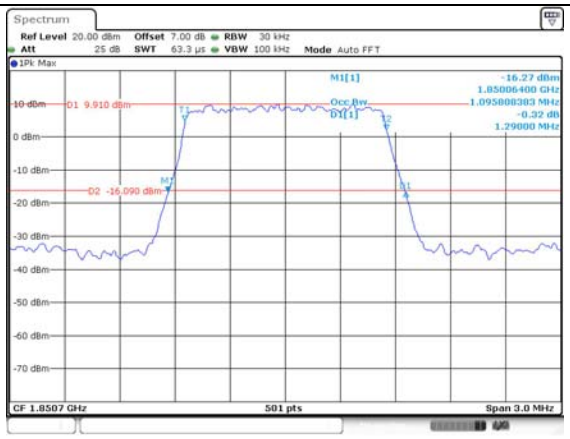
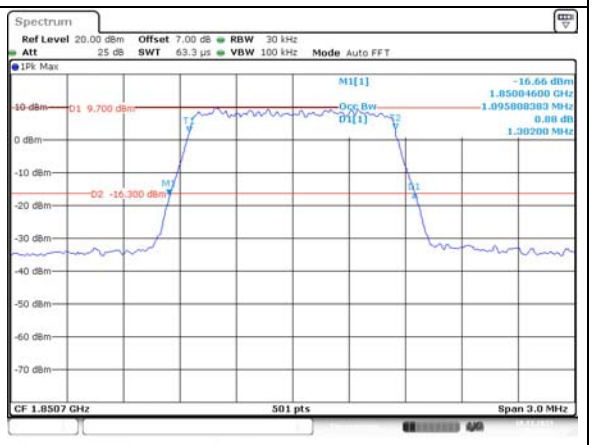
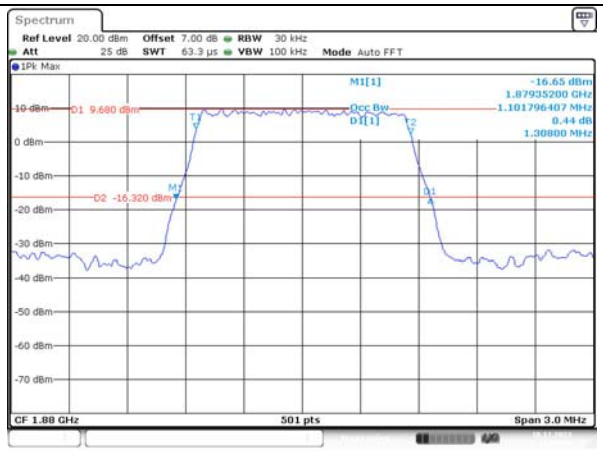
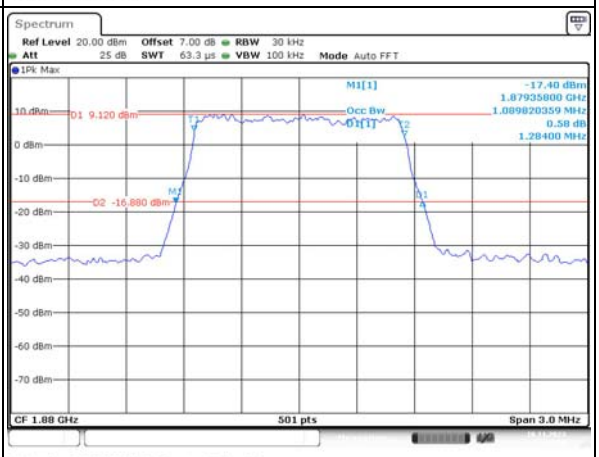
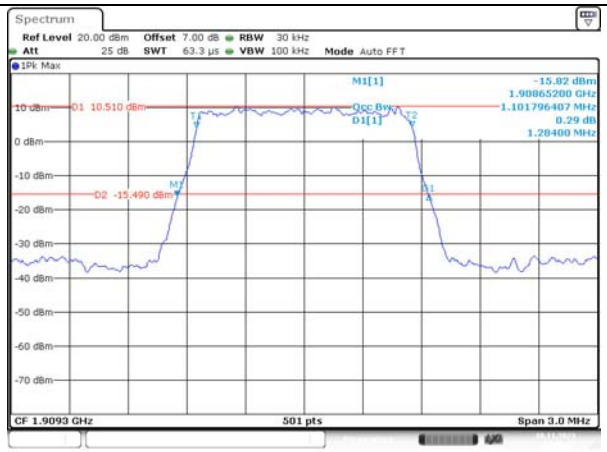
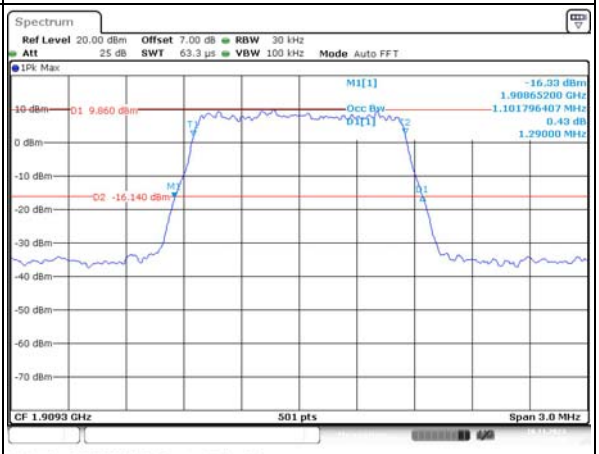
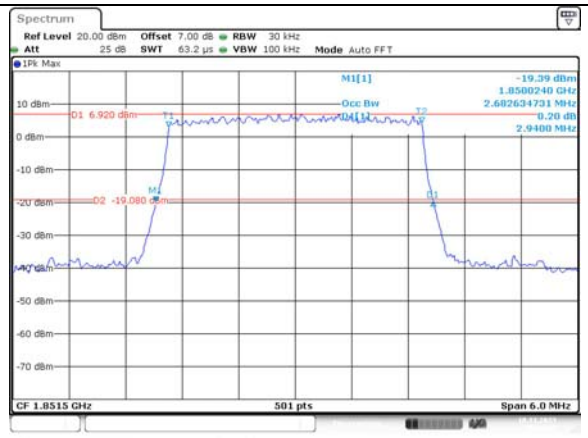
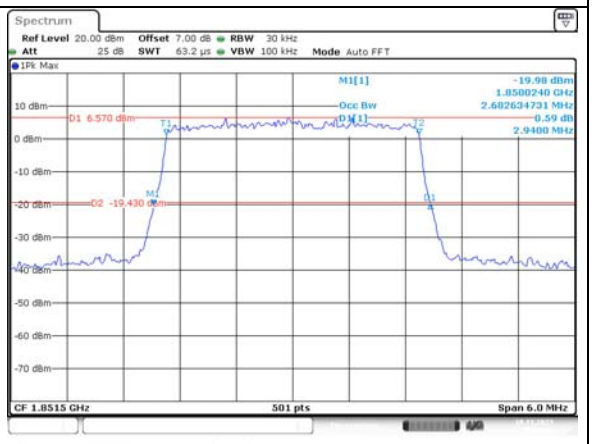
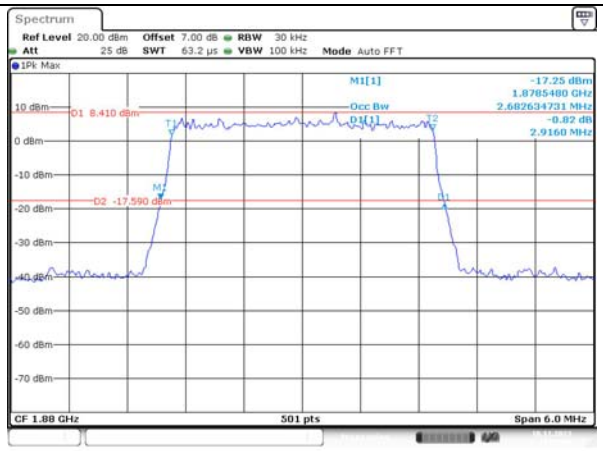
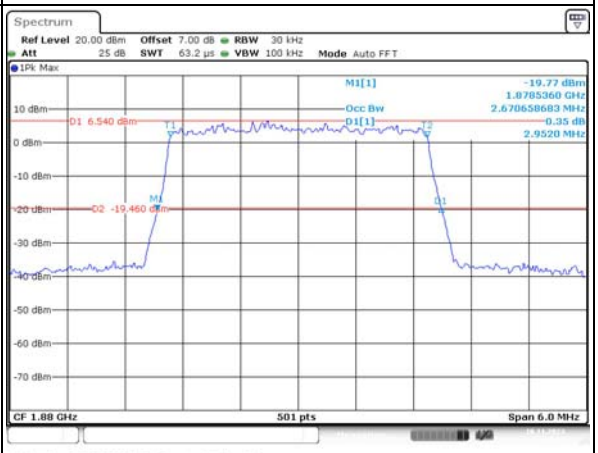
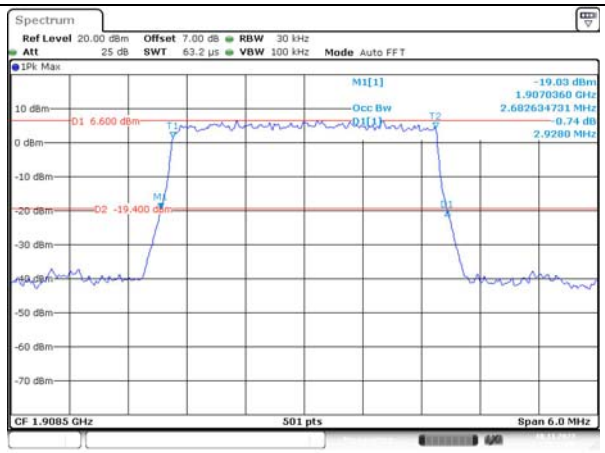
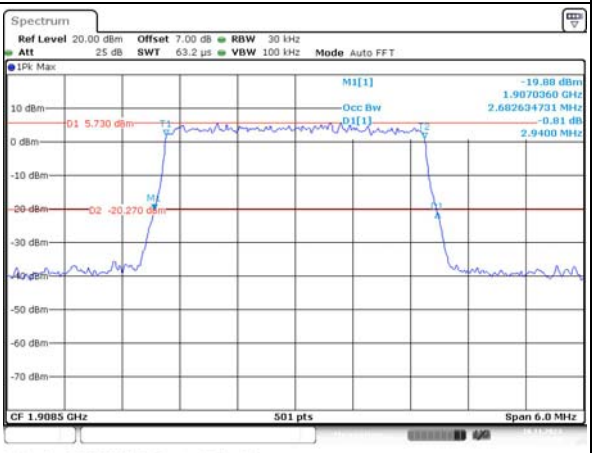
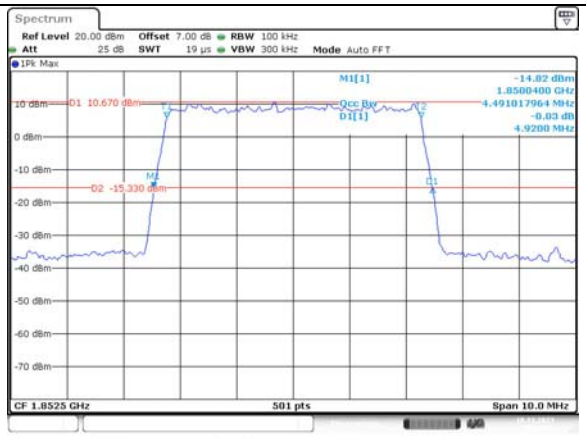
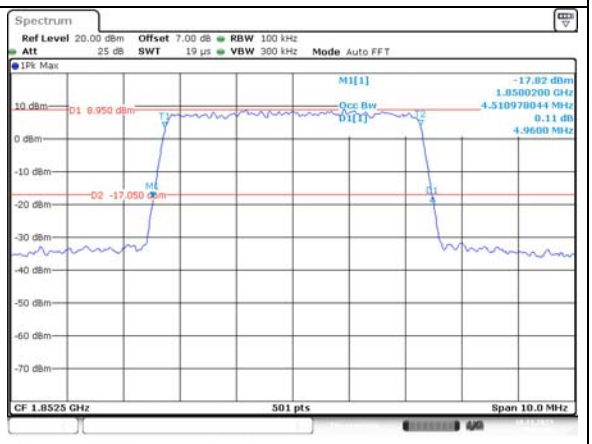
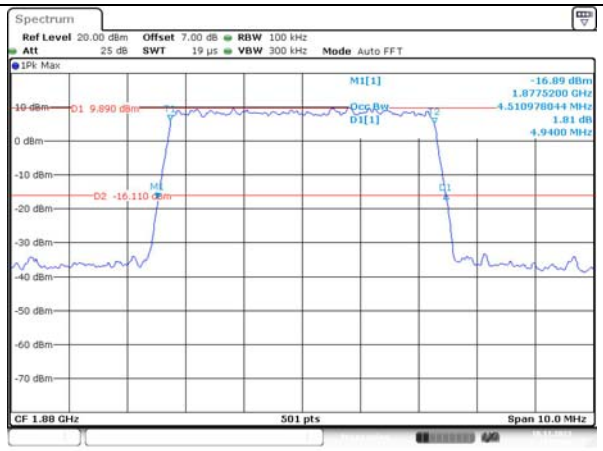
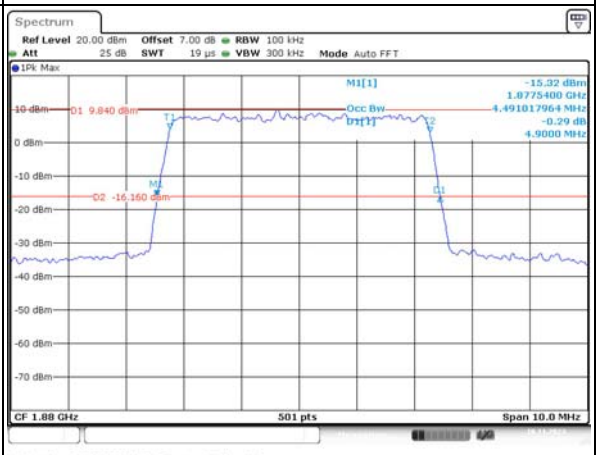
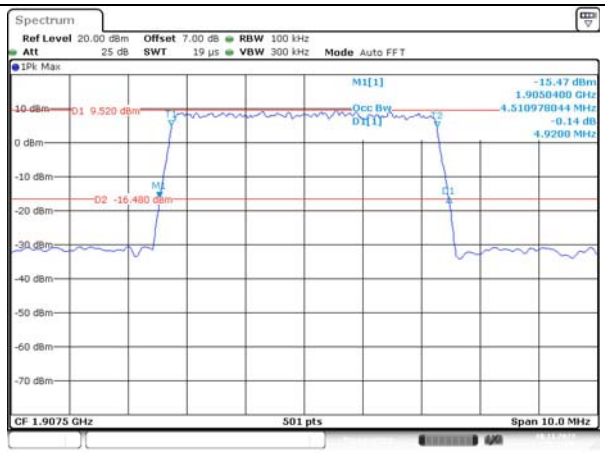
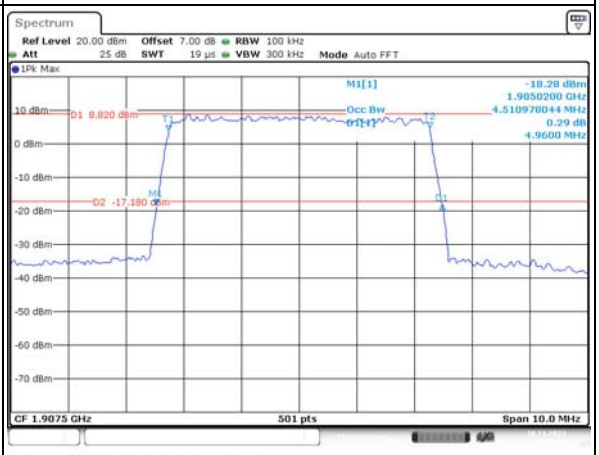
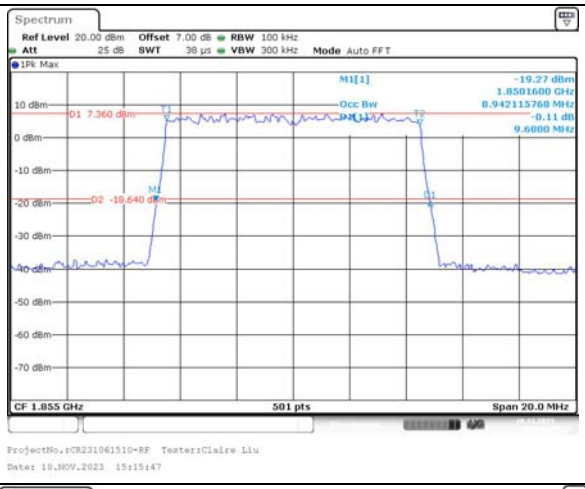
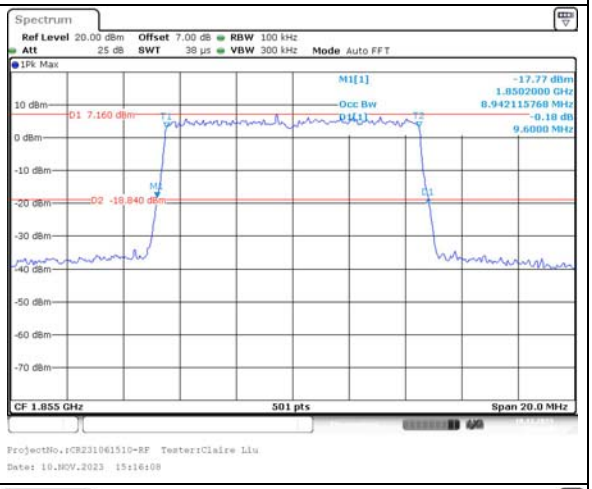
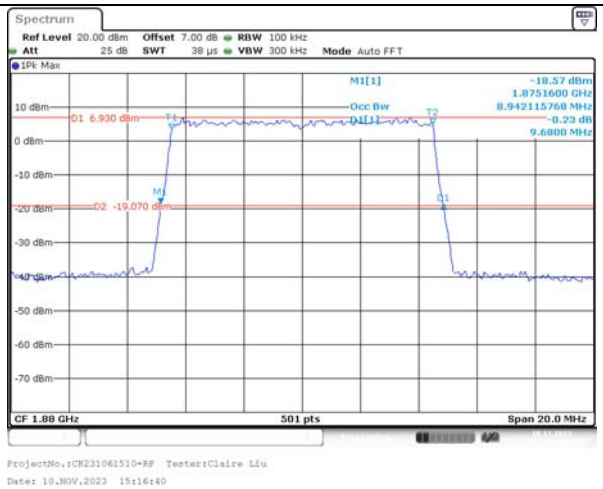
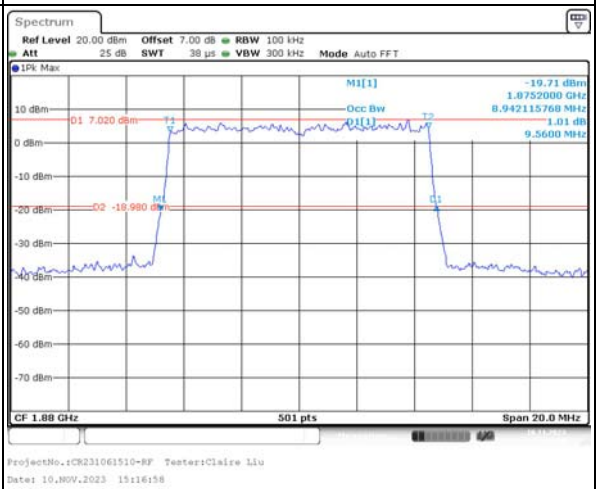
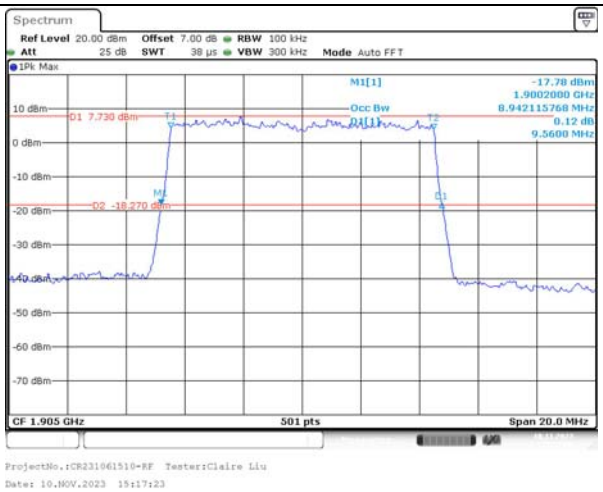
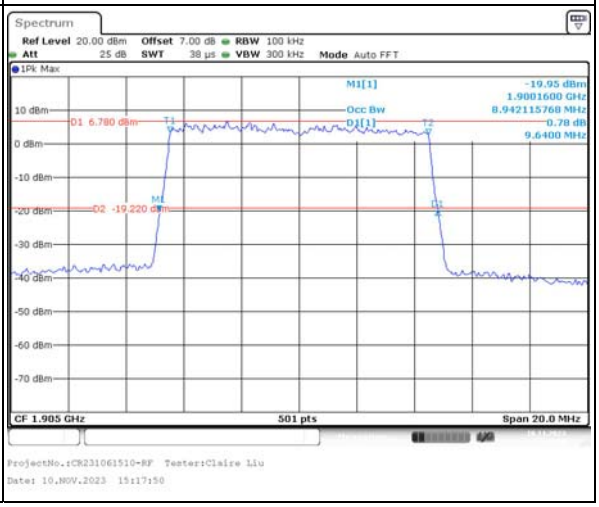
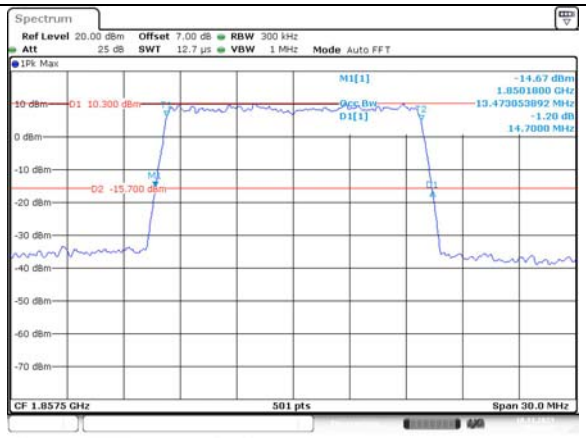
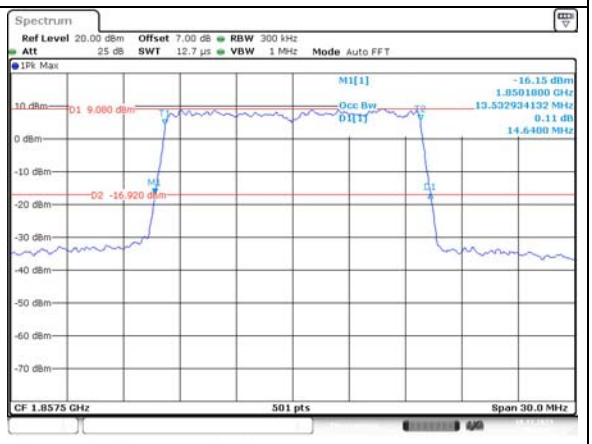
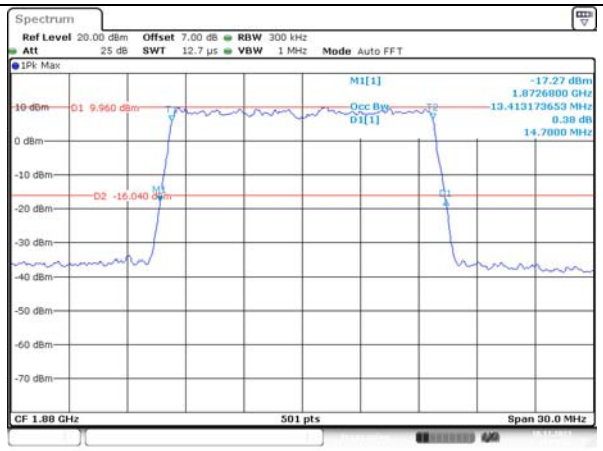
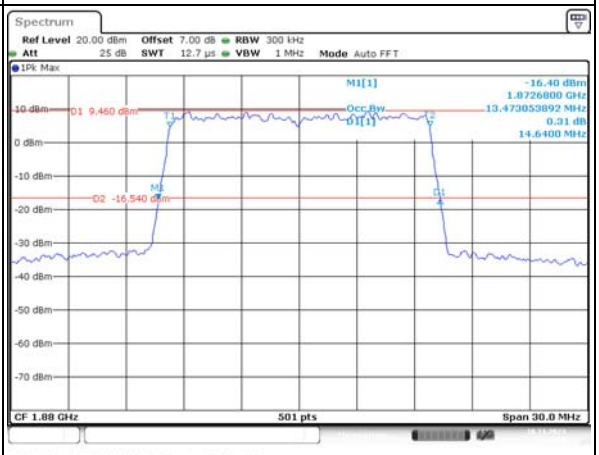
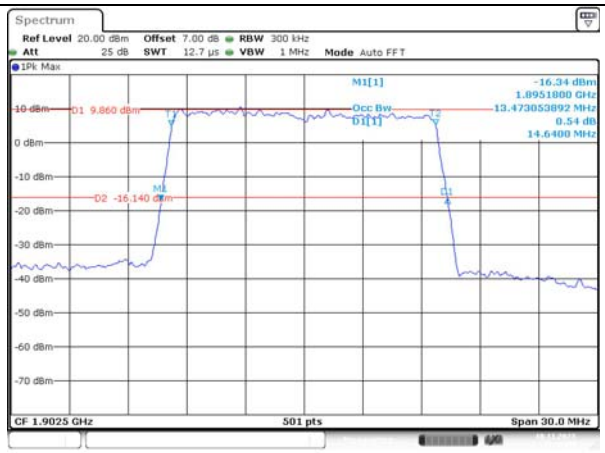
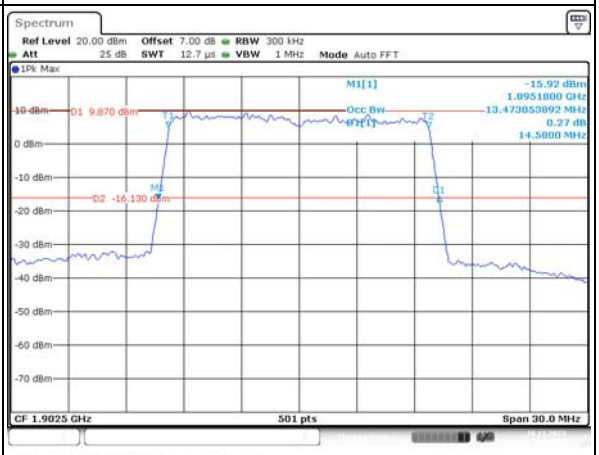
Test Plots(Note: The 7.0dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer)**:**

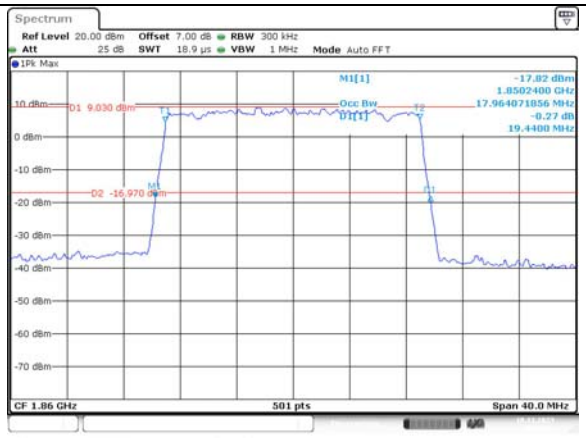
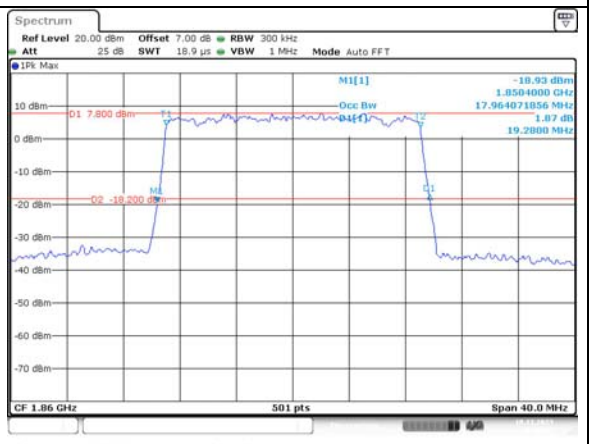
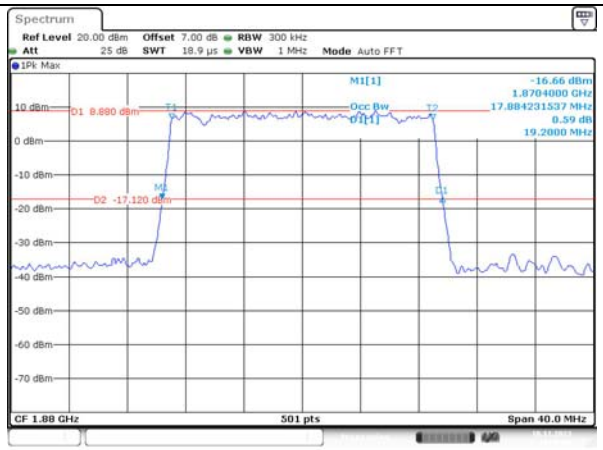
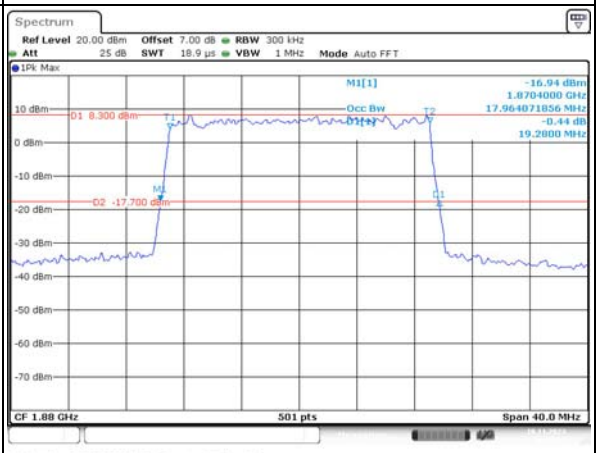
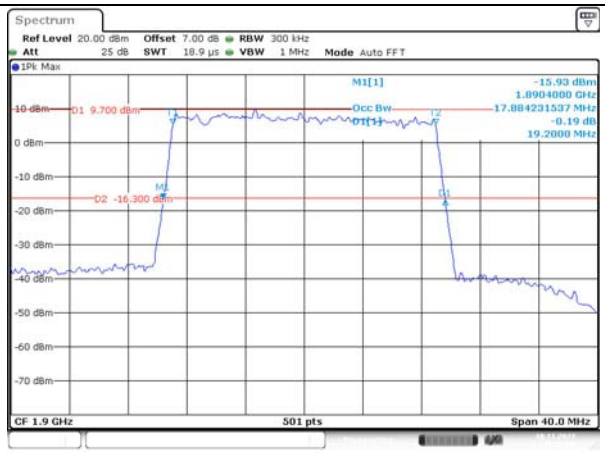
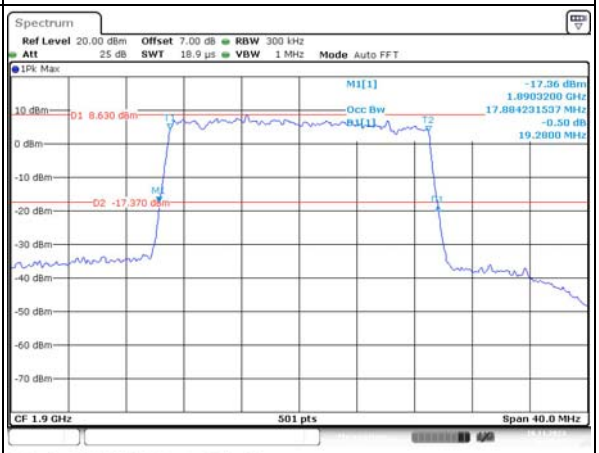
Occupied Bandwidth		
Channel	1.4MHz Bandwidth QPSK	1.4MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

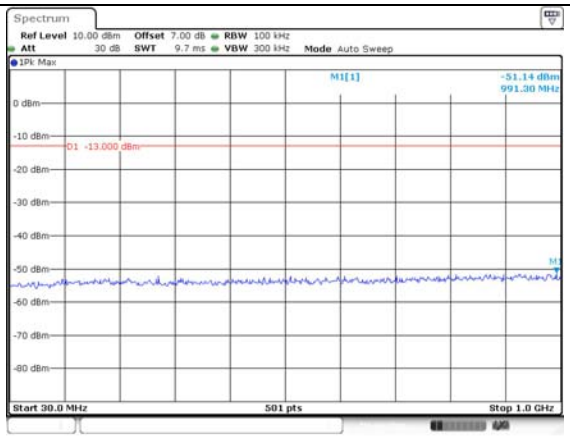
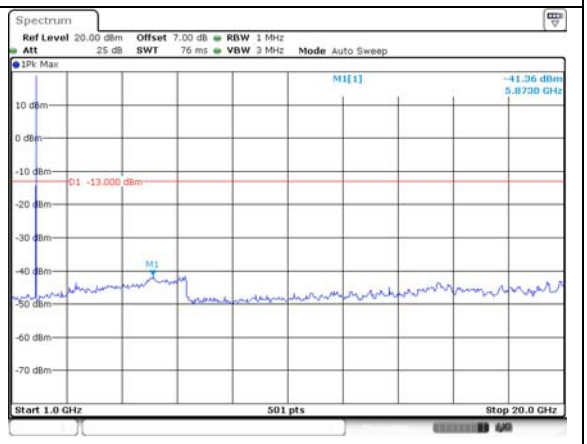
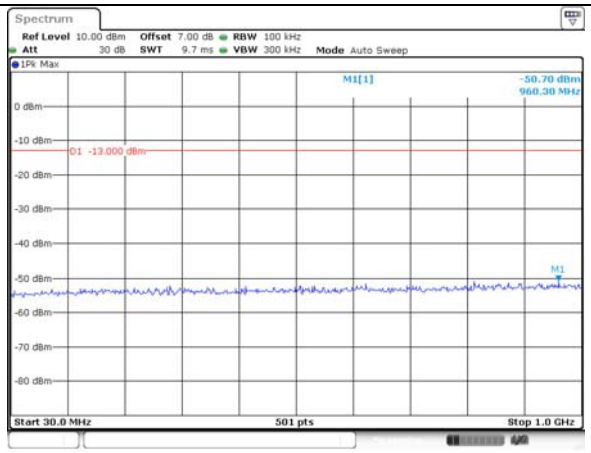
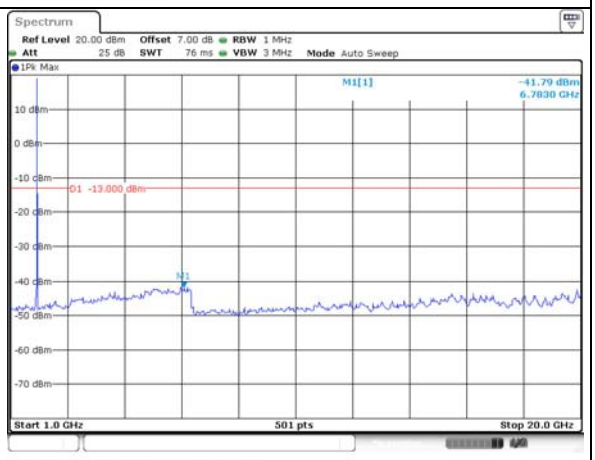
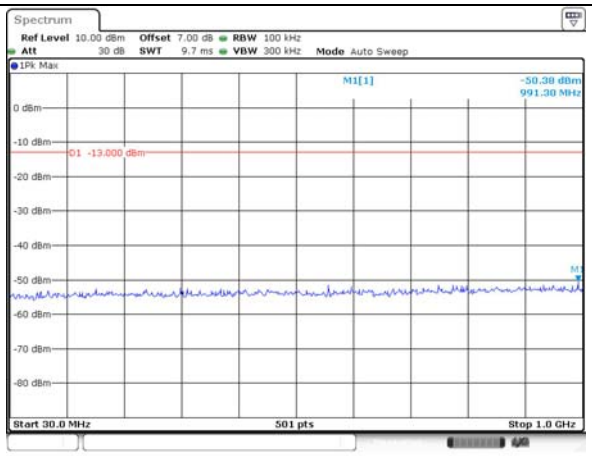
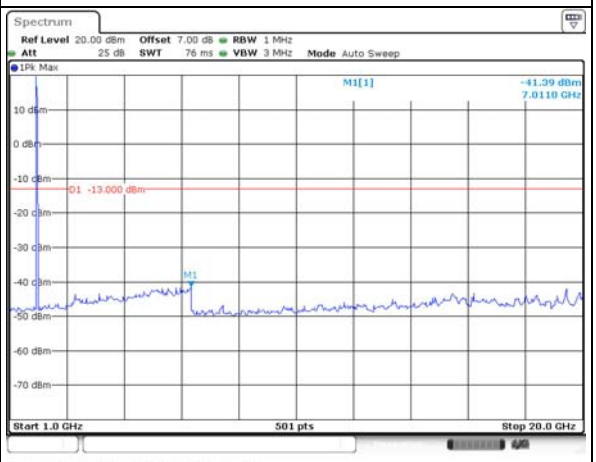
Occupied Bandwidth		
Channel	3MHz Bandwidth QPSK	3MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

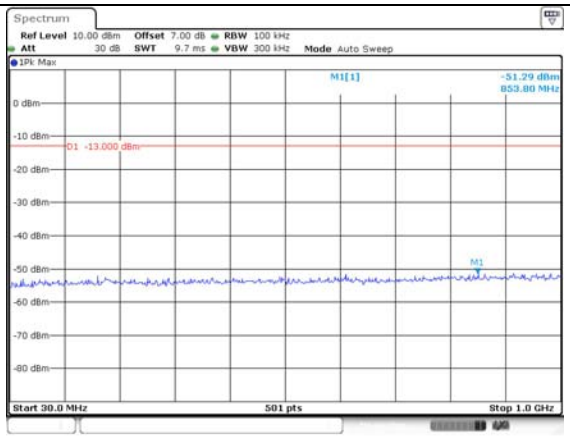
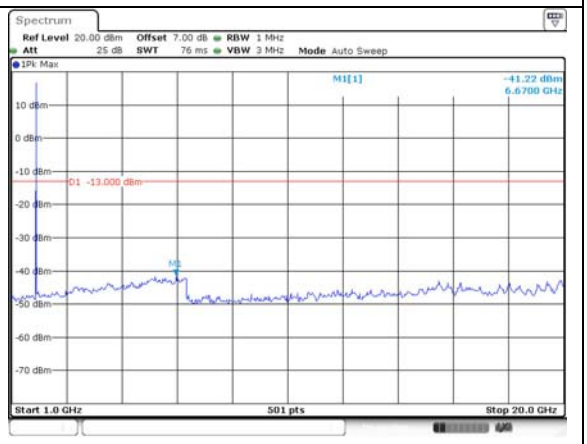
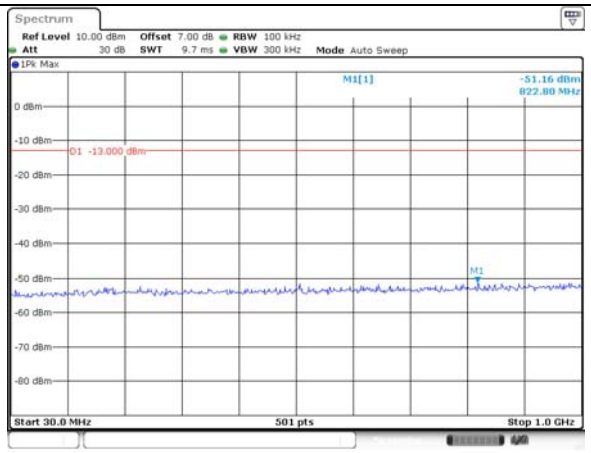
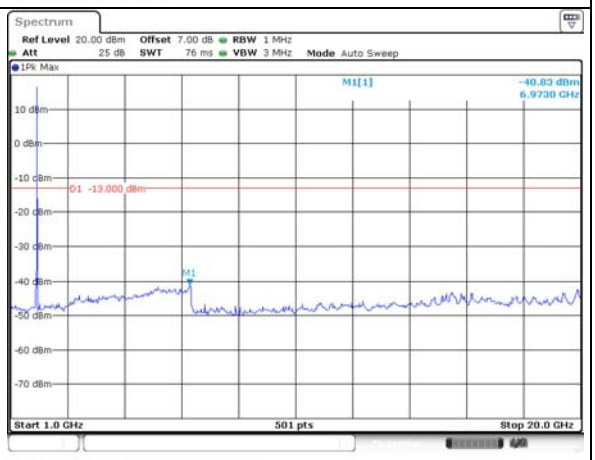
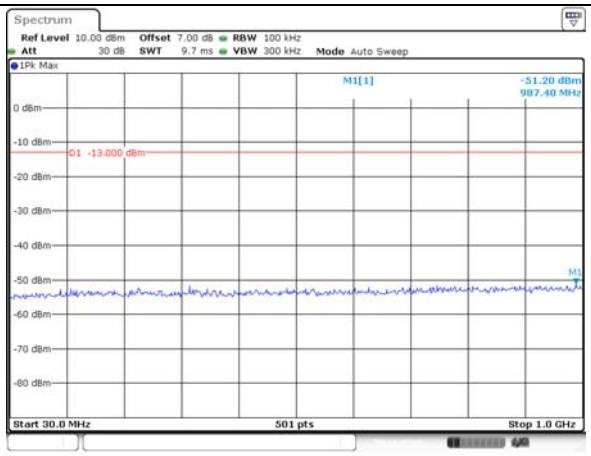
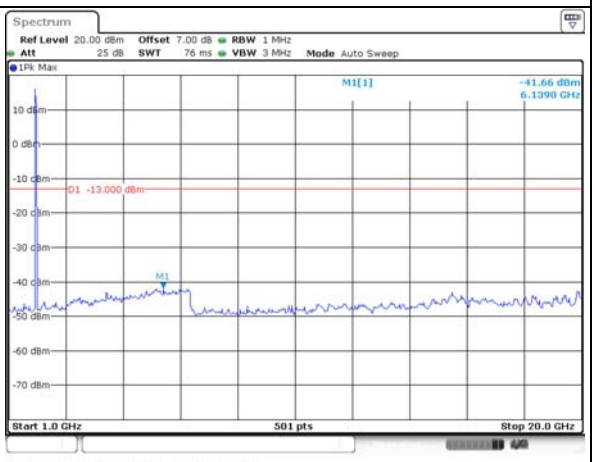
Occupied Bandwidth		
Channel	5MHz Bandwidth QPSK	5MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

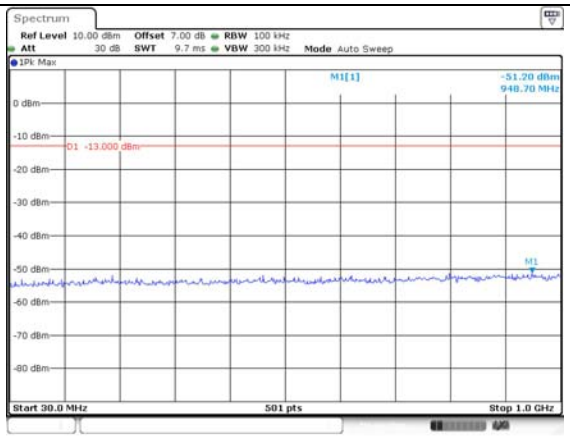
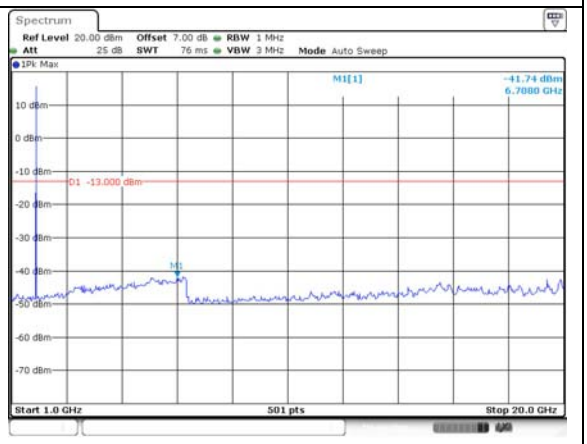
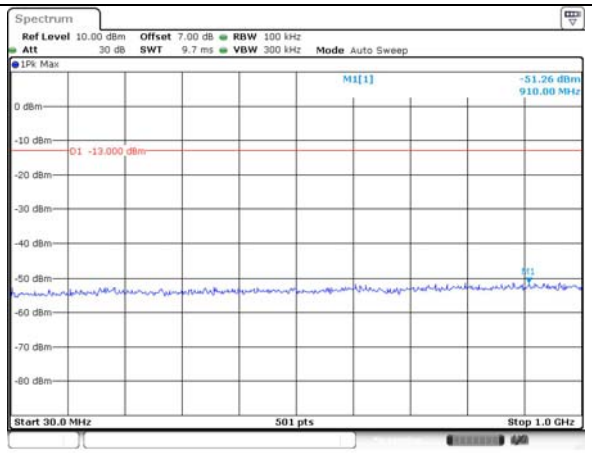
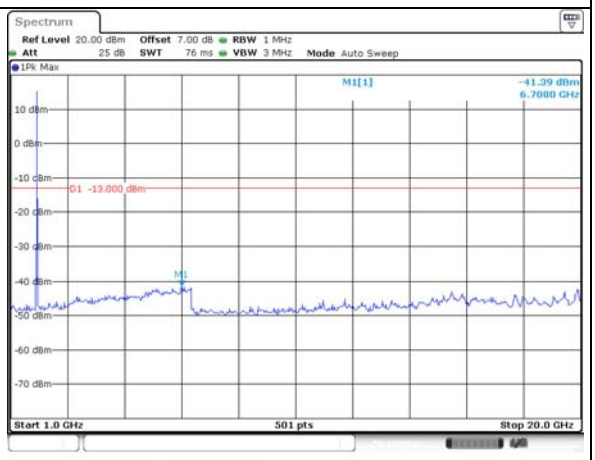
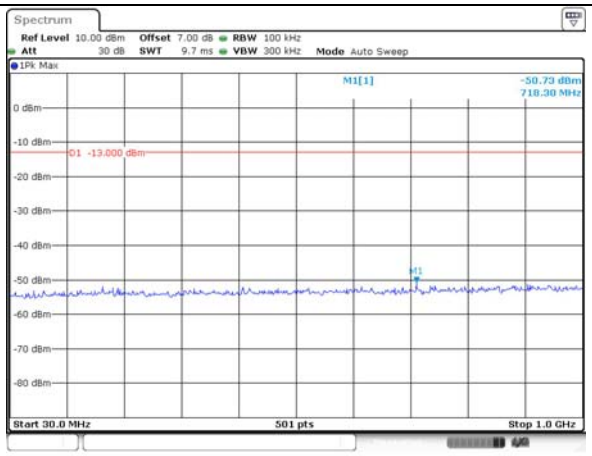
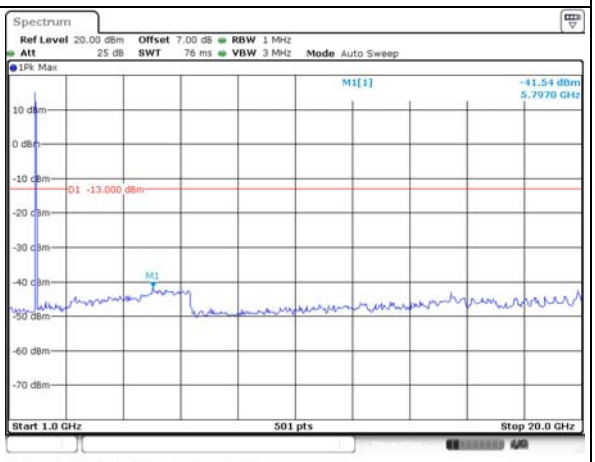
Occupied Bandwidth		
Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

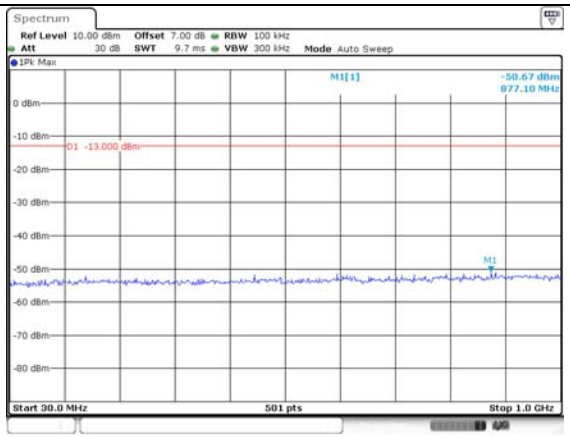
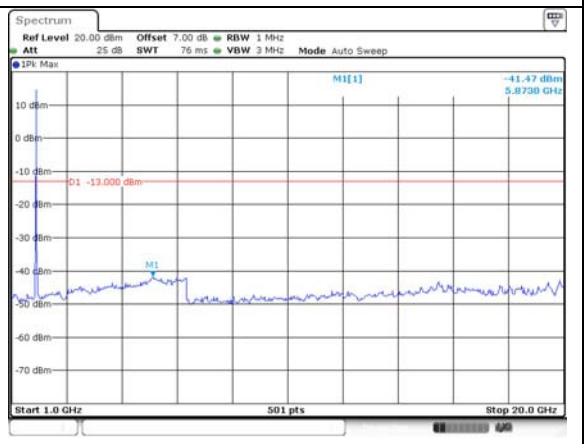
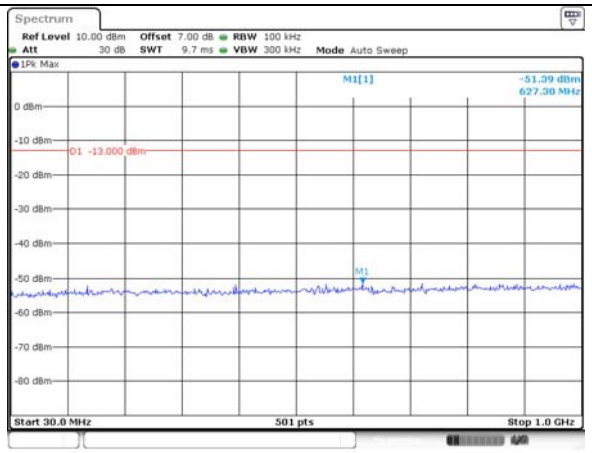
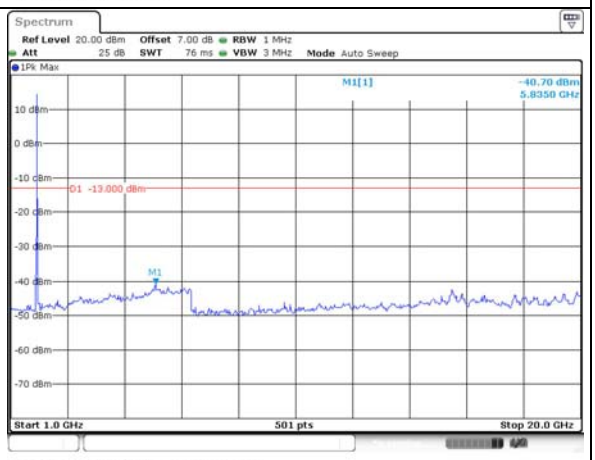
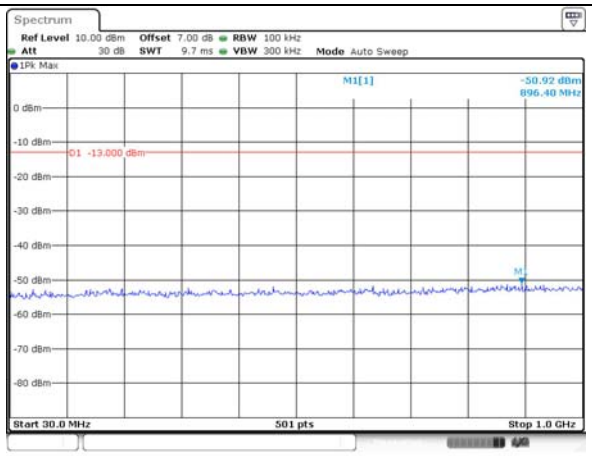
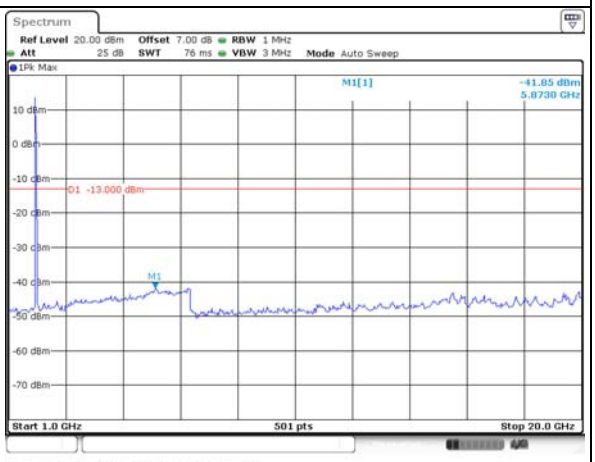
Occupied Bandwidth		
Channel	15MHz Bandwidth QPSK	15MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

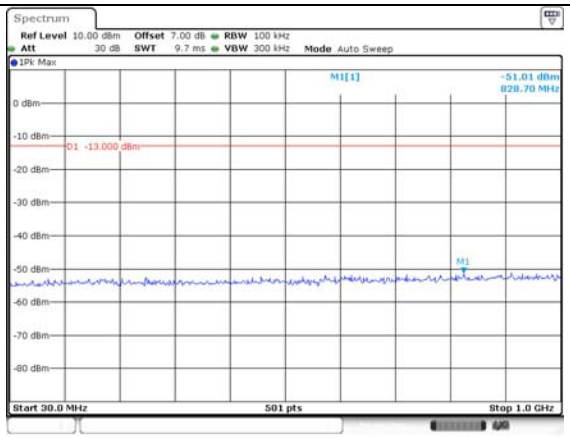
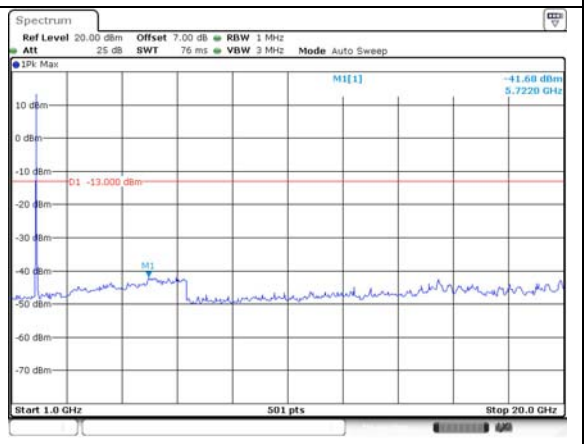
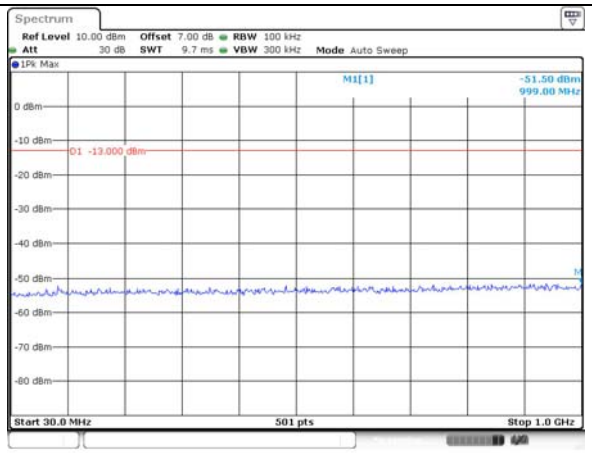
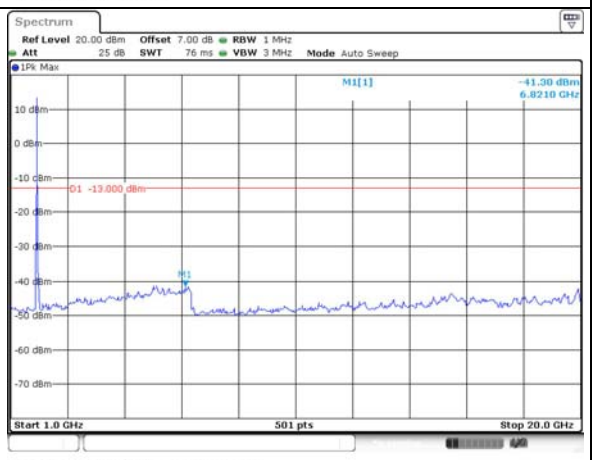
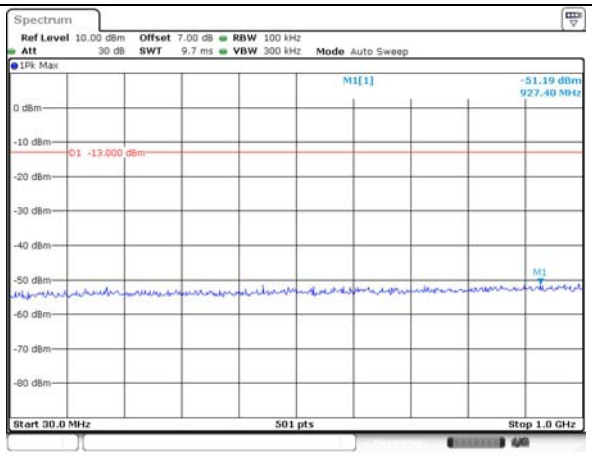
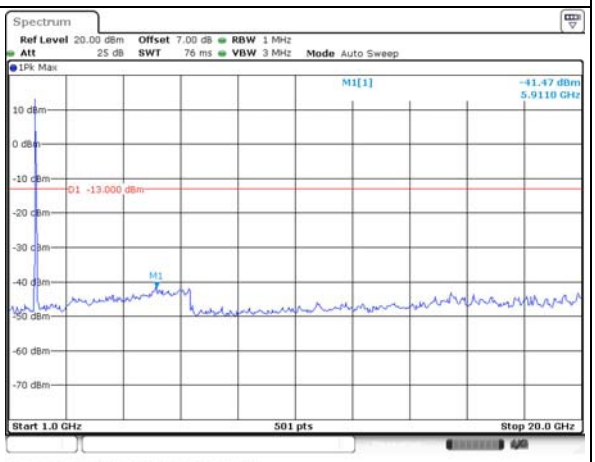
Occupied Bandwidth		
Channel	20MHz Bandwidth QPSK	20MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

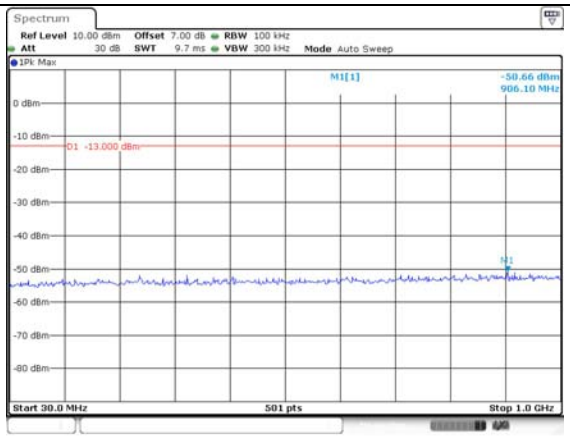
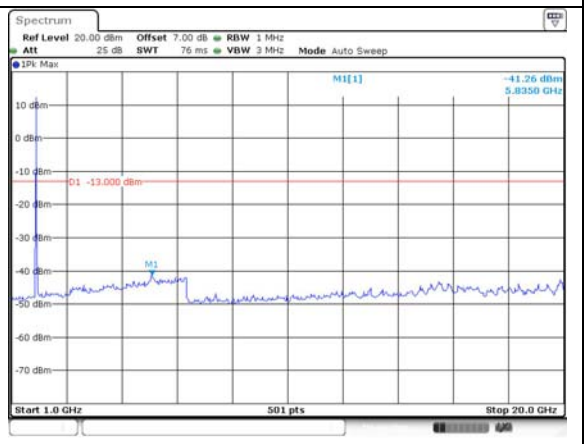
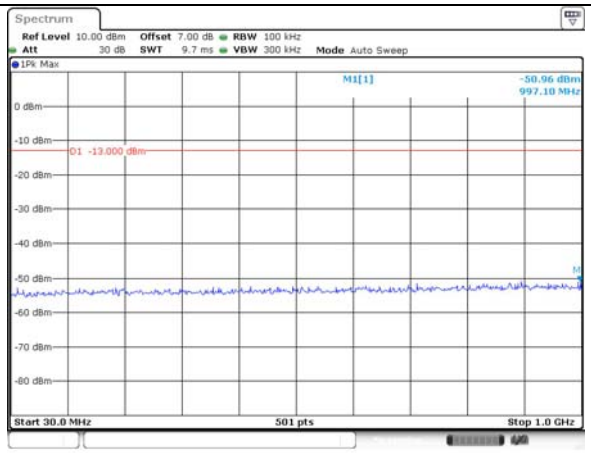
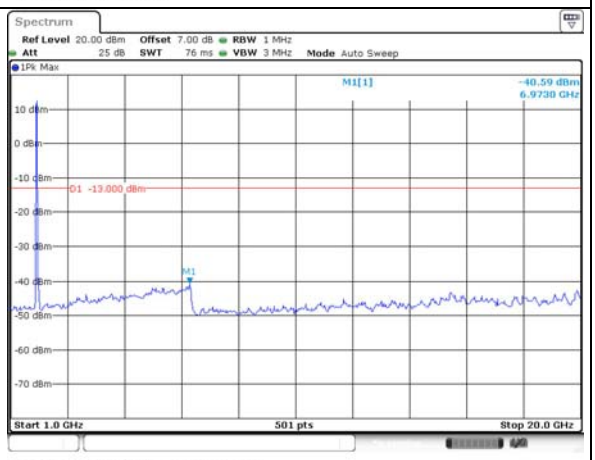
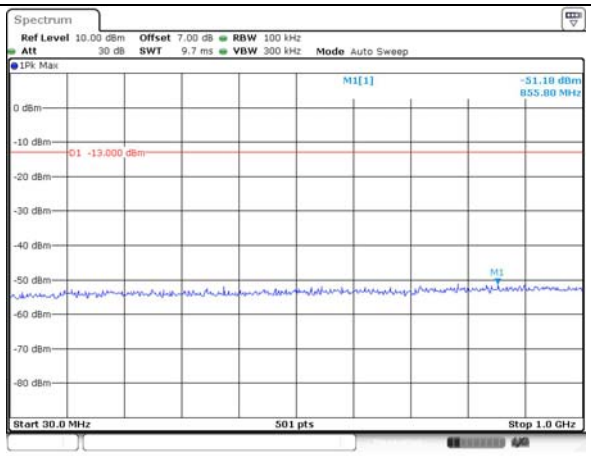
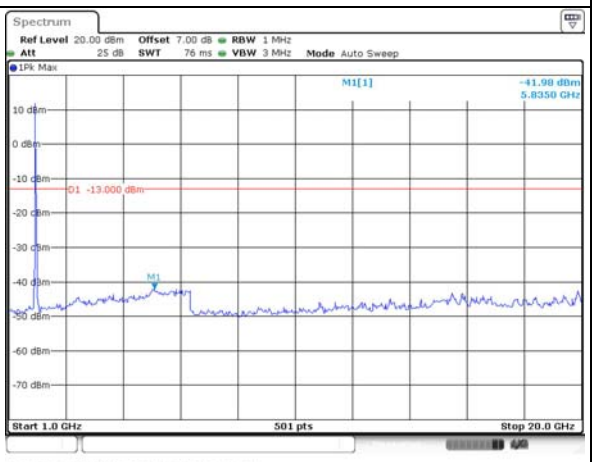
Spurious Emissions at Antenna Terminal		
Channel	**1.4MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

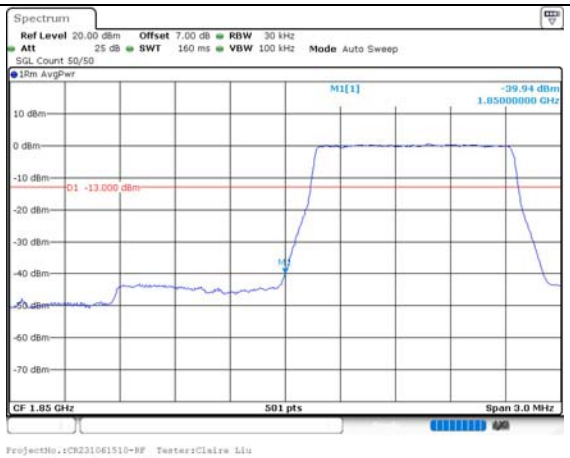
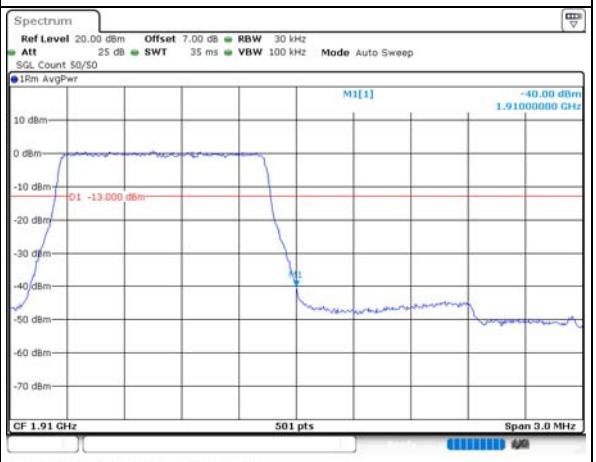
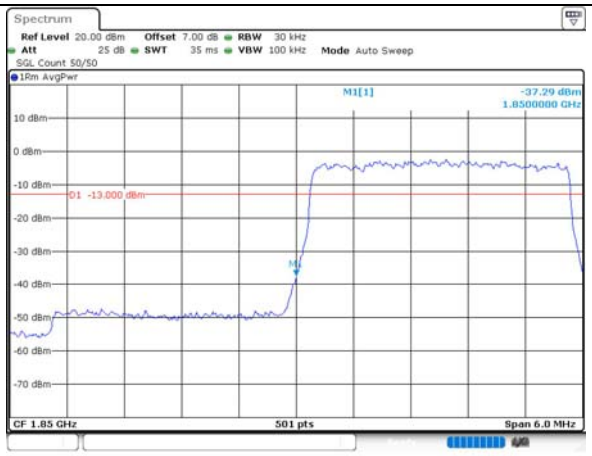
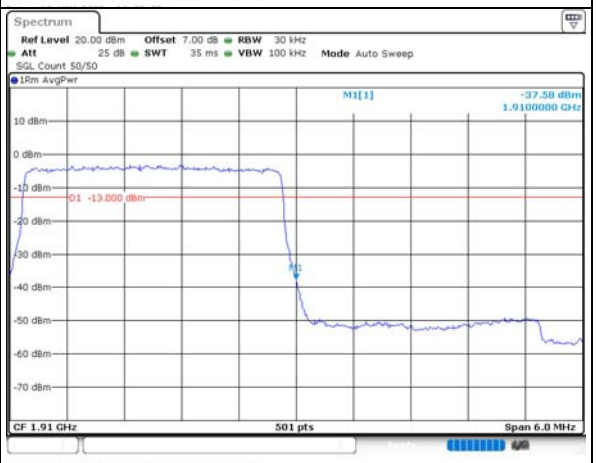
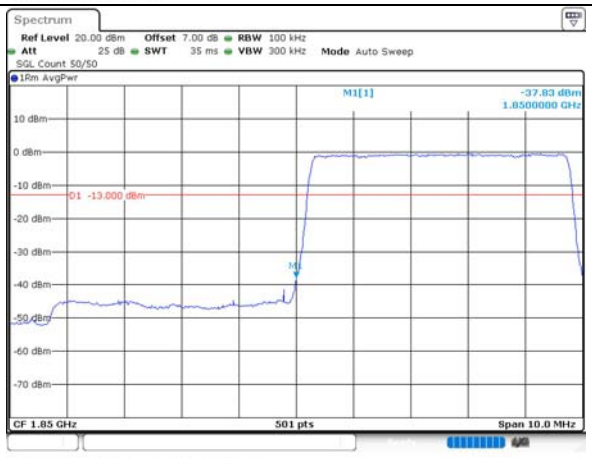
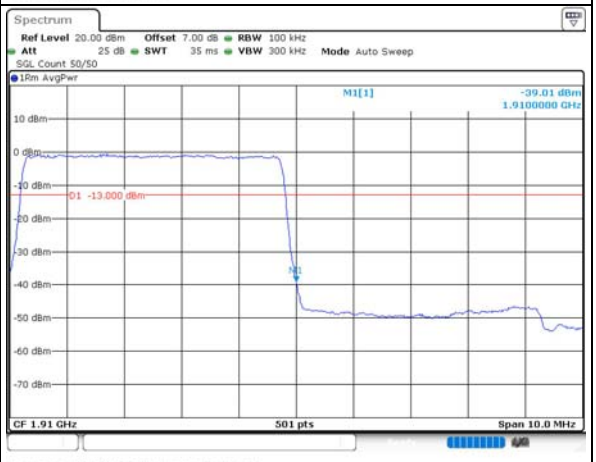
Spurious Emissions at Antenna Terminal		
Channel	**3MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

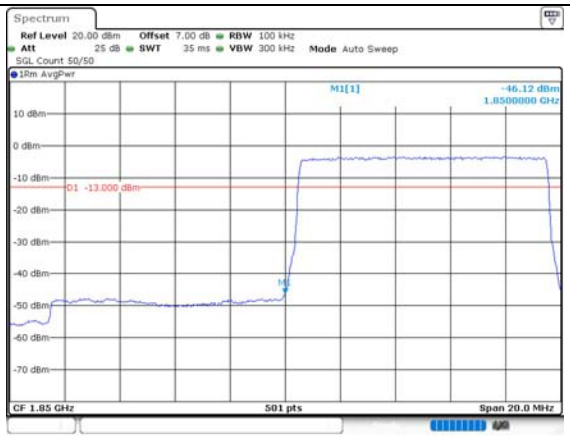
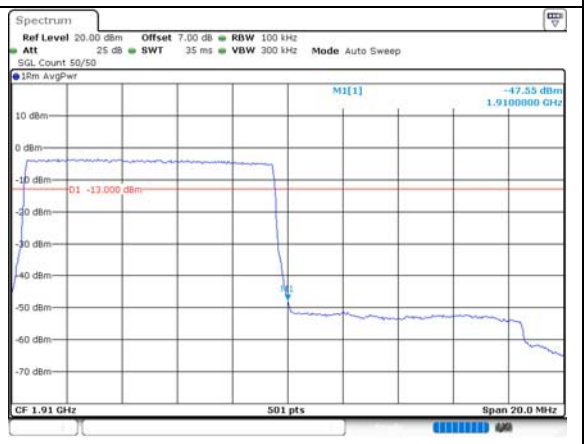
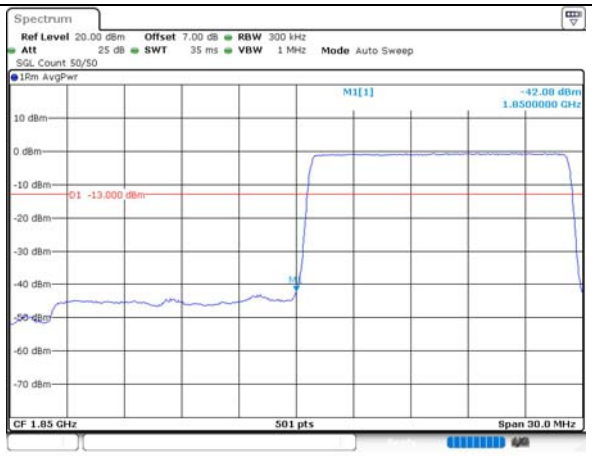
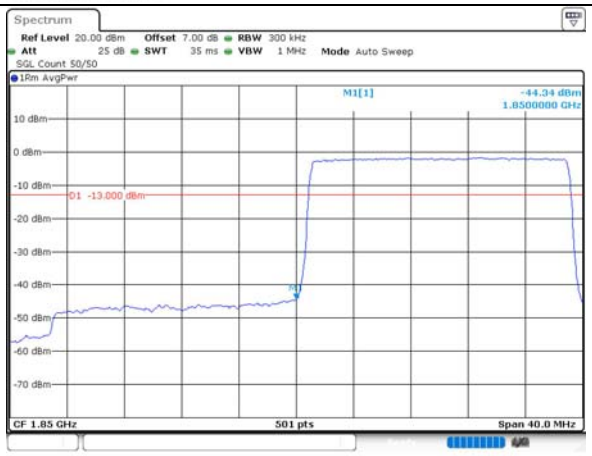
Spurious Emissions at Antenna Terminal		
Channel	**5MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

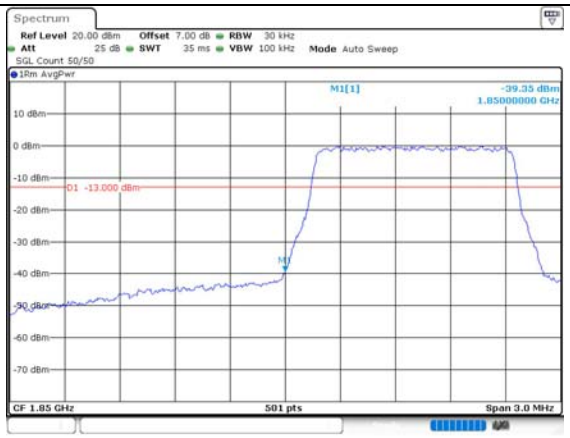
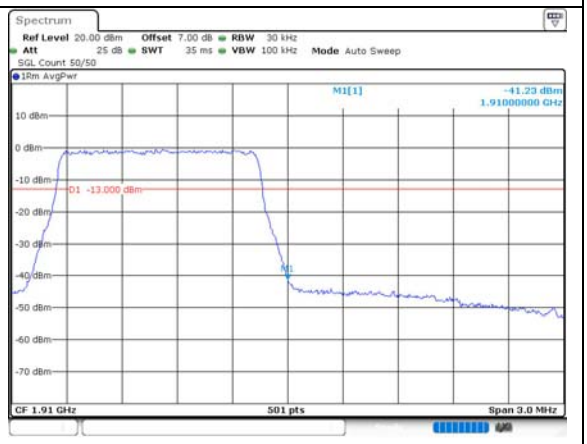
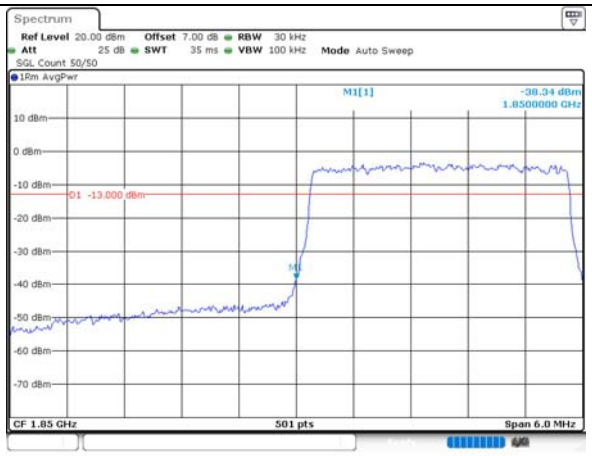
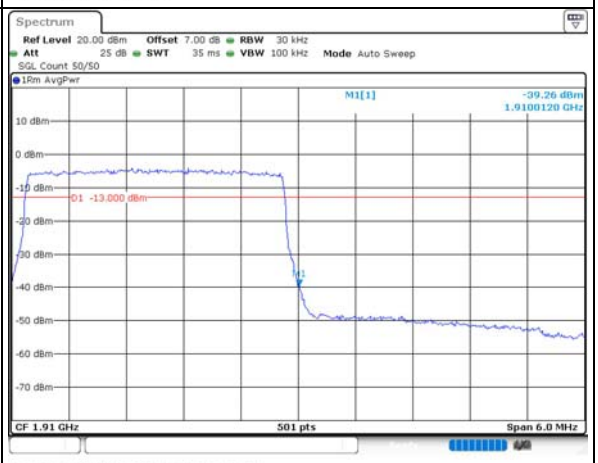
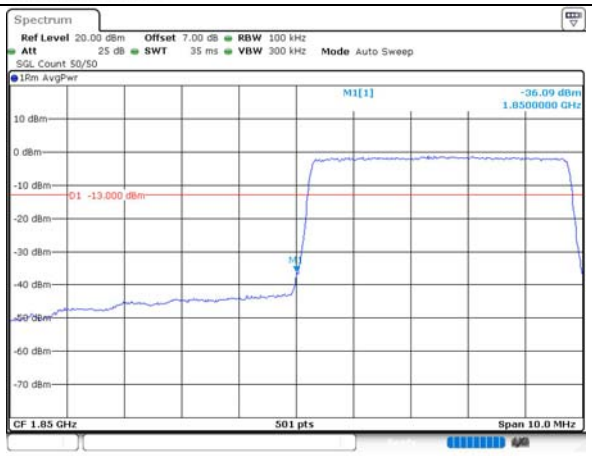
Spurious Emissions at Antenna Terminal		
Channel	**10MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

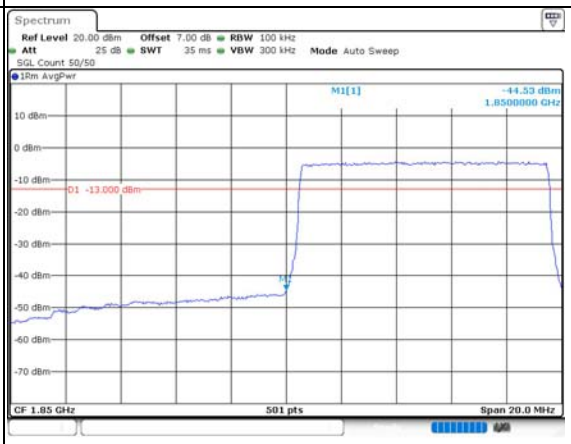
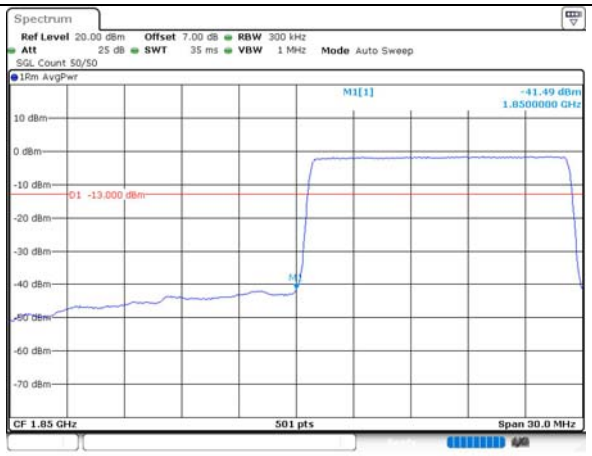
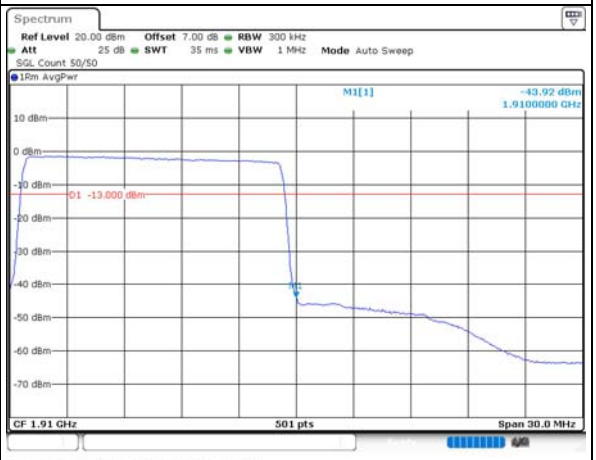
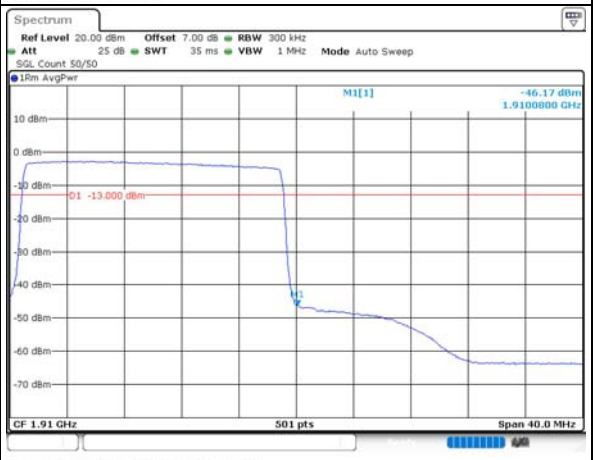
Spurious Emissions at Antenna Terminal		
Channel	**15MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

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

Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
QPSK 1.4MHz		
QPSK 3MHz		
QPSK 5MHz		

Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
QPSK 10MHz		
QPSK 15MHz		
QPSK 20MHz		

Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
16QAM 1.4MHz		
16QAM 3MHz		
16QAM 5MHz		

Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
16QAM 10MHz		
16QAM 15MHz		
16QAM 20MHz		

4.7 Antenna Port Test Data and Results for LTE Band 4

Serial Number:	2CIM-1	Test Date:	2023/11/10~2023/12/9
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	24.7~25.5	Relative Humidity: (%)	53~62	ATM Pressure: (kPa)	100.1~102

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101590	2022/11/25	2023/11/24
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	2023/9/28	2024/9/27
R&S	Spectrum Analyzer	FSV40	101590	2023/11/16	2024/11/15

** 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:

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	16.65	16.5	16.44	14.04	30
	RB1#3	16.7	16.62	16.52		
	RB1#5	16.66	16.53	16.46		
	RB3#0	16.74	16.65	16.59		
	RB3#3	16.73	16.69	16.6		
	RB6#0	15.83	15.71	15.63		
1.4MHz 16QAM	RB1#0	15.7	15.58	15.46	13.13	30
	RB1#3	15.83	15.62	15.54		
	RB1#5	15.75	15.58	15.44		
	RB3#0	15.77	15.78	15.74		
	RB3#3	15.78	15.75	15.78		
	RB6#0	14.96	14.81	14.75		
3MHz QPSK	RB1#0	16.55	16.4	16.25	13.92	30
	RB1#8	16.62	16.55	16.38		
	RB1#14	16.53	16.39	16.31		
	RB6#0	15.71	15.6	15.43		
	RB6#9	15.66	15.61	15.55		
	RB15#0	15.69	15.57	15.49		
3MHz 16QAM	RB1#0	15.63	15.43	15.89	13.33	30
	RB1#8	15.71	15.48	16.03		
	RB1#14	15.65	15.44	15.87		
	RB6#0	14.82	14.65	14.64		
	RB6#9	14.88	14.64	14.72		
	RB15#0	14.71	14.76	14.62		
5MHz QPSK	RB1#0	16.75	16.7	16.58	14.09	30
	RB1#13	16.79	16.79	16.72		
	RB1#24	16.72	16.68	16.61		
	RB15#0	15.74	15.66	15.57		
	RB15#10	15.83	15.7	15.58		
	RB25#0	15.77	15.69	15.58		
5MHz 16QAM	RB1#0	15.84	15.55	15.85	13.29	30
	RB1#13	15.92	15.69	15.99		
	RB1#24	15.83	15.63	15.9		
	RB15#0	14.85	14.84	14.64		
	RB15#10	14.92	14.86	14.65		
	RB25#0	14.9	14.85	14.7		
10MHz QPSK	RB1#0	16.83	16.72	16.61	14.16	30
	RB1#25	16.86	16.78	16.68		
	RB1#49	16.84	16.76	16.73		

	RB25#0	15.69	15.69	15.55		
	RB25#25	15.86	15.76	15.61		
	RB50#0	15.81	15.74	15.58		
10MHz 16QAM	RB1#0	15.82	16.34	15.72	13.71	30
	RB1#25	15.85	16.41	15.78		
	RB1#49	15.87	16.32	15.83		
	RB25#0	14.92	14.85	14.7		
	RB25#25	15.03	14.92	14.75		
	RB50#0	14.88	14.84	14.69		
15MHz QPSK	RB1#0	16.75	16.64	16.5	14.22	30
	RB1#38	16.92	16.78	16.69		
	RB1#74	16.79	16.67	16.65		
	RB36#0	15.72	15.63	15.54		
	RB36#39	15.81	15.69	15.55		
	RB75#0	15.77	15.69	15.59		
15MHz 16QAM	RB1#0	15.86	16.08	16.14	13.62	30
	RB1#38	15.99	16.19	16.27		
	RB1#74	15.93	16.08	16.32		
	RB36#0	14.87	14.73	14.68		
	RB36#39	14.92	14.73	14.69		
	RB75#0	14.89	14.75	14.67		
20MHz QPSK	RB1#0	16.67	16.6	16.53	14.21	30
	RB1#50	16.91	16.81	16.72		
	RB1#99	16.75	16.62	16.62		
	RB50#0	15.72	15.65	15.59		
	RB50#50	15.92	15.74	15.57		
	RB100#0	15.81	15.69	15.53		
20MHz 16QAM	RB1#0	15.89	16.16	15.86	13.65	30
	RB1#50	16.13	16.35	16		
	RB1#99	15.97	16.18	15.89		
	RB50#0	14.81	14.77	14.65		
	RB50#50	14.99	14.85	14.67		
	RB100#0	14.86	14.79	14.67		
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	6.2	5.86	6.12	13
	RB100#0	4.43	4.29	4.32	13
20MHz 16QAM	RB1#0	7.28	6.23	6.67	13
	RB100#0	6	5.91	6.09	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	1.284	1.108	1.308	1.102	1.278
1.4MHz 16QAM	1.102	1.308	1.090	1.284	1.102	1.296
3MHz QPSK	2.683	2.940	2.683	2.916	2.683	2.928
3MHz 16QAM	2.683	2.940	2.671	2.952	2.683	2.940
5MHz QPSK	4.511	4.940	4.491	4.920	4.511	4.940
5MHz 16QAM	4.511	4.940	4.511	4.960	4.491	4.900
10MHz QPSK	8.942	9.600	8.942	9.680	8.942	9.720
10MHz 16QAM	8.942	9.640	8.942	9.640	8.942	9.600
15MHz QPSK	13.473	14.580	13.473	14.640	13.533	15.180
15MHz 16QAM	13.473	14.640	13.533	14.640	13.533	14.640
20MHz QPSK	17.964	19.360	17.964	19.120	17.964	19.280
20MHz 16QAM	17.884	19.280	17.964	19.280	17.884	19.680
Note: The test plots please refer to the Plots of Occupied Bandwidth						

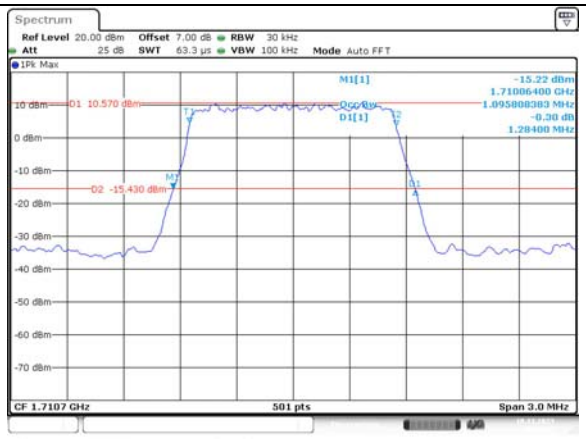
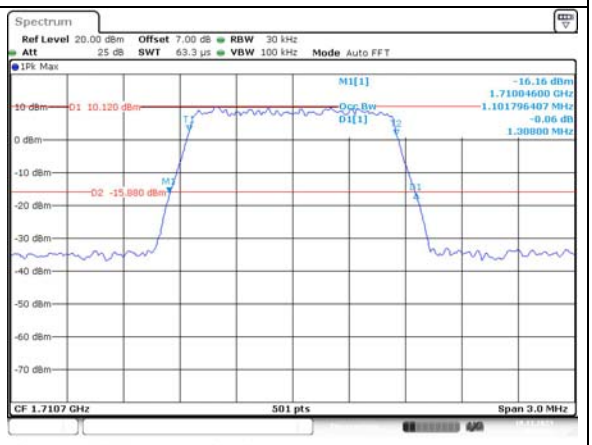
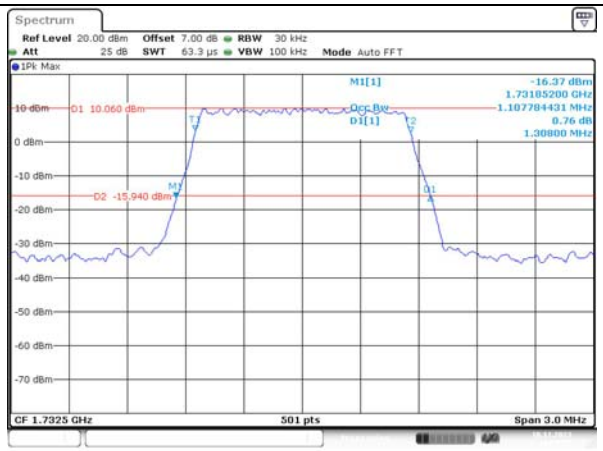
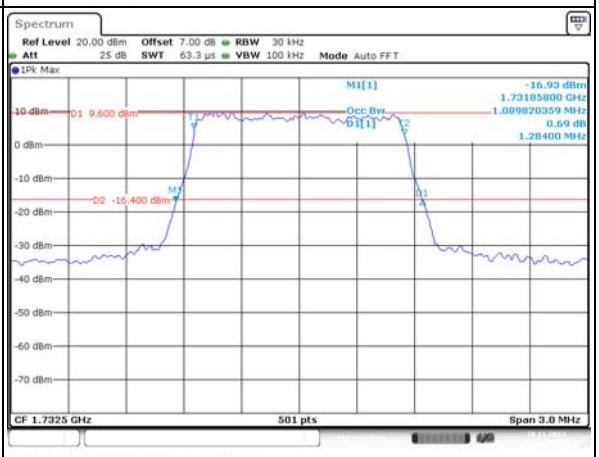
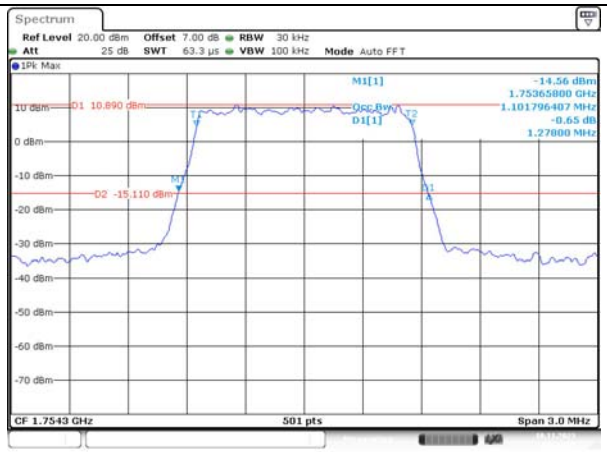
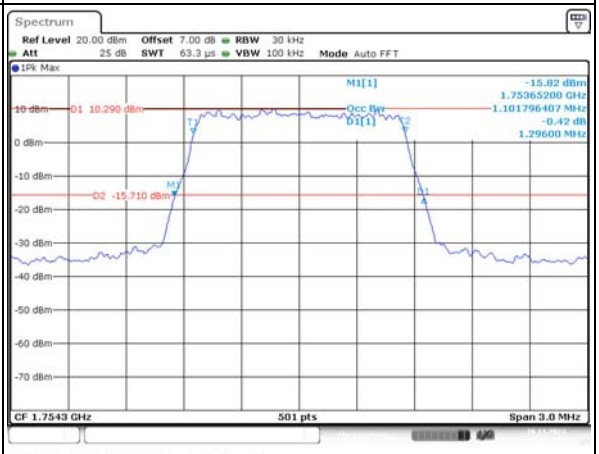
Spurious Emissions at Antenna Terminal	
Result:	**Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**

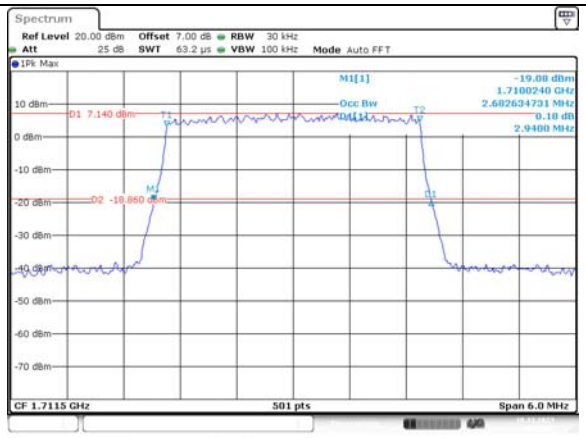
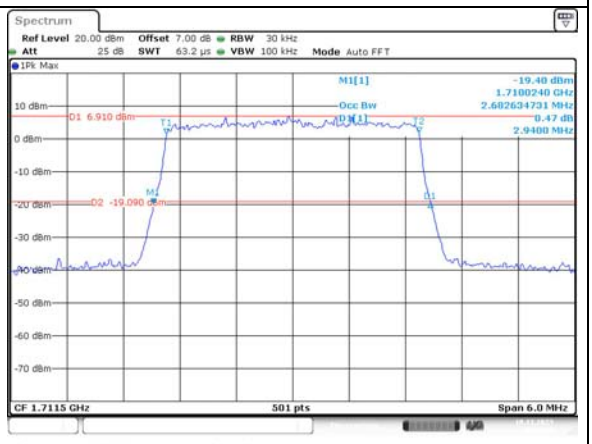
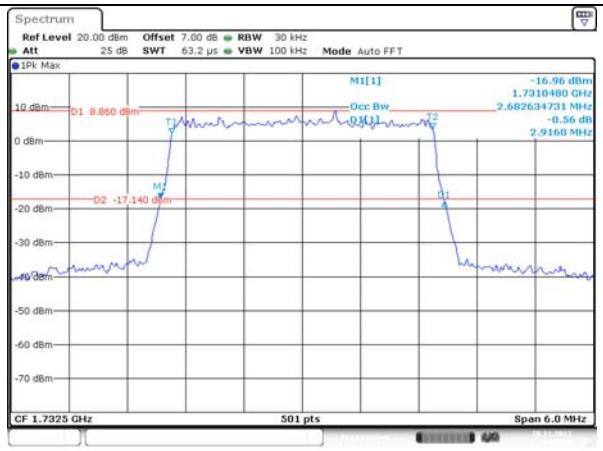
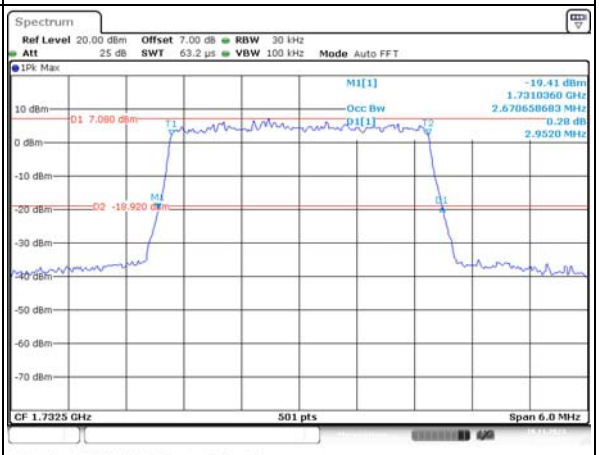
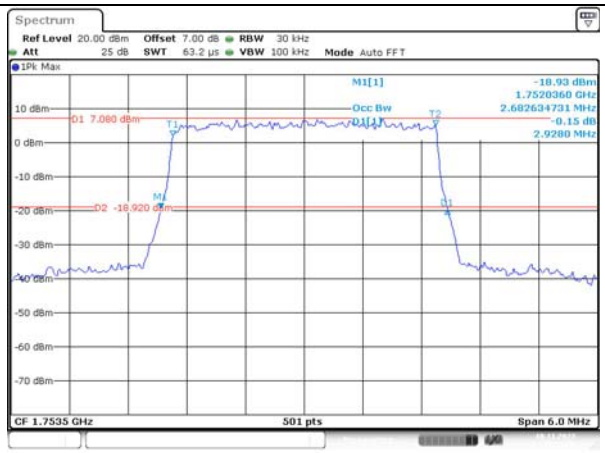
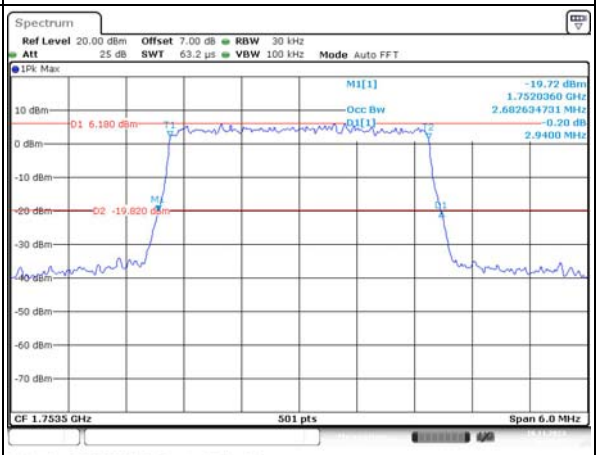
Out of band emission, Band Edge	
Result:	**Pass, Please refer to the test plots of Out of band emission, Band Edge.**

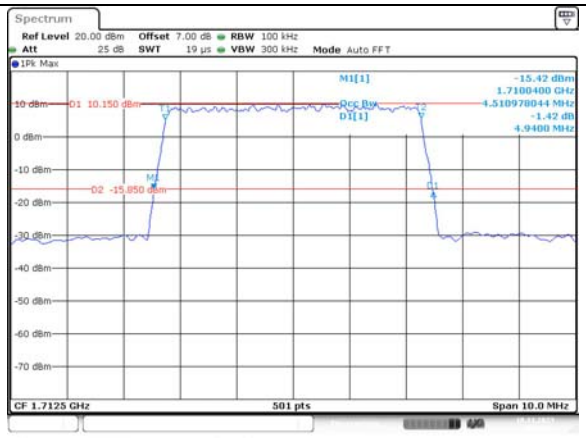
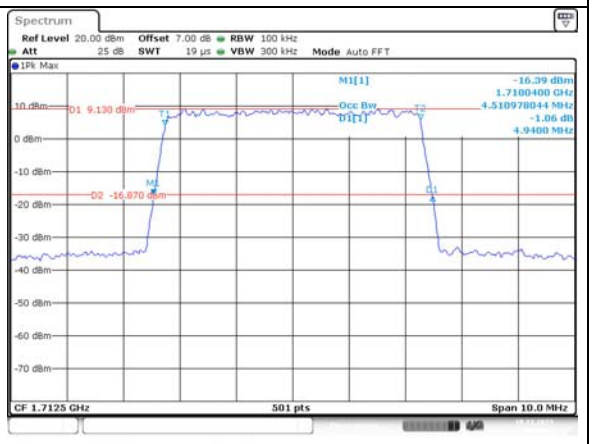
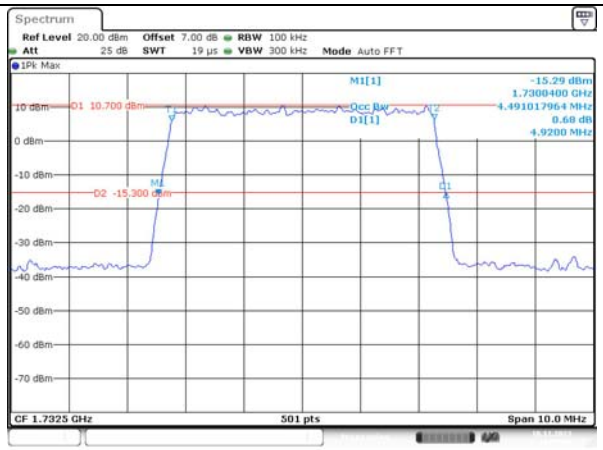
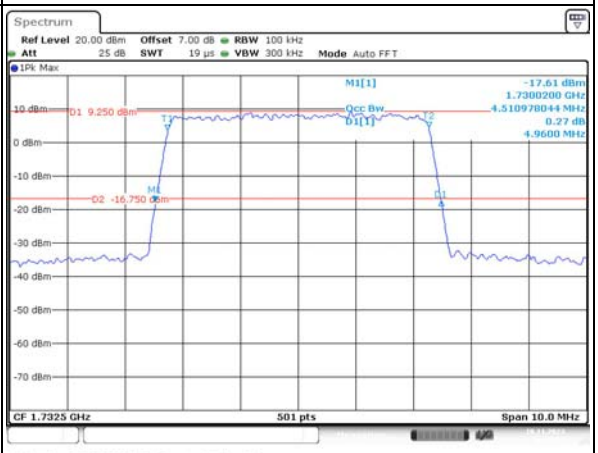
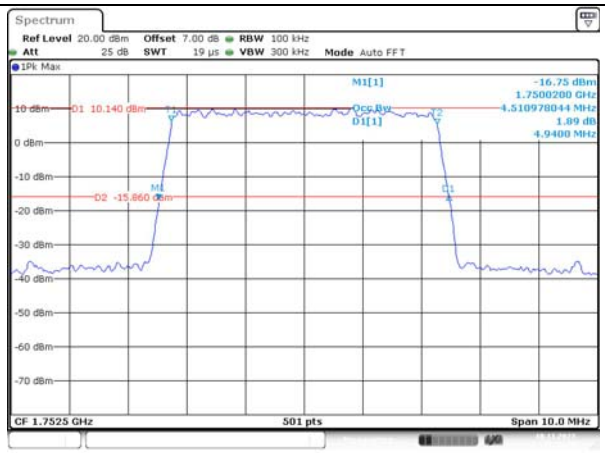
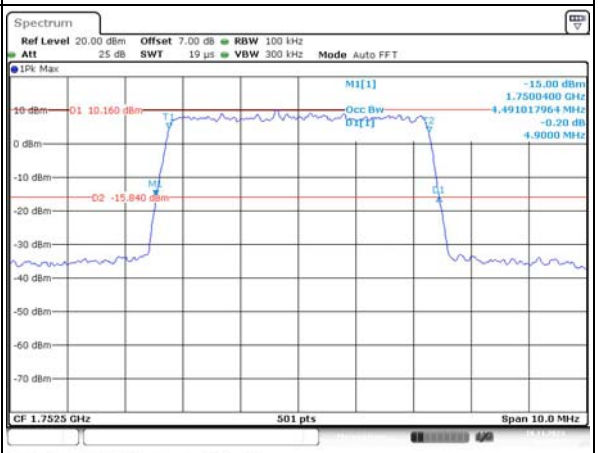
Frequency Stability						
Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.91	1710.341	1710.00	1754.606	1755
	-20	3.91	1710.395	1710.00	1754.604	1755
	-10	3.91	1710.350	1710.00	1754.605	1755
	0	3.91	1710.346	1710.00	1754.659	1755
	10	3.91	1710.377	1710.00	1754.668	1755
	20	3.91	1710.320	1710.00	1754.680	1755
	30	3.91	1710.394	1710.00	1754.591	1755
	40	3.91	1710.372	1710.00	1754.626	1755
	50	3.91	1710.339	1710.00	1754.678	1755
Frequency Stability vs. Voltage	20	3.45	1710.354	1710.00	1754.619	1755
	20	4.5	1710.402	1710.00	1754.676	1755
					Result:	**Pass**

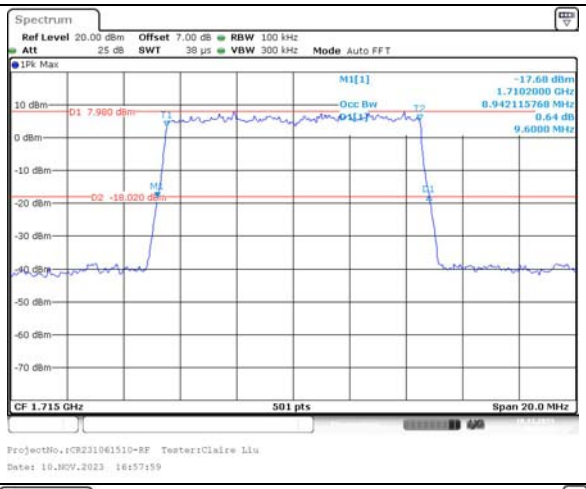
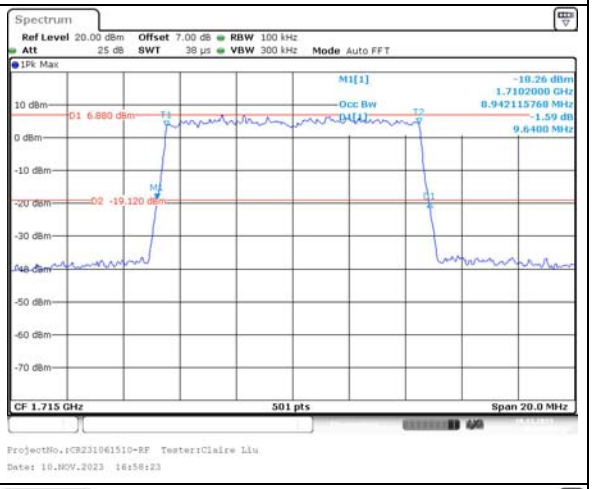
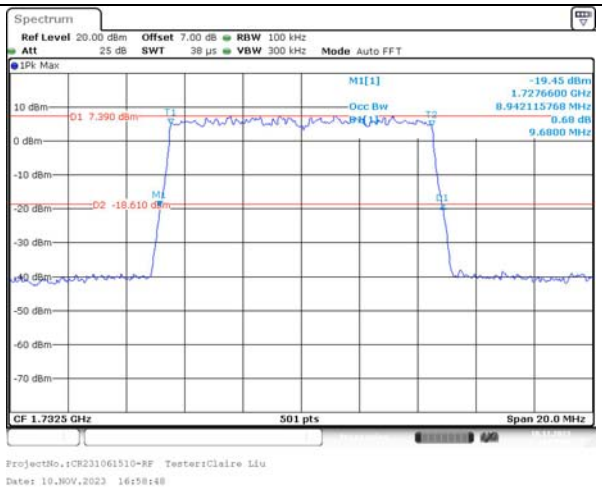
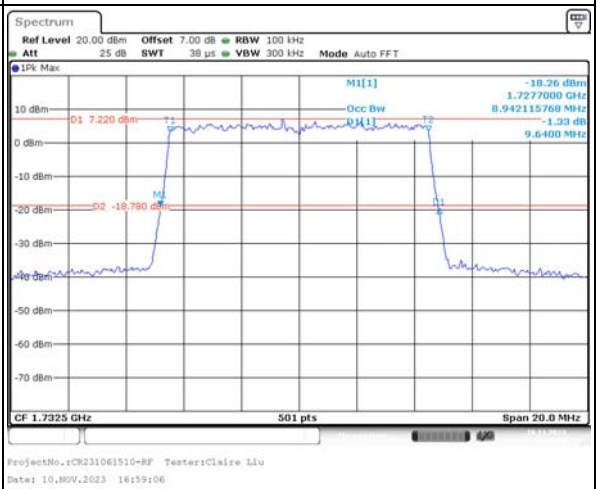
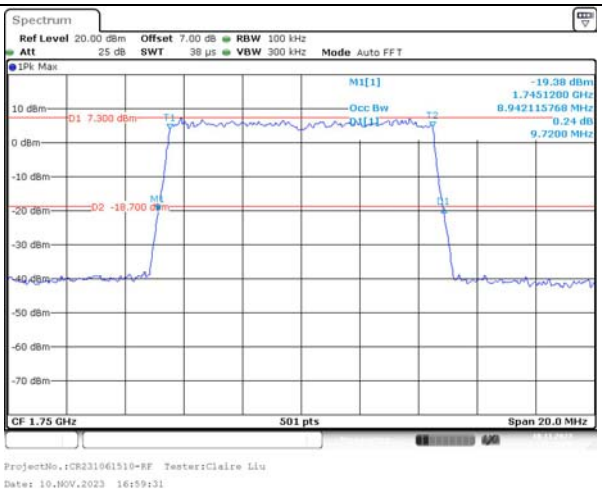
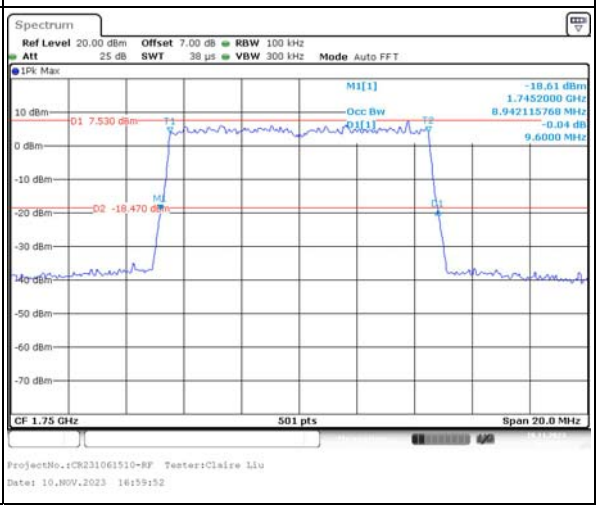
Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.91	1710.450	1710.00	1754.631	1755
	-20	3.91	1710.420	1710.00	1754.594	1755
	-10	3.91	1710.456	1710.00	1754.621	1755
	0	3.91	1710.408	1710.00	1754.636	1755
	10	3.91	1710.411	1710.00	1754.659	1755
	20	3.91	1710.400	1710.00	1754.680	1755
	30	3.91	1710.440	1710.00	1754.660	1755
	40	3.91	1710.468	1710.00	1754.643	1755
	50	3.91	1710.456	1710.00	1754.642	1755
Frequency Stability vs. Voltage	20	3.45	1710.420	1710.00	1754.610	1755
	20	4.5	1710.490	1710.00	1754.593	1755
					Result:	**Pass**

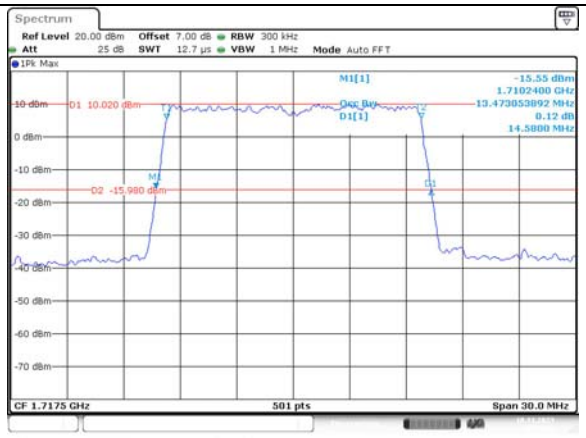
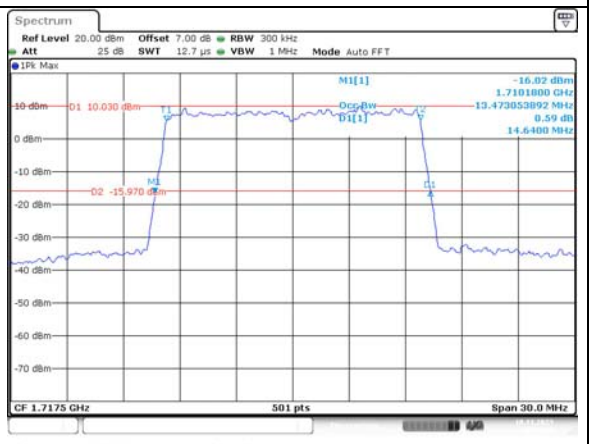
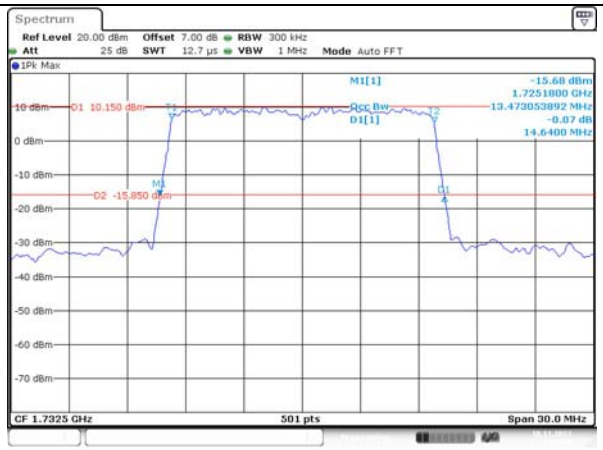
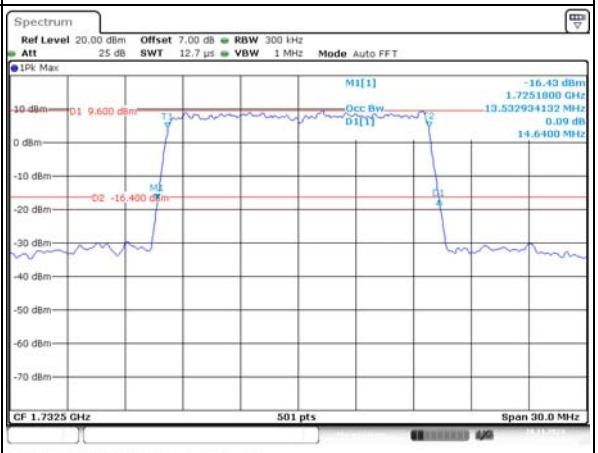
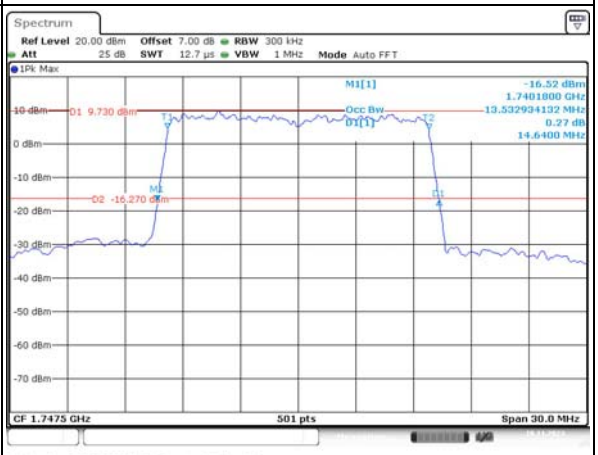
Test Plots(Note: The 7.0dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer)**:**

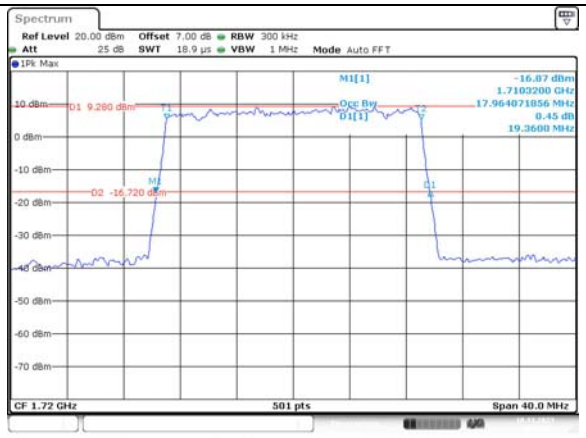
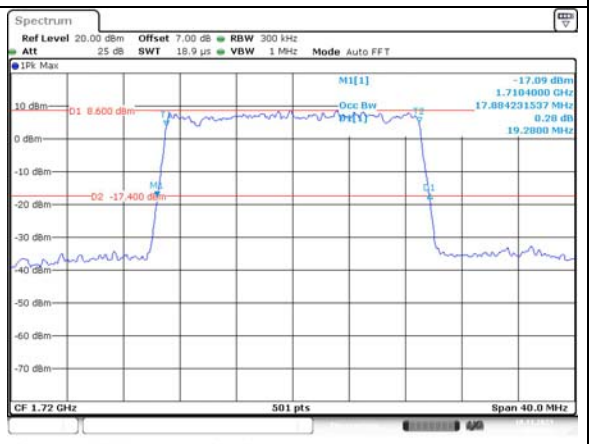
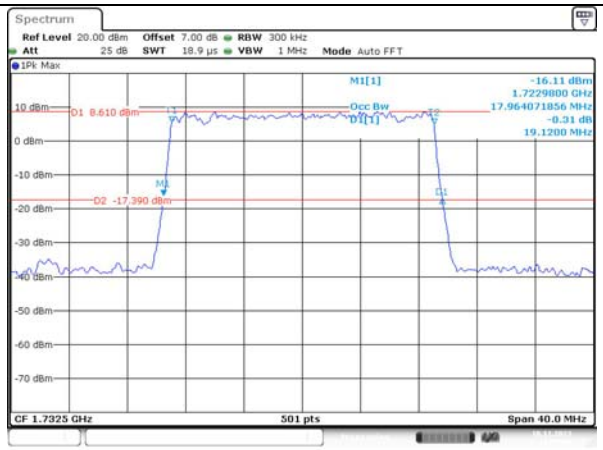
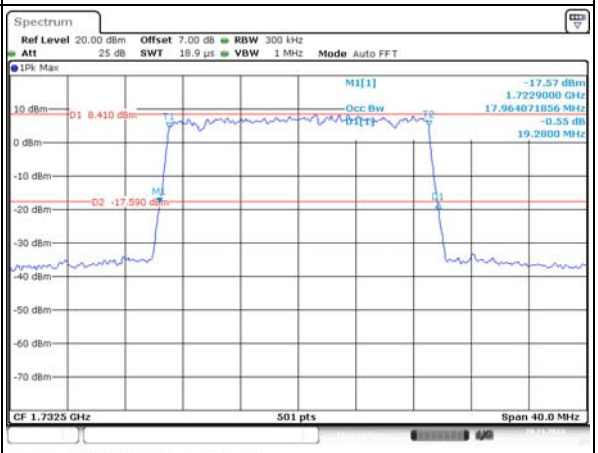
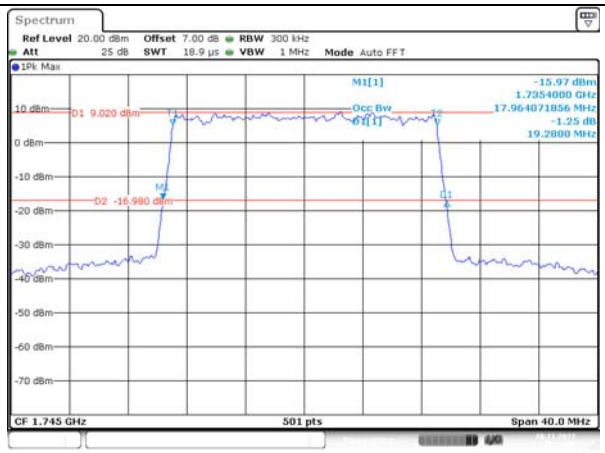
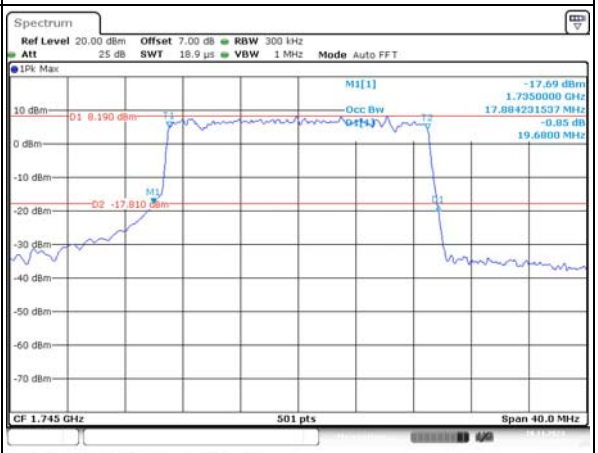
Occupied Bandwidth		
Channel	1.4MHz Bandwidth QPSK	1.4MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

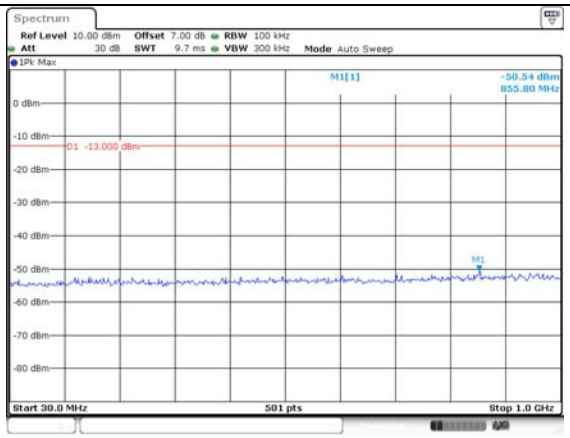
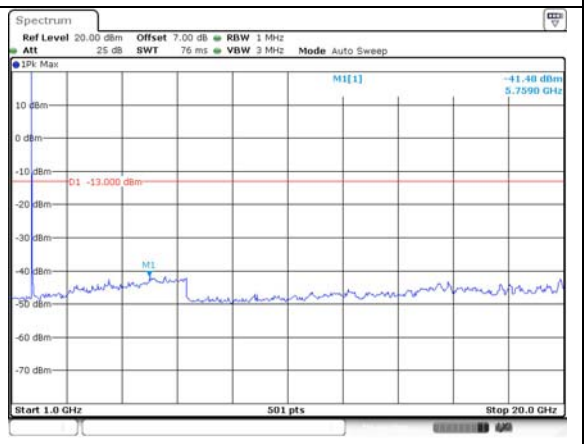
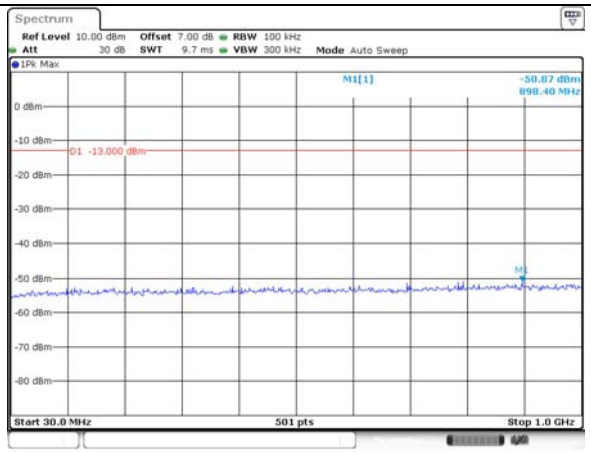
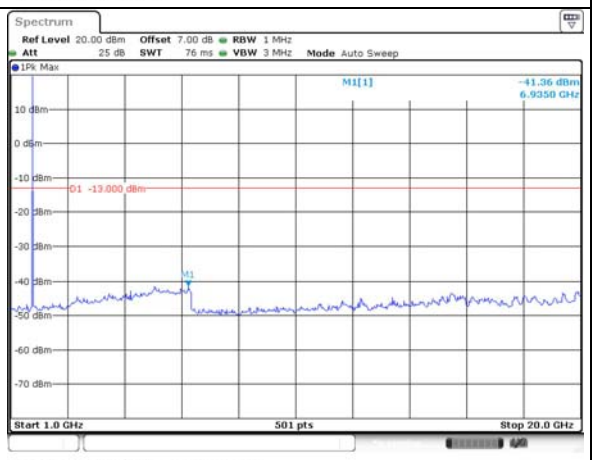
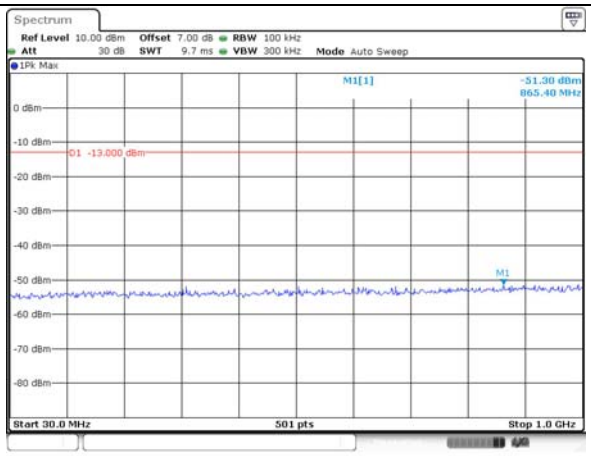
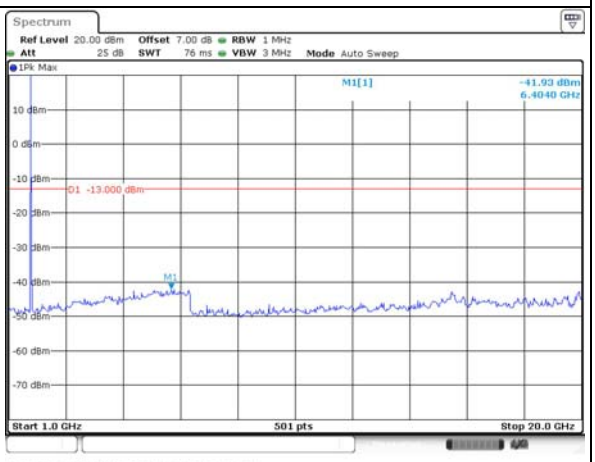
Occupied Bandwidth		
Channel	3MHz Bandwidth QPSK	3MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

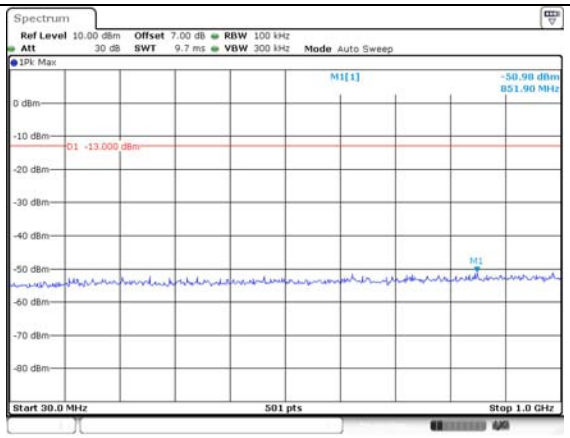
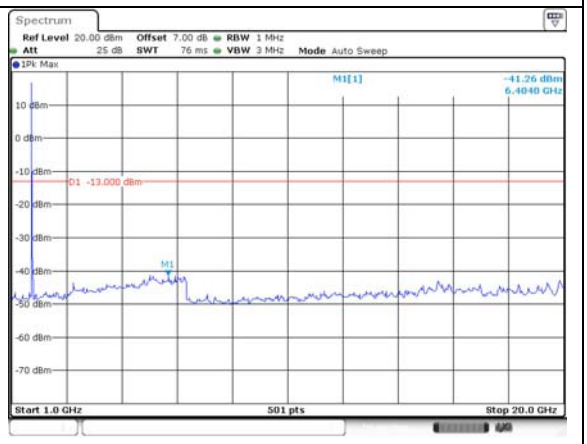
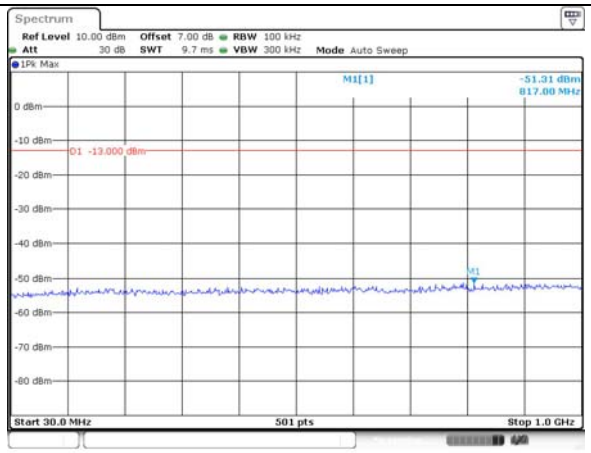
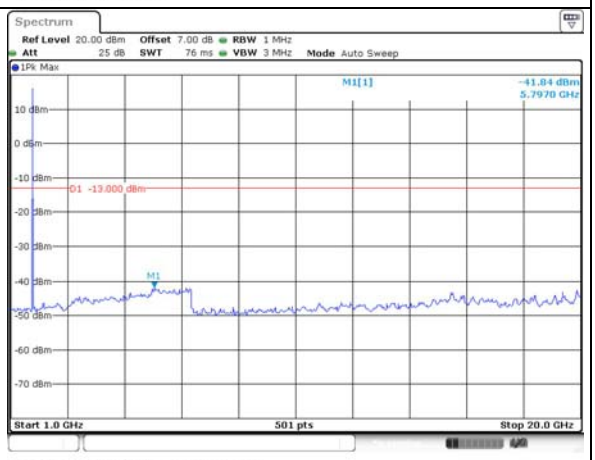
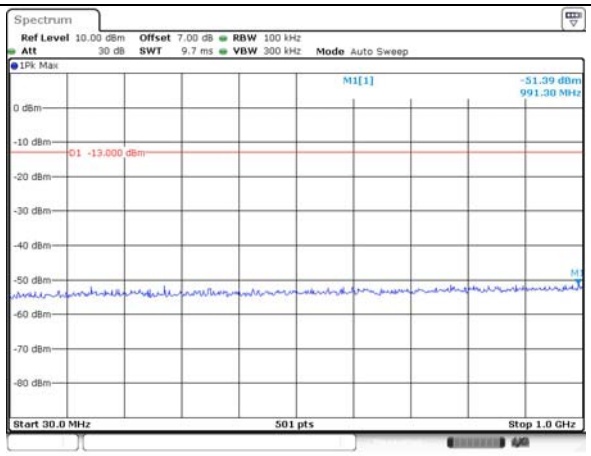
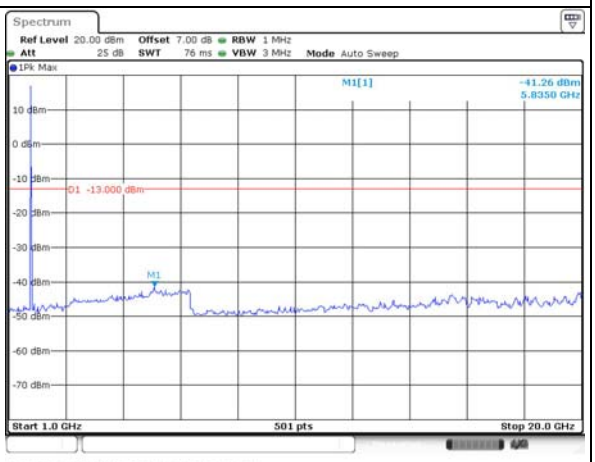
Occupied Bandwidth		
Channel	5MHz Bandwidth QPSK	5MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

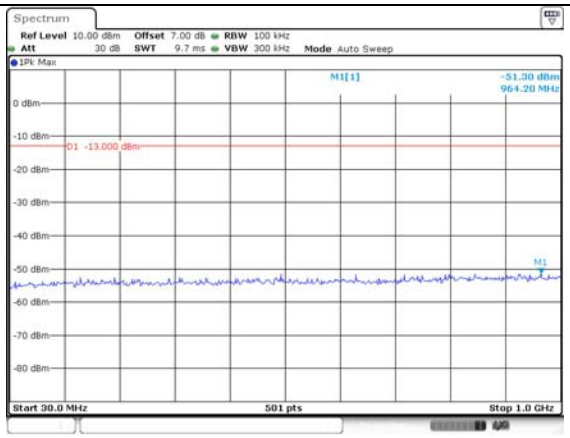
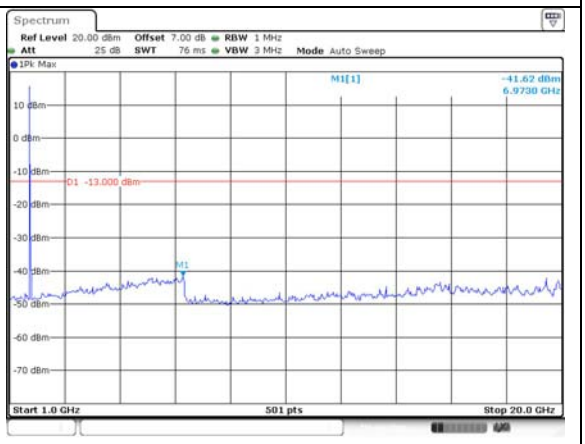
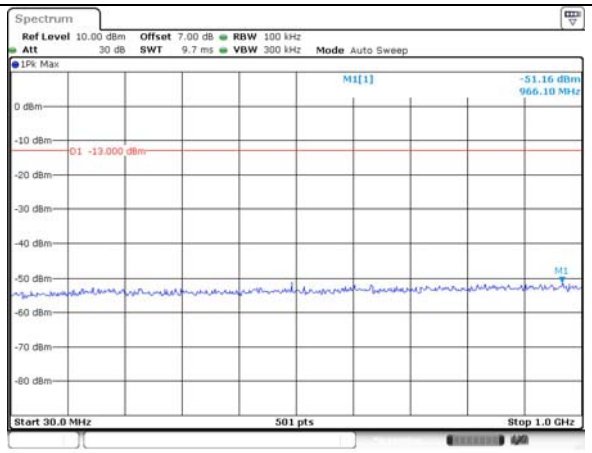
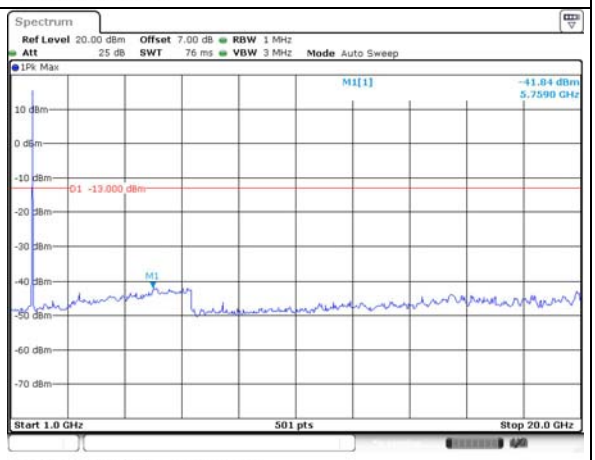
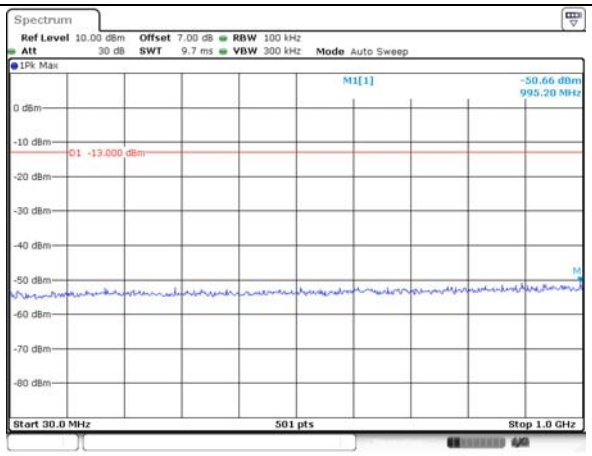
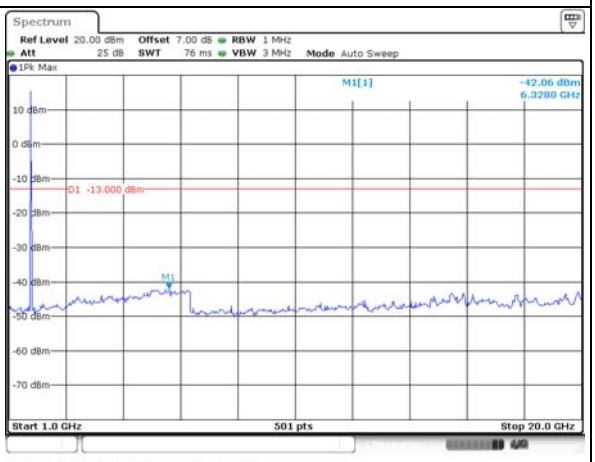
Occupied Bandwidth		
Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

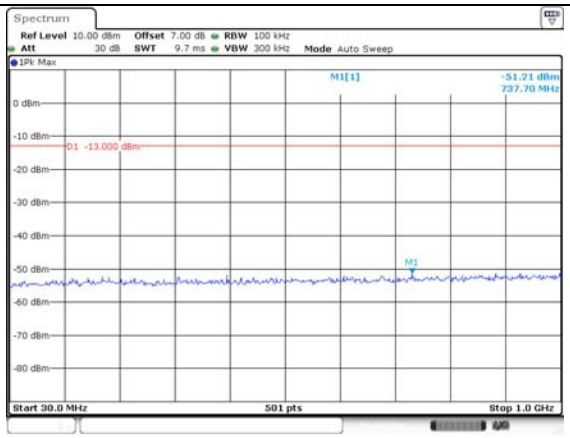
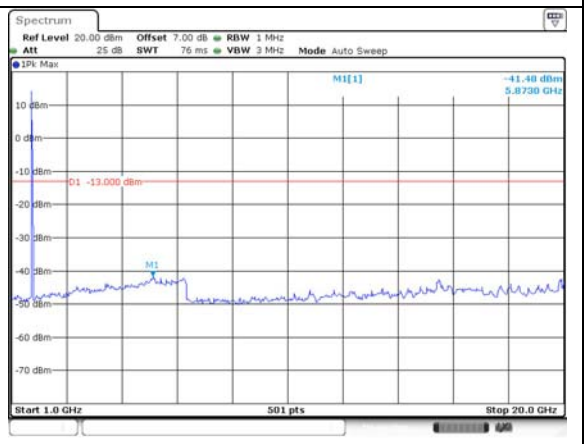
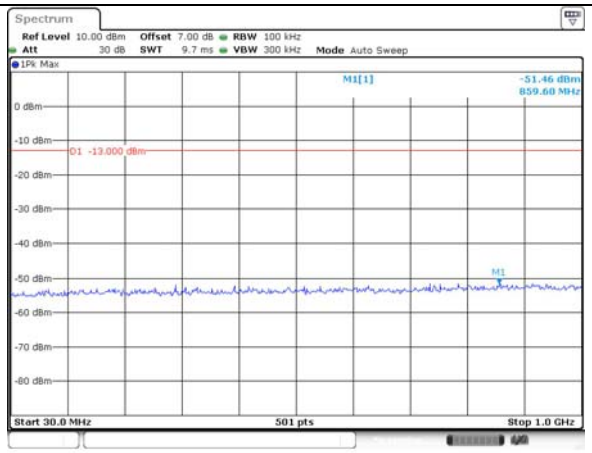
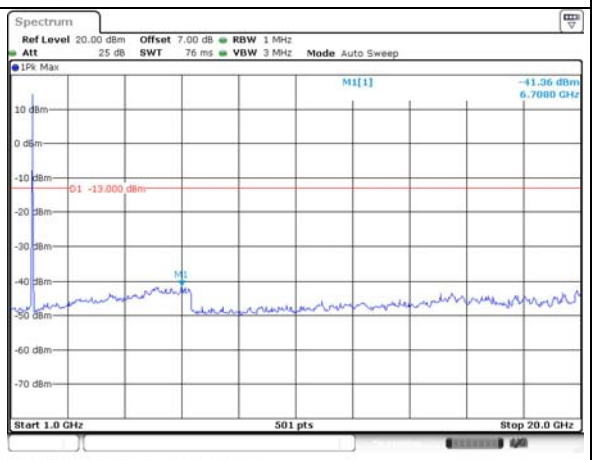
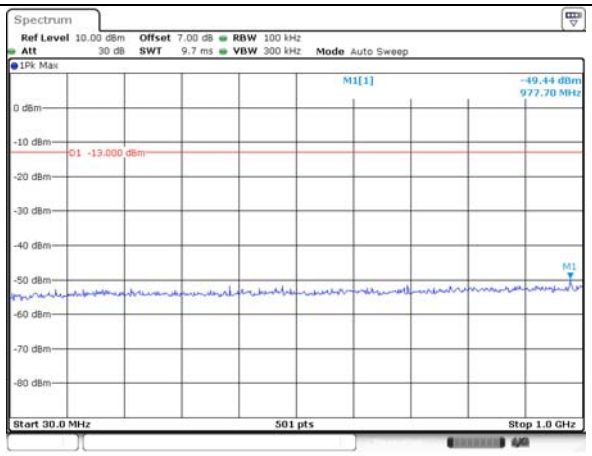
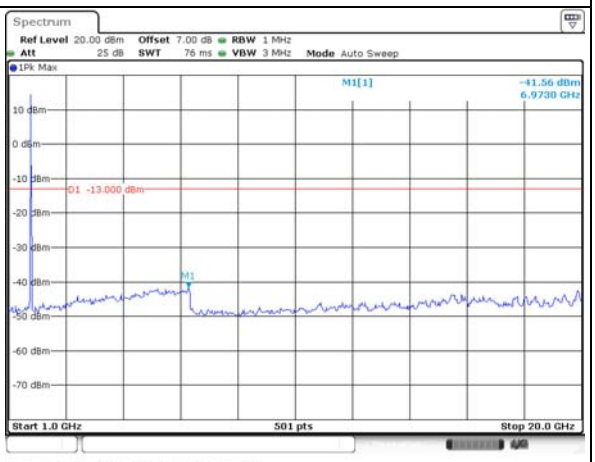
Occupied Bandwidth		
Channel	15MHz Bandwidth QPSK	15MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

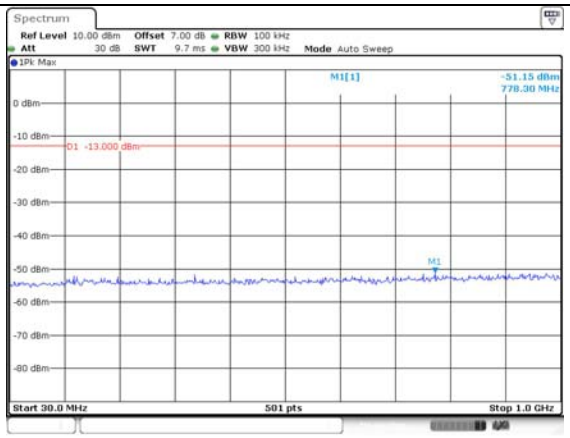
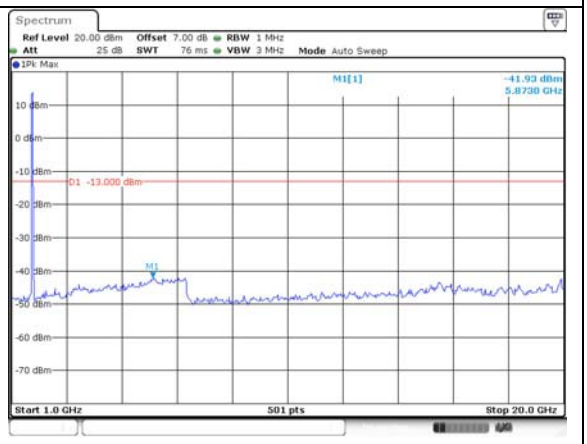
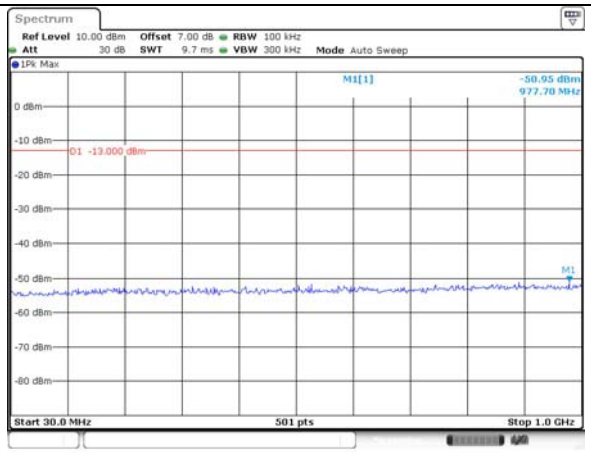
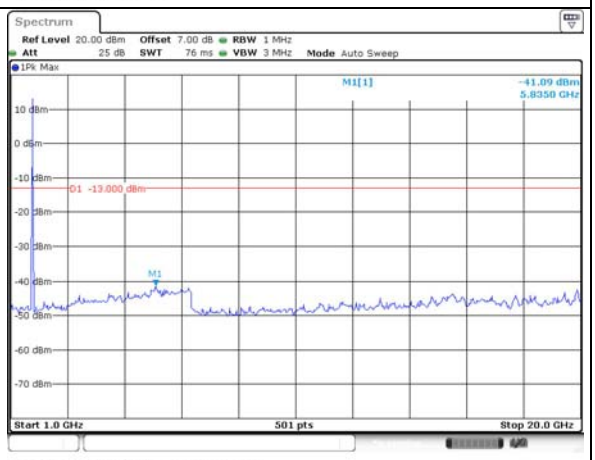
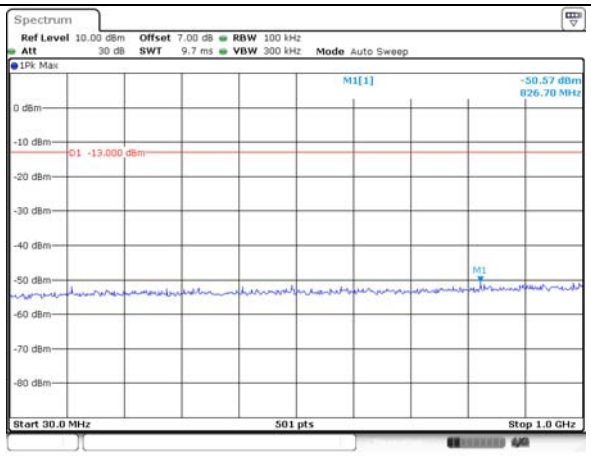
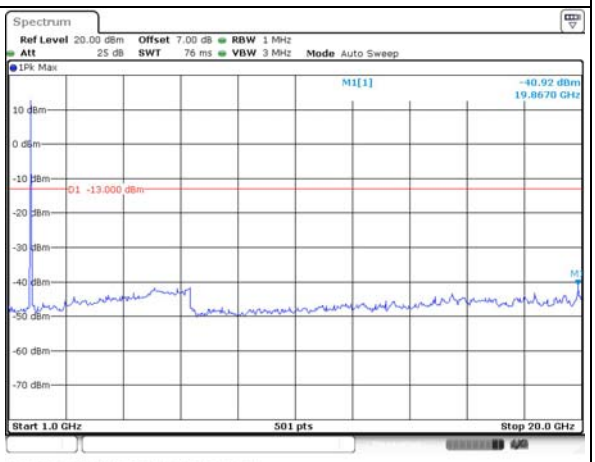
Occupied Bandwidth		
Channel	20MHz Bandwidth QPSK	20MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

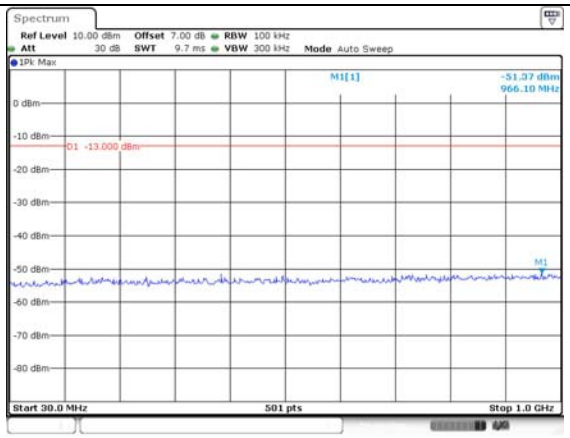
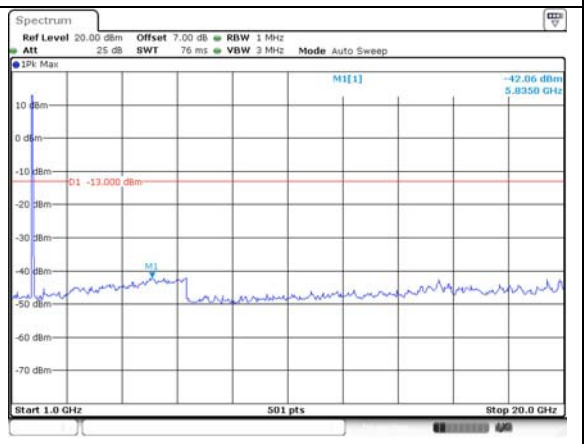
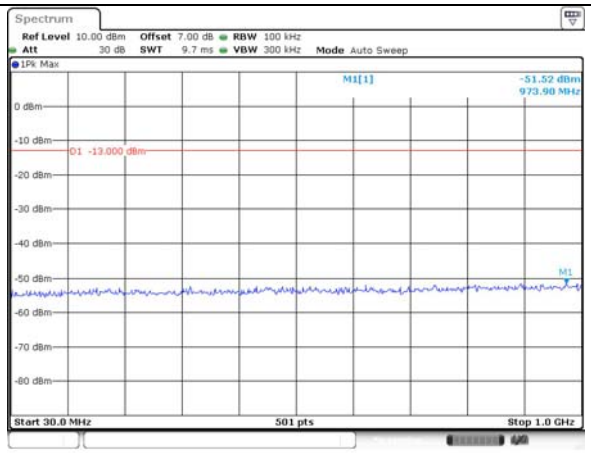
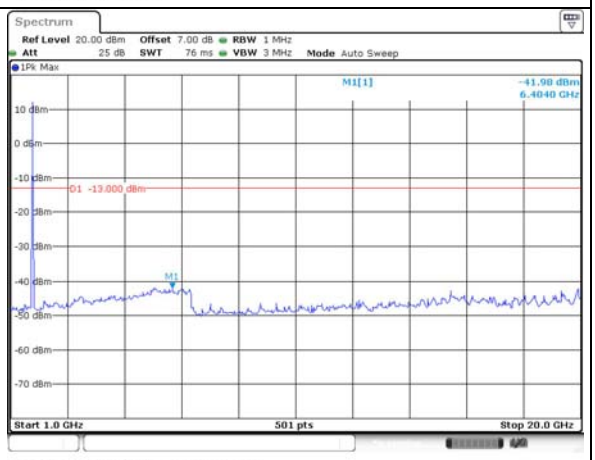
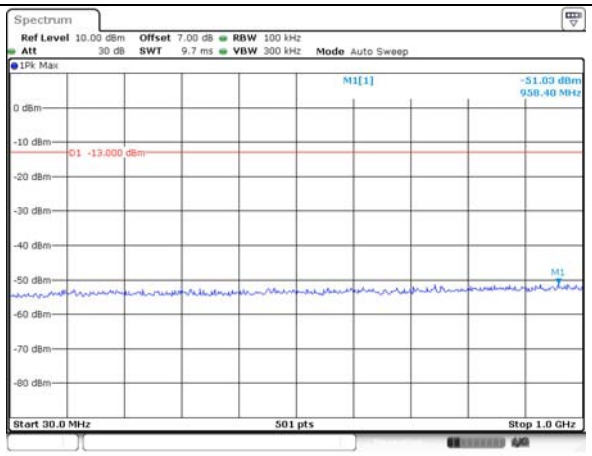
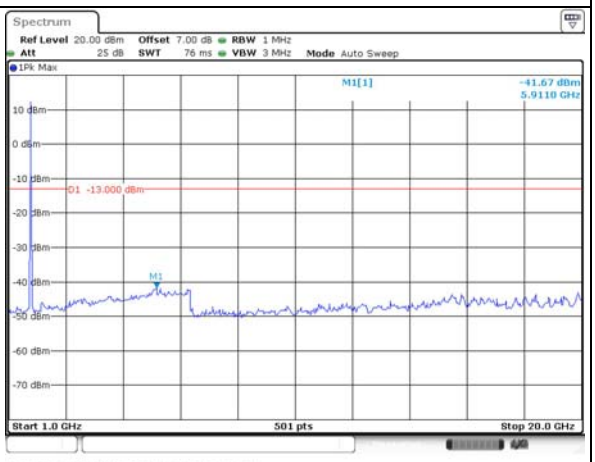
Spurious Emissions at Antenna Terminal		
Channel	**1.4MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

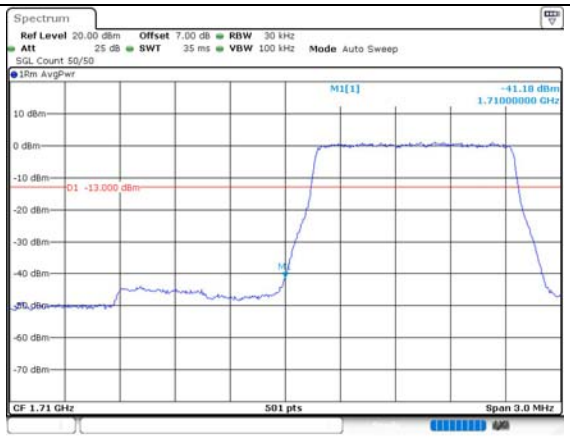
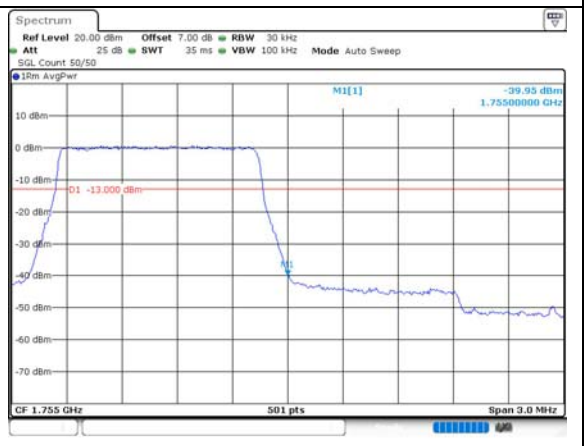
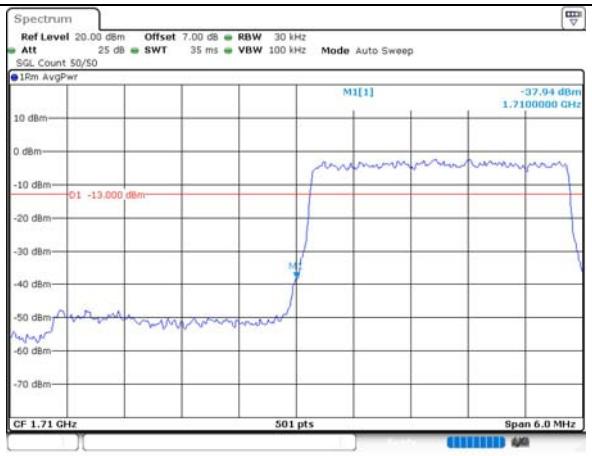
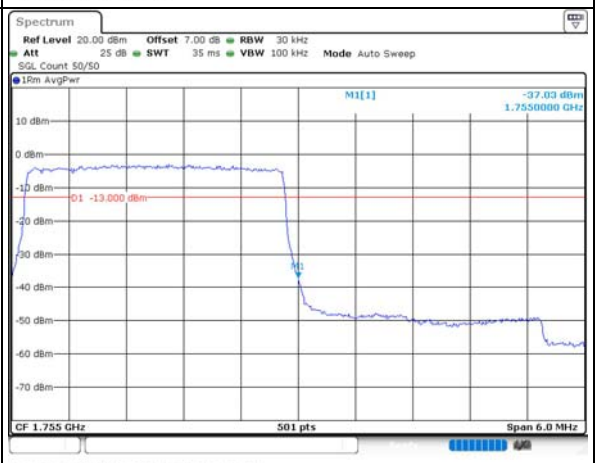
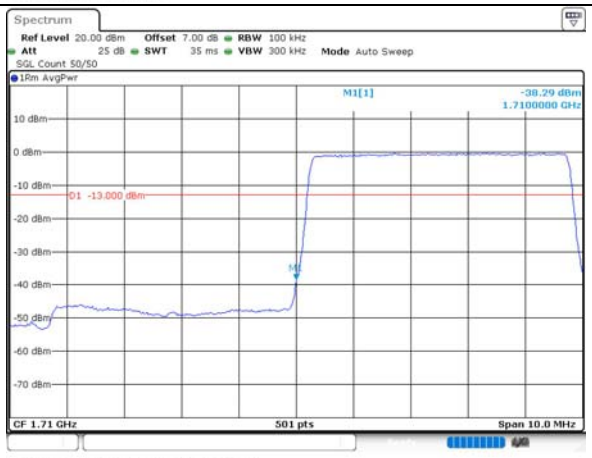
Spurious Emissions at Antenna Terminal		
Channel	**3MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

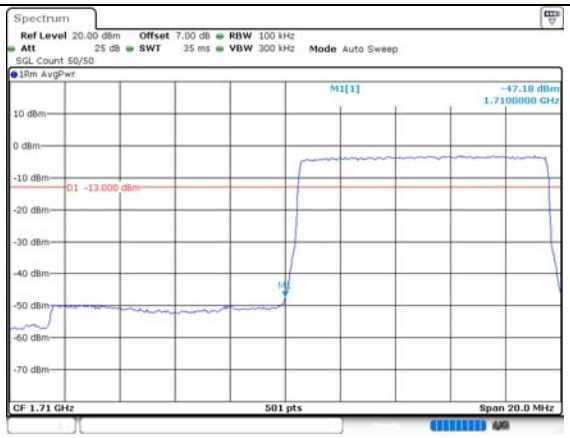
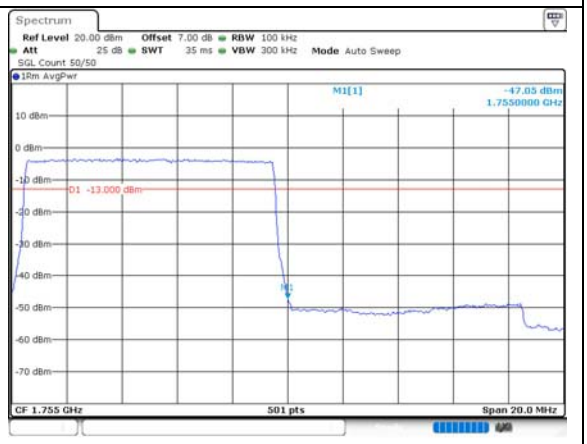
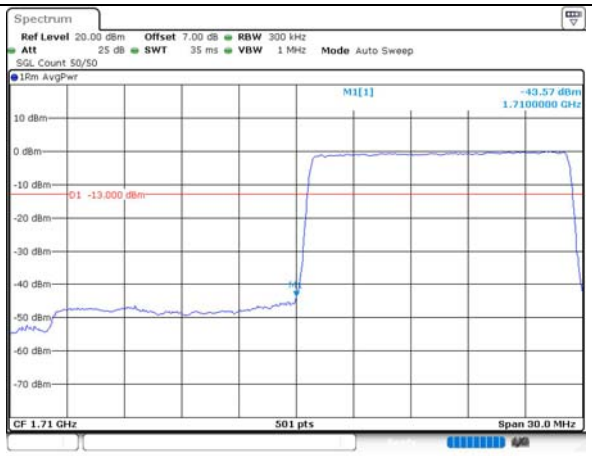
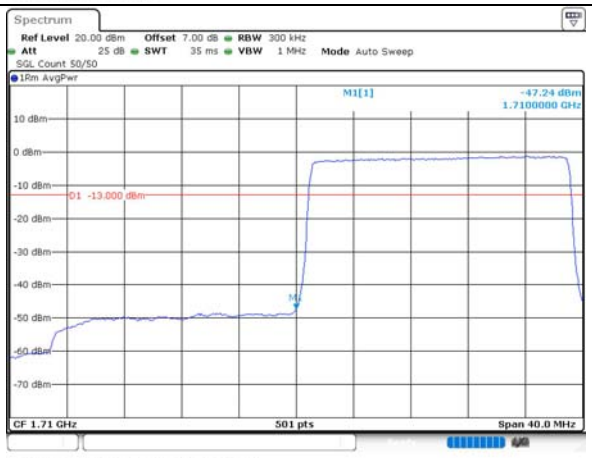
Spurious Emissions at Antenna Terminal		
Channel	**5MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

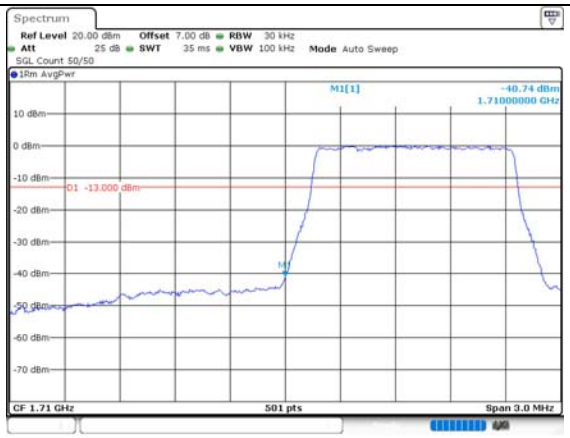
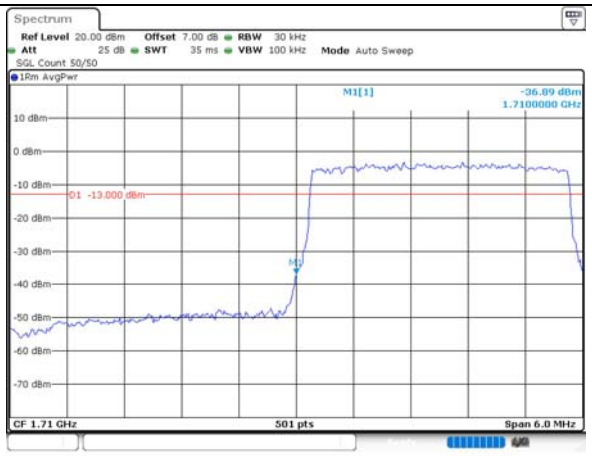
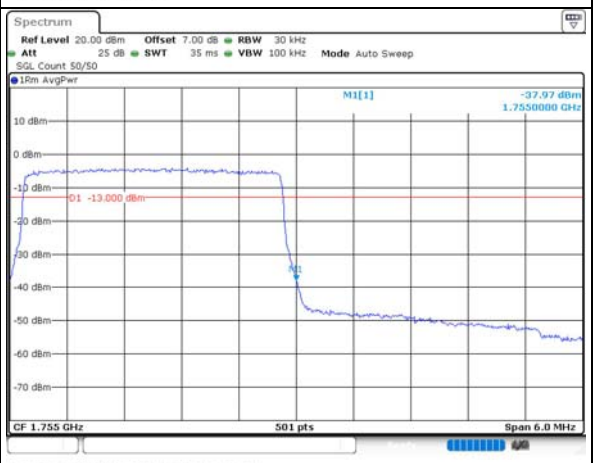
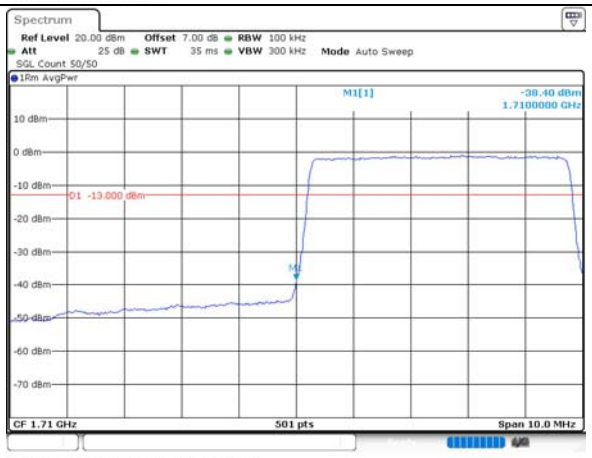
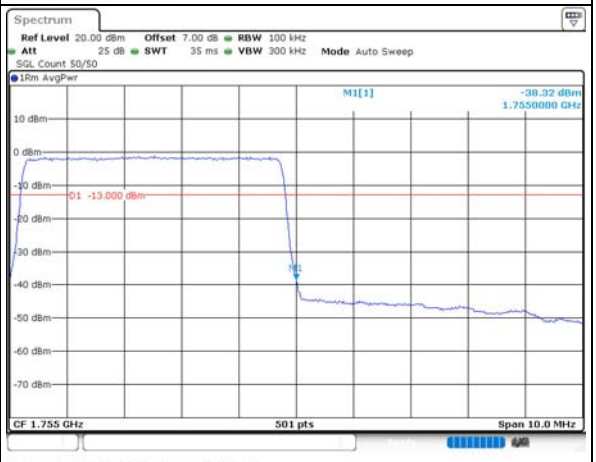
Spurious Emissions at Antenna Terminal		
Channel	**10MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

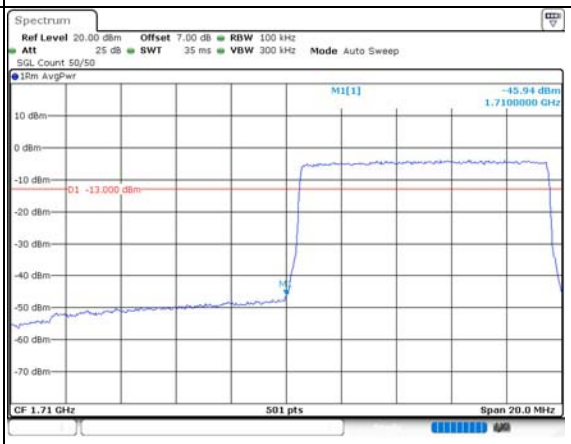
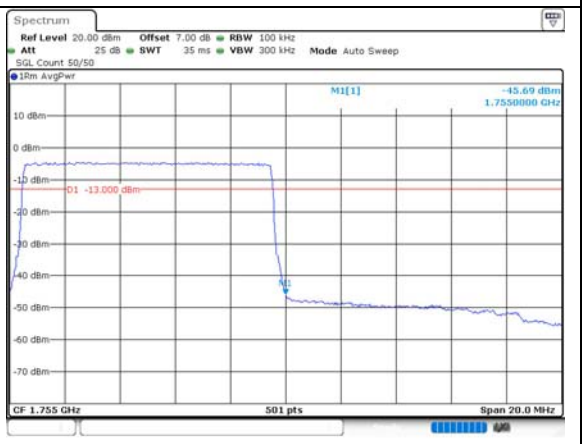
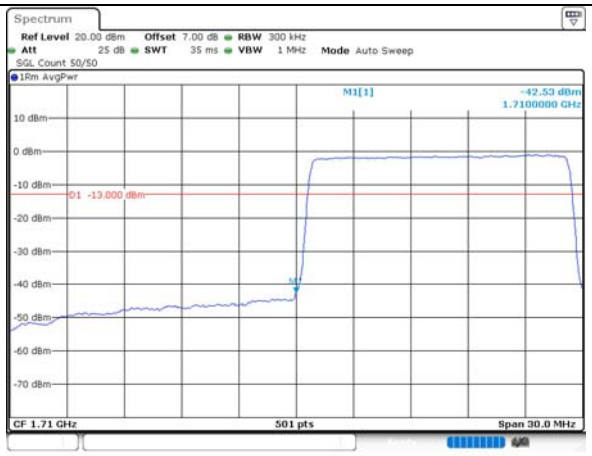
Spurious Emissions at Antenna Terminal		
Channel	**15MHz Bandwidth QPSK**	
Lowest		
Middle		
Highest		

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

Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
QPSK 1.4MHz		
QPSK 3MHz		
QPSK 5MHz		

Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
QPSK 10MHz		
QPSK 15MHz		
QPSK 20MHz		

Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
16QAM 1.4MHz		
16QAM 3MHz		
16QAM 5MHz		

Out of band emission, Band Edge		
Mode	**Lowest**	**Highest**
16QAM 10MHz		
16QAM 15MHz		
16QAM 20MHz		

4.8 Antenna Port Test Data and Results for LTE Band 5

Serial Number:	2CIM-1	Test Date:	2023/11/10~2023/12/9
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	24.7~25.5	Relative Humidity: (%)	53~62	ATM Pressure: (kPa)	100.1~102

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101590	2022/11/25	2023/11/24
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	2023/9/28	2024/9/27
R&S	Spectrum Analyzer	FSV40	101590	2023/11/16	2024/11/15

** 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	824.7	836.5	848.3
3MHz	825.5	836.5	847.5
5MHz	826.5	836.5	846.5
10MHz	829	836.5	844

Test Data:

RF Output Power

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
1.4MHz QPSK	RB1#0	23.07	23.23	23.34	13.89	38.45
	RB1#3	23.11	23.28	23.43		
	RB1#5	23.05	23.25	23.35		
	RB3#0	23.15	23.34	23.41		
	RB3#3	23.2	23.35	23.38		
	RB6#0	22.23	22.42	22.51		
1.4MHz 16QAM	RB1#0	21.99	22.36	22.26	12.89	38.45
	RB1#3	22.1	22.4	22.35		
	RB1#5	22.08	22.3	22.29		
	RB3#0	22.31	22.24	22.43		
	RB3#3	22.41	22.26	22.4		
	RB6#0	21.3	21.35	21.4		
3MHz QPSK	RB1#0	22.76	22.91	22.99	13.69	38.45
	RB1#8	22.97	23.01	23.23		
	RB1#14	22.87	23.01	23.23		
	RB6#0	21.93	22.11	22.35		
	RB6#9	22.09	22.18	22.36		
	RB15#0	22.03	22.12	22.37		
3MHz 16QAM	RB1#0	21.75	22.52	22.22	13.05	38.45
	RB1#8	21.97	22.59	22.32		
	RB1#14	21.91	22.49	22.29		
	RB6#0	20.92	21.19	21.37		
	RB6#9	20.97	21.19	21.4		
	RB15#0	21.1	21.14	21.33		
5MHz QPSK	RB1#0	23.01	23.24	23.33	14.03	38.45
	RB1#13	23.26	23.39	23.57		
	RB1#24	23.22	23.3	23.44		
	RB15#0	22.12	22.3	22.54		
	RB15#10	22.16	22.38	22.37		
	RB25#0	22.17	22.32	22.39		
5MHz 16QAM	RB1#0	22.33	22.33	22.19	13	38.45
	RB1#13	22.54	22.42	22.37		
	RB1#24	22.53	22.36	22.32		
	RB15#0	21.16	21.29	21.57		
	RB15#10	21.19	21.36	21.37		
	RB25#0	21.22	21.3	21.48		
10MHz QPSK	RB1#0	23.09	23.2	23.3	14	38.45
	RB1#25	23.27	23.32	23.44		
	RB1#49	23.31	23.4	23.54		
	RB25#0	22.16	22.19	22.32		

	RB25#25	22.27	22.39	22.26		
	RB50#0	22.19	22.28	22.32		
10MHz 16QAM	RB1#0	22.07	22.85	22.44	13.4	38.45
	RB1#25	22.29	22.94	22.53		
	RB1#49	22.35	22.94	22.64		
	RB25#0	21.27	21.25	21.33		
	RB25#25	21.36	21.46	21.26		
	RB50#0	21.22	21.29	21.29		
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 Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
10MHz QPSK	RB1#0	5.39	5.16	4.78	13
	RB50#0	5.36	5.28	4.9	13
10MHz 16QAM	RB1#0	6.29	6.12	5.48	13
	RB50#0	6.29	6.26	5.94	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	1.278	1.096	1.296	1.102	1.278
1.4MHz 16QAM	1.102	1.302	1.090	1.272	1.102	1.278
3MHz QPSK	2.683	2.928	2.683	2.940	2.683	2.916
3MHz 16QAM	2.683	2.940	2.683	2.940	2.683	2.952
5MHz QPSK	4.511	4.960	4.511	4.940	4.491	4.920
5MHz 16QAM	4.511	4.920	4.511	4.940	4.531	4.940
10MHz QPSK	8.942	9.640	8.942	9.600	8.902	9.600
10MHz 16QAM	8.942	9.560	8.942	9.680	8.902	9.560
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.**

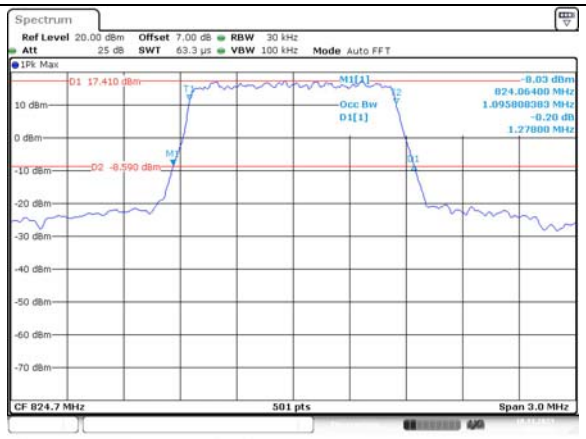
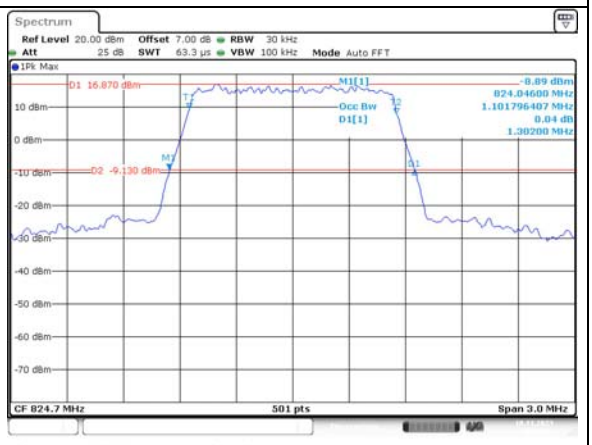
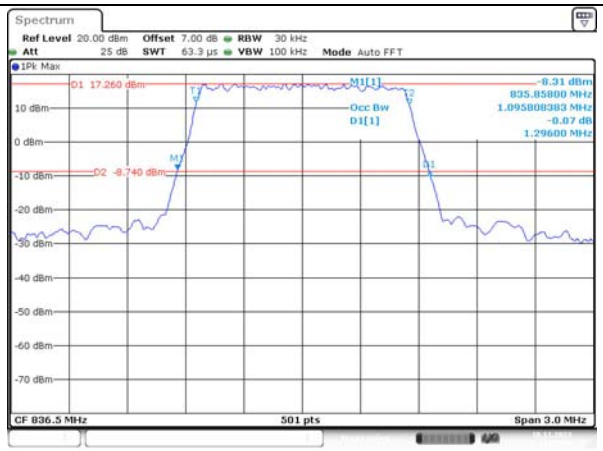
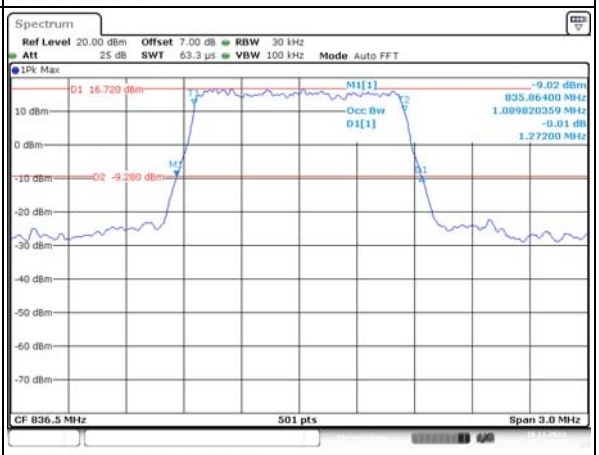
Out of band emission, Band Edge

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

Frequency Stability					
Test Modulation:	10 MHz QPSK		Test Channel:	836.5	MHz
Test Item	Temperature (℃)	Voltage (V_{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.91	-2.023	-0.002	2.5
	-20	3.91	-2.042	-0.002	2.5
	-10	3.91	-2.034	-0.002	2.5
	0	3.91	-2.031	-0.002	2.5
	10	3.91	-1.997	-0.002	2.5
	20	3.91	-2.056	-0.002	2.5
	30	3.91	-1.984	-0.002	2.5
	40	3.91	-2.033	-0.002	2.5
	50	3.91	-1.958	-0.002	2.5
Frequency Stability vs. Voltage	20	3.45	-2.054	-0.002	2.5
	20	4.5	-2.025	-0.002	2.5
				Result:	**Pass**

Test Modulation:	10 MHz 16QAM		Test Channel:	836.5	MHz
Test Item	Temperature (℃)	Voltage (V_{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.91	-4.263	-0.005	2.5
	-20	3.91	-4.336	-0.005	2.5
	-10	3.91	-4.318	-0.005	2.5
	0	3.91	-4.316	-0.005	2.5
	10	3.91	-4.288	-0.005	2.5
	20	3.91	-4.34	-0.005	2.5
	30	3.91	-4.281	-0.005	2.5
	40	3.91	-4.25	-0.005	2.5
	50	3.91	-4.336	-0.005	2.5
Frequency Stability vs. Voltage	20	3.45	-4.331	-0.005	2.5
	20	4.5	-4.269	-0.005	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	1.4MHz Bandwidth QPSK	1.4MHz Bandwidth 16QAM
Lowest		
Middle		
Highest