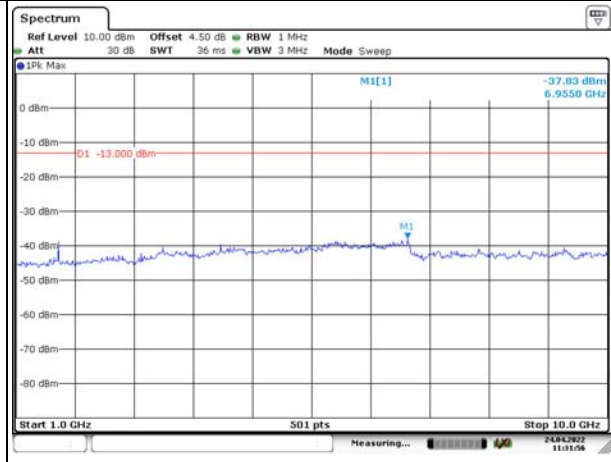
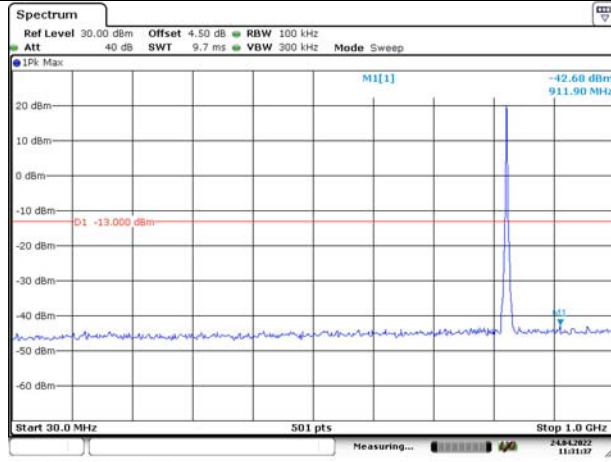


Spurious Emissions at Antenna Terminal

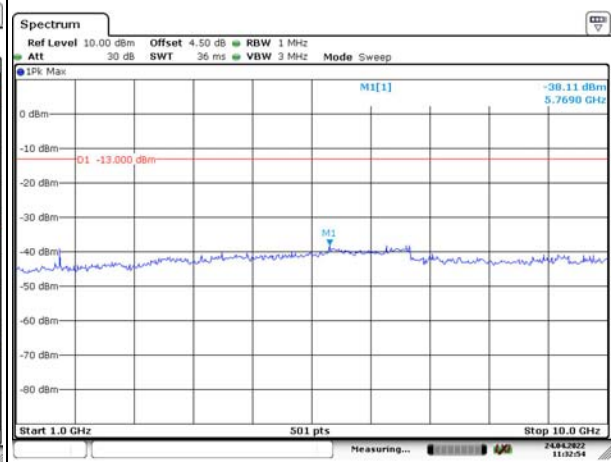
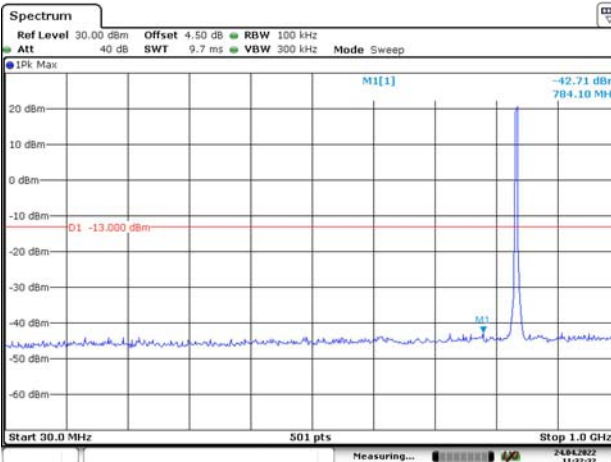
Channel

3MHz Bandwidth QPSK

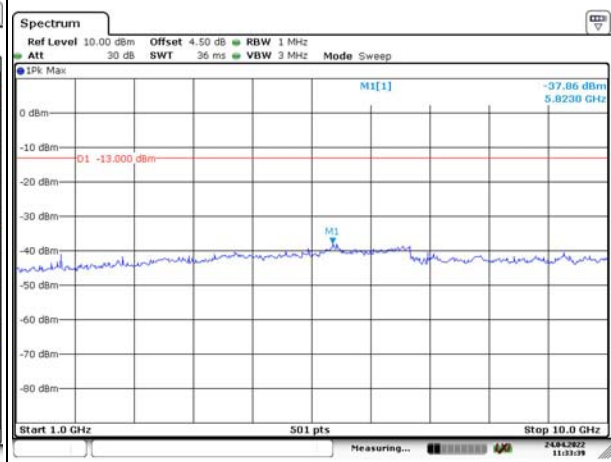
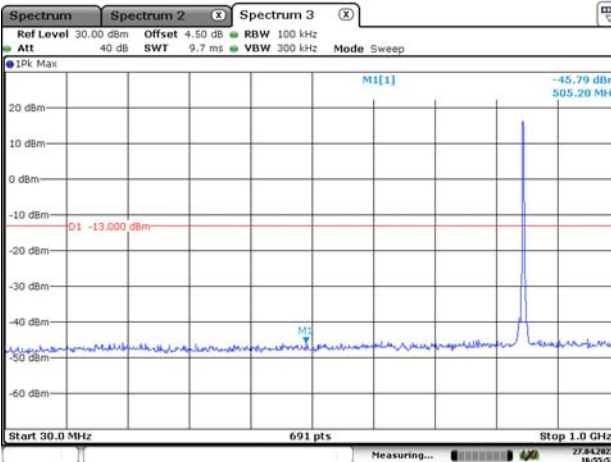
Lowest



Middle



Highest

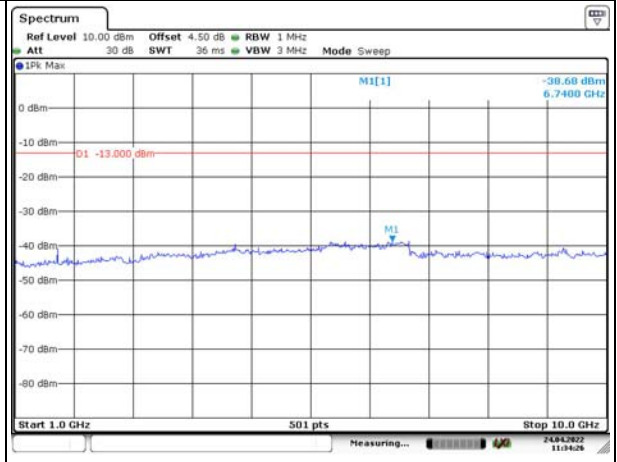
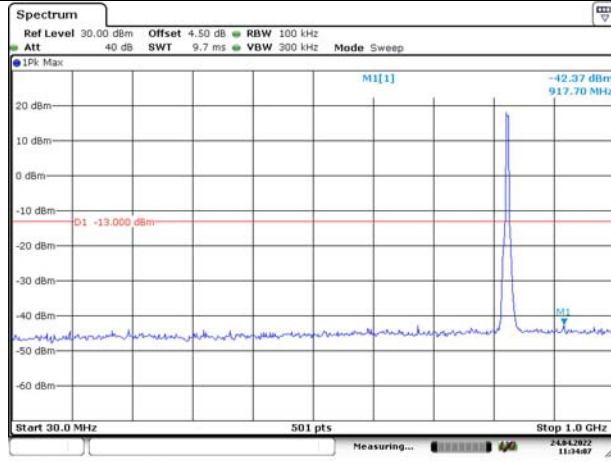


Spurious Emissions at Antenna Terminal

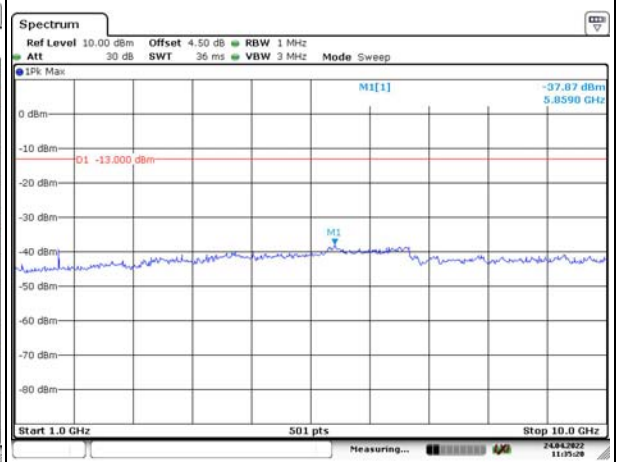
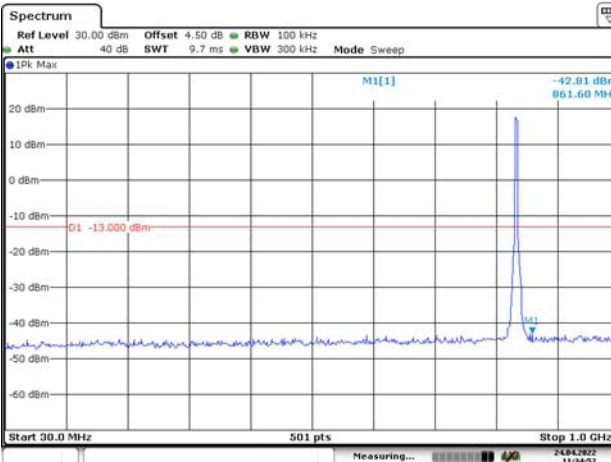
Channel

5MHz Bandwidth QPSK

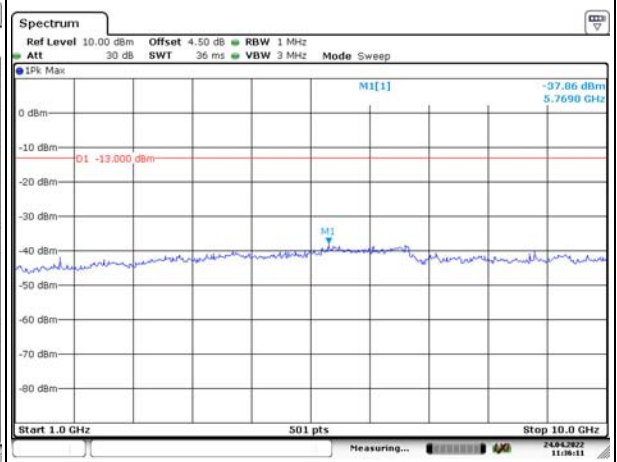
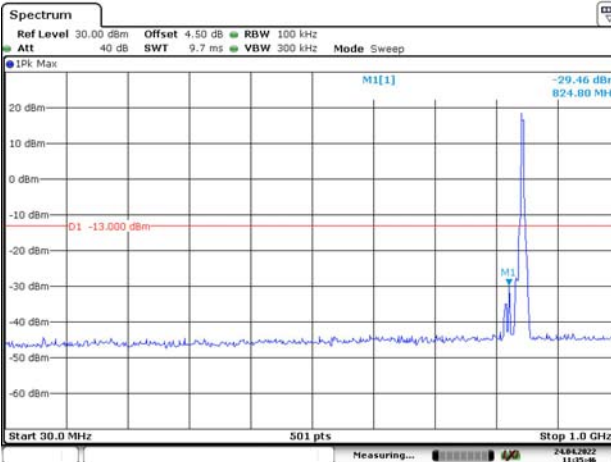
Lowest



Middle



Highest

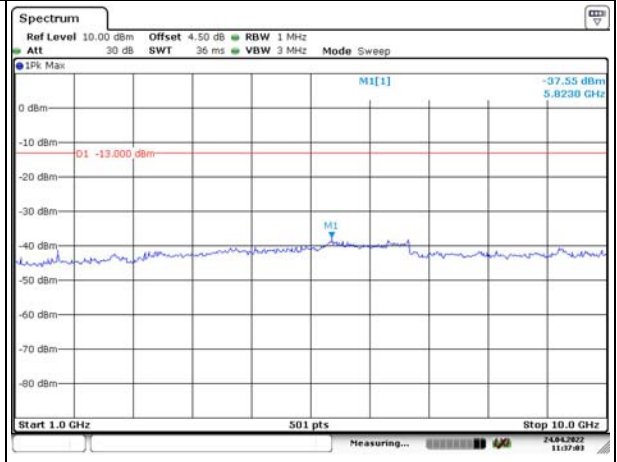
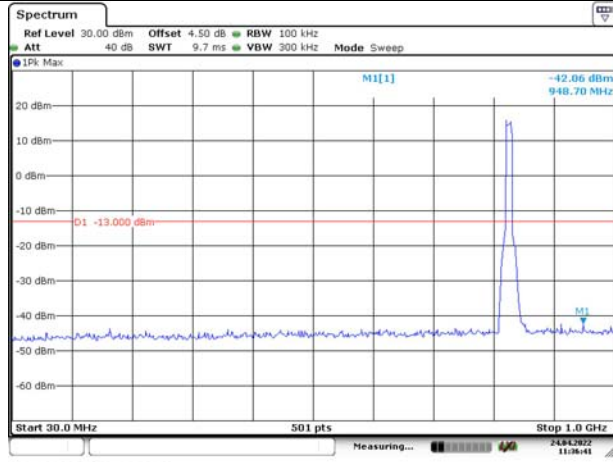


Spurious Emissions at Antenna Terminal

Channel

10MHz Bandwidth QPSK

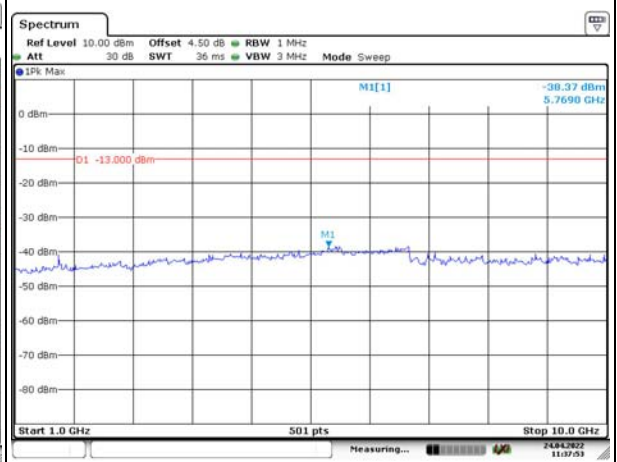
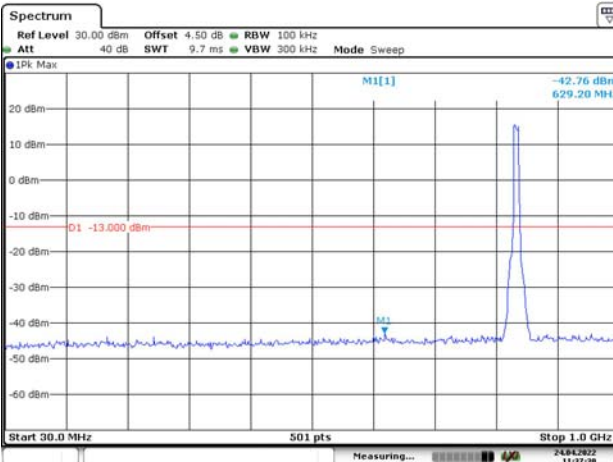
Lowest



Date: 24.APR.2022 11:36:41

Date: 24.APR.2022 11:37:03

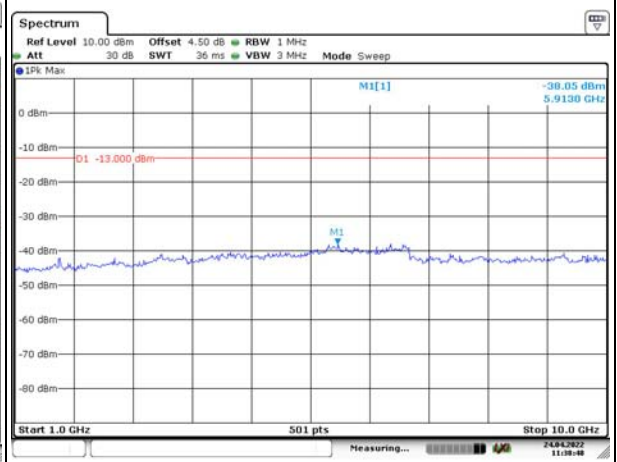
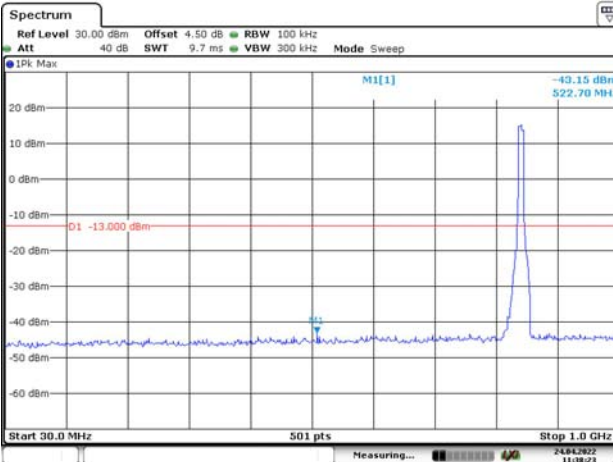
Middle



Date: 24.APR.2022 11:37:30

Date: 24.APR.2022 11:37:52

Highest



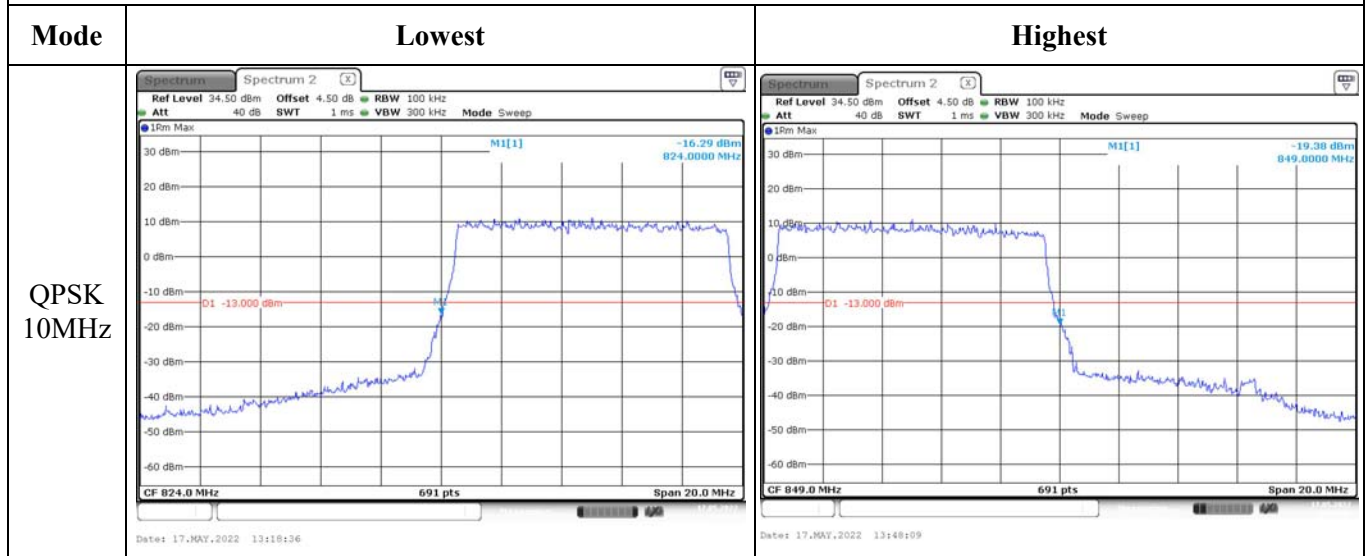
Date: 24.APR.2022 11:38:23

Date: 24.APR.2022 11:38:48

Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 1.4MHz	<p>Spectrum Ref Level 30.00 dBm Offset 4.50 dB RBW 30 kHz Att 40 dB SWT 1.1 ms VBW 100 kHz Mode Sweep 1Rm Max M1[1] -17.77 dBm 823.5930 MHz -13.000 dBm CF 824.0 MHz 501 pts Span 6.0 MHz Date: 24.APR.2022 14:01:14</p>	<p>Spectrum Ref Level 34.50 dBm Offset 4.50 dB RBW 30 kHz Att 40 dB SWT 100 ms VBW 100 kHz Mode Sweep 1Rm Max M1[1] -32.05 dBm 849.00000 MHz -13.000 dBm CF 849.0 MHz 691 pts Span 6.0 MHz Date: 27.APR.2022 15:57:07</p>
QPSK 3MHz	<p>Spectrum Spectrum 2 Ref Level 34.50 dBm Offset 4.50 dB RBW 30 kHz Att 40 dB SWT 1.1 ms VBW 100 kHz Mode Sweep 1Rm Max M1[1] -25.10 dBm 824.00000 MHz -13.000 dBm CF 824.0 MHz 691 pts Span 6.0 MHz Date: 17.MAY.2022 13:44:17</p>	<p>Spectrum Spectrum 2 Ref Level 34.50 dBm Offset 4.50 dB RBW 30 kHz Att 40 dB SWT 1.1 ms VBW 100 kHz Mode Sweep 1Rm Max M1[1] -25.26 dBm 849.00000 MHz -13.000 dBm CF 849.0 MHz 691 pts Span 6.0 MHz Date: 17.MAY.2022 13:11:48</p>
QPSK 5MHz	<p>Spectrum Ref Level 34.50 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 100 ms VBW 300 kHz Mode Sweep 1Rm Max M1[1] -27.55 dBm 824.00000 MHz -13.000 dBm CF 824.0 MHz 691 pts Span 20.0 MHz Date: 27.APR.2022 16:04:50</p>	<p>Spectrum Ref Level 34.50 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 100 ms VBW 300 kHz Mode Sweep 1Rm Max M1[1] -29.04 dBm 849.00000 MHz -13.000 dBm CF 849.0 MHz 691 pts Span 20.0 MHz Date: 27.APR.2022 16:06:14</p>

Out of band emission, Band Edge



Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 1.4MHz		
16QAM 3MHz		
16QAM 5MHz		

Out of band emission, Band Edge



4.9 Antenna Port Test Data and Results for LTE Band 12

Serial Number:	CR22040010-RF-S1	Test Date:	2022-04-24~2022-05-17
Test Site:	RF	Test Mode:	Transmitting
Tester:	Ada Yan	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	27.3~28.6	Relative Humidity:	46~56	ATM Pressure:	100.7~100.8
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	Spectrum Analyzer	101474	2021-07-22	2022-07-21
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Coaxial Attenuators	53-20-34	LN751	Each time	N/A
R&S	Wideband Radio	CMW500	149218	2021-07-22	2022-07-21
BACL	TEMP&HUMI Test Chamber	BTH-150	30026	2021-07-22	2022-07-22
UNI-T	Multimeter	UT39A+	C210582554	2021-09-30	2022-09-30
E-Microwave	Two-way Splitter	ODP-1-6	OE0120176	Each Time	N/A

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

EUT Information@ LTE Band 12▲:

Antenna Gain (dBi):	0.2	Antenna Gain (dBd):	-1.95	Cable Loss (dB):	1.0
Operation Voltage(V _{DC}):					
Lowest:	3.6	Normal:	3.8	Highest:	4.3

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	699.7	707.5	715.3
3MHz	700.5	707.5	714.5
5MHz	701.5	707.5	713.5
10MHz	704	707.5	711

Test Data:**FCC§2.1046;§ 27.50(c) (10)****RF Output Power:**

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
1.4MHz QPSK	RB1#0	19.10	19.09	19.09	16.35	34.77
	RB1#3	19.26	19.30	19.25		
	RB1#5	19.13	19.14	19.09		
	RB3#0	19.20	19.10	19.18		
	RB3#3	19.18	19.20	19.19		
	RB6#0	18.17	18.19	18.12		
1.4MHz 16QAM	RB1#0	18.13	18.22	18.04	15.47	34.77
	RB1#3	18.26	18.37	18.25		
	RB1#5	18.12	18.22	18.13		
	RB3#0	18.40	18.14	18.31		
	RB3#3	18.42	18.24	18.25		
	RB6#0	17.22	17.19	17.10		
3MHz QPSK	RB1#0	19.23	19.23	19.21	16.33	34.77
	RB1#8	19.20	19.28	19.23		
	RB1#14	19.24	19.25	19.24		
	RB6#0	18.20	18.16	18.15		
	RB6#9	18.24	18.19	18.19		
	RB15#0	18.22	18.24	18.21		
3MHz 16QAM	RB1#0	18.86	18.35	18.23	15.91	34.77
	RB1#8	18.81	18.33	18.20		
	RB1#14	18.83	18.36	18.23		
	RB6#0	17.32	17.19	17.15		
	RB6#9	17.29	17.24	17.11		
	RB15#0	17.31	17.19	17.23		
5MHz QPSK	RB1#0	19.10	19.08	18.99	16.3	34.77
	RB1#13	19.25	19.15	19.12		
	RB1#24	19.12	19.16	19.10		
	RB15#0	18.13	18.17	18.21		
	RB15#10	18.15	18.20	18.04		
	RB25#0	18.12	18.21	18.11		
5MHz 16QAM	RB1#0	17.95	18.32	18.04	15.49	34.77
	RB1#13	18.09	18.44	18.19		
	RB1#24	18.02	18.38	18.12		
	RB15#0	17.20	17.11	17.24		
	RB15#10	17.20	17.18	17.03		
	RB25#0	17.17	17.17	17.12		

10MHz QPSK	RB1#0	19.03	19.07	19.04	16.4	34.77
	RB1#25	19.35	19.31	19.27		
	RB1#49	19.12	19.16	19.17		
	RB25#0	18.21	18.27	18.10		
	RB25#25	18.22	18.35	18.07		
	RB50#0	18.21	18.29	18.14		
10MHz 16QAM	RB1#0	18.67	18.17	18.02	16.01	34.77
	RB1#25	18.96	18.43	18.27		
	RB1#49	18.74	18.25	18.15		
	RB25#0	17.27	17.26	17.22		
	RB25#25	17.27	17.38	17.18		
	RB50#0	17.21	17.31	17.11		

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

Result:

Pass

Peak-to-average Ratio(PAR)					
Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
10MHz QPSK	RB1#0	3.04	2.75	3.45	13
	RB50#0	4.29	4.32	4.32	13
10MHz 16QAM	RB1#0	4.23	3.71	4.00	13
	RB50#0	5.28	5.45	5.39	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	1.096	1.102	1.320	1.314	1.326
1.4MHz 16QAM	1.096	1.102	1.096	1.296	1.314	1.284
3MHz QPSK	2.695	2.695	2.683	2.880	2.868	2.892
3MHz 16QAM	2.683	2.683	2.671	2.892	2.880	2.868
5MHz QPSK	4.531	4.531	4.511	5.240	5.240	5.180
5MHz 16QAM	4.531	4.551	4.551	5.120	5.200	5.200
10MHz QPSK	8.942	8.981	8.942	9.960	9.960	9.920
10MHz 16QAM	8.942	8.981	8.942	9.840	9.960	9.880

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.

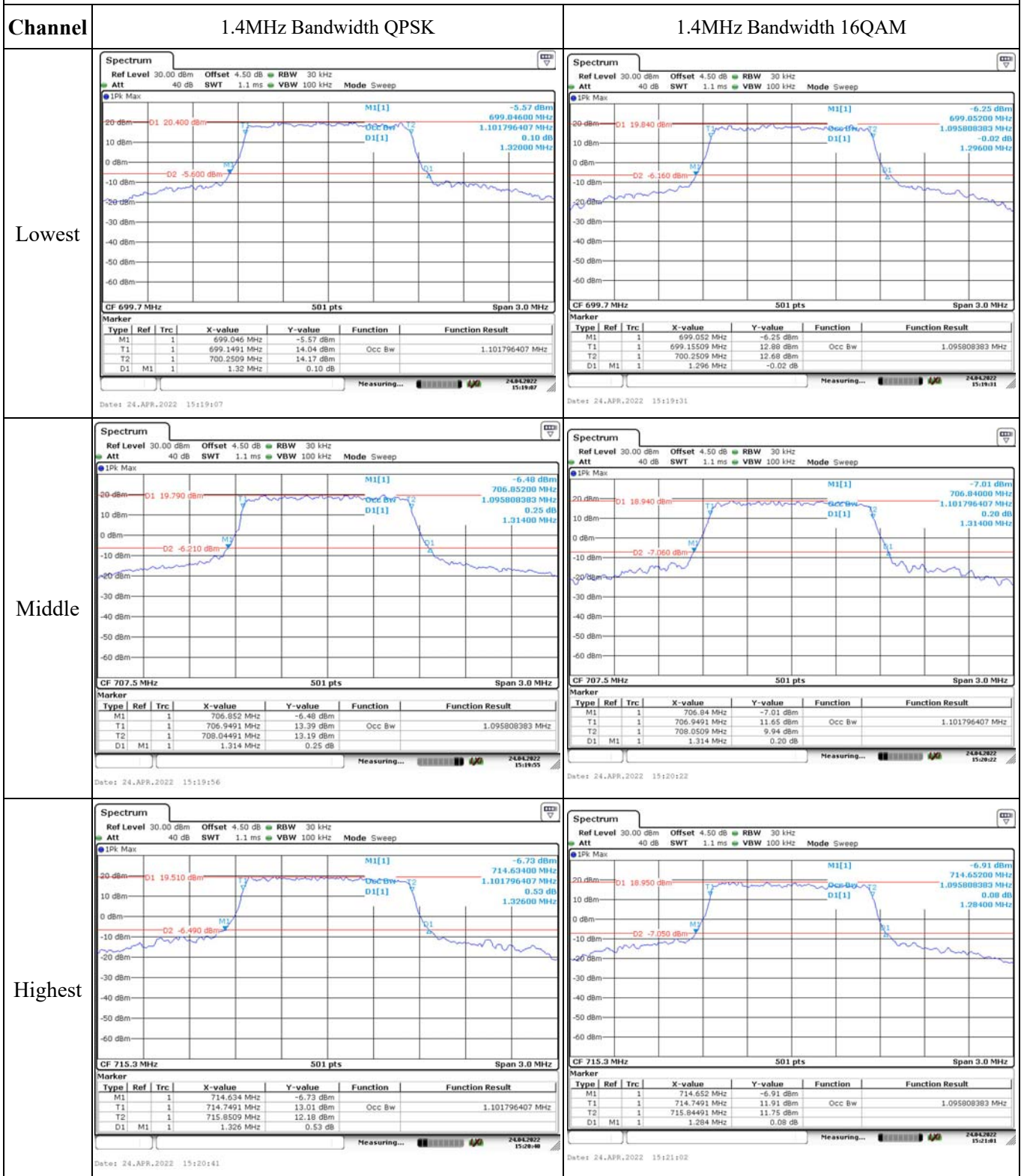
FCC §2.1051, §27.53:Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

FCC §2.1055, §27.54: Frequency Stability						
Test Mode:	10M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	699.865	699.00	715.866	716.00
	-20	3.8	699.857	699.00	715.862	716.00
	-10	3.8	699.861	699.00	715.852	716.00
	0	3.8	699.852	699.00	715.851	716.00
	10	3.8	699.866	699.00	715.867	716.00
	20	3.8	699.861	699.00	715.860	716.00
	30	3.8	699.863	699.00	715.864	716.00
	40	3.8	699.855	699.00	715.862	716.00
Frequency Stability vs. Voltage	20	3.6	699.871	699.00	715.860	716.00
	20	4.3	699.861	699.00	715.854	716.00
Result:					Pass	

Test Mode:	10M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	699.862	699.00	715.863	716.00
	-20	3.8	699.854	699.00	715.863	716.00
	-10	3.8	699.865	699.00	715.851	716.00
	0	3.8	699.856	699.00	715.859	716.00
	10	3.8	699.866	699.00	715.863	716.00
	20	3.8	699.866	699.00	715.812	716.00
	30	3.8	699.862	699.00	715.863	716.00
	40	3.8	699.859	699.00	715.864	716.00
Frequency Stability vs. Voltage	20	3.6	699.873	699.00	715.844	716.00
	20	4.3	699.861	699.00	715.854	716.00
Result:					Pass	

Test Plots:

Occupied Bandwidth



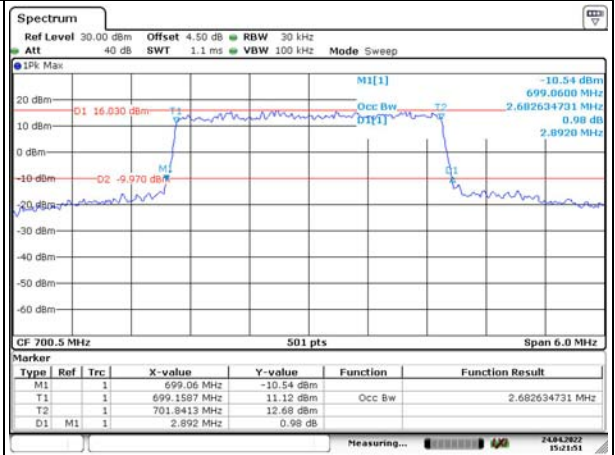
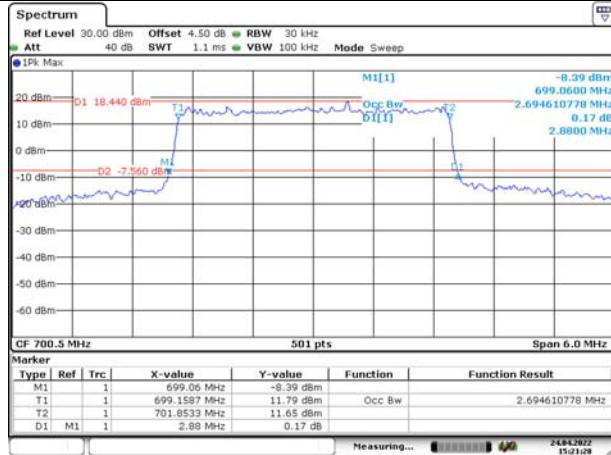
Occupied Bandwidth

Channel

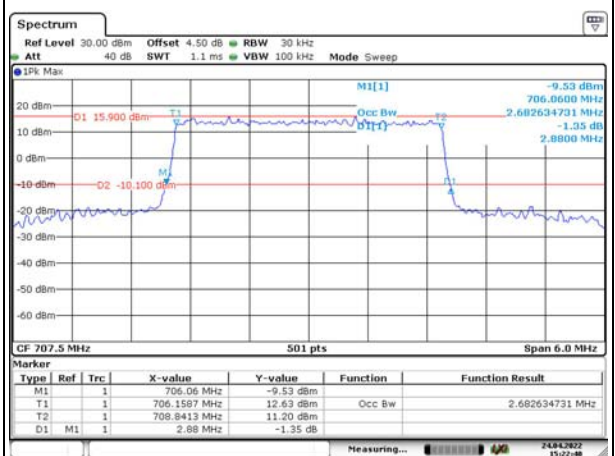
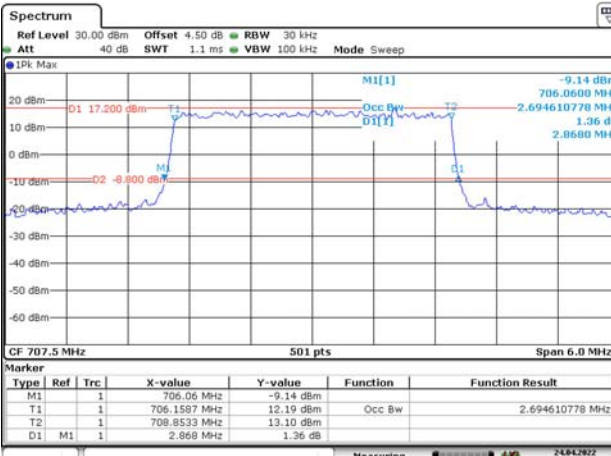
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

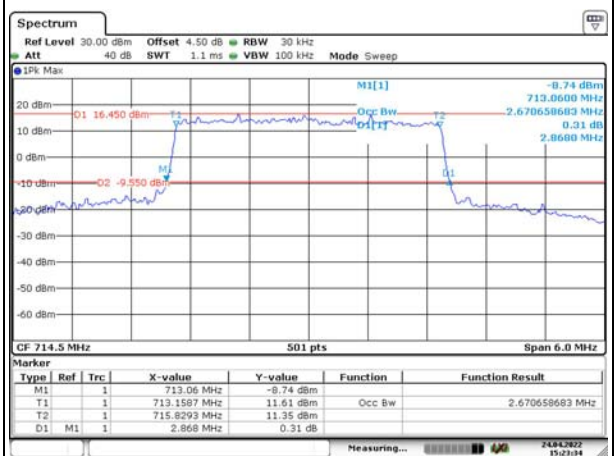
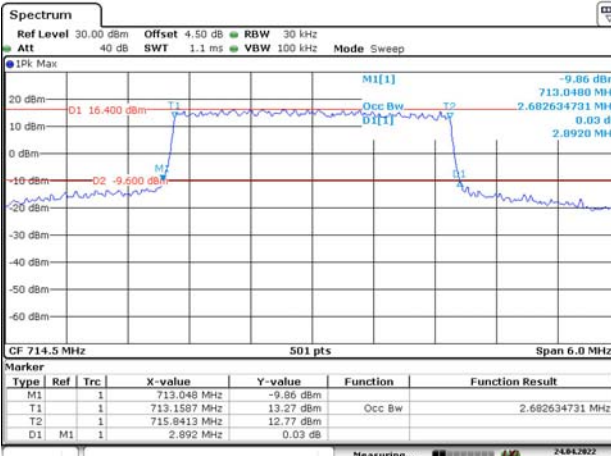
Lowest



Middle



Highest



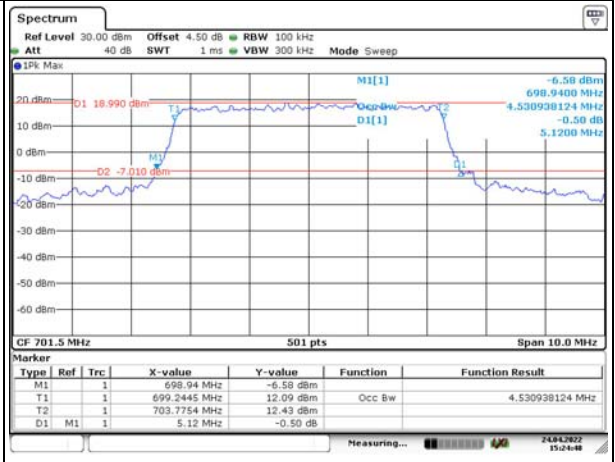
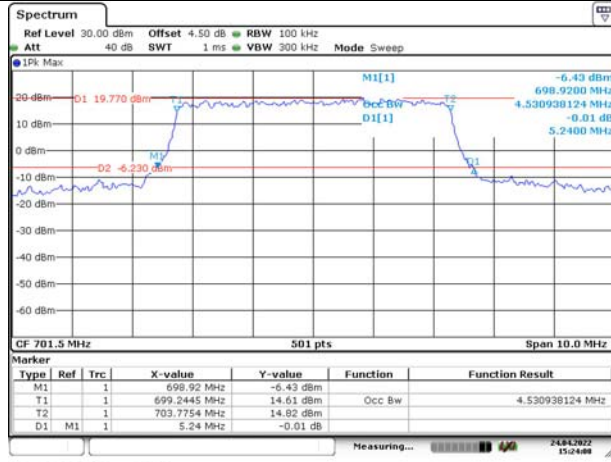
Occupied Bandwidth

Channel

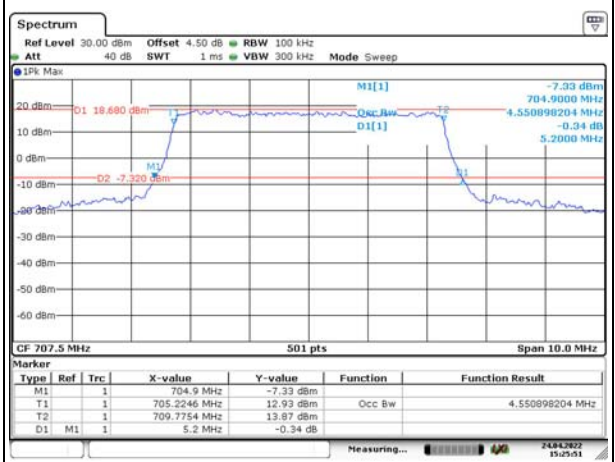
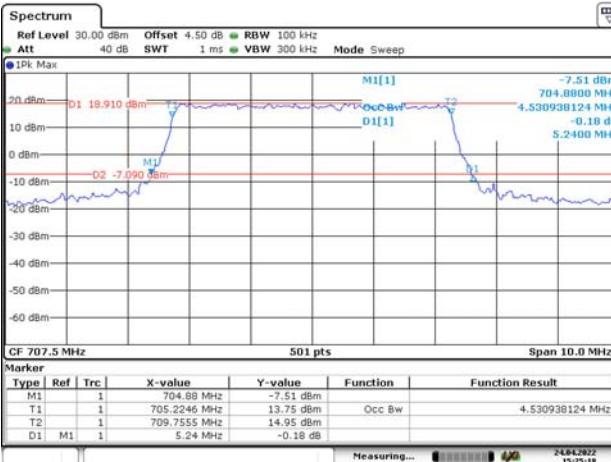
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

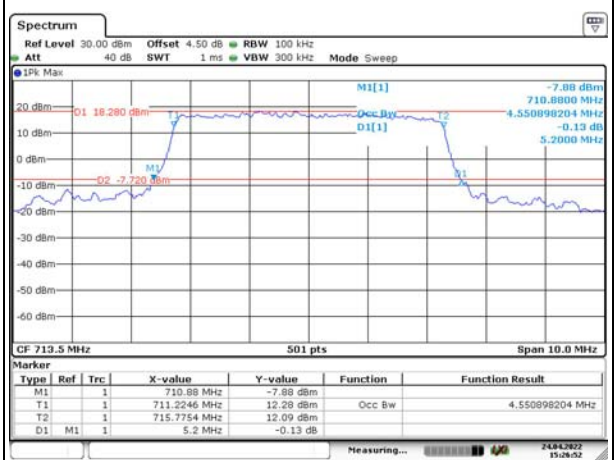
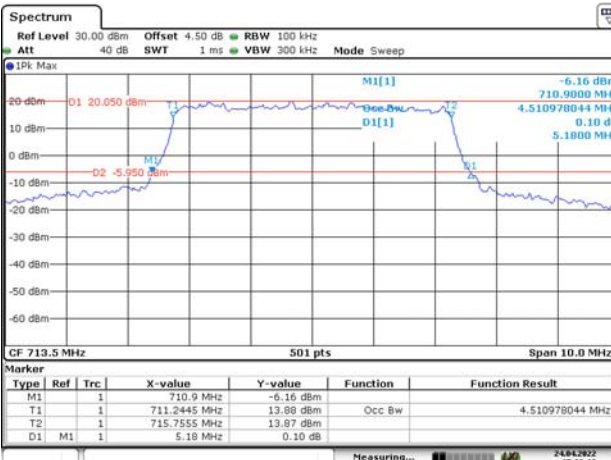
Lowest



Middle



Highest



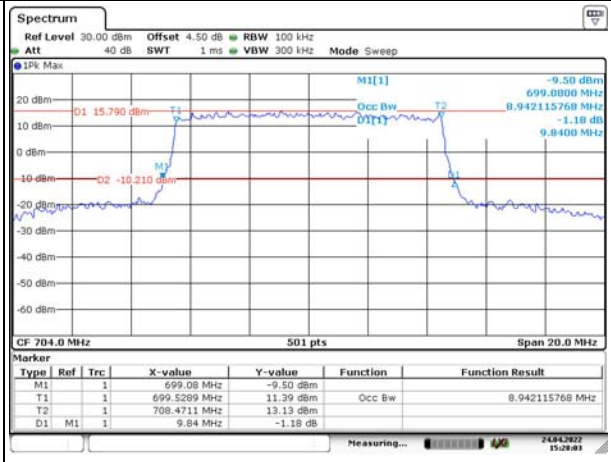
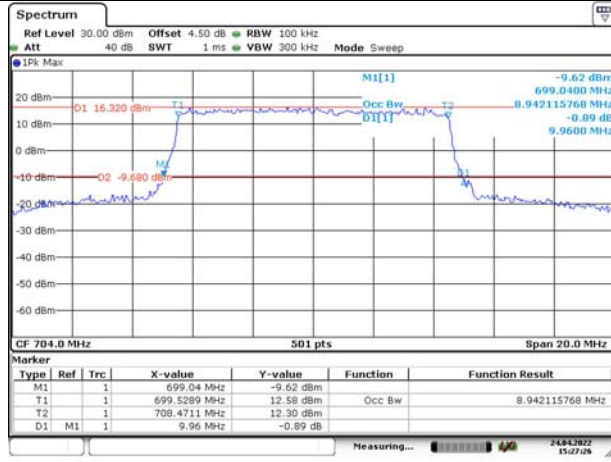
Occupied Bandwidth

Channel

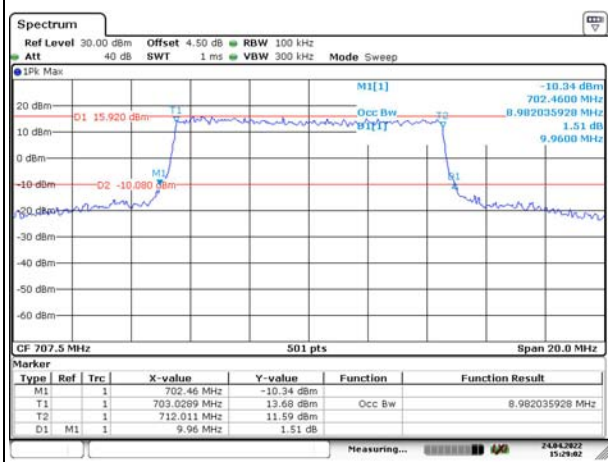
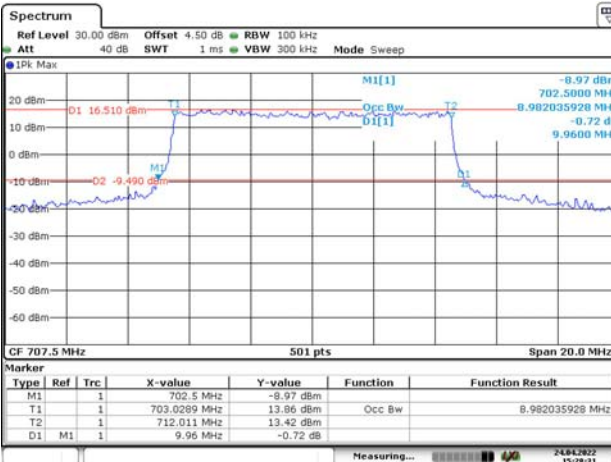
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

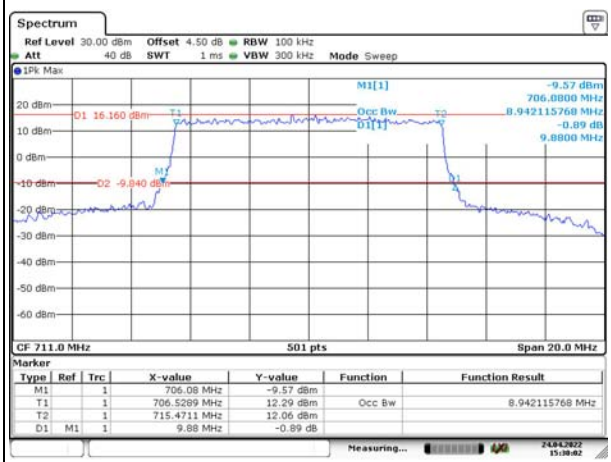
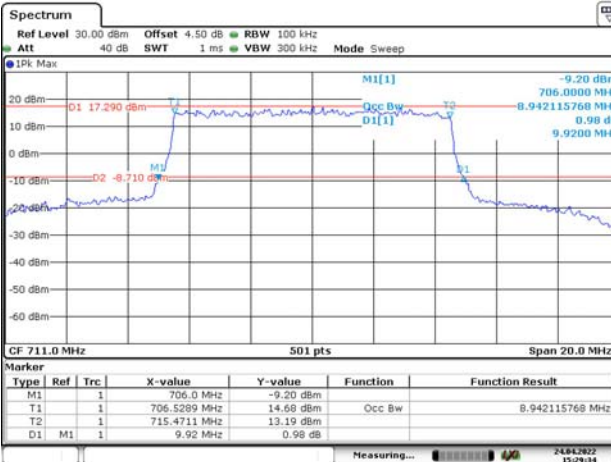
Lowest



Middle



Highest

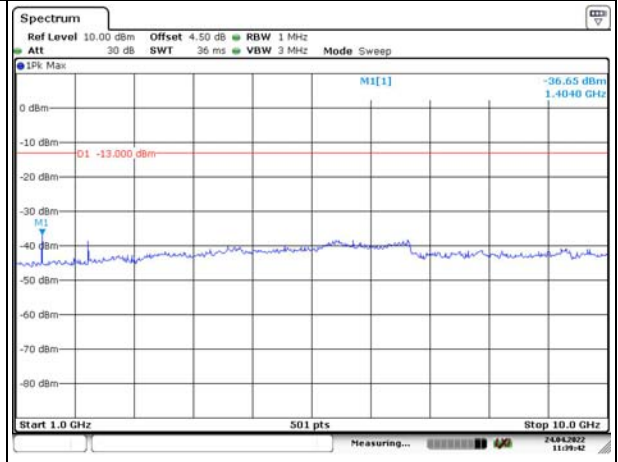
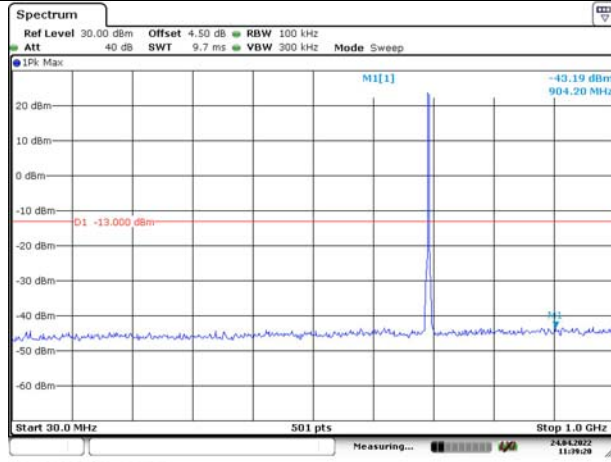


Spurious Emissions at Antenna Terminal

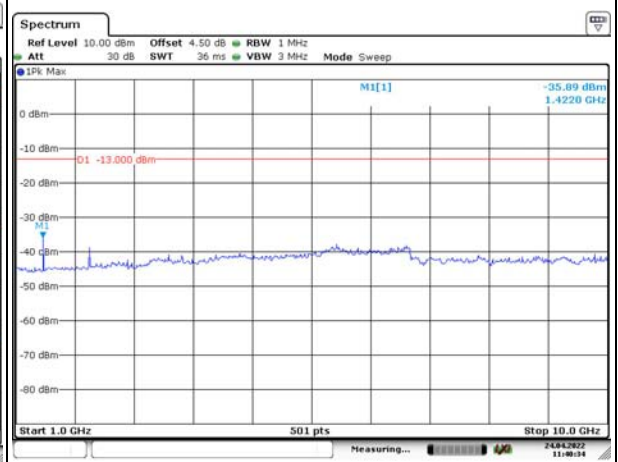
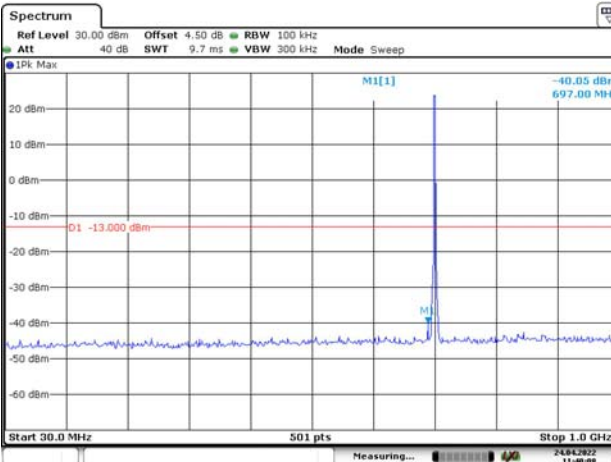
Channel

1.4MHz Bandwidth QPSK

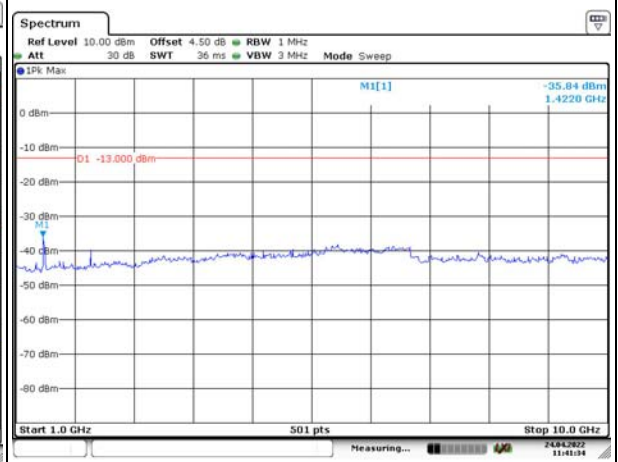
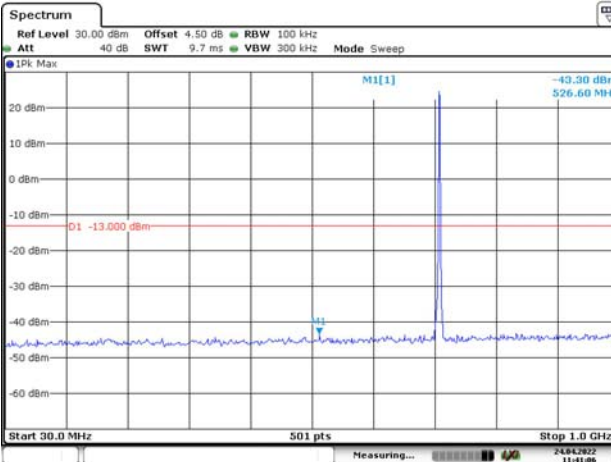
Lowest



Middle



Highest

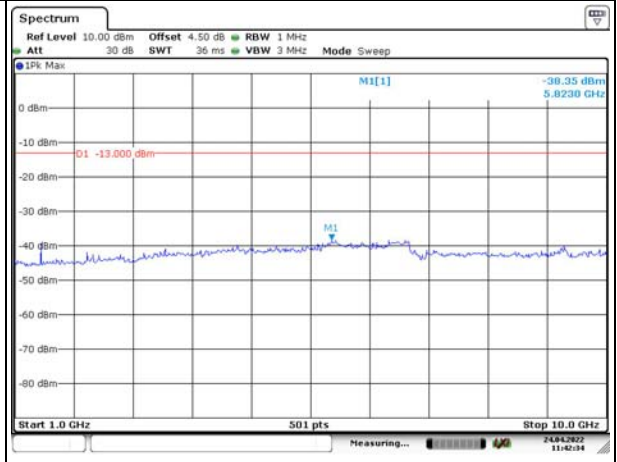
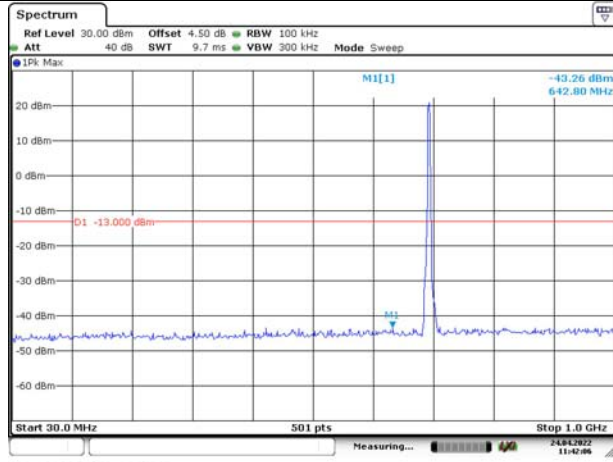


Spurious Emissions at Antenna Terminal

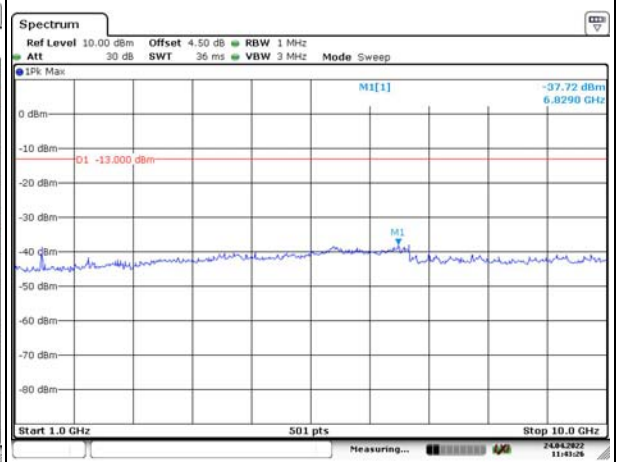
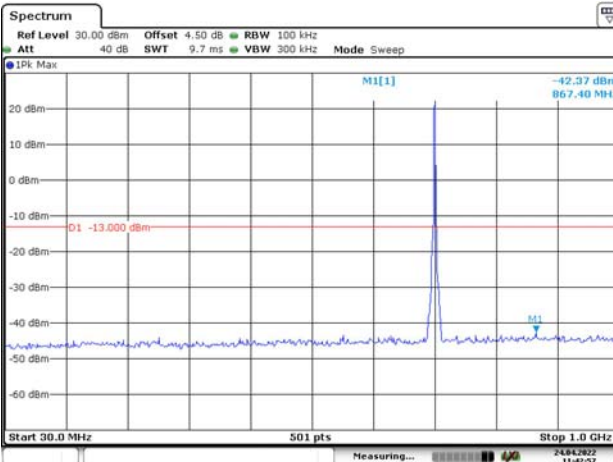
Channel

3MHz Bandwidth QPSK

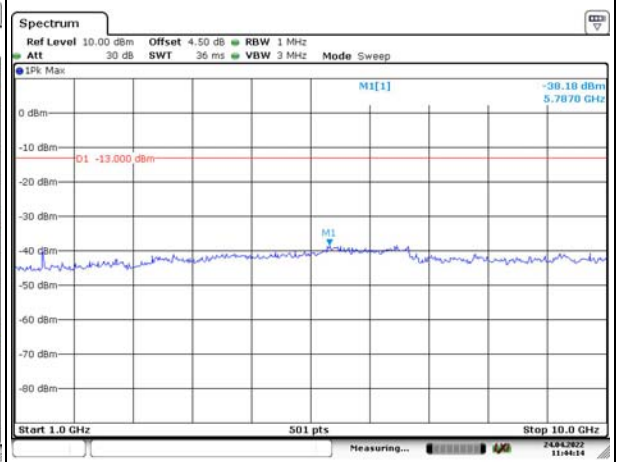
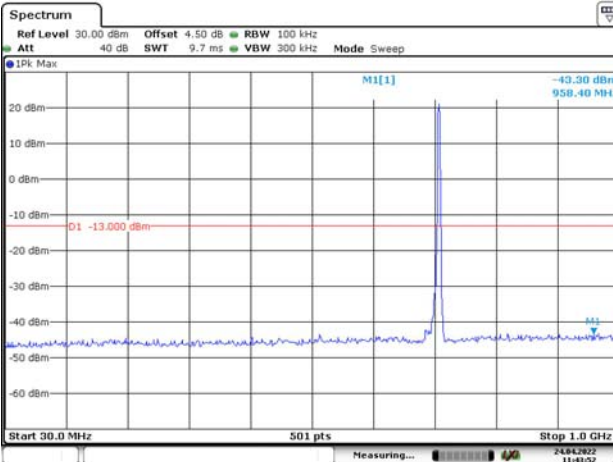
Lowest



Middle



Highest

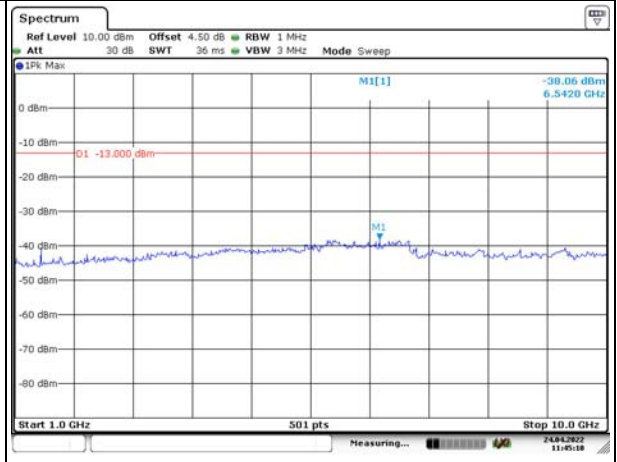
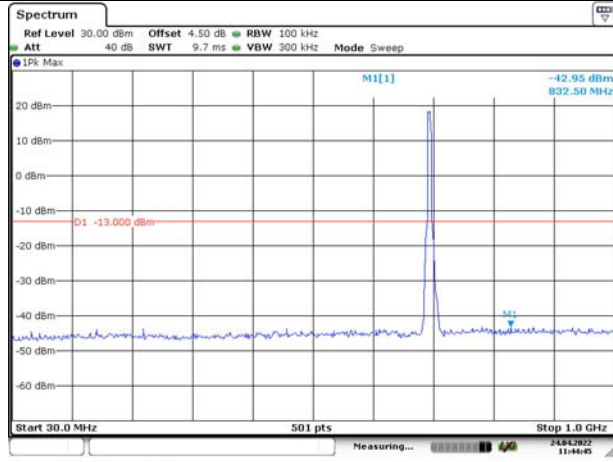


Spurious Emissions at Antenna Terminal

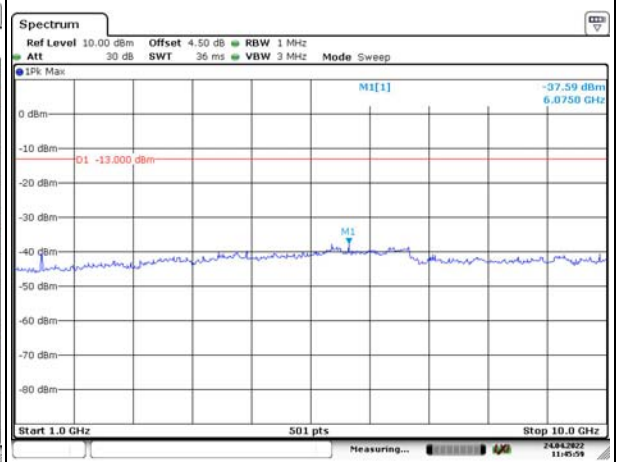
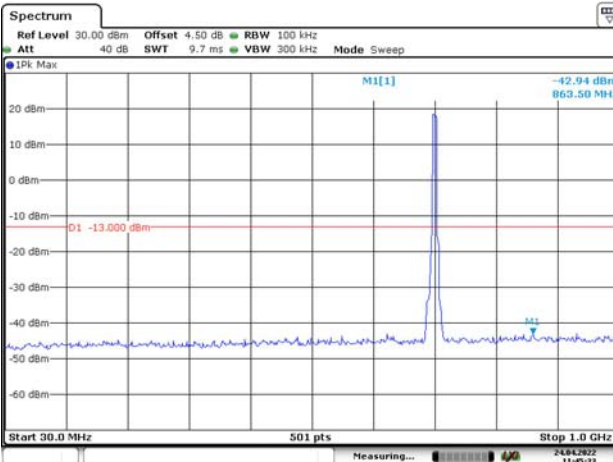
Channel

5MHz Bandwidth QPSK

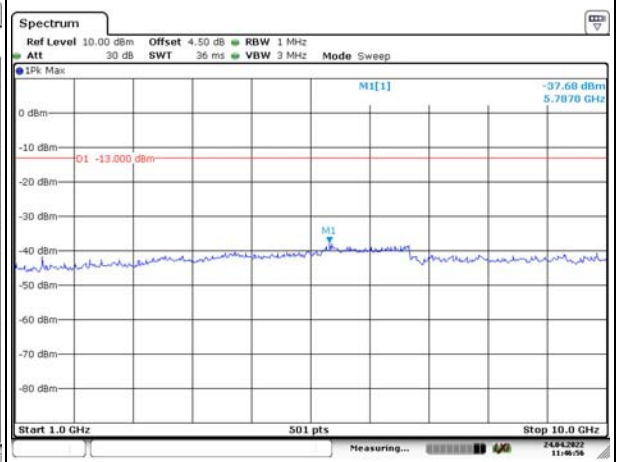
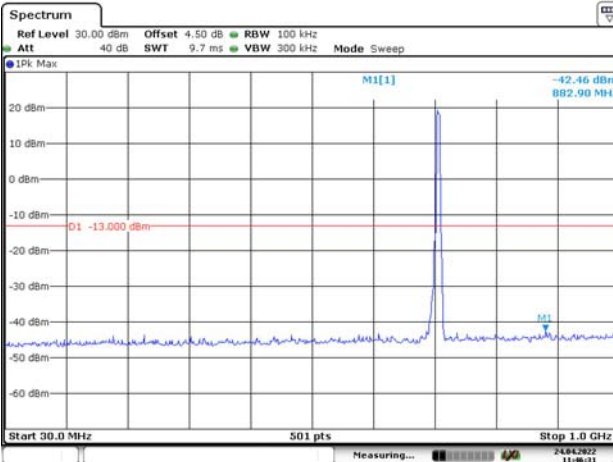
Lowest



Middle



Highest

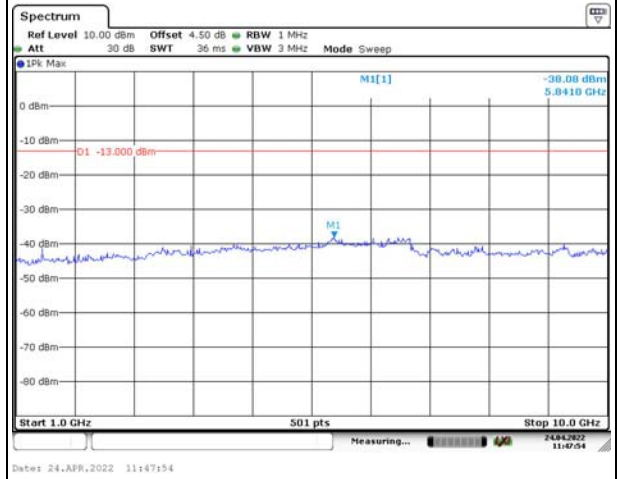
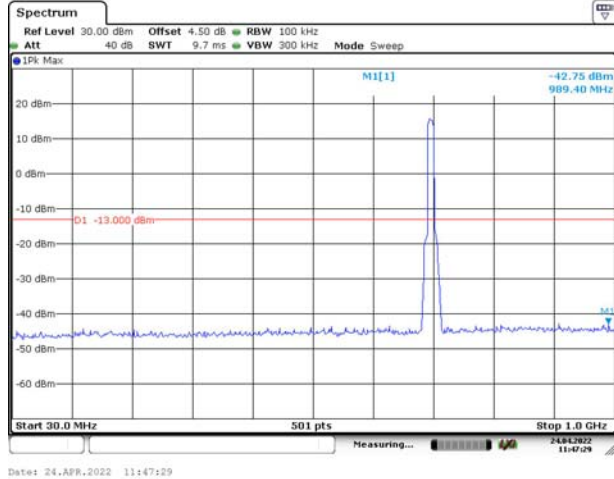


Spurious Emissions at Antenna Terminal

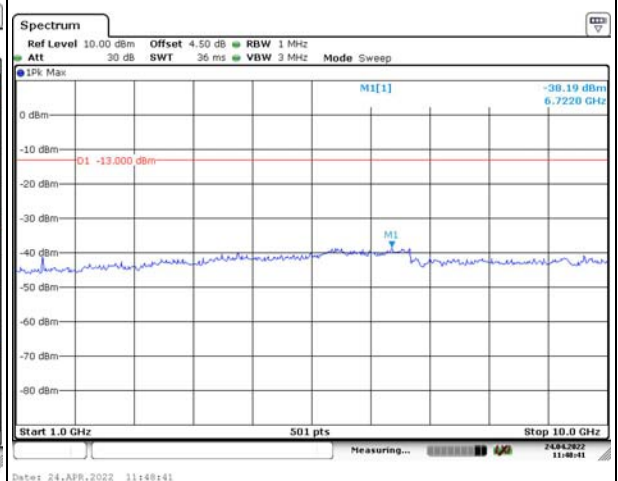
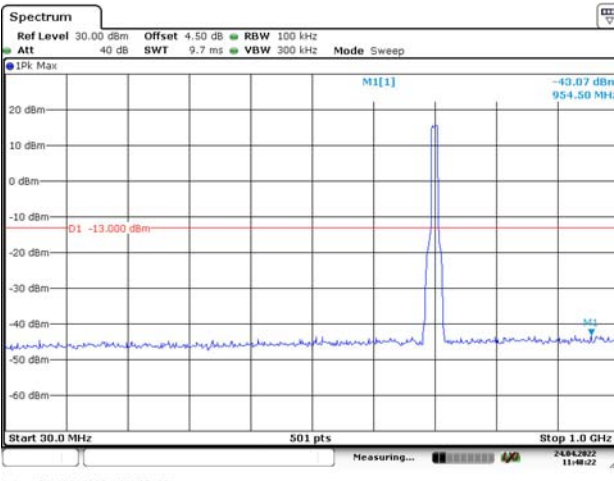
Channel

10MHz Bandwidth QPSK

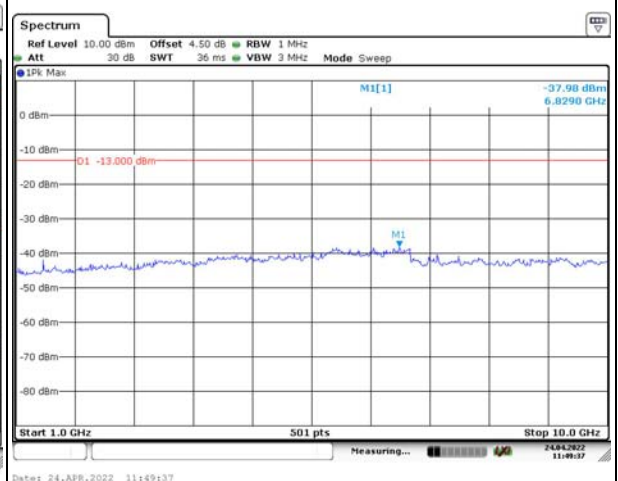
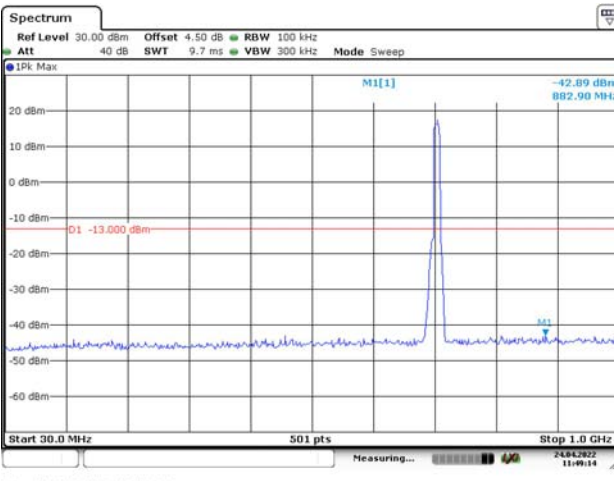
Lowest



Middle



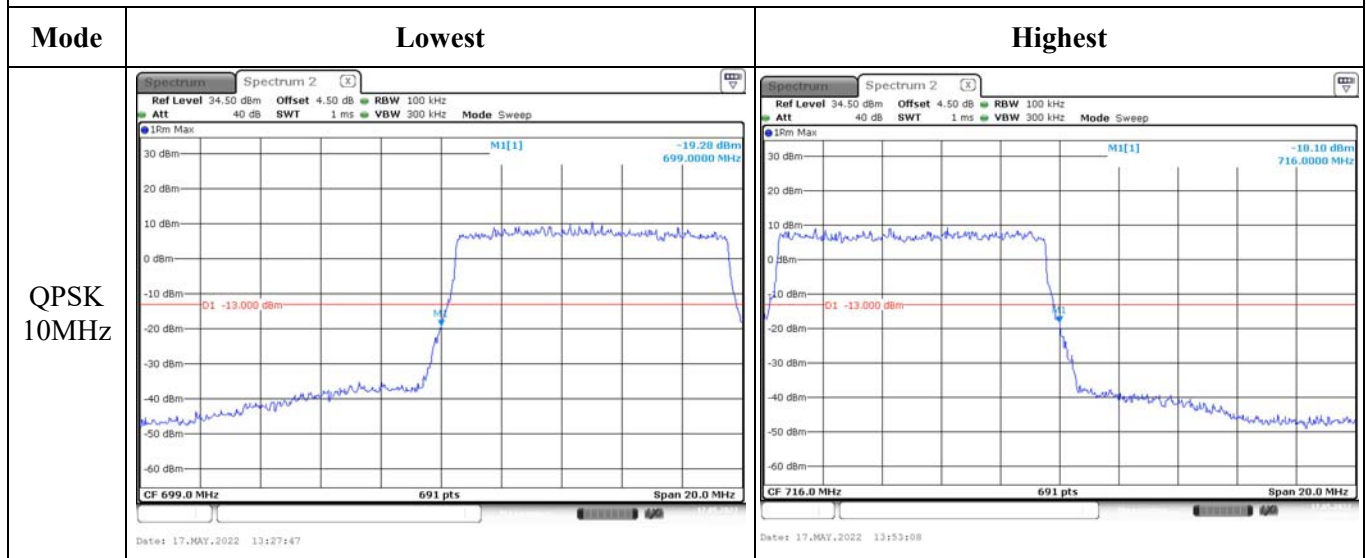
Highest



Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 1.4MHz	<p>Ref Level 34.50 dBm Offset 4.50 dB RBW 30 kHz Att 40 dB SWT 100 ms VBW 100 kHz Mode Sweep CF 699.0 MHz 691 pts Span 3.0 MHz Date: 27.APR.2022 16:08:52</p>	<p>Ref Level 34.50 dBm Offset 4.50 dB RBW 30 kHz Att 40 dB SWT 1.1 ms VBW 100 kHz Mode Sweep CF 716.0 MHz 691 pts Span 3.0 MHz Date: 17.MAY.2022 13:22:24</p>
QPSK 3MHz	<p>Ref Level 30.00 dBm Offset 4.50 dB RBW 30 kHz Att 40 dB SWT 1.1 ms VBW 100 kHz Mode Sweep CF 699.0 MHz 501 pts Span 6.0 MHz Date: 24.APR.2022 14:08:03</p>	<p>Ref Level 30.00 dBm Offset 4.50 dB RBW 30 kHz Att 40 dB SWT 1.1 ms VBW 100 kHz Mode Sweep CF 716.0 MHz 501 pts Span 6.0 MHz Date: 24.APR.2022 14:08:53</p>
QPSK 5MHz	<p>Ref Level 34.50 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 100 ms VBW 300 kHz Mode Sweep CF 699.0 MHz 691 pts Span 10.0 MHz Date: 27.APR.2022 16:15:31</p>	<p>Ref Level 34.50 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 100 ms VBW 300 kHz Mode Sweep CF 716.0 MHz 691 pts Span 10.0 MHz Date: 27.APR.2022 16:18:19</p>

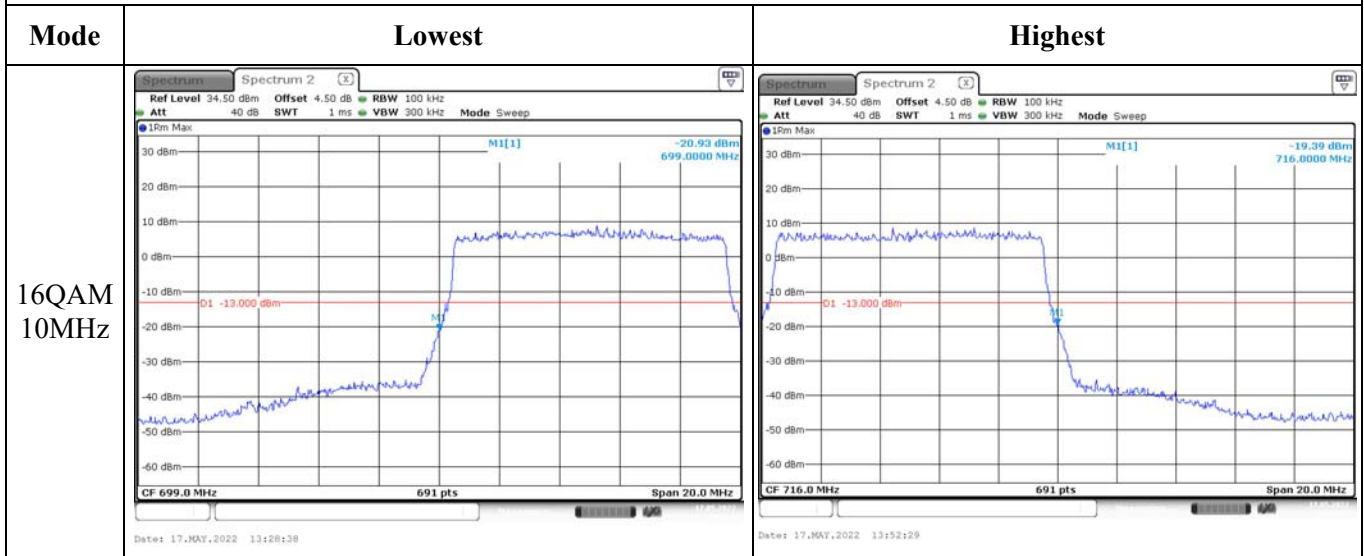
Out of band emission, Band Edge



Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 1.4MHz		
16QAM 3MHz		
16QAM 5MHz		

Out of band emission, Band Edge



4.10 Antenna Port Test Data and Results for LTE Band 17

Serial Number:	CR22040010-RF-S1	Test Date:	2022-04-24~2022-04-27
Test Site:	RF	Test Mode:	Transmitting
Tester:	Ada Yan	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	27.3~28.6	Relative Humidity:	46~56	ATM Pressure:	100.7~100.8
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	Spectrum Analyzer	101474	2021-07-22	2022-07-21
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Agilent	RF Communications Test Set	8960	E5515C	2021-07-22	2022-07-21
Weinschel	Coaxial Attenuators	53-20-34	LN751	Each time	N/A
R&S	Wideband Radio	CMW500	149218	2021-07-22	2022-07-21
BACL	TEMP&HUMI Test Chamber	BTH-150	30026	2021-07-22	2022-07-22
UNI-T	Multimeter	UT39A+	C210582554	2021-09-30	2022-09-30
E-Microwave	Two-way Splitter	ODP-1-6	OE0120176	Each Time	N/A

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

EUT Information@LTE Band 17▲:

Antenna Gain (dBi):	0.2	Antenna Gain (dBd):	-1.95	Cable Loss (dB):	1.0
Operation Voltage(V _{DC}):					
Lowest:	3.6	Normal:	3.8	Highest:	4.3

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
5MHz	706.5	710	713.5
10MHz	709	710	711

Test Data:**FCC§2.1046;§ 27.50(c) (10)****RF Output Power:**

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP(dBm)	ERP Limit(dBm)
		Lowest Channel	Middle Channel	Highest Channel		
5MHz QPSK	RB1#0	19.25	19.41	19.38	16.46	34.77
	RB1#13	19.19	19.36	19.29		
	RB1#24	19.24	19.23	19.23		
	RB15#0	18.97	18.86	19.00		
	RB15#10	18.92	18.94	18.80		
	RB25#0	18.98	18.94	18.87		
5MHz 16QAM	RB1#0	19.09	18.87	18.73	16.31	34.77
	RB1#13	19.26	19.01	18.87		
	RB1#24	19.12	18.90	18.79		
	RB15#0	17.91	17.84	18.01		
	RB15#10	17.93	17.97	17.81		
	RB25#0	17.98	17.91	17.89		
10MHz QPSK	RB1#0	19.34	19.32	19.39	16.44	34.77
	RB1#25	19.32	19.35	19.26		
	RB1#49	19.35	19.39	19.35		
	RB25#0	19.10	18.99	18.94		
	RB25#25	19.07	18.98	18.88		
	RB50#0	19.06	18.98	18.92		
10MHz 16QAM	RB1#0	19.47	19.04	18.89	16.52	34.77
	RB1#25	19.32	19.21	19.10		
	RB1#49	19.45	19.01	18.95		
	RB25#0	18.12	17.99	17.99		
	RB25#25	18.11	17.96	17.93		
	RB50#0	18.04	17.97	17.90		

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

Result:**Pass****Peak-to-average Ratio(PAR)**

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
10MHz QPSK	RB1#0	3.59	3.97	4.03	13
	RB50#0	4.64	4.70	4.67	13
10MHz 16QAM	RB1#0	4.64	4.87	4.99	13
	RB50#0	5.62	5.59	5.57	13
Result:					Pass

FCC §2.1049, §27.53:Occupied Bandwidth						
Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
5MHz QPSK	4.551	4.531	4.511	5.240	5.160	5.140
5MHz 16QAM	4.511	4.531	4.511	5.160	5.200	5.160
10MHz QPSK	9.022	8.981	8.942	10.080	9.880	9.880
10MHz 16QAM	8.981	8.981	8.942	9.920	9.840	9.880

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.

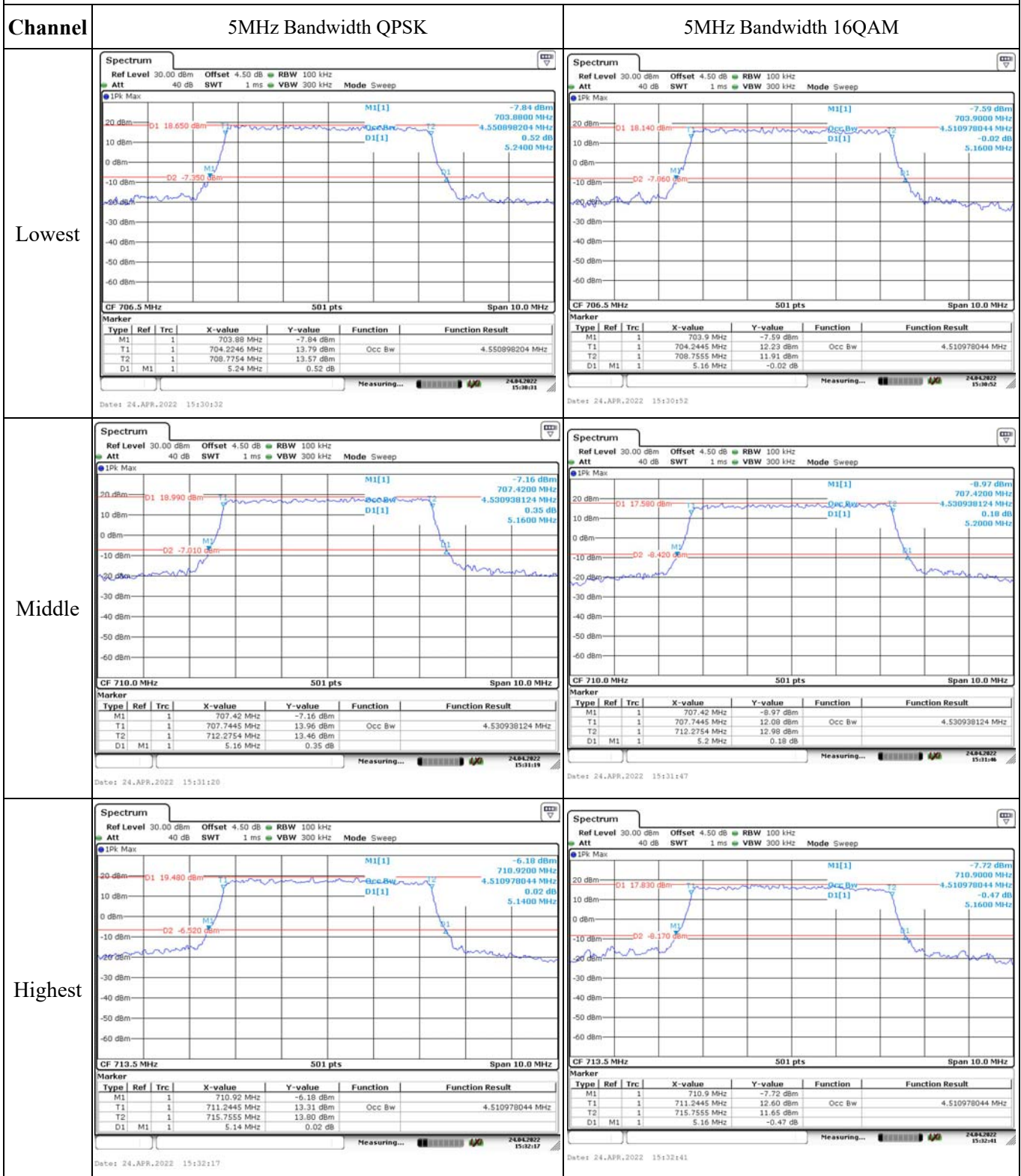
FCC §2.1051, §27.53:Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

FCC §2.1055, §27.54: Frequency Stability						
Test Mode:	10M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	704.168	704.00	715.878	716.00
	-20	3.8	704.172	704.00	715.872	716.00
	-10	3.8	704.162	704.00	715.872	716.00
	0	3.8	704.161	704.00	715.874	716.00
	10	3.8	704.158	704.00	715.876	716.00
	20	3.8	704.168	704.00	715.871	716.00
	30	3.8	704.173	704.00	715.873	716.00
	40	3.8	704.162	704.00	715.875	716.00
Frequency Stability vs. Voltage	20	3.6	704.165	704.00	715.878	716.00
	20	4.3	704.868	704.00	715.879	716.00
					Result:	Pass

Test Mode:	10M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	704.156	704.00	715.873	716.00
	-20	3.8	704.173	704.00	715.871	716.00
	-10	3.8	704.164	704.00	715.872	716.00
	0	3.8	704.166	704.00	715.872	716.00
	10	3.8	704.156	704.00	715.874	716.00
	20	3.8	704.163	704.00	715.872	716.00
	30	3.8	704.173	704.00	715.877	716.00
	40	3.8	704.143	704.00	715.873	716.00
Frequency Stability vs. Voltage	20	3.6	704.163	704.00	715.872	716.00
	20	4.3	704.868	704.00	715.856	716.00
					Result:	Pass

Test Plots:

Occupied Bandwidth



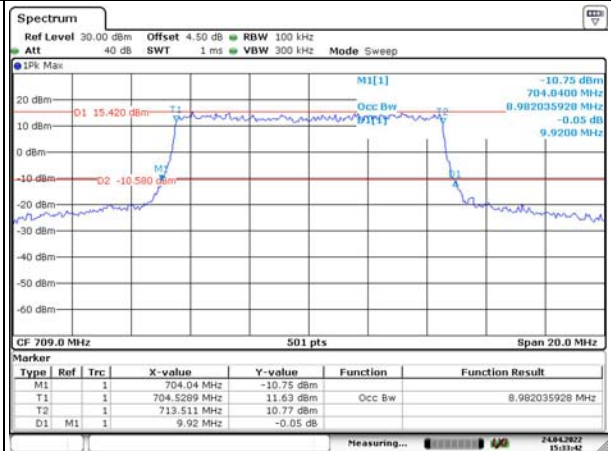
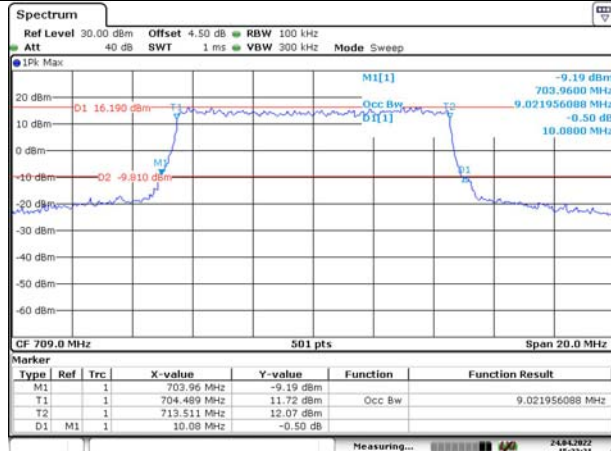
Occupied Bandwidth

Channel

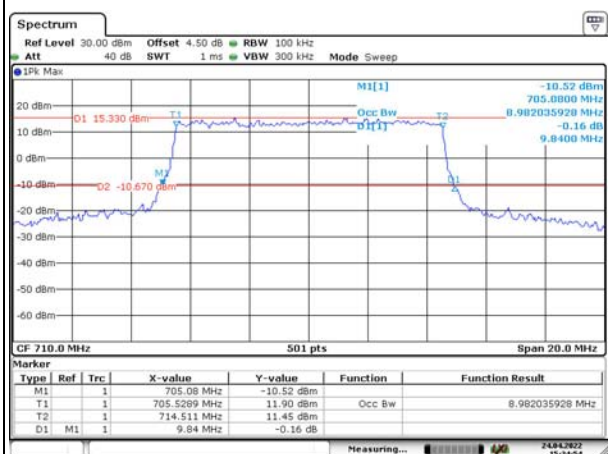
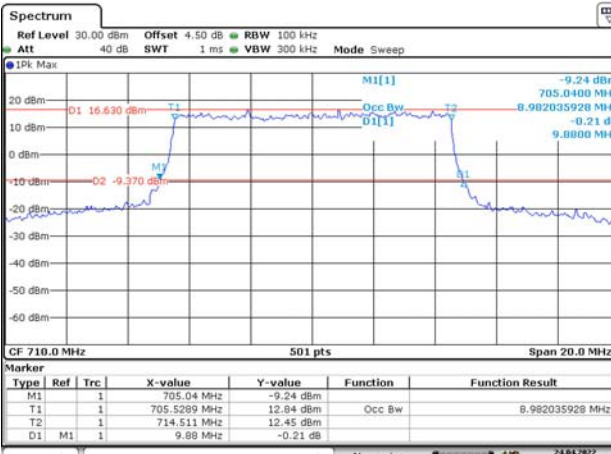
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

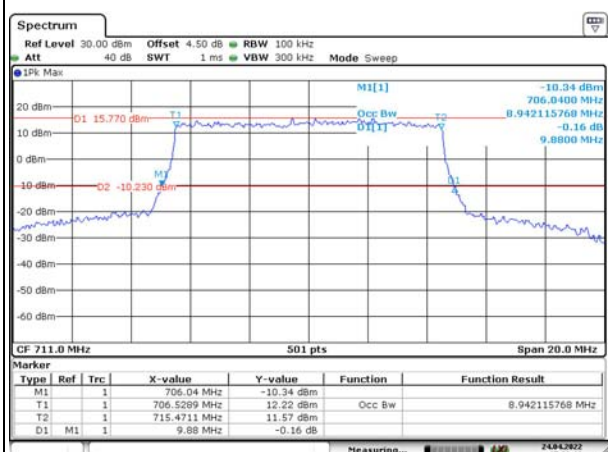
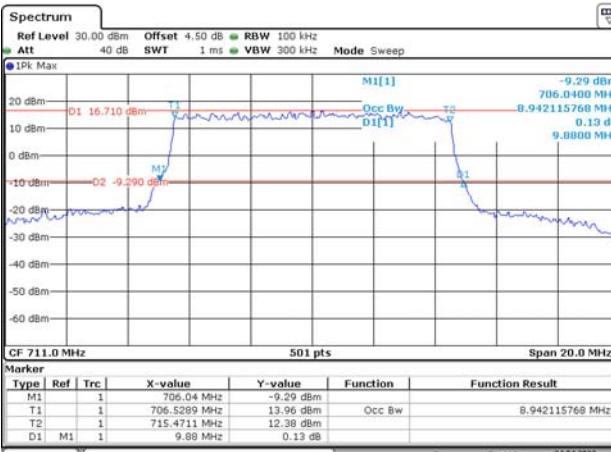
Lowest



Middle



Highest

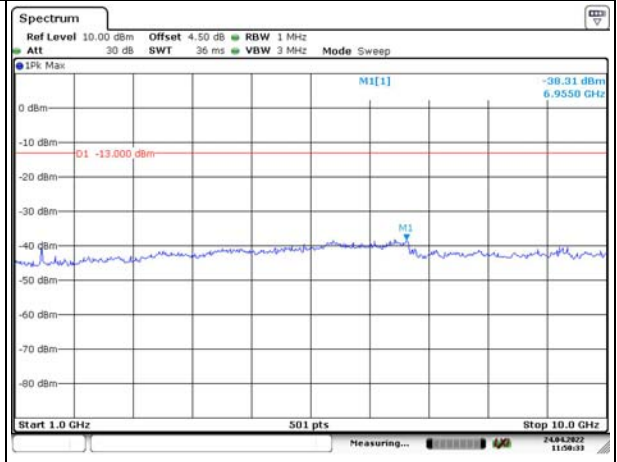
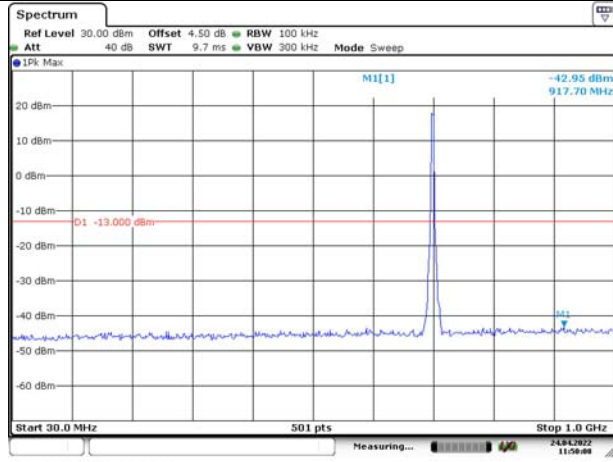


Spurious Emissions at Antenna Terminal

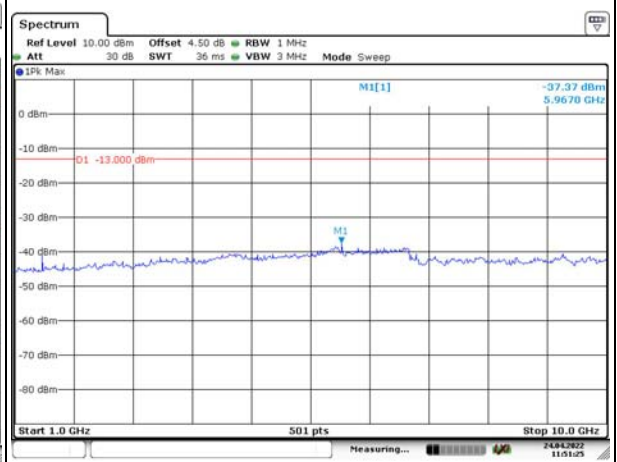
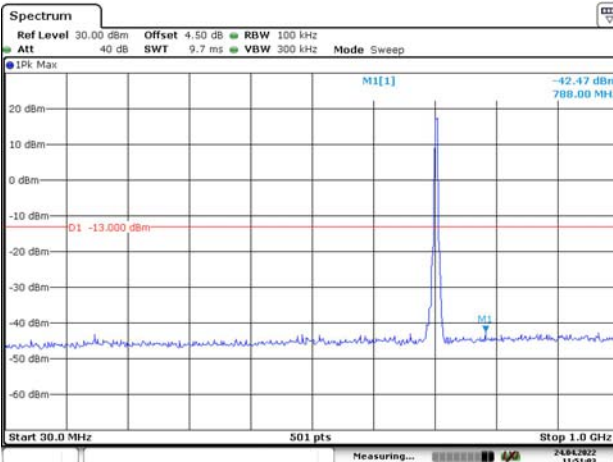
Channel

5MHz Bandwidth QPSK

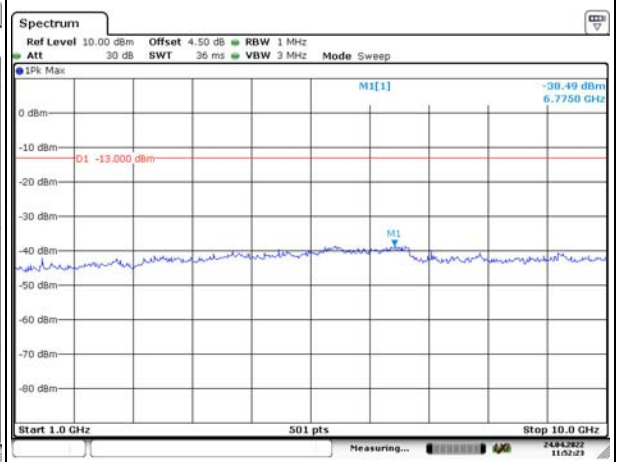
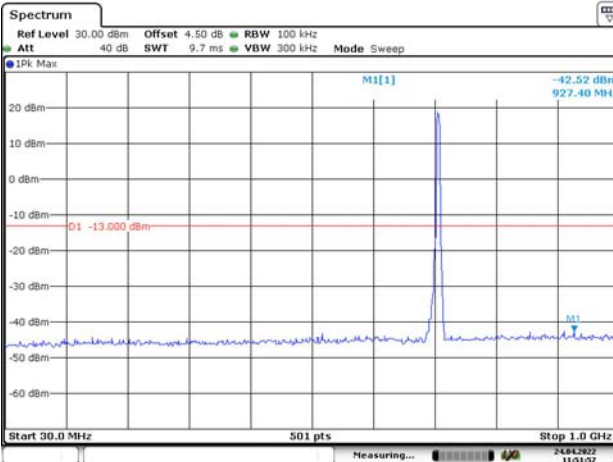
Lowest



Middle



Highest

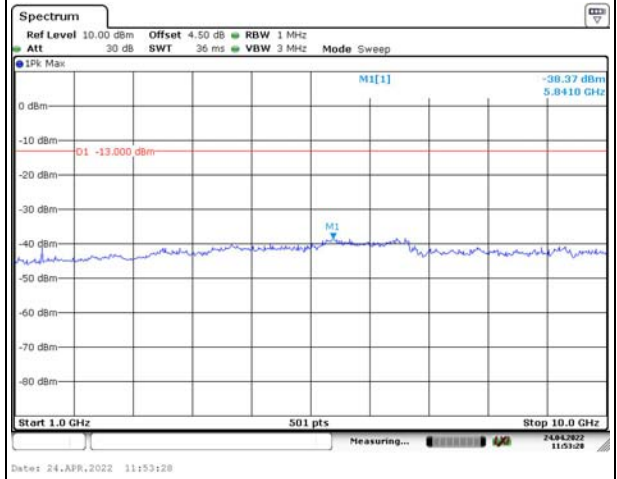
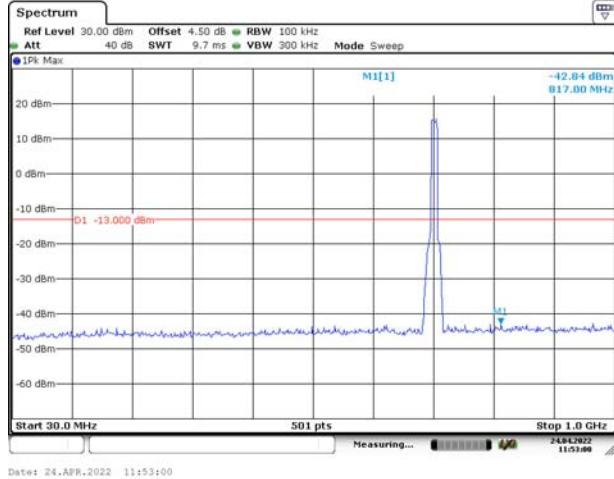


Spurious Emissions at Antenna Terminal

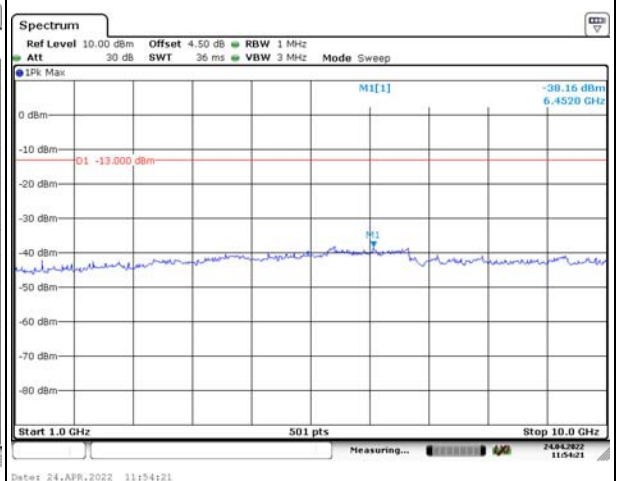
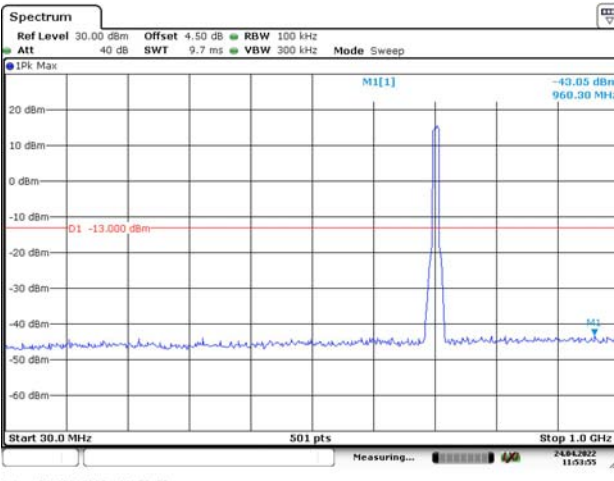
Channel

10MHz Bandwidth QPSK

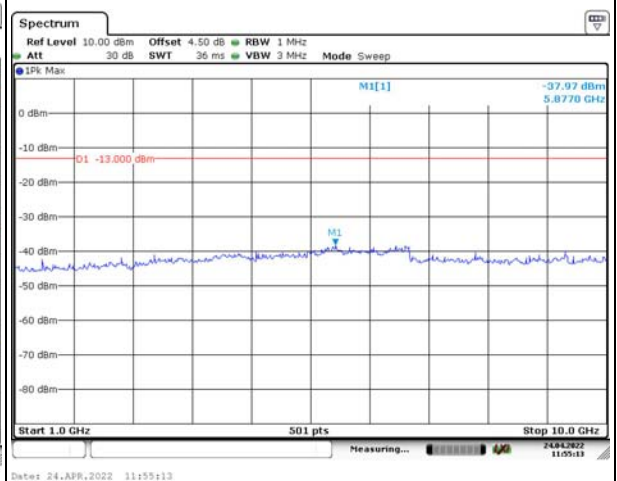
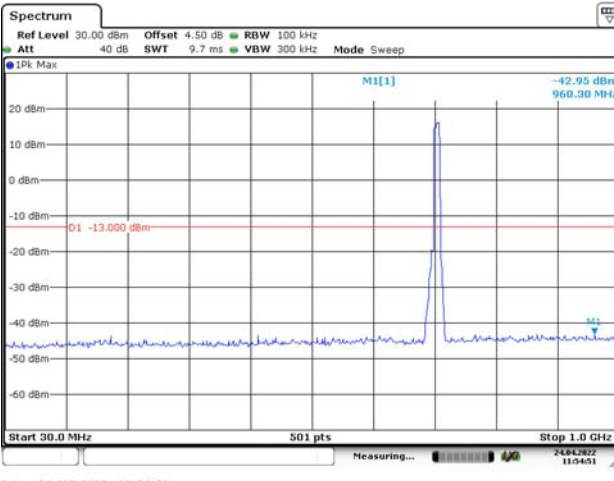
Lowest



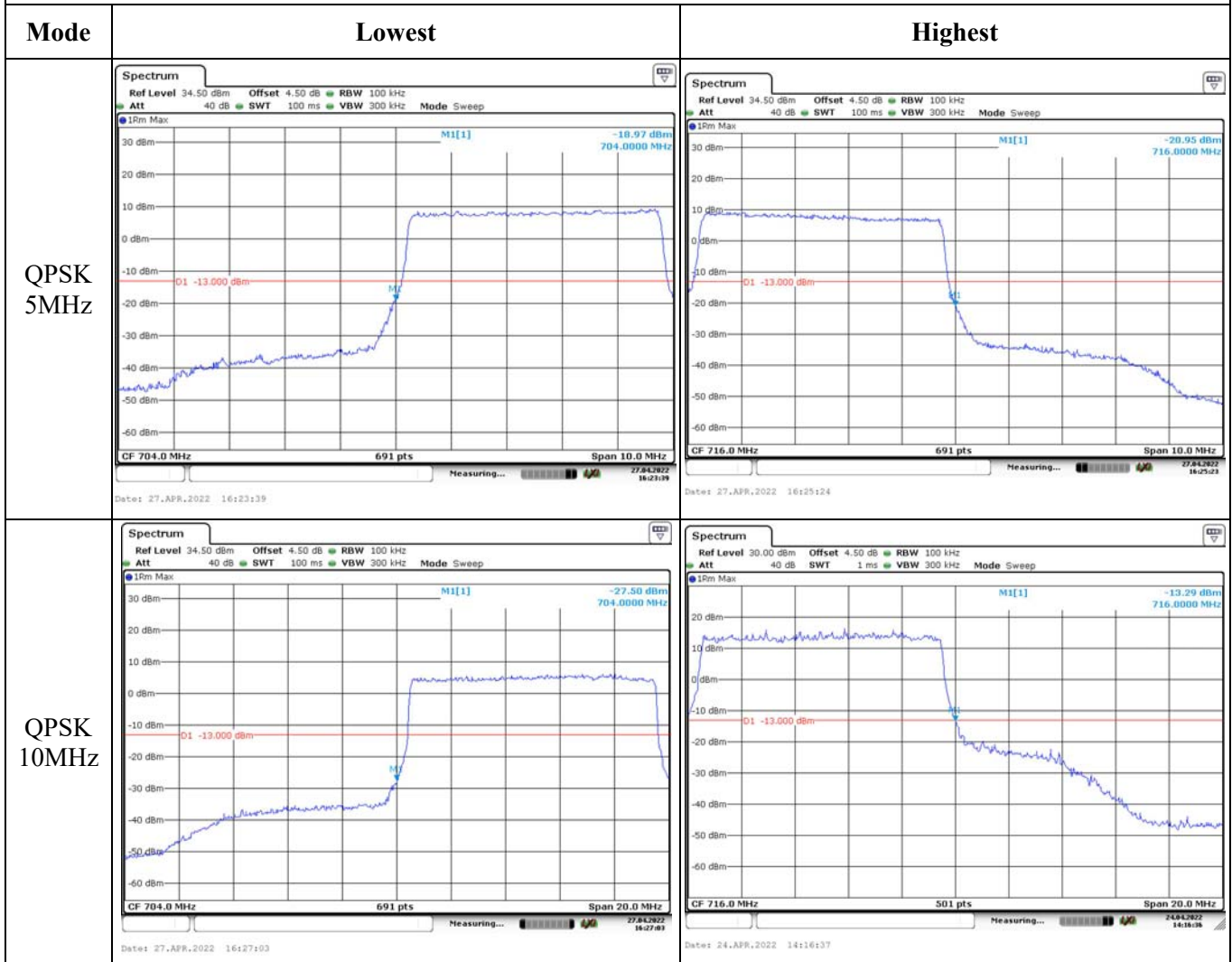
Middle



Highest



Out of band emission, Band Edge



Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 5MHz		
16QAM 10MHz		

4.11 Antenna Port Test Data and Results for LTE Band 66

Serial Number:	CR22040010-RF-S1	Test Date:	2022-04-24~2022-05-17
Test Site:	RF	Test Mode:	Transmitting
Tester:	Ada Yan	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	27.3~28.6	Relative Humidity:	46~56	ATM Pressure:	100.7~100.8
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	Spectrum Analyzer	101474	2021-07-22	2022-07-21
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Coaxial Attenuators	53-20-34	LN751	Each time	N/A
R&S	Wideband Radio	CMW500	149218	2021-07-22	2022-07-21
BACL	TEMP&HUMI Test Chamber	BTH-150	30026	2021-07-22	2022-07-22
UNI-T	Multimeter	UT39A+	C210582554	2021-09-30	2022-09-30
E-Microwave	Two-way Splitter	ODP-1-6	OE0120176	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 66▲:

Antenna Gain (dBi):	0.6	Cable Loss (dB):	1.0
Operation Voltage(V _{DC}):			
Lowest:	3.6	Normal:	3.8
		Highest:	4.3

Test Frequency For Each Mode:

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

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

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
1.4MHz QPSK	RB1#0	20.79	19.88	19.78	20.47	30
	RB1#3	20.87	20.09	19.99		
	RB1#5	20.72	19.89	19.81		
	RB3#0	20.83	19.95	19.86		
	RB3#3	20.71	19.90	19.86		
	RB6#0	19.88	18.99	18.95		
1.4MHz 16QAM	RB1#0	19.85	18.94	18.86	19.7	30
	RB1#3	20.04	19.14	19.07		
	RB1#5	19.76	18.97	18.90		
	RB3#0	20.10	18.84	19.04		
	RB3#3	20.03	18.87	18.99		
	RB6#0	18.85	17.92	17.84		
3MHz QPSK	RB1#0	20.92	20.04	20.00	20.52	30
	RB1#8	20.78	20.06	19.95		
	RB1#14	20.64	20.00	19.97		
	RB6#0	19.96	18.96	18.98		
	RB6#9	19.80	19.01	18.99		
	RB15#0	19.89	18.97	19.00		
3MHz 16QAM	RB1#0	20.47	19.09	19.04	20.07	30
	RB1#8	20.34	19.08	18.99		
	RB1#14	20.24	19.07	19.01		
	RB6#0	18.95	17.98	17.92		
	RB6#9	18.80	17.98	17.92		
	RB15#0	18.89	17.86	18.01		
5MHz QPSK	RB1#0	20.78	19.89	19.84	20.38	30
	RB1#13	20.69	19.97	19.94		
	RB1#24	20.37	19.86	19.78		
	RB15#0	19.87	18.90	18.95		
	RB15#10	19.62	18.96	18.98		
	RB25#0	19.74	18.94	18.92		
5MHz 16QAM	RB1#0	19.73	19.17	18.95	19.33	30
	RB1#13	19.65	19.25	19.06		
	RB1#24	19.34	19.11	18.91		
	RB15#0	18.84	17.83	17.93		
	RB15#10	18.63	17.86	17.95		
	RB25#0	18.70	17.86	17.90		

10MHz QPSK	RB1#0	20.80	19.90	19.93	20.4	30
	RB1#25	20.54	20.12	20.08		
	RB1#49	20.21	19.88	19.81		
	RB25#0	19.81	19.02	19.10		
	RB25#25	19.42	19.02	19.11		
	RB50#0	19.63	19.02	19.10		
10MHz 16QAM	RB1#0	20.33	19.09	18.94	19.93	30
	RB1#25	20.22	19.26	19.14		
	RB1#49	19.87	19.01	18.87		
	RB25#0	18.82	17.98	18.13		
	RB25#25	18.39	17.98	18.05		
	RB50#0	18.59	17.95	18.03		
15MHz QPSK	RB1#0	20.62	19.88	19.83	20.22	30
	RB1#38	20.31	19.93	19.97		
	RB1#74	20.05	19.73	19.69		
	RB36#0	19.67	19.01	19.09		
	RB36#39	19.34	18.94	19.00		
	RB75#0	19.48	19.00	19.04		
15MHz 16QAM	RB1#0	20.18	19.04	19.21	19.78	30
	RB1#38	19.96	19.07	19.41		
	RB1#74	19.70	18.83	19.17		
	RB36#0	18.64	18.01	18.00		
	RB36#39	18.30	17.91	17.92		
	RB75#0	18.52	17.93	18.01		
20MHz QPSK	RB1#0	20.55	19.78	19.39	20.15	30
	RB1#50	20.46	20.16	20.04		
	RB1#99	19.98	19.60	19.50		
	RB50#0	19.73	19.00	19.13		
	RB50#50	19.38	18.87	18.98		
	RB100#0	19.59	18.97	19.09		
20MHz 16QAM	RB1#0	19.82	19.08	18.84	19.42	30
	RB1#50	19.75	19.20	19.65		
	RB1#99	19.35	18.75	19.14		
	RB50#0	18.66	17.96	18.05		
	RB50#50	18.35	17.88	17.93		
	RB100#0	18.55	17.92	18.03		

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	5.16	5.59	5.13	13
	RB100#0	5.25	5.13	5.42	13
20MHz 16QAM	RB1#0	5.39	5.97	6.03	13
	RB100#0	5.97	6.09	6.17	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	1.108	1.296	1.314	1.320
1.4MHz 16QAM	1.096	1.102	1.096	1.290	1.332	1.296
3MHz QPSK	2.695	2.695	2.683	2.880	2.880	2.892
3MHz 16QAM	2.671	2.683	2.683	2.892	2.880	2.880
5MHz QPSK	4.531	4.531	4.511	5.180	5.200	5.640
5MHz 16QAM	4.511	4.531	4.551	5.160	5.200	5.200
10MHz QPSK	8.981	8.942	8.981	10.000	9.840	9.960
10MHz 16QAM	8.942	8.981	8.981	9.760	9.920	10.000
15MHz QPSK	13.533	13.473	13.593	15.300	15.660	15.360
15MHz 16QAM	13.533	13.593	13.593	16.320	15.180	15.300
20MHz QPSK	17.964	18.124	18.044	19.760	20.000	19.680
20MHz 16QAM	18.044	18.044	18.044	19.920	19.840	19.760
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.

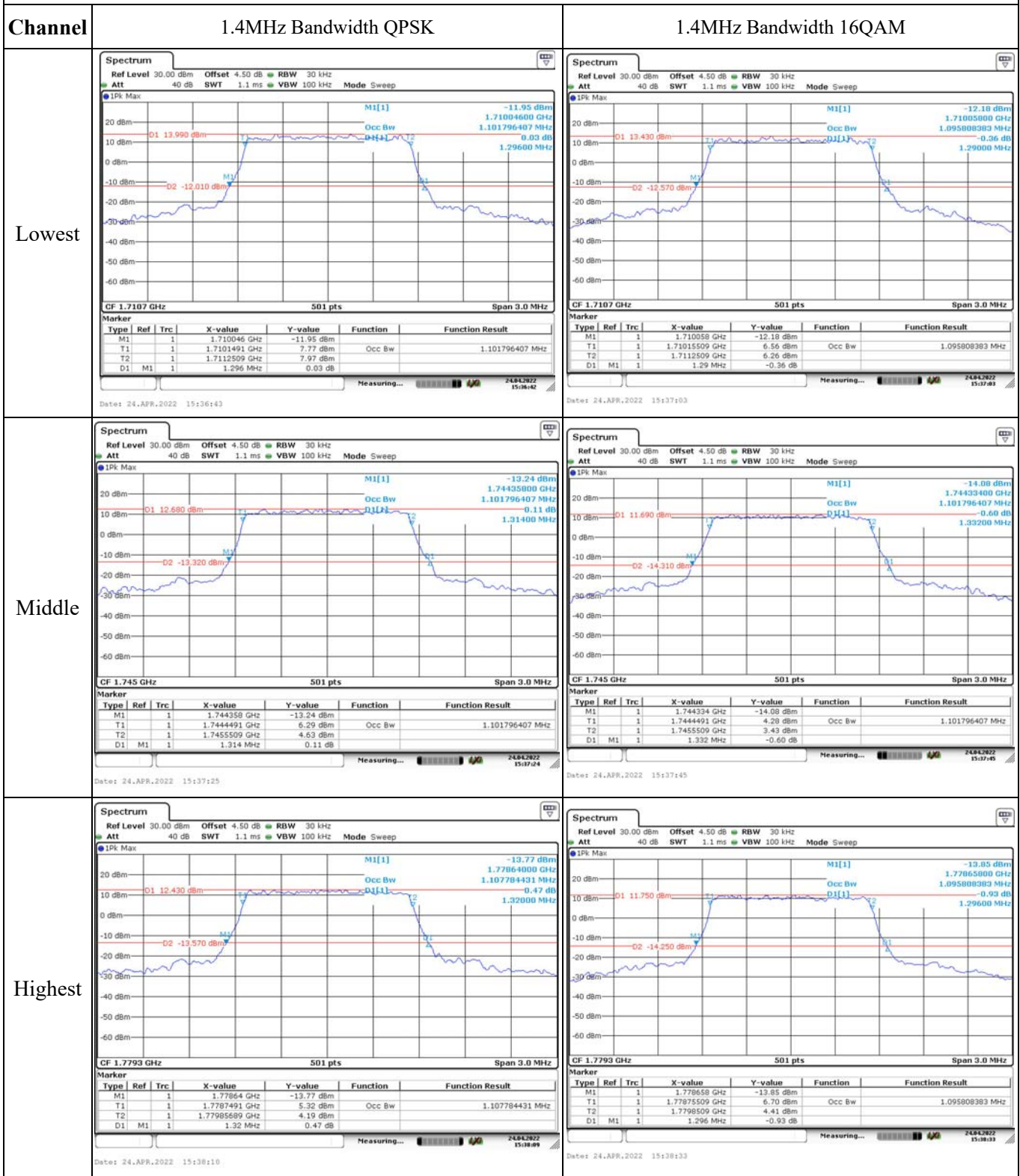
FCC §2.1051, § 27.53:Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

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	1710.899	1710.00	1779.887	1780
	-20	3.8	1710.894	1710.00	1779.885	1780
	-10	3.8	1710.881	1710.00	1779.881	1780
	0	3.8	1710.895	1710.00	1779.876	1780
	10	3.8	1710.894	1710.00	1779.892	1780
	20	3.8	1710.890	1710.00	1779.887	1780
	30	3.8	1710.882	1710.00	1779.881	1780
	40	3.8	1710.886	1710.00	1779.893	1780
Frequency Stability vs. Voltage	20	3.6	1710.890	1710.00	1779.887	1780
	20	4.3	1710.881	1710.00	1779.885	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	1710.891	1710.00	1779.886	1780
	-20	3.8	1710.893	1710.00	1779.883	1780
	-10	3.8	1710.885	1710.00	1779.883	1780
	0	3.8	1710.897	1710.00	1779.874	1780
	10	3.8	1710.891	1710.00	1779.894	1780
	20	3.8	1710.892	1710.00	1779.885	1780
	30	3.8	1710.886	1710.00	1779.882	1780
	40	3.8	1710.883	1710.00	1779.894	1780
Frequency Stability vs. Voltage	20	3.6	1710.892	1710.00	1779.883	1780
	20	4.3	1710.883	1710.00	1779.883	1780
					Result:	Pass

Test Plots:

Occupied Bandwidth



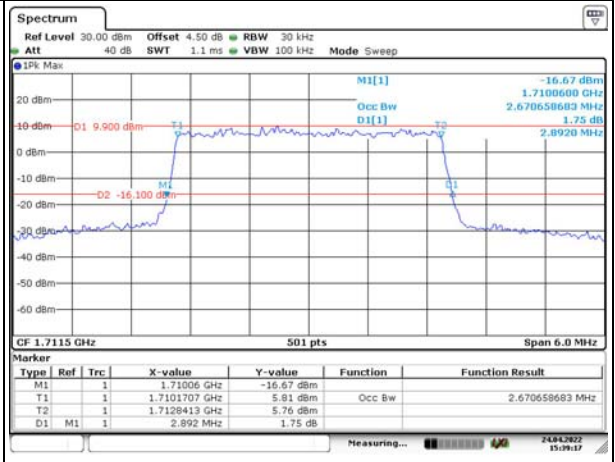
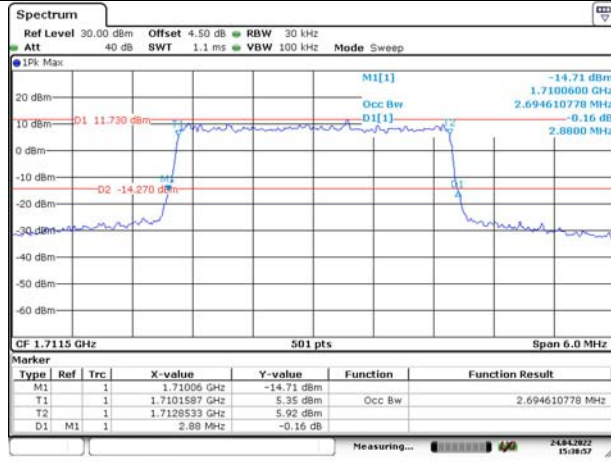
Occupied Bandwidth

Channel

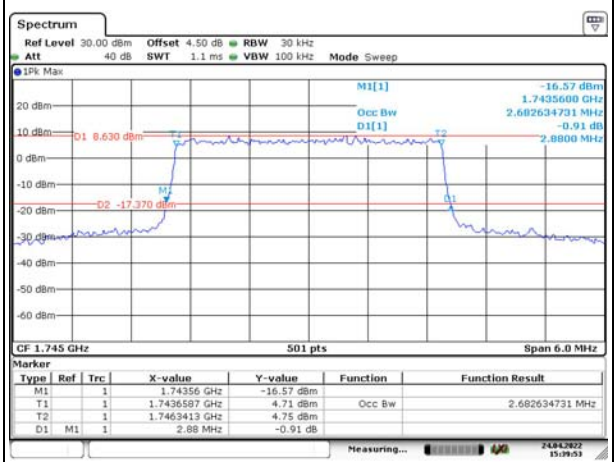
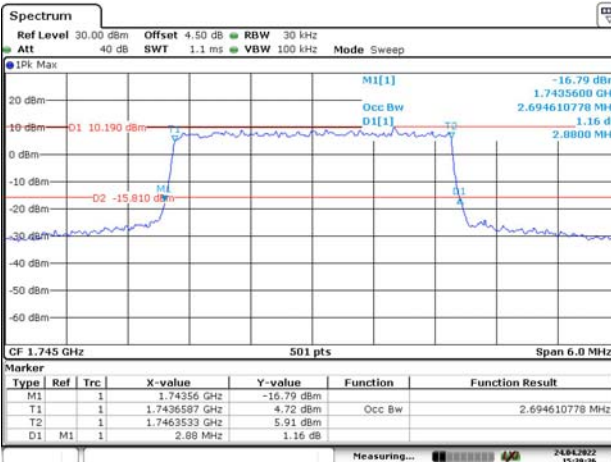
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

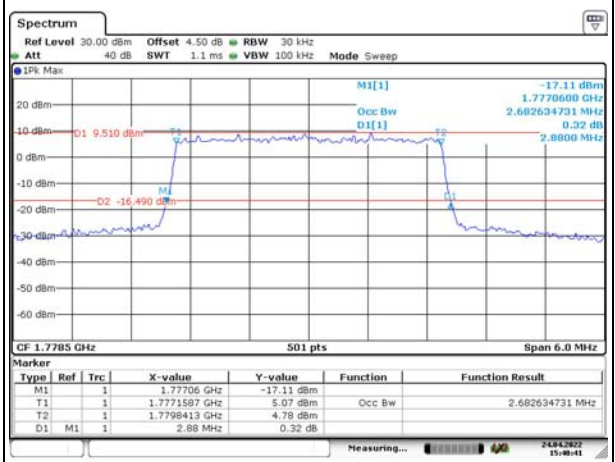
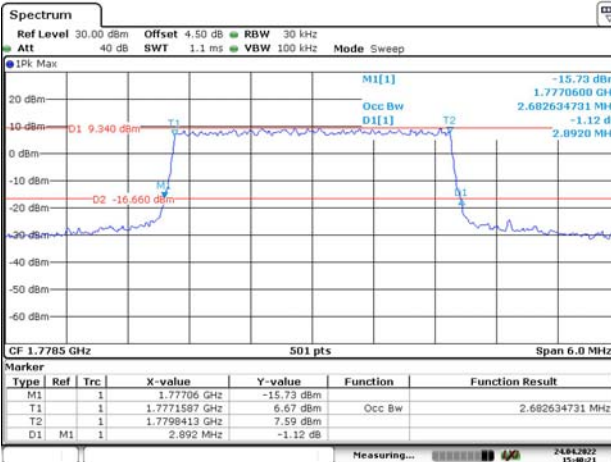
Lowest



Middle



Highest



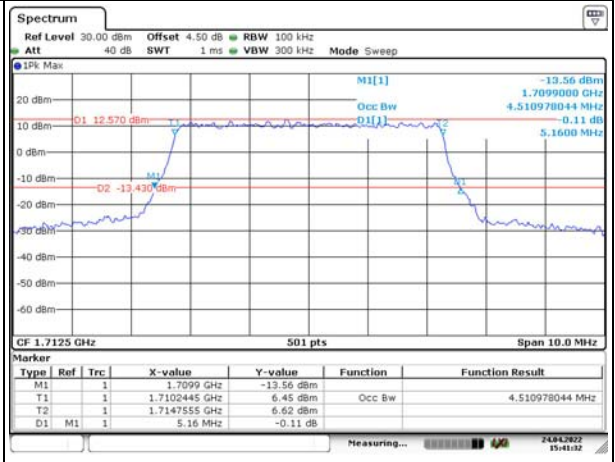
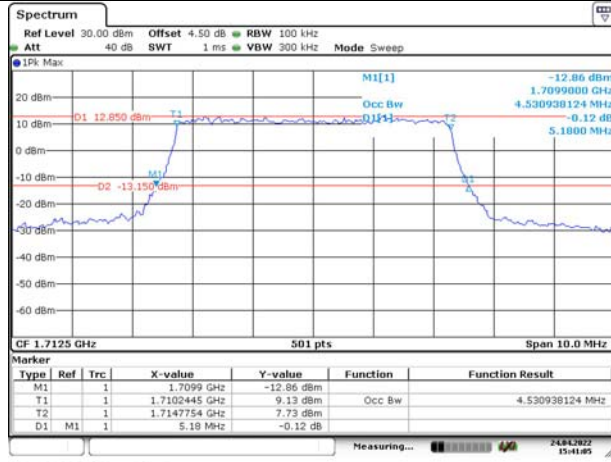
Occupied Bandwidth

Channel

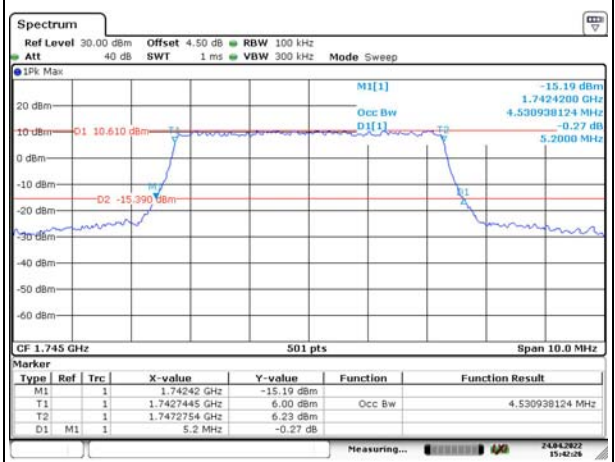
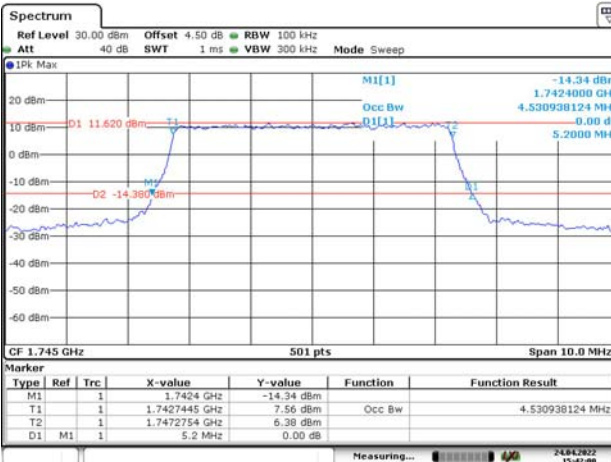
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

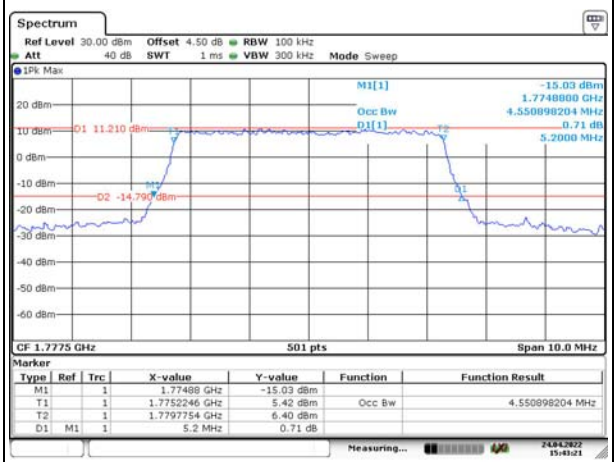
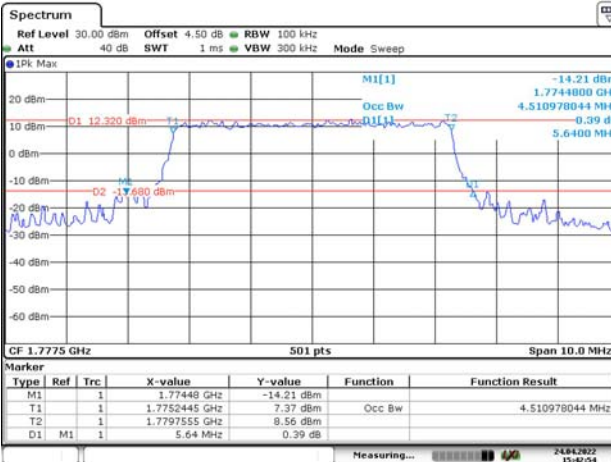
Lowest



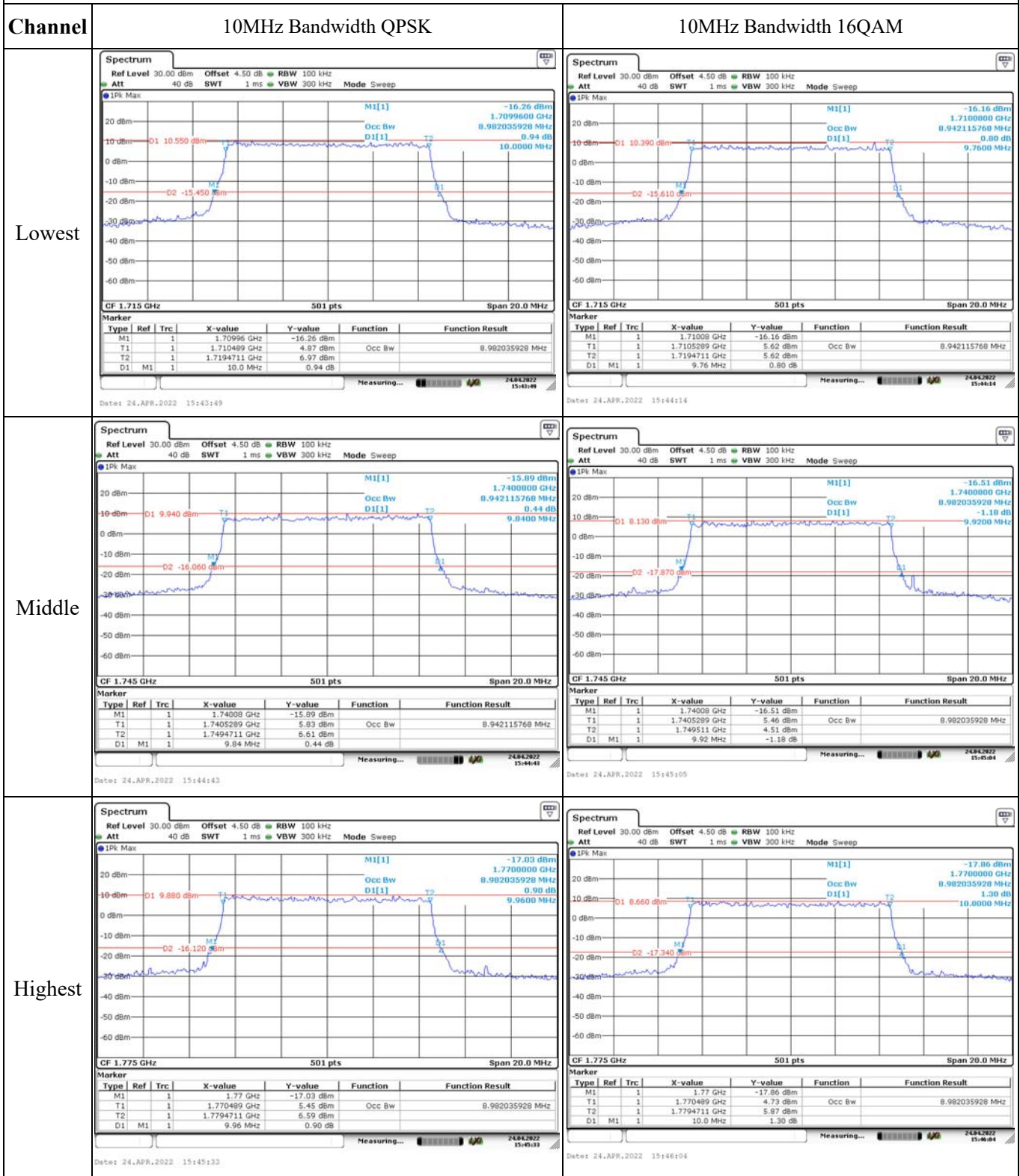
Middle



Highest



Occupied Bandwidth



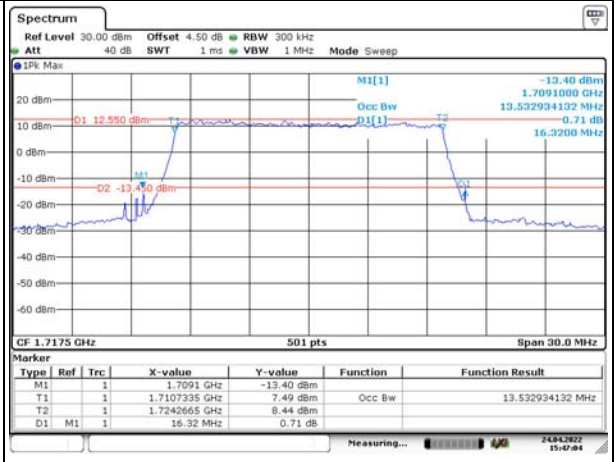
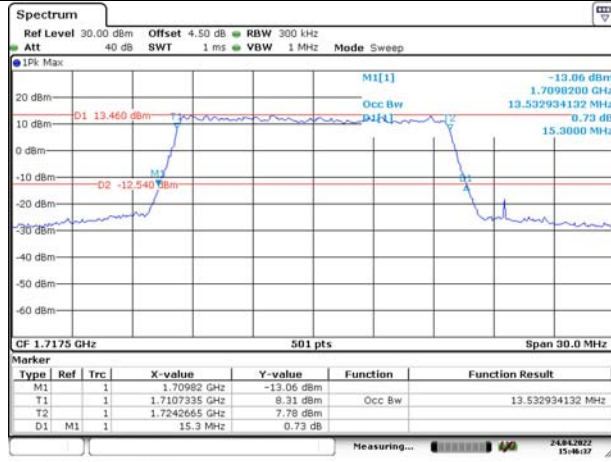
Occupied Bandwidth

Channel

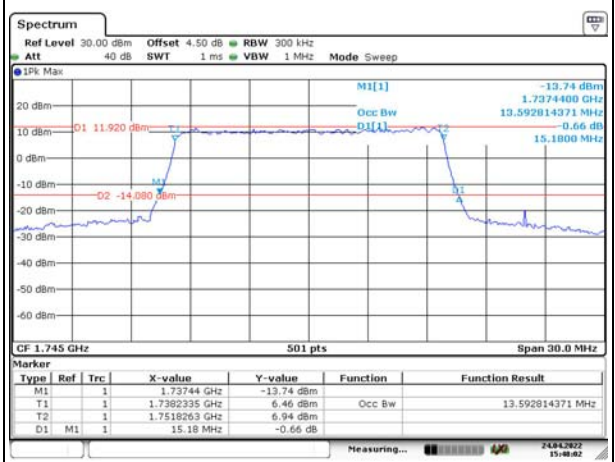
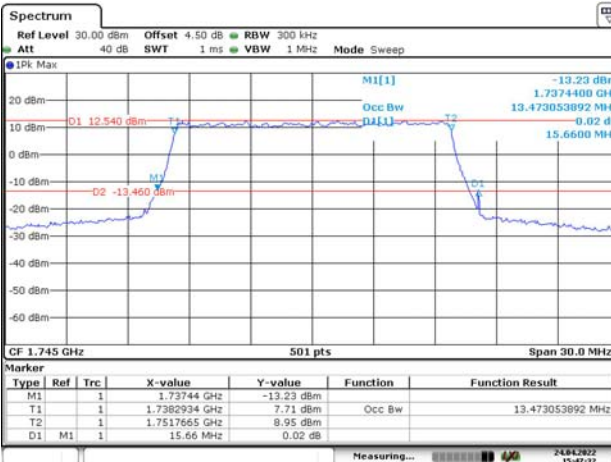
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

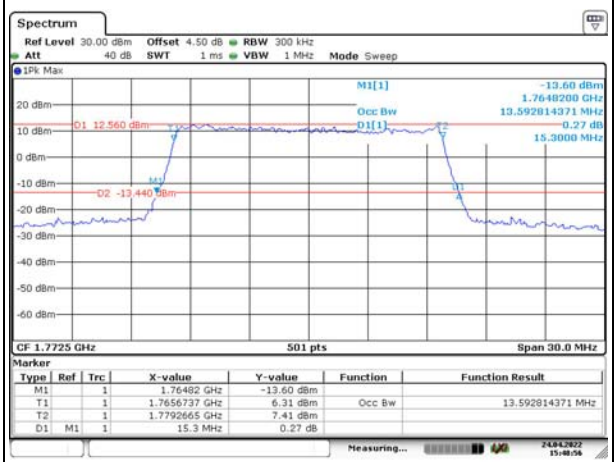
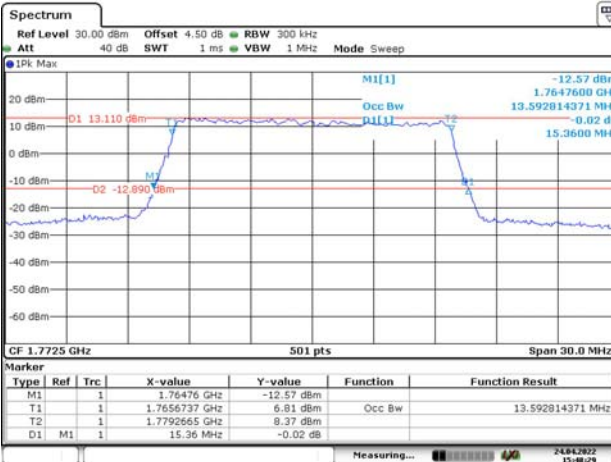
Lowest



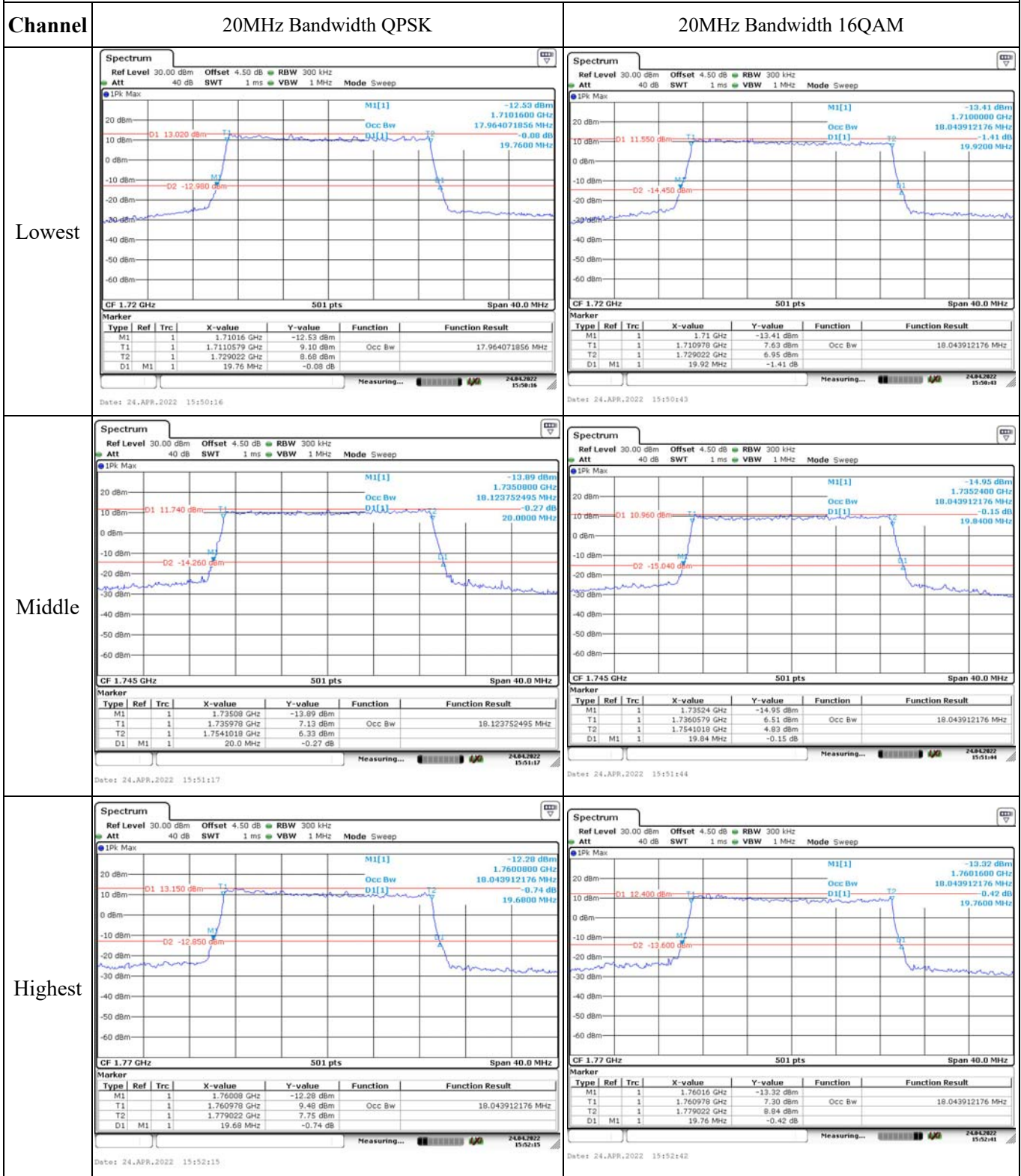
Middle



Highest



Occupied Bandwidth

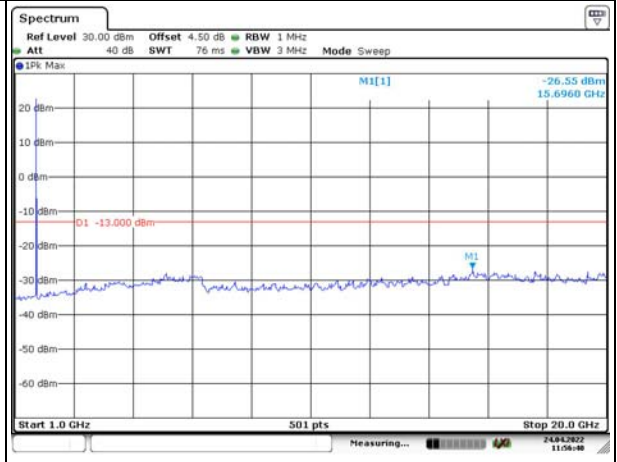
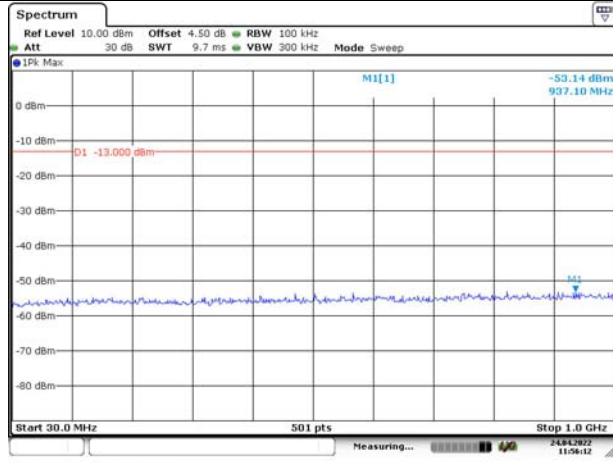


Spurious Emissions at Antenna Terminal

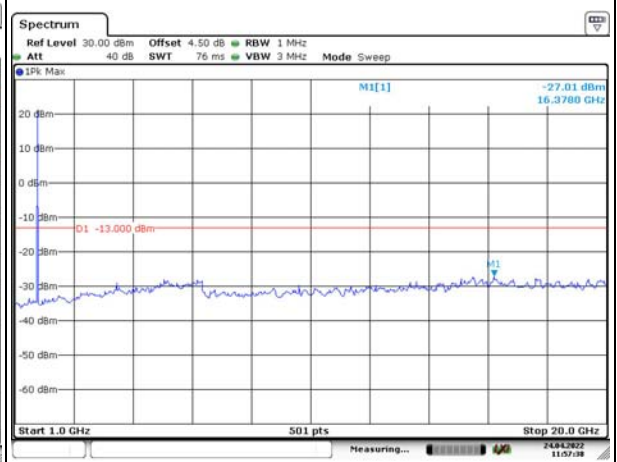
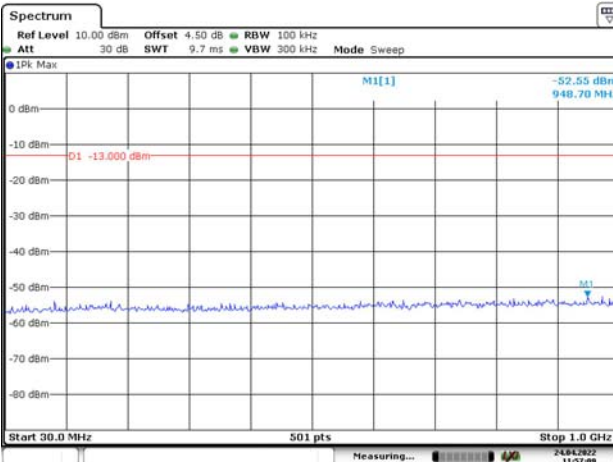
Channel

1.4MHz Bandwidth QPSK

Lowest



Middle



Highest

