



Appendix M: Test Data for E-UTRA Band 13

Product Name: APOLLO

Test Model: APOLLO 7PRO

Environmental Conditions

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





M.1 Effective (Isotropic) Radiated Power Output Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	22.17	PASS
Band13	5MHz	QPSK	23205	1RB#12	22.16	PASS
Band13	5MHz	QPSK	23205	1RB#24	22.00	PASS
Band13	5MHz	QPSK	23205	12RB#0	21.22	PASS
Band13	5MHz	QPSK	23205	12RB#6	21.23	PASS
Band13	5MHz	QPSK	23205	12RB#13	21.11	PASS
Band13	5MHz	QPSK	23205	25RB#0	21.12	PASS
Band13	5MHz	QPSK	23230	1RB#0	22.43	PASS
Band13	5MHz	QPSK	23230	1RB#12	22.31	PASS
Band13	5MHz	QPSK	23230	1RB#24	22.50	PASS
Band13	5MHz	QPSK	23230	12RB#0	21.49	PASS
Band13	5MHz	QPSK	23230	12RB#6	21.51	PASS
Band13	5MHz	QPSK	23230	12RB#13	21.51	PASS
Band13	5MHz	QPSK	23230	25RB#0	21.41	PASS
Band13	5MHz	QPSK	23255	1RB#0	22.54	PASS
Band13	5MHz	QPSK	23255	1RB#12	22.80	PASS
Band13	5MHz	QPSK	23255	1RB#24	22.69	PASS
Band13	5MHz	QPSK	23255	12RB#0	21.63	PASS
Band13	5MHz	QPSK	23255	12RB#6	21.64	PASS
Band13	5MHz	QPSK	23255	12RB#13	21.74	PASS
Band13	5MHz	QPSK	23255	25RB#0	21.70	PASS
Band13	5MHz	16QAM	23205	1RB#0	21.18	PASS
Band13	5MHz	16QAM	23205	1RB#12	21.23	PASS
Band13	5MHz	16QAM	23205	1RB#24	21.06	PASS
Band13	5MHz	16QAM	23205	12RB#0	20.20	PASS
Band13	5MHz	16QAM	23205	12RB#6	20.20	PASS
Band13	5MHz	16QAM	23205	12RB#13	20.20	PASS
Band13	5MHz	16QAM	23205	25RB#0	20.04	PASS
Band13	5MHz	16QAM	23230	1RB#0	21.50	PASS
Band13	5MHz	16QAM	23230	1RB#12	21.39	PASS





Band13	5MHz	16QAM	23230	1RB#24	21.51	PASS
Band13	5MHz	16QAM	23230	12RB#0	20.52	PASS
Band13	5MHz	16QAM	23230	12RB#6	20.52	PASS
Band13	5MHz	16QAM	23230	12RB#13	20.45	PASS
Band13	5MHz	16QAM	23230	25RB#0	20.51	PASS
Band13	5MHz	16QAM	23255	1RB#0	21.84	PASS
Band13	5MHz	16QAM	23255	1RB#12	22.05	PASS
Band13	5MHz	16QAM	23255	1RB#24	21.90	PASS
Band13	5MHz	16QAM	23255	12RB#0	20.69	PASS
Band13	5MHz	16QAM	23255	12RB#6	20.69	PASS
Band13	5MHz	16QAM	23255	12RB#13	20.75	PASS
Band13	5MHz	16QAM	23255	25RB#0	20.72	PASS
Band13	10MHz	QPSK	23230	1RB#0	22.61	PASS
Band13	10MHz	QPSK	23230	1RB#24	22.20	PASS
Band13	10MHz	QPSK	23230	1RB#49	22.55	PASS
Band13	10MHz	QPSK	23230	25RB#0	21.51	PASS
Band13	10MHz	QPSK	23230	25RB#12	21.52	PASS
Band13	10MHz	QPSK	23230	25RB#25	21.55	PASS
Band13	10MHz	QPSK	23230	50RB#0	21.52	PASS
Band13	10MHz	16QAM	23230	1RB#0	21.86	PASS
Band13	10MHz	16QAM	23230	1RB#24	21.50	PASS
Band13	10MHz	16QAM	23230	1RB#49	21.84	PASS
Band13	10MHz	16QAM	23230	25RB#0	20.51	PASS
Band13	10MHz	16QAM	23230	25RB#12	20.49	PASS
Band13	10MHz	16QAM	23230	25RB#25	20.52	PASS
Band13	10MHz	16QAM	23230	50RB#0	20.49	PASS





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

Test Result

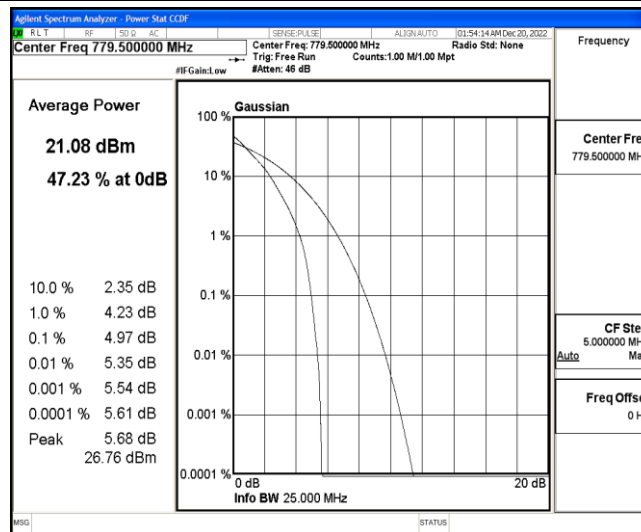
Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	4.97	13	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.90	13	PASS
Band13	5MHz	QPSK	23255	25RB#0	5.00	13	PASS
Band13	5MHz	16QAM	23205	25RB#0	5.81	13	PASS
Band13	5MHz	16QAM	23230	25RB#0	5.68	13	PASS
Band13	5MHz	16QAM	23255	25RB#0	5.82	13	PASS
Band13	10MHz	QPSK	23230	50RB#0	5.05	13	PASS
Band13	10MHz	16QAM	23230	50RB#0	5.86	13	PASS



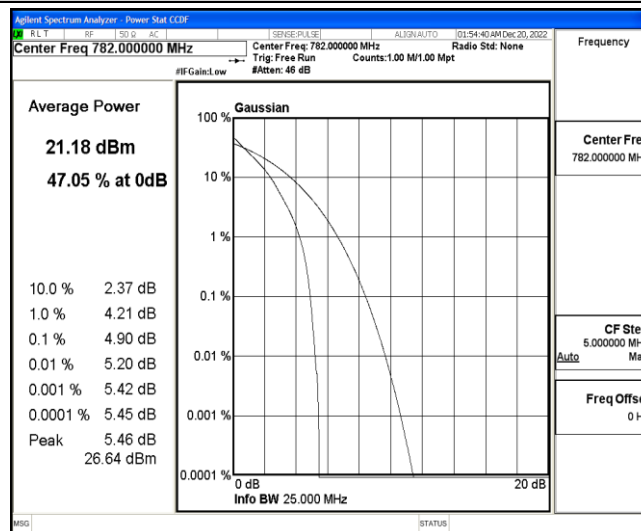


Test Graphs

Band13-5MHz-QPSK-23205-25RB#0

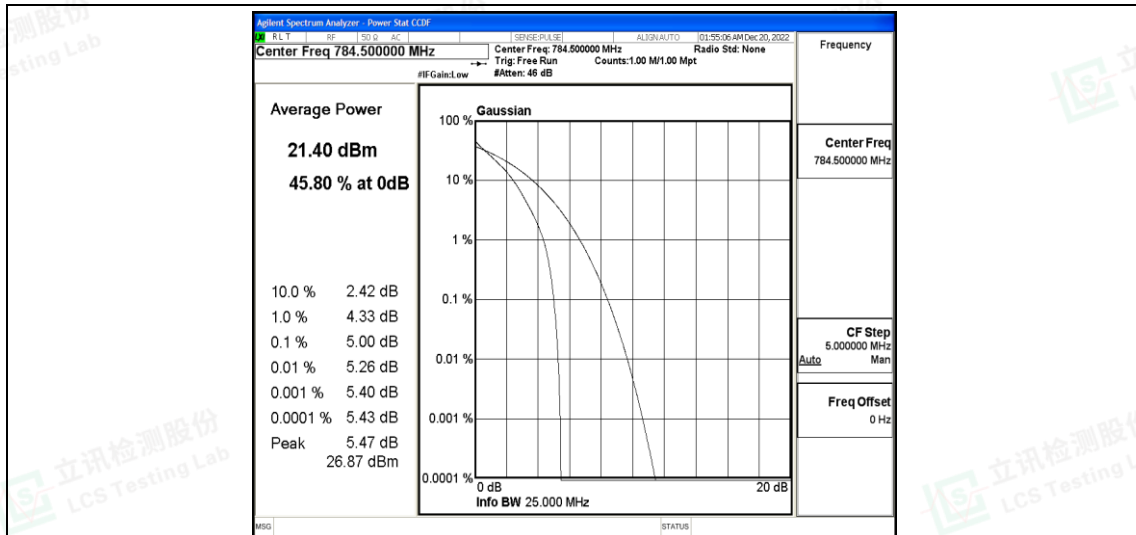


Band13-5MHz-QPSK-23230-25RB#0

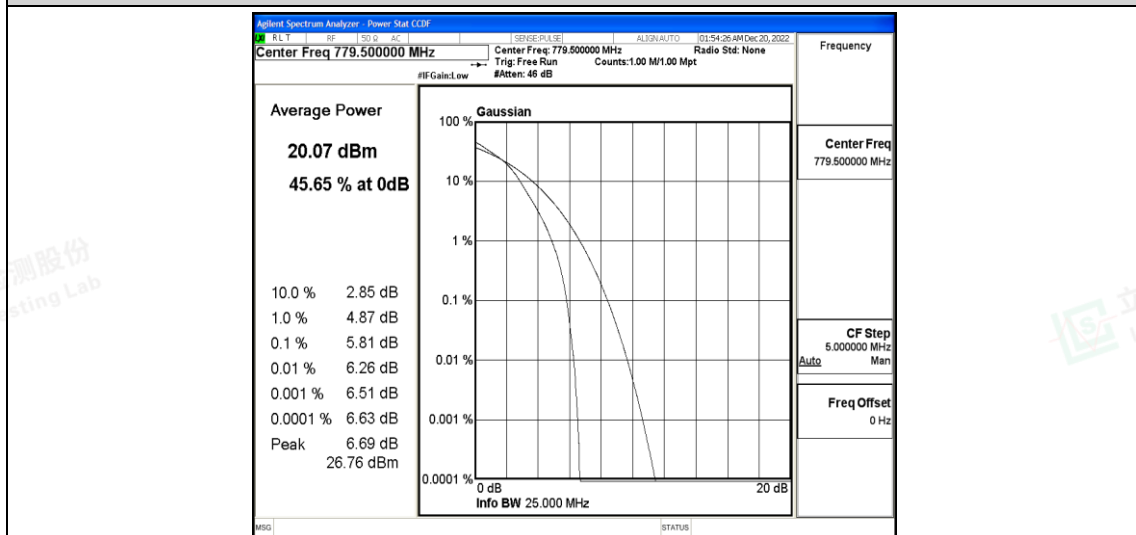


Band13-5MHz-QPSK-23255-25RB#0

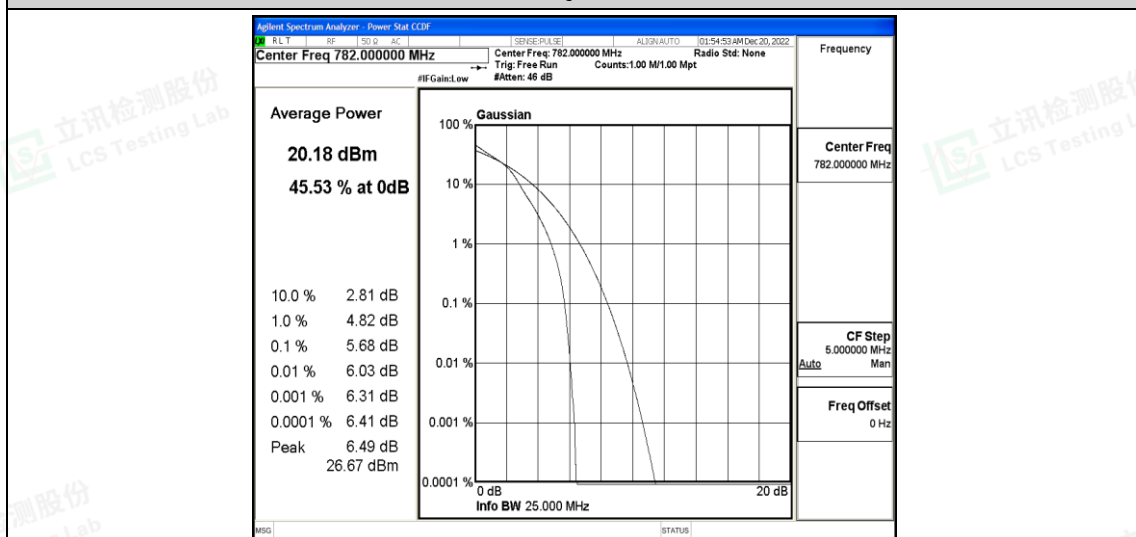




Band13-5MHz-16QAM-23205-25RB#0

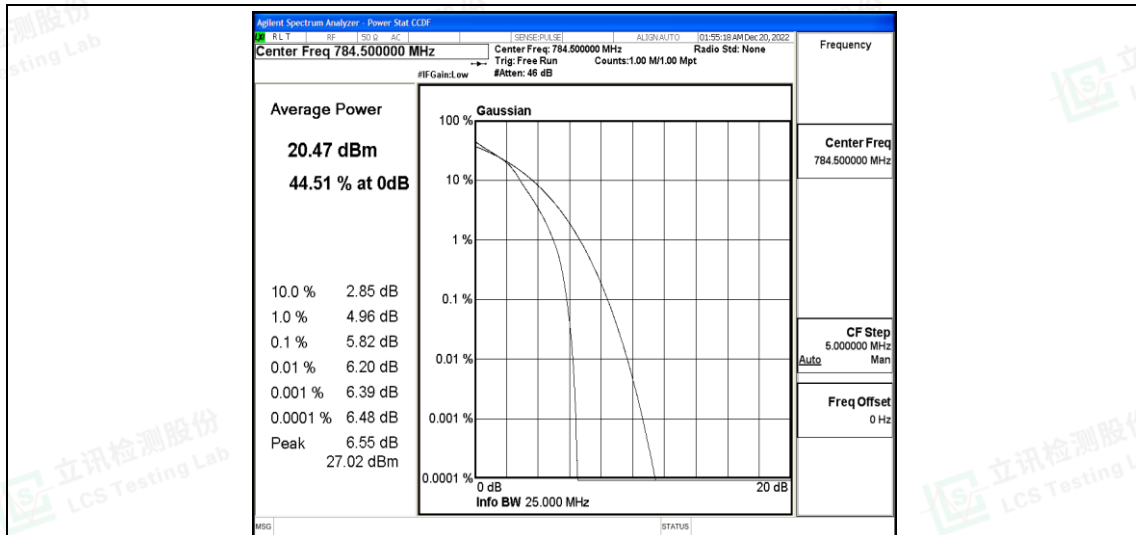


Band13-5MHz-16QAM-23230-25RB#0

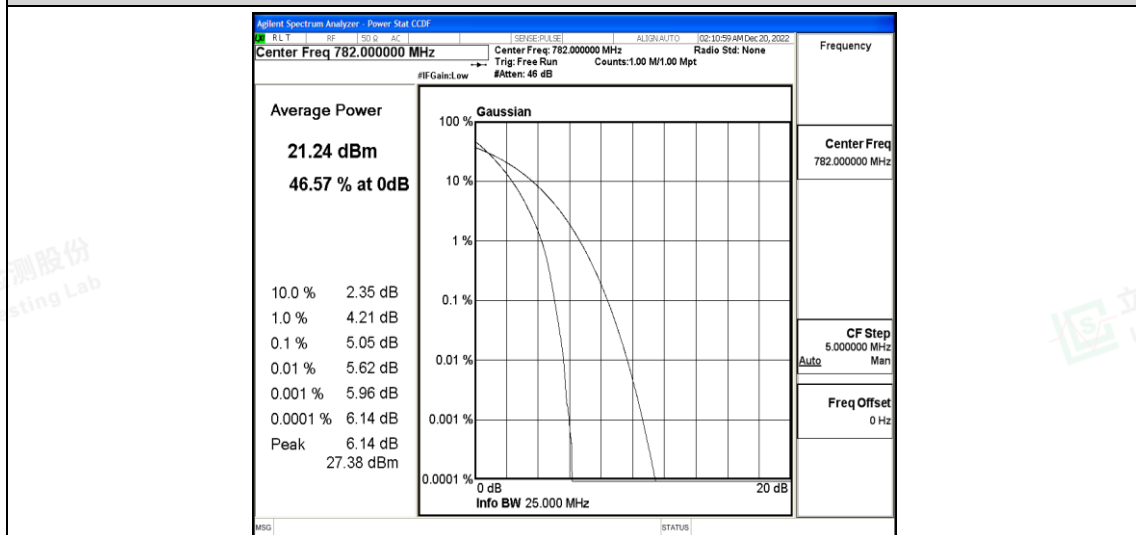


Band13-5MHz-16QAM-23255-25RB#0

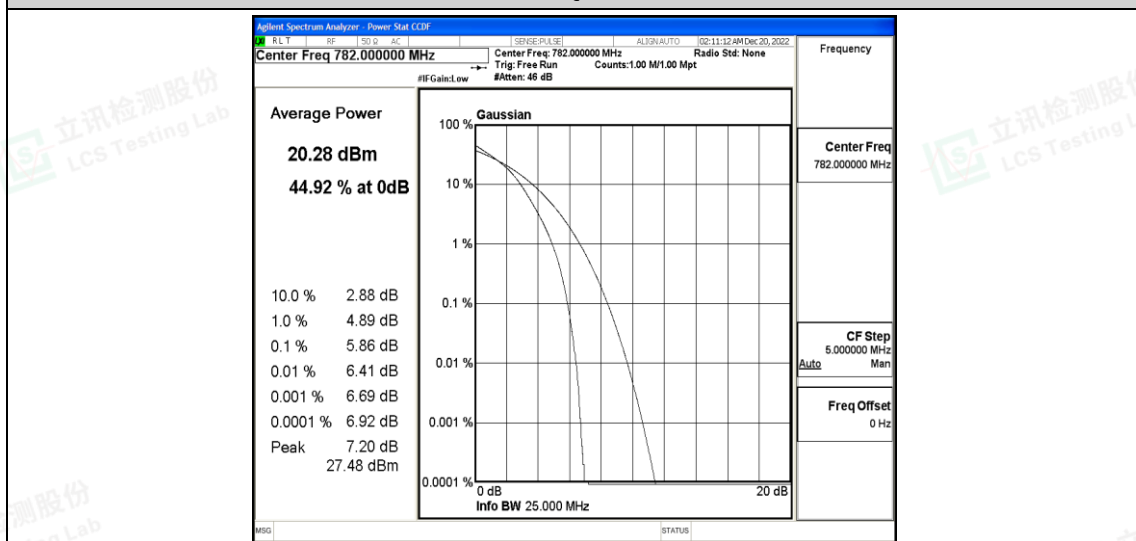




Band13-10MHz-QPSK-23230-50RB#0



Band13-10MHz-16QAM-23230-50RB#0





M.3 26dB Bandwidth and Occupied Bandwidth

Test Result

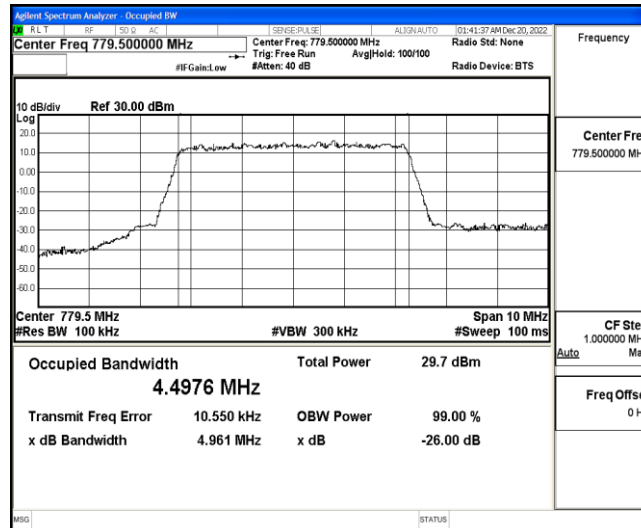
Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	4.4976	4.961	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.5103	4.990	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.4968	5.003	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.4831	4.979	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.5056	4.991	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.5103	5.034	PASS
Band13	10MHz	QPSK	23230	50RB#0	8.9526	9.914	PASS
Band13	10MHz	16QAM	23230	50RB#0	8.9429	9.897	PASS



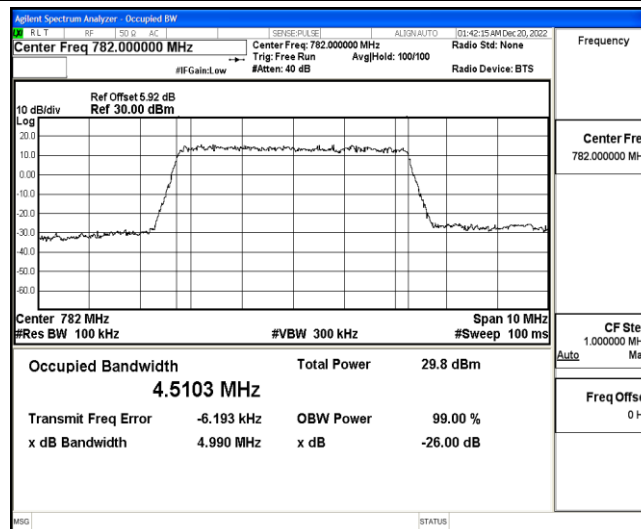


Test Graphs

Band13-5MHz-QPSK-23205-25RB#0

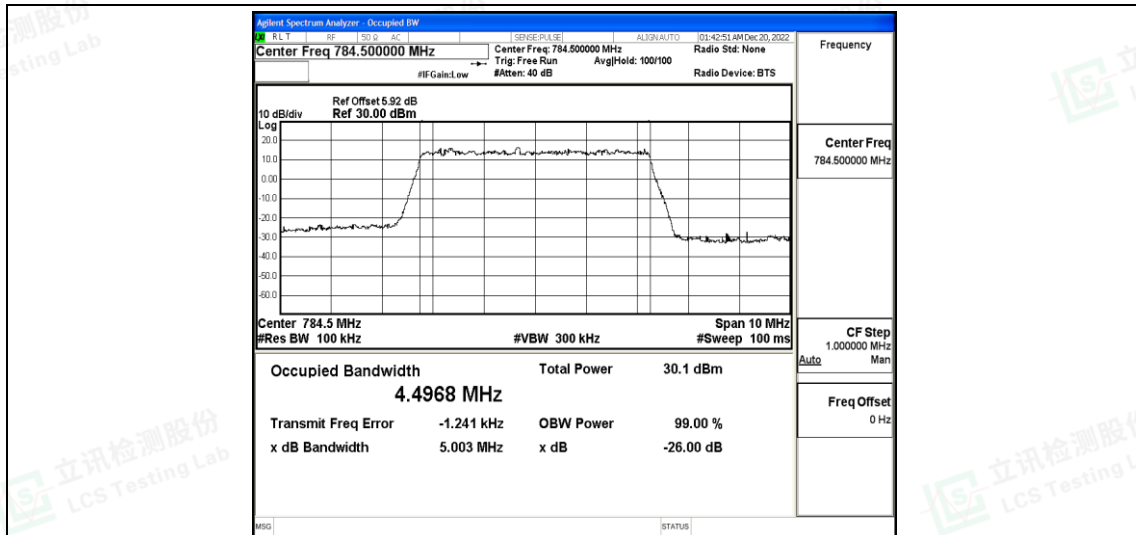


Band13-5MHz-QPSK-23230-25RB#0

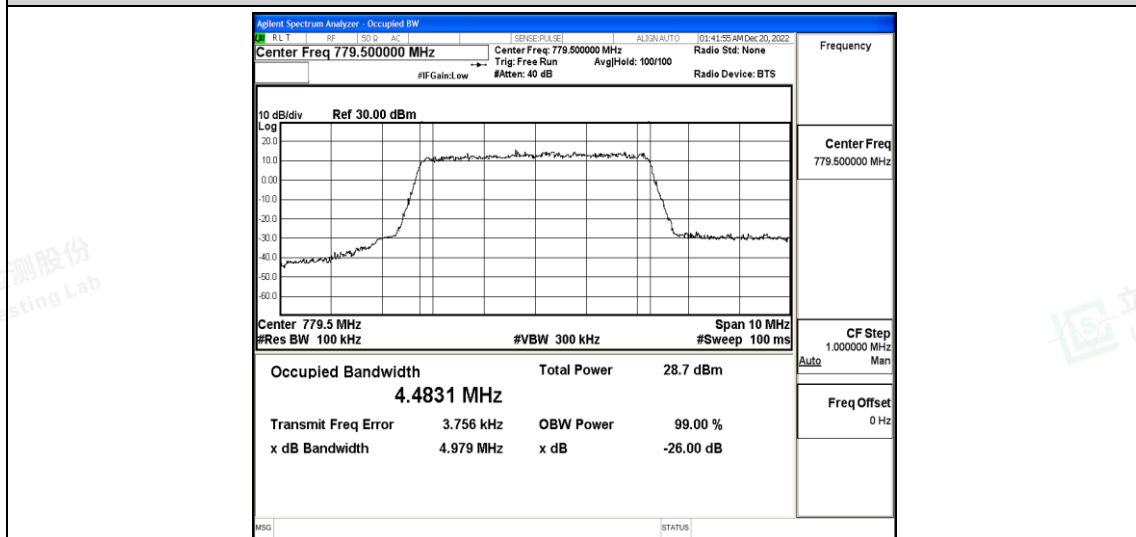


Band13-5MHz-QPSK-23255-25RB#0

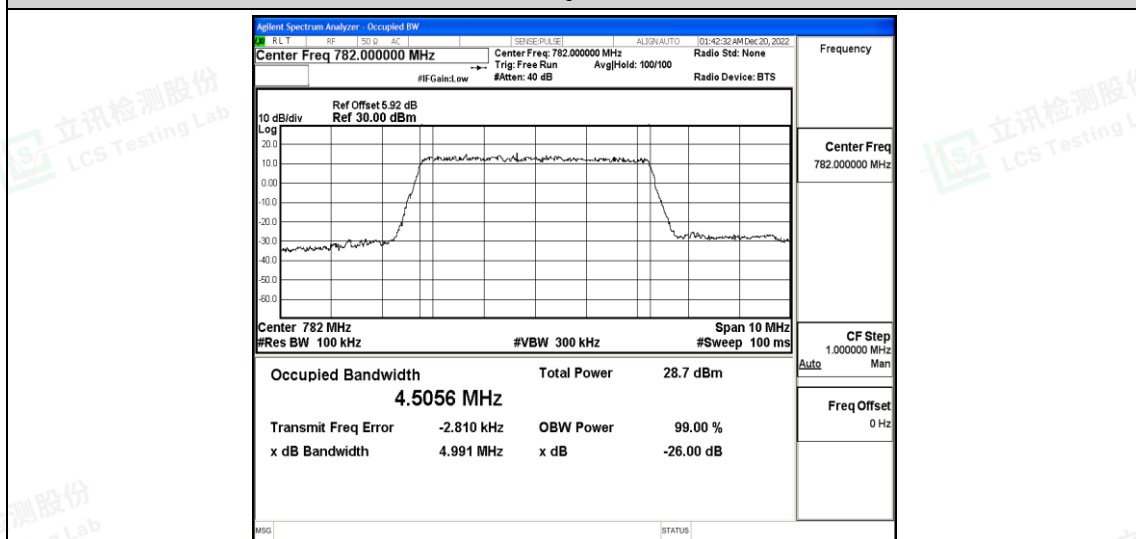




Band13-5MHz-16QAM-23205-25RB#0

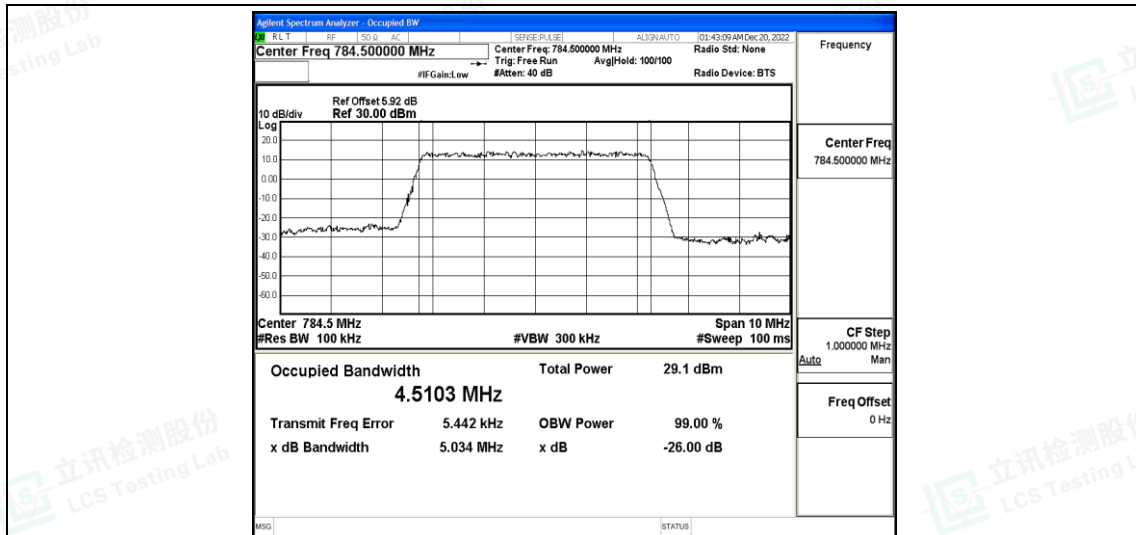


Band13-5MHz-16QAM-23230-25RB#0

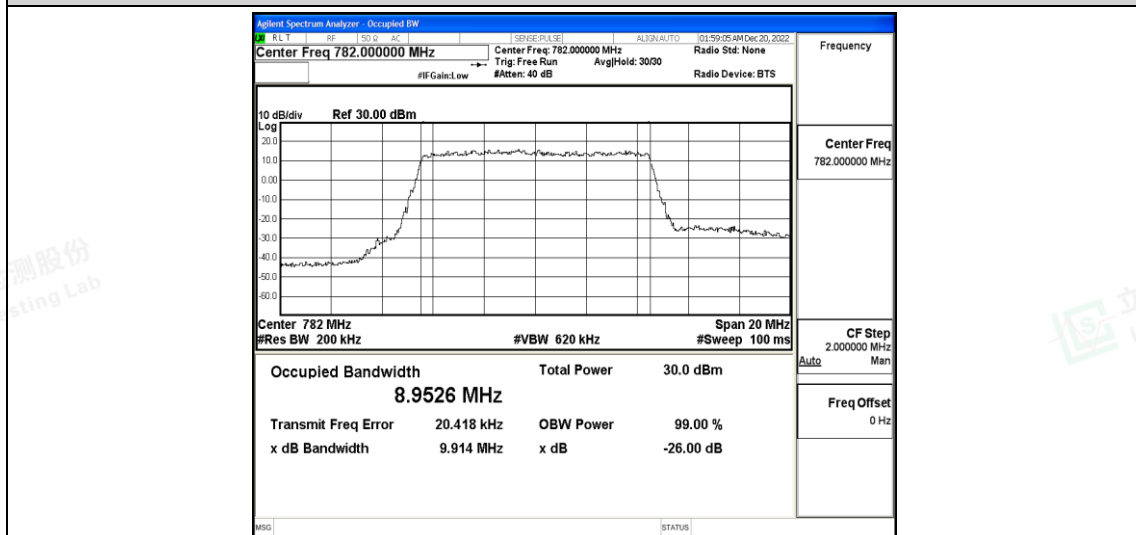


Band13-5MHz-16QAM-23255-25RB#0

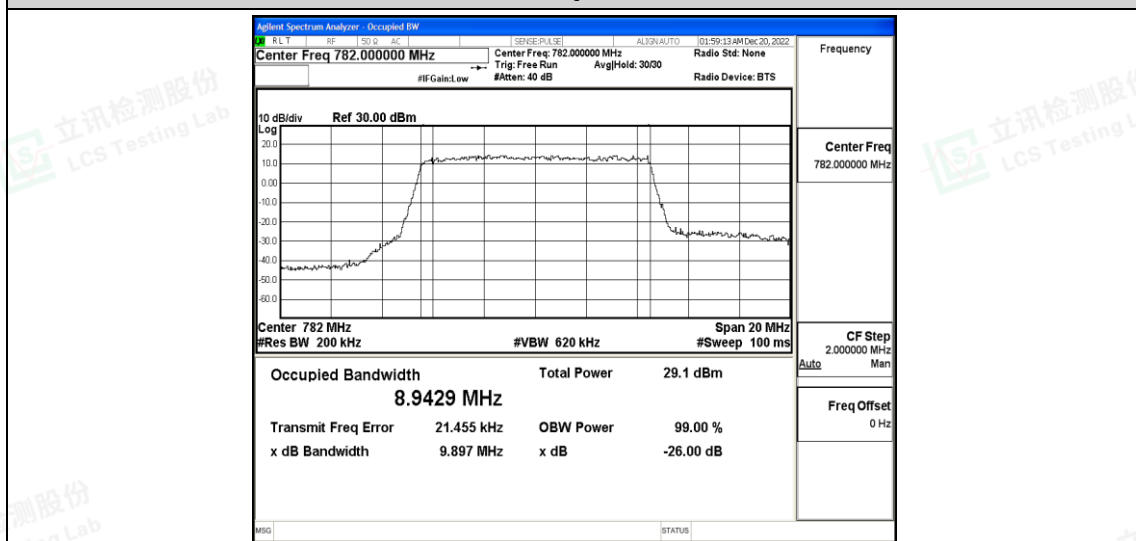




Band13-10MHz-QPSK-23230-50RB#0



Band13-10MHz-16QAM-23230-50RB#0



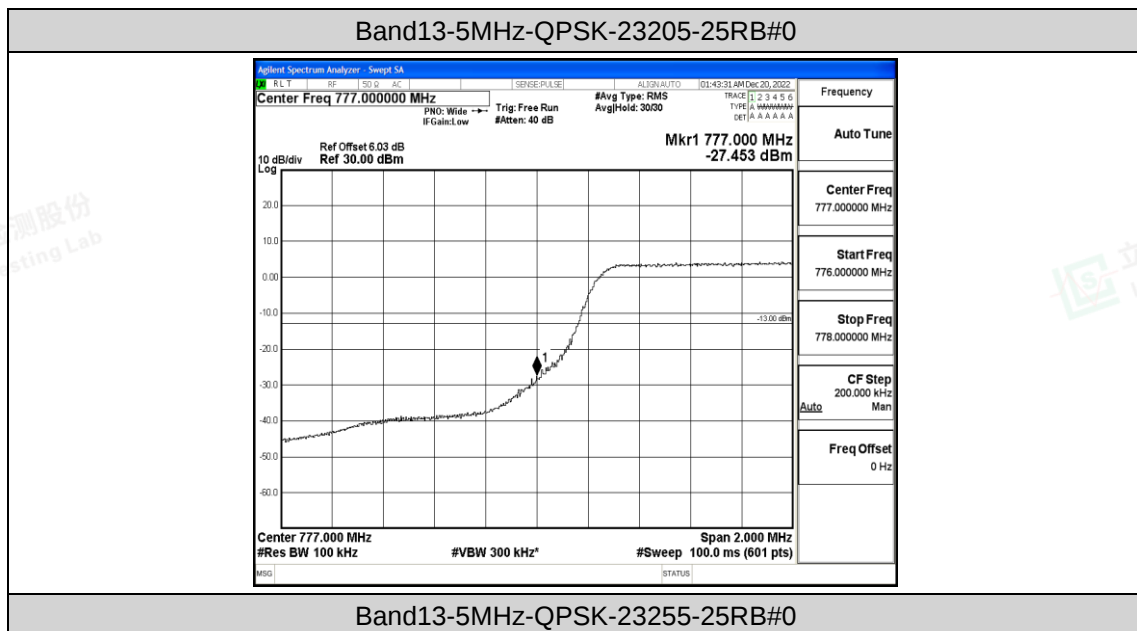


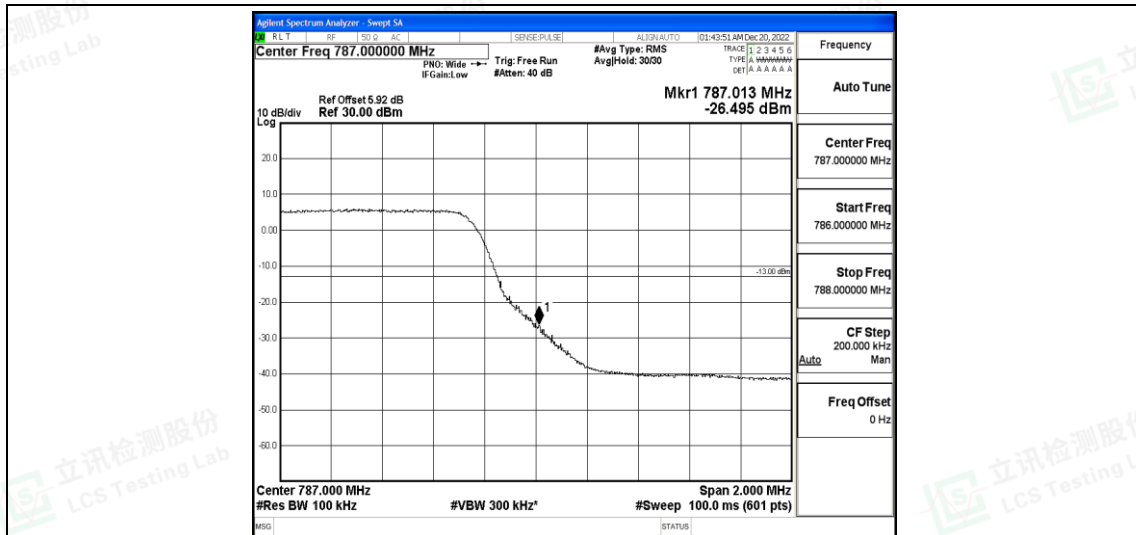
M.4 Band Edge

Test Result

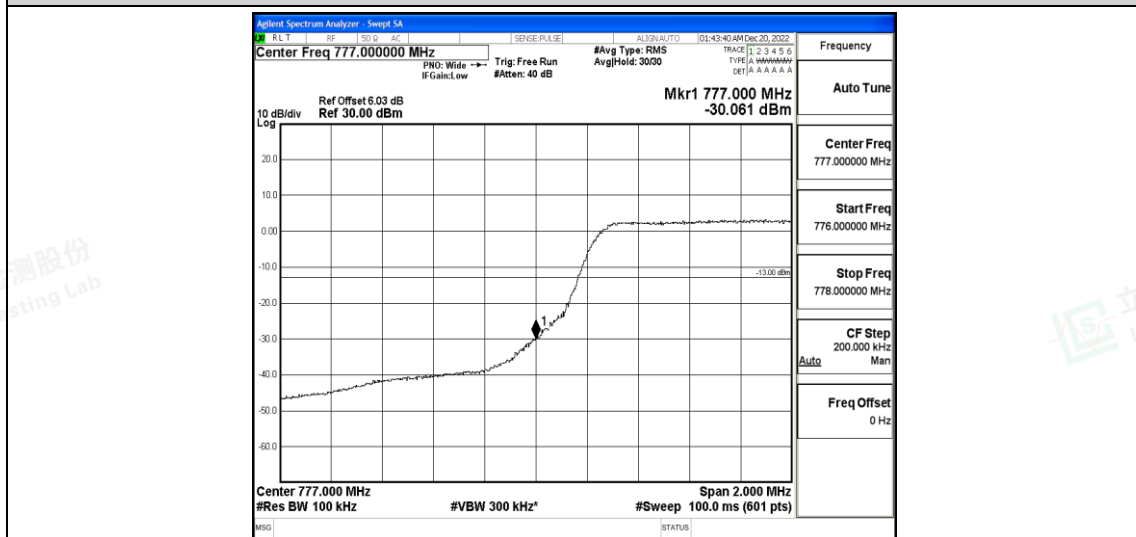
Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	-27.45	PASS
Band13	5MHz	QPSK	23255	25RB#0	-26.50	PASS
Band13	5MHz	16QAM	23205	25RB#0	-30.06	PASS
Band13	5MHz	16QAM	23255	25RB#0	-27.70	PASS
Band13	10MHz	QPSK	23230	50RB#0	-30.19,-29.87	PASS
Band13	10MHz	16QAM	23230	50RB#0	-32.25,-30.75	PASS

Test Graphs

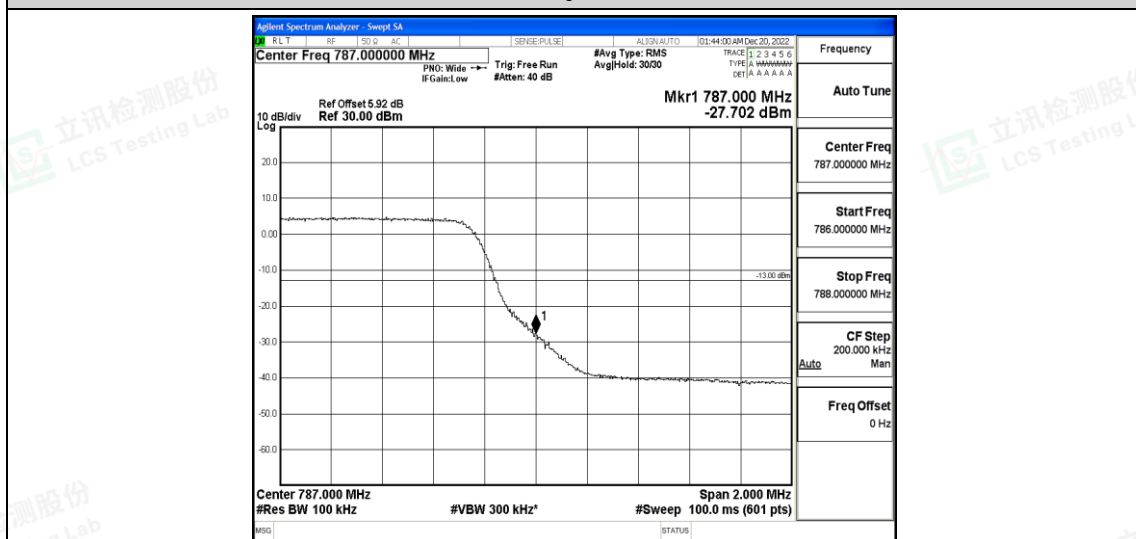




Band13-5MHz-16QAM-23205-25RB#0

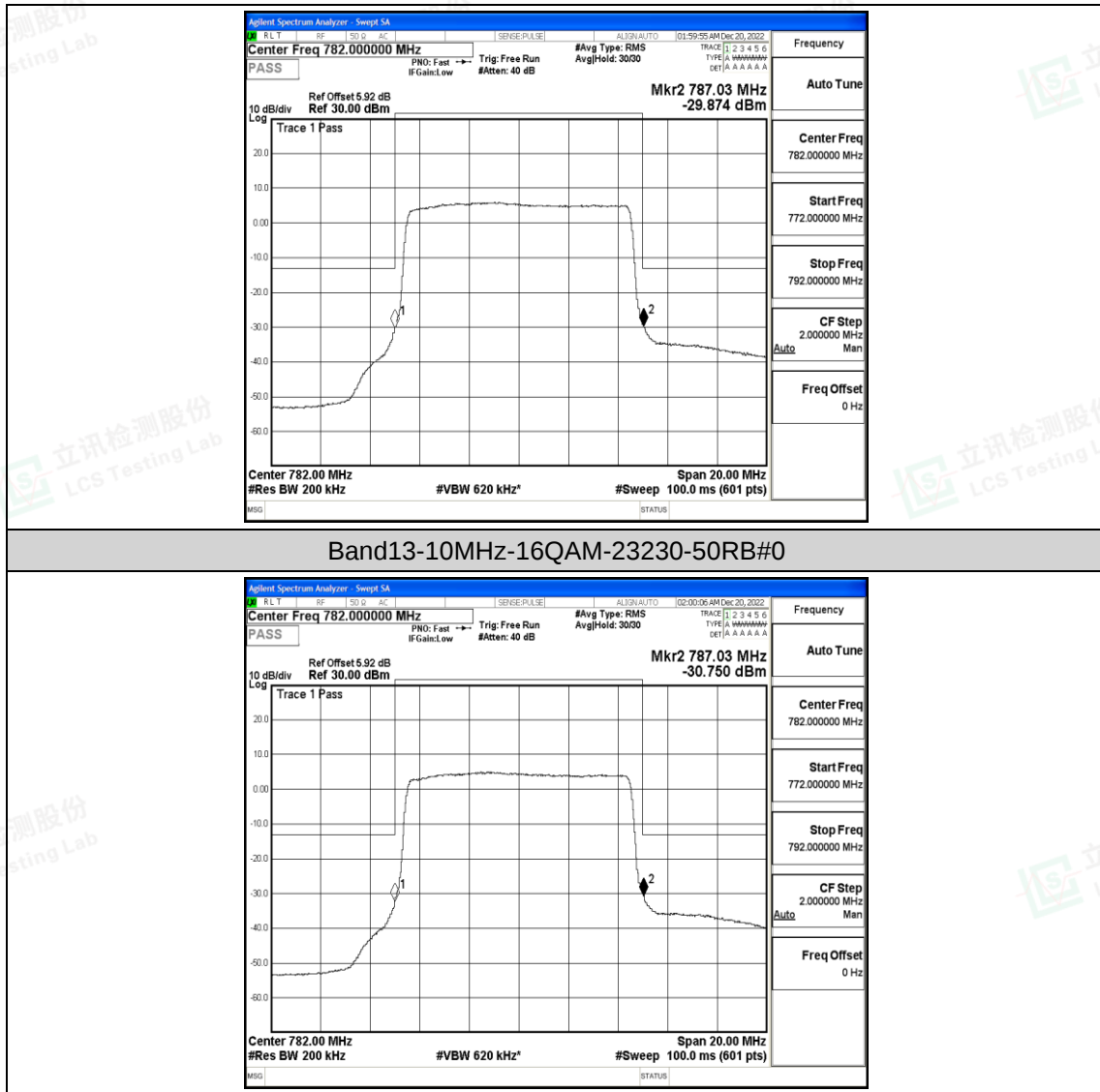


Band13-5MHz-16QAM-23255-25RB#0



Band13-10MHz-QPSK-23230-50RB#0







M.5 Conducted Spurious Emission

Test Result

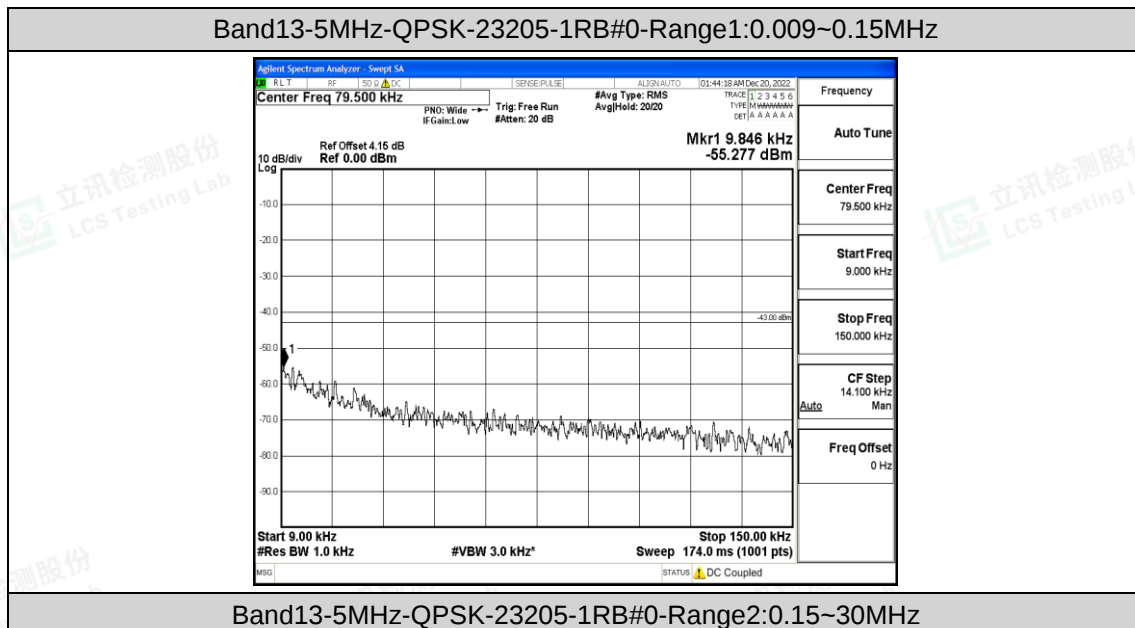
Band	Bandwidth	Modulation	Channel	RB Configuration	Frequency Range	Result (dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	Range1:0.009~0.15MHz	-55.28	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range2:0.15~30MHz	-50.72	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range3:30~1000MHz	-41.01	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range5:763~775MHz	-60.07	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range6:793~805MHz	-60.44	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range4:1000~10000MHz	-44.96	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range7:1559~1610MHz	-62.71	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range1:0.009~0.15MHz	-53.98	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range2:0.15~30MHz	-51.87	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range3:30~1000MHz	-41.19	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range5:763~775MHz	-60.91	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range6:793~805MHz	-60.22	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range4:1000~10000MHz	-44.98	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range7:1559~1610MHz	-63.79	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range1:0.009~0.15MHz	-55.95	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range2:0.15~30MHz	-52.18	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range3:30~1000MHz	-40.87	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range5:763~775MHz	-59	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range6:793~805MHz	-60.02	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range4:1000~10000MHz	-44.92	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range7:1559~1610MHz	-63.94	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range1:0.009~0.15MHz	-55.05	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range2:0.15~30MHz	-48.88	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range3:30~1000MHz	-40.83	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range5:763~775MHz	-60.64	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range6:793~805MHz	-59.67	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range4:1000~10000MHz	-44.93	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range7:1559~1610MHz	-62.9	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range1:0.009~0.15MHz	-55.88	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range2:0.15~30MHz	-51.14	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range3:30~1000MHz	-40.91	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range5:763~775MHz	-59.81	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range6:793~805MHz	-60.44	PASS

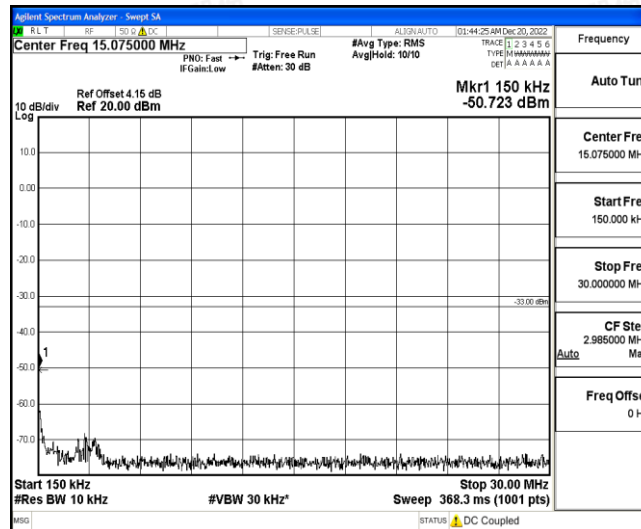




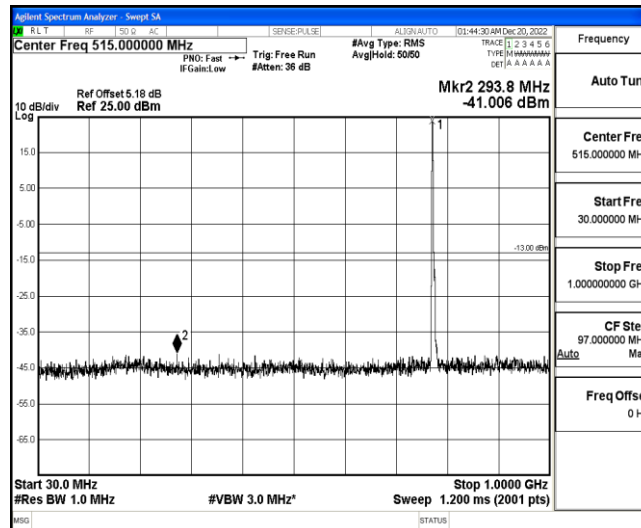
Band13	5MHz	16QAM	23230	1RB#0	Range4:1000~10000MHz	-45.04	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range7:1559~1610MHz	-64.12	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range1:0.009~0.15MHz	-56.18	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range2:0.15~30MHz	-51.91	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range3:30~1000MHz	-40.23	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range5:763~775MHz	-60.89	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range6:793~805MHz	-59.69	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range4:1000~10000MHz	-44.89	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range7:1559~1610MHz	-64.17	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range1:0.009~0.15MHz	-54.58	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range2:0.15~30MHz	-49.76	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range3:30~1000MHz	-40.85	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range5:763~775MHz	-59.71	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range6:793~805MHz	-60.39	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range4:1000~10000MHz	-44.93	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range7:1559~1610MHz	-62.63	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range1:0.009~0.15MHz	-54.6	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range2:0.15~30MHz	-50.79	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range3:30~1000MHz	-40.92	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range5:763~775MHz	-60.29	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range6:793~805MHz	-60.8	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range4:1000~10000MHz	-44.92	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range7:1559~1610MHz	-62.82	PASS

Test Graphs

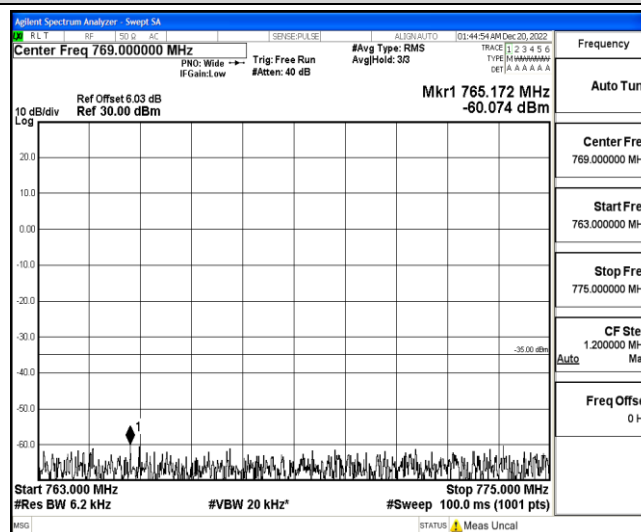




Band13-5MHz-QPSK-23205-1RB#0-Range3:30~1000MHz

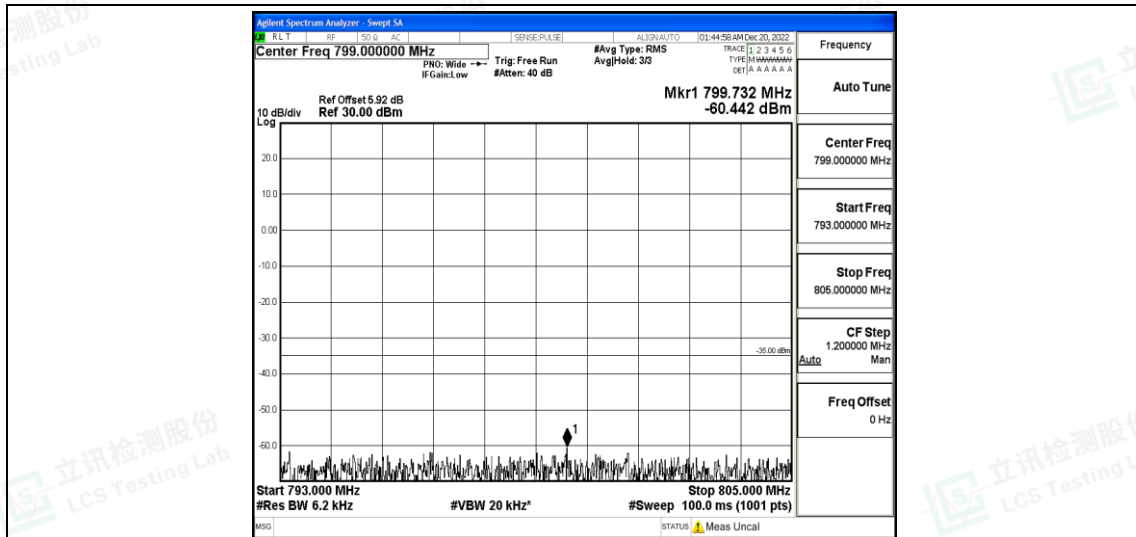


Band13-5MHz-QPSK-23205-1RB#0-Range5:763~775MHz

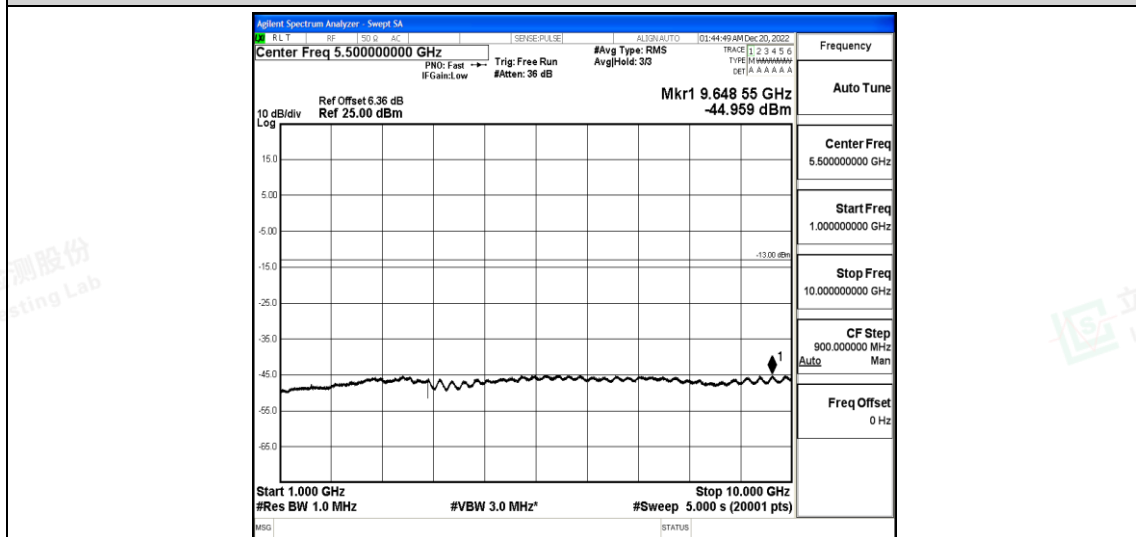


Band13-5MHz-QPSK-23205-1RB#0-Range6:793~805MHz

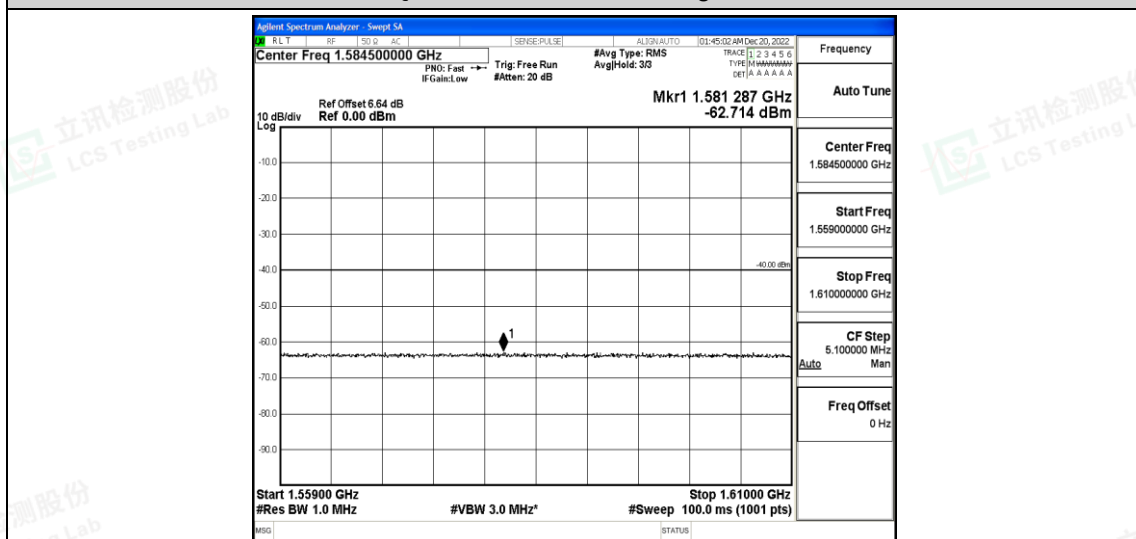




Band13-5MHz-QPSK-23205-1RB#0-Range4:1000~10000MHz

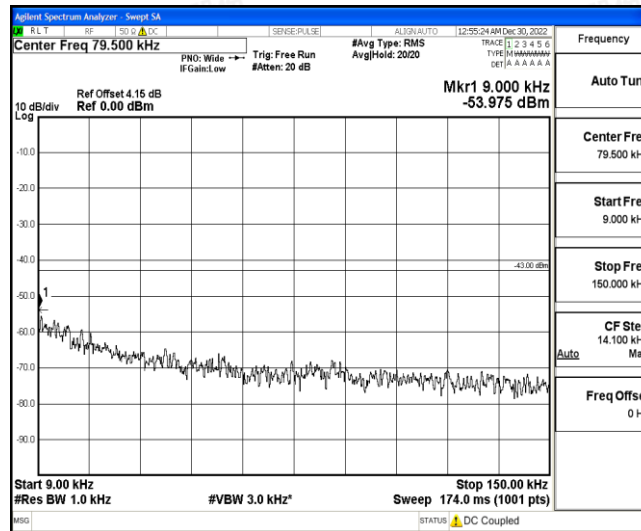


Band13-5MHz-QPSK-23205-1RB#0-Range7:1559~1610MHz

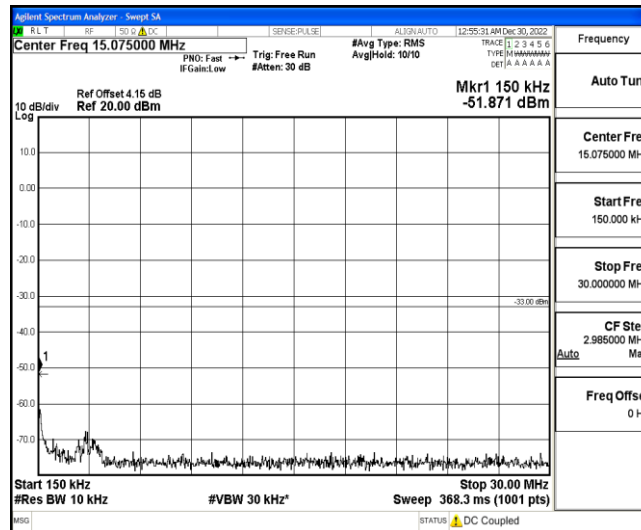


Band13-5MHz-QPSK-23230-1RB#0-Range1:0.009~0.15MHz

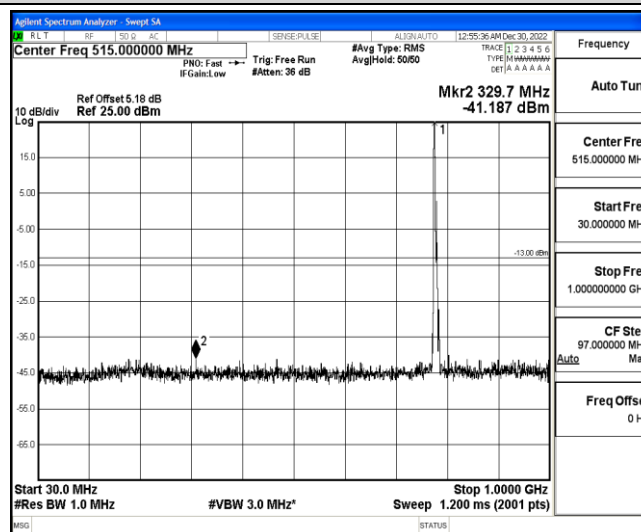




Band13-5MHz-QPSK-23230-1RB#0-Range2:0.15~30MHz

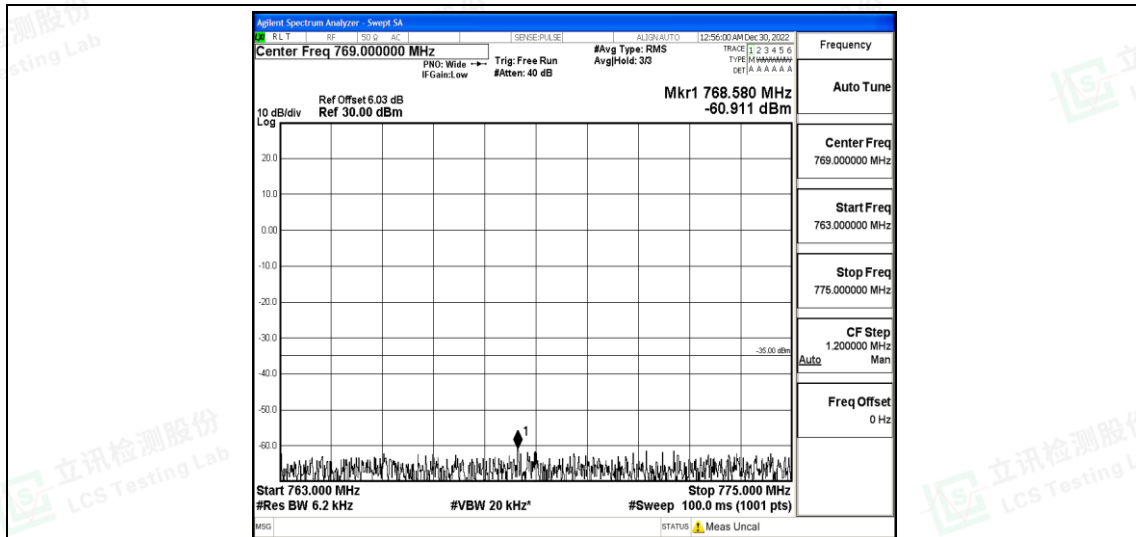


Band13-5MHz-QPSK-23230-1RB#0-Range3:30~1000MHz

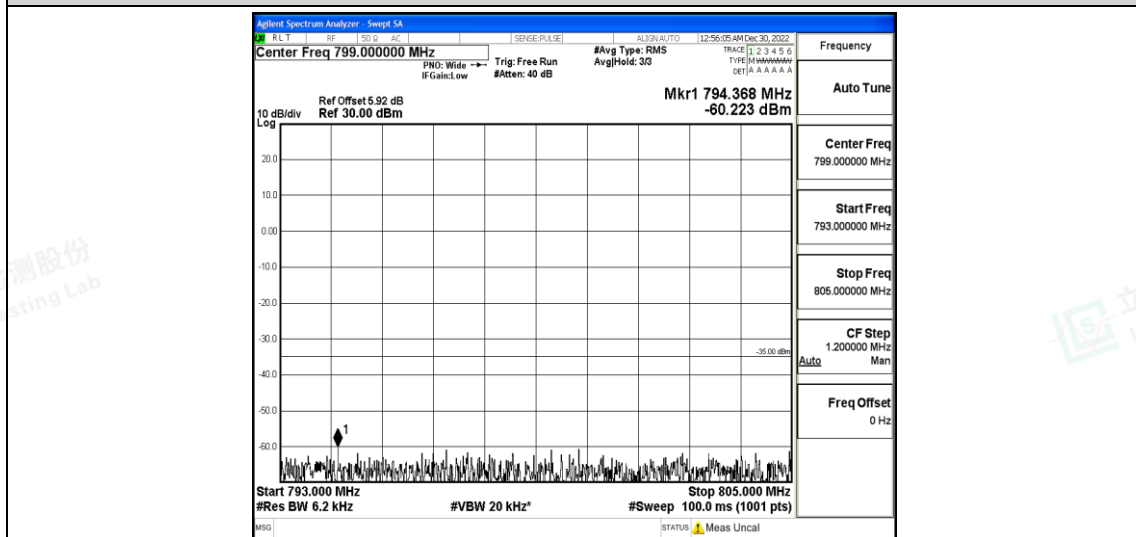


Band13-5MHz-QPSK-23230-1RB#0-Range5:763~775MHz

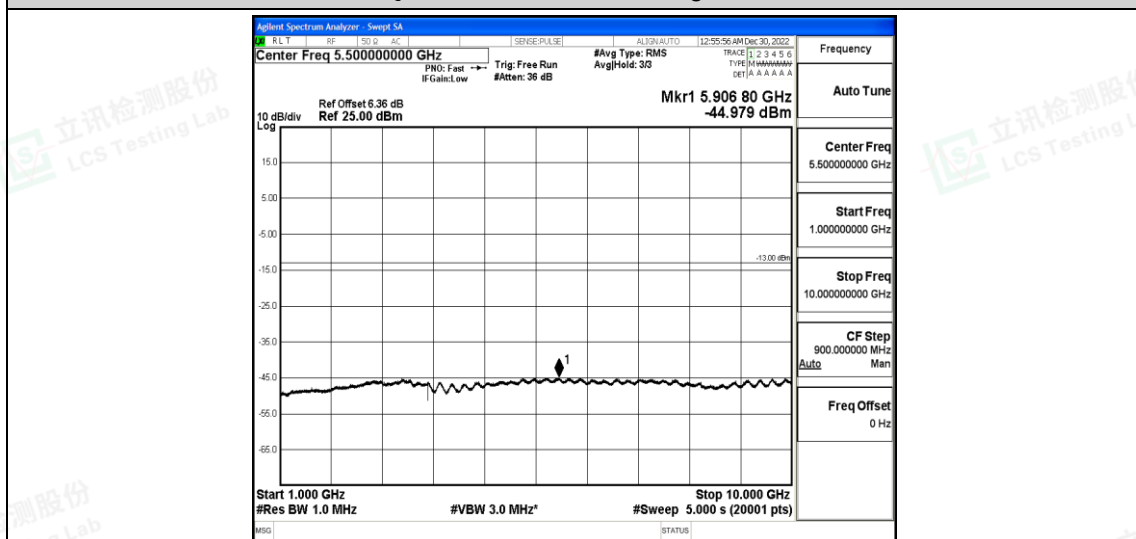




Band13-5MHz-QPSK-23230-1RB#0-Range6:793~805MHz

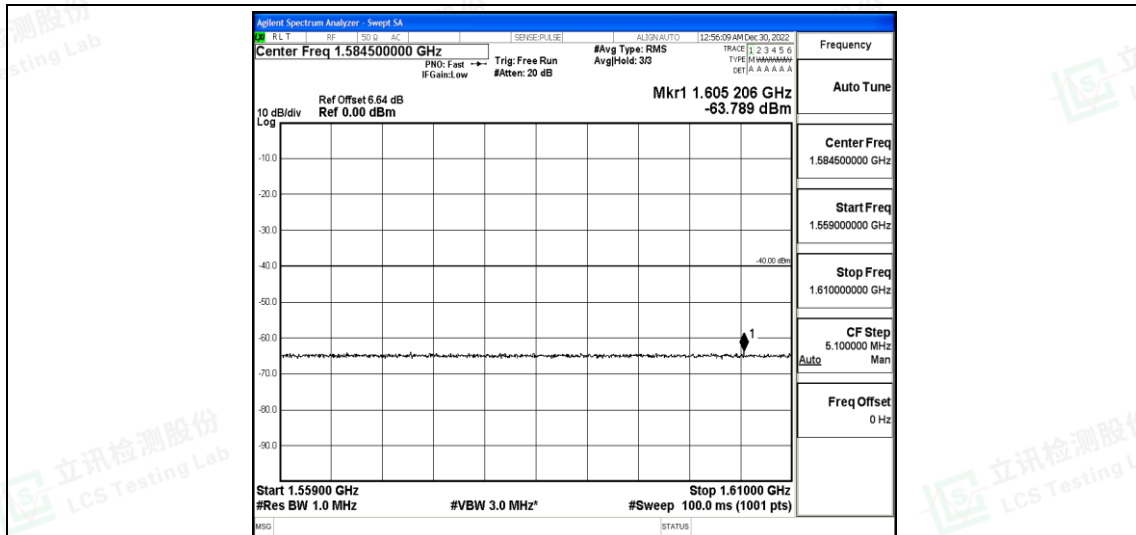


Band13-5MHz-QPSK-23230-1RB#0-Range4:1000~10000MHz

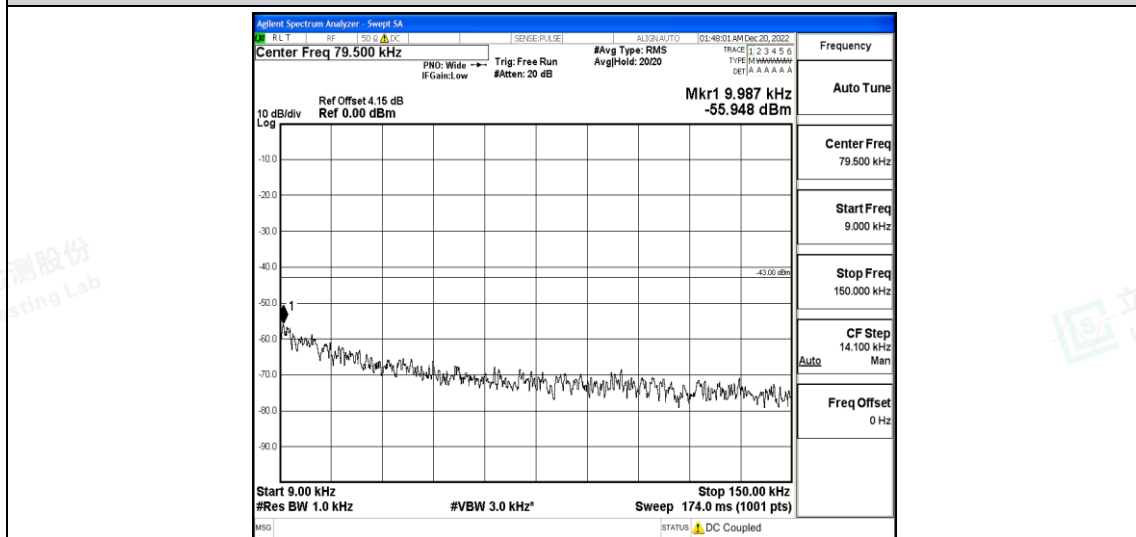


Band13-5MHz-QPSK-23230-1RB#0-Range7:1559~1610MHz

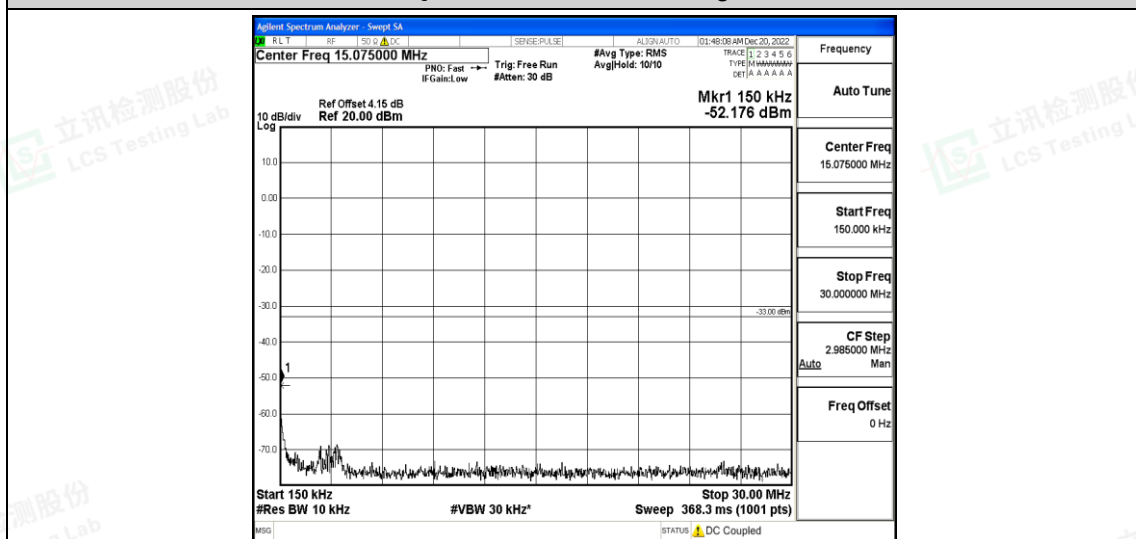




Band13-5MHz-QPSK-23255-1RB#0-Range1:0.009~0.15MHz

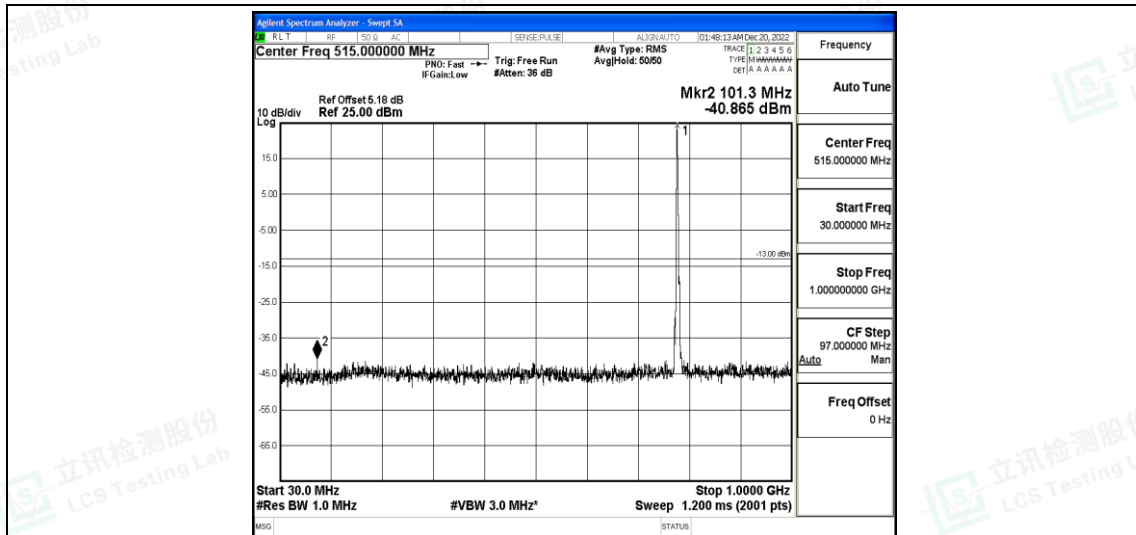


Band13-5MHz-QPSK-23255-1RB#0-Range2:0.15~30MHz

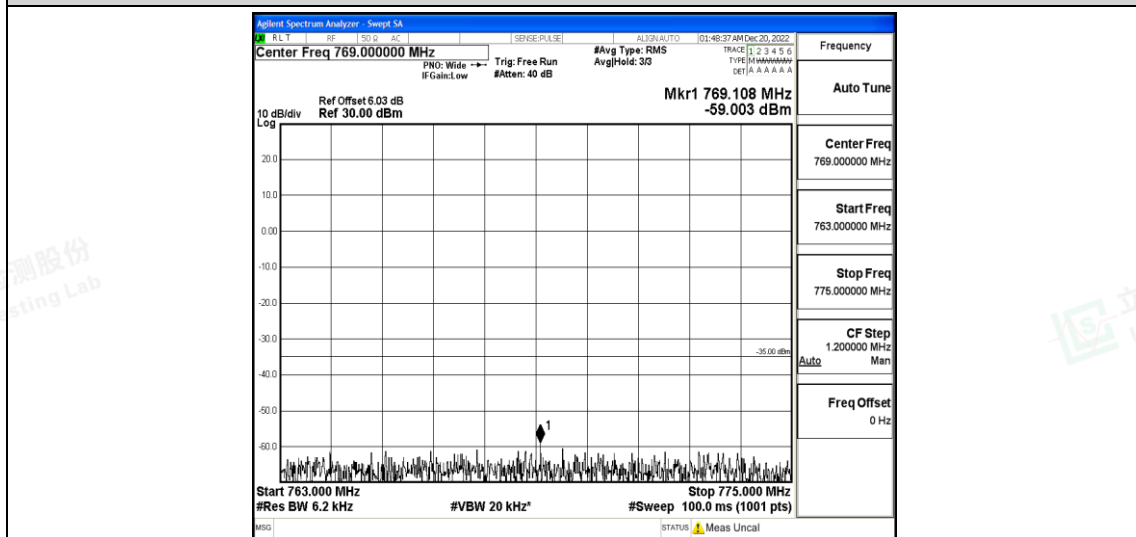


Band13-5MHz-QPSK-23255-1RB#0-Range3:30~1000MHz

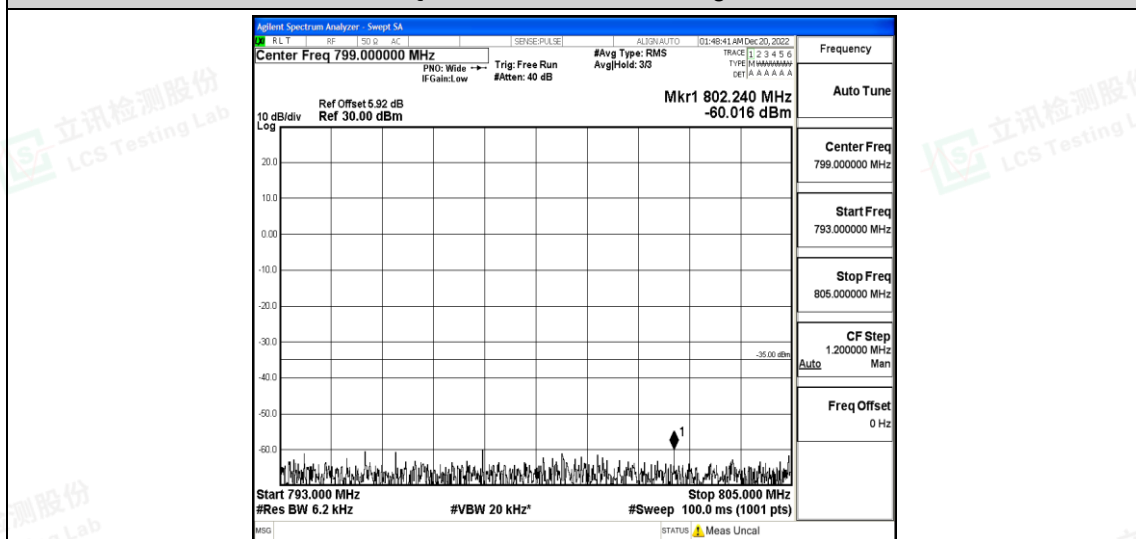




Band13-5MHz-QPSK-23255-1RB#0-Range5:763~775MHz

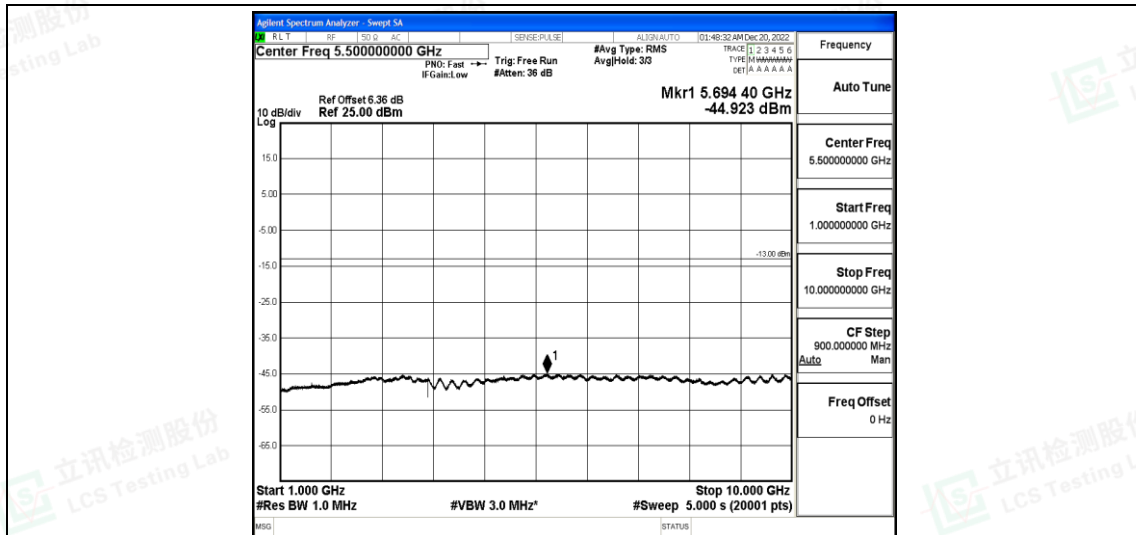


Band13-5MHz-QPSK-23255-1RB#0-Range6:793~805MHz

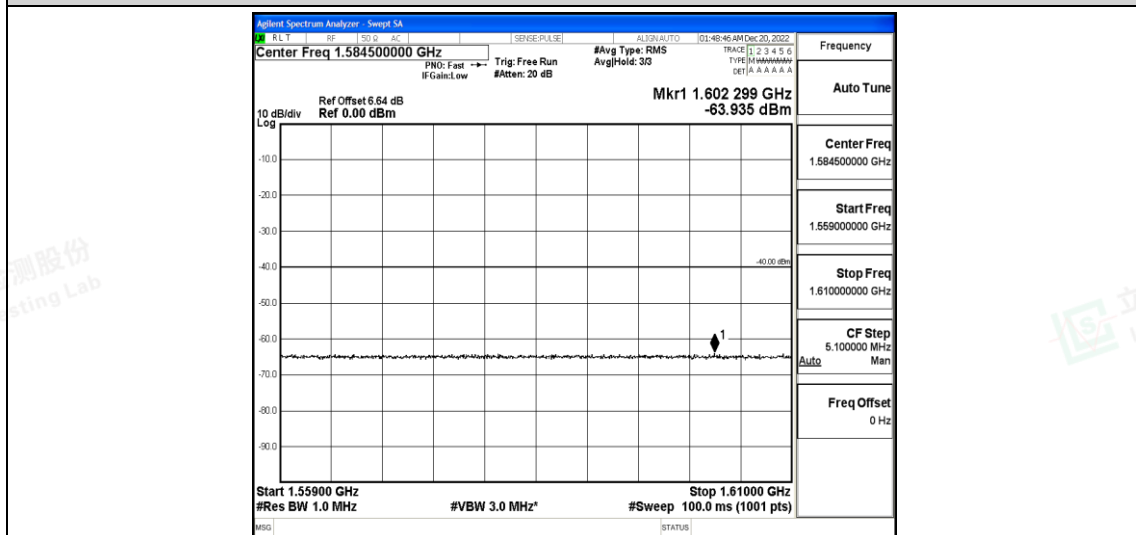


Band13-5MHz-QPSK-23255-1RB#0-Range4:1000~10000MHz

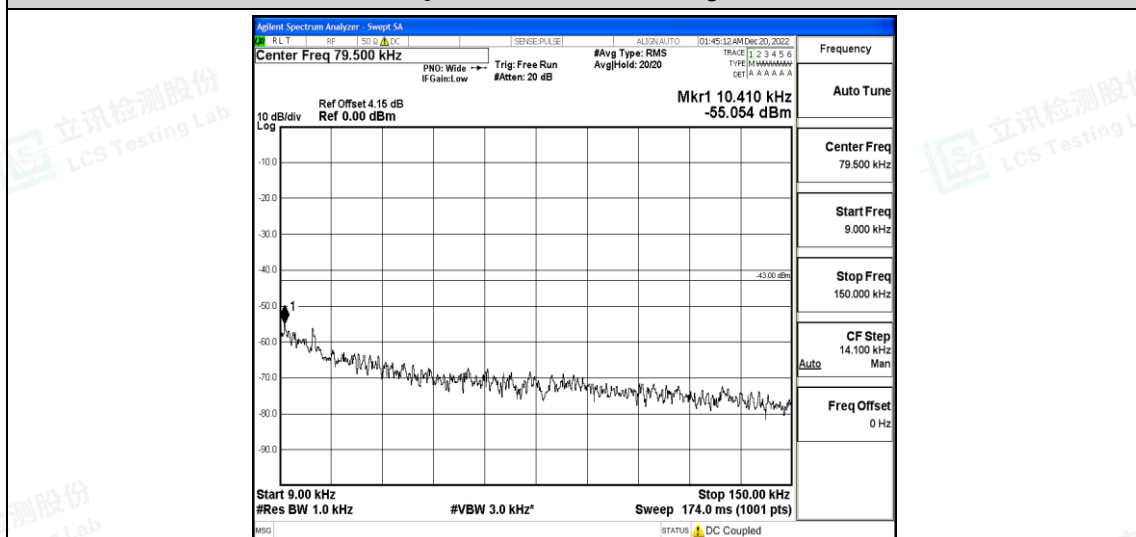




Band13-5MHz-QPSK-23255-1RB#0-Range7:1559~1610MHz

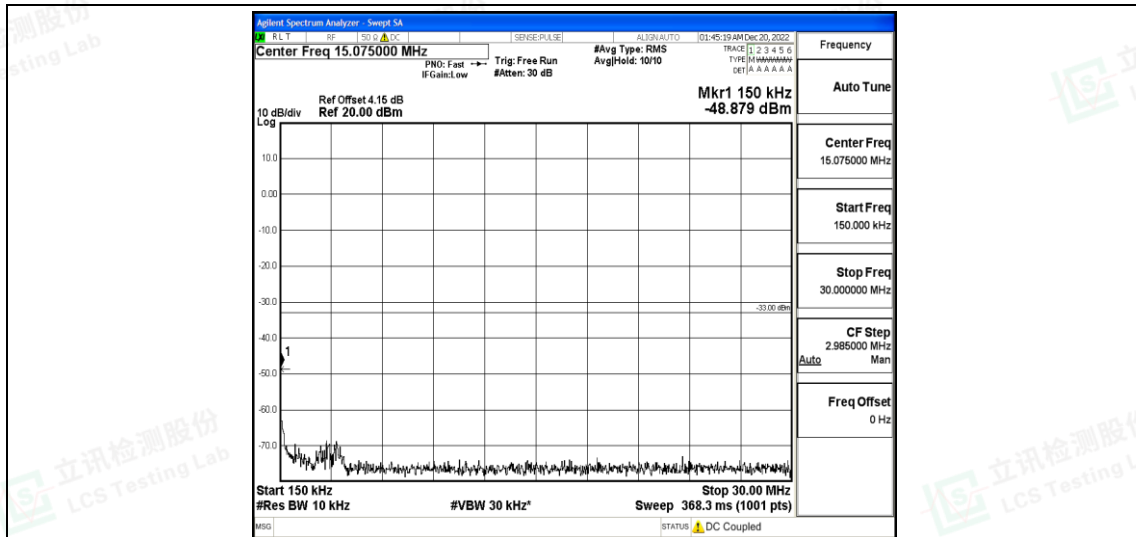


Band13-5MHz-16QAM-23205-1RB#0-Range1:0.009~0.15MHz

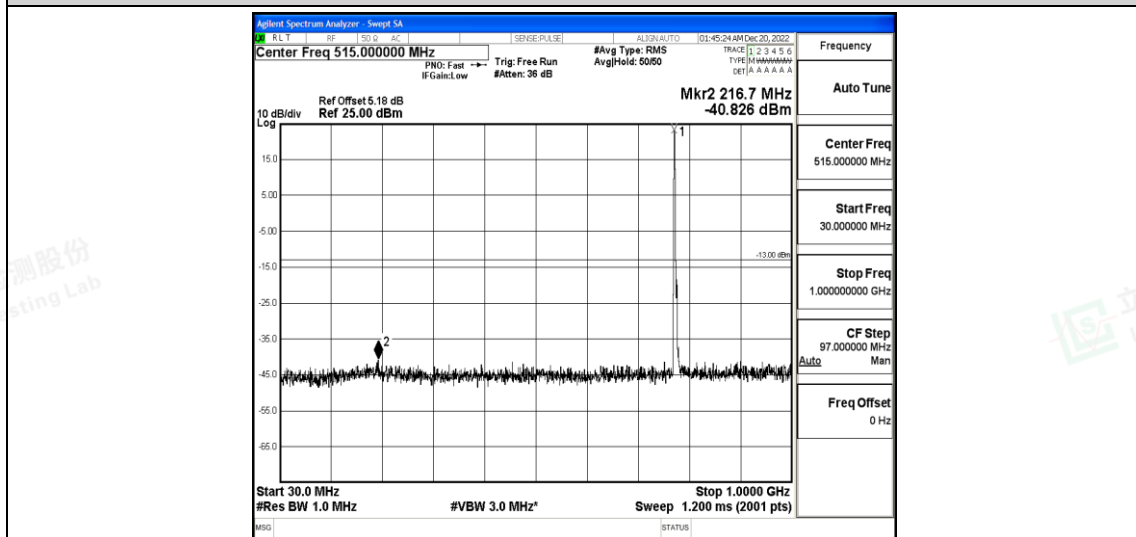


Band13-5MHz-16QAM-23205-1RB#0-Range2:0.15~30MHz

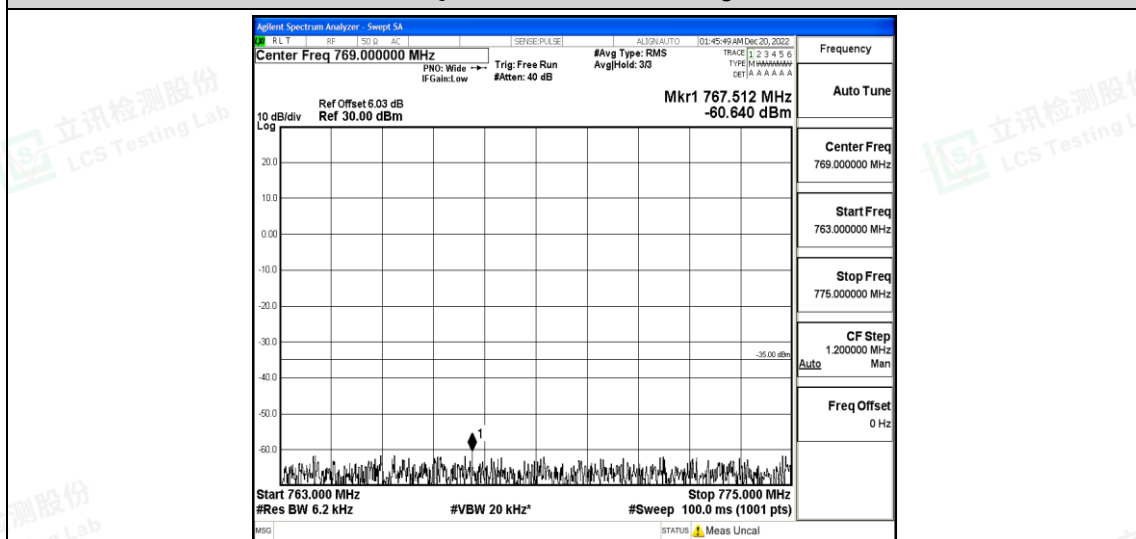




Band13-5MHz-16QAM-23205-1RB#0-Range3:30~1000MHz

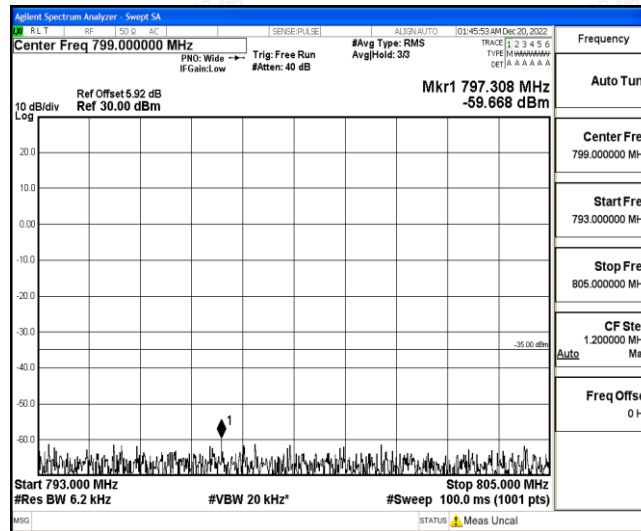


Band13-5MHz-16QAM-23205-1RB#0-Range5:763~775MHz

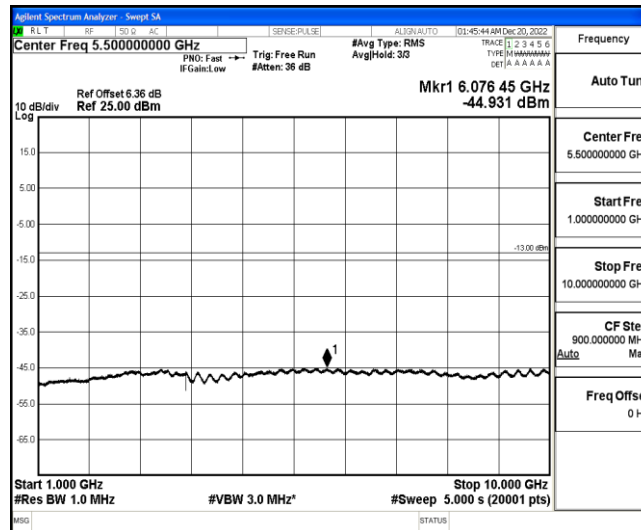


Band13-5MHz-16QAM-23205-1RB#0-Range6:793~805MHz

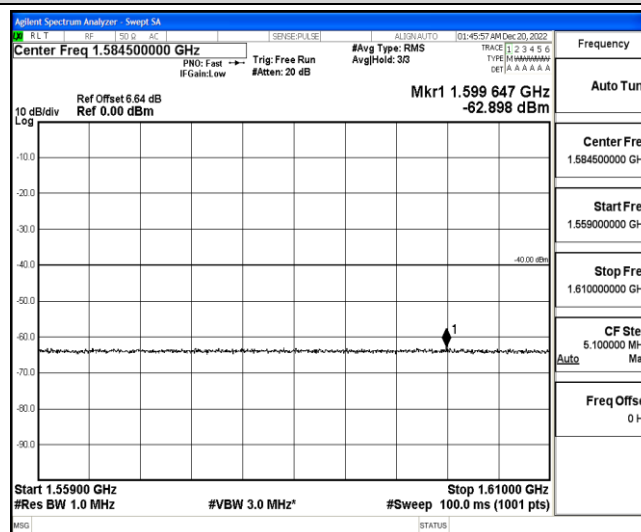




Band13-5MHz-16QAM-23205-1RB#0-Range4:1000~10000MHz

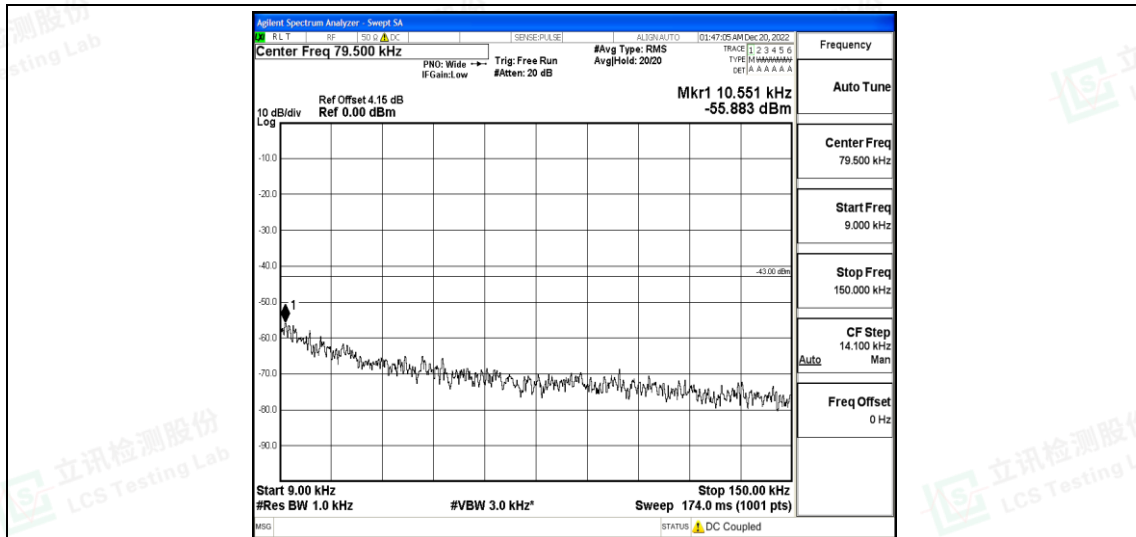


Band13-5MHz-16QAM-23205-1RB#0-Range7:1559~1610MHz

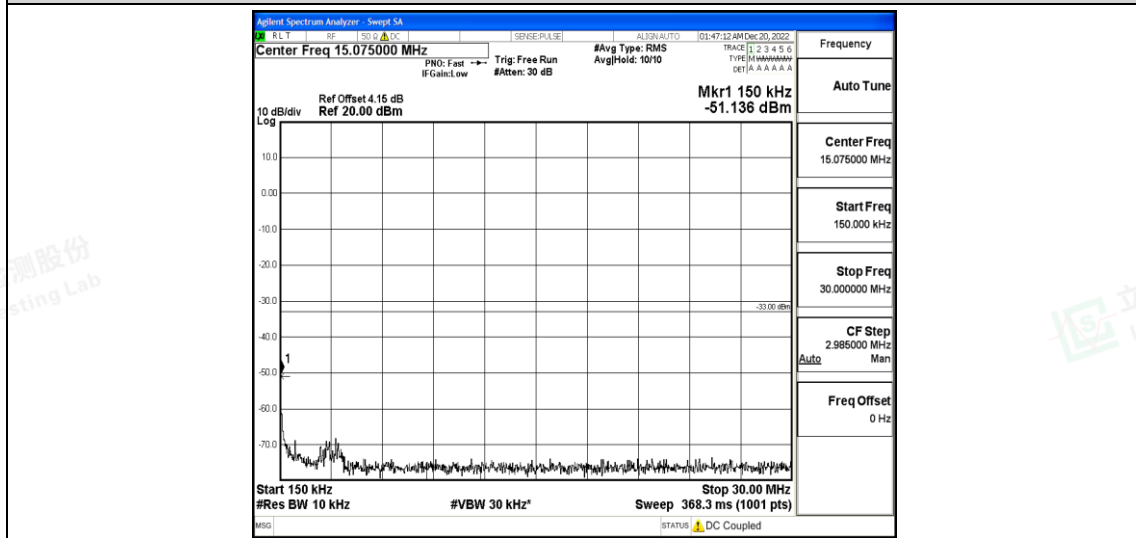


Band13-5MHz-16QAM-23230-1RB#0-Range1:0.009~0.15MHz

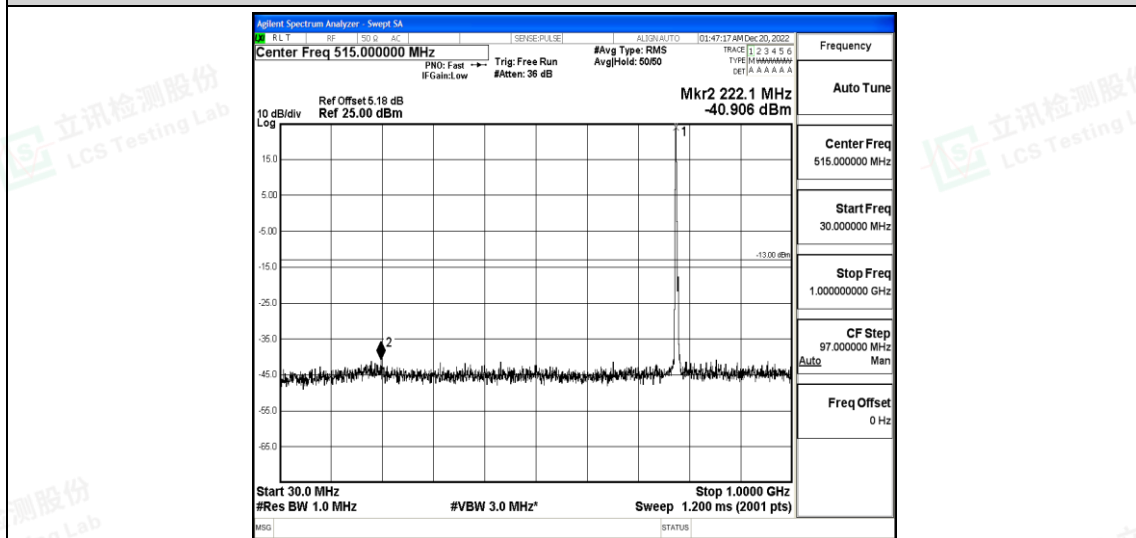




Band13-5MHz-16QAM-23230-1RB#0-Range2:0.15~30MHz

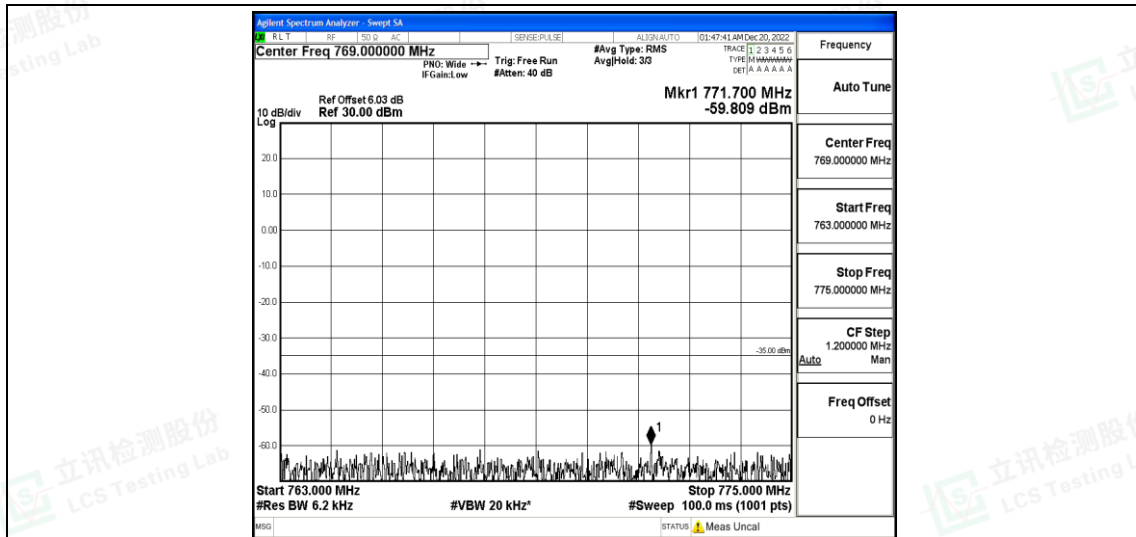


Band13-5MHz-16QAM-23230-1RB#0-Range3:30~1000MHz

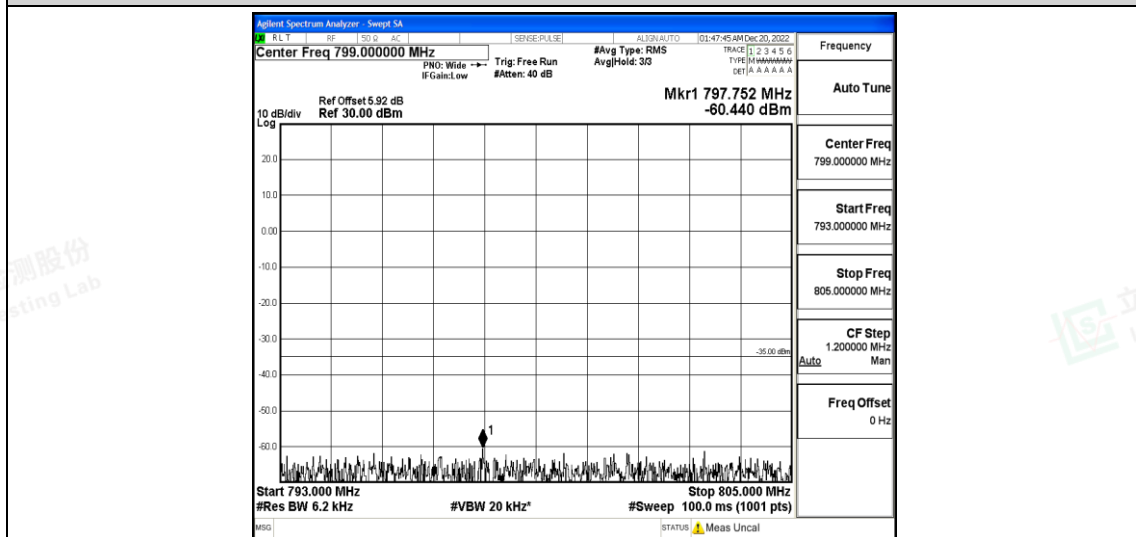


Band13-5MHz-16QAM-23230-1RB#0-Range5:763~775MHz

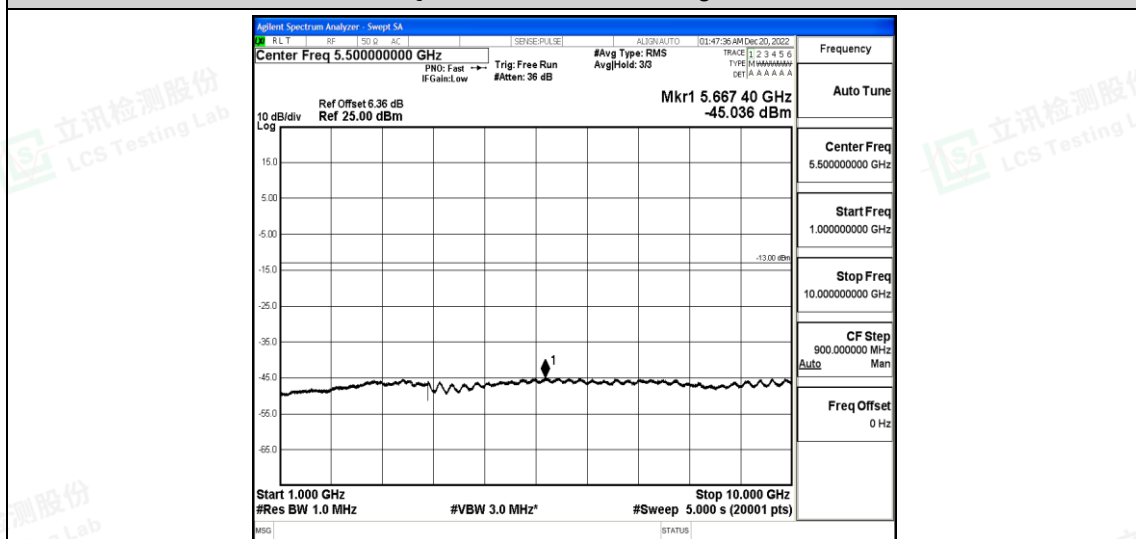




Band13-5MHz-16QAM-23230-1RB#0-Range6:793~805MHz

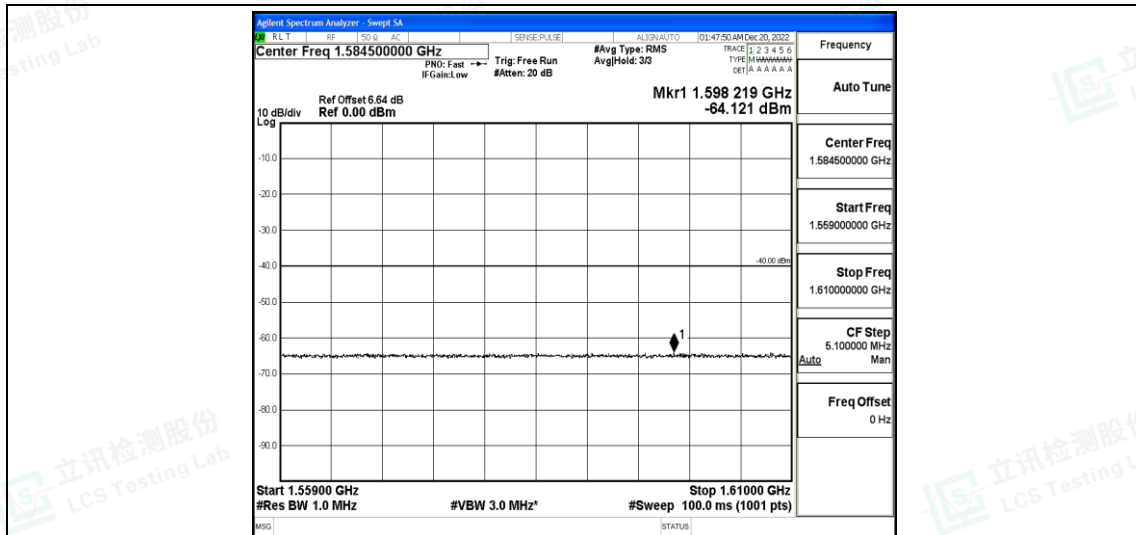


Band13-5MHz-16QAM-23230-1RB#0-Range4:1000~10000MHz

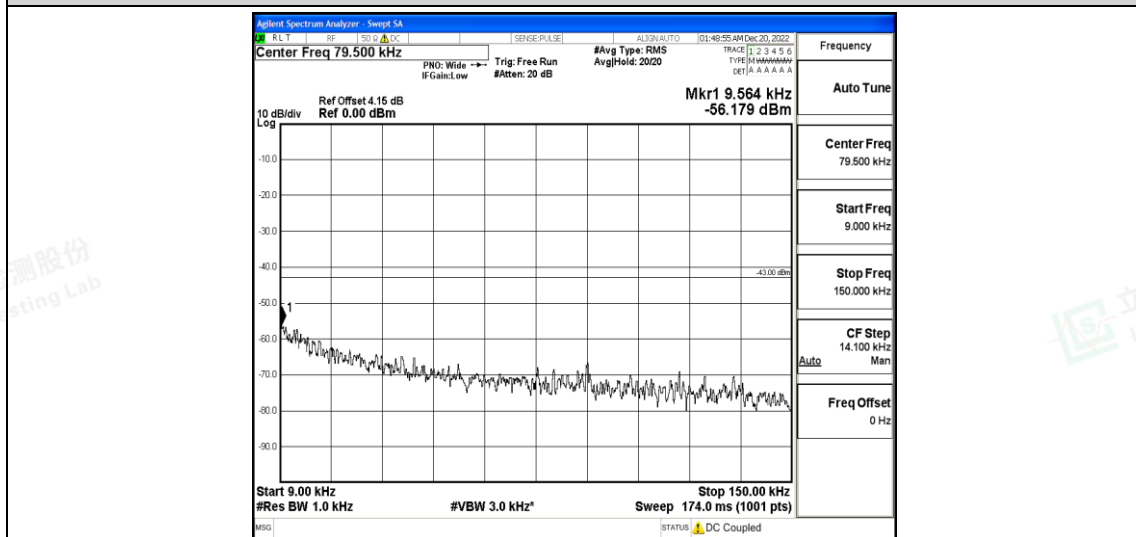


Band13-5MHz-16QAM-23230-1RB#0-Range7:1559~1610MHz

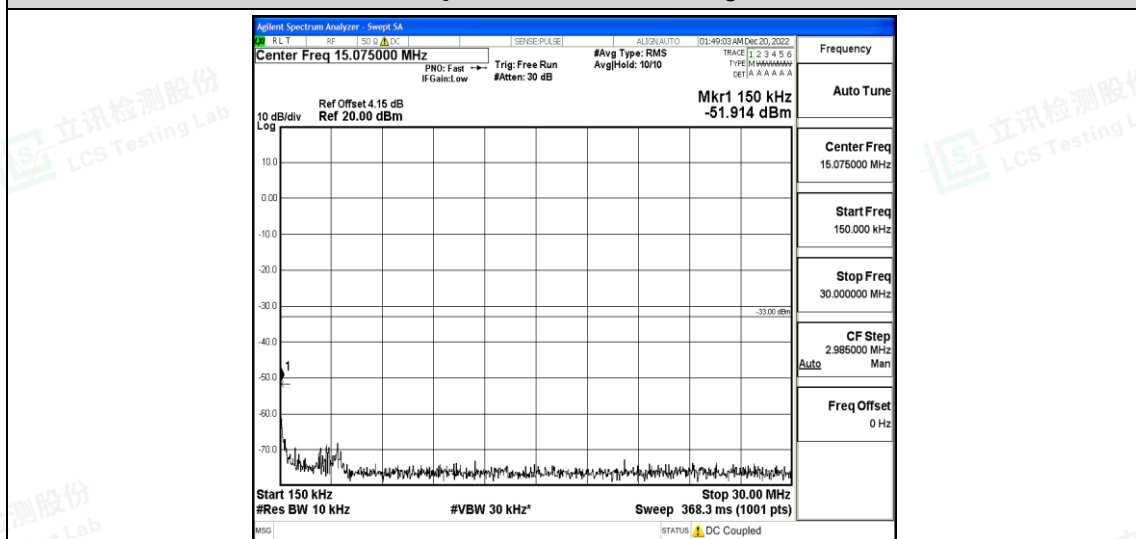




Band13-5MHz-16QAM-23255-1RB#0-Range1:0.009~0.15MHz

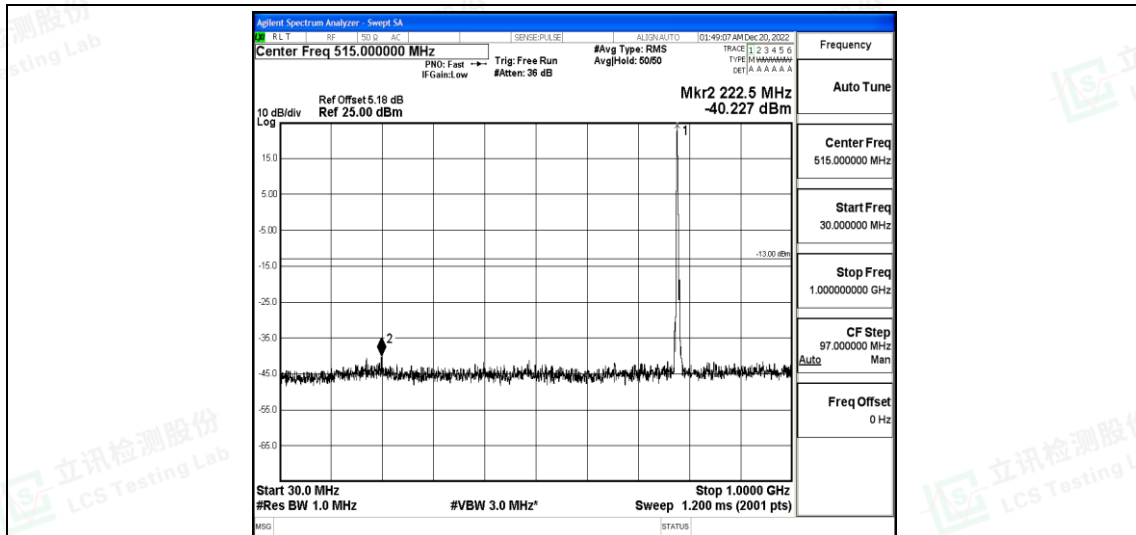


Band13-5MHz-16QAM-23255-1RB#0-Range2:0.15~30MHz

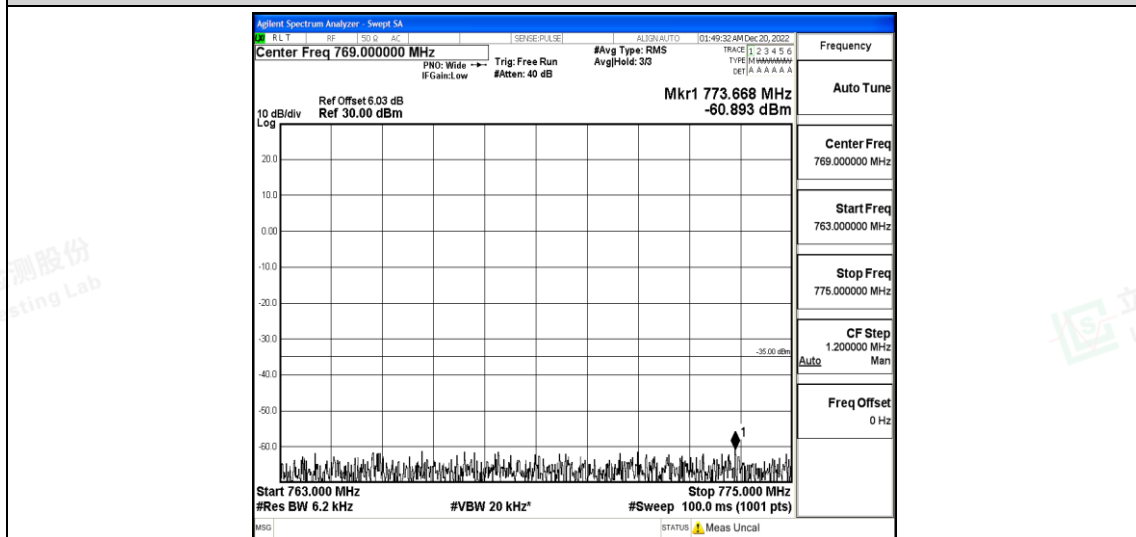


Band13-5MHz-16QAM-23255-1RB#0-Range3:30~1000MHz

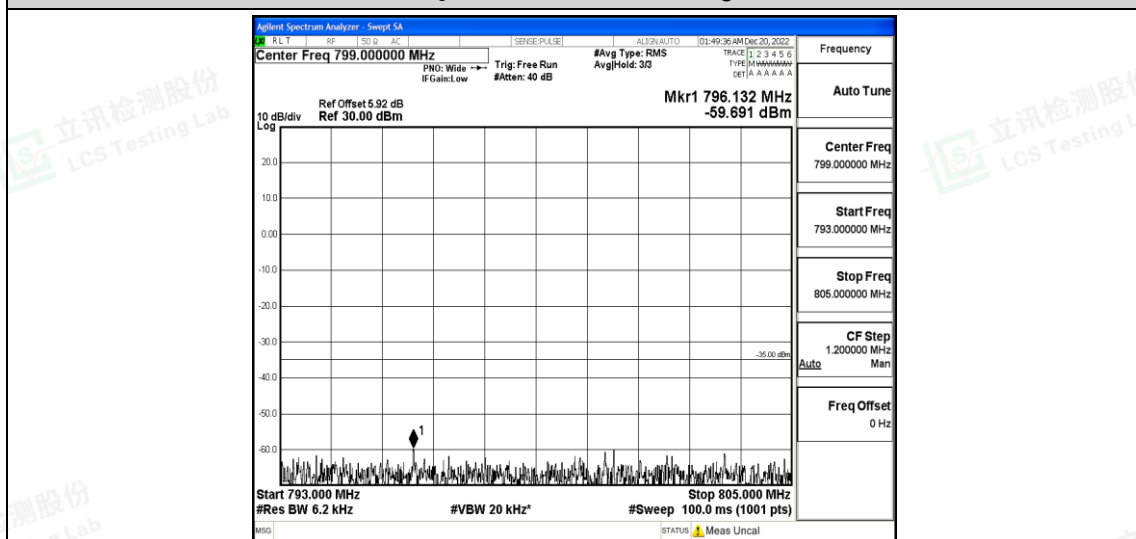




Band13-5MHz-16QAM-23255-1RB#0-Range5:763~775MHz

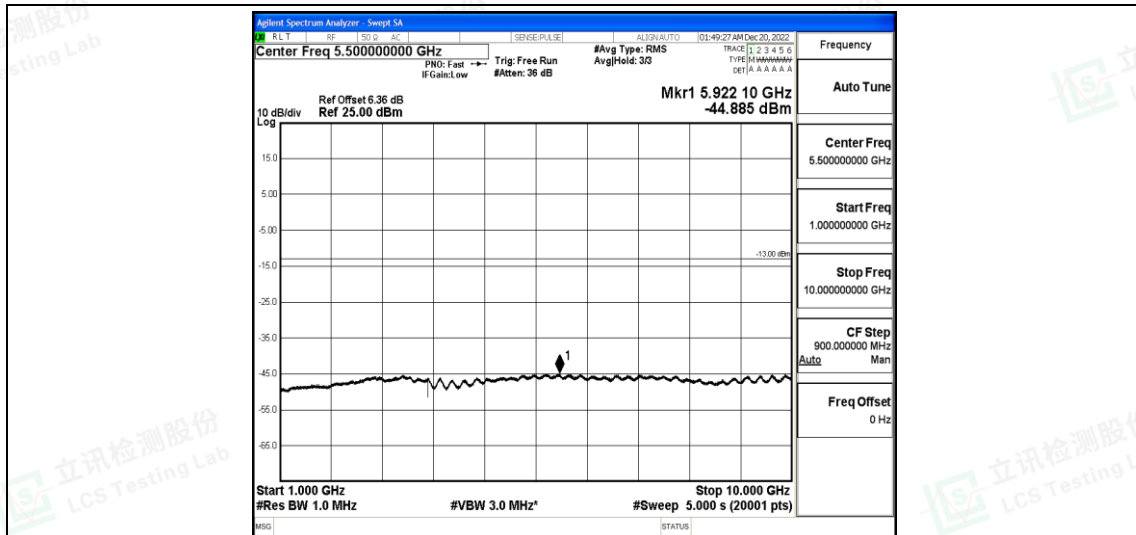


Band13-5MHz-16QAM-23255-1RB#0-Range6:793~805MHz

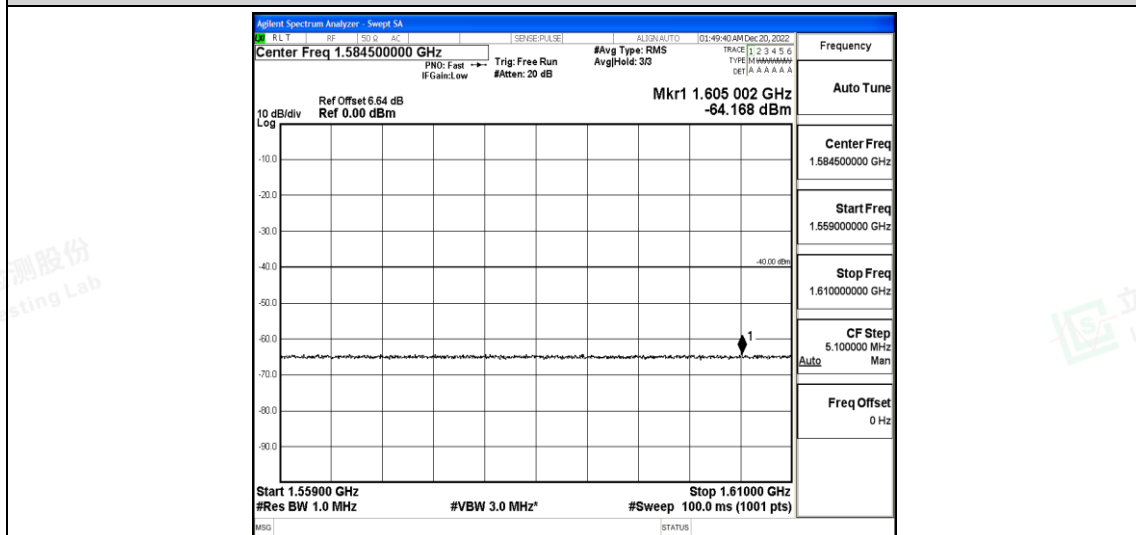


Band13-5MHz-16QAM-23255-1RB#0-Range4:1000~10000MHz

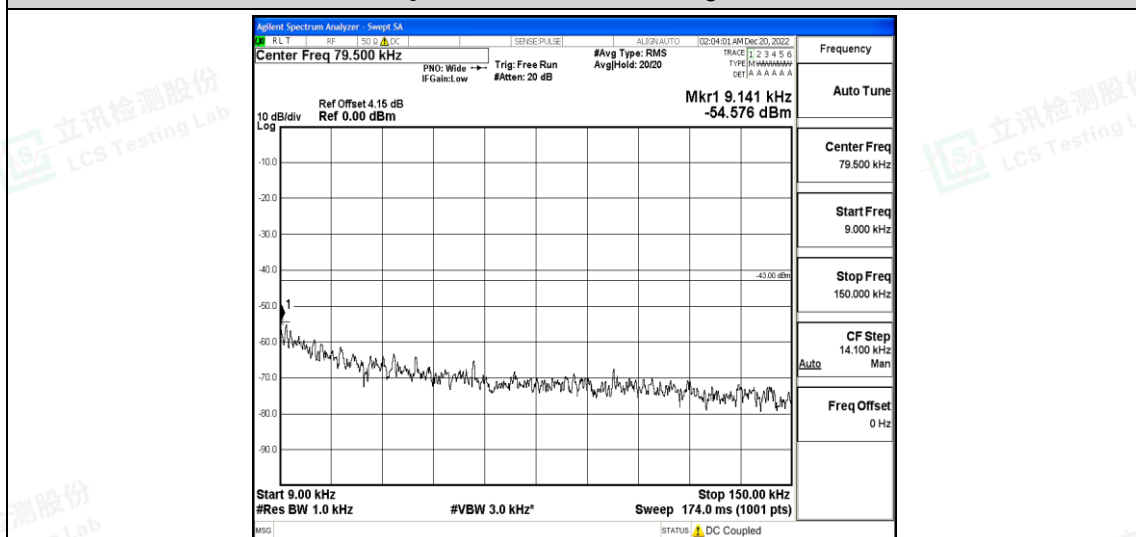




Band13-5MHz-16QAM-23255-1RB#0-Range7:1559~1610MHz

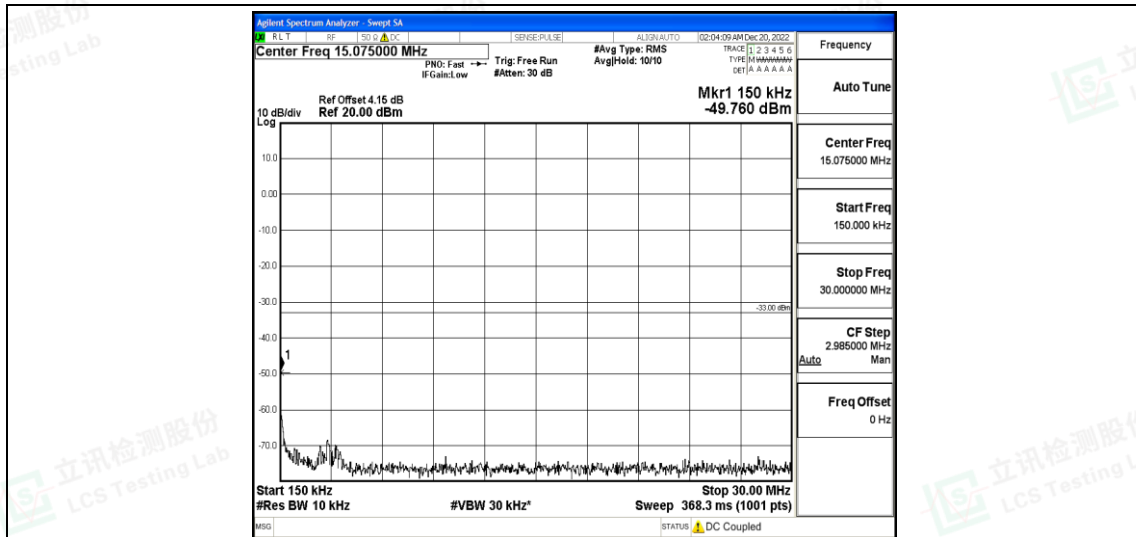


Band13-10MHz-QPSK-23230-1RB#0-Range1:0.009~0.15MHz

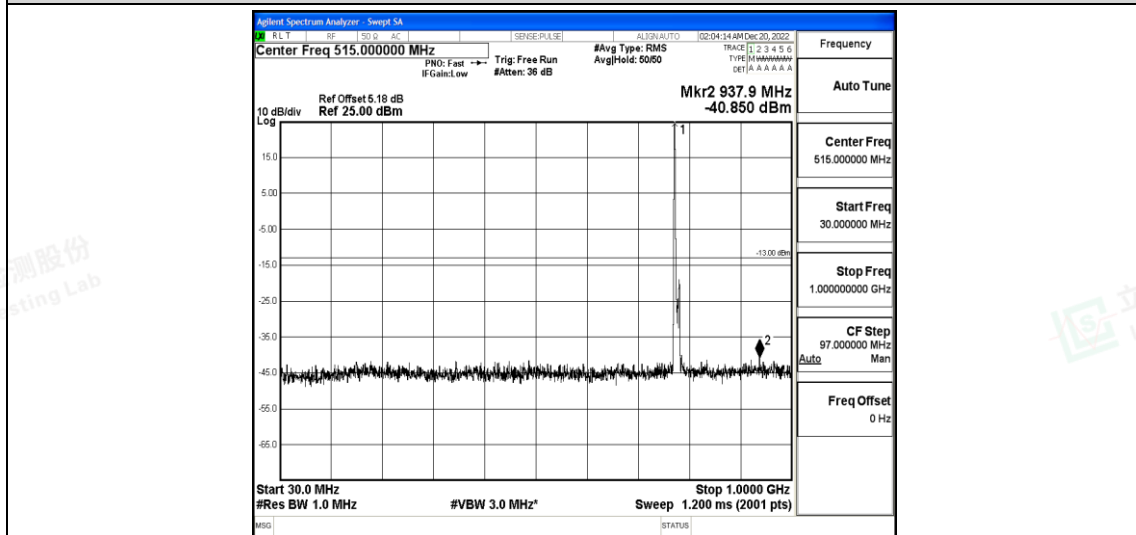


Band13-10MHz-QPSK-23230-1RB#0-Range2:0.15~30MHz

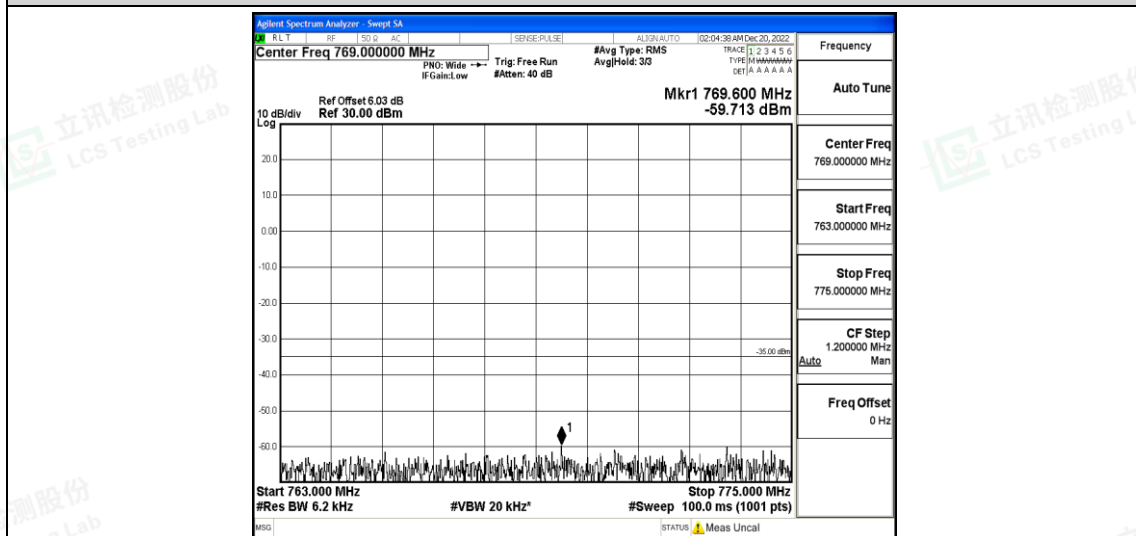




Band13-10MHz-QPSK-23230-1RB#0-Range3:30~1000MHz

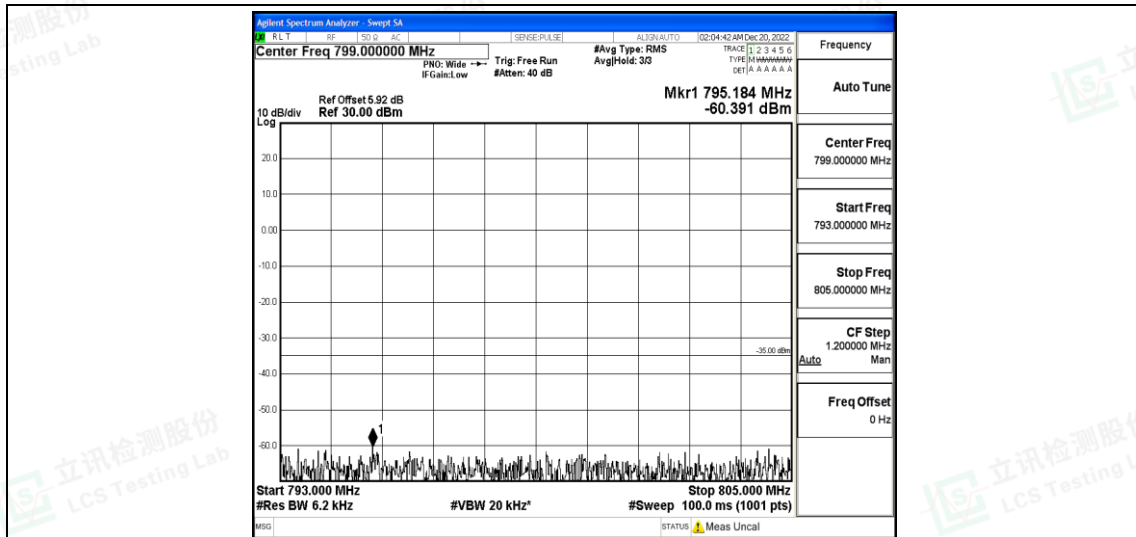


Band13-10MHz-QPSK-23230-1RB#0-Range5:763~775MHz

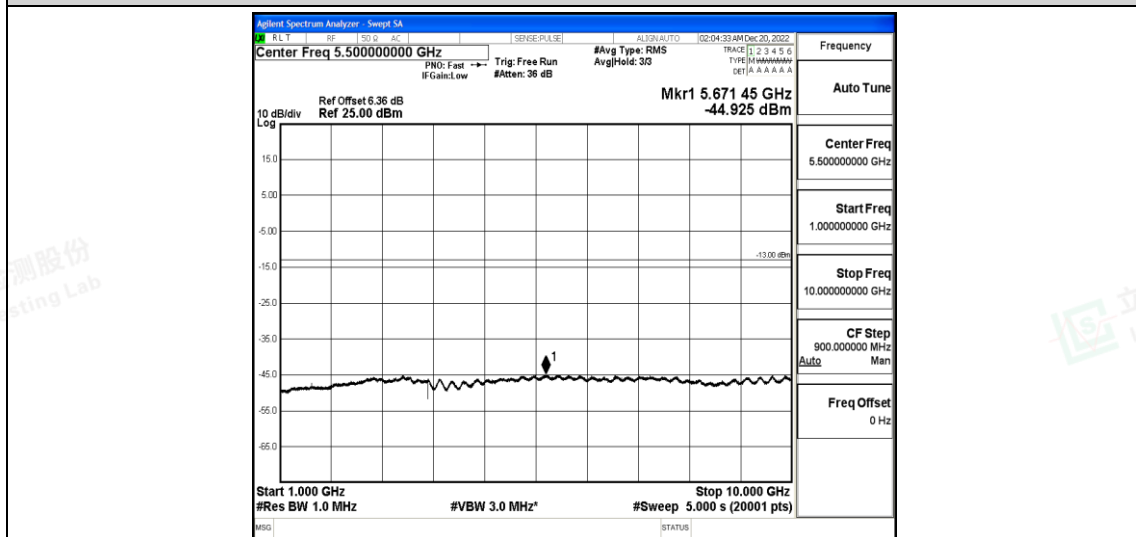


Band13-10MHz-QPSK-23230-1RB#0-Range6:793~805MHz

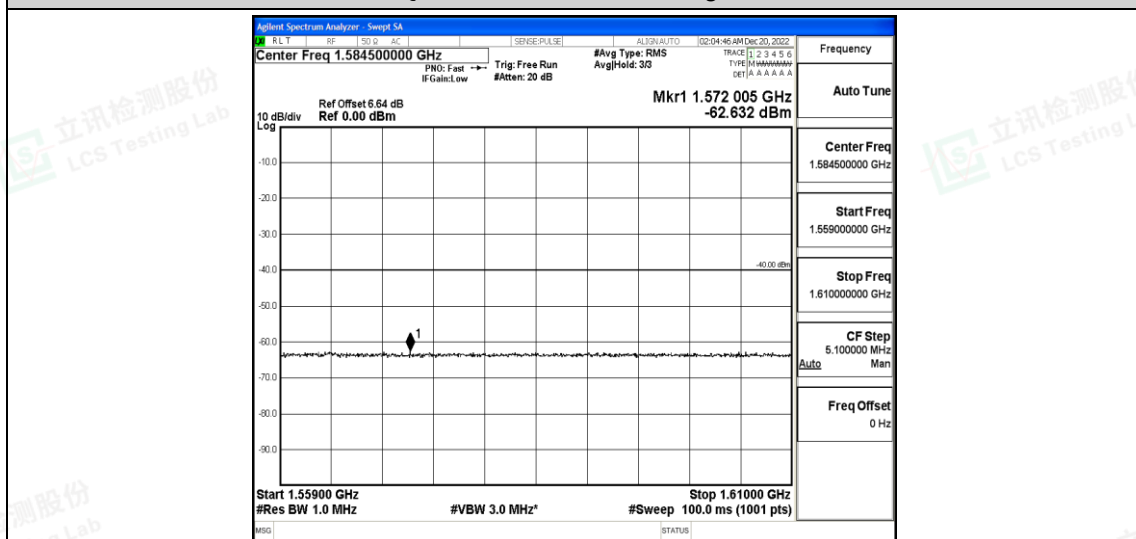




Band13-10MHz-QPSK-23230-1RB#0-Range4:1000~10000MHz

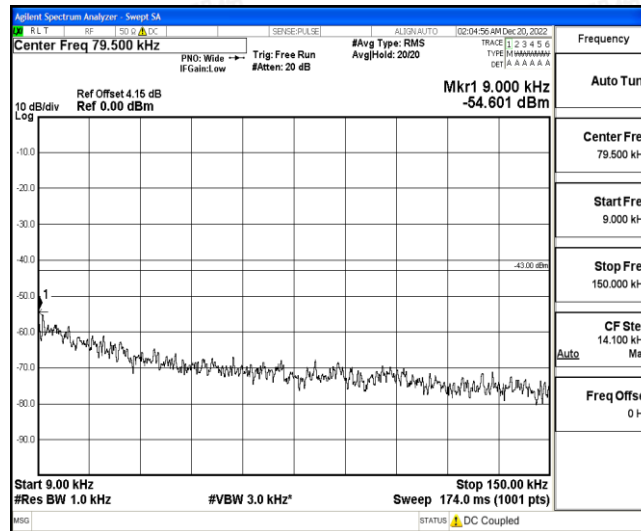


Band13-10MHz-QPSK-23230-1RB#0-Range7:1559~1610MHz

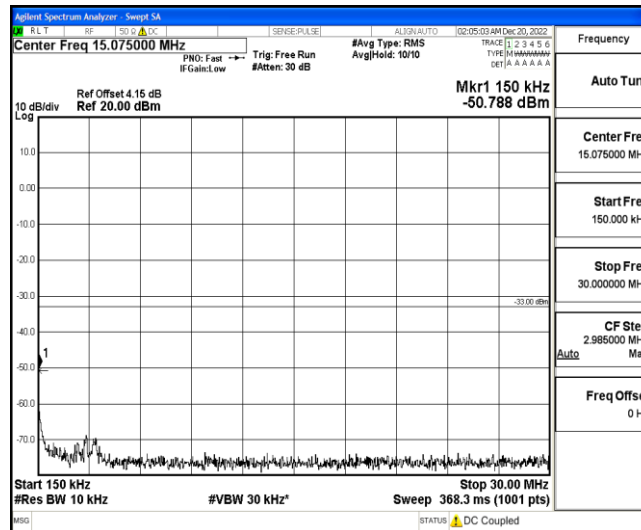


Band13-10MHz-16QAM-23230-1RB#0-Range1:0.009~0.15MHz

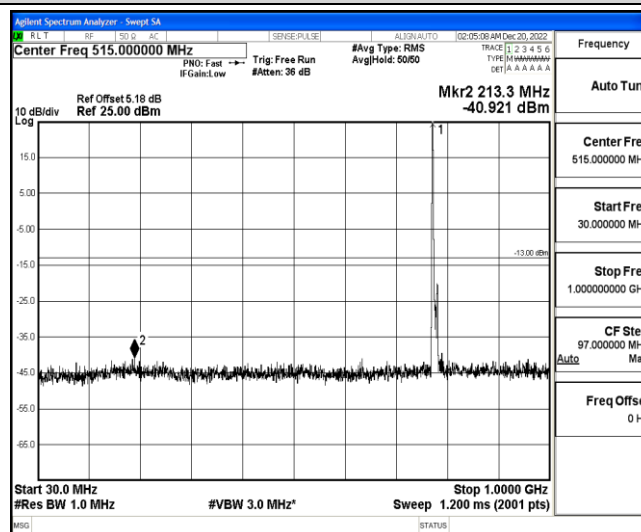




Band13-10MHz-16QAM-23230-1RB#0-Range2:0.15~30MHz

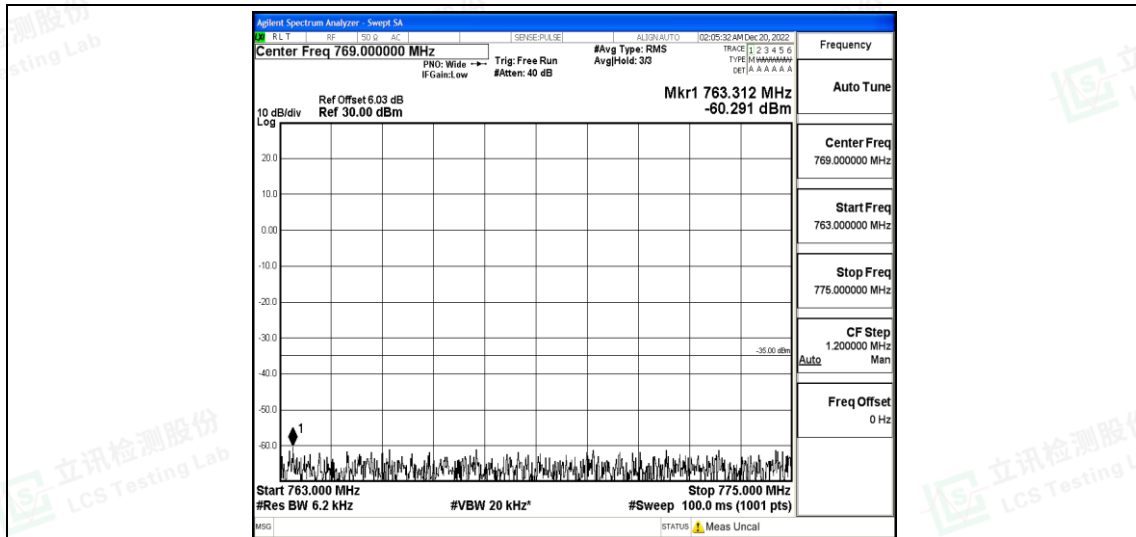


Band13-10MHz-16QAM-23230-1RB#0-Range3:30~1000MHz

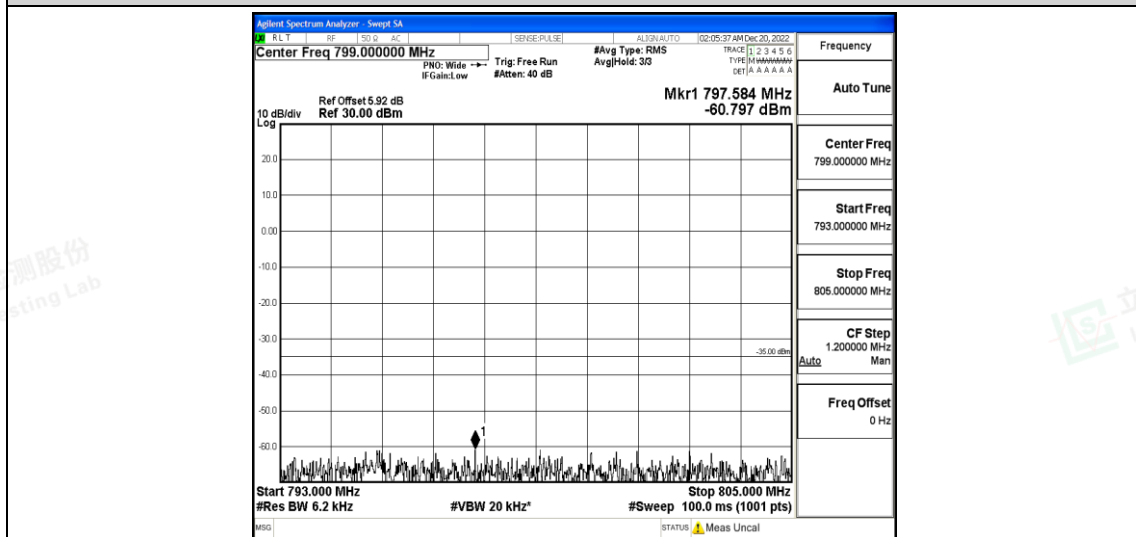


Band13-10MHz-16QAM-23230-1RB#0-Range5:763~775MHz

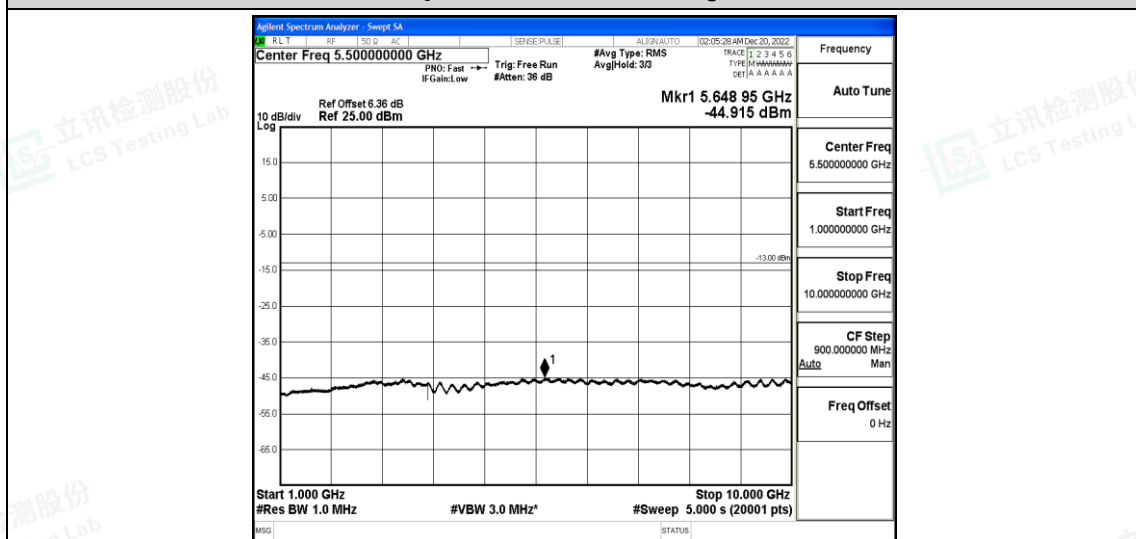




Band13-10MHz-16QAM-23230-1RB#0-Range6:793~805MHz



Band13-10MHz-16QAM-23230-1RB#0-Range4:1000~10000MHz



Band13-10MHz-16QAM-23230-1RB#0-Range7:1559~1610MHz



