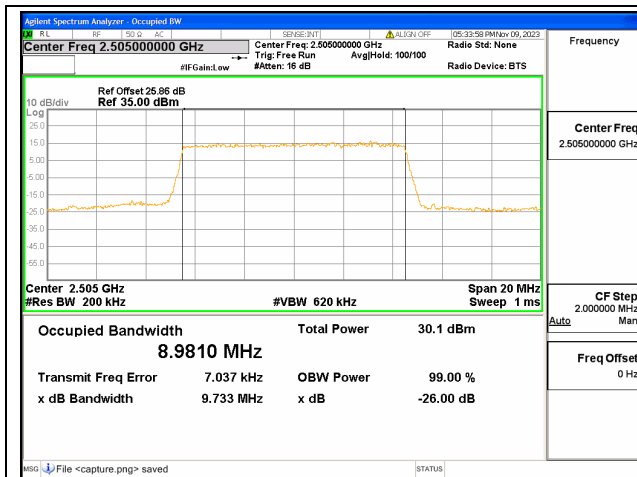
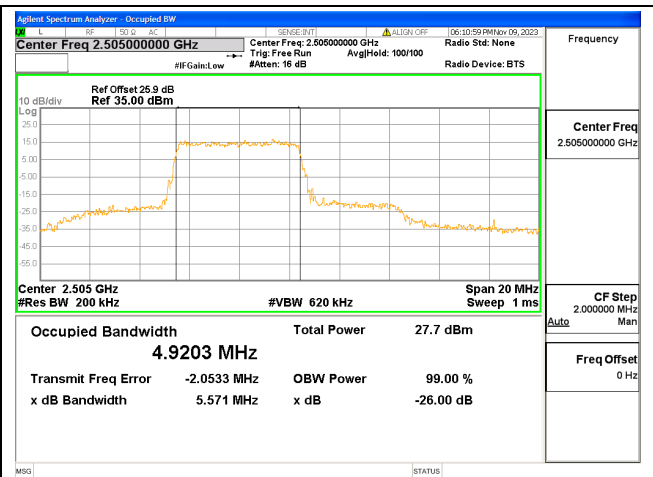
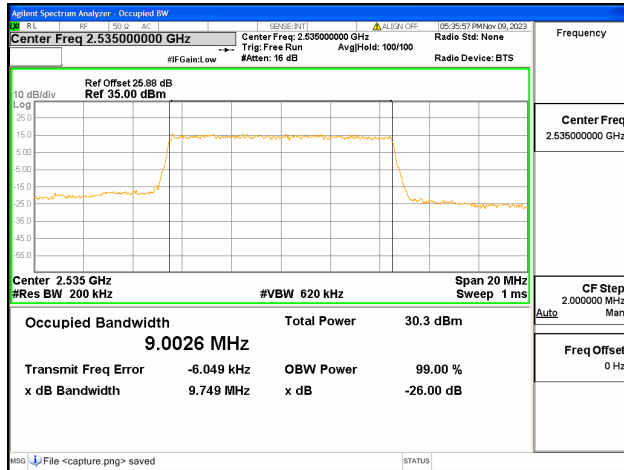




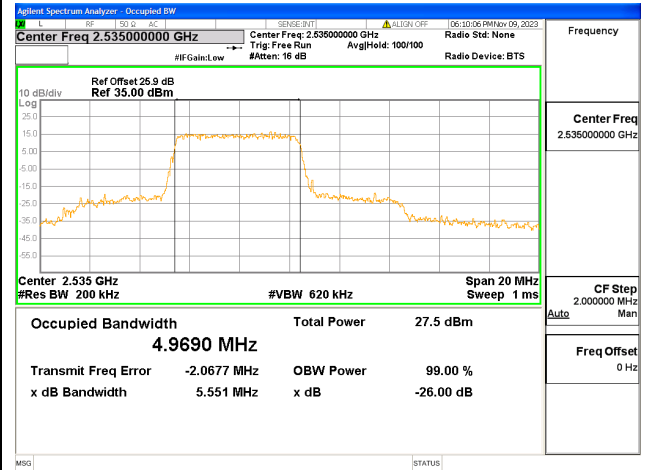
B7 / 10MHz / QPSK/ Low CH



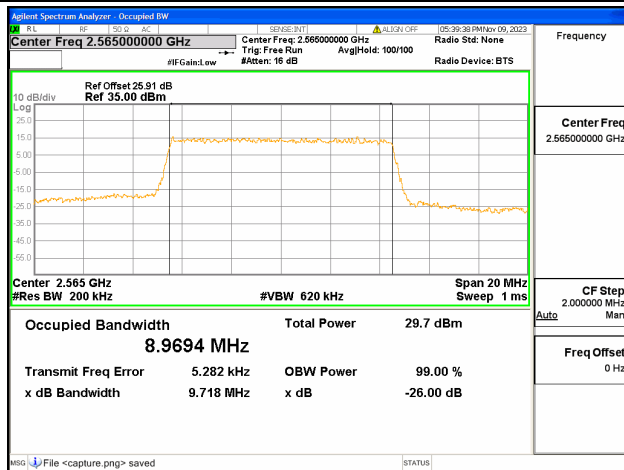
B7 / 10MHz / 16QAM/ Low CH



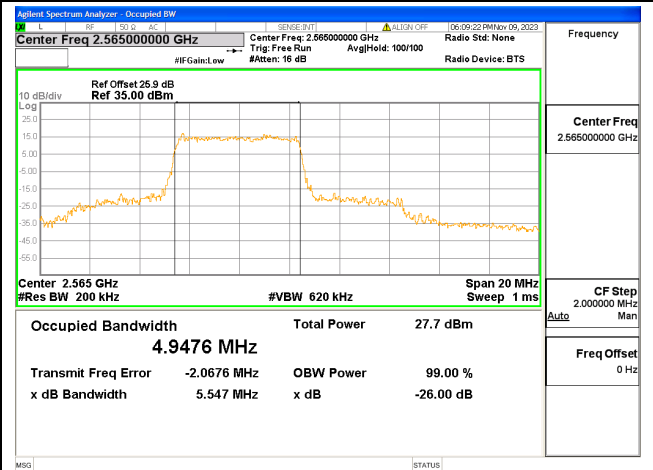
B7 / 10MHz / QPSK/ Mid CH



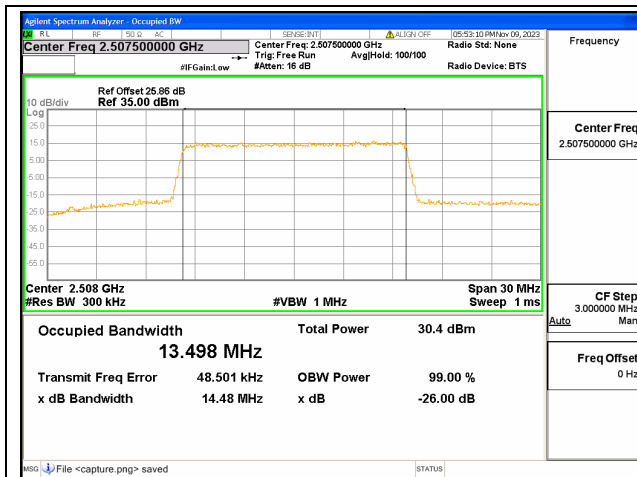
B7 / 10MHz / 16QAM/ Mid CH



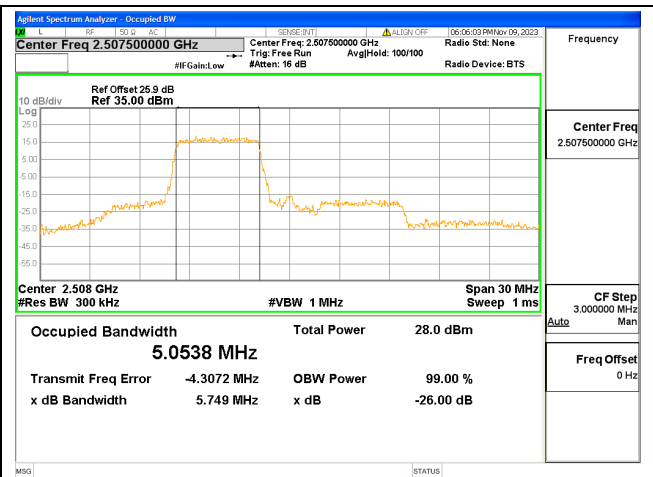
B7 / 10MHz / QPSK/ High CH



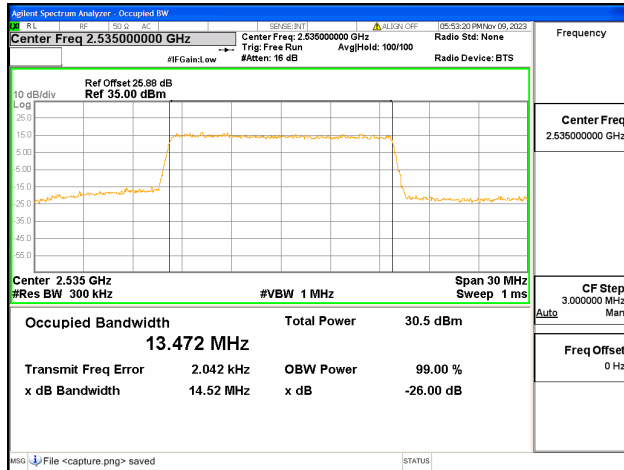
B7 / 10MHz / 16QAM/ High CH



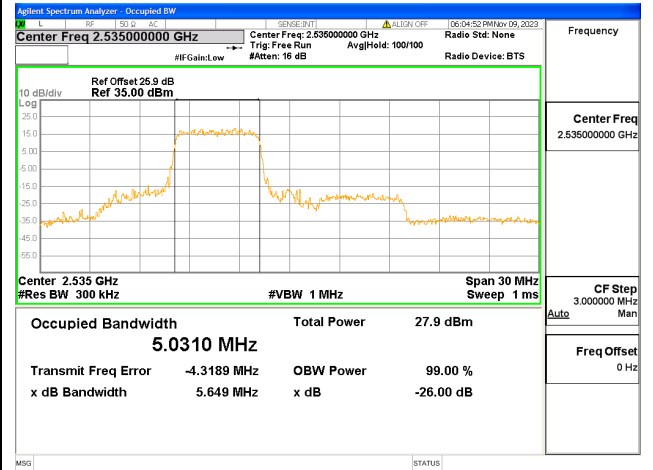
B7 / 15MHz / QPSK/ Low CH



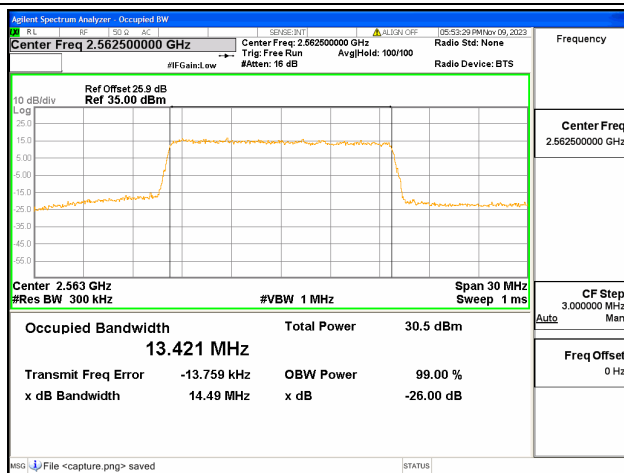
B7 / 15MHz / 16QAM/ Low CH



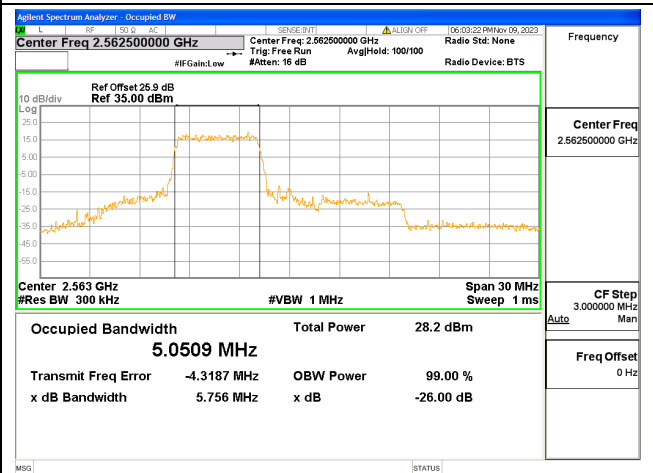
B7 / 15MHz / QPSK/ Mid CH



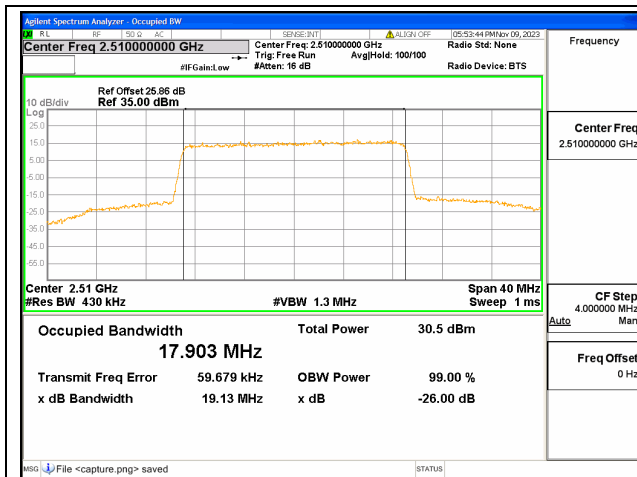
B7 / 15MHz / 16QAM/ Mid CH



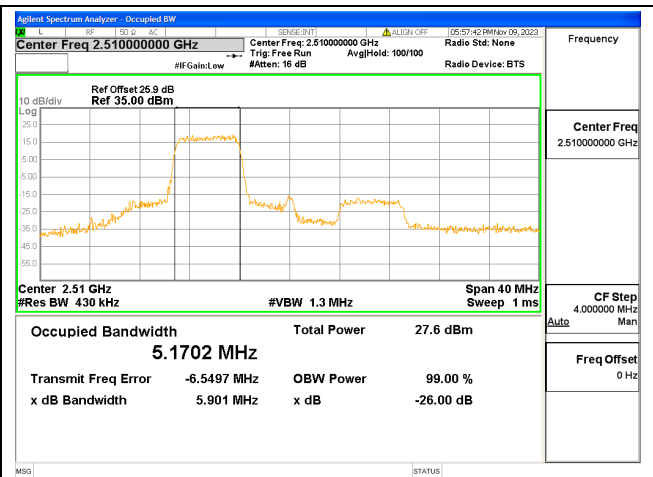
B7 / 15MHz / QPSK/ High CH



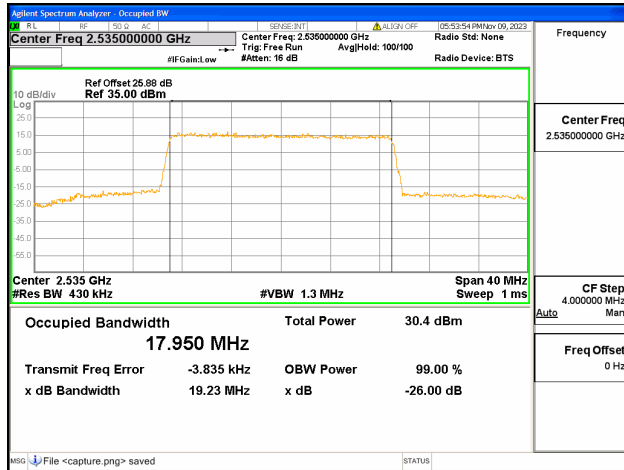
B7 / 15MHz / 16QAM/ High CH



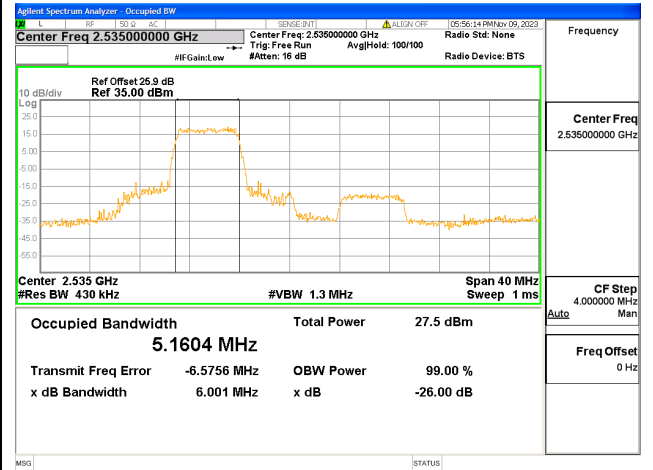
B7 / 20MHz / QPSK/ Low CH



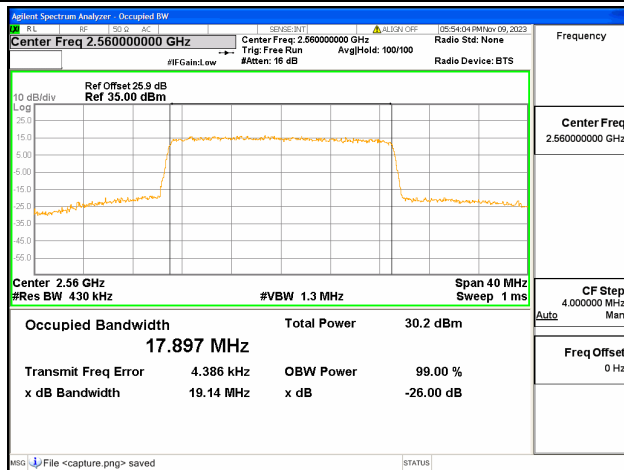
B7 / 20MHz / 16QAM/ Low CH



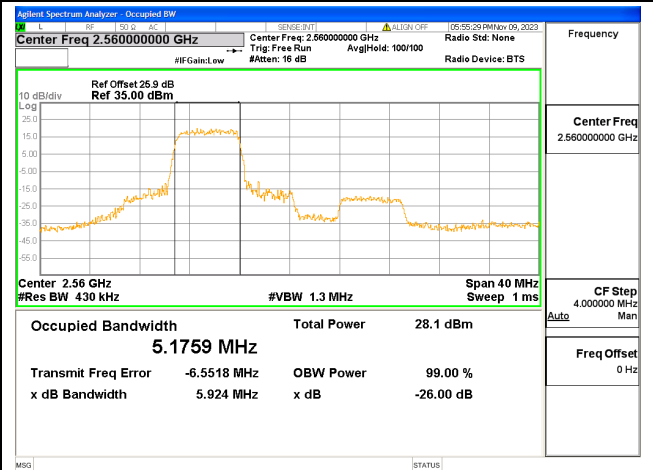
B7 / 20MHz / QPSK/ Mid CH



B7 / 20MHz / 16QAM/ Mid CH



B7 / 20MHz / QPSK/ High CH



B7 / 20MHz / 16QAM/ High CH

2.3. Frequency Stability

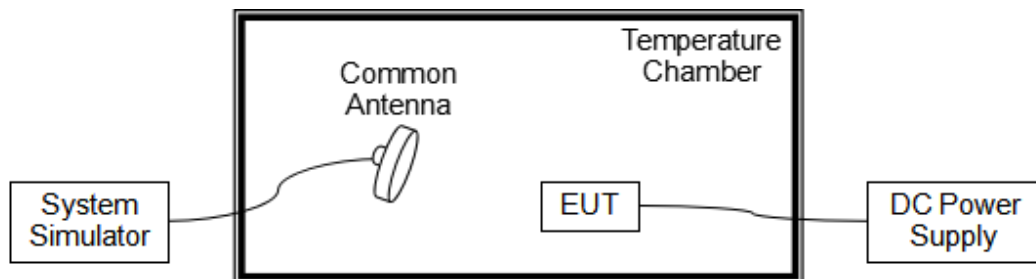
2.3.1. Requirement

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 60°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 3.80V, 4.35V and 3.50V, which are specified by the applicant; the normal temperature here used is 20°C.

LTE Band 2, 16QAM, Channel 18900, Frequency 1880.0MHz					
Limit =Within Authorized Band					
Voltage(%)	Power(VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
Normal	3.7	+20(Ref)	-14	-0.007	PASS
Normal		-20	1	0.001	
Normal		-10	20	0.011	
Normal		0	14	0.007	
Normal		+10	16	0.009	
Normal		+20	7	0.004	
Normal		+30	16	0.009	
Normal		+40	14	0.007	
Normal		+50	-20	-0.011	
Normal		+60	-20	-0.011	
High	4.2	+20	-23	-0.012	PASS
BATT.ENDPOINT	3.4	+20	8	0.004	

LTE Band 4, 16QAM, Channel 20175, Frequency 1732.5MHz					
Limit =Within Authorized Band					
Voltage(%)	Power(VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
Normal	3.7	+20(Ref)	19	0.011	PASS
Normal		-20	-4	-0.002	
Normal		-10	20	0.012	
Normal		0	16	0.009	
Normal		+10	16	0.009	
Normal		+20	-3	-0.002	
Normal		+30	15	0.009	
Normal		+40	18	0.010	
Normal		+50	-15	-0.009	
Normal		+60	-12	-0.007	
High	4.2	+20	20	0.012	PASS
BATT.ENDPOINT	3.4	+20	-13	-0.008	



LTE Band 5, 16QAM, Channel 20525, Frequency 836.5MHz Limit=±2.5ppm					
Voltage(%)	Power(VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
Normal	3.7	+20(Ref)	-13	-0.016	PASS
Normal		-20	4	0.005	
Normal		-10	16	0.019	
Normal		0	13	0.016	
Normal		+10	22	0.026	
Normal		+20	8	0.010	
Normal		+30	17	0.020	
Normal		+40	-4	-0.005	
Normal		+50	16	0.019	
Normal		+60	13	0.016	
High	4.2	+20	-22	-0.026	
BATT.ENDPOINT	3.4	+20	10	0.012	

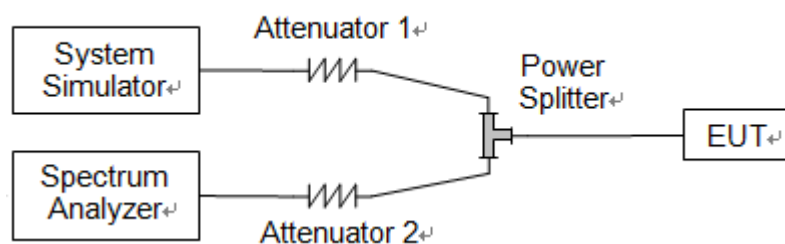
LTE Band 7, 16QAM, Channel 21100, Frequency 2535MHz Limit= Within Authorized Band					
Voltage(%)	Power(VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
Normal	3.7	+20(Ref)	11	0.004	PASS
Normal		-20	14	0.006	
Normal		-10	14	0.006	
Normal		0	4	0.002	
Normal		+10	20	0.008	
Normal		+20	16	0.006	
Normal		+30	14	0.006	
Normal		+40	3	0.001	
Normal		+50	16	0.006	
Normal		+60	18	0.007	
High	4.2	+20	17	0.007	
BATT.ENDPOINT	3.4	+20	20	0.008	

2.4. Peak to Average Ratio

2.4.1. Requirement

According to FCC section 24.232(d) and 27.50(d), 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 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

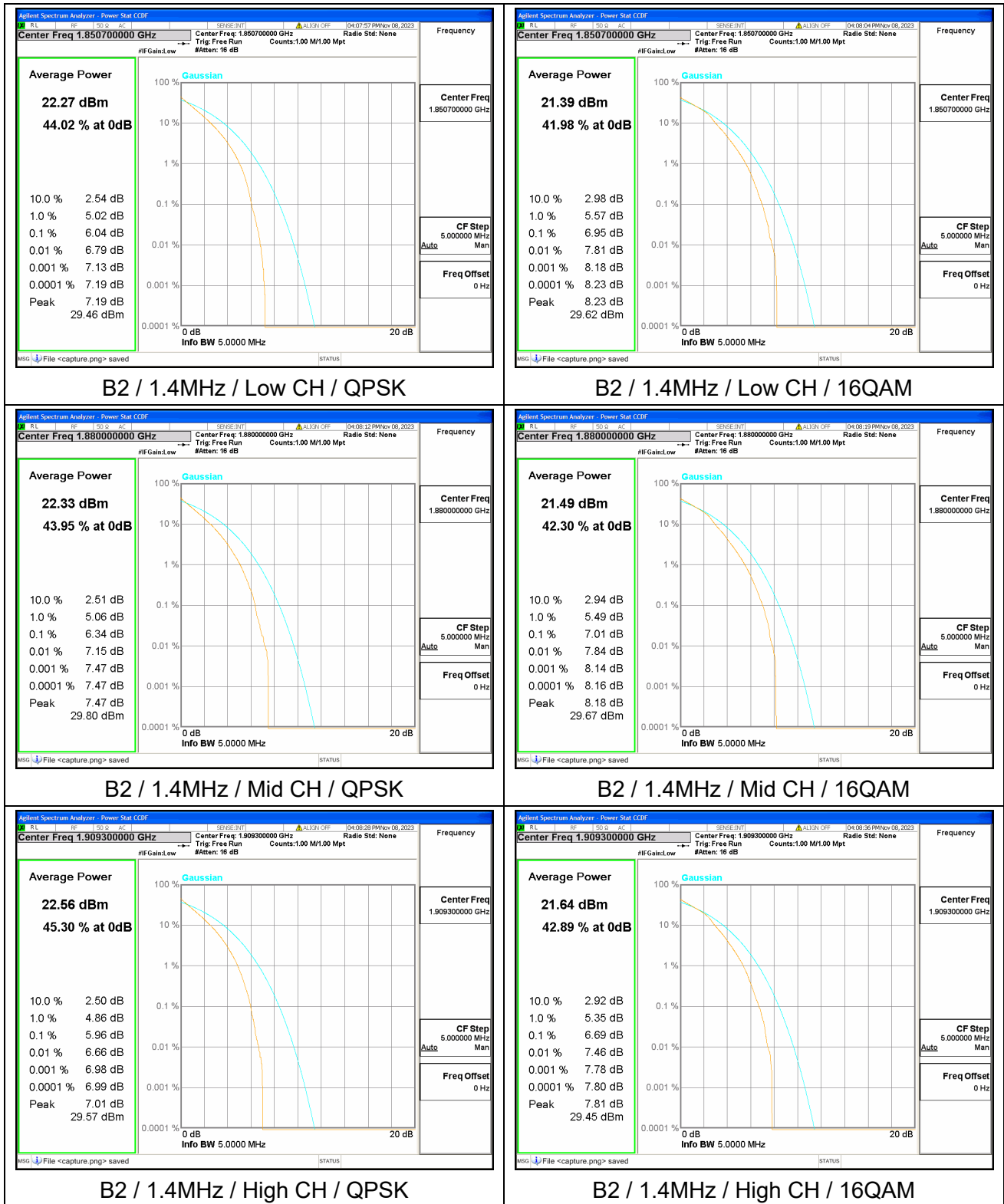
Record the maximum PAPR level associated with a probability of 0.1%.

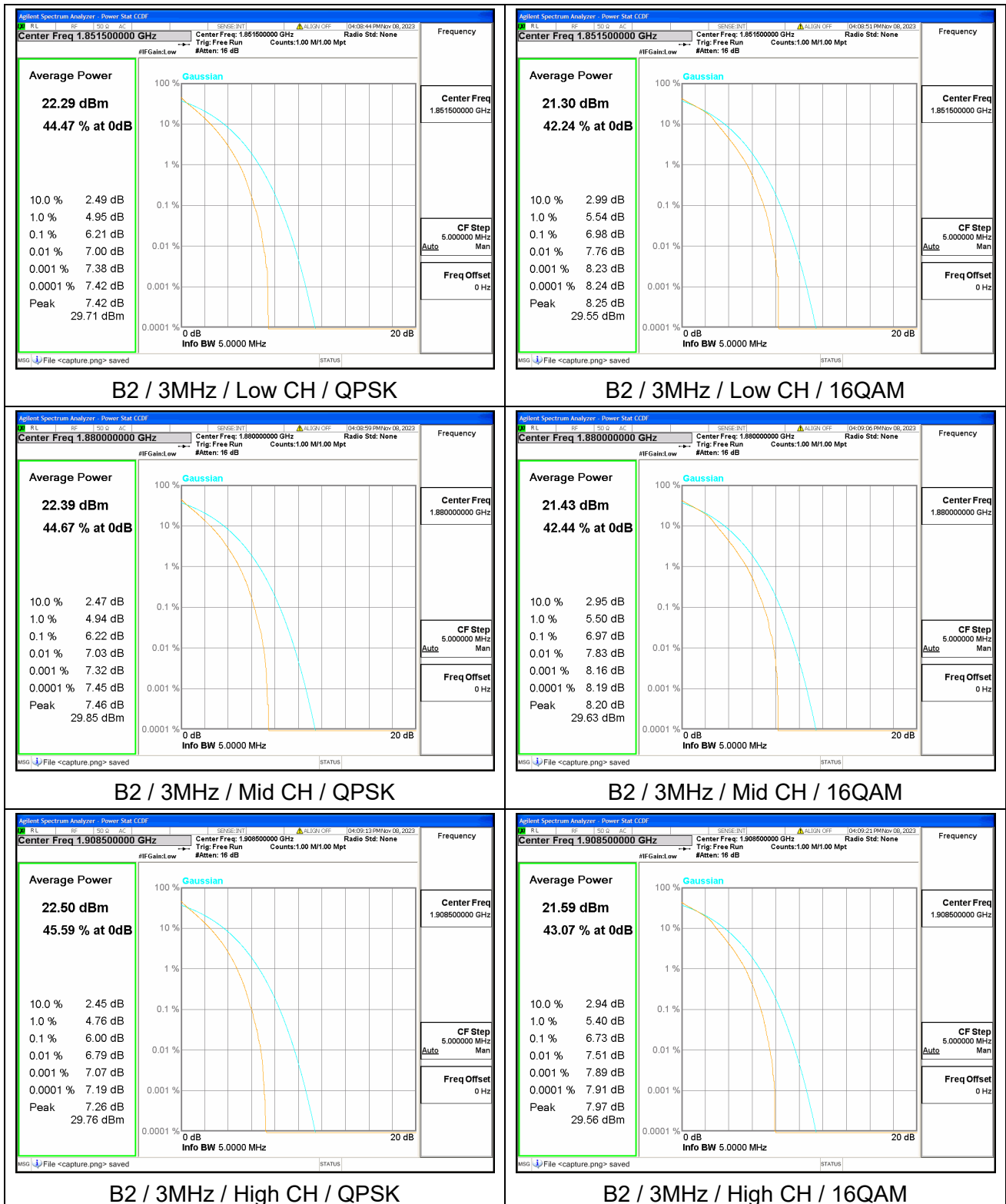


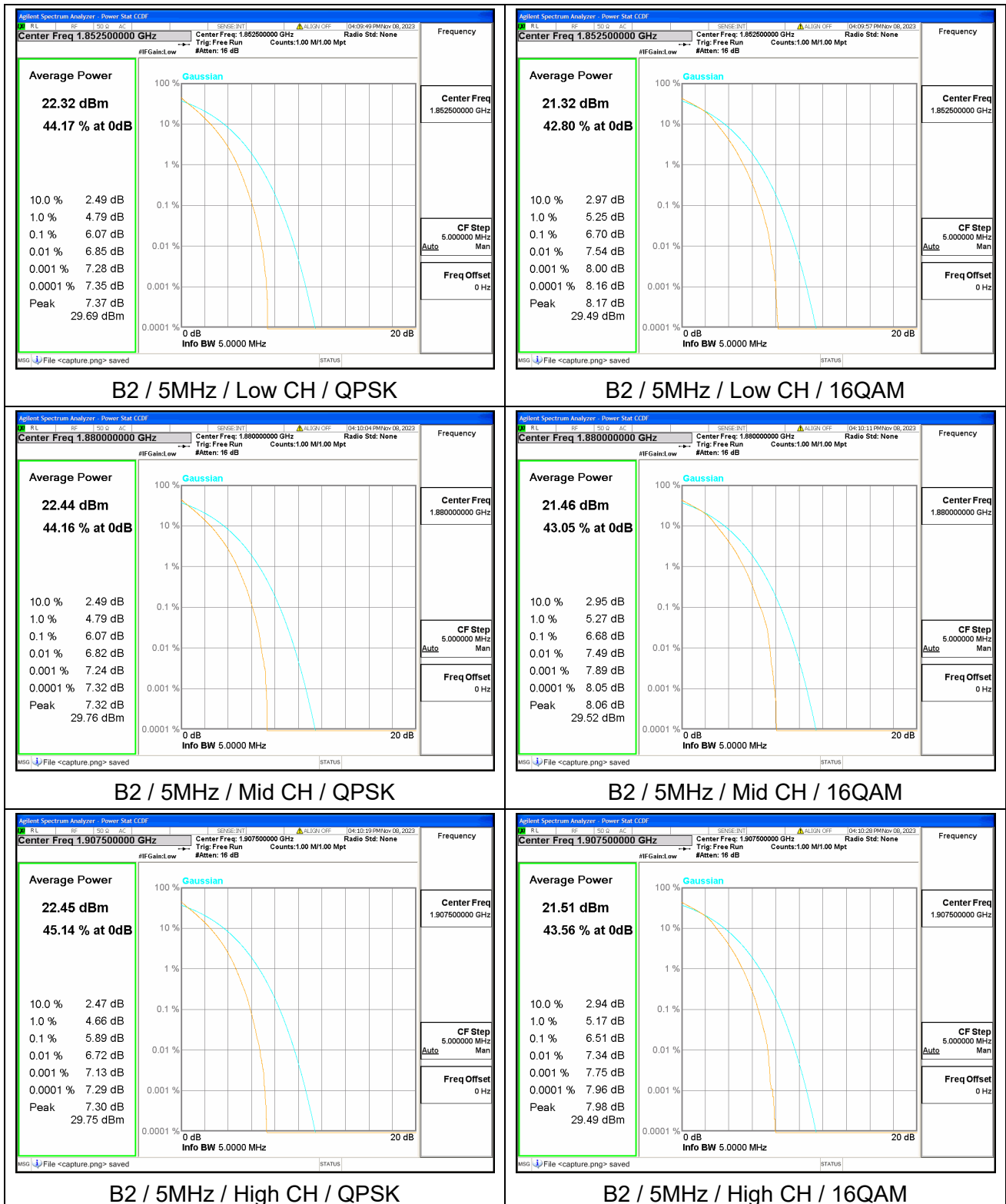
LTE Band 2					
BW(MHz)	Channel Level	Modulation	PAR Radio(dB)	Limit(dB)	Verdict
1.4	Low	QPSK	6.04	<=13	PASS
	Low	16QAM	6.95	<=13	PASS
	Mid	QPSK	6.34	<=13	PASS
	Mid	16QAM	7.01	<=13	PASS
	High	QPSK	5.96	<=13	PASS
	High	16QAM	6.69	<=13	PASS
3	Low	QPSK	6.21	<=13	PASS
	Low	16QAM	6.98	<=13	PASS
	Mid	QPSK	6.22	<=13	PASS
	Mid	16QAM	6.97	<=13	PASS
	High	QPSK	6.00	<=13	PASS
	High	16QAM	6.73	<=13	PASS
5	Low	QPSK	6.07	<=13	PASS
	Low	16QAM	6.70	<=13	PASS
	Mid	QPSK	6.07	<=13	PASS
	Mid	16QAM	6.68	<=13	PASS
	High	QPSK	5.89	<=13	PASS
	High	16QAM	6.51	<=13	PASS
10	Low	QPSK	5.98	<=13	PASS
	Low	16QAM	5.17	<=13	PASS
	Mid	QPSK	6.06	<=13	PASS
	Mid	16QAM	5.54	<=13	PASS
	High	QPSK	6.00	<=13	PASS
	High	16QAM	4.91	<=13	PASS
15	Low	QPSK	5.95	<=13	PASS
	Low	16QAM	5.69	<=13	PASS
	Mid	QPSK	5.98	<=13	PASS
	Mid	16QAM	6.25	<=13	PASS
	High	QPSK	5.95	<=13	PASS
	High	16QAM	5.11	<=13	PASS
20	Low	QPSK	5.70	<=13	PASS
	Low	16QAM	5.09	<=13	PASS
	Mid	QPSK	5.88	<=13	PASS
	Mid	16QAM	5.73	<=13	PASS
	High	QPSK	5.83	<=13	PASS
	High	16QAM	4.36	<=13	PASS

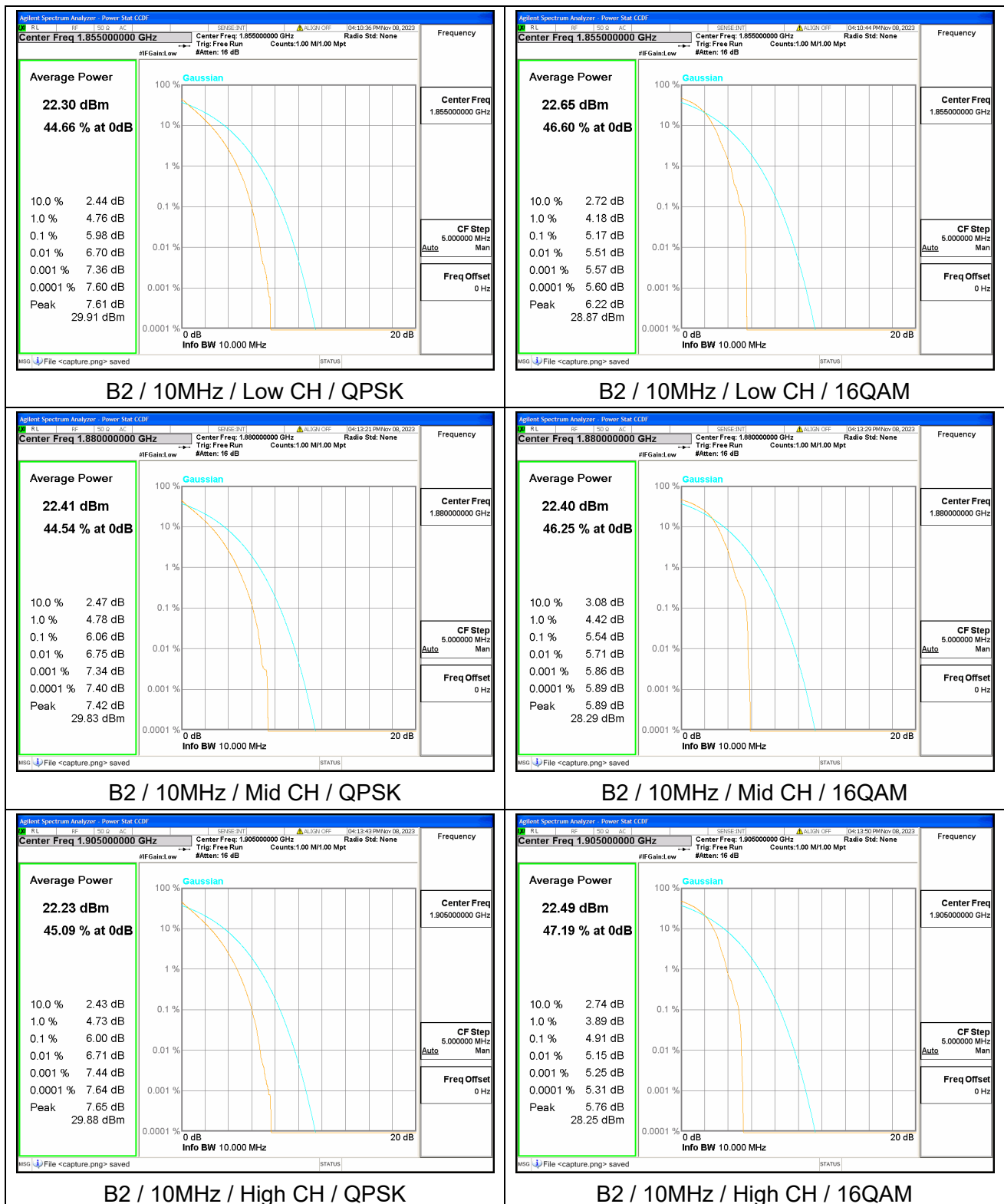


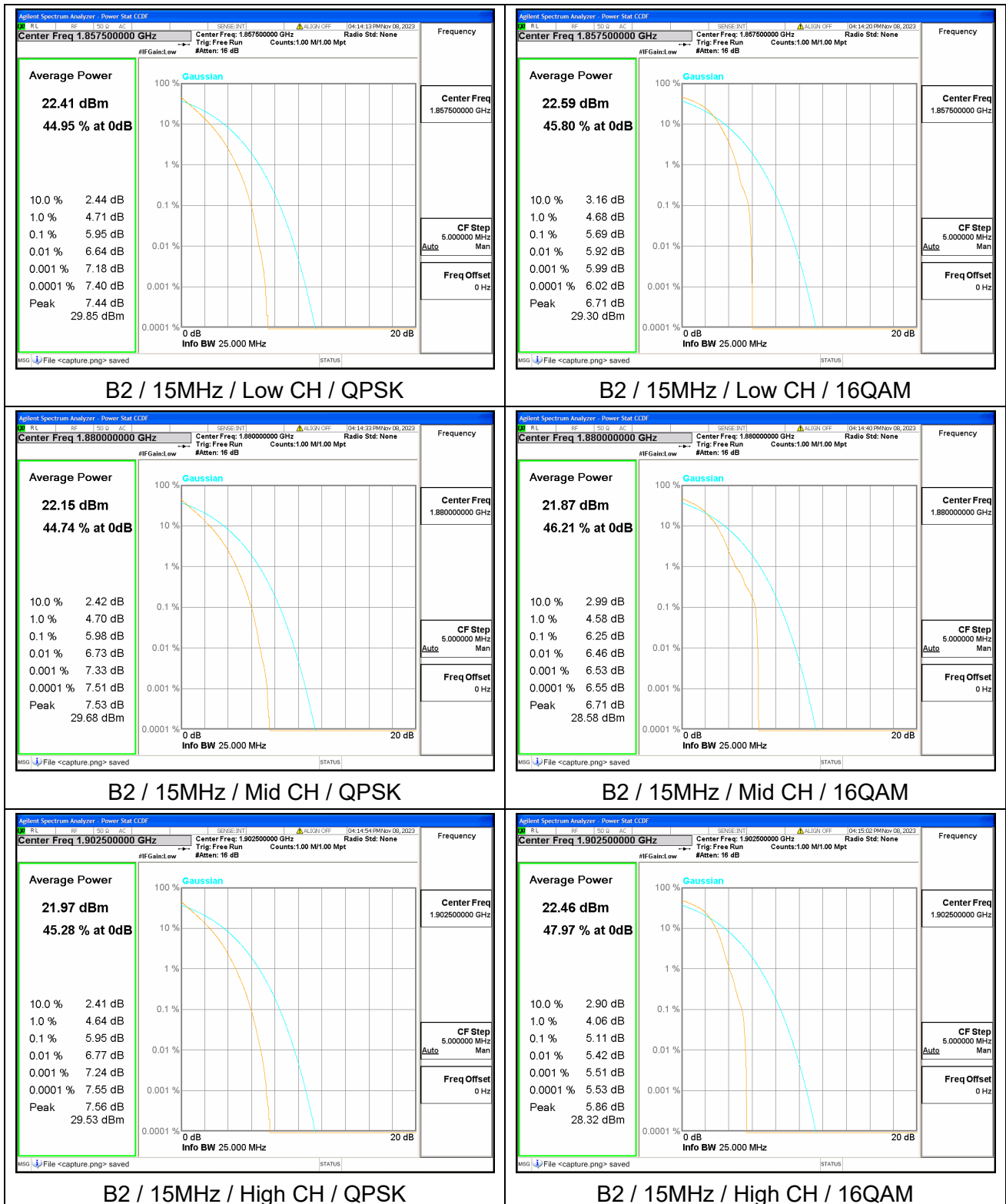
LTE Band 4					
BW(MHz)	Channel Level	Modulation	PAR Radio(dB)	Limit(dB)	Verdict
1.4	Low	QPSK	6.02	<=13	PASS
	Low	16QAM	7.02	<=13	PASS
	Mid	QPSK	6.06	<=13	PASS
	Mid	16QAM	6.86	<=13	PASS
	High	QPSK	5.62	<=13	PASS
	High	16QAM	6.54	<=13	PASS
3	Low	QPSK	6.11	<=13	PASS
	Low	16QAM	6.97	<=13	PASS
	Mid	QPSK	6.15	<=13	PASS
	Mid	16QAM	6.92	<=13	PASS
	High	QPSK	5.69	<=13	PASS
	High	16QAM	6.73	<=13	PASS
5	Low	QPSK	5.94	<=13	PASS
	Low	16QAM	6.63	<=13	PASS
	Mid	QPSK	6.03	<=13	PASS
	Mid	16QAM	6.65	<=13	PASS
	High	QPSK	5.75	<=13	PASS
	High	16QAM	6.58	<=13	PASS
10	Low	QPSK	5.74	<=13	PASS
	Low	16QAM	9.83	<=13	PASS
	Mid	QPSK	5.90	<=13	PASS
	Mid	16QAM	5.59	<=13	PASS
	High	QPSK	5.91	<=13	PASS
	High	16QAM	4.81	<=13	PASS
15	Low	QPSK	5.65	<=13	PASS
	Low	16QAM	4.13	<=13	PASS
	Mid	QPSK	5.87	<=13	PASS
	Mid	16QAM	9.00	<=13	PASS
	High	QPSK	5.80	<=13	PASS
	High	16QAM	5.02	<=13	PASS
20	Low	QPSK	5.62	<=13	PASS
	Low	16QAM	4.51	<=13	PASS
	Mid	QPSK	5.83	<=13	PASS
	Mid	16QAM	5.42	<=13	PASS
	High	QPSK	5.93	<=13	PASS
	High	16QAM	5.51	<=13	PASS

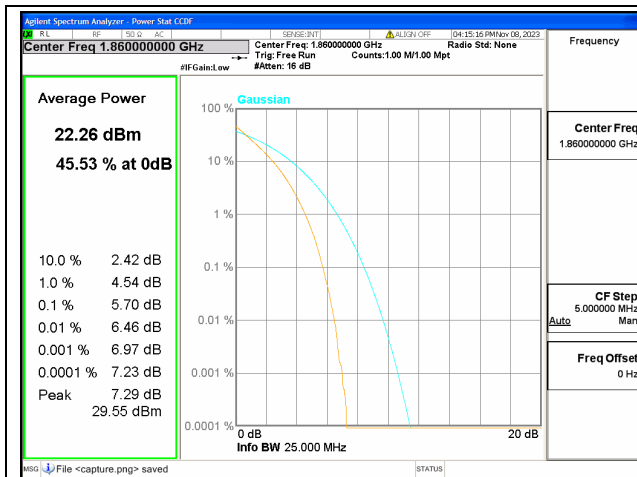




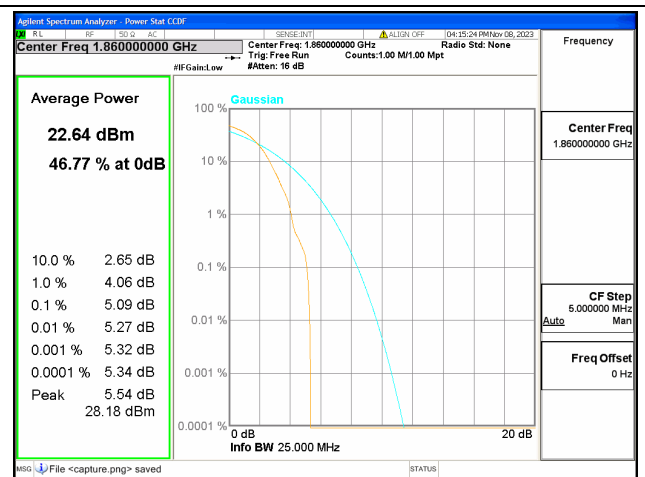




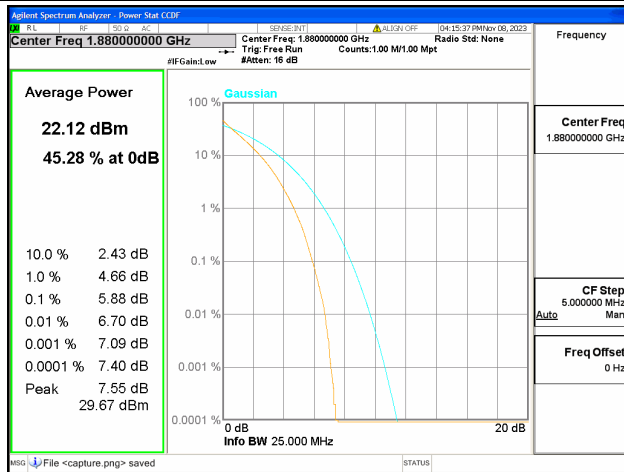




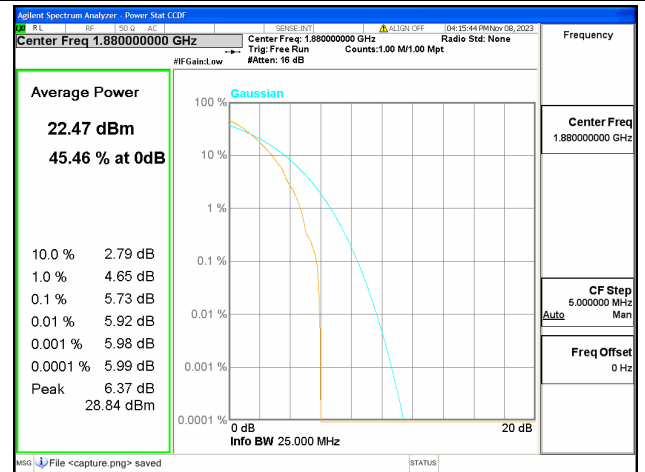
B2 / 20MHz / Low CH / QPSK



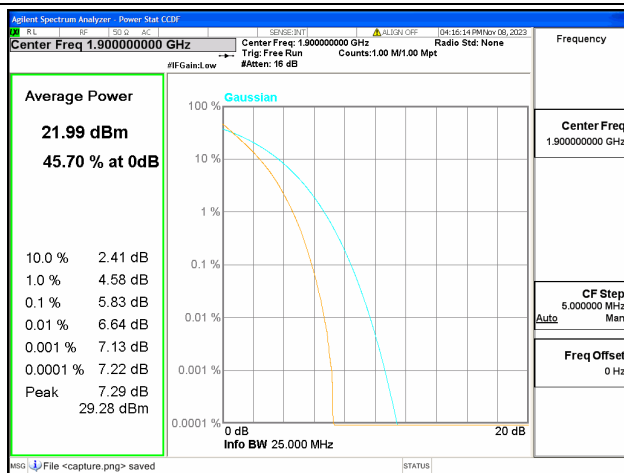
B2 / 20MHz / Low CH / 16QAM



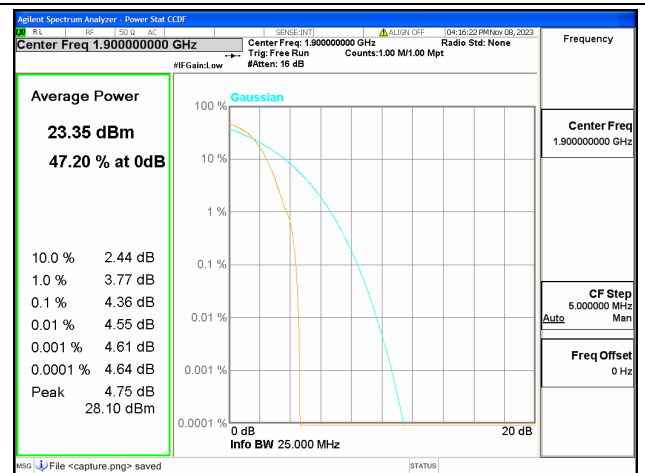
B2 / 20MHz / Mid CH / QPSK



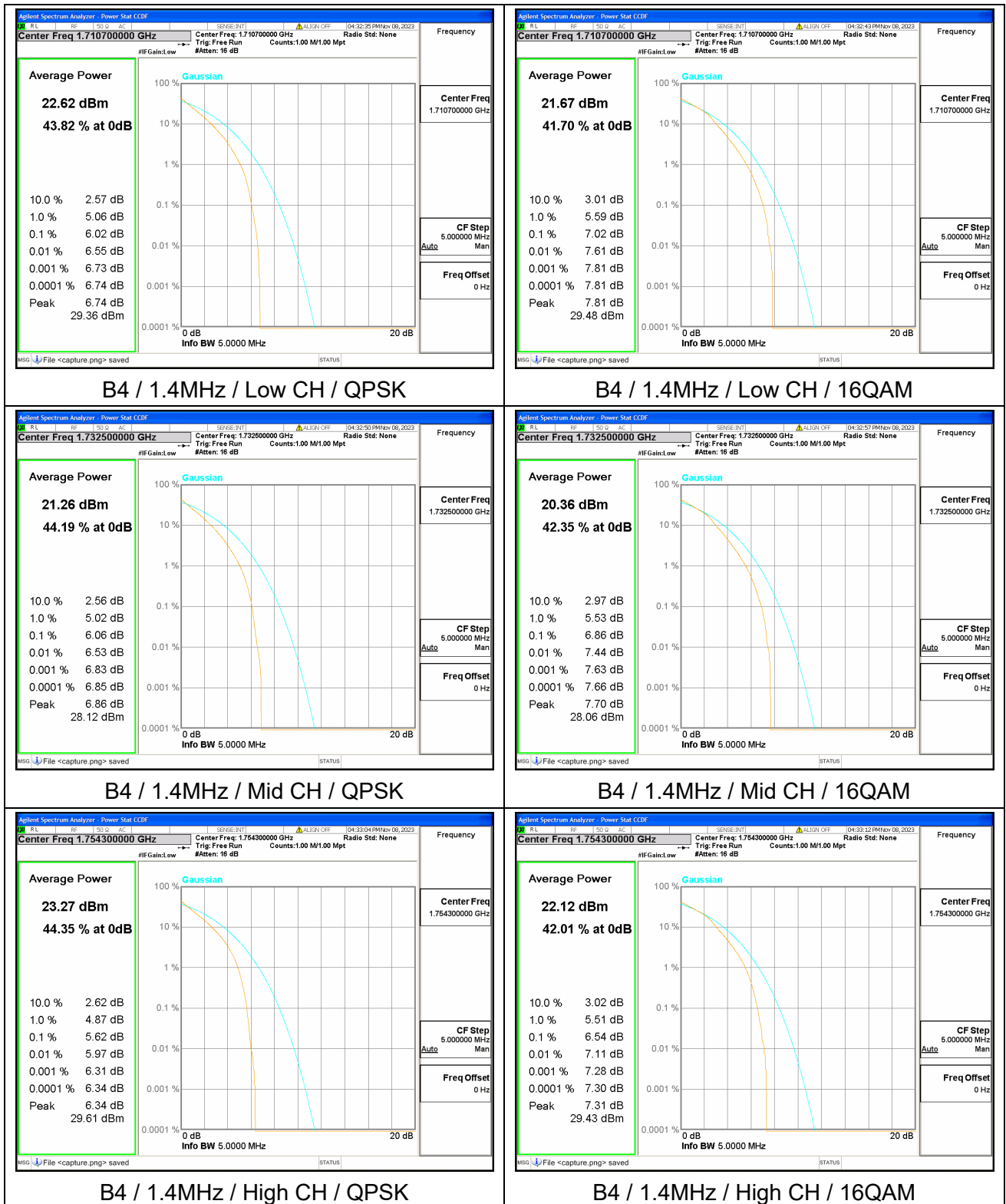
B2 / 20MHz / Mid CH / 16QAM

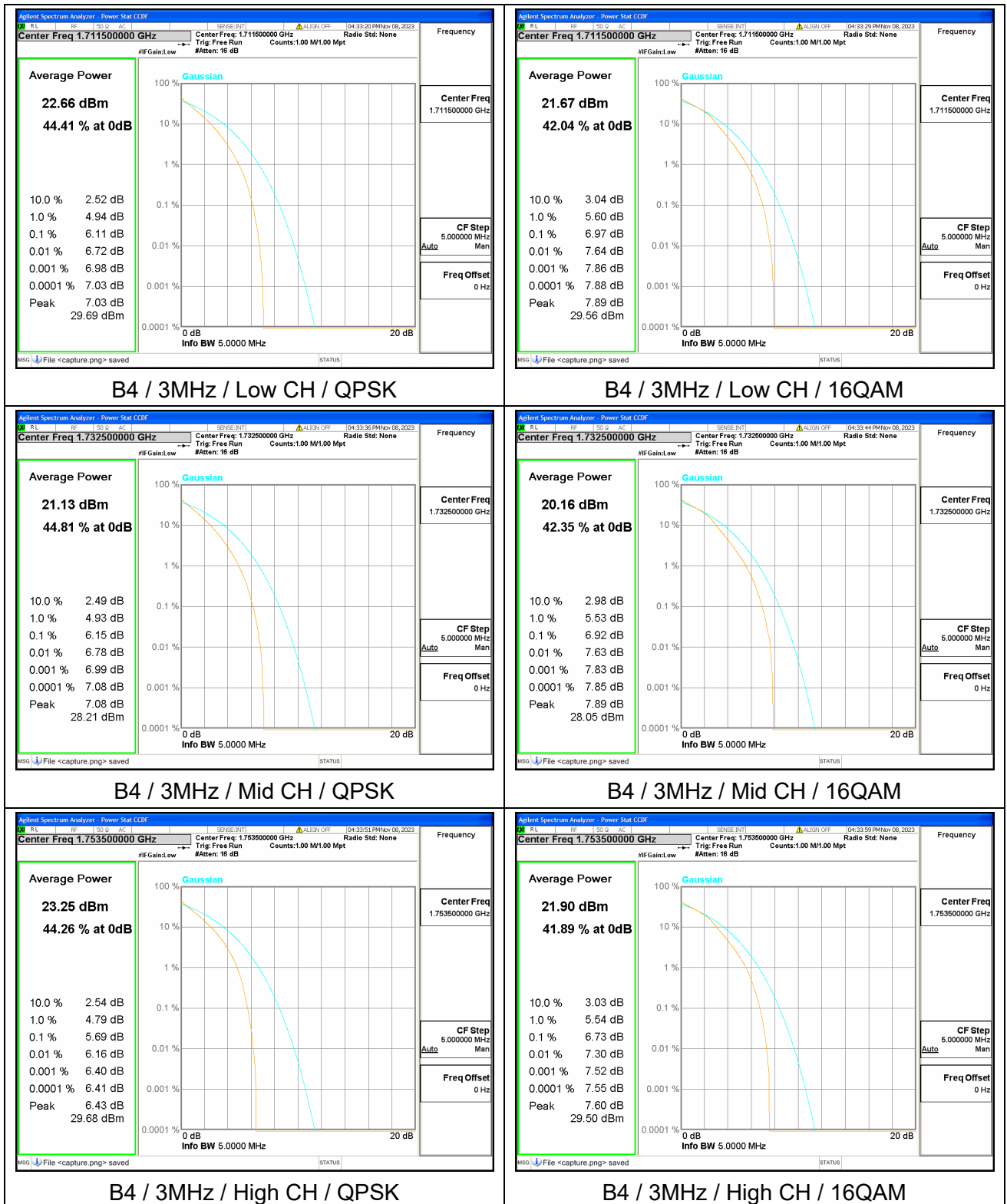


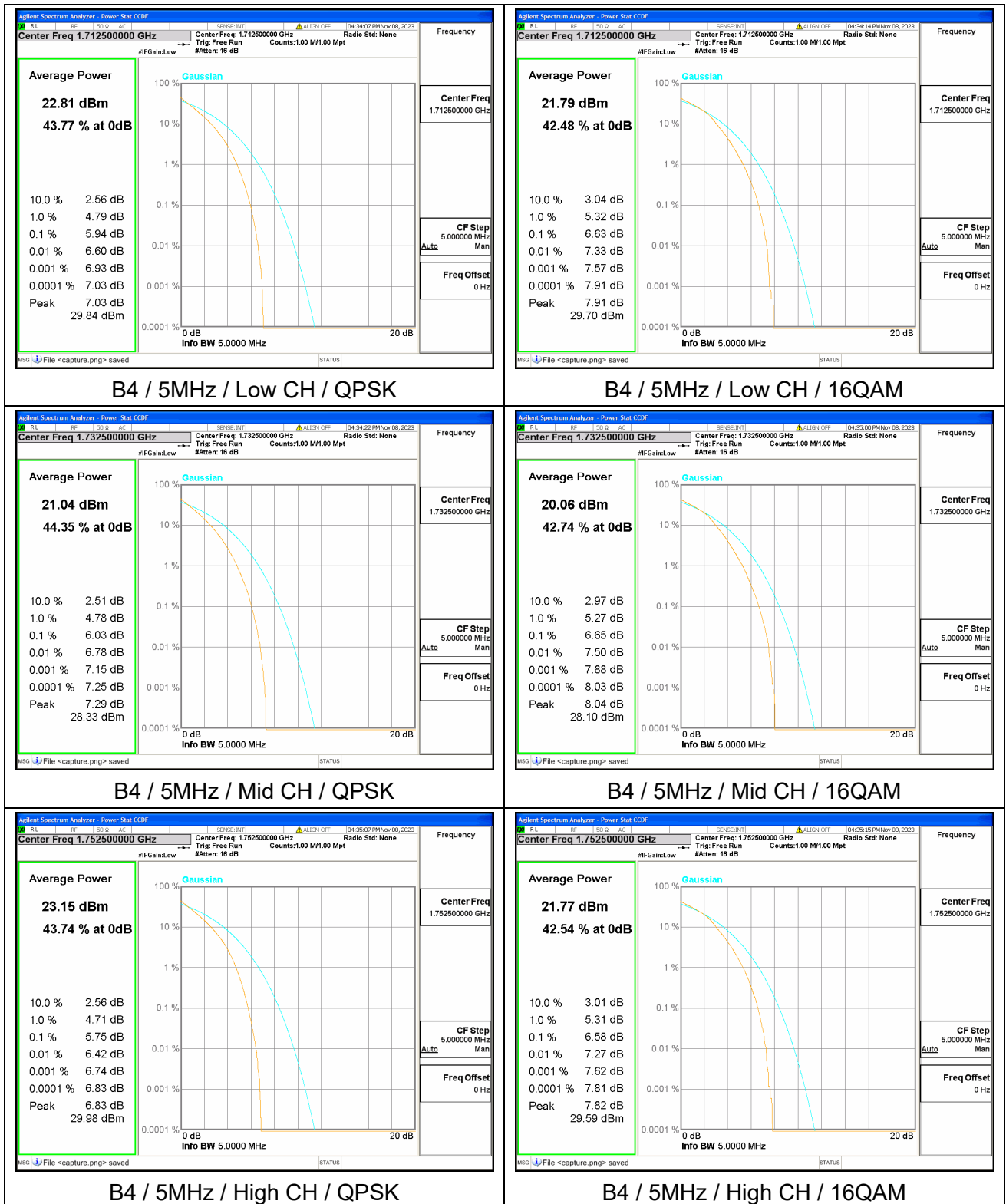
B2 / 20MHz / High CH / QPSK

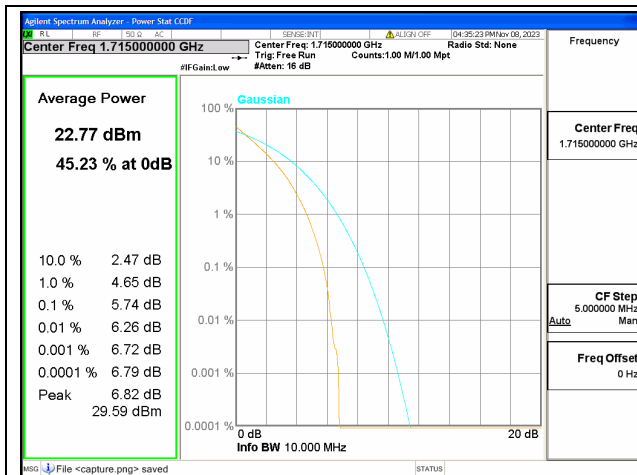


B2 / 20MHz / High CH / 16QAM

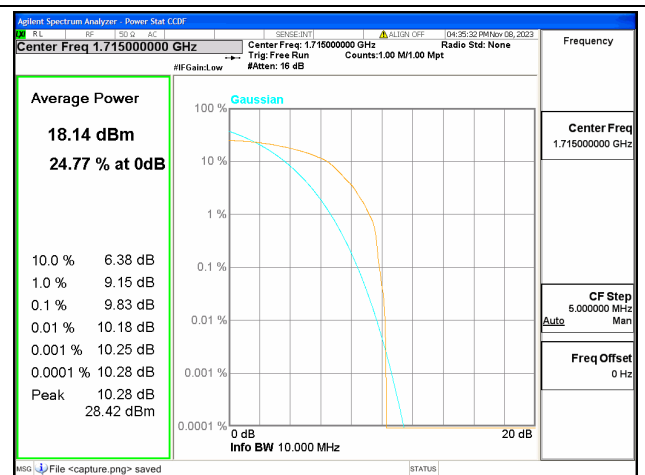




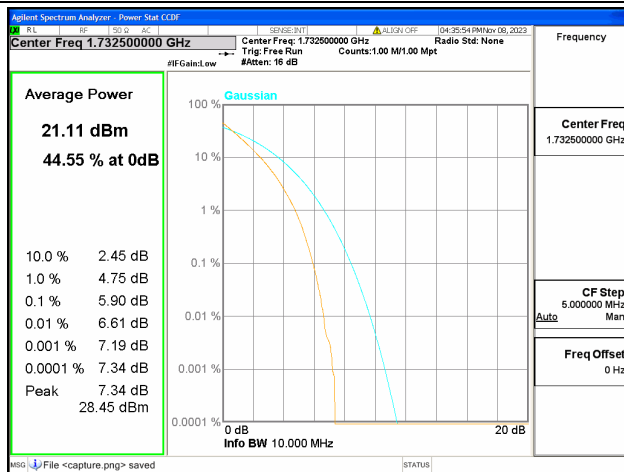




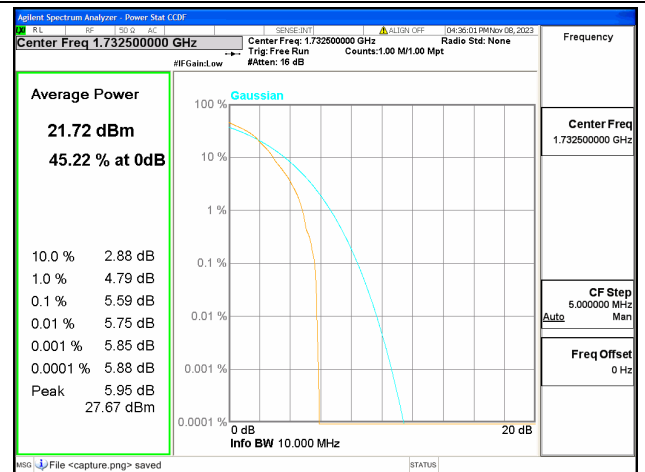
B4 / 10MHz / Low CH / QPSK



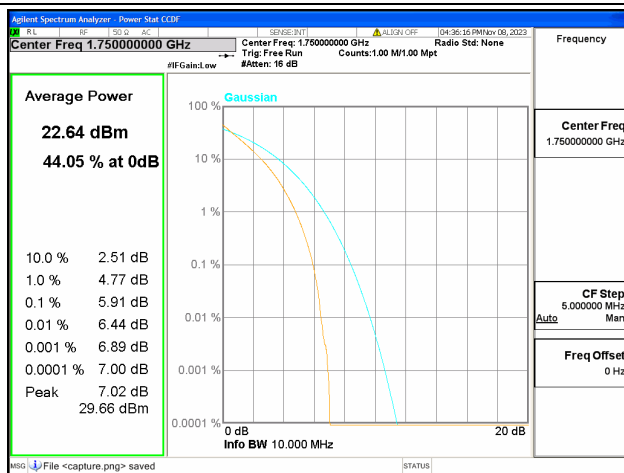
B4 / 10MHz / Low CH / 16QAM



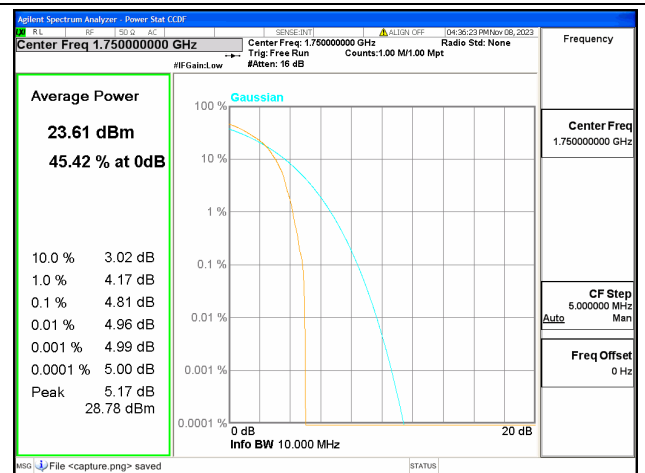
B4 / 10MHz / Mid CH / QPSK



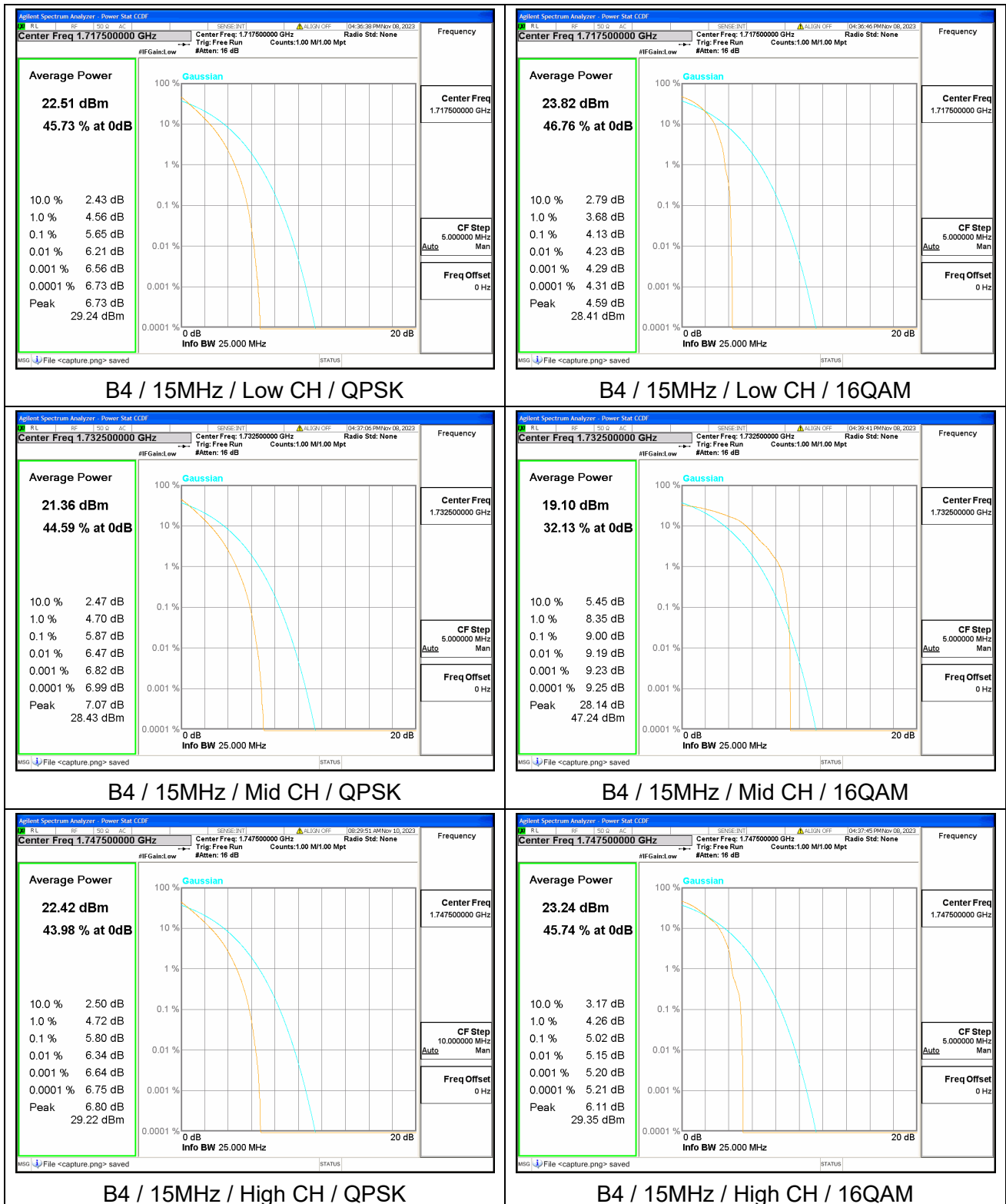
B4 / 10MHz / Mid CH / 16QAM

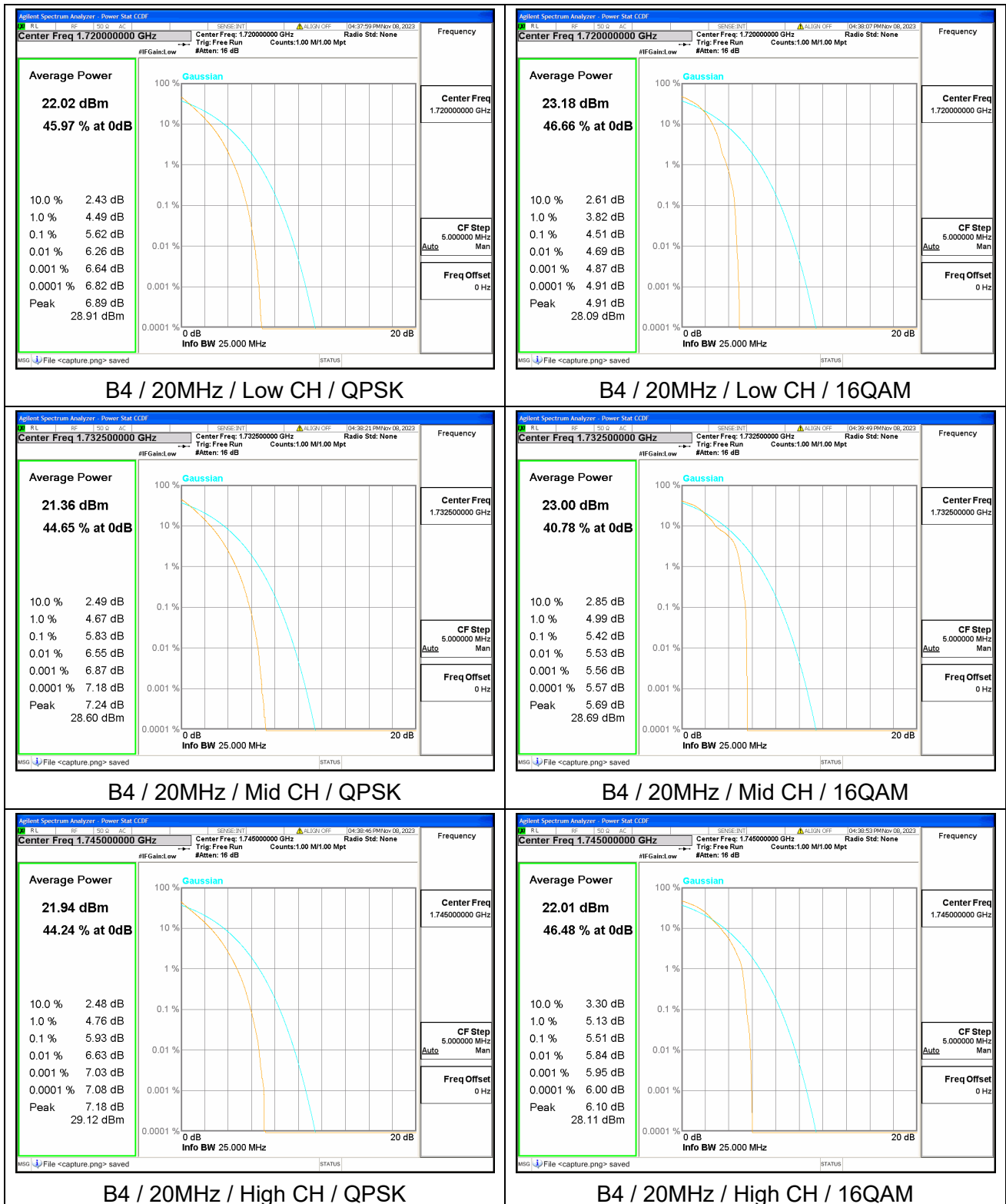


B4 / 10MHz / High CH / QPSK



B4 / 10MHz / High CH / 16QAM





2.5. Conducted Spurious Emissions

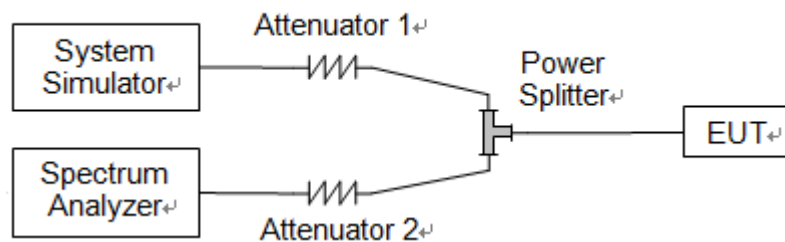
2.5.1. Requirement

According to FCC section 2.1051, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. This calculated to be -13dBm.

Additional requirement for LTE Band 7:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $55 + 10 \log(P)$ dB. This calculated to be -25dBm.

2.5.2. 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.

2.5.3. Test Procedure

Note: KDB 971168 D01v03 Section 6.0 and ANSI/TIA-603-E-2016.

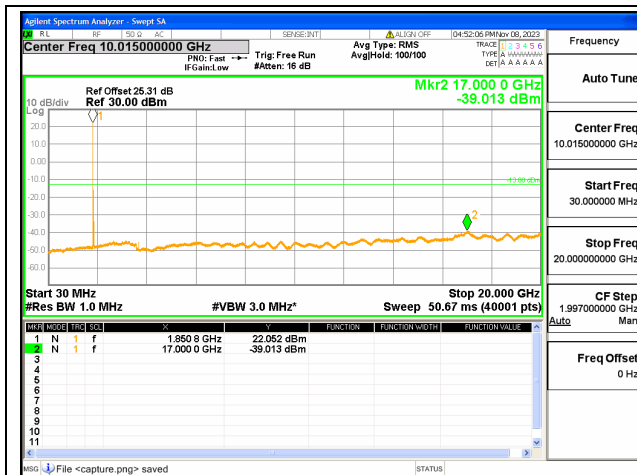
All bandwidth and modulation were considered and evaluated respectively by performing full test for each band, only the worst cases (Max Bandwidth and QPSK mode) were recorded in this test report.



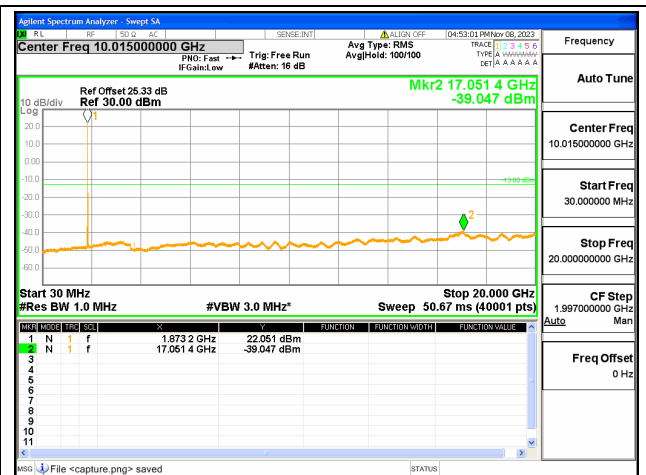
2.5.4. Test Result



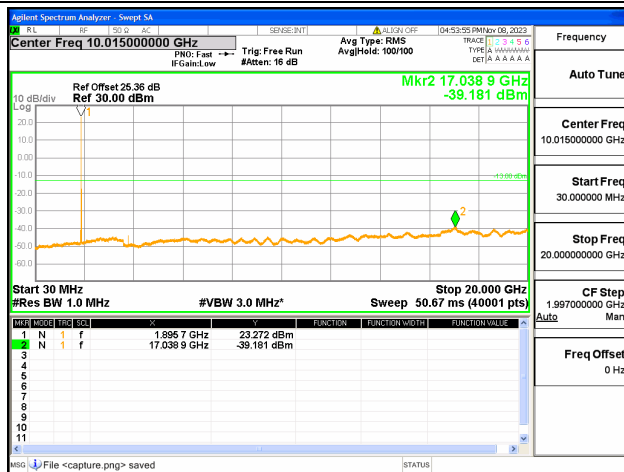




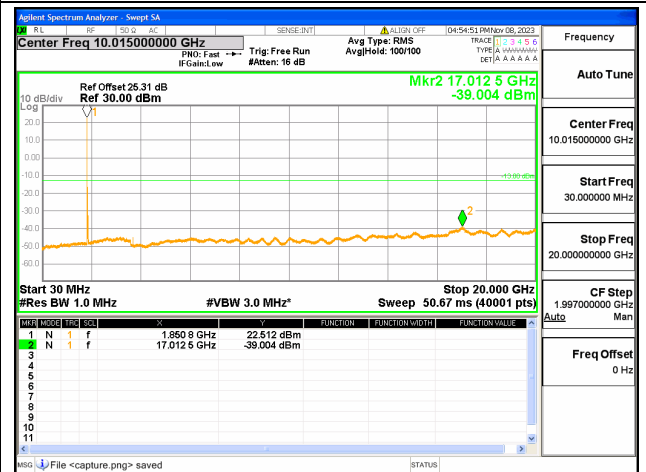
B2 / 15MHz / Low CH / QPSK



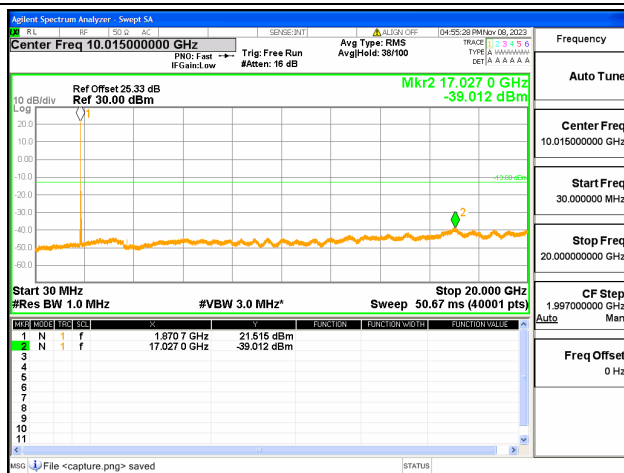
B2 / 15MHz / Mid CH / QPSK



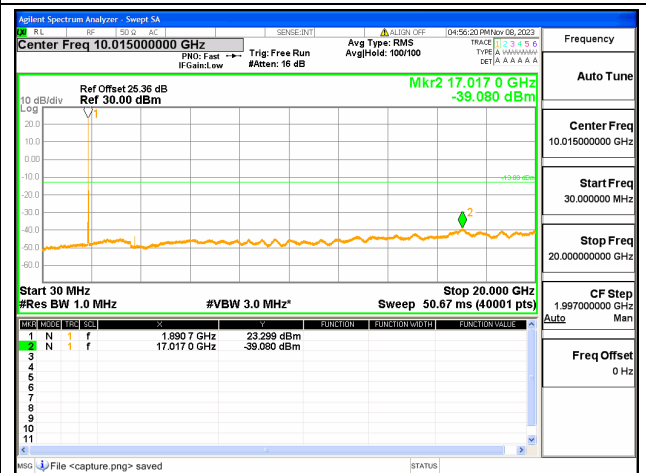
B2 / 15MHz / High CH / QPSK



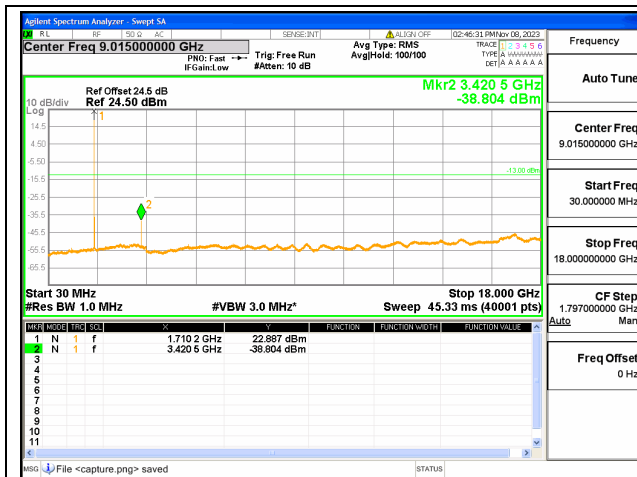
B2 / 20MHz / Low CH / QPSK



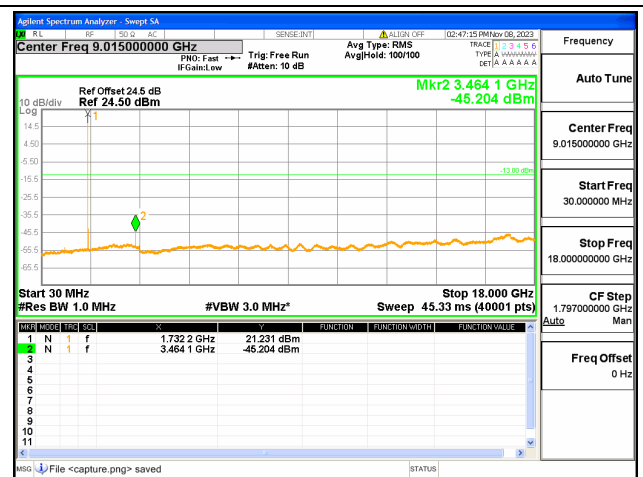
B2 / 20MHz / Mid CH / QPSK



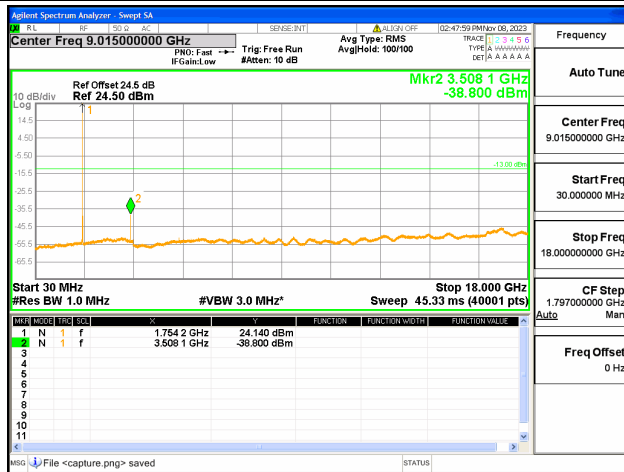
B2 / 20MHz / High CH / QPSK



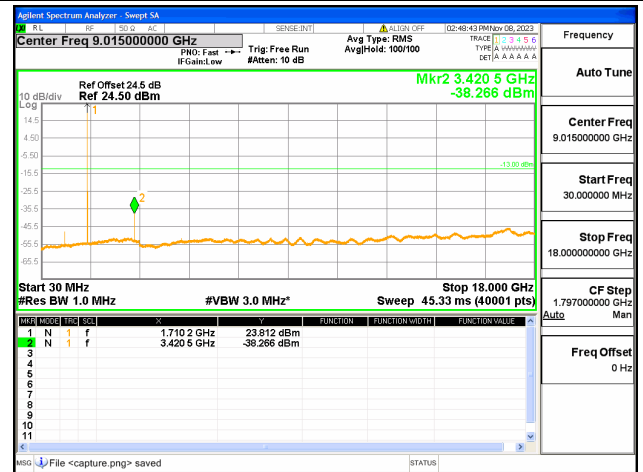
B4 / 1.4MHz / Low CH / QPSK



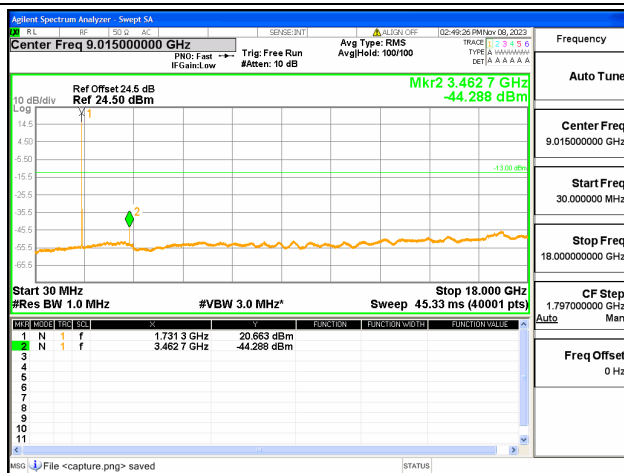
B4 / 1.4MHz / Mid CH / QPSK



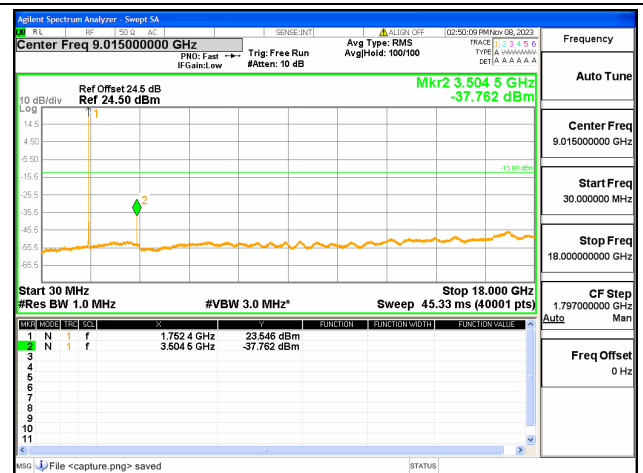
B4 / 1.4MHz / High CH / QPSK



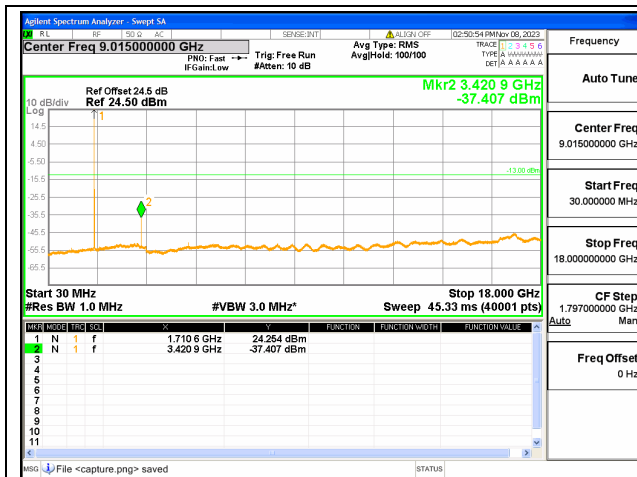
B4 / 3MHz / Low CH / QPSK



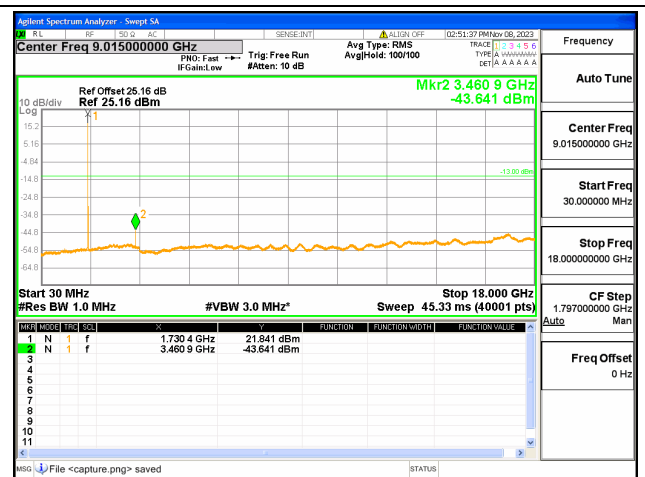
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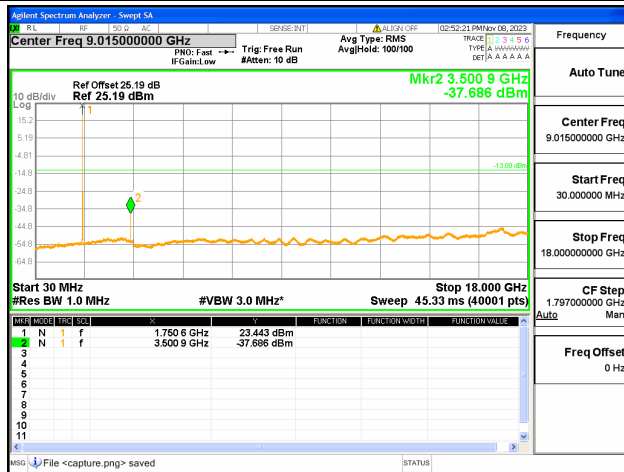
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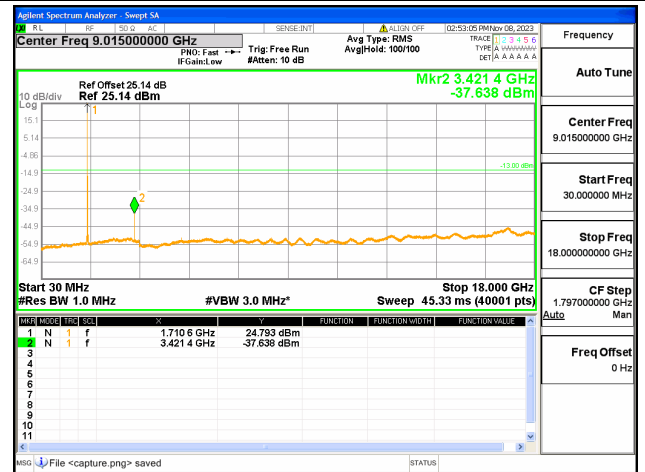
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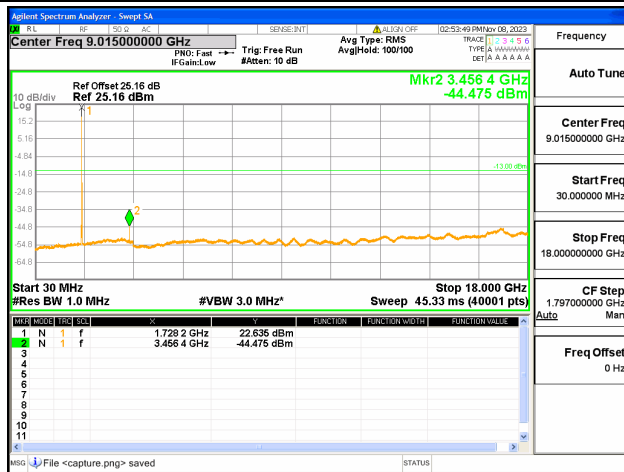
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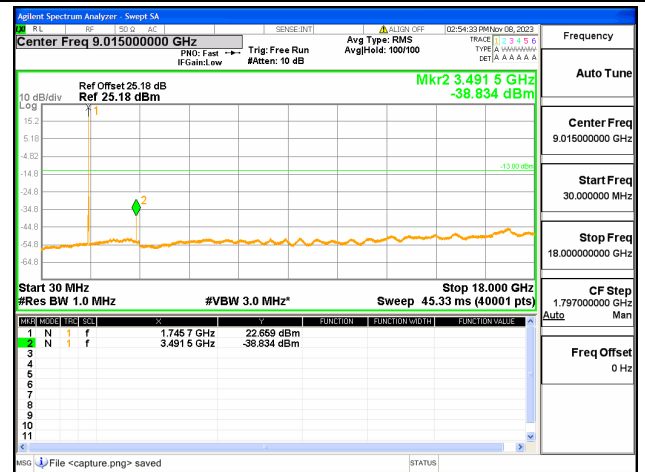
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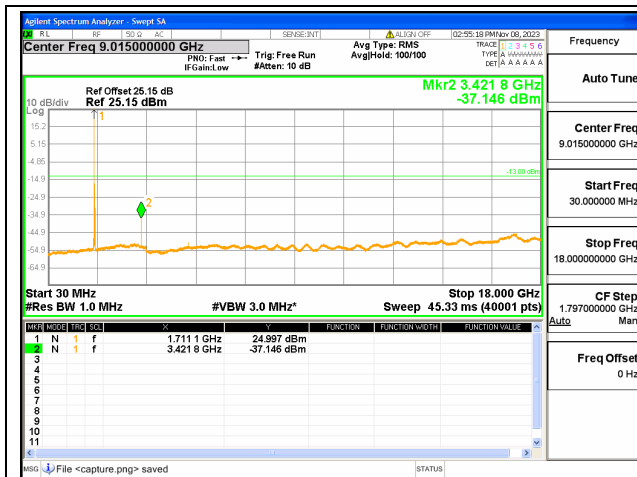
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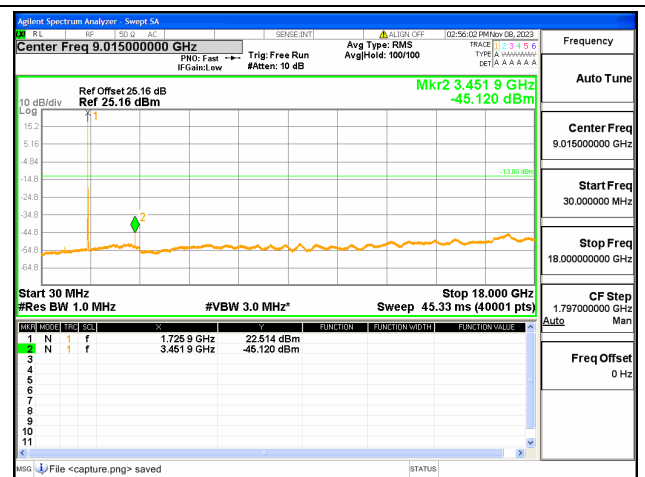
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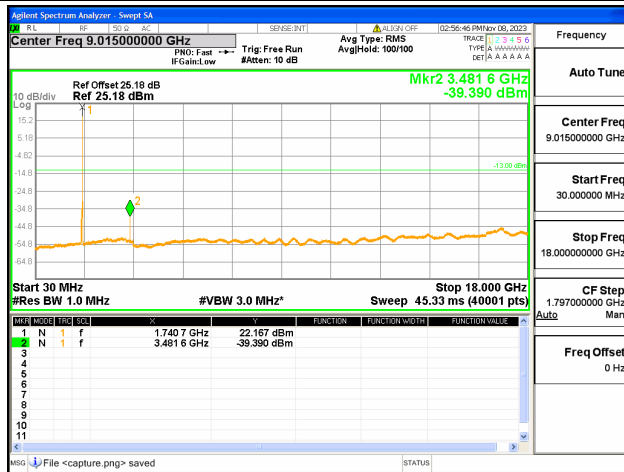
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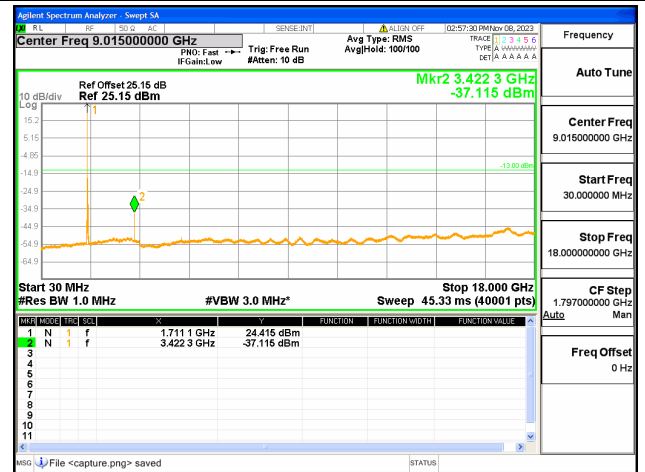
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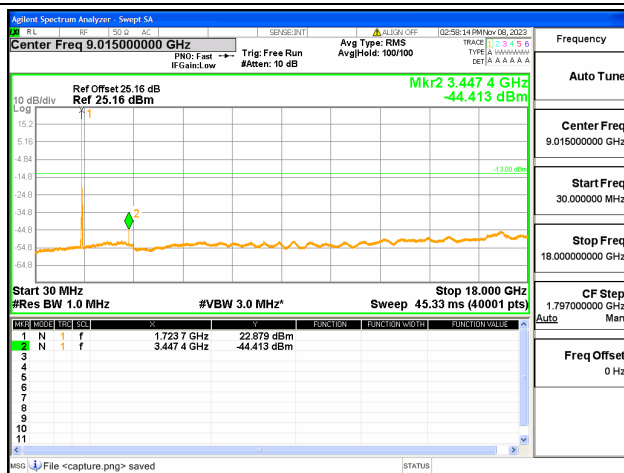
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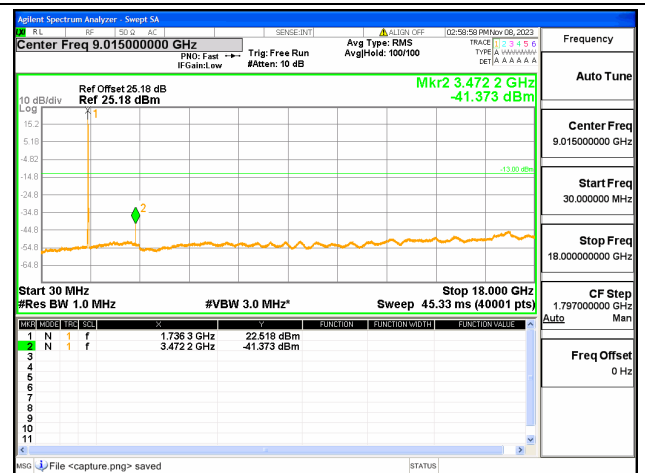
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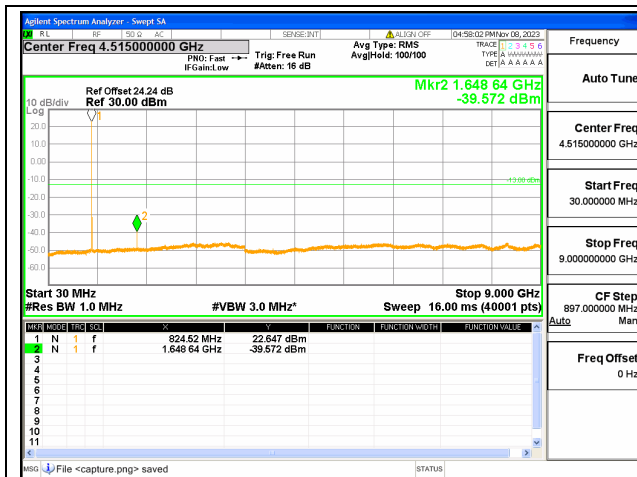
B4 / 20MHz / Low CH / QPSK



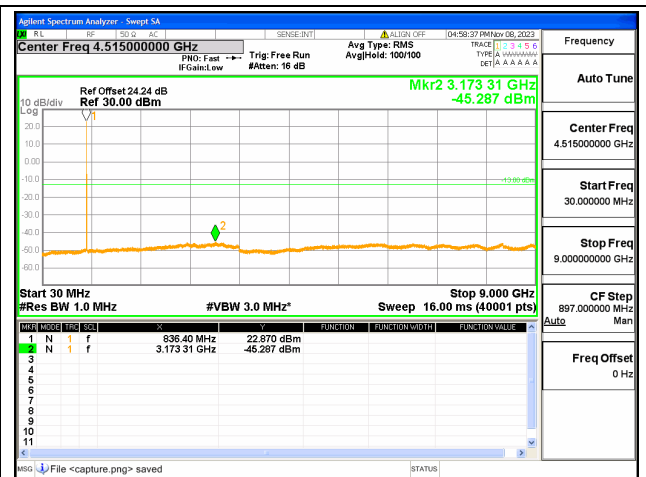
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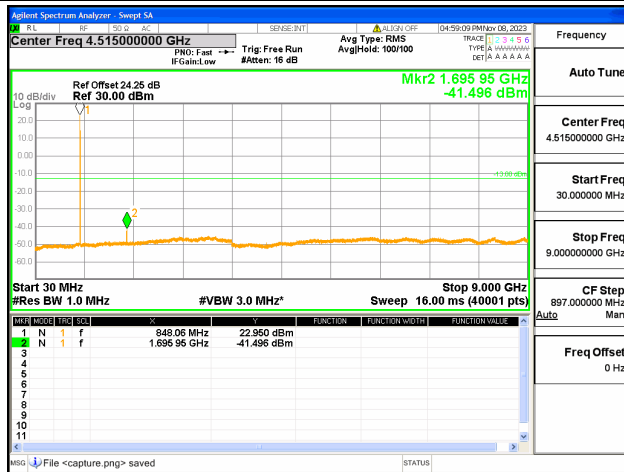
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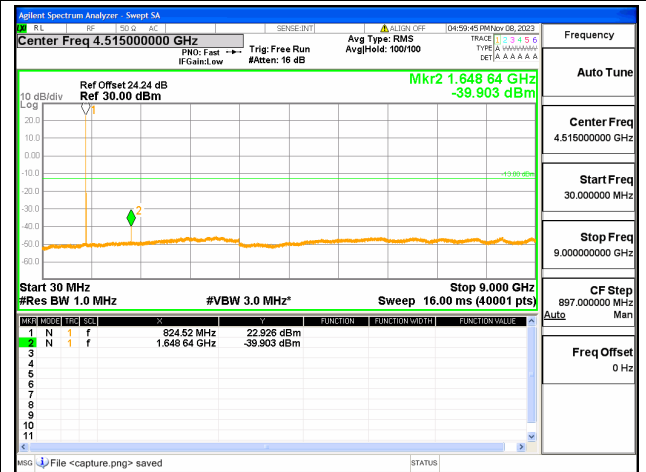
B5 / 1.4MHz / Low CH / QPSK



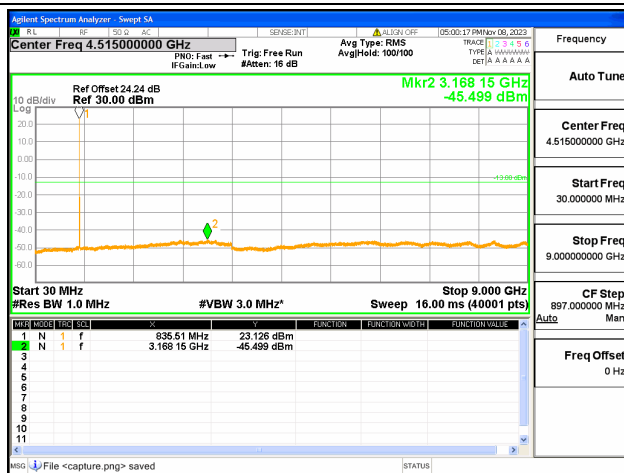
B5 / 1.4MHz / Mid CH / QPSK



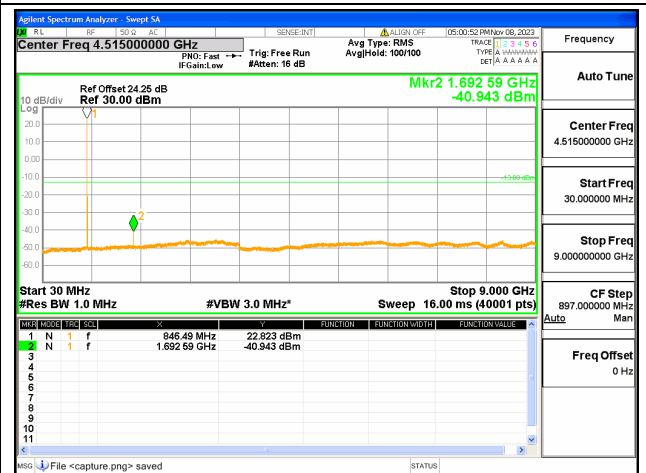
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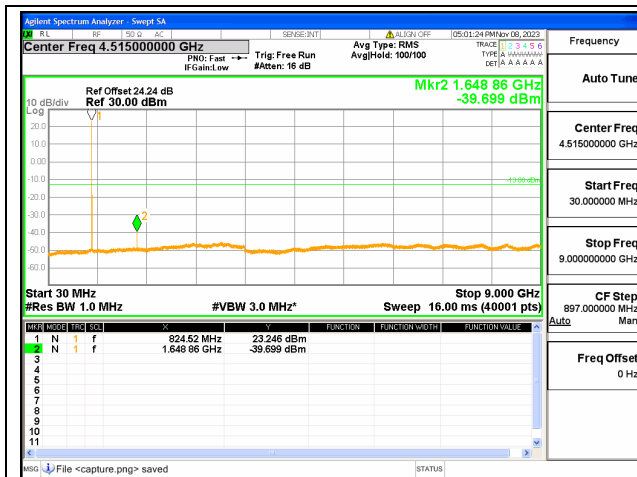
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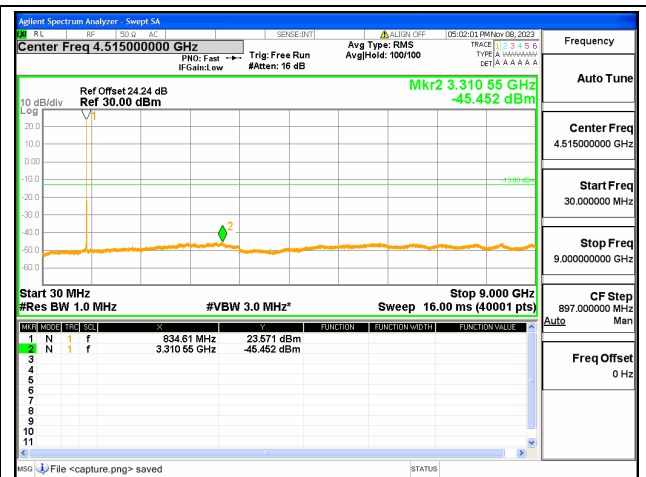
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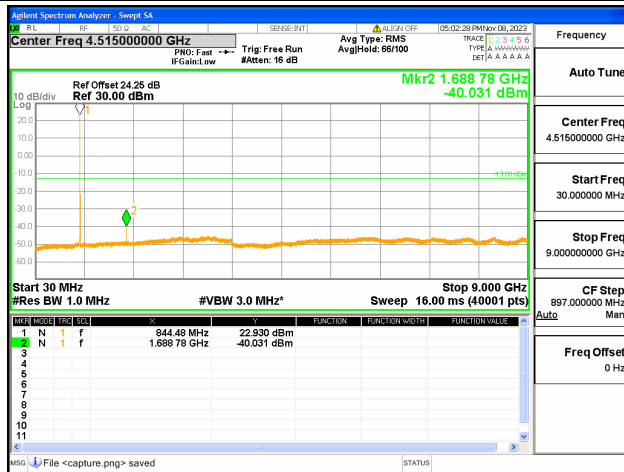
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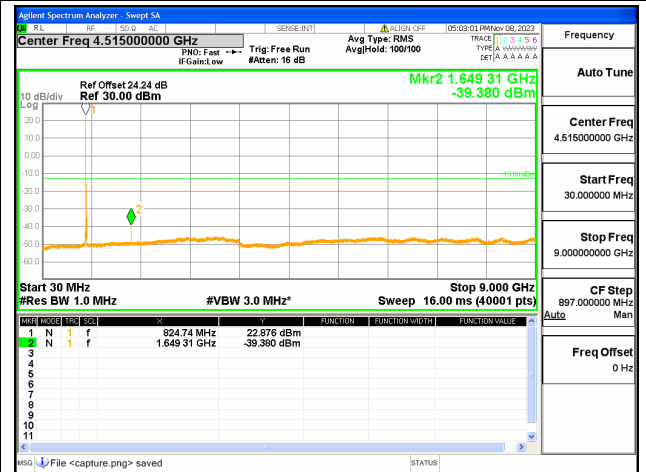
B5 / 5MHz / Low CH / QPSK



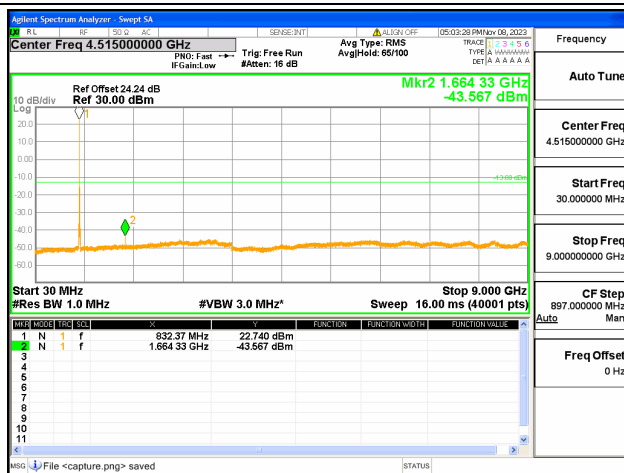
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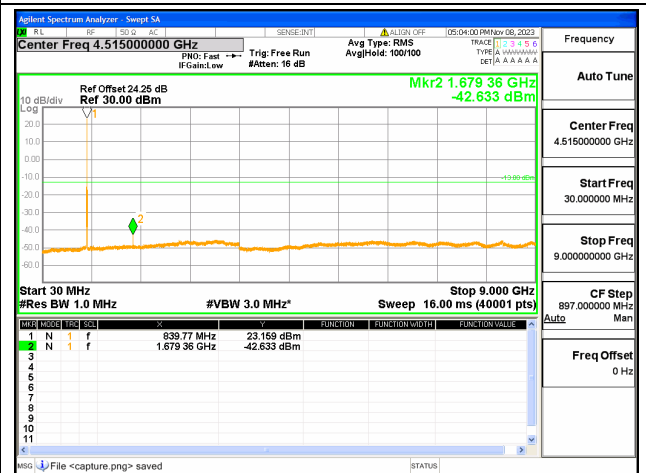
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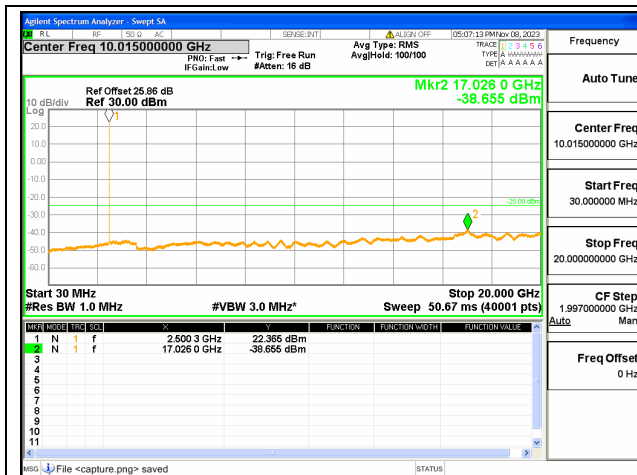
B5 / 10MHz / Low CH / QPSK



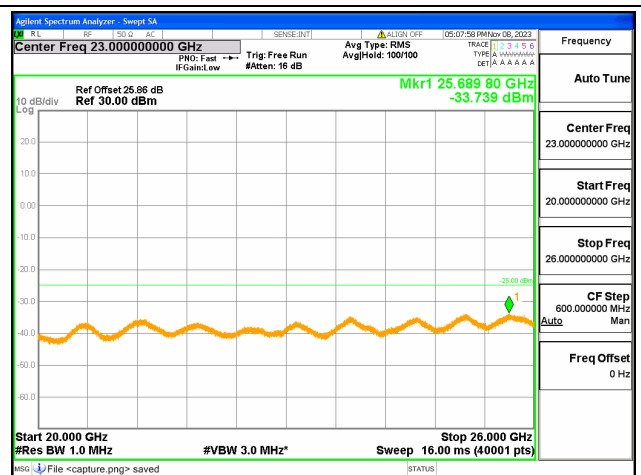
B5 / 10MHz / Mid CH / QPSK



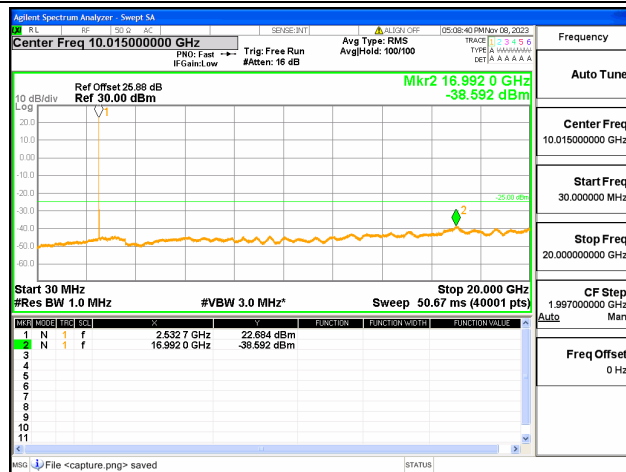
B5 / 10MHz / High CH / QPSK



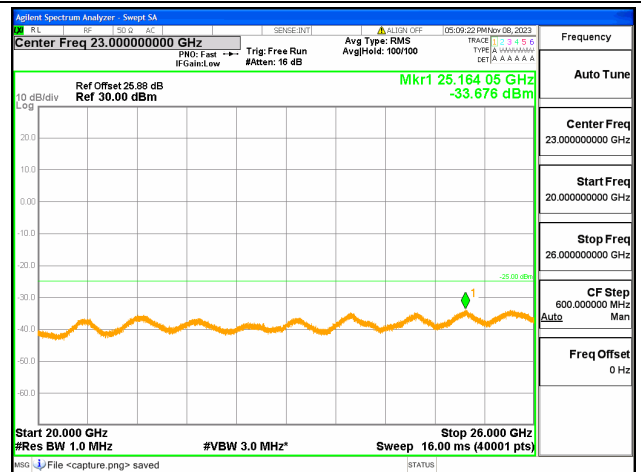
B7-30M-20G / 5MHz / Low CH / QPSK



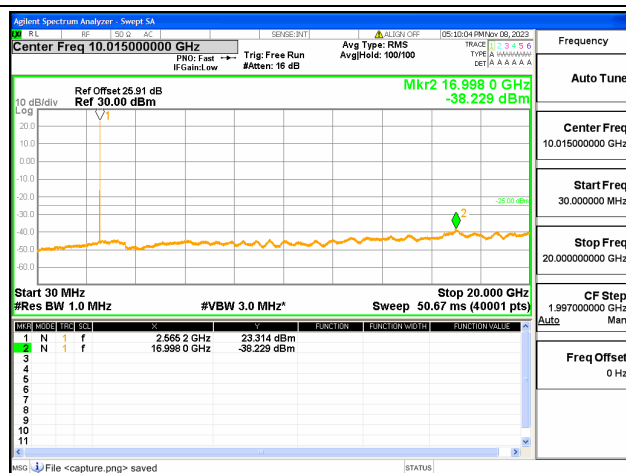
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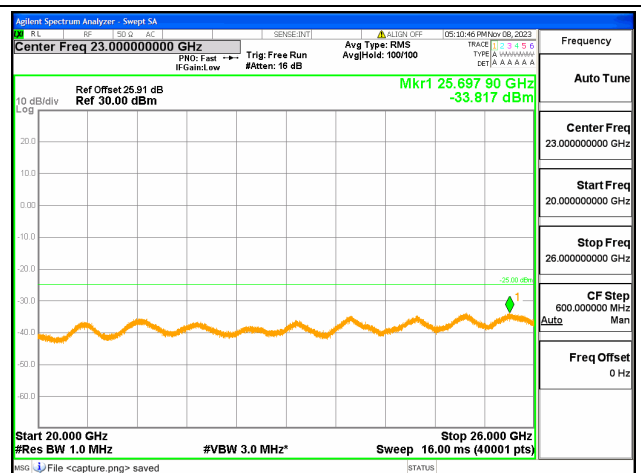
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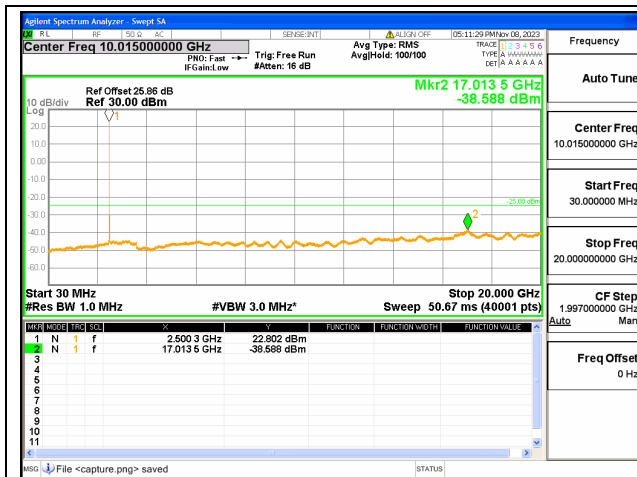
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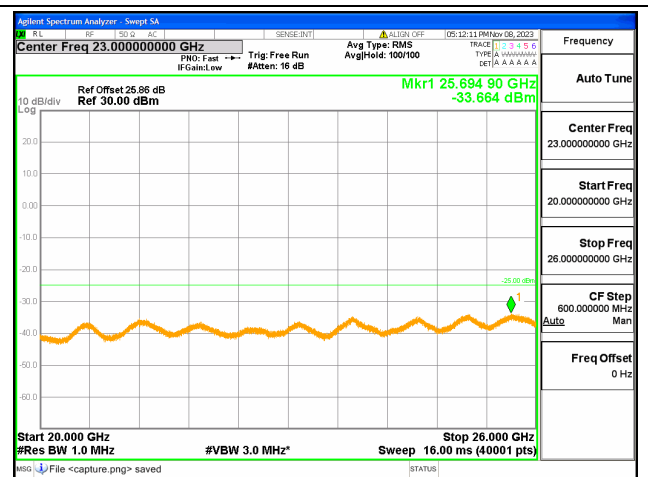
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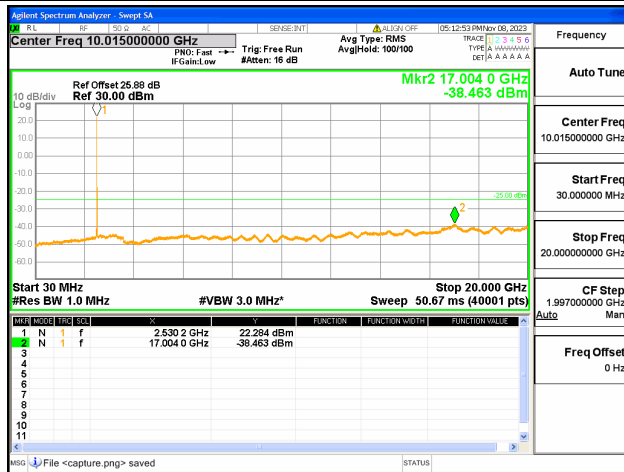
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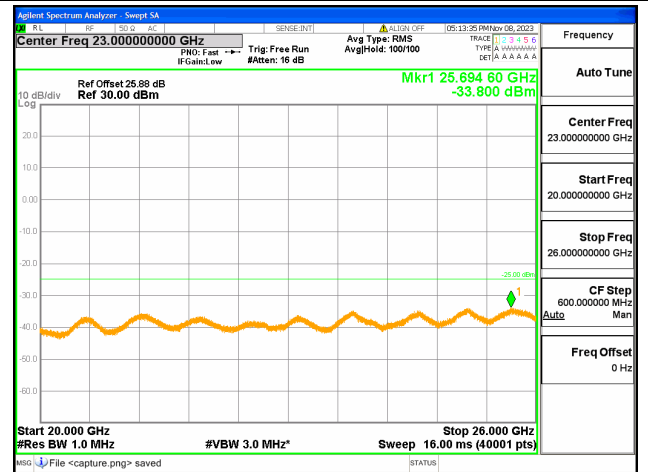
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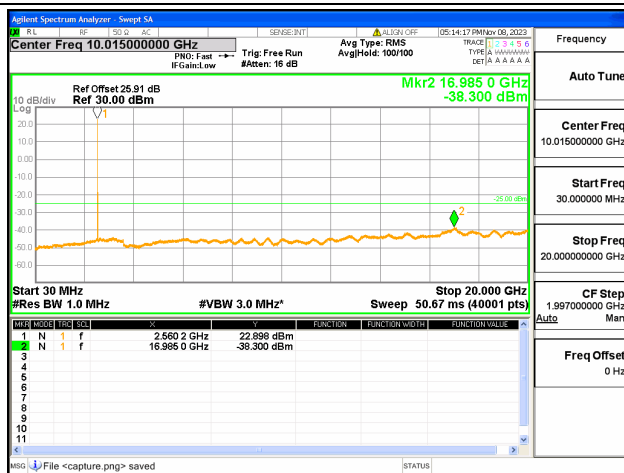
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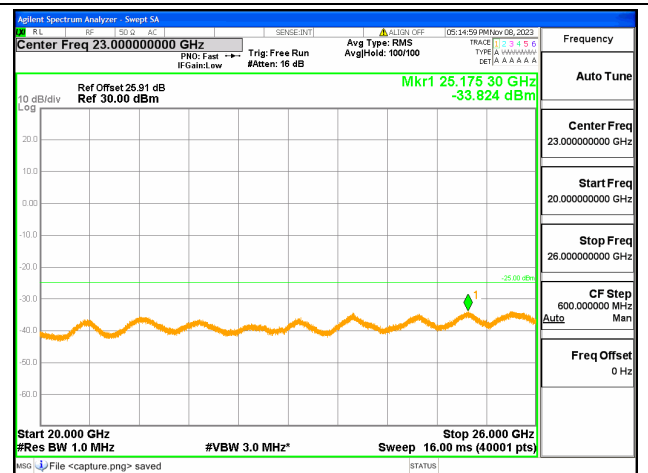
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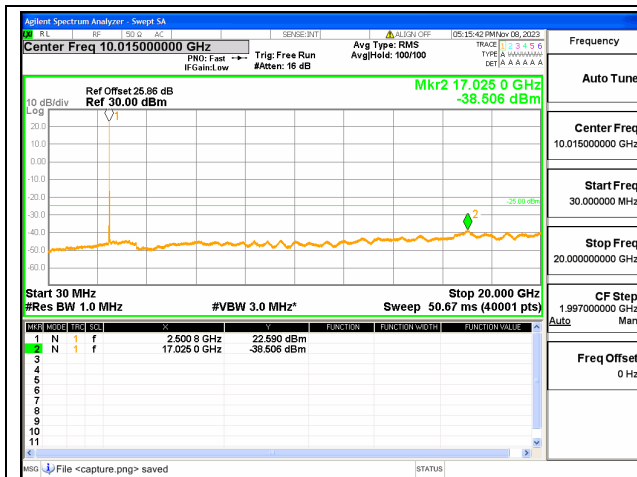
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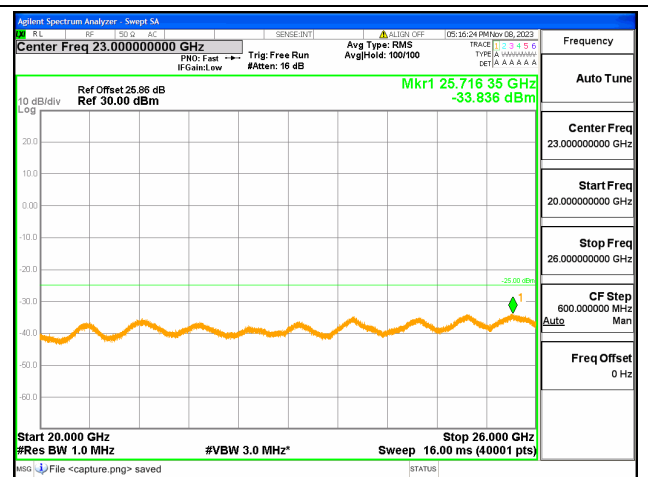
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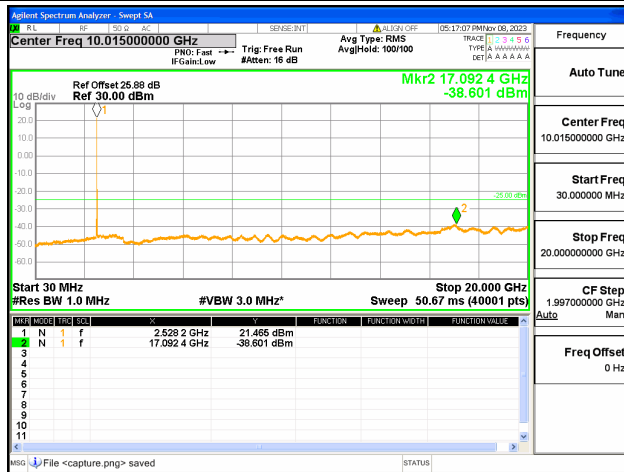
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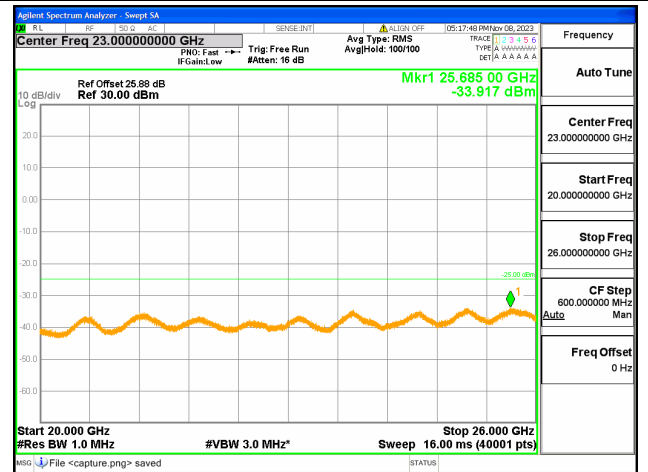
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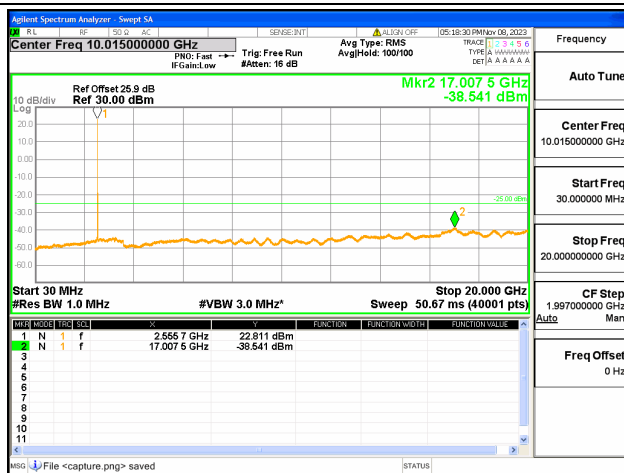
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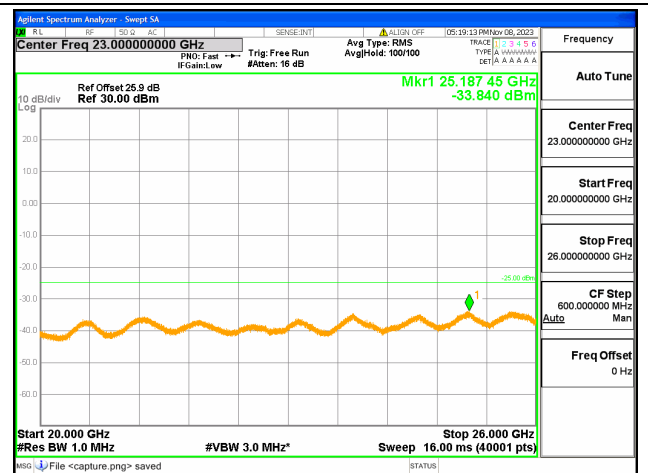
B7-30M-20G / 15MHz / Mid CH / QPSK



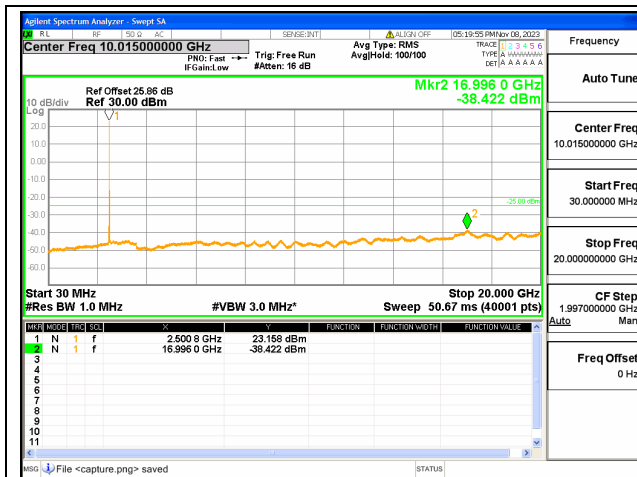
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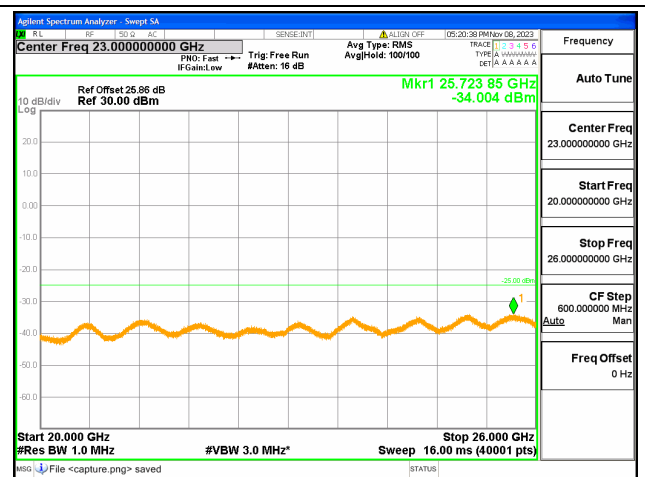
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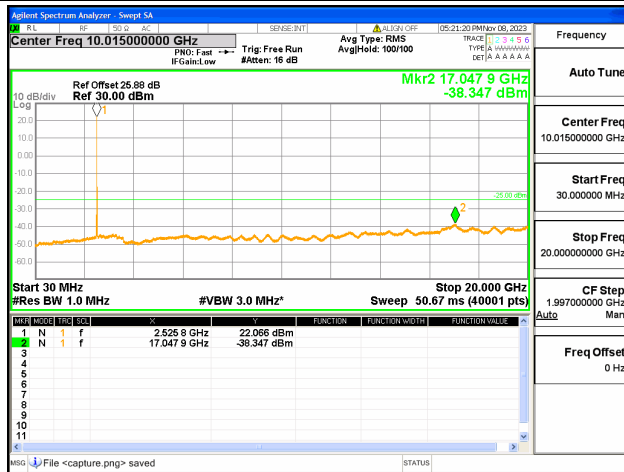
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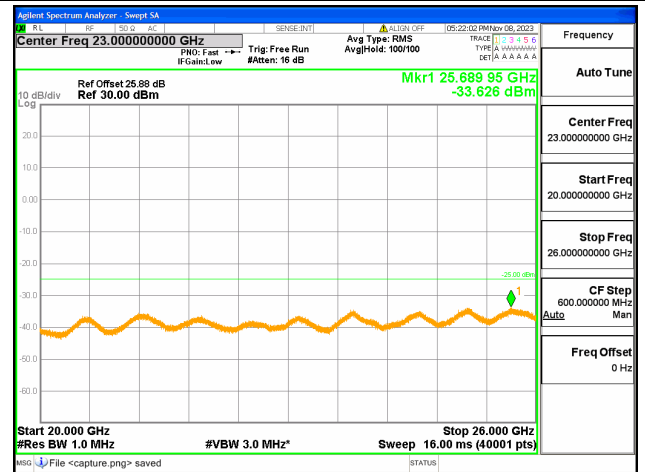
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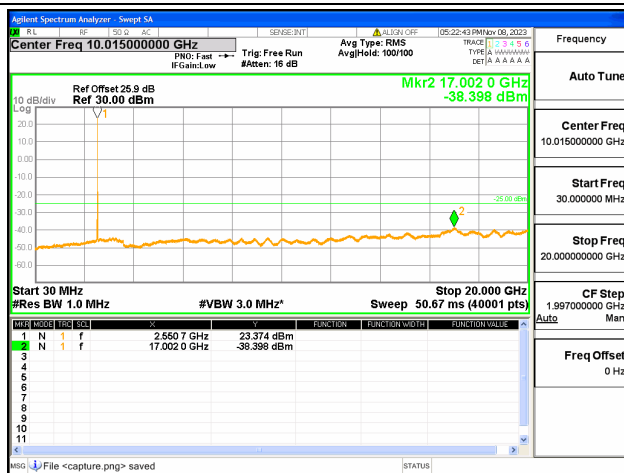
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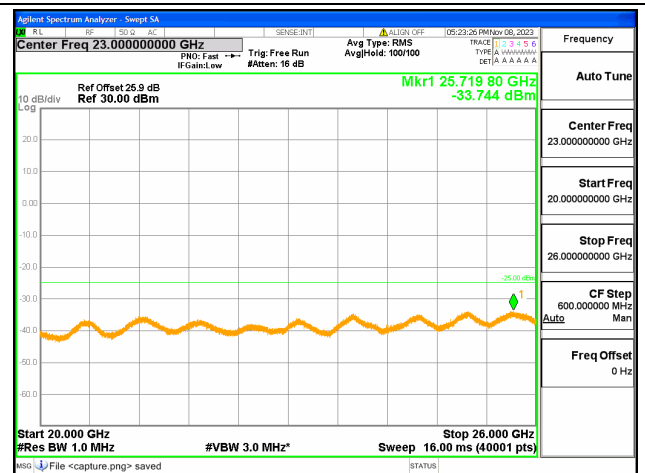
B7-30M-20G / 20MHz / Mid CH / QPSK



B7-20G-26G / 20MHz / Mid CH / QPSK



B7-30M-20G / 20MHz / High CH / QPSK



B7-20G-26G / 20MHz / High CH / QPSK

2.6. Band Edge

2.6.1. Requirement

Band 2

According to FCC section 24.238(a), for operations in the 1850–1910MHz bands, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB in a 1MHz bandwidth. However, in the 1 MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

Band 4

According to FCC section 27.53(h), for operations in the 1710–1755MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB in a 1MHz bandwidth. However, in the 1 MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

Band 5

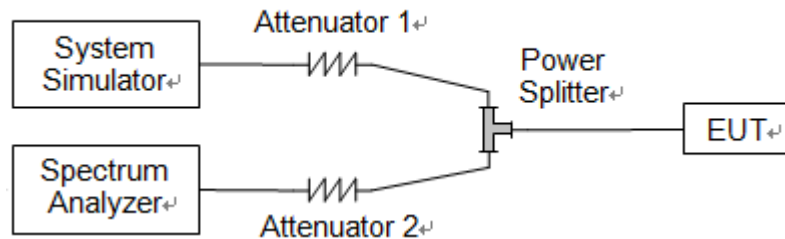
According to FCC section 22.917(a), for operations in the 824–849MHz bands, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB in a 100kHz bandwidth. However, in the 1 MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

Band 7

According to FCC section 27.53(m) (4), for mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS

or EBS licensees.

2.6.2. 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 50 Ohm; 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.

2.6.3. Test Procedure

KDB 971168 D01v03 Section 6.0 and ANSI/TIA-603-E-2016.

2.6.4. Test Result

Note: All bandwidth and modulation were considered and evaluated respectively by performing full test for each band, only the worst cases (Max Bandwidth and QPSK mode) were recorded in this test report.