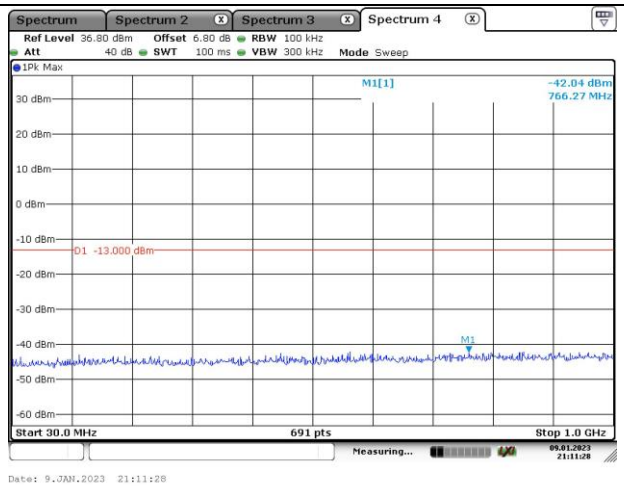
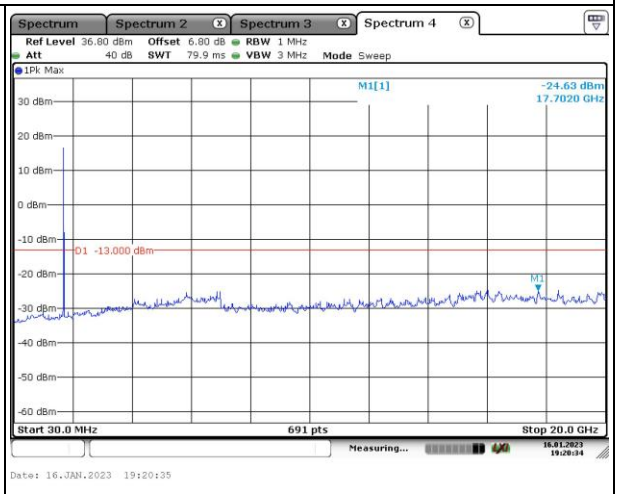
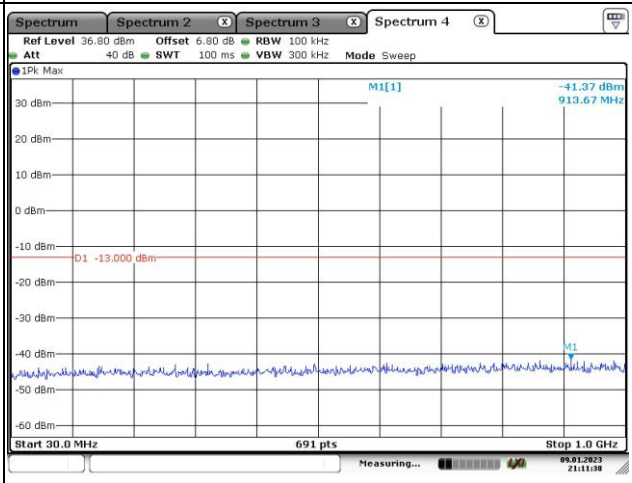
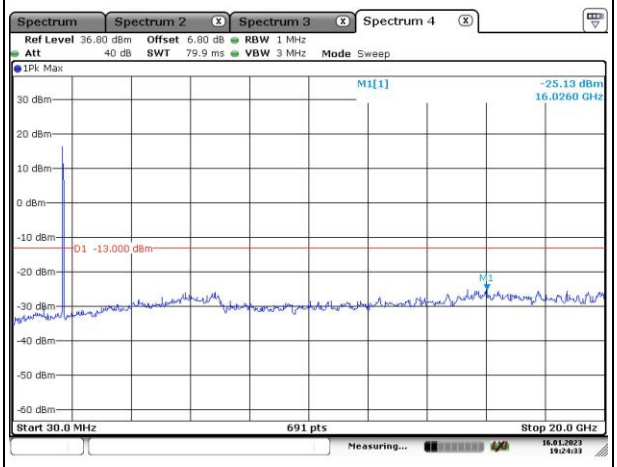
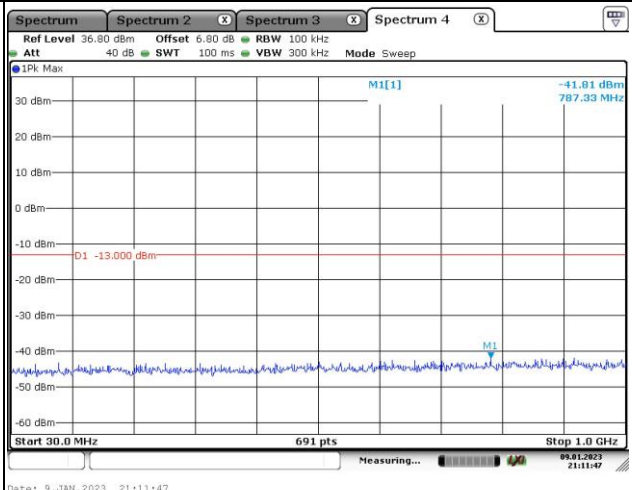
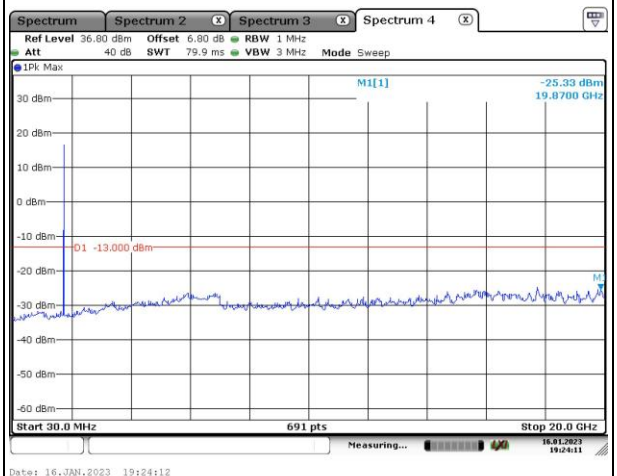
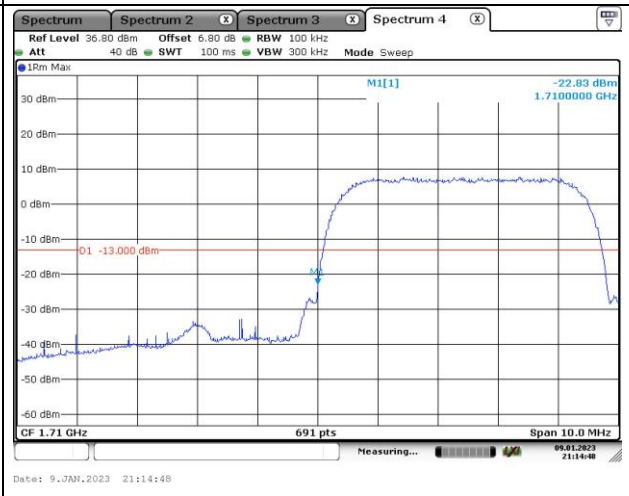
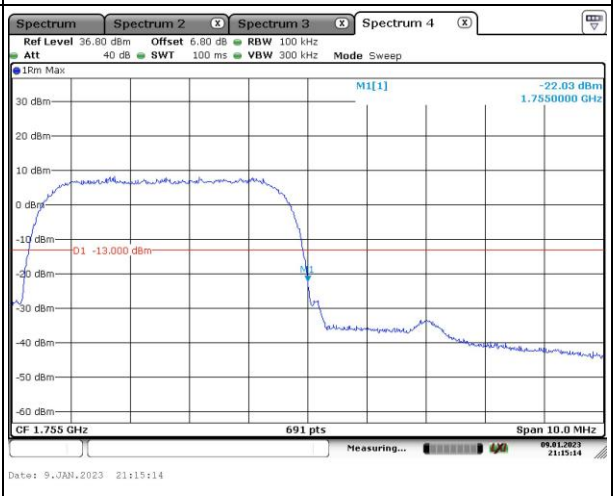
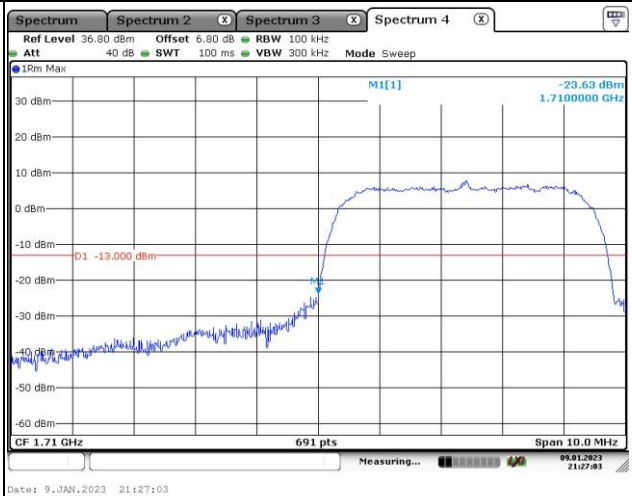
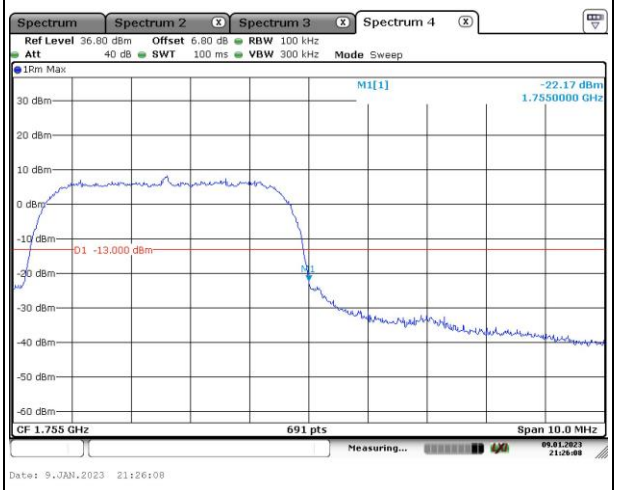
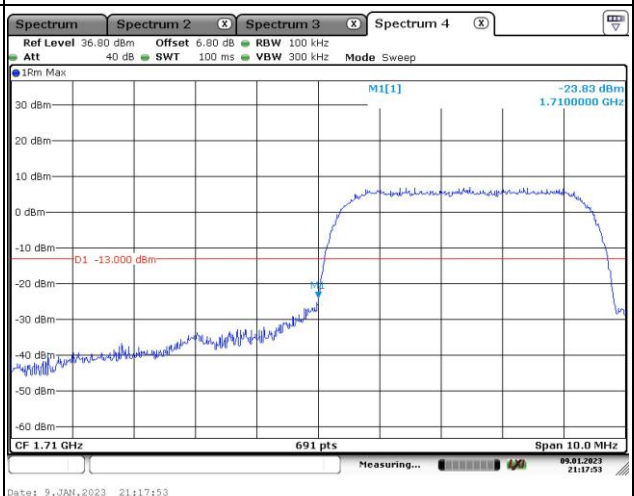
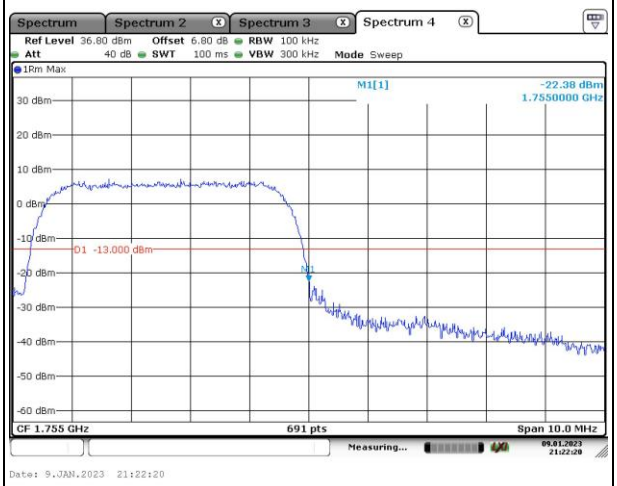
Spurious Emissions at Antenna Terminal		
Channel	WCDMA R99	
Lowest		
Middle		
Highest		

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:	1WP8	Test Date:	2023/1/7~2023/1/17
Test Site:	RF	Test Mode:	Transmitting
Tester:	Rinka Li	Test Result:	**Pass**

Environmental Conditions:					
Temperature: (℃)	21.4~23.7	Relative Humidity: (%)	45~55	ATM Pressure: (kPa)	101.4~101.6

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	SJ0100002	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	2022/7/15	2023/7/14
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2022/4/6	2023/4/5
UNI-T	Multimeter	UT39A+	C210582554	2022/9/30	2023/9/29
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	22.62	22.58	21.96	15.67	38.45
HSDPA Subtest 1	21.31	22.34	21.67	15.39	38.45
HSDPA Subtest 2	21.26	22.28	21.45	15.33	38.45
HSDPA Subtest 3	21.15	22.14	21.25	15.19	38.45
HSDPA Subtest 4	20.78	22.1	21.18	15.15	38.45
HSUPA Subtest 1	21.81	22.44	21.15	15.49	38.45
HSUPA Subtest 2	21.61	22.29	20.68	15.34	38.45
HSUPA Subtest 3	21.32	22.05	20.53	15.1	38.45
HSUPA Subtest 4	20.97	21.79	20.48	14.84	38.45
HSUPA Subtest 5	20.86	21.76	20.44	14.81	38.45
DC-HSDPA Subtest 1	22.17	22.21	21.82	15.26	38.45
DC-HSDPA Subtest 2	22.02	22.19	21.57	15.24	38.45
DC-HSDPA Subtest 3	21.6	22.12	21.45	15.17	38.45
DC-HSDPA Subtest 4	21.17	22	21.31	15.05	38.45
HSPA+ Subtest 1	20.86	21.93	21.49	14.98	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	2.93	2.84	3.01	13
HSDPA	5.68	5.33	5.74	13
HSUPA	5.22	5.94	5.22	13
			Result:	**Pass**

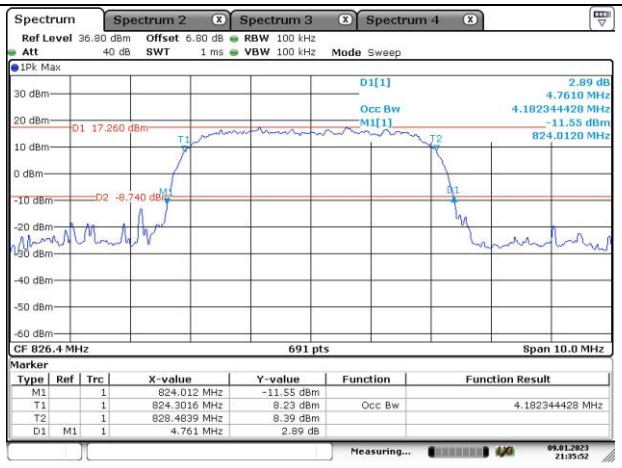
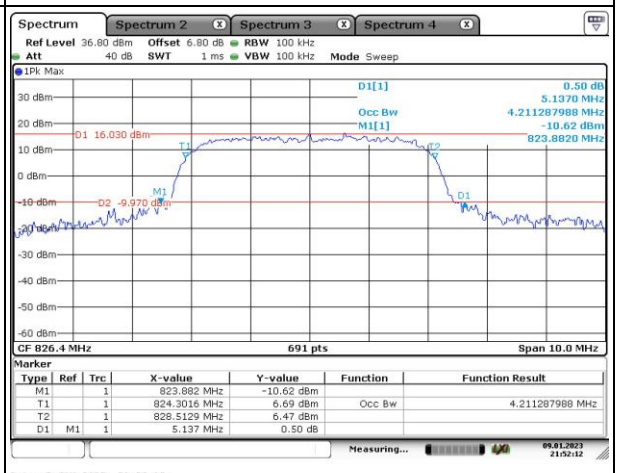
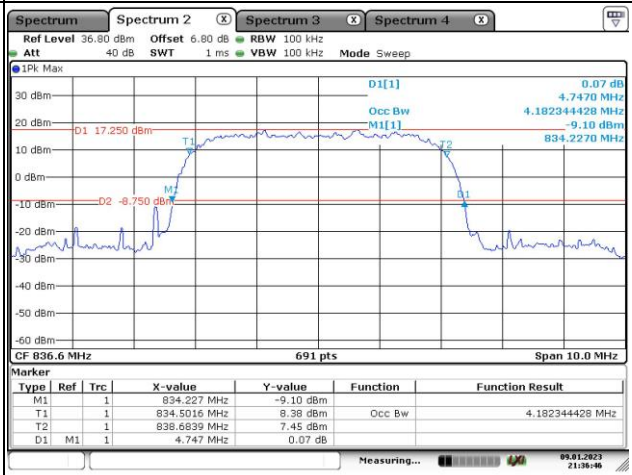
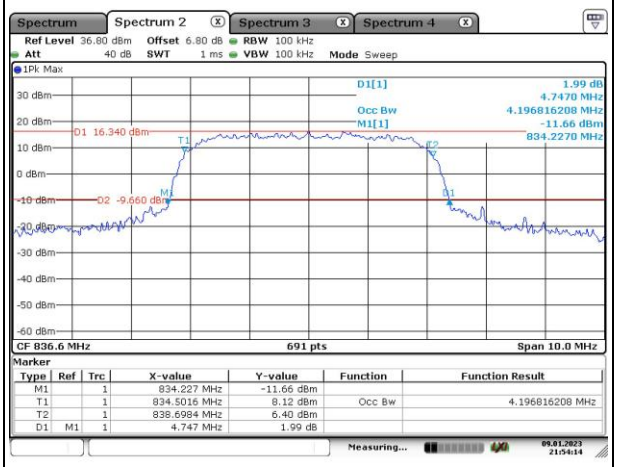
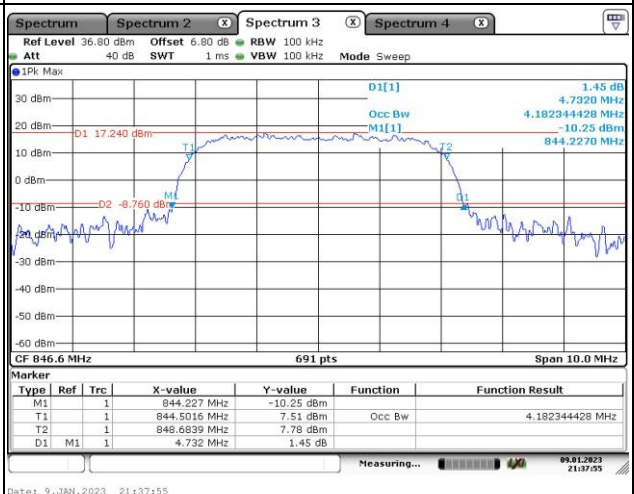
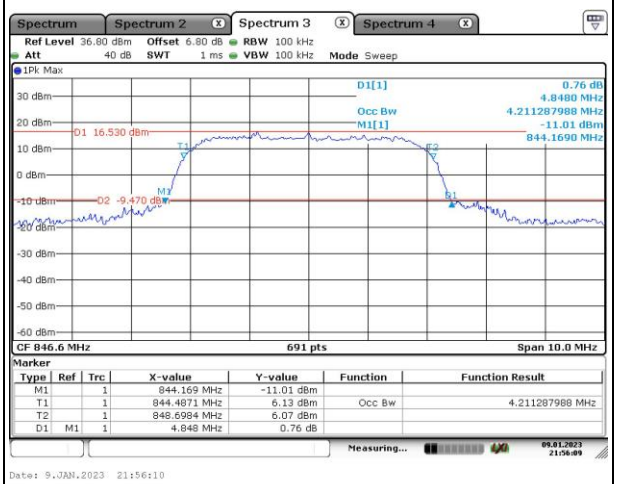
FCC §2.1049, §22.917, §22.905:Occupied Bandwidth						
Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
WCDMA R99	4.182	4.182	4.182	4.761	4.747	4.732
HSDPA	4.211	4.197	4.211	5.137	4.747	4.848
HSUPA	4.211	4.197	4.211	4.978	4.776	4.92
Note: The test plots please refer to the Plots of Occupied Bandwidth						

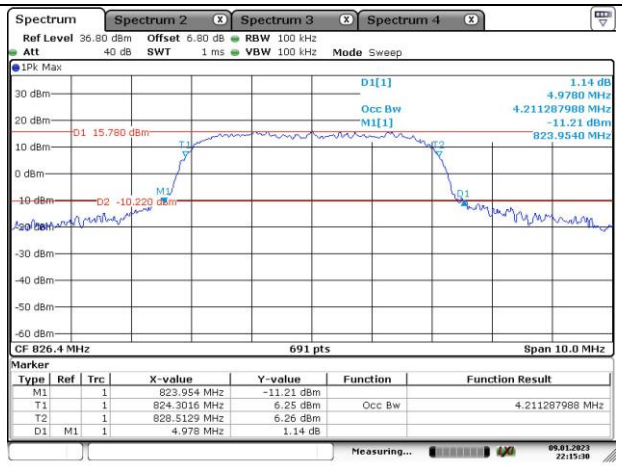
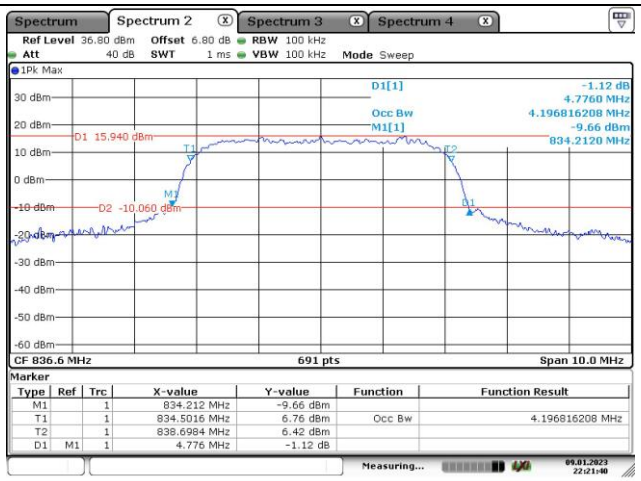
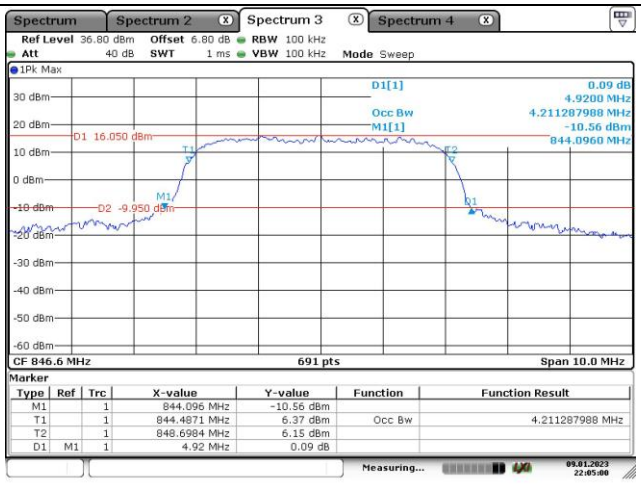
FCC §2.1051, §22.917(a):Spurious Emissions at Antenna Terminal	
Result:	**Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**

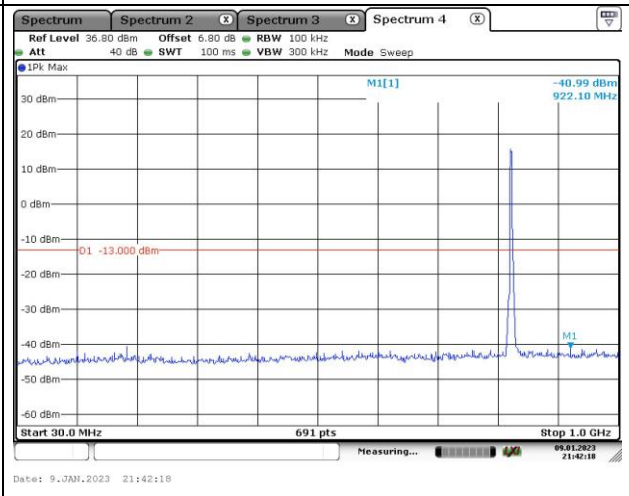
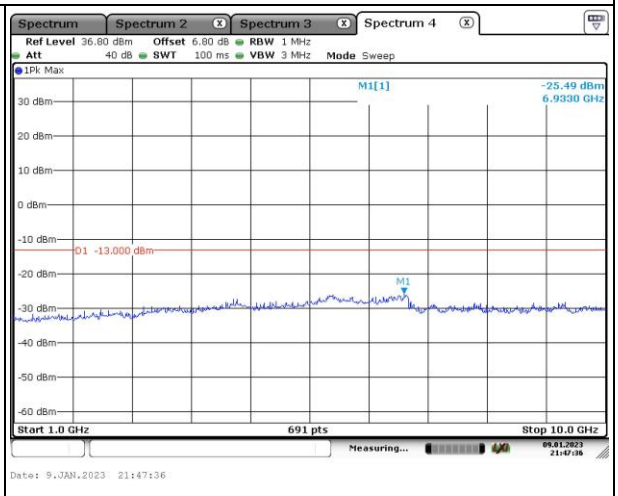
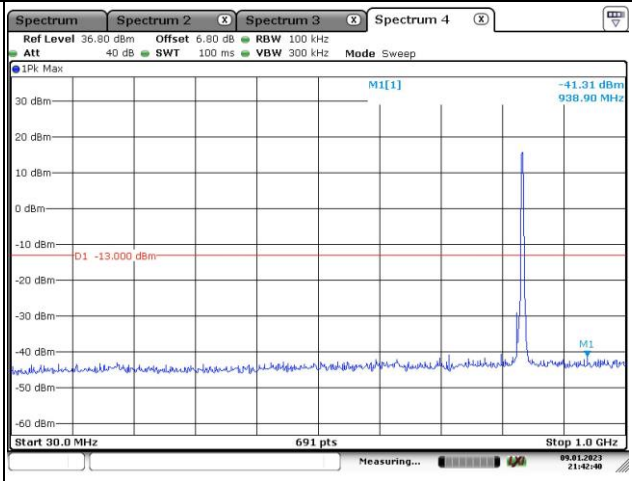
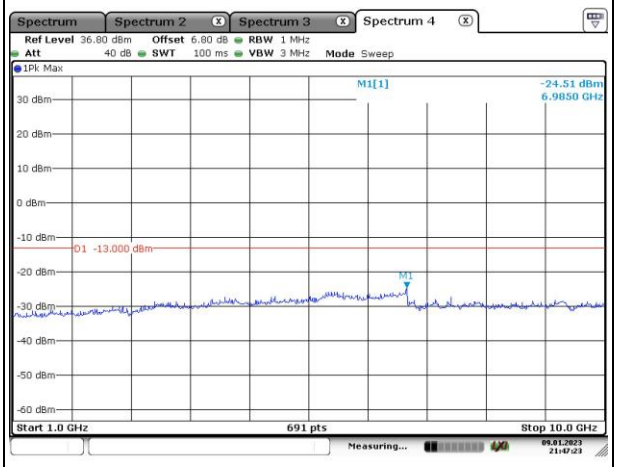
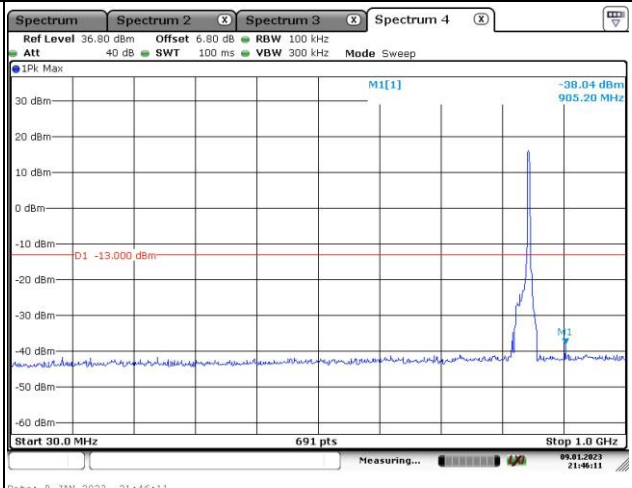
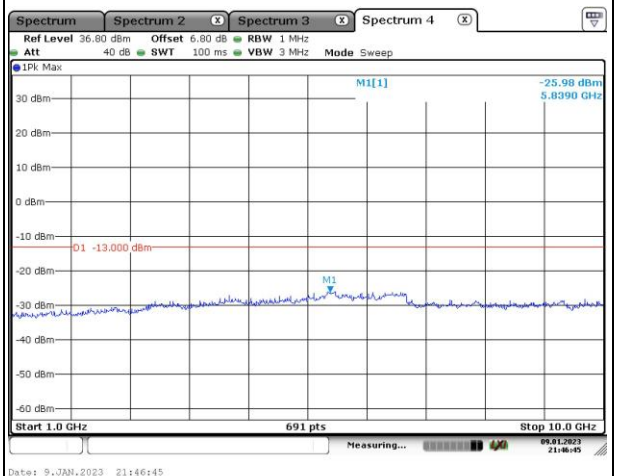
FCC §2.1051, §22.917(a):Out of band emission, Band Edge	
Result:	**Pass, Please refer to the test plots of Out of band emission, Band Edge.**

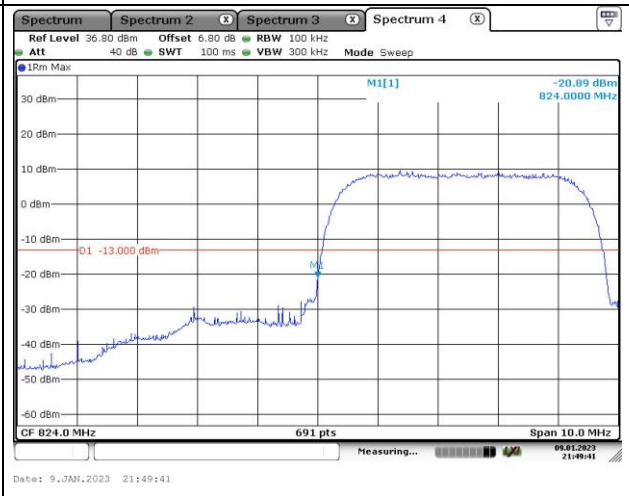
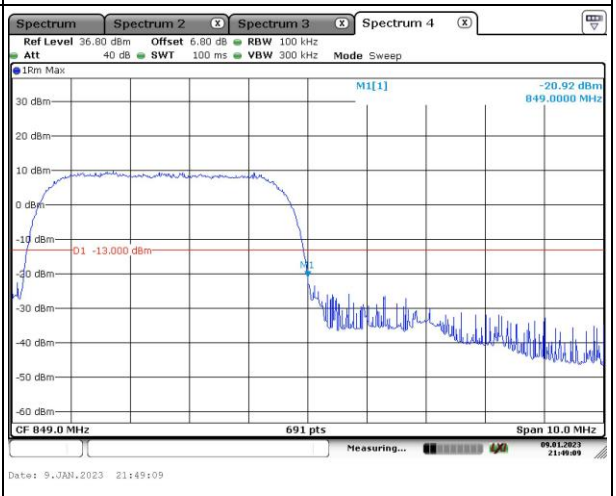
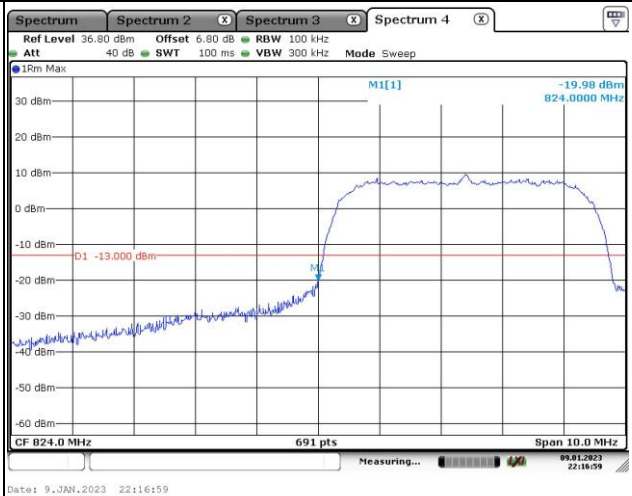
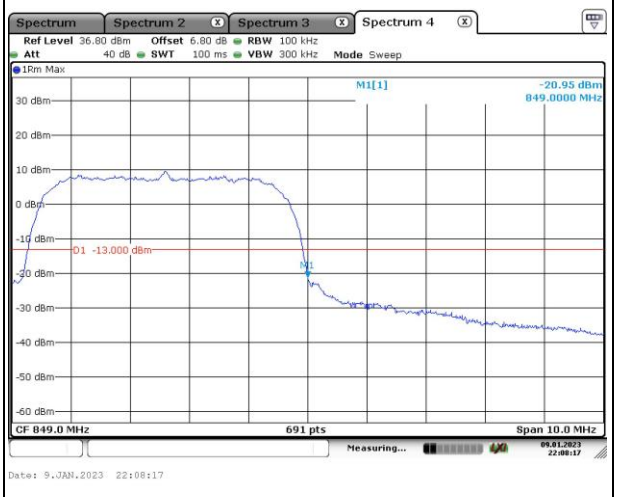
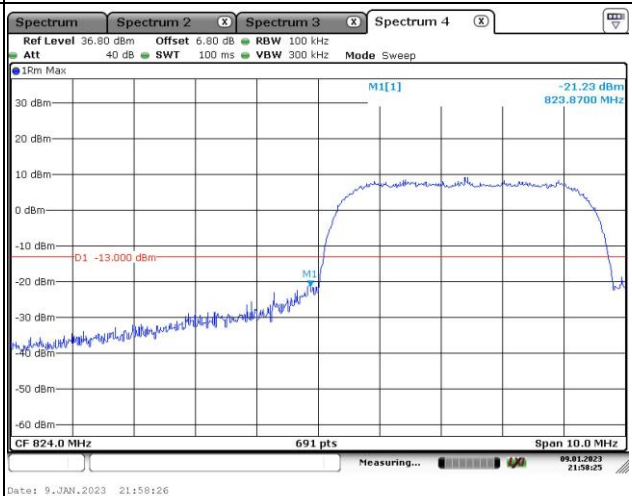
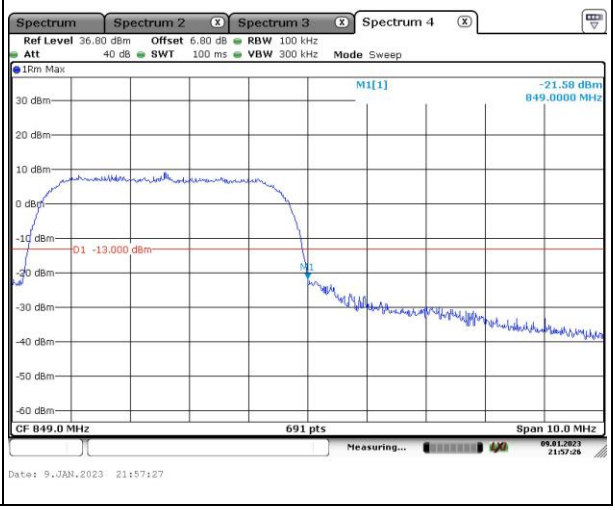
FCC §2.1055, §22.355: Frequency Stability					
Test Modulation:	WCDMA R99		Test Channel:	836.6	MHz
Test Item	Temperature (℃)	Voltage (V_{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.85	6	0.007	2.5
	-20	3.85	31	0.037	2.5
	-10	3.85	11	0.013	2.5
	0	3.85	23	0.027	2.5
	10	3.85	-7	-0.008	2.5
	20	3.85	57	0.068	2.5
	30	3.85	1	0.001	2.5
	40	3.85	2	0.002	2.5
	50	3.85	8	0.010	2.5
Frequency Stability vs. Voltage	20	3.4	9	0.011	2.5
	20	4.4	-24	-0.029	2.5
				Result:	**Pass**

Test Plots(Note: The 6.80 dB 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:	1WP8	Test Date:	2023/1/7~2023/1/17
Test Site:	RF	Test Mode:	Transmitting
Tester:	Rinka Li	Test Result:	**Pass**

Environmental Conditions:					
Temperature: (℃)	21.4~23.7	Relative Humidity: (%)	45~55	ATM Pressure: (kPa)	101.4~101.6

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	SJ0100002	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	2022/7/15	2023/7/14
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2022/4/6	2023/4/5
UNI-T	Multimeter	UT39A+	C210582554	2022/9/30	2023/9/29
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A
Weinschel	Power Splitter	1515	RA928	Each time	N/A
zhuoxiang	Coaxial Cable	SMA-178	211006	Each time	N/A

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

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	17.82	17.93	17.86	19.79	33
	RB1#3	17.95	18.09	17.95		
	RB1#5	17.81	17.93	17.83		
	RB3#0	17.9	18.01	18		
	RB3#3	17.83	17.98	18.01		
	RB6#0	16.86	17.01	16.96		
1.4MHz 16QAM	RB1#0	16.85	17.04	16.89	18.88	33
	RB1#3	17.11	17.16	17.1		
	RB1#5	16.87	17.06	16.97		
	RB3#0	17.15	17.04	17.13		
	RB3#3	17.18	17.08	17.08		
	RB6#0	15.92	16.05	15.89		
3MHz QPSK	RB1#0	17.78	17.95	17.92	19.65	33
	RB1#8	17.78	17.95	17.86		
	RB1#14	17.78	17.95	17.86		
	RB6#0	16.86	16.93	16.94		
	RB6#9	16.79	16.93	16.89		
	RB15#0	16.89	17.01	16.98		
3MHz 16QAM	RB1#0	17.54	17.13	17.03	19.24	33
	RB1#8	17.47	17.14	16.98		
	RB1#14	17.5	17.12	16.93		
	RB6#0	15.91	15.94	15.87		
	RB6#9	15.89	16.01	15.89		
	RB15#0	15.96	15.97	16.04		
5MHz QPSK	RB1#0	17.74	17.85	17.82	19.65	33
	RB1#13	17.91	17.95	17.89		
	RB1#24	17.74	17.87	17.81		
	RB15#0	16.88	17.02	16.99		
	RB15#10	16.86	17	16.97		
	RB25#0	16.88	16.98	16.97		
5MHz 16QAM	RB1#0	16.71	17.2	16.96	19.03	33
	RB1#13	16.83	17.33	17.05		
	RB1#24	16.74	17.26	16.93		
	RB15#0	15.98	16.01	16.06		
	RB15#10	15.95	15.99	16.03		
	RB25#0	15.98	16	16.01		

10MHz QPSK	RB1#0	17.79	17.88	17.88	19.78	33
	RB1#25	17.93	18.08	18.05		
	RB1#49	17.87	17.93	17.88		
	RB25#0	16.89	17.01	17.02		
	RB25#25	16.92	16.99	16.98		
	RB50#0	16.94	17	17.01		
10MHz 16QAM	RB1#0	17.02	16.98	17.57	19.45	33
	RB1#25	17.25	17.16	17.75		
	RB1#49	17.06	17.02	17.56		
	RB25#0	15.93	16.15	16.1		
	RB25#25	16.01	16.13	16.05		
	RB50#0	15.98	16.07	16.06		
15MHz QPSK	RB1#0	17.72	17.79	17.86	19.64	33
	RB1#38	17.86	17.88	17.94		
	RB1#74	17.85	17.88	17.88		
	RB36#0	16.87	17.02	17		
	RB36#39	16.96	16.97	16.96		
	RB75#0	16.92	16.95	16.97		
15MHz 16QAM	RB1#0	17.2	17.51	17.08	19.3	33
	RB1#38	17.38	17.6	17.14		
	RB1#74	17.32	17.58	17.08		
	RB36#0	15.85	16.01	15.99		
	RB36#39	15.93	15.99	16		
	RB75#0	15.91	16	16.02		
20MHz QPSK	RB1#0	17.64	17.67	17.66	19.83	33
	RB1#50	18.04	18.05	18.13		
	RB1#99	17.79	17.71	17.73		
	RB50#0	16.93	17.02	17.09		
	RB50#50	17.03	17.01	16.91		
	RB100#0	16.97	17.03	17		
20MHz 16QAM	RB1#0	16.89	17.31	17.07	19.49	33
	RB1#50	17.37	17.79	17.42		
	RB1#99	17.08	17.41	17.09		
	RB50#0	15.92	16.07	16.07		
	RB50#50	16.04	16.04	15.98		
	RB100#0	16	16.05	16.03		
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	5.36	5.25	4.81	13
	RB100#0	4.17	4.12	4.14	13
20MHz 16QAM	RB1#0	5.74	5.83	5.42	13
	RB100#0	5.8	5.8	5.65	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	1.1	1.1	1.1	1.3	1.3	1.31
1.4MHz 16QAM	1.1	1.1	1.1	1.3	1.33	1.28
3MHz QPSK	2.68	2.68	2.7	2.89	2.88	2.88
3MHz 16QAM	2.68	2.68	2.68	2.87	2.89	2.88
5MHz QPSK	4.51	4.51	4.49	4.96	4.96	4.92
5MHz 16QAM	4.49	4.53	4.53	4.92	4.96	4.96
10MHz QPSK	8.94	8.94	8.94	9.68	9.72	9.6
10MHz 16QAM	8.94	8.94	8.94	9.64	9.56	9.68
15MHz QPSK	13.53	13.47	13.53	14.76	14.88	14.82
15MHz 16QAM	13.47	13.53	13.53	14.7	14.7	14.76
20MHz QPSK	17.96	17.96	18.04	19.28	19.28	19.52
20MHz 16QAM	17.96	17.96	17.96	19.44	19.44	19.36
Note: The test plots please refer to the Plots of Occupied Bandwidth						

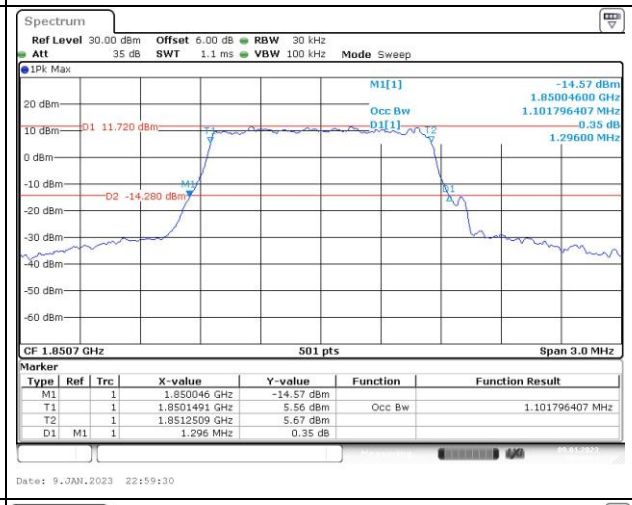
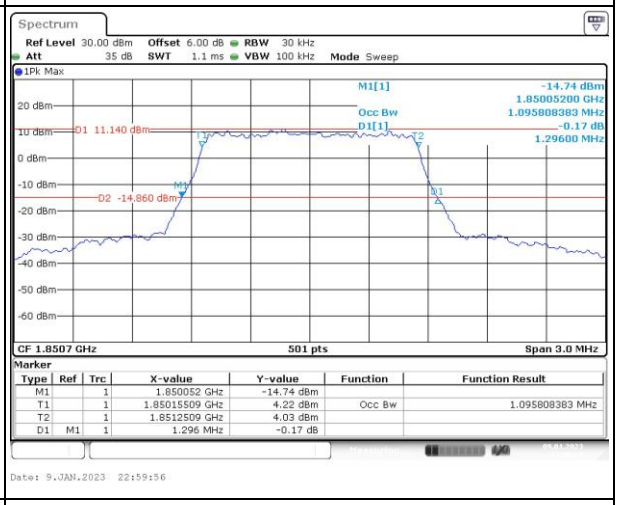
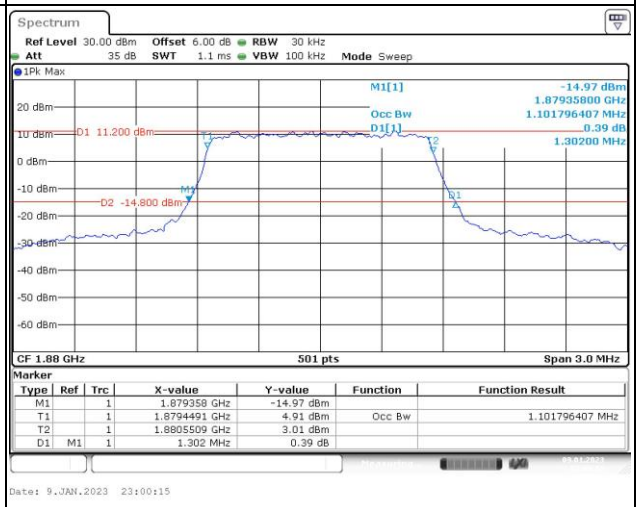
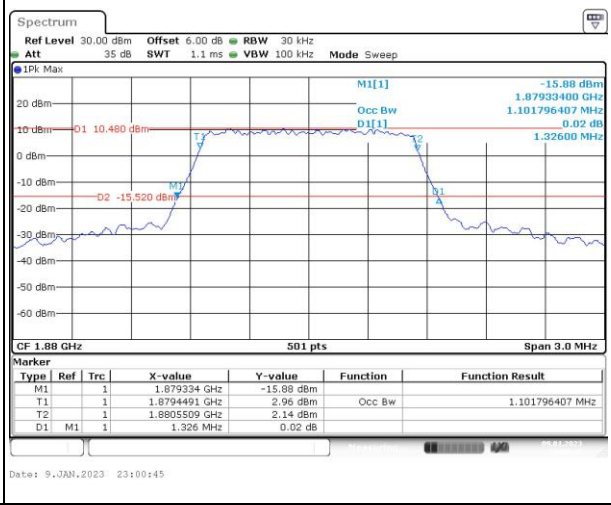
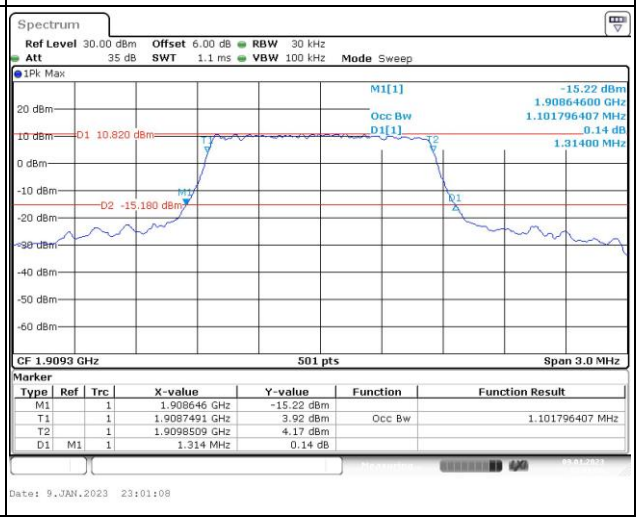
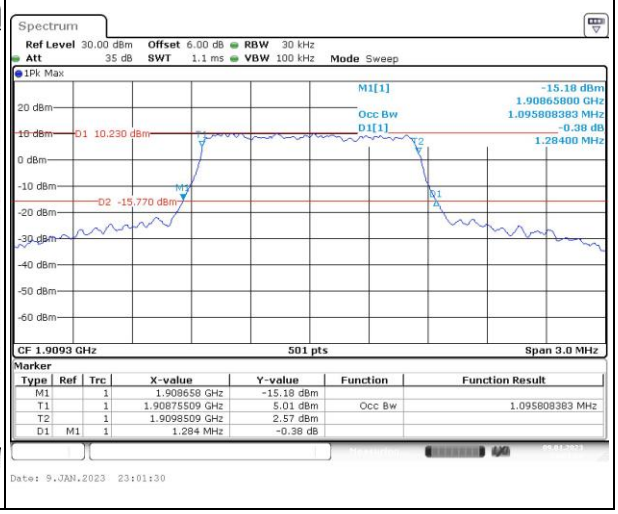
FCC §2.1051, §24.238 (a):Spurious Emissions at Antenna Terminal	
Result:	**Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**

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.**

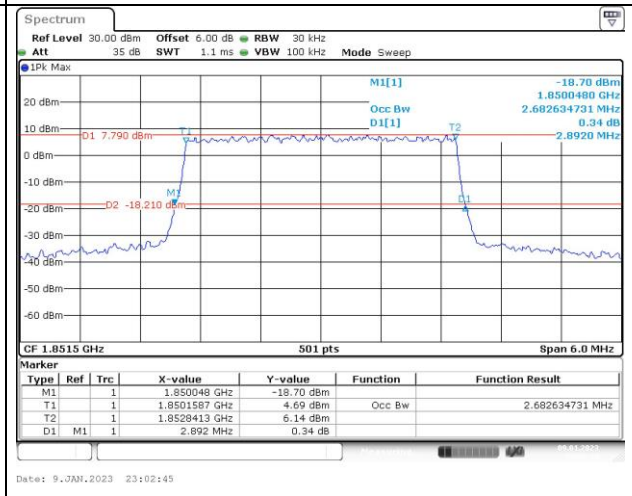
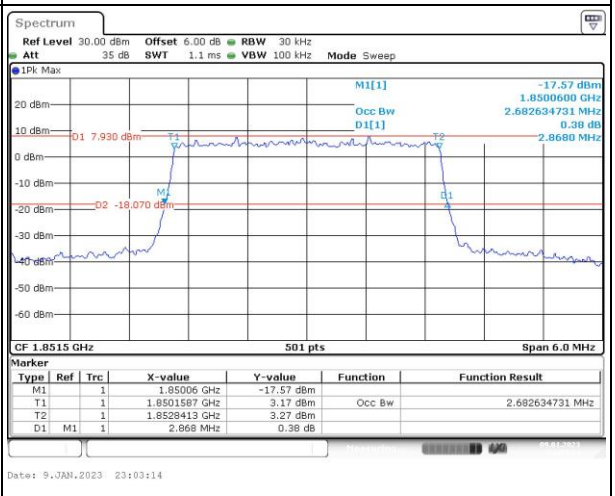
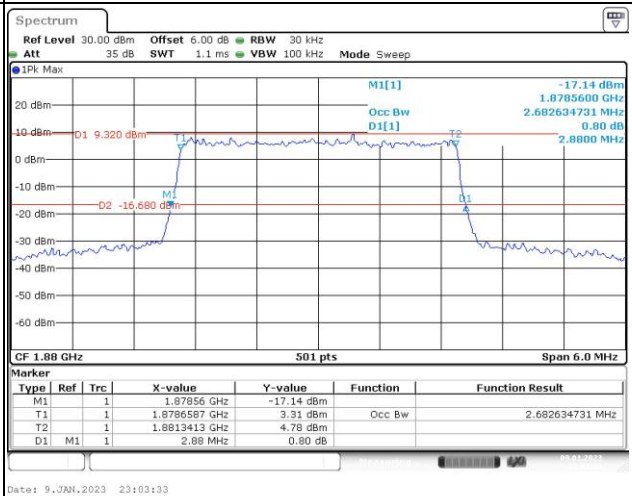
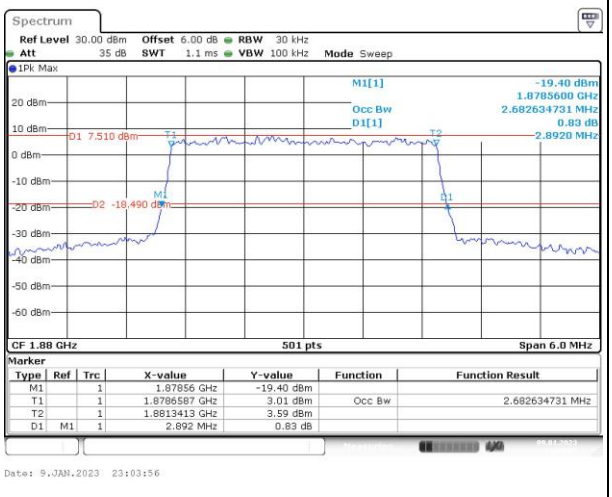
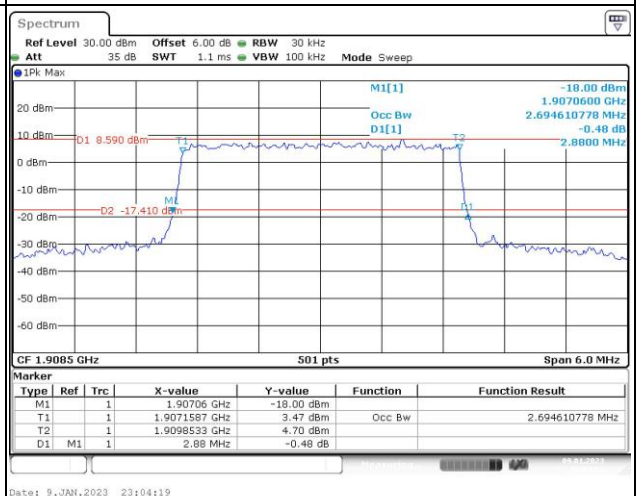
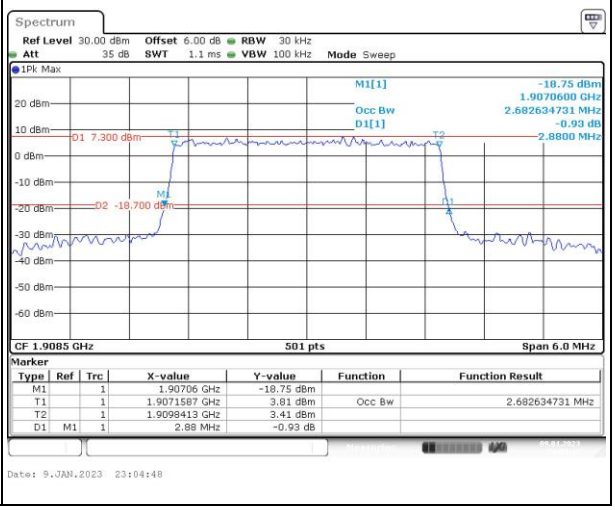
FCC §2.1055, §24.235: Frequency Stability						
Test Mode:	20 MHz QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1850.3331	1850.00	1909.6763	1910.00
	-20	3.85	1850.3551	1850.00	1909.6743	1910.00
	-10	3.85	1850.3345	1850.00	1909.6546	1910.00
	0	3.85	1850.3221	1850.00	1909.6573	1910.00
	10	3.85	1850.3561	1850.00	1909.6732	1910.00
	20	3.85	1850.3423	1850.00	1909.6434	1910.00
	30	3.85	1850.3221	1850.00	1909.6721	1910.00
	40	3.85	1850.3351	1850.00	1909.6635	1910.00
	50	3.85	1850.3541	1850.00	1909.6623	1910.00
Frequency Stability vs. Voltage	20	3.4	1850.3345	1850.00	1909.6673	1910.00
	20	4.4	1850.3351	1850.00	1909.6635	1910.00
					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	3.85	1850.3584	1850.00	1909.6612	1910.00
	-20	3.85	1850.3473	1850.00	1909.6734	1910.00
	-10	3.85	1850.3455	1850.00	1909.6544	1910.00
	0	3.85	1850.3529	1850.00	1909.6557	1910.00
	10	3.85	1850.3553	1850.00	1909.6767	1910.00
	20	3.85	1850.3431	1850.00	1909.6475	1910.00
	30	3.85	1850.3463	1850.00	1909.6787	1910.00
	40	3.85	1850.3736	1850.00	1909.6635	1910.00
	50	3.85	1850.3477	1850.00	1909.6612	1910.00
Frequency Stability vs. Voltage	20	3.4	1850.3564	1850.00	1909.6637	1910.00
	20	4.4	1850.3778	1850.00	1909.6633	1910.00
					Result:	**Pass**

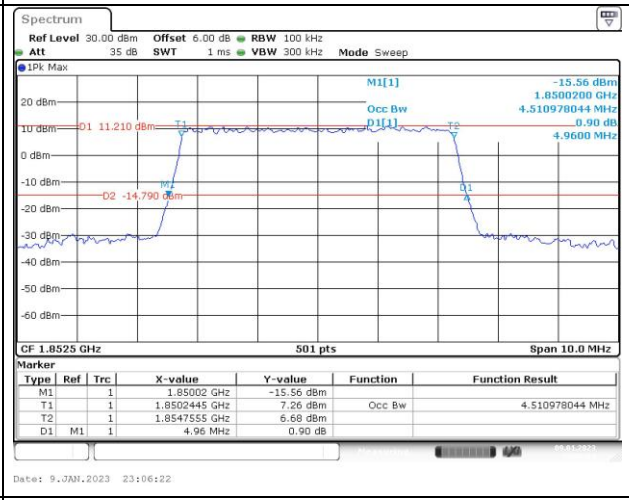
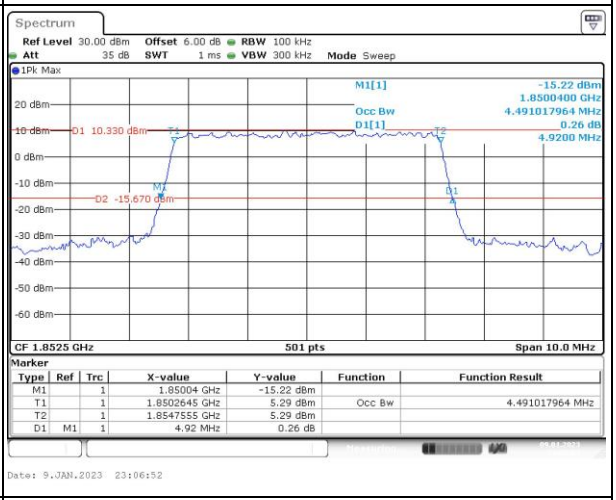
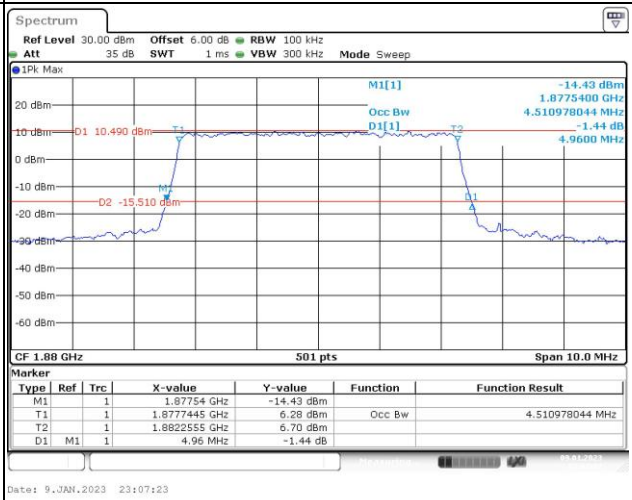
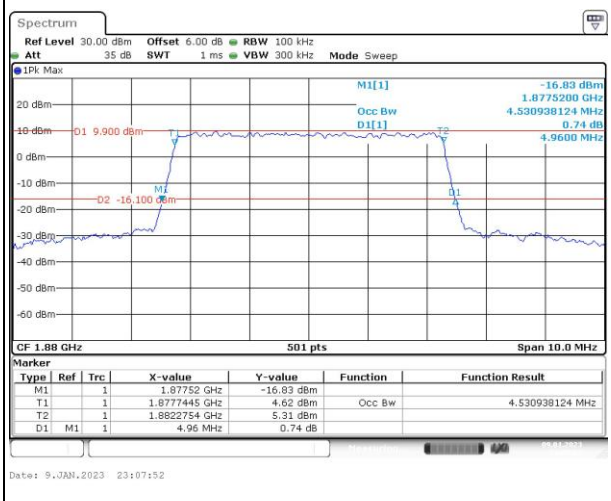
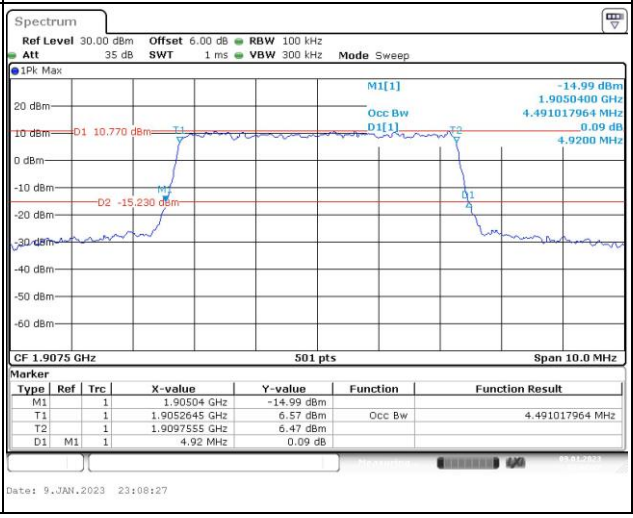
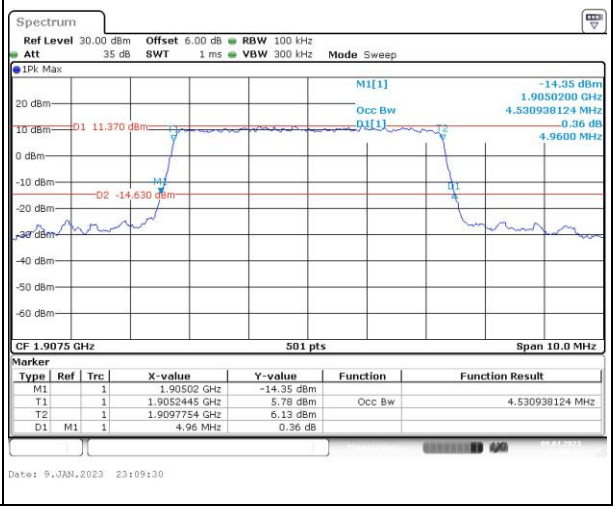
Test Plots:

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

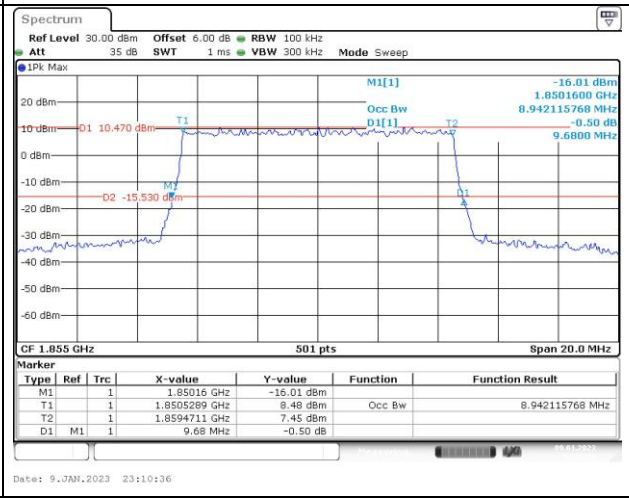
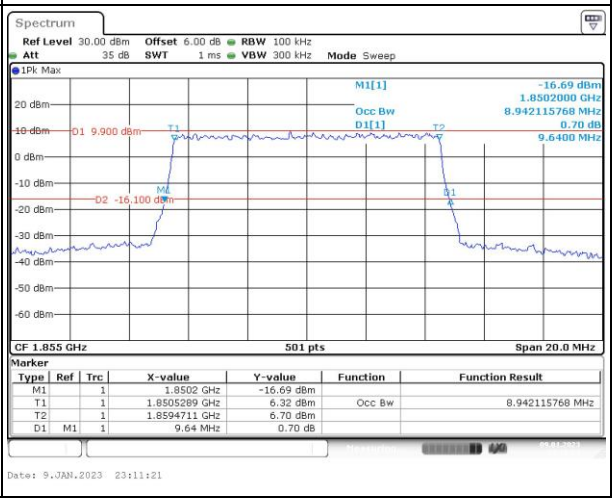
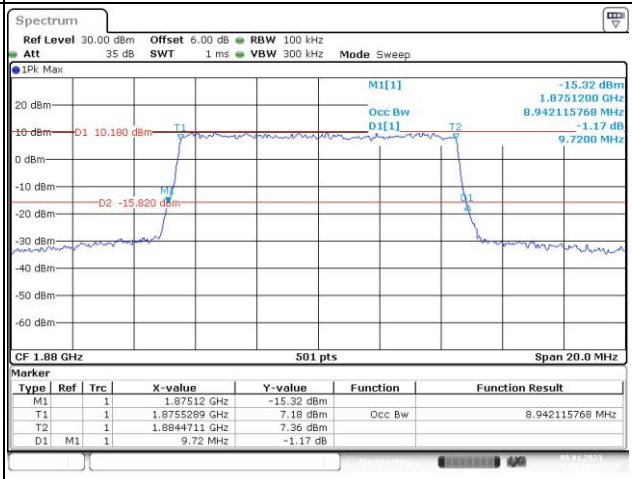
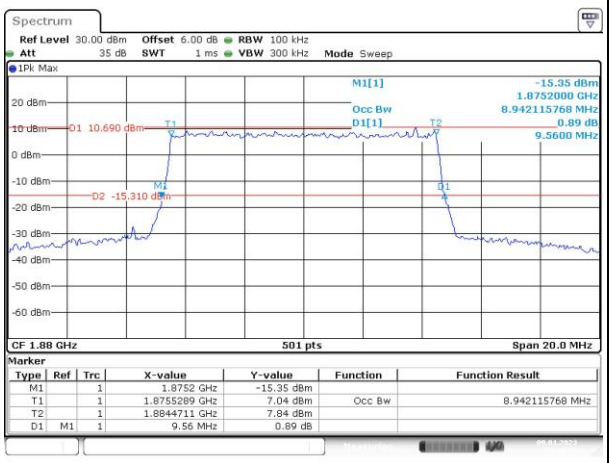
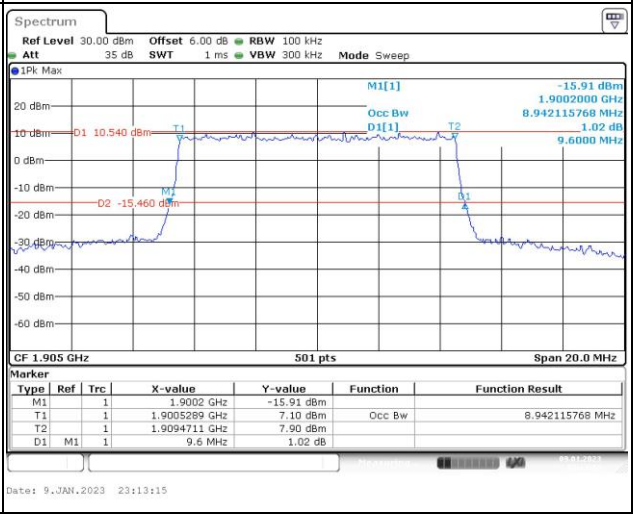
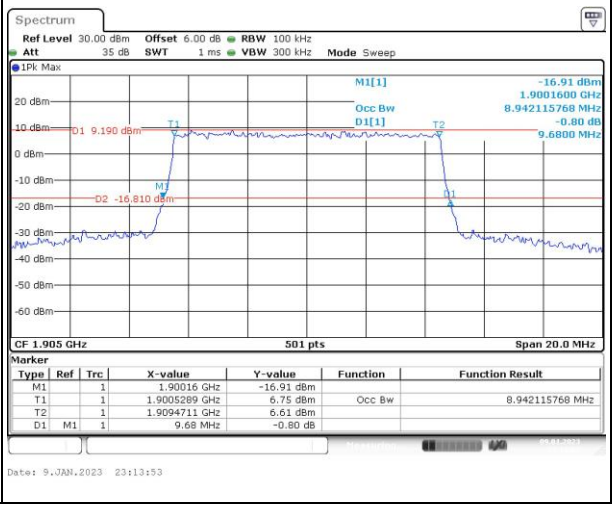
Note: The 6.0 dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer

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

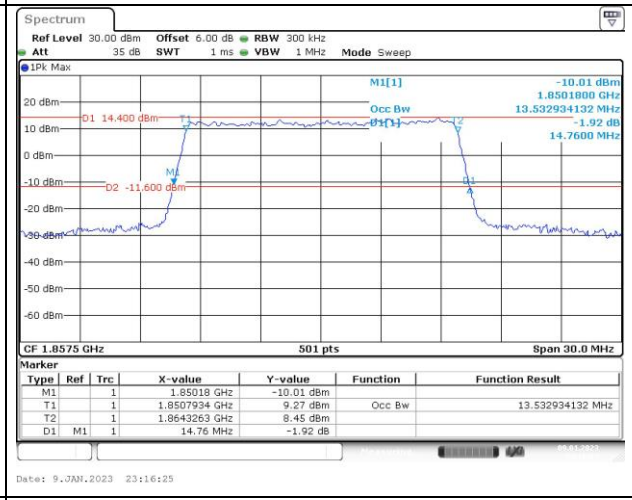
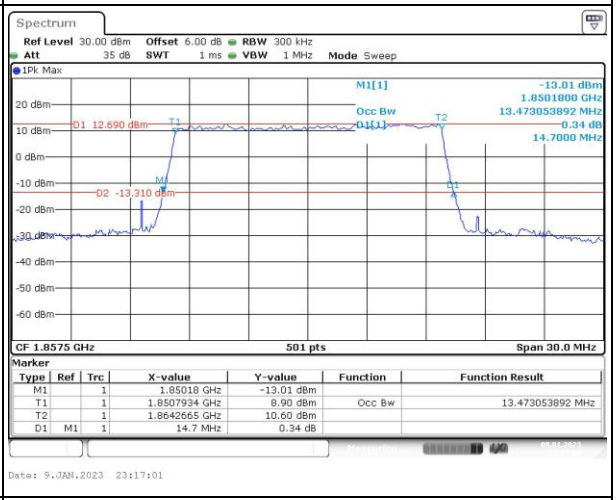
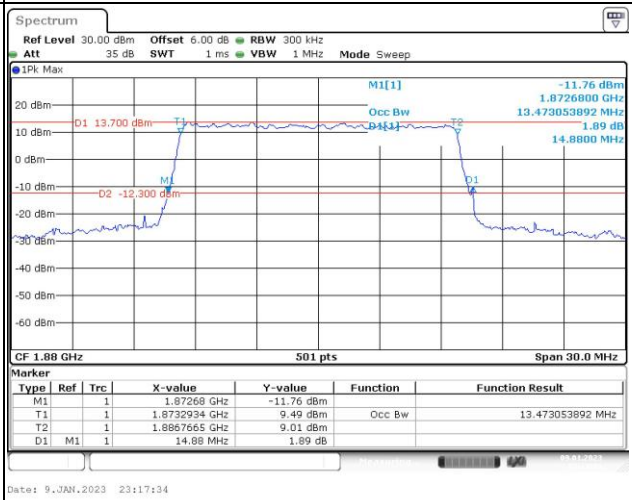
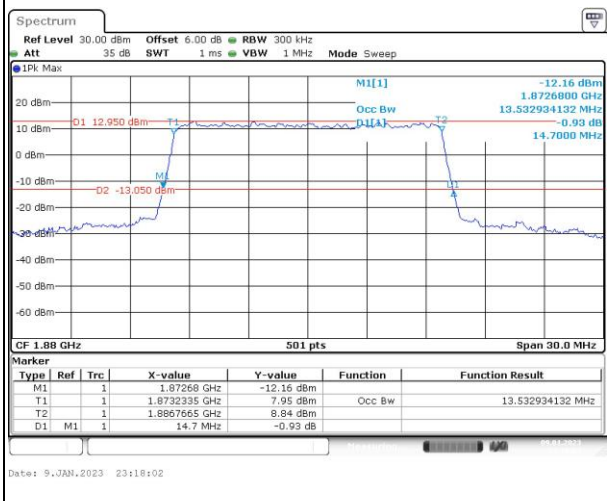
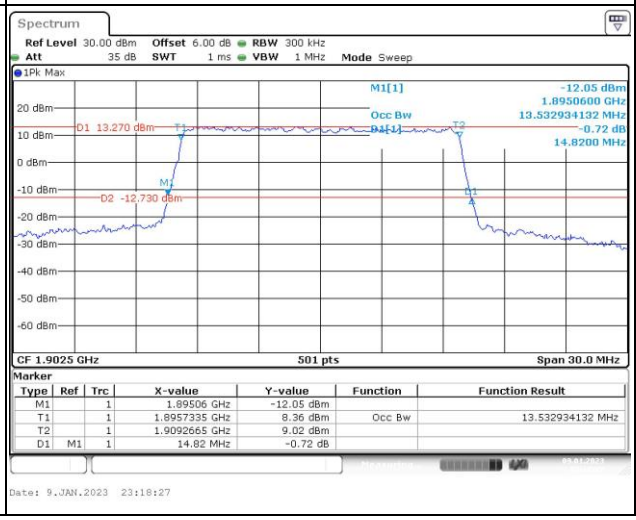
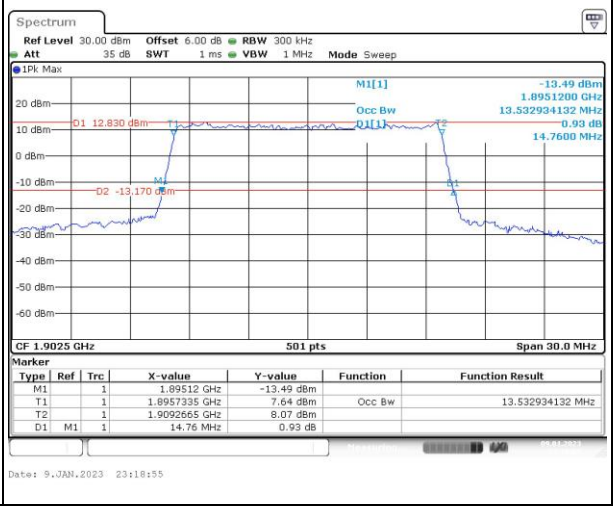
Note: The 6.0 dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer

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

Note: The 6.0 dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer

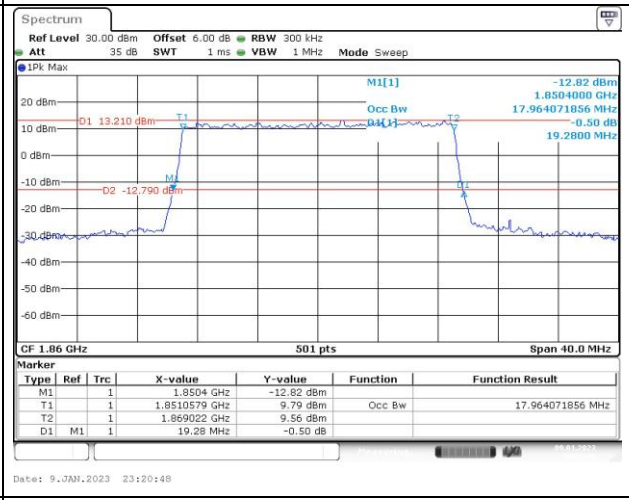
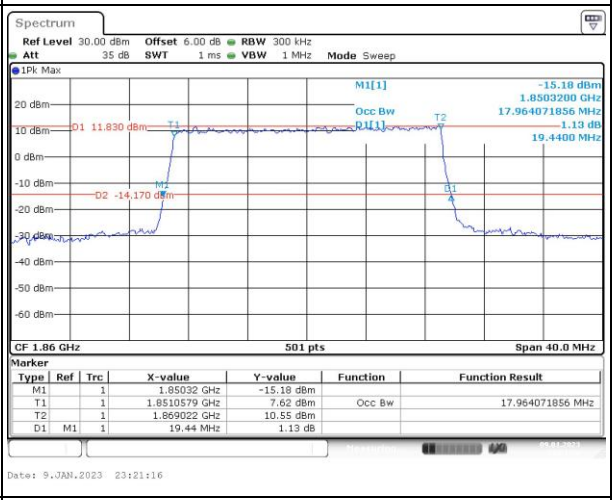
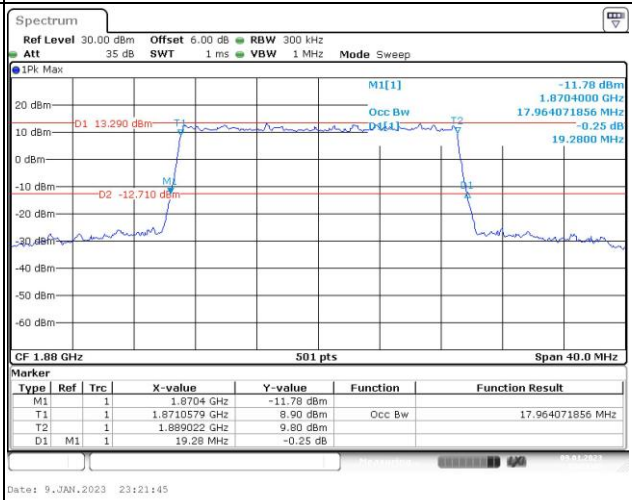
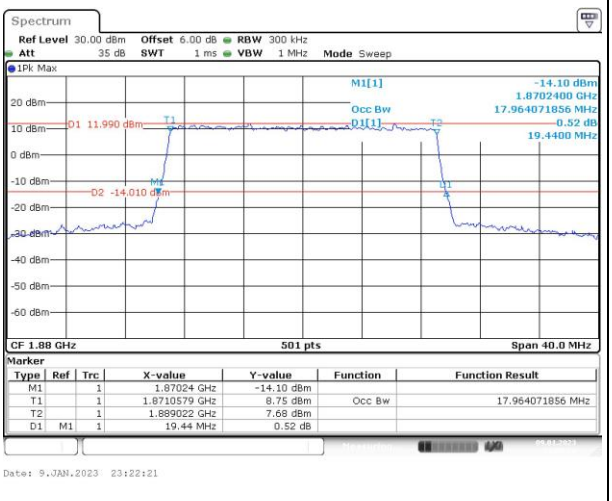
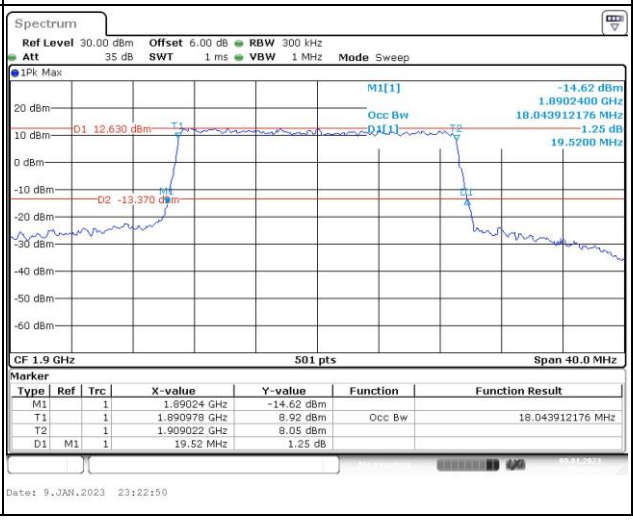
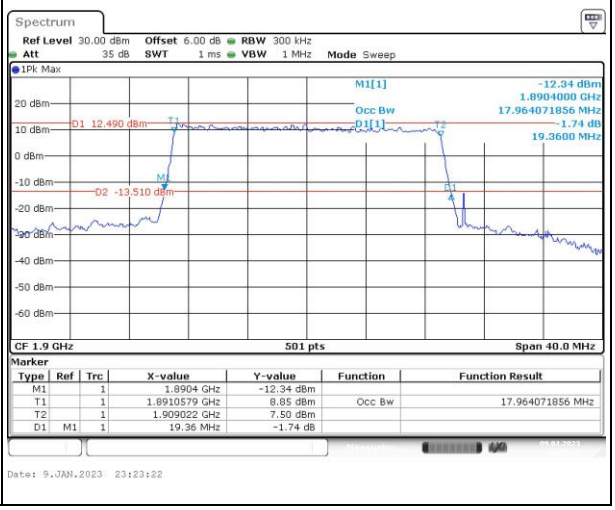
Occupied Bandwidth		
Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

Note: The 6.0 dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer

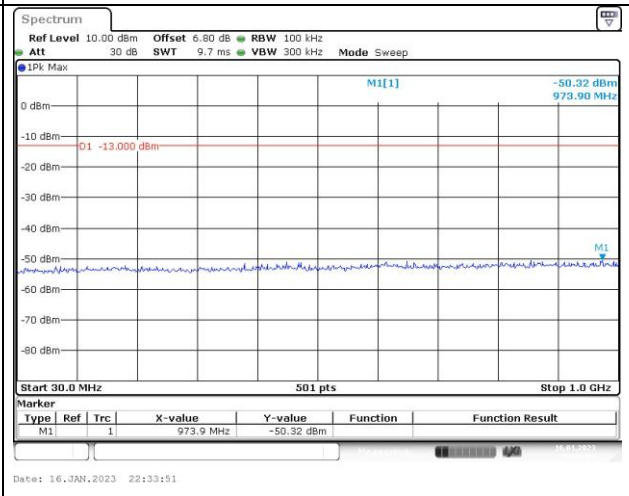
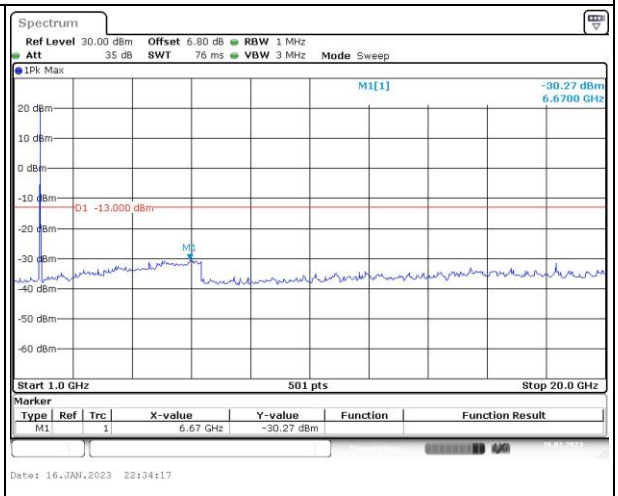
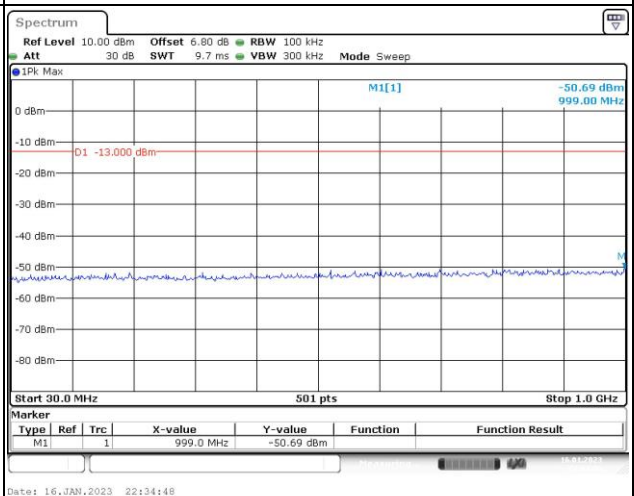
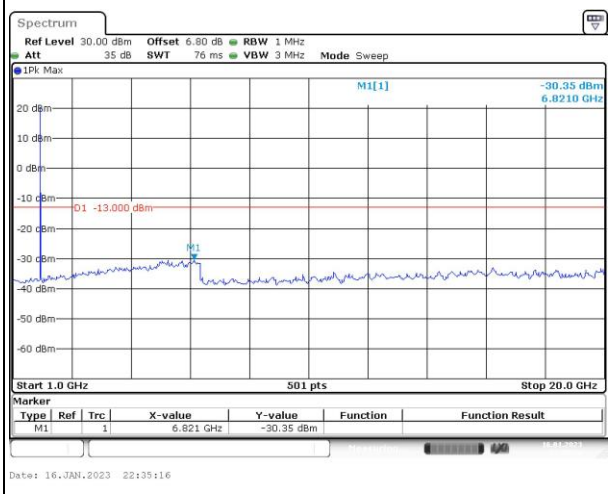
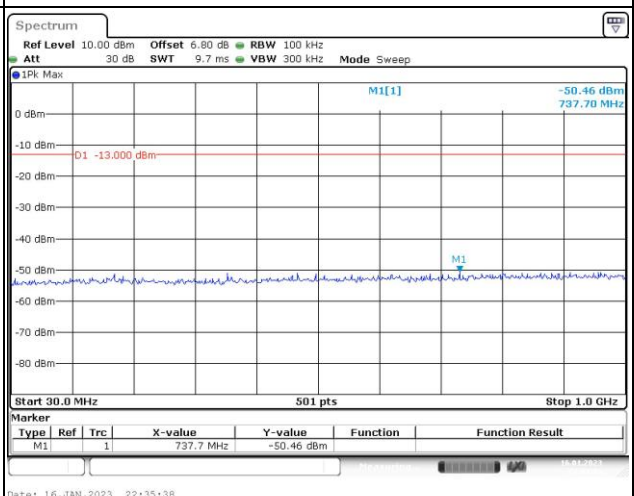
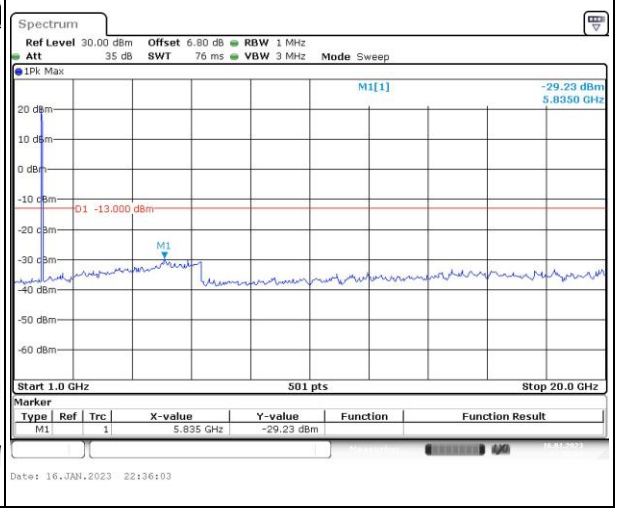
Occupied Bandwidth		
Channel	15MHz Bandwidth QPSK	15MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

Note: The 6.0 dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer

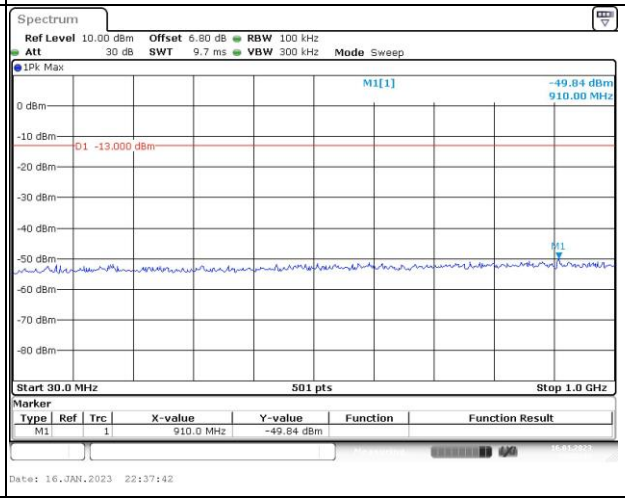
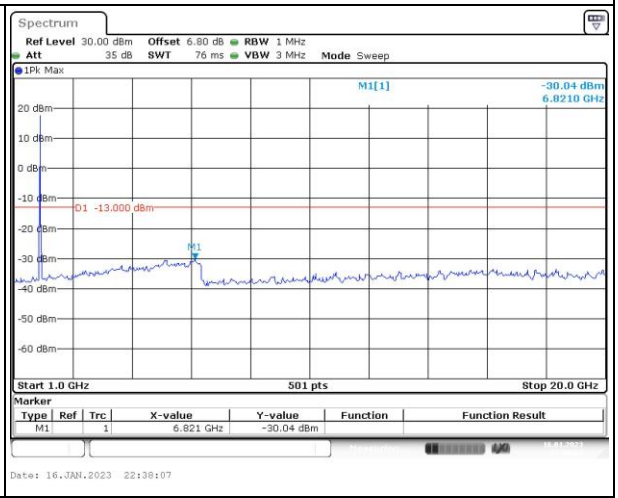
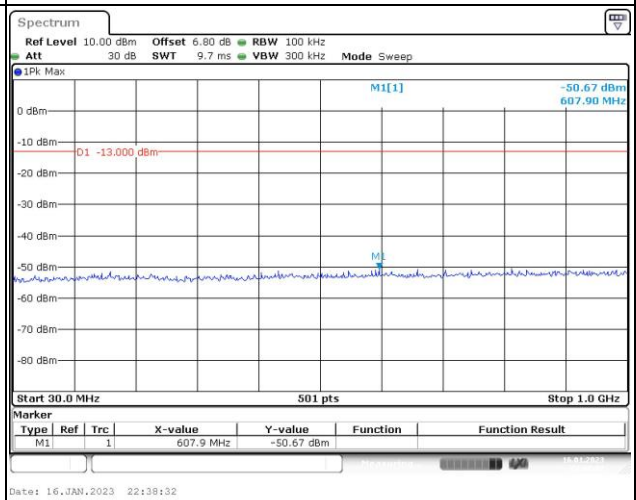
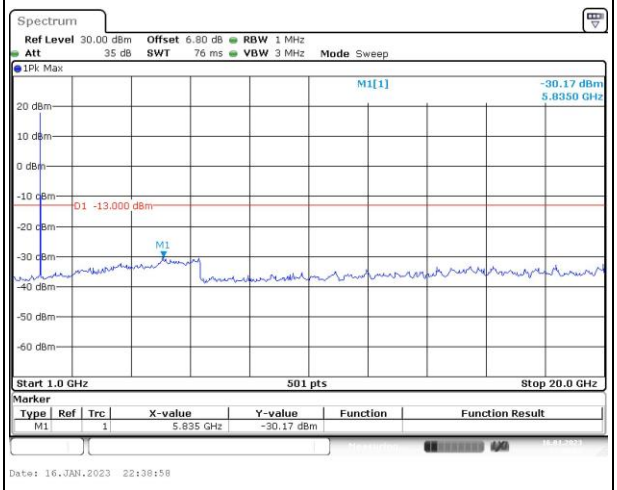
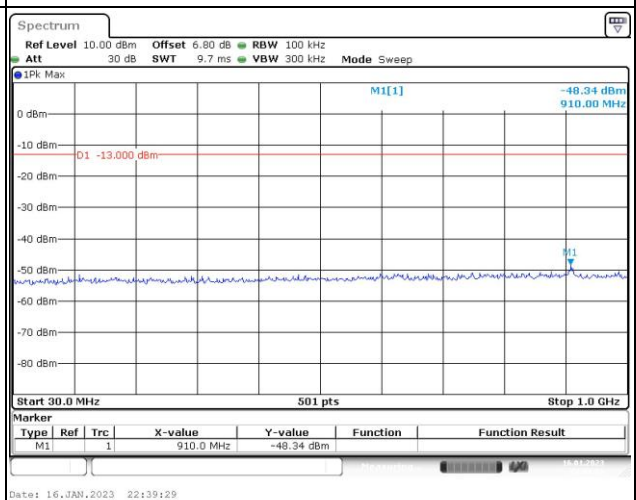
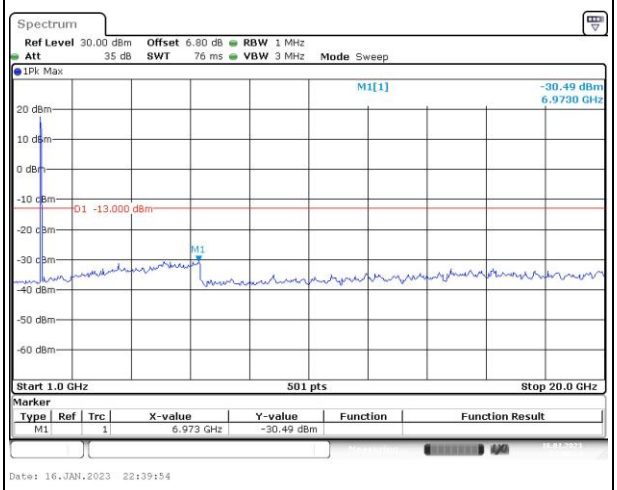
Occupied Bandwidth

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

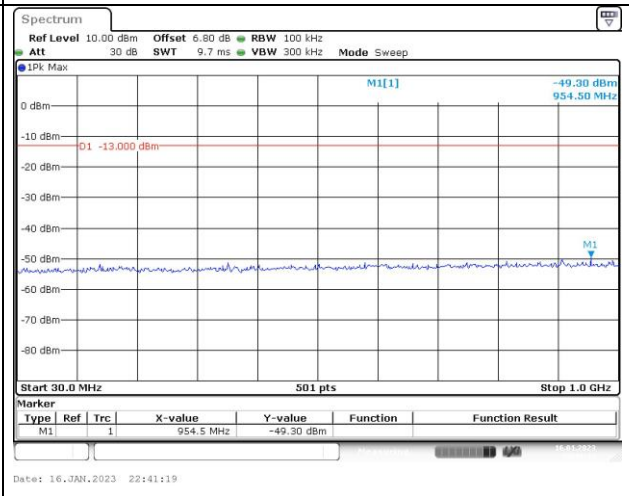
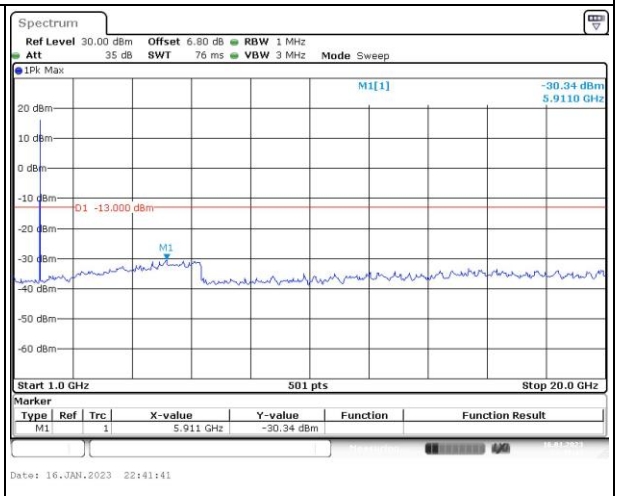
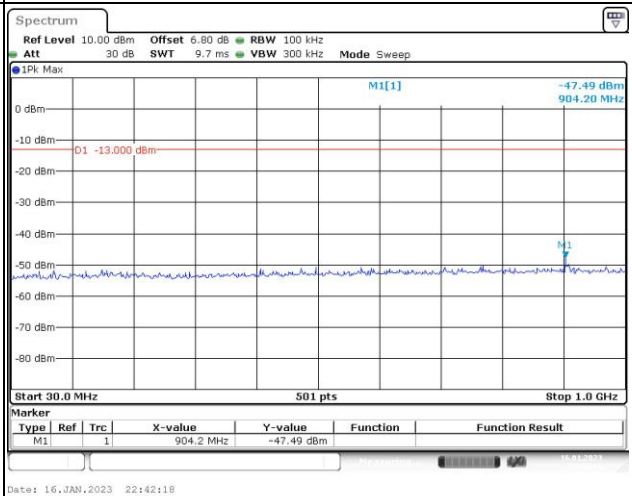
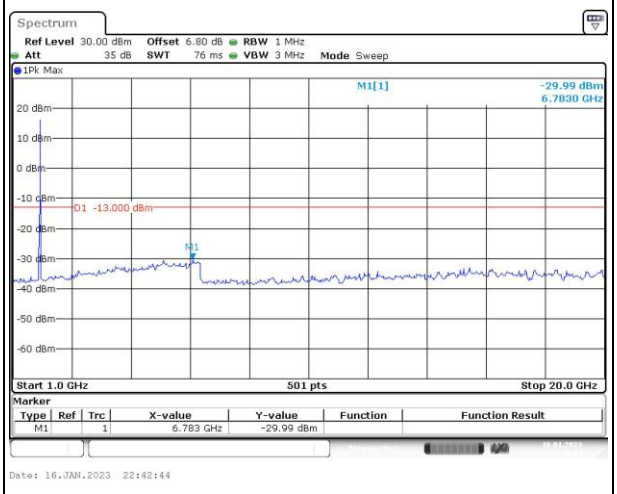
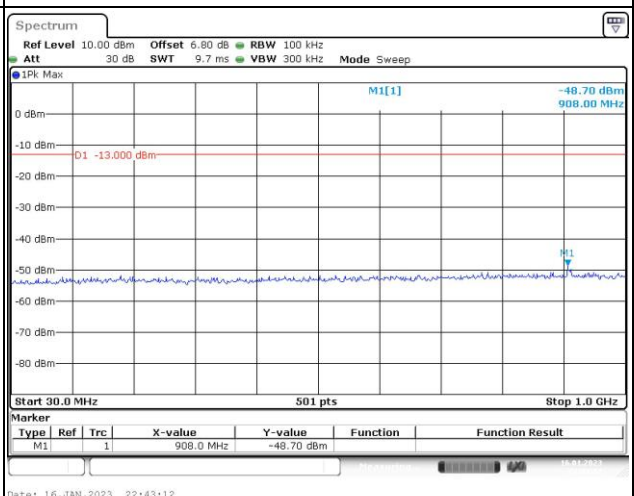
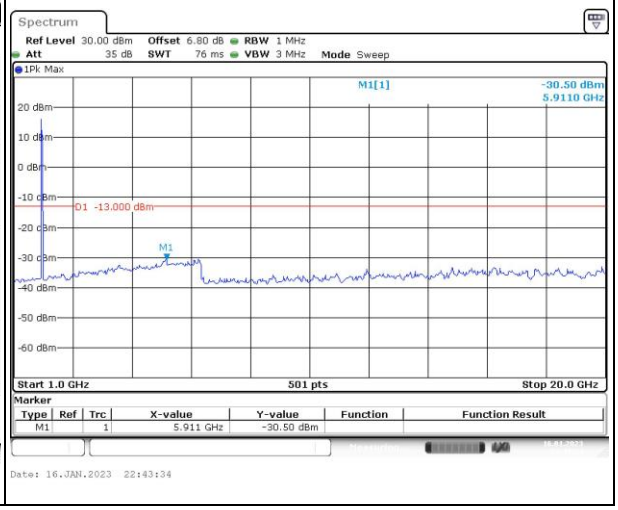
Note: The 6.0 dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer

Spurious Emissions at Antenna Terminal		
Channel	**1.4MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

Note: The 6.8 dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer

Spurious Emissions at Antenna Terminal		
Channel	**3MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

Note: The 6.8 dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer

Spurious Emissions at Antenna Terminal		
Channel	**5MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

Note: The 6.8 dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer