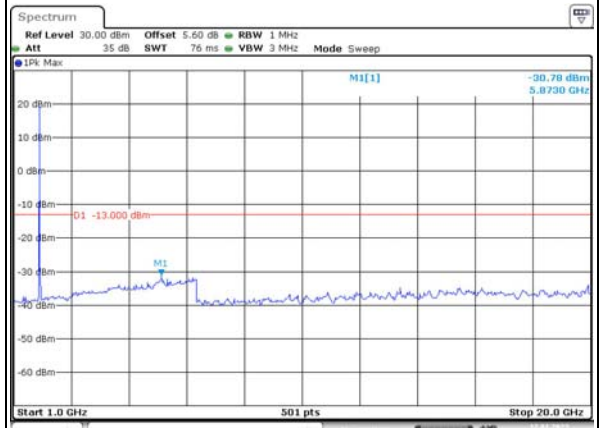
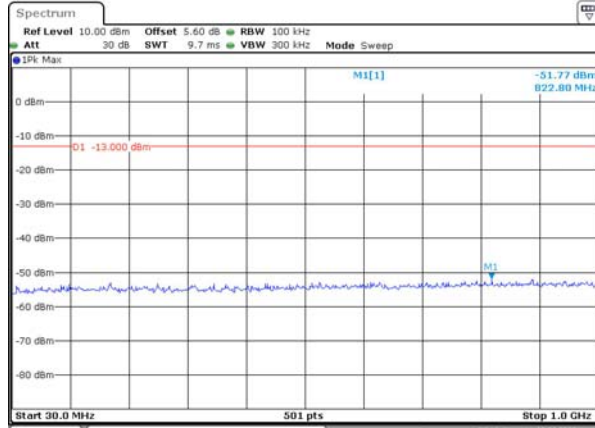


Spurious Emissions at Antenna Terminal

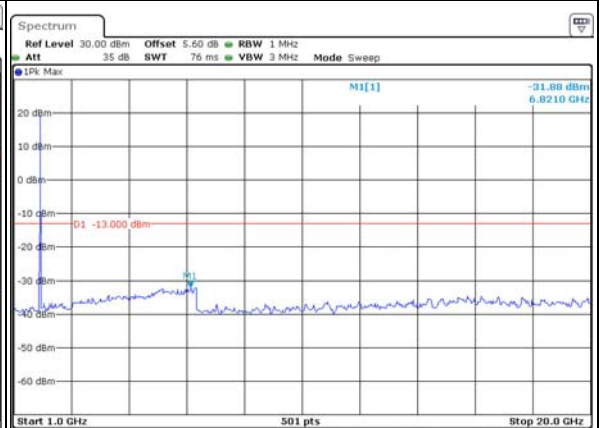
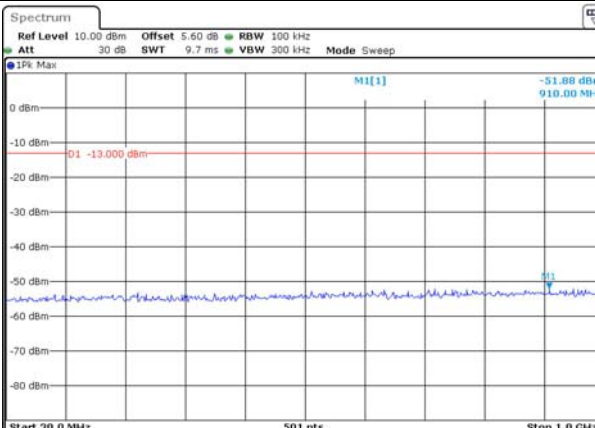
Channel

10MHz Bandwidth QPSK

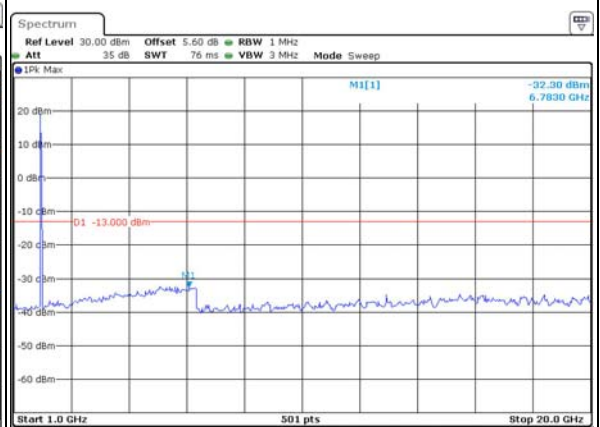
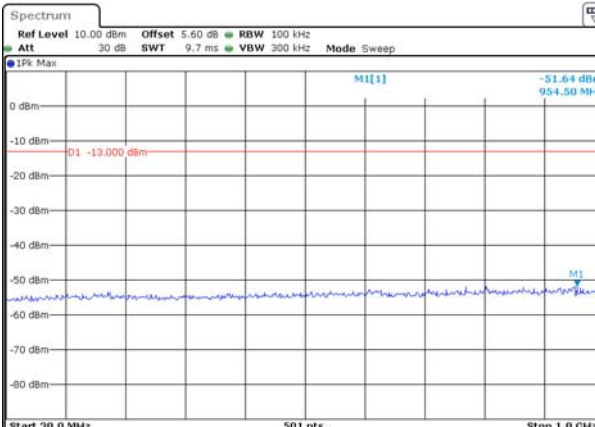
Lowest



Middle



Highest

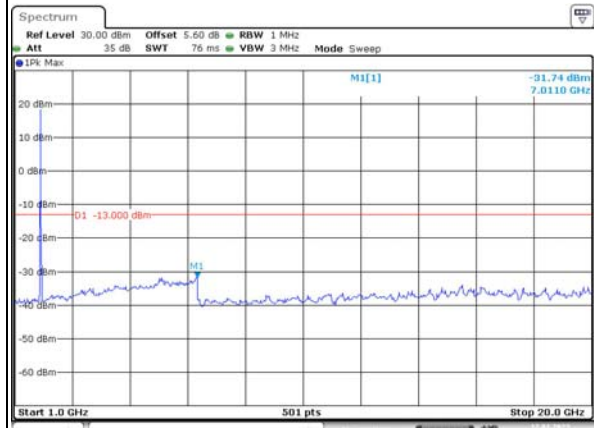
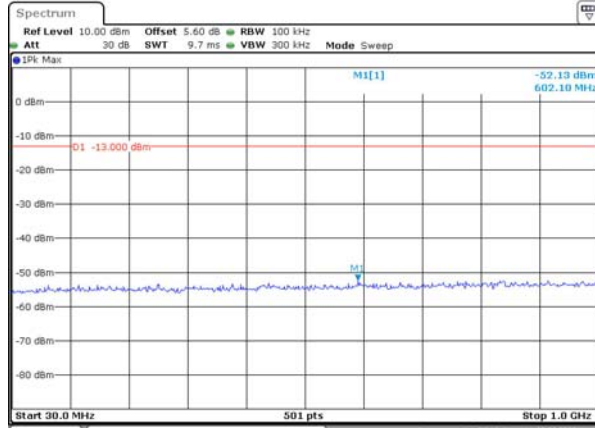


Spurious Emissions at Antenna Terminal

Channel

15MHz Bandwidth QPSK

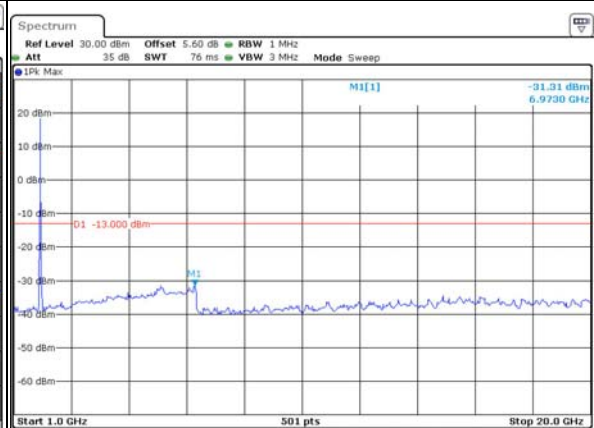
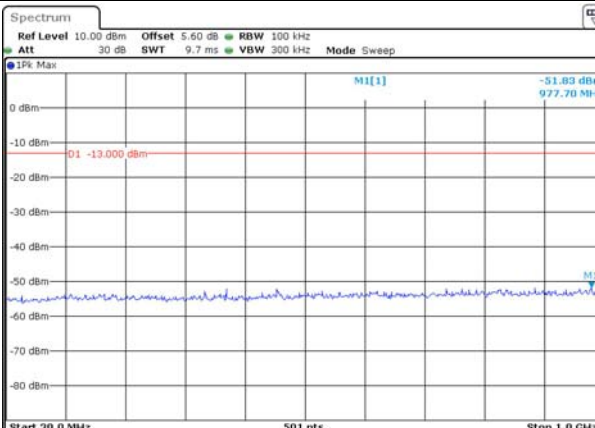
Lowest



Date: 12_JAN_2023 16:58:48

Date: 12_JAN_2023 16:59:18

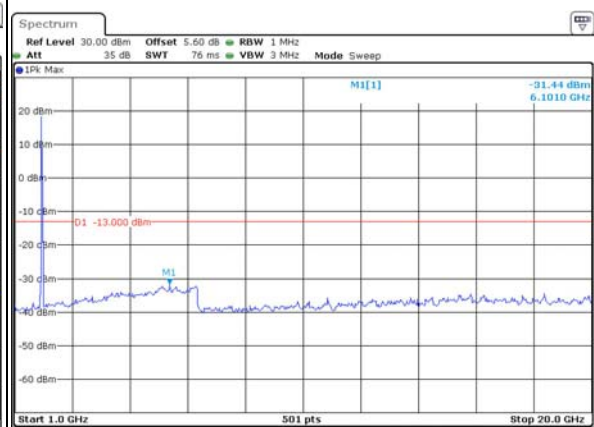
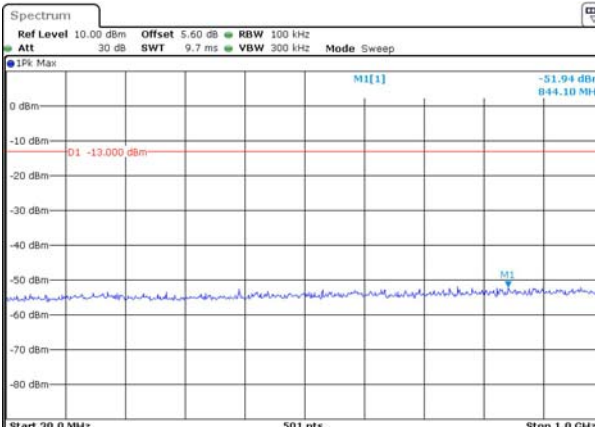
Middle



Date: 12_JAN_2023 16:59:51

Date: 12_JAN_2023 17:00:21

Highest



Date: 12_JAN_2023 17:00:47

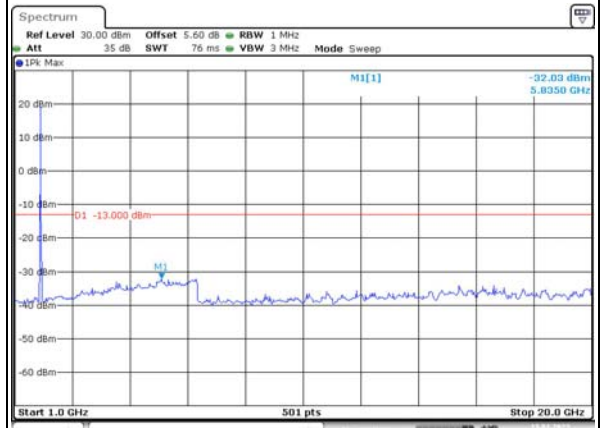
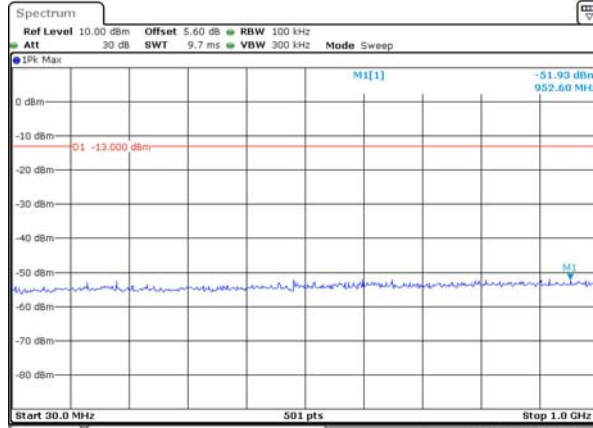
Date: 12_JAN_2023 17:01:17

Spurious Emissions at Antenna Terminal

Channel

20MHz Bandwidth QPSK

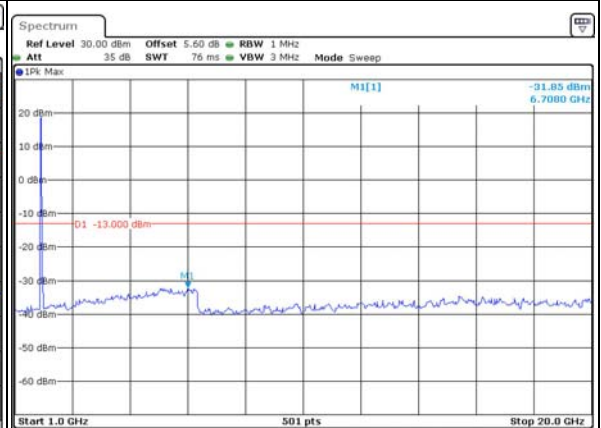
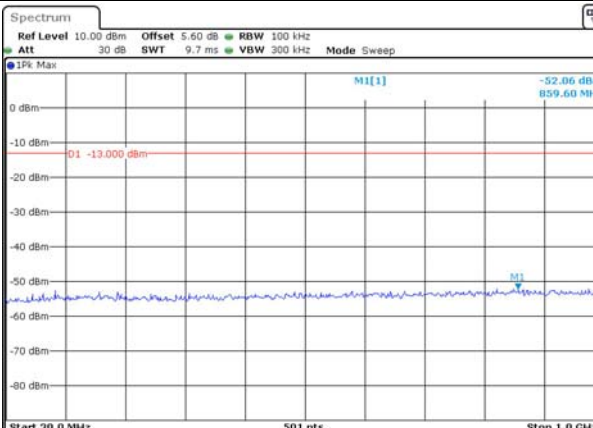
Lowest



Date: 13_JAN_2023 08:47:50

Date: 13_JAN_2023 08:48:16

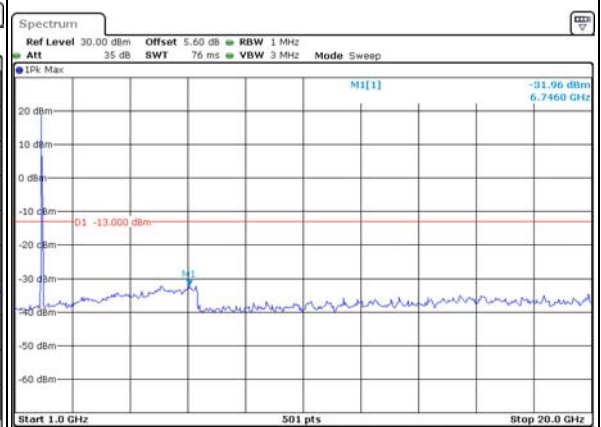
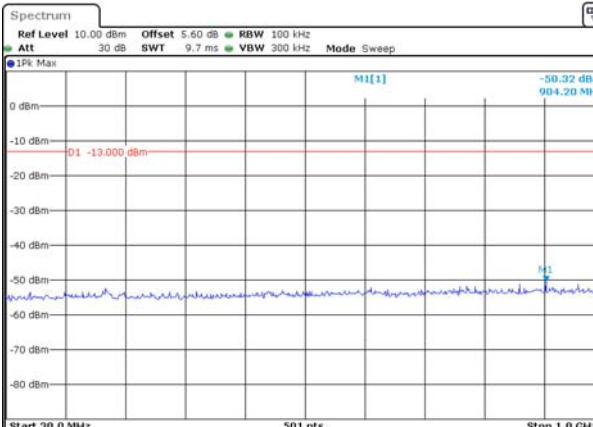
Middle



Date: 13_JAN_2023 08:48:48

Date: 13_JAN_2023 08:49:18

Highest



Date: 13_JAN_2023 08:49:58

Date: 13_JAN_2023 08:50:20

Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 1.4MHz		
QPSK 3MHz		
QPSK 5MHz		

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>Ref Level 30.00 dBm Offset 5.60 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr MI[1] -20.81 dBm 1.84998000 GHz -13.000 dBm CF 1.85 GHz 501 pts Span 3.0 MHz Date: 13.JAN.2023 10:45:32</p>	<p>Ref Level 30.00 dBm Offset 5.60 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr MI[1] -26.99 dBm 1.91001200 GHz -13.000 dBm CF 1.91 GHz 501 pts Span 3.0 MHz Date: 13.JAN.2023 10:45:45</p>
16QAM 3MHz	<p>Ref Level 30.00 dBm Offset 5.60 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr MI[1] -25.58 dBm 1.85000000 GHz -13.000 dBm CF 1.85 GHz 501 pts Span 6.0 MHz Date: 13.JAN.2023 10:46:01</p>	<p>Ref Level 30.00 dBm Offset 5.60 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr MI[1] -26.78 dBm 1.91000000 GHz -13.000 dBm CF 1.91 GHz 501 pts Span 6.0 MHz Date: 13.JAN.2023 10:46:14</p>
16QAM 5MHz	<p>Ref Level 30.00 dBm Offset 5.60 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr MI[1] -27.14 dBm 1.85000000 GHz -13.000 dBm CF 1.85 GHz 501 pts Span 10.0 MHz Date: 13.JAN.2023 10:46:30</p>	<p>Ref Level 30.00 dBm Offset 5.60 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr MI[1] -26.70 dBm 1.91000000 GHz -13.000 dBm CF 1.91 GHz 501 pts Span 10.0 MHz Date: 13.JAN.2023 10:46:44</p>

Out of band emission, Band Edge

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

4.7 Antenna Port Test Data and Results for LTE Band 4

Serial Number:	1WTO-1	Test Date:	2023/1/12~2023/1/17
Test Site:	RF	Test Mode:	Transmitting
Tester:	George Chen	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	18.2~25.2	Relative Humidity: (%)	46~65	ATM Pressure: (kPa)	100.5~102.6
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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	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Power Splitter	1515	RA914	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2022-04-06	2023-04-05
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2022-09-29	2023-09-28
UNI-T	Multimeter	UT39A+	C210582554	N/A	N/A
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	2022-07-15	2023-07-14

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	1710.7	1732.5	1754.3
3MHz	1711.5	1732.5	1753.5
5MHz	1712.5	1732.5	1752.5
10MHz	1715	1732.5	1750
15MHz	1717.5	1732.5	1747.5
20MHz	1720	1732.5	1745

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	23.06	23.2	23.59	23.69	30
	RB1#3	23	23.21	23.51		
	RB1#5	23.13	23.15	23.57		
	RB3#0	23.21	23.22	23.41		
	RB3#3	23.21	23.23	23.41		
	RB6#0	22.05	22.26	22.28		
1.4MHz 16QAM	RB1#0	21.91	22.96	22.45	23.09	30
	RB1#3	21.91	22.99	22.5		
	RB1#5	21.94	22.94	22.45		
	RB3#0	22.24	22.32	22.42		
	RB3#3	22.2	22.39	22.41		
	RB6#0	21.4	21.56	21.68		
3MHz QPSK	RB1#0	23.02	23.18	23.15	23.3	30
	RB1#8	23.1	23.16	23.15		
	RB1#14	23.08	23.2	23.19		
	RB6#0	22.16	22.21	22.25		
	RB6#9	22.14	22.31	22.28		
	RB15#0	21.98	22.28	22.34		
3MHz 16QAM	RB1#0	22.76	22.06	22.46	23	30
	RB1#8	22.83	22.02	22.47		
	RB1#14	22.9	22.11	22.46		
	RB6#0	21.23	21.56	21.45		
	RB6#9	21.39	21.59	21.45		
	RB15#0	21.18	21.37	21.43		
5MHz QPSK	RB1#0	23.18	23.17	23.24	23.44	30
	RB1#13	23.15	23.15	23.34		
	RB1#24	23.33	23.19	23.34		
	RB15#0	22.01	22.23	22.32		
	RB15#10	22.18	22.33	22.41		
	RB25#0	22.17	22.14	22.33		
5MHz 16QAM	RB1#0	22.24	21.96	21.62	22.55	30
	RB1#13	22.38	21.97	21.66		
	RB1#24	22.45	21.99	21.65		
	RB15#0	21.15	21.41	21.42		
	RB15#10	21.12	21.39	21.49		
	RB25#0	21.25	21.28	21.57		
10MHz QPSK	RB1#0	23.11	23.2	23.23	23.48	30

	RB1#25	23.14	23.17	23.38		
	RB1#49	23.26	23.27	23.3		
	RB25#0	22.06	22.17	22.34		
	RB25#25	22.18	22.23	22.27		
	RB50#0	22.23	22.18	22.4		
10MHz 16QAM	RB1#0	22.24	21.72	22.55	22.85	30
	RB1#25	22.37	21.81	22.75		
	RB1#49	22.33	21.78	22.66		
	RB25#0	21.32	21.47	21.39		
	RB25#25	21.4	21.51	21.41		
	RB50#0	21.34	21.34	21.64		
15MHz QPSK	RB1#0	23.06	23.12	23.18	23.41	30
	RB1#38	23.16	23.17	23.24		
	RB1#74	23.29	23.23	23.31		
	RB36#0	22.09	22.1	22.23		
	RB36#39	22.2	22.19	22.27		
	RB75#0	22.2	22.31	22.21		
15MHz 16QAM	RB1#0	22.18	22.66	22.61	22.85	30
	RB1#38	22.29	22.7	22.63		
	RB1#74	22.38	22.75	22.67		
	RB36#0	21.28	21.36	21.45		
	RB36#39	21.34	21.42	21.46		
	RB75#0	21.28	21.32	21.55		
20MHz QPSK	RB1#0	23.16	23.19	23.3	23.55	30
	RB1#50	23.33	23.2	23.38		
	RB1#99	23.28	23.29	23.45		
	RB50#0	22.17	22.26	22.19		
	RB50#50	22.19	22.2	22.39		
	RB100#0	22.05	22.23	22.29		
20MHz 16QAM	RB1#0	22.09	22.88	21.83	23.1	30
	RB1#50	22.19	22.94	21.95		
	RB1#99	22.35	23	22.03		
	RB50#0	21.25	21.32	21.4		
	RB50#50	21.37	21.36	21.6		
	RB100#0	21.14	21.43	21.36		

Note: EIRP=Conducted Power(dBm) - Lc(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	5.13	4.26	13
	RB100#0	4.06	4.03	3.62	13
20MHz 16QAM	RB1#0	4.67	6.12	5.22	13
	RB100#0	5.71	5.65	5.25	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	1.266	1.254	1.26
1.4MHz 16QAM	1.09	1.102	1.114	1.254	1.26	1.284
3MHz QPSK	2.695	2.695	2.695	3.012	3.012	3.024
3MHz 16QAM	2.695	2.695	2.695	3	3.024	3.024
5MHz QPSK	4.511	4.511	4.531	5	5	5
5MHz 16QAM	4.531	4.531	4.511	5.02	5	5
10MHz QPSK	8.942	8.982	8.982	9.8	9.8	9.84
10MHz 16QAM	8.982	8.942	8.982	9.8	9.8	9.76
15MHz QPSK	13.473	13.533	13.533	15	15.12	15.12
15MHz 16QAM	13.533	13.533	13.533	15.12	15.06	15.06
20MHz QPSK	17.964	18.044	17.964	19.6	19.84	19.6
20MHz 16QAM	17.964	18.044	18.044	19.84	19.76	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.

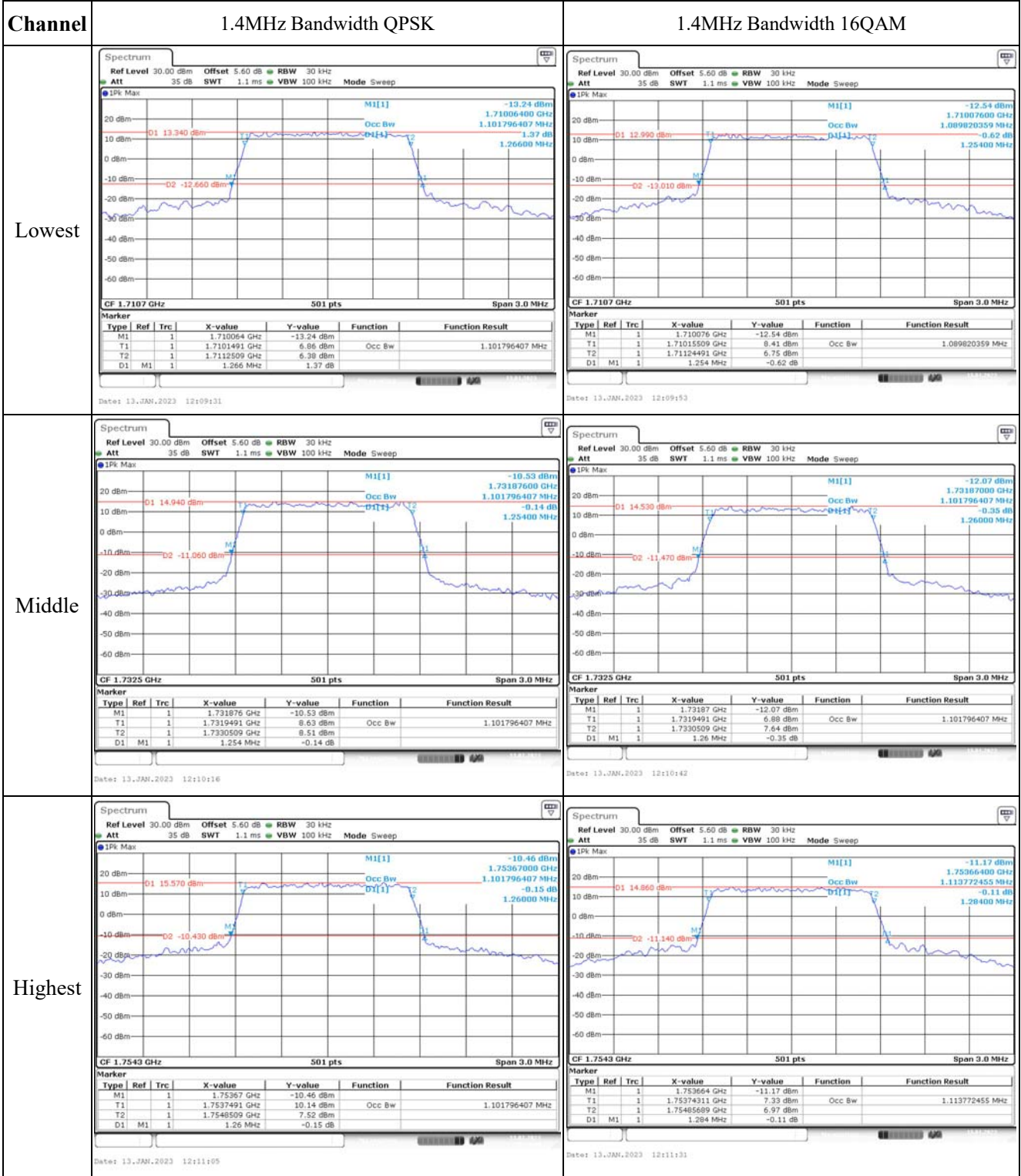
FCC §2.1051, § 27.53:Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

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	3.8	1711.016	1710.00	1754.063	1755
	-20	3.8	1711.052	1710.00	1754.034	1755
	-10	3.8	1711.079	1710.00	1754.046	1755
	0	3.8	1711.081	1710.00	1754.067	1755
	10	3.8	1711.042	1710.00	1754.035	1755
	20	3.8	1711.058	1710.00	1754.022	1755
	30	3.8	1711.062	1710.00	1754.071	1755
	40	3.8	1711.013	1710.00	1754.015	1755
	50	3.8	1711.025	1710.00	1754.034	1755
Frequency Stability vs. Voltage	20	3.6	1711.028	1710.00	1754.062	1755
	20	4.35	1711.060	1710.00	1754.059	1755
					Result:	Pass

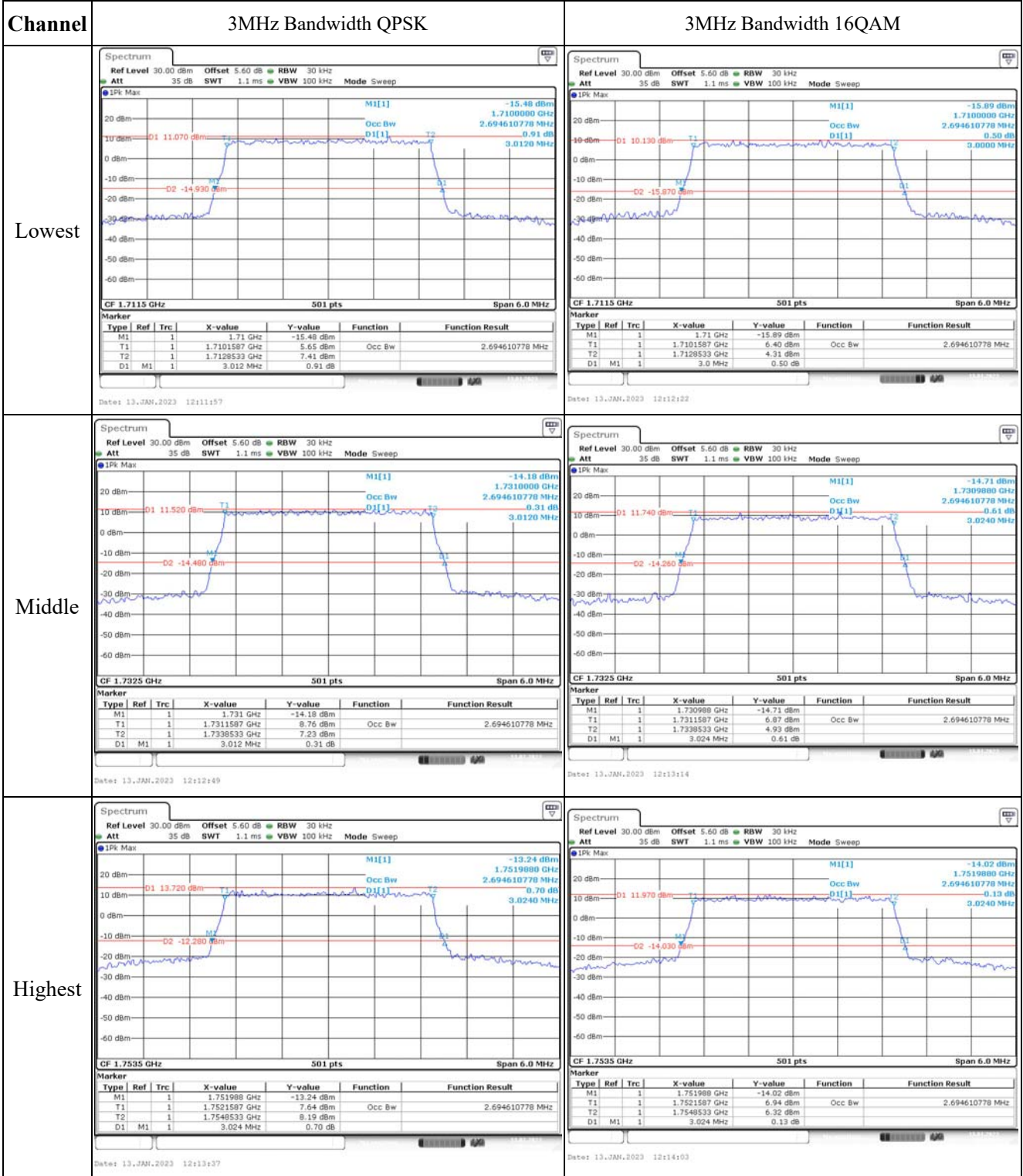
Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{dc})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	1711.018	1710.00	1754.102	1755
	-20	3.8	1711.015	1710.00	1754.062	1755
	-10	3.8	1711.002	1710.00	1754.134	1755
	0	3.8	1711.074	1710.00	1754.105	1755
	10	3.8	1711.094	1710.00	1754.052	1755
	20	3.8	1711.058	1710.00	1754.102	1755
	30	3.8	1711.080	1710.00	1754.099	1755
	40	3.8	1711.031	1710.00	1754.116	1755
	50	3.8	1711.049	1710.00	1754.067	1755
Frequency Stability vs. Voltage	20	3.6	1711.027	1710.00	1754.132	1755
	20	4.35	1711.044	1710.00	1754.140	1755
					Result:	Pass

Test Plots(Note: The 5.6dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):

Occupied Bandwidth



Occupied Bandwidth



Occupied Bandwidth

Channel	5MHz Bandwidth QPSK	5MHz Bandwidth 16QAM																																																																						
Lowest	<table border="1"> <thead> <tr> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td>1.71 GHz</td> <td>-12.77 dBm</td> <td></td> <td></td> </tr> <tr> <td>T1</td> <td>1</td> <td></td> <td>1.7102445 GHz</td> <td>8.45 dBm</td> <td>Occ Bw</td> <td>4.510978044 MHz</td> </tr> <tr> <td>T2</td> <td>1</td> <td></td> <td>1.7147555 GHz</td> <td>8.89 dBm</td> <td></td> <td></td> </tr> <tr> <td>D1</td> <td>M1</td> <td>1</td> <td>5.0 MHz</td> <td>1.34 dB</td> <td></td> <td></td> </tr> </tbody> </table>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		1.71 GHz	-12.77 dBm			T1	1		1.7102445 GHz	8.45 dBm	Occ Bw	4.510978044 MHz	T2	1		1.7147555 GHz	8.89 dBm			D1	M1	1	5.0 MHz	1.34 dB			<table border="1"> <thead> <tr> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td>1.71 GHz</td> <td>-14.12 dBm</td> <td></td> <td></td> </tr> <tr> <td>T1</td> <td>1</td> <td></td> <td>1.7102445 GHz</td> <td>7.39 dBm</td> <td>Occ Bw</td> <td>4.530938124 MHz</td> </tr> <tr> <td>T2</td> <td>1</td> <td></td> <td>1.7147555 GHz</td> <td>7.07 dBm</td> <td></td> <td></td> </tr> <tr> <td>D1</td> <td>M1</td> <td>1</td> <td>5.0 MHz</td> <td>0.12 dB</td> <td></td> <td></td> </tr> </tbody> </table>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		1.71 GHz	-14.12 dBm			T1	1		1.7102445 GHz	7.39 dBm	Occ Bw	4.530938124 MHz	T2	1		1.7147555 GHz	7.07 dBm			D1	M1	1	5.0 MHz	0.12 dB		
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Middle	<table border="1"> <thead> <tr> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td>1.73 GHz</td> <td>-10.79 dBm</td> <td></td> <td></td> </tr> <tr> <td>T1</td> <td>1</td> <td></td> <td>1.7302445 GHz</td> <td>8.45 dBm</td> <td>Occ Bw</td> <td>4.510978044 MHz</td> </tr> <tr> <td>T2</td> <td>1</td> <td></td> <td>1.7347555 GHz</td> <td>10.54 dBm</td> <td></td> <td></td> </tr> <tr> <td>D1</td> <td>M1</td> <td>1</td> <td>5.0 MHz</td> <td>0.37 dB</td> <td></td> <td></td> </tr> </tbody> </table>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		1.73 GHz	-10.79 dBm			T1	1		1.7302445 GHz	8.45 dBm	Occ Bw	4.510978044 MHz	T2	1		1.7347555 GHz	10.54 dBm			D1	M1	1	5.0 MHz	0.37 dB			<table border="1"> <thead> <tr> <th>Type</th> <th>Ref</th> <th>Trc</th> <th>X-value</th> <th>Y-value</th> <th>Function</th> <th>Function Result</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td></td> <td>1.73 GHz</td> <td>-12.22 dBm</td> <td></td> <td></td> </tr> <tr> <td>T1</td> <td>1</td> <td></td> <td>1.7302445 GHz</td> <td>8.89 dBm</td> <td>Occ Bw</td> <td>4.530938124 MHz</td> </tr> <tr> <td>T2</td> <td>1</td> <td></td> <td>1.7347555 GHz</td> <td>8.19 dBm</td> <td></td> <td></td> </tr> <tr> <td>D1</td> <td>M1</td> <td>1</td> <td>5.0 MHz</td> <td>0.26 dB</td> <td></td> <td></td> </tr> </tbody> </table>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		1.73 GHz	-12.22 dBm			T1	1		1.7302445 GHz	8.89 dBm	Occ Bw	4.530938124 MHz	T2	1		1.7347555 GHz	8.19 dBm			D1	M1	1	5.0 MHz	0.26 dB		
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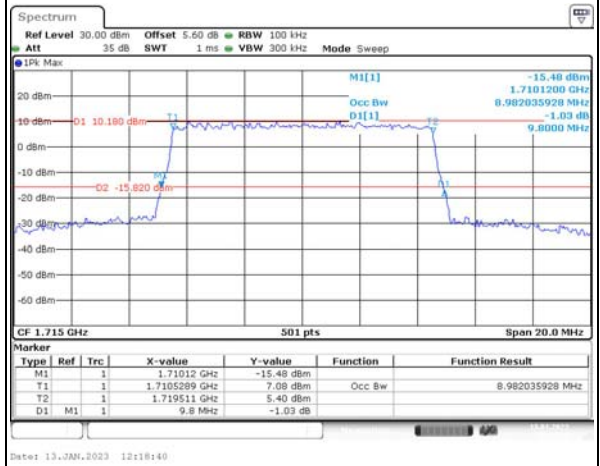
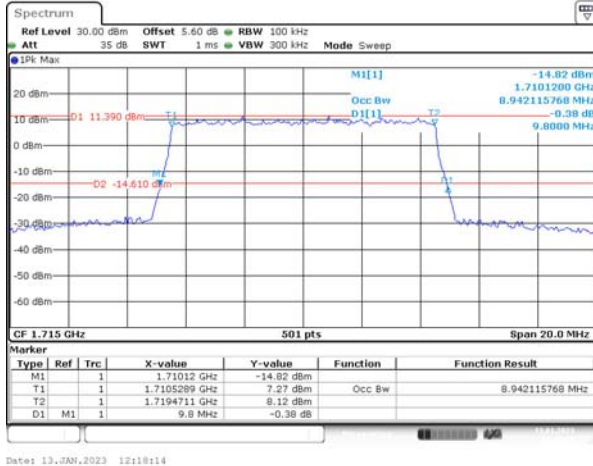
Occupied Bandwidth

Channel

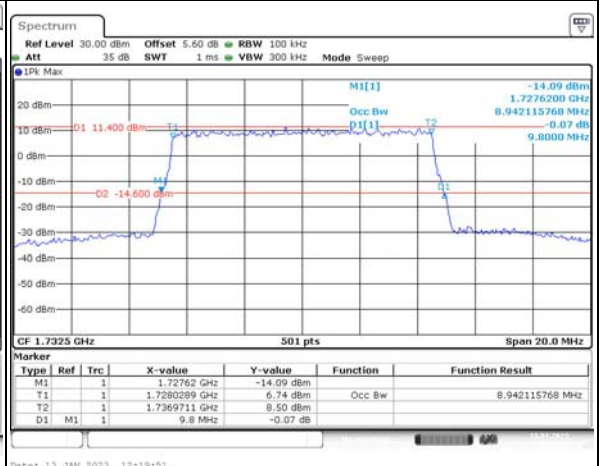
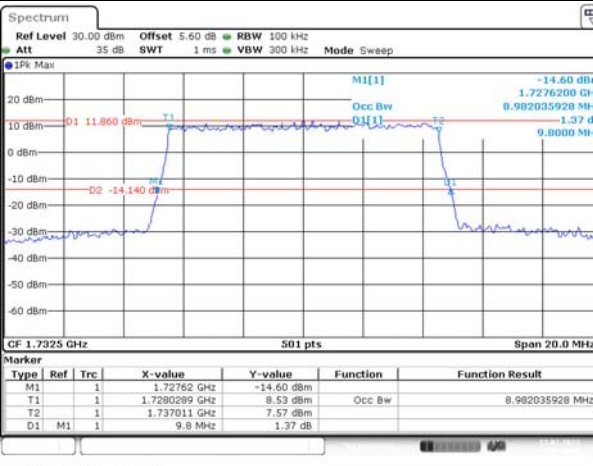
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

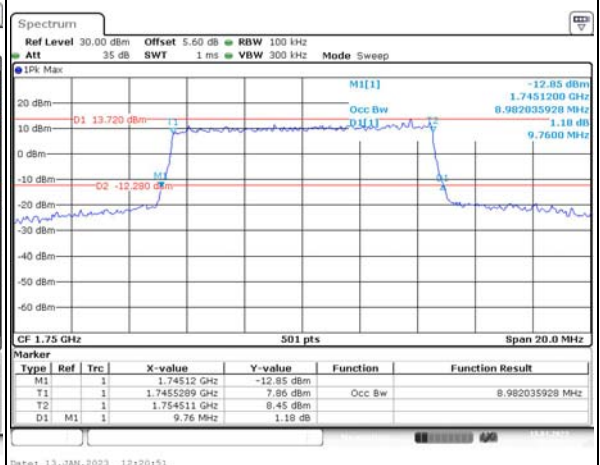
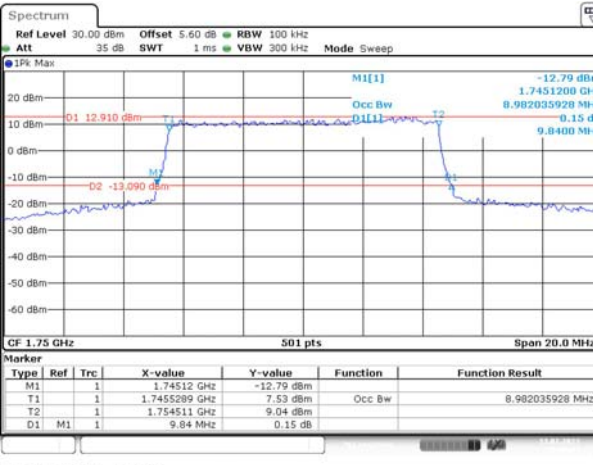
Lowest



Middle



Highest



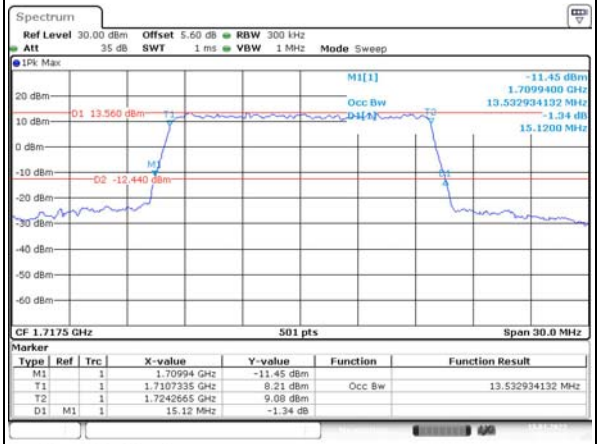
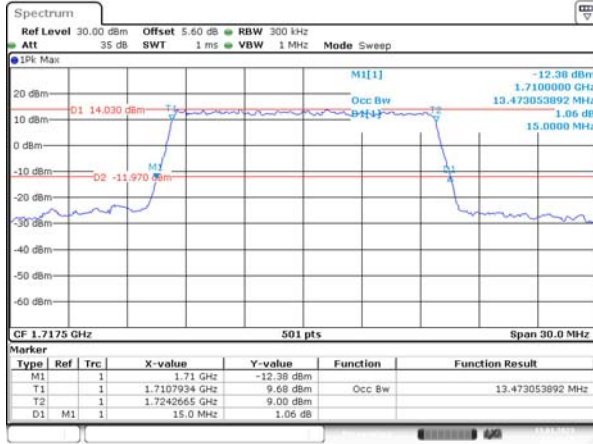
Occupied Bandwidth

Channel

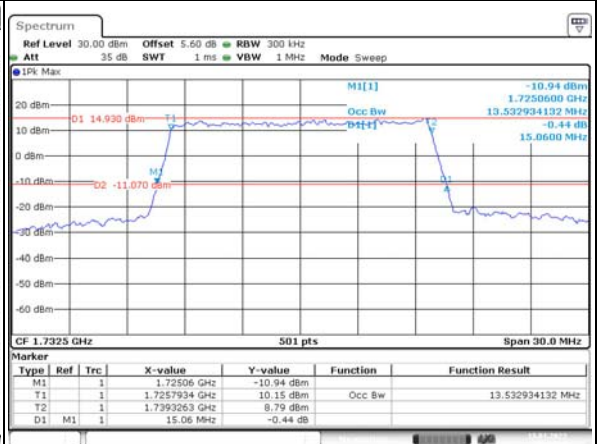
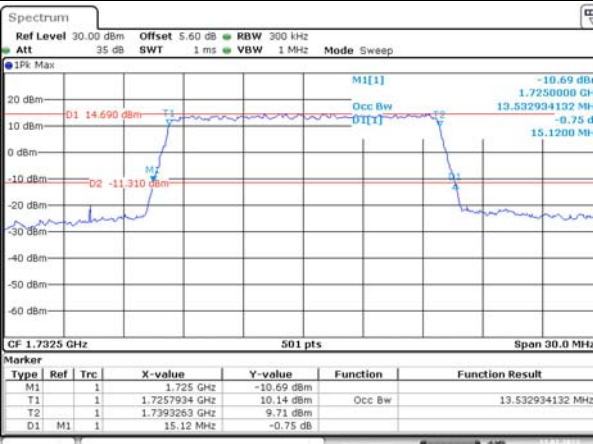
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

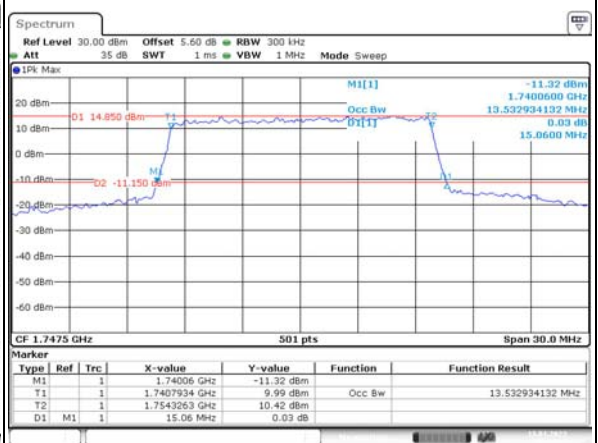
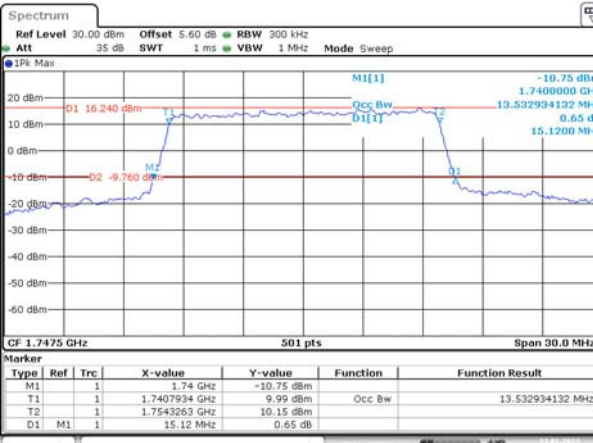
Lowest



Middle



Highest



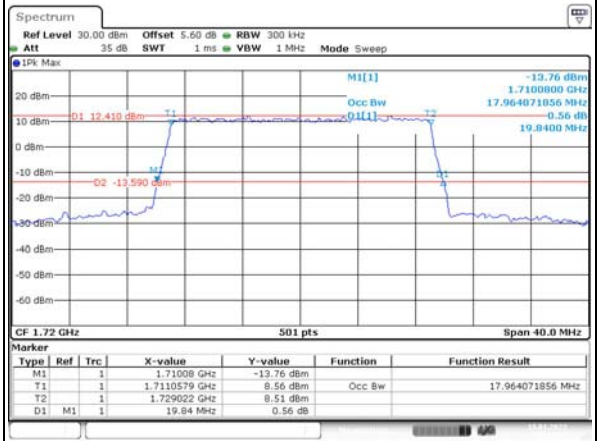
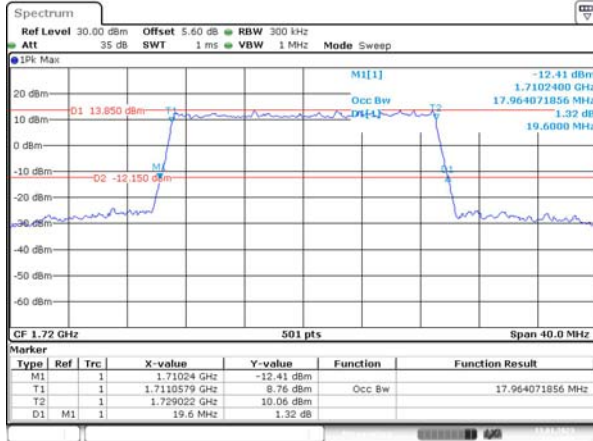
Occupied Bandwidth

Channel

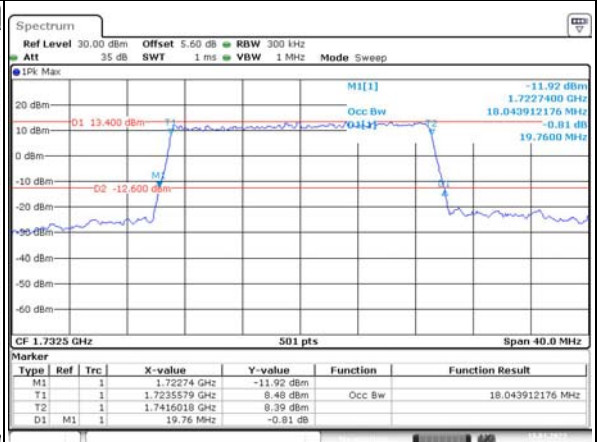
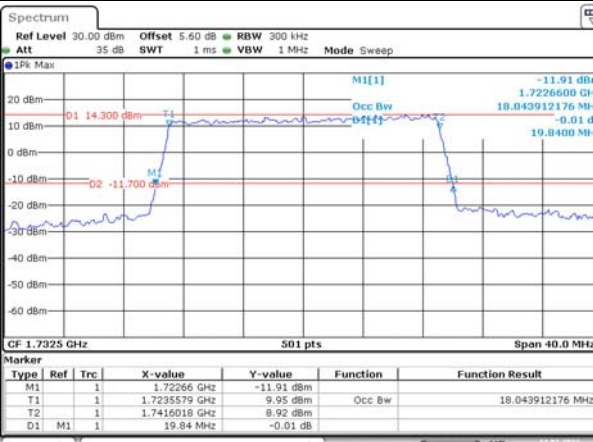
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

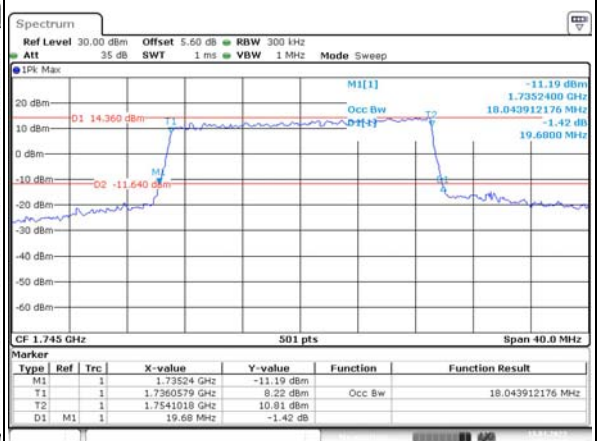
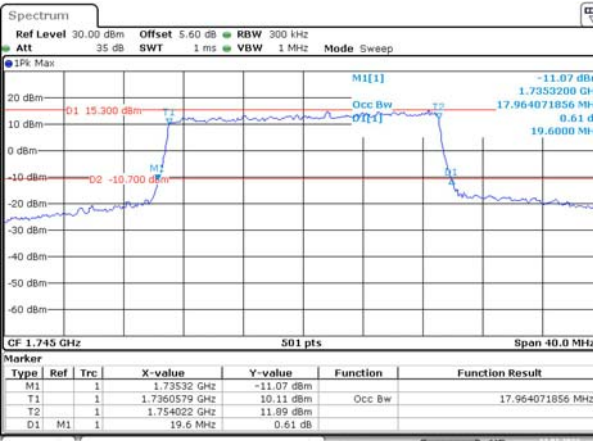
Lowest



Middle



Highest

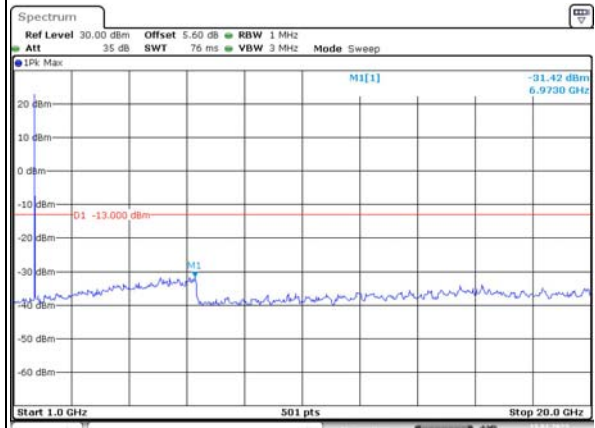
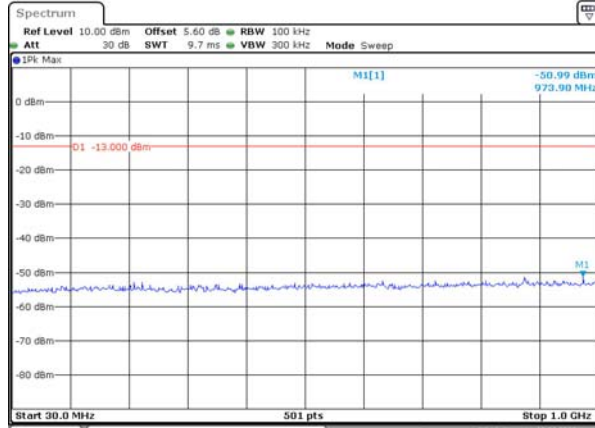


Spurious Emissions at Antenna Terminal

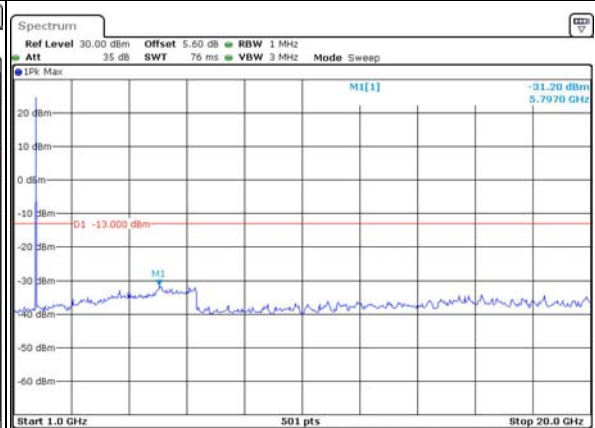
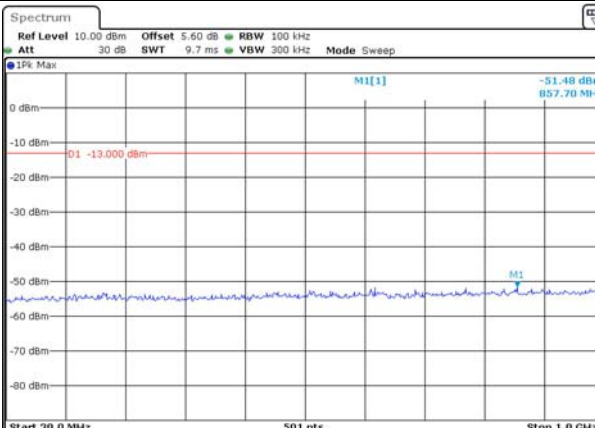
Channel

1.4MHz Bandwidth QPSK

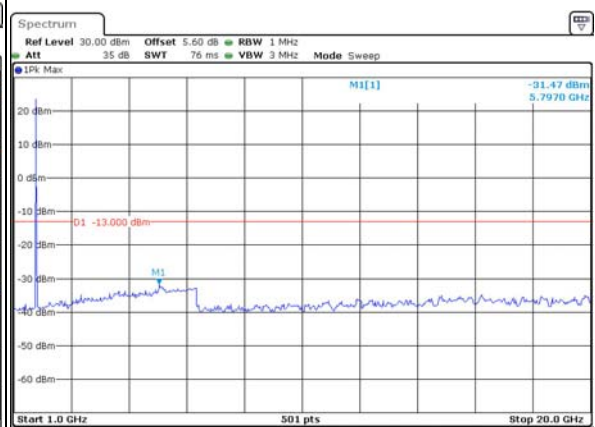
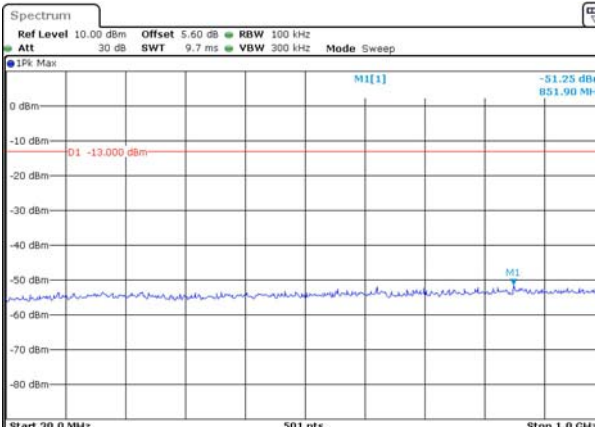
Lowest



Middle



Highest

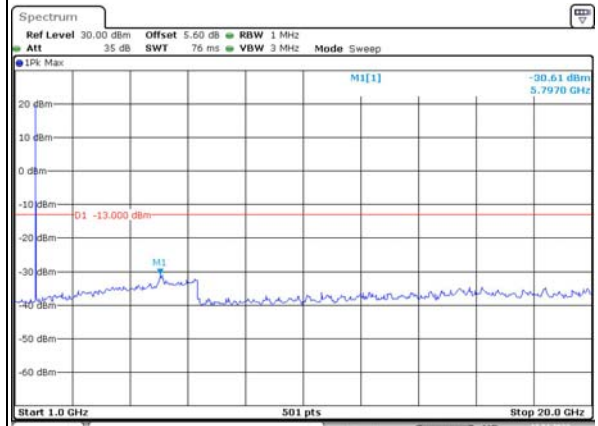
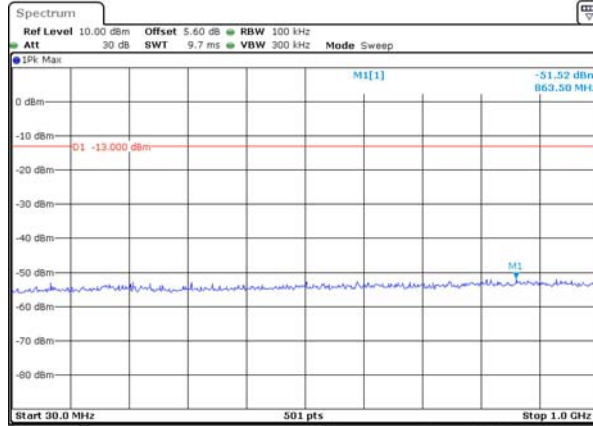


Spurious Emissions at Antenna Terminal

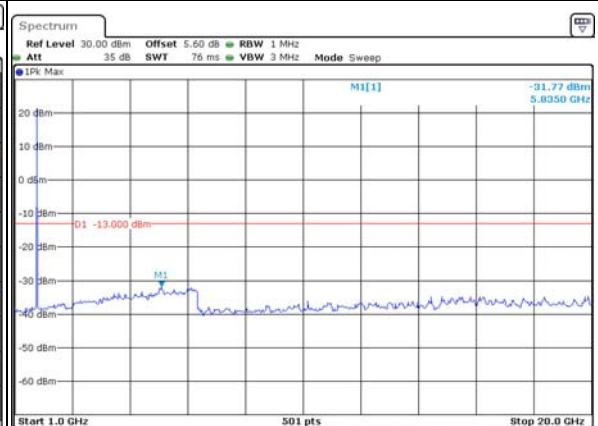
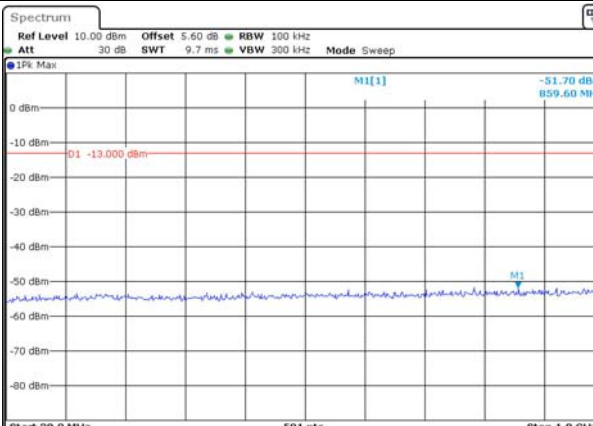
Channel

3MHz Bandwidth QPSK

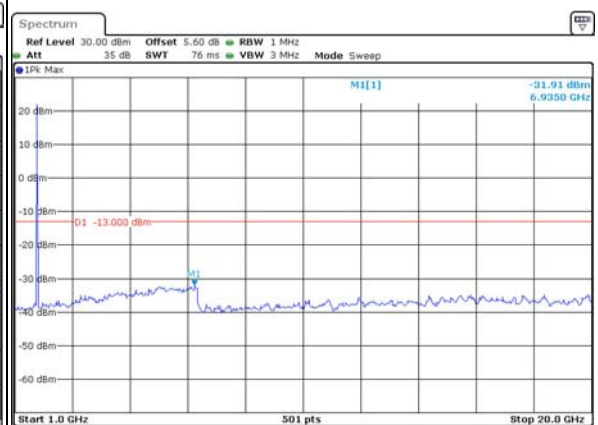
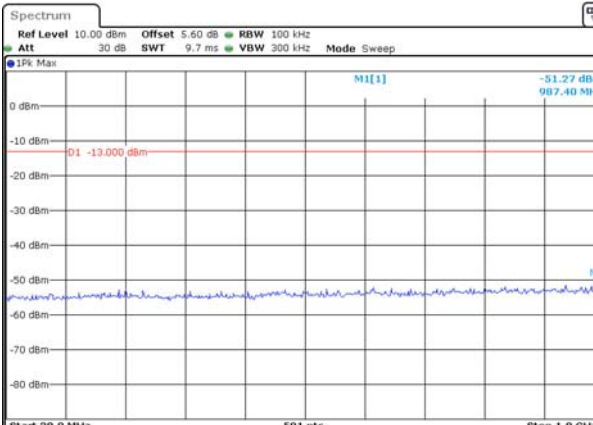
Lowest



Middle



Highest

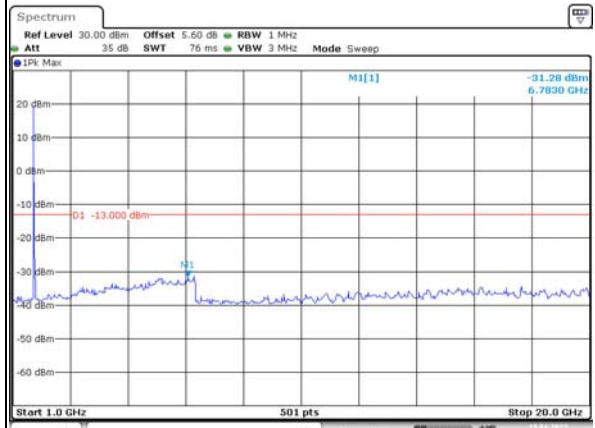
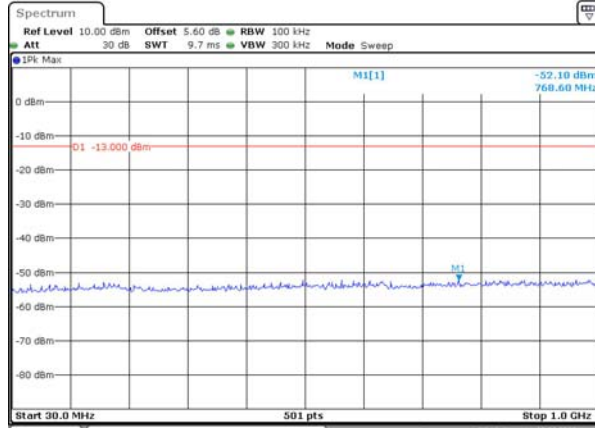


Spurious Emissions at Antenna Terminal

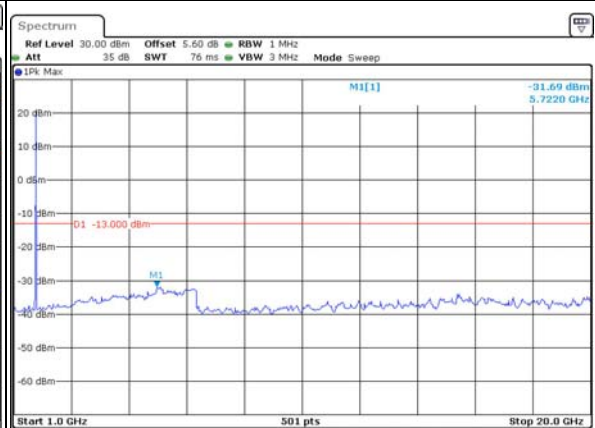
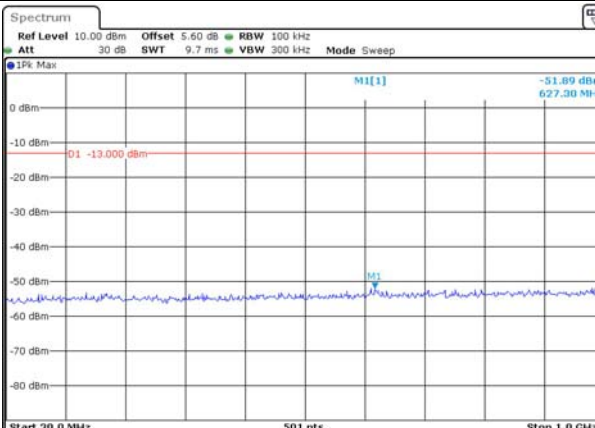
Channel

5MHz Bandwidth QPSK

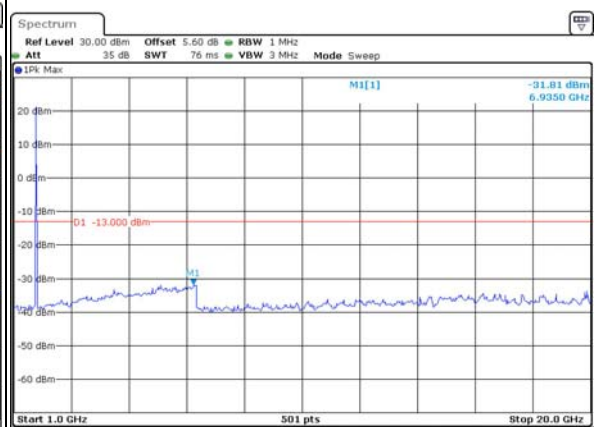
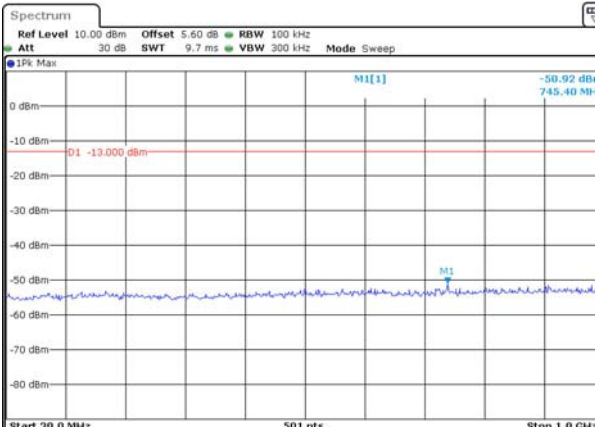
Lowest



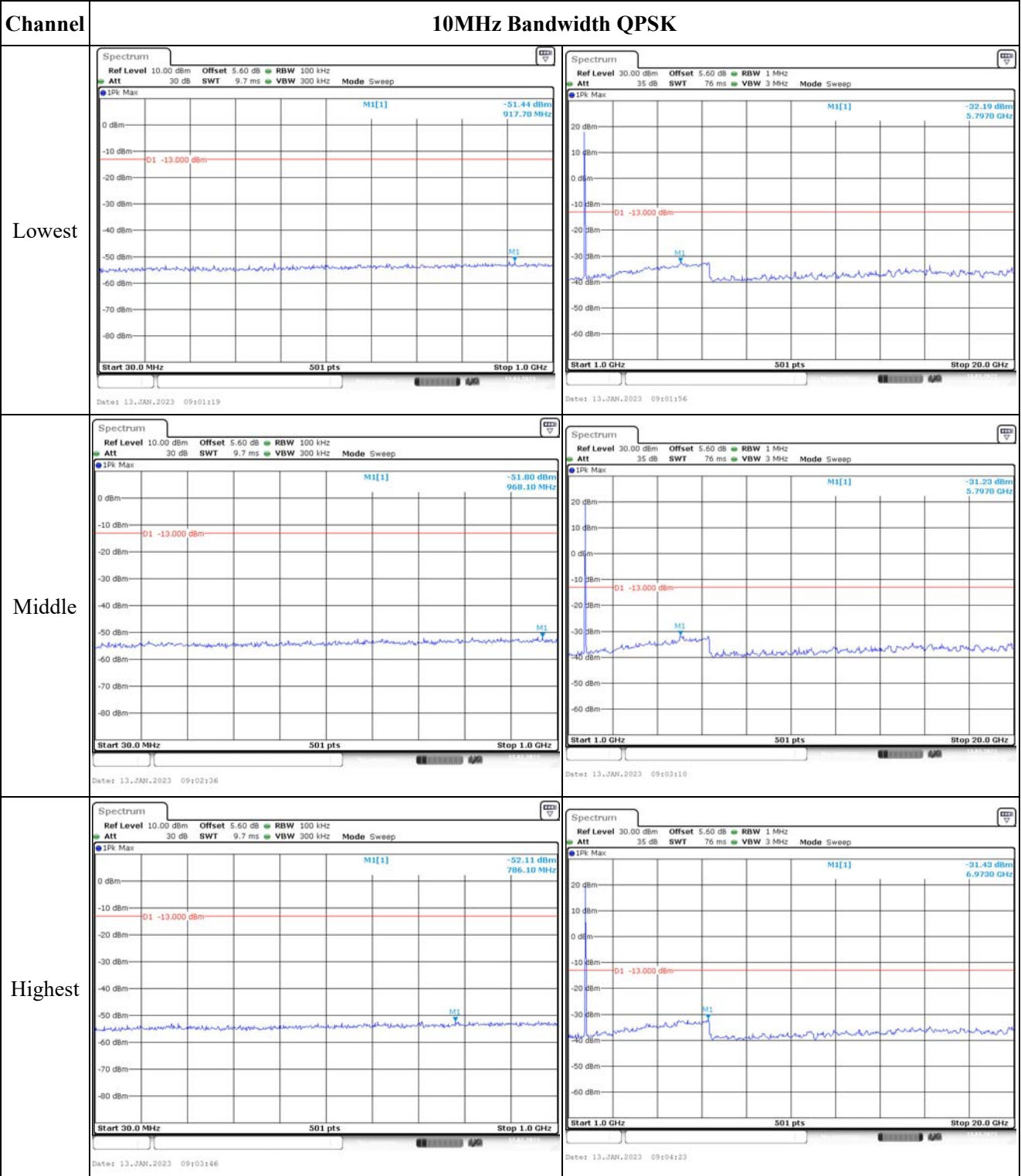
Middle



Highest



Spurious Emissions at Antenna Terminal

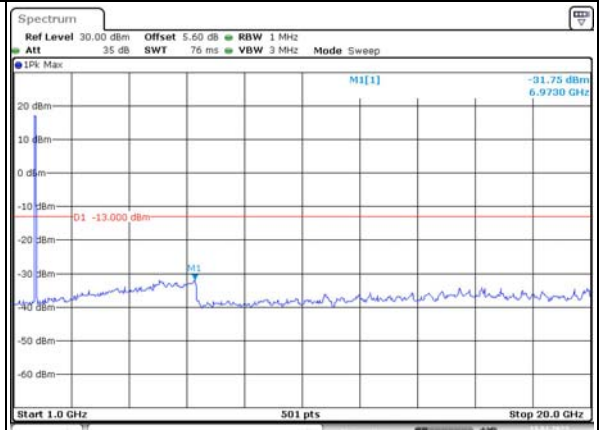
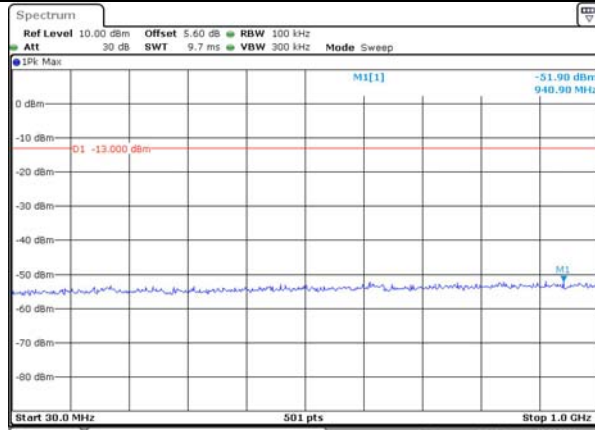


Spurious Emissions at Antenna Terminal

Channel

15MHz Bandwidth QPSK

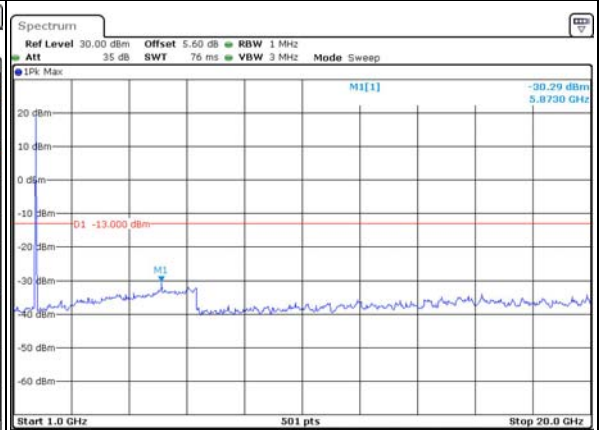
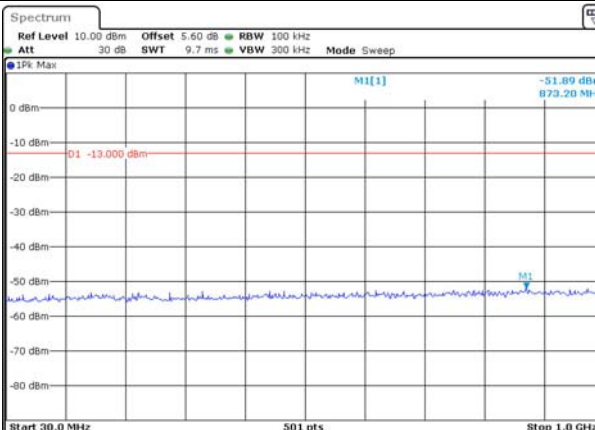
Lowest



Date: 13.JAN.2023 09:05:02

Date: 13.JAN.2023 09:05:32

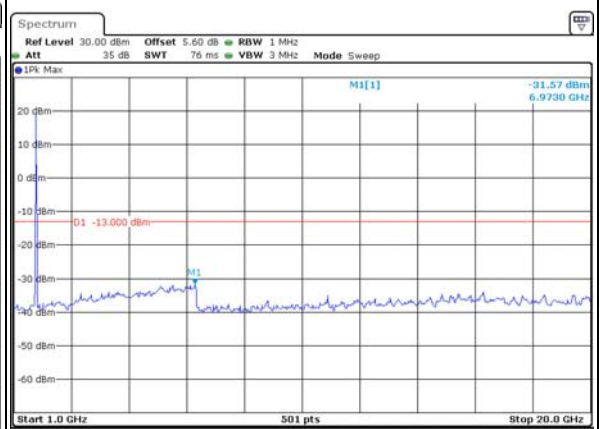
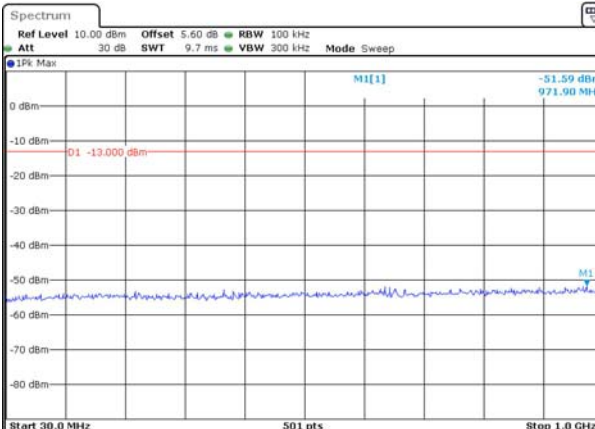
Middle



Date: 13.JAN.2023 09:06:04

Date: 13.JAN.2023 09:06:34

Highest



Date: 13.JAN.2023 09:07:03

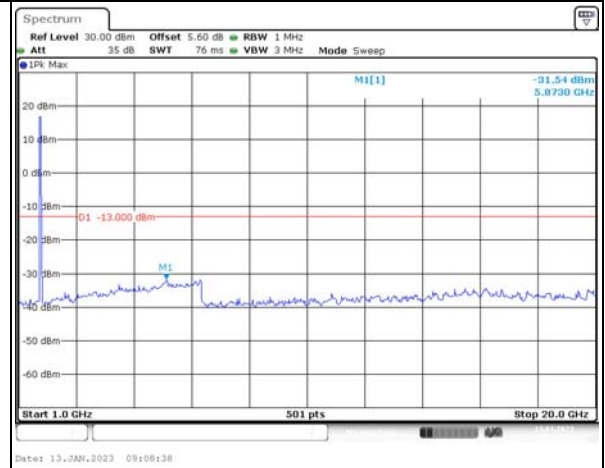
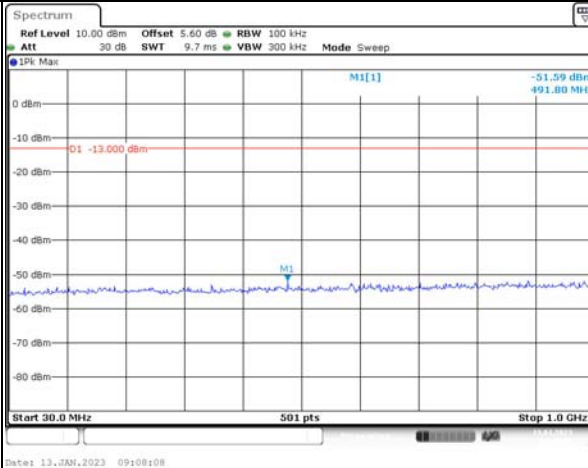
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Spurious Emissions at Antenna Terminal

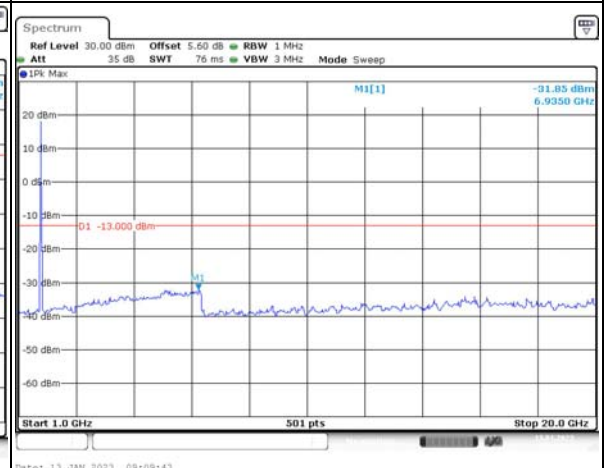
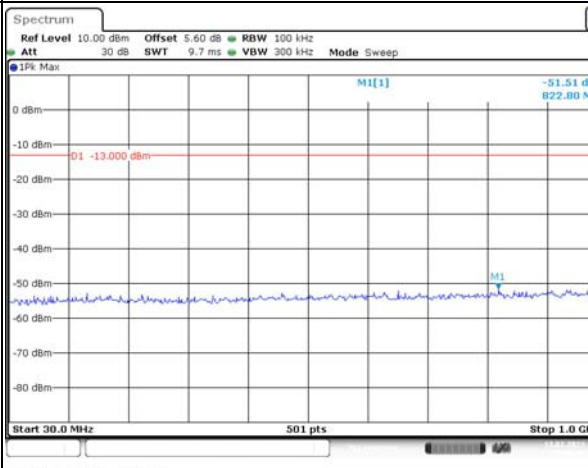
Channel

20MHz Bandwidth QPSK

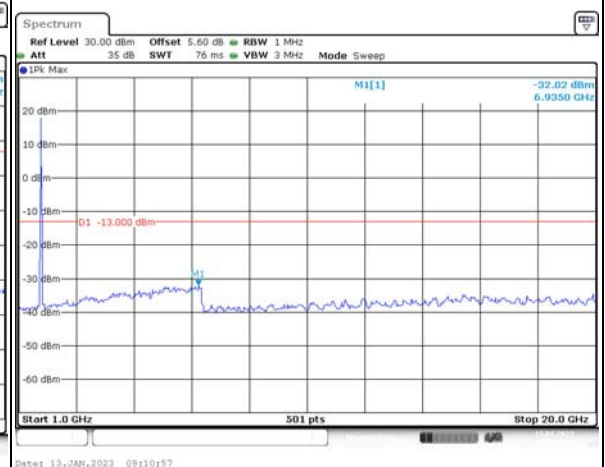
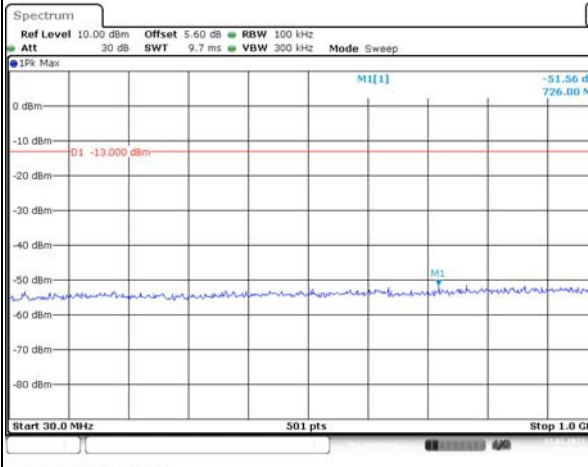
Lowest



Middle



Highest



Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 1.4MHz	<p>Ref Level 30.00 dBm Offset 5.60 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr MI[1] -31.92 dBm 1.7100000 GHz -13.000 dBm CF 1.71 GHz 501 pts Span 3.0 MHz Date: 13.JAN.2023 10:48:19</p>	<p>Ref Level 30.00 dBm Offset 5.60 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr MI[1] -25.63 dBm 1.7550000 GHz -13.000 dBm CF 1.755 GHz 501 pts Span 3.0 MHz Date: 13.JAN.2023 10:48:56</p>
QPSK 3MHz	<p>Ref Level 30.00 dBm Offset 5.60 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr MI[1] -29.74 dBm 1.7100000 GHz -13.000 dBm CF 1.71 GHz 501 pts Span 6.0 MHz Date: 13.JAN.2023 10:49:12</p>	<p>Ref Level 30.00 dBm Offset 5.60 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr MI[1] -24.53 dBm 1.7550000 GHz -13.000 dBm CF 1.755 GHz 501 pts Span 6.0 MHz Date: 13.JAN.2023 10:49:25</p>
QPSK 5MHz	<p>Ref Level 30.00 dBm Offset 5.60 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr MI[1] -30.49 dBm 1.7100000 GHz -13.000 dBm CF 1.71 GHz 501 pts Span 10.0 MHz Date: 13.JAN.2023 10:49:41</p>	<p>Ref Level 30.00 dBm Offset 5.60 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr MI[1] -24.64 dBm 1.7550000 GHz -13.000 dBm CF 1.755 GHz 501 pts Span 10.0 MHz Date: 13.JAN.2023 10:49:54</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 5.60 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr M1[1] -31.80 dBm 1.70999400 GHz -13.000 dBm CF 1.71 GHz 501 pts Span 3.0 MHz Date: 13_JAN_2023 10:48:45</p>	<p>Spectrum Ref Level 30.00 dBm Offset 5.60 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr M1[1] -27.60 dBm 1.75501200 GHz -13.000 dBm CF 1.755 GHz 501 pts Span 3.0 MHz Date: 13_JAN_2023 10:49:02</p>
16QAM 3MHz	<p>Spectrum Ref Level 30.00 dBm Offset 5.60 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr M1[1] -28.45 dBm 1.71000000 GHz -13.000 dBm CF 1.71 GHz 501 pts Span 6.0 MHz Date: 13_JAN_2023 10:49:18</p>	<p>Spectrum Ref Level 30.00 dBm Offset 5.60 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr M1[1] -26.17 dBm 1.75500000 GHz -13.000 dBm CF 1.755 GHz 501 pts Span 6.0 MHz Date: 13_JAN_2023 10:49:31</p>
16QAM 5MHz	<p>Spectrum Ref Level 30.00 dBm Offset 5.60 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr M1[1] -31.04 dBm 1.71000000 GHz -13.000 dBm CF 1.71 GHz 501 pts Span 10.0 MHz Date: 13_JAN_2023 10:49:47</p>	<p>Spectrum Ref Level 30.00 dBm Offset 5.60 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SGL Count 50/50 1Pm AvgPwr M1[1] -25.41 dBm 1.75500000 GHz -13.000 dBm CF 1.755 GHz 501 pts Span 10.0 MHz Date: 13_JAN_2023 10:50:01</p>

Out of band emission, Band Edge

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

4.8 Antenna Port Test Data and Results for LTE Band 5

Serial Number:	1WTO-1	Test Date:	2023/1/12~2023/1/17
Test Site:	RF	Test Mode:	Transmitting
Tester:	George Chen	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	18.2~25.2	Relative Humidity: (%)	46~65	ATM Pressure: (kPa)	100.5~102.6
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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	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Power Splitter	1515	RA914	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2022-04-06	2023-04-05
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2022-09-29	2023-09-28
UNI-T	Multimeter	UT39A+	C210582554	N/A	N/A
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	2022-07-15	2023-07-14

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	824.7	836.5	848.3
3MHz	825.5	836.5	847.5
5MHz	826.5	836.5	846.5
10MHz	829	836.5	844

Test Data:**FCC§2.1046;§ 22.913 (a)****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	23.78	23.56	23.84	21.72	38.45
	RB1#3	23.81	23.65	23.78		
	RB1#5	23.82	23.64	23.73		
	RB3#0	23.78	23.74	23.76		
	RB3#3	23.8	23.72	23.71		
	RB6#0	22.63	22.68	22.55		
1.4MHz 16QAM	RB1#0	22.35	23.28	22.55	21.16	38.45
	RB1#3	22.37	23.27	22.54		
	RB1#5	22.39	23.25	22.52		
	RB3#0	22.79	22.48	22.83		
	RB3#3	22.74	22.48	22.77		
	RB6#0	22.15	21.62	21.94		
3MHz QPSK	RB1#0	23.63	23.65	23.66	21.56	38.45
	RB1#8	23.57	23.68	23.68		
	RB1#14	23.65	23.68	23.64		
	RB6#0	22.69	22.56	22.6		
	RB6#9	22.73	22.65	22.59		
	RB15#0	22.67	22.7	22.7		
3MHz 16QAM	RB1#0	23.33	22.28	22.84	21.21	38.45
	RB1#8	23.29	22.33	22.83		
	RB1#14	23.31	22.29	22.85		
	RB6#0	22.03	22.17	21.65		
	RB6#9	22.03	21.82	21.76		
	RB15#0	21.95	21.62	21.67		
5MHz QPSK	RB1#0	23.79	23.55	23.65	21.67	38.45
	RB1#13	23.64	23.56	23.59		
	RB1#24	23.77	23.59	23.58		
	RB15#0	22.62	22.56	22.62		
	RB15#10	22.62	22.66	22.68		
	RB25#0	22.6	22.65	22.64		
5MHz 16QAM	RB1#0	22.72	22.23	21.75	20.72	38.45
	RB1#13	22.76	22.29	21.88		
	RB1#24	22.84	22.32	21.81		
	RB15#0	21.86	22.08	22.02		
	RB15#10	21.89	21.64	21.66		
	RB25#0	22	21.55	21.7		
10MHz QPSK	RB1#0	23.76	23.54	23.5	21.64	38.45

	RB1#25	23.72	23.69	23.56		
	RB1#49	23.74	23.68	23.56		
	RB25#0	22.62	22.62	22.64		
	RB25#25	22.65	22.65	22.68		
	RB50#0	22.67	22.64	22.61		
10MHz 16QAM	RB1#0	22.76	22.11	22.65	20.75	38.45
	RB1#25	22.87	22.08	22.72		
	RB1#49	22.79	22.18	22.74		
	RB25#0	22.11	22.14	21.91		
	RB25#25	21.85	22.21	21.64		
	RB50#0	21.71	21.64	21.68		

Note:

ERP= Conducted Power(dBm) - Lc(dB) + Gr(dBd)

Gr(dBd)=Gr(dBi)-2.15

Result:**Pass**

Peak-to-average Ratio(PAR)					
Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
10MHz QPSK	RB1#0	3.86	4.52	4.46	13
	RB50#0	4.84	4.96	4.67	13
10MHz 16QAM	RB1#0	5.01	5.51	5.59	13
	RB50#0	5.8	5.91	5.57	13
Result:					Pass

FCC §2.1049, §22.905: 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	1.26
1.4MHz 16QAM	1.096	1.102	1.108	1.254	1.254	1.272
3MHz QPSK	2.695	2.683	2.695	3	3.012	3.024
3MHz 16QAM	2.683	2.683	2.695	3	3.024	3.024
5MHz QPSK	4.511	4.511	4.531	4.98	5	5
5MHz 16QAM	4.531	4.551	4.511	5.02	5.04	5
10MHz QPSK	8.942	8.942	8.942	9.8	9.8	9.84
10MHz 16QAM	8.942	8.942	8.942	9.76	9.8	9.76

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

FCC §2.1051, §22.917(a): 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): Out of band emission, Band Edge

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

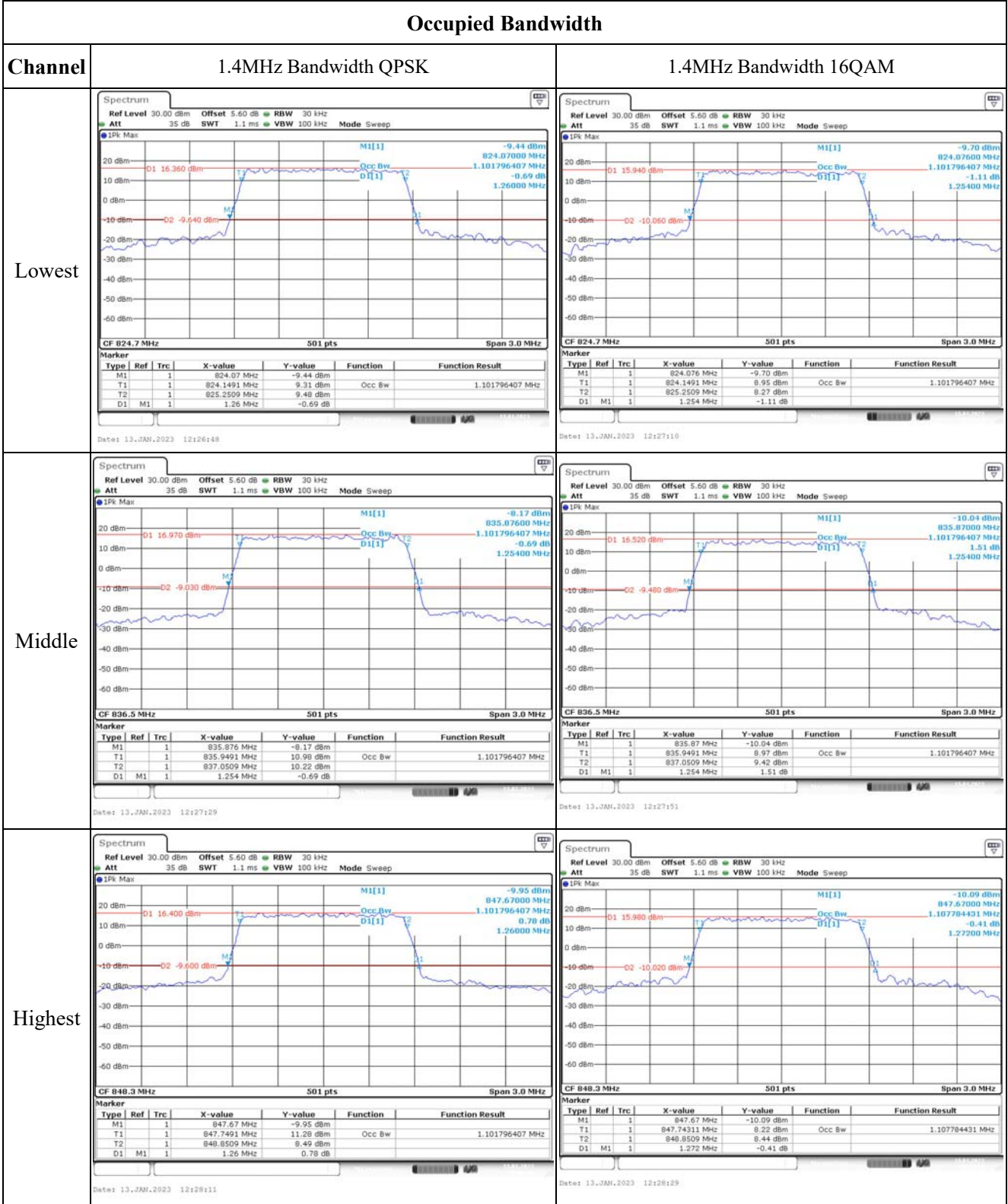
FCC §2.1055, §22.355: Frequency Stability

Test Mode:	10 MHz QPSK		Test Channel:	836.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.8	-5.45	-0.007	2.5
	-20	3.8	-6.97	-0.008	2.5
	-10	3.8	-5.5	-0.007	2.5
	0	3.8	6.06	0.007	2.5
	10	3.8	9.8	0.012	2.5
	20	3.8	5.03	0.006	2.5
	30	3.8	-6.62	-0.008	2.5
	40	3.8	-8.73	-0.010	2.5
Frequency Stability vs. Voltage	20	3.6	8.99	0.011	2.5
	20	4.35	-7.17	-0.009	2.5
	Result:				Pass

Test Mode:	10 MHz 16QAM		Test Channel:	836.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.8	-15.91	-0.019	2.5
	-20	3.8	8.1	0.010	2.5
	-10	3.8	-8.59	-0.010	2.5
	0	3.8	9.33	0.011	2.5
	10	3.8	-6.94	-0.008	2.5
	20	3.8	7.54	0.009	2.5
	30	3.8	6.43	0.008	2.5
	40	3.8	-6.17	-0.007	2.5
	50	3.8	-6.44	-0.008	2.5
Frequency Stability vs. Voltage	20	3.6	6.34	0.008	2.5
	20	4.35	-6.89	-0.008	2.5
				Result:	Pass

Test Plots(Note: The 5.6dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):

Occupied Bandwidth



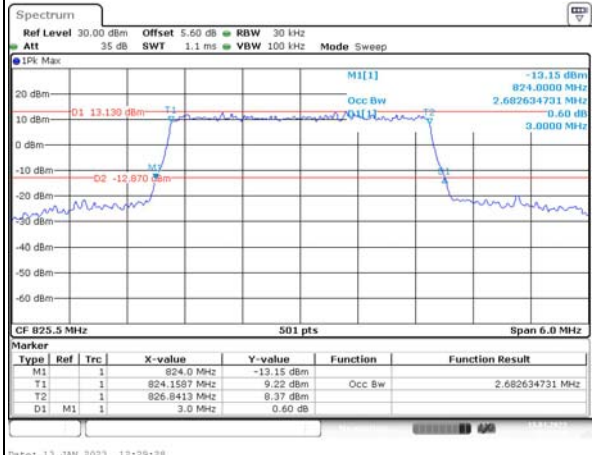
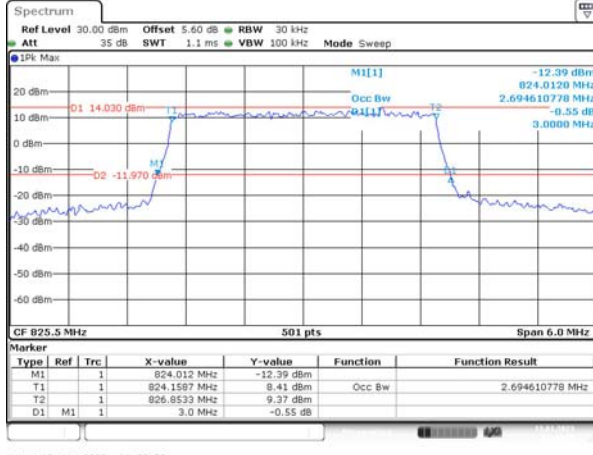
Occupied Bandwidth

Channel

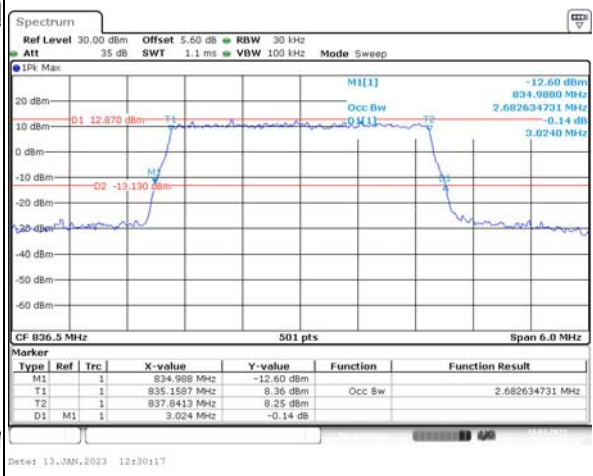
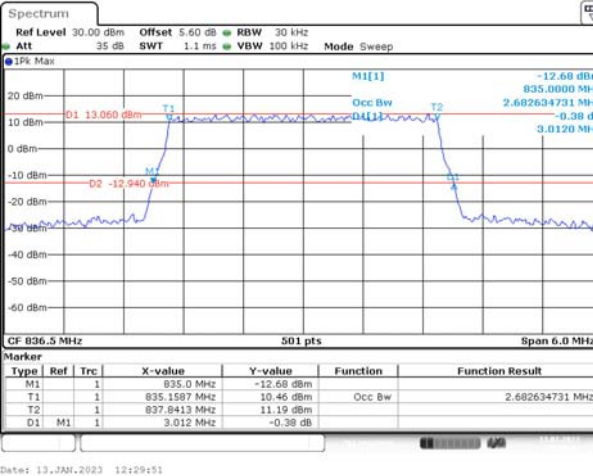
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

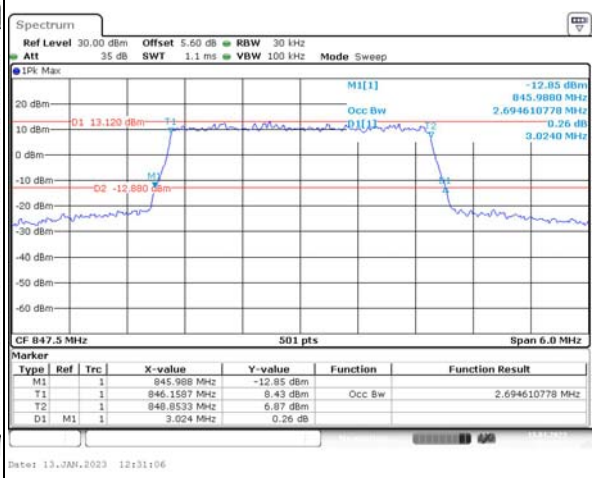
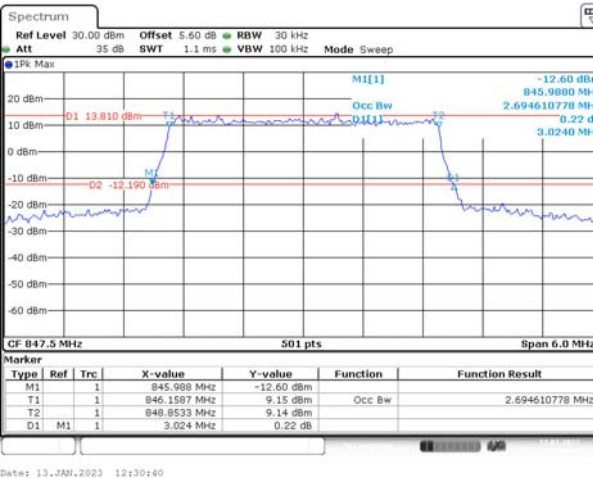
Lowest



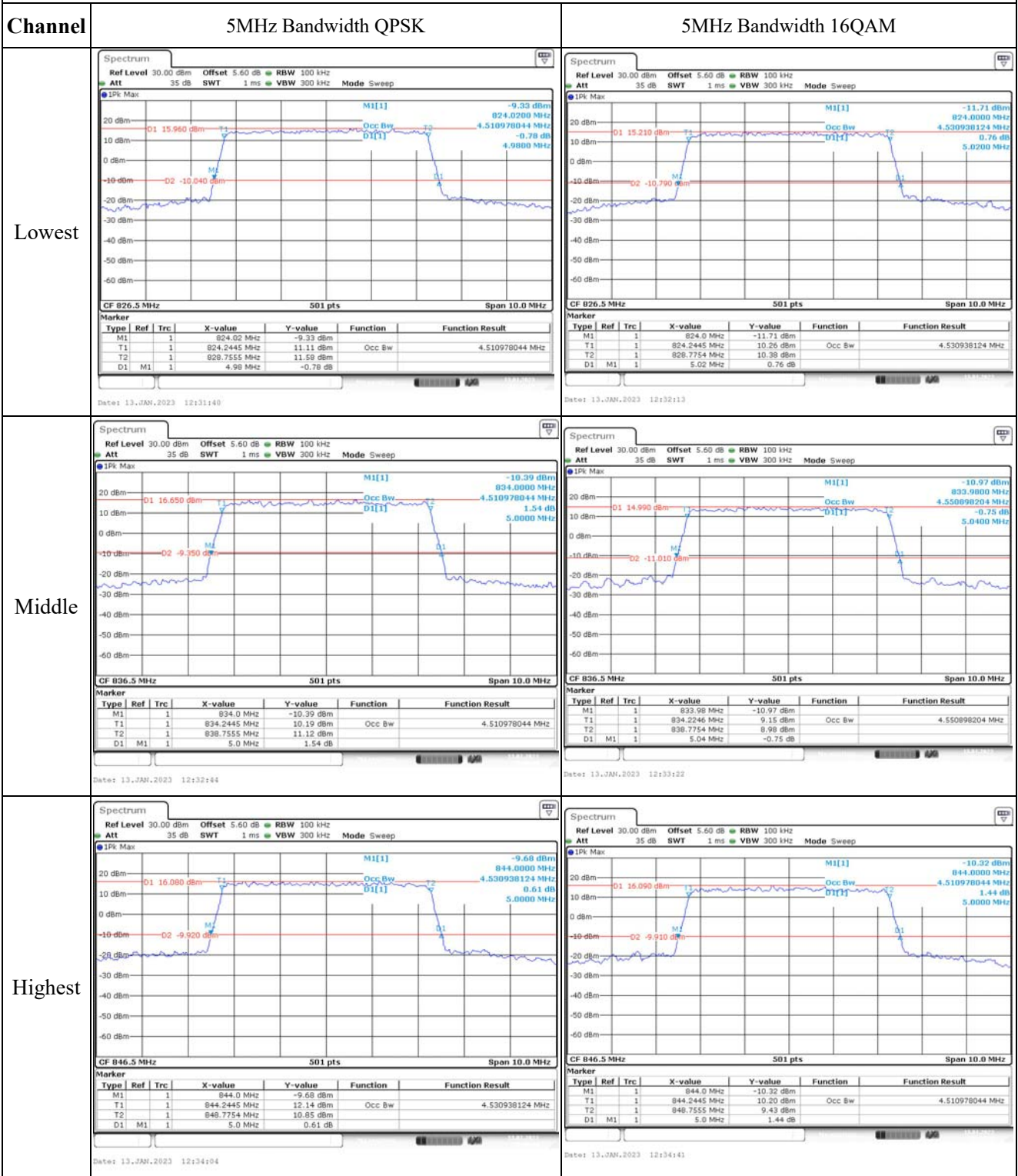
Middle



Highest



Occupied Bandwidth



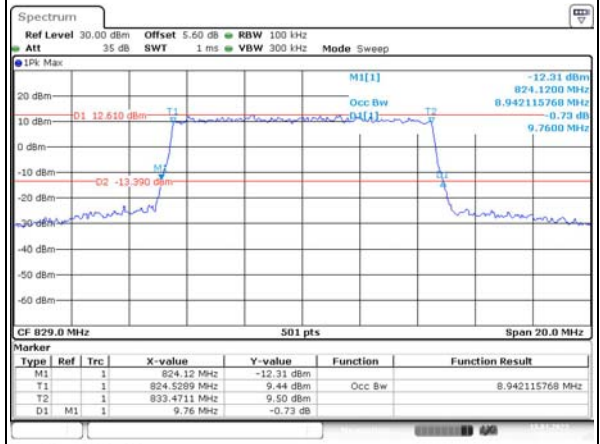
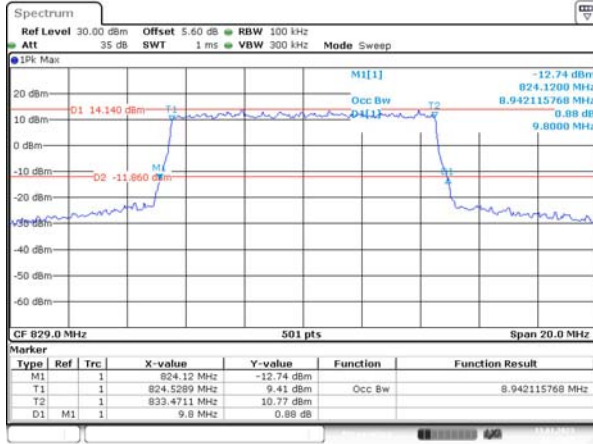
Occupied Bandwidth

Channel

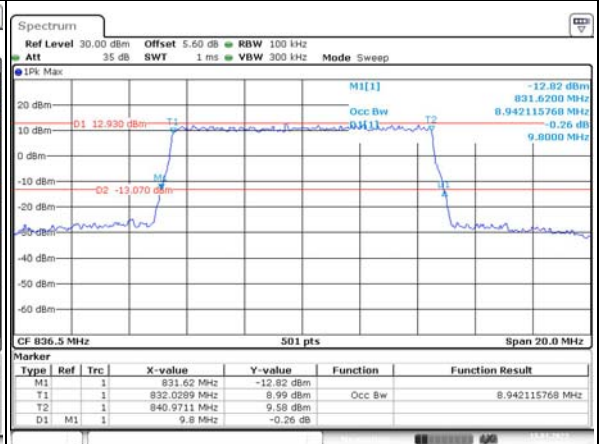
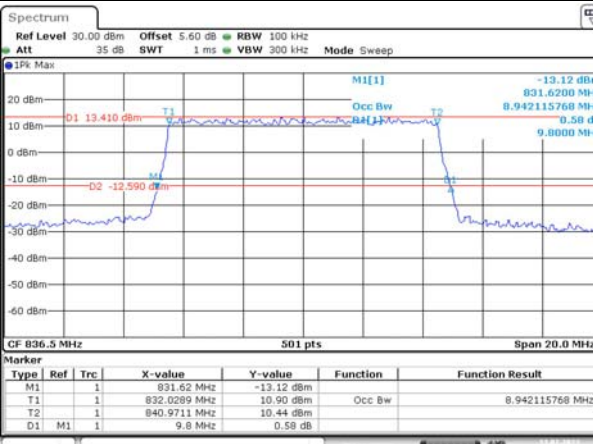
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

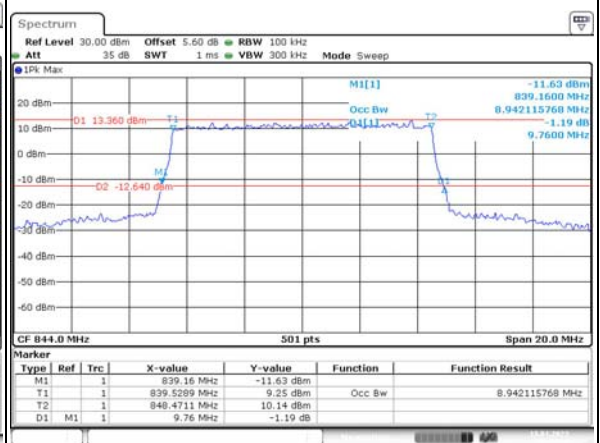
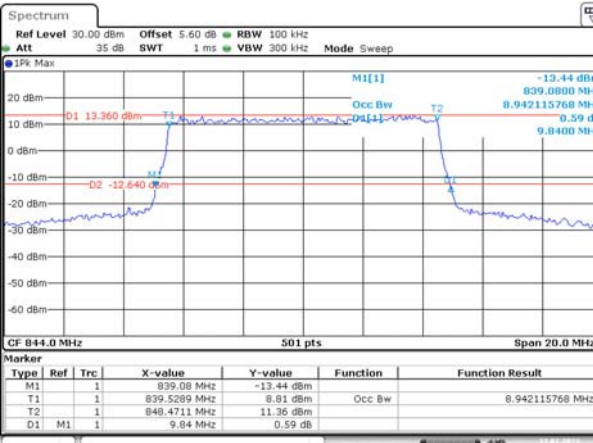
Lowest



Middle



Highest

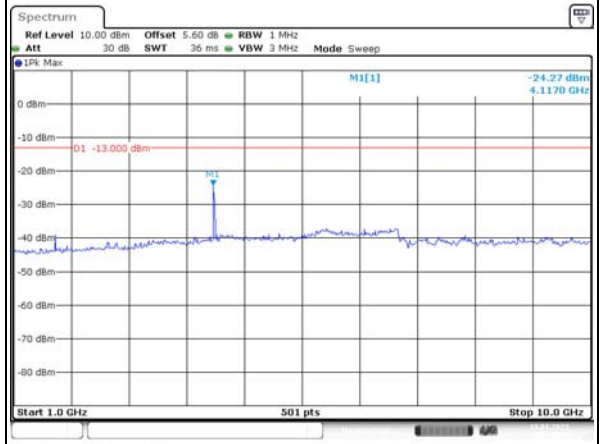
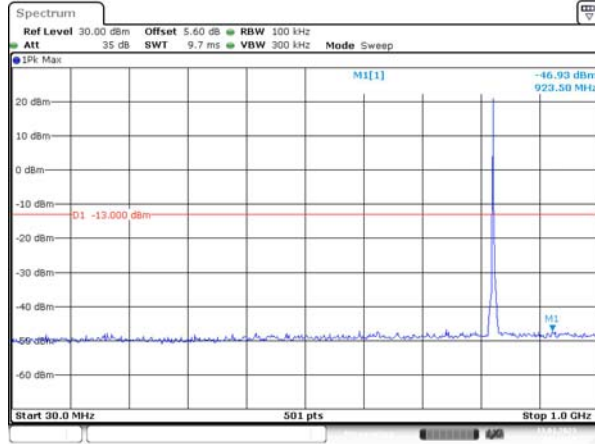


Spurious Emissions at Antenna Terminal

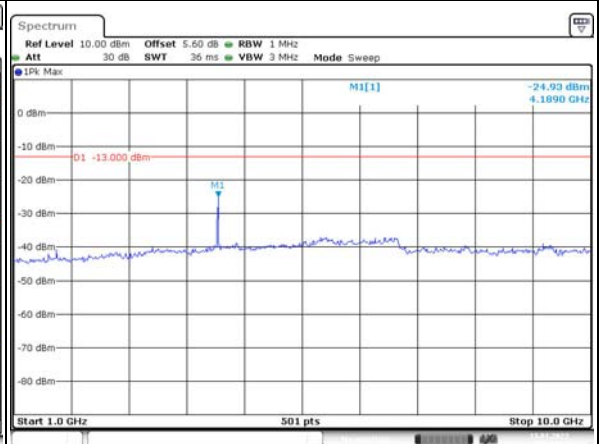
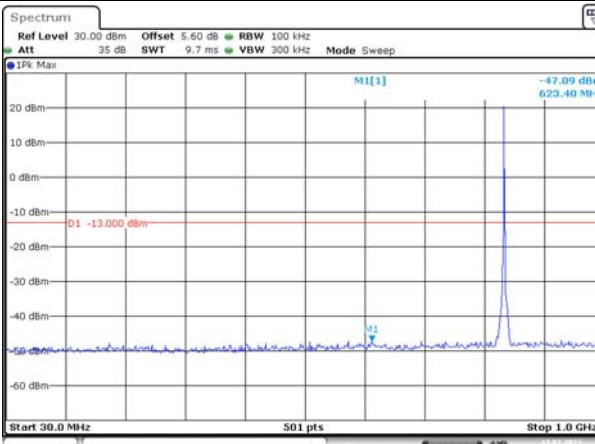
Channel

1.4MHz Bandwidth QPSK

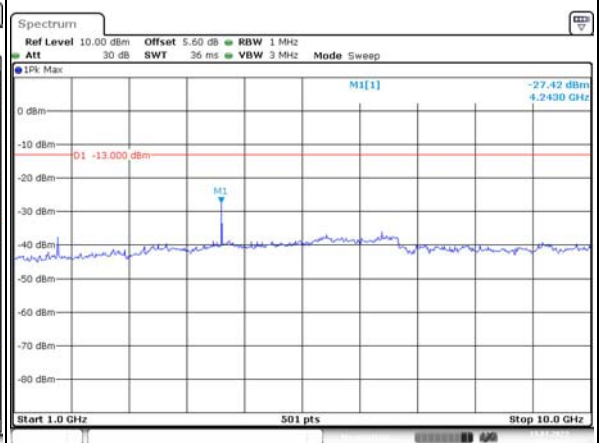
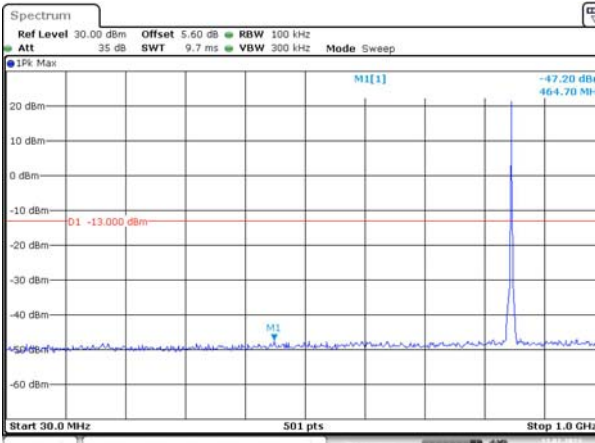
Lowest



Middle



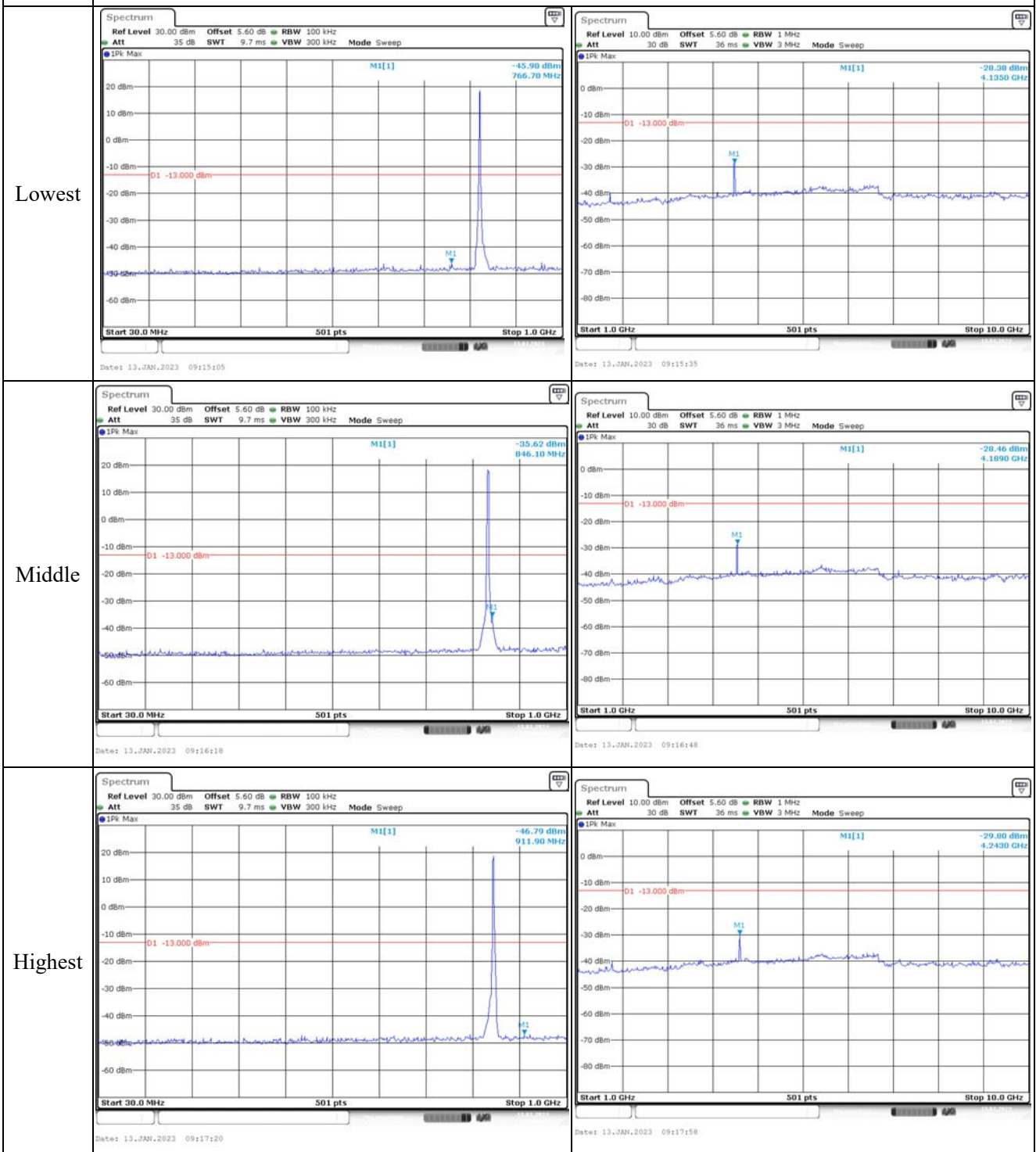
Highest



Spurious Emissions at Antenna Terminal

Channel

3MHz Bandwidth QPSK

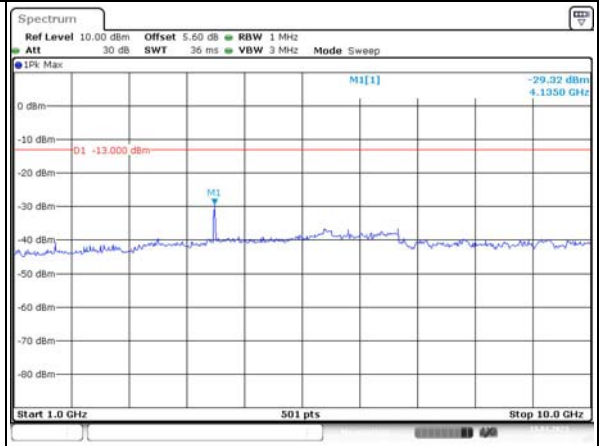
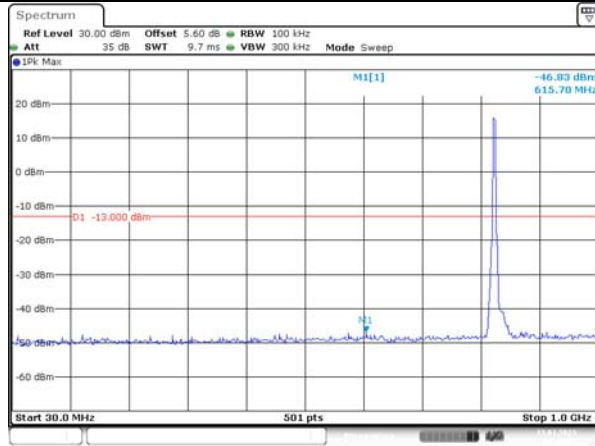


Spurious Emissions at Antenna Terminal

Channel

5MHz Bandwidth QPSK

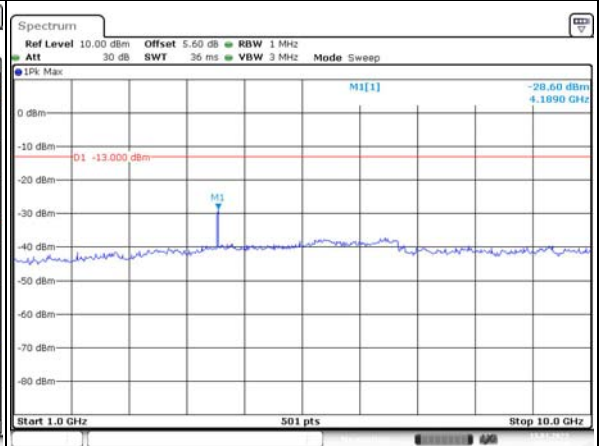
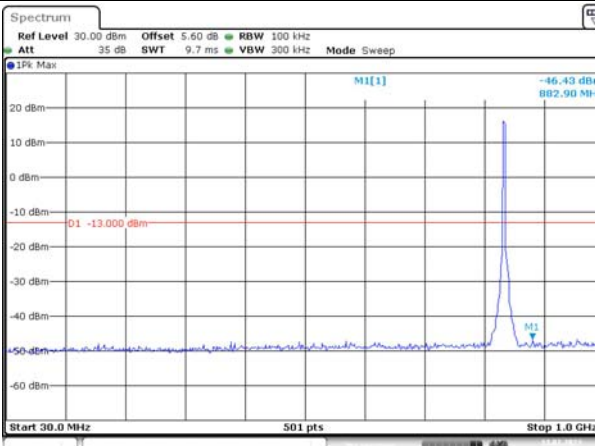
Lowest



Date: 13.JAN.2023 09:18:36

Date: 13.JAN.2023 09:19:06

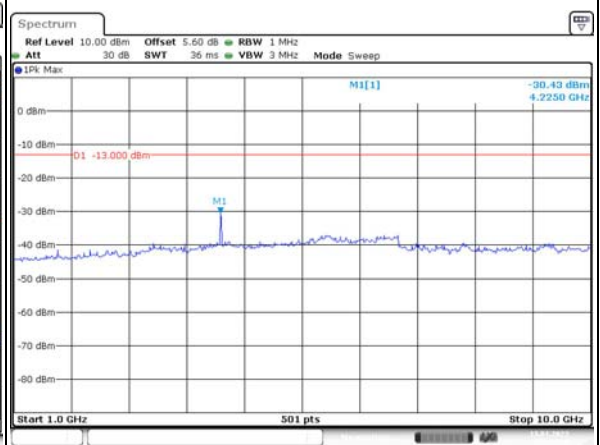
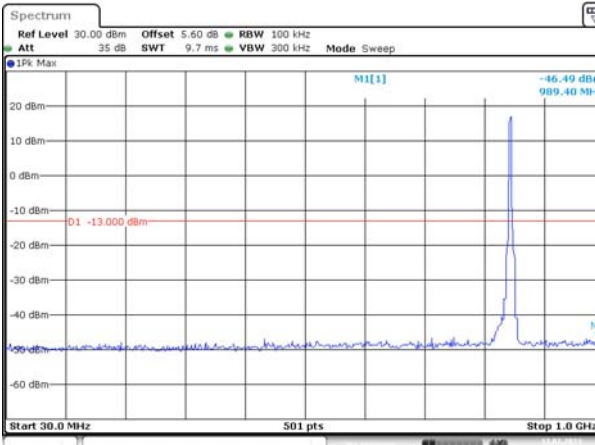
Middle



Date: 13.JAN.2023 09:19:42

Date: 13.JAN.2023 09:20:08

Highest



Date: 13.JAN.2023 09:20:44

Date: 13.JAN.2023 09:21:18

Spurious Emissions at Antenna Terminal

