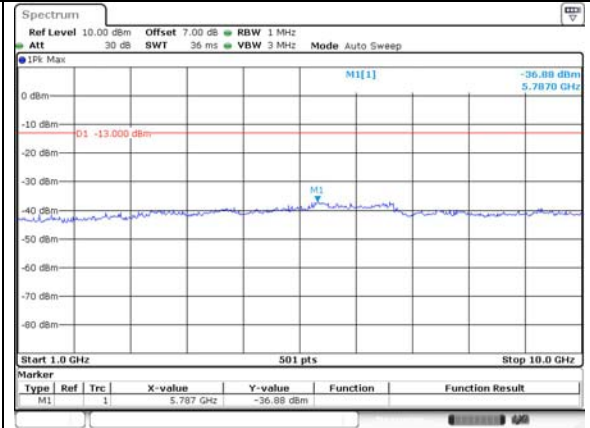
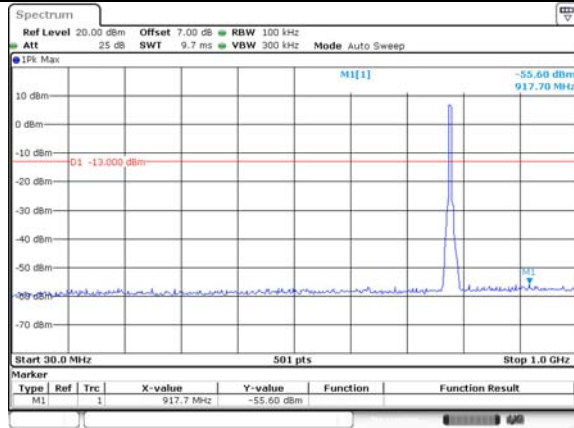


Spurious Emissions at Antenna Terminal

Channel

5MHz Bandwidth QPSK

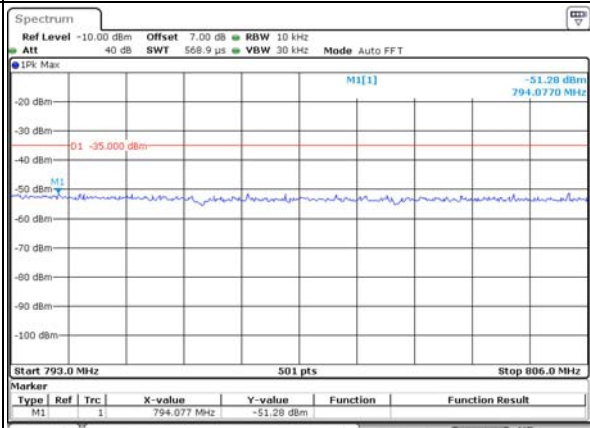
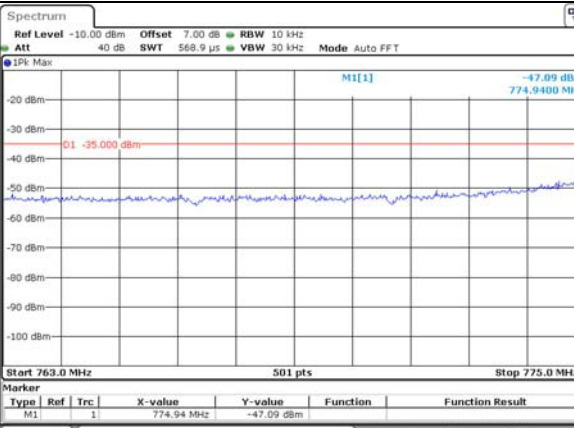
Middle



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 15.NOV.2023 19:59:06

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 15.NOV.2023 19:59:28

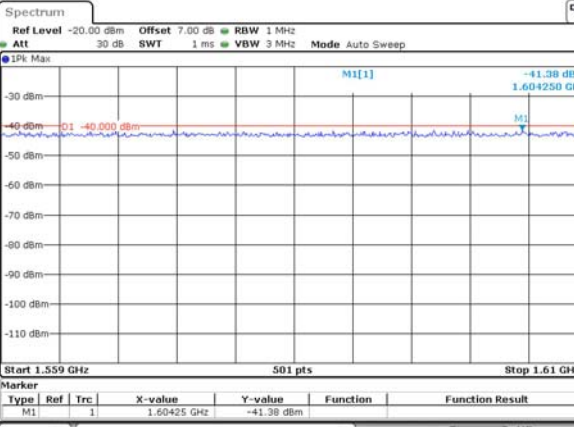
Middle



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 15.NOV.2023 19:59:53

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 15.NOV.2023 20:00:22

Middle

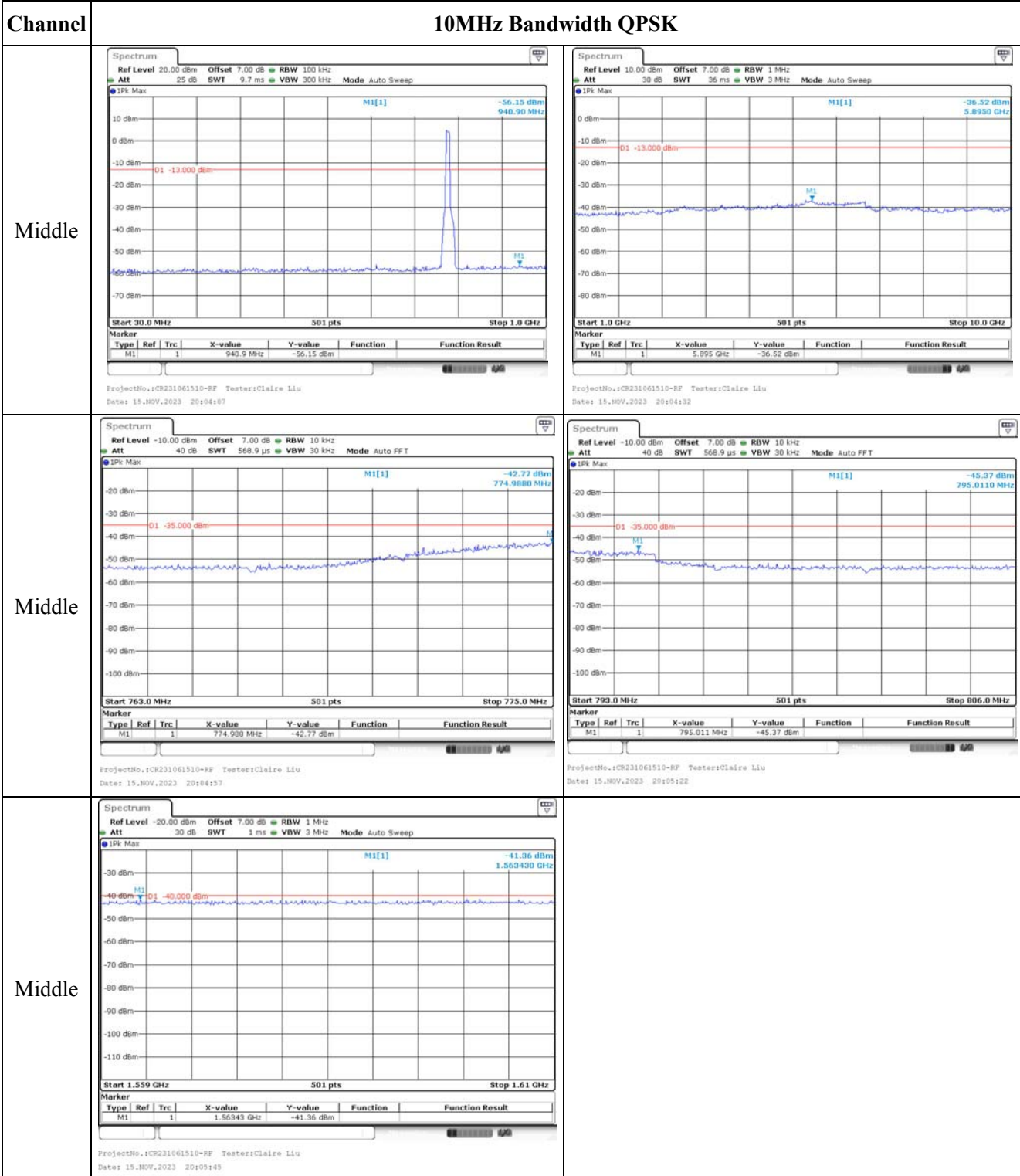


ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 15.NOV.2023 20:00:47

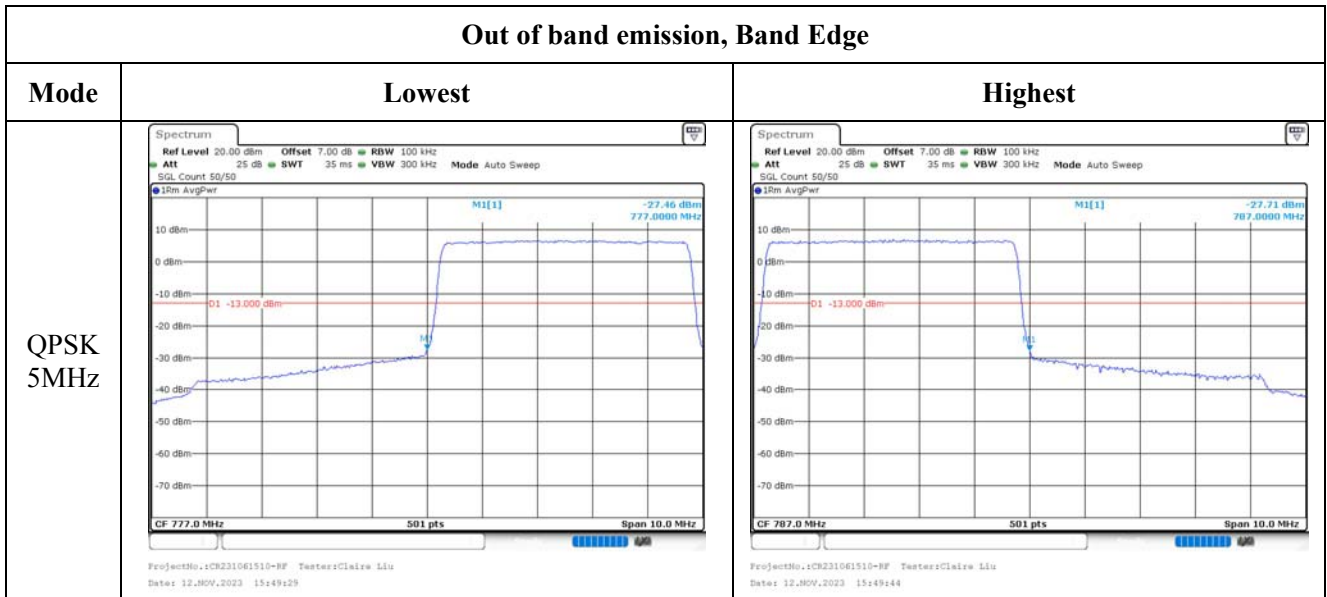
Spurious Emissions at Antenna Terminal

Channel	5MHz Bandwidth QPSK	
Highest	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 15.NOV.2023 20:01:19</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 15.NOV.2023 20:01:45</p>
Highest	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 15.NOV.2023 20:02:10</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 15.NOV.2023 20:02:35</p>
Highest	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 15.NOV.2023 20:02:54</p>	

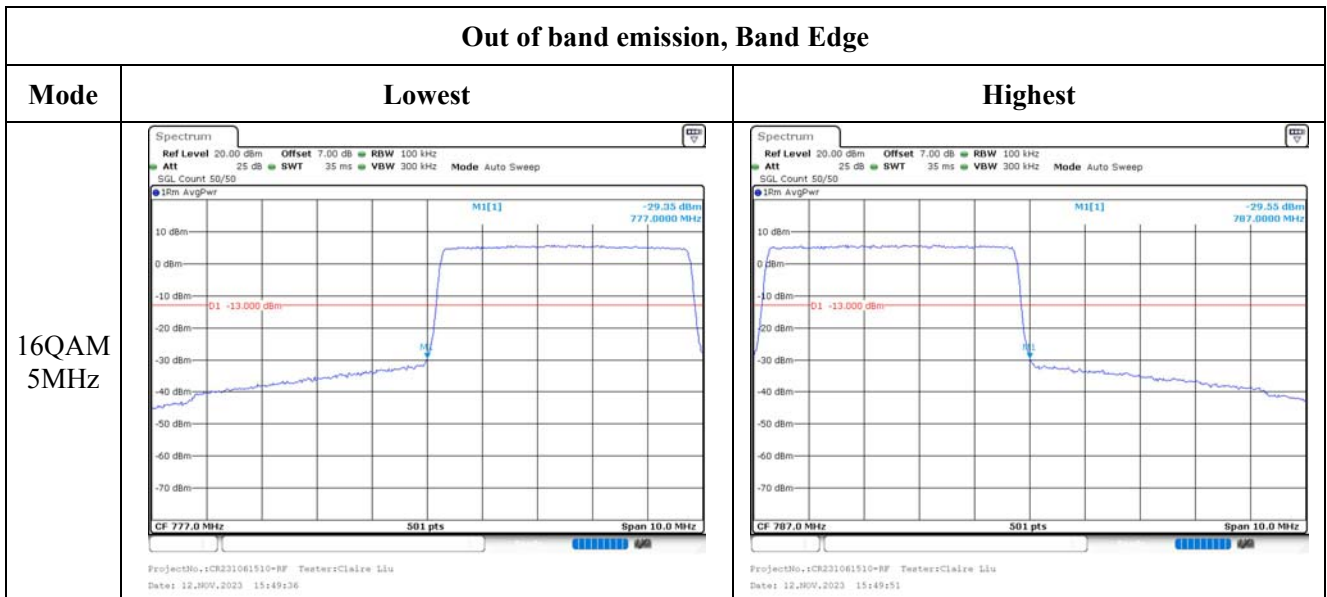
Spurious Emissions at Antenna Terminal



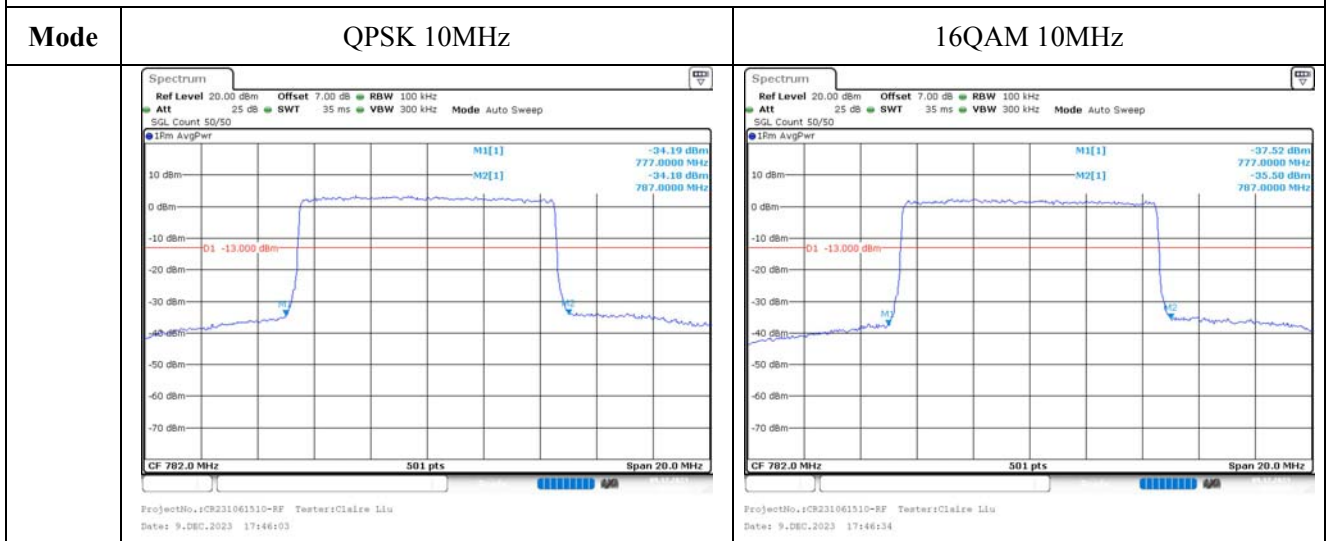
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



4.12 Antenna Port Test Data and Results for LTE Band 17

Serial Number:	2CIM-1	Test Date:	2023/11/12~2023/12/9
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.7~25.5	Relative Humidity: (%)	53~62	ATM Pressure: (kPa)	100.1~102
----------------------	-----------	------------------------------	-------	------------------------	-----------

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101590	2022/11/25	2023/11/24
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
Minl-Circuits	Power Splitter	ZFRSC-183-S+	S F448201619	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	2023/9/28	2024/9/27
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	2023/9/28	2024/9/27
R&S	Spectrum Analyzer	FSV40	101590	2023/11/16	2024/11/15

* 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	706.5	710	713.5
10MHz	709	710	711

Test Data:**RF Output Power**

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
5MHz QPSK	RB1#0	23.56	23.5	23.47	13.12	34.77
	RB1#13	23.72	23.63	23.6		
	RB1#24	23.57	23.48	23.45		
	RB15#0	22.57	22.57	22.58		
	RB15#10	22.68	22.48	22.52		
	RB25#0	22.66	22.51	22.57		
5MHz 16QAM	RB1#0	22.63	22.44	22.79	12.24	34.77
	RB1#13	22.8	22.49	22.84		
	RB1#24	22.64	22.38	22.7		
	RB15#0	21.64	21.65	21.61		
	RB15#10	21.75	21.59	21.53		
	RB25#0	21.75	21.68	21.64		
10MHz QPSK	RB1#0	23.59	23.58	23.59	13.05	34.77
	RB1#25	23.61	23.65	23.6		
	RB1#49	23.59	23.58	23.55		
	RB25#0	22.48	22.52	22.51		
	RB25#25	22.45	22.44	22.5		
	RB50#0	22.48	22.48	22.52		
10MHz 16QAM	RB1#0	22.76	22.65	23.21	12.61	34.77
	RB1#25	22.79	22.62	23.13		
	RB1#49	22.72	22.54	23.04		
	RB25#0	21.59	21.69	21.68		
	RB25#25	21.55	21.62	21.59		
	RB50#0	21.54	21.57	21.58		

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	4.78	4.87	4.84	13
	RB50#0	5.13	5.16	5.13	13
10MHz 16QAM	RB1#0	5.57	5.77	5.83	13
	RB50#0	6.2	6.14	6.14	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	4.900	4.511	4.920	4.511	4.920
5MHz 16QAM	4.531	4.960	4.491	4.920	4.531	4.960
10MHz QPSK	8.942	9.680	8.942	9.640	8.942	9.560
10MHz 16QAM	8.942	9.600	8.942	9.600	8.942	9.600

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

Out of band emission, Band Edge

Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
----------------	---

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	3.91	704.205	704.00	715.690	716.00
	-20	3.91	704.246	704.00	715.692	716.00
	-10	3.91	704.206	704.00	715.719	716.00
	0	3.91	704.218	704.00	715.693	716.00
	10	3.91	704.236	704.00	715.682	716.00
	20	3.91	704.160	704.00	715.760	716.00
	30	3.91	704.185	704.00	715.754	716.00
	40	3.91	704.208	704.00	715.735	716.00
Frequency Stability vs. Voltage	20	3.45	704.190	704.00	715.673	716.00
	20	4.5	704.252	704.00	715.760	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	3.91	704.281	704.00	715.768	716.00
	-20	3.91	704.295	704.00	715.731	716.00
	-10	3.91	704.263	704.00	715.718	716.00
	0	3.91	704.204	704.00	715.791	716.00

	10	3.91	704.246	704.00	715.795	716.00
	20	3.91	704.200	704.00	715.800	716.00
	30	3.91	704.235	704.00	715.728	716.00
	40	3.91	704.236	704.00	715.769	716.00
	50	3.91	704.276	704.00	715.755	716.00
Frequency Stability vs. Voltage	20	3.45	704.293	704.00	715.727	716.00
	20	4.5	704.240	704.00	715.792	716.00
					Result:	Pass

Test Plots(Note: The 7.0dB 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	<p>ProjectNo.:CR231061510-RF Tester:Clair Liu Date: 12.NOV.2023 15:23:45</p>	<p>ProjectNo.:CR231061510-RF Tester:Clair Liu Date: 12.NOV.2023 15:24:06</p>
Middle	<p>ProjectNo.:CR231061510-RF Tester:Clair Liu Date: 12.NOV.2023 15:24:31</p>	<p>ProjectNo.:CR231061510-RF Tester:Clair Liu Date: 12.NOV.2023 15:24:52</p>
Highest	<p>ProjectNo.:CR231061510-RF Tester:Clair Liu Date: 12.NOV.2023 15:25:10</p>	<p>ProjectNo.:CR231061510-RF Tester:Clair Liu Date: 12.NOV.2023 15:25:34</p>

Occupied Bandwidth

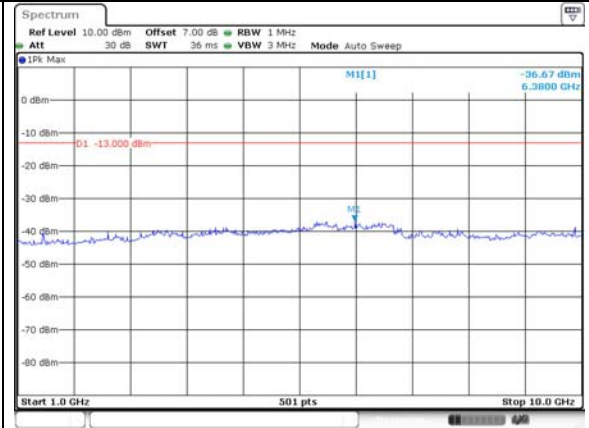
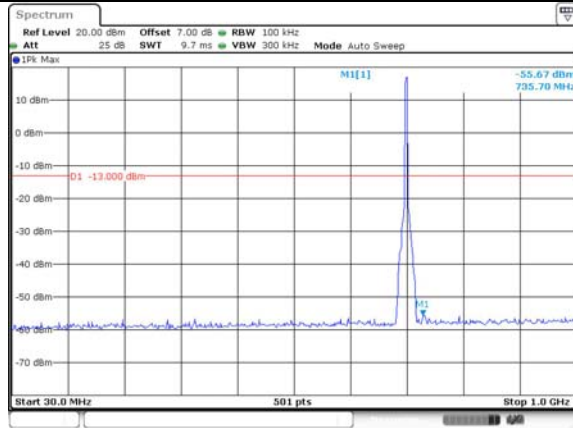
Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest	<p>ProjectNo.:CR231061510-RF Tester:Claira Liu Date: 12.NOV.2023 15:26:25</p>	<p>ProjectNo.:CR231061510-RF Tester:Claira Liu Date: 12.NOV.2023 15:26:49</p>
Middle	<p>ProjectNo.:CR231061510-RF Tester:Claira Liu Date: 12.NOV.2023 15:27:11</p>	<p>ProjectNo.:CR231061510-RF Tester:Claira Liu Date: 12.NOV.2023 15:27:38</p>
Highest	<p>ProjectNo.:CR231061510-RF Tester:Claira Liu Date: 12.NOV.2023 15:28:00</p>	<p>ProjectNo.:CR231061510-RF Tester:Claira Liu Date: 12.NOV.2023 15:28:24</p>

Spurious Emissions at Antenna Terminal

Channel

5MHz Bandwidth QPSK

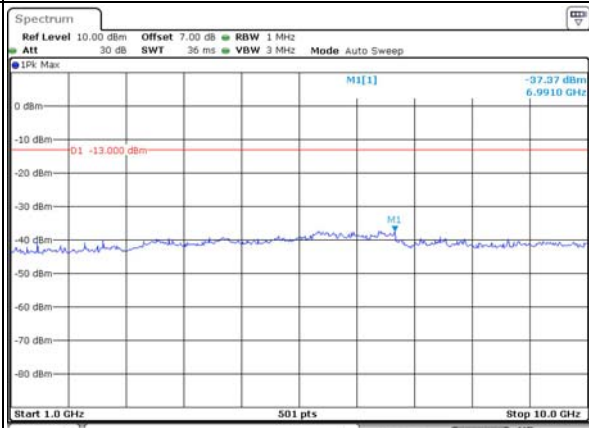
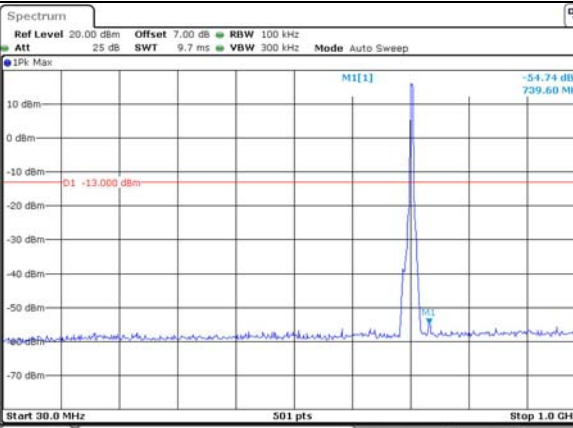
Lowest



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 10:14:25

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 10:14:50

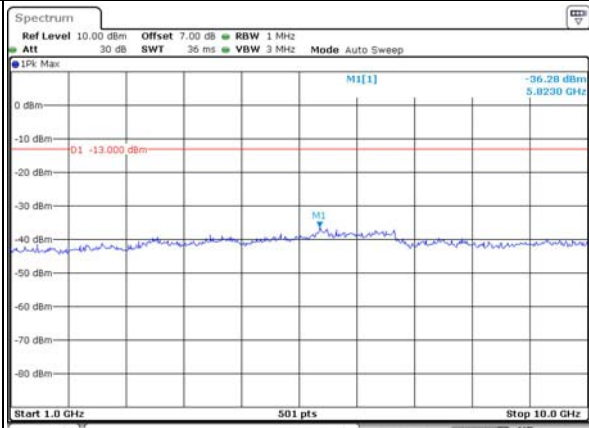
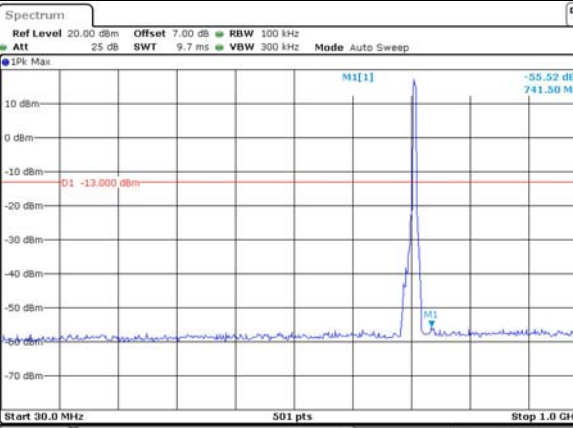
Middle



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 10:15:19

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 10:15:41

Highest



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 10:16:14

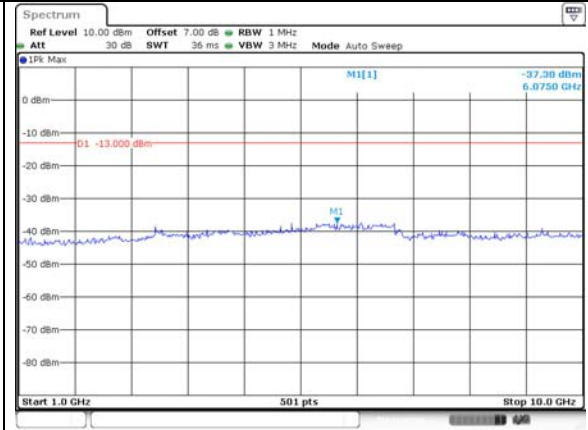
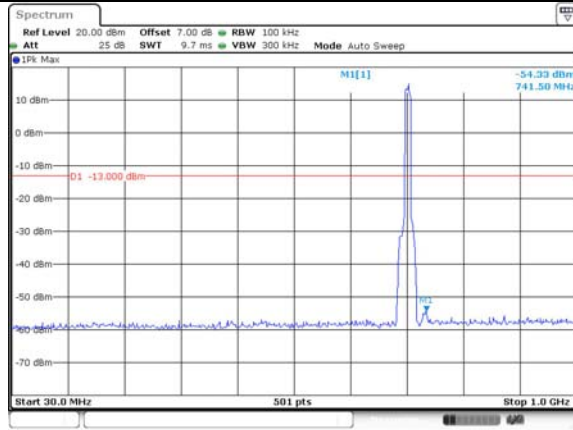
ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 10:16:36

Spurious Emissions at Antenna Terminal

Channel

10MHz Bandwidth QPSK

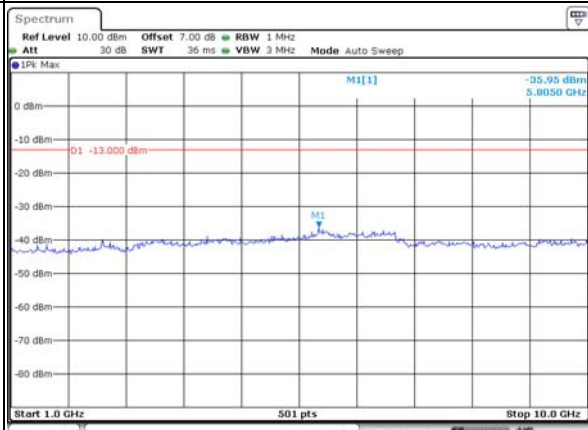
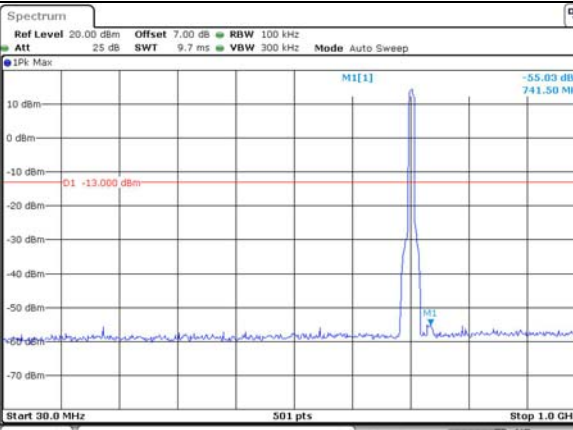
Lowest



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 10:17:34

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 10:17:53

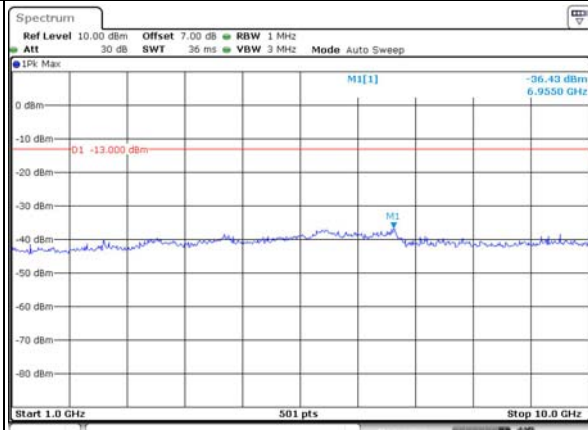
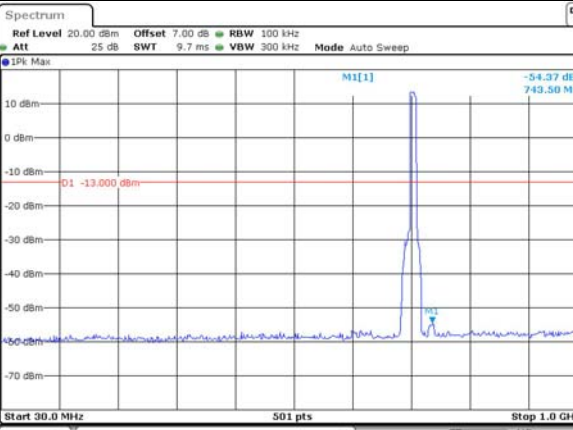
Middle



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 10:18:20

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 10:18:45

Highest



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 10:19:12

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 10:19:37

Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 5MHz	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 12.NOV.2023 16:24:27</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 12.NOV.2023 16:24:42</p>
QPSK 10MHz	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 12.NOV.2023 16:25:25</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 12.NOV.2023 16:25:43</p>

Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 5MHz		
16QAM 10MHz		

4.13 Antenna Port Test Data and Results for LTE Band 26

Serial Number:	2CIM-1	Test Date:	2023/11/12~2023/12/9
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.7~25.5	Relative Humidity: (%)	53~62	ATM Pressure: (kPa)	100.1~102
----------------------	-----------	------------------------------	-------	------------------------	-----------

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101590	2022/11/25	2023/11/24
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
Minl-Circuits	Power Splitter	ZFRSC-183-S+	S F448201619	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	2023/9/28	2024/9/27
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	2023/9/28	2024/9/27
R&S	Spectrum Analyzer	FSV40	101590	2023/11/16	2024/11/15

* 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 For 90S (MHz)	Highest Frequency For 90S (MHz)	Channel Cross 90S and 22H	Lowest Frequency For 22H (MHz)	Middle Frequency For 22H (MHz)	Highest Frequency For 22H (MHz)
1.4MHz	814.7	823.3	824	824.7	836.5	848.3
3MHz	815.5	822.5	824	825.5	836.5	847.5
5MHz	816.5	821.5	824	826.5	836.5	846.5
10MHz	819	/	824	829	836.5	844
15MHz	821.5	/	824	831.5	836.5	841.5

Note: 15MHz bandwidth 821.5MHz cross Rules 90S and 22H.

Test Data for Part 90S:**FCC§2.1046; § 90.635****RF Output Power:**

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Channel For 90S	Highest Channel For 90S	Cross Channel		
1.4MHz QPSK	RB1#0	23.1	23.18	23.21	13.84	50
	RB1#3	23.15	23.22	23.27		
	RB1#5	23.11	23.15	23.16		
	RB3#0	23.19	23.25	23.34		
	RB3#3	23.23	23.27	23.38		
	RB6#0	22.28	22.34	22.41		
1.4MHz 16QAM	RB1#0	22.05	22.15	22.98	13.58	50
	RB1#3	22.12	22.22	23.12		
	RB1#5	22.07	22.17	23.05		
	RB3#0	22.37	22.35	22.12		
	RB3#3	22.4	22.36	22.19		
	RB6#0	21.33	21.31	22.17		
3MHz QPSK	RB1#0	23.04	23.09	23.27	13.91	50
	RB1#8	23.07	23.19	23.45		
	RB1#14	22.96	23.1	23.35		
	RB6#0	22.13	22.21	22.28		
	RB6#9	22.19	22.23	22.34		
	RB15#0	22.18	22.24	22.31		
3MHz 16QAM	RB1#0	21.98	22.16	23.32	13.93	50
	RB1#8	22.11	22.28	23.39		
	RB1#14	22.01	22.25	23.47		
	RB6#0	21.11	21.24	22.21		
	RB6#9	21.15	21.35	22.32		
	RB15#0	21.22	21.18	22.28		
5MHz QPSK	RB1#0	23.25	23.28	23.15	13.94	50
	RB1#13	23.4	23.48	23.38		
	RB1#24	23.29	23.38	23.42		
	RB15#0	22.26	22.3	22.23		
	RB15#10	22.33	22.35	22.36		
	RB25#0	22.31	22.34	22.33		
5MHz 16QAM	RB1#0	22.3	22.53	22.19	13.25	50
	RB1#13	22.47	22.79	22.27		
	RB1#24	22.37	22.62	22.19		
	RB15#0	21.35	21.26	22.49		
	RB15#10	21.37	21.36	22.53		

	RB25#0	21.4	21.38	21.47		
10MHz QPSK	RB1#0	23.34	/	22.68	13.92	50
	RB1#25	23.4	/	22.77		
	RB1#49	23.46	/	22.59		
	RB25#0	22.24	/	21.36		
	RB25#25	22.39	/	21.33		
	RB50#0	22.32	/	21.27		
10MHz 16QAM	RB1#0	22.34	/	22.47	13.05	50
	RB1#25	22.36	/	22.59		
	RB1#49	22.43	/	22.49		
	RB25#0	21.37	/	21.33		
	RB25#25	21.5	/	21.38		
	RB50#0	21.35	/	21.44		
15MHz QPSK	RB1#0	23.39	/	22.92	14.09	50
	RB1#38	23.59	/	23.05		
	RB1#74	23.63	/	23.1		
	RB36#0	22.42	/	21.44		
	RB36#39	22.55	/	21.49		
	RB75#0	22.49	/	21.37		
15MHz 16QAM	RB1#0	22.49	/	22.85	13.56	50
	RB1#38	22.74	/	23.07		
	RB1#74	22.68	/	23.1		
	RB36#0	21.39	/	21.37		
	RB36#39	21.6	/	21.46		
	RB75#0	21.46	/	21.42		

Note:

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

Gr(dBd)=Gr(dBi)-2.15

Result:**Pass****FCC §2.1049, §90.209: Occupied Bandwidth**

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Lowest For 90S	Highest For 90S	Cross	Lowest For 90S	Highest For 90S	Cross
1.4MHz QPSK	1.102	1.096	1.102	1.278	1.302	1.281
1.4MHz 16QAM	1.096	1.102	1.102	1.302	1.278	1.335
3MHz QPSK	2.683	2.683	2.683	2.916	2.928	2.91
3MHz 16QAM	2.683	2.671	2.671	2.94	2.94	3.03
5MHz QPSK	4.491	4.511	4.471	4.92	4.92	4.818
5MHz 16QAM	4.511	4.511	4.471	4.9	4.94	4.778
10MHz QPSK	8.942	/	8.942	9.64	/	9.409
10MHz 16QAM	8.942	/	8.942	9.6	/	9.489
15MHz QPSK	13.413	/	13.413	14.072	/	14.02
15MHz 16QAM	13.413	/	13.413	13.892	/	14.02

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

FCC §2.1051, §90.691: Spurious Emissions at Antenna Terminal

Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.
----------------	--

FCC §2.1051, §90.691: Out of band emission, Band Edge

Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
----------------	---

FCC §2.1055, §90.213: Frequency Stability

Test Modulation:	15 MHz QPSK		Test Channel:	821.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.91	-3.436	-0.004	2.5
	-20	3.91	-3.49	-0.004	2.5
	-10	3.91	-3.482	-0.004	2.5
	0	3.91	-3.46	-0.004	2.5
	10	3.91	-3.482	-0.004	2.5
	20	3.91	-3.492	-0.004	2.5
	30	3.91	-3.418	-0.004	2.5
	40	3.91	-3.489	-0.004	2.5
Frequency Stability vs. Voltage	20	3.45	-3.436	-0.004	2.5
	20	4.5	-3.429	-0.004	2.5
Result:				Pass	

FCC §2.1055, §90.213: Frequency Stability

Test Modulation:	15 MHz 16QAM		Test Channel:	821.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.91	-4.226	-0.005	2.5
	-20	3.91	-4.216	-0.005	2.5
	-10	3.91	-4.267	-0.005	2.5
	0	3.91	-4.198	-0.005	2.5
	10	3.91	-4.192	-0.005	2.5
	20	3.91	-4.188	-0.005	2.5
	30	3.91	-4.26	-0.005	2.5
	40	3.91	-4.19	-0.005	2.5
Frequency Stability vs. Voltage	20	3.45	-4.229	-0.005	2.5
	20	4.5	-4.188	-0.005	2.5
Result:				Pass	

Test Plots for Part 90S: (Note: The 7.0dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer)

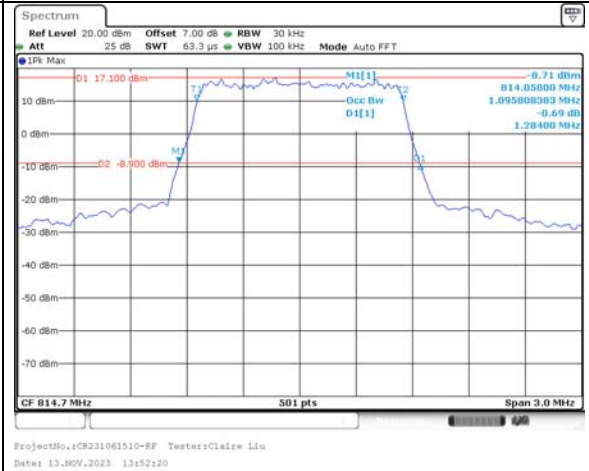
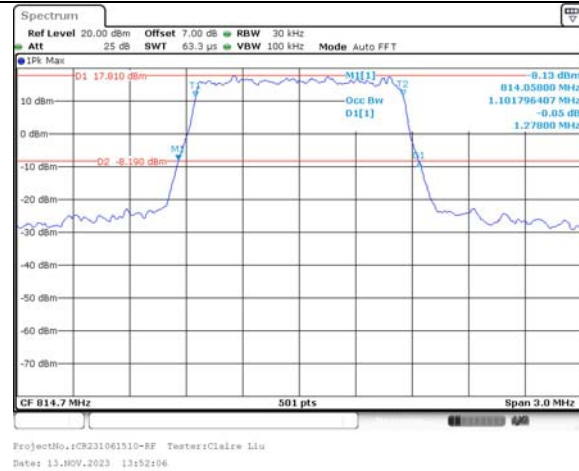
Occupied Bandwidth

Channel

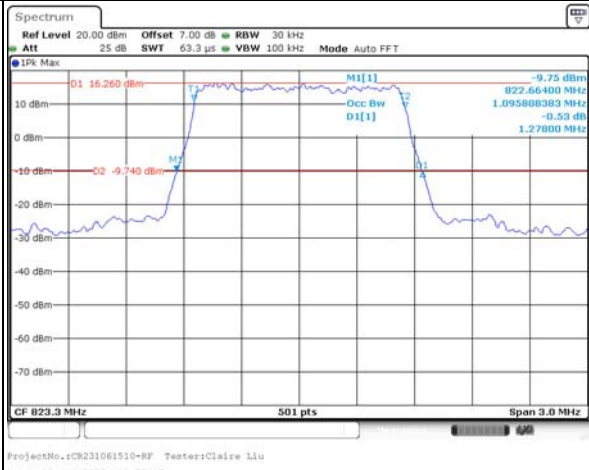
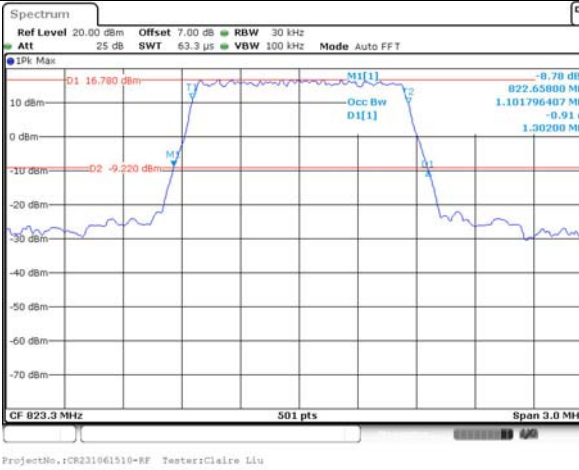
1.4MHz Bandwidth QPSK

1.4MHz Bandwidth 16QAM

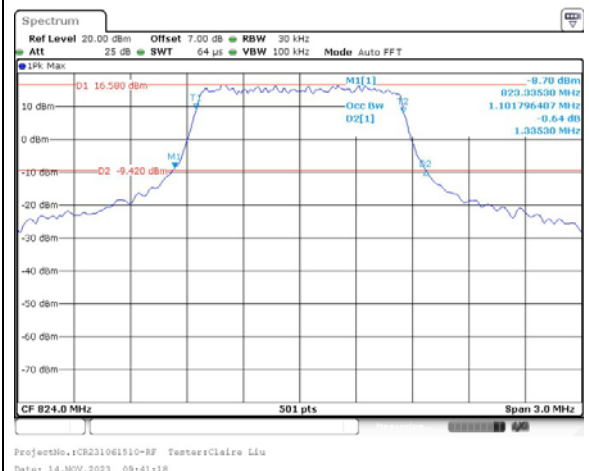
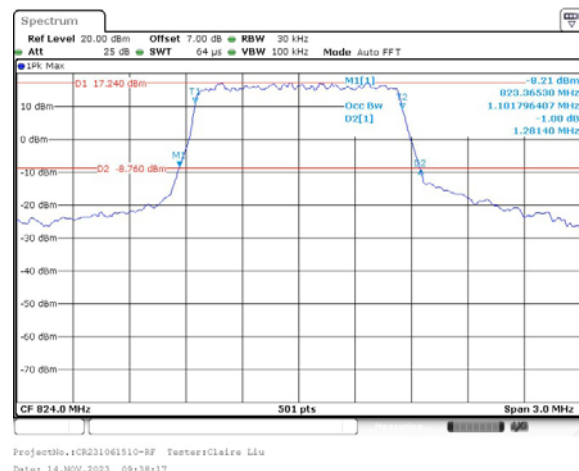
Lowest For 90S



Highest For 90S



Cross Channel



Occupied Bandwidth

Channel	3MHz Bandwidth QPSK	3MHz Bandwidth 16QAM
Lowest For 90S	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 13:54:07</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 13:54:27</p>
Highest For 90S	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 13:55:17</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 13:55:34</p>
Cross Channel	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 14.NOV.2023 09:44:14</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 14.NOV.2023 09:48:29</p>

Occupied Bandwidth

Channel	5MHz Bandwidth QPSK	5MHz Bandwidth 16QAM
Lowest For 90S	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 13:56:07</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 13:56:37</p>
Highest For 90S	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 13:57:58</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 13:58:10</p>
Cross Channel	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 14.NOV.2023 09:59:54</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 14.NOV.2023 09:53:05</p>

Occupied Bandwidth

Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest For 90S	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 13:56:40</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 13:56:40</p>
Cross Channel	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 14.NOV.2023 09:56:05</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 14.NOV.2023 09:57:49</p>

Occupied Bandwidth

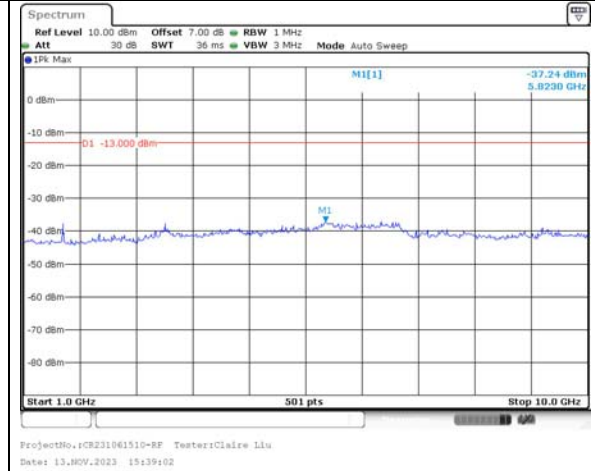
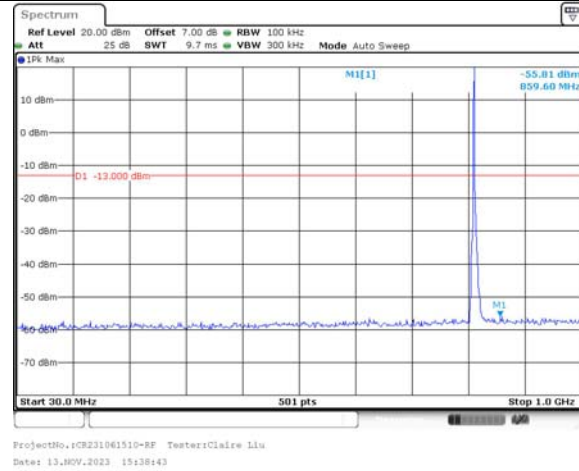
Channel	15MHz Bandwidth QPSK	15MHz Bandwidth 16QAM
Lowest For 90S	<p>ProjectNo.:CR231061510-RF Testers:Claire Liu Date: 14.NOV.2023 13:13:16</p>	<p>ProjectNo.:CR231061510-RF Testers:Claire Liu Date: 14.NOV.2023 13:16:06</p>
Cross Channel	<p>ProjectNo.:CR231061510-RF Testers:Claire Liu Date: 14.NOV.2023 10:00:23</p>	<p>ProjectNo.:CR231061510-RF Testers:Claire Liu Date: 14.NOV.2023 10:01:54</p>

Spurious Emissions at Antenna Terminal

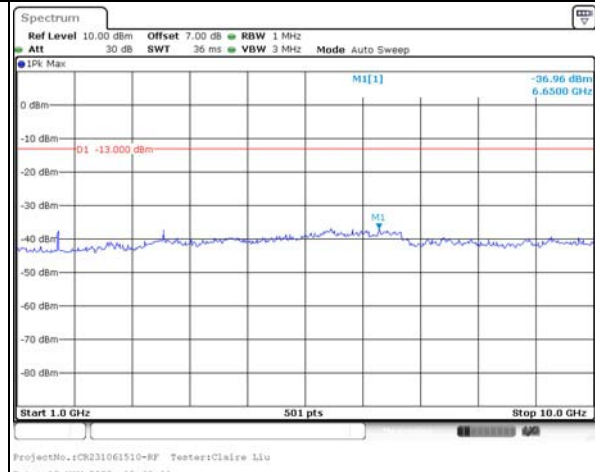
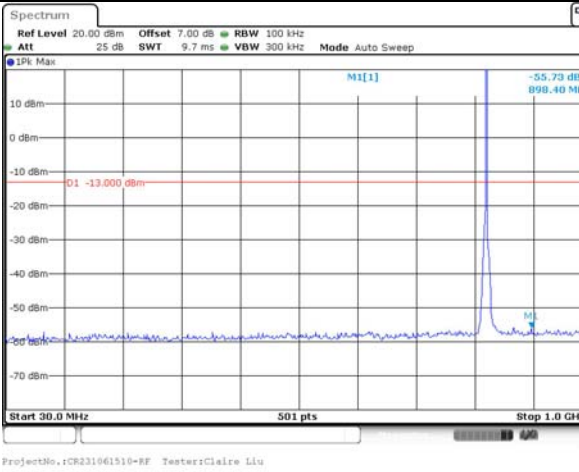
Channel

1.4MHz Bandwidth QPSK

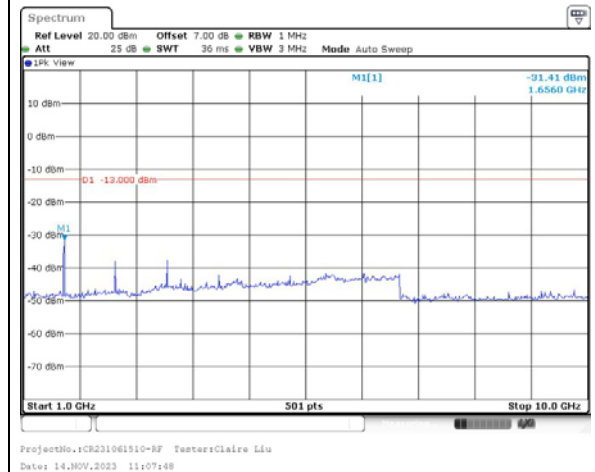
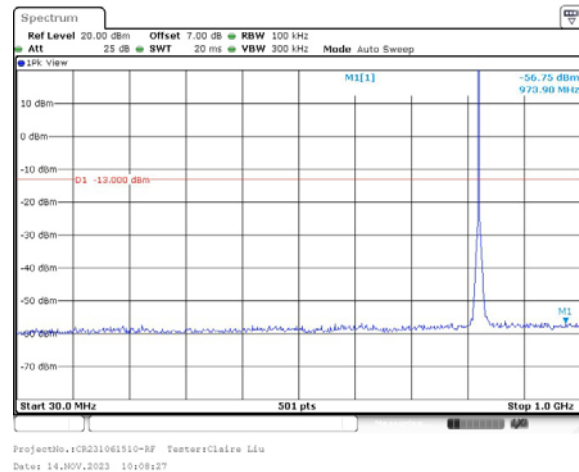
Lowest For 90S



Highest For 90S



Cross Channel

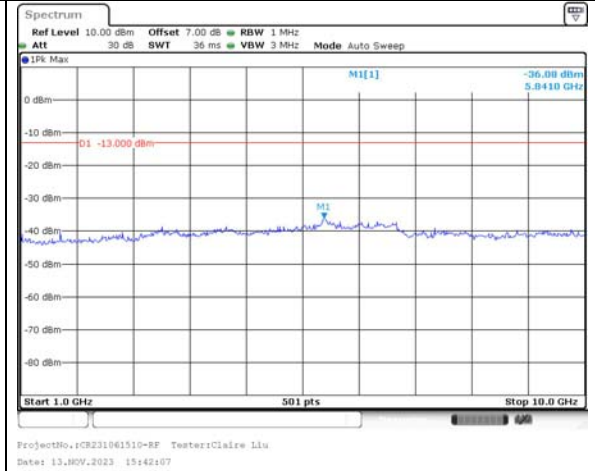
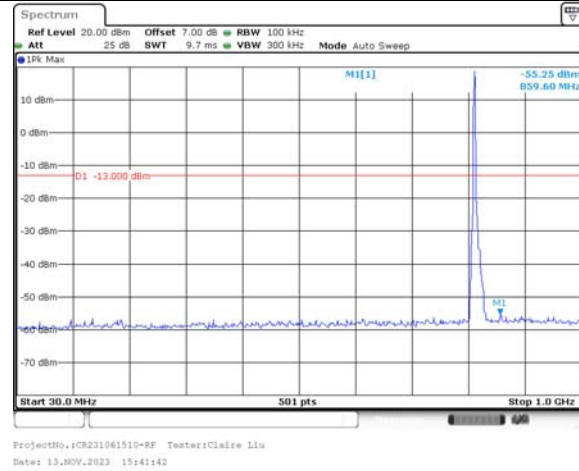


Spurious Emissions at Antenna Terminal

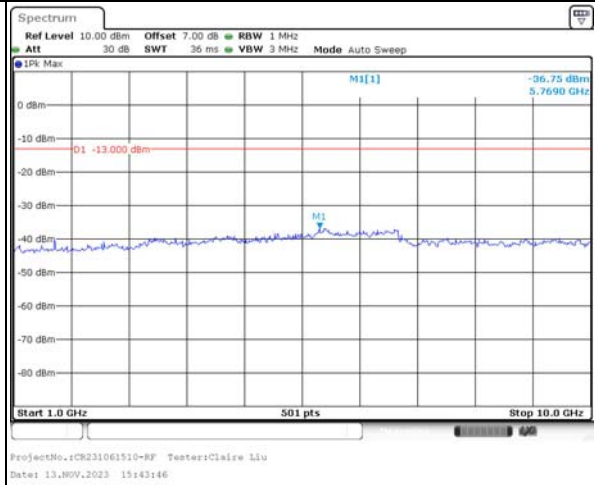
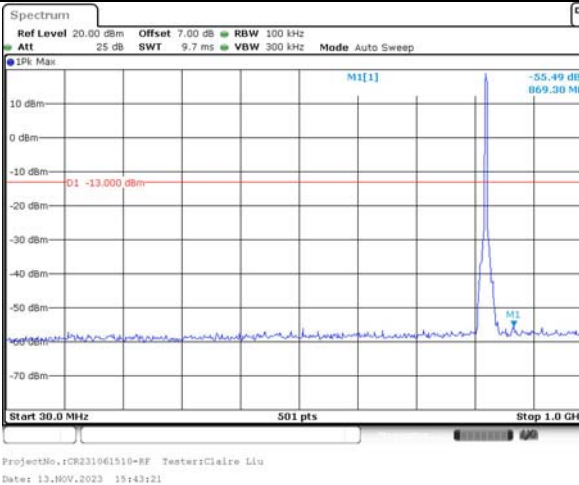
Channel

3MHz Bandwidth QPSK

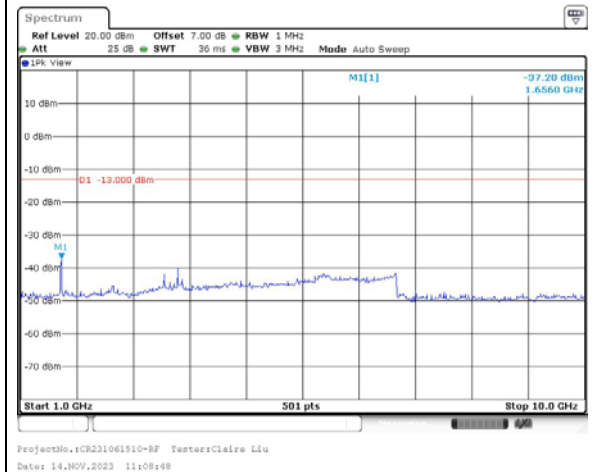
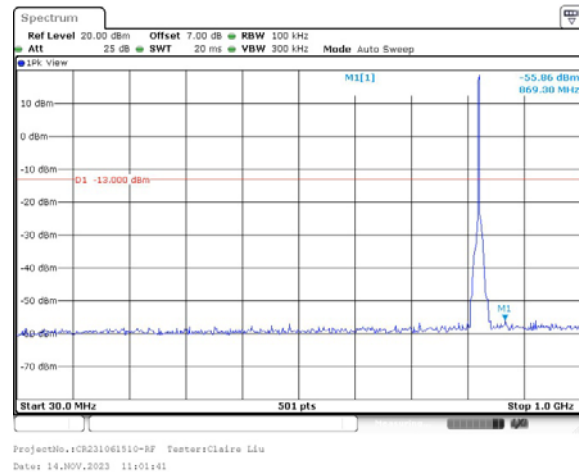
Lowest For 90S



Highest For 90S



Cross Channel

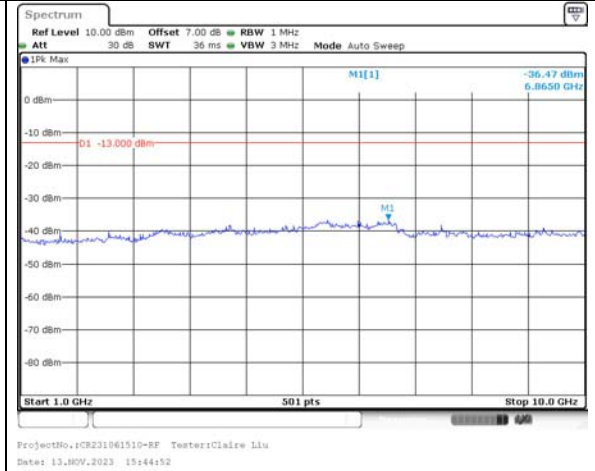
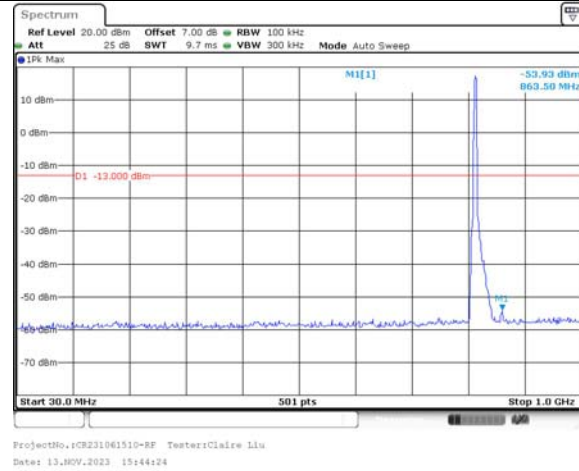


Spurious Emissions at Antenna Terminal

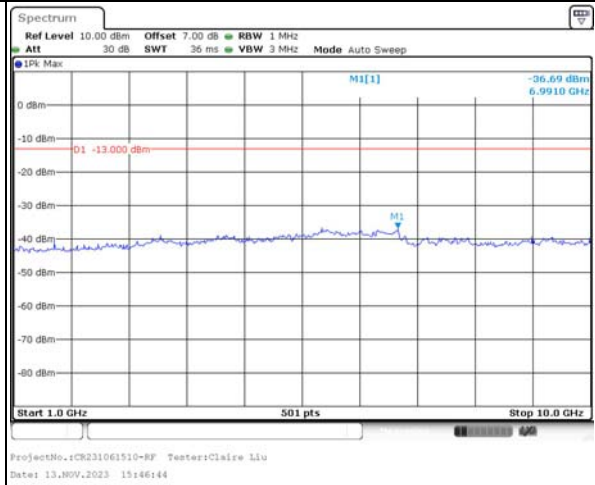
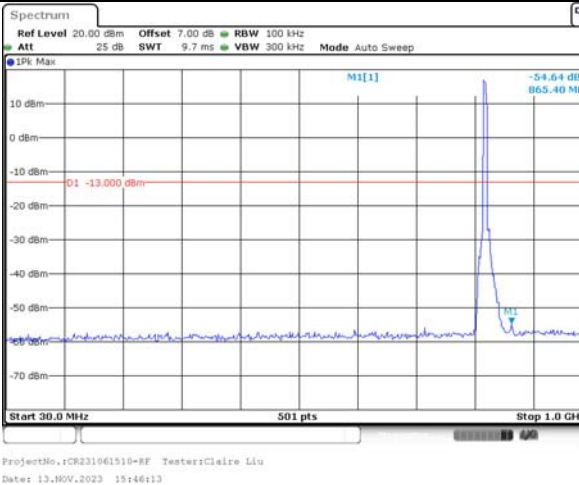
Channel

5MHz Bandwidth QPSK

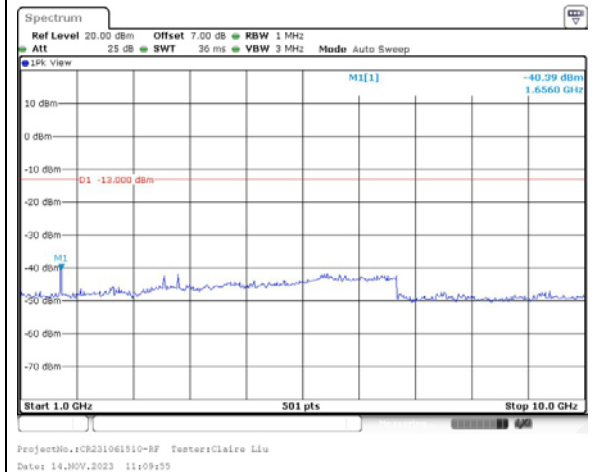
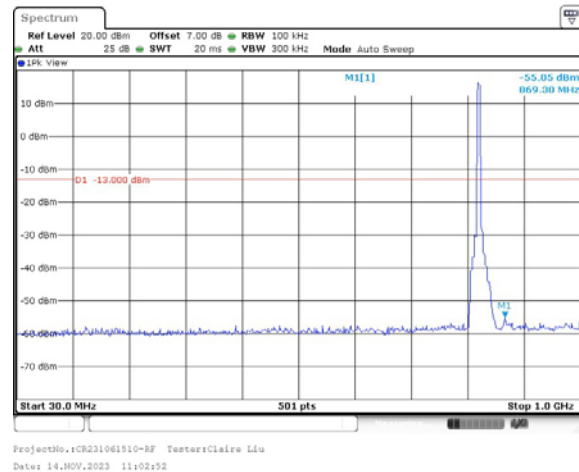
Lowest For 90S



Highest For 90S



Cross Channel

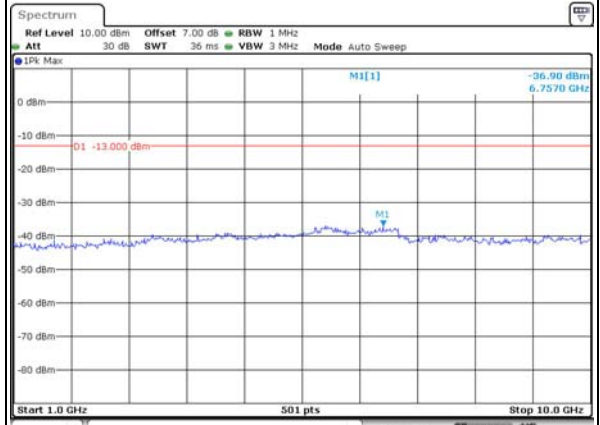
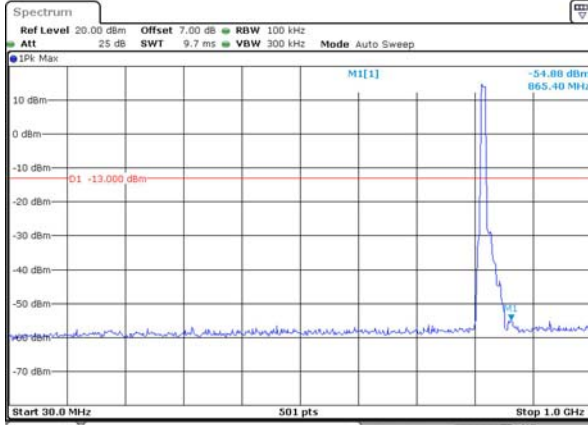


Spurious Emissions at Antenna Terminal

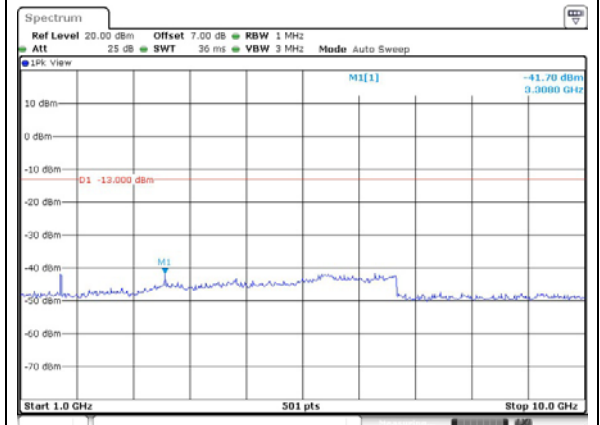
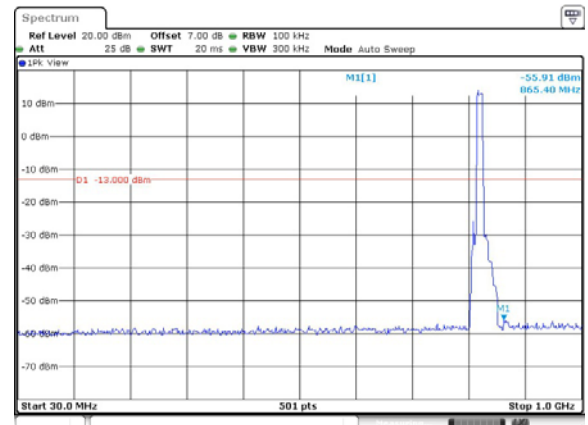
Channel

10MHz Bandwidth QPSK

Lowest For 90S



Cross Channel


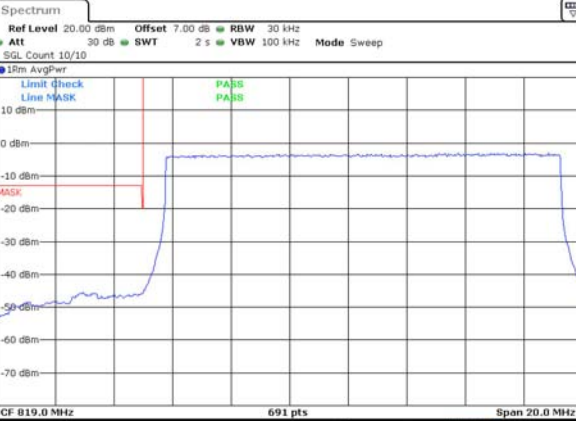


Channel	15MHz Bandwidth QPSK	
Lowest For 90S	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 14.NOV.2023 13:23:15</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 14.NOV.2023 13:24:55</p>
	Cross Channel	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 14.NOV.2023 11:05:06</p>

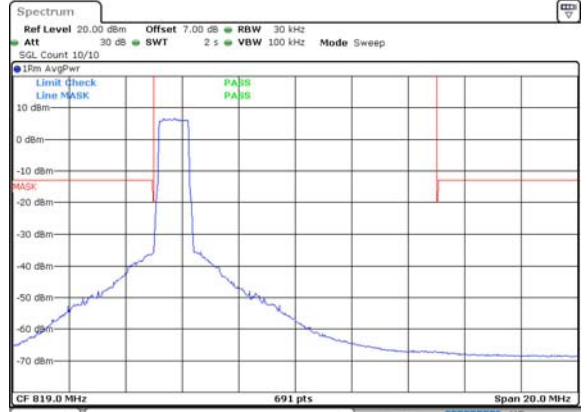
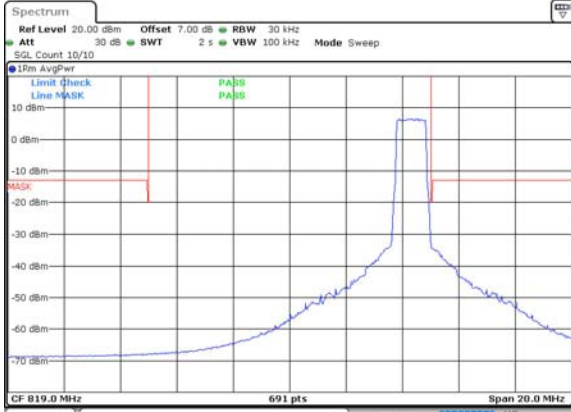
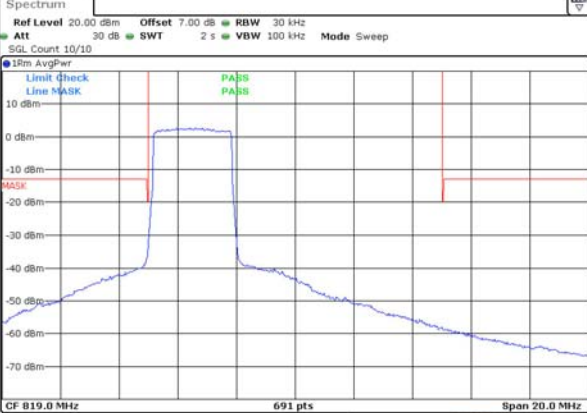
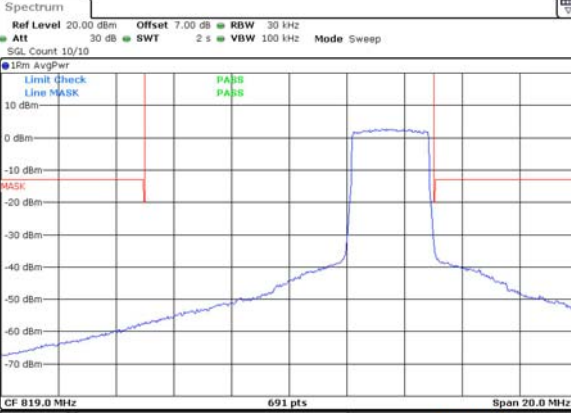
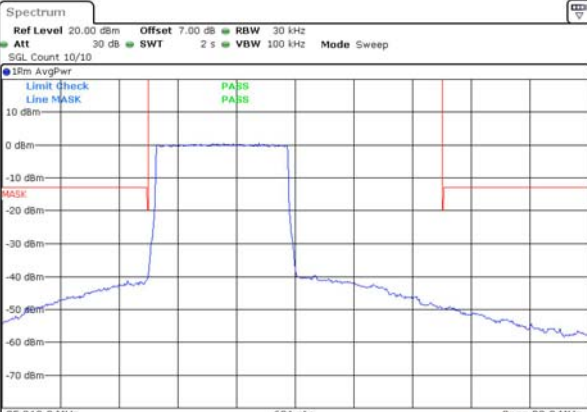
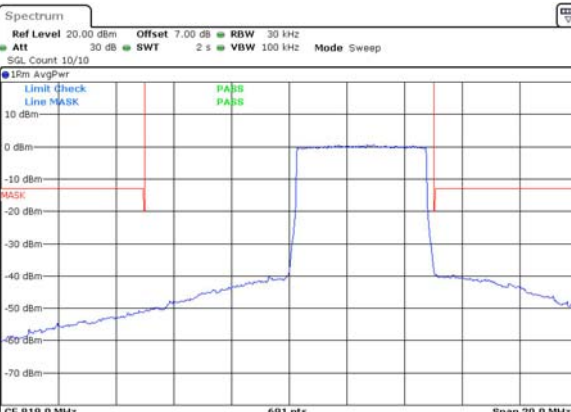
Out of band emission, Band Edge

Mode	Lowest	Highest
<p>QPSK 1.4MHz For 90S</p>		
<p>QPSK 3MHz For 90S</p>		
<p>QPSK 5MHz For 90S</p>		



Out of band emission, Band Edge

Mode	
<p>QPSK 10MHz For 90S</p>	 <p>ProjectNo.:CR231061510-RF Testers:Claire Liu Date: 13.NOV.2023 15:24:14</p>
<p>QPSK 15MHz Across 90S and 22H</p>	 <p>ProjectNo.:CR231061510-RF Testers:Claire Liu Date: 13.NOV.2023 15:30:53</p>

Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 1.4MHz For 90S	 <p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 15:05:11</p>	 <p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 15:07:37</p>
16QAM 3MHz For 90S	 <p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 15:10:44</p>	 <p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 15:13:50</p>
16QAM 5MHz For 90S	 <p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 15:19:43</p>	 <p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 15:22:28</p>

Out of band emission, Band Edge

Mode	
16QAM 10MHz For 90S	 <p>ProjectNo.:CR231061510-RF Testers:Claire Liu Date: 13.NOV.2023 15:25:28</p>
16QAM 15MHz Across 90S and 22H	 <p>ProjectNo.:CR231061510-RF Testers:Claire Liu Date: 13.NOV.2023 15:31:24</p>

Test Data for Part 22H:**FCC§2.1046; § 22.913 (a)****RF Output Power:**

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Frequency For 22H	Middle Frequency For 22H	Highest Frequency For 22H		
1.4MHz QPSK	RB1#0	23.21	23.35	23.52	14.13	38.45
	RB1#3	23.26	23.36	23.63		
	RB1#5	23.22	23.33	23.57		
	RB3#0	23.29	23.4	23.67		
	RB3#3	23.31	23.42	23.62		
	RB6#0	22.38	22.48	22.74		
1.4MHz 16QAM	RB1#0	22.18	22.3	22.6	13.16	38.45
	RB1#3	22.26	22.37	22.7		
	RB1#5	22.21	22.32	22.58		
	RB3#0	22.4	22.6	22.52		
	RB3#3	22.4	22.65	22.56		
	RB6#0	21.32	21.58	21.76		
3MHz QPSK	RB1#0	23.09	23.18	23.36	13.93	38.45
	RB1#8	23.19	23.33	23.47		
	RB1#14	23.09	23.22	23.47		
	RB6#0	22.19	22.33	22.6		
	RB6#9	22.25	22.39	22.58		
	RB15#0	22.23	22.39	22.57		
3MHz 16QAM	RB1#0	22.16	22.16	22.86	13.41	38.45
	RB1#8	22.33	22.31	22.95		
	RB1#14	22.28	22.16	22.81		
	RB6#0	21.25	21.33	21.68		
	RB6#9	21.31	21.33	21.65		
	RB15#0	21.24	21.47	21.66		
5MHz QPSK	RB1#0	23.26	23.42	23.57	14.19	38.45
	RB1#13	23.47	23.6	23.73		
	RB1#24	23.39	23.48	23.68		
	RB15#0	22.36	22.45	22.69		
	RB15#10	22.42	22.52	22.56		
	RB25#0	22.38	22.45	22.63		
5MHz 16QAM	RB1#0	22.38	22.28	22.8	13.44	38.45
	RB1#13	22.5	22.49	22.98		
	RB1#24	22.47	22.38	22.9		
	RB15#0	21.41	21.54	21.67		
	RB15#10	21.46	21.57	21.53		

	RB25#0	21.42	21.55	21.63		
10MHz QPSK	RB1#0	23.32	23.44	23.57	14.24	38.45
	RB1#25	23.45	23.57	23.68		
	RB1#49	23.49	23.63	23.78		
	RB25#0	22.39	22.38	22.47		
	RB25#25	22.41	22.54	22.46		
	RB50#0	22.4	22.47	22.5		
10MHz 16QAM	RB1#0	22.94	22.53	22.56	13.54	38.45
	RB1#25	23.07	22.7	22.61		
	RB1#49	23.08	22.73	22.71		
	RB25#0	21.45	21.42	21.59		
	RB25#25	21.48	21.6	21.55		
	RB50#0	21.41	21.52	21.5		
15MHz QPSK	RB1#0	23.35	23.34	23.42	14.19	38.45
	RB1#38	23.49	23.55	23.66		
	RB1#74	23.6	23.61	23.73		
	RB36#0	22.39	22.38	22.41		
	RB36#39	22.57	22.61	22.57		
	RB75#0	22.48	22.52	22.5		
15MHz 16QAM	RB1#0	22.69	22.86	22.51	13.59	38.45
	RB1#38	22.88	23.08	22.76		
	RB1#74	22.95	23.13	22.84		
	RB36#0	21.37	21.4	21.48		
	RB36#39	21.53	21.64	21.56		
	RB75#0	21.47	21.5	21.5		

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 Frequency For 22H	Middle Frequency For 22H	Highest Frequency For 22H	
15MHz QPSK	RB1#0	5.28	5.07	5.16	13
	RB75#0	5.19	5.07	4.78	13
15MHz 16QAM	RB1#0	6.17	6.06	5.86	13
	RB75#0	6.12	6.06	5.88	13
Result:				Pass	

FCC §2.1049, §22.905: Occupied Bandwidth

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Lowest Frequency For 22H	Middle Frequency For 22H	Highest Frequency For 22H	Lowest Frequency For 22H	Middle Frequency For 22H	Highest Frequency For 22H
1.4MHz QPSK	1.102	1.278	1.096	1.278	1.102	1.296
1.4MHz 16QAM	1.096	1.290	1.102	1.302	1.096	1.272
3MHz QPSK	2.683	2.940	2.683	2.916	2.683	2.928
3MHz 16QAM	2.683	2.940	2.671	2.940	2.683	2.940
5MHz QPSK	4.491	4.920	4.531	4.980	4.491	4.920
5MHz 16QAM	4.511	4.960	4.511	4.900	4.511	4.920
10MHz QPSK	8.942	9.600	8.942	9.640	8.942	9.600
10MHz 16QAM	8.942	9.600	8.942	9.560	8.942	9.640
15MHz QPSK	13.473	14.580	13.473	14.580	13.413	14.580
15MHz 16QAM	13.473	14.640	13.533	14.580	13.473	14.580

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

FCC §2.1051, §22.917(a): Spurious Emissions at Antenna Terminal

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

FCC §2.1051, §22.917(a): Out of band emission, Band Edge

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

FCC §2.1055, §22.355: Frequency Stability

Test Modulation:	15 MHz QPSK		Test Channel:	831.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.91	-4.278	-0.005	2.5
	-20	3.91	-4.304	-0.005	2.5
	-10	3.91	-4.308	-0.005	2.5
	0	3.91	-4.328	-0.005	2.5
	10	3.91	-4.272	-0.005	2.5
	20	3.91	-4.328	-0.005	2.5
	30	3.91	-4.234	-0.005	2.5
	40	3.91	-4.268	-0.005	2.5
	50	3.91	-4.238	-0.005	2.5
Frequency Stability vs. Voltage	20	3.45	-4.257	-0.005	2.5
	20	4.5	-4.328	-0.005	2.5
				Result:	Pass

FCC §2.1055, §22.355: Frequency Stability					
Test Modulation:	15 MHz 16QAM		Test Channel:	831.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.91	-2.691	-0.003	2.5
	-20	3.91	-2.619	-0.003	2.5
	-10	3.91	-2.597	-0.003	2.5
	0	3.91	-2.668	-0.003	2.5
	10	3.91	-2.651	-0.003	2.5
	20	3.91	-2.594	-0.003	2.5
	30	3.91	-2.62	-0.003	2.5
	40	3.91	-2.628	-0.003	2.5
Frequency Stability vs. Voltage	20	3.45	-2.694	-0.003	2.5
	20	4.5	-2.609	-0.003	2.5
				Result:	Pass

Test Plots for Part 22H: (Note: The 7.0dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer)

Occupied Bandwidth

Channel	1.4MHz Bandwidth QPSK	1.4MHz Bandwidth 16QAM
Lowest	<p>ProjectNo.:CR231061510-RF Testers:Clair Liu Date: 13.NOV.2023 16:21:36</p>	<p>ProjectNo.:CR231061510-RF Testers:Clair Liu Date: 13.NOV.2023 16:21:53</p>
Middle	<p>ProjectNo.:CR231061510-RF Testers:Clair Liu Date: 13.NOV.2023 16:22:08</p>	<p>ProjectNo.:CR231061510-RF Testers:Clair Liu Date: 13.NOV.2023 16:22:25</p>
Highest	<p>ProjectNo.:CR231061510-RF Testers:Clair Liu Date: 13.NOV.2023 16:22:43</p>	<p>ProjectNo.:CR231061510-RF Testers:Clair Liu Date: 13.NOV.2023 16:23:00</p>

Occupied Bandwidth

Channel	3MHz Bandwidth QPSK	3MHz Bandwidth 16QAM
Lowest	<p>ProjectNo.:CR231061510-RF Testers:Clair Liu Date: 13.NOV.2023 16:23:44</p>	<p>ProjectNo.:CR231061510-RF Testers:Clair Liu Date: 13.NOV.2023 16:23:58</p>
Middle	<p>ProjectNo.:CR231061510-RF Testers:Clair Liu Date: 13.NOV.2023 16:24:19</p>	<p>ProjectNo.:CR231061510-RF Testers:Clair Liu Date: 13.NOV.2023 16:24:36</p>
Highest	<p>ProjectNo.:CR231061510-RF Testers:Clair Liu Date: 13.NOV.2023 16:24:54</p>	<p>ProjectNo.:CR231061510-RF Testers:Clair Liu Date: 13.NOV.2023 16:25:11</p>

Occupied Bandwidth

Channel	5MHz Bandwidth QPSK	5MHz Bandwidth 16QAM
Lowest	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 16:26:15</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 16:26:39</p>
Middle	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 16:27:00</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 16:27:27</p>
Highest	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 16:27:52</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 16:28:13</p>

Occupied Bandwidth

Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest	<p>ProjectNo.:CR231061510-RF Testers:Claire Liu Date: 13.NOV.2023 16:29:01</p>	<p>ProjectNo.:CR231061510-RF Testers:Claire Liu Date: 13.NOV.2023 16:29:31</p>
Middle	<p>ProjectNo.:CR231061510-RF Testers:Claire Liu Date: 13.NOV.2023 16:29:59</p>	<p>ProjectNo.:CR231061510-RF Testers:Claire Liu Date: 13.NOV.2023 16:30:23</p>
Highest	<p>ProjectNo.:CR231061510-RF Testers:Claire Liu Date: 13.NOV.2023 16:30:48</p>	<p>ProjectNo.:CR231061510-RF Testers:Claire Liu Date: 13.NOV.2023 16:31:12</p>

Occupied Bandwidth

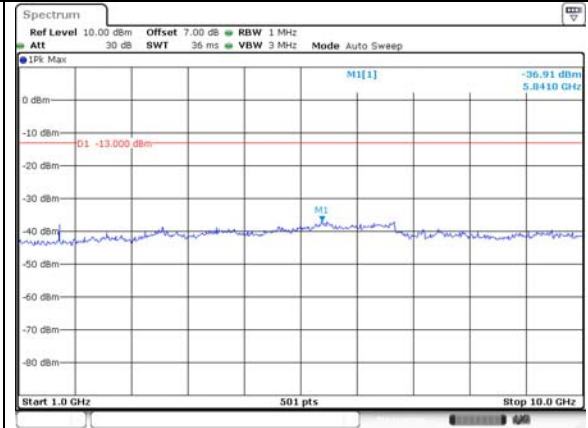
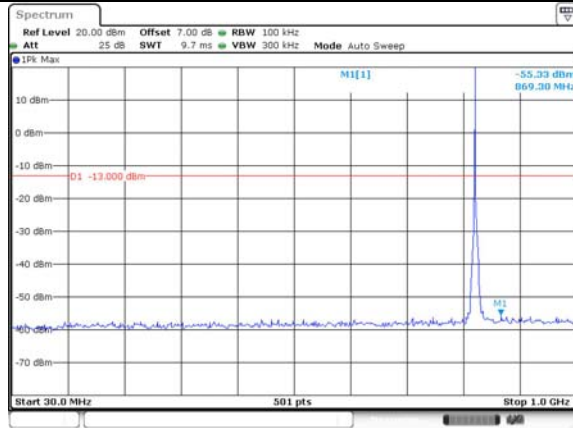
Channel	15MHz Bandwidth QPSK	15MHz Bandwidth 16QAM
Lowest	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 16:32:32</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 16:32:57</p>
Middle	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 16:33:19</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 16:33:57</p>
Highest	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 16:34:23</p>	<p>ProjectNo.:CR231061510-RF Tester: Claire Liu Date: 13.NOV.2023 16:34:57</p>

Spurious Emissions at Antenna Terminal

Channel

1.4MHz Bandwidth QPSK

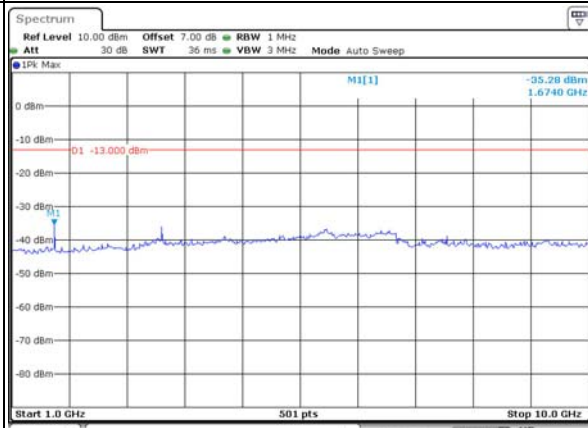
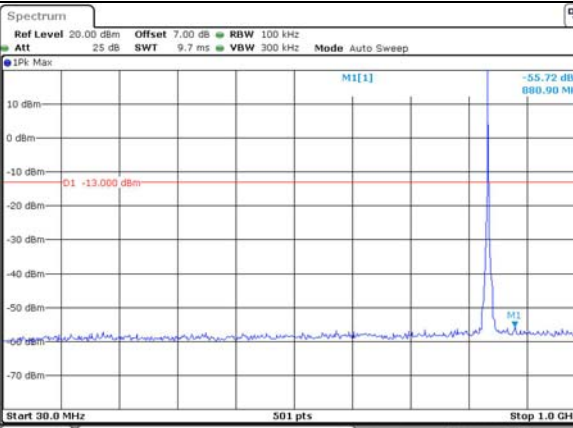
Lowest



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:50:44

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:51:06

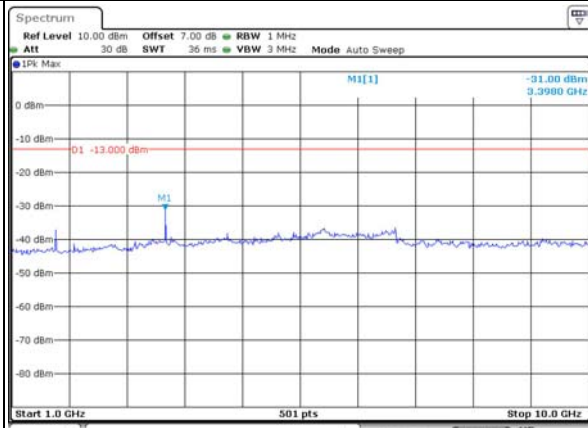
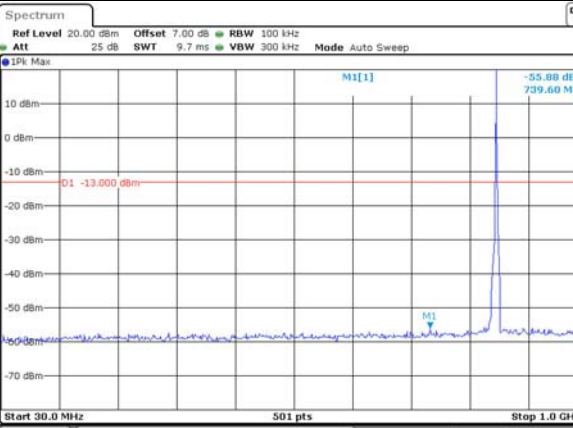
Middle



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:51:35

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:51:01

Highest



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:52:30

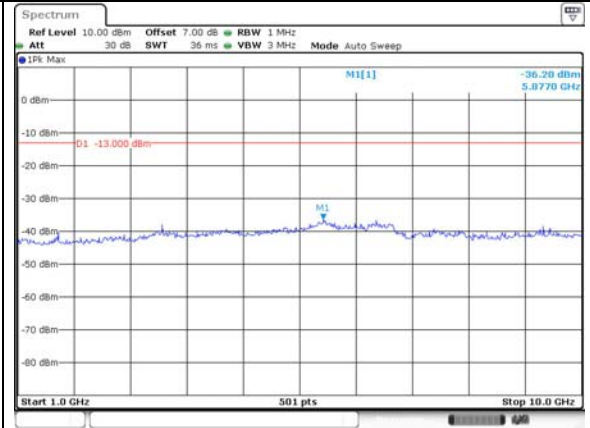
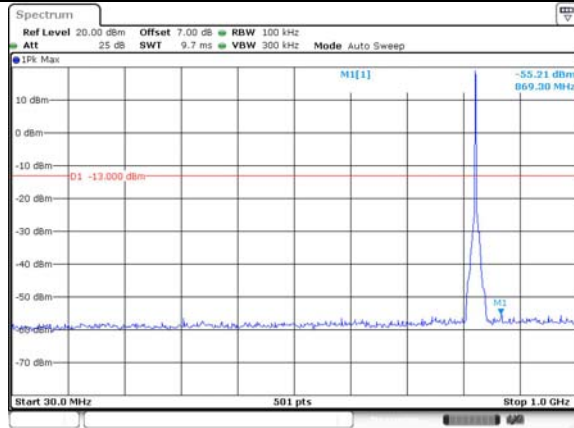
ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:52:49

Spurious Emissions at Antenna Terminal

Channel

3MHz Bandwidth QPSK

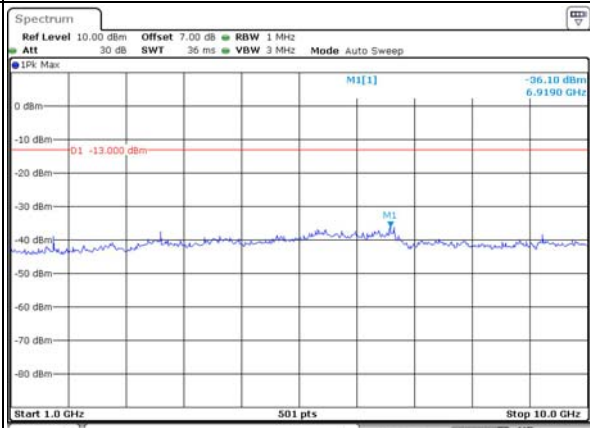
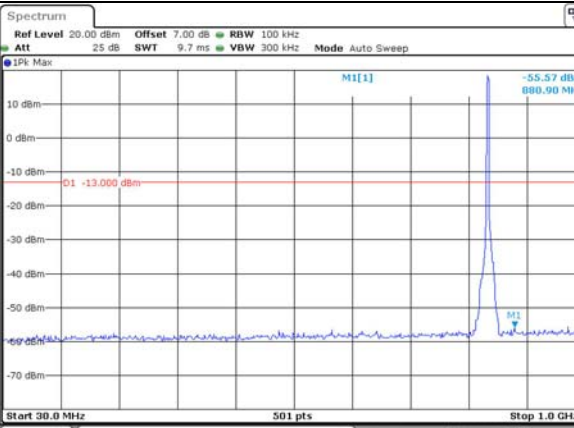
Lowest



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:53:41

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:54:03

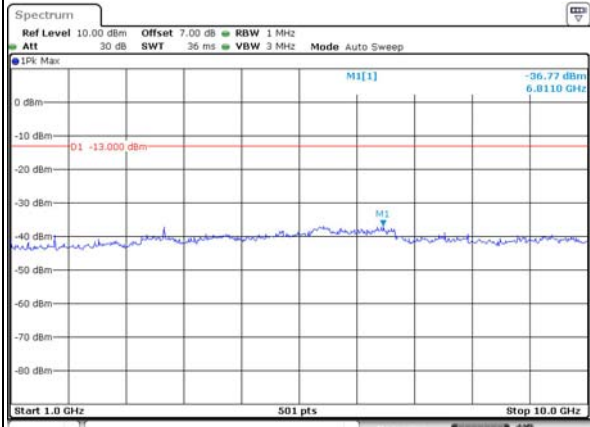
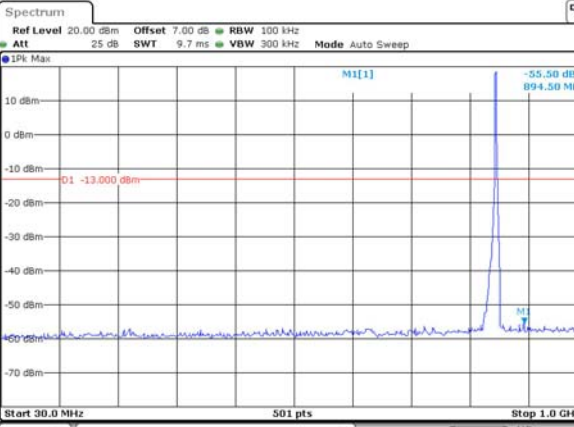
Middle



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:54:32

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:54:51

Highest



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:55:17

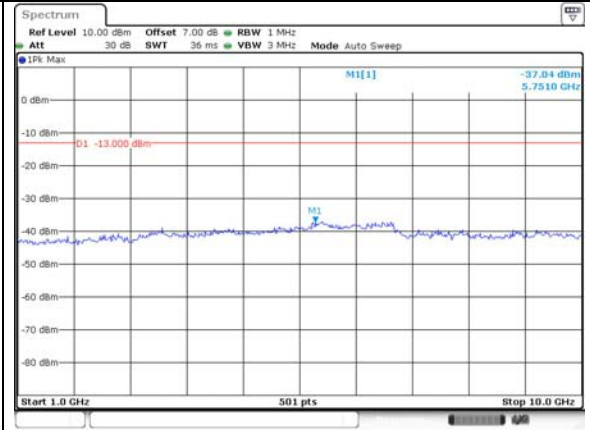
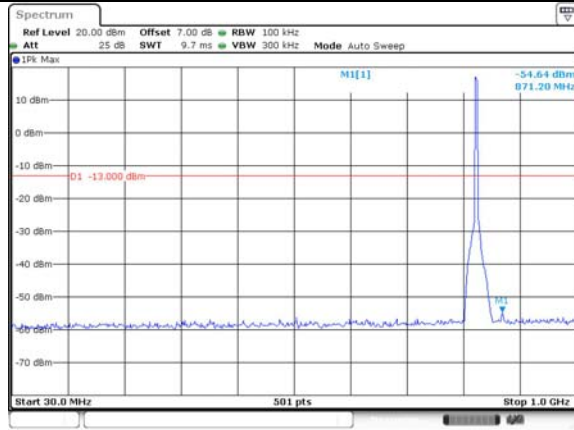
ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:55:43

Spurious Emissions at Antenna Terminal

Channel

5MHz Bandwidth QPSK

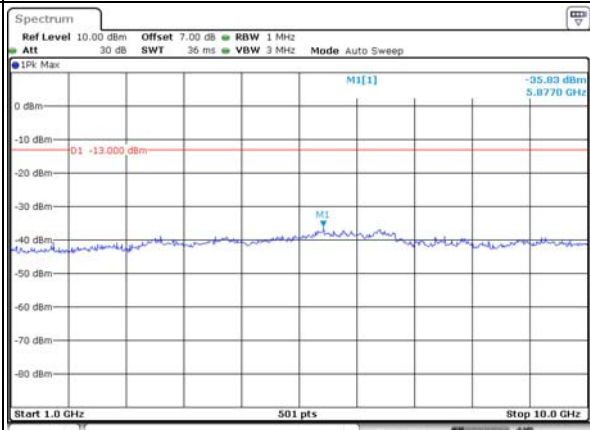
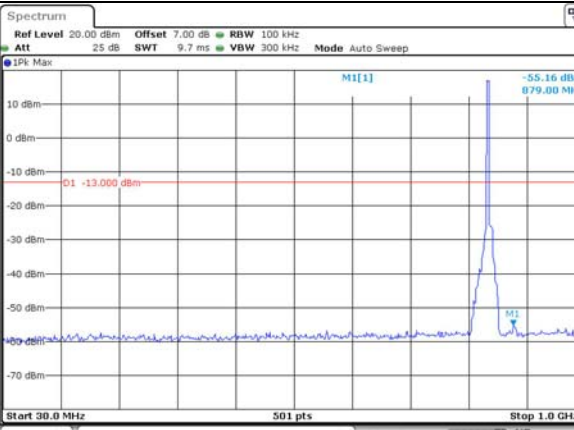
Lowest



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:57:19

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:57:48

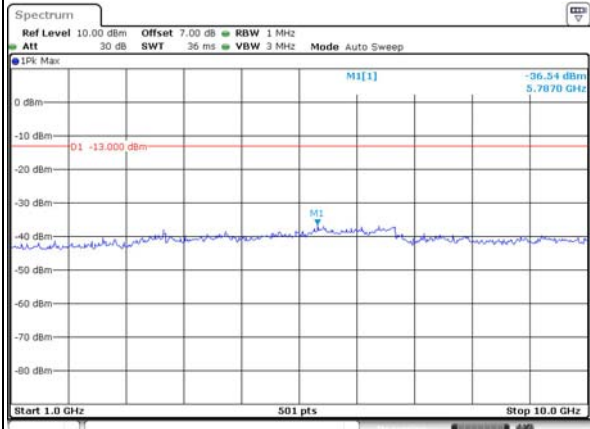
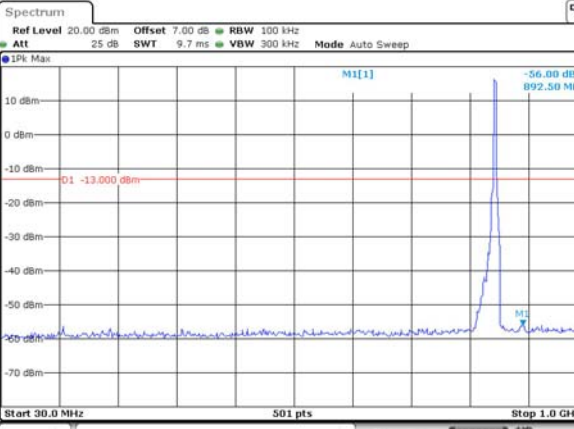
Middle



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:58:14

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:58:39

Highest



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:59:09

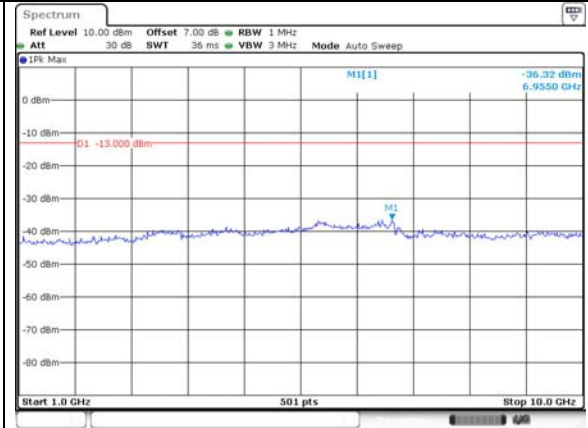
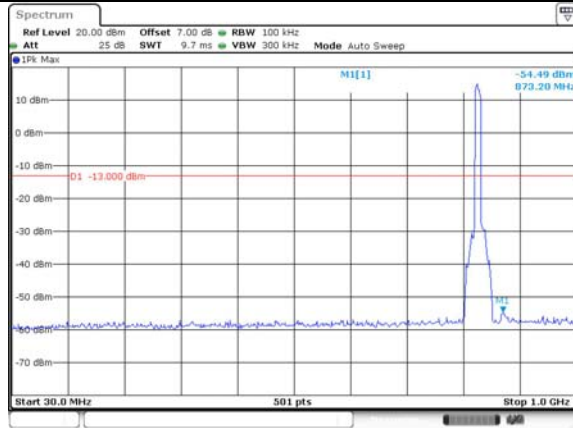
ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 16:59:37

Spurious Emissions at Antenna Terminal

Channel

10MHz Bandwidth QPSK

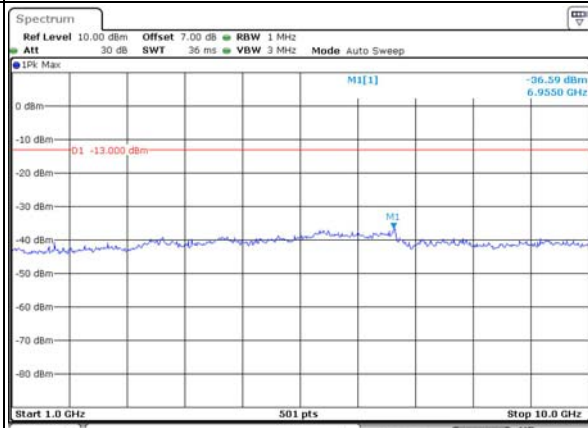
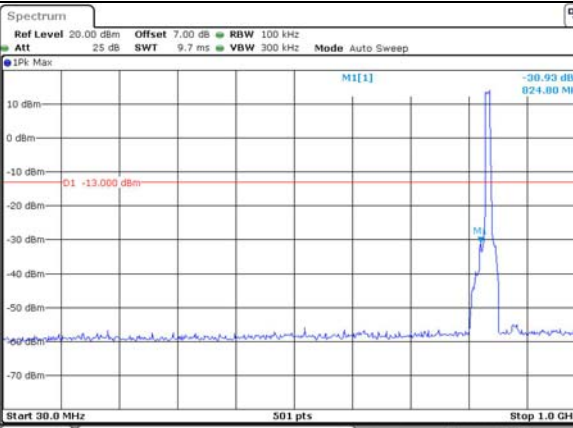
Lowest



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 17:00:36

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 17:00:58

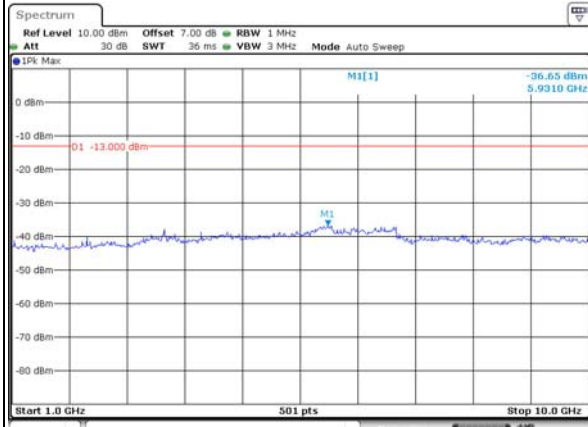
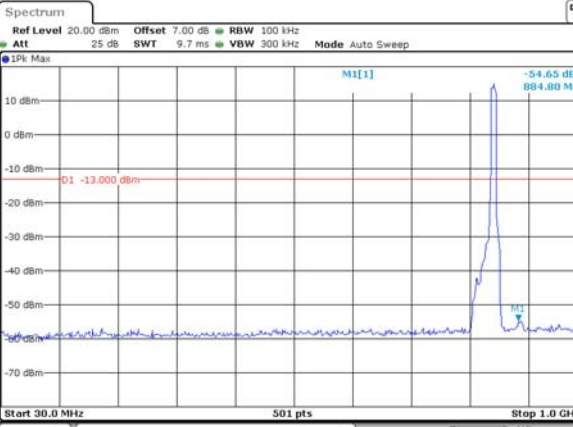
Middle



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 17:01:28

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 17:01:51

Highest



ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 17:02:24

ProjectNo.:CR231061510-RF Tester: Claire Liu
Date: 13.NOV.2023 17:02:52