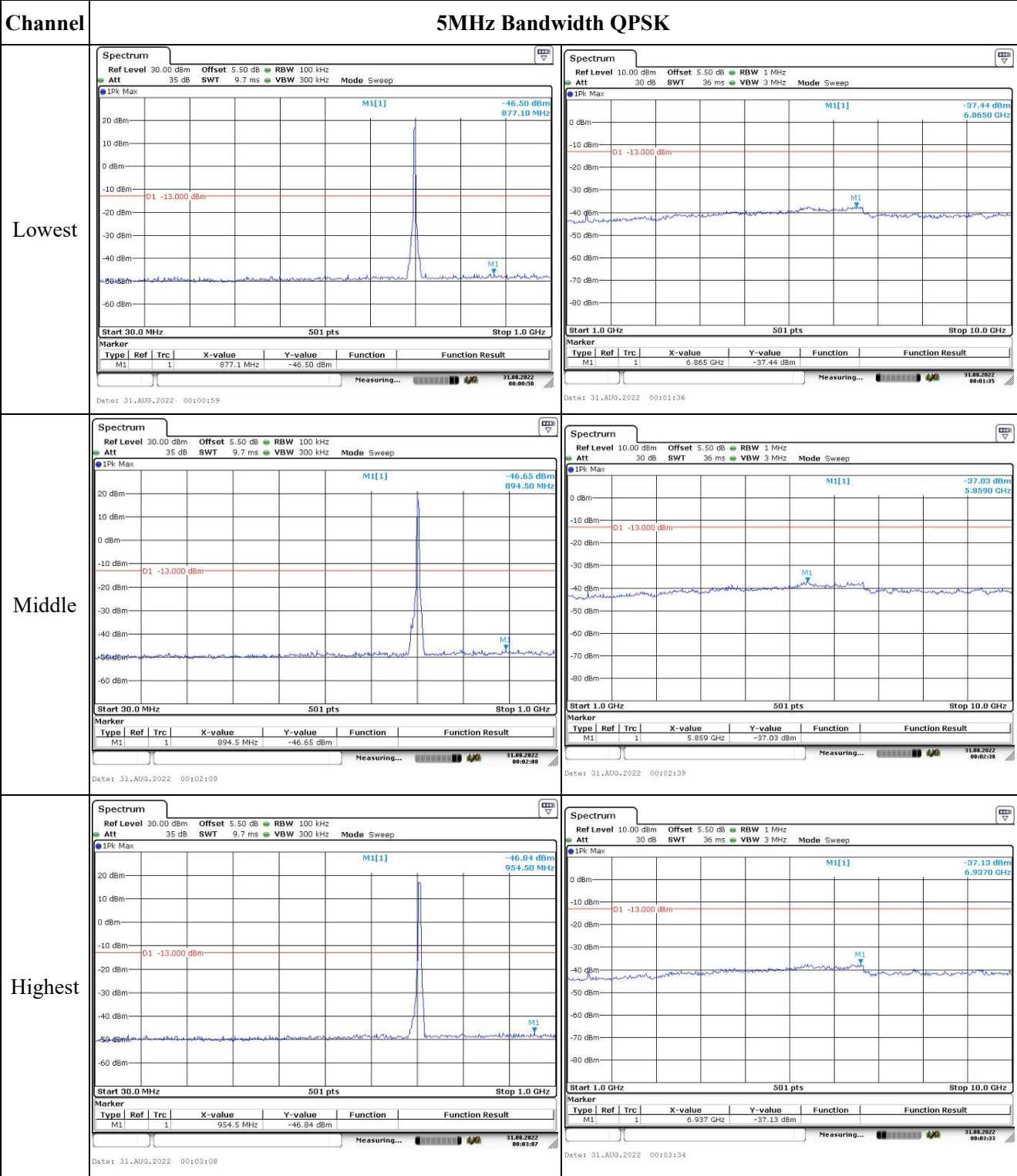


Spurious Emissions at Antenna Terminal

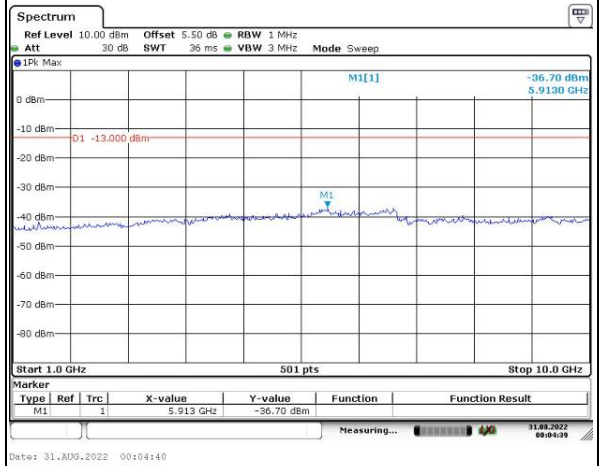
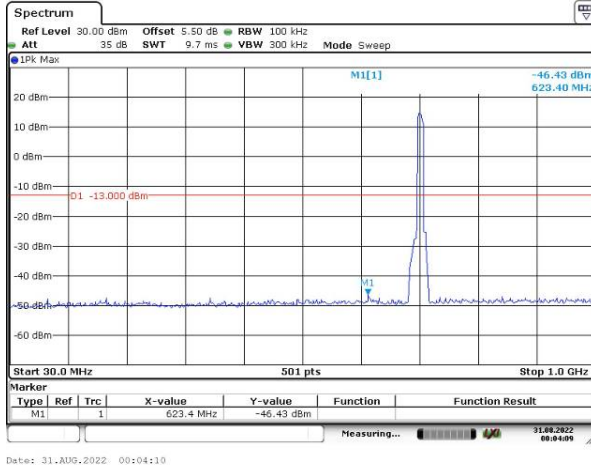


Spurious Emissions at Antenna Terminal

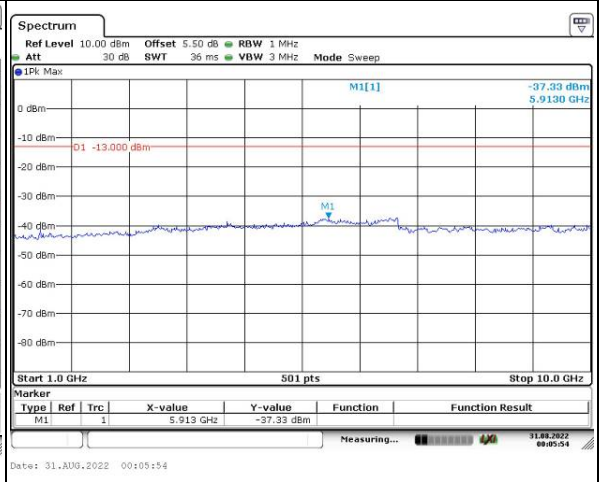
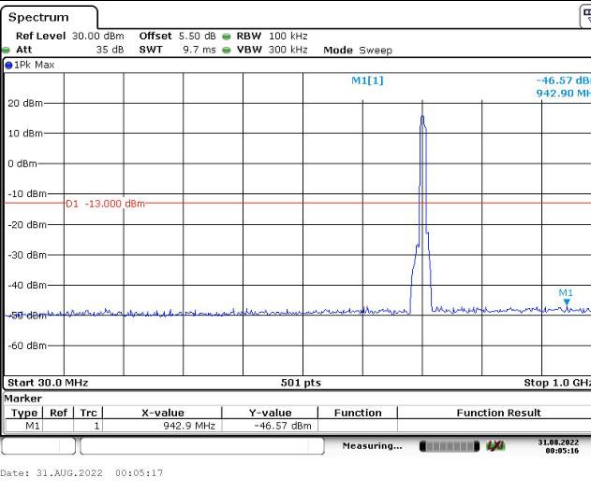
Channel

10MHz Bandwidth QPSK

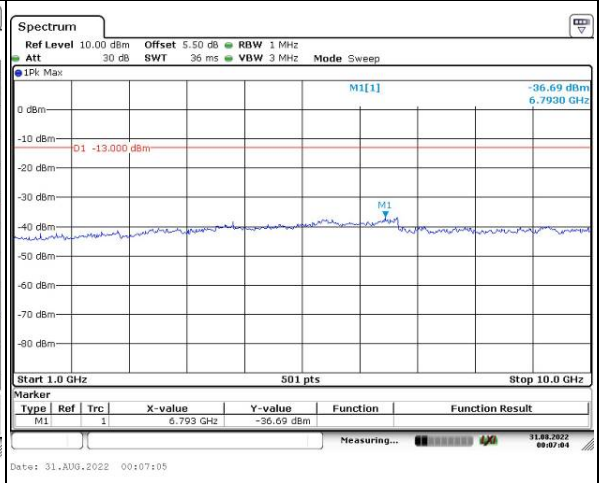
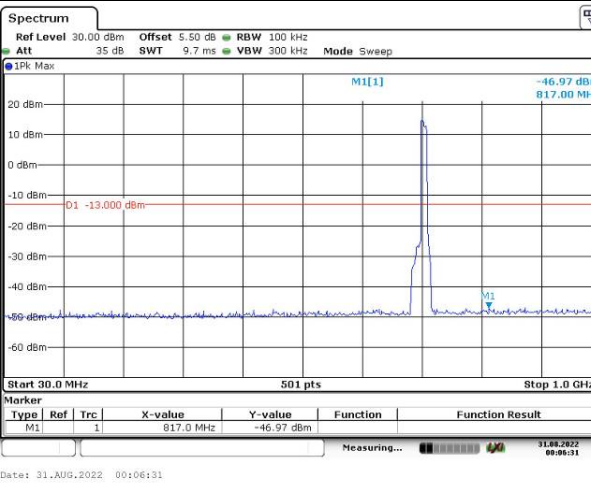
Lowest



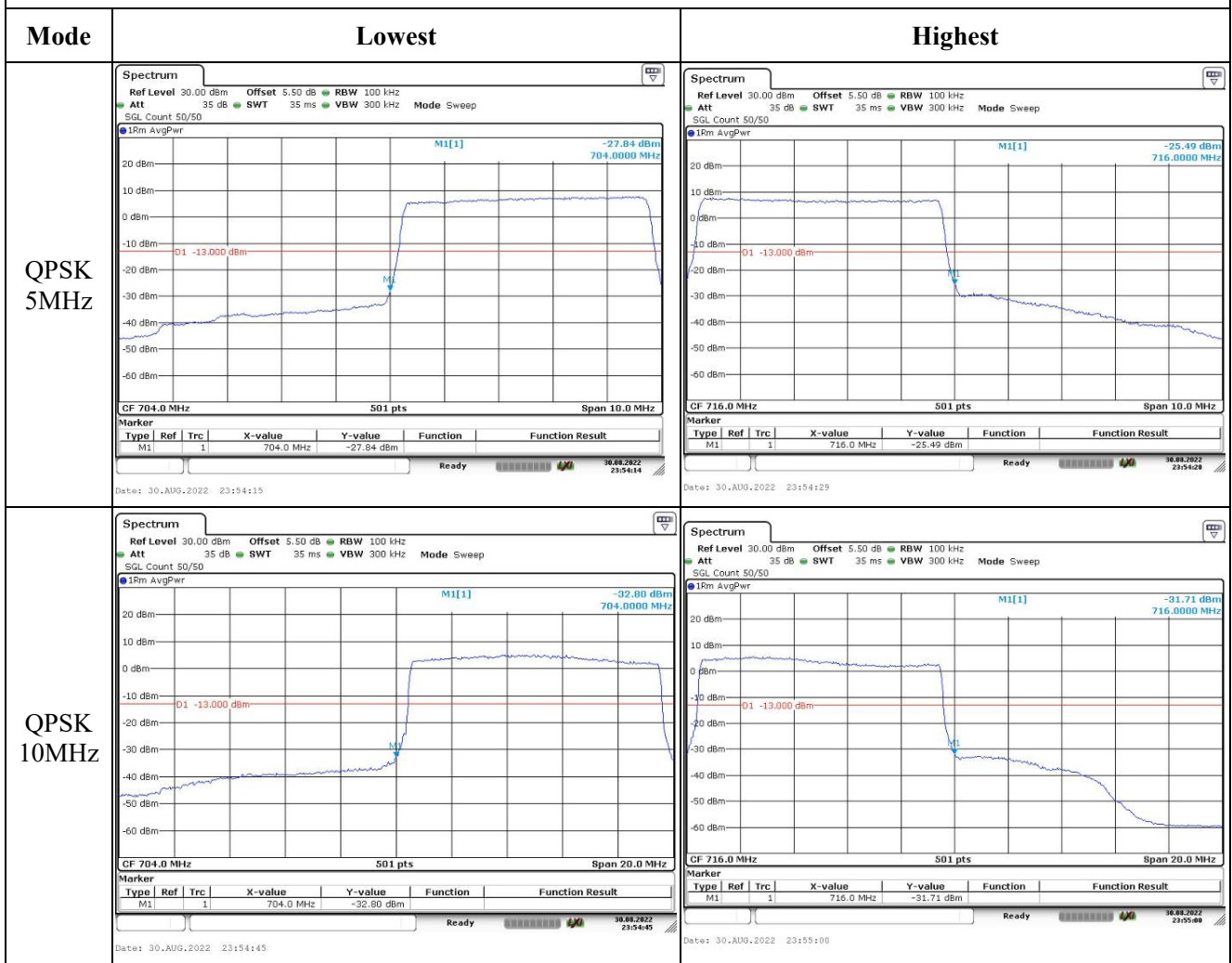
Middle



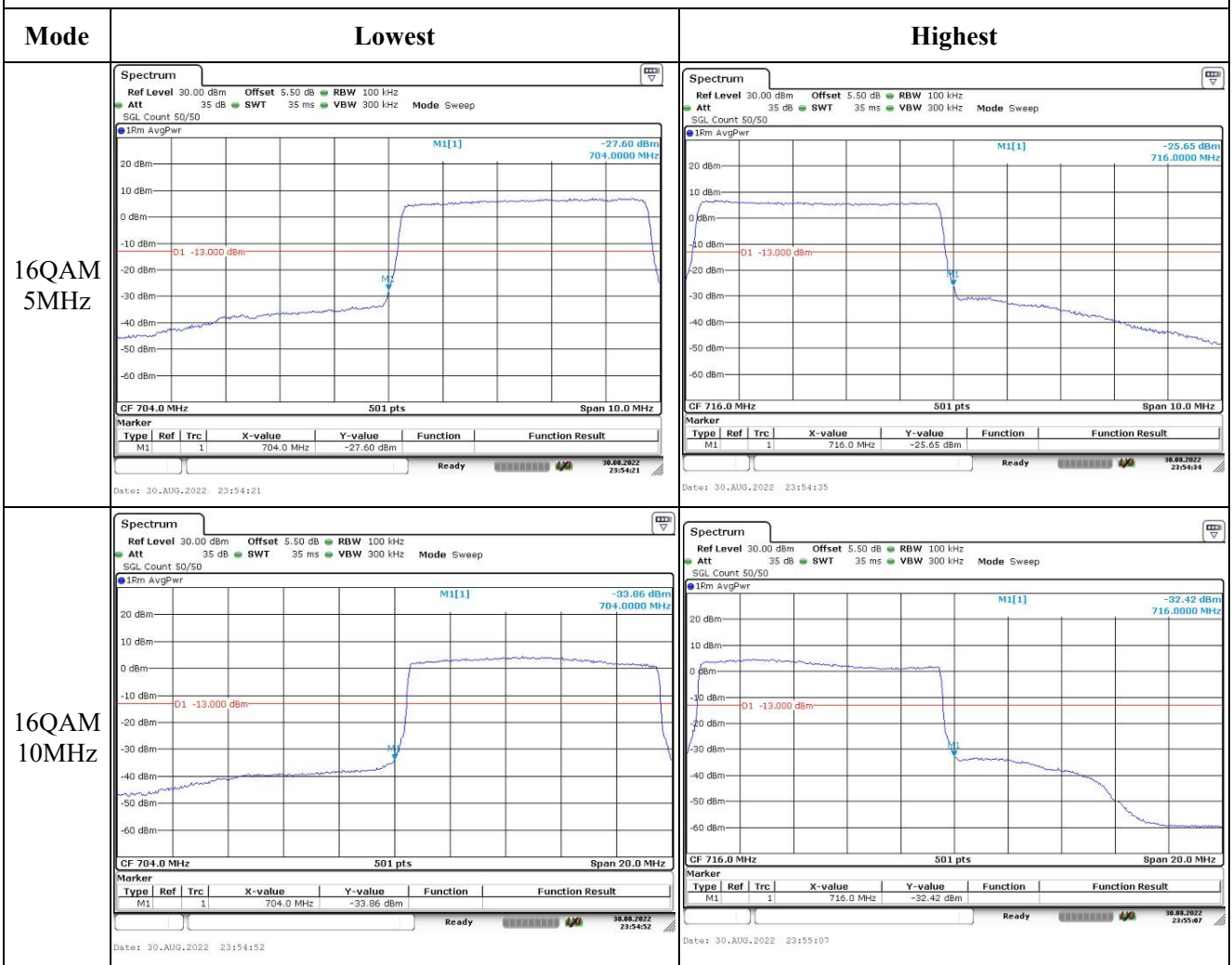
Highest



Out of band emission, Band Edge



Out of band emission, Band Edge



4.12 Antenna Port Test Data and Results for LTE Band 66

Serial Number:	CR22090005-RF-S1	Test Date:	2022-08-30~2022-08-31
Test Site:	RF	Test Mode:	Transmitting
Tester:	George Chan	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.1~25.8	Relative Humidity: (%)	52~60	ATM Pressure: (kPa)	100.1~100.8
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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	2022-07-15	2023-07-14
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100004	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554404	Each time	N/A
Unknown	Coaxial tee connector	Unknown	2204006	Each time	N/A
Weinschel	Coaxial Attenuators	53-20-34	LN751	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2022-07-15	2023-07-14
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2022-04-06	2023-04-05
UNI-T	Multimeter	UT39A+	C210582554	2021-09-30	2022-09-29
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).

EUT Information@ LTE Band 66▲:

Antenna Gain (dBi):	1.3	Cable Loss (dB):	0.4
Operation Voltage(V _{DC}):			
Lowest:	3.3	Normal:	3.85
		Highest:	4.4

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	1710.7	1745	1779.3
3MHz	1711.5	1745	1778.5
5MHz	1712.5	1745	1777.5
10MHz	1715	1745	1775
15MHz	1717.5	1745	1772.5
20MHz	1720	1745	1770

Test Data:**FCC§2.1046;§ 27.50(d)(4)****RF Output Power:**

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
1.4MHz QPSK	RB1#0	24.39	24.31	24.12	25.45	30
	RB1#3	24.51	24.48	24.32		
	RB1#5	24.39	24.29	24.09		
	RB3#0	24.55	24.34	24.27		
	RB3#3	24.5	24.33	24.33		
	RB6#0	23.5	23.45	23.12		
1.4MHz 16QAM	RB1#0	23.4	23.34	23.1	24.6	30
	RB1#3	23.59	23.54	23.27		
	RB1#5	23.45	23.37	23.18		
	RB3#0	23.67	23.21	23.32		
	RB3#3	23.7	23.25	23.39		
	RB6#0	22.5	22.36	22.1		
3MHz QPSK	RB1#0	24.42	24.43	24.2	25.36	30
	RB1#8	24.44	24.36	24.12		
	RB1#14	24.46	24.35	24.15		
	RB6#0	23.45	23.32	23.13		
	RB6#9	23.43	23.34	23.09		
	RB15#0	23.5	23.31	23.18		
3MHz 16QAM	RB1#0	23.63	23.33	23.62	24.59	30
	RB1#8	23.62	23.3	23.64		
	RB1#14	23.62	23.29	23.69		
	RB6#0	22.46	22.23	22.18		
	RB6#9	22.53	22.25	22.2		
	RB15#0	22.45	22.32	22.29		
5MHz QPSK	RB1#0	24.36	24.28	24.05	25.35	30
	RB1#13	24.45	24.33	24.16		
	RB1#24	24.38	24.22	24.06		
	RB15#0	23.48	23.37	23.22		
	RB15#10	23.51	23.34	23.2		
	RB25#0	23.5	23.29	23.14		
5MHz 16QAM	RB1#0	23.67	23.28	22.88	24.67	30
	RB1#13	23.77	23.36	23.01		
	RB1#24	23.69	23.24	23		
	RB15#0	22.49	22.35	22.25		
	RB15#10	22.52	22.31	22.23		
	RB25#0	22.5	22.3	22.24		
10MHz QPSK	RB1#0	24.42	24.43	24.13	25.52	30
	RB1#25	24.62	24.56	24.33		

	RB1#49	24.46	24.32	24.12		
	RB25#0	23.51	23.4	23.24		
	RB25#25	23.57	23.33	23.17		
	RB50#0	23.6	23.38	23.22		
10MHz 16QAM	RB1#0	23.62	23.35	23.59	24.7	30
	RB1#25	23.8	23.39	23.68		
	RB1#49	23.66	23.27	23.68		
	RB25#0	22.57	22.47	22.28		
	RB25#25	22.65	22.4	22.2		
	RB50#0	22.61	22.39	22.26		
15MHz QPSK	RB1#0	24.37	24.36	24.02	25.43	30
	RB1#38	24.53	24.39	24.24		
	RB1#74	24.42	24.2	24.1		
	RB36#0	23.58	23.52	23.31		
	RB36#39	23.58	23.45	23.28		
	RB75#0	23.51	23.51	23.33		
15MHz 16QAM	RB1#0	23.54	23.61	23.63	24.58	30
	RB1#38	23.67	23.6	23.58		
	RB1#74	23.68	23.54	23.61		
	RB36#0	22.51	22.4	22.29		
	RB36#39	22.56	22.34	22.19		
	RB75#0	22.58	22.39	22.27		
20MHz QPSK	RB1#0	24.17	24.19	23.92	25.5	30
	RB1#50	24.6	24.49	24.32		
	RB1#99	24.25	24.01	23.96		
	RB50#0	23.44	23.42	23.22		
	RB50#50	23.57	23.31	23		
	RB100#0	23.58	23.35	23.1		
20MHz 16QAM	RB1#0	23.77	23.45	23.26	25.09	30
	RB1#50	24.19	23.71	23.45		
	RB1#99	23.89	23.37	23.16		
	RB50#0	22.48	22.37	22.31		
	RB50#50	22.64	22.3	22.02		
	RB100#0	22.62	22.37	22.16		

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	3.86	3.25	3.51	13
	RB100#0	4.99	4.23	4.38	13
20MHz 16QAM	RB1#0	4.67	4.32	4.58	13
	RB100#0	5.94	5.19	5.42	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	1.108	1.102	1.32	1.326	1.296
1.4MHz 16QAM	1.096	1.102	1.102	1.29	1.29	1.32
3MHz QPSK	2.695	2.683	2.683	2.88	2.904	2.868
3MHz 16QAM	2.683	2.683	2.683	2.892	2.88	2.892
5MHz QPSK	4.531	4.531	4.551	5.18	5.26	5.28
5MHz 16QAM	4.551	4.551	4.531	5.2	5.26	5.2
10MHz QPSK	8.982	8.942	8.982	9.92	10.16	9.96
10MHz 16QAM	8.982	8.982	8.942	9.88	9.92	9.84
15MHz QPSK	13.473	13.533	13.533	15.3	15.48	15.3
15MHz 16QAM	13.533	13.533	13.533	15.18	15.9	15.06
20MHz QPSK	17.964	17.964	18.044	19.6	19.76	19.92
20MHz 16QAM	18.044	18.044	17.964	19.84	19.92	19.68

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.

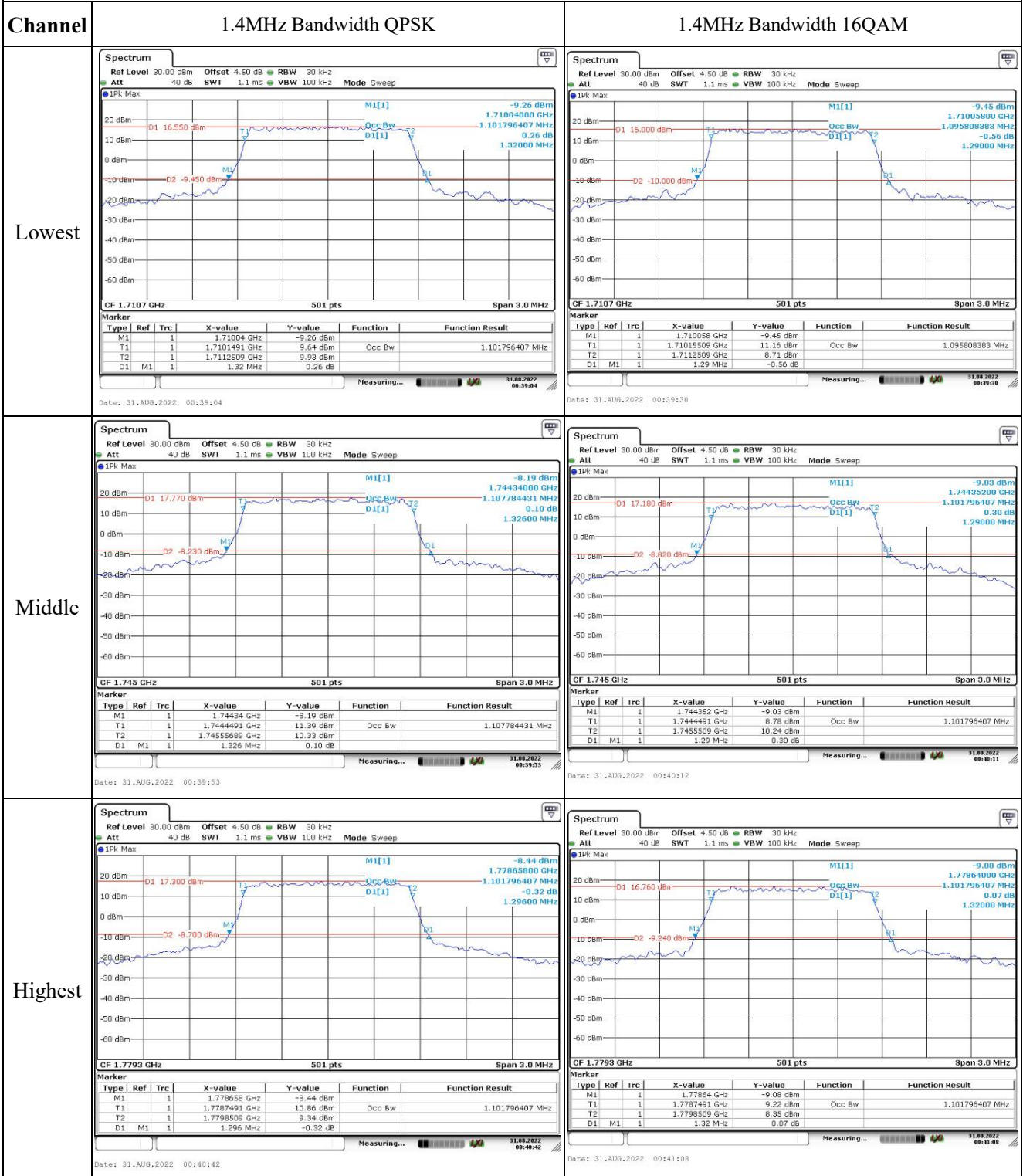
FCC §2.1051, § 27.53:Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

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	1710.466	1710.00	1779.022	1780
	-20	3.85	1710.485	1710.00	1779.012	1780
	-10	3.85	1710.401	1710.00	1779.056	1780
	0	3.85	1710.410	1710.00	1779.041	1780
	10	3.85	1710.463	1710.00	1779.041	1780
	20	3.85	1710.458	1710.00	1779.022	1780
	30	3.85	1710.482	1710.00	1779.099	1780
	40	3.85	1710.494	1710.00	1779.071	1780
	50	3.85	1710.448	1710.00	1779.027	1780
Frequency Stability vs. Voltage	20	3.3	1710.415	1710.00	1779.091	1780
	20	4.4	1710.468	1710.00	1779.059	1780
					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	1710.417	1710.00	1779.081	1780
	-20	3.85	1710.451	1710.00	1779.088	1780
	-10	3.85	1710.423	1710.00	1779.062	1780
	0	3.85	1710.437	1710.00	1779.090	1780
	10	3.85	1710.438	1710.00	1779.076	1780
	20	3.85	1710.458	1710.00	1779.022	1780
	30	3.85	1710.485	1710.00	1779.043	1780
	40	3.85	1710.466	1710.00	1779.065	1780
	50	3.85	1710.404	1710.00	1779.007	1780
Frequency Stability vs. Voltage	20	3.3	1710.486	1710.00	1779.058	1780
	20	4.4	1710.428	1710.00	1779.066	1780
					Result:	Pass

Test Plots:

Occupied Bandwidth



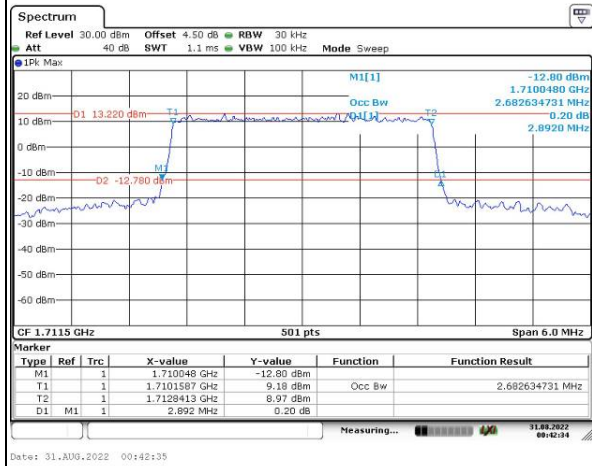
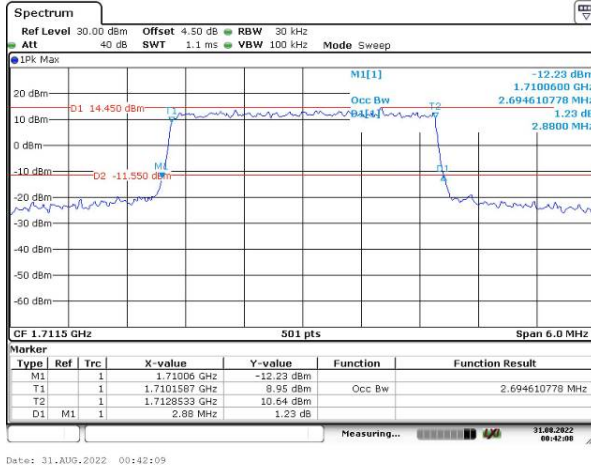
Occupied Bandwidth

Channel

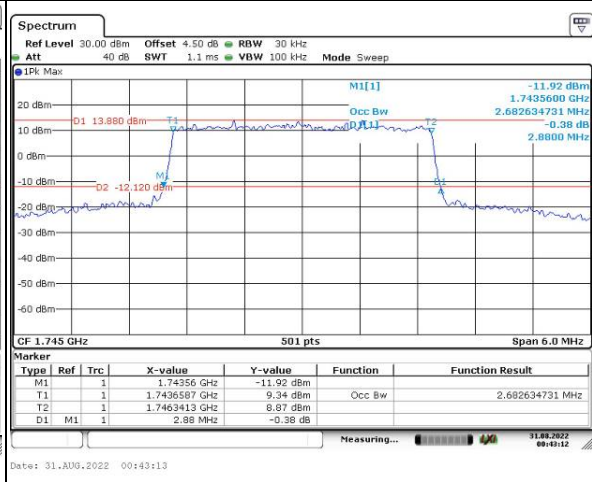
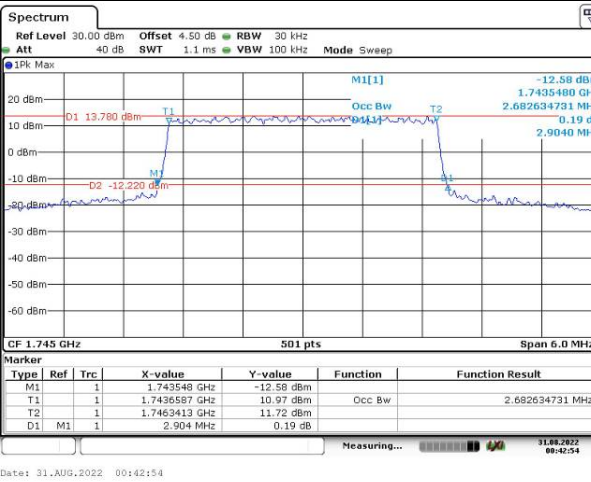
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

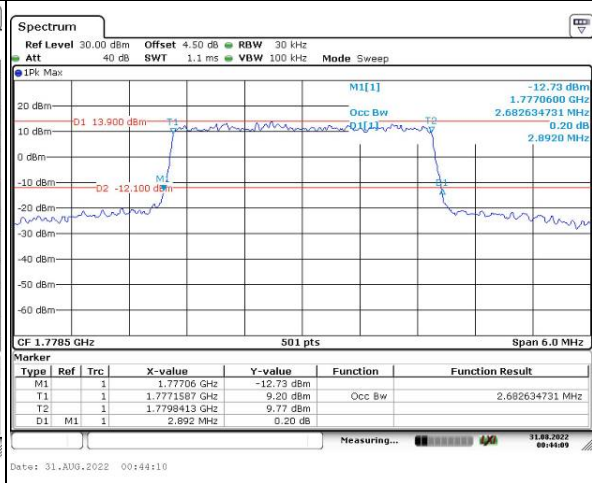
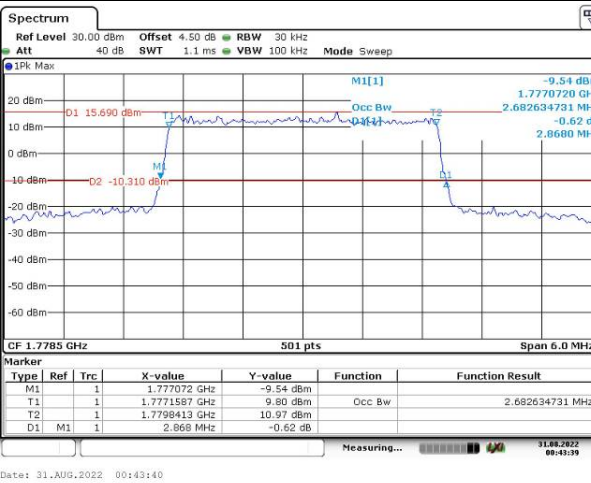
Lowest



Middle



Highest



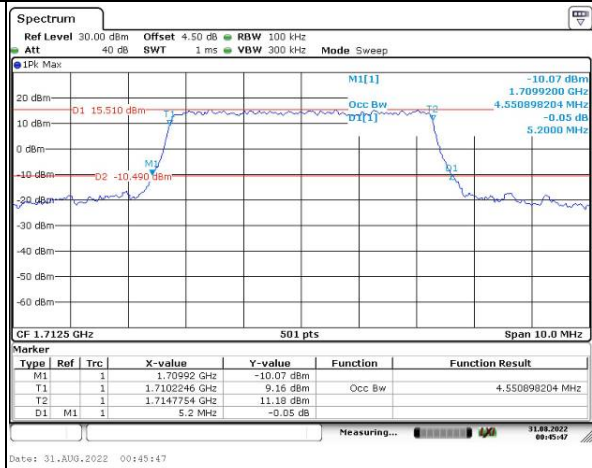
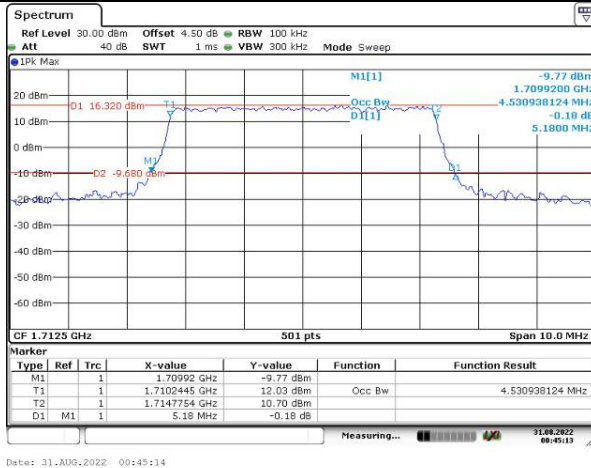
Occupied Bandwidth

Channel

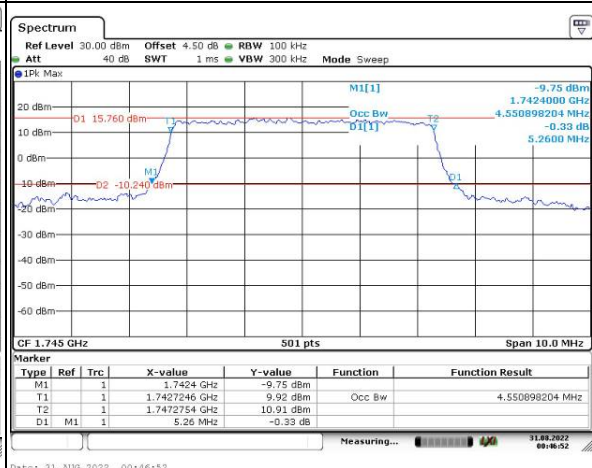
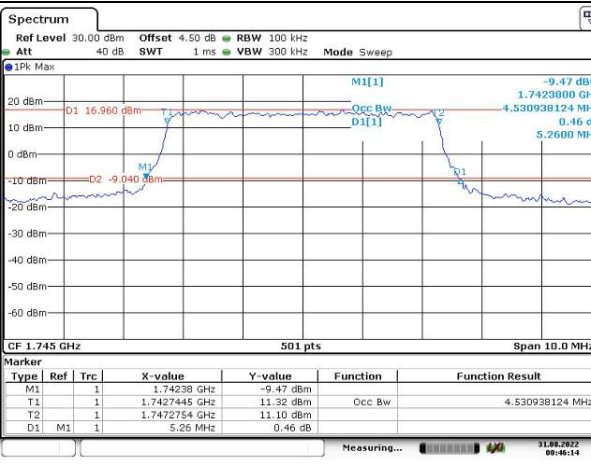
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

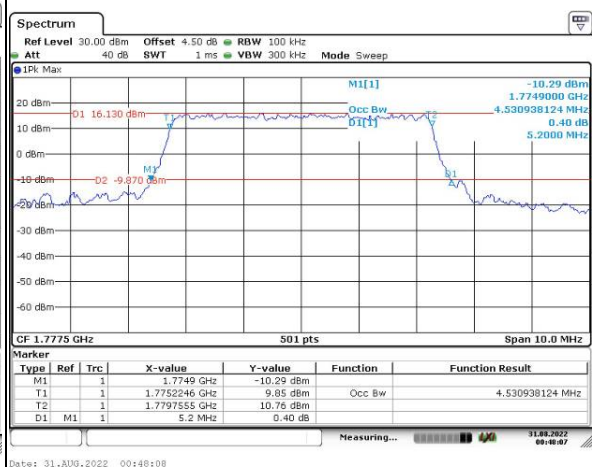
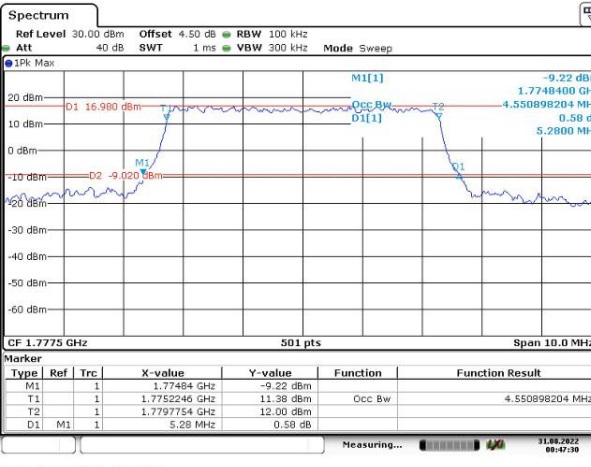
Lowest



Middle



Highest



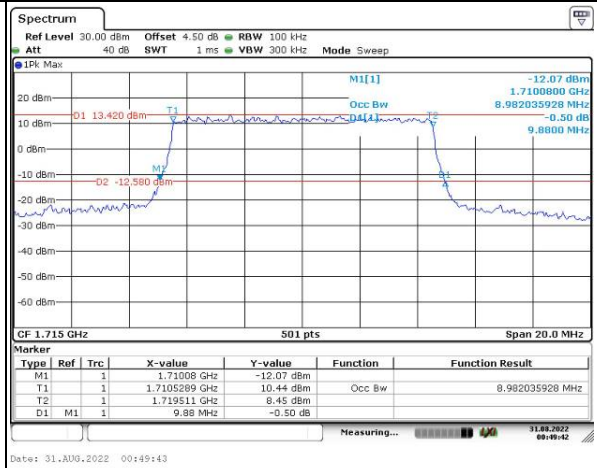
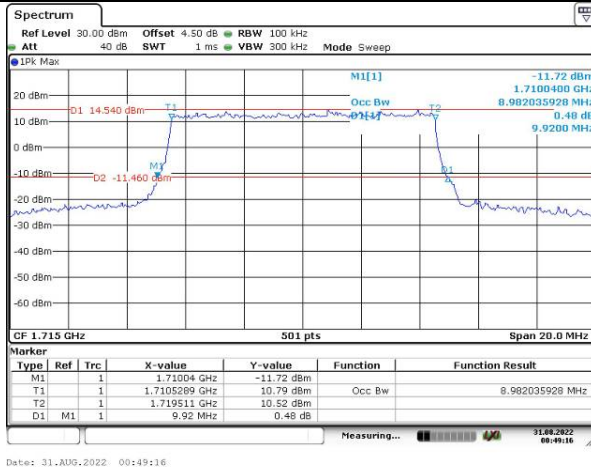
Occupied Bandwidth

Channel

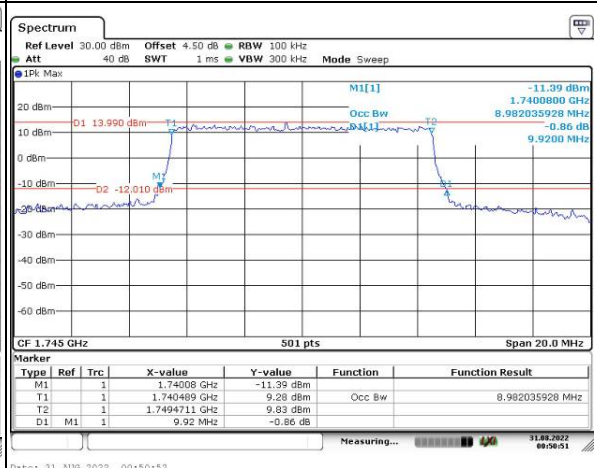
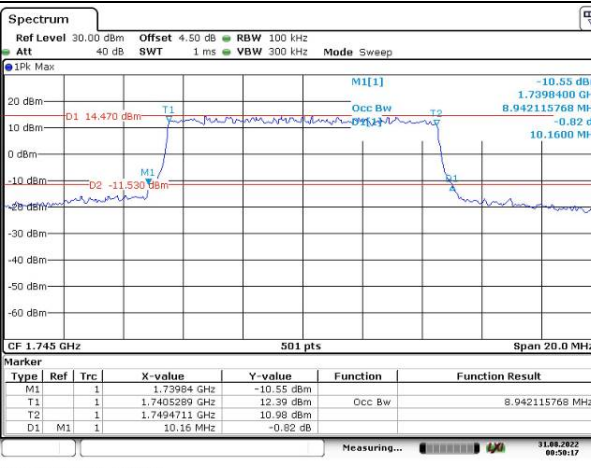
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

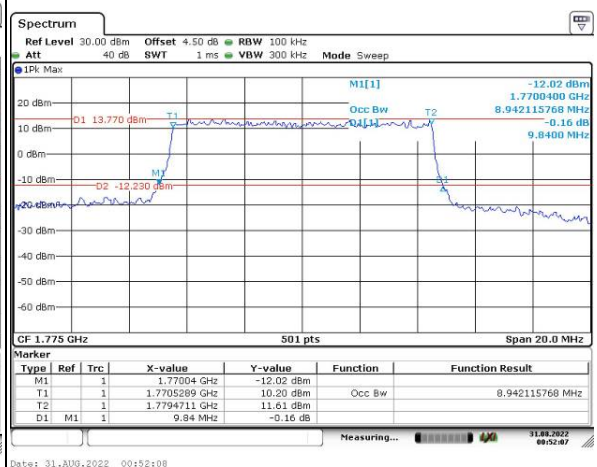
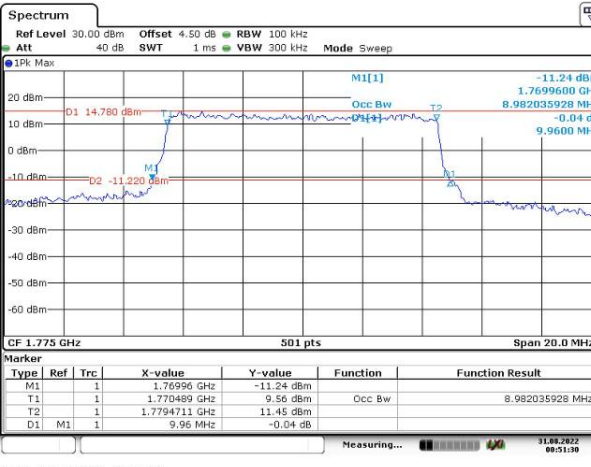
Lowest



Middle



Highest



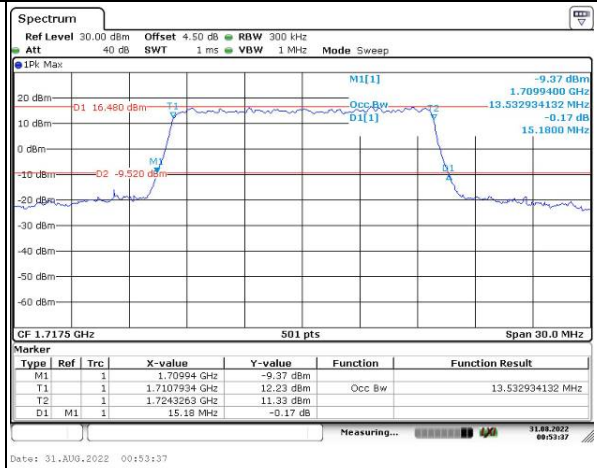
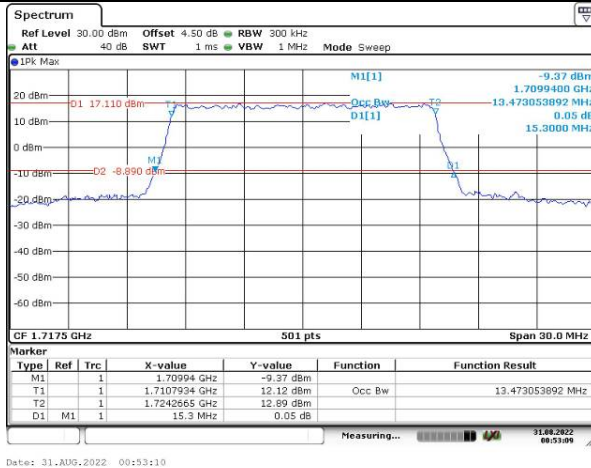
Occupied Bandwidth

Channel

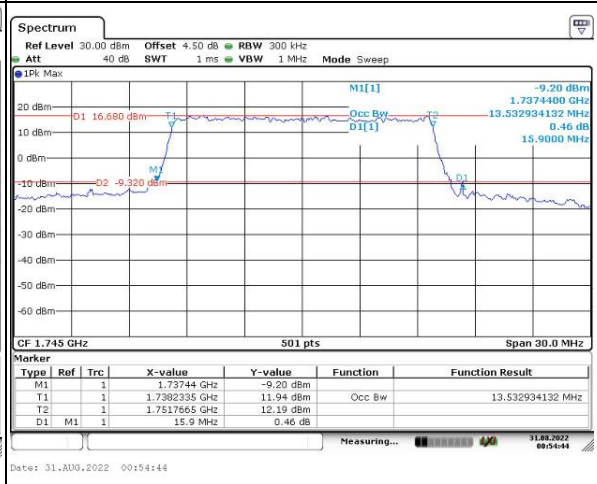
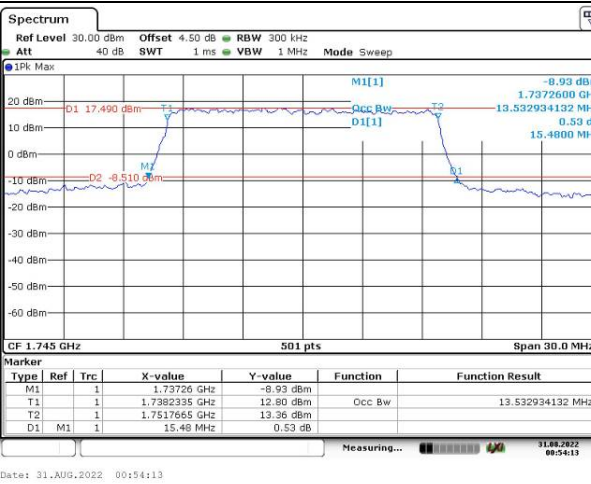
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

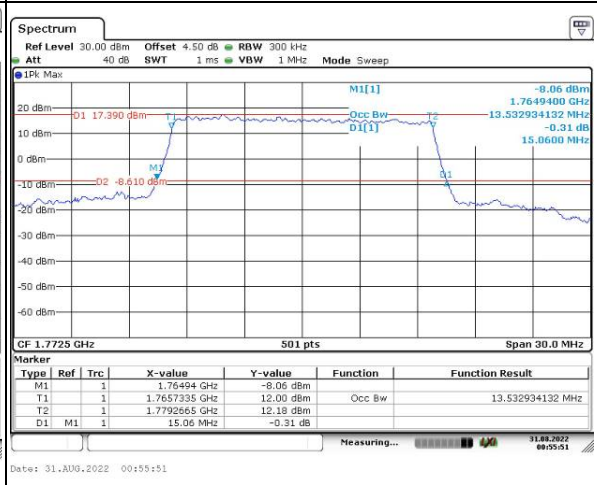
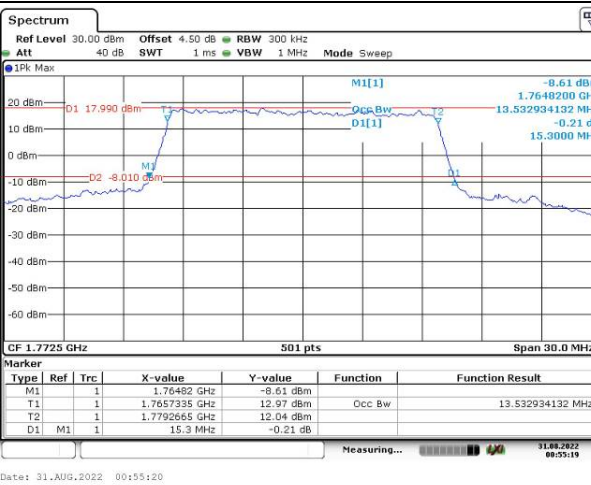
Lowest



Middle



Highest



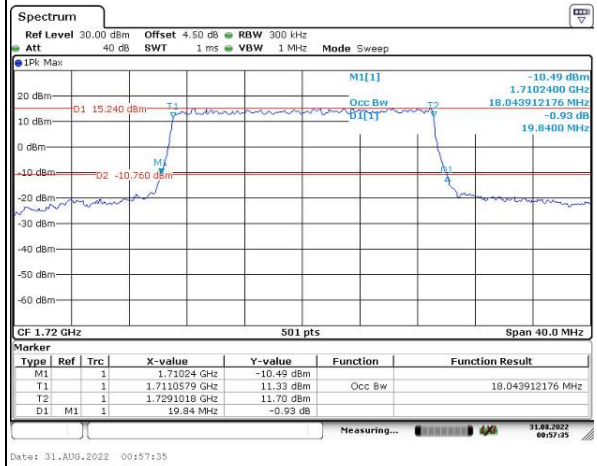
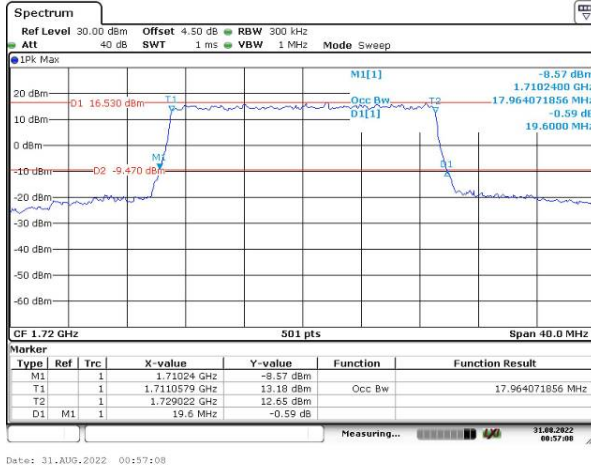
Occupied Bandwidth

Channel

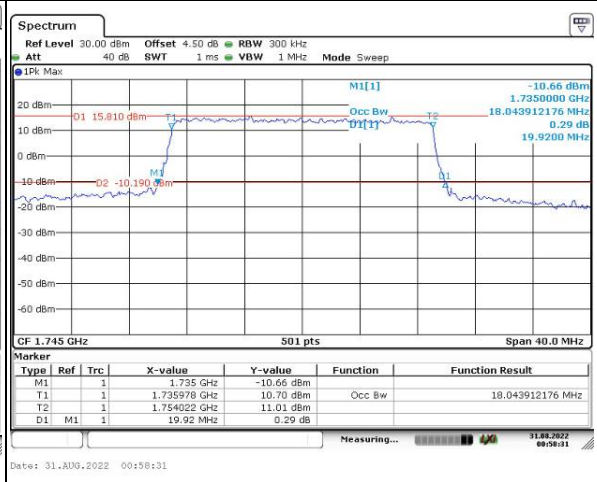
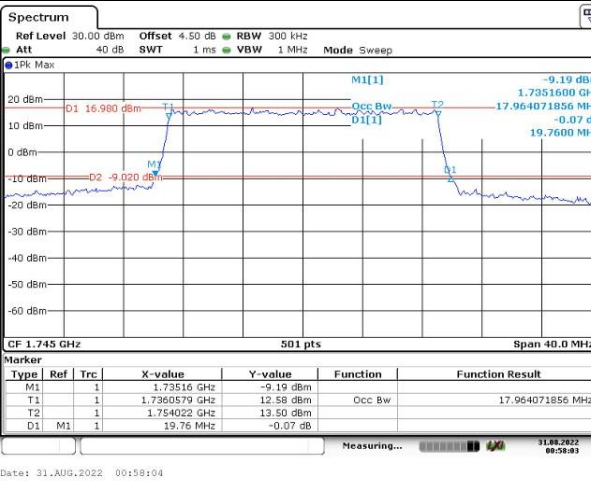
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

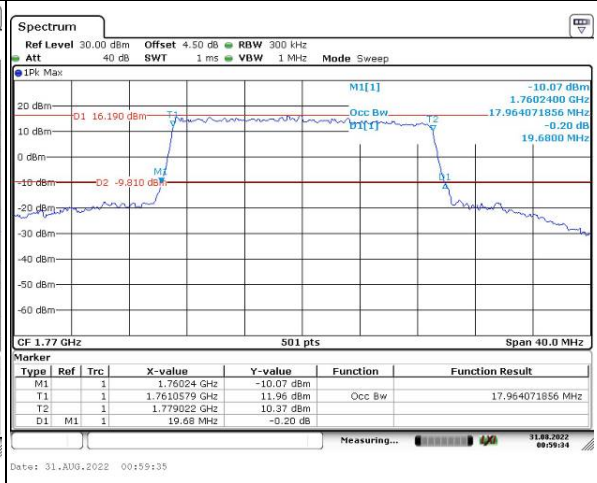
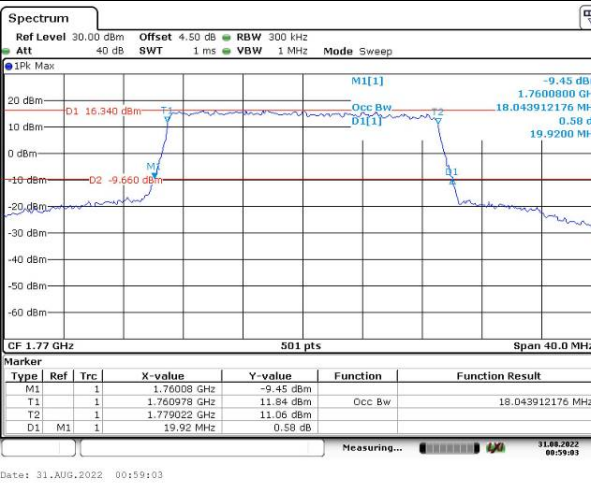
Lowest



Middle



Highest

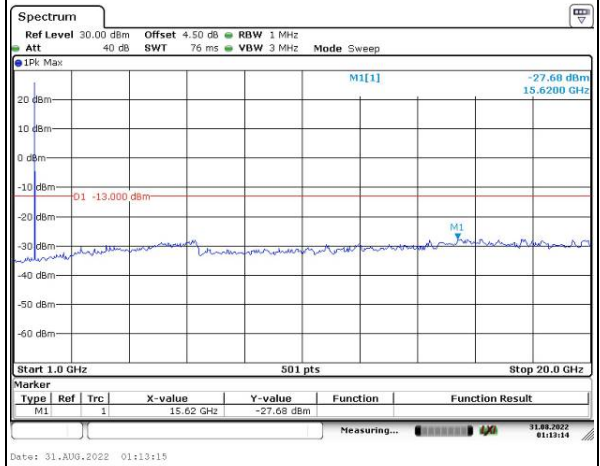
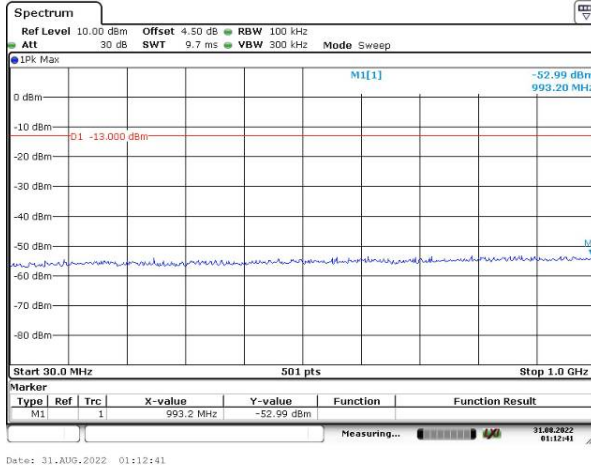


Spurious Emissions at Antenna Terminal

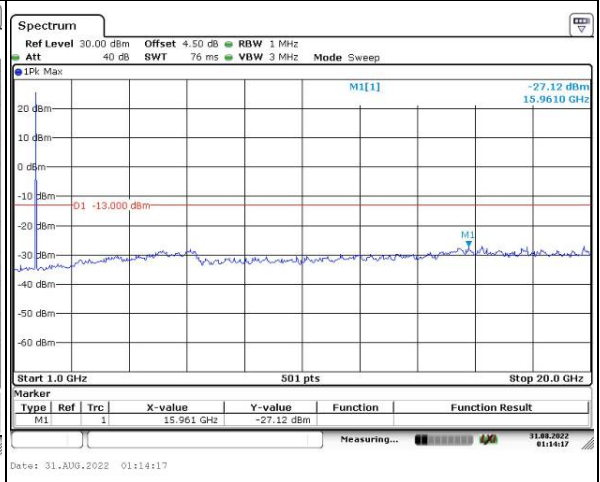
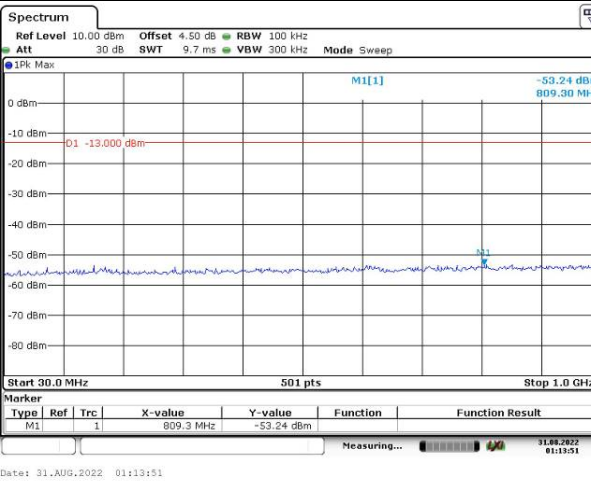
Channel

1.4MHz Bandwidth QPSK

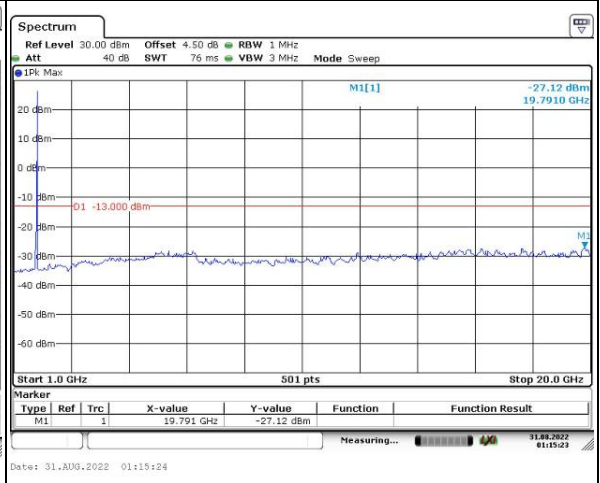
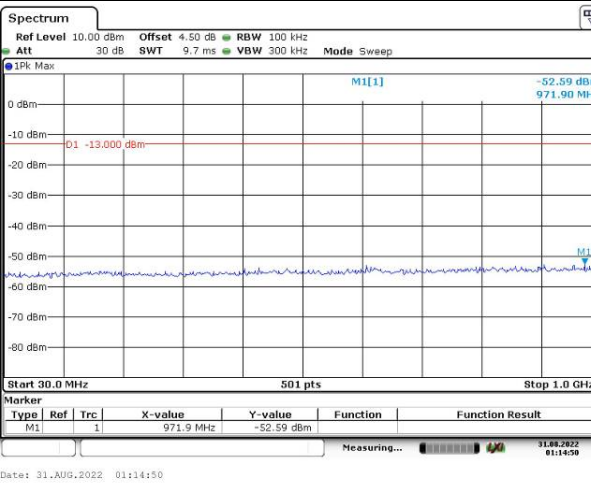
Lowest



Middle



Highest

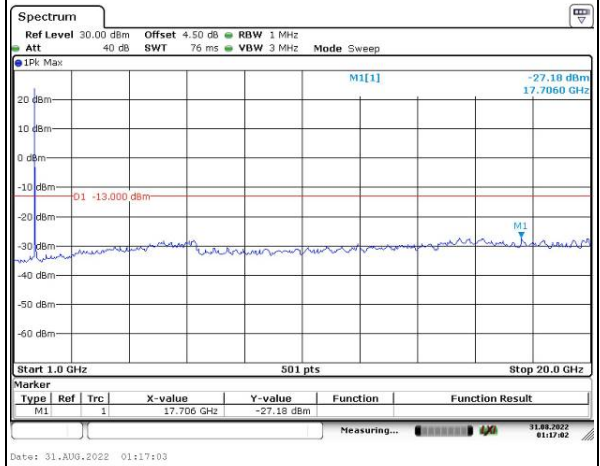
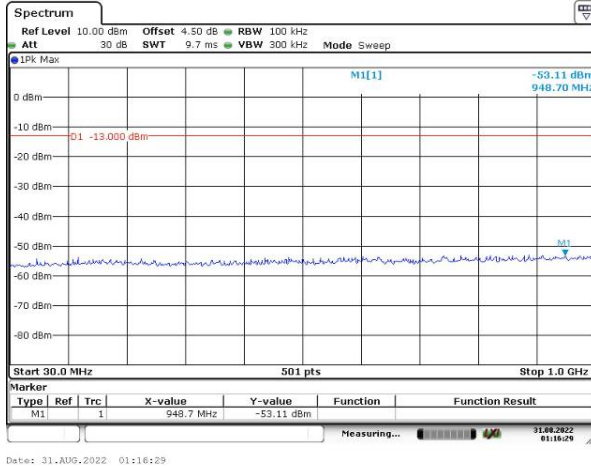


Spurious Emissions at Antenna Terminal

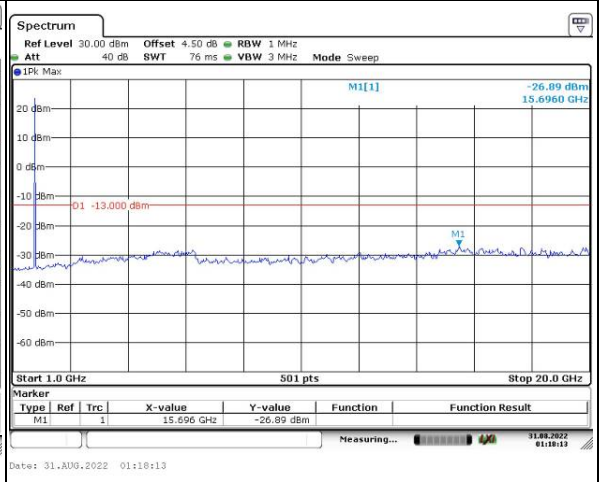
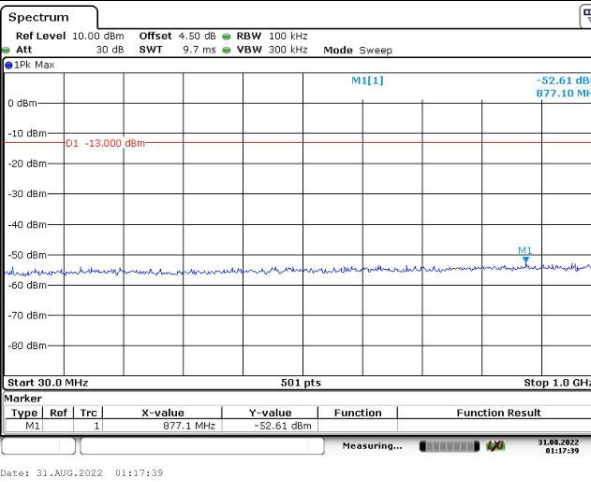
Channel

3MHz Bandwidth QPSK

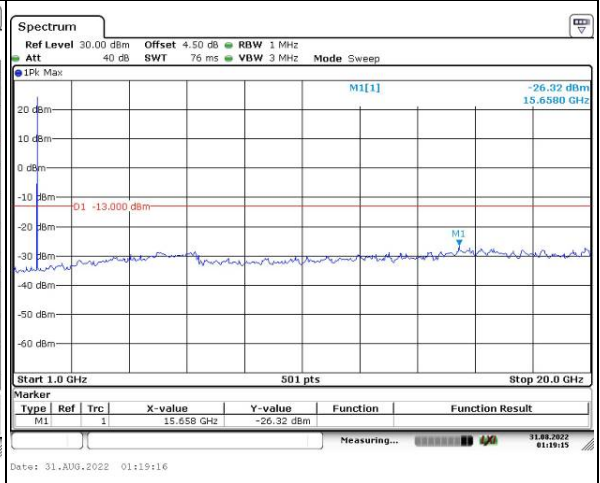
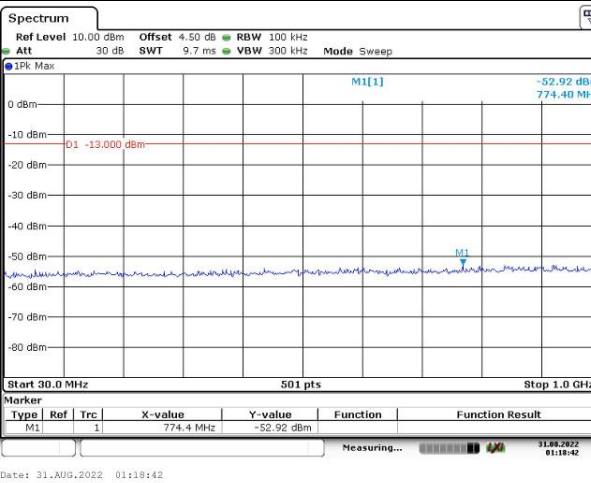
Lowest



Middle



Highest

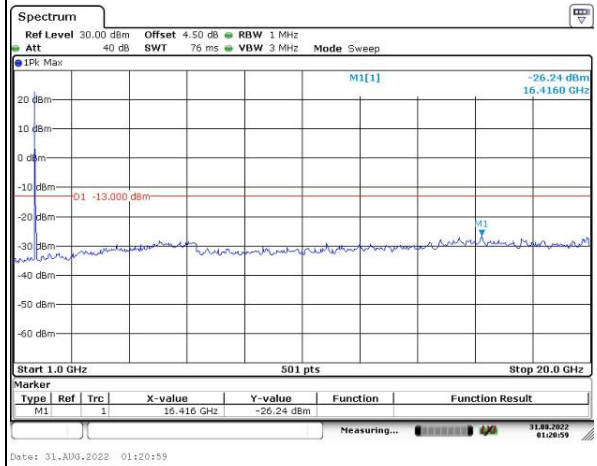
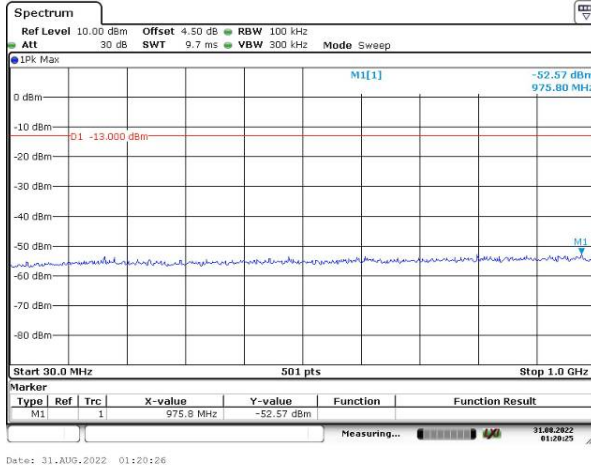


Spurious Emissions at Antenna Terminal

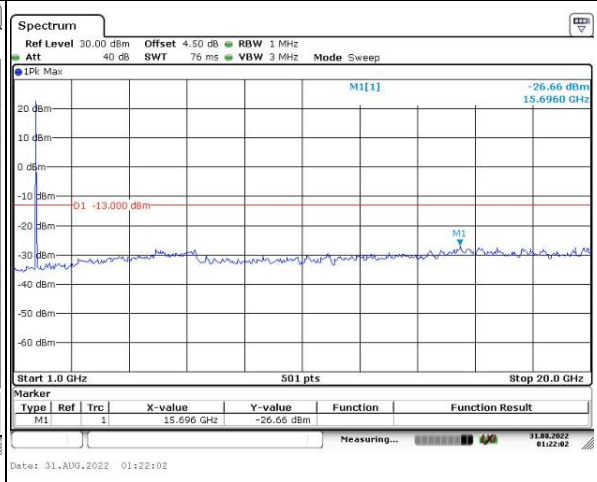
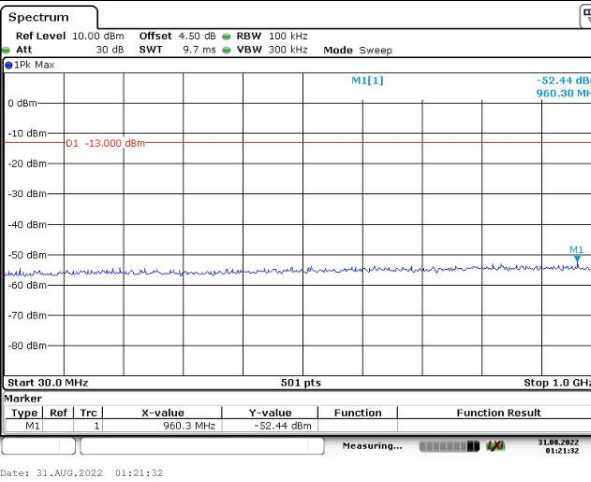
Channel

5MHz Bandwidth QPSK

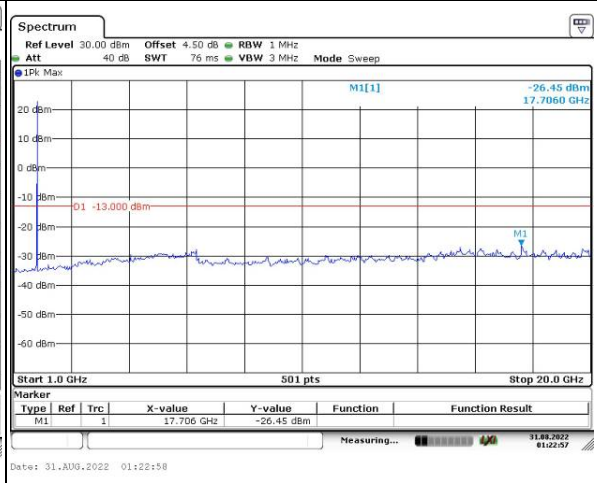
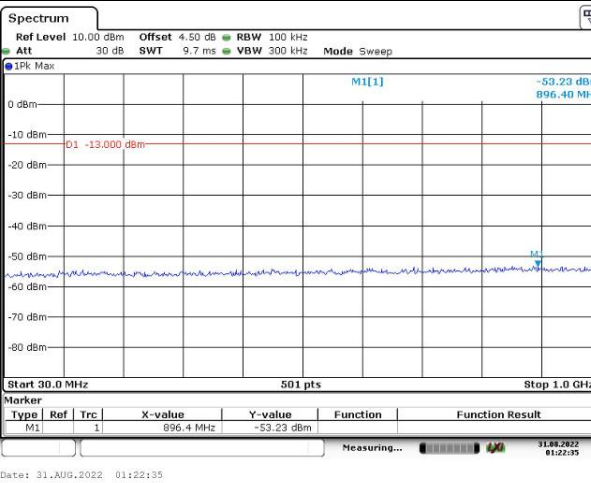
Lowest



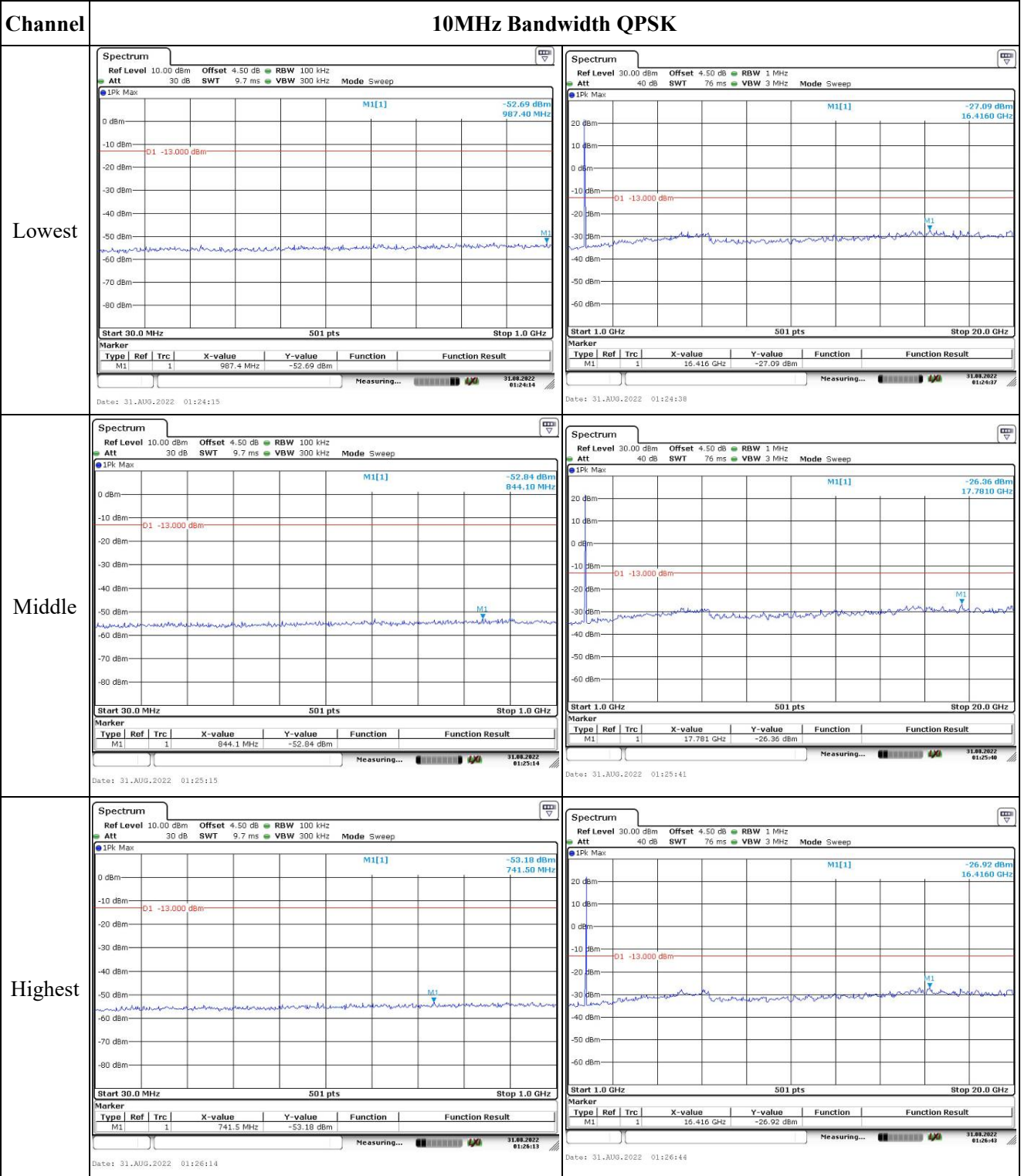
Middle



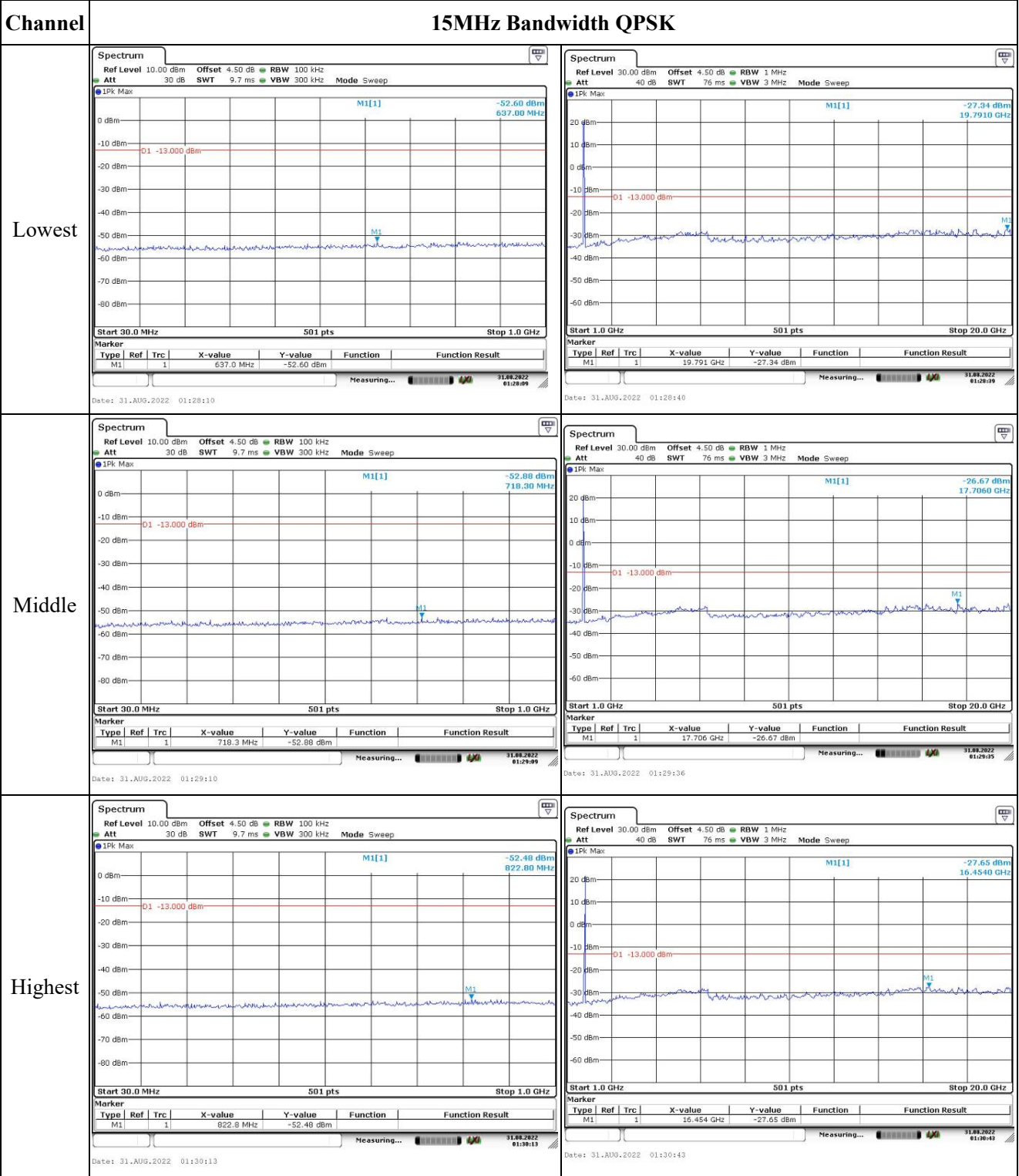
Highest



Spurious Emissions at Antenna Terminal



Spurious Emissions at Antenna Terminal

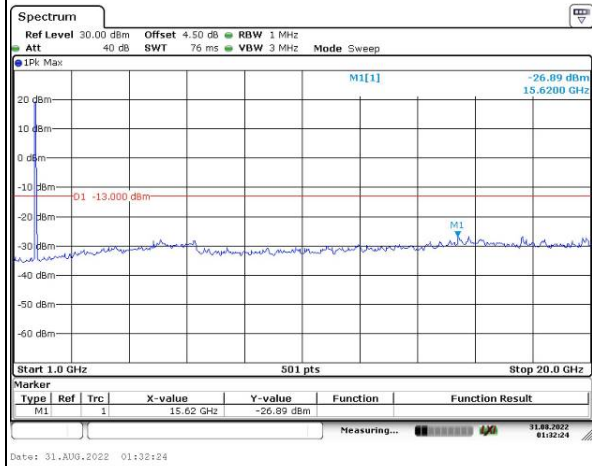
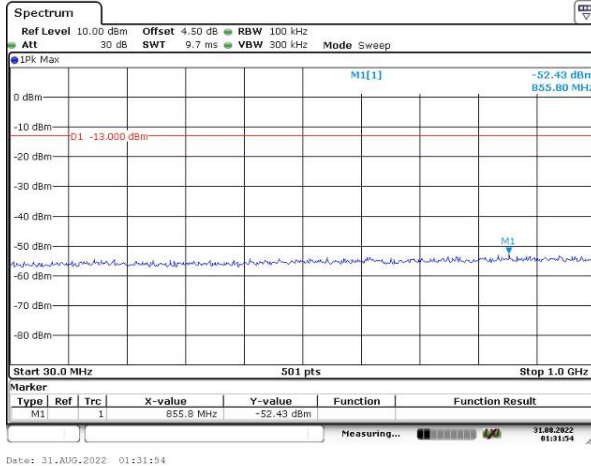


Spurious Emissions at Antenna Terminal

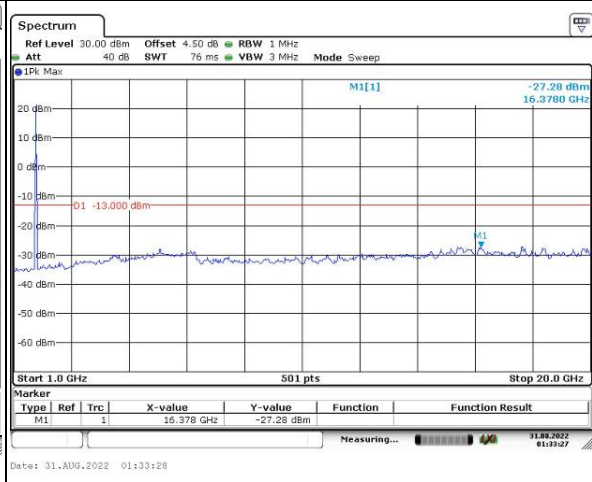
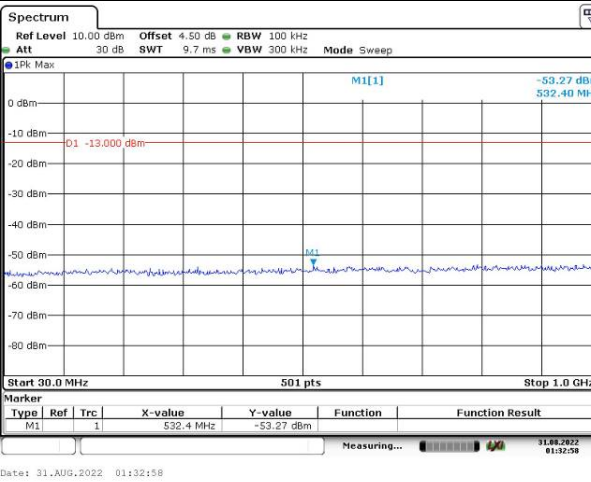
Channel

20MHz Bandwidth QPSK

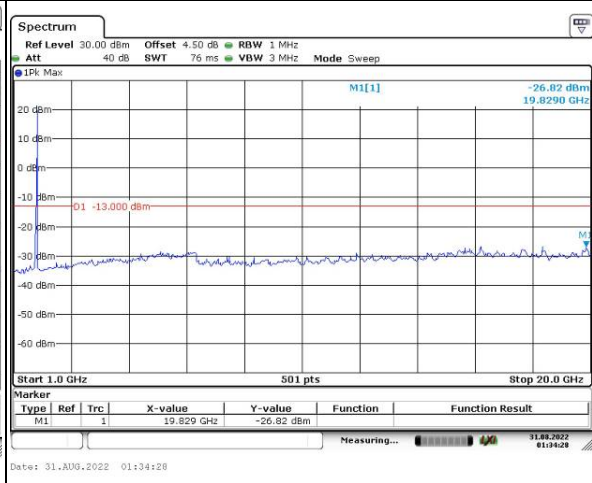
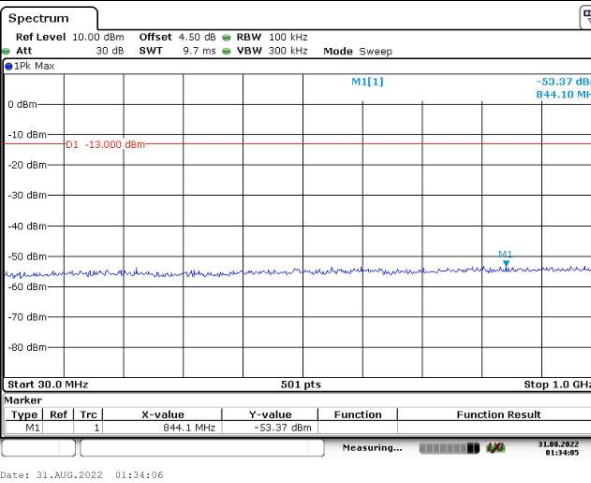
Lowest



Middle



Highest



Out of band emission, Band Edge

