



Appendix E: Test Data for E-UTRA Band 13

Product Name: 4G module

Test Model: Air780E

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Eason Zhou
Supervised by:	Nick Peng



Shenzhen LCS Compliance Testing Laboratory Ltd.
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com
Scan code to check authenticity



E.1 Conducted Output Power Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	23.63	PASS
Band13	5MHz	16QAM	23205	1RB#0	22.71	PASS
Band13	5MHz	QPSK	23205	1RB#12	23.68	PASS
Band13	5MHz	16QAM	23205	1RB#12	22.75	PASS
Band13	5MHz	QPSK	23205	1RB#24	23.74	PASS
Band13	5MHz	16QAM	23205	1RB#24	22.80	PASS
Band13	5MHz	QPSK	23205	12RB#0	22.63	PASS
Band13	5MHz	16QAM	23205	12RB#0	21.93	PASS
Band13	5MHz	QPSK	23205	12RB#6	22.54	PASS
Band13	5MHz	16QAM	23205	12RB#6	21.84	PASS
Band13	5MHz	QPSK	23205	12RB#13	22.66	PASS
Band13	5MHz	16QAM	23205	12RB#13	21.72	PASS
Band13	5MHz	QPSK	23205	25RB#0	22.43	PASS
Band13	5MHz	16QAM	23205	25RB#0	21.90	PASS
Band13	5MHz	QPSK	23230	1RB#0	23.42	PASS
Band13	5MHz	16QAM	23230	1RB#0	22.14	PASS
Band13	5MHz	QPSK	23230	1RB#12	23.42	PASS
Band13	5MHz	16QAM	23230	1RB#12	22.18	PASS
Band13	5MHz	QPSK	23230	1RB#24	23.24	PASS
Band13	5MHz	16QAM	23230	1RB#24	22.07	PASS
Band13	5MHz	QPSK	23230	12RB#0	22.42	PASS
Band13	5MHz	16QAM	23230	12RB#0	21.85	PASS
Band13	5MHz	QPSK	23230	12RB#6	22.59	PASS
Band13	5MHz	16QAM	23230	12RB#6	21.89	PASS
Band13	5MHz	QPSK	23230	12RB#13	22.37	PASS
Band13	5MHz	16QAM	23230	12RB#13	21.76	PASS
Band13	5MHz	QPSK	23230	25RB#0	22.43	PASS
Band13	5MHz	16QAM	23230	25RB#0	22.01	PASS
Band13	5MHz	QPSK	23255	1RB#0	23.26	PASS
Band13	5MHz	16QAM	23255	1RB#0	23.09	PASS
Band13	5MHz	QPSK	23255	1RB#12	23.08	PASS
Band13	5MHz	16QAM	23255	1RB#12	22.87	PASS
Band13	5MHz	QPSK	23255	1RB#24	23.16	PASS
Band13	5MHz	16QAM	23255	1RB#24	22.31	PASS
Band13	5MHz	QPSK	23255	12RB#0	22.49	PASS



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity



Band13	5MHz	16QAM	23255	12RB#0	21.81	PASS
Band13	5MHz	QPSK	23255	12RB#6	22.48	PASS
Band13	5MHz	16QAM	23255	12RB#6	21.82	PASS
Band13	5MHz	QPSK	23255	12RB#13	22.35	PASS
Band13	5MHz	16QAM	23255	12RB#13	21.73	PASS
Band13	5MHz	QPSK	23255	25RB#0	22.33	PASS
Band13	5MHz	16QAM	23255	25RB#0	21.73	PASS
Band13	10MHz	QPSK	23230	1RB#0	22.98	PASS
Band13	10MHz	16QAM	23230	1RB#0	22.37	PASS
Band13	10MHz	QPSK	23230	1RB#24	22.82	PASS
Band13	10MHz	16QAM	23230	1RB#24	22.21	PASS
Band13	10MHz	QPSK	23230	1RB#49	22.35	PASS
Band13	10MHz	16QAM	23230	1RB#49	21.91	PASS
Band13	10MHz	QPSK	23230	25RB#0	21.95	PASS
Band13	10MHz	16QAM	23230	25RB#0	21.31	PASS
Band13	10MHz	QPSK	23230	25RB#12	21.95	PASS
Band13	10MHz	16QAM	23230	25RB#12	21.37	PASS
Band13	10MHz	QPSK	23230	25RB#25	21.71	PASS
Band13	10MHz	16QAM	23230	25RB#25	21.14	PASS
Band13	10MHz	QPSK	23230	50RB#0	21.94	PASS
Band13	10MHz	16QAM	23230	50RB#0	21.26	PASS



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity



E.2 Peak-to-Average Ratio(CCDF)

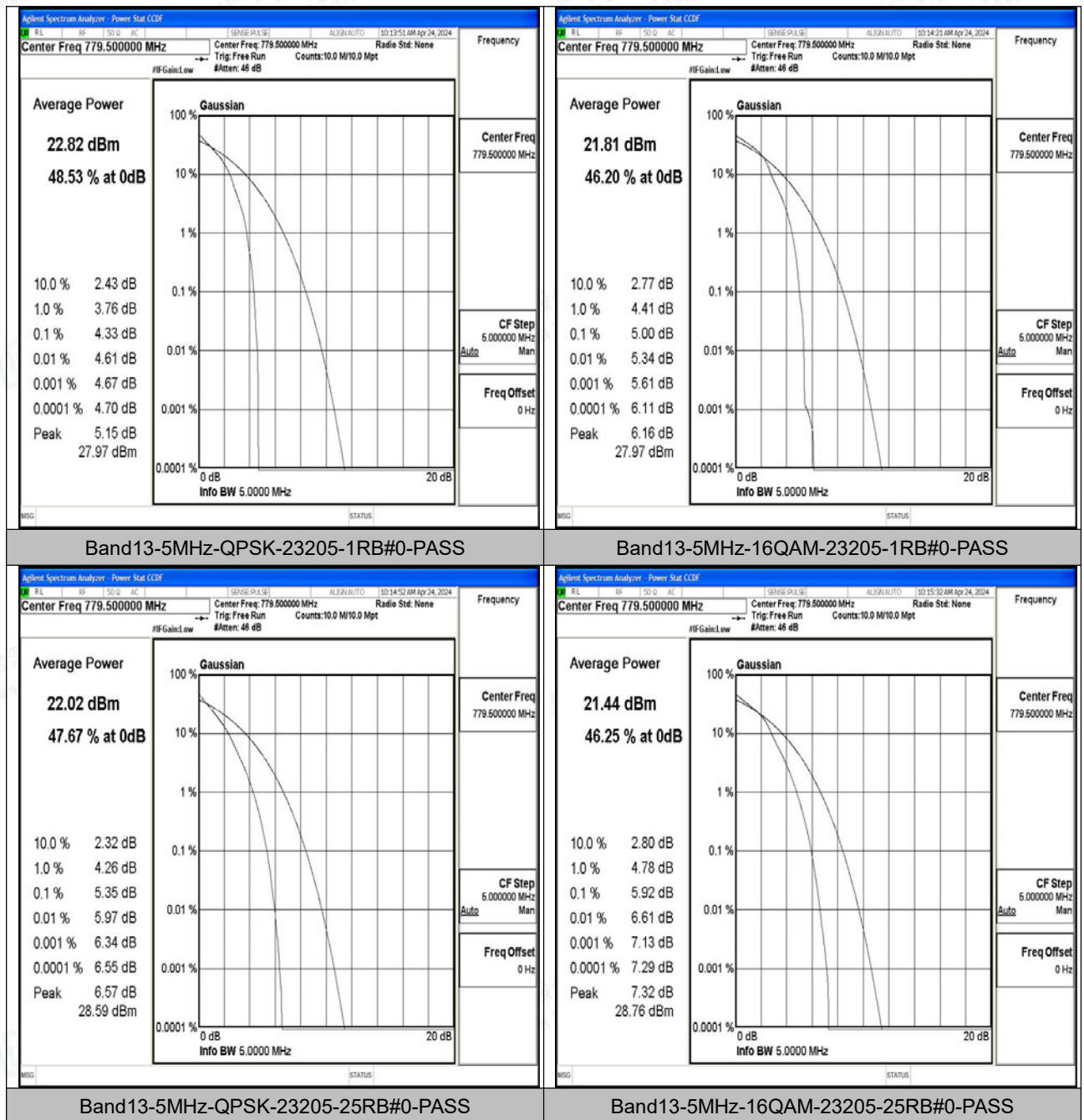
Test Result

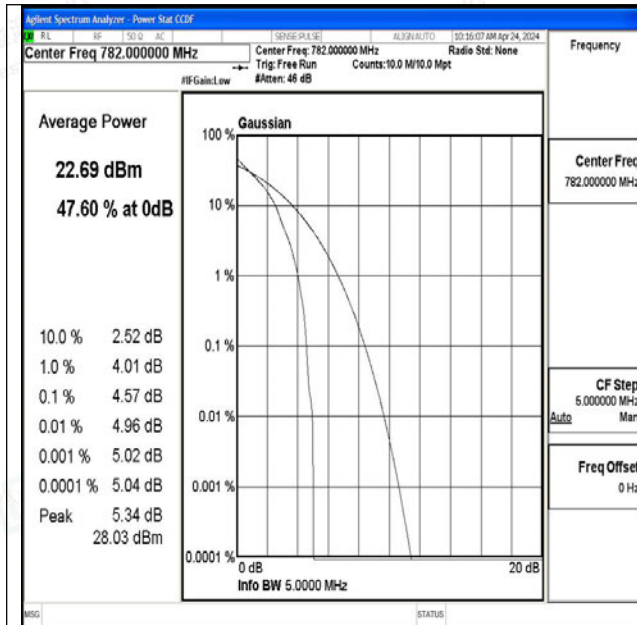
Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	4.33	13	PASS
Band13	5MHz	16QAM	23205	1RB#0	5.00	13	PASS
Band13	5MHz	QPSK	23205	25RB#0	5.35	13	PASS
Band13	5MHz	16QAM	23205	25RB#0	5.92	13	PASS
Band13	5MHz	QPSK	23230	1RB#0	4.57	13	PASS
Band13	5MHz	16QAM	23230	1RB#0	5.08	13	PASS
Band13	5MHz	QPSK	23230	25RB#0	5.38	13	PASS
Band13	5MHz	16QAM	23230	25RB#0	5.99	13	PASS
Band13	5MHz	QPSK	23255	1RB#0	4.68	13	PASS
Band13	5MHz	16QAM	23255	1RB#0	5.17	13	PASS
Band13	5MHz	QPSK	23255	25RB#0	5.35	13	PASS
Band13	5MHz	16QAM	23255	25RB#0	5.98	13	PASS
Band13	10MHz	QPSK	23230	1RB#0	4.33	13	PASS
Band13	10MHz	16QAM	23230	1RB#0	4.92	13	PASS
Band13	10MHz	QPSK	23230	50RB#0	5.36	13	PASS
Band13	10MHz	16QAM	23230	50RB#0	6.00	13	PASS



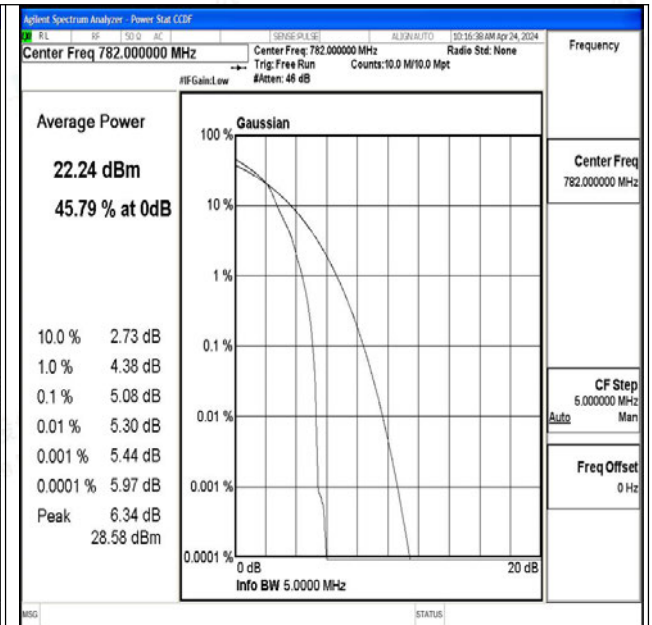


Test Graphs

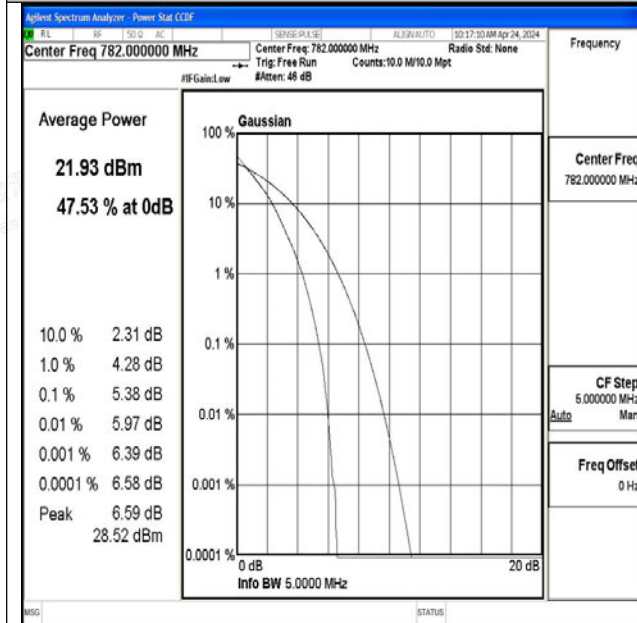




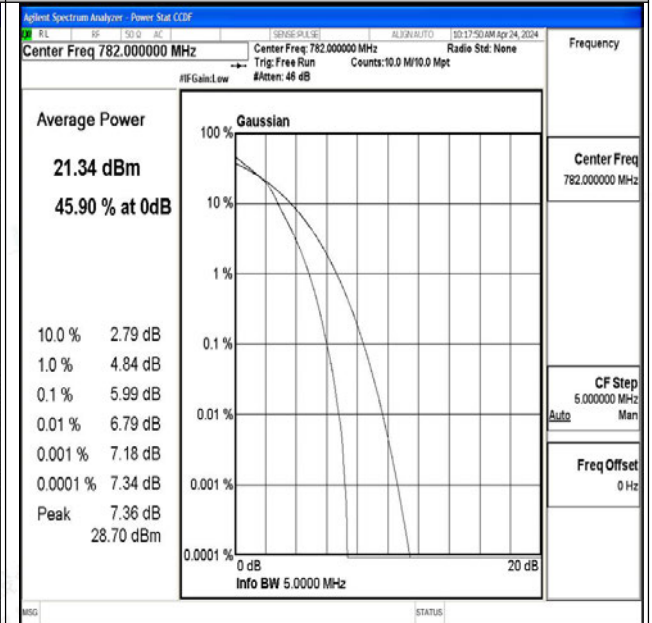
Band13-5MHz-QPSK-23230-1RB#0-PASS



Band13-5MHz-16QAM-23230-1RB#0-PASS



Band13-5MHz-QPSK-23230-25RB#0-PASS



Band13-5MHz-16QAM-23230-25RB#0-PASS

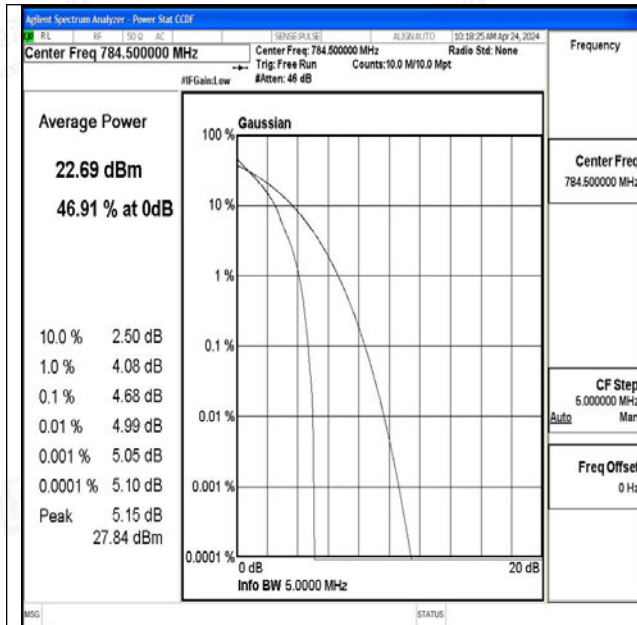


Shenzhen LCS Compliance Testing Laboratory Ltd.

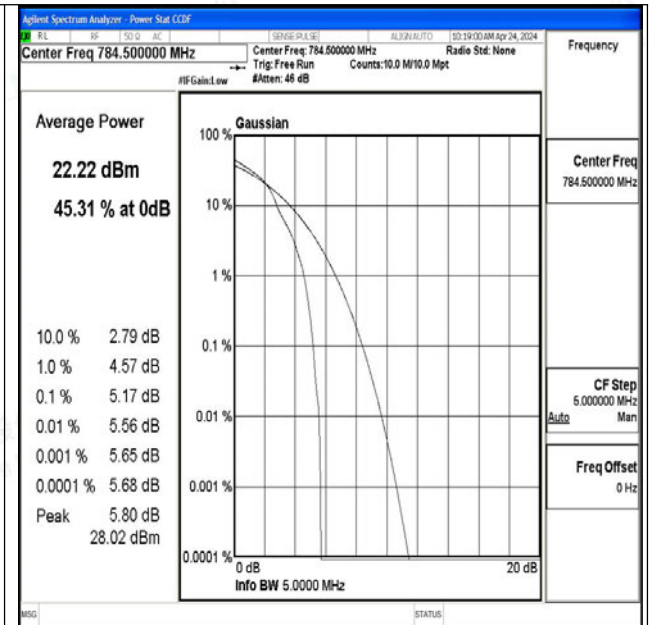
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

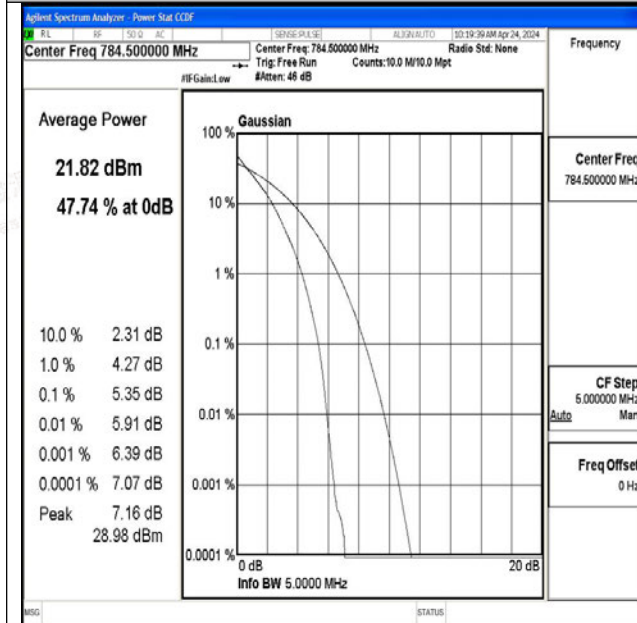
Scan code to check authenticity



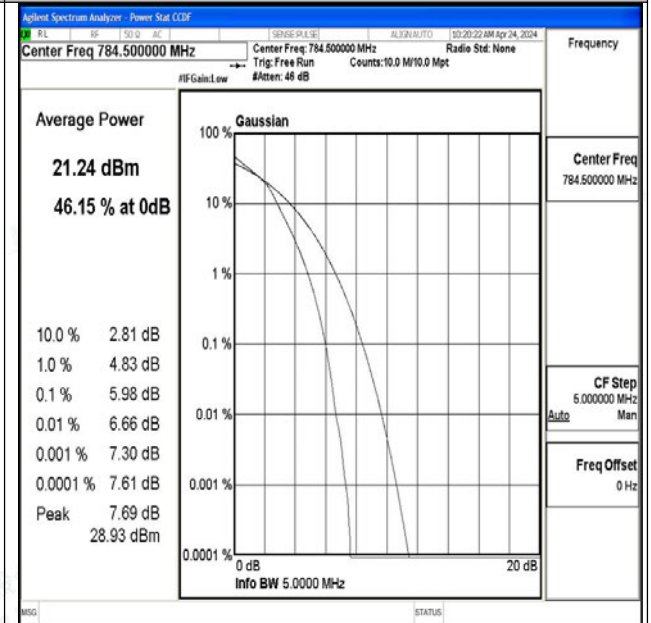
Band13-5MHz-QPSK-23255-1RB#0-PASS



Band13-5MHz-16QAM-23255-1RB#0-PASS



Band13-5MHz-QPSK-23255-25RB#0-PASS



Band13-5MHz-16QAM-23255-25RB#0-PASS

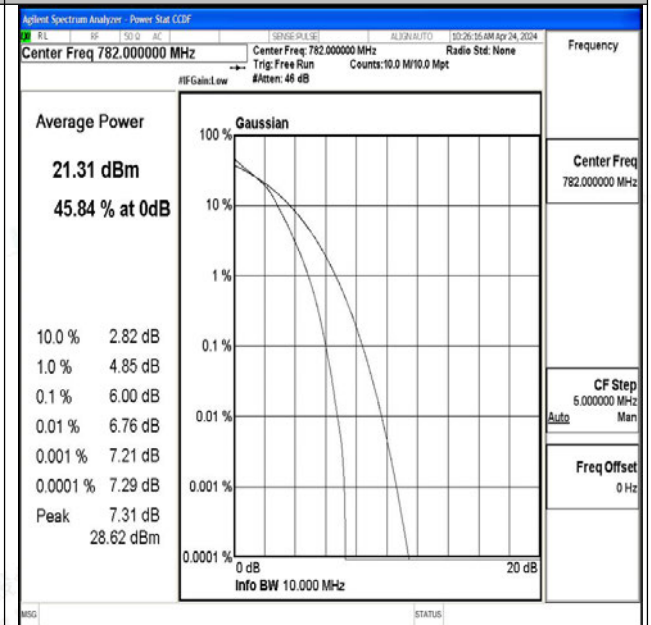
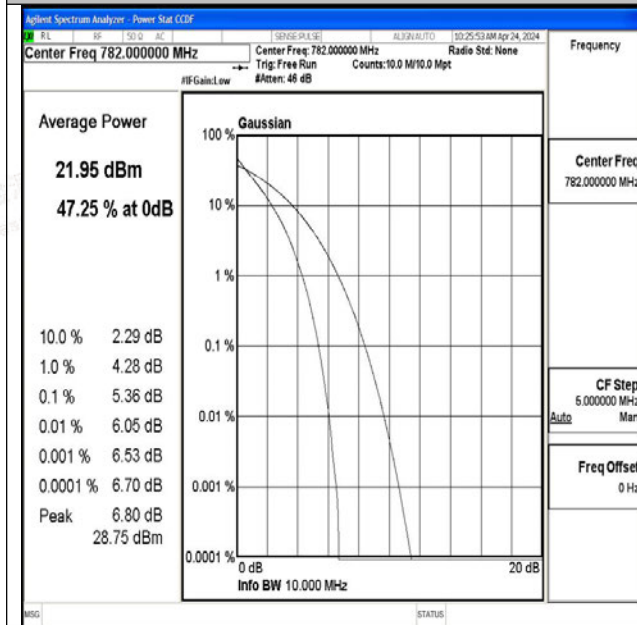
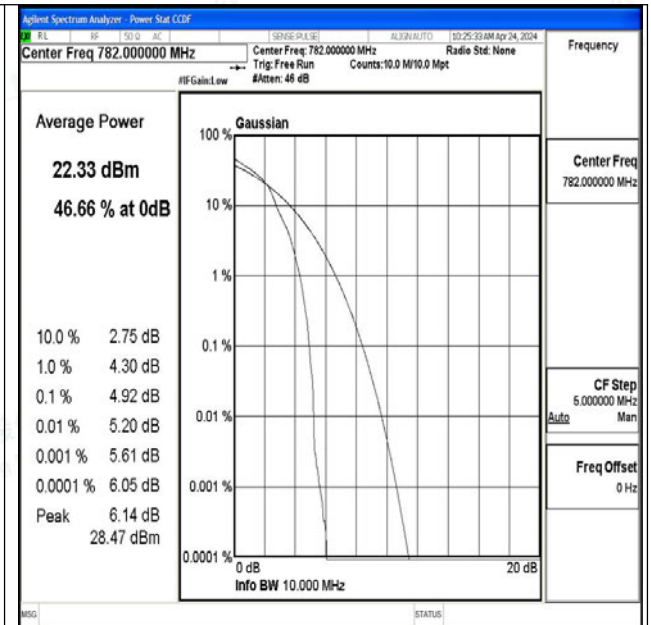
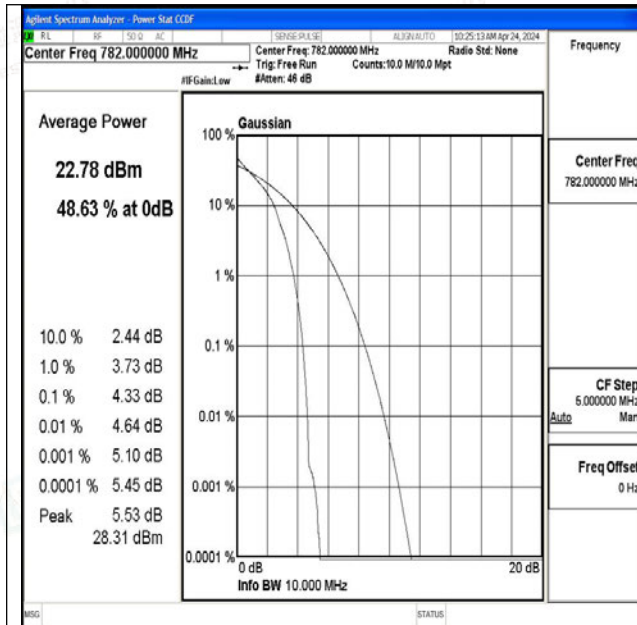


Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity



E.3 26dB Bandwidth and Occupied Bandwidth

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	4.5360	5.324	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.5191	5.282	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.5131	5.382	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.5236	5.316	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.5138	5.157	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.5321	5.440	PASS
Band13	10MHz	QPSK	23230	50RB#0	8.9888	10.05	PASS
Band13	10MHz	16QAM	23230	50RB#0	8.9948	10.15	PASS



Shenzhen LCS Compliance Testing Laboratory Ltd.

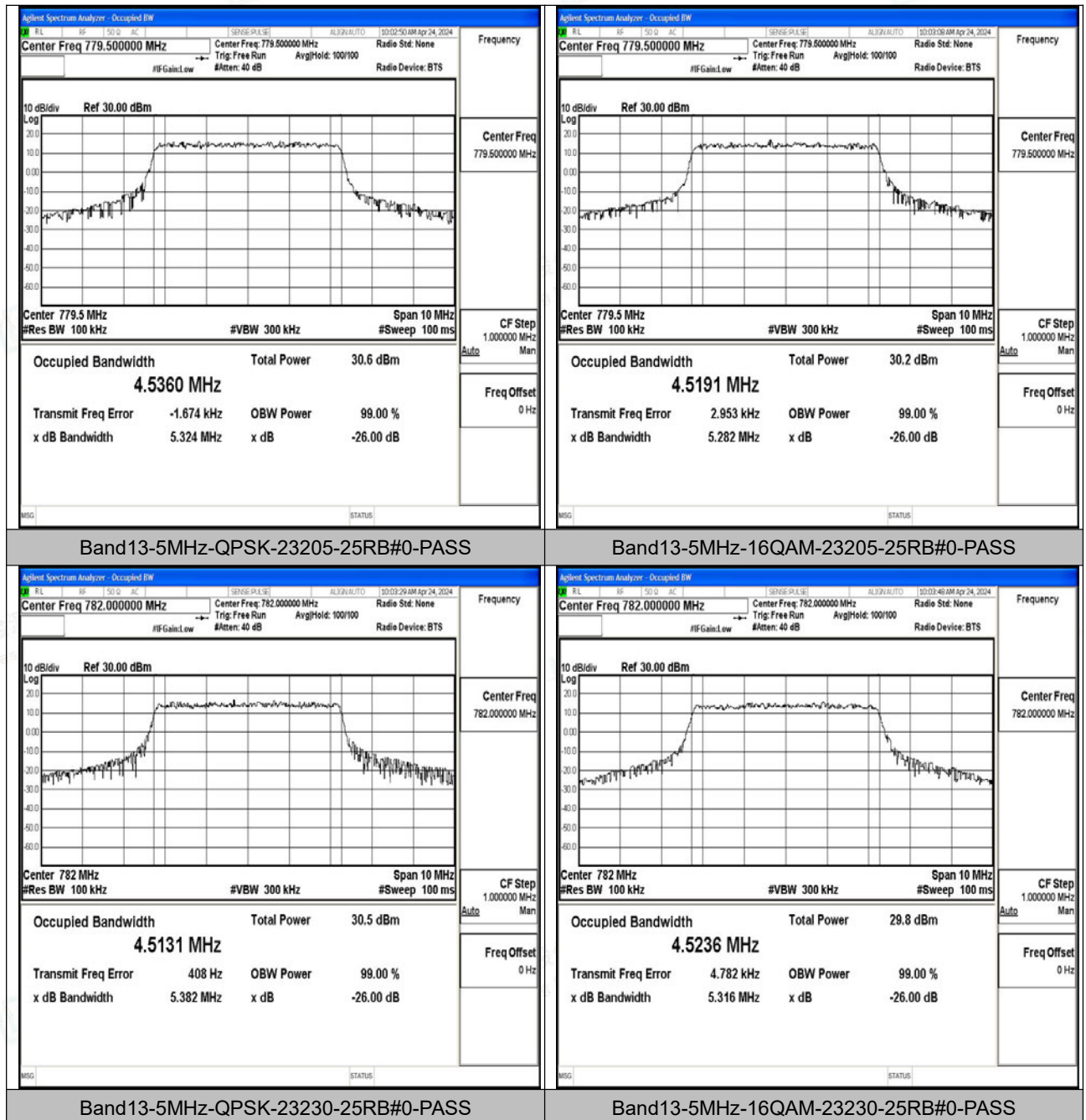
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

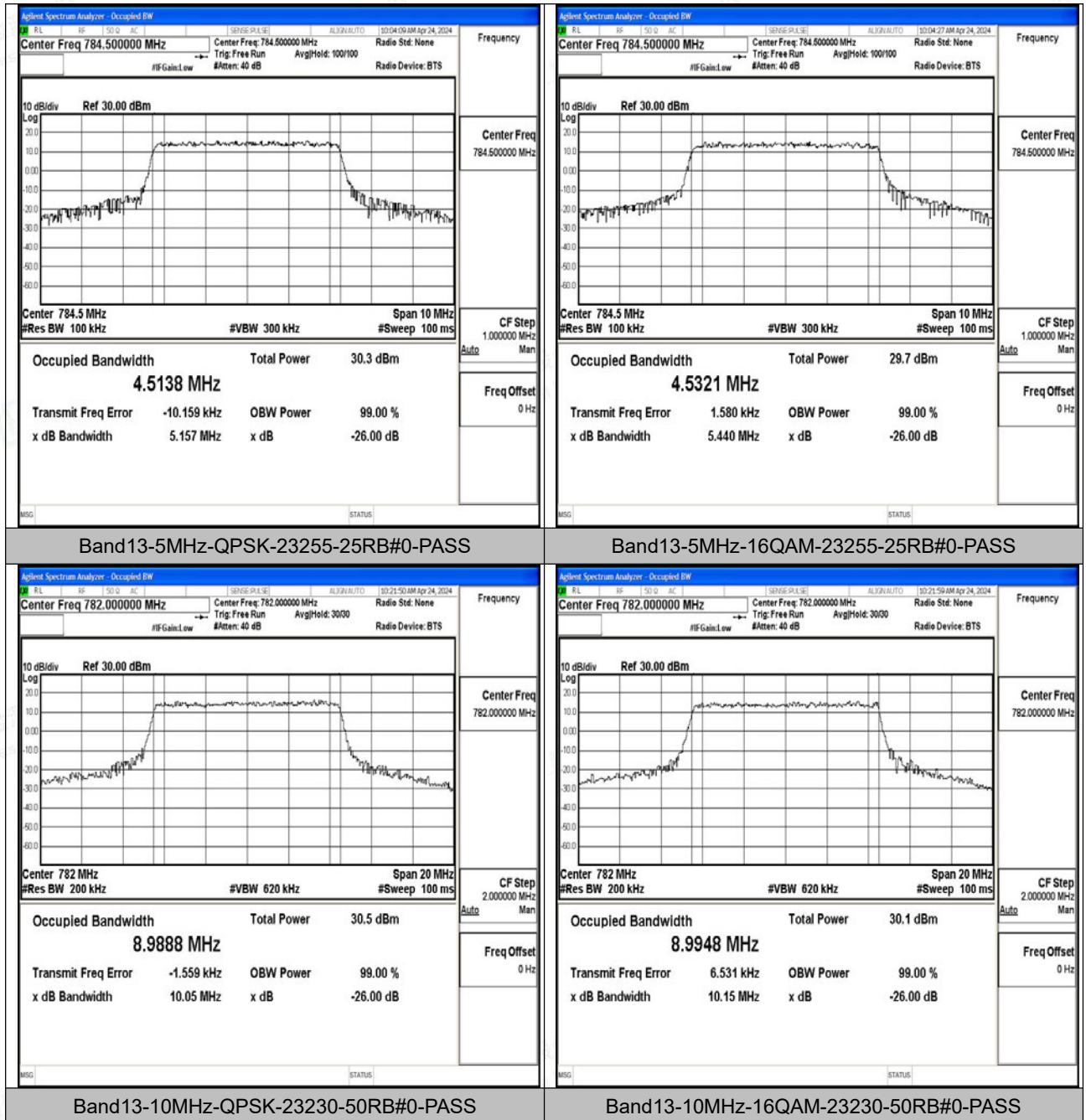
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity



Test Graphs





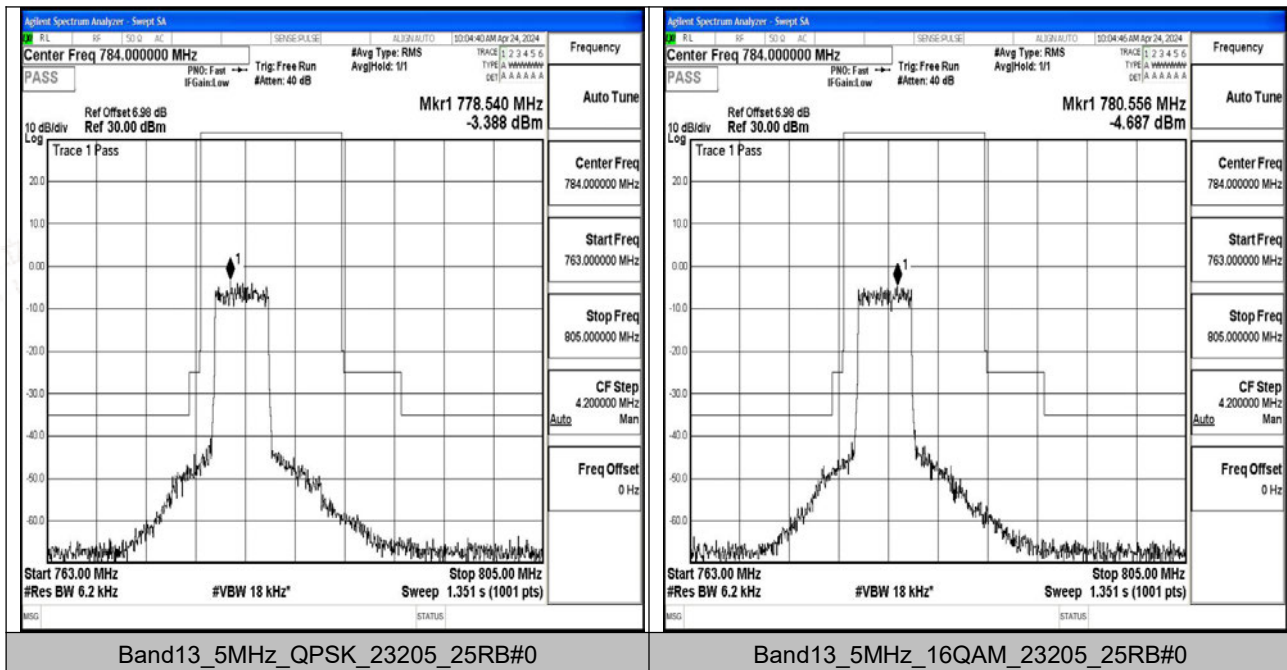


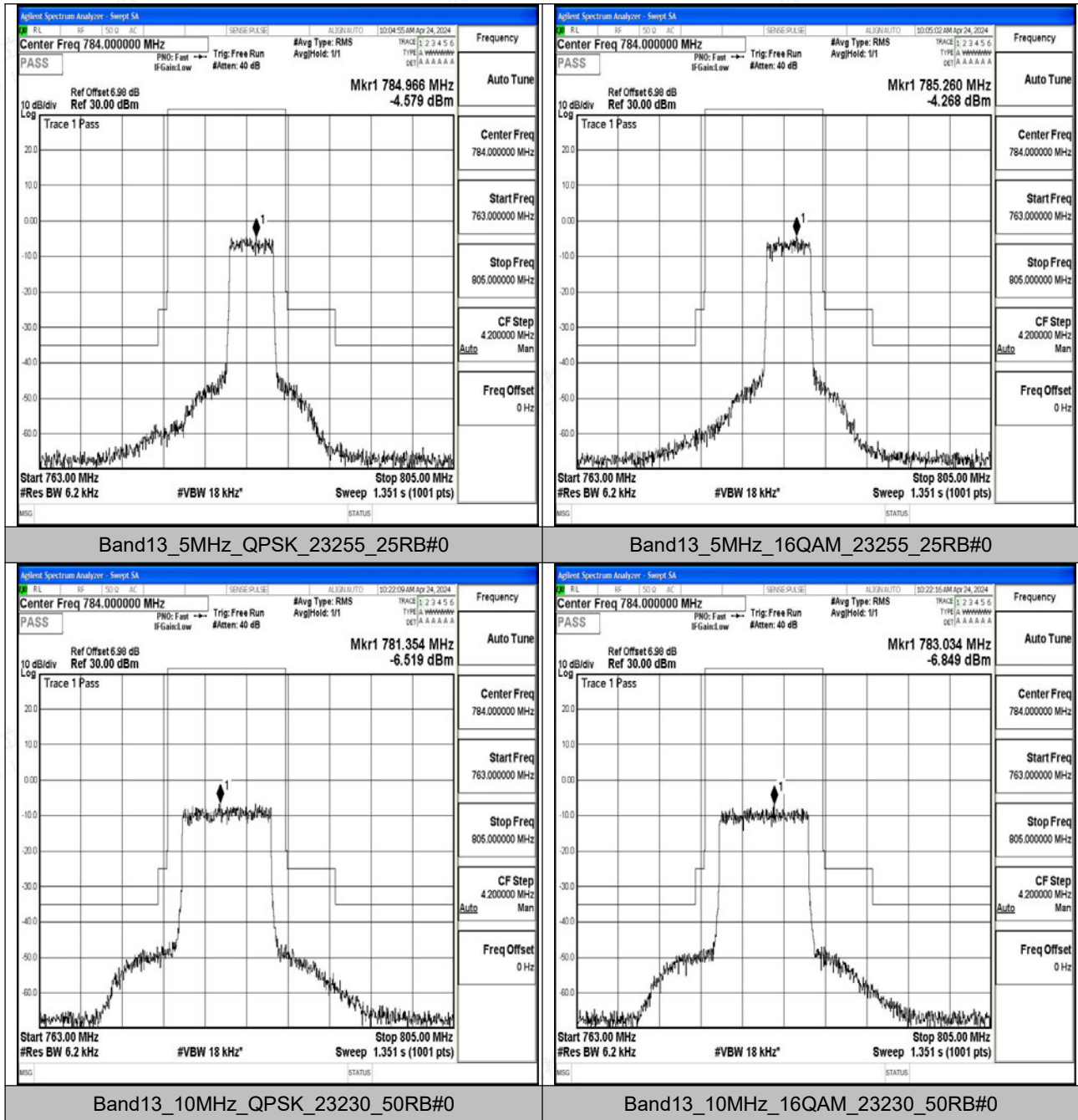
E.4 Band Edge

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	-46.94	PASS
Band13	5MHz	16QAM	23205	25RB#0	-47.00	PASS
Band13	5MHz	QPSK	23255	25RB#0	-45.79	PASS
Band13	5MHz	16QAM	23255	25RB#0	-46.48	PASS
Band13	10MHz	QPSK	23230	50RB#0	-47.02	PASS
Band13	10MHz	16QAM	23230	50RB#0	-48.85	PASS

Test Graphs







E.5 Conducted Spurious Emission

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Frequency Range	Result (dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	0.009~0.15	-59.18	PASS
Band13	5MHz	QPSK	23205	1RB#0	0.15~30	-50.01	PASS
Band13	5MHz	QPSK	23205	1RB#0	30~1000	-61.70	PASS
Band13	5MHz	QPSK	23205	1RB#0	1000~3000	-44.36	PASS
Band13	5MHz	QPSK	23205	1RB#0	3000~10000	-44.06	PASS
Band13	5MHz	16QAM	23205	1RB#0	0.009~0.15	-56.35	PASS
Band13	5MHz	16QAM	23205	1RB#0	0.15~30	-51.73	PASS
Band13	5MHz	16QAM	23205	1RB#0	30~1000	-60.64	PASS
Band13	5MHz	16QAM	23205	1RB#0	1000~3000	-43.99	PASS
Band13	5MHz	16QAM	23205	1RB#0	3000~10000	-44.25	PASS
Band13	5MHz	QPSK	23230	1RB#0	0.009~0.15	-57.95	PASS
Band13	5MHz	QPSK	23230	1RB#0	0.15~30	-52.79	PASS
Band13	5MHz	QPSK	23230	1RB#0	30~1000	-61.79	PASS
Band13	5MHz	QPSK	23230	1RB#0	1000~3000	-44.29	PASS
Band13	5MHz	QPSK	23230	1RB#0	3000~10000	-44.25	PASS
Band13	5MHz	16QAM	23230	1RB#0	0.009~0.15	-57.16	PASS
Band13	5MHz	16QAM	23230	1RB#0	0.15~30	-51.83	PASS
Band13	5MHz	16QAM	23230	1RB#0	30~1000	-62.02	PASS
Band13	5MHz	16QAM	23230	1RB#0	1000~3000	-44.08	PASS
Band13	5MHz	16QAM	23230	1RB#0	3000~10000	-43.80	PASS
Band13	5MHz	QPSK	23255	1RB#0	0.009~0.15	-56.22	PASS
Band13	5MHz	QPSK	23255	1RB#0	0.15~30	-51.59	PASS
Band13	5MHz	QPSK	23255	1RB#0	30~1000	-60.46	PASS
Band13	5MHz	QPSK	23255	1RB#0	1000~3000	-44.13	PASS
Band13	5MHz	QPSK	23255	1RB#0	3000~10000	-44.14	PASS
Band13	5MHz	16QAM	23255	1RB#0	0.009~0.15	-58.70	PASS
Band13	5MHz	16QAM	23255	1RB#0	0.15~30	-54.12	PASS
Band13	5MHz	16QAM	23255	1RB#0	30~1000	-59.26	PASS
Band13	5MHz	16QAM	23255	1RB#0	1000~3000	-43.87	PASS
Band13	5MHz	16QAM	23255	1RB#0	3000~10000	-43.49	PASS
Band13	10MHz	QPSK	23230	1RB#0	0.009~0.15	-57.44	PASS
Band13	10MHz	QPSK	23230	1RB#0	0.15~30	-53.10	PASS
Band13	10MHz	QPSK	23230	1RB#0	30~1000	-61.65	PASS
Band13	10MHz	QPSK	23230	1RB#0	1000~3000	-44.36	PASS



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

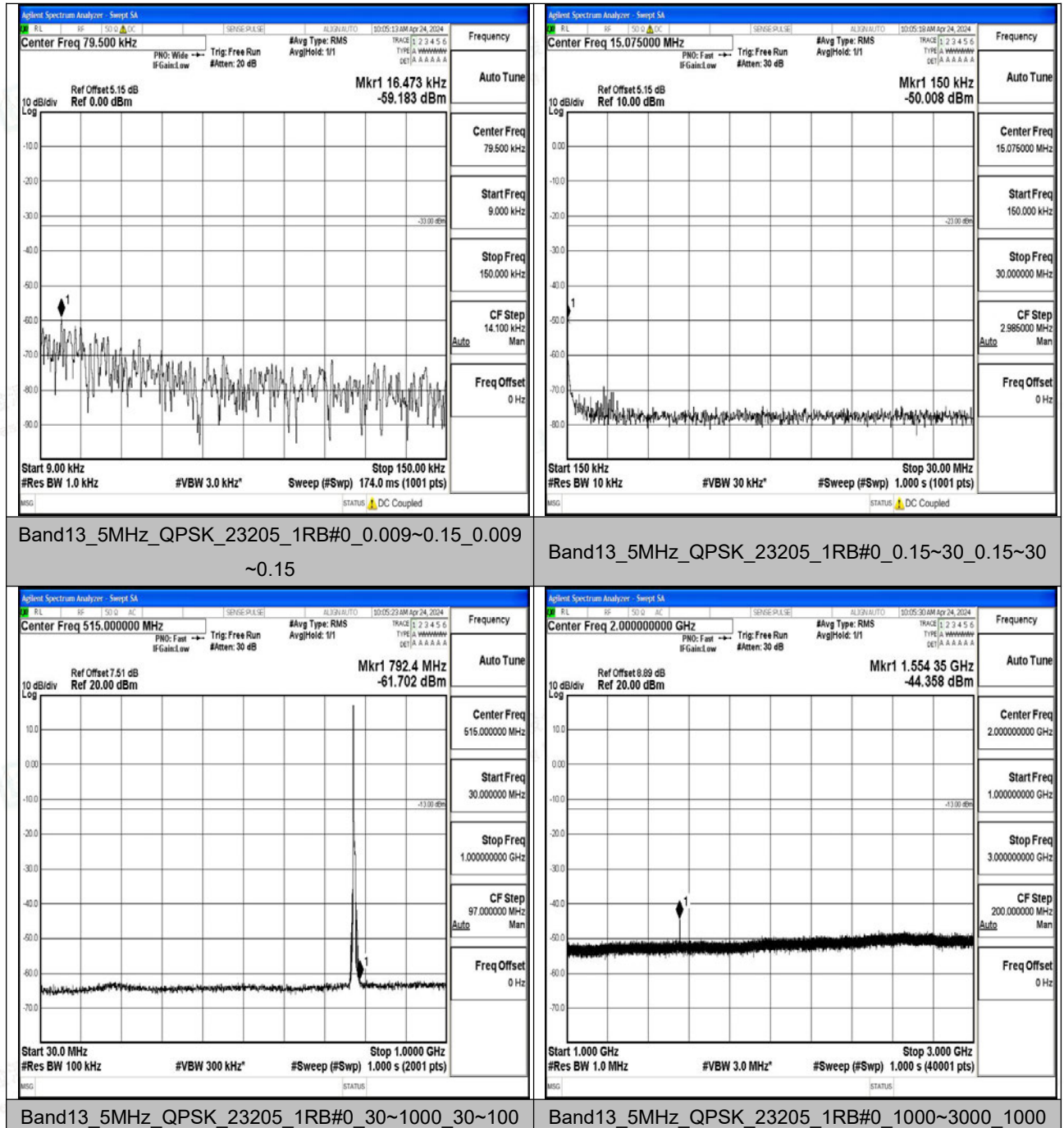
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

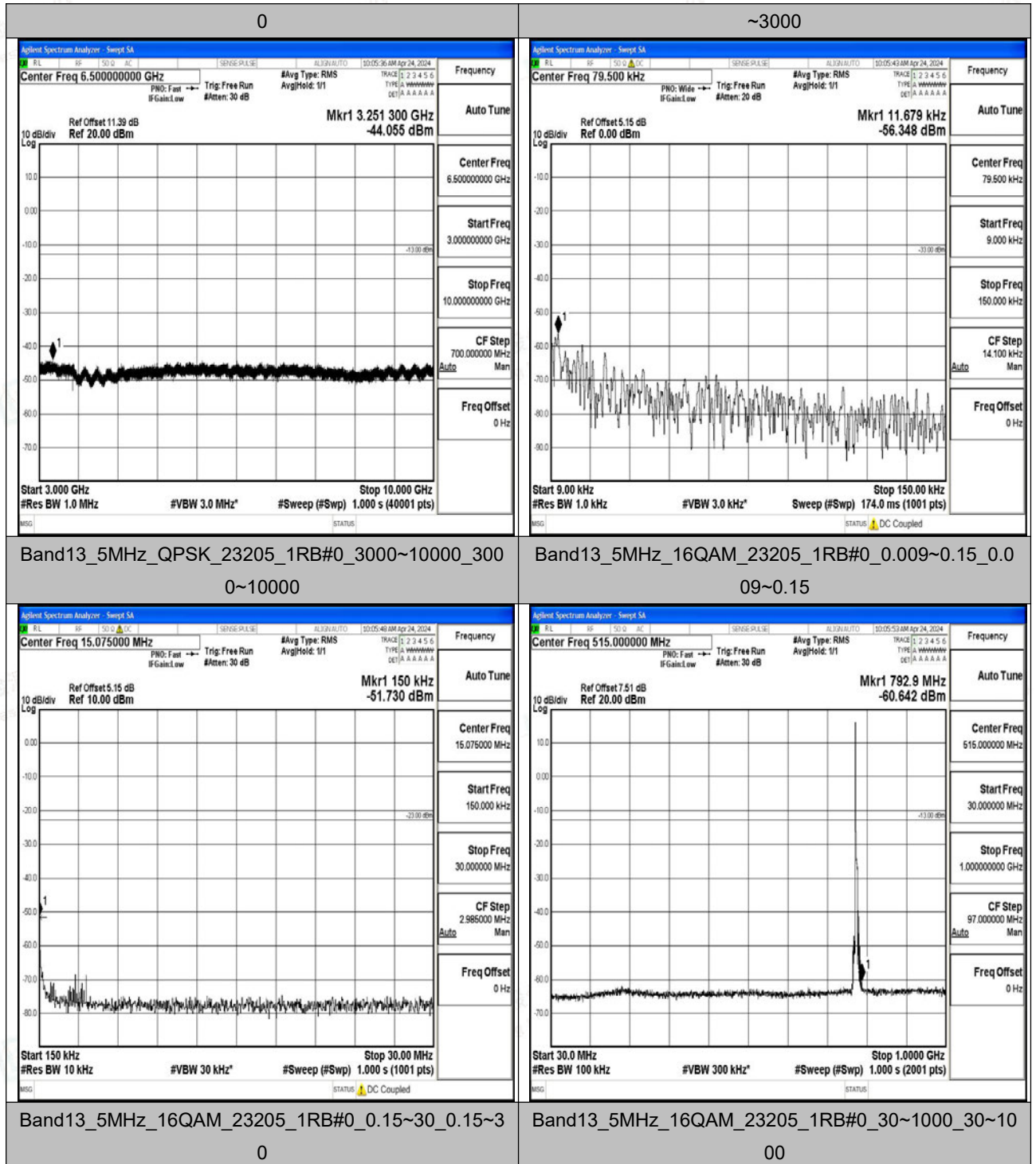
Scan code to check authenticity

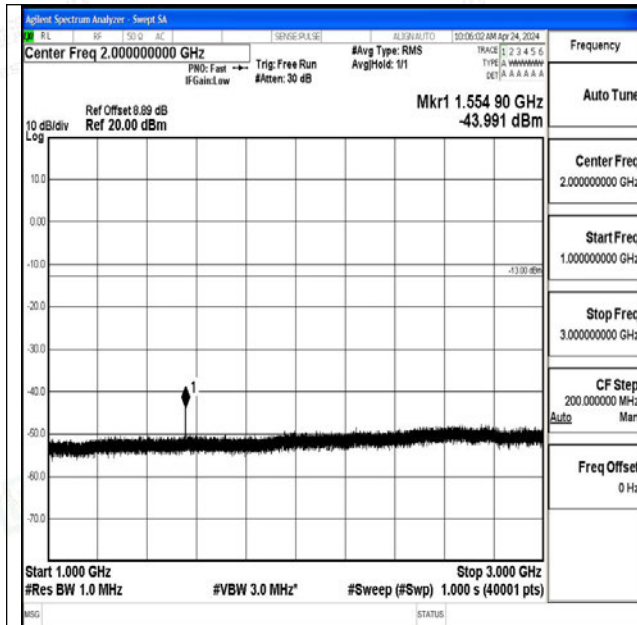


Band13	10MHz	QPSK	23230	1RB#0	3000~10000	-43.83	PASS
Band13	10MHz	16QAM	23230	1RB#0	0.009~0.15	-55.54	PASS
Band13	10MHz	16QAM	23230	1RB#0	0.15~30	-52.96	PASS
Band13	10MHz	16QAM	23230	1RB#0	30~1000	-62.20	PASS
Band13	10MHz	16QAM	23230	1RB#0	1000~3000	-44.13	PASS
Band13	10MHz	16QAM	23230	1RB#0	3000~10000	-44.06	PASS

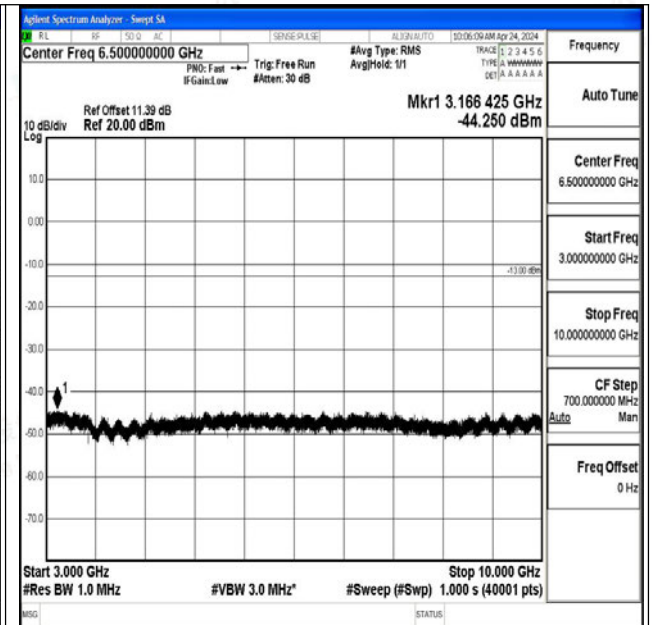
Test Graphs



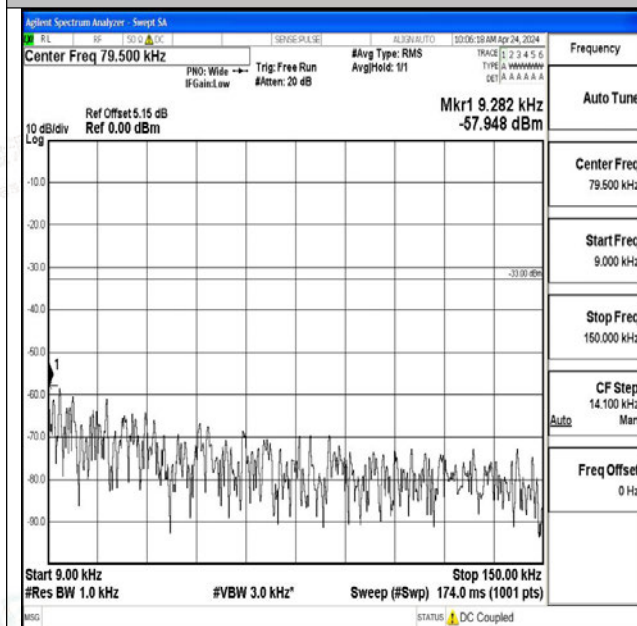




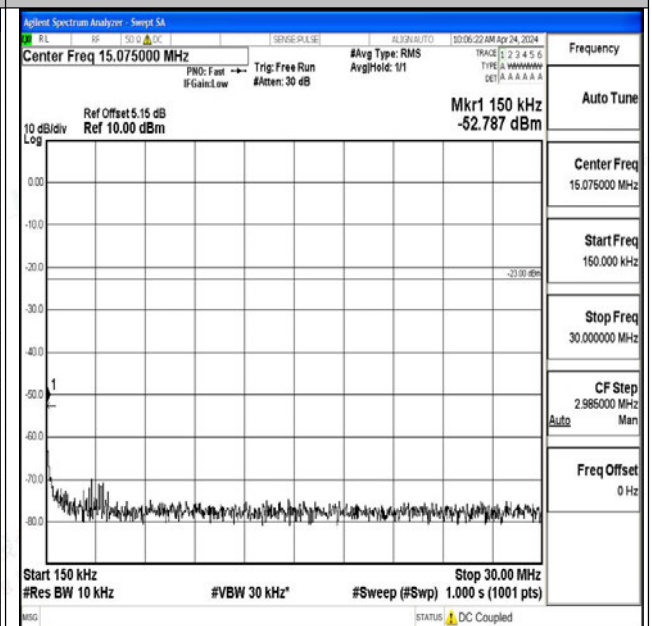
Band13_5MHz_16QAM_23205_1RB#0_1000~3000_100
0~3000



Band13_5MHz_16QAM_23205_1RB#0_3000~10000_30
00~10000

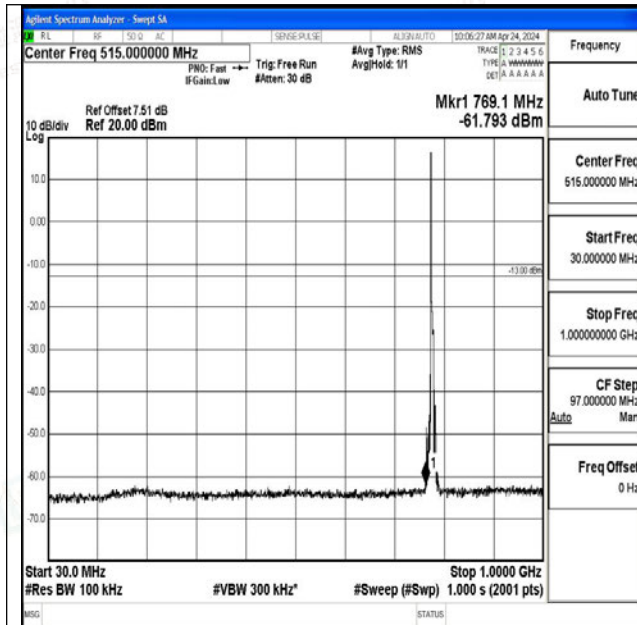


Band13_5MHz_QPSK_23230_1RB#0_0.009~0.15_0.009
~0.15



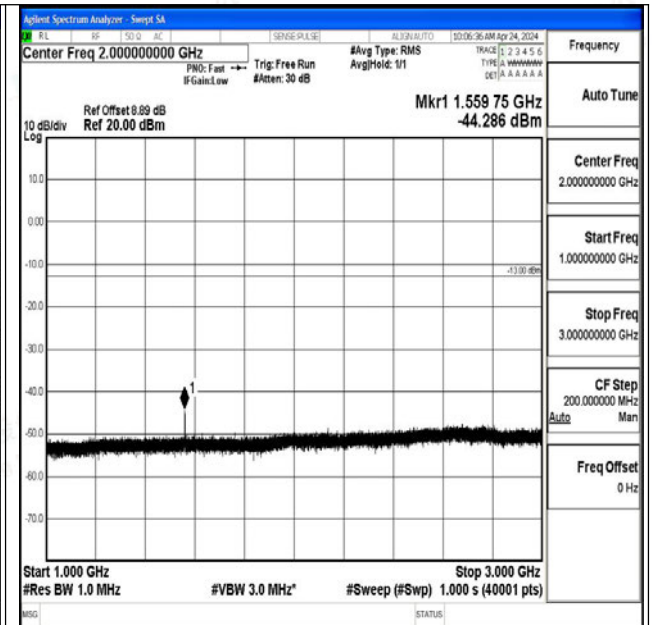
Band13_5MHz_QPSK_23230_1RB#0_0.15~30_0.15~30





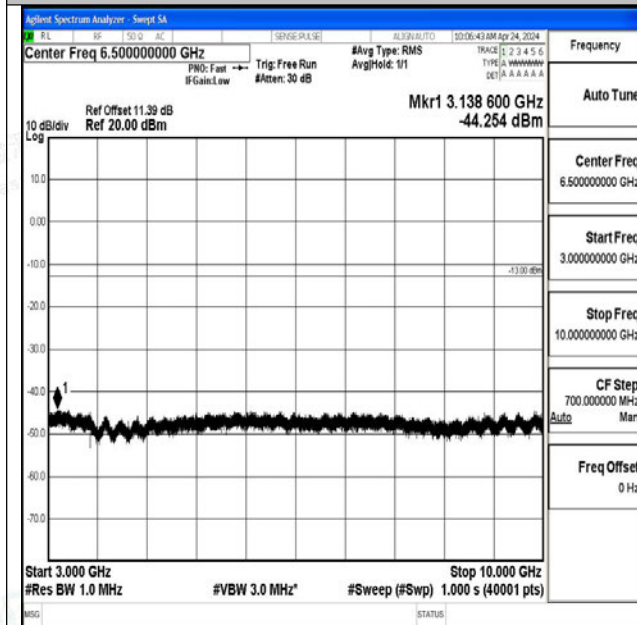
Band13_5MHz_QPSK_23230_1RB#0_30~1000_30~100

0



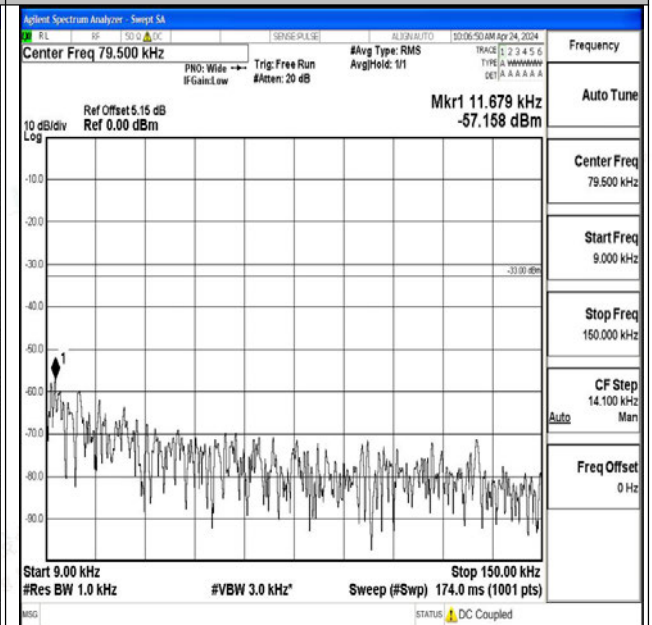
Band13_5MHz_QPSK_23230_1RB#0_1000~3000_1000~3000

~3000



Band13_5MHz_QPSK_23230_1RB#0_3000~10000_3000~10000

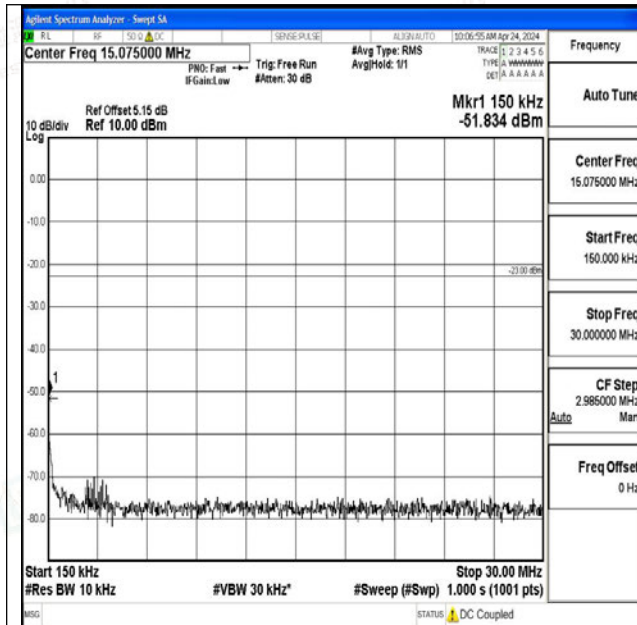
0~10000



Band13_5MHz_16QAM_23230_1RB#0_0.009~0.15_0.09~0.15

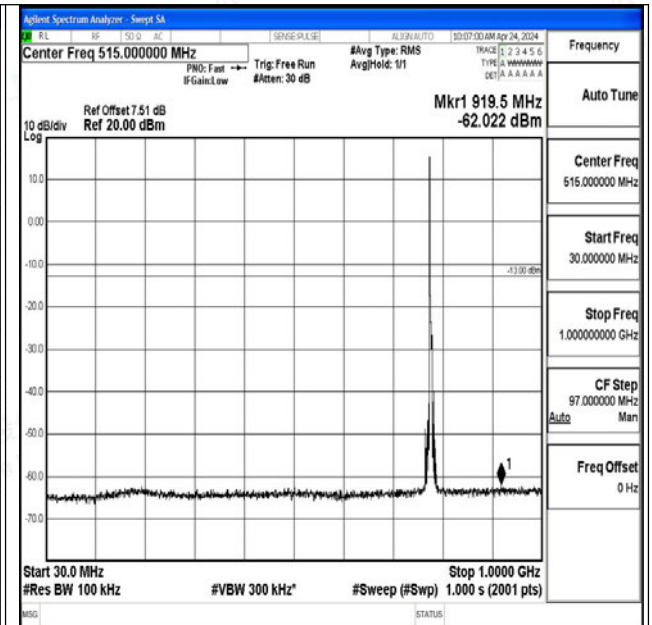
09~0.15





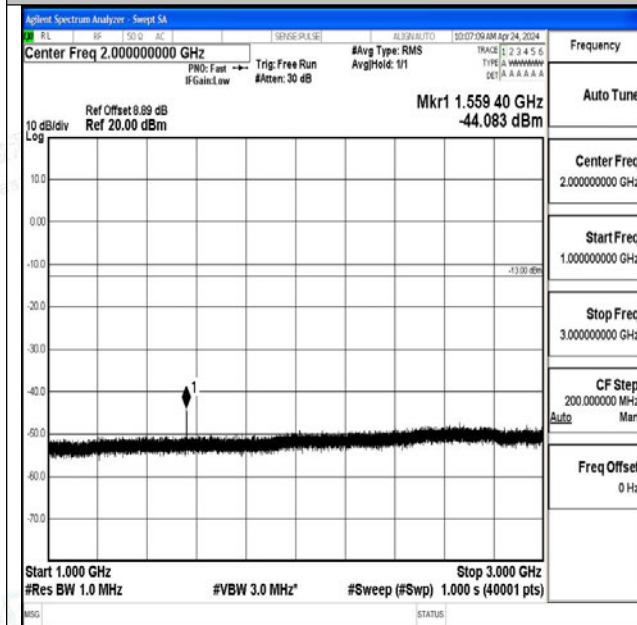
Band13_5MHz_16QAM_23230_1RB#0_0.15~30_0.15~3

0



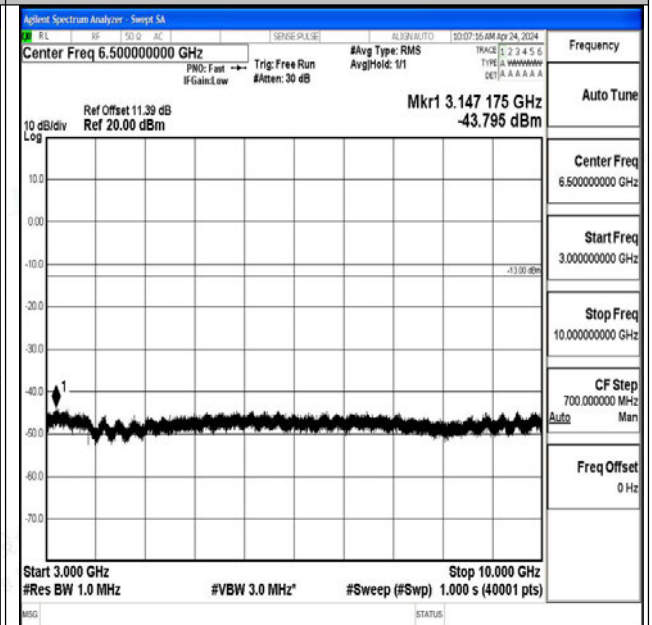
Band13_5MHz_16QAM_23230_1RB#0_30~1000_30~10

00



Band13_5MHz_16QAM_23230_1RB#0_1000~3000_100

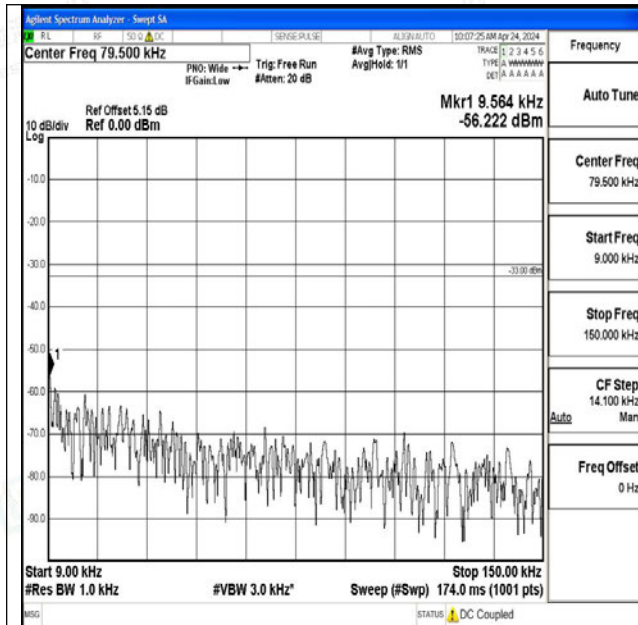
0~3000



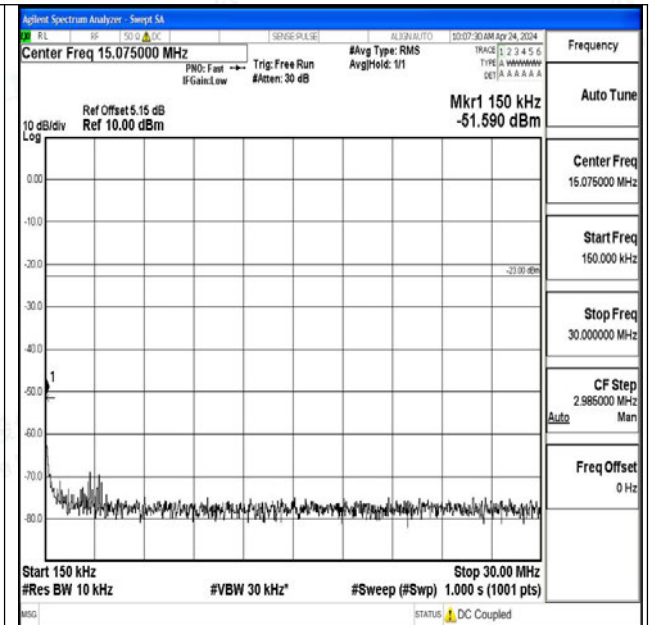
Band13_5MHz_16QAM_23230_1RB#0_3000~10000_30

00~10000

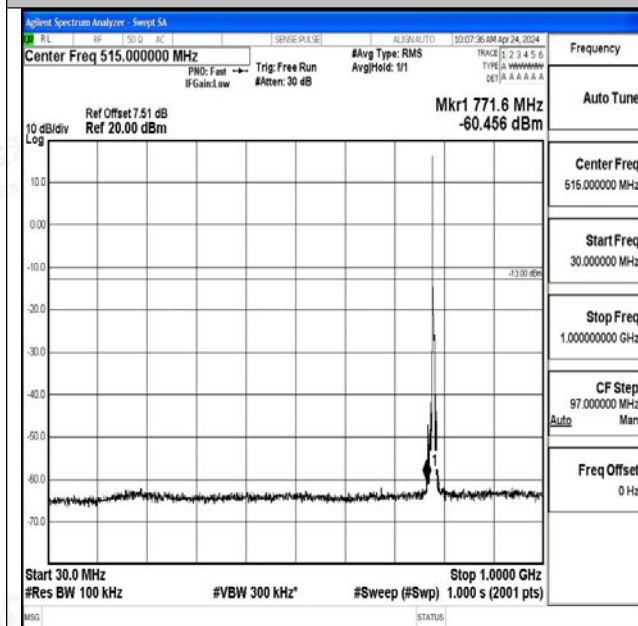




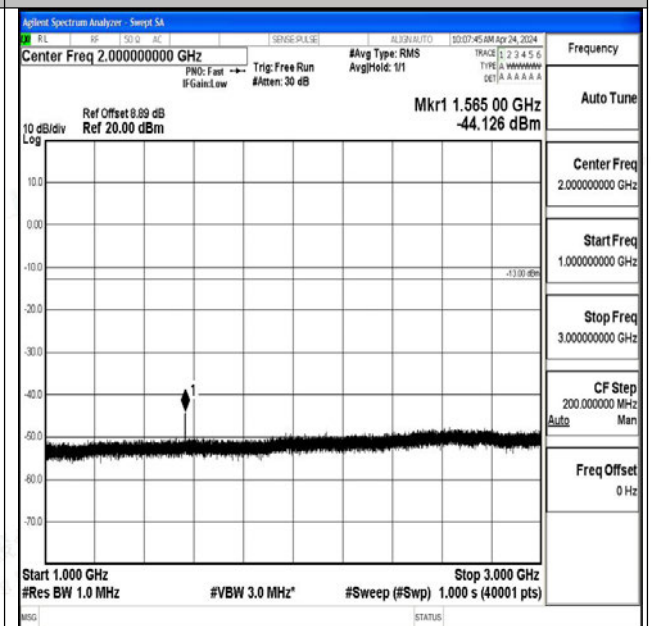
Band13_5MHz_QPSK_23255_1RB#0_0.009~0.15_0.009
~0.15



Band13_5MHz_QPSK_23255_1RB#0_0.15~30_0.15~30

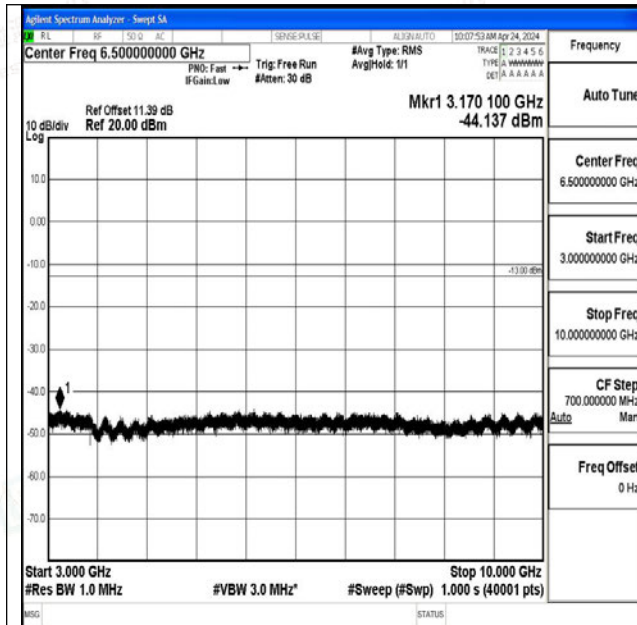


Band13_5MHz_QPSK_23255_1RB#0_30~1000_30~1000
0

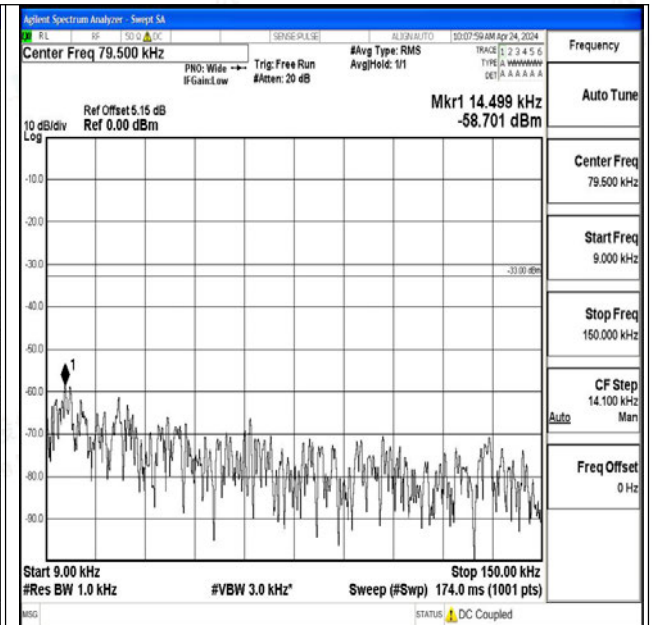


Band13_5MHz_QPSK_23255_1RB#0_1000~3000_1000
~3000

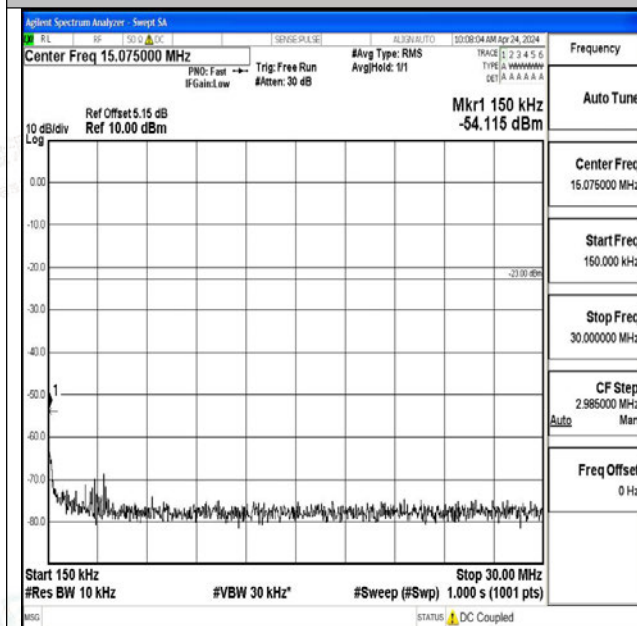




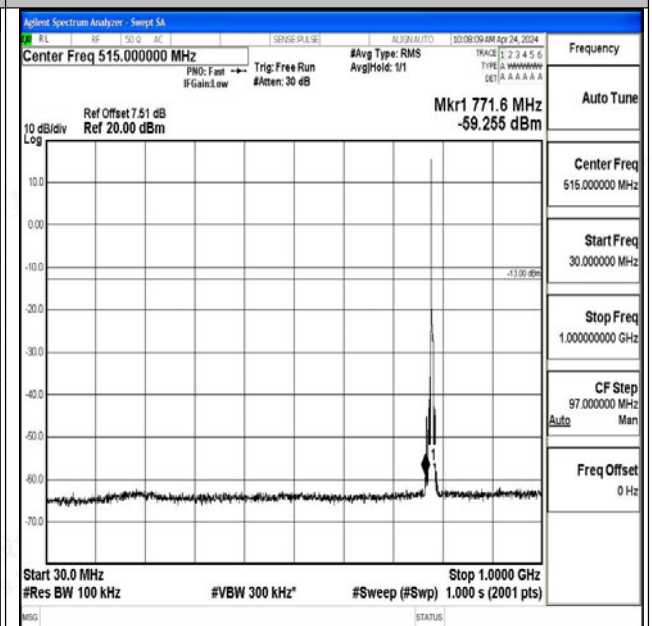
Band13_5MHz_QPSK_23255_1RB#0_3000~10000_300
0~10000



Band13_5MHz_16QAM_23255_1RB#0_0.009~0.15_0.0
09~0.15

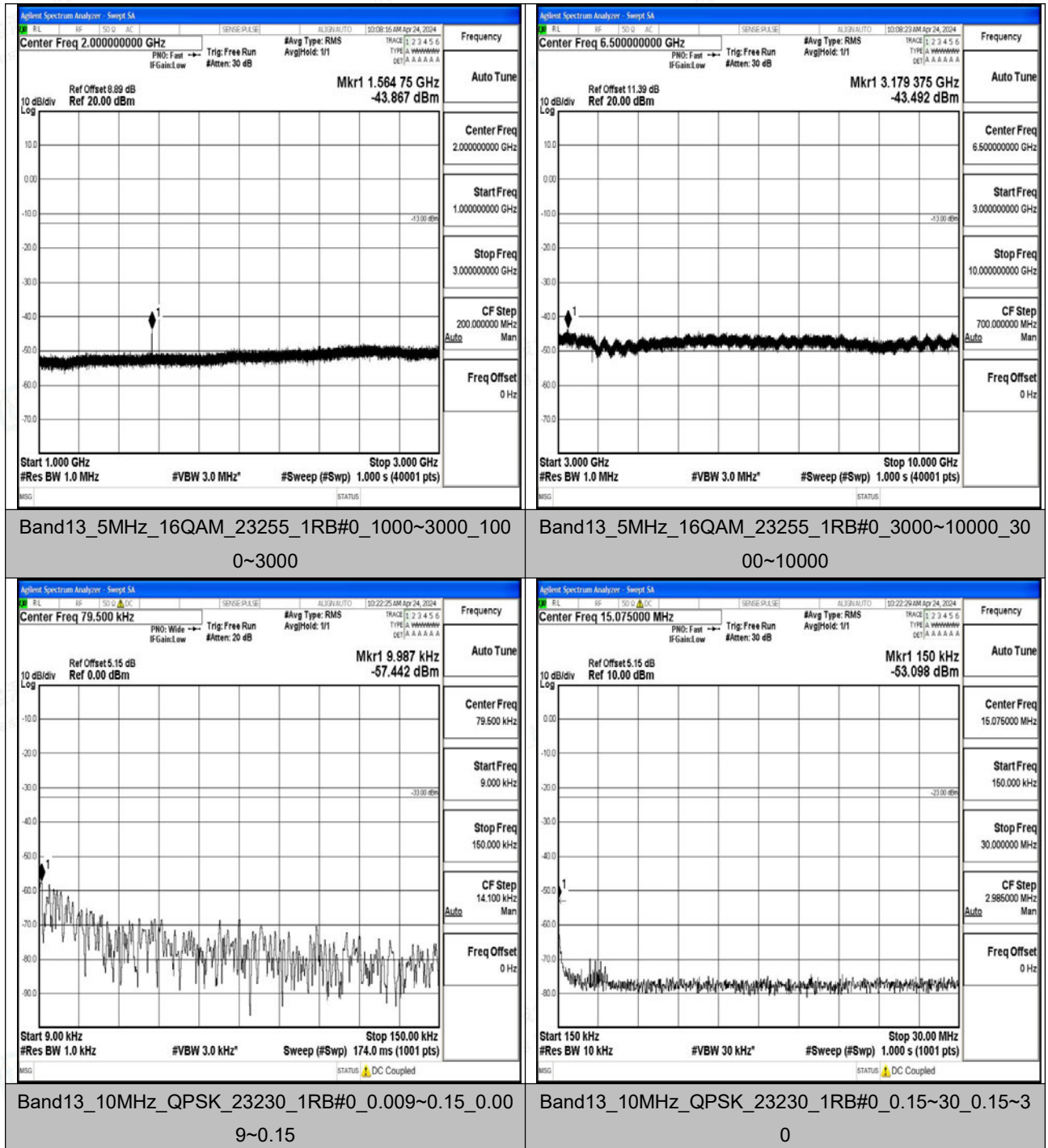


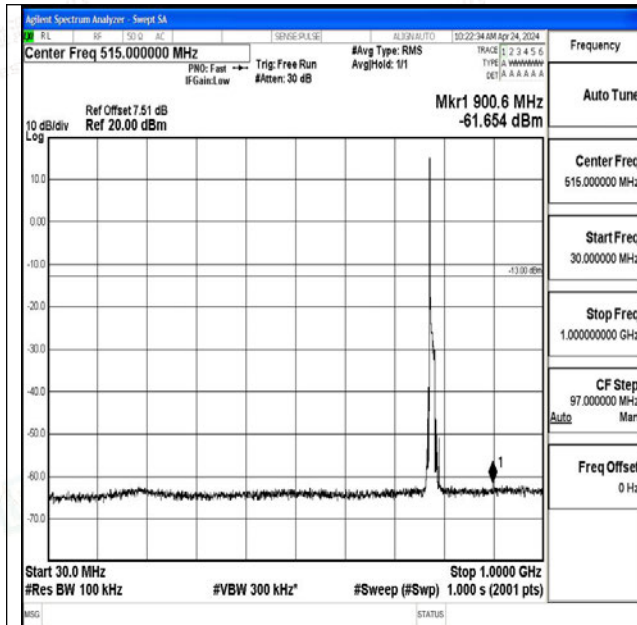
Band13_5MHz_16QAM_23255_1RB#0_0.15~30_0.15~3
0



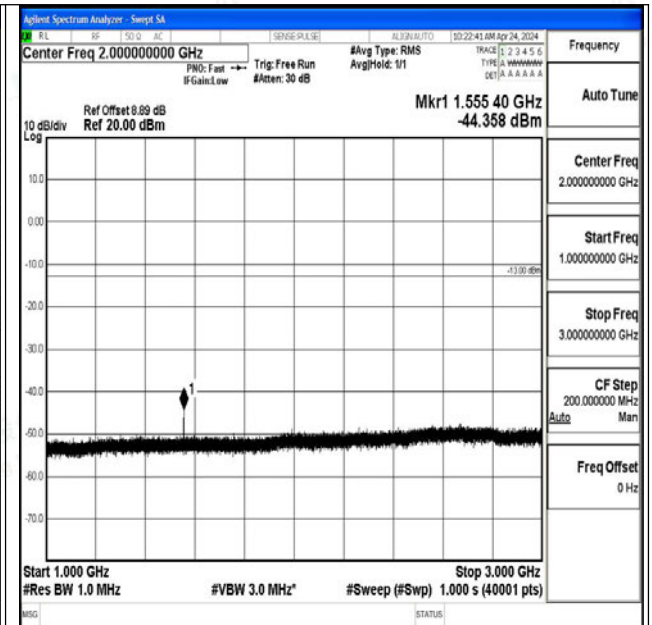
Band13_5MHz_16QAM_23255_1RB#0_30~1000_30~10
00



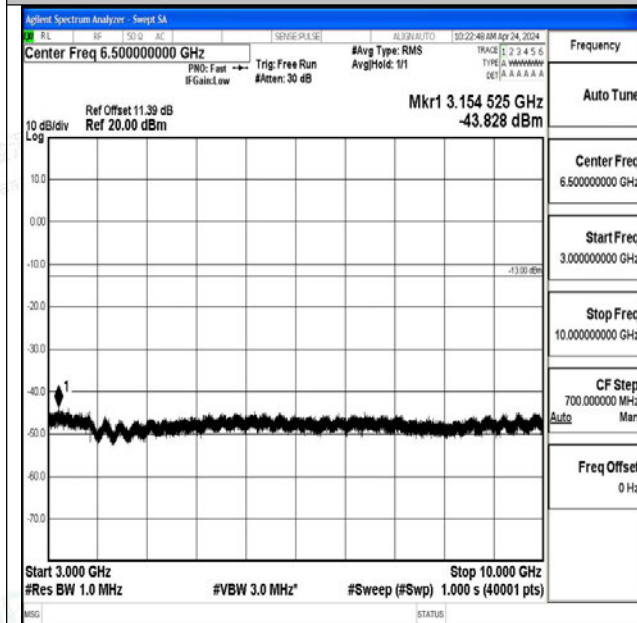




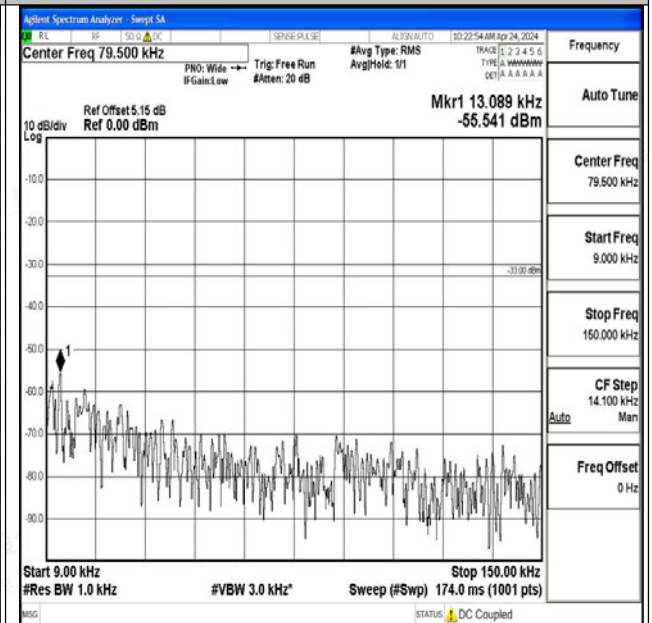
Band13_10MHz_QPSK_23230_1RB#0_30~1000_30~1000



Band13_10MHz_QPSK_23230_1RB#0_1000~3000_1000~3000

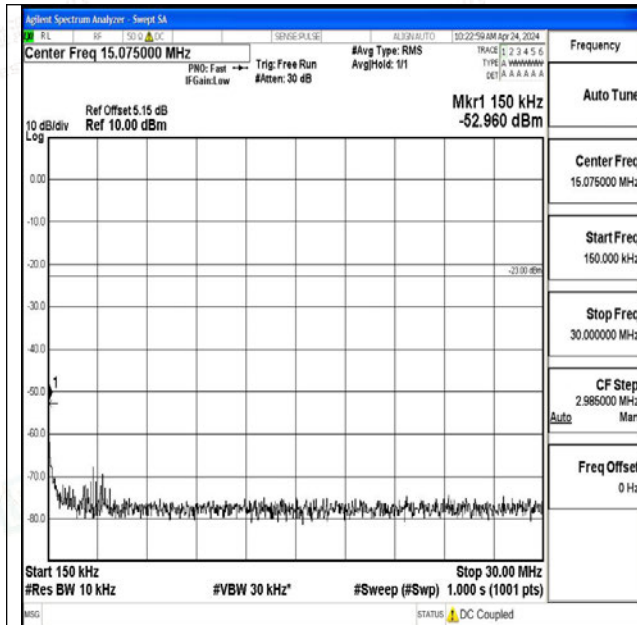


Band13_10MHz_QPSK_23230_1RB#0_3000~10000_3000~10000

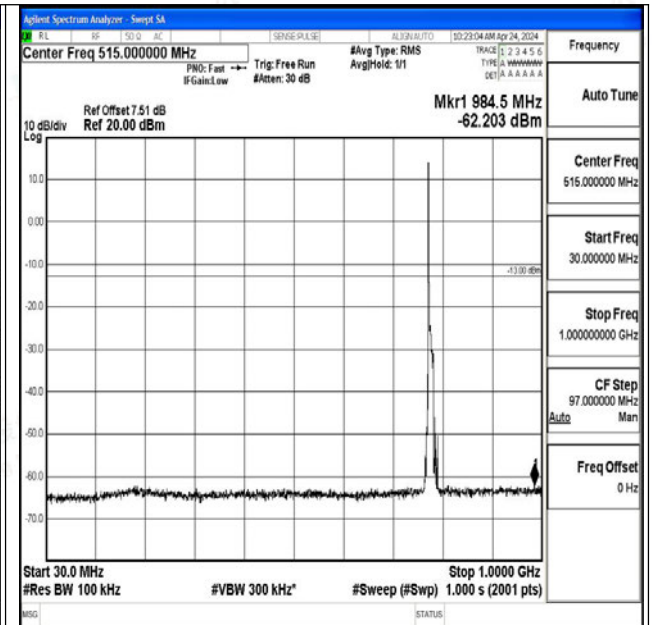


Band13_10MHz_16QAM_23230_1RB#0_0.009~0.15_0.009~0.15

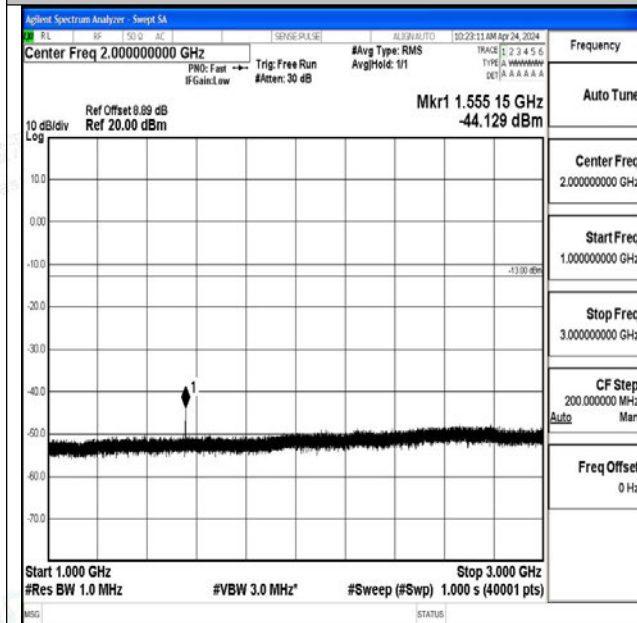




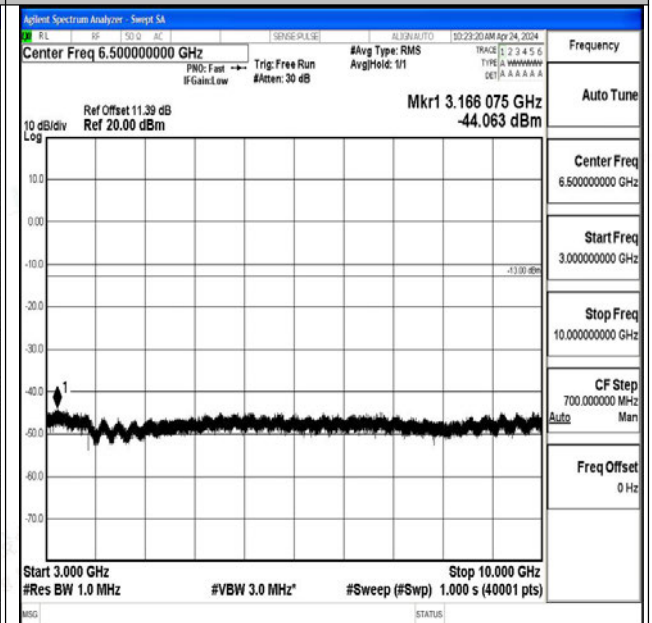
Band13_10MHz_16QAM_23230_1RB#0_0.15~30_0.15~30



Band13_10MHz_16QAM_23230_1RB#0_30~1000_30~1000



Band13_10MHz_16QAM_23230_1RB#0_1000~3000_1000~3000



Band13_10MHz_16QAM_23230_1RB#0_3000~10000_3000~10000

