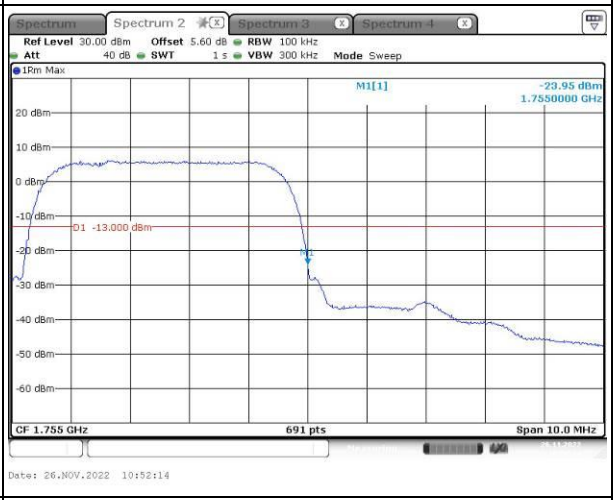
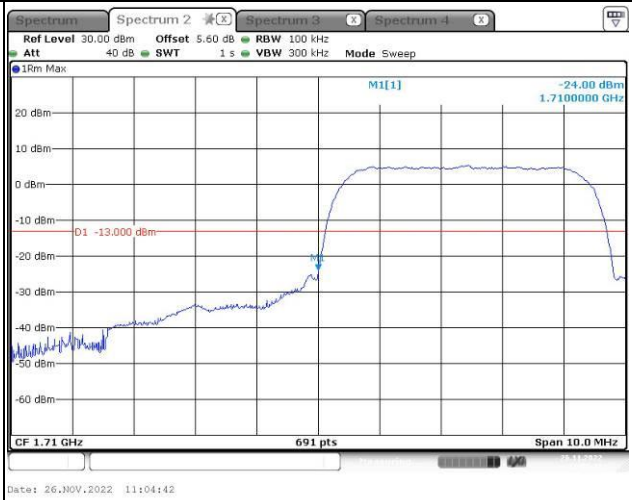
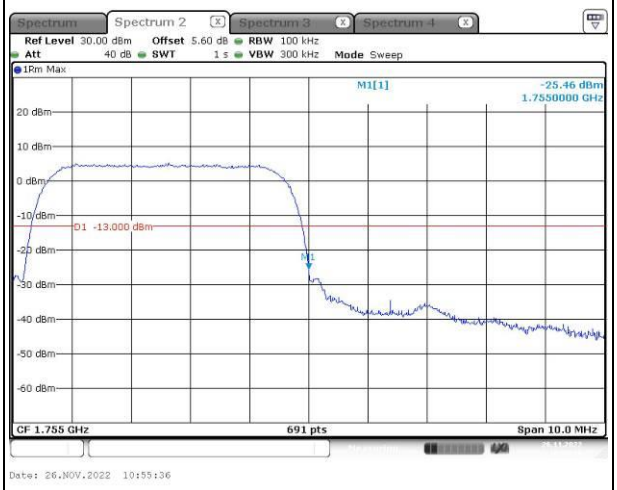
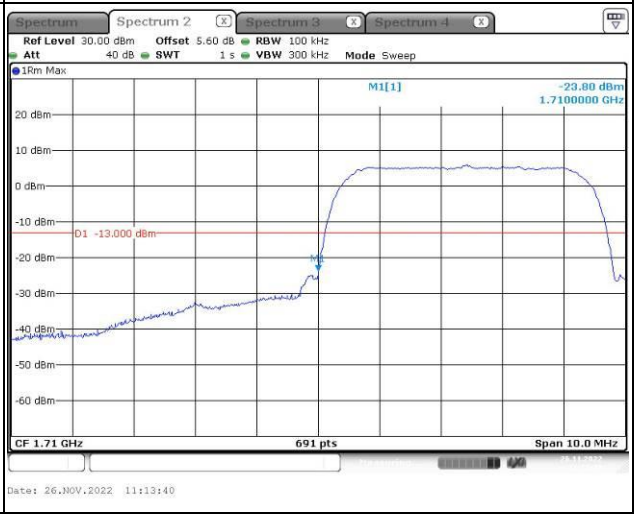
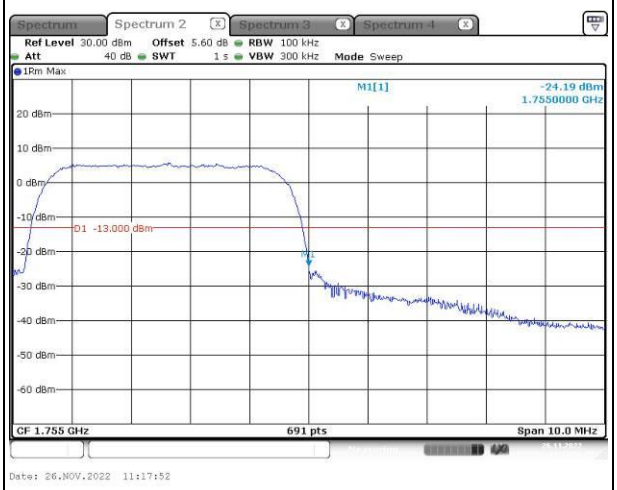
Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
R99		
HSUPA		
HSDPA		

4.5 Antenna Port Test Data and Results for WCDMA Band 5:

Serial Number:	1OGW	Test Date:	2022/11/26
Test Site:	RF	Test Mode:	Transmitting
Tester:	George Chen	Test Result:	**Pass**

Environmental Conditions:					
Temperature: (℃)	26.1	Relative Humidity: (%)	70	ATM Pressure: (kPa)	101.0

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	211002	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100002	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554404	Each time	N/A
Weinschel	Power Splitter	1515	RA914	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2022/7/15	2023/7/14
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:

Operation Modes	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
WCDMA	826.4	836.6	846.6

Test Data:

FCC §2.1046; § 22.913 (a)
RF Output Power：

Test Mode	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
	Lowest Channel	Middle Channel	Highest Channel		
WCDMA R99 Subtest 1	22.59	22.05	22.17	19.74	38.45
HSDPA Subtest 1	22.46	21.79	22.05	19.61	38.45
HSDPA Subtest 2	22.34	21.57	22.01	19.49	38.45
HSDPA Subtest 3	22.3	21.37	21.97	19.45	38.45
HSDPA Subtest 4	22.19	21.35	21.76	19.34	38.45
HSUPA Subtest 1	22.67	22.59	22.19	19.82	38.45
HSUPA Subtest 2	22.66	22.49	22.05	19.81	38.45
HSUPA Subtest 3	22.65	22.39	21.84	19.8	38.45
HSUPA Subtest 4	22.55	22.33	21.55	19.7	38.45
HSUPA Subtest 5	22.28	22.1	21.48	19.43	38.45
DC-HSDPA Subtest 1	22.62	22.76	22.12	19.91	38.45
DC-HSDPA Subtest 2	22.54	22.51	21.96	19.69	38.45
DC-HSDPA Subtest 3	22.37	22.43	21.85	19.58	38.45
DC-HSDPA Subtest 4	22.36	22.37	21.82	19.52	38.45
HSPA+ Subtest 1	22.09	22.12	21.8	19.27	38.45
Note: ERP= Conducted Power(dBm) - L_C(dB) + G_T(dBd) G_T(dBd)=G_T(dBi)-2.15					
				Result:	**Pass**

Peak-to-average Ratio(PAR)

Test Mode	Peak-to-average Ratio(dB)			Limit (dB)
	Lowest Channel	Middle Channel	Highest Channel	
WCDMA R99	2.87	2.81	2.72	13
HSDPA	4.61	4.96	4.58	13
HSUPA	5.39	5.8	5.13	13
			Result:	**Pass**

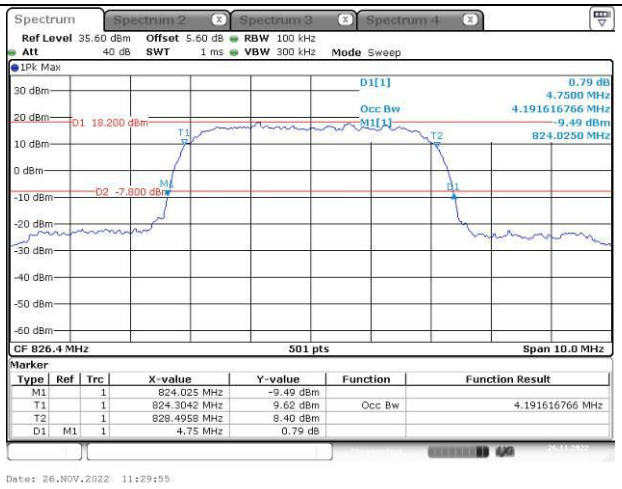
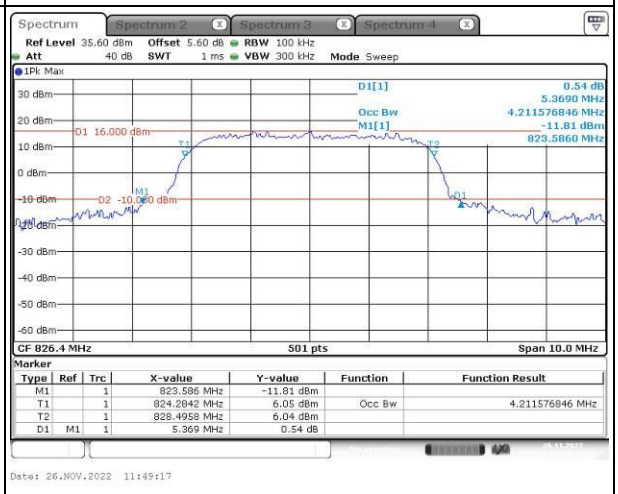
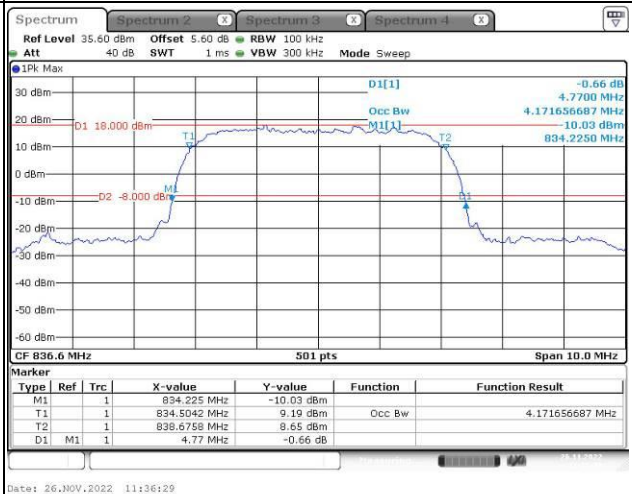
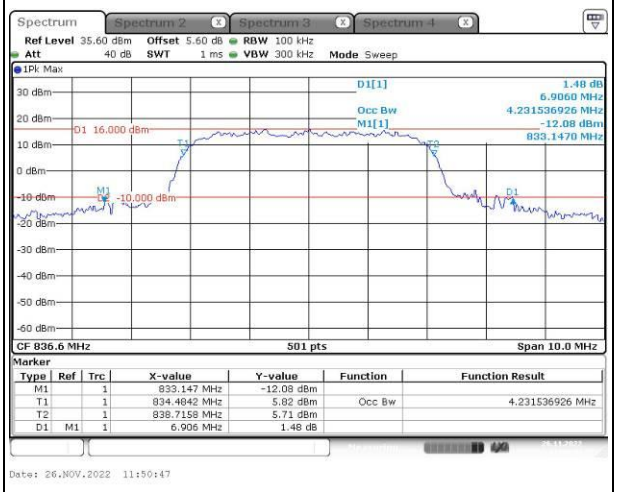
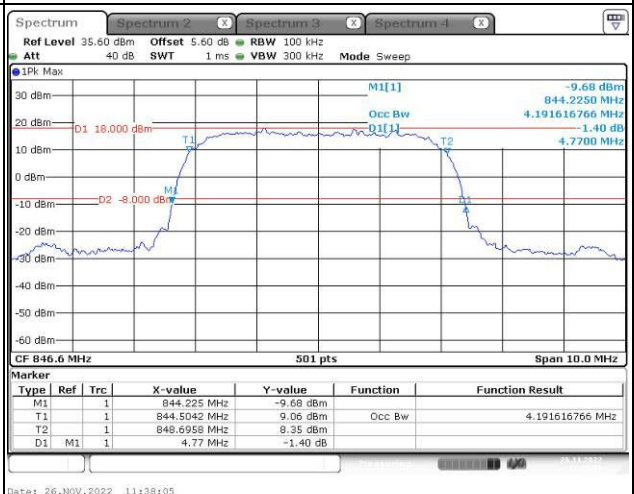
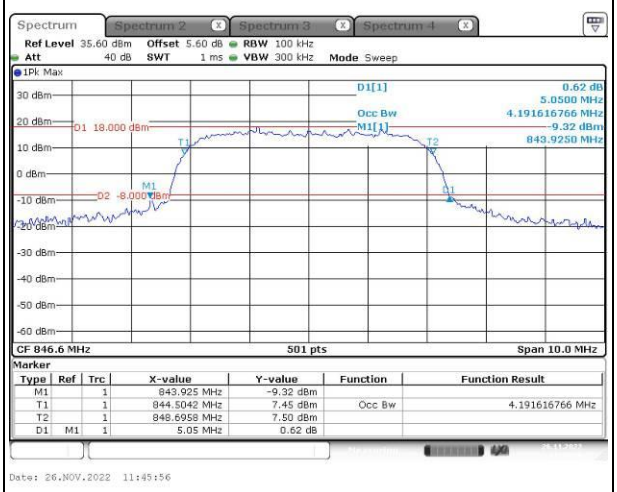
FCC §2.1049, §22.917, §22.905:Occupied Bandwidth						
Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
WCDMA R99	4.192	4.172	4.192	4.75	4.77	4.77
HSDPA	4.212	4.232	4.192	5.369	6.906	5.05
HSUPA	4.232	4.232	4.232	5.669	5.928	5.05
Note: The test plots please refer to the Plots of Occupied Bandwidth						

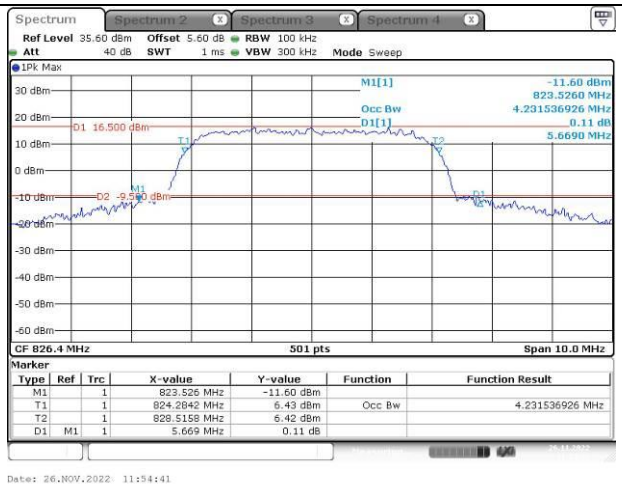
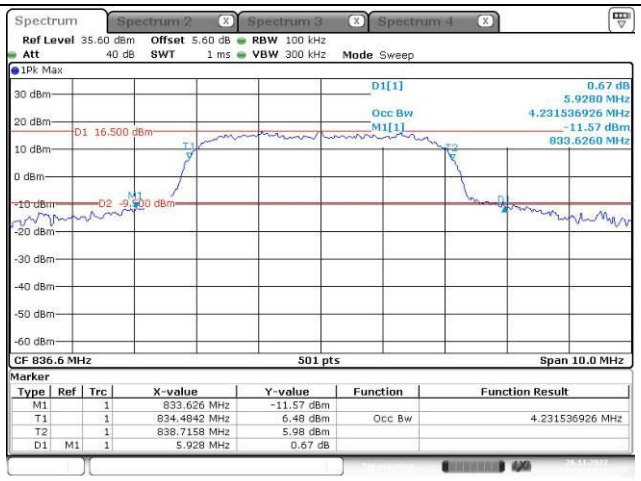
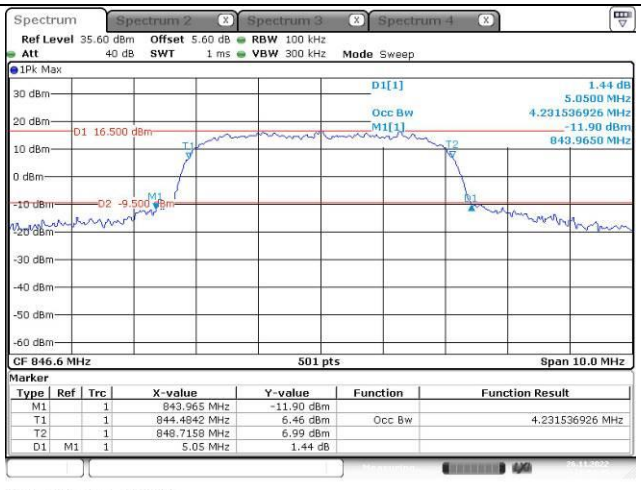
FCC §2.1051, §22.917(a):Spurious Emissions at Antenna Terminal	
Result:	**Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**

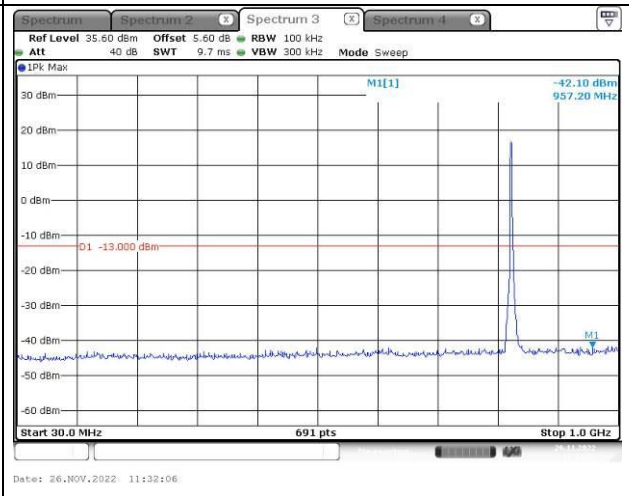
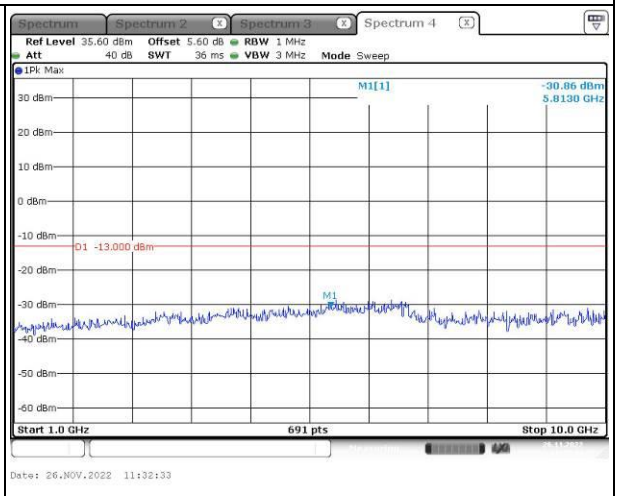
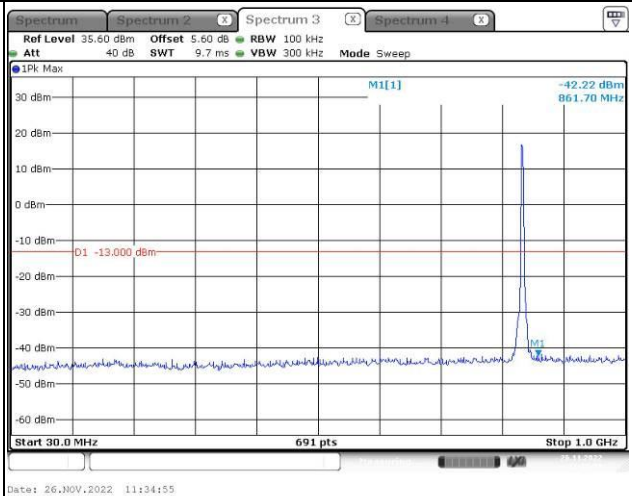
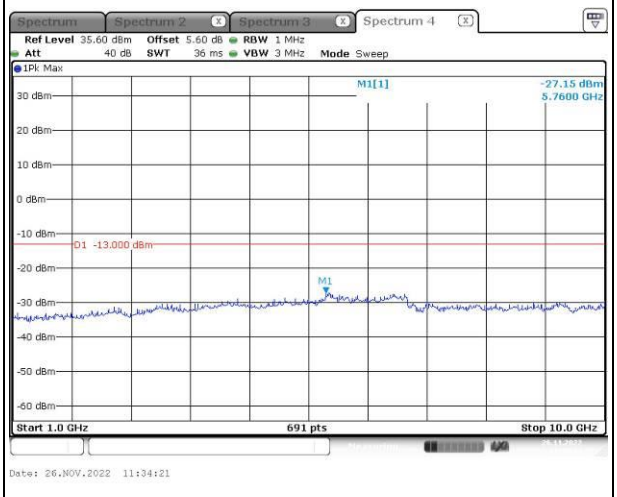
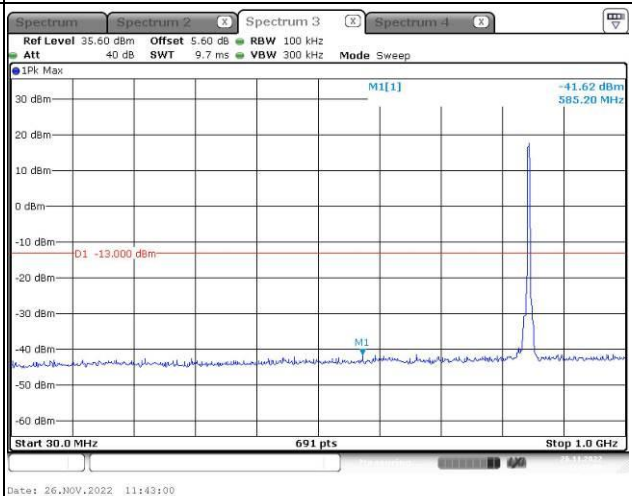
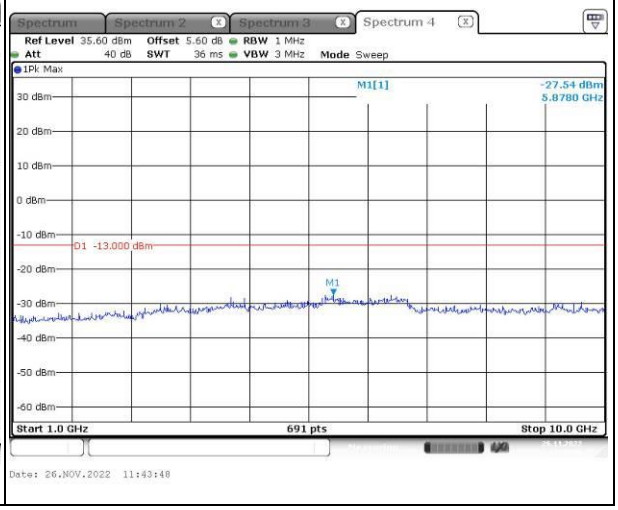
FCC §2.1051, §22.917(a):Out of band emission, Band Edge	
Result:	**Pass, Please refer to the test plots of Out of band emission, Band Edge.**

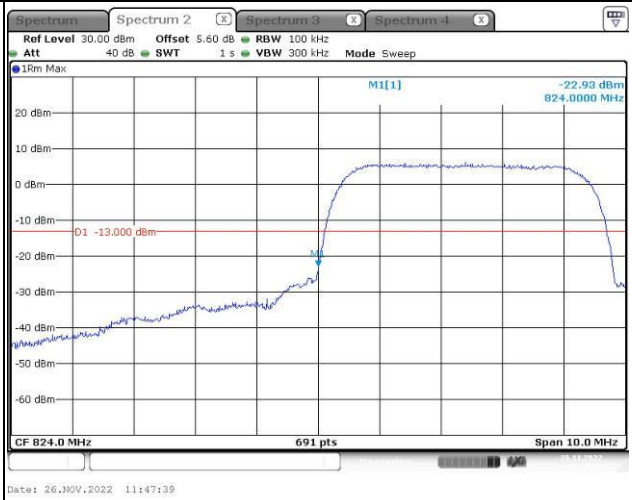
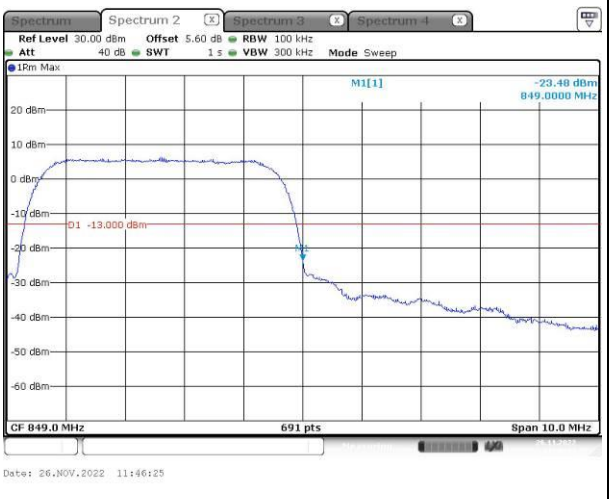
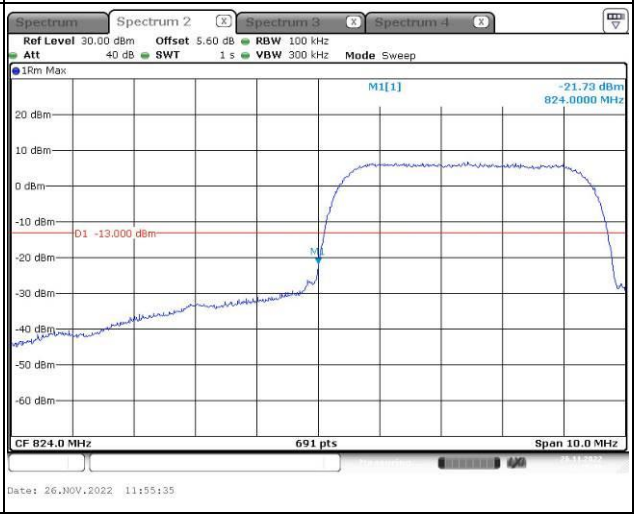
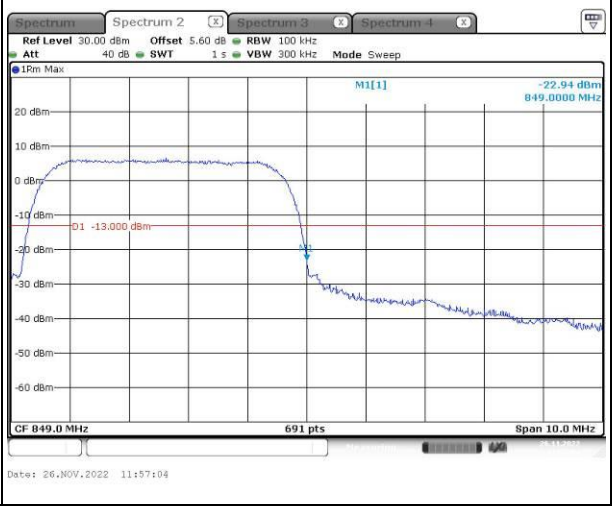
FCC §2.1055, §22.355: Frequency Stability					
Test Modulation:	WCDMA R99		Test Channel:	836.6	MHz
Test Item	Temperature (℃)	Voltage (V_{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.87	-1.27	-0.002	2.5
	-20	3.87	-5.79	-0.007	2.5
	-10	3.87	-7.69	-0.009	2.5
	0	3.87	-9.71	-0.012	2.5
	10	3.87	-7.72	-0.009	2.5
	20	3.87	5.04	0.006	2.5
	30	3.87	-8.52	-0.010	2.5
	40	3.87	-5.96	-0.007	2.5
	50	3.87	-5.35	-0.006	2.5
Frequency Stability vs. Voltage	20	3.3	-6.8	-0.008	2.5
	20	4.45	9.26	0.011	2.5
				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		
Channel	WCDMA R99	HSDPA
Lowest		
Middle		
Highest		

Occupied Bandwidth	
Channel	HSUPA
Lowest	
Middle	
Highest	

Spurious Emissions at Antenna Terminal		
Channel	WCDMA R99	
Lowest		
Middle		
Highest		

Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
R99		
HSUPA		
HSDPA		

4.6Antenna Port Test Data and Results for LTE Band 2

Serial Number:	1OGW	Test Date:	2022/11/21
Test Site:	RF	Test Mode:	Transmitting
Tester:	George Chen	Test Result:	**Pass**

Environmental Conditions:					
Temperature: (℃)	25.8	Relative Humidity: (%)	66	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	2022/7/15	2023/7/-14
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100002	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554404	Each time	N/A
Weinschel	Power Splitter	1515	RA914	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2022/7/15	2023/7/14
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2022/04/6	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	1850.7	1880	1909.3
3MHz	1851.5	1880	1908.5
5MHz	1852.5	1880	1907.5
10MHz	1855	1880	1905
15MHz	1857.5	1880	1902.5
20MHz	1860	1880	1900

Test Data:

FCC §2.1046; § 24.232

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	21.65	21.67	21.68	21.64	33
	RB1#3	21.68	21.71	21.74		
	RB1#5	21.61	21.64	21.7		
	RB3#0	21.65	21.69	21.7		
	RB3#3	21.61	21.68	21.63		
	RB6#0	20.68	20.68	20.67		
1.4MHz 16QAM	RB1#0	20.8	20.68	20.82	20.75	33
	RB1#3	20.85	20.71	20.82		
	RB1#5	20.76	20.67	20.74		
	RB3#0	20.64	20.82	20.64		
	RB3#3	20.59	20.85	20.61		
	RB6#0	19.68	19.73	19.7		
3MHz QPSK	RB1#0	21.73	21.67	21.72	21.63	33
	RB1#8	21.72	21.7	21.7		
	RB1#14	21.68	21.63	21.64		
	RB6#0	20.75	20.78	20.75		
	RB6#9	20.69	20.71	20.69		
	RB15#0	20.7	20.74	20.7		
3MHz 16QAM	RB1#0	20.92	20.75	21.34	21.24	33
	RB1#8	20.87	20.72	21.28		
	RB1#14	20.78	20.65	21.25		
	RB6#0	19.73	19.75	19.82		
	RB6#9	19.69	19.68	19.78		
	RB15#0	19.74	19.74	19.77		
5MHz QPSK	RB1#0	21.89	21.84	21.89	21.79	33
	RB1#13	21.8	21.82	21.8		
	RB1#24	21.8	21.71	21.75		
	RB15#0	20.83	20.68	20.73		
	RB15#10	20.66	20.71	20.69		
	RB25#0	20.73	20.77	20.71		
5MHz 16QAM	RB1#0	21.03	20.75	21.07	20.97	33
	RB1#13	20.85	20.68	20.99		
	RB1#24	20.82	20.61	20.98		
	RB15#0	19.78	19.74	19.76		
	RB15#10	19.69	19.73	19.66		
	RB25#0	19.71	19.77	19.73		
10MHz QPSK	RB1#0	21.82	21.84	21.74	21.74	33
	RB1#25	21.76	21.72	21.67		
	RB1#49	21.82	21.81	21.78		

	RB25#0	20.59	20.61	20.65		
	RB25#25	20.68	20.66	20.72		
	RB50#0	20.71	20.69	20.69		
10MHz 16QAM	RB1#0	20.95	20.72	21.42	21.32	33
	RB1#25	20.84	20.61	21.27		
	RB1#49	20.9	20.76	21.36		
	RB25#0	19.71	19.71	19.71		
	RB25#25	19.67	19.74	19.76		
	RB50#0	19.74	19.71	19.66		
15MHz QPSK	RB1#0	22.01	21.9	21.75	21.91	33
	RB1#38	21.8	21.68	21.56		
	RB1#74	21.93	21.78	21.8		
	RB36#0	20.72	20.68	20.63		
	RB36#39	20.88	20.76	20.64		
	RB75#0	20.8	20.7	20.65		
15MHz 16QAM	RB1#0	21.52	21.57	20.87	21.47	33
	RB1#38	21.08	21.32	20.73		
	RB1#74	21.24	21.39	20.95		
	RB36#0	19.72	19.7	19.66		
	RB36#39	19.85	19.73	19.67		
	RB75#0	19.78	19.71	19.65		
20MHz QPSK	RB1#0	21.93	21.73	21.63	21.83	33
	RB1#50	21.81	21.67	21.57		
	RB1#99	21.59	21.44	21.41		
	RB50#0	20.92	20.8	20.62		
	RB50#50	20.7	20.58	20.62		
	RB100#0	20.73	20.67	20.63		
20MHz 16QAM	RB1#0	21.08	21.26	20.93	21.16	33
	RB1#50	21.05	21.22	20.96		
	RB1#99	20.81	21.02	20.7		
	RB50#0	19.89	19.75	19.7		
	RB50#50	19.68	19.55	19.62		
	RB100#0	19.8	19.67	19.56		
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	5.86	6.06	5.3	13
	RB100#0	4.12	4.35	4.43	13
20MHz 16QAM	RB1#0	6.61	7.13	5.83	13
	RB100#0	5.77	5.94	5.94	13
				Result:	**Pass**

FCC §2.1049, §24.238: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	1.102	1.32	1.302	1.296
1.4MHz 16QAM	1.102	1.102	1.102	1.29	1.314	1.32
3MHz QPSK	2.695	2.695	2.695	2.928	2.94	2.94
3MHz 16QAM	2.695	2.695	2.683	2.94	2.976	2.94
5MHz QPSK	4.491	4.491	4.531	5	5.02	5.02
5MHz 16QAM	4.511	4.531	4.511	5.04	5.04	5.02
10MHz QPSK	8.942	8.942	8.942	9.8	9.76	9.84
10MHz 16QAM	8.902	8.942	8.942	9.6	9.72	9.76
15MHz QPSK	13.473	13.473	13.533	14.82	14.94	14.88
15MHz 16QAM	13.473	13.473	13.533	14.82	14.82	14.88
20MHz QPSK	17.964	17.964	17.964	19.6	19.36	19.52
20MHz 16QAM	17.884	17.964	17.964	19.36	19.52	19.52
Note: The test plots please refer to the Plots of Occupied Bandwidth						

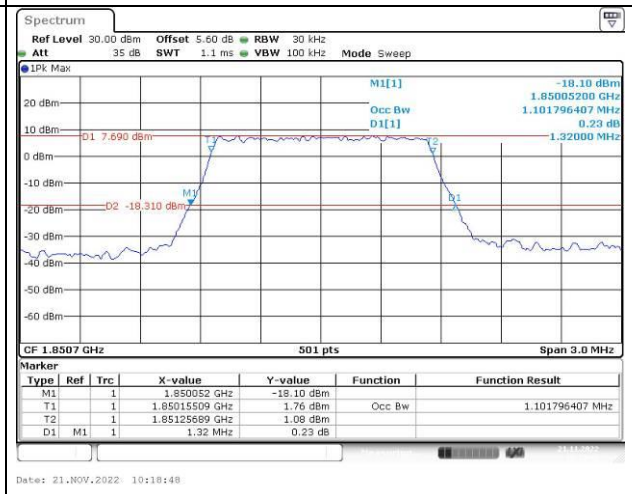
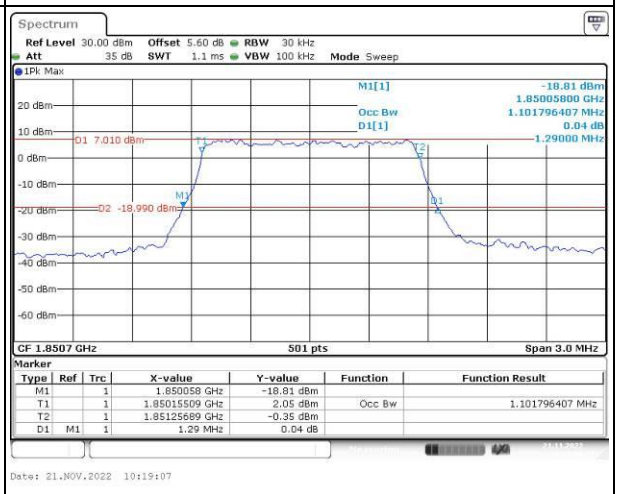
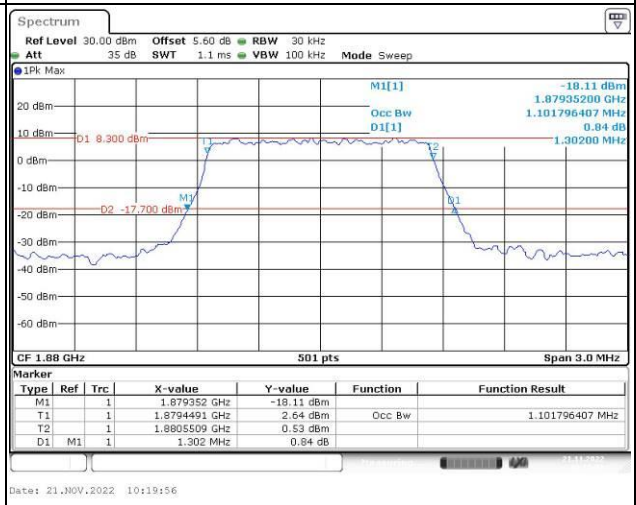
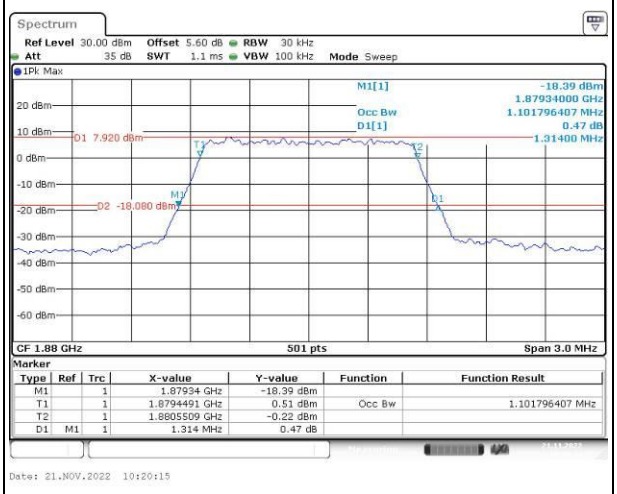
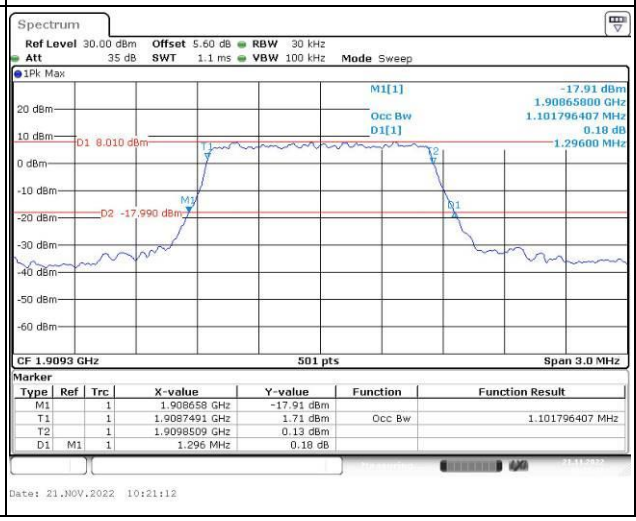
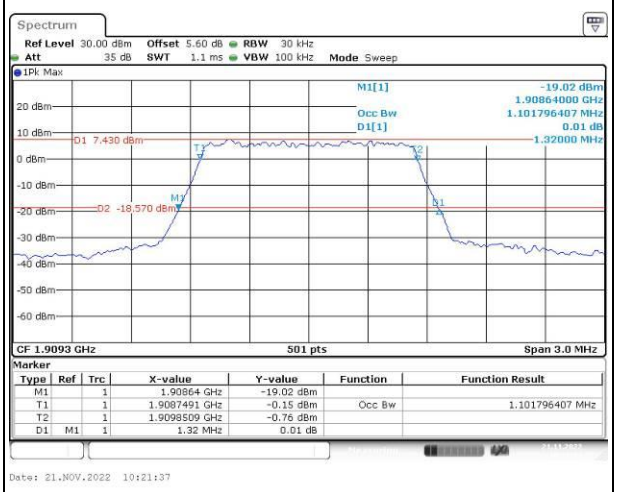
FCC §2.1051, §24.238 (a):Spurious Emissions at Antenna Terminal	
Result:	**Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**

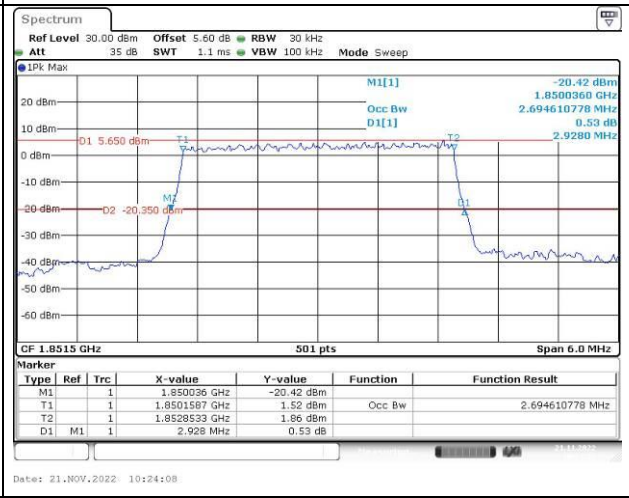
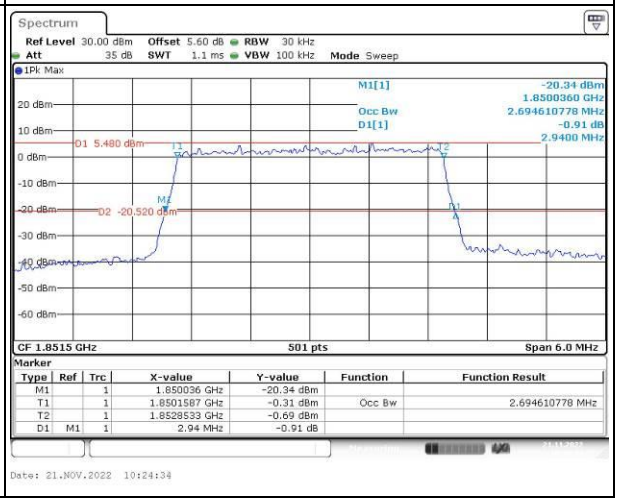
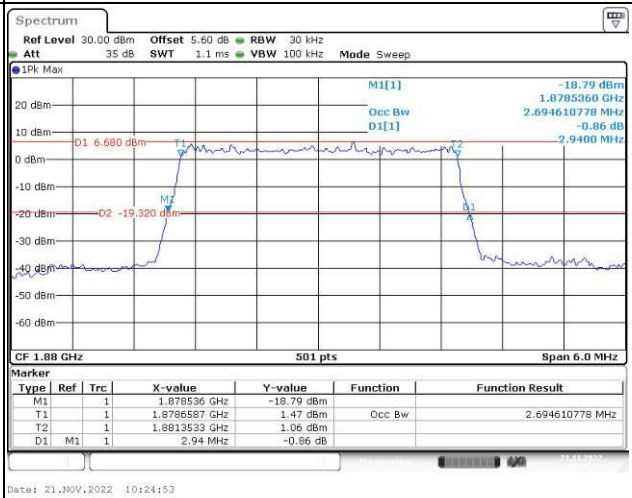
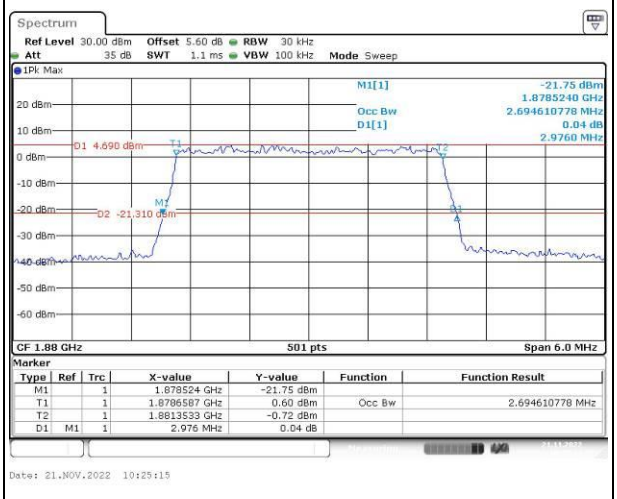
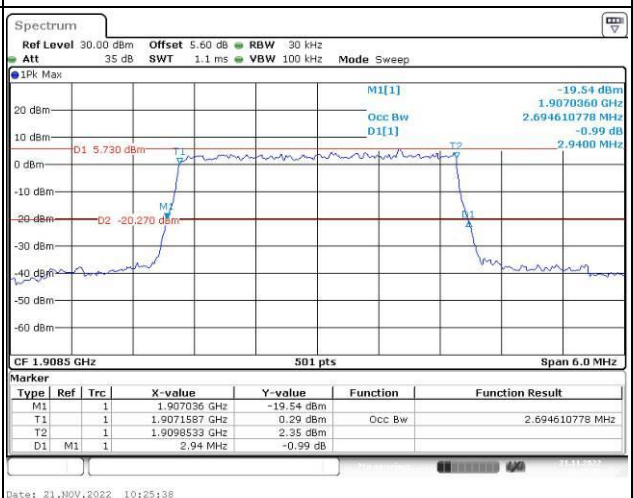
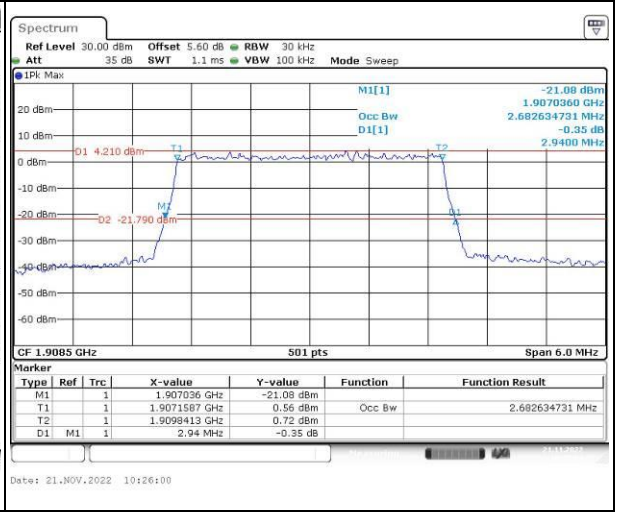
FCC §2.1051, §24.238 (a):Out of band emission, Band Edge	
Result:	**Pass, Please refer to the test plots of Out of band emission, Band Edge.**

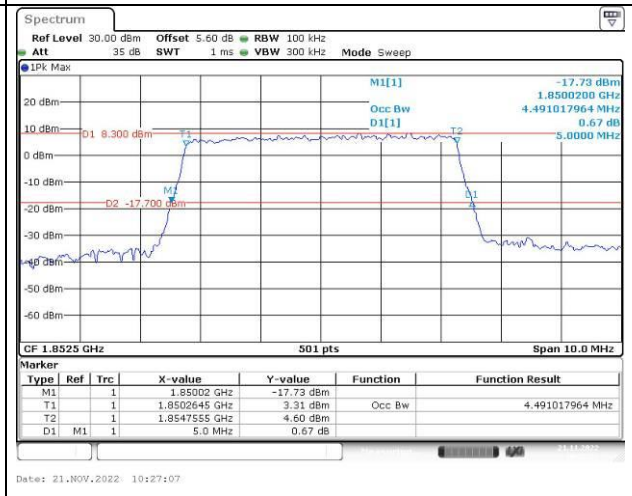
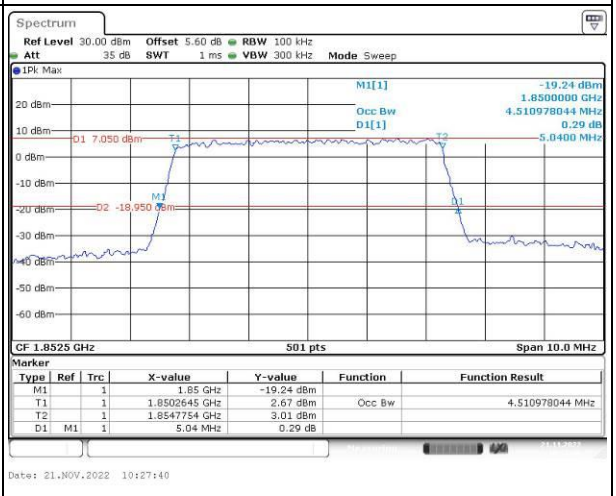
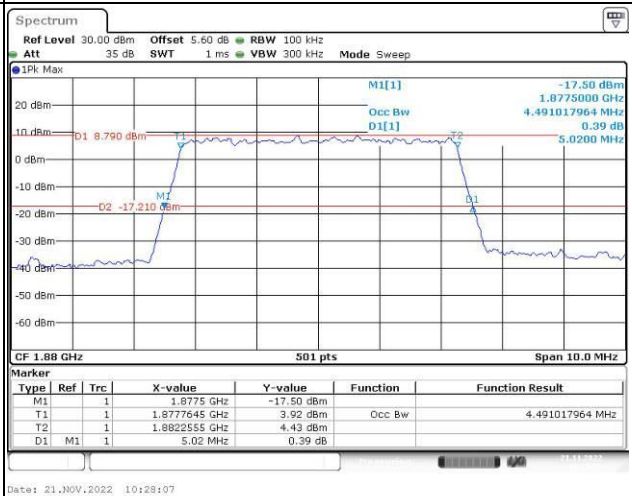
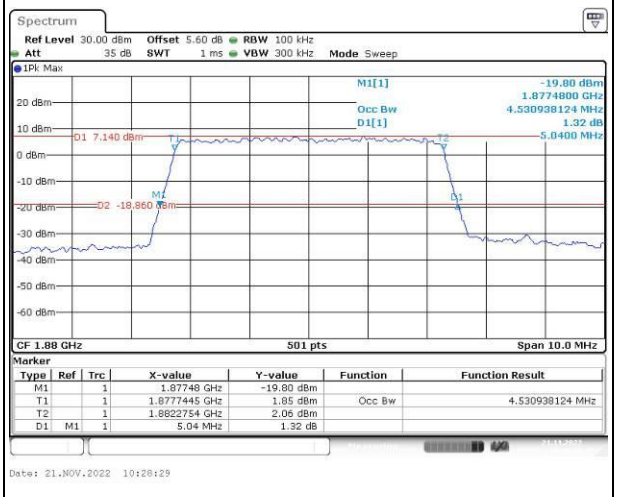
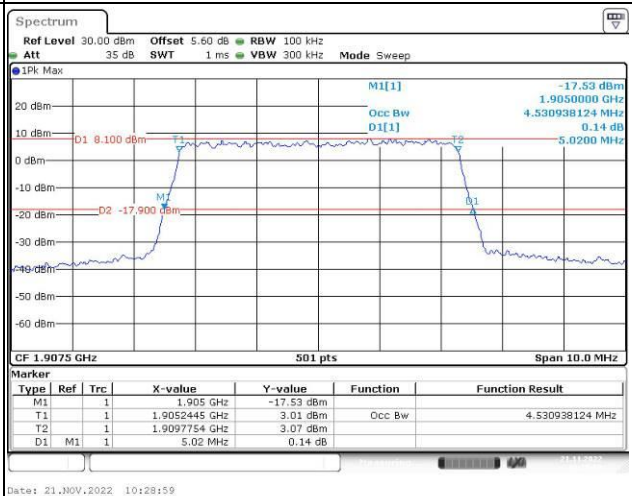
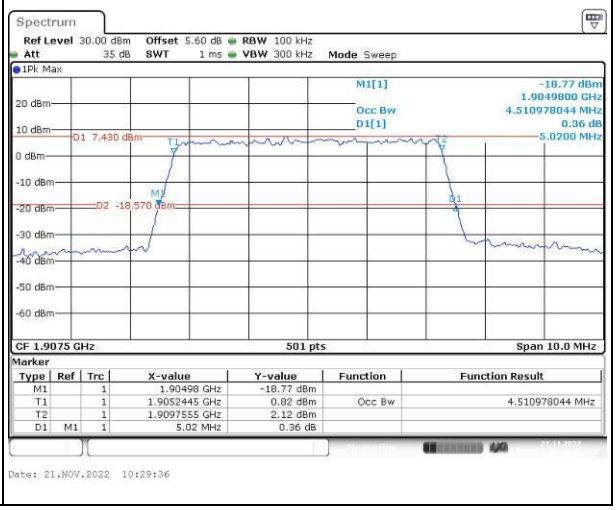
FCC §2.1055, §24.235: Frequency Stability						
Test Mode:	20 MHz QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.87	1850.7903	1850.00	1909.2665	1910
	-20	3.87	1850.7904	1850.00	1909.2651	1910
	-10	3.87	1850.7950	1850.00	1909.2652	1910
	0	3.87	1850.7967	1850.00	1909.2613	1910
	10	3.87	1850.7992	1850.00	1909.2633	1910
	20	3.87	1850.7998	1850.00	1909.2643	1910
	30	3.87	1850.7953	1850.00	1909.2642	1910
	40	3.87	1850.7995	1850.00	1909.2665	1910
	50	3.87	1850.7934	1850.00	1909.2635	1910
Frequency Stability vs. Voltage	20	3.3	1850.7967	1850.00	1909.2647	1910
	20	4.45	1850.7966	1850.00	1909.2645	1910
					Result:	**Pass**

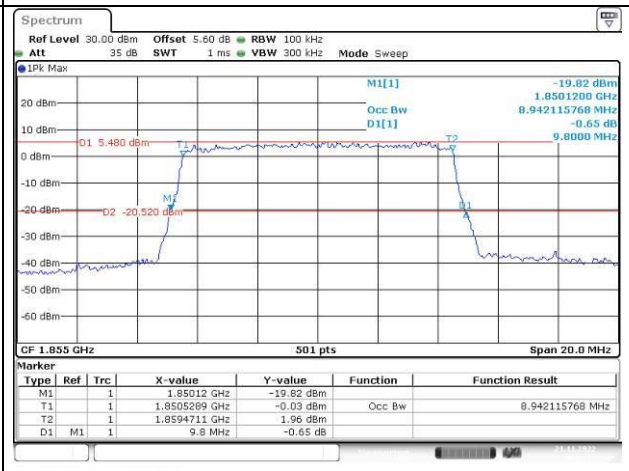
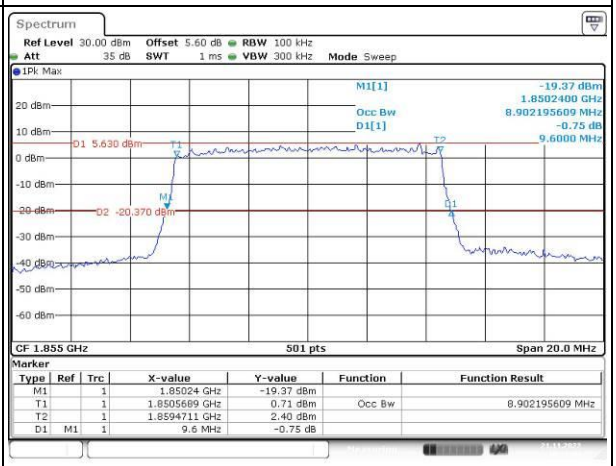
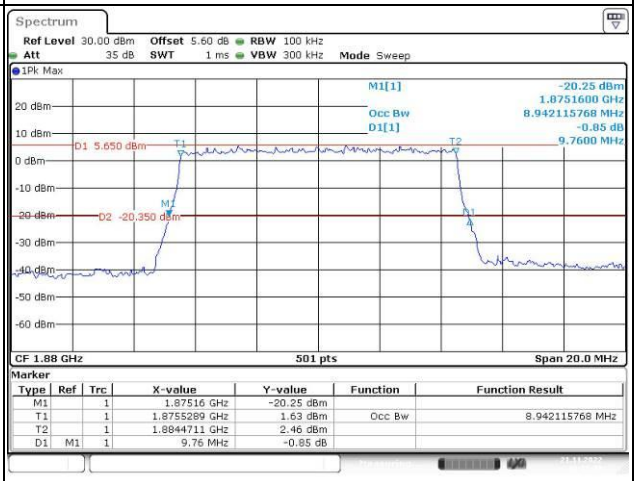
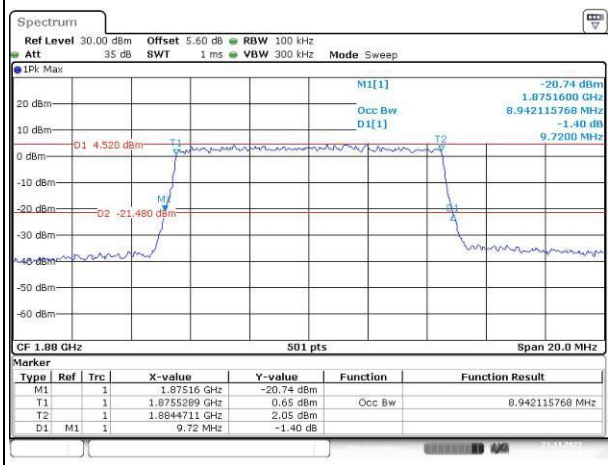
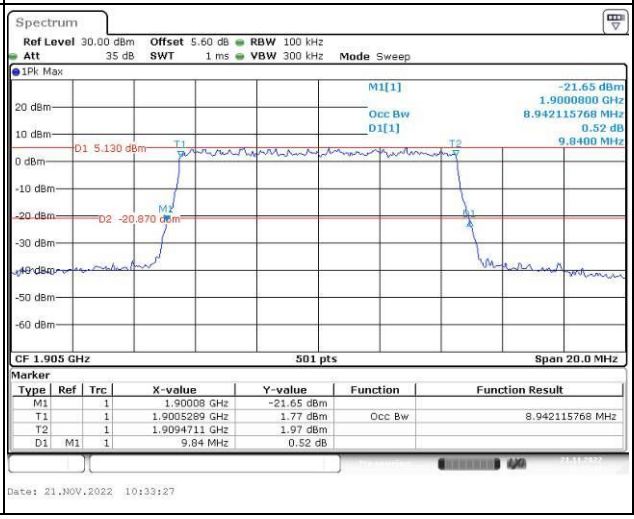
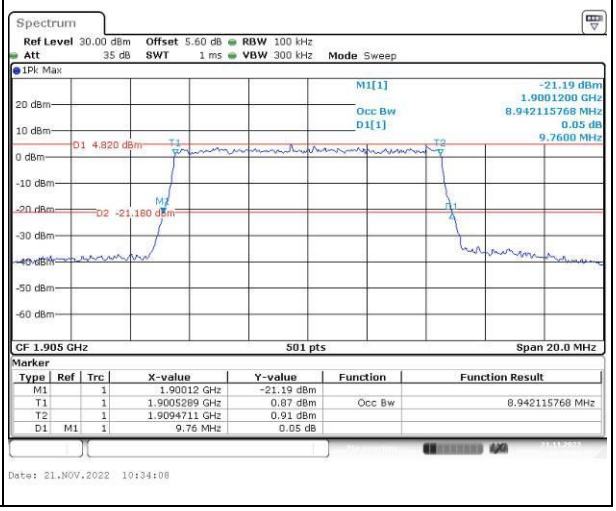
Test Mode:	20 MHz 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.87	1850.7913	1850.00	1909.2614	1910
	-20	3.87	1850.7923	1850.00	1909.2634	1910
	-10	3.87	1850.7952	1850.00	1909.2642	1910
	0	3.87	1850.7965	1850.00	1909.2613	1910
	10	3.87	1850.7932	1850.00	1909.2632	1910
	20	3.87	1850.7923	1850.00	1909.2633	1910
	30	3.87	1850.7943	1850.00	1909.2643	1910
	40	3.87	1850.7911	1850.00	1909.2623	1910
	50	3.87	1850.7923	1850.00	1909.2635	1910
Frequency Stability vs. Voltage	20	3.3	1850.7911	1850.00	1909.2643	1910
	20	4.45	1850.7934	1850.00	1909.2635	1910
					Result:	**Pass**

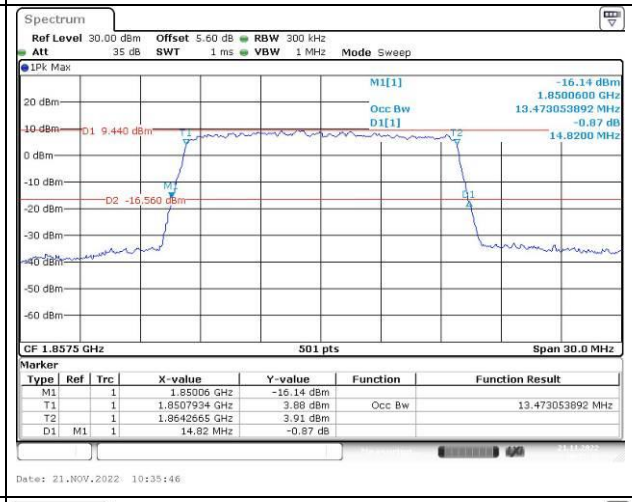
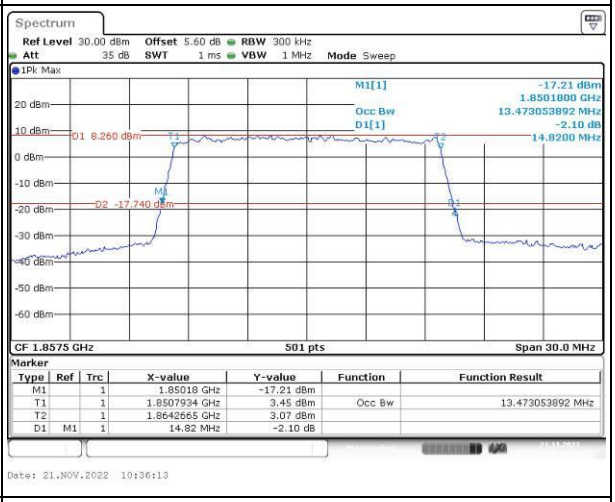
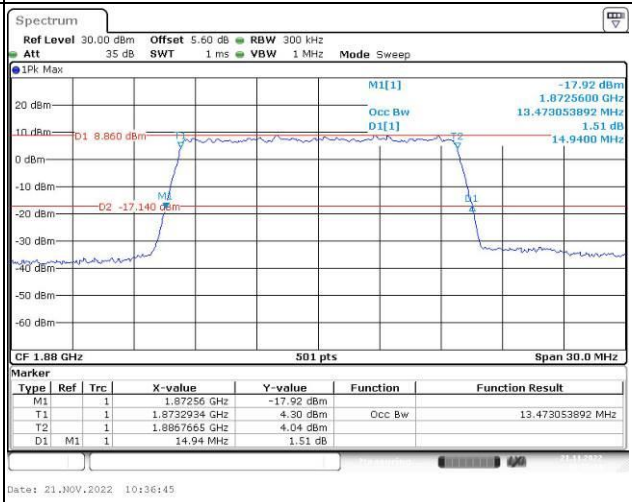
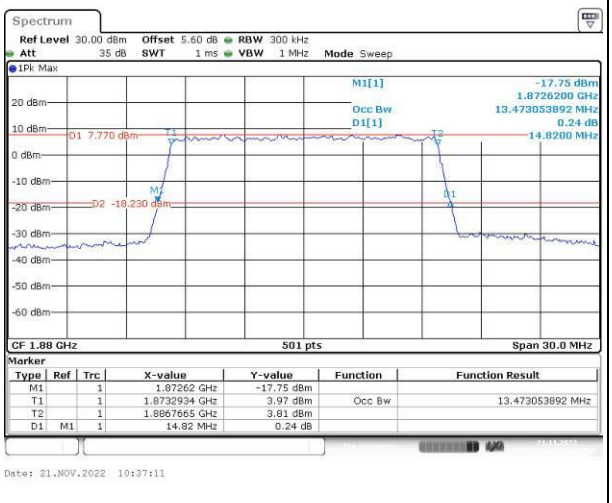
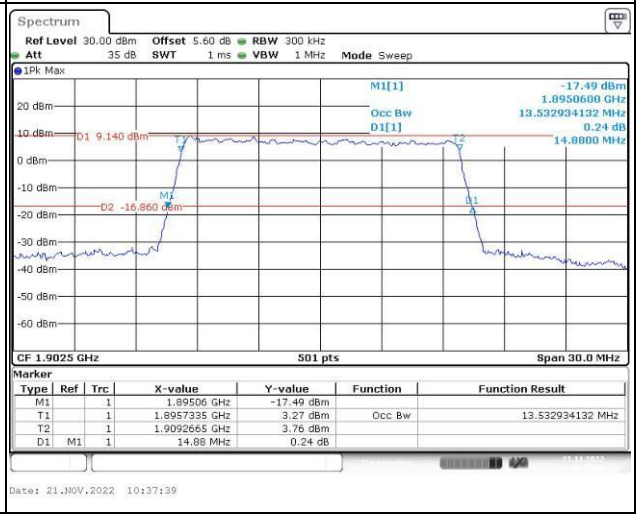
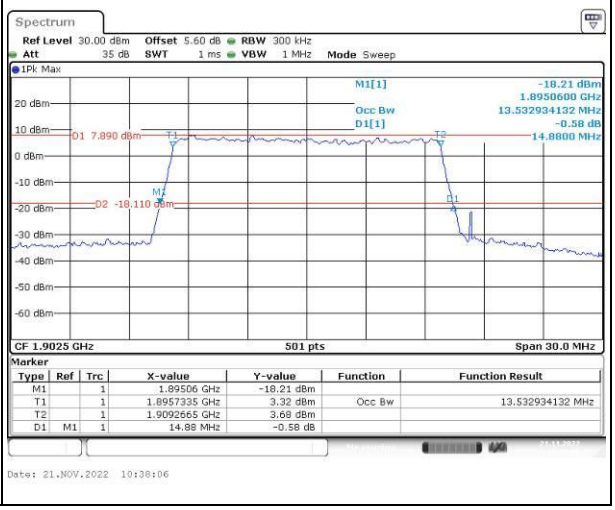
Test Plots(Note: The 5.6dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer)**:**

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

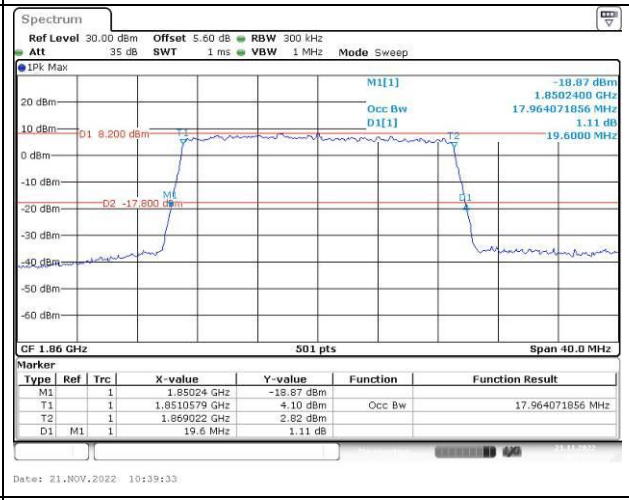
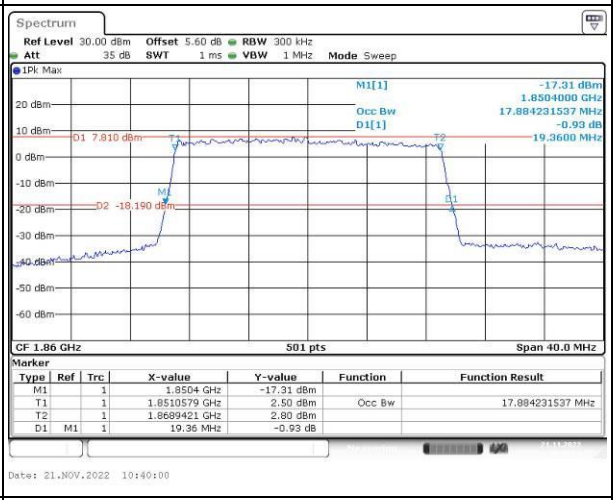
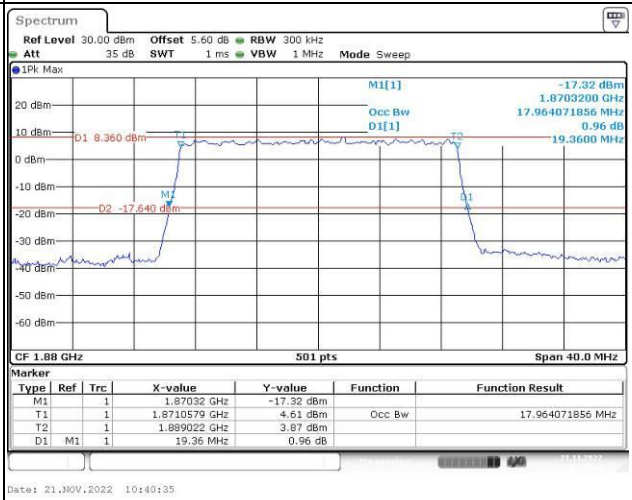
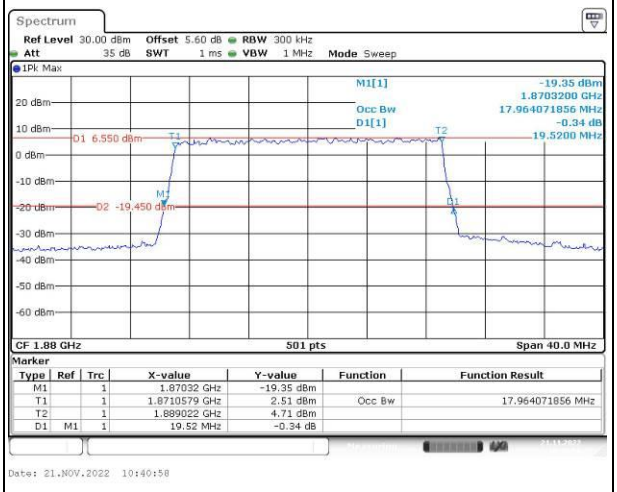
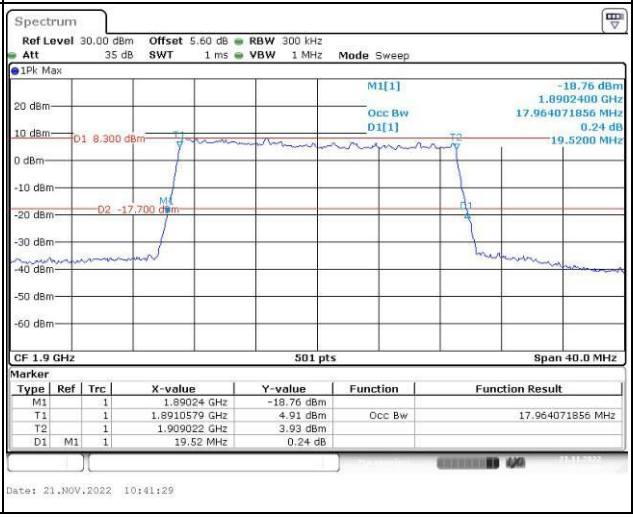
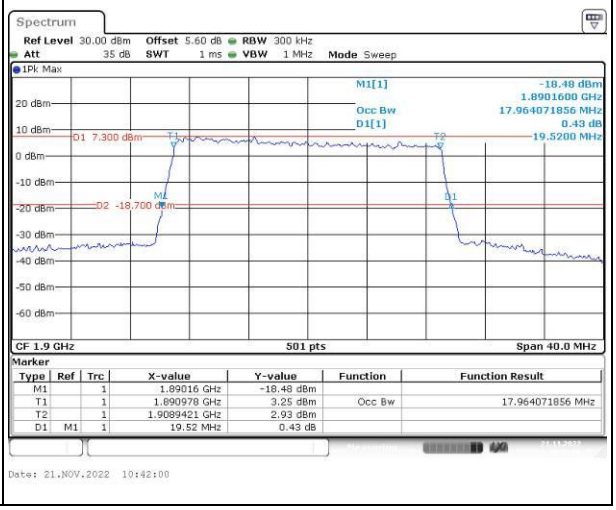
Occupied Bandwidth		
Channel	3MHz Bandwidth QPSK	3MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

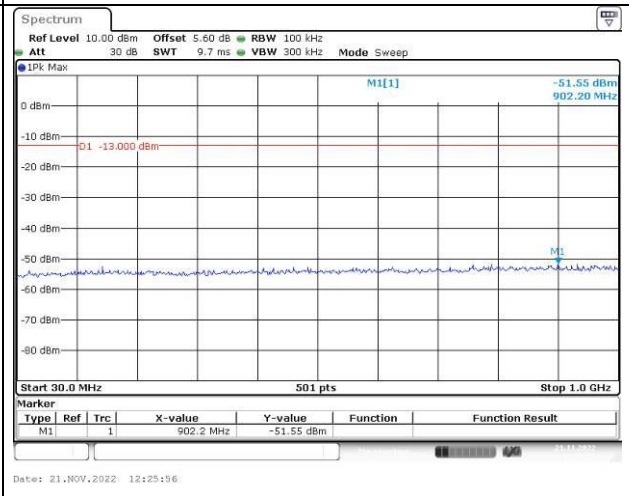
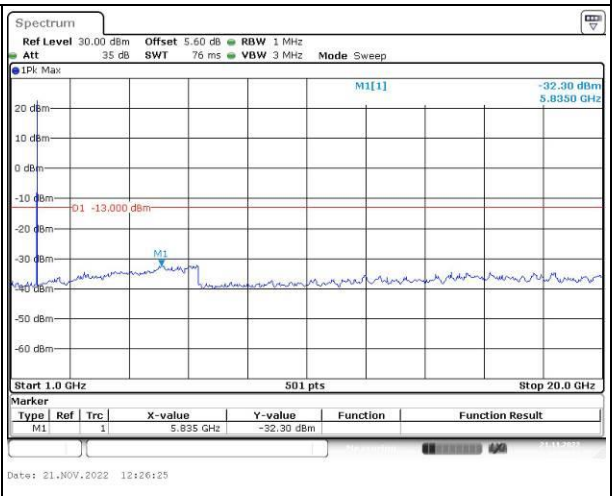
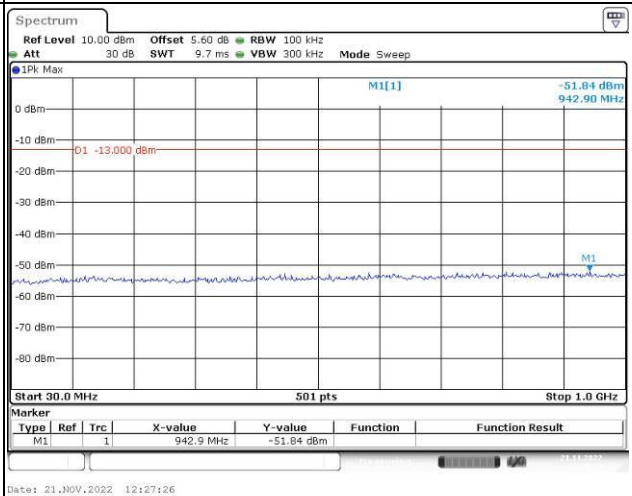
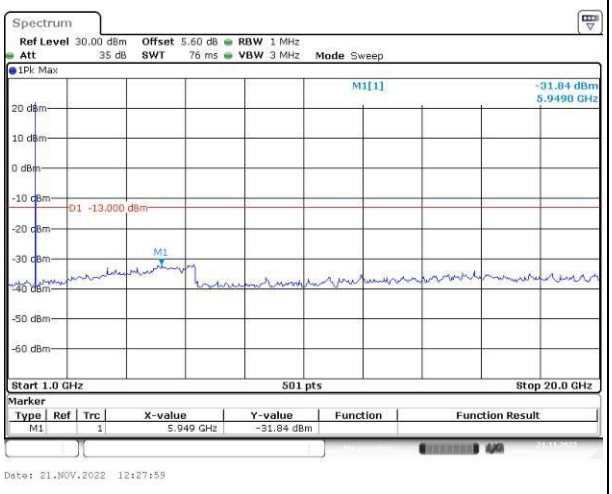
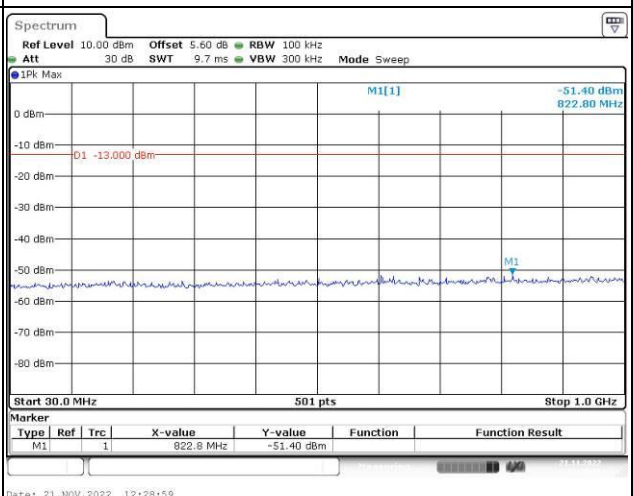
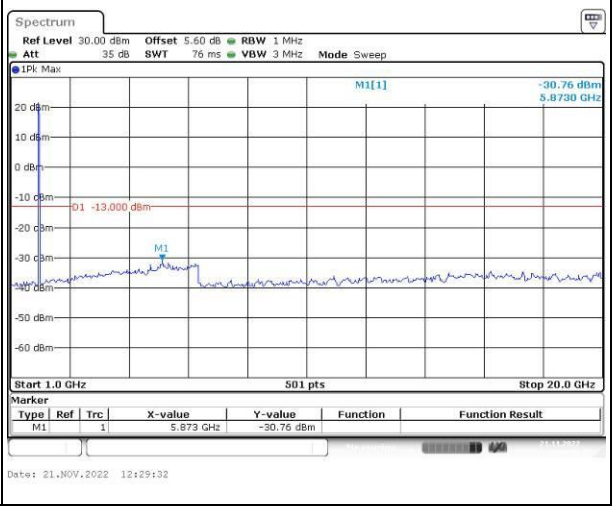
Occupied Bandwidth		
Channel	5MHz Bandwidth QPSK	5MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

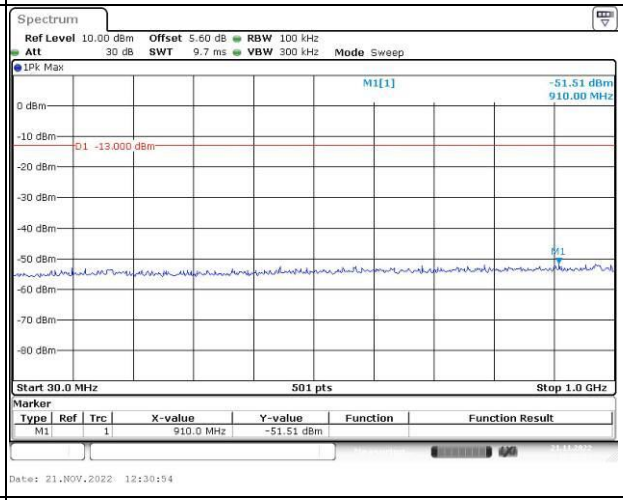
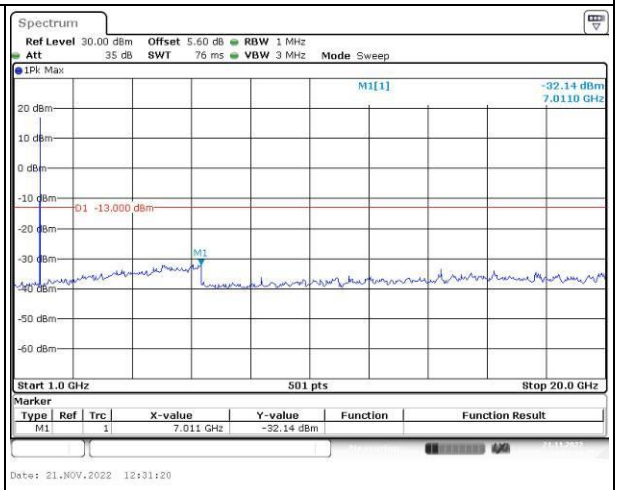
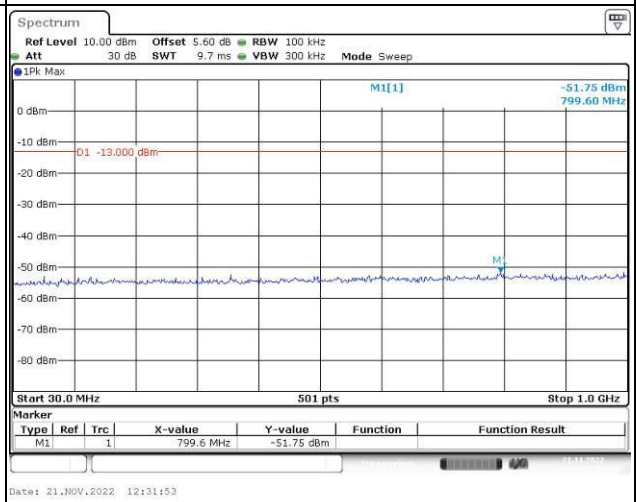
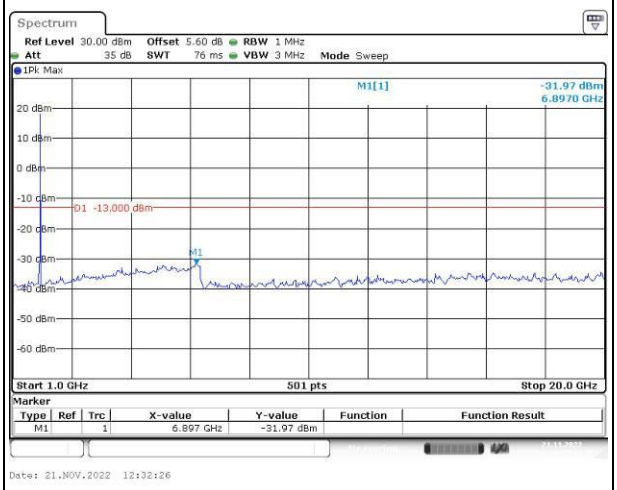
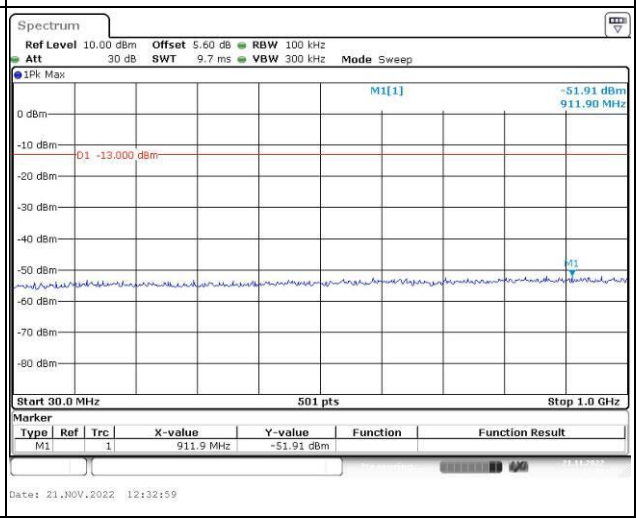
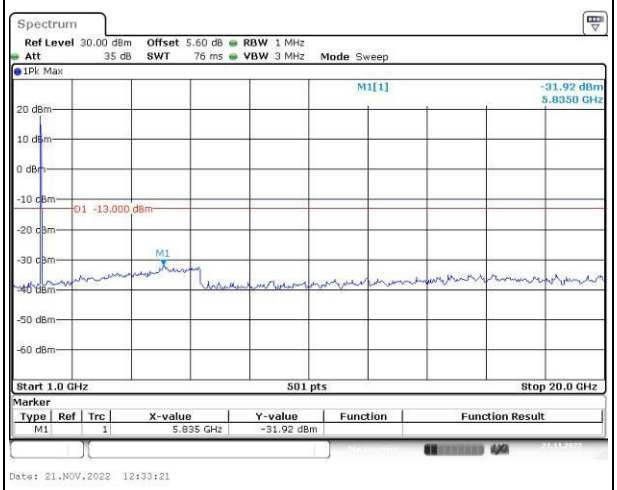
Occupied Bandwidth		
Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

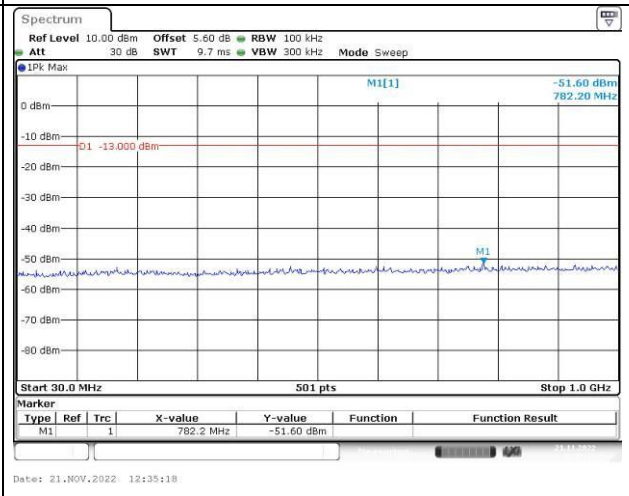
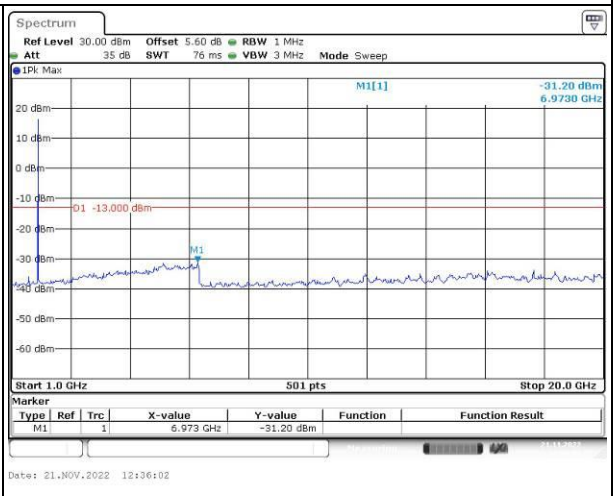
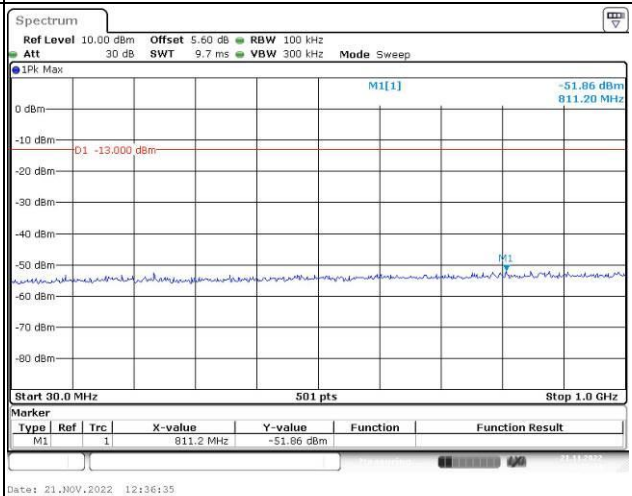
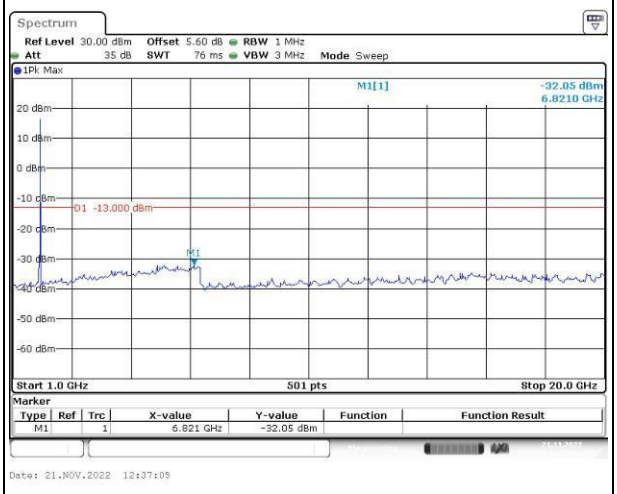
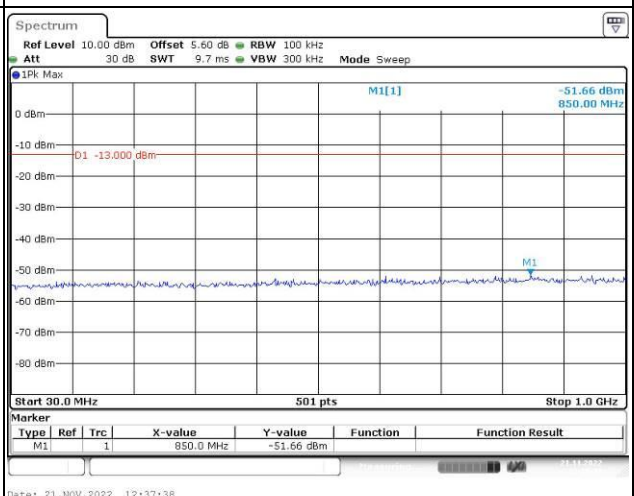
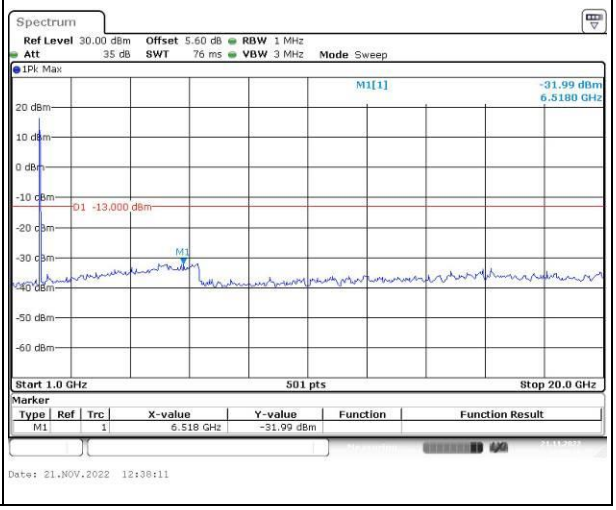
Occupied Bandwidth		
Channel	15MHz Bandwidth QPSK	15MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

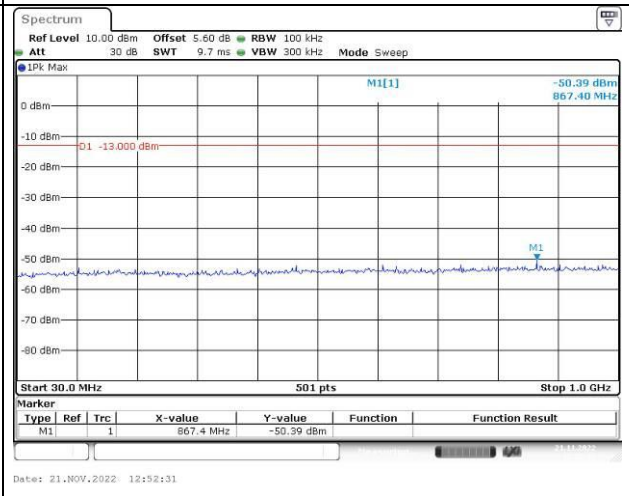
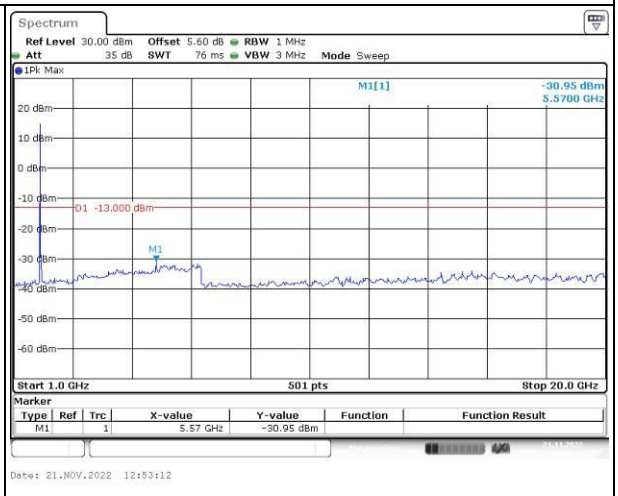
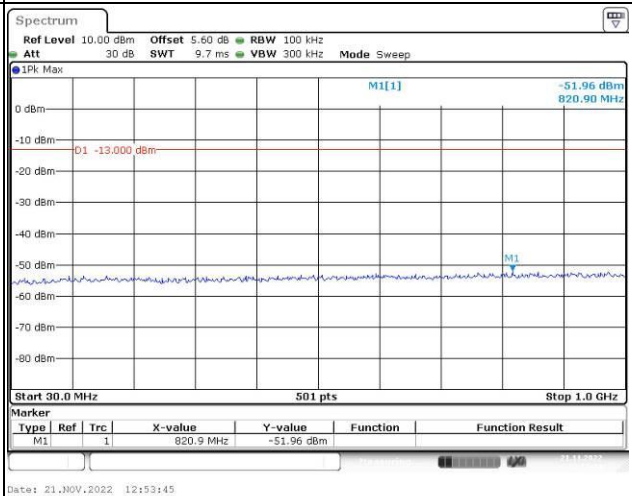
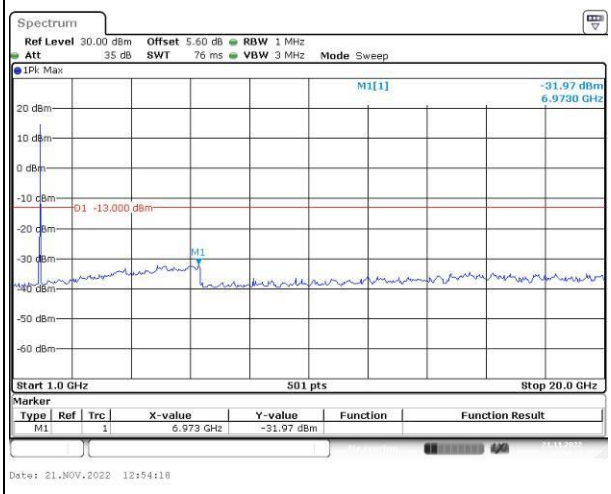
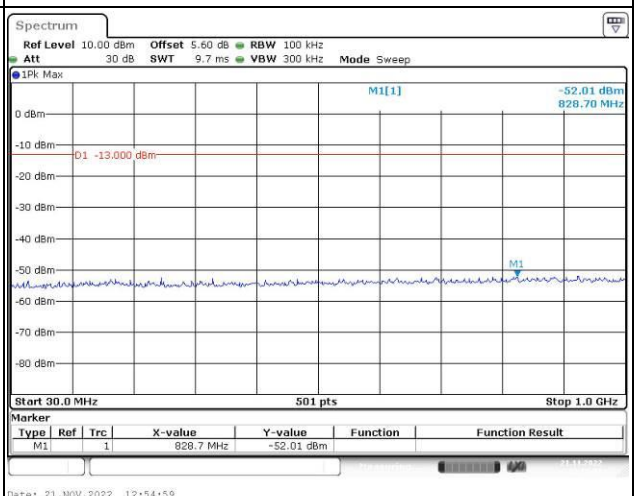
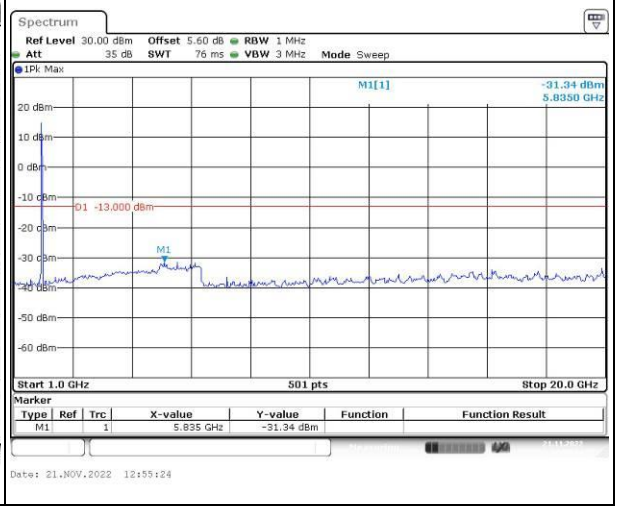
Occupied Bandwidth

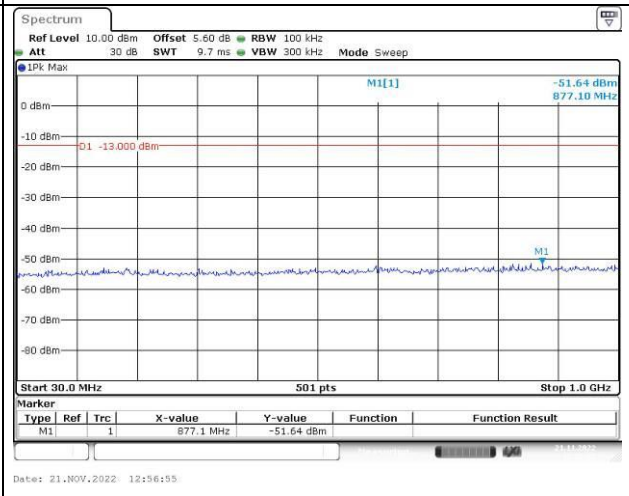
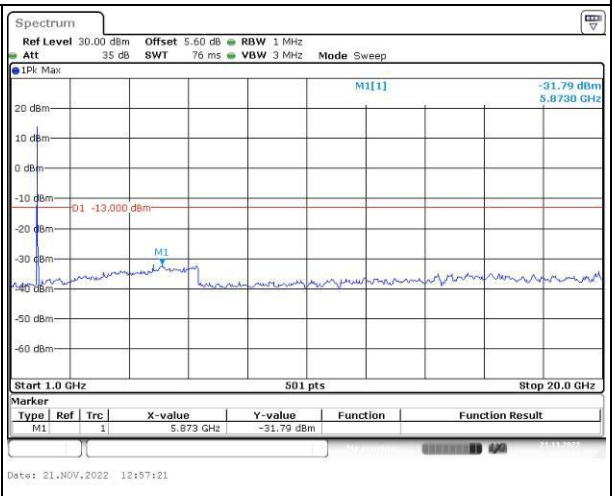
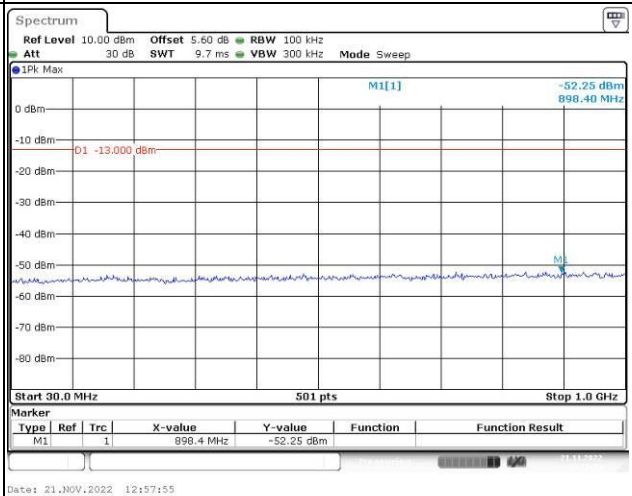
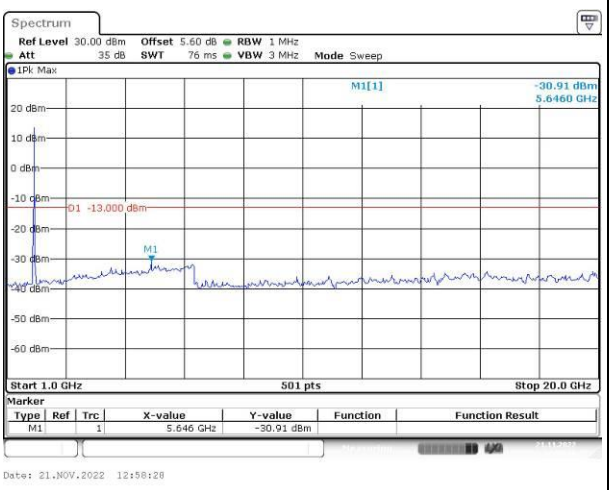
Channel	20MHz Bandwidth QPSK	20MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

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