



Appendix E: Test Data for CatM1 Band 12

Product Name: Scorpion M Series Tracking System
Test Model: STMLT01

Environmental Conditions

Temperature:	23.5° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Ling Zhu
Supervised by:	Li huan





E.1 Conducted Power Output Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	NBIndex	Result(dBm)	Verdict
Band12	1.4MHz	23017	QPSK	1	0	Low	20.73	PASS
Band12	1.4MHz	23017	QPSK	1	5	Low	20.58	PASS
Band12	1.4MHz	23017	QPSK	6	0	Low	18.64	PASS
Band12	1.4MHz	23095	QPSK	1	0	Low	20.82	PASS
Band12	1.4MHz	23095	QPSK	1	5	Low	20.79	PASS
Band12	1.4MHz	23095	QPSK	6	0	Low	18.84	PASS
Band12	1.4MHz	23173	QPSK	1	0	High	20.61	PASS
Band12	1.4MHz	23173	QPSK	1	5	High	20.46	PASS
Band12	1.4MHz	23173	QPSK	6	0	High	18.45	PASS
Band12	1.4MHz	23017	16QAM	1	0	Low	19.61	PASS
Band12	1.4MHz	23017	16QAM	1	5	Low	19.46	PASS
Band12	1.4MHz	23017	16QAM	6	0	Low	18.76	PASS
Band12	1.4MHz	23095	16QAM	1	0	Low	19.62	PASS
Band12	1.4MHz	23095	16QAM	1	5	Low	19.68	PASS
Band12	1.4MHz	23095	16QAM	6	0	Low	18.86	PASS
Band12	1.4MHz	23173	16QAM	1	0	High	19.53	PASS
Band12	1.4MHz	23173	16QAM	1	5	High	19.46	PASS
Band12	1.4MHz	23173	16QAM	6	0	High	18.45	PASS
Band12	3MHz	23025	QPSK	1	0	Low	21.43	PASS
Band12	3MHz	23025	QPSK	1	5	Low	21.18	PASS
Band12	3MHz	23025	QPSK	6	0	Low	19.07	PASS
Band12	3MHz	23095	QPSK	1	0	Low	20.91	PASS
Band12	3MHz	23095	QPSK	1	5	Low	20.81	PASS
Band12	3MHz	23095	QPSK	6	0	Low	18.85	PASS
Band12	3MHz	23165	QPSK	1	0	High	20.60	PASS
Band12	3MHz	23165	QPSK	1	5	High	21.02	PASS
Band12	3MHz	23165	QPSK	6	0	High	19.05	PASS
Band12	3MHz	23025	16QAM	1	0	Low	20.43	PASS
Band12	3MHz	23025	16QAM	1	5	Low	20.21	PASS
Band12	3MHz	23025	16QAM	6	0	Low	19.03	PASS
Band12	3MHz	23095	16QAM	1	0	Low	19.72	PASS
Band12	3MHz	23095	16QAM	1	5	Low	19.69	PASS
Band12	3MHz	23095	16QAM	6	0	Low	19.05	PASS
Band12	3MHz	23165	16QAM	1	0	High	19.84	PASS
Band12	3MHz	23165	16QAM	1	5	High	20.04	PASS



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Band12	3MHz	23165	16QAM	6	0	High	19.05	PASS
Band12	5MHz	23035	QPSK	1	0	Low	20.66	PASS
Band12	5MHz	23035	QPSK	1	5	Low	20.60	PASS
Band12	5MHz	23035	QPSK	6	0	Low	19.68	PASS
Band12	5MHz	23095	QPSK	1	0	Low	20.88	PASS
Band12	5MHz	23095	QPSK	1	5	Low	20.61	PASS
Band12	5MHz	23095	QPSK	6	0	Low	19.67	PASS
Band12	5MHz	23155	QPSK	1	0	High	20.77	PASS
Band12	5MHz	23155	QPSK	1	5	High	20.70	PASS
Band12	5MHz	23155	QPSK	6	0	High	19.70	PASS
Band12	5MHz	23035	16QAM	1	0	Low	20.79	PASS
Band12	5MHz	23035	16QAM	1	5	Low	20.72	PASS
Band12	5MHz	23035	16QAM	6	0	Low	19.75	PASS
Band12	5MHz	23095	16QAM	1	0	Low	20.80	PASS
Band12	5MHz	23095	16QAM	1	5	Low	20.75	PASS
Band12	5MHz	23095	16QAM	6	0	Low	19.87	PASS
Band12	5MHz	23155	16QAM	1	0	High	20.90	PASS
Band12	5MHz	23155	16QAM	1	5	High	20.80	PASS
Band12	5MHz	23155	16QAM	6	0	High	19.87	PASS
Band12	10MHz	23060	QPSK	1	0	Low	20.55	PASS
Band12	10MHz	23060	QPSK	1	5	Low	20.32	PASS
Band12	10MHz	23060	QPSK	6	0	Low	19.54	PASS
Band12	10MHz	23095	QPSK	1	0	Low	20.88	PASS
Band12	10MHz	23095	QPSK	1	5	Low	20.61	PASS
Band12	10MHz	23095	QPSK	6	0	Low	19.65	PASS
Band12	10MHz	23130	QPSK	1	0	High	20.80	PASS
Band12	10MHz	23130	QPSK	1	5	High	20.71	PASS
Band12	10MHz	23130	QPSK	6	0	High	19.84	PASS
Band12	10MHz	23060	16QAM	1	0	Low	20.61	PASS
Band12	10MHz	23060	16QAM	1	5	Low	20.56	PASS
Band12	10MHz	23060	16QAM	6	0	Low	19.64	PASS
Band12	10MHz	23095	16QAM	1	0	Low	20.72	PASS
Band12	10MHz	23095	16QAM	1	5	Low	20.67	PASS
Band12	10MHz	23095	16QAM	6	0	Low	19.77	PASS
Band12	10MHz	23130	16QAM	1	0	High	20.90	PASS
Band12	10MHz	23130	16QAM	1	5	High	20.75	PASS
Band12	10MHz	23130	16QAM	6	0	High	19.89	PASS



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

Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	NBIndex	Result(dB)	Limit(dB)	Verdict
Band12	1.4MHz	23017	QPSK	6	0	Low	11.80	<=13	PASS
Band12	1.4MHz	23095	QPSK	6	0	Low	9.58	<=13	PASS
Band12	1.4MHz	23173	QPSK	6	0	Low	10.49	<=13	PASS
Band12	1.4MHz	23017	16QAM	6	0	Low	9.18	<=13	PASS
Band12	1.4MHz	23095	16QAM	6	0	Low	9.20	<=13	PASS
Band12	1.4MHz	23173	16QAM	6	0	Low	10.87	<=13	PASS
Band12	3MHz	23025	QPSK	6	0	Low	8.48	<=13	PASS
Band12	3MHz	23095	QPSK	6	0	Low	10.94	<=13	PASS
Band12	3MHz	23165	QPSK	6	0	Low	11.19	<=13	PASS
Band12	3MHz	23025	16QAM	6	0	Low	8.96	<=13	PASS
Band12	3MHz	23095	16QAM	6	0	Low	8.65	<=13	PASS
Band12	3MHz	23165	16QAM	6	0	Low	9.57	<=13	PASS
Band12	5MHz	23035	QPSK	6	0	Low	8.89	<=13	PASS
Band12	5MHz	23095	QPSK	6	0	Low	10.81	<=13	PASS
Band12	5MHz	23155	QPSK	6	0	Low	10.10	<=13	PASS
Band12	5MHz	23035	16QAM	6	0	Low	10.42	<=13	PASS
Band12	5MHz	23095	16QAM	6	0	Low	10.20	<=13	PASS
Band12	5MHz	23155	16QAM	6	0	Low	8.69	<=13	PASS
Band12	10MHz	23060	QPSK	6	0	Low	11.23	<=13	PASS
Band12	10MHz	23095	QPSK	6	0	Low	10.50	<=13	PASS
Band12	10MHz	23130	QPSK	6	0	Low	11.24	<=13	PASS
Band12	10MHz	23060	16QAM	6	0	Low	11.83	<=13	PASS
Band12	10MHz	23095	16QAM	6	0	Low	8.74	<=13	PASS
Band12	10MHz	23130	16QAM	6	0	Low	8.22	<=13	PASS



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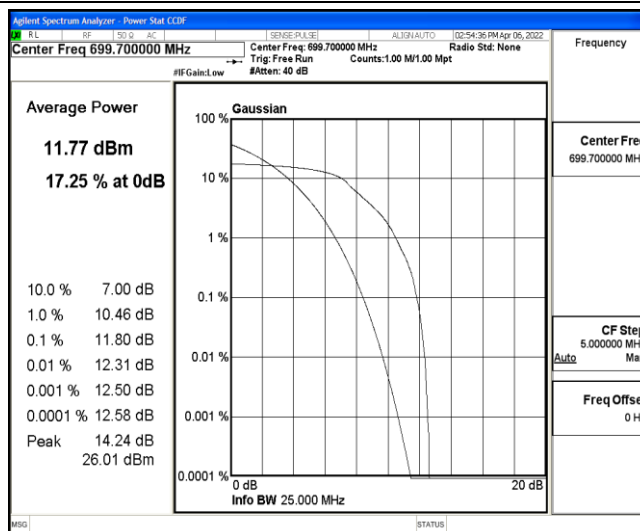
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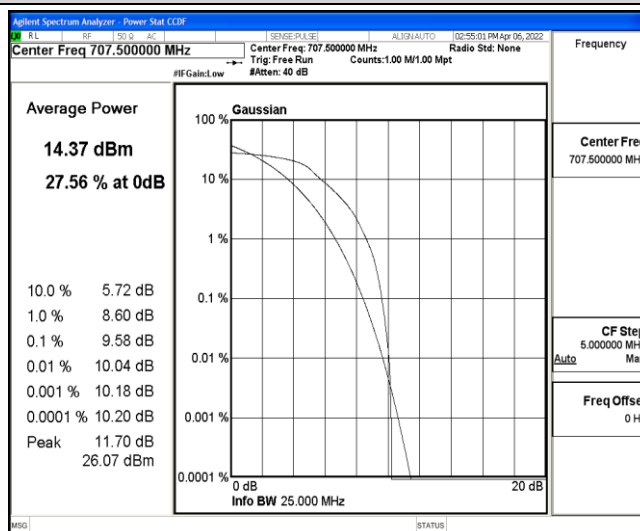
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Test Graphs



Band12-1.4MHz-QPSK-23017-6-0-Low-11.80-<=13-PASS



Band12-1.4MHz-QPSK-23095-6-0-Low-9.58-<=13-PASS

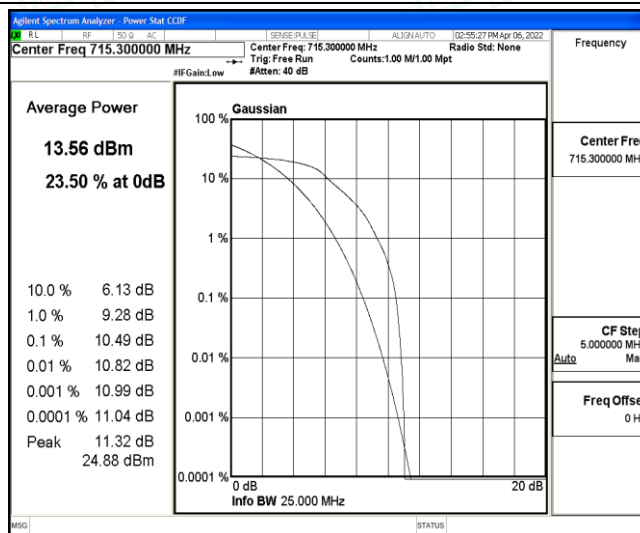


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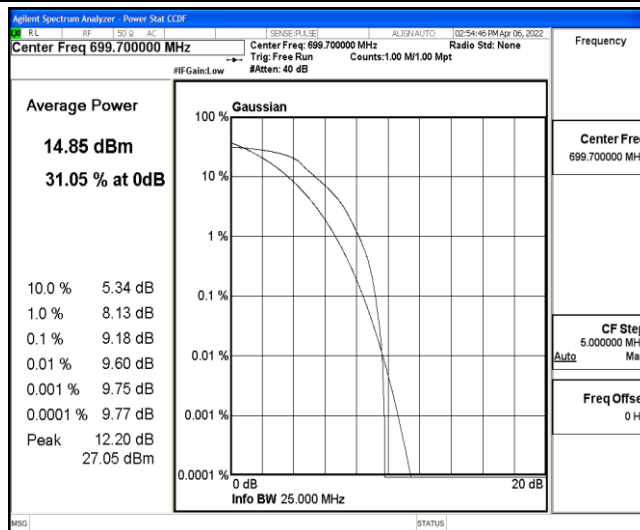
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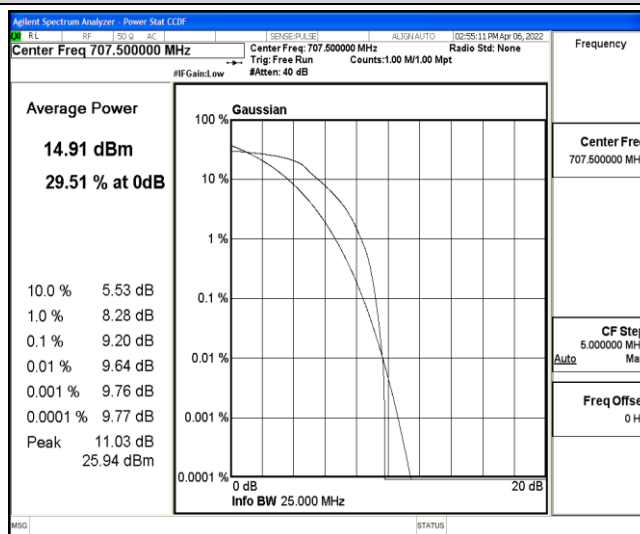
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Band12-1.4MHz-QPSK-23173-6-0-Low-10.49-<=13-PASS

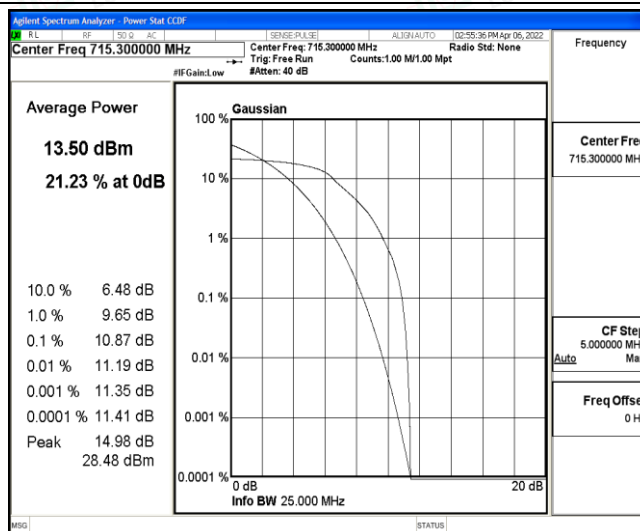


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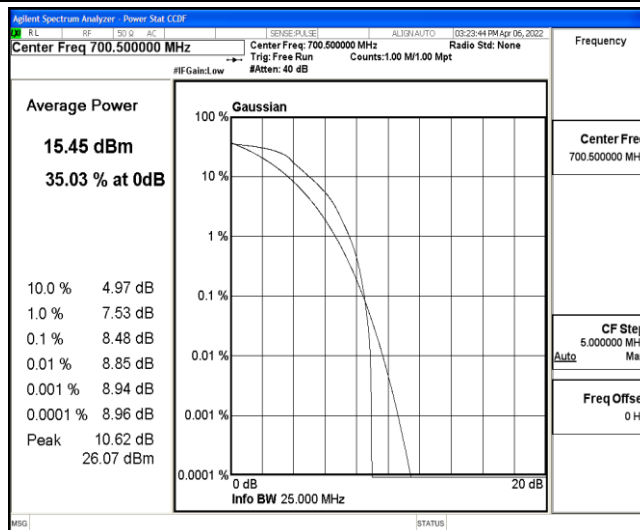


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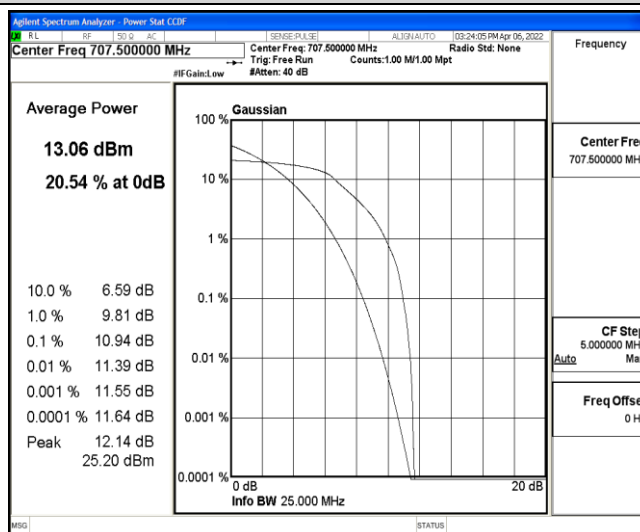




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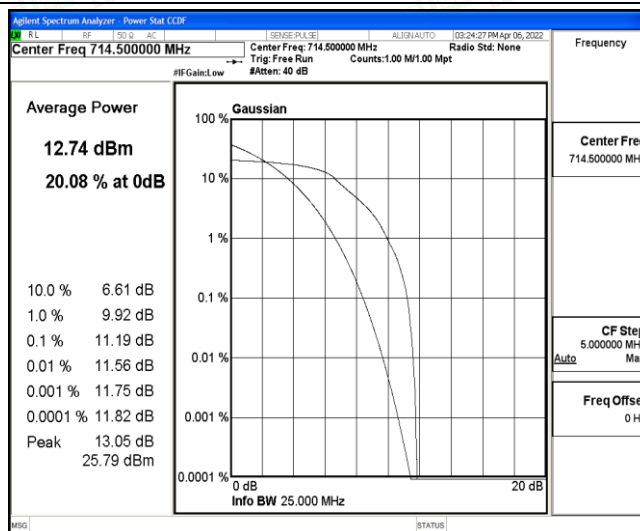


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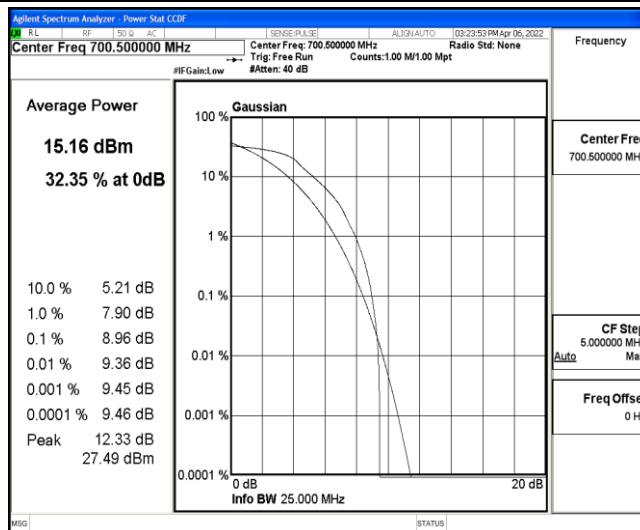


Band12-3MHz-QPSK-23095-6-0-Low-10.94-<=13-PASS

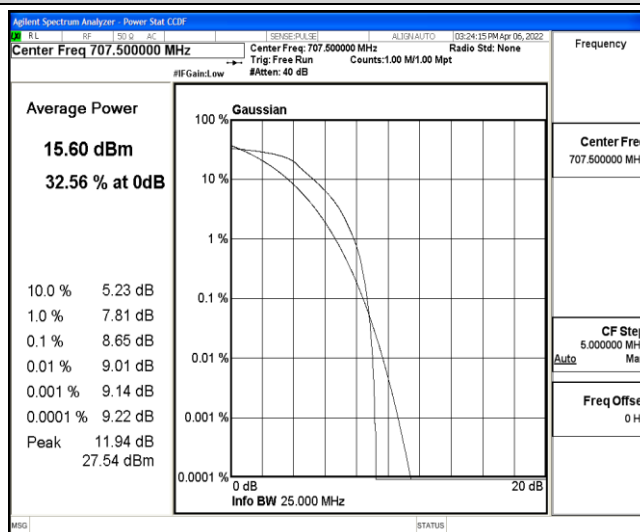




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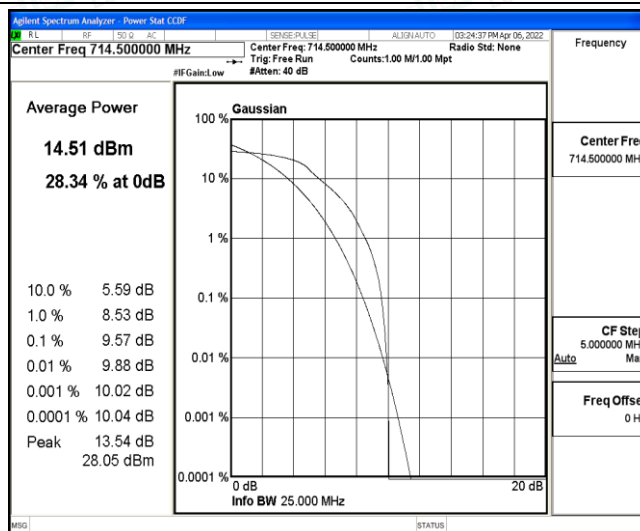


Band12-3MHz-16QAM-23025-6-0-Low-8.96-<=13-PASS

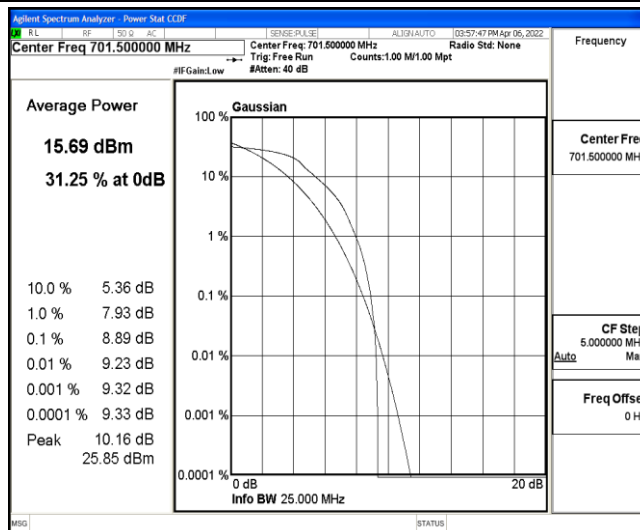


Band12-3MHz-16QAM-23095-6-0-Low-8.65-<=13-PASS

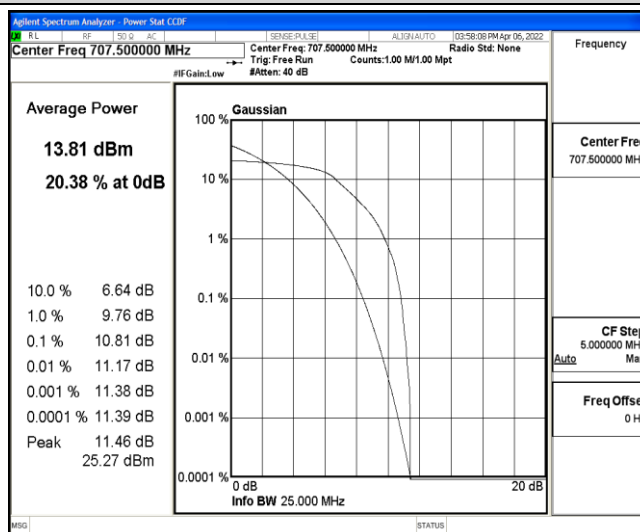




Band12-3MHz-16QAM-23165-6-0-Low-9.57-13-PASS

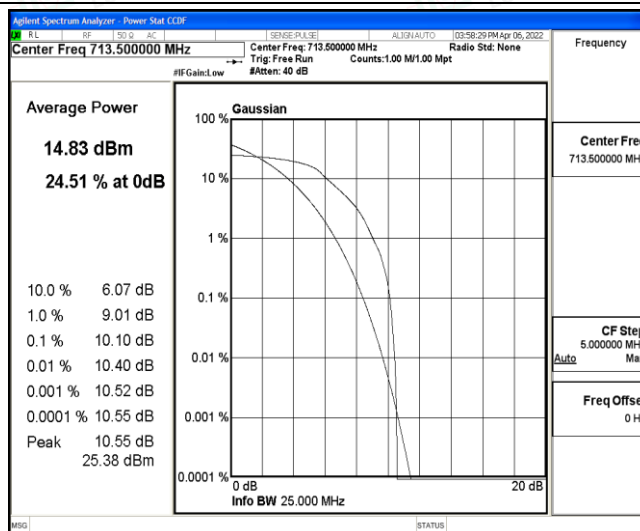


Band12-5MHz-QPSK-23035-6-0-Low-8.89-13-PASS

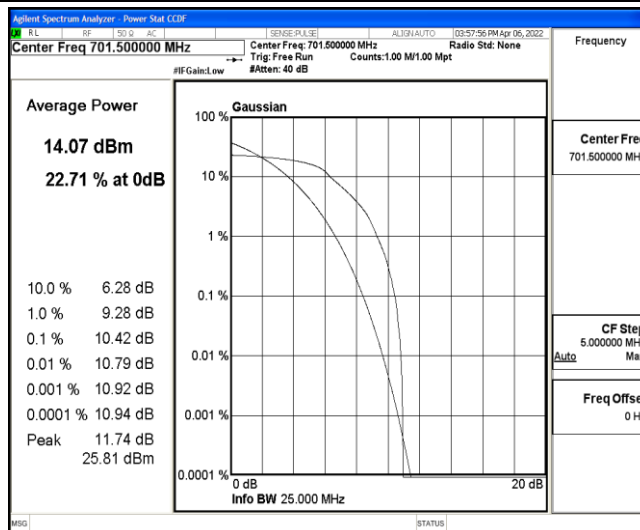


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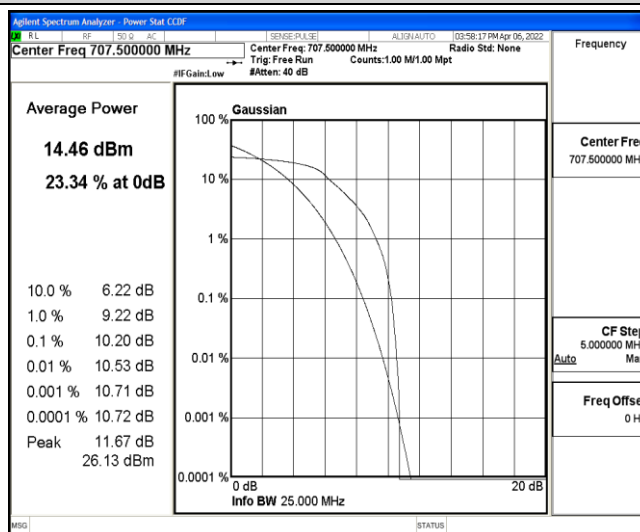




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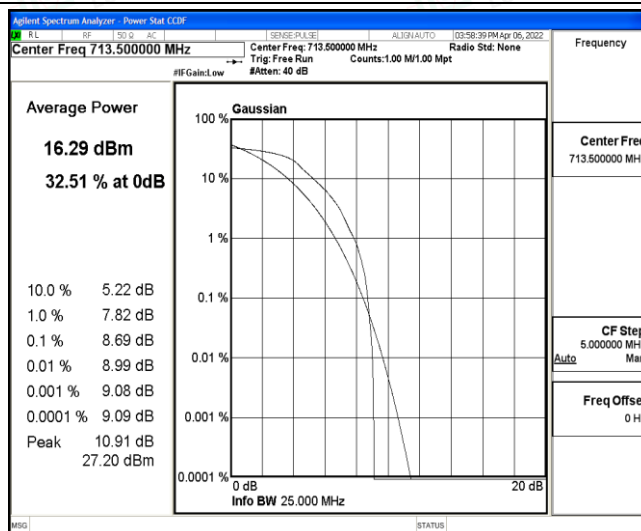


Band12-5MHz-16QAM-23035-6-0-Low-10.42-13-PASS

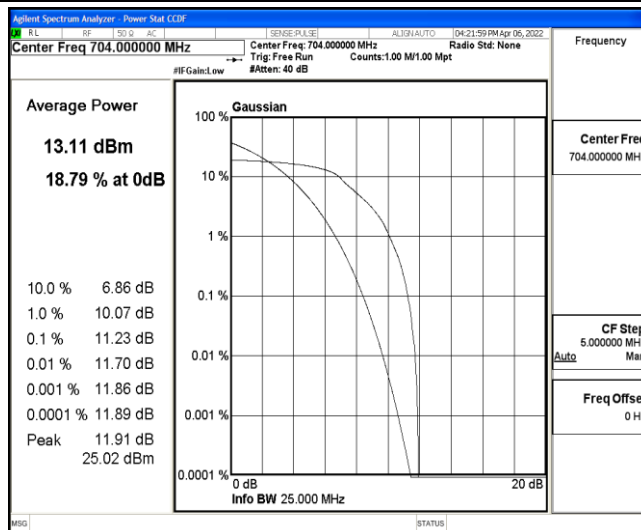


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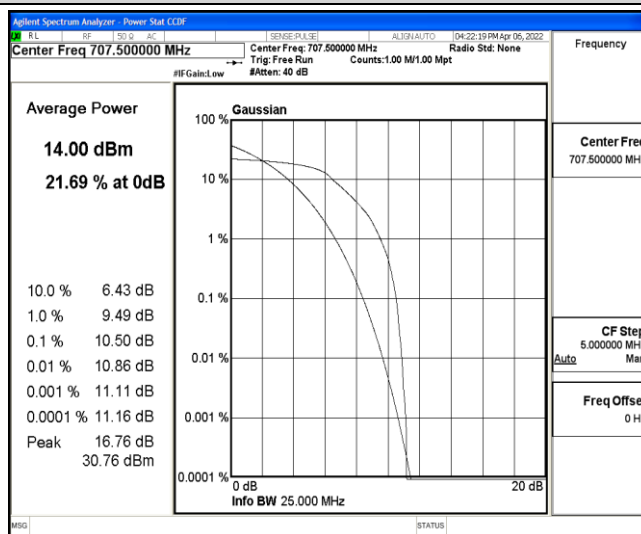




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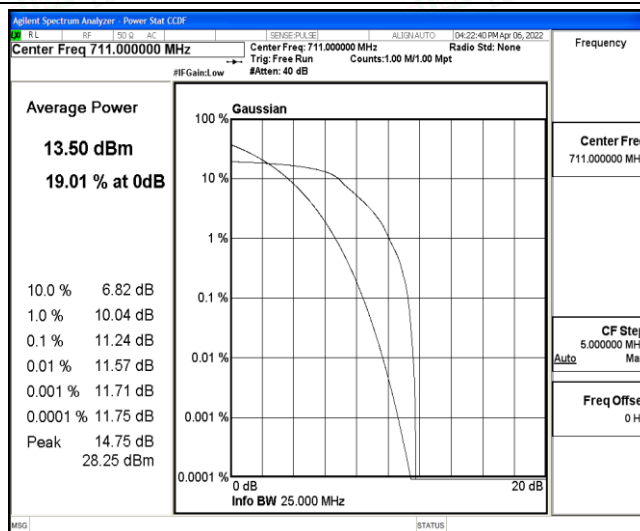


Band12-10MHz-QPSK-23060-6-0-Low-11.23-<=13-PASS

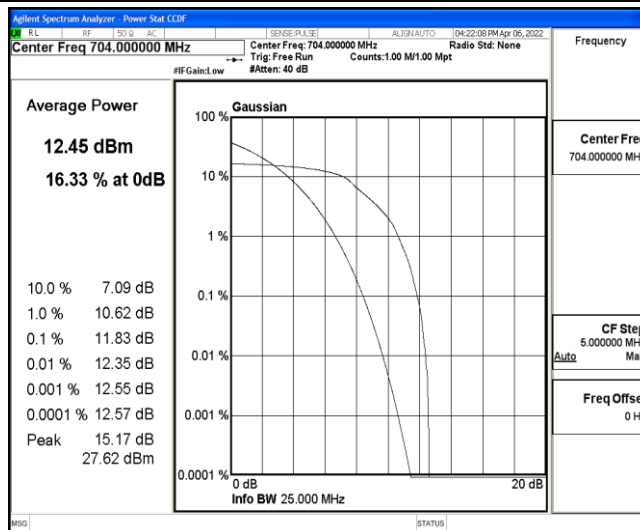


Band12-10MHz-QPSK-23095-6-0-Low-10.50-<=13-PASS

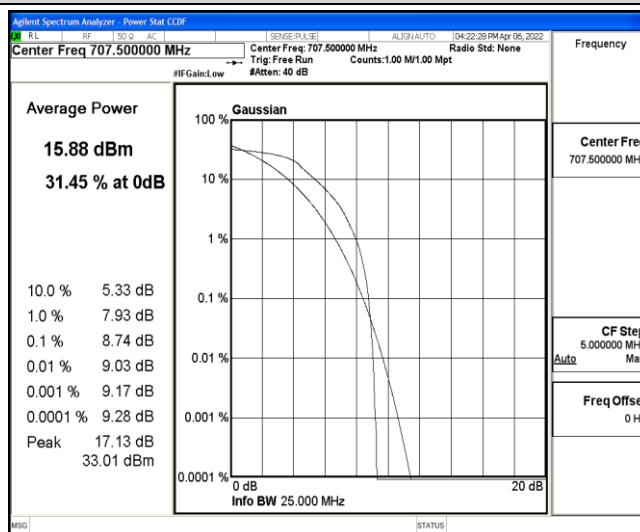




Band12-10MHz-QPSK-23130-6-0-Low-11.24-<=13-PASS



Band12-10MHz-16QAM-23060-6-0-Low-11.83-<=13-PASS



Band12-10MHz-16QAM-23095-6-0-Low-8.74-<=13-PASS

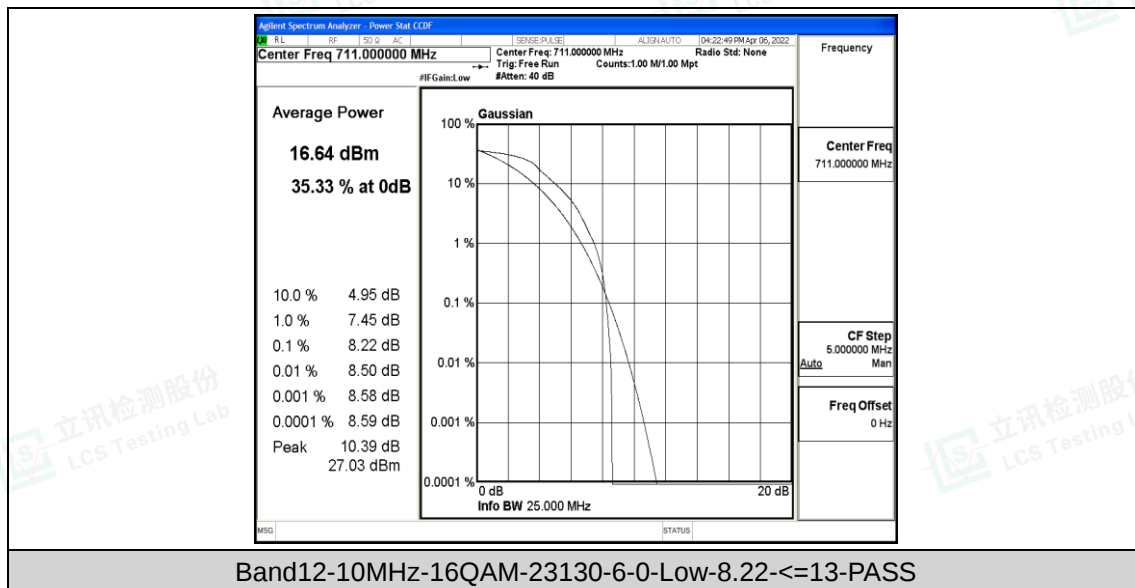


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E.3 26dB Bandwidth and Occupied Bandwidth

Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	NB Index	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band12	1.4MHz	23017	QPSK	6	0	Low	1.0901	1.273	PASS
Band12	1.4MHz	23095	QPSK	6	0	Low	1.0883	1.264	PASS
Band12	1.4MHz	23173	QPSK	6	0	High	1.0889	1.298	PASS
Band12	1.4MHz	23017	16QAM	6	0	Low	1.0890	1.271	PASS
Band12	1.4MHz	23095	16QAM	6	0	Low	1.0888	1.258	PASS
Band12	1.4MHz	23173	16QAM	6	0	High	1.0982	1.316	PASS
Band12	3MHz	23025	QPSK	6	0	Low	1.1100	1.327	PASS
Band12	3MHz	23095	QPSK	6	0	Low	1.1217	1.316	PASS
Band12	3MHz	23165	QPSK	6	0	High	1.1231	1.316	PASS
Band12	3MHz	23025	16QAM	6	0	Low	1.1130	1.365	PASS
Band12	3MHz	23095	16QAM	6	0	Low	1.1082	1.327	PASS
Band12	3MHz	23165	16QAM	6	0	High	1.1104	1.340	PASS
Band12	5MHz	23035	QPSK	6	0	Low	1.1730	1.478	PASS
Band12	5MHz	23095	QPSK	6	0	Low	1.1747	1.487	PASS
Band12	5MHz	23155	QPSK	6	0	High	1.1773	1.440	PASS
Band12	5MHz	23035	16QAM	6	0	Low	1.1739	1.517	PASS
Band12	5MHz	23095	16QAM	6	0	Low	1.1725	1.569	PASS
Band12	5MHz	23155	16QAM	6	0	High	1.1884	1.454	PASS
Band12	10MHz	23060	QPSK	6	0	Low	1.3230	2.046	PASS
Band12	10MHz	23095	QPSK	6	0	Low	1.3227	1.848	PASS
Band12	10MHz	23130	QPSK	6	0	High	1.3249	1.748	PASS
Band12	10MHz	23060	16QAM	6	0	Low	1.3290	1.702	PASS
Band12	10MHz	23095	16QAM	6	0	Low	1.3427	1.901	PASS
Band12	10MHz	23130	16QAM	6	0	High	1.3364	1.690	PASS



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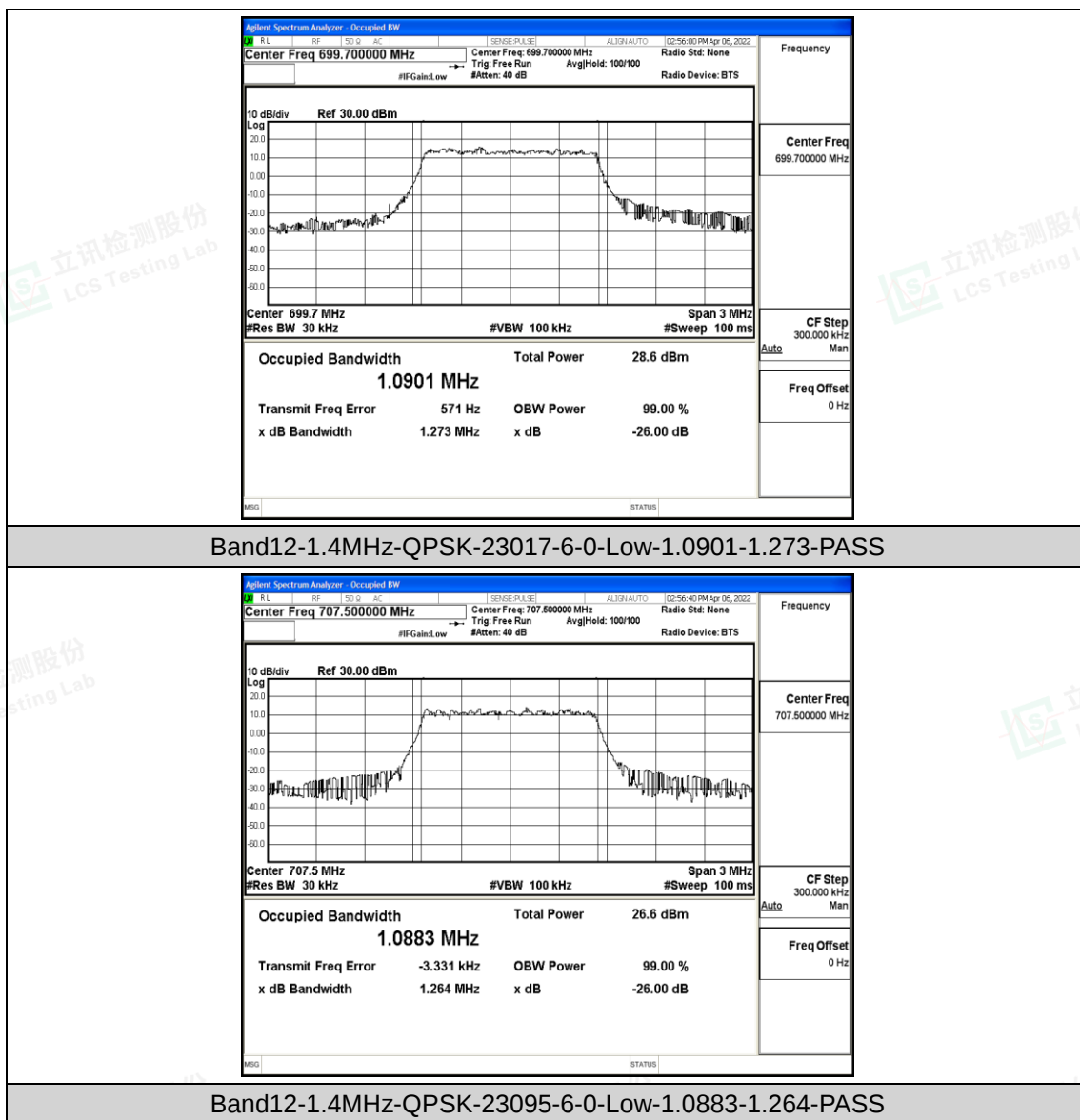
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Test Graphs

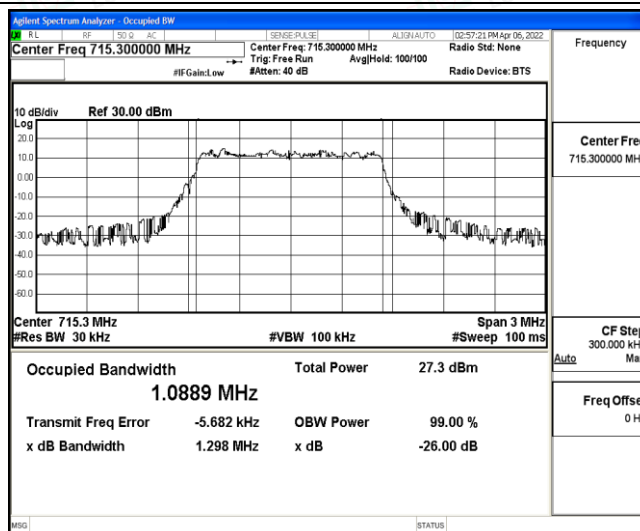


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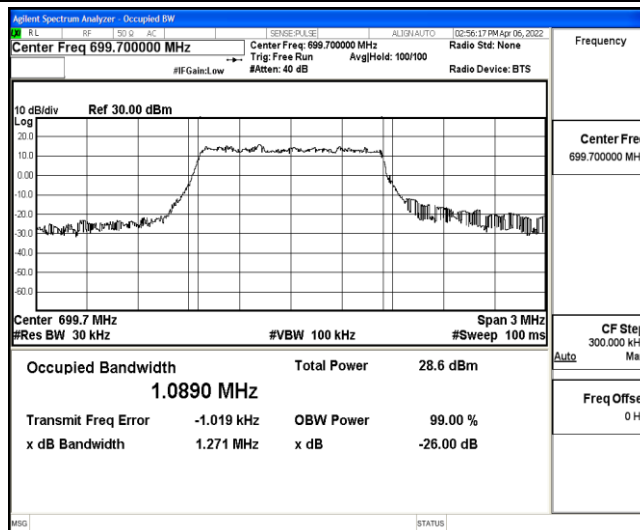
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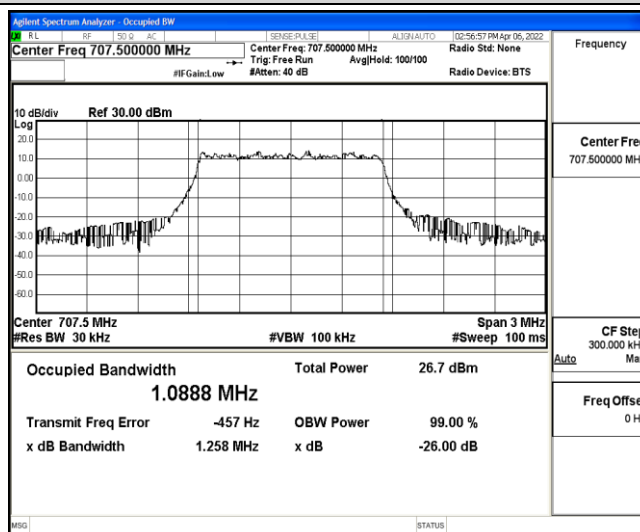
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Band12-1.4MHz-QPSK-23173-6-0-High-1.0889-1.298-PASS

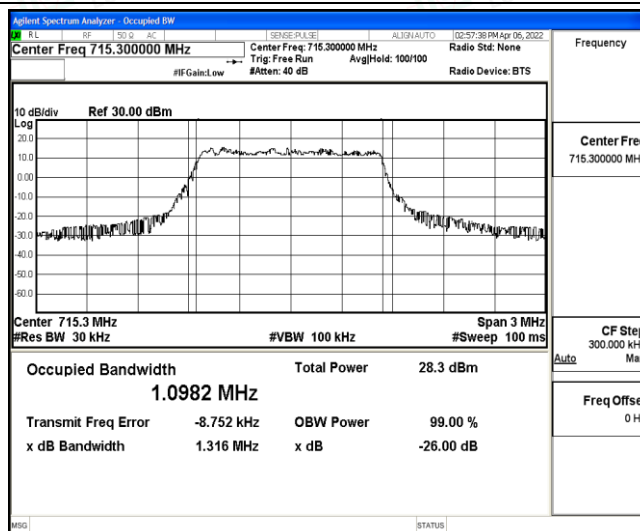


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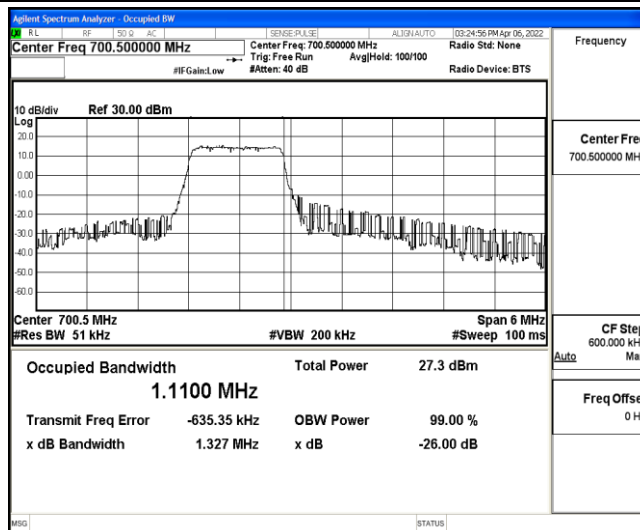


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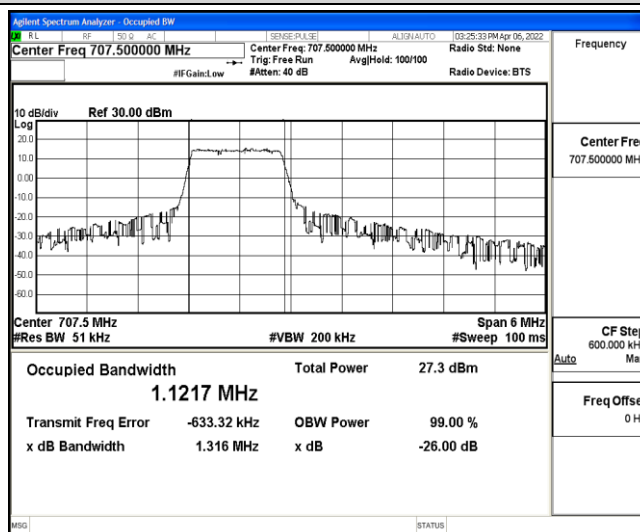




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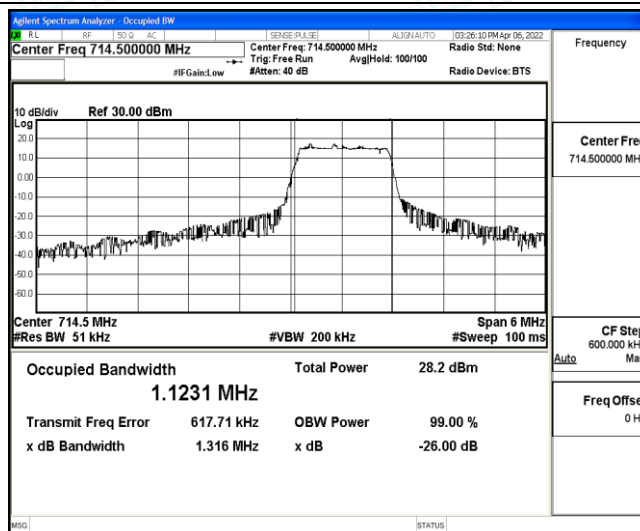


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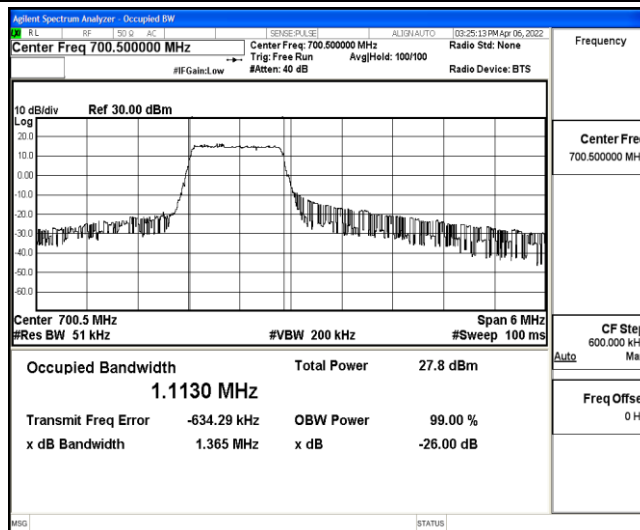


Band12-3MHz-QPSK-23095-6-0-Low-1.1217-1.316-PASS

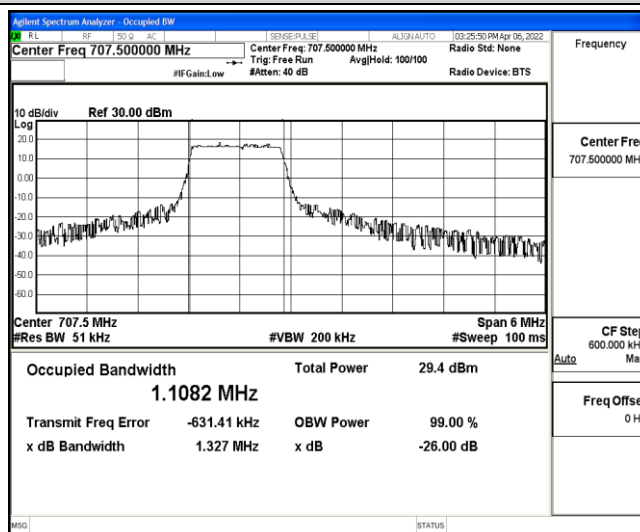




Band12-3MHz-QPSK-23165-6-0-High-1.1231-1.316-PASS

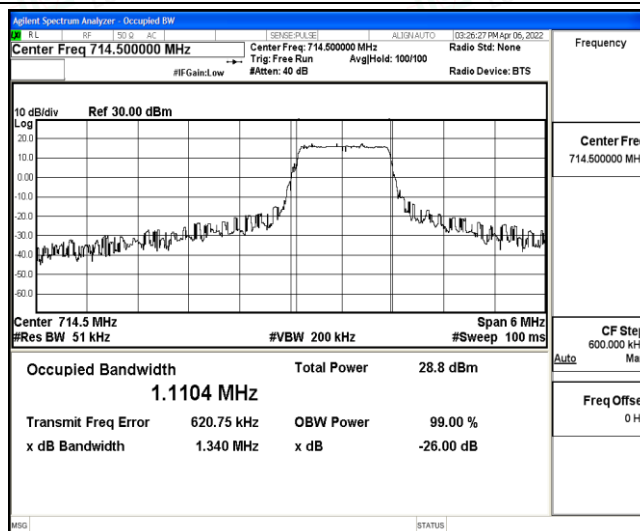


Band12-3MHz-16QAM-23025-6-0-Low-1.1130-1.365-PASS

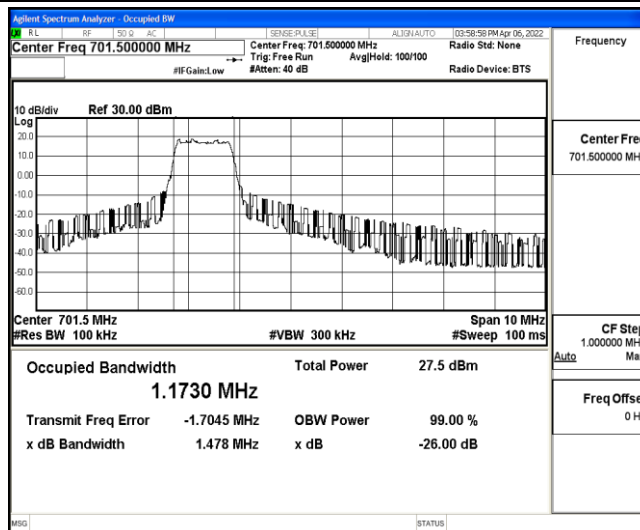


Band12-3MHz-16QAM-23095-6-0-Low-1.1082-1.327-PASS

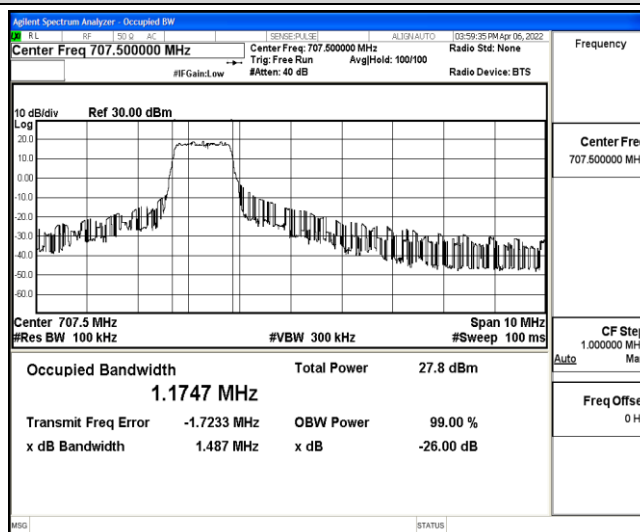




Band12-3MHz-16QAM-23165-6-0-High-1.1104-1.340-PASS

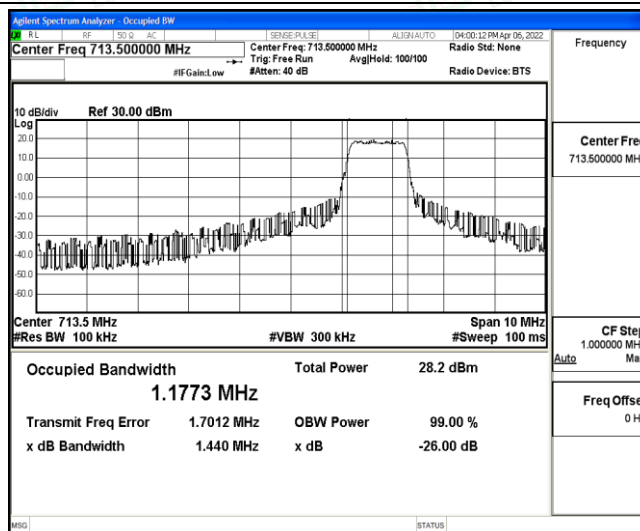


Band12-5MHz-QPSK-23035-6-0-Low-1.1730-1.478-PASS

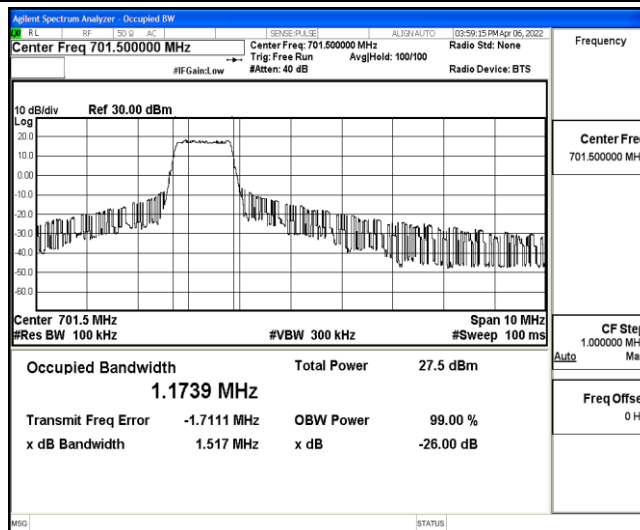


Band12-5MHz-QPSK-23095-6-0-Low-1.1747-1.487-PASS

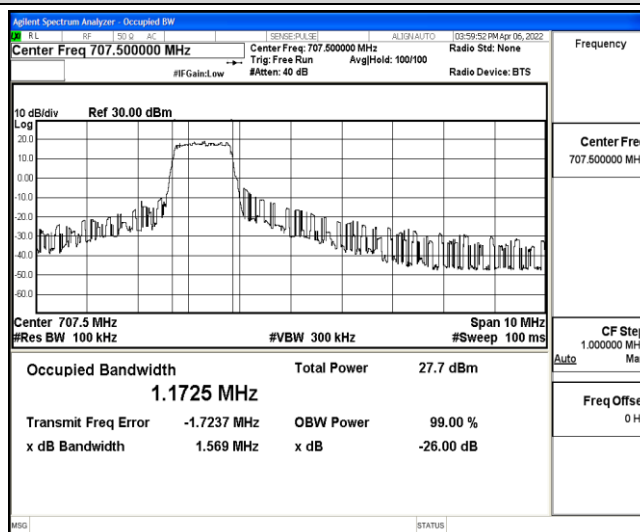




Band12-5MHz-QPSK-23155-6-0-High-1.1773-1.440-PASS

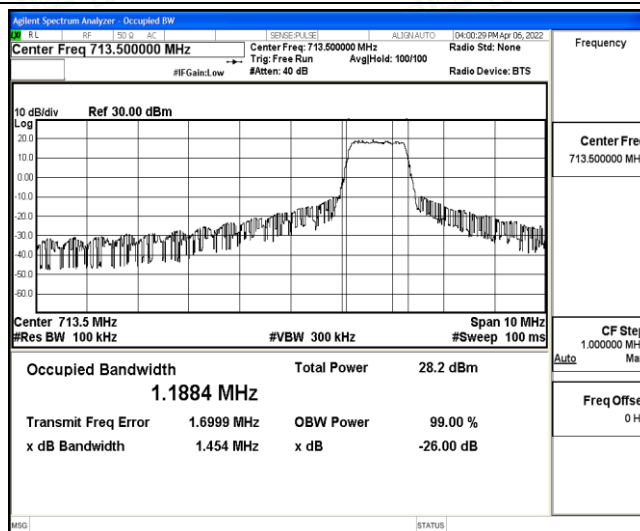


Band12-5MHz-16QAM-23035-6-0-Low-1.1739-1.517-PASS

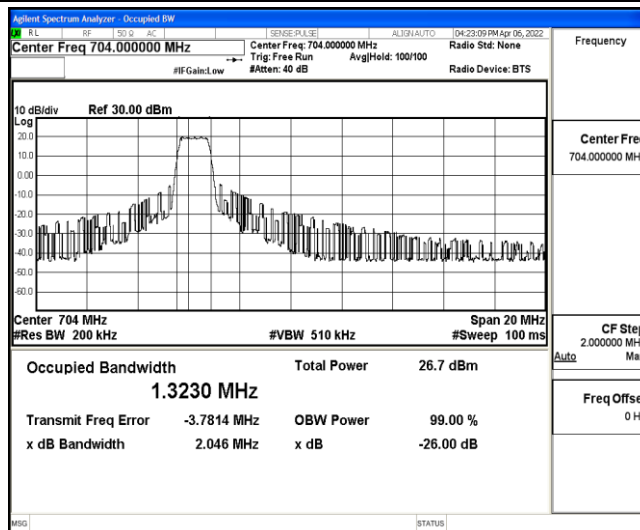


Band12-5MHz-16QAM-23095-6-0-Low-1.1725-1.569-PASS

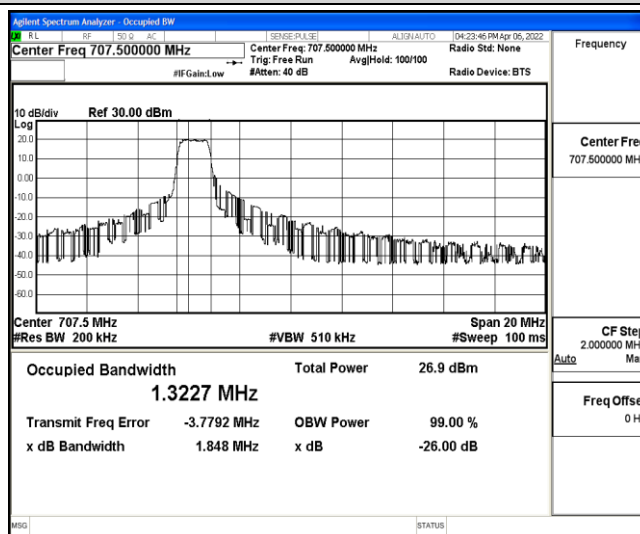




Band12-5MHz-16QAM-23155-6-0-High-1.1884-1.454-PASS

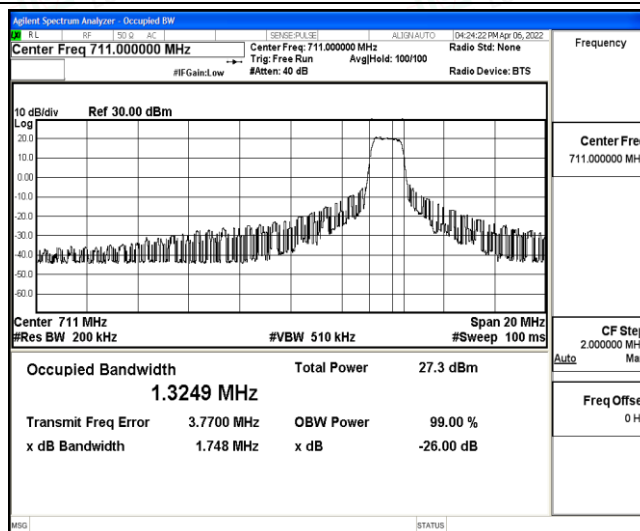


Band12-10MHz-QPSK-23060-6-0-Low-1.3230-2.046-PASS

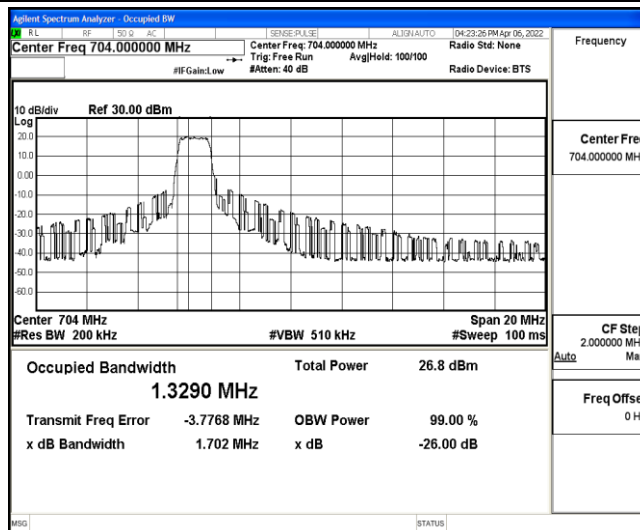


Band12-10MHz-QPSK-23095-6-0-Low-1.3227-1.848-PASS

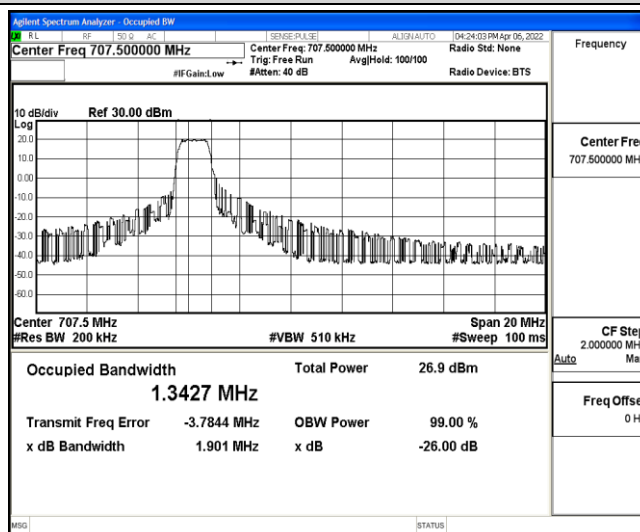




Band12-10MHz-QPSK-23130-6-0-High-1.3249-1.748-PASS

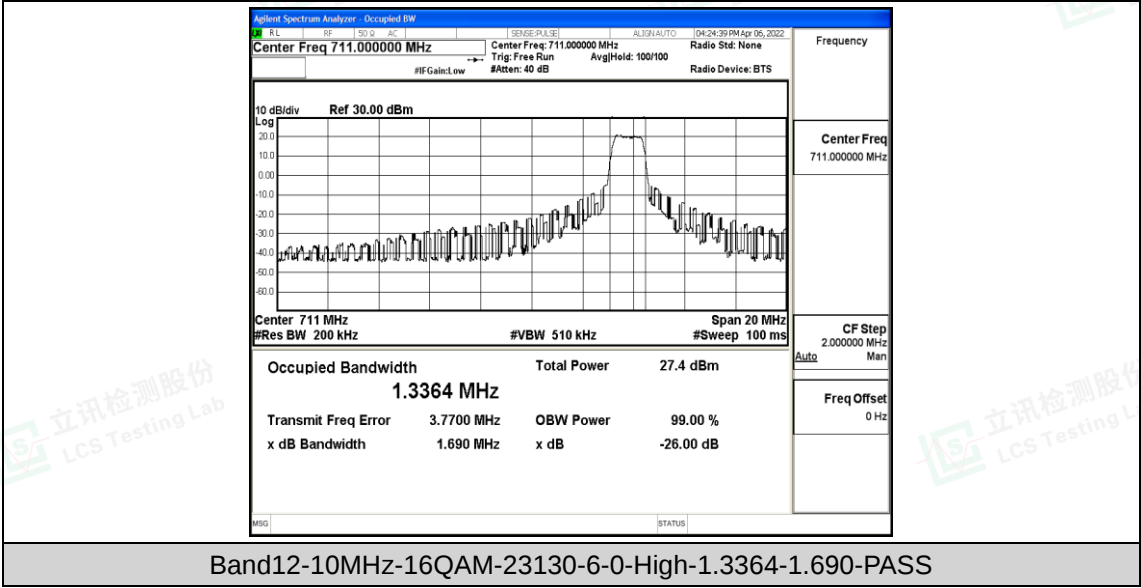


Band12-10MHz-16QAM-23060-6-0-Low-1.3290-1.702-PASS



Band12-10MHz-16QAM-23095-6-0-Low-1.3427-1.901-PASS





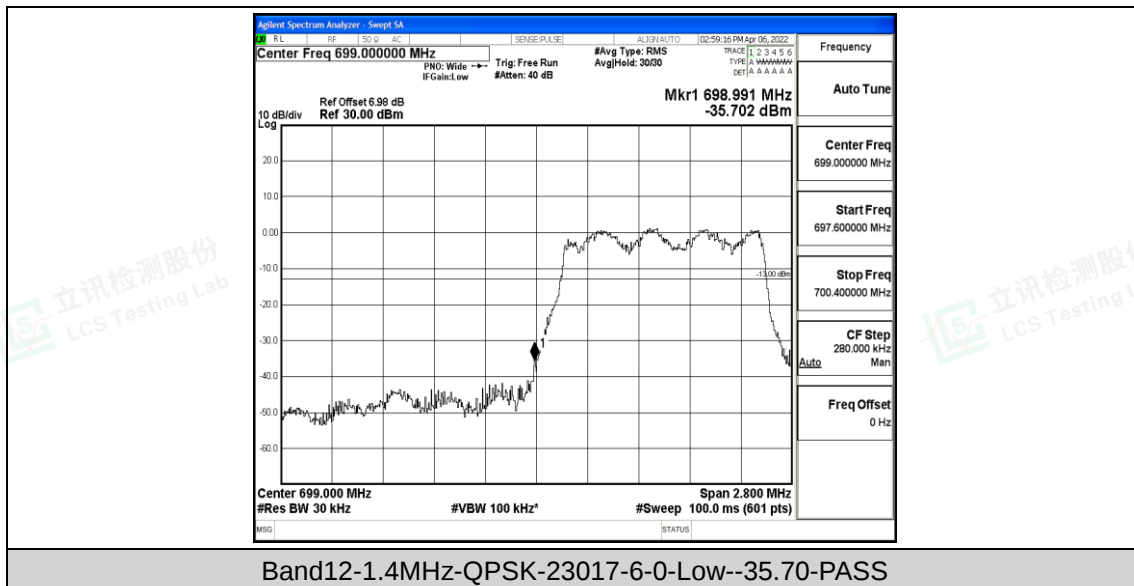


E.4 Band Edge

Test Result

Band	Bandwidth	Modulation	Channel	RB Size	RB Start	NB Index	Result(dBm)	Verdict
Band12	1.4MHz	23017	QPSK	6	0	Low	-35.70	PASS
Band12	1.4MHz	23173	QPSK	6	0	Low	-33.39	PASS
Band12	1.4MHz	23017	16QAM	6	0	Low	-34.52	PASS
Band12	1.4MHz	23173	16QAM	6	0	Low	-31.36	PASS
Band12	3MHz	23025	QPSK	6	0	Low	-41.97	PASS
Band12	3MHz	23165	QPSK	6	0	Low	-46.46	PASS
Band12	3MHz	23025	16QAM	6	0	Low	-34.94	PASS
Band12	3MHz	23165	16QAM	6	0	Low	-45.78	PASS
Band12	5MHz	23035	QPSK	6	0	Low	-32.94	PASS
Band12	5MHz	23155	QPSK	6	0	Low	-51.58	PASS
Band12	5MHz	23035	16QAM	6	0	Low	-33.72	PASS
Band12	5MHz	23155	16QAM	6	0	Low	-52.08	PASS
Band12	10MHz	23060	QPSK	6	0	Low	-35.09	PASS
Band12	10MHz	23130	QPSK	6	0	Low	-52.50	PASS
Band12	10MHz	23060	16QAM	6	0	Low	-34.19	PASS
Band12	10MHz	23130	16QAM	6	0	Low	-52.33	PASS

Test Graphs

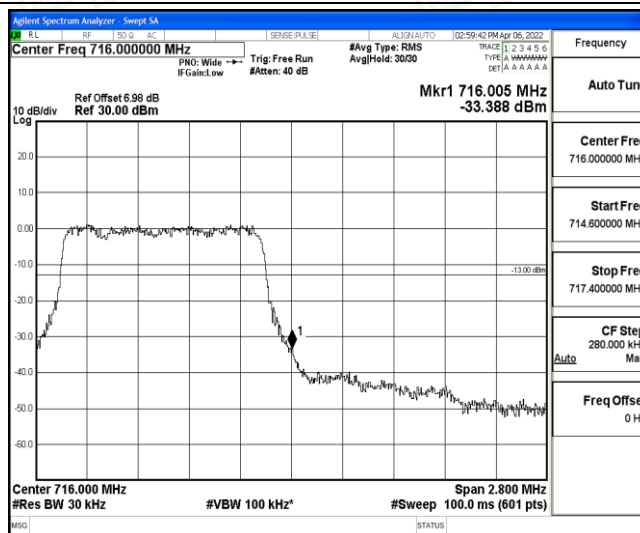


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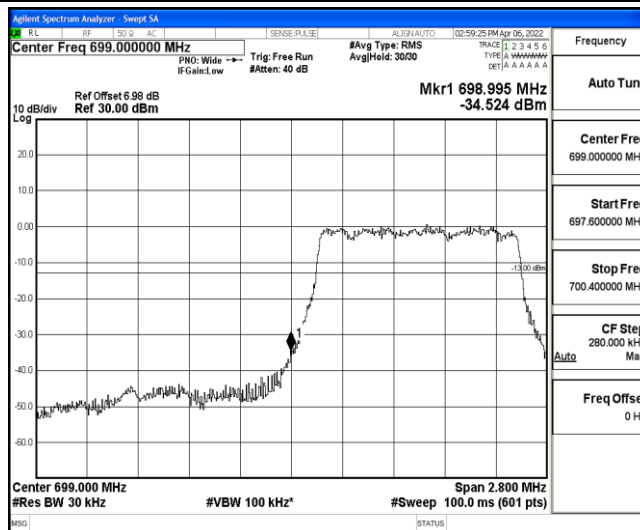
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

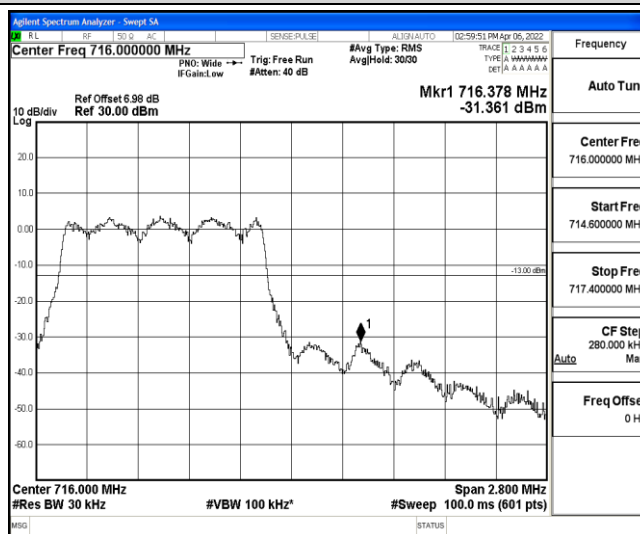
Scan code to check authenticity



Band12-1.4MHz-QPSK-23173-6-0-Low--33.39-PASS

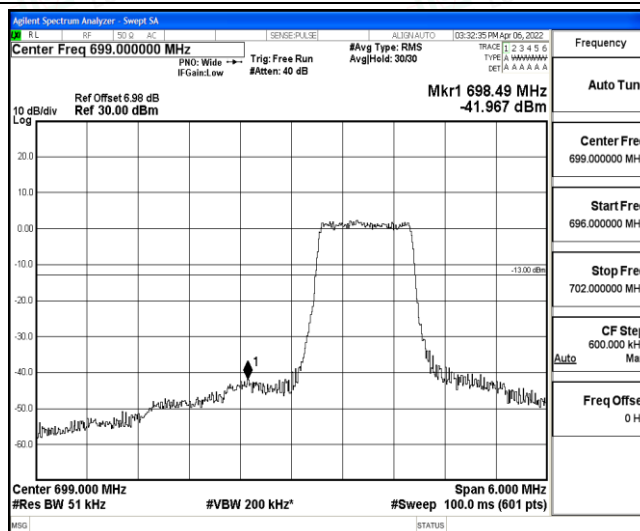


Band12-1.4MHz-16QAM-23017-6-0-Low--34.52-PASS

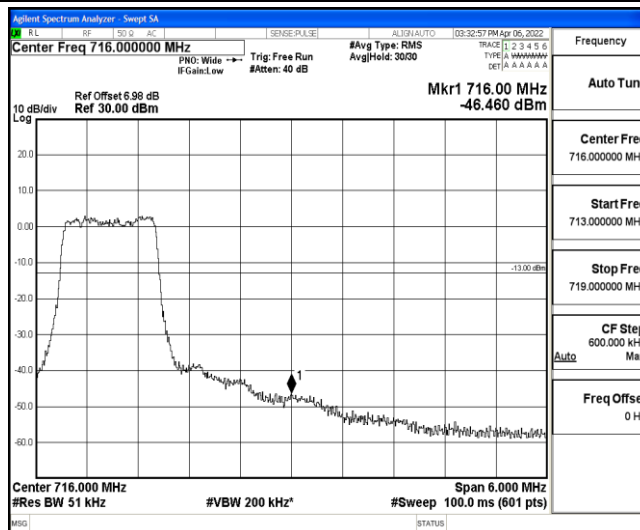


Band12-1.4MHz-16QAM-23173-6-0-Low--31.36-PASS

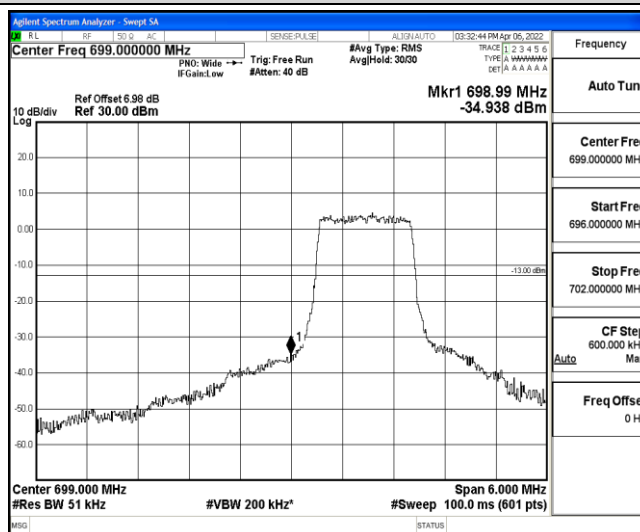




Band12-3MHz-QPSK-23025-6-0-Low--41.97-PASS



Band12-3MHz-QPSK-23165-6-0-Low--46.46-PASS



Band12-3MHz-16QAM-23025-6-0-Low--34.94-PASS

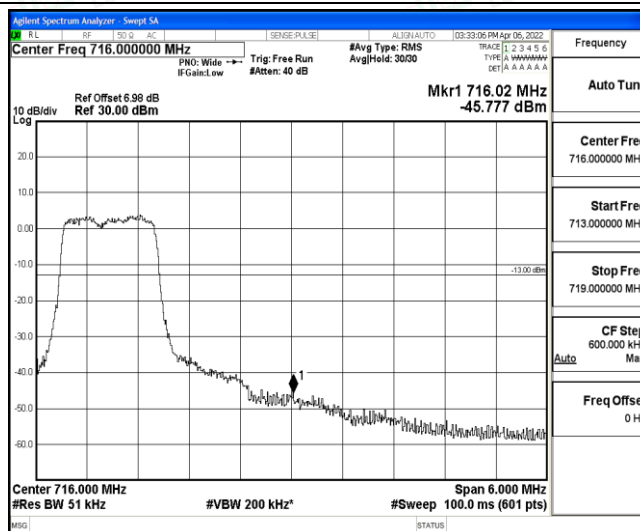


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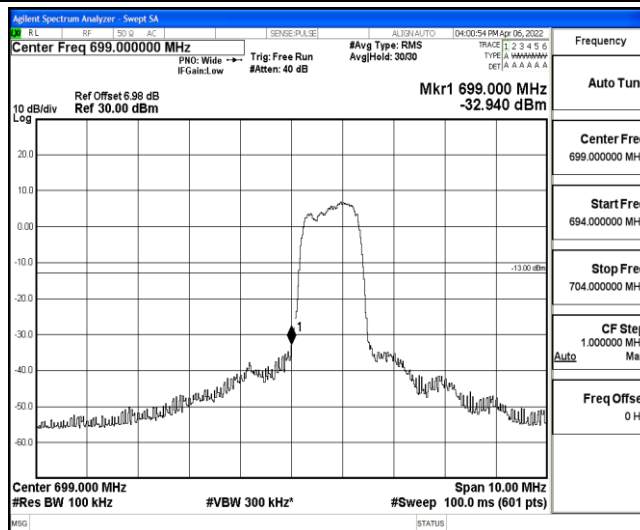
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

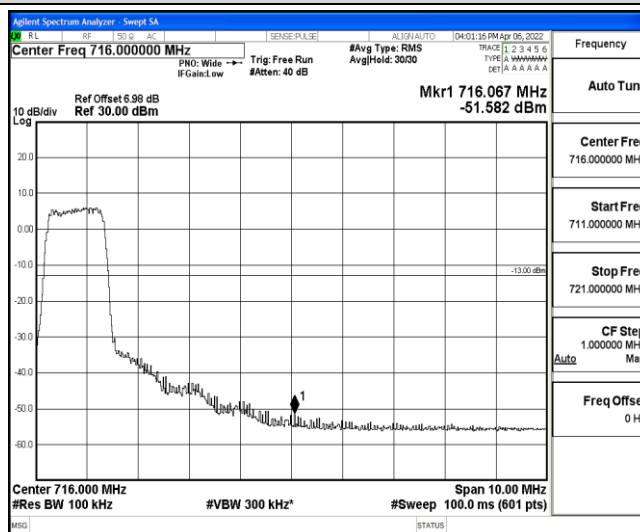
Scan code to check authenticity



Band12-3MHz-16QAM-23165-6-0-Low--45.78-PASS



Band12-5MHz-QPSK-23035-6-0-Low--32.94-PASS



Band12-5MHz-QPSK-23155-6-0-Low--51.58-PASS

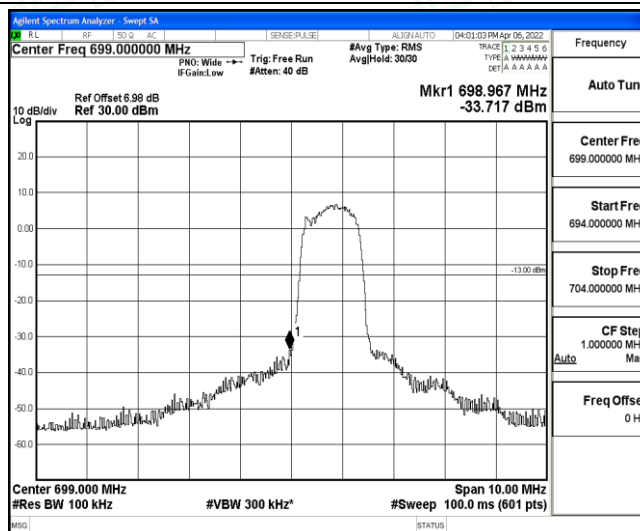


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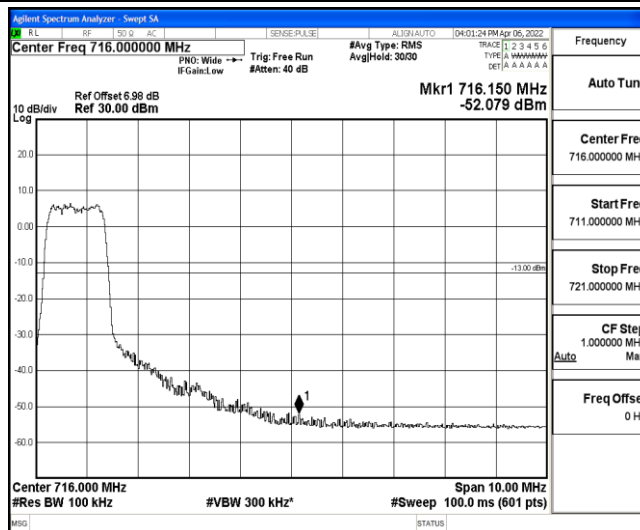
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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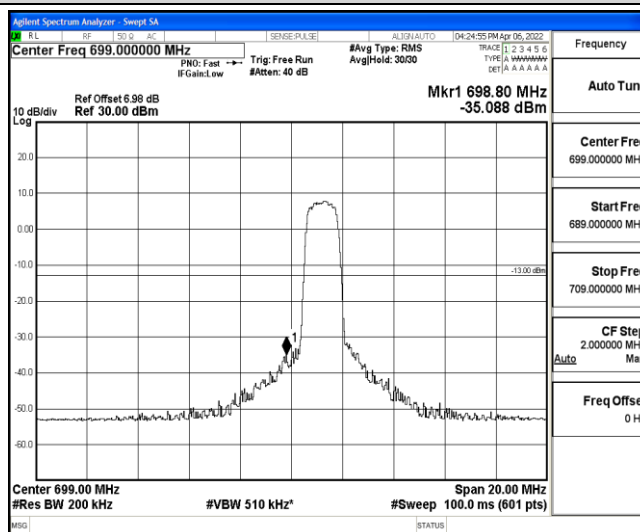
Scan code to check authenticity



Band12-5MHz-16QAM-23035-6-0-Low--33.72-PASS



Band12-5MHz-16QAM-23155-6-0-Low--52.08-PASS



Band12-10MHz-QPSK-23060-6-0-Low--35.09-PASS



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