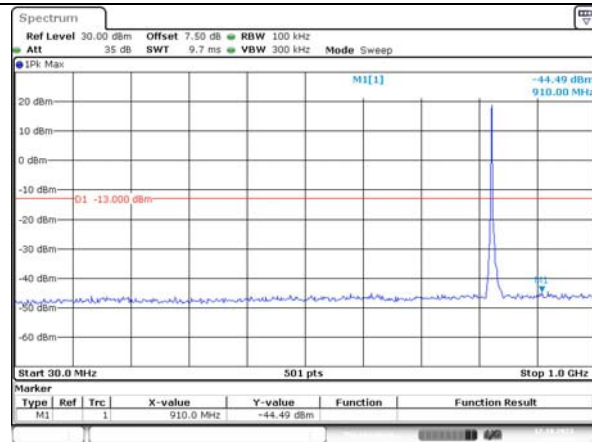


Spurious Emissions at Antenna Terminal

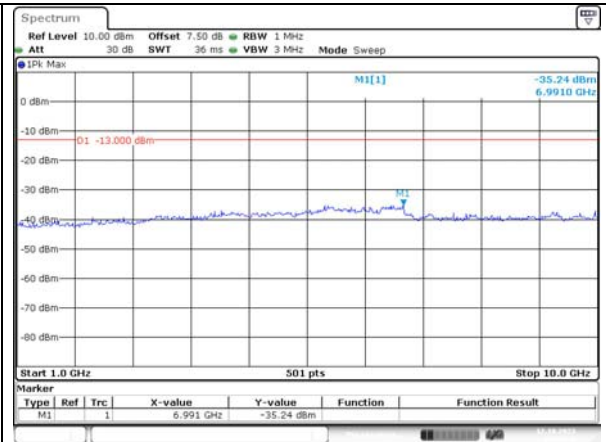
Channel

3MHz Bandwidth QPSK

Lowest

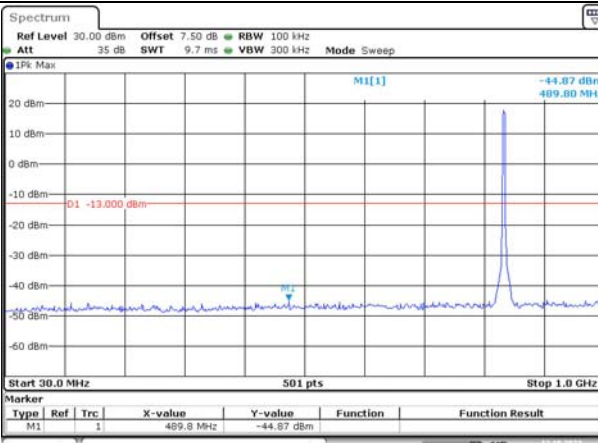


ProjectNo.:CR230953939 Testers:One Luo
Date: 12.OCT.2023 14:53:15

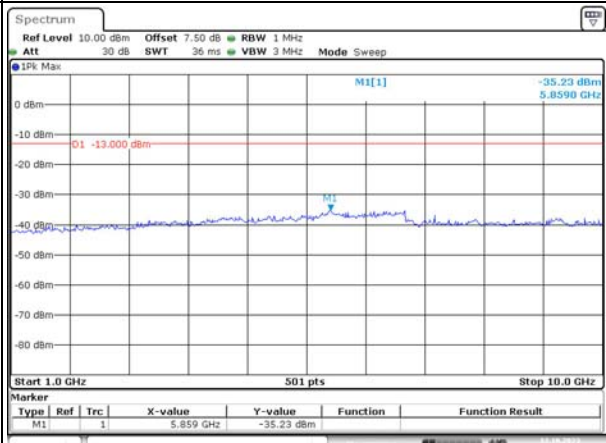


ProjectNo.:CR230953939 Testers:One Luo
Date: 12.OCT.2023 14:53:17

Middle

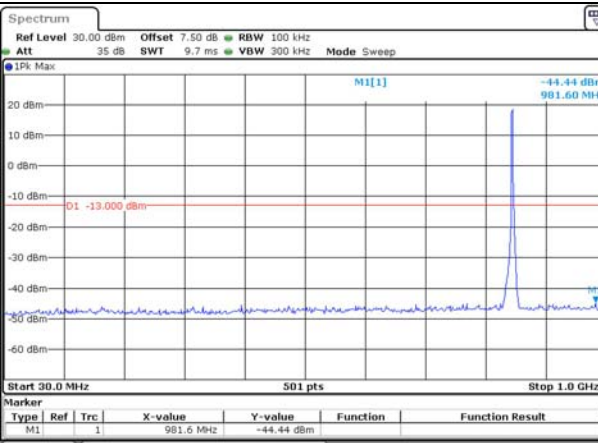


ProjectNo.:CR230953939 Testers:One Luo
Date: 12.OCT.2023 14:54:12

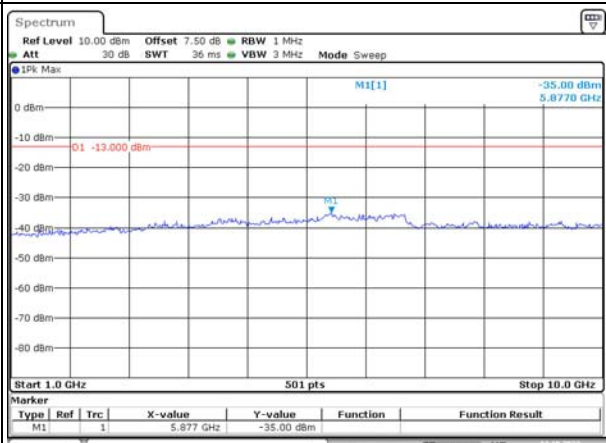


ProjectNo.:CR230953939 Testers:One Luo
Date: 12.OCT.2023 14:54:14

Highest



ProjectNo.:CR230953939 Testers:One Luo
Date: 12.OCT.2023 14:54:19



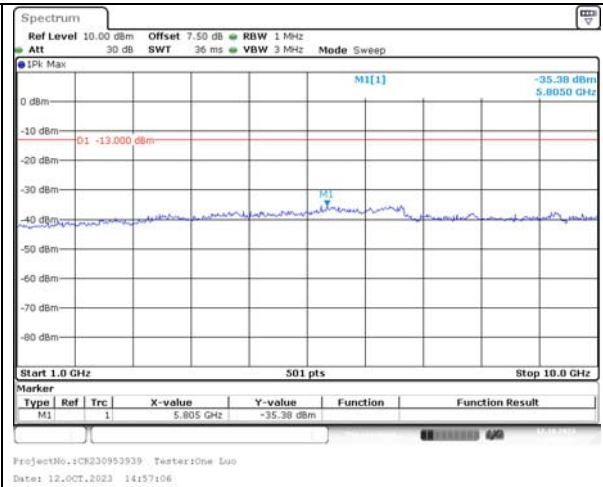
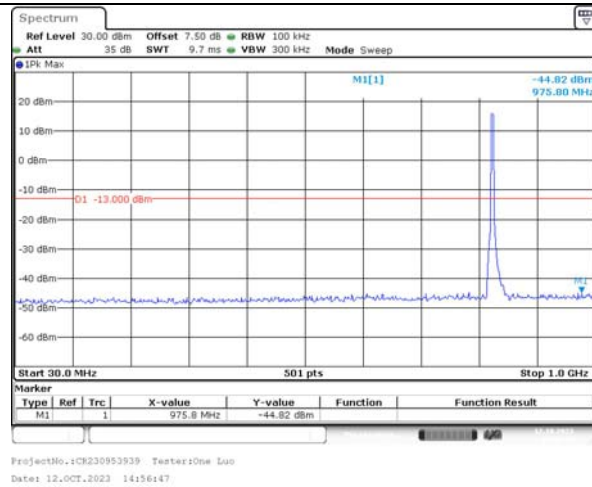
ProjectNo.:CR230953939 Testers:One Luo
Date: 12.OCT.2023 14:55:28

Spurious Emissions at Antenna Terminal

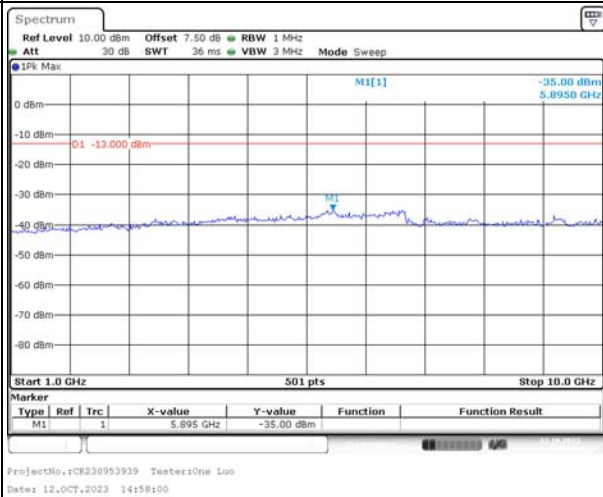
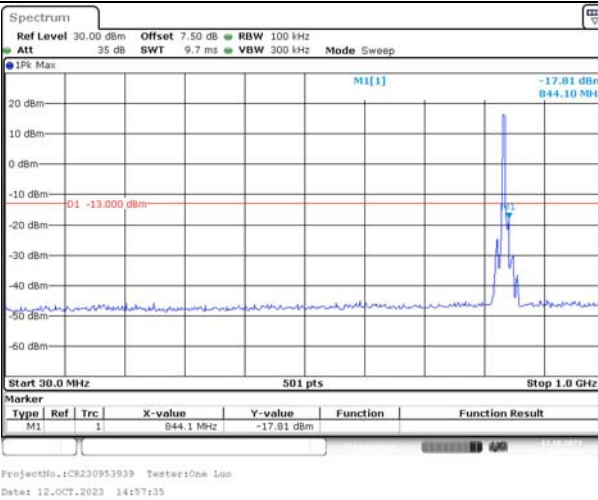
Channel

5MHz Bandwidth QPSK

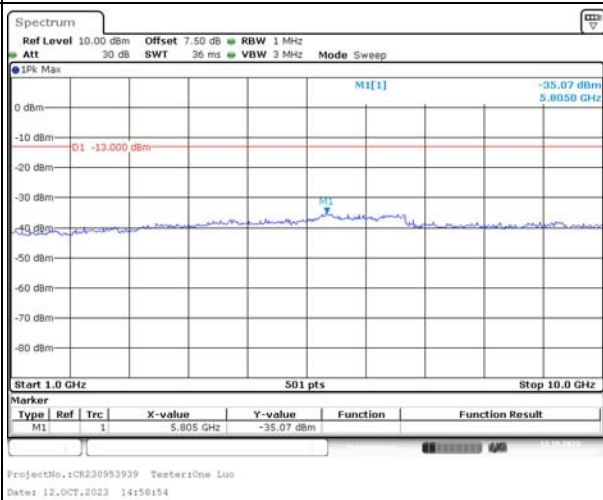
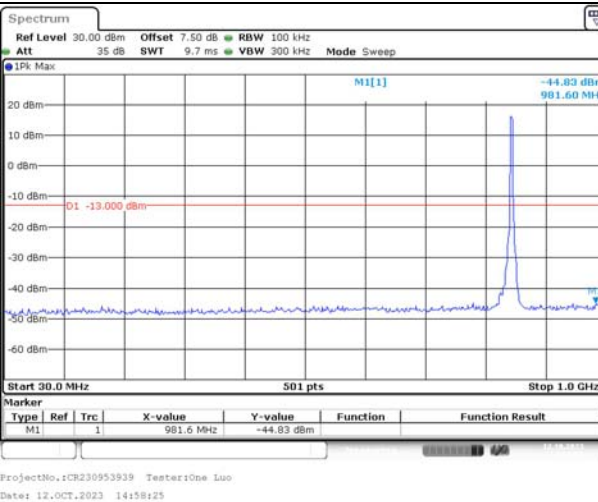
Lowest



Middle



Highest

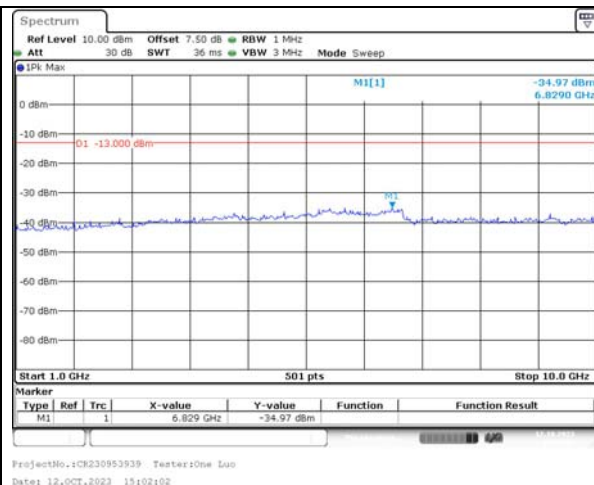
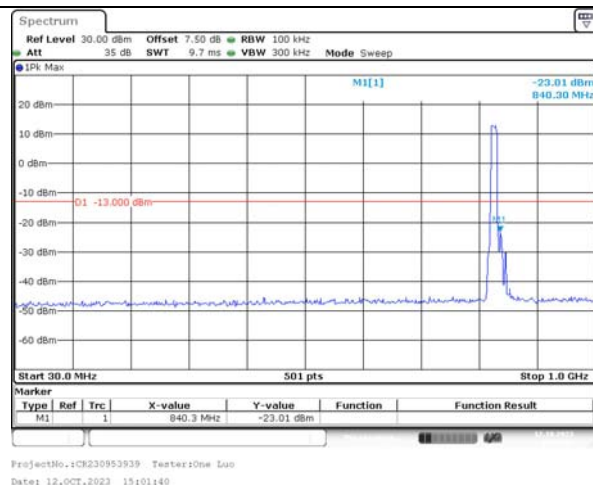


Spurious Emissions at Antenna Terminal

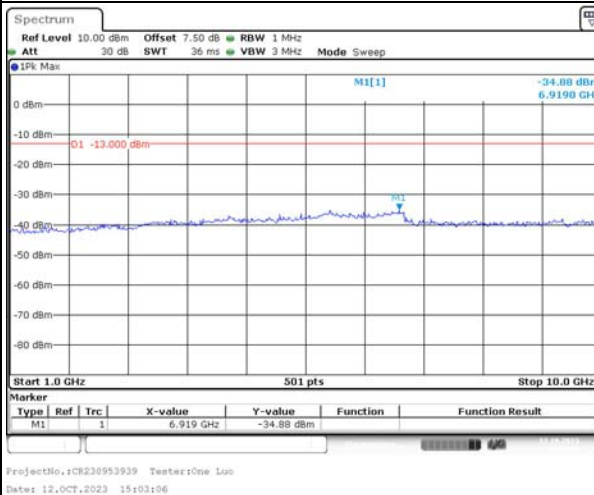
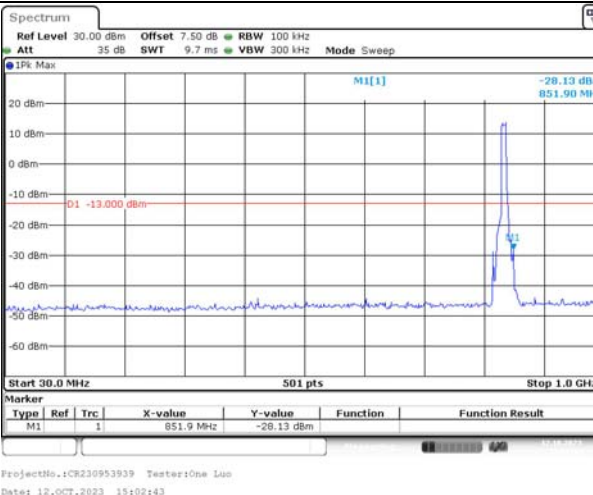
Channel

10MHz Bandwidth QPSK

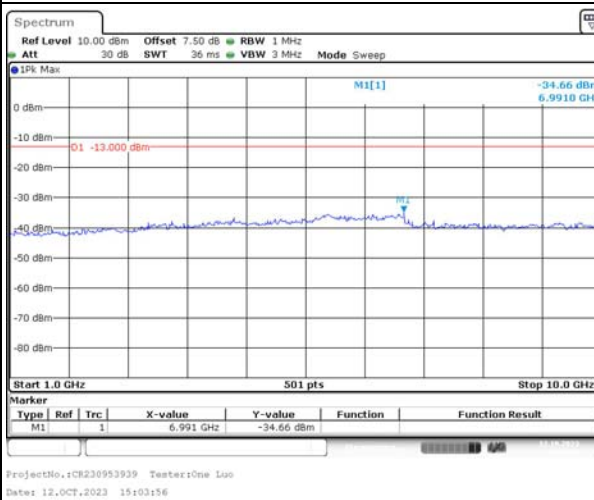
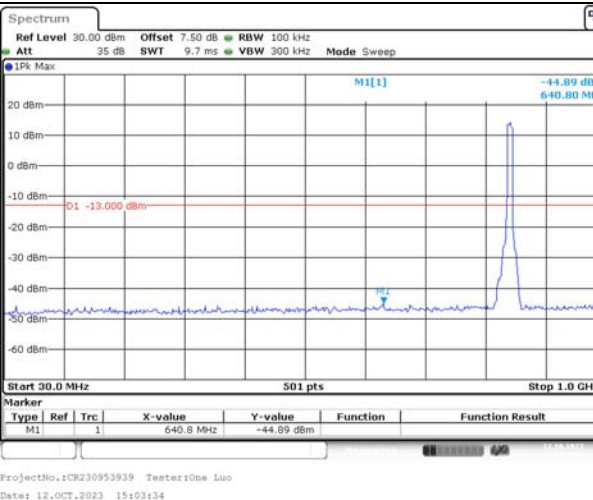
Lowest



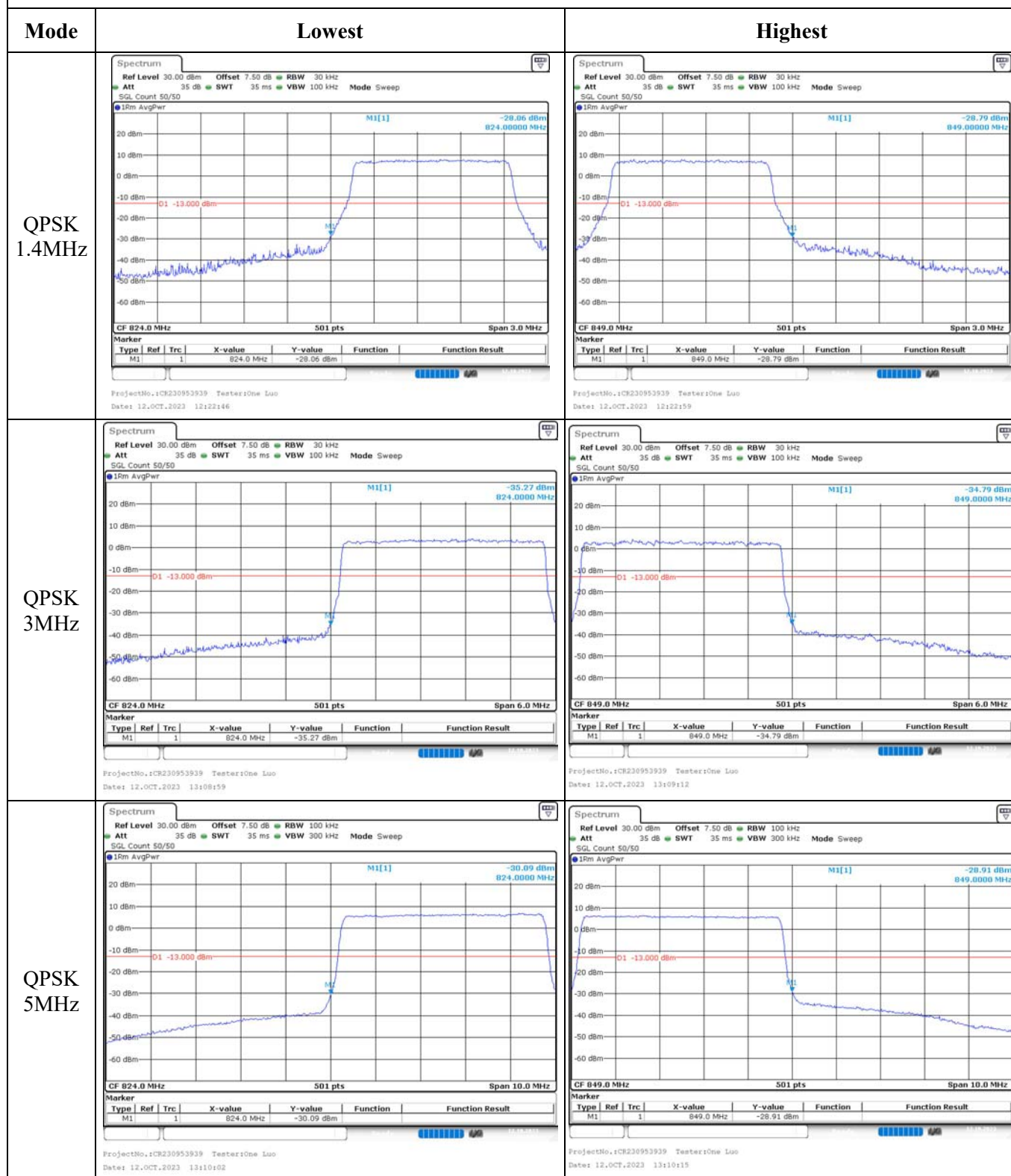
Middle



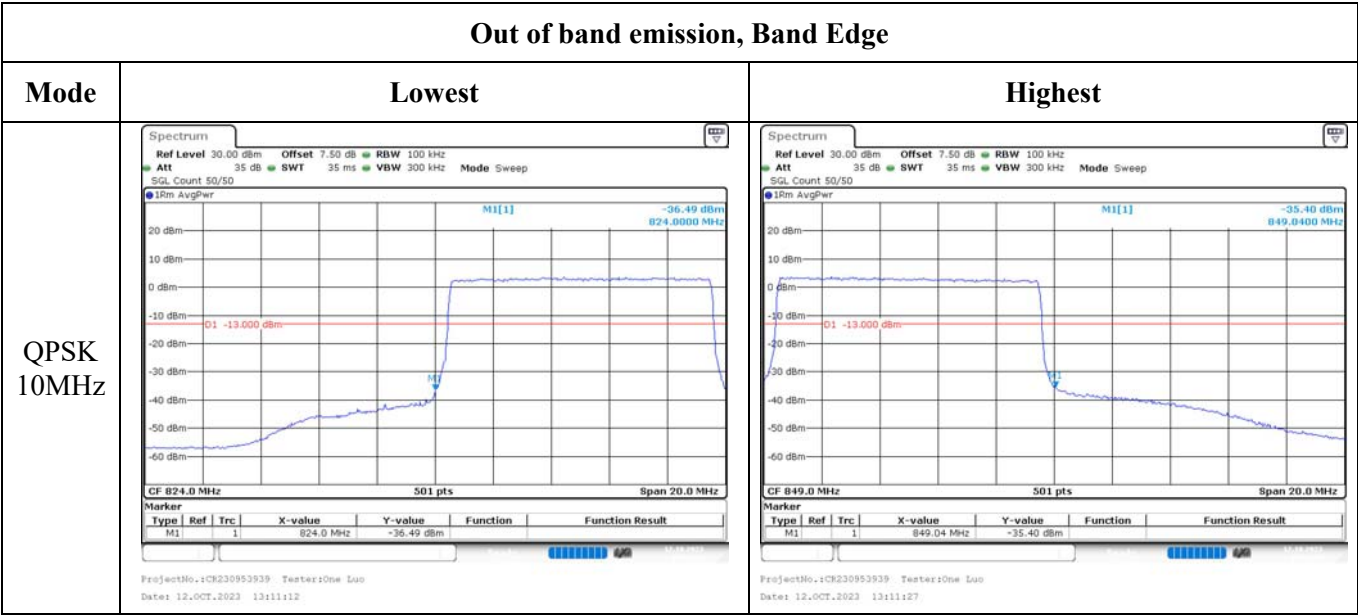
Highest



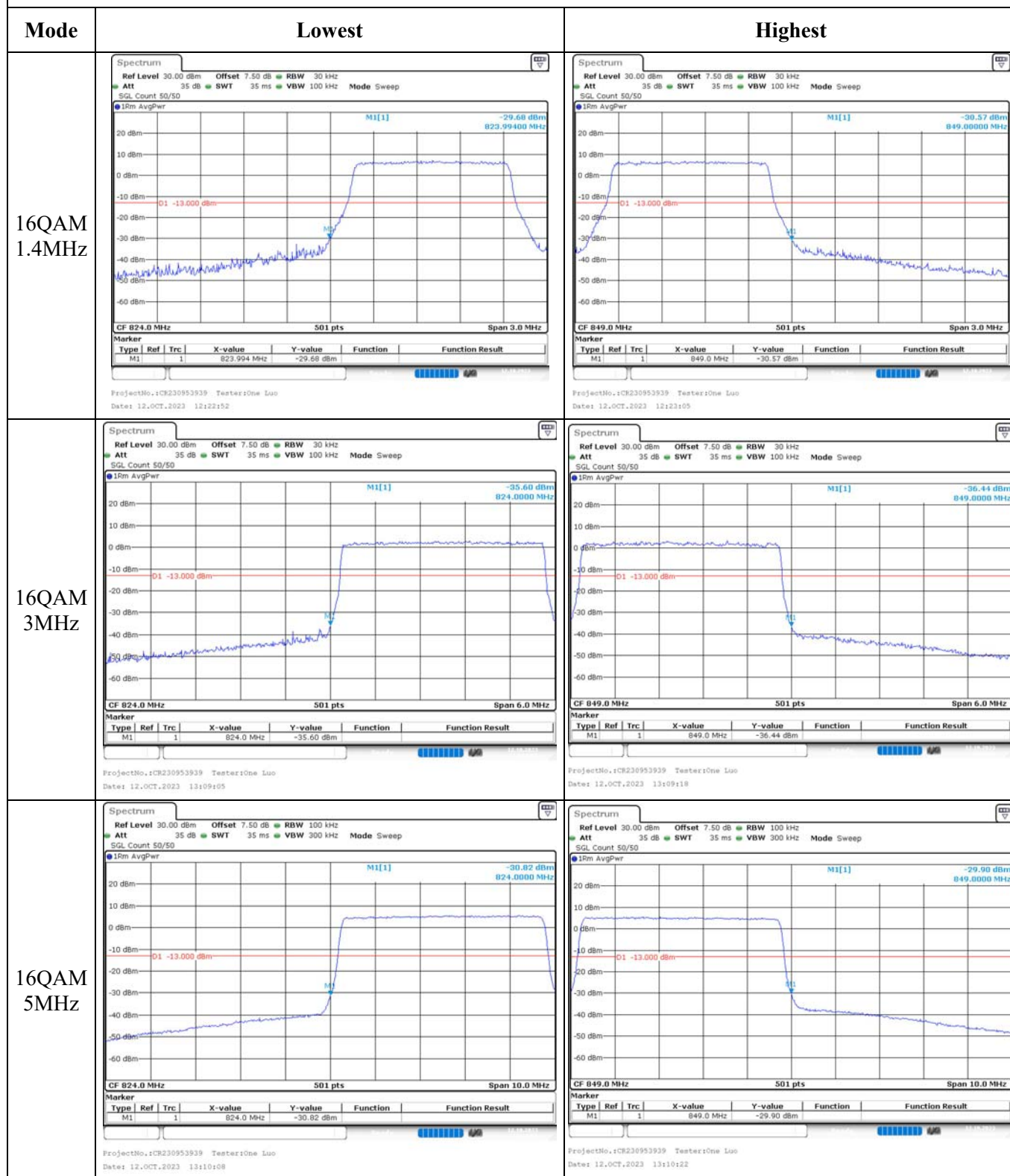
Out of band emission, Band Edge



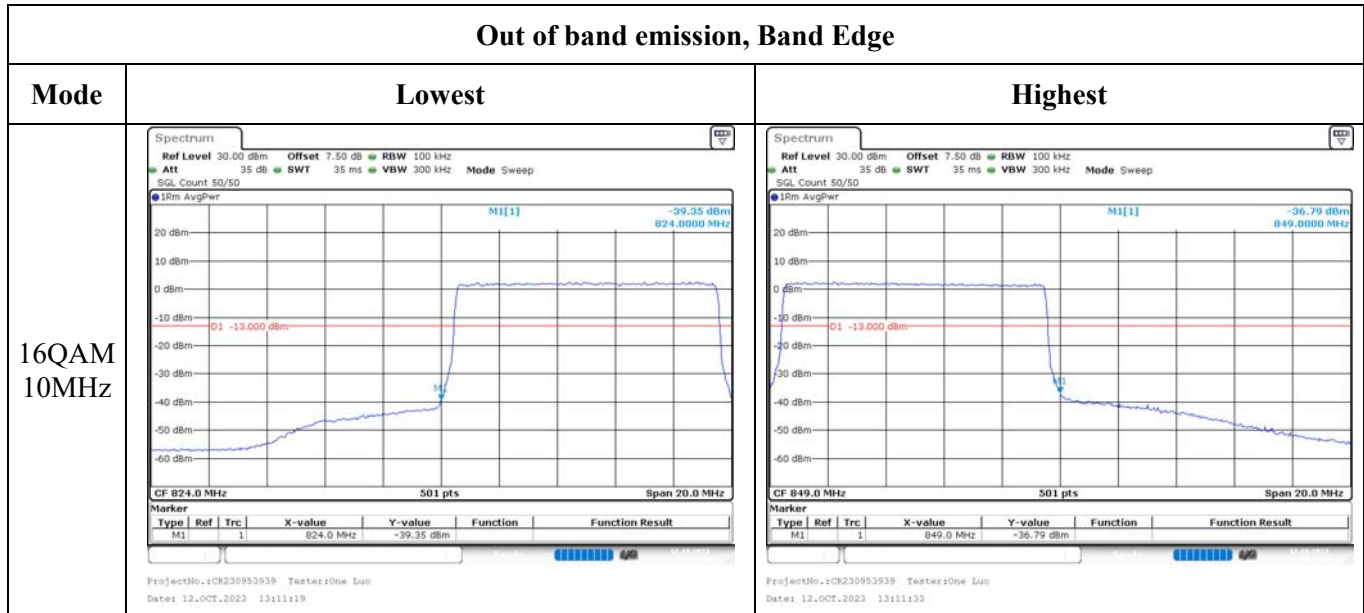
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.9 Antenna Port Test Data and Results for LTE Band 7

Serial Number:	2B7U-2	Test Date:	2023/10/12~2023/10/16
Test Site:	RF	Test Mode:	Transmitting
Tester:	One Luo	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.2~27.5	Relative Humidity: (%)	42~52	ATM Pressure: (kPa)	100.5~101.3
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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	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Power Splitter	1515	RA914	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2023/9/29	2024/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	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).*

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
5MHz	2502.5	2535	2567.5
10MHz	2505	2535	2565
15MHz	2507.5	2535	2562.5
20MHz	2510	2535	2560

Test Data:**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		
5MHz QPSK	RB1#0	21.12	21.49	22.07	24.06	33
	RB1#13	21.30	21.68	22.20		
	RB1#24	21.18	21.58	22.05		
	RB15#0	20.27	20.65	21.25		
	RB15#10	20.28	20.67	21.19		
	RB25#0	20.26	20.66	21.20		
5MHz 16QAM	RB1#0	20.40	20.57	20.93	22.93	33
	RB1#13	20.59	20.75	21.07		
	RB1#24	20.47	20.67	20.99		
	RB15#0	19.26	19.73	20.29		
	RB15#10	19.29	19.72	20.24		
	RB25#0	19.29	19.69	20.28		
10MHz QPSK	RB1#0	21.14	21.52	22.13	24.14	33
	RB1#25	21.34	21.79	22.28		
	RB1#49	21.21	21.68	22.19		
	RB25#0	20.25	20.66	21.26		
	RB25#25	20.38	20.76	21.20		
	RB50#0	20.30	20.71	21.20		
10MHz 16QAM	RB1#0	20.73	20.69	21.11	23.15	33
	RB1#25	21.00	20.91	21.29		
	RB1#49	20.86	20.88	21.18		
	RB25#0	19.37	19.73	20.37		
	RB25#25	19.47	19.80	20.29		
	RB50#0	19.42	19.73	20.26		
15MHz QPSK	RB1#0	21.13	21.38	21.98	23.98	33
	RB1#38	21.23	21.63	22.12		
	RB1#74	21.18	21.62	22.10		
	RB36#0	20.30	20.62	21.16		
	RB36#39	20.39	20.75	21.27		
	RB75#0	20.36	20.69	21.21		
15MHz 16QAM	RB1#0	20.50	20.96	21.11	23.15	33
	RB1#38	20.71	21.25	21.28		
	RB1#74	20.61	21.29	21.25		
	RB36#0	19.23	19.64	20.19		
	RB36#39	19.38	19.75	20.23		
	RB75#0	19.33	19.74	20.25		
20MHz QPSK	RB1#0	20.87	21.31	21.82	24.15	33
	RB1#50	21.44	21.91	22.29		

20MHz 16QAM	RB1#99	21.16	21.73	21.93	23.36	33
	RB50#0	20.24	20.61	21.10		
	RB50#50	20.43	20.82	21.12		
	RB100#0	20.32	20.73	21.08		
	RB1#0	20.48	20.65	21.06		
	RB1#50	20.99	21.26	21.50		
20MHz 16QAM	RB1#99	20.76	21.04	21.10	23.36	33
	RB50#0	19.28	19.68	20.07		
	RB50#50	19.51	19.85	20.14		
	RB100#0	19.39	19.75	20.16		

Note: EIRP=Conducted Power(dBm) - Lc(dB) + G_T(dBi)

Result:

Pass

Peak-to-average Ratio(PAR)

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	3.68	4.35	3.54	13
	RB100#0	4.55	5.1	4.87	13
20MHz 16QAM	RB1#0	4.7	5.28	4.35	13
	RB100#0	5.59	6.17	5.91	13
Result:					Pass

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	4.511	4.491	4.531	5	4.94	5.04
5MHz 16QAM	4.531	4.531	4.511	5.02	5	5.02
10MHz QPSK	8.981	8.942	8.942	9.68	9.68	9.64
10MHz 16QAM	8.942	8.942	8.942	9.56	9.68	9.68
15MHz QPSK	13.473	13.473	13.473	14.76	14.82	14.82
15MHz 16QAM	13.473	13.533	13.473	14.7	14.7	14.7
20MHz QPSK	17.964	17.964	17.964	19.28	19.28	19.44
20MHz 16QAM	18.044	17.964	17.964	19.36	19.44	20.48

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

Spurious Emissions at Antenna Terminal

Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.
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Out of band emission, Band Edge

Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
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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	2501.075	2500.00	2569.025	2570
	-20	3.8	2501.069	2500.00	2569.088	2570
	-10	3.8	2501.047	2500.00	2569.006	2570
	0	3.8	2501.041	2500.00	2569.091	2570
	10	3.8	2501.080	2500.00	2569.082	2570
	20	3.8	2501.058	2500.00	2569.022	2570
	30	3.8	2501.091	2500.00	2569.098	2570
	40	3.8	2501.076	2500.00	2569.051	2570
	50	3.8	2501.044	2500.00	2569.029	2570
Frequency Stability vs. Voltage	20	3.6	2501.076	2500.00	2569.030	2570
	20	4.35	2501.081	2500.00	2569.031	2570
					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	2501.066	2500.00	2569.084	2570
	-20	3.8	2501.001	2500.00	2569.078	2570
	-10	3.8	2501.055	2500.00	2569.004	2570
	0	3.8	2501.053	2500.00	2569.066	2570
	10	3.8	2501.007	2500.00	2569.032	2570
	20	3.8	2501.058	2500.00	2569.022	2570
	30	3.8	2501.066	2500.00	2569.004	2570
	40	3.8	2501.100	2500.00	2569.027	2570
	50	3.8	2501.097	2500.00	2569.097	2570
Frequency Stability vs. Voltage	20	3.6	2501.023	2500.00	2569.081	2570
	20	4.35	2501.044	2500.00	2569.081	2570
					Result:	Pass

Test Plots(Note: The 7.5dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):

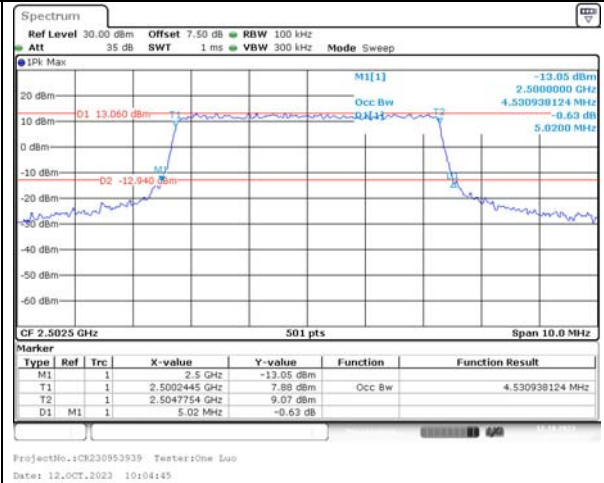
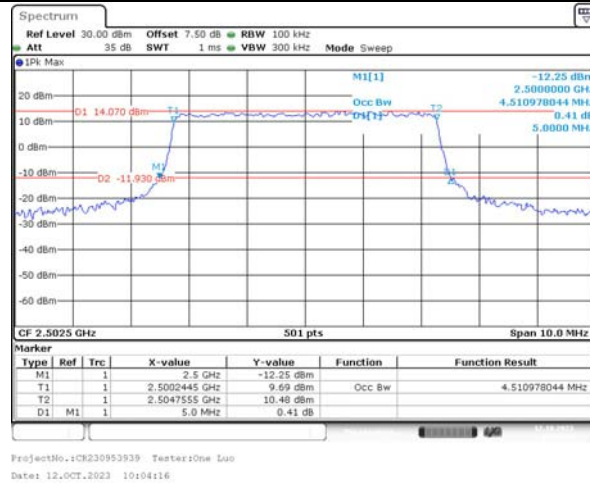
Occupied Bandwidth

Channel

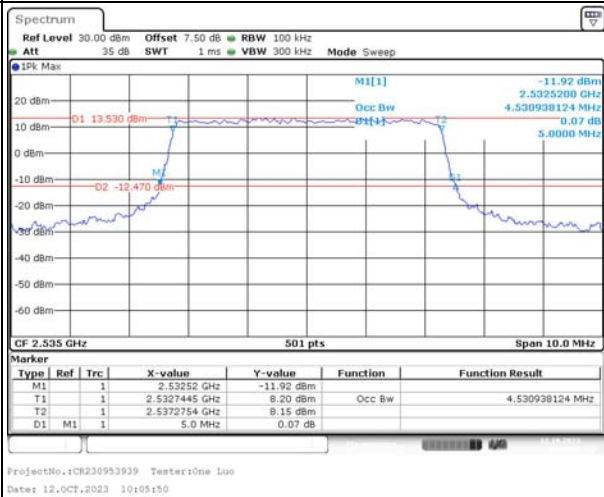
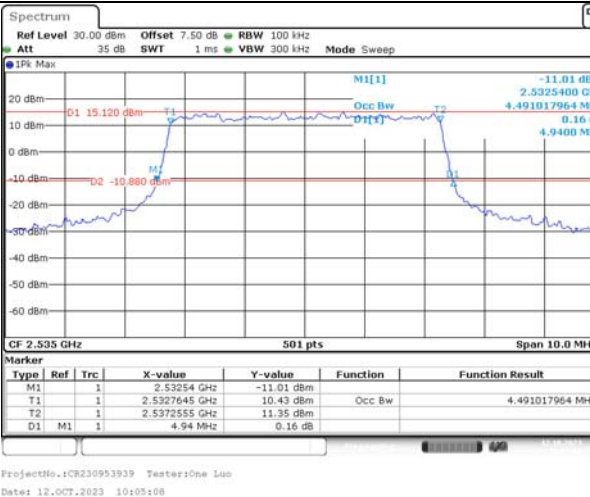
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

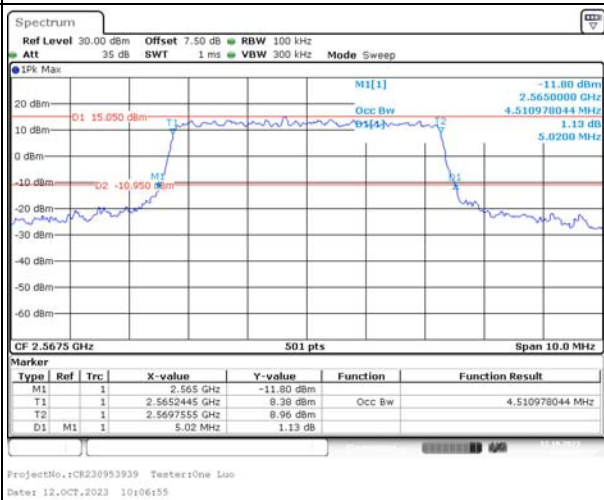
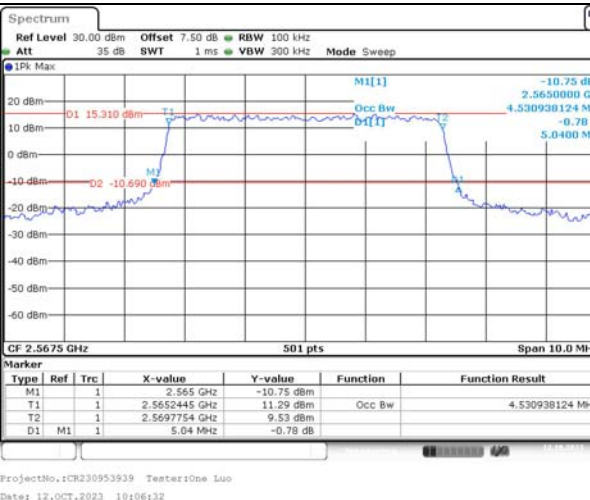
Lowest



Middle



Highest



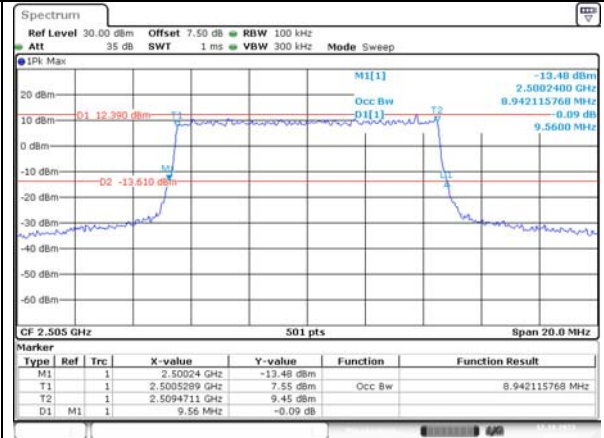
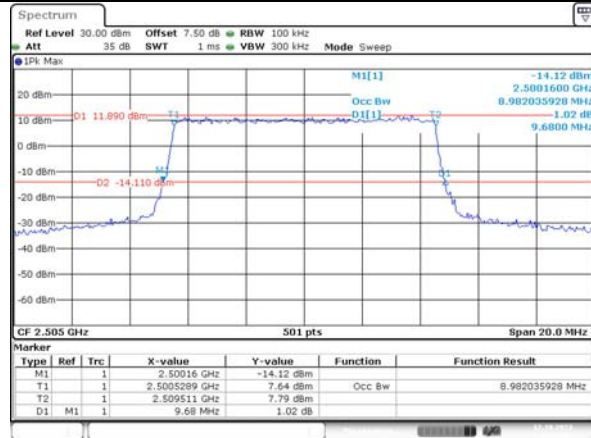
Occupied Bandwidth

Channel

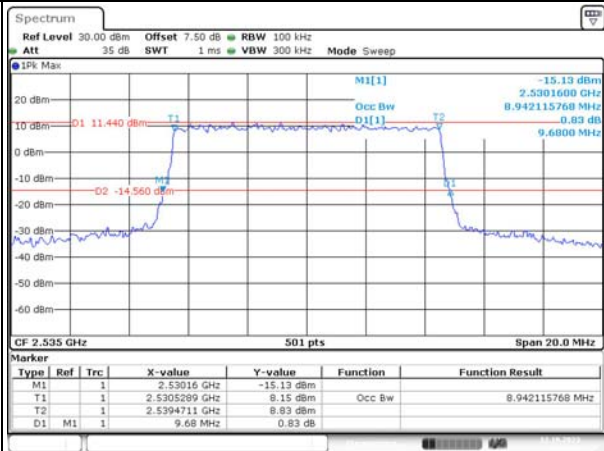
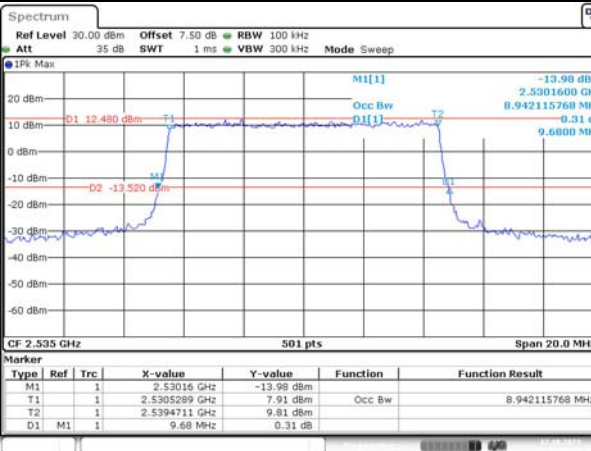
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

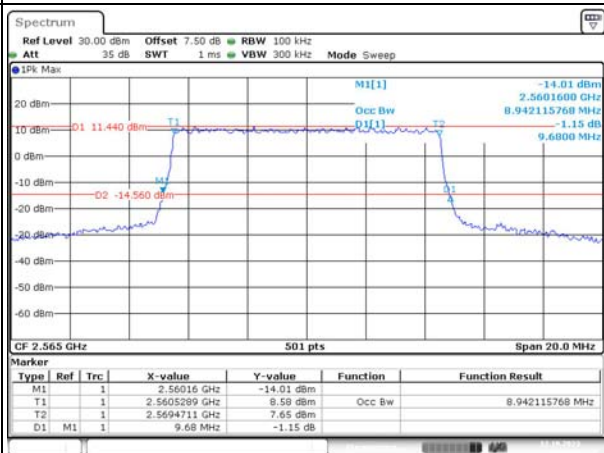
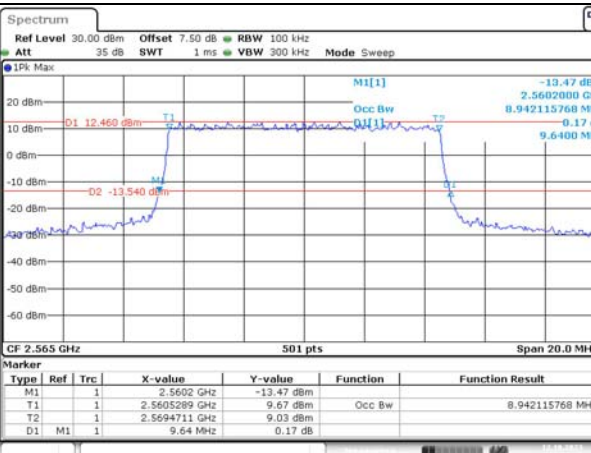
Lowest



Middle



Highest



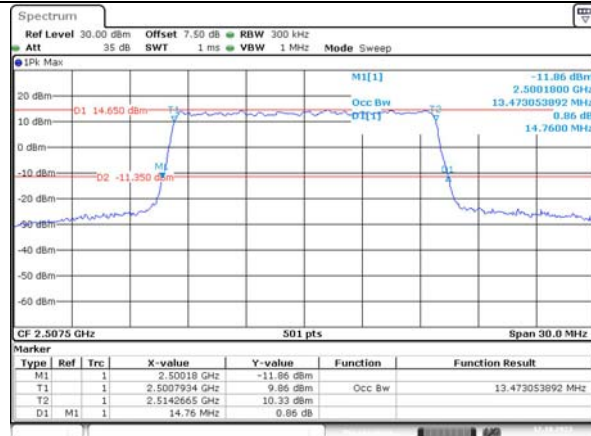
Occupied Bandwidth

Channel

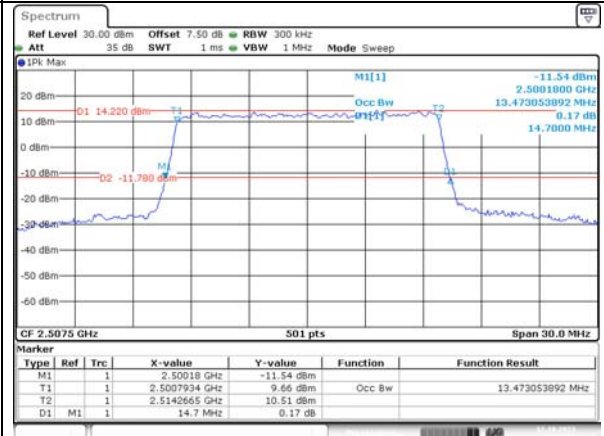
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

Lowest

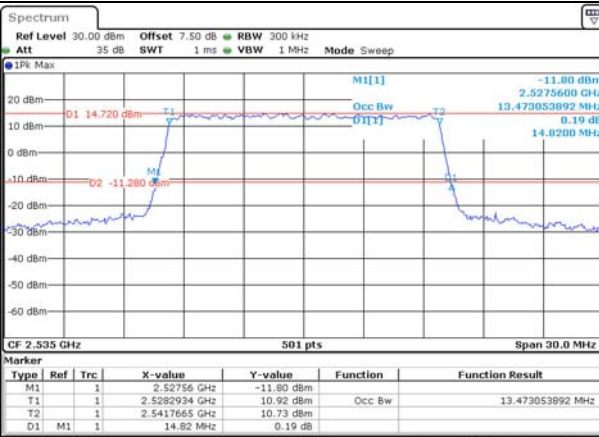


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Date: 12.OCT.2023 10:12:06

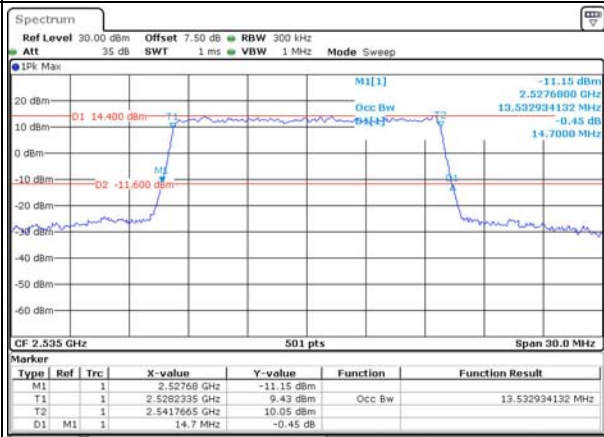


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Date: 12.OCT.2023 10:12:16

Middle

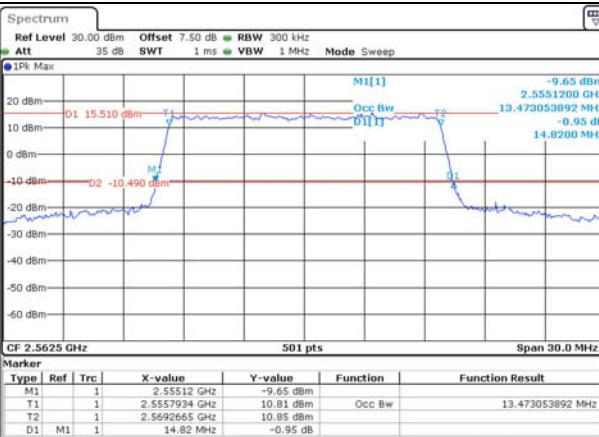


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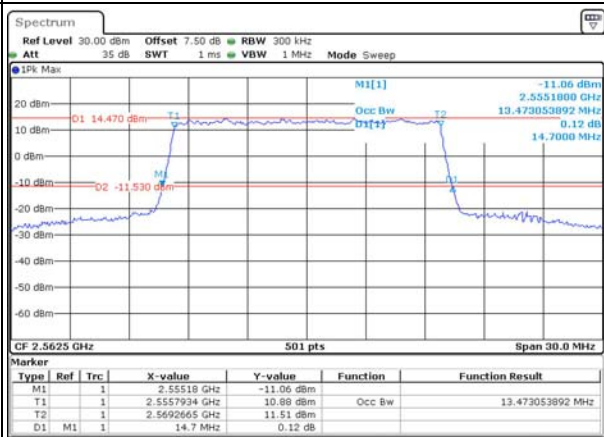


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Date: 12.OCT.2023 10:13:31

Highest



ProjectNo.:CR230953939 Tester:One Luo
Date: 12.OCT.2023 10:14:00



ProjectNo.:CR230953939 Tester:One Luo
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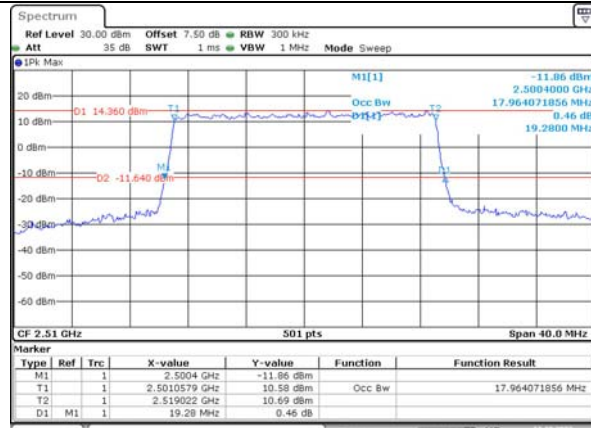
Occupied Bandwidth

Channel

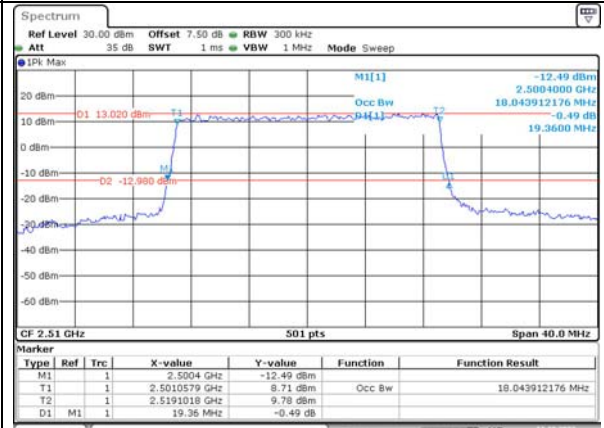
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

Lowest

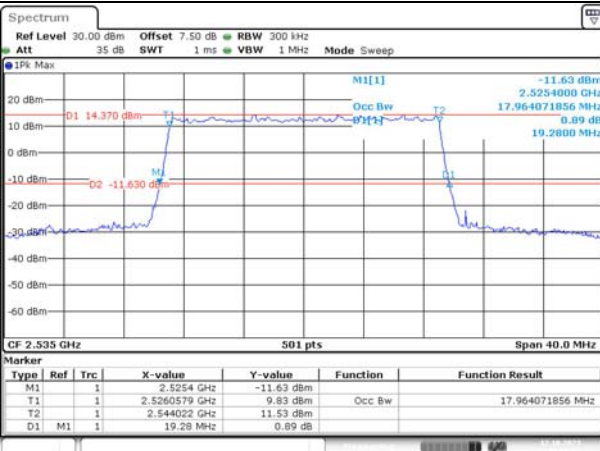


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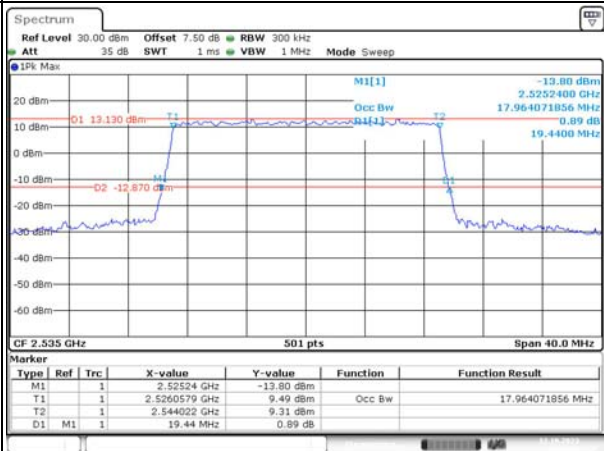


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Date: 12.OCT.2023 10:18:01

Middle

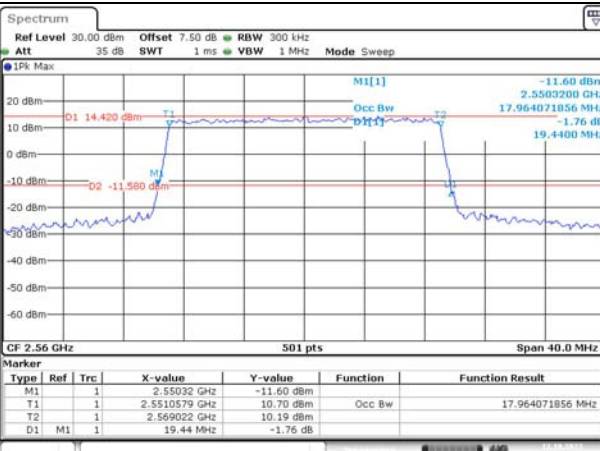


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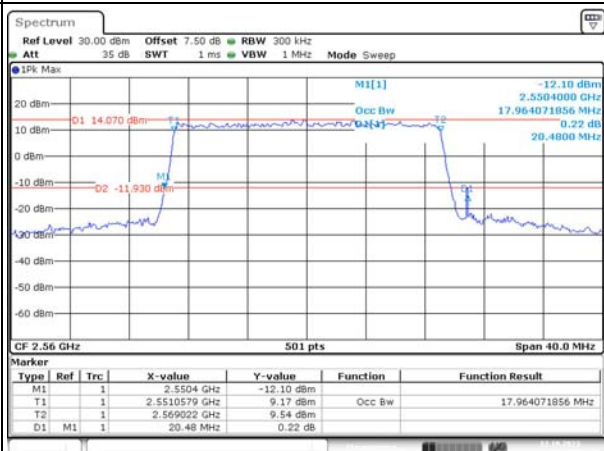


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Date: 12.OCT.2023 10:19:02

Highest



ProjectNo.:CR230953939 Testers:One Luo
Date: 12.OCT.2023 10:19:31



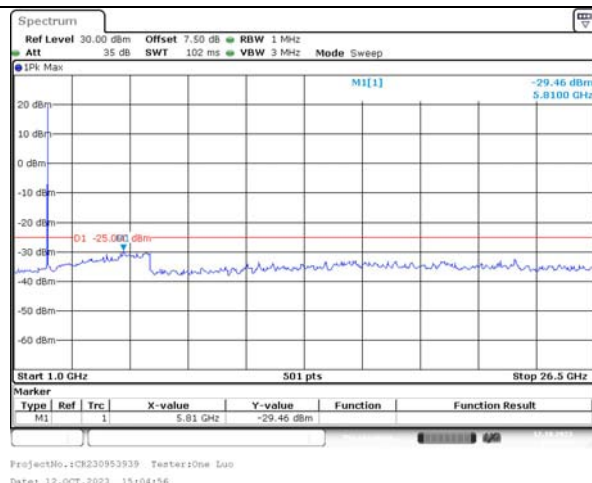
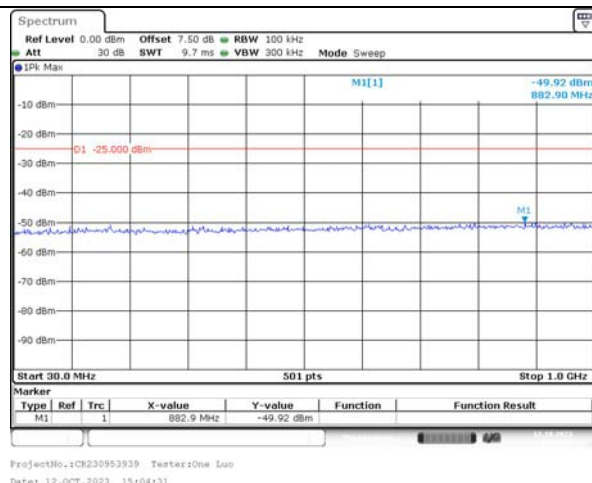
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Spurious Emissions at Antenna Terminal

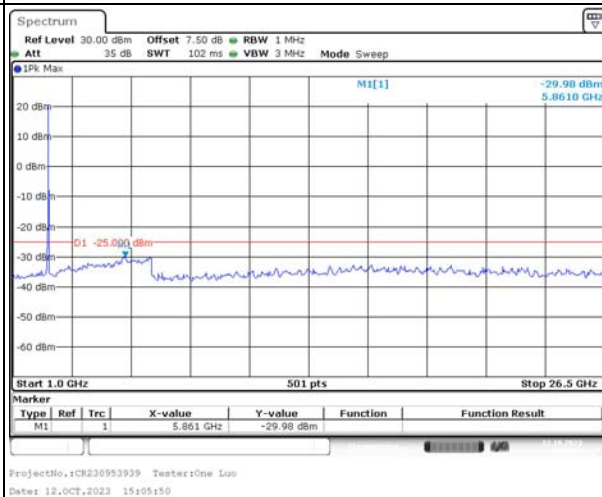
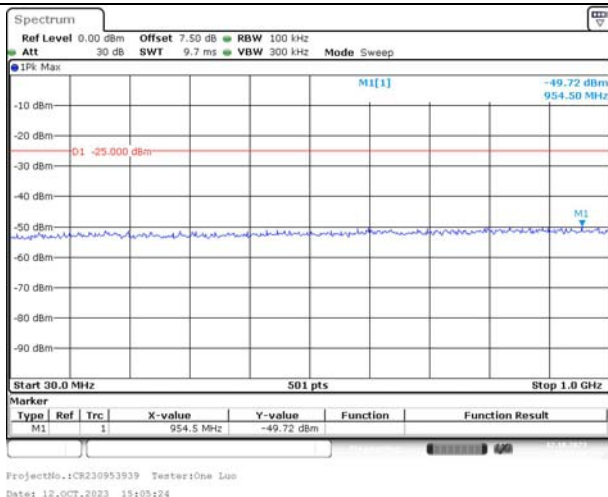
Channel

5MHz Bandwidth QPSK

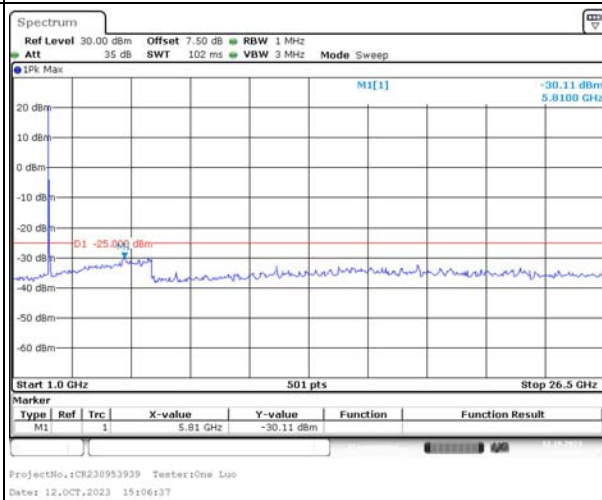
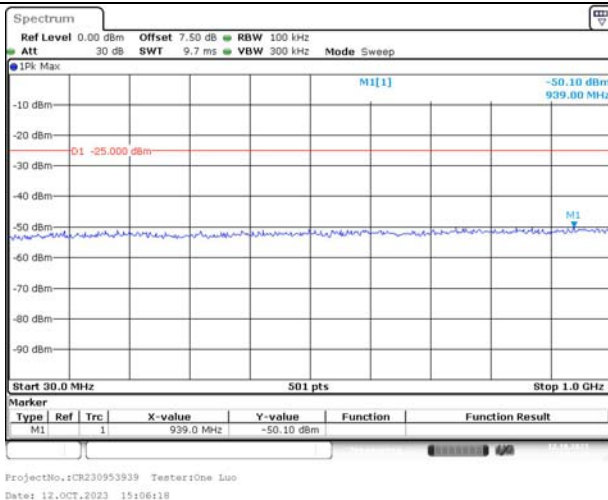
Lowest



Middle



Highest

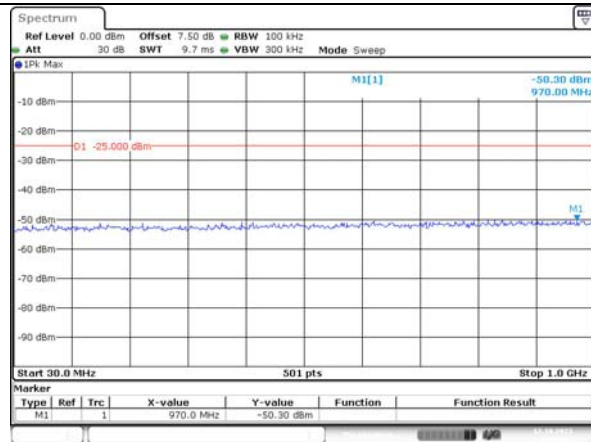


Spurious Emissions at Antenna Terminal

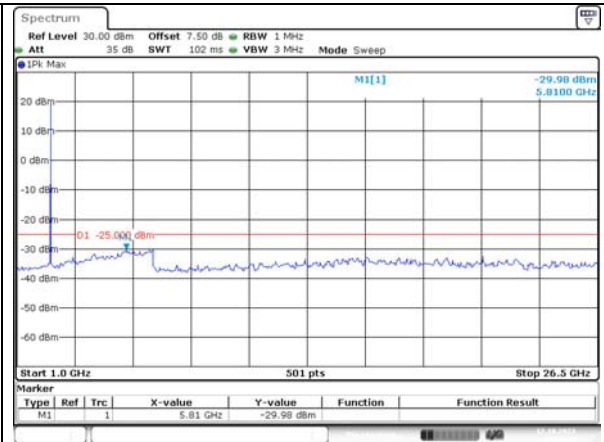
Channel

10MHz Bandwidth QPSK

Lowest

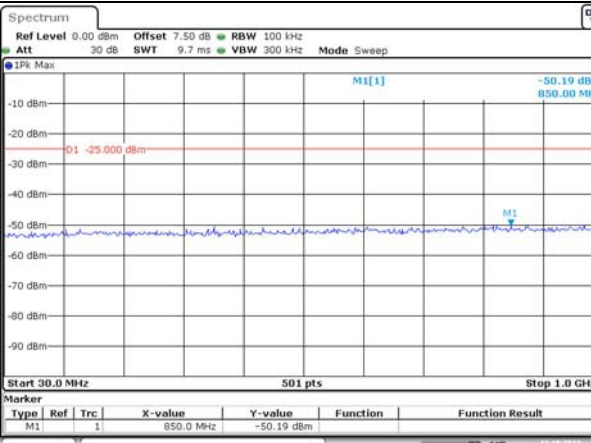


ProjectNo.:CR230953939 TesteriOne Luo
Date: 12.OCT.2023 15:08:03

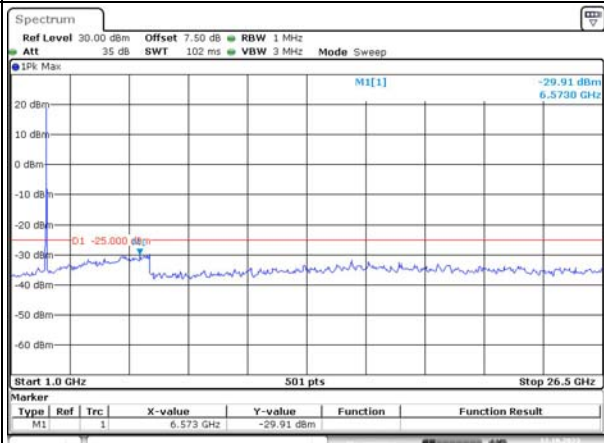


ProjectNo.:CR230953939 TesteriOne Luo
Date: 12.OCT.2023 15:08:25

Middle

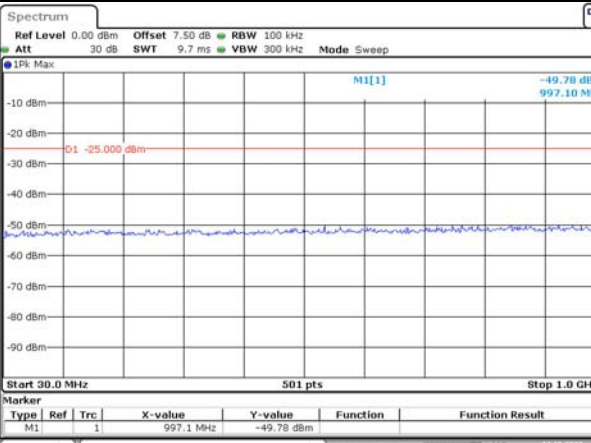


ProjectNo.:CR230953939 TesteriOne Luo
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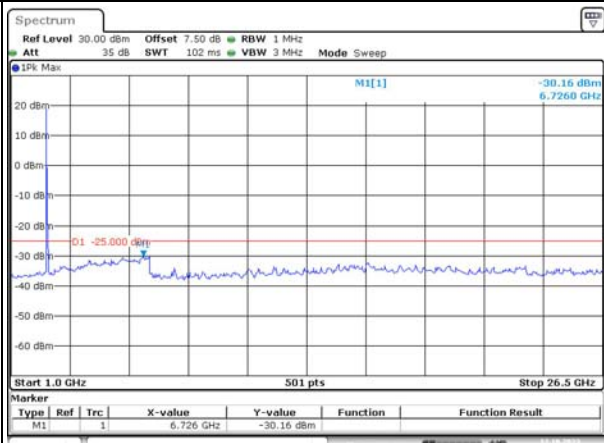


ProjectNo.:CR230953939 TesteriOne Luo
Date: 12.OCT.2023 15:09:16

Highest



ProjectNo.:CR230953939 TesteriOne Luo
Date: 12.OCT.2023 15:09:48



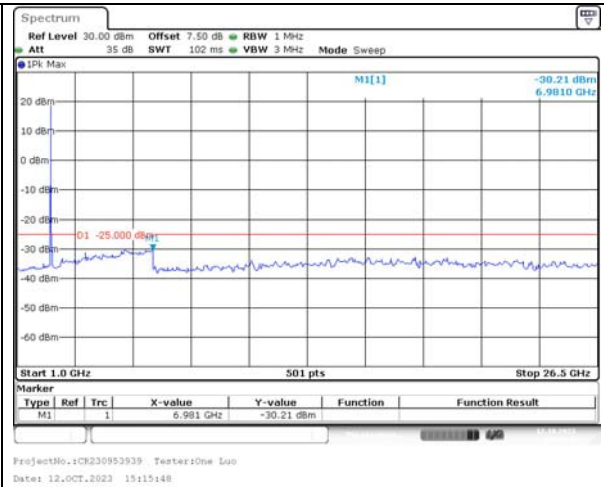
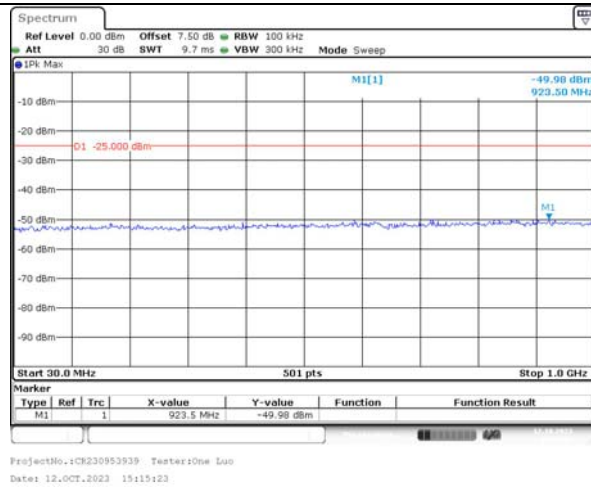
ProjectNo.:CR230953939 TesteriOne Luo
Date: 12.OCT.2023 15:10:13

Spurious Emissions at Antenna Terminal

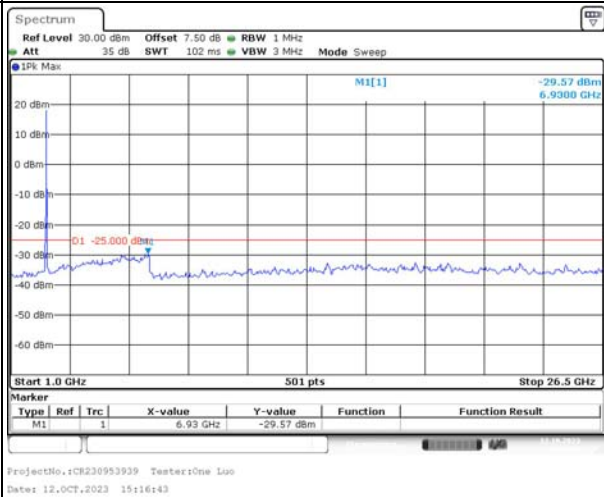
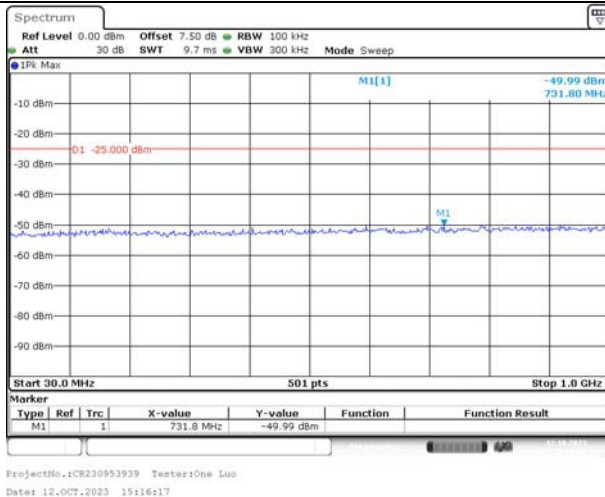
Channel

15MHz Bandwidth QPSK

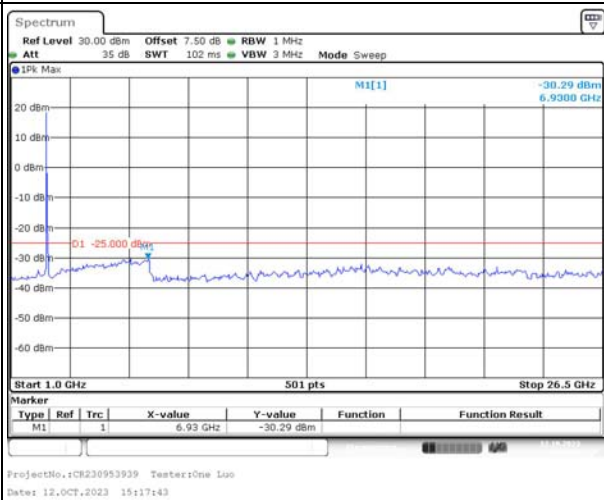
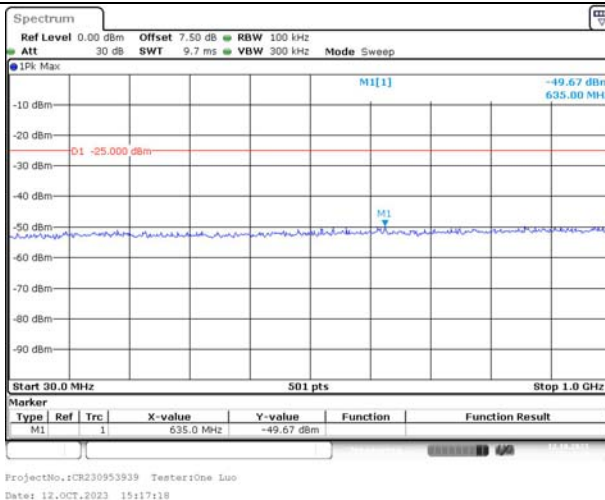
Lowest



Middle



Highest

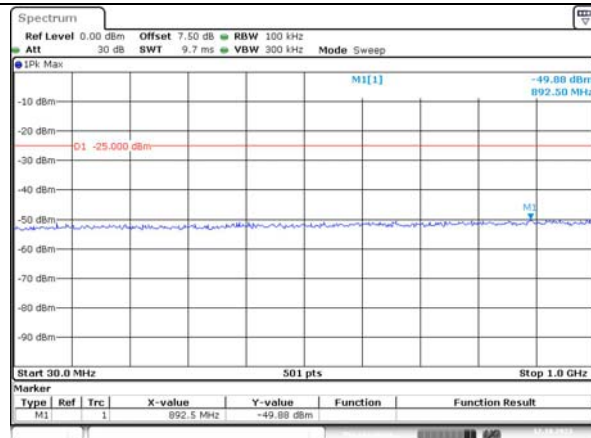


Spurious Emissions at Antenna Terminal

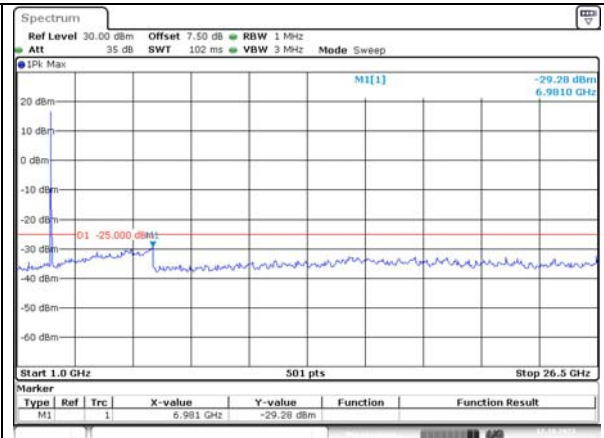
Channel

20MHz Bandwidth QPSK

Lowest

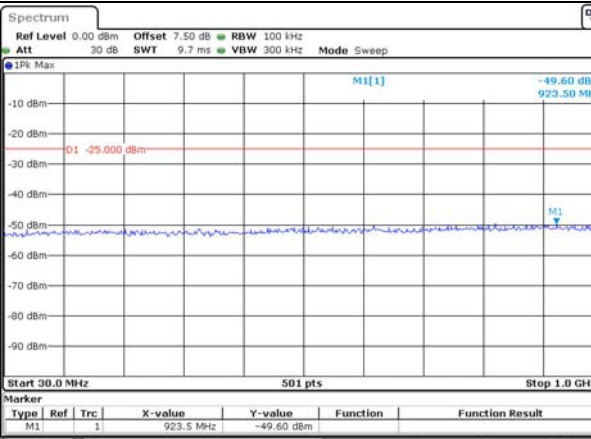


ProjectNo.:CR230953939 Testers:One Luo
Date: 12.OCT.2023 15:19:01

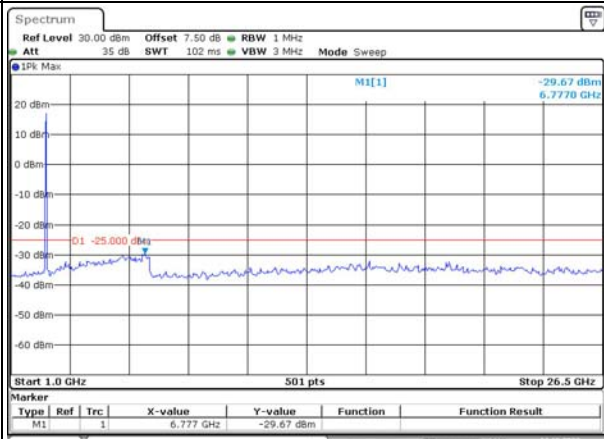


ProjectNo.:CR230953939 Testers:One Luo
Date: 12.OCT.2023 15:19:31

Middle

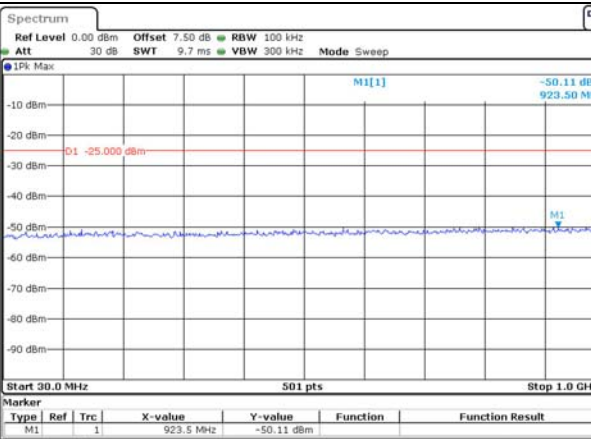


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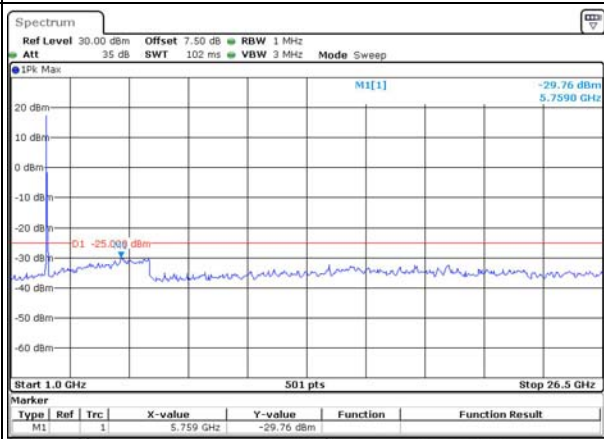


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Date: 12.OCT.2023 15:20:39

Highest

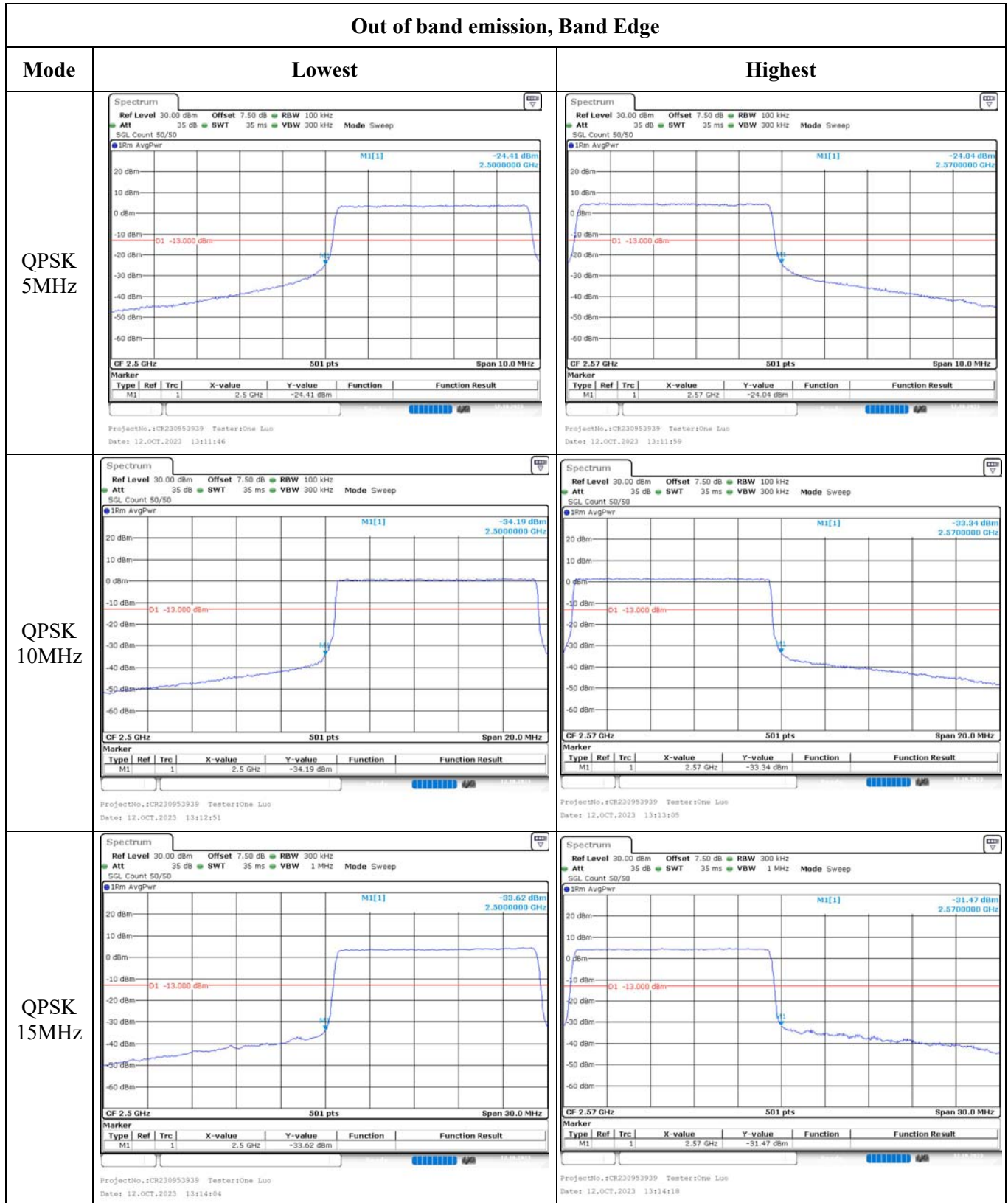


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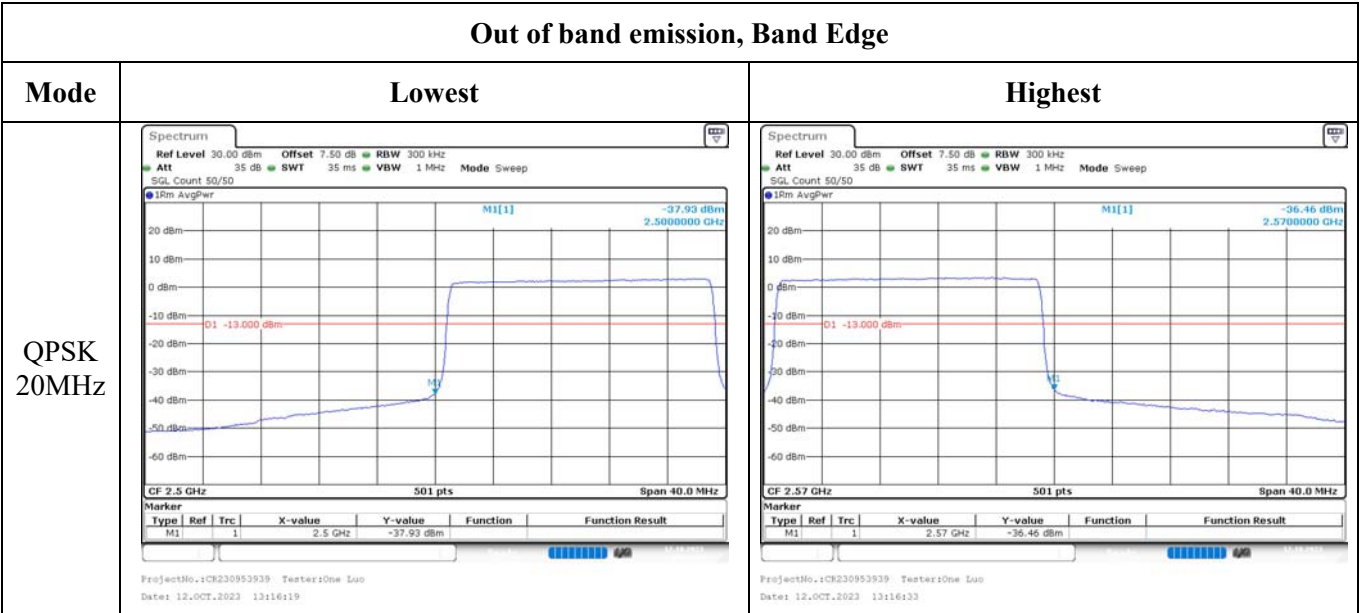


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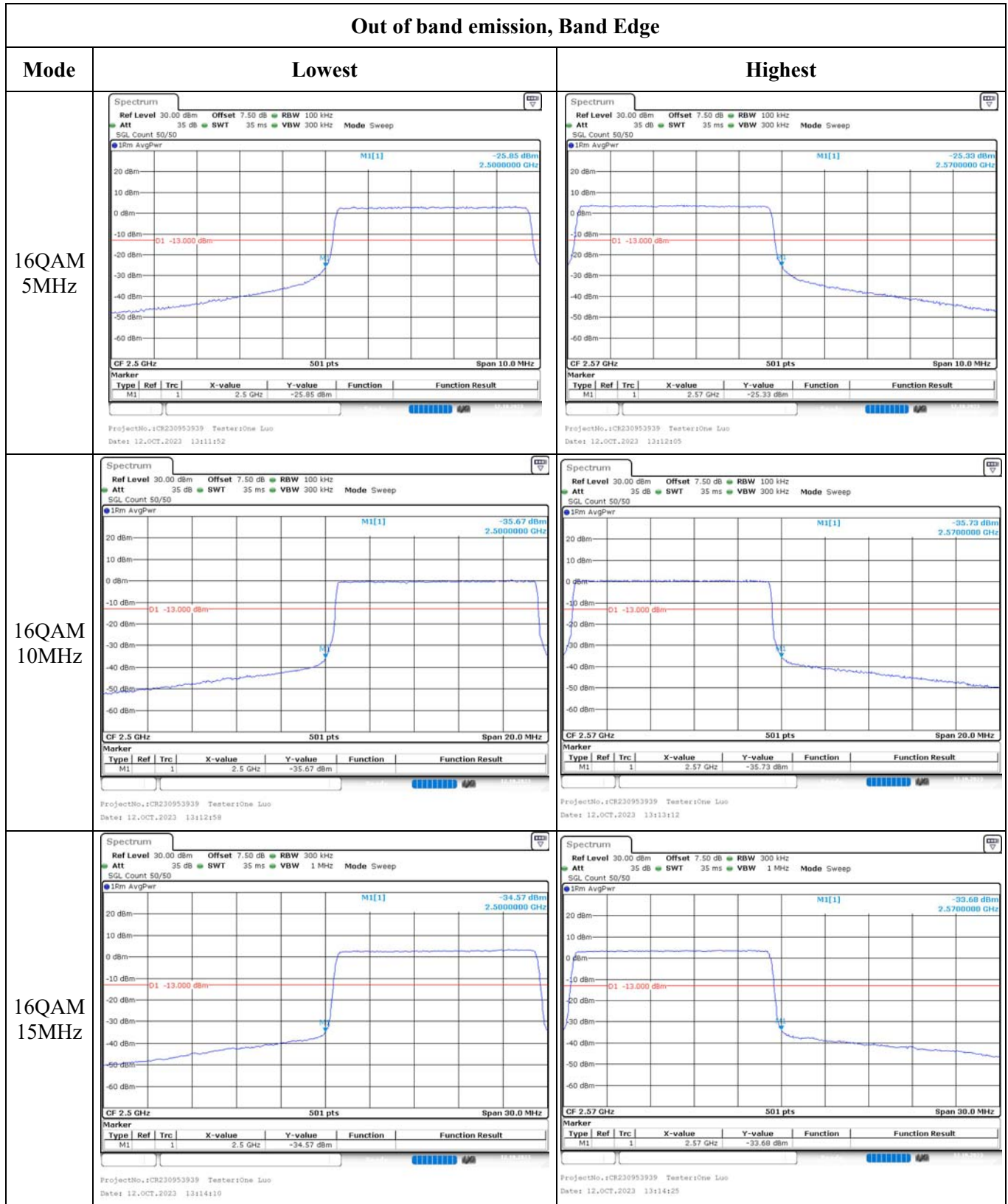
Out of band emission, Band Edge



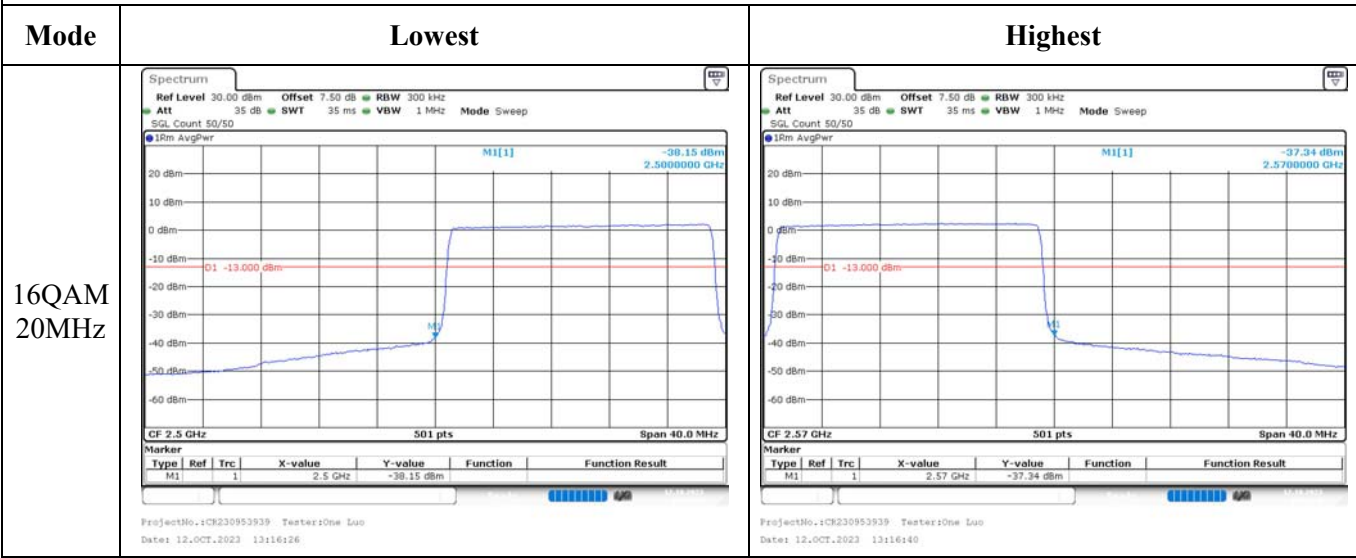
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.10 Antenna Port Test Data and Results for LTE Band 38

Serial Number:	2B7U-2	Test Date:	2023/10/12~2023/10/16
Test Site:	RF	Test Mode:	Transmitting
Tester:	One Luo	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.2~27.5	Relative Humidity: (%)	42~52	ATM Pressure: (kPa)	100.5~101.3
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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	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Power Splitter	1515	RA914	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2023/9/29	2024/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	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).

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
5MHz	2572.5	2595	2617.5
10MHz	2575	2595	2615
15MHz	2577.5	2595	2612.5
20MHz	2580	2595	2610

Test Data:**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		
5MHz QPSK	RB1#0	22.07	21.92	21.91	24.05	33
	RB1#13	22.19	22.00	22.07		
	RB1#24	22.04	21.85	21.95		
	RB15#0	21.06	20.92	20.94		
	RB15#10	21.14	20.93	20.96		
	RB25#0	21.13	20.96	20.97		
5MHz 16QAM	RB1#0	21.06	20.97	21.12	23.19	33
	RB1#13	21.20	21.05	21.33		
	RB1#24	21.06	20.93	21.19		
	RB15#0	20.07	19.94	20.01		
	RB15#10	20.08	19.97	20.01		
	RB25#0	20.15	20.00	19.94		
10MHz QPSK	RB1#0	22.19	22.05	21.95	24.27	33
	RB1#25	22.41	22.28	22.26		
	RB1#49	22.10	21.96	22.00		
	RB25#0	21.16	21.00	20.97		
	RB25#25	21.18	21.03	21.04		
	RB50#0	21.17	20.99	20.98		
10MHz 16QAM	RB1#0	21.39	20.92	21.07	23.49	33
	RB1#25	21.63	21.15	21.36		
	RB1#49	21.32	20.89	21.13		
	RB25#0	20.15	20.05	20.02		
	RB25#25	20.19	20.05	20.05		
	RB50#0	20.19	20.01	20.00		
15MHz QPSK	RB1#0	22.15	22.04	21.87	24.07	33
	RB1#38	22.21	22.06	22.06		
	RB1#74	22.06	21.89	21.94		
	RB36#0	21.18	21.04	20.94		
	RB36#39	21.20	21.06	21.00		
	RB75#0	21.20	21.04	20.98		
15MHz 16QAM	RB1#0	21.33	20.97	21.12	23.29	33
	RB1#38	21.43	20.99	21.14		
	RB1#74	21.30	20.83	21.13		
	RB36#0	20.16	19.98	19.99		
	RB36#39	20.16	19.93	20.03		
	RB75#0	20.15	20.02	19.97		
20MHz QPSK	RB1#0	22.02	16.32	16.41	24.29	33
	RB1#50	22.43	16.74	16.87		

	RB1#99	21.89	16.31	16.41		
	RB50#0	21.10	15.51	15.46		
	RB50#50	21.25	15.59	15.57		
	RB100#0	21.18	15.59	15.53		
20MHz 16QAM	RB1#0	21.04	15.32	15.56	22.9	33
	RB1#50	15.91	15.77	16.08		
	RB1#99	15.42	15.31	15.64		
	RB50#0	14.52	14.53	14.53		
	RB50#50	14.65	14.68	14.62		
	RB100#0	14.58	14.58	14.56		

Note: EIRP=Conducted Power(dBm) - Lc(dB) + G_T(dBi)

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

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	8.38	8.58	9.19	13
	RB100#0	9.13	9.39	8.87	13
20MHz 16QAM	RB1#0	8.81	9.42	10.09	13
	RB100#0	9.65	9.8	9.86	13
				Result:	Pass

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	4.491	4.491	4.511	5.04	4.94	4.92
5MHz 16QAM	4.511	4.491	4.491	4.94	5.06	5.1
10MHz QPSK	8.942	8.981	8.942	9.76	9.76	9.64
10MHz 16QAM	8.942	8.942	8.942	10.16	9.52	9.52
15MHz QPSK	13.473	13.473	13.473	15.18	15.66	15.54
15MHz 16QAM	13.533	13.593	13.593	15.9	15.78	16.98
20MHz QPSK	17.964	17.964	17.964	19.6	19.84	19.76
20MHz 16QAM	17.964	17.964	17.964	19.68	20.72	19.44

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

Spurious Emissions at Antenna Terminal

Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.
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Out of band emission, Band Edge

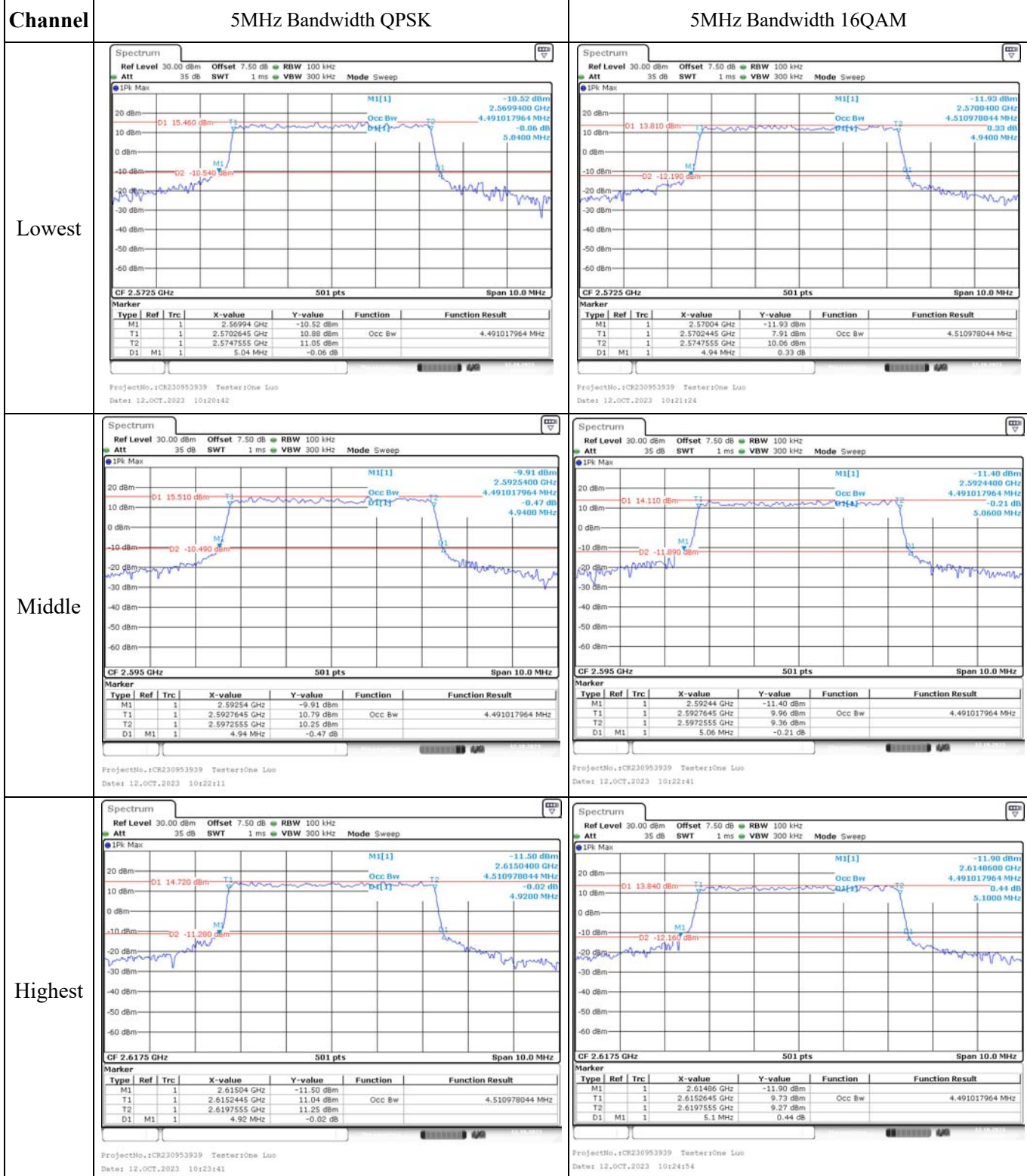
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
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Frequency Stability						
Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	2571.072	2570.00	2619.003	2620
	-20	3.8	2571.025	2570.00	2619.050	2620
	-10	3.8	2571.035	2570.00	2619.067	2620
	0	3.8	2571.056	2570.00	2619.069	2620
	10	3.8	2571.088	2570.00	2619.076	2620
	20	3.8	2571.058	2570.00	2619.022	2620
	30	3.8	2571.033	2570.00	2619.052	2620
	40	3.8	2571.058	2570.00	2619.082	2620
	50	3.8	2571.059	2570.00	2619.040	2620
Frequency Stability vs. Voltage	20	3.6	2571.034	2570.00	2619.044	2620
	20	4.35	2571.059	2570.00	2619.086	2620
					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	2571.089	2570.00	2619.090	2620
	-20	3.8	2571.059	2570.00	2619.001	2620
	-10	3.8	2571.072	2570.00	2619.045	2620
	0	3.8	2571.058	2570.00	2619.025	2620
	10	3.8	2571.094	2570.00	2619.031	2620
	20	3.8	2571.058	2570.00	2619.022	2620
	30	3.8	2571.036	2570.00	2619.090	2620
	40	3.8	2571.062	2570.00	2619.065	2620
	50	3.8	2571.057	2570.00	2619.009	2620
Frequency Stability vs. Voltage	20	3.6	2571.046	2570.00	2619.003	2620
	20	4.35	2571.061	2570.00	2619.069	2620
					Result:	Pass

Test Plots(Note: The 7.5dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):

Occupied Bandwidth



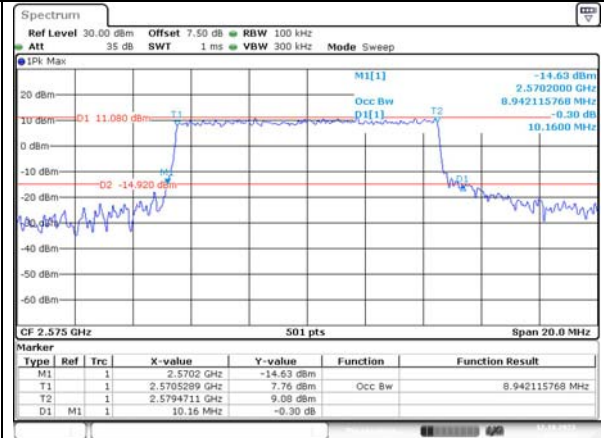
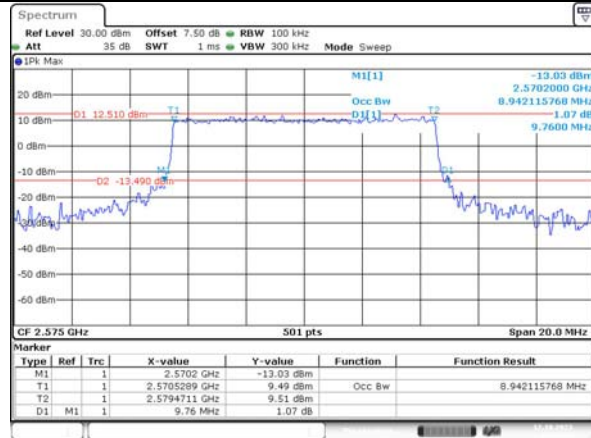
Occupied Bandwidth

Channel

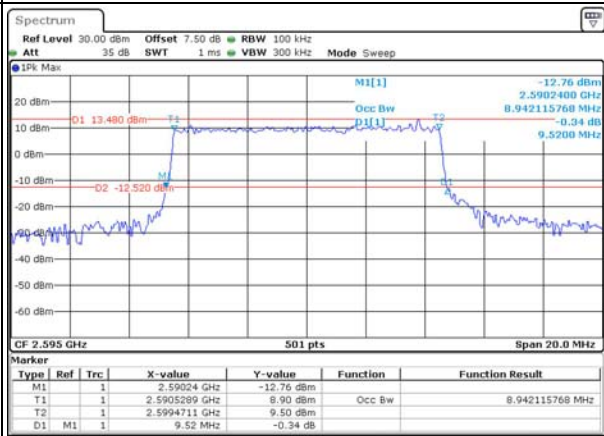
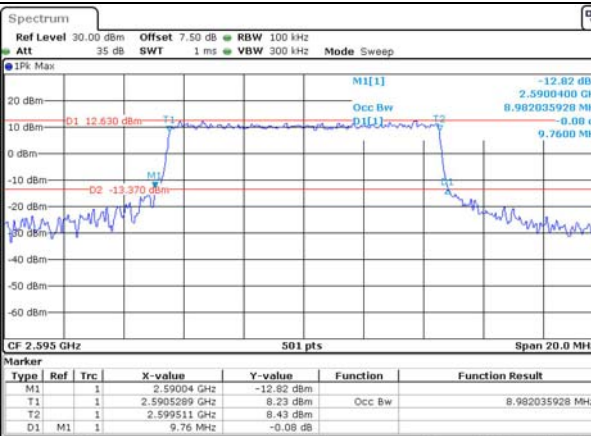
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

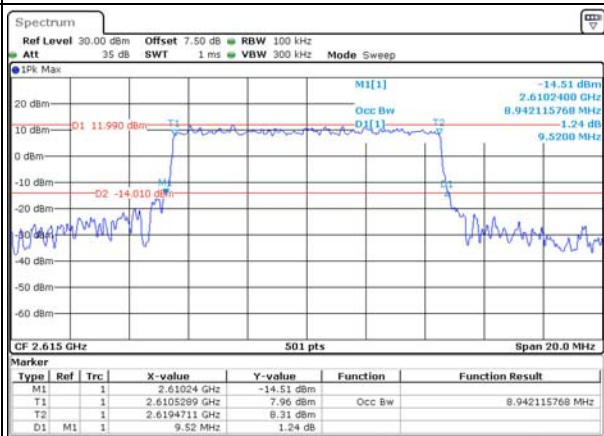
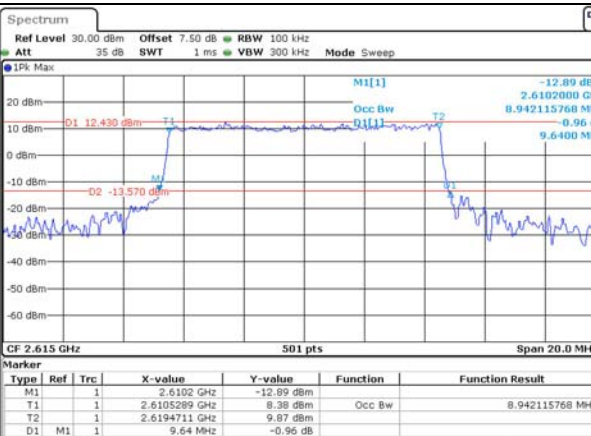
Lowest



Middle



Highest



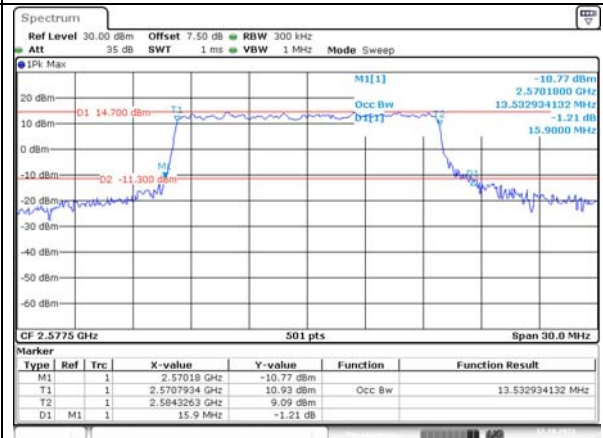
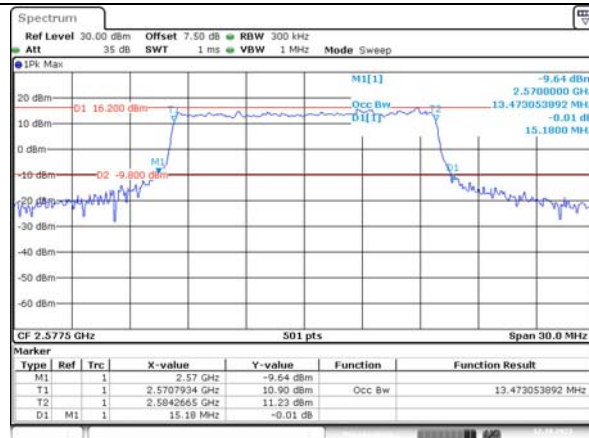
Occupied Bandwidth

Channel

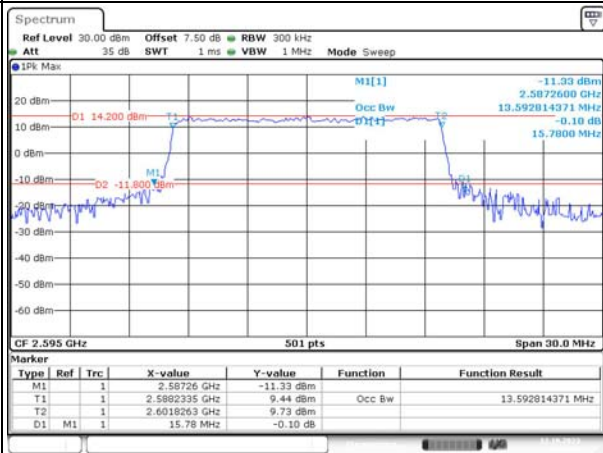
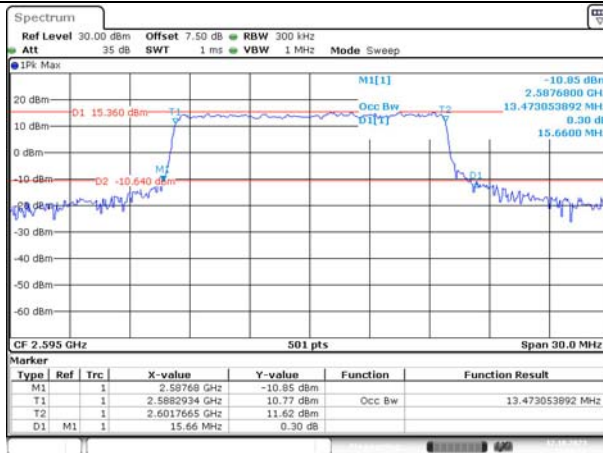
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

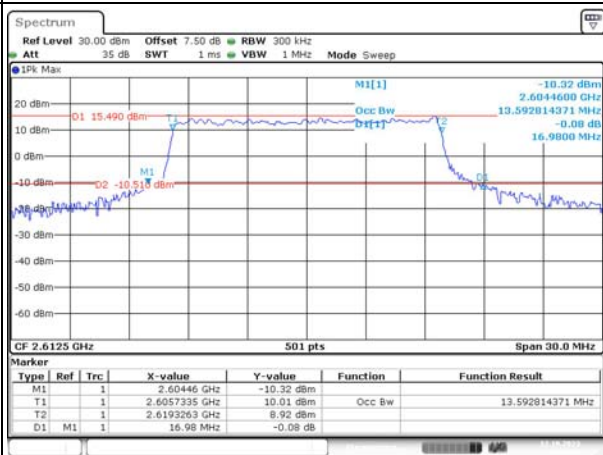
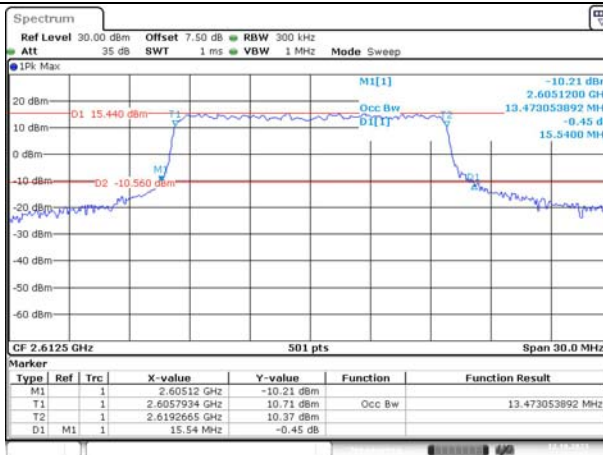
Lowest



Middle



Highest



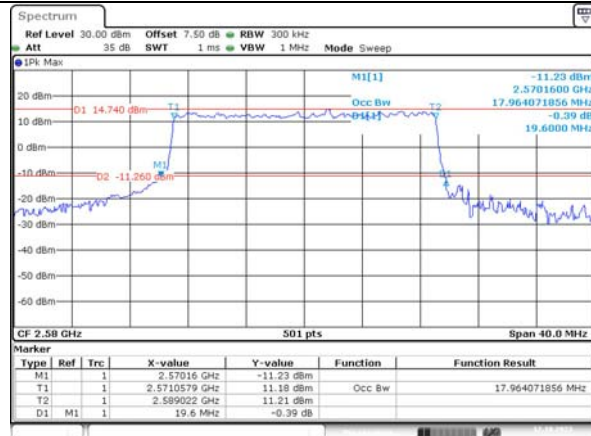
Occupied Bandwidth

Channel

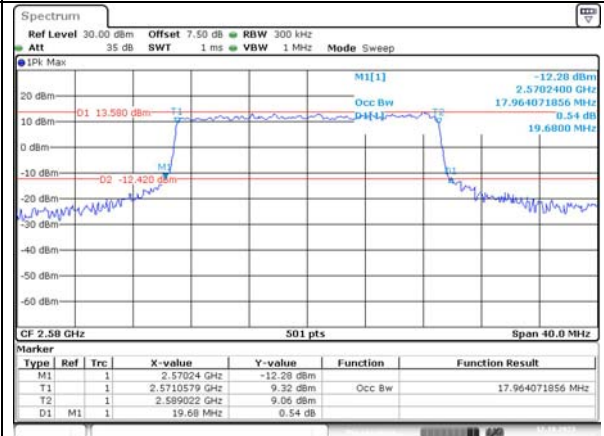
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

Lowest

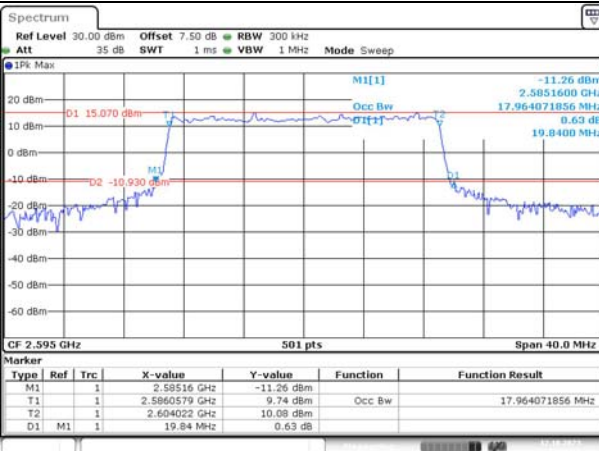


ProjectNo.:CR230953939 Testers:One Luo
Date: 12.OCT.2023 10:41:13

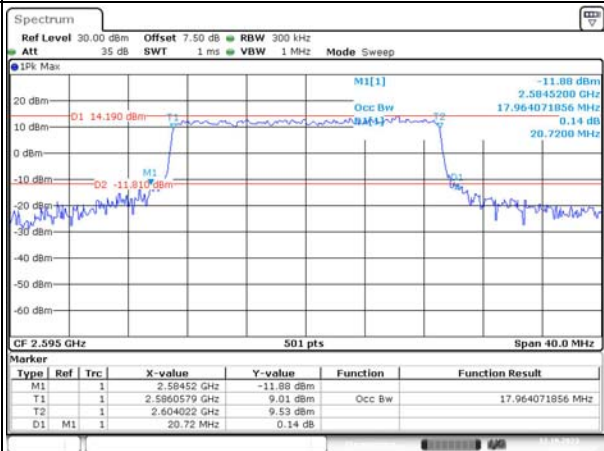


ProjectNo.:CR230953939 Testers:One Luo
Date: 12.OCT.2023 10:41:46

Middle

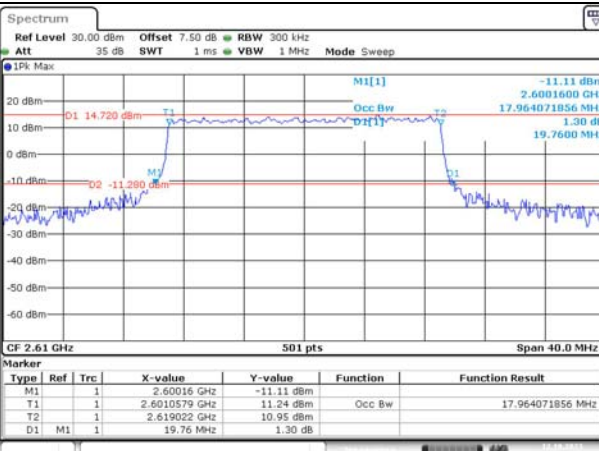


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Date: 12.OCT.2023 10:42:20

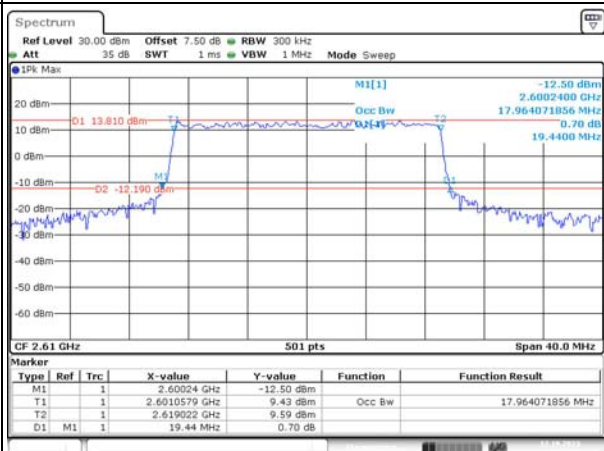


ProjectNo.:CR230953939 Testers:One Luo
Date: 12.OCT.2023 10:42:47

Highest



ProjectNo.:CR230953939 Testers:One Luo
Date: 12.OCT.2023 10:43:20



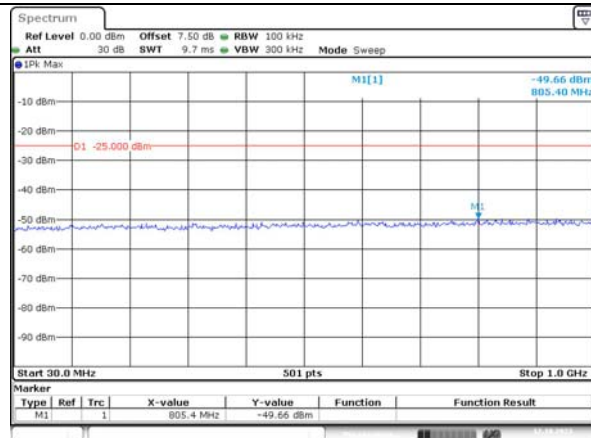
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Date: 12.OCT.2023 10:43:50

Spurious Emissions at Antenna Terminal

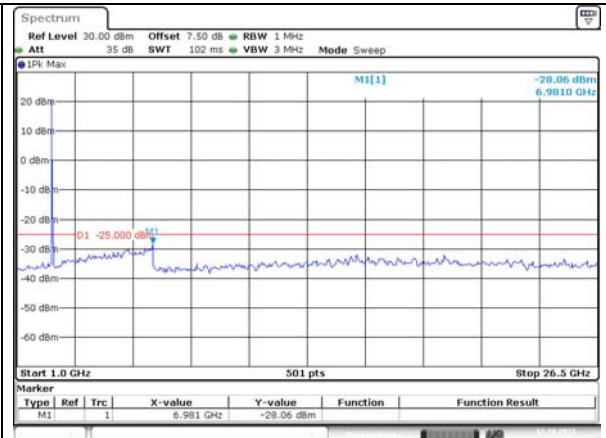
Channel

5MHz Bandwidth QPSK

Lowest

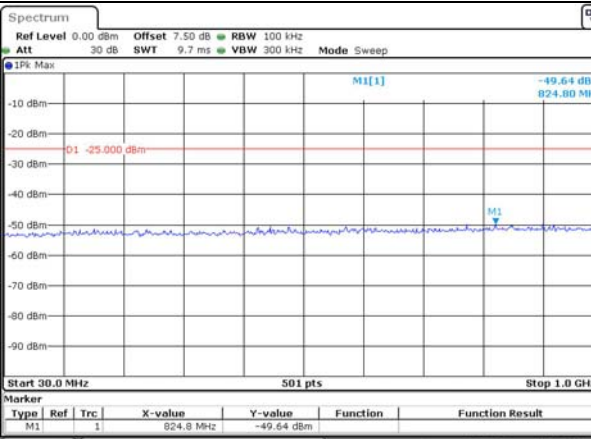


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Date: 12.OCT.2023 15:23:12

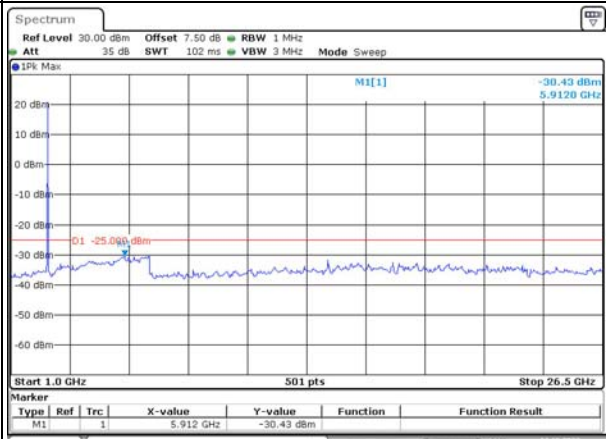


ProjectNo.:CR230953939 TesteriOne Luo
Date: 12.OCT.2023 15:23:51

Middle

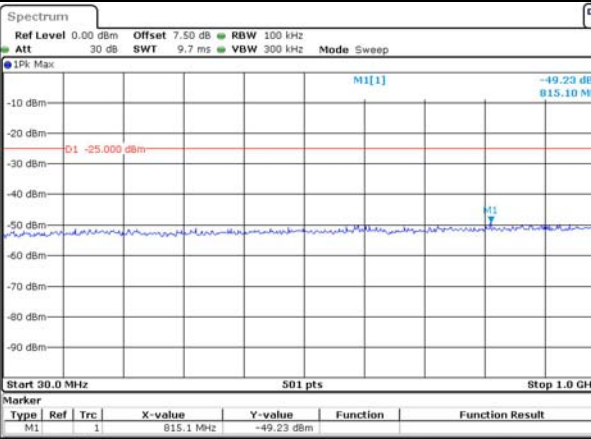


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Date: 12.OCT.2023 15:24:22

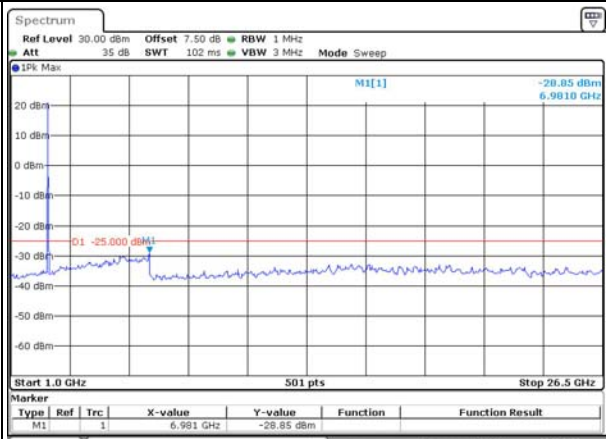


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Date: 12.OCT.2023 15:24:47

Highest



ProjectNo.:CR230953939 TesteriOne Luo
Date: 12.OCT.2023 15:25:11



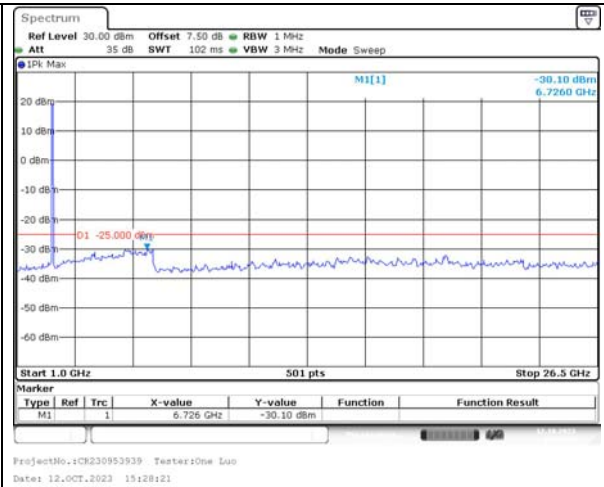
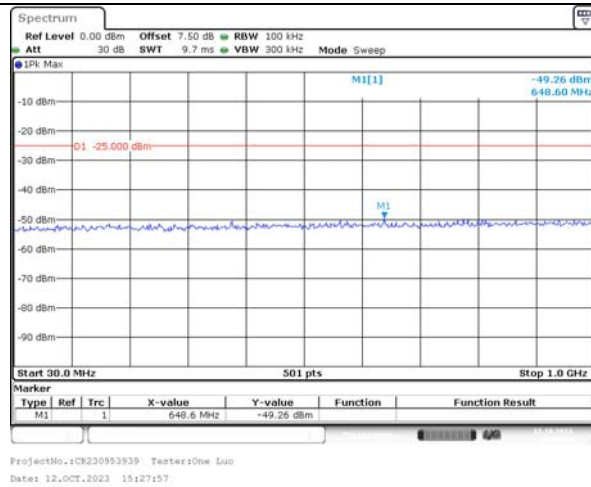
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Spurious Emissions at Antenna Terminal

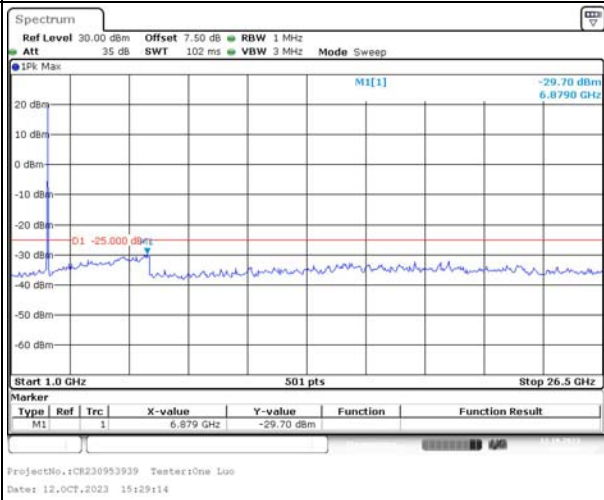
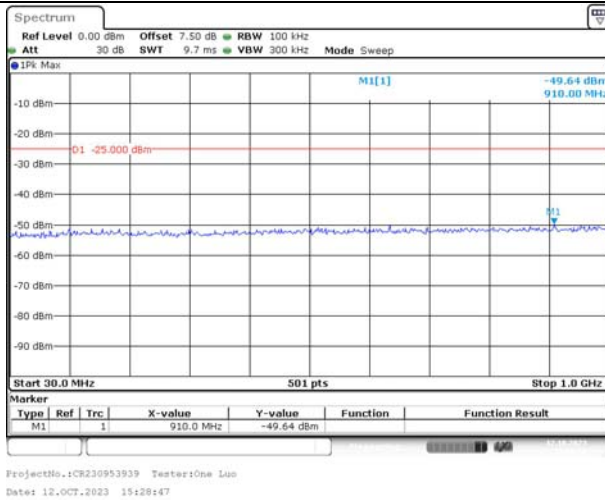
Channel

10MHz Bandwidth QPSK

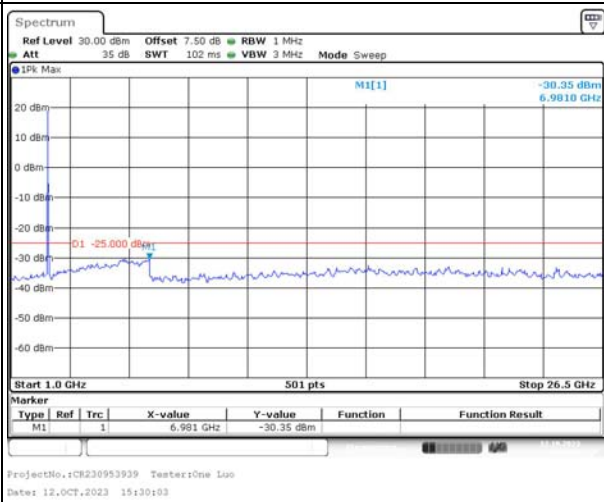
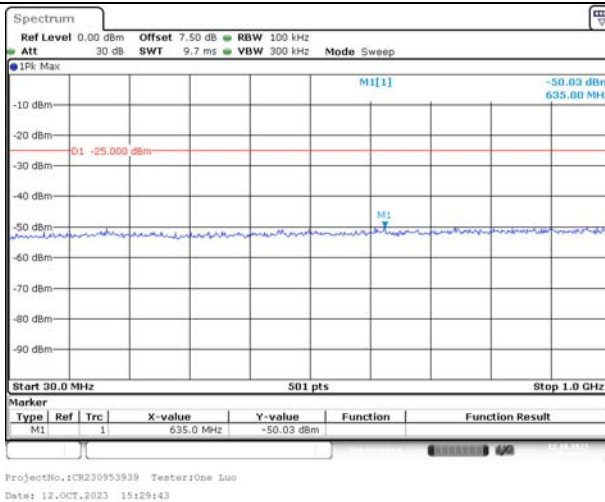
Lowest



Middle



Highest

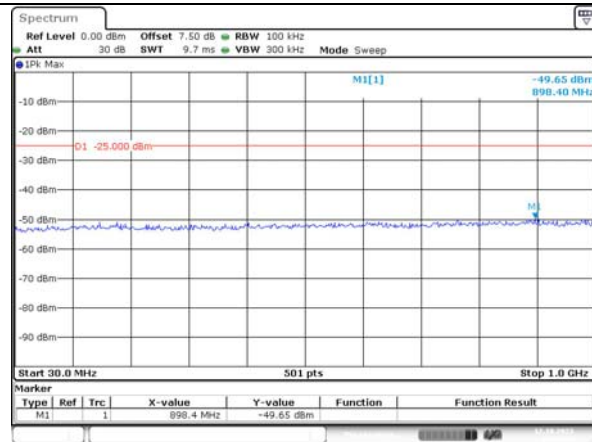


Spurious Emissions at Antenna Terminal

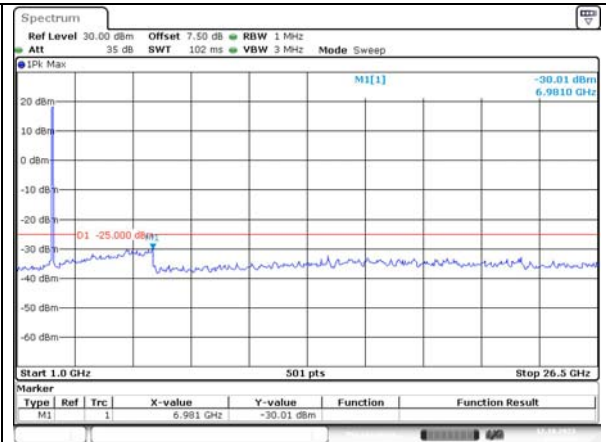
Channel

15MHz Bandwidth QPSK

Lowest

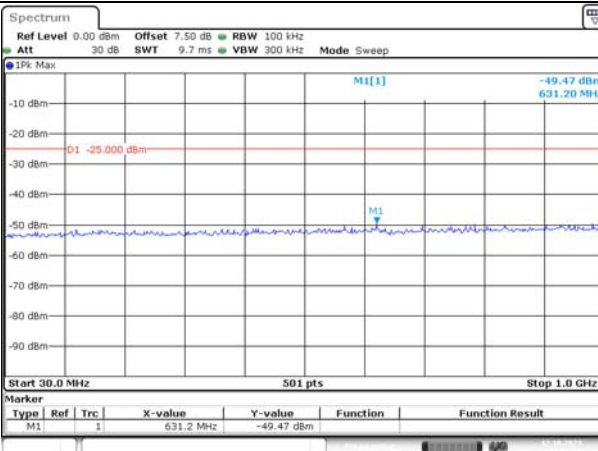


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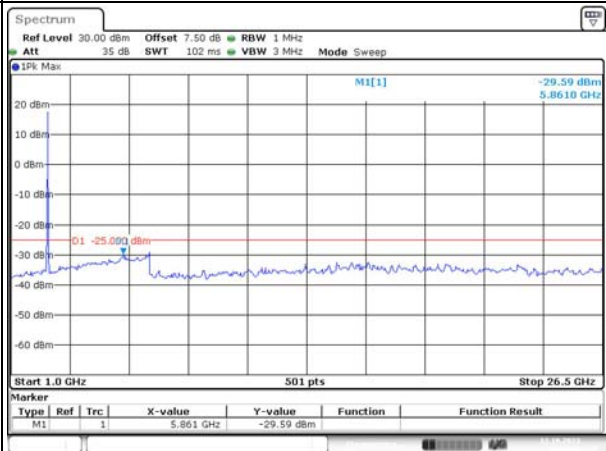


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Date: 12.OCT.2023 15:31:33

Middle

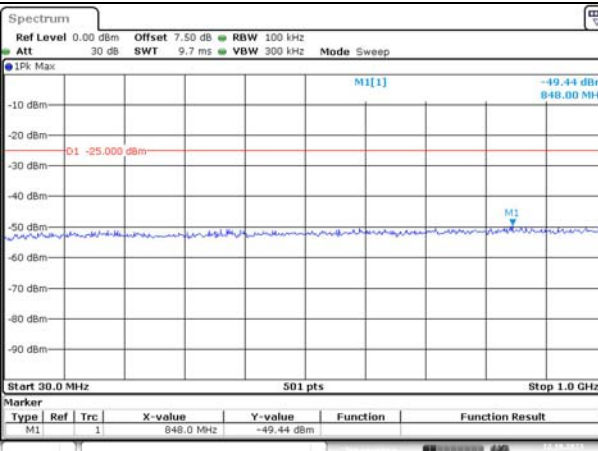


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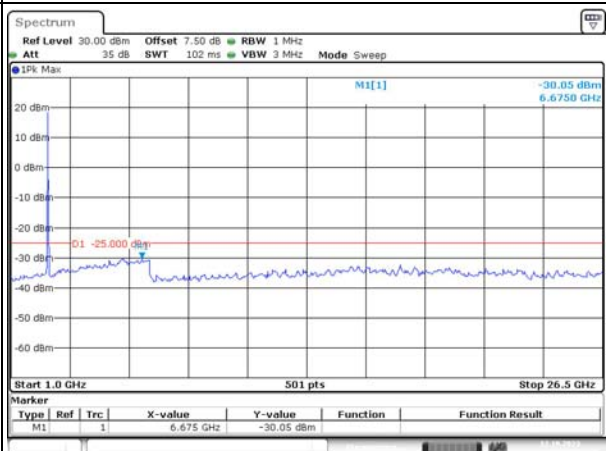


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Date: 12.OCT.2023 15:32:23

Highest



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Date: 12.OCT.2023 15:32:53



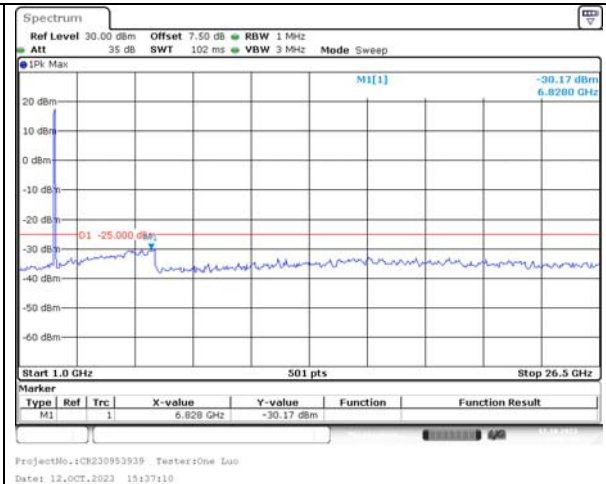
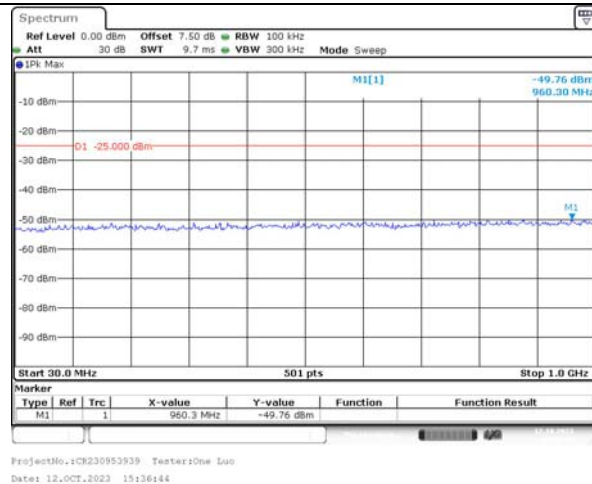
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Date: 12.OCT.2023 15:33:19

Spurious Emissions at Antenna Terminal

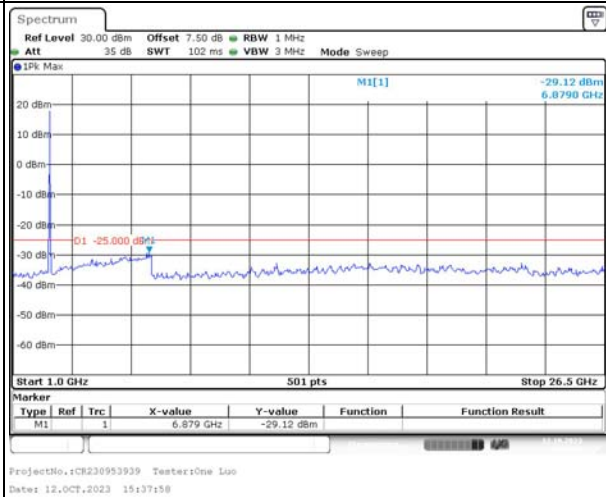
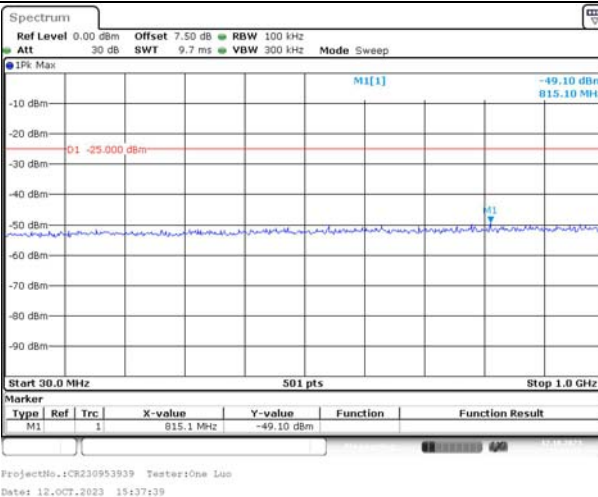
Channel

20MHz Bandwidth QPSK

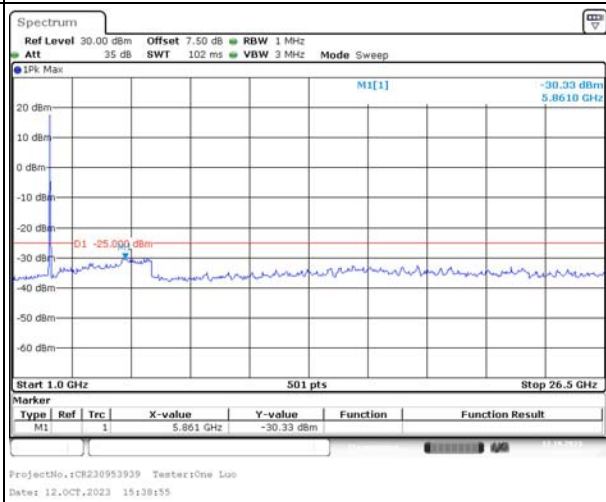
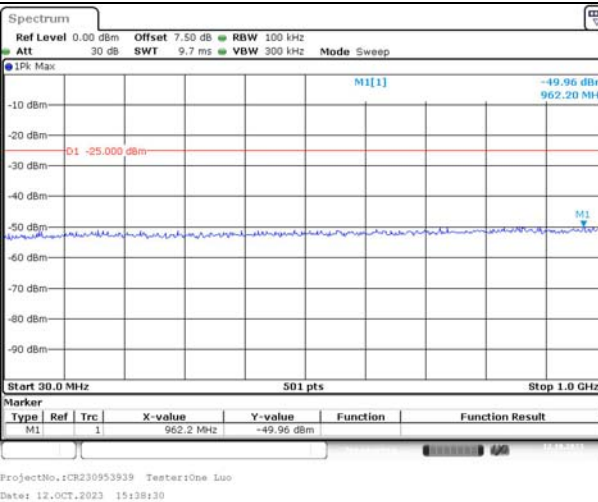
Lowest



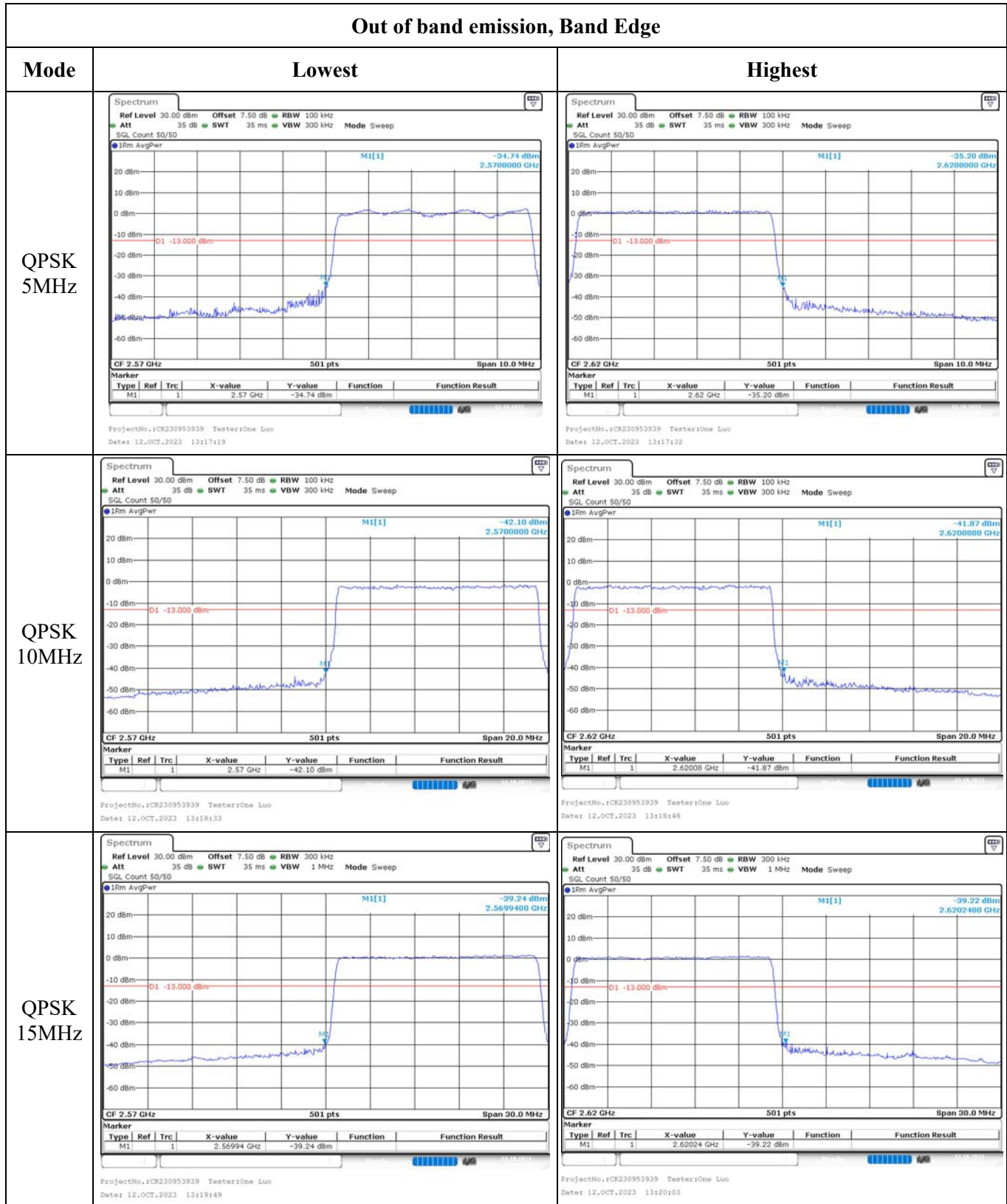
Middle



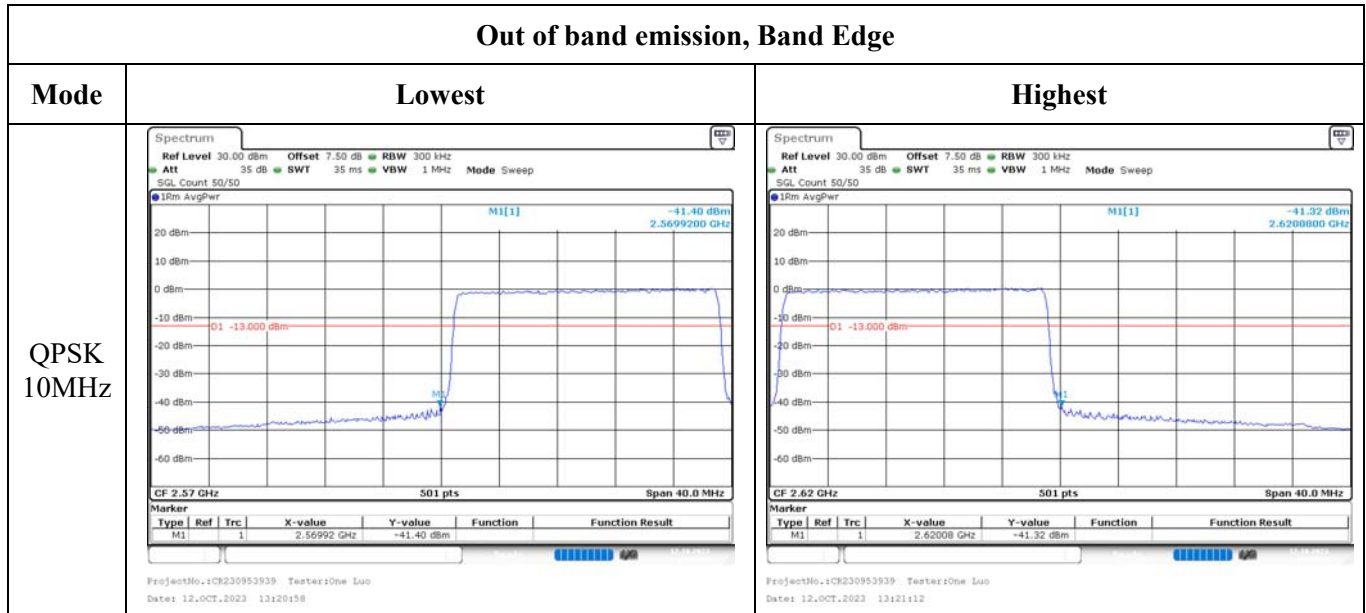
Highest



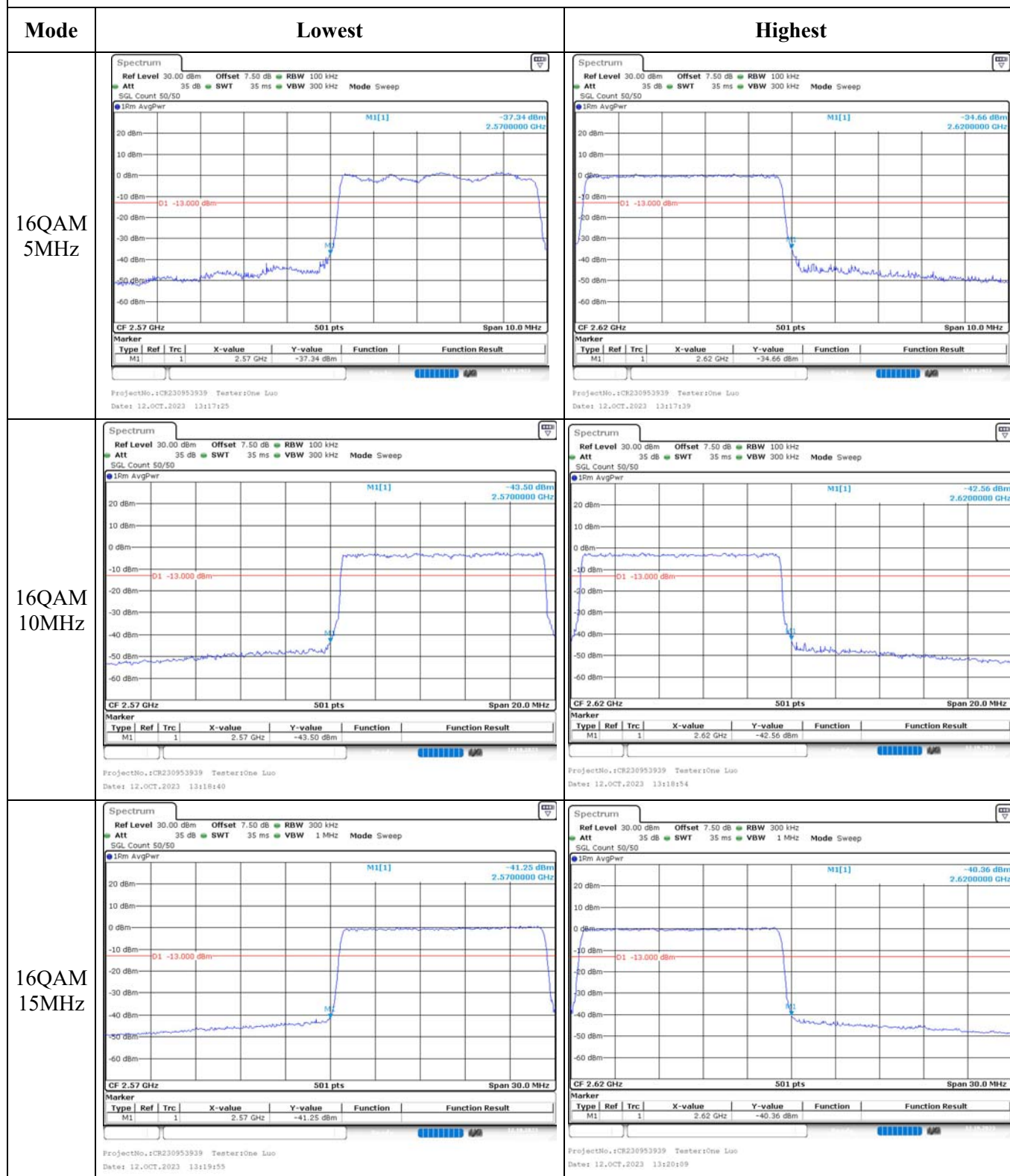
Out of band emission, Band Edge



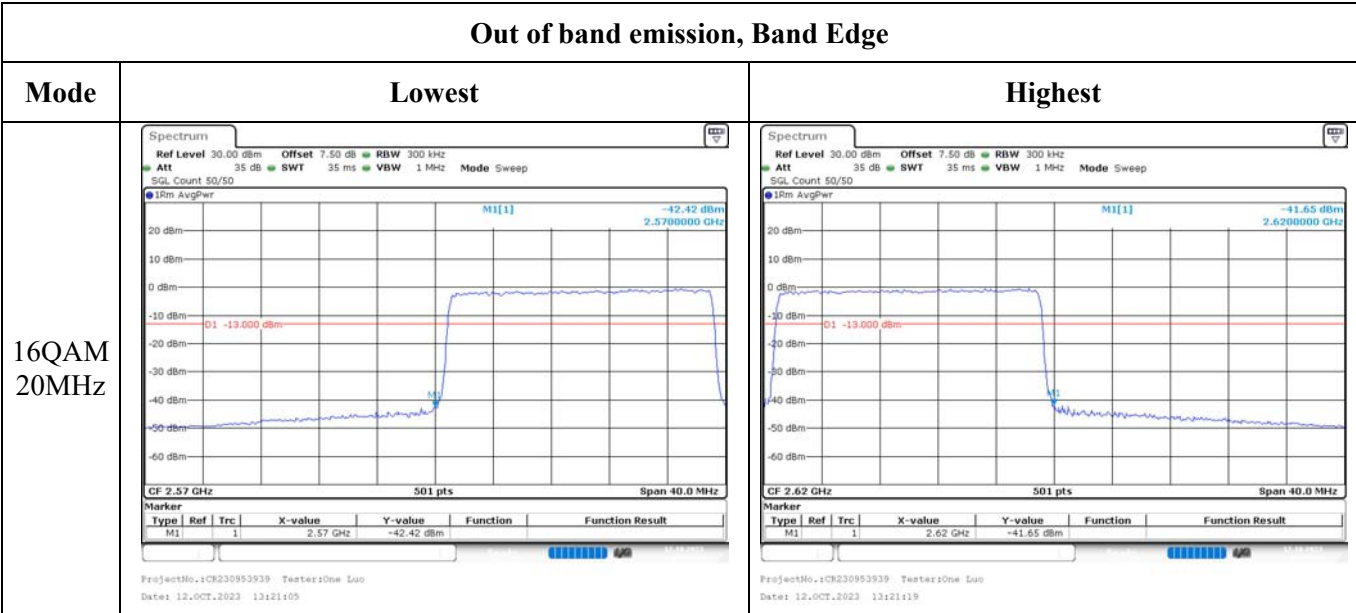
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.11 Antenna Port Test Data and Results for LTE Band 40

Serial Number:	2B7U-2	Test Date:	2023/10/12~2023/10/16
Test Site:	RF	Test Mode:	Transmitting
Tester:	One Luo	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.2~27.5	Relative Humidity: (%)	42~52	ATM Pressure: (kPa)	100.5~101.3
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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	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100001	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	Each time	N/A
Weinschel	Power Splitter	1515	RA914	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2023/9/29	2024/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	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).

Test Frequency For Each Mode:

Operation Band	Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
LTE Band 40 Lower 2305-2315MHz	5MHz	2307.5	/	2312.5
	10MHz	/	2310	/
LTE Band 40 Upper 2350-2360MHz	5MHz	2352.5	/	2357.5
	10MHz	/	2355	/

Test Data:

(Note:Uplink Downlink configuration 3 was tested)

RF Output Power**LTE Band 40 Lower:**

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
5MHz QPSK	RB1#0	22.39	/	22.25	22.82	24
	RB1#13	22.43	/	22.31		
	RB1#24	22.30	/	22.16		
	RB15#0	21.41	/	21.30		
	RB15#10	21.40	/	21.35		
	RB25#0	21.41	/	21.29		
5MHz 16QAM	RB1#0	21.62	/	21.35	22.09	24
	RB1#13	21.70	/	21.39		
	RB1#24	21.53	/	21.23		
	RB15#0	20.51	/	20.41		
	RB15#10	20.53	/	20.42		
	RB25#0	20.47	/	20.43		
10MHz QPSK	RB1#0	/	22.48	/	23.07	24
	RB1#25	/	22.68	/		
	RB1#49	/	22.26	/		
	RB25#0	/	21.47	/		
	RB25#25	/	21.37	/		
	RB50#0	/	21.40	/		
10MHz 16QAM	RB1#0	/	21.40	/	21.95	24
	RB1#25	/	21.56	/		
	RB1#49	/	21.16	/		
	RB25#0	/	20.56	/		
	RB25#25	/	20.48	/		
	RB50#0	/	20.48	/		

EIRP PSD in 5MHz:

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted PSD(dBm/5MHz)			Maximum EIRP PSD (dBm/5MHz)	Limit (dBm/5MHz)
		Lowest Channel	Middle Channel	Highest Channel		
10MHz QPSK	RB1#0	/	22.98	/	23.4	24
	RB1#25	/	23.01	/		
	RB1#49	/	22.62	/		
	RB25#0	/	20.94	/		
	RB25#25	/	20.87	/		
	RB50#0	/	19.1	/		
10MHz 16QAM	RB1#0	/	22.25	/	23.28	24
	RB1#25	/	22.89	/		

	RB1#49	/	22.38	/		
	RB25#0	/	20.09	/		
	RB25#25	/	20.05	/		
	RB50#0	/	18.35	/		

Note: For 5MHz mode, the channel power is equal to the test result in dBm/5MHz. EIRP=Conducted Power(dBm) - Lc(dB) + G_T(dBi) EIRP
PSD=Conducted PSD(dBm/5MHz) - Lc(dB) + G_T(dBi)

LTE Band 40 Upper:

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
5MHz QPSK	RB1#0	22.52	/	22.56	23.12	24
	RB1#13	22.70	/	22.73		
	RB1#24	22.58	/	22.65		
	RB15#0	21.66	/	21.75		
	RB15#10	21.63	/	21.75		
	RB25#0	21.68	/	21.75		
5MHz 16QAM	RB1#0	21.78	/	21.69	22.34	24
	RB1#13	21.95	/	21.85		
	RB1#24	21.87	/	21.74		
	RB15#0	20.78	/	20.84		
	RB15#10	20.75	/	20.89		
	RB25#0	20.70	/	20.85		
10MHz QPSK	RB1#0	/	22.65	/	23.4	24
	RB1#25	/	23.01	/		
	RB1#49	/	22.80	/		
	RB25#0	/	21.77	/		
	RB25#25	/	21.81	/		
	RB50#0	/	21.78	/		
10MHz 16QAM	RB1#0	/	21.57	/	22.34	24
	RB1#25	/	21.95	/		
	RB1#49	/	21.75	/		
	RB25#0	/	20.86	/		
	RB25#25	/	20.91	/		
	RB50#0	/	20.86	/		

EIRP PSD in 5MHz:

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted PSD(dBm/5MHz)			Maximum EIRP PSD (dBm/5MHz)	Limit (dBm/5MHz)
		Lowest Channel	Middle Channel	Highest Channel		
10MHz QPSK	RB1#0	/	21.85	/	22.52	24
	RB1#25	/	22.13	/		
	RB1#49	/	21.79	/		
	RB25#0	/	19.78	/		

10MHz 16QAM	RB25#25	/	19.88	/	22.24	24
	RB50#0	/	18.28	/		
	RB1#0	/	21.61	/		
	RB1#25	/	21.85	/		
	RB1#49	/	21.51	/		
	RB25#0	/	19.23	/		
	RB25#25	/	19.2	/		
	RB50#0	/	17.59	/		

Note:

For 5MHz mode, the channel power is equal to the test result in dBm/5MHz.

EIRP=Conducted Power(dBm) - Lc(dB) + Gt(dBi)

EIRP PSD=Conducted PSD(dBm/5MHz) - Lc(dB) + Gt(dBi)

Result:**Pass****Duty Cycle**

Operation Band	Modulation	Bandwidth	Ton (ms)	Ton+off (ms)	Duty Cycle (%)	Limit (%)
LTE Band 40 Lower	QPSK	5M	3.09	9.99	30.93	38
		10M	3.09	9.99	30.93	38
	16QAM	5M	3.14	10.04	31.27	38
		10M	3.14	10.04	31.27	38
LTE Band 40 Upper	QPSK	5M	3.09	9.99	30.93	38
		10M	3.14	10.04	31.27	38
	16QAM	5M	3.14	10.04	31.27	38
		10M	3.09	9.99	30.93	38
					Result:	Pass

Occupied Bandwidth**LTE Band 40 Lower:**

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	4.531	/	4.511	5.100	/	5.160
5MHz 16QAM	4.531	/	4.531	5.280	/	5.300
10MHz QPSK	/	8.981	/	/	10.000	/
10MHz 16QAM	/	8.942	/	/	9.720	/

LTE Band 40 Upper:

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	4.531	/	4.511	5.140	/	5.180
5MHz 16QAM	4.511	/	4.531	5.300	/	5.320
10MHz QPSK	/	8.942	/	/	9.960	/
10MHz 16QAM	/	8.942	/	/	9.760	/

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

Spurious Emissions at Antenna Terminal

Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.
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Out of band emission, Band Edge

Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
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Frequency Stability**LTE Band 40 Lower:**

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	2305.273	2305.000	2314.771	2315.000
	-20	3.8	2305.232	2305.000	2314.726	2315.000
	-10	3.8	2305.208	2305.000	2314.742	2315.000
	0	3.8	2305.258	2305.000	2314.752	2315.000
	10	3.8	2305.201	2305.000	2314.737	2315.000
	20	3.8	2305.245	2305.000	2314.756	2315.000
	30	3.8	2305.277	2305.000	2314.762	2315.000
	40	3.8	2305.215	2305.000	2314.800	2315.000
	50	3.8	2305.243	2305.000	2314.763	2315.000
Frequency Stability vs. Voltage	20	3.6	2305.261	2305.000	2314.795	2315.000
	20	4.35	2305.254	2305.000	2314.764	2315.000
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	2305.253	2305.000	2314.750	2315.000
	-20	3.8	2305.290	2305.000	2314.740	2315.000
	-10	3.8	2305.224	2305.000	2314.781	2315.000
	0	3.8	2305.252	2305.000	2314.757	2315.000
	10	3.8	2305.245	2305.000	2314.764	2315.000
	20	3.8	2305.245	2305.000	2314.775	2315.000
	30	3.8	2305.298	2305.000	2314.758	2315.000
	40	3.8	2305.208	2305.000	2314.764	2315.000
	50	3.8	2305.277	2305.000	2314.753	2315.000
Frequency Stability vs. Voltage	20	3.6	2305.253	2305.000	2314.795	2315.000
	20	4.35	2305.238	2305.000	2314.715	2315.000
Result:					Pass	

LTE Band 40 Upper:

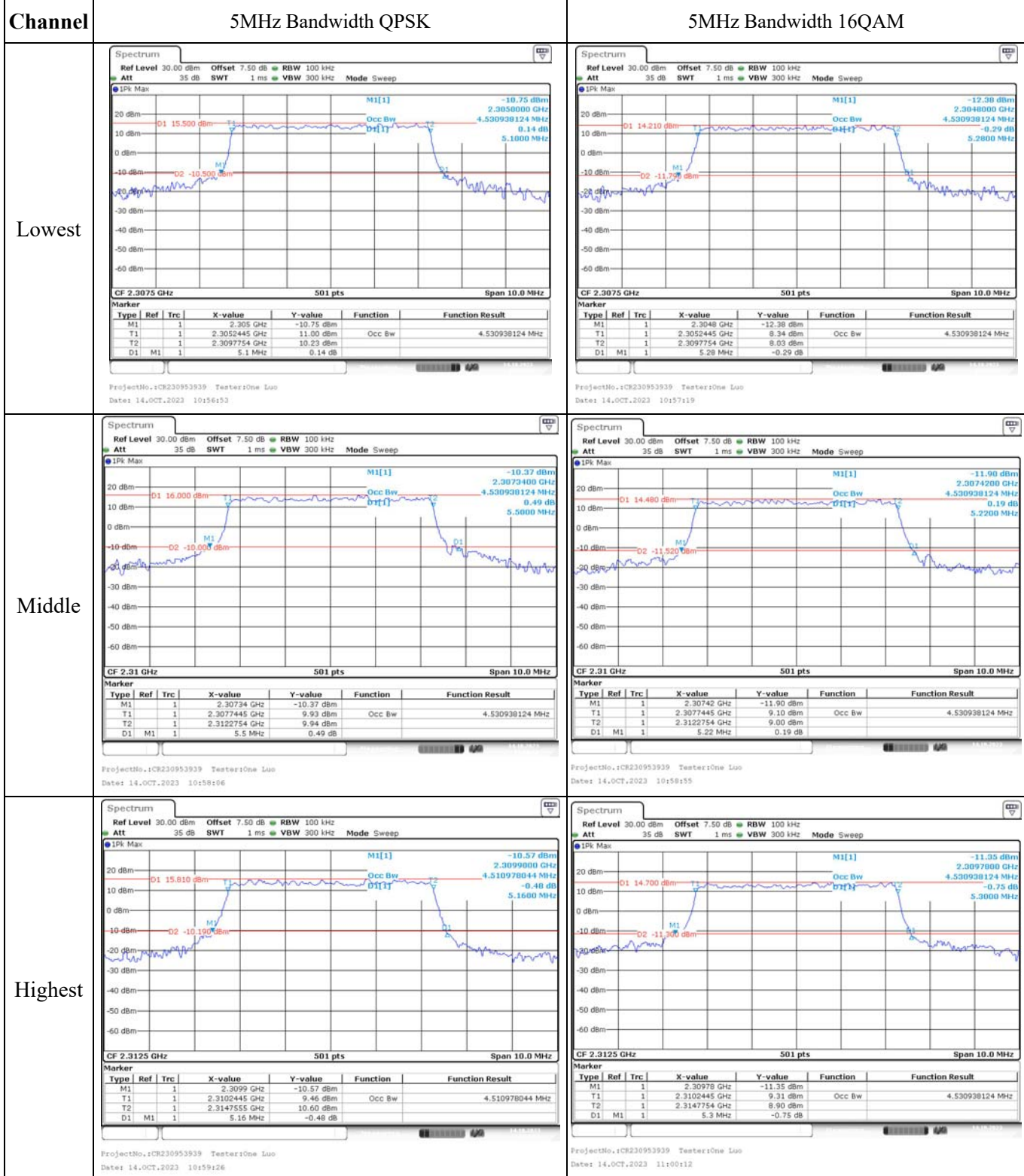
Test Mode:	10M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	2350.202	2350.000	2359.750	2360.000
	-20	3.8	2350.227	2350.000	2359.791	2360.000
	-10	3.8	2350.255	2350.000	2359.752	2360.000
	0	3.8	2350.264	2350.000	2359.789	2360.000
	10	3.8	2350.297	2350.000	2359.763	2360.000
	20	3.8	2350.245	2350.000	2359.756	2360.000
	30	3.8	2350.227	2350.000	2359.784	2360.000
	40	3.8	2350.245	2350.000	2359.788	2360.000
	50	3.8	2350.230	2350.000	2359.742	2360.000
Frequency Stability vs. Voltage	20	3.6	2350.289	2350.000	2359.710	2360.000
	20	4.35	2350.295	2350.000	2359.784	2360.000
					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	2350.281	2350.000	2359.705	2360.000
	-20	3.8	2350.296	2350.000	2359.799	2360.000
	-10	3.8	2350.280	2350.000	2359.713	2360.000
	0	3.8	2350.288	2350.000	2359.792	2360.000
	10	3.8	2350.233	2350.000	2359.748	2360.000
	20	3.8	2350.245	2350.000	2359.775	2360.000
	30	3.8	2350.271	2350.000	2359.773	2360.000
	40	3.8	2350.284	2350.000	2359.775	2360.000
	50	3.8	2350.228	2350.000	2359.732	2360.000
Frequency Stability vs. Voltage	20	3.6	2350.289	2350.000	2359.730	2360.000
	20	4.35	2350.233	2350.000	2359.782	2360.000
					Result:	Pass

Test Plots(Note: The 7.5dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):

1) Band 40 Lower:

Occupied Bandwidth



Occupied Bandwidth

Channel

10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

Middle

