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

Serial Number:	2DMI-1	Test Date:	2023/11/22~2023/11/28
Test Site:	RF	Test Mode:	Transmitting
Tester:	Len Huang	Test Result:	**Pass**

Environmental Conditions:					
Temperature: (℃)	24.3~26	Relative Humidity: (%)	40~55	ATM Pressure: (kPa)	101

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40-N	102259	2023/4/18	2024/4/17
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
Minl-Clrcuits	Power Splitter	ZFRSC-183-S+	S F448201619	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2023/9/28	2024/9/27
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	23.71	23.07	22.81	**16.66**	38.45
HSDPA Subtest 1	20.83	20.84	20.77	13.79	38.45
HSDPA Subtest 2	20.91	20.89	20.79	13.86	38.45
HSDPA Subtest 3	20.96	20.92	20.82	13.91	38.45
HSDPA Subtest 4	21.03	20.96	20.87	13.98	38.45
HSUPA Subtest 1	21.00	20.58	20.39	13.95	38.45
HSUPA Subtest 2	21.04	20.65	20.42	13.99	38.45
HSUPA Subtest 3	21.08	20.72	20.46	14.03	38.45
HSUPA Subtest 4	21.12	20.76	20.50	14.07	38.45
HSUPA Subtest 5	21.17	20.82	20.53	14.12	38.45
HSPA+ Subtest 1	21.24	20.83	20.69	14.19	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	3.04	2.9	3.07	13	
HSDPA	3.33	3.33	4.75	13	
HSUPA	5.74	5.86	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	4.136	4.146	4.136	4.695	4.715	4.705
HSDPA	4.146	4.146	4.146	4.685	4.695	4.695
HSUPA	4.146	4.146	4.156	4.695	4.695	4.675
Note: The test plots please refer to the Plots of Occupied Bandwidth						

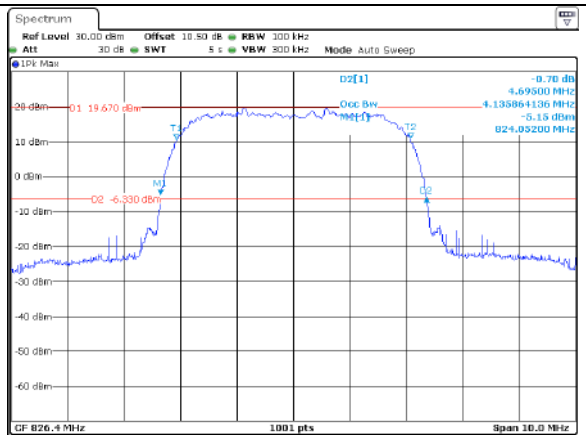
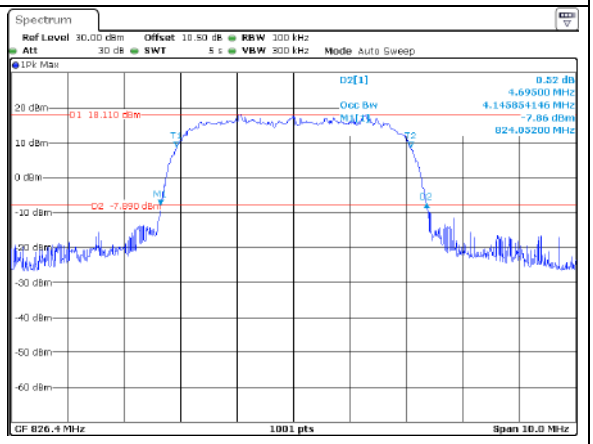
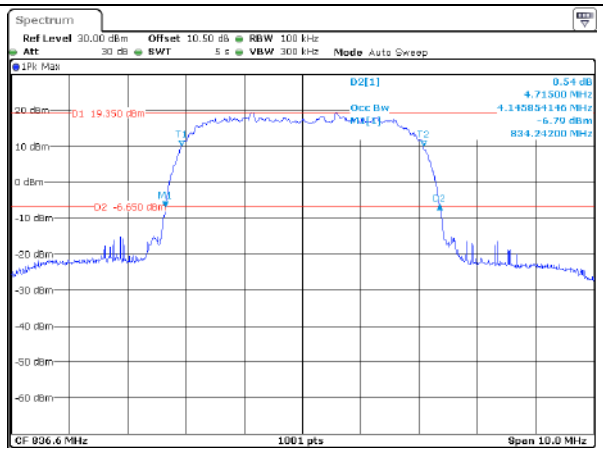
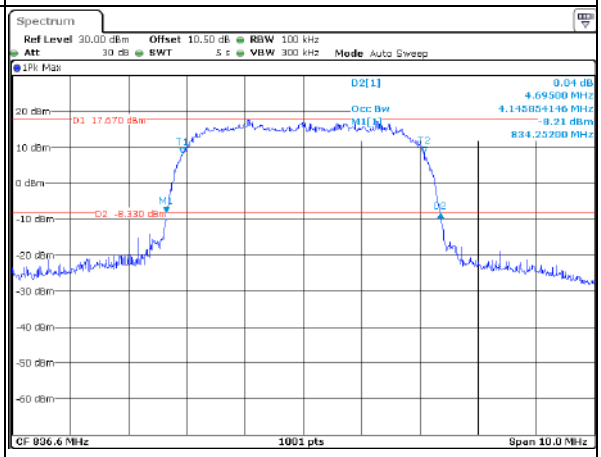
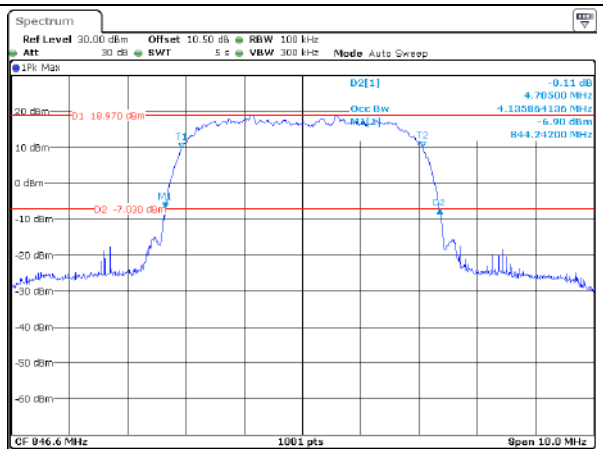
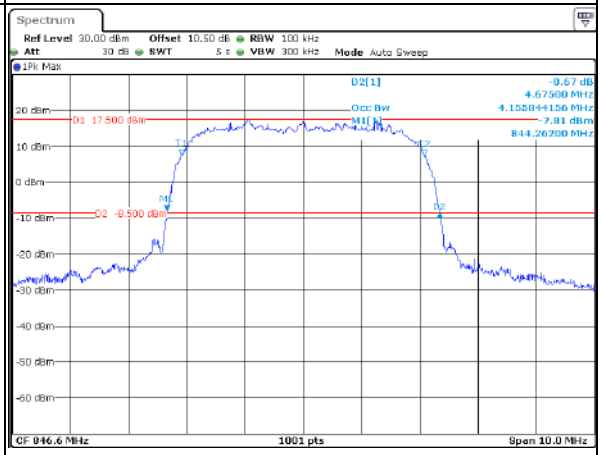
FCC §2.1051, §22.917(a):Spurious Emissions at Antenna Terminal

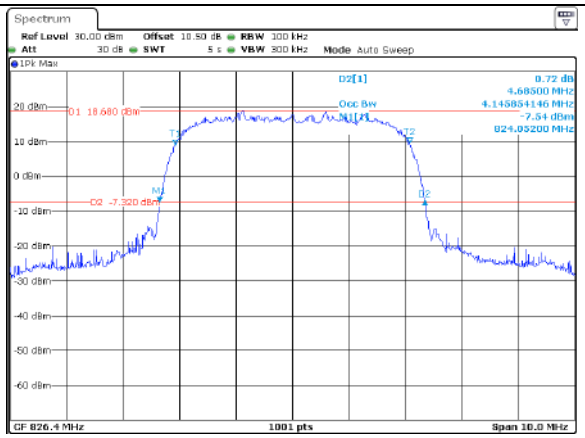
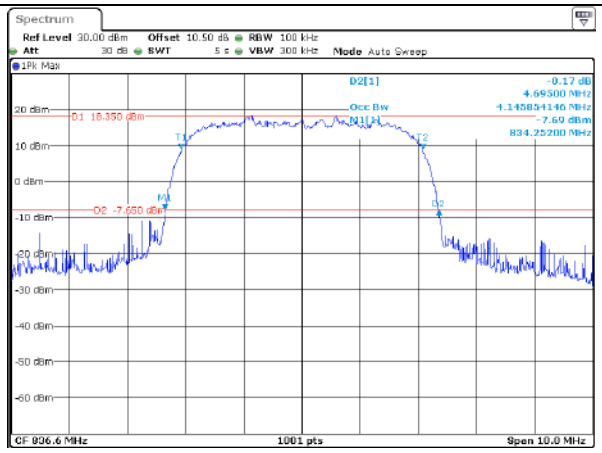
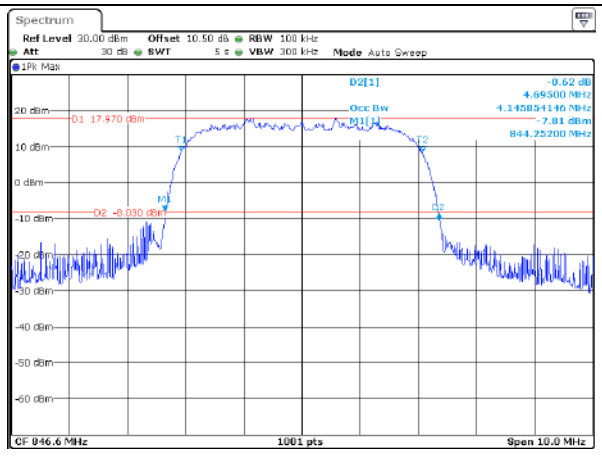
Result:	**Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**

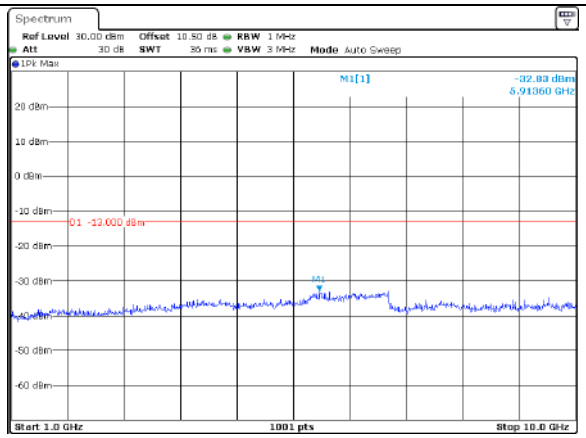
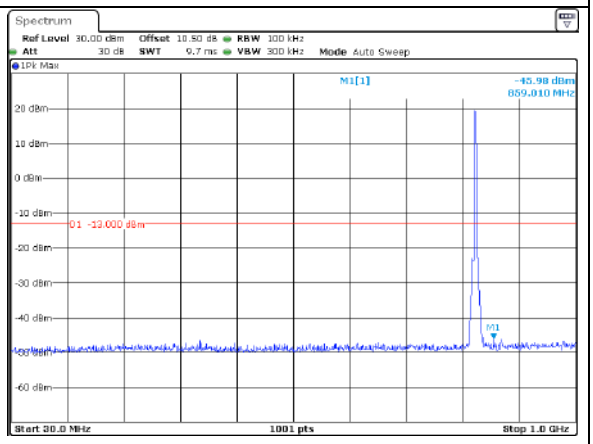
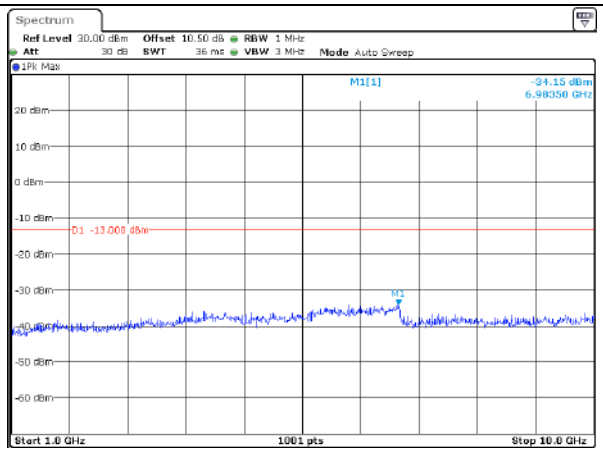
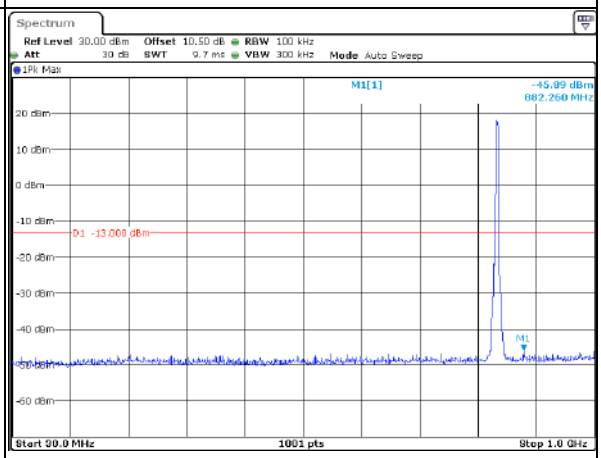
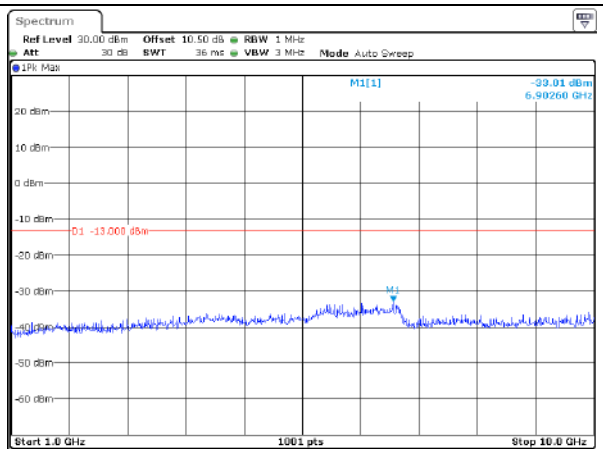
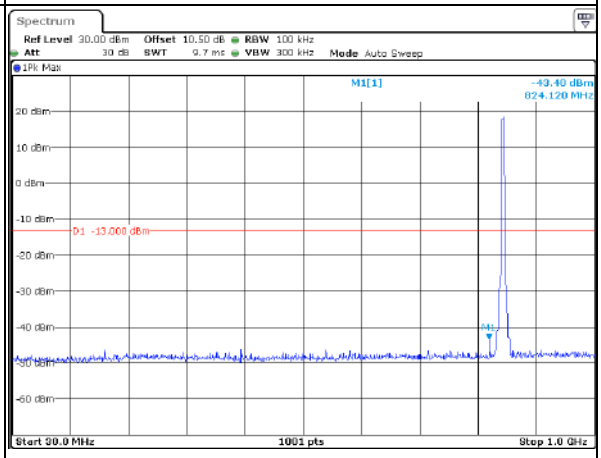
FCC §2.1051, §22.917(a):Out of band emission, Band Edge	
Result:	**Pass, Please refer to the test plots of Out of band emission, Band Edge.**

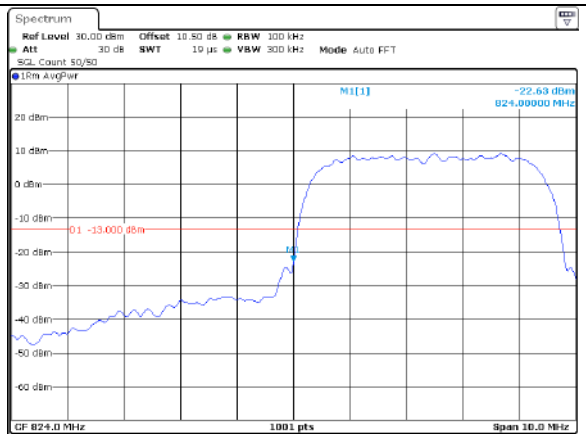
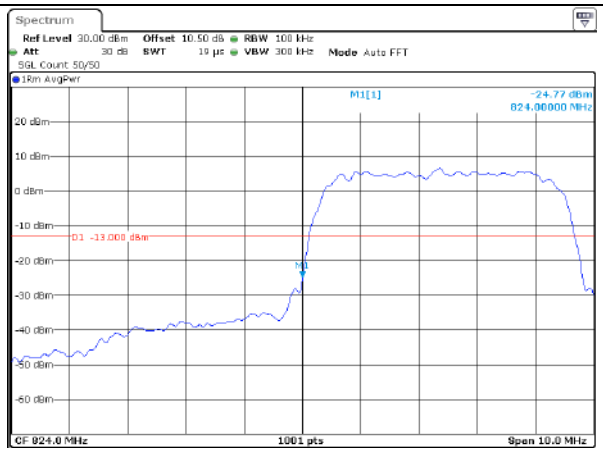
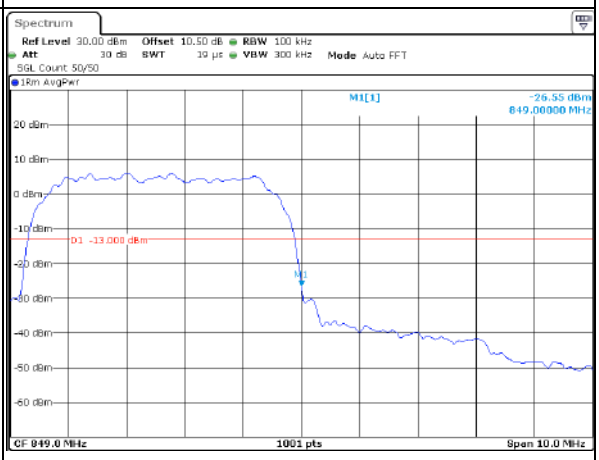
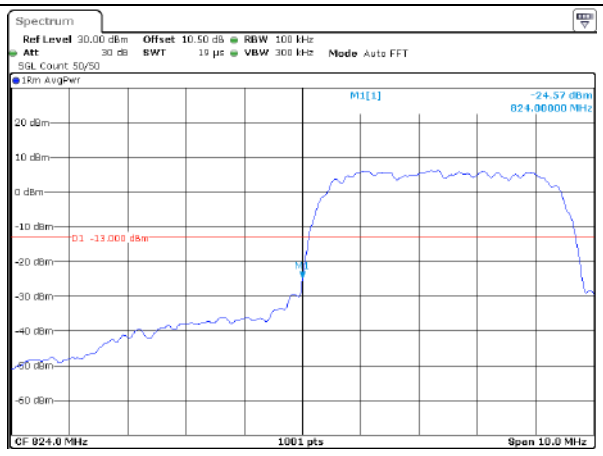
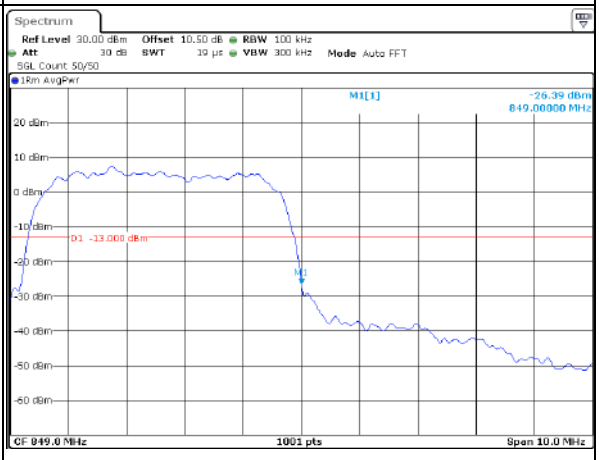
FCC §2.1055, §22.355: Frequency Stability					
Test Modulation:	WCDMA R99		Test Channel:	836.6	MHz
Test Item	Temperature (℃)	Voltage (V_{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.91	-14	-0.017	2.5
	-20	3.91	-11	-0.013	2.5
	-10	3.91	-12	-0.014	2.5
	0	3.91	-6	-0.007	2.5
	10	3.91	-3	-0.004	2.5
	20	3.91	-4	-0.005	2.5
	30	3.91	-11	-0.013	2.5
	40	3.91	-5	-0.006	2.5
	50	3.91	-4	-0.005	2.5
Frequency Stability vs. Voltage	20	3.45	-7	-0.008	2.5
	20	4.5	-16	-0.019	2.5
				Result:	**Pass**

Test Plots (Note: The 10.5 dB is the Insertion loss of the RF cable and Power Splitter, 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:	2DMI-1	Test Date:	2023/11/22~2023/12/20
Test Site:	RF	Test Mode:	Transmitting
Tester:	Len Huang	Test Result:	**Pass**

Environmental Conditions:					
Temperature: (℃)	24.3~26	Relative Humidity: (%)	40~55	ATM Pressure: (kPa)	101

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40-N	102259	2023/4/18	2024/4/17
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
Minl-Clrcuits	Power Splitter	ZFRSC-183-S+	S F448201619	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2023/9/28	2024/9/27
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	23.35	23.02	23.07	**19.51**	33
	RB1#3	23.33	23.05	23.09		
	RB1#5	23.35	23.07	23.08		
	RB3#0	23.46	23.08	23.21		
	RB3#3	23.44	23.08	23.19		
	RB6#0	22.44	22.12	22.17		
1.4MHz 16QAM	RB1#0	22.50	22.29	22.16	18.69	33
	RB1#3	22.51	22.30	22.19		
	RB1#5	22.50	22.25	22.18		
	RB3#0	22.59	22.05	22.17		
	RB3#3	22.64	22.07	22.17		
	RB6#0	21.44	21.15	21.07		
3MHz QPSK	RB1#0	23.34	23.14	22.96	19.47	33
	RB1#8	23.37	23.07	23.04		
	RB1#14	23.42	23.03	23.04		
	RB6#0	22.44	22.16	22.13		
	RB6#9	22.47	22.07	22.15		
	RB15#0	22.49	22.06	22.10		
3MHz 16QAM	RB1#0	22.48	22.64	22.27	18.69	33
	RB1#8	22.47	22.57	22.27		
	RB1#14	22.49	22.51	22.28		
	RB6#0	21.41	21.16	21.16		
	RB6#9	21.45	21.11	21.19		
	RB15#0	21.53	21.15	21.13		
5MHz QPSK	RB1#0	23.43	23.17	23.30	19.51	33
	RB1#13	23.46	23.15	23.31		
	RB1#24	23.46	23.09	23.37		
	RB15#0	22.51	22.21	22.21		
	RB15#10	22.52	22.07	22.03		
	RB25#0	22.49	22.13	22.10		
5MHz 16QAM	RB1#0	22.79	22.21	21.97	**18.84**	33
	RB1#13	22.79	22.16	21.97		
	RB1#24	22.76	22.12	22.06		
	RB15#0	21.50	21.22	21.23		
	RB15#10	21.47	21.10	21.07		
	RB25#0	21.47	21.15	21.20		
10MHz QPSK	RB1#0	23.42	23.19	22.74	19.5	33

	RB1#25	23.45	23.16	22.82		
	RB1#49	23.43	23.01	22.86		
	RB25#0	22.43	22.17	21.79		
	RB25#25	22.54	21.70	21.75		
	RB50#0	22.53	21.80	21.79		
10MHz 16QAM	RB1#0	22.47	21.98	21.75	18.55	33
	RB1#25	22.50	21.97	21.82		
	RB1#49	22.48	21.80	21.86		
	RB25#0	21.52	20.82	20.93		
	RB25#25	21.63	20.70	20.84		
	RB50#0	21.53	20.74	20.80		
15MHz QPSK	RB1#0	23.00	22.75	22.62	19.09	33
	RB1#38	23.04	22.73	22.75		
	RB1#74	22.86	22.52	22.77		
	RB36#0	22.05	21.76	21.70		
	RB36#39	22.08	21.56	21.67		
	RB75#0	22.07	21.65	21.73		
15MHz 16QAM	RB1#0	22.47	22.30	21.79	18.58	33
	RB1#38	22.53	22.26	21.94		
	RB1#74	22.28	22.07	21.93		
	RB36#0	21.09	20.76	20.74		
	RB36#39	21.04	20.58	20.72		
	RB75#0	21.08	20.66	20.73		
20MHz QPSK	RB1#0	22.98	22.72	22.58	19.06	33
	RB1#50	23.01	22.71	22.66		
	RB1#99	22.69	22.47	22.70		
	RB50#0	22.11	21.76	21.62		
	RB50#50	22.02	21.54	21.59		
	RB100#0	22.07	21.67	21.63		
20MHz 16QAM	RB1#0	22.71	22.06	21.78	18.76	33
	RB1#50	22.66	22.03	21.92		
	RB1#99	22.36	21.76	21.93		
	RB50#0	21.05	20.72	20.59		
	RB50#50	20.98	20.53	20.58		
	RB100#0	20.98	20.68	20.64		
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	4.20	4.32	8.90	13
	RB100#0	4.99	5.10	4.93	13
20MHz 16QAM	RB1#0	4.93	5.19	5.57	13
	RB100#0	5.91	6.03	5.86	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	1.096	1.290	1.296	1.290
1.4MHz 16QAM	1.096	1.102	1.090	1.296	1.320	1.284
3MHz QPSK	2.695	2.683	2.683	2.880	2.916	2.904
3MHz 16QAM	2.683	2.683	2.683	2.904	2.892	2.916
5MHz QPSK	4.511	4.511	4.531	5.000	4.960	5.000
5MHz 16QAM	4.511	4.511	4.491	5.000	5.020	4.980
10MHz QPSK	8.942	8.942	8.942	9.680	9.640	9.640
10MHz 16QAM	8.942	8.942	8.942	9.680	9.560	9.640
15MHz QPSK	13.473	13.533	13.413	14.700	14.940	14.640
15MHz 16QAM	13.473	13.533	13.473	14.640	14.640	14.580
20MHz QPSK	17.964	17.884	17.884	19.120	19.280	19.280
20MHz 16QAM	17.964	17.964	17.884	19.280	19.200	19.200
Note: The test plots please refer to the Plots of Occupied Bandwidth						

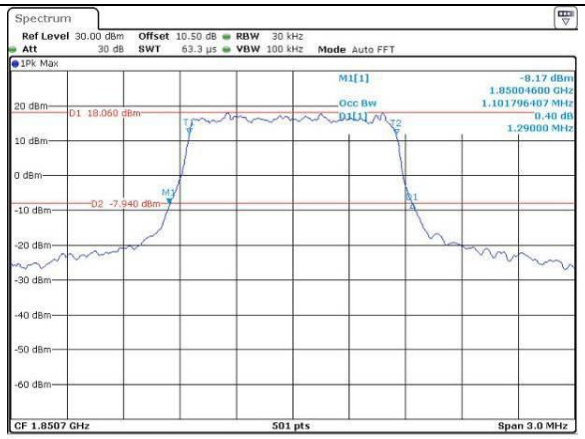
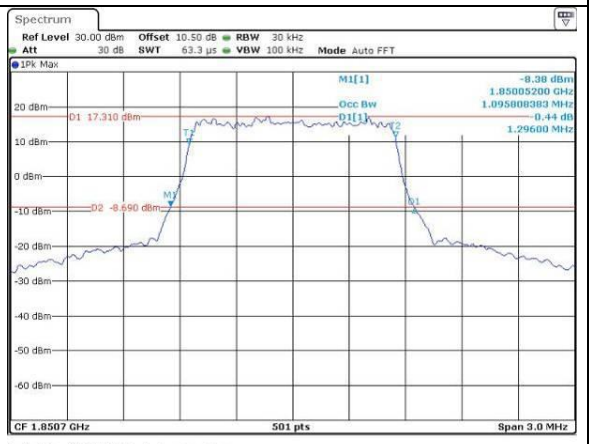
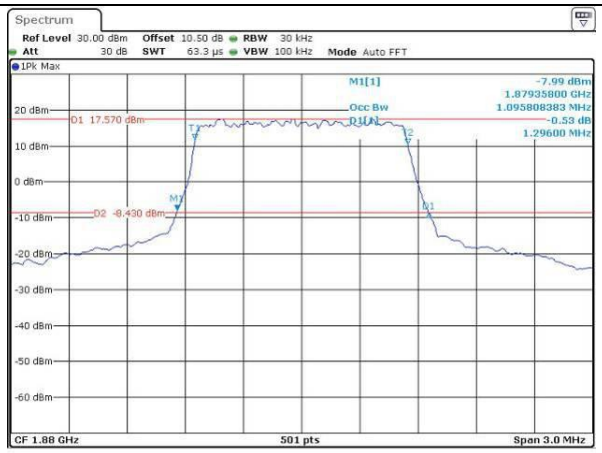
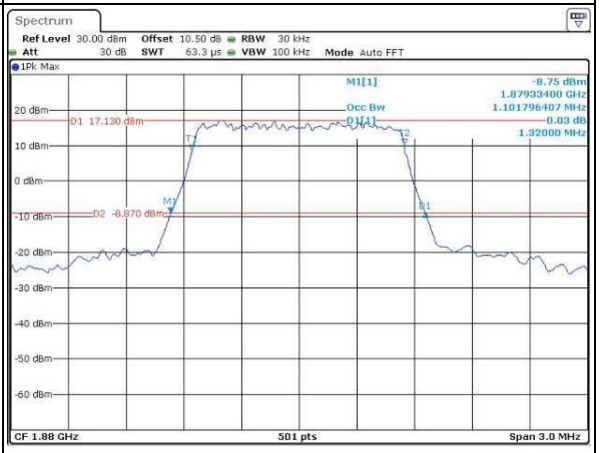
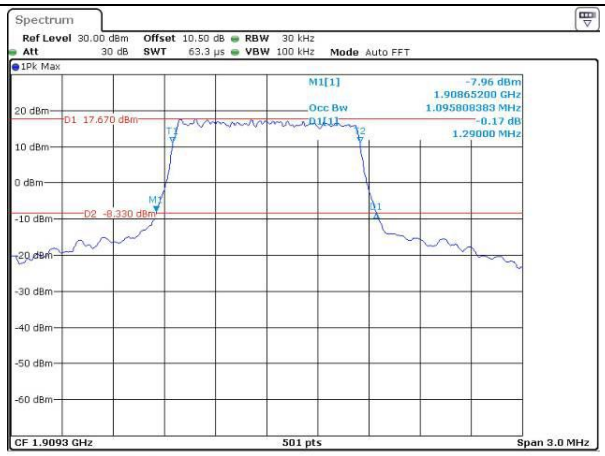
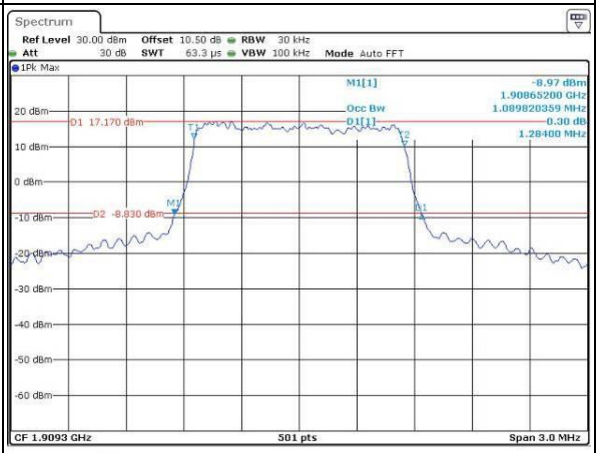
FCC §2.1051, § 24.238 (a):Spurious Emissions at Antenna Terminal	
Result:	**Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**

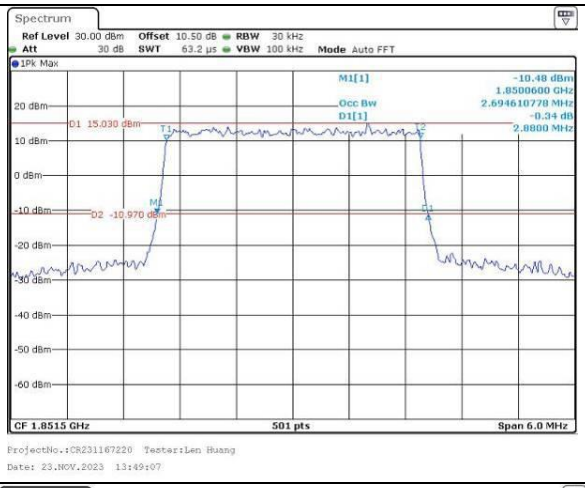
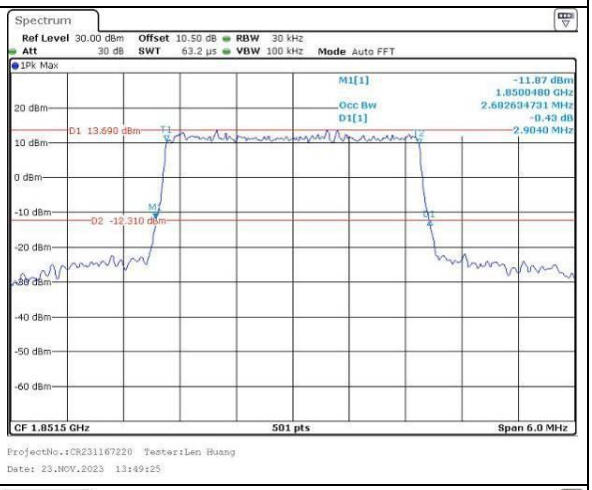
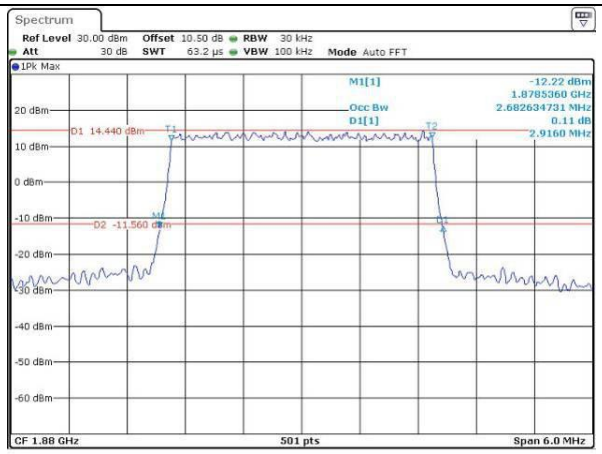
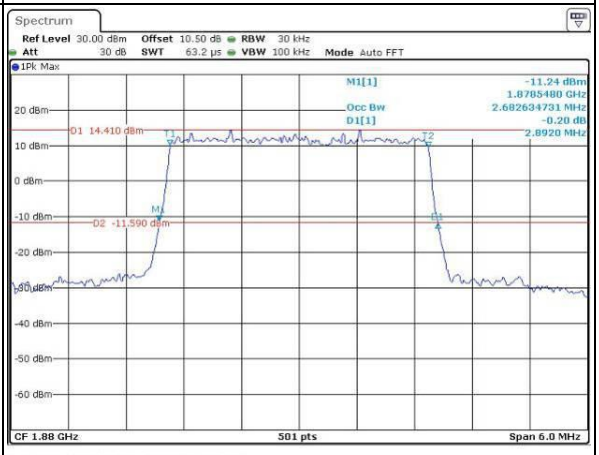
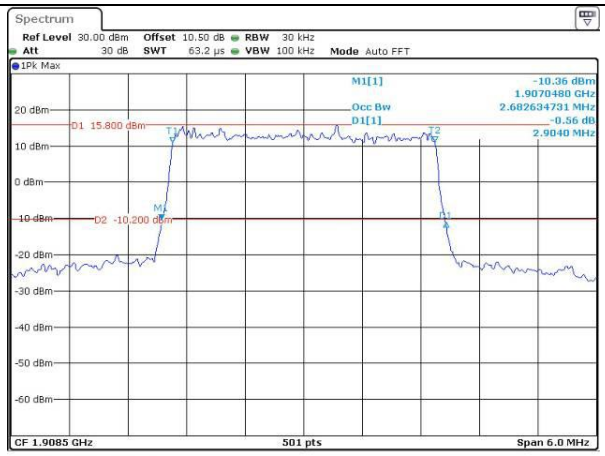
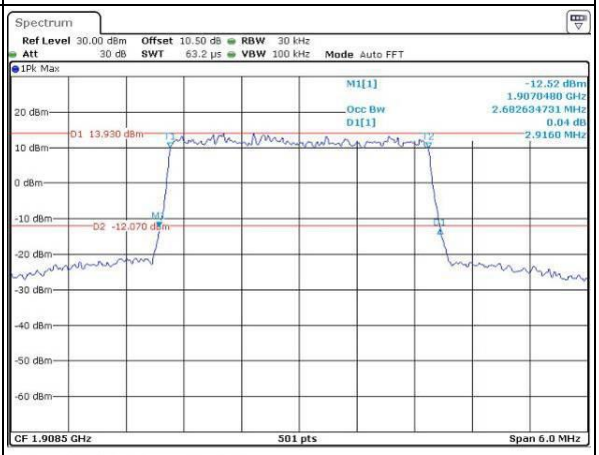
FCC §2.1051, § 24.238 (a):Out of band emission, Band Edge	
Result:	**Pass, Please refer to the test plots of Out of band emission, Band Edge.**

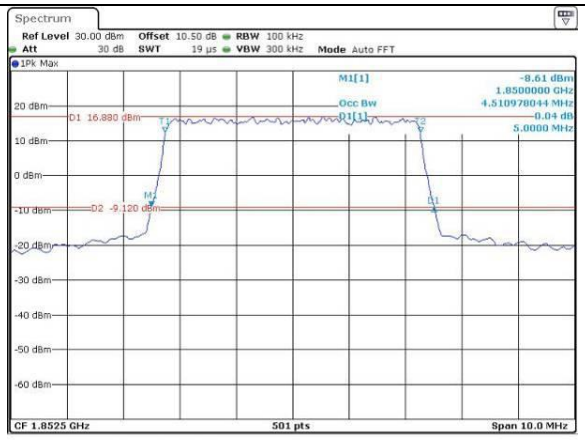
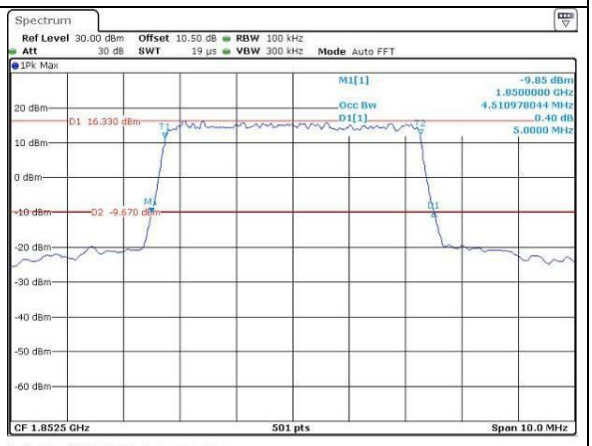
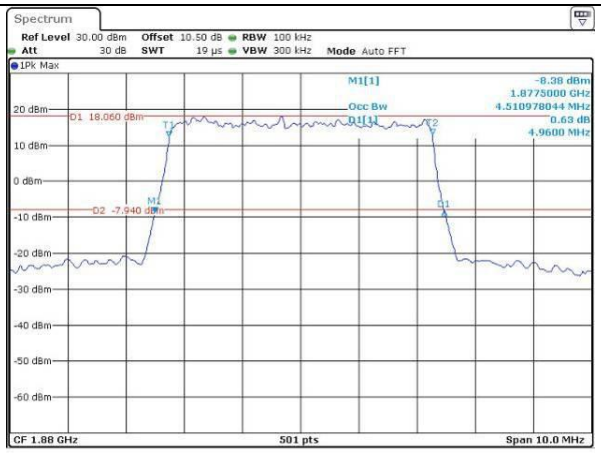
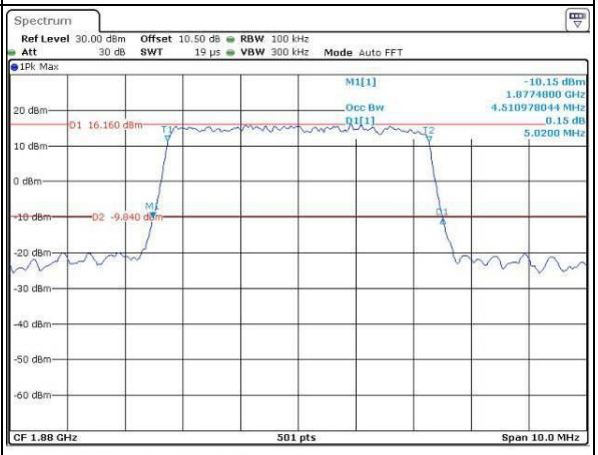
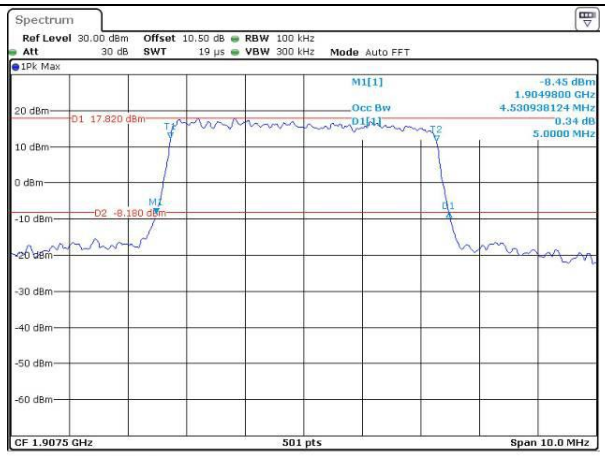
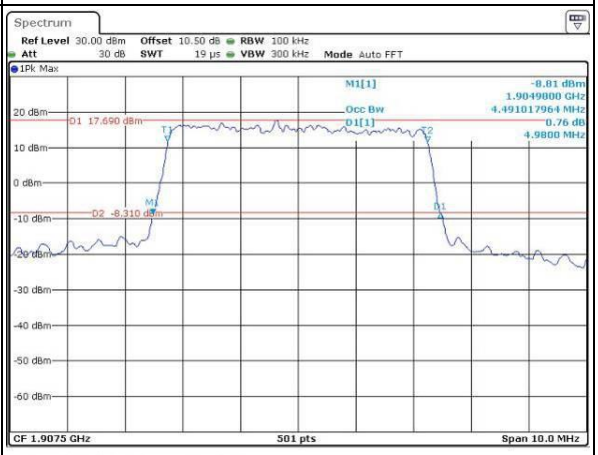
FCC §2.1055, §24.235: Frequency Stability						
Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.91	1850.125	1850.000	1909.876	1910.000
	-20	3.91	1850.125	1850.000	1909.870	1910.000
	-10	3.91	1850.115	1850.000	1909.885	1910.000
	0	3.91	1850.121	1850.000	1909.853	1910.000
	10	3.91	1850.128	1850.000	1909.877	1910.000
	20	3.91	1850.111	1850.000	1909.843	1910.000
	30	3.91	1850.099	1850.000	1909.876	1910.000
	40	3.91	1850.122	1850.000	1909.853	1910.000
	50	3.91	1850.123	1850.000	1909.875	1910.000
Frequency Stability vs. Voltage	20	3.45	1850.127	1850.000	1909.844	1910.000
	20	4.5	1850.105	1850.000	1909.864	1910.000
					Result:	**Pass**

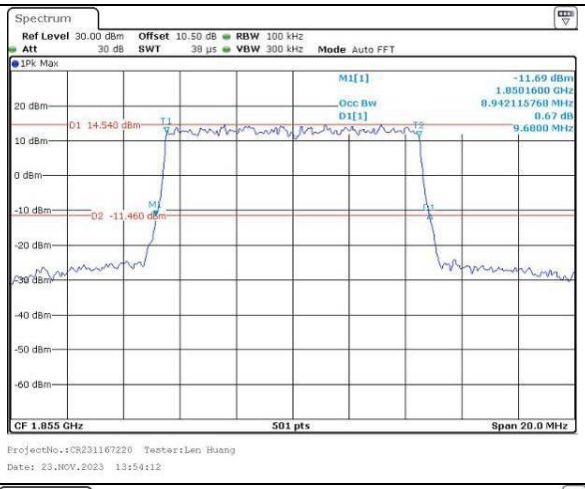
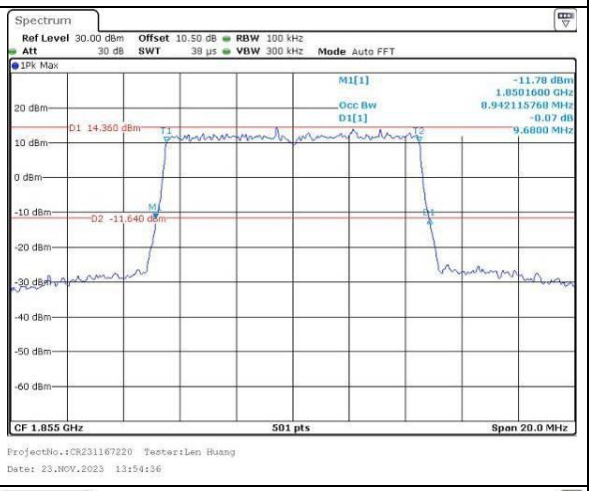
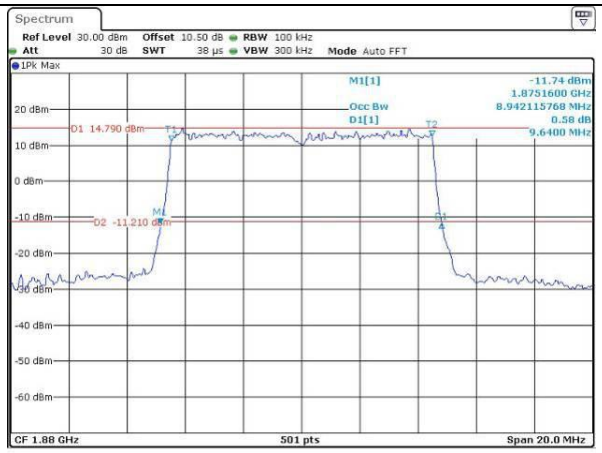
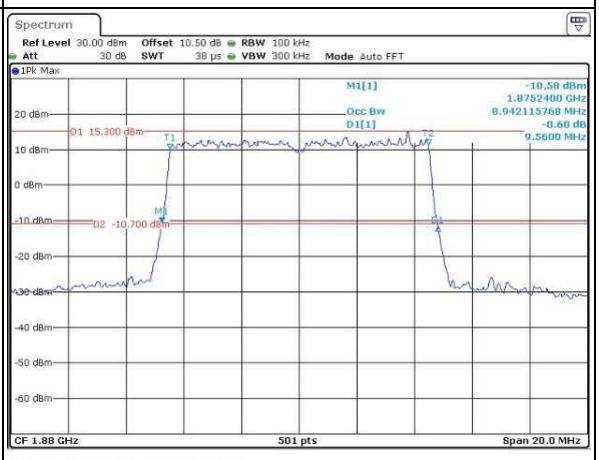
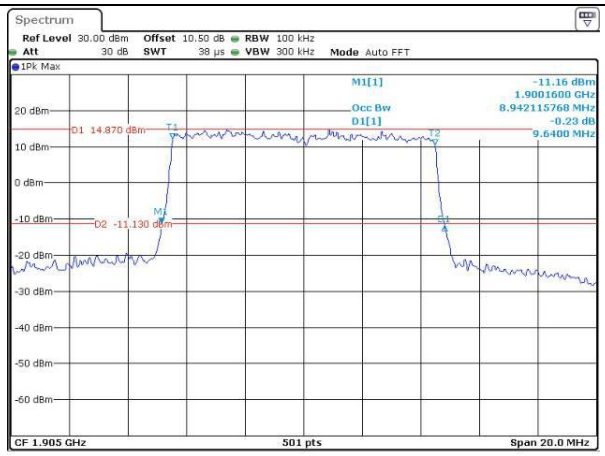
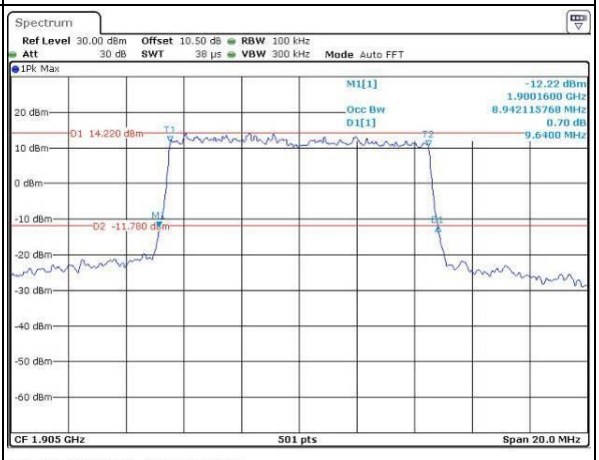
Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.91	1850.103	1850.000	1909.876	1910.000
	-20	3.91	1850.131	1850.000	1909.883	1910.000
	-10	3.91	1850.109	1850.000	1909.866	1910.000
	0	3.91	1850.123	1850.000	1909.897	1910.000
	10	3.91	1850.104	1850.000	1909.886	1910.000
	20	3.91	1850.112	1850.000	1909.868	1910.000
	30	3.91	1850.115	1850.000	1909.877	1910.000
	40	3.91	1850.116	1850.000	1909.870	1910.000
	50	3.91	1850.112	1850.000	1909.868	1910.000
Frequency Stability vs. Voltage	20	3.45	1850.124	1850.000	1909.868	1910.000
	20	4.5	1850.097	1850.000	1909.869	1910.000
					Result:	**Pass**

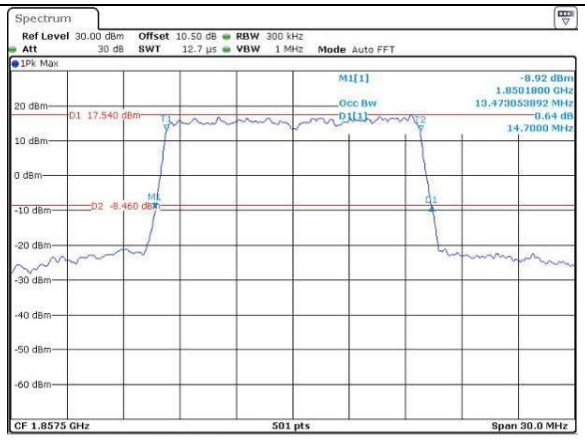
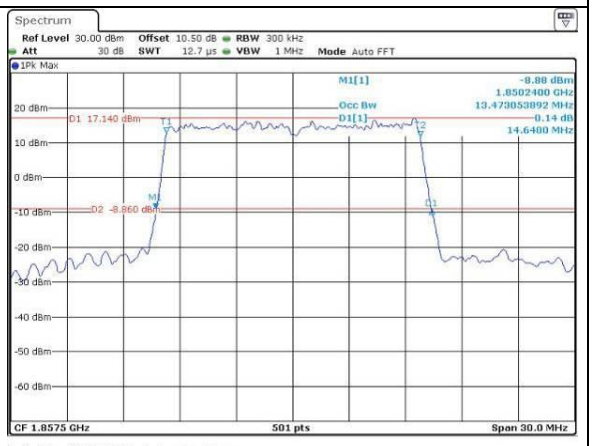
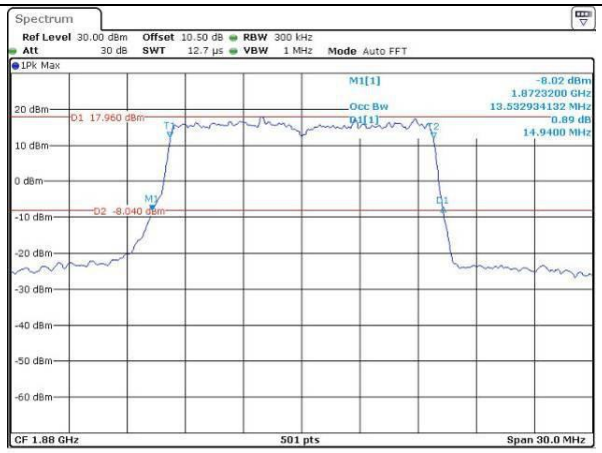
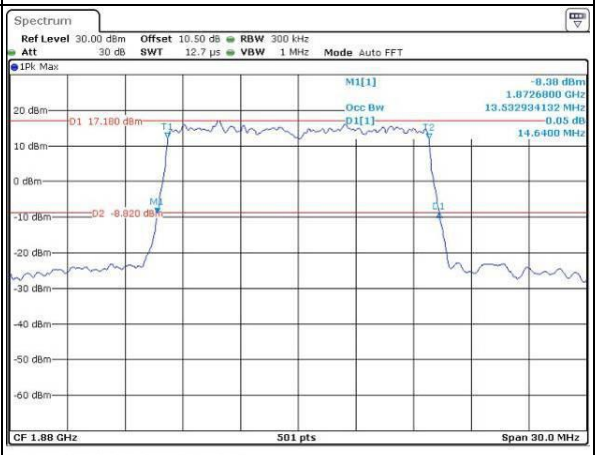
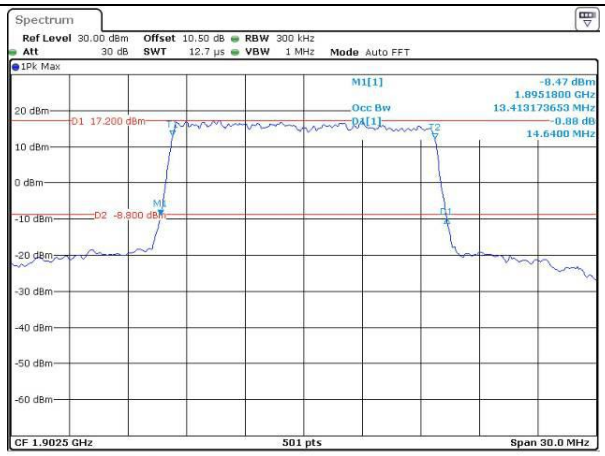
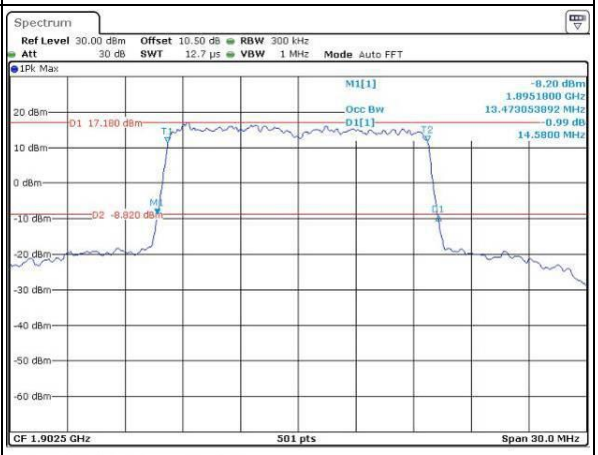
Test Plots(Note: The 10.5 dB is the Insertion loss of the RF cable and Power Splitter, which was offset into the Spectrum Analyzer):

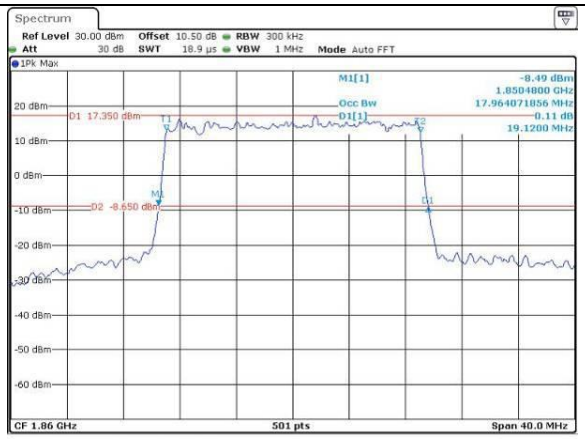
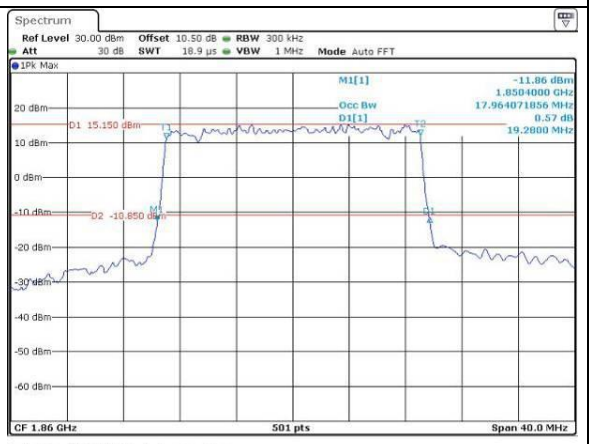
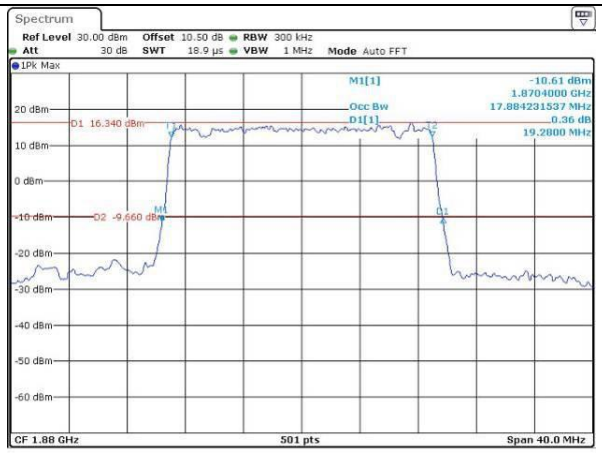
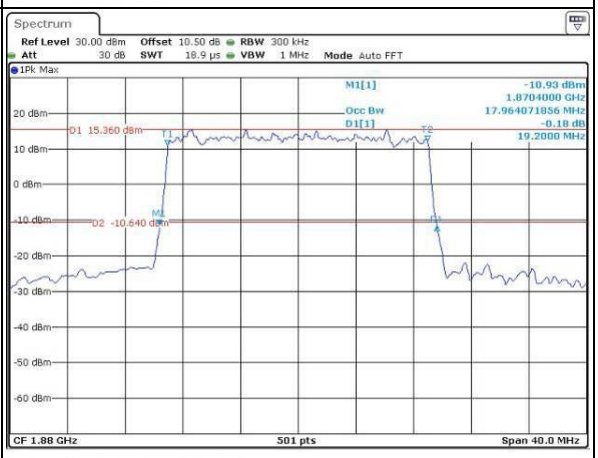
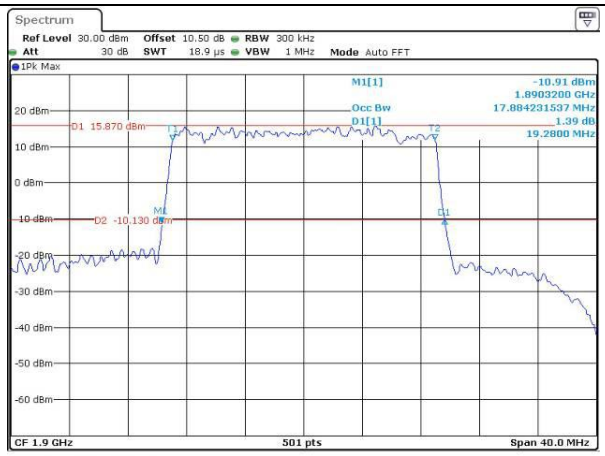
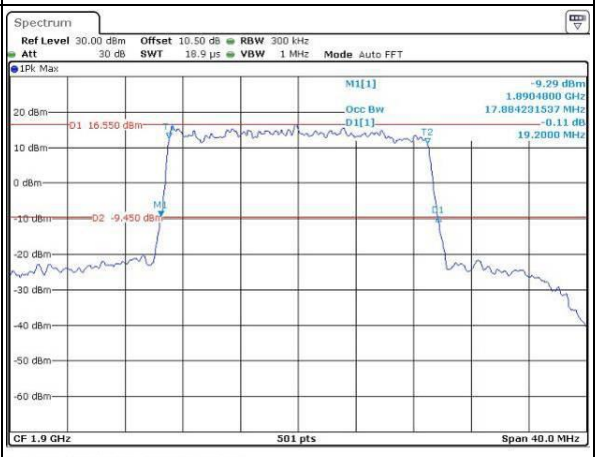
Occupied Bandwidth		
Channel	1.4MHz Bandwidth QPSK	1.4MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

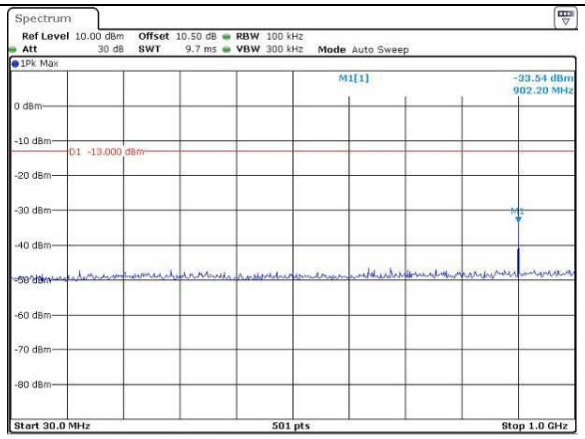
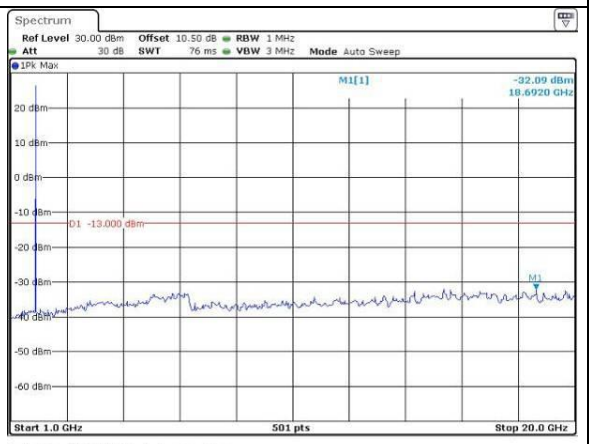
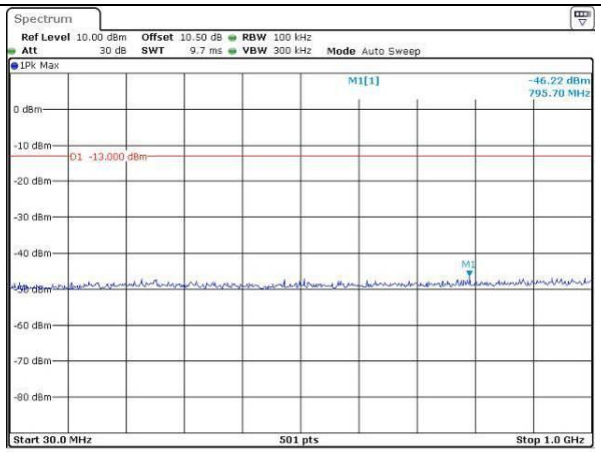
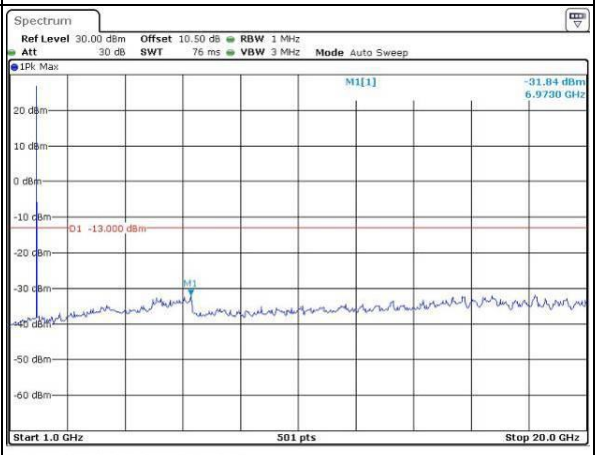
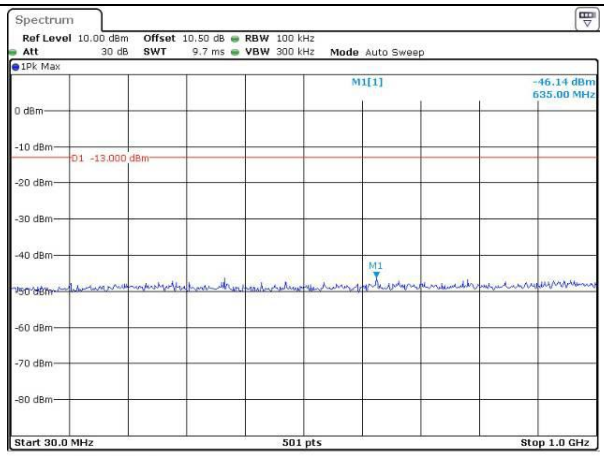
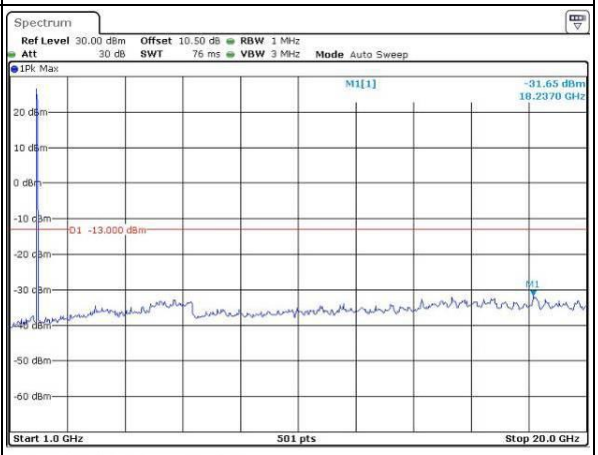
Occupied Bandwidth		
Channel	3MHz Bandwidth QPSK	3MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

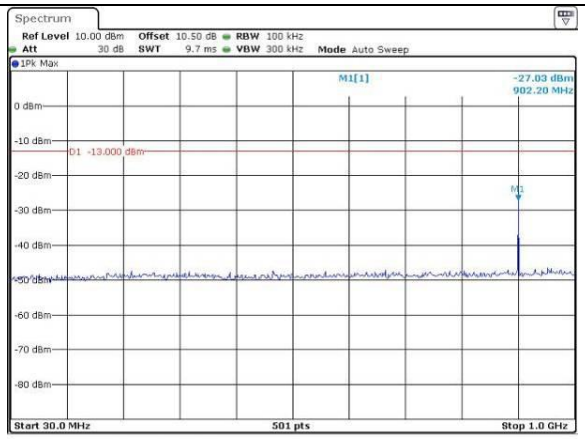
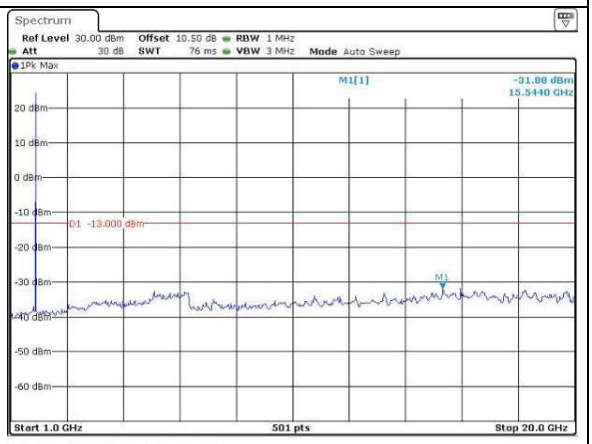
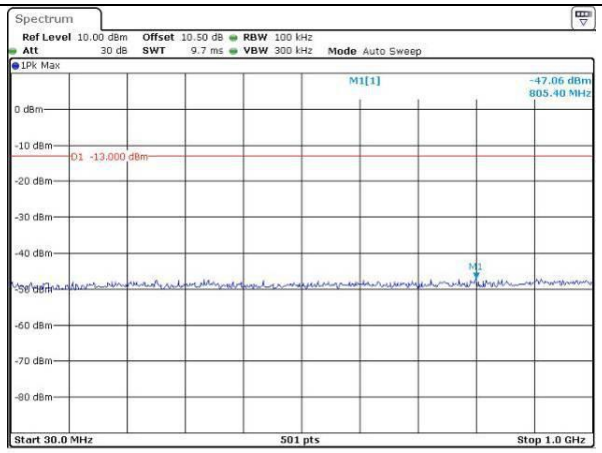
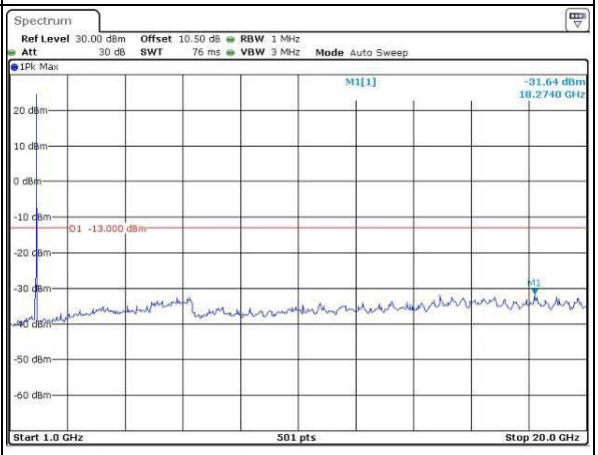
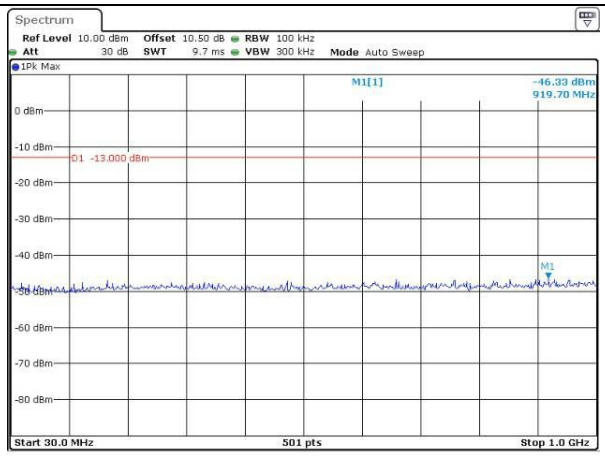
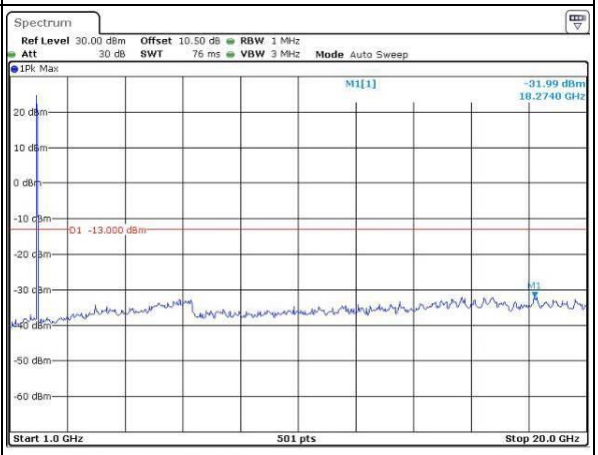
Occupied Bandwidth		
Channel	5MHz Bandwidth QPSK	5MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

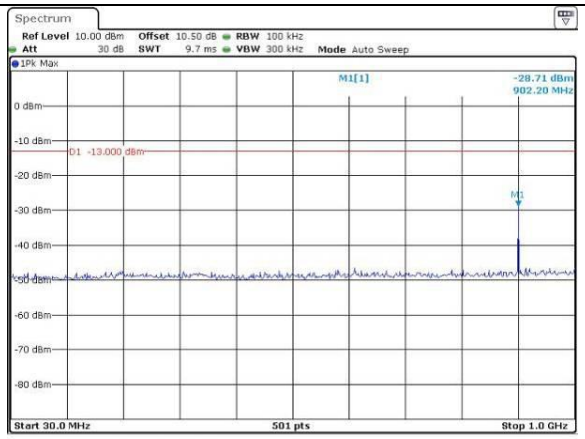
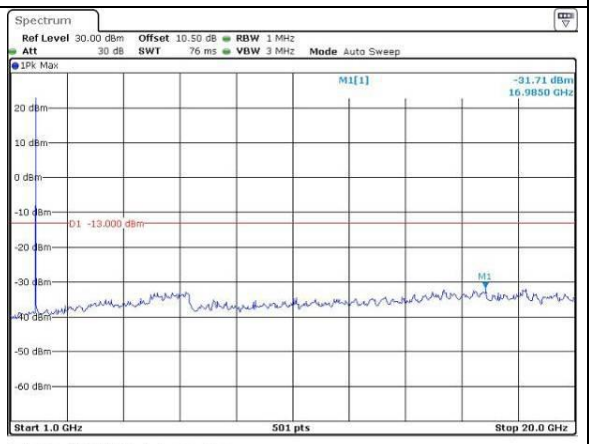
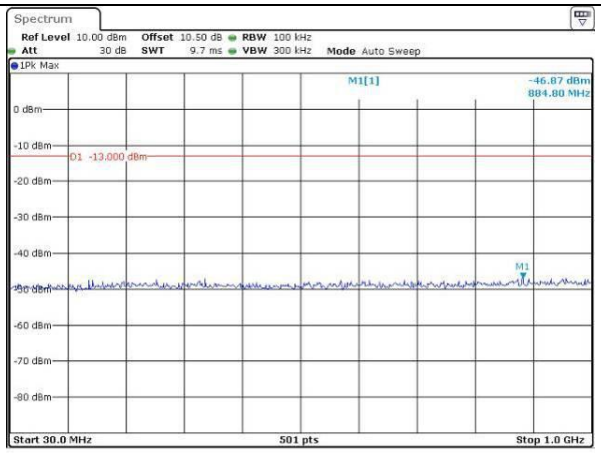
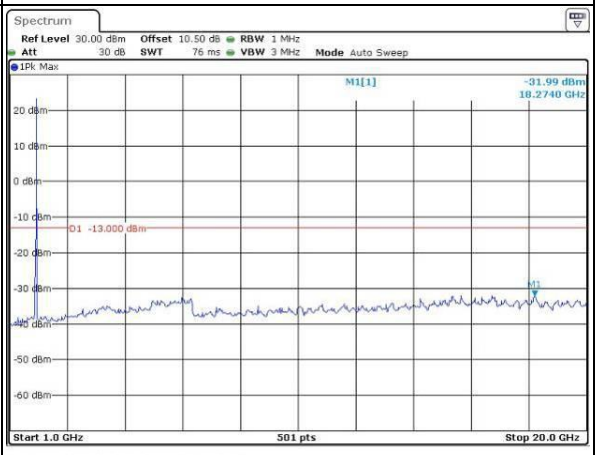
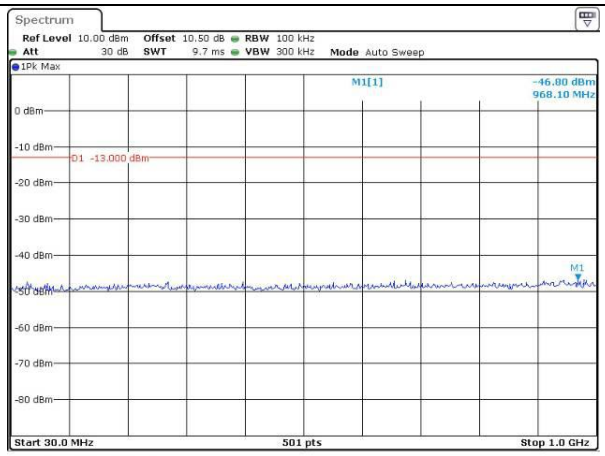
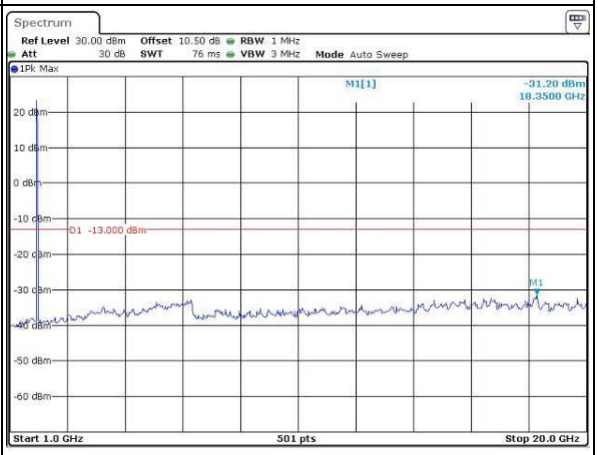
Occupied Bandwidth		
Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

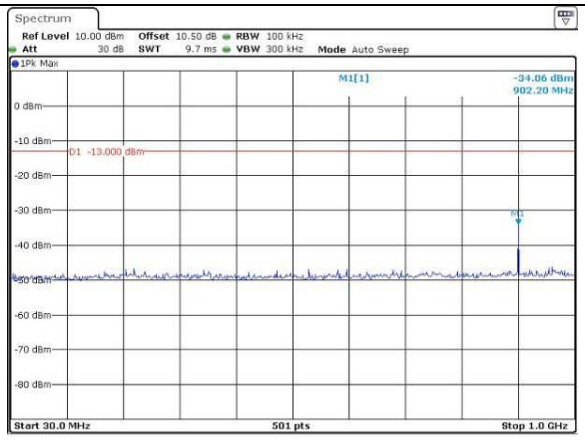
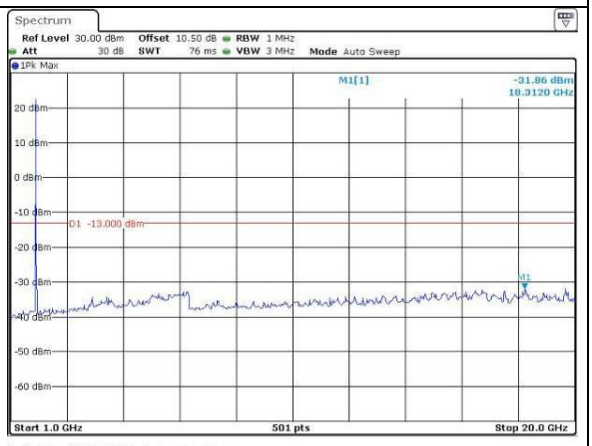
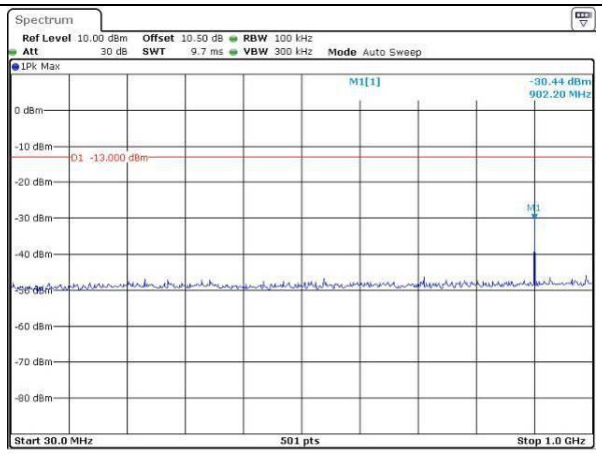
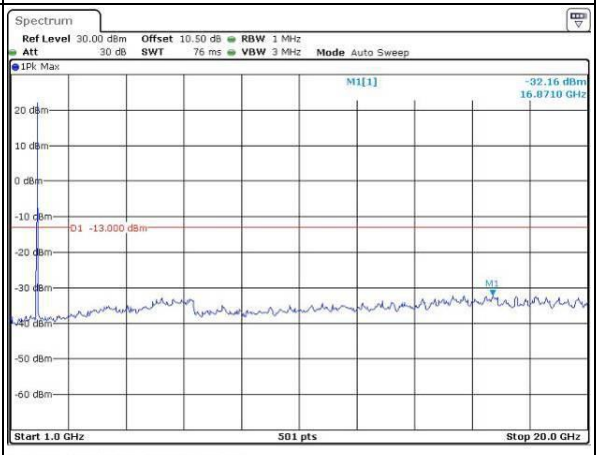
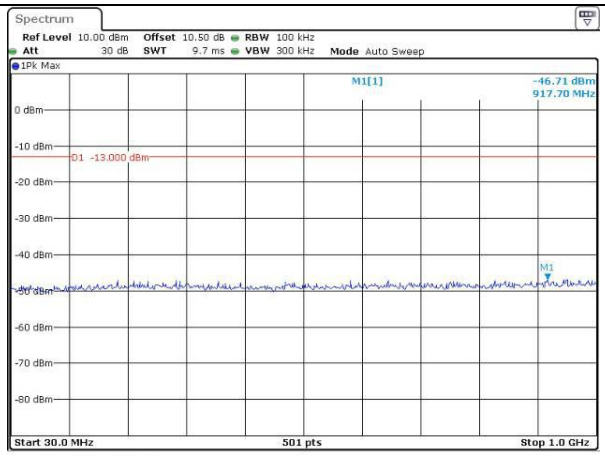
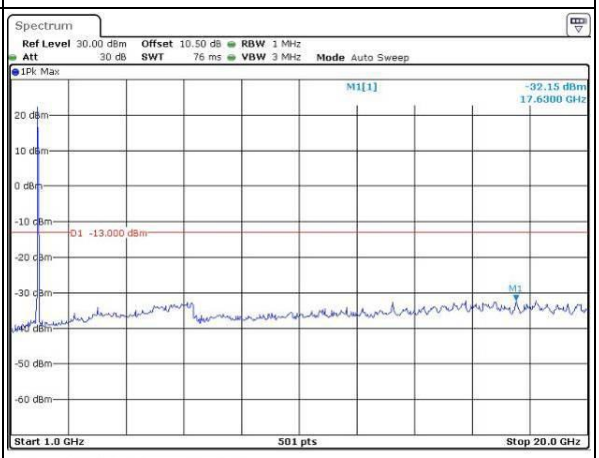
Occupied Bandwidth		
Channel	15MHz Bandwidth QPSK	15MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

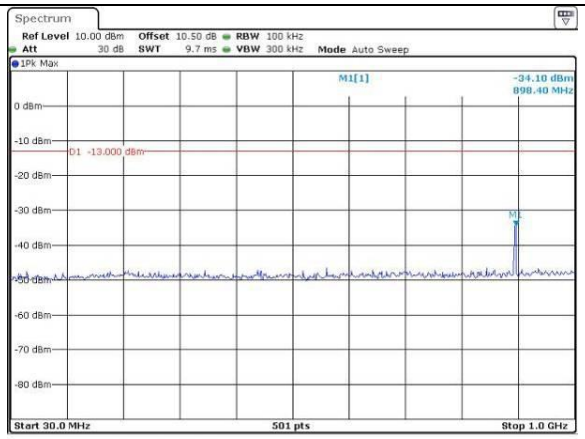
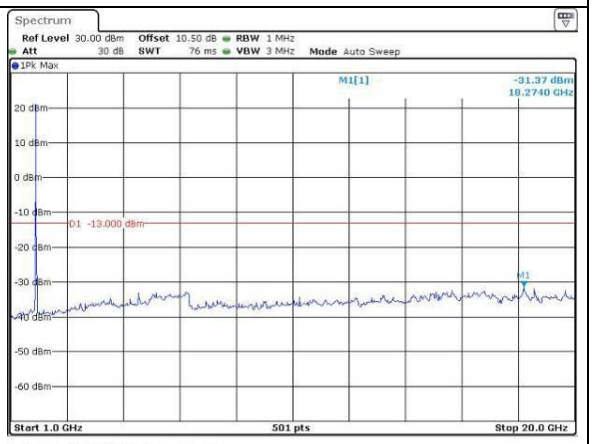
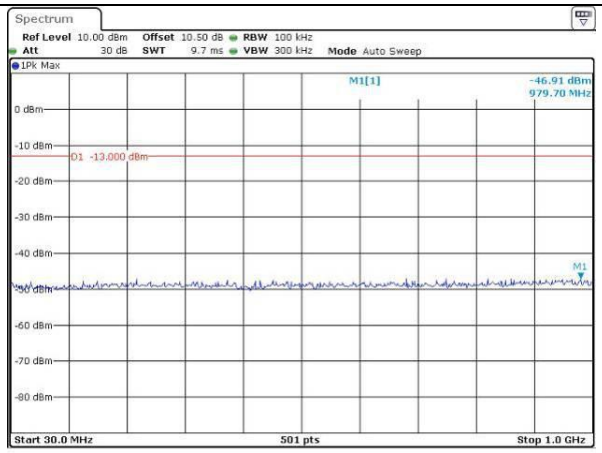
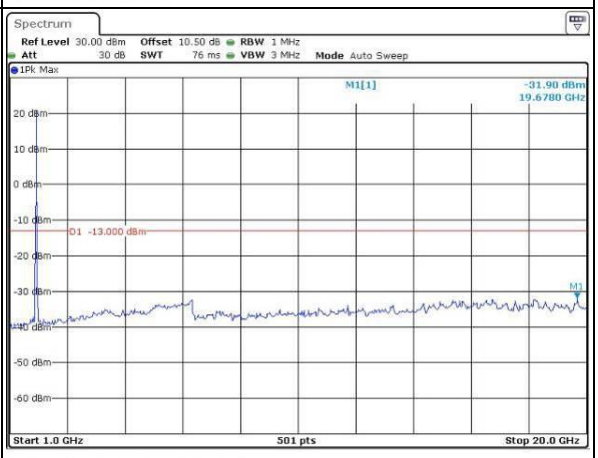
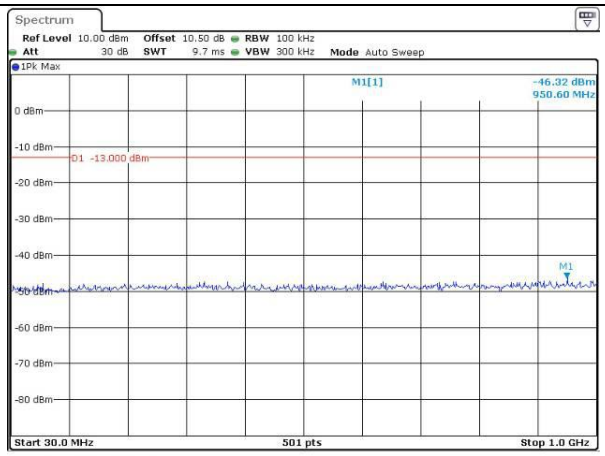
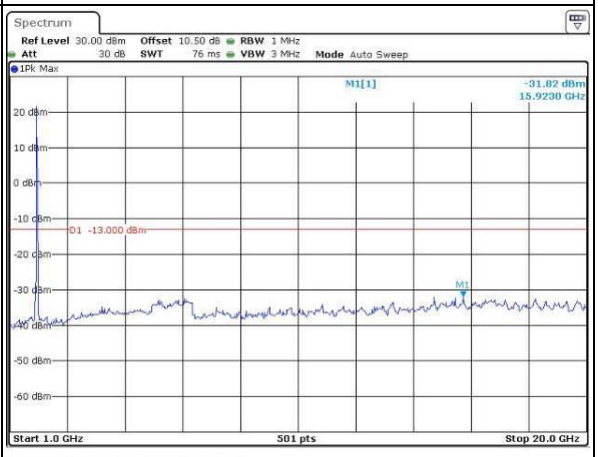
Occupied Bandwidth		
Channel	20MHz Bandwidth QPSK	20MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

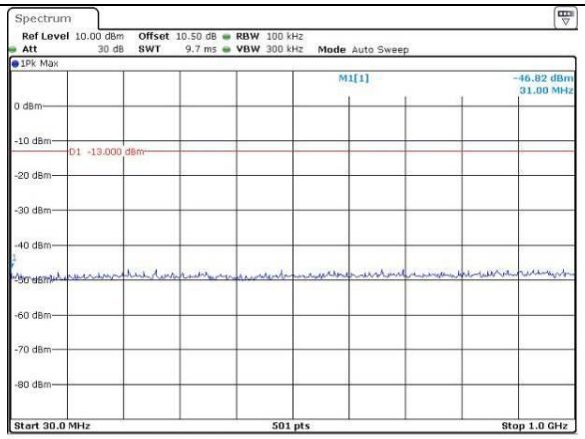
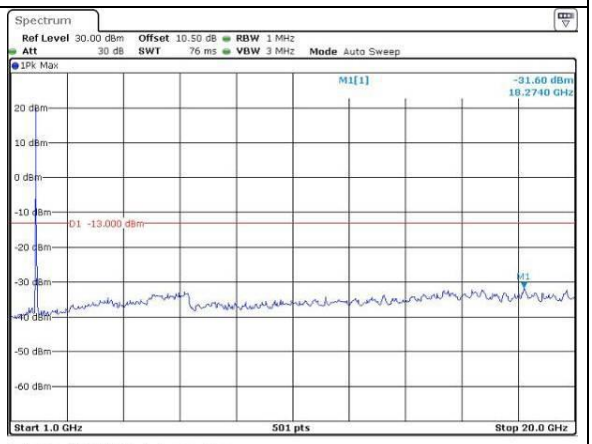
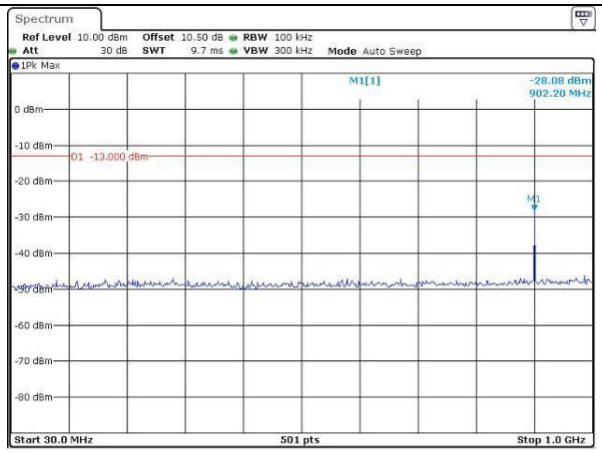
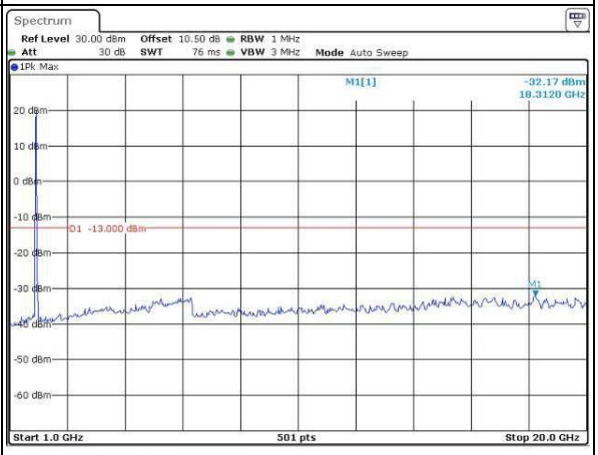
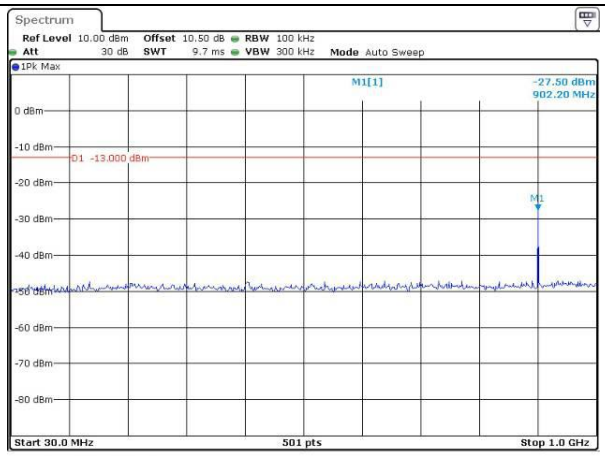
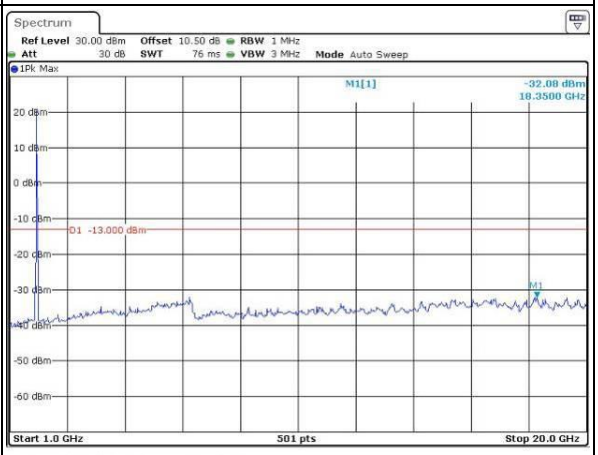
Spurious Emissions at Antenna Terminal		
Channel	**1.4MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

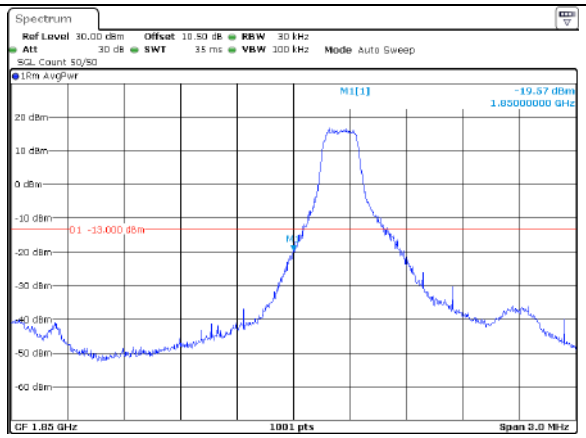
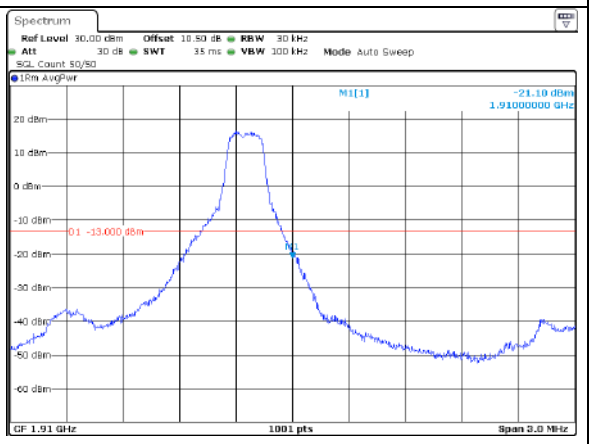
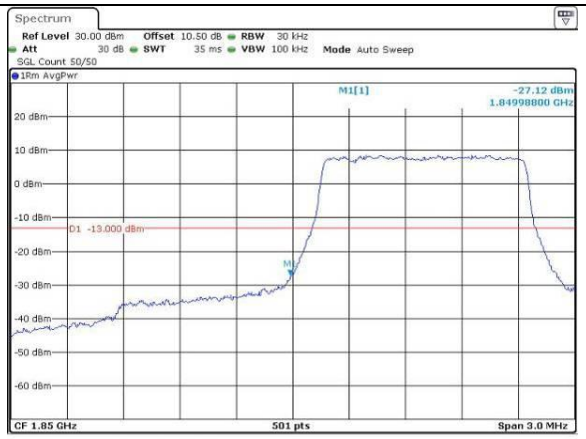
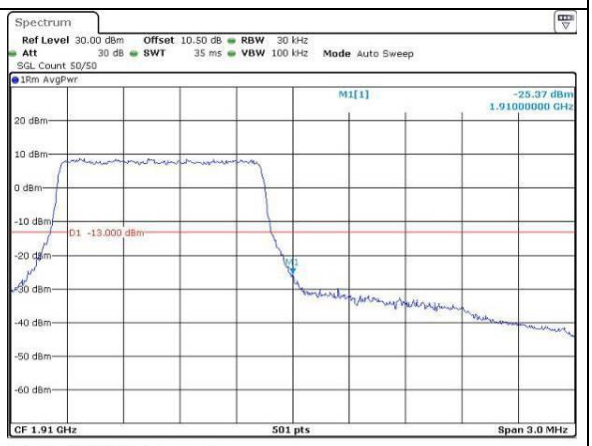
Spurious Emissions at Antenna Terminal		
Channel	**3MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

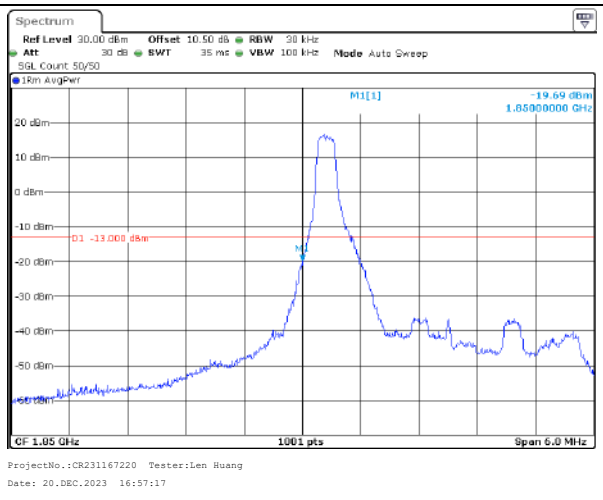
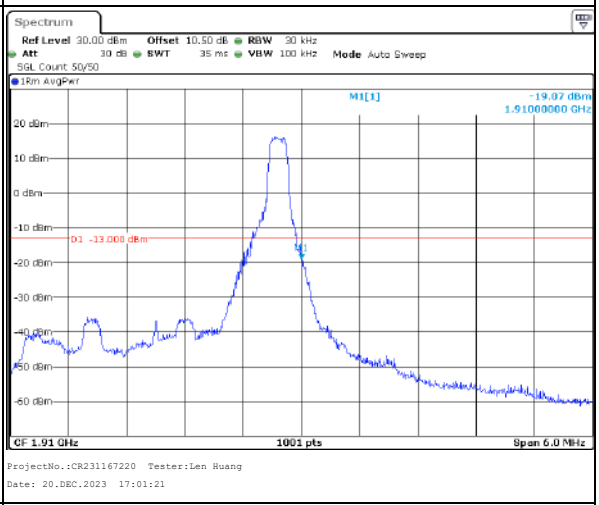
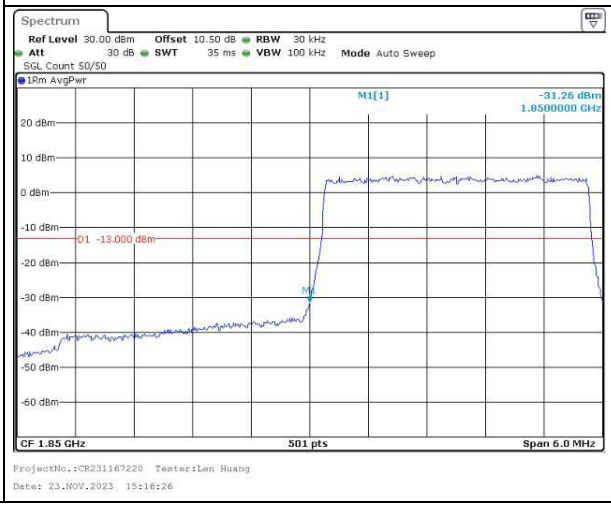
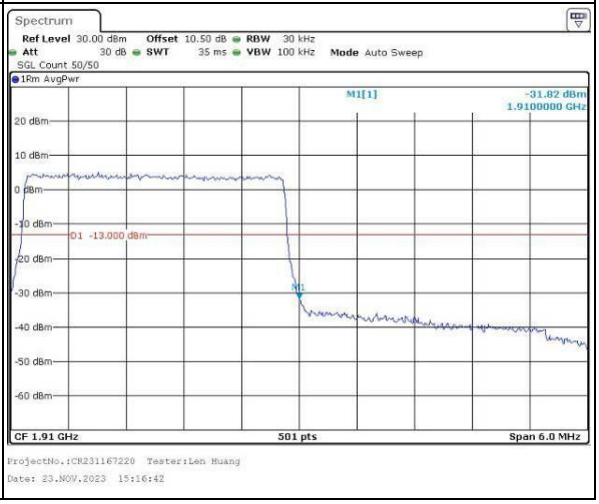
Spurious Emissions at Antenna Terminal		
Channel	**5MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

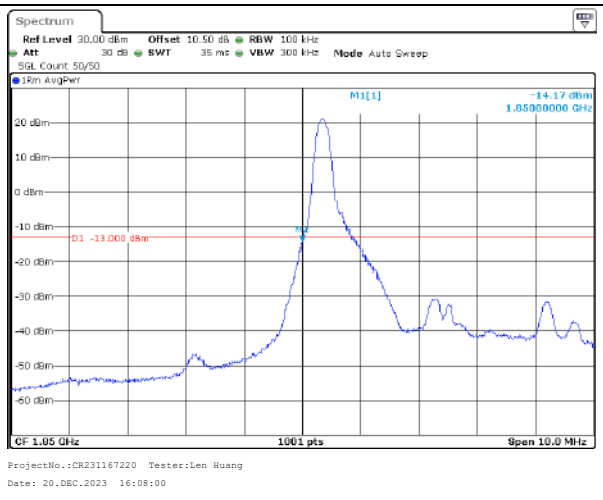
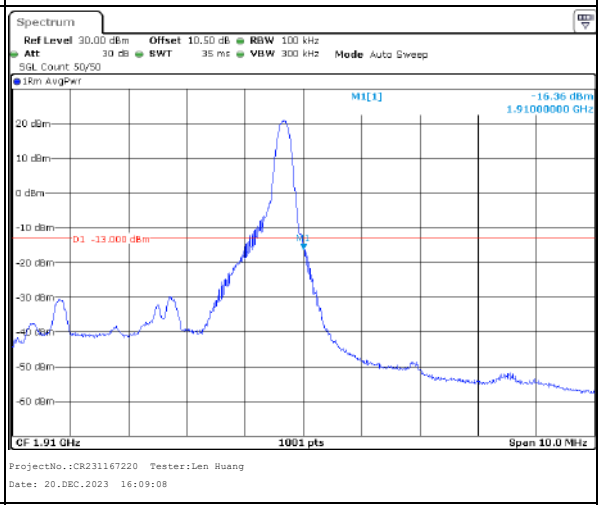
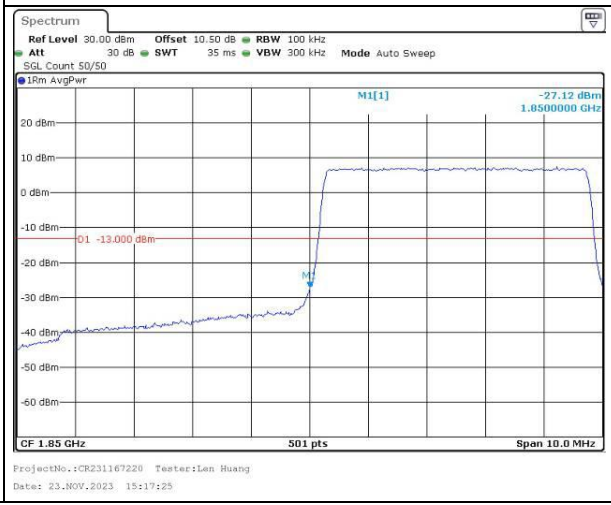
Spurious Emissions at Antenna Terminal		
Channel	**10MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

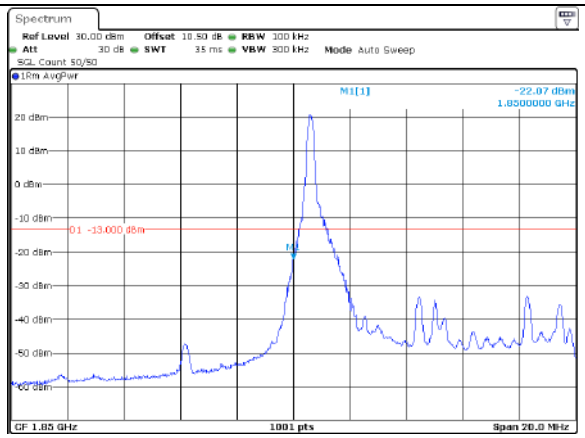
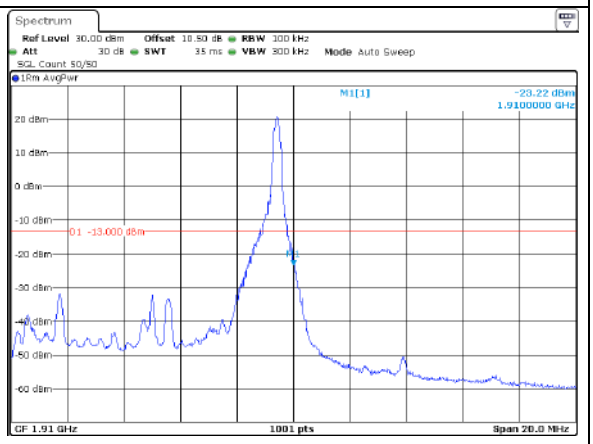
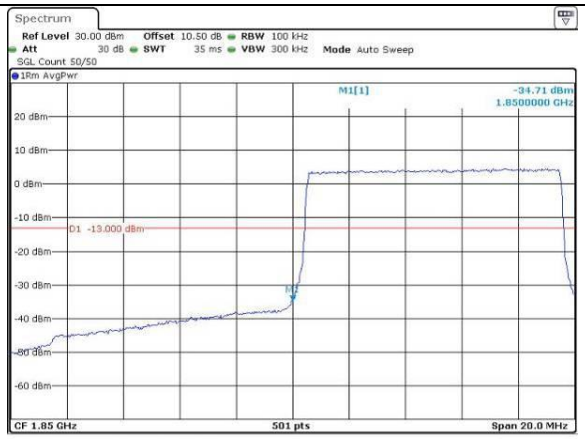
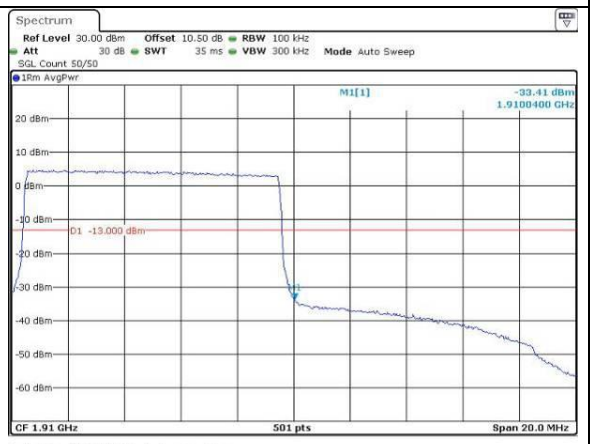
Spurious Emissions at Antenna Terminal		
Channel	**15MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

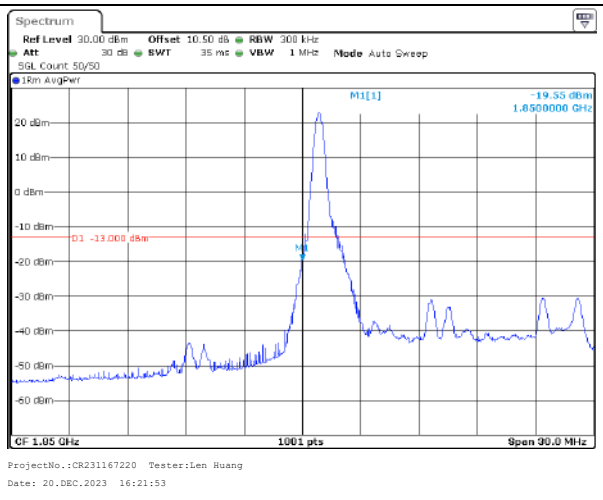
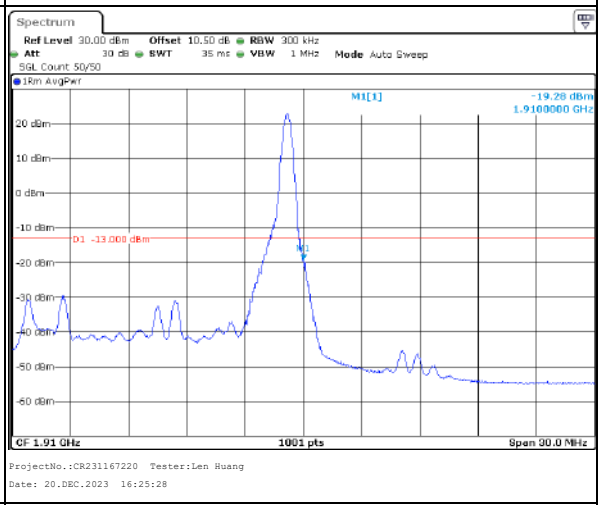
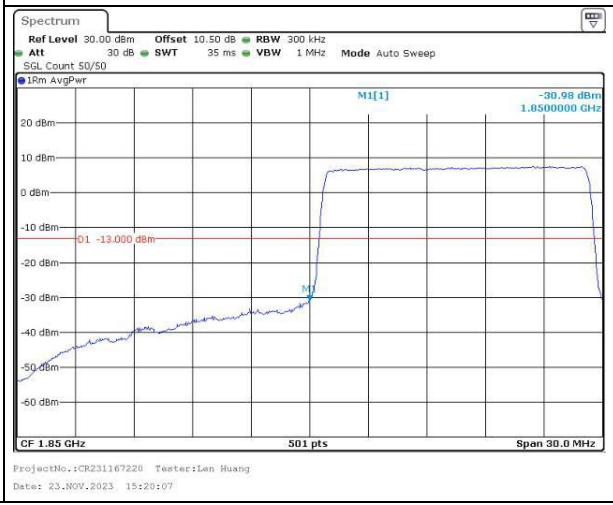
Spurious Emissions at Antenna Terminal		
Channel	**20MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

Out of band emission, Band Edge		
Mode	**Lowest/1RB0**	**Highest/1RBmax**
QPSK 1.4MHz		
	Lowest/Full RB	**Highest/Full RB**
		

Out of band emission, Band Edge		
Mode	**Lowest/1RB0**	**Highest/1RBmax**
QPSK 3MHz		
	Lowest/Full RB	**Highest/Full RB**
		

Out of band emission, Band Edge		
Mode	**Lowest/1RB0**	**Highest/1RBmax**
QPSK 5MHz		
	Lowest/Full RB	**Highest/Full RB**
		

Out of band emission, Band Edge		
Mode	**Lowest/1RB0**	**Highest/1RBmax**
QPSK 10MHz		
	Lowest/Full RB	**Highest/Full RB**
		

Out of band emission, Band Edge		
Mode	**Lowest/1RB0**	**Highest/1RBmax**
QPSK 15MHz		
	Lowest/Full RB	**Highest/Full RB**
		

<table>
<tr><th colspan="3">Out of band emission, Band Edge</th></tr>
<tr><th>Mode</th><th>Lowest/1RB0</th><th>Highest/1RBmax</th></tr>
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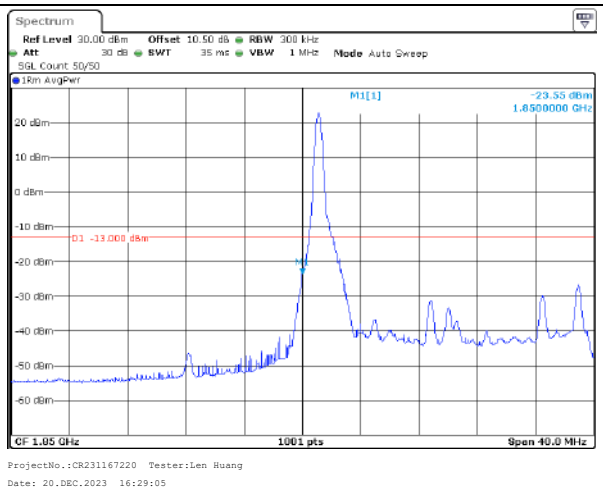
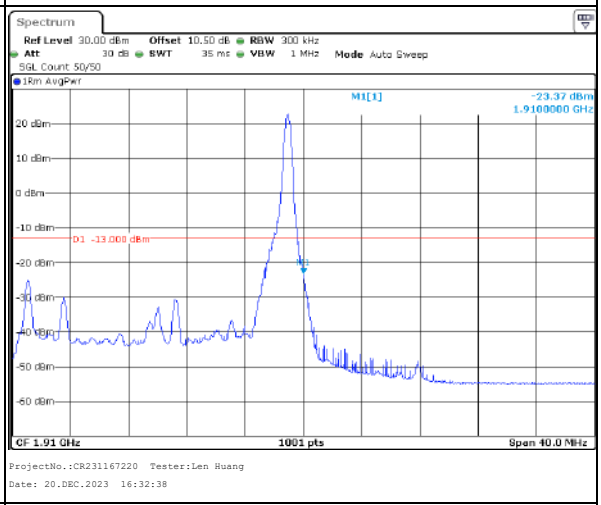
20MHz</td><td> 
</td><td> 
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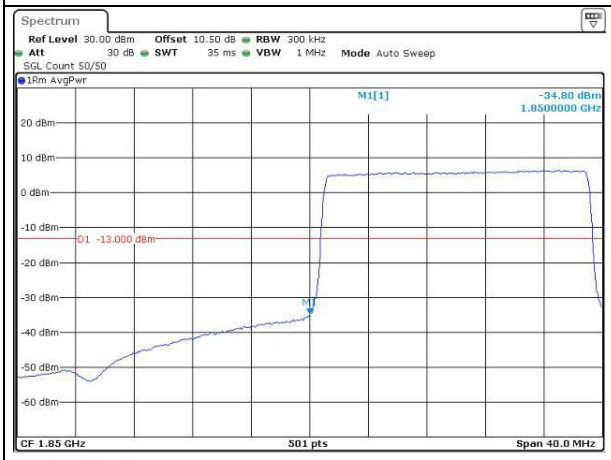
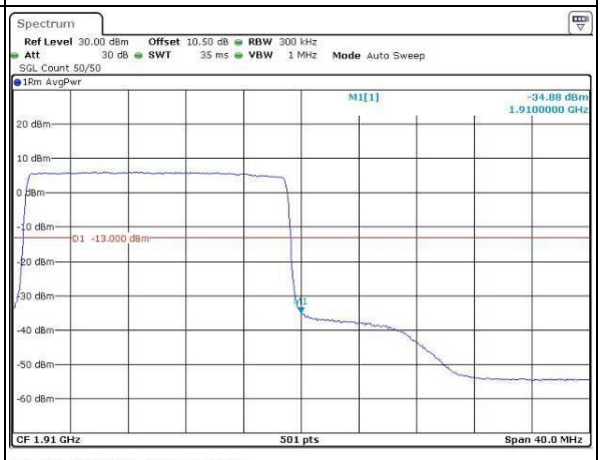
<tr><th>Lowest/Full RB</th><th>Highest/Full RB</th></tr>
<tr><td> 
</td><td> 
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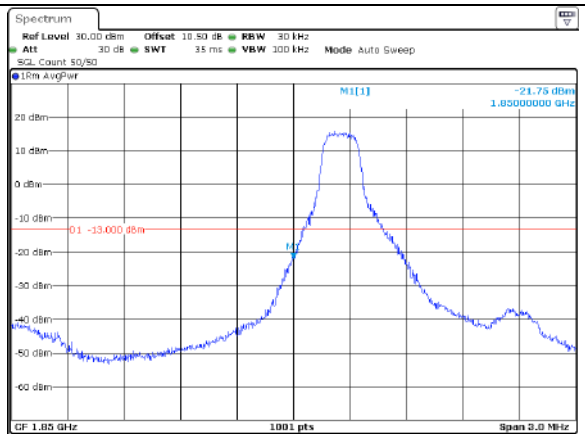
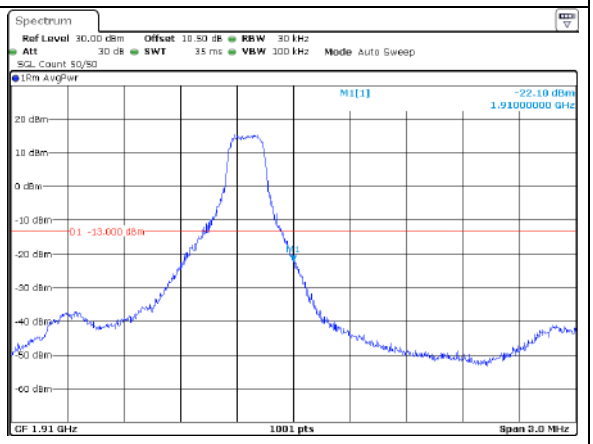
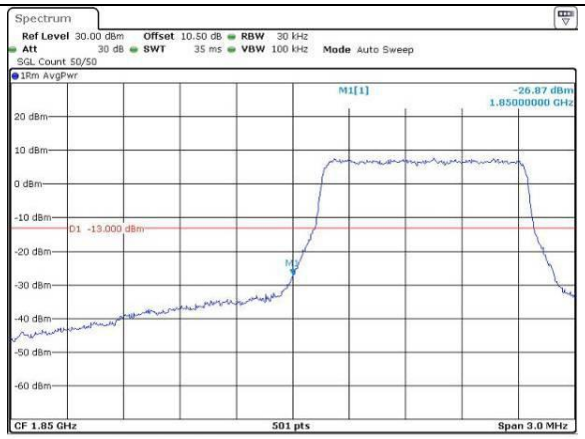
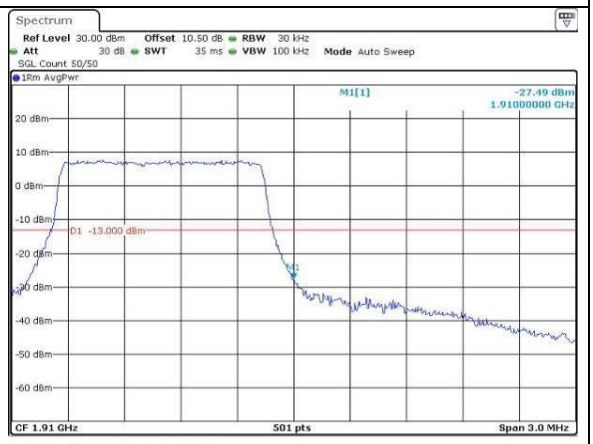
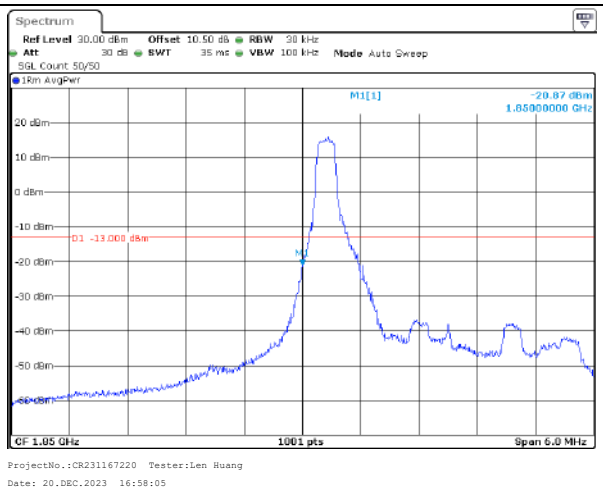
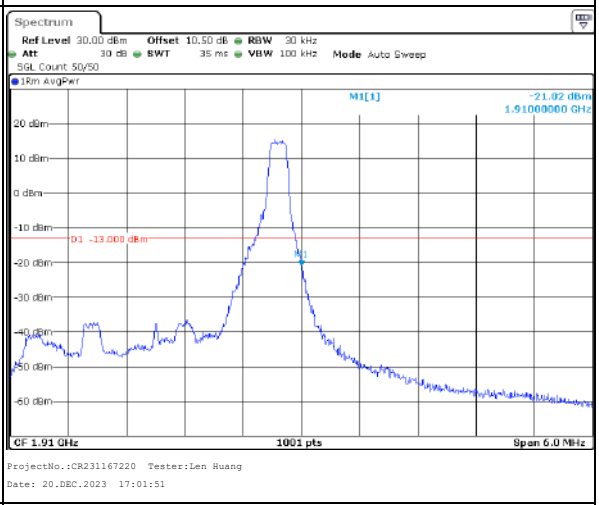
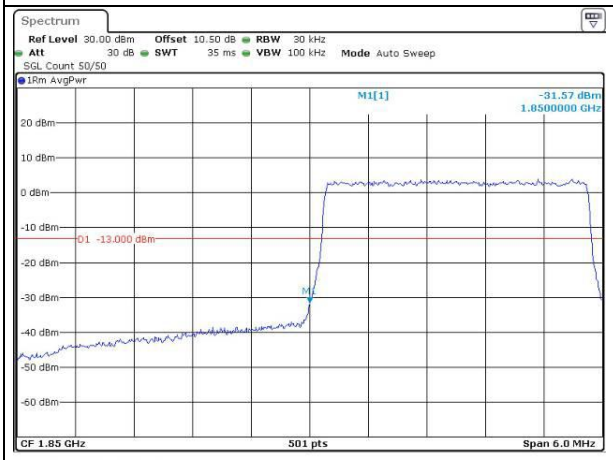
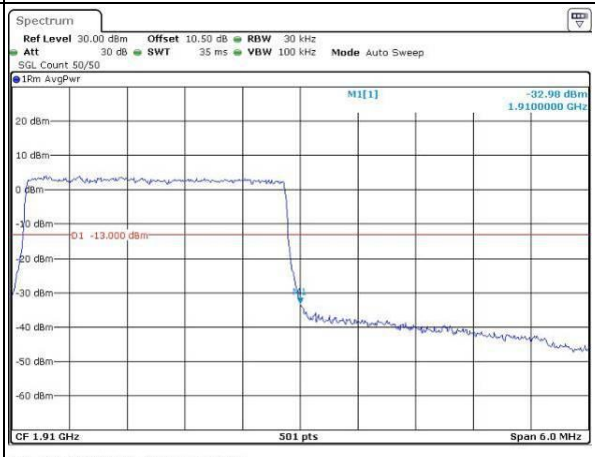
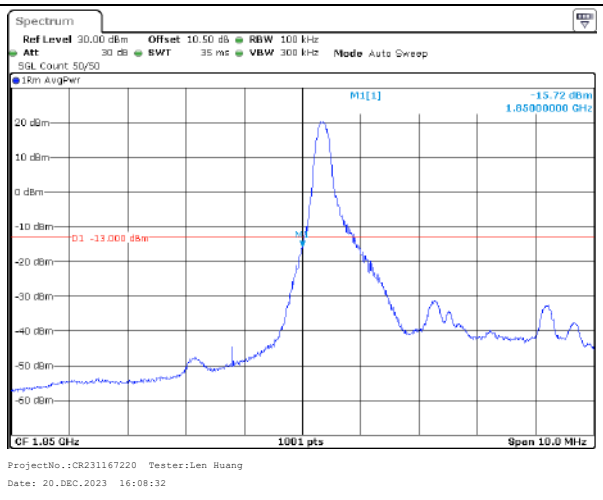
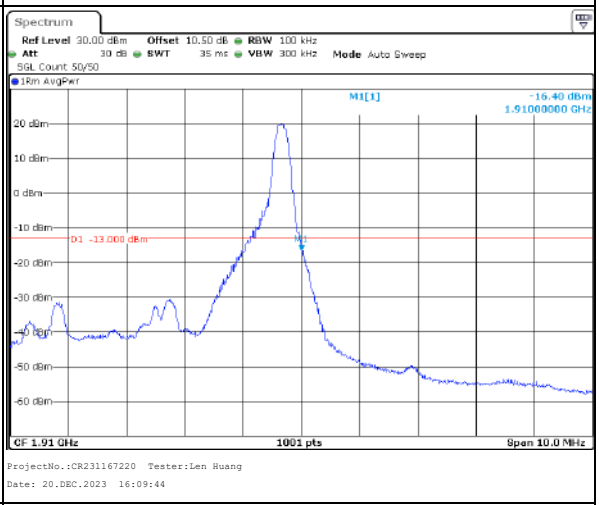
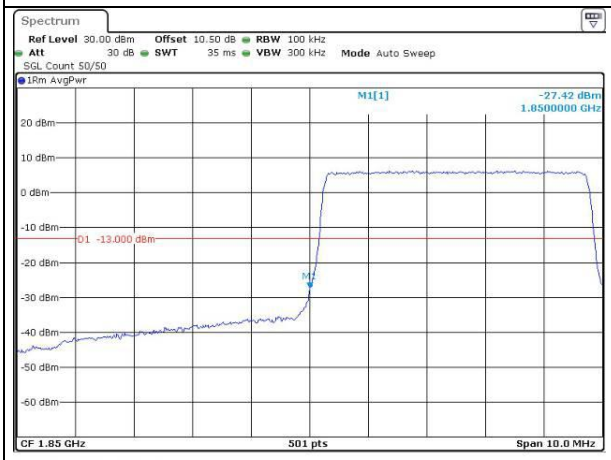
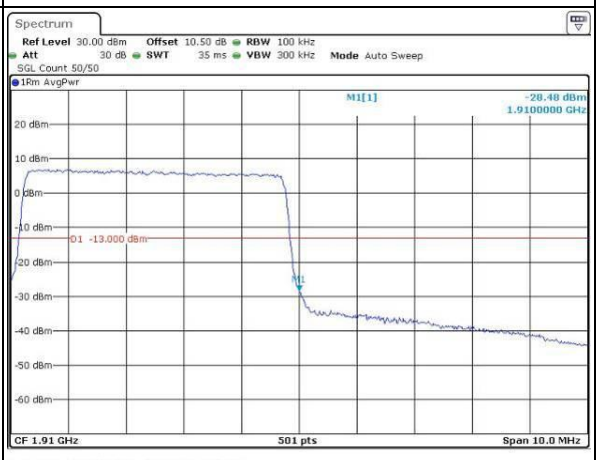
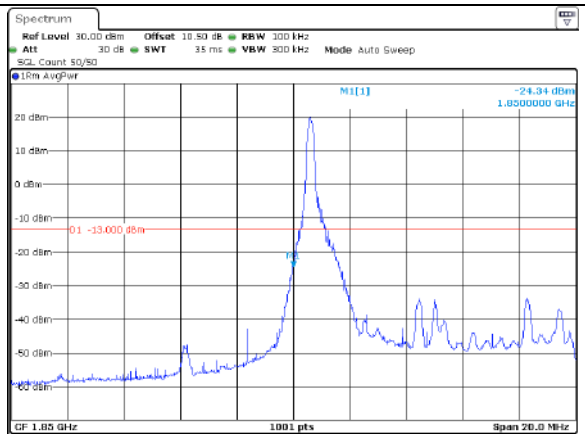
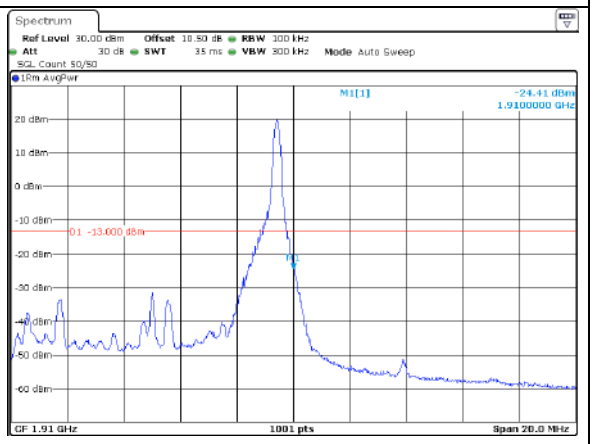
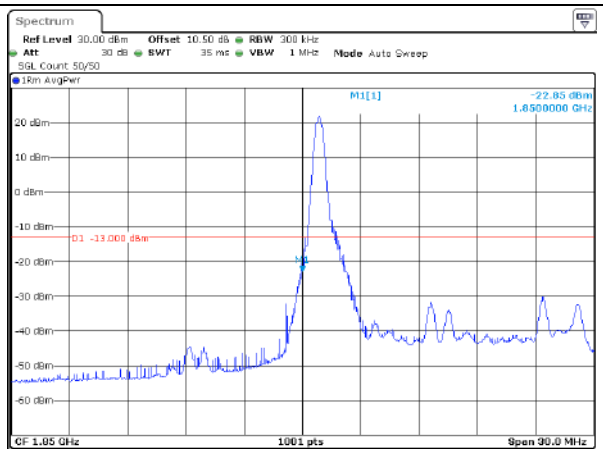
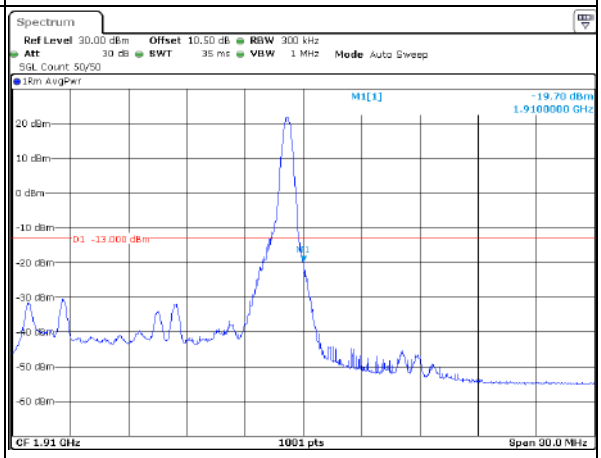
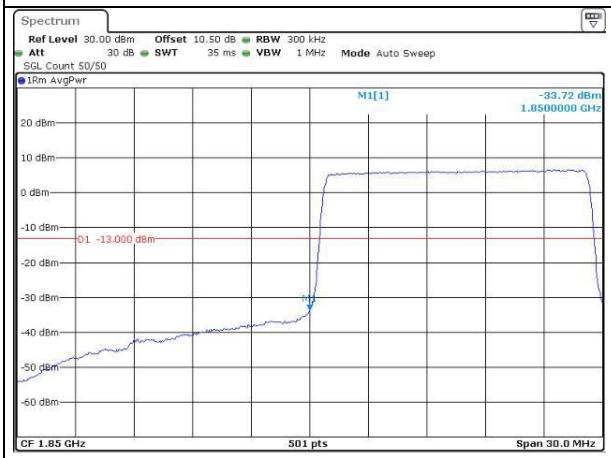
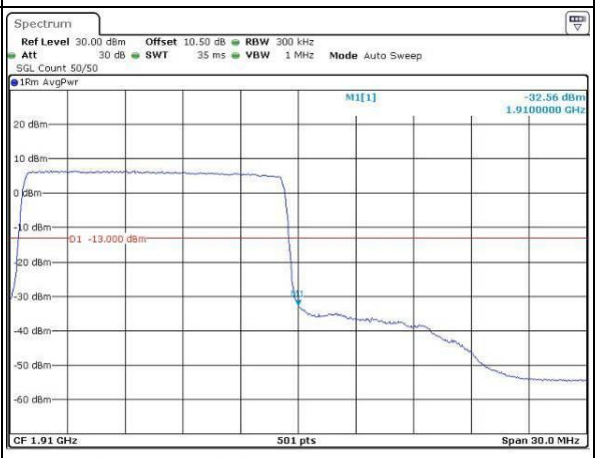
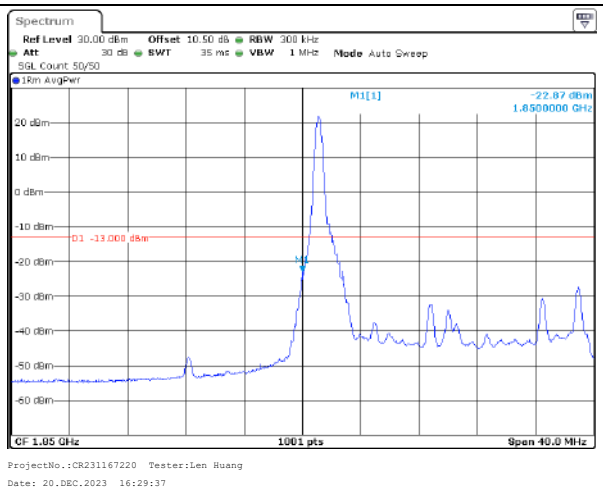
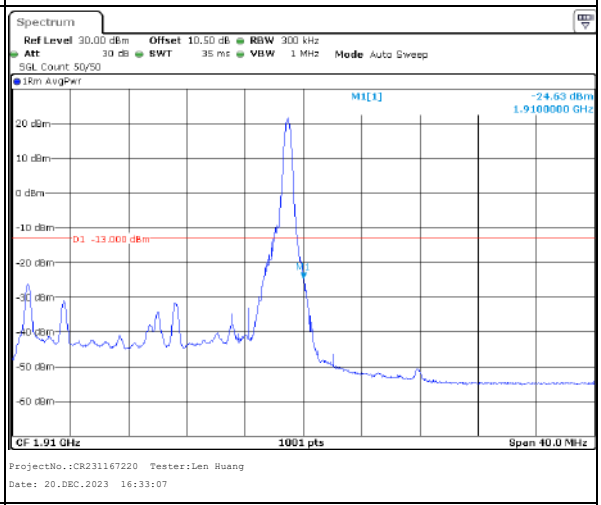
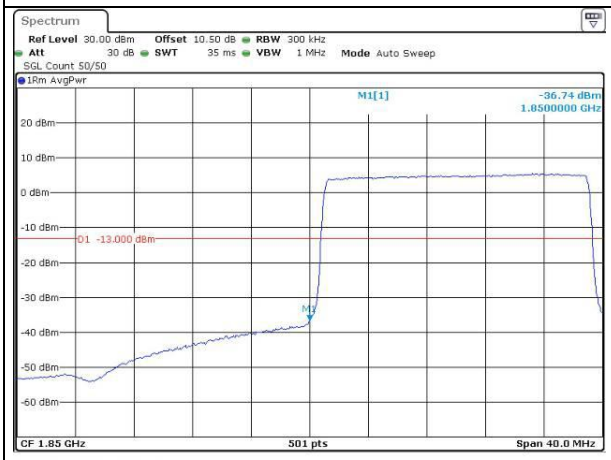
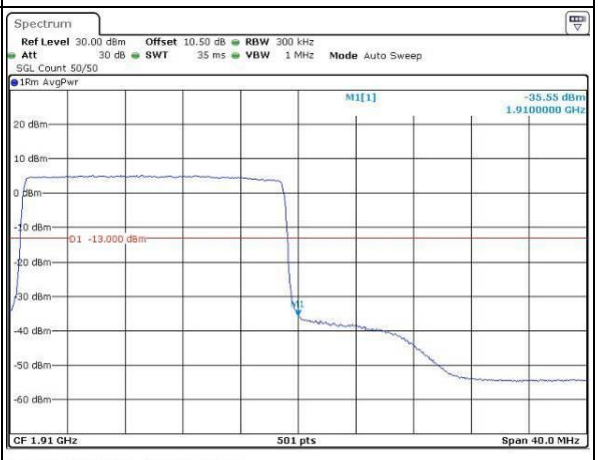
Out of band emission, Band Edge		
Mode	**Lowest/1RB0**	**Highest/1RBmax**
16QAM 1.4MHz		
	Lowest/Full RB	**Highest/Full RB**
		

Out of band emission, Band Edge		
Mode	**Lowest/1RB0**	**Highest/1RBmax**
16QAM 3MHz		
	Lowest/Full RB	**Highest/Full RB**
		

Out of band emission, Band Edge		
Mode	**Lowest/1RB0**	**Highest/1RBmax**
16QAM 5MHz		
	Lowest/Full RB	**Highest/Full RB**
		

Out of band emission, Band Edge		
Mode	**Lowest/1RB0**	**Highest/1RBmax**
16QAM 10MHz		
	Lowest/Full RB	**Highest/Full RB**
		

Out of band emission, Band Edge		
Mode	**Lowest/1RB0**	**Highest/1RBmax**
16QAM 15MHz		
	Lowest/Full RB	**Highest/Full RB**
		

Out of band emission, Band Edge		
Mode	**Lowest/1RB0**	**Highest/1RBmax**
16QAM 20MHz		
	Lowest/Full RB	**Highest/Full RB**
		

4.7 Antenna Port Test Data and Results for LTE Band 4

Serial Number:	2DMI-1	Test Date:	2023/11/22~2023/12/20
Test Site:	RF	Test Mode:	Transmitting
Tester:	Len Huang	Test Result:	**Pass**

Environmental Conditions:					
Temperature: (℃)	24.3~26	Relative Humidity: (%)	40~55	ATM Pressure: (kPa)	101

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40-N	102259	2023/4/18	2024/4/17
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
Minl-Clrcuits	Power Splitter	ZFRSC-183-S+	S F448201619	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2023/9/28	2024/9/27
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912 386	N/A	N/A

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

Test Frequency for Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	1710.7	1732.5	1754.3
3MHz	1711.5	1732.5	1753.5
5MHz	1712.5	1732.5	1752.5
10MHz	1715	1732.5	1750
15MHz	1717.5	1732.5	1747.5
20MHz	1720	1732.5	1745

Test Data:

FCC§2.1046;§ 27.50(d)(4)

RF Output Power:

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP(dBm)	EIRP Limit(dBm)
		Lowest Channel	Middle Channel	Highest Channel		
1.4MHz QPSK	RB1#0	22.76	23.10	23.11	19.58	30
	RB1#3	22.74	23.13	23.14		
	RB1#5	22.78	23.12	23.14		
	RB3#0	22.84	23.12	23.17		
	RB3#3	22.82	23.11	23.23		
	RB6#0	21.84	22.18	22.17		
1.4MHz 16QAM	RB1#0	21.84	22.32	22.23	18.69	30
	RB1#3	21.83	22.34	22.20		
	RB1#5	21.83	22.33	22.25		
	RB3#0	21.98	22.14	22.22		
	RB3#3	22.00	22.13	22.20		
	RB6#0	20.84	21.20	21.13		
3MHz QPSK	RB1#0	22.78	23.16	23.24	19.59	30
	RB1#8	22.73	23.15	23.16		
	RB1#14	22.71	23.18	23.17		
	RB6#0	21.84	22.13	22.23		
	RB6#9	21.82	22.14	22.20		
	RB15#0	21.78	22.14	22.18		
3MHz 16QAM	RB1#0	21.99	22.21	22.73	19.08	30
	RB1#8	21.95	22.21	22.68		
	RB1#14	21.91	22.22	22.67		
	RB6#0	20.86	21.08	21.28		
	RB6#9	20.85	21.12	21.24		
	RB15#0	20.75	21.20	21.25		
5MHz QPSK	RB1#0	23.01	23.15	23.25	**19.62**	30
	RB1#13	23.01	23.22	23.27		
	RB1#24	23.02	23.24	23.26		
	RB15#0	21.83	22.18	22.30		
	RB15#10	21.81	22.20	22.23		
	RB25#0	21.82	22.18	22.23		
5MHz 16QAM	RB1#0	21.76	22.44	22.30	18.86	30
	RB1#13	21.72	22.51	22.29		
	RB1#24	21.74	22.49	22.28		
	RB15#0	20.88	21.15	21.33		
	RB15#10	20.84	21.15	21.25		
	RB25#0	20.87	21.18	21.27		
10MHz QPSK	RB1#0	22.87	23.08	23.22	19.58	30

	RB1#25	22.87	23.23	23.20		
	RB1#49	22.90	23.19	23.15		
	RB25#0	21.82	22.15	22.28		
	RB25#25	21.90	22.18	22.20		
	RB50#0	21.88	22.19	22.23		
10MHz 16QAM	RB1#0	22.41	22.27	22.25	18.77	30
	RB1#25	22.40	22.38	22.24		
	RB1#49	22.42	22.35	22.18		
	RB25#0	20.85	21.17	21.37		
	RB25#25	20.95	21.22	21.31		
	RB50#0	20.84	21.15	21.25		
15MHz QPSK	RB1#0	22.76	22.95	23.17	19.54	30
	RB1#38	22.87	23.11	23.19		
	RB1#74	22.93	23.12	23.18		
	RB36#0	21.85	22.04	22.17		
	RB36#39	21.87	22.17	22.15		
	RB75#0	21.87	22.17	22.18		
15MHz 16QAM	RB1#0	21.95	22.41	22.74	**19.09**	30
	RB1#38	22.05	22.61	22.73		
	RB1#74	22.09	22.57	22.66		
	RB36#0	20.83	21.05	21.28		
	RB36#39	20.93	21.15	21.19		
	RB75#0	20.92	21.08	21.24		
20MHz QPSK	RB1#0	22.73	22.88	23.22	19.60	30
	RB1#50	22.88	23.22	23.25		
	RB1#99	22.95	23.10	23.07		
	RB50#0	21.84	22.12	22.28		
	RB50#50	22.00	22.23	22.27		
	RB100#0	21.93	22.17	22.27		
20MHz 16QAM	RB1#0	22.40	22.22	22.42	18.93	30
	RB1#50	22.54	22.55	22.51		
	RB1#99	22.58	22.41	22.33		
	RB50#0	20.85	21.09	21.25		
	RB50#50	21.01	21.16	21.24		
	RB100#0	20.94	21.13	21.26		
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	4.20	4.43	4.67	13
	RB100#0	5.07	5.22	5.19	13
20MHz 16QAM	RB1#0	5.16	5.16	5.62	13
	RB100#0	6.03	6.17	6.12	13
				Result:	**Pass**

FCC §2.1049, §27.53:Occupied Bandwidth						
Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
1.4MHz QPSK	1.096	1.102	1.102	1.302	1.326	1.296
1.4MHz 16QAM	1.102	1.090	1.096	1.326	1.284	1.308
3MHz QPSK	2.683	2.683	2.683	2.904	2.892	2.904
3MHz 16QAM	2.683	2.683	2.683	2.916	2.916	2.892
5MHz QPSK	4.511	4.511	4.511	5.000	5.020	4.980
5MHz 16QAM	4.511	4.511	4.511	4.960	5.020	5.020
10MHz QPSK	8.942	8.942	8.942	9.680	9.640	9.680
10MHz 16QAM	8.942	8.942	8.942	9.560	9.680	9.640
15MHz QPSK	13.473	13.473	13.533	14.700	14.640	14.760
15MHz 16QAM	13.473	13.533	13.533	14.700	14.640	14.820
20MHz QPSK	17.964	17.884	17.964	19.200	19.280	19.280
20MHz 16QAM	17.964	17.964	17.884	19.360	19.360	19.040
Note: The test plots please refer to the Plots of Occupied Bandwidth						

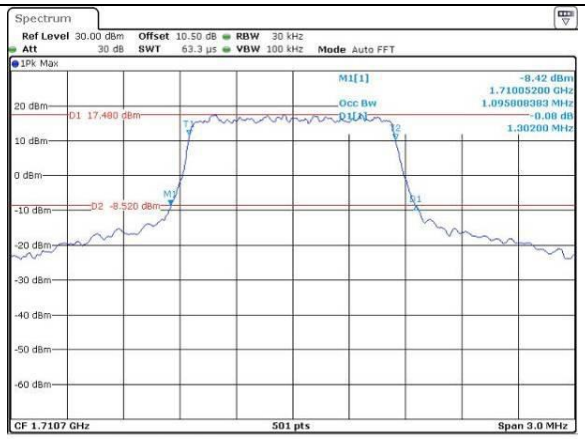
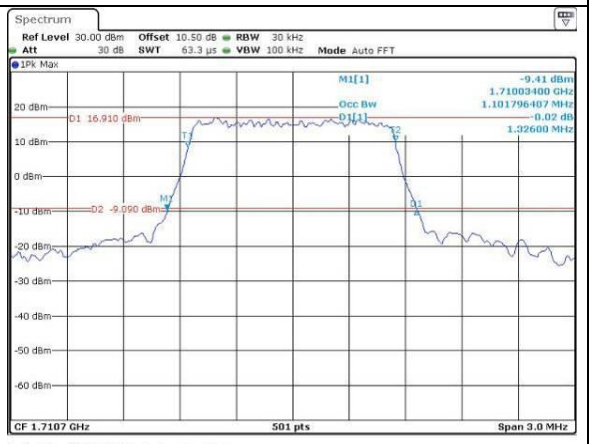
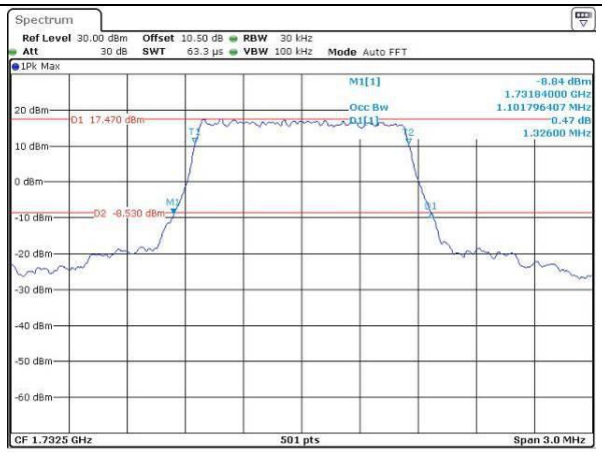
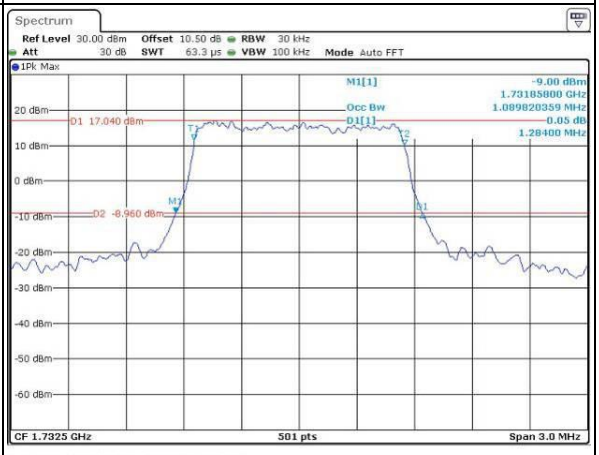
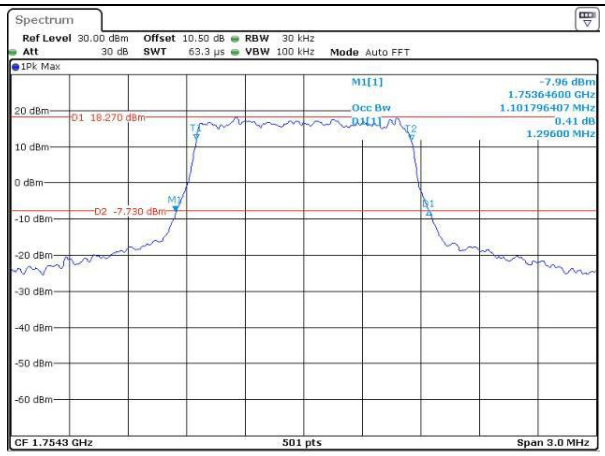
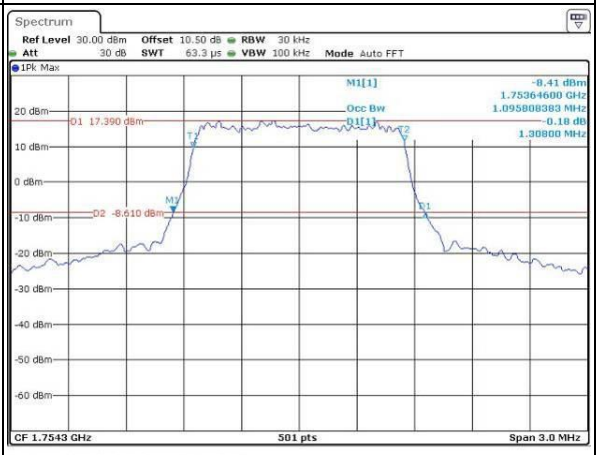
FCC §2.1051, § 27.53:Spurious Emissions at Antenna Terminal	
Result:	**Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**

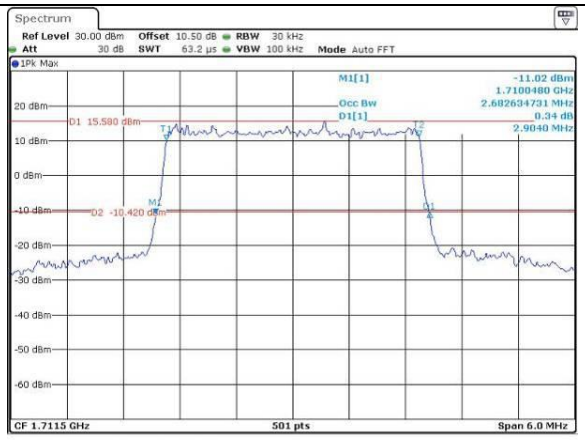
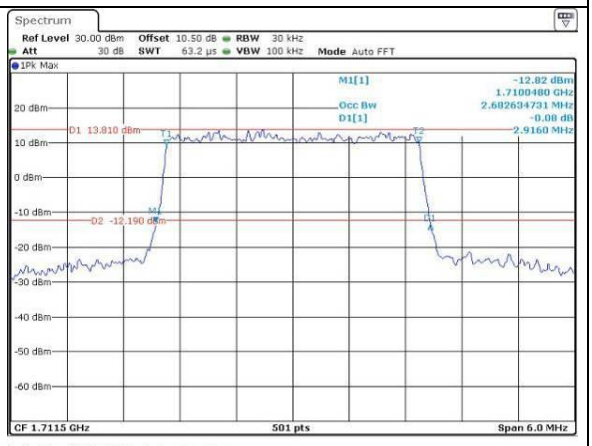
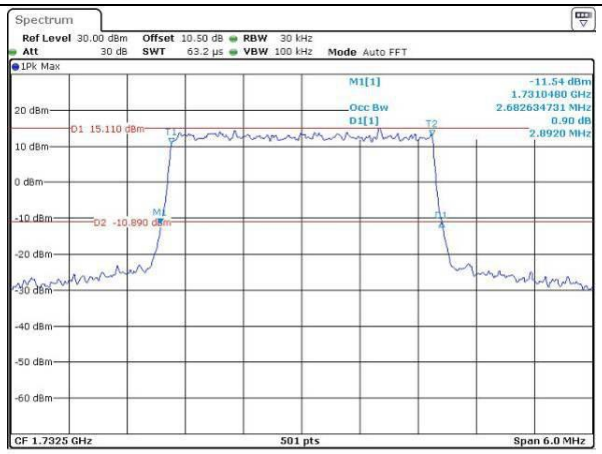
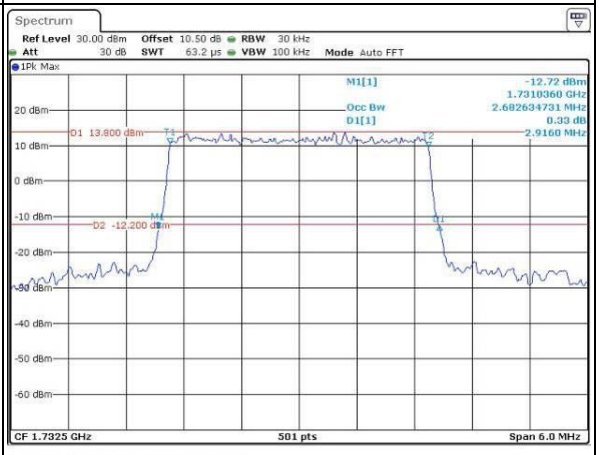
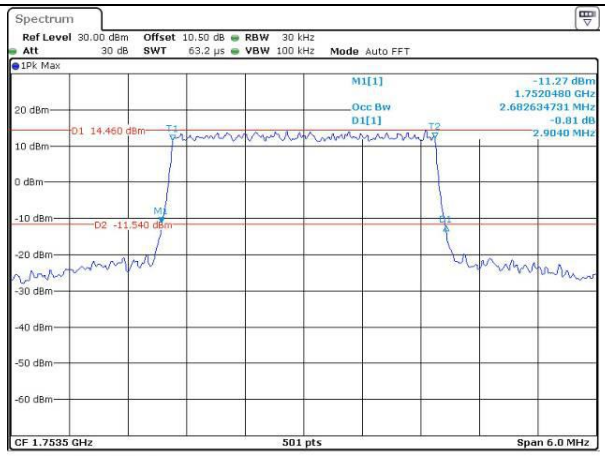
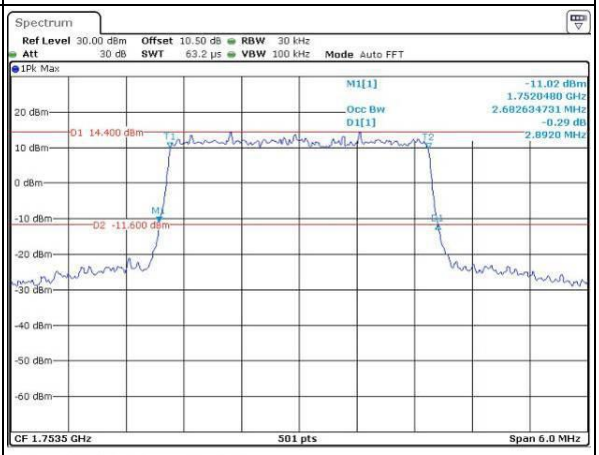
FCC §2.1051, § 27.53:Out of band emission, Band Edge	
Result:	**Pass, Please refer to the test plots of Out of band emission, Band Edge.**

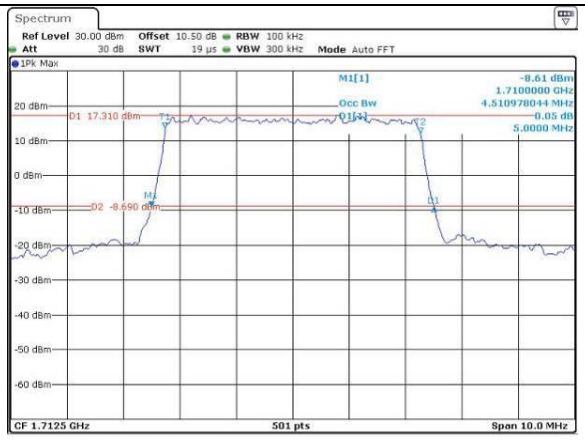
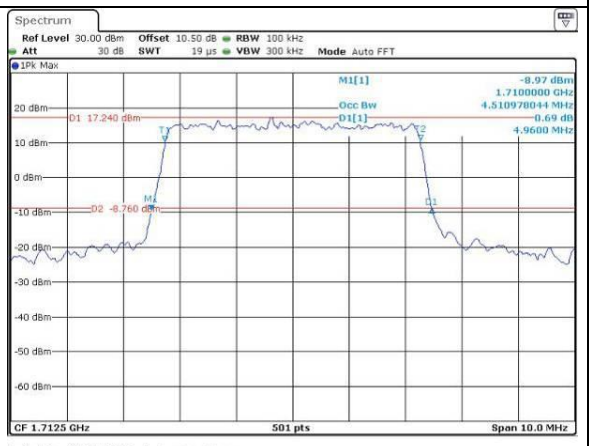
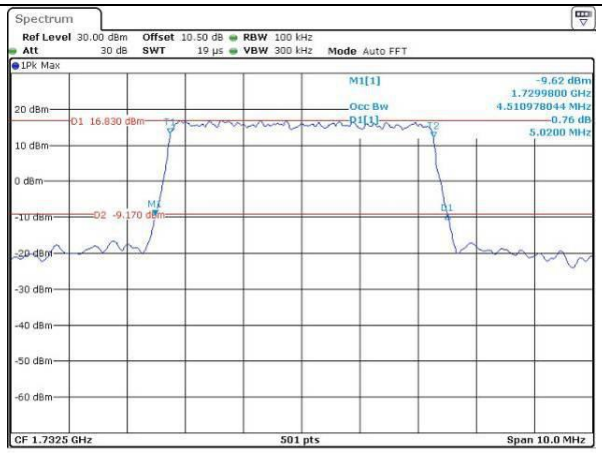
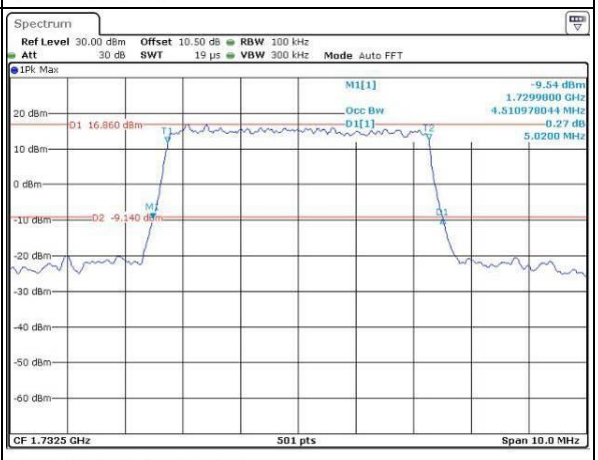
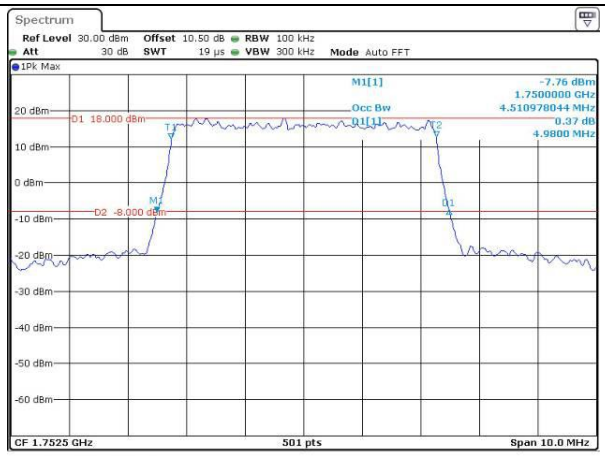
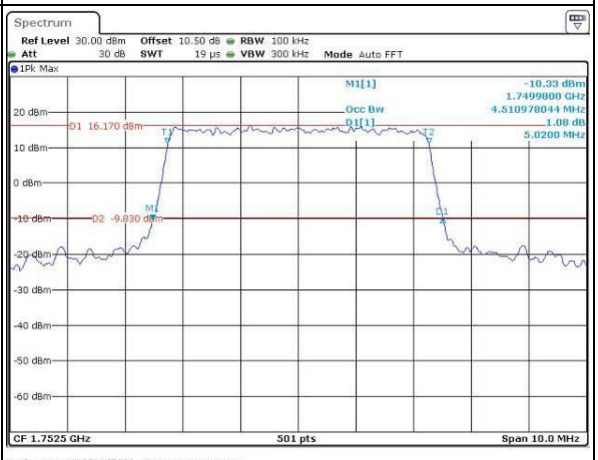
FCC §2.1055, §27.54: Frequency Stability						
Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.91	1710.288	1710.00	1754.781	1755
	-20	3.91	1710.304	1710.00	1754.759	1755
	-10	3.91	1710.283	1710.00	1754.784	1755
	0	3.91	1710.249	1710.00	1754.749	1755
	10	3.91	1710.279	1710.00	1754.723	1755
	20	3.91	1710.265	1710.00	1754.763	1755
	30	3.91	1710.270	1710.00	1754.775	1755
	40	3.91	1710.260	1710.00	1754.765	1755
	50	3.91	1710.254	1710.00	1754.757	1755
Frequency Stability vs. Voltage	20	3.45	1710.253	1710.00	1754.735	1755
	20	4.5	1710.249	1710.00	1754.745	1755
					Result:	**Pass**

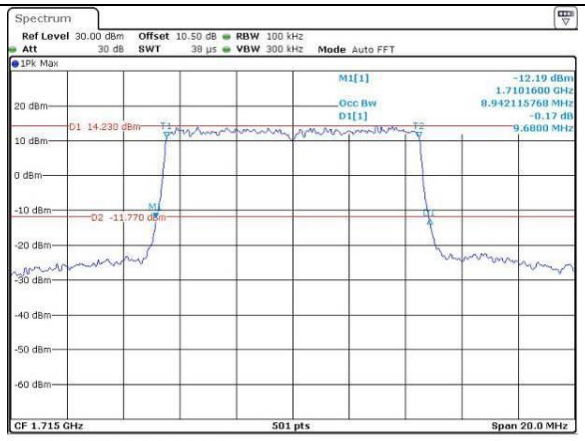
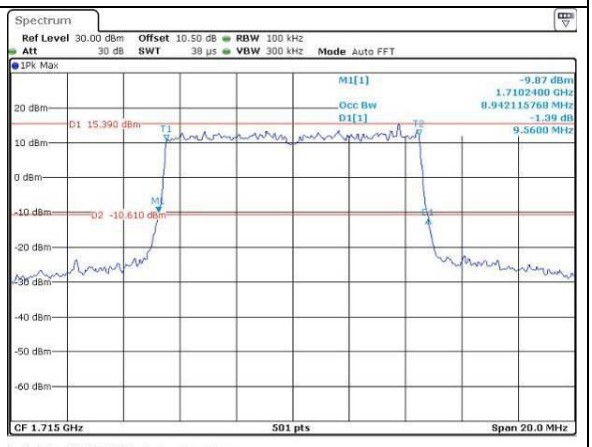
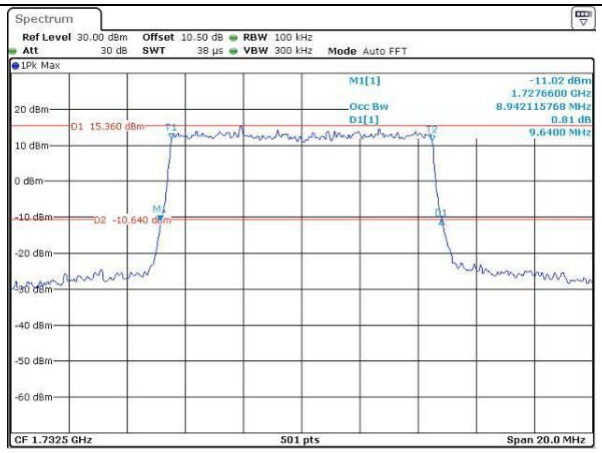
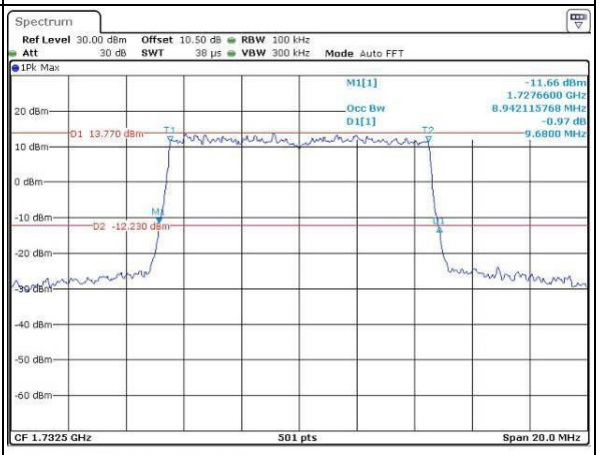
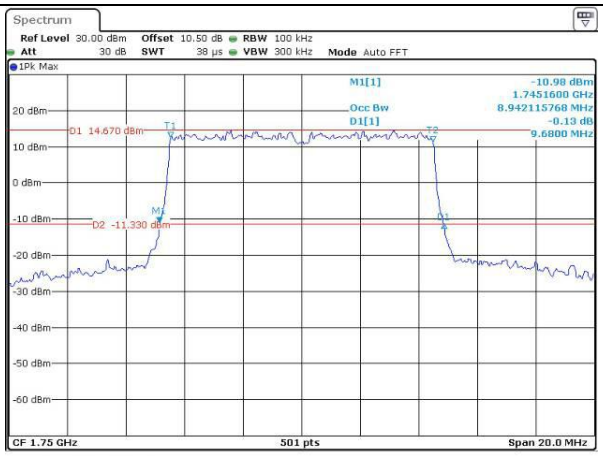
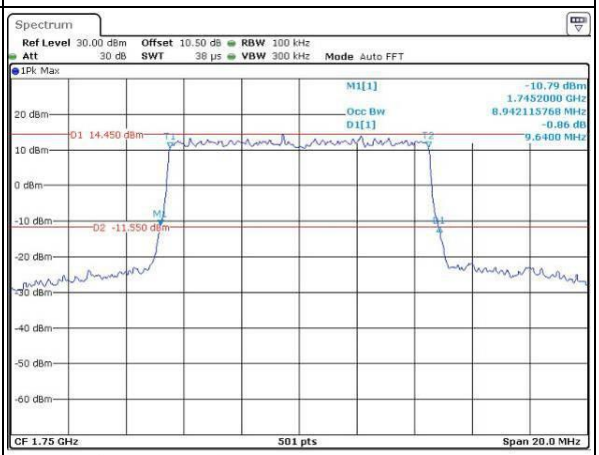
Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.91	1710.112	1710.00	1754.863	1755
	-20	3.91	1710.135	1710.00	1754.851	1755
	-10	3.91	1710.122	1710.00	1754.884	1755
	0	3.91	1710.128	1710.00	1754.866	1755
	10	3.91	1710.117	1710.00	1754.888	1755
	20	3.91	1710.122	1710.00	1754.879	1755
	30	3.91	1710.112	1710.00	1754.878	1755
	40	3.91	1710.098	1710.00	1754.875	1755
	50	3.91	1710.112	1710.00	1754.863	1755
Frequency Stability vs. Voltage	20	3.45	1710.102	1710.00	1754.894	1755
	20	4.5	1710.095	1710.00	1754.879	1755
					Result:	**Pass**

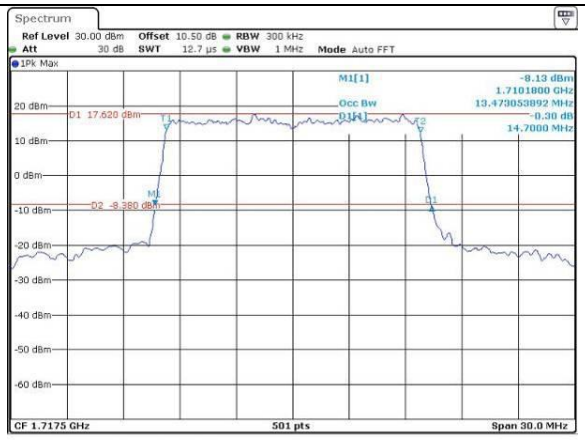
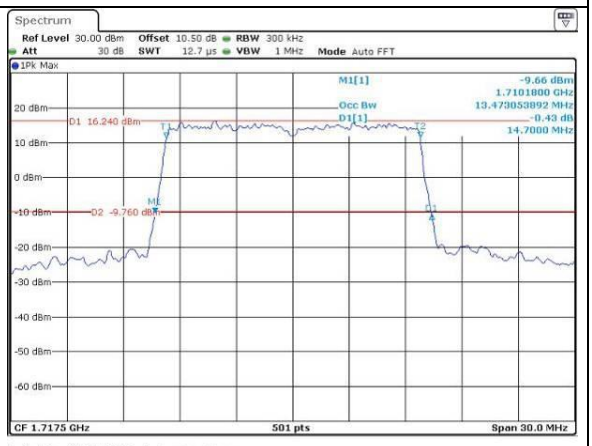
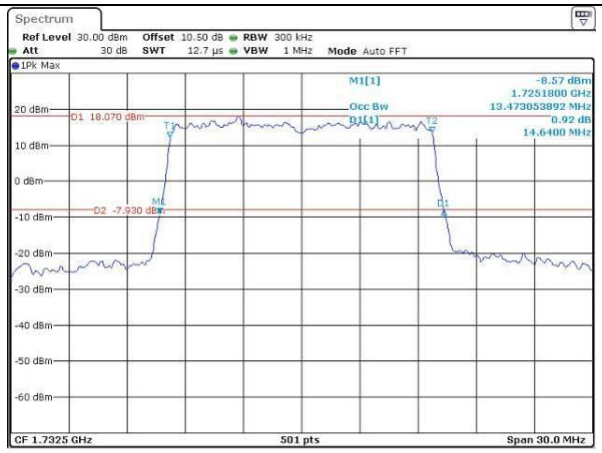
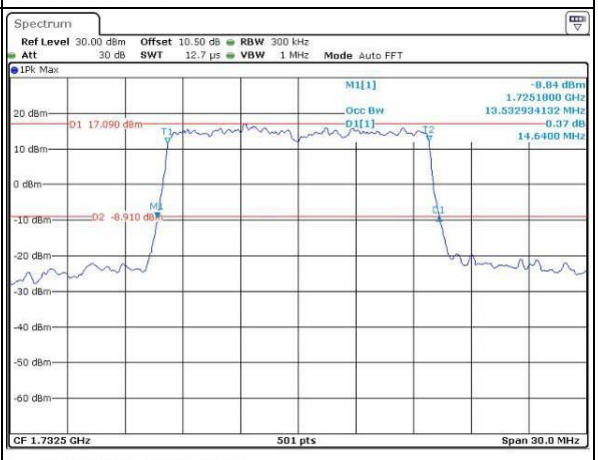
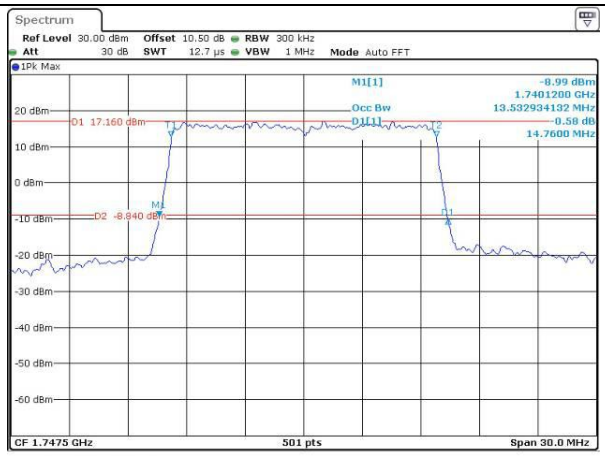
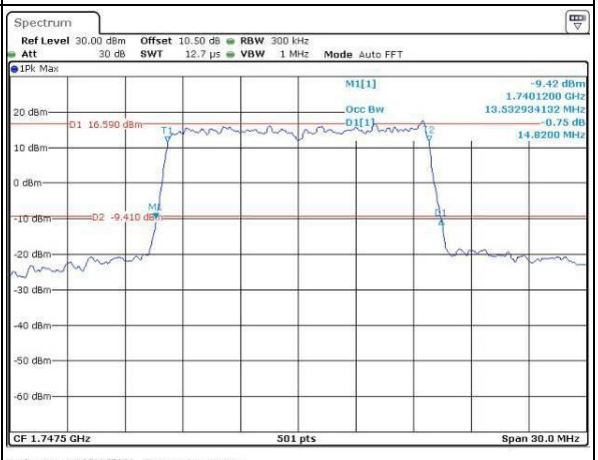
Test Plots: (Note: The 10.5 dB is the Insertion loss of the RF cable and Power Splitter, which was offset into the Spectrum Analyzer):

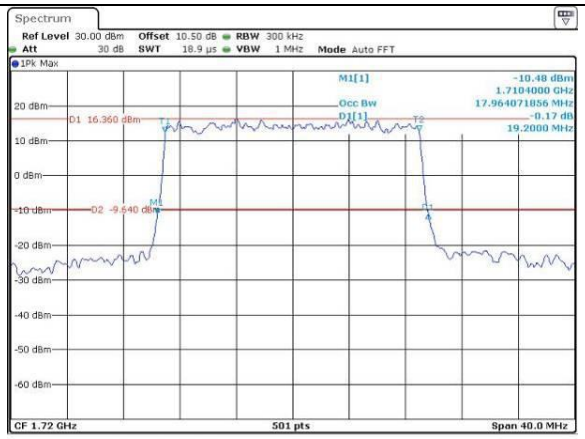
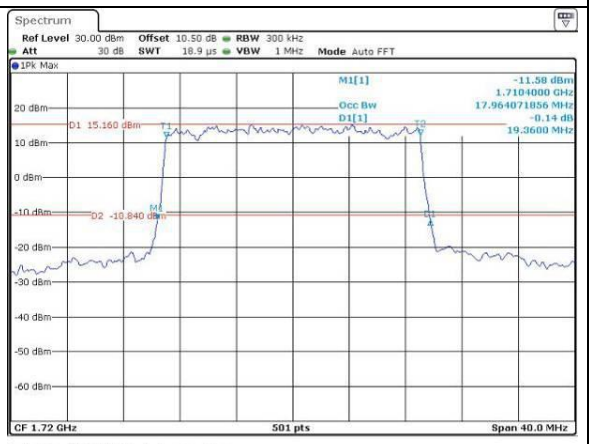
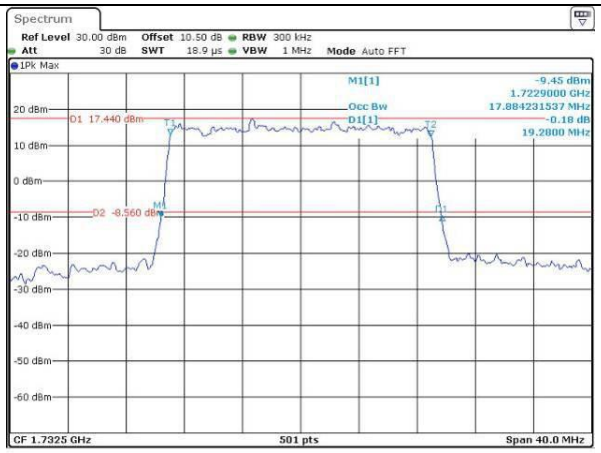
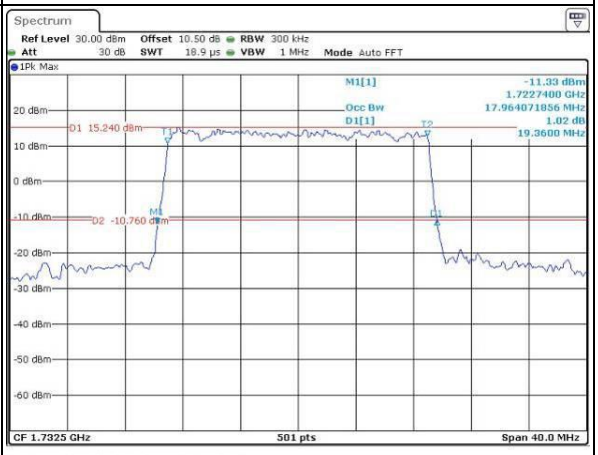
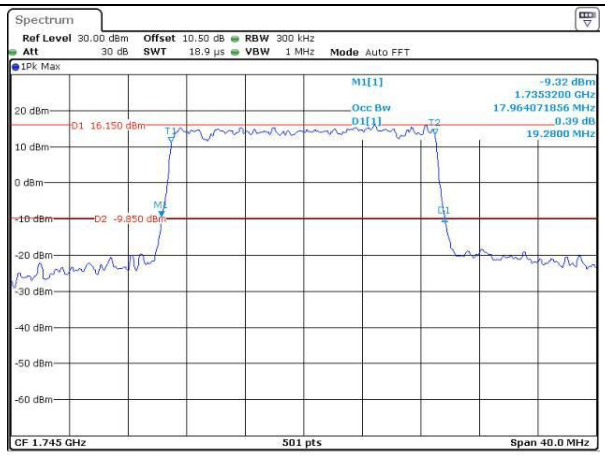
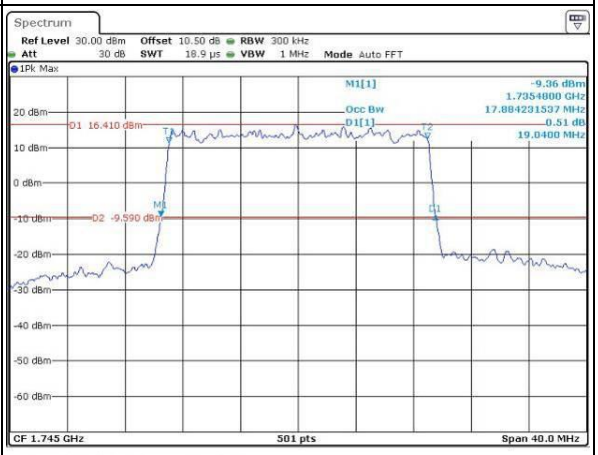
Occupied Bandwidth		
Channel	1.4MHz Bandwidth QPSK	1.4MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

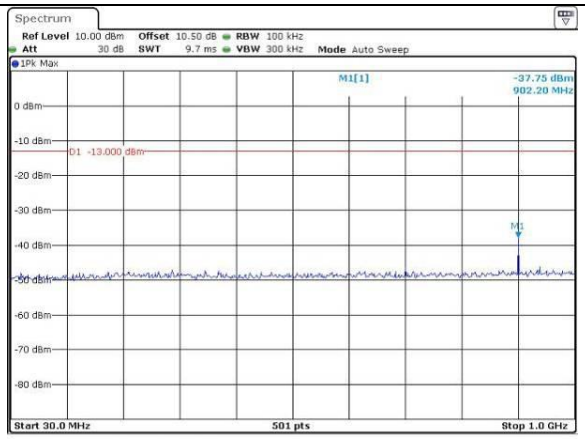
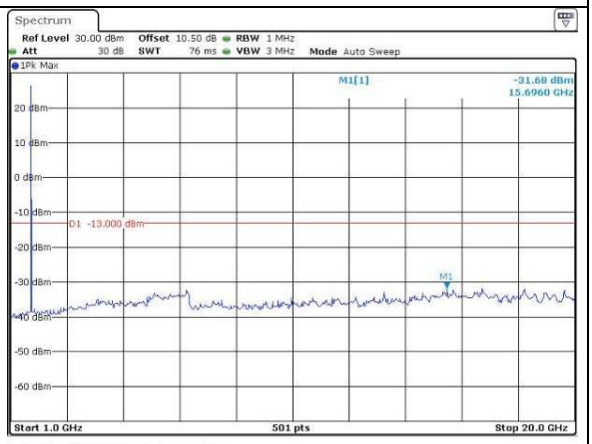
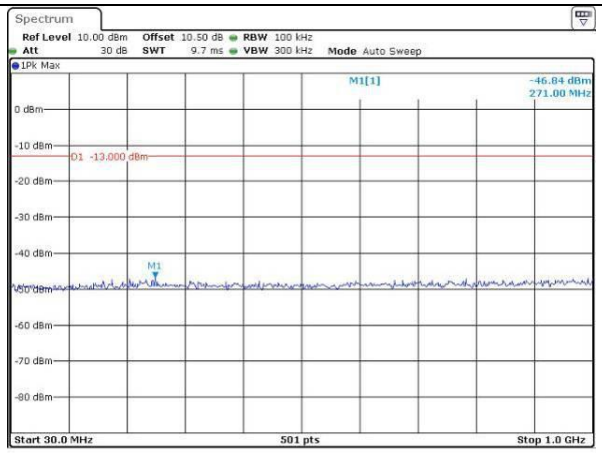
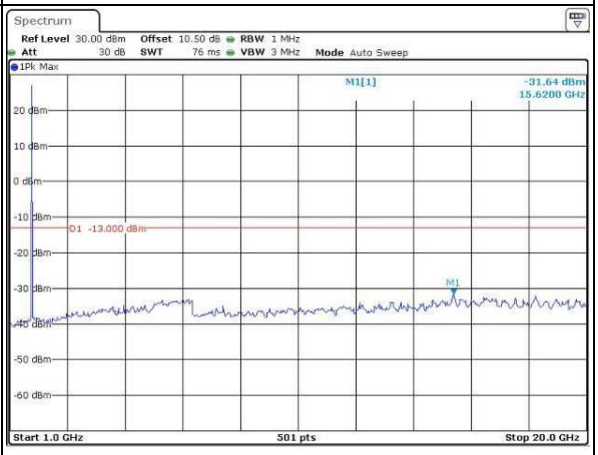
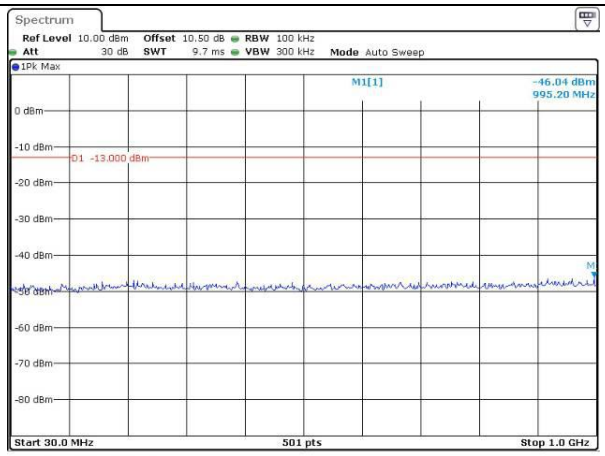
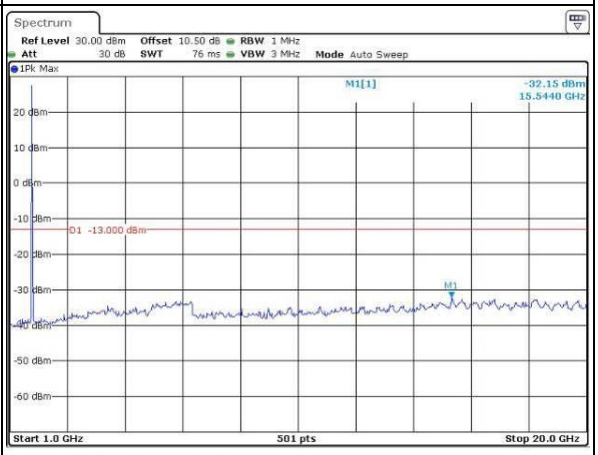
Occupied Bandwidth		
Channel	3MHz Bandwidth QPSK	3MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

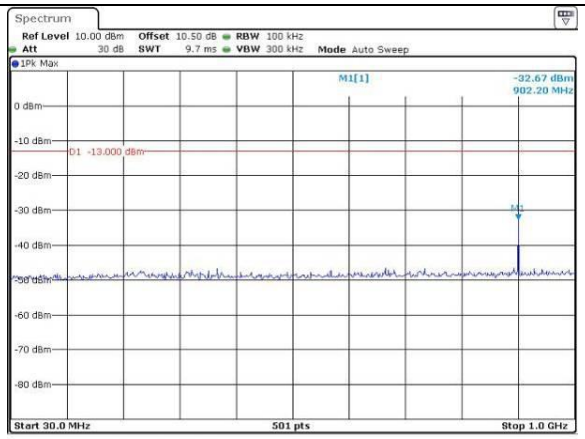
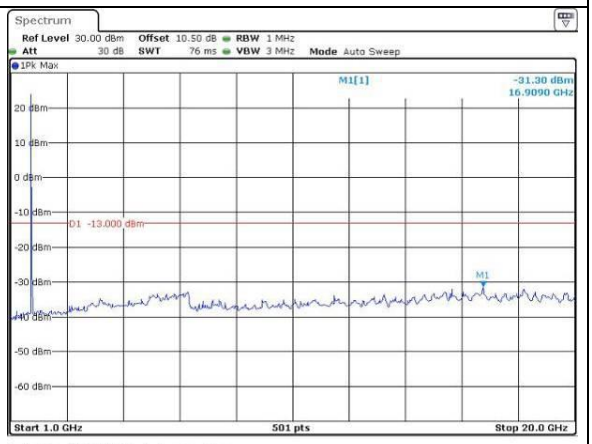
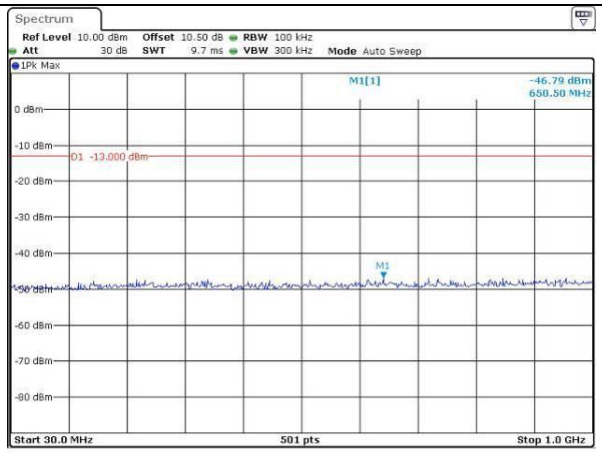
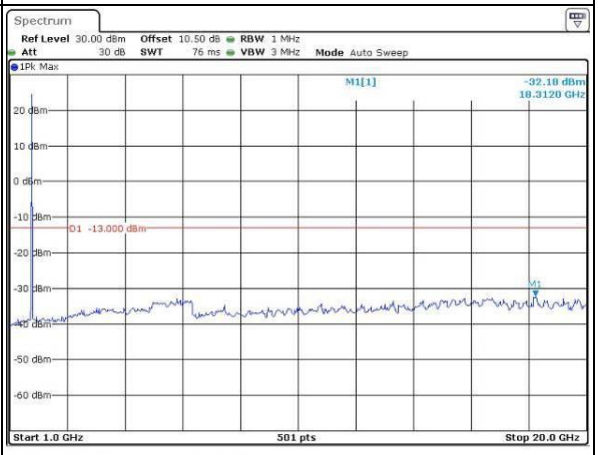
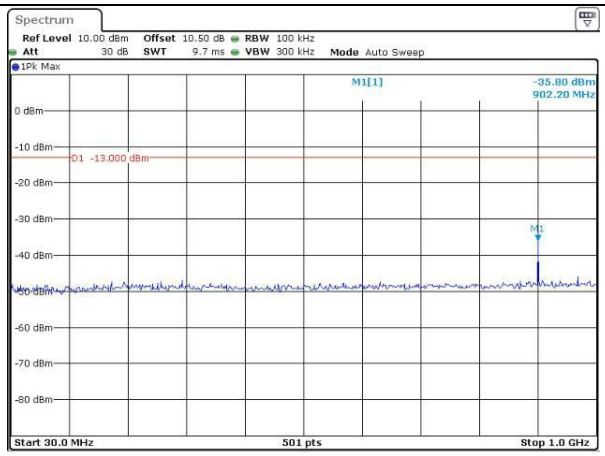
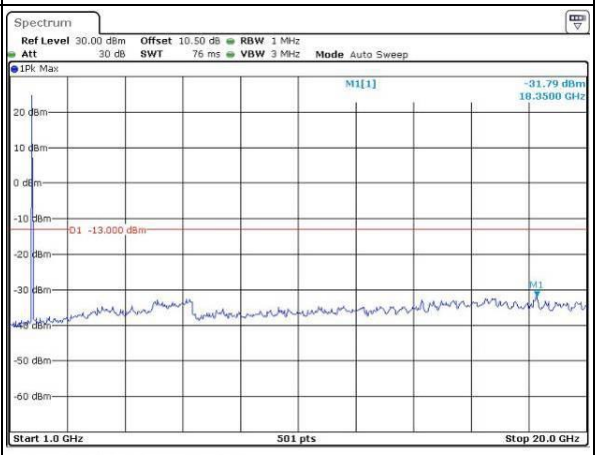
Occupied Bandwidth		
Channel	5MHz Bandwidth QPSK	5MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

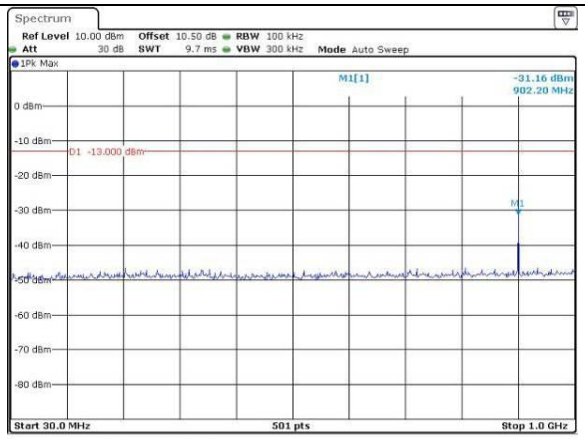
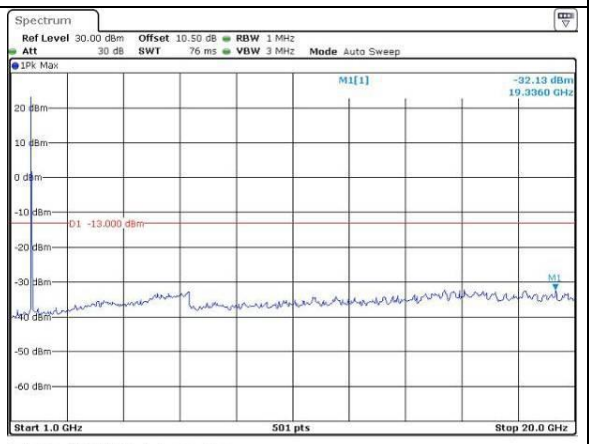
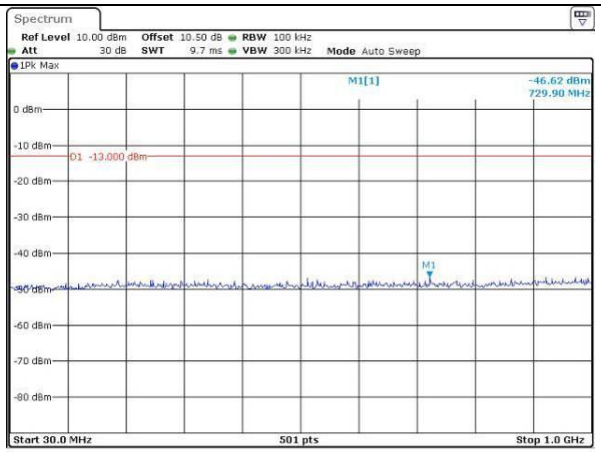
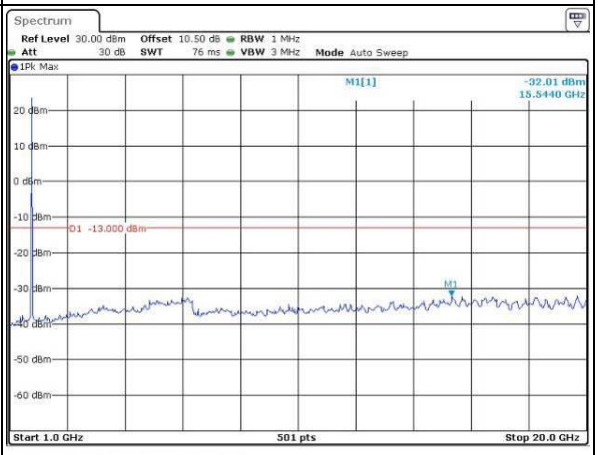
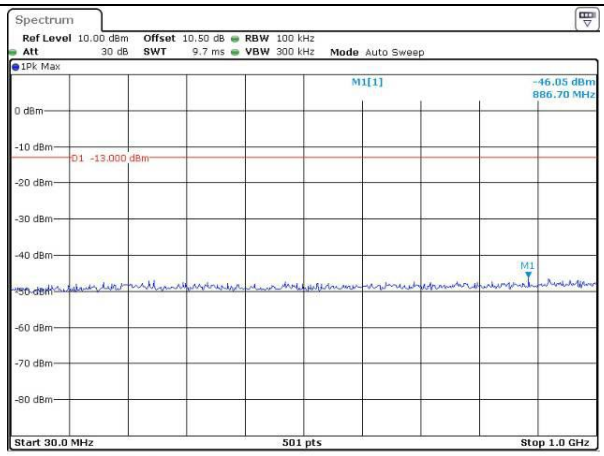
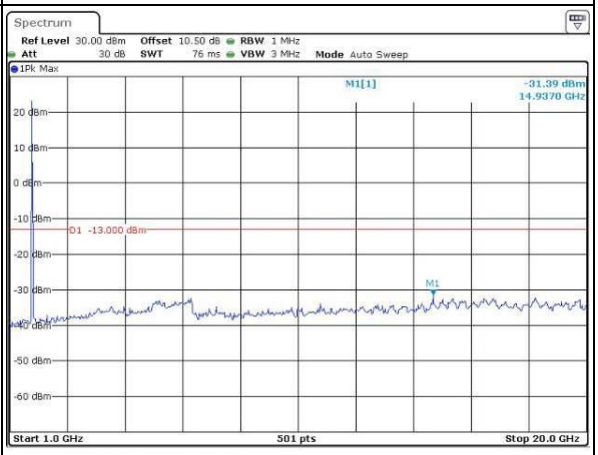
Occupied Bandwidth		
Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

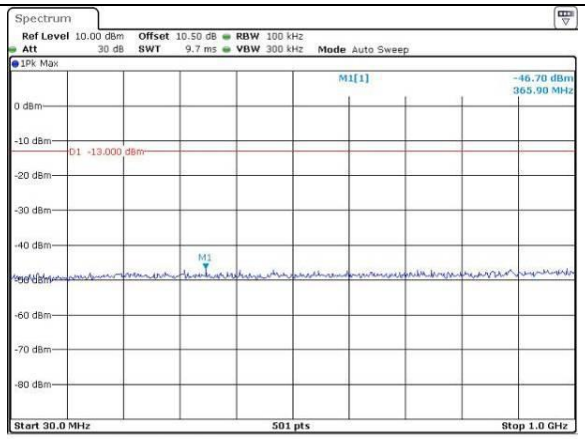
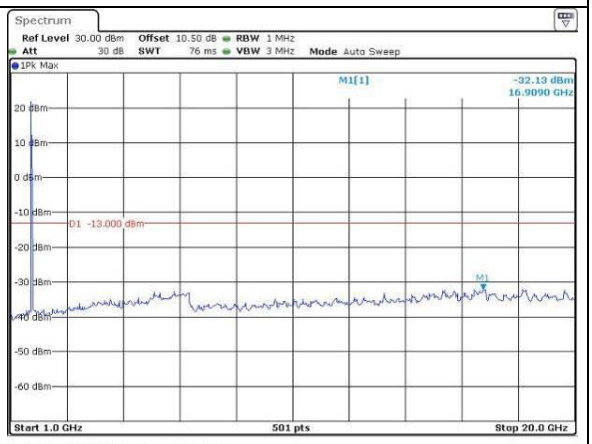
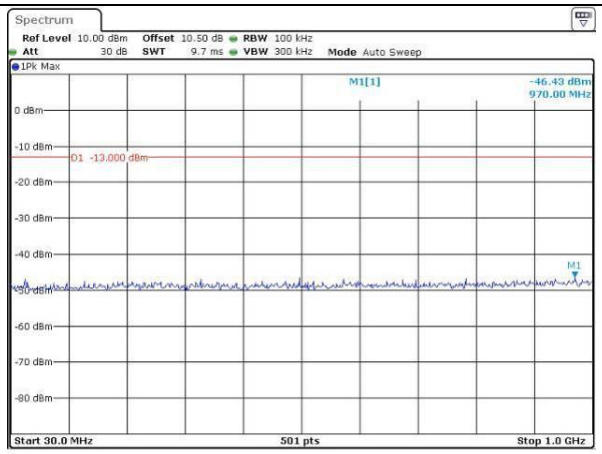
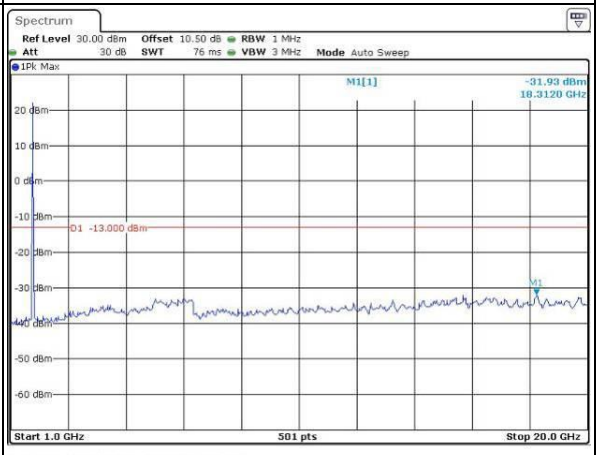
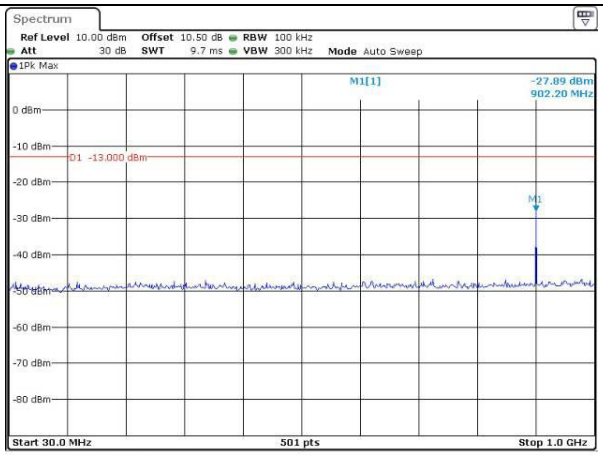
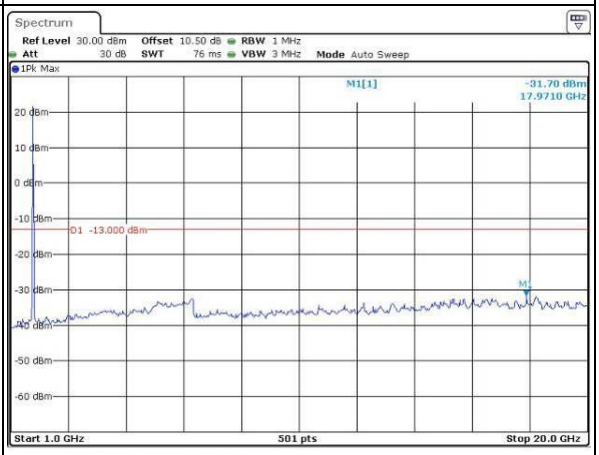
Occupied Bandwidth		
Channel	15MHz Bandwidth QPSK	15MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

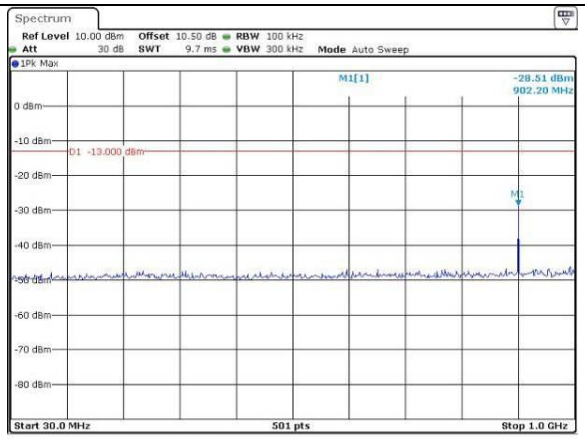
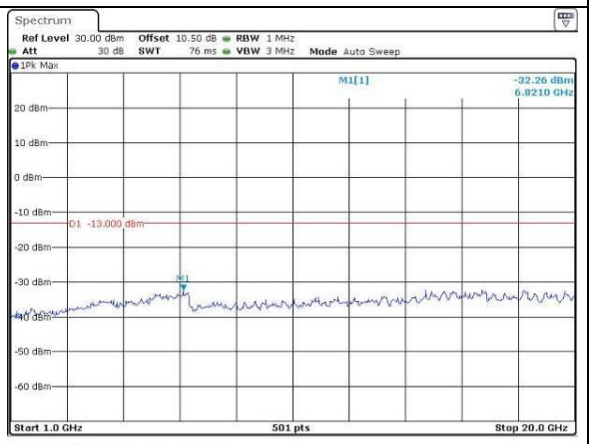
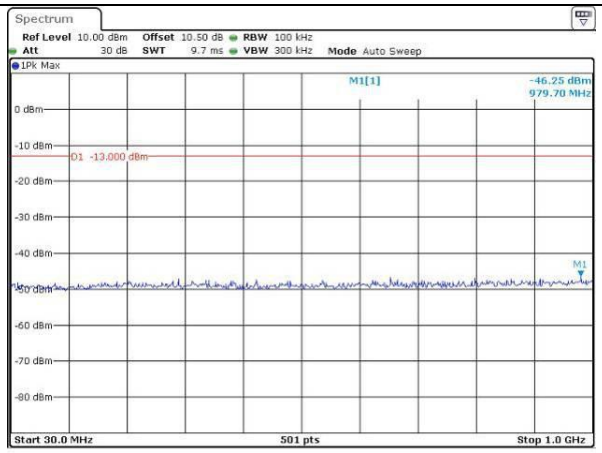
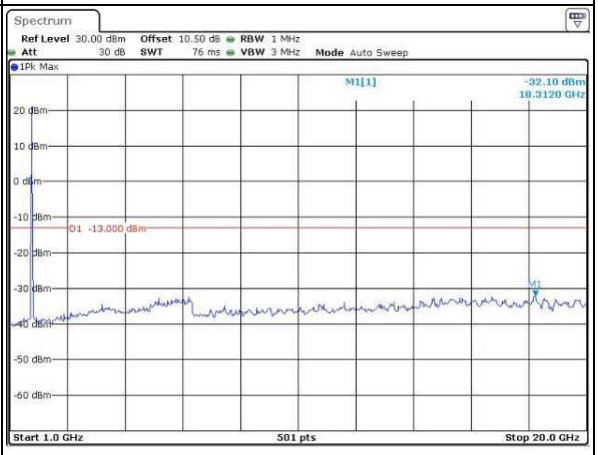
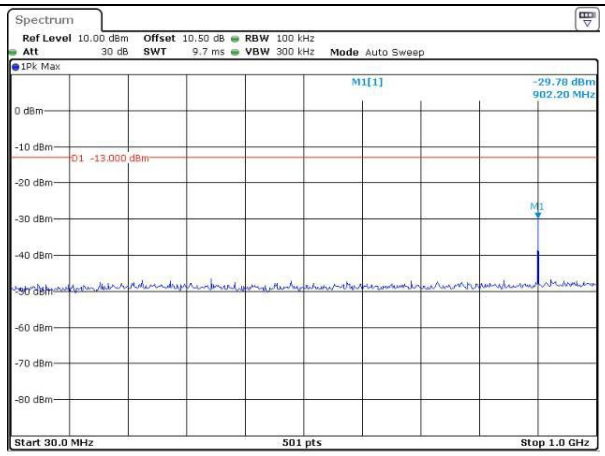
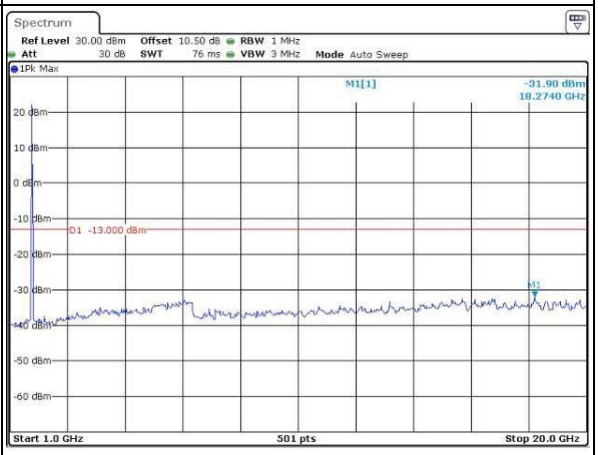
Occupied Bandwidth		
Channel	20MHz Bandwidth QPSK	20MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

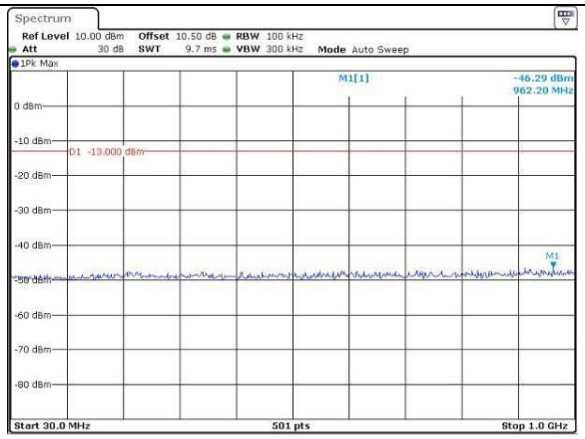
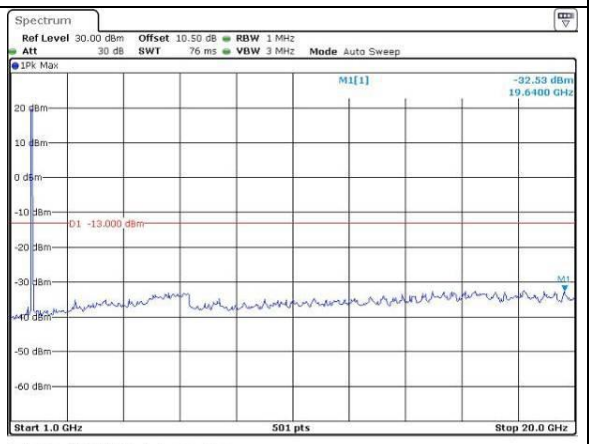
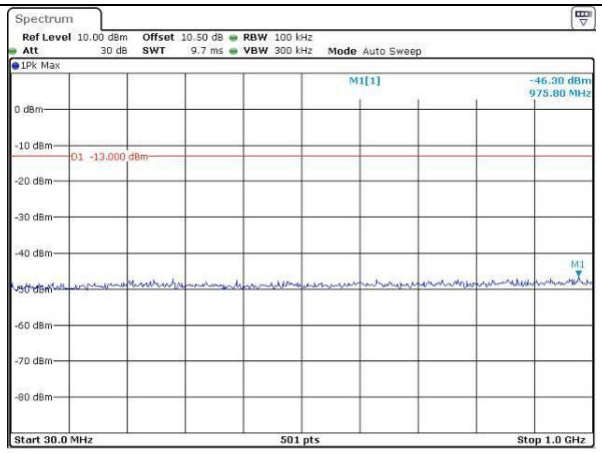
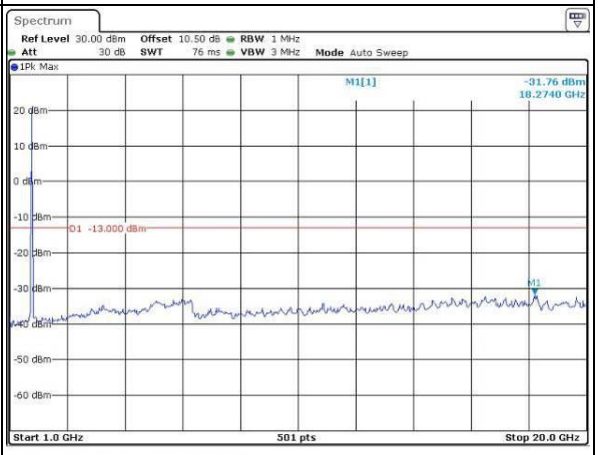
Spurious Emissions at Antenna Terminal		
Channel	**1.4MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

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		

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