



REPORT No. : SZ19100318W02

Band17 / 10MHz / Mid CH / QPSK



Band17 / 10MHz / Mid CH / 16QAM



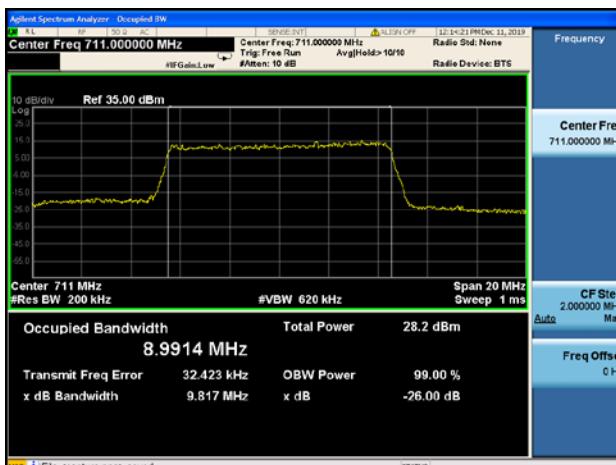
Band17 / 10MHz / Mid CH / 64QAM



Band17 / 10MHz / High CH / QPSK



Band17 / 10MHz / High CH / 16QAM



Band17 / 10MHz / High CH / 64QAM



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SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.
FL1-3, Building A, FeiYang Science Park, No.8 LongChang Road,
Block67, BaoAn District, ShenZhen , GuangDong Province, P. R. ChinaTel: 86-755-36698555 Fax: 86-755-36698525
Http://www.morlab.cn E-mail: service@morlab.cn

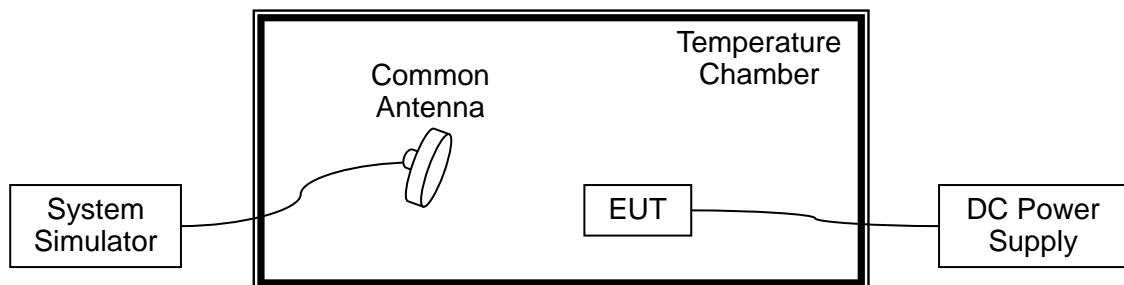
2.3. Frequency Stability

2.3.1. Requirement

According to FCC section 2.1055 & 27.54&24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

- (a) The temperature is varied from -10°C to +45°C at intervals of not more than 10°C.
- (b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

2.3.2. Test Description



The EUT which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power. A call is established between the EUT and the SS via a Common Antenna.

2.3.3. Test procedure

KDB 971168 D01v03 Section 9.0 and ANSI/TIA-603-E-2016.

2.3.4. Test Result

The nominal, highest and lowest extreme voltages are separately 3.85VDC, 4.2VDC and 3.6VDC, which are specified by the applicant; the normal temperature here used is 20°C.



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LTE Band 2, QPSK, Channel 18900, Frequency 1880.0MHz Limit =Within Authorized Band					
Voltage(%)	Power(VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
100	12	+20 (Ref)	53	0.028	PASS
100		-25	66	0.029	
100		-10	-58	-0.031	
100		0	42	0.022	
100		+10	-16	-0.009	
100		+20	-47	-0.025	
100		+30	25	0.013	
100		+40	47	0.025	
100		+50	13	0.007	
100		+60	26	0.014	
100		+65	37	0.015	
115		+20	-15	-0.008	
85		+20	53	0.028	

LTE Band 4, QPSK, Channel 20175, Frequency 1732.5MHz Limit =Within Authorized Band					
Voltage(%)	Power(VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
100	12	+20 (Ref)	53	0.031	PASS
100		-25	54	0.031	
100		-10	-57	-0.033	
100		0	42	0.024	
100		+10	-43	-0.025	
100		+20	-47	-0.027	
100		+30	31	0.018	
100		+40	47	0.027	
100		+50	53	0.031	
100		+60	26	0.015	
100		+65	19	0.013	
115		+20	-15	-0.009	
85		+20	53	0.031	



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LTE Band 5, QPSK, Channel 20525, Frequency 836.5MHz
Limit=±2.5ppm

Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	12	+20 (Ref)	52	0.025	PASS
100		-25	-50	-0.024	
100		-10	-57	-0.027	
100		0	38	0.018	
100		+10	-43	-0.021	
100		+20	-37	-0.018	
100		+30	73	0.035	
100		+40	47	0.022	
100		+50	27	0.013	
100		+60	26	0.012	
100		+65	-22	-0.011	
115		+20	-42	-0.020	
85	24	+20	52	0.025	
85	10	+20			

LTE Band 7, QPSK, Channel 21100, Frequency 2535MHz
Limit=±2.5ppm

Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	12	+20 (Ref)	54	0.026	PASS
100		-25	63	0.025	
100		-10	-51	-0.024	
100		0	33	0.017	
100		+10	-41	-0.021	
100		+20	-32	-0.018	
100		+30	75	0.031	
100		+40	44	0.018	
100		+50	23	0.012	
100		+60	24	0.012	
100		+65	33	0.013	
115		+20	-41	-0.023	
85	24	+20			
85	10	+20	50	0.022	



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LTE Band 17, QPSK, Channel 23790, Frequency 710MHz					
Limit =Within Authorized Band					
Voltage(%)	Power(VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
100	12	+20 (Ref)	51	0.029	PASS
100		-25	29	0.018	
100		-10	-53	-0.030	
100		0	42	0.024	
100		+10	-7	-0.004	
100		+20	-39	-0.022	
100		+30	27	0.015	
100		+40	37	0.021	
100		+50	13	0.007	
100		+60	36	0.020	
100		+65	-31	-0.019	
115	24	+20	-55	-0.031	
85	10	+20	51	0.029	

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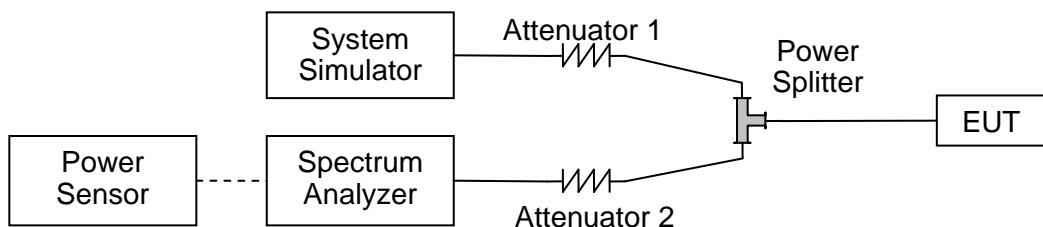
2.4. Peak to Average Radio

2.4.1. Requirement

According to FCC section 24.232(d), the peak to average ratio (PAR) of the transmission may not exceed 13dB.

2.4.2. Test Description

Test Set:



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ω; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

2.4.3. Test procedure

KDB 971168 D01v03 Section 5.7 and ANSI/TIA-603-E-2016.

2.4.4. Test Result

Record the maximum PAPR level associated with a probability of 0.1%.



LTE Band 2					
BW(MHz)	Channel Level	Modulation	Peak to Average Radio(dB)	Limit (dB)	Verdict
1.4	Low	QPSK	4.25	<=13	PASS
1.4	Low	16QAM	5.05	<=13	PASS
1.4	Low	64QAM	4.95	<=13	PASS
1.4	Mid	QPSK	4.35	<=13	PASS
1.4	Mid	16QAM	5.16	<=13	PASS
1.4	Mid	64QAM	5.12	<=13	PASS
1.4	High	QPSK	5.26	<=13	PASS
1.4	High	16QAM	6.13	<=13	PASS
1.4	High	64QAM	4.47	<=13	PASS
3	Low	QPSK	5.18	<=13	PASS
3	Low	16QAM	5.15	<=13	PASS
3	Low	64QAM	4.48	<=13	PASS
3	Mid	QPSK	5.35	<=13	PASS
3	Mid	16QAM	5.30	<=13	PASS
3	Mid	64QAM	5.66	<=13	PASS
3	High	QPSK	6.53	<=13	PASS
3	High	16QAM	6.45	<=13	PASS
3	High	64QAM	4.80	<=13	PASS
5	Low	QPSK	5.53	<=13	PASS
5	Low	16QAM	5.39	<=13	PASS
5	Low	64QAM	4.71	<=13	PASS
5	Mid	QPSK	5.48	<=13	PASS
5	Mid	16QAM	5.46	<=13	PASS
5	Mid	64QAM	5.70	<=13	PASS
5	High	QPSK	6.46	<=13	PASS
5	High	16QAM	6.48	<=13	PASS
5	High	64QAM	5.07	<=13	PASS
10	Low	QPSK	5.77	<=13	PASS
10	Low	16QAM	5.79	<=13	PASS
10	Low	64QAM	5.11	<=13	PASS
10	Mid	QPSK	5.82	<=13	PASS
10	Mid	16QAM	5.84	<=13	PASS
10	Mid	64QAM	5.72	<=13	PASS
10	High	QPSK	6.54	<=13	PASS



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10	High	16QAM	6.54	<=13	PASS
10	High	64QAM	5.21	<=13	PASS
15	Low	QPSK	5.97	<=13	PASS
15	Low	16QAM	5.95	<=13	PASS
15	Low	64QAM	4.60	<=13	PASS
15	Mid	QPSK	5.38	<=13	PASS
15	Mid	16QAM	5.35	<=13	PASS
15	Mid	64QAM	5.71	<=13	PASS
15	High	QPSK	6.53	<=13	PASS
15	High	16QAM	6.55	<=13	PASS
15	High	64QAM	5.36	<=13	PASS
20	Low	QPSK	6.13	<=13	PASS
20	Low	16QAM	6.10	<=13	PASS
20	Low	64QAM	5.07	<=13	PASS
20	Mid	QPSK	5.85	<=13	PASS
20	Mid	16QAM	5.80	<=13	PASS
20	Low	64QAM	5.61	<=13	PASS
20	High	QPSK	6.40	<=13	PASS
20	High	16QAM	6.39	<=13	PASS
20	Low	64QAM	4.25	<=13	PASS

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[Http://www.morlab.cn](http://www.morlab.cn) E-mail: service@morlab.cn



LTE Band 4					
BW(MHz)	Channel Level	Modulation	Peak to Average Radio(dB)	Limit (dB)	Verdict
1.4	Low	QPSK	6.06	<=13	PASS
1.4	Low	16QAM	6.83	<=13	PASS
1.4	Low	64QAM	6.83	<=13	PASS
1.4	Mid	QPSK	5.27	<=13	PASS
1.4	Mid	16QAM	6.05	<=13	PASS
1.4	Mid	64QAM	6.05	<=13	PASS
1.4	High	QPSK	4.84	<=13	PASS
1.4	High	16QAM	5.65	<=13	PASS
1.4	High	64QAM	5.73	<=13	PASS
3	Low	QPSK	6.14	<=13	PASS
3	Low	16QAM	6.99	<=13	PASS
3	Low	64QAM	6.89	<=13	PASS
3	Mid	QPSK	5.32	<=13	PASS
3	Mid	16QAM	6.12	<=13	PASS
3	Mid	64QAM	6.04	<=13	PASS
3	High	QPSK	5.16	<=13	PASS
3	High	16QAM	5.99	<=13	PASS
3	High	64QAM	5.93	<=13	PASS
5	Low	QPSK	5.90	<=13	PASS
5	Low	16QAM	6.68	<=13	PASS
5	Low	64QAM	6.62	<=13	PASS
5	Mid	QPSK	5.36	<=13	PASS
5	Mid	16QAM	6.05	<=13	PASS
5	Mid	64QAM	5.81	<=13	PASS
5	High	QPSK	5.38	<=13	PASS
5	High	16QAM	6.01	<=13	PASS
5	High	64QAM	6.06	<=13	PASS
10	Low	QPSK	5.91	<=13	PASS
10	Low	16QAM	6.56	<=13	PASS
10	Low	64QAM	6.55	<=13	PASS
10	Mid	QPSK	5.32	<=13	PASS
10	Mid	16QAM	6.02	<=13	PASS
10	Mid	64QAM	6.04	<=13	PASS
10	High	QPSK	5.49	<=13	PASS



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10	High	16QAM	6.17	<=13	PASS
10	High	64QAM	6.22	<=13	PASS
15	Low	QPSK	5.77	<=13	PASS
15	Low	16QAM	6.54	<=13	PASS
15	Low	64QAM	6.54	<=13	PASS
15	Mid	QPSK	5.29	<=13	PASS
15	Mid	16QAM	6.04	<=13	PASS
15	Mid	64QAM	6.01	<=13	PASS
15	High	QPSK	5.49	<=13	PASS
15	High	16QAM	6.26	<=13	PASS
15	High	64QAM	6.27	<=13	PASS
20	Low	QPSK	5.36	<=13	PASS
20	Low	16QAM	6.14	<=13	PASS
20	Low	64QAM	6.13	<=13	PASS
20	Mid	QPSK	5.23	<=13	PASS
20	Mid	16QAM	6.02	<=13	PASS
20	Low	64QAM	6.02	<=13	PASS
20	High	QPSK	5.47	<=13	PASS
20	High	16QAM	6.27	<=13	PASS
20	Low	64QAM	6.25	<=13	PASS

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LTE Band 5					
BW(MHz)	Channel Level	Modulation	Peak to Average Radio(dB)	Limit (dB)	Verdict
1.4	Low	QPSK	3.84	<=13	PASS
1.4	Low	16QAM	4.69	<=13	PASS
1.4	Low	64QAM	4.61	<=13	PASS
1.4	Mid	QPSK	4.89	<=13	PASS
1.4	Mid	16QAM	5.74	<=13	PASS
1.4	Mid	64QAM	5.73	<=13	PASS
1.4	High	QPSK	4.27	<=13	PASS
1.4	High	16QAM	5.11	<=13	PASS
1.4	High	64QAM	5.14	<=13	PASS
3	Low	QPSK	4.01	<=13	PASS
3	Low	16QAM	4.88	<=13	PASS
3	Low	64QAM	4.70	<=13	PASS
3	Mid	QPSK	5.03	<=13	PASS
3	Mid	16QAM	5.82	<=13	PASS
3	Mid	64QAM	5.80	<=13	PASS
3	High	QPSK	4.29	<=13	PASS
3	High	16QAM	5.17	<=13	PASS
3	High	64QAM	5.11	<=13	PASS
5	Low	QPSK	4.45	<=13	PASS
5	Low	16QAM	5.20	<=13	PASS
5	Low	64QAM	5.23	<=13	PASS
5	Mid	QPSK	5.08	<=13	PASS
5	Mid	16QAM	5.91	<=13	PASS
5	Mid	64QAM	5.86	<=13	PASS
5	High	QPSK	4.54	<=13	PASS
5	High	16QAM	5.26	<=13	PASS
5	High	64QAM	5.23	<=13	PASS
10	Low	QPSK	4.79	<=13	PASS
10	Low	16QAM	5.48	<=13	PASS
10	Low	64QAM	5.48	<=13	PASS
10	Mid	QPSK	5.07	<=13	PASS
10	Mid	16QAM	5.81	<=13	PASS
10	Mid	64QAM	5.84	<=13	PASS
10	High	QPSK	4.66	<=13	PASS



10	High	16QAM	5.39	<=13	PASS
10	High	64QAM	5.34	<=13	PASS

LTE Band 7

BW(MHz)	Channel Level	Modulation	Peak to Average Radio(dB)	Limit (dB)	Verdict
5	Low	QPSK	3.32	<=13	PASS
5	Low	16QAM	4.20	<=13	PASS
5	Low	64QAM	4.14	<=13	PASS
5	Mid	QPSK	3.96	<=13	PASS
5	Mid	16QAM	4.68	<=13	PASS
5	Mid	64QAM	4.73	<=13	PASS
5	High	QPSK	4.26	<=13	PASS
5	High	16QAM	5.02	<=13	PASS
5	High	64QAM	5.10	<=13	PASS
10	Low	QPSK	3.91	<=13	PASS
10	Low	16QAM	4.61	<=13	PASS
10	Low	64QAM	4.60	<=13	PASS
10	Mid	QPSK	4.09	<=13	PASS
10	Mid	16QAM	4.85	<=13	PASS
10	Mid	64QAM	4.87	<=13	PASS
10	High	QPSK	4.69	<=13	PASS
10	High	16QAM	5.53	<=13	PASS
10	High	64QAM	5.50	<=13	PASS
15	Low	QPSK	4.24	<=13	PASS
15	Low	16QAM	5.05	<=13	PASS
15	Low	64QAM	5.09	<=13	PASS
15	Mid	QPSK	3.86	<=13	PASS
15	Mid	16QAM	4.63	<=13	PASS
15	Mid	64QAM	4.60	<=13	PASS
15	High	QPSK	4.70	<=13	PASS
15	High	16QAM	5.68	<=13	PASS
15	High	64QAM	5.61	<=13	PASS
20	Low	QPSK	4.83	<=13	PASS
20	Low	16QAM	5.69	<=13	PASS
20	Low	64QAM	5.70	<=13	PASS
20	Mid	QPSK	4.33	<=13	PASS
20	Mid	16QAM	5.01	<=13	PASS



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20	Mid	64QAM	5.10	<=13	PASS
20	High	QPSK	4.74	<=13	PASS
20	High	16QAM	5.73	<=13	PASS
20	High	64QAM	5.74	<=13	PASS

LTE Band 17

BW(MHz)	Channel Level	Modulation	Peak to Average Radio(dB)	Limit (dB)	Verdict
5	Low	QPSK	5.67	<=13	PASS
5	Low	16QAM	6.42	<=13	PASS
5	Low	64QAM	6.38	<=13	PASS
5	Mid	QPSK	5.87	<=13	PASS
5	Mid	16QAM	6.61	<=13	PASS
5	Mid	64QAM	6.68	<=13	PASS
5	High	QPSK	5.24	<=13	PASS
5	High	16QAM	6.07	<=13	PASS
5	High	64QAM	6.07	<=13	PASS
10	Low	QPSK	5.93	<=13	PASS
10	Low	16QAM	6.57	<=13	PASS
10	Low	64QAM	6.59	<=13	PASS
10	Mid	QPSK	5.86	<=13	PASS
10	Mid	16QAM	6.58	<=13	PASS
10	Mid	64QAM	6.57	<=13	PASS
10	High	QPSK	5.79	<=13	PASS
10	High	16QAM	6.20	<=13	PASS
10	High	64QAM	6.51	<=13	PASS

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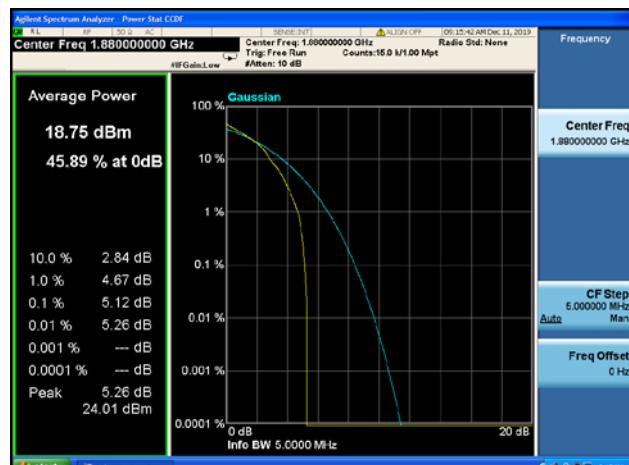
Band2 / 1.4MHz / Low CH / QPSK

Band2 / 1.4MHz / Low CH / 16QAM

Band2 / 1.4MHz / Low CH / 64QAM

Band2 / 1.4MHz / Mid CH / QPSK

Band2 / 1.4MHz / Mid CH / 16QAM

Band2 / 1.4MHz / Mid CH / 64QAM




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Band2 / 1.4MHz / High CH / QPSK



Band2 / 1.4MHz / High CH / 64QAM



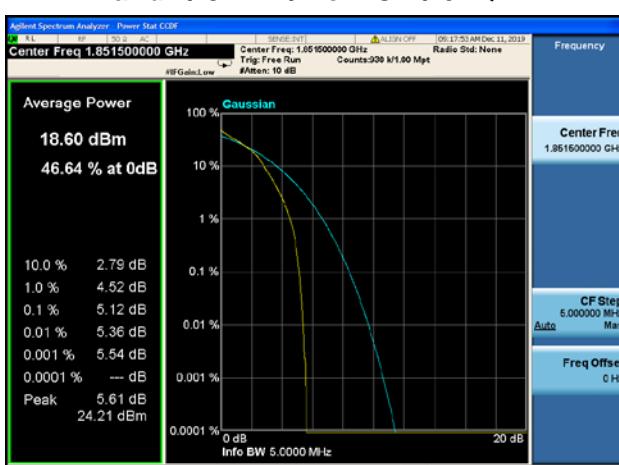
Band2 / 3MHz / Low CH / QPSK



Band2 / 3MHz / Low CH / 16QAM



Band2 / 3MHz / Low CH / 64QAM



Band2 / 3MHz / Mid CH / QPSK





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Band2 / 3MHz / Mid CH / 16QAM



Band2 / 3MHz / Mid CH / 64QAM



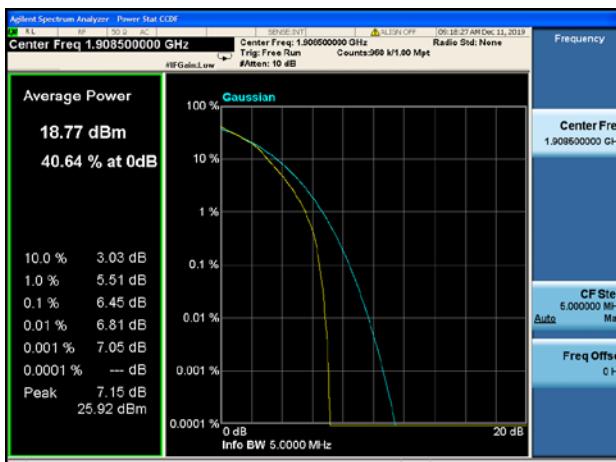
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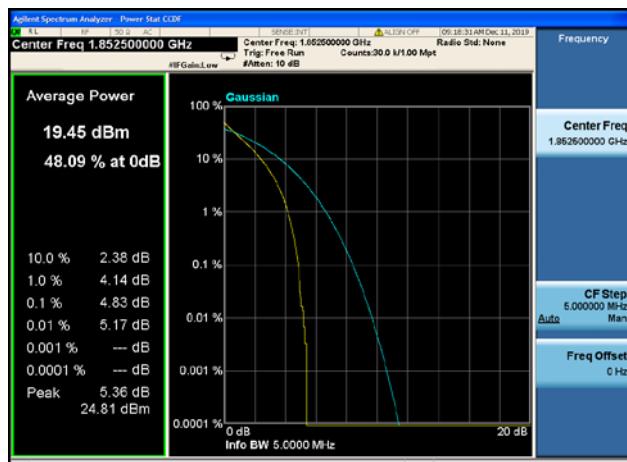
Band2 / 3MHz / High CH / 16QAM



Band2 / 3MHz / High CH / 64QAM



Band2 / 5MHz / Low CH / QPSK





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Band2 / 5MHz / Low CH / 16QAM



Band2 / 5MHz / Low CH / 64QAM



Band2 / 5MHz / Mid CH / QPSK



Band2 / 5MHz / Mid CH / 16QAM



Band2 / 5MHz / Mid CH / 64QAM



Band2 / 5MHz / High CH / QPSK





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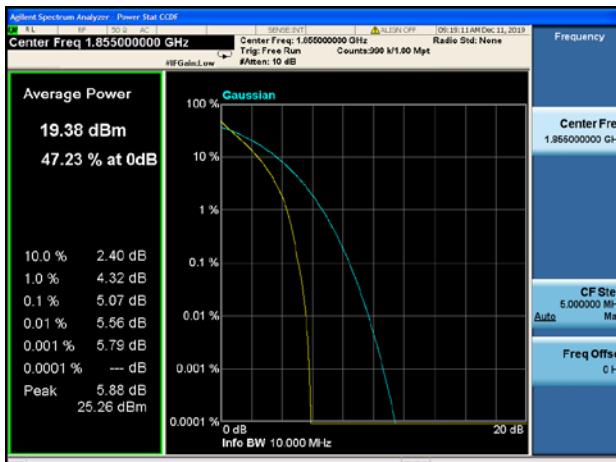
Band2 / 5MHz / High CH / 16QAM



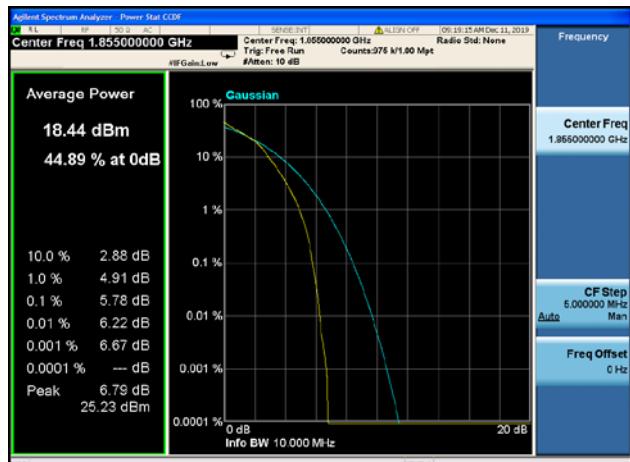
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Band2 / 10MHz / Low CH / QPSK



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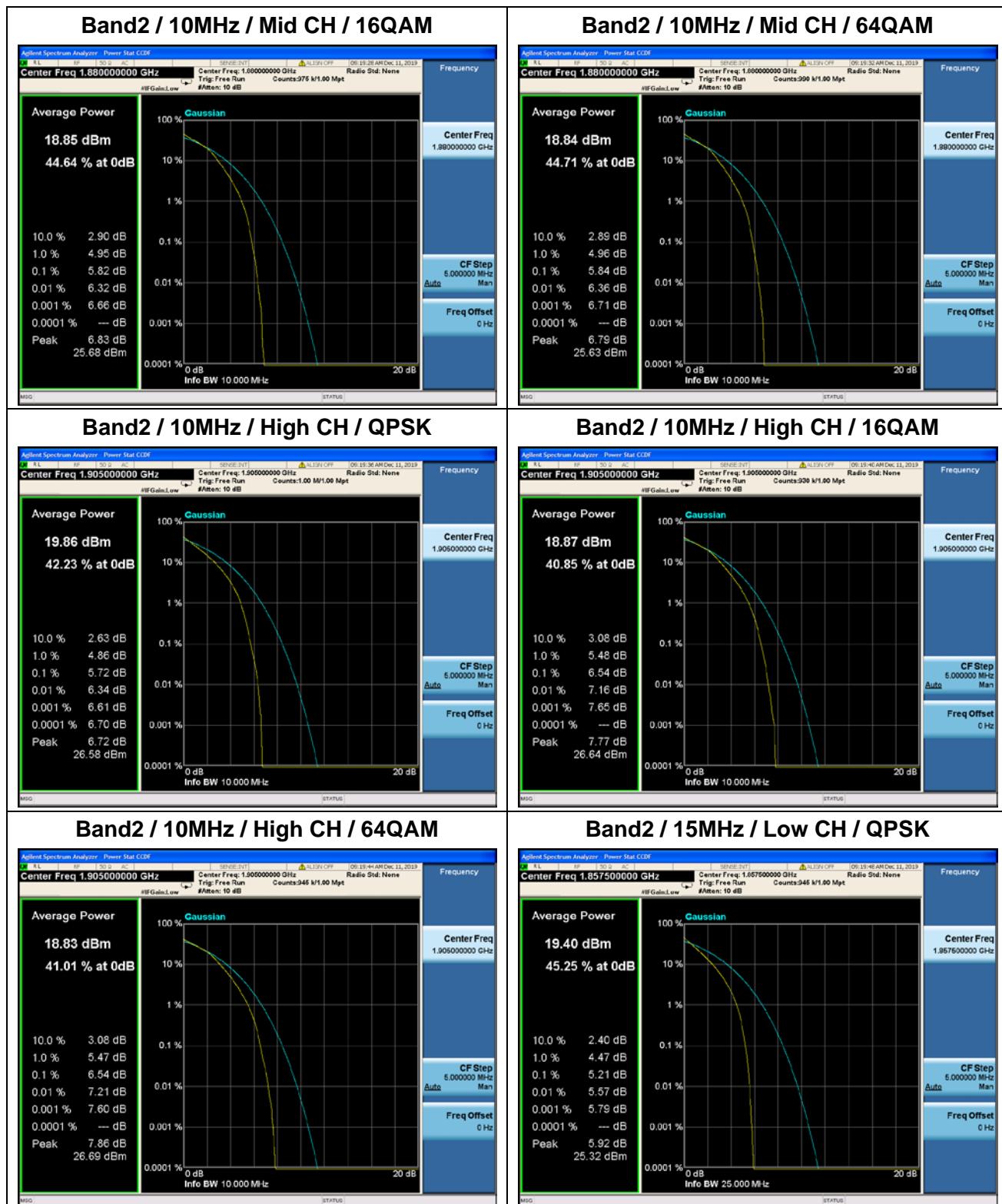


Band2 / 10MHz / Low CH / 64QAM



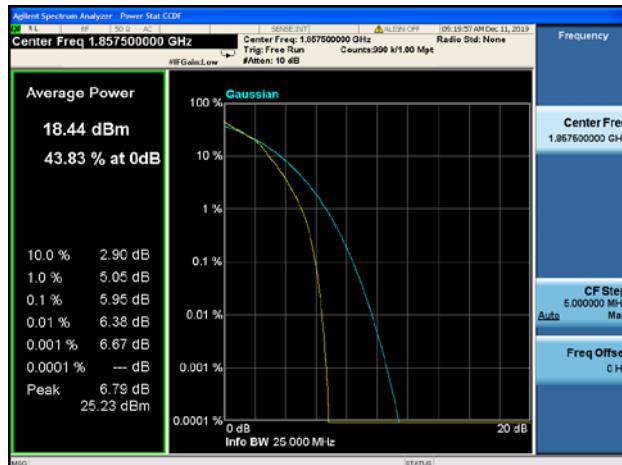
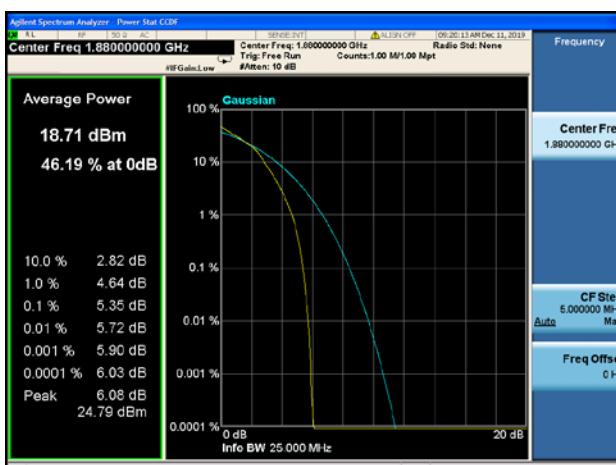
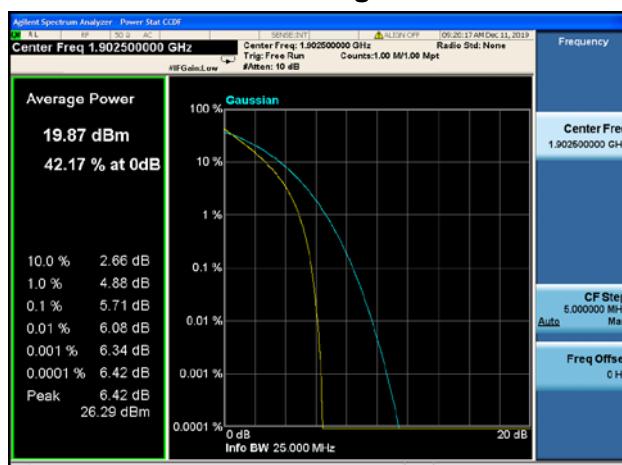
Band2 / 10MHz / Mid CH / QPSK







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Band2 / 15MHz / Low CH / 16QAM**Band2 / 15MHz / Low CH / 64QAM****Band2 / 15MHz / Mid CH / QPSK****Band2 / 15MHz / Mid CH / 16QAM****Band2 / 15MHz / Mid CH / 64QAM****Band2 / 15MHz / High CH / QPSK**



REPORT No. : SZ19100318W02

Band2 / 15MHz / High CH / 16QAM



Band2 / 15MHz / High CH / 64QAM



Band2 / 20MHz / Low CH / QPSK



Band2 / 20MHz / Low CH / 16QAM

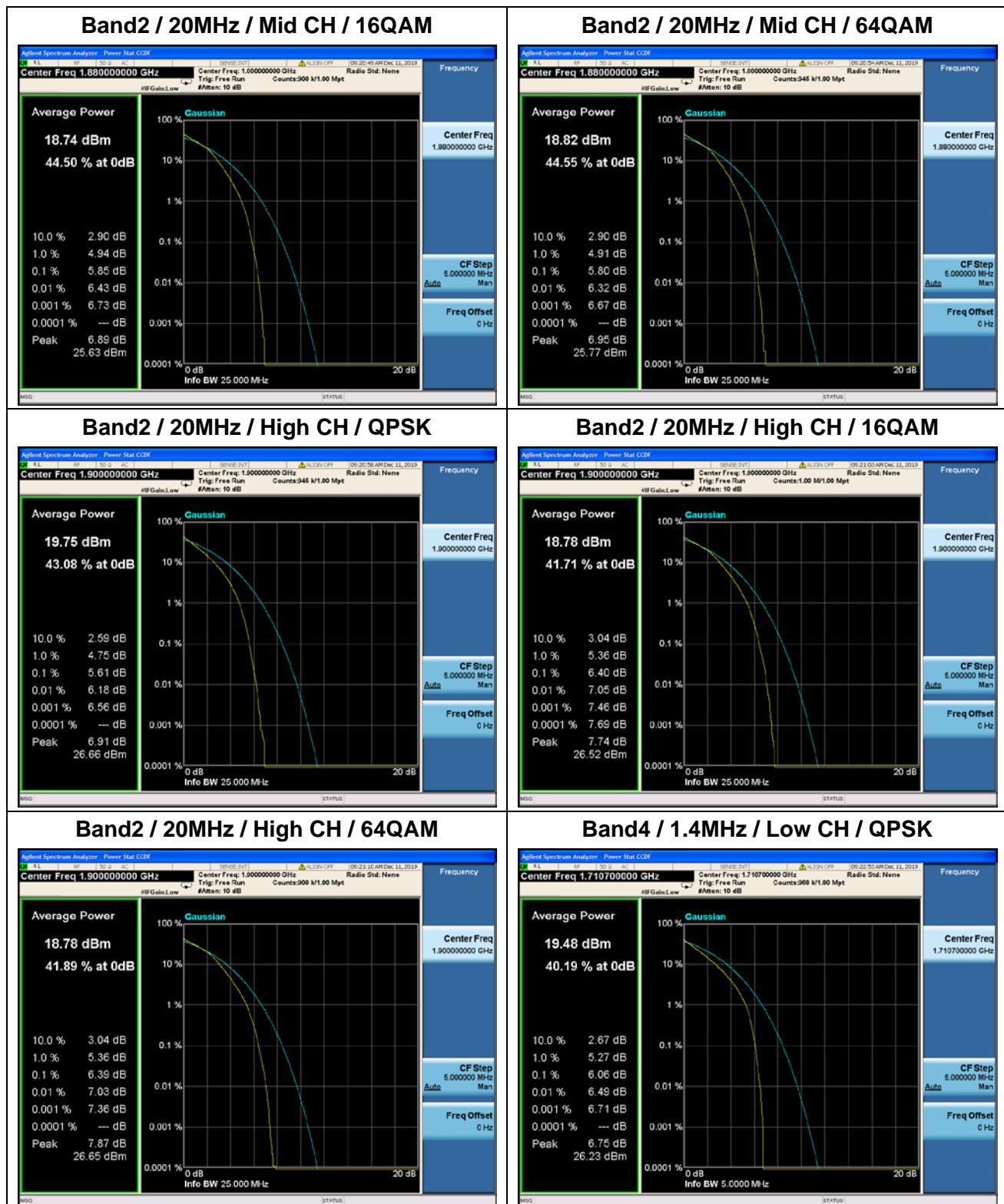


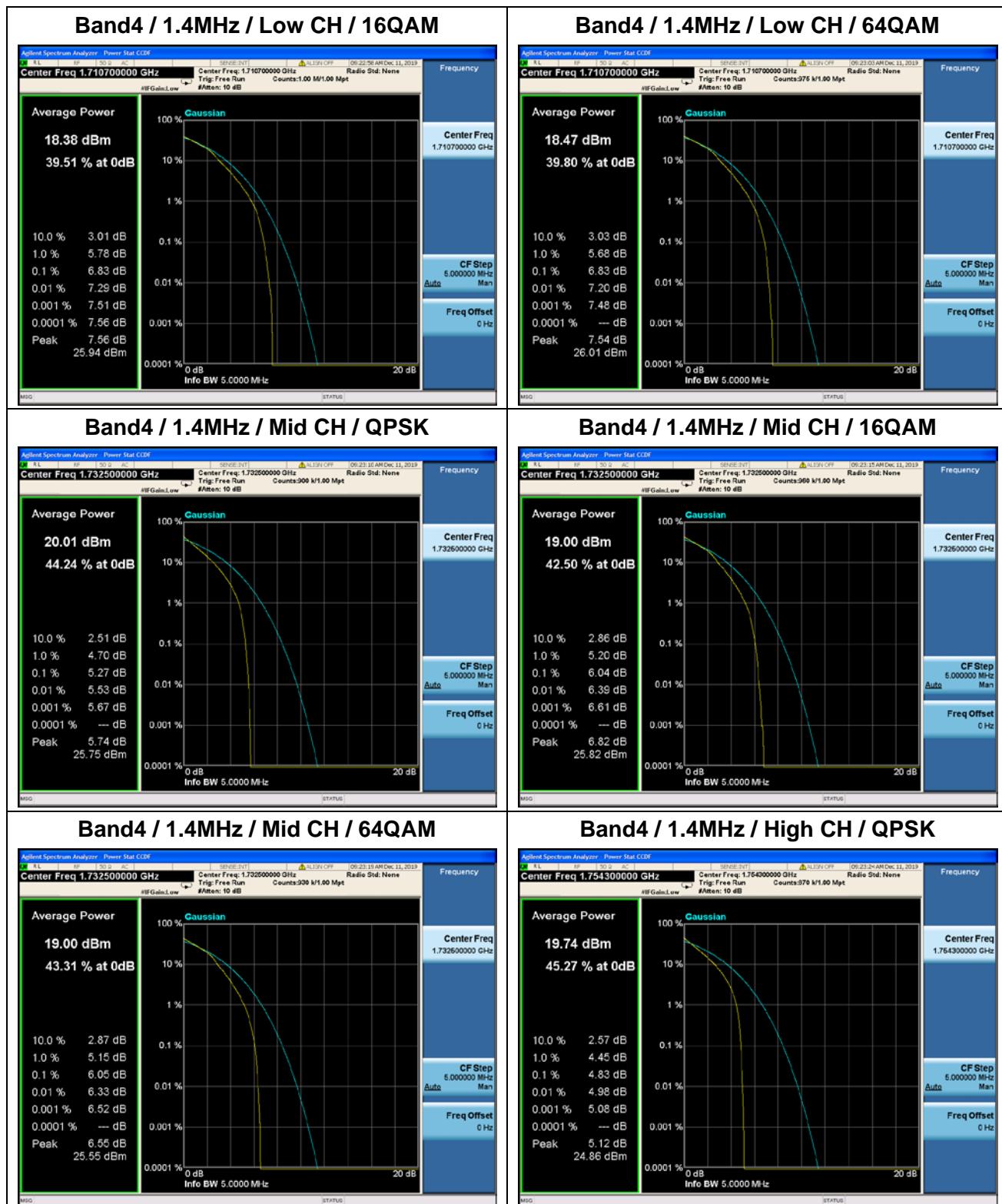
Band2 / 20MHz / Low CH / 64QAM



Band2 / 20MHz / Mid CH / QPSK









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Band4 / 1.4MHz / High CH / 16QAM



Band4 / 1.4MHz / High CH / 64QAM



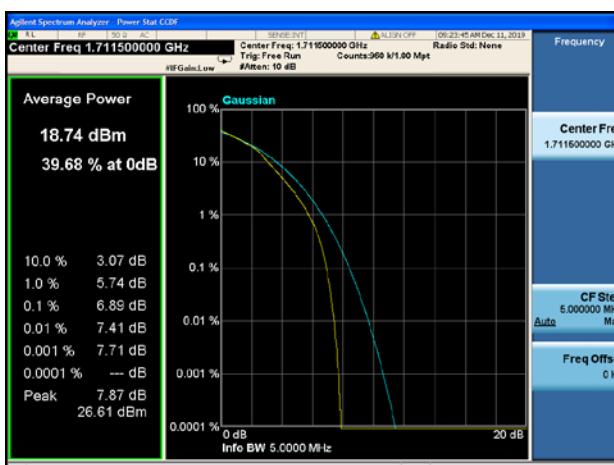
Band4 / 3MHz / Low CH / QPSK



Band4 / 3MHz / Low CH / 16QAM



Band4 / 3MHz / Low CH / 64QAM



Band4 / 3MHz / Mid CH / QPSK

