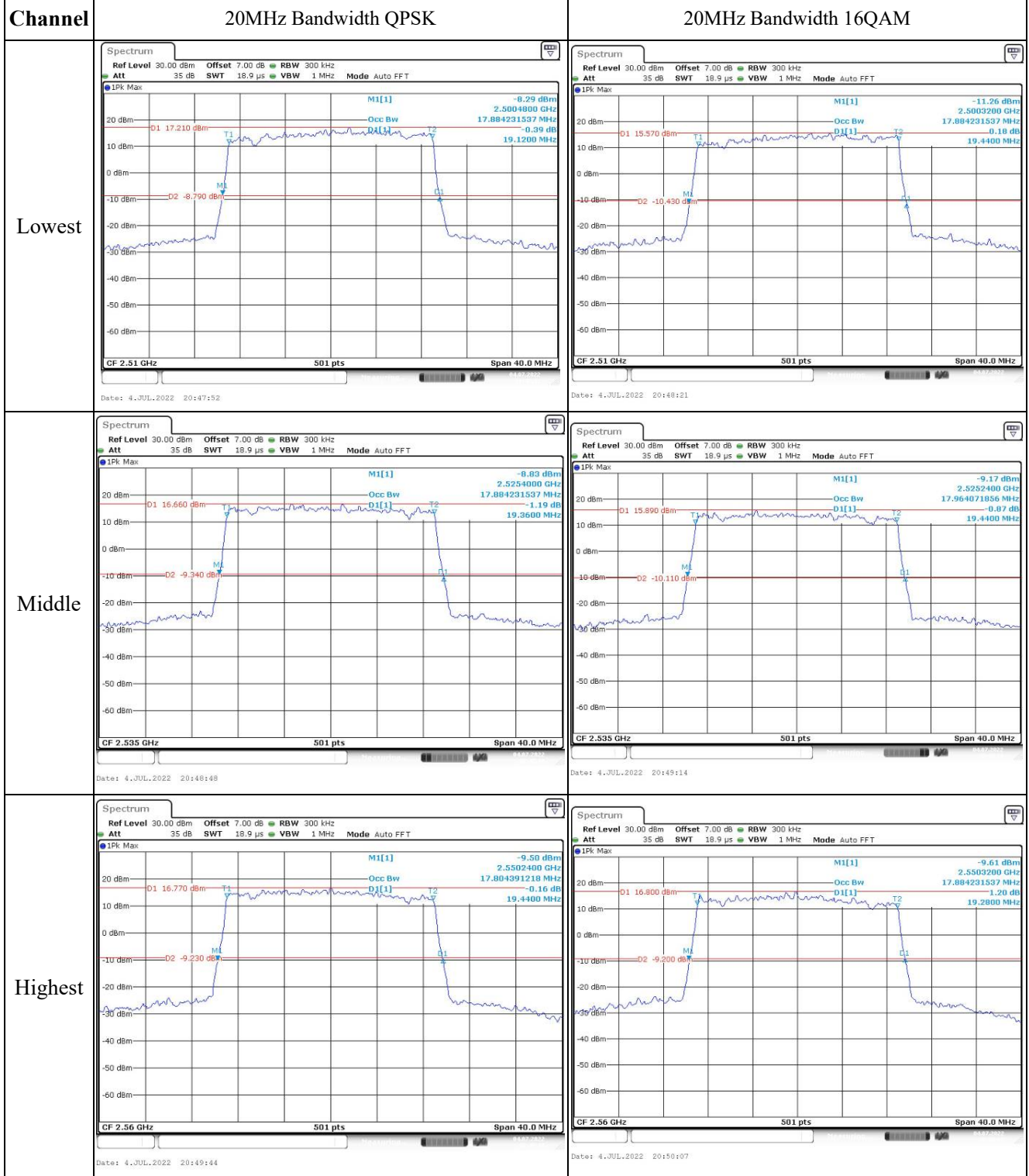


Occupied Bandwidth

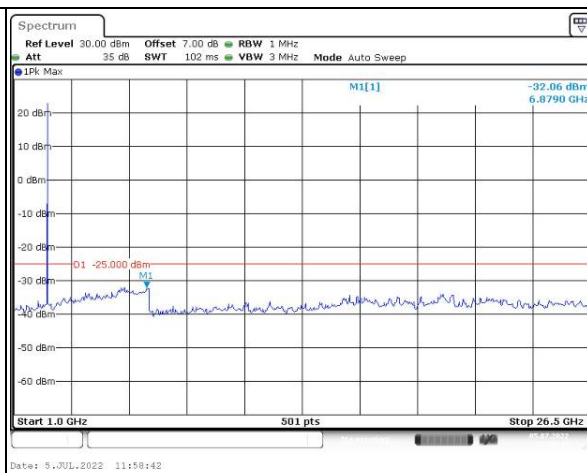
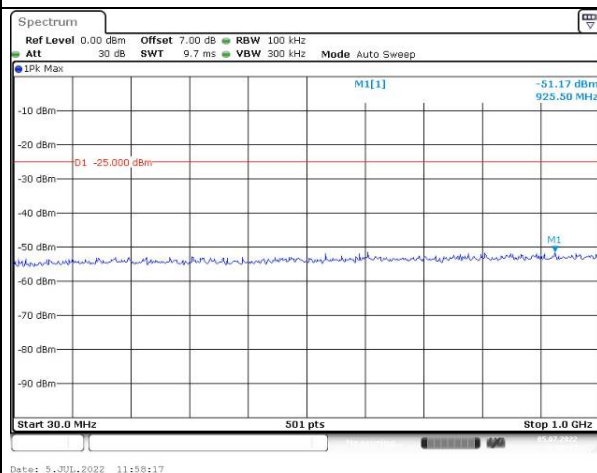


Spurious Emissions at Antenna Terminal

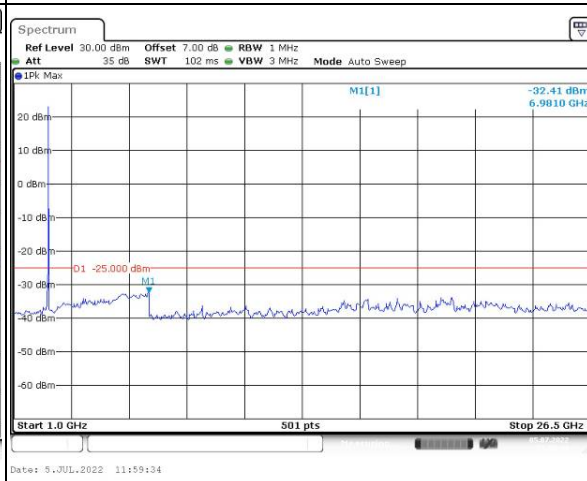
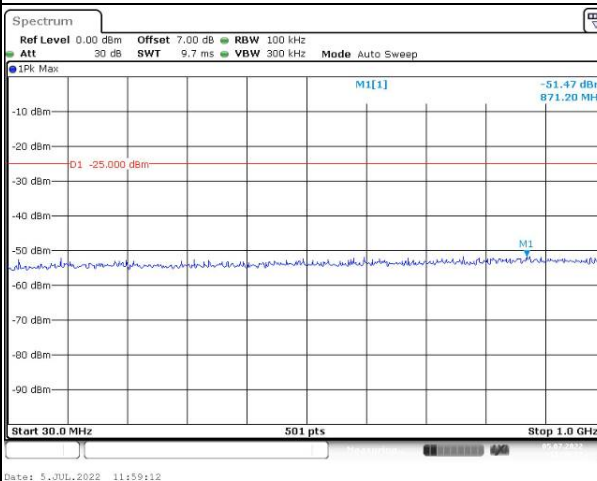
Channel

5MHz Bandwidth QPSK

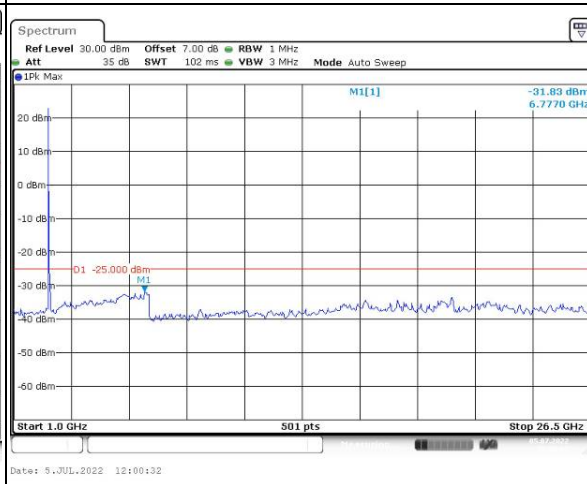
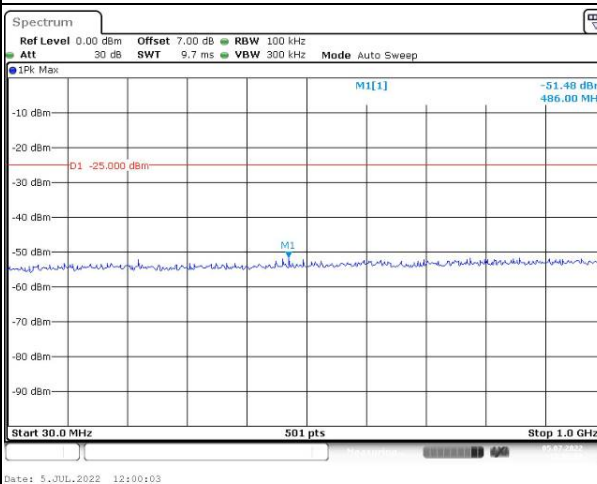
Lowest



Middle



Highest

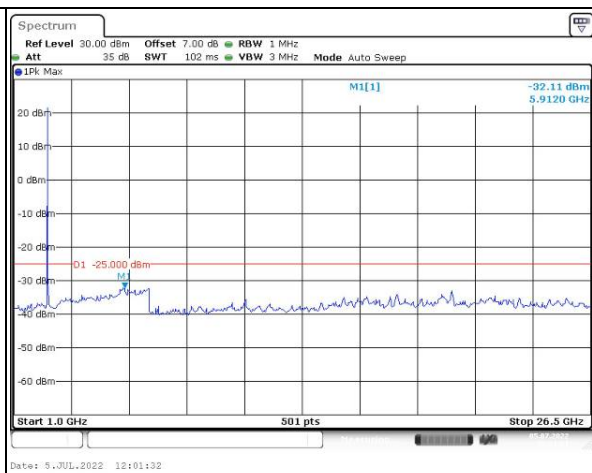
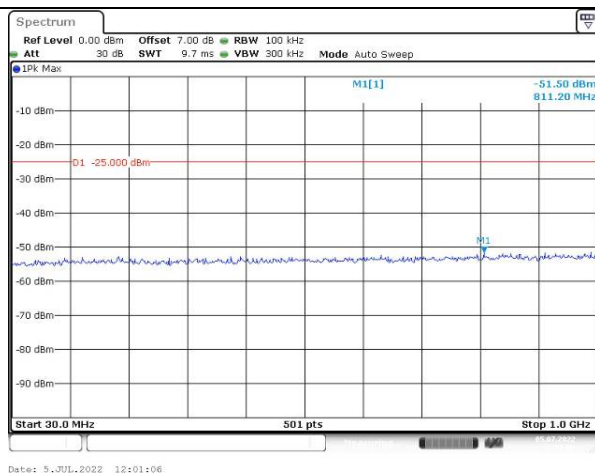


Spurious Emissions at Antenna Terminal

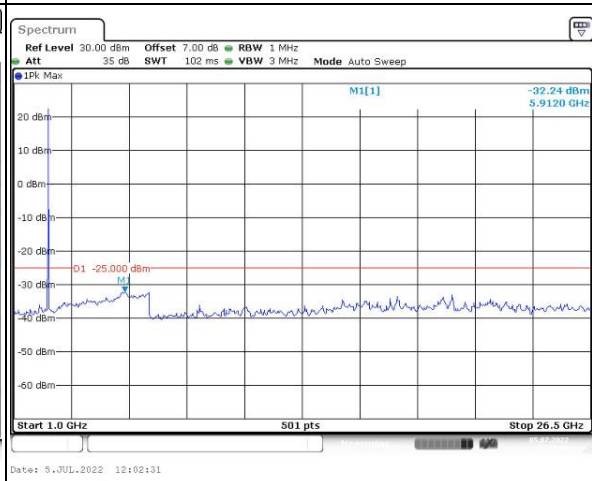
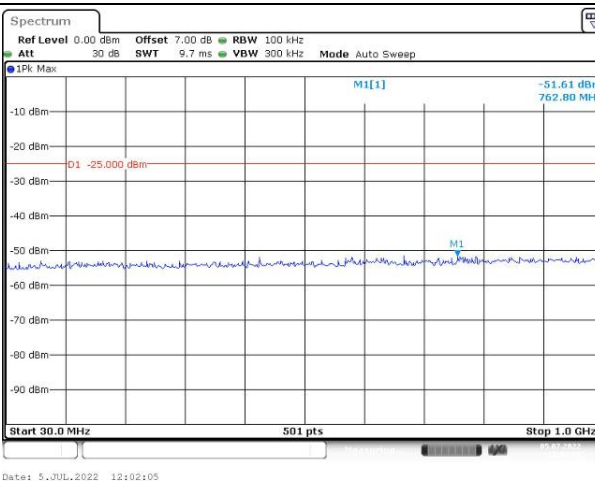
Channel

10MHz Bandwidth QPSK

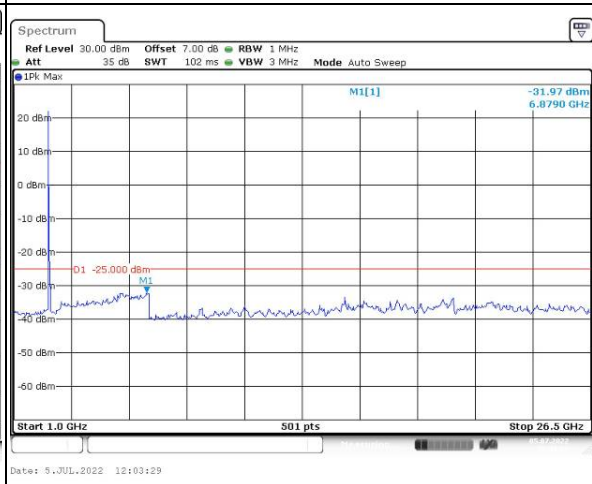
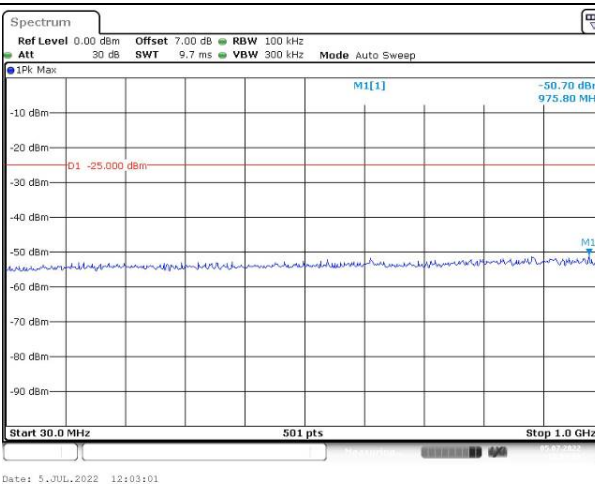
Lowest



Middle



Highest

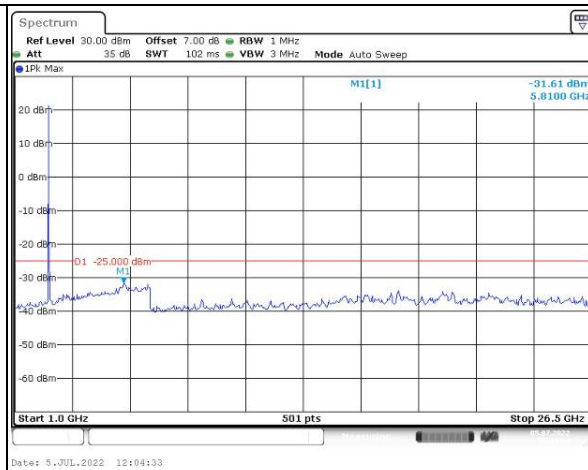
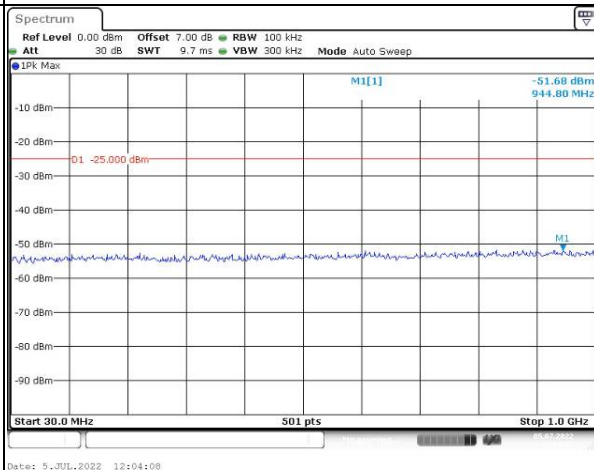


Spurious Emissions at Antenna Terminal

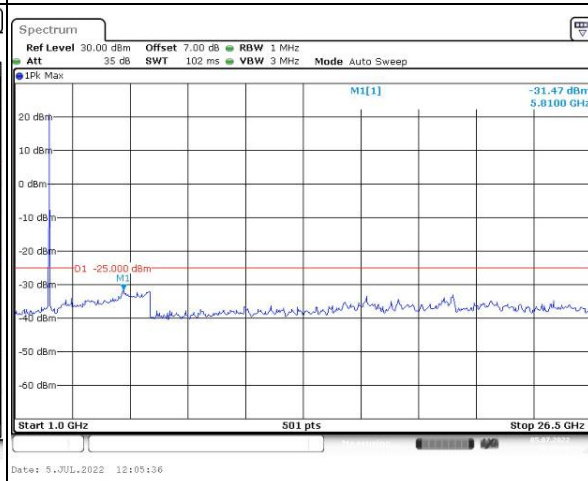
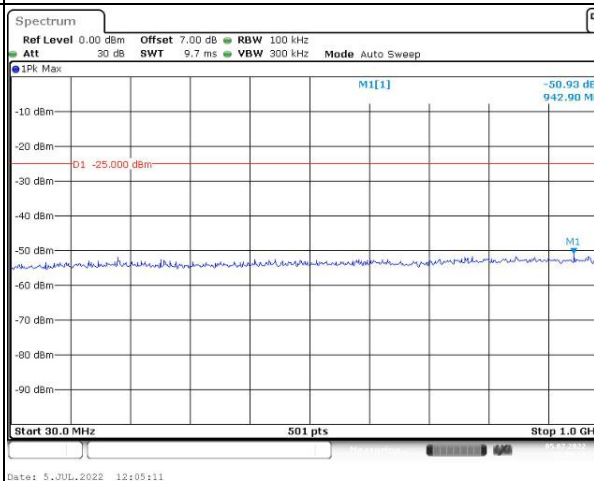
Channel

15MHz Bandwidth QPSK

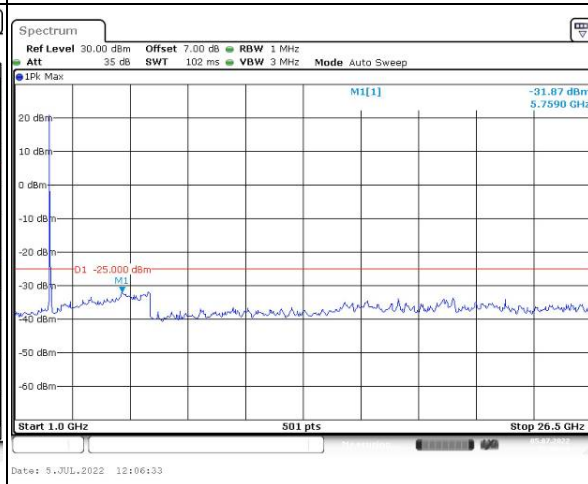
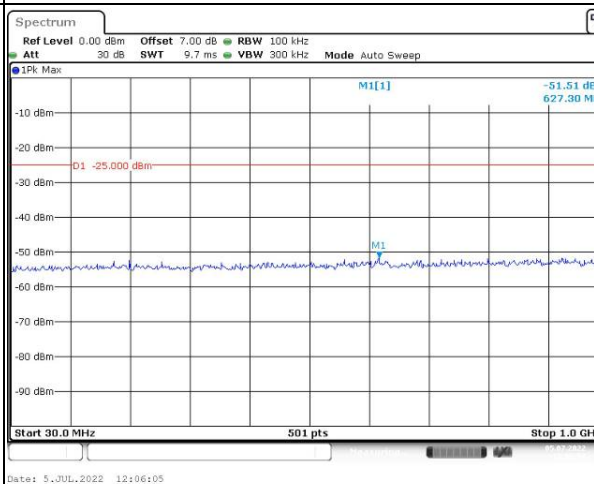
Lowest



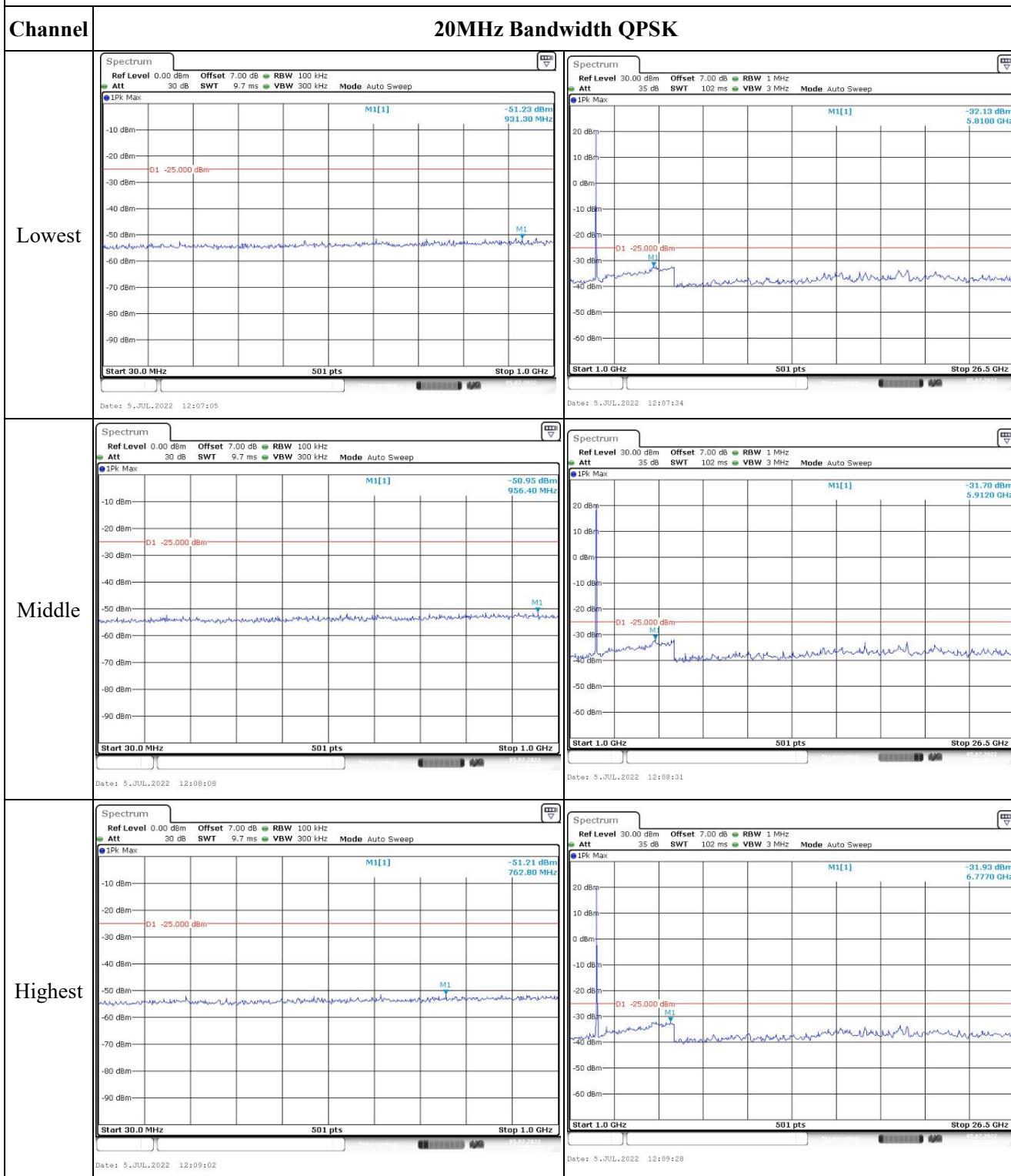
Middle



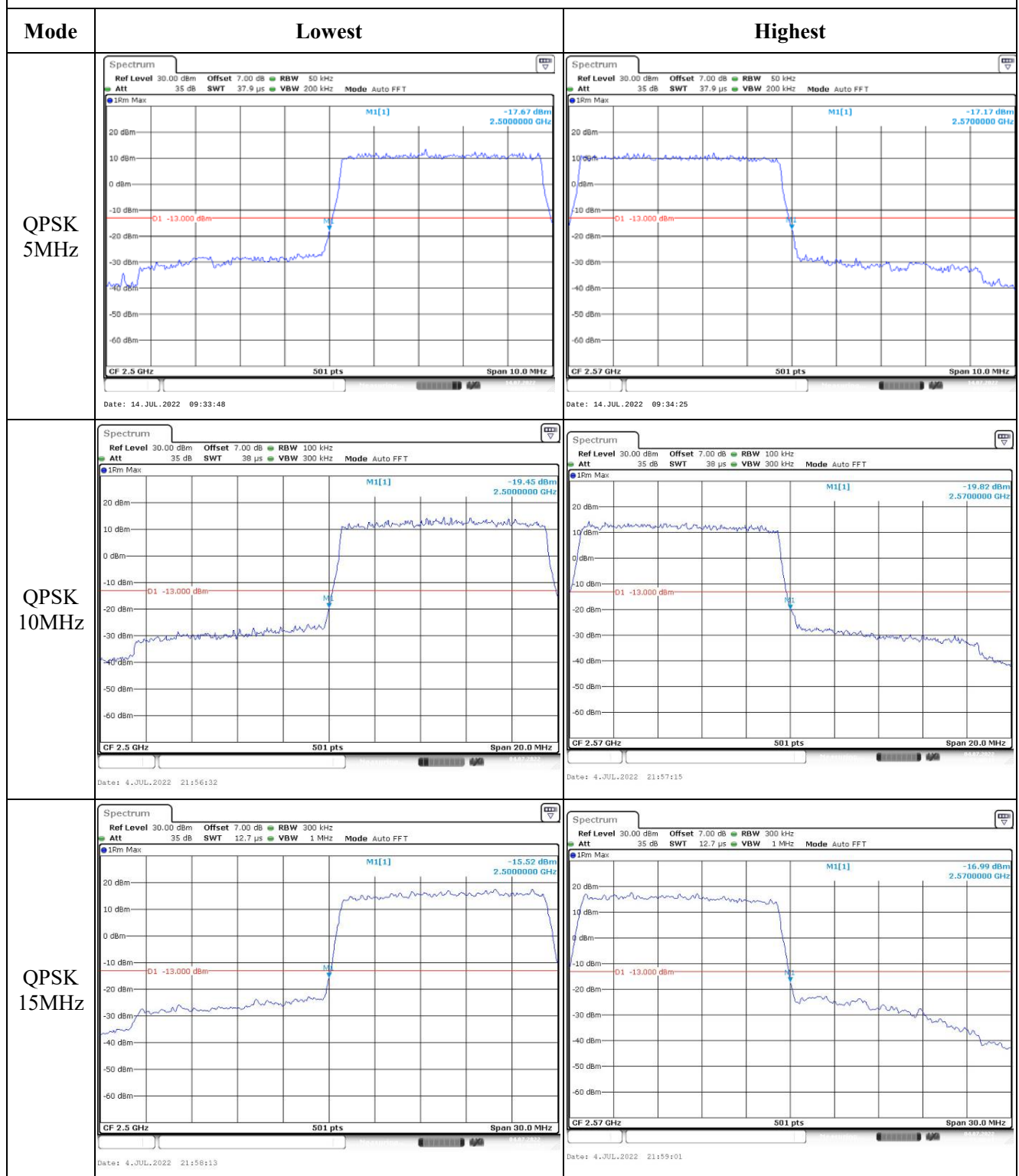
Highest



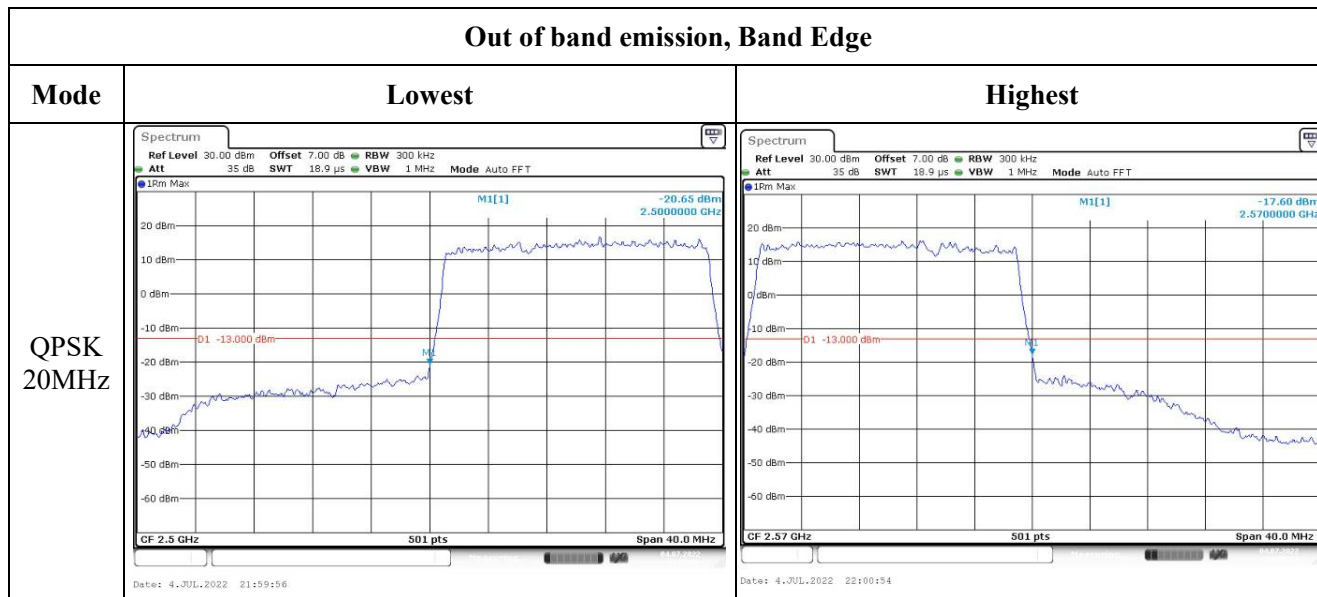
Spurious Emissions at Antenna Terminal



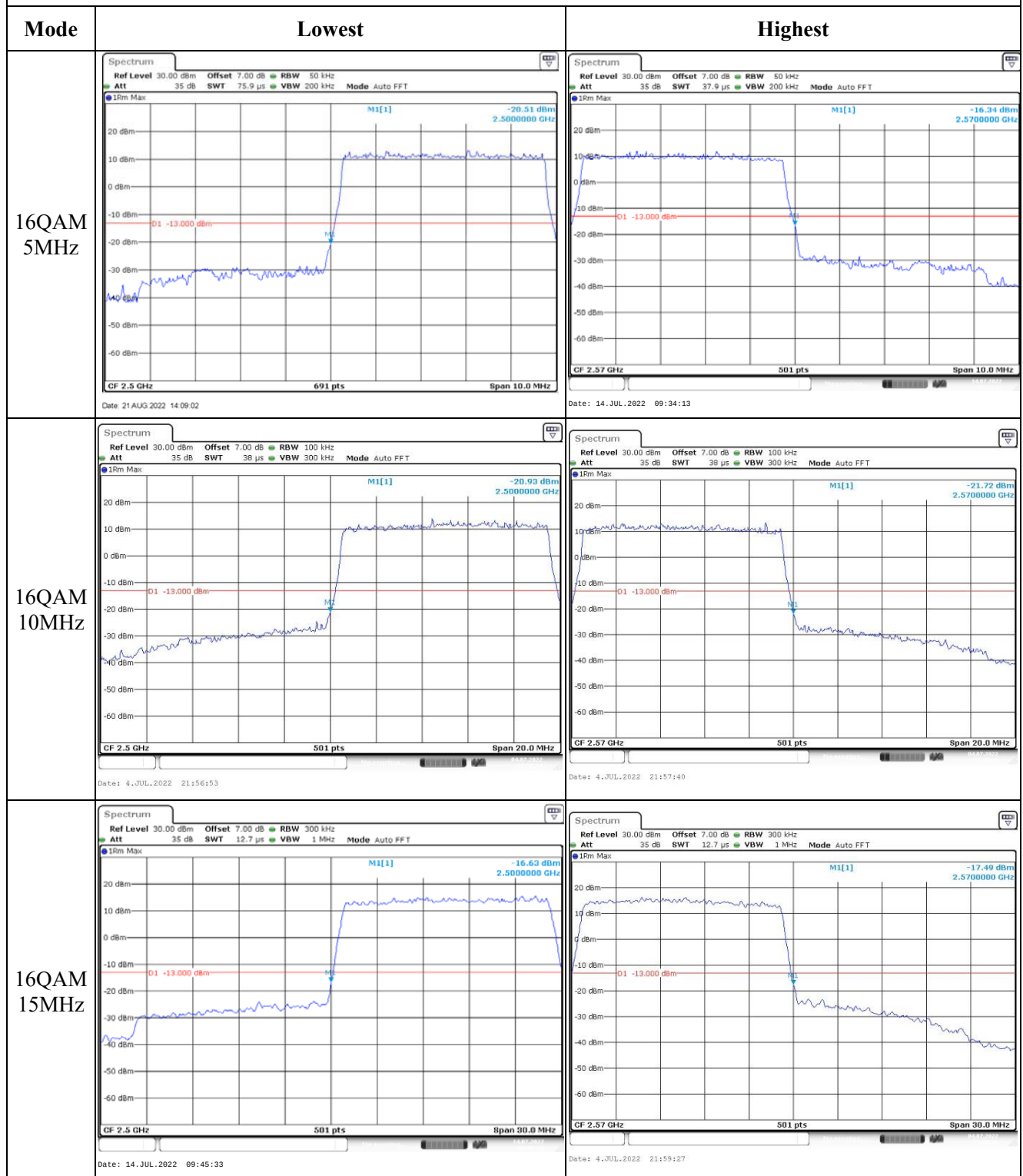
Out of band emission, Band Edge



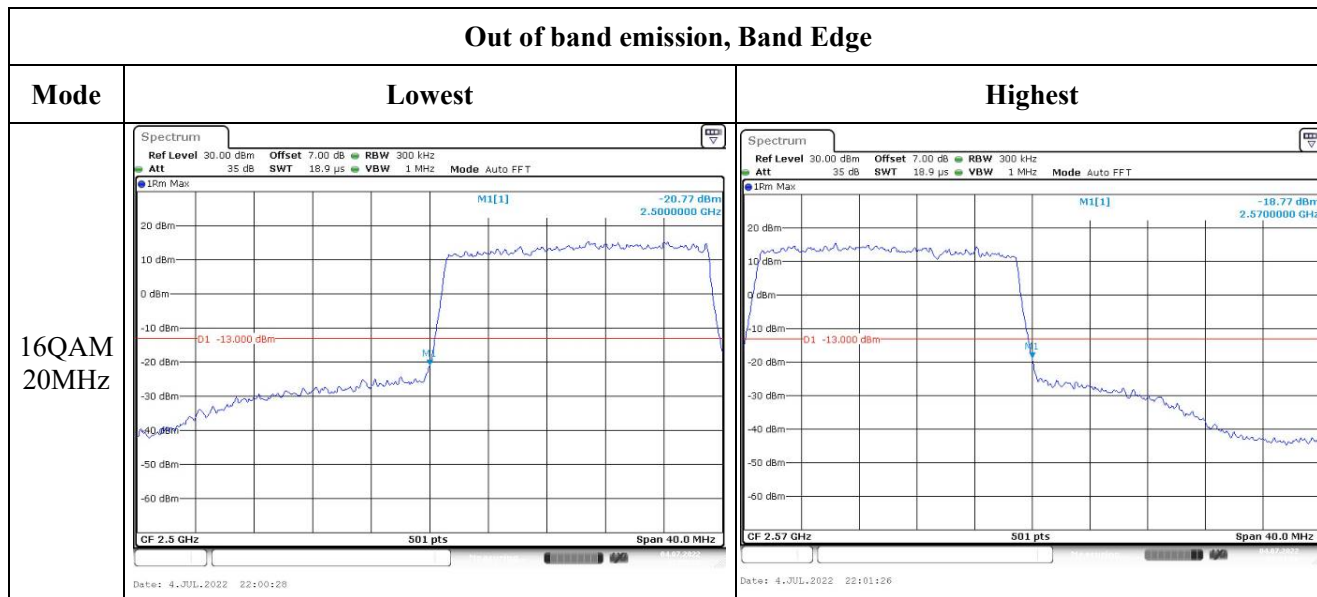
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.10 Antenna Port Test Data and Results for LTE Band 12

Serial Number:	CR22050078-RF-S1	Test Date:	2022/7/4~2022/7/14
Test Site:	RF	Test Mode:	Transmitting
Tester:	Ted Min	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.5~25.8	Relative Humidity: (%)	51~57	ATM Pressure: (kPa)	100.1~100.3
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101943	2021-10-10	2022-10-09
R&S	Wideband Radio Communication Tester	CMW500	149218	2021-07-21	2022-07-20
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
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
E-Microwave	Two-way Splitter	ODP-1-6	OE0120176	Each time	N/A
HuiXunDa	DC Block	SMA-JK 18G	DCB181108042	Each time	N/A
Weinschel	Coaxial Attenuators	53-20-34	LN751	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100002	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).

EUT Information@ LTE Band 12▲:

Antenna Gain (dBi):	-0.29	Antenna Gain (dBd):	-2.44	Path Loss L _C (dB):	0
Operation Voltage(V _{DC}):					
Lowest:	3.47	Normal:	3.85	Highest:	4.24

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	699.7	707.5	715.3
3MHz	700.5	707.5	714.5
5MHz	701.5	707.5	713.5
10MHz	704	707.5	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		
1.4MHz QPSK	RB1#0	21.79	21.96	21.89	19.52	34.77
	RB1#3	21.89	21.95	21.91		
	RB1#5	21.83	21.91	21.86		
	RB3#0	21.82	21.86	21.87		
	RB3#3	21.79	21.81	21.84		
	RB6#0	21.58	21.61	21.64		
1.4MHz 16QAM	RB1#0	21.56	21.67	21.59	19.37	34.77
	RB1#3	21.67	21.74	21.71		
	RB1#5	21.77	21.81	21.76		
	RB3#0	21.52	21.46	21.51		
	RB3#3	21.57	21.53	21.46		
	RB6#0	21.26	21.31	21.26		
3MHz QPSK	RB1#0	21.93	21.96	21.87	19.64	34.77
	RB1#8	21.97	21.91	21.83		
	RB1#14	22.08	22.03	21.96		
	RB6#0	21.96	21.96	21.89		
	RB6#9	21.89	21.91	21.86		
	RB15#0	21.77	21.73	21.71		
3MHz 16QAM	RB1#0	21.55	21.61	21.63	19.42	34.77
	RB1#8	21.75	21.76	21.77		
	RB1#14	21.81	21.86	21.83		
	RB6#0	21.56	21.7	21.54		
	RB6#9	21.78	21.84	21.76		
	RB15#0	21.42	21.42	21.38		
5MHz QPSK	RB1#0	21.83	21.91	21.74	19.6	34.77
	RB1#13	21.96	21.87	21.86		
	RB1#24	22.04	22.01	21.98		
	RB15#0	22.01	21.98	21.94		
	RB15#10	21.84	21.86	21.88		
	RB25#0	21.64	21.56	21.61		
5MHz 16QAM	RB1#0	21.7	21.47	21.64	19.49	34.77
	RB1#13	21.83	21.85	21.91		
	RB1#24	21.93	21.87	21.86		
	RB15#0	21.86	21.78	21.81		
	RB15#10	21.79	21.81	21.89		
	RB25#0	21.59	21.54	21.49		
10MHz QPSK	RB1#0	22.06	21.98	21.95	19.74	34.77
	RB1#25	22.18	22.08	21.99		

	RB1#49	22.16	22.09	22.01		
	RB25#0	22.03	21.98	21.94		
	RB25#25	21.89	21.93	21.93		
	RB50#0	21.78	21.76	21.71		
10MHz 16QAM	RB1#0	21.83	21.81	21.79	19.52	34.77
	RB1#25	21.96	21.93	21.86		
	RB1#49	21.85	21.89	21.91		
	RB25#0	21.76	21.73	21.75		
	RB25#25	21.67	21.61	21.56		
	RB50#0	21.45	21.46	21.51		

Note: ERP=Conducted Power(dBm) - Cable loss(dB) + Antenna Gain(dBd)

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	3.06	3.11	3.21	13
	RB50#0	5.09	5.08	5.12	13
10MHz 16QAM	RB1#0	4.21	4.23	4.35	13
	RB50#0	6.19	6.27	6.43	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	1.108	1.096	1.108	1.29	1.308	1.32
1.4MHz 16QAM	1.102	1.102	1.096	1.296	1.32	1.29
3MHz QPSK	2.695	2.695	2.683	2.94	2.94	2.952
3MHz 16QAM	2.695	2.683	2.683	2.964	2.94	2.94
5MHz QPSK	4.531	4.491	4.491	5.02	5.02	5.02
5MHz 16QAM	4.491	4.511	4.511	5	5.04	5.02
10MHz QPSK	8.942	8.942	8.942	9.8	9.72	9.76
10MHz 16QAM	8.942	8.942	8.942	9.64	9.68	9.76

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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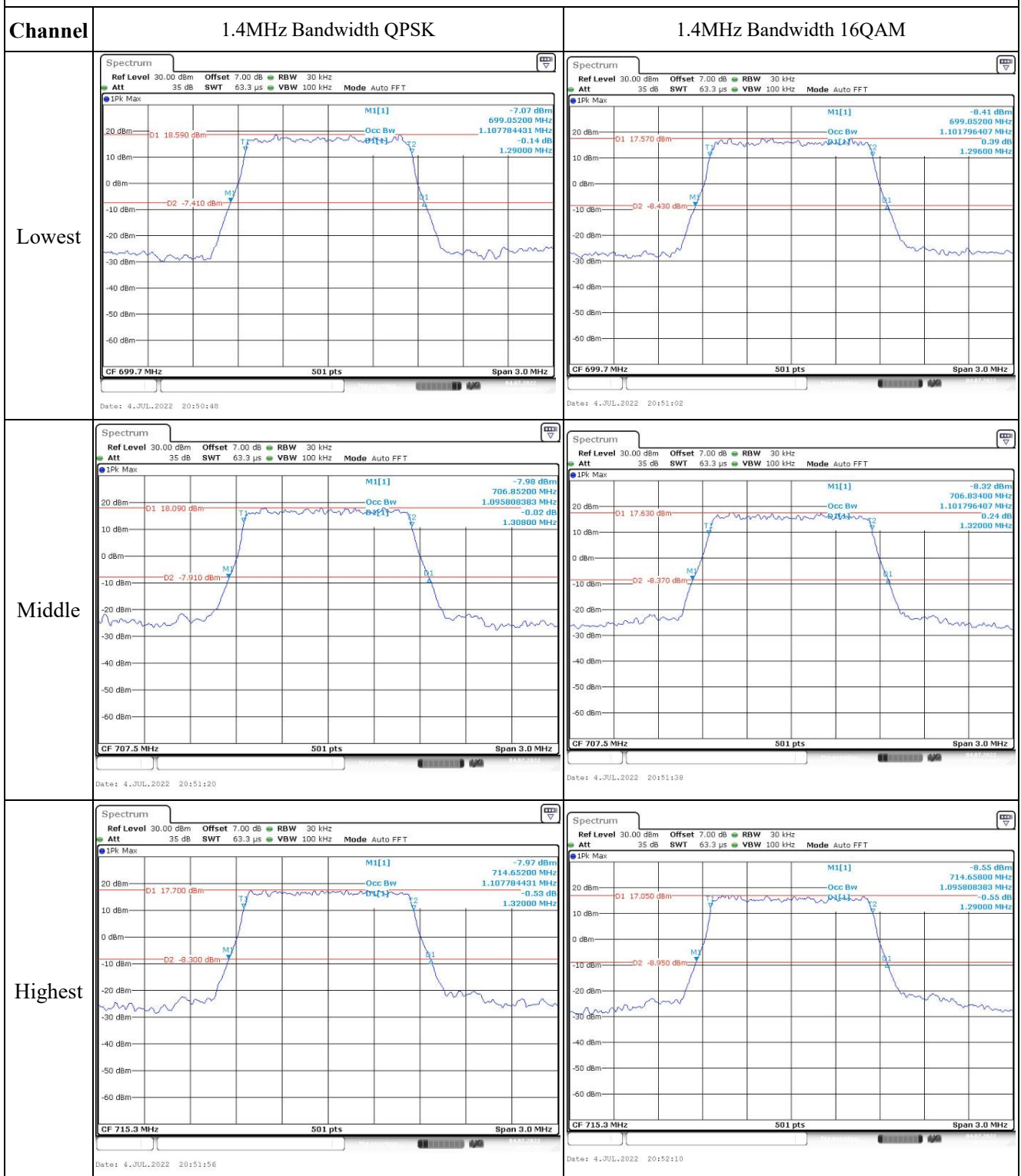
FCC §2.1055, §27.54: Frequency Stability

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	3.85	699.458	699.00	715.969	716.00
	-20	3.85	699.276	699.00	715.900	716.00
	-10	3.85	699.403	699.00	715.940	716.00
	0	3.85	699.415	699.00	715.967	716.00
	10	3.85	699.450	699.00	715.865	716.00
	20	3.85	699.449	699.00	715.900	716.00
	30	3.85	699.391	699.00	715.958	716.00
	40	3.85	699.288	699.00	715.843	716.00
	50	3.85	699.427	699.00	715.862	716.00
Frequency Stability vs. Voltage	20	3.47	699.379	699.00	715.858	716.00
	20	4.24	699.297	699.00	715.797	716.00
					Result:	Pass

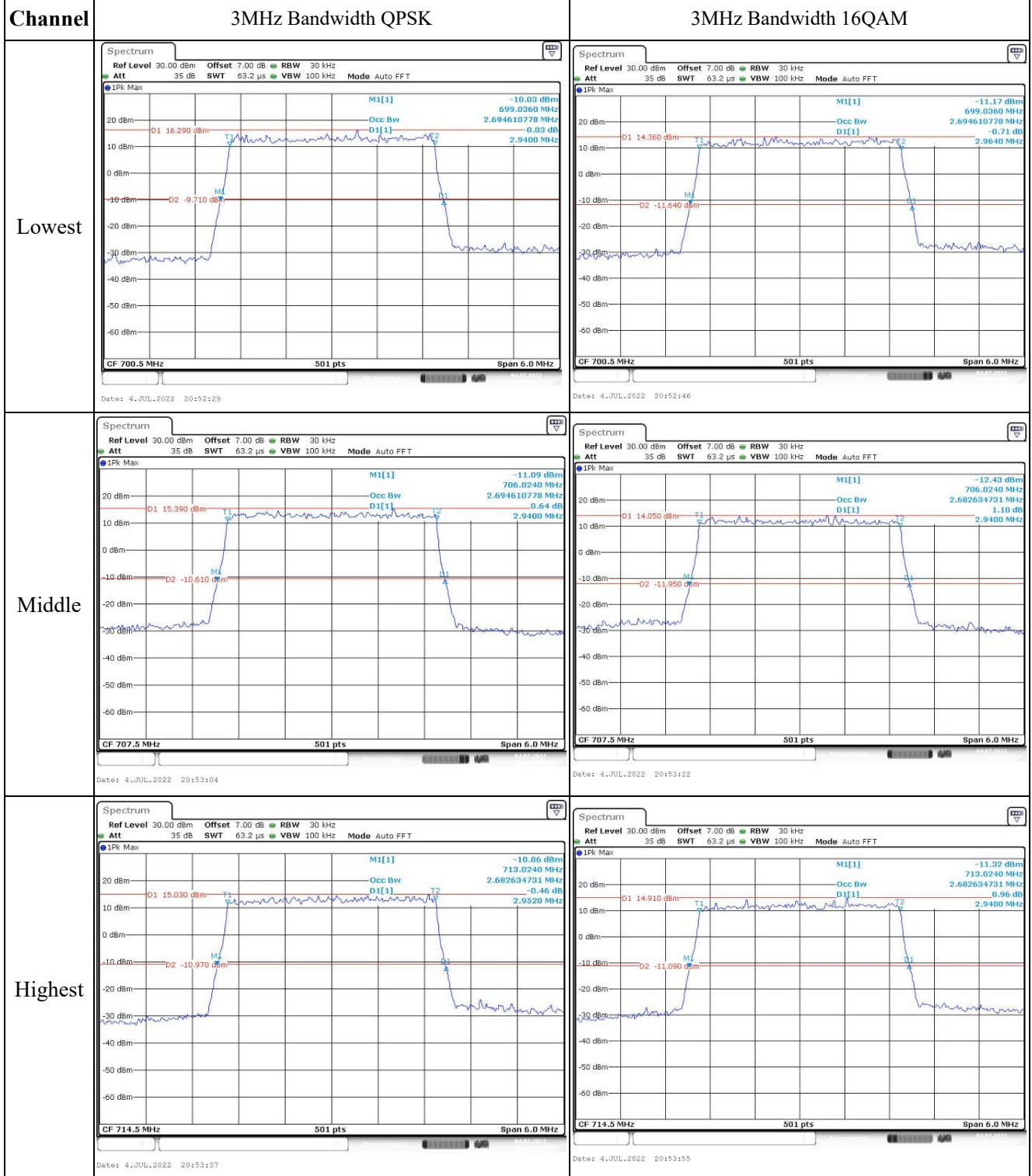
Test Mode:	10M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	699.456	699.00	715.828	716.00
	-20	3.85	699.342	699.00	715.896	716.00
	-10	3.85	699.455	699.00	715.816	716.00
	0	3.85	699.455	699.00	715.789	716.00
	10	3.85	699.364	699.00	715.768	716.00
	20	3.85	699.274	699.00	715.829	716.00
	30	3.85	699.329	699.00	715.902	716.00
	40	3.85	699.326	699.00	715.914	716.00
	50	3.85	699.340	699.00	715.917	716.00
Frequency Stability vs. Voltage	20	3.47	699.406	699.00	715.878	716.00
	20	4.24	699.402	699.00	715.892	716.00
					Result:	Pass

Test Plots:

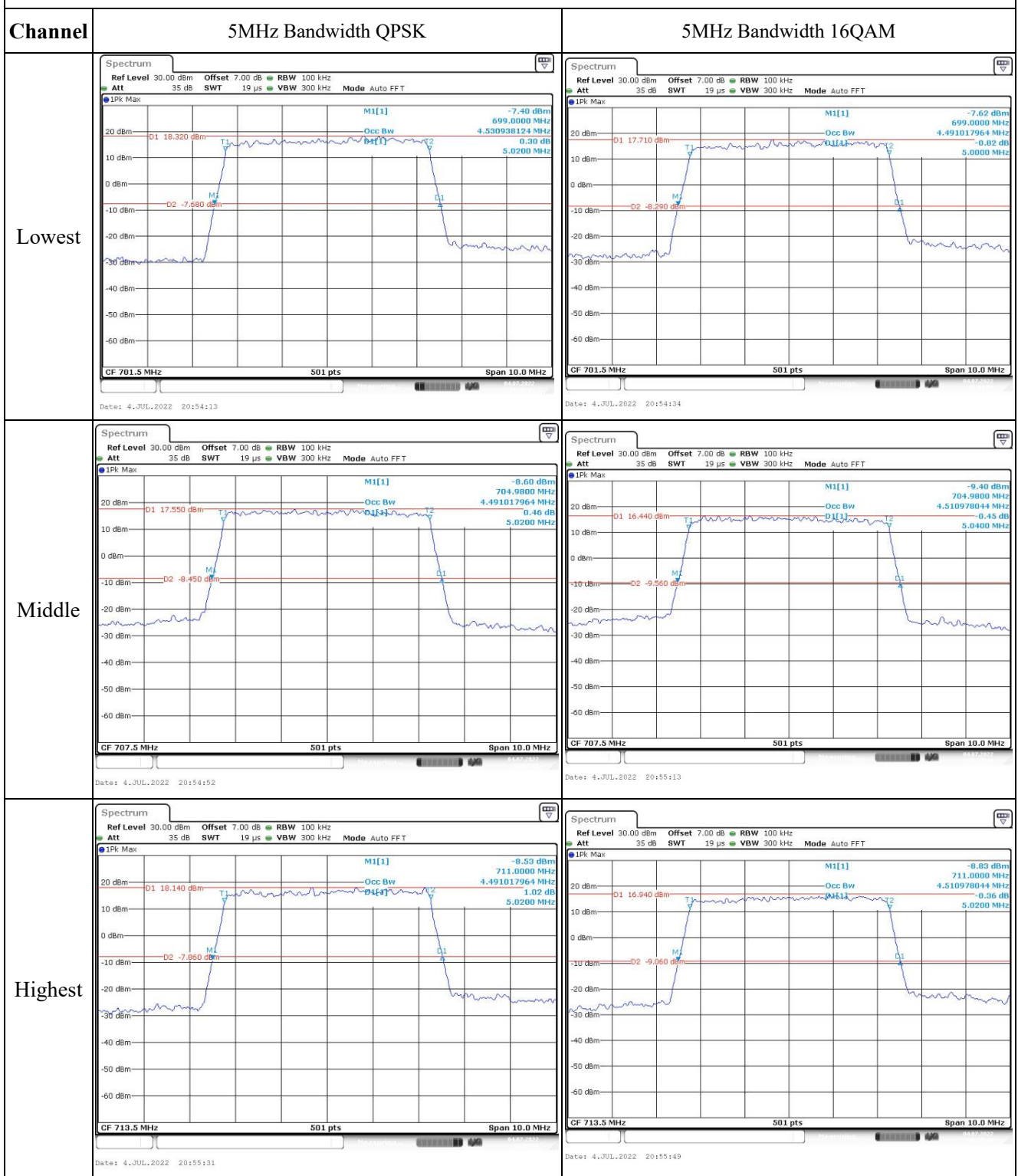
Occupied Bandwidth



Occupied Bandwidth



Occupied Bandwidth



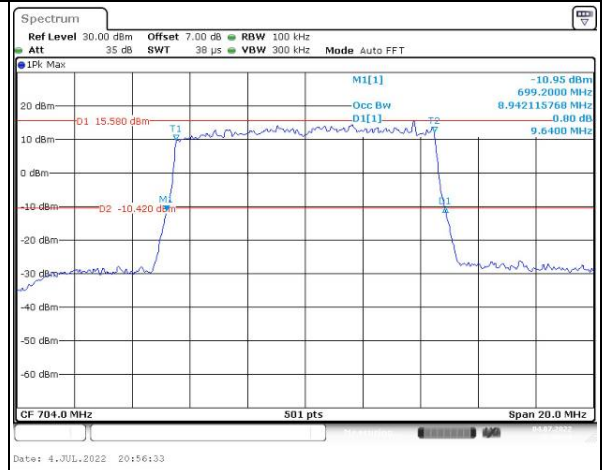
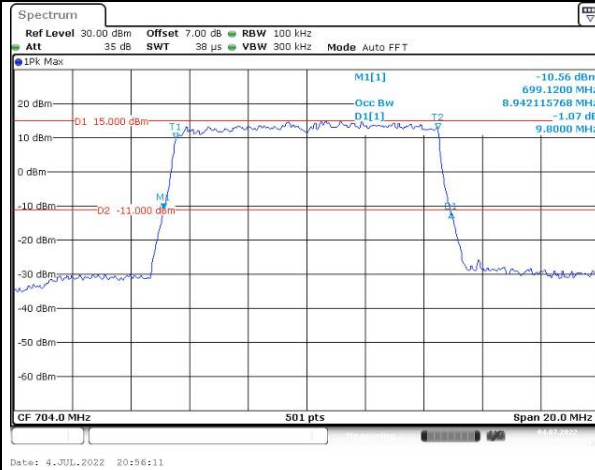
Occupied Bandwidth

Channel

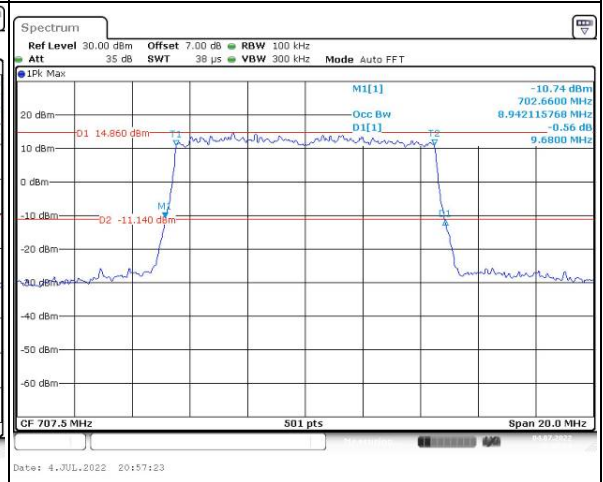
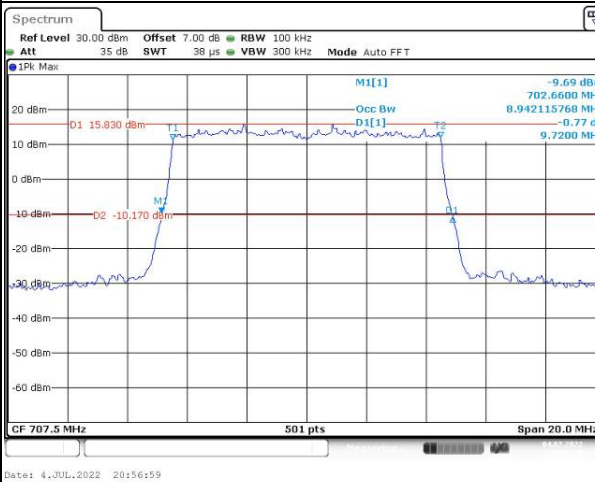
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

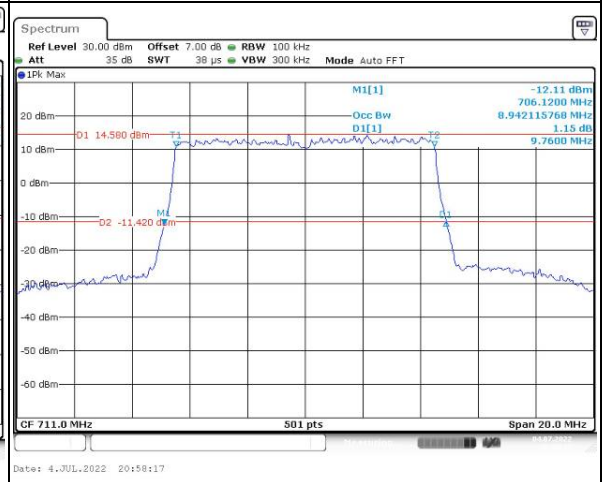
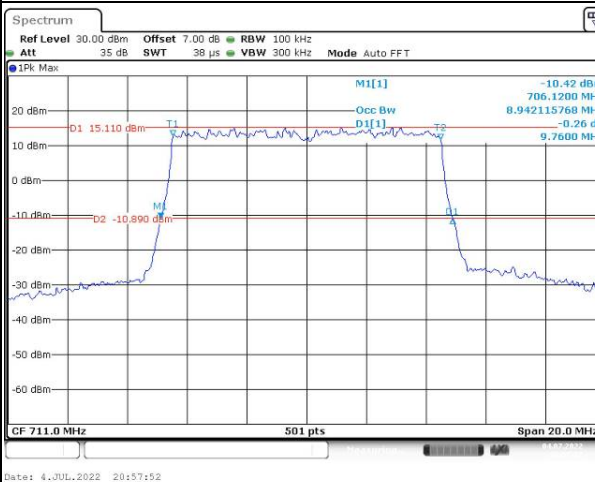
Lowest



Middle



Highest

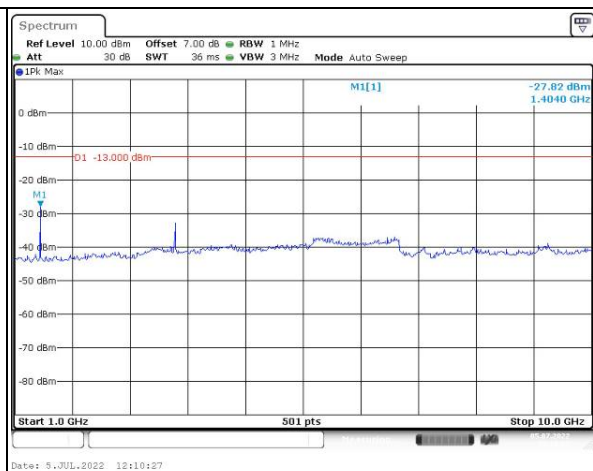
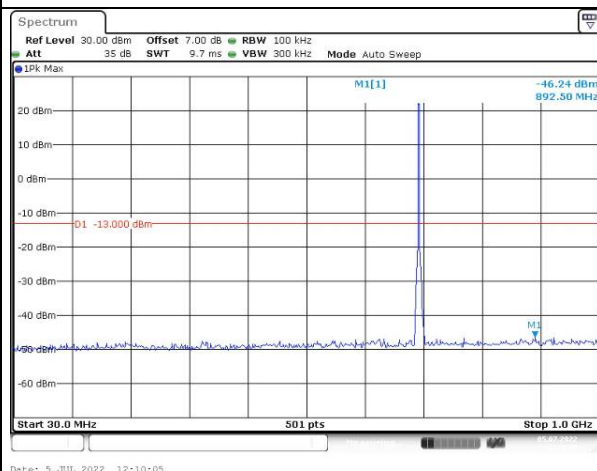


Spurious Emissions at Antenna Terminal

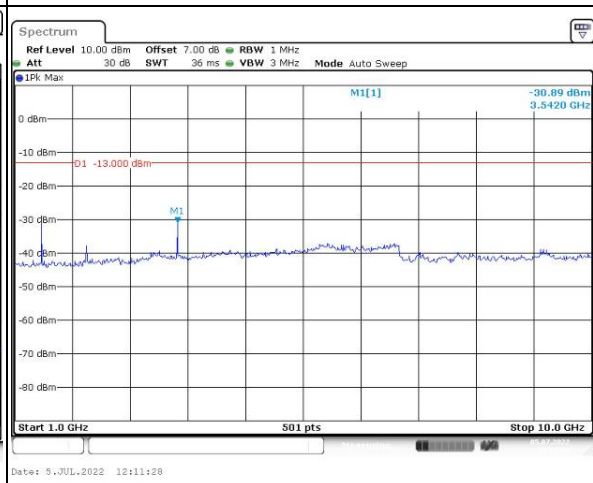
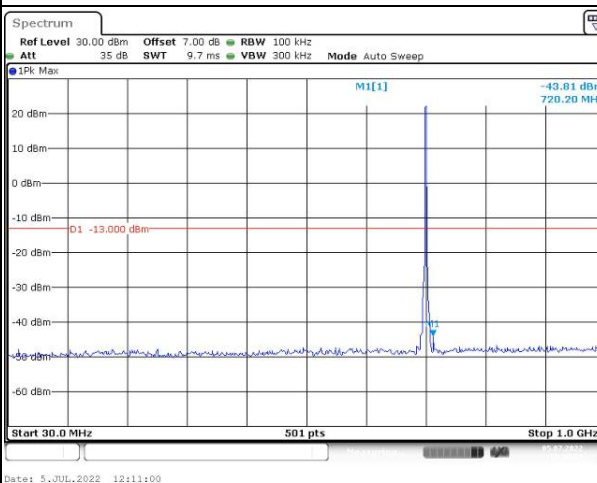
Channel

1.4MHz Bandwidth QPSK

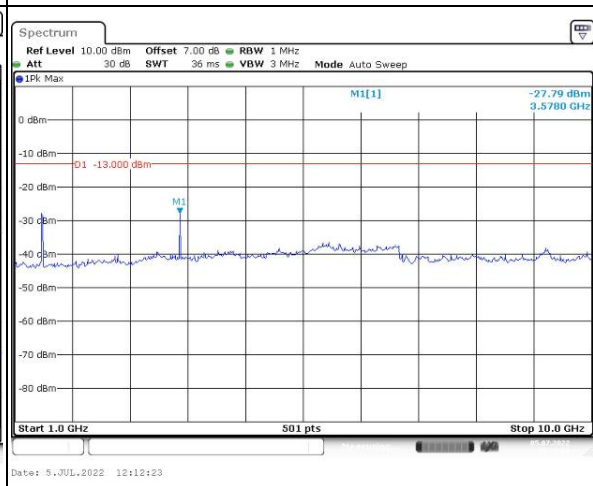
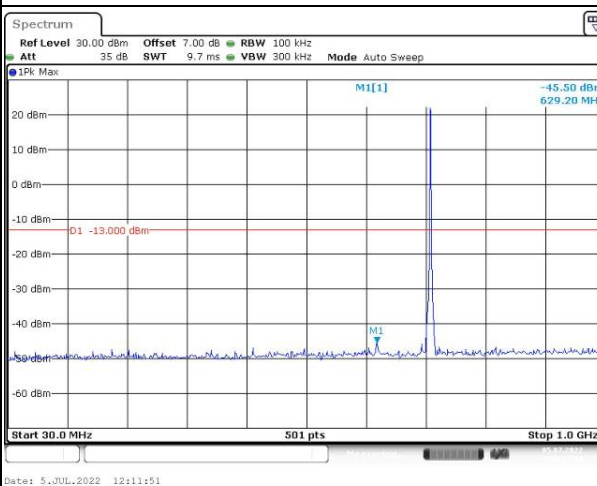
Lowest



Middle



Highest

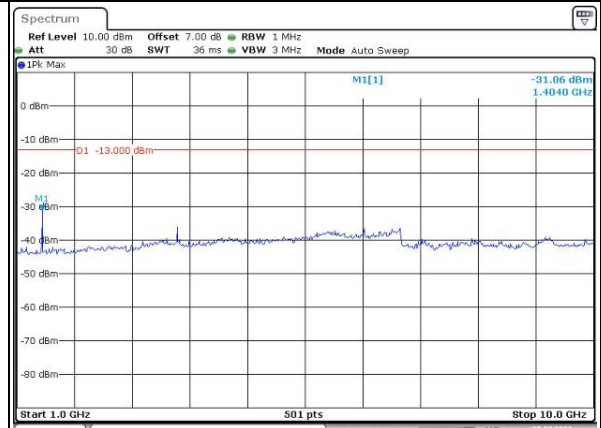
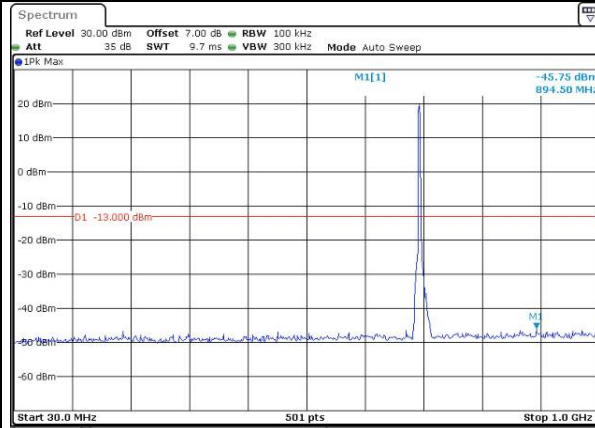


Spurious Emissions at Antenna Terminal

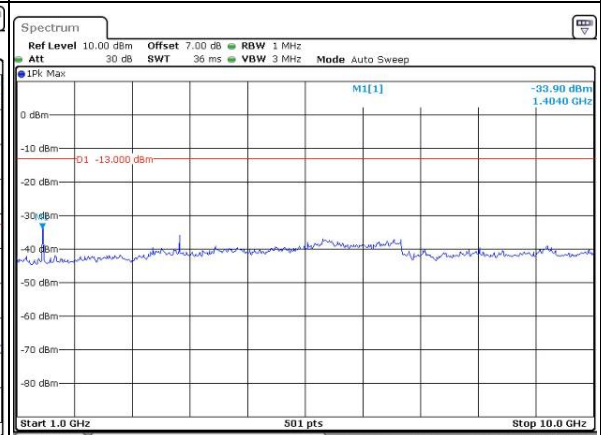
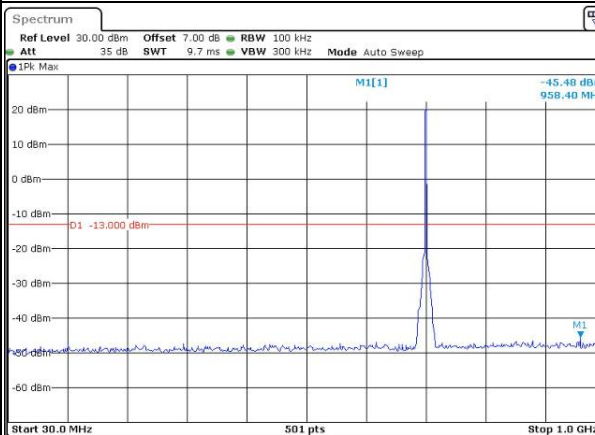
Channel

3MHz Bandwidth QPSK

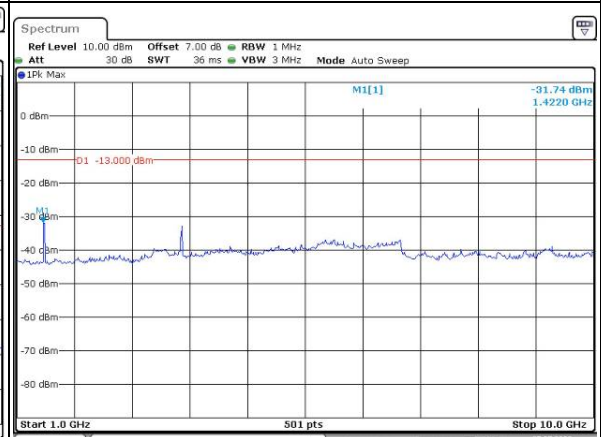
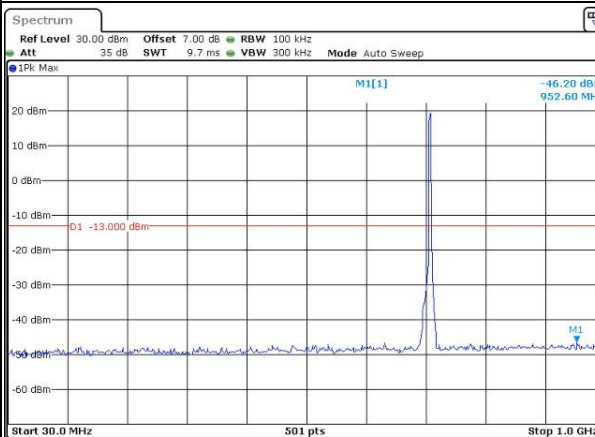
Lowest



Middle



Highest

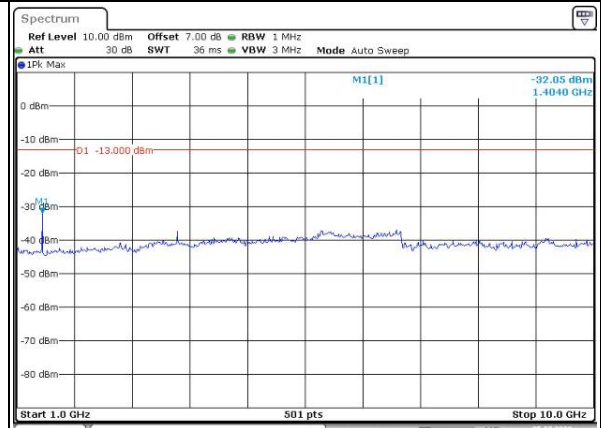
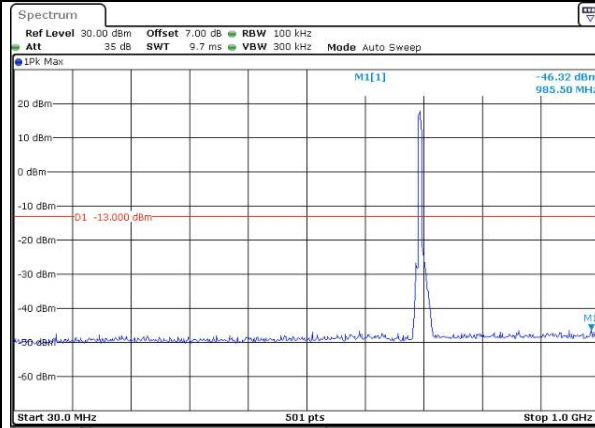


Spurious Emissions at Antenna Terminal

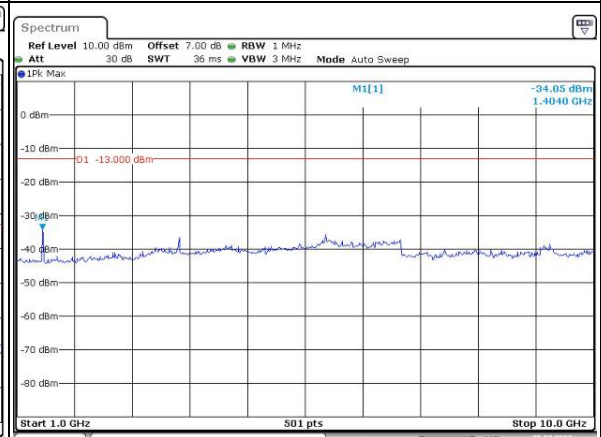
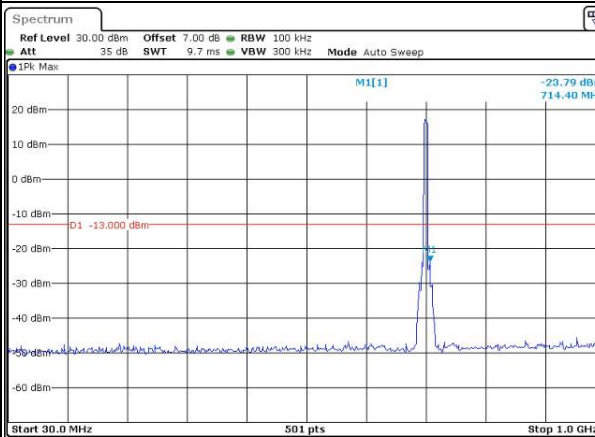
Channel

5MHz Bandwidth QPSK

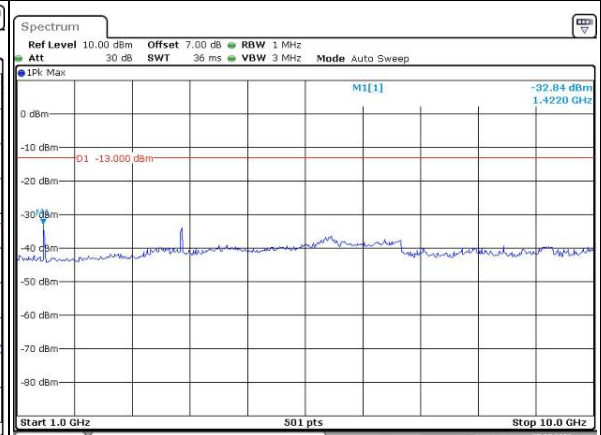
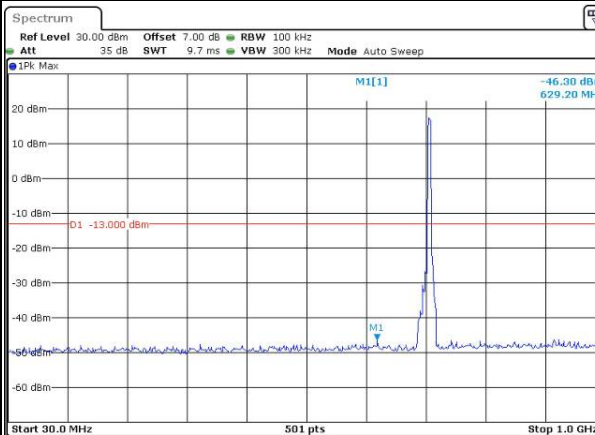
Lowest



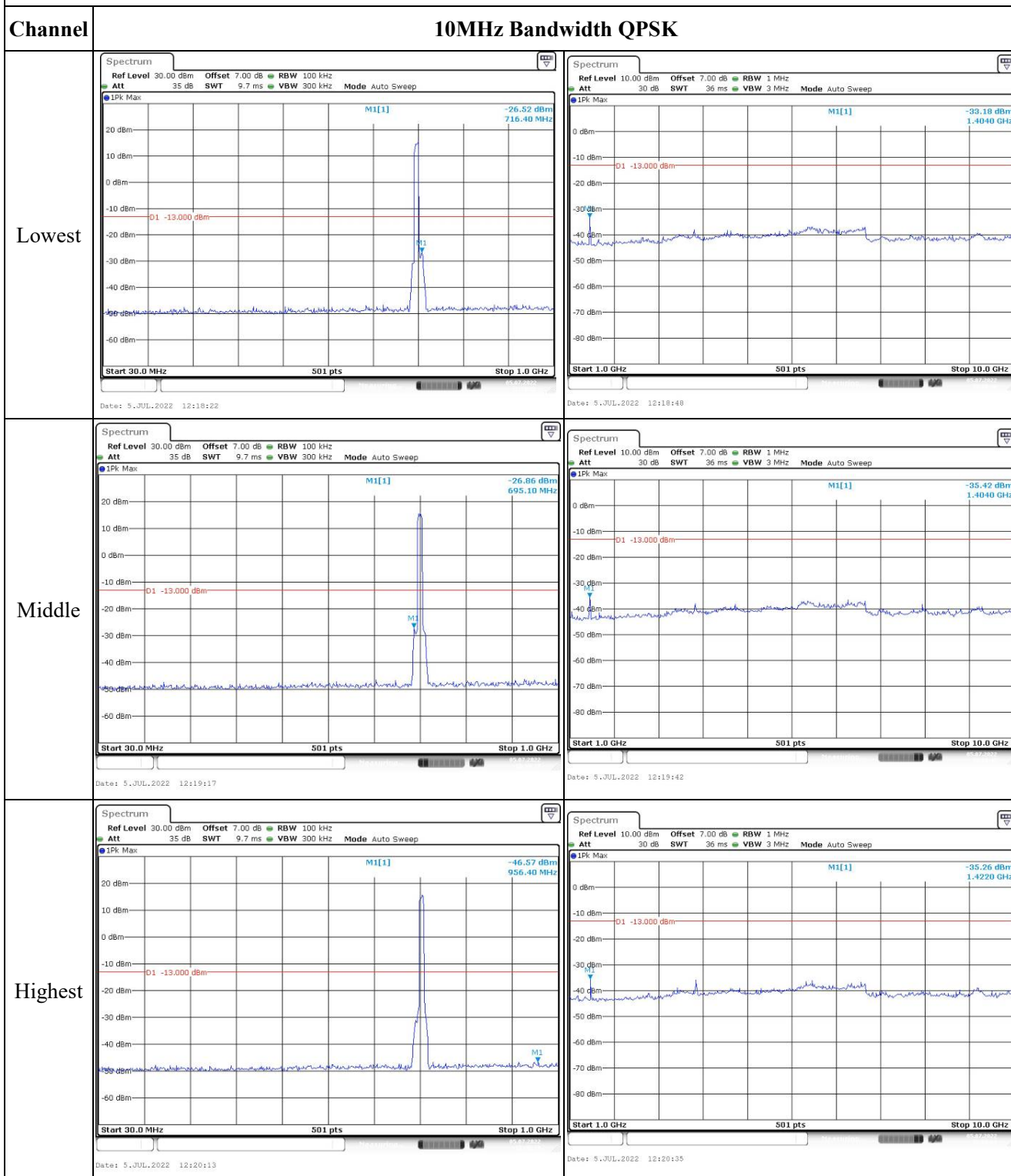
Middle



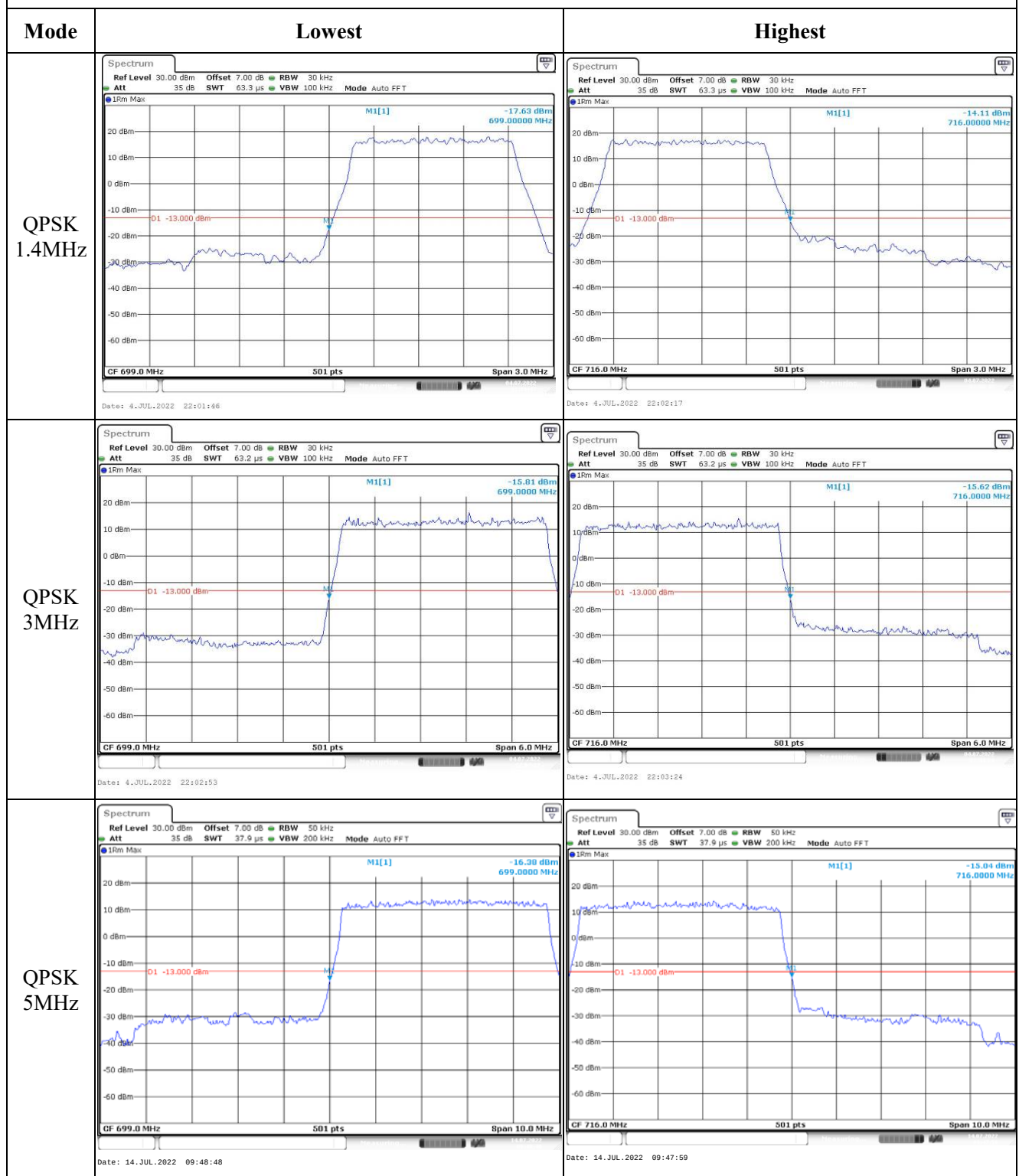
Highest



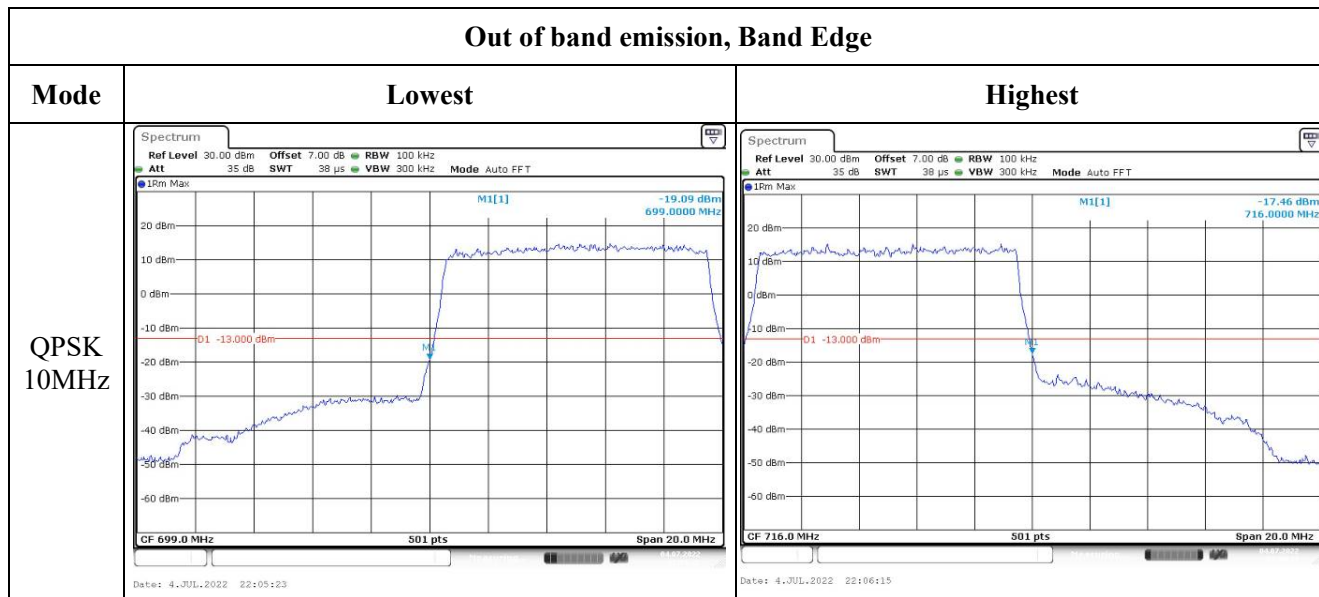
Spurious Emissions at Antenna Terminal



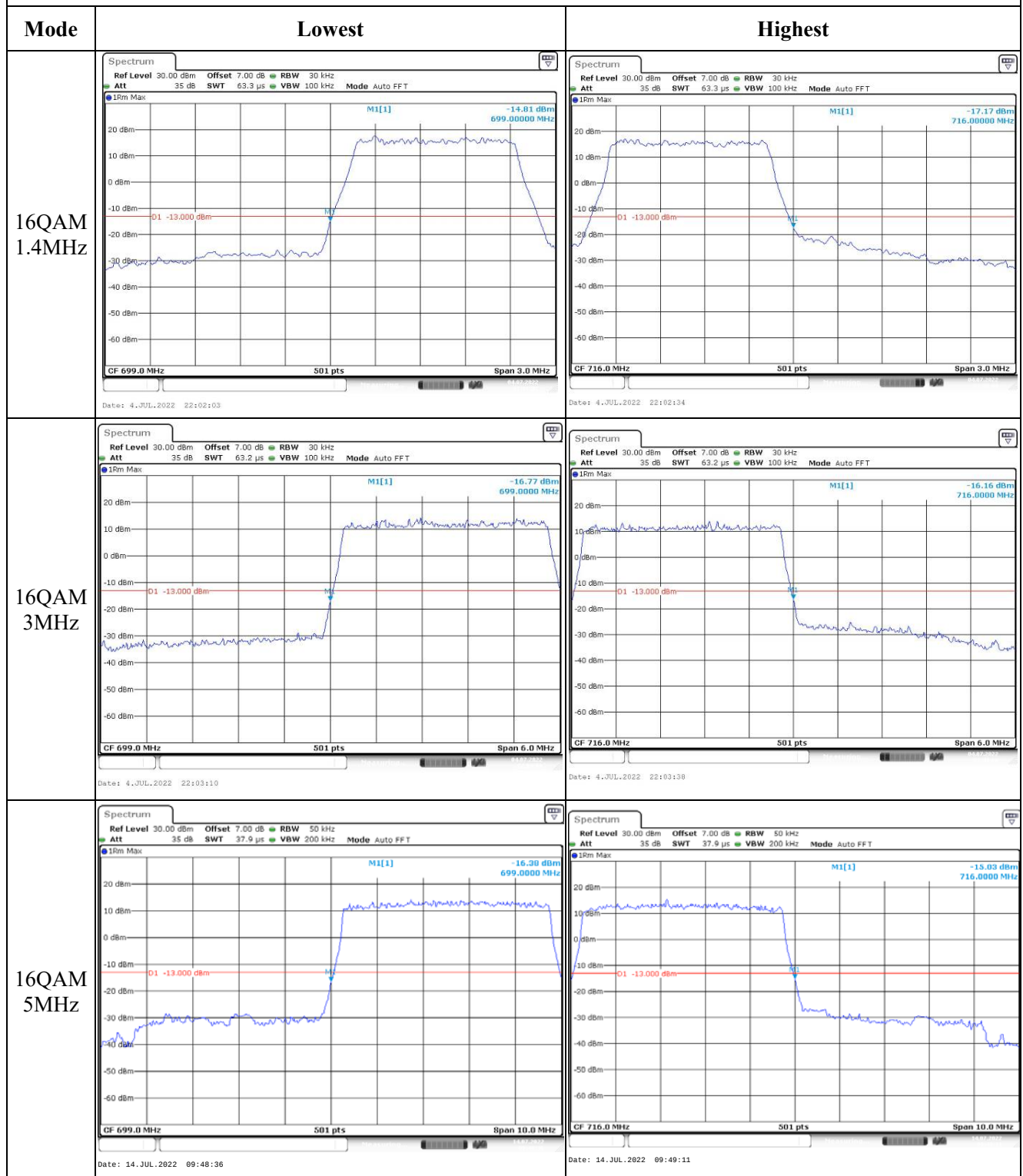
Out of band emission, Band Edge



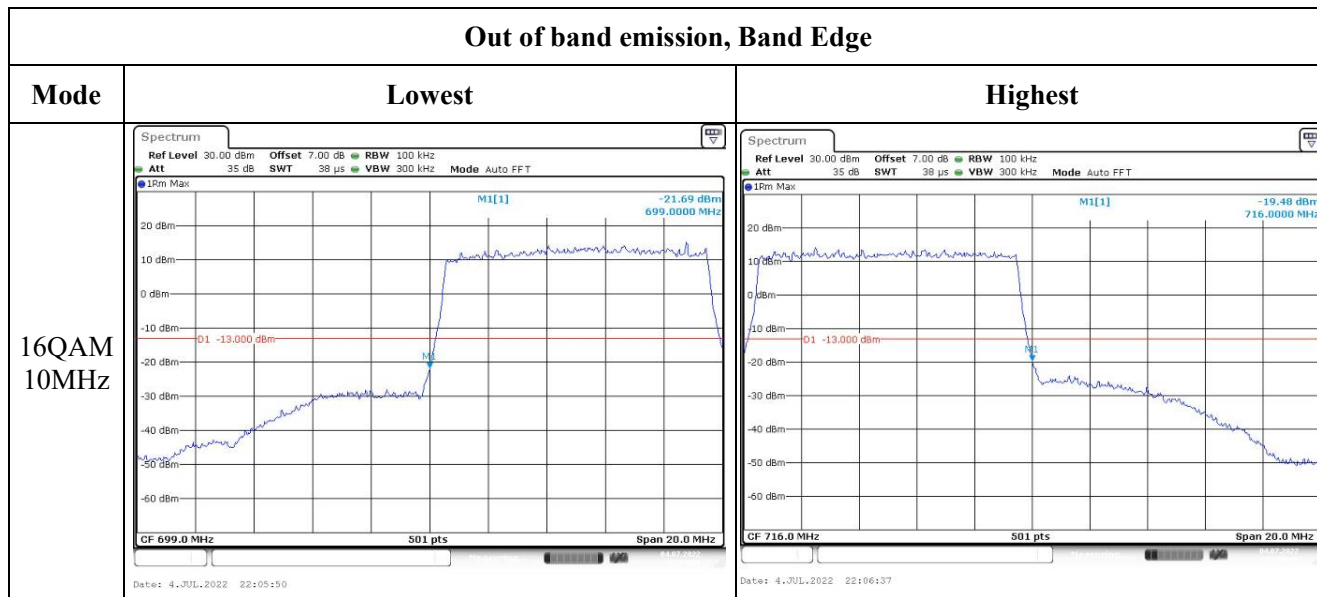
Out of band emission, Band Edge



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:	CR22050078-RF-S1	Test Date:	2022/7/4~2022/7/14
Test Site:	RF	Test Mode:	Transmitting
Tester:	Ted Min	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.5~25.8	Relative Humidity: (%)	51~57	ATM Pressure: (kPa)	100.1~100.3
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101943	2021-10-10	2022-10-09
R&S	Wideband Radio Communication Tester	CMW500	149218	2021-07-21	2022-07-20
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
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
E-Microwave	Two-way Splitter	ODP-1-6	OE0120176	Each time	N/A
HuiXunDa	DC Block	SMA-JK 18G	DCB181108042	Each time	N/A
Weinschel	Coaxial Attenuators	53-20-34	LN751	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100002	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).

EUT Information@LTE Band 17▲:

Antenna Gain (dBi):	-0.67	Antenna Gain (dBd):	-2.82	Path Loss L _C (dB):	0
Operation Voltage(V _{DC}):					
Lowest:	3.47	Normal:	3.85	Highest:	4.24

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	21.88	21.9	21.84	19.17	34.77
	RB1#13	21.96	21.99	21.93		
	RB1#24	21.89	21.87	21.89		
	RB15#0	21.83	21.81	21.79		
	RB15#10	21.86	21.85	21.81		
	RB25#0	21.55	21.57	21.43		
5MHz 16QAM	RB1#0	21.49	21.51	21.43	18.99	34.77
	RB1#13	21.61	21.74	21.74		
	RB1#24	21.64	21.81	21.72		
	RB15#0	21.47	21.64	21.54		
	RB15#10	21.55	21.61	21.67		
	RB25#0	21.29	21.31	21.28		
10MHz QPSK	RB1#0	21.91	21.96	21.89	19.33	34.77
	RB1#25	22.05	22.08	21.95		
	RB1#49	22.1	22.15	21.98		
	RB25#0	21.94	21.98	21.82		
	RB25#25	21.91	21.93	21.9		
	RB50#0	21.82	21.83	21.77		
10MHz 16QAM	RB1#0	21.72	21.68	21.72	18.96	34.77
	RB1#25	21.7	21.78	21.69		
	RB1#49	21.69	21.59	21.65		
	RB25#0	21.54	21.49	21.61		
	RB25#25	21.57	21.76	21.72		
	RB50#0	21.34	21.37	21.25		
Note: ERP=Conducted Power(dBm) - Cable loss(dB) + Antenna Gain(dBd)					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	3.02	3.06	3.11	13
	RB50#0	5.06	5.13	5.21	13
10MHz 16QAM	RB1#0	4.11	4.15	4.21	13
	RB50#0	6.36	6.41	6.37	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	4.491	5.04	5.04	5.02
5MHz 16QAM	4.491	4.511	4.511	5	5.04	5.02
10MHz QPSK	8.942	8.942	8.942	9.88	9.8	9.76
10MHz 16QAM	8.942	8.942	8.942	9.72	9.76	9.76

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

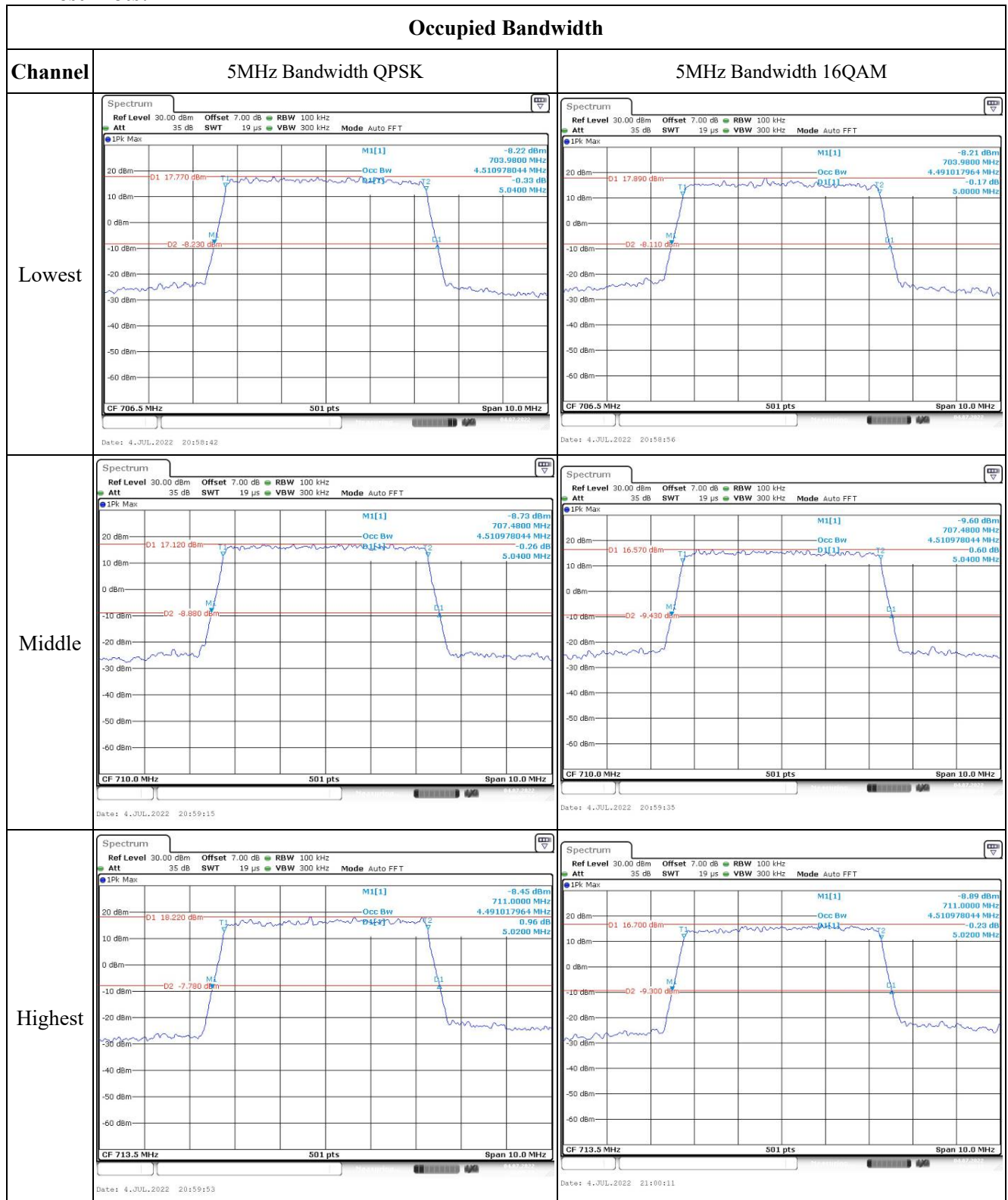
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
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FCC §2.1055, §27.54: Frequency Stability

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	3.85	704.412	704.00	715.796	716.00
	-20	3.85	704.385	704.00	715.742	716.00
	-10	3.85	704.420	704.00	715.855	716.00
	0	3.85	704.355	704.00	715.807	716.00
	10	3.85	704.438	704.00	715.852	716.00
	20	3.85	704.338	704.00	715.848	716.00
	30	3.85	704.333	704.00	715.736	716.00
	40	3.85	704.308	704.00	715.859	716.00
Frequency Stability vs. Voltage	50	3.85	704.383	704.00	715.796	716.00
	20	3.47	704.304	704.00	715.844	716.00
	20	4.24	704.306	704.00	715.843	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	3.85	704.432	704.00	715.840	716.00
	-20	3.85	704.313	704.00	715.880	716.00
	-10	3.85	704.289	704.00	715.707	716.00
	0	3.85	704.402	704.00	715.758	716.00
	10	3.85	704.300	704.00	715.798	716.00
	20	3.85	704.337	704.00	715.867	716.00
	30	3.85	704.436	704.00	715.841	716.00
	40	3.85	704.386	704.00	715.793	716.00
	50	3.85	704.443	704.00	715.834	716.00
Frequency Stability vs. Voltage	20	3.47	704.355	704.00	715.864	716.00
	20	4.24	704.385	704.00	715.806	716.00
					Result:	Pass

Test Plots:



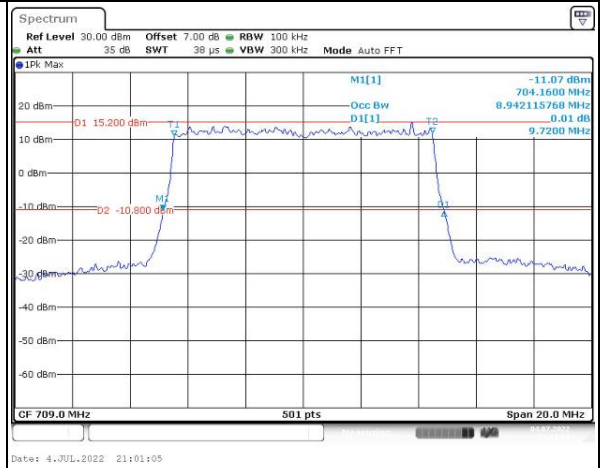
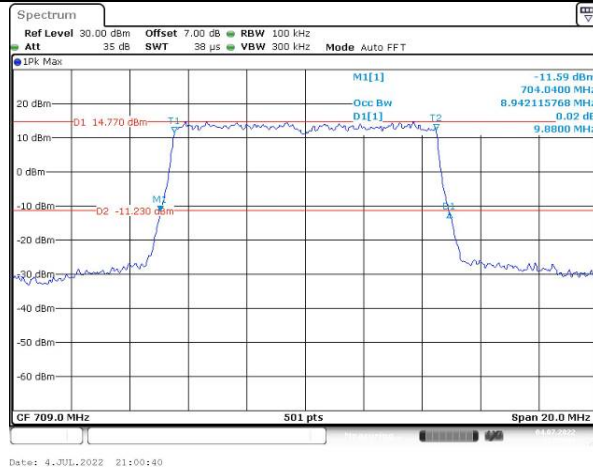
Occupied Bandwidth

Channel

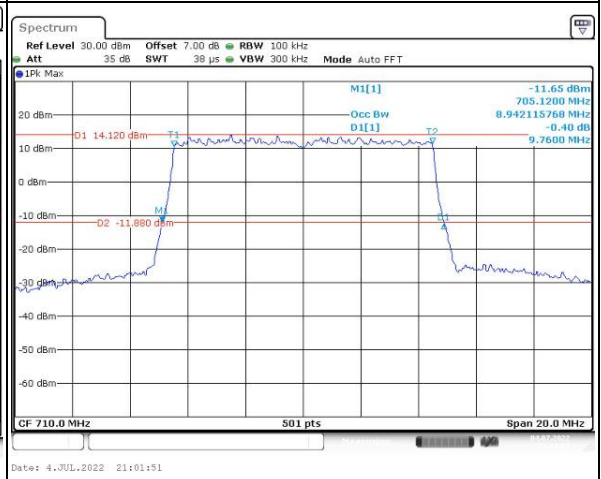
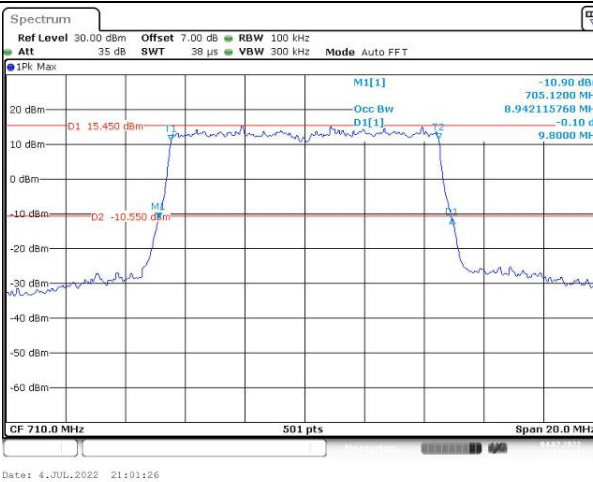
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

Lowest



Middle



Highest

