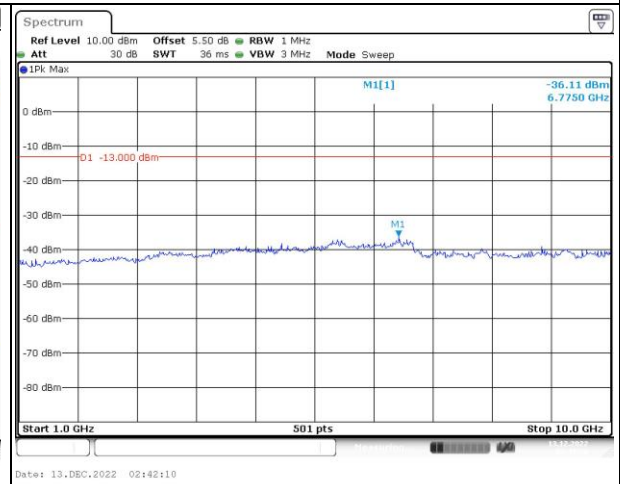
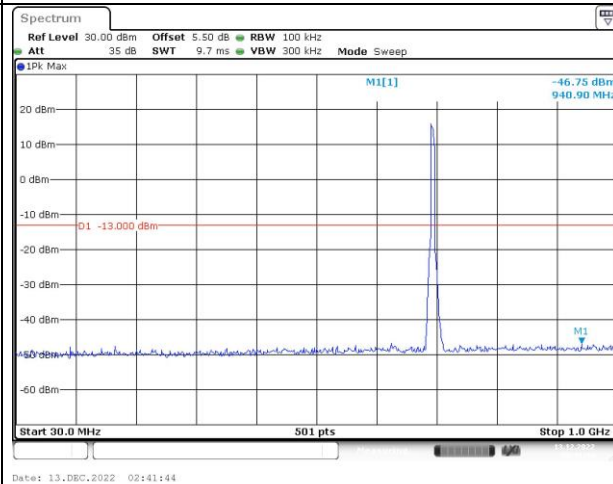


Spurious Emissions at Antenna Terminal

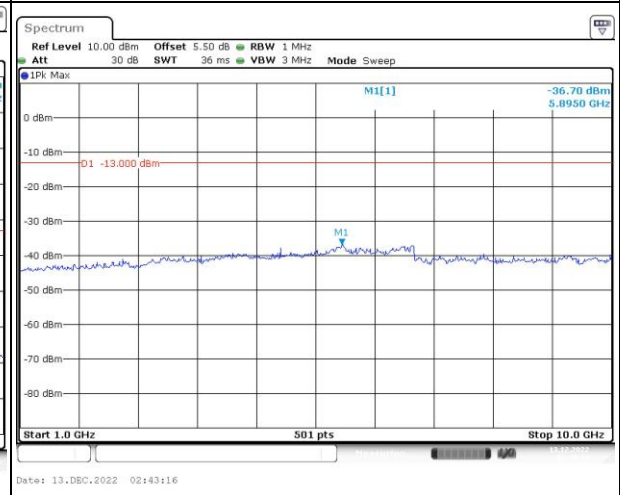
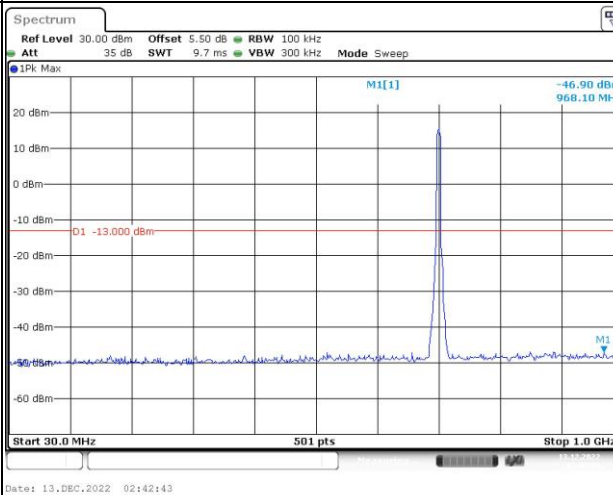
Channel

5MHz Bandwidth QPSK

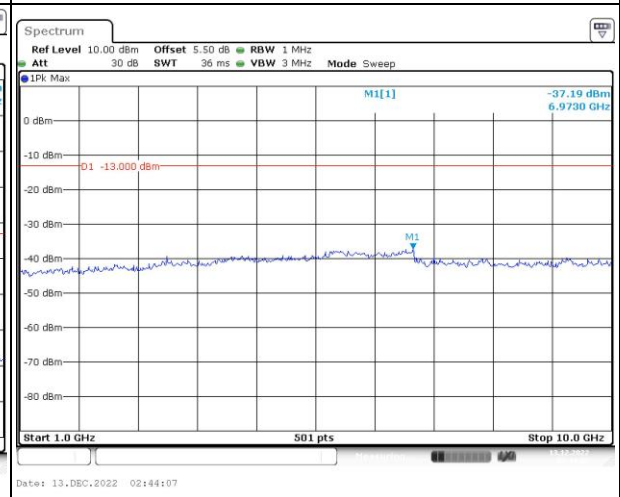
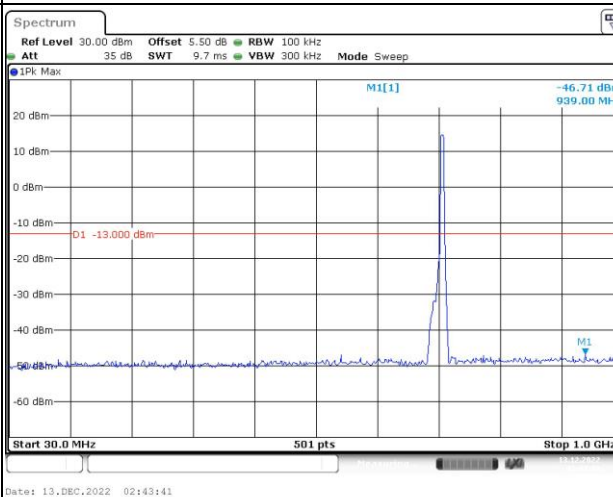
Lowest



Middle



Highest

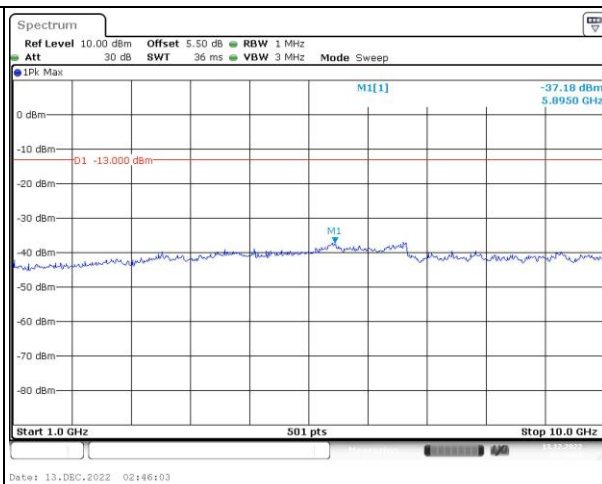
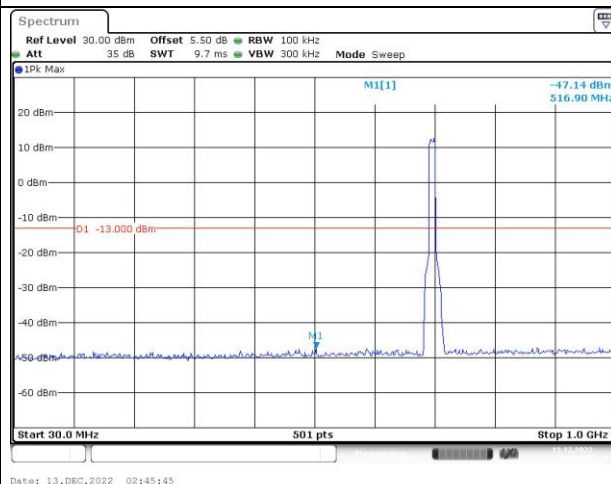


Spurious Emissions at Antenna Terminal

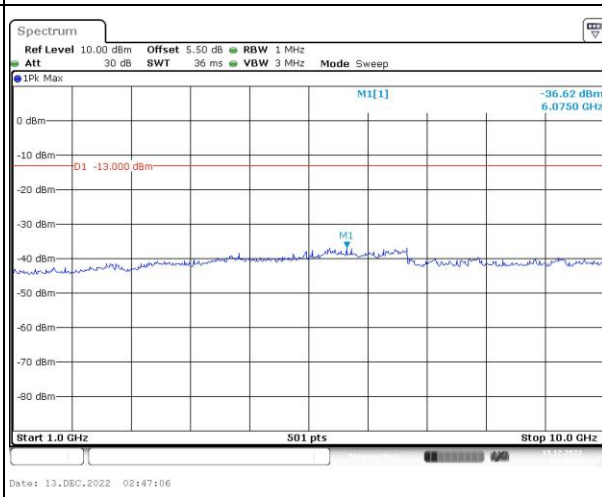
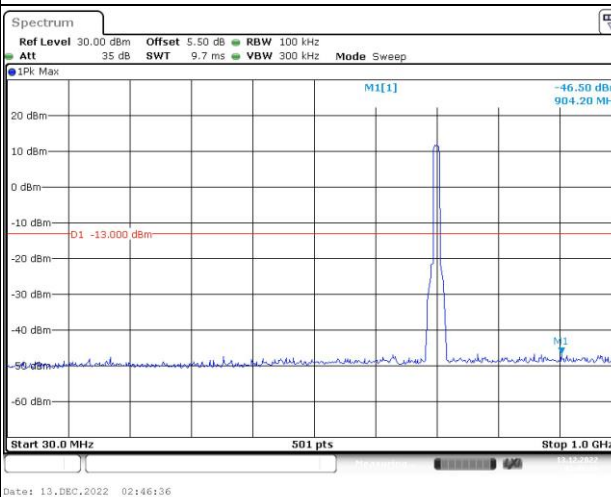
Channel

10MHz Bandwidth QPSK

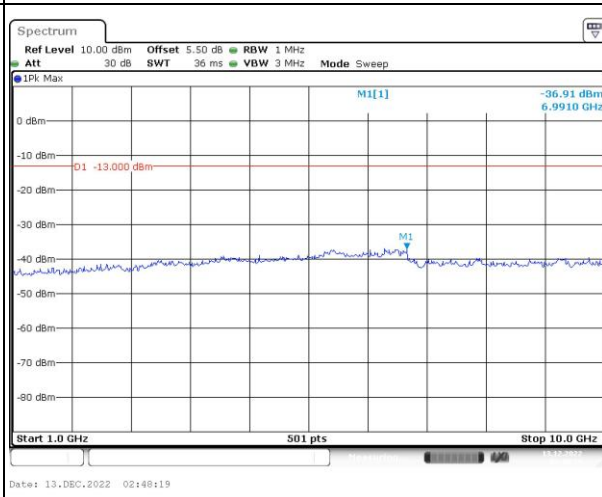
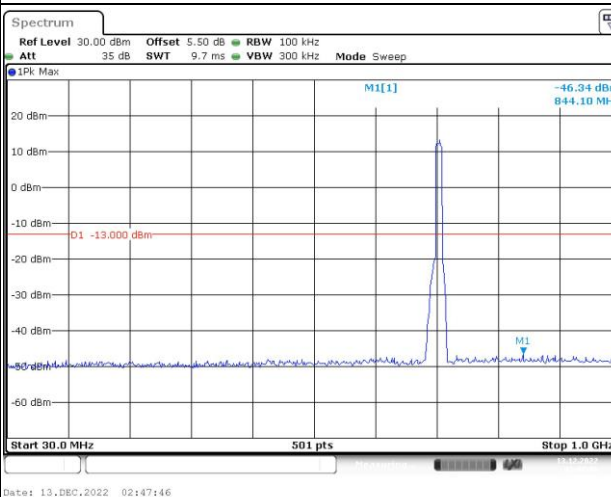
Lowest



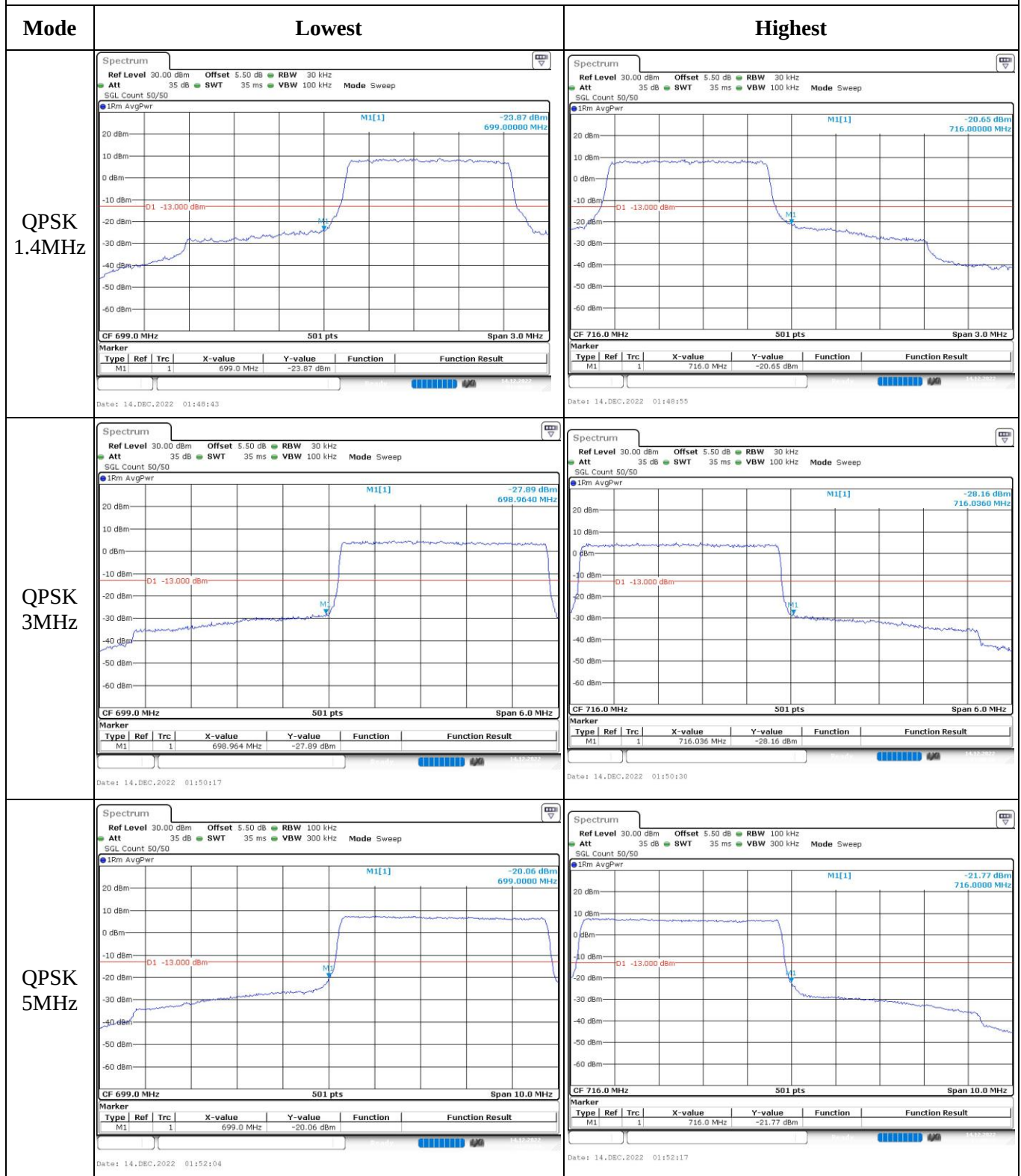
Middle



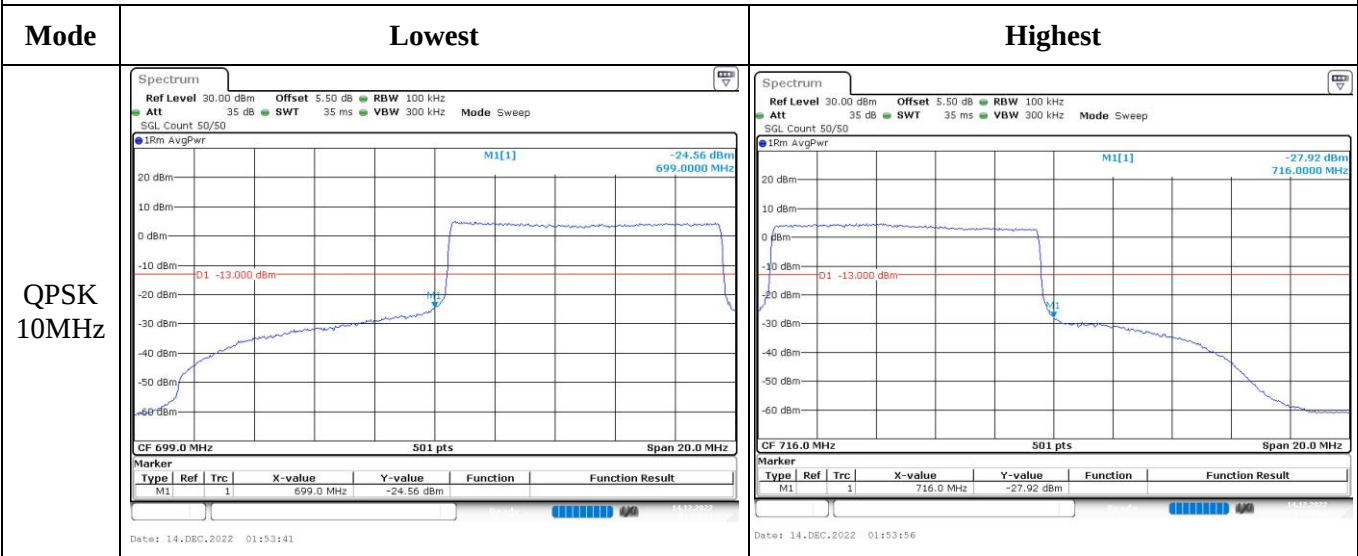
Highest



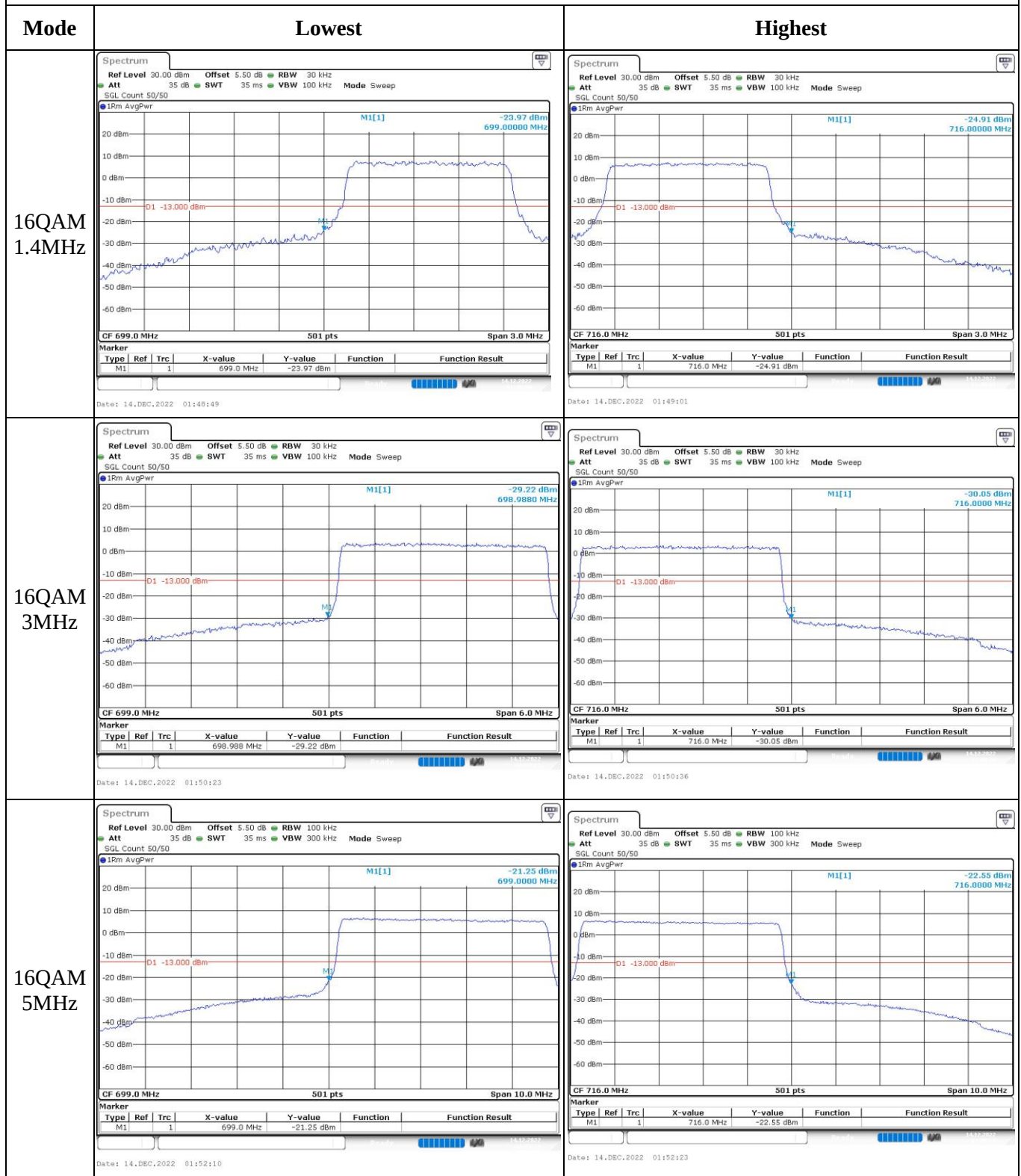
Out of band emission, Band Edge



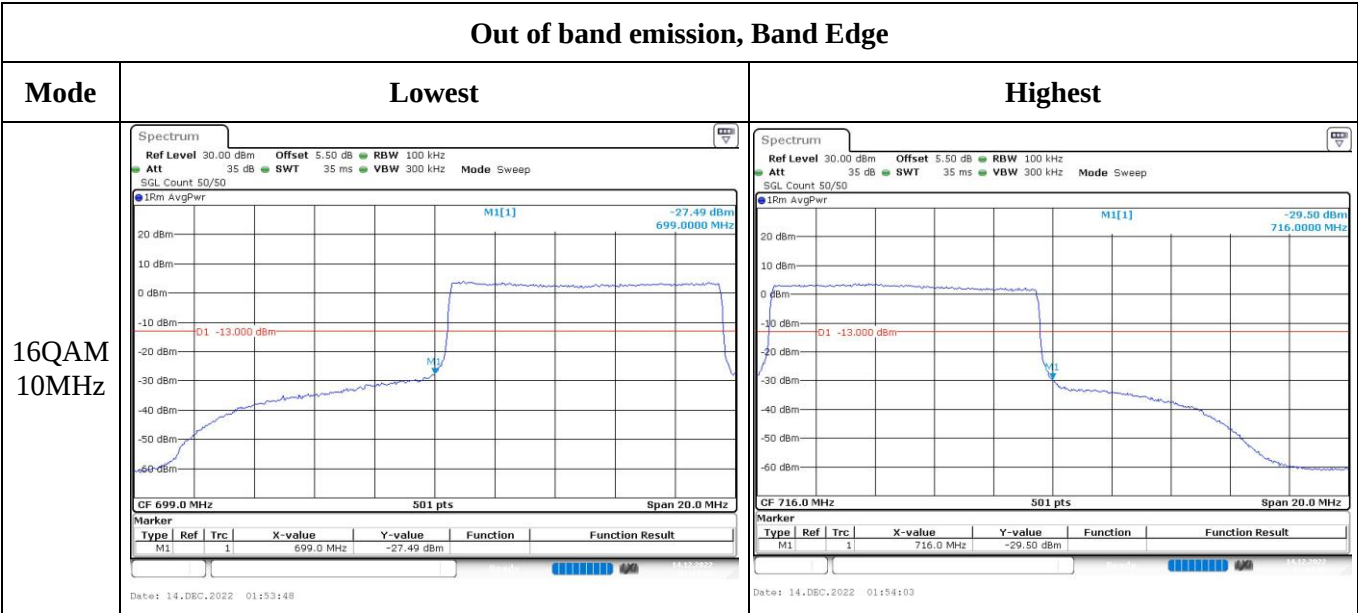
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.11 Antenna Port Test Data and Results for LTE Band 17

Serial Number:	1TSA	Test Date:	2022/12/13~2022/12/20
Test Site:	RF	Test Mode:	Transmitting
Tester:	George chen	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	21.2~24.3	Relative Humidity: (%)	36~49	ATM Pressure: (kPa)	100.6~101.8
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2022/7/15	2023/7/14
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Power Splitter	1515	RA914	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2022/4/6	2023/4/5
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2022/4/6	2023/4/5
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
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	706.5	710	713.5
10MHz	709	710	711

Test Data:**FCC §2.1046; § 27.50(c) (10)****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		
5MHz QPSK	RB1#0	23.26	23.24	23.18	21.34	34.77
	RB1#13	23.39	23.36	23.34		
	RB1#24	23.31	23.23	23.31		
	RB15#0	22.35	22.39	22.44		
	RB15#10	22.4	22.35	22.43		
	RB25#0	22.36	22.27	22.31		
5MHz 16QAM	RB1#0	22.49	22.25	22.07	20.57	34.77
	RB1#13	22.62	22.37	22.17		
	RB1#24	22.52	22.27	22.04		
	RB15#0	21.28	21.37	21.4		
	RB15#10	21.34	21.33	21.35		
	RB25#0	21.3	21.3	21.36		
10MHz QPSK	RB1#0	23.3	23.3	23.29	21.52	34.77
	RB1#25	23.57	23.54	23.5		
	RB1#49	23.41	23.36	23.45		
	RB25#0	22.36	22.34	22.36		
	RB25#25	22.31	22.34	22.35		
	RB50#0	22.36	22.36	22.34		
10MHz 16QAM	RB1#0	22.28	22.74	22.37	20.85	34.77
	RB1#25	22.48	22.9	22.59		
	RB1#49	22.33	22.78	22.48		
	RB25#0	21.41	21.35	21.36		
	RB25#25	21.34	21.33	21.32		
	RB50#0	21.37	21.31	21.32		

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	3.57	3.39	3.16	13
	RB50#0	4.38	4.38	4.32	13
10MHz 16QAM	RB1#0	4.38	4.29	4.17	13
	RB50#0	5.39	5.39	5.39	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	4.531	4.511	4.551	6.22	5.12	5.24
5MHz 16QAM	4.531	4.551	4.531	5.2	5.2	5.2
10MHz QPSK	8.942	8.942	8.942	9.96	9.92	9.8
10MHz 16QAM	8.942	8.942	8.982	9.88	9.8	9.88

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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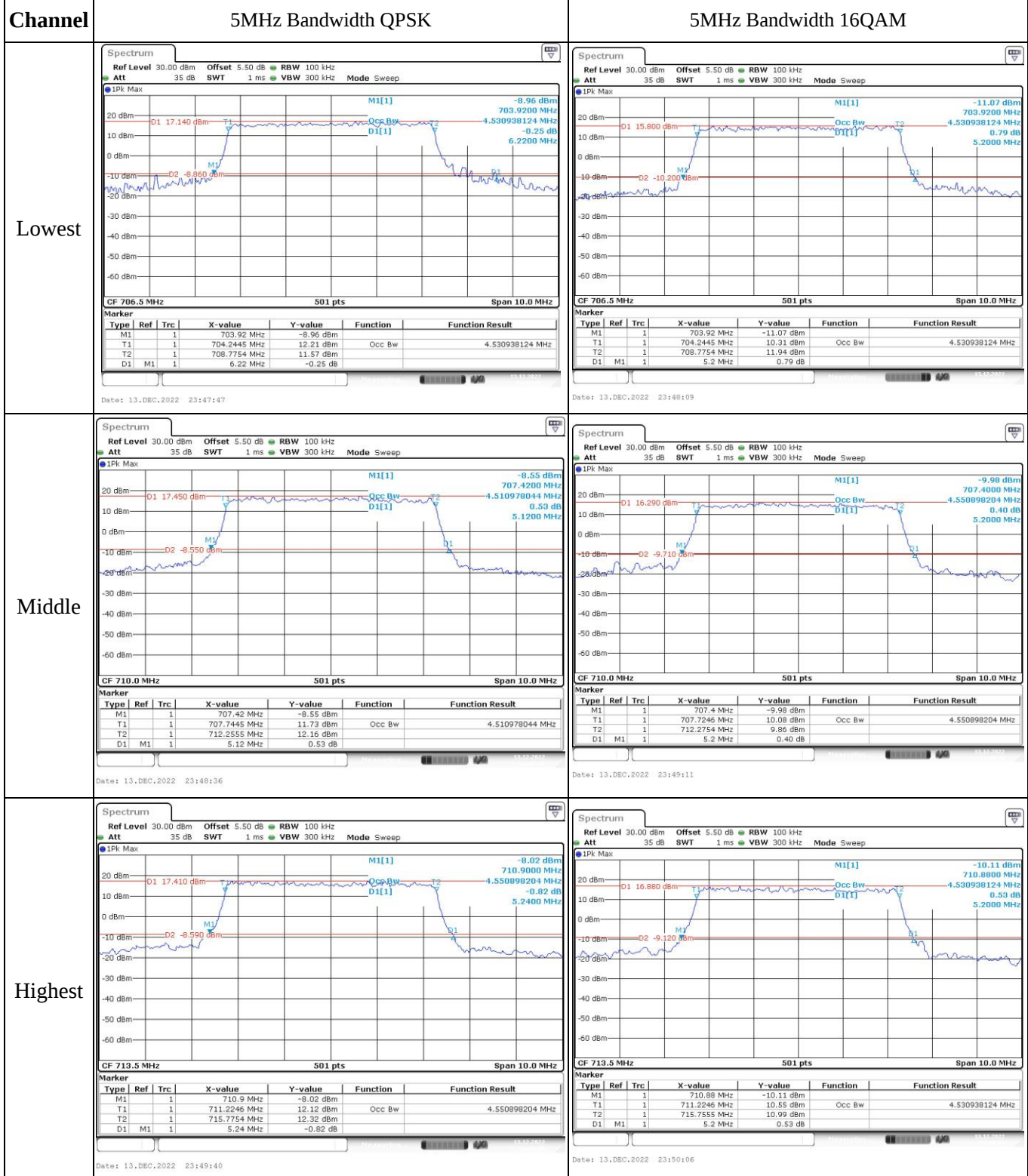
FCC §2.1055, §27.54: Frequency Stability

Test Mode:	10M 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	3.7	704.536	704.00	715.429	716.00
	-20	3.7	704.530	704.00	715.487	716.00
	-10	3.7	704.534	704.00	715.462	716.00
	0	3.7	704.577	704.00	715.490	716.00
	10	3.7	704.574	704.00	715.424	716.00
	20	3.7	704.529	704.00	715.471	716.00
	30	3.7	704.519	704.00	715.490	716.00
	40	3.7	704.573	704.00	715.424	716.00
	50	3.7	704.560	704.00	715.494	716.00
Frequency Stability vs. Voltage	20	3.3	704.539	704.00	715.426	716.00
	20	4.2	704.546	704.00	715.472	716.00
					Result:	Pass

Test Mode:	10M 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	3.7	704.510	704.00	715.464	716.00
	-20	3.7	704.487	704.00	715.549	716.00
	-10	3.7	704.527	704.00	715.488	716.00
	0	3.7	704.563	704.00	715.466	716.00
	10	3.7	704.494	704.00	715.545	716.00
	20	3.7	704.529	704.00	715.511	716.00
	30	3.7	704.482	704.00	715.460	716.00
	40	3.7	704.496	704.00	715.506	716.00
	50	3.7	704.556	704.00	715.497	716.00
Frequency Stability vs. Voltage	20	3.3	704.547	704.00	715.509	716.00
	20	4.2	704.506	704.00	715.529	716.00
					Result:	Pass

Test Plots(Note: The 5.5dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):

Occupied Bandwidth



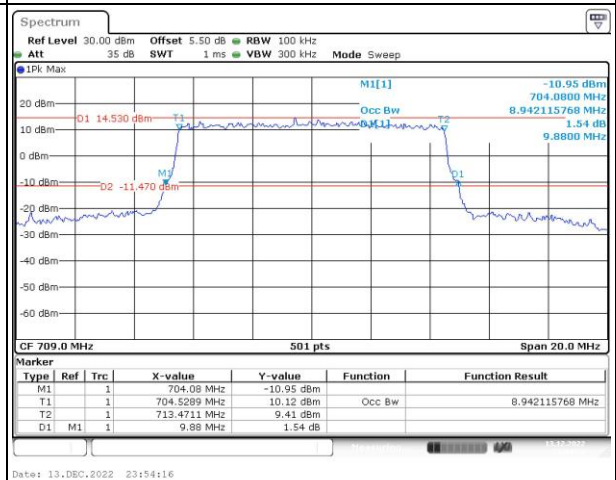
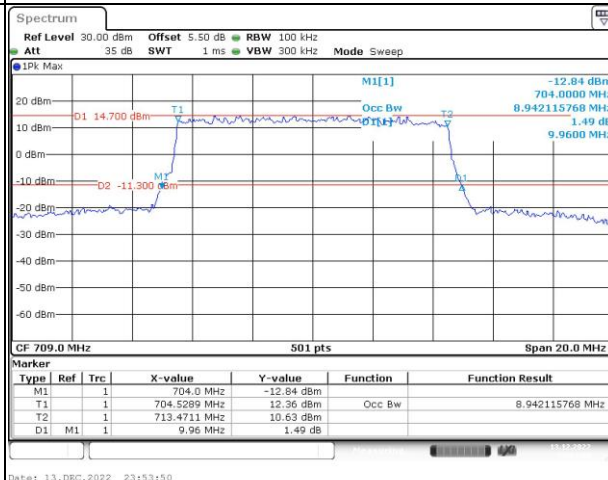
Occupied Bandwidth

Channel

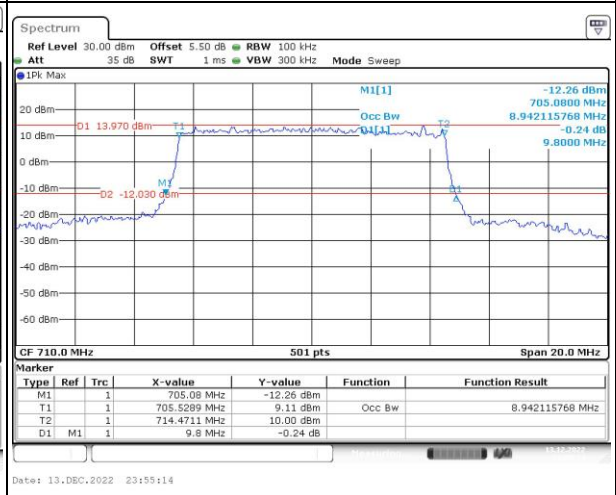
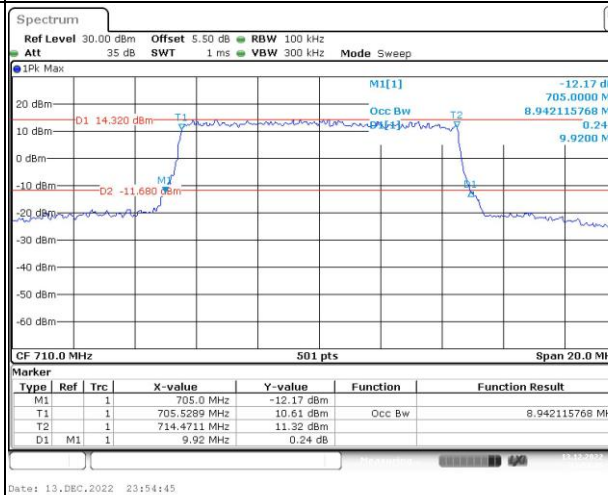
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

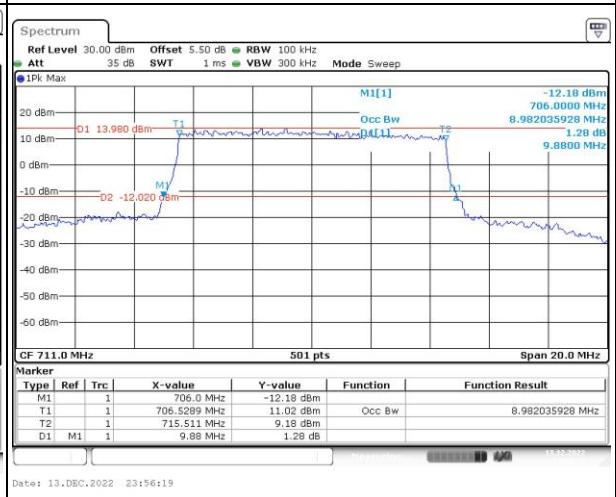
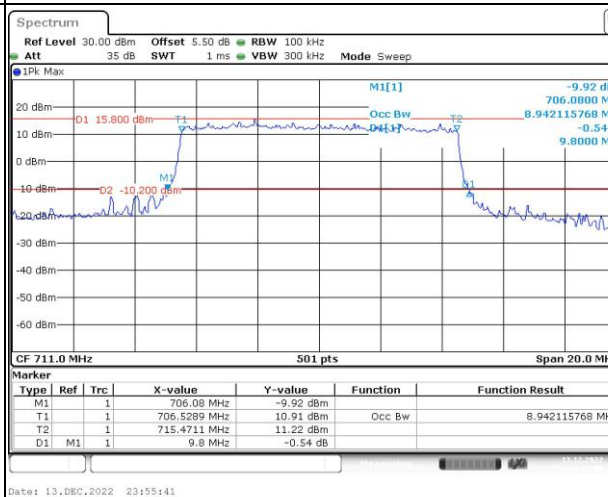
Lowest



Middle



Highest

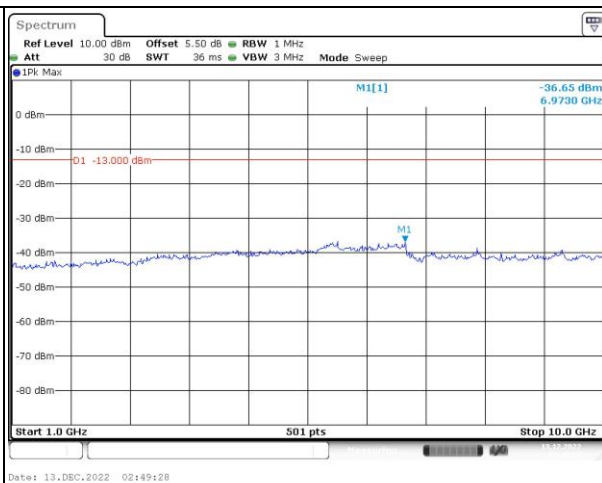
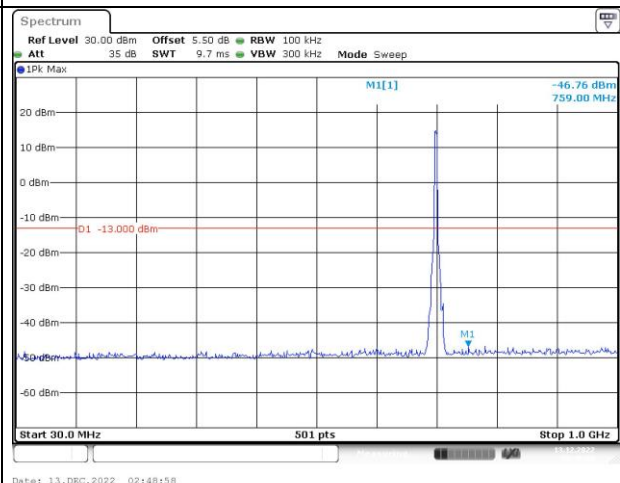


Spurious Emissions at Antenna Terminal

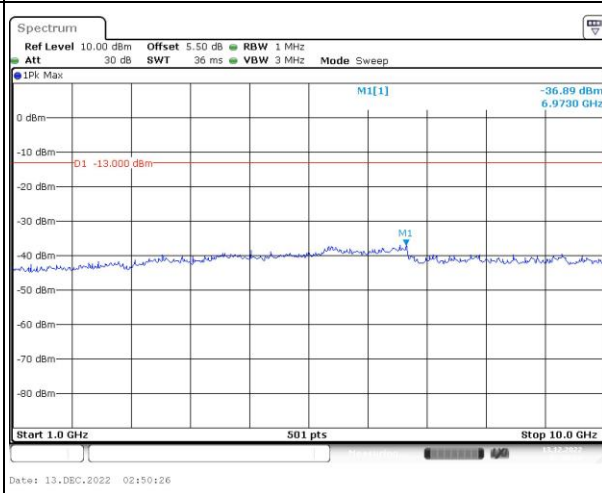
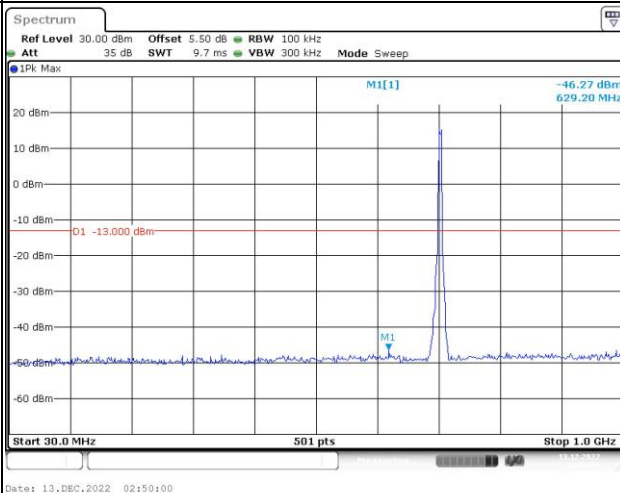
Channel

5MHz Bandwidth QPSK

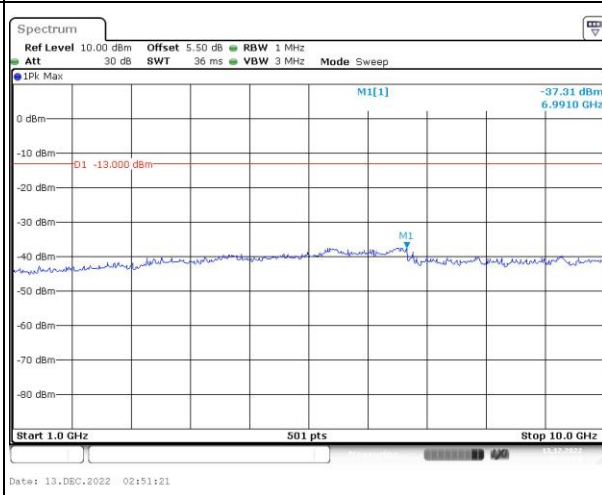
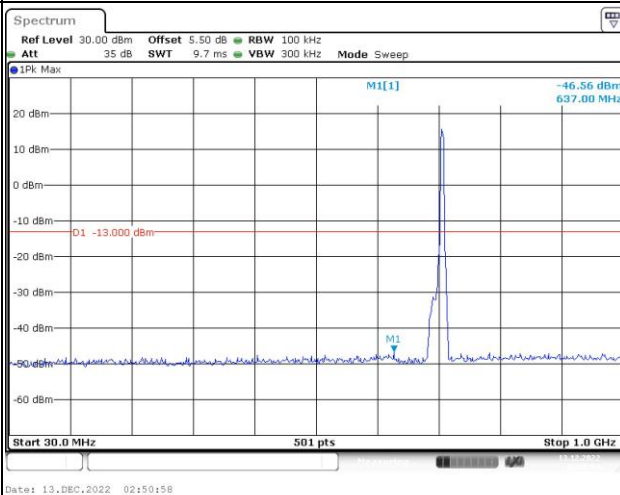
Lowest



Middle



Highest

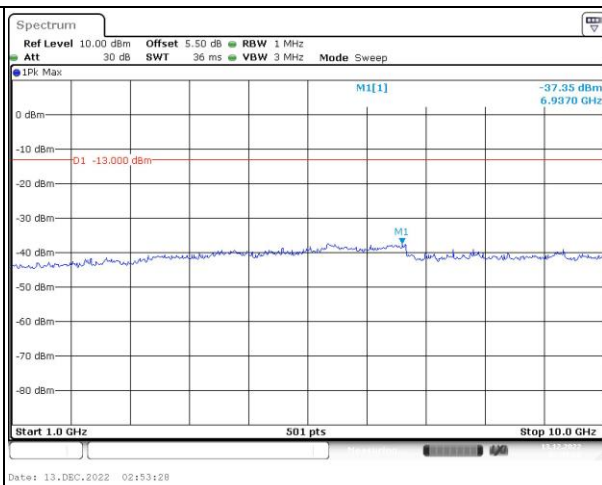
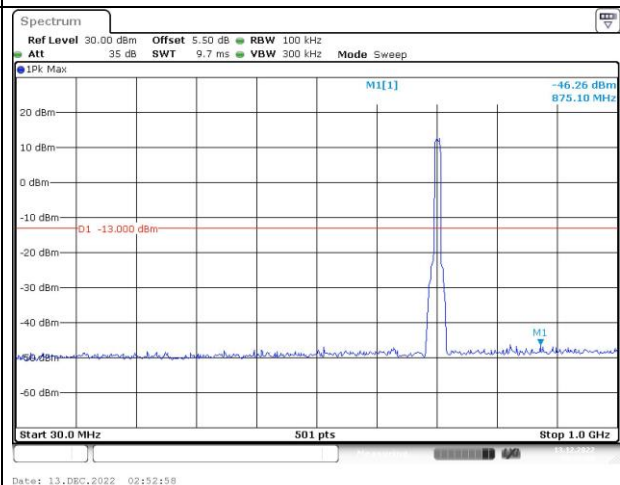


Spurious Emissions at Antenna Terminal

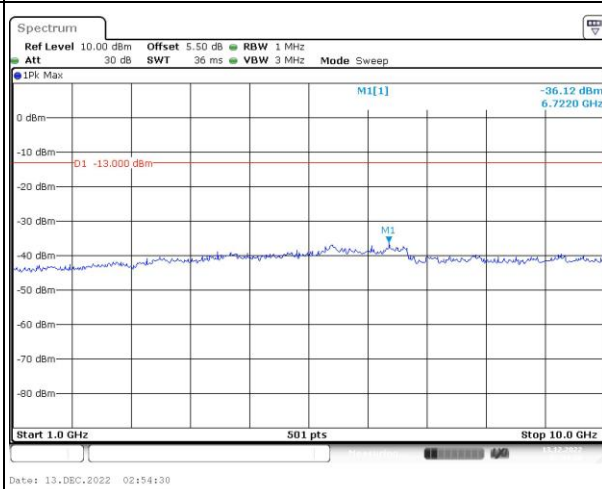
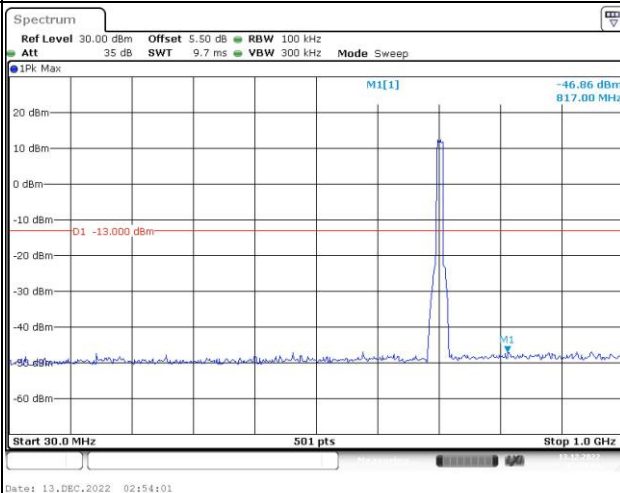
Channel

10MHz Bandwidth QPSK

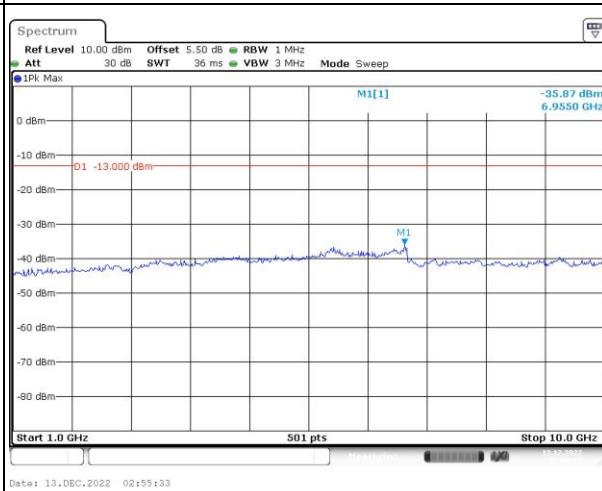
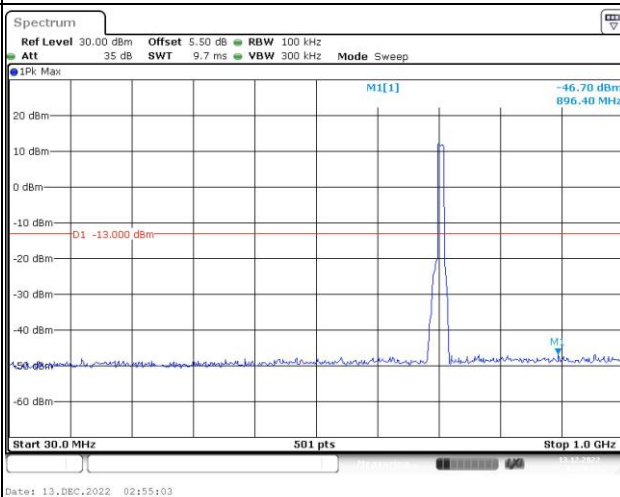
Lowest



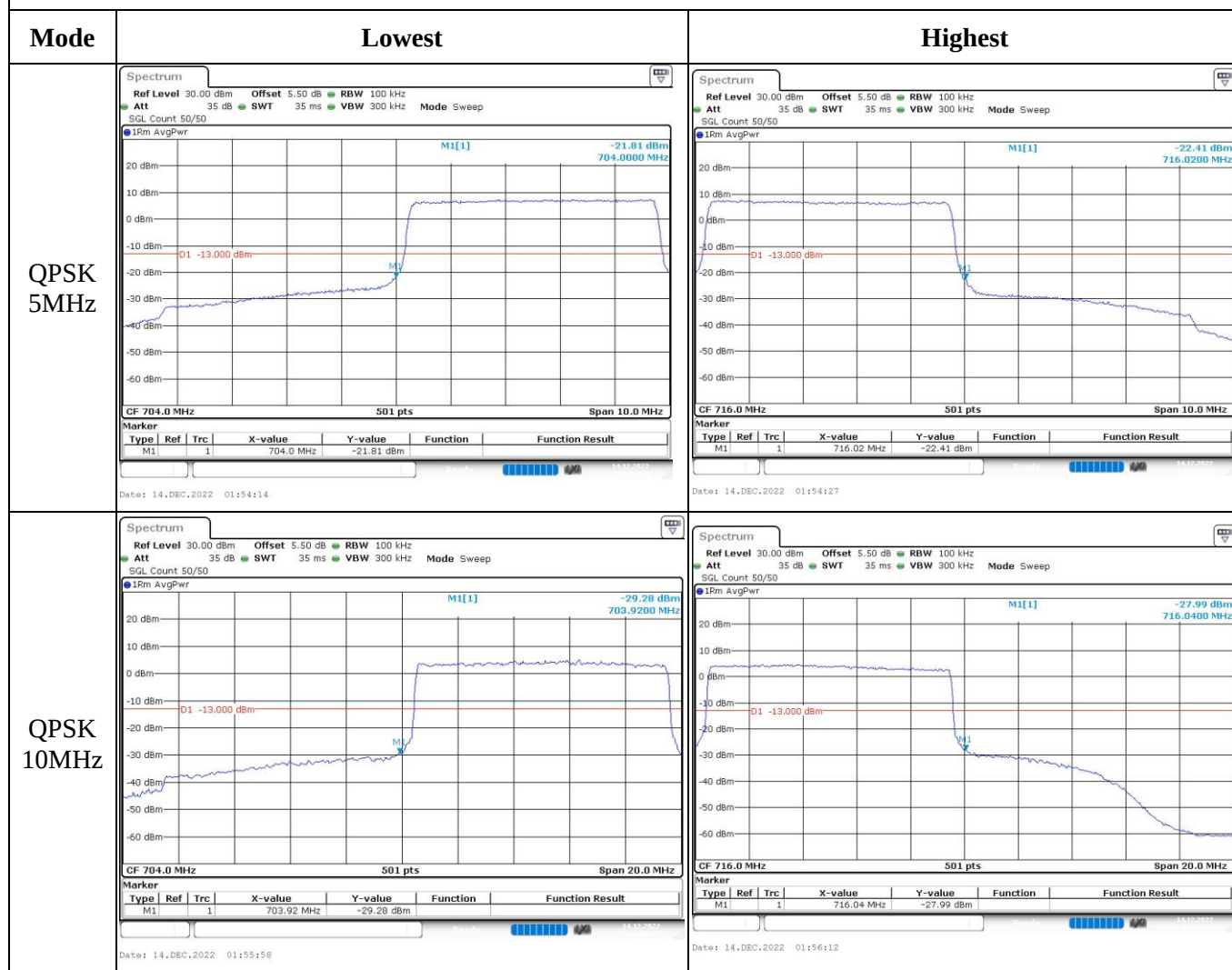
Middle



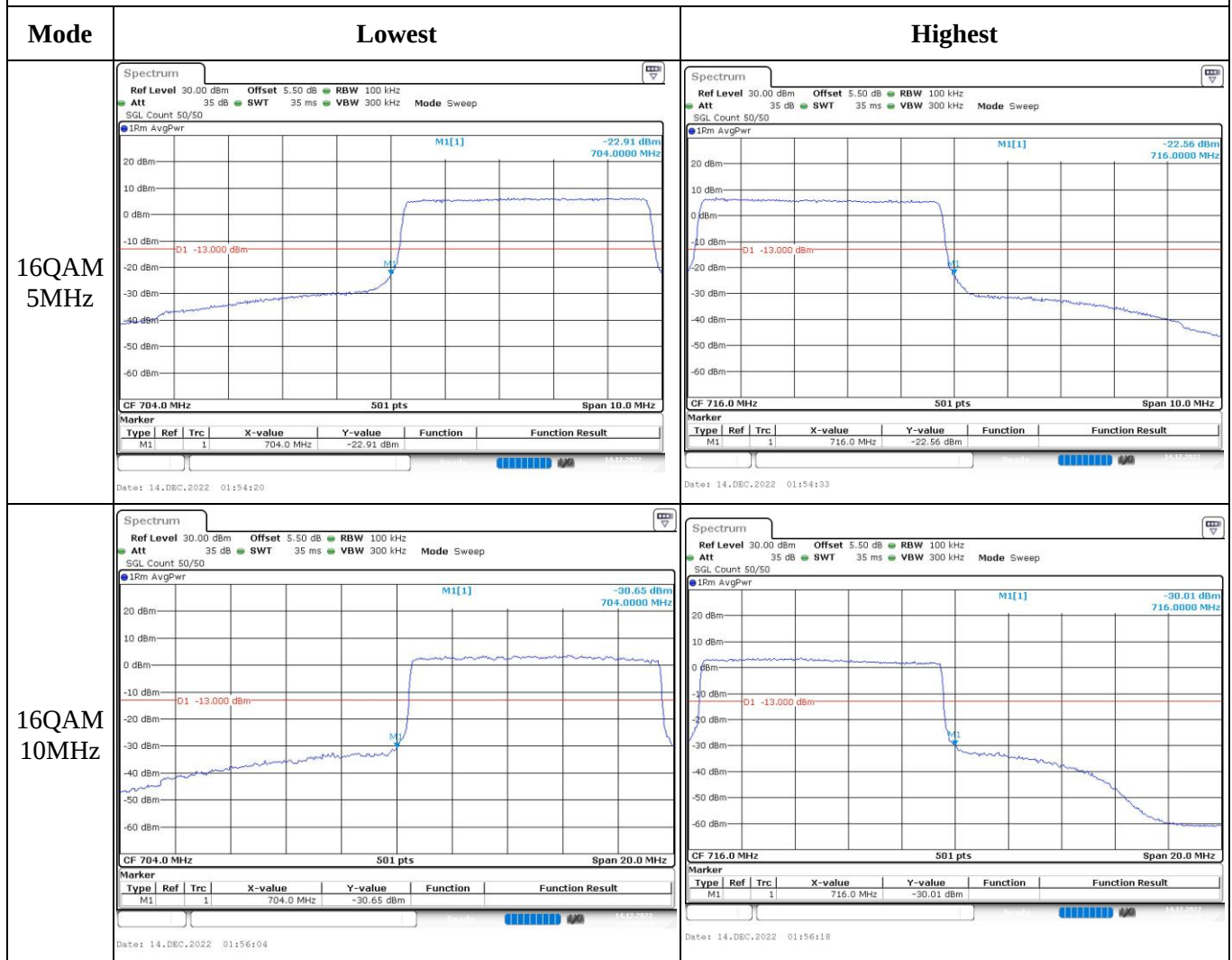
Highest



Out of band emission, Band Edge



Out of band emission, Band Edge



4.12 Antenna Port Test Data and Results for LTE Band 38

Serial Number:	1TSA	Test Date:	2022-12-13~2022-12-20
Test Site:	RF	Test Mode:	Transmitting
Tester:	George chen	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	21.2~24.3	Relative Humidity: (%)	36~49	ATM Pressure: (kPa)	100.6~101.8
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2022/7/15	2023/7/14
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Power Splitter	1515	RA914	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2022/4/6	2023/4/5
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2022/4/6	2023/4/5
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
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	2572.5	2595	2617.5
10MHz	2575	2595	2615
15MHz	2577.5	2595	2612.5
20MHz	2580	2595	2610

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	23.3	23.37	23.25	24.47	33
	RB1#13	23.41	23.47	23.37		
	RB1#24	23.32	23.34	23.26		
	RB15#0	22.31	22.35	22.43		
	RB15#10	22.33	22.29	22.34		
	RB25#0	22.28	22.29	22.4		
5MHz 16QAM	RB1#0	22.23	22.4	22.21	23.49	33
	RB1#13	22.35	22.49	22.32		
	RB1#24	22.22	22.4	22.25		
	RB15#0	21.33	21.36	21.34		
	RB15#10	21.33	21.34	21.3		
	RB25#0	21.33	21.26	21.44		
10MHz QPSK	RB1#0	23.39	23.32	23.37	24.72	33
	RB1#25	23.72	23.63	23.63		
	RB1#49	23.42	23.33	23.37		
	RB25#0	22.31	22.36	22.41		
	RB25#25	22.33	22.3	22.35		
	RB50#0	22.3	22.31	22.4		
10MHz 16QAM	RB1#0	22.31	22.4	22.15	23.64	33
	RB1#25	22.59	22.64	22.44		
	RB1#49	22.31	22.37	22.22		
	RB25#0	21.34	21.31	21.47		
	RB25#25	21.33	21.24	21.41		
	RB50#0	21.34	21.29	21.42		
15MHz QPSK	RB1#0	23.29	23.27	23.29	24.42	33
	RB1#38	23.42	23.39	23.42		
	RB1#74	23.31	23.24	23.3		
	RB36#0	22.4	22.48	22.47		
	RB36#39	22.42	22.43	22.44		
	RB75#0	22.45	22.46	22.51		
15MHz 16QAM	RB1#0	22.37	22.3	22.12	23.45	33
	RB1#38	22.45	22.4	22.24		
	RB1#74	22.33	22.3	22.15		
	RB36#0	21.43	21.38	21.39		
	RB36#39	21.46	21.34	21.36		
	RB75#0	21.38	21.35	21.45		
20MHz QPSK	RB1#0	23.15	23.13	23.13	24.69	33
	RB1#50	23.69	23.64	23.58		
	RB1#99	23.17	23.1	23.09		
	RB50#0	22.26	22.31	22.35		

20MHz 16QAM	RB50#50	22.25	22.21	22.27	23.74	33
	RB100#0	22.27	22.25	22.31		
	RB1#0	22.28	22.04	21.99		
	RB1#50	22.74	22.51	22.44		
	RB1#99	22.28	22.06	22.04		
	RB50#0	21.29	21.3	21.39		
	RB50#50	21.3	21.19	21.31		
	RB100#0	21.21	21.22	21.33		
Note: EIRP=Conducted Power(dBm) - Lc(dB) + Gr(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	7.54	6.64	8.46	13
	RB100#0	7.74	7.33	8.38	13
20MHz 16QAM	RB1#0	8.46	7.59	9.33	13
	RB100#0	9.42	9.74	9.36	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	4.531	4.511	4.511	5.16	5.14	5.22
5MHz 16QAM	4.531	4.531	4.531	5.16	5.12	5.14
10MHz QPSK	8.982	8.942	8.942	10.04	10.04	9.68
10MHz 16QAM	8.942	8.942	8.942	9.76	9.88	10.16
15MHz QPSK	13.533	13.533	13.533	15.24	15.18	15.42
15MHz 16QAM	13.593	13.593	13.533	16.26	16.26	15.6
20MHz QPSK	17.964	18.044	17.964	19.92	19.84	19.52
20MHz 16QAM	17.964	17.964	17.964	19.76	19.84	20.56
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

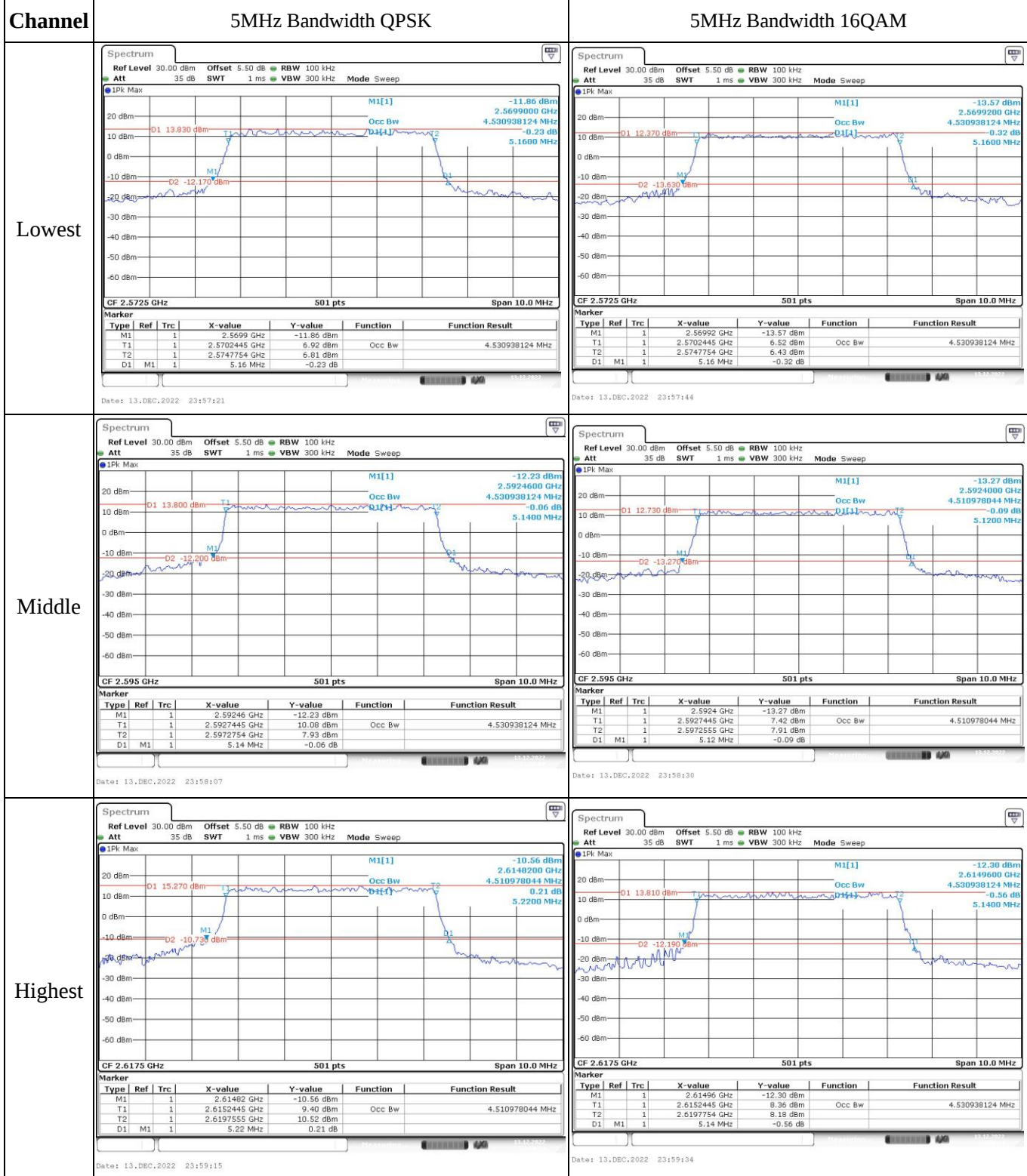
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
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FCC §2.1055, §27.54: Frequency Stability						
Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.7	2571.031	2570.00	2619.064	2620
	-20	3.7	2571.064	2570.00	2619.063	2620
	-10	3.7	2571.033	2570.00	2619.000	2620
	0	3.7	2571.015	2570.00	2619.020	2620
	10	3.7	2571.052	2570.00	2619.064	2620
	20	3.7	2571.058	2570.00	2619.022	2620
	30	3.7	2571.076	2570.00	2619.073	2620
	40	3.7	2571.044	2570.00	2619.006	2620
	50	3.7	2571.073	2570.00	2619.065	2620
Frequency Stability vs. Voltage	20	3.3	2571.090	2570.00	2619.004	2620
	20	4.2	2571.072	2570.00	2619.036	2620
					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	3.7	2571.075	2570.00	2619.062	2620
	-20	3.7	2571.097	2570.00	2619.014	2620
	-10	3.7	2571.099	2570.00	2619.076	2620
	0	3.7	2571.069	2570.00	2619.089	2620
	10	3.7	2571.034	2570.00	2619.034	2620
	20	3.7	2571.058	2570.00	2619.022	2620
	30	3.7	2571.014	2570.00	2619.040	2620
	40	3.7	2571.032	2570.00	2619.028	2620
	50	3.7	2571.019	2570.00	2619.088	2620
Frequency Stability vs. Voltage	20	3.3	2571.017	2570.00	2619.012	2620
	20	4.2	2571.022	2570.00	2619.072	2620
					Result:	Pass

Test Plots(Note: The 5.5dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):

Occupied Bandwidth



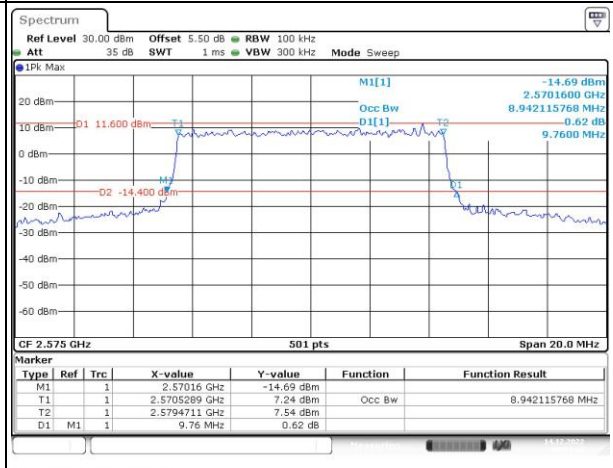
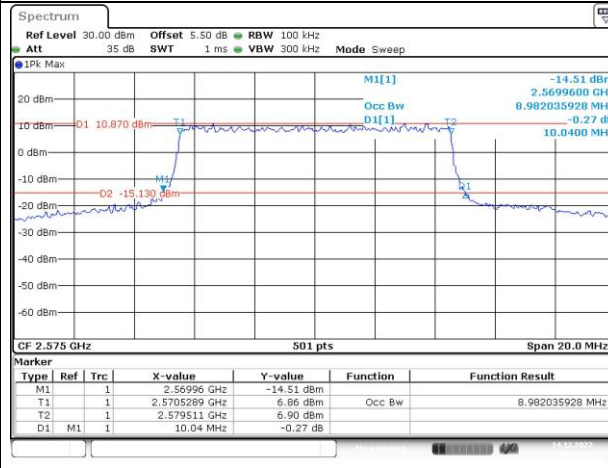
Occupied Bandwidth

Channel

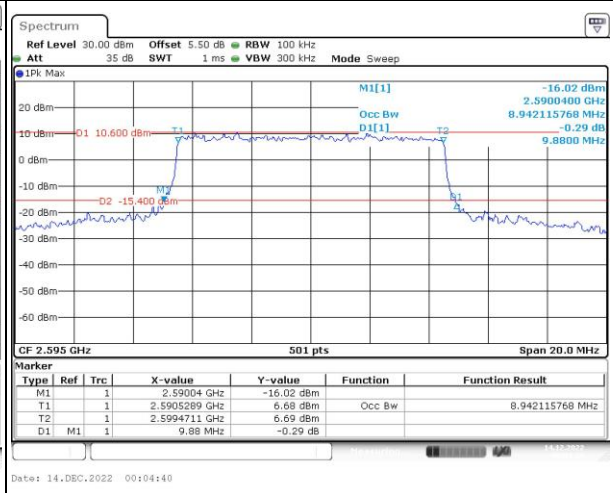
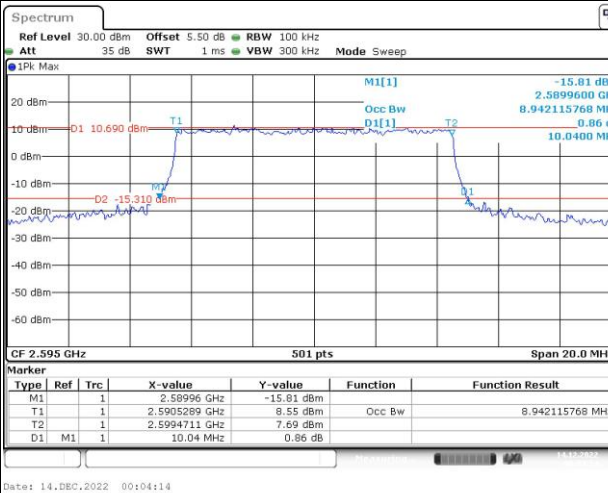
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

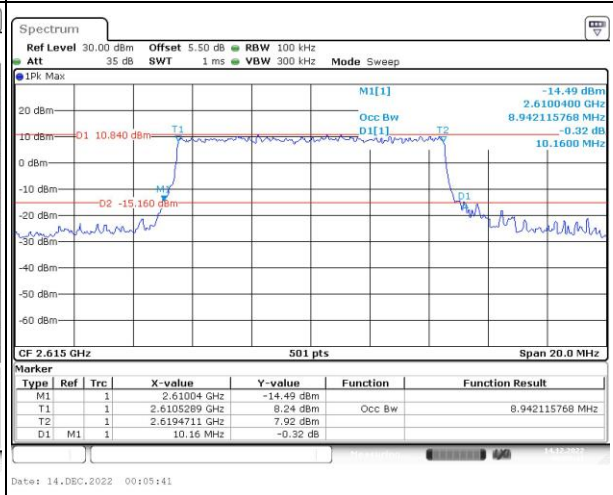
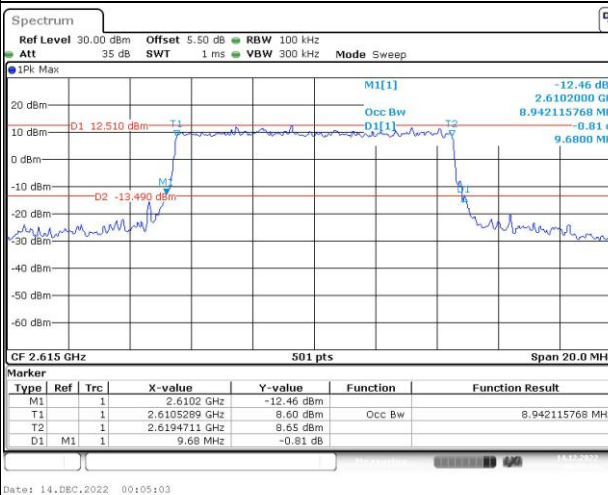
Lowest



Middle



Highest



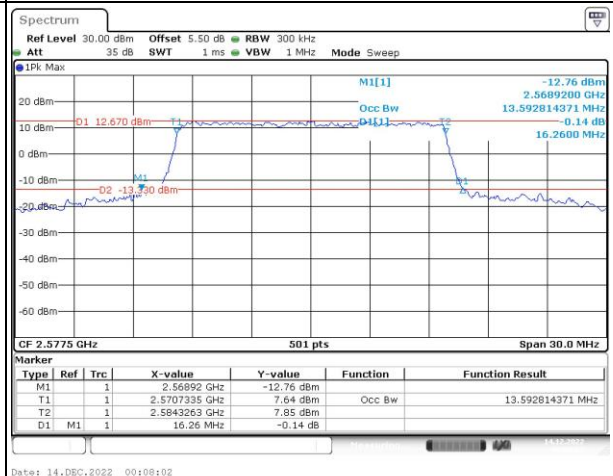
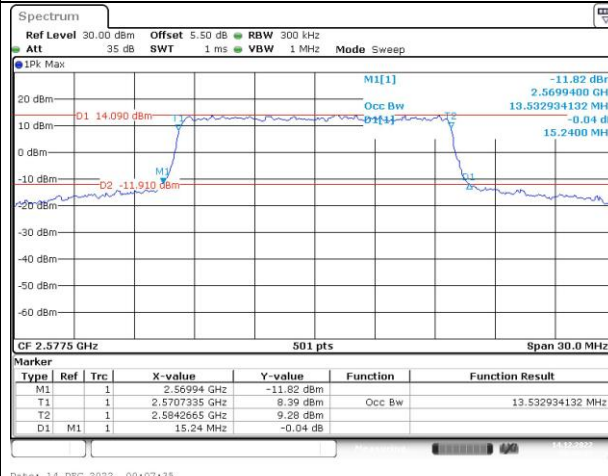
Occupied Bandwidth

Channel

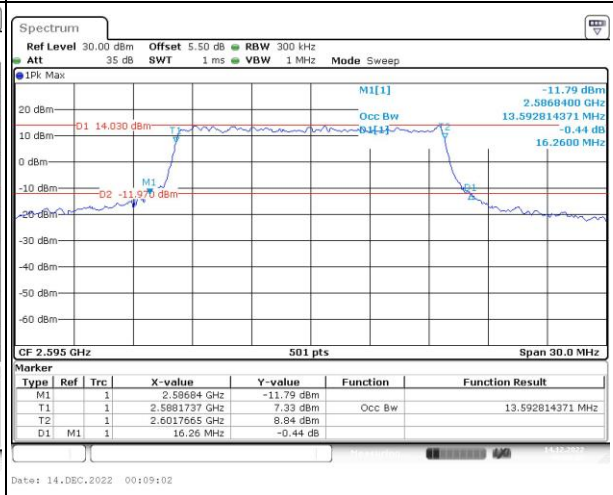
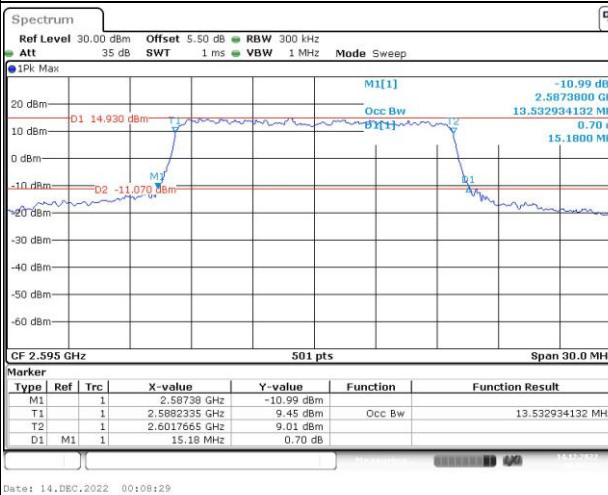
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

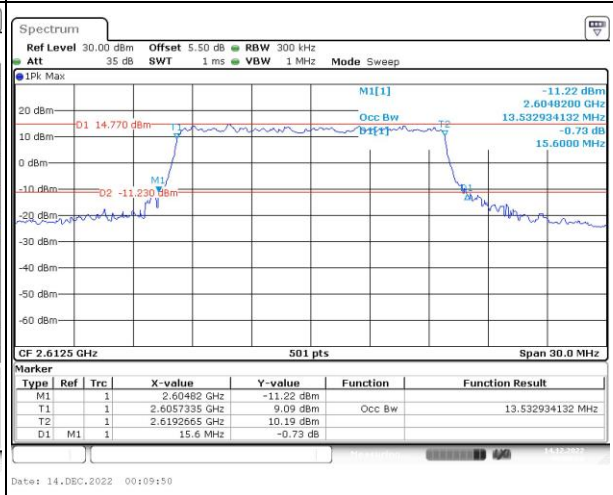
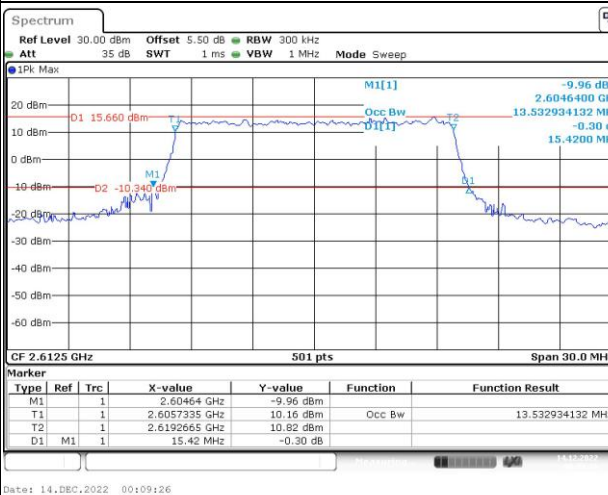
Lowest



Middle



Highest



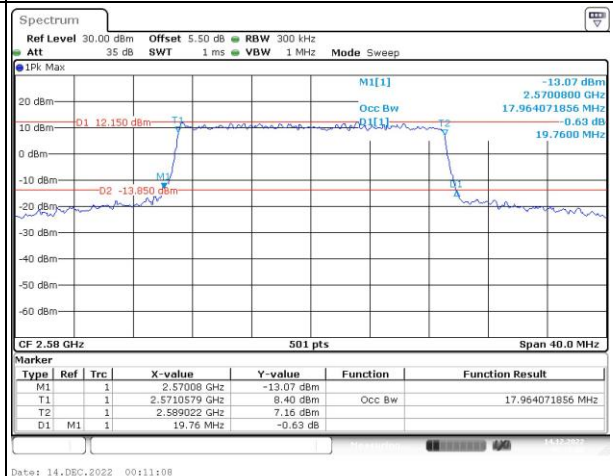
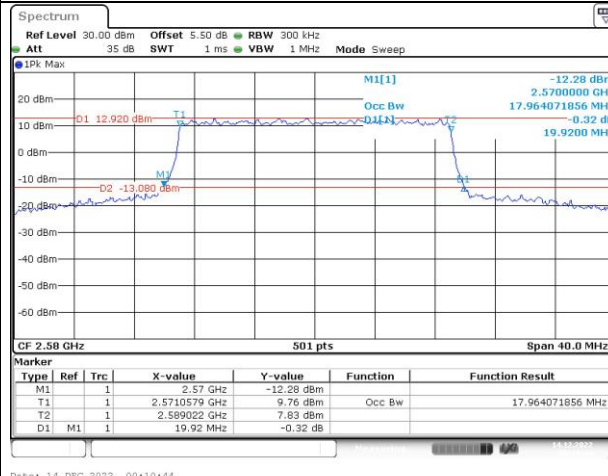
Occupied Bandwidth

Channel

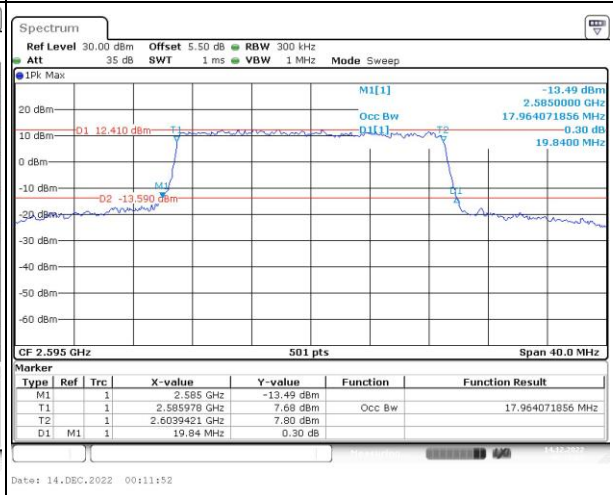
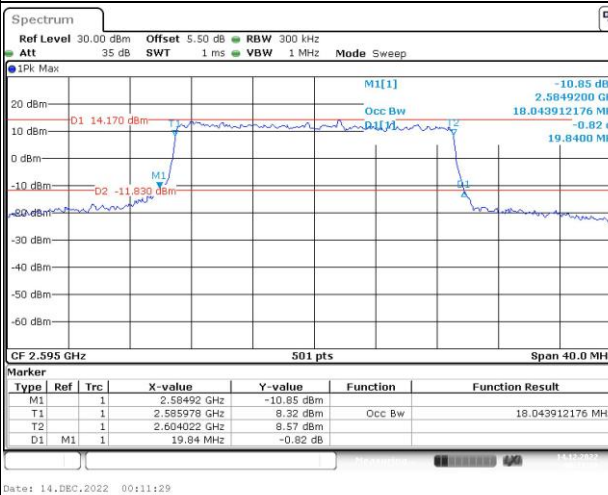
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

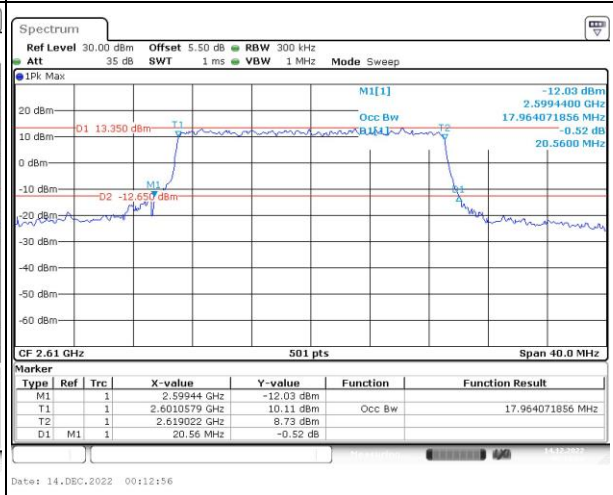
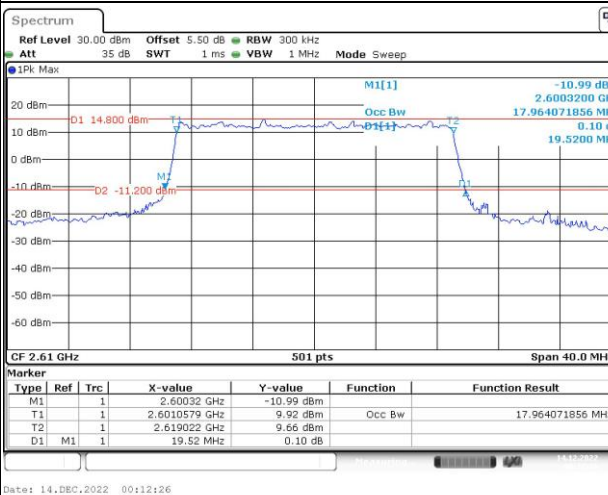
Lowest



Middle



Highest

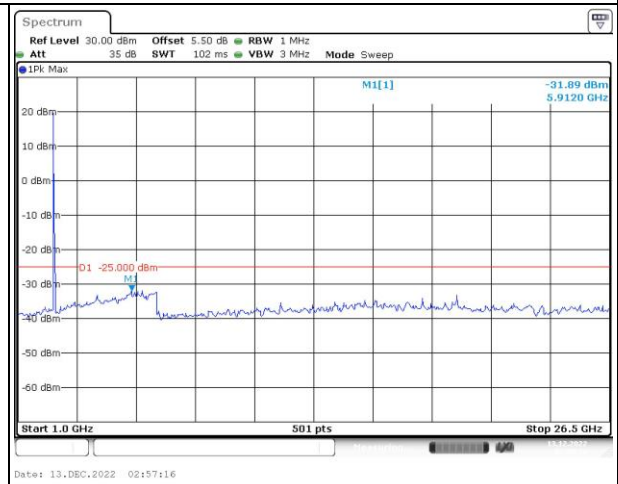
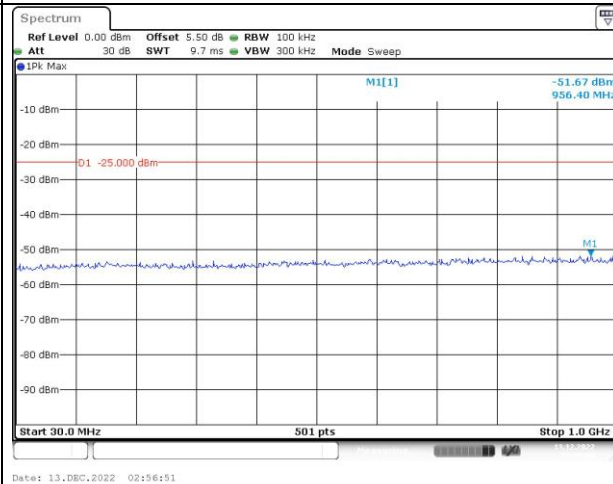


Spurious Emissions at Antenna Terminal

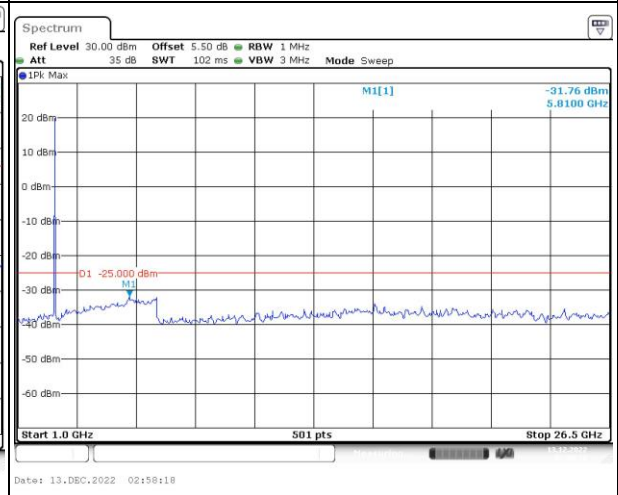
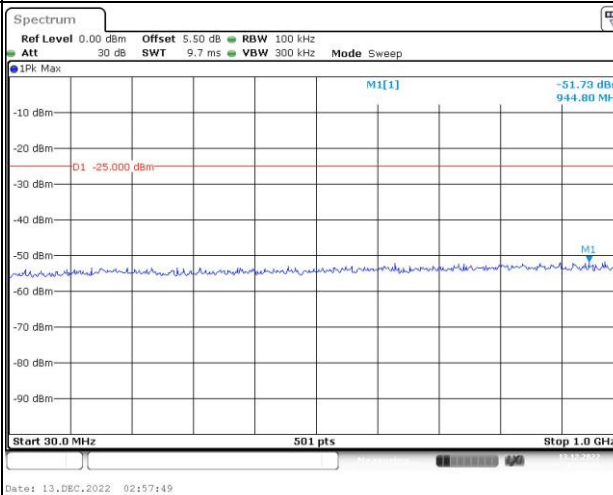
Channel

5MHz Bandwidth QPSK

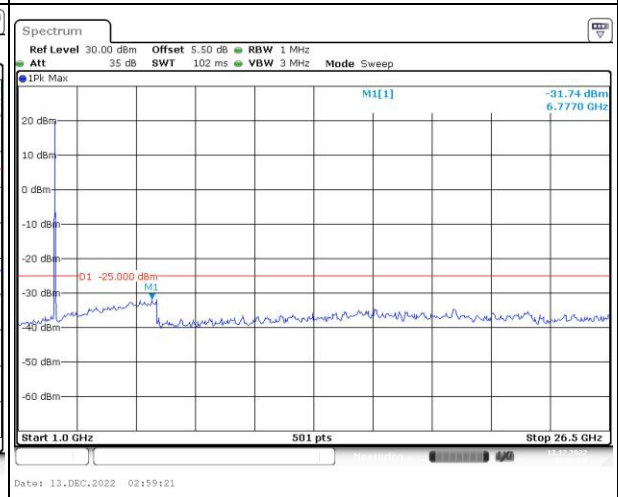
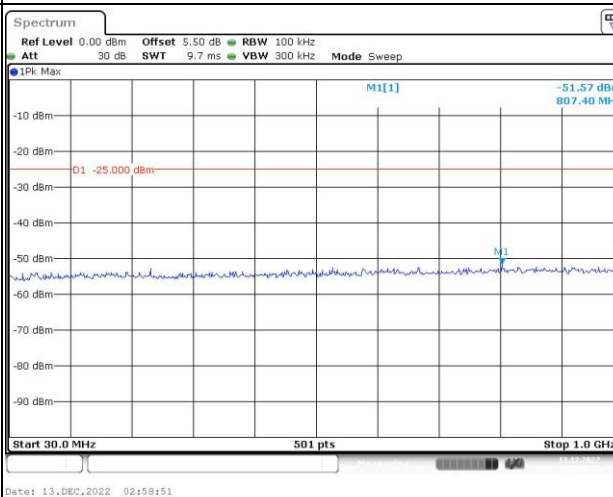
Lowest



Middle



Highest

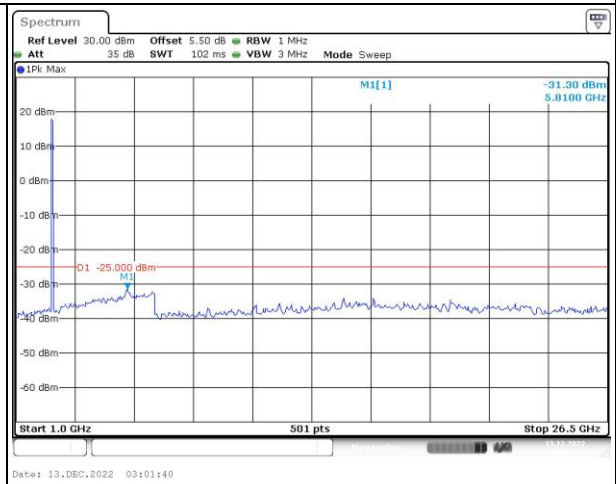
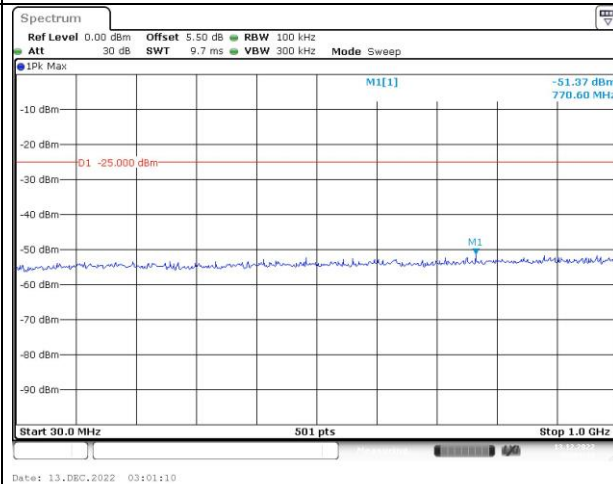


Spurious Emissions at Antenna Terminal

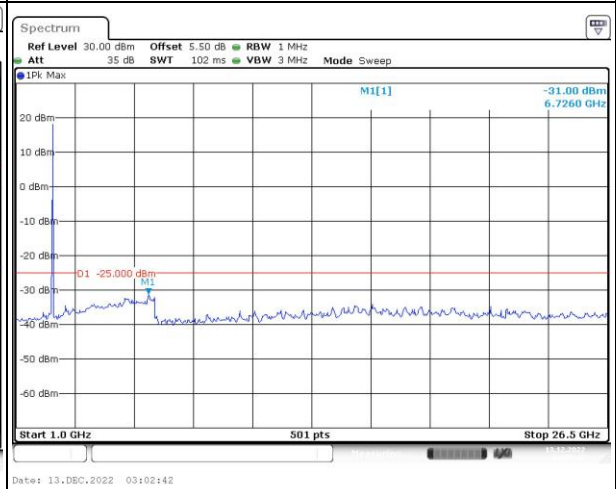
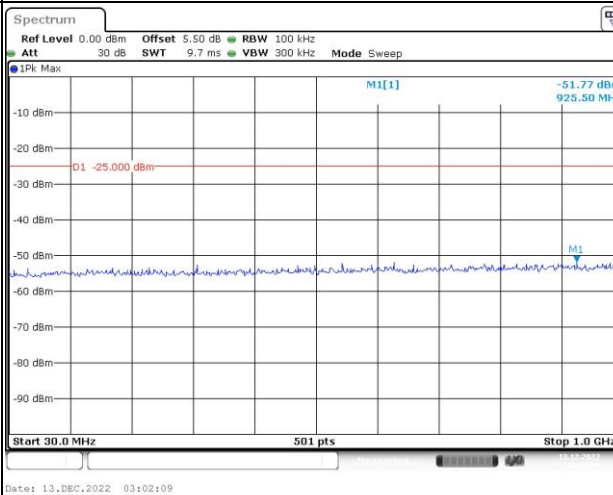
Channel

10MHz Bandwidth QPSK

Lowest



Middle



Highest

