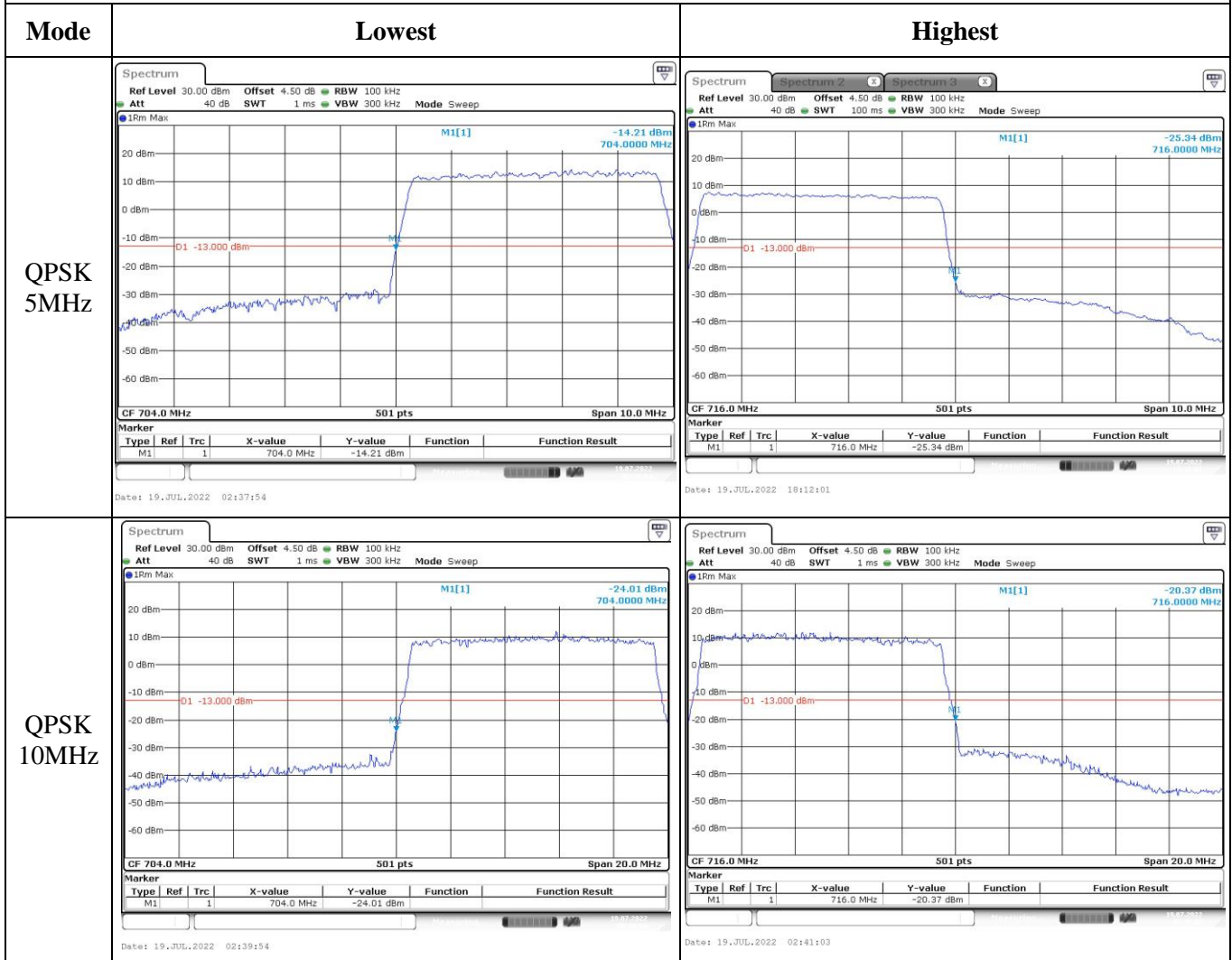
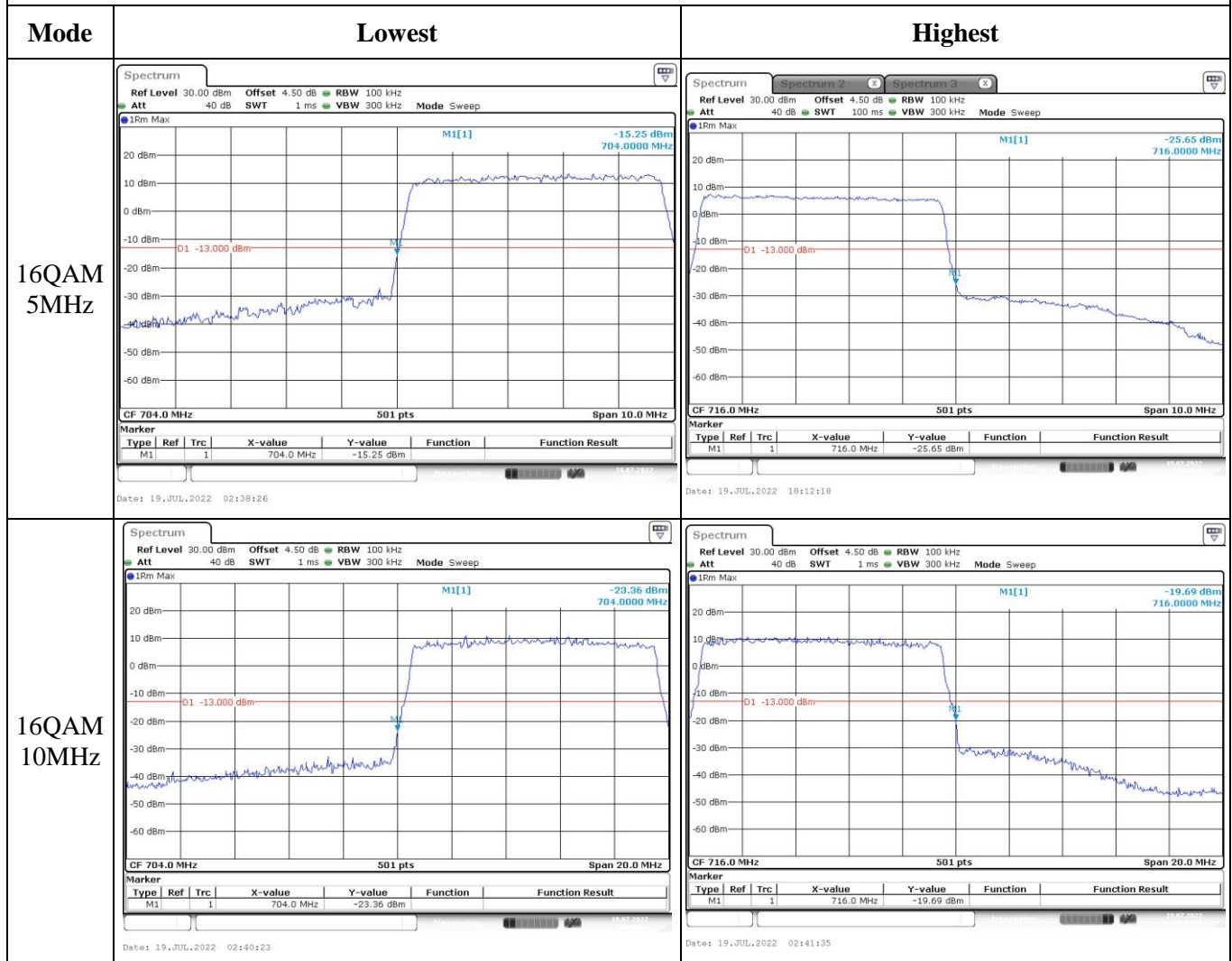


Out of band emission, Band Edge



Out of band emission, Band Edge



4.11 Antenna Port Test Data and Results for LTE Band 66

Serial Number:	CR22060051-RF-S1	Test Date:	2022/07/19
Test Site:	RF	Test Mode:	Transmitting
Tester:	Rinka Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	27.4	Relative Humidity: (%)	45	ATM Pressure: (kPa)	100.5
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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	2021-07-15	2022-07-14
R&S	Spectrum Analyzer	FSV40	101474	2022-07-15	2023-07-14
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
Weinschel	Coaxial Attenuators	53-20-34	LN751	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554404	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2021-07-22	2023-07-21
UNI-T	Multimeter	UT39A+	C210582554	2021-09-30	2022-09-29
E-Microwave	Two-way Splitter	ODP-1-6	OE0120176	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2022-04-06	2023-04-05

* 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):	0.56	Cable Loss (dB):	0
Operation Voltage(V _{DC}):			
Lowest:	3.5	Normal:	3.8
		Highest:	4.35

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
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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	22.15	22.29	21.88	23.08	30
	RB1#3	22.14	22.24	21.86		
	RB1#5	22.15	22.30	21.87		
	RB3#0	22.28	22.52	21.92		
	RB3#3	22.17	22.52	21.96		
	RB6#0	21.16	21.43	20.88		
1.4MHz 16QAM	RB1#0	21.32	22.15	20.62	22.71	30
	RB1#3	21.38	22.15	20.67		
	RB1#5	20.64	22.13	20.69		
	RB3#0	21.23	21.38	20.87		
	RB3#3	21.24	21.43	21.01		
	RB6#0	20.13	20.47	20.18		
3MHz QPSK	RB1#0	22.13	22.28	21.91	22.93	30
	RB1#8	22.13	22.29	21.93		
	RB1#14	22.14	22.37	21.87		
	RB6#0	21.15	21.40	20.95		
	RB6#9	21.24	21.46	20.90		
	RB15#0	21.15	21.41	20.90		
3MHz 16QAM	RB1#0	21.60	22.09	20.73	22.76	30
	RB1#8	21.59	22.16	20.63		
	RB1#14	21.62	22.20	20.67		
	RB6#0	20.14	20.35	20.29		
	RB6#9	20.08	20.45	20.22		
	RB15#0	20.28	20.46	20.04		
5MHz QPSK	RB1#0	22.31	22.35	21.99	22.99	30
	RB1#13	22.38	22.43	21.88		
	RB1#24	22.36	22.40	21.82		
	RB15#0	21.20	21.50	21.02		
	RB15#10	21.20	21.37	20.94		
	RB25#0	21.13	21.48	20.95		
5MHz 16QAM	RB1#0	21.35	21.07	20.33	21.91	30
	RB1#13	21.33	21.12	20.22		
	RB1#24	21.35	21.22	20.21		
	RB15#0	20.22	20.57	20.05		
	RB15#10	20.12	20.52	20.06		
	RB25#0	20.21	20.46	20.08		

10MHz QPSK	RB1#0	22.11	22.39	22.06	23.13	30
	RB1#25	22.14	22.52	21.92		
	RB1#49	22.13	22.57	21.85		
	RB25#0	21.16	21.27	21.01		
	RB25#25	21.17	21.38	20.97		
	RB50#0	21.15	21.40	20.97		
10MHz 16QAM	RB1#0	21.26	20.76	21.20	21.85	30
	RB1#25	21.29	20.88	21.20		
	RB1#49	21.27	20.92	21.02		
	RB25#0	20.27	20.44	20.11		
	RB25#25	20.28	20.57	20.00		
	RB50#0	20.27	20.41	20.10		
15MHz QPSK	RB1#0	22.17	22.32	22.19	23.12	30
	RB1#38	22.14	22.46	22.03		
	RB1#74	22.13	22.56	21.86		
	RB36#0	21.19	21.21	21.25		
	RB36#39	21.06	21.45	21.03		
	RB75#0	21.08	21.43	21.04		
15MHz 16QAM	RB1#0	21.23	21.53	21.48	22.29	30
	RB1#38	21.26	21.65	21.28		
	RB1#74	21.26	21.73	21.08		
	RB36#0	20.27	20.38	20.29		
	RB36#39	20.28	20.46	20.09		
	RB75#0	20.22	20.48	20.18		
20MHz QPSK	RB1#0	22.19	22.32	22.62	23.27	30
	RB1#50	22.17	22.55	22.36		
	RB1#99	22.22	22.71	22.09		
	RB50#0	21.23	21.26	21.36		
	RB50#50	21.09	21.42	21.06		
	RB100#0	21.12	21.43	21.13		
20MHz 16QAM	RB1#0	21.62	21.75	21.37	22.7	30
	RB1#50	21.60	22.01	21.13		
	RB1#99	21.56	22.14	20.88		
	RB50#0	20.29	20.41	20.48		
	RB50#50	20.35	20.52	20.13		
	RB100#0	20.19	20.56	20.32		

Note: EIRP=Conducted Power(dBm) - Cable loss(dB) + Antenna Gain(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	4.23	4.9	4.55	13
	RB100#0	4.72	5.19	4.99	13
20MHz 16QAM	RB1#0	5.07	5.86	5.42	13
	RB100#0	5.94	6.23	5.91	13
Result:					Pass

FCC §2.1049, §27.53:Occupied Bandwidth						
Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
1.4MHz QPSK	1.102	1.102	1.102	1.26	1.254	1.254
1.4MHz 16QAM	1.096	1.102	1.108	1.248	1.254	1.266
3MHz QPSK	2.695	2.695	2.695	3	3.012	2.988
3MHz 16QAM	2.683	2.695	2.695	3	3.024	3.012
5MHz QPSK	4.511	4.491	4.531	5	4.98	5
5MHz 16QAM	4.551	4.531	4.511	5.02	5	4.98
10MHz QPSK	8.942	8.942	8.981	9.76	9.8	9.72
10MHz 16QAM	8.942	8.942	8.981	9.8	9.84	9.76
15MHz QPSK	13.473	13.533	13.533	15	15.12	15.12
15MHz 16QAM	13.593	13.533	13.593	15	15	15.06
20MHz QPSK	17.964	17.964	18.044	19.68	19.76	19.68
20MHz 16QAM	18.044	17.884	18.124	19.84	19.68	19.84

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.

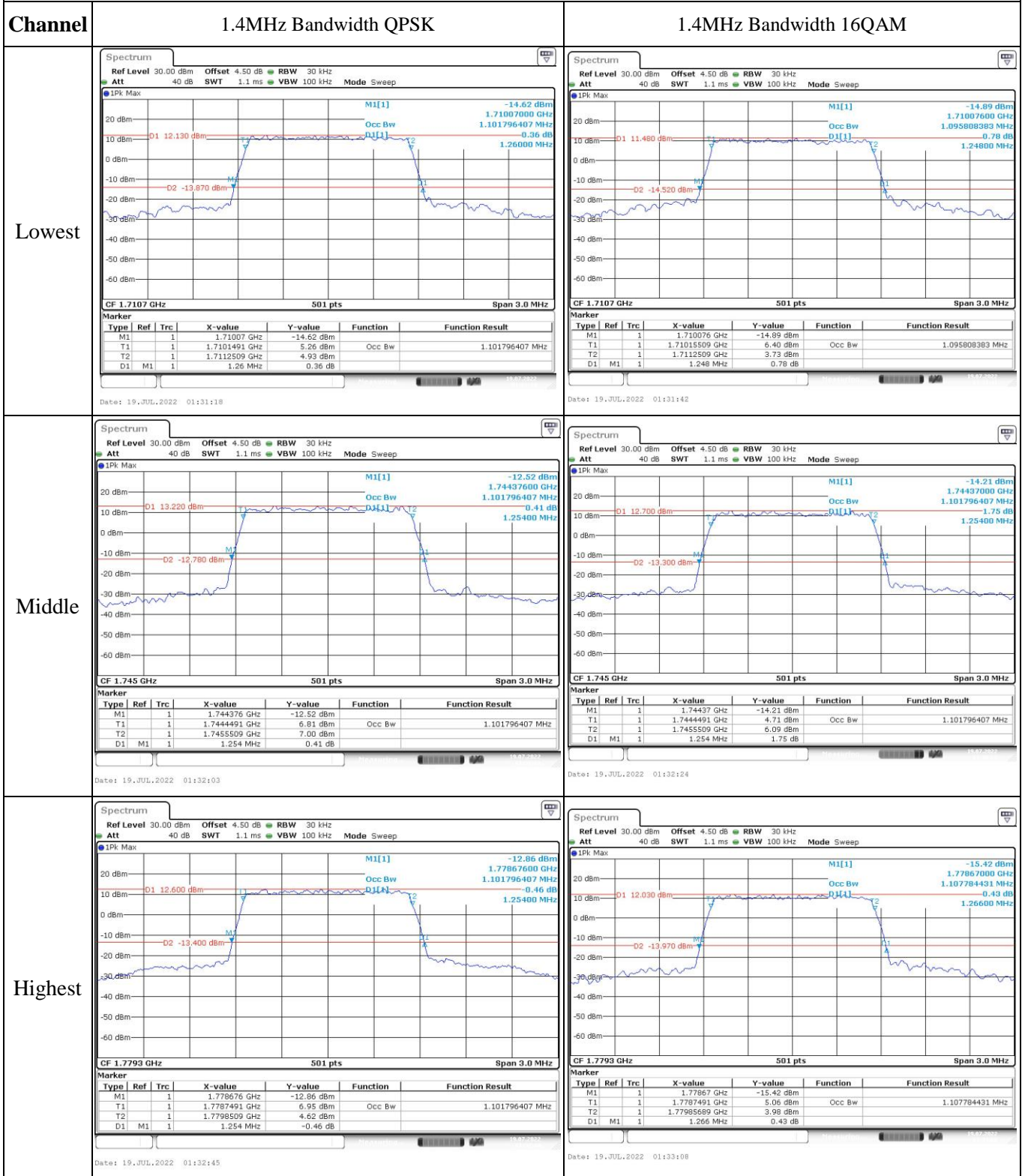
FCC §2.1055, §27.54: Frequency Stability

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	3.8	1711.063	1710.00	1779.028	1780
	-20	3.8	1711.061	1710.00	1779.028	1780
	-10	3.8	1711.060	1710.00	1779.026	1780
	0	3.8	1711.059	1710.00	1779.025	1780
	10	3.8	1711.059	1710.00	1779.024	1780
	20	3.8	1711.058	1710.00	1779.022	1780
	30	3.8	1711.058	1710.00	1779.021	1780
	40	3.8	1711.057	1710.00	1779.019	1780
	50	3.8	1711.055	1710.00	1779.018	1780
Frequency Stability vs. Voltage	20	3.5	1711.054	1710.00	1779.017	1780
	20	4.35	1711.054	1710.00	1779.014	1780
					Result:	Pass

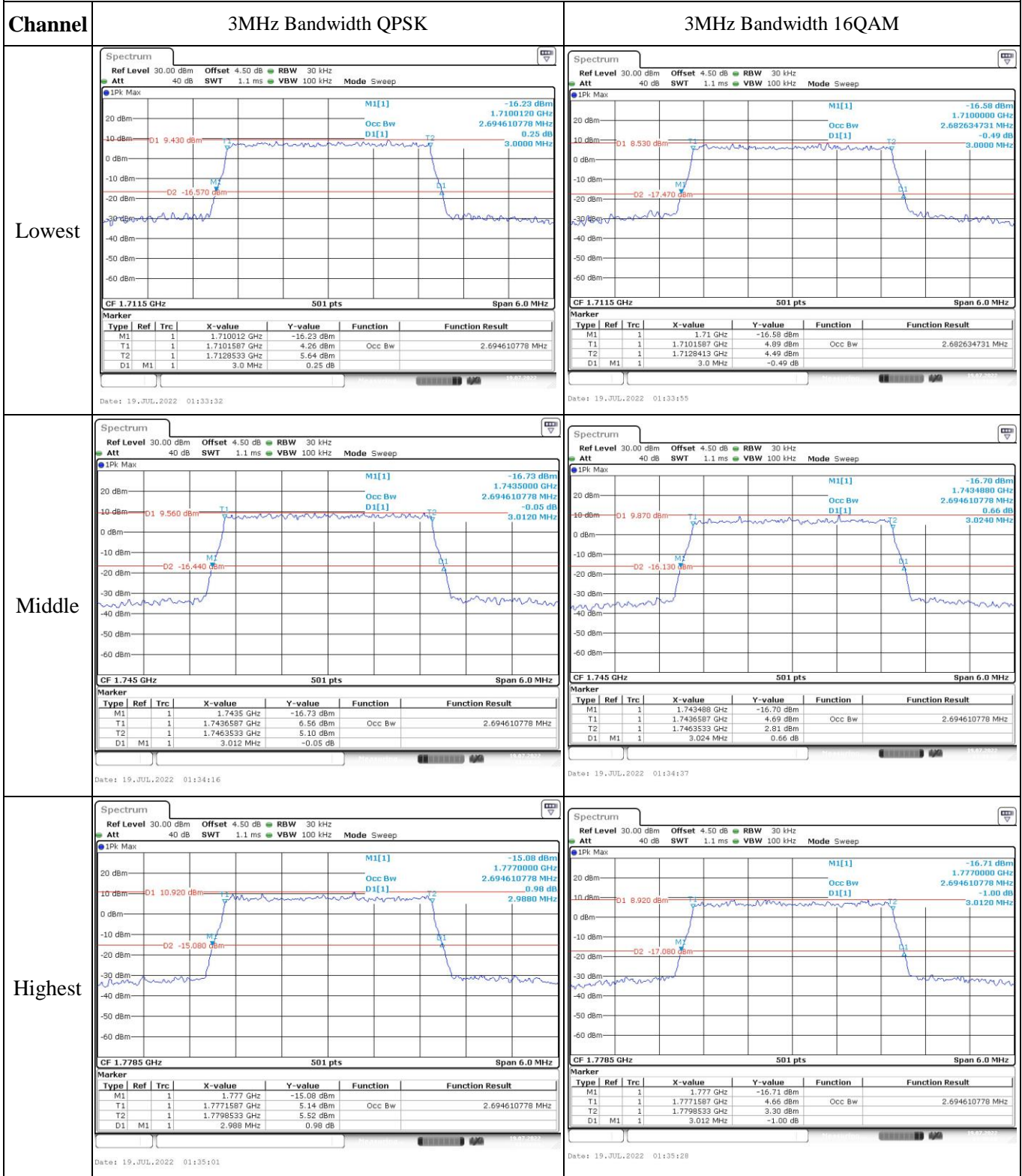
Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	1710.985	1710.00	1779.111	1780
	-20	3.8	1710.985	1710.00	1779.108	1780
	-10	3.8	1710.982	1710.00	1779.106	1780
	0	3.8	1710.982	1710.00	1779.105	1780
	10	3.8	1710.979	1710.00	1779.105	1780
	20	3.8	1710.978	1710.00	1779.102	1780
	30	3.8	1710.976	1710.00	1779.102	1780
	40	3.8	1710.975	1710.00	1779.101	1780
	50	3.8	1710.972	1710.00	1779.100	1780
Frequency Stability vs. Voltage	20	3.5	1710.971	1710.00	1779.098	1780
	20	4.35	1710.969	1710.00	1779.097	1780
					Result:	Pass

Test Plots:

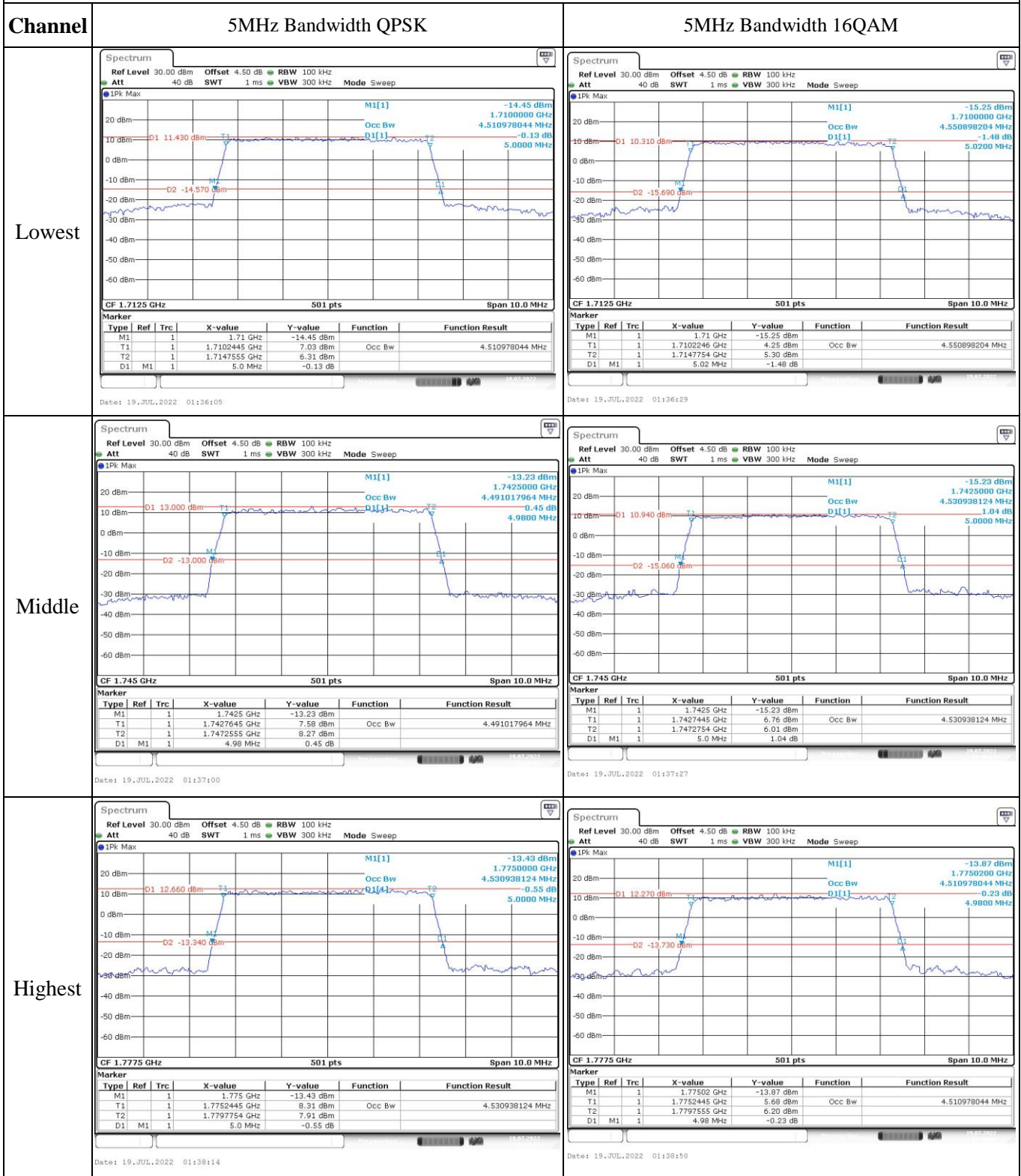
Occupied Bandwidth



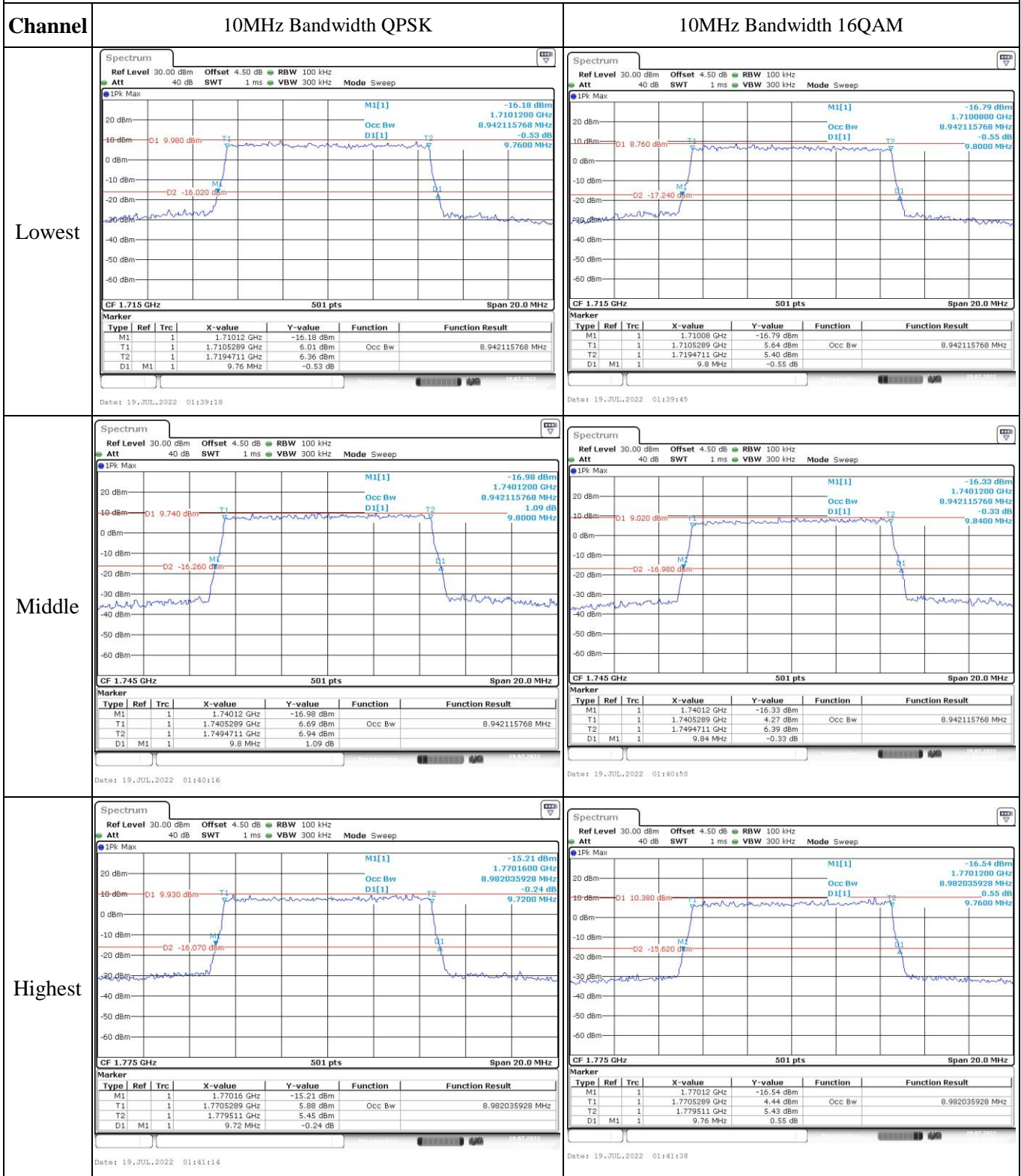
Occupied Bandwidth



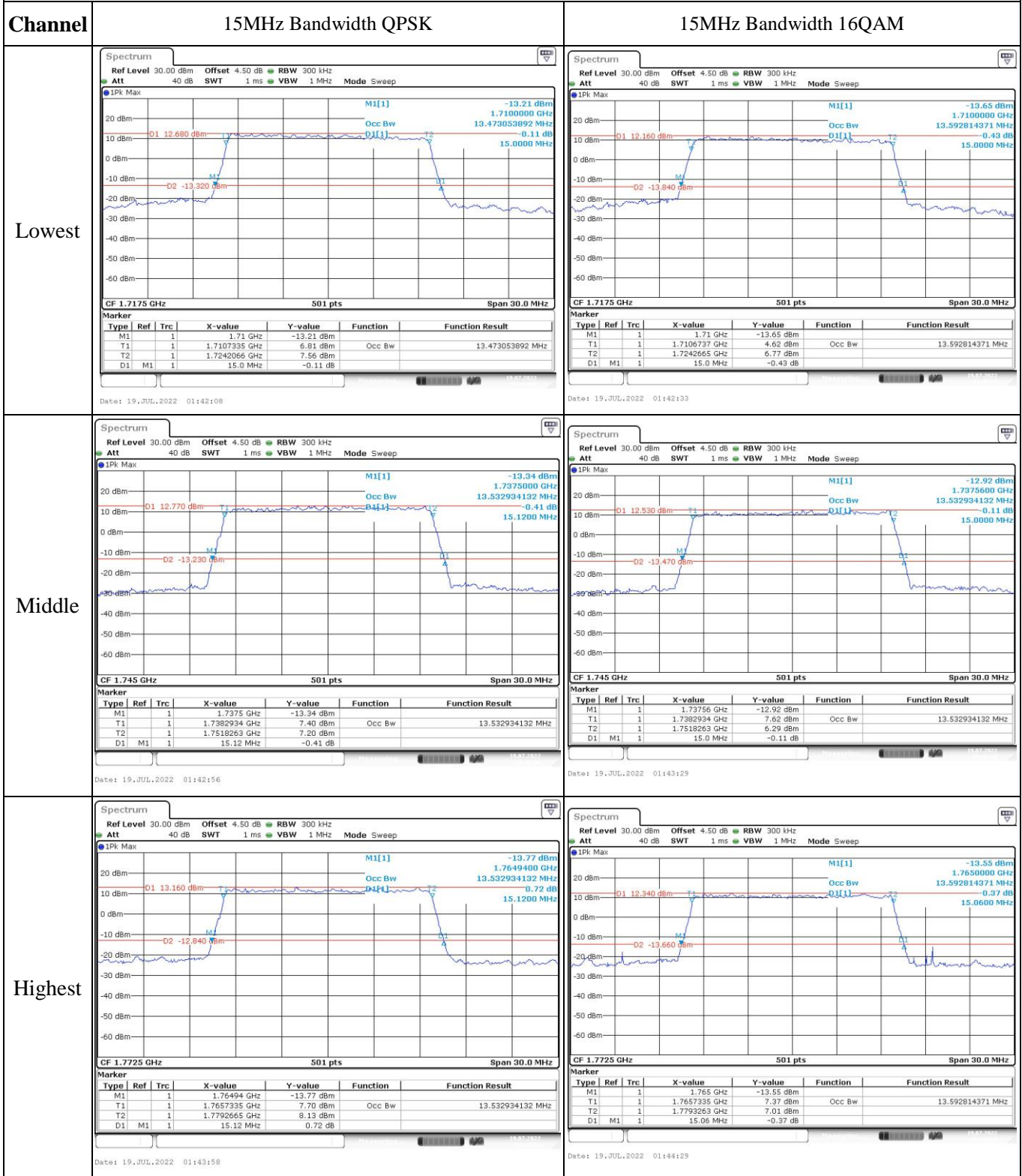
Occupied Bandwidth



Occupied Bandwidth



Occupied Bandwidth



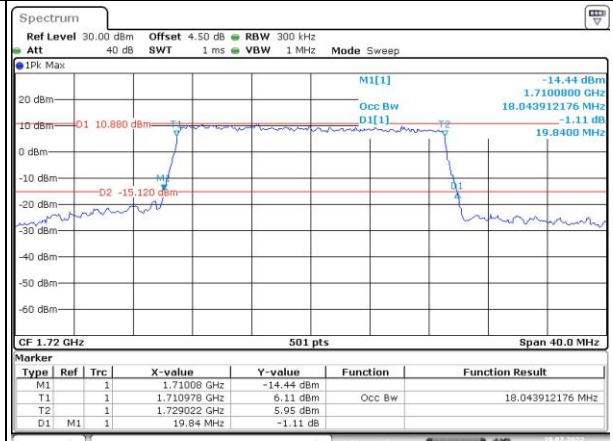
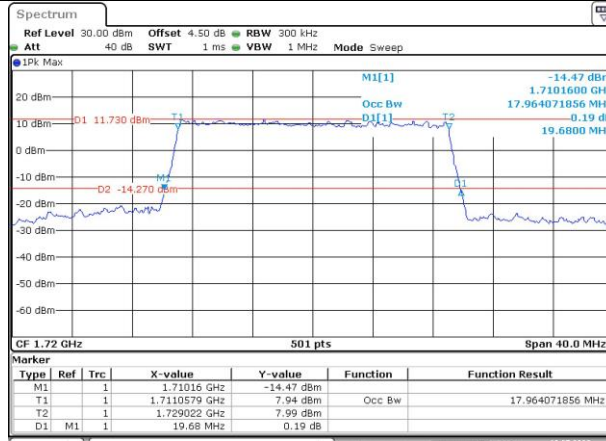
Occupied Bandwidth

Channel

20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

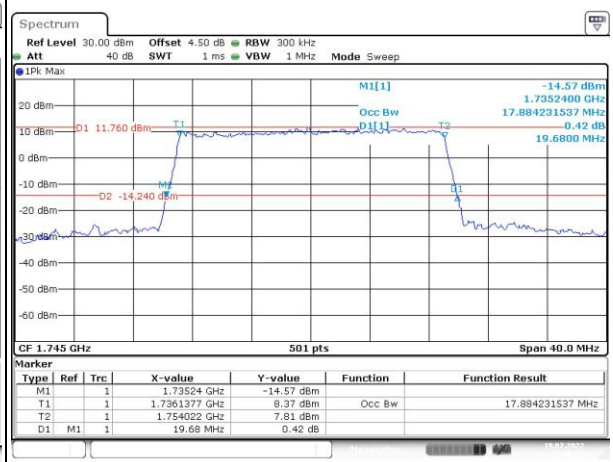
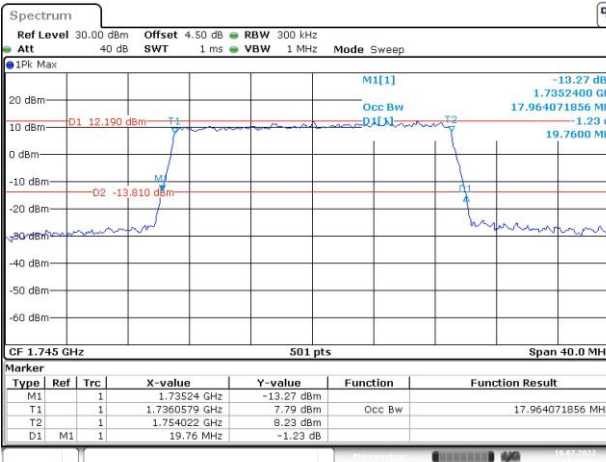
Lowest



Date: 19_JUL_2022 01:45:05

Date: 19_JUL_2022 01:45:30

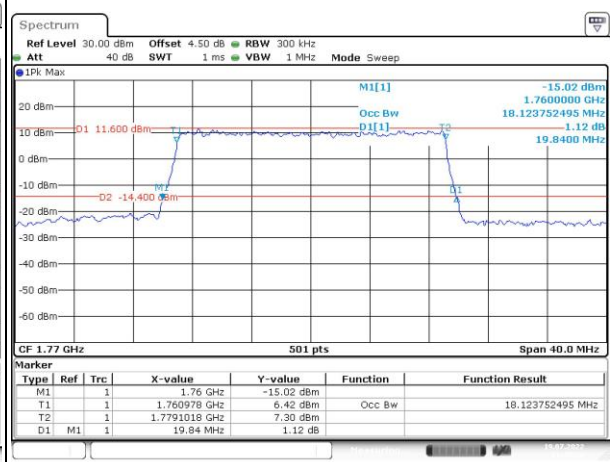
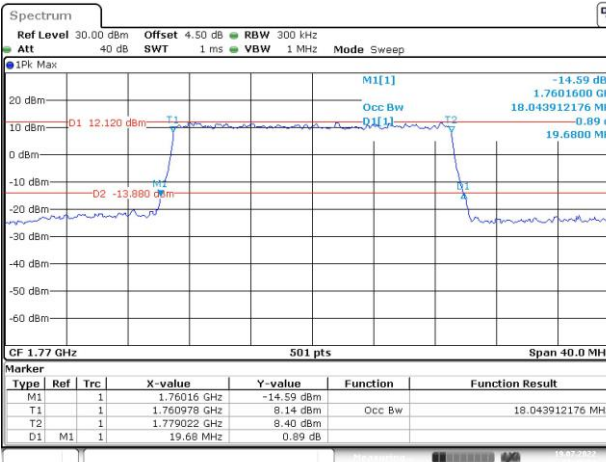
Middle



Date: 19_JUL_2022 01:46:03

Date: 19_JUL_2022 01:46:31

Highest



Date: 19_JUL_2022 01:46:58

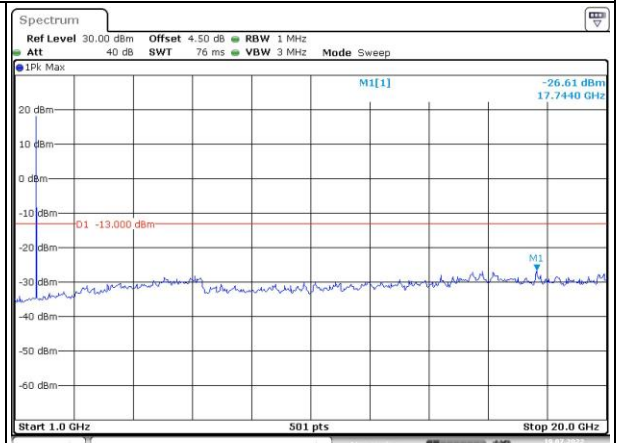
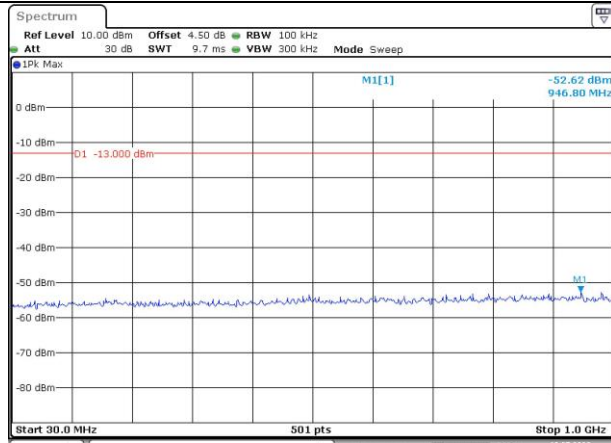
Date: 19_JUL_2022 01:47:26

Spurious Emissions at Antenna Terminal

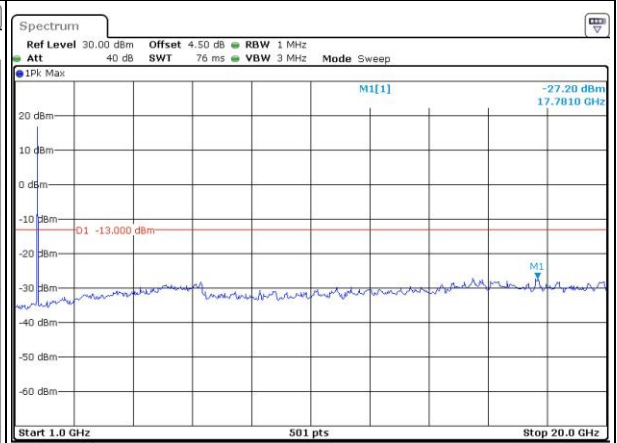
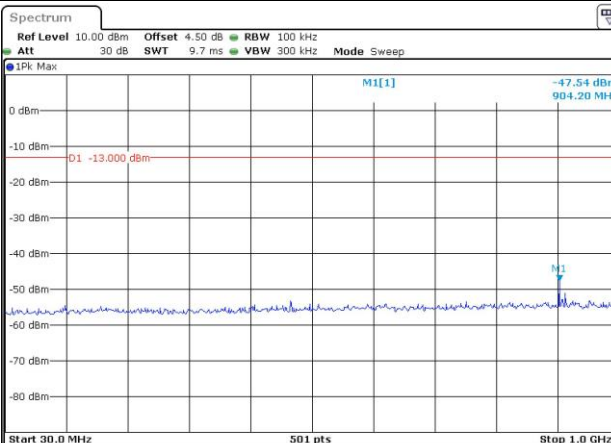
Channel

1.4MHz Bandwidth QPSK

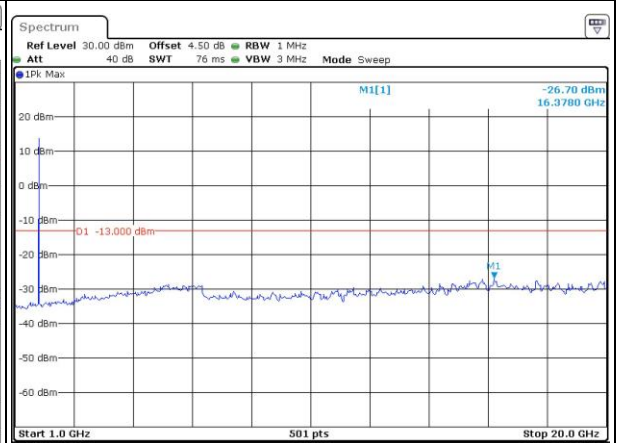
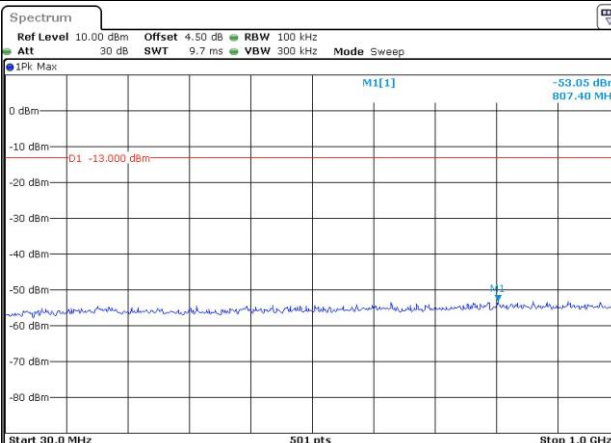
Lowest



Middle



Highest



Spurious Emissions at Antenna Terminal

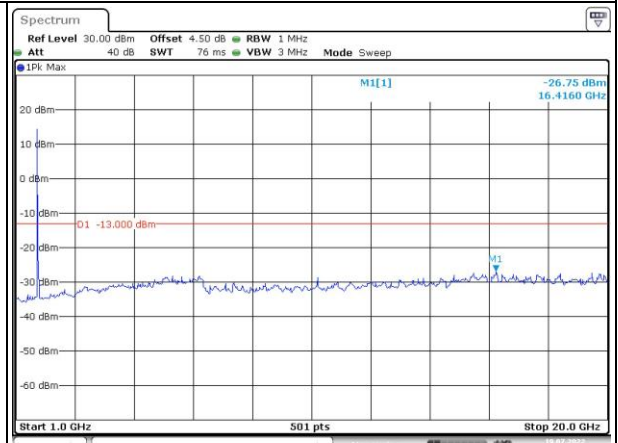
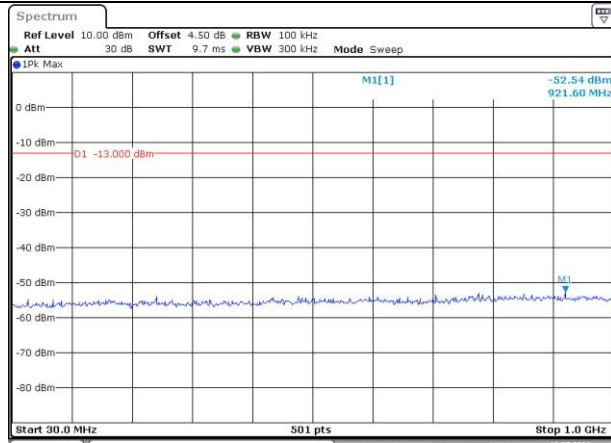
Channel	3MHz Bandwidth QPSK	
Lowest	<p>Ref Level 10.00 dBm Offset 4.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Sweep</p> <p>IPk Max MI[1] -53.20 dBm 975.80 MHz</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>Date: 19_JUL_2022 17:39:11</p>	<p>Ref Level 30.00 dBm Offset 4.50 dB RBW 1 MHz Att 40 dB SWT 76 ms VBW 3 MHz Mode Sweep</p> <p>IPk Max MI[1] -26.66 dBm 16.3780 GHz</p> <p>Start 1.0 GHz 501 pts Stop 20.0 GHz</p> <p>Date: 19_JUL_2022 17:39:37</p>
	Middle	<p>Ref Level 10.00 dBm Offset 4.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Sweep</p> <p>IPk Max MI[1] -52.39 dBm 904.20 MHz</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>Date: 19_JUL_2022 17:40:05</p>
Highest		<p>Ref Level 10.00 dBm Offset 4.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Sweep</p> <p>IPk Max MI[1] -53.37 dBm 970.00 MHz</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>Date: 19_JUL_2022 17:40:56</p>

Spurious Emissions at Antenna Terminal

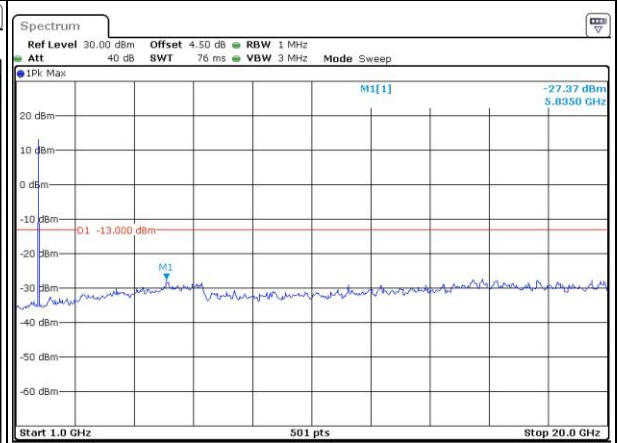
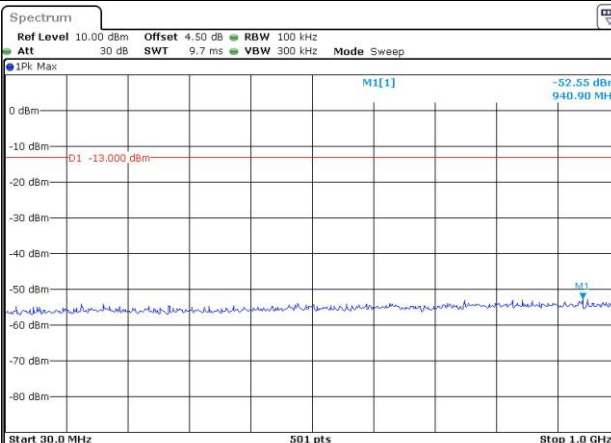
Channel

5MHz Bandwidth QPSK

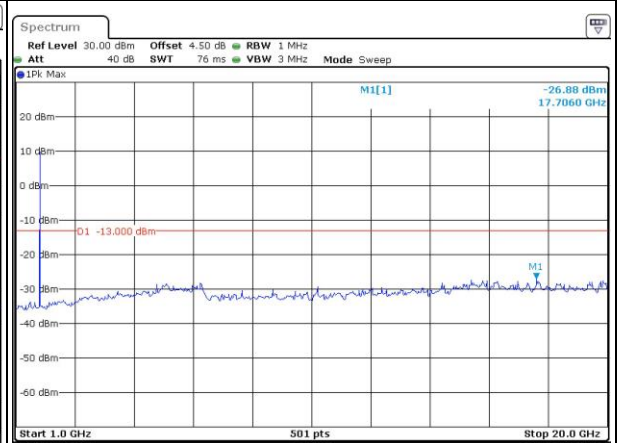
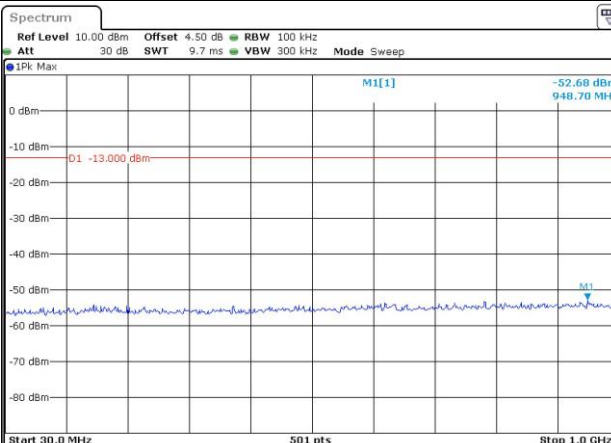
Lowest



Middle



Highest

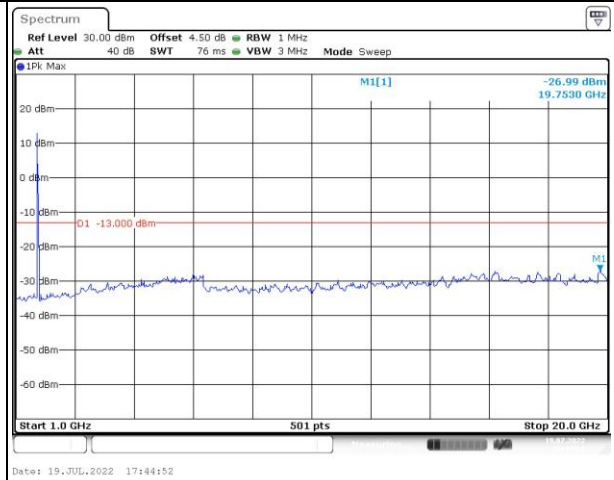
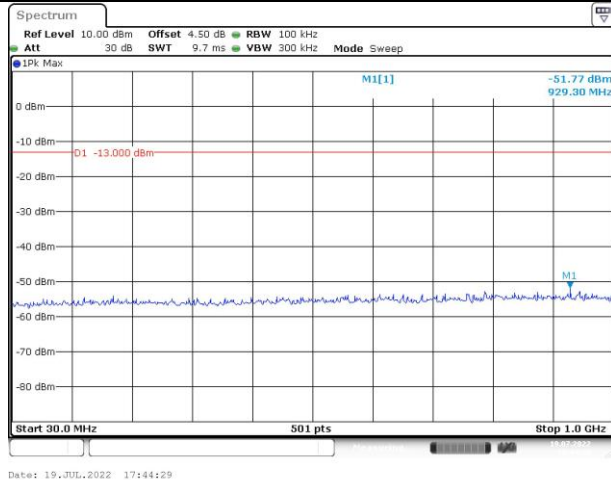


Spurious Emissions at Antenna Terminal

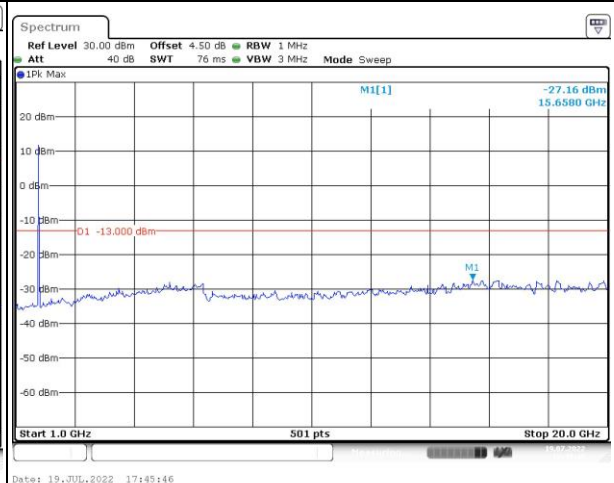
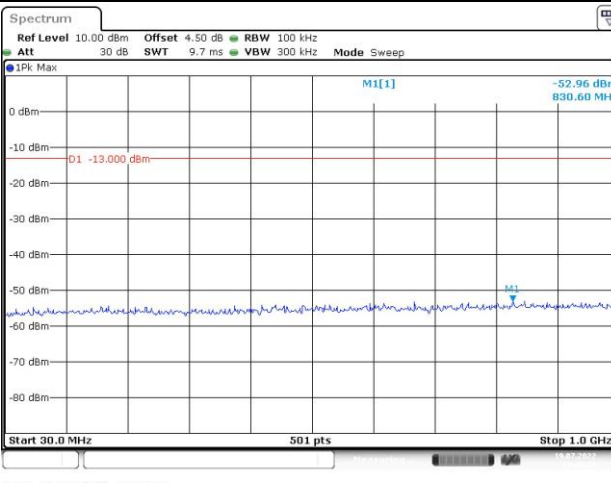
Channel

10MHz Bandwidth QPSK

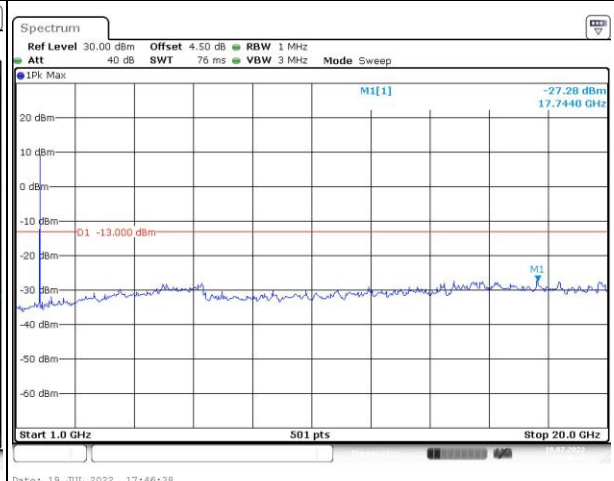
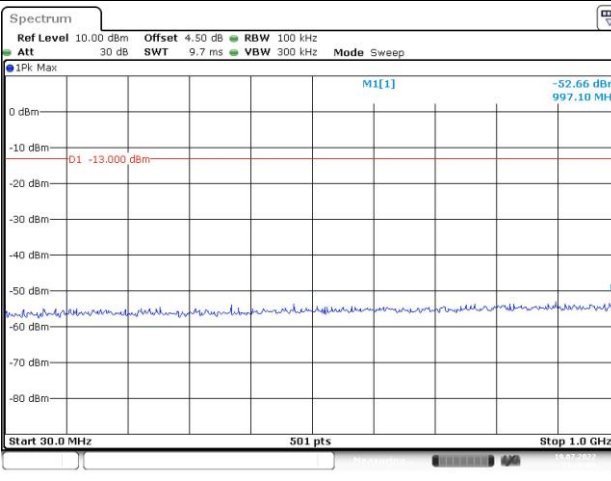
Lowest



Middle



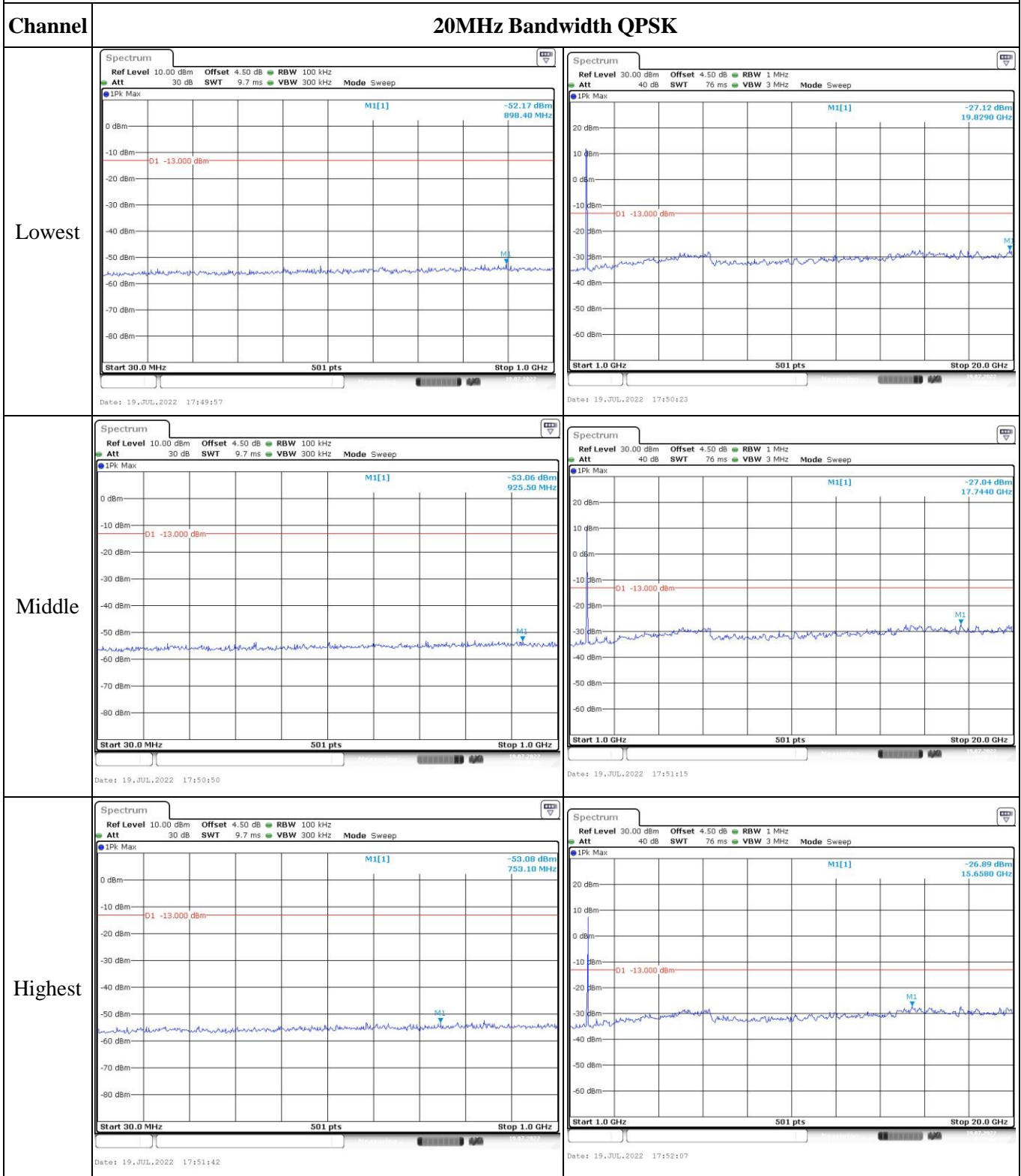
Highest



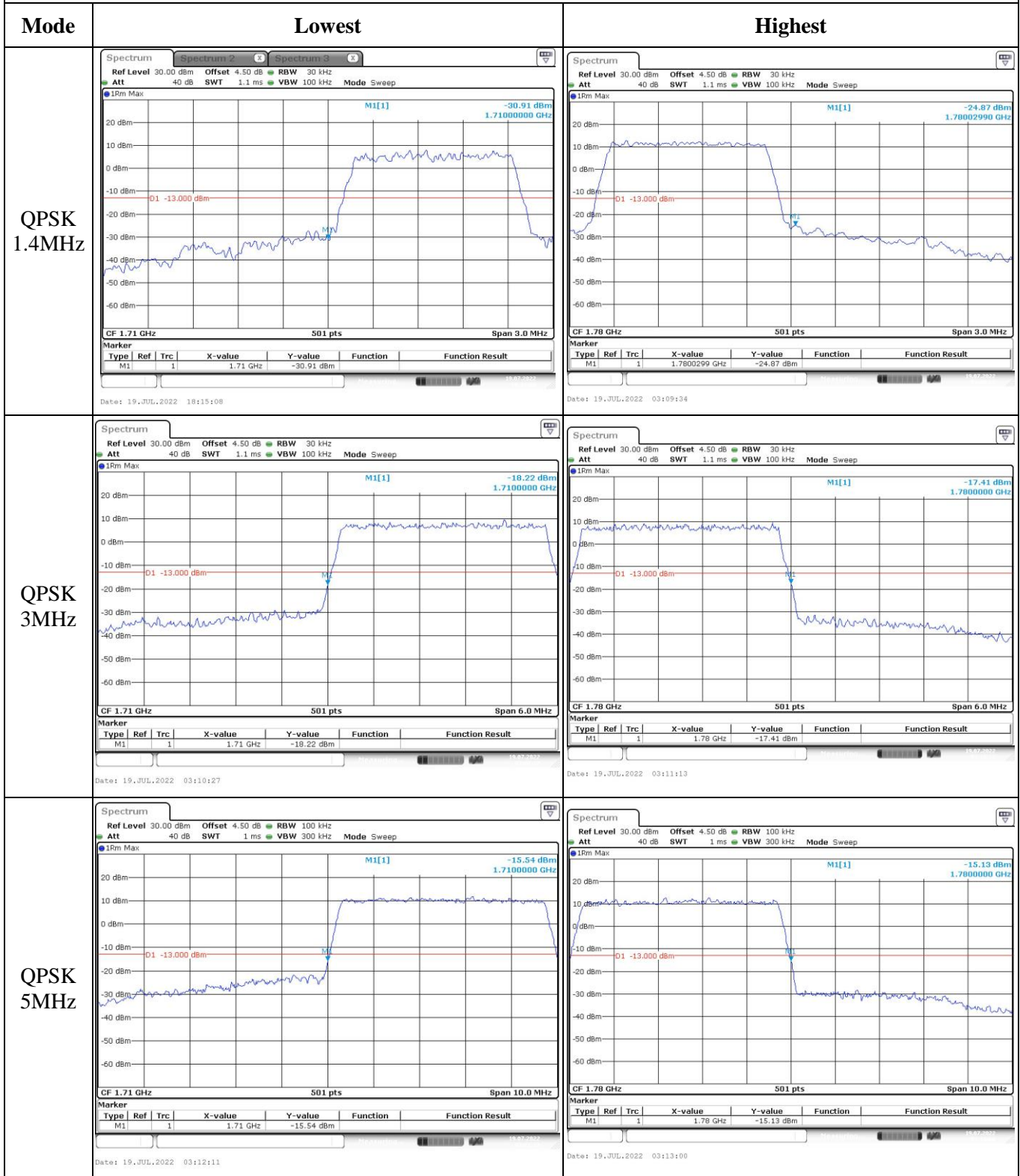
Spurious Emissions at Antenna Terminal

Channel	15MHz Bandwidth QPSK	
Lowest	<p>Ref Level 10.00 dBm Offset 4.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Sweep</p> <p>IPK Max MI[1] -53.17 dBm 933.20 MHz</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>Date: 19_JUL_2022 17:47:06</p>	<p>Ref Level 30.00 dBm Offset 4.50 dB RBW 1 MHz Att 40 dB SWT 76 ms VBW 3 MHz Mode Sweep</p> <p>IPK Max MI[1] -27.01 dBm 15.9610 GHz</p> <p>Start 1.0 GHz 501 pts Stop 20.0 GHz</p> <p>Date: 19_JUL_2022 17:47:29</p>
	<p>Ref Level 10.00 dBm Offset 4.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Sweep</p> <p>IPK Max MI[1] -51.46 dBm 911.90 MHz</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>Date: 19_JUL_2022 17:48:04</p>	<p>Ref Level 30.00 dBm Offset 4.50 dB RBW 1 MHz Att 40 dB SWT 76 ms VBW 3 MHz Mode Sweep</p> <p>IPK Max MI[1] -26.52 dBm 16.4160 GHz</p> <p>Start 1.0 GHz 501 pts Stop 20.0 GHz</p> <p>Date: 19_JUL_2022 17:48:20</p>
Highest	<p>Ref Level 10.00 dBm Offset 4.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Sweep</p> <p>IPK Max MI[1] -52.76 dBm 766.70 MHz</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>Date: 19_JUL_2022 17:49:03</p>	<p>Ref Level 30.00 dBm Offset 4.50 dB RBW 1 MHz Att 40 dB SWT 76 ms VBW 3 MHz Mode Sweep</p> <p>IPK Max MI[1] -27.11 dBm 17.7440 GHz</p> <p>Start 1.0 GHz 501 pts Stop 20.0 GHz</p> <p>Date: 19_JUL_2022 17:49:25</p>

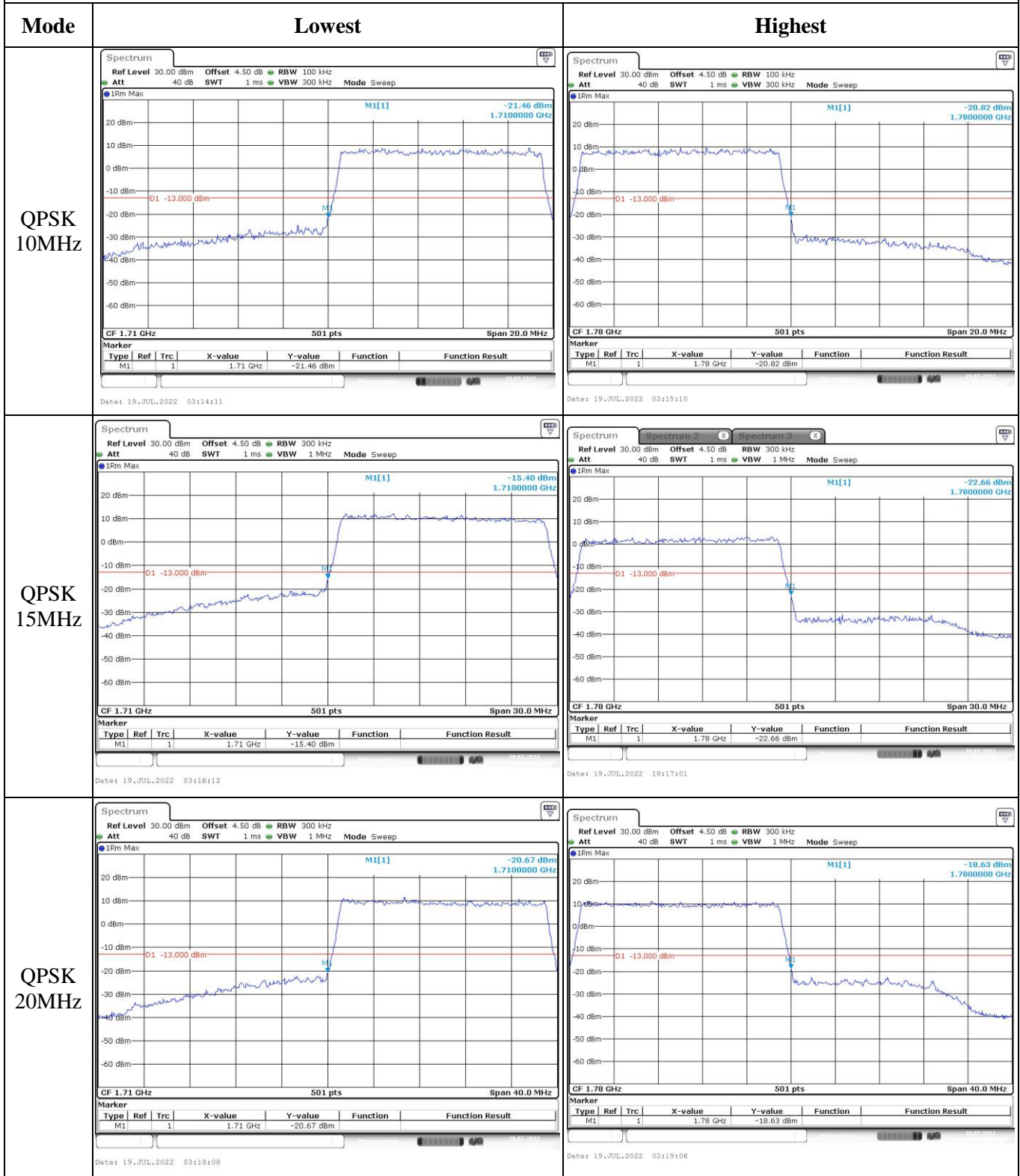
Spurious Emissions at Antenna Terminal



Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge

