

Occupied Bandwidth

Channel	3MHz Bandwidth QPSK	3MHz Bandwidth 16QAM																																																																						
Lowest	<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</p> <p>CF 700.5 MHz 501 pts Span 6.0 MHz</p> <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>699.012 MHz</td> <td>-11.94 dBm</td> <td></td> <td></td> </tr> <tr> <td>T1</td> <td>1</td> <td></td> <td>699.1587 MHz</td> <td>10.61 dBm</td> <td>Occ Bw</td> <td>2.682634731 MHz</td> </tr> <tr> <td>T2</td> <td>1</td> <td></td> <td>701.8413 MHz</td> <td>9.79 dBm</td> <td></td> <td></td> </tr> <tr> <td>D1</td> <td>M1</td> <td>1</td> <td>2.964 MHz</td> <td>-1.14 dB</td> <td></td> <td></td> </tr> </tbody> </table>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		699.012 MHz	-11.94 dBm			T1	1		699.1587 MHz	10.61 dBm	Occ Bw	2.682634731 MHz	T2	1		701.8413 MHz	9.79 dBm			D1	M1	1	2.964 MHz	-1.14 dB			<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</p> <p>CF 700.5 MHz 501 pts Span 6.0 MHz</p> <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>699.024 MHz</td> <td>-13.25 dBm</td> <td></td> <td></td> </tr> <tr> <td>T1</td> <td>1</td> <td></td> <td>699.1467 MHz</td> <td>8.92 dBm</td> <td>Occ Bw</td> <td>2.694610778 MHz</td> </tr> <tr> <td>T2</td> <td>1</td> <td></td> <td>701.8413 MHz</td> <td>9.14 dBm</td> <td></td> <td></td> </tr> <tr> <td>D1</td> <td>M1</td> <td>1</td> <td>2.94 MHz</td> <td>0.28 dB</td> <td></td> <td></td> </tr> </tbody> </table>	Type	Ref	Trc	X-value	Y-value	Function	Function Result	M1	1		699.024 MHz	-13.25 dBm			T1	1		699.1467 MHz	8.92 dBm	Occ Bw	2.694610778 MHz	T2	1		701.8413 MHz	9.14 dBm			D1	M1	1	2.94 MHz	0.28 dB		
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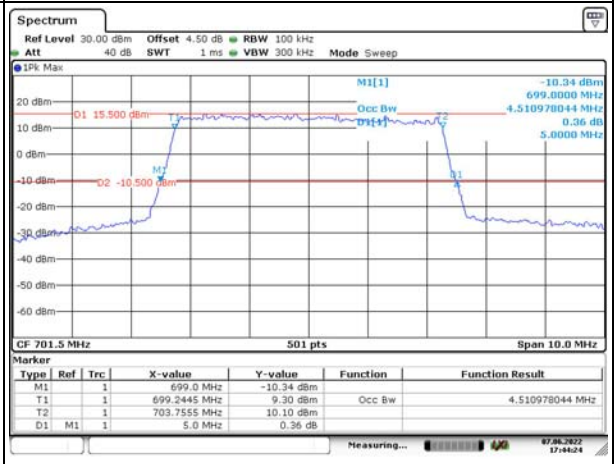
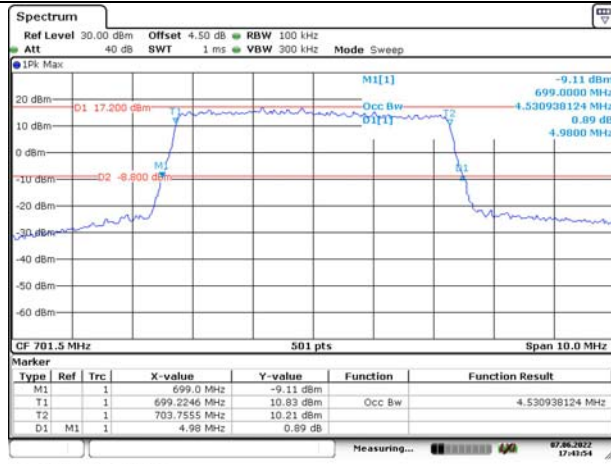
Occupied Bandwidth

Channel

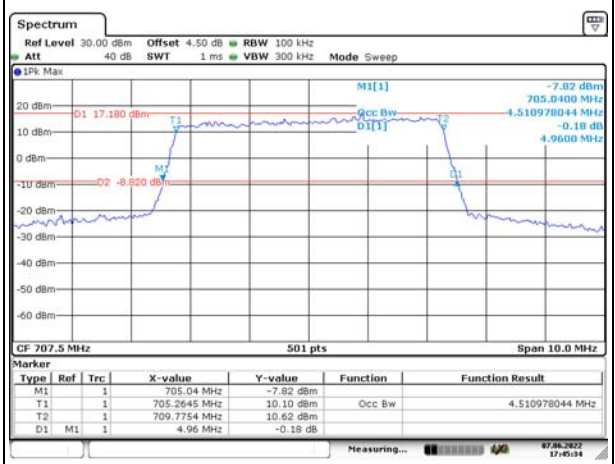
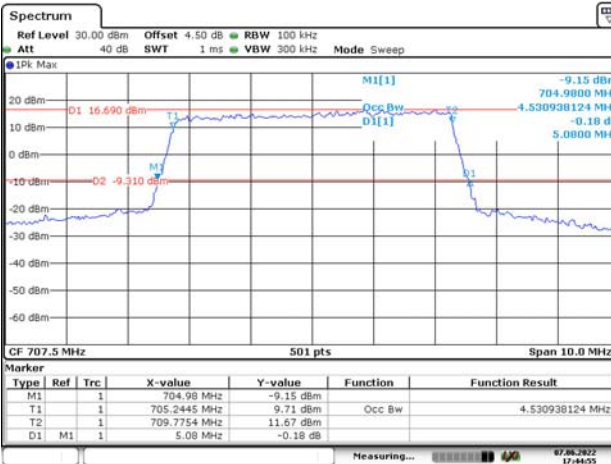
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

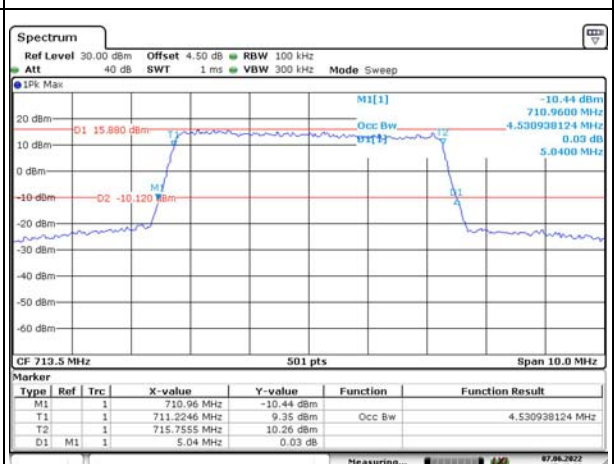
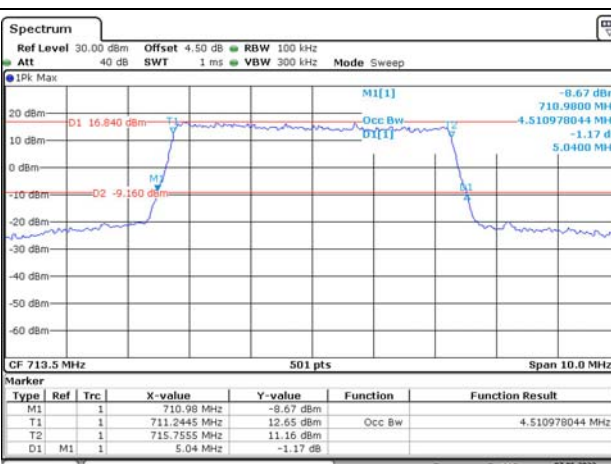
Lowest



Middle



Highest



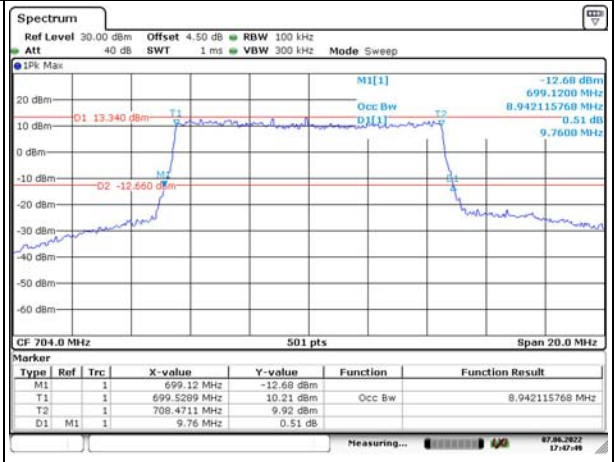
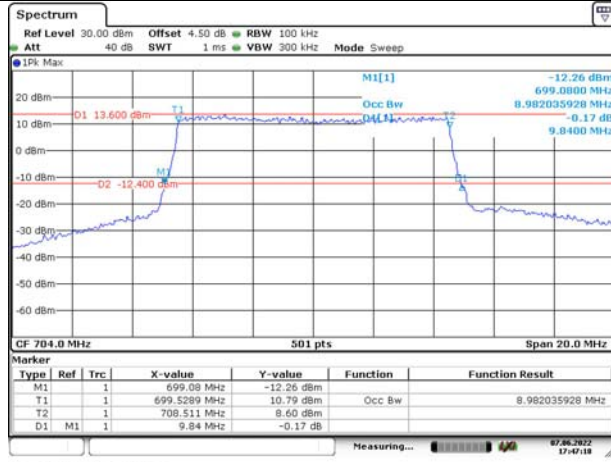
Occupied Bandwidth

Channel

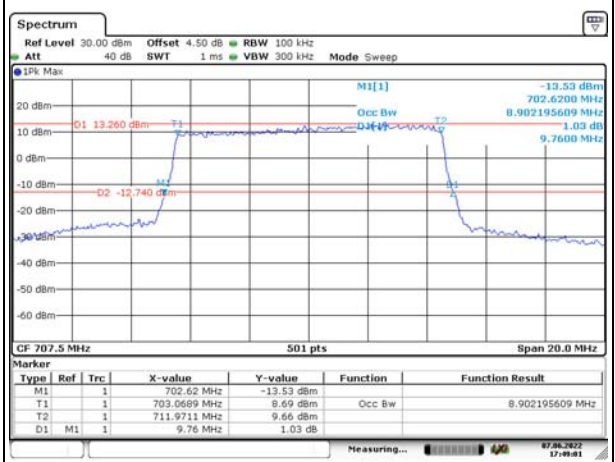
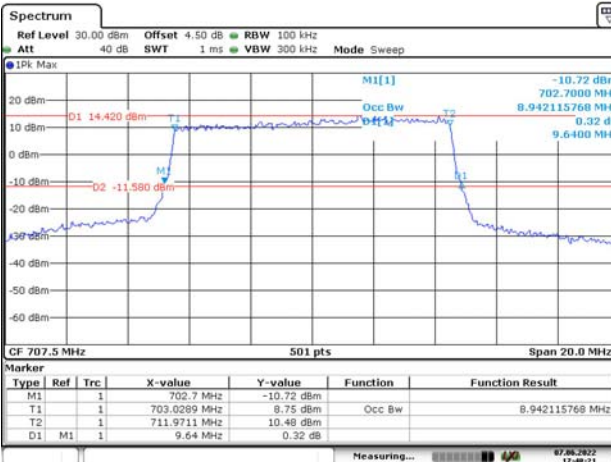
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

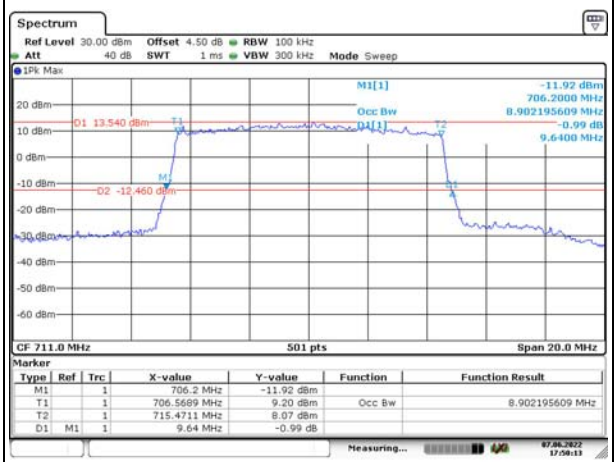
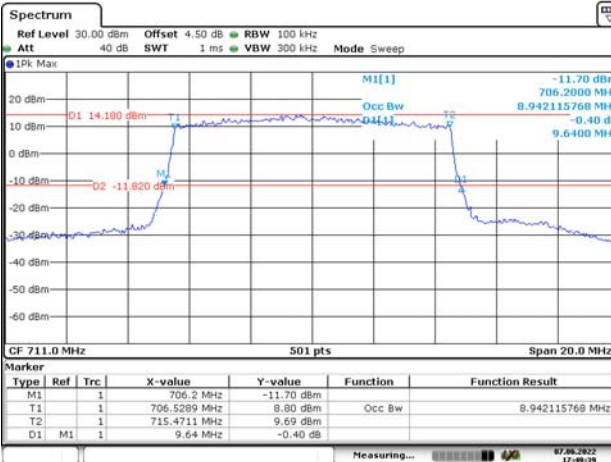
Lowest



Middle



Highest

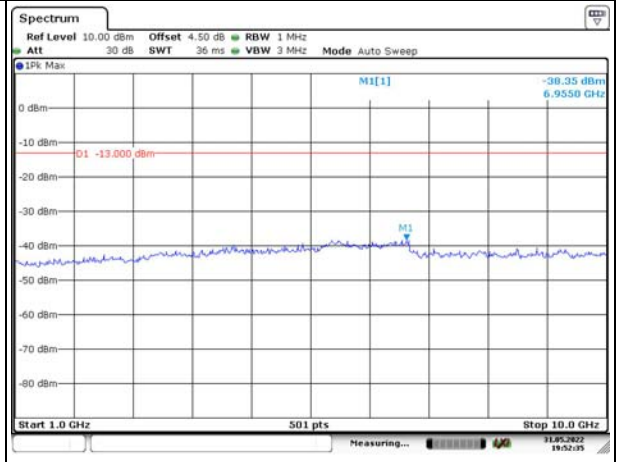
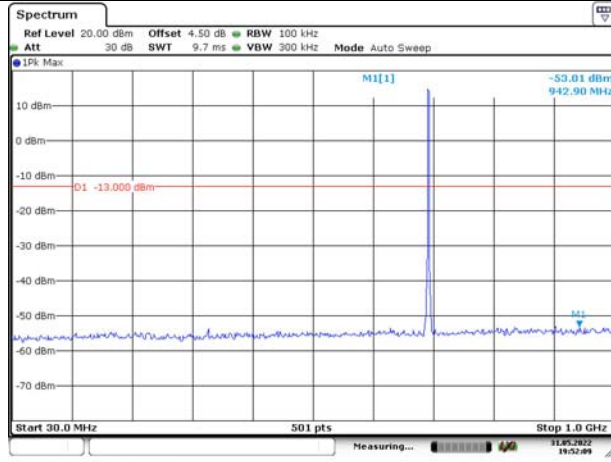


Spurious Emissions at Antenna Terminal

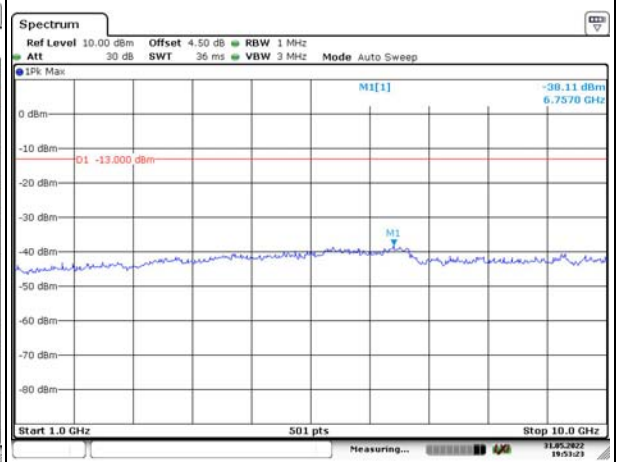
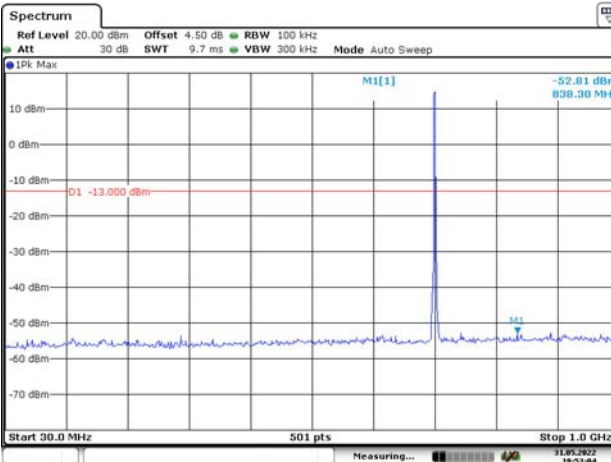
Channel

1.4MHz Bandwidth QPSK

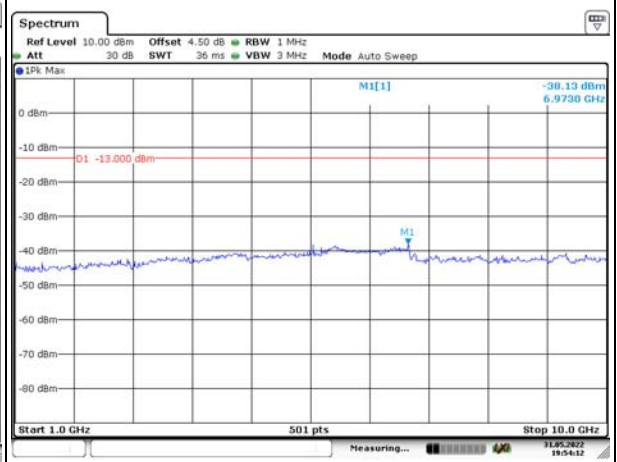
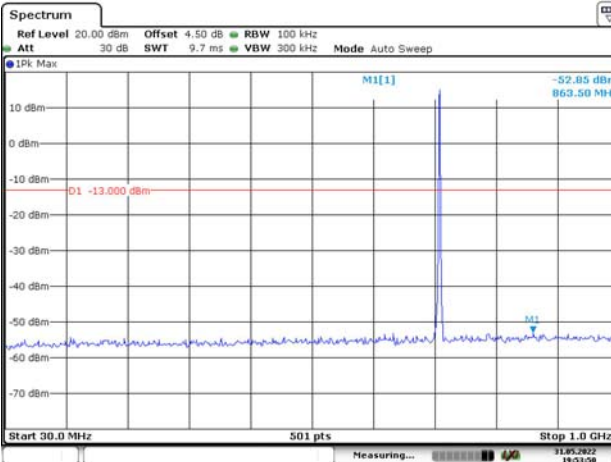
Lowest



Middle



Highest

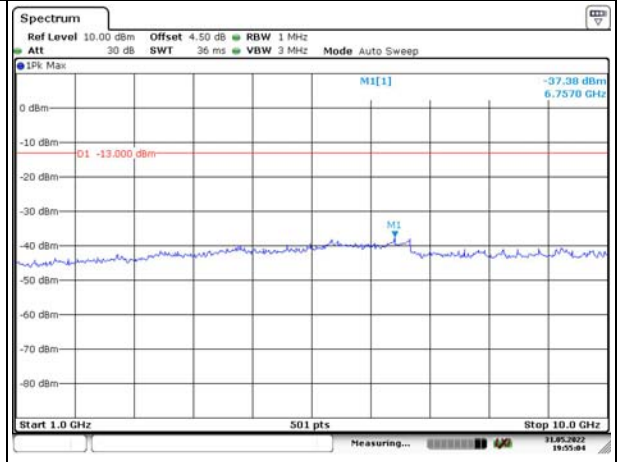
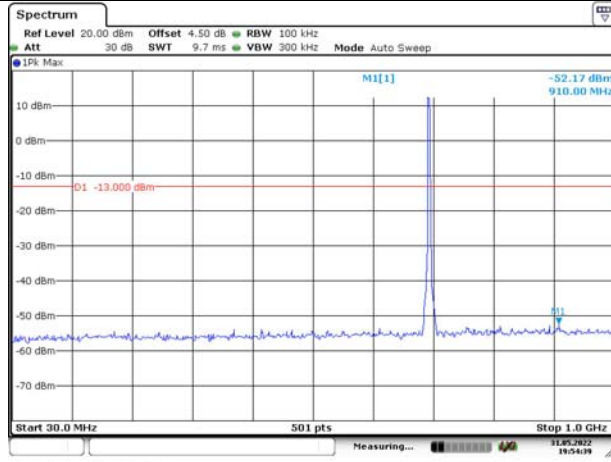


Spurious Emissions at Antenna Terminal

Channel

3MHz Bandwidth QPSK

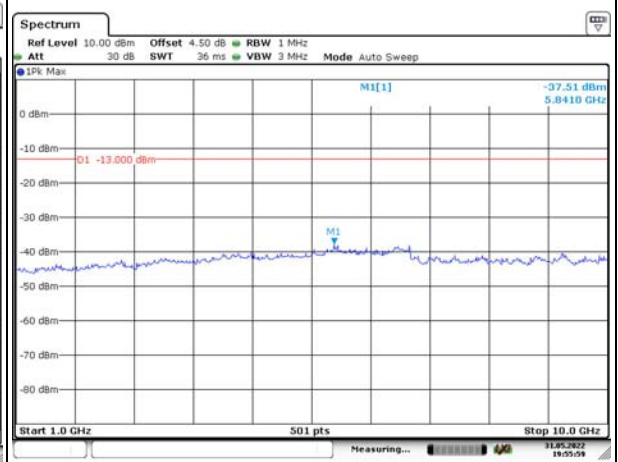
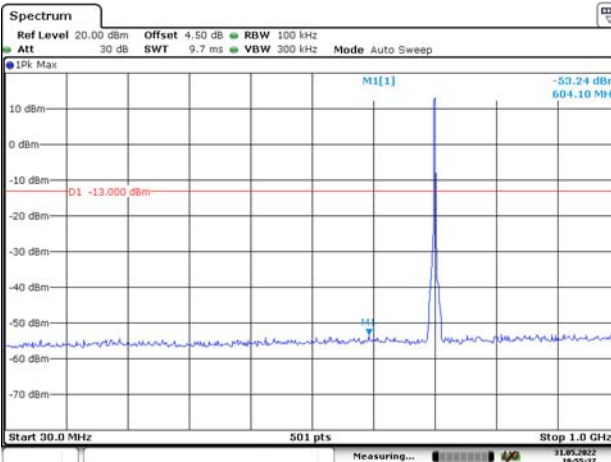
Lowest



Date: 31.MAY.2022 19:54:39

Date: 31.MAY.2022 19:55:05

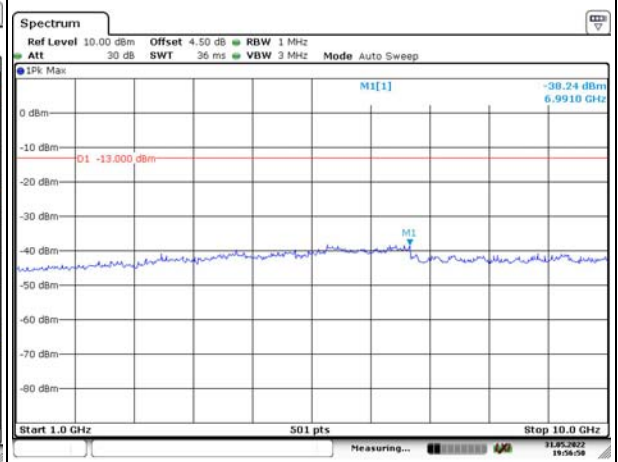
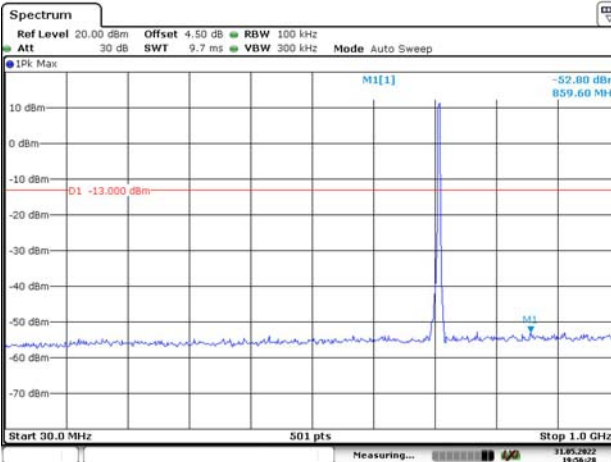
Middle



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Date: 31.MAY.2022 19:55:59

Highest



Date: 31.MAY.2022 19:56:28

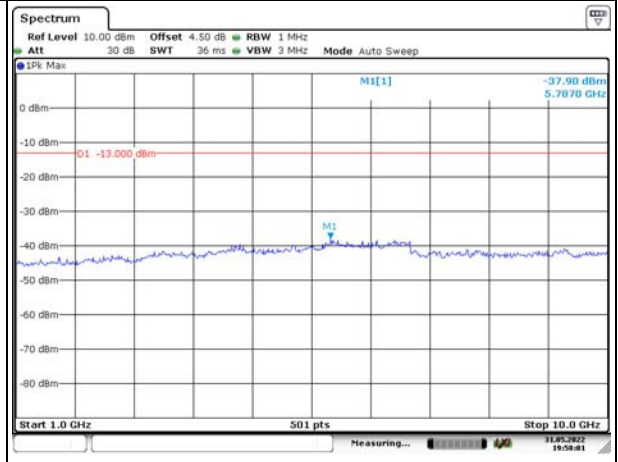
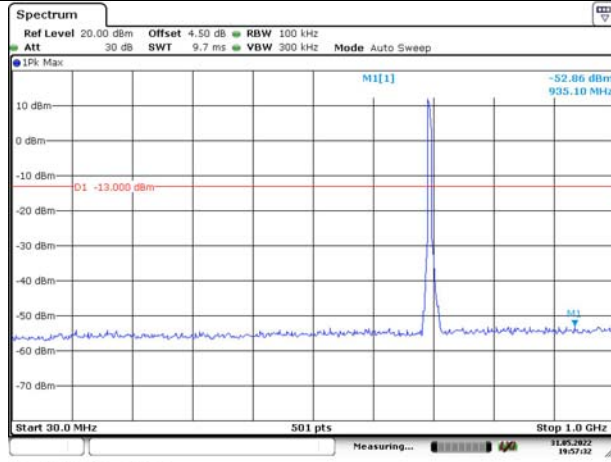
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Spurious Emissions at Antenna Terminal

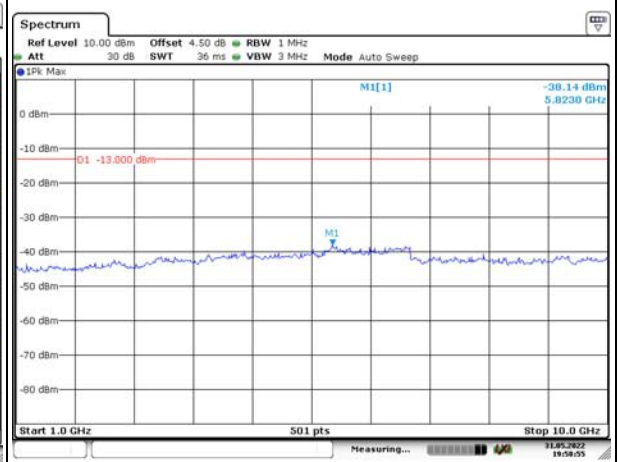
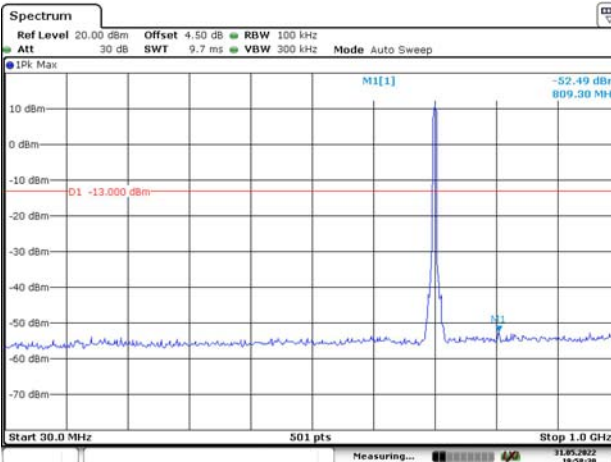
Channel

5MHz Bandwidth QPSK

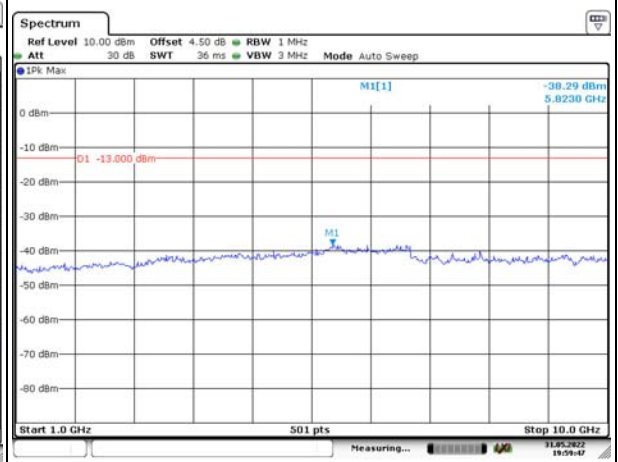
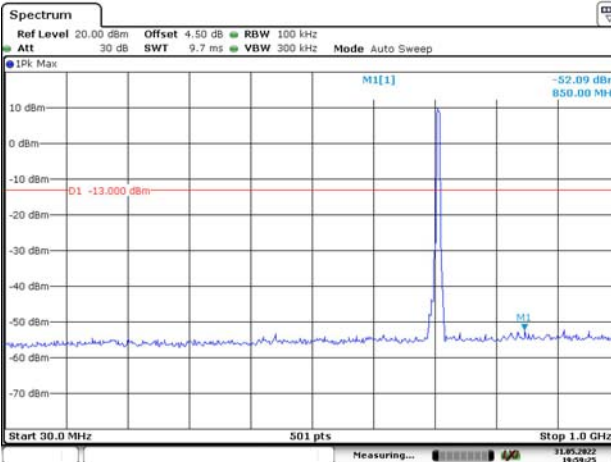
Lowest



Middle



Highest

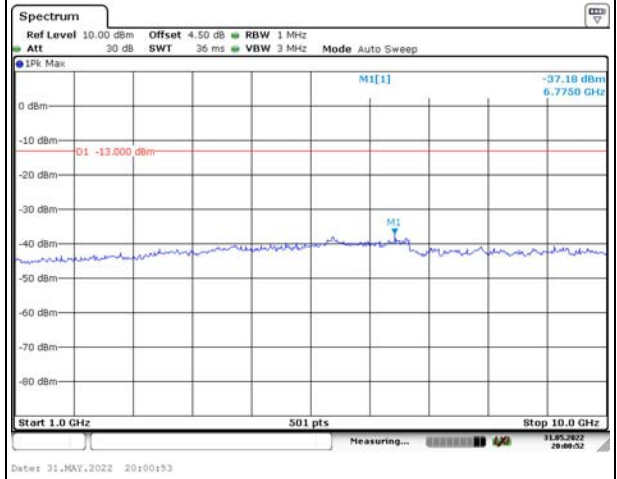
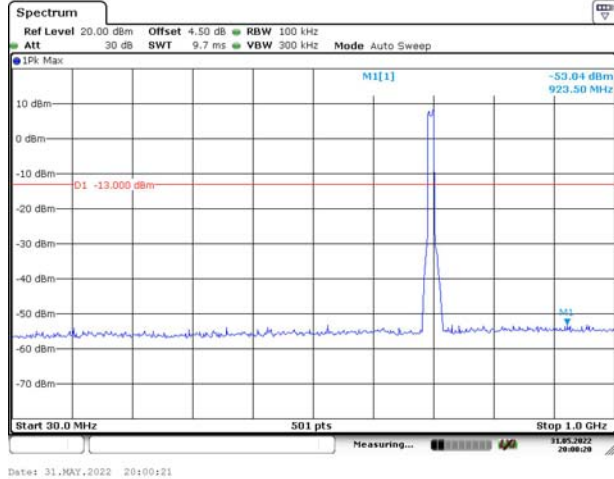


Spurious Emissions at Antenna Terminal

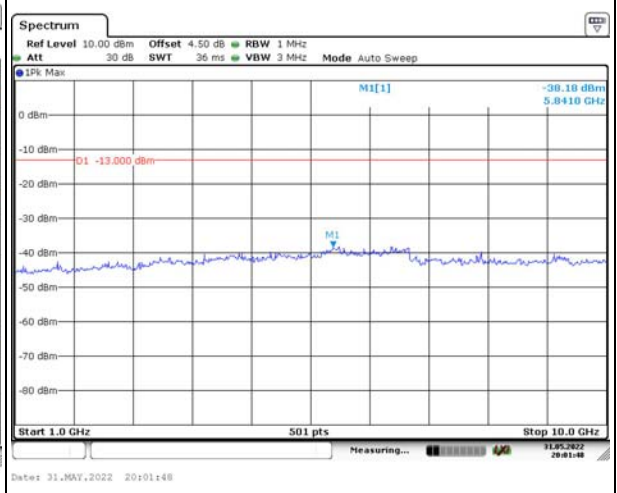
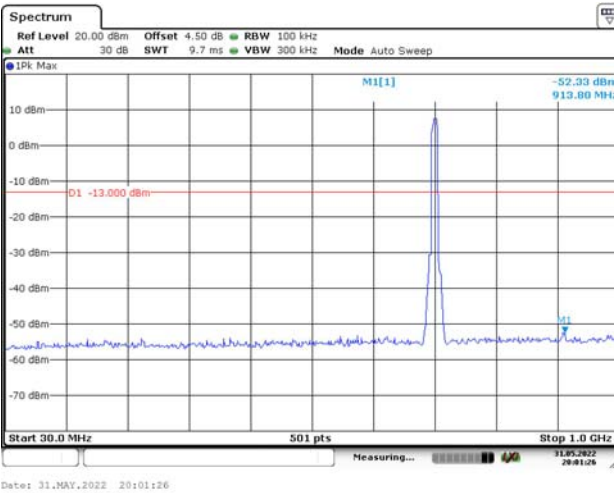
Channel

10MHz Bandwidth QPSK

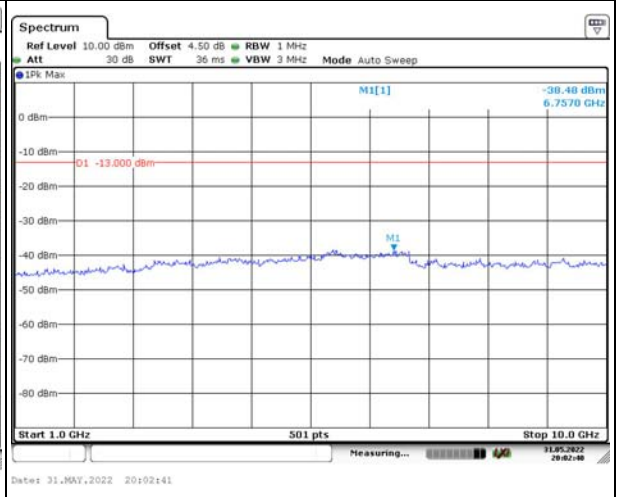
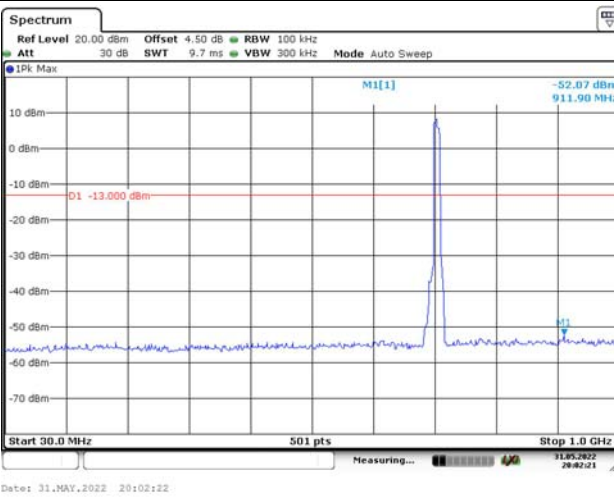
Lowest



Middle



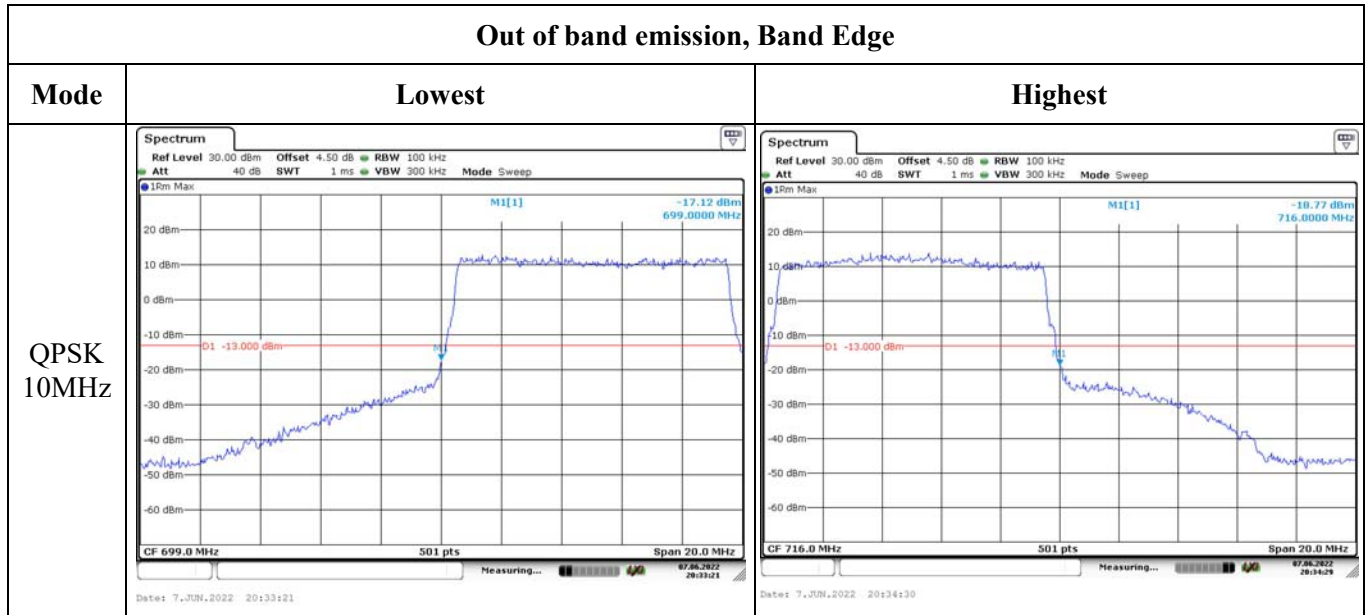
Highest



Out of band emission, Band Edge

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

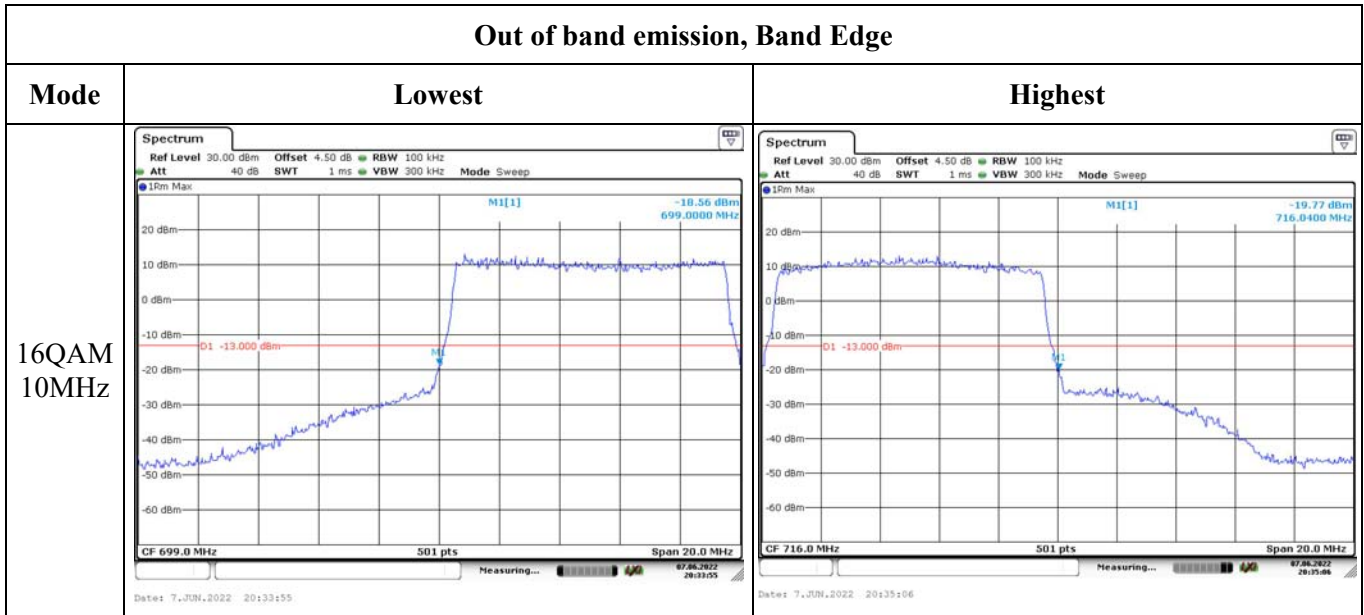
Out of band emission, Band Edge



Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 1.4MHz	<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 MI[1] -17.59 dBm 698.99480 MHz D1 -13.000 dBm CF 699.0 MHz 501 pts Span 3.0 MHz Date: 7 JUN 2022 20:27:49</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 MI[1] -15.02 dBm 716.00000 MHz D1 -13.000 dBm CF 716.0 MHz 501 pts Span 3.0 MHz Date: 7 JUN 2022 20:28:45</p>
16QAM 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 MI[1] -17.36 dBm 699.00000 MHz D1 -13.000 dBm CF 699.0 MHz 501 pts Span 6.0 MHz Date: 7 JUN 2022 20:29:47</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 MI[1] -16.04 dBm 716.00000 MHz D1 -13.000 dBm CF 716.0 MHz 501 pts Span 6.0 MHz Date: 7 JUN 2022 20:30:44</p>
16QAM 5MHz	<p>Ref Level 30.00 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 100 ms VBW 300 kHz Mode Sweep MI[1] -21.73 dBm 699.00000 MHz D1 -13.000 dBm CF 699.0 MHz 501 pts Span 10.0 MHz Date: 12 JUL 2022 18:00:57</p>	<p>Ref Level 30.00 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 100 ms VBW 300 kHz Mode Sweep MI[1] -19.66 dBm 716.00000 MHz D1 -13.000 dBm CF 716.0 MHz 501 pts Span 10.0 MHz Date: 12 JUL 2022 18:01:54</p>

Out of band emission, Band Edge



4.8 Antenna Port Test Data and Results for LTE Band 13:

Serial Number:	CR22050036-RF-S1	Test Date:	2022-05-31~2022-07-05
Test Site:	RF	Test Mode:	Transmitting
Tester:	Rinka Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.5~26.7	Relative Humidity: (%)	63~68	ATM Pressure: (kPa)	100.1~99.8
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2021-07-22	2022-07-21
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554404	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2021-07-22	2022-07-21
UNI-T	Multimeter	UT39A+	C210582554	2021-09-30	2022-09-29
Weinschel	Coaxial Attenuator	53-20-34	LN751	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150	30026	2021-07-22	2022-07-21
UNI-T	Multimeter	UT39A+	C210582554	2021-07-22	2022-07-21
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 13▲:

Antenna Gain (dBi):	0.31	Antenna Gain (dBd):	-1.84	Cable Loss (dB):	0
Operation Voltage(V _{DC}):					
Lowest:	10.8	Normal:	13.8	Highest:	36

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
5MHz	779.5	/	784.5
10MHz	/	782	/

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	22.82	/	23.16	21.49	34.77
	RB1#13	22.98	/	23.07		
	RB1#24	23.03	/	23.33		
	RB15#0	22.16	/	22.27		
	RB15#10	22.14	/	22.23		
	RB25#0	22.14	/	22.33		
5MHz 16QAM	RB1#0	21.81	/	22.31	20.5	34.77
	RB1#13	22.2	/	22.01		
	RB1#24	22.19	/	22.34		
	RB15#0	21.12	/	21.22		
	RB15#10	21.13	/	21.19		
	RB25#0	21.13	/	21.24		
10MHz QPSK	RB1#0	/	23.09	/	21.65	34.77
	RB1#25	/	23.33	/		
	RB1#49	/	23.49	/		
	RB25#0	/	22.2	/		
	RB25#25	/	22.29	/		
	RB50#0	/	22.26	/		
10MHz 16QAM	RB1#0	/	21.99	/	20.52	34.77
	RB1#25	/	22.19	/		
	RB1#49	/	22.36	/		
	RB25#0	/	21.14	/		
	RB25#25	/	21.23	/		
	RB50#0	/	21.24	/		
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	/	4.29	/	13
	RB50#0	/	4.46	/	13
10MHz 16QAM	RB1#0	/	5.39	/	13
	RB50#0	/	5.62	/	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	4.51	/	4.51	5.02	/	5.04
5MHz 16QAM	4.49	/	4.53	5.04	/	5.04
10MHz QPSK	/	8.94	/	/	9.72	/
10MHz 16QAM	/	8.94	/	/	9.68	/
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.

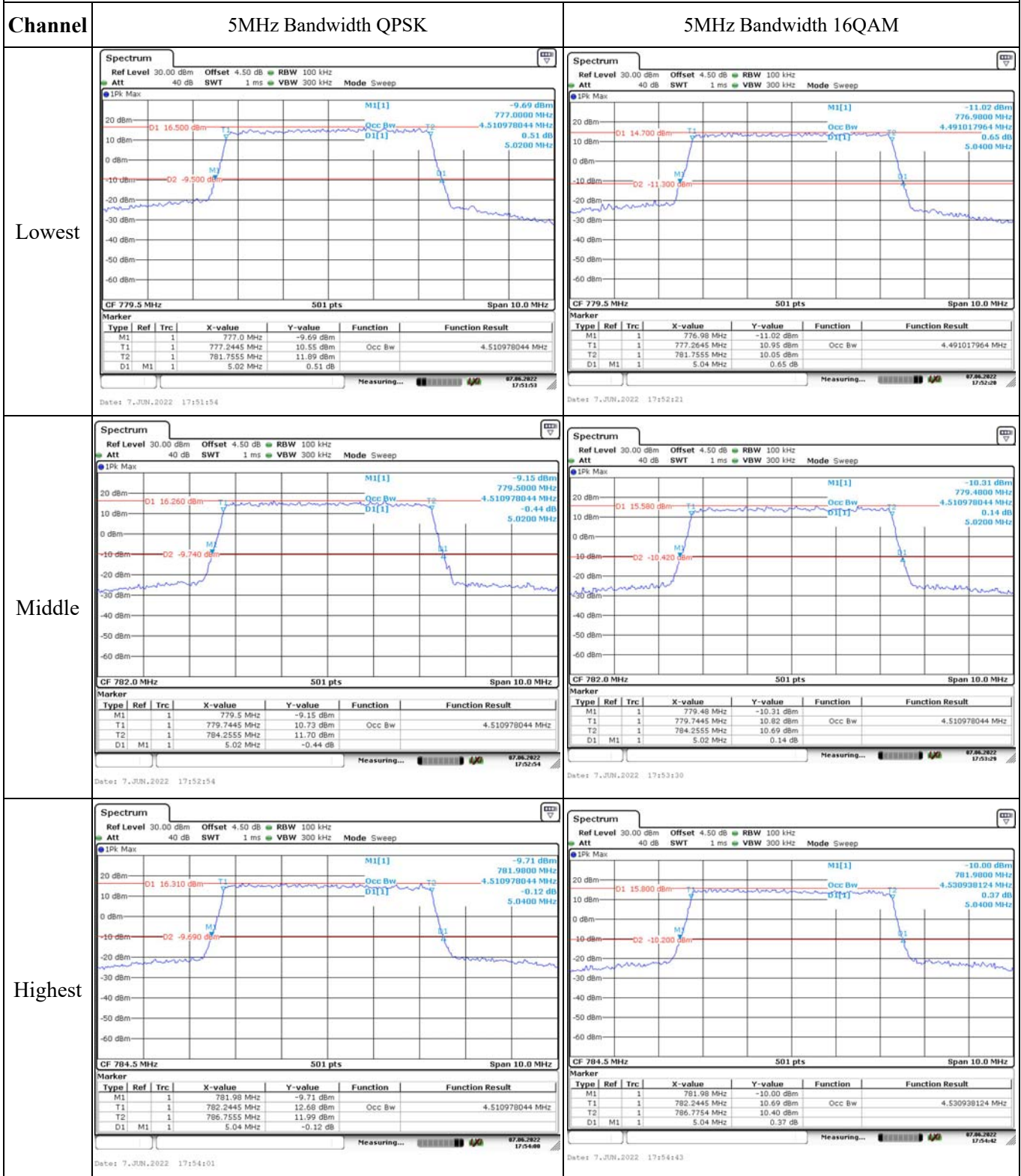
FCC §2.1051, §27.53:Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

FCC §2.1055, §27.54: Frequency Stability						
Test Mode:	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	13.8	777.537	777.00	786.471	787.00
	-20	13.8	777.534	777.00	786.483	787.00
	-10	13.8	777.536	777.00	786.482	787.00
	0	13.8	777.530	777.00	786.472	787.00
	10	13.8	777.531	777.00	786.480	787.00
	20	13.8	777.529	777.00	786.471	787.00
	30	13.8	777.531	777.00	786.481	787.00
	40	13.8	777.530	777.00	786.480	787.00
Frequency Stability vs. Voltage	20	10.8	777.532	777.00	786.474	787.00
	20	36	777.541	777.00	786.483	787.00
					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	13.8	777.536	777.00	786.480	787.00
	-20	13.8	777.533	777.00	786.483	787.00
	-10	13.8	777.541	777.00	786.472	787.00
	0	13.8	777.532	777.00	786.472	787.00
	10	13.8	777.539	777.00	786.483	787.00
	20	13.8	777.529	777.00	786.471	787.00
	30	13.8	777.541	777.00	786.475	787.00
	40	13.8	777.539	777.00	786.476	787.00
	50	13.8	777.533	777.00	786.475	787.00
Frequency Stability vs. Voltage	20	10.8	777.539	777.00	786.479	787.00
	20	36	777.538	777.00	786.485	787.00
					Result:	Pass

Test Plots:

Occupied Bandwidth



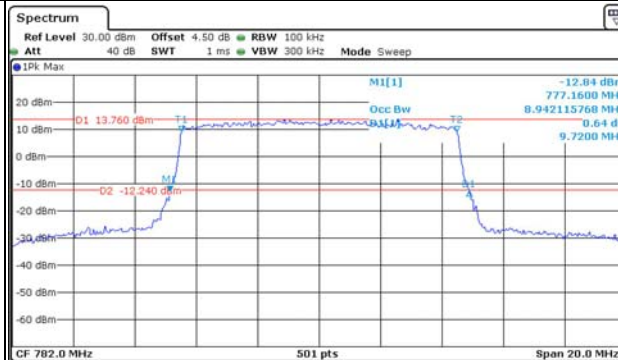
Occupied Bandwidth

Channel

10MHz Bandwidth QPSK

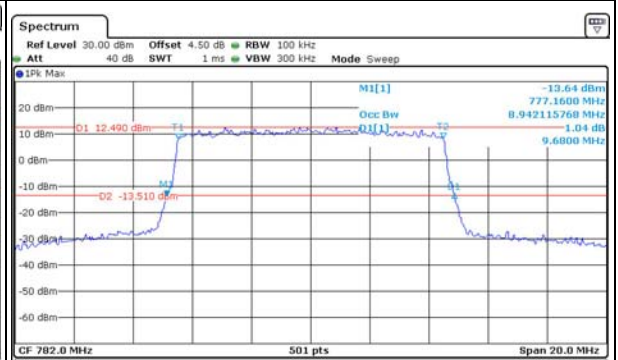
10MHz Bandwidth 16QAM

Middle



Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1			1	777.16 MHz	-12.84 dBm		
T1			1	777.5289 MHz	9.22 dBm	Occ Bw	8.942115768 MHz
T2			1	786.4711 MHz	9.04 dBm		
D1	M1		1	9.72 MHz	0.64 dB		

Date: 7, JUN, 2022 17:55:32



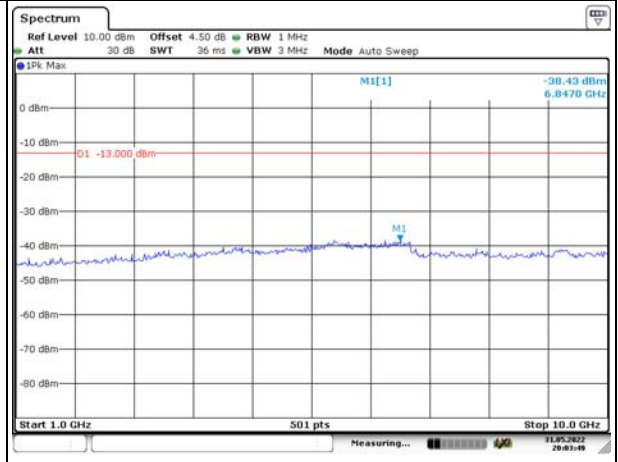
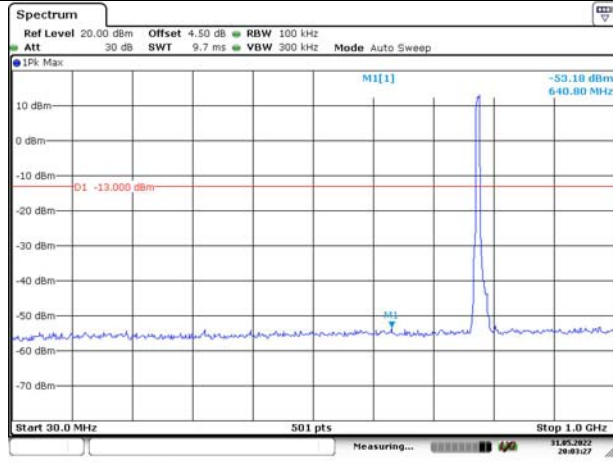
Marker	Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1			1	777.16 MHz	-13.64 dBm		
T1			1	777.5289 MHz	7.94 dBm	Occ Bw	8.942115768 MHz
T2			1	786.4711 MHz	8.30 dBm		
D1	M1		1	9.68 MHz	1.04 dB		

Date: 7, JUN, 2022 17:55:56

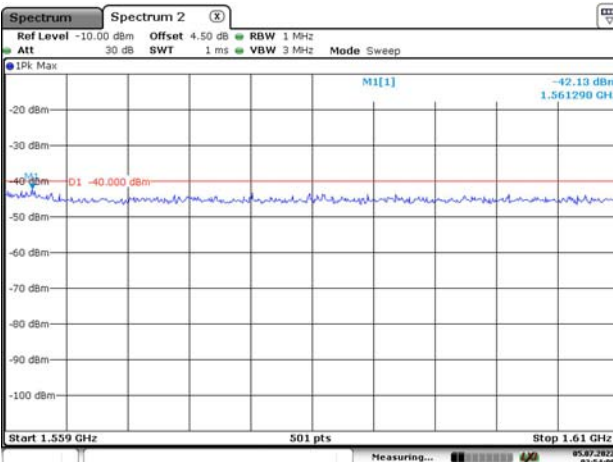
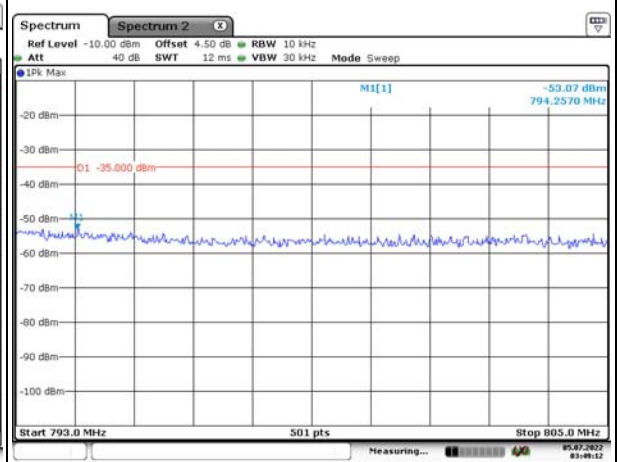
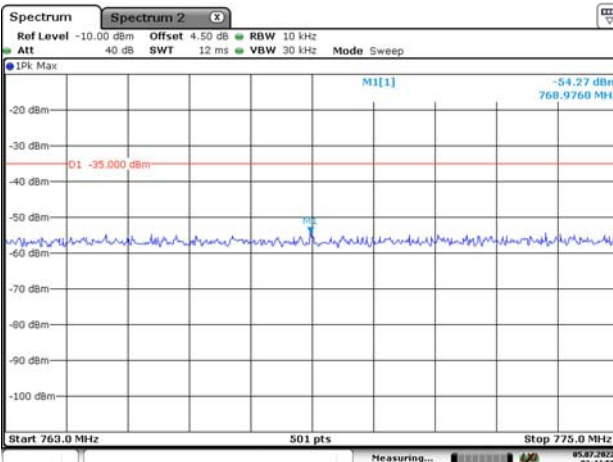
Spurious Emissions at Antenna Terminal

Channel

5MHz Bandwidth QPSK



Lowest

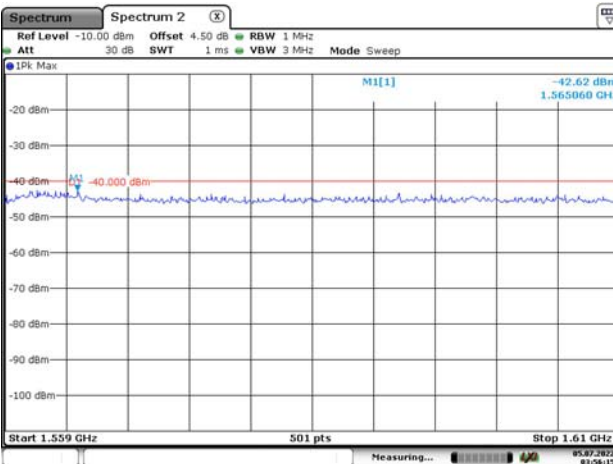
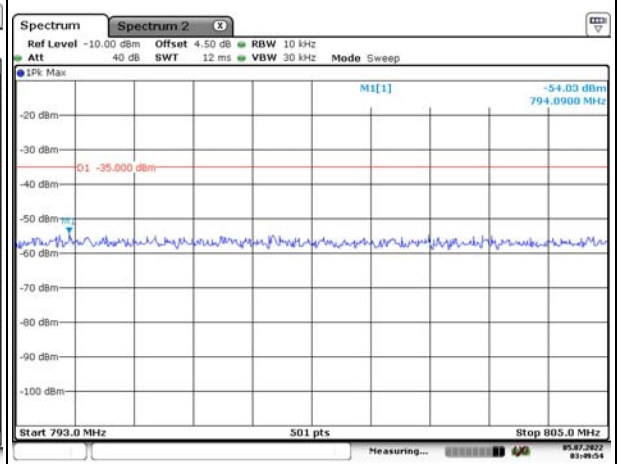
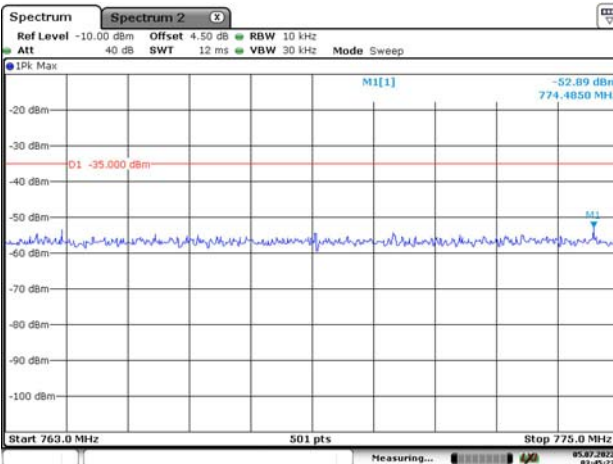
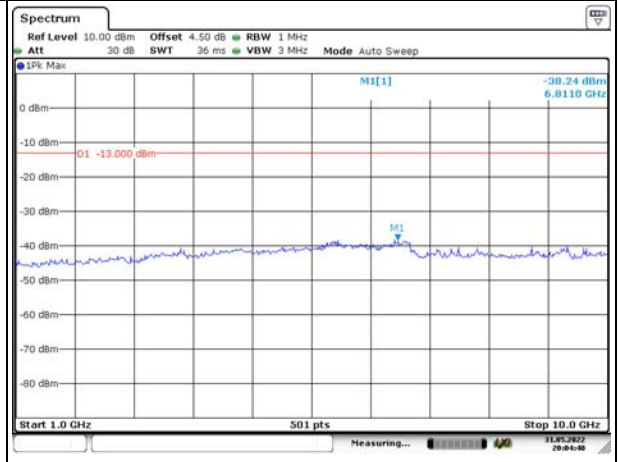
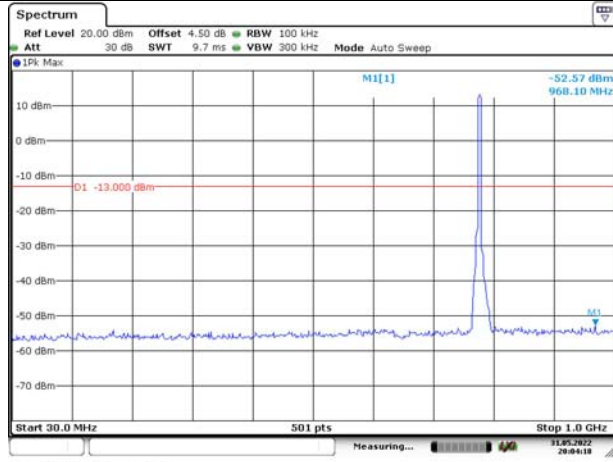


Spurious Emissions at Antenna Terminal

Channel

5MHz Bandwidth QPSK

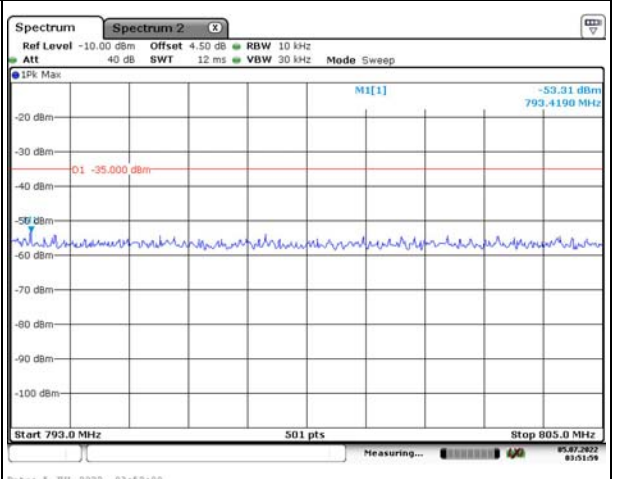
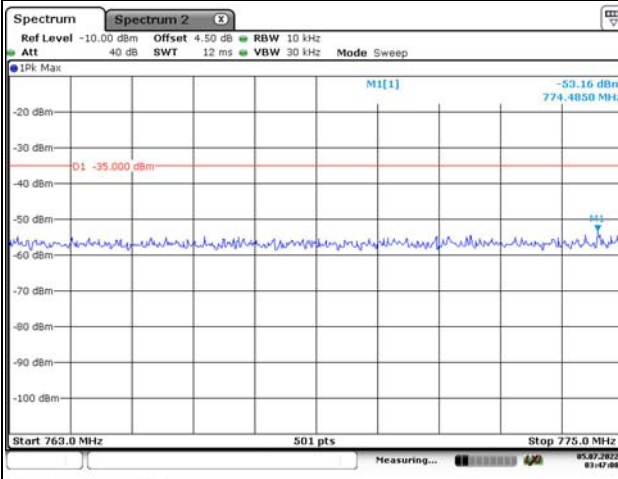
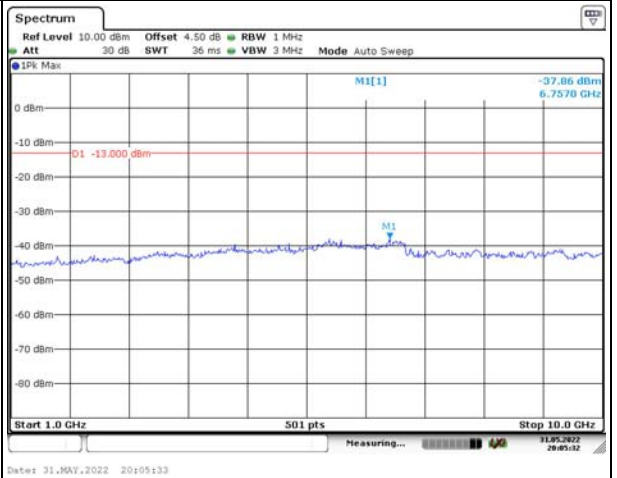
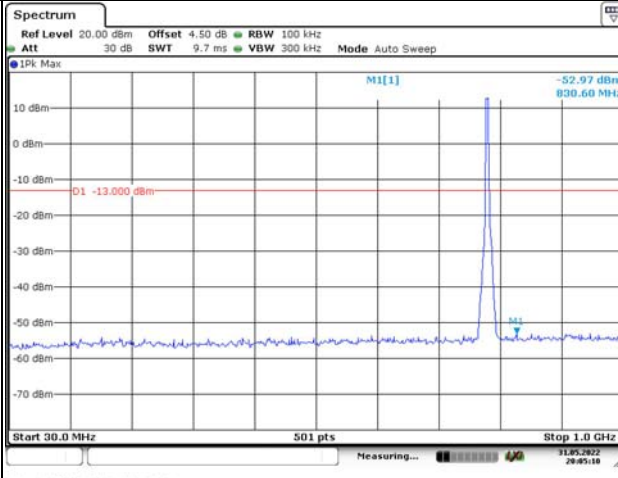
Middle



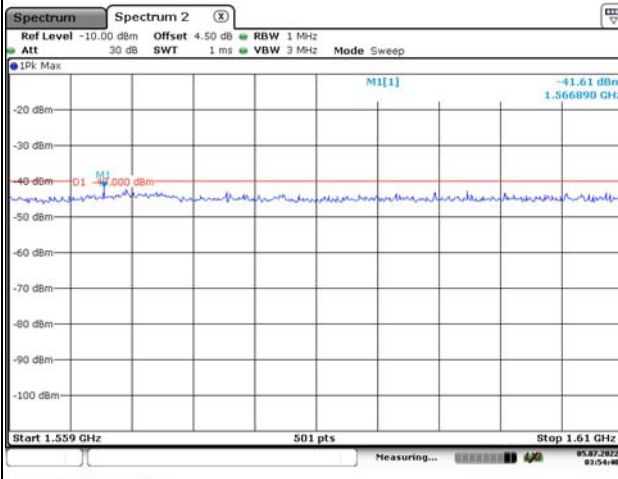
Spurious Emissions at Antenna Terminal

Channel

5MHz Bandwidth QPSK



Highest

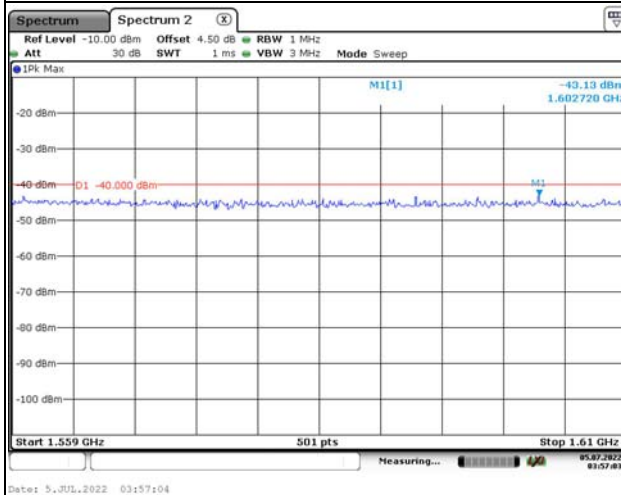
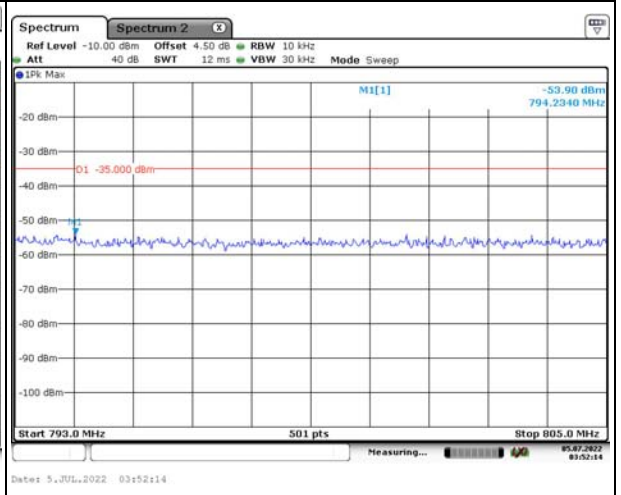
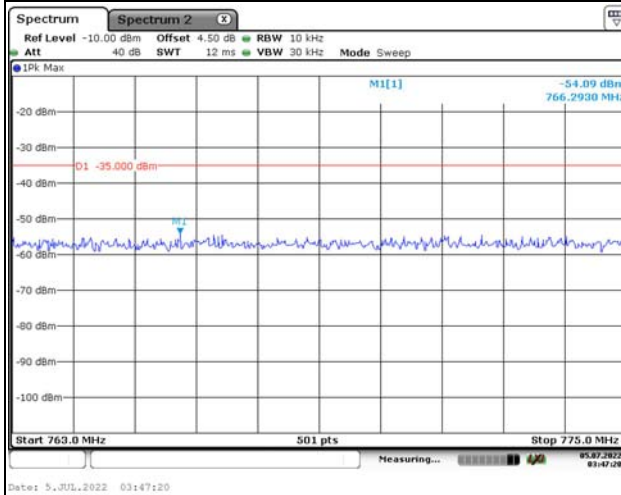
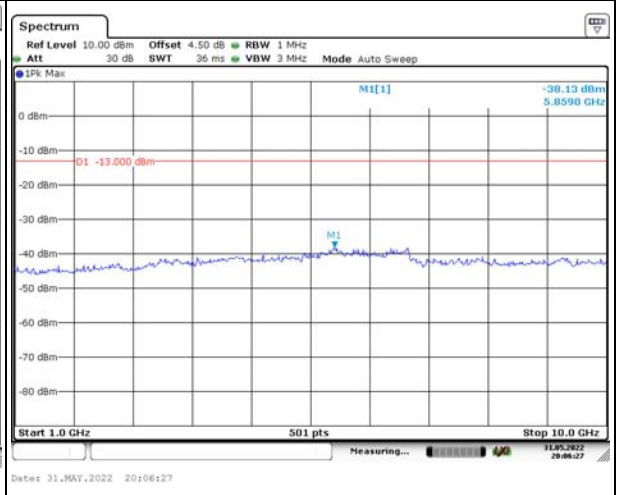
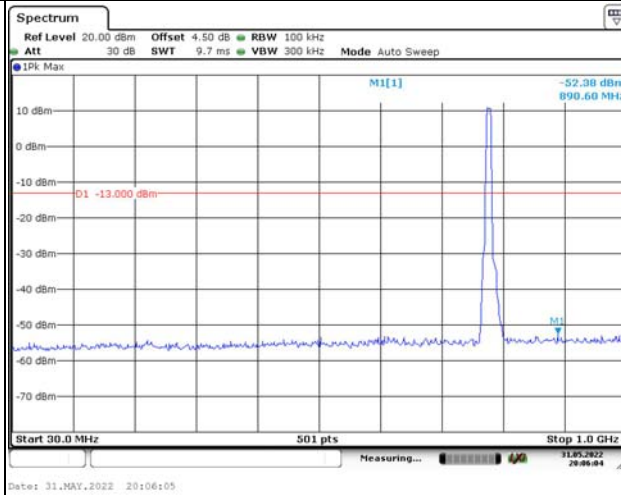


Spurious Emissions at Antenna Terminal

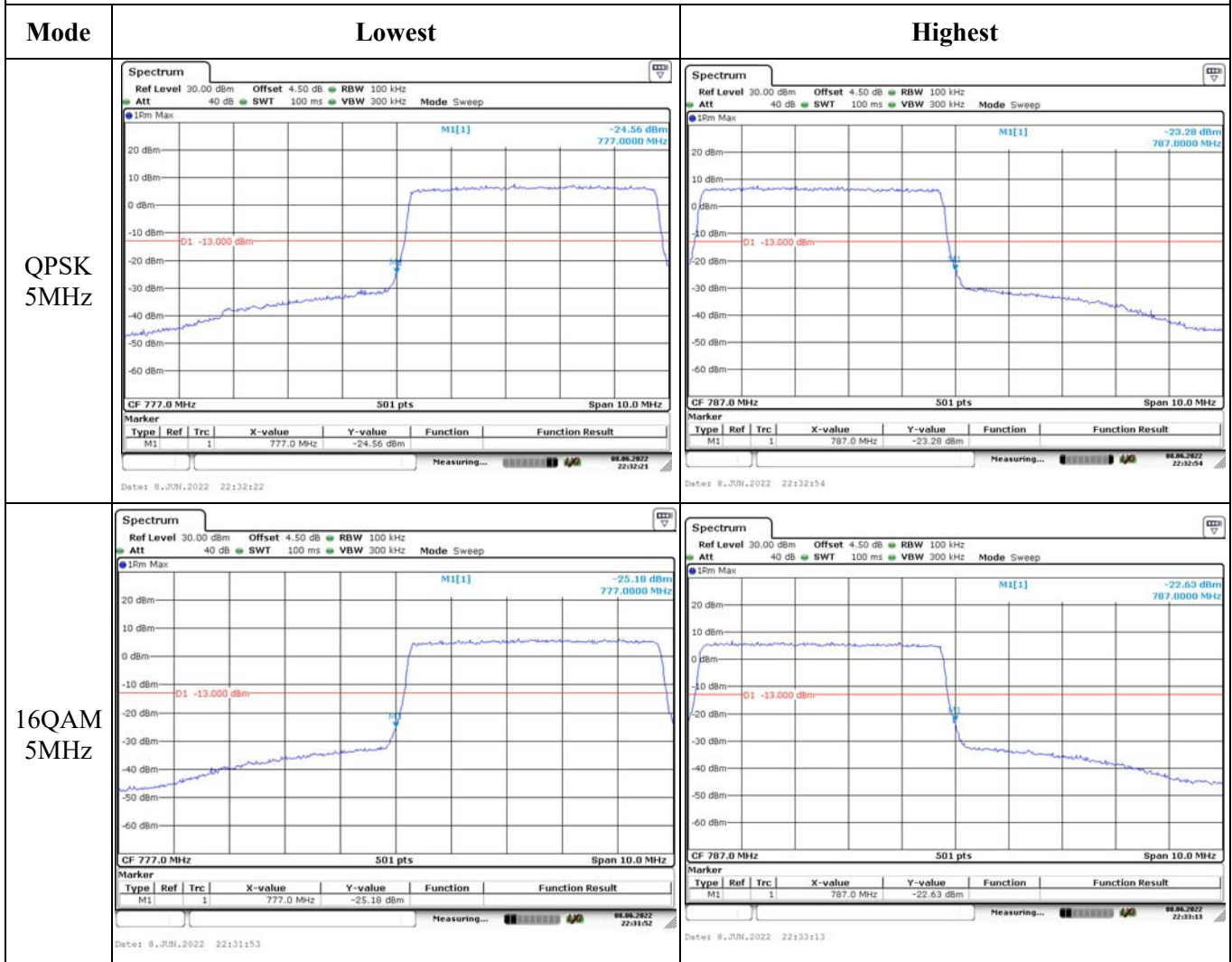
Channel

10MHz Bandwidth QPSK

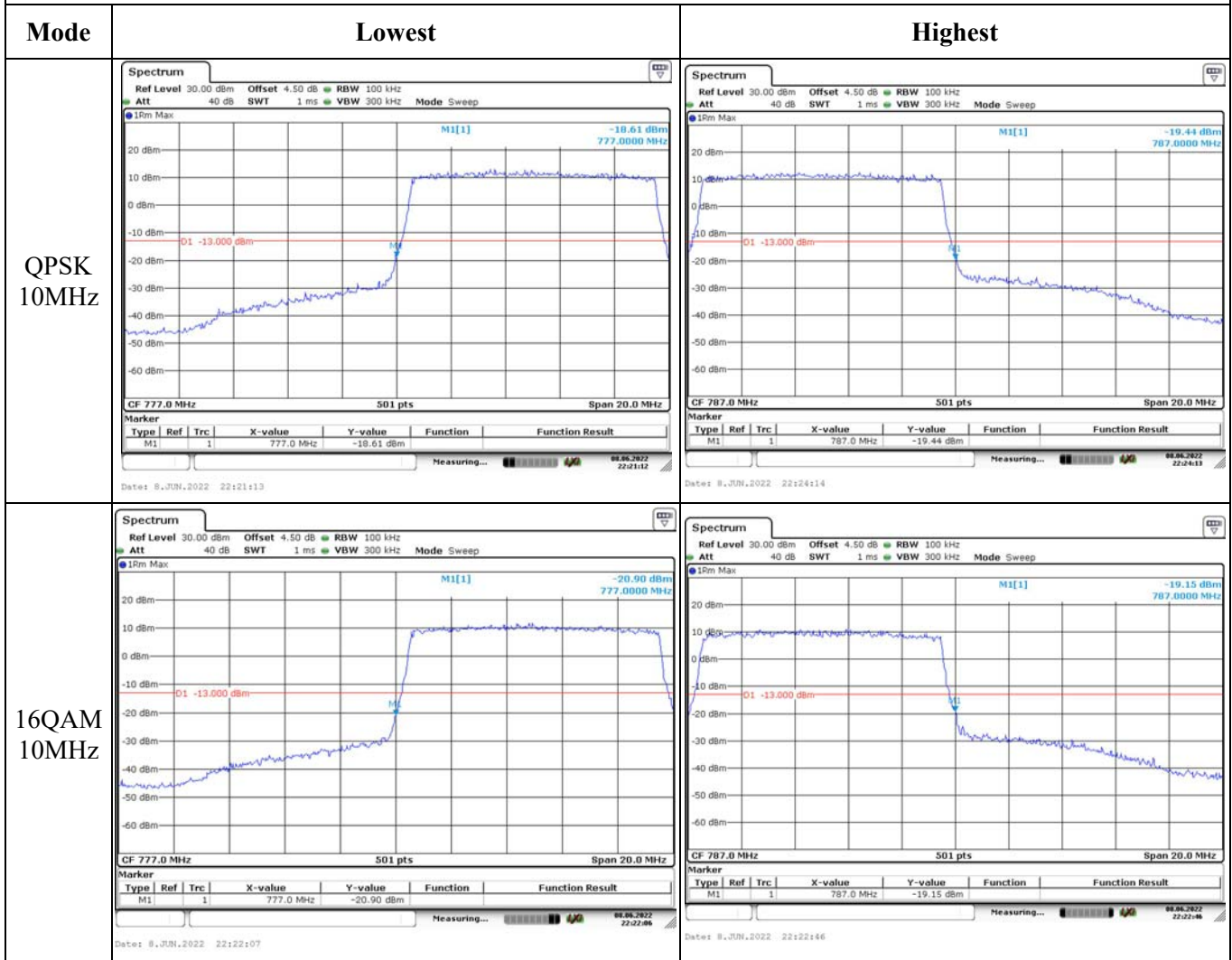
Middle



Out of band emission, Band Edge



Out of band emission, Band Edge



4.9 Antenna Port Test Data and Results for LTE Band 14:

Serial Number:	CR22050036-RF-S1	Test Date:	2022-05-31~2022-08-22
Test Site:	RF	Test Mode:	Transmitting
Tester:	Rinka Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.0~25.5	Relative Humidity: (%)	63~68	ATM Pressure: (kPa)	100.0~100.1
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2021-07-22	2022-07-21
R&S	Spectrum Analyzer	FSV40	101474	2022-07-15	2023-07-14
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554404	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2021-07-22	2022-07-21
R&S	Wideband Radio Communication Tester	CMW500	149218	2022-07-15	2023-07-14
UNI-T	Multimeter	UT39A+	C210582554	2021-09-30	2022-09-29
Weinschel	Coaxial Attenuator	53-20-34	LN751	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2022-04-06	2023-04-05
UNI-T	Multimeter	UT39A+	C210582554	2021-09-30	2022-09-29
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 14▲:

Antenna Gain (dBi):	-0.29	Antenna Gain (dBd):	-2.44	Cable Loss (dB):	0
Operation Voltage(V _{DC}):					
Lowest:	10.8	Normal:	13.8	Highest:	36

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
5MHz	790.5	/	795.5
10MHz	/	793	/

Test Data:**FCC§2.1046;§ 90.542****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	23.24	/	23.21	20.82	34.77
	RB1#13	23.22	/	23.26		
	RB1#24	23.26	/	23.23		
	RB15#0	22.37	/	22.28		
	RB15#10	22.33	/	22.31		
	RB25#0	22.35	/	22.28		
5MHz 16QAM	RB1#0	22.17	/	22.21	19.85	34.77
	RB1#13	22.23	/	22.29		
	RB1#24	22.26	/	22.2		
	RB15#0	21.3	/	21.2		
	RB15#10	21.24	/	21.23		
	RB25#0	21.26	/	21.25		
10MHz QPSK	RB1#0	/	23.33	/	20.98	34.77
	RB1#25	/	23.42	/		
	RB1#49	/	23.38	/		
	RB25#0	/	22.29	/		
	RB25#25	/	22.31	/		
	RB50#0	/	22.37	/		
10MHz 16QAM	RB1#0	/	22.23	/	19.9	34.77
	RB1#25	/	22.34	/		
	RB1#49	/	22.18	/		
	RB25#0	/	21.26	/		
	RB25#25	/	21.24	/		
	RB50#0	/	21.26	/		

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	/	4.17	/	13
	RB50#0	/	4.75	/	13
10MHz 16QAM	RB1#0	/	5.42	/	13
	RB50#0	/	5.77	/	13
Result:					Pass

FCC §2.1049, §90.209:Occupied Bandwidth						
Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
5MHz QPSK	4.51	/	4.51	5.08	/	5.02
5MHz 16QAM	4.51	/	4.51	5	/	5
10MHz QPSK	/	8.94	/	/	9.8	/
10MHz 16QAM	/	8.94	/	/	9.76	/

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

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

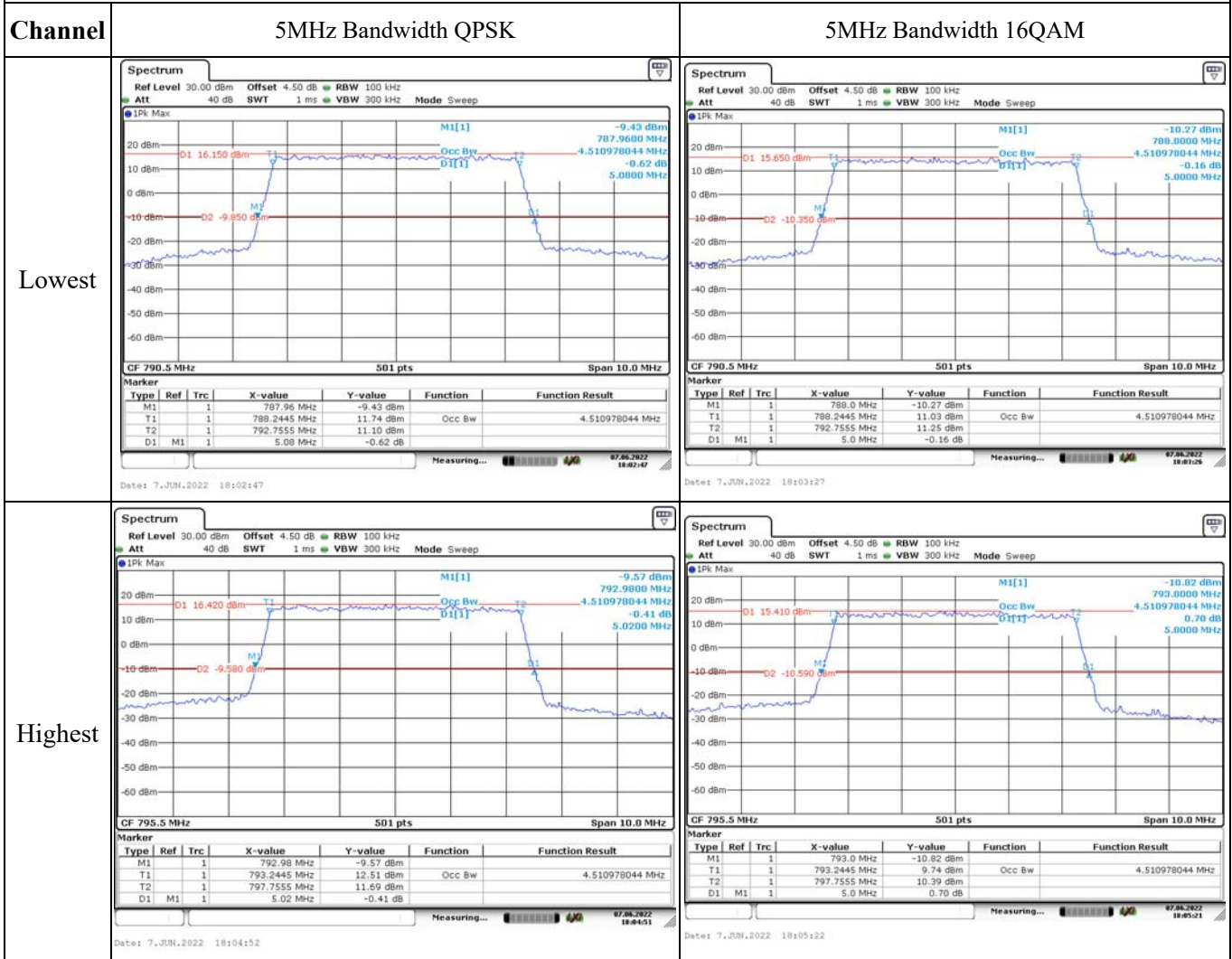
FCC §2.1051, §90.543:Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

FCC §2.1055, §90.213: Frequency Stability					
Test Mode:	10 MHz QPSK		Test Channel:	793	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	13.8	-0.33	0.000	2.5
	-20	13.8	-8.33	-0.011	2.5
	-10	13.8	9.02	0.011	2.5
	0	13.8	6.1	0.008	2.5
	10	13.8	-9.13	-0.012	2.5
	20	13.8	9.77	0.012	2.5
	30	13.8	-9.5	-0.012	2.5
	40	13.8	-7.21	-0.009	2.5
Frequency Stability vs. Voltage	20	10.8	5.84	0.007	2.5
	20	36	6.63	0.008	2.5
				Result:	Pass

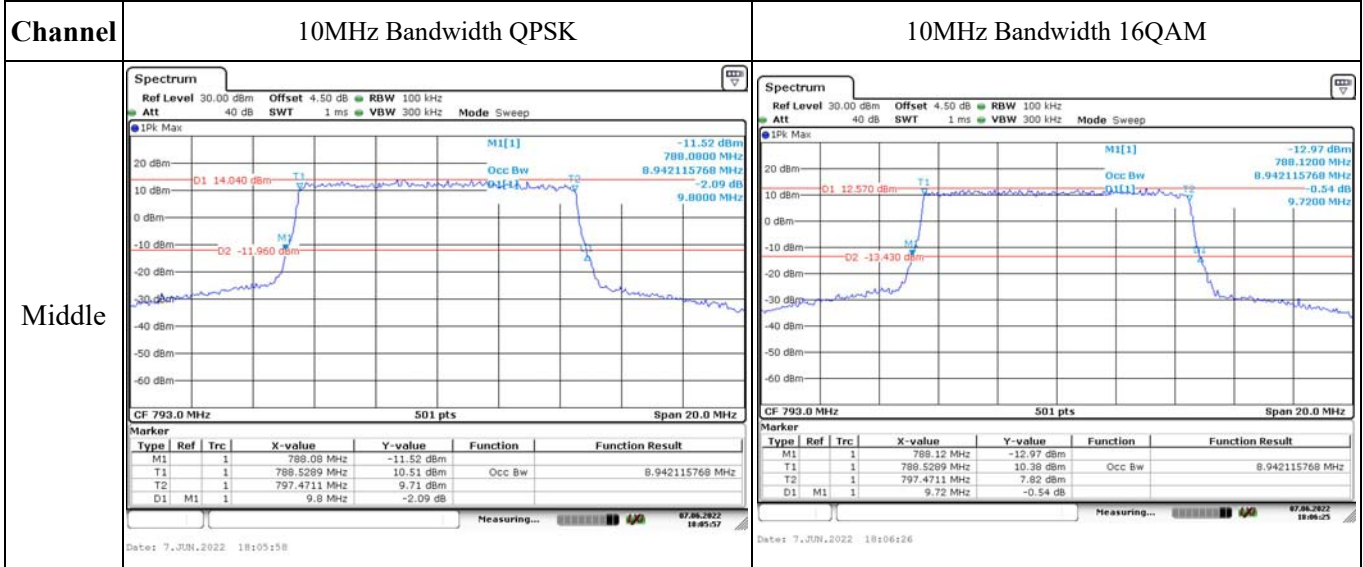
Test Mode:	10 MHz 16QAM		Test Channel:	793	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	13.8	-1	-0.001	2.5
	-20	13.8	-8.68	-0.011	2.5
	-10	13.8	9.52	0.012	2.5
	0	13.8	8.05	0.010	2.5
	10	13.8	-7.34	-0.009	2.5
	20	13.8	-6.29	-0.008	2.5
	30	13.8	6.4	0.008	2.5
	40	13.8	-8.15	-0.010	2.5
Frequency Stability vs. Voltage	20	10.8	6.17	0.008	2.5
	20	36	-5.27	-0.007	2.5
				Result:	Pass

Test Plots:

Occupied Bandwidth



Occupied Bandwidth



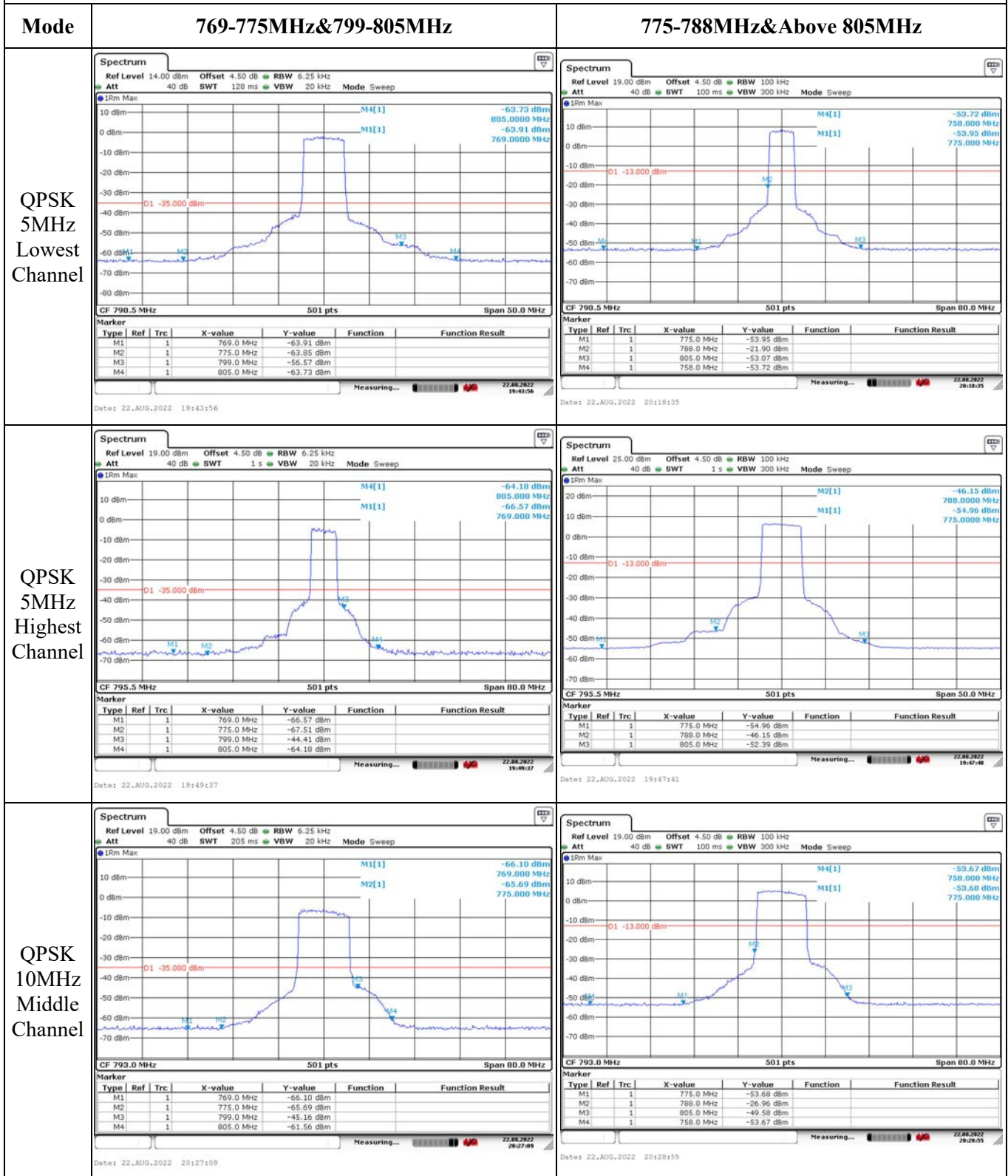
Spurious Emissions at Antenna Terminal

Mode	Lowest Channel	Highest Channel
QPSK 5MHz		
QPSK 5MHz		

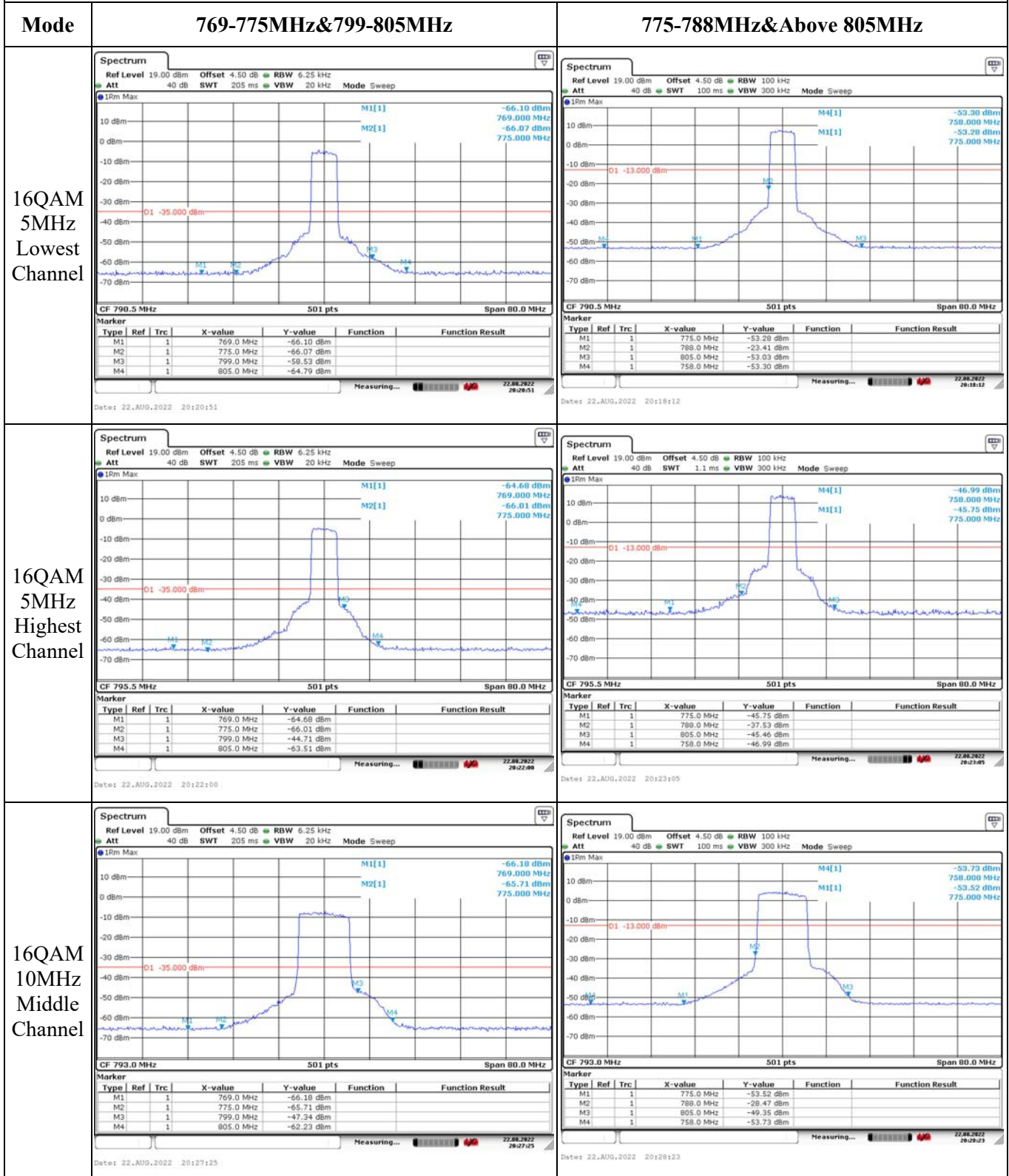
Spurious Emissions at Antenna Terminal

Mode	Middle Channel	/
QPSK 10MHz	<p>Spectrum Ref Level 20.00 dBm Offset 4.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep 1Pk Max MI[1] -52.64 dBm 875.10 MHz D1 -13.000 dBm Start 30.0 MHz 501 pts Stop 1.0 GHz Date: 31.MAY.2022 20:09:46</p>	/
	<p>Spectrum Ref Level 10.00 dBm Offset 4.50 dB RBW 1 MHz Att 30 dB SWT 36 ms VBW 3 MHz Mode Auto Sweep 1Pk Max MI[1] -37.95 dBm 5.8770 GHz D1 -13.000 dBm Start 1.0 GHz 501 pts Stop 10.0 GHz Date: 31.MAY.2022 20:10:11</p>	/
	<p>Spectrum Spectrum 2 Spectrum 3 Ref Level -10.00 dBm Offset 4.50 dB RBW 1 MHz Att 30 dB SWT 1 ms VBW 3 MHz Mode Sweep 1Pk Max MI[1] -42.31 dBm 1.569030 GHz D1 -40.000 dBm Start 1.559 GHz 501 pts Stop 1.61 GHz Date: 22.AUG.2022 11:27:43</p>	/

Out of band emission, Band Edge



Out of band emission, Band Edge



4.10 Antenna Port Test Data and Results for LTE Band 66:

Serial Number:	CR22050036-RF-S1	Test Date:	2022-05-31~2022-06-08
Test Site:	RF	Test Mode:	Transmitting
Tester:	Rinka Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.5~25.9	Relative Humidity: (%)	63~67	ATM Pressure: (kPa)	100.0~100.1
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2021-07-22	2022-07-21
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554404	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	149218	2021-07-22	2022-07-21
UNI-T	Multimeter	UT39A+	C210582554	2021-09-30	2022-09-29
Weinschel	Coaxial Attenuator	53-20-34	LN751	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150	30026	2021-07-22	2022-07-21
UNI-T	Multimeter	UT39A+	C210582554	2021-07-22	2022-07-21
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):	3.87	Cable Loss (dB):	0
Operation Voltage(V _{DC}):			
Lowest:	10.8	Normal:	13.8
		Highest:	36

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	22.45	21.95	21.93	26.33	30
	RB1#3	22.46	22.12	21.98		
	RB1#5	22.4	21.88	21.92		
	RB3#0	22.31	22.03	21.92		
	RB3#3	22.31	22.03	21.84		
	RB6#0	21.3	21.01	20.93		
1.4MHz 16QAM	RB1#0	21.34	20.92	20.88	25.28	30
	RB1#3	21.41	21.12	21.05		
	RB1#5	21.15	20.71	20.88		
	RB3#0	21.21	20.98	20.85		
	RB3#3	21.27	20.89	20.9		
	RB6#0	20.26	19.99	19.92		
3MHz QPSK	RB1#0	22.4	22.19	22.19	26.27	30
	RB1#8	22.26	22.01	22.03		
	RB1#14	22.34	21.99	21.94		
	RB6#0	21.28	21.12	21.06		
	RB6#9	21.23	20.9	20.88		
	RB15#0	21.31	20.97	21.1		
3MHz 16QAM	RB1#0	21.32	21.09	21.31	25.19	30
	RB1#8	21.15	20.91	21.07		
	RB1#14	21.22	20.7	21.09		
	RB6#0	20.25	20.04	20.1		
	RB6#9	20.31	19.77	20.05		
	RB15#0	20.35	19.96	20.13		
5MHz QPSK	RB1#0	22.28	22.31	22.28	26.18	30
	RB1#13	22.21	22.01	22.08		
	RB1#24	22.23	21.92	21.95		
	RB15#0	21.36	21.04	21.22		
	RB15#10	21.36	20.86	21.1		
	RB25#0	21.39	20.99	21.19		
5MHz 16QAM	RB1#0	21.3	21.36	21.23	25.23	30
	RB1#13	21.12	21.07	21.15		
	RB1#24	21.22	20.84	20.98		
	RB15#0	20.33	20.08	20.22		
	RB15#10	20.31	19.93	20.11		
	RB25#0	20.28	19.94	20.21		

10MHz QPSK	RB1#0	22.53	22.49	22.25	26.4	30
	RB1#25	22.53	22.35	22.36		
	RB1#49	22.45	22	22.06		
	RB25#0	21.42	21.34	21.17		
	RB25#25	21.32	20.88	21.19		
	RB50#0	21.39	21.13	21.24		
10MHz 16QAM	RB1#0	21.48	21.32	21.04	25.35	30
	RB1#25	21.27	21.16	21.44		
	RB1#49	21.16	20.91	20.97		
	RB25#0	20.39	20.29	20.2		
	RB25#25	20.27	20.01	20.26		
	RB50#0	20.34	20.1	20.17		
15MHz QPSK	RB1#0	22.62	22.36	21.99	26.49	30
	RB1#38	22.54	22.11	22.14		
	RB1#74	22.47	22.13	21.97		
	RB36#0	21.42	21.38	20.99		
	RB36#39	21.31	20.93	21.29		
	RB75#0	21.38	21.17	21.06		
15MHz 16QAM	RB1#0	21.26	21.38	20.87	25.25	30
	RB1#38	21.19	21.08	21.11		
	RB1#74	21.24	21.12	20.81		
	RB36#0	20.41	20.31	20.07		
	RB36#39	20.34	20.01	20.24		
	RB75#0	20.36	20.23	20.16		
20MHz QPSK	RB1#0	20.99	21.62	21.15	25.49	30
	RB1#50	21.45	21.53	21.26		
	RB1#99	21.32	21.6	21.14		
	RB50#0	20.53	20.53	20.15		
	RB50#50	20.44	20.23	20.27		
	RB100#0	20.53	20.41	20.19		
20MHz 16QAM	RB1#0	20.56	20.26	20.21	24.43	30
	RB1#50	20.52	20.31	20.39		
	RB1#99	20.29	20.18	20.12		
	RB50#0	19.45	19.52	19.24		
	RB50#50	19.37	19.33	19.36		
	RB100#0	19.43	19.41	19.3		

Note: EIRP=Conducted Power(dBm) - Cable loss(dB) + Antenna Gain(dBi)

Result:

Pass

Peak-to-average Ratio(PAR)					
Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	4.03	4.55	4.06	13
	RB100#0	4.9	4.67	4.23	13
20MHz 16QAM	RB1#0	5.25	5.62	5.28	13
	RB100#0	5.86	5.74	5.3	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	1.108	1.102	1.314	1.338	1.314
1.4MHz 16QAM	1.102	1.096	1.102	1.32	1.32	1.308
3MHz QPSK	2.707	2.695	2.683	2.952	2.964	2.94
3MHz 16QAM	2.695	2.695	2.683	2.952	2.952	2.976
5MHz QPSK	4.511	4.531	4.511	5.04	5.02	5.02
5MHz 16QAM	4.511	4.531	4.511	5	5.04	5.04
10MHz QPSK	8.942	8.942	8.902	9.84	9.72	9.68
10MHz 16QAM	8.982	8.902	8.942	9.84	9.68	9.68
15MHz QPSK	13.533	13.473	13.413	14.88	14.82	14.76
15MHz 16QAM	13.473	13.473	13.413	14.82	14.82	14.7
20MHz QPSK	17.884	17.884	17.884	19.44	19.44	19.28
20MHz 16QAM	17.804	17.804	17.804	19.44	19.44	19.36

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.

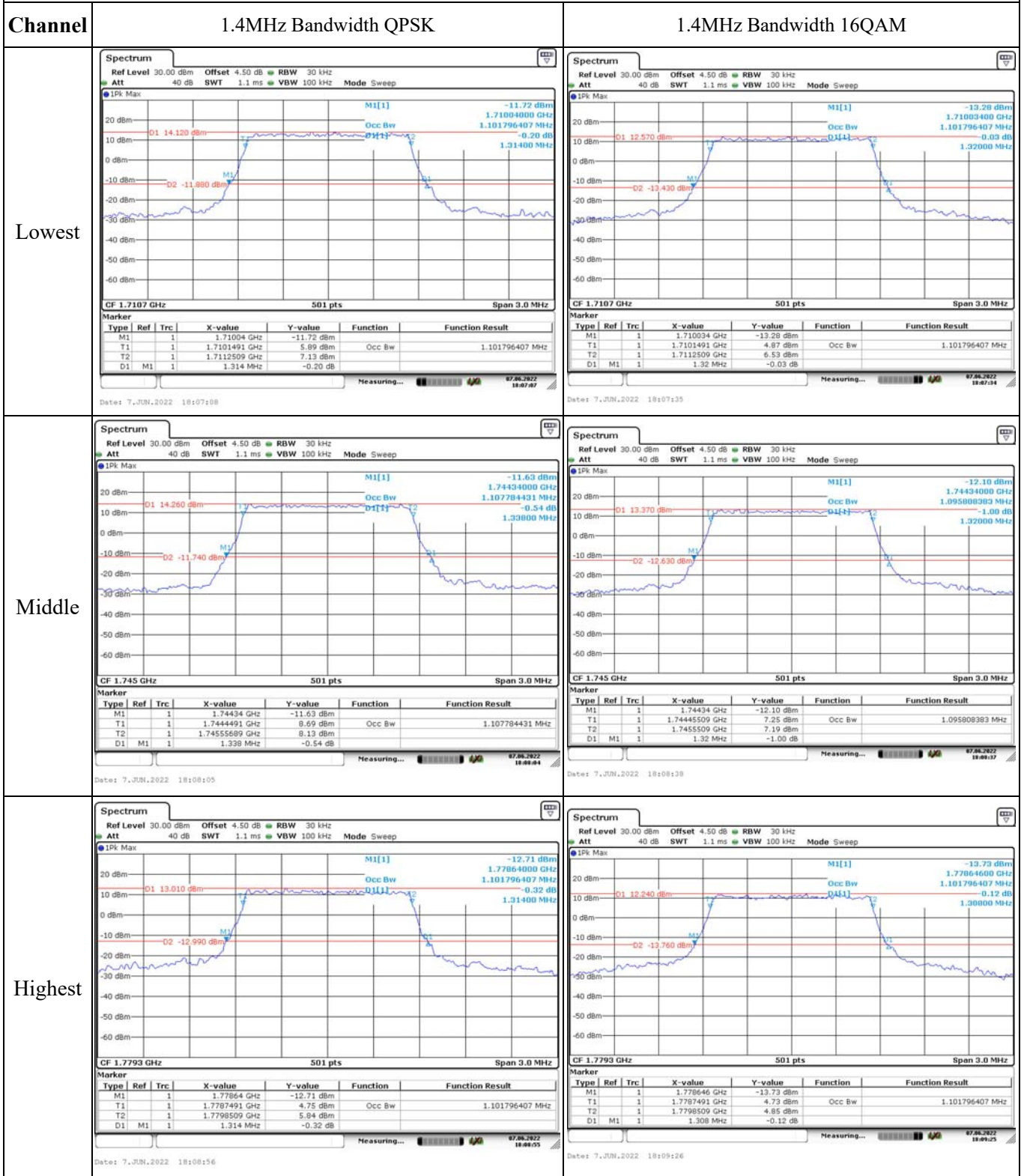
FCC §2.1051, § 27.53:Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

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	13.8	1710.291	1710.00	1779.723	1780
	-20	13.8	1710.293	1710.00	1779.719	1780
	-10	13.8	1710.288	1710.00	1779.725	1780
	0	13.8	1710.289	1710.00	1779.727	1780
	10	13.8	1710.289	1710.00	1779.719	1780
	20	13.8	1710.285	1710.00	1779.714	1780
	30	13.8	1710.285	1710.00	1779.716	1780
	40	13.8	1710.287	1710.00	1779.723	1780
Frequency Stability vs. Voltage	20	10.8	1710.297	1710.00	1779.726	1780
	20	36	1710.292	1710.00	1779.714	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	13.8	1710.292	1710.00	1779.775	1780
	-20	13.8	1710.289	1710.00	1779.774	1780
	-10	13.8	1710.287	1710.00	1779.778	1780
	0	13.8	1710.291	1710.00	1779.779	1780
	10	13.8	1710.292	1710.00	1779.782	1780
	20	13.8	1710.285	1710.00	1779.773	1780
	30	13.8	1710.299	1710.00	1779.775	1780
	40	13.8	1710.290	1710.00	1779.775	1780
Frequency Stability vs. Voltage	20	10.8	1710.292	1710.00	1779.779	1780
	20	36	1710.288	1710.00	1779.773	1780
					Result:	Pass

Test Plots:

Occupied Bandwidth



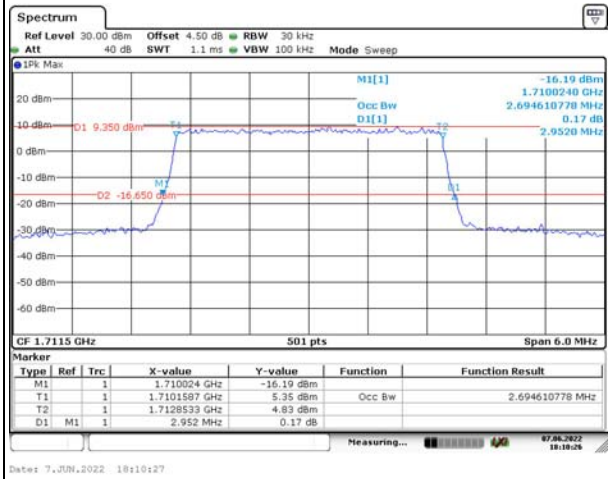
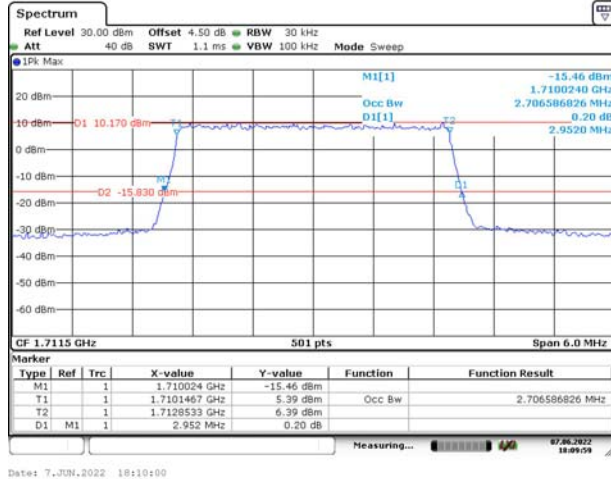
Occupied Bandwidth

Channel

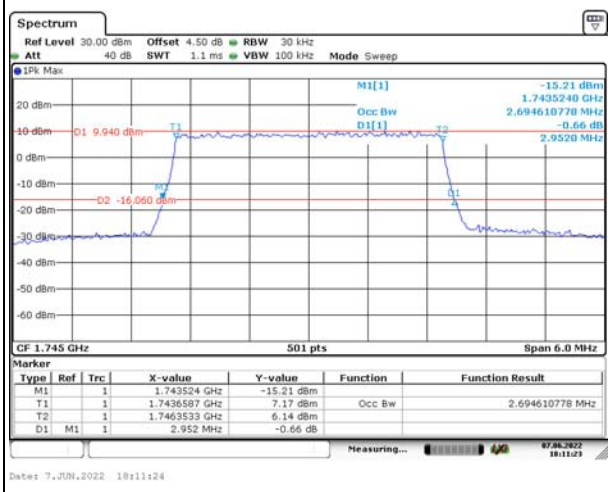
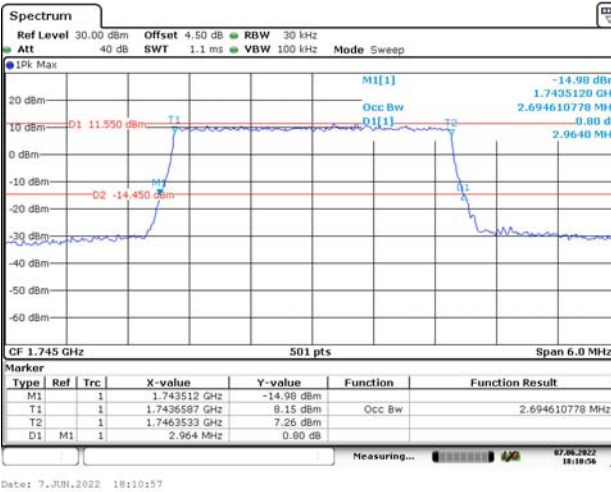
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

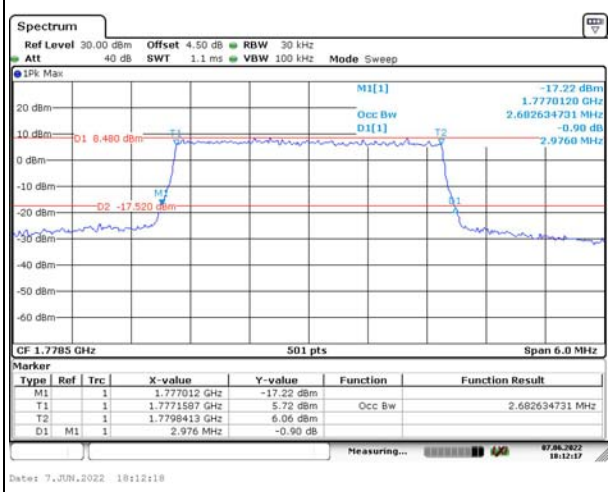
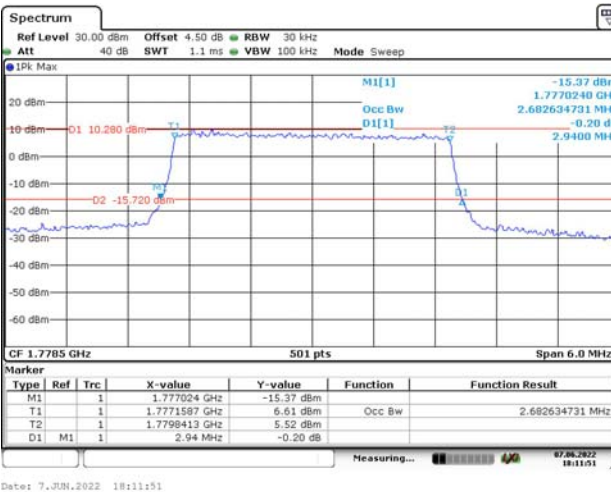
Lowest



Middle



Highest



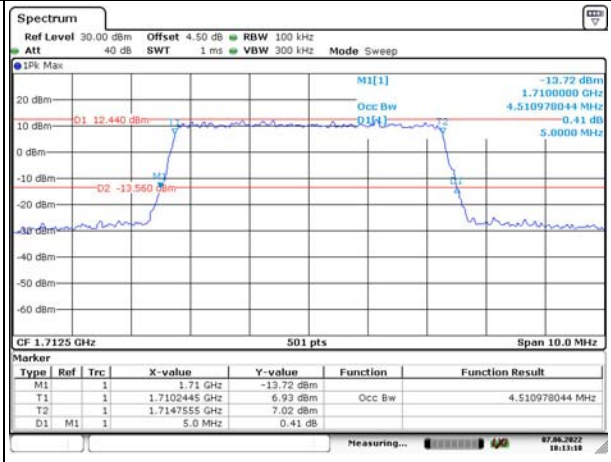
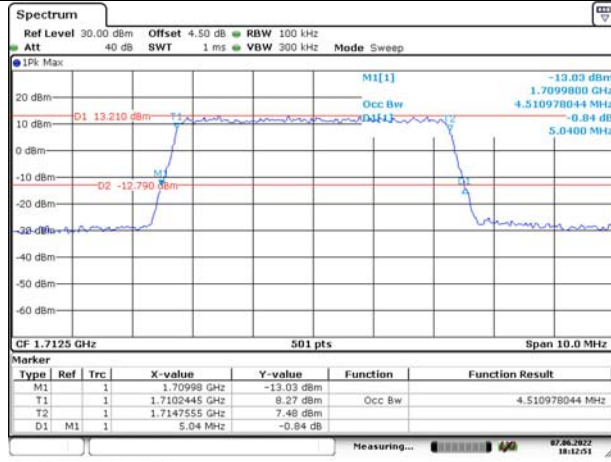
Occupied Bandwidth

Channel

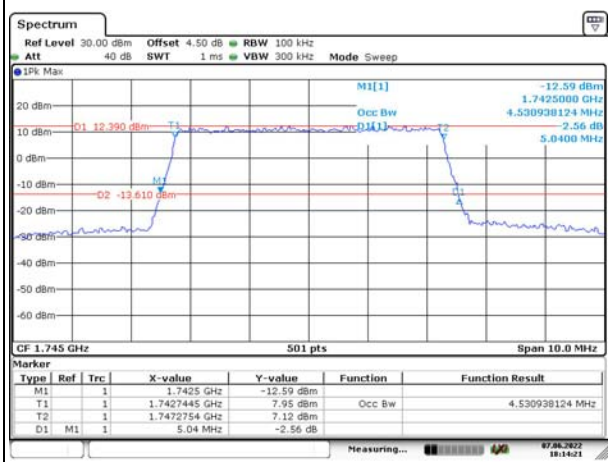
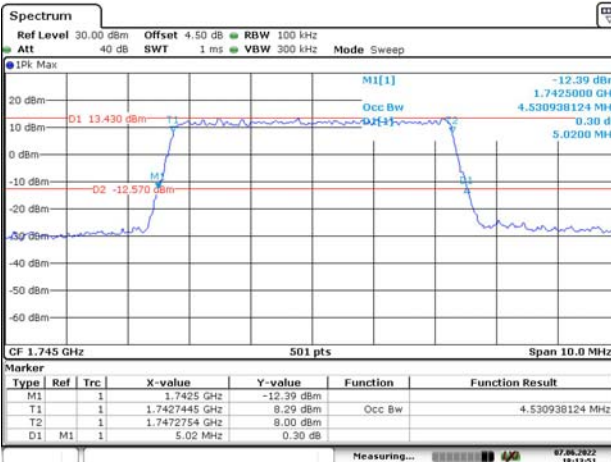
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

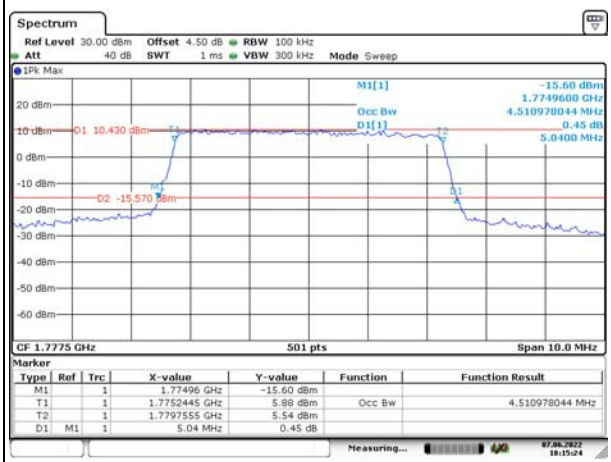
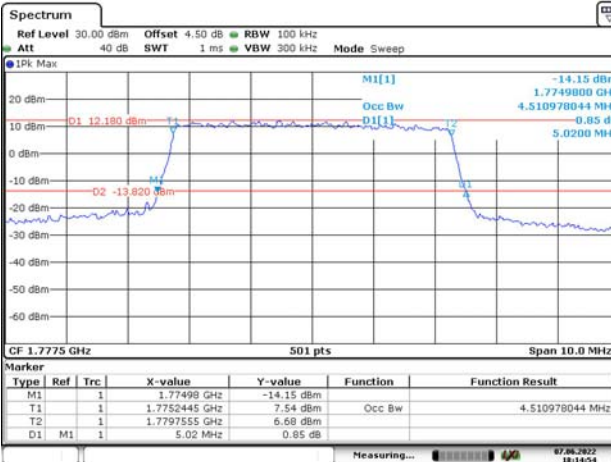
Lowest



Middle



Highest



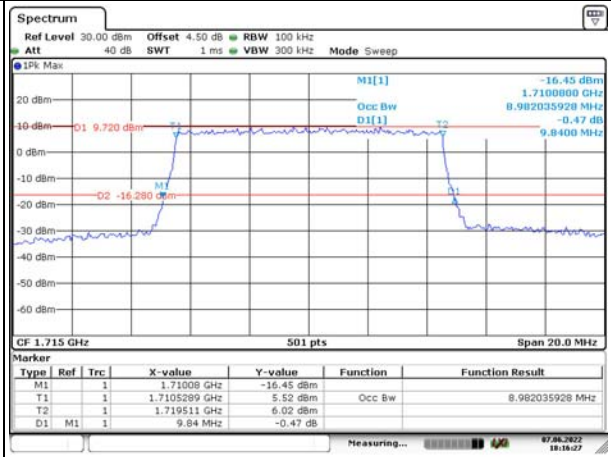
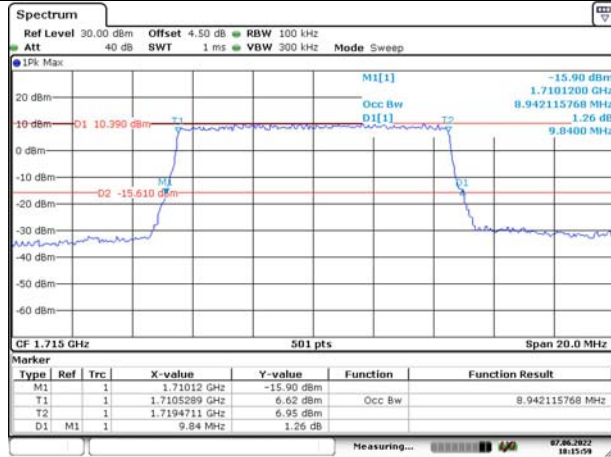
Occupied Bandwidth

Channel

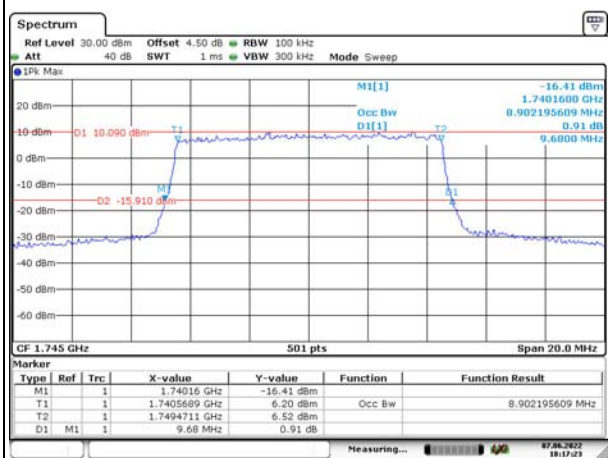
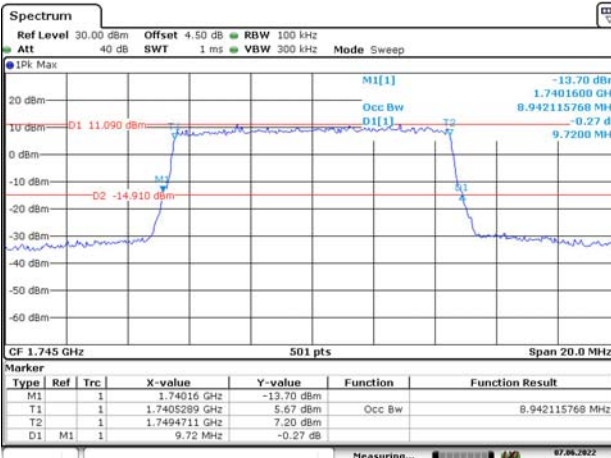
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

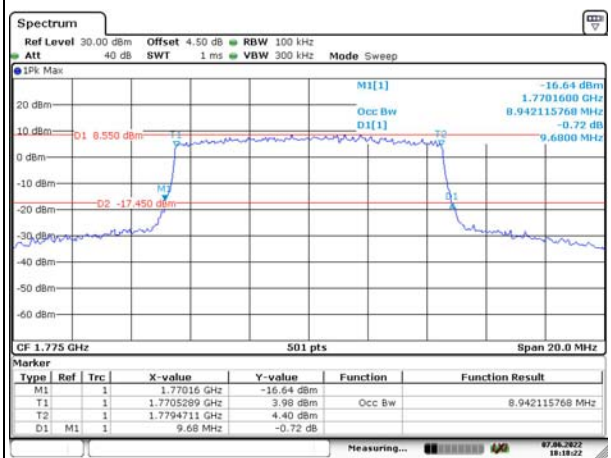
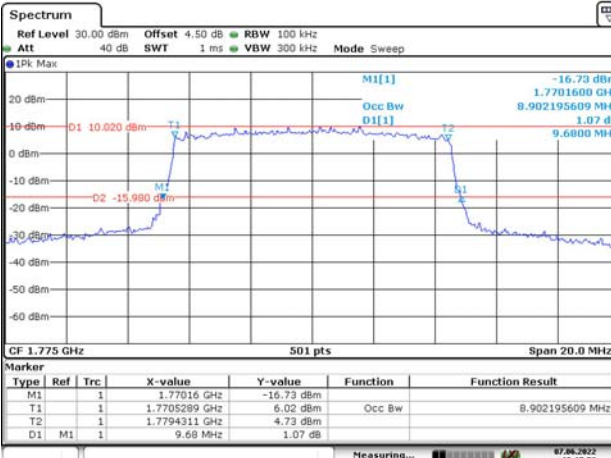
Lowest



Middle



Highest



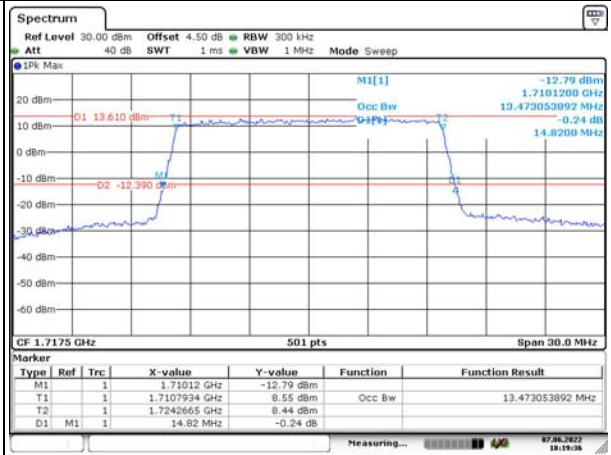
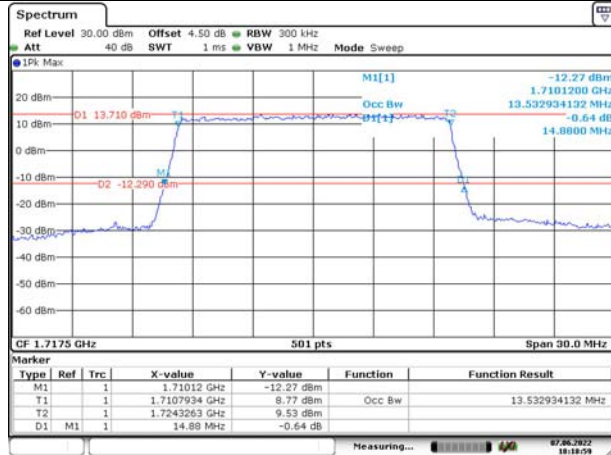
Occupied Bandwidth

Channel

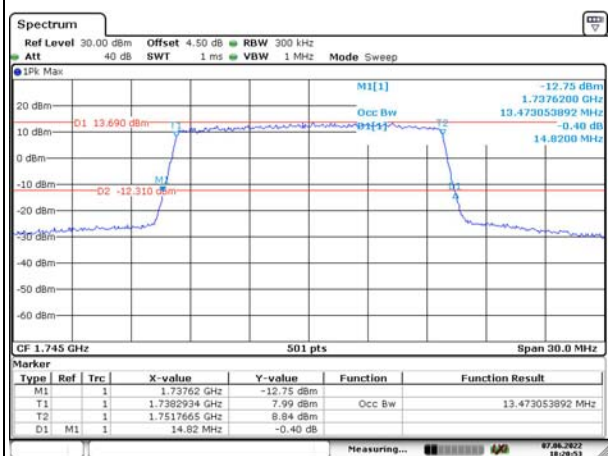
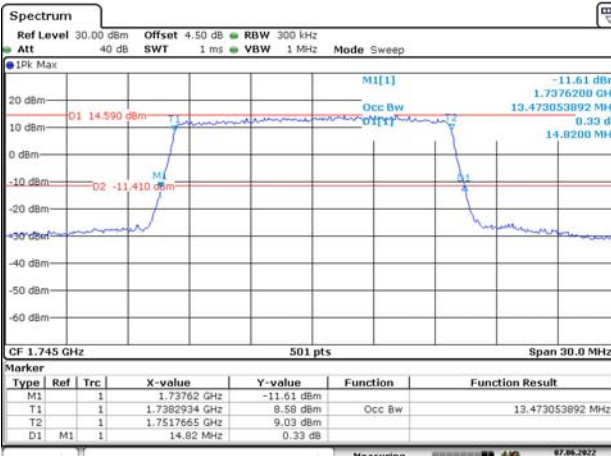
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

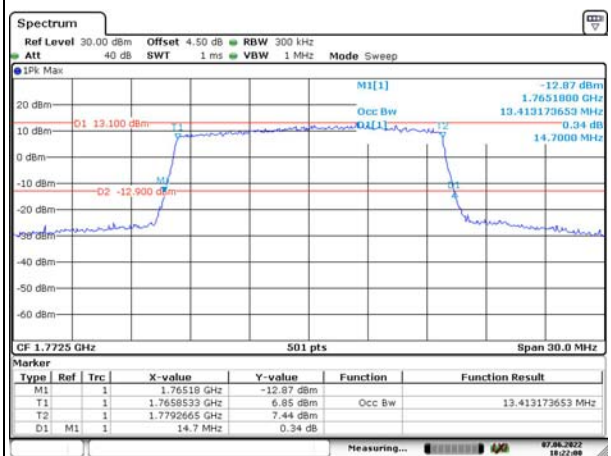
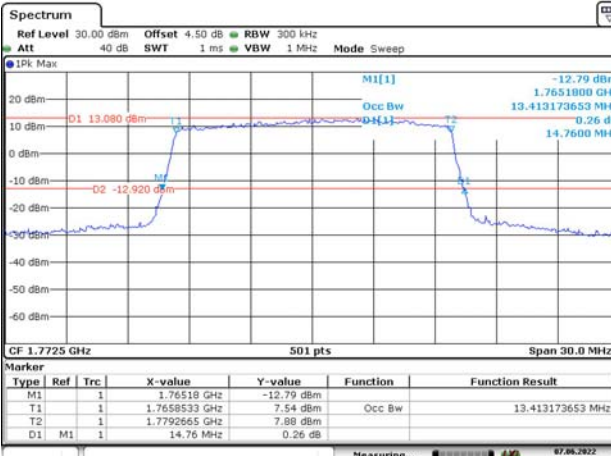
Lowest



Middle



Highest



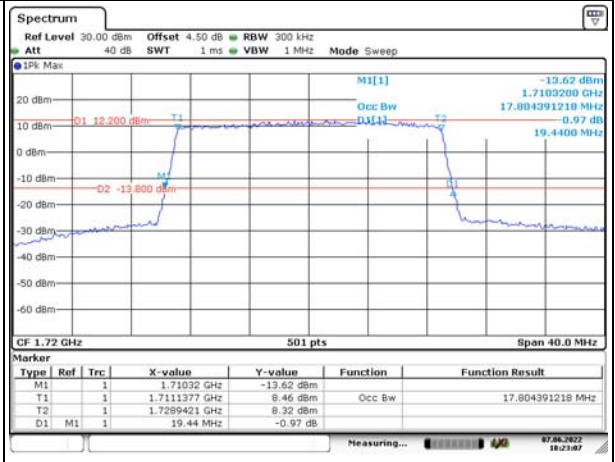
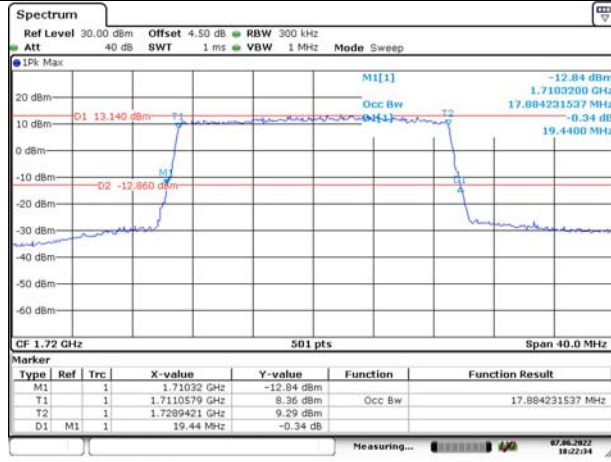
Occupied Bandwidth

Channel

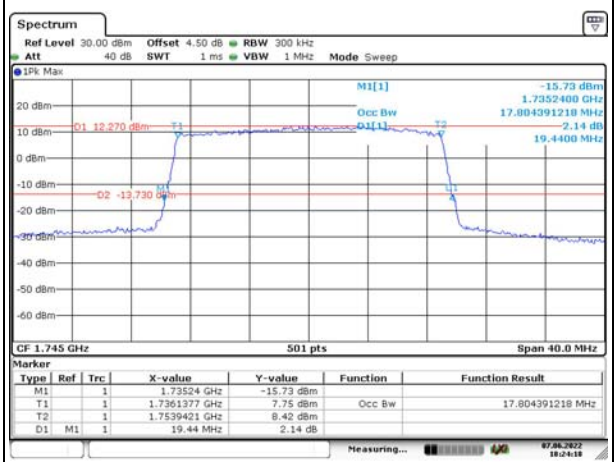
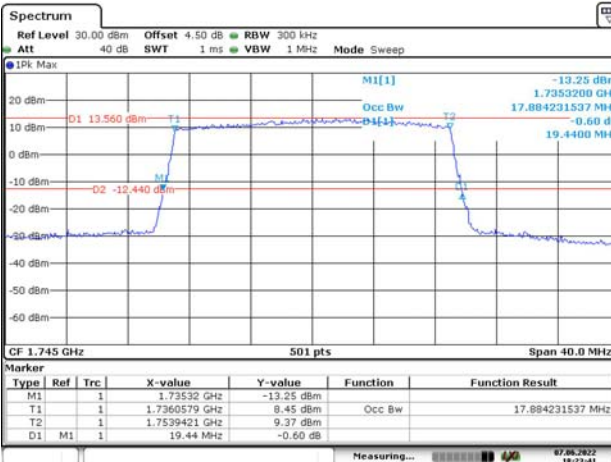
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

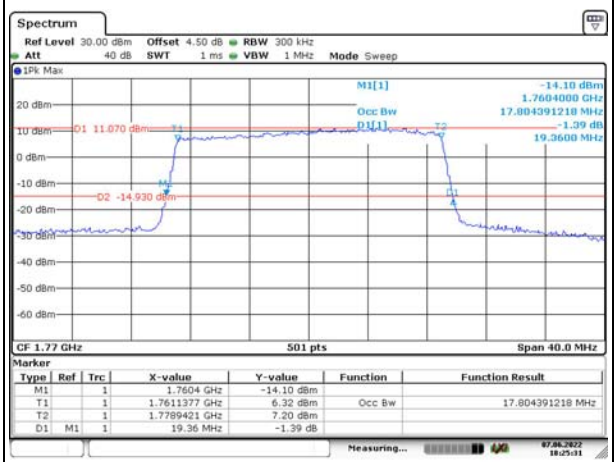
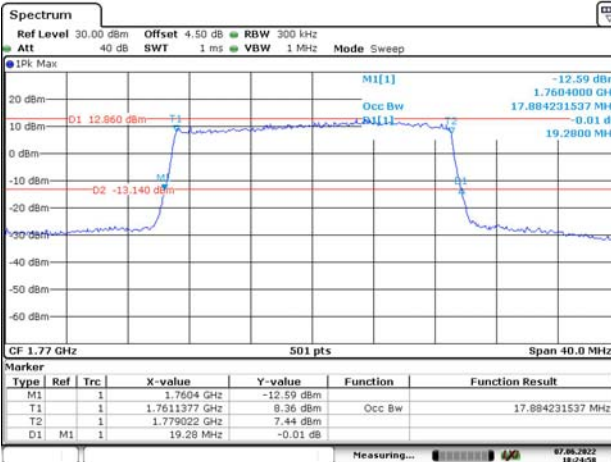
Lowest



Middle



Highest

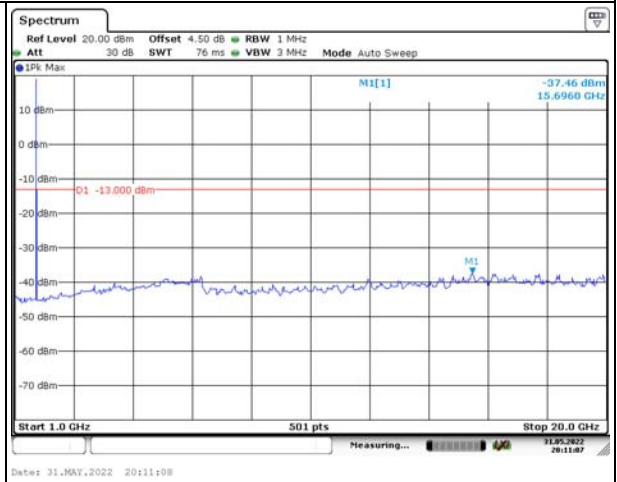
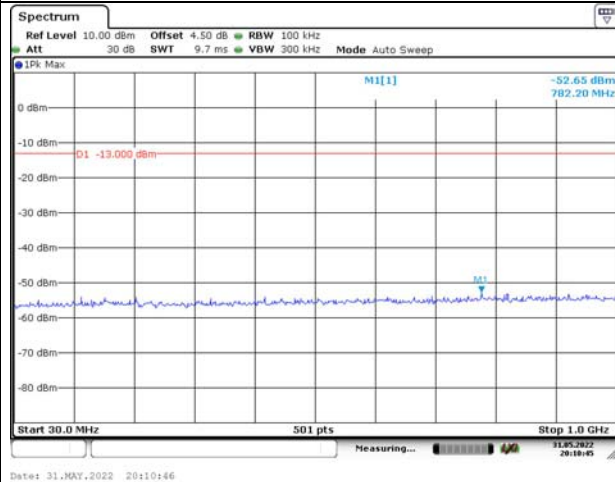


Spurious Emissions at Antenna Terminal

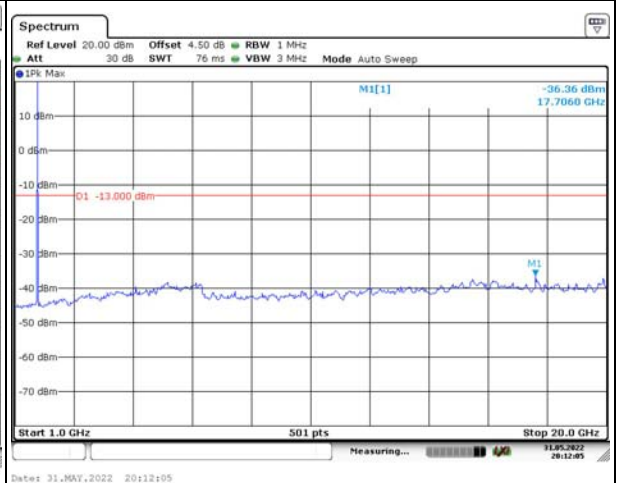
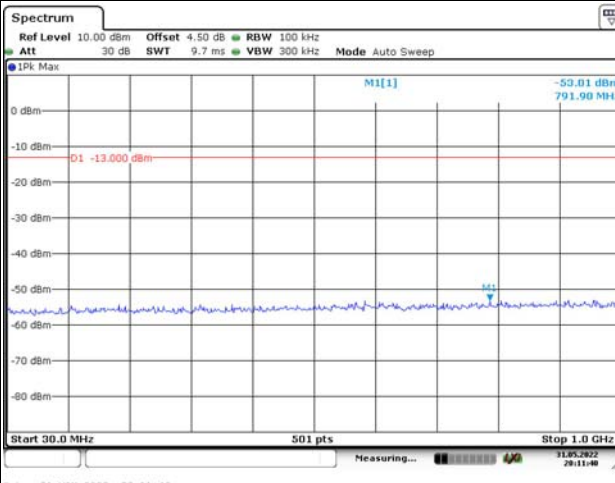
Channel

1.4MHz Bandwidth QPSK

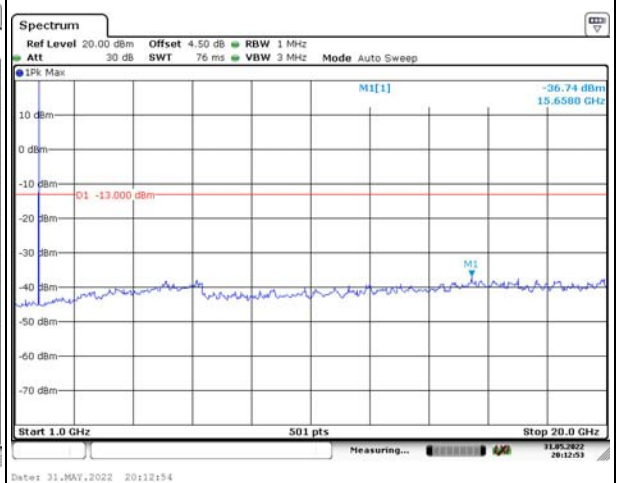
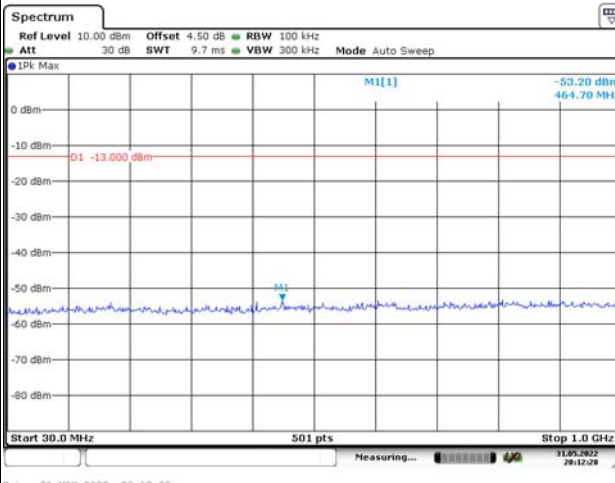
Lowest



Middle



Highest

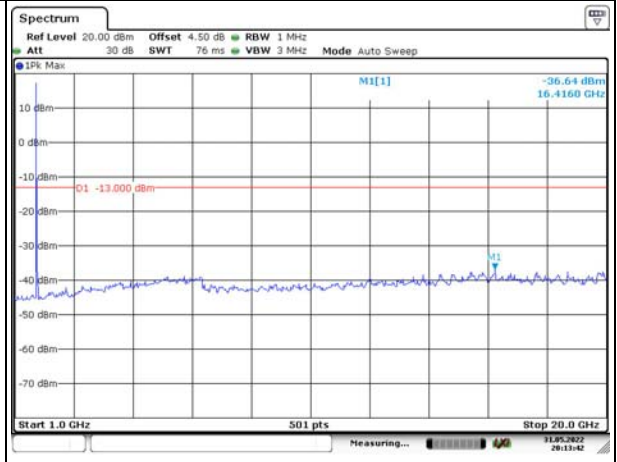
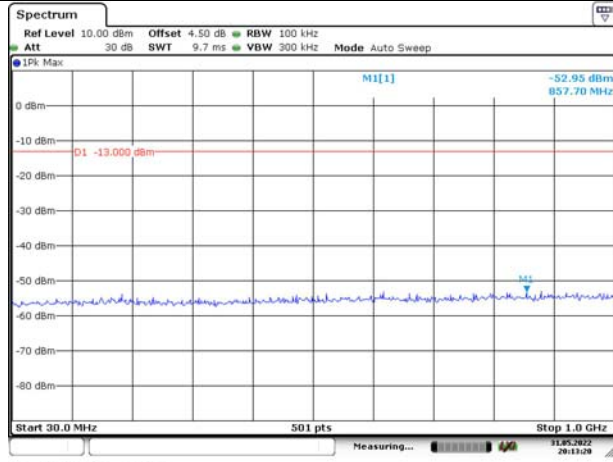


Spurious Emissions at Antenna Terminal

Channel

3MHz Bandwidth QPSK

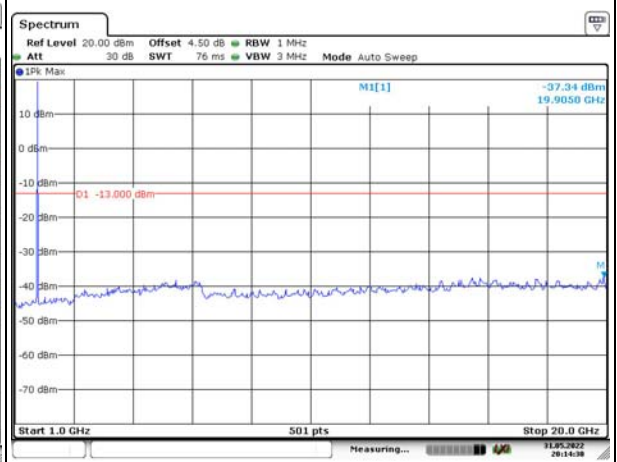
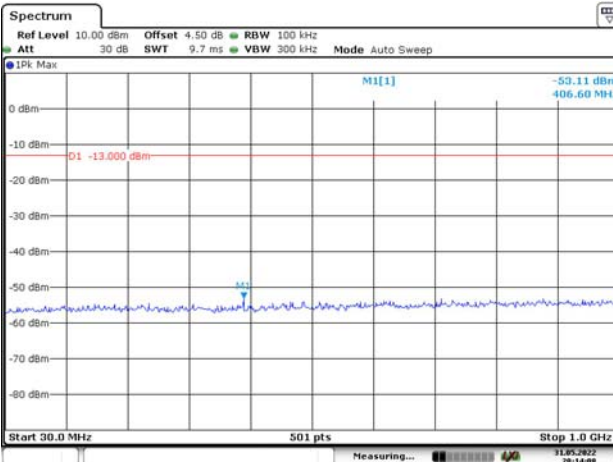
Lowest



Date: 31.MAY.2022 20:13:20

Date: 31.MAY.2022 20:13:42

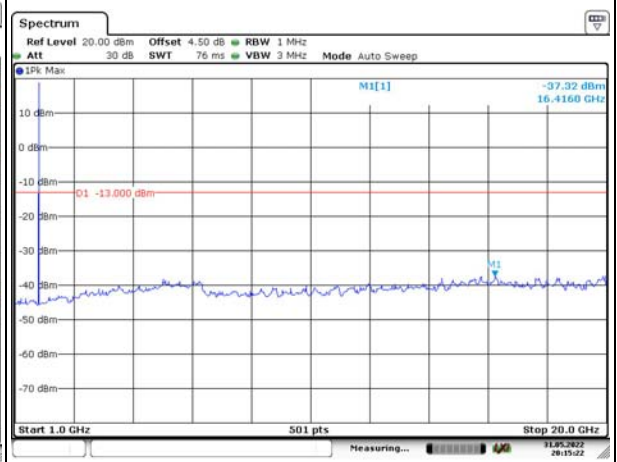
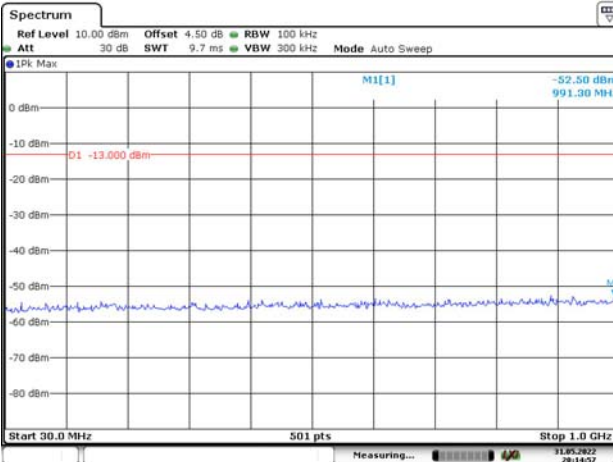
Middle



Date: 31.MAY.2022 20:14:09

Date: 31.MAY.2022 20:14:31

Highest



Date: 31.MAY.2022 20:14:57

Date: 31.MAY.2022 20:15:22