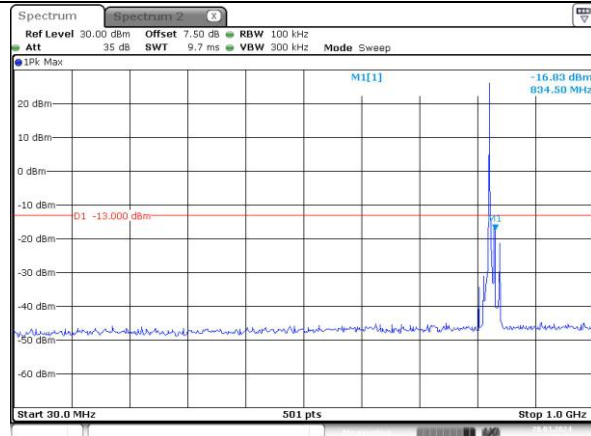


Spurious Emissions at Antenna Terminal

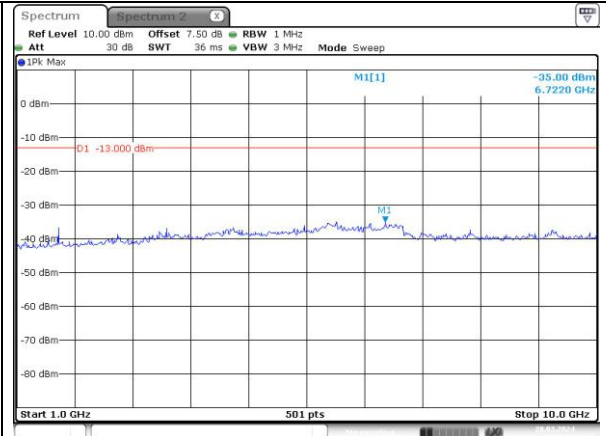
Channel

10MHz Bandwidth QPSK

Lowest

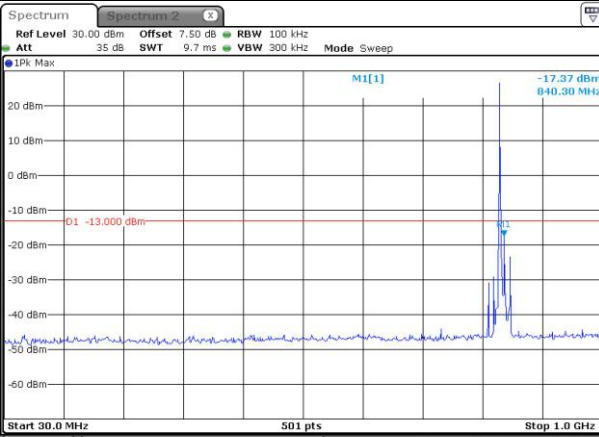


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 28.MAR.2024 19:08:136

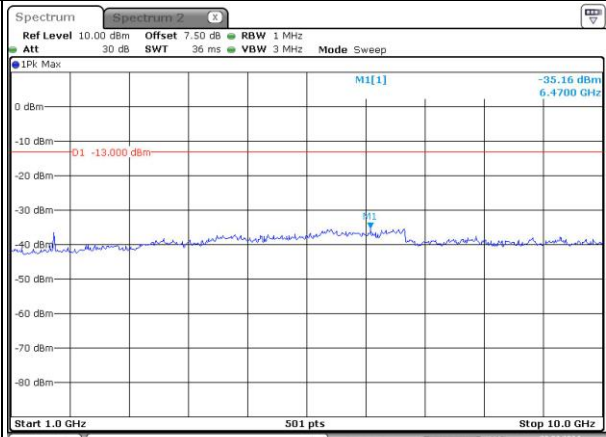


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 28.MAR.2024 19:08:158

Middle

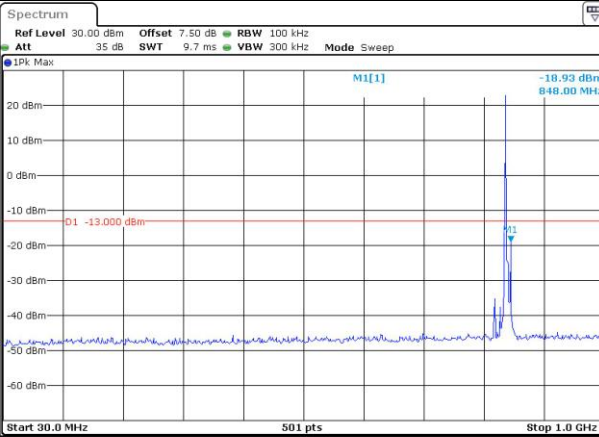


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 28.MAR.2024 19:48:120

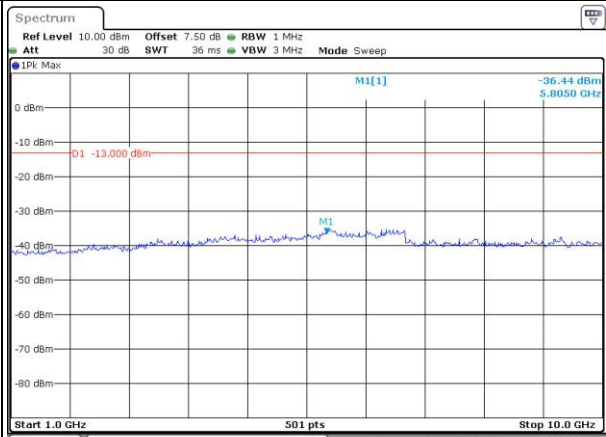


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 28.MAR.2024 19:48:142

Highest

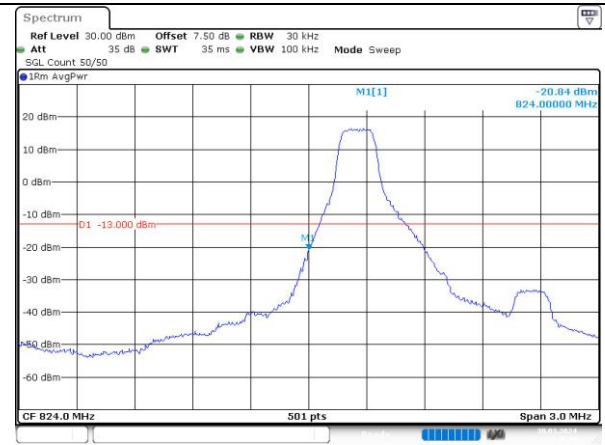
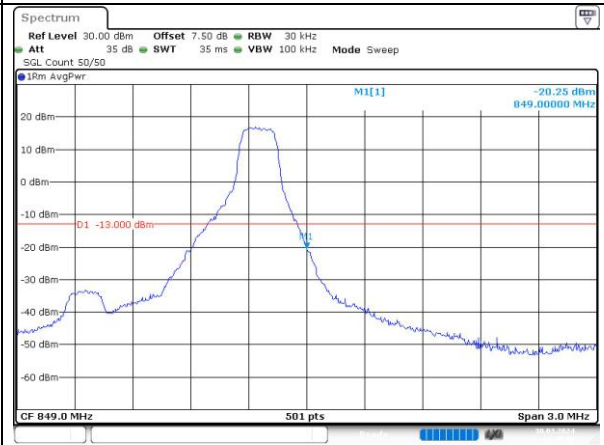
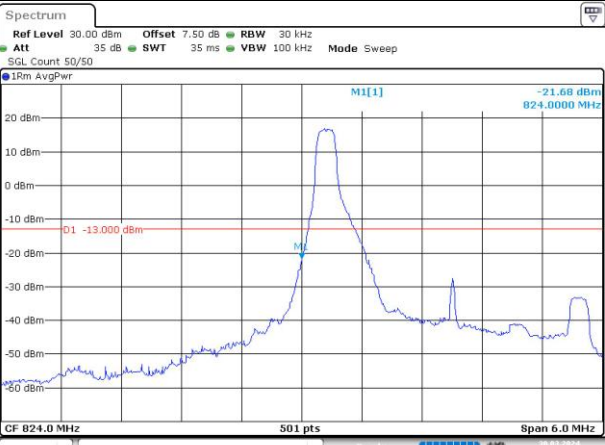
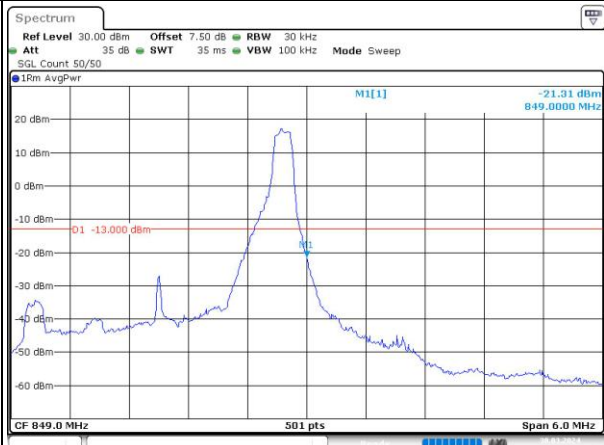
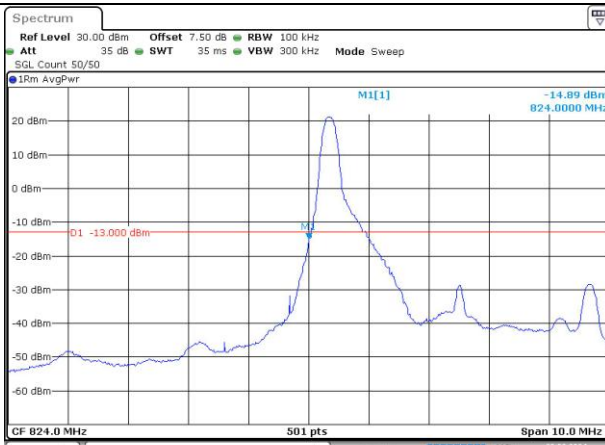
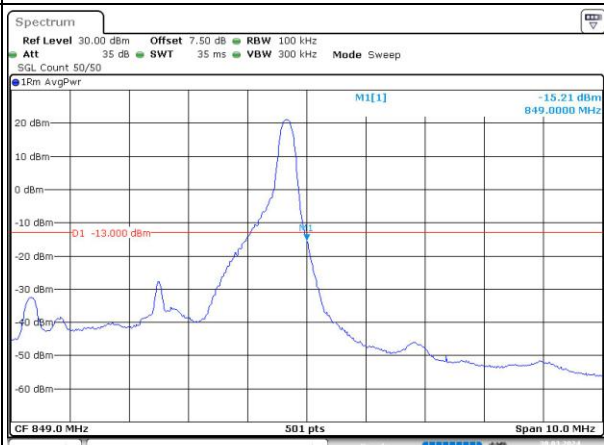


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 09:57:14

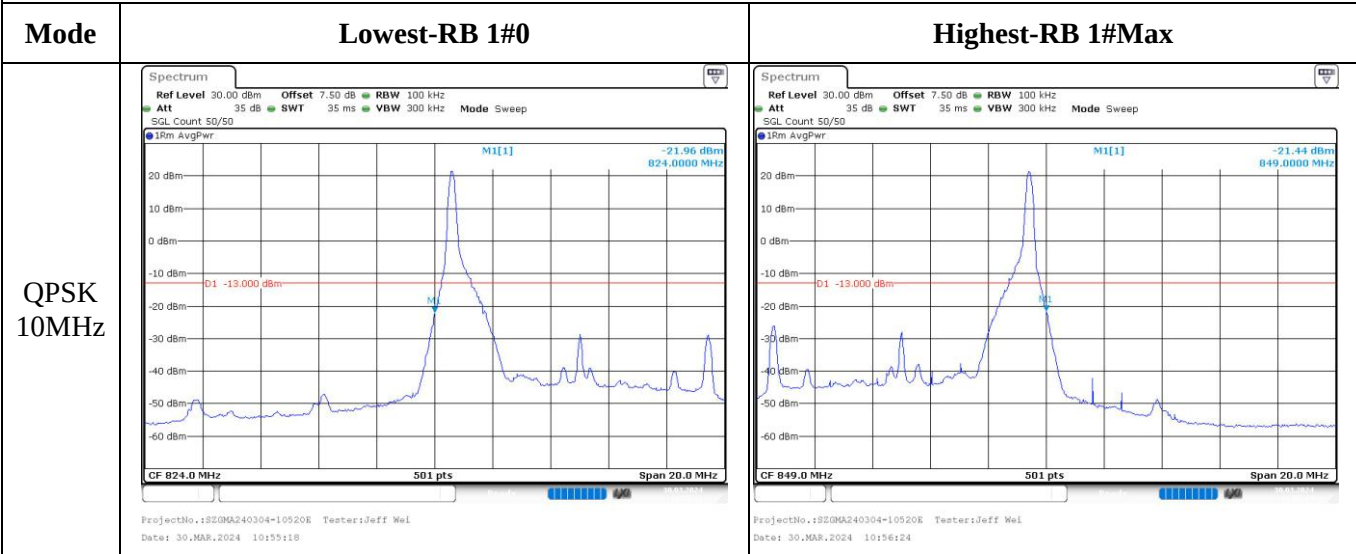


ProjectNo.:SZGMA240304-10520E Tester:Karl Liang
Date: 28.MAR.2024 11:38:58

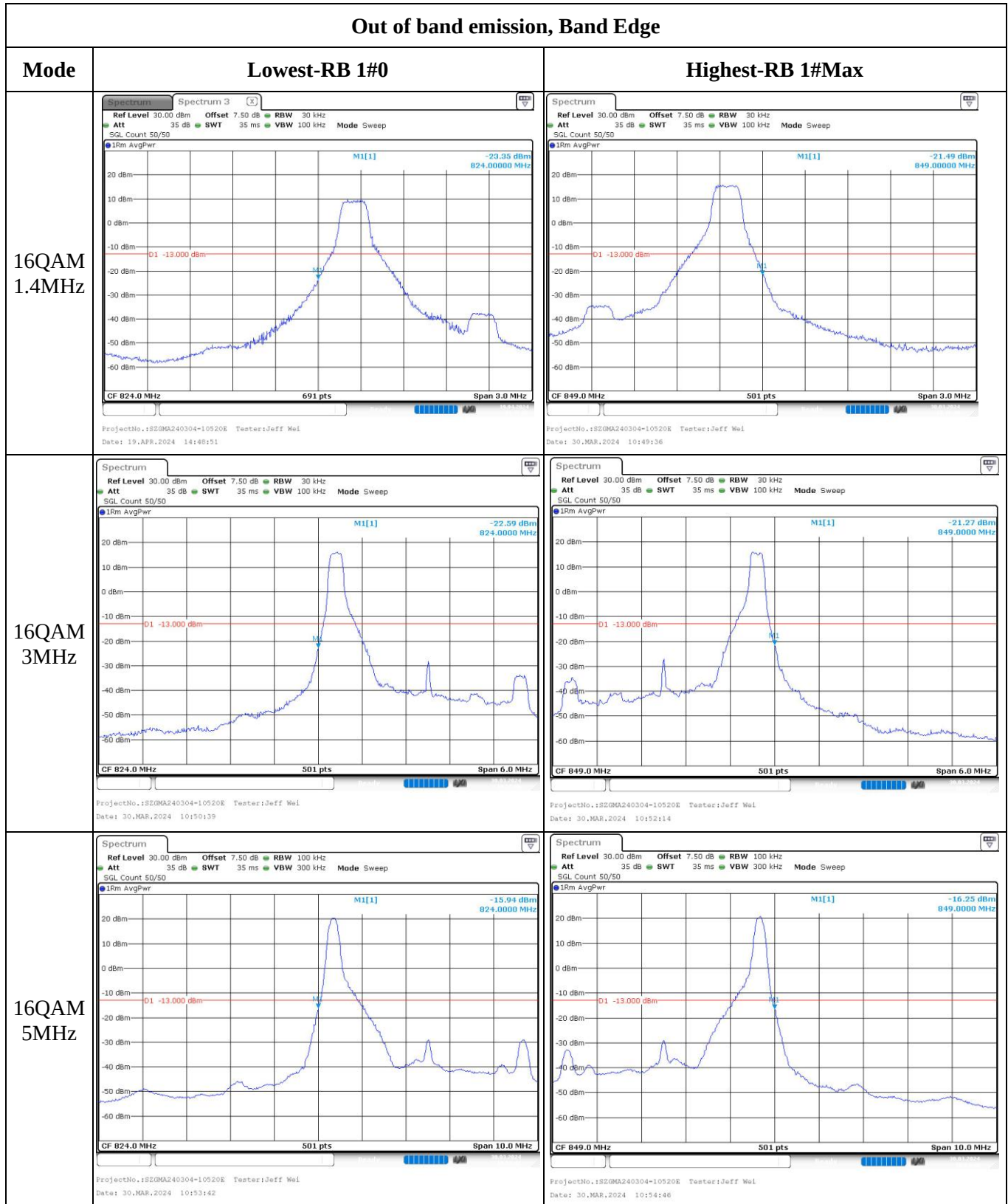
Out of band emission, Band Edge

Mode	Lowest-RB 1#0	Highest-RB 1#Max
QPSK 1.4MHz	 ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 30.MAR.2024 10:47:26	 ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 30.MAR.2024 10:49:00
QPSK 3MHz	 ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 30.MAR.2024 10:50:17	 ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 30.MAR.2024 10:51:44
QPSK 5MHz	 ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 30.MAR.2024 10:53:14	 ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 30.MAR.2024 10:54:14

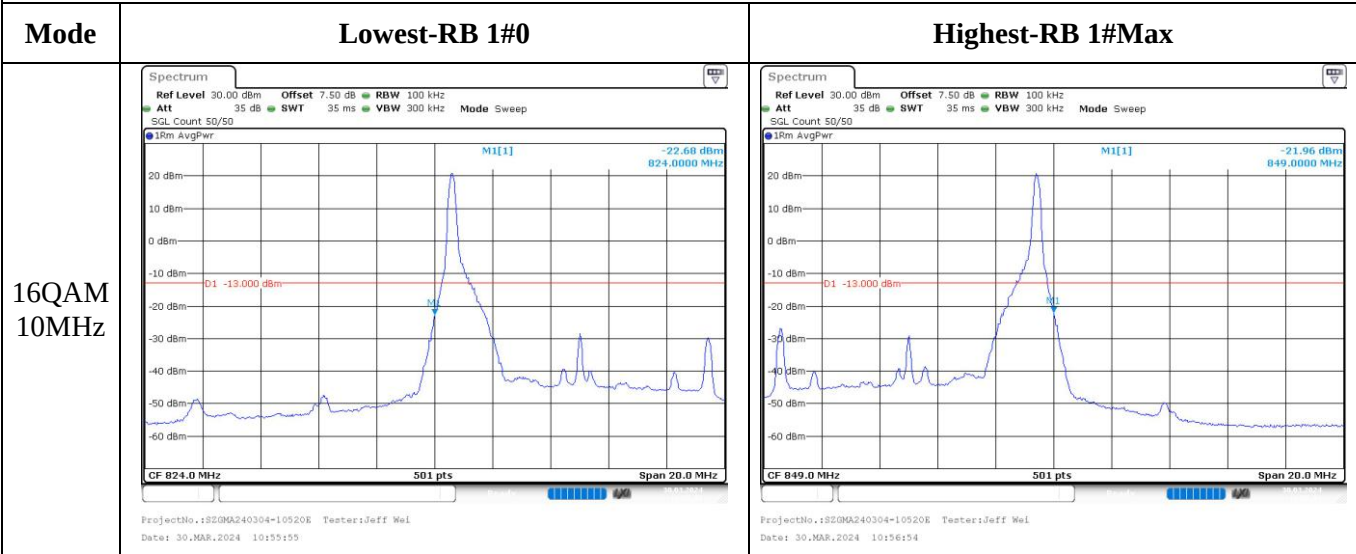
Out of band emission, Band Edge



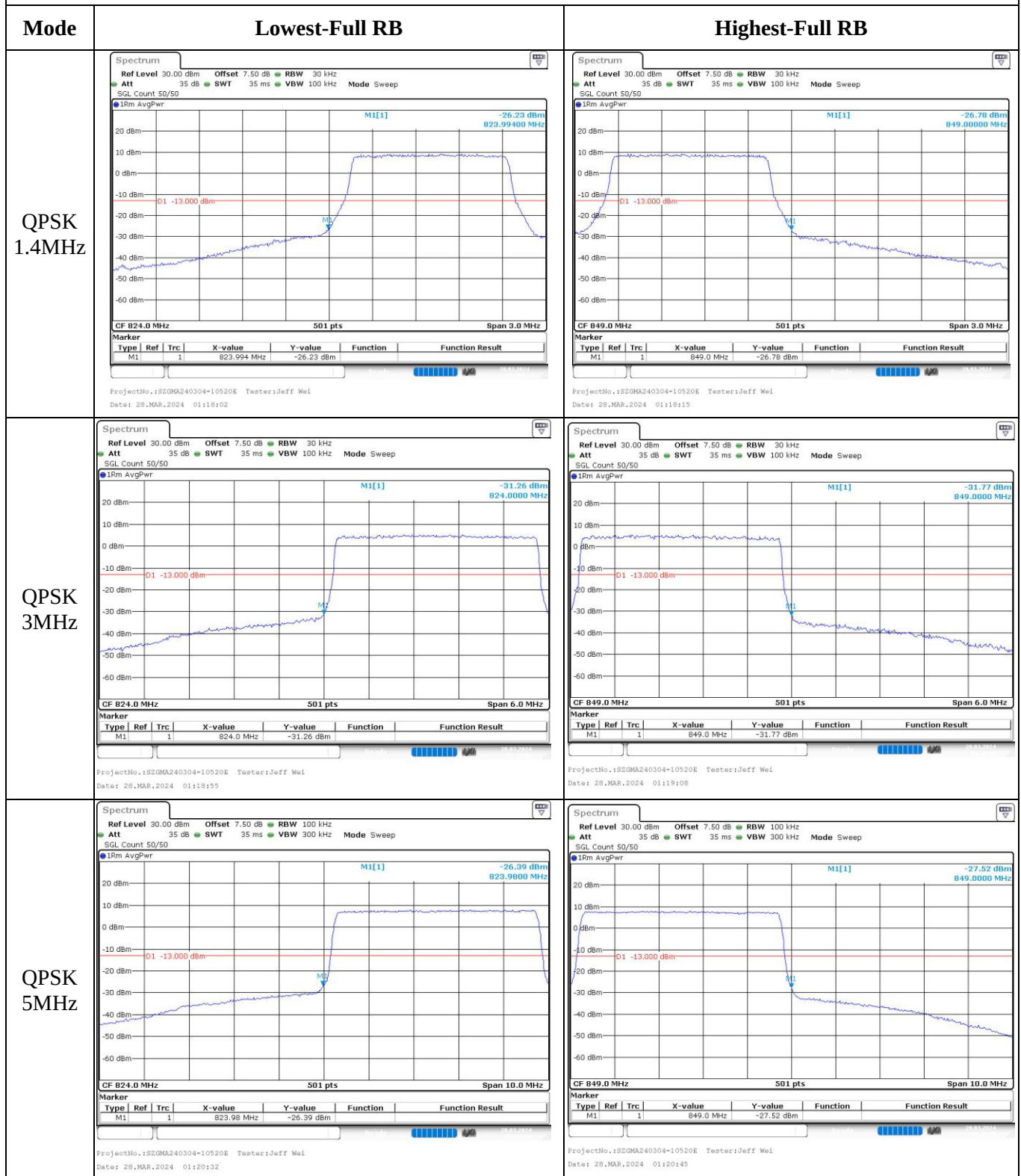
Out of band emission, Band Edge



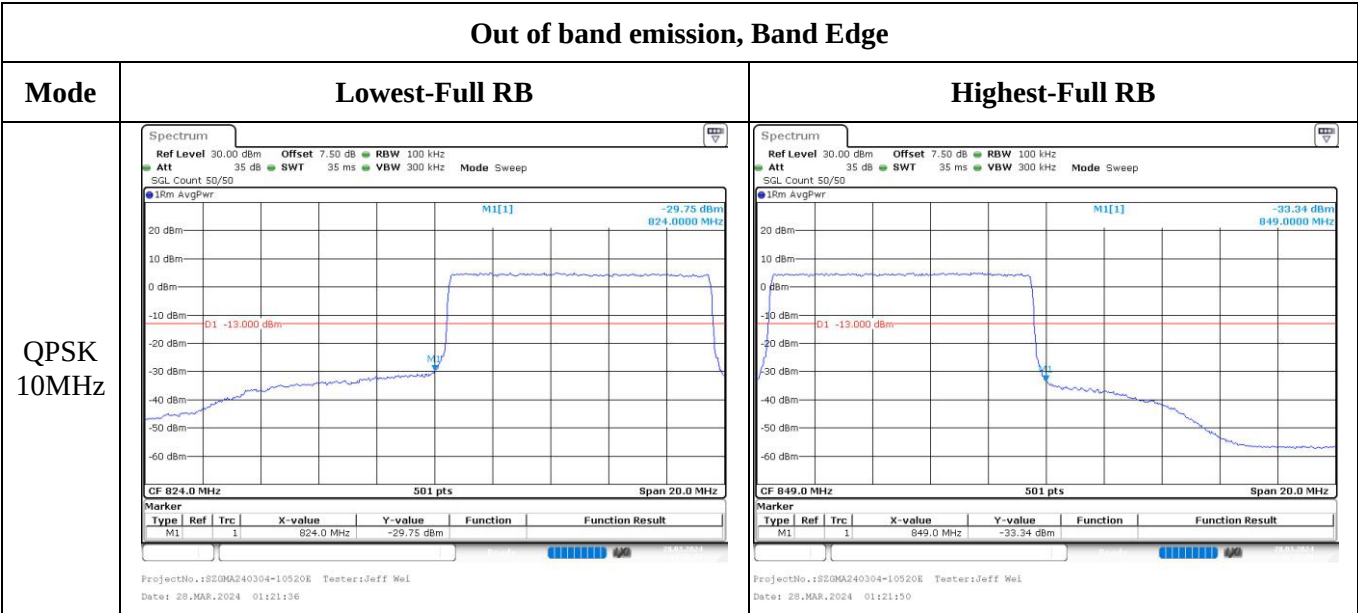
Out of band emission, Band Edge



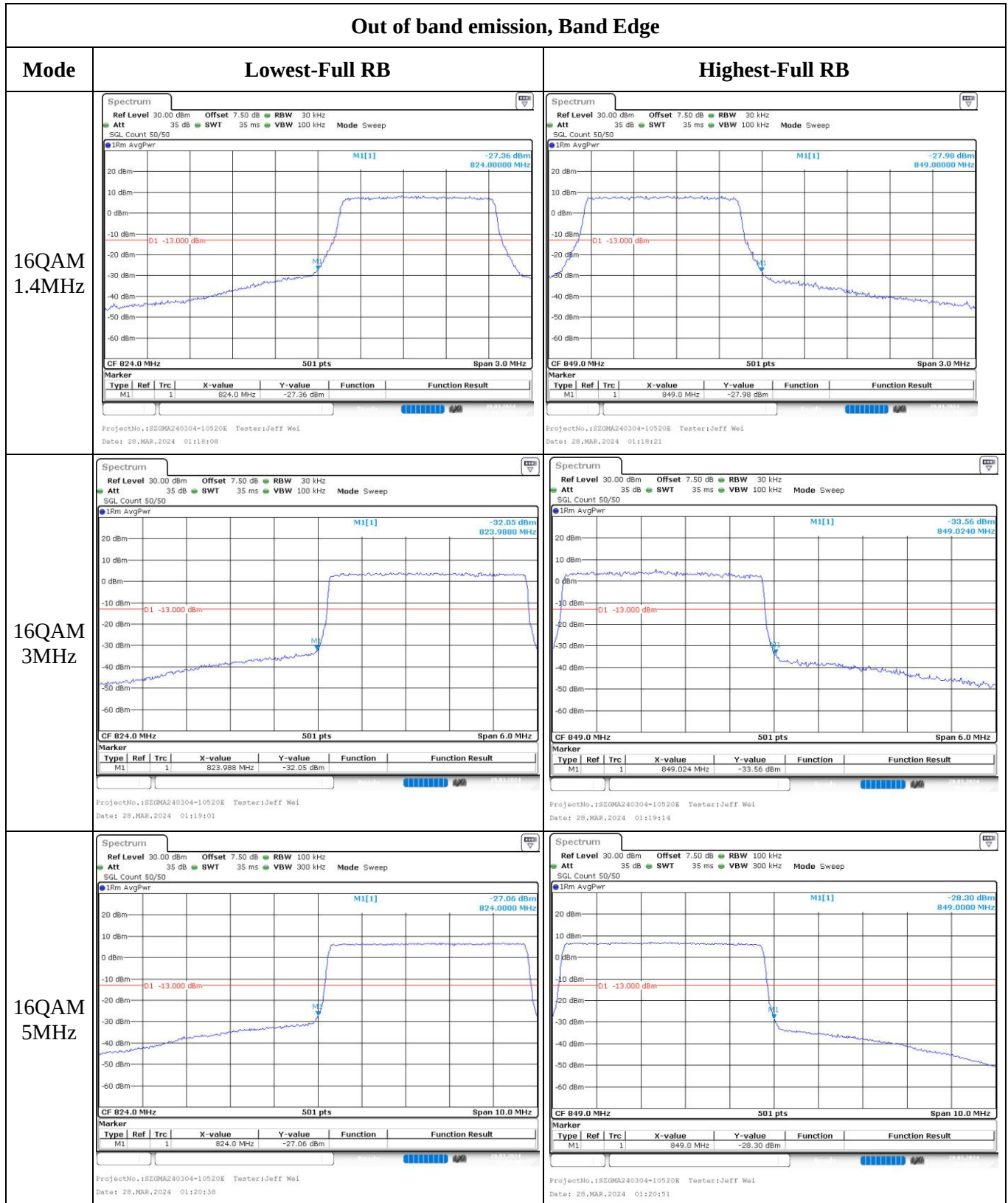
Out of band emission, Band Edge



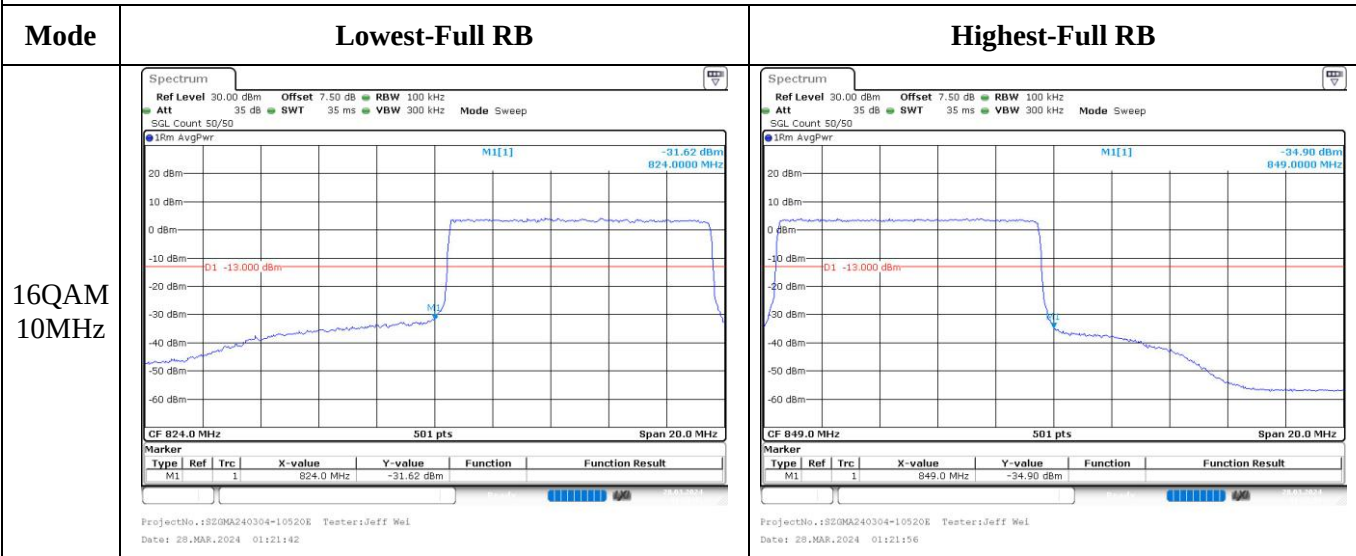
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



5.9 Antenna Port Test Data and Results for LTE Band 12

Serial Number:	2I92-2	Test Date:	2024/3/27~2024/4/18
Test Site:	RF	Test Mode:	Transmitting
Tester:	Jeff Wei,Karl Liang	Test Result:	Pass

Environmental Conditions:					
Temperature: (°C)	24.7~27.2	Relative Humidity: (%)	49~72	ATM Pressure: (kPa)	100.2~101.2

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-Clrputs	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	699.7	707.5	715.3
3MHz	700.5	707.5	714.5
5MHz	701.5	707.5	713.5
10MHz	704	707.5	711

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

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
1.4MHz QPSK	RB1#0	22.99	22.97	22.91	17.62	34.77
	RB1#3	23.14	23.15	23.12		
	RB1#5	22.95	22.98	22.94		
	RB3#0	23.08	23.03	23.11		
	RB3#3	23.03	23.05	23.04		
	RB6#0	22.09	22.02	22.02		
1.4MHz 16QAM	RB1#0	22.15	21.95	21.96	16.73	34.77
	RB1#3	22.24	22.13	22.03		
	RB1#5	22.09	21.96	21.94		
	RB3#0	22.03	22.1	22.26		
	RB3#3	22.08	22.07	22.26		
	RB6#0	21.14	20.93	21.07		
3MHz QPSK	RB1#0	23.06	23.07	23.07	17.54	34.77
	RB1#8	23.01	23.03	23		
	RB1#14	23.04	23.01	23.06		
	RB6#0	22.01	21.98	21.98		
	RB6#9	22.01	21.98	22.02		
	RB15#0	22.03	22.03	22.02		
3MHz 16QAM	RB1#0	22.57	22.19	22.07	17.05	34.77
	RB1#8	22.54	22.14	22.03		
	RB1#14	22.58	22.12	22		
	RB6#0	21.12	20.98	20.93		
	RB6#9	21.1	21.01	20.96		
	RB15#0	21.16	20.99	21.07		
5MHz QPSK	RB1#0	23.01	22.98	22.94	17.56	34.77
	RB1#13	23.09	23.02	23.06		
	RB1#24	23.04	22.92	22.95		
	RB15#0	22.11	22.01	22.11		
	RB15#10	22.06	22.02	22.04		
	RB25#0	22.07	21.94	22.04		
5MHz 16QAM	RB1#0	22.26	22.04	21.81	16.86	34.77
	RB1#13	22.39	22.05	21.96		
	RB1#24	22.36	21.97	21.81		
	RB15#0	21.14	20.99	21.13		
	RB15#10	21.05	21.03	21.07		
	RB25#0	21.14	21.02	21.11		
10MHz QPSK	RB1#0	23.03	23.07	23.05	17.74	34.77
	RB1#25	23.27	23.2	23.18		
	RB1#49	23.01	22.99	23.08		

10MHz 16QAM	RB25#0	22.2	22.05	22.11	17.22	34.77
	RB25#25	22.23	21.98	22.05		
	RB50#0	22.19	22.03	22.12		
	RB1#0	22.57	22.22	22.02		
	RB1#25	22.75	22.25	22.16		
	RB1#49	22.51	22.17	22.03		
	RB25#0	21.35	21.08	21.24		
	RB25#25	21.27	21.01	21.14		
	RB50#0	21.26	21.06	21.15		

Note:

ERP= Conducted Power(dBm) - L_c(dB) + G_T(dBd)G_T(dBd)=G_T(dBi)-2.15**Result:****Pass****Peak-to-average Ratio(PAR)**

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
10MHz QPSK	RB1#0	4.35	4.93	4.41	13
	RB50#0	5.19	5.1	5.07	13
10MHz 16QAM	RB1#0	5.3	5.68	5.28	13
	RB50#0	6.12	6.06	6	13
				Result:	Pass

FCC §2.1049, §27.53:Occupied Bandwidth

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
1.4MHz QPSK	1.102	1.096	1.096	1.29	1.302	1.314
1.4MHz 16QAM	1.09	1.096	1.096	1.29	1.32	1.284
3MHz QPSK	2.683	2.695	2.683	2.88	2.868	2.88
3MHz 16QAM	2.683	2.683	2.683	2.88	2.88	2.88
5MHz QPSK	4.551	4.511	4.511	5.58	5.18	5.18
5MHz 16QAM	4.531	4.551	4.551	5.22	5.2	5.36
10MHz QPSK	8.942	8.942	8.942	9.64	9.72	9.84
10MHz 16QAM	8.982	8.982	8.942	9.72	9.84	9.92

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.
----------------	--

FCC §2.1055, §27.54: Frequency Stability						
Test Mode:	10M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	699.520	699.00	715.468	716.00
	-20	3.85	699.502	699.00	715.444	716.00
	-10	3.85	699.502	699.00	715.459	716.00
	0	3.85	699.523	699.00	715.465	716.00
	10	3.85	699.523	699.00	715.456	716.00
	20	3.85	699.529	699.00	715.471	716.00
	30	3.85	699.550	699.00	715.486	716.00
	40	3.85	699.553	699.00	715.474	716.00
	50	3.85	699.547	699.00	715.498	716.00
Frequency Stability vs. Voltage	20	3.6	699.538	699.00	715.498	716.00
	20	4.4	699.544	699.00	715.480	716.00
					Result:	Pass

Test Mode:	10M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	699.484	699.00	715.459	716.00
	-20	3.85	699.511	699.00	715.468	716.00
	-10	3.85	699.511	699.00	715.468	716.00
	0	3.85	699.505	699.00	715.453	716.00
	10	3.85	699.508	699.00	715.465	716.00
	20	3.85	699.529	699.00	715.471	716.00
	30	3.85	699.544	699.00	715.486	716.00
	40	3.85	699.532	699.00	715.489	716.00
	50	3.85	699.550	699.00	715.480	716.00
Frequency Stability vs. Voltage	20	3.6	699.544	699.00	715.492	716.00
	20	4.4	699.535	699.00	715.483	716.00
					Result:	Pass

Test Plots:

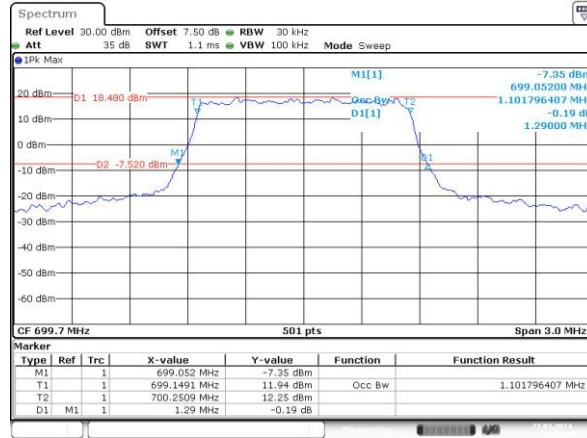
Occupied Bandwidth

Channel

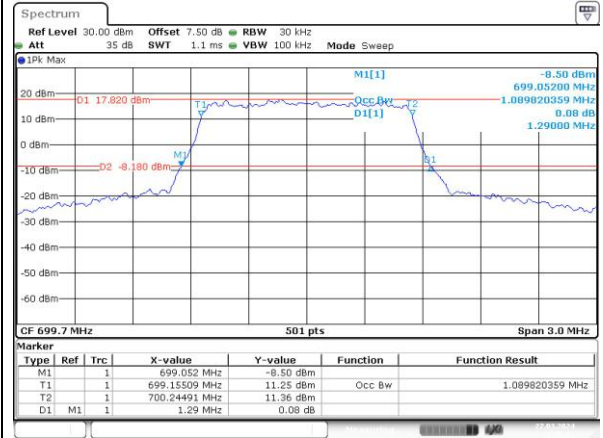
1.4MHz Bandwidth QPSK

1.4MHz Bandwidth 16QAM

Lowest

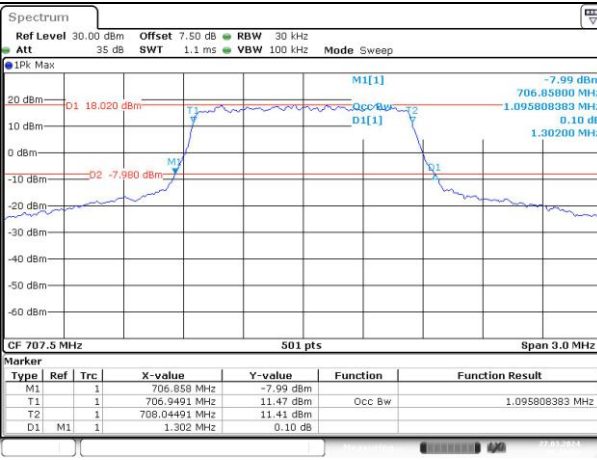


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 21:38:36

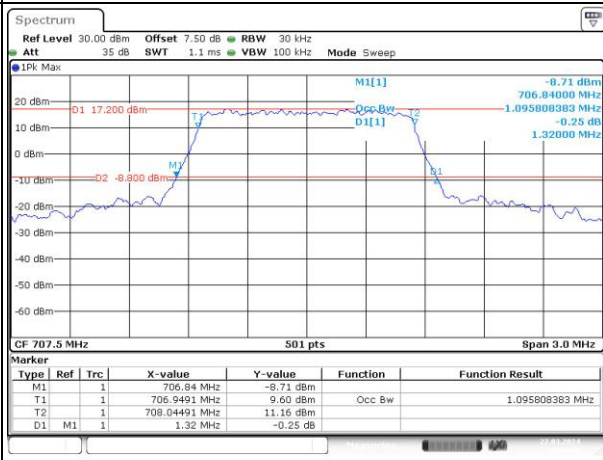


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 21:38:53

Middle

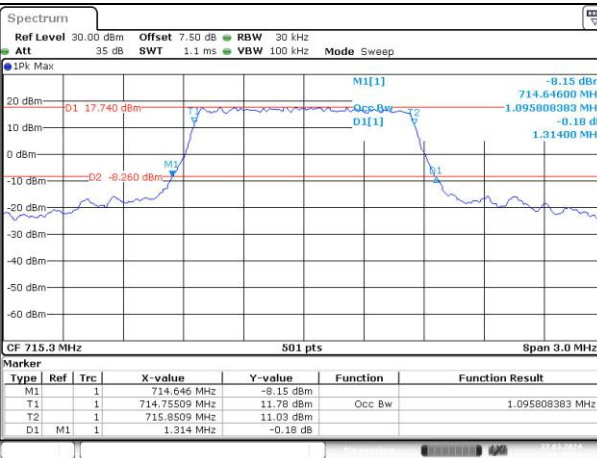


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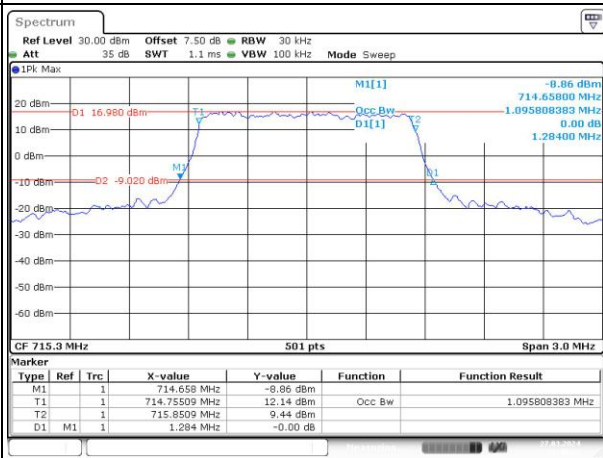


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 21:39:46

Highest



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 21:40:04



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 21:40:24

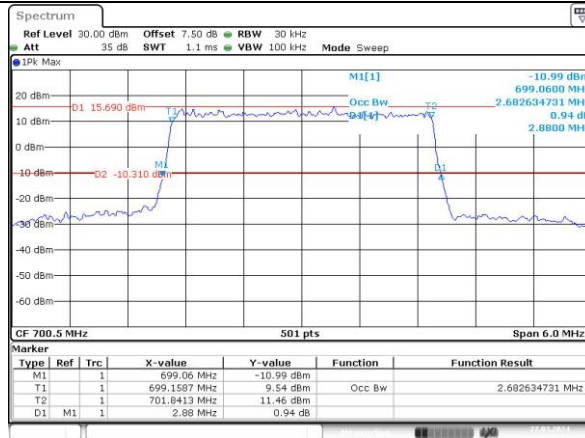
Occupied Bandwidth

Channel

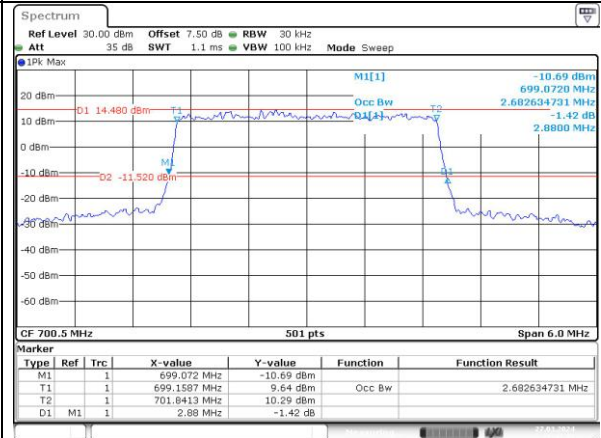
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

Lowest

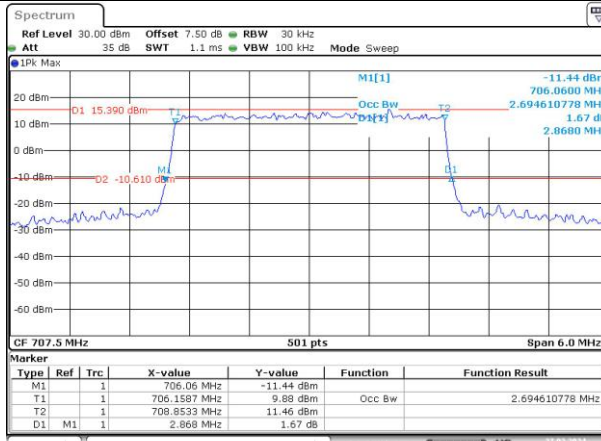


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Date: 27.MAR.2024 21:41:12

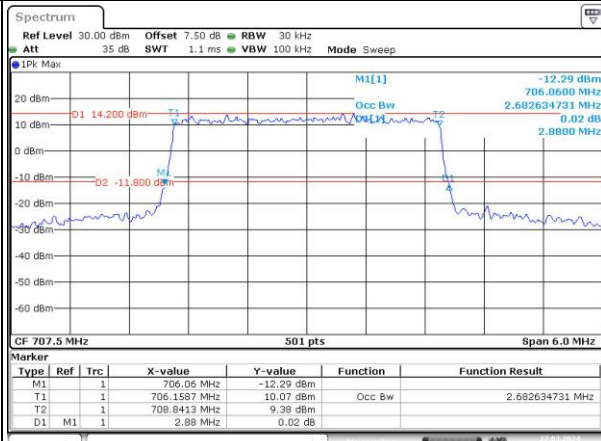


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 21:41:39

Middle

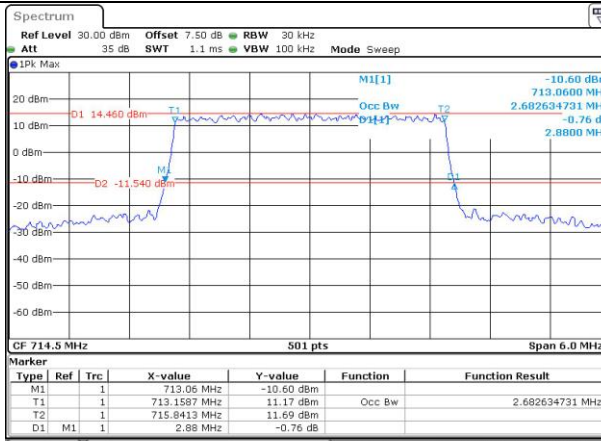


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Date: 27.MAR.2024 21:42:00

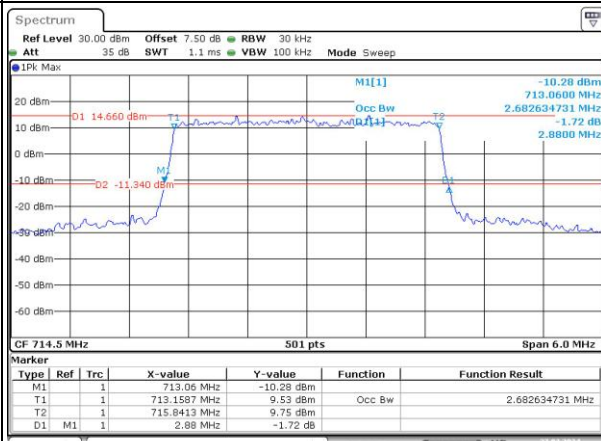


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 21:42:23

Highest



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 21:42:44



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 21:43:10

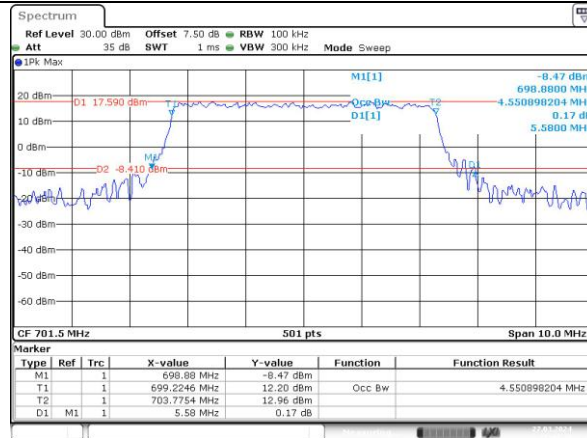
Occupied Bandwidth

Channel

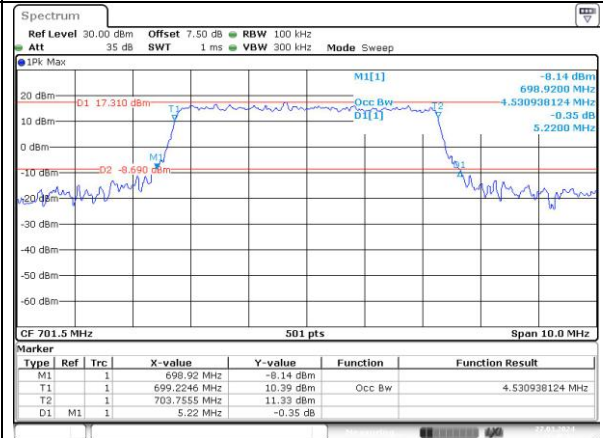
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

Lowest

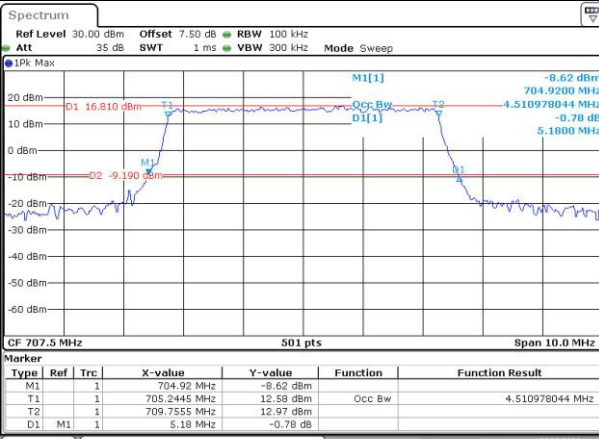


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Date: 27.MAR.2024 21:44:21

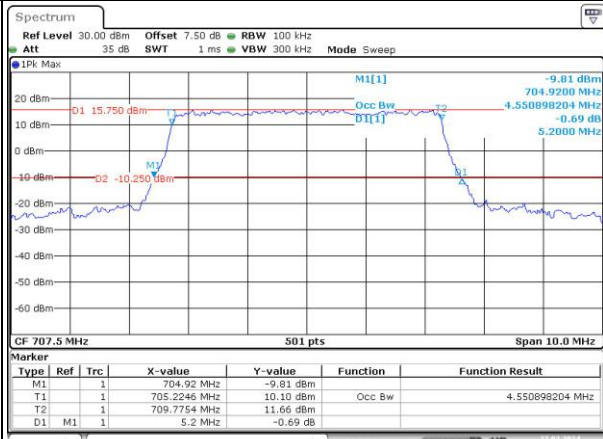


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 21:45:03

Middle

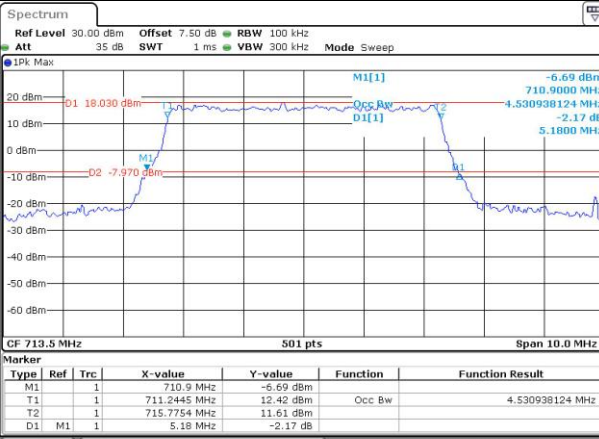


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 21:45:14

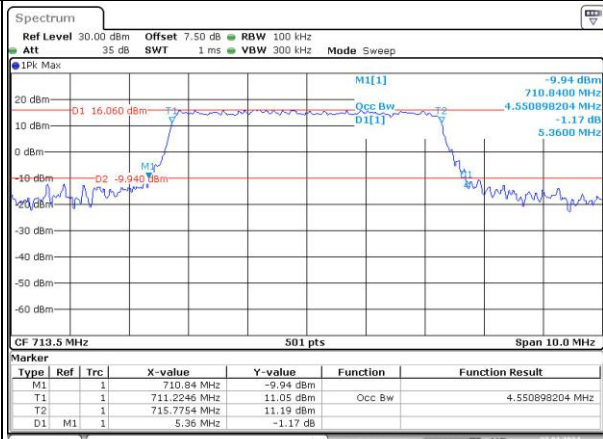


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 21:46:07

Highest



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 21:46:28



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 27.MAR.2024 21:47:11

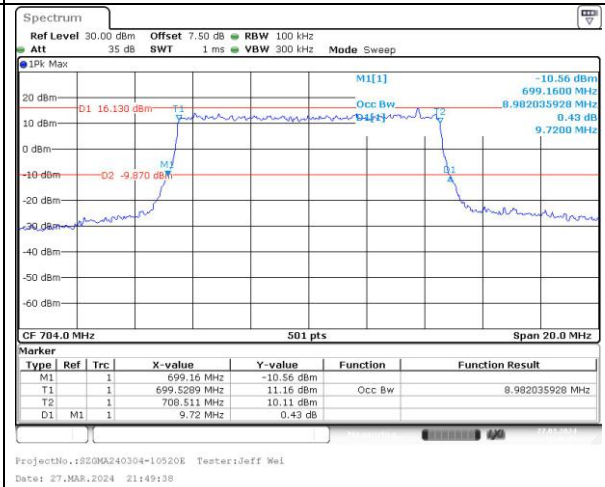
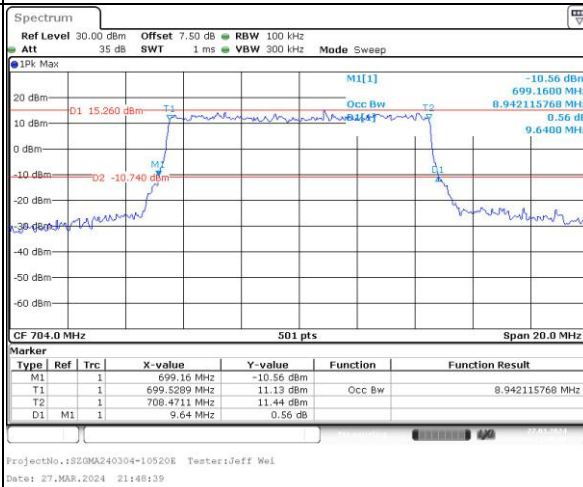
Occupied Bandwidth

Channel

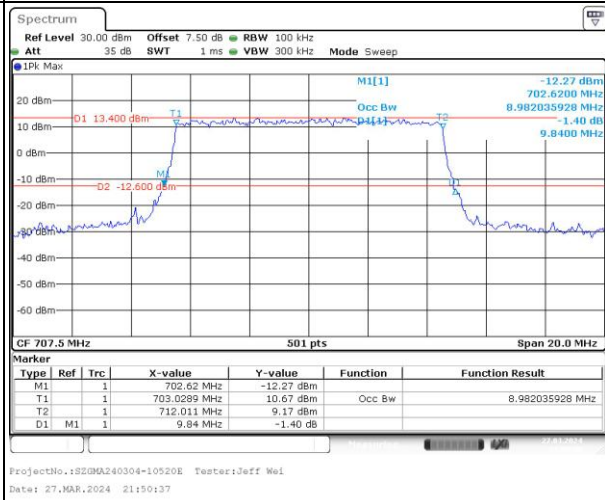
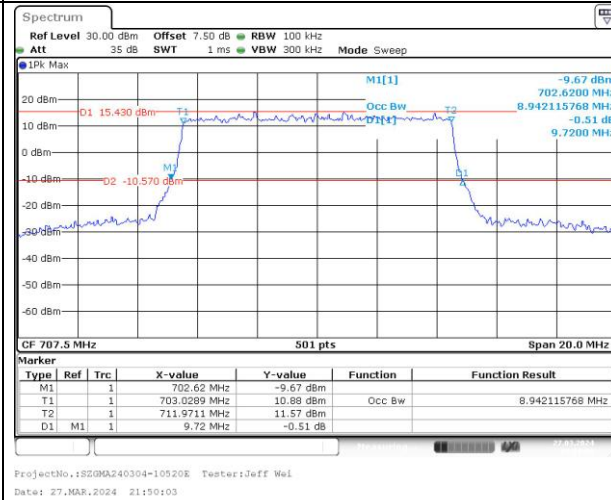
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

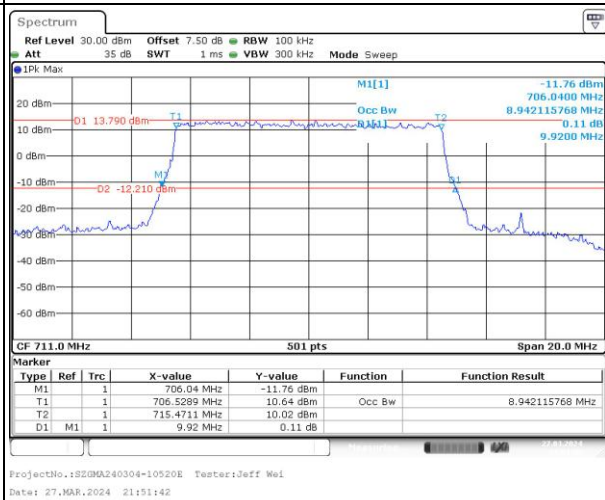
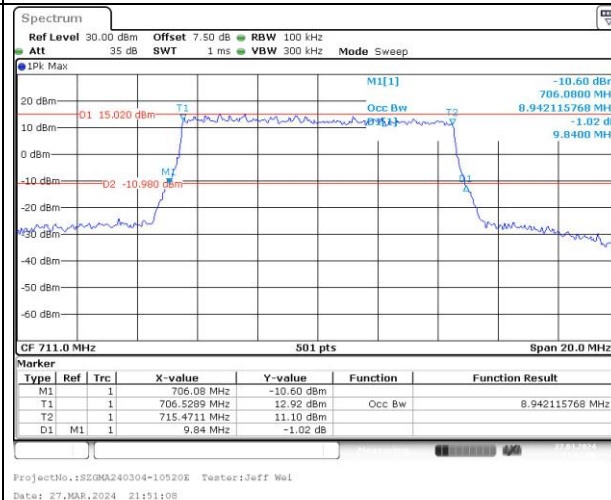
Lowest



Middle



Highest

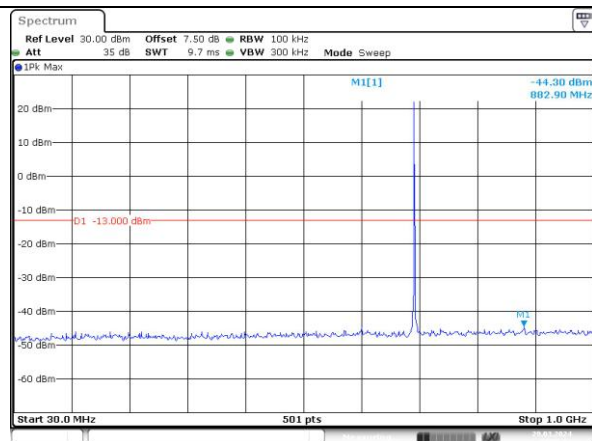


Spurious Emissions at Antenna Terminal

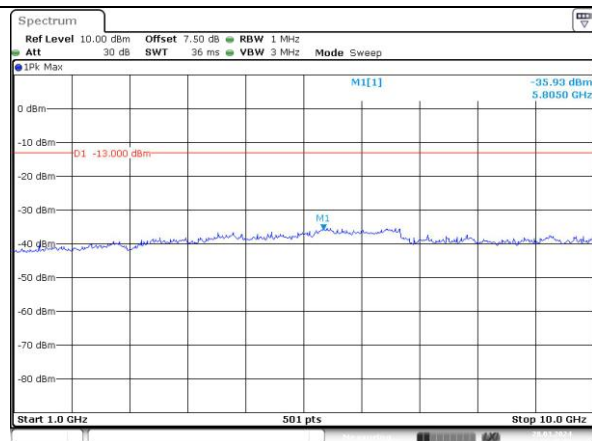
Channel

1.4MHz Bandwidth QPSK

Lowest

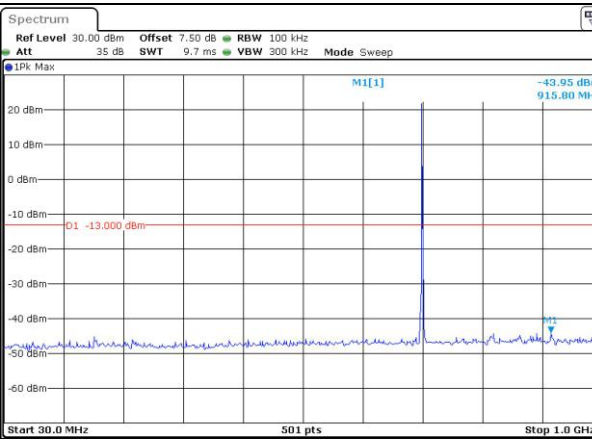


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 09:58:54

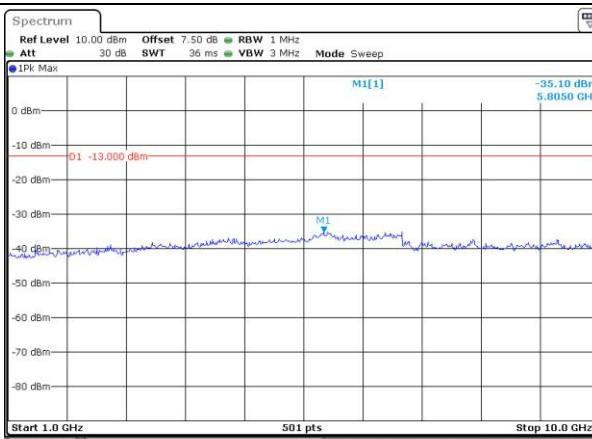


ProjectNo.:SZGMA240304-10520E Tester:Karl Liang
Date: 28.MAR.2024 11:40:59

Middle

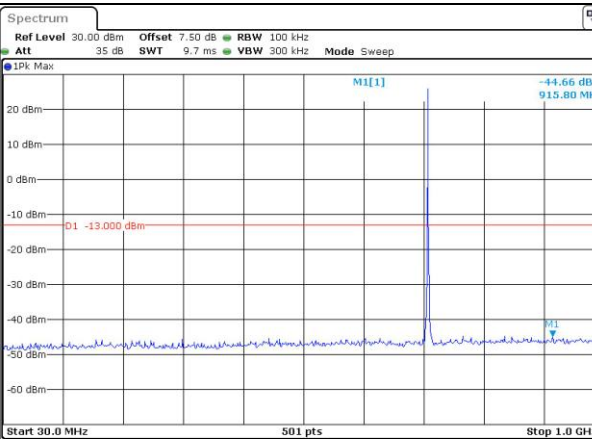


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 09:59:59

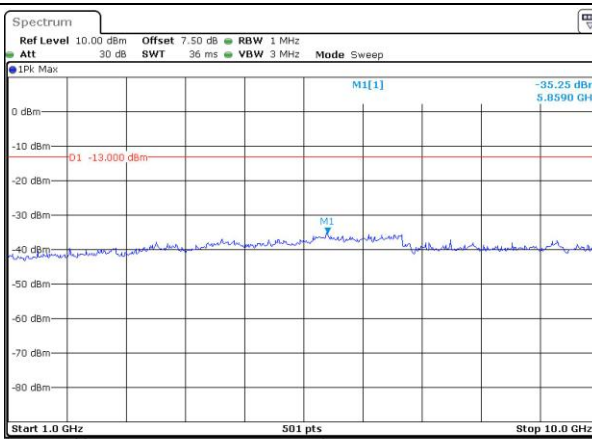


ProjectNo.:SZGMA240304-10520E Tester:Karl Liang
Date: 28.MAR.2024 11:42:21

Highest



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 10:04:20



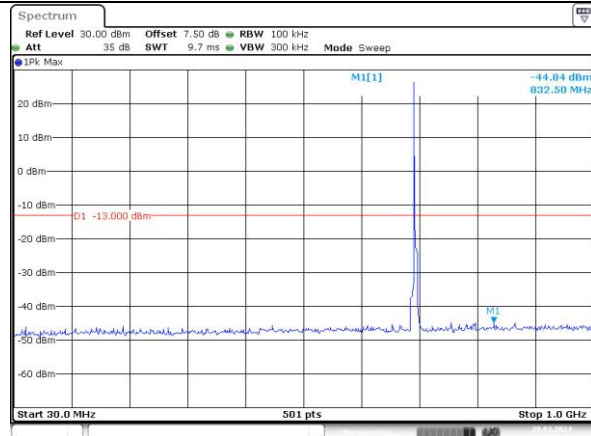
ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 10:04:38

Spurious Emissions at Antenna Terminal

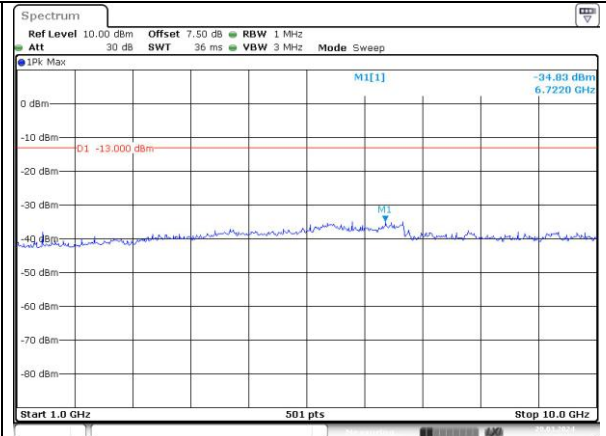
Channel

3MHz Bandwidth QPSK

Lowest

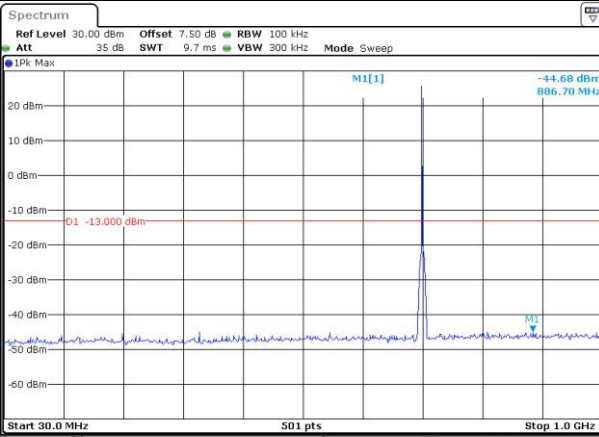


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 10:06:00

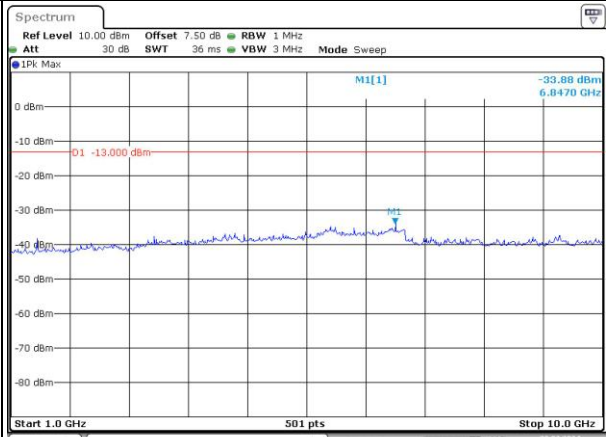


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 10:06:22

Middle

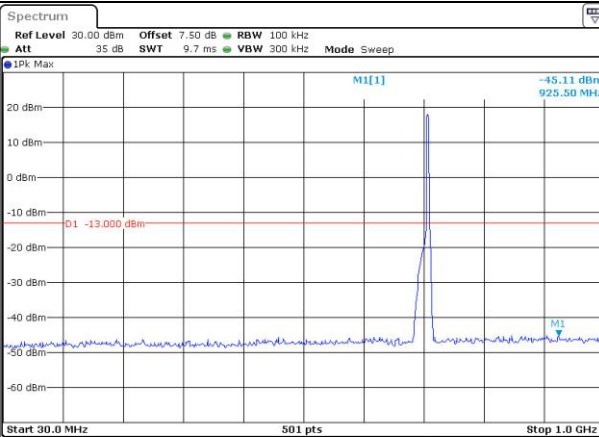


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 10:07:15

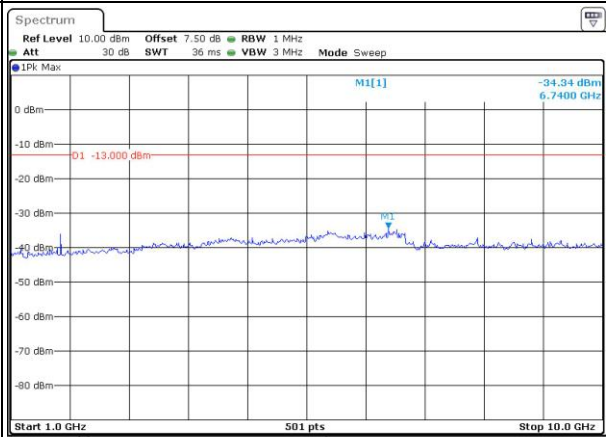


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 10:07:43

Highest



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 10:08:11



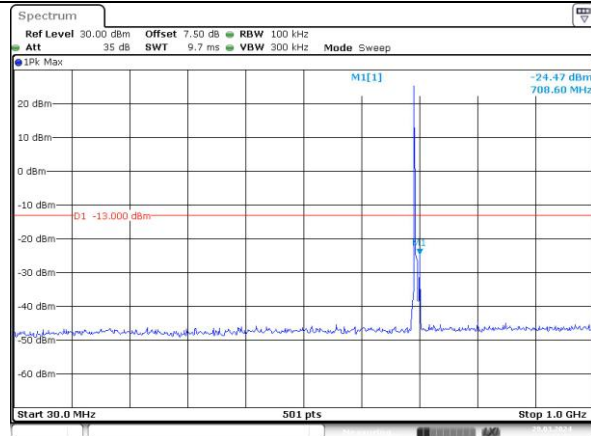
ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 10:08:36

Spurious Emissions at Antenna Terminal

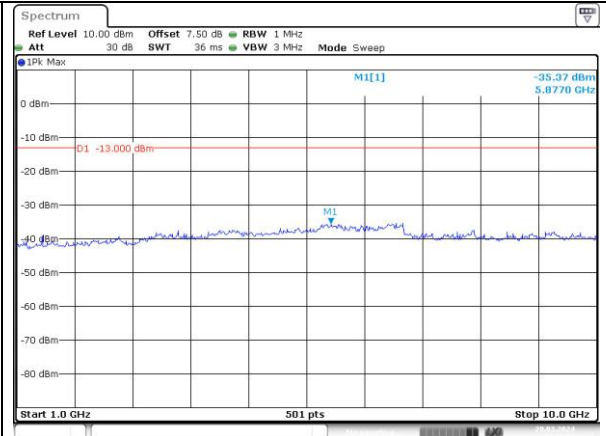
Channel

5MHz Bandwidth QPSK

Lowest

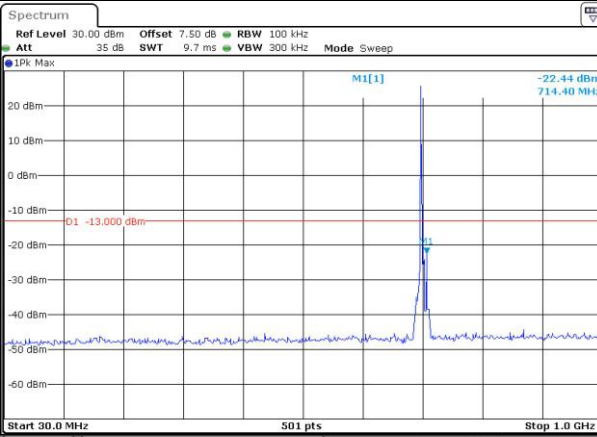


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 10:11:31

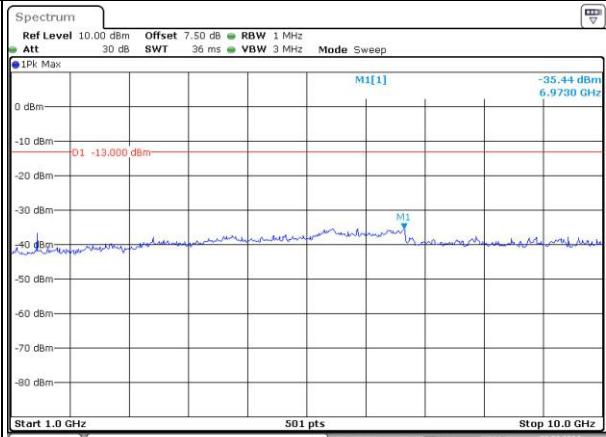


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 10:11:56

Middle

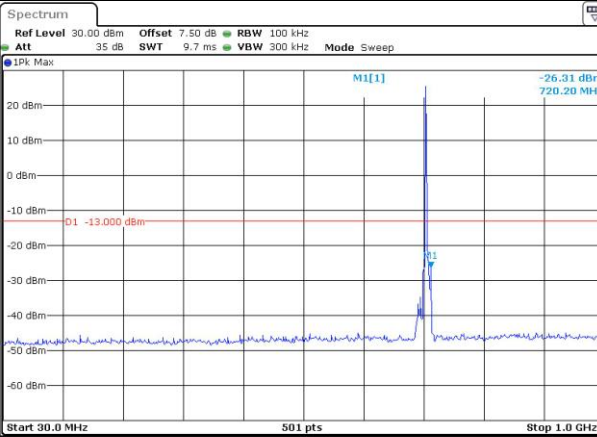


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 10:12:42

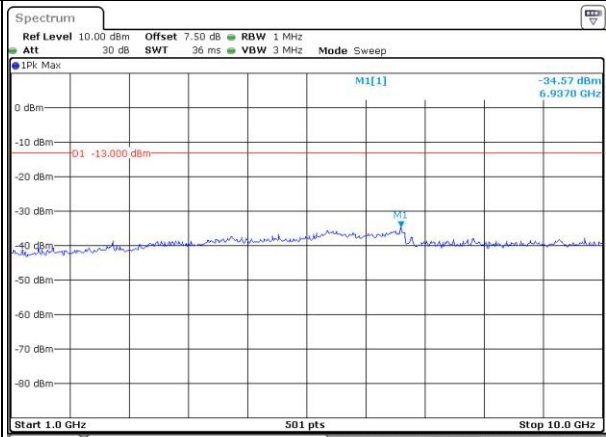


ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 10:13:01

Highest



ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 10:14:22



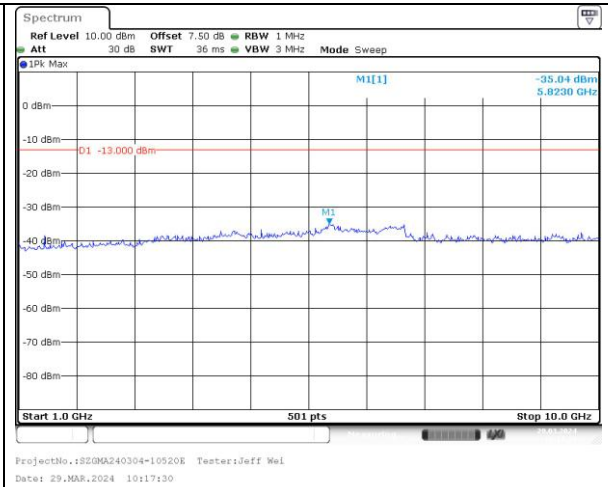
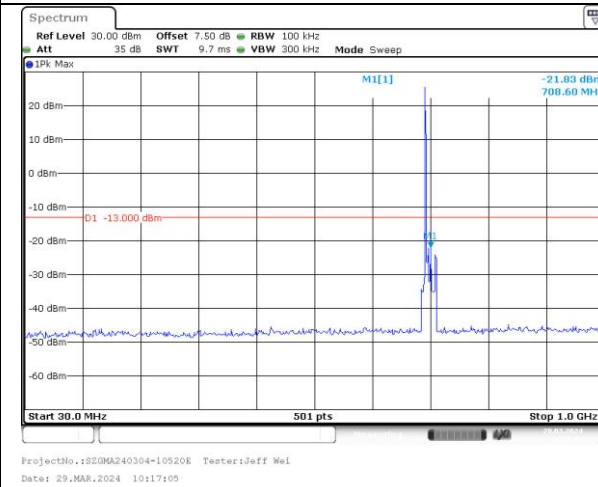
ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei
Date: 29.MAR.2024 10:14:41

Spurious Emissions at Antenna Terminal

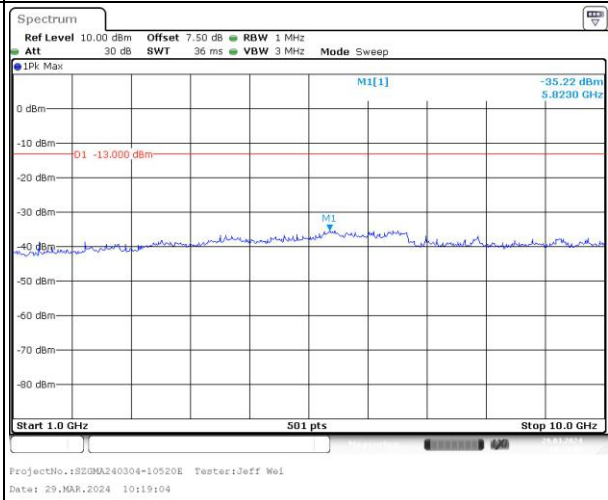
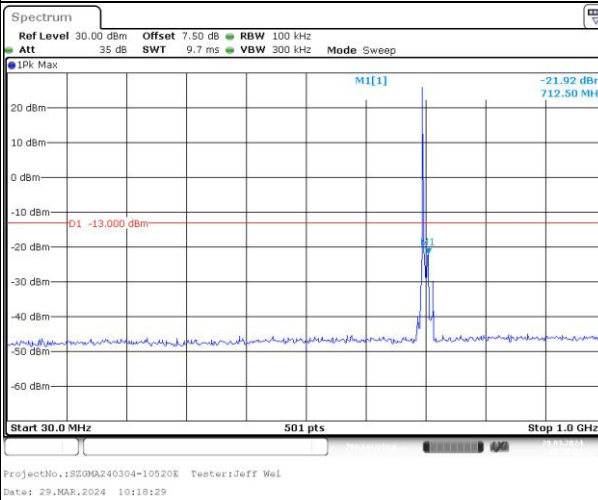
Channel

10MHz Bandwidth QPSK

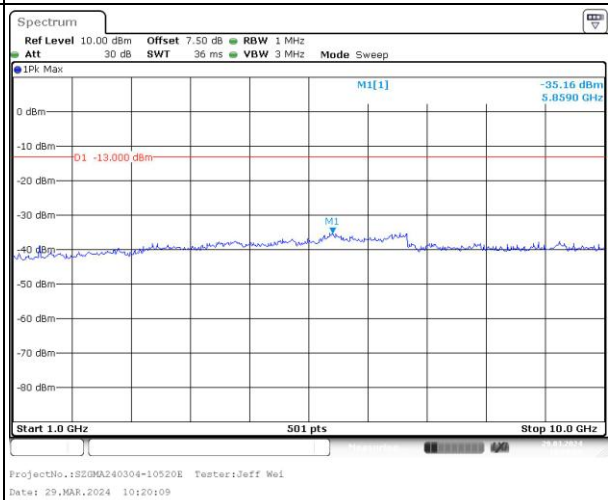
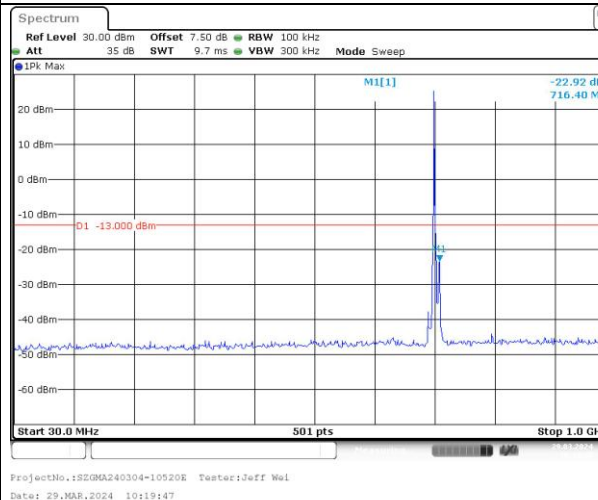
Lowest



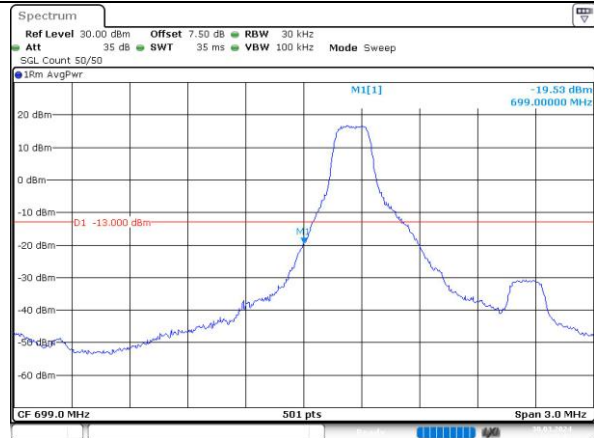
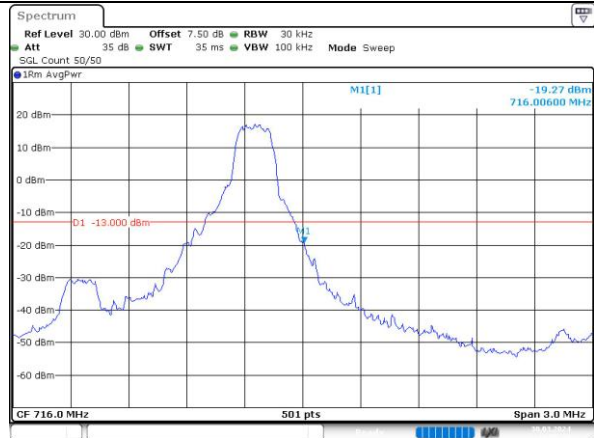
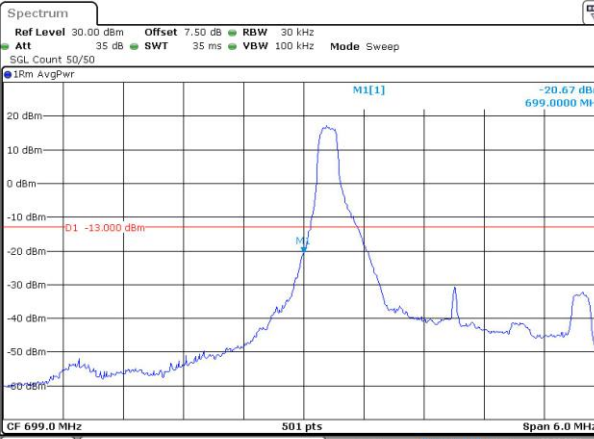
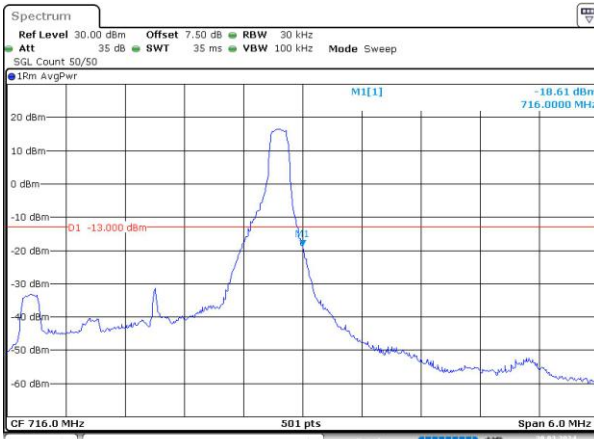
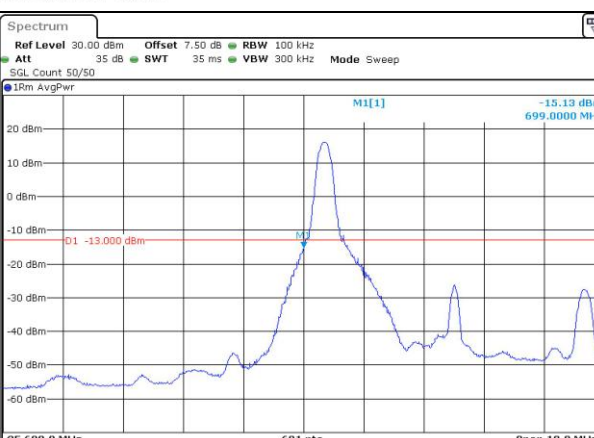
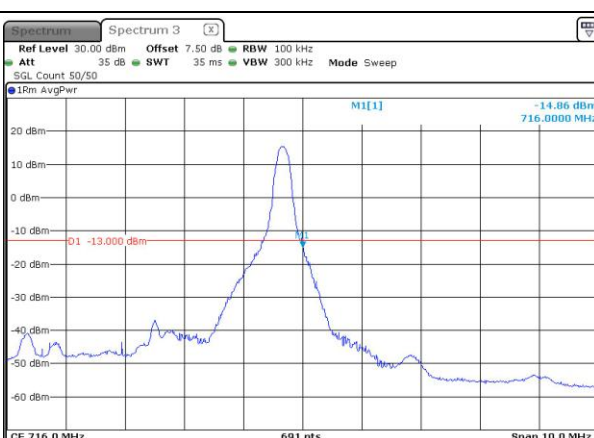
Middle



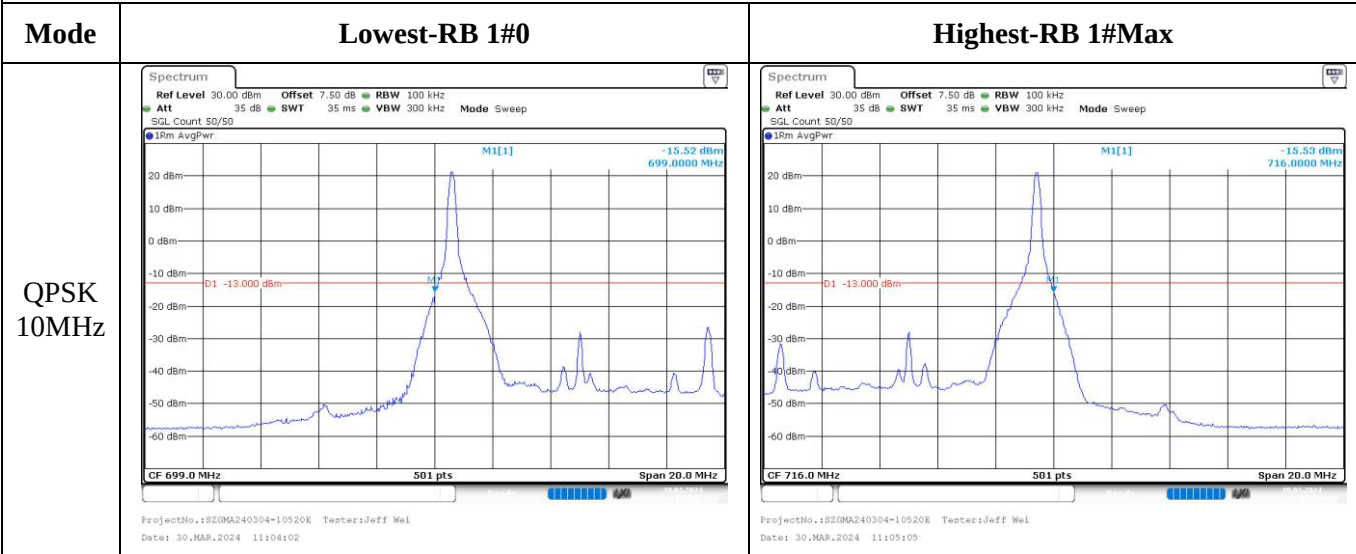
Highest



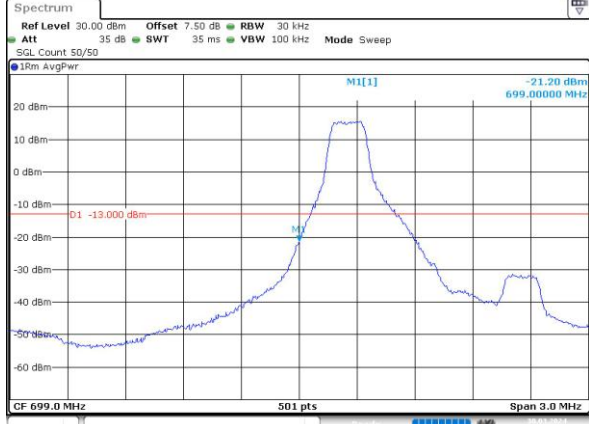
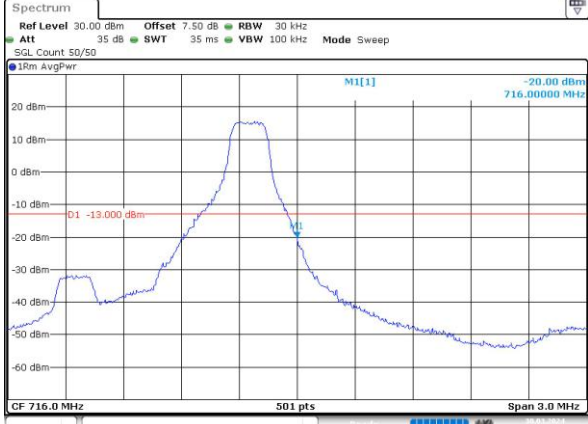
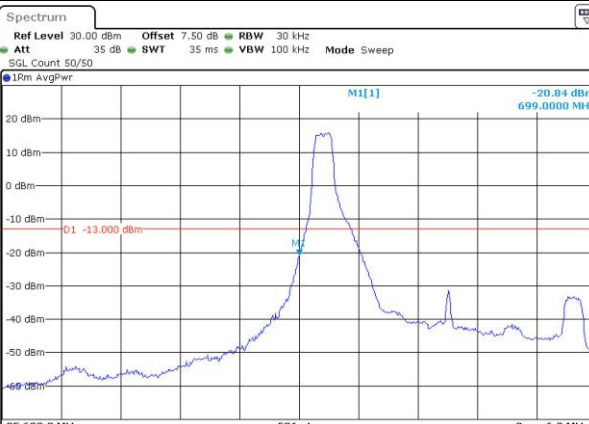
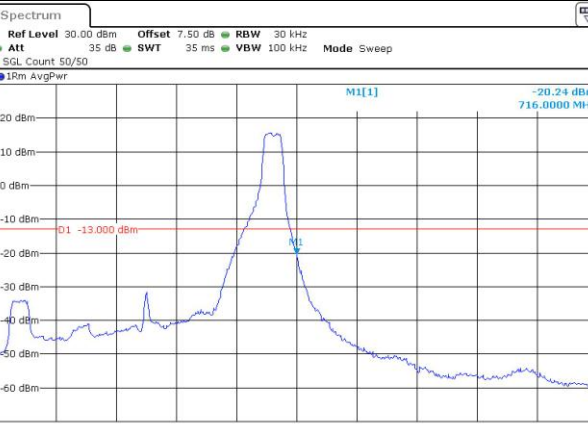
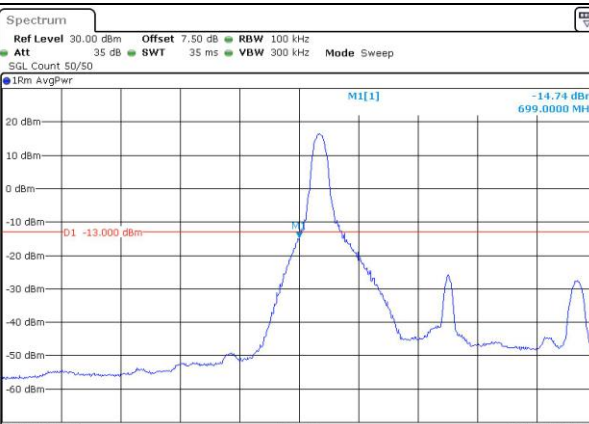
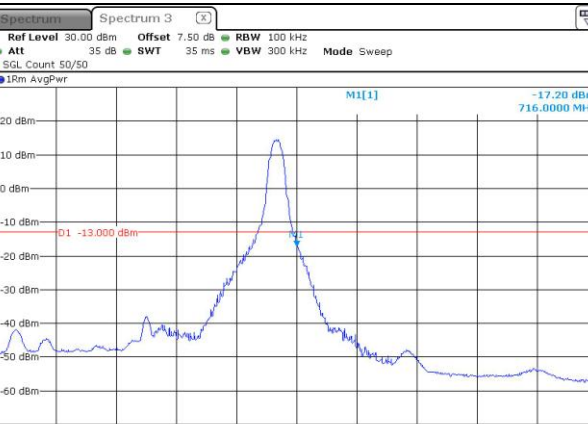
Out of band emission, Band Edge

Mode	Lowest-RB 1#0	Highest-RB 1#Max
QPSK 1.4MHz	 ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 30.MAR.2024 10:57:32	 ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 30.MAR.2024 10:58:29
QPSK 3MHz	 ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 30.MAR.2024 10:59:37	 ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 30.MAR.2024 11:00:35
QPSK 5MHz	 ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 19.APR.2024 15:18:46	 ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 19.APR.2024 14:55:21

Out of band emission, Band Edge



Out of band emission, Band Edge

Mode	Lowest-RB 1#0	Highest-RB 1#Max
16QAM 1.4MHz	 Ref Level 30.00 dBm Offset 7.50 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SQL Count 50/50 M1[1] -21.20 dBm 699.00000 MHz CF 699.0 MHz 501 pts Span 3.0 MHz ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 30.MAR.2024 10:15:19	 Ref Level 30.00 dBm Offset 7.50 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SQL Count 50/50 M1[1] -20.00 dBm 716.00000 MHz CF 716.0 MHz 501 pts Span 3.0 MHz ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 30.MAR.2024 10:15:19
16QAM 3MHz	 Ref Level 30.00 dBm Offset 7.50 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SQL Count 50/50 M1[1] -20.84 dBm 699.00000 MHz CF 699.0 MHz 501 pts Span 6.0 MHz ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 30.MAR.2024 11:00:06	 Ref Level 30.00 dBm Offset 7.50 dB RBW 30 kHz Att 35 dB SWT 35 ms VBW 100 kHz Mode Sweep SQL Count 50/50 M1[1] -20.24 dBm 716.00000 MHz CF 716.0 MHz 501 pts Span 6.0 MHz ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 30.MAR.2024 11:01:07
16QAM 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 M1[1] -14.74 dBm 699.00000 MHz CF 699.0 MHz 691 pts Span 10.0 MHz ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 19.APR.2024 15:19:20	 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 M1[1] -17.20 dBm 716.00000 MHz CF 716.0 MHz 691 pts Span 10.0 MHz ProjectNo.:SZGMA240304-10520E Tester:Jeff Wei Date: 19.APR.2024 14:55:46

