

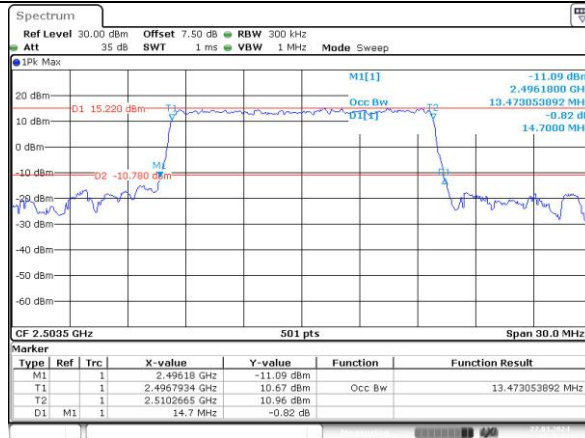
Occupied Bandwidth

Channel

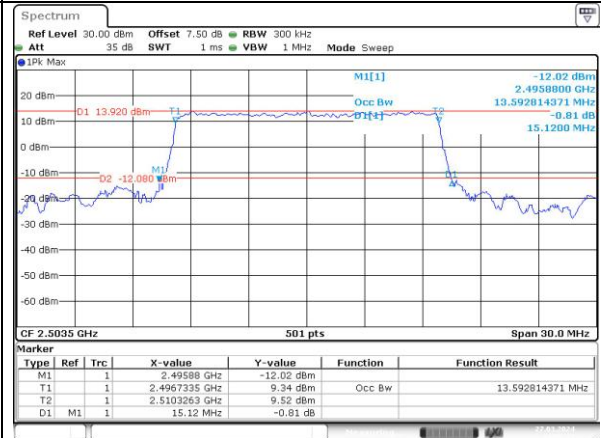
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

Lowest

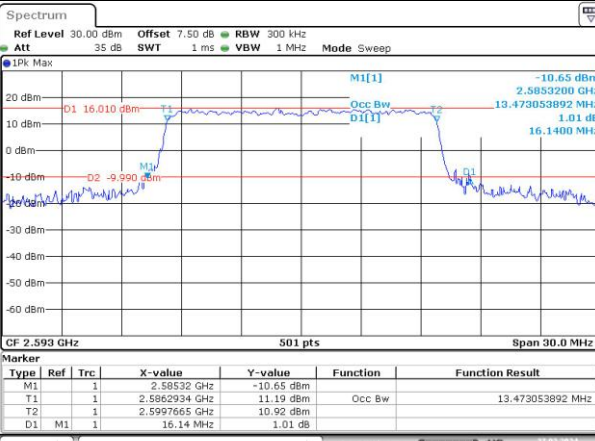


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 23:49:55

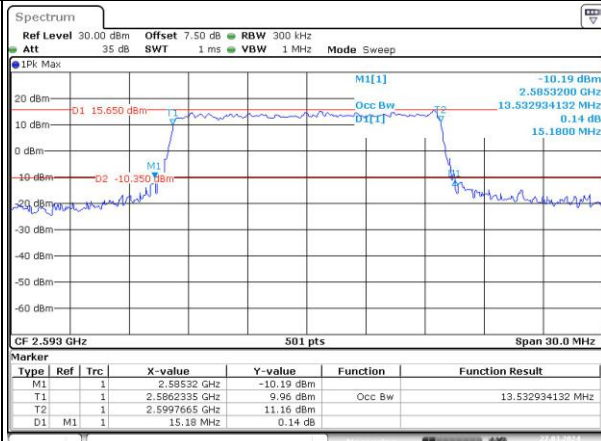


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 23:50:25

Middle

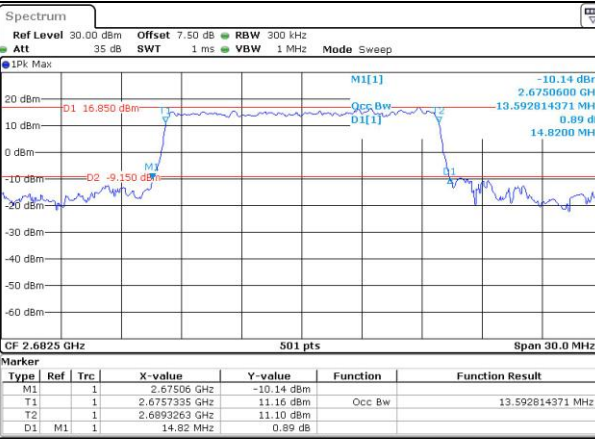


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 23:51:02

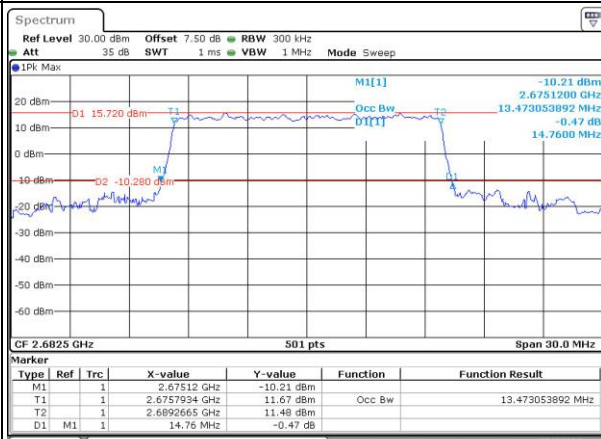


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 23:51:35

Highest



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 23:52:06



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 23:52:39

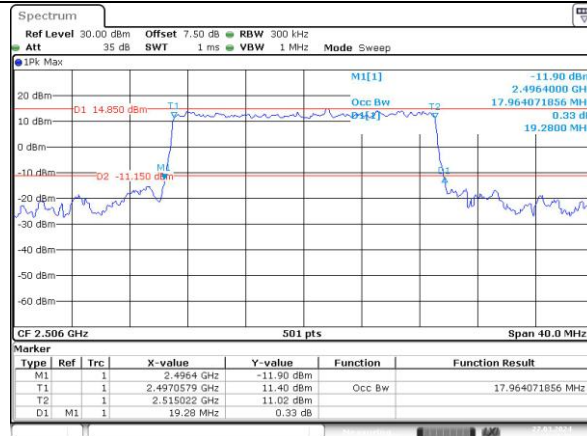
Occupied Bandwidth

Channel

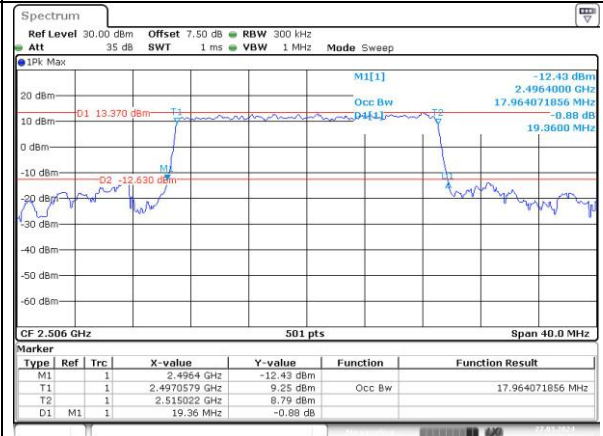
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

Lowest

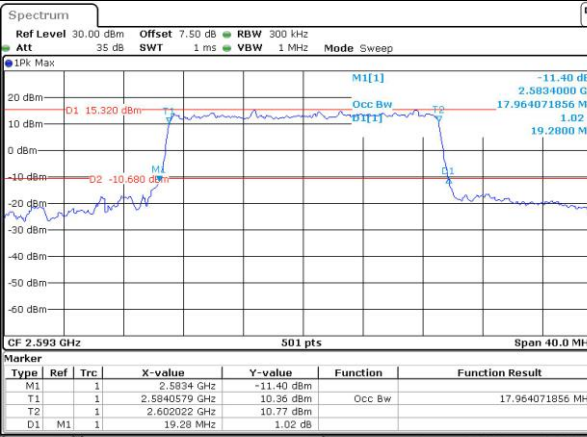


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 23:54:15

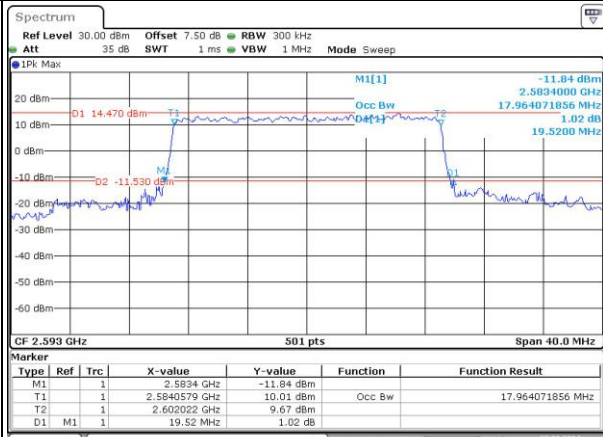


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 23:54:45

Middle

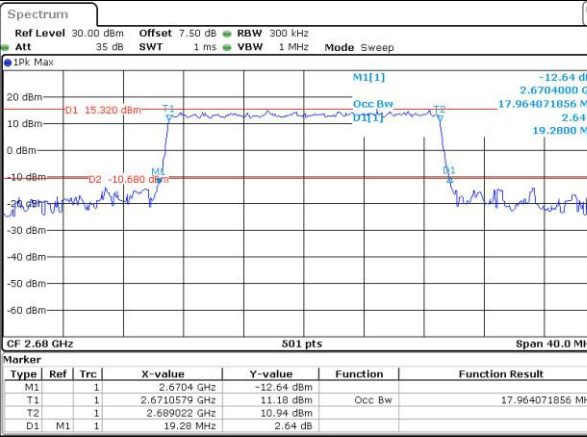


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 23:55:16

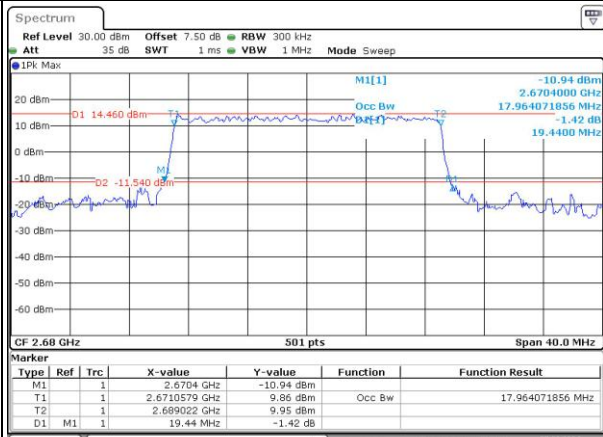


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 23:55:52

Highest



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 23:56:26



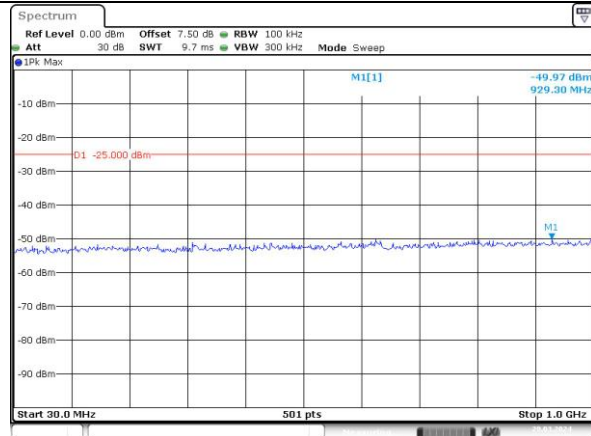
ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 23:57:11

Spurious Emissions at Antenna Terminal

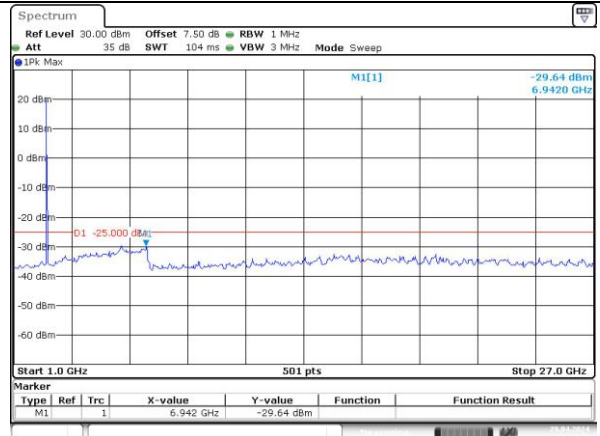
Channel

5MHz Bandwidth QPSK

Lowest

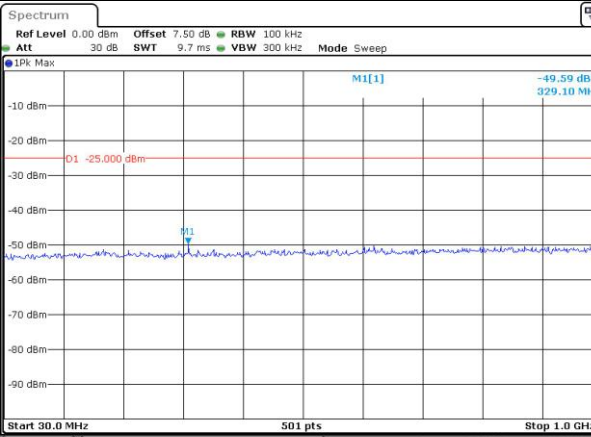


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 11:52:18

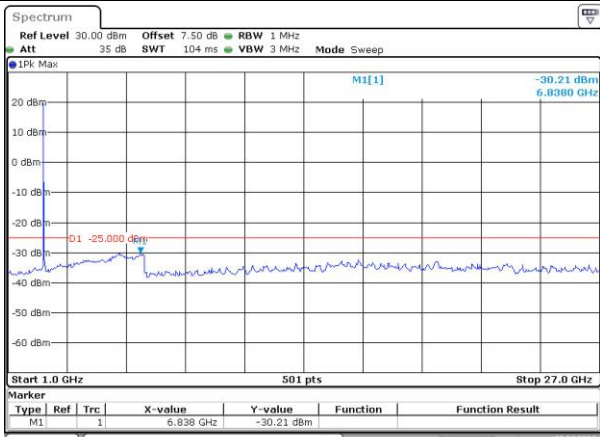


ProjectNo.:SZGMA240304-10520E Tester:Karl Liang
Date: 29.APR.2024 18:14:47

Middle

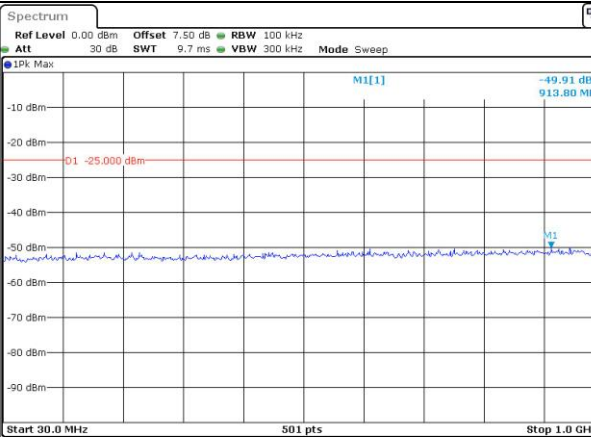


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 11:53:16

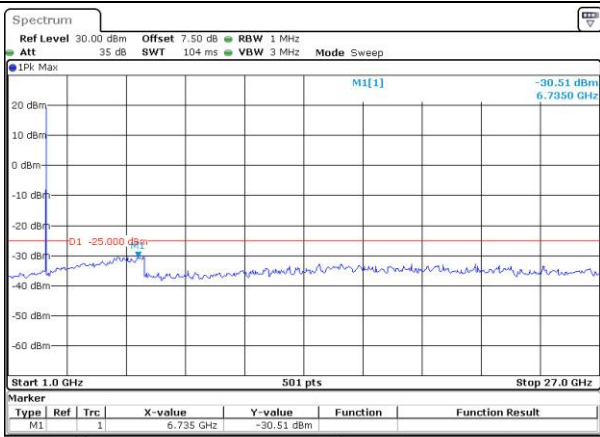


ProjectNo.:SZGMA240304-10520E Tester:Karl Liang
Date: 29.APR.2024 18:17:59

Highest



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 11:54:17



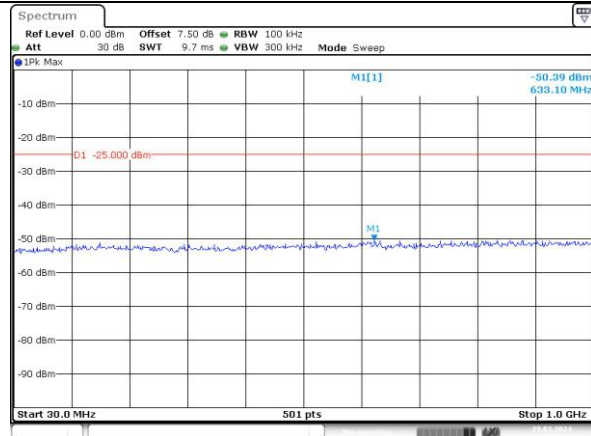
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Date: 29.APR.2024 18:18:58

Spurious Emissions at Antenna Terminal

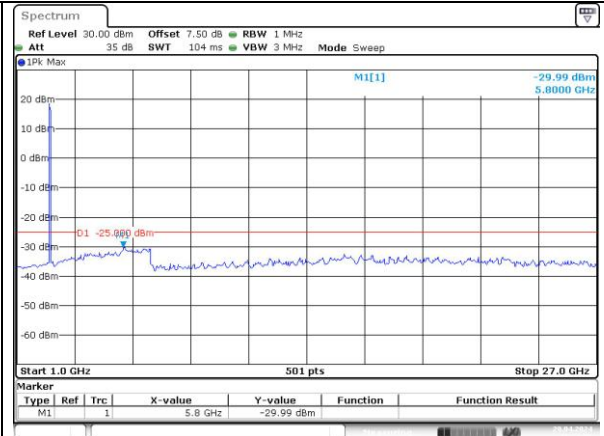
Channel

10MHz Bandwidth QPSK

Lowest

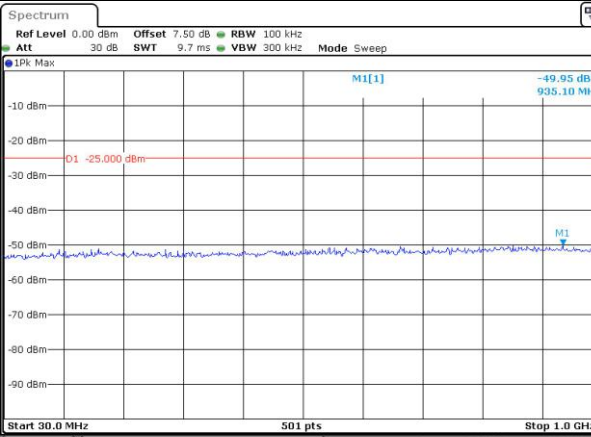


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 11:56:25

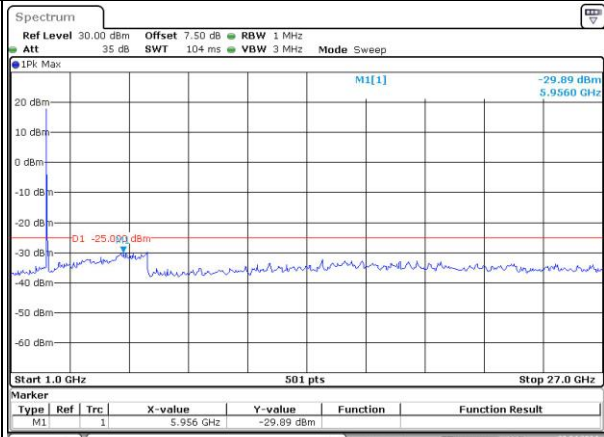


ProjectNo.:SZGMA240304-10520E Tester:Karl Liang
Date: 29.APR.2024 18:21:20

Middle

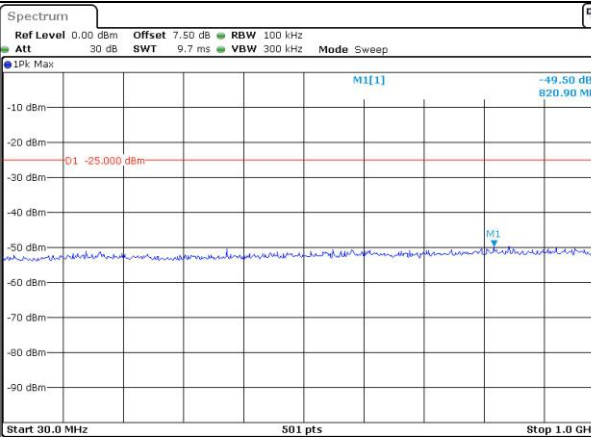


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 11:57:37

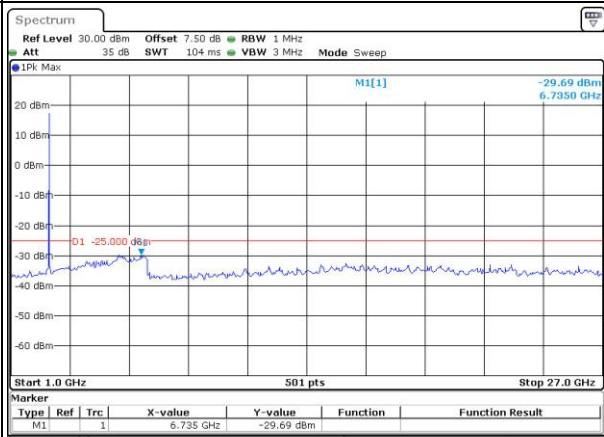


ProjectNo.:SZGMA240304-10520E Tester:Karl Liang
Date: 29.APR.2024 18:22:21

Highest



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 11:58:49



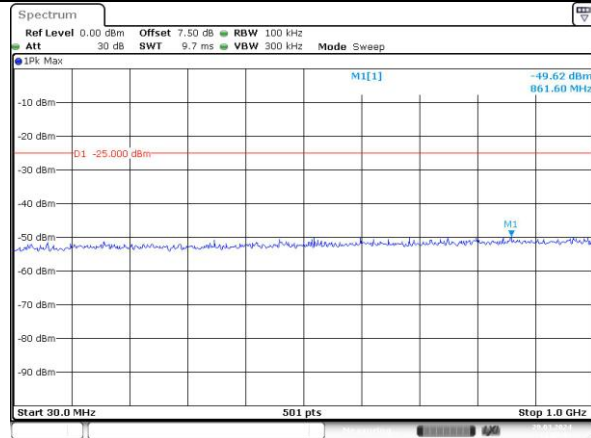
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Date: 29.APR.2024 18:23:48

Spurious Emissions at Antenna Terminal

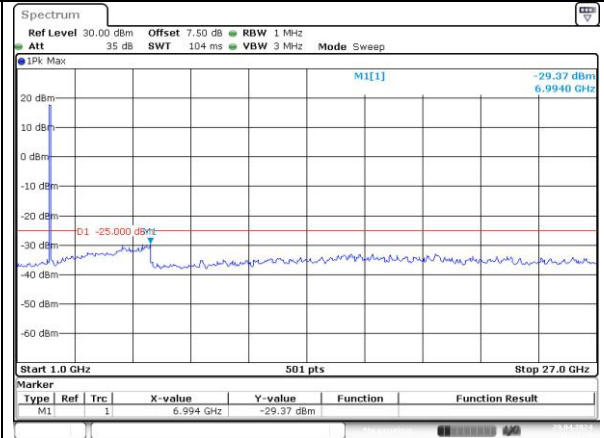
Channel

15MHz Bandwidth QPSK

Lowest

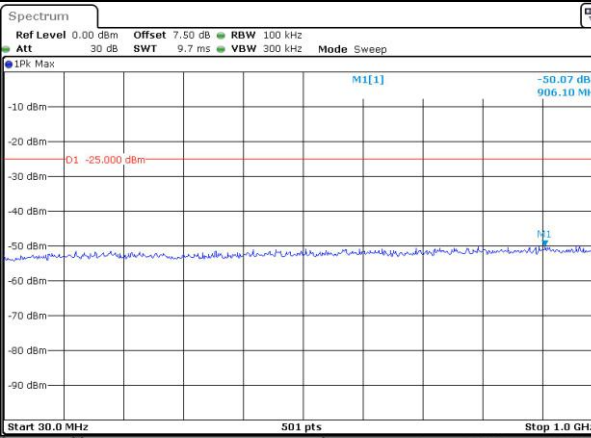


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 13:03:03

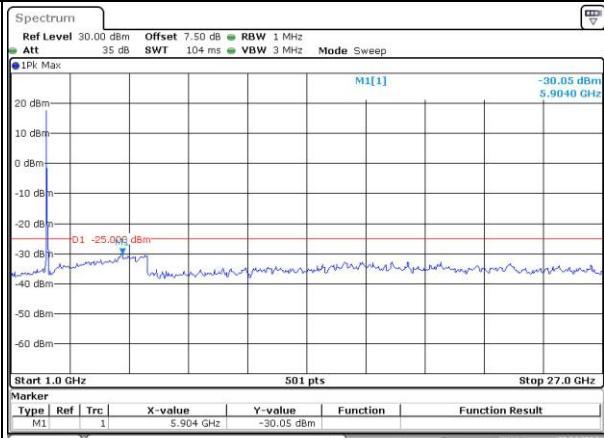


ProjectNo.:SZGMA240304-10520E Tester:Karl Liang
Date: 29.APR.2024 18:27:43

Middle

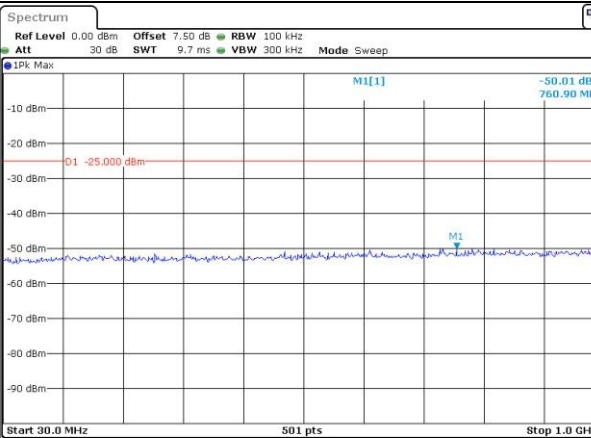


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 13:04:16

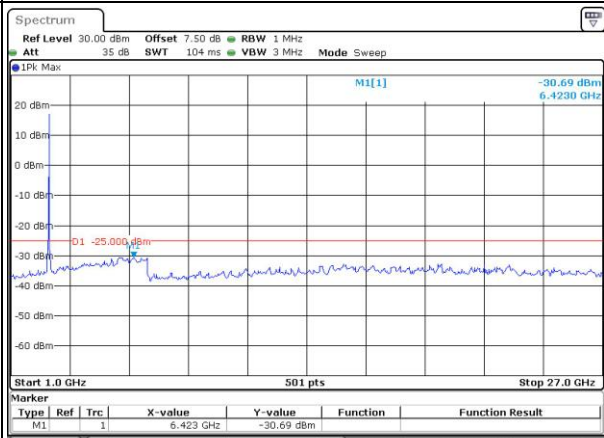


ProjectNo.:SZGMA240304-10520E Tester:Karl Liang
Date: 29.APR.2024 18:28:43

Highest



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 13:06:07



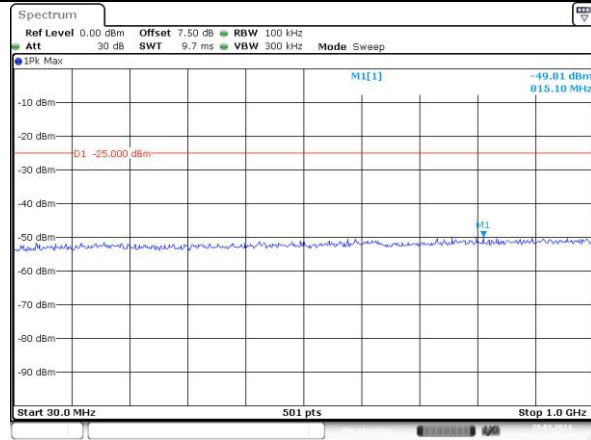
ProjectNo.:SZGMA240304-10520E Tester:Karl Liang
Date: 29.APR.2024 18:59:26

Spurious Emissions at Antenna Terminal

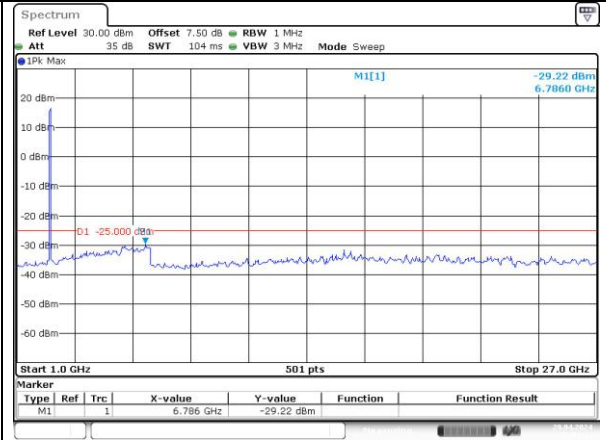
Channel

20MHz Bandwidth QPSK

Lowest

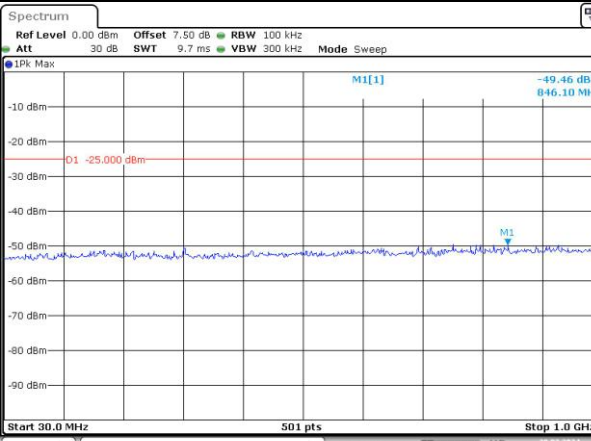


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 13:07:54

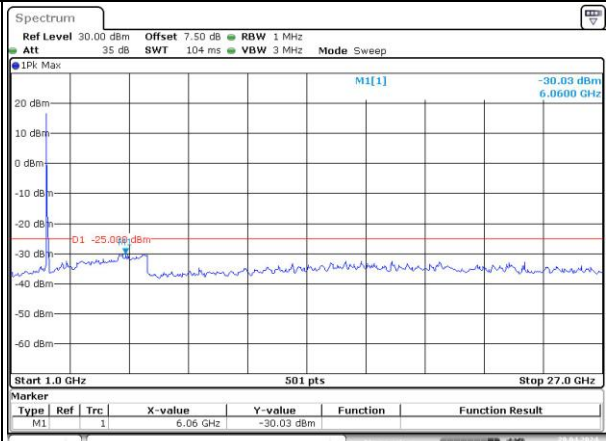


ProjectNo.:SZGMA240304-10520E Tester:Karl Liang
Date: 29.APR.2024 19:01:13

Middle

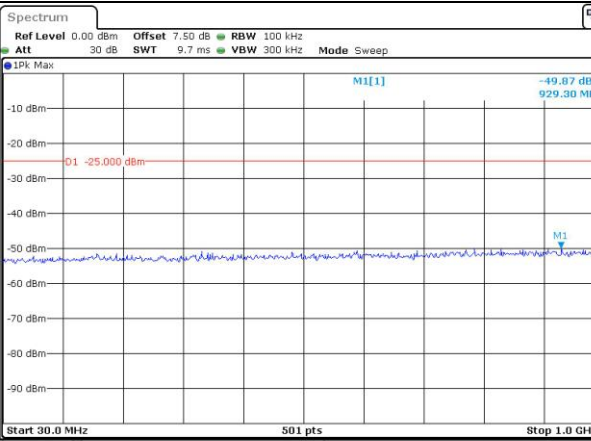


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 13:09:02

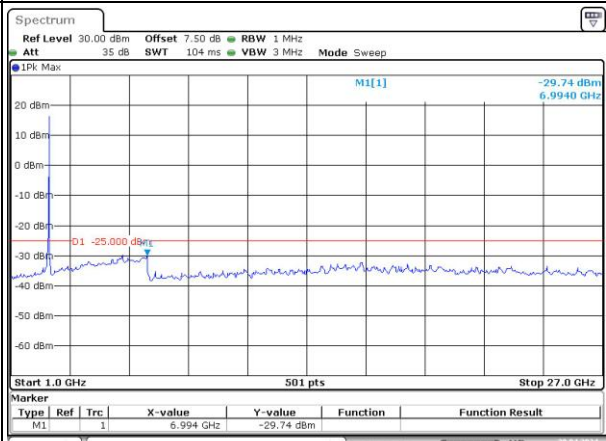


ProjectNo.:SZGMA240304-10520E Tester:Karl Liang
Date: 29.APR.2024 19:02:15

Highest

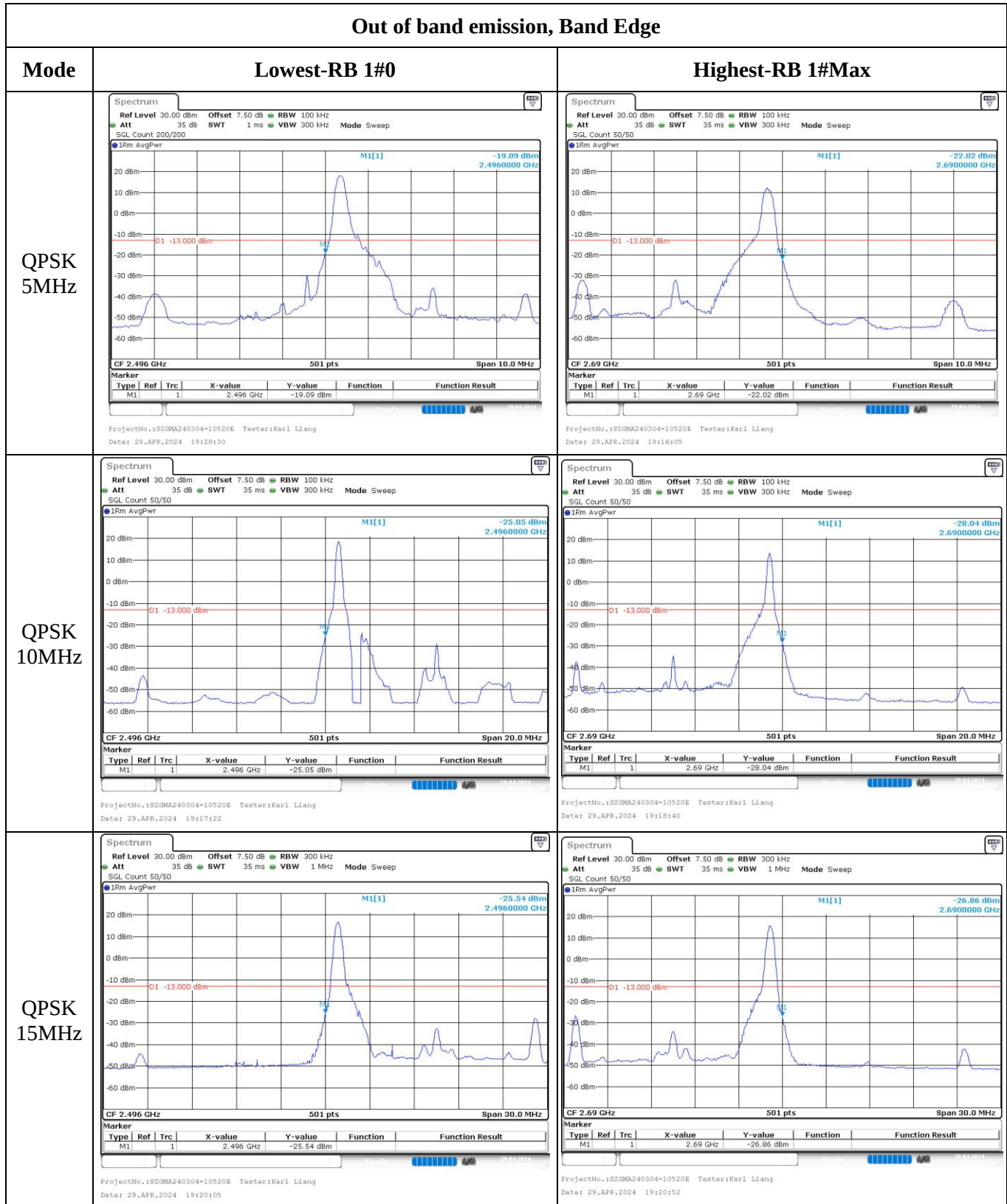


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 13:10:08

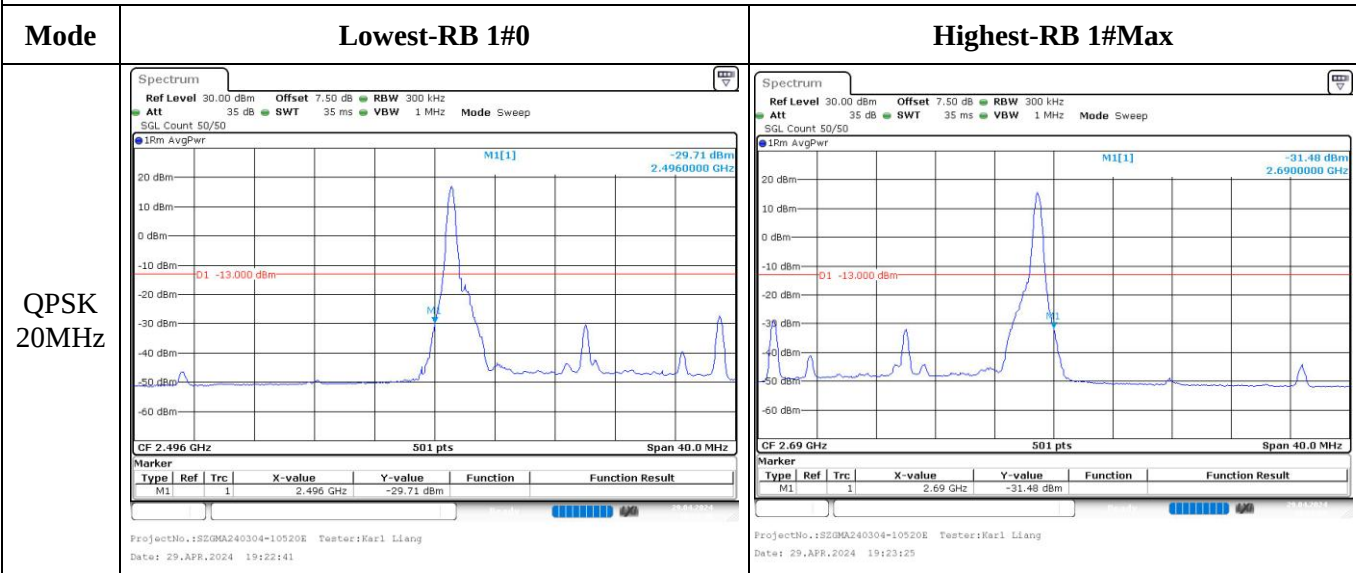


ProjectNo.:SZGMA240304-10520E Tester:Karl Liang
Date: 29.APR.2024 19:03:55

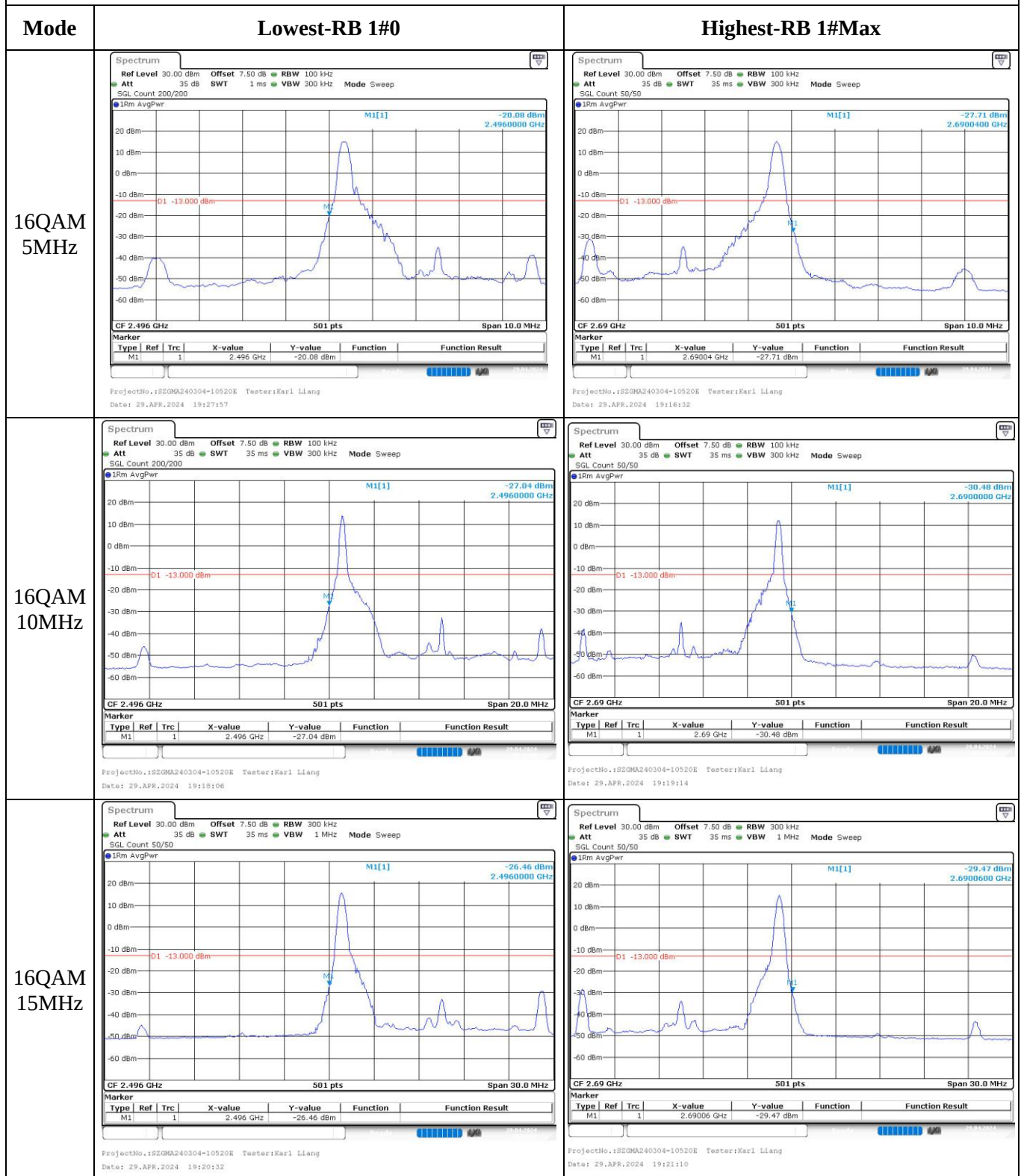
Out of band emission, Band Edge



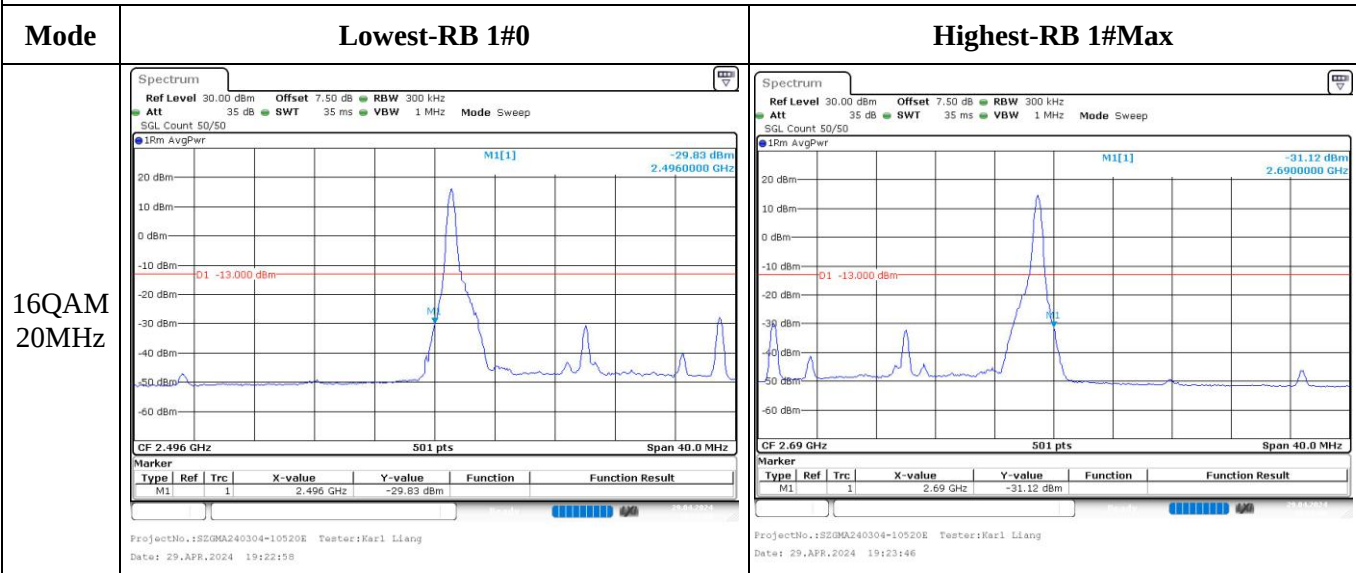
Out of band emission, Band Edge



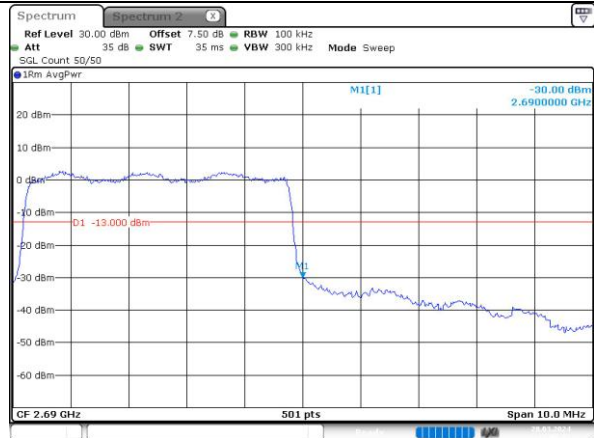
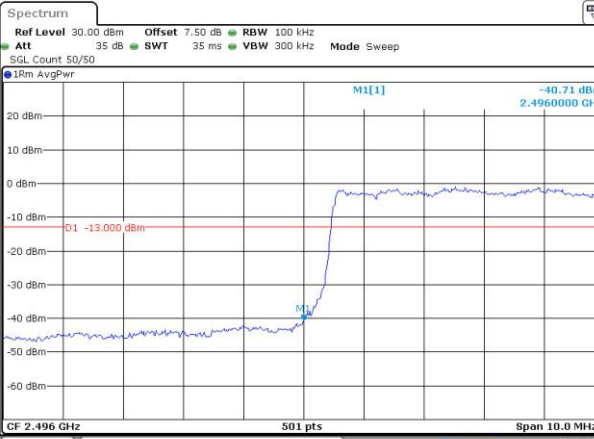
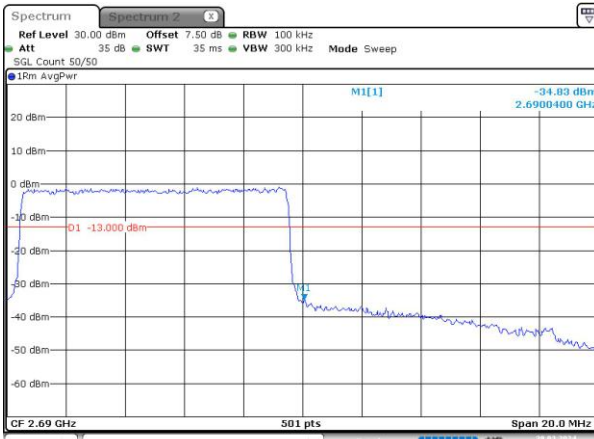
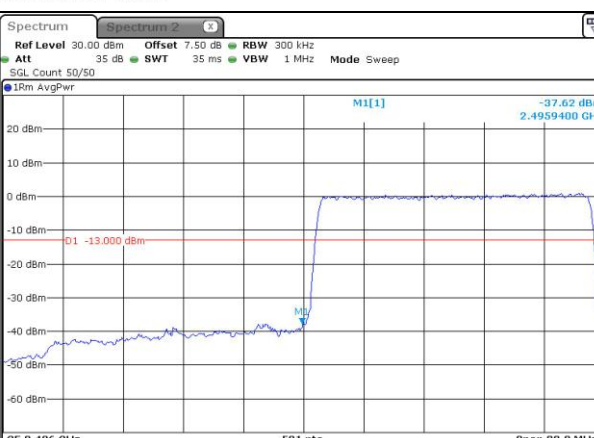
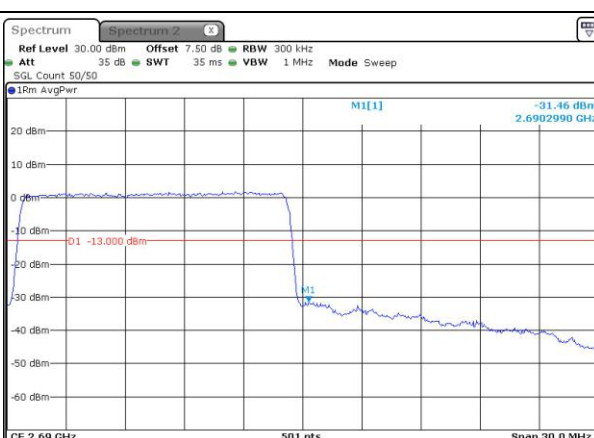
Out of band emission, Band Edge

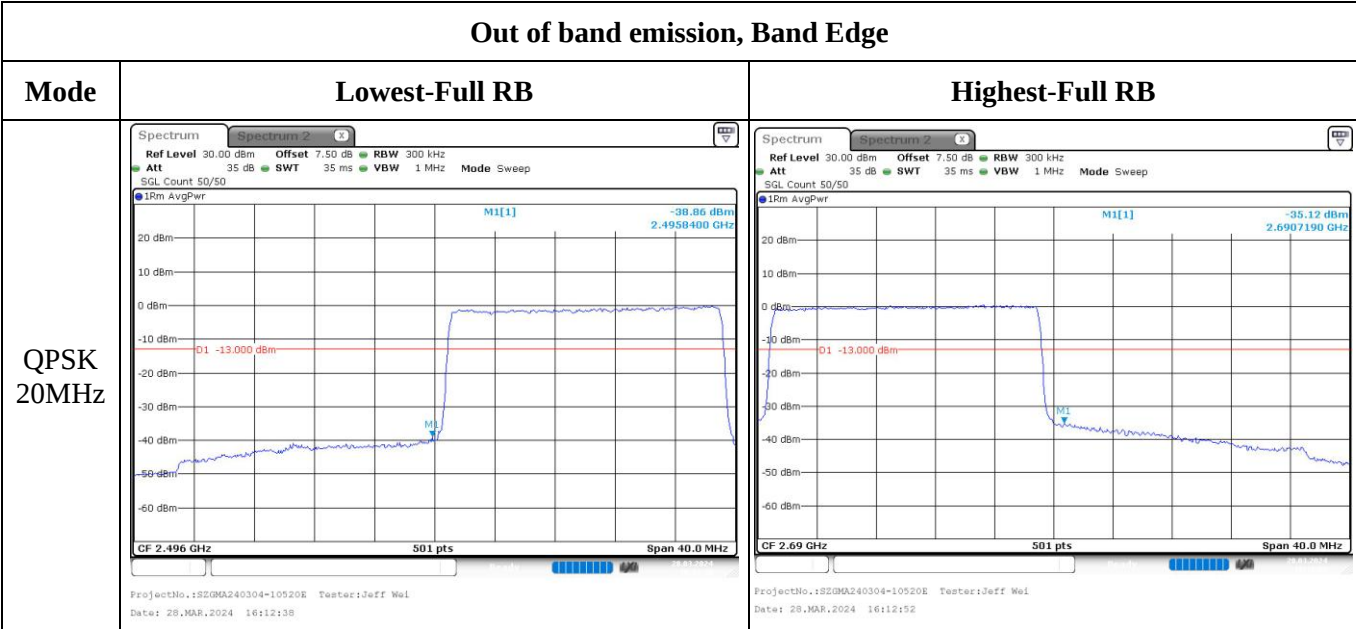


Out of band emission, Band Edge

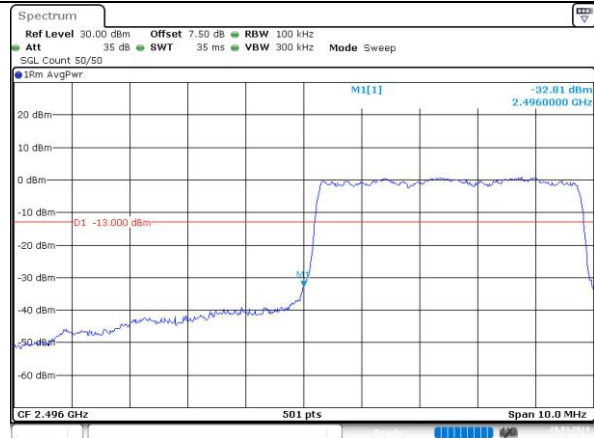
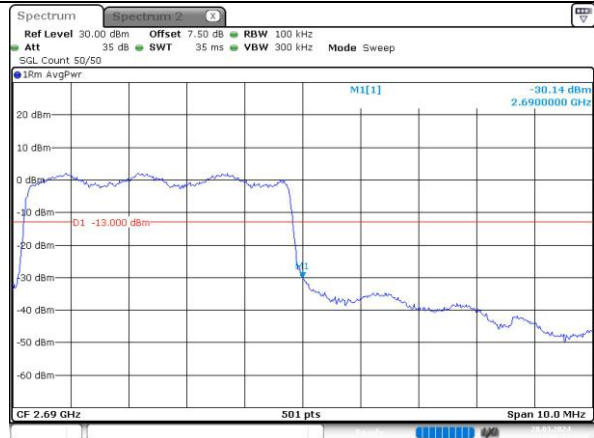
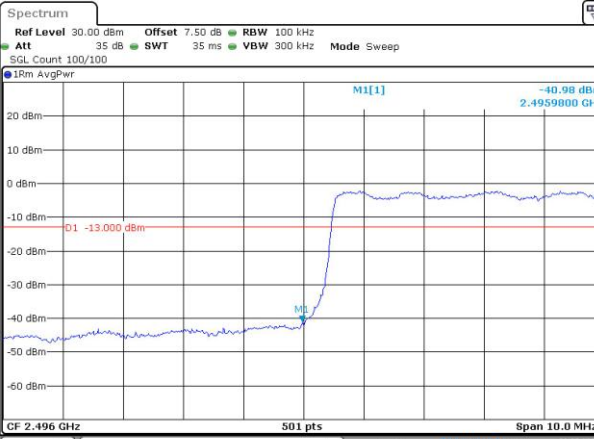
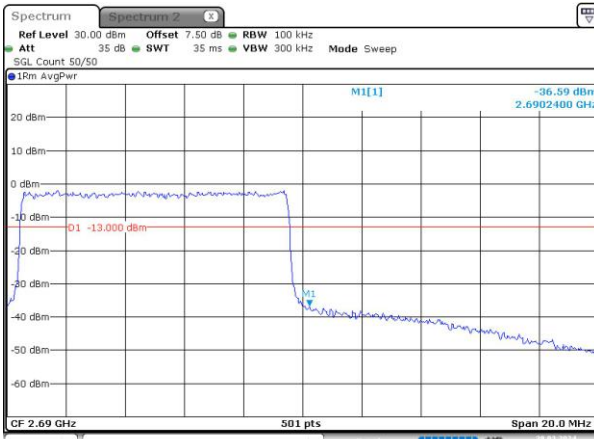
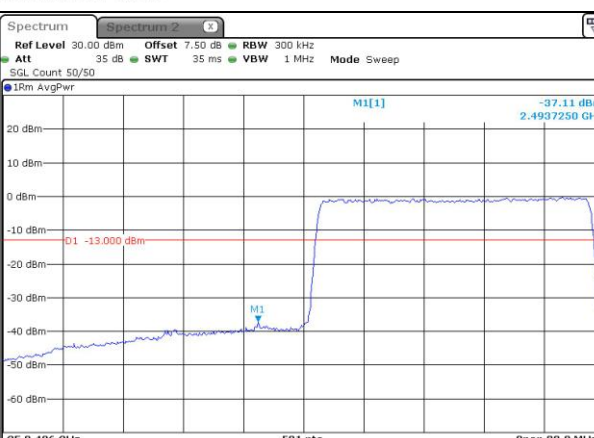
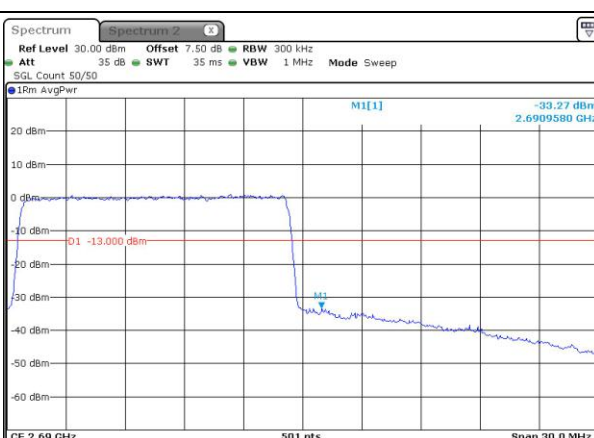


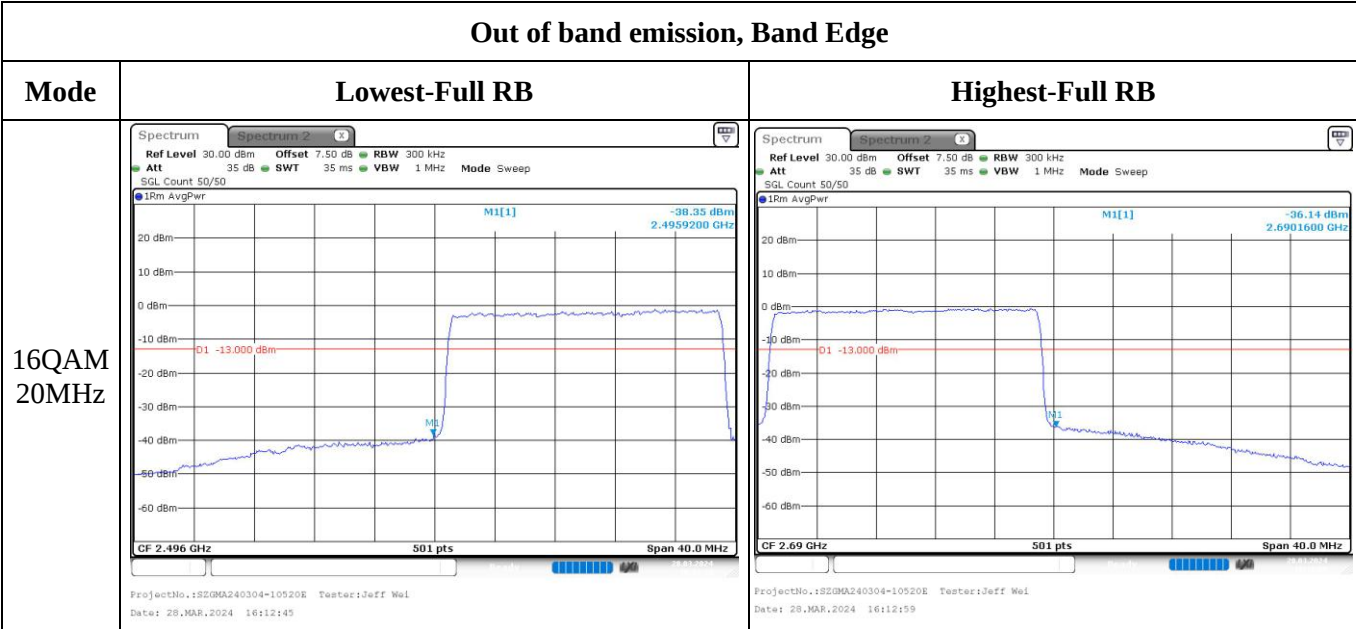
Out of band emission, Band Edge

Mode	Lowest-Full RB	Highest-Full RB
QPSK 5MHz	 Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr MI[1] -32.70 dBm 2.496000 GHz CF 2.496 GHz 501 pts Span 10.0 MHz ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 28.MAR.2024 16:09:14	 Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr MI[1] -30.00 dBm 2.690000 GHz CF 2.69 GHz 501 pts Span 10.0 MHz ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 28.MAR.2024 16:09:52
QPSK 10MHz	 Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr MI[1] -40.71 dBm 2.496000 GHz CF 2.496 GHz 501 pts Span 10.0 MHz ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 28.MAR.2024 17:13:28	 Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr MI[1] -34.83 dBm 2.690000 GHz CF 2.69 GHz 501 pts Span 10.0 MHz ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 28.MAR.2024 16:10:45
QPSK 15MHz	 Ref Level 30.00 dBm Offset 7.50 dB RBW 300 kHz Att 35 dB SWT 35 ms VBW 1 MHz Mode Sweep SQL Count 50/50 1Rm AvgPwr MI[1] -37.62 dBm 2.4959400 GHz CF 2.496 GHz 501 pts Span 30.0 MHz ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 28.MAR.2024 16:11:35	 Ref Level 30.00 dBm Offset 7.50 dB RBW 300 kHz Att 35 dB SWT 35 ms VBW 1 MHz Mode Sweep SQL Count 50/50 1Rm AvgPwr MI[1] -31.46 dBm 2.6902990 GHz CF 2.69 GHz 501 pts Span 30.0 MHz ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 28.MAR.2024 16:11:49



Out of band emission, Band Edge

Mode	Lowest-Full RB	Highest-Full RB
16QAM 5MHz	 ProjectNo.:SZGMA240304-10520ETester:Jeff Wei Date: 28.MAR.2024 17:36:36	 ProjectNo.:SZGMA240304-10520ETester:Jeff Wei Date: 28.MAR.2024 16:09:58
16QAM 10MHz	 ProjectNo.:SZGMA240304-10520ETester:Jeff Wei Date: 28.MAR.2024 17:39:39	 ProjectNo.:SZGMA240304-10520ETester:Jeff Wei Date: 28.MAR.2024 16:10:52
16QAM 15MHz	 ProjectNo.:SZGMA240304-10520ETester:Jeff Wei Date: 28.MAR.2024 16:11:42	 ProjectNo.:SZGMA240304-10520ETester:Jeff Wei Date: 28.MAR.2024 16:11:55



5.14 Antenna Port Test Data and Results for LTE Band 66

Serial Number:	2I92-2	Test Date:	2024/3/27~2024/4/19
Test Site:	RF	Test Mode:	Transmitting
Tester:	Jeff Wei	Test Result:	Pass

Environmental Conditions:			
Temperature: (°C)	24.7~27.2	49~72	100.1~101.2

Test Equipment List and Details:					
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101461	2023/11/27	2024/11/26
Micro-Coax	Coaxial Cable	UFA210A	94089550	2023/9/1	2024/8/31
Minl-Circuits	Coaxial Power Splitters & Combiner	ZFRSC-183-S+	SF448201614	2024/2/25	2025/2/24
R&S	Wideband Radio Communication Tester	CMW500	149216	2023/10/18	2024/10/17
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30173	2023/10/18	2024/10/17
All-sun	Clamp Meter	EM305A	8348897	2023/8/3	2024/8/2
TDK-Lambda	DC Power Supply	Z+60-14	F-08-EM038-1	N/A	N/A
* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).					

Test Frequency For Each Mode:			
Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	1710.7	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	22.41	22.41	22.34	22.18	30
	RB1#3	22.61	22.59	22.56		
	RB1#5	22.42	22.37	22.34		
	RB3#0	22.54	22.57	22.23		
	RB3#3	22.54	22.56	22.05		
	RB6#0	21.48	21.5	20.95		
1.4MHz 16QAM	RB1#0	21.59	21.46	20.96	21.36	30
	RB1#3	21.79	21.68	21.14		
	RB1#5	21.6	21.49	20.97		
	RB3#0	21.58	21.65	21.27		
	RB3#3	21.59	21.67	21.23		
	RB6#0	20.52	20.43	20.01		
3MHz QPSK	RB1#0	22.45	21.94	21.98	22.02	30
	RB1#8	22.39	21.93	21.97		
	RB1#14	22.44	21.93	21.96		
	RB6#0	21.36	20.92	20.87		
	RB6#9	21.36	20.92	20.87		
	RB15#0	21.48	20.98	20.98		
3MHz 16QAM	RB1#0	21.08	21.58	21.18	21.15	30
	RB1#8	21.01	21.57	21.14		
	RB1#14	20.96	21.55	21.14		
	RB6#0	19.85	20.05	19.95		
	RB6#9	19.88	19.99	19.95		
	RB15#0	20.08	20.11	19.97		
5MHz QPSK	RB1#0	22.38	21.97	21.9	22.02	30
	RB1#13	22.45	21.94	21.96		
	RB1#24	22.25	21.9	21.87		
	RB15#0	21.17	21	21.01		
	RB15#10	21.2	20.99	20.99		
	RB25#0	20.94	20.98	20.99		
5MHz 16QAM	RB1#0	21	20.85	21.22	20.87	30
	RB1#13	21.06	20.84	21.3		
	RB1#24	20.99	20.84	21.25		
	RB15#0	20.06	20.09	20.02		
	RB15#10	20.04	20.08	19.99		
	RB25#0	20	20.07	20.03		
10MHz QPSK	RB1#0	22.49	22.04	21.96	22.12	30
	RB1#25	22.55	22.13	22.13		
	RB1#49	22.46	22.02	21.94		

	RB25#0	21.53	21.07	21.08		
	RB25#25	21.09	21.1	21.05		
	RB50#0	21.11	21.1	21.08		
10MHz 16QAM	RB1#0	21.19	21.09	21.65	21.29	30
	RB1#25	21.32	21.19	21.72		
	RB1#49	21.18	21.06	21.62		
	RB25#0	20.18	20.2	20.18		
	RB25#25	20.17	20.2	20.14		
	RB50#0	20.13	20.2	20.14		
15MHz QPSK	RB1#0	22.4	21.97	21.96	21.97	30
	RB1#38	22.37	21.99	22.01		
	RB1#74	21.9	21.87	21.9		
	RB36#0	21.04	21.09	21.04		
	RB36#39	21.05	21.08	21.03		
	RB75#0	21.04	21.08	21.03		
15MHz 16QAM	RB1#0	21.39	21.59	21.14	21.21	30
	RB1#38	21.46	21.64	21.17		
	RB1#74	21.36	21.52	21.06		
	RB36#0	20.04	20.07	20.08		
	RB36#39	20.06	20.07	20.05		
	RB75#0	20.03	20.1	20.09		
20MHz QPSK	RB1#0	22.27	21.86	21.66	22.23	30
	RB1#50	22.66	22.17	22.13		
	RB1#99	22.24	21.8	21.69		
	RB50#0	21.59	21.02	21.07		
	RB50#50	21.14	21.01	20.95		
	RB100#0	21.02	20.98	20.98		
20MHz 16QAM	RB1#0	21.17	21.07	21.29	21.29	30
	RB1#50	21.49	21.36	21.72		
	RB1#99	21.17	20.97	21.3		
	RB50#0	20.13	20.08	20.14		
	RB50#50	20.09	20.05	20.01		
	RB100#0	20.1	20.06	20.06		

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

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

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	5.13	5.33	5.42	13
	RB100#0	4.49	4.17	4.55	13
20MHz 16QAM	RB1#0	5.74	6.12	6.43	13
	RB100#0	6.12	5.88	6.14	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	1.09	1.32	1.296	1.296
1.4MHz 16QAM	1.096	1.096	1.102	1.29	1.308	1.32
3MHz QPSK	2.695	2.683	2.683	2.904	2.88	2.868
3MHz 16QAM	2.683	2.683	2.683	2.88	2.88	2.892
5MHz QPSK	4.551	4.531	4.511	5.6	5.2	5.16
5MHz 16QAM	4.531	4.551	4.551	5.34	5.2	5.24
10MHz QPSK	9.022	8.942	8.942	9.96	9.88	9.92
10MHz 16QAM	8.942	8.982	8.982	9.88	9.92	9.96
15MHz QPSK	13.533	13.593	13.473	15.3	15.24	15.06
15MHz 16QAM	13.593	13.593	13.533	15.84	15.18	15.18
20MHz QPSK	17.964	17.964	17.964	19.6	19.92	19.6
20MHz 16QAM	18.044	17.964	18.044	19.84	19.68	19.68

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

FCC §2.1051, §27.53:Spurious Emissions at Antenna Terminal

Result:	Pass, Test was performed at RB1#0, please refer to the test plots of Spurious Emissions at Antenna Terminal.
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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.
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FCC §2.1055, §27.54: Frequency Stability

Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1711.022	1710.00	1779.016	1780
	-20	3.85	1711.052	1710.00	1779.007	1780
	-10	3.85	1711.040	1710.00	1779.001	1780
	0	3.85	1711.040	1710.00	1779.016	1780
	10	3.85	1711.037	1710.00	1778.995	1780
	20	3.85	1711.058	1710.00	1779.022	1780
	30	3.85	1711.073	1710.00	1779.025	1780
	40	3.85	1711.076	1710.00	1779.028	1780
	50	3.85	1711.061	1710.00	1779.043	1780
Frequency Stability vs. Voltage	20	3.6	1711.082	1710.00	1779.049	1780
	20	4.4	1711.064	1710.00	1779.034	1780
Result:					Pass	

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1710.957	1710.00	1779.019	1780
	-20	3.85	1710.957	1710.00	1779.001	1780
	-10	3.85	1710.966	1710.00	1779.001	1780
	0	3.85	1710.969	1710.00	1779.019	1780
	10	3.85	1710.975	1710.00	1779.013	1780
	20	3.85	1710.978	1710.00	1779.022	1780
	30	3.85	1710.993	1710.00	1779.046	1780
	40	3.85	1710.999	1710.00	1779.028	1780
	50	3.85	1710.999	1710.00	1779.025	1780
Frequency Stability vs. Voltage	20	3.6	1710.987	1710.00	1779.025	1780
	20	4.4	1710.990	1710.00	1779.040	1780
					Result:	Pass

Test Plots:

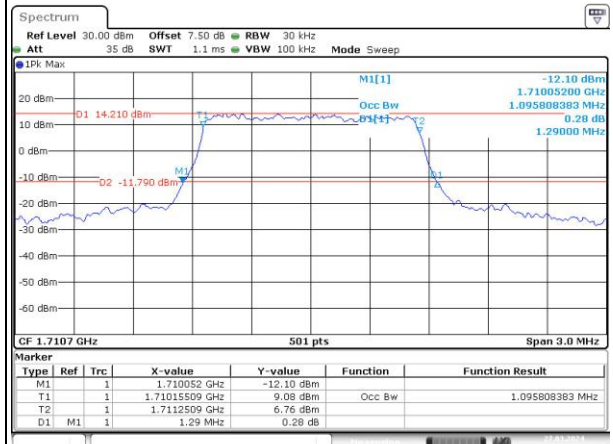
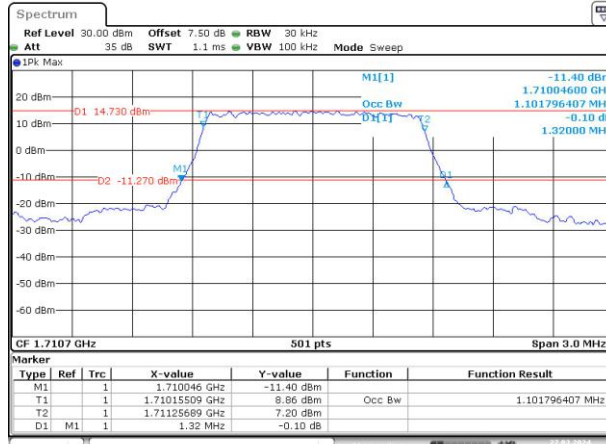
Occupied Bandwidth

Channel

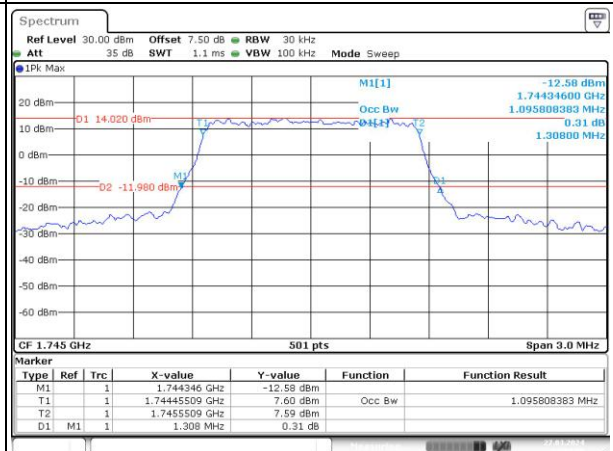
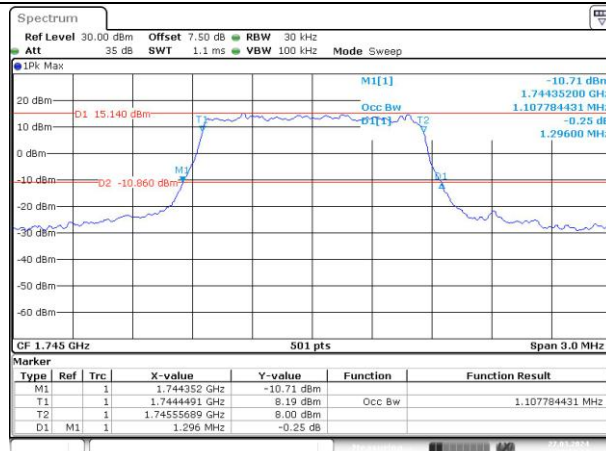
1.4MHz Bandwidth QPSK

1.4MHz Bandwidth 16QAM

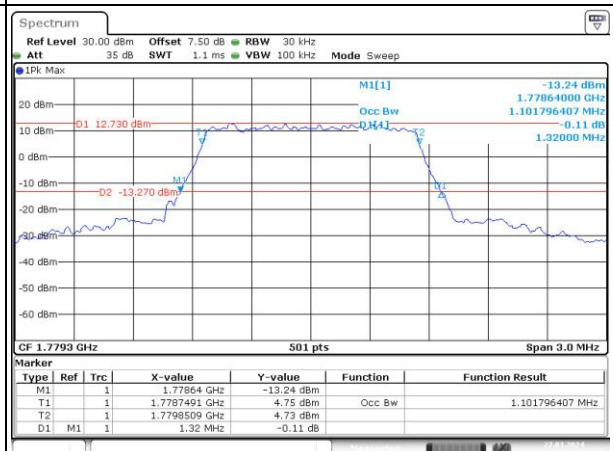
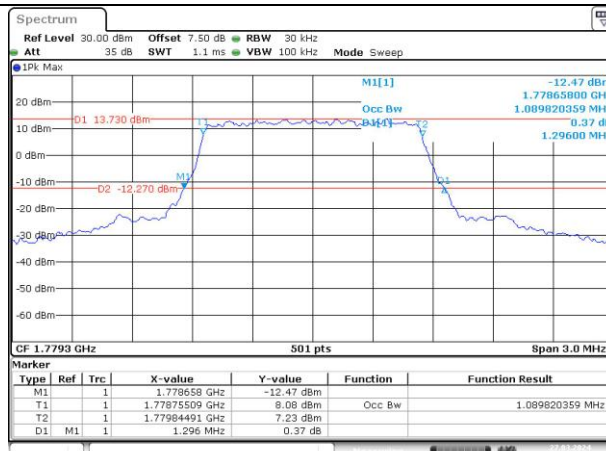
Lowest



Middle



Highest



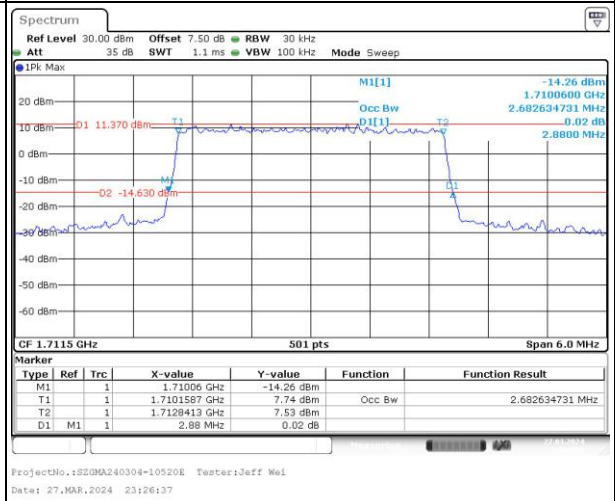
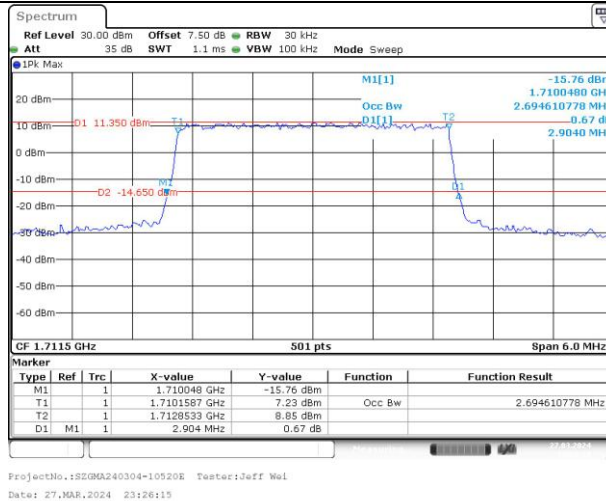
Occupied Bandwidth

Channel

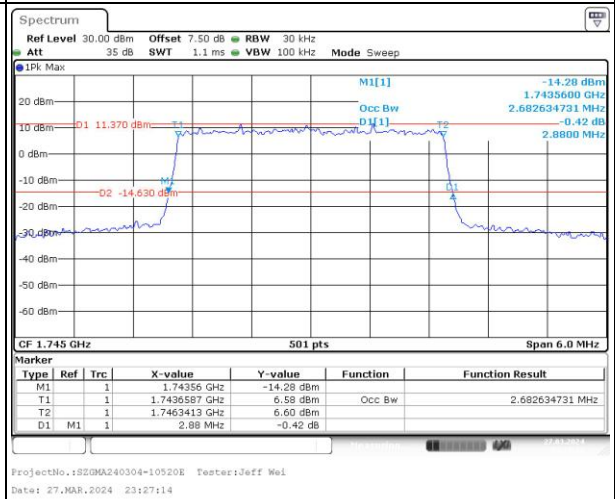
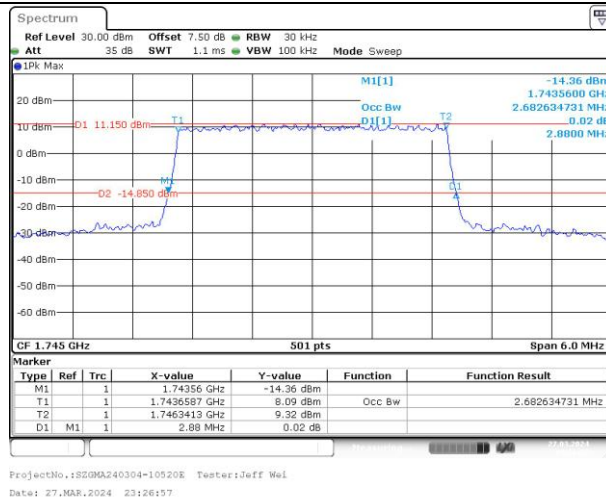
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

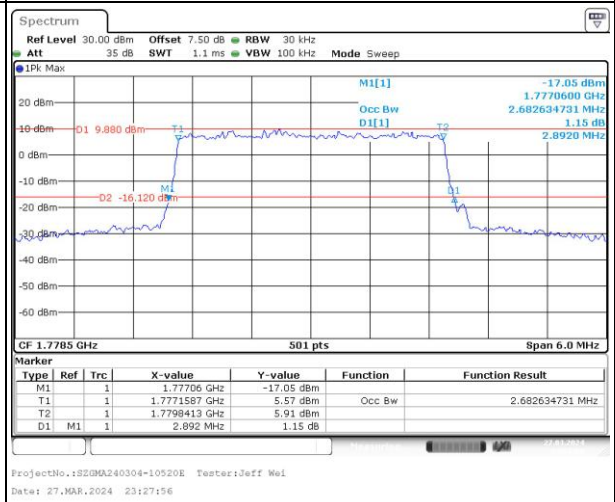
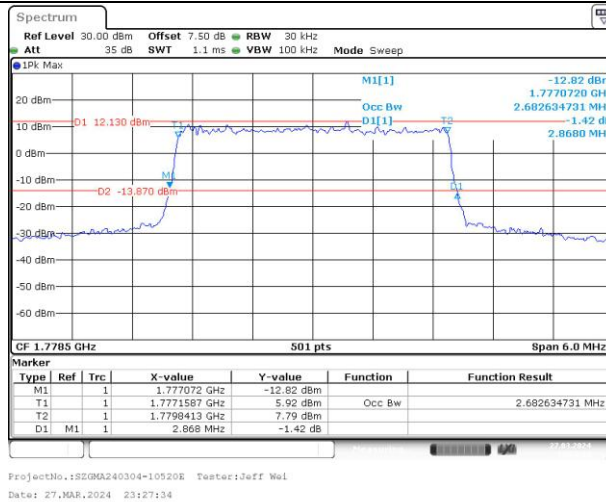
Lowest



Middle



Highest



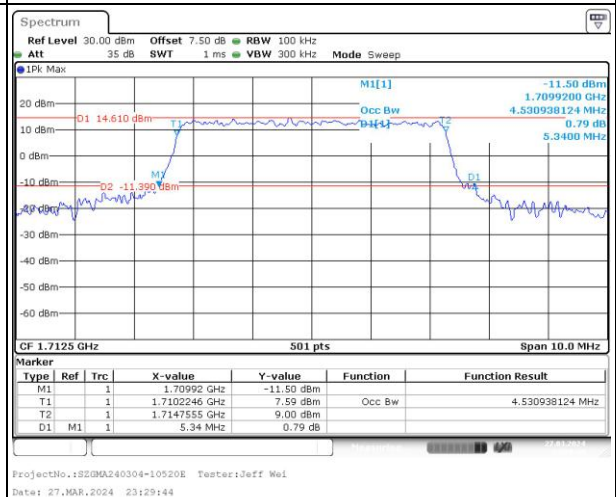
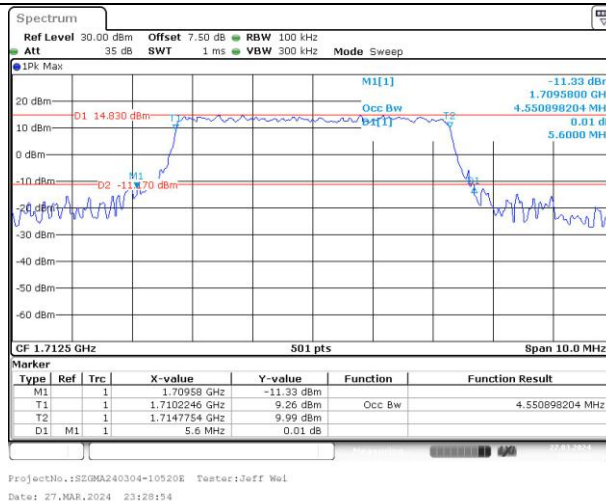
Occupied Bandwidth

Channel

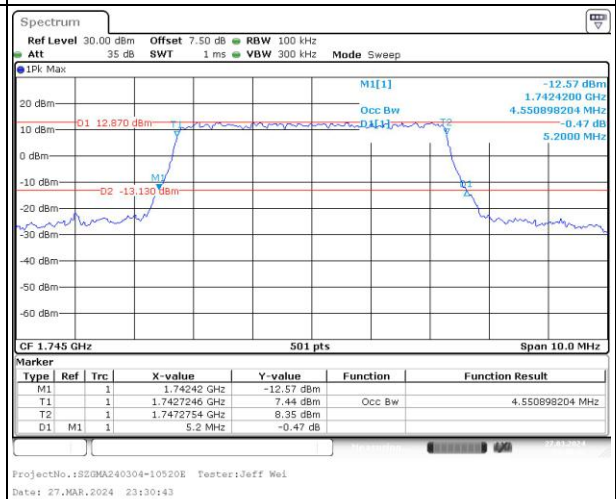
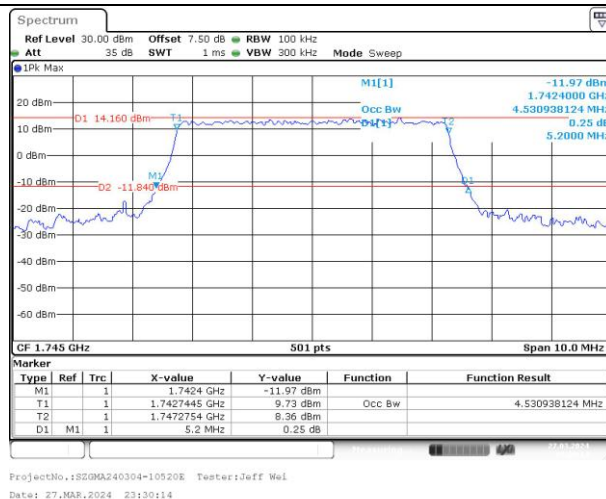
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

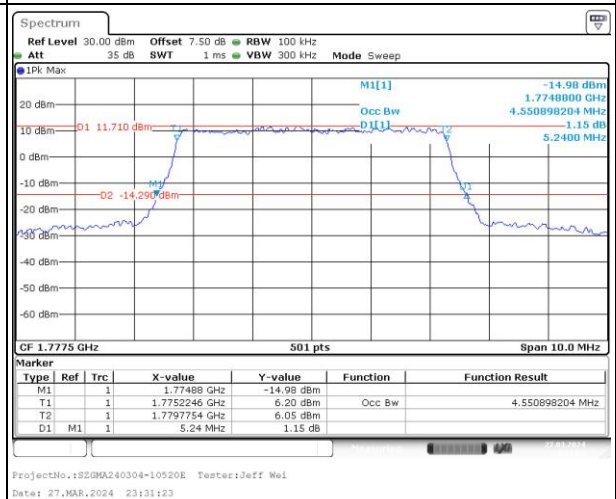
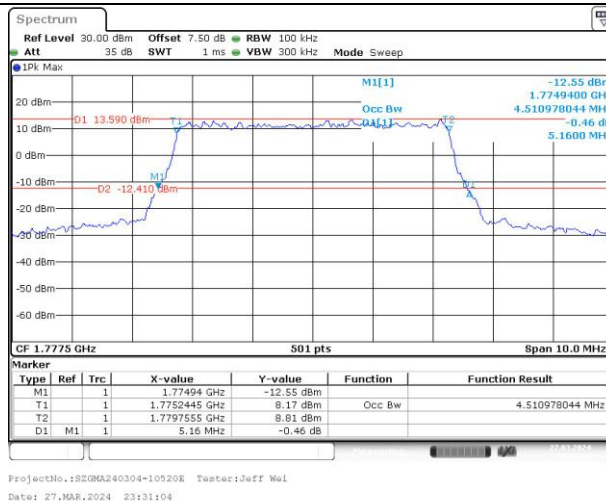
Lowest



Middle



Highest



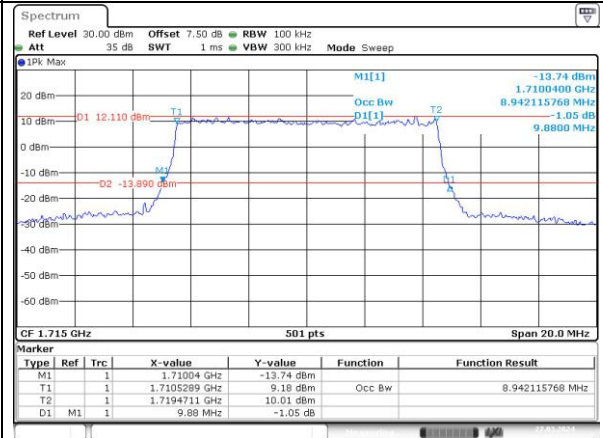
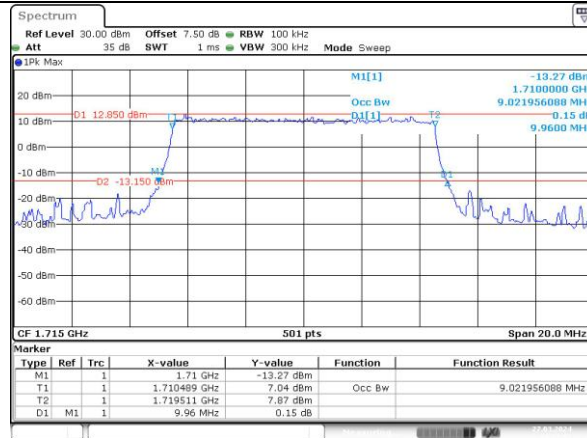
Occupied Bandwidth

Channel

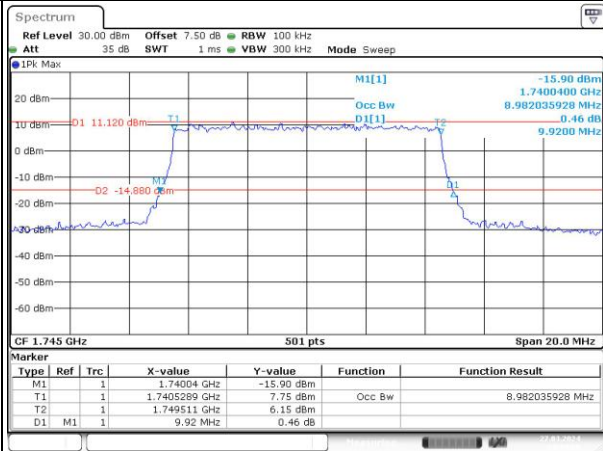
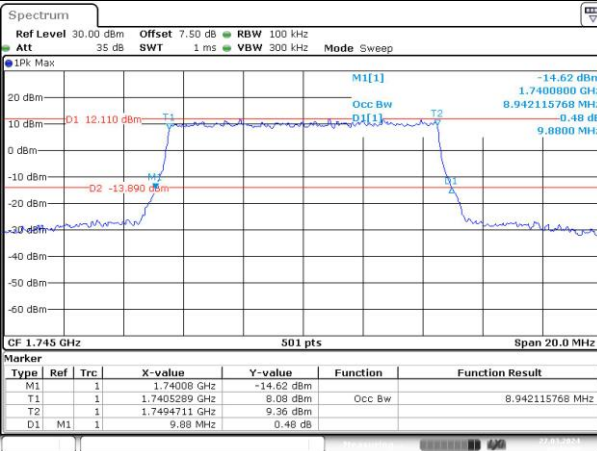
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

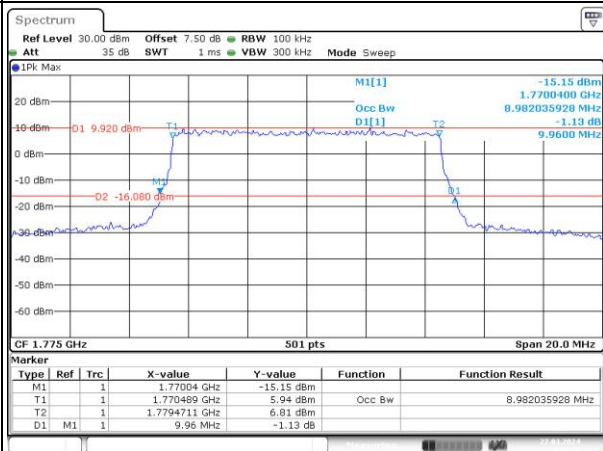
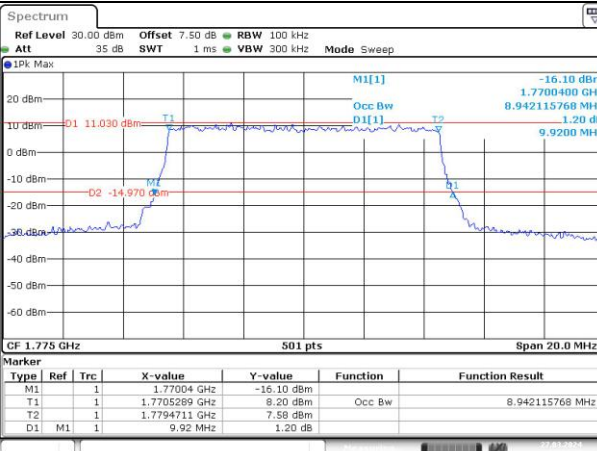
Lowest



Middle



Highest



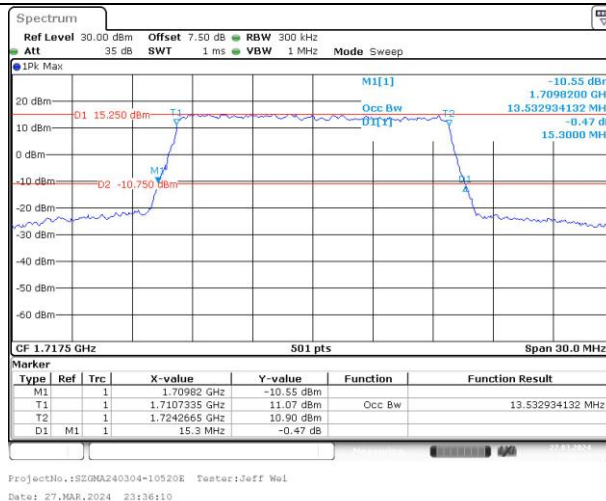
Occupied Bandwidth

Channel

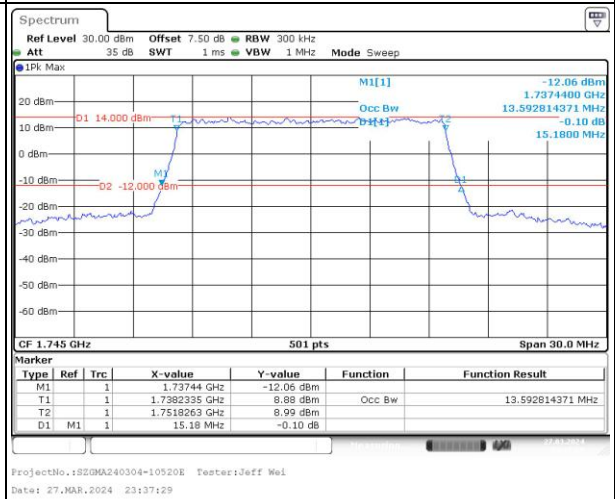
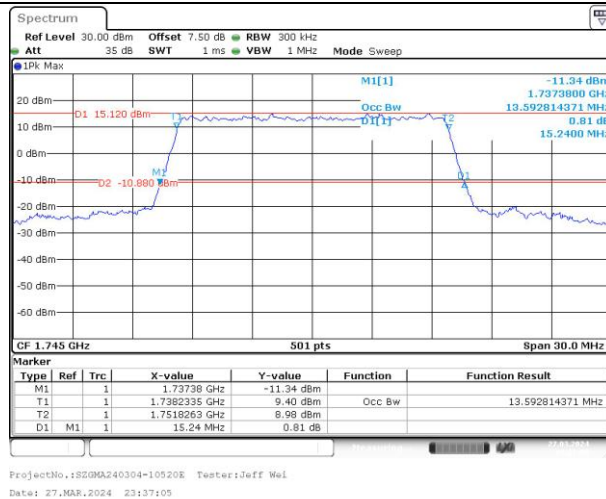
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

Lowest



Middle



Highest

