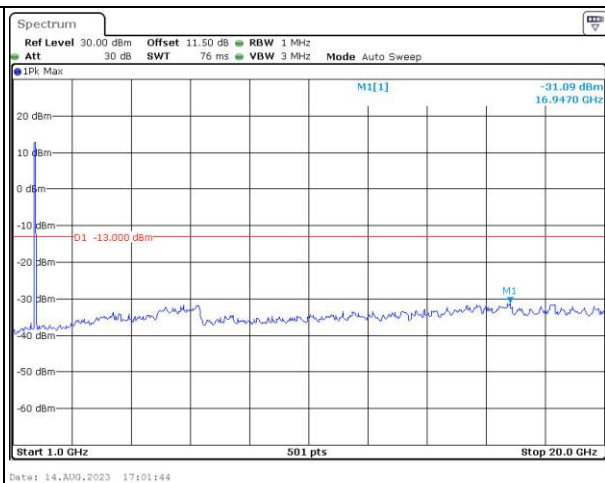
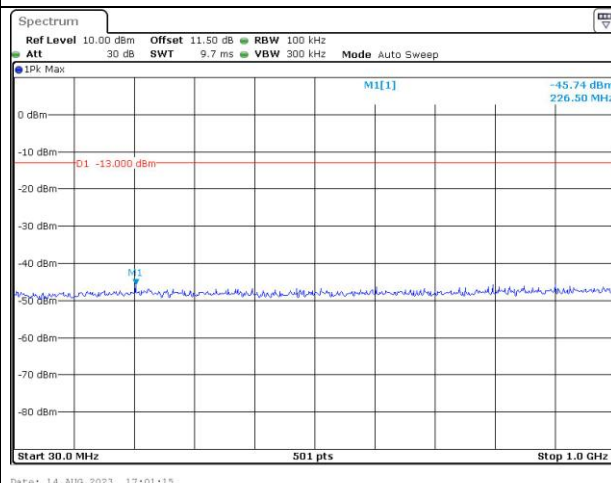


Spurious Emissions at Antenna Terminal

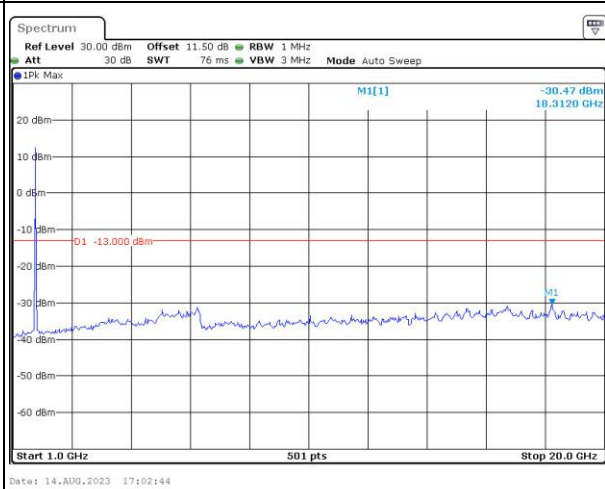
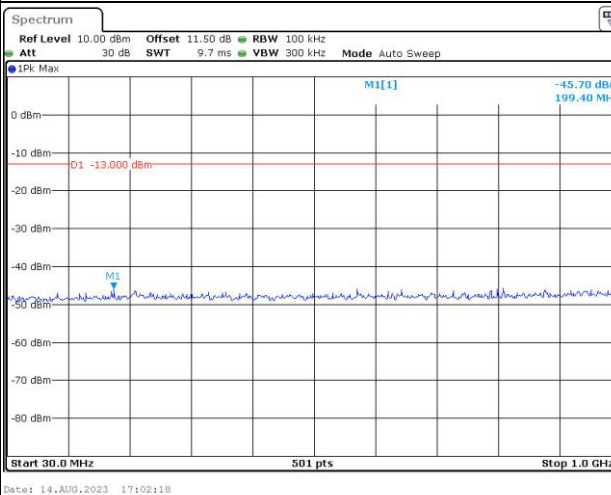
Channel

15MHz Bandwidth QPSK

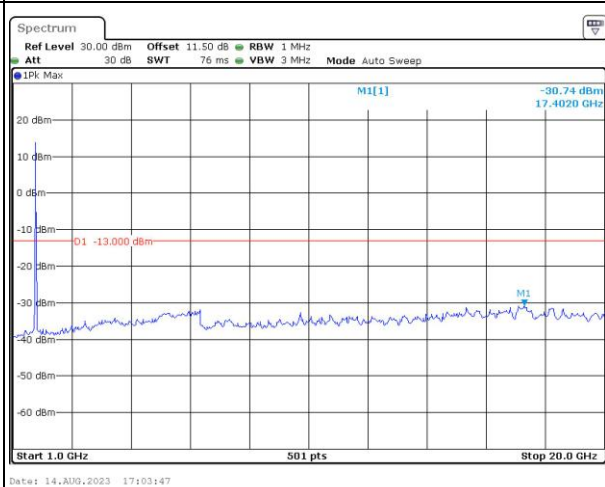
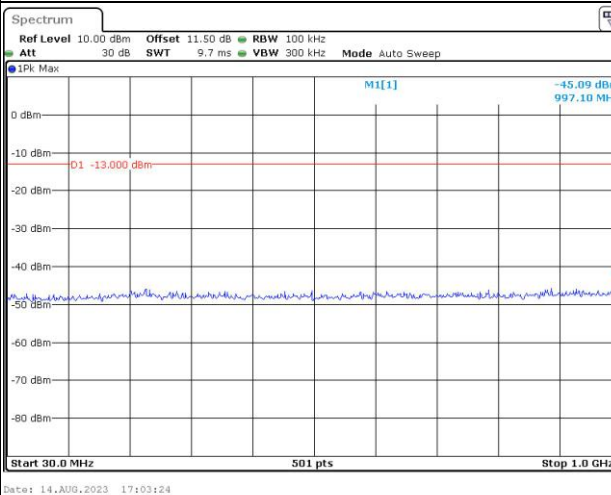
Lowest



Middle



Highest

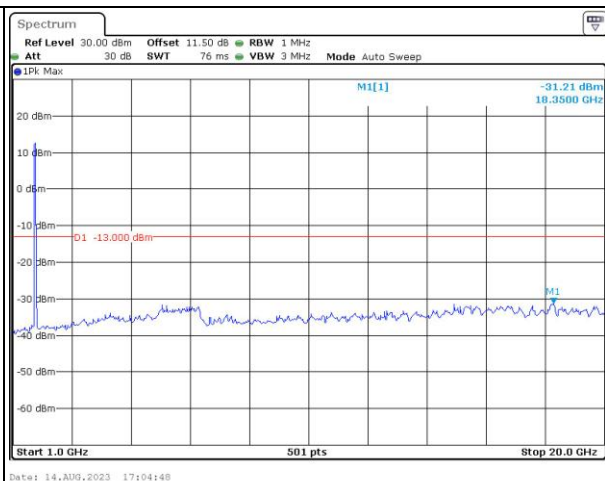
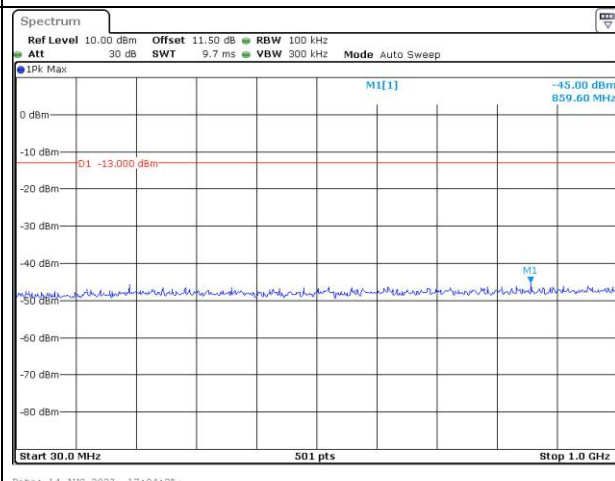


Spurious Emissions at Antenna Terminal

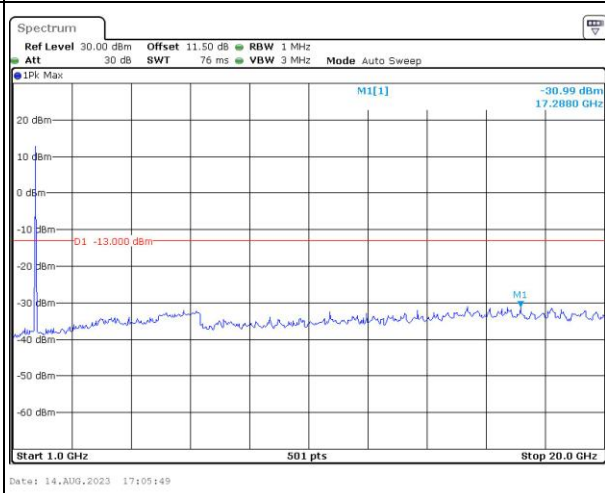
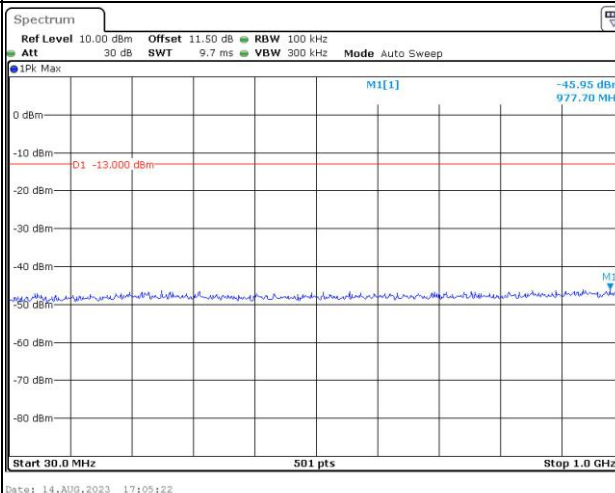
Channel

20MHz Bandwidth QPSK

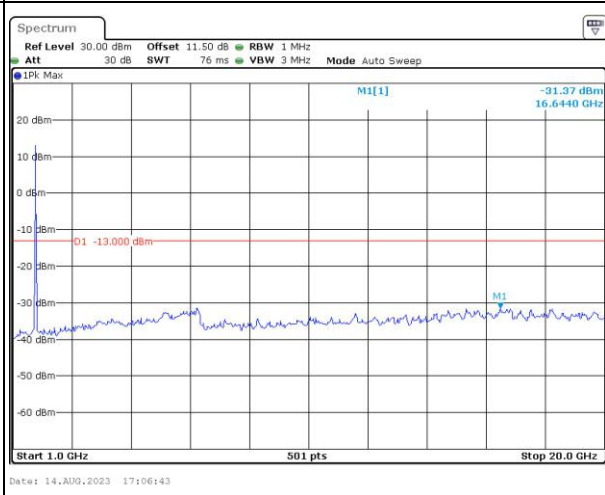
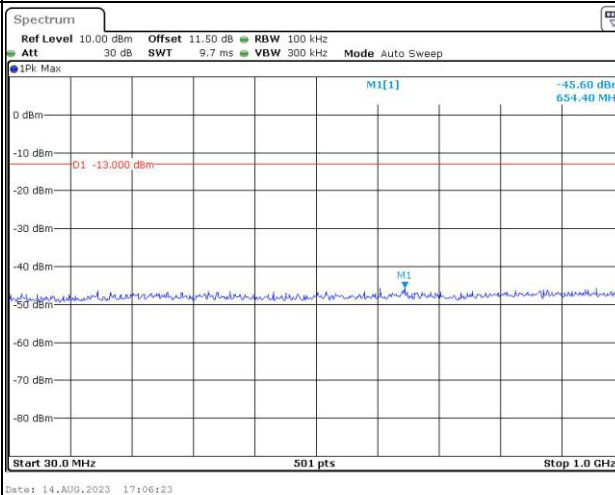
Lowest



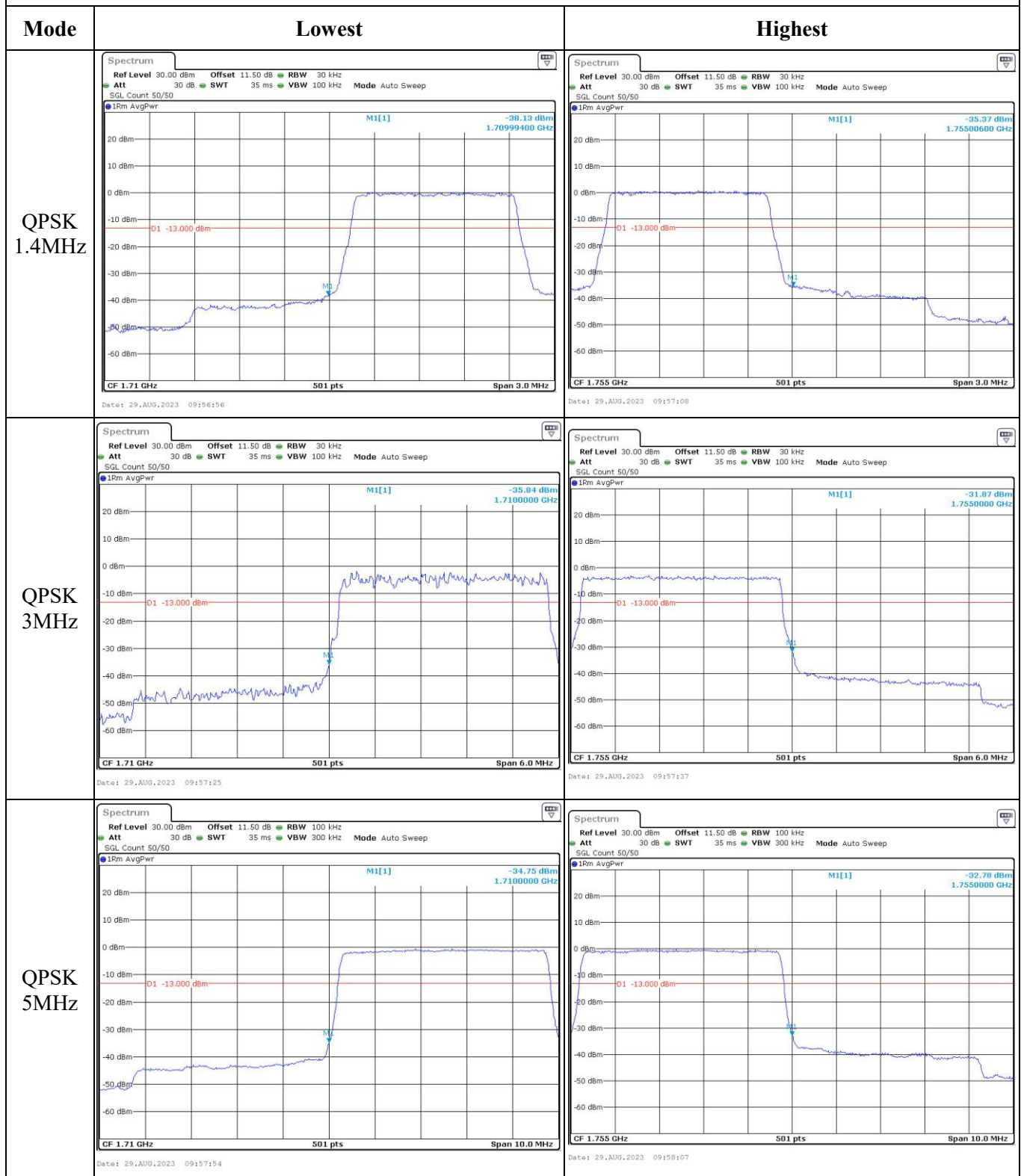
Middle



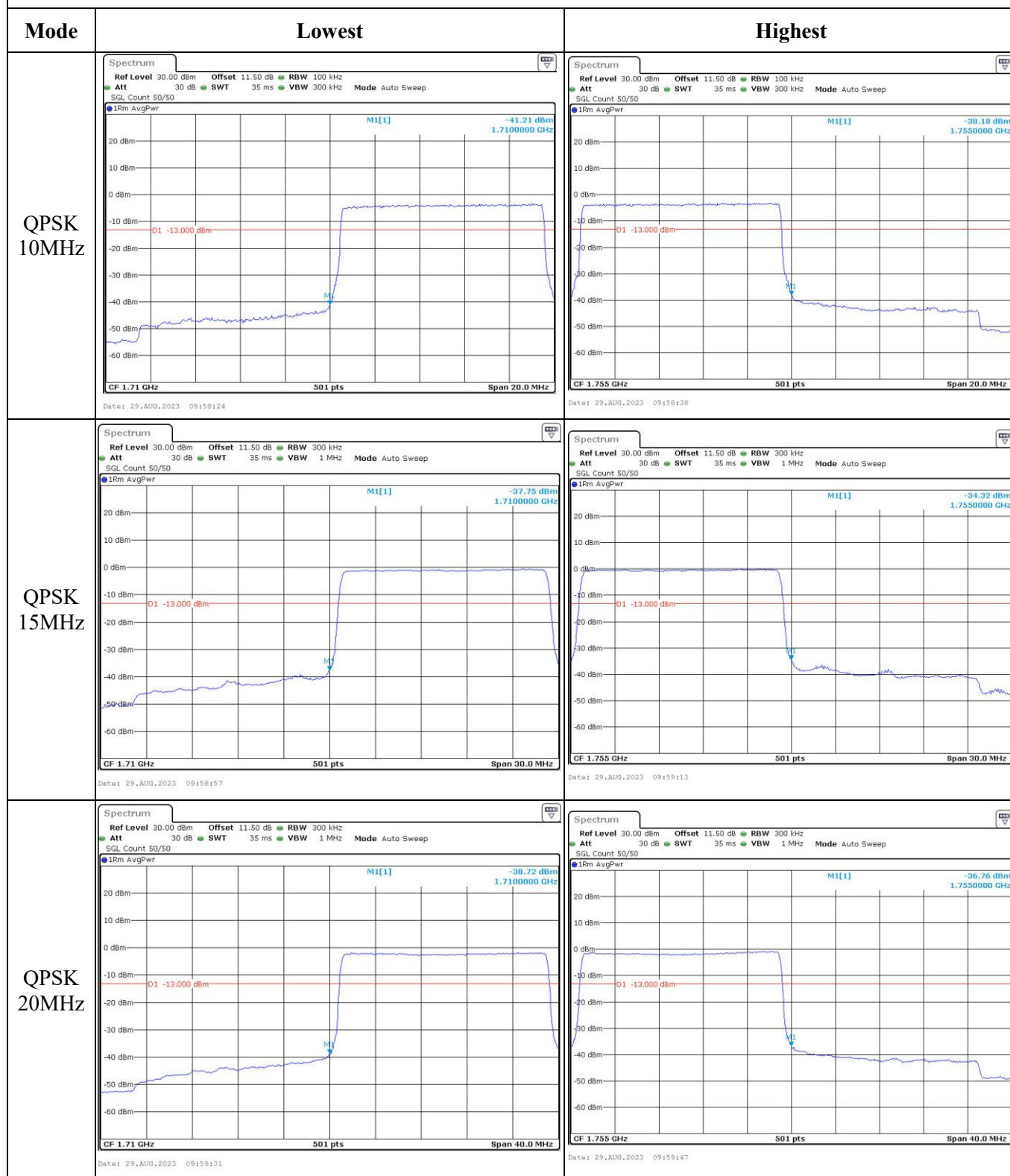
Highest



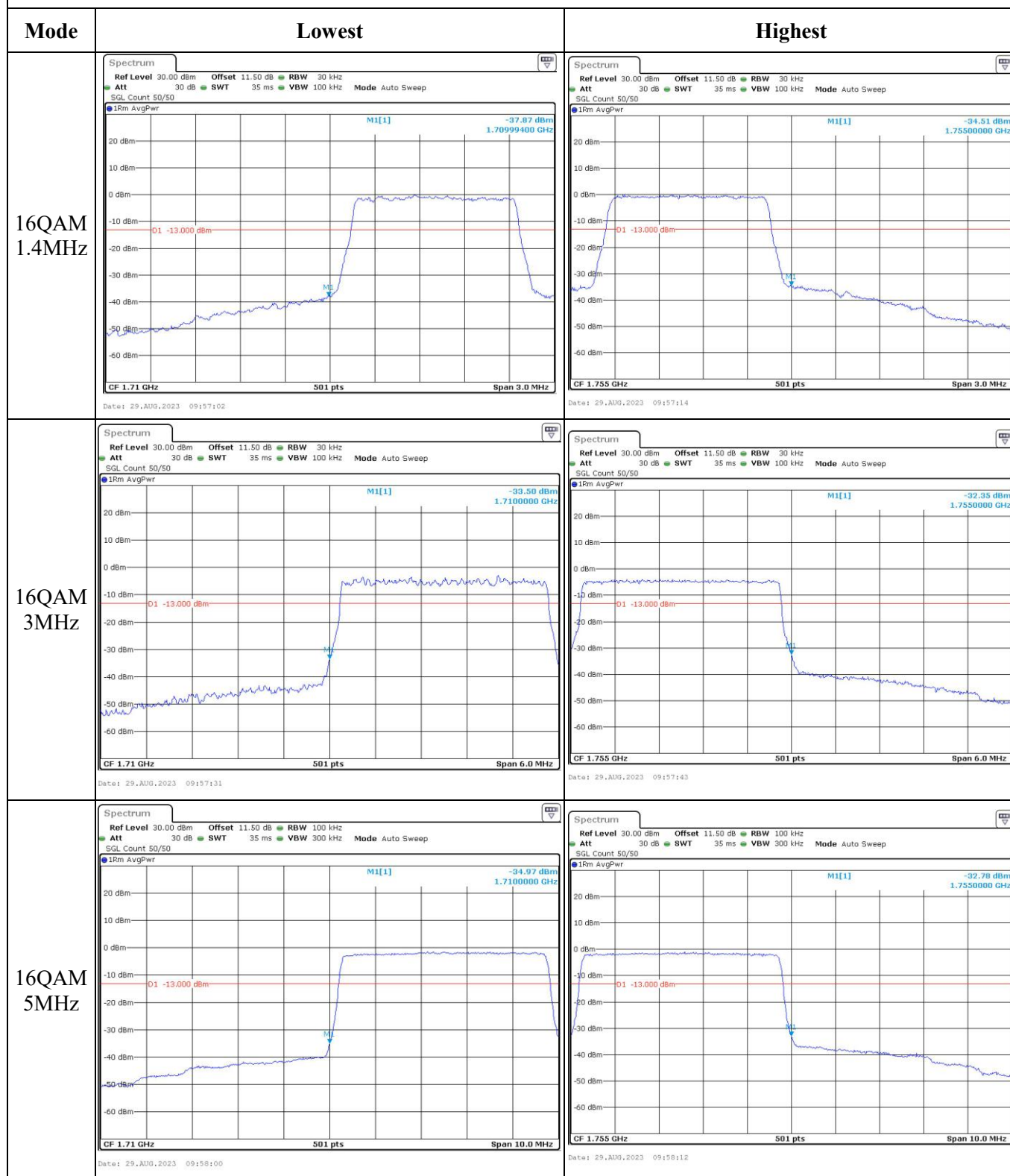
Out of band emission, Band Edge



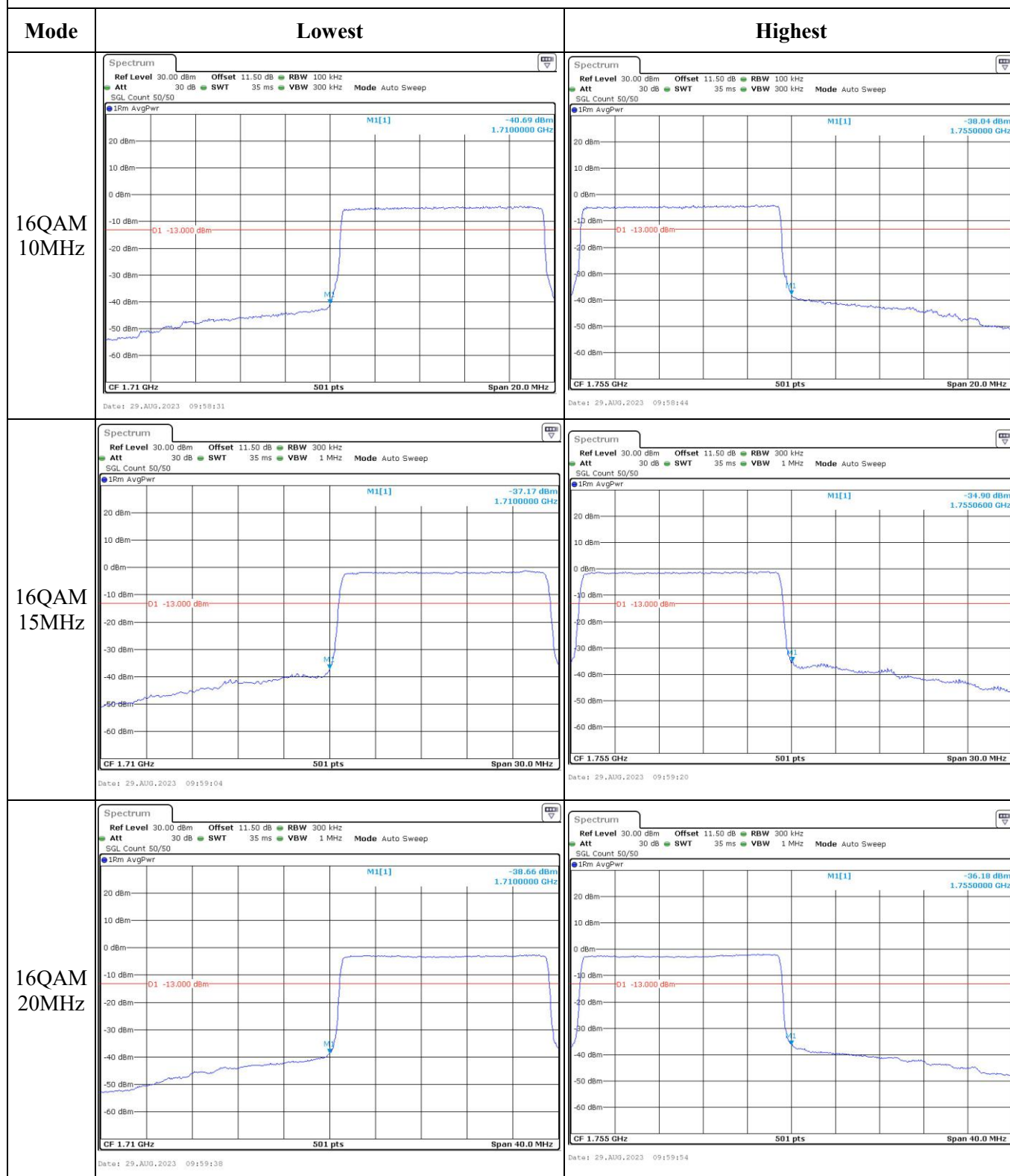
Out of band emission, Band Edge



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:	2A4I-1	Test Date:	2023/8/13-2023/8/14
Test Site:	RF	Test Mode:	Transmitting
Tester:	Panda Sun	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.3~25.6	Relative Humidity: (%)	64-68	ATM Pressure: (kPa)	101
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40-N	102259	2023/4/18	2024/4/17
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A

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

Test Frequency for Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	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	22.59	22.9	22.57	16.07	38.45
	RB1#3	22.6	22.93	22.76		
	RB1#5	22.59	22.93	22.74		
	RB3#0	23.03	23.22	22.79		
	RB3#3	23.04	23.19	23.03		
	RB6#0	21.87	22.24	22.04		
1.4MHz 16QAM	RB1#0	21.27	22.4	22.31	15.45	38.45
	RB1#3	21.32	22.48	22.6		
	RB1#5	21.29	22.48	22.56		
	RB3#0	21.96	22.41	21.52		
	RB3#3	21.93	22.4	21.76		
	RB6#0	21.1	21.39	21.06		
3MHz QPSK	RB1#0	22.77	22.9	22.42	15.83	38.45
	RB1#8	22.78	22.98	22.43		
	RB1#14	22.75	22.95	22.65		
	RB6#0	21.9	22.27	21.61		
	RB6#9	21.91	22.21	21.97		
	RB15#0	21.94	22.27	21.72		
3MHz 16QAM	RB1#0	21.72	21.61	21.7	14.91	38.45
	RB1#8	21.59	21.59	21.73		
	RB1#14	21.61	21.63	22.06		
	RB6#0	21.1	21.41	21.14		
	RB6#9	21.05	21.48	20.94		
	RB15#0	20.98	21.28	21.2		
5MHz QPSK	RB1#0	22.76	22.93	22.6	15.78	38.45
	RB1#13	22.64	22.85	22.48		
	RB1#24	22.65	22.76	22.6		
	RB15#0	21.92	22.24	21.82		
	RB15#10	21.78	22.15	21.69		
	RB25#0	21.87	22.14	21.7		
5MHz 16QAM	RB1#0	21.57	21.54	20.65	14.45	38.45
	RB1#13	21.52	21.6	20.46		
	RB1#24	21.55	21.6	20.81		
	RB15#0	20.72	21.2	20.94		
	RB15#10	20.68	21.25	21.21		
	RB25#0	20.76	21.13	21.23		
10MHz QPSK	RB1#0	22.72	22.65	22.87	15.80	38.45

	RB1#25	22.57	22.95	22.56		
	RB1#49	22.75	22.76	22.57		
	RB25#0	21.97	22.17	22.11		
	RB25#25	21.95	22.21	21.69		
	RB50#0	21.82	22.2	21.95		
10MHz 16QAM	RB1#0	22.39	21.14	22.06	15.29	38.45
	RB1#25	22.31	21.45	21.92		
	RB1#49	22.44	21.29	21.85		
	RB25#0	20.88	21.41	21.12		
	RB25#25	20.95	21.31	21.21		
	RB50#0	21.37	21.24	21.13		

Note: ERP= Conducted Power(dBm) - Lc(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	4.84	5.07	5.19	13
	RB50#0	5.19	5.25	5.28	13
10MHz 16QAM	RB1#0	5.77	5.91	6.17	13
	RB50#0	6.03	6.17	6.14	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	1.096	1.254	1.248	1.254
1.4MHz 16QAM	1.102	1.102	1.090	1.254	1.260	1.248
3MHz QPSK	2.695	2.683	2.695	3.012	3.012	2.988
3MHz 16QAM	2.683	2.695	2.695	3.000	3.012	3.000
5MHz QPSK	4.511	4.511	4.531	5.000	5.000	5.000
5MHz 16QAM	4.531	4.531	4.491	5.020	5.020	4.980
10MHz QPSK	8.942	8.942	8.982	9.760	9.800	9.800
10MHz 16QAM	8.942	8.942	8.942	9.800	9.840	9.720

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.
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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.
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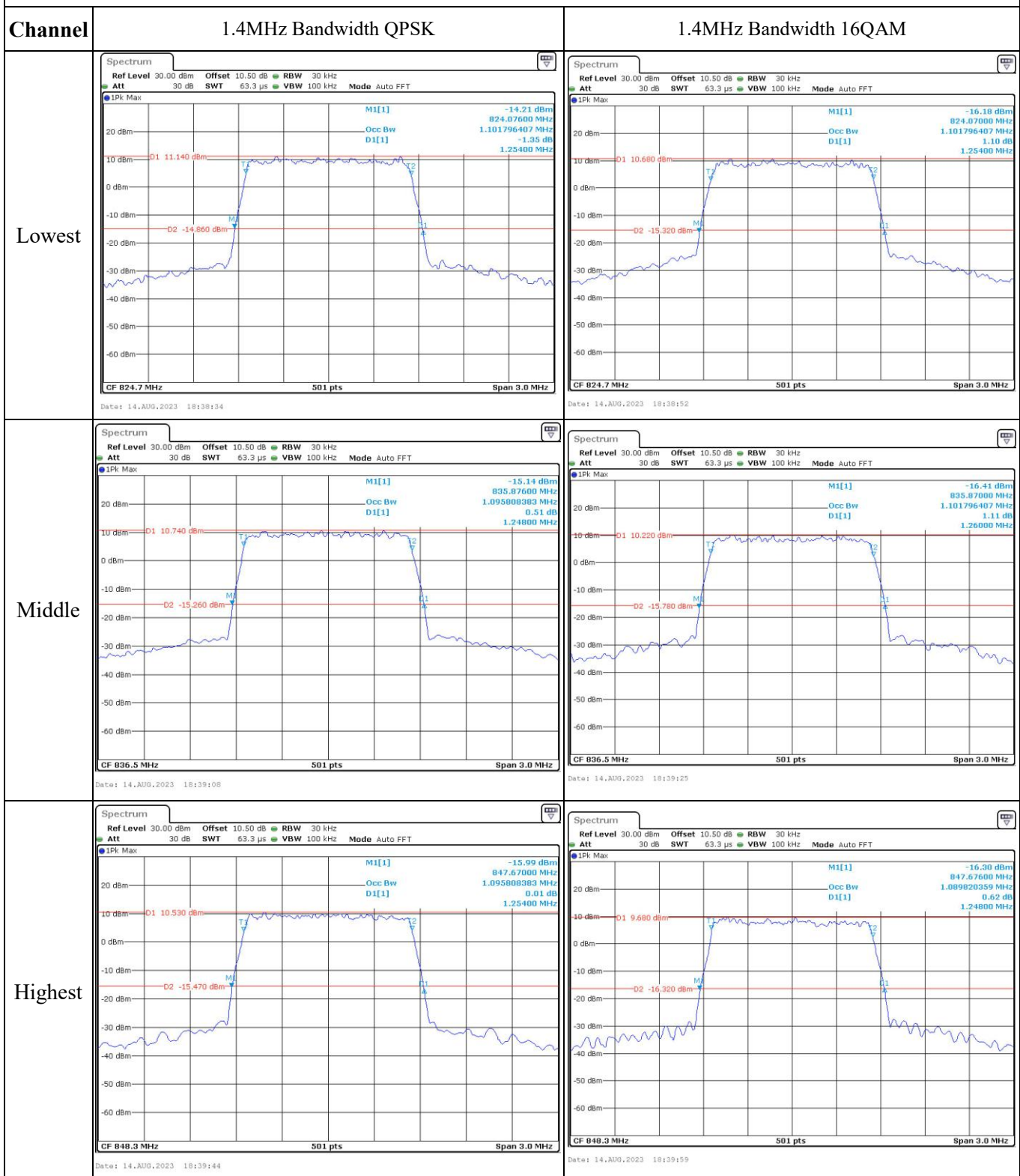
FCC §2.1055, §22.355: Frequency Stability

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	5.94	0.007	2.5
	-20	3.85	-8.96	-0.011	2.5
	-10	3.85	8.3	0.010	2.5
	0	3.85	-5.24	-0.006	2.5
	10	3.85	-8.93	-0.011	2.5
	20	3.85	6.28	0.008	2.5
	30	3.85	9.29	0.011	2.5
	40	3.85	-9.43	-0.011	2.5
	50	3.85	8.09	0.010	2.5
Frequency Stability vs. Voltage	20	3.35	5.2	0.006	2.5
	20	4.4	8.96	0.011	2.5
Result:				Pass	

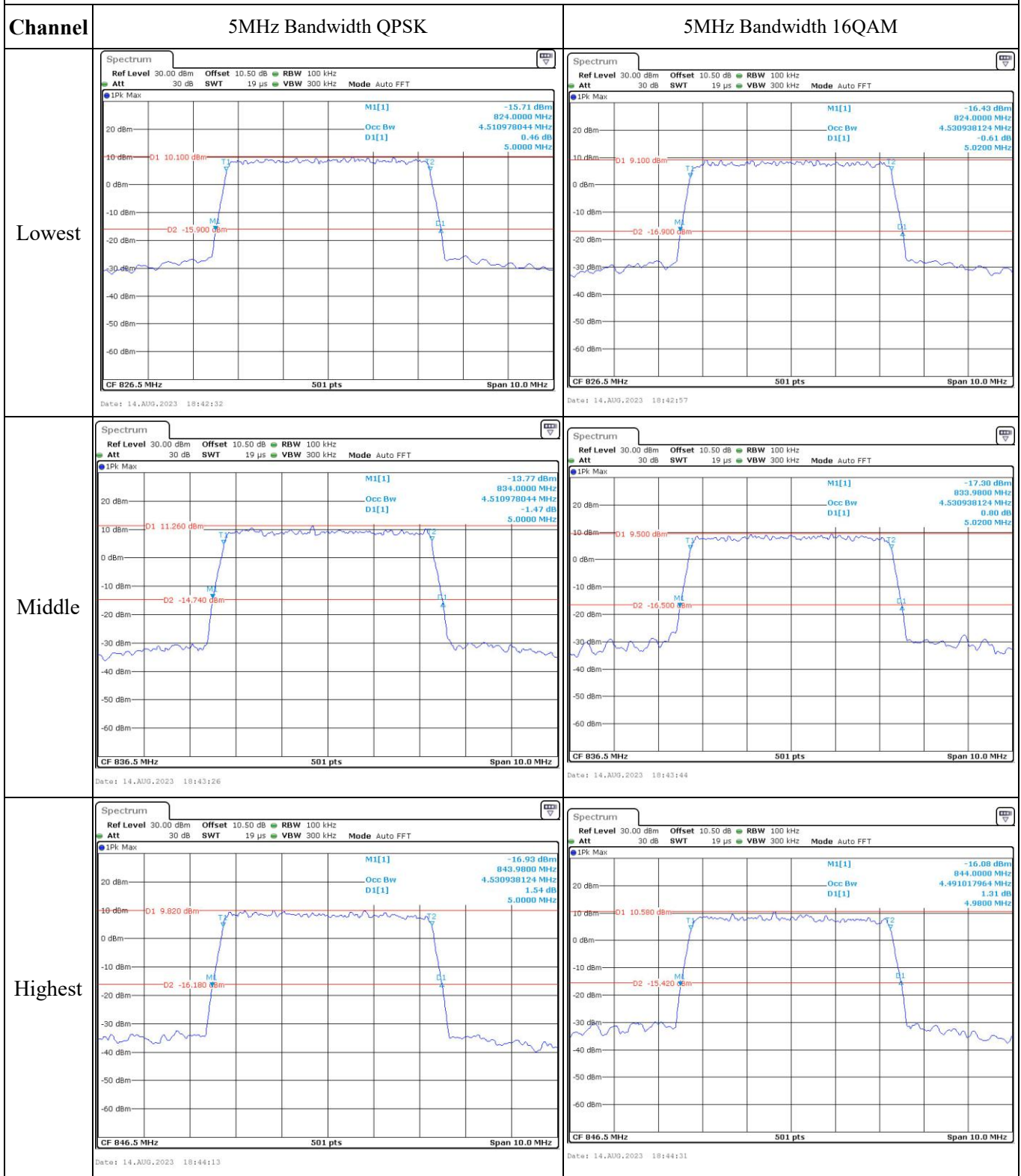
Test Modulation:	10 MHz 16QAM		Test Channel:	836.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.85	-16.92	-0.020	2.5
	-20	3.85	6.6	0.008	2.5
	-10	3.85	6.2	0.007	2.5
	0	3.85	7.97	0.010	2.5
	10	3.85	-5.46	-0.007	2.5
	20	3.85	9.38	0.011	2.5
	30	3.85	-7.67	-0.009	2.5
	40	3.85	6.44	0.008	2.5
	50	3.85	10.89	0.013	2.5
Frequency Stability vs. Voltage	20	3.35	9.74	0.012	2.5
	20	4.4	4.51	0.005	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



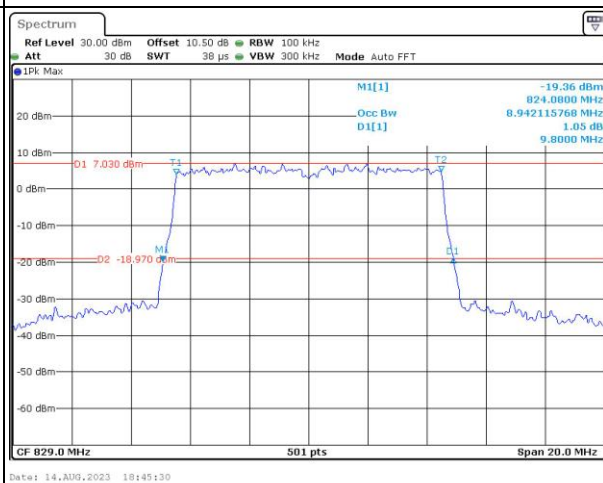
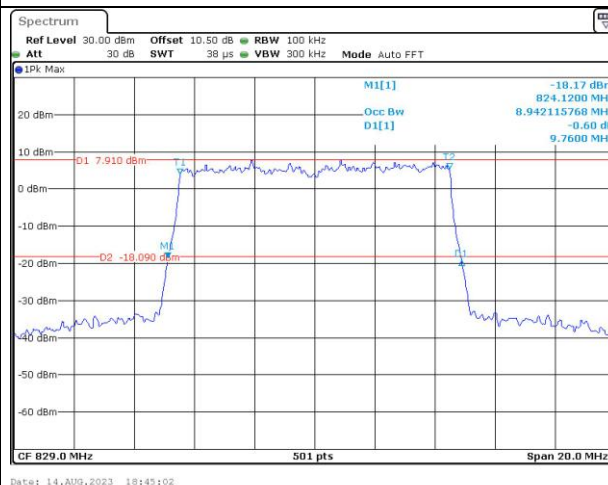
Occupied Bandwidth

Channel

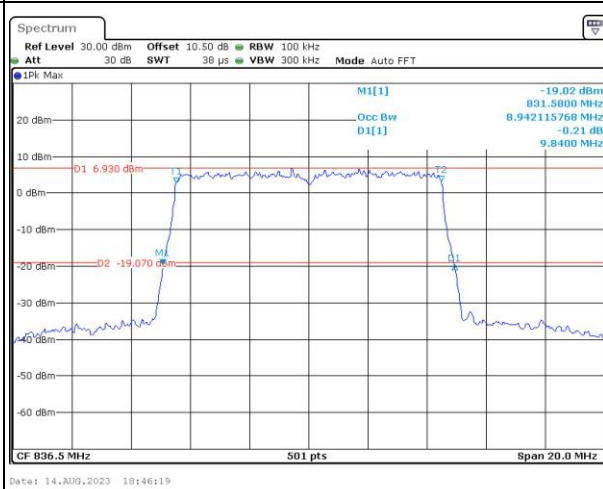
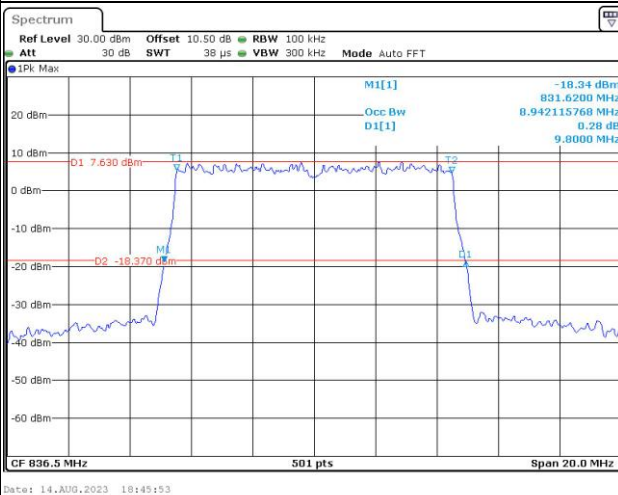
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

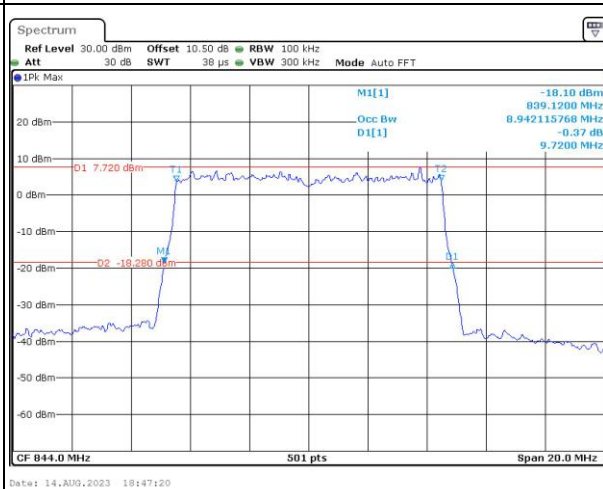
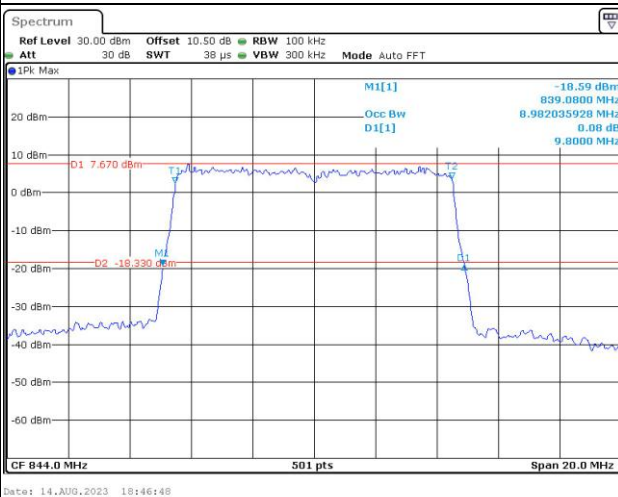
Lowest



Middle



Highest

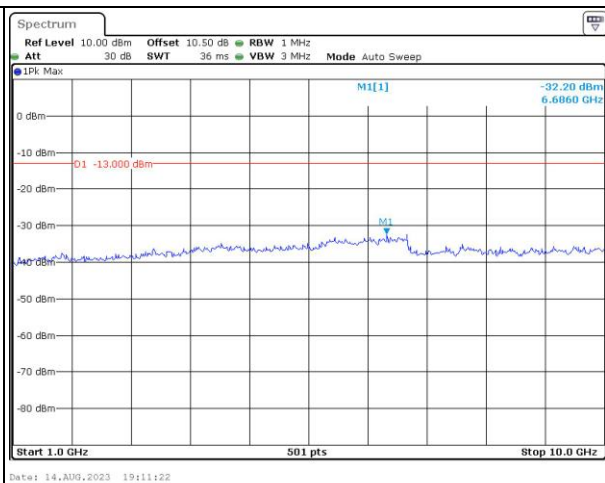
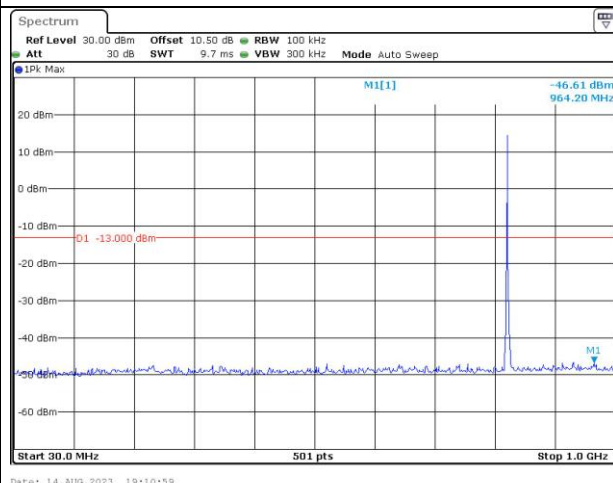


Spurious Emissions at Antenna Terminal

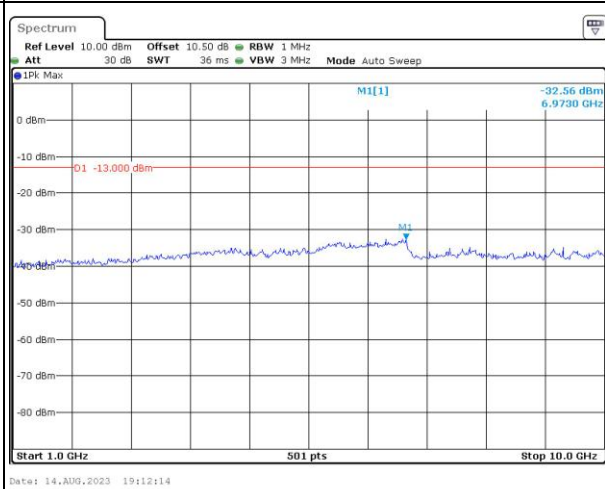
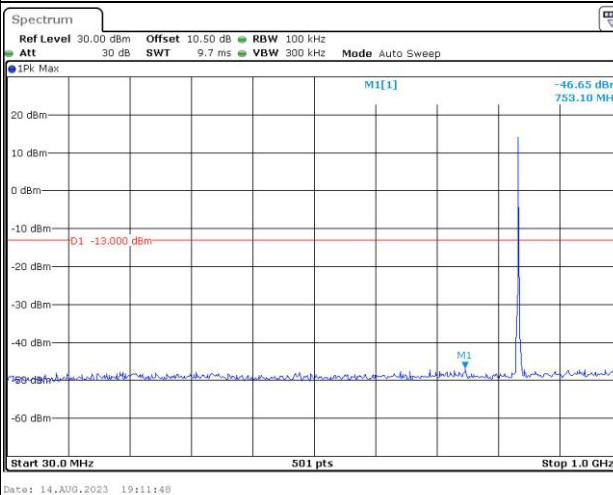
Channel

1.4MHz Bandwidth QPSK

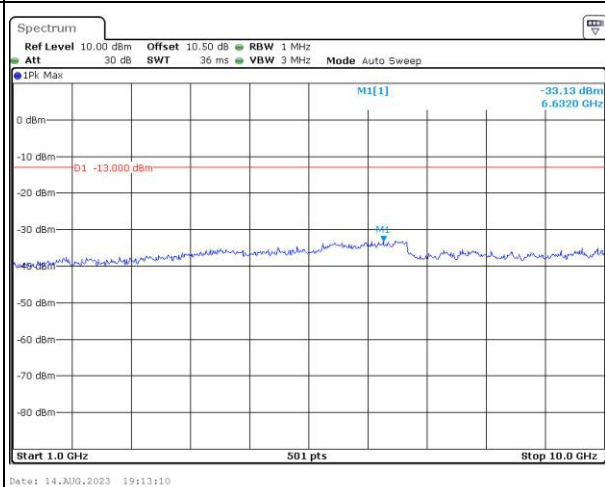
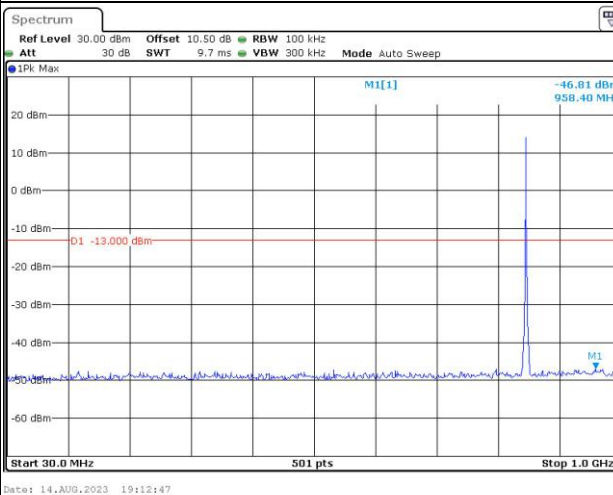
Lowest



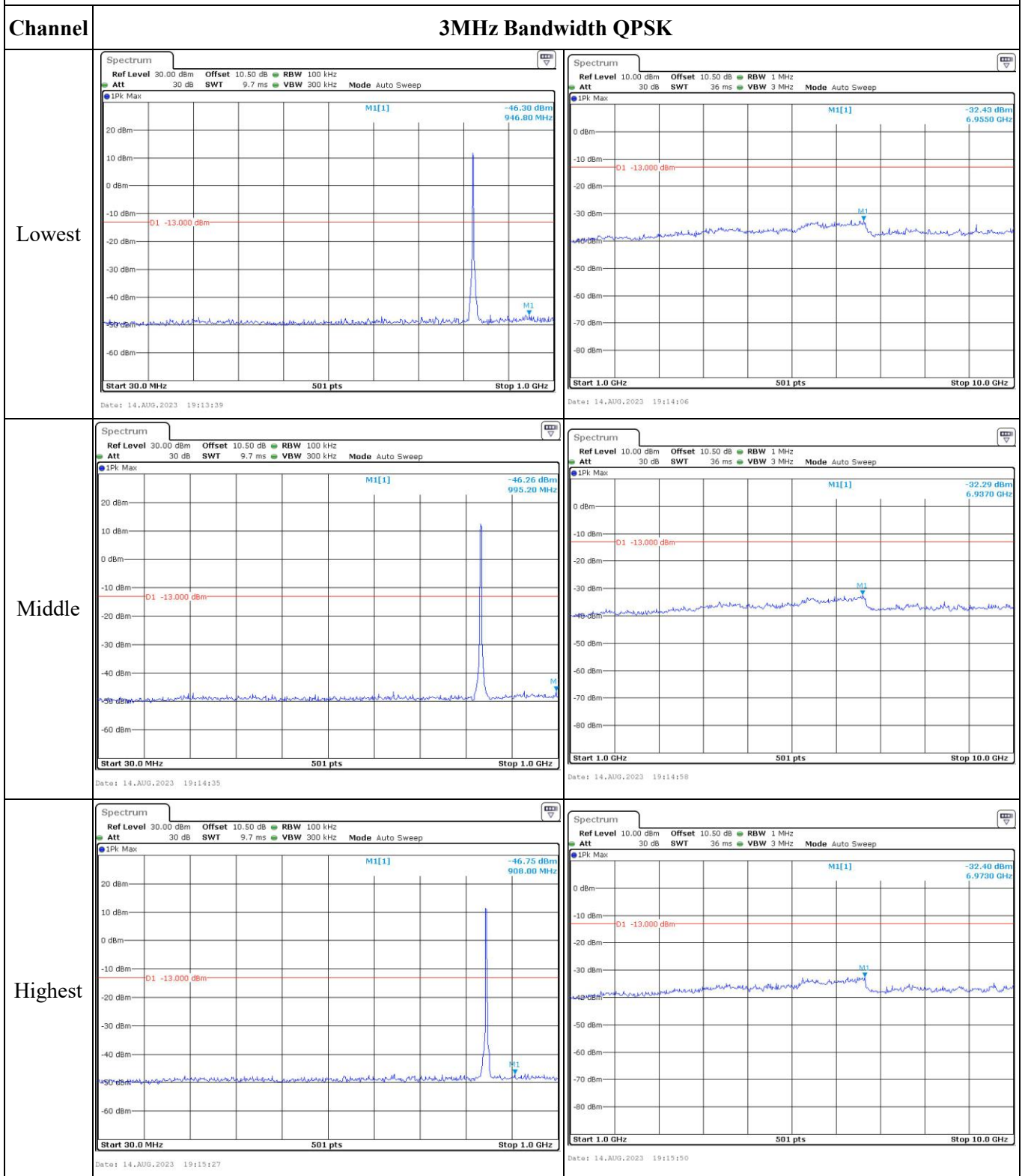
Middle



Highest



Spurious Emissions at Antenna Terminal

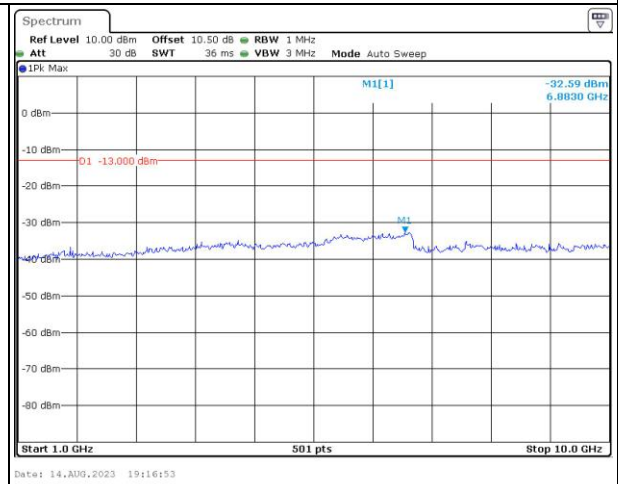
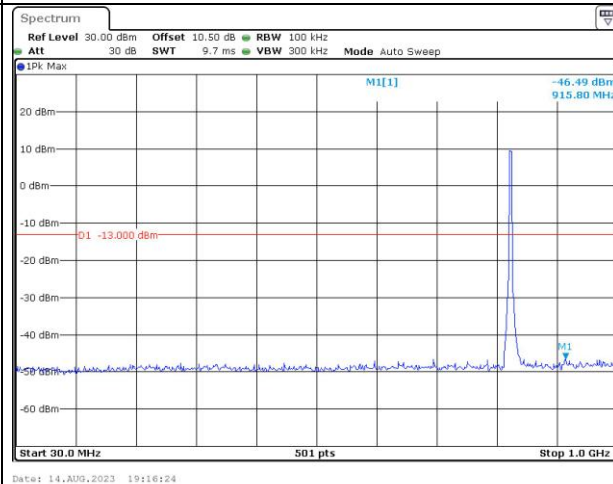


Spurious Emissions at Antenna Terminal

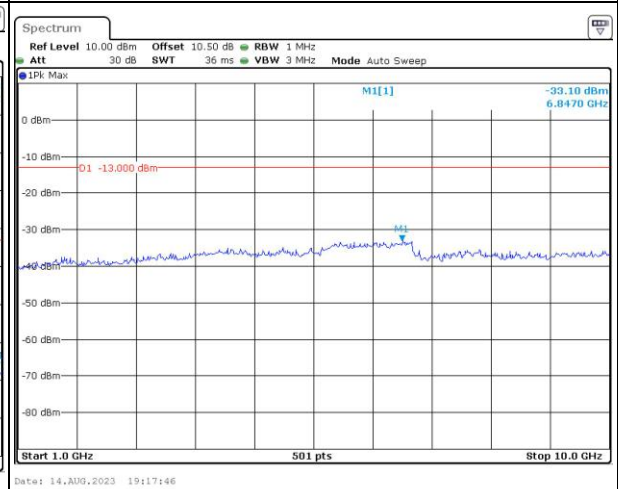
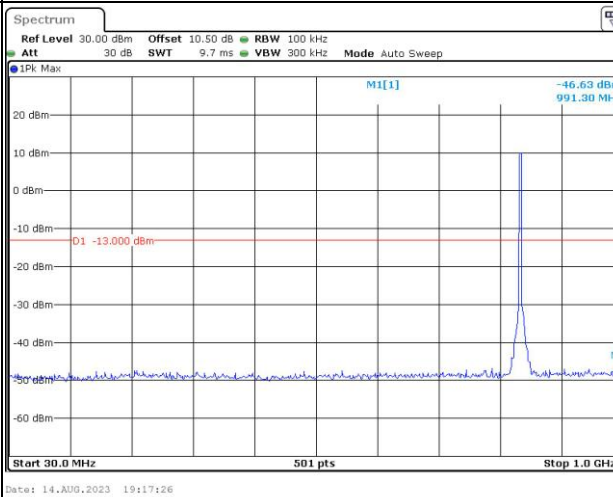
Channel

5MHz Bandwidth QPSK

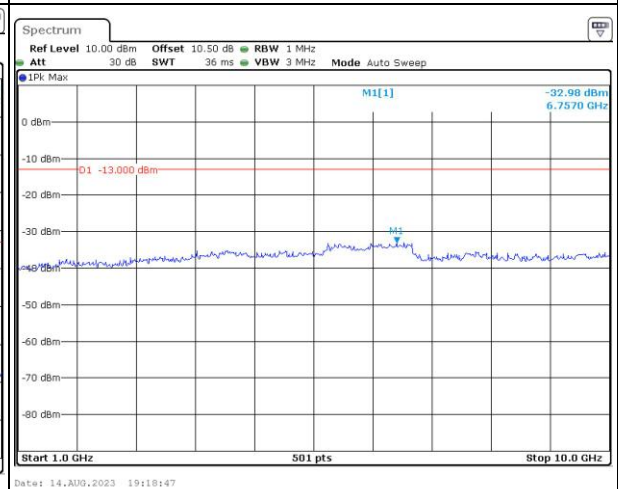
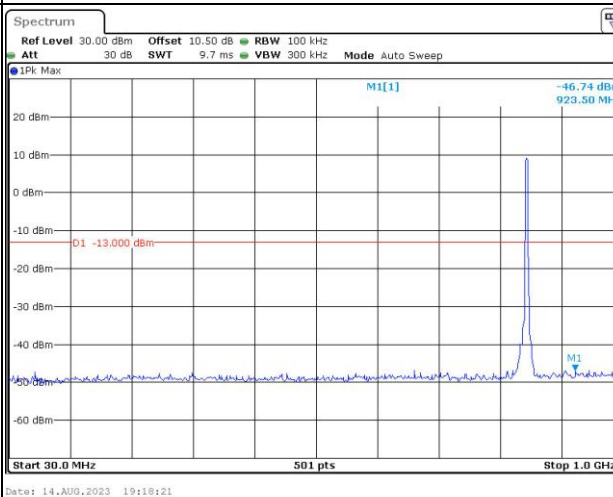
Lowest



Middle



Highest

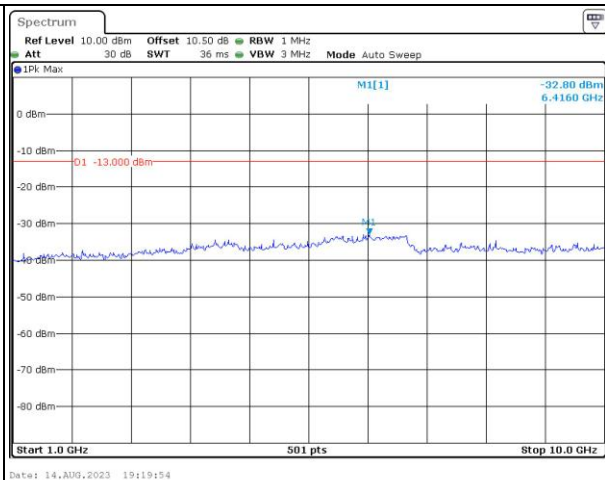
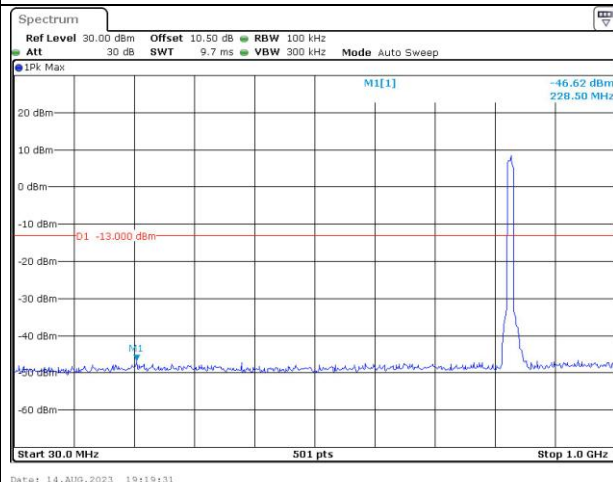


Spurious Emissions at Antenna Terminal

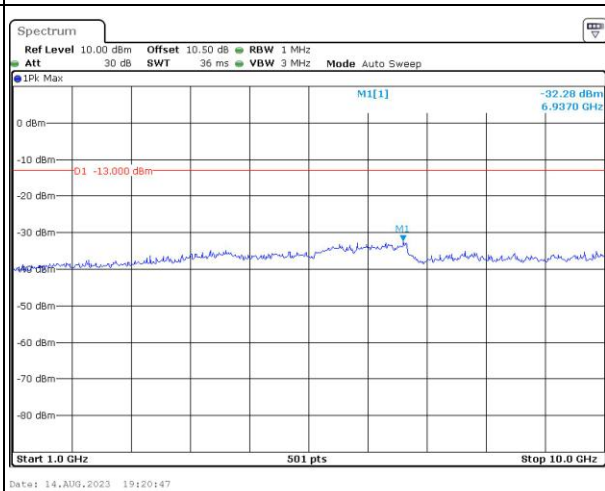
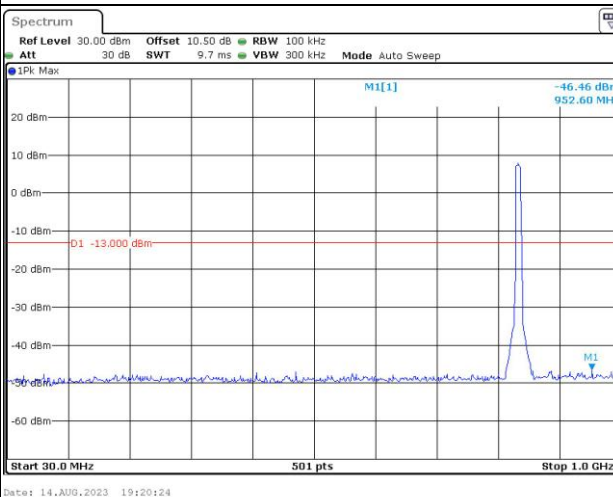
Channel

10MHz Bandwidth QPSK

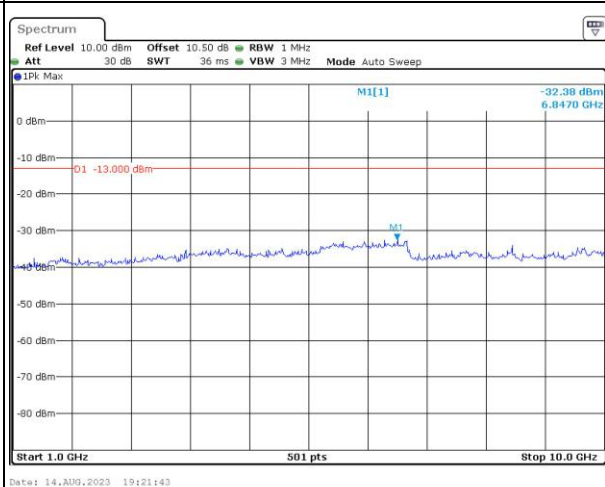
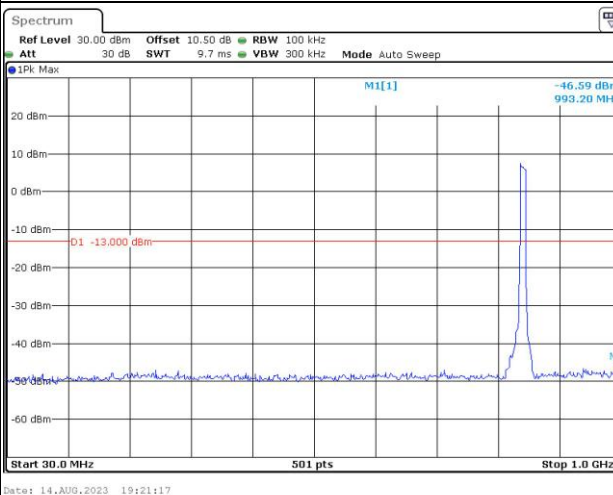
Lowest



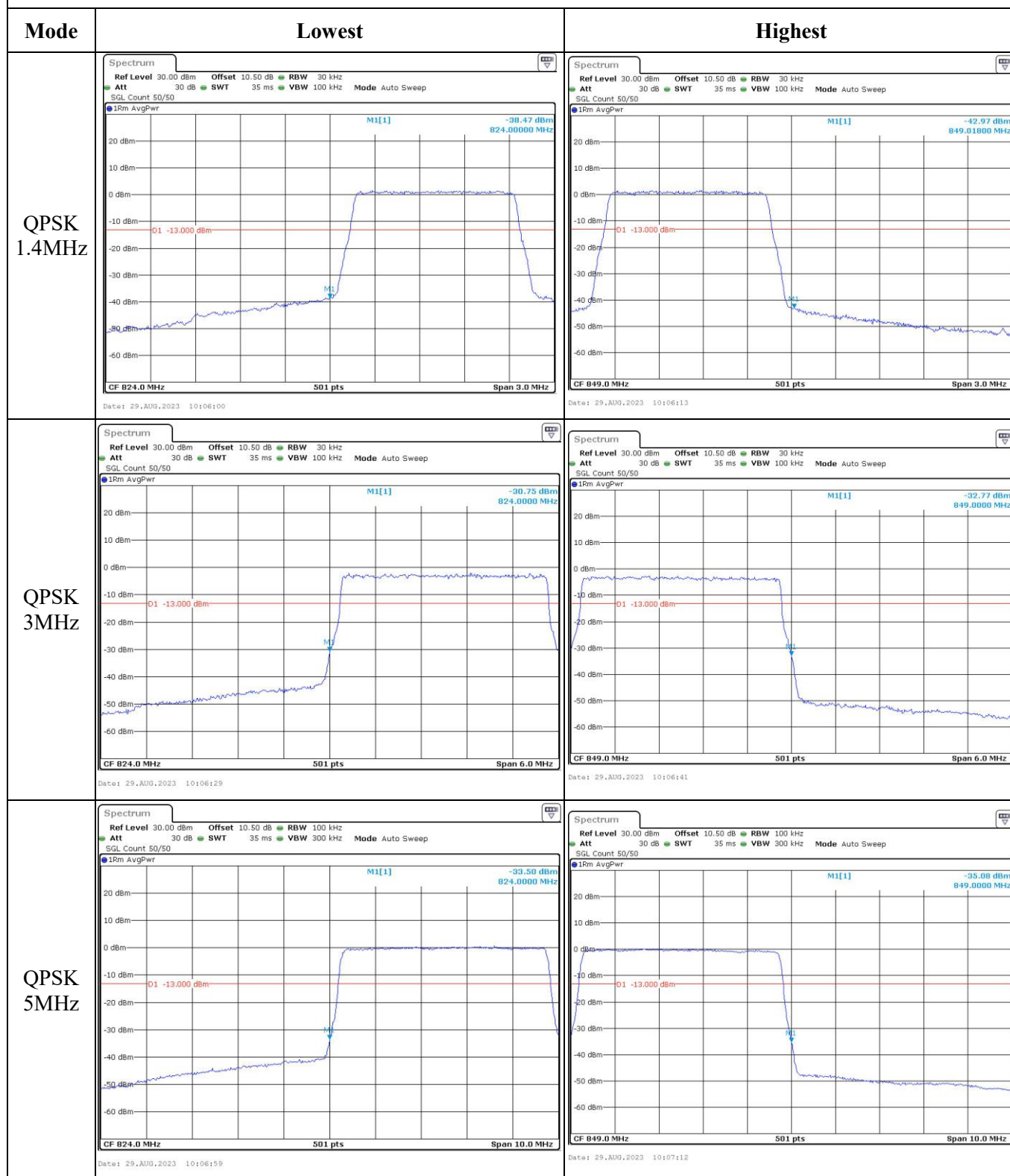
Middle

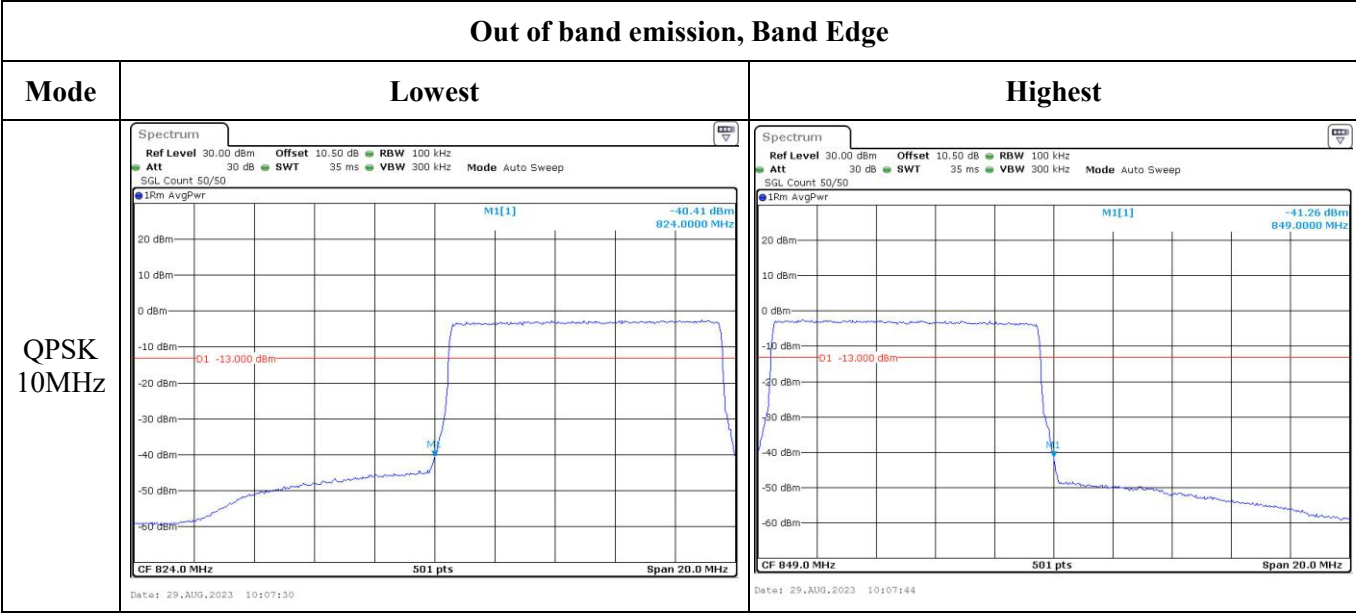


Highest

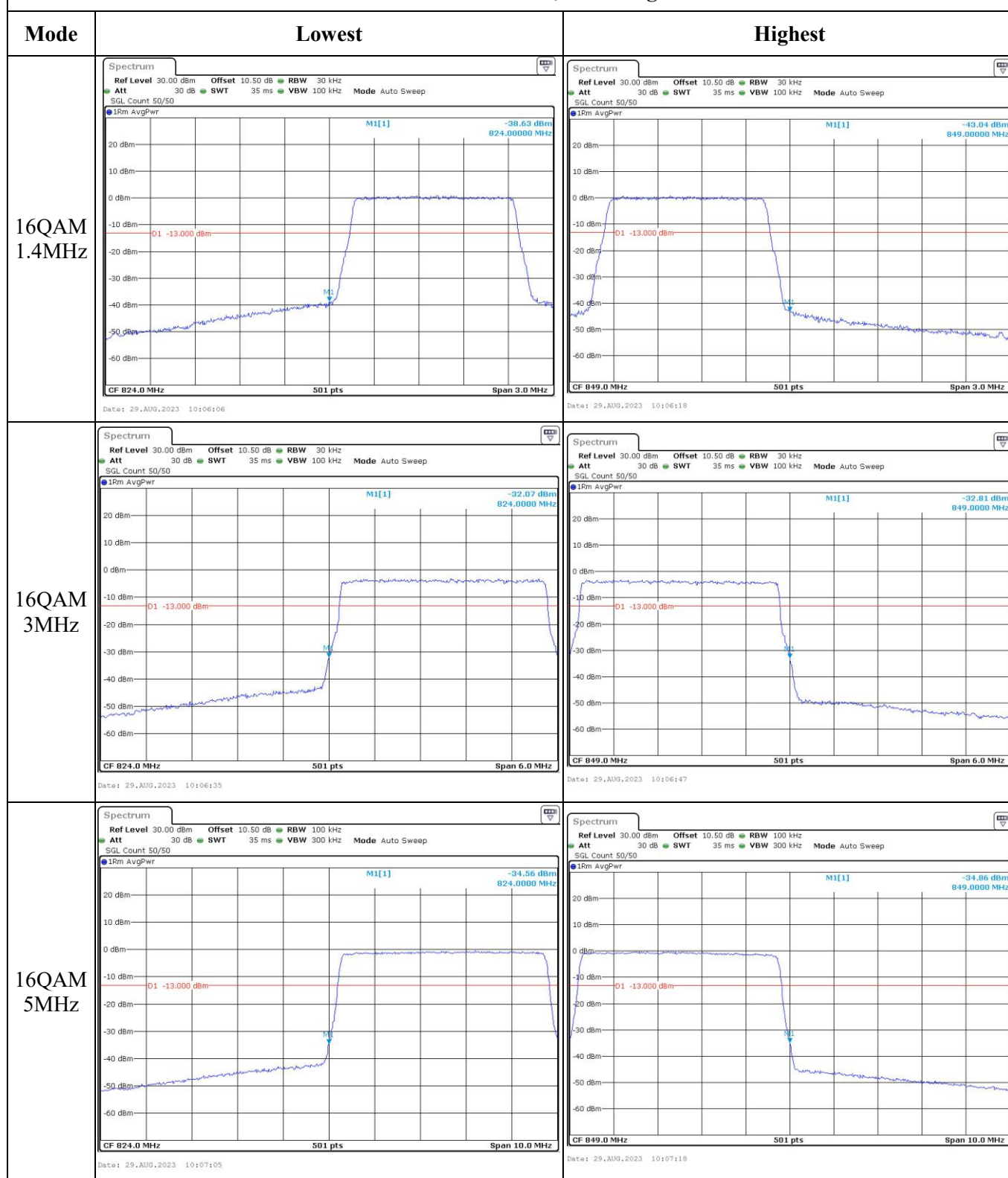


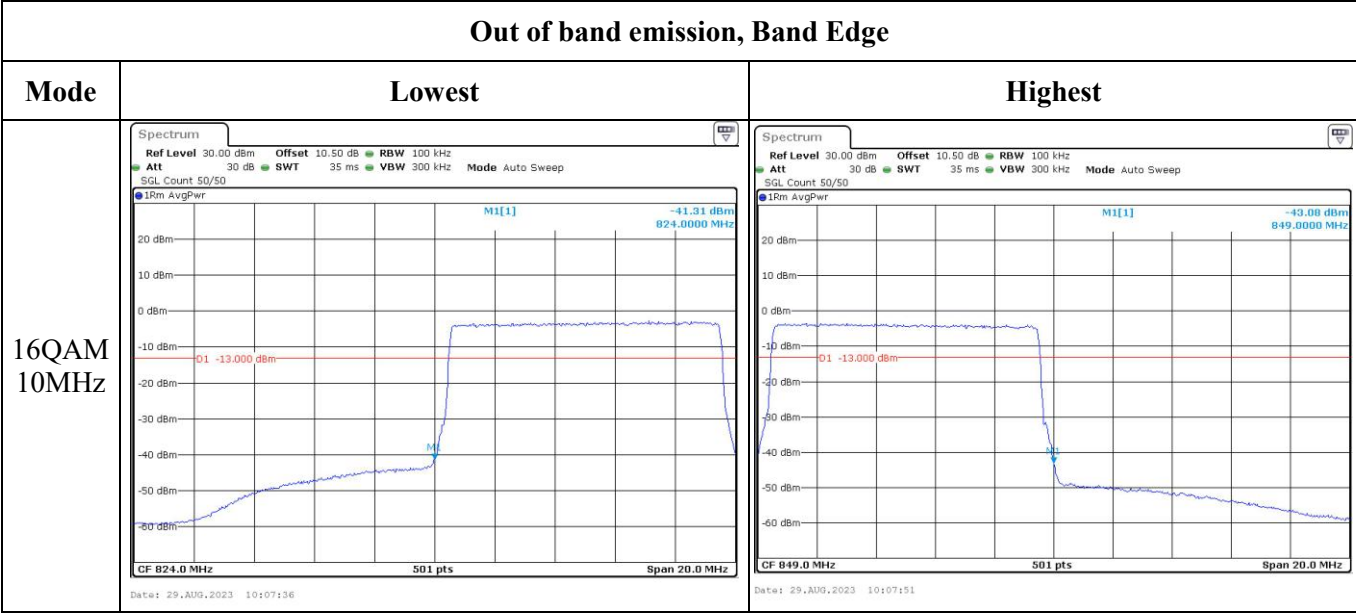
Out of band emission, Band Edge





Out of band emission, Band Edge





4.9 Antenna Port Test Data and Results for LTE Band 7

Serial Number:	2A4I-1	Test Date:	2023/8/13-2023/8/14
Test Site:	RF	Test Mode:	Transmitting
Tester:	Panda Sun	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.3~25.6	Relative Humidity: (%)	64-68	ATM Pressure: (kPa)	101
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40-N	102259	2023/4/18	2024/4/17
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060301	Each time	N/A

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

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
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	19.76	19.35	19.26	19.56	33
	RB1#13	19.67	19.25	19.41		
	RB1#24	19.74	19.21	19.24		
	RB15#0	19.15	18.9	18.68		
	RB15#10	19.13	18.79	18.74		
	RB25#0	19.21	18.79	18.65		
5MHz 16QAM	RB1#0	18.7	17.93	17.49	18.51	33
	RB1#13	18.71	17.93	17.42		
	RB1#24	18.68	17.82	17.41		
	RB15#0	17.89	17.51	17		
	RB15#10	17.91	17.43	17.07		
	RB25#0	17.9	17.47	17.03		
10MHz QPSK	RB1#0	19.86	19.41	19.2	19.66	33
	RB1#25	19.75	19.31	19.14		
	RB1#49	19.68	19.34	19.13		
	RB25#0	19.09	18.86	18.77		
	RB25#25	19	18.82	18.74		
	RB50#0	19.07	18.83	18.84		
10MHz 16QAM	RB1#0	18.81	17.97	18.41	18.61	33
	RB1#25	18.75	17.87	18.35		
	RB1#49	18.66	17.8	18.36		
	RB25#0	17.54	17.15	16.57		
	RB25#25	17.79	17.17	17.01		
	RB50#0	17.67	17.13	16.79		
15MHz QPSK	RB1#0	19.79	19.45	19.23	19.59	33
	RB1#38	19.66	19.28	19.19		
	RB1#74	19.59	19.34	19.15		
	RB36#0	19.15	18.92	18.87		
	RB36#39	19	18.81	18.73		
	RB75#0	18.99	18.92	18.81		
15MHz 16QAM	RB1#0	18.79	18.88	18.45	18.68	33
	RB1#38	18.82	18.79	18.45		
	RB1#74	18.71	18.75	18.36		
	RB36#0	17.99	18.12	16.76		
	RB36#39	18	17.65	16.93		
	RB75#0	18.01	17.86	16.81		
20MHz QPSK	RB1#0	19.79	19.64	19.27	19.59	33

	RB1#50	19.62	19.46	19.16		
	RB1#99	19.44	19.4	19.16		
	RB50#0	19.24	18.99	18.7		
	RB50#50	18.96	18.86	18.69		
	RB100#0	18.99	18.9	18.77		
20MHz 16QAM	RB1#0	19.28	19.1	18.1	19.08	33
	RB1#50	19.11	18.9	18.1		
	RB1#99	18.94	18.86	18		
	RB50#0	17.9	17.86	16.33		
	RB50#50	17.83	17.26	16.65		
	RB100#0	17.88	17.55	16.54		

Note: EIRP=Conducted Power(dBm) - Lc(dB) + G_T(dBi)

Result:

Pass

Peak-to-average Ratio(PAR)

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	5.54	5.88	5.68	13
	RB100#0	5.42	5.48	5.45	13
20MHz 16QAM	RB1#0	6.00	6.93	6.06	13
	RB100#0	6.17	6.32	6.29	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	5.000	5.000	5.000
5MHz 16QAM	4.531	4.531	4.511	5.020	5.040	4.980
10MHz QPSK	8.942	8.942	8.942	9.760	9.760	9.840
10MHz 16QAM	8.942	8.942	8.942	9.800	9.840	9.680
15MHz QPSK	13.473	13.473	13.533	14.940	15.120	15.060
15MHz 16QAM	13.533	13.533	13.533	14.940	15.060	14.880
20MHz QPSK	17.964	17.964	18.044	19.520	19.760	19.520
20MHz 16QAM	17.964	17.964	18.044	19.600	19.680	19.680

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.
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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.
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