

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	9.22	8.10	9.34	13
	RB100#0	6.52	6.10	6.42	13
20MHz 16QAM	RB1#0	6.01	8.65	8.21	13
	RB100#0	7.14	6.20	6.97	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	1.102	1.102	1.096	1.260	1.254	1.260
1.4MHz 16QAM	1.09	1.102	1.102	1.26	1.260	1.260
3MHz QPSK	2.695	2.695	2.695	3.012	3.012	3.000
3MHz 16QAM	2.683	2.695	2.695	3.012	3.024	3.000
5MHz QPSK	4.511	4.511	4.511	5.000	5.000	5.000
5MHz 16QAM	4.531	4.531	4.511	5.020	5.020	5.020
10MHz QPSK	8.942	8.942	8.982	9.760	9.440	9.800
10MHz 16QAM	8.982	8.942	8.902	9.800	9.320	9.280
15MHz QPSK	13.413	13.533	13.533	14.880	14.940	14.880
15MHz 16QAM	13.473	13.533	13.533	15.000	14.940	15.000
20MHz QPSK	17.964	18.044	17.964	19.680	19.760	19.520
20MHz 16QAM	18.044	17.964	18.044	19.840	19.680	19.600

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

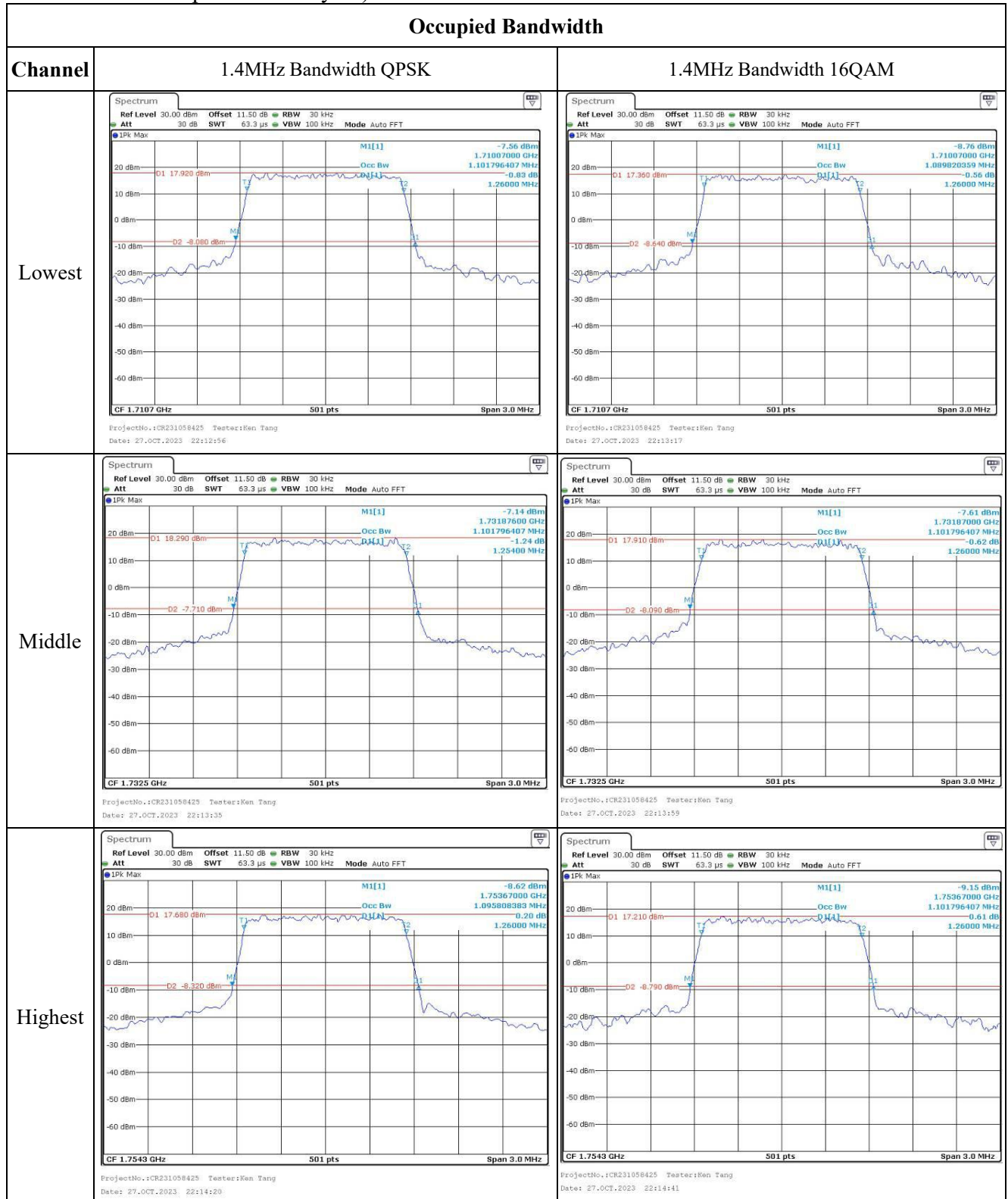
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
----------------	---

FCC §2.1055, §27.54: Frequency Stability

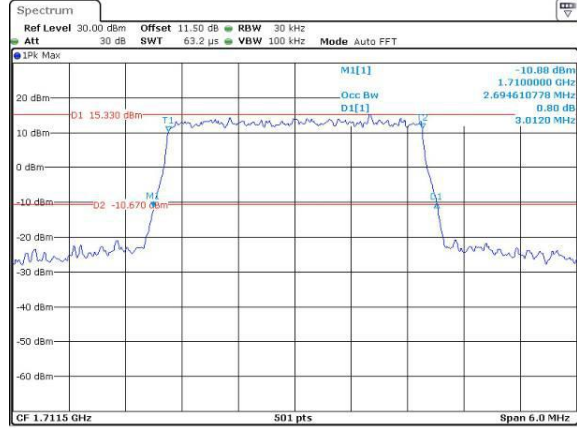
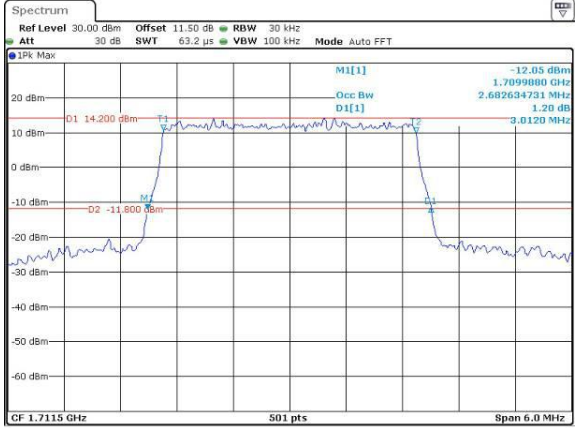
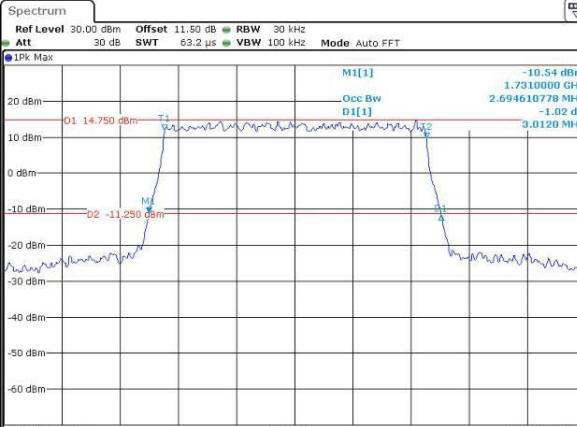
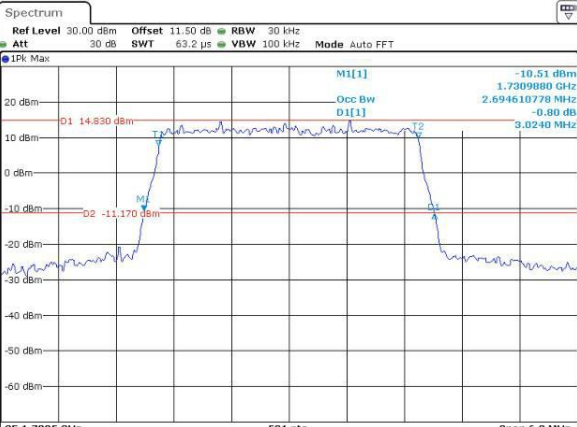
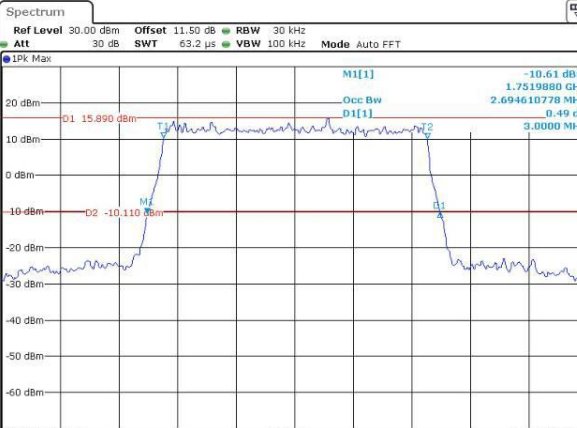
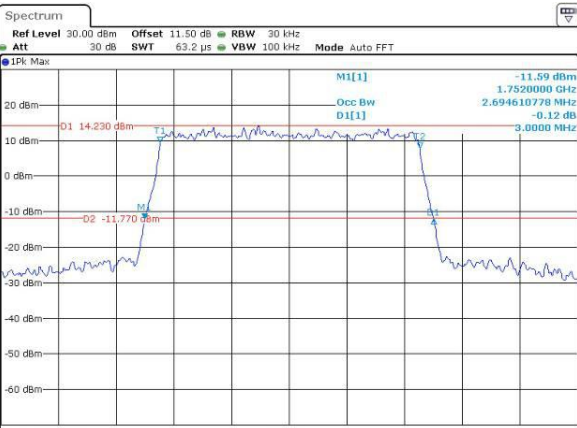
Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1710.027	1710.00	1754.976	1755
	-20	3.85	1710.011	1710.00	1754.980	1755
	-10	3.85	1710.022	1710.00	1754.980	1755
	0	3.85	1710.002	1710.00	1754.987	1755
	10	3.85	1710.019	1710.00	1754.981	1755
	20	3.85	1710.018	1710.00	1754.970	1755
	30	3.85	1710.014	1710.00	1754.990	1755
	40	3.85	1710.028	1710.00	1754.982	1755
	50	3.85	1710.019	1710.00	1754.981	1755
Frequency Stability vs. Voltage	20	3.35	1710.029	1710.00	1754.983	1755
	20	4.4	1710.017	1710.00	1754.980	1755
					Result:	Pass

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1710.018	1710.00	1754.973	1755
	-20	3.85	1710.009	1710.00	1754.983	1755
	-10	3.85	1710.003	1710.00	1754.986	1755
	0	3.85	1710.003	1710.00	1754.982	1755
	10	3.85	1710.027	1710.00	1754.986	1755
	20	3.85	1710.005	1710.00	1754.971	1755
	30	3.85	1710.014	1710.00	1754.980	1755
	40	3.85	1710.026	1710.00	1754.988	1755
	50	3.85	1710.220	1710.00	1754.981	1755
Frequency Stability vs. Voltage	20	3.35	1710.029	1710.00	1754.994	1755
	20	4.4	1710.024	1710.00	1754.971	1755
					Result:	Pass

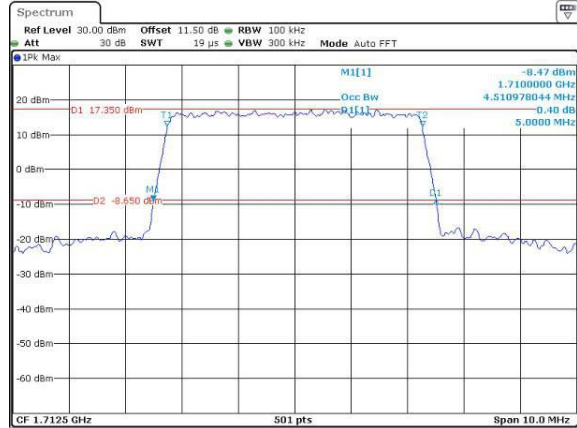
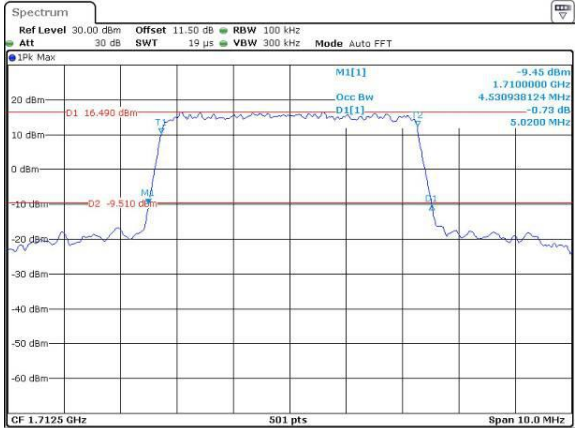
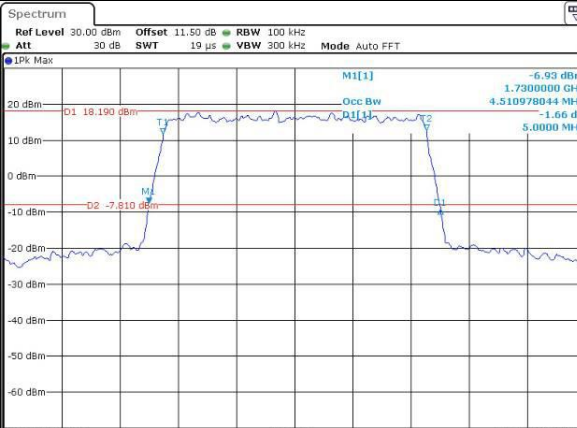
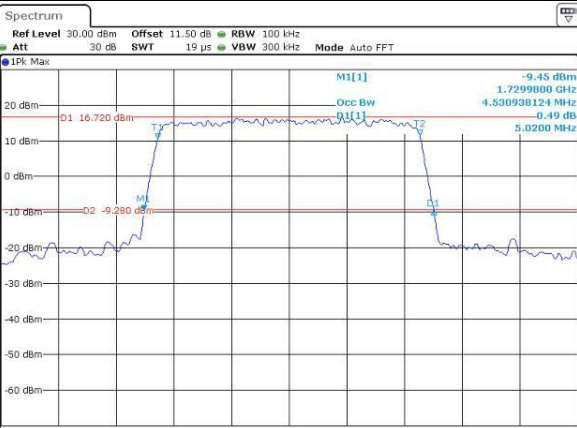
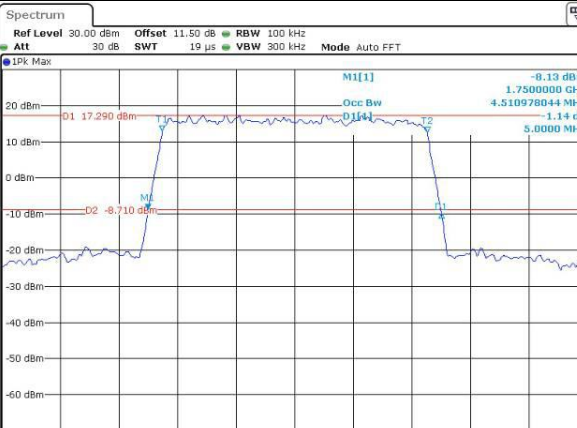
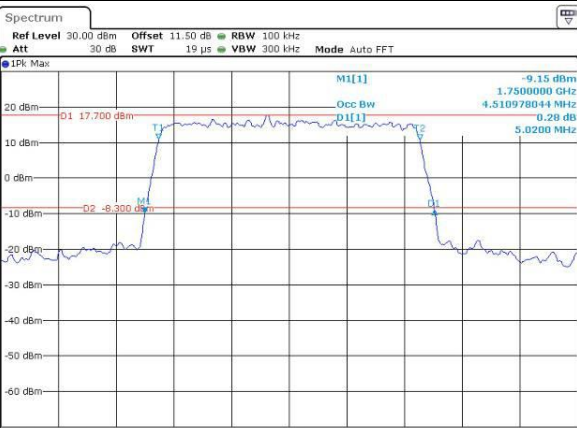
Test Plots(Note: The 11.5 dB is the Insertion loss of the RF cable and Power Splitter, which was offset into the Spectrum Analyzer):



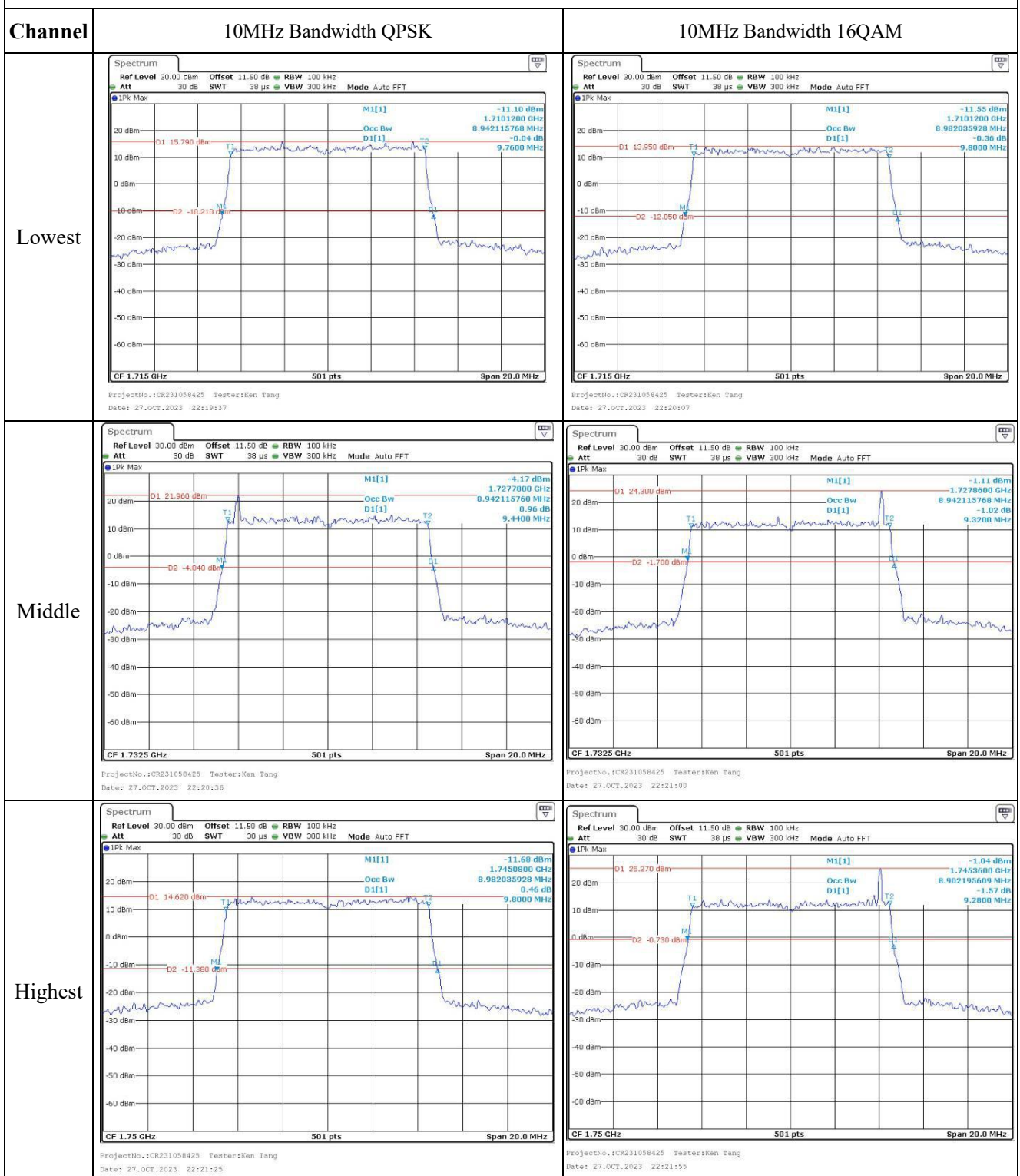
Occupied Bandwidth

Channel	3MHz Bandwidth QPSK	3MHz Bandwidth 16QAM
Lowest	 ProjectNo.:CR231058425 Tester:Ken Tang Date: 27.OCT.2023 22:15:05	 ProjectNo.:CR231058425 Tester:Ken Tang Date: 27.OCT.2023 22:15:25
Middle	 ProjectNo.:CR231058425 Tester:Ken Tang Date: 27.OCT.2023 22:15:44	 ProjectNo.:CR231058425 Tester:Ken Tang Date: 27.OCT.2023 22:16:04
Highest	 ProjectNo.:CR231058425 Tester:Ken Tang Date: 27.OCT.2023 22:16:23	 ProjectNo.:CR231058425 Tester:Ken Tang Date: 27.OCT.2023 22:16:38

Occupied Bandwidth

Channel	5MHz Bandwidth QPSK	5MHz Bandwidth 16QAM
Lowest	 ProjectNo.:CR231058425 Testter:Ken Tang Date: 27.OCT.2023 22:17:04	 ProjectNo.:CR231058425 Testter:Ken Tang Date: 27.OCT.2023 22:17:28
Middle	 ProjectNo.:CR231058425 Testter:Ken Tang Date: 27.OCT.2023 22:17:55	 ProjectNo.:CR231058425 Testter:Ken Tang Date: 27.OCT.2023 22:18:16
Highest	 ProjectNo.:CR231058425 Testter:Ken Tang Date: 27.OCT.2023 22:18:38	 ProjectNo.:CR231058425 Testter:Ken Tang Date: 27.OCT.2023 22:18:58

Occupied Bandwidth



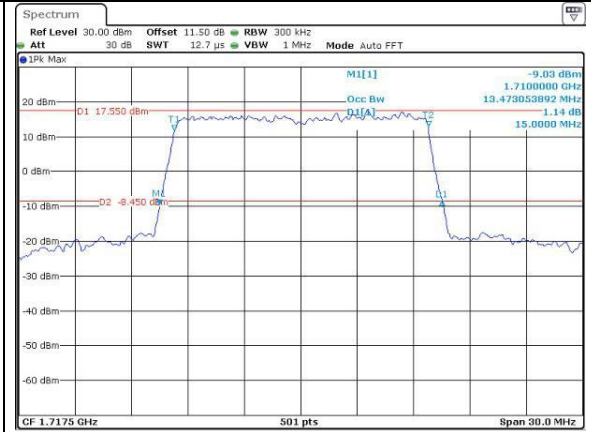
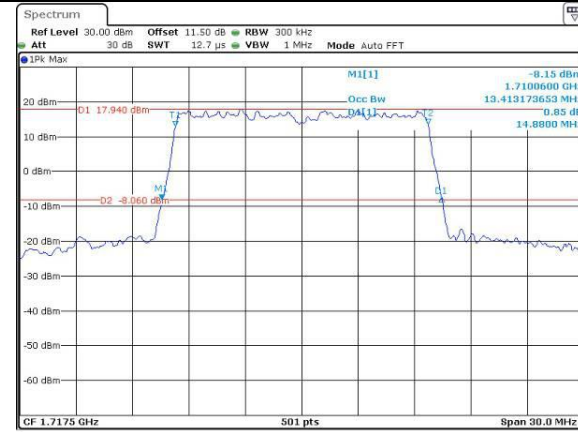
Occupied Bandwidth

Channel

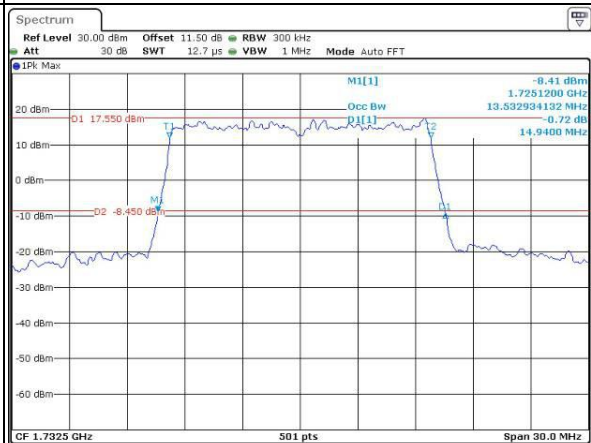
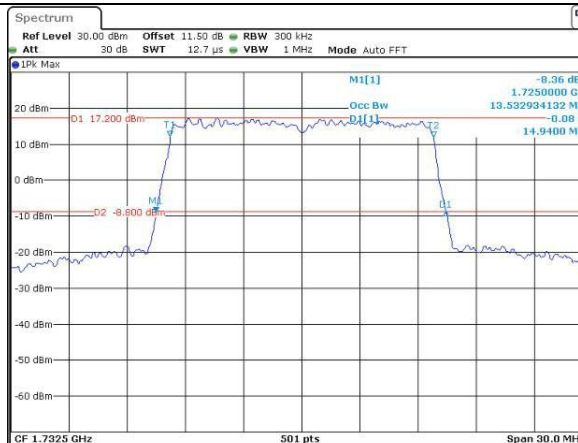
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

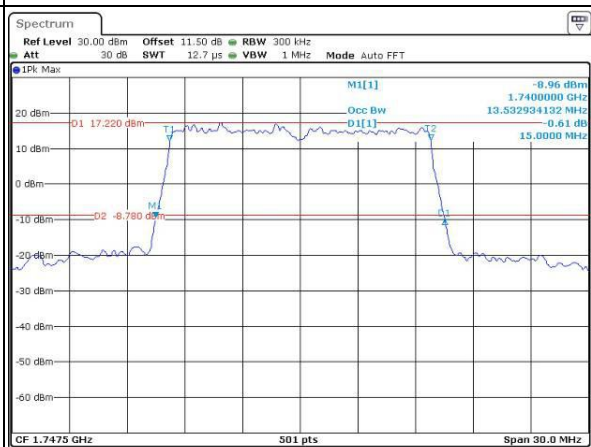
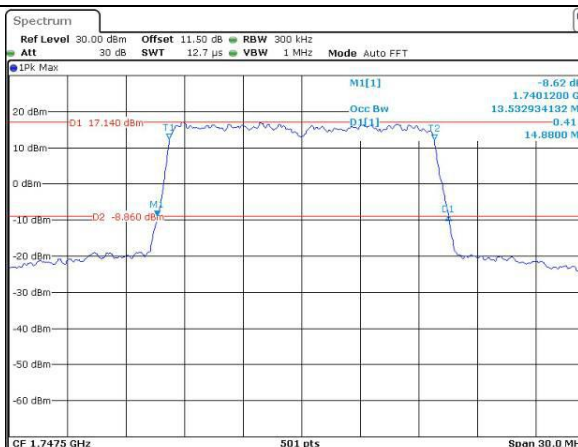
Lowest



Middle



Highest



Occupied Bandwidth

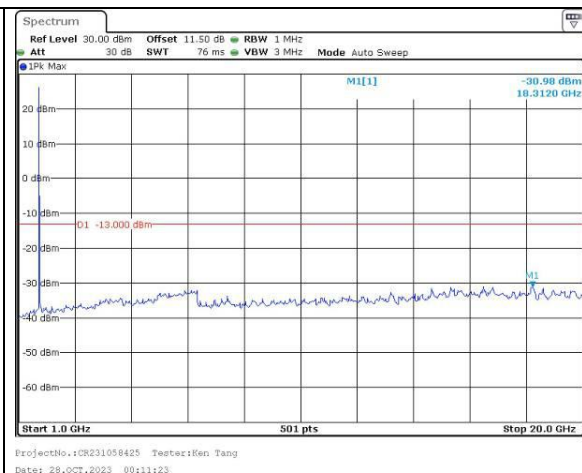
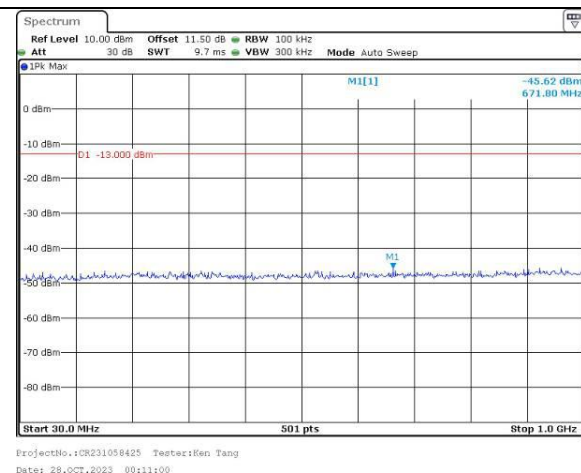
Channel	20MHz Bandwidth QPSK	20MHz Bandwidth 16QAM
Lowest	ProjectNo.:CR231058425 Tester:Ken Tang Date: 27.OCT.2023 22:25:23	ProjectNo.:CR231058425 Tester:Ken Tang Date: 27.OCT.2023 22:25:53
Middle	ProjectNo.:CR231058425 Tester:Ken Tang Date: 27.OCT.2023 22:26:23	ProjectNo.:CR231058425 Tester:Ken Tang Date: 27.OCT.2023 22:26:43
Highest	ProjectNo.:CR231058425 Tester:Ken Tang Date: 27.OCT.2023 22:27:17	ProjectNo.:CR231058425 Tester:Ken Tang Date: 27.OCT.2023 22:27:37

Spurious Emissions at Antenna Terminal

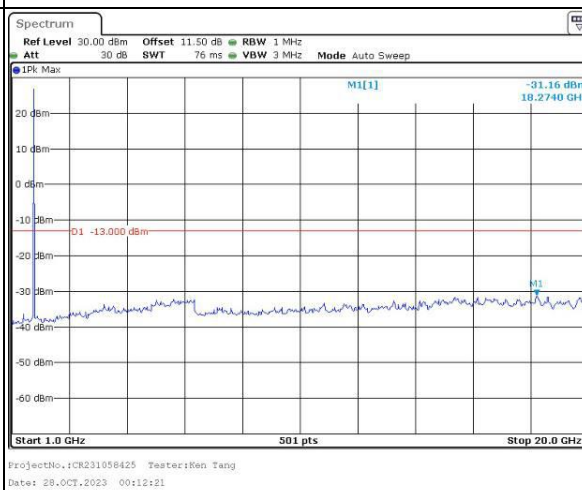
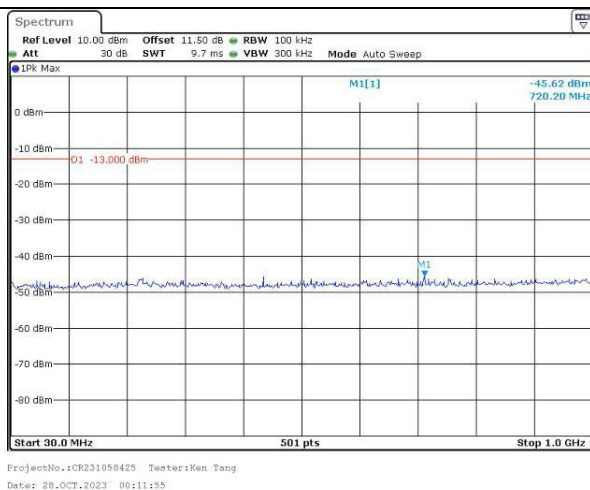
Channel

1.4MHz Bandwidth QPSK

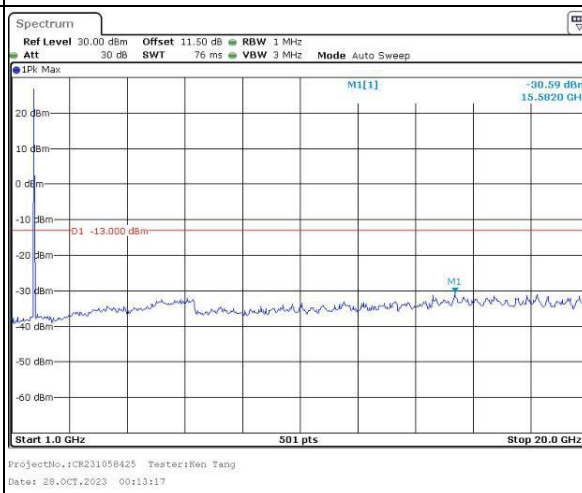
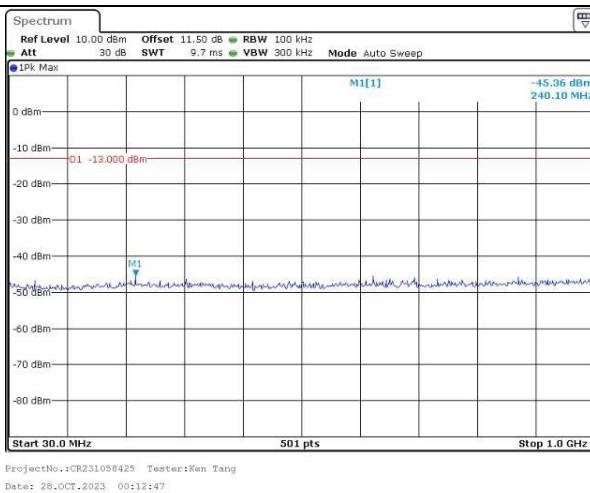
Lowest



Middle



Highest

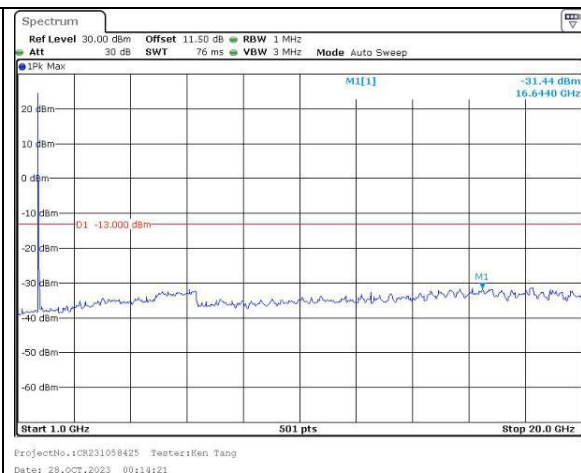
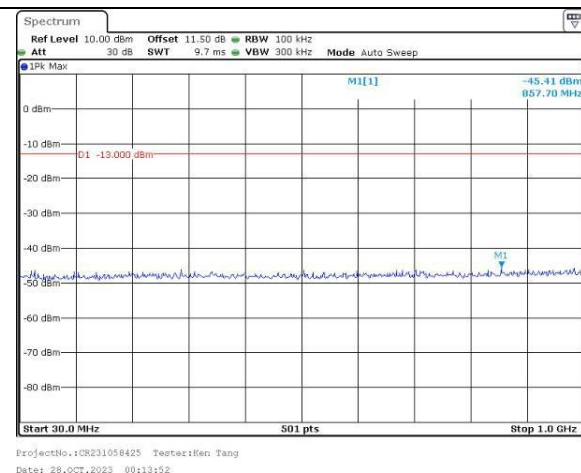


Spurious Emissions at Antenna Terminal

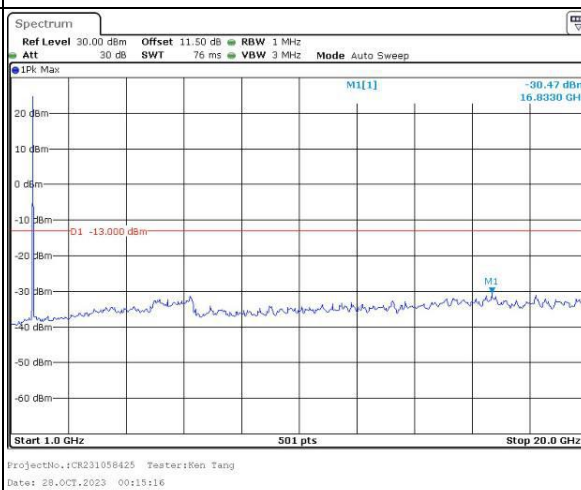
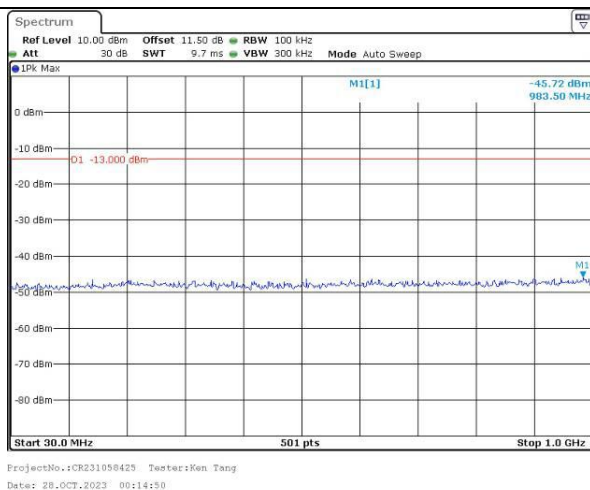
Channel

3MHz Bandwidth QPSK

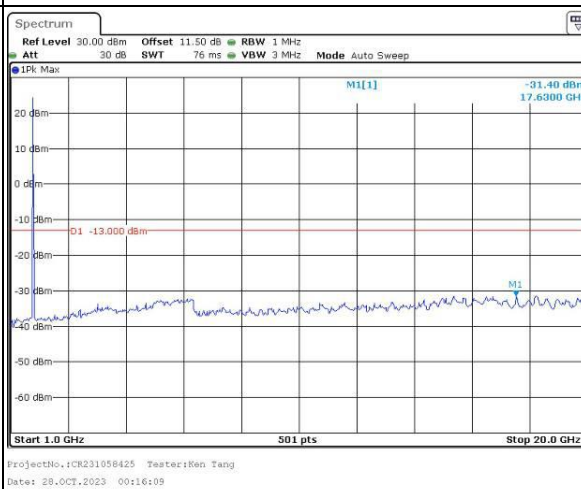
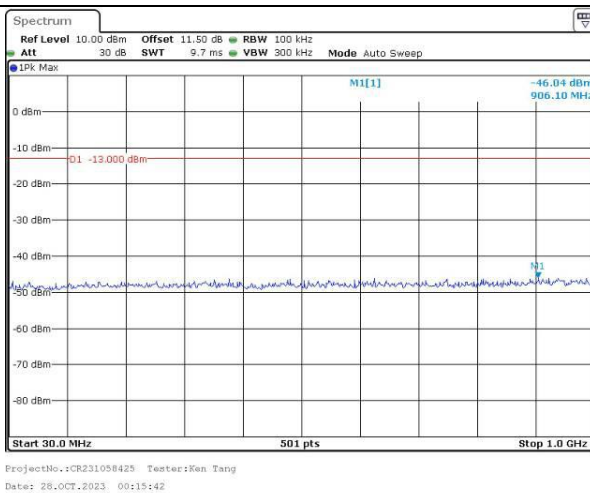
Lowest



Middle



Highest

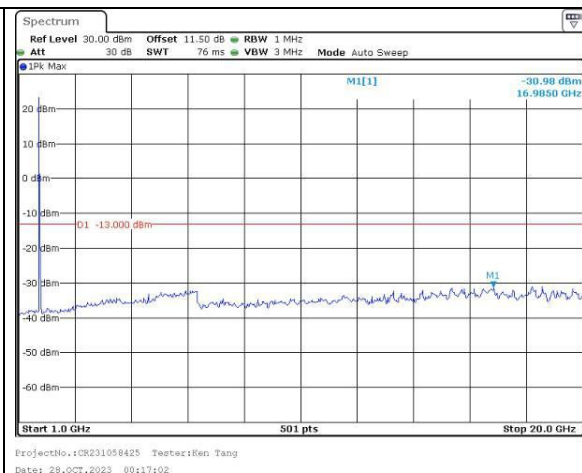
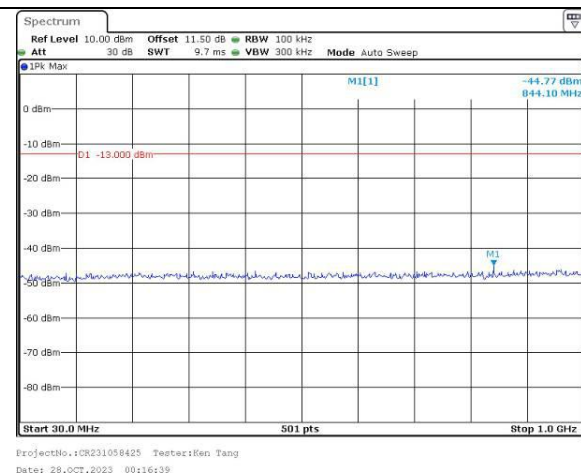


Spurious Emissions at Antenna Terminal

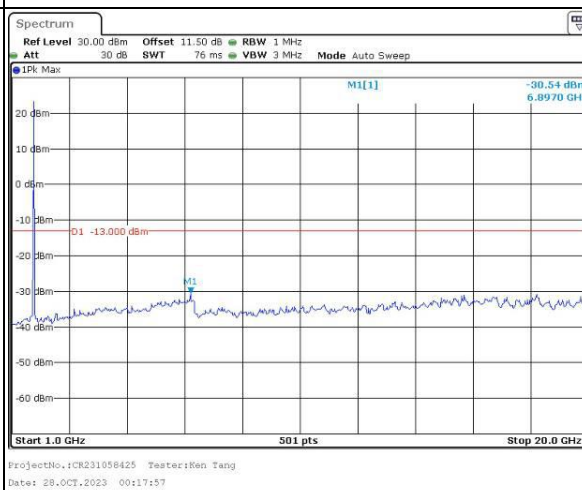
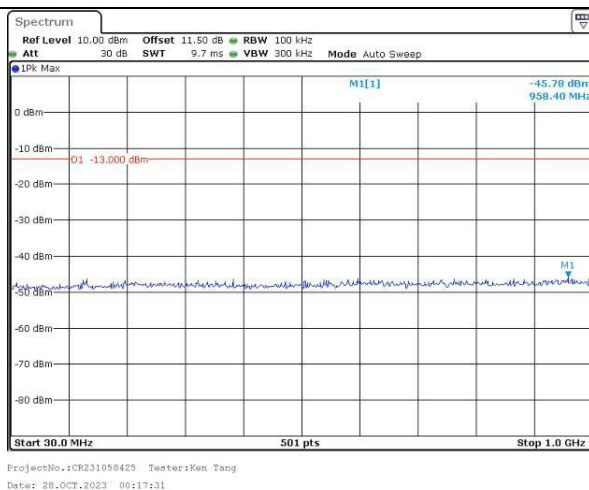
Channel

5MHz Bandwidth QPSK

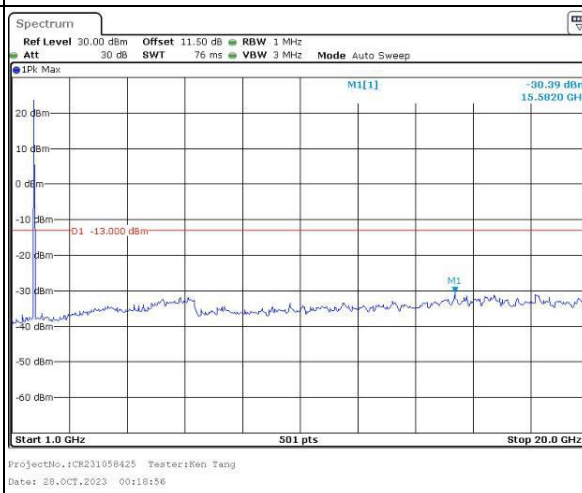
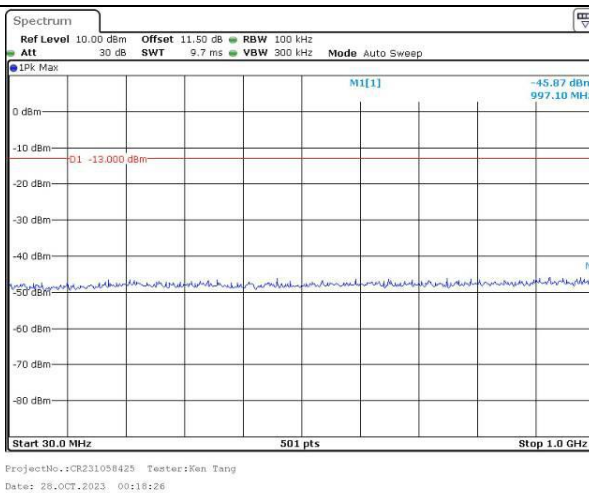
Lowest



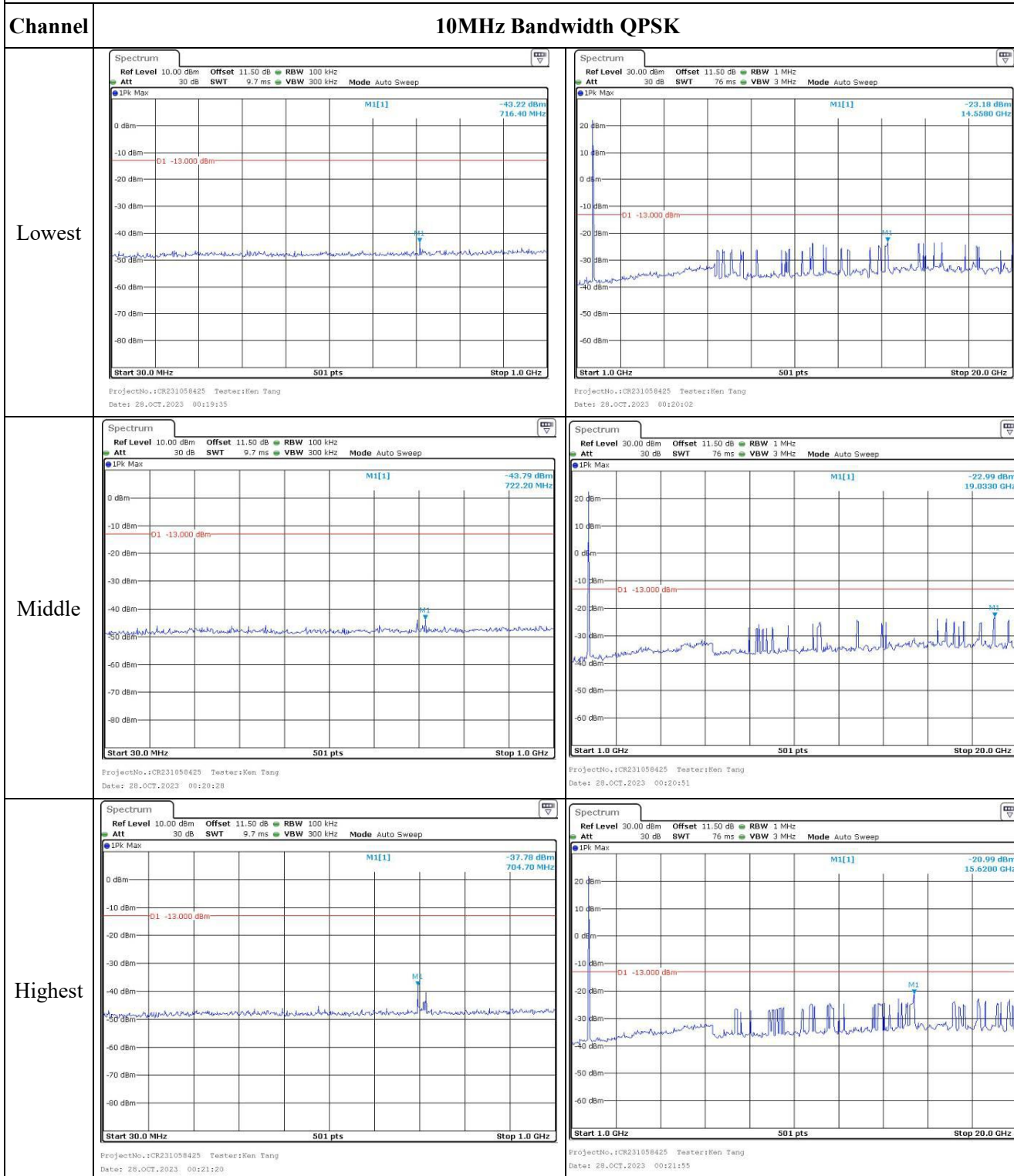
Middle



Highest



Spurious Emissions at Antenna Terminal

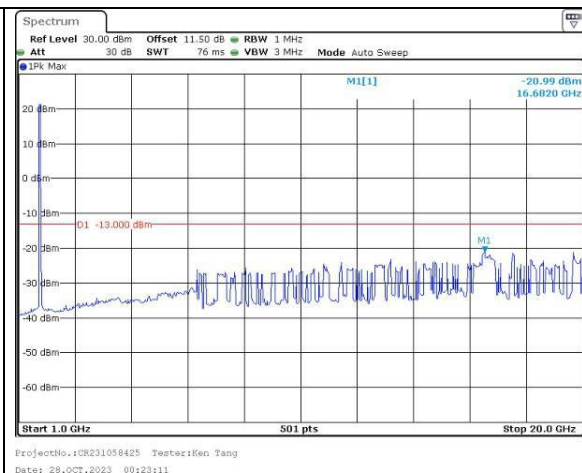
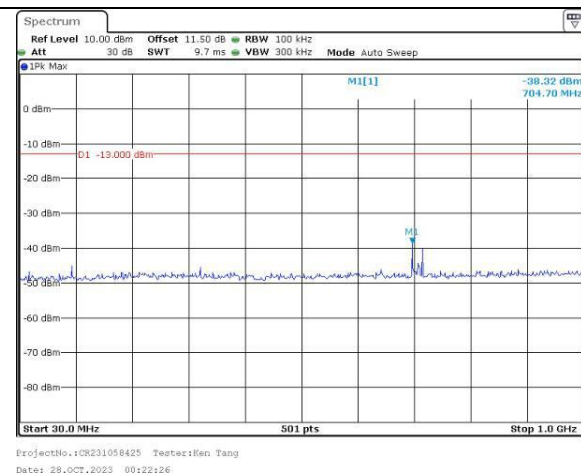


Spurious Emissions at Antenna Terminal

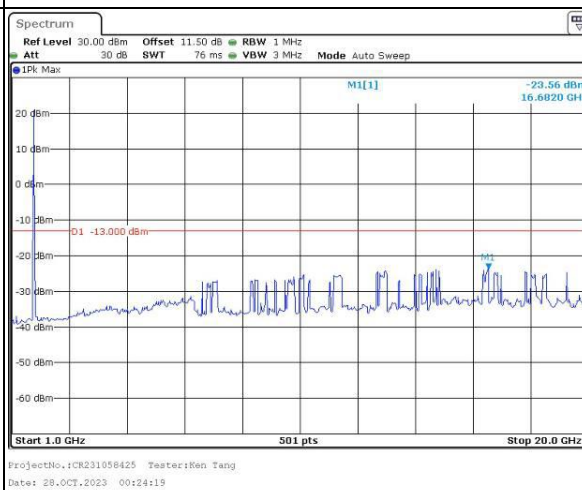
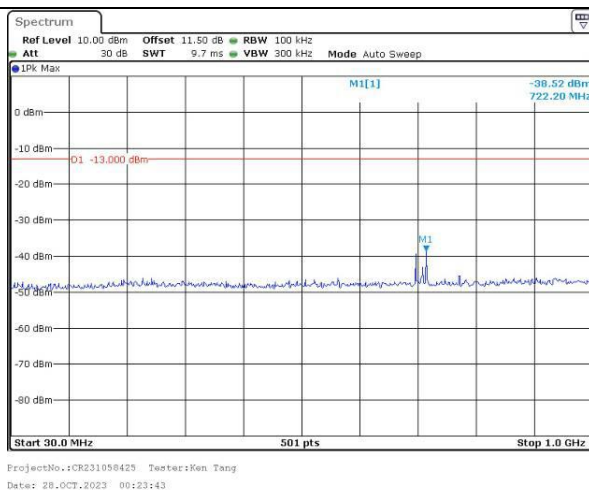
Channel

15MHz Bandwidth QPSK

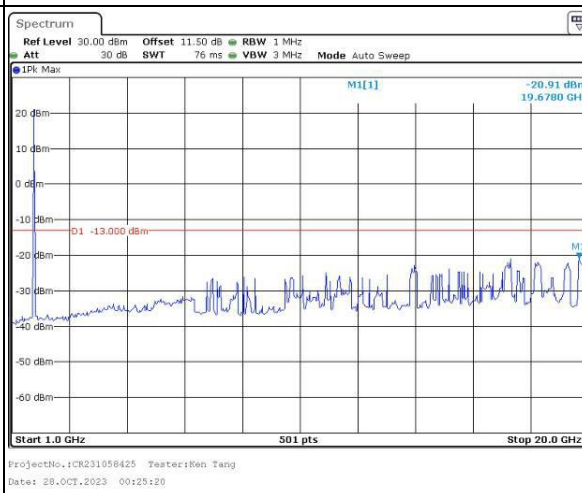
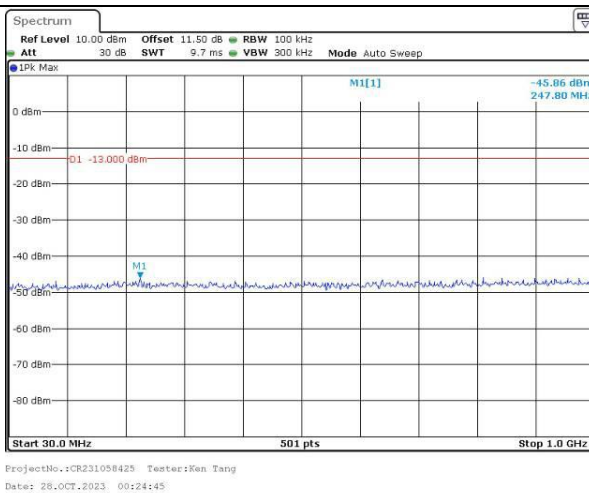
Lowest



Middle



Highest

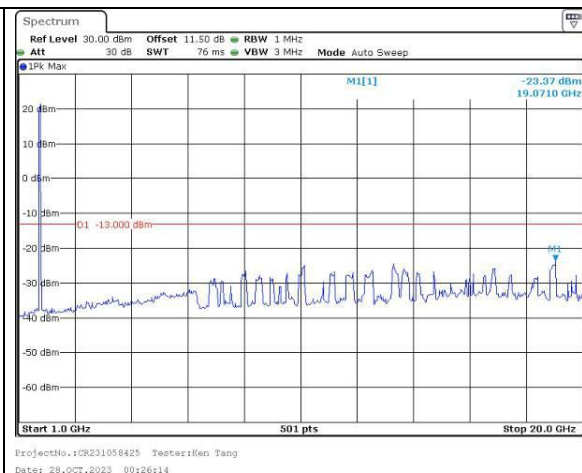
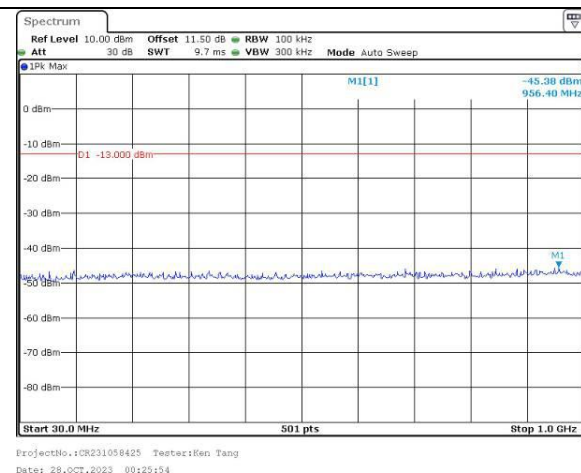


Spurious Emissions at Antenna Terminal

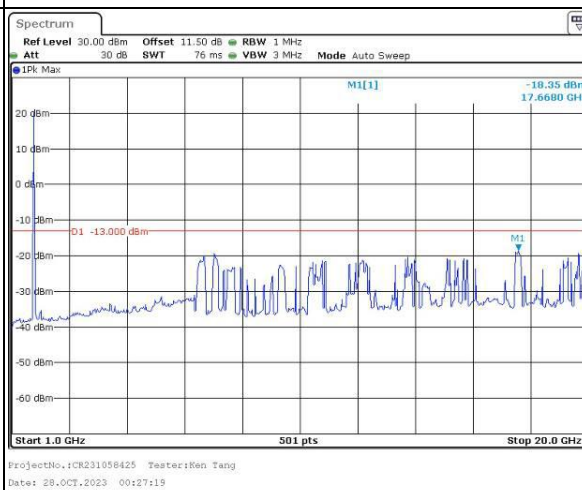
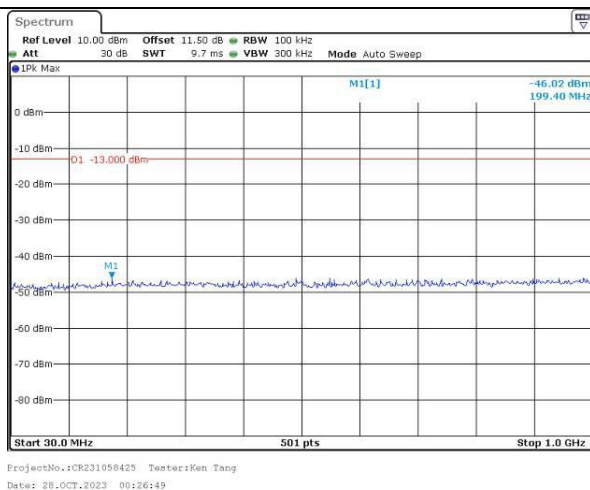
Channel

20MHz Bandwidth QPSK

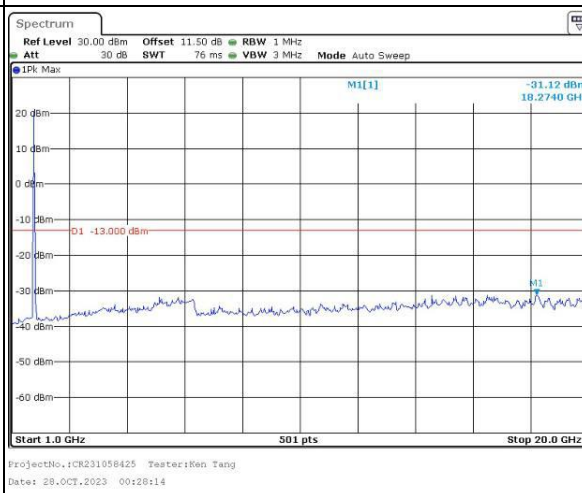
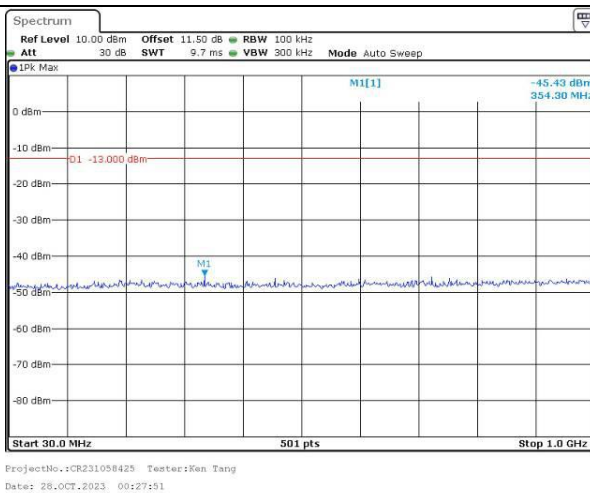
Lowest



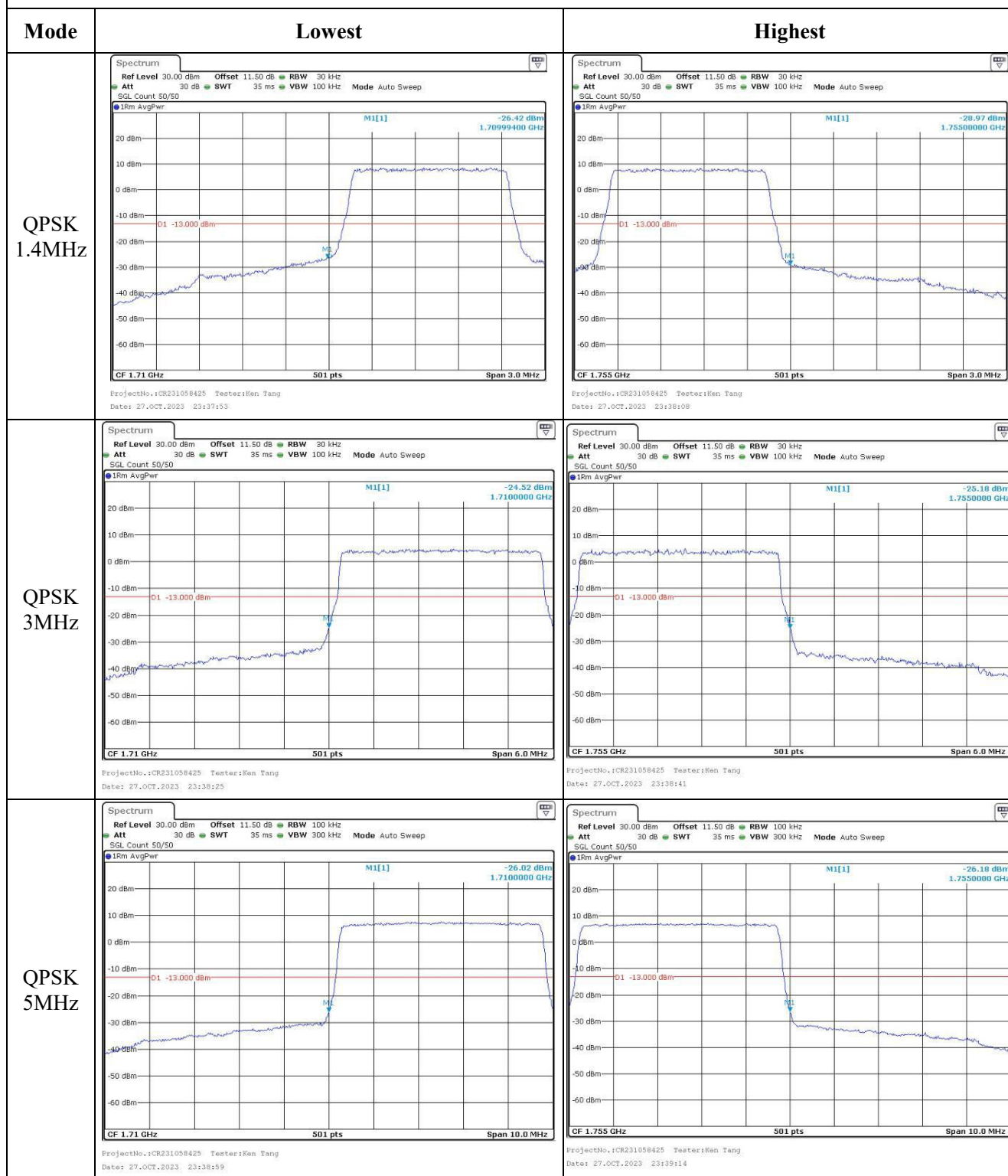
Middle



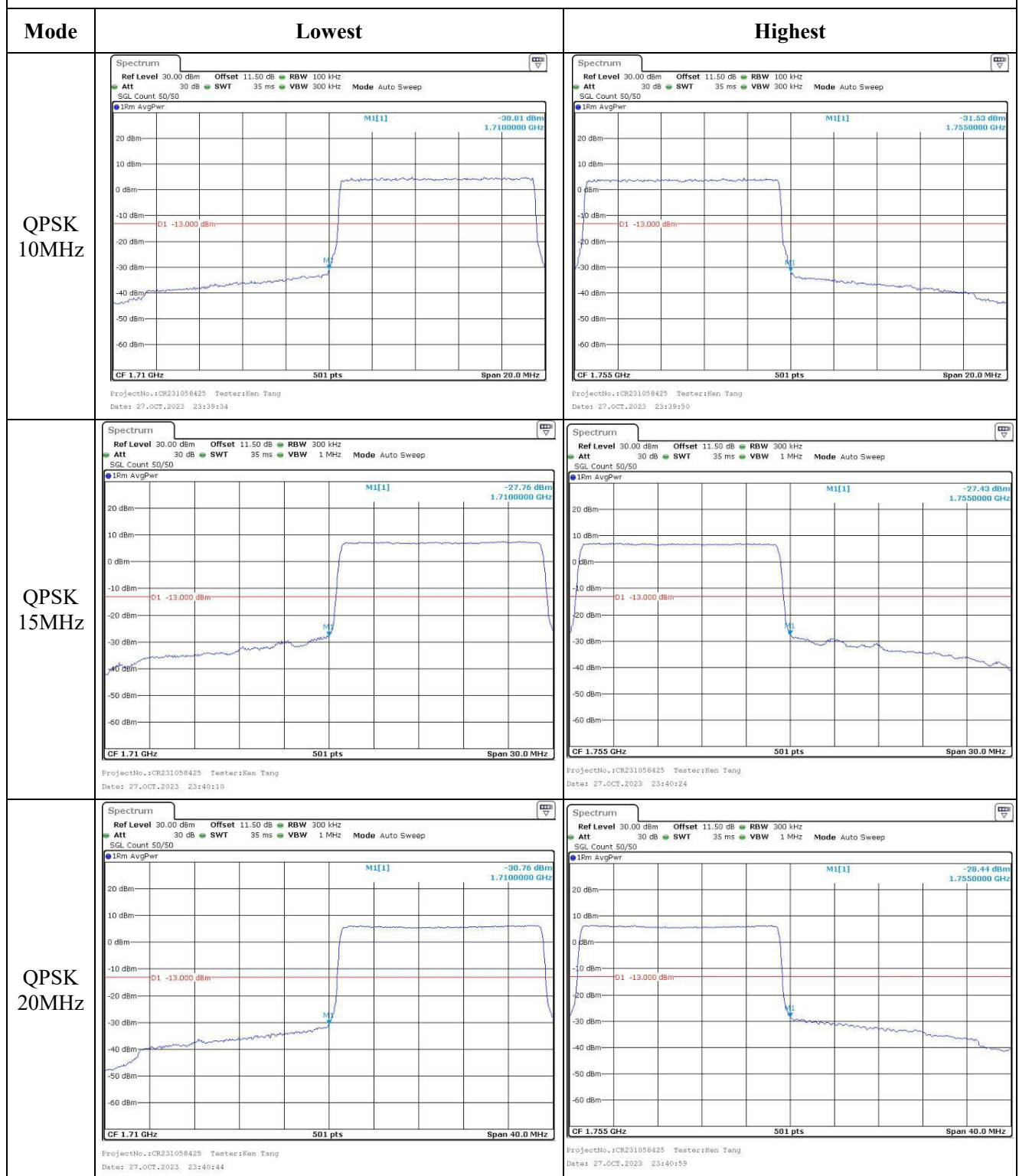
Highest



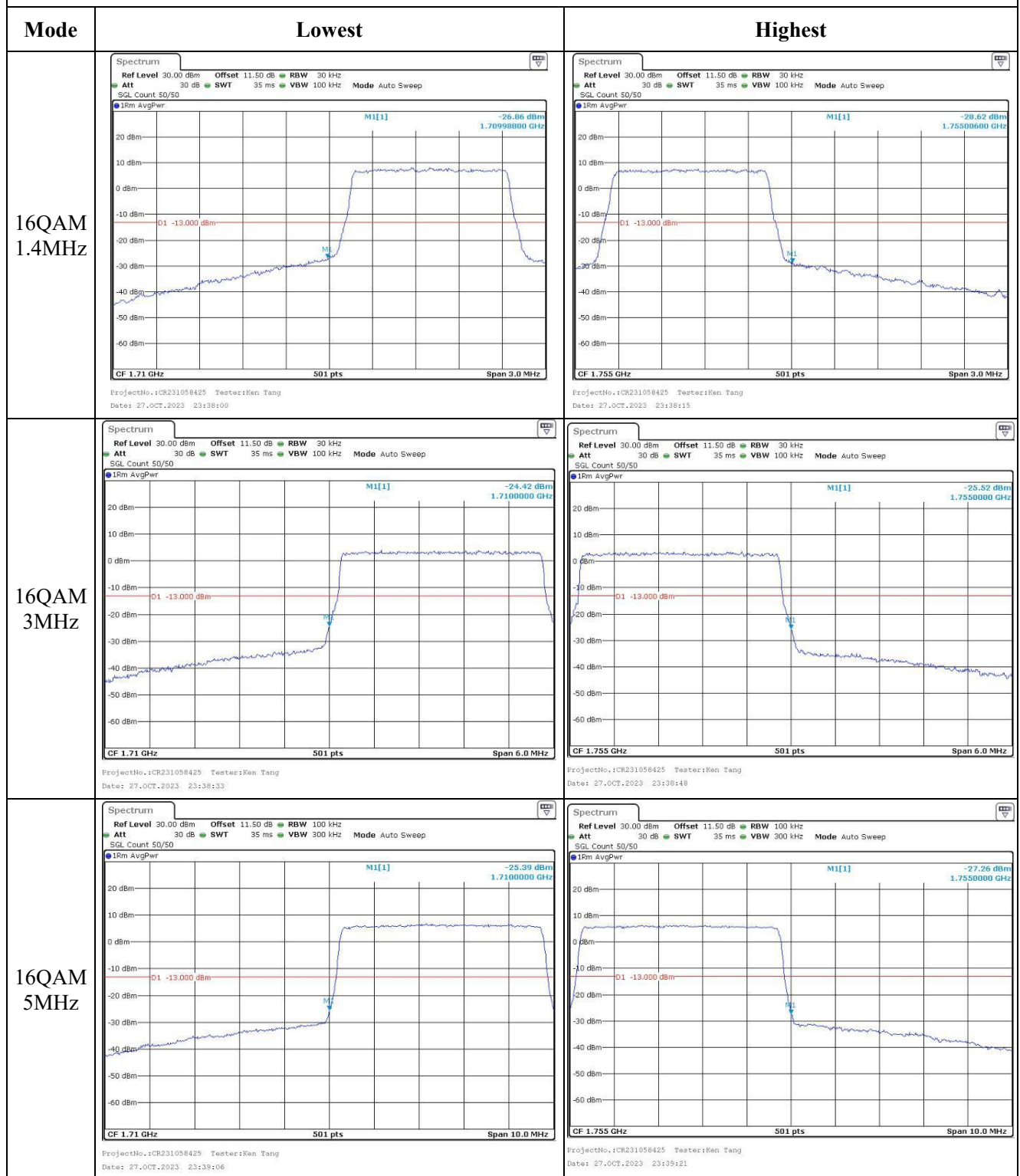
Out of band emission, Band Edge



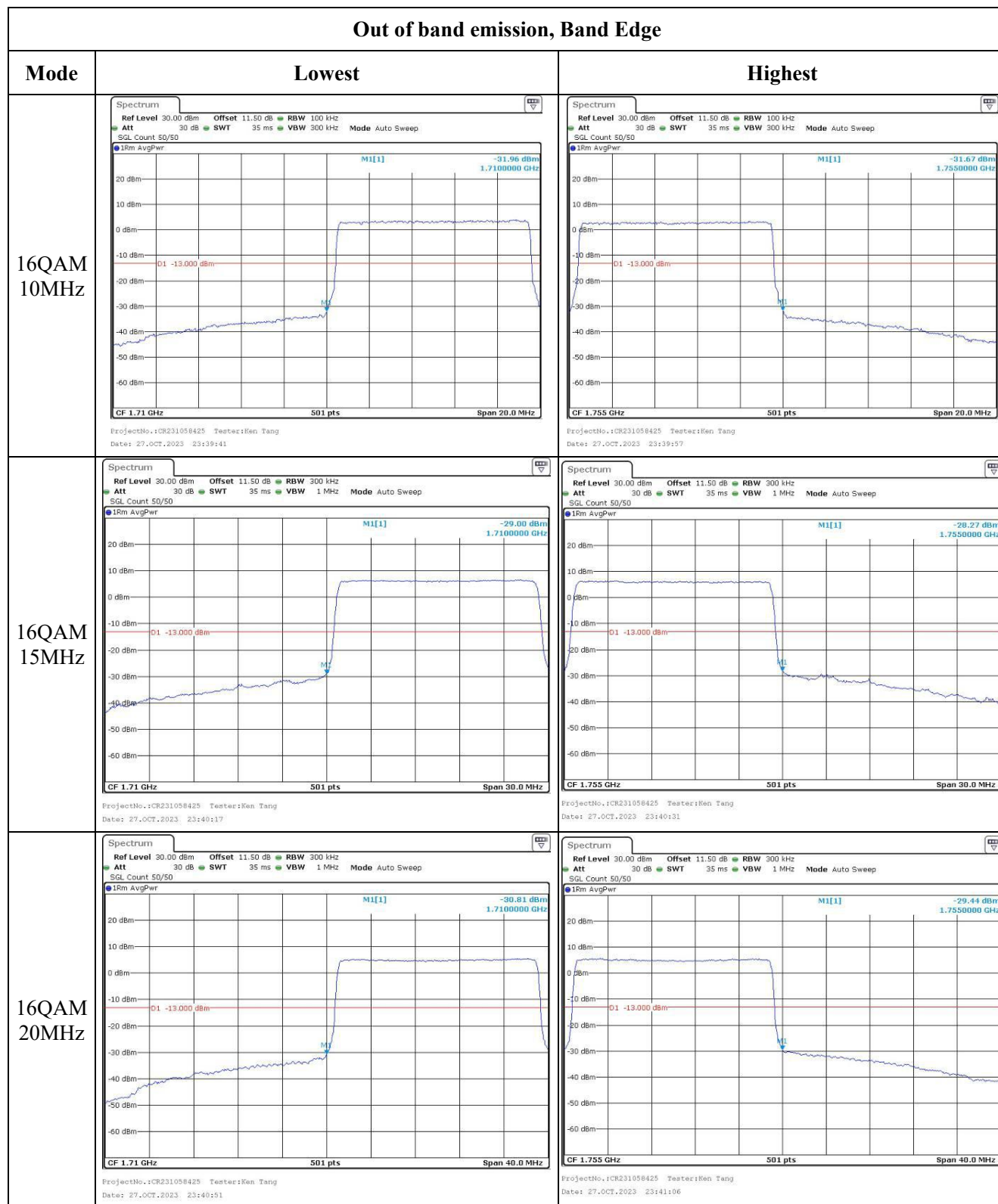
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.8 Antenna Port Test Data and Results for LTE Band 5

Serial Number:	2BYR-5	Test Date:	2023/10/29
Test Site:	RF	Test Mode:	Transmitting
Tester:	Ken Tang	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.1	Relative Humidity: (%)	60	ATM Pressure: (kPa)	100.5
----------------------	------	---------------------------	----	------------------------	-------

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101943	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A
Minl-Circuits	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	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:**FCC§2.1046;§ 22.913 (a)****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	21.60	21.44	21.74	14.72	38.45
	RB1#3	21.56	21.37	21.83		
	RB1#5	21.58	21.34	21.87		
	RB3#0	21.25	21.24	21.47		
	RB3#3	21.38	21.29	21.59		
	RB6#0	20.36	20.25	20.57		
1.4MHz 16QAM	RB1#0	21.23	19.95	21.06	14.08	38.45
	RB1#3	20.60	20.07	21.08		
	RB1#5	20.66	19.98	21.22		
	RB3#0	20.31	20.00	20.47		
	RB3#3	20.33	19.98	20.68		
	RB6#0	19.45	18.89	19.56		
3MHz QPSK	RB1#0	21.57	21.55	21.70	14.55	38.45
	RB1#8	21.54	21.48	21.66		
	RB1#14	21.60	21.39	21.69		
	RB6#0	20.27	20.29	20.40		
	RB6#9	20.31	20.29	20.49		
	RB15#0	20.34	20.16	20.39		
3MHz 16QAM	RB1#0	21.26	20.15	20.98	14.11	38.45
	RB1#8	21.23	20.07	20.76		
	RB1#14	21.21	20.15	20.92		
	RB6#0	20.21	19.65	20.18		
	RB6#9	20.26	19.39	19.80		
	RB15#0	20.13	19.66	20.02		
5MHz QPSK	RB1#0	21.59	21.54	21.86	14.90	38.45
	RB1#13	21.54	21.49	21.82		
	RB1#24	22.05	21.57	21.85		
	RB15#0	20.28	20.39	20.61		
	RB15#10	20.31	20.33	20.49		
	RB25#0	20.27	20.34	20.50		
5MHz 16QAM	RB1#0	20.66	20.22	19.88	13.97	38.45
	RB1#13	20.56	20.18	19.87		
	RB1#24	21.12	20.73	19.88		
	RB15#0	20.14	20.72	20.43		
	RB15#10	20.20	20.42	19.99		
	RB25#0	20.16	20.53	20.18		

10MHz QPSK	RB1#0	21.74	21.56	21.47	14.92	38.45
	RB1#25	22.07	21.53	21.62		
	RB1#49	21.77	21.75	21.71		
	RB25#0	20.30	20.30	20.42		
	RB25#25	20.74	20.81	20.52		
	RB50#0	20.71	20.25	20.50		
10MHz 16QAM	RB1#0	20.72	20.38	21.15	14.10	38.45
	RB1#25	21.22	20.03	20.86		
	RB1#49	20.71	20.20	21.25		
	RB25#0	19.32	20.43	20.57		
	RB25#25	19.73	19.96	20.32		
	RB50#0	19.53	20.15	20.41		

Note: ERP= Conducted Power(dBm) - Lc(dB) + Gr(dBd)
Gr(dBd)=Gr(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	8.86	9.56	6.05	13
	RB50#0	6.08	8.45	7.29	13
10MHz 16QAM	RB1#0	6.99	8.22	6.62	13
	RB50#0	7.75	6.82	7.25	13
				Result:	Pass

FCC §2.1049, §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
1.4MHz QPSK	1.102	1.096	1.102	1.254	1.248	1.260
1.4MHz 16QAM	1.102	1.102	1.09	1.254	1.260	1.25
3MHz QPSK	2.695	2.683	2.695	3.024	3.024	2.988
3MHz 16QAM	2.683	2.695	2.683	2.892	3.012	3.000
5MHz QPSK	4.511	4.511	4.531	4.900	5.000	4.980
5MHz 16QAM	4.511	4.531	4.491	5.000	5.020	5.000
10MHz QPSK	8.942	8.942	8.982	9.760	9.720	9.800
10MHz 16QAM	8.942	8.942	8.942	9.800	9.880	9.800

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

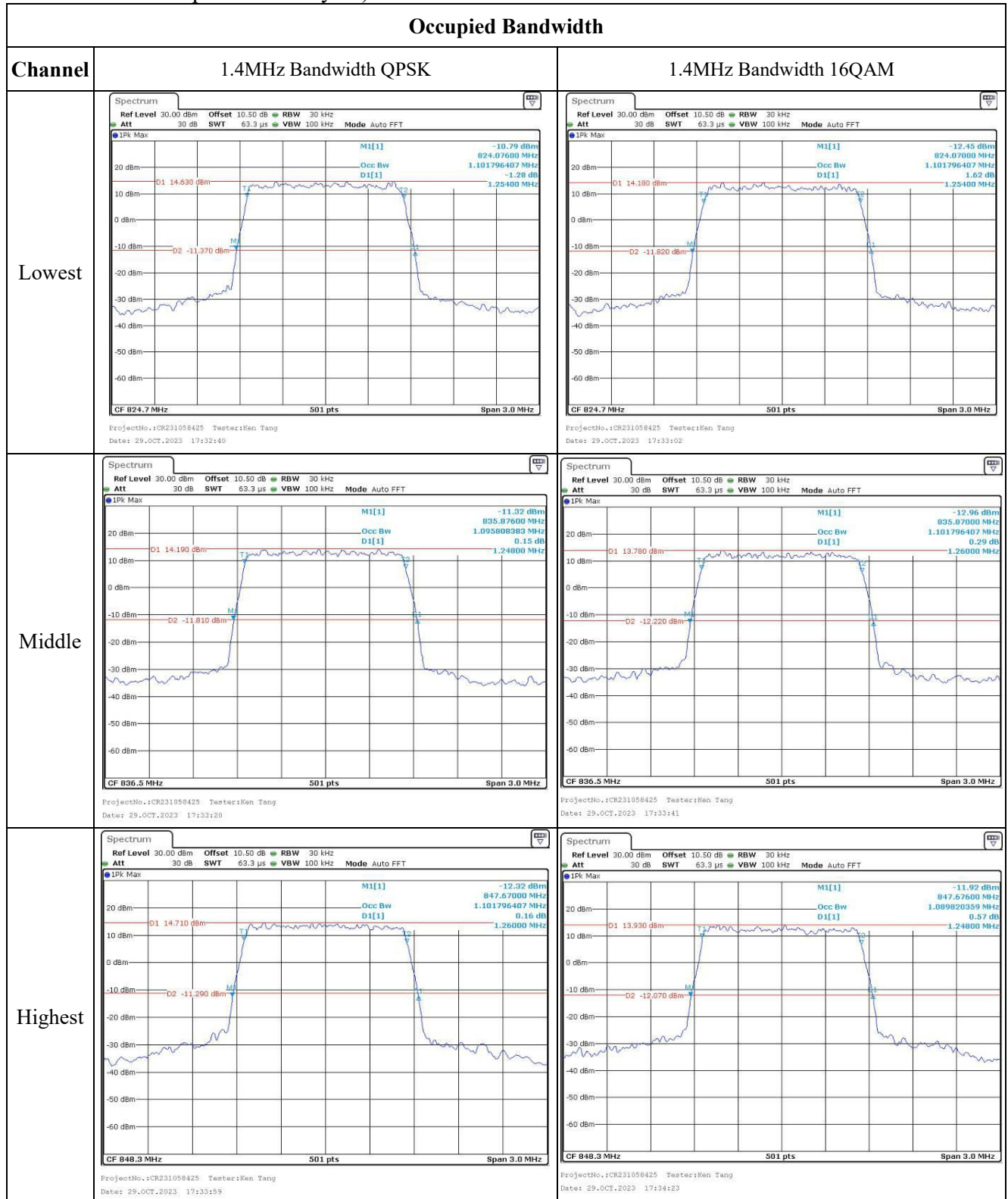
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
----------------	---

FCC §2.1055, §22.355: Frequency Stability

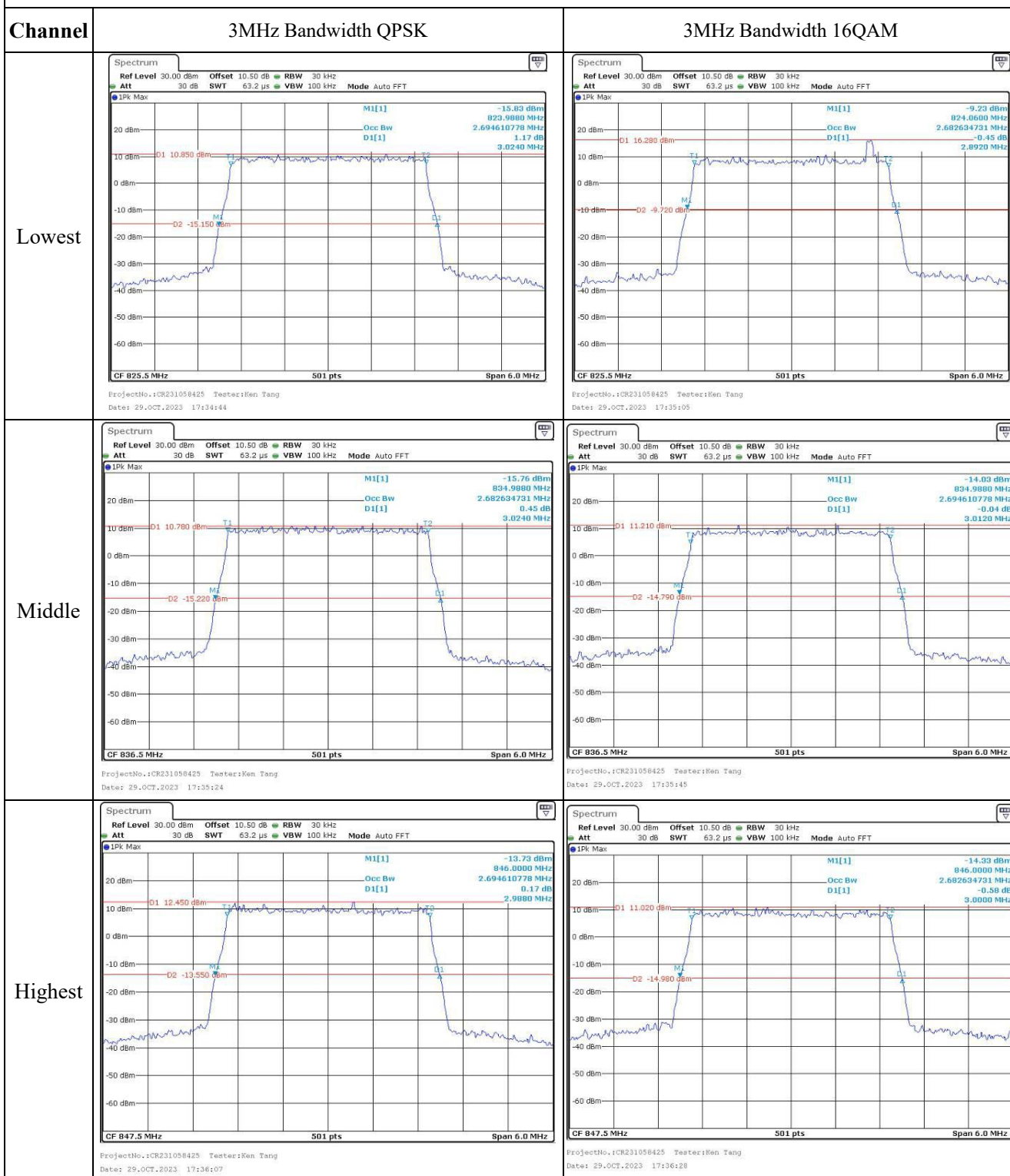
Test Modulation:	10 MHz QPSK		Test Channel:	836.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.85	108.157	0.129	2.5
	-20	3.85	107.220	0.128	2.5
	-10	3.85	114.511	0.137	2.5
	0	3.85	108.006	0.129	2.5
	10	3.85	119.234	0.143	2.5
	20	3.85	104.894	0.125	2.5
	30	3.85	110.510	0.132	2.5
	40	3.85	119.893	0.143	2.5
	50	3.85	107.776	0.129	2.5
Frequency Stability vs. Voltage	20	3.35	110.164	0.132	2.5
	20	4.4	105.259	0.126	2.5
Result:				Pass	

Test Modulation:	10 MHz 16QAM		Test Channel:	836.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.85	108.859	0.130	2.5
	-20	3.85	115.000	0.137	2.5
	-10	3.85	117.953	0.141	2.5
	0	3.85	109.893	0.131	2.5
	10	3.85	109.658	0.131	2.5
	20	3.85	118.898	0.142	2.5
	30	3.85	105.823	0.127	2.5
	40	3.85	111.888	0.134	2.5
	50	3.85	102.599	0.123	2.5
Frequency Stability vs. Voltage	20	3.35	115.672	0.138	2.5
	20	4.4	112.893	0.135	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



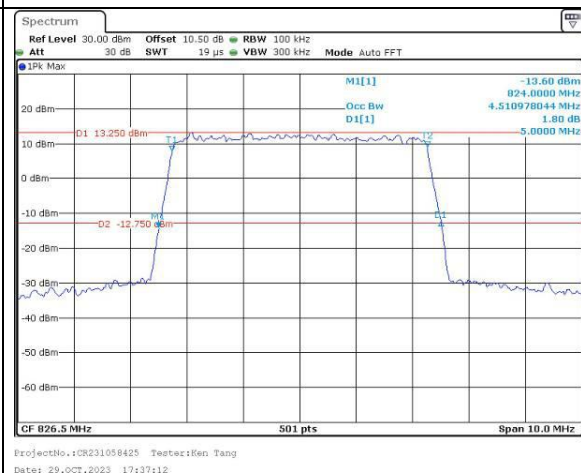
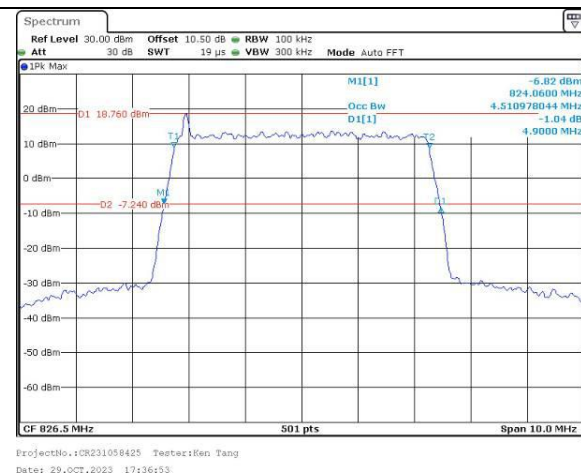
Occupied Bandwidth

Channel

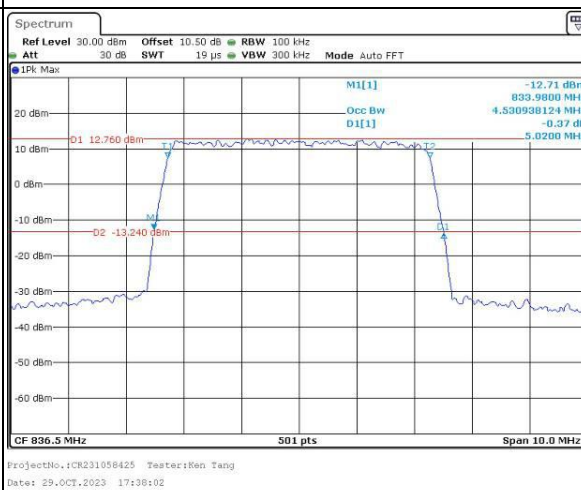
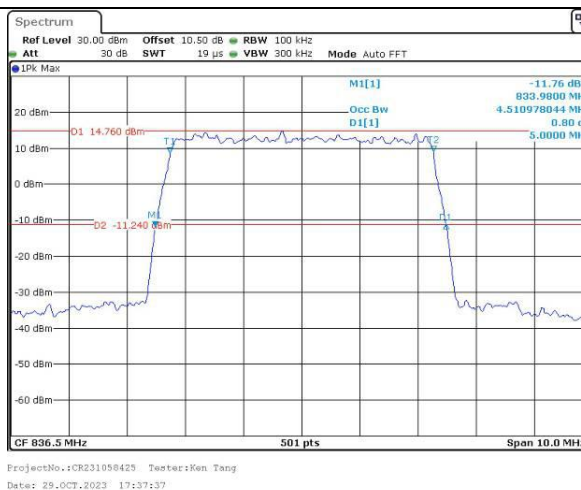
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

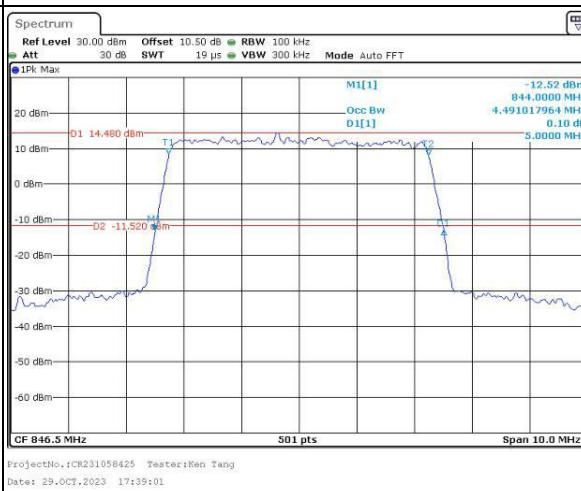
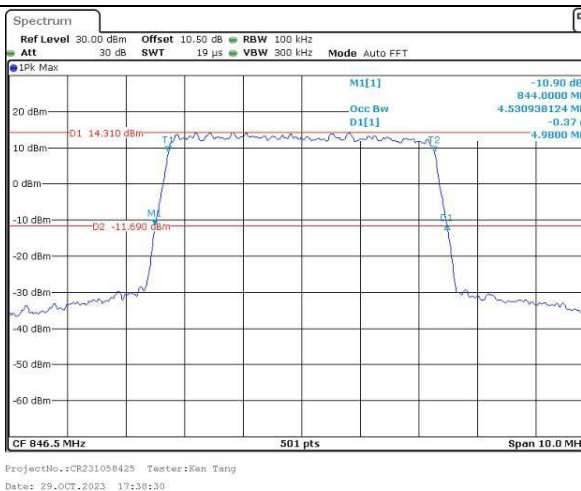
Lowest



Middle



Highest



Occupied Bandwidth

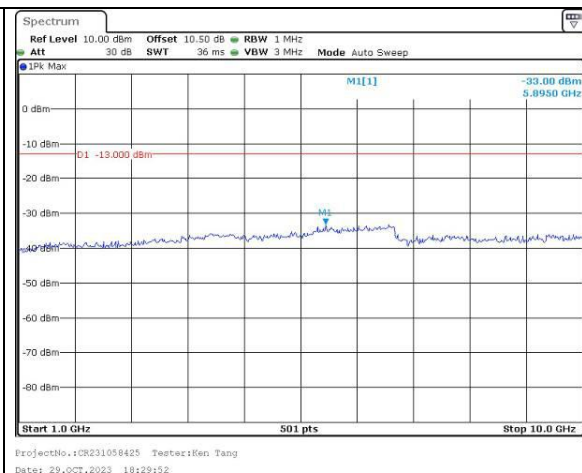
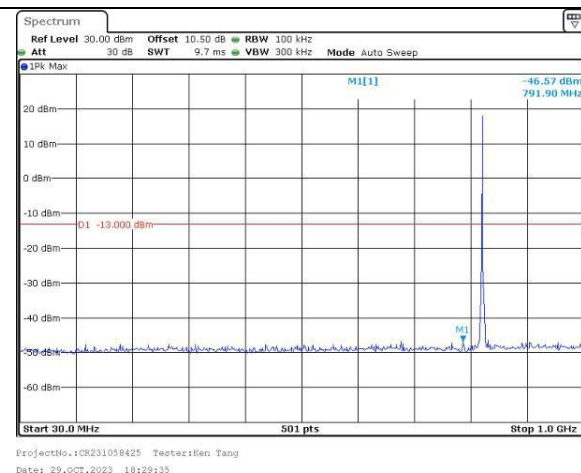
Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest	Spectrum Ref Level 30.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 38 μs VBW 300 kHz Mode Auto FFT 1Pk Max M1[1] -13.97 dBm Occ Bw 8.942115768 MHz D1[1] 0.39 dB D1 12.260 dBm D2 -13.740 dBm CF 829.0 MHz 501 pts Span 20.0 MHz ProjectNo.:CR231058425 Testet:Ken Tang Date: 29.OCT.2023 17:39:34	Spectrum Ref Level 30.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 38 μs VBW 300 kHz Mode Auto FFT 1Pk Max M1[1] -14.59 dBm Occ Bw 8.942115768 MHz D1[1] -0.16 dB D1 10.718 dBm D2 -15.290 dBm CF 829.0 MHz 501 pts Span 20.0 MHz ProjectNo.:CR231058425 Testet:Ken Tang Date: 29.OCT.2023 17:40:03
Middle	Spectrum Ref Level 30.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 38 μs VBW 300 kHz Mode Auto FFT 1Pk Max M1[1] -12.73 dBm Occ Bw 8.982035928 MHz D1[1] -1.09 dB D1 11.380 dBm D2 -14.620 dBm CF 836.5 MHz 501 pts Span 20.0 MHz ProjectNo.:CR231058425 Testet:Ken Tang Date: 29.OCT.2023 17:40:32	Spectrum Ref Level 30.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 38 μs VBW 300 kHz Mode Auto FFT 1Pk Max M1[1] -16.03 dBm Occ Bw 8.942115768 MHz D1[1] -0.84 dB D1 9.970 dBm D2 -16.030 dBm CF 836.5 MHz 501 pts Span 20.0 MHz ProjectNo.:CR231058425 Testet:Ken Tang Date: 29.OCT.2023 17:41:00
Highest	Spectrum Ref Level 30.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 38 μs VBW 300 kHz Mode Auto FFT 1Pk Max M1[1] -15.97 dBm Occ Bw 8.982035928 MHz D1[1] 0.70 dB D1 11.140 dBm D2 -14.860 dBm CF 844.0 MHz 501 pts Span 20.0 MHz ProjectNo.:CR231058425 Testet:Ken Tang Date: 29.OCT.2023 17:41:32	Spectrum Ref Level 30.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 38 μs VBW 300 kHz Mode Auto FFT 1Pk Max M1[1] -15.94 dBm Occ Bw 8.942115768 MHz D1[1] 0.18 dB D1 10.680 dBm D2 -15.320 dBm CF 844.0 MHz 501 pts Span 20.0 MHz ProjectNo.:CR231058425 Testet:Ken Tang Date: 29.OCT.2023 17:41:57

Spurious Emissions at Antenna Terminal

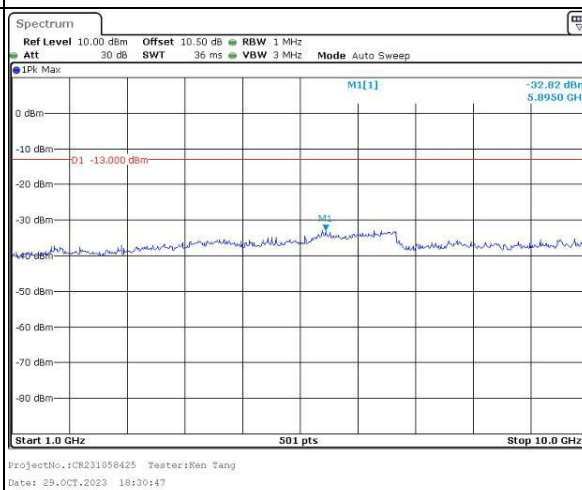
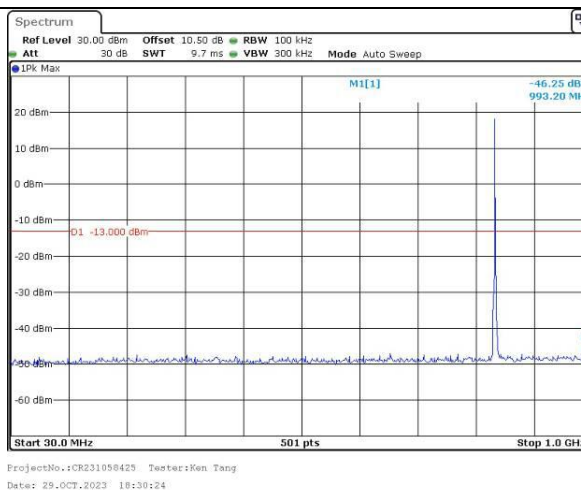
Channel

1.4MHz Bandwidth QPSK

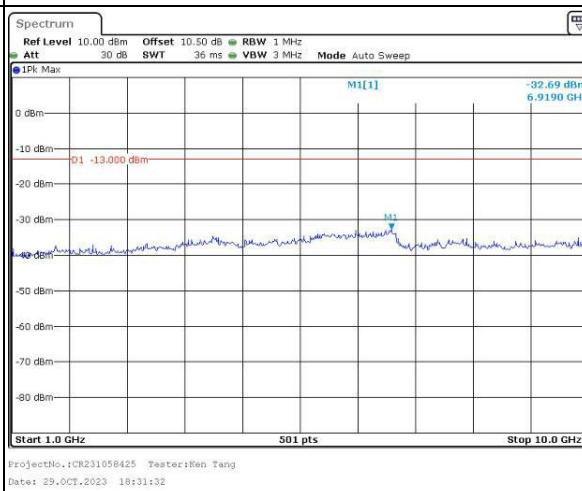
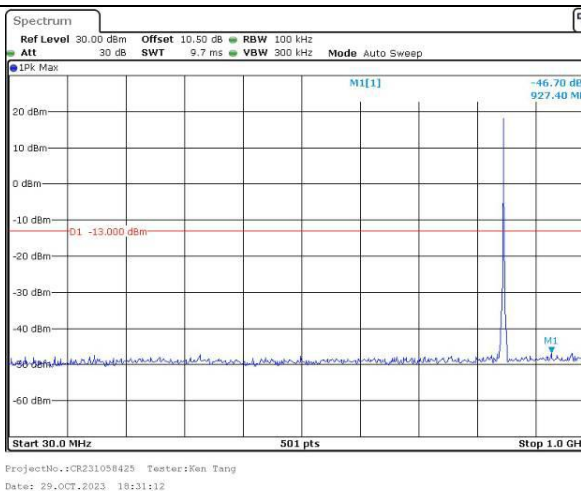
Lowest



Middle



Highest

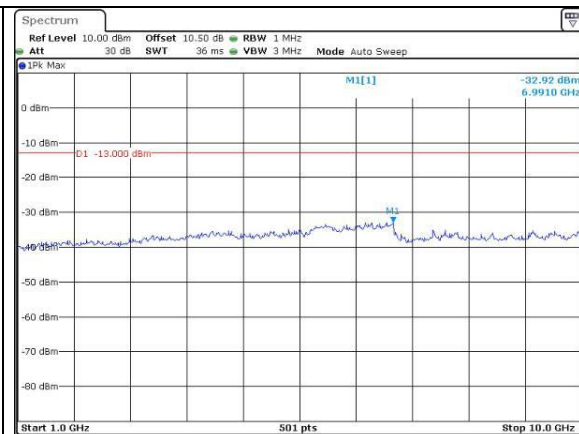
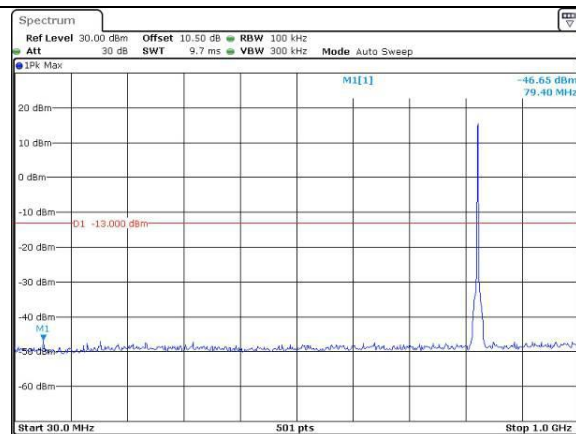


Spurious Emissions at Antenna Terminal

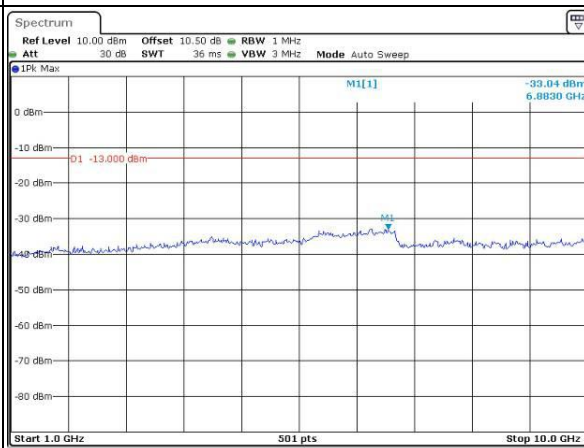
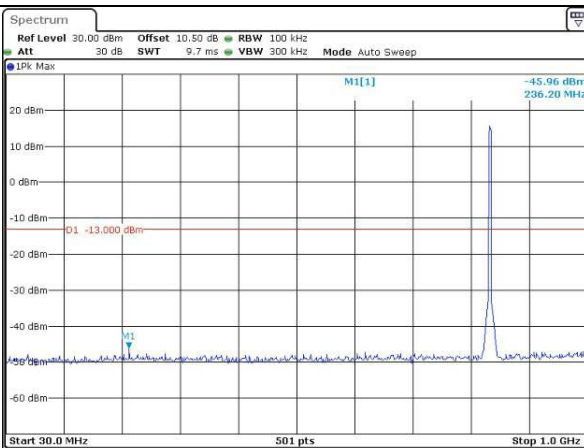
Channel

3MHz Bandwidth QPSK

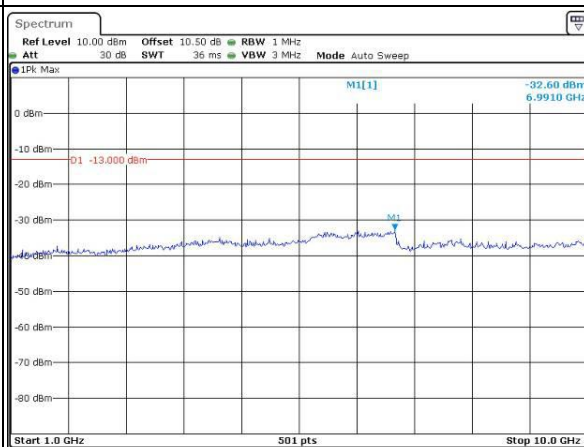
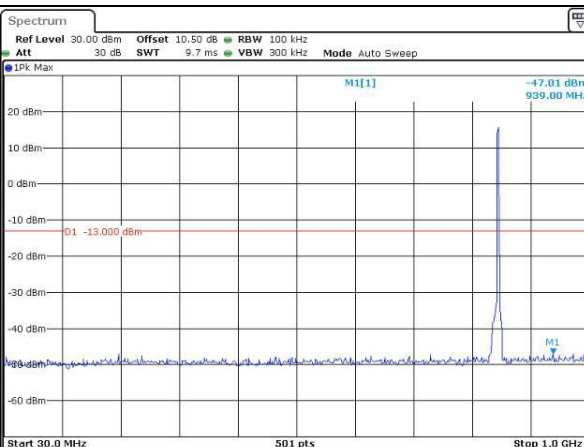
Lowest



Middle



Highest

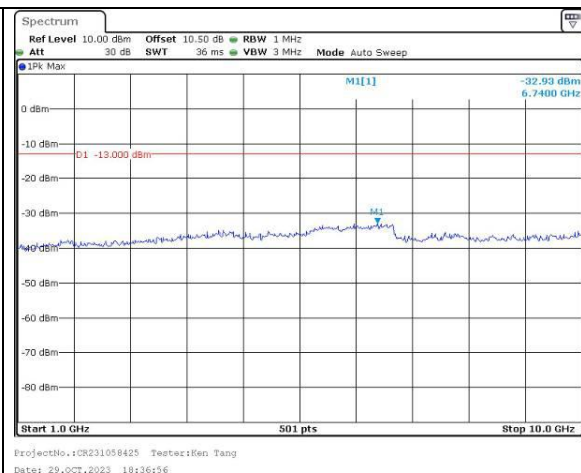
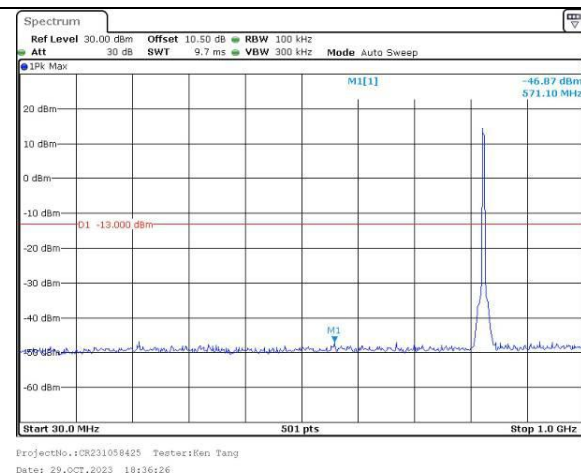


Spurious Emissions at Antenna Terminal

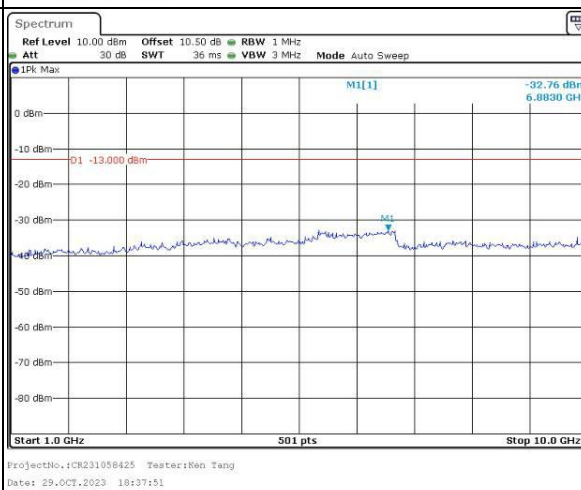
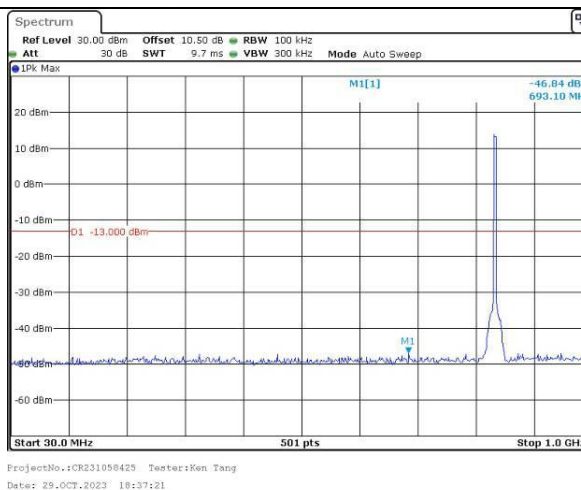
Channel

5MHz Bandwidth QPSK

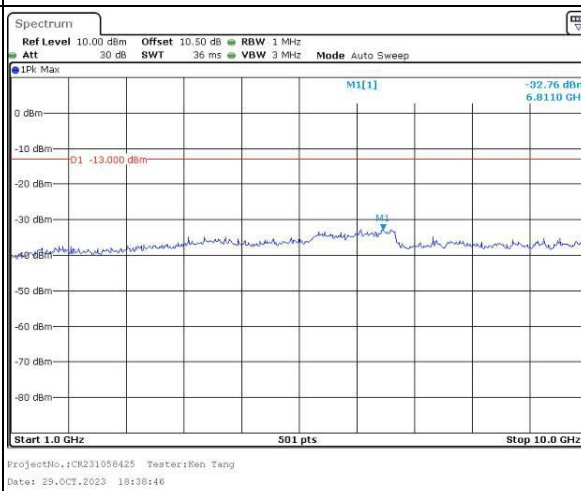
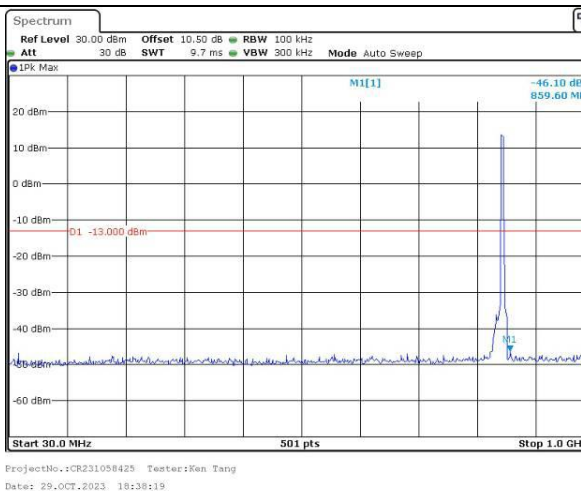
Lowest



Middle



Highest

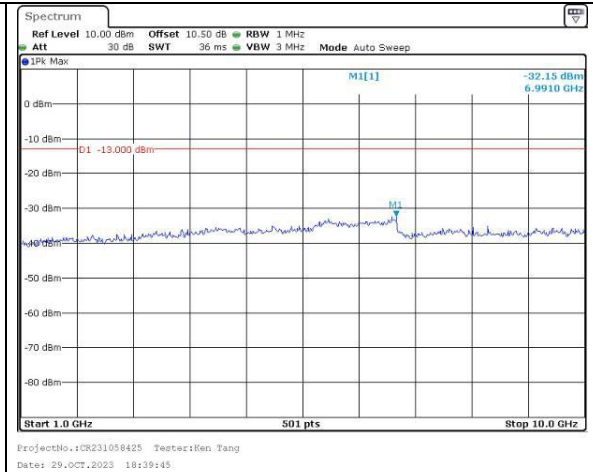
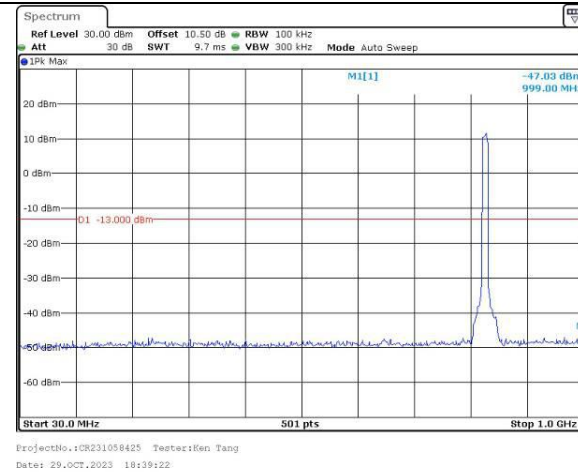


Spurious Emissions at Antenna Terminal

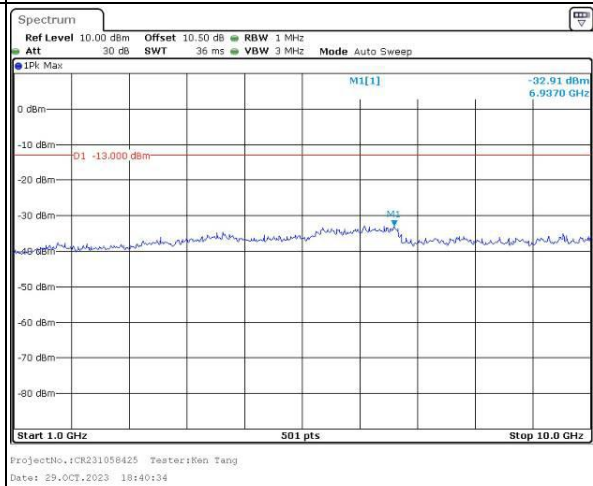
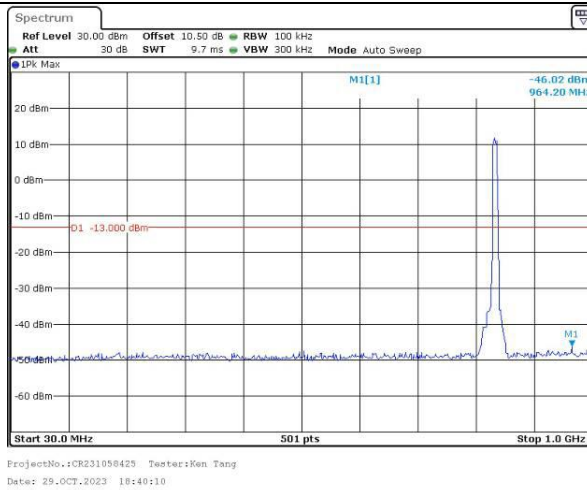
Channel

10MHz Bandwidth QPSK

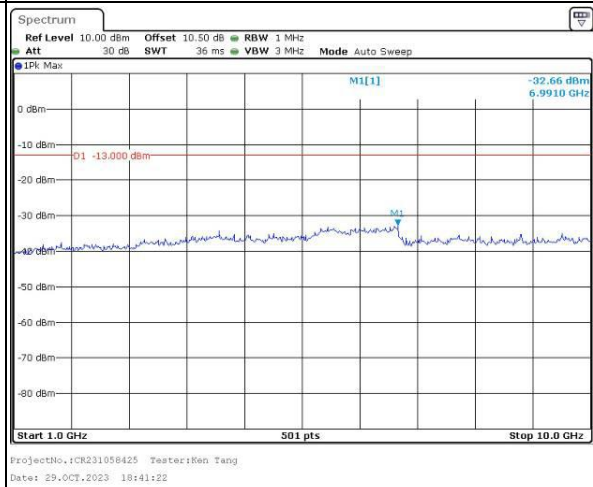
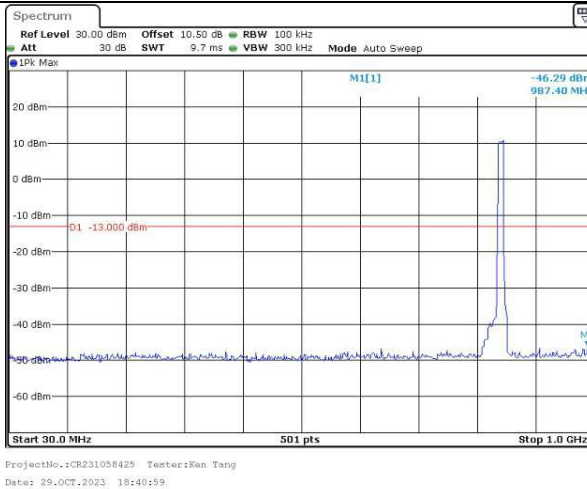
Lowest



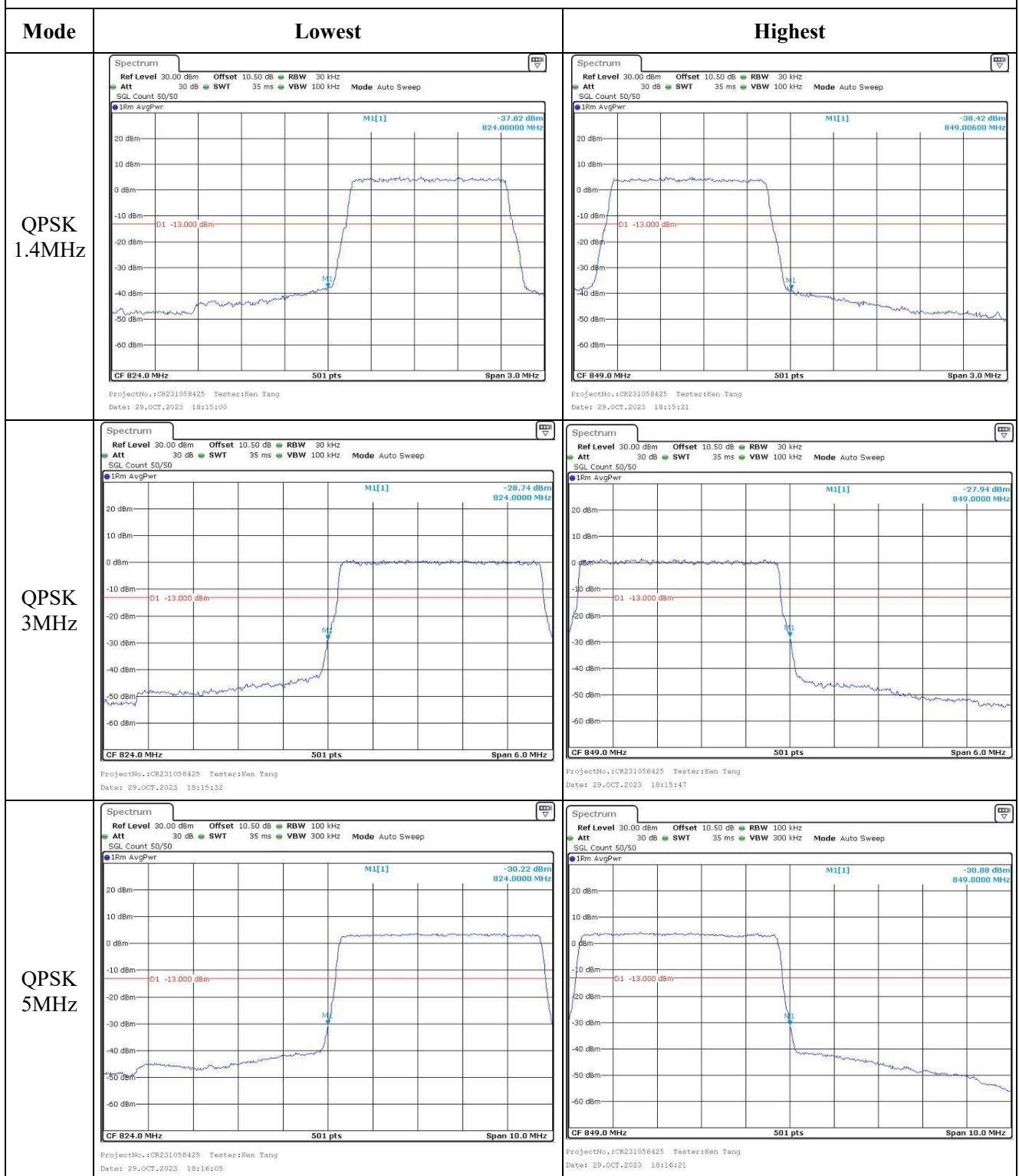
Middle

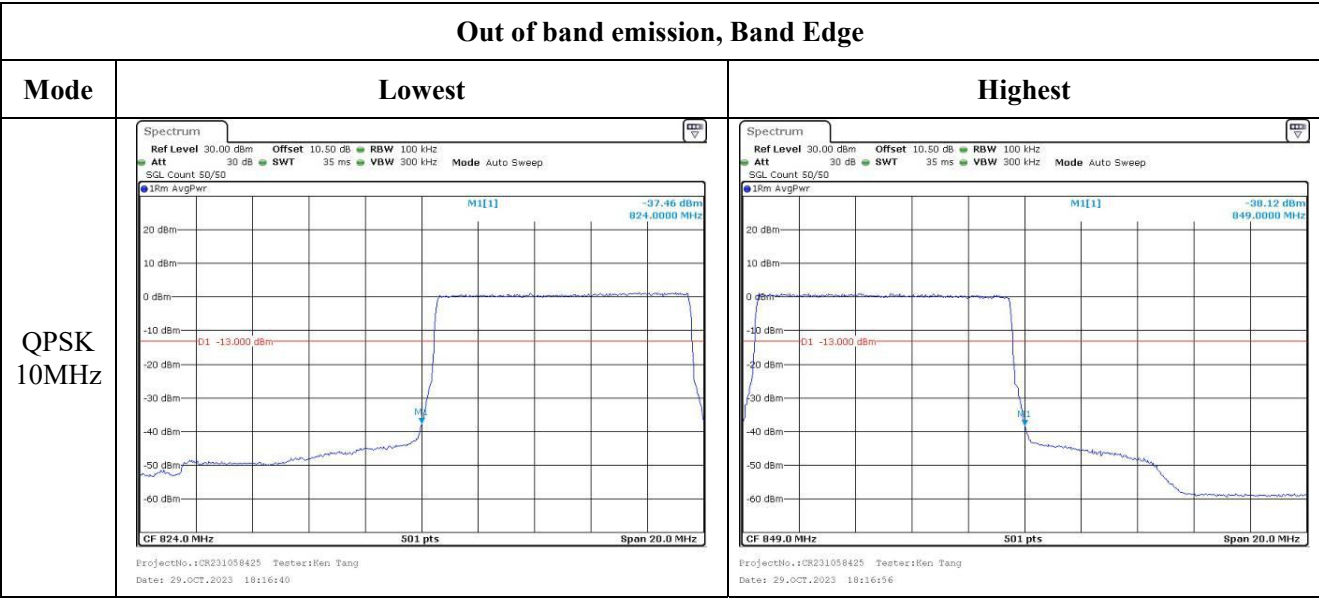


Highest

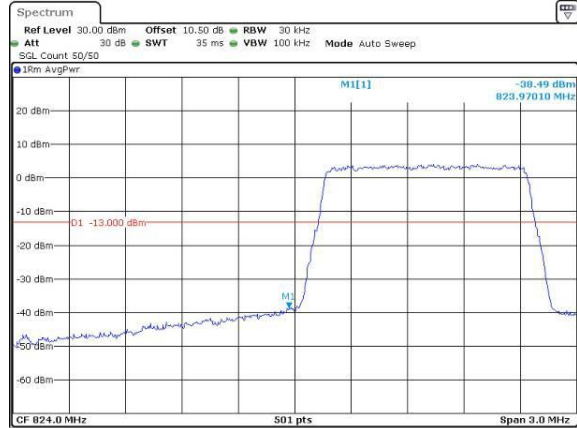
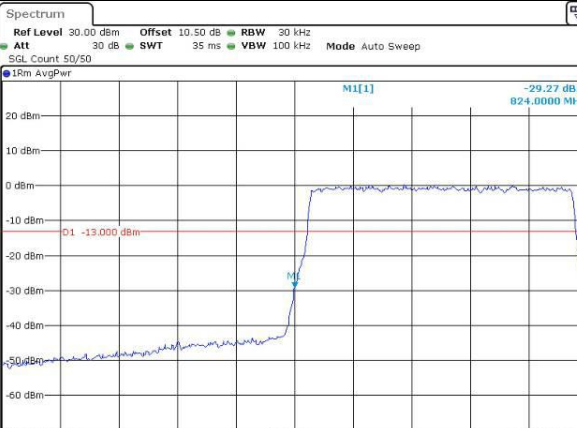
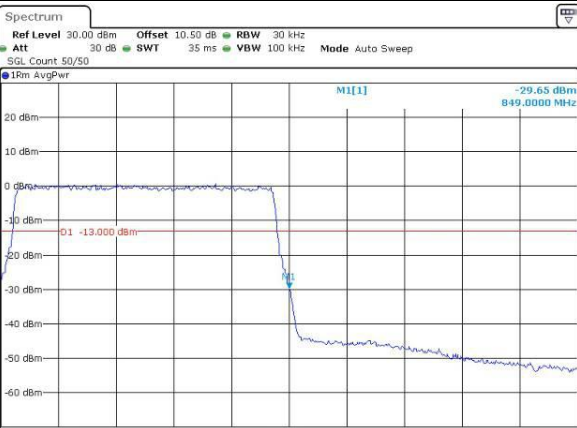
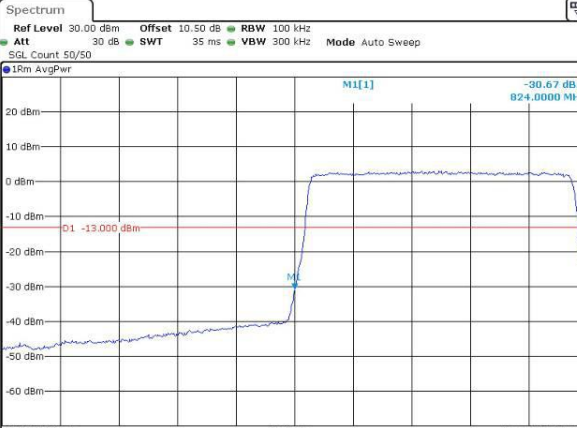
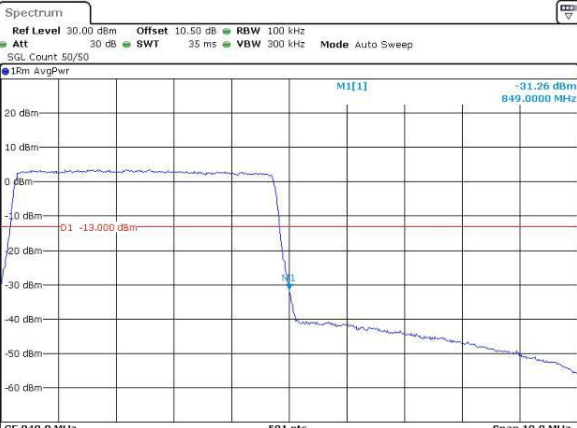


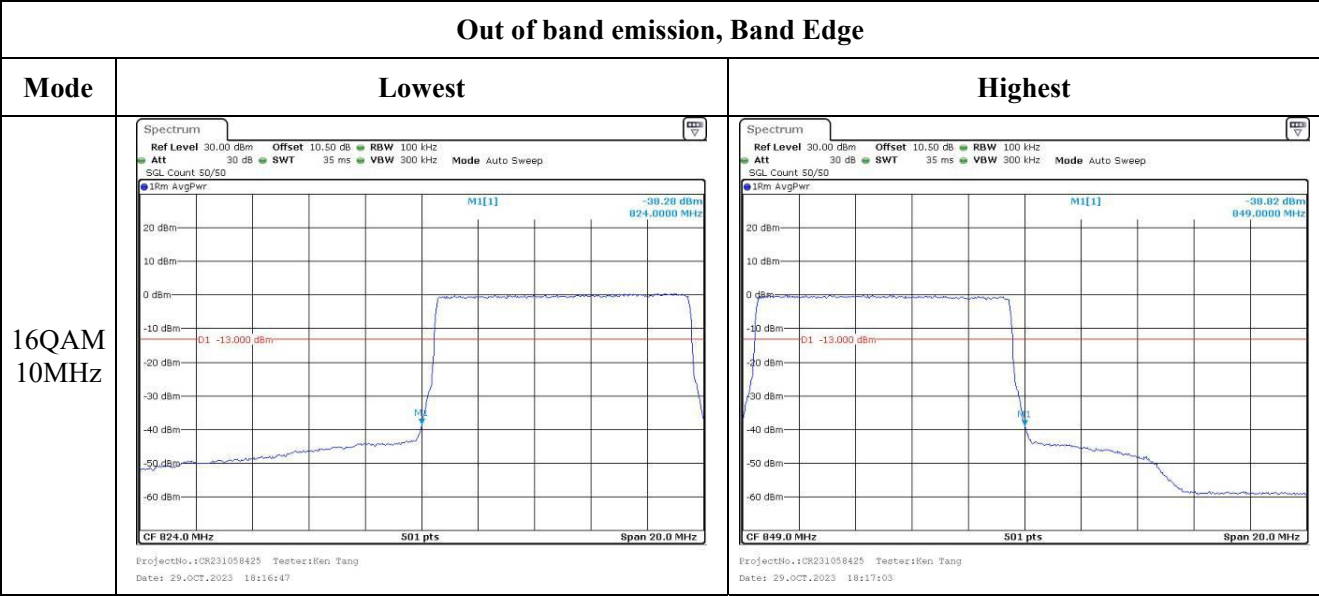
Out of band emission, Band Edge





Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 1.4MHz	 ProjectNo.:CR231058425 Testter:Ken Tang Date: 29.OCT.2023 18:15:06	 ProjectNo.:CR231058425 Testter:Ken Tang Date: 29.OCT.2023 18:15:21
16QAM 3MHz	 ProjectNo.:CR231058425 Testter:Ken Tang Date: 29.OCT.2023 18:15:39	 ProjectNo.:CR231058425 Testter:Ken Tang Date: 29.OCT.2023 18:15:54
16QAM 5MHz	 ProjectNo.:CR231058425 Testter:Ken Tang Date: 29.OCT.2023 18:16:13	 ProjectNo.:CR231058425 Testter:Ken Tang Date: 29.OCT.2023 18:16:28



4.9 Antenna Port Test Data and Results for LTE Band 7

Serial Number:	2BYR-5	Test Date:	2023/10/27-2023/11-06
Test Site:	RF	Test Mode:	Transmitting
Tester:	Ken Tang, Len Huang	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.5-25.3	Relative Humidity: (%)	60-62	ATM Pressure: (kPa)	100.5-100.9
----------------------	-----------	---------------------------	-------	------------------------	-------------

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101943	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A
Minl-Circuits	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)
5MHz	2502.5	2535	2567.5
10MHz	2505	2535	2565
15MHz	2507.5	2535	2562.5
20MHz	2510	2535	2560

Test Data:**FCC§2.1046;§ 27.50(h)(2)****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		
5MHz QPSK	RB1#0	15.55	15.28	15.11	15.95	33
	RB1#13	16.15	15.74	15.73		
	RB1#24	15.67	15.10	15.30		
	RB15#0	15.05	14.78	14.61		
	RB15#10	15.12	14.71	14.71		
	RB25#0	14.95	14.70	14.61		
5MHz 16QAM	RB1#0	14.85	14.53	14.09	15.26	33
	RB1#13	15.46	14.96	14.72		
	RB1#24	14.87	14.38	14.31		
	RB15#0	13.72	13.93	13.64		
	RB15#10	13.81	13.87	13.74		
	RB25#0	13.77	13.88	13.67		
10MHz QPSK	RB1#0	15.44	15.58	15.18	15.95	33
	RB1#25	15.84	15.79	15.46		
	RB1#49	16.15	15.85	15.81		
	RB25#0	14.81	14.96	14.57		
	RB25#25	15.18	15.09	14.88		
	RB50#0	15.00	15.02	14.72		
10MHz 16QAM	RB1#0	14.59	14.84	14.95	15.39	33
	RB1#25	15.10	14.90	15.18		
	RB1#49	15.34	15.13	15.59		
	RB25#0	13.66	14.15	13.58		
	RB25#25	14.05	14.30	13.90		
	RB50#0	13.86	14.18	13.72		
15MHz QPSK	RB1#0	15.48	16.08	15.37	15.88	33
	RB1#38	15.90	15.82	15.33		
	RB1#74	15.74	15.72	15.42		
	RB36#0	14.97	15.19	14.54		
	RB36#39	15.07	15.00	14.53		
	RB75#0	15.00	15.09	14.52		
15MHz 16QAM	RB1#0	14.80	15.64	15.00	15.44	33
	RB1#38	15.16	15.37	15.04		
	RB1#74	14.97	15.31	15.06		
	RB36#0	13.80	14.26	13.54		
	RB36#39	13.93	14.10	13.54		
	RB75#0	13.88	14.19	13.54		

20MHz QPSK	RB1#0	15.93	16.66	15.94	16.46	33
	RB1#50	15.93	15.78	15.48		
	RB1#99	15.88	16.11	15.98		
	RB50#0	15.21	15.46	14.84		
	RB50#50	15.15	15.18	14.79		
	RB100#0	15.16	15.30	14.79		
20MHz 16QAM	RB1#0	15.33	16.39	15.18	16.19	33
	RB1#50	15.33	15.50	14.87		
	RB1#99	15.18	15.88	15.25		
	RB50#0	14.15	14.55	13.80		
	RB50#50	14.11	14.29	13.77		
	RB100#0	14.07	14.43	13.80		

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	6.8	8.60	9.6	13
	RB100#0	6.91	8.0	9.77	13
20MHz 16QAM	RB1#0	8.7	6.4	8.60	13
	RB100#0	8.94	9.86	9.05	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
5MHz QPSK	4.511	4.511	4.511	5.020	5.000	4.840
5MHz 16QAM	4.531	4.531	4.511	5.040	4.900	4.980
10MHz QPSK	8.942	8.942	8.982	9.400	9.840	9.760
10MHz 16QAM	8.942	8.982	8.942	9.800	9.840	9.760
15MHz QPSK	13.413	13.533	13.533	14.820	15.120	15.000
15MHz 16QAM	13.533	13.533	13.533	15.000	14.880	14.940
20MHz QPSK	17.964	18.044	17.964	19.680	19.840	19.520
20MHz 16QAM	17.884	17.964	17.884	19.600	19.600	19.520

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

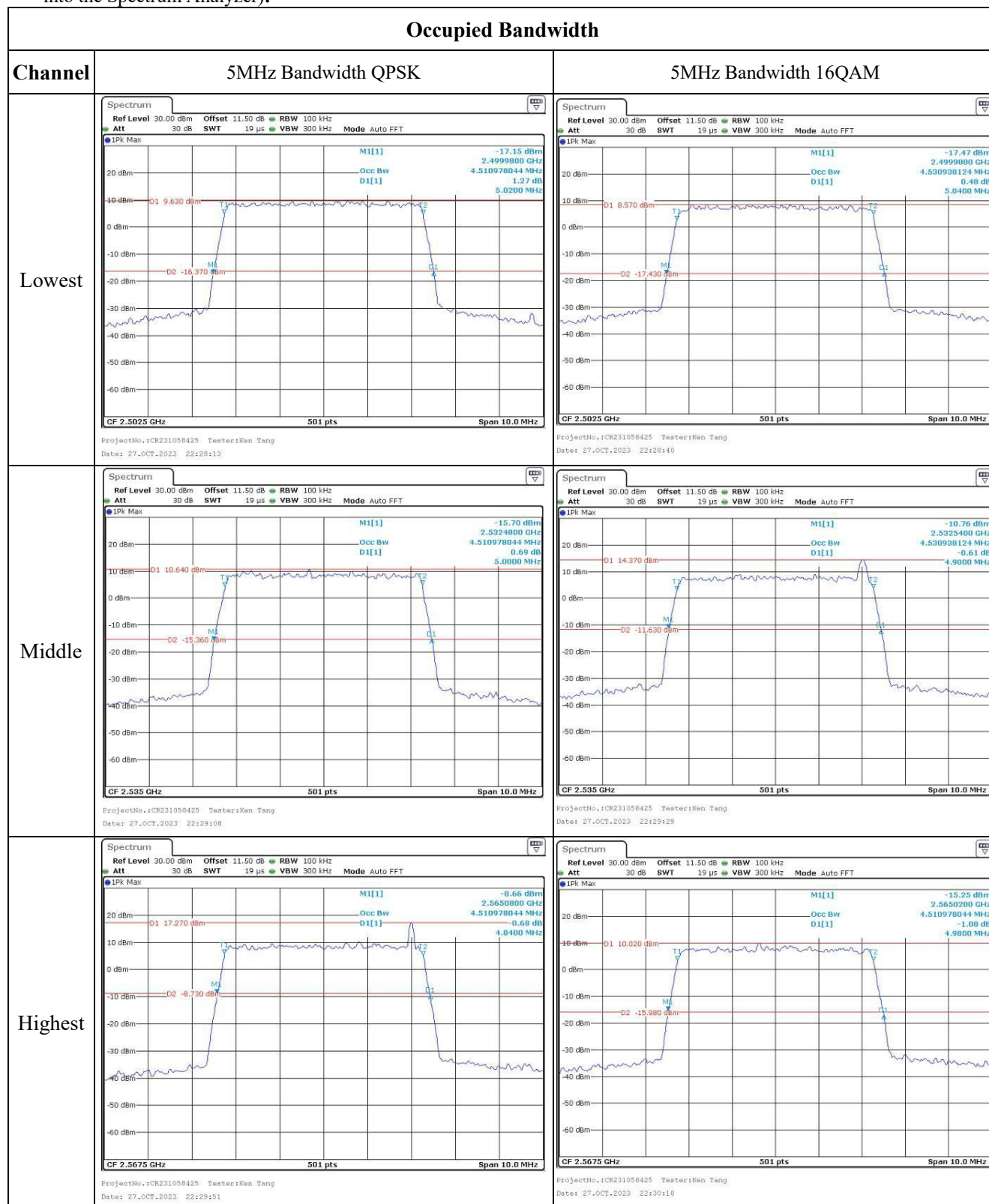
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
----------------	---

FCC §2.1055, §27.54: Frequency Stability

Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	2500.030	2500.00	2569.971	2570
	-20	3.85	2500.029	2500.00	2569.987	2570
	-10	3.85	2500.014	2500.00	2569.981	2570
	0	3.85	2500.014	2500.00	2569.981	2570
	10	3.85	2500.007	2500.00	2569.986	2570
	20	3.85	2500.003	2500.00	2569.989	2570
	30	3.85	2500.017	2500.00	2569.984	2570
	40	3.85	2500.027	2500.00	2569.979	2570
Frequency Stability vs. Voltage	50	3.85	2500.029	2500.00	2569.973	2570
	20	3.35	2500.001	2500.00	2569.992	2570
	20	4.4	2500.026	2500.00	2569.993	2570
Result:					Pass	

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	2500.010	2500.00	2569.994	2570
	-20	3.85	2500.022	2500.00	2569.978	2570
	-10	3.85	2500.028	2500.00	2569.997	2570
	0	3.85	2500.014	2500.00	2569.985	2570
	10	3.85	2500.001	2500.00	2569.993	2570
	20	3.85	2500.017	2500.00	2569.991	2570
	30	3.85	2500.005	2500.00	2569.986	2570
	40	3.85	2500.011	2500.00	2569.994	2570
Frequency Stability vs. Voltage	50	3.85	2500.010	2500.00	2569.998	2570
	20	3.35	2500.016	2500.00	2569.977	2570
	20	4.4	2500.007	2500.00	2569.998	2570
Result:					Pass	

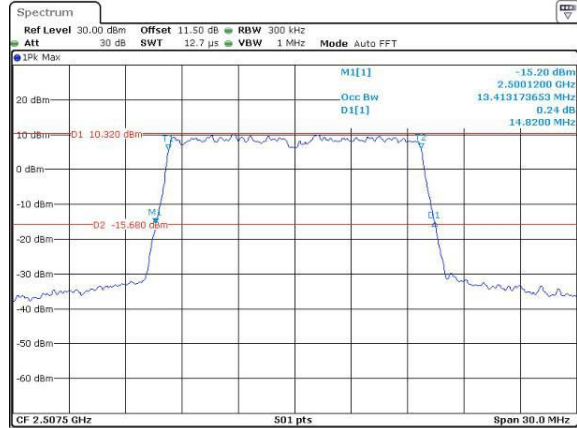
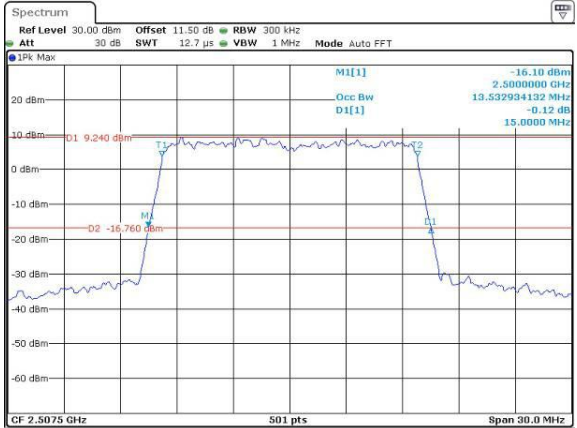
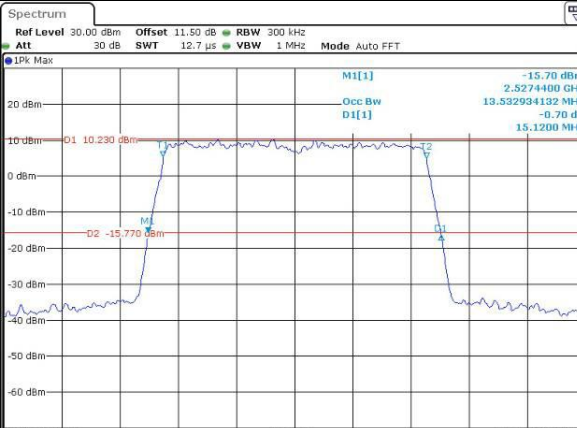
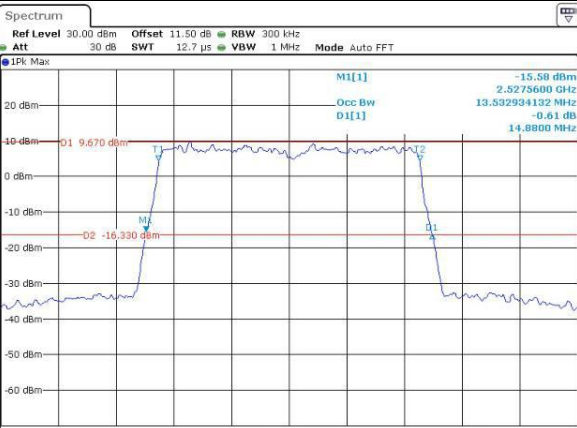
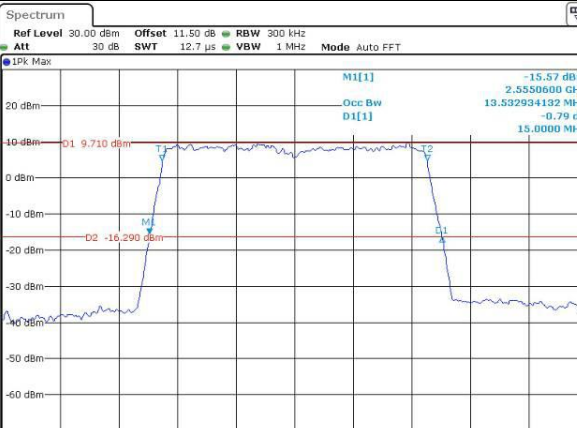
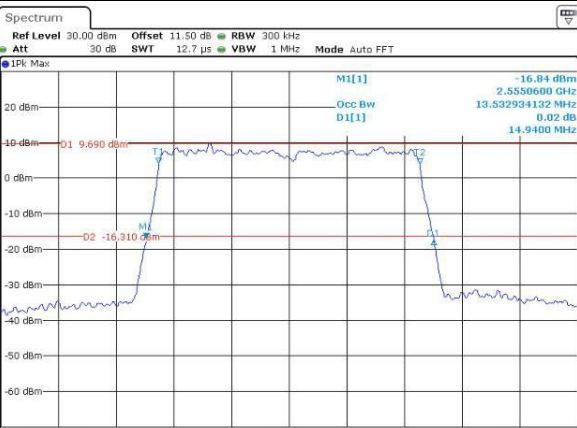
Test Plots(Note: The 11.5dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):



Occupied Bandwidth

Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest	ProjectNo.:CR231058425 Testeri:Ken Tang Date: 27.OCT.2023 22:31:11	ProjectNo.:CR231058425 Testeri:Ken Tang Date: 27.OCT.2023 22:31:35
Middle	ProjectNo.:CR231058425 Testeri:Ken Tang Date: 27.OCT.2023 22:32:06	ProjectNo.:CR231058425 Testeri:Ken Tang Date: 27.OCT.2023 22:32:36
Highest	ProjectNo.:CR231058425 Testeri:Ken Tang Date: 27.OCT.2023 22:33:01	ProjectNo.:CR231058425 Testeri:Ken Tang Date: 27.OCT.2023 22:33:25

Occupied Bandwidth

Channel	15MHz Bandwidth QPSK	15MHz Bandwidth 16QAM
Lowest	 Spectrum Ref Level 30.00 dBm Offset 11.50 dB RBW 300 kHz Att 30 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT M1[1] -15.20 dBm Occ Bw 2.5001200 GHz D1[1] 13.413173653 MHz 0.24 dB 14.8200 MHz CF 2.5075 GHz 501 pts Span 30.0 MHz ProjectNo.:CR231058425 Testeri:Ken Tang Date: 27.OCT.2023 22:34:09	 Spectrum Ref Level 30.00 dBm Offset 11.50 dB RBW 300 kHz Att 30 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT M1[1] -16.10 dBm Occ Bw 2.5000000 GHz D1[1] 13.532934132 MHz -0.12 dB 15.0000 MHz CF 2.5075 GHz 501 pts Span 30.0 MHz ProjectNo.:CR231058425 Testeri:Ken Tang Date: 27.OCT.2023 22:34:36
Middle	 Spectrum Ref Level 30.00 dBm Offset 11.50 dB RBW 300 kHz Att 30 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT M1[1] -15.70 dBm Occ Bw 2.5274400 GHz D1[1] 13.532934132 MHz -0.70 dB 15.1200 MHz CF 2.535 GHz 501 pts Span 30.0 MHz ProjectNo.:CR231058425 Testeri:Ken Tang Date: 27.OCT.2023 22:35:03	 Spectrum Ref Level 30.00 dBm Offset 11.50 dB RBW 300 kHz Att 30 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT M1[1] -15.58 dBm Occ Bw 2.5275600 GHz D1[1] 13.532934132 MHz -0.61 dB 14.8800 MHz CF 2.535 GHz 501 pts Span 30.0 MHz ProjectNo.:CR231058425 Testeri:Ken Tang Date: 27.OCT.2023 22:35:26
Highest	 Spectrum Ref Level 30.00 dBm Offset 11.50 dB RBW 300 kHz Att 30 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT M1[1] -15.57 dBm Occ Bw 2.5550600 GHz D1[1] 13.532934132 MHz -0.79 dB 15.0000 MHz CF 2.5625 GHz 501 pts Span 30.0 MHz ProjectNo.:CR231058425 Testeri:Ken Tang Date: 27.OCT.2023 22:35:53	 Spectrum Ref Level 30.00 dBm Offset 11.50 dB RBW 300 kHz Att 30 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT M1[1] -16.84 dBm Occ Bw 2.5550600 GHz D1[1] 13.532934132 MHz 0.02 dB 14.9400 MHz CF 2.5625 GHz 501 pts Span 30.0 MHz ProjectNo.:CR231058425 Testeri:Ken Tang Date: 27.OCT.2023 22:36:23

Occupied Bandwidth

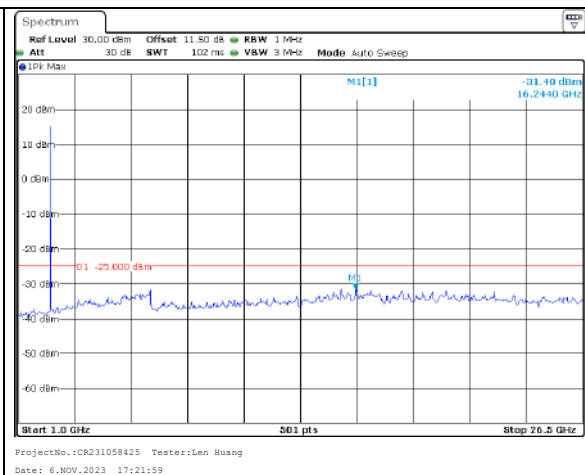
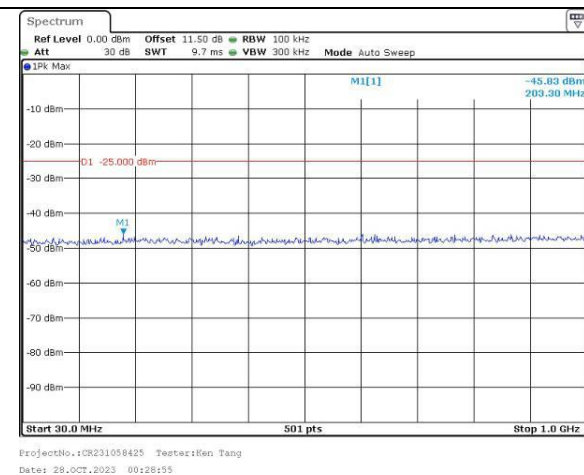
Channel	20MHz Bandwidth QPSK	20MHz Bandwidth 16QAM
Lowest	ProjectNo.:CR231058425 Testet:Ken Tang Date: 27.OCT.2023 22:37:01	ProjectNo.:CR231058425 Testet:Ken Tang Date: 27.OCT.2023 22:37:31
Middle	ProjectNo.:CR231058425 Testet:Ken Tang Date: 27.OCT.2023 22:38:04	ProjectNo.:CR231058425 Testet:Ken Tang Date: 27.OCT.2023 22:38:36
Highest	ProjectNo.:CR231058425 Testet:Ken Tang Date: 27.OCT.2023 22:39:07	ProjectNo.:CR231058425 Testet:Ken Tang Date: 27.OCT.2023 22:39:33

Spurious Emissions at Antenna Terminal

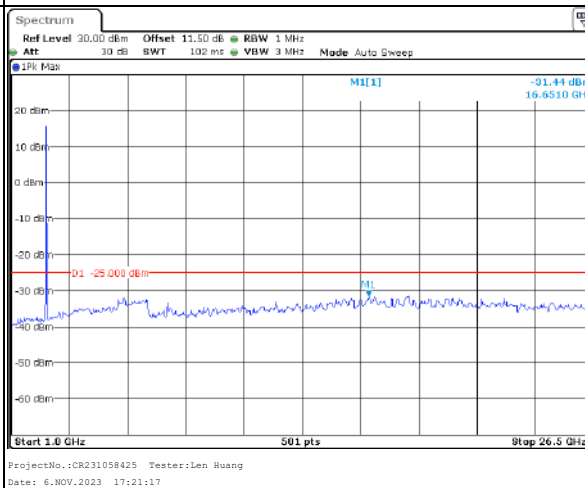
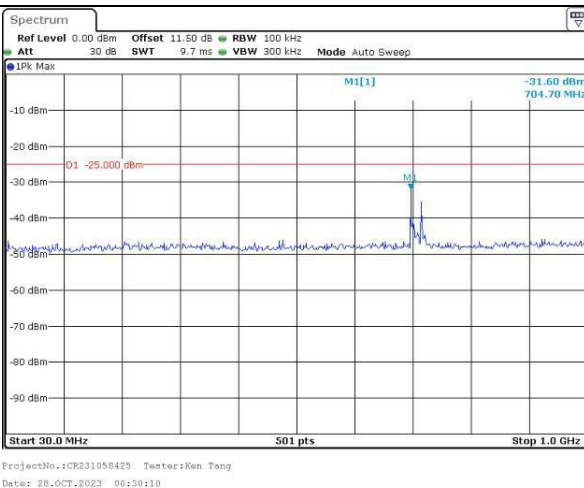
Channel

5MHz Bandwidth QPSK

Lowest



Middle



Highest

