# Appendix D: Test Data for E-UTRA Band 4

# Product Name: Locator Trade Mark: AROCO Test Model: Aroco Locator AL312

#### **Environmental Conditions**

Temperature:	23.5
Relative Humidity:	53.1
ATM Pressure:	100.0 kPa
Test Engineer:	Tom Liu
Supervised by:	Jayden Zhuo

### D.1 Conducted Output Power

Conducted Output Power Test Result (Channel Bandwidth: 1.4 MHz)									
Modulation	Channel	RB Con	figuration	Average Power [dBm]	Average Power [dBm]	Vordiot			
Modulation	Channel	Size	Offset	QPSK	16QAM	Verdict			
		1	0	22.63	21.09	PASS			
		1	3	22.06	21.36	PASS			
		1	5	22.33	21.11	PASS			
	LCH	3	0	22.28	21.18	PASS			
		3	2	22.65	21.22	PASS			
		3	3	21.96	21.17	PASS			
		6	0	22.14	21.12	PASS			
		1	0	22.48	21.21	PASS			
		1	3	22.43	20.83	PASS			
		1	5	22.04	20.73	PASS			
QPSK / 16QAM	MCH	3	0	22.40	21.25	PASS			
TOQAM		3	2	22.42	20.99	PASS			
		3	3	21.92	21.04	PASS			
		6	0	22.33	21.35	PASS			
		1	0	22.26	21.05	PASS			
		1	3	22.05	21.10	PASS			
		1	5	22.40	21.07	PASS			
	HCH	3	0	22.65	21.45	PASS			
		3	2	21.97	21.09	PASS			
		3	3	22.29	21.29	PASS			
		6	0	22.08	21.24	PASS			

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		Conducted	Output Pov	ver Test Result (Channel Ban	dwidth: 3 MHz)	
Modulation	Channel	RB Cont	figuration	Average Power [dBm]	Average Power [dBm]	Verdict
Modulation	Channel	Size	Offset	QPSK	16QAM	verdict
		1	0	22.12	21.19	PASS
		1	7	22.31	20.99	PASS
		1	14	22.47	21.40	PASS
	LCH	8	0	22.15	20.90	PASS
		8	4	22.14	21.15	PASS
		8	7	22.26	21.02	PASS
		15	0	22.01	21.04	PASS
		1	0	22.05	21.56	PASS
	МСН	1	7	22.51	21.27	PASS
		1	14	22.19	21.55	PASS
QPSK / 16QAM		MCH	8	0	22.04	21.15
TOQAM		8	4	22.28	21.50	PASS
		8	7	22.59	21.22	PASS
		15	0	22.44	21.29	PASS
		1	0	22.68	20.86	PASS
		1	7	22.61	21.07	PASS
		1	14	21.95	20.91	PASS
	HCH	8	0	22.40	20.93	PASS
		8	4	22.42	20.95	PASS
		8	7	22.65	21.38	PASS
		15	0	22.61	21.52	PASS

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	Conducted Output Power Test Result (Channel Bandwidth: 5 MHz)									
Modulation	Channel	RB Con	figuration	Average Power [dBm]	Average Power [dBm]	Vardiat				
Modulation	Channel	Size	Offset	QPSK	16QAM	Verdict				
		1	0	22.44	21.39	PASS				
		1	12	22.53	21.08	PASS				
		1	24	22.32	21.16	PASS				
	LCH	12	0	22.13	21.27	PASS				
		12	6	22.19	21.05	PASS				
		12	13	22.47	21.38	PASS				
		25	0	22.60	21.41	PASS				
		1	0	22.73	20.96	PASS				
	МСН	1	12	22.18	21.11	PASS				
		1	24	21.90	21.04	PASS				
QPSK / 16QAM		12	0	22.24	21.17	PASS				
TOQAM		12	6	22.23	21.38	PASS				
		12	13	22.04	21.26	PASS				
		25	0	22.48	21.57	PASS				
		1	0	22.35	21.22	PASS				
		1	12	22.69	21.13	PASS				
		1	24	22.48	21.58	PASS				
	HCH	12	0	22.70	21.16	PASS				
		12	6	22.07	21.33	PASS				
		12	13	22.23	21.43	PASS				
		25	0	22.09	21.37	PASS				

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	Conducted Output Power Test Result (Channel Bandwidth: 10 MHz)									
Modulation	Channel	RB Con	figuration	Average Power [dBm]	Average Power [dBm]	Verdict				
Modulation	Channel	Size	Offset	QPSK	16QAM	verdict				
		1	0	22.65	21.52	PASS				
		1	24	22.13	21.01	PASS				
		1	49	22.53	21.58	PASS				
	LCH	25	0	22.19	21.17	PASS				
		25	12	22.15	21.39	PASS				
		25	25	22.37	21.42	PASS				
		50	0	22.09	21.45	PASS				
		1	0	22.45	20.95	PASS				
	МСН	1	24	21.92	21.00	PASS				
QPSK /		1	49	22.29	21.27	PASS				
16QAM		MCH	25	0	22.25	21.48	PASS			
TOQAIM		25	12	22.45	21.37	PASS				
		25	25	21.98	21.24	PASS				
		50	0	22.60	21.50	PASS				
		1	0	21.93	20.98	PASS				
		1	24	22.23	21.27	PASS				
		1	49	22.33	20.93	PASS				
	НСН	25	0	22.53	21.39	PASS				
		25	12	21.96	20.77	PASS				
		25	25	22.14	20.88	PASS				
		50	0	21.91	20.94	PASS				

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	Conducted Output Power Test Result (Channel Bandwidth: 15 MHz)									
Modulation	Channel	RB Con	figuration	Average Power [dBm]	Average Power [dBm]	Verdict				
Modulation	Channel	Size	Offset	QPSK	16QAM	verdict				
		1	0	22.62	21.05	PASS				
		1	37	22.15	20.84	PASS				
		1	74	22.41	21.24	PASS				
	LCH	37	0	22.58	21.25	PASS				
		37	18	21.92	21.16	PASS				
		37	38	22.41	21.47	PASS				
		75	0	22.60	21.53	PASS				
		1	0	22.10	21.15	PASS				
		1	37	22.33	21.50	PASS				
	МСН	1	74	22.35	21.26	PASS				
QPSK / 16QAM		37	0	22.63	21.63	PASS				
TOQAIM		37	18	22.42	21.43	PASS				
		37	38	22.36	21.45	PASS				
		75	0	22.63	21.34	PASS				
		1	0	22.45	21.53	PASS				
		1	37	22.41	21.29	PASS				
		1	74	22.63	21.36	PASS				
	НСН	37	0	22.23	21.21	PASS				
		37	18	22.54	21.30	PASS				
		37	38	22.34	21.38	PASS				
		75	0	22.66	21.40	PASS				

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	(	Conducted	Output Pow	ver Test Result (Channel Band	dwidth: 20 MHz)	
	Channel	RB Con	figuration	Average Power [dBm]	Average Power [dBm]	Verdiet
Modulation	Channel	Size	Offset	QPSK	16QAM	Verdict
		1	0	22.39	21.30	PASS
		1	49	22.77	21.53	PASS
		1	99	22.37	21.32	PASS
	LCH	50	0	22.89	21.49	PASS
		50	25	22.24	21.38	PASS
		50	50	22.43	21.26	PASS
		100	0	22.53	21.27	PASS
		1	0	22.78	21.46	PASS
	МСН	1	49	22.23	21.34	PASS
QPSK /		1	99	22.22	21.19	PASS
16QAM		MCH	50	0	22.47	21.57
TOQAM		50	25	22.46	21.49	PASS
		50	50	22.38	21.45	PASS
		100	0	22.76	21.29	PASS
		1	0	22.29	21.33	PASS
		1	49	22.33	21.40	PASS
		1	99	22.07	21.38	PASS
	HCH	50	0	22.75	21.28	PASS
		50	25	22.42	21.42	PASS
		50	50	22.57	21.62	PASS
		100	0	22.22	21.51	PASS

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# D.2 Peak-to-Average Ratio

### **Test Result**

# Channel Bandwidth: 1.4 MHz

			Channel B	andwidth: 1.4 MHz	-	
Modulation	Channel	RB Conf	iguration	Peak-to-Average Ratio	Limit	Verdict
wouldtion	Channel	Size	Offset	(dB)	(dB)	verdict
		1	0	5.32	<13	PASS
		1	3	5.23	<13	PASS
		1	5	5.42	<13	PASS
	LCH	3	0	5.31	<13	PASS
		3	2	5.3	<13	PASS
		3	3	5.36	<13	PASS
		6	0	5.83	<13	PASS
		1	0	5.35	<13	PASS
		1	3	5.25	<13	PASS
		1	5	5.44	<13	PASS
QPSK	MCH	3	0	5.56	<13	PASS
		3	2	5.55	<13	PASS
		3	3	5.53	<13	PASS
		6	0	5.8	<13	PASS
		1	0	5.24	<13	PASS
		1	3	5.19	<13	PASS
		1	5	5.25	<13	PASS
	НСН	3	0	5.39	<13	PASS
		3	2	5.31	<13	PASS
		3	3	5.37	<13	PASS
		6	0	5.7	<13	PASS
		1	0	6.12	<13	PASS
		1	3	6.01	<13	PASS
		1	5	6.2	<13	PASS
	LCH	3	0	6.22	<13	PASS
		3	2	6.28	<13	PASS
		3	3	6.33	<13	PASS
		6	0	6.86	<13	PASS
16QAM		1	0	6.51	<13	PASS
		1	3	6.45	<13	PASS
		1	5	6.52	<13	PASS
	MCH	3	0	6.64	<13	PASS
		3	2	6.58	<13	PASS
		3	3	6.6	<13	PASS
		6	0	6.81	<13	PASS
	HCH	1	0	6.13	<13	PASS

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1	3	6.19	<13	PASS
1	5	6.25	<13	PASS
3	0	6.11	<13	PASS
3	2	6.09	<13	PASS
3	3	6.15	<13	PASS
6	0	6.61	<13	PASS

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### Channel Bandwidth: 3 MHz

			Channel	Bandwidth: 3 MHz		
Modulation	Channel	RB Conf	iguration	Peak-to-Average Ratio	Limit	Verdict
Modulation	Channel	Size	Offset	[dB]	[dB]	Veruici
		1	0	5.23	<13	PASS
		1	7	5.36	<13	PASS
		1	14	5.45	<13	PASS
	LCH	8	0	5.89	<13	PASS
		8	4	5.92	<13	PASS
		8	7	5.92	<13	PASS
		15	0	5.81	<13	PASS
		1	0	5.53	<13	PASS
		1	7	5.57	<13	PASS
		1	14	5.44	<13	PASS
QPSK	MCH	8	0	5.94	<13	PASS
		8	4	5.9	<13	PASS
		8	7	5.9	<13	PASS
		15	0	5.83	<13	PASS
		1	0	5.08	<13	PASS
		1	7	5.07	<13	PASS
		1	14	5.09	<13	PASS
	НСН	8	0	5.78	<13	PASS
		8	4	5.75	<13	PASS
		8	7	5.8	<13	PASS
		15	0	5.84	<13	PASS
		1	0	6.06	<13	PASS
		1	7	6.14	<13	PASS
		1	14	6.41	<13	PASS
	LCH	8	0	6.59	<13	PASS
		8	4	6.54	<13	PASS
		8	7	6.54	<13	PASS
		15	0	6.72	<13	PASS
		1	0	6.5	<13	PASS
16QAM		1	7	6.47	<13	PASS
		1	14	6.36	<13	PASS
	MCH	8	0	6.66	<13	PASS
		8	4	6.61	<13	PASS
		8	7	6.63	<13	PASS
		15	0	6.81	<13	PASS
		1	0	5.99	<13	PASS
	НСН	1	7	6	<13	PASS
		1	14	5.99	<13	PASS

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	8	0	6.52	<13	PASS
	8	4	6.49	<13	PASS
	8	7	6.49	<13	PASS
	15	0	6.59	<13	PASS

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### Channel Bandwidth: 5 MHz

			Channel I	Bandwidth: 5 MHz		
Modulation	Channel	RB Conf	iguration	Peak-to-Average Ratio	Limit	Verdict
Modulation	Channel	Size	Offset	[dB]	[dB]	verdict
		1	0	5.2	<13	PASS
		1	12	5.31	<13	PASS
		1	24	5.58	<13	PASS
	LCH	12	0	5.9	<13	PASS
		12	6	5.92	<13	PASS
		12	13	5.94	<13	PASS
		25	0	5.95	<13	PASS
		1	0	5.52	<13	PASS
		1	12	5.43	<13	PASS
		1	24	5.45	<13	PASS
QPSK	MCH	12	0	5.85	<13	PASS
		12	6	5.87	<13	PASS
		12	13	5.85	<13	PASS
		25	0	5.84	<13	PASS
		1	0	5.28	<13	PASS
	НСН	1	12	5.24	<13	PASS
		1	24	5.33	<13	PASS
		12	0	5.77	<13	PASS
		12	6	5.71	<13	PASS
		12	13	5.77	<13	PASS
		25	0	5.79	<13	PASS
		1	0	6.08	<13	PASS
		1	12	6.15	<13	PASS
		1	24	6.47	<13	PASS
	LCH	12	0	6.71	<13	PASS
		12	6	6.83	<13	PASS
		12	13	6.77	<13	PASS
		25	0	6.74	<13	PASS
		1	0	6.47	<13	PASS
16QAM		1	12	6.22	<13	PASS
		1	24	6.35	<13	PASS
	MCH	12	0	6.76	<13	PASS
		12	6	6.77	<13	PASS
		12	13	6.67	<13	PASS
		25	0	6.72	<13	PASS
		1	0	6.05	<13	PASS
	НСН	1	12	5.98	<13	PASS
		1	24	6.04	<13	PASS

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	12	0	6.69	<13	PASS
	12	6	6.68	<13	PASS
	12	13	6.77	<13	PASS
	25	0	6.55	<13	PASS

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### **Channel Bandwidth: 10 MHz**

			Channel E	Bandwidth: 10 MHz		
Modulation	Channel	RB Cont	iguration	Peak-to-Average Ratio	Limit	Verdict
wouldtion	Channel	Size	Offset	[dB]	[dB]	Verdici
		1	0	5.38	<13	PASS
		1	24	5.67	<13	PASS
		1	49	5.78	<13	PASS
	LCH	25	0	5.95	<13	PASS
		25	12	6.04	<13	PASS
		25	25	6.03	<13	PASS
		50	0	5.92	<13	PASS
		1	0	5.67	<13	PASS
		1	24	5.68	<13	PASS
		1	49	5.5	<13	PASS
QPSK	MCH	25	0	5.89	<13	PASS
		25	12	5.9	<13	PASS
		25	25	5.87	<13	PASS
		50	0	5.84	<13	PASS
	НСН	1	0	5.11	<13	PASS
		1	24	4.99	<13	PASS
		1	49	5.21	<13	PASS
		25	0	5.78	<13	PASS
		25	12	5.79	<13	PASS
		25	25	5.77	<13	PASS
		50	0	5.81	<13	PASS
		1	0	6.24	<13	PASS
		1	24	6.47	<13	PASS
		1	49	6.76	<13	PASS
	LCH	25	0	6.8	<13	PASS
		25	12	6.82	<13	PASS
		25	25	6.8	<13	PASS
		50	0	6.6	<13	PASS
		1	0	6.73	<13	PASS
16QAM		1	24	6.54	<13	PASS
		1	49	6.37	<13	PASS
	MCH	25	0	6.76	<13	PASS
		25	12	6.73	<13	PASS
		25	25	6.57	<13	PASS
		50	0	6.53	<13	PASS
		1	0	6.13	<13	PASS
	НСН	1	24	5.99	<13	PASS
		1	49	6.15	<13	PASS

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	25	0	6.59	<13	PASS
	25	12	6.63	<13	PASS
	25	25	6.58	<13	PASS
	50	0	6.57	<13	PASS

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### **Channel Bandwidth: 15 MHz**

			Channel E	andwidth: 15 MHz		
Modulation	Channel	RB Conf	figuration	Peak-to-Average Ratio	Limit	Verdict
wouldtion	Channel	Size	Offset	[dB]	[dB]	Verdici
		1	0	8.35	<13	PASS
		1	37	5.7	<13	PASS
		1	74	10.31	<13	PASS
	LCH	37	0	4.94	<13	PASS
		37	18	5.95	<13	PASS
		37	38	5.09	<13	PASS
		75	0	5.06	<13	PASS
		1	0	8.33	<13	PASS
		1	37	5.65	<13	PASS
		1	74	9.74	<13	PASS
QPSK	MCH	37	0	4.91	<13	PASS
		37	18	5.85	<13	PASS
		37	38	4.99	<13	PASS
		75	0	5.01	<13	PASS
	НСН	1	0	8.19	<13	PASS
		1	37	5.14	<13	PASS
		1	74	10.36	<13	PASS
		37	0	4.86	<13	PASS
		37	18	5.75	<13	PASS
		37	38	4.96	<13	PASS
		75	0	5.05	<13	PASS
		1	0	8.72	<13	PASS
		1	37	6.64	<13	PASS
		1	74	10.71	<13	PASS
	LCH	37	0	6.27	<13	PASS
		37	18	6.77	<13	PASS
		37	38	6.35	<13	PASS
		75	0	6.42	<13	PASS
		1	0	9.37	<13	PASS
16QAM		1	37	6.56	<13	PASS
		1	74	10.81	<13	PASS
	MCH	37	0	6.24	<13	PASS
		37	18	6.63	<13	PASS
		37	38	6.31	<13	PASS
		75	0	6.37	<13	PASS
		1	0	8.37	<13	PASS
	НСН	1	37	6.09	<13	PASS
		1	74	11.09	<13	PASS

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	37	0	6.17	<13	PASS
	37	18	6.6	<13	PASS
	37	38	6.3	<13	PASS
	75	0	6.35	<13	PASS

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### Channel Bandwidth: 20 MHz

			Channel E	andwidth: 20 MHz		
Madulation	Channel	RB Conf	figuration	Peak-to-Average Ratio	Limit	Verdict
Modulation	Channel	Size	Offset	[dB]	[dB]	verdict
		1	0	9.89	<13	PASS
		1	49	5.63	<13	PASS
		1	99	9.7	<13	PASS
	LCH	50	0	5.61	<13	PASS
		50	25	5.85	<13	PASS
		50	50	5.98	<13	PASS
		100	0	5.71	<13	PASS
		1	0	9.39	<13	PASS
		1	49	5.43	<13	PASS
		1	99	9.07	<13	PASS
QPSK	MCH	50	0	5.58	<13	PASS
		50	25	5.85	<13	PASS
		50	50	5.97	<13	PASS
		100	0	5.72	<13	PASS
	НСН	1	0	8.73	<13	PASS
		1	49	5.3	<13	PASS
		1	99	9.65	<13	PASS
		50	0	5.53	<13	PASS
		50	25	5.78	<13	PASS
		50	50	6	<13	PASS
		100	0	5.8	<13	PASS
	LCH	1	0	10.21	<13	PASS
		1	49	6.62	<13	PASS
		1	99	9.22	<13	PASS
		50	0	6.72	<13	PASS
		50	25	6.67	<13	PASS
		50	50	6.81	<13	PASS
		100	0	6.87	<13	PASS
		1	0	9.71	<13	PASS
16QAM		1	49	6.63	<13	PASS
		1	99	8.52	<13	PASS
	MCH	50	0	6.67	<13	PASS
		50	25	6.59	<13	PASS
		50	50	6.76	<13	PASS
		100	0	6.87	<13	PASS
		1	0	8.75	<13	PASS
	НСН	1	49	6.01	<13	PASS
		1	99	9.43	<13	PASS

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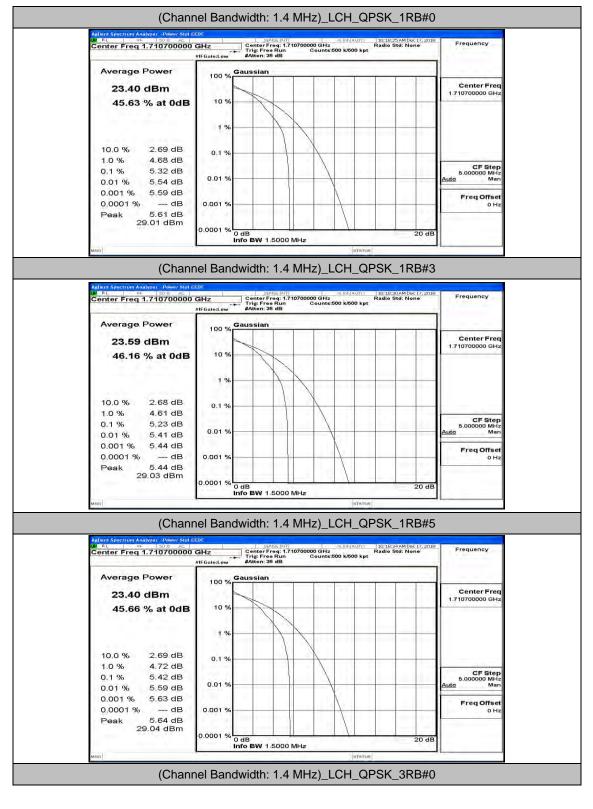
IC: 24586-AL312

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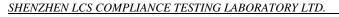
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# **Test Graphs**

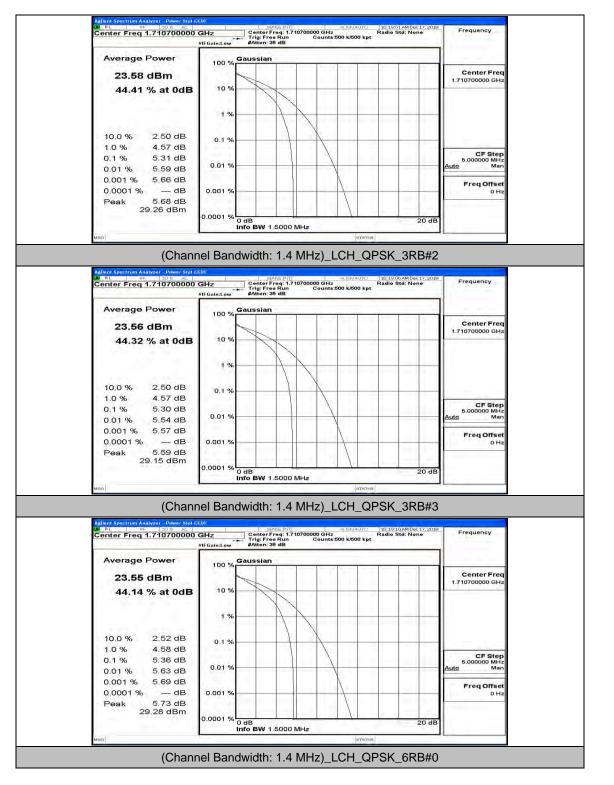
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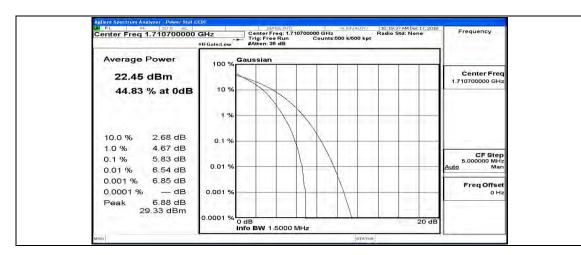
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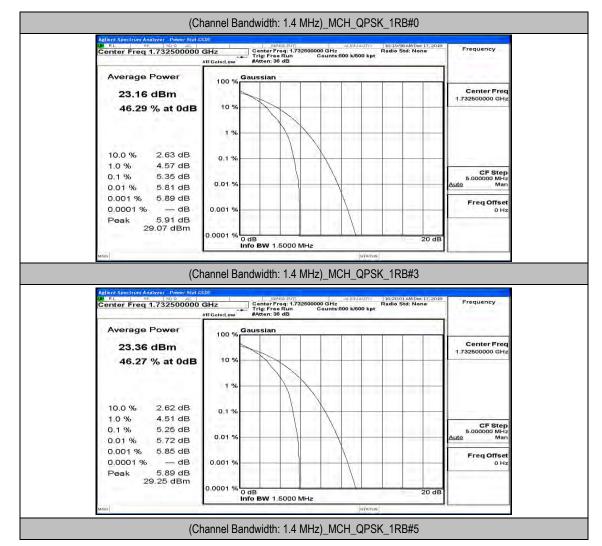


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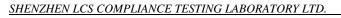
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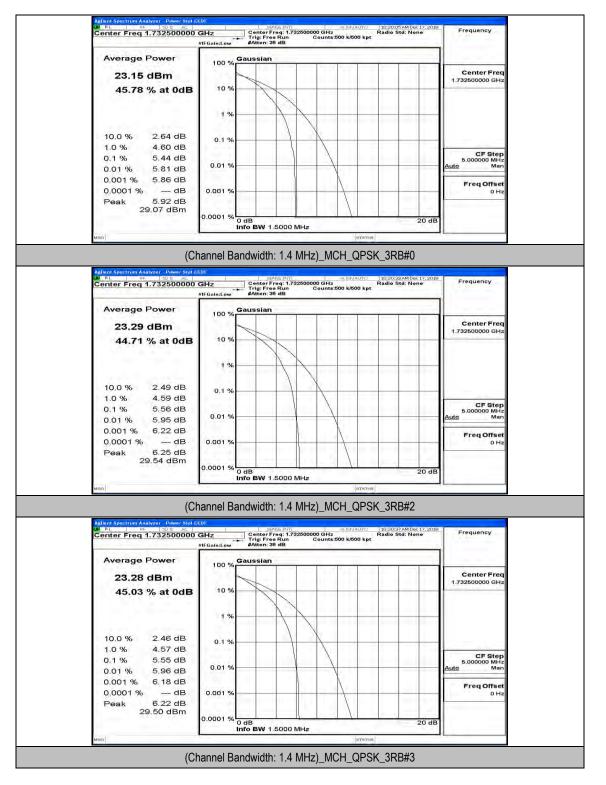




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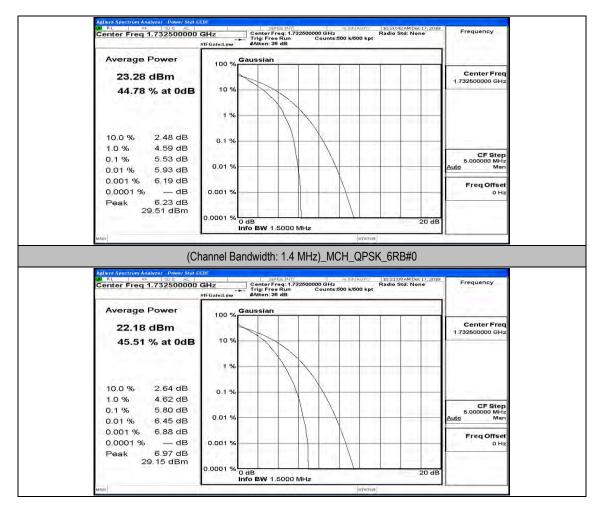
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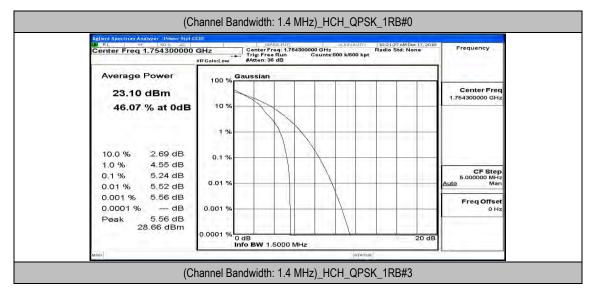


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IC: 24586-AL312

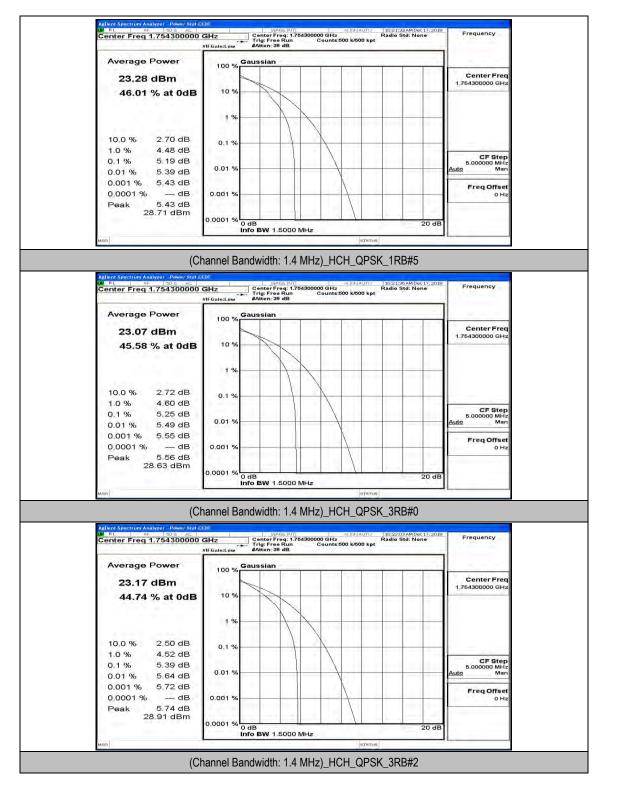




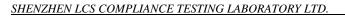
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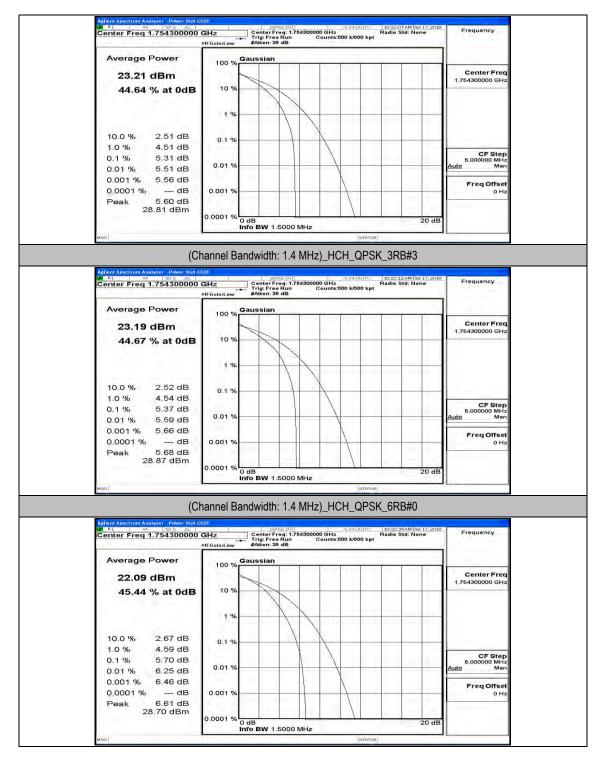
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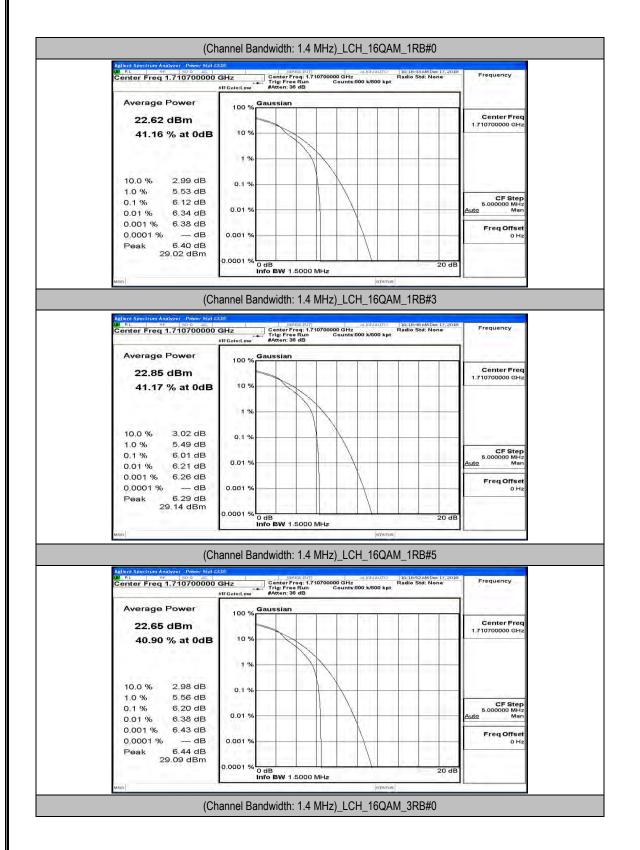
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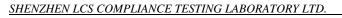
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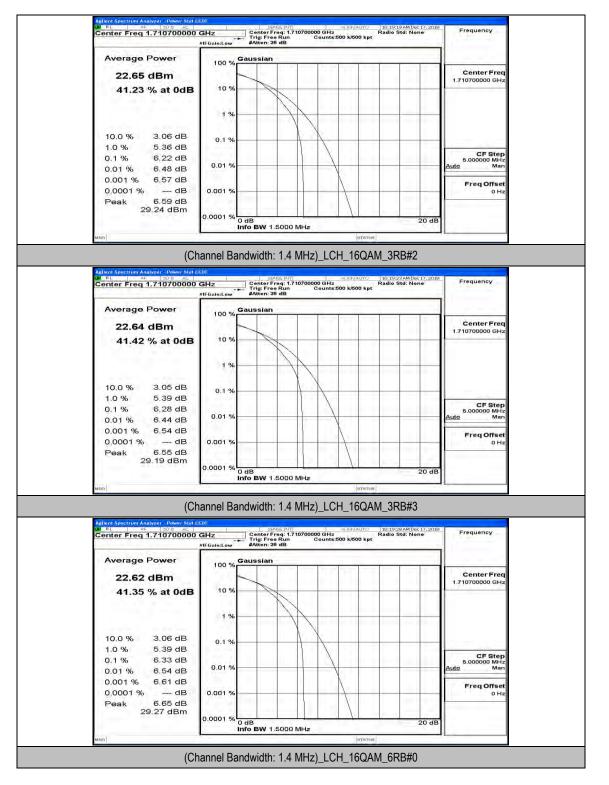
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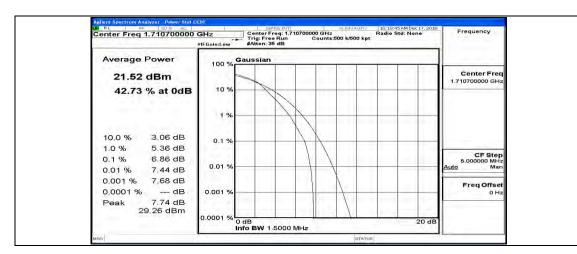
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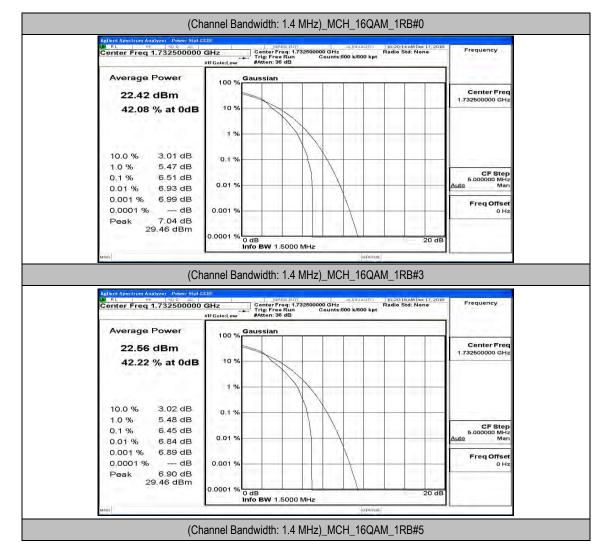


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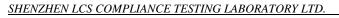
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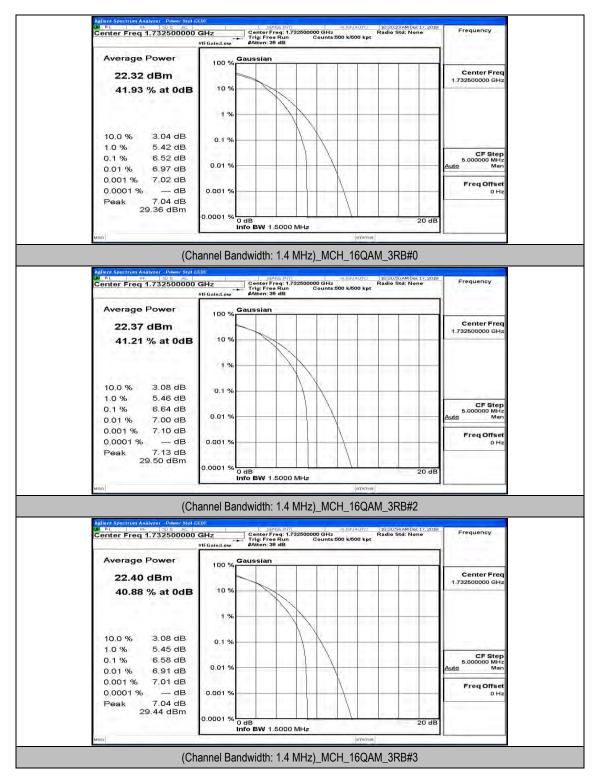




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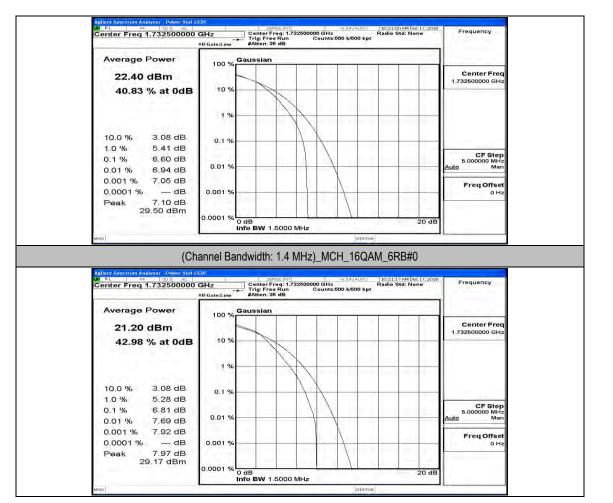
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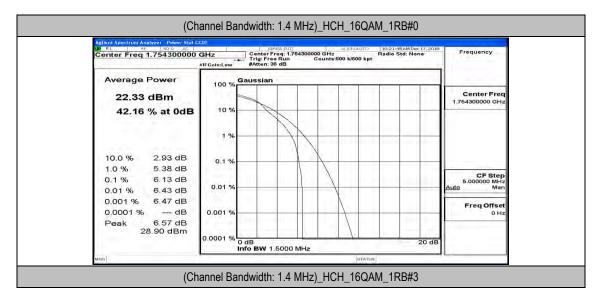


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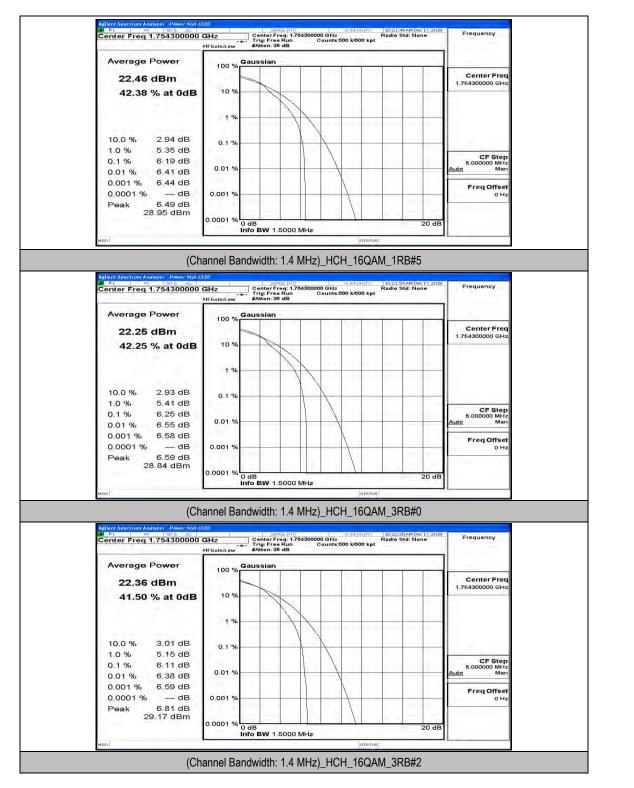




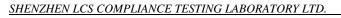
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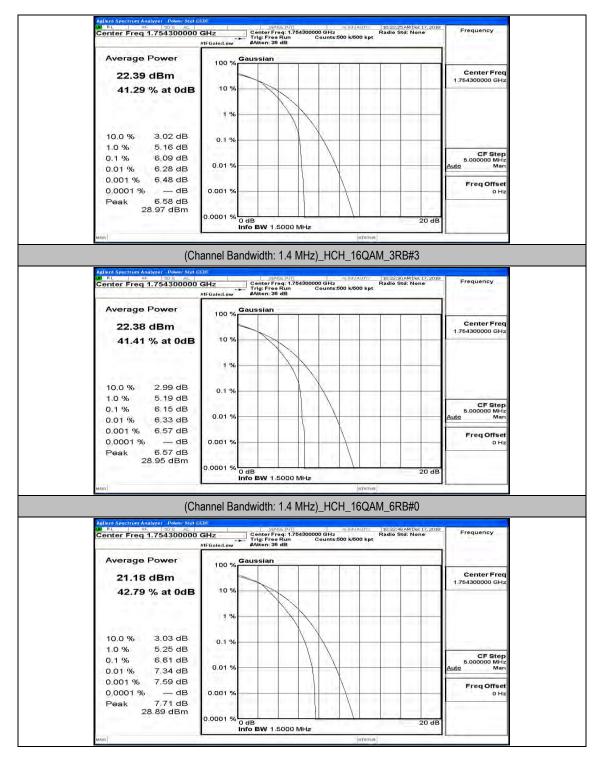
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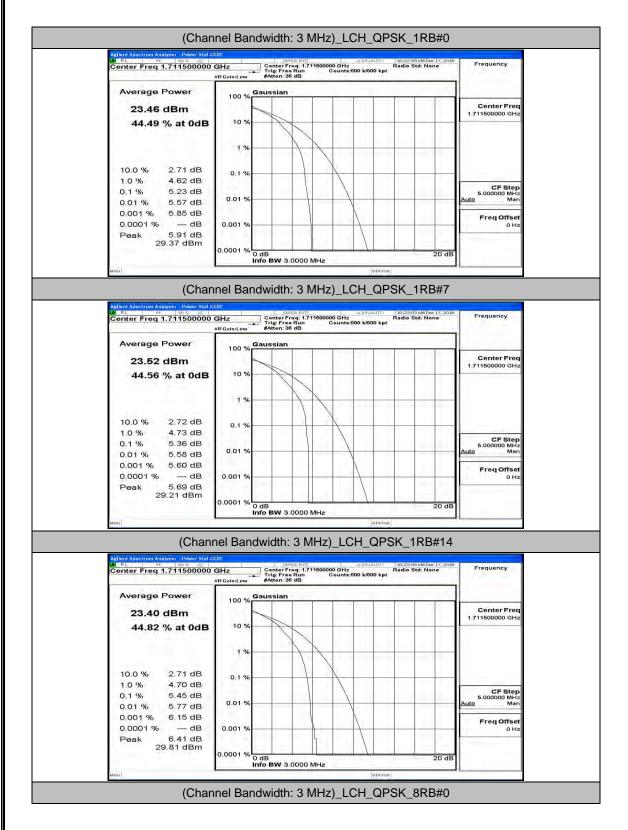


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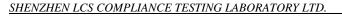


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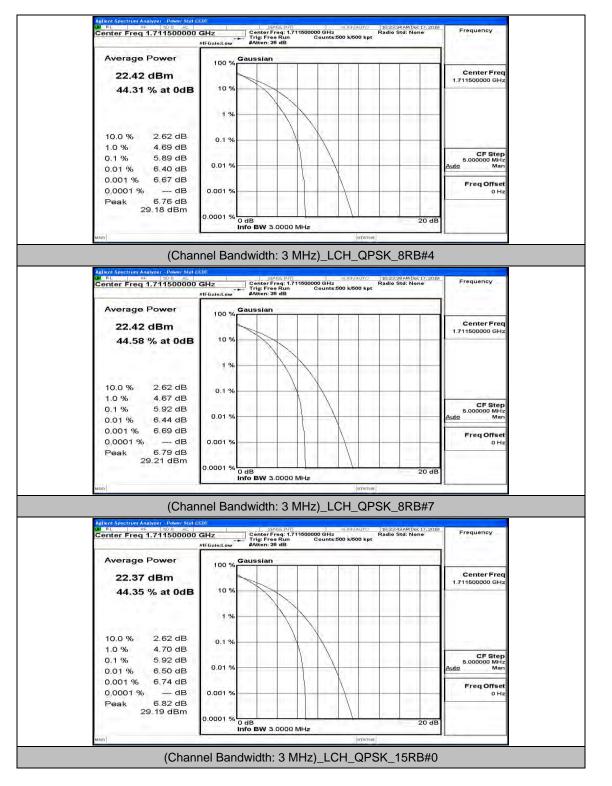
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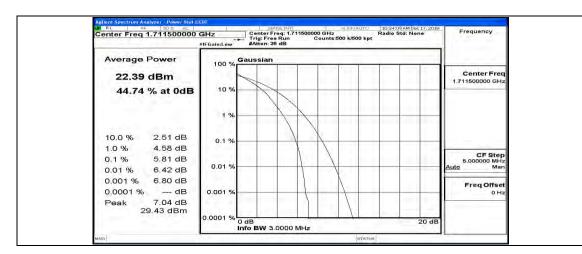
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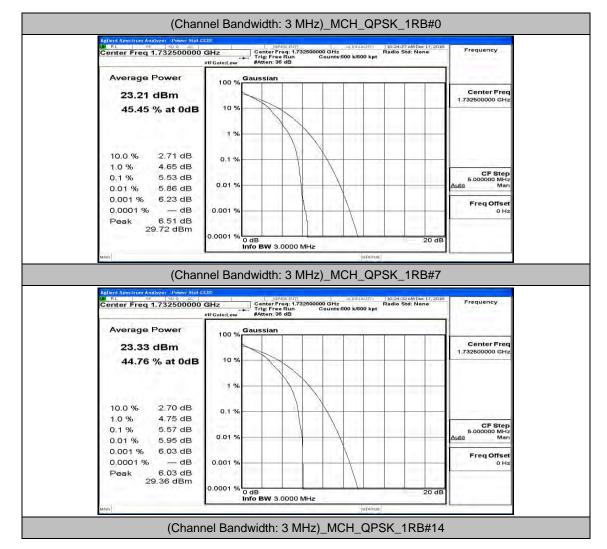


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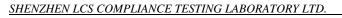
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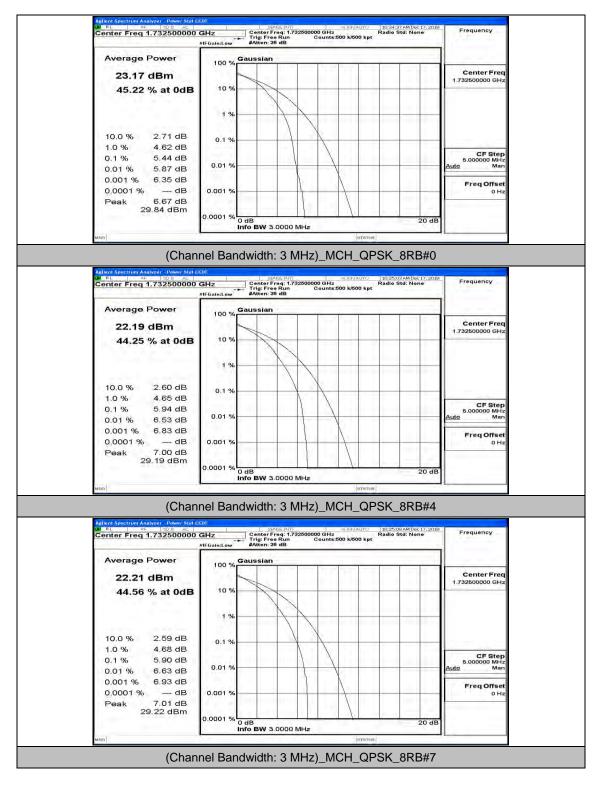




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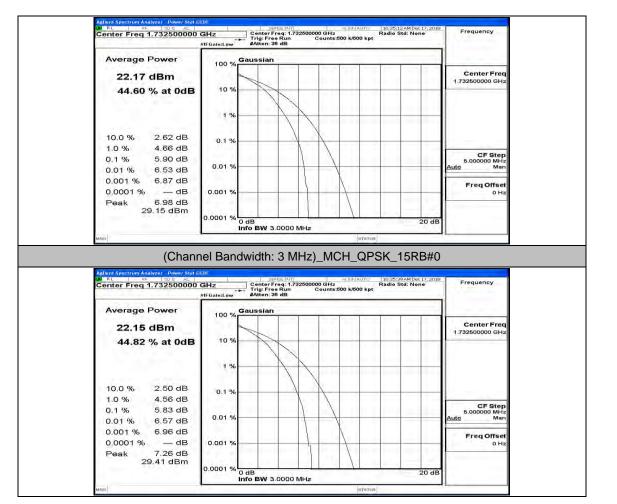
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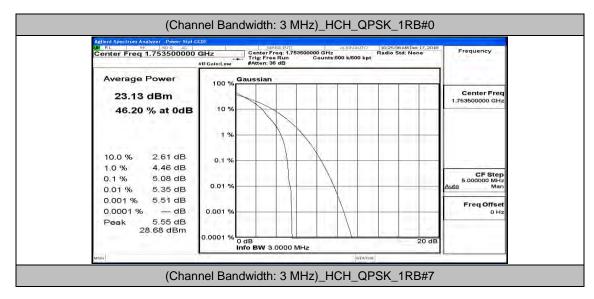


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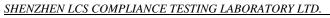
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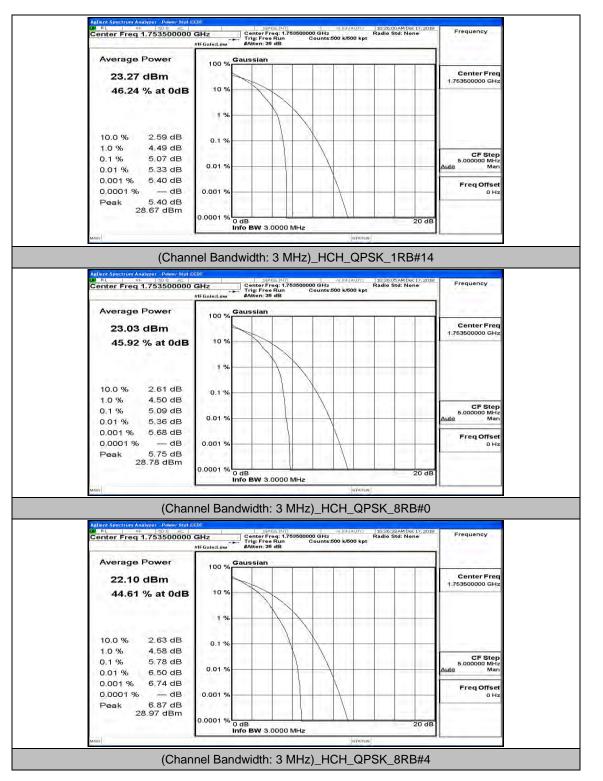
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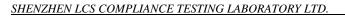


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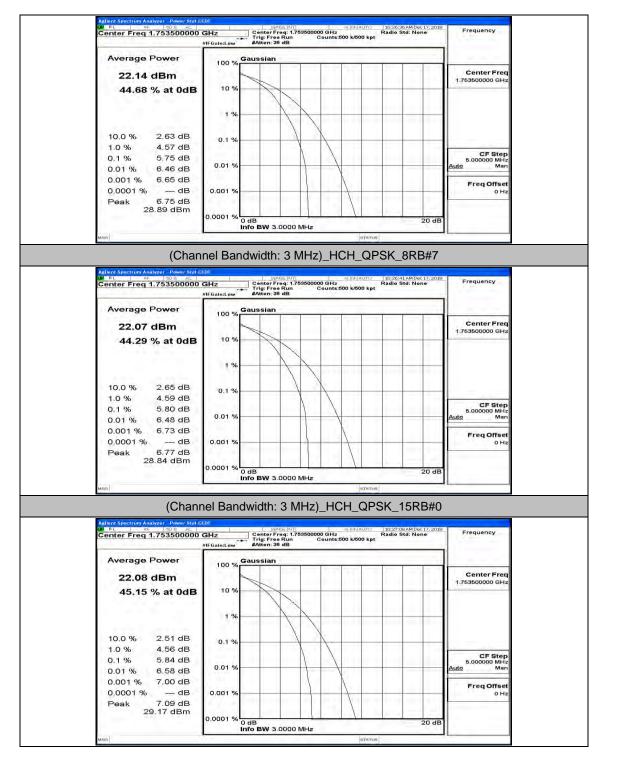




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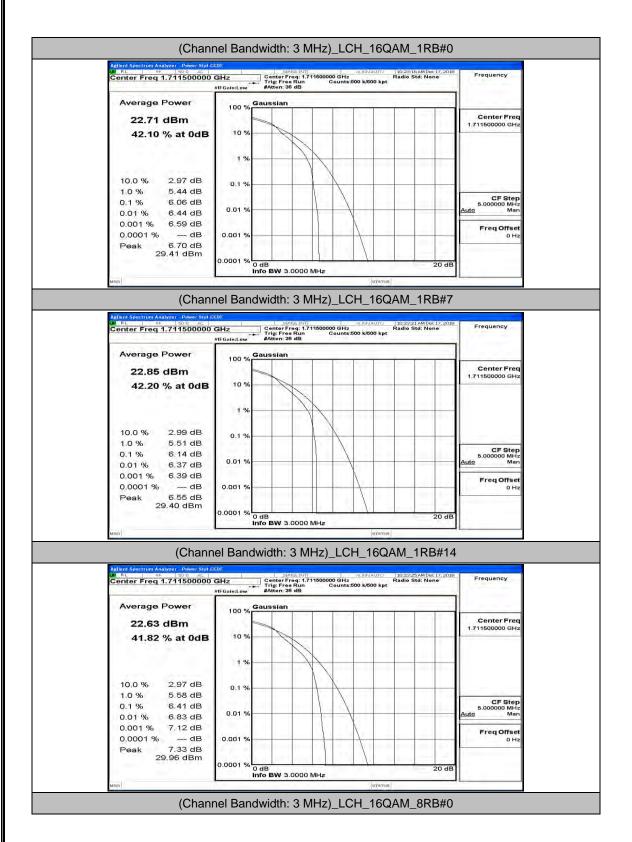


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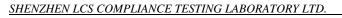


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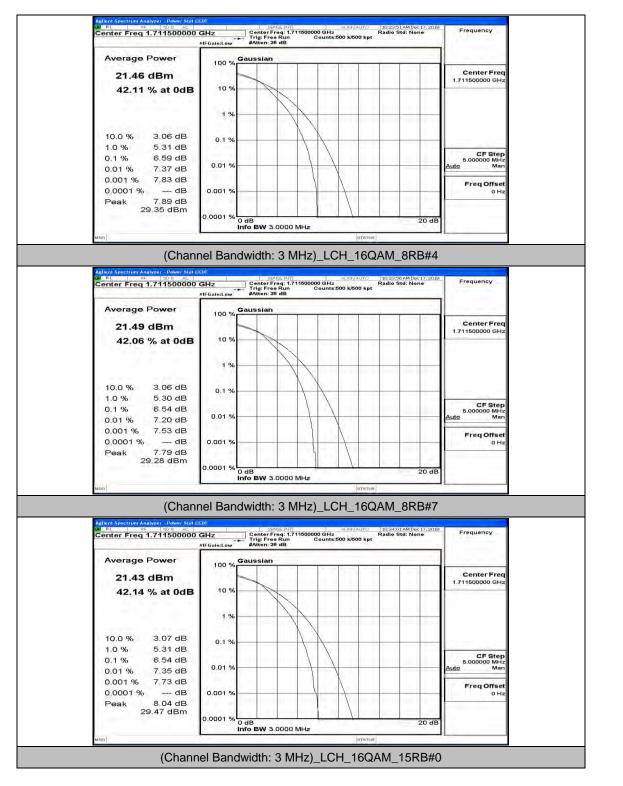
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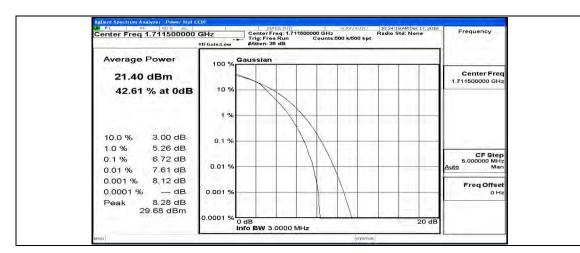
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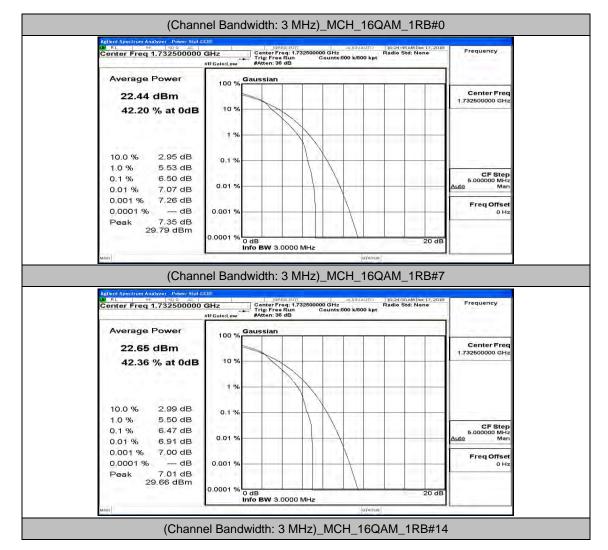


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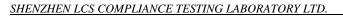
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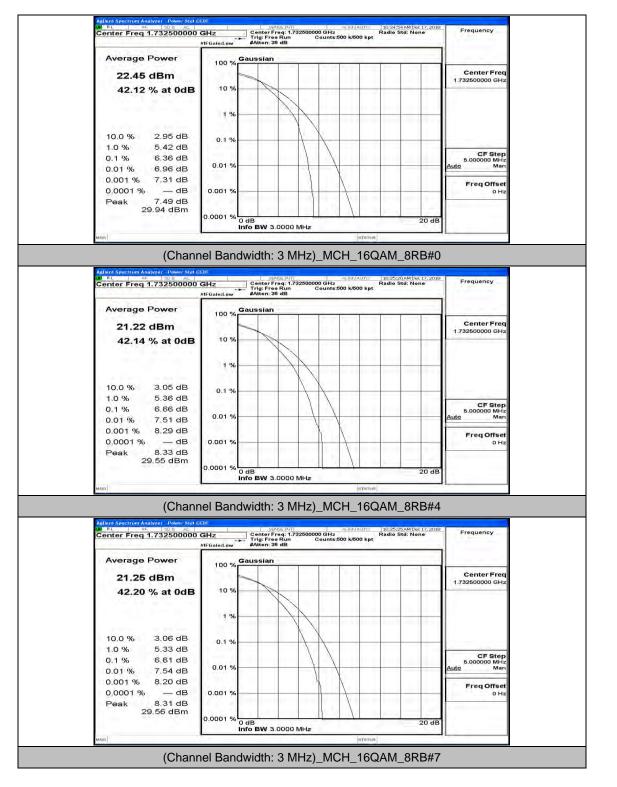




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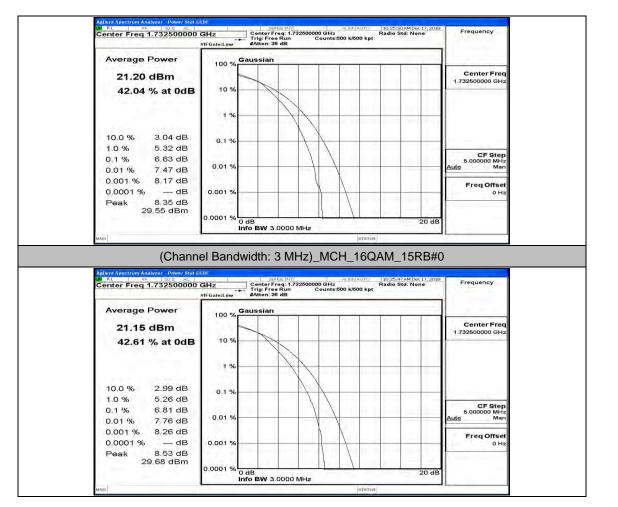
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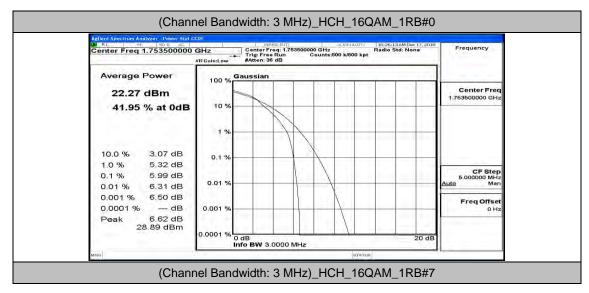


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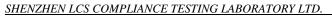
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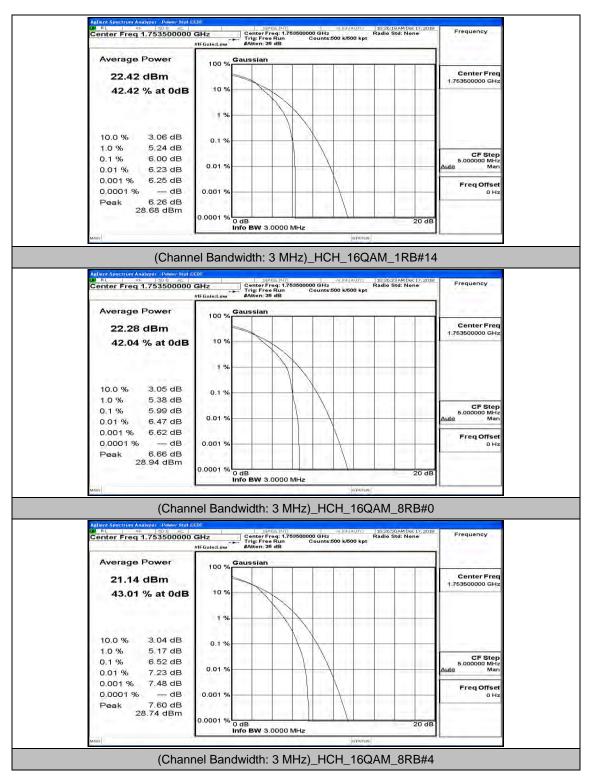
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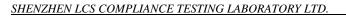


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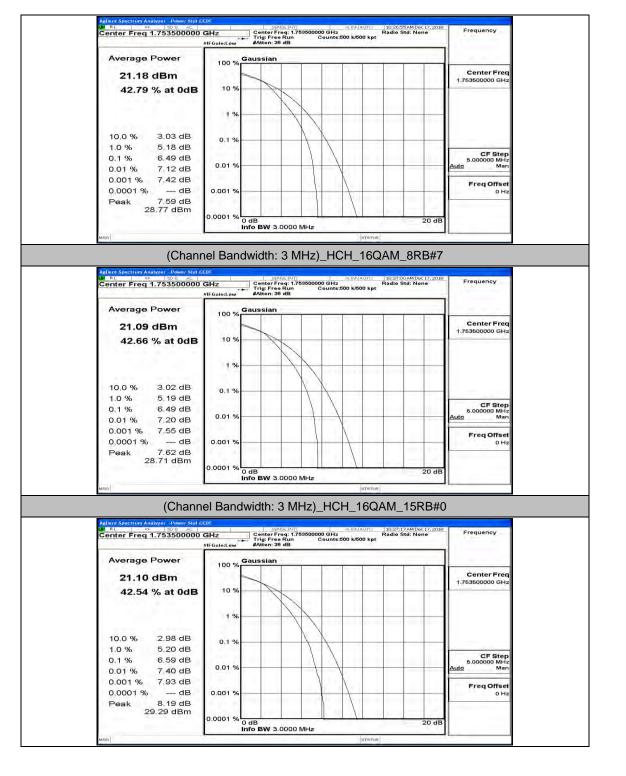




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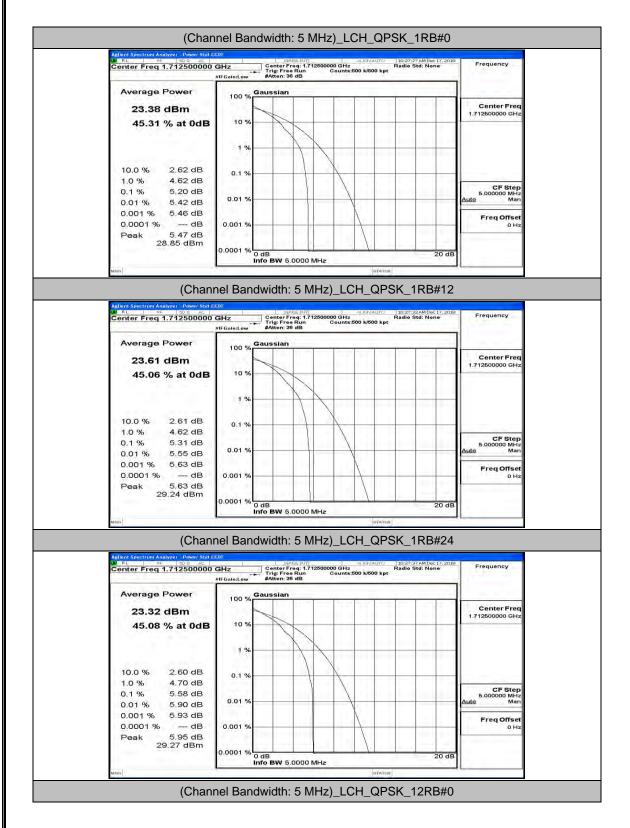


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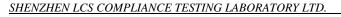


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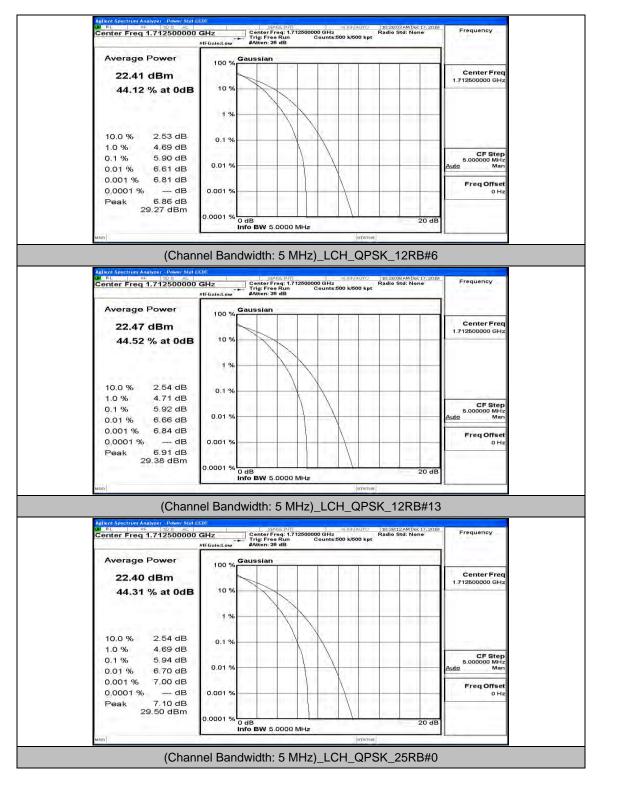
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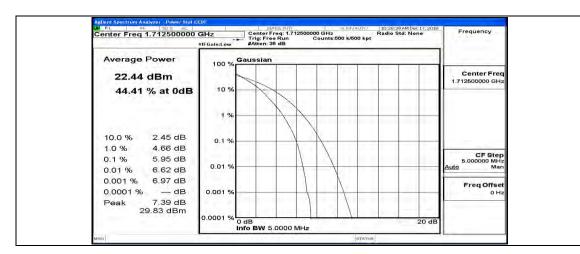
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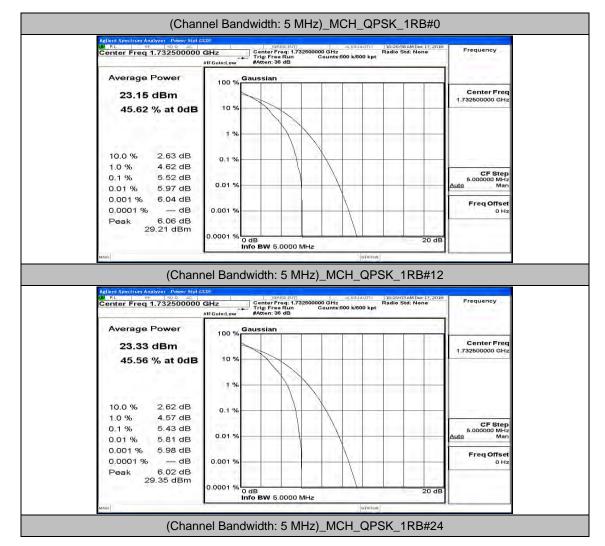


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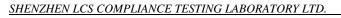
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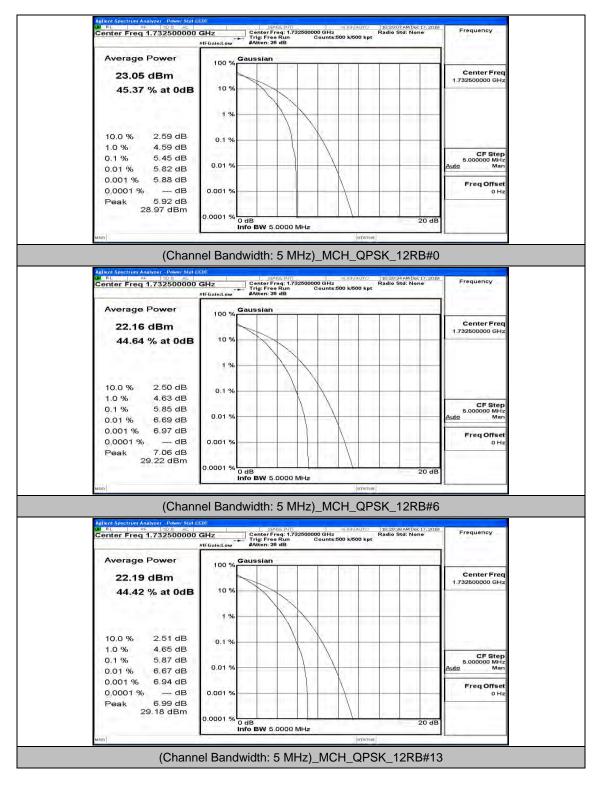




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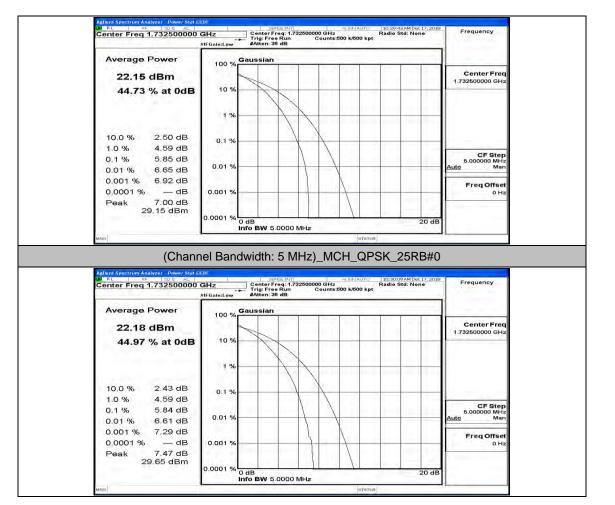
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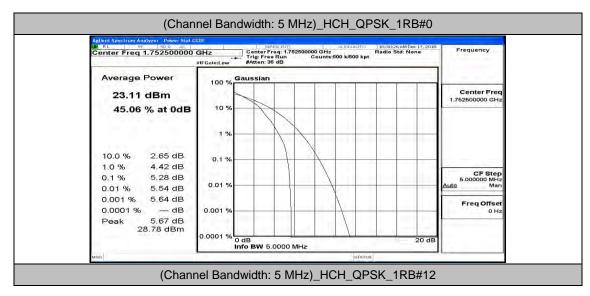


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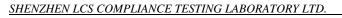
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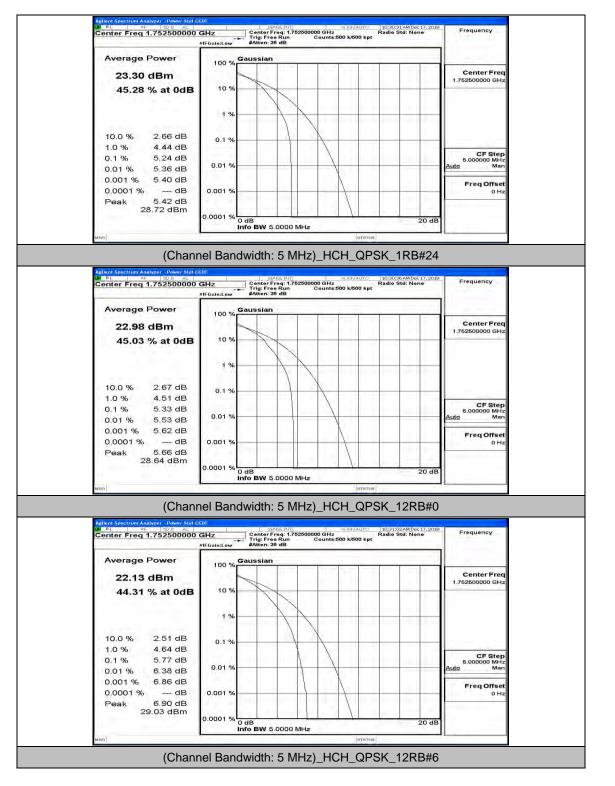




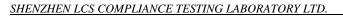
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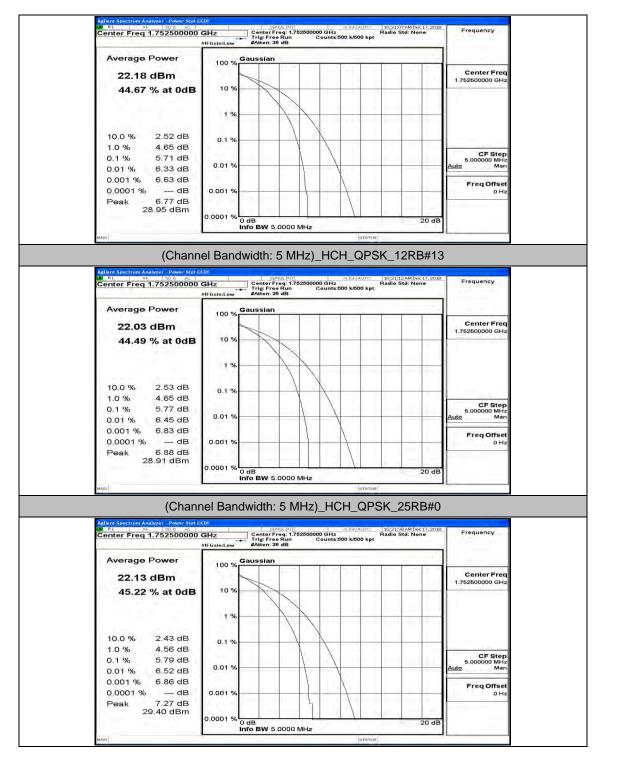
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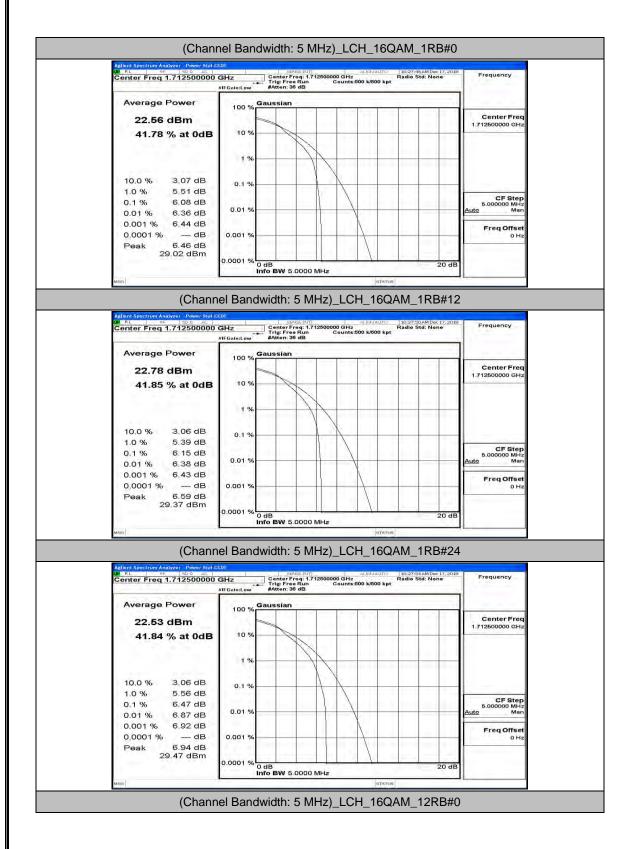


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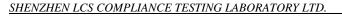


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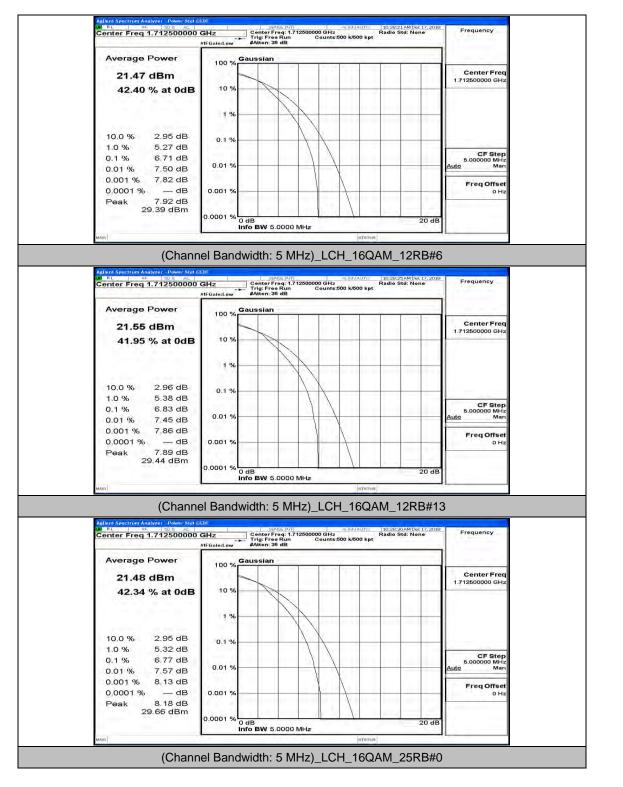
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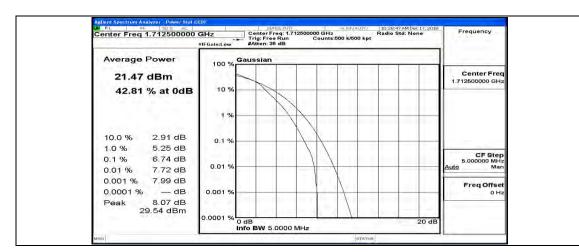
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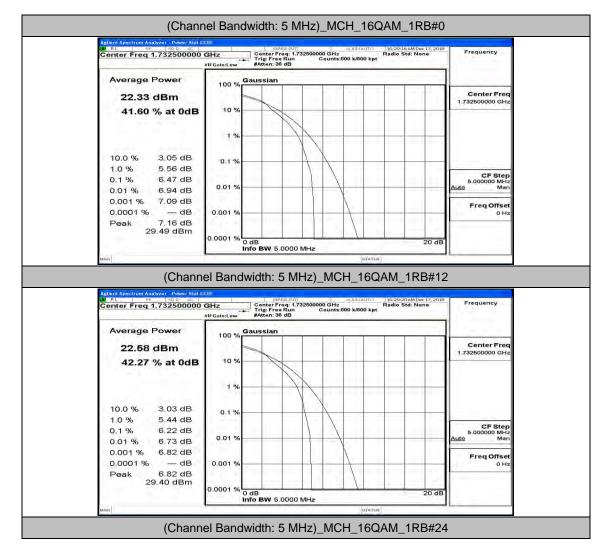


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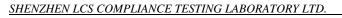
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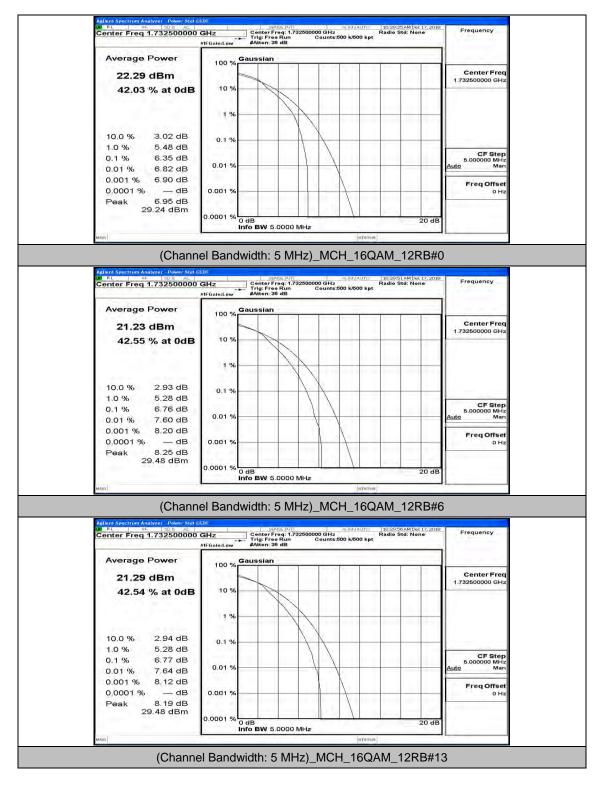




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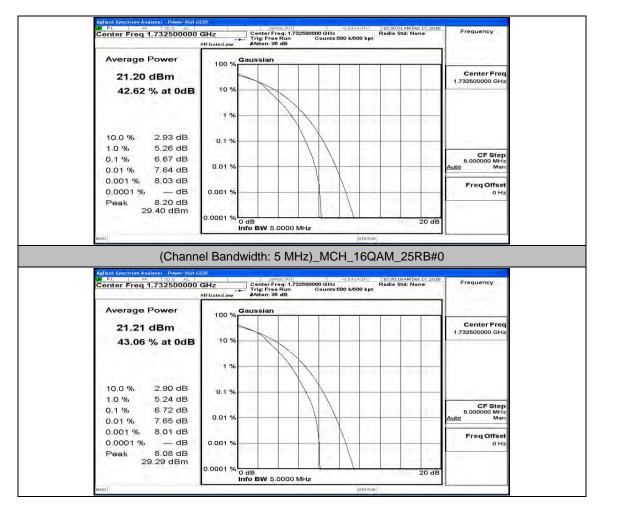
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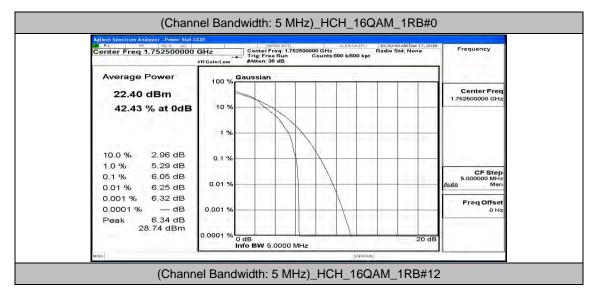


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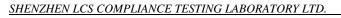
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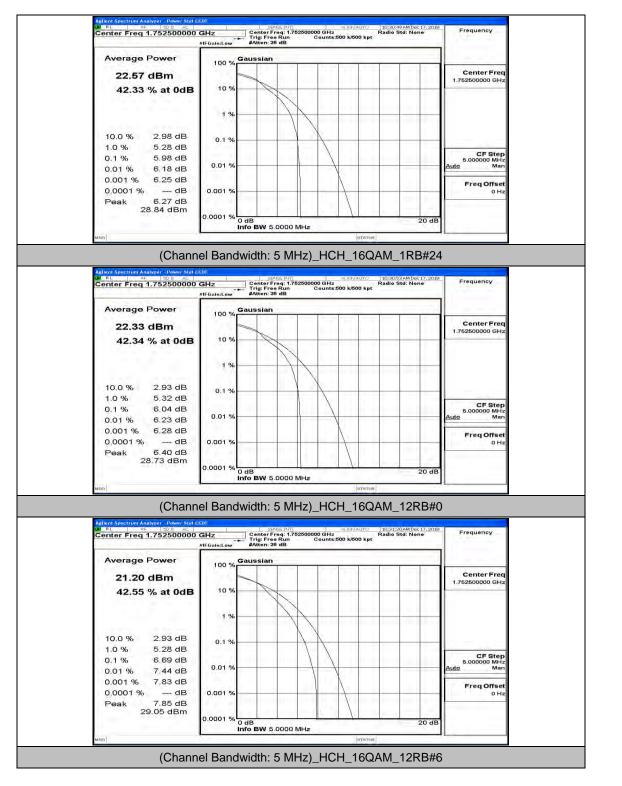




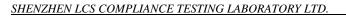
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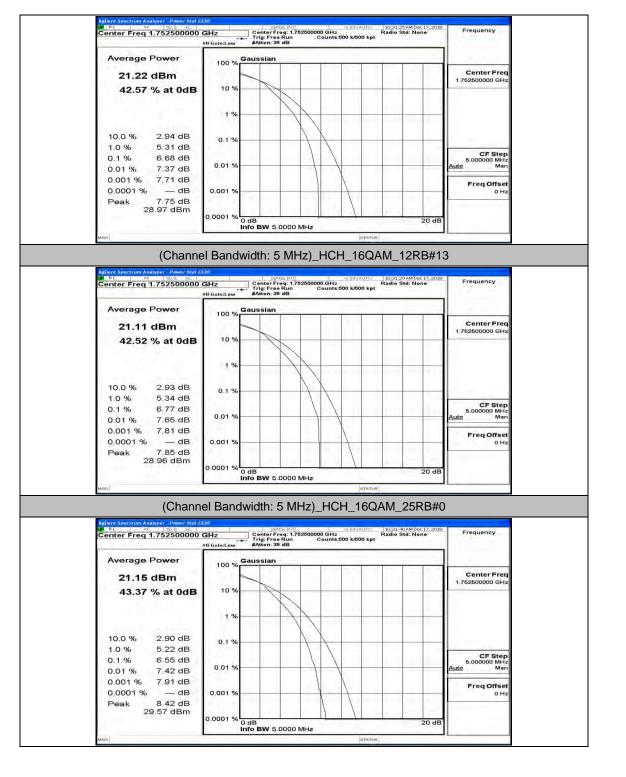
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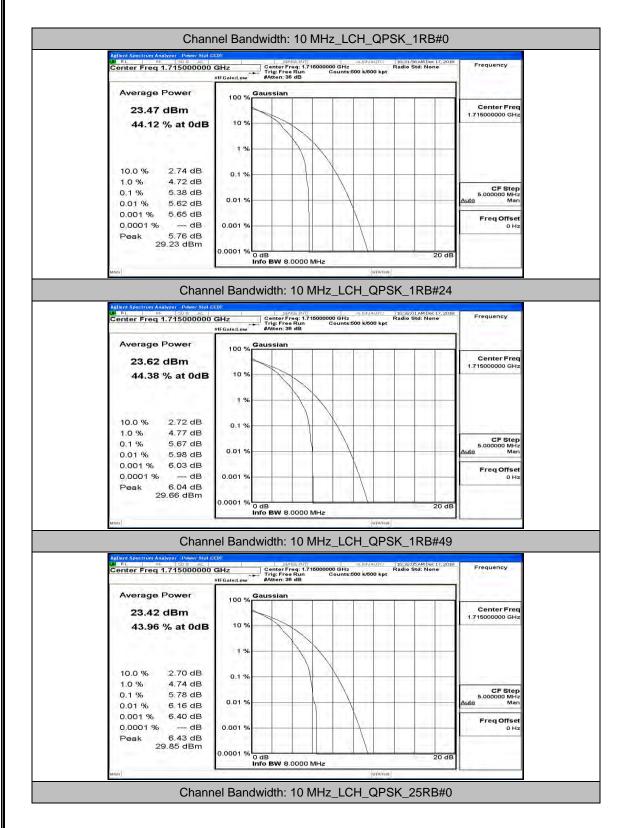


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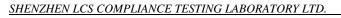


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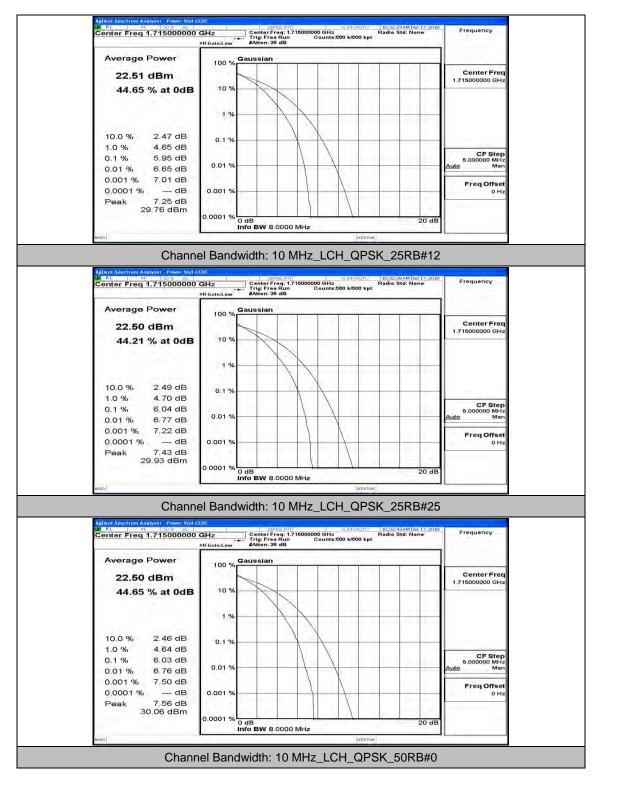
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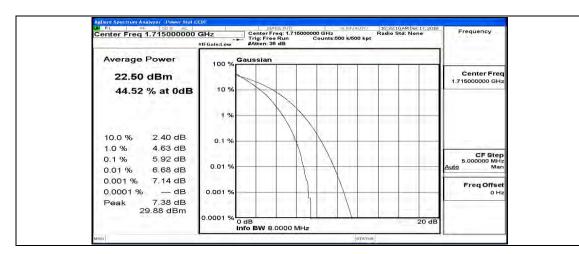
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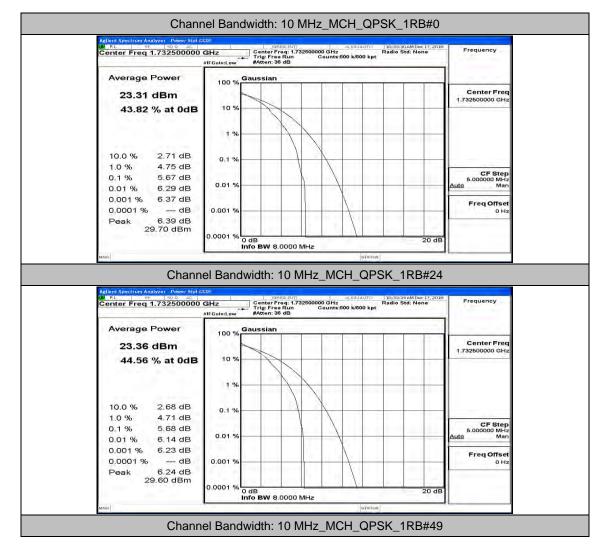


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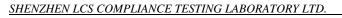
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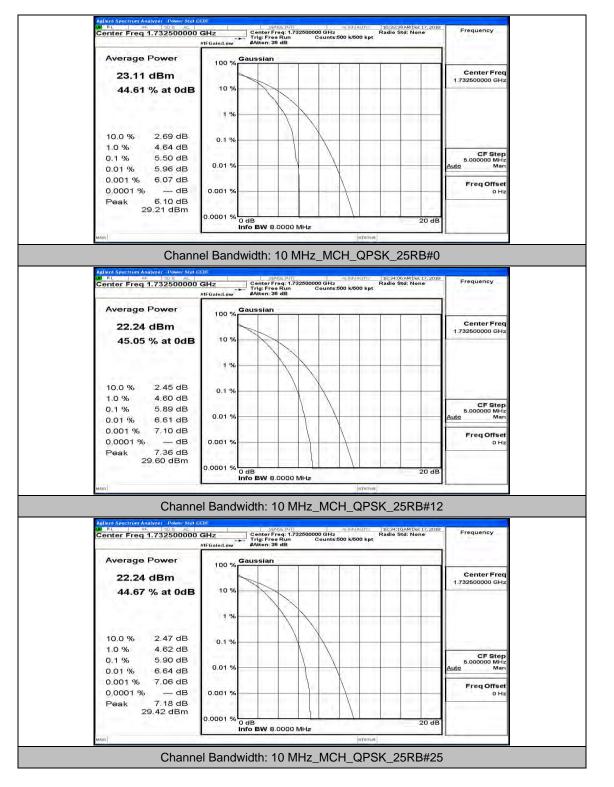




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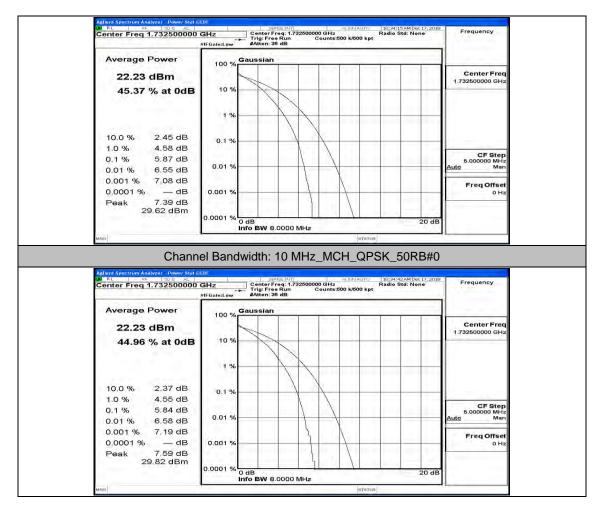
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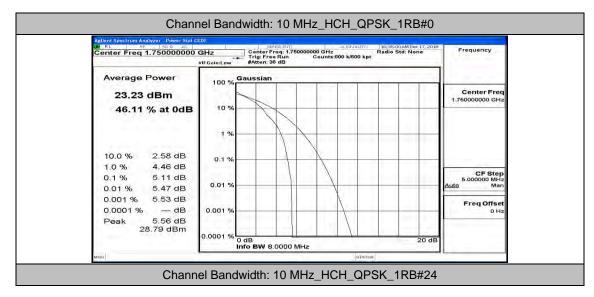


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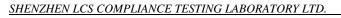
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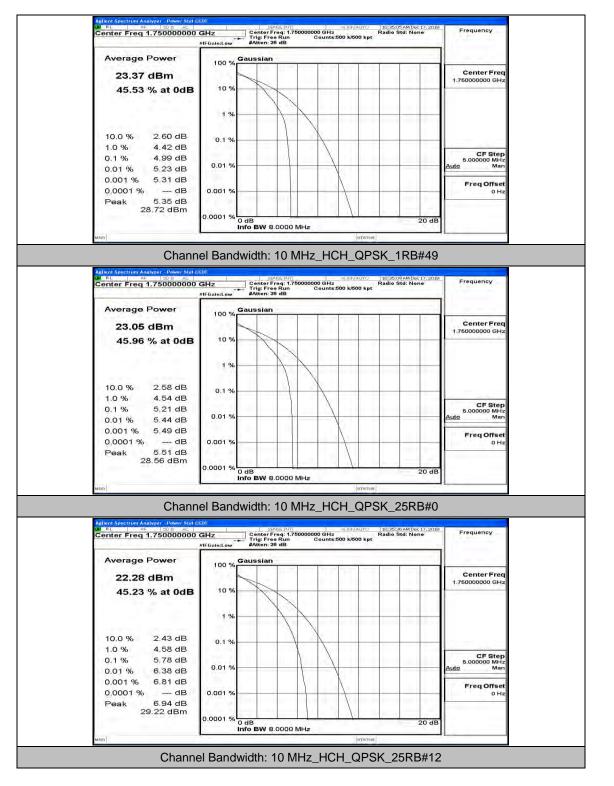




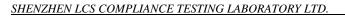
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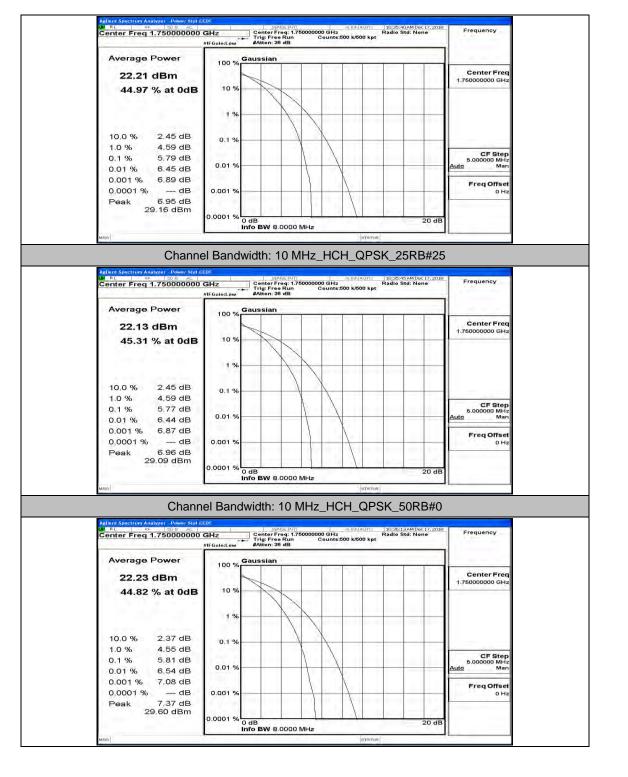
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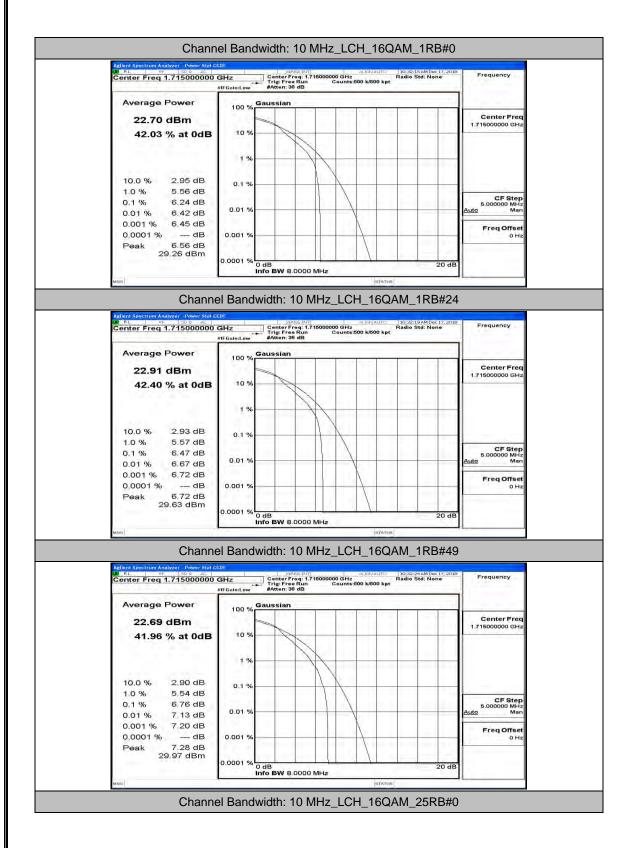
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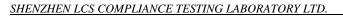
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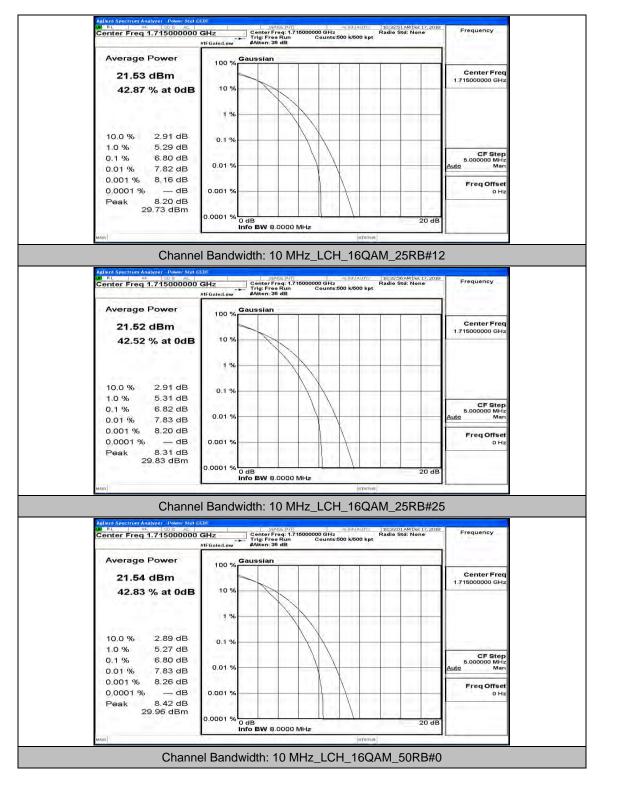
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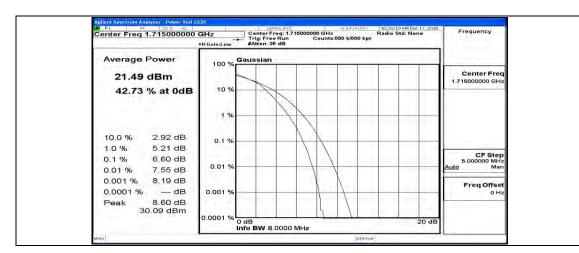
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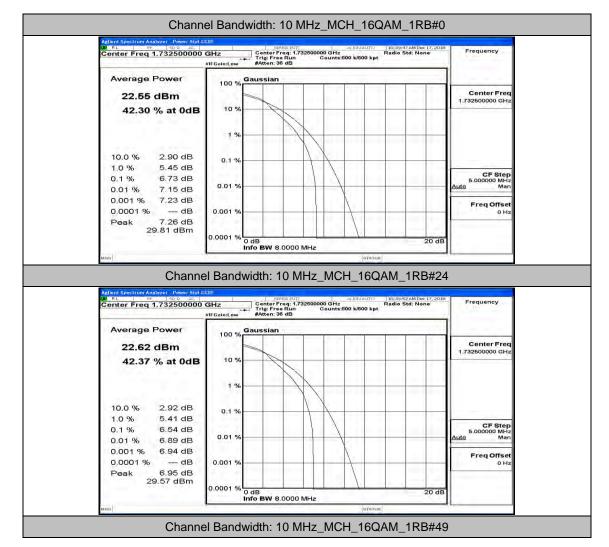


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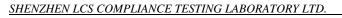
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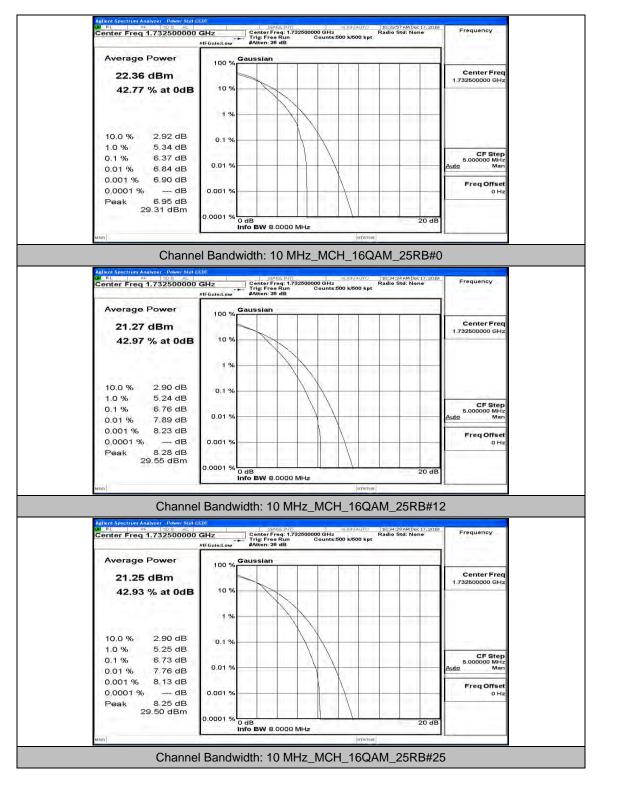




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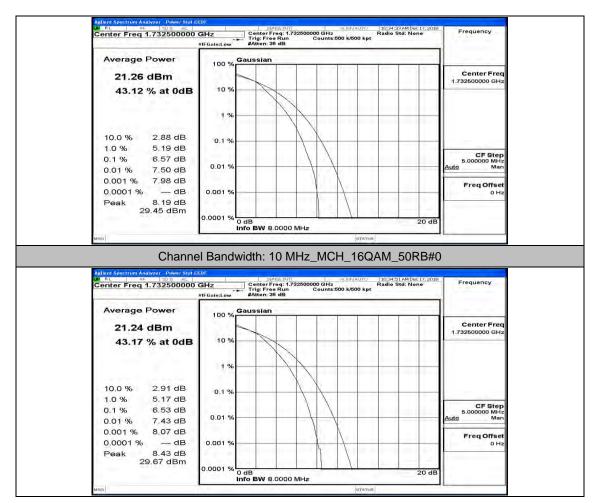
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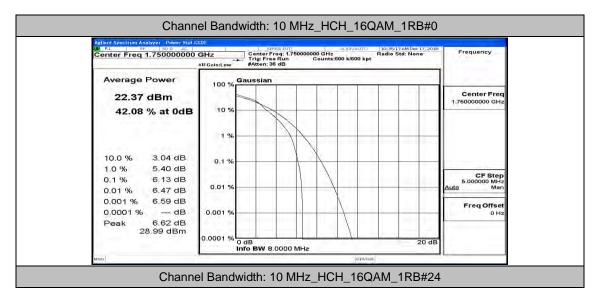


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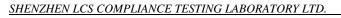
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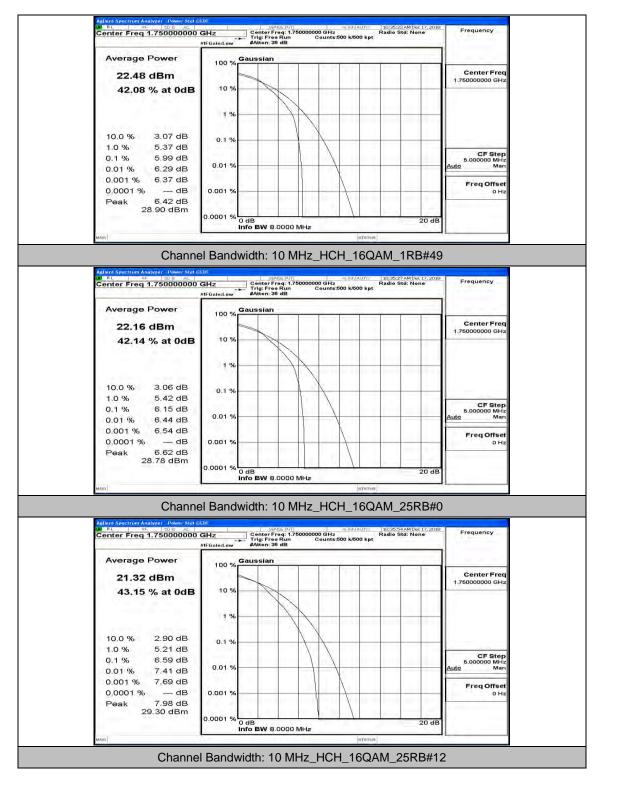




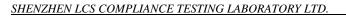
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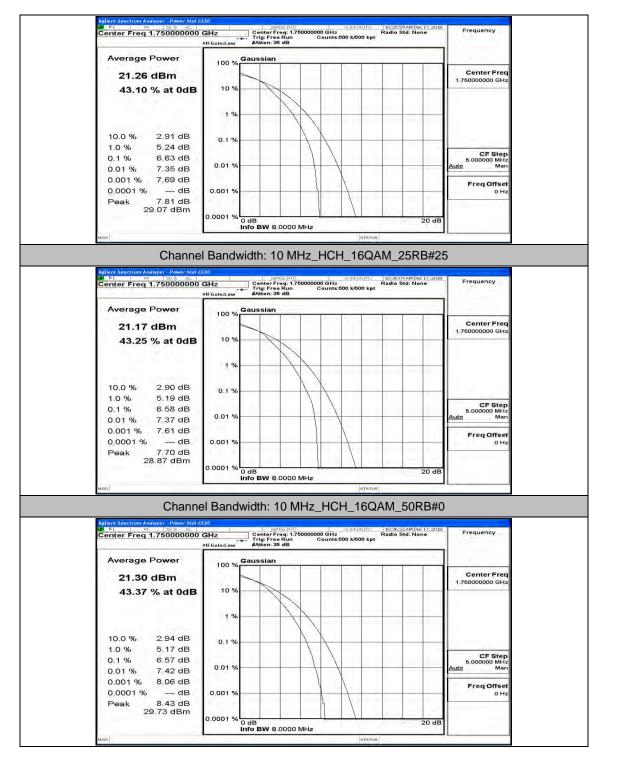
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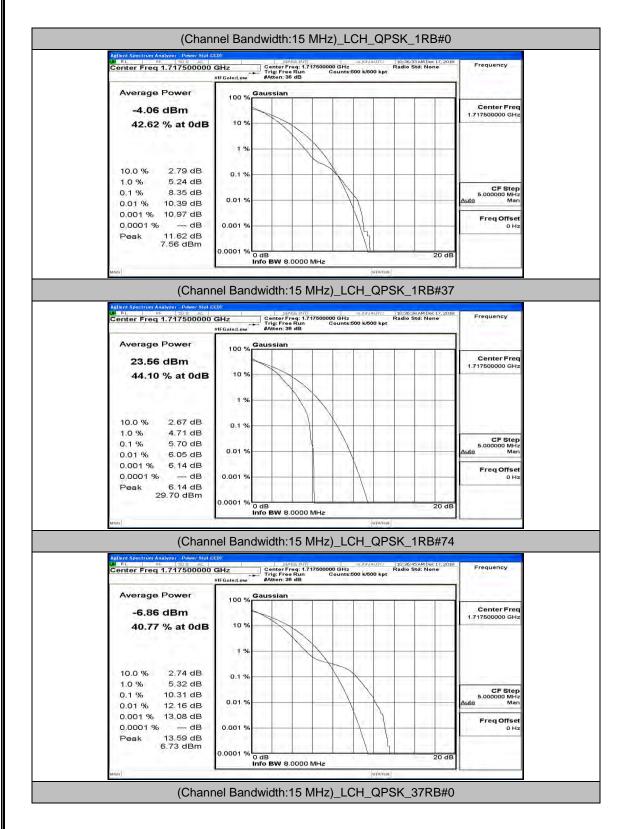


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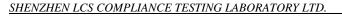


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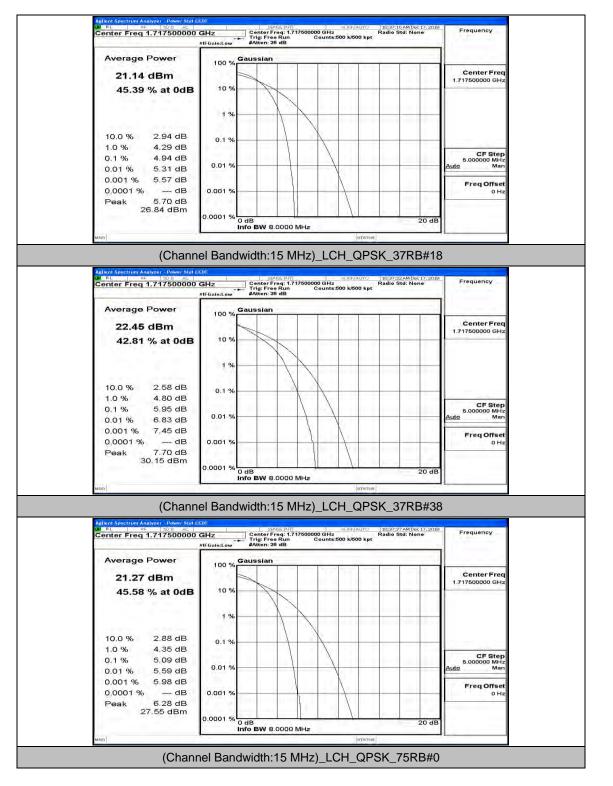
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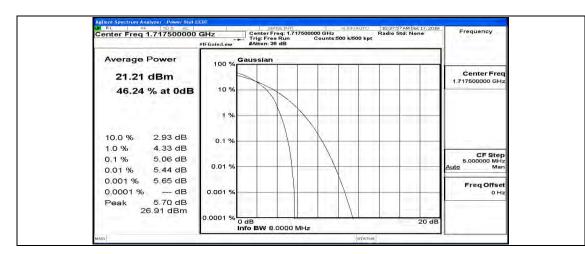
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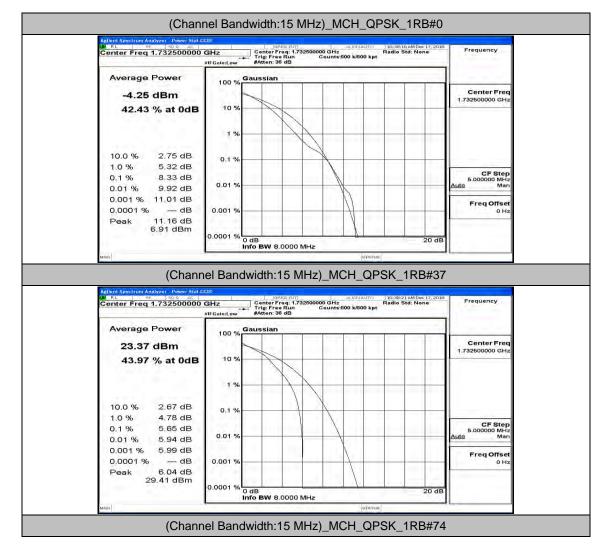


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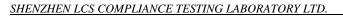
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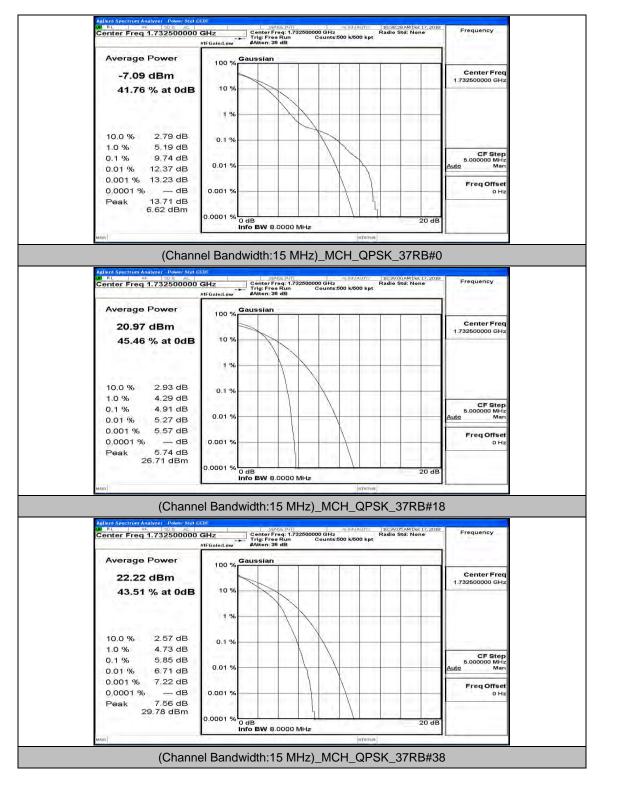




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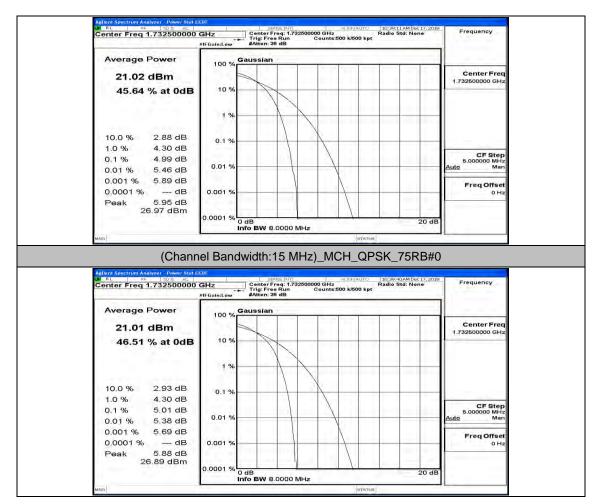
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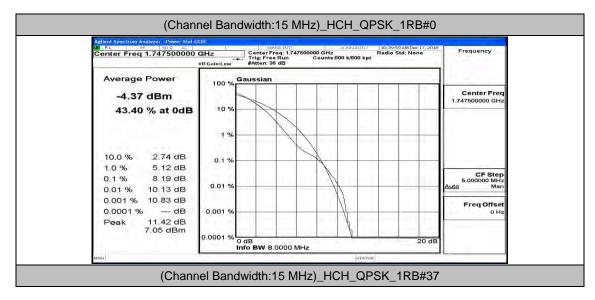


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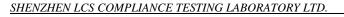
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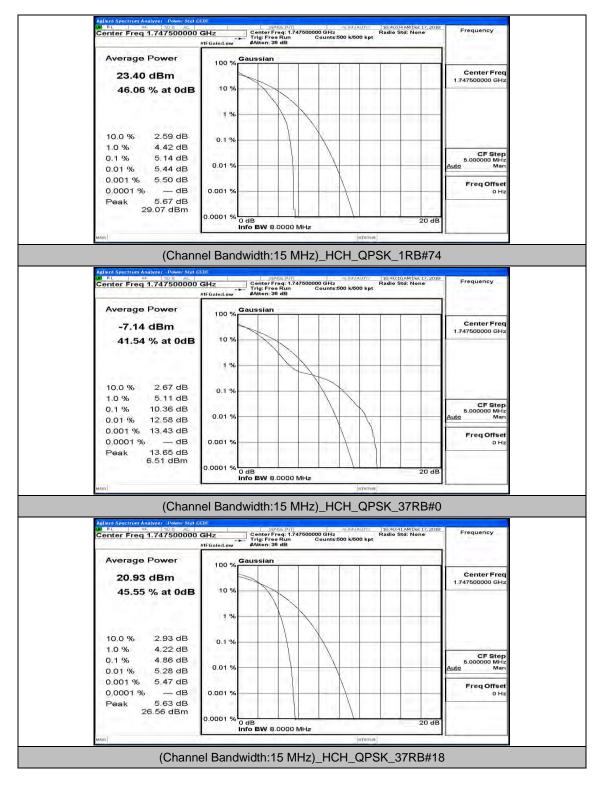




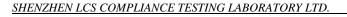
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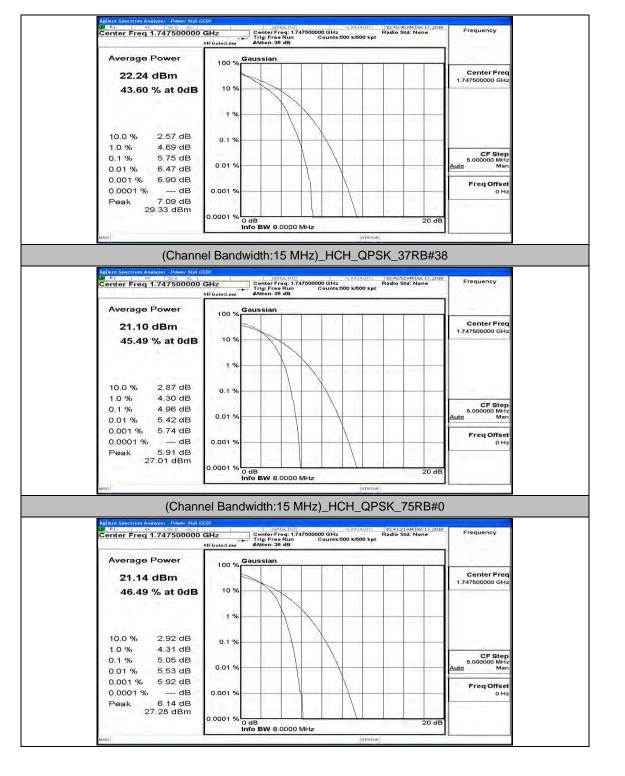
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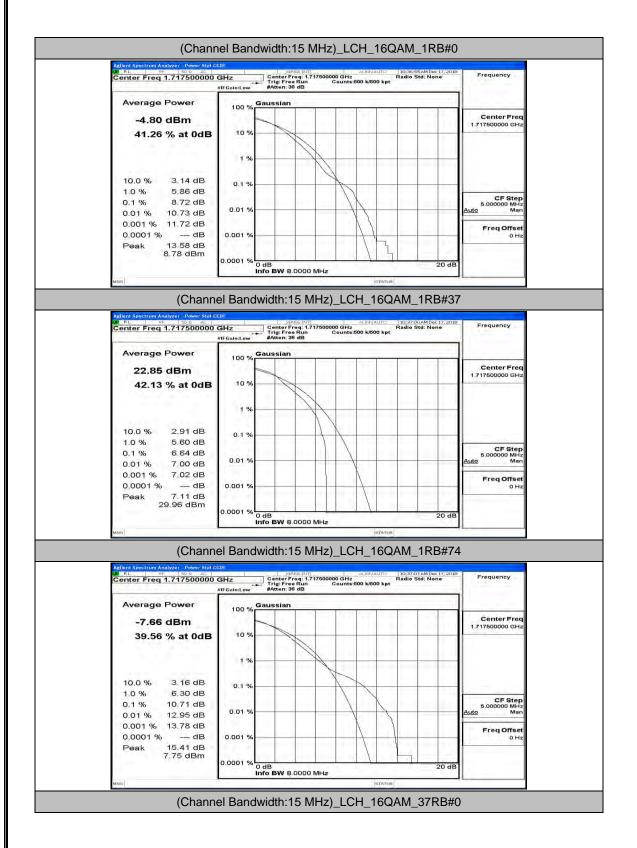
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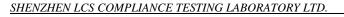
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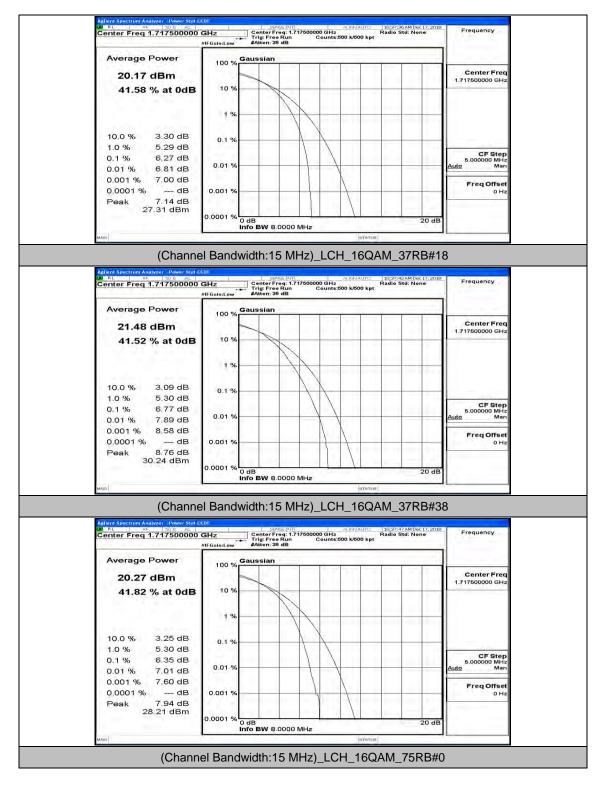
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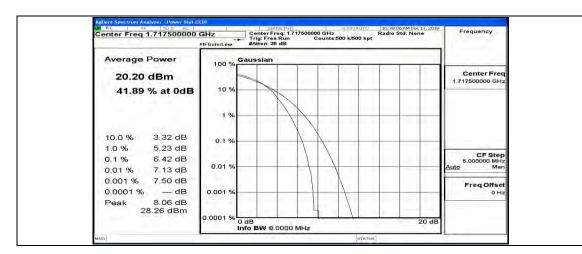
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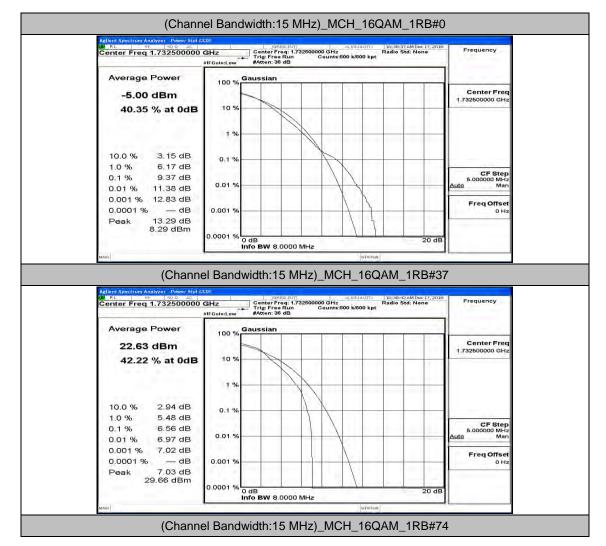


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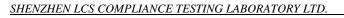
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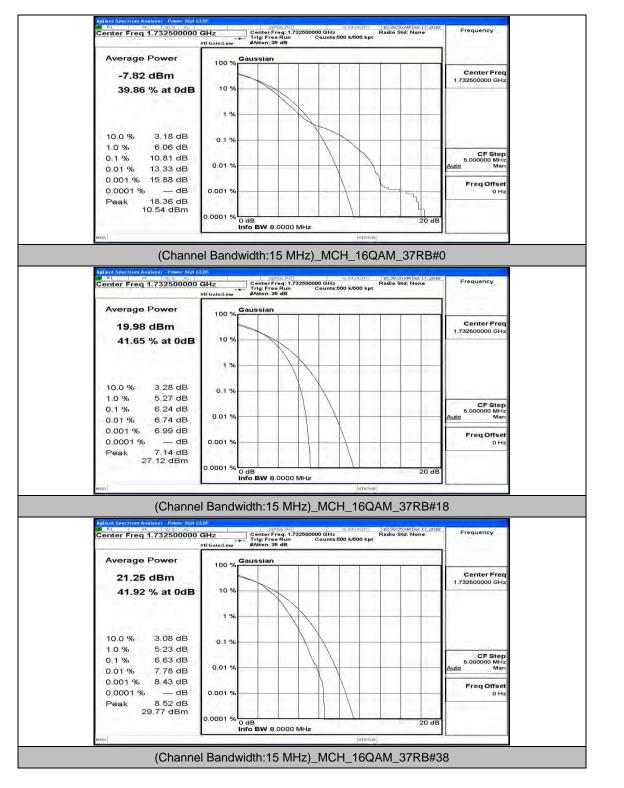




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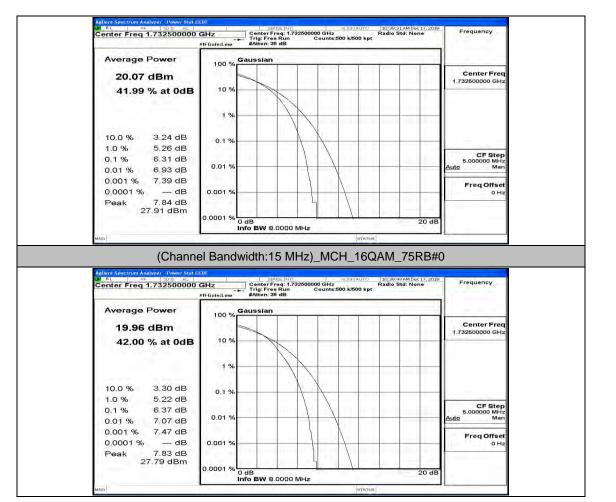
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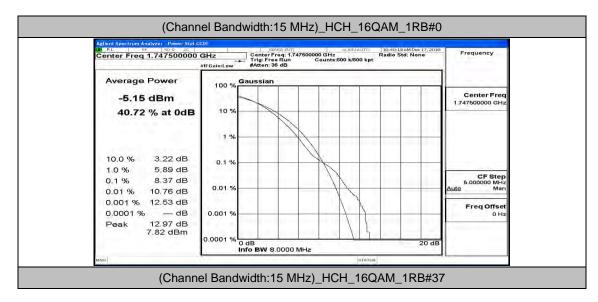


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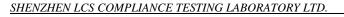
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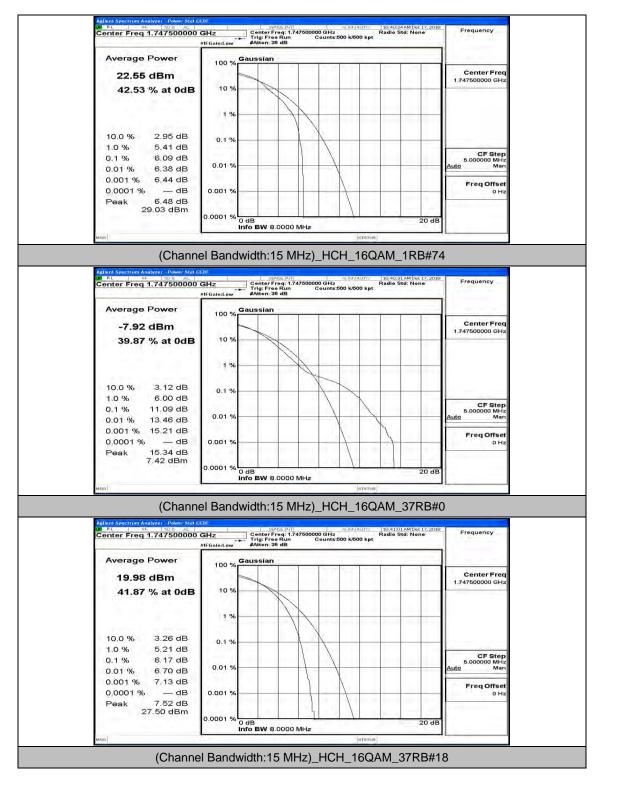




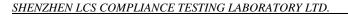
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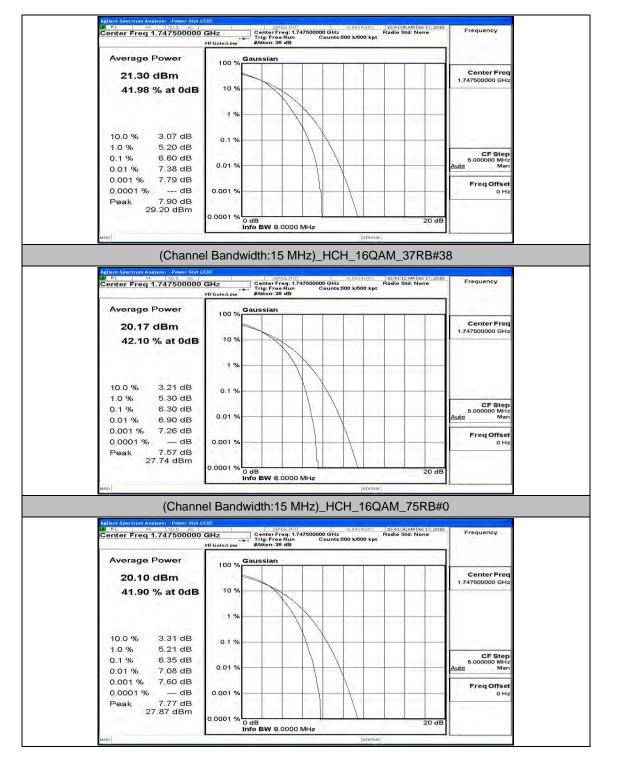
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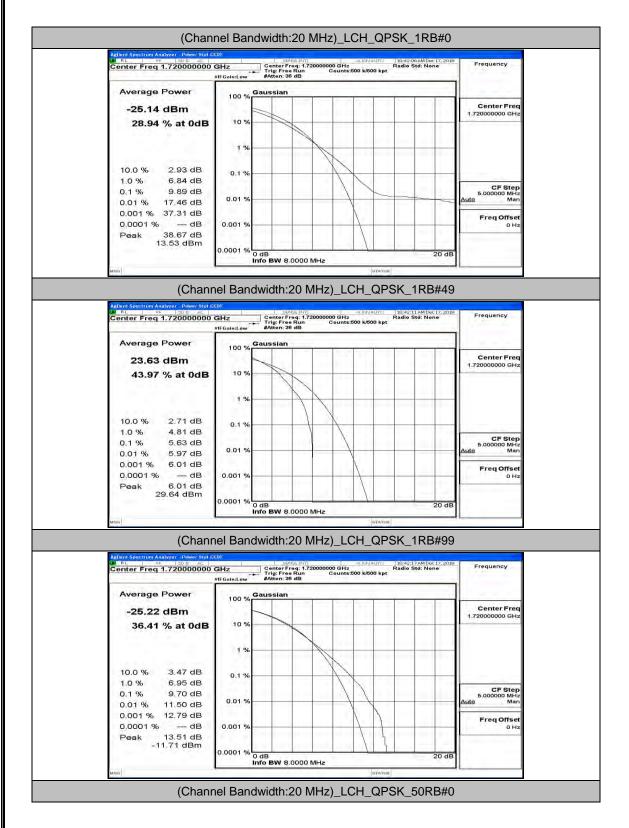


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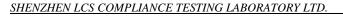


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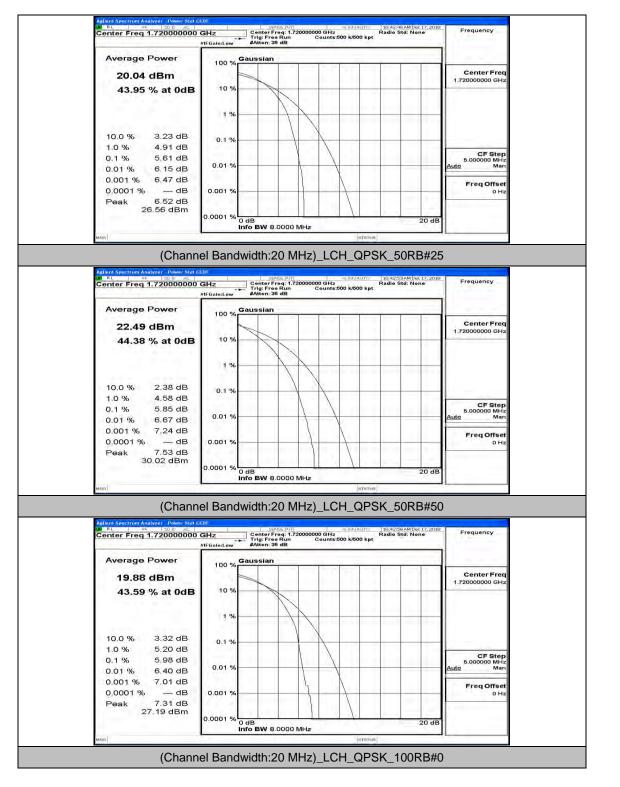
# Channel Bandwidth: 20 MHz



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