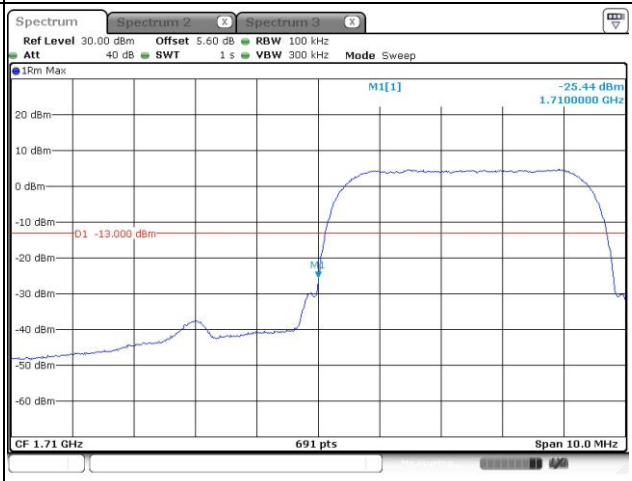
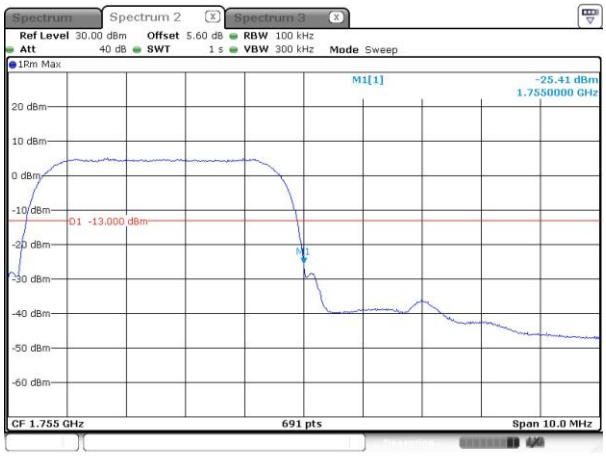
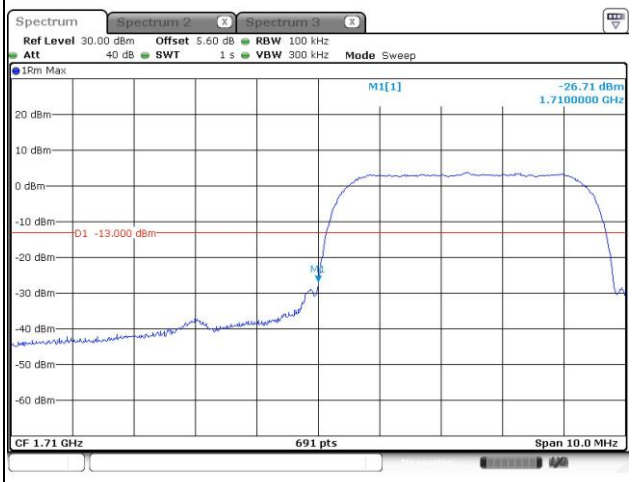
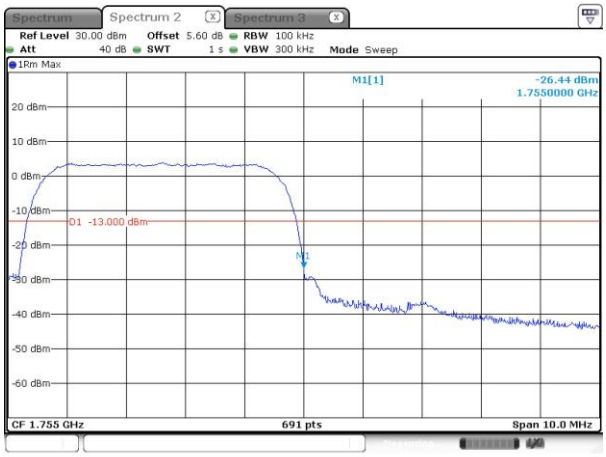
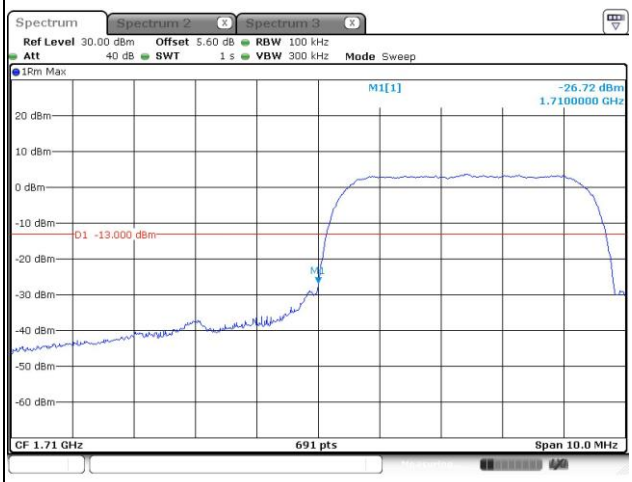
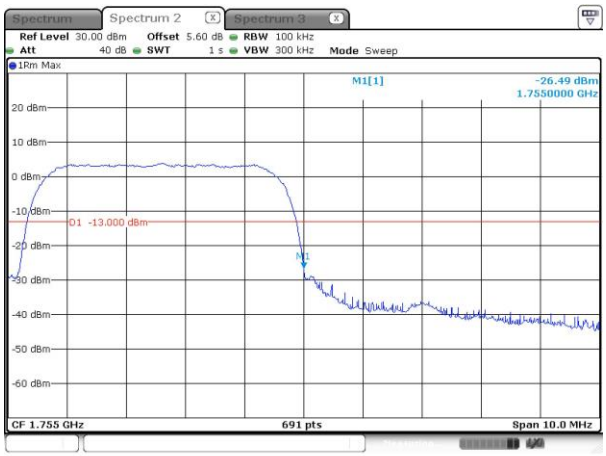
Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
R99		
HSUPA		
HSDPA		

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

Serial Number:	1ZWQ	Test Date:	2023/2/6~2023/2/11
Test Site:	RF	Test Mode:	Transmitting
Tester:	George Chen	Test Result:	**Pass**

Environmental Conditions:					
Temperature: (℃)	21.3~24.8	Relative Humidity: (%)	41~56	ATM Pressure: (kPa)	100.8~102.1

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2022-07-15	2023-07-14
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Power Splitter	1515	RA914	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2022-04-06	2023-04-05
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2022-09-29	2023-09-28
UNI-T	Multimeter	UT39A+	C210582554	2022-07-15	2023-07-14
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Frequency:

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	22.52	22.39	23.04	19.16	38.45
HSDPA Subtest 1	22.38	22.64	22.82	18.94	38.45
HSDPA Subtest 2	22.24	22.41	22.83	18.95	38.45
HSDPA Subtest 3	22.09	22.31	22.53	18.65	38.45
HSDPA Subtest 4	21.95	21.83	21.99	18.11	38.45
HSUPA Subtest 1	22.66	22.91	23.25	19.37	38.45
HSUPA Subtest 2	22.49	22.81	22.86	18.98	38.45
HSUPA Subtest 3	22.28	22.62	22.61	18.74	38.45
HSUPA Subtest 4	22.12	22.19	22.49	18.61	38.45
HSUPA Subtest 5	21.93	22.24	22.17	18.36	38.45
DC-HSDPA Subtest 1	22.23	22.15	22.23	18.35	38.45
DC-HSDPA Subtest 2	22.03	22.46	22.29	18.58	38.45
DC-HSDPA Subtest 3	21.87	21.96	22.15	18.27	38.45
DC-HSDPA Subtest 4	21.64	21.91	21.75	18.03	38.45
HSPA+ Subtest 1	21.61	21.49	21.87	17.99	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	3.01	3.07	3.01	13
HSDPA	4.55	4.58	4.55	13
HSUPA	5.3	5.45	5.74	13
			Result:	**Pass**

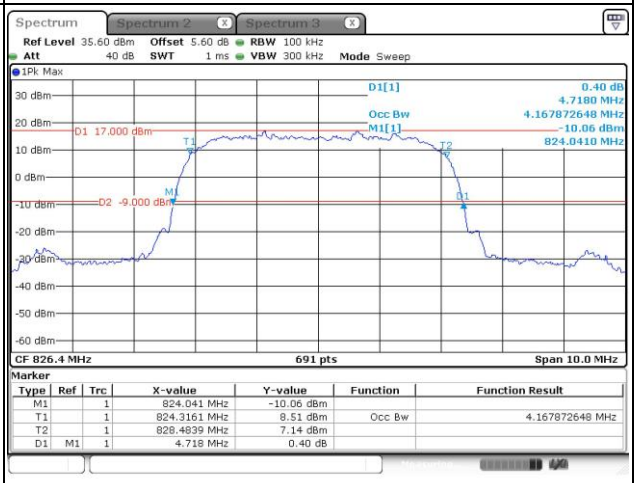
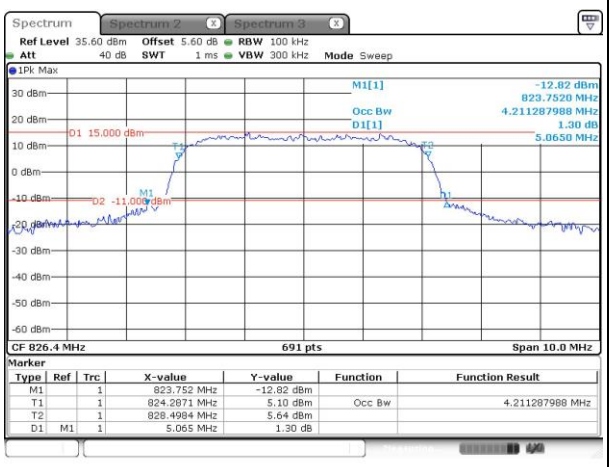
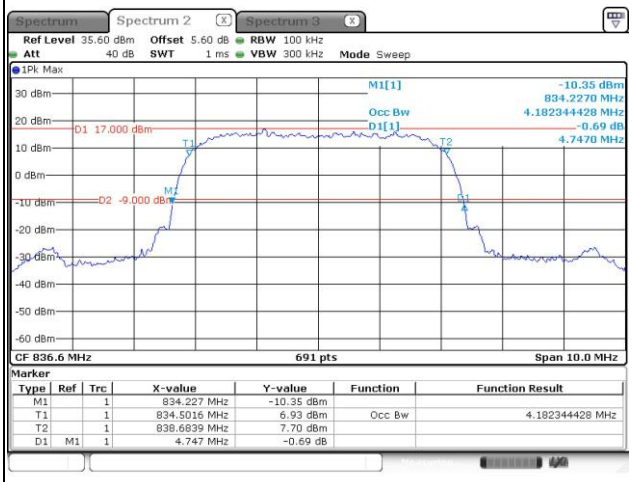
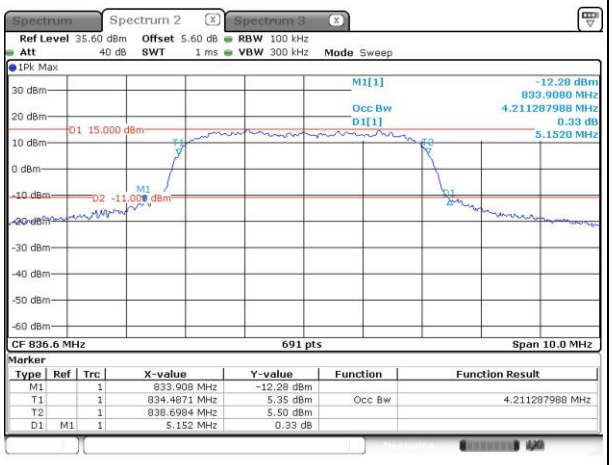
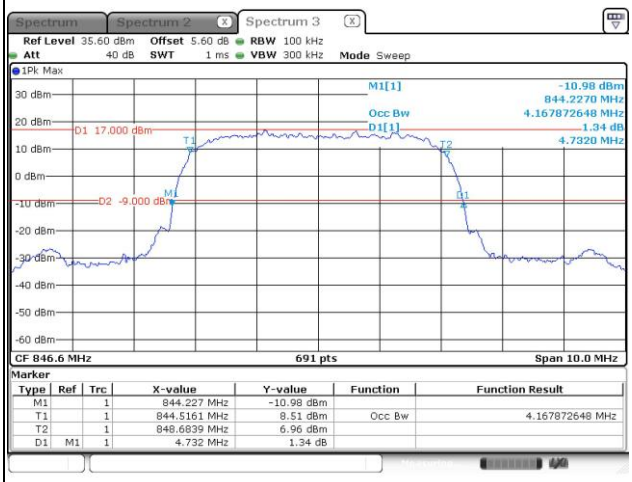
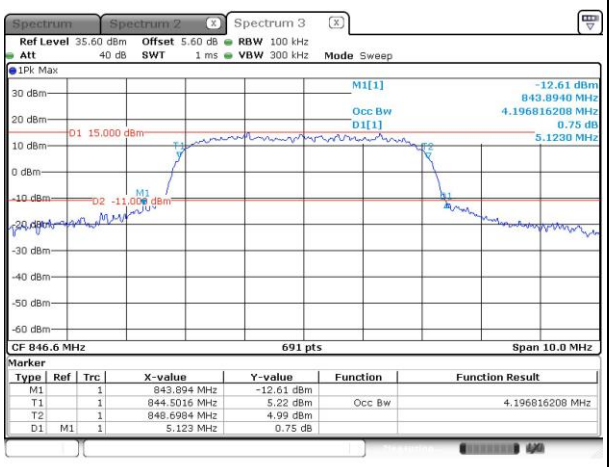
FCC §2.1049, §22.917, §22.905:Occupied Bandwidth						
Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
WCDMA R99	4.168	4.182	4.168	4.718	4.747	4.732
HSDPA	4.211	4.211	4.197	5.065	5.152	5.123
HSUPA	4.211	4.197	4.197	5.051	5.239	5.109
Note: The test plots please refer to the Plots of Occupied Bandwidth						

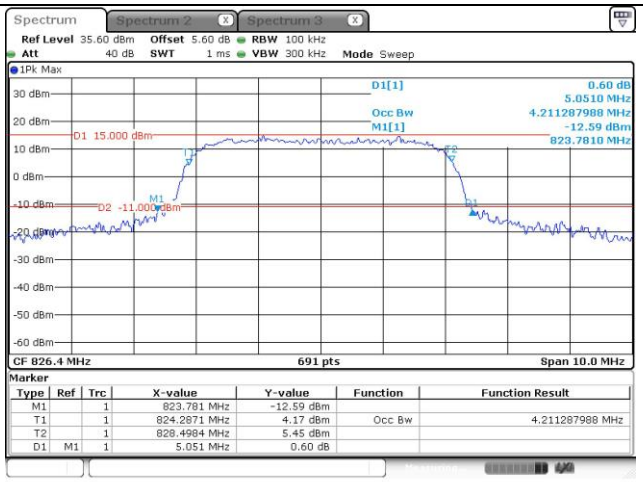
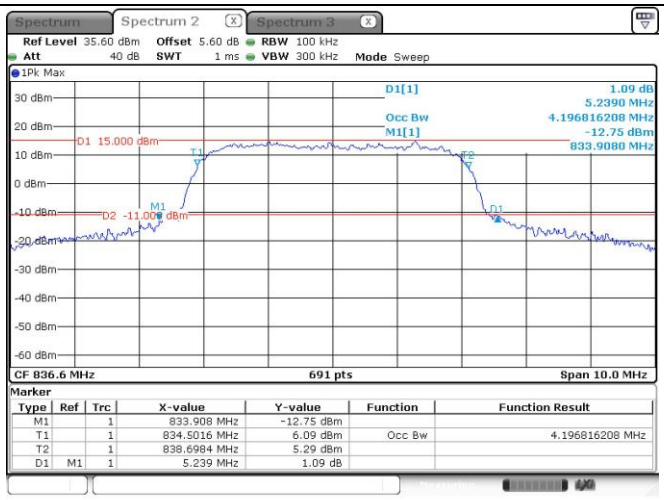
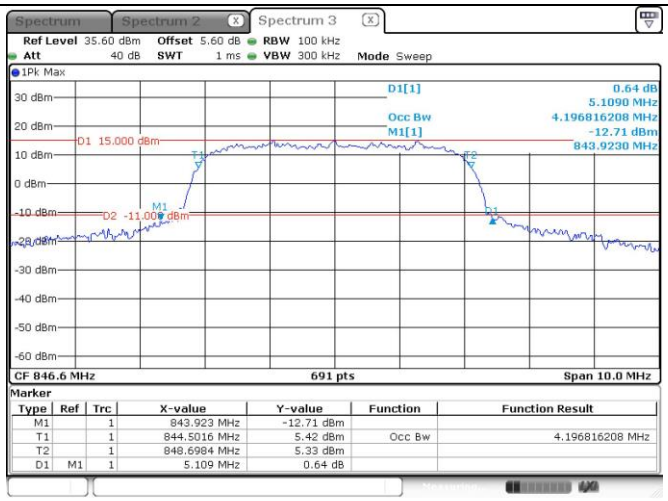
FCC §2.1051, §22.917(a):Spurious Emissions at Antenna Terminal	
Result:	**Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**

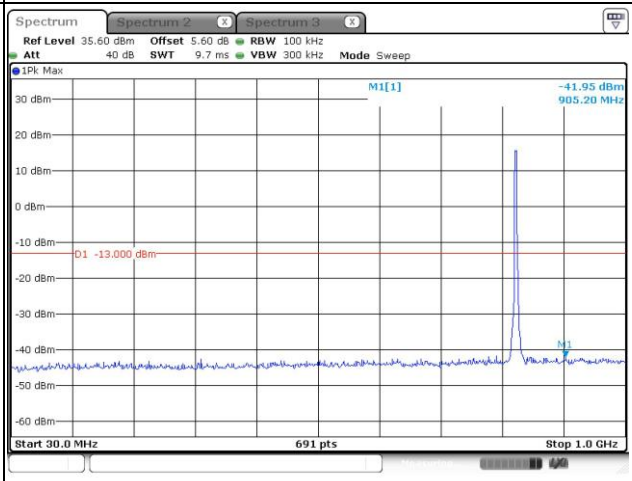
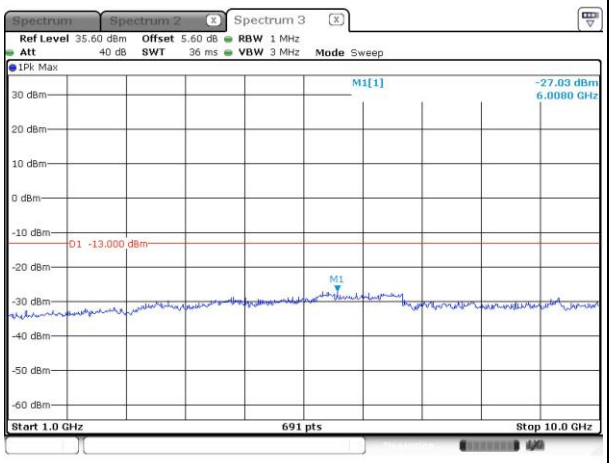
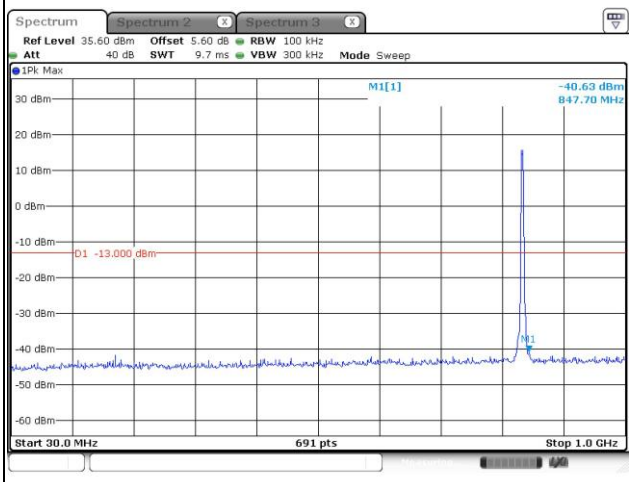
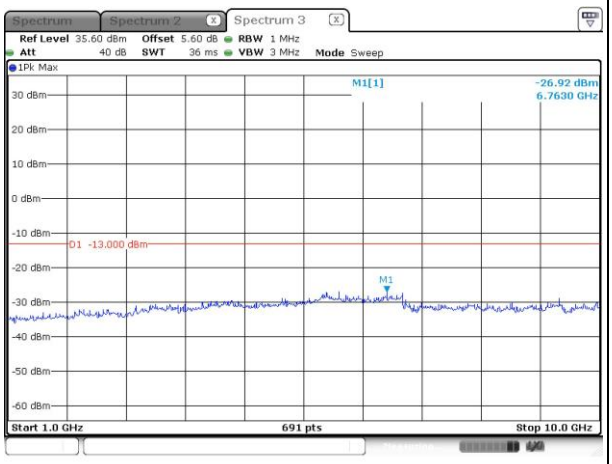
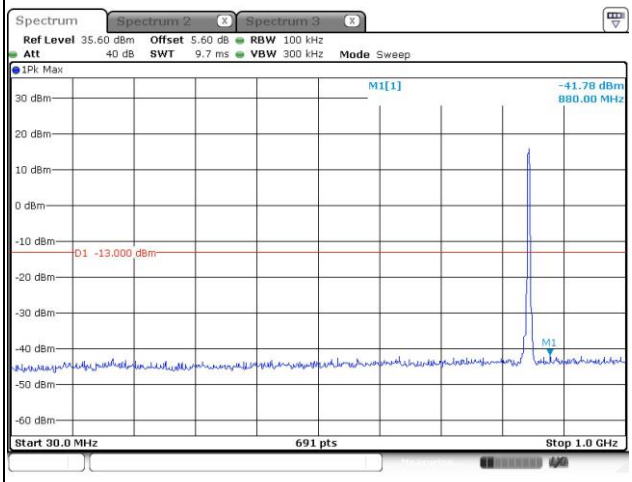
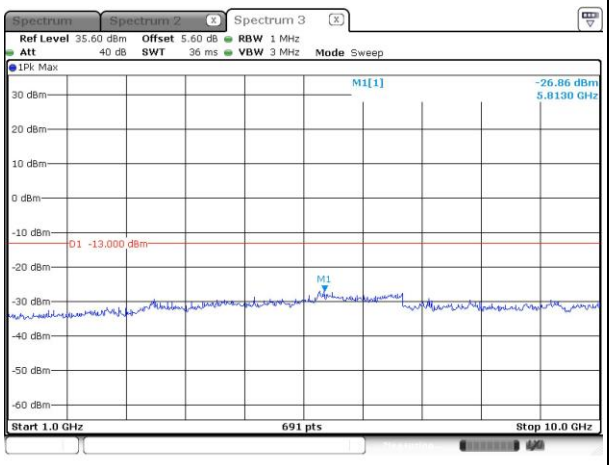
FCC §2.1051, §22.917(a):Out of band emission, Band Edge	
Result:	**Pass, Please refer to the test plots of Out of band emission, Band Edge.**

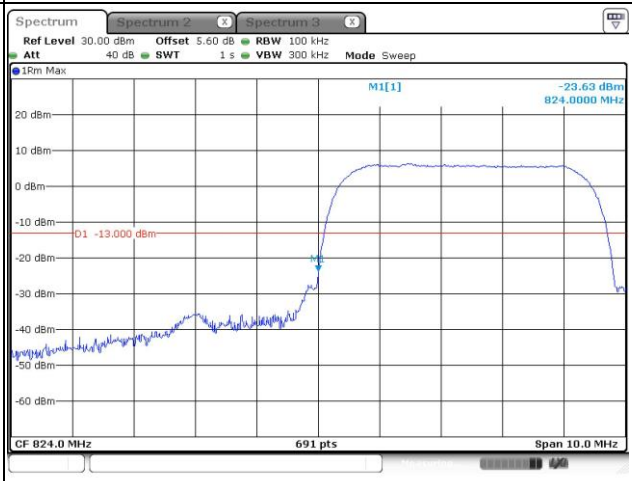
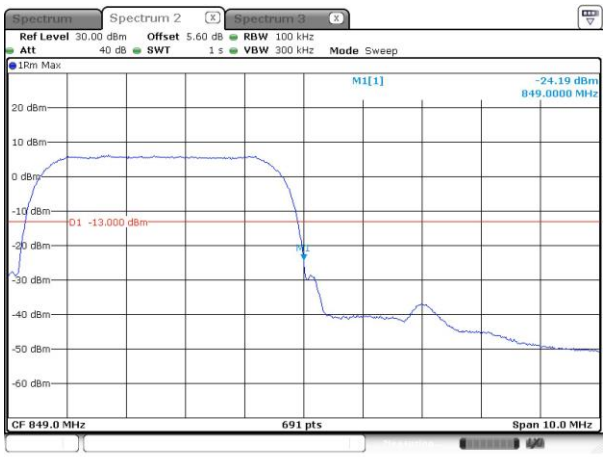
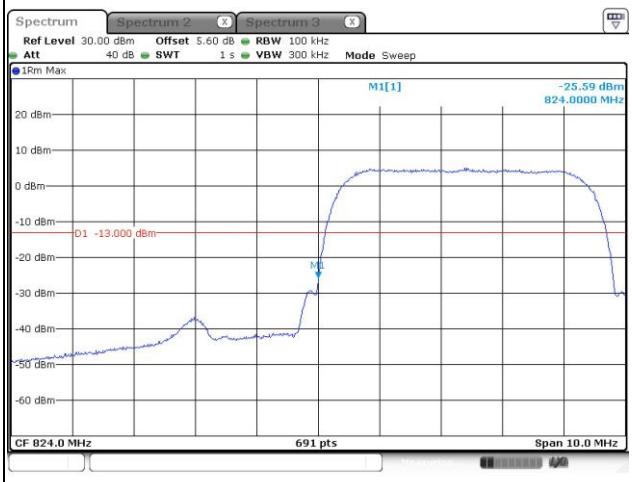
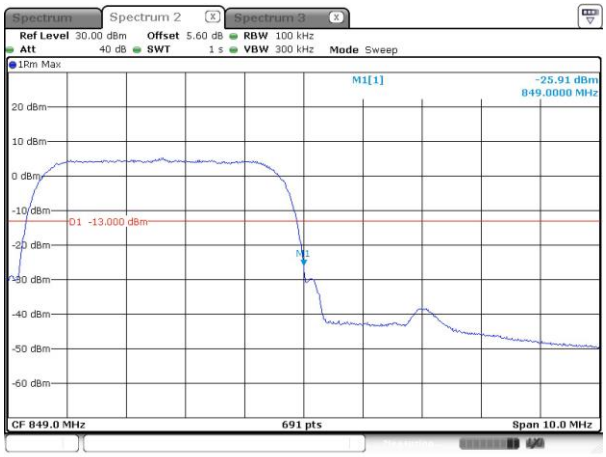
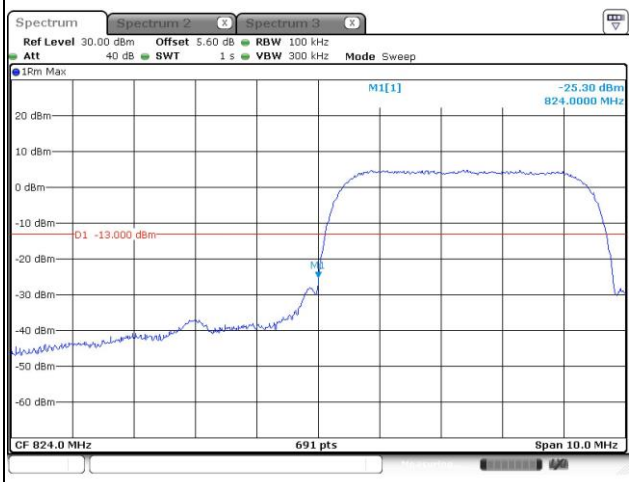
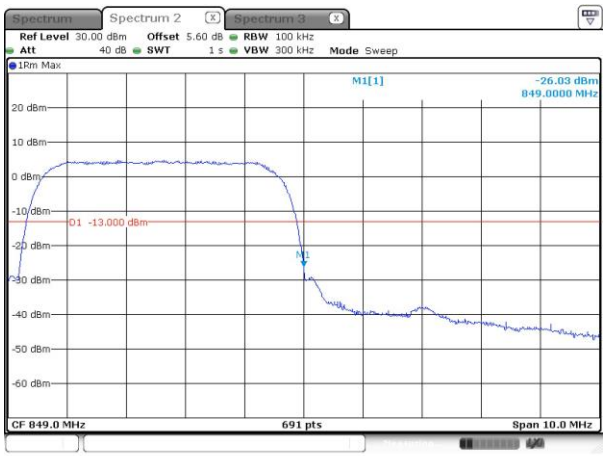
FCC §2.1055, §22.355: Frequency Stability					
Test Modulation:	WCDMA R99		Test Channel:	836.6	MHz
Test Item	Temperature (℃)	Voltage (V_{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.8	-6.3	-0.0075	2.5
	-20	3.8	6.14	0.0073	2.5
	-10	3.8	9.32	0.0111	2.5
	0	3.8	-5.12	-0.0061	2.5
	10	3.8	-5.95	-0.0071	2.5
	20	3.8	-7.82	-0.0093	2.5
	30	3.8	-8.44	-0.0101	2.5
	40	3.8	-2.96	-0.0035	2.5
	50	3.8	-4.55	-0.0054	2.5
Frequency Stability vs. Voltage	20	3.45	-5.69	-0.0068	2.5
	20	4.4	-8.72	-0.0104	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		

4.6 Antenna Port Test Data and Results for LTE Band 2

Serial Number:	1ZWQ	Test Date:	2023/2/6~2023/2/11
Test Site:	RF	Test Mode:	Transmitting
Tester:	George Chen	Test Result:	**Pass**

Environmental Conditions:					
Temperature: (℃)	21.3~24.8	Relative Humidity: (%)	41~56	ATM Pressure: (kPa)	100.8~102.1

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2022-07-15	2023-07-14
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Power Splitter	1515	RA914	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2022-04-06	2023-04-05
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2022-09-29	2023-09-28
UNI-T	Multimeter	UT39A+	C210582554	2022-07-15	2023-07-14
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	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	22.38	22.43	22.47	19.97	33
	RB1#3	22.55	22.51	22.63		
	RB1#5	22.36	22.43	22.47		
	RB3#0	22.47	22.51	22.52		
	RB3#3	22.46	22.51	22.54		
	RB6#0	21.46	21.51	21.54		
1.4MHz 16QAM	RB1#0	21.38	21.53	21.43	19.02	33
	RB1#3	21.49	21.68	21.62		
	RB1#5	21.33	21.54	21.47		
	RB3#0	21.62	21.46	21.63		
	RB3#3	21.61	21.49	21.6		
	RB6#0	20.48	20.54	20.44		
3MHz QPSK	RB1#0	22.51	22.52	22.56	19.94	33
	RB1#8	22.48	22.54	22.6		
	RB1#14	22.45	22.51	22.57		
	RB6#0	21.43	21.51	21.53		
	RB6#9	21.46	21.48	21.47		
	RB15#0	21.5	21.52	21.54		
3MHz 16QAM	RB1#0	21.95	21.65	21.53	19.31	33
	RB1#8	21.97	21.62	21.54		
	RB1#14	21.95	21.62	21.51		
	RB6#0	20.59	20.53	20.49		
	RB6#9	20.57	20.56	20.48		
	RB15#0	20.59	20.49	20.62		
5MHz QPSK	RB1#0	22.37	22.44	22.42	19.95	33
	RB1#13	22.54	22.58	22.61		
	RB1#24	22.39	22.43	22.44		
	RB15#0	21.42	21.52	21.62		
	RB15#10	21.58	21.53	21.61		
	RB25#0	21.48	21.53	21.57		
5MHz 16QAM	RB1#0	21.28	21.67	21.48	19.12	33
	RB1#13	21.38	21.78	21.64		
	RB1#24	21.28	21.68	21.45		
	RB15#0	20.51	20.5	20.69		
	RB15#10	20.65	20.54	20.65		
	RB25#0	20.58	20.53	20.63		
10MHz QPSK	RB1#0	22.47	22.47	22.48	20.03	33
	RB1#25	22.67	22.69	22.67		
	RB1#49	22.52	22.5	22.54		

	RB25#0	21.36	21.46	21.6		
	RB25#25	21.6	21.48	21.62		
	RB50#0	21.48	21.48	21.59		
10MHz 16QAM	RB1#0	21.41	21.99	21.58	19.53	33
	RB1#25	21.61	22.19	21.83		
	RB1#49	21.47	21.97	21.65		
	RB25#0	20.46	20.52	20.61		
	RB25#25	20.7	20.53	20.65		
	RB50#0	20.55	20.49	20.64		
15MHz QPSK	RB1#0	22.35	22.37	22.4	19.9	33
	RB1#38	22.47	22.53	22.56		
	RB1#74	22.43	22.44	22.51		
	RB36#0	21.46	21.53	21.55		
	RB36#39	21.6	21.53	21.59		
	RB75#0	21.58	21.55	21.59		
15MHz 16QAM	RB1#0	21.87	21.47	21.75	19.4	33
	RB1#38	22.06	21.65	21.96		
	RB1#74	21.96	21.52	21.81		
	RB36#0	20.49	20.53	20.56		
	RB36#39	20.63	20.61	20.63		
	RB75#0	20.55	20.56	20.58		
20MHz QPSK	RB1#0	22.24	22.21	22.23	20.09	33
	RB1#50	22.73	22.62	22.75		
	RB1#99	22.31	22.21	22.35		
	RB50#0	21.39	21.45	21.52		
	RB50#50	21.53	21.54	21.56		
	RB100#0	21.49	21.47	21.55		
20MHz 16QAM	RB1#0	21.39	21.7	21.45	19.51	33
	RB1#50	21.87	22.17	21.98		
	RB1#99	21.47	21.72	21.49		
	RB50#0	20.4	20.44	20.54		
	RB50#50	20.58	20.55	20.55		
	RB100#0	20.53	20.49	20.58		
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	4.81	5.33	5.13	13
	RB100#0	4.2	4.09	4.17	13
20MHz 16QAM	RB1#0	5.39	6.06	6.17	13
	RB100#0	5.83	5.71	5.77	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	1.096	1.108	1.302	1.308	1.296
1.4MHz 16QAM	1.102	1.096	1.102	1.326	1.296	1.296
3MHz QPSK	2.695	2.683	2.683	2.88	2.892	2.88
3MHz 16QAM	2.683	2.683	2.683	2.88	2.88	2.892
5MHz QPSK	4.531	4.531	4.531	5.18	5.18	5.18
5MHz 16QAM	4.531	4.551	4.511	5.2	5.24	5.16
10MHz QPSK	8.982	8.942	8.982	9.84	10	10
10MHz 16QAM	8.942	8.942	8.942	9.88	9.92	9.92
15MHz QPSK	13.473	13.413	13.593	15.12	14.46	16.56
15MHz 16QAM	13.533	13.533	13.533	15.12	15.18	15.36
20MHz QPSK	17.884	17.964	17.964	19.68	19.92	19.68
20MHz 16QAM	17.964	17.964	17.964	19.84	19.76	19.6
Note: The test plots please refer to the Plots of Occupied Bandwidth						

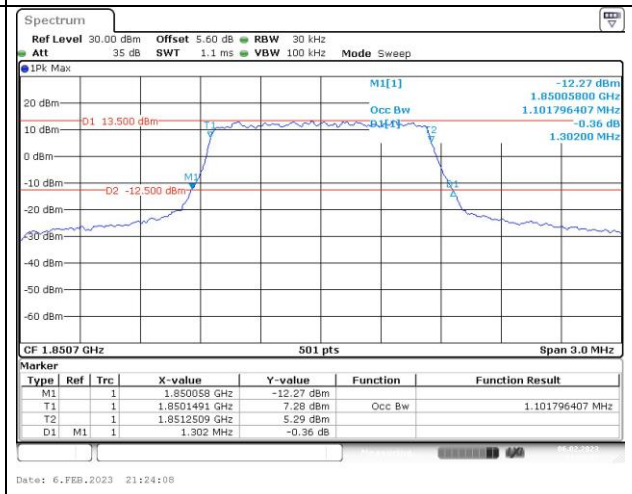
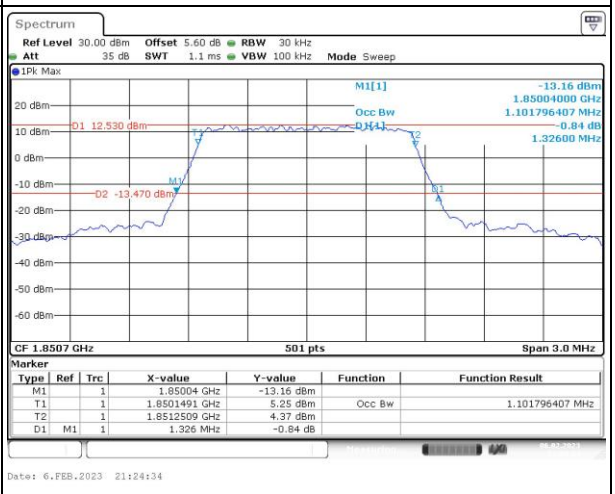
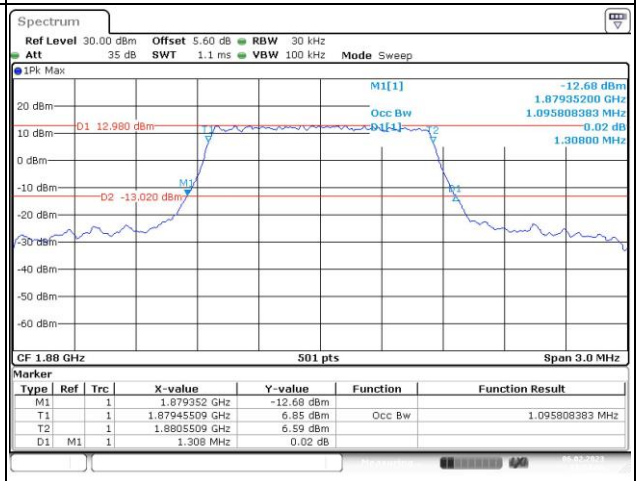
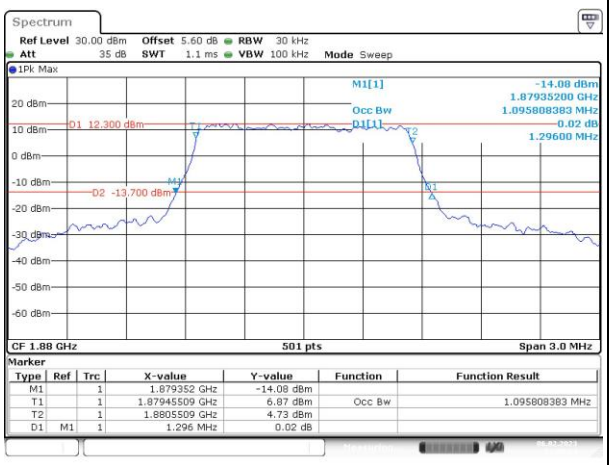
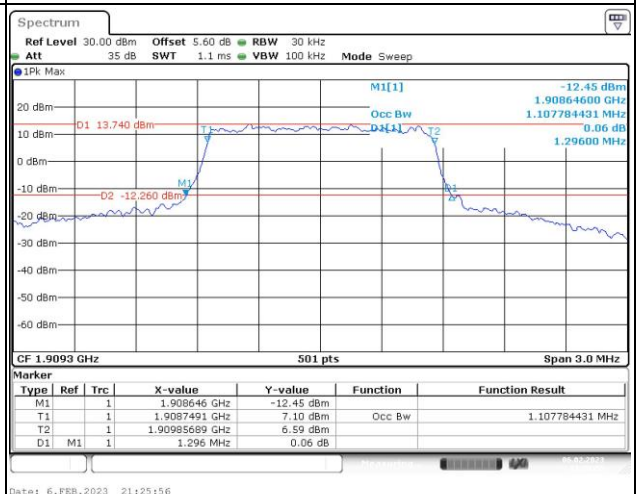
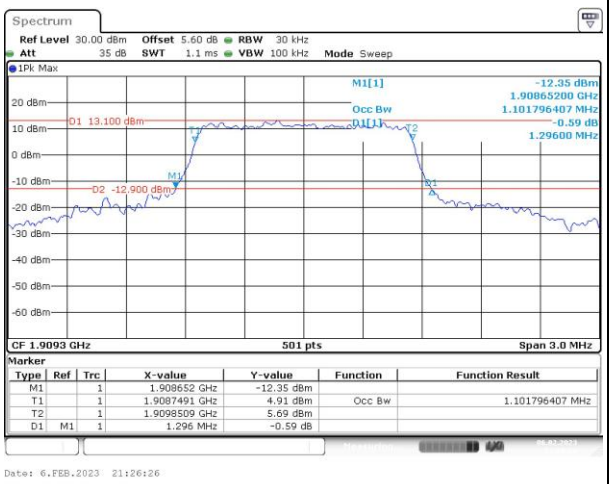
FCC §2.1051, §24.238 (a):Spurious Emissions at Antenna Terminal	
Result:	**Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**

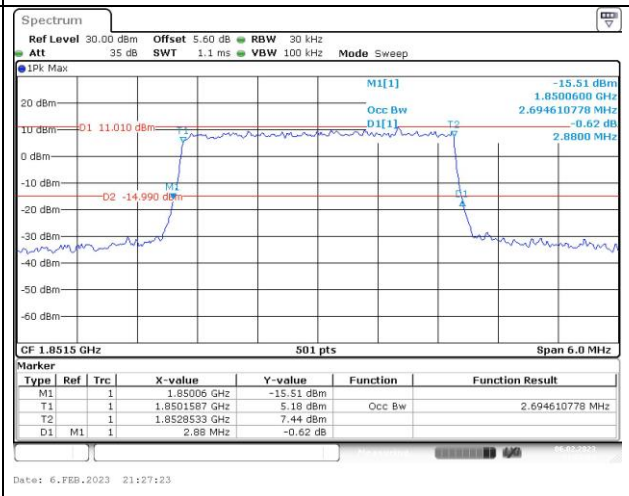
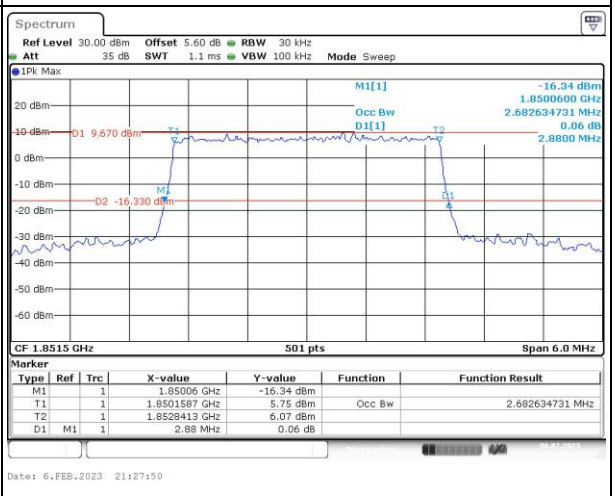
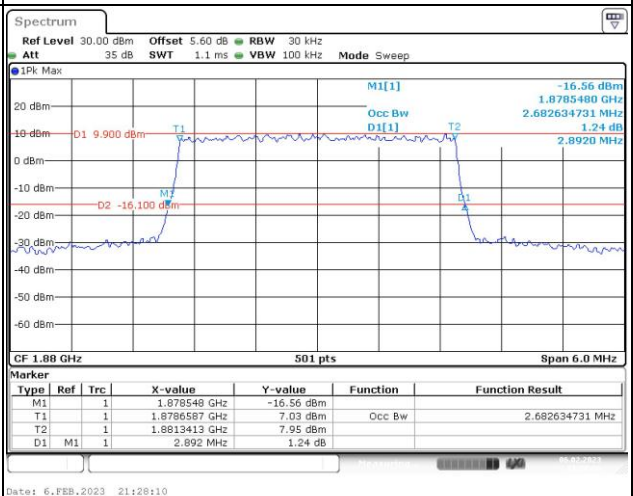
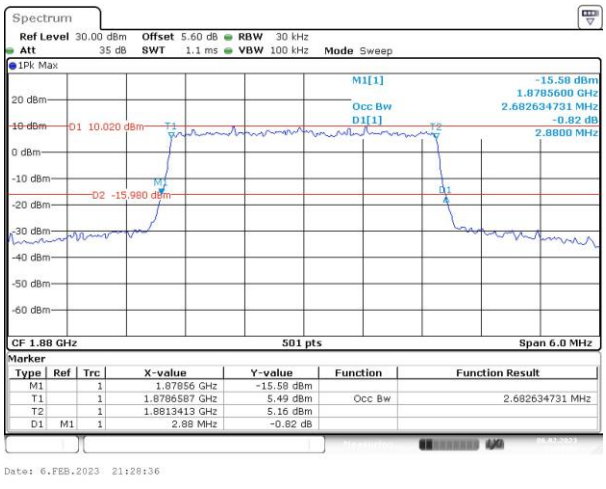
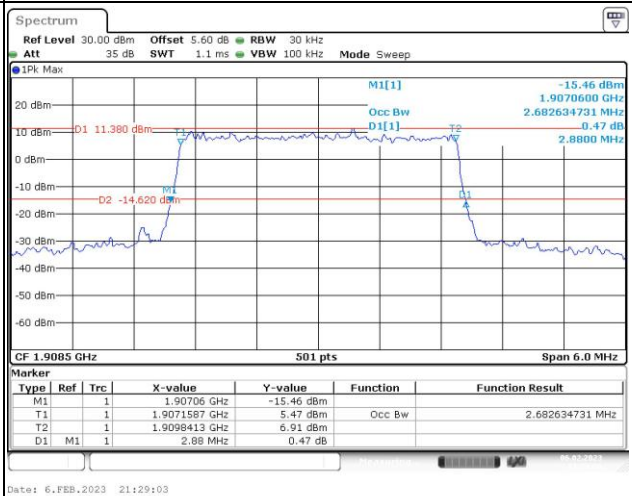
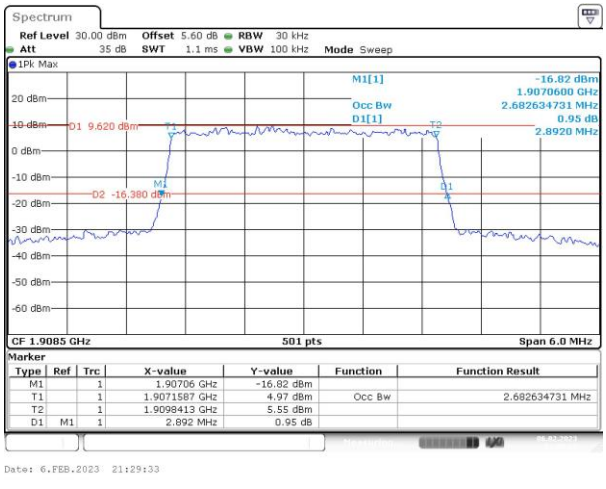
FCC §2.1051, §24.238 (a):Out of band emission, Band Edge	
Result:	**Pass, Please refer to the test plots of Out of band emission, Band Edge.**

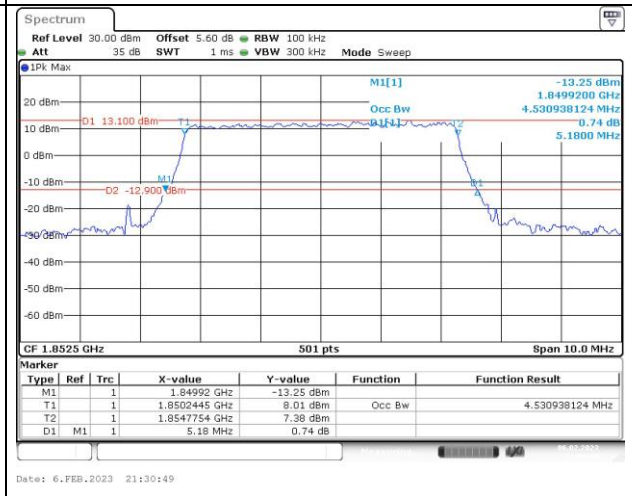
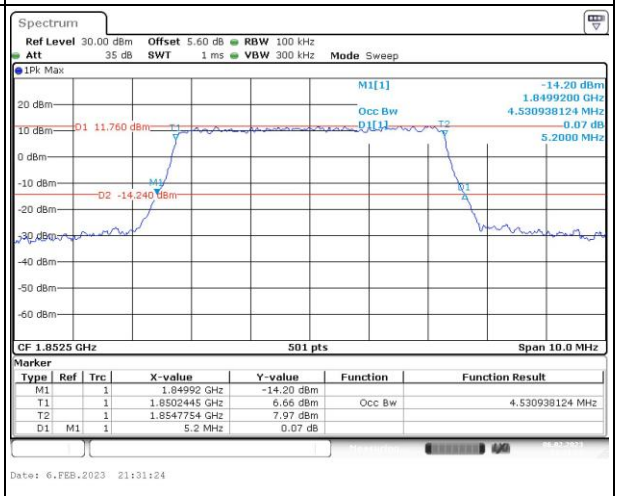
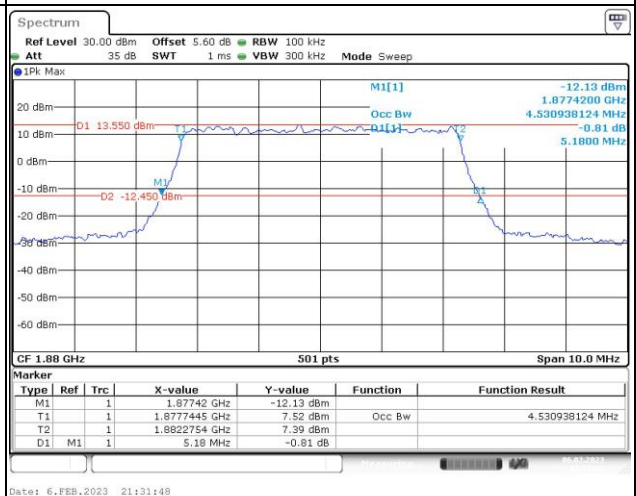
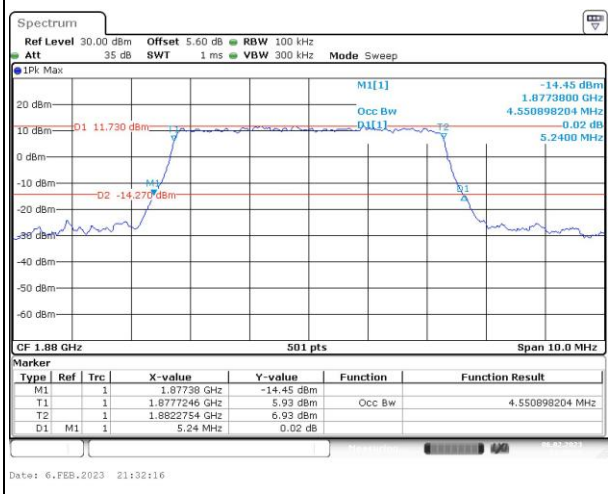
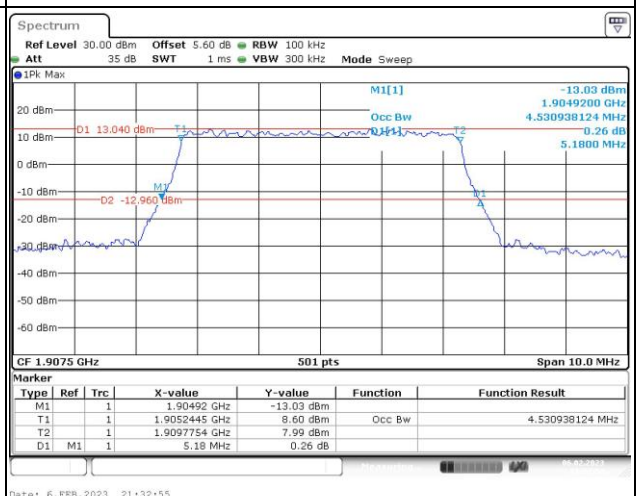
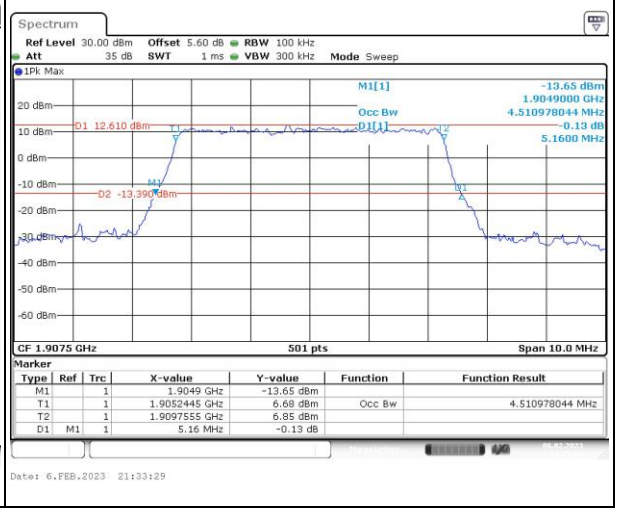
FCC §2.1055, §24.235: Frequency Stability						
Test Mode:	20 MHz QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	1850.164	1850.000	1909.801	1910.000
	-20	3.8	1850.094	1850.000	1909.893	1910.000
	-10	3.8	1850.153	1850.000	1909.855	1910.000
	0	3.8	1850.131	1850.000	1909.877	1910.000
	10	3.8	1850.107	1850.000	1909.857	1910.000
	20	3.8	1850.138	1850.000	1909.822	1910.000
	30	3.8	1850.168	1850.000	1909.813	1910.000
	40	3.8	1850.076	1850.000	1909.843	1910.000
	50	3.8	1850.089	1850.000	1909.875	1910.000
Frequency Stability vs. Voltage	20	3.45	1850.125	1850.000	1909.832	1910.000
	20	4.4	1850.114	1850.000	1909.819	1910.000
					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	3.8	1850.025	1850.000	1909.857	1910.000
	-20	3.8	1850.026	1850.000	1909.895	1910.000
	-10	3.8	1850.007	1850.000	1909.876	1910.000
	0	3.8	1850.087	1850.000	1909.894	1910.000
	10	3.8	1850.096	1850.000	1909.821	1910.000
	20	3.8	1850.058	1850.000	1909.822	1910.000
	30	3.8	1850.054	1850.000	1909.899	1910.000
	40	3.8	1850.069	1850.000	1909.864	1910.000
	50	3.8	1850.057	1850.000	1909.823	1910.000
Frequency Stability vs. Voltage	20	3.45	1850.021	1850.000	1909.855	1910.000
	20	4.4	1850.063	1850.000	1909.845	1910.000
					Result:	**Pass**

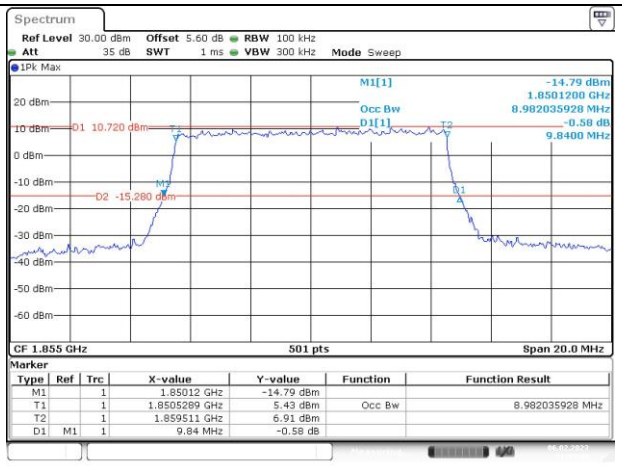
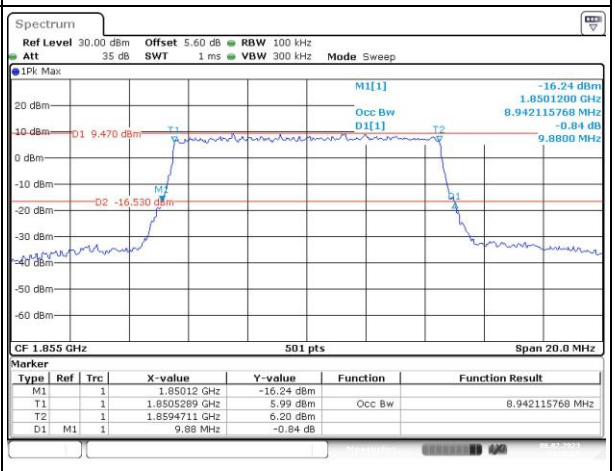
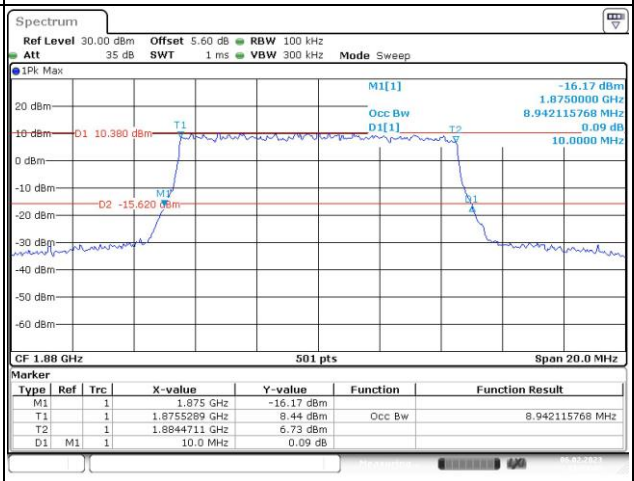
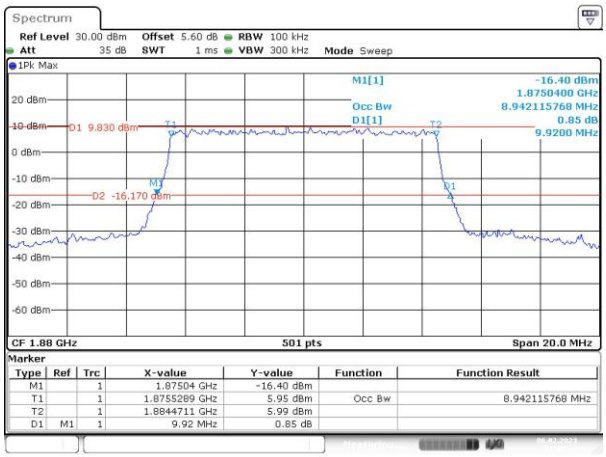
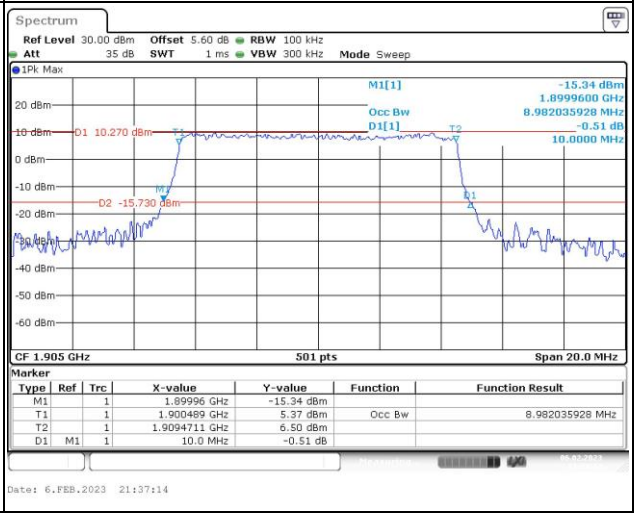
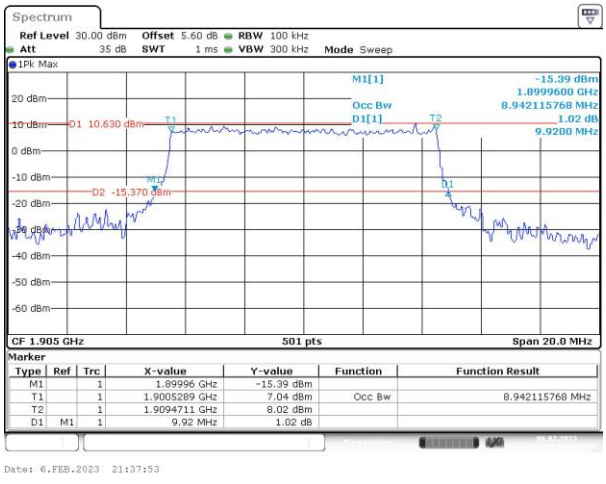
Test Plots(Note: The 5.6dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer)**:**

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

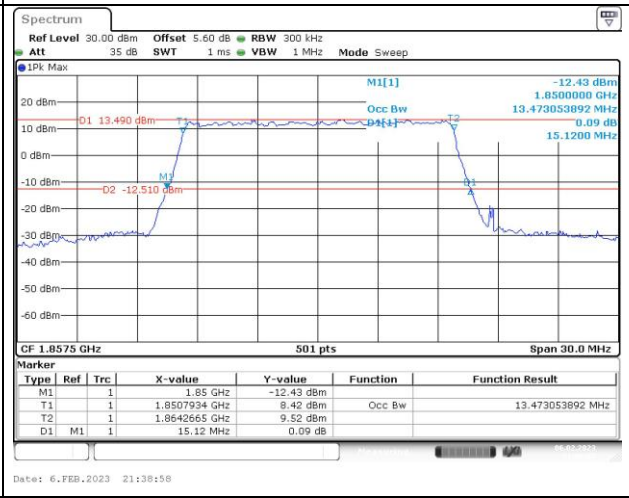
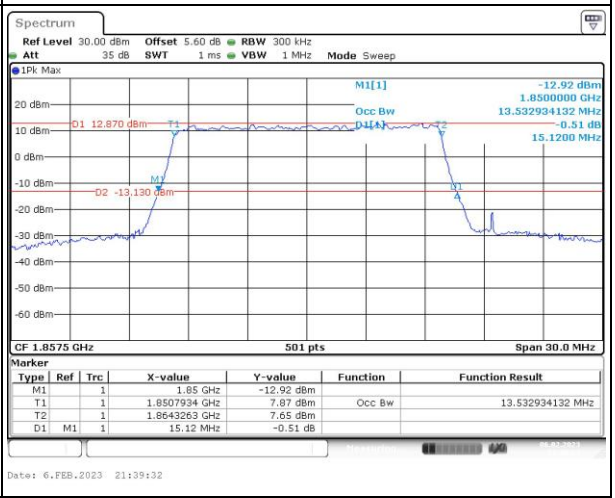
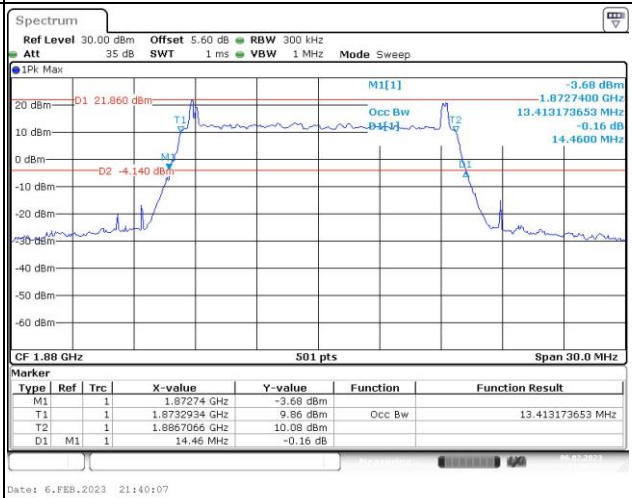
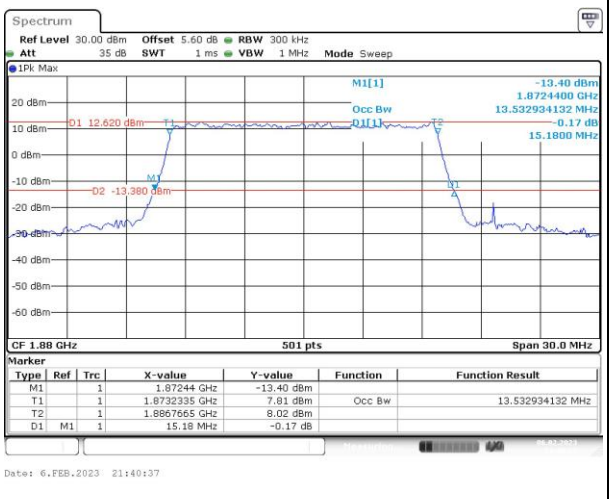
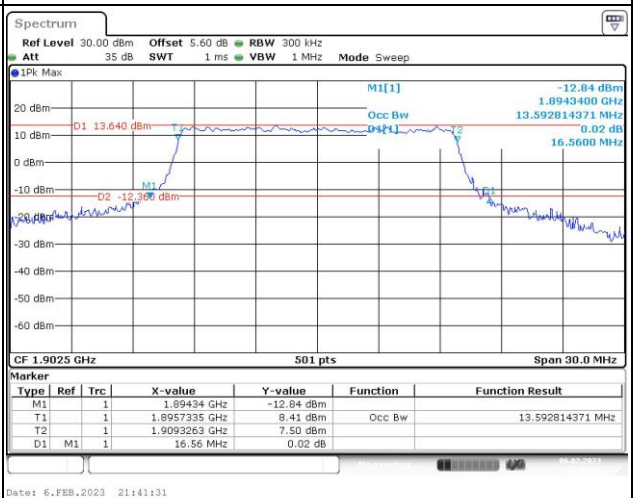
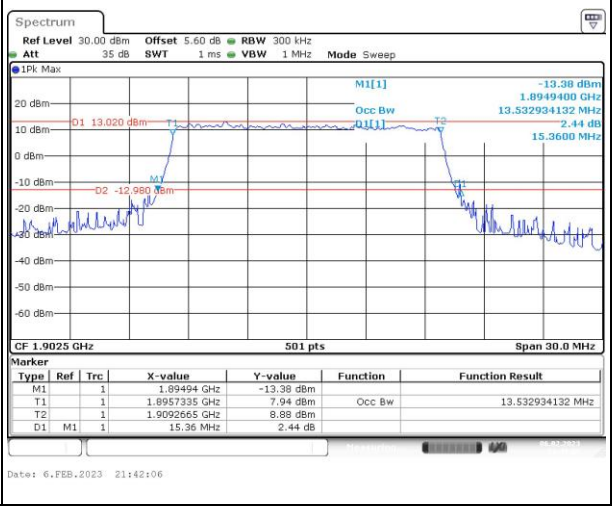
Occupied Bandwidth		
Channel	3MHz Bandwidth QPSK	3MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

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

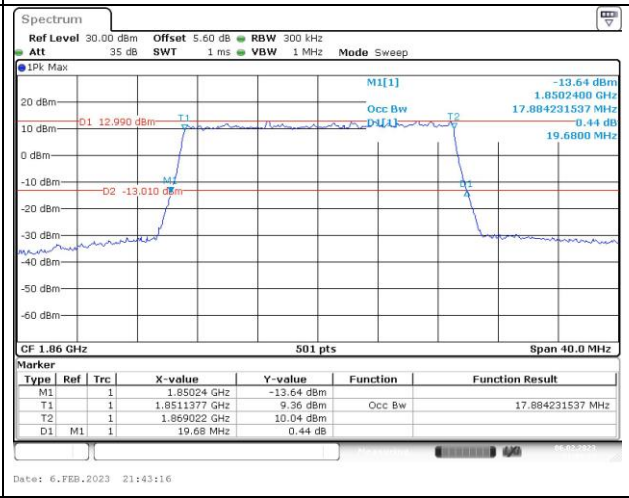
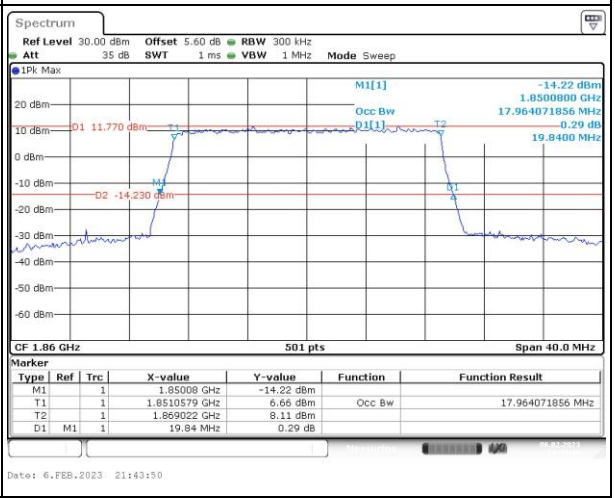
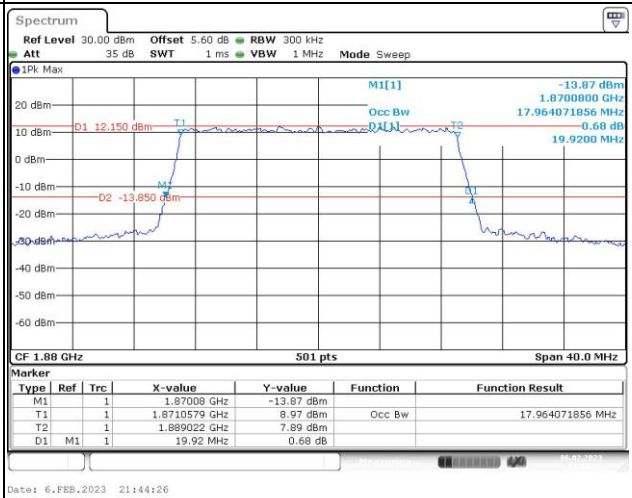
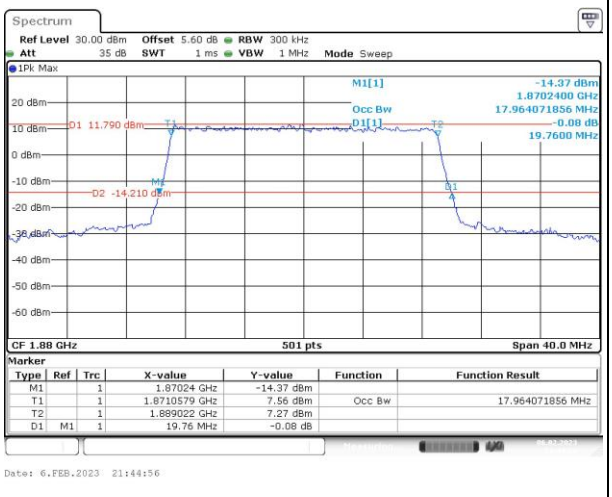
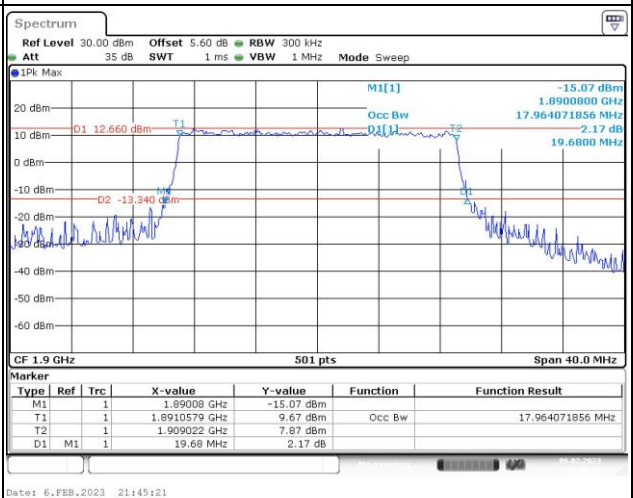
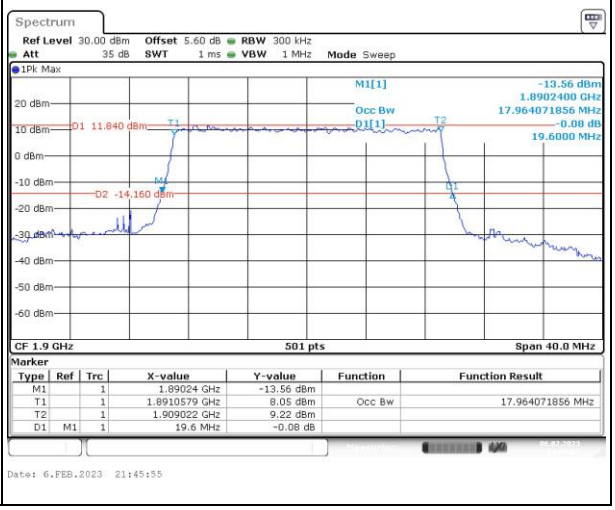
Occupied Bandwidth

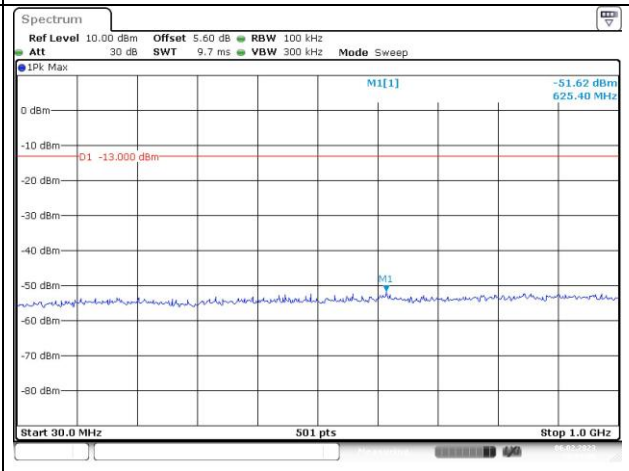
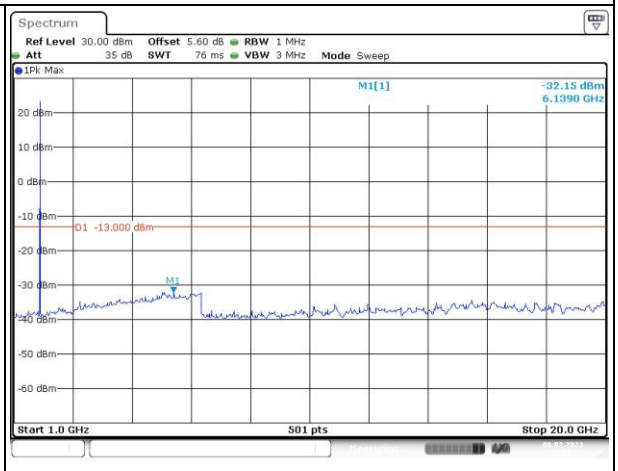
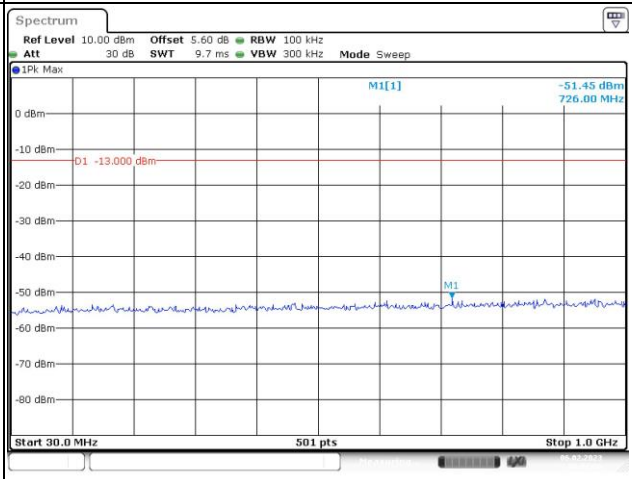
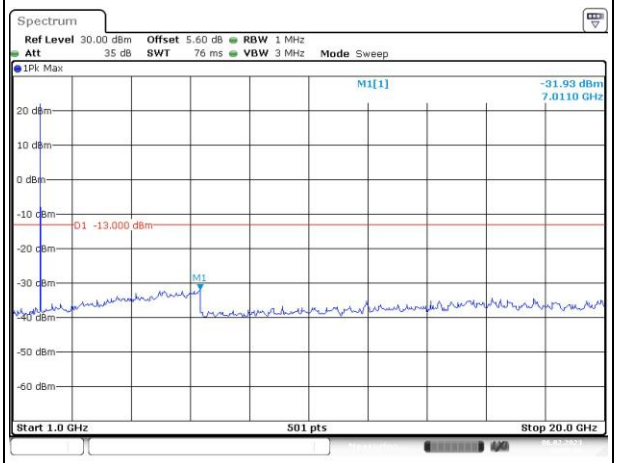
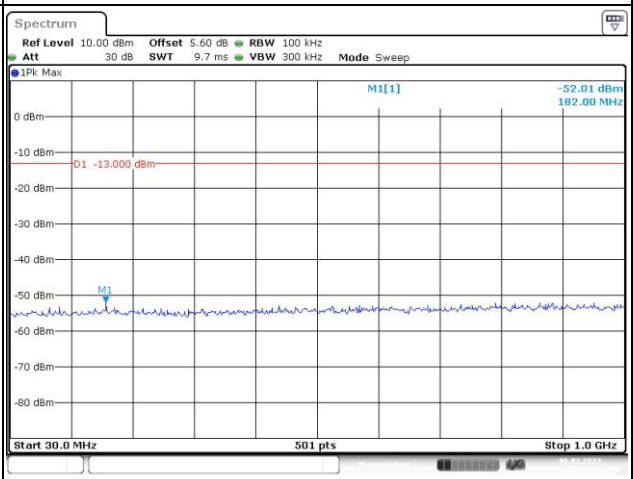
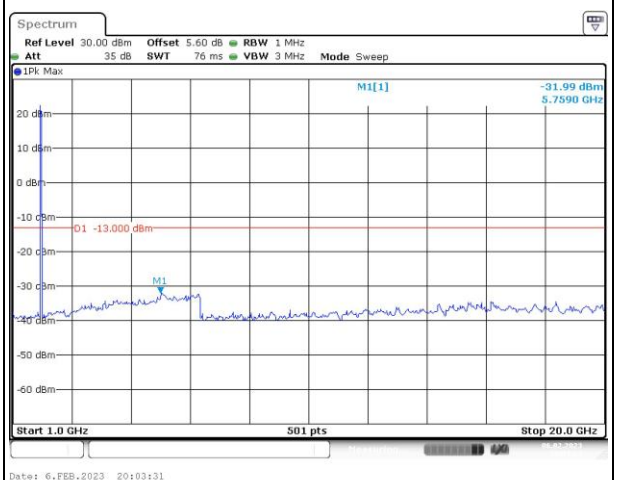
Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

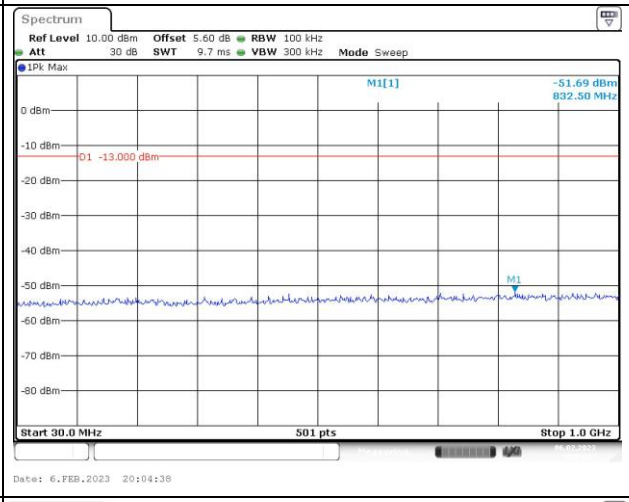
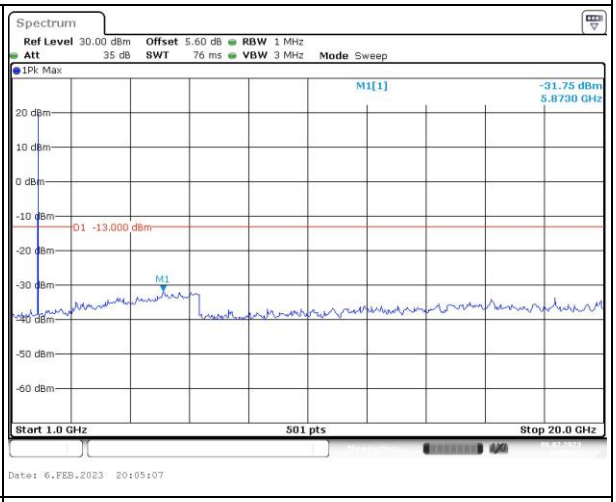
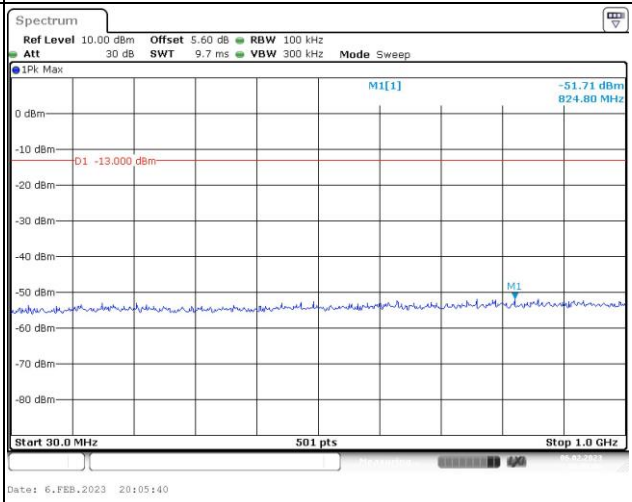
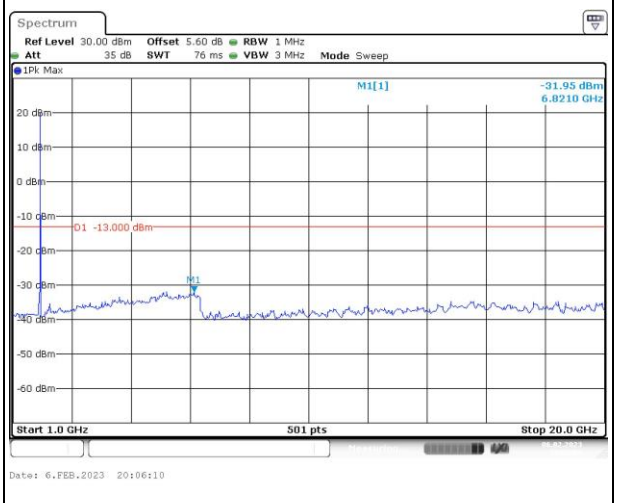
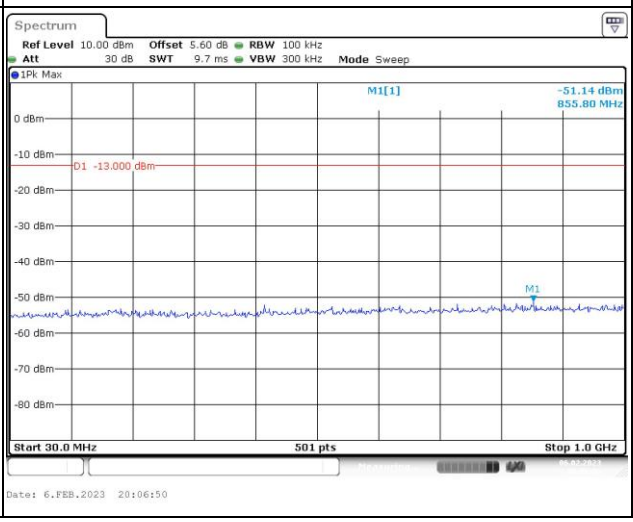
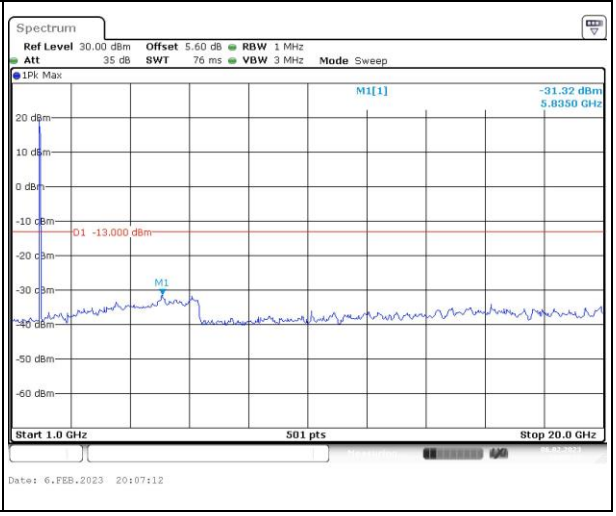
Occupied Bandwidth

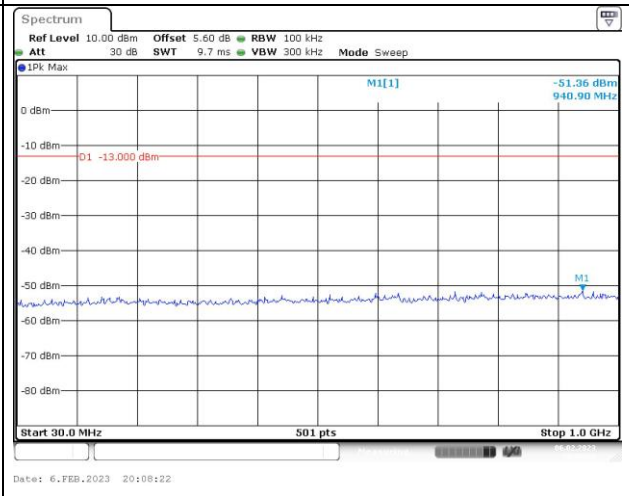
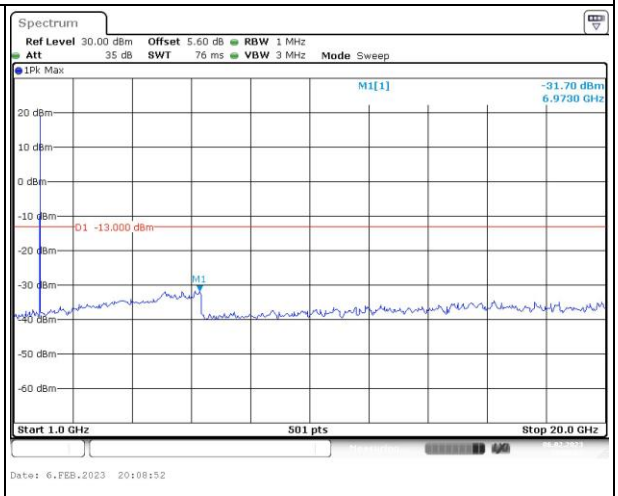
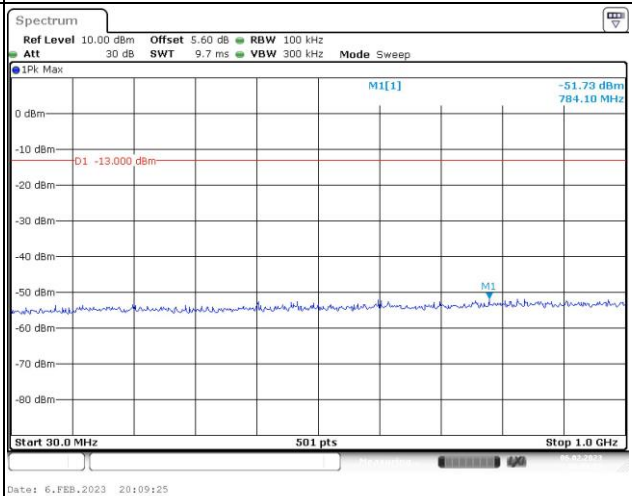
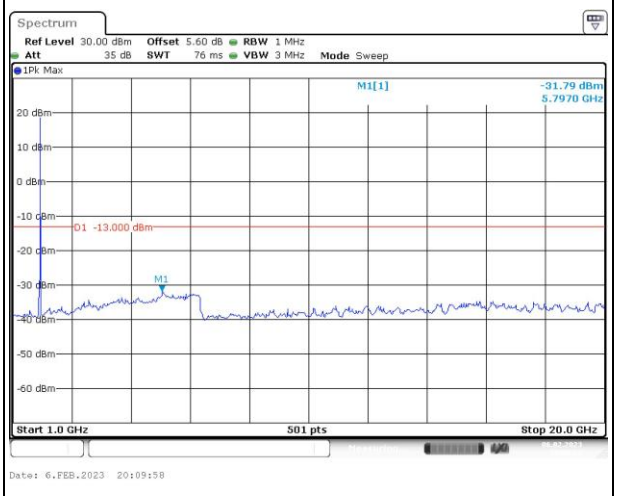
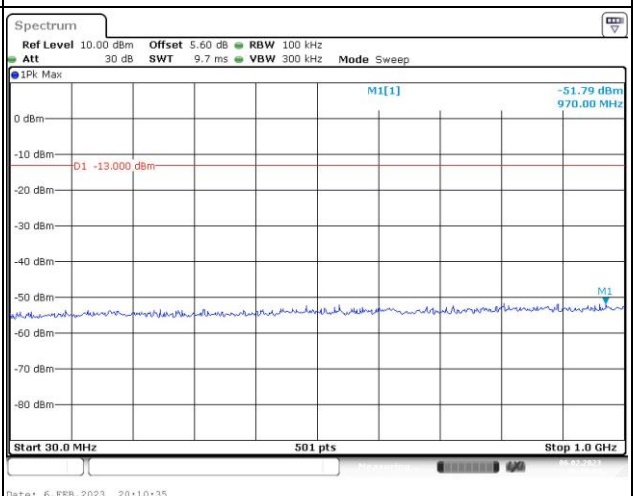
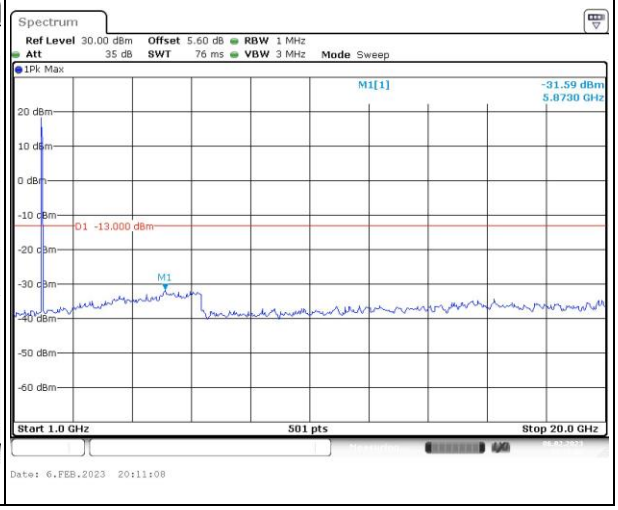
Channel	15MHz Bandwidth QPSK	15MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

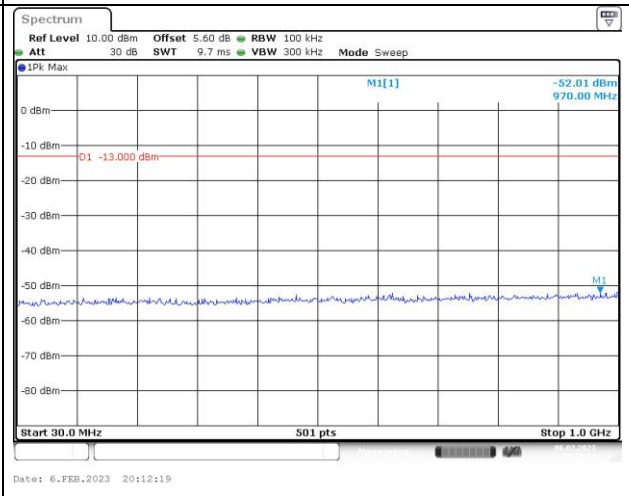
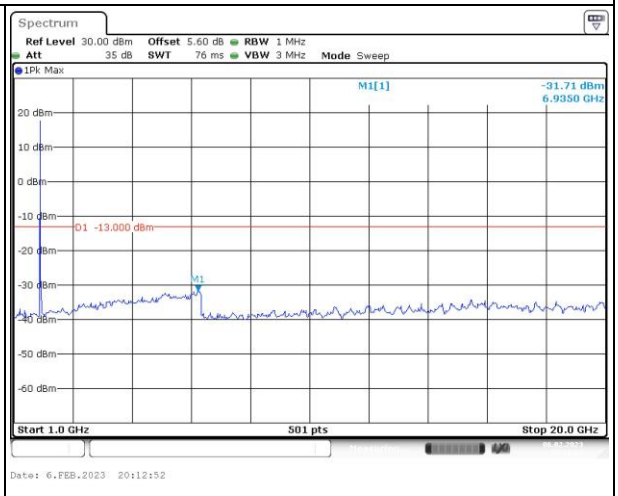
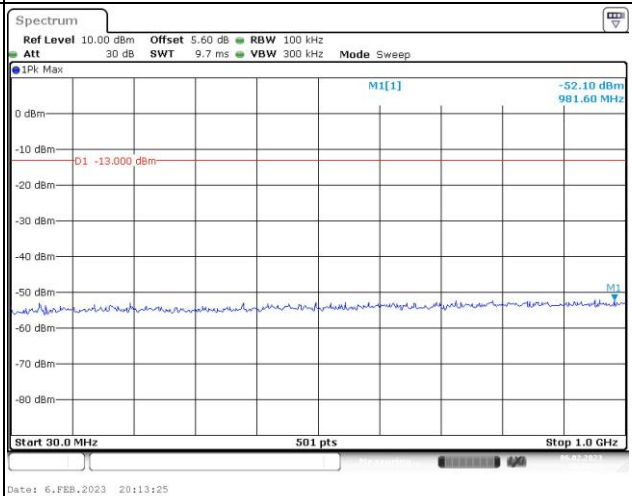
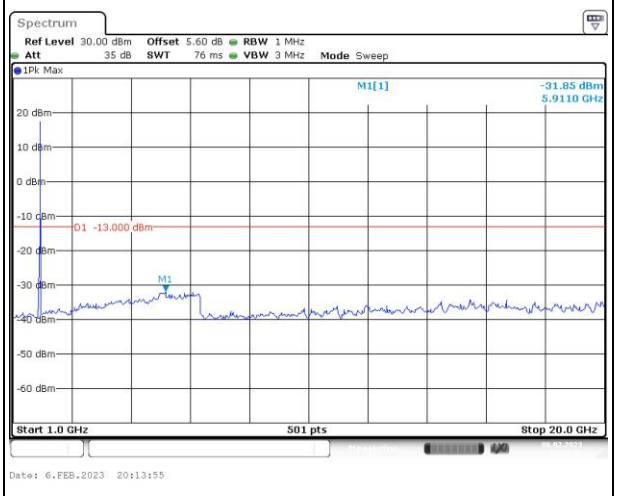
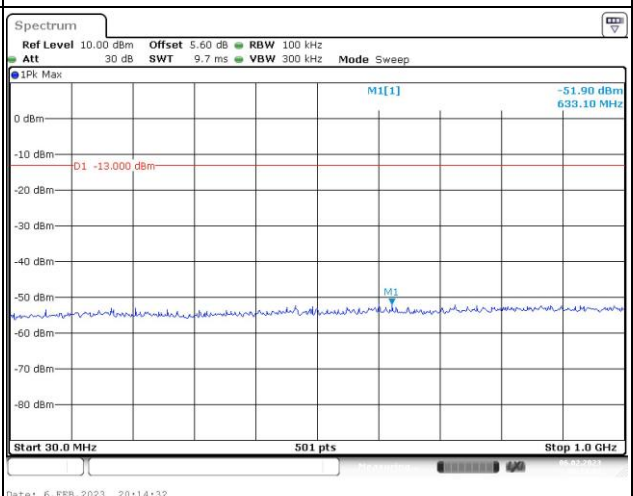
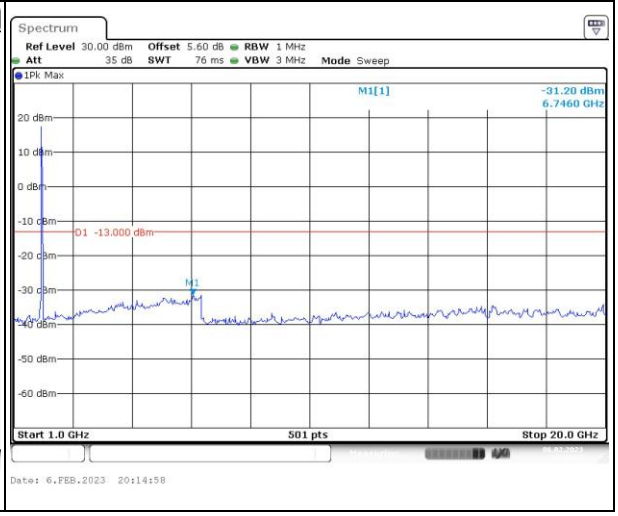
Occupied Bandwidth

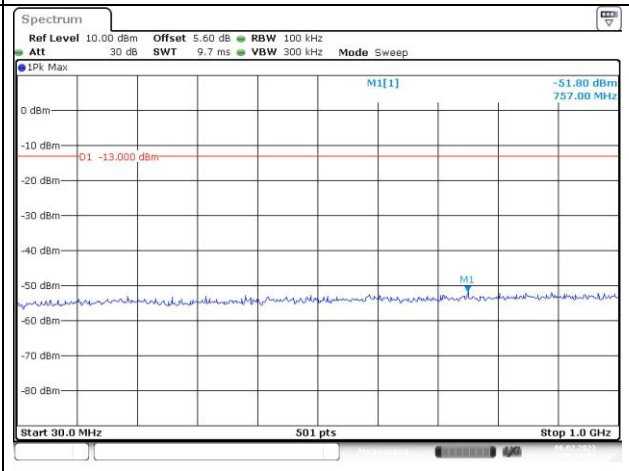
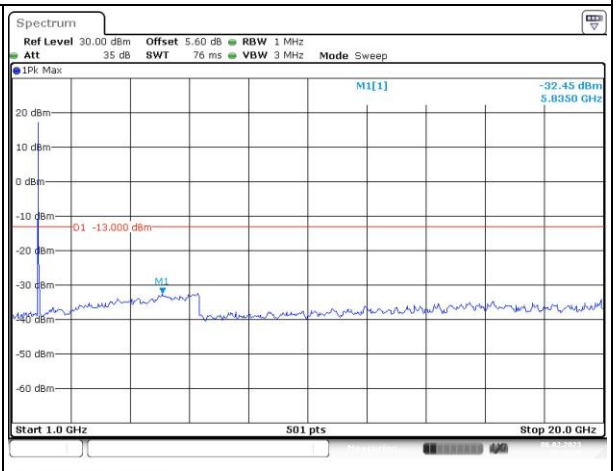
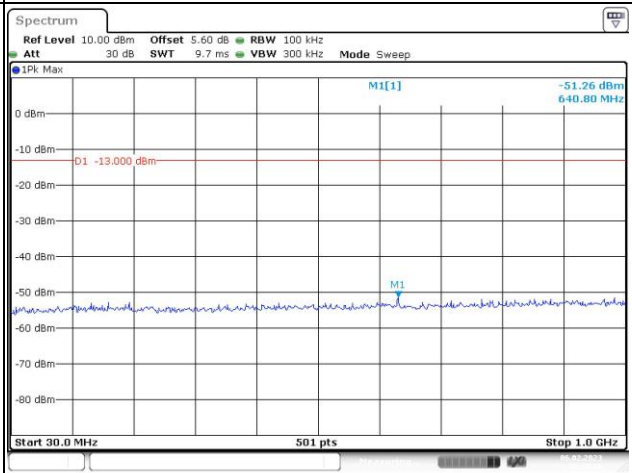
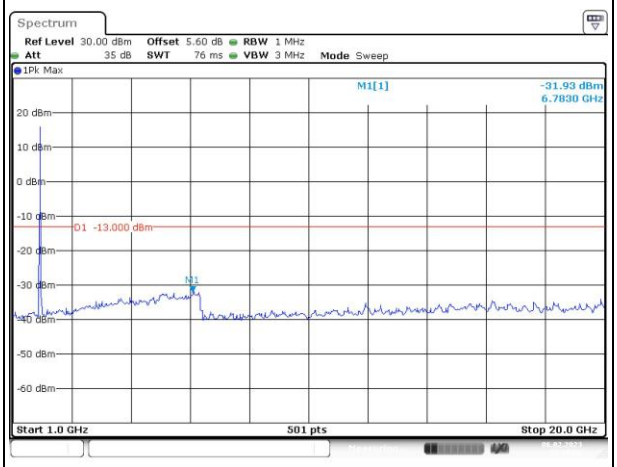
Channel	20MHz Bandwidth QPSK	20MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

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