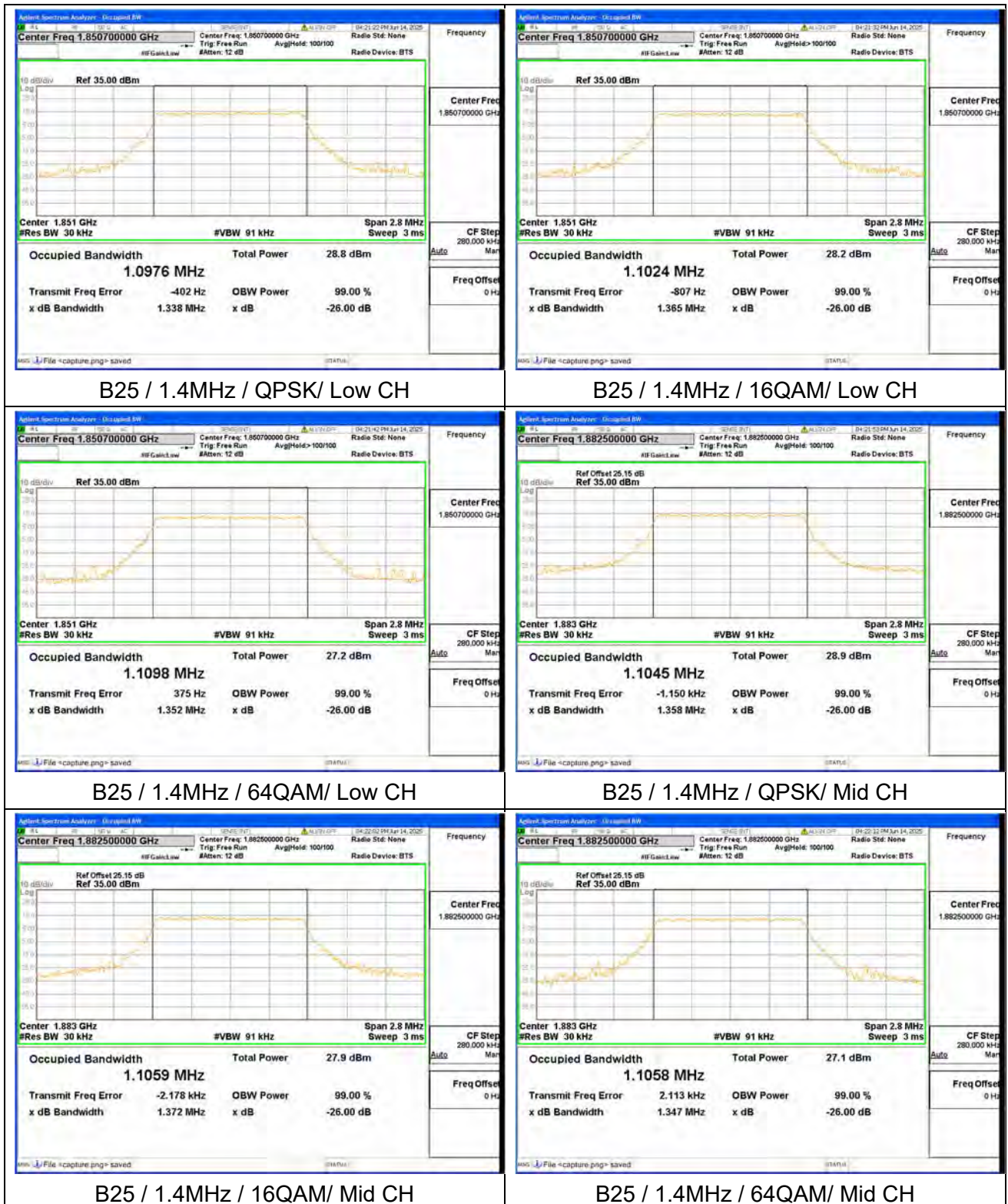
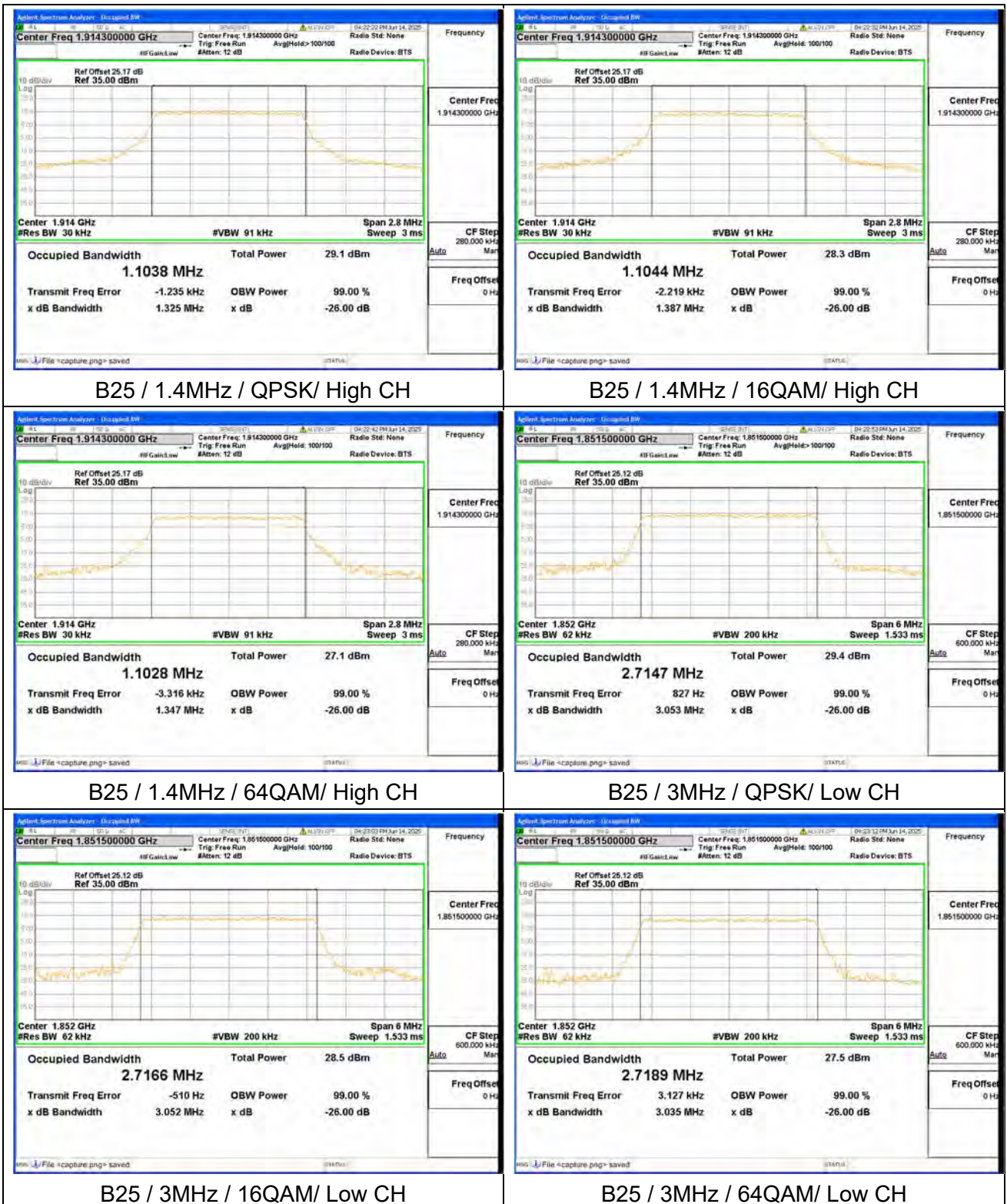
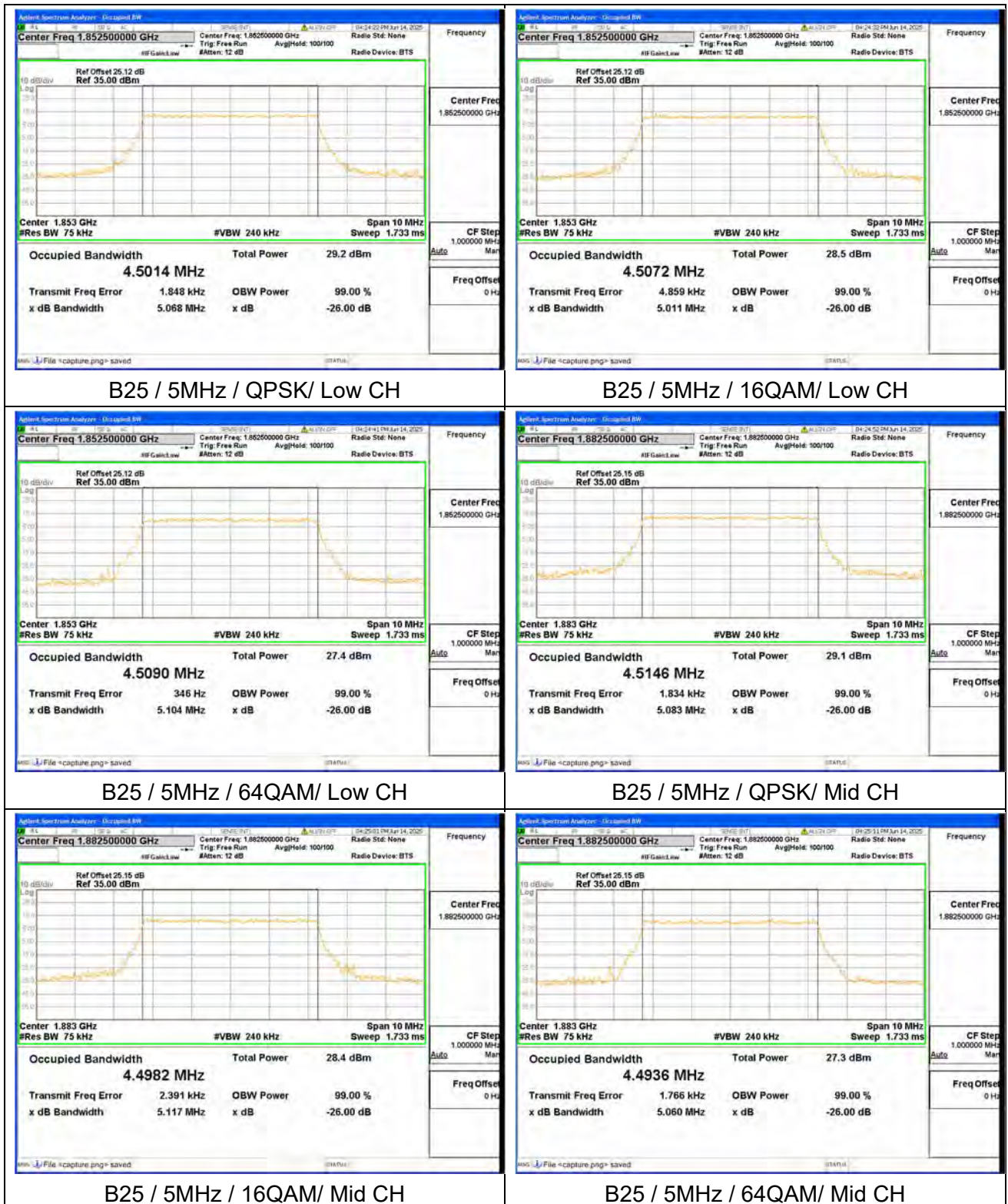




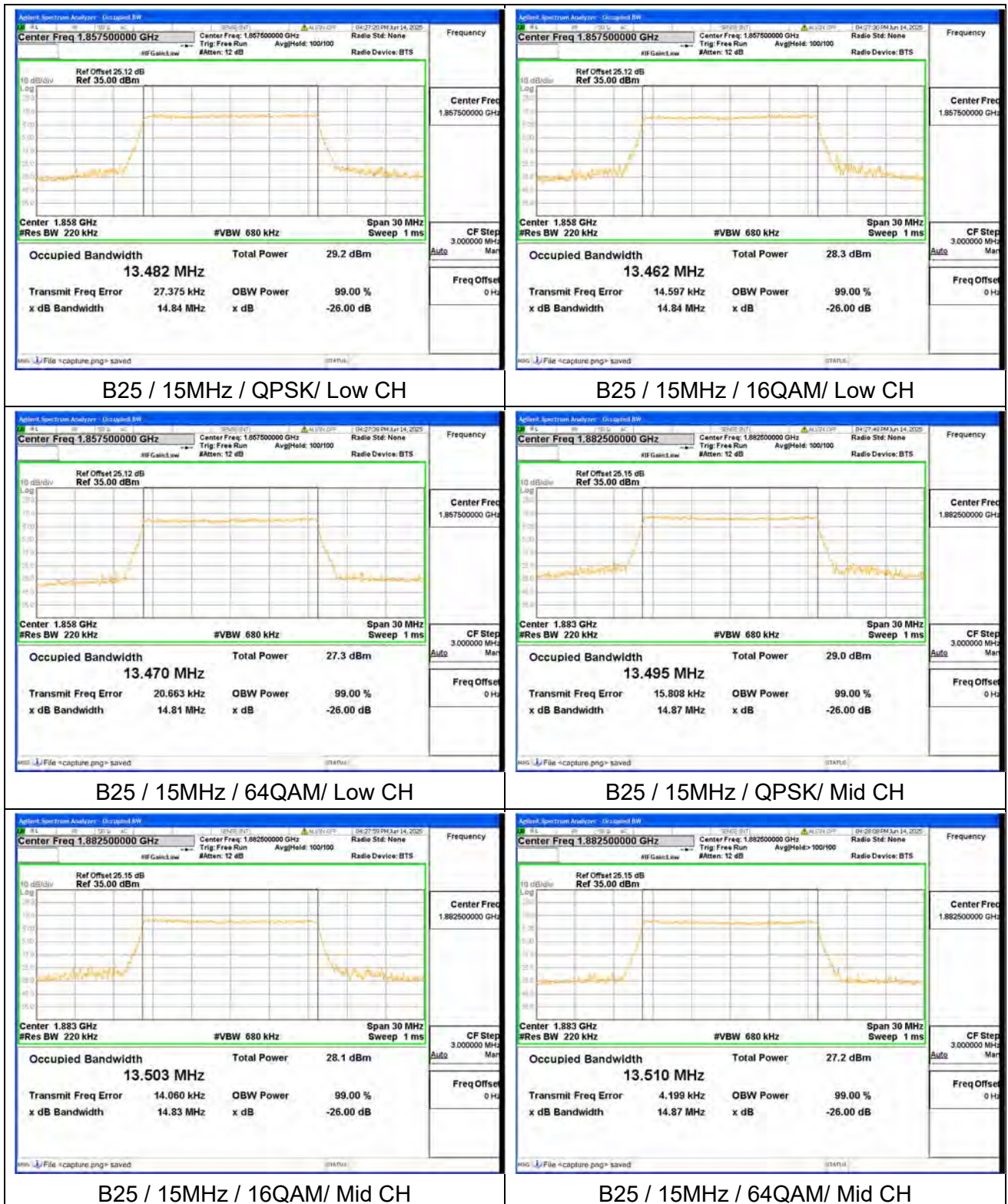






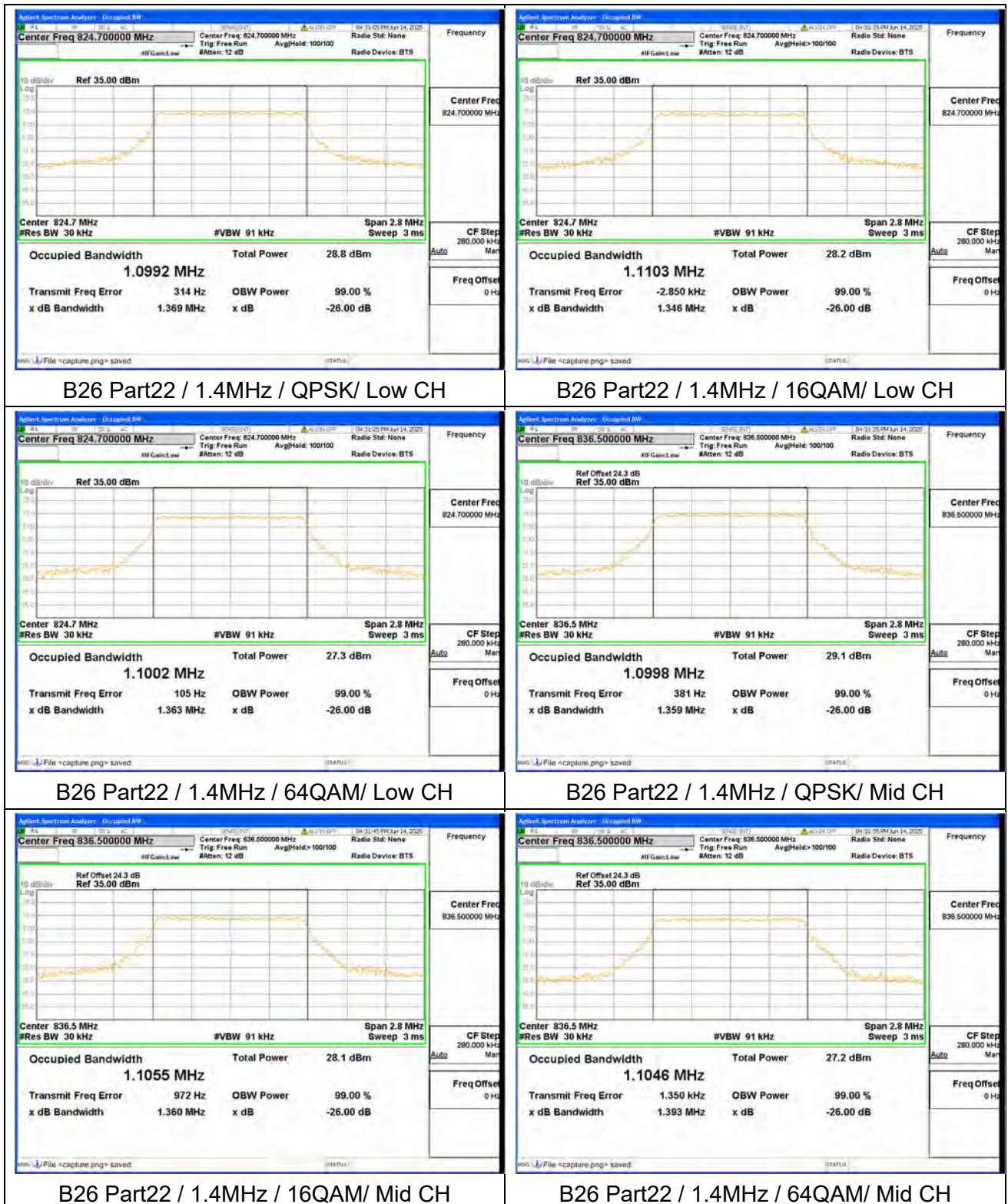






























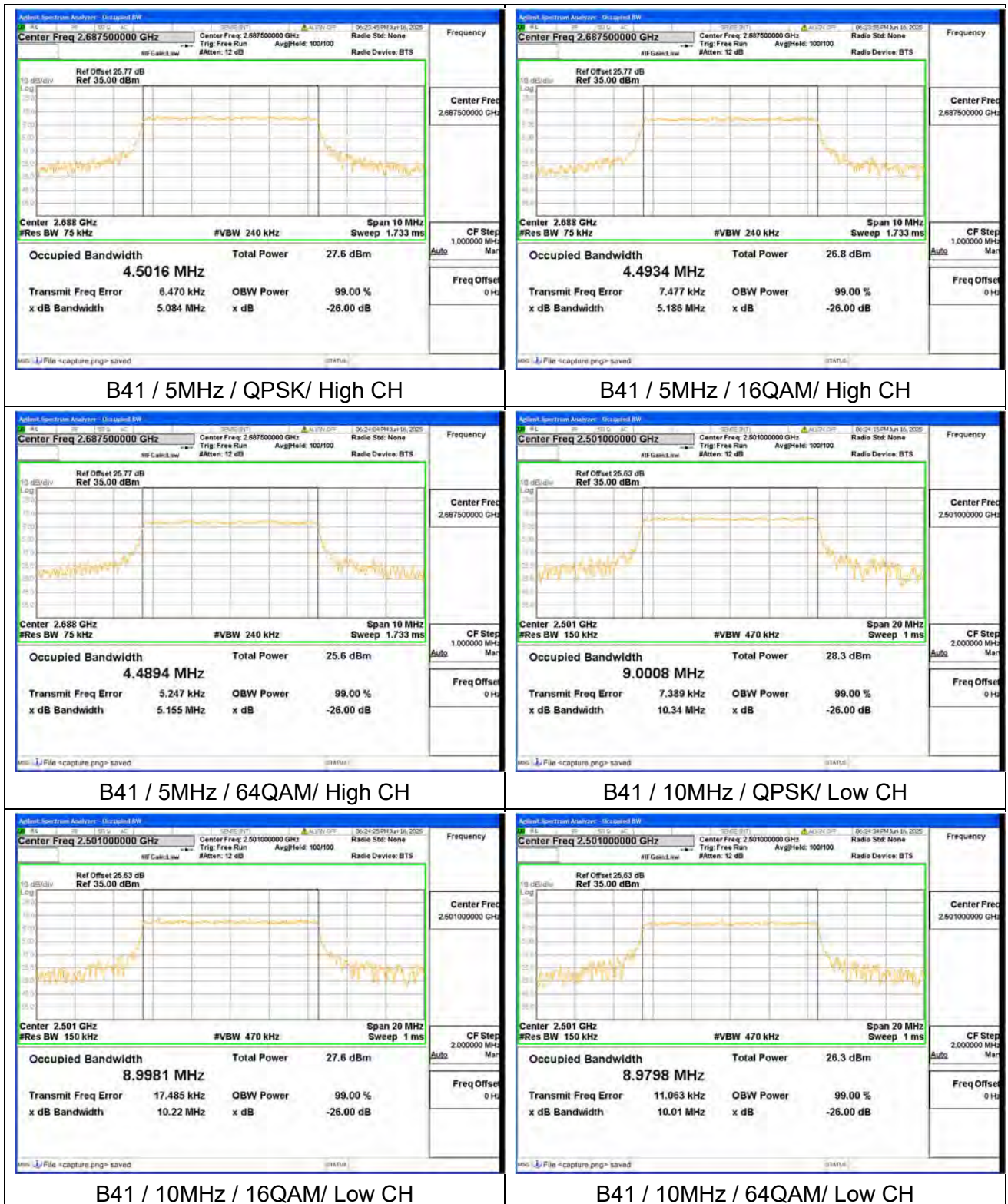




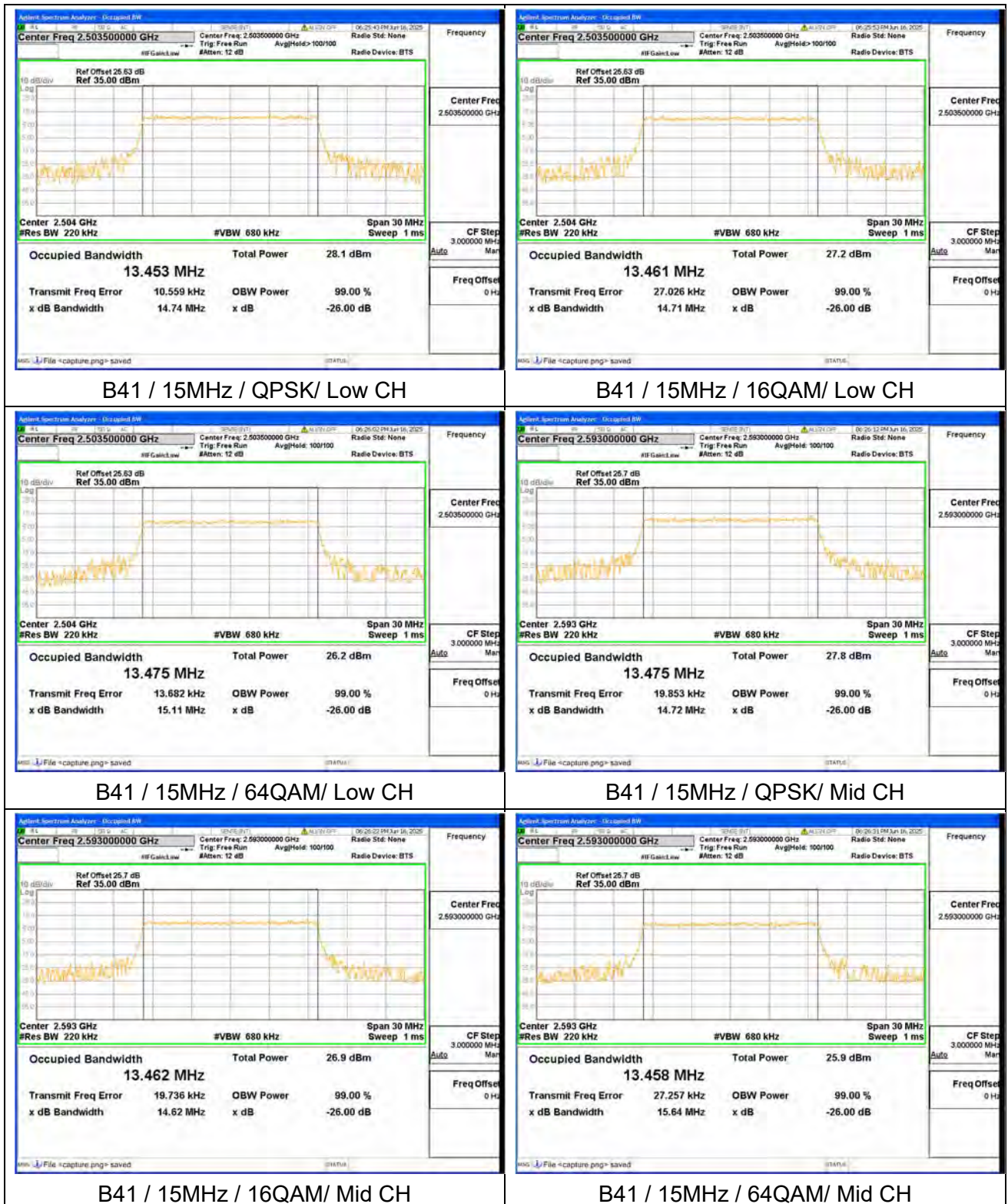
















2.3. Frequency Stability

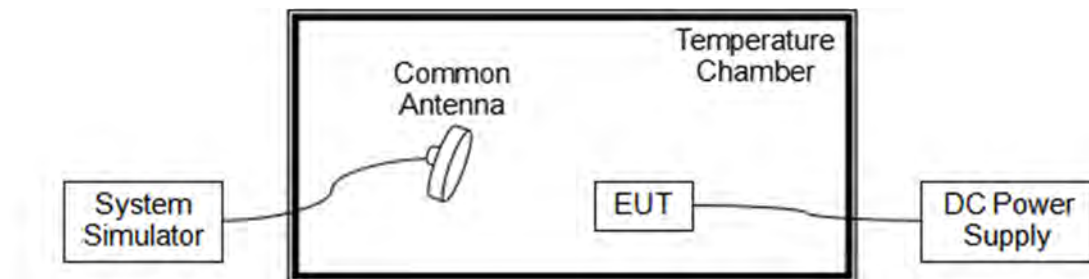
2.3.1. Requirement

According to FCC section 2.1055, 24.235, 27.54, 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 -30°C to $+50^{\circ}\text{C}$ 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 manufacture. 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.

Note: The operating temperature of EUT is from -20°C to 50°C , which are specified by the applicant.

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 3.85V, 4.40V and 3.00V, which are specified by the applicant; the normal temperature here used is 20°C.

LTE Band 2, 64QAM, Channel 18900, Frequency 1880.0MHz					
Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
Normal	3.85	+20(Ref)	19	0.023	PASS
Normal		-20	15	0.018	
Normal		-10	-20	-0.024	
Normal		0	21	0.025	
Normal		+10	-17	-0.020	
Normal		+20	8	0.010	
Normal		+30	19	0.023	
Normal		+40	-22	-0.026	
Normal		+50	3	0.004	
High	4.40	+20	16	0.019	
BATT.ENDPOINT	3.00	+20	14	0.017	

LTE Band 4, 64QAM, Channel 20175, Frequency 1732.5MHz					
Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
Normal	3.85	+20(Ref)	-1	-0.001	PASS
Normal		-20	19	0.011	
Normal		-10	15	0.009	
Normal		0	19	0.011	
Normal		+10	-1	-0.001	
Normal		+20	16	0.009	
Normal		+30	13	0.008	
Normal		+40	14	0.008	
Normal		+50	19	0.011	
High	4.40	+20	19	0.011	
BATT.ENDPOINT	3.00	+20	17	0.010	



LTE Band 5, 64QAM, Channel 20525, Frequency 836.5MHz Limit=±2.5ppm					
Voltage (%)	Power (VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
Normal	3.85	+20(Ref)	-22	-0.026	PASS
Normal		-20	8	0.010	
Normal		-10	13	0.016	
Normal		0	19	0.023	
Normal		+10	-10	-0.012	
Normal		+20	14	0.017	
Normal		+30	14	0.017	
Normal		+40	-20	-0.024	
Normal		+50	15	0.018	
High	4.40	+20	0	0.000	PASS
BATT.ENDPOINT	3.00	+20	15	0.018	

LTE Band 7, 64QAM, Channel 21100, Frequency 2535.0MHz Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
Normal	3.85	+20(Ref)	-22	-0.026	PASS
Normal		-20	8	0.010	
Normal		-10	13	0.016	
Normal		0	19	0.023	
Normal		+10	-10	-0.012	
Normal		+20	14	0.017	
Normal		+30	14	0.017	
Normal		+40	-20	-0.024	
Normal		+50	15	0.018	
High	4.40	+20	0	0.000	PASS
BATT.ENDPOINT	3.00	+20	15	0.018	



LTE Band 12, 64QAM, Channel 23095, Frequency 707.5MHz Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
Normal	3.85	+20(Ref)	19	0.027	PASS
Normal		-20	-4	-0.006	
Normal		-10	16	0.023	
Normal		0	15	0.021	
Normal		+10	18	0.025	
Normal		+20	1	0.001	
Normal		+30	16	0.023	
Normal		+40	-2	-0.003	
Normal		+50	15	0.021	
High	4.40	+20	20	0.028	PASS
BATT.ENDPOINT	3.00	+20	15	0.021	

LTE Band 13, 64QAM, Channel 23230, Frequency 782MHz Limit=±2.5ppm					
Voltage (%)	Power (VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
Normal	3.85	+20(Ref)	18	0.023	PASS
Normal		-20	19	0.024	
Normal		-10	13	0.017	
Normal		0	-23	-0.029	
Normal		+10	5	0.006	
Normal		+20	18	0.023	
Normal		+30	15	0.019	
Normal		+40	15	0.019	
Normal		+50	14	0.018	
High	4.40	+20	-15	-0.019	PASS
BATT.ENDPOINT	3.00	+20	11	0.014	



LTE Band 25, 64QAM, Channel 26365, Frequency 1882.5MHz Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
Normal	3.85	+20(Ref)	-13	-0.007	PASS
Normal		-20	-20	-0.011	
Normal		-10	0	0.000	
Normal		0	19	0.010	
Normal		+10	21	0.011	
Normal		+20	5	0.003	
Normal		+30	19	0.010	
Normal		+40	17	0.009	
Normal		+50	5	0.003	
High	4.40	+20	13	0.007	PASS
BATT.ENDPOINT	3.00	+20	19	0.010	

LTE Band 26, 64QAM, Channel 26915, Frequency 836.5MHz Limit=±2.5ppm					
Voltage (%)	Power (VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
Normal	3.85	+20(Ref)	-3	-0.004	PASS
Normal		-20	15	0.018	
Normal		-10	5	0.006	
Normal		0	19	0.023	
Normal		+10	-9	-0.011	
Normal		+20	15	0.018	
Normal		+30	4	0.005	
Normal		+40	17	0.020	
Normal		+50	8	0.010	
High	4.40	+20	18	0.022	PASS
BATT.ENDPOINT	3.00	+20	-8	-0.010	



LTE Band 38, 64QAM, Channel 38000, Frequency 2595.0MHz Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
Normal	3.85	+20(Ref)	12	0.005	PASS
Normal		-20	14	0.005	
Normal		-10	20	0.008	
Normal		0	13	0.005	
Normal		+10	1	0.000	
Normal		+20	19	0.007	
Normal		+30	13	0.005	
Normal		+40	-1	0.000	
Normal		+50	17	0.007	
High	4.40	+20	14	0.005	
BATT.ENDPOINT	3.00	+20	-20	-0.008	

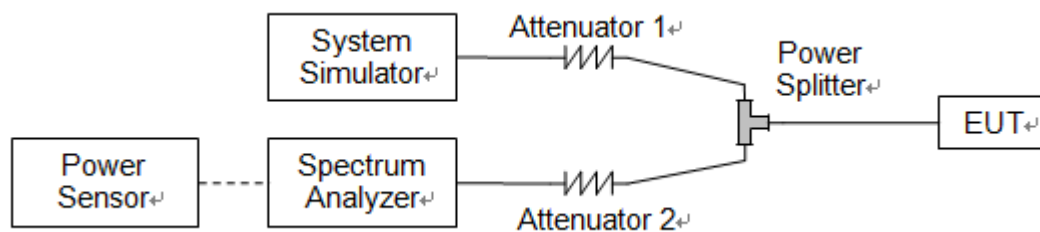
LTE Band 41, 64QAM, Channel 40620, Frequency 2593.0MHz Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
Normal	3.85	+20(Ref)	12	0.005	PASS
Normal		-20	14	0.005	
Normal		-10	20	0.008	
Normal		0	13	0.005	
Normal		+10	1	0.000	
Normal		+20	19	0.007	
Normal		+30	13	0.005	
Normal		+40	-1	0.000	
Normal		+50	17	0.007	
High	4.40	+20	14	0.005	
BATT.ENDPOINT	3.00	+20	-20	-0.008	

2.4. Peak to Average Ratio

2.4.1. Requirement

According to FCC section 24.232(d), 27.50(d) and 27.50(j)(4), the peak to average ratio (PAR) of the transmission may not exceed 13dB.

2.4.2. Test Description



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 50Ohm; 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	BW(MHz)	Channel Level	Channel	Frequency (MHz)	Modulation	Peak to Average Radio(dB)	Verdict
B2	1.4	Low	18607	1850.7	QPSK	5.60	PASS
B2	1.4	Low	18607	1850.7	16QAM	6.40	PASS
B2	1.4	Low	18607	1850.7	64QAM	6.55	PASS
B2	1.4	Mid	18900	1880	QPSK	5.45	PASS
B2	1.4	Mid	18900	1880	16QAM	6.36	PASS
B2	1.4	Mid	18900	1880	64QAM	6.49	PASS
B2	1.4	High	19193	1909.3	QPSK	5.34	PASS
B2	1.4	High	19193	1909.3	16QAM	6.16	PASS
B2	1.4	High	19193	1909.3	64QAM	6.45	PASS
B2	3	Low	18615	1851.5	QPSK	5.61	PASS
B2	3	Low	18615	1851.5	16QAM	6.24	PASS
B2	3	Low	18615	1851.5	64QAM	6.54	PASS
B2	3	Mid	18900	1880	QPSK	5.59	PASS
B2	3	Mid	18900	1880	16QAM	6.23	PASS
B2	3	Mid	18900	1880	64QAM	6.56	PASS
B2	3	High	19185	1908.5	QPSK	5.45	PASS
B2	3	High	19185	1908.5	16QAM	6.13	PASS
B2	3	High	19185	1908.5	64QAM	6.42	PASS
B2	5	Low	18625	1852.5	QPSK	5.73	PASS
B2	5	Low	18625	1852.5	16QAM	6.35	PASS
B2	5	Low	18625	1852.5	64QAM	6.55	PASS
B2	5	Mid	18900	1880	QPSK	5.62	PASS
B2	5	Mid	18900	1880	16QAM	6.27	PASS
B2	5	Mid	18900	1880	64QAM	6.50	PASS
B2	5	High	19175	1907.5	QPSK	5.52	PASS
B2	5	High	19175	1907.5	16QAM	6.17	PASS
B2	5	High	19175	1907.5	64QAM	6.51	PASS
B2	10	Low	18650	1855	QPSK	5.85	PASS
B2	10	Low	18650	1855	16QAM	6.40	PASS
B2	10	Low	18650	1855	64QAM	6.61	PASS
B2	10	Mid	18900	1880	QPSK	5.79	PASS
B2	10	Mid	18900	1880	16QAM	6.34	PASS
B2	10	Mid	18900	1880	64QAM	6.55	PASS
B2	10	High	19150	1905	QPSK	5.81	PASS
B2	10	High	19150	1905	16QAM	6.39	PASS



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B2	10	High	19150	1905	64QAM	6.66	PASS
B2	15	Low	18675	1857.5	QPSK	5.68	PASS
B2	15	Low	18675	1857.5	16QAM	6.39	PASS
B2	15	Low	18675	1857.5	64QAM	6.66	PASS
B2	15	Mid	18900	1880	QPSK	5.74	PASS
B2	15	Mid	18900	1880	16QAM	6.36	PASS
B2	15	Mid	18900	1880	64QAM	6.66	PASS
B2	15	High	19125	1902.5	QPSK	5.57	PASS
B2	15	High	19125	1902.5	16QAM	6.25	PASS
B2	15	High	19125	1902.5	64QAM	6.57	PASS
B2	20	Low	18700	1860	QPSK	5.65	PASS
B2	20	Low	18700	1860	16QAM	6.34	PASS
B2	20	Low	18700	1860	64QAM	6.57	PASS
B2	20	Mid	18900	1880	QPSK	5.78	PASS
B2	20	Mid	18900	1880	16QAM	6.43	PASS
B2	20	Mid	18900	1880	64QAM	6.66	PASS
B2	20	High	19100	1900	QPSK	5.36	PASS
B2	20	High	19100	1900	16QAM	6.18	PASS
B2	20	High	19100	1900	64QAM	6.47	PASS



LTE Band	BW(MHz)	Channel Level	Channel	Frequency (MHz)	Modulation	Peak to Average Radio(dB)	Verdict
B4	1.4	Low	19957	1710.7	QPSK	5.00	PASS
B4	1.4	Low	19957	1710.7	16QAM	5.86	PASS
B4	1.4	Low	19957	1710.7	64QAM	6.22	PASS
B4	1.4	Mid	20175	1732.5	QPSK	4.10	PASS
B4	1.4	Mid	20175	1732.5	16QAM	5.00	PASS
B4	1.4	Mid	20175	1732.5	64QAM	5.56	PASS
B4	1.4	High	20393	1754.3	QPSK	4.67	PASS
B4	1.4	High	20393	1754.3	16QAM	5.54	PASS
B4	1.4	High	20393	1754.3	64QAM	5.87	PASS
B4	3	Low	19965	1711.5	QPSK	5.20	PASS
B4	3	Low	19965	1711.5	16QAM	5.80	PASS
B4	3	Low	19965	1711.5	64QAM	6.24	PASS
B4	3	Mid	20175	1732.5	QPSK	4.30	PASS
B4	3	Mid	20175	1732.5	16QAM	5.08	PASS
B4	3	Mid	20175	1732.5	64QAM	5.60	PASS
B4	3	High	20385	1753.5	QPSK	4.80	PASS
B4	3	High	20385	1753.5	16QAM	5.55	PASS
B4	3	High	20385	1753.5	64QAM	6.03	PASS
B4	5	Low	19975	1712.5	QPSK	5.33	PASS
B4	5	Low	19975	1712.5	16QAM	5.97	PASS
B4	5	Low	19975	1712.5	64QAM	6.33	PASS
B4	5	Mid	20175	1732.5	QPSK	4.67	PASS
B4	5	Mid	20175	1732.5	16QAM	5.41	PASS
B4	5	Mid	20175	1732.5	64QAM	5.87	PASS
B4	5	High	20375	1752.5	QPSK	5.04	PASS
B4	5	High	20375	1752.5	16QAM	5.76	PASS
B4	5	High	20375	1752.5	64QAM	6.15	PASS
B4	10	Low	20000	1715	QPSK	5.39	PASS
B4	10	Low	20000	1715	16QAM	6.02	PASS
B4	10	Low	20000	1715	64QAM	6.33	PASS
B4	10	Mid	20175	1732.5	QPSK	4.81	PASS
B4	10	Mid	20175	1732.5	16QAM	5.49	PASS
B4	10	Mid	20175	1732.5	64QAM	5.90	PASS
B4	10	High	20350	1750	QPSK	5.21	PASS
B4	10	High	20350	1750	16QAM	5.85	PASS



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B4	10	High	20350	1750	64QAM	6.18	PASS
B4	15	Low	20025	1717.5	QPSK	4.94	PASS
B4	15	Low	20025	1717.5	16QAM	5.70	PASS
B4	15	Low	20025	1717.5	64QAM	6.14	PASS
B4	15	Mid	20175	1732.5	QPSK	4.55	PASS
B4	15	Mid	20175	1732.5	16QAM	5.30	PASS
B4	15	Mid	20175	1732.5	64QAM	5.80	PASS
B4	15	High	20325	1747.5	QPSK	4.95	PASS
B4	15	High	20325	1747.5	16QAM	5.68	PASS
B4	15	High	20325	1747.5	64QAM	6.10	PASS
B4	20	Low	20050	1720	QPSK	5.01	PASS
B4	20	Low	20050	1720	16QAM	5.75	PASS
B4	20	Low	20050	1720	64QAM	6.07	PASS
B4	20	Mid	20175	1732.5	QPSK	4.83	PASS
B4	20	Mid	20175	1732.5	16QAM	5.53	PASS
B4	20	Mid	20175	1732.5	64QAM	5.97	PASS
B4	20	High	20300	1745	QPSK	5.06	PASS
B4	20	High	20300	1745	16QAM	5.81	PASS
B4	20	High	20300	1745	64QAM	6.16	PASS



LTE Band	BW(MHz)	Channel Level	Channel	Frequency (MHz)	Modulation	Peak to Average Radio(dB)	Verdict
B25	1.4	Low	26047	1850.7	QPSK	5.64	PASS
B25	1.4	Low	26047	1850.7	16QAM	6.35	PASS
B25	1.4	Low	26047	1850.7	64QAM	6.54	PASS
B25	1.4	Mid	26365	1882.5	QPSK	5.31	PASS
B25	1.4	Mid	26365	1882.5	16QAM	6.20	PASS
B25	1.4	Mid	26365	1882.5	64QAM	6.44	PASS
B25	1.4	High	26683	1914.3	QPSK	5.20	PASS
B25	1.4	High	26683	1914.3	16QAM	5.96	PASS
B25	1.4	High	26683	1914.3	64QAM	6.26	PASS
B25	3	Low	26055	1851.5	QPSK	5.69	PASS
B25	3	Low	26055	1851.5	16QAM	6.27	PASS
B25	3	Low	26055	1851.5	64QAM	6.50	PASS
B25	3	Mid	26365	1882.5	QPSK	5.47	PASS
B25	3	Mid	26365	1882.5	16QAM	6.15	PASS
B25	3	Mid	26365	1882.5	64QAM	6.45	PASS
B25	3	High	26675	1913.5	QPSK	5.26	PASS
B25	3	High	26675	1913.5	16QAM	5.94	PASS
B25	3	High	26675	1913.5	64QAM	6.33	PASS
B25	5	Low	26065	1852.5	QPSK	5.71	PASS
B25	5	Low	26065	1852.5	16QAM	6.24	PASS
B25	5	Low	26065	1852.5	64QAM	6.50	PASS
B25	5	Mid	26365	1882.5	QPSK	5.55	PASS
B25	5	Mid	26365	1882.5	16QAM	6.24	PASS
B25	5	Mid	26365	1882.5	64QAM	6.53	PASS
B25	5	High	26665	1912.5	QPSK	5.33	PASS
B25	5	High	26665	1912.5	16QAM	6.00	PASS
B25	5	High	26665	1912.5	64QAM	6.32	PASS
B25	10	Low	26090	1855	QPSK	5.83	PASS
B25	10	Low	26090	1855	16QAM	6.39	PASS
B25	10	Low	26090	1855	64QAM	6.60	PASS
B25	10	Mid	26365	1882.5	QPSK	5.80	PASS
B25	10	Mid	26365	1882.5	16QAM	6.37	PASS
B25	10	Mid	26365	1882.5	64QAM	6.61	PASS
B25	10	High	26640	1910	QPSK	5.57	PASS
B25	10	High	26640	1910	16QAM	6.20	PASS



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B25	10	High	26640	1910	64QAM	6.49	PASS
B25	15	Low	26115	1857.5	QPSK	5.71	PASS
B25	15	Low	26115	1857.5	16QAM	6.39	PASS
B25	15	Low	26115	1857.5	64QAM	6.61	PASS
B25	15	Mid	26365	1882.5	QPSK	5.68	PASS
B25	15	Mid	26365	1882.5	16QAM	6.34	PASS
B25	15	Mid	26365	1882.5	64QAM	6.61	PASS
B25	15	High	26615	1907.5	QPSK	5.69	PASS
B25	15	High	26615	1907.5	16QAM	6.31	PASS
B25	15	High	26615	1907.5	64QAM	6.62	PASS
B25	20	Low	26140	1860	QPSK	5.63	PASS
B25	20	Low	26140	1860	16QAM	6.36	PASS
B25	20	Low	26140	1860	64QAM	6.61	PASS
B25	20	Mid	26365	1882.5	QPSK	5.79	PASS
B25	20	Mid	26365	1882.5	16QAM	6.43	PASS
B25	20	Mid	26365	1882.5	64QAM	6.66	PASS
B25	20	High	26590	1905	QPSK	5.76	PASS
B25	20	High	26590	1905	16QAM	6.43	PASS
B25	20	High	26590	1905	64QAM	6.66	PASS

