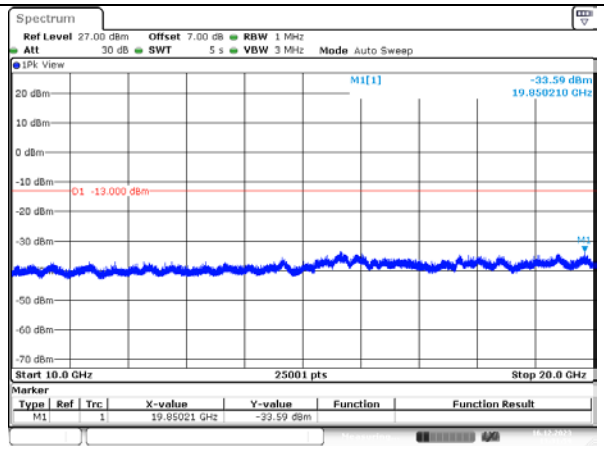
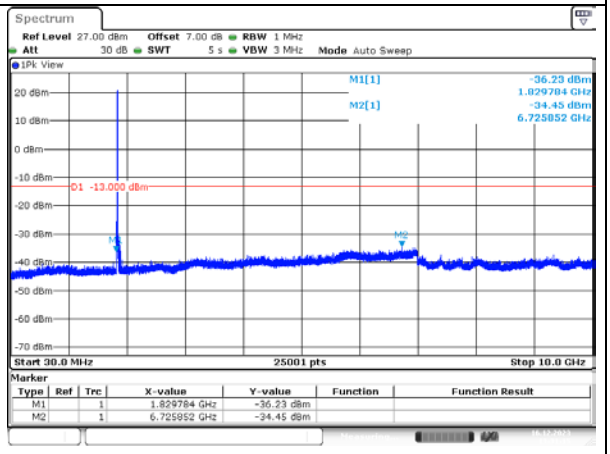
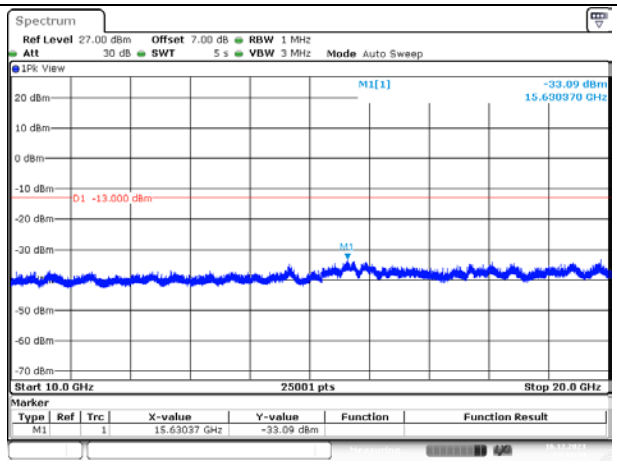
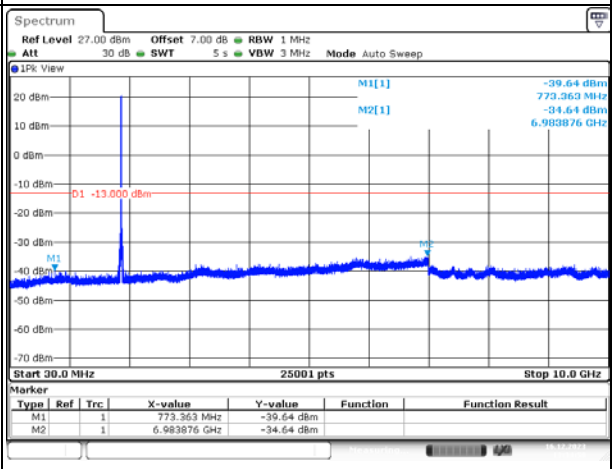
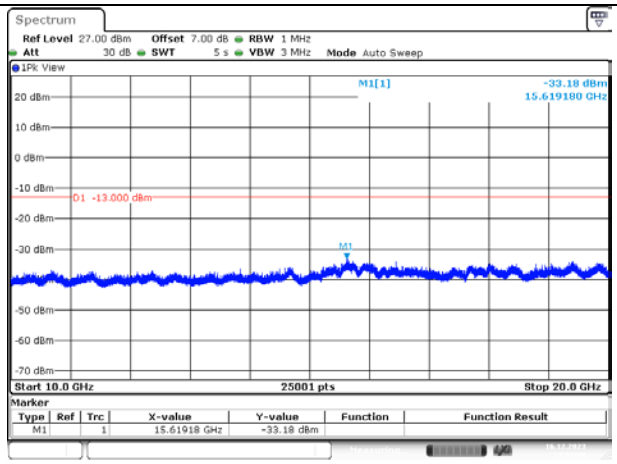
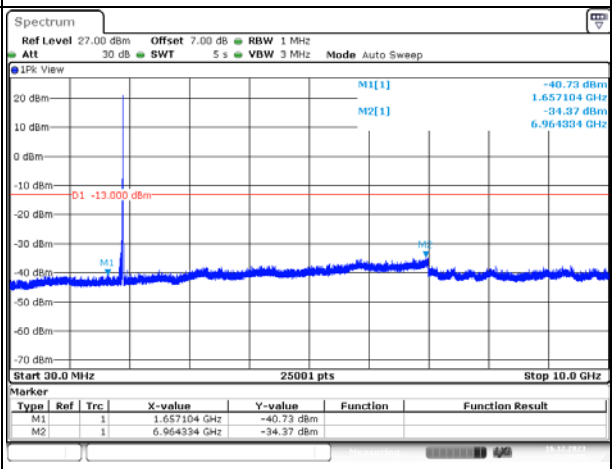
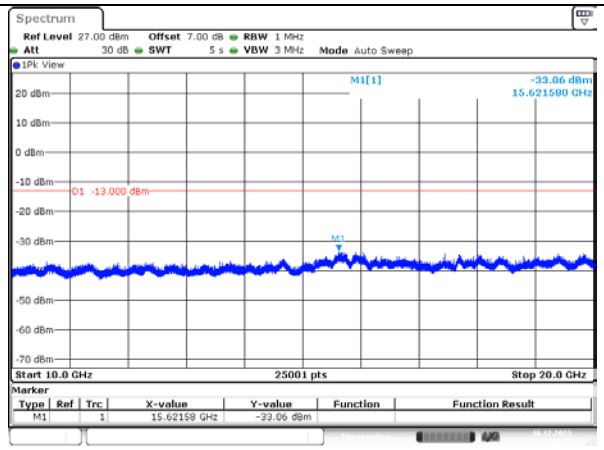
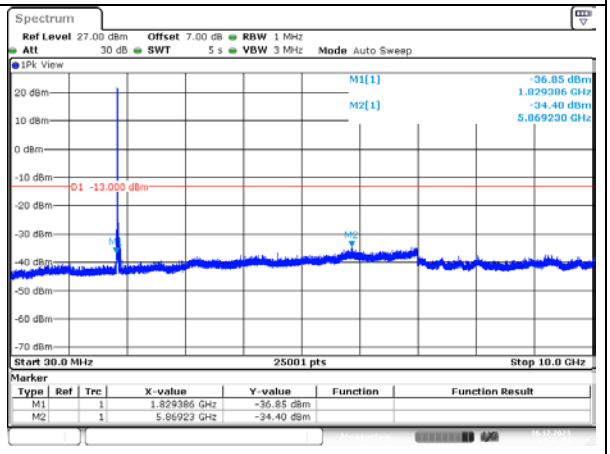
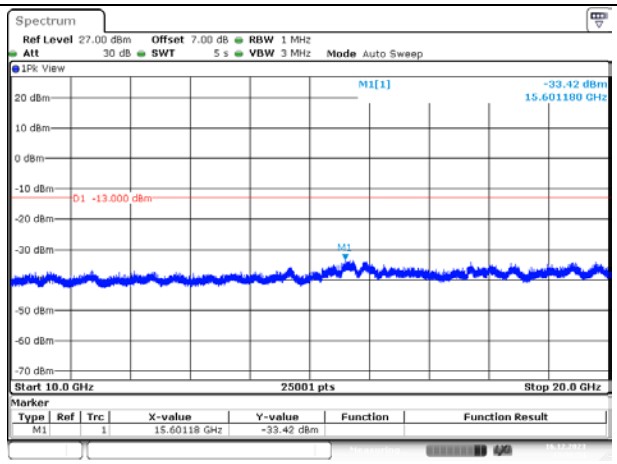
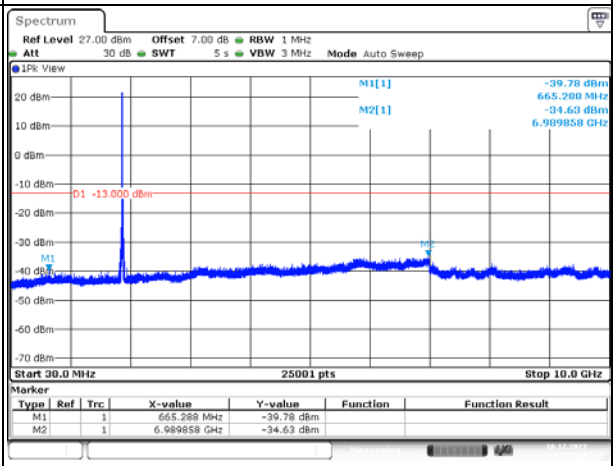
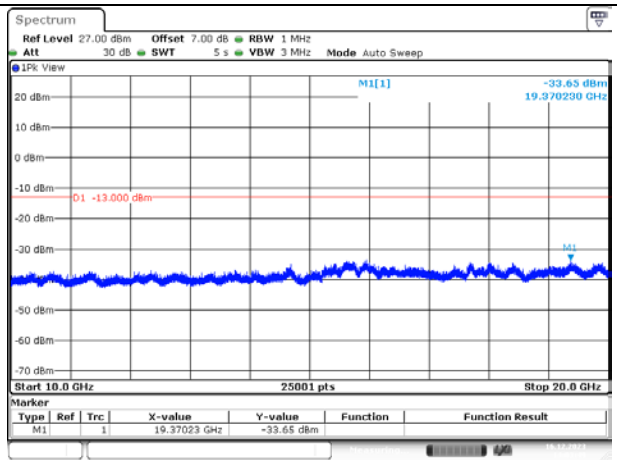
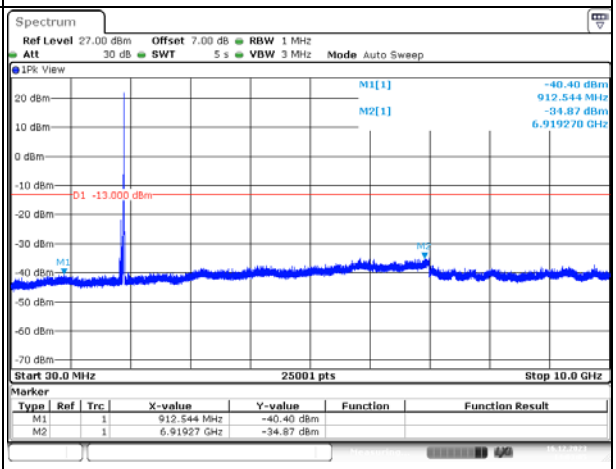
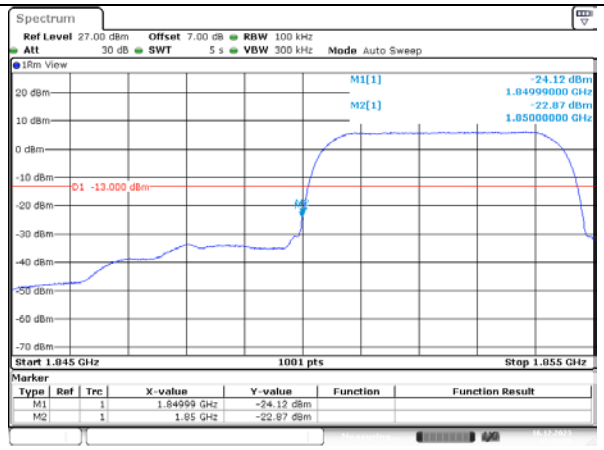
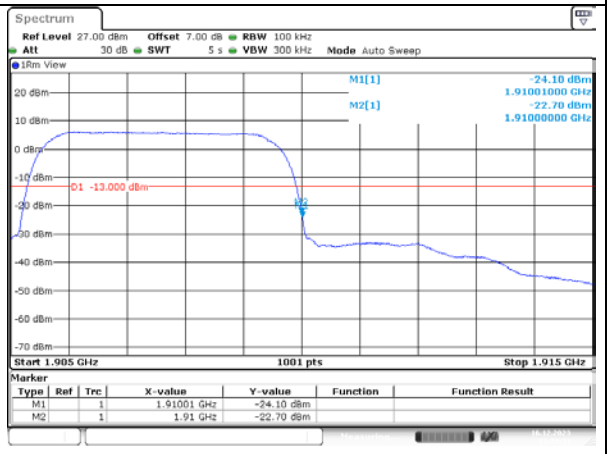
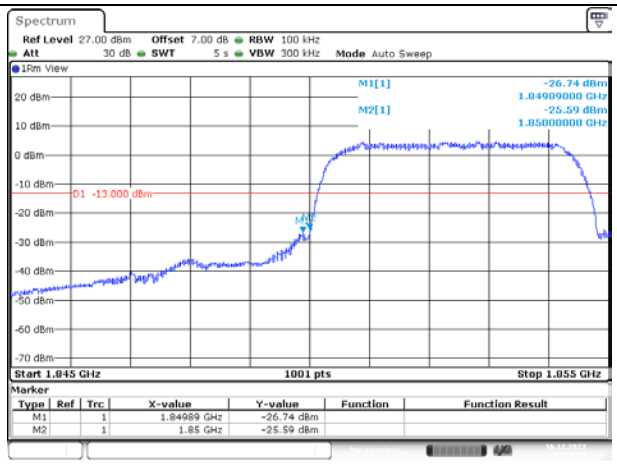
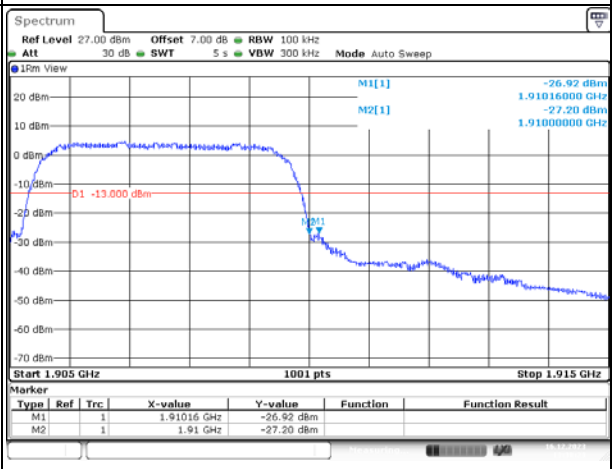
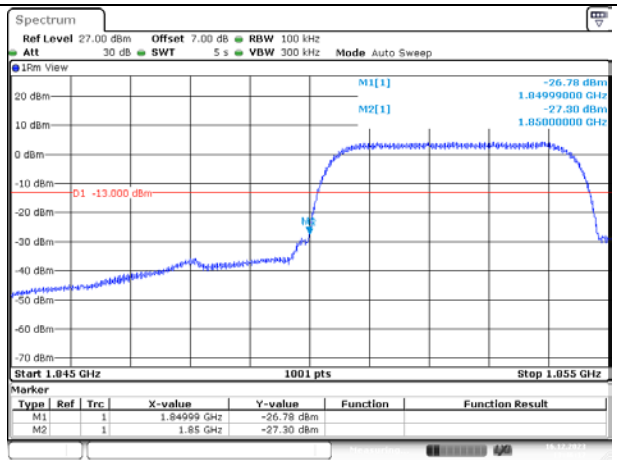
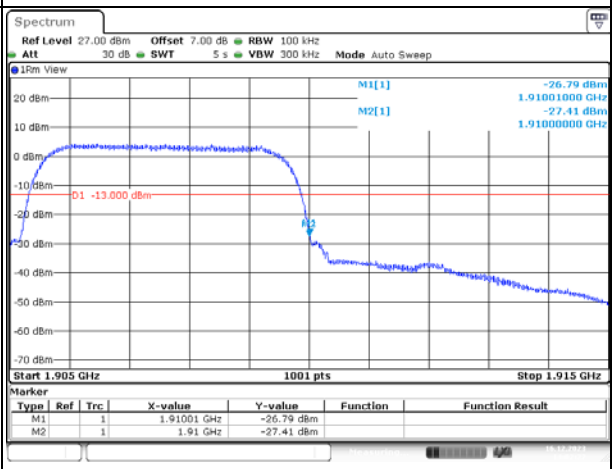
Spurious Emissions at Antenna Terminal		
Channel	HSDPA	
Lowest		
Middle		
Highest		

Spurious Emissions at Antenna Terminal		
Channel	HSUPA	
Lowest		
Middle		
Highest		

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

4.4 Antenna Port Test Data and Results for WCDMA Band 4:

Serial Number:	2EOC-1	Test Date:	2023/12/13~2023/12/19
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	18~22	Relative Humidity: (%)	36~54	ATM Pressure: (kPa)	101.5

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101590	2023/11/16	2024/11/15
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	2023/3/31	2024/3/30
BACL	EMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	N/A	N/A
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 Modes	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
WCDMA	1712.4	1732.6	1752.6

Test Data:

RF Output Power

Test Mode	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
	Lowest Channel	Middle Channel	Highest Channel		
WCDMA R99	21.21	20.98	20.92	20.58	30
HSDPA Subtest 1	20.06	19.96	19.24	19.43	30
HSDPA Subtest 2	20.01	19.85	19.13	19.38	30
HSDPA Subtest 3	19.59	19.49	18.75	18.96	30
HSDPA Subtest 4	19.58	19.48	18.78	18.95	30
HSUPA Subtest 1	19.75	19.72	19.12	19.12	30
HSUPA Subtest 2	19.67	19.67	19.06	19.04	30
HSUPA Subtest 3	19.24	19.25	18.65	18.62	30
HSUPA Subtest 4	19.26	19.24	18.61	18.63	30
HSUPA Subtest 5	19.86	19.83	19.21	19.23	30
DC-HSDPA Subtest 1	19.64	19.62	18.96	19.01	30
DC-HSDPA Subtest 2	19.16	19.21	18.55	18.58	30
DC-HSDPA Subtest 3	19.17	19.22	18.53	18.59	30
DC-HSDPA Subtest 4	19.74	19.72	19.16	19.11	30
HSPA+ Subtest 1	19.67	19.67	19.08	19.04	30
Note: EIRP=Conducted Power(dBm) - L_C(dB) + G_T(dBi)					
				Result:	**Pass**

Peak-to-average Ratio(PAR)

Test Mode	Peak-to-average Ratio(dB)			Limit (dB)	
	Lowest Channel	Middle Channel	Highest Channel		
WCDMA R99	3.07	3.04	3.13	13	
HSDPA	4.84	4.7	4.67	13	
HSUPA	5.88	5.83	5.88	13	
				Result:	**Pass**

Occupied Bandwidth

Opration Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
WCDMA R99	4.166	4.166	4.166	4.74	4.74	4.875
HSDPA	4.181	4.181	4.271	4.71	4.725	5.64
HSUPA	4.181	4.181	4.286	4.725	4.725	6.39
Note: The test plots please refer to the Plots of Occupied Bandwidth						

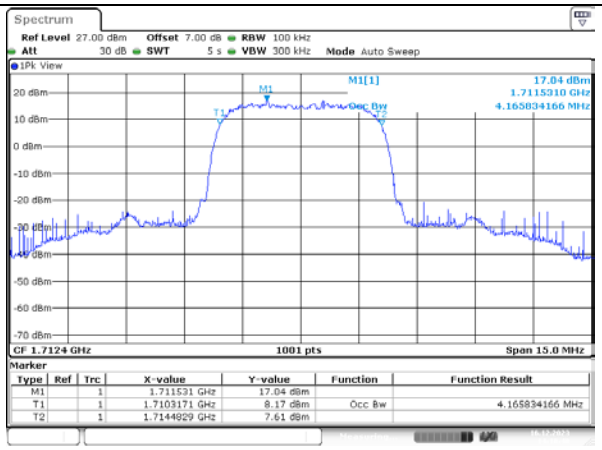
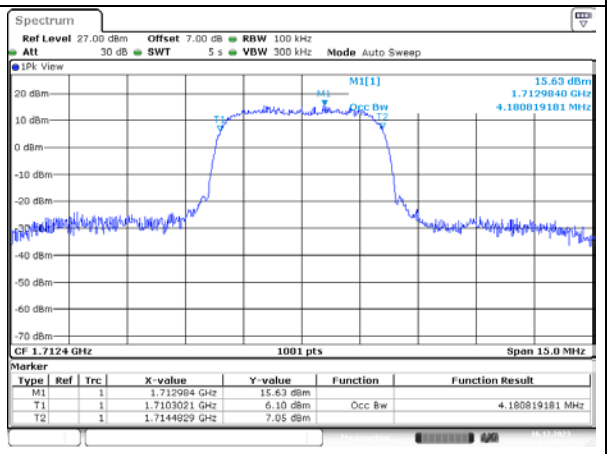
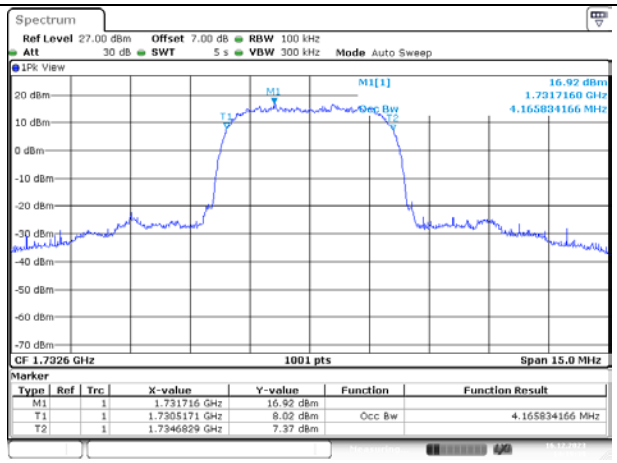
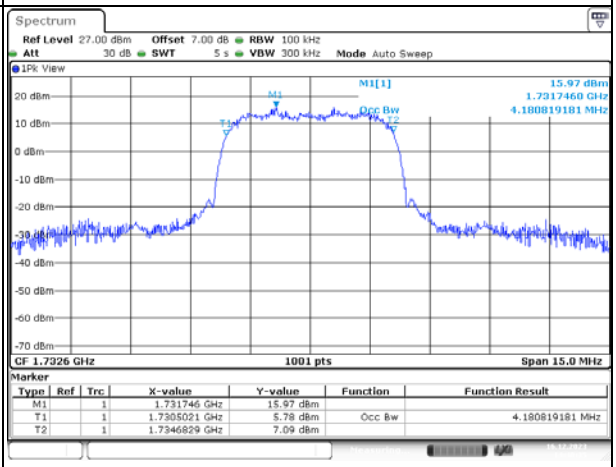
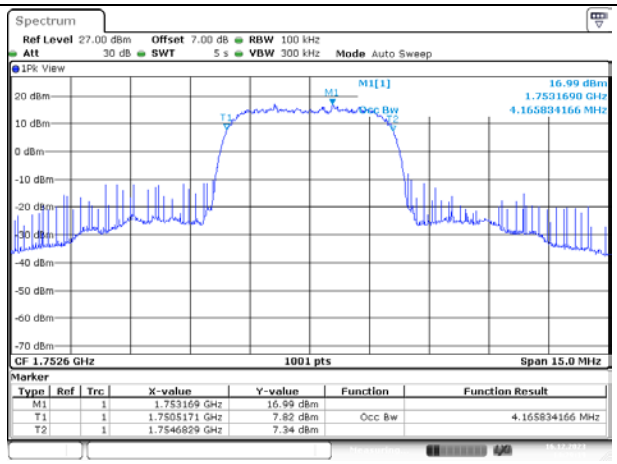
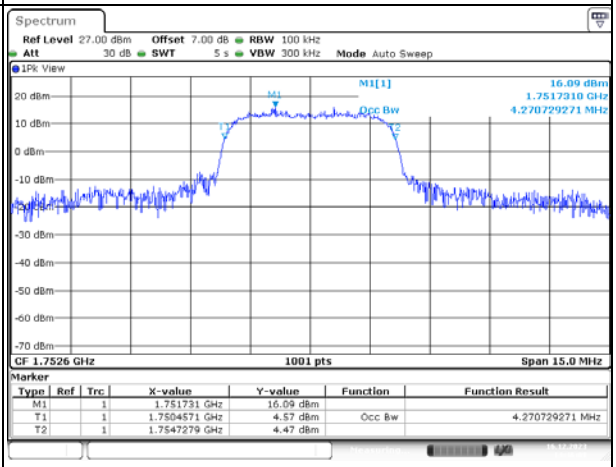
Spurious Emissions at Antenna Terminal	
Result:	**Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**

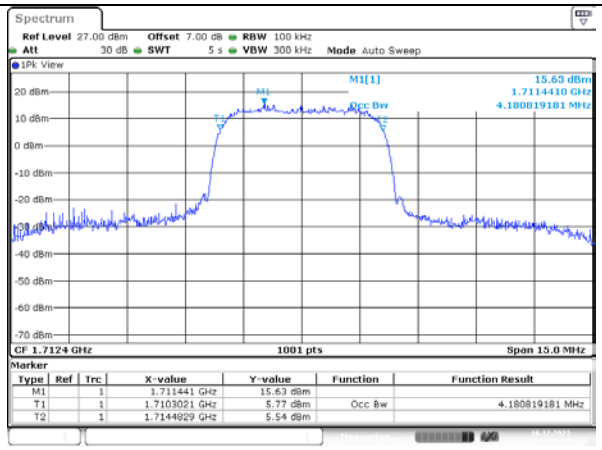
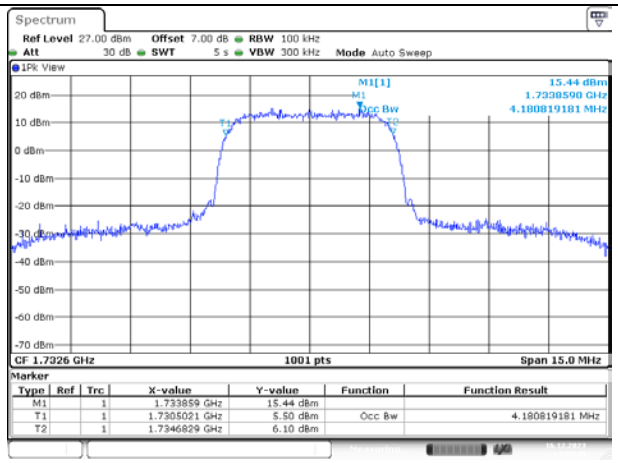
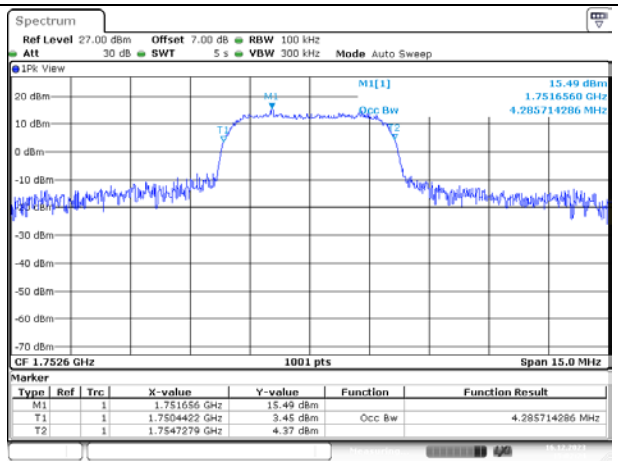
Out of band emission, Band Edge	
Result:	**Pass, Please refer to the test plots of Out of band emission, Band Edge.**

Frequency Stability

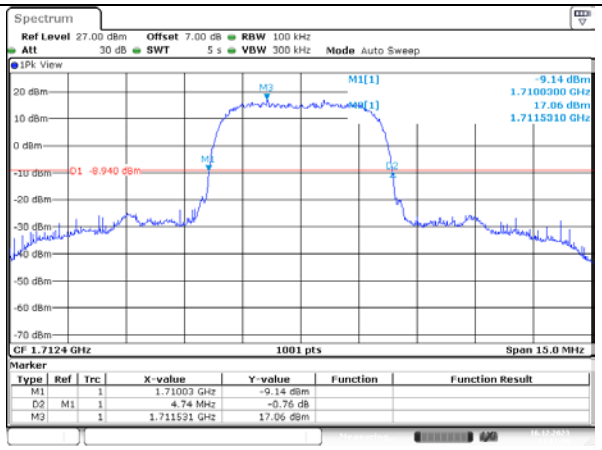
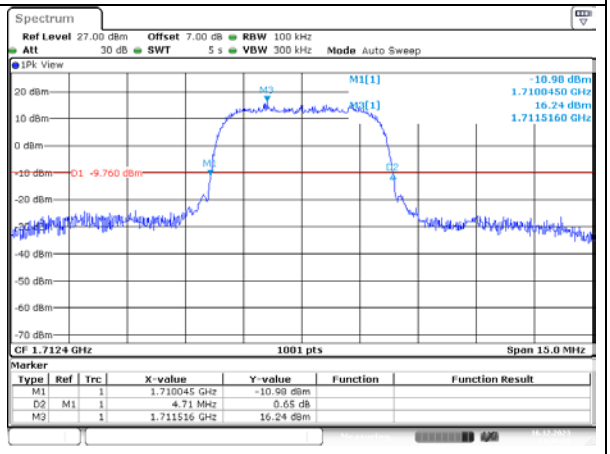
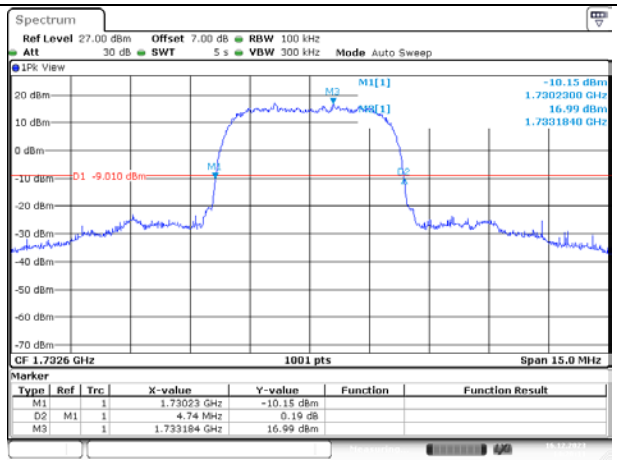
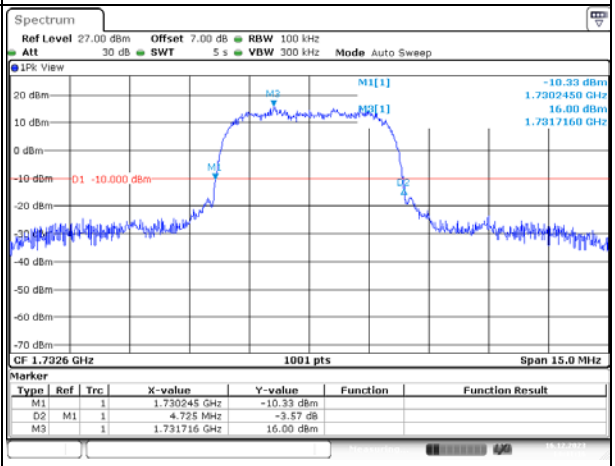
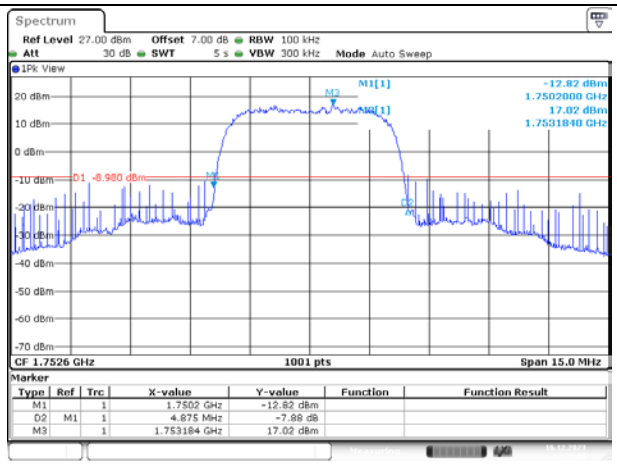
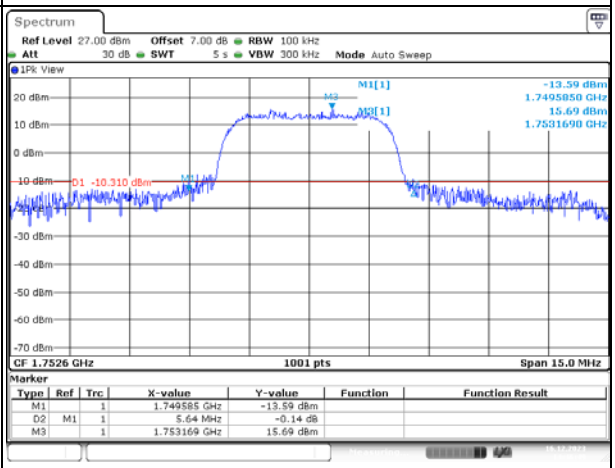
Test Mode:	WCDMA R99	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.87	1710.248	1710.000	1754.676	1755.000
	-20	3.87	1710.372	1710.000	1754.675	1755.000
	-10	3.87	1710.318	1710.000	1754.641	1755.000
	0	3.87	1710.265	1710.000	1754.626	1755.000
	10	3.87	1710.312	1710.000	1754.622	1755.000
	20	3.87	1710.317	1710.000	1754.683	1755.000
	30	3.87	1710.344	1710.000	1754.744	1755.000
	40	3.87	1710.228	1710.000	1754.668	1755.000
	50	3.87	1710.394	1710.000	1754.591	1755.000
Frequency Stability vs. Voltage	20	3.4	1710.371	1710.000	1754.620	1755.000
	20	4.4	1710.281	1710.000	1754.645	1755.000
					Result:	**Pass**

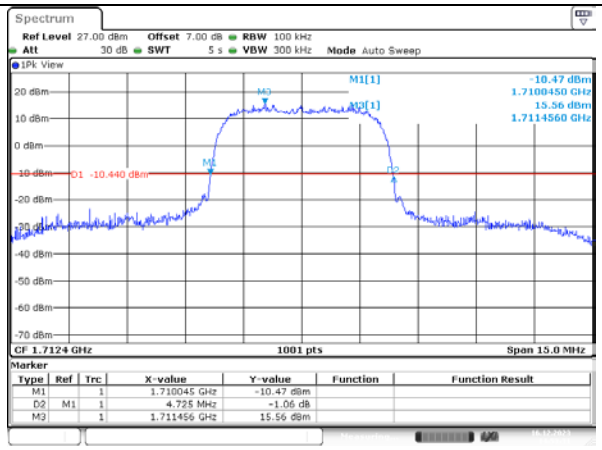
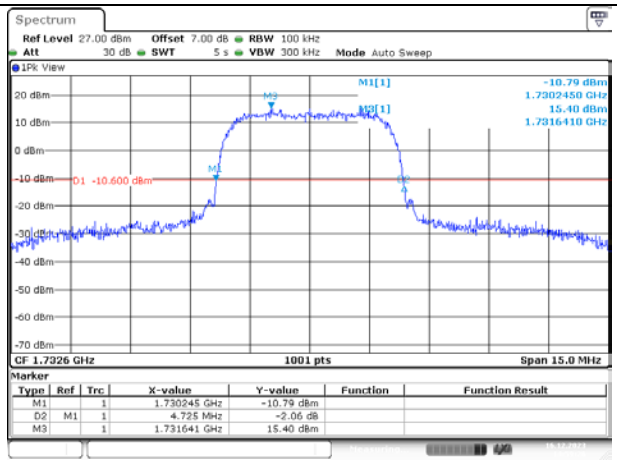
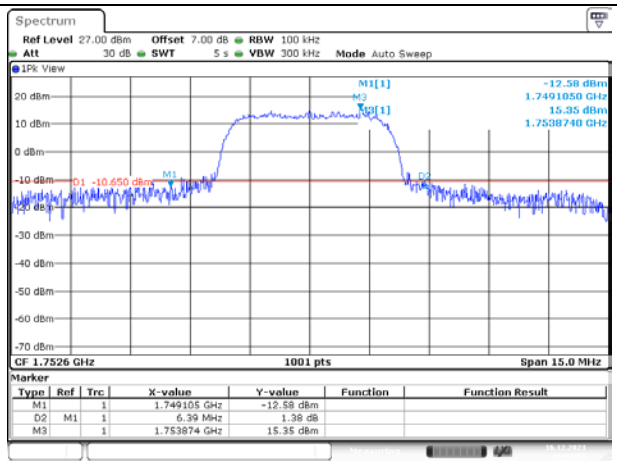
Test Plots(Note: The 7.0dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer)**:**

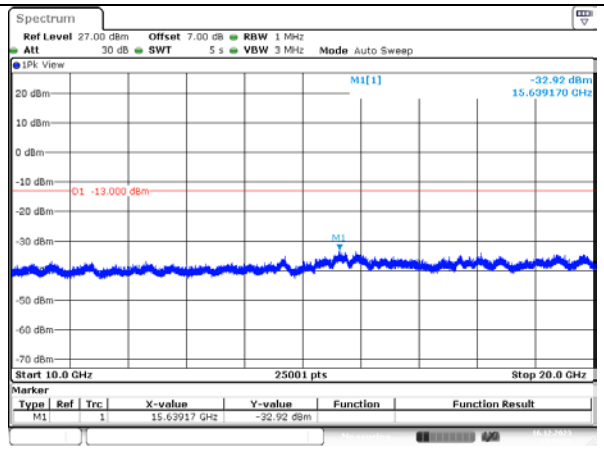
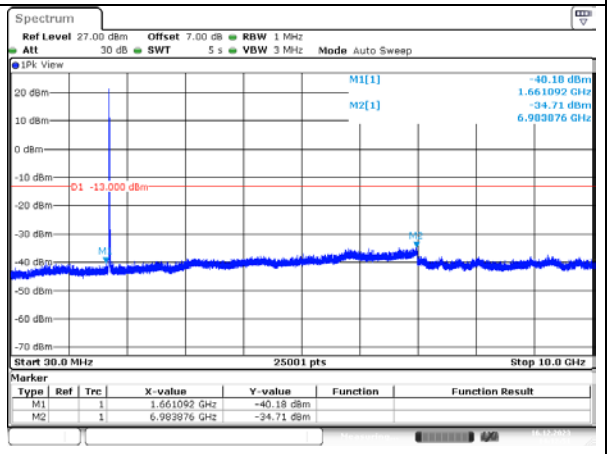
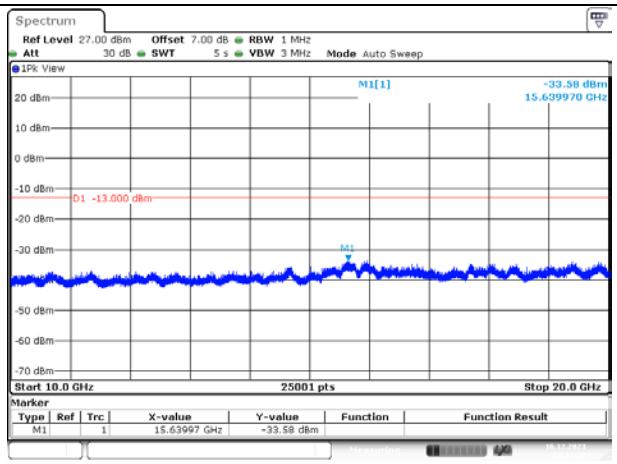
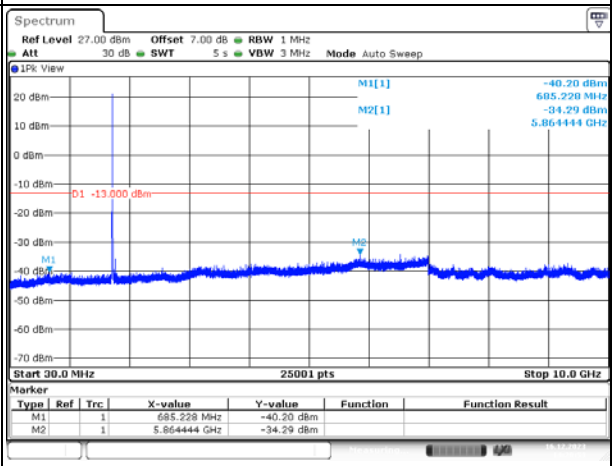
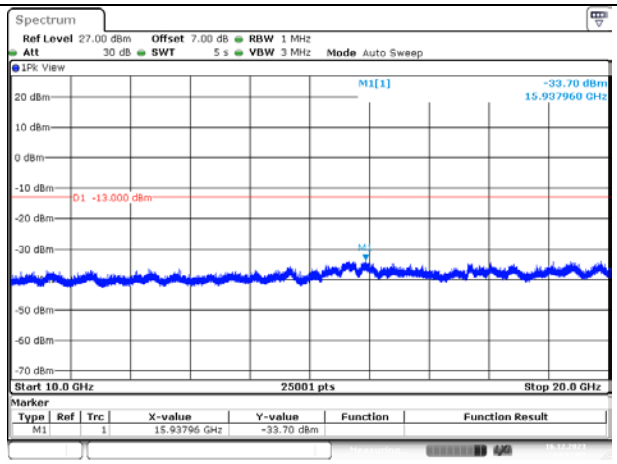
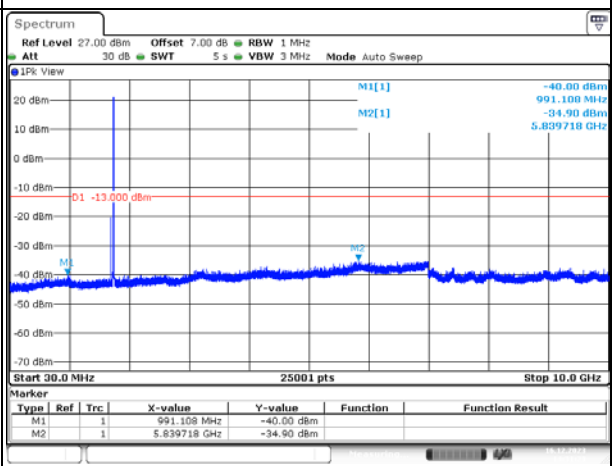
Occupied Bandwidth		
Channel	RMC	HSDPA
Lowest		
Middle		
Highest		

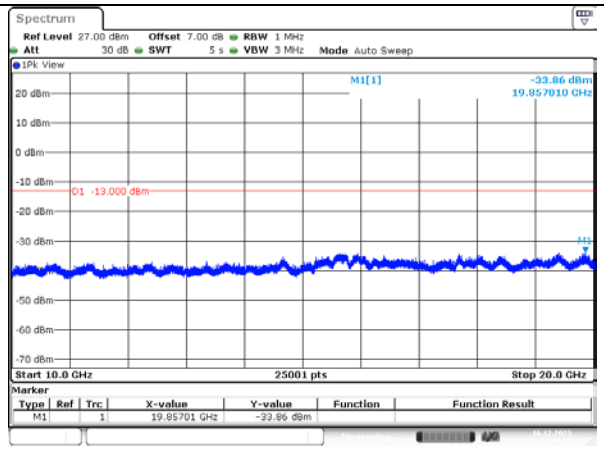
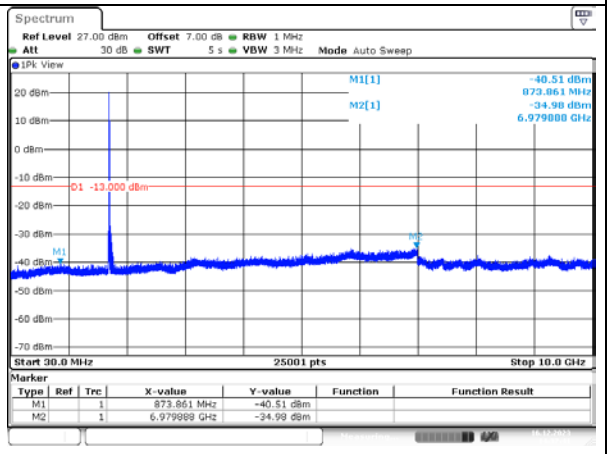
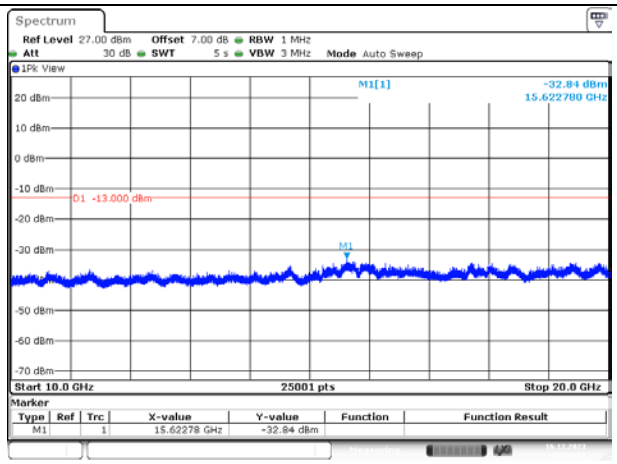
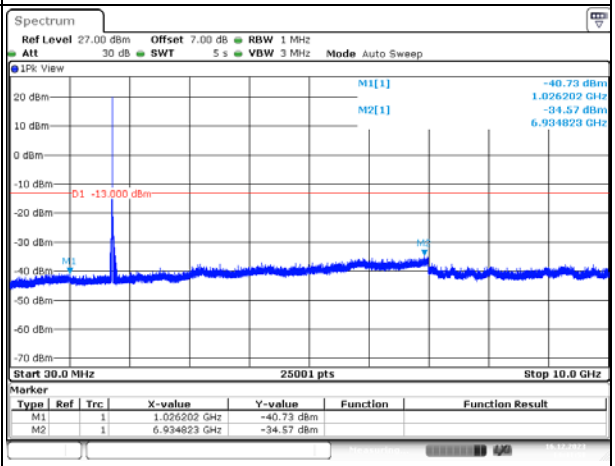
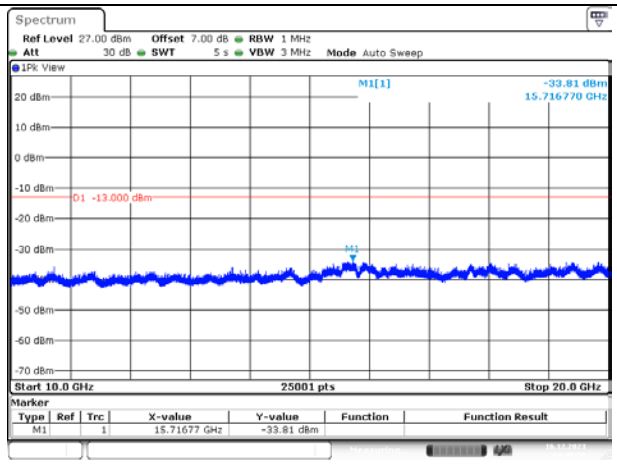
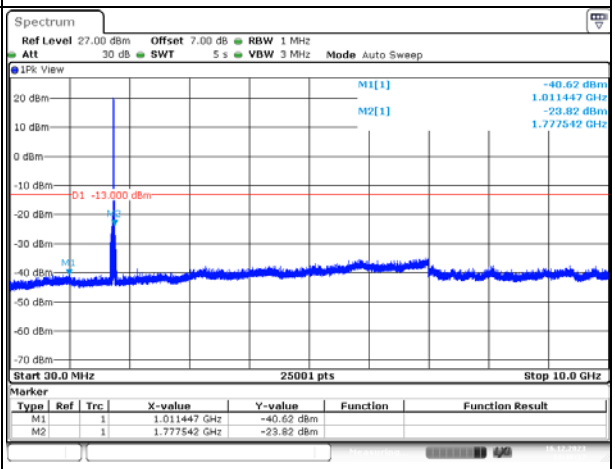
Occupied Bandwidth	
Channel	HSUPA
Lowest	
Middle	
Highest	

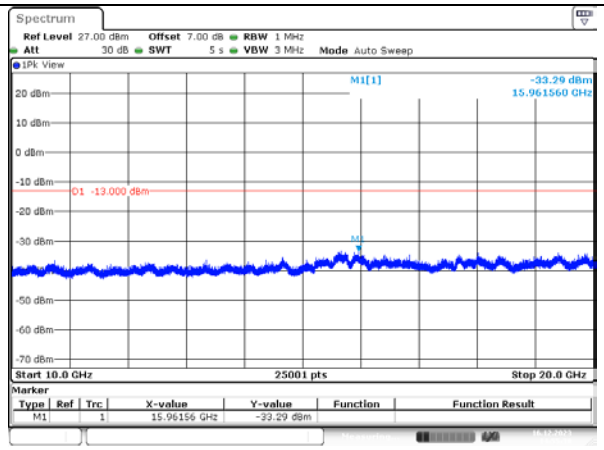
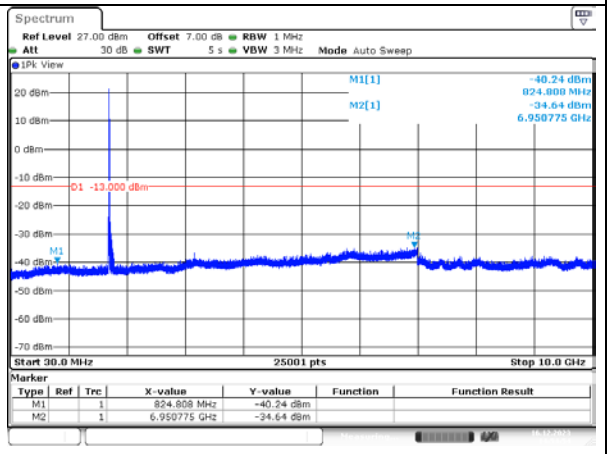
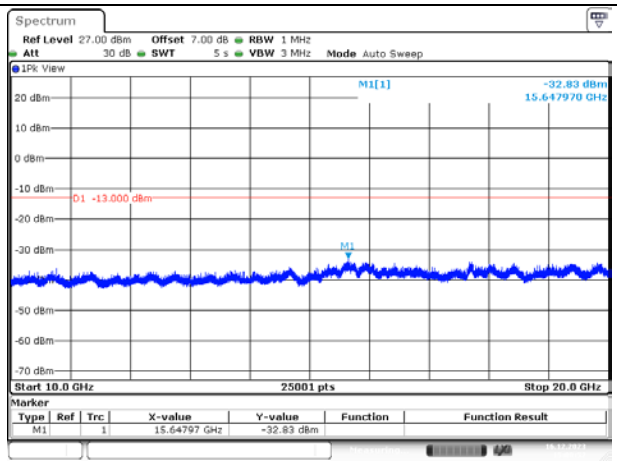
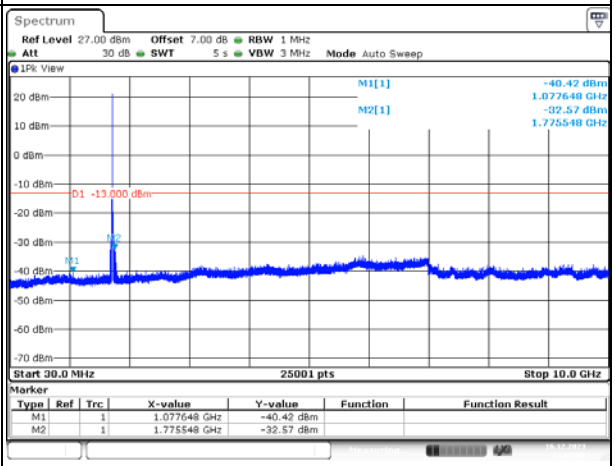
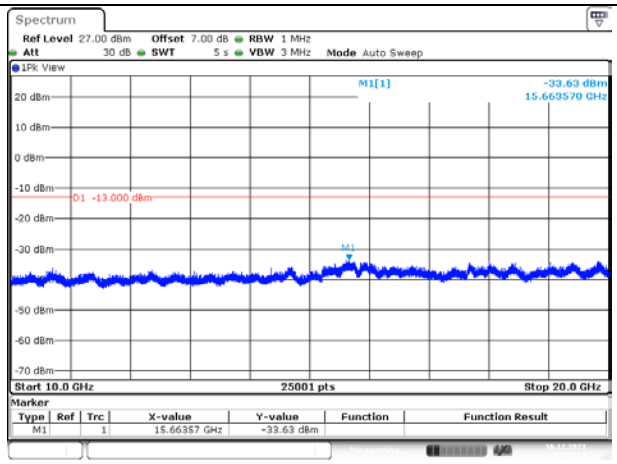
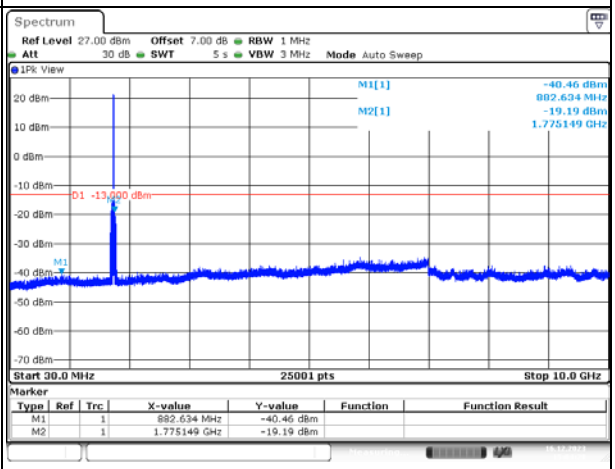
26dB Bandwidth

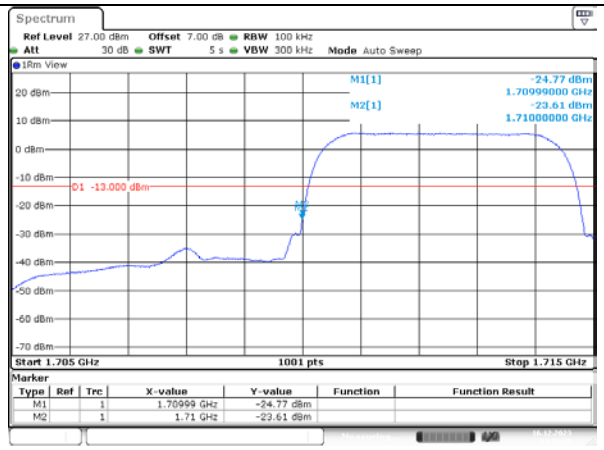
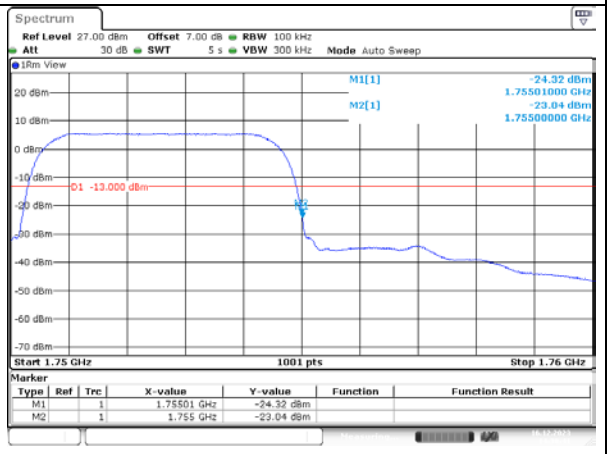
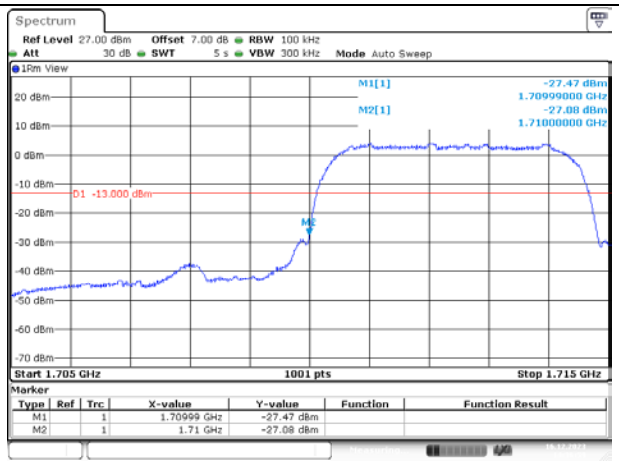
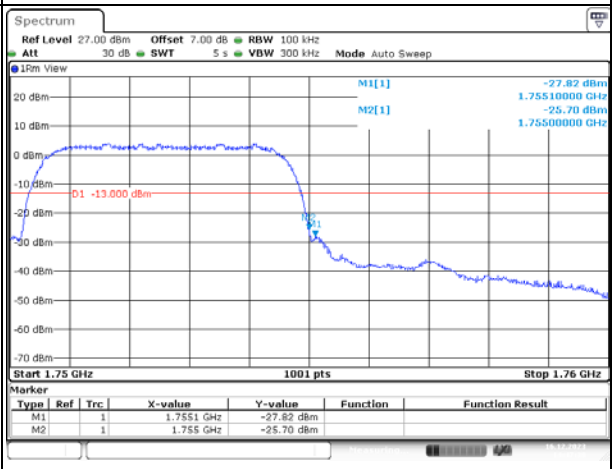
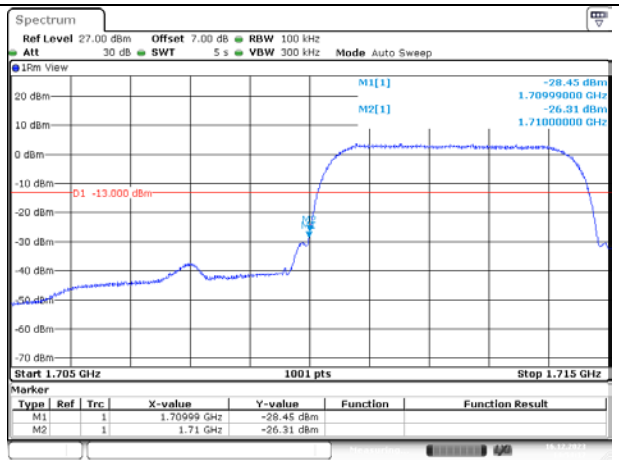
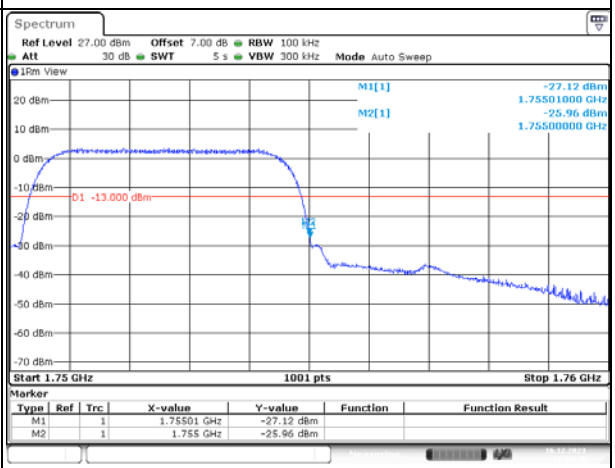
Channel	RMC	HSDPA
Lowest		
Middle		
Highest		

26dB Bandwidth	
Channel	HSUPA
Lowest	
Middle	
Highest	

Spurious Emissions at Antenna Terminal		
Channel	RMC	
Lowest		
Middle		
Highest		

Spurious Emissions at Antenna Terminal		
Channel	HSDPA	
Lowest		
Middle		
Highest		

Spurious Emissions at Antenna Terminal		
Channel	HSUPA	
Lowest		
Middle		
Highest		

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

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

Serial Number:	2EOC-1	Test Date:	2023/12/13~2023/12/19
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	18~22	Relative Humidity: (%)	36~54	ATM Pressure: (kPa)	101.5

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101590	2023/11/16	2024/11/15
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	2023/3/31	2024/3/30
BACL	EMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	N/A	N/A
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	836.4	846.6

Test Data:

RF Output Power

Test Mode	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
	Lowest Channel	Middle Channel	Highest Channel		
WCDMA R99	22.39	22.27	22.32	16.82	38.45
HSDPA Subtest 1	20.09	20.34	20.51	14.94	38.45
HSDPA Subtest 2	19.99	20.23	20.42	14.85	38.45
HSDPA Subtest 3	19.64	19.83	20.01	14.44	38.45
HSDPA Subtest 4	19.61	19.84	20.01	14.44	38.45
HSUPA Subtest 1	19.76	19.42	18.85	14.19	38.45
HSUPA Subtest 2	19.71	19.34	18.74	14.14	38.45
HSUPA Subtest 3	19.28	18.95	18.37	13.71	38.45
HSUPA Subtest 4	19.19	18.89	18.31	13.62	38.45
HSUPA Subtest 5	19.87	19.51	18.94	14.3	38.45
DC-HSDPA Subtest 1	19.6	19.23	18.67	14.03	38.45
DC-HSDPA Subtest 2	19.19	18.84	18.29	13.62	38.45
DC-HSDPA Subtest 3	19.17	18.75	18.22	13.6	38.45
DC-HSDPA Subtest 4	19.79	19.38	18.89	14.22	38.45
HSPA+ Subtest 1	19.69	19.32	18.79	14.12	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	3.33	3.33	2.99	13
HSDPA	4.87	4.7	4.7	13
HSUPA	5.91	6.06	6	13

Result: Pass

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	4.181	4.166	4.151	4.74	4.74	4.725
HSDPA	4.211	4.211	4.181	5.55	4.95	4.725
HSUPA	4.211	4.211	4.196	4.965	5.025	4.845

Note: The test plots please refer to the Plots of Occupied Bandwidth

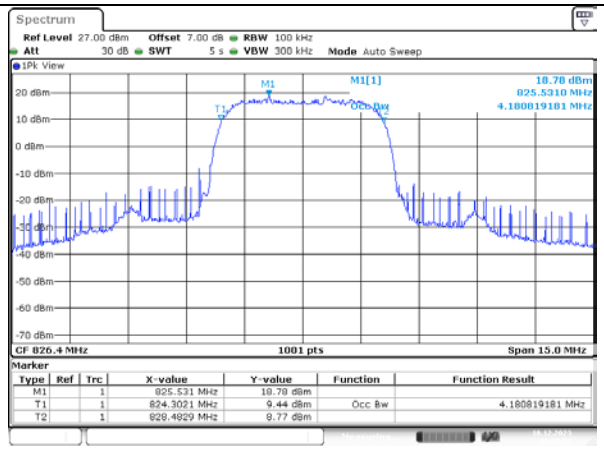
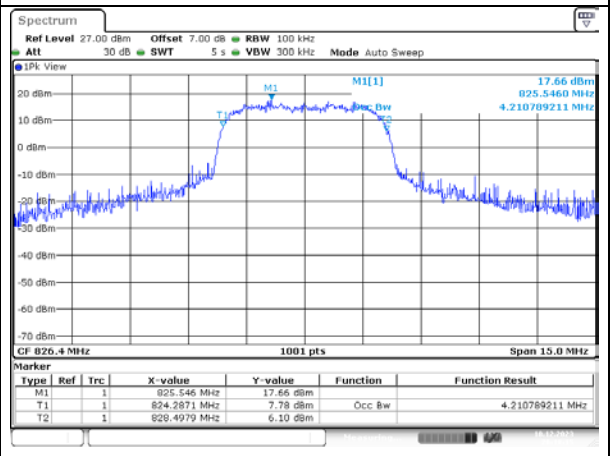
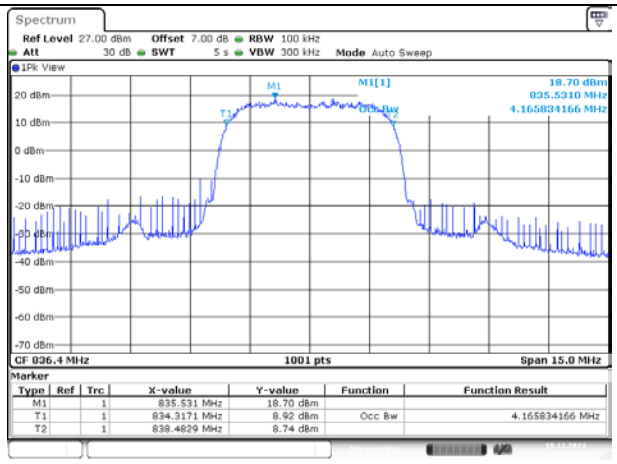
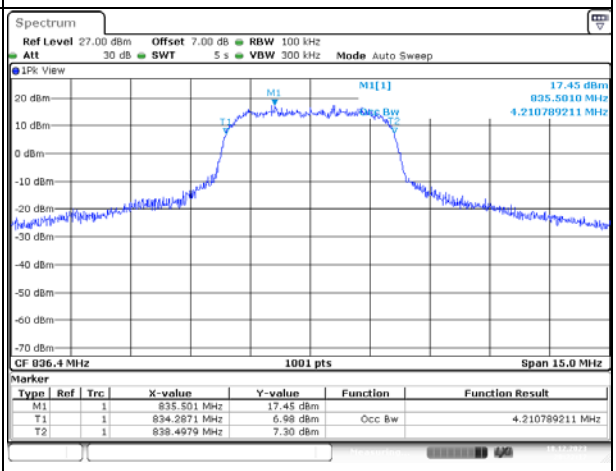
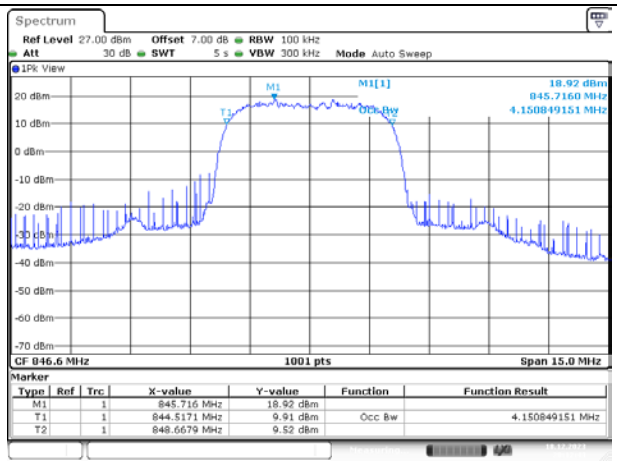
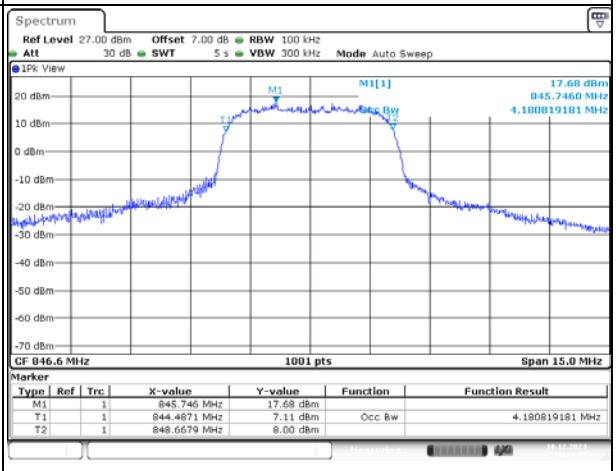
Spurious Emissions at Antenna Terminal	
Result:	**Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**

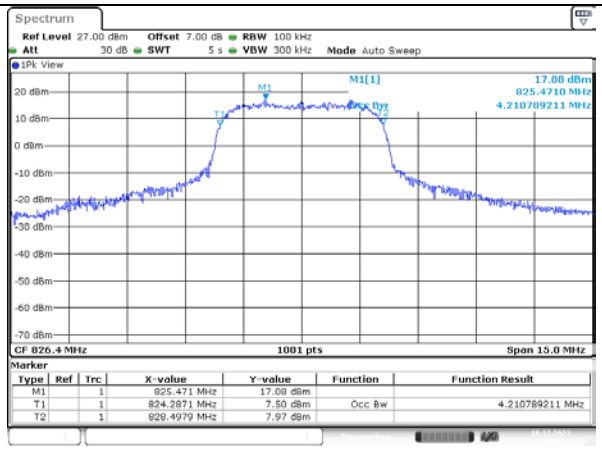
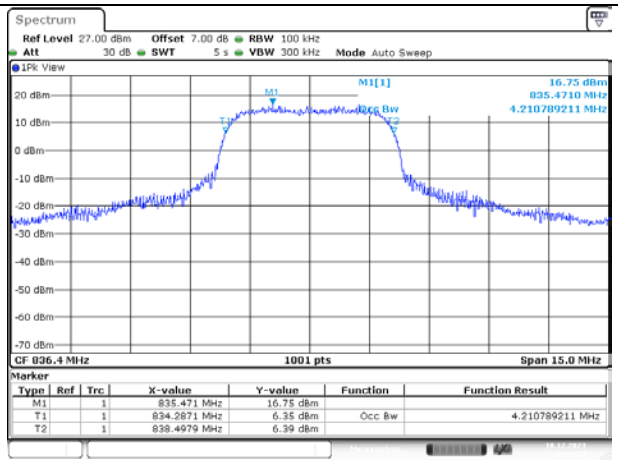
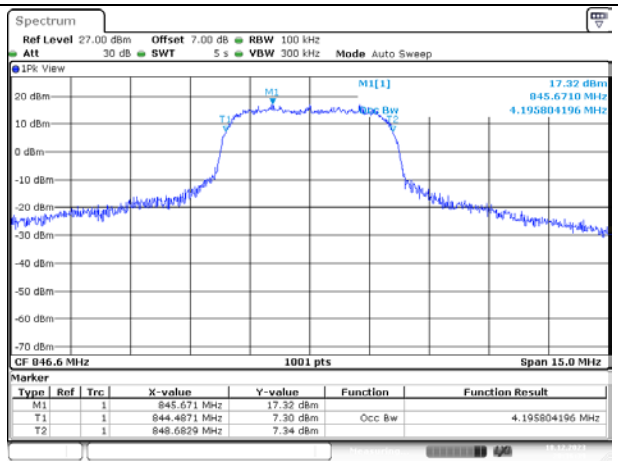
Out of band emission, Band Edge	
Result:	**Pass, Please refer to the test plots of Out of band emission, Band Edge.**

Frequency Stability

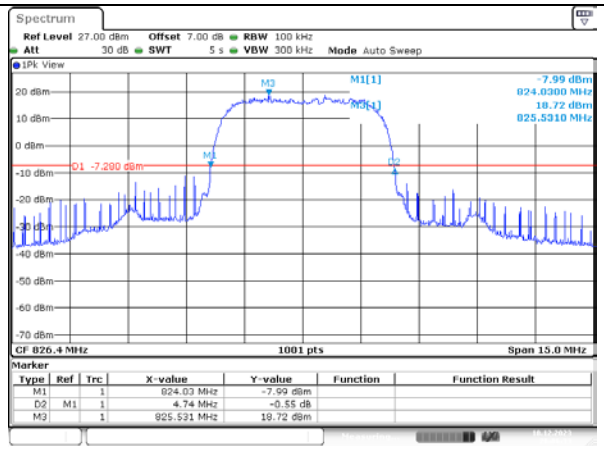
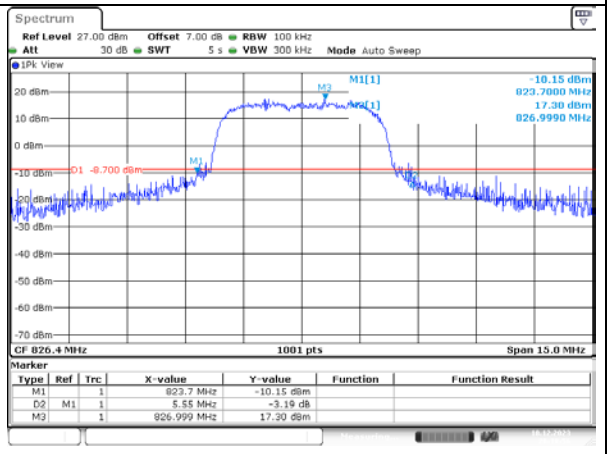
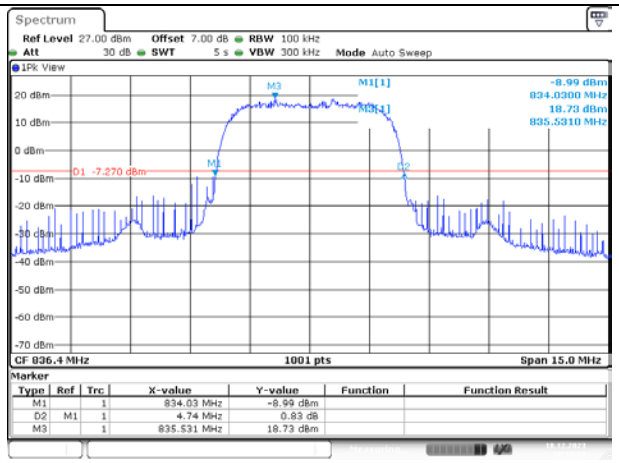
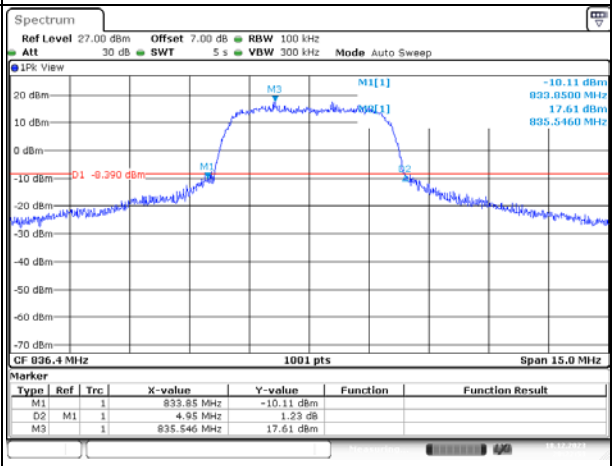
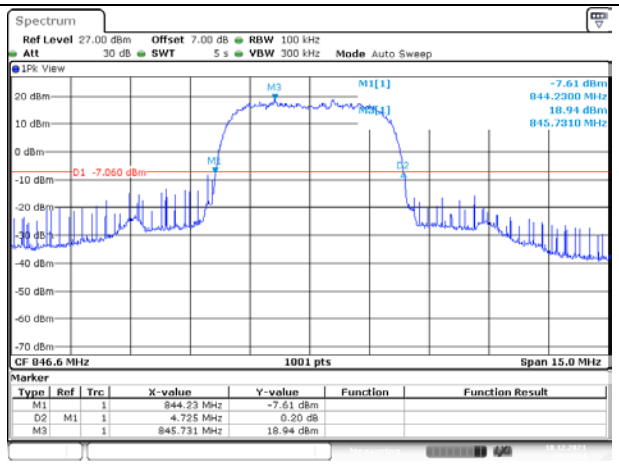
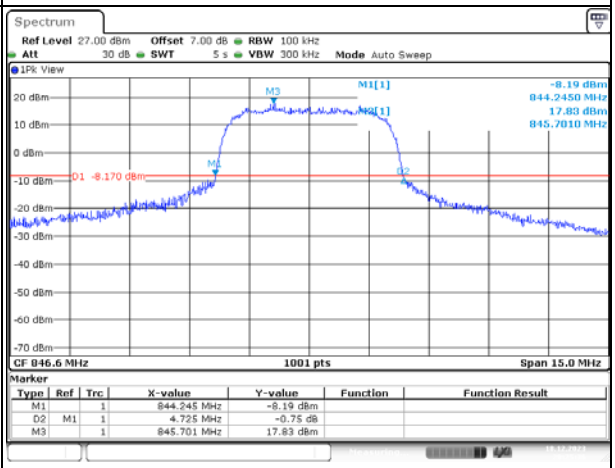
Test Modulation:	WCDMA R99		Test Channel:	836.6	MHz
Test Item	Temperature (℃)	Voltage (V_{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.87	-9.28	-0.011	2.5
	-20	3.87	-11.82	-0.014	2.5
	-10	3.87	-11.59	-0.014	2.5
	0	3.87	-12.53	-0.015	2.5
	10	3.87	-9.08	-0.011	2.5
	20	3.87	-11.53	-0.014	2.5
	30	3.87	-9.07	-0.011	2.5
	40	3.87	-13.35	-0.016	2.5
	50	3.87	-13.76	-0.016	2.5
Frequency Stability vs. Voltage	20	3.4	-13.57	-0.016	2.5
	20	4.4	-11.77	-0.014	2.5
				Result:	**Pass**

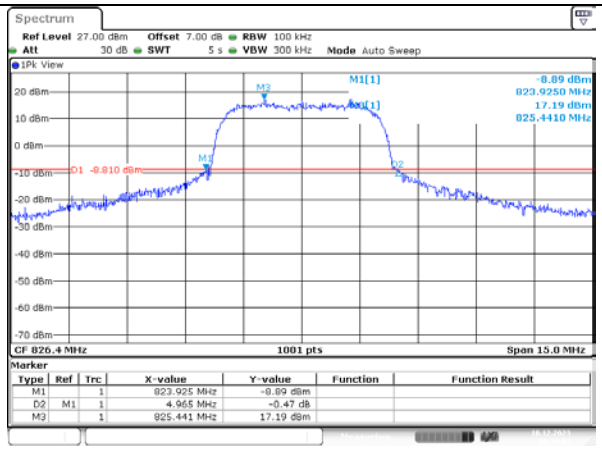
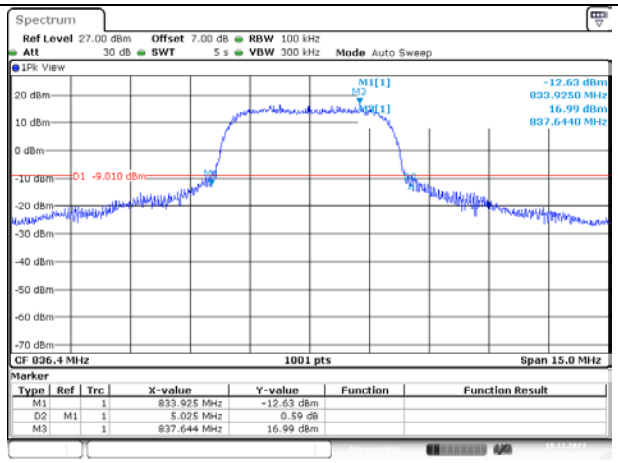
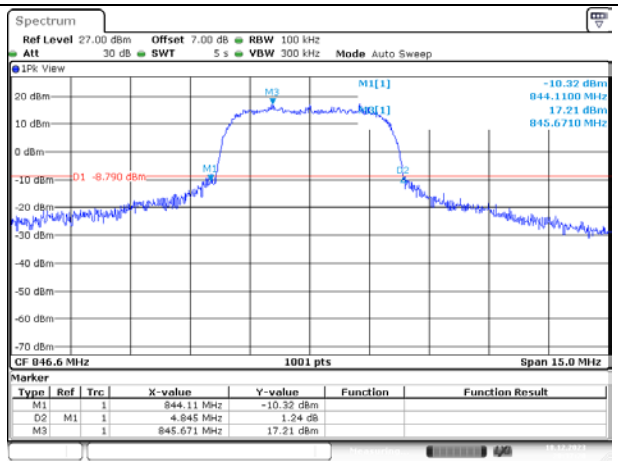
Test Plots(Note: The 7.0dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer)**:**

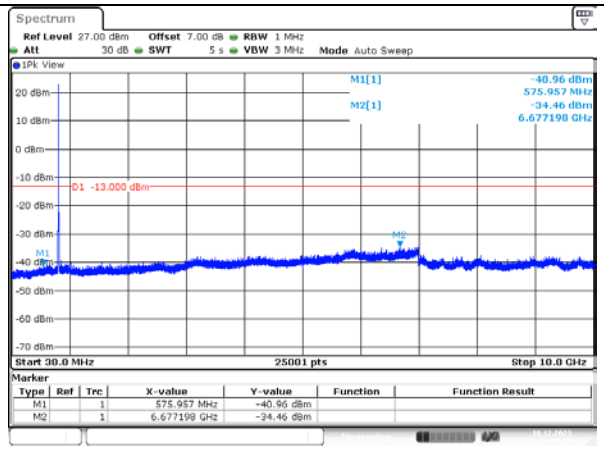
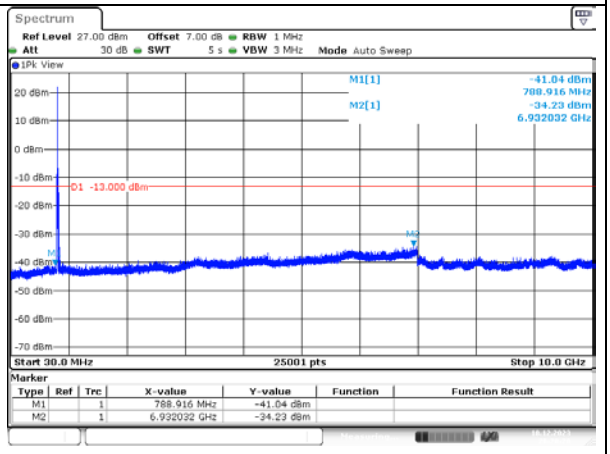
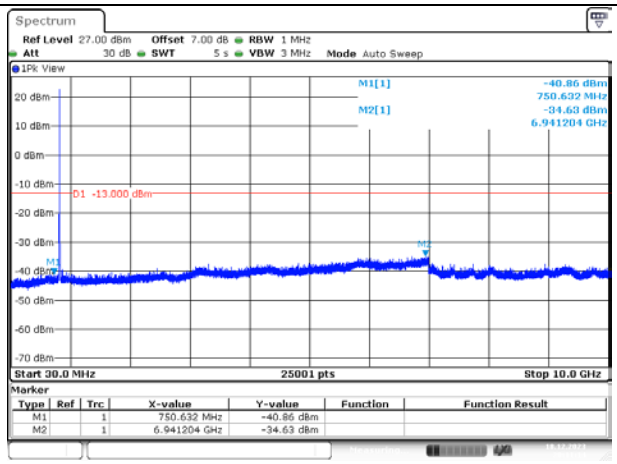
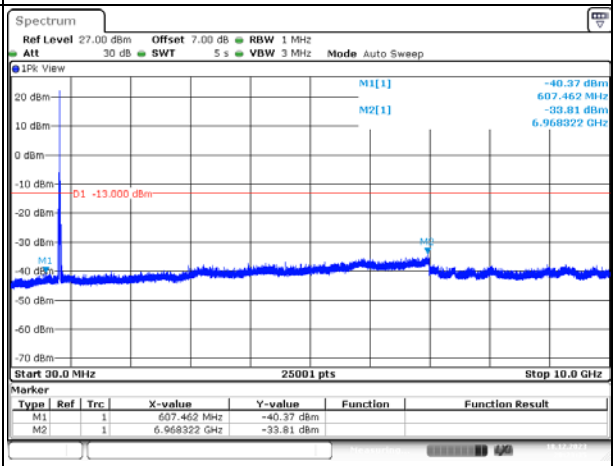
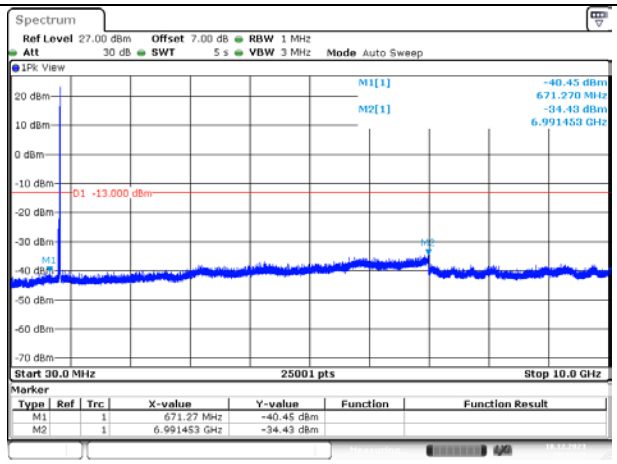
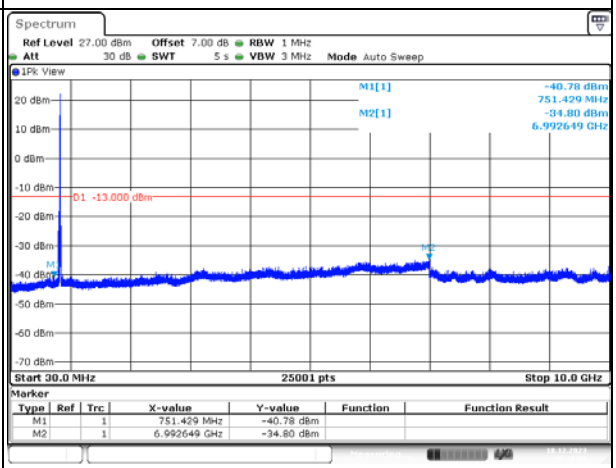
Occupied Bandwidth		
Channel	RMC	HSDPA
Lowest		
Middle		
Highest		

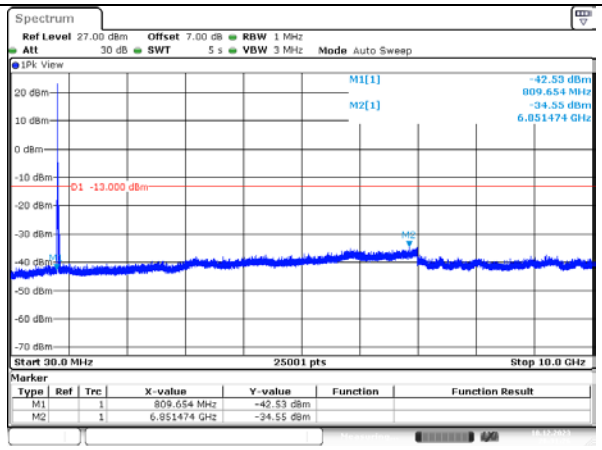
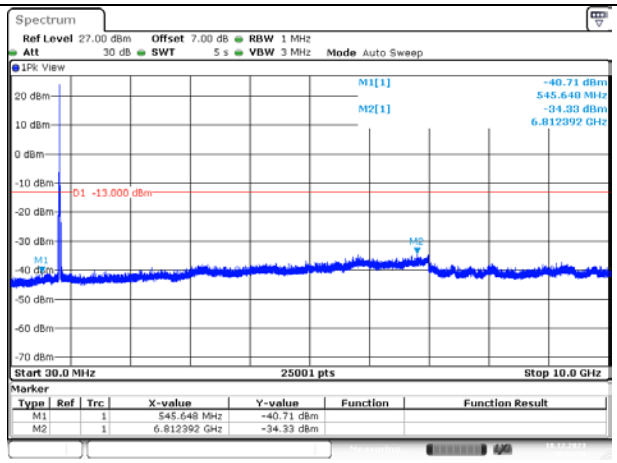
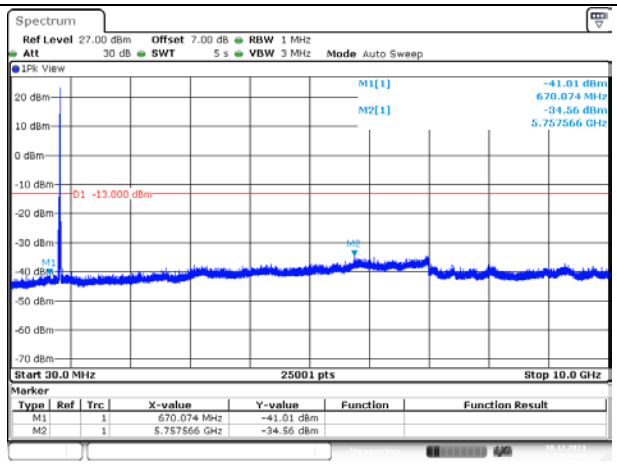
Occupied Bandwidth	
Channel	HSUPA
Lowest	
Middle	
Highest	

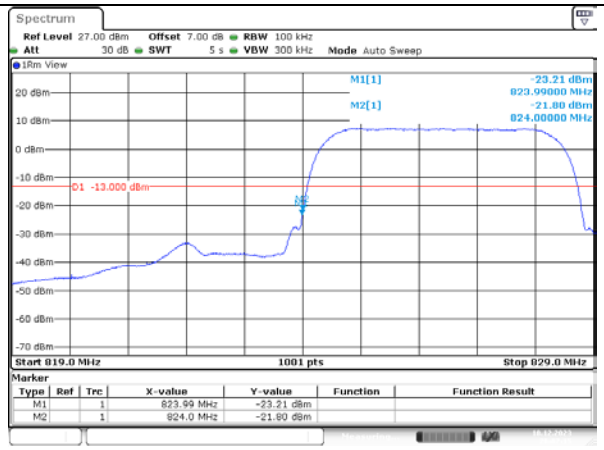
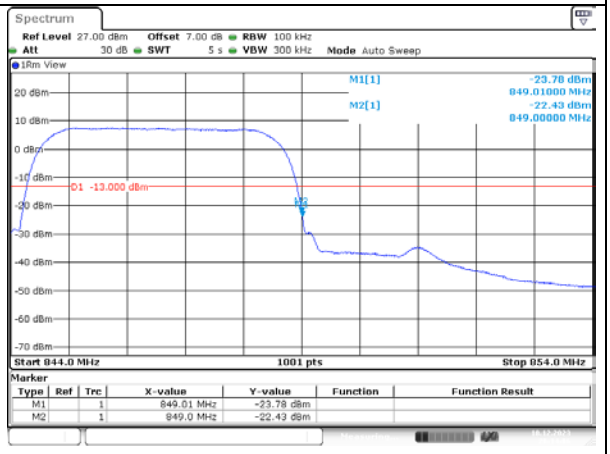
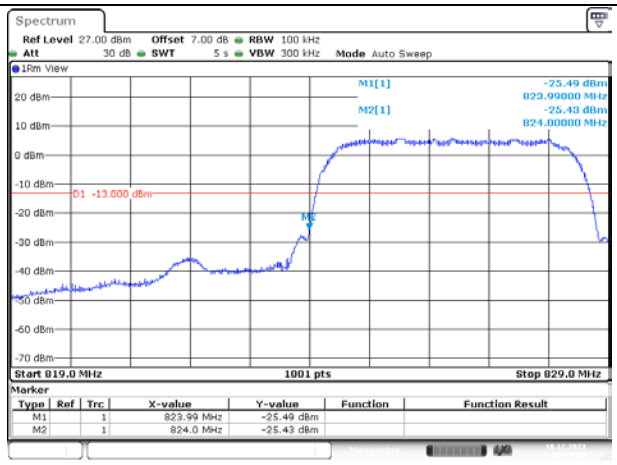
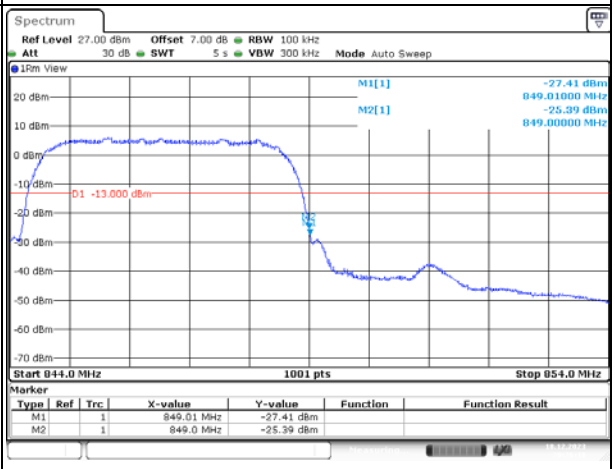
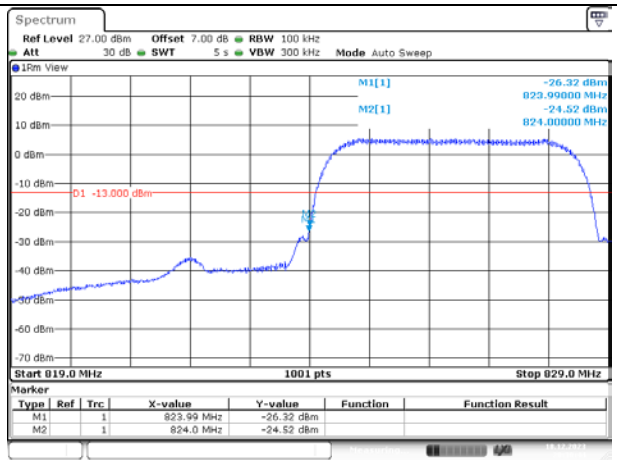
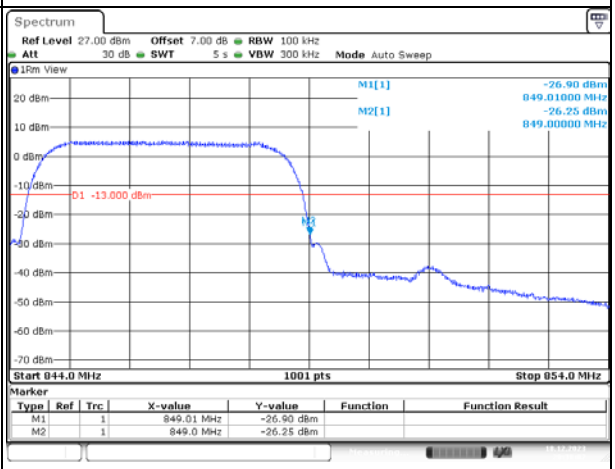
26dB Bandwidth

Channel	RMC	HSDPA
Lowest		
Middle		
Highest		

26dB Bandwidth	
Channel	HSUPA
Lowest	
Middle	
Highest	

Spurious Emissions at Antenna Terminal		
Channel	RMC	HSDPA
Lowest		
Middle		
Highest		

Spurious Emissions at Antenna Terminal	
Channel	HSUPA
Lowest	
Middle	
Highest	

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

4.6 Antenna Port Test Data and Results for LTE Band 2

Serial Number:	2EOC-1	Test Date:	2023/12/13~2023/12/19
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	18~22	Relative Humidity: (%)	36~54	ATM Pressure: (kPa)	101.5

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101590	2023/11/16	2024/11/15
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	2023/3/31	2024/3/30
BACL	EMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	N/A	N/A
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:

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	22.95	22.76	22.81	24.36	33
	RB1#3	23.11	22.91	23		
	RB1#5	22.83	22.77	22.83		
	RB3#0	23.04	22.86	22.92		
	RB3#3	22.97	22.85	22.93		
	RB6#0	21.99	21.82	21.92		
1.4MHz 16QAM	RB1#0	21.91	21.87	21.88	23.43	33
	RB1#3	22.09	22.06	22.16		
	RB1#5	21.89	21.91	21.98		
	RB3#0	22.18	21.86	22.07		
	RB3#3	22.15	21.87	22.07		
	RB6#0	21.04	20.85	20.95		
3MHz QPSK	RB1#0	23.15	22.99	23.02	24.4	33
	RB1#8	23.14	22.96	23		
	RB1#14	23.1	22.95	23		
	RB6#0	22.07	21.9	22.06		
	RB6#9	22.1	21.96	22.06		
	RB15#0	22.1	22.01	22.07		
3MHz 16QAM	RB1#0	22.31	22.01	22.54	23.82	33
	RB1#8	22.27	21.97	22.55		
	RB1#14	22.26	21.98	22.57		
	RB6#0	21.12	20.88	21.14		
	RB6#9	21.16	20.9	21.14		
	RB15#0	21.09	21.06	21.14		
5MHz QPSK	RB1#0	23.02	22.73	22.73	24.35	33
	RB1#13	23.1	22.87	22.9		
	RB1#24	22.92	22.73	22.78		
	RB15#0	22	21.89	21.65		
	RB15#10	22.03	21.85	21.62		
	RB25#0	21.98	21.84	21.64		
5MHz 16QAM	RB1#0	22.24	21.82	21.29	23.54	33
	RB1#13	22.29	21.89	21.43		
	RB1#24	22.12	21.81	21.51		
	RB15#0	20.88	20.84	20.83		
	RB15#10	20.93	20.87	20.76		
	RB25#0	20.89	20.83	20.84		
10MHz QPSK	RB1#0	22.87	22.24	22.6	24.21	33
	RB1#25	22.96	22.74	22.46		
	RB1#49	22.69	22.18	22.38		

	RB25#0	21.76	21.51	21.54		
	RB25#25	21.82	21.46	21.5		
	RB50#0	21.79	21.28	21.53		
10MHz 16QAM	RB1#0	21.55	21.56	21.67	23.19	33
	RB1#25	21.76	21.7	21.94		
	RB1#49	21.42	21.93	21.81		
	RB25#0	20.5	20.71	20.79		
	RB25#25	20.63	20.7	20.65		
	RB50#0	20.59	20.67	20.67		
15MHz QPSK	RB1#0	22.78	22.56	22.56	24.1	33
	RB1#38	22.85	22.72	22.77		
	RB1#74	22.65	22.6	22.66		
	RB36#0	21.83	21.79	21.81		
	RB36#39	21.83	21.74	21.83		
	RB75#0	21.83	21.74	21.81		
15MHz 16QAM	RB1#0	22.12	22.14	21.7	23.58	33
	RB1#38	22.18	22.33	21.96		
	RB1#74	21.99	22.18	21.88		
	RB36#0	20.77	20.74	20.78		
	RB36#39	20.79	20.75	20.74		
	RB75#0	20.81	20.79	20.79		
20MHz QPSK	RB1#0	22.47	22.43	22.47	24.16	33
	RB1#50	22.85	22.88	22.91		
	RB1#99	22.41	22.45	22.54		
	RB50#0	21.63	21.75	21.68		
	RB50#50	21.72	21.72	21.59		
	RB100#0	21.7	21.74	21.69		
20MHz 16QAM	RB1#0	22.07	21.71	21.63	23.6	33
	RB1#50	22.35	22.15	22.12		
	RB1#99	21.93	21.78	21.76		
	RB50#0	20.66	20.8	20.67		
	RB50#50	20.68	20.71	20.6		
	RB100#0	20.73	20.79	20.7		
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	4.67	5.16	5.19	13
	RB100#0	4.09	4.32	4.12	13
20MHz 16QAM	RB1#0	5.57	6.14	5.8	13
	RB100#0	5.71	5.88	5.74	13
				Result:	**Pass**

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	1.096	1.102	1.102	1.308	1.326	1.296
1.4MHz 16QAM	1.096	1.09	1.102	1.322	1.296	1.302
3MHz QPSK	2.683	2.683	2.683	2.88	2.88	2.88
3MHz 16QAM	2.683	2.683	2.683	2.88	2.892	2.88
5MHz QPSK	4.491	4.511	4.511	4.94	4.96	4.98
5MHz 16QAM	4.491	4.471	4.511	4.98	4.92	4.98
10MHz QPSK	8.942	8.942	8.942	9.6	9.68	9.6
10MHz 16QAM	8.942	8.942	8.942	9.56	9.6	9.56
15MHz QPSK	13.473	13.533	13.413	14.76	14.82	14.64
15MHz 16QAM	13.413	13.533	13.473	14.7	14.7	14.64
20MHz QPSK	17.964	17.964	17.884	19.44	19.2	19.28
20MHz 16QAM	17.884	18.044	17.964	19.36	19.28	19.28
Note: The test plots please refer to the Plots of Occupied Bandwidth						

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

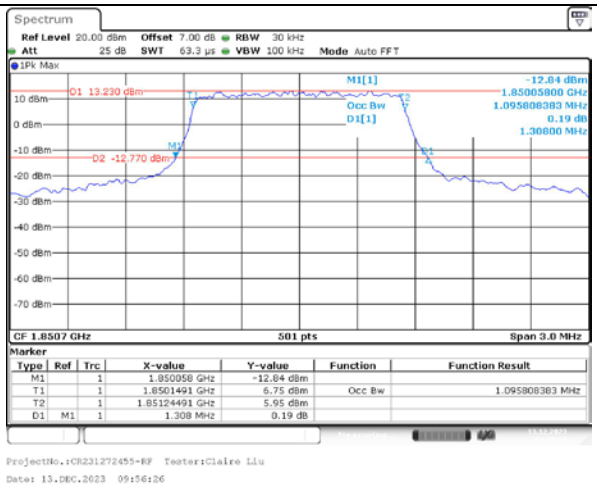
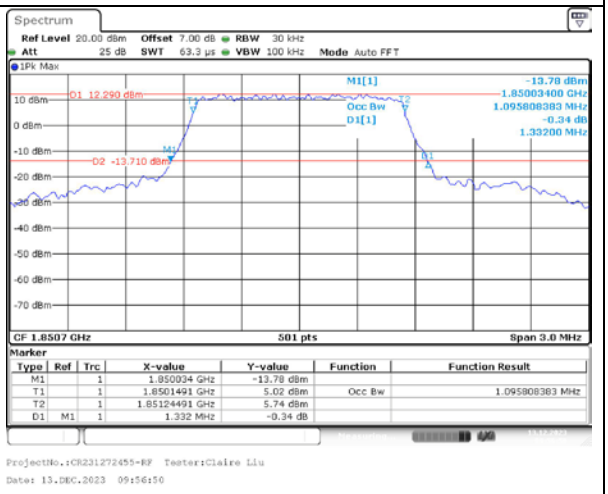
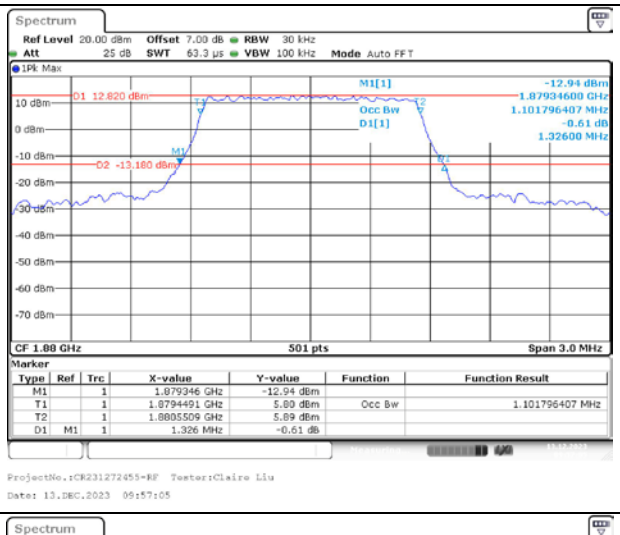
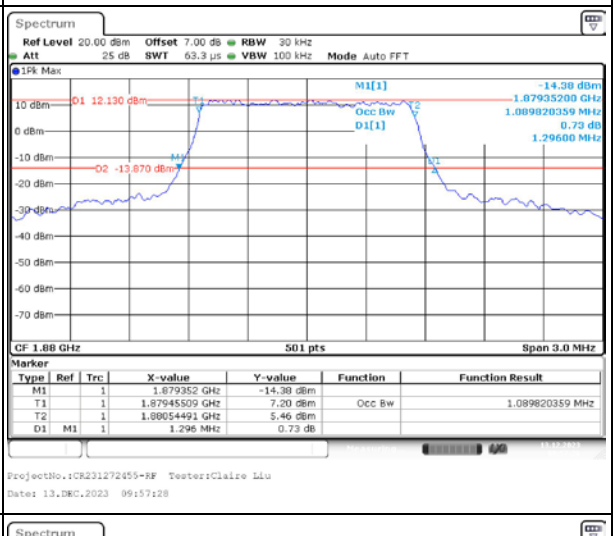
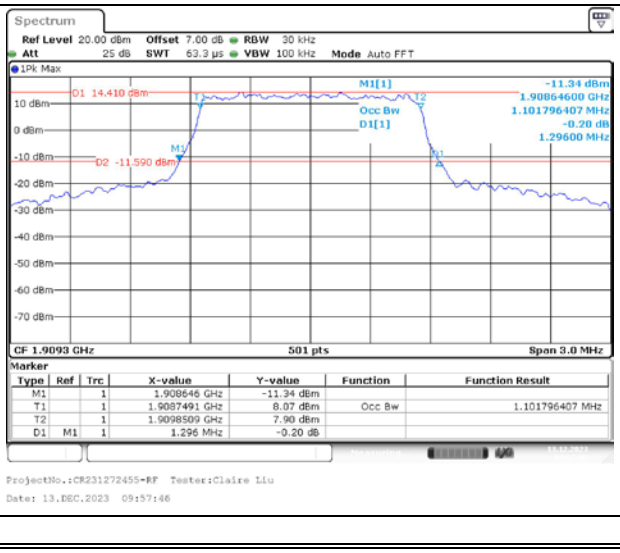
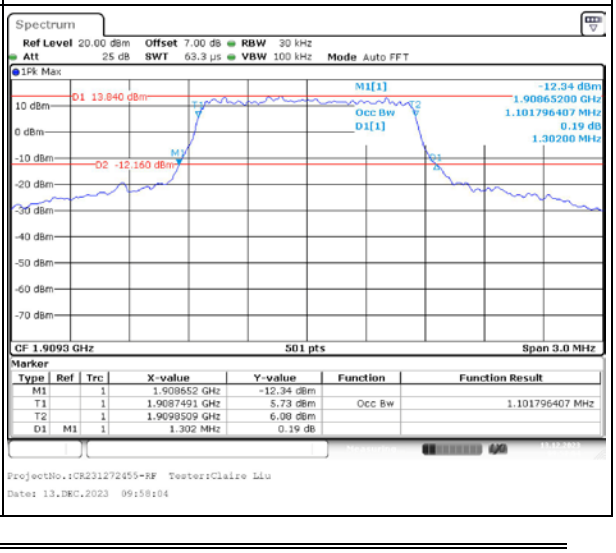
Out of band emission, Band Edge	
Result:	**Pass, Please refer to the test plots of Out of band emission, Band Edge.**

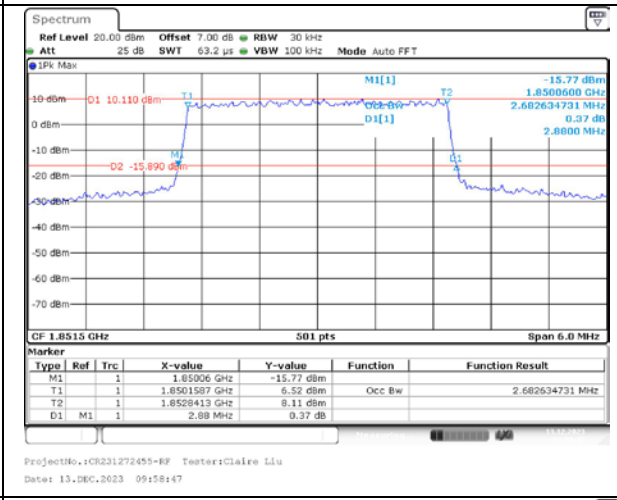
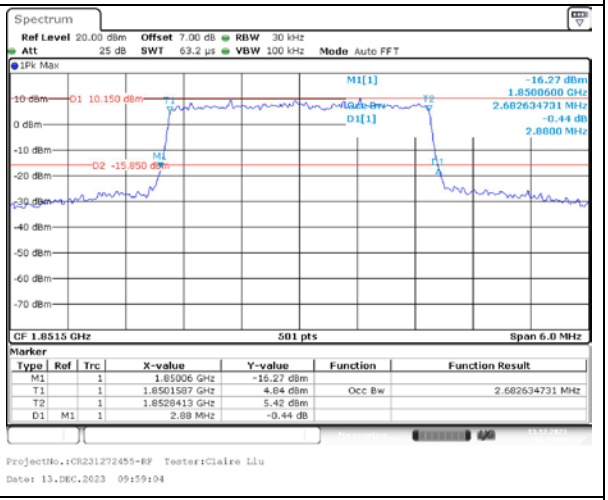
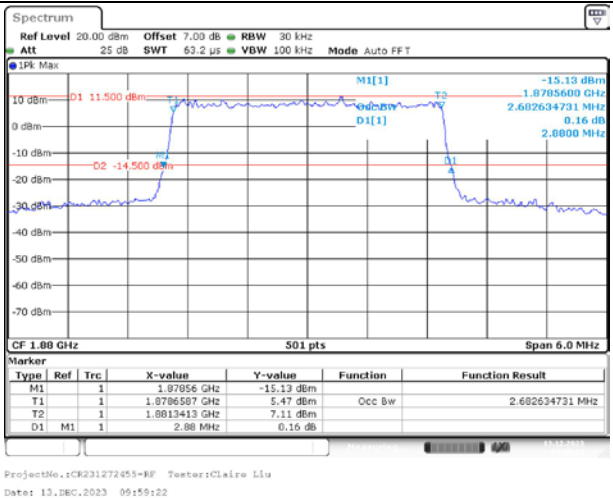
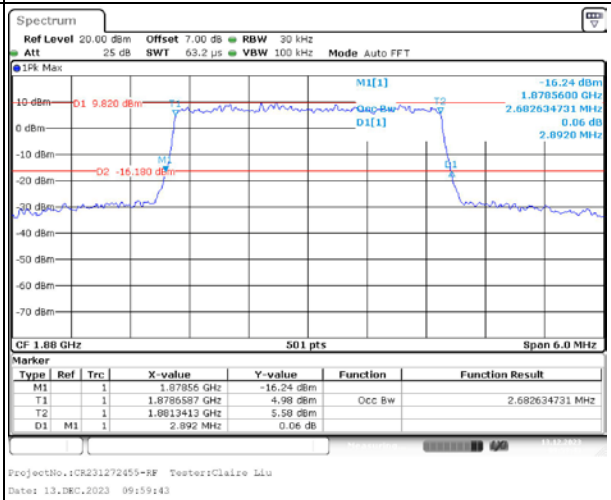
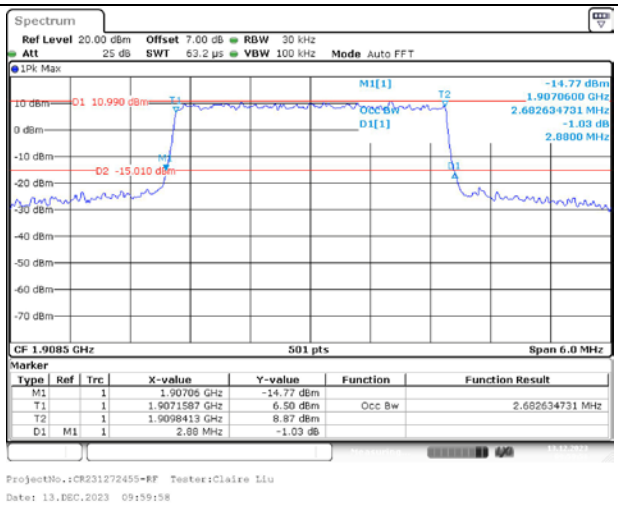
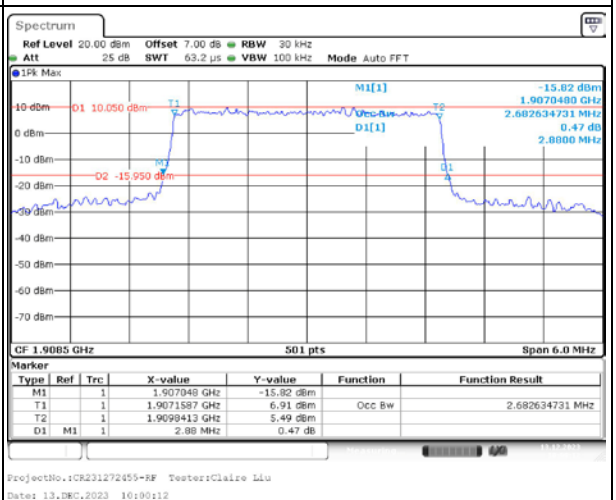
Frequency Stability

Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.87	1850.413	1850.000	1909.616	1910.000
	-20	3.87	1850.232	1850.000	1909.650	1910.000
	-10	3.87	1850.376	1850.000	1909.707	1910.000
	0	3.87	1850.224	1850.000	1909.743	1910.000
	10	3.87	1850.325	1850.000	1909.634	1910.000
	20	3.87	1850.320	1850.000	1909.680	1910.000
	30	3.87	1850.397	1850.000	1909.754	1910.000
	40	3.87	1850.263	1850.000	1909.729	1910.000
	50	3.87	1850.268	1850.000	1909.621	1910.000
Frequency Stability vs. Voltage	20	3.4	1850.238	1850.000	1909.657	1910.000
	20	4.4	1850.238	1850.000	1909.716	1910.000
					Result:	**Pass**

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.87	1850.351	1850.000	1906.674	1910.000
	-20	3.87	1850.418	1850.000	1906.589	1910.000
	-10	3.87	1850.386	1850.000	1906.500	1910.000
	0	3.87	1850.399	1850.000	1906.553	1910.000
	10	3.87	1850.325	1850.000	1906.529	1910.000
	20	3.87	1850.400	1850.000	1906.600	1910.000
	30	3.87	1850.456	1850.000	1906.696	1910.000
	40	3.87	1850.305	1850.000	1906.655	1910.000
	50	3.87	1850.326	1850.000	1906.689	1910.000
Frequency Stability vs. Voltage	20	3.4	1850.471	1850.000	1906.630	1910.000
	20	4.4	1850.404	1850.000	1906.656	1910.000
					Result:	**Pass**

Test Plots(Note: The 7.0dB 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