	3.7	1711.058	1710.00	1754.022	1755
	30	3.7	1711.089	1710.00	1754.079	1755
	40	3.7	1711.088	1710.00	1754.093	1755
	50	3.7	1711.035	1710.00	1754.091	1755
Frequency Stability vs. Voltage	20	3.3	1711.015	1710.00	1754.013	1755
	20	4.2	1711.078	1710.00	1754.071	1755
					Result:	**Pass**

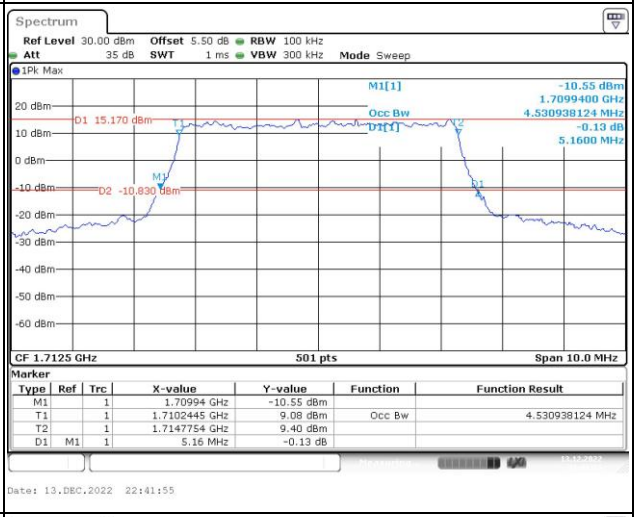
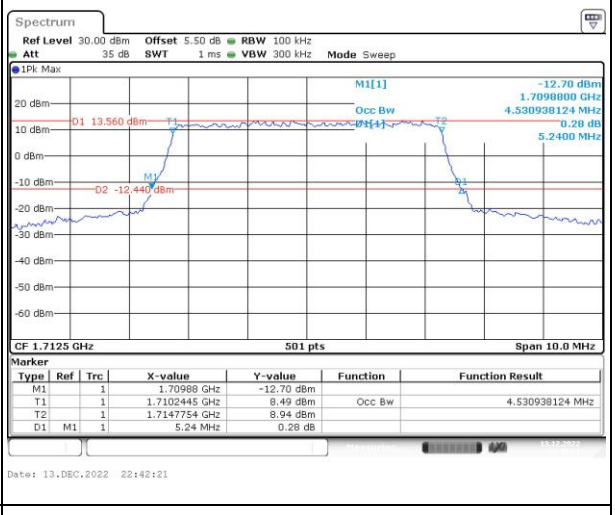
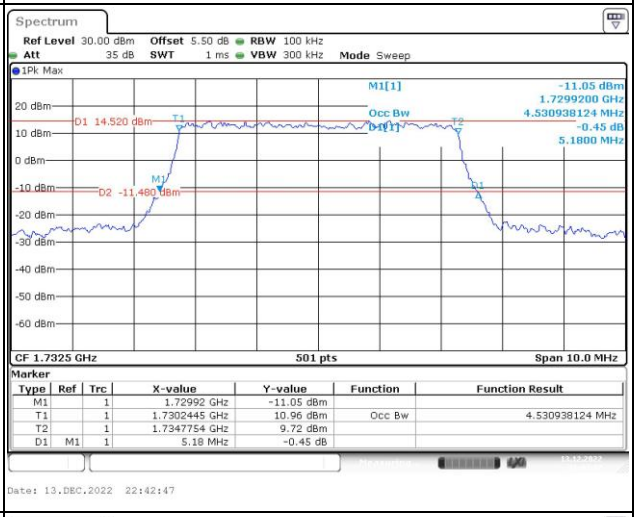
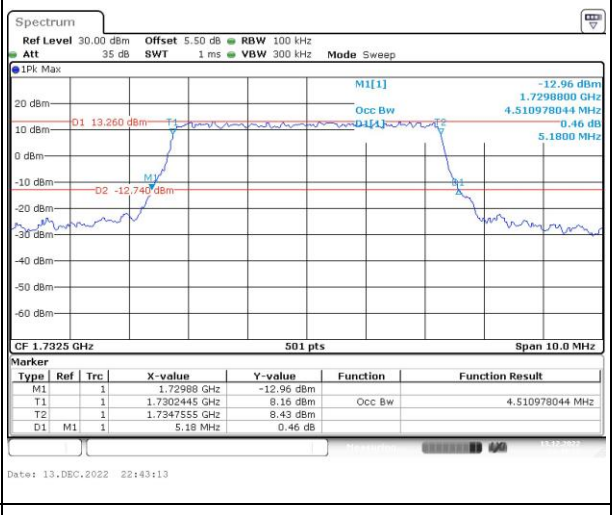
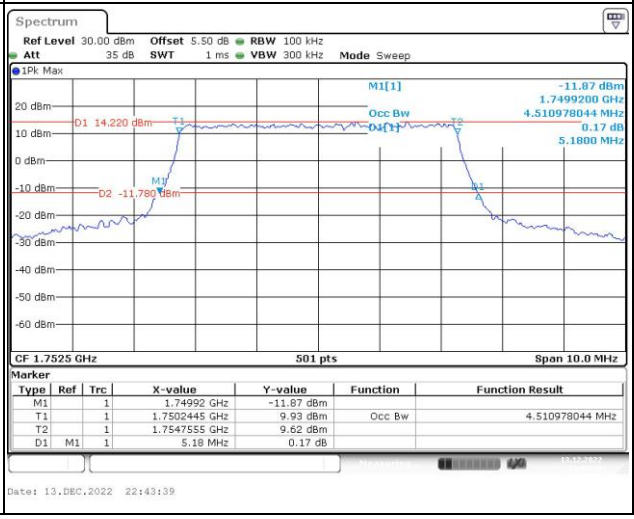
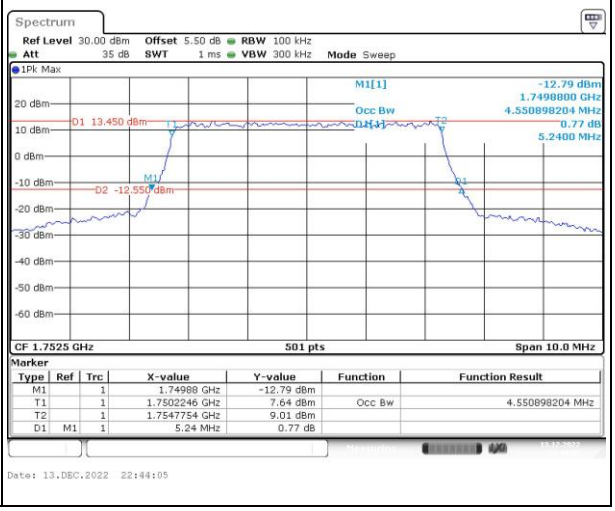
Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.7	1711.183	1710.00	1754.090	1755
	-20	3.7	1711.121	1710.00	1754.047	1755
	-10	3.7	1711.181	1710.00	1754.058	1755
	0	3.7	1711.110	1710.00	1754.039	1755
	10	3.7	1711.146	1710.00	1754.007	1755
	20	3.7	1711.138	1710.00	1754.022	1755
	30	3.7	1711.109	1710.00	1754.063	1755
	40	3.7	1711.184	1710.00	1754.022	1755
	50	3.7	1711.105	1710.00	1754.043	1755
Frequency Stability vs. Voltage	20	3.3	1711.162	1710.00	1754.047	1755
	20	4.2	1711.097	1710.00	1754.011	1755
					Result:	**Pass**

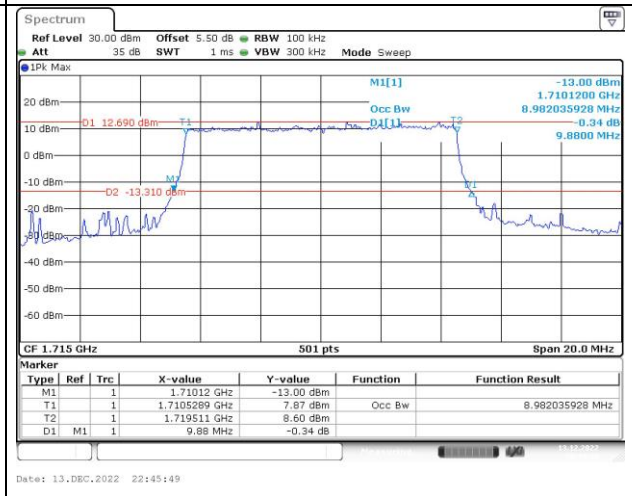
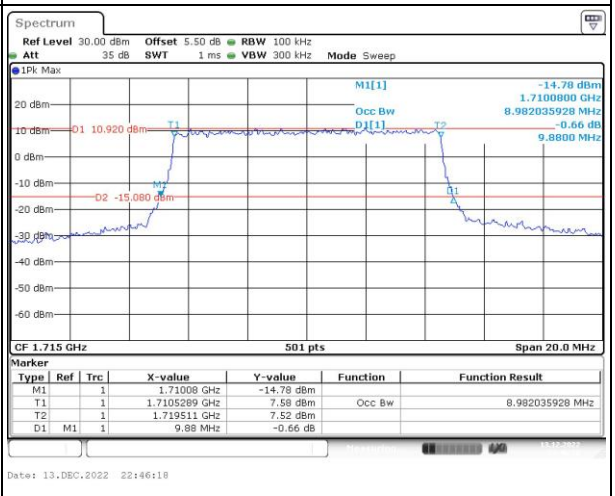
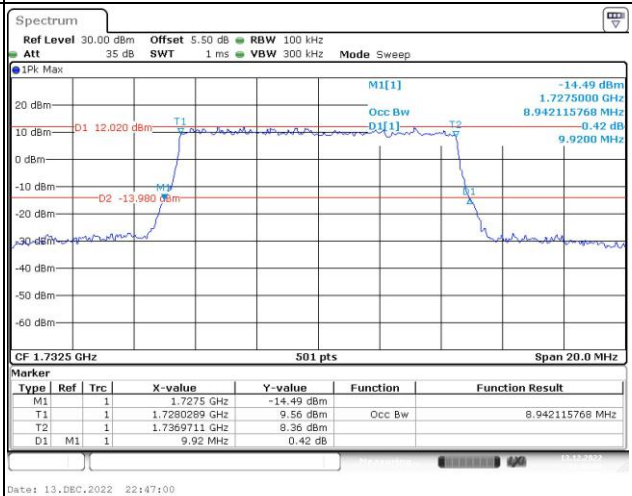
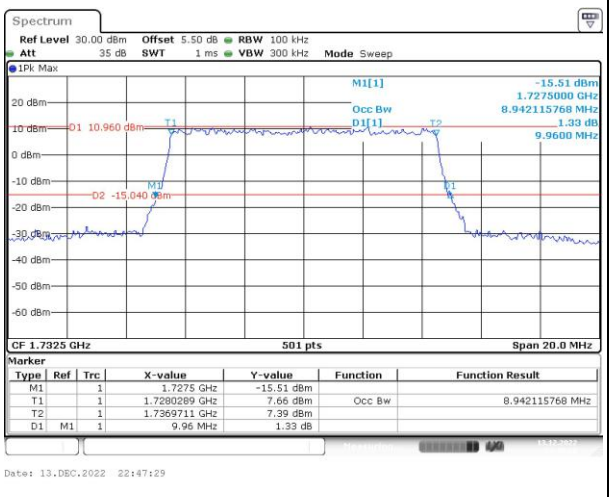
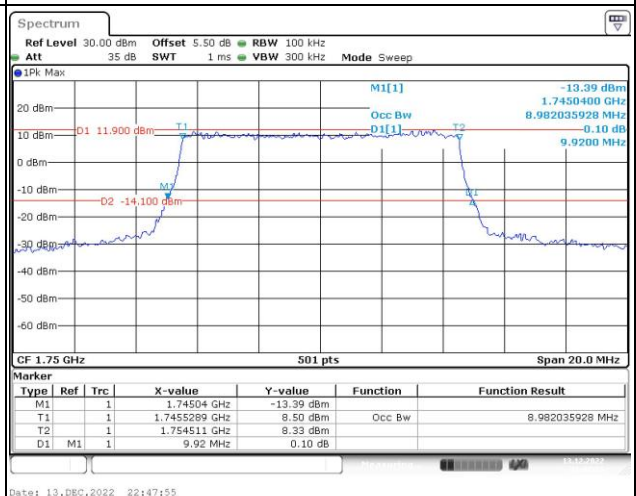
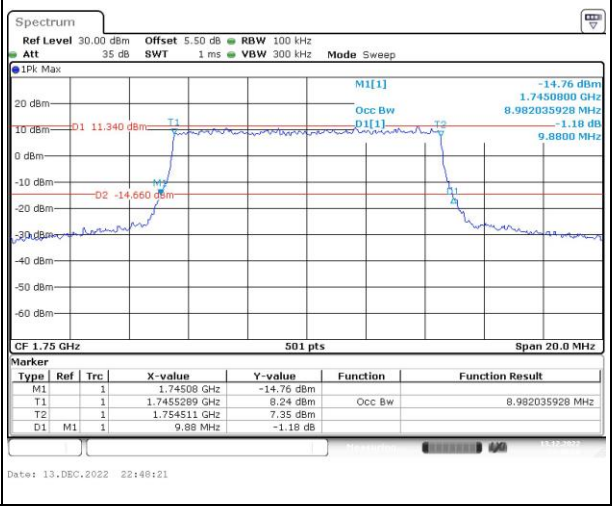
Test Plots(Note: The 5.5dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer)**:**

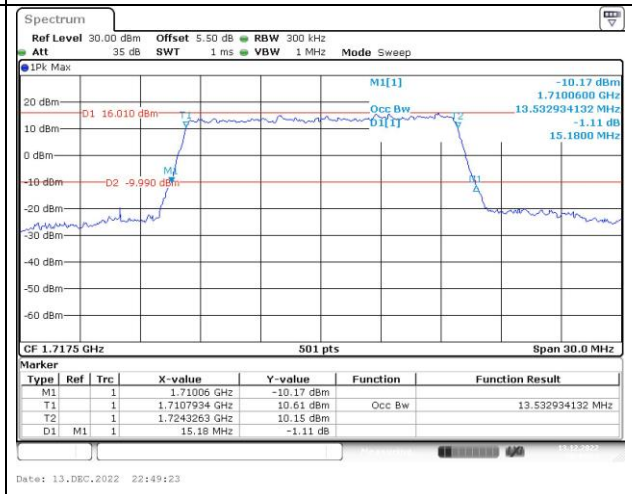
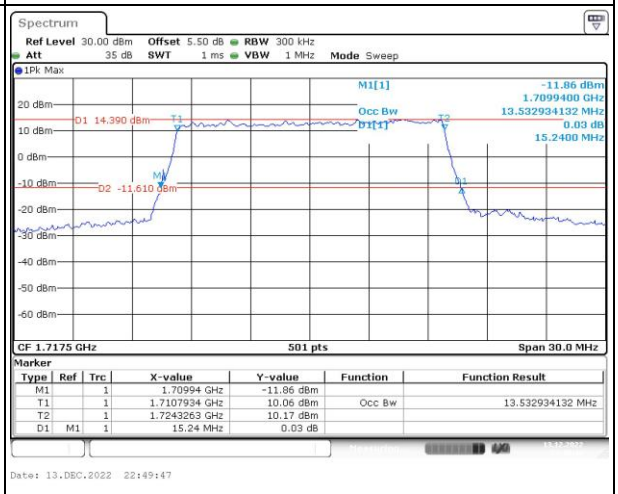
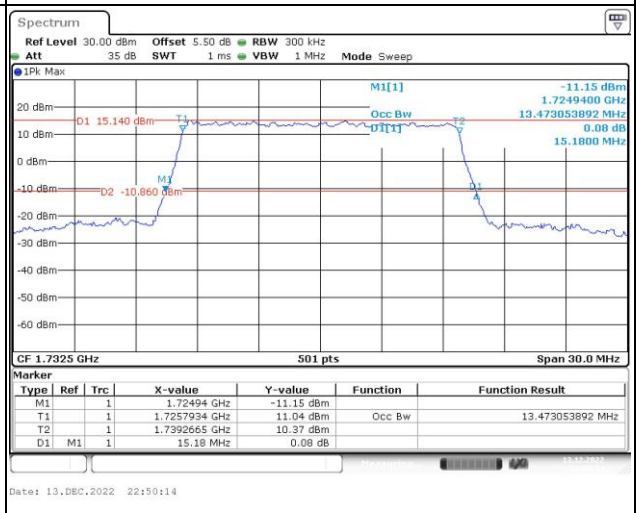
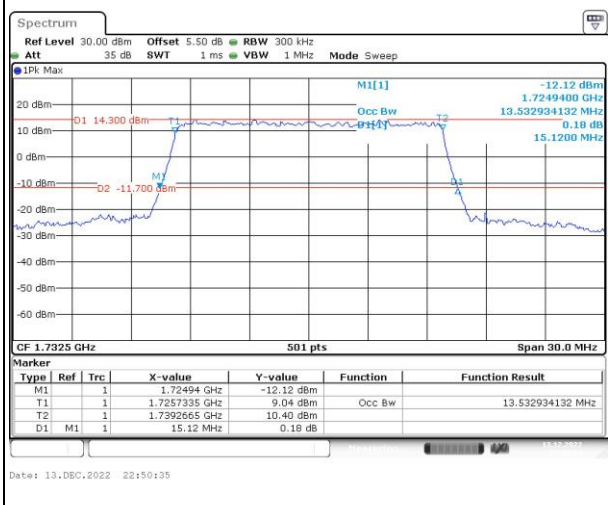
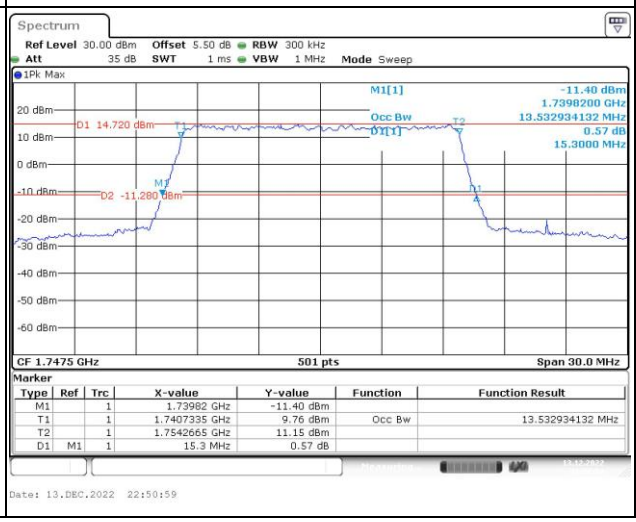
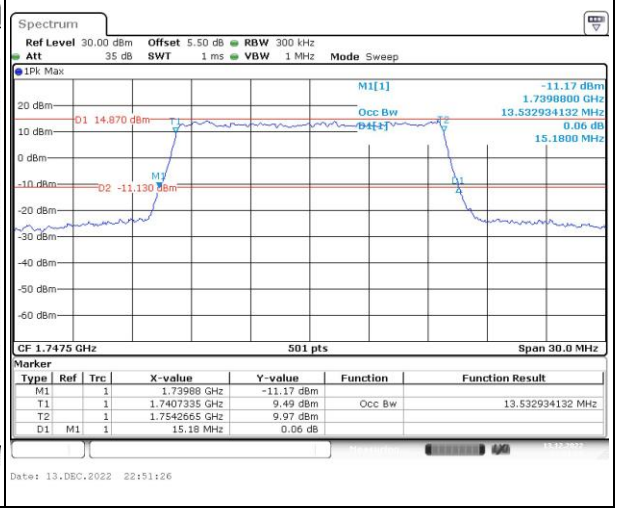
Occupied Bandwidth		
Channel	1.4MHz Bandwidth QPSK	1.4MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

Occupied Bandwidth		
Channel	3MHz Bandwidth QPSK	3MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

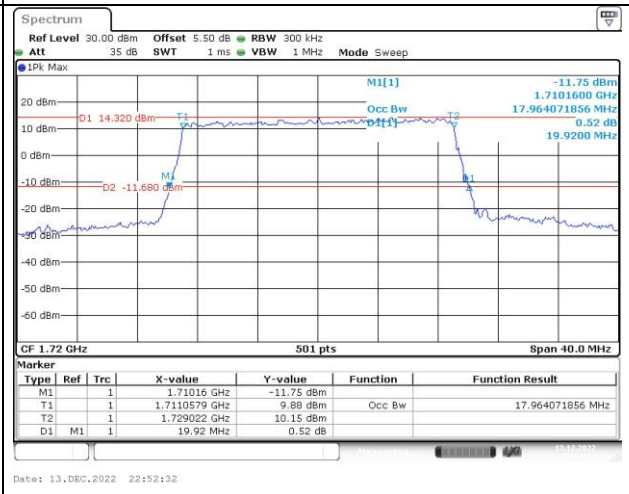
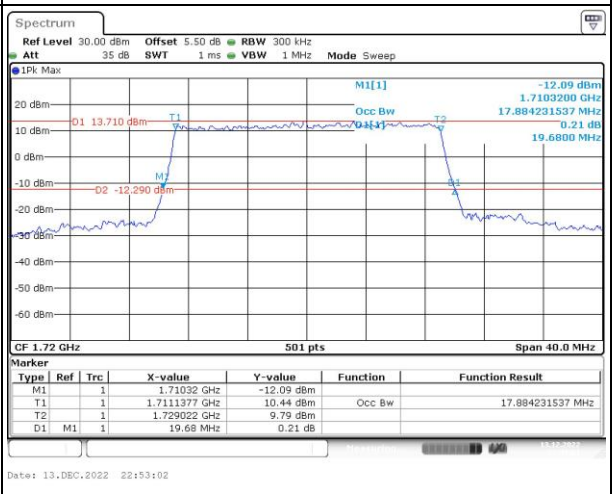
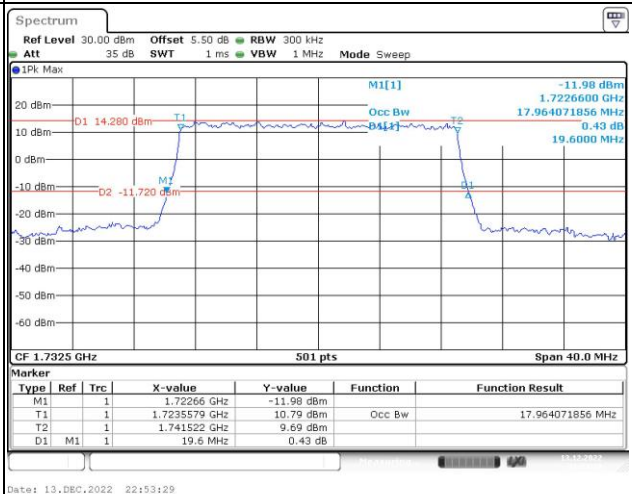
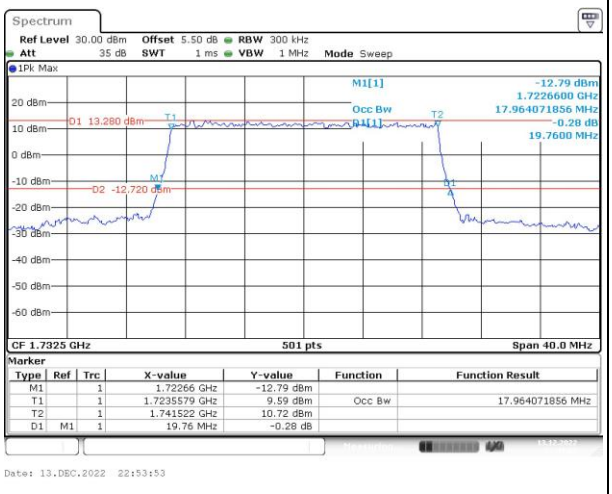
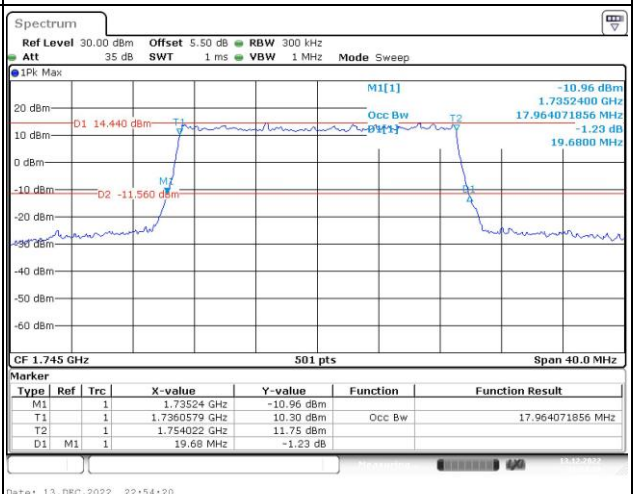
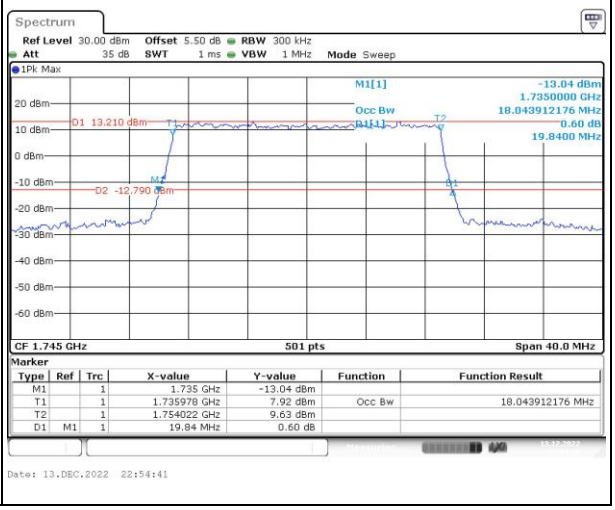
Occupied Bandwidth

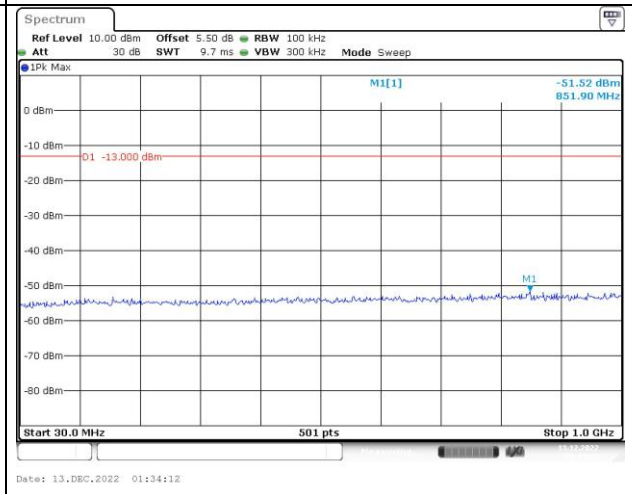
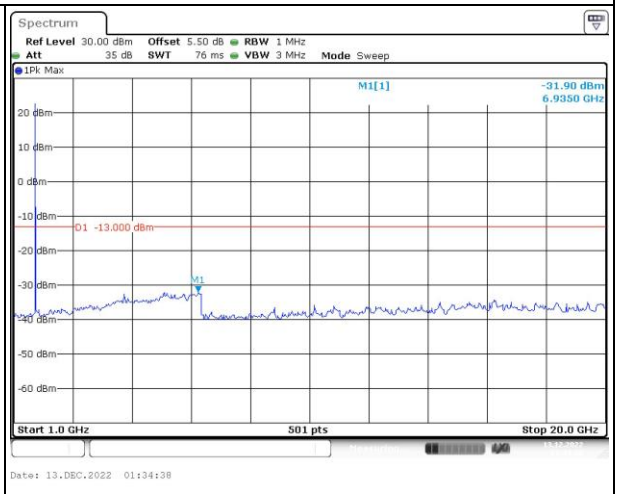
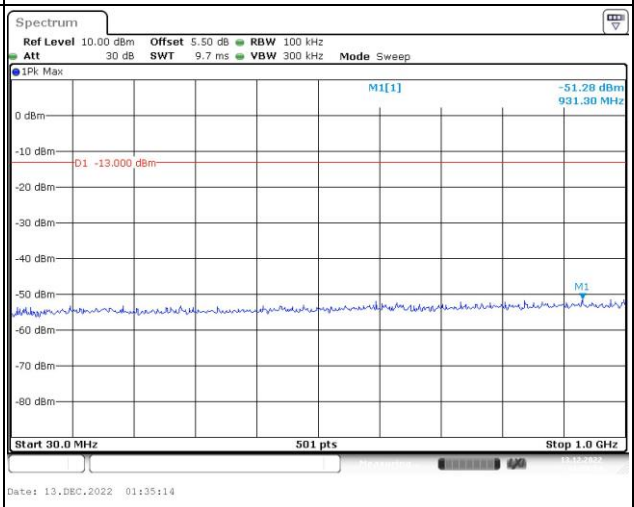
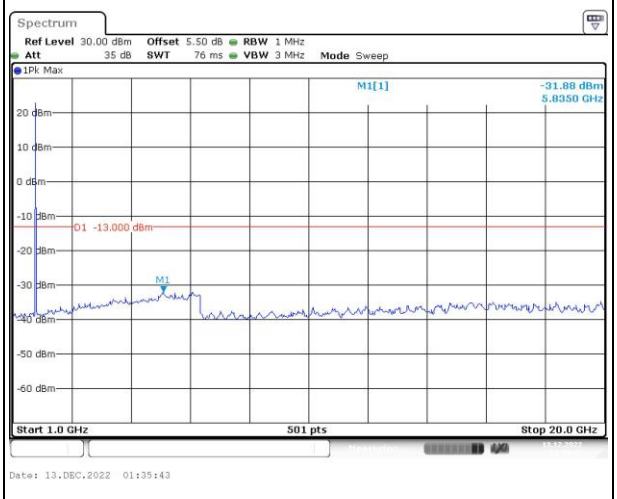
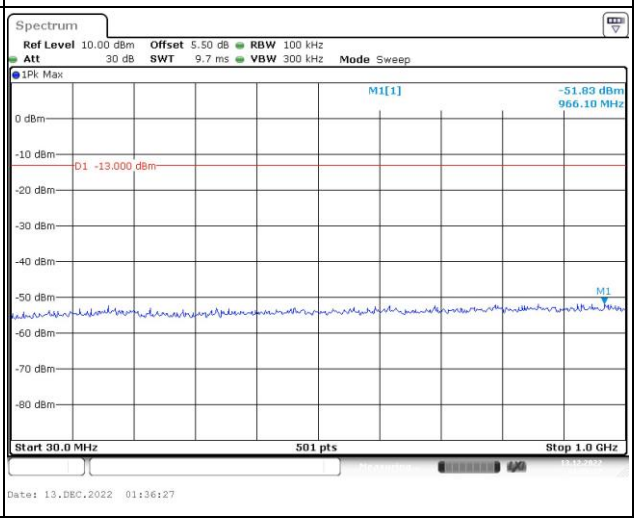
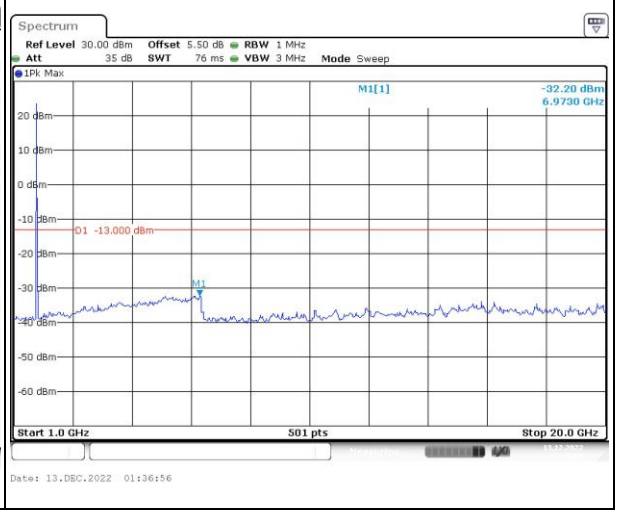
Channel	5MHz Bandwidth QPSK	5MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

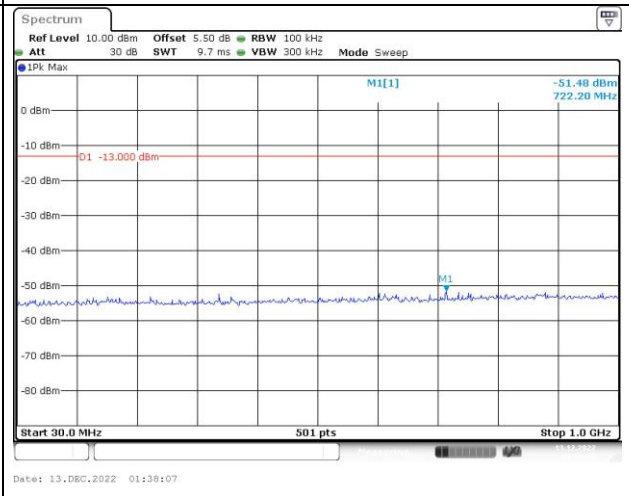
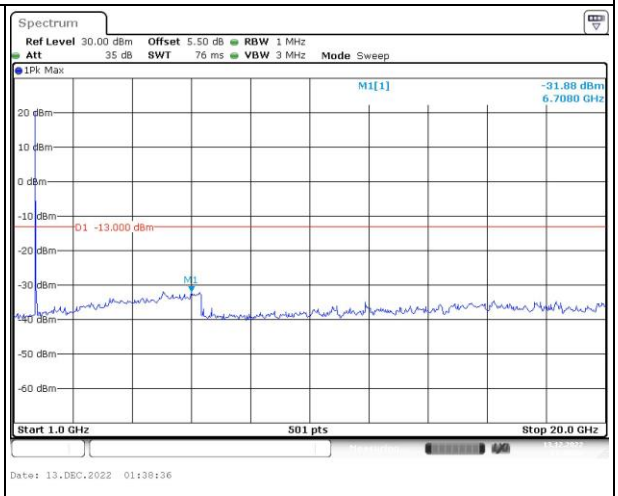
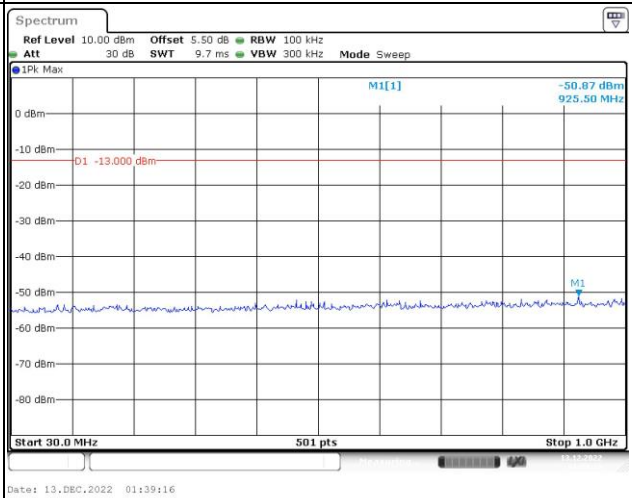
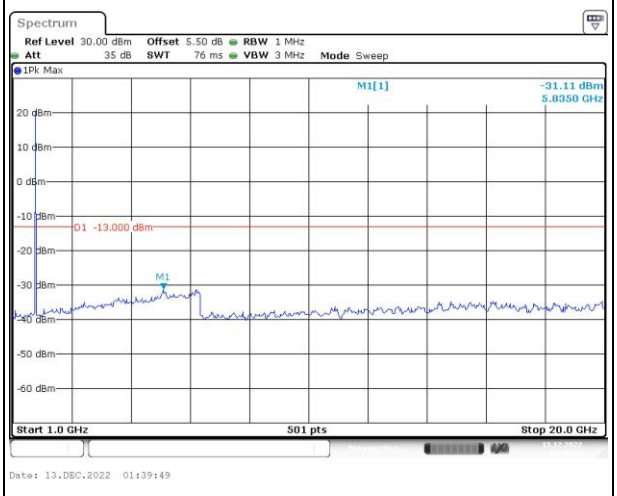
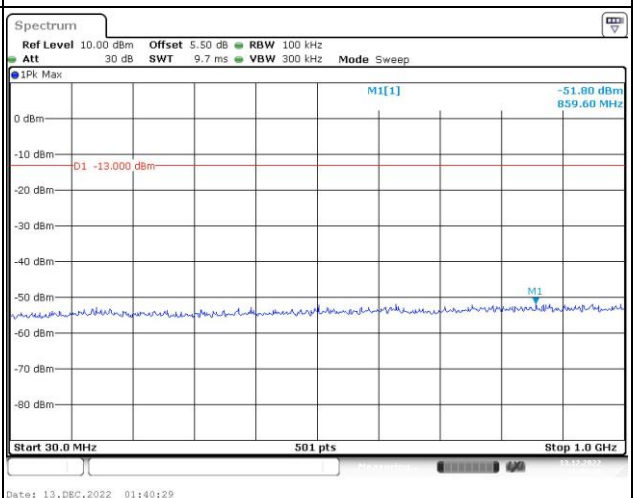
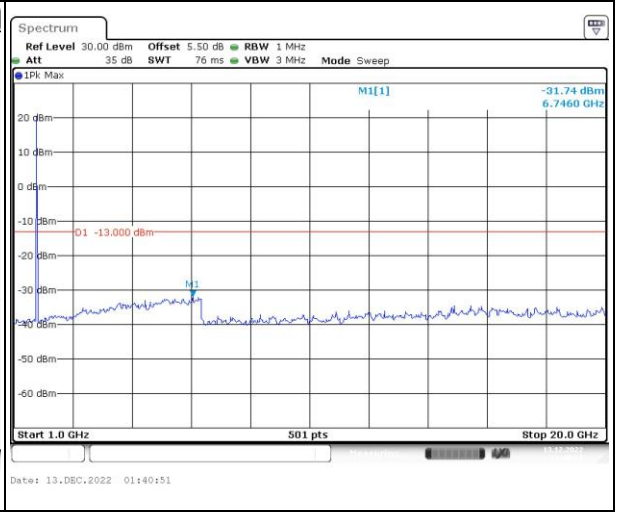
Occupied Bandwidth		
Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

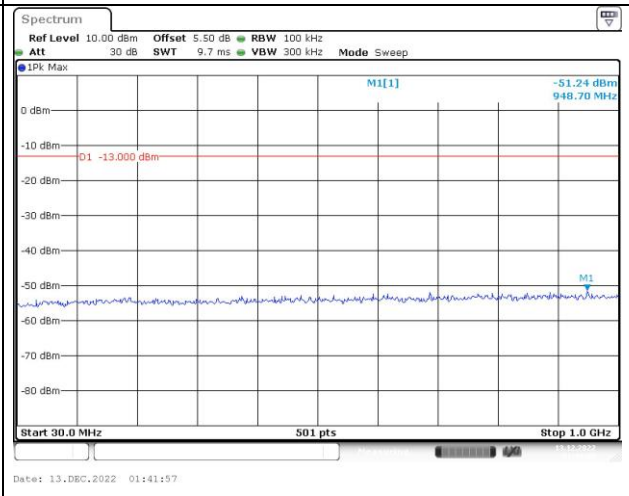
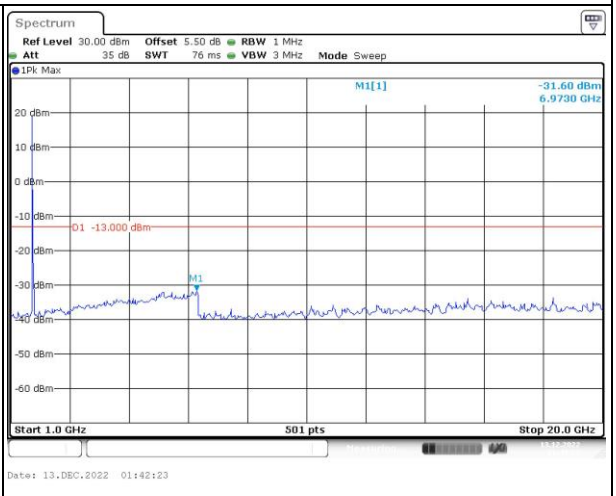
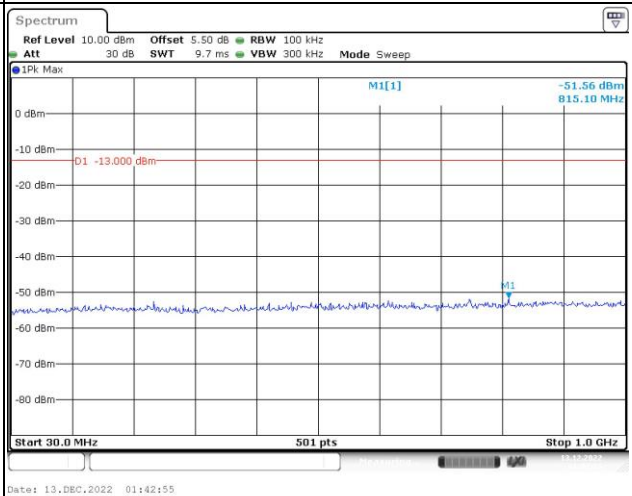
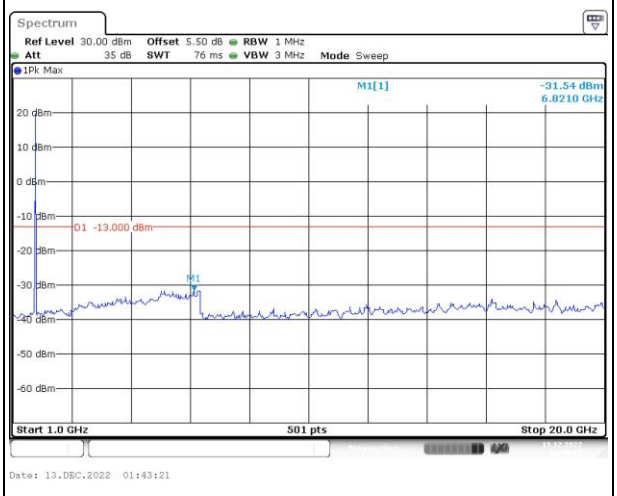
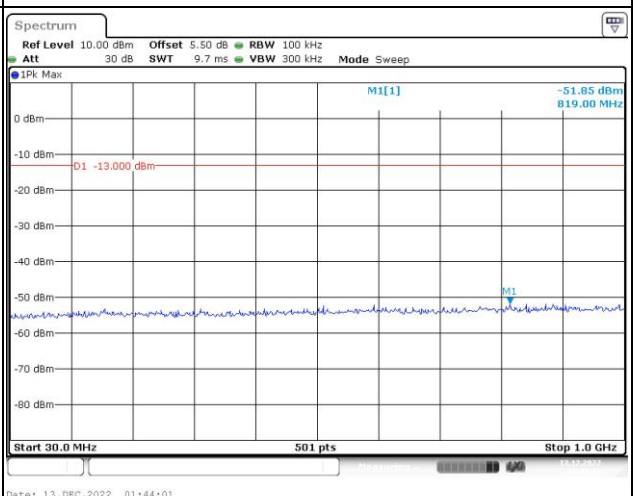
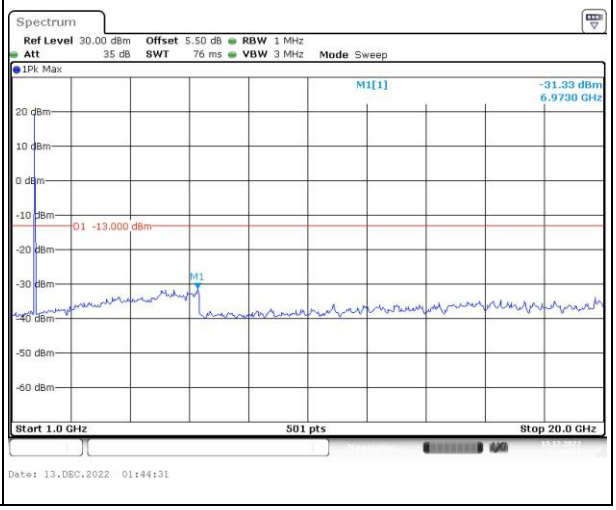
Occupied Bandwidth		
Channel	15MHz Bandwidth QPSK	15MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

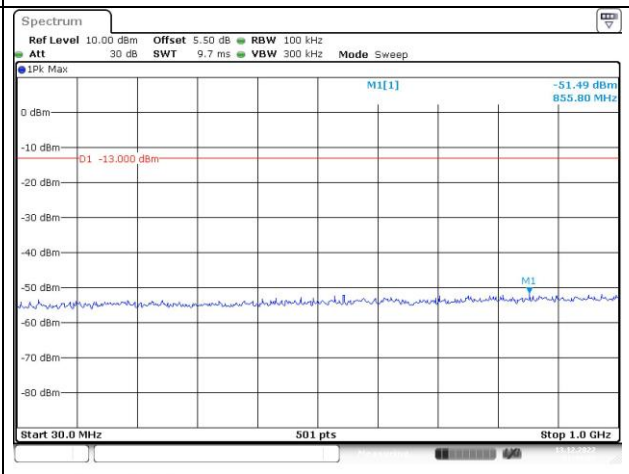
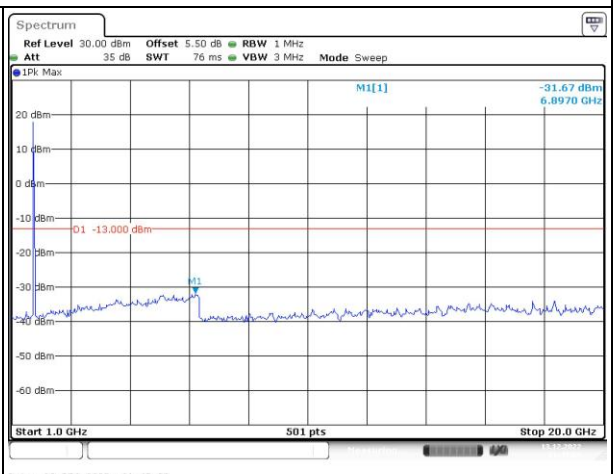
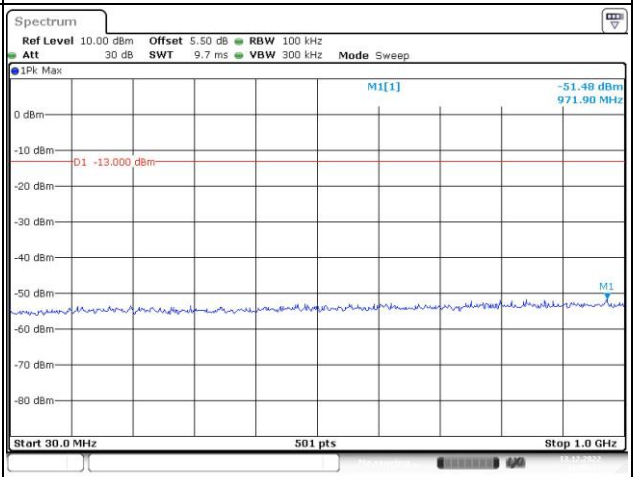
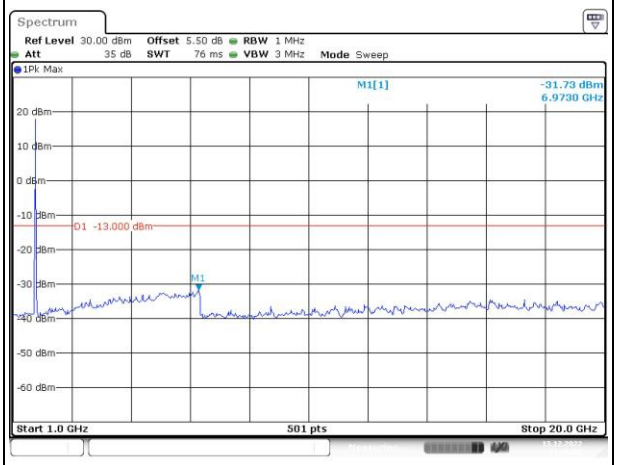
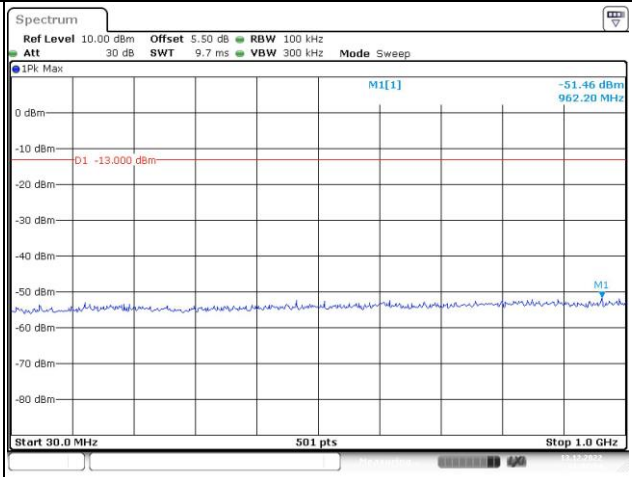
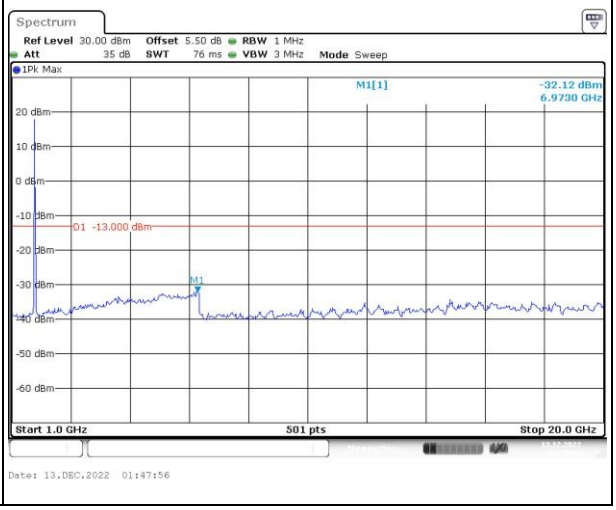
Occupied Bandwidth

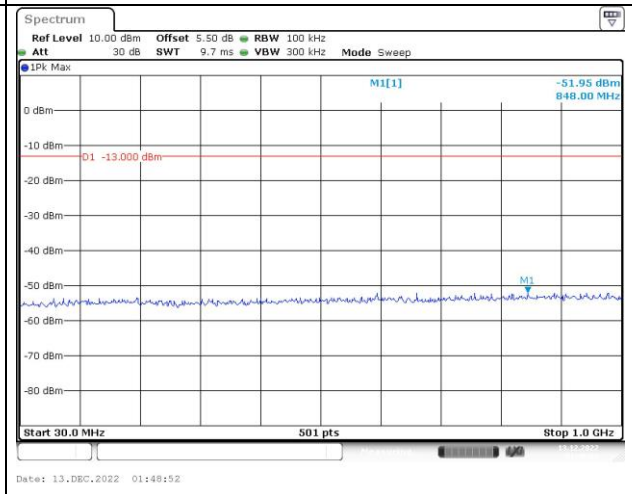
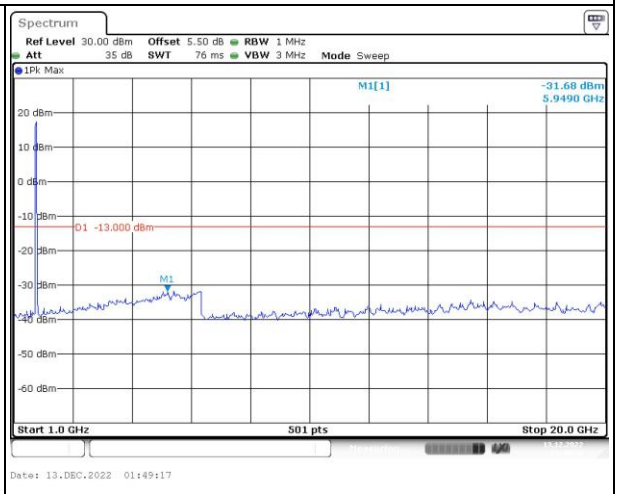
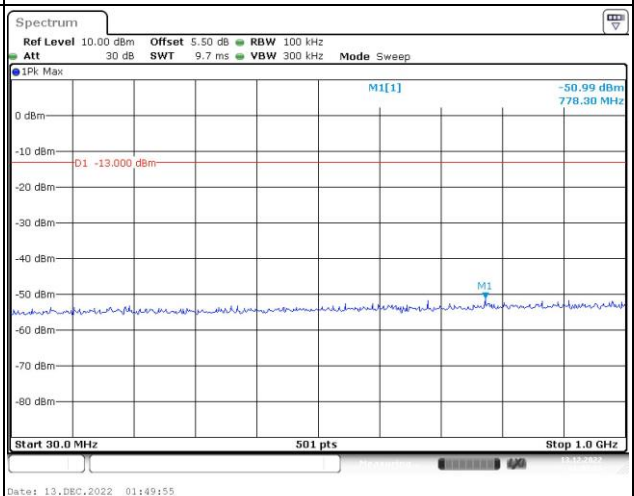
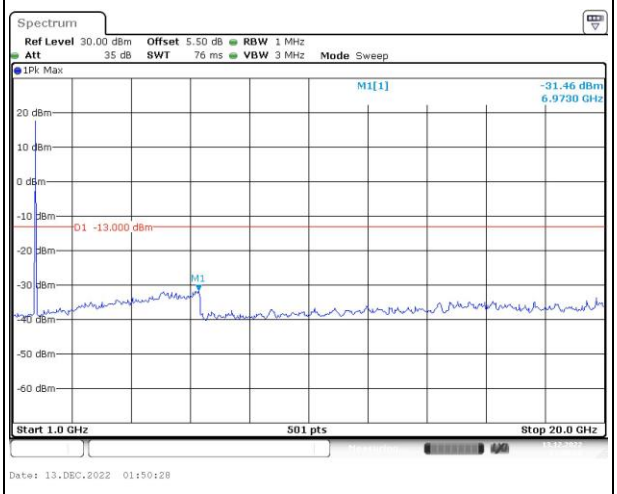
Channel	20MHz Bandwidth QPSK	20MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

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		

Spurious Emissions at Antenna Terminal		
Channel	**15MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest