

3.4 Emission Mask

3.4.1 Limit of Emission Mask

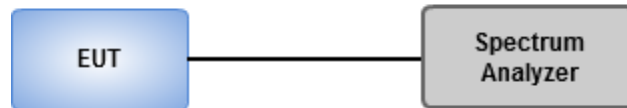
The power of any emission must be attenuated below the unmodulated carrier power (P) as follows.

- (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.
- (2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.
- (3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least $43 + 10 \log (P)$ dB.

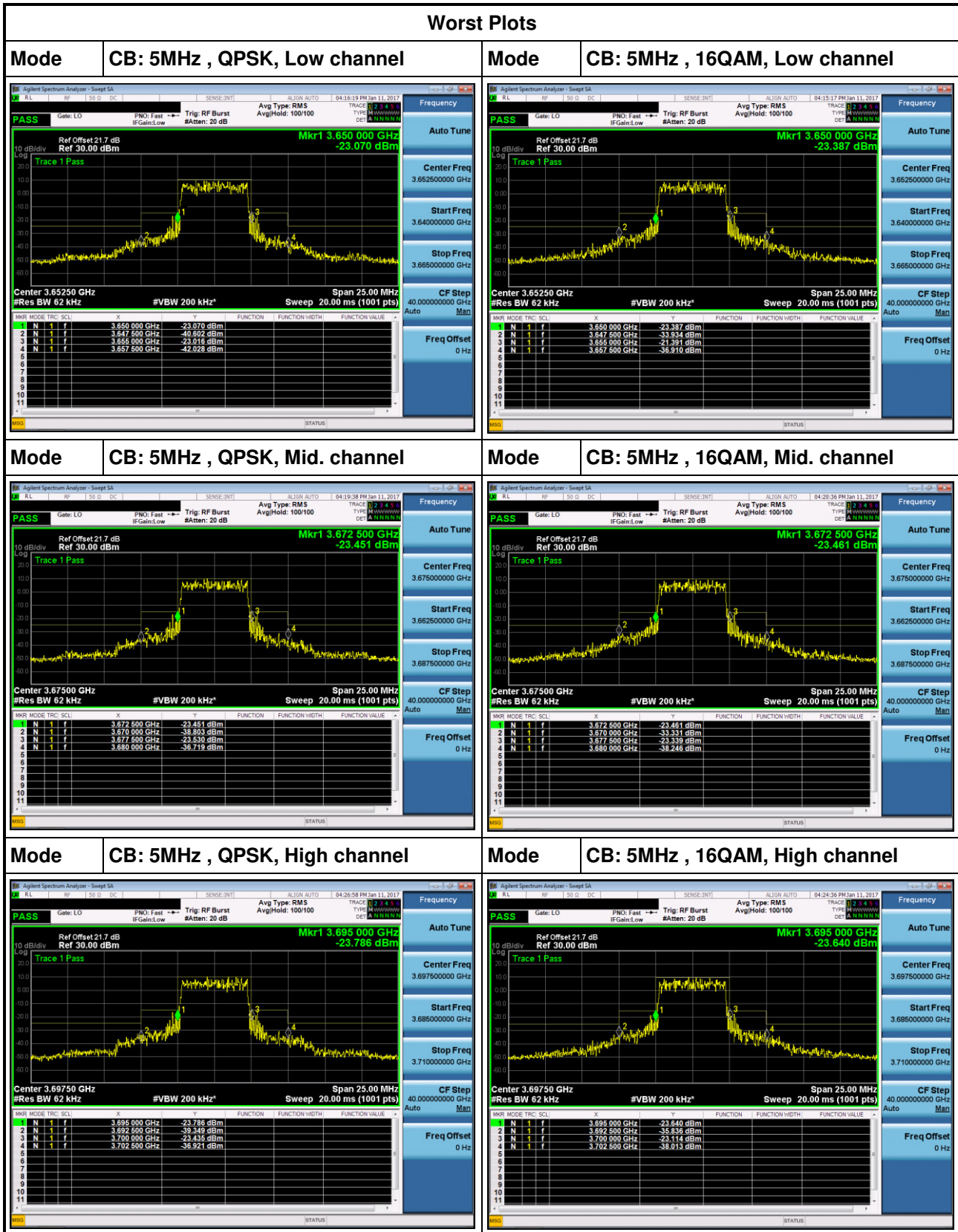
3.4.2 Test Procedures

1. Set RBW=1% of 26dBc bandwidth, VBW=3 X RBW, detector=RMS, Sweep time = Auto.
2. Set EUT to transmit modulation signal to spectrum analyzer and confirm that the signal complies the limit or not.
3. Record the max trace value and capture the test plot.

3.4.3 Test Setup

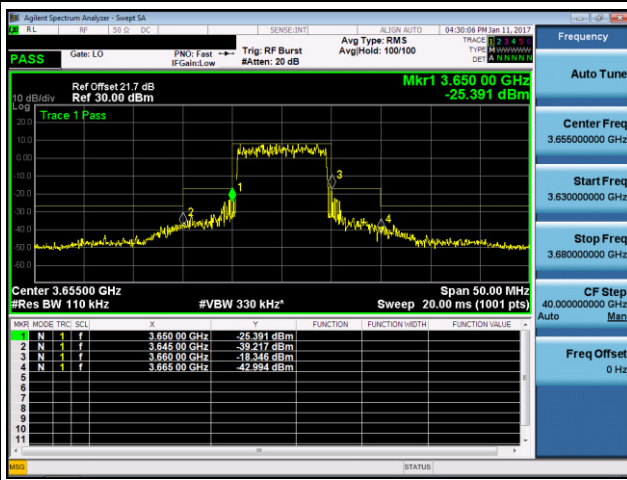


3.4.4 Test Result of Emission Mask

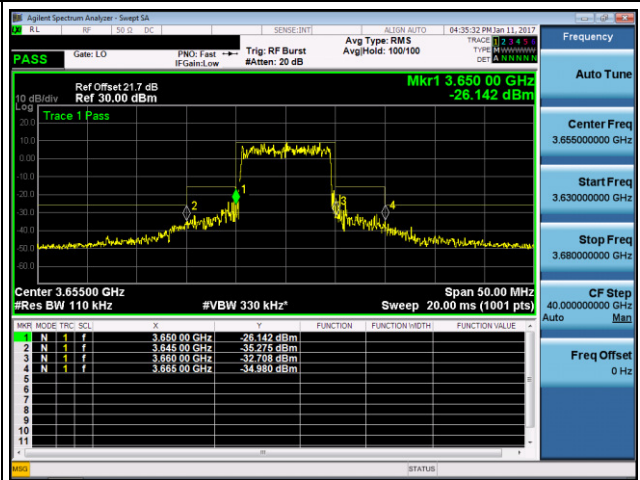


Worst Plots

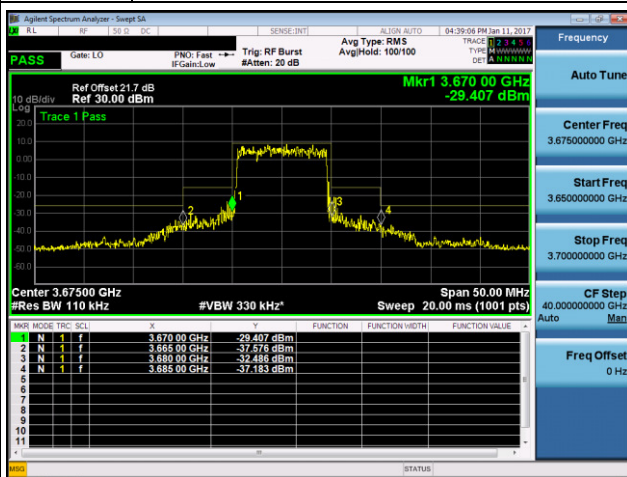
Mode **CB: 10MHz , QPSK, Low channel**



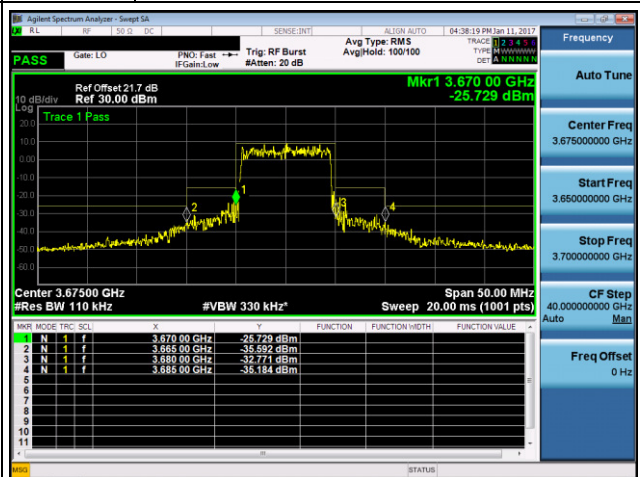
Mode **CB: 10MHz , 16QAM, Low channel**



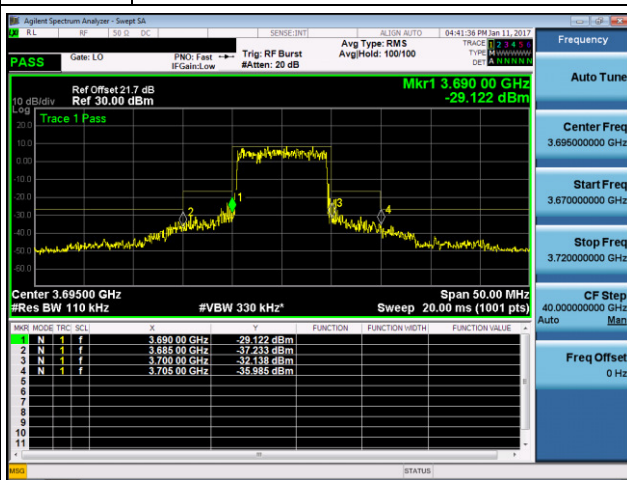
Mode **CB: 10MHz , QPSK, Mid. channel**



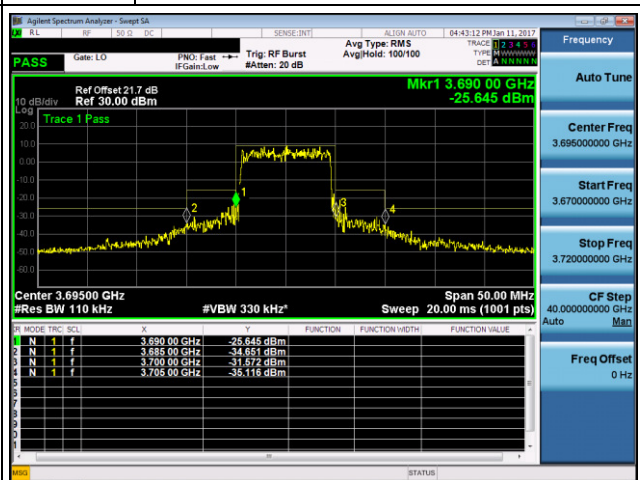
Mode **CB: 10MHz , 16QAM, Mid. channel**



Mode **CB: 10MHz , QPSK, High channel**

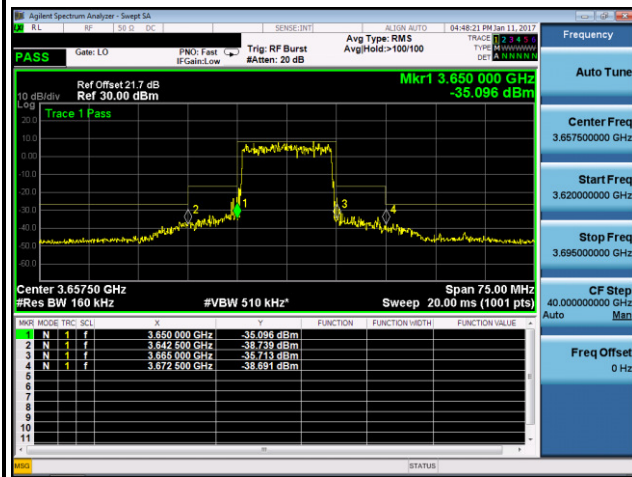


Mode **CB: 10MHz , 16QAM, High channel**

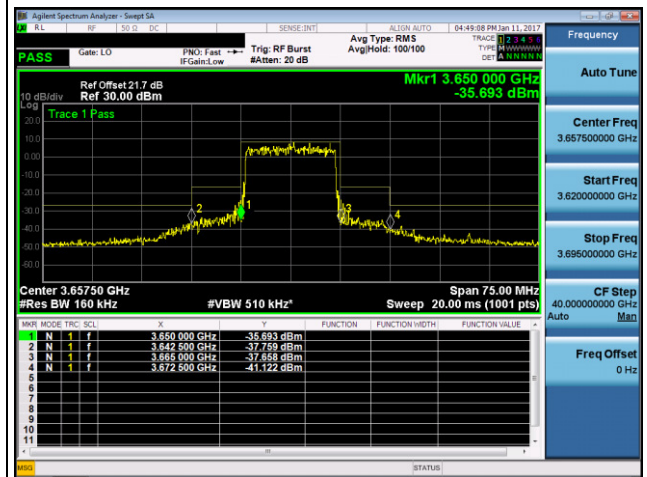


Worst Plots

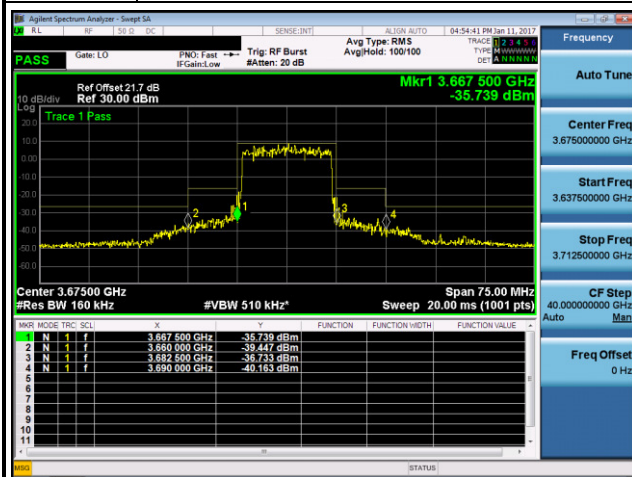
Mode **CB: 15MHz , QPSK, Low channel**



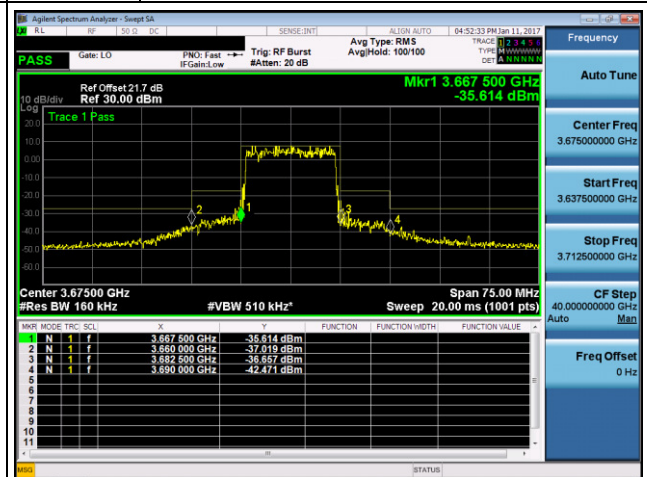
Mode **CB: 15MHz , 16QAM, Low channel**



Mode **CB: 15MHz , QPSK, Mid. channel**



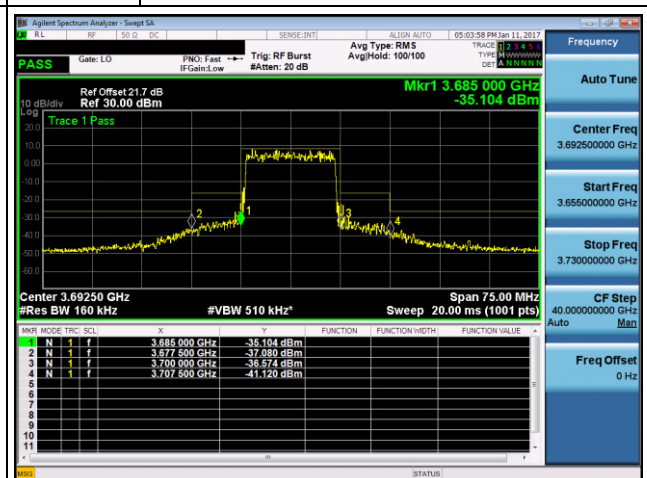
Mode **CB: 15MHz , 16QAM, Mid. channel**



Mode **CB: 15MHz , QPSK, High channel**

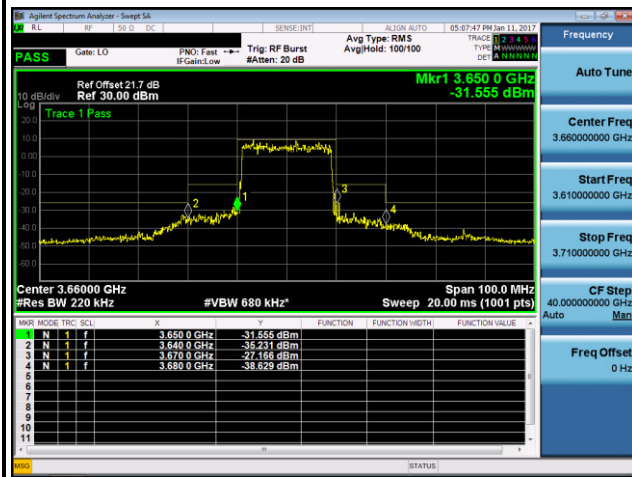


Mode **CB: 15MHz , 16QAM, High channel**

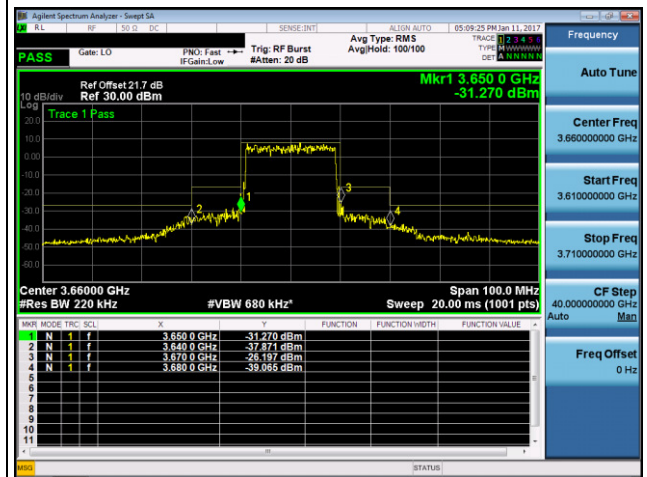


Worst Plots

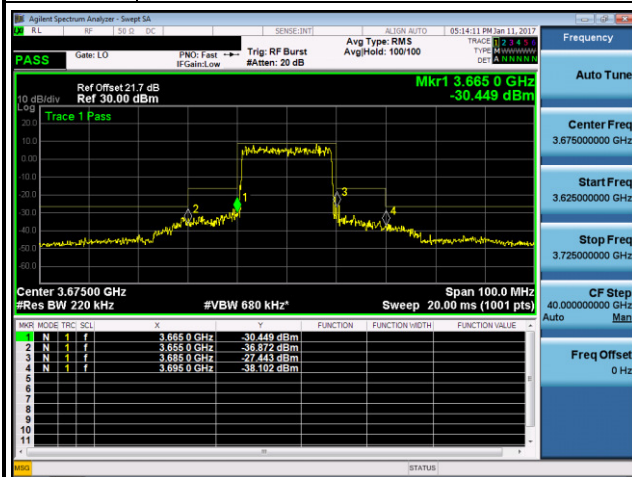
Mode **CB: 20MHz , QPSK, Low channel**



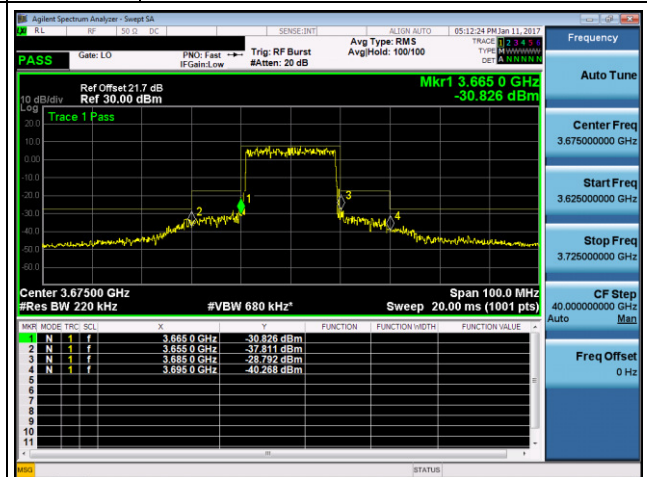
Mode **CB: 20MHz , 16QAM, Low channel**



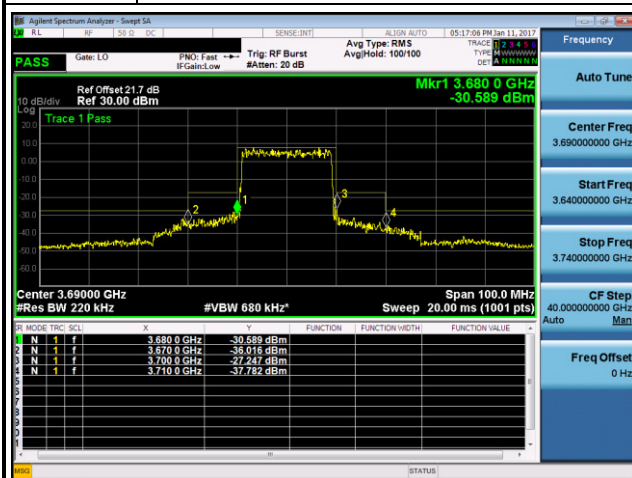
Mode **CB: 20MHz , QPSK, Mid. channel**



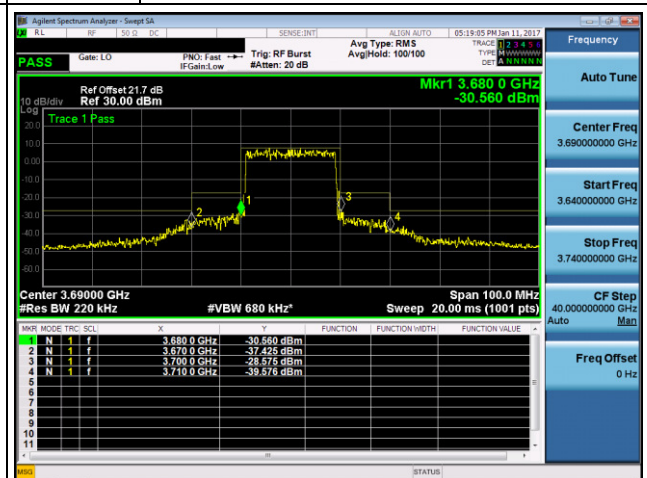
Mode **CB: 20MHz , 16QAM, Mid. channel**



Mode **CB: 20MHz , QPSK, High channel**



Mode **CB: 20MHz , 16QAM, High channel**

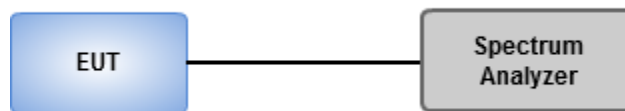


3.5 26dBc Bandwidth

3.5.1 Test Procedures

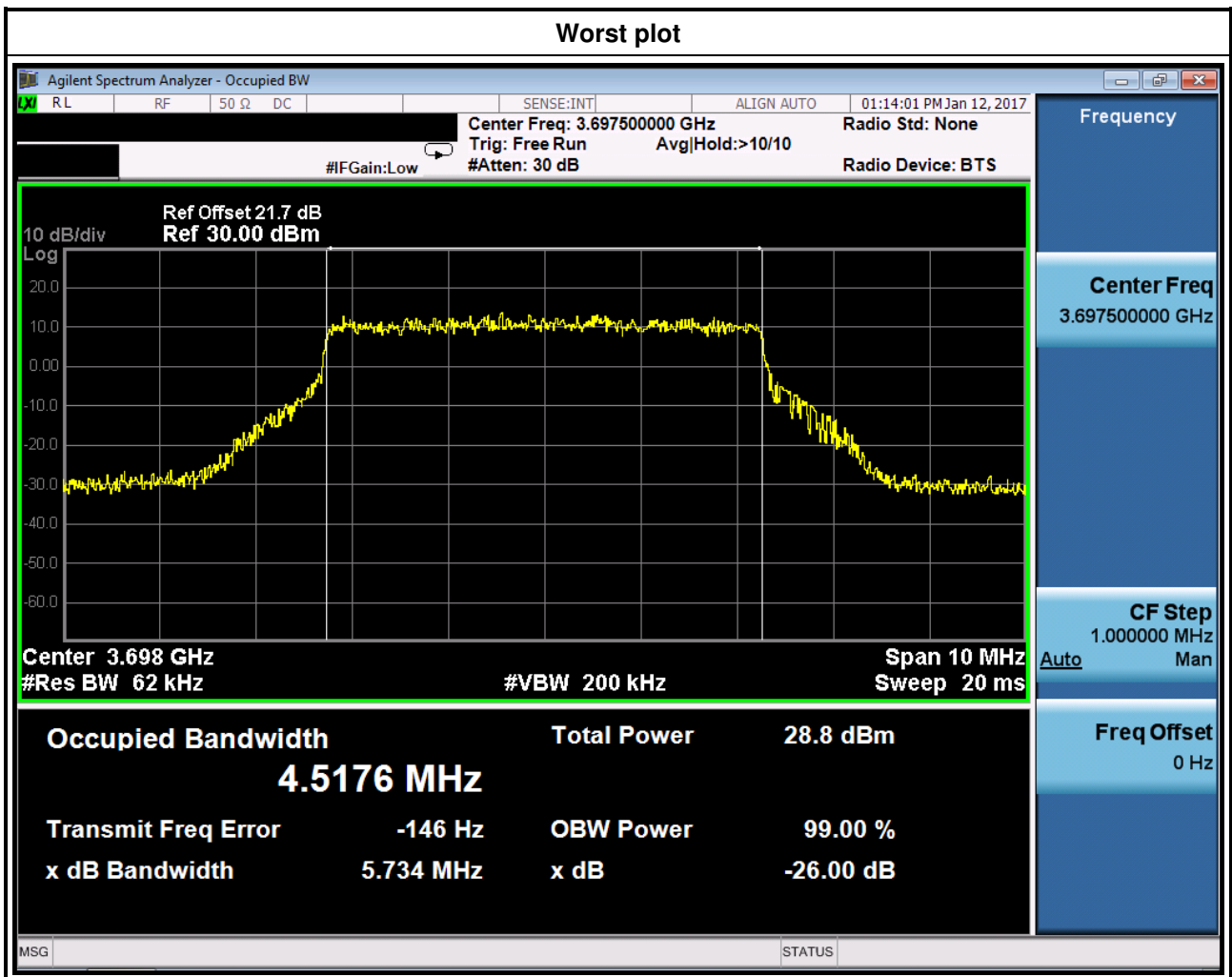
1. Set resolution bandwidth (RBW) = 100 kHz, Video bandwidth=300kHz.
2. Detector = Peak, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Using 26dBc and occupied bandwidth measurement function of spectrum analyzer to measure 26dBc and occupied bandwidth.

3.5.2 Test Setup

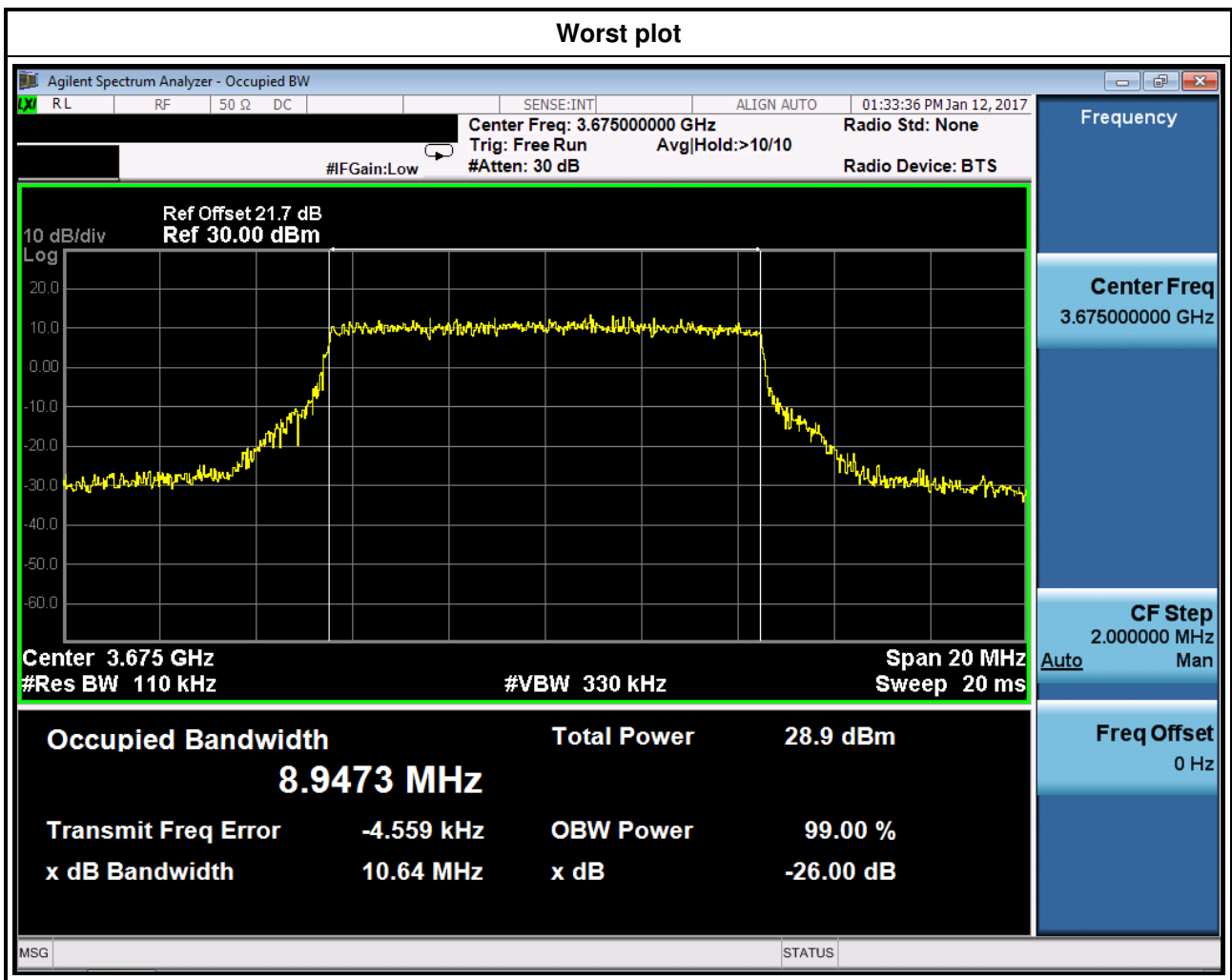


3.5.3 Test Result of 26dBc Bandwidth

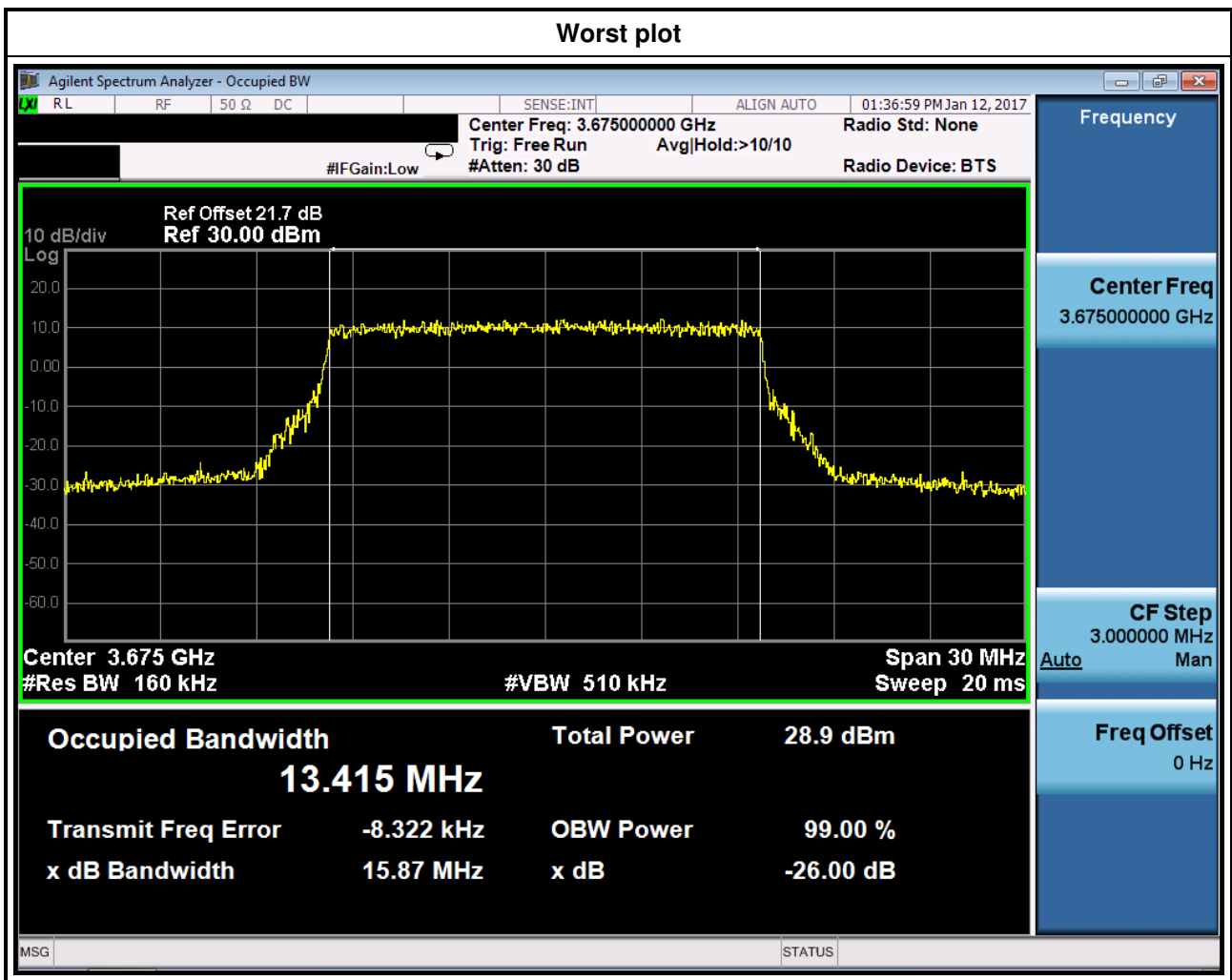
Channel Bandwidth	Modulation	Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)	Occupied Bandwidth (MHz)
5MHz	QPSK	44115	3652.5	5.704	4.4974
5MHz	QPSK	44340	3675.0	5.718	4.5094
5MHz	QPSK	44565	3697.5	5.734	4.5176
5MHz	16QAM	44115	3652.5	5.778	4.4916
5MHz	16QAM	44340	3675.0	5.658	4.4930
5MHz	16QAM	44565	3697.5	5.801	4.5022



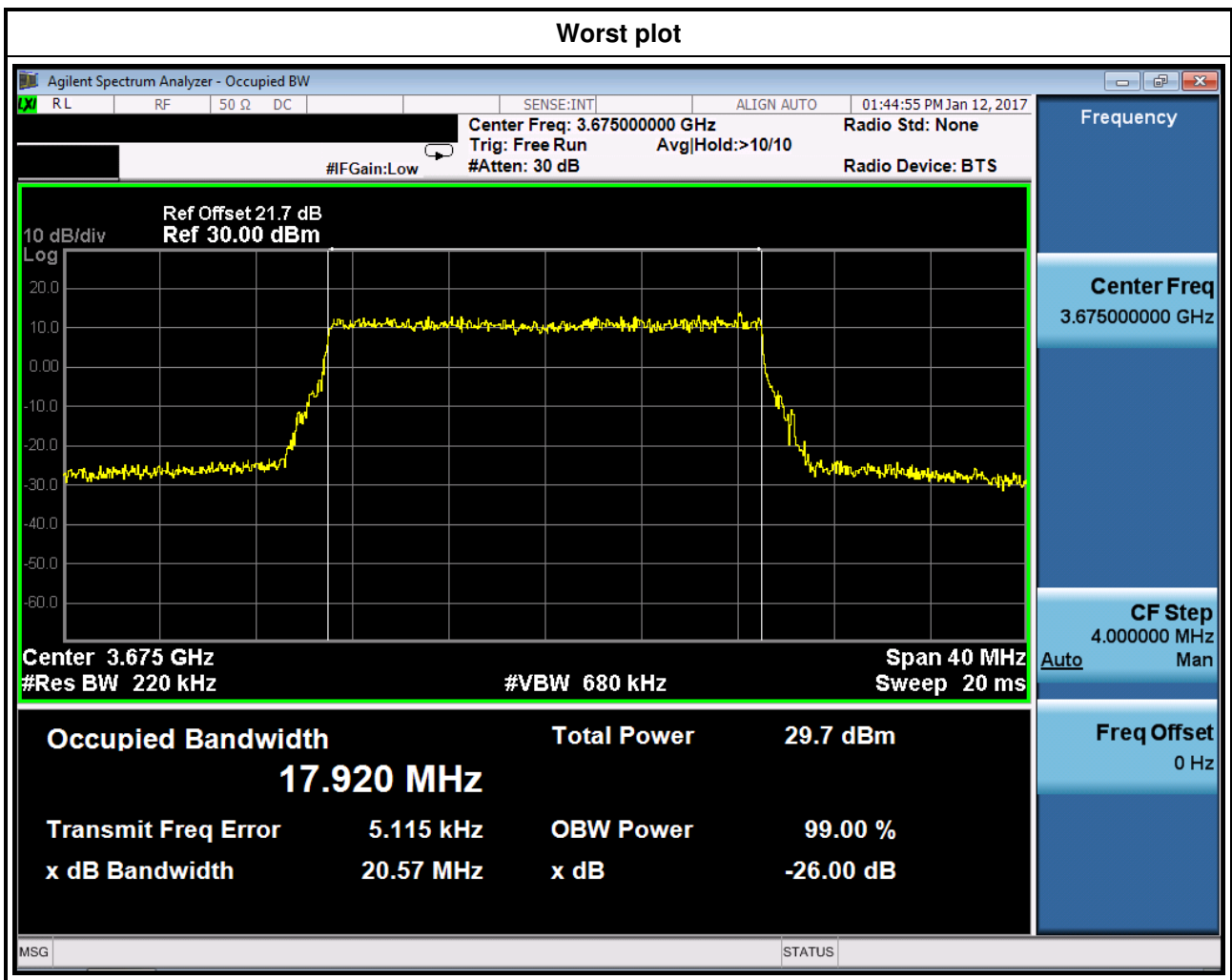
Channel Bandwidth	Modulation	Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)	Occupied Bandwidth (MHz)
10MHz	QPSK	44140	3652.5	10.58	8.9334
10MHz	QPSK	44340	3675.0	10.21	8.9353
10MHz	QPSK	44540	3697.5	10.39	8.9266
10MHz	16QAM	44140	3652.5	10.52	8.9470
10MHz	16QAM	44340	3675.0	10.64	8.9473
10MHz	16QAM	44540	3697.5	10.65	8.9421



Channel Bandwidth	Modulation	Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)	Occupied Bandwidth (MHz)
15MHz	QPSK	44165	3652.5	15.67	13.380
15MHz	QPSK	44340	3675.0	15.56	13.375
15MHz	QPSK	44515	3697.5	15.58	13.382
15MHz	16QAM	44165	3652.5	15.71	13.405
15MHz	16QAM	44340	3675.0	15.87	13.415
15MHz	16QAM	44515	3697.5	15.46	13.404



Channel Bandwidth	Modulation	Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)	Occupied Bandwidth (MHz)
20MHz	QPSK	44190	3652.5	19.88	17.873
20MHz	QPSK	44340	3675.0	20.24	17.852
20MHz	QPSK	44490	3697.5	20.29	17.883
20MHz	16QAM	44190	3652.5	20.06	17.911
20MHz	16QAM	44340	3675.0	20.57	17.920
20MHz	16QAM	44490	3697.5	20.33	17.891



3.6 Frequency Stability

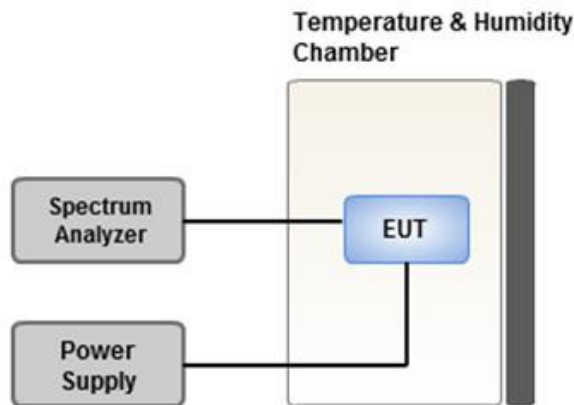
3.6.1 Limit of Frequency Stability

The frequency stability shall be less +/- 2.5ppm.

3.6.2 Test Procedures

1. EUT was placed at temperature chamber and connected to an external power supply.
2. Temperature and voltage condition shall be tested to confirm frequency stability.
3. Temperature range is from -30~50°C and voltage range is from lowest to highest working voltage.
4. Tem Link up EUT and simulator. Confirm frequency drift value of simulator and record it.

3.6.3 Test Setup



3.6.4 Test Result of Frequency Stability

Channel Bandwidth: 5MHz

Frequency: 3675.0 MHz	Frequency Drift (ppm)	
Temperature (°C)	Frequency Error (ppm)	Limit (ppm)
T20°CVmax	0.013	2.5
T20°CVmin	0.011	2.5
T50°CVnom	0.010	2.5
T40°CVnom	0.011	2.5
T30°CVnom	0.011	2.5
T20°CVnom	0.011	2.5
T10°CVnom	0.010	2.5
T0°CVnom	0.012	2.5
T-10°CVnom	0.013	2.5
T-20°CVnom	0.010	2.5
T-30°CVnom	0.009	2.5
Vnom [Vac]: 120	Vmax [Vac]: 138	Vmin [Vac]: 102
Tnom [°C]: 20	Tmax [°C]: 50	Tmin [°C]: -30

Channel Bandwidth: 10MHz

Frequency: 3675.0 MHz	Frequency Drift (ppm)	
Temperature (°C)	Frequency Error (ppm)	Limit (ppm)
T20°CVmax	0.012	2.5
T20°CVmin	0.011	2.5
T50°CVnom	0.010	2.5
T40°CVnom	0.011	2.5
T30°CVnom	0.011	2.5
T20°CVnom	0.013	2.5
T10°CVnom	0.014	2.5
T0°CVnom	0.012	2.5
T-10°CVnom	0.011	2.5
T-20°CVnom	0.012	2.5
T-30°CVnom	0.011	2.5
Vnom [Vac]: 120	Vmax [Vac]: 138	Vmin [Vac]: 102
Tnom [°C]: 20	Tmax [°C]: 50	Tmin [°C]: -30

Channel Bandwidth: 15MHz

Frequency: 3675.0 MHz	Frequency Drift (ppm)	
Temperature (°C)	Frequency Error (ppm)	Limit (ppm)
T20°CVmax	0.013	2.5
T20°CVmin	0.013	2.5
T50°CVnom	0.011	2.5
T40°CVnom	0.013	2.5
T30°CVnom	0.011	2.5
T20°CVnom	0.012	2.5
T10°CVnom	0.013	2.5
T0°CVnom	0.011	2.5
T-10°CVnom	0.010	2.5
T-20°CVnom	0.010	2.5
T-30°CVnom	0.012	2.5
Vnom [Vac]: 120	Vmax [Vac]: 138	Vmin [Vac]: 102
Tnom [°C]: 20	Tmax [°C]: 50	Tmin [°C]: -30

Channel Bandwidth: 20MHz

Frequency: 3675.0 MHz	Frequency Drift (ppm)	
Temperature (°C)	Frequency Error (ppm)	Limit (ppm)
T20°CVmax	0.013	2.5
T20°CVmin	0.012	2.5
T50°CVnom	0.011	2.5
T40°CVnom	0.010	2.5
T30°CVnom	0.010	2.5
T20°CVnom	0.012	2.5
T10°CVnom	0.013	2.5
T0°CVnom	0.011	2.5
T-10°CVnom	0.010	2.5
T-20°CVnom	0.012	2.5
T-30°CVnom	0.011	2.5
Vnom [Vac]: 120	Vmax [Vac]: 138	Vmin [Vac]: 102
Tnom [°C]: 20	Tmax [°C]: 50	Tmin [°C]: -30

4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

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City 333, Taiwan, R.O.C..

If you have any suggestion, please feel free to contact us as below information

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Email: ICC_Service@icertifi.com.tw

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