

Appendix for Band 12

Product Name: Intelligent Two Way Radio
Model No: T640A

Appendix A: Average Power Output Data

Test Result

Channel Bandwidth: 1.4 MHz

Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
QPSK	LCH	1	0	23.20	PASS
		1	3	23.28	PASS
		1	5	23.17	PASS
		3	0	23.23	PASS
		3	2	23.27	PASS
		3	3	23.19	PASS
		6	0	22.31	PASS
	MCH	1	0	23.30	PASS
		1	3	23.43	PASS
		1	5	23.33	PASS
		3	0	23.41	PASS
		3	2	23.39	PASS
		3	3	23.41	PASS
		6	0	22.41	PASS
	HCH	1	0	23.53	PASS
		1	3	23.58	PASS
		1	5	23.45	PASS
		3	0	23.49	PASS
		3	2	23.56	PASS
		3	3	23.50	PASS
		6	0	22.72	PASS
16QAM	LCH	1	0	22.50	PASS
		1	3	22.63	PASS
		1	5	22.43	PASS
		3	0	22.44	PASS
		3	2	22.45	PASS
		3	3	22.45	PASS
		6	0	21.25	PASS
	MCH	1	0	22.75	PASS
		1	3	22.90	PASS
		1	5	22.80	PASS
		3	0	22.49	PASS
		3	2	22.52	PASS

		3	3	22.54	PASS
		6	0	21.36	PASS
	HCH	1	0	22.69	PASS
		1	3	22.76	PASS
		1	5	22.68	PASS
		3	0	22.57	PASS
		3	2	22.63	PASS
		3	3	22.58	PASS
		6	0	21.73	PASS

Channel Bandwidth: 3 MHz

Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
QPSK	LCH	1	0	23.23	PASS
		1	7	23.42	PASS
		1	14	23.27	PASS
		8	0	22.39	PASS
		8	4	22.42	PASS
		8	7	22.4	PASS
		15	0	22.39	PASS
	MCH	1	0	23.36	PASS
		1	7	23.65	PASS
		1	14	23.39	PASS
		8	0	22.5	PASS
		8	4	22.55	PASS
		8	7	22.5	PASS
		15	0	22.47	PASS
	HCH	1	0	23.64	PASS
		1	7	23.89	PASS
		1	14	23.56	PASS
		8	0	22.67	PASS
		8	4	22.77	PASS
		8	7	22.76	PASS
		15	0	22.65	PASS
16QAM	LCH	1	0	22.55	PASS
		1	7	22.73	PASS
		1	14	22.53	PASS
		8	0	21.38	PASS
		8	4	21.49	PASS
		8	7	21.38	PASS
		15	0	21.29	PASS

	MCH	1	0	22.79	PASS
		1	7	22.99	PASS
		1	14	22.89	PASS
		8	0	21.45	PASS
		8	4	21.52	PASS
		8	7	21.46	PASS
		15	0	21.42	PASS
	HCH	1	0	22.76	PASS
		1	7	22.96	PASS
		1	14	22.79	PASS
		8	0	21.48	PASS
		8	4	21.6	PASS
		8	7	21.57	PASS
		15	0	21.51	PASS

Channel Bandwidth: 5 MHz

Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
QPSK	LCH	1	0	23.17	PASS
		1	12	23.59	PASS
		1	24	23.23	PASS
		12	0	22.46	PASS
		12	6	22.42	PASS
		12	13	22.46	PASS
		25	0	22.48	PASS
	MCH	1	0	23.30	PASS
		1	12	23.73	PASS
		1	24	23.44	PASS
		12	0	22.40	PASS
		12	6	22.52	PASS
		12	13	22.40	PASS
		25	0	22.41	PASS
	HCH	1	0	23.56	PASS
		1	12	23.85	PASS
		1	24	23.53	PASS
		12	0	22.58	PASS
		12	6	22.69	PASS
		12	13	22.78	PASS
		25	0	22.68	PASS
16QAM	LCH	1	0	22.55	PASS
		1	12	22.77	PASS

		1	24	22.50	PASS
		12	0	21.49	PASS
		12	6	21.48	PASS
		12	13	21.47	PASS
		25	0	21.45	PASS
	MCH	1	0	22.60	PASS
		1	12	22.93	PASS
		1	24	22.75	PASS
		12	0	21.51	PASS
		12	6	21.63	PASS
		12	13	21.54	PASS
		25	0	21.39	PASS
	HCH	1	0	22.72	PASS
		1	12	22.97	PASS
		1	24	22.68	PASS
		12	0	21.52	PASS
		12	6	21.58	PASS
		12	13	21.70	PASS
		25	0	21.67	PASS

Channel Bandwidth: 10 MHz

Modulation	Channel	RB Configuration		Average Power [dBm]	Verdict
		Size	Offset		
QPSK	LCH	1	0	23.20	PASS
		1	24	23.40	PASS
		1	49	23.37	PASS
		25	0	22.41	PASS
		25	12	22.49	PASS
		25	25	22.64	PASS
		50	0	22.54	PASS
	MCH	1	0	23.32	PASS
		1	24	23.52	PASS
		1	49	23.91	PASS
		25	0	22.22	PASS
		25	12	22.51	PASS
		25	25	22.33	PASS
		50	0	22.26	PASS
	HCH	1	0	23.40	PASS
		1	24	23.65	PASS
		1	49	23.55	PASS
		25	0	22.83	PASS

		25	12	22.65	PASS
		25	25	22.87	PASS
		50	0	22.80	PASS
16QAM	LCH	1	0	22.56	PASS
		1	24	22.69	PASS
		1	49	22.72	PASS
		25	0	21.42	PASS
		25	12	21.38	PASS
		25	25	21.61	PASS
		50	0	21.52	PASS
	MCH	1	0	22.64	PASS
		1	24	23.00	PASS
		1	49	22.86	PASS
		25	0	21.23	PASS
		25	12	21.51	PASS
		25	25	21.32	PASS
		50	0	21.26	PASS
	HCH	1	0	22.71	PASS
		1	24	22.85	PASS
		1	49	22.70	PASS
		25	0	21.79	PASS
		25	12	21.61	PASS
		25	25	21.80	PASS
		50	0	21.77	PASS

Appendix B: Peak-to-Average Ratio

Test Result

Channel Bandwidth: 1.4 MHz

Channel Bandwidth: 1.4 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	LCH	1	0	4.21	<13	PASS
		1	3	4.05	<13	PASS
		1	5	3.98	<13	PASS
		3	0	4.04	<13	PASS
		3	2	4.04	<13	PASS
		3	3	3.97	<13	PASS
		6	0	4.87	<13	PASS
	MCH	1	0	3.83	<13	PASS
		1	3	3.8	<13	PASS
		1	5	3.94	<13	PASS
		3	0	3.82	<13	PASS
		3	2	3.89	<13	PASS
		3	3	3.91	<13	PASS
		6	0	4.62	<13	PASS
	HCH	1	0	3.32	<13	PASS
		1	3	3.34	<13	PASS
		1	5	3.47	<13	PASS
		3	0	3.31	<13	PASS
		3	2	3.28	<13	PASS
		3	3	3.44	<13	PASS
		6	0	4.09	<13	PASS
16QAM	LCH	1	0	5.1	<13	PASS
		1	3	4.96	<13	PASS
		1	5	5	<13	PASS
		3	0	5	<13	PASS
		3	2	4.96	<13	PASS
		3	3	4.8	<13	PASS
		6	0	5.78	<13	PASS
	MCH	1	0	4.81	<13	PASS
		1	3	4.78	<13	PASS
		1	5	4.87	<13	PASS

		3	0	4.76	<13	PASS
		3	2	4.79	<13	PASS
		3	3	4.87	<13	PASS
		6	0	5.61	<13	PASS
	HCH	1	0	4.34	<13	PASS
		1	3	4.13	<13	PASS
		1	5	4.39	<13	PASS
		3	0	4.06	<13	PASS
		3	2	4.05	<13	PASS
		3	3	4.14	<13	PASS
		6	0	4.98	<13	PASS

Channel Bandwidth: 3 MHz

Channel Bandwidth: 3 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	4.08	<13	PASS
		1	7	3.89	<13	PASS
		1	14	3.81	<13	PASS
		8	0	4.84	<13	PASS
		8	4	4.71	<13	PASS
		8	7	4.7	<13	PASS
		15	0	4.83	<13	PASS
	MCH	1	0	3.79	<13	PASS
		1	7	3.74	<13	PASS
		1	14	3.84	<13	PASS
		8	0	4.64	<13	PASS
		8	4	4.67	<13	PASS
		8	7	4.7	<13	PASS
		15	0	4.82	<13	PASS
	HCH	1	0	3.35	<13	PASS
		1	7	3.26	<13	PASS
		1	14	3.27	<13	PASS
		8	0	4.17	<13	PASS
		8	4	4.04	<13	PASS
		8	7	4.11	<13	PASS
		15	0	4.11	<13	PASS
16QAM	LCH	1	0	4.97	<13	PASS
		1	7	4.77	<13	PASS
		1	14	4.59	<13	PASS
		8	0	5.68	<13	PASS

		8	4	5.58	<13	PASS
		8	7	5.57	<13	PASS
		15	0	5.86	<13	PASS
	MCH	1	0	4.74	<13	PASS
		1	7	4.6	<13	PASS
		1	14	4.72	<13	PASS
		8	0	5.48	<13	PASS
		8	4	5.48	<13	PASS
		8	7	5.59	<13	PASS
		15	0	5.68	<13	PASS
	HCH	1	0	4.28	<13	PASS
		1	7	4.31	<13	PASS
		1	14	4.45	<13	PASS
		8	0	5.2	<13	PASS
		8	4	5.15	<13	PASS
		8	7	5.13	<13	PASS
		15	0	5.08	<13	PASS

Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	4.25	<13	PASS
		1	12	3.67	<13	PASS
		1	24	3.99	<13	PASS
		12	0	4.89	<13	PASS
		12	6	4.71	<13	PASS
		12	13	4.67	<13	PASS
		25	0	4.78	<13	PASS
	MCH	1	0	4.01	<13	PASS
		1	12	3.86	<13	PASS
		1	24	4.12	<13	PASS
		12	0	4.69	<13	PASS
		12	6	4.67	<13	PASS
		12	13	4.76	<13	PASS
		25	0	4.79	<13	PASS
	HCH	1	0	3.78	<13	PASS
		1	12	3.15	<13	PASS
		1	24	3.43	<13	PASS
		12	0	4.43	<13	PASS
		12	6	4.25	<13	PASS

16QAM		12	13	4.17	<13	PASS
		25	0	4.34	<13	PASS
	LCH	1	0	5.08	<13	PASS
		1	12	4.72	<13	PASS
		1	24	4.71	<13	PASS
		12	0	5.85	<13	PASS
		12	6	5.69	<13	PASS
		12	13	5.55	<13	PASS
		25	0	5.62	<13	PASS
	MCH	1	0	4.78	<13	PASS
		1	12	4.75	<13	PASS
		1	24	4.98	<13	PASS
		12	0	5.62	<13	PASS
		12	6	5.58	<13	PASS
		12	13	5.64	<13	PASS
		25	0	5.68	<13	PASS
	HCH	1	0	4.59	<13	PASS
		1	12	4.18	<13	PASS
		1	24	4.43	<13	PASS
		12	0	5.32	<13	PASS
		12	6	5.17	<13	PASS
		12	13	5.06	<13	PASS
		25	0	5.2	<13	PASS

Channel Bandwidth: 10 MHz

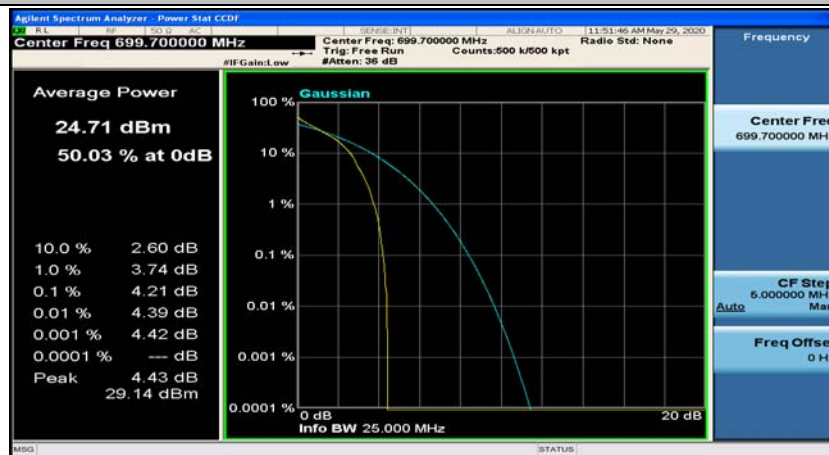
Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	4.07	<13	PASS
		1	24	3.74	<13	PASS
		1	49	3.95	<13	PASS
		25	0	4.78	<13	PASS
		25	12	4.65	<13	PASS
		25	25	4.67	<13	PASS
		50	0	4.86	<13	PASS
	MCH	1	0	3.56	<13	PASS
		1	24	3.74	<13	PASS
		1	49	3.41	<13	PASS
		25	0	4.69	<13	PASS
		25	12	4.79	<13	PASS
		25	25	4.71	<13	PASS

		50	0	4.77	<13	PASS
	HCH	1	0	3.84	<13	PASS
		1	24	3.7	<13	PASS
		1	49	3.32	<13	PASS
		25	0	4.61	<13	PASS
		25	12	4.53	<13	PASS
		25	25	4.26	<13	PASS
		50	0	4.62	<13	PASS
16QAM	LCH	1	0	4.89	<13	PASS
		1	24	4.62	<13	PASS
		1	49	4.87	<13	PASS
		25	0	5.73	<13	PASS
		25	12	5.65	<13	PASS
		25	25	5.67	<13	PASS
		50	0	5.72	<13	PASS
	MCH	1	0	4.59	<13	PASS
		1	24	4.66	<13	PASS
		1	49	4.41	<13	PASS
		25	0	5.63	<13	PASS
		25	12	5.65	<13	PASS
		25	25	5.65	<13	PASS
		50	0	5.67	<13	PASS
	HCH	1	0	4.75	<13	PASS
		1	24	4.55	<13	PASS
		1	49	4.22	<13	PASS
		25	0	5.64	<13	PASS
		25	12	5.56	<13	PASS
		25	25	5.3	<13	PASS
		50	0	5.53	<13	PASS

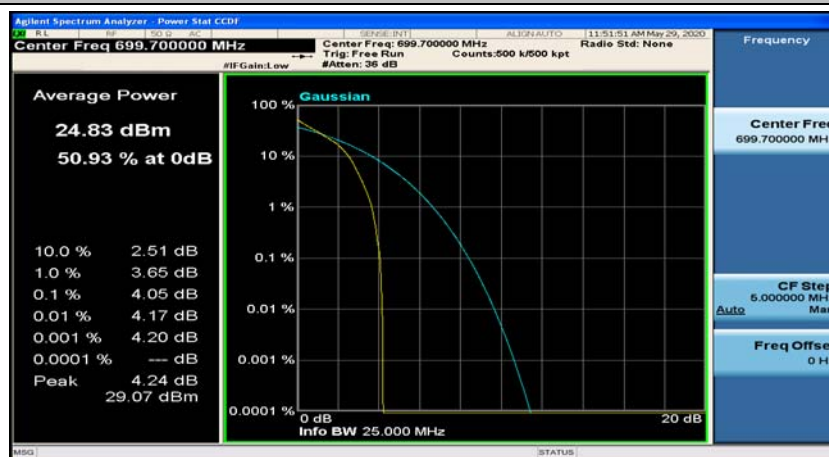
Test Graphs

Channel Bandwidth: 1.4 MHz

(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#0



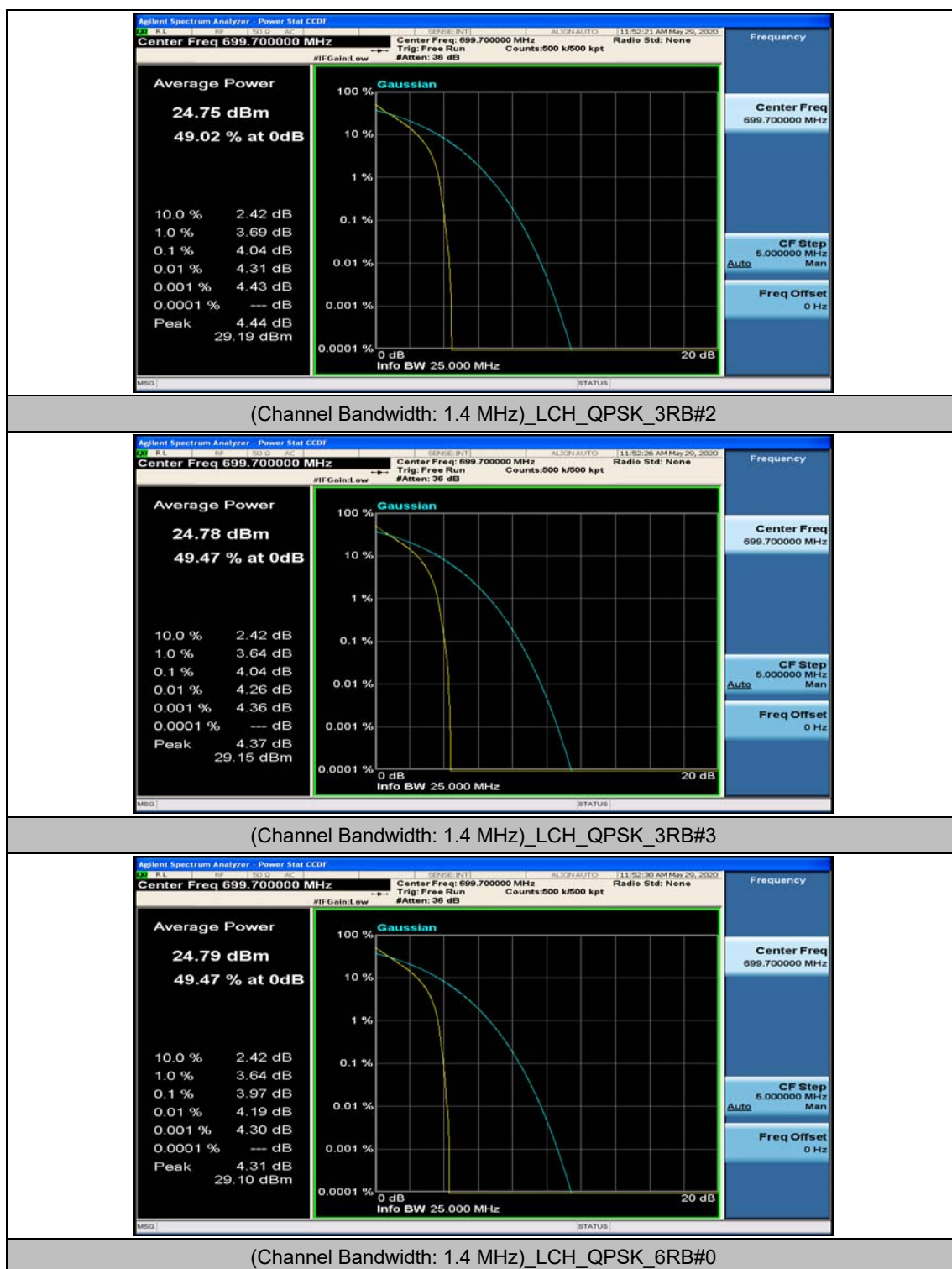
(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#3



(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#5



(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_3RB#0





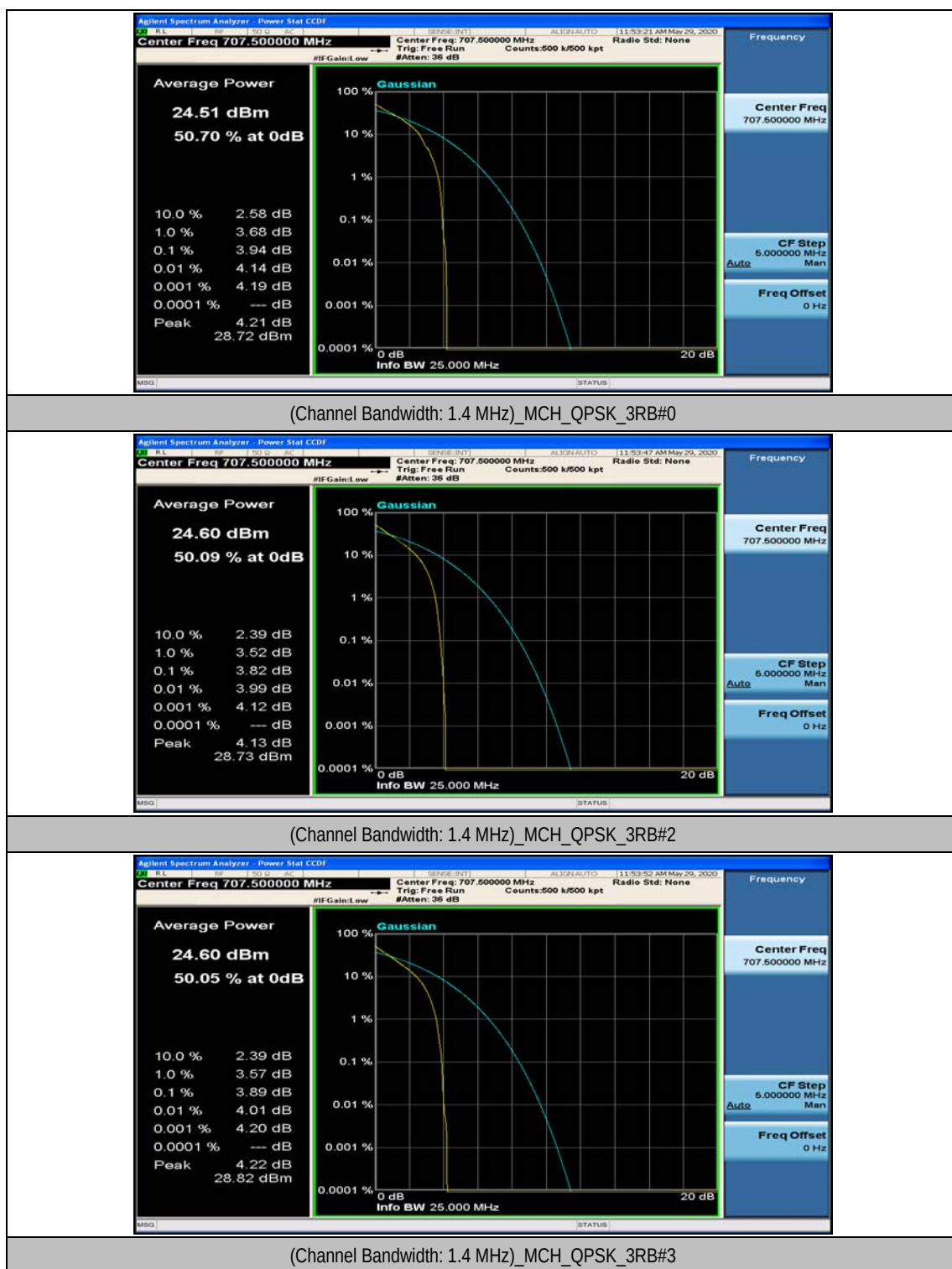
(Channel Bandwidth: 1.4 MHz)_MCH_QPSK_1RB#0

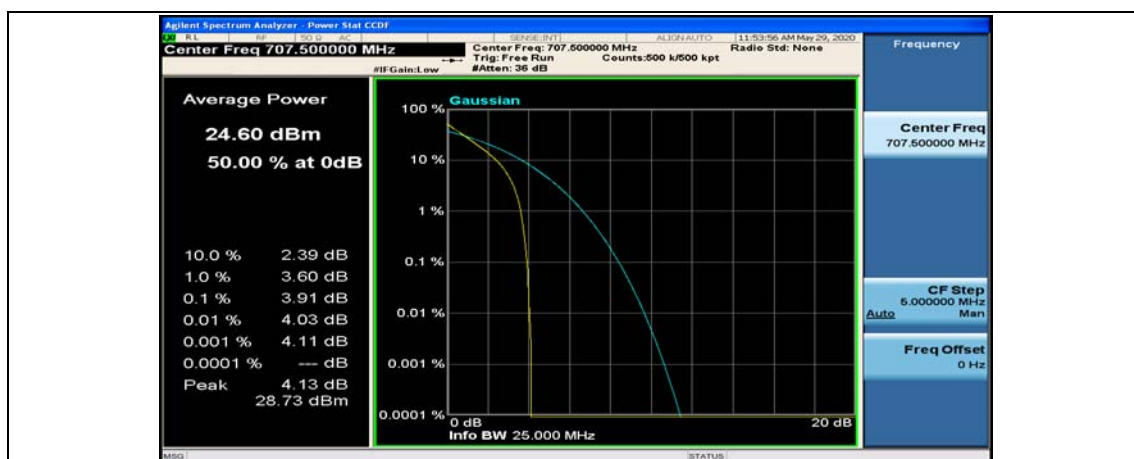


(Channel Bandwidth: 1.4 MHz)_MCH_QPSK_1RB#3

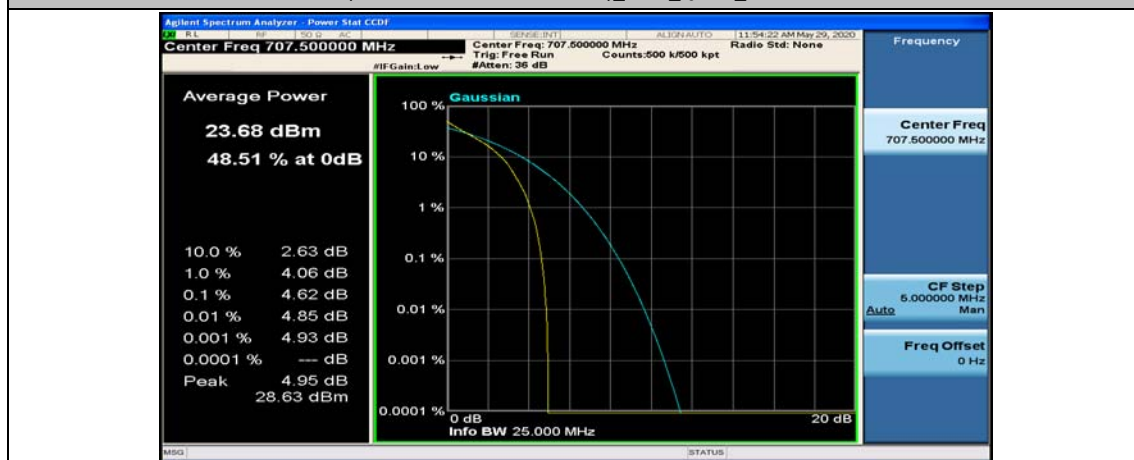


(Channel Bandwidth: 1.4 MHz)_MCH_QPSK_1RB#5

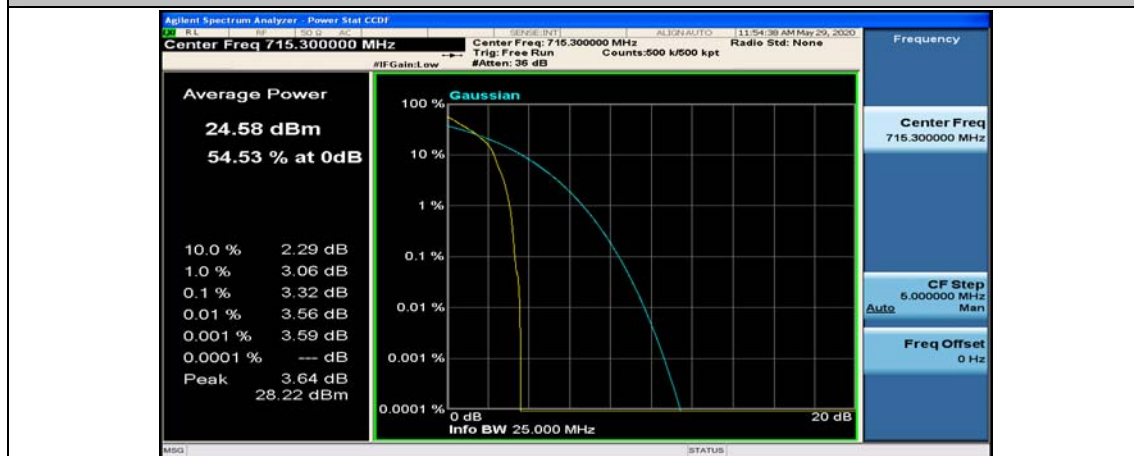




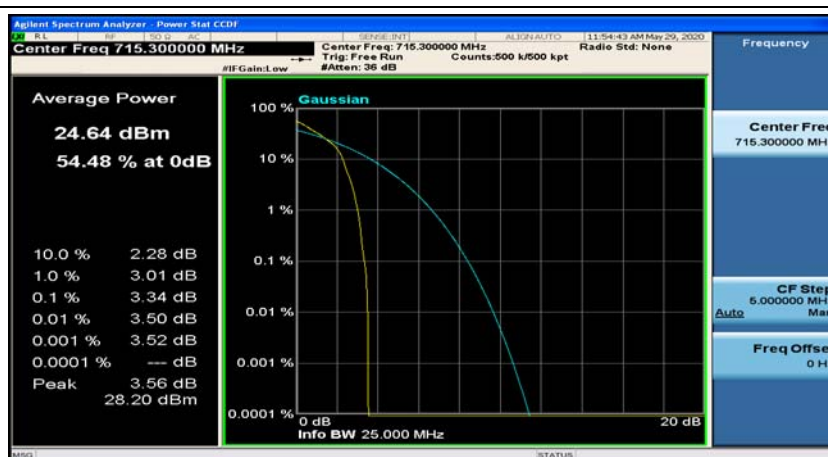
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(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#0



(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#3



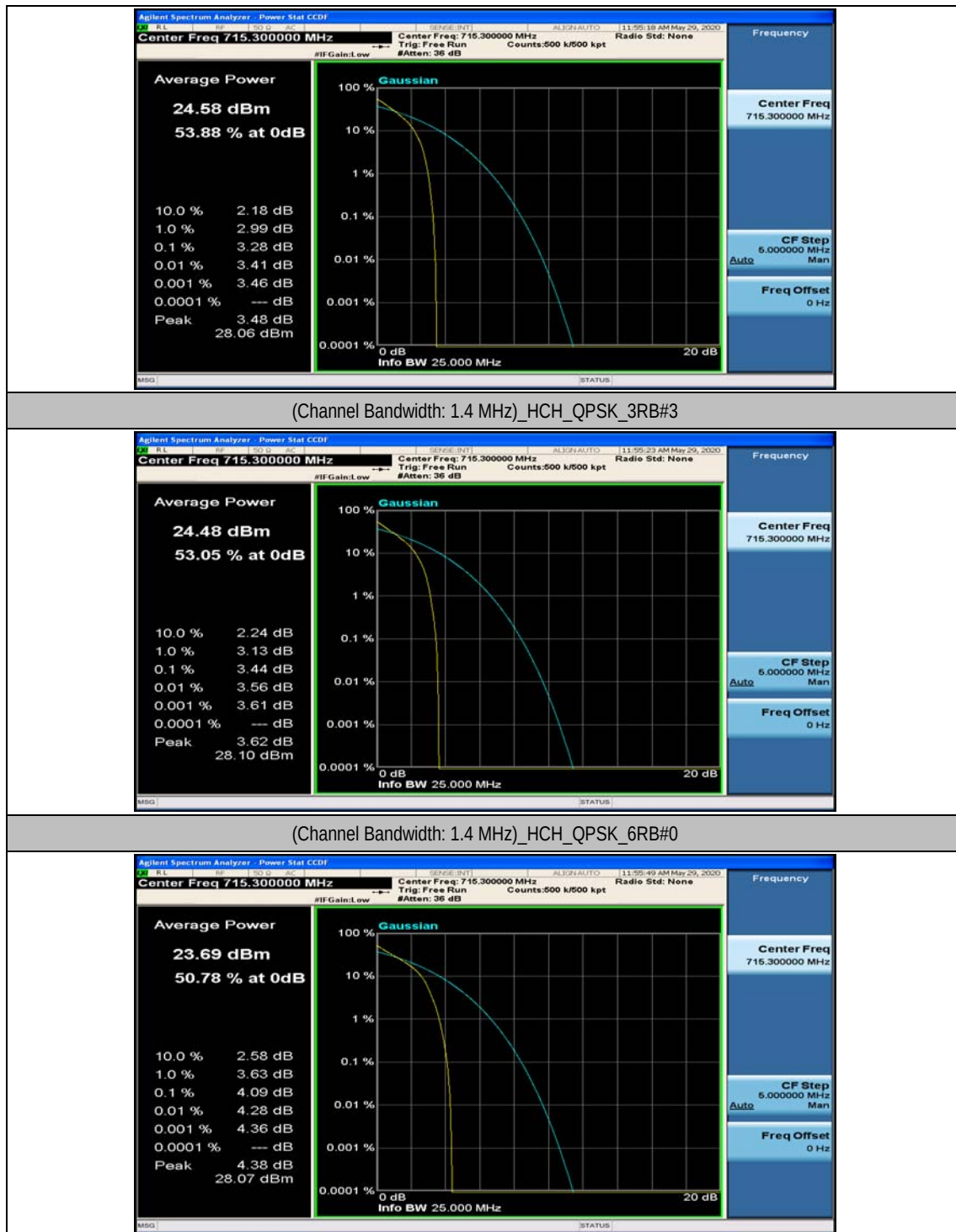
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(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_3RB#0



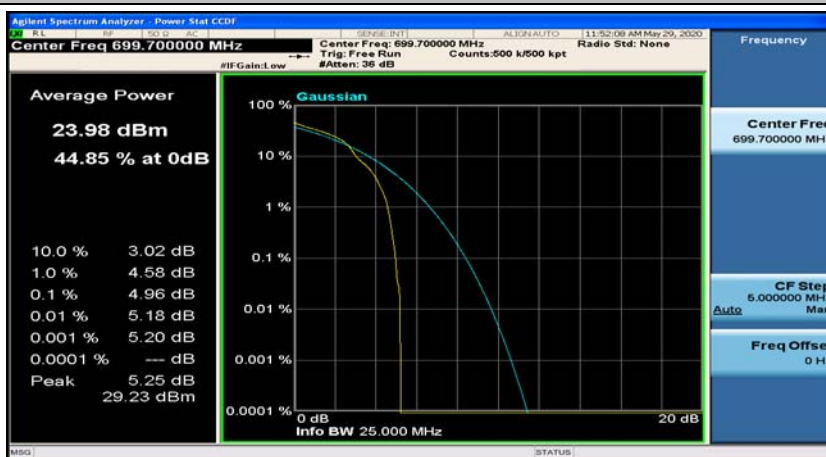
(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_3RB#2



(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_1RB#0



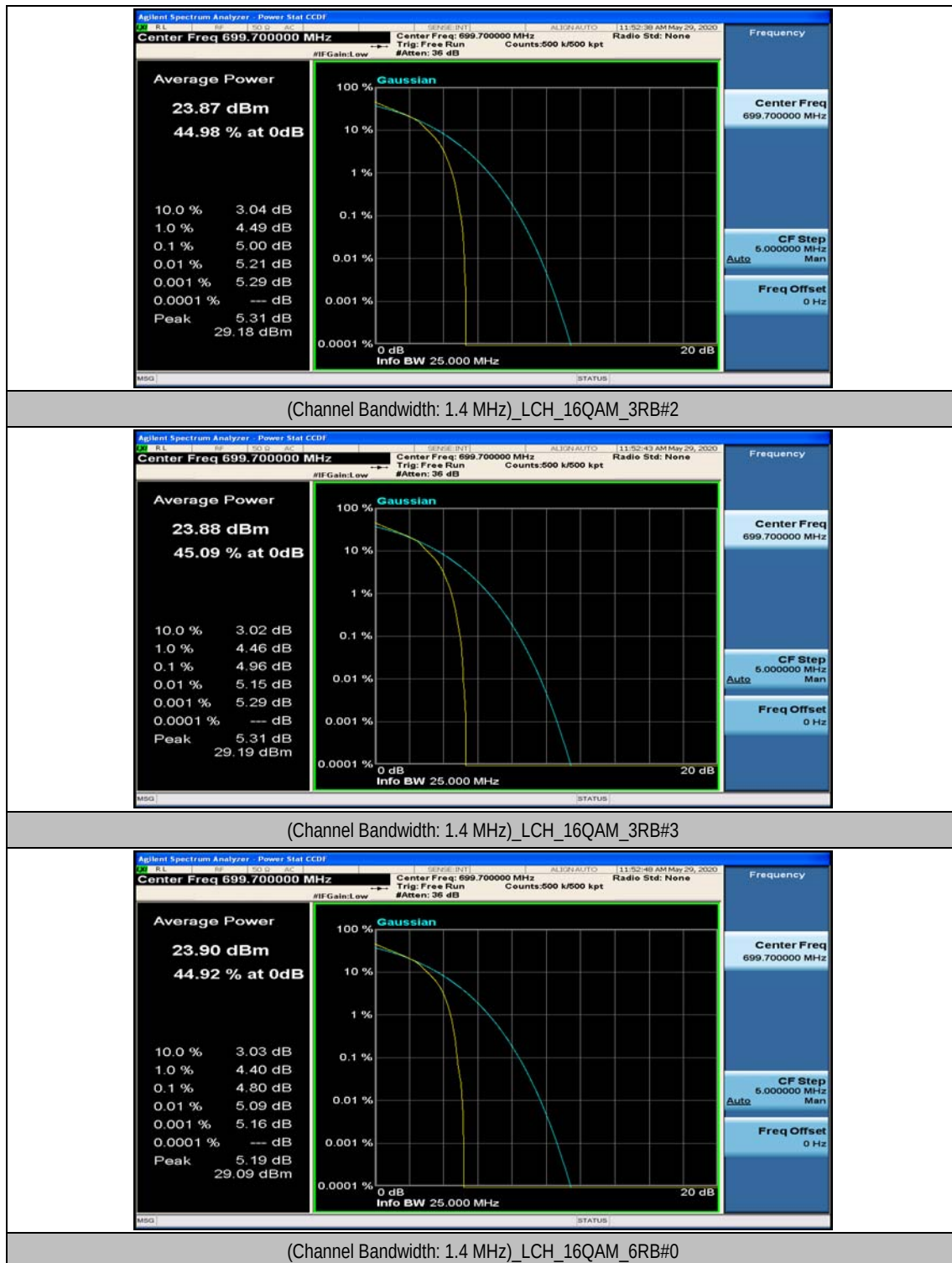
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(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_1RB#5



(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_3RB#0





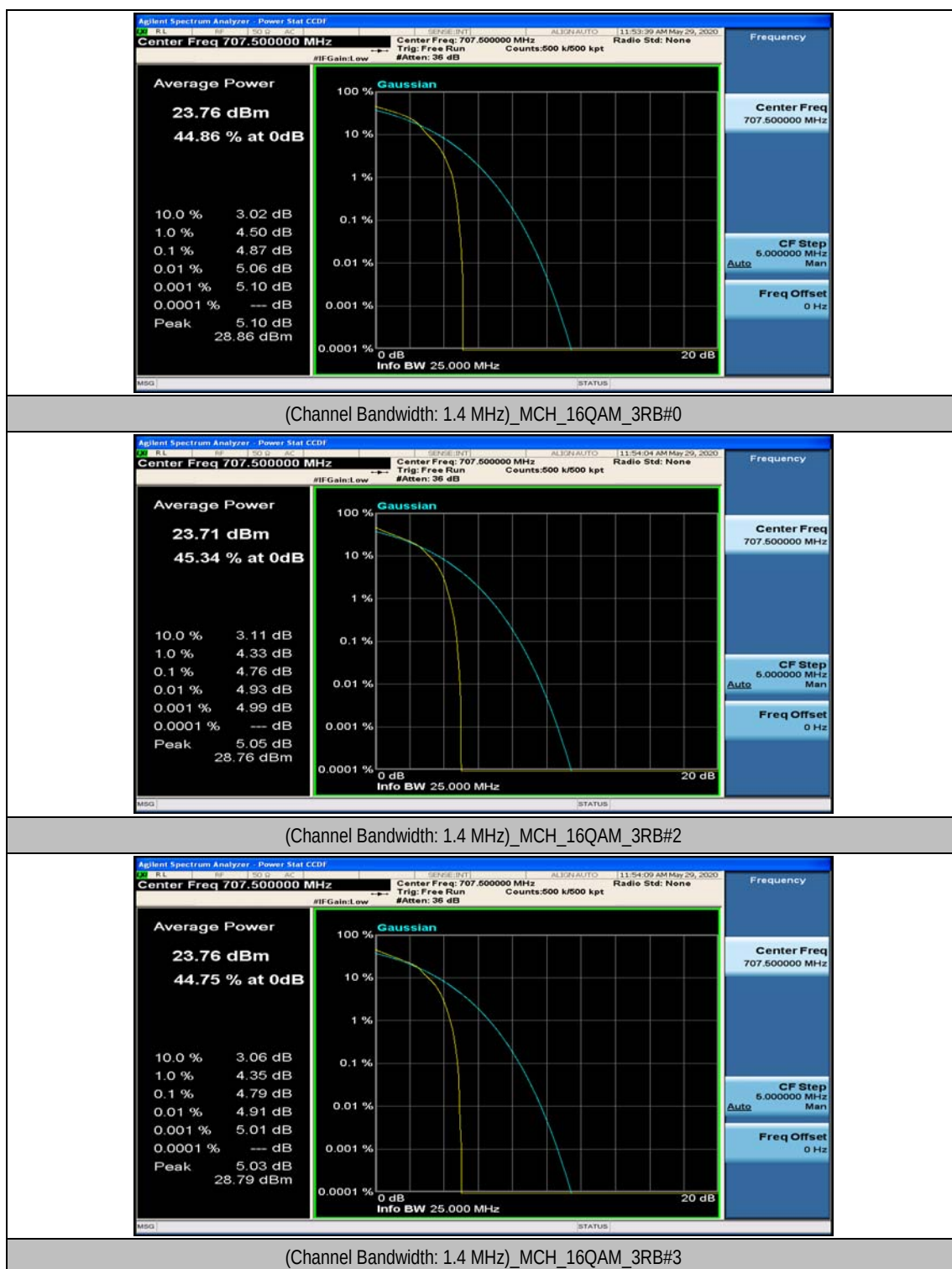
(Channel Bandwidth: 1.4 MHz)_MCH_16QAM_1RB#0

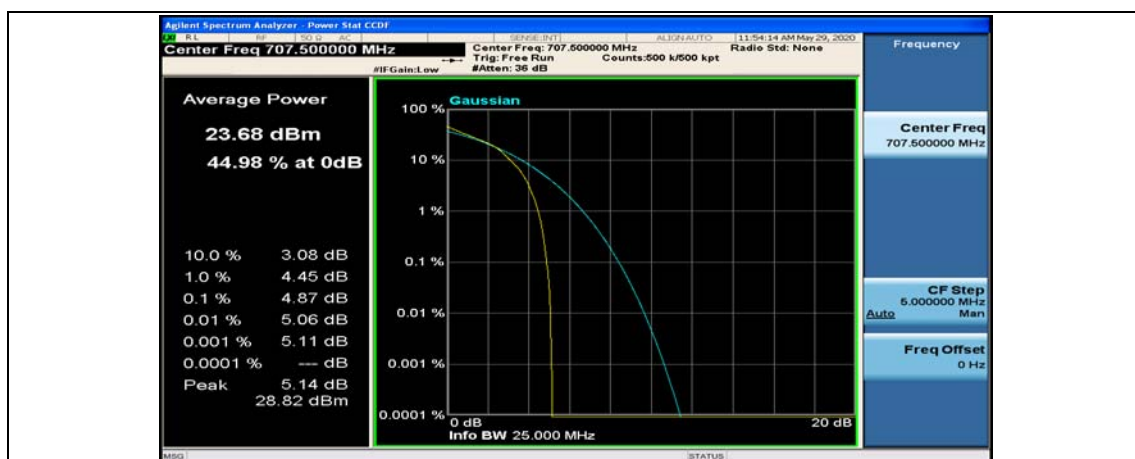


(Channel Bandwidth: 1.4 MHz)_MCH_16QAM_1RB#3

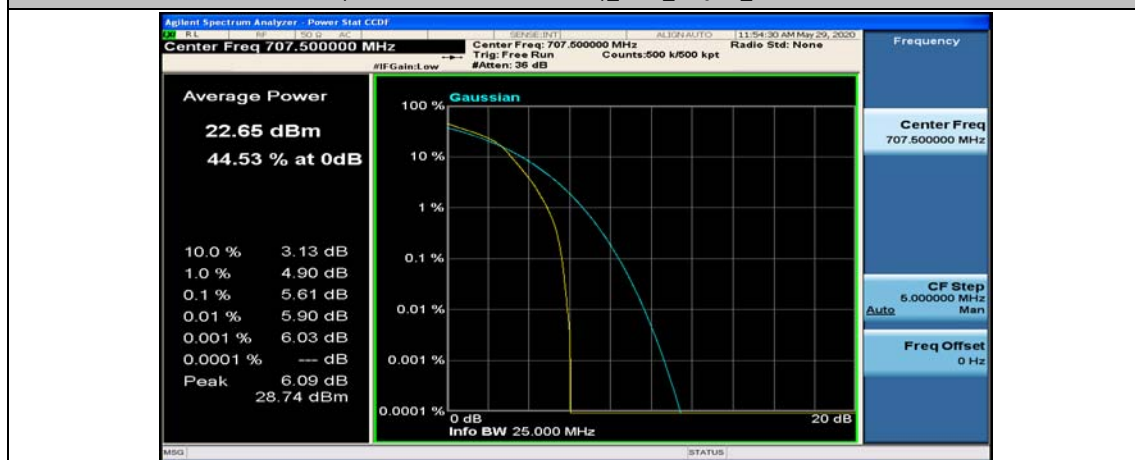


(Channel Bandwidth: 1.4 MHz)_MCH_16QAM_1RB#5





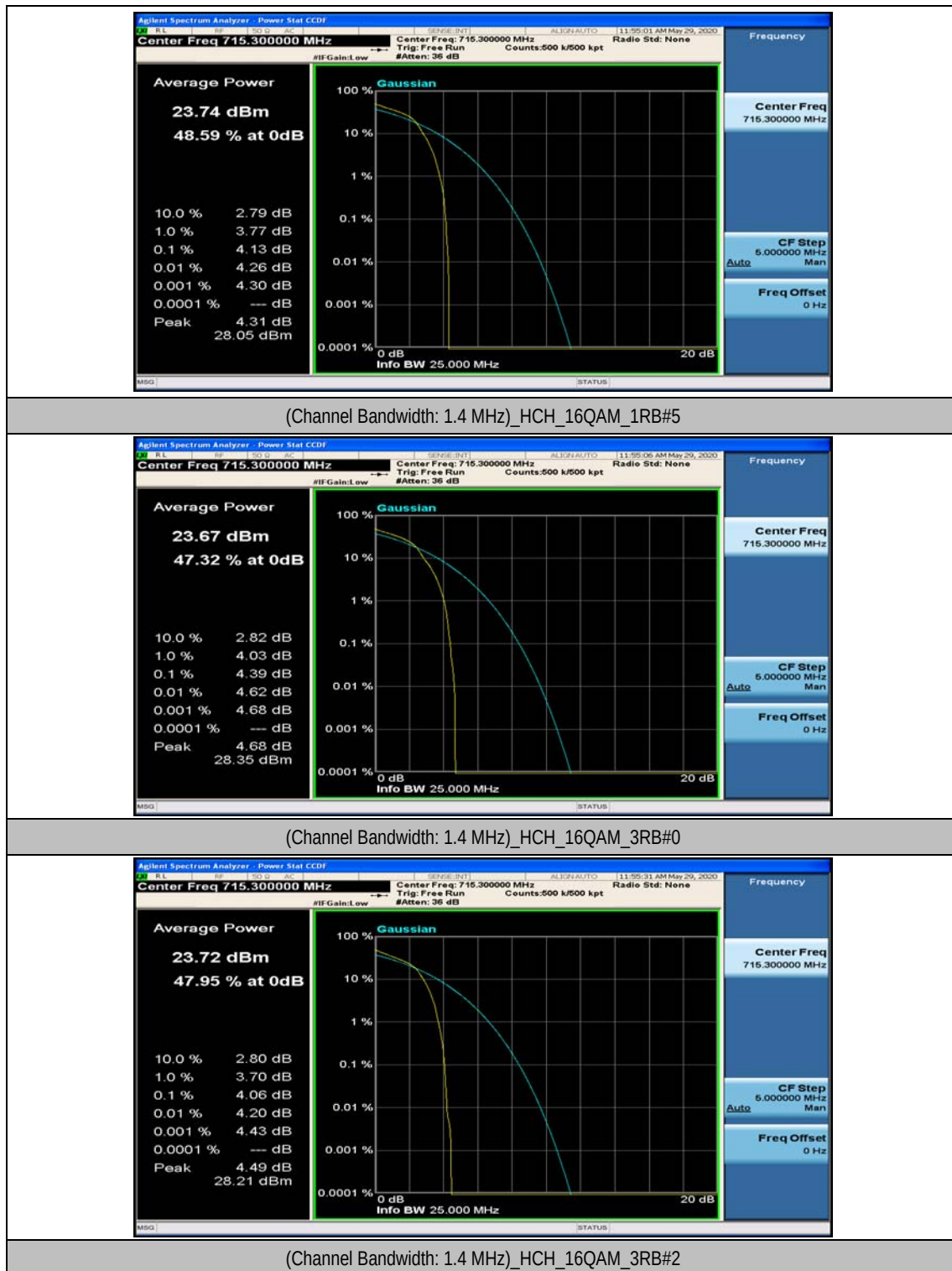
(Channel Bandwidth: 1.4 MHz)_MCH_16QAM_6RB#0

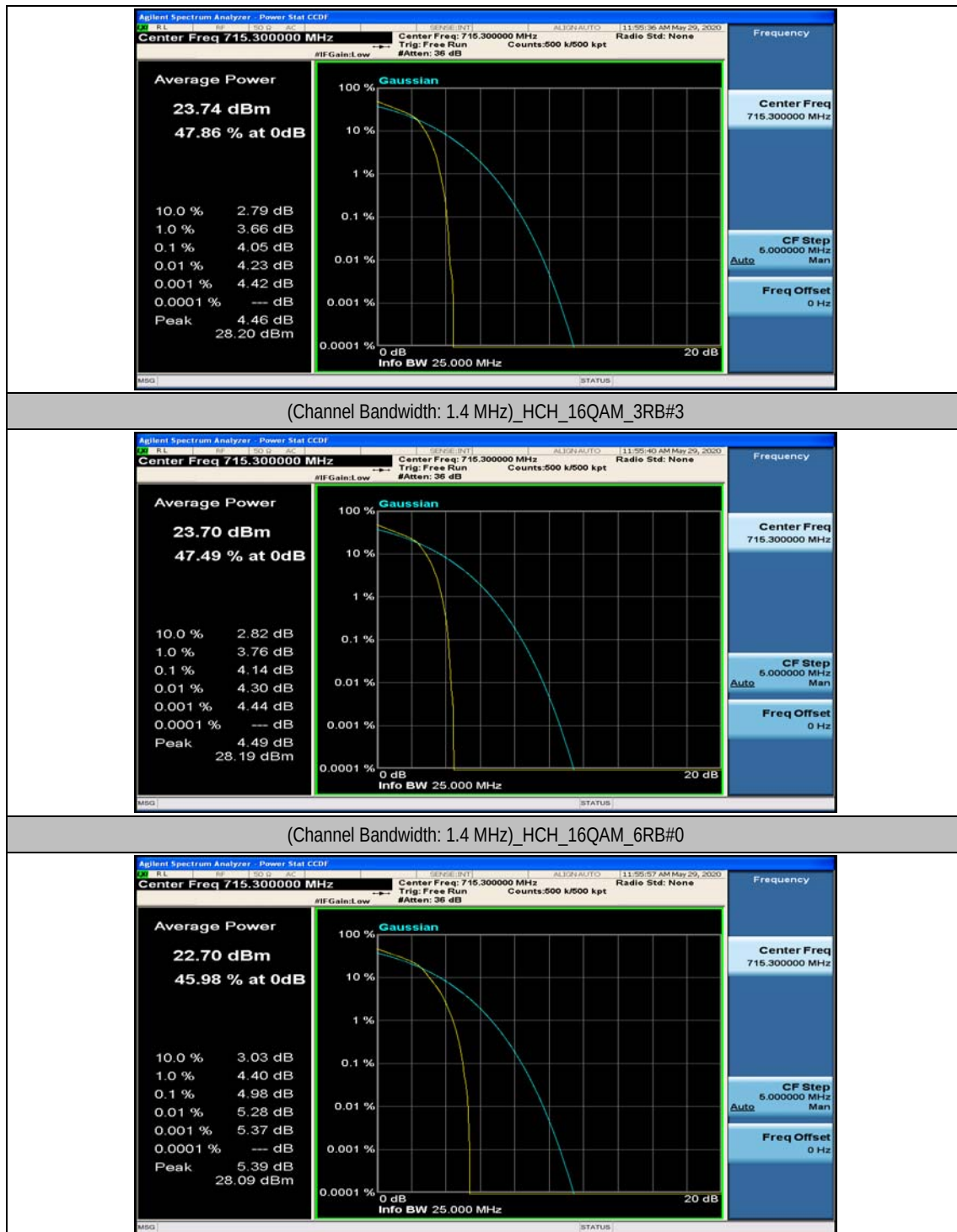


(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_1RB#0



(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_1RB#3





Channel Bandwidth: 3 MHz

(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#0



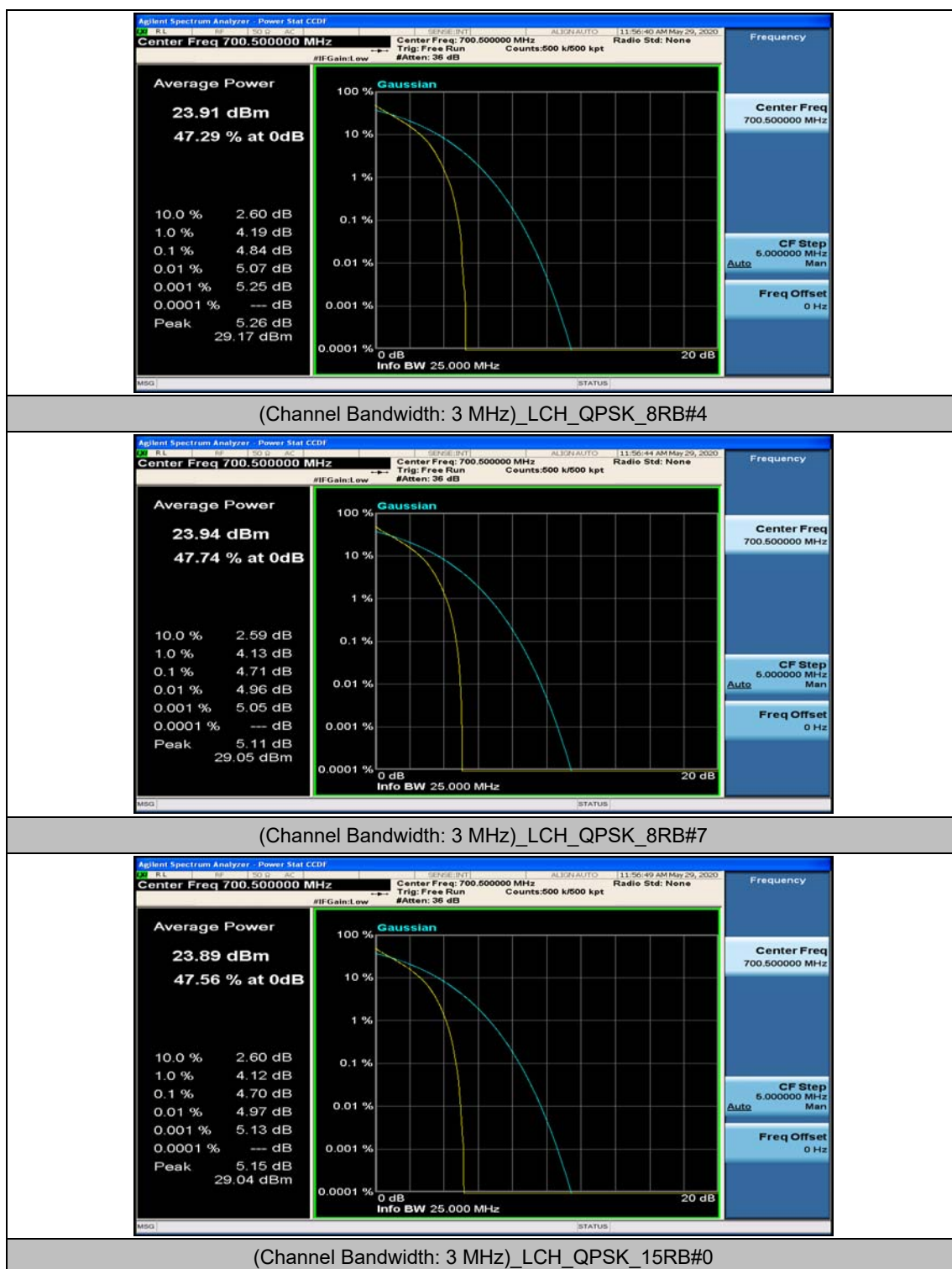
(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#7



(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#14



(Channel Bandwidth: 3 MHz)_LCH_QPSK_8RB#0





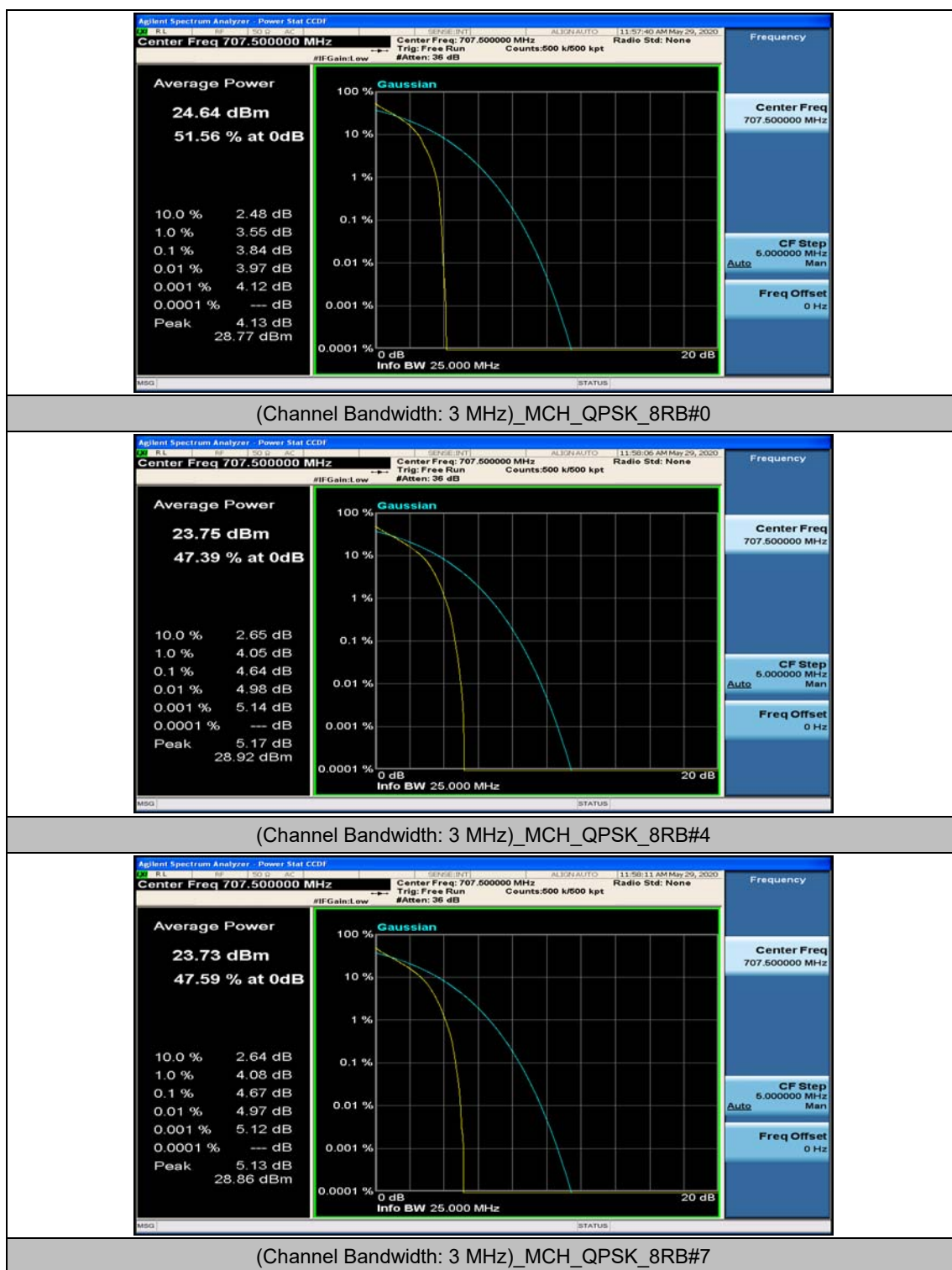
(Channel Bandwidth: 3 MHz)_MCH_QPSK_1RB#0

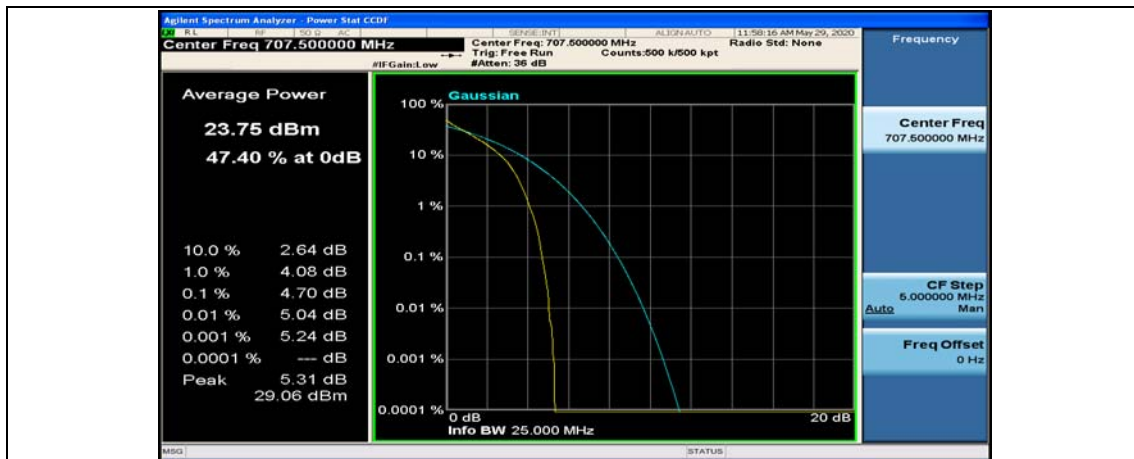


(Channel Bandwidth: 3 MHz)_MCH_QPSK_1RB#7

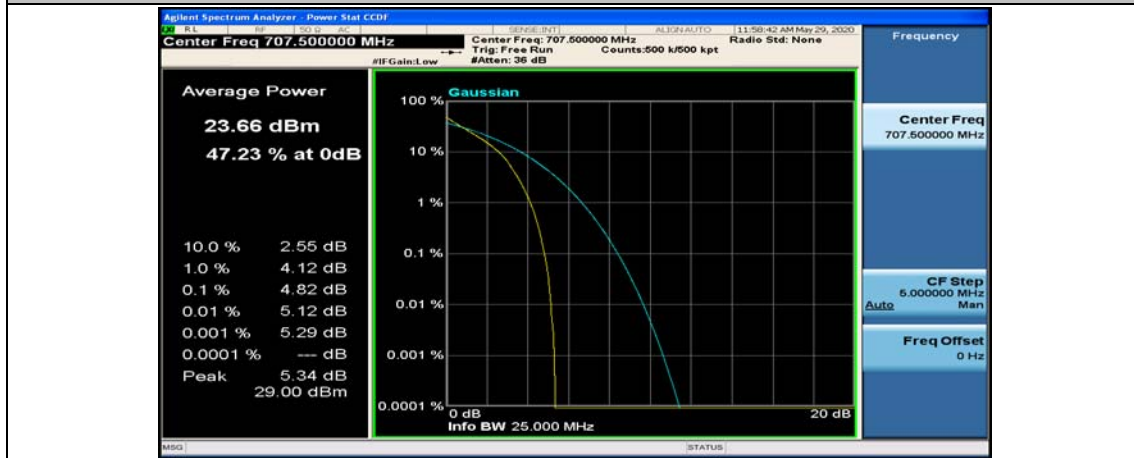


(Channel Bandwidth: 3 MHz)_MCH_QPSK_1RB#14





(Channel Bandwidth: 3 MHz)_MCH_QPSK_15RB#0



(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#0



(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#7



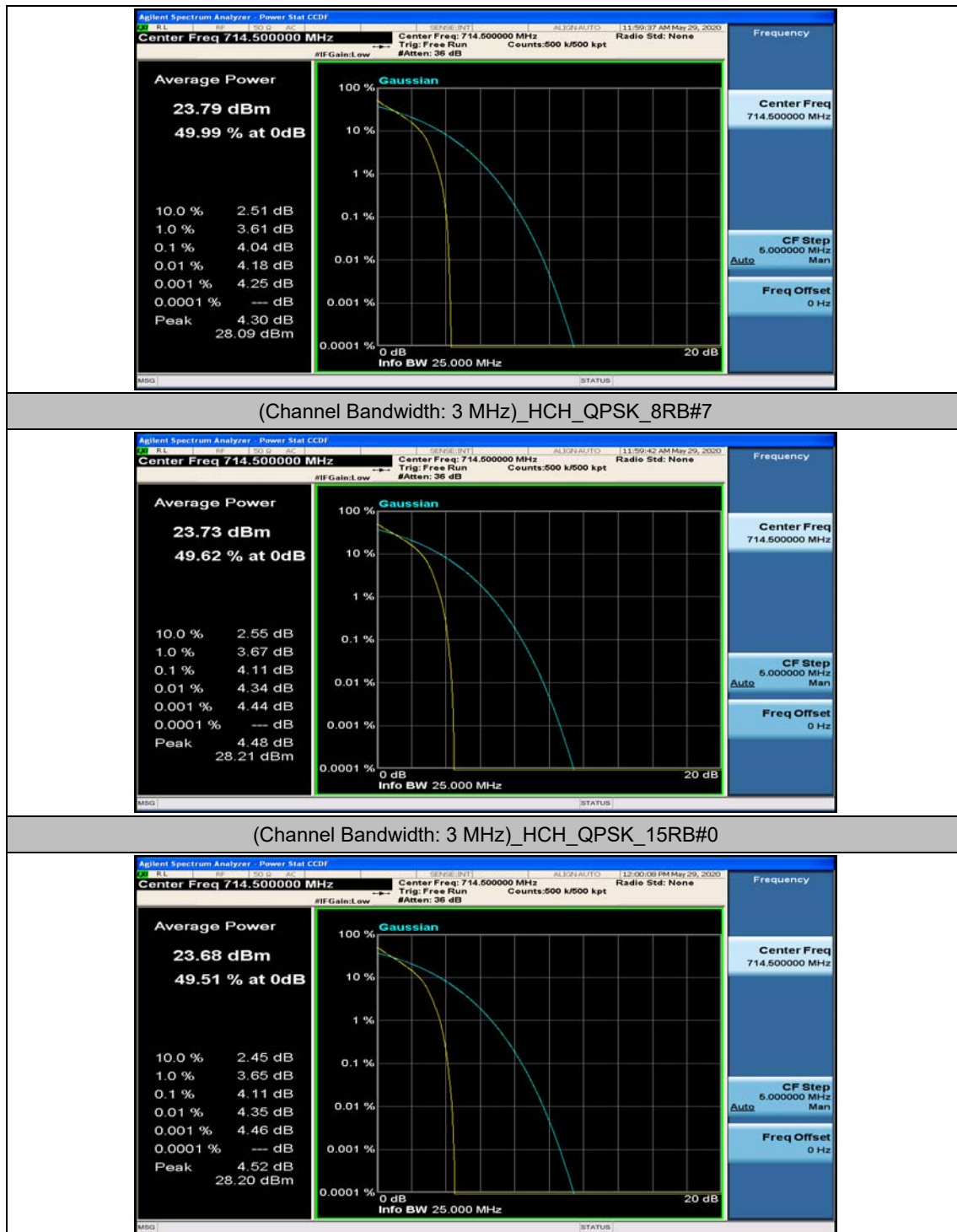
(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#14



(Channel Bandwidth: 3 MHz)_HCH_QPSK_8RB#0



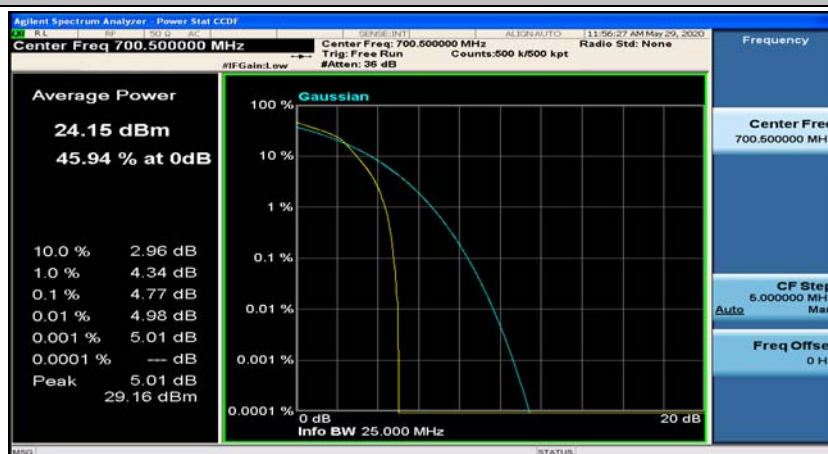
(Channel Bandwidth: 3 MHz)_HCH_QPSK_8RB#4



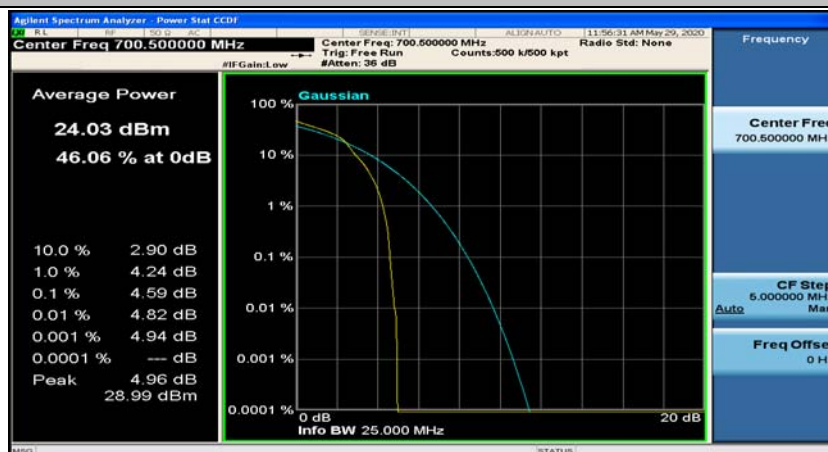
(Channel Bandwidth: 3 MHz)_LCH_16QAM_1RB#0



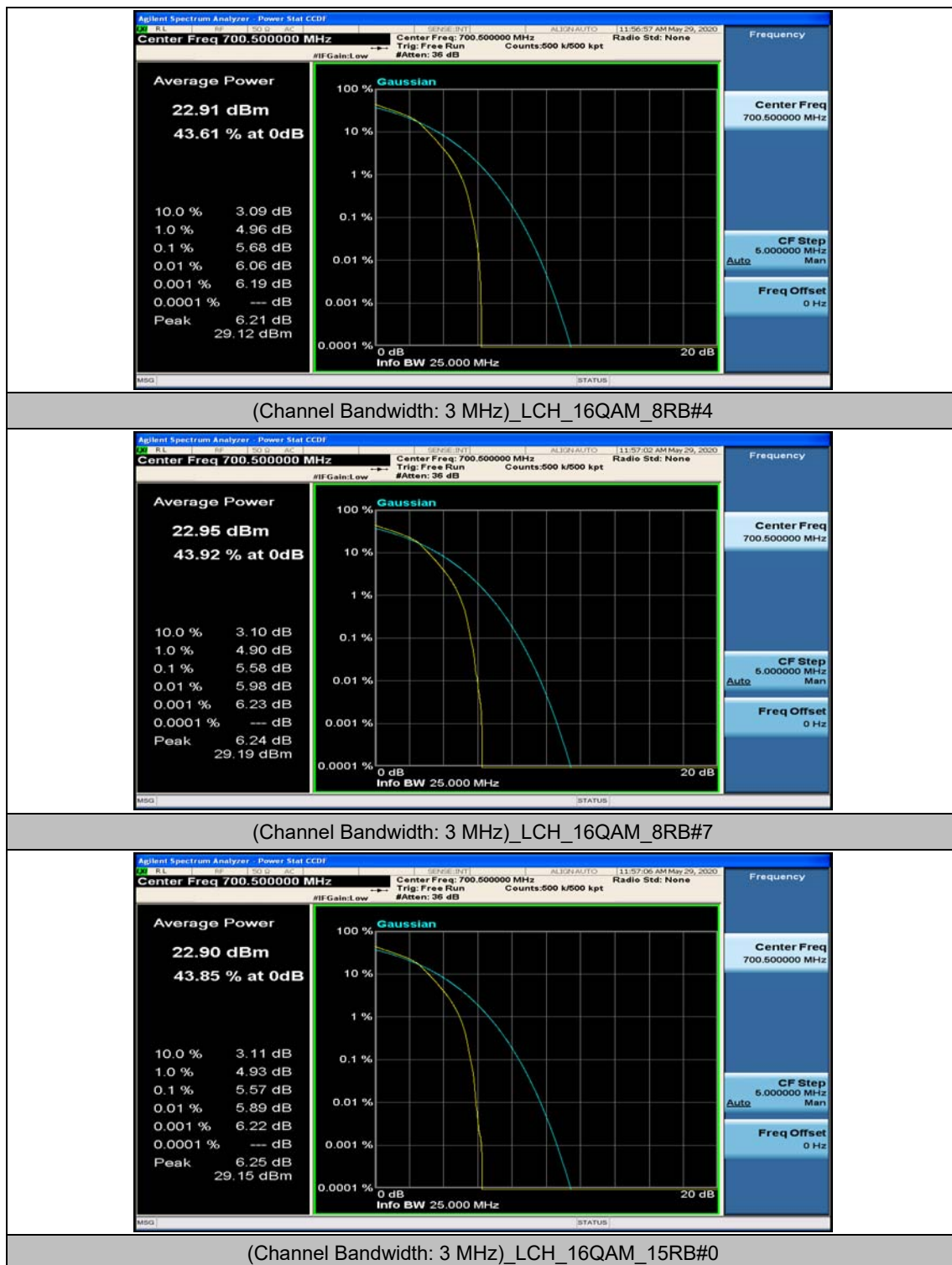
(Channel Bandwidth: 3 MHz)_LCH_16QAM_1RB#7



(Channel Bandwidth: 3 MHz)_LCH_16QAM_1RB#14



(Channel Bandwidth: 3 MHz)_LCH_16QAM_8RB#0

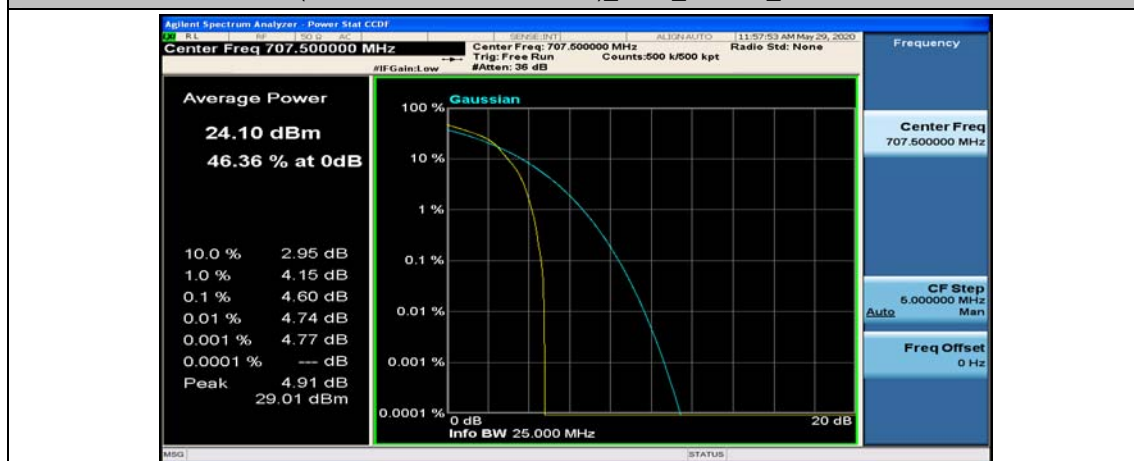




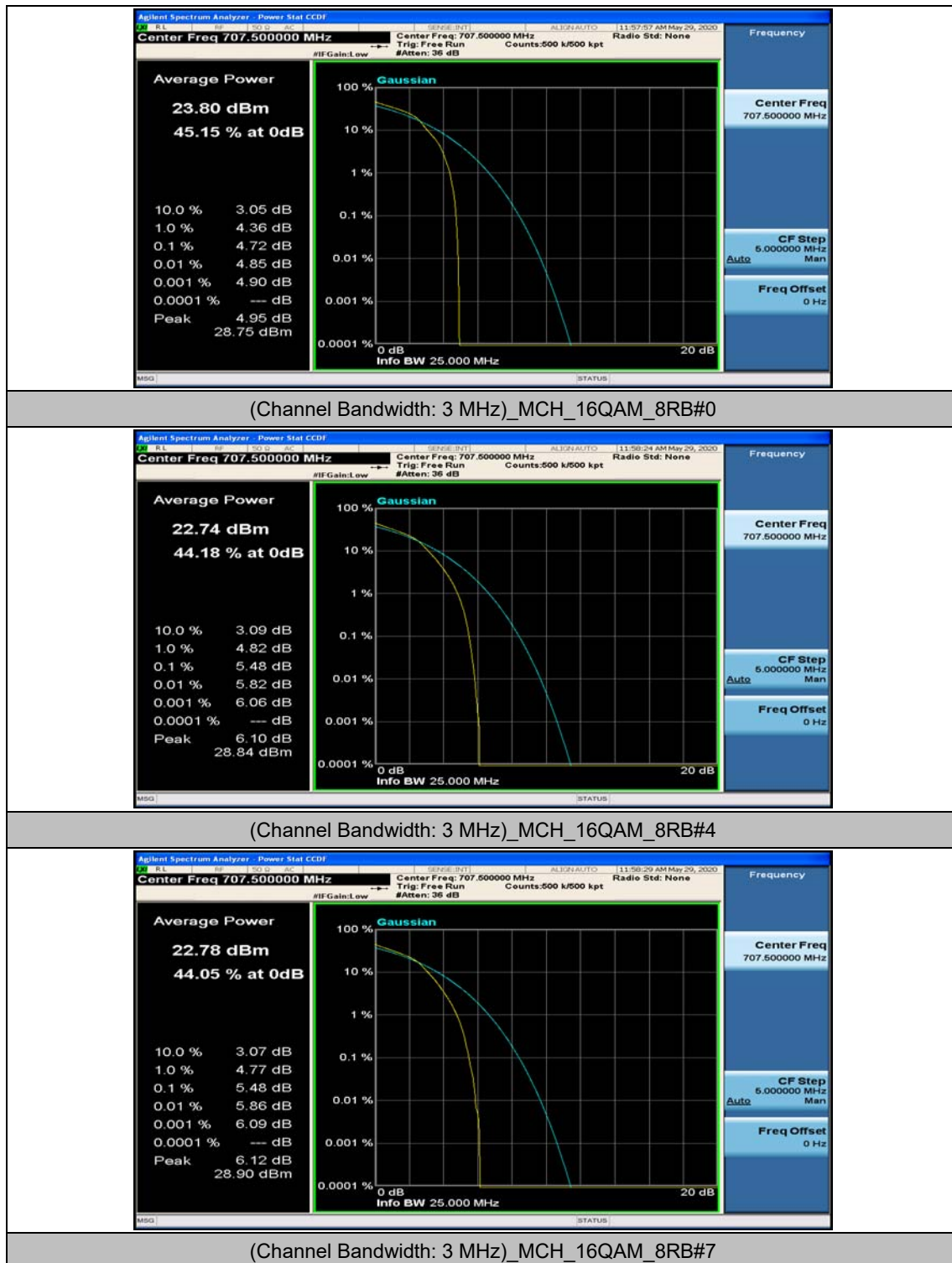
(Channel Bandwidth: 3 MHz)_MCH_16QAM_1RB#0

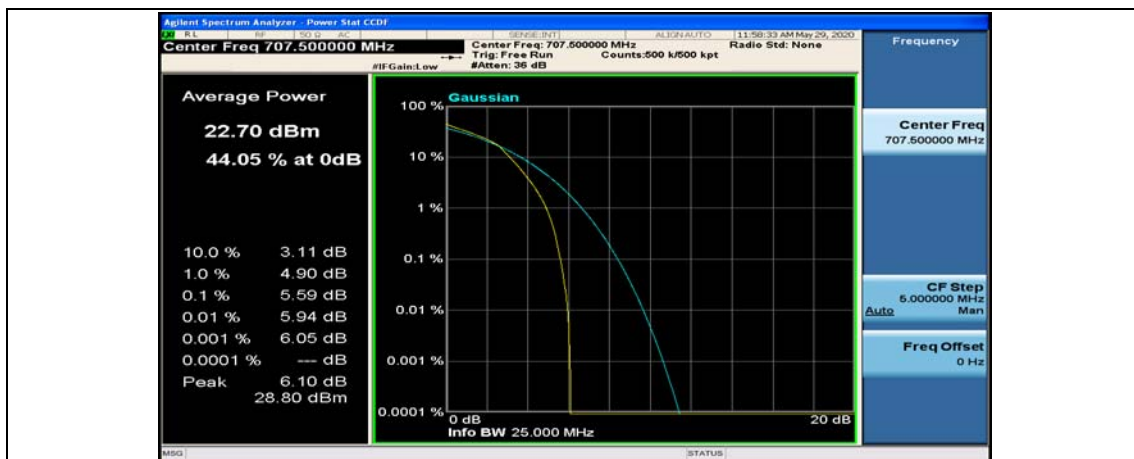


(Channel Bandwidth: 3 MHz)_MCH_16QAM_1RB#7



(Channel Bandwidth: 3 MHz)_MCH_16QAM_1RB#14





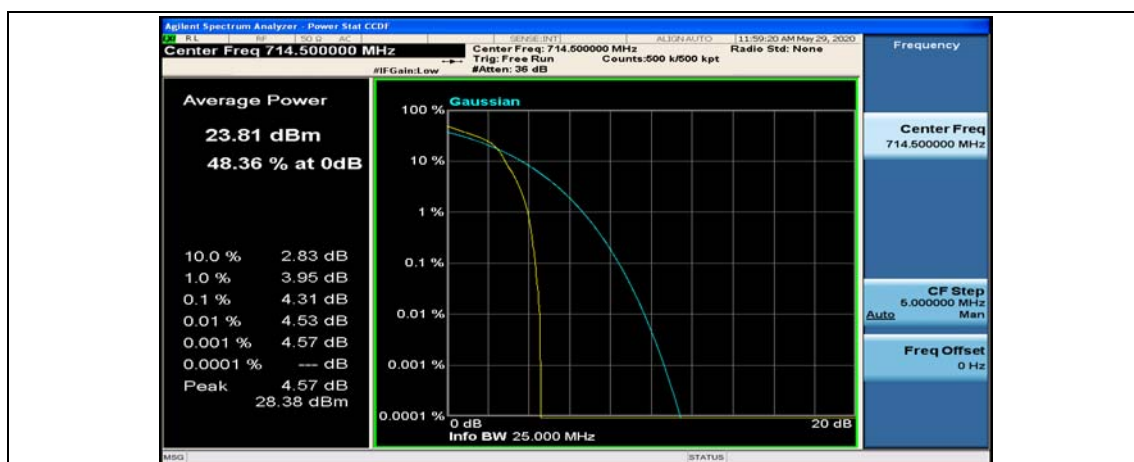
(Channel Bandwidth: 3 MHz)_MCH_16QAM_15RB#0



(Channel Bandwidth: 3 MHz)_HCH_16QAM_1RB#0



(Channel Bandwidth: 3 MHz)_HCH_16QAM_1RB#7



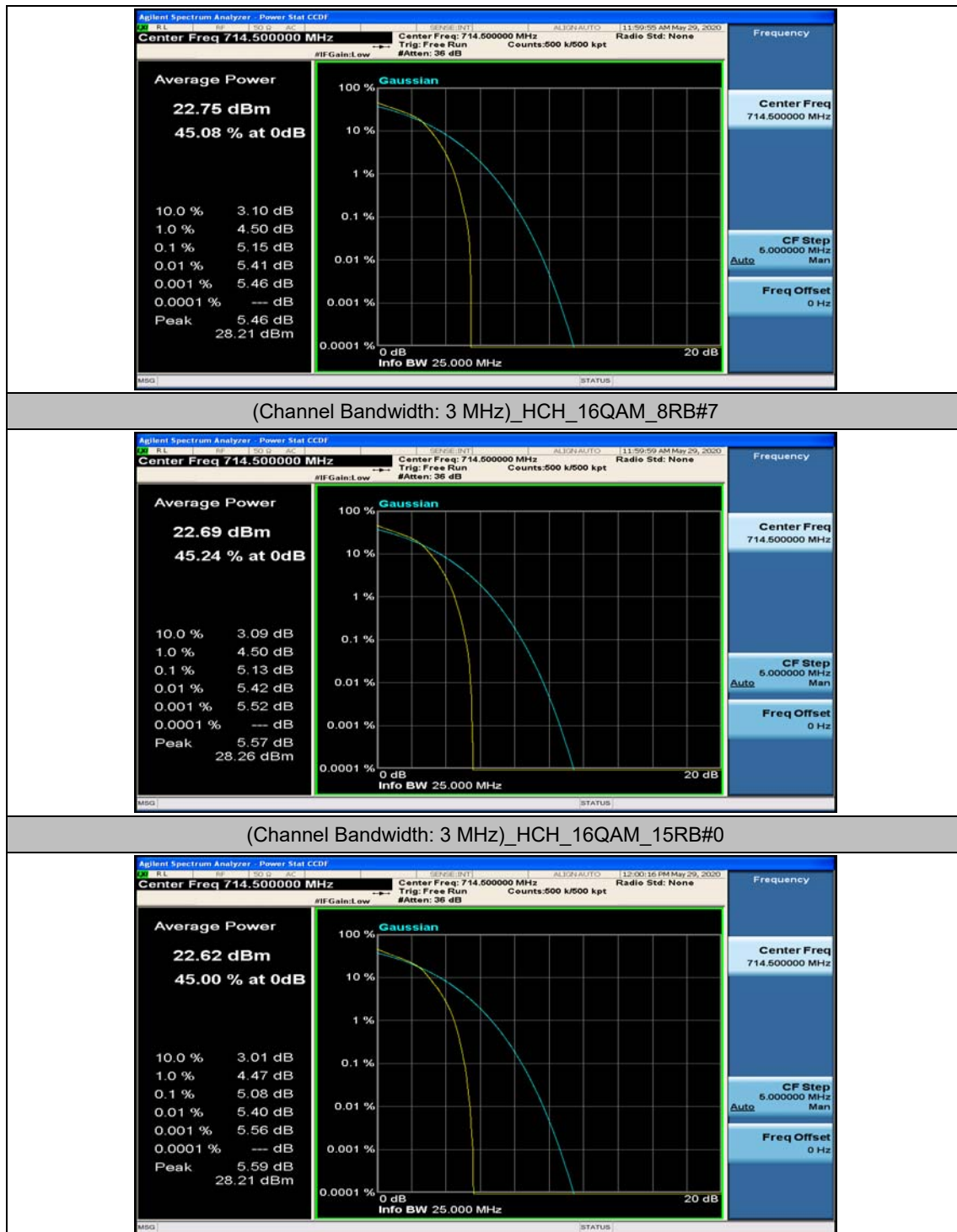
(Channel Bandwidth: 3 MHz)_HCH_16QAM_1RB#14



(Channel Bandwidth: 3 MHz)_HCH_16QAM_8RB#0



(Channel Bandwidth: 3 MHz)_HCH_16QAM_8RB#4



Channel Bandwidth: 5 MHz

(Channel Bandwidth: 5 MHz)_LCH_QPSK_1RB#0



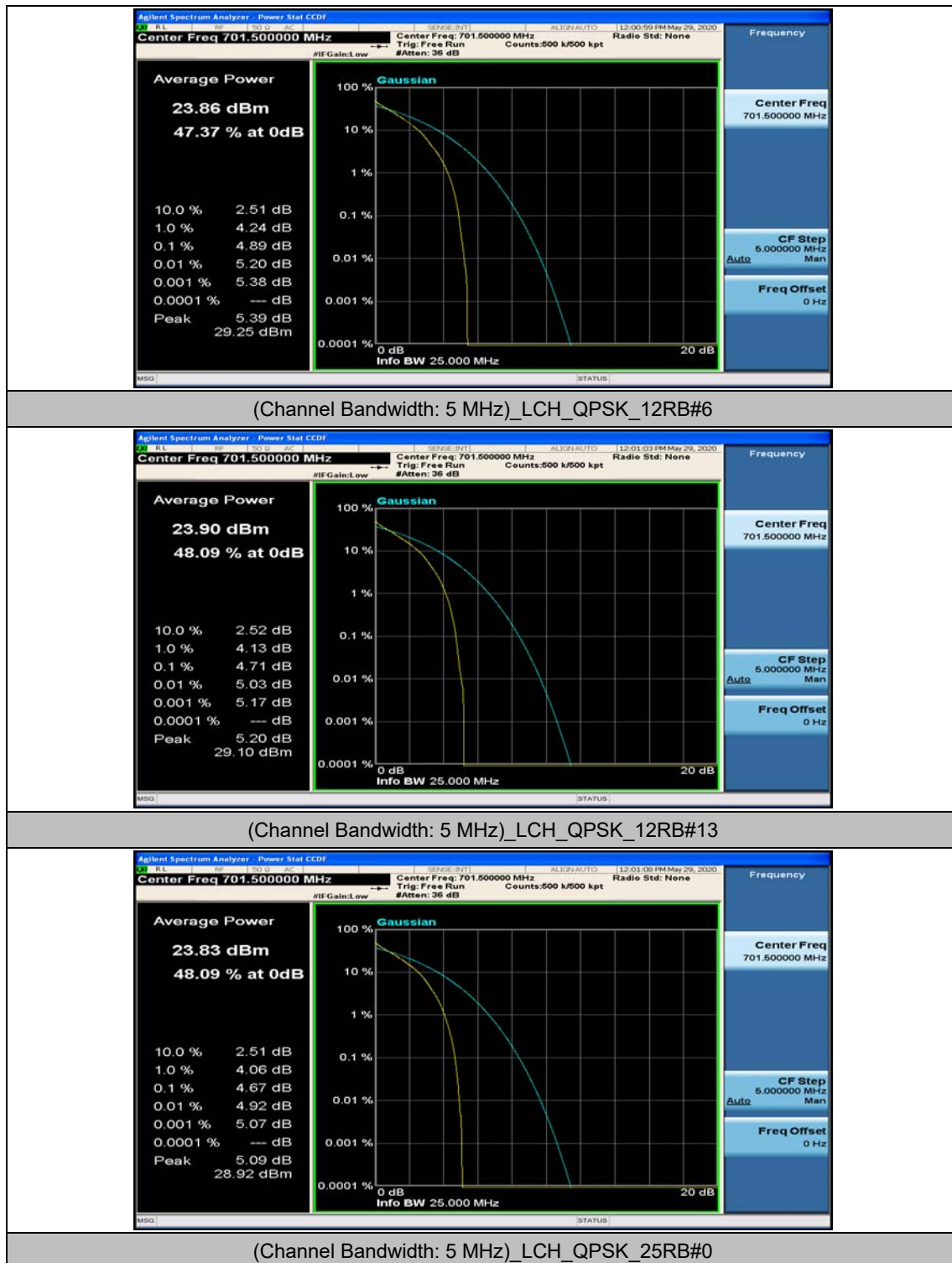
(Channel Bandwidth: 5 MHz)_LCH_QPSK_1RB#12



(Channel Bandwidth: 5 MHz)_LCH_QPSK_1RB#24



(Channel Bandwidth: 5 MHz)_LCH_QPSK_12RB#0





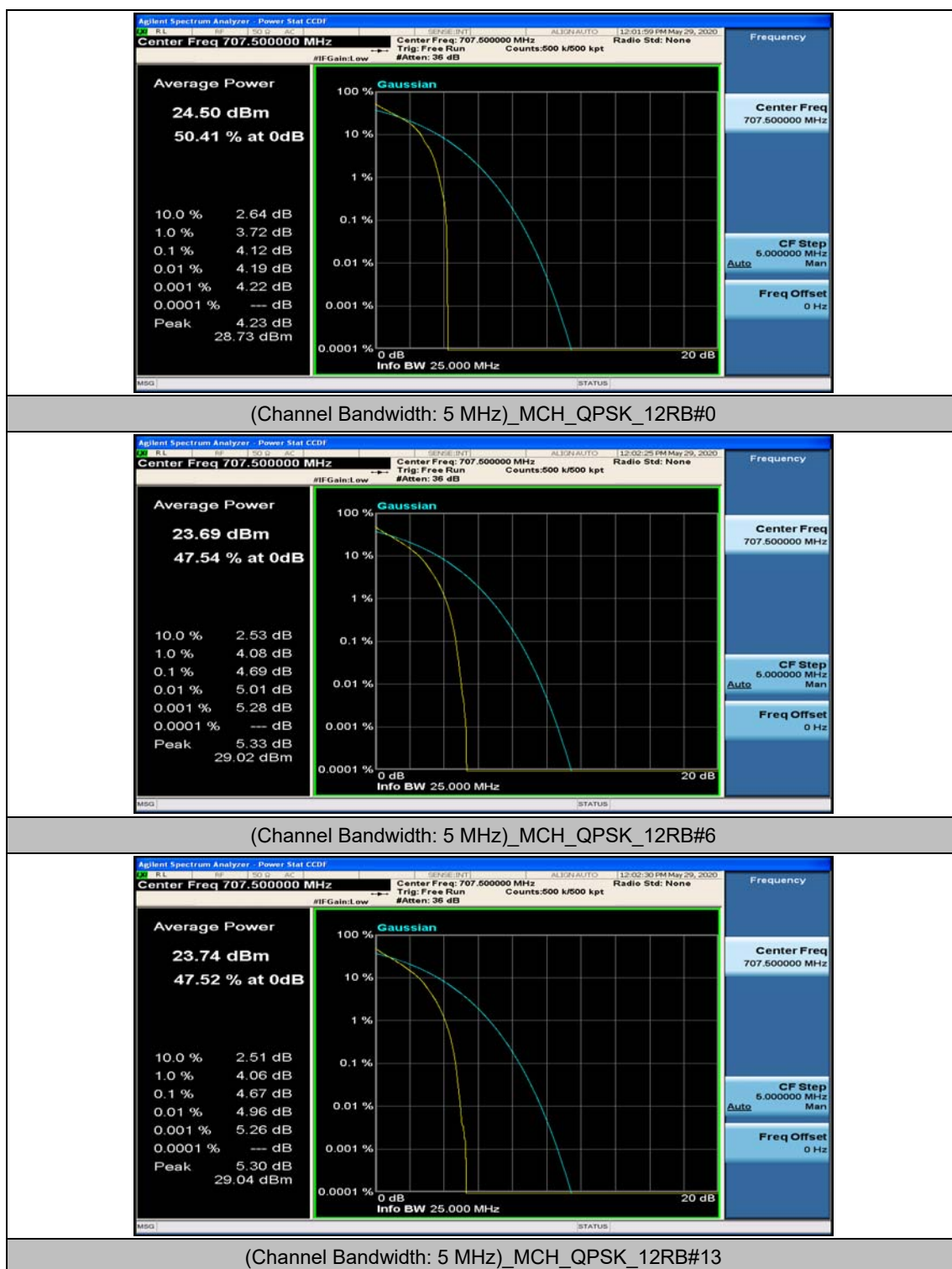
(Channel Bandwidth: 5 MHz)_MCH_QPSK_1RB#0

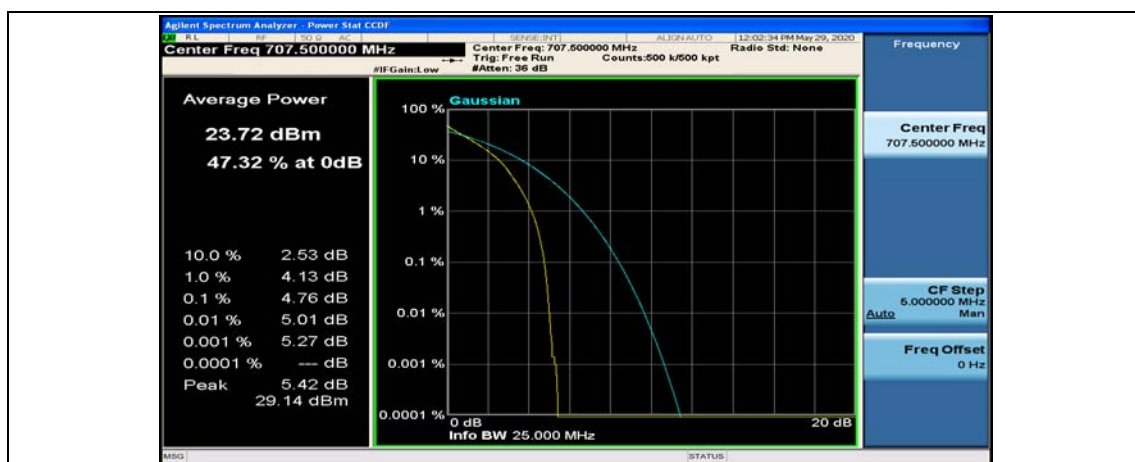


(Channel Bandwidth: 5 MHz)_MCH_QPSK_1RB#12



(Channel Bandwidth: 5 MHz)_MCH_QPSK_1RB#24





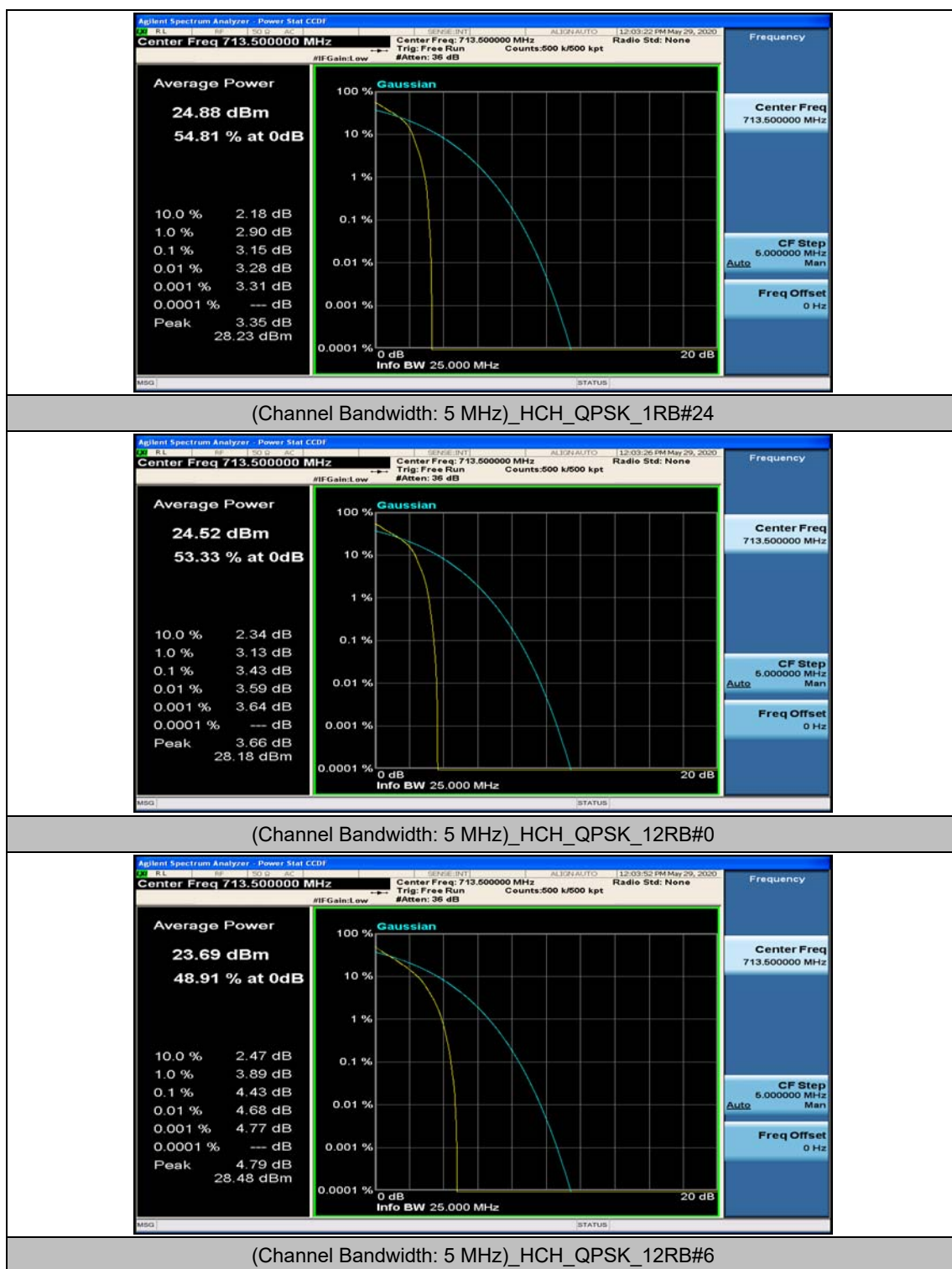
(Channel Bandwidth: 5 MHz)_MCH_QPSK_25RB#0

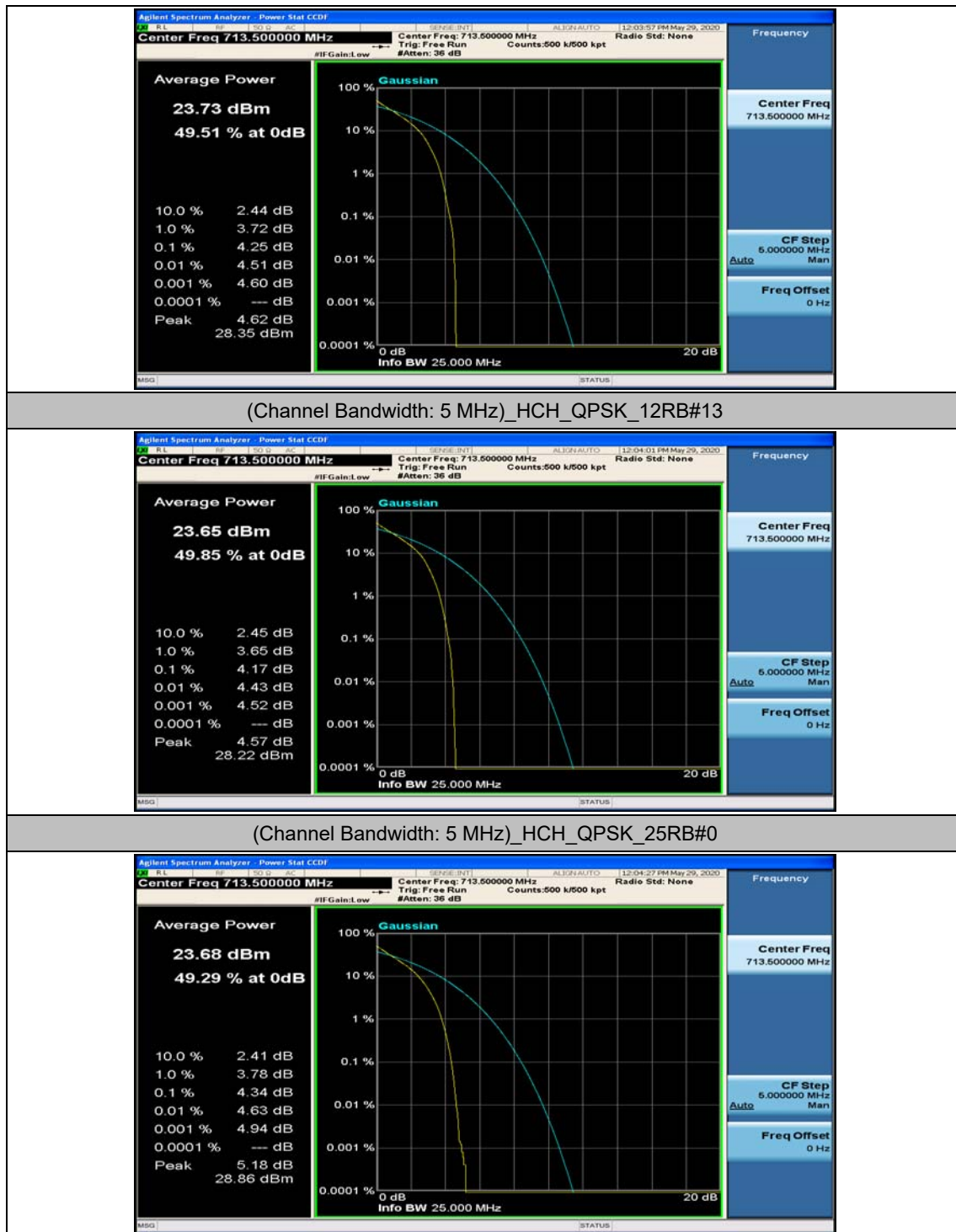


(Channel Bandwidth: 5 MHz)_HCH_QPSK_1RB#0

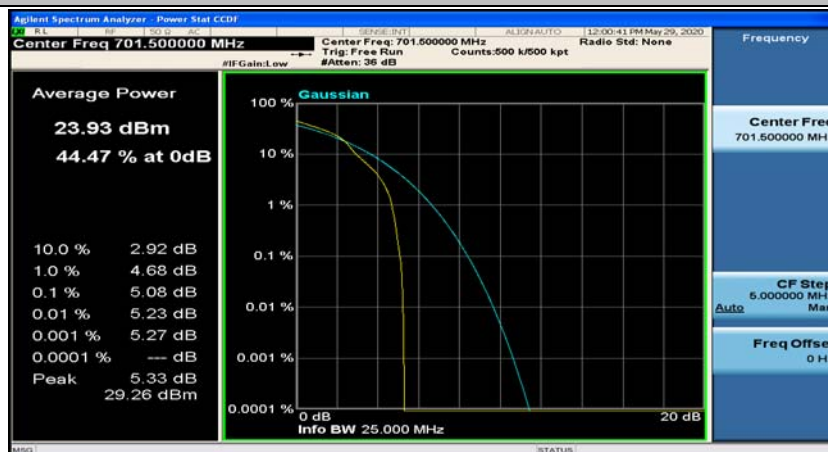


(Channel Bandwidth: 5 MHz)_HCH_QPSK_1RB#12

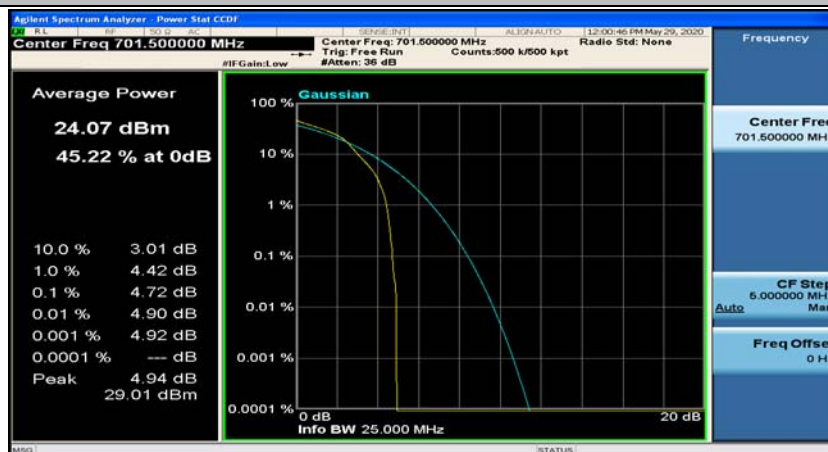




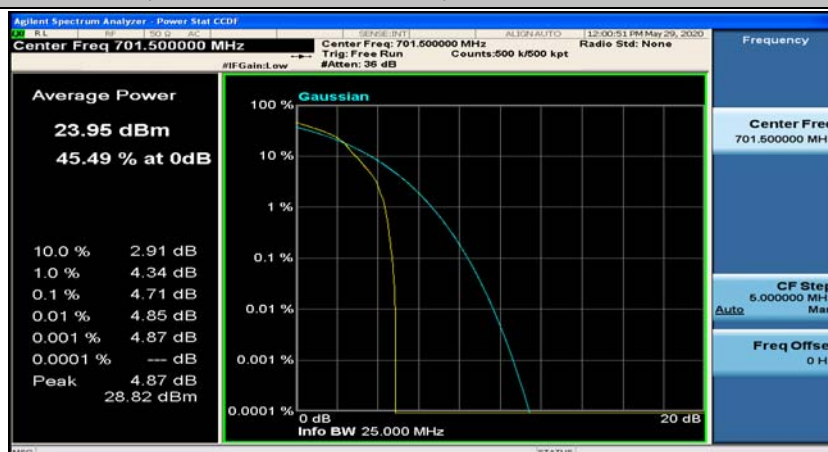
(Channel Bandwidth: 5 MHz)_LCH_16QAM_1RB#0



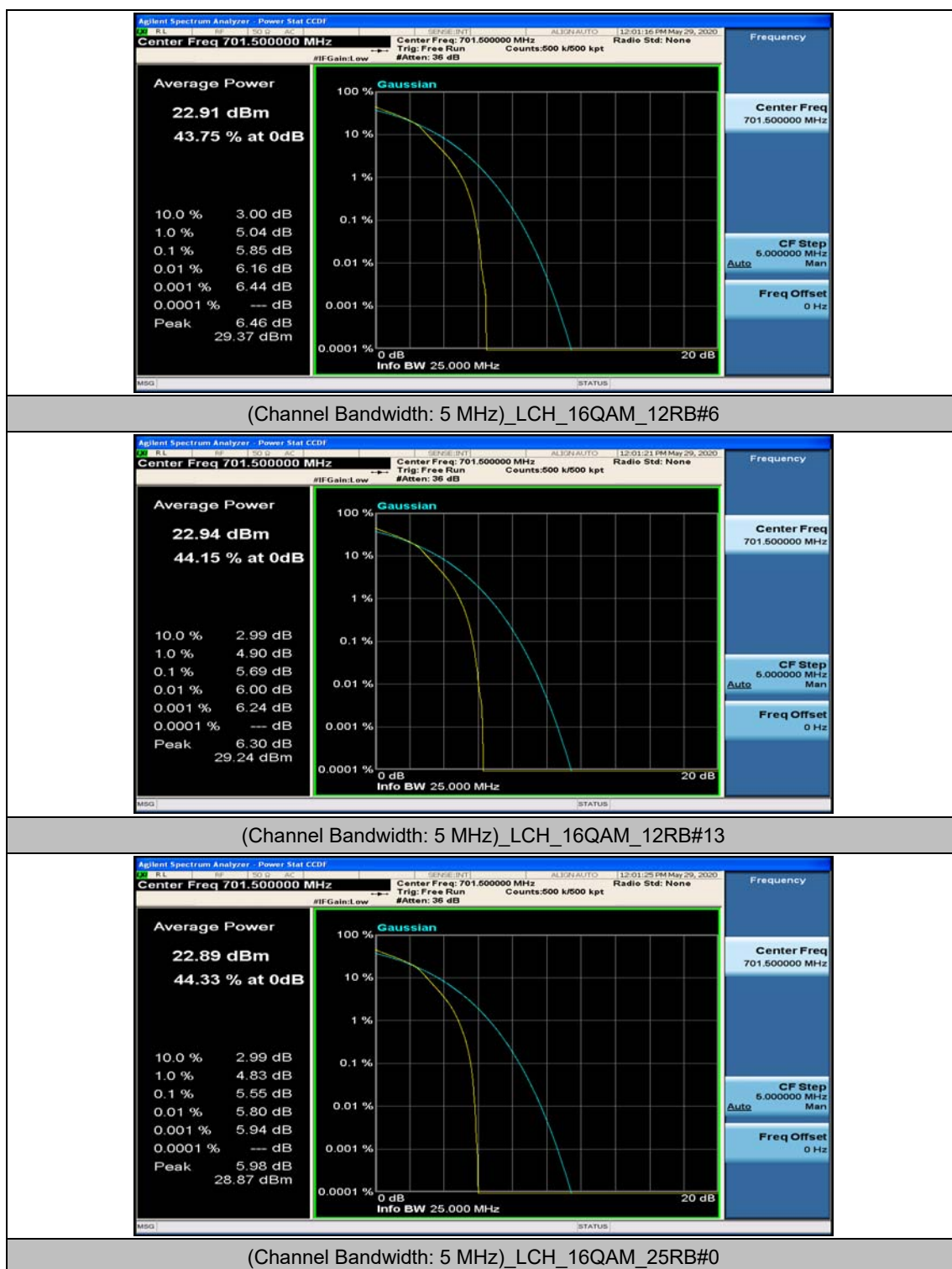
(Channel Bandwidth: 5 MHz)_LCH_16QAM_1RB#12

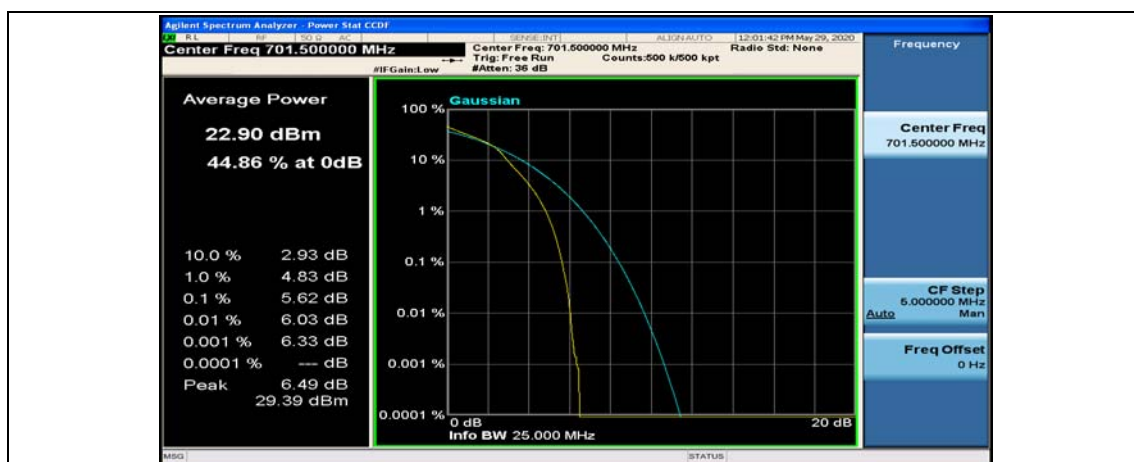


(Channel Bandwidth: 5 MHz)_LCH_16QAM_1RB#24



(Channel Bandwidth: 5 MHz)_LCH_16QAM_12RB#0





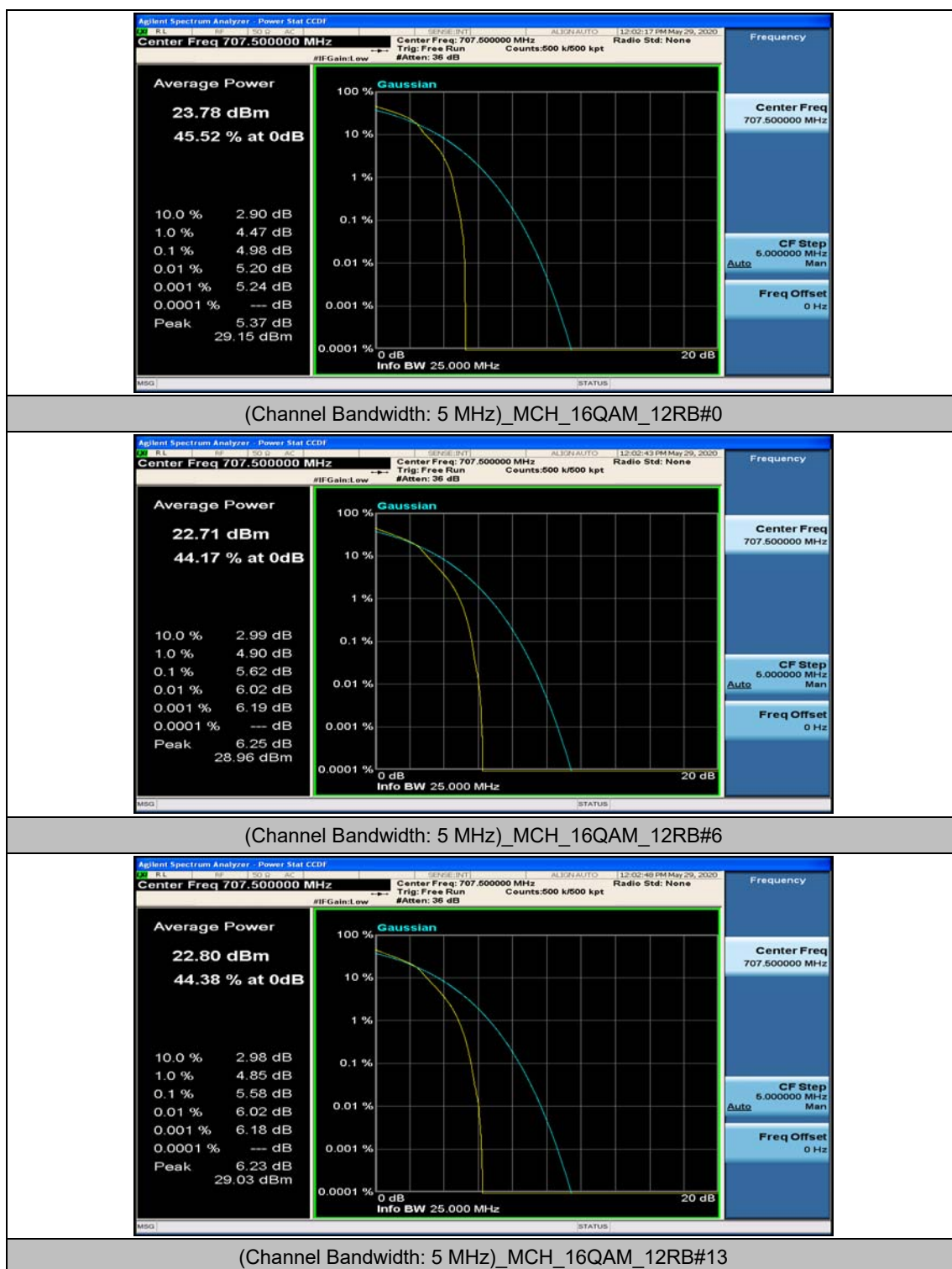
(Channel Bandwidth: 5 MHz)_MCH_16QAM_1RB#0

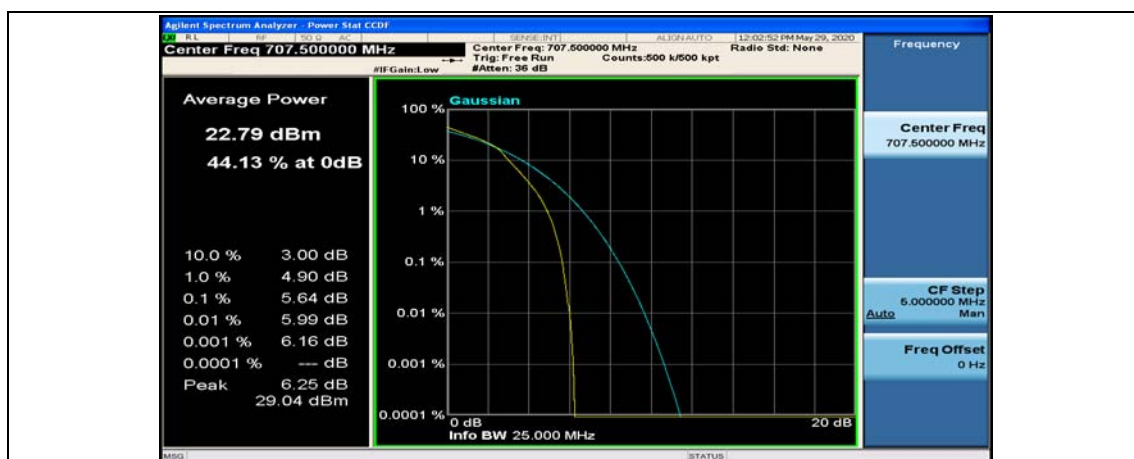


(Channel Bandwidth: 5 MHz)_MCH_16QAM_1RB#12



(Channel Bandwidth: 5 MHz)_MCH_16QAM_1RB#24

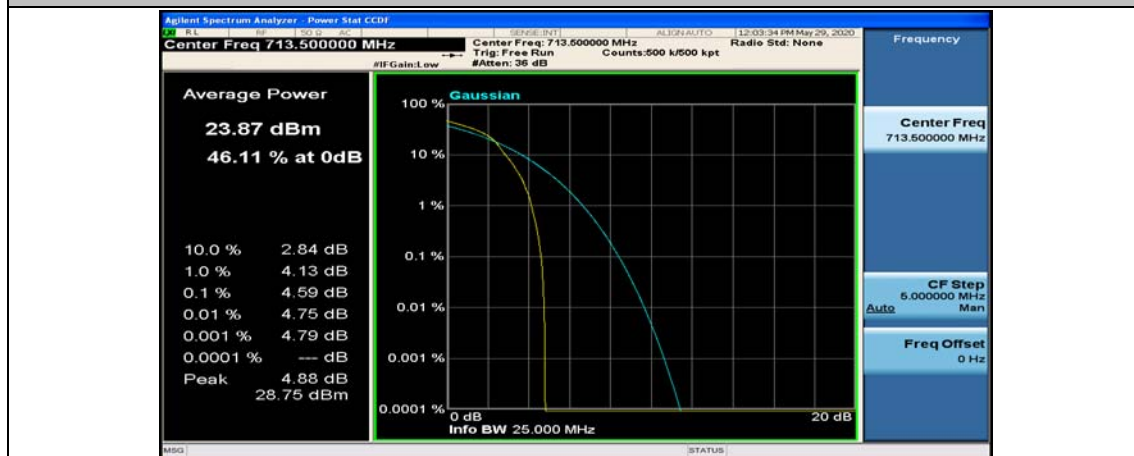




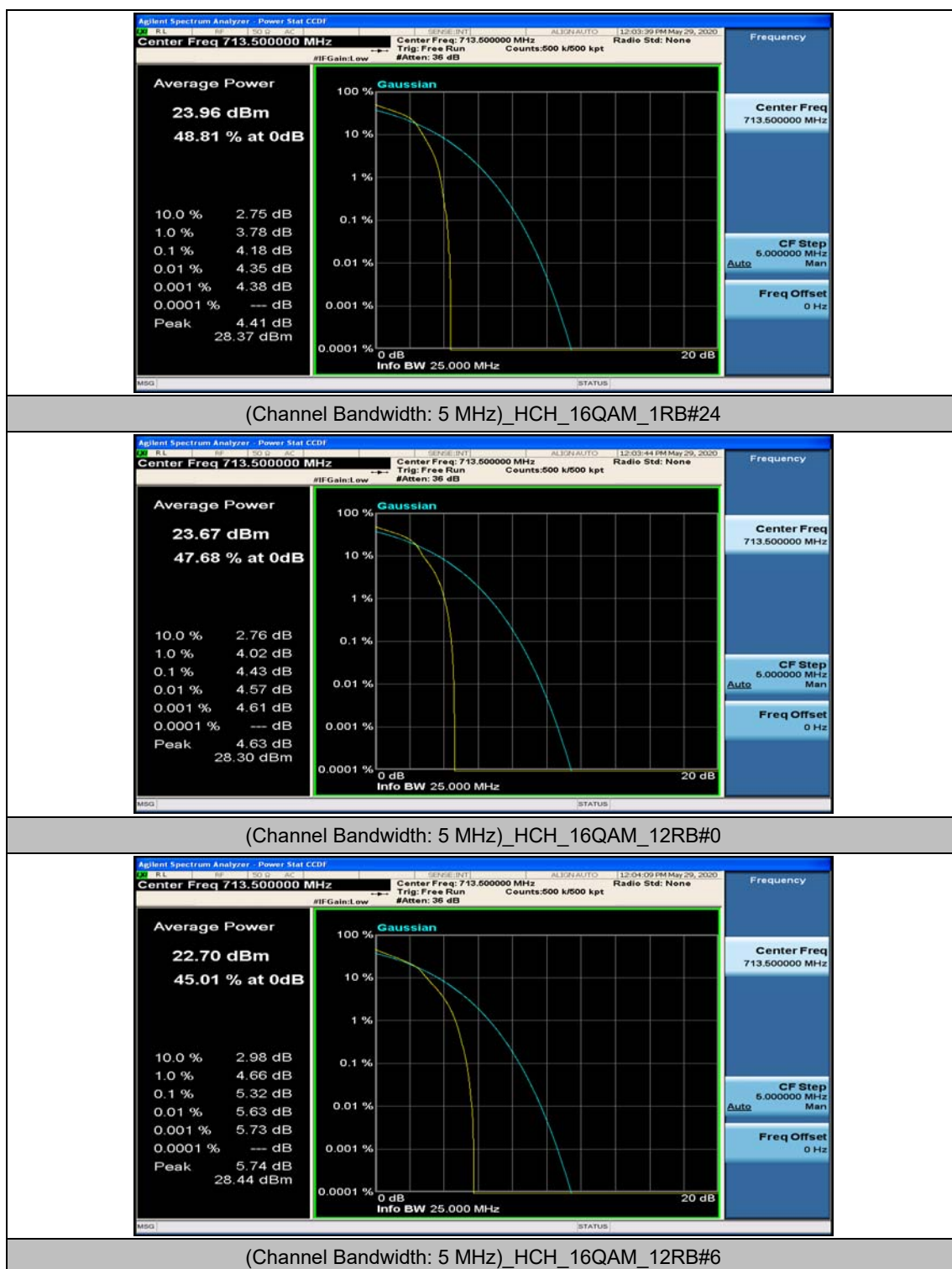
(Channel Bandwidth: 5 MHz)_MCH_16QAM_25RB#0

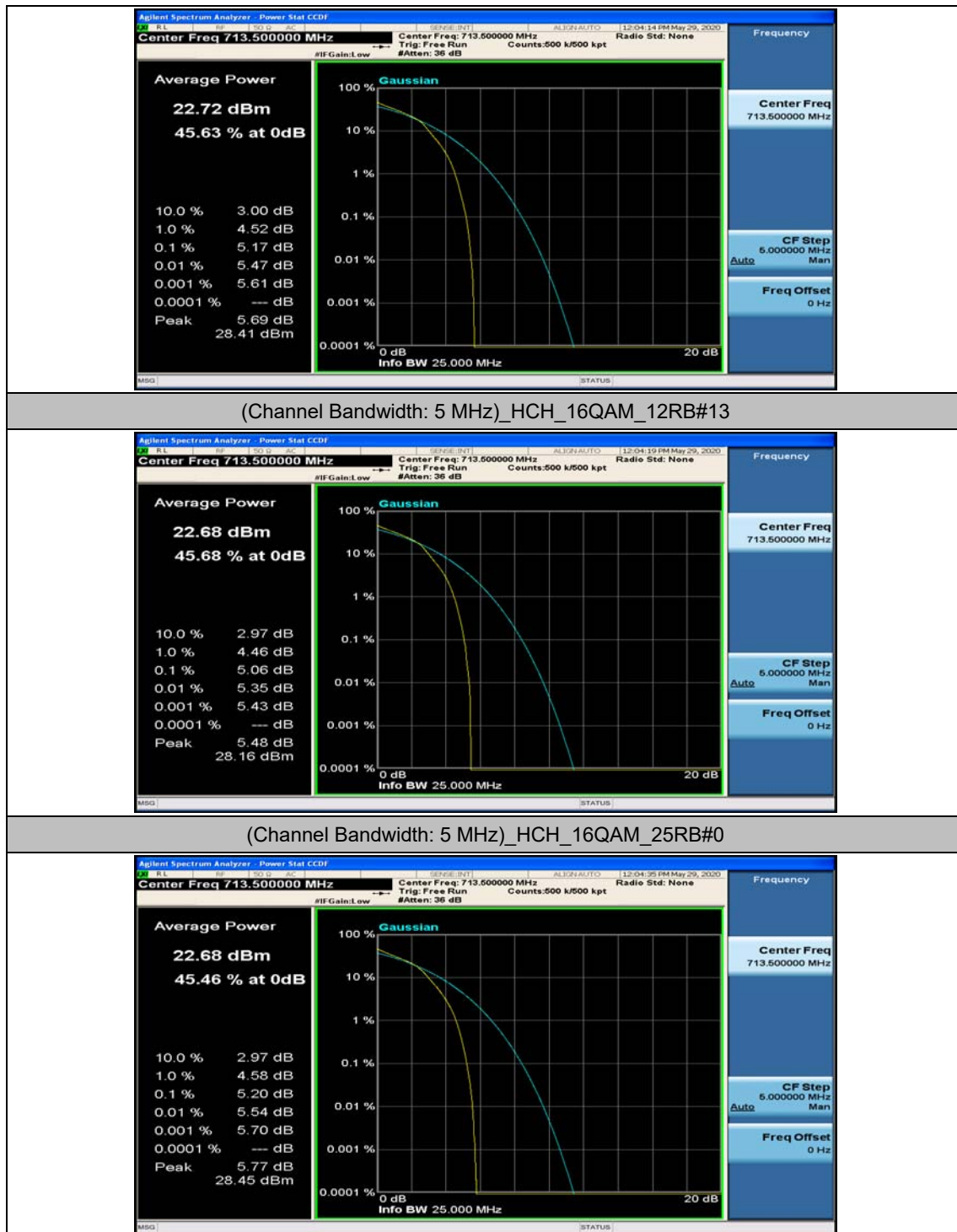


(Channel Bandwidth: 5 MHz)_HCH_16QAM_1RB#0



(Channel Bandwidth: 5 MHz)_HCH_16QAM_1RB#12





Channel Bandwidth: 10 MHz