

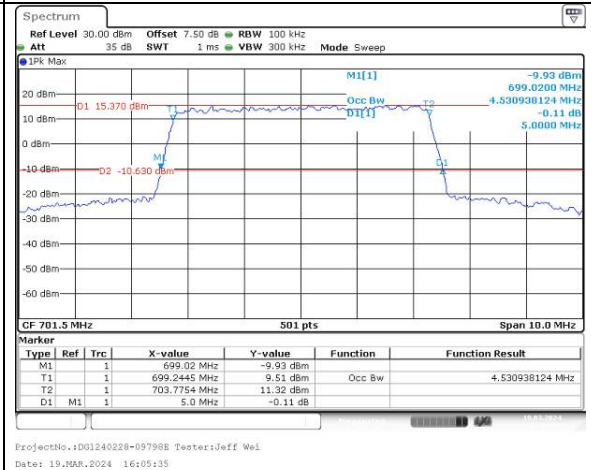
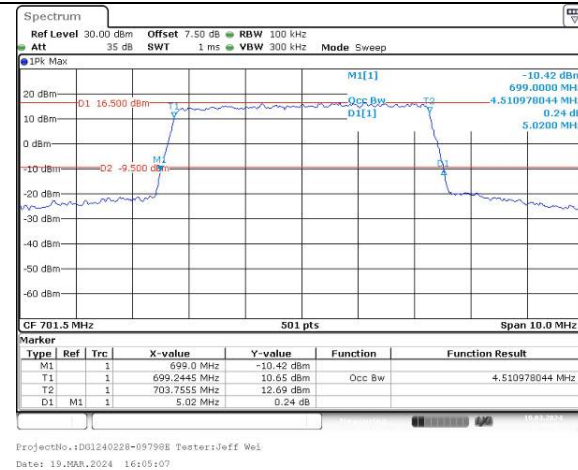
Occupied Bandwidth

Channel

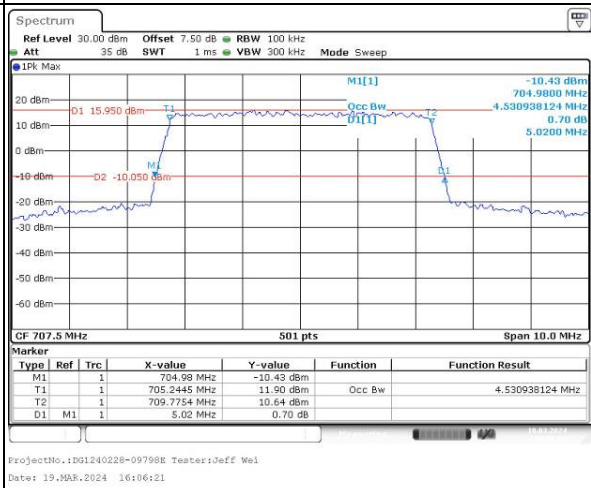
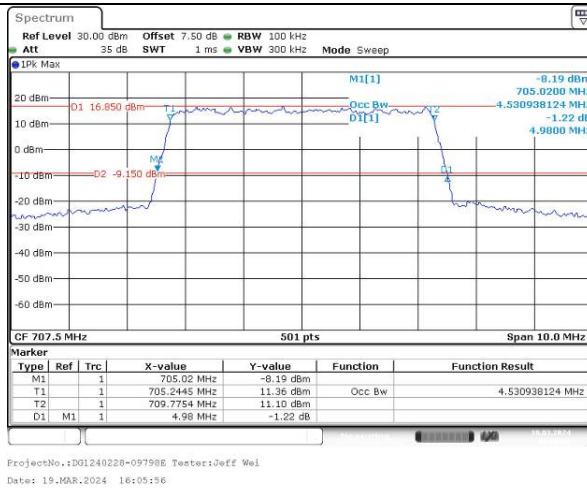
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

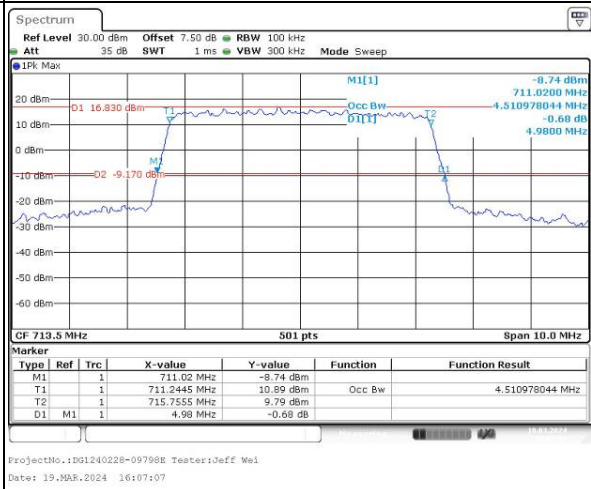
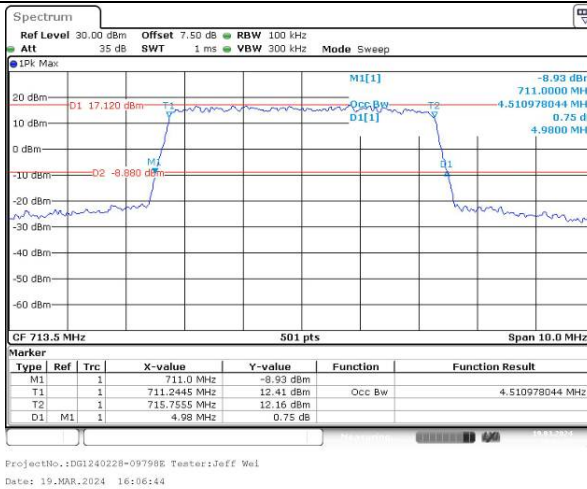
Lowest



Middle



Highest



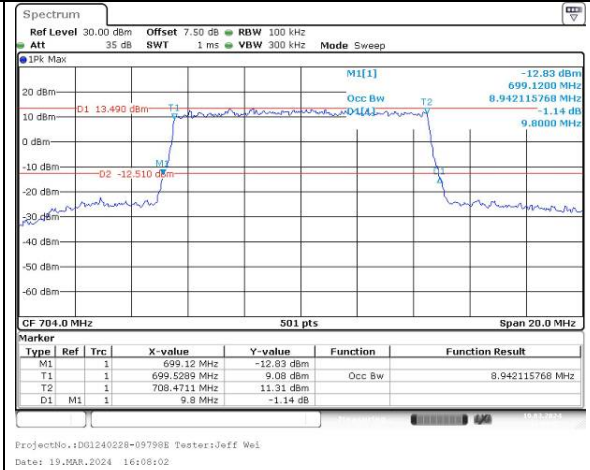
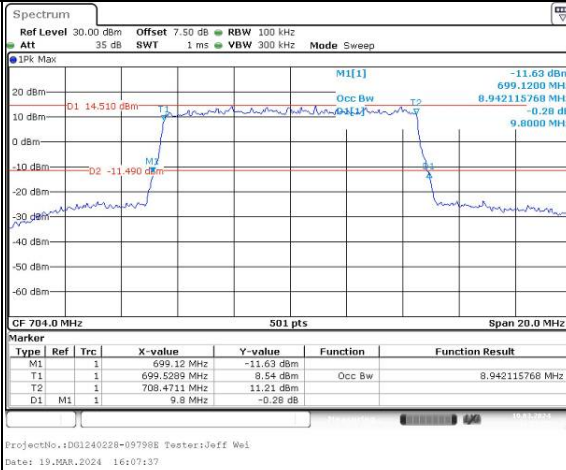
Occupied Bandwidth

Channel

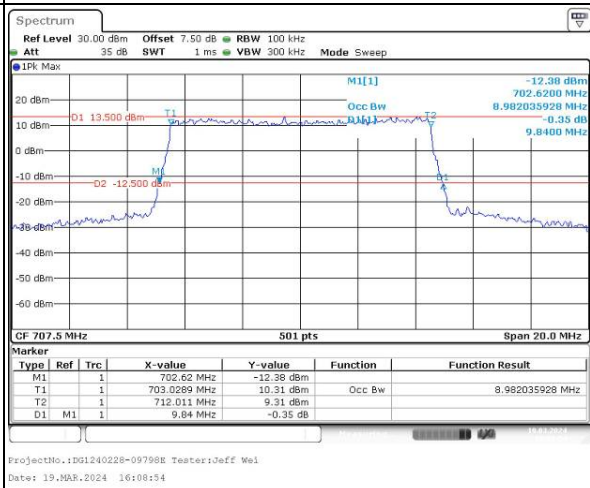
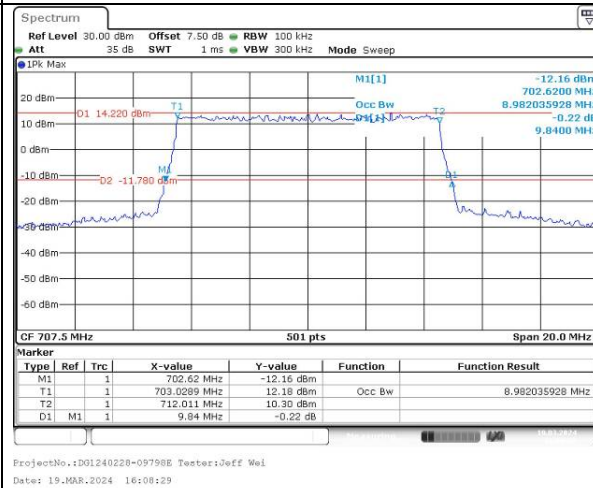
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

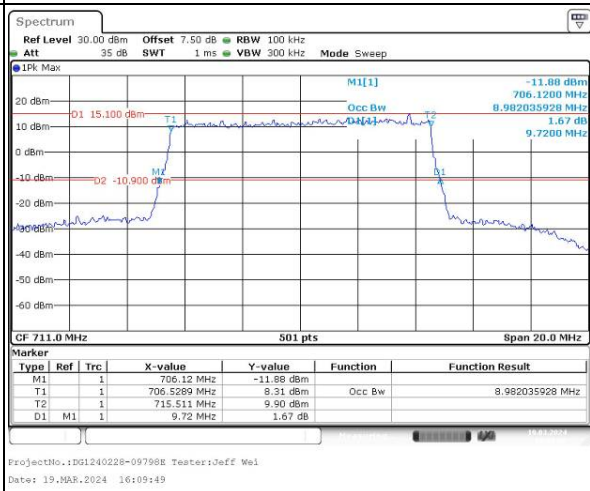
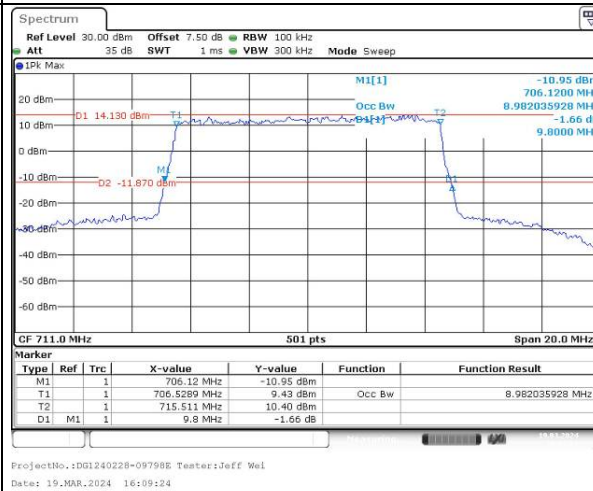
Lowest



Middle



Highest

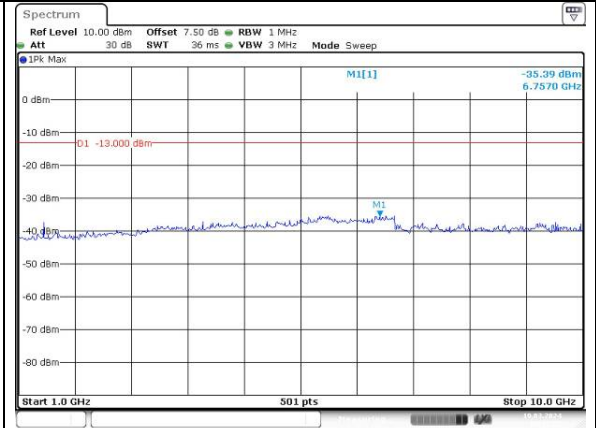
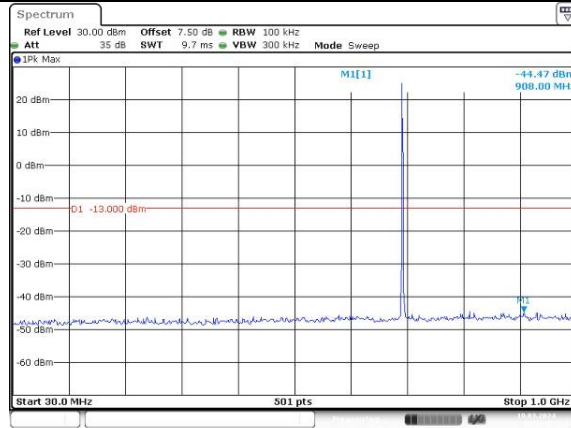


Spurious Emissions at Antenna Terminal

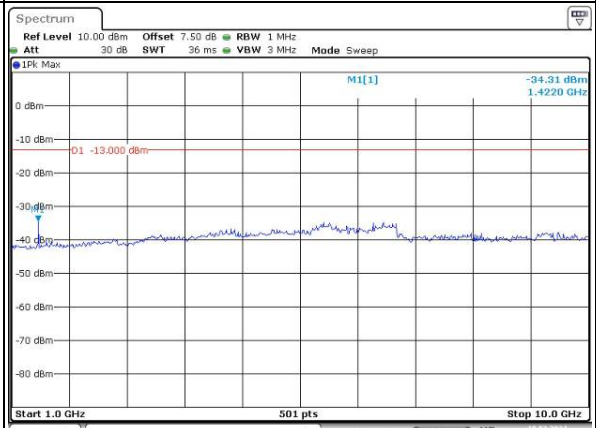
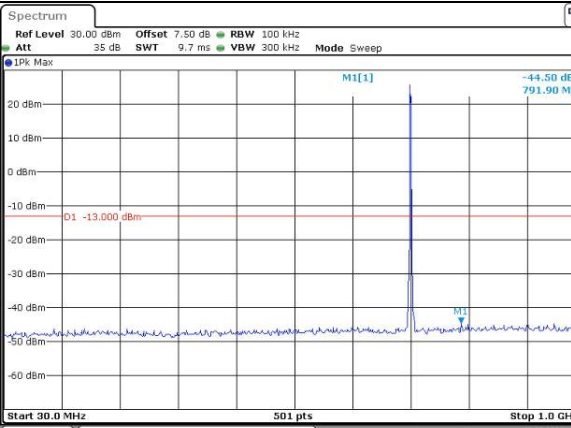
Channel

1.4MHz Bandwidth QPSK

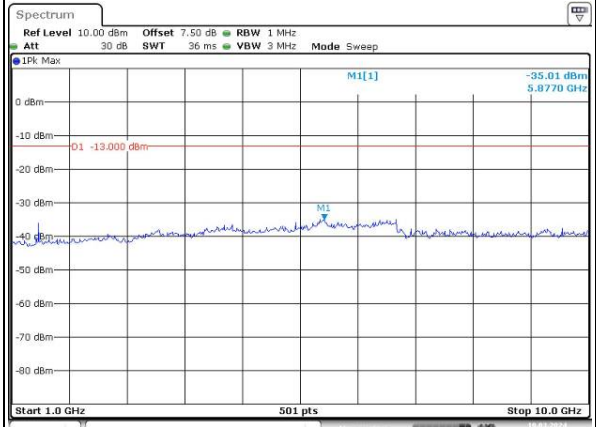
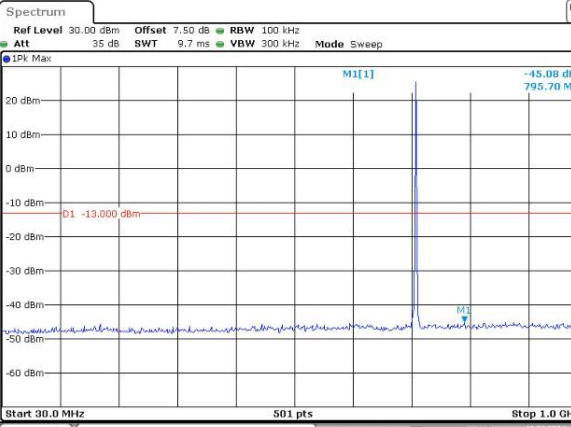
Lowest



Middle



Highest

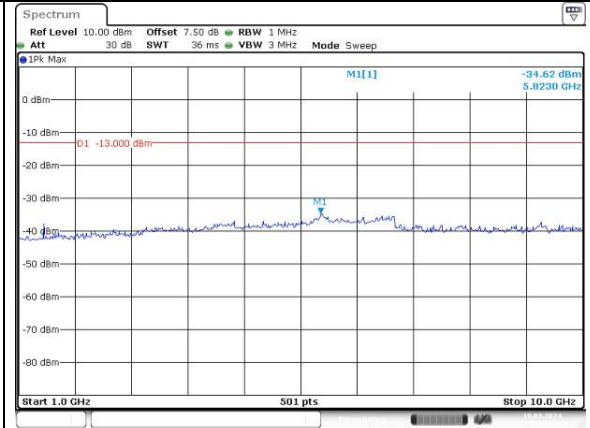
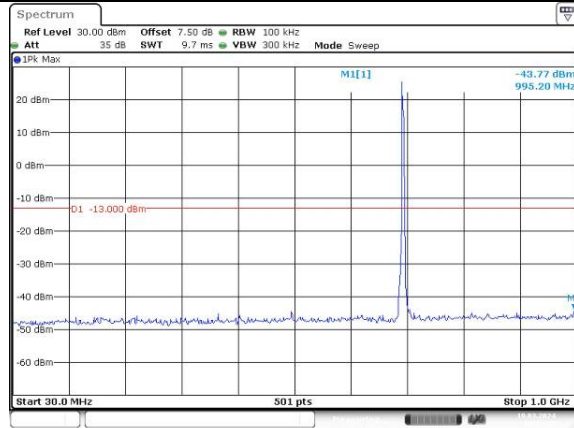


Spurious Emissions at Antenna Terminal

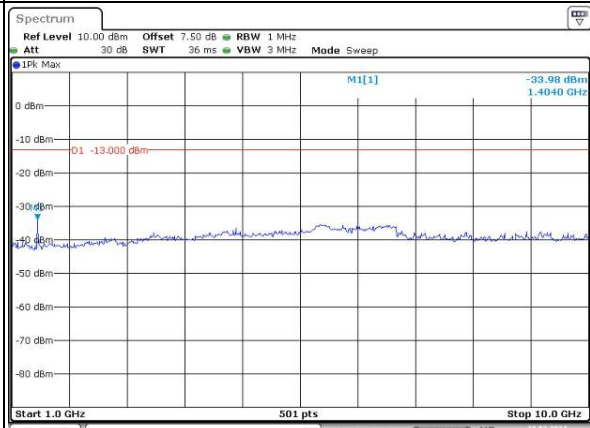
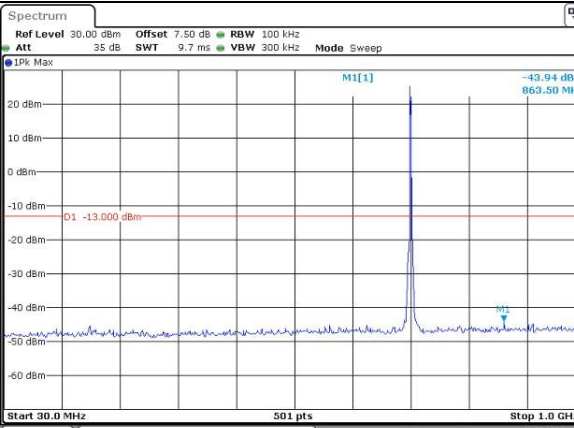
Channel

3MHz Bandwidth QPSK

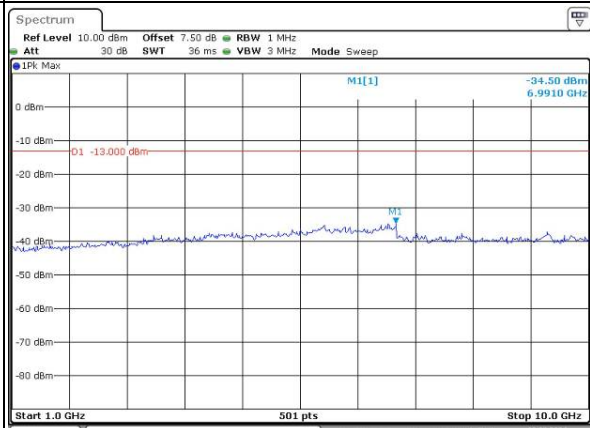
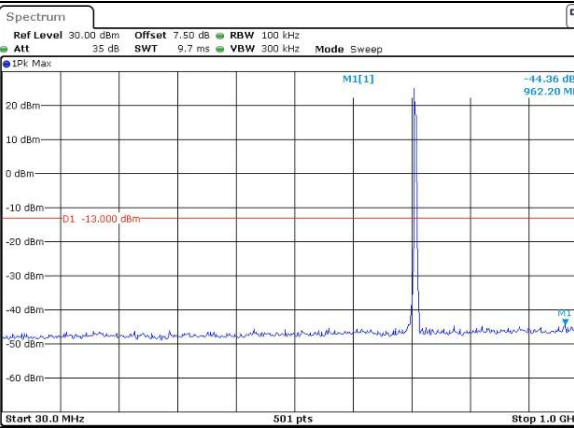
Lowest



Middle



Highest

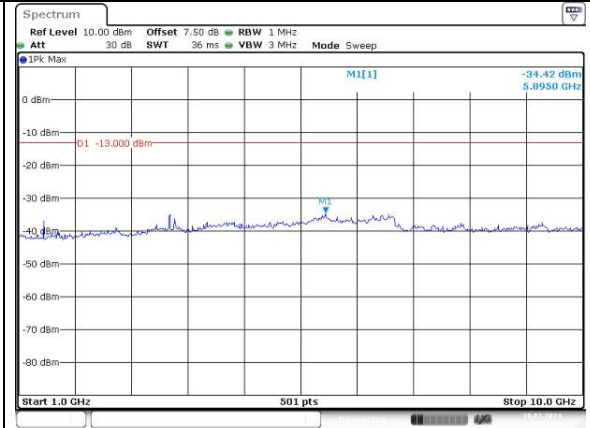
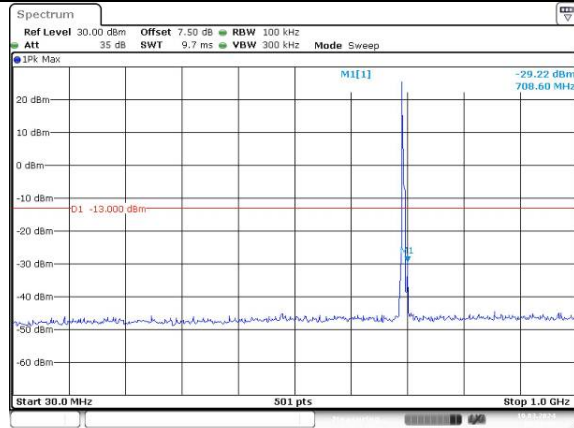


Spurious Emissions at Antenna Terminal

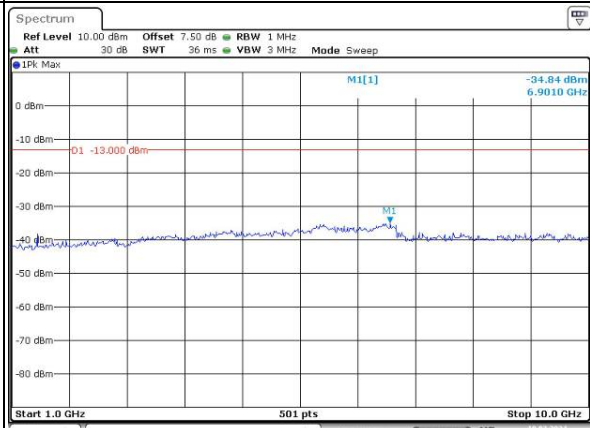
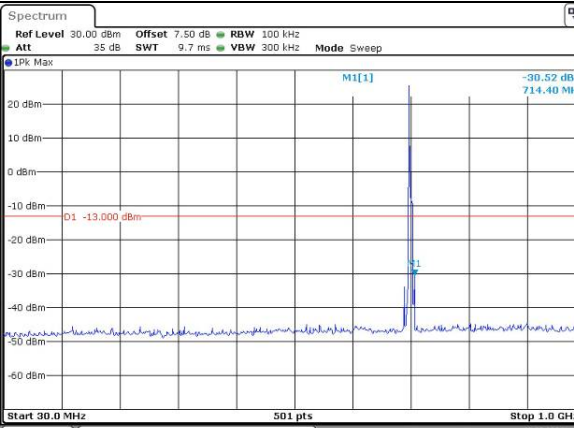
Channel

5MHz Bandwidth QPSK

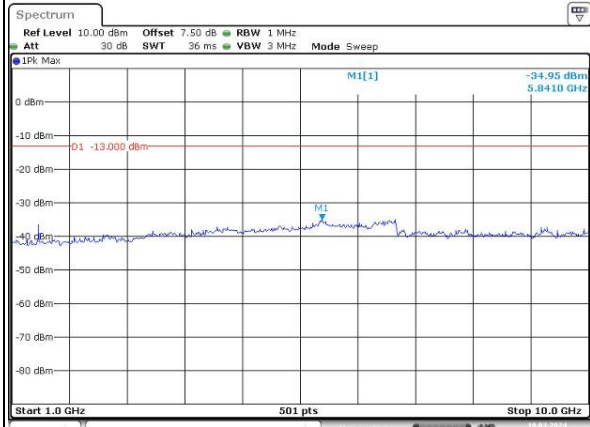
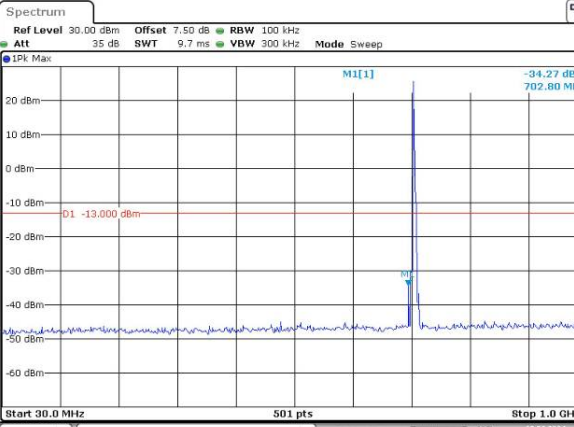
Lowest



Middle



Highest

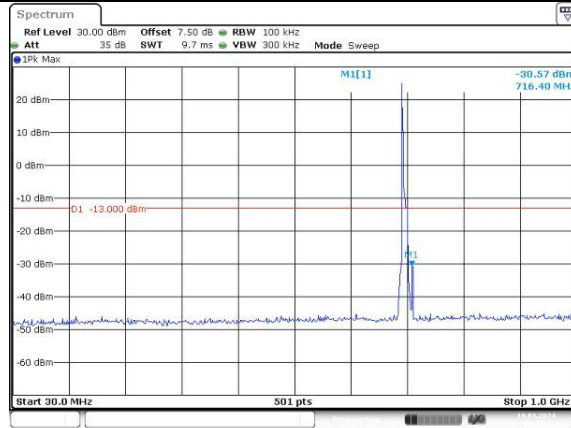
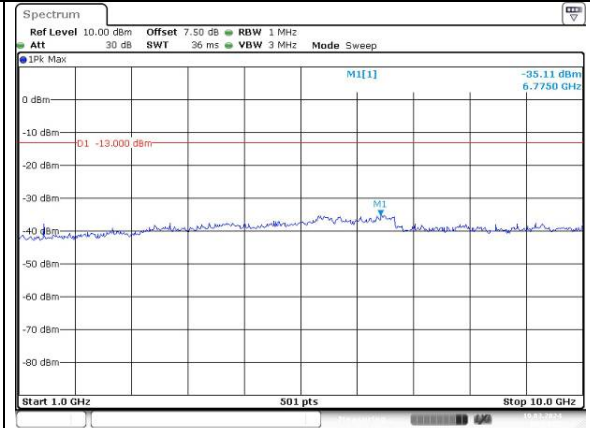


Spurious Emissions at Antenna Terminal

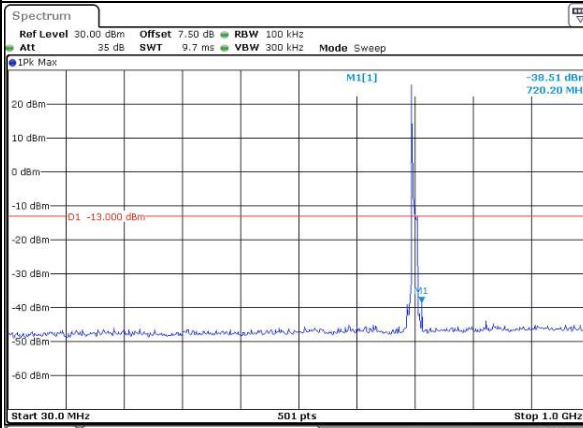
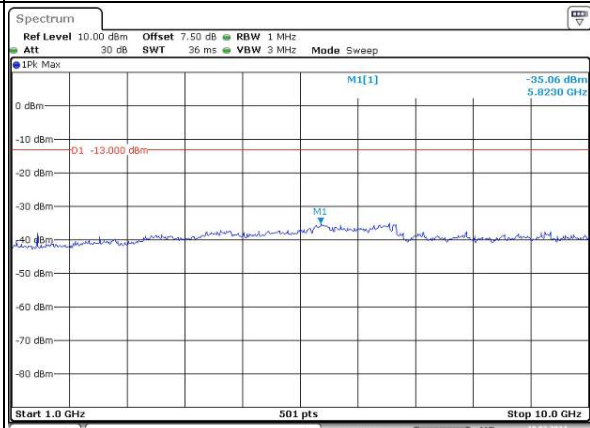
Channel

10MHz Bandwidth QPSK

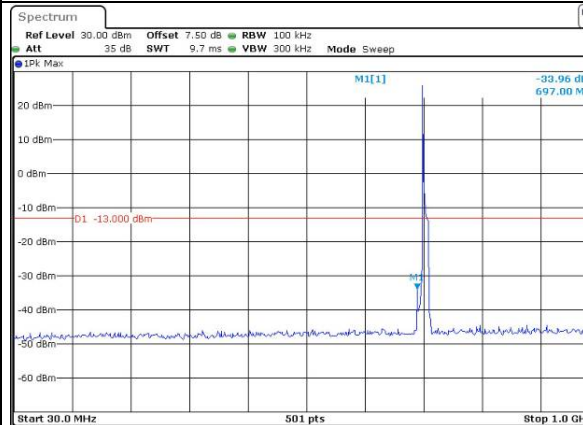
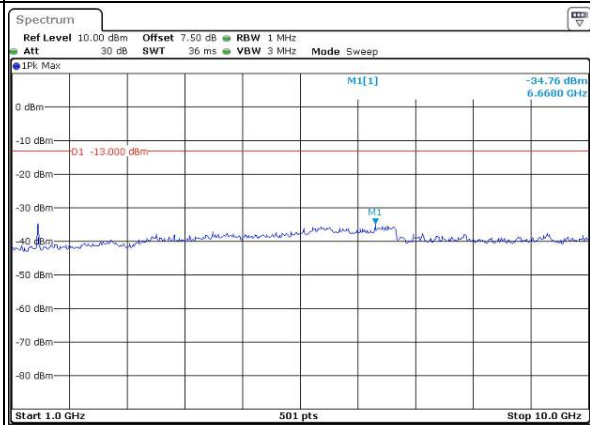
Lowest

ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 19.MAR.2024 00:24:33ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 19.MAR.2024 00:24:58

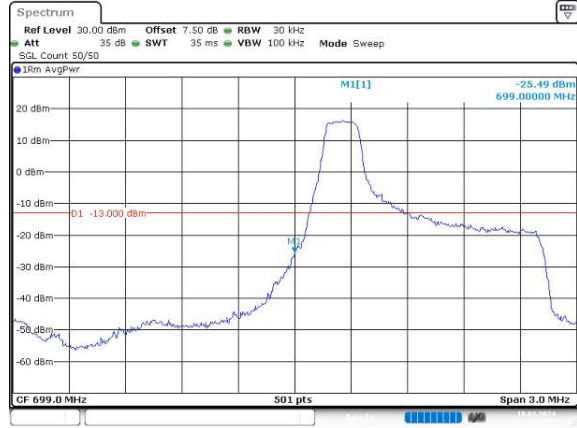
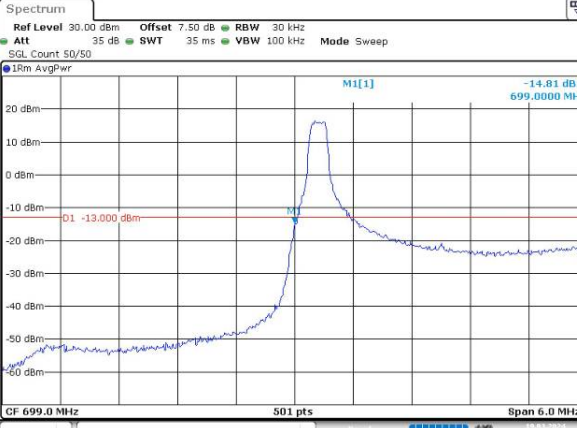
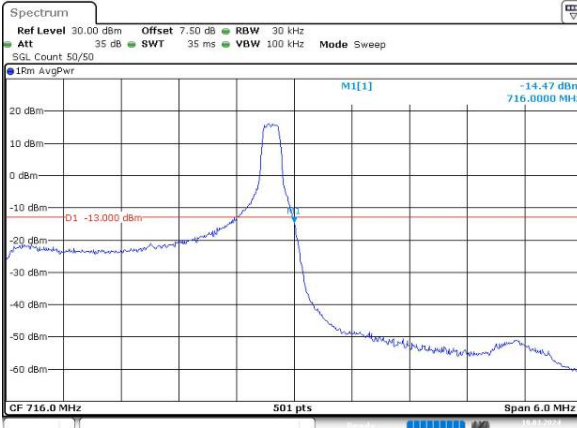
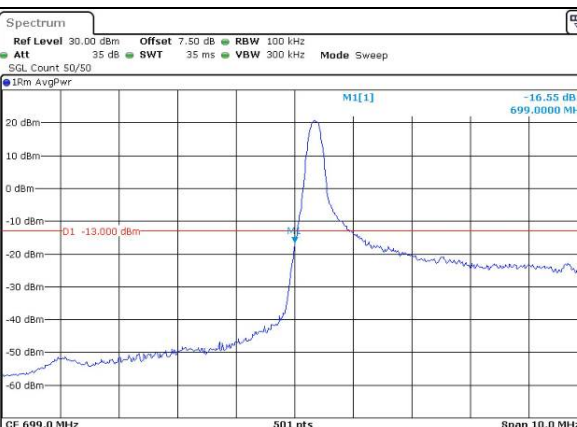
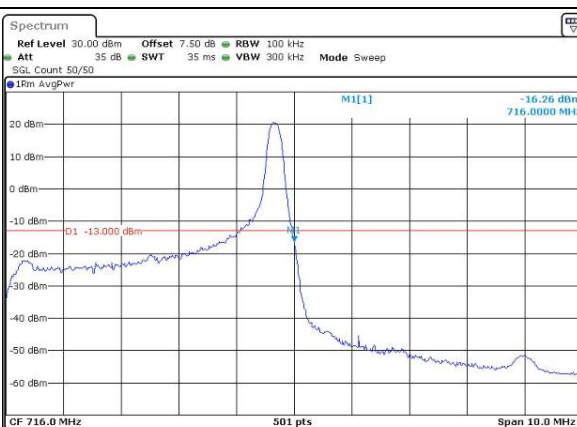
Middle

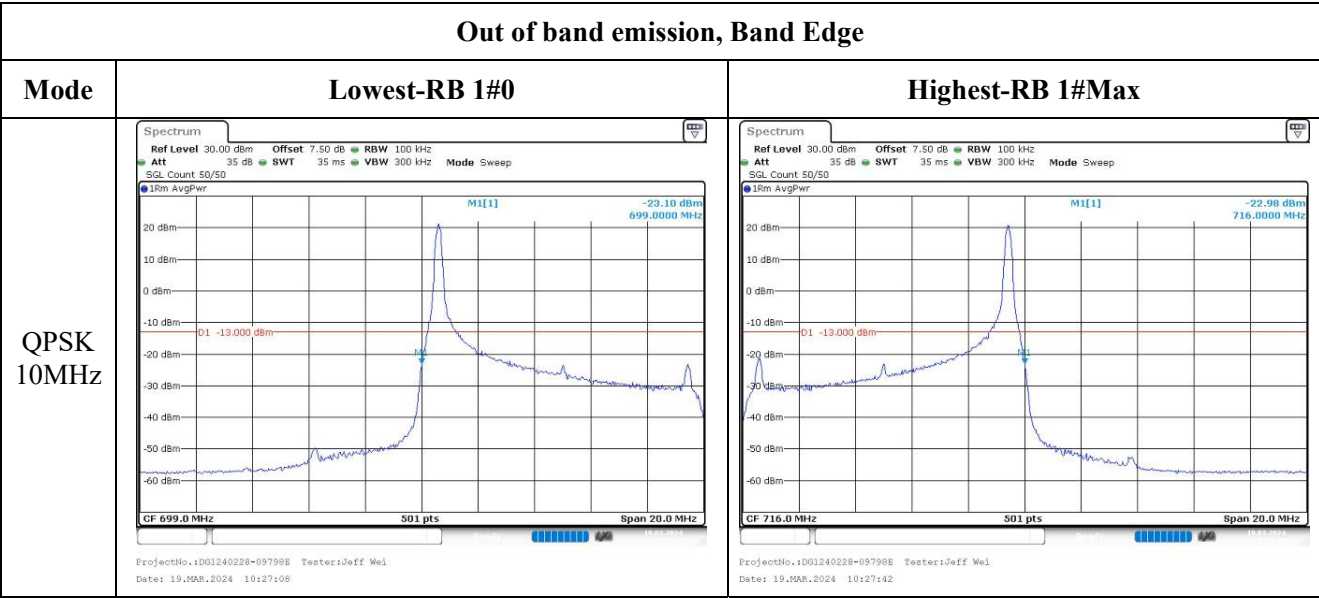
ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 19.MAR.2024 00:25:43ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 19.MAR.2024 00:26:11

Highest

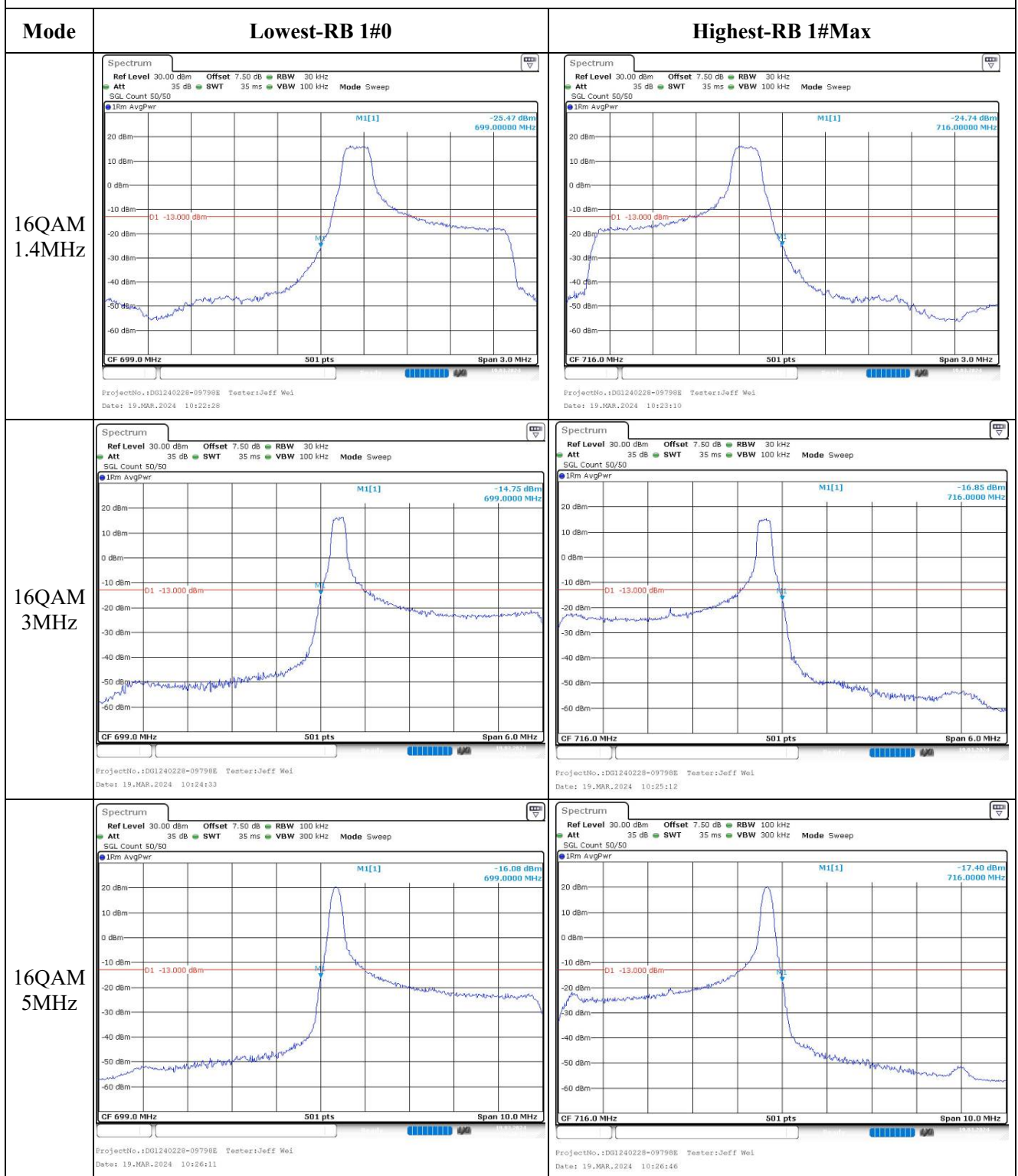
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Date: 19.MAR.2024 00:26:58ProjectNo.:DG1240228-09798E Tester:Loge Long
Date: 19.MAR.2024 00:27:20

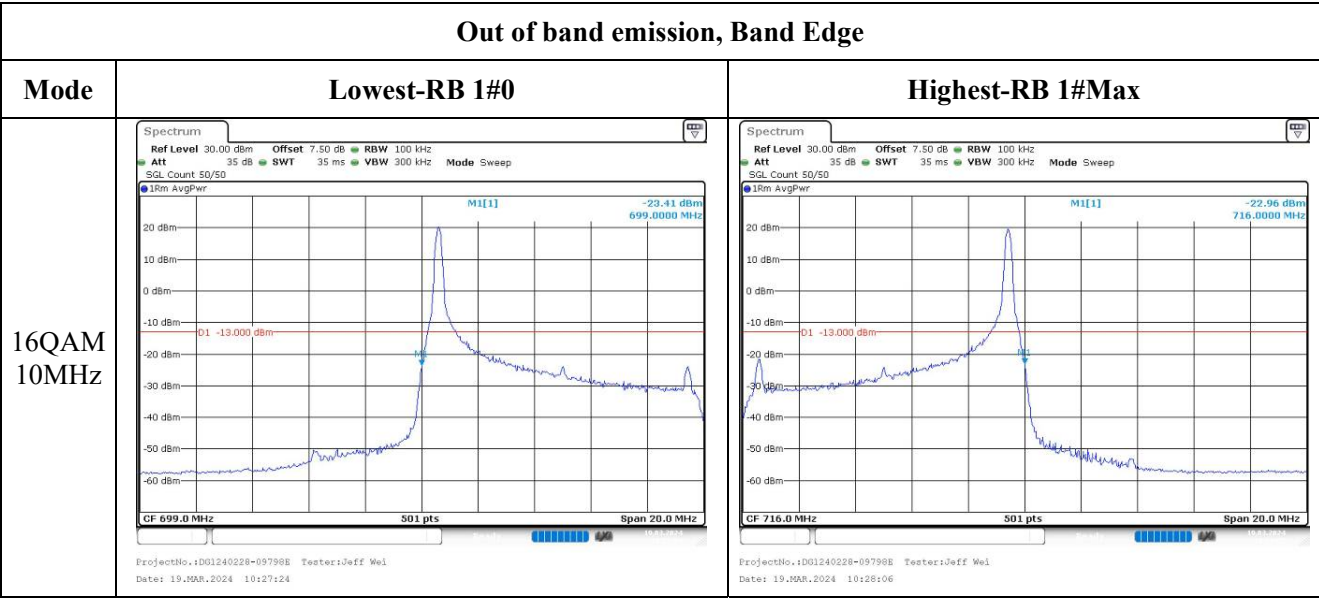
Out of band emission, Band Edge

Mode	Lowest-RB 1#0	Highest-RB 1#Max
QPSK 1.4MHz	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:21:29	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:22:51
QPSK 3MHz	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:23:43	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:26:24
QPSK 5MHz	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:25:46	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 10:26:28

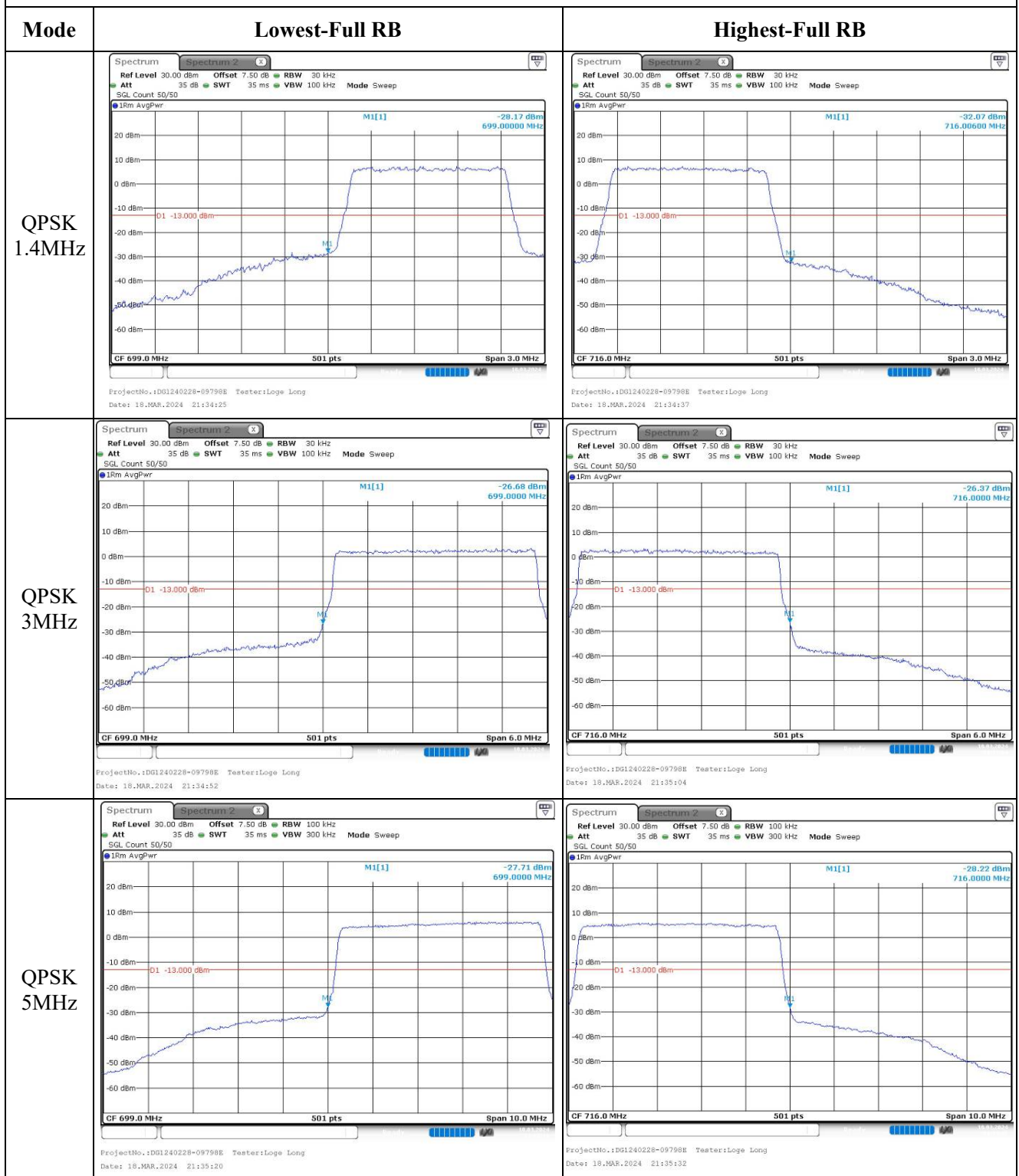


Out of band emission, Band Edge



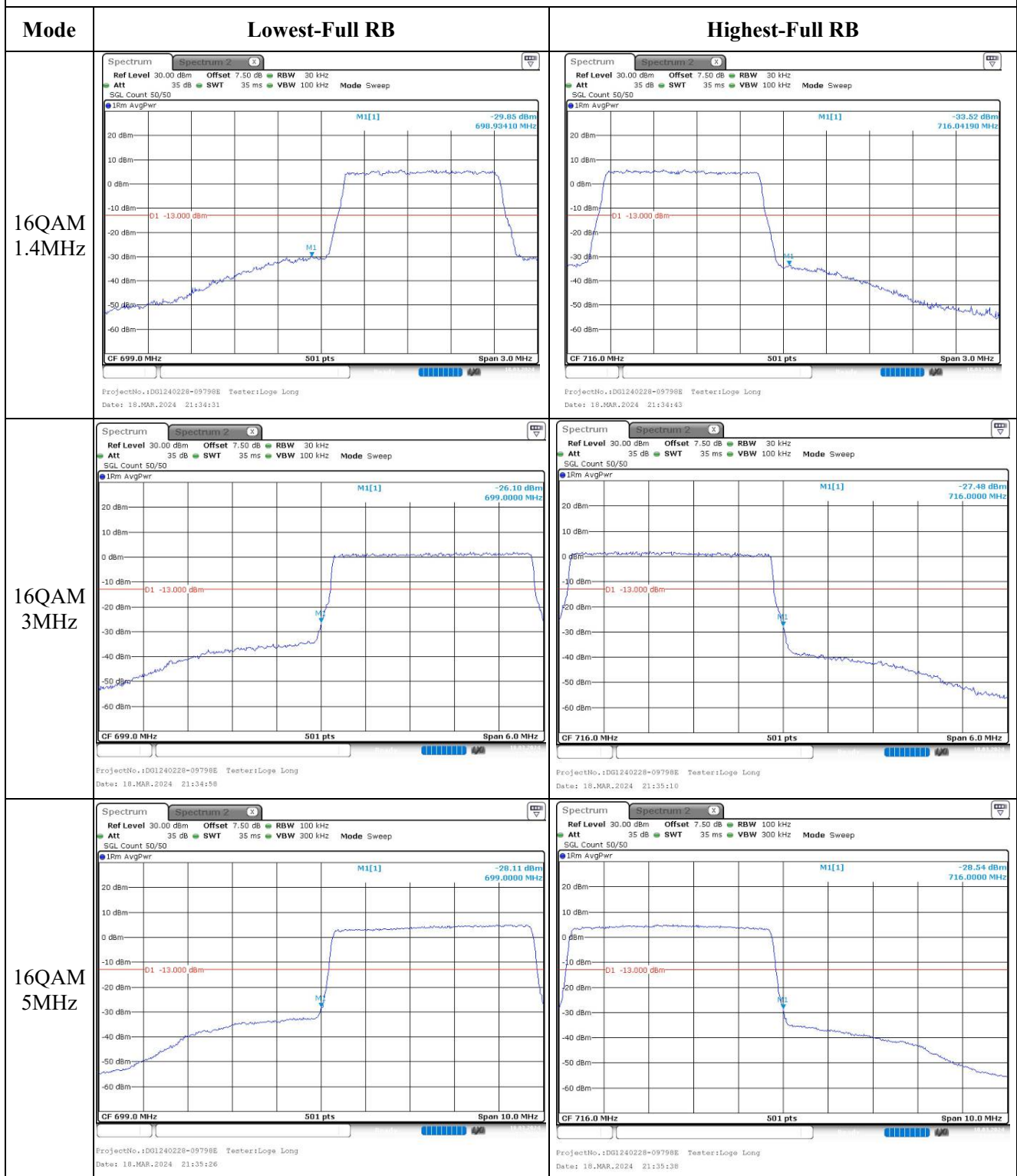


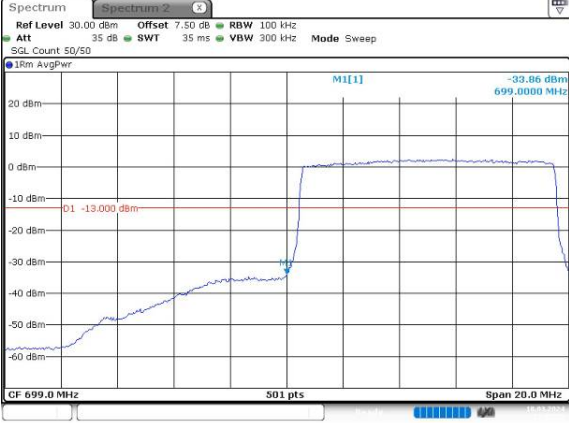
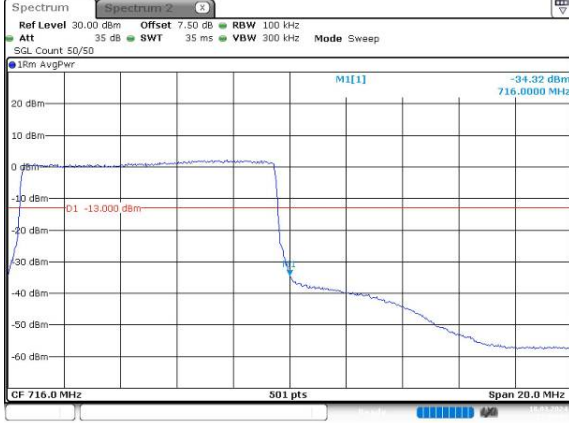
Out of band emission, Band Edge



Out of band emission, Band Edge		
Mode	Lowest-Full RB	Highest-Full RB
QPSK 10MHz	Spectrum Spectrum 2 Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SGL Count 50/50 IRm AvgPwr M1[1] -39.42 dBm 699.0000 MHz 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm CF 699.0 MHz 501 pts Span 20.0 MHz ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 10.MAR.2024 21:35:49	Spectrum Spectrum 2 Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SGL Count 50/50 IRm AvgPwr M1[1] -32.61 dBm 716.0000 MHz 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm CF 716.0 MHz 501 pts Span 20.0 MHz ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 10.MAR.2024 21:36:03

Out of band emission, Band Edge



Out of band emission, Band Edge		
Mode	Lowest-Full RB	Highest-Full RB
16QAM 10MHz		
	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 10.MAR.2024 21:35:56	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 10.MAR.2024 21:36:09

5.7 Antenna Port Test Data and Results for LTE Band 13

Serial Number:	2145-3	Test Date:	2024/3/18~2024/3/19
Test Site:	RF	Test Mode:	Transmitting
Tester:	Loge Long, Jeff Wei	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	23.4~23.7	Relative Humidity: (%)	63~64	ATM Pressure: (kPa)	100.9~101.4
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
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
R&S	Spectrum Analyzer	FSV40	101461	2023/11/27	2024/11/26
TDK-Lambda	DC Power Supply	Z+60-14	F-08-EM038-1	N/A	N/A
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	2023/9/1	2024/8/31
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	2023/9/1	2024/8/31

* 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)
5MHz	779.5	/	784.5
10MHz	/	782	/

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

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
5MHz QPSK	RB1#0	22.04	/	22.09	18.47	34.77
	RB1#13	22.12	/	22.06		
	RB1#24	21.99	/	21.92		
	RB15#0	21.09	/	21.02		
	RB15#10	21.09	/	21.02		
	RB25#0	21.01	/	20.97		
5MHz 16QAM	RB1#0	21.74	/	20.56	18.09	34.77
	RB1#13	21.49	/	20.5		
	RB1#24	21.37	/	20.45		
	RB15#0	20.38	/	20.2		
	RB15#10	20.03	/	20.17		
	RB25#0	20.11	/	20.15		
10MHz QPSK	RB1#0	/	22.27	/	18.62	34.77
	RB1#25	/	22.23	/		
	RB1#49	/	22.27	/		
	RB25#0	/	21.18	/		
	RB25#25	/	21.08	/		
	RB50#0	/	20.94	/		
10MHz 16QAM	RB1#0	/	21.96	/	18.31	34.77
	RB1#25	/	21.56	/		
	RB1#49	/	21.47	/		
	RB25#0	/	20.26	/		
	RB25#25	/	20.28	/		
	RB50#0	/	20.53	/		

Note:

ERP= Conducted Power(dBm) - Lc(dB) + Gr(dBd)

Gr(dBd)=Gr(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	/	5.45	/	13
	RB50#0	/	5.62	/	13
10MHz 16QAM	RB1#0	/	6.06	/	13
	RB50#0	/	6.46	/	13
Result:					Pass

FCC §2.1049, §27.53:Occupied Bandwidth

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
5MHz QPSK	4.511	/	4.531	5	/	5
5MHz 16QAM	4.531	/	4.511	5.02	/	4.98
10MHz QPSK	/	8.982	/	/	9.8	/
10MHz 16QAM	/	8.982	/	/	9.8	/

Note: Test was performed at full RB. 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:	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	777.481	777.00	786.493	787.00
	-20	3.8	777.526	777.00	786.496	787.00
	-10	3.8	777.508	777.00	786.487	787.00
	0	3.8	777.517	777.00	786.490	787.00
	10	3.8	777.502	777.00	786.502	787.00
	20	3.8	777.529	777.00	786.511	787.00
	30	3.8	777.538	777.00	786.514	787.00
	40	3.8	777.544	777.00	786.526	787.00
	50	3.8	777.535	777.00	786.514	787.00
Frequency Stability vs. Voltage	20	3.6	777.553	777.00	786.532	787.00
	20	4.35	777.544	777.00	786.517	787.00
					Result:	Pass

Test Mode:	10M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	777.499	777.00	786.490	787.00
	-20	3.8	777.505	777.00	786.487	787.00
	-10	3.8	777.520	777.00	786.508	787.00
	0	3.8	777.508	777.00	786.493	787.00
	10	3.8	777.502	777.00	786.487	787.00
	20	3.8	777.529	777.00	786.511	787.00
	30	3.8	777.553	777.00	786.517	787.00
	40	3.8	777.553	777.00	786.532	787.00
	50	3.8	777.544	777.00	786.520	787.00
Frequency Stability vs. Voltage	20	3.6	777.535	777.00	786.535	787.00
	20	4.35	777.556	777.00	786.514	787.00
					Result:	Pass

Test Plots:

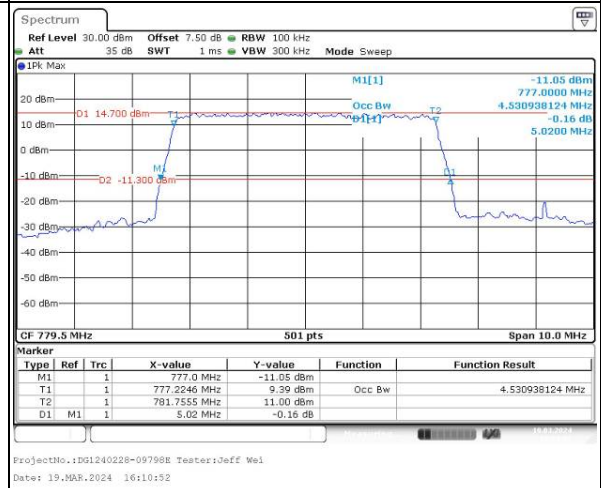
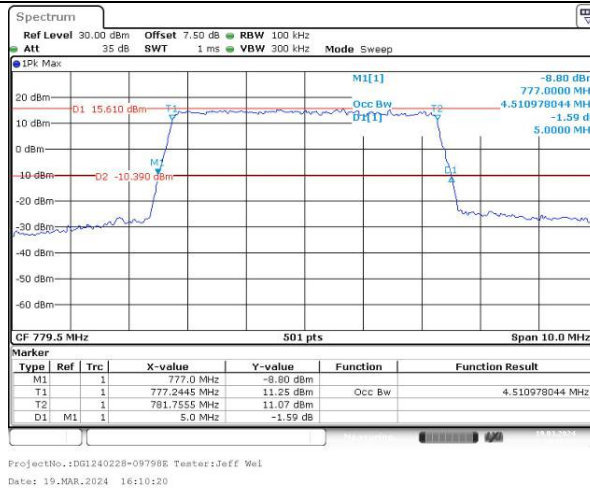
Occupied Bandwidth

Channel

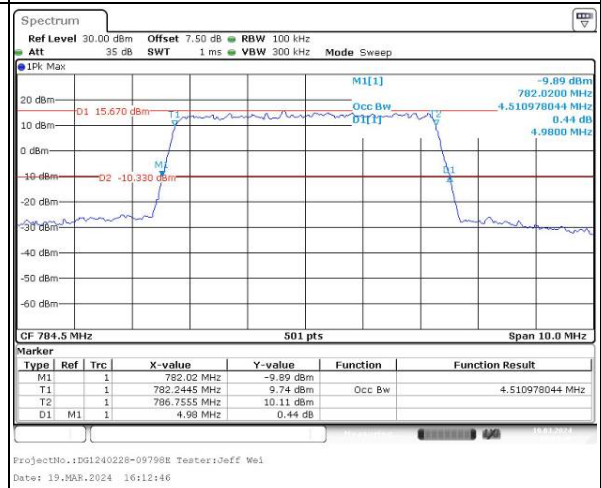
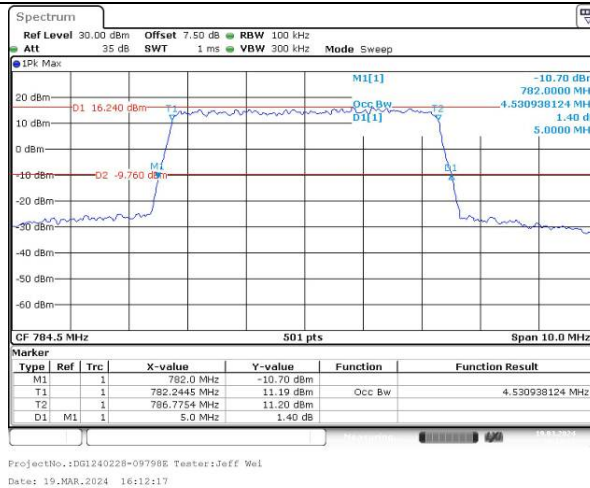
5MHz Bandwidth QPSK

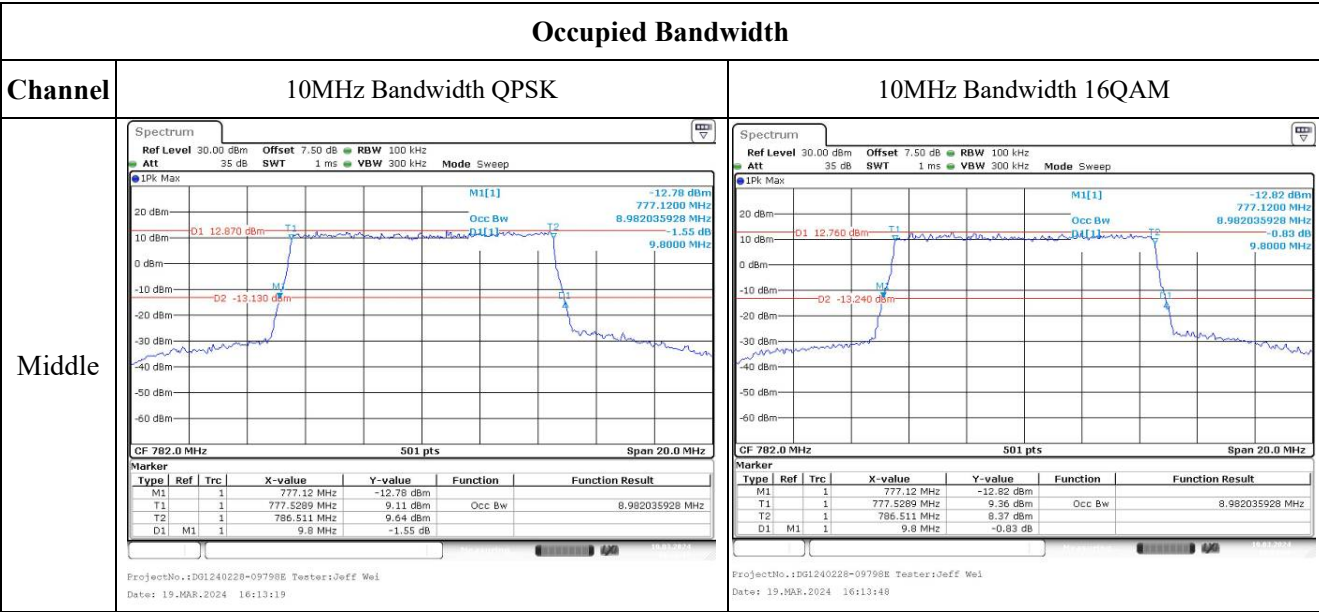
5MHz Bandwidth 16QAM

Lowest



Highest



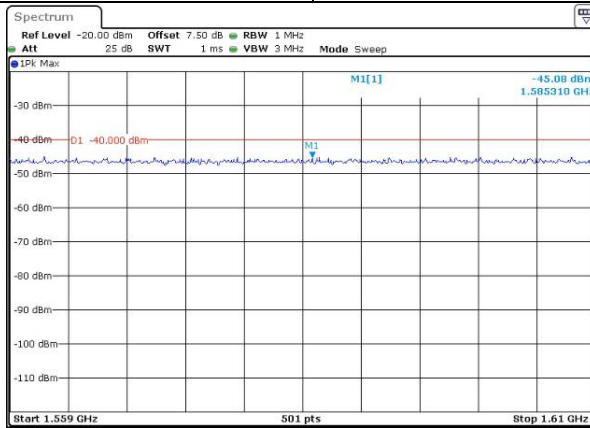
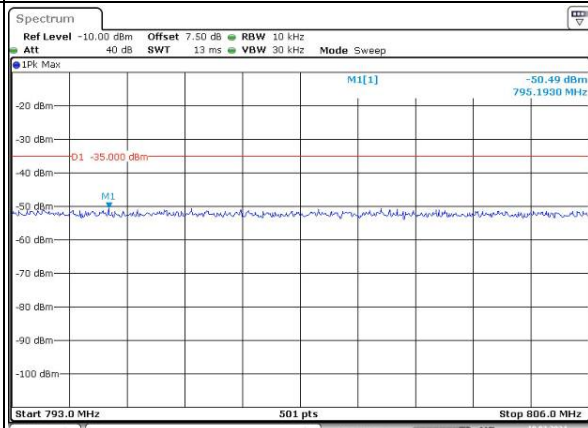
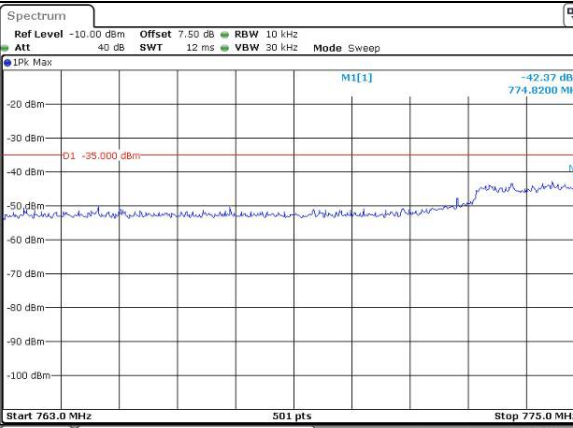
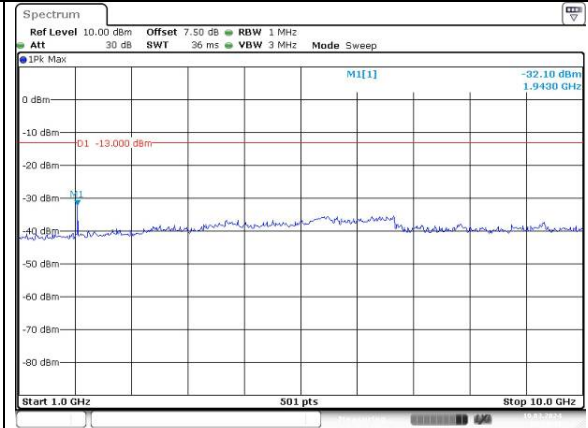
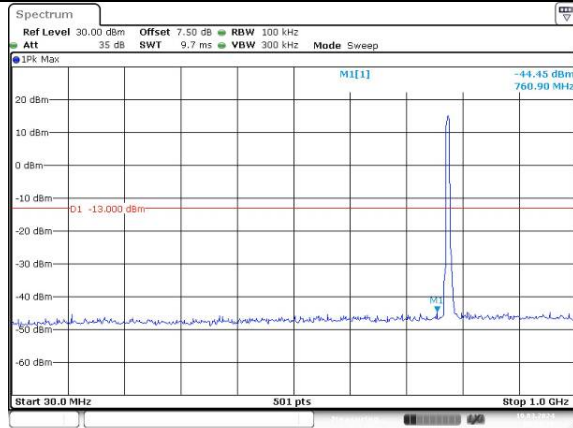


Spurious Emissions at Antenna Terminal

Channel

5MHz Bandwidth QPSK

Lowest

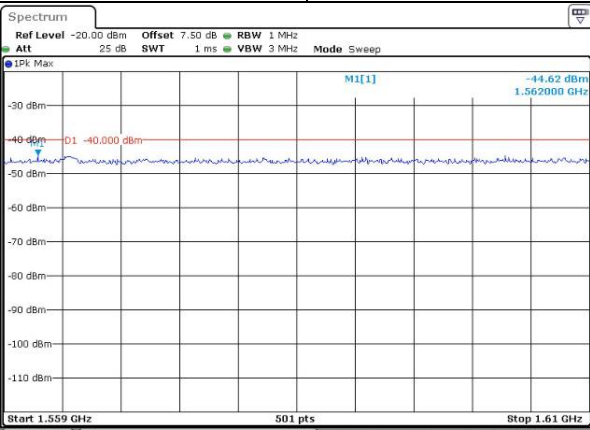
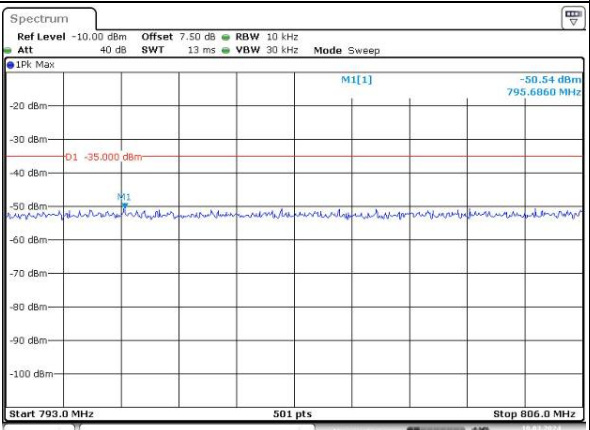
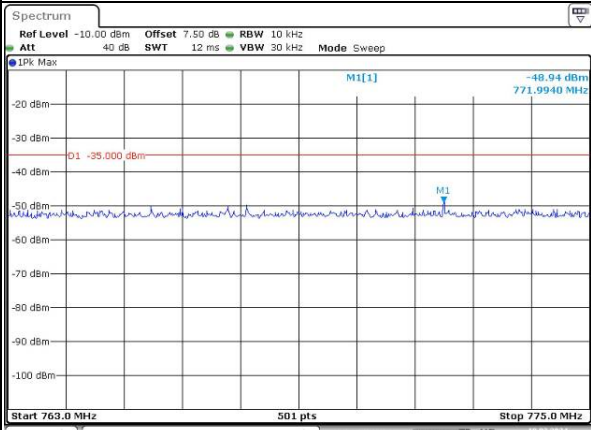
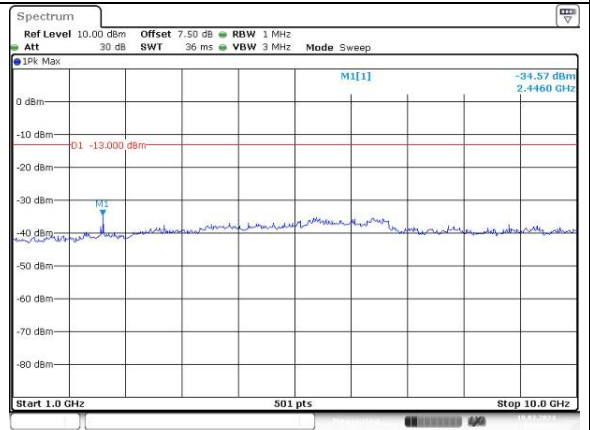
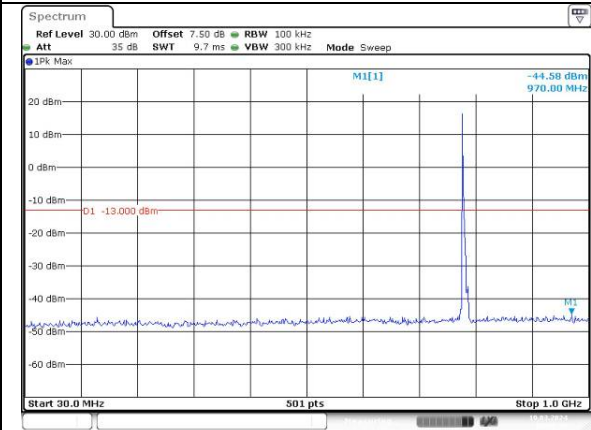


Spurious Emissions at Antenna Terminal

Channel

5MHz Bandwidth QPSK

Highest

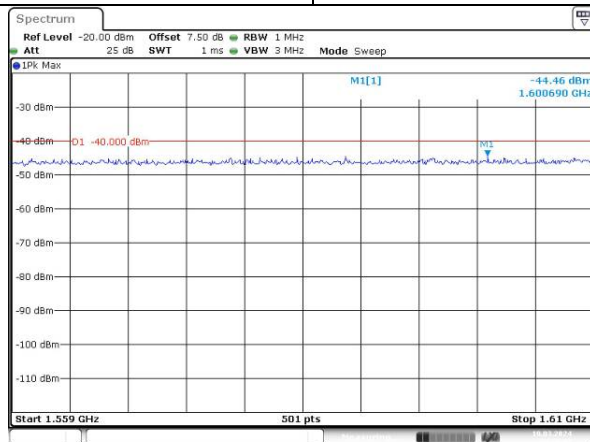
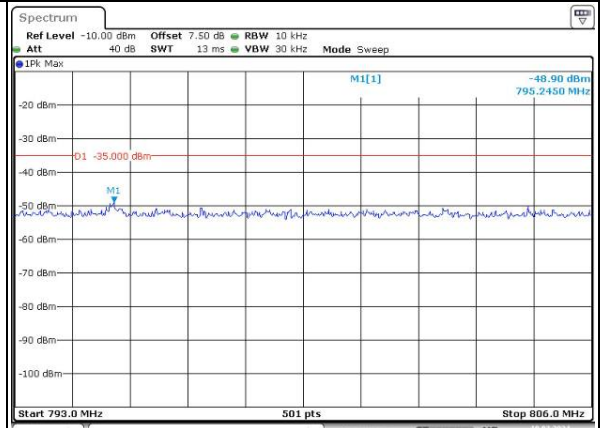
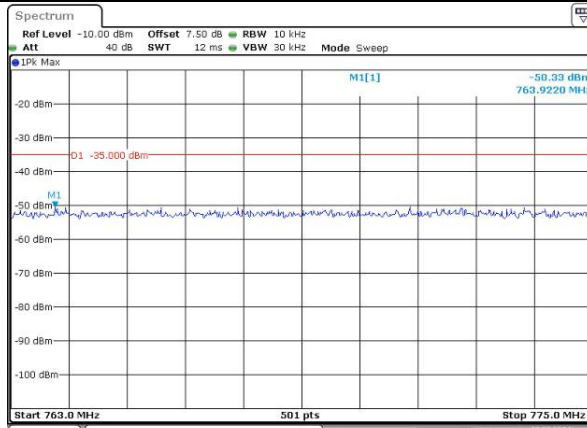
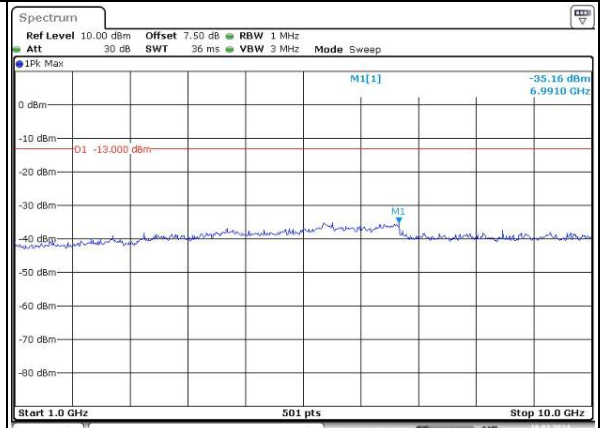
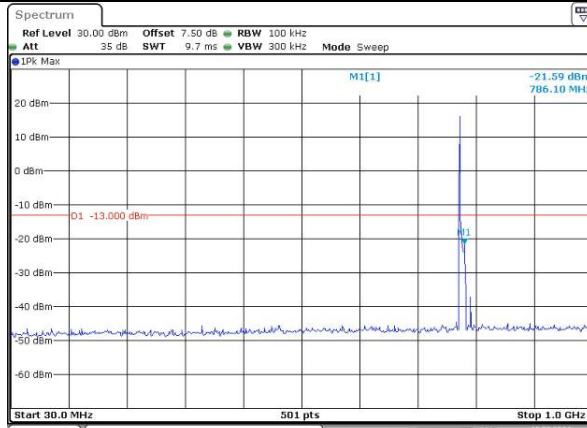


Spurious Emissions at Antenna Terminal

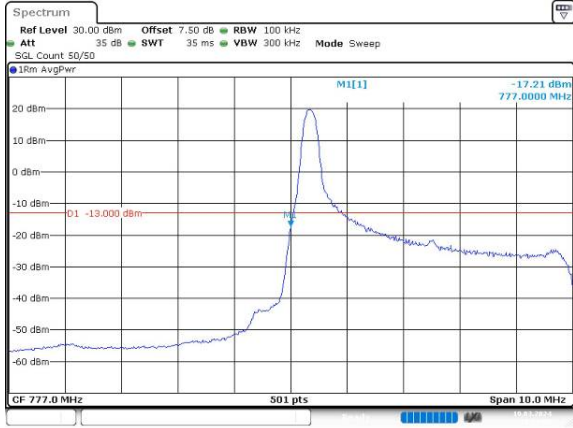
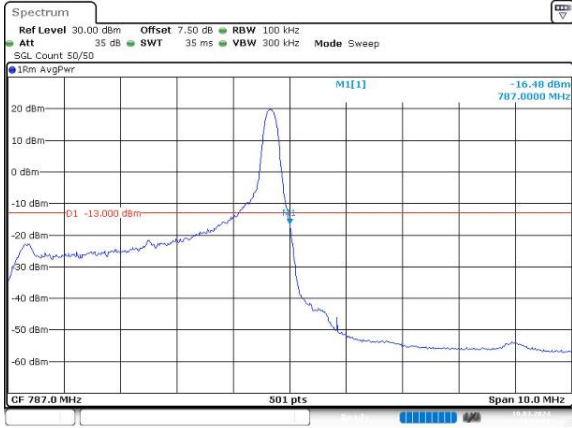
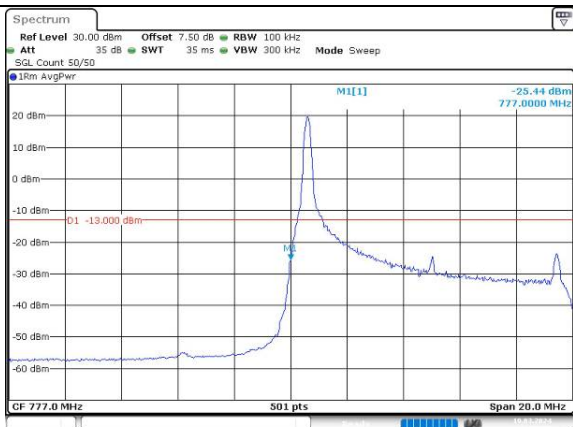
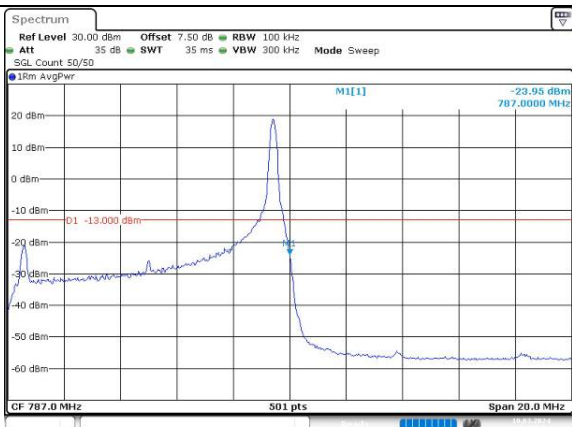
Channel

10MHz Bandwidth QPSK

Middle



Out of band emission, Band Edge

Mode	Lowest-RB 1#0	Highest-RB 1#Max
QPSK 5MHz	 ProjectNo.:DG1240228-09798E Testers:Jeff Wei Date: 19.MAR.2024 10:28:54	 ProjectNo.:DG1240228-09798E Testers:Jeff Wei Date: 19.MAR.2024 10:29:28
QPSK 10MHz	 ProjectNo.:DG1240228-09798E Testers:Jeff Wei Date: 19.MAR.2024 11:25:52	 ProjectNo.:DG1240228-09798E Testers:Jeff Wei Date: 19.MAR.2024 11:22:05

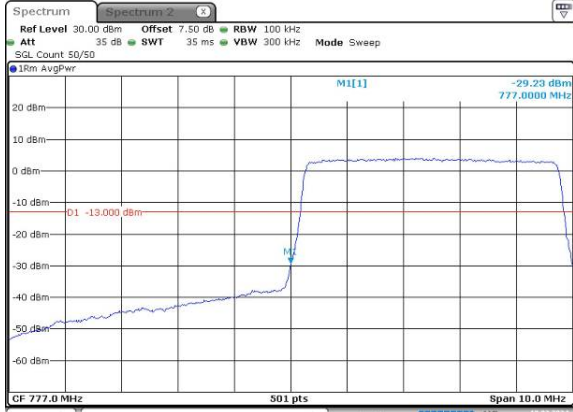
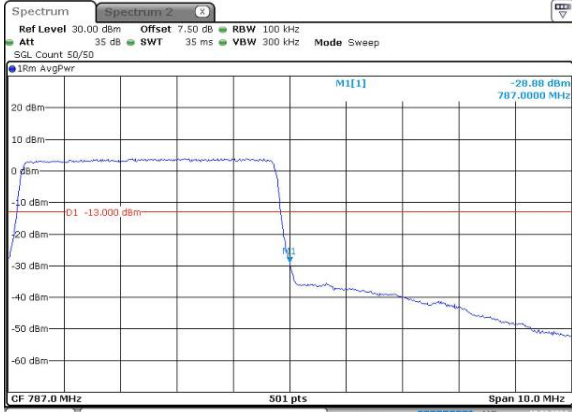
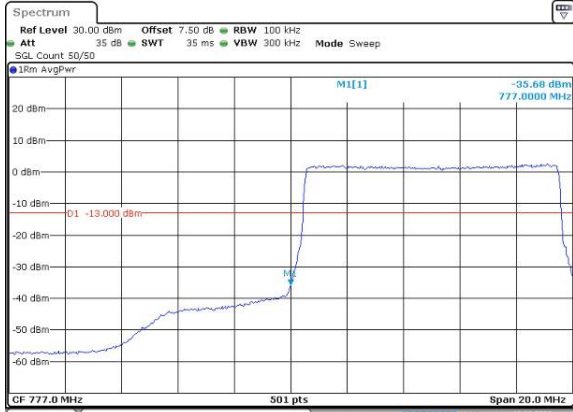
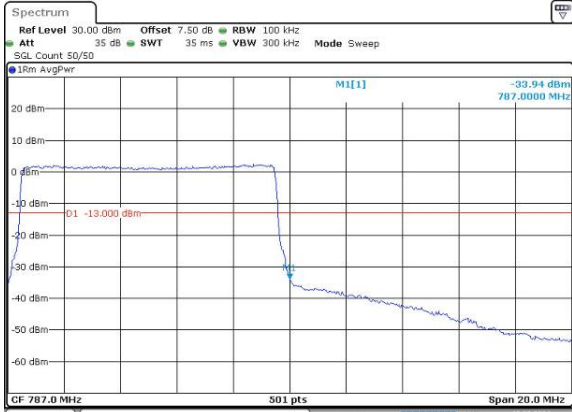
Out of band emission, Band Edge

Mode	Lowest-RB 1#0	Highest-RB 1#Max
16QAM 5MHz	ProjectNo.:DG1240228-09798E Testers:Jeff Wei Date: 19_MAR.2024 10:29:11	ProjectNo.:DG1240228-09798E Testers:Jeff Wei Date: 19_MAR.2024 10:30:03
16QAM 10MHz	ProjectNo.:DG1240228-09798E Testers:Jeff Wei Date: 19_MAR.2024 11:25:27	ProjectNo.:DG1240228-09798E Testers:Jeff Wei Date: 19_MAR.2024 11:22:43

Out of band emission, Band Edge

Mode	Lowest-Full RB	Highest-Full RB
QPSK 5MHz	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 10.MAR.2024 21:36:22	ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 10.MAR.2024 21:36:34
QPSK 10MHz	ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 11:26:33	ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19.MAR.2024 11:21:12

Out of band emission, Band Edge

Mode	Lowest-Full RB	Highest-Full RB
16QAM 5MHz	 ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18_MAR.2024 21:36:28	 ProjectNo.:DG1240228-09798E Tester:Loge Long Date: 18_MAR.2024 21:36:40
16QAM 10MHz	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19_MAR.2024 11:24:54	 ProjectNo.:DG1240228-09798E Tester:Jeff Wei Date: 19_MAR.2024 11:23:12

5.8 Antenna Port Test Data and Results for LTE Band 17

Serial Number:	2145-3	Test Date:	2024/3/18~2024/3/19
Test Site:	RF	Test Mode:	Transmitting
Tester:	Loge Long, Jeff Wei	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	23.4~23.7	Relative Humidity: (%)	63~64	ATM Pressure: (kPa)	100.9~101.4
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
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
R&S	Spectrum Analyzer	FSV40	101461	2023/11/27	2024/11/26
TDK-Lambda	DC Power Supply	Z+60-14	F-08-EM038-1	N/A	N/A
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	2023/9/1	2024/8/31
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	2023/9/1	2024/8/31

* 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)
5MHz	706.5	710	713.5
10MHz	709	710	711

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

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
5MHz QPSK	RB1#0	22.98	22.87	22.88	19.15	34.77
	RB1#13	22.85	22.76	22.76		
	RB1#24	22.97	22.83	22.76		
	RB15#0	21.92	21.81	21.72		
	RB15#10	21.91	21.79	21.92		
	RB25#0	21.88	21.76	22.01		
5MHz 16QAM	RB1#0	22.16	21.86	21.54	18.34	34.77
	RB1#13	22.17	21.79	21.55		
	RB1#24	22.17	21.9	21.5		
	RB15#0	20.77	20.96	20.82		
	RB15#10	20.85	20.91	20.91		
	RB25#0	20.83	20.83	21.01		
10MHz QPSK	RB1#0	22.98	22.85	22.85	19.15	34.77
	RB1#25	22.98	22.86	22.71		
	RB1#49	22.92	22.79	22.83		
	RB25#0	21.81	21.8	21.87		
	RB25#25	21.71	21.66	22.01		
	RB50#0	21.79	21.82	21.7		
10MHz 16QAM	RB1#0	22.6	22.02	22.81	18.98	34.77
	RB1#25	22.46	21.82	22.48		
	RB1#49	22.58	22.04	22.73		
	RB25#0	21.02	21.08	21.02		
	RB25#25	20.83	21.04	20.87		
	RB50#0	20.98	20.96	20.83		

Note:

ERP= Conducted Power(dBm) - Lc(dB) + Gr(dBd)

Gr(dBd)=Gr(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	5.16	5.3	5.45	13
	RB50#0	5.51	5.51	5.36	13
10MHz 16QAM	RB1#0	5.86	6.14	5.88	13
	RB50#0	6.38	6.35	6.29	13
Result:					Pass

FCC §2.1049, §27.53:Occupied Bandwidth

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
5MHz QPSK	4.531	4.511	4.511	5.02	4.98	4.98
5MHz 16QAM	4.531	4.551	4.511	5.04	5	4.98
10MHz QPSK	8.942	8.942	8.982	9.76	9.8	9.76
10MHz 16QAM	8.982	8.942	8.982	9.8	9.8	9.76

Note: Test was performed at full RB. 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:	10M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	704.496	704.00	715.484	716.00
	-20	3.8	704.520	704.00	715.493	716.00
	-10	3.8	704.517	704.00	715.502	716.00
	0	3.8	704.502	704.00	715.490	716.00
	10	3.8	704.523	704.00	715.493	716.00
	20	3.8	704.529	704.00	715.511	716.00
	30	3.8	704.538	704.00	715.520	716.00
	40	3.8	704.553	704.00	715.517	716.00
	50	3.8	704.547	704.00	715.514	716.00
Frequency Stability vs. Voltage	20	3.6	704.535	704.00	715.514	716.00
	20	4.35	704.544	704.00	715.532	716.00
Result:					Pass	

Test Mode:	10M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	704.496	704.00	715.484	716.00
	-20	3.8	704.508	704.00	715.496	716.00
	-10	3.8	704.523	704.00	715.484	716.00
	0	3.8	704.508	704.00	715.484	716.00
	10	3.8	704.502	704.00	715.502	716.00
	20	3.8	704.529	704.00	715.511	716.00
	30	3.8	704.553	704.00	715.517	716.00
	40	3.8	704.535	704.00	715.517	716.00
	50	3.8	704.547	704.00	715.517	716.00
Frequency Stability vs. Voltage	20	3.6	704.550	704.00	715.535	716.00
	20	4.35	704.553	704.00	715.526	716.00
					Result:	Pass

Test Plots:

Occupied Bandwidth

