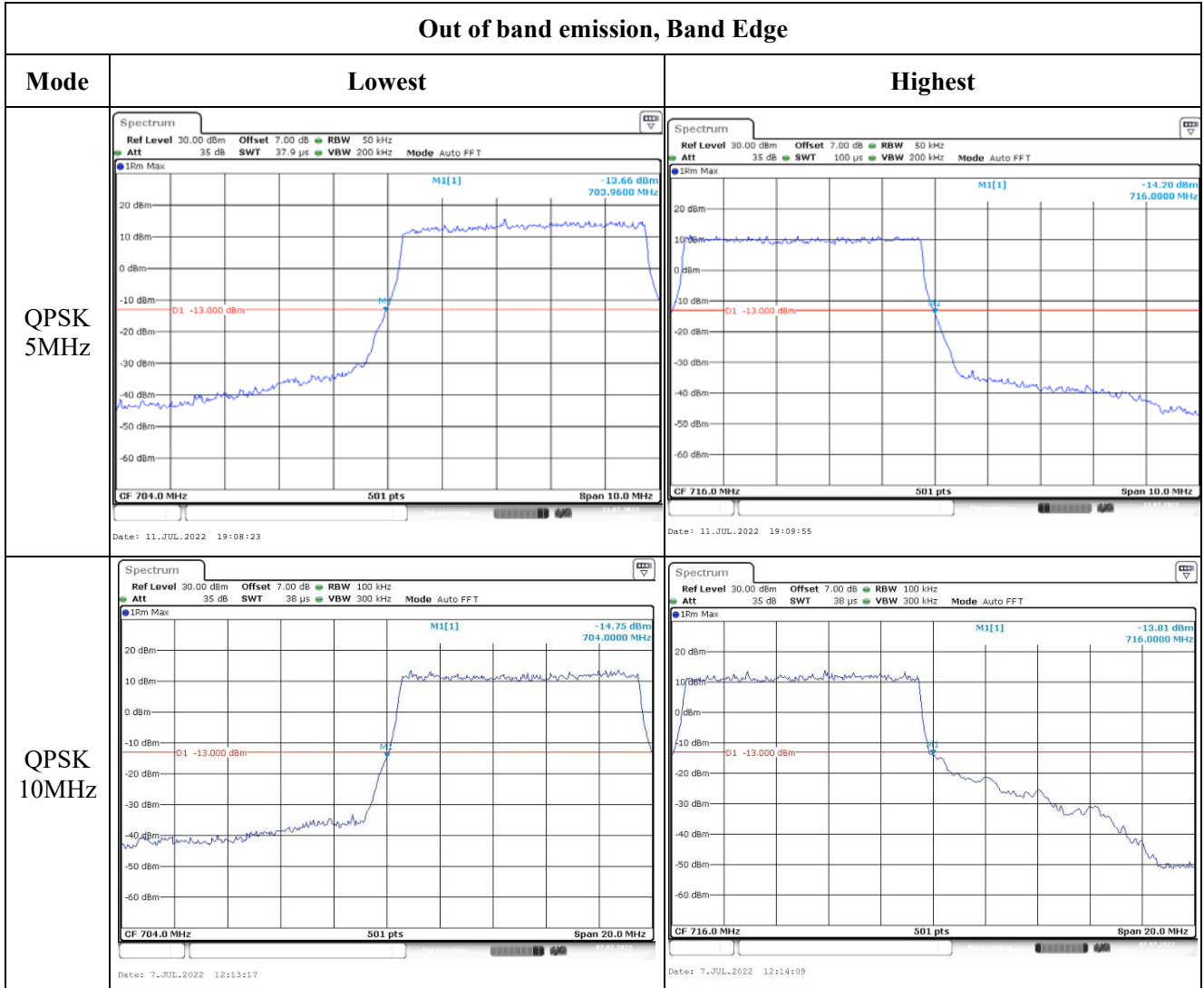
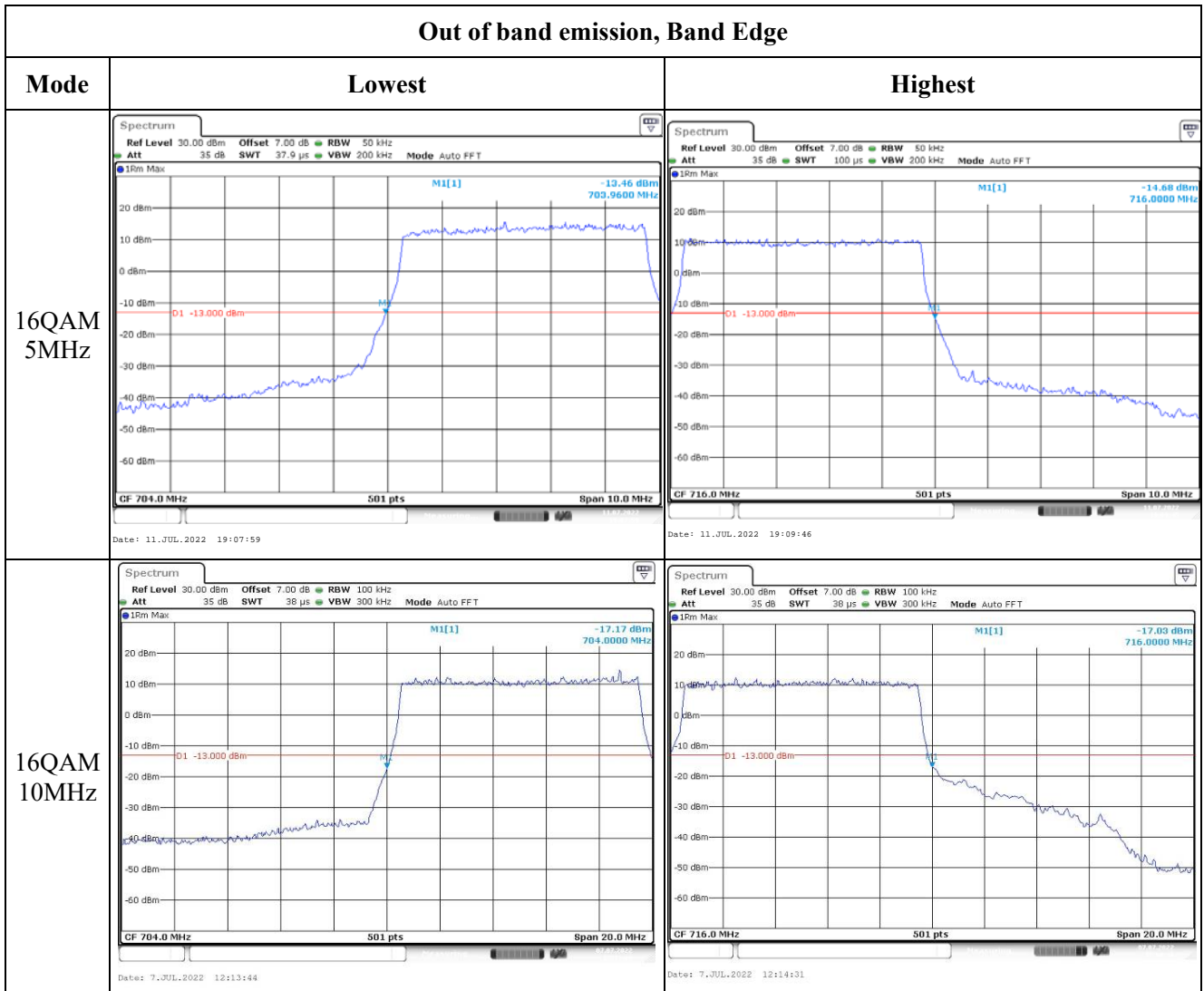


Out of band emission, Band Edge



Out of band emission, Band Edge



4.11 Antenna Port Test Data and Results for LTE Band 25

Serial Number:	CR220050079-RF-S1	Test Date:	2022/7/2~2022/7/11
Test Site:	RF	Test Mode:	Transmitting
Tester:	Ted Min	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.3~24.8	Relative Humidity: (%)	49~52	ATM Pressure: (kPa)	100.0~100.2
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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	SJ0100003	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 25▲:

Antenna Gain (dBi):	-1.12	Path Loss L _c (dB):	0
Operation Voltage(V _{DC}):			
Lowest:	3.42	Normal:	3.8
		Highest:	4.18

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	1850.7	1882.5	1914.3
3MHz	1851.5	1882.5	1913.5
5MHz	1852.5	1882.5	1912.5
10MHz	1855	1882.5	1910
15MHz	1857.5	1882.5	1907.5

20MHz	1860	1882.5	1905
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Test Data:

FCC§2.1046;§ 24.232						
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	22.01	21.82	21.95	21.01	33
	RB1#3	22.08	21.9	22		
	RB1#5	22.04	21.87	22.07		
	RB3#0	22.01	21.87	22.06		
	RB3#3	22.13	21.92	22.11		
	RB6#0	21.68	21.57	21.68		
1.4MHz 16QAM	RB1#0	21.88	21.75	21.87	20.84	33
	RB1#3	21.91	21.89	21.93		
	RB1#5	21.86	21.75	21.89		
	RB3#0	21.91	21.87	21.96		
	RB3#3	21.87	21.68	21.89		
	RB6#0	21.51	21.34	21.49		
3MHz QPSK	RB1#0	21.88	21.86	21.87	20.93	33
	RB1#8	22.03	21.96	21.92		
	RB1#14	22.05	21.98	21.96		
	RB6#0	21.89	21.81	21.81		
	RB6#9	21.84	21.84	21.74		
	RB15#0	21.55	21.44	21.56		
3MHz 16QAM	RB1#0	21.53	21.51	21.52	20.76	33
	RB1#8	21.69	21.68	21.75		
	RB1#14	21.87	21.88	21.86		
	RB6#0	21.76	21.73	21.77		
	RB6#9	21.79	21.64	21.84		
	RB15#0	21.53	21.38	21.42		
5MHz QPSK	RB1#0	21.87	21.93	22.03	21.04	33
	RB1#13	21.94	21.91	22.14		
	RB1#24	21.98	21.94	22.16		
	RB15#0	21.96	21.89	22.13		
	RB15#10	21.92	21.85	22.09		
	RB25#0	21.67	21.61	21.78		
5MHz 16QAM	RB1#0	21.59	21.71	21.74	20.83	33
	RB1#13	21.74	21.82	21.93		
	RB1#24	21.7	21.85	21.95		
	RB15#0	21.57	21.64	21.64		
	RB15#10	21.61	21.59	21.63		
	RB25#0	21.2	21.31	21.39		

10MHz QPSK	RB1#0	21.91	21.94	21.82	20.99	33
	RB1#25	22	21.97	21.89		
	RB1#49	22.11	21.99	21.93		
	RB25#0	21.96	21.85	21.82		
	RB25#25	22.05	21.92	21.93		
	RB50#0	21.66	21.51	21.48		
10MHz 16QAM	RB1#0	21.82	21.68	21.79	20.75	33
	RB1#25	21.78	21.7	21.87		
	RB1#49	21.8	21.69	21.86		
	RB25#0	21.63	21.53	21.81		
	RB25#25	21.74	21.62	21.69		
	RB50#0	21.32	21.22	21.38		
15MHz QPSK	RB1#0	21.75	22	21.95	21.07	33
	RB1#38	21.71	22.11	22		
	RB1#74	21.8	22.19	22.02		
	RB36#0	21.82	22.16	21.98		
	RB36#39	21.68	21.86	21.8		
	RB75#0	21.23	21.35	21.38		
15MHz 16QAM	RB1#0	21.48	21.46	21.55	20.77	33
	RB1#38	21.56	21.61	21.56		
	RB1#74	21.69	21.73	21.59		
	RB36#0	21.61	21.84	21.64		
	RB36#39	21.66	21.89	21.78		
	RB75#0	21.28	21.47	21.32		
20MHz QPSK	RB1#0	22.03	22.08	22	21.14	33
	RB1#50	22.12	22.09	22.13		
	RB1#99	22.26	22.26	22.16		
	RB50#0	22.01	22.03	21.96		
	RB50#50	22	21.96	21.93		
	RB100#0	21.76	21.75	21.71		
20MHz 16QAM	RB1#0	21.72	21.75	21.93	20.81	33
	RB1#50	21.77	21.85	21.9		
	RB1#99	21.85	21.89	21.93		
	RB50#0	21.68	21.85	21.77		
	RB50#50	21.63	21.69	21.67		
	RB100#0	21.29	21.28	21.33		
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	3.15	3.33	3.29	13
	RB100#0	5.26	5.37	5.13	13
20MHz 16QAM	RB1#0	4.26	4.21	4.35	13
	RB100#0	6.18	6.22	6.28	13
Result:					Pass

FCC §2.1049, §24.238: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	1.096	1.102	1.102	1.302	1.338	1.284
1.4MHz 16QAM	1.102	1.09	1.096	1.326	1.284	1.29
3MHz QPSK	2.683	2.695	2.683	2.868	2.868	2.88
3MHz 16QAM	2.683	2.683	2.683	2.904	2.88	2.868
5MHz QPSK	4.551	4.551	4.511	5.46	5.88	5.18
5MHz 16QAM	4.551	4.571	4.531	5.64	5.7	5.2
10MHz QPSK	8.982	8.982	8.982	10.16	10.32	9.92
10MHz 16QAM	8.982	8.982	8.982	9.8	9.96	9.8
15MHz QPSK	13.533	13.533	13.473	15.18	16.32	15.12
15MHz 16QAM	13.533	13.653	13.473	15	16.86	15.36
20MHz QPSK	17.964	17.884	17.964	19.68	19.6	19.76
20MHz 16QAM	17.964	17.964	17.884	19.6	19.52	19.6
Note: The test plots please refer to the Plots of Occupied Bandwidth						

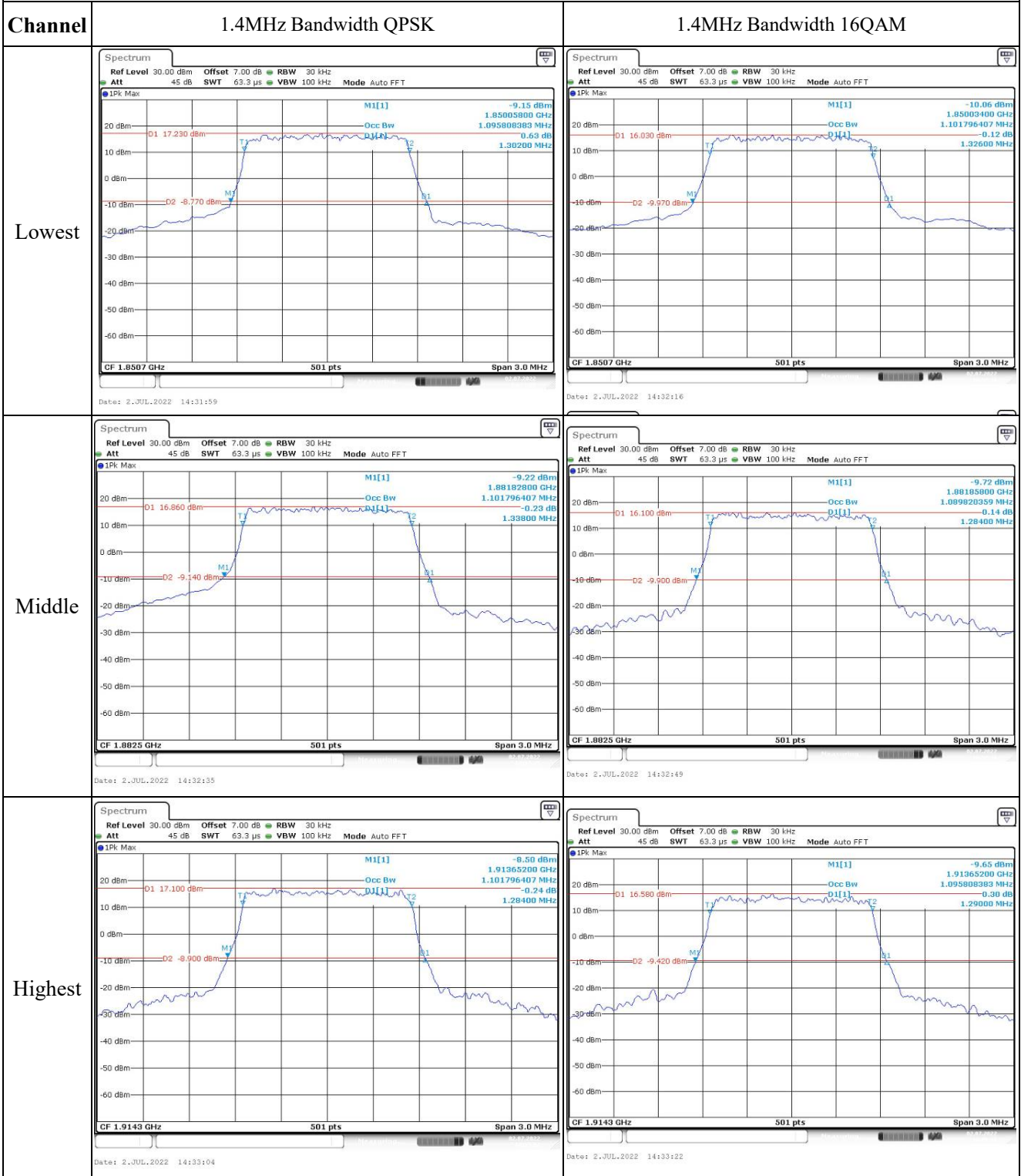
FCC §2.1051, § 24.238 (a):Spurious Emissions at Antenna Terminal**Result:** Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.**FCC §2.1051, § 24.238 (a):Out of band emission, Band Edge****Result:** Pass, Please refer to the test plots of Out of band emission, Band Edge.**FCC §2.1055, §24.235: Frequency Stability**

Test Mode:	20 MHz QPSK		Test Channel:	1882.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Result
			(Hz)	(ppm)	
Frequency Stability vs. Temperature	-30	3.8	13	0.007	Pass
	-20	3.8	12	0.006	Pass
	-10	3.8	10	0.005	Pass
	0	3.8	10	0.005	Pass
	10	3.8	17	0.009	Pass
	20	3.8	10	0.005	Pass
	30	3.8	20	0.011	Pass
	40	3.8	10	0.005	Pass
	50	3.8	18	0.010	Pass
Frequency Stability vs. Voltage	20	3.42	13	0.007	Pass
	20	4.18	19	0.010	Pass
Result:					Pass

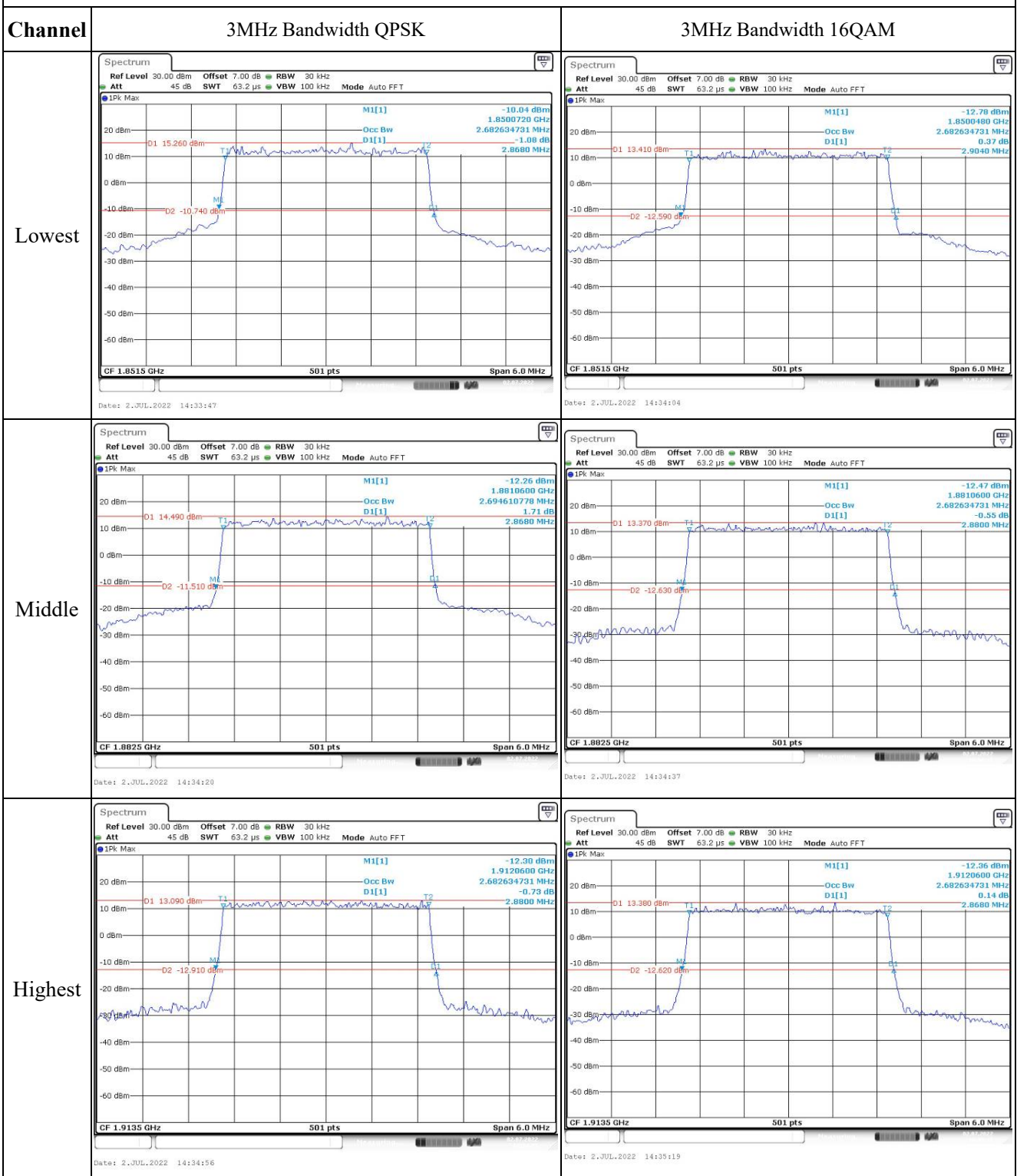
Test Mode:	20 MHz 16QAM		Test Channel:	1882.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Result
			(Hz)	(ppm)	
Frequency Stability vs. Temperature	-30	3.8	18	0.010	Pass
	-20	3.8	18	0.010	Pass
	-10	3.8	17	0.009	Pass
	0	3.8	11	0.006	Pass
	10	3.8	13	0.007	Pass
	20	3.8	15	0.008	Pass
	30	3.8	20	0.011	Pass
	40	3.8	18	0.010	Pass
	50	3.8	11	0.006	Pass
Frequency Stability vs. Voltage	20	3.42	13	0.007	Pass
	20	4.18	19	0.010	Pass
Result:					Pass

Test Plots:

Occupied Bandwidth



Occupied Bandwidth



Occupied Bandwidth

Channel	5MHz Bandwidth QPSK	5MHz Bandwidth 16QAM
Lowest	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -9.94 dBm 1.8497000 GHz Occ Bw 4.550898204 MHz -0.07 dB 5.4600 MHz</p> <p>D1 17.030 dBm D2 -8.970 dBm</p> <p>CF 1.8525 GHz 501 pts Span 10.0 MHz</p> <p>Date: 2.JUL.2022 14:35:38</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -9.30 dBm 1.8495600 GHz Occ Bw 4.550898204 MHz -0.33 dB 5.6400 MHz</p> <p>D1 16.520 dBm D2 -9.950 dBm</p> <p>CF 1.8525 GHz 501 pts Span 10.0 MHz</p> <p>Date: 2.JUL.2022 14:35:53</p>
Middle	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -9.49 dBm 1.8793800 GHz Occ Bw 4.550898204 MHz -0.07 dB 5.8800 MHz</p> <p>D1 16.610 dBm D2 -7.390 dBm</p> <p>CF 1.8825 GHz 501 pts Span 10.0 MHz</p> <p>Date: 2.JUL.2022 14:36:17</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -10.16 dBm 1.8795400 GHz Occ Bw 4.570858283 MHz -0.12 dB 5.7000 MHz</p> <p>D1 15.870 dBm D2 -10.130 dBm</p> <p>CF 1.8825 GHz 501 pts Span 10.0 MHz</p> <p>Date: 2.JUL.2022 14:36:35</p>
Highest	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -8.79 dBm 1.9099000 GHz Occ Bw 4.510978014 MHz -0.43 dB 5.1800 MHz</p> <p>D1 16.870 dBm D2 -9.130 dBm</p> <p>CF 1.9125 GHz 501 pts Span 10.0 MHz</p> <p>Date: 2.JUL.2022 14:36:53</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -10.74 dBm 1.9098800 GHz Occ Bw 4.530938124 MHz -0.15 dB 5.2000 MHz</p> <p>D1 14.950 dBm D2 -11.050 dBm</p> <p>CF 1.9125 GHz 501 pts Span 10.0 MHz</p> <p>Date: 2.JUL.2022 14:37:14</p>

Occupied Bandwidth

Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

Occupied Bandwidth

Channel	15MHz Bandwidth QPSK	15MHz Bandwidth 16QAM
Lowest	<p>1Pk Max</p> <p>Ref Level 30.00 dBm Offset 7.00 dB RBW 300 kHz</p> <p>Att 45 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -7.81 dBm</p> <p>Occ Bw 15.1800 MHz</p> <p>13.532934132 MHz</p> <p>1.8499400 GHz</p> <p>18.030 dBm</p> <p>7.970 dBm</p> <p>CF 1.8575 GHz 501 pts Span 30.0 MHz</p> <p>Date: 2.JUL.2022 14:40:22</p>	<p>1Pk Max</p> <p>Ref Level 30.00 dBm Offset 7.00 dB RBW 300 kHz</p> <p>Att 45 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -6.32 dBm</p> <p>Occ Bw 15.0000 MHz</p> <p>13.532934132 MHz</p> <p>1.8500600 GHz</p> <p>16.720 dBm</p> <p>9.280 dBm</p> <p>CF 1.8575 GHz 501 pts Span 30.0 MHz</p> <p>Date: 2.JUL.2022 14:40:51</p>
Middle	<p>1Pk Max</p> <p>Ref Level 30.00 dBm Offset 7.00 dB RBW 300 kHz</p> <p>Att 45 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -8.69 dBm</p> <p>Occ Bw 16.3200 MHz</p> <p>13.532934132 MHz</p> <p>1.8739800 GHz</p> <p>17.470 dBm</p> <p>8.530 dBm</p> <p>CF 1.8825 GHz 501 pts Span 30.0 MHz</p> <p>Date: 2.JUL.2022 14:41:15</p>	<p>1Pk Max</p> <p>Ref Level 30.00 dBm Offset 7.00 dB RBW 300 kHz</p> <p>Att 45 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -9.56 dBm</p> <p>Occ Bw 16.8600 MHz</p> <p>13.652694611 MHz</p> <p>1.8744000 GHz</p> <p>16.660 dBm</p> <p>9.340 dBm</p> <p>CF 1.8825 GHz 501 pts Span 30.0 MHz</p> <p>Date: 2.JUL.2022 14:41:51</p>
Highest	<p>1Pk Max</p> <p>Ref Level 30.00 dBm Offset 7.00 dB RBW 300 kHz</p> <p>Att 45 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -9.87 dBm</p> <p>Occ Bw 15.1200 MHz</p> <p>13.473053892 MHz</p> <p>1.8998800 GHz</p> <p>16.510 dBm</p> <p>9.490 dBm</p> <p>CF 1.9075 GHz 501 pts Span 30.0 MHz</p> <p>Date: 2.JUL.2022 14:42:11</p>	<p>1Pk Max</p> <p>Ref Level 30.00 dBm Offset 7.00 dB RBW 300 kHz</p> <p>Att 45 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -9.02 dBm</p> <p>Occ Bw 15.3600 MHz</p> <p>13.473053892 MHz</p> <p>1.8997000 GHz</p> <p>16.010 dBm</p> <p>9.990 dBm</p> <p>CF 1.9075 GHz 501 pts Span 30.0 MHz</p> <p>Date: 2.JUL.2022 14:42:31</p>

Occupied Bandwidth

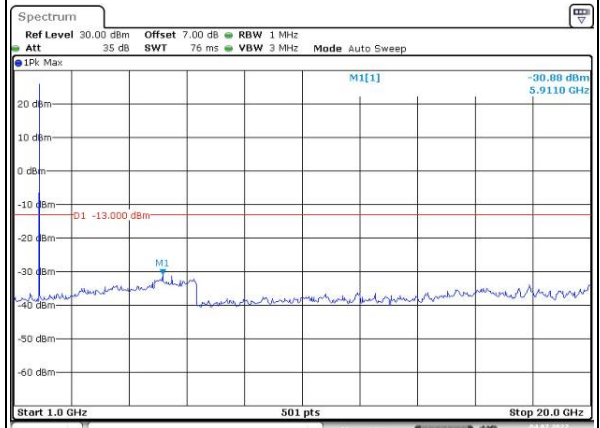
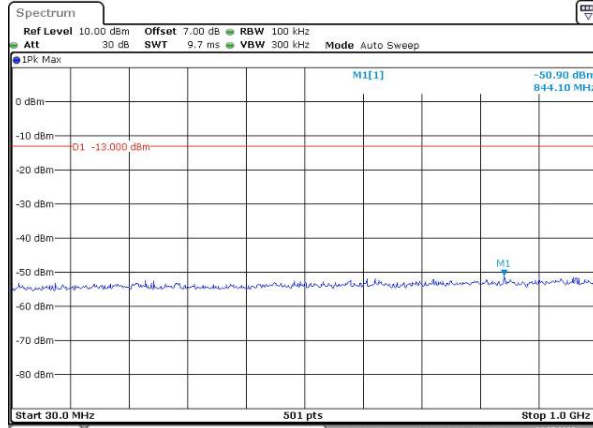
Channel	20MHz Bandwidth QPSK	20MHz Bandwidth 16QAM
Lowest	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 300 kHz Att 45 dB SWT 18.9 μs VBW 1 MHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -10.17 dBm Occ Bw 17.964071856 MHz D1[1] -0.16 dB 19.6800 MHz</p> <p>CF 1.86 GHz 501 pts Span 40.0 MHz</p> <p>Date: 2.JUL.2022 14:43:07</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 300 kHz Att 45 dB SWT 18.9 μs VBW 1 MHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -10.19 dBm Occ Bw 17.964071856 MHz D1[1] -0.35 dB 19.6800 MHz</p> <p>CF 1.86 GHz 501 pts Span 40.0 MHz</p> <p>Date: 2.JUL.2022 14:43:43</p>
Middle	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 300 kHz Att 45 dB SWT 18.9 μs VBW 1 MHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -9.86 dBm Occ Bw 17.884231537 MHz D1[1] -0.36 dB 19.6800 MHz</p> <p>CF 1.8825 GHz 501 pts Span 40.0 MHz</p> <p>Date: 2.JUL.2022 14:44:06</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 300 kHz Att 45 dB SWT 18.9 μs VBW 1 MHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -10.23 dBm Occ Bw 17.884231537 MHz D1[1] -0.36 dB 19.5200 MHz</p> <p>CF 1.8825 GHz 501 pts Span 40.0 MHz</p> <p>Date: 2.JUL.2022 14:44:29</p>
Highest	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 300 kHz Att 45 dB SWT 18.9 μs VBW 1 MHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -10.94 dBm Occ Bw 17.964071856 MHz D1[1] -0.29 dB 19.7600 MHz</p> <p>CF 1.905 GHz 501 pts Span 40.0 MHz</p> <p>Date: 2.JUL.2022 14:44:53</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 300 kHz Att 45 dB SWT 18.9 μs VBW 1 MHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -10.50 dBm Occ Bw 17.884231537 MHz D1[1] -0.53 dB 19.6000 MHz</p> <p>CF 1.905 GHz 501 pts Span 40.0 MHz</p> <p>Date: 2.JUL.2022 14:45:22</p>

Spurious Emissions at Antenna Terminal

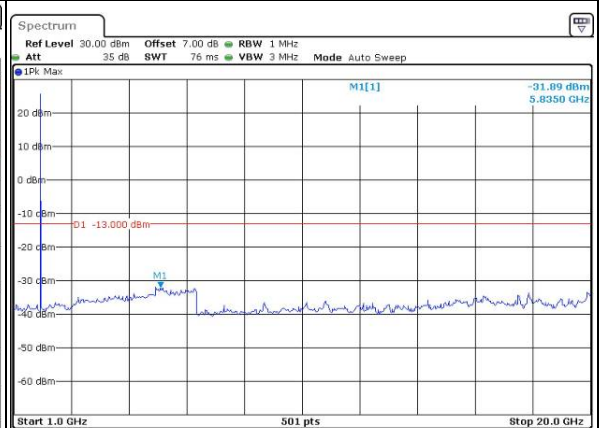
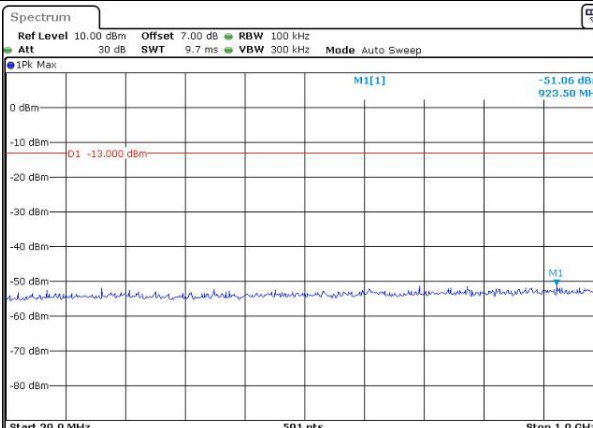
Channel

1.4MHz Bandwidth QPSK

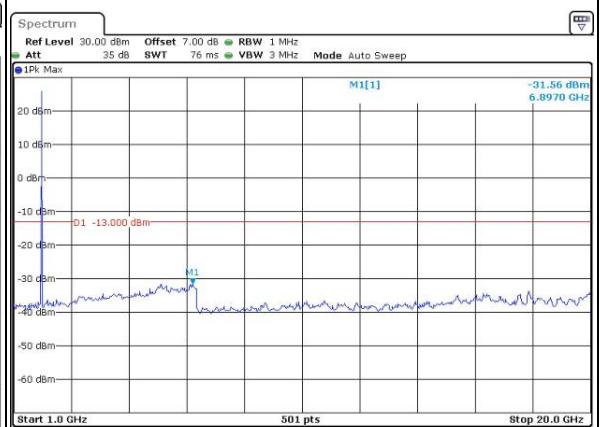
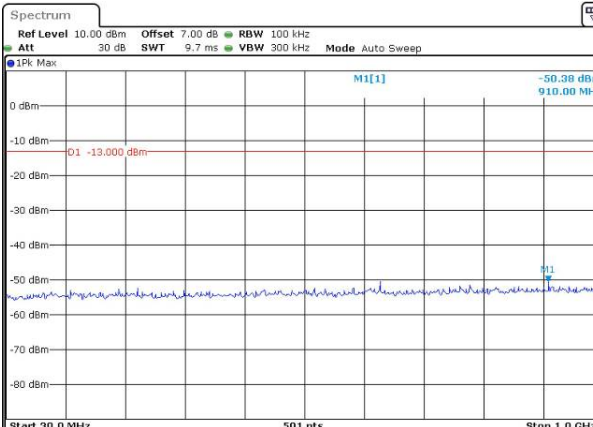
Lowest



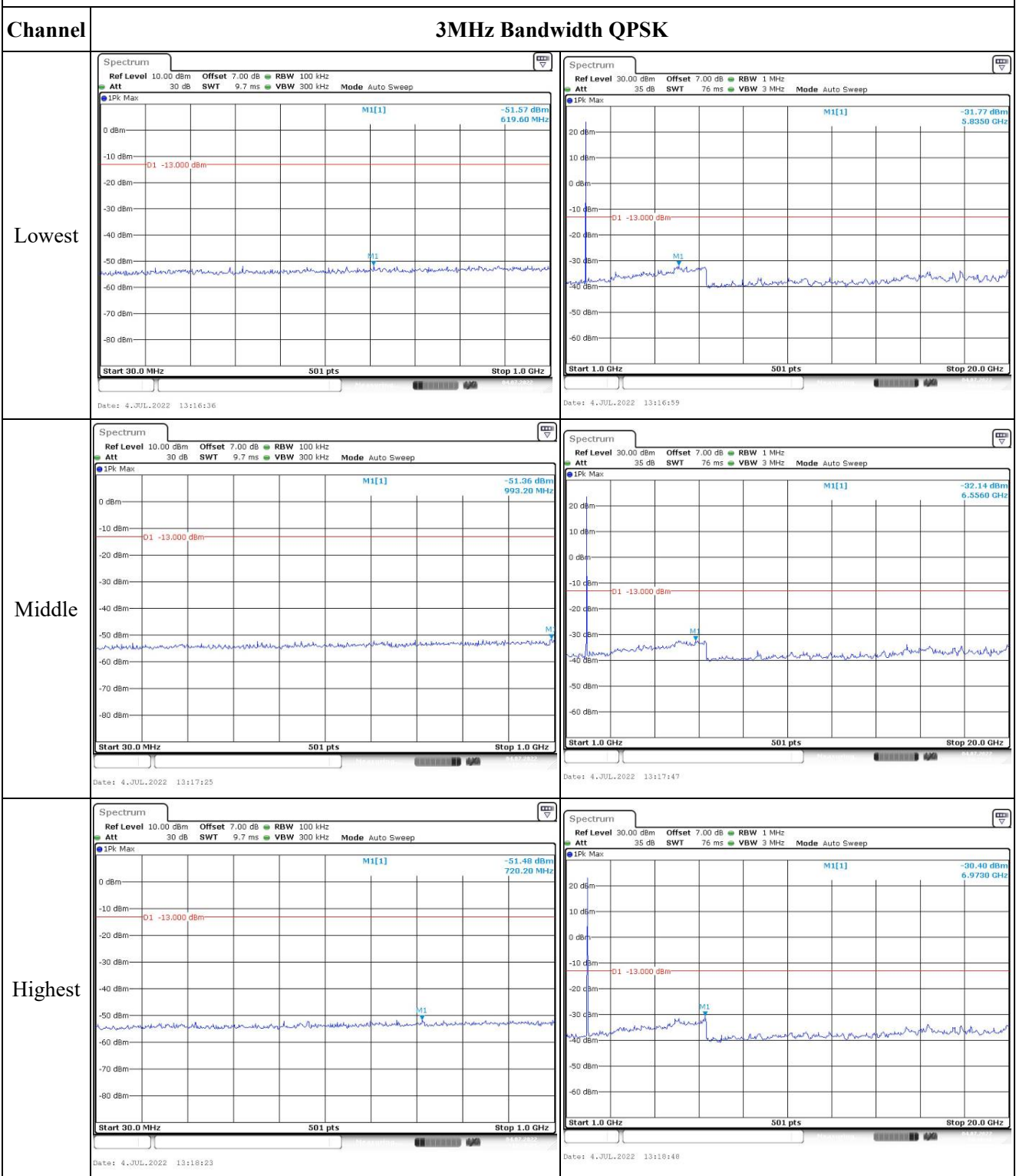
Middle



Highest



Spurious Emissions at Antenna Terminal

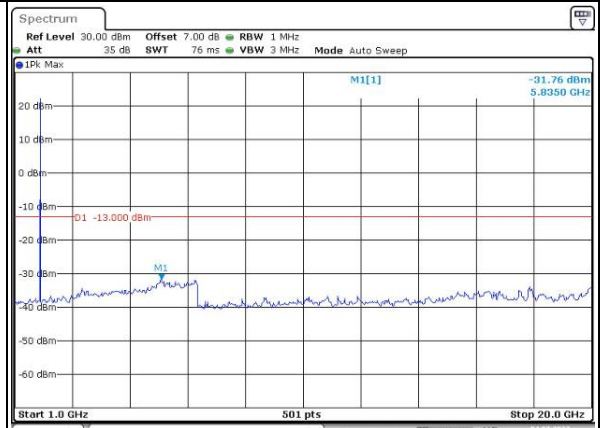
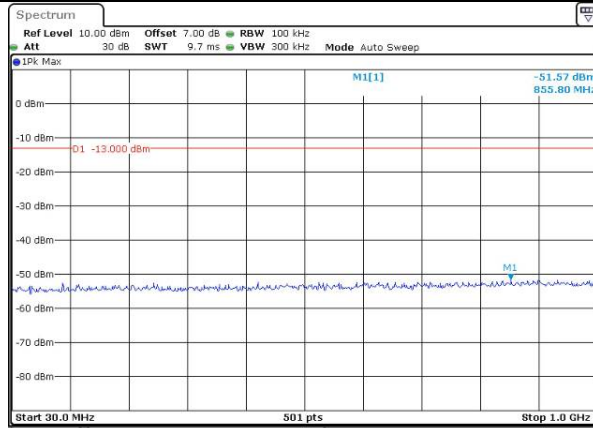


Spurious Emissions at Antenna Terminal

Channel

5MHz Bandwidth QPSK

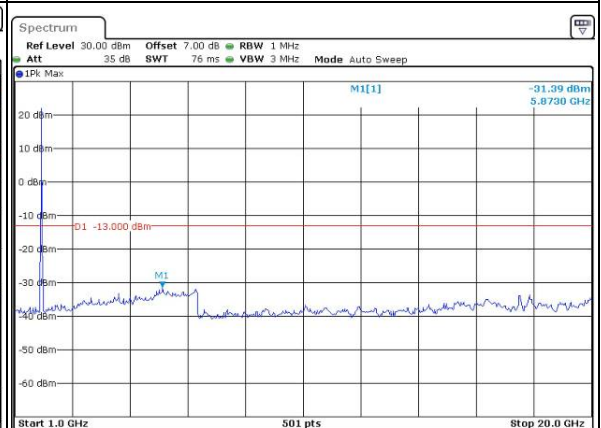
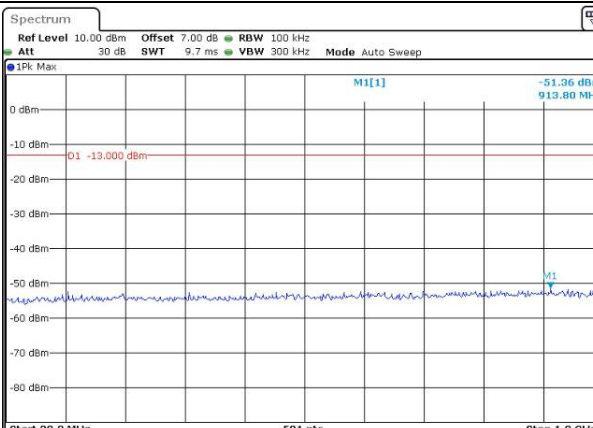
Lowest



Date: 4.JUL.2022 13:19:27

Date: 4.JUL.2022 13:19:47

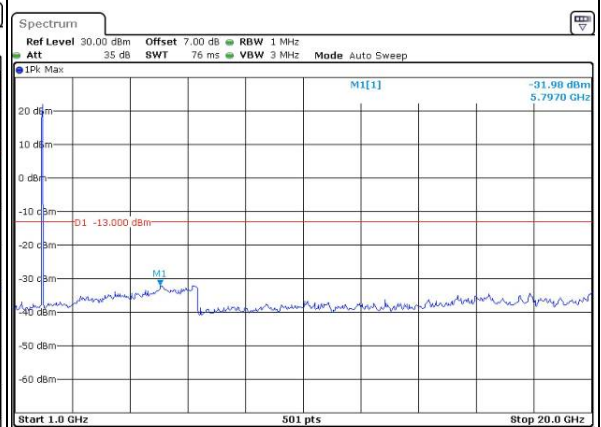
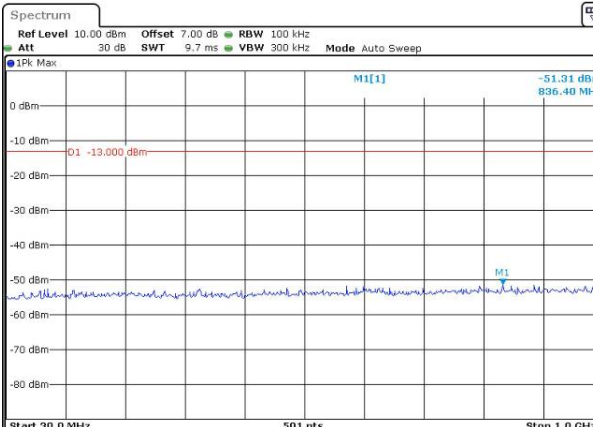
Middle



Date: 4.JUL.2022 13:20:13

Date: 4.JUL.2022 13:20:29

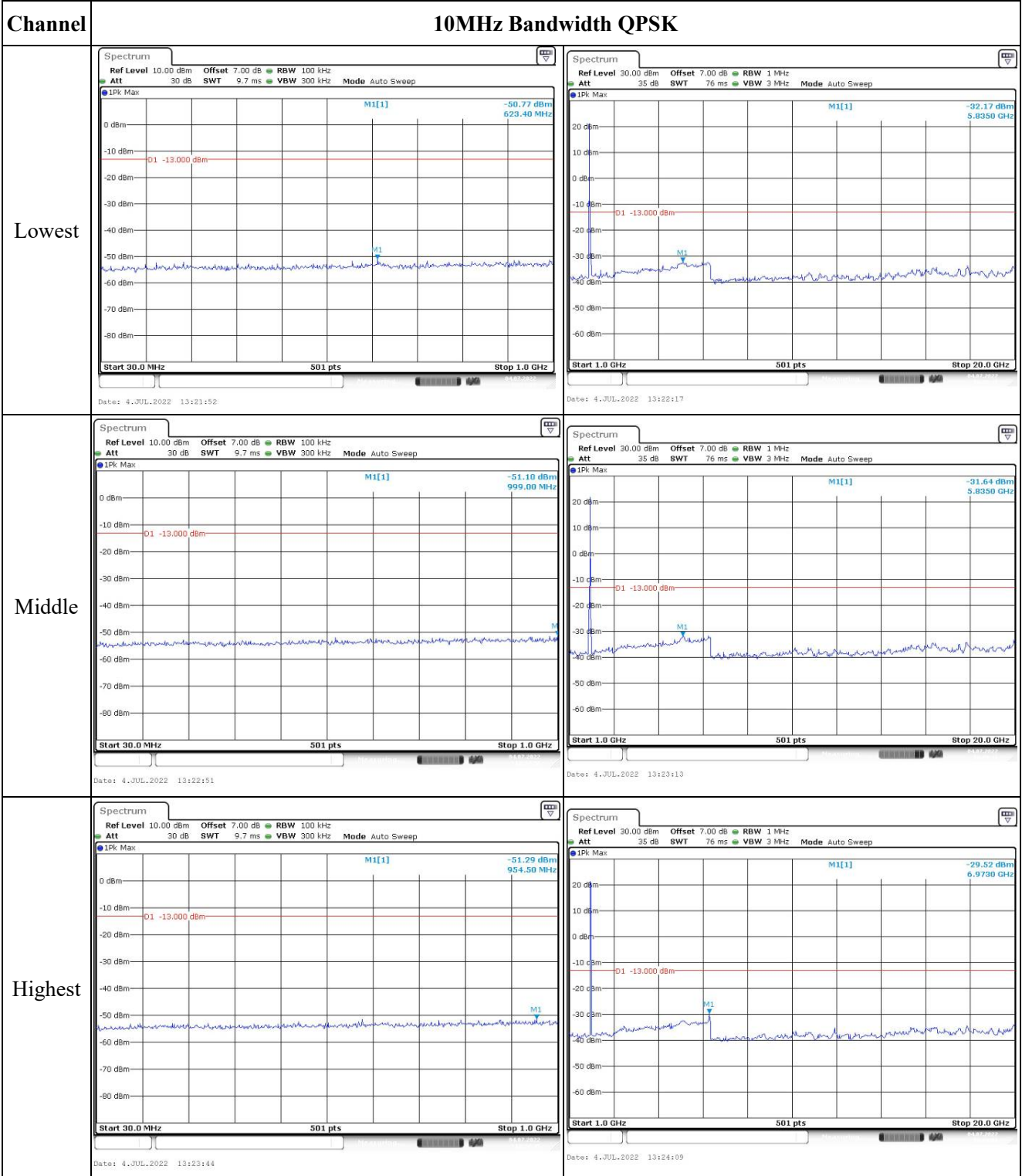
Highest



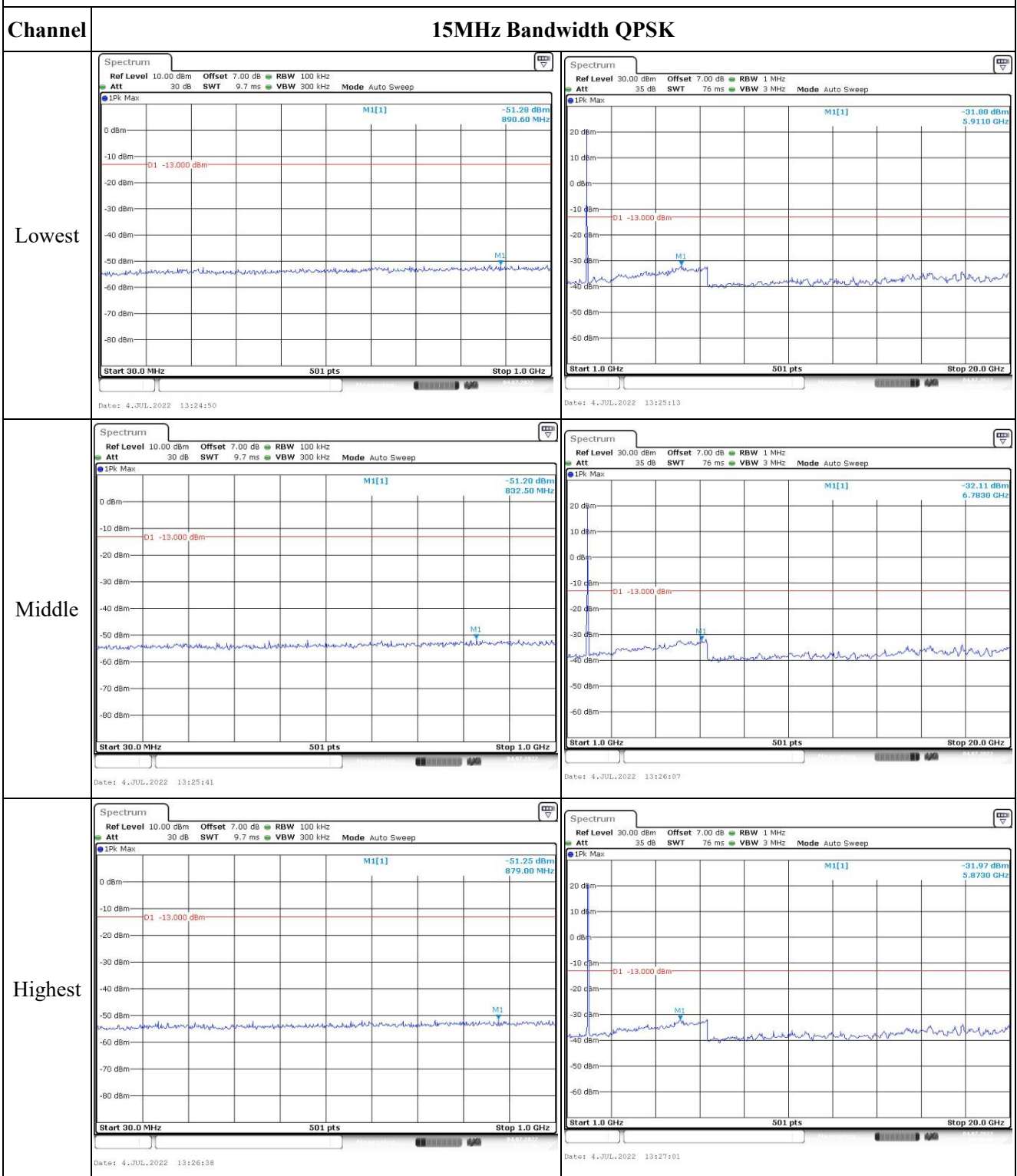
Date: 4.JUL.2022 13:20:58

Date: 4.JUL.2022 13:21:21

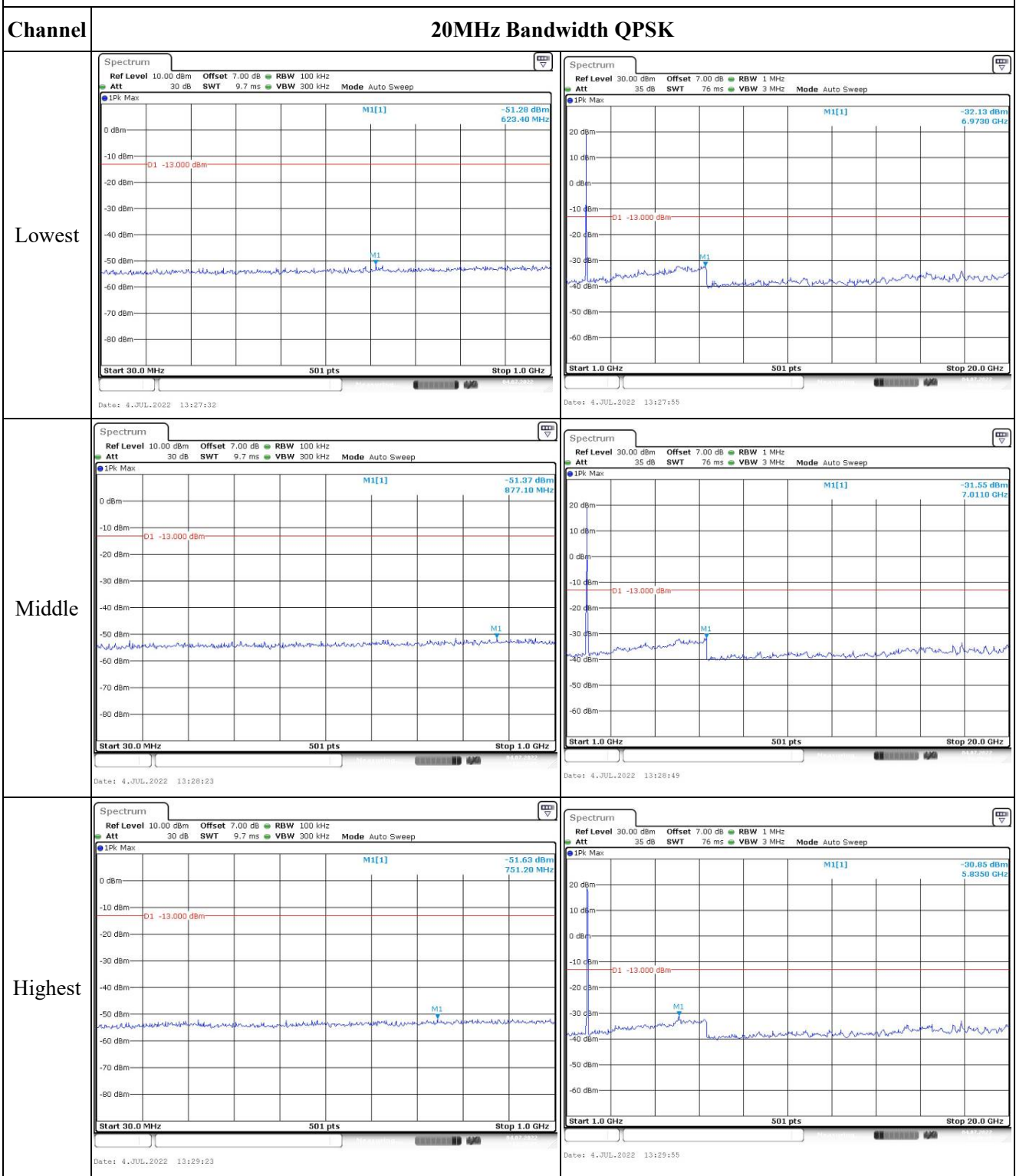
Spurious Emissions at Antenna Terminal



Spurious Emissions at Antenna Terminal



Spurious Emissions at Antenna Terminal



Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 1.4MHz	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 20 kHz Att 35 dB SWT 150 μs VBW 50 kHz Mode Auto FFT</p> <p>M1[1] -13.43 dBm 1.8500000 GHz</p> <p>D1 -13.000 dBm</p> <p>CF 1.85 GHz 501 pts Span 3.0 MHz</p> <p>Date: 11.JUL.2022 19:18:17</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 30 kHz Att 35 dB SWT 63.3 μs VBW 100 kHz Mode Auto FFT</p> <p>M1[1] -17.65 dBm 1.9150000 GHz</p> <p>D1 -13.000 dBm</p> <p>CF 1.915 GHz 501 pts Span 3.0 MHz</p> <p>Date: 7.JUL.2022 12:15:26</p>
QPSK 3MHz	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 30 kHz Att 35 dB SWT 63.2 μs VBW 100 kHz Mode Auto FFT</p> <p>M1[1] -20.36 dBm 1.8500000 GHz</p> <p>D1 -13.000 dBm</p> <p>CF 1.85 GHz 501 pts Span 6.0 MHz</p> <p>Date: 7.JUL.2022 12:16:01</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 30 kHz Att 35 dB SWT 63.2 μs VBW 100 kHz Mode Auto FFT</p> <p>M1[1] -22.39 dBm 1.9150000 GHz</p> <p>D1 -13.000 dBm</p> <p>CF 1.915 GHz 501 pts Span 6.0 MHz</p> <p>Date: 7.JUL.2022 12:16:32</p>
QPSK 5MHz	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 50 kHz Att 35 dB SWT 50 μs VBW 200 kHz Mode Auto FFT</p> <p>M1[1] -13.17 dBm 1.8500000 GHz</p> <p>D1 -13.000 dBm</p> <p>CF 1.85 GHz 501 pts Span 10.0 MHz</p> <p>Date: 11.JUL.2022 19:24:18</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 50 kHz Att 35 dB SWT 50 μs VBW 200 kHz Mode Auto FFT</p> <p>M1[1] -14.40 dBm 1.9150000 GHz</p> <p>D1 -13.000 dBm</p> <p>CF 1.915 GHz 501 pts Span 10.0 MHz</p> <p>Date: 11.JUL.2022 19:23:27</p>

Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 10MHz		
QPSK 15MHz		
QPSK 20MHz		

Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 1.4MHz	<p>Spectrum Ref Level 30.00 dBm Offset 7.00 dB RBW 20 kHz Att 35 dB SWT 150 μs VBW 50 kHz Mode Auto FFT 12m Max M1[1] -13.66 dBm 1.8500000 GHz D1 -13.000 dBm CF 1.85 GHz 501 pts Span 3.0 MHz Date: 11.JUL.2022 19:17:45</p>	<p>Spectrum Ref Level 30.00 dBm Offset 7.00 dB RBW 30 kHz Att 35 dB SWT 63.3 μs VBW 100 kHz Mode Auto FFT 12m Max M1[1] -19.21 dBm 1.9150000 GHz D1 -13.000 dBm CF 1.915 GHz 501 pts Span 3.0 MHz Date: 7.JUL.2022 12:15:43</p>
16QAM 3MHz	<p>Spectrum Ref Level 30.00 dBm Offset 7.00 dB RBW 30 kHz Att 35 dB SWT 63.2 μs VBW 100 kHz Mode Auto FFT 12m Max M1[1] -21.98 dBm 1.8500000 GHz D1 -13.000 dBm CF 1.85 GHz 501 pts Span 6.0 MHz Date: 7.JUL.2022 12:16:14</p>	<p>Spectrum Ref Level 30.00 dBm Offset 7.00 dB RBW 30 kHz Att 35 dB SWT 63.2 μs VBW 100 kHz Mode Auto FFT 12m Max M1[1] -19.52 dBm 1.9150000 GHz D1 -13.000 dBm CF 1.915 GHz 501 pts Span 6.0 MHz Date: 11.JUL.2022 19:22:05</p>
16QAM 5MHz	<p>Spectrum Ref Level 30.00 dBm Offset 7.00 dB RBW 50 kHz Att 35 dB SWT 50 μs VBW 200 kHz Mode Auto FFT 12m Max M1[1] -13.79 dBm 1.8500000 GHz D1 -13.000 dBm CF 1.85 GHz 501 pts Span 10.0 MHz Date: 11.JUL.2022 19:24:06</p>	<p>Spectrum Ref Level 30.00 dBm Offset 7.00 dB RBW 50 kHz Att 35 dB SWT 50 μs VBW 200 kHz Mode Auto FFT 12m Max M1[1] -14.90 dBm 1.9150000 GHz D1 -13.000 dBm CF 1.915 GHz 501 pts Span 10.0 MHz Date: 11.JUL.2022 19:23:13</p>

Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 10MHz		
16QAM 15MHz		
16QAM 20MHz		

4.12 Antenna Port Test Data and Results for LTE Band 26

Serial Number:	CR220050079-RF-S1	Test Date:	2022/7/2~2022/7/11
Test Site:	RF	Test Mode:	Transmitting
Tester:	Ted Min	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.3~24.8	Relative Humidity: (%)	49~52	ATM Pressure: (kPa)	100.0~100.2
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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	SJ0100003	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 26▲:

Antenna Gain (dBi):	-0.46	Antenna Gain (dBd):	-2.61	Path Loss L_c (dB):	0
Operation Voltage(V_{DC}):					
Lowest:	3.42	Normal:	3.8	Highest:	4.18

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	814.7	831.5	848.3
3MHz	815.5	831.5	847.5
5MHz	816.5	831.5	846.5
10MHz	819	831.5	844
15MHz	821.5	831.5	841.5

Test Data:**FCC§2.1046;§ 22.913 (a),§ 90.635****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	21.86	22.01	22.11	19.68	38.45
	RB1#3	21.99	22.12	22.18		
	RB1#5	22.1	22.19	22.29		
	RB3#0	22	22.02	22.14		
	RB3#3	22.02	22.13	22.25		
	RB6#0	21.57	21.73	21.76		
1.4MHz 16QAM	RB1#0	21.61	21.65	21.72	19.35	38.45
	RB1#3	21.81	21.87	21.93		
	RB1#5	21.88	21.95	21.96		
	RB3#0	21.86	21.91	21.95		
	RB3#3	21.76	21.83	21.78		
	RB6#0	21.38	21.34	21.49		
3MHz QPSK	RB1#0	22.01	22.1	21.9	19.51	38.45
	RB1#8	22.12	22.07	21.93		
	RB1#14	22.09	22.03	22.02		
	RB6#0	21.98	21.97	21.85		
	RB6#9	22.08	21.93	21.86		
	RB15#0	21.58	21.58	21.51		
3MHz 16QAM	RB1#0	21.57	21.54	21.45	19.36	38.45
	RB1#8	21.97	21.97	21.89		
	RB1#14	21.86	21.91	21.77		
	RB6#0	21.73	21.64	21.56		
	RB6#9	21.69	21.73	21.55		
	RB15#0	21.27	21.24	21.17		
5MHz QPSK	RB1#0	22.02	21.97	22.04	19.7	38.45
	RB1#13	22.17	21.95	22.11		
	RB1#24	22.31	21.21	22.14		
	RB15#0	22.19	21.12	22.05		
	RB15#10	22.3	22.19	22.13		
	RB25#0	21.85	21.67	21.81		
5MHz 16QAM	RB1#0	21.68	21.6	21.82	19.35	38.45
	RB1#13	21.78	21.66	21.85		
	RB1#24	21.96	21.91	21.93		
	RB15#0	21.78	21.73	21.88		
	RB15#10	21.82	21.82	21.85		
	RB25#0	21.45	21.45	21.55		

10MHz QPSK	RB1#0	21.95	21.76	21.88	19.52	38.45
	RB1#25	21.91	21.9	21.84		
	RB1#49	22.12	22.01	22.13		
	RB25#0	21.95	21.71	21.76		
	RB25#25	21.99	21.74	21.89		
	RB50#0	21.6	21.45	21.43		
10MHz 16QAM	RB1#0	21.56	21.55	21.52	19.34	38.45
	RB1#25	21.9	21.6	21.84		
	RB1#49	21.91	21.68	21.95		
	RB25#0	21.81	21.5	21.77		
	RB25#25	21.82	21.52	21.74		
	RB50#0	21.45	21.26	21.32		
15MHz QPSK	RB1#0	21.95	21.86	21.92	19.7	38.45
	RB1#38	22.15	22.06	22.12		
	RB1#74	22.31	22.26	22.16		
	RB36#0	21.92	21.9	21.81		
	RB36#39	21.9	21.96	21.85		
	RB75#0	21.42	21.43	21.34		
15MHz 16QAM	RB1#0	21.52	21.52	21.44	19.36	38.45
	RB1#38	21.76	21.67	21.55		
	RB1#74	21.96	21.97	21.83		
	RB36#0	21.53	21.56	21.47		
	RB36#39	21.51	21.49	21.43		
	RB75#0	21.18	21.16	21.02		
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	
15MHz QPSK	RB1#0	3.11	3.15	3.27	13
	RB75#0	5.21	5.13	5.24	13
15MHz 16QAM	RB1#0	4.11	4.24	4.29	13
	RB75#0	6.16	6.2	6.21	13
Result:					Pass

FCC §2.1049, §22.905, §90.209: 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	1.096	1.096	1.102	1.296	1.308	1.29
1.4MHz 16QAM	1.096	1.096	1.096	1.32	1.284	1.29
3MHz QPSK	2.671	2.683	2.683	2.868	2.856	2.88
3MHz 16QAM	2.671	2.683	2.671	2.88	2.88	2.868
5MHz QPSK	4.491	4.491	4.471	4.94	4.96	4.92
5MHz 16QAM	4.471	4.491	4.491	4.9	4.96	4.94
10MHz QPSK	8.982	8.902	8.942	9.64	9.64	9.56
10MHz 16QAM	8.942	8.942	8.942	9.56	9.56	9.56
15MHz QPSK	13.593	13.413	13.473	14.7	14.64	14.76
15MHz 16QAM	13.533	13.413	13.533	14.58	14.52	14.7

Note: The test plots please refer to the Plots of Occupied Bandwidth

FCC §2.1051, §22.917(a), §90.543: Spurious Emissions at Antenna Terminal	
Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.

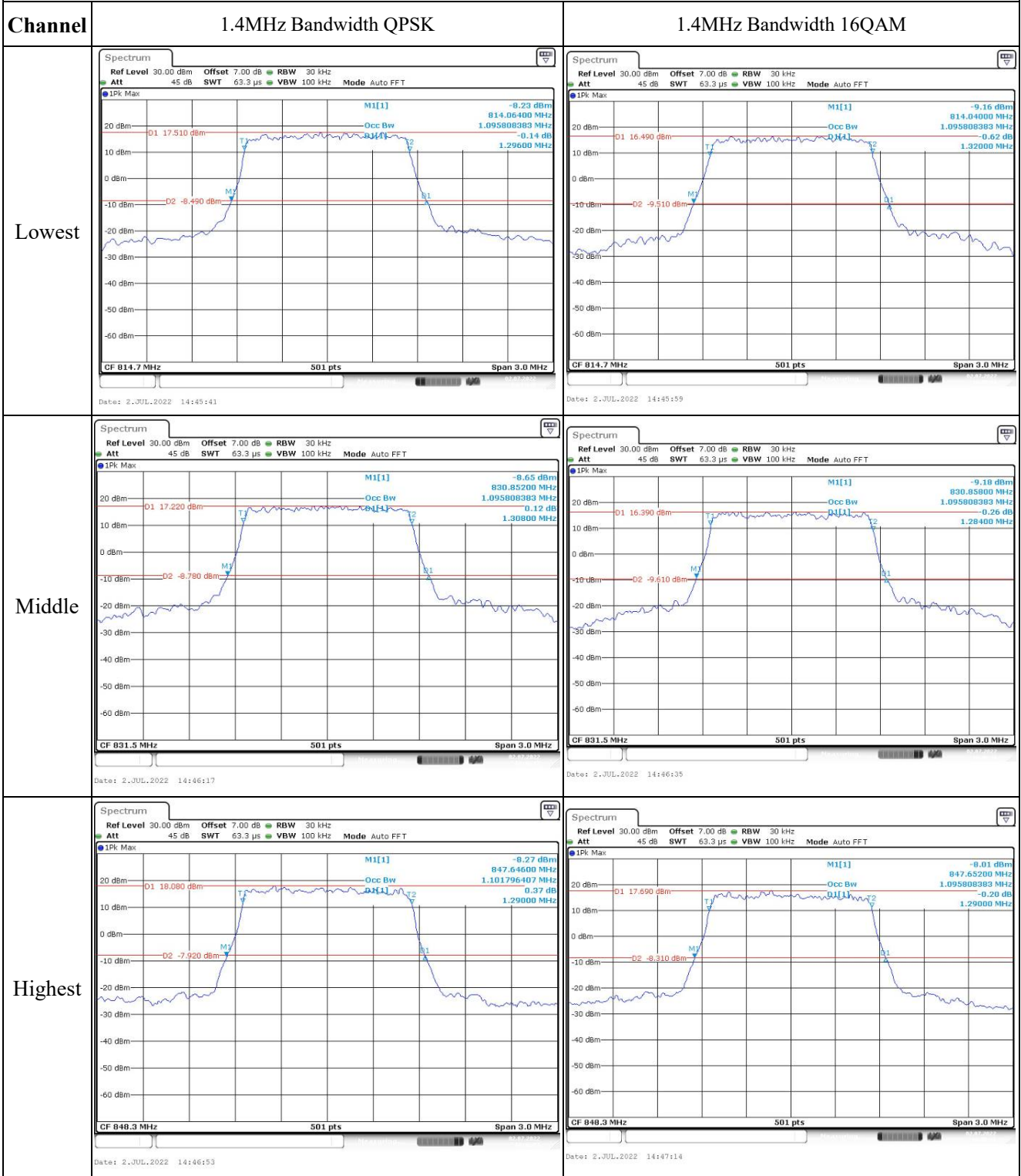
FCC §2.1051, §22.917(a), §90.543: Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

FCC §2.1055, §22.355, §90.213: Frequency Stability					
Test Mode:	15 MHz QPSK		Test Channel:	831.5	MHz
Test Item	Temperature(°C)	Voltage(V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.8	12	0.014	2.5
	-20	3.8	16	0.019	2.5
	-10	3.8	17	0.020	2.5
	0	3.8	15	0.018	2.5
	10	3.8	16	0.019	2.5
	20	3.8	17	0.020	2.5
	30	3.8	15	0.018	2.5
	40	3.8	10	0.012	2.5
	50	3.8	11	0.013	2.5
Frequency Stability vs. Voltage	20	3.42	15	0.018	2.5
	20	4.18	19	0.023	2.5
Result:				Pass	

Test Mode:	15 MHz 16QAM		Test Channel:	831.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.8	11	0.013	2.5
	-20	3.8	15	0.018	2.5
	-10	3.8	12	0.014	2.5
	0	3.8	20	0.024	2.5
	10	3.8	10	0.012	2.5
	20	3.8	19	0.023	2.5
	30	3.8	19	0.023	2.5
	40	3.8	14	0.017	2.5
	50	3.8	15	0.018	2.5
Frequency Stability vs. Voltage	20	3.42	10	0.012	2.5
	20	4.18	12	0.014	2.5
				Result:	Pass

Test Plots:

Occupied Bandwidth



Occupied Bandwidth

Channel	3MHz Bandwidth QPSK	3MHz Bandwidth 16QAM
Lowest	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 30 kHz Att 45 dB SWT 63.2 μs VBW 100 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -9.51 dBm 814.0720 MHz Occ Bw 2.670658683 MHz D1[1] -1.52 dB 2.8800 MHz</p> <p>D1 15.910 dBm D2 -10.190 dBm</p> <p>CF 815.5 MHz 501 pts Span 6.0 MHz</p> <p>Date: 2.JUL.2022 14:47:36</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 30 kHz Att 45 dB SWT 63.2 μs VBW 100 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -11.27 dBm 814.0720 MHz Occ Bw 2.670658683 MHz D1[1] -1.03 dB 2.8800 MHz</p> <p>D1 13.960 dBm D2 -12.040 dBm</p> <p>CF 815.5 MHz 501 pts Span 6.0 MHz</p> <p>Date: 2.JUL.2022 14:47:53</p>
Middle	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 30 kHz Att 45 dB SWT 63.2 μs VBW 100 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -9.96 dBm 830.0720 MHz Occ Bw 2.682634731 MHz D1[1] 0.13 dB 2.8850 MHz</p> <p>D1 15.290 dBm D2 -10.710 dBm</p> <p>CF 831.5 MHz 501 pts Span 6.0 MHz</p> <p>Date: 2.JUL.2022 14:48:09</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 30 kHz Att 45 dB SWT 63.2 μs VBW 100 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -12.07 dBm 830.0600 MHz Occ Bw 2.682634731 MHz D1[1] 0.21 dB 2.8800 MHz</p> <p>D1 14.000 dBm D2 -12.000 dBm</p> <p>CF 831.5 MHz 501 pts Span 6.0 MHz</p> <p>Date: 2.JUL.2022 14:48:26</p>
Highest	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 30 kHz Att 45 dB SWT 63.2 μs VBW 100 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -11.19 dBm 846.0480 MHz Occ Bw 2.682634731 MHz D1[1] 0.44 dB 2.8800 MHz</p> <p>D1 14.420 dBm D2 -11.580 dBm</p> <p>CF 847.5 MHz 501 pts Span 6.0 MHz</p> <p>Date: 2.JUL.2022 14:48:44</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 30 kHz Att 45 dB SWT 63.2 μs VBW 100 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -10.68 dBm 846.0600 MHz Occ Bw 2.670658683 MHz D1[1] -1.25 dB 2.8800 MHz</p> <p>D1 14.740 dBm D2 -11.260 dBm</p> <p>CF 847.5 MHz 501 pts Span 6.0 MHz</p> <p>Date: 2.JUL.2022 14:49:02</p>

Occupied Bandwidth

Channel	5MHz Bandwidth QPSK	5MHz Bandwidth 16QAM
Lowest	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -8.63 dBm 814.0200 MHz 4.491017964 MHz -0.59 dB 4.9400 MHz</p> <p>O1 17.400 dBm O2 -8.600 dBm</p> <p>Occ Bw</p> <p>CF 816.5 MHz 501 pts Span 10.0 MHz</p> <p>Date: 2.JUL.2022 14:49:24</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -7.86 dBm 814.0400 MHz 4.471057864 MHz -0.29 dB 4.9000 MHz</p> <p>O1 17.410 dBm O2 -8.590 dBm</p> <p>Occ Bw</p> <p>CF 816.5 MHz 501 pts Span 10.0 MHz</p> <p>Date: 2.JUL.2022 14:49:45</p>
Middle	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -8.75 dBm 829.0400 MHz 4.491017964 MHz -0.55 dB 4.9600 MHz</p> <p>O1 17.300 dBm O2 -8.700 dBm</p> <p>Occ Bw</p> <p>CF 831.5 MHz 501 pts Span 10.0 MHz</p> <p>Date: 2.JUL.2022 14:50:06</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -9.60 dBm 829.0400 MHz 4.491017964 MHz -0.84 dB 4.9600 MHz</p> <p>O1 15.930 dBm O2 -10.070 dBm</p> <p>Occ Bw</p> <p>CF 831.5 MHz 501 pts Span 10.0 MHz</p> <p>Date: 2.JUL.2022 14:50:24</p>
Highest	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -7.11 dBm 844.0400 MHz 4.471057864 MHz -0.69 dB 4.9200 MHz</p> <p>O1 18.250 dBm O2 -7.750 dBm</p> <p>Occ Bw</p> <p>CF 846.5 MHz 501 pts Span 10.0 MHz</p> <p>Date: 2.JUL.2022 14:50:45</p>	<p>Ref Level 30.00 dBm Offset 7.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>M1[1] -9.20 dBm 844.0200 MHz 4.491017964 MHz -0.41 dB 4.9400 MHz</p> <p>O1 16.580 dBm O2 -9.420 dBm</p> <p>Occ Bw</p> <p>CF 846.5 MHz 501 pts Span 10.0 MHz</p> <p>Date: 2.JUL.2022 14:51:06</p>