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.

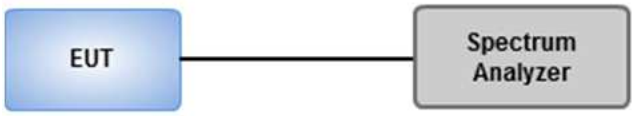
(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.

(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

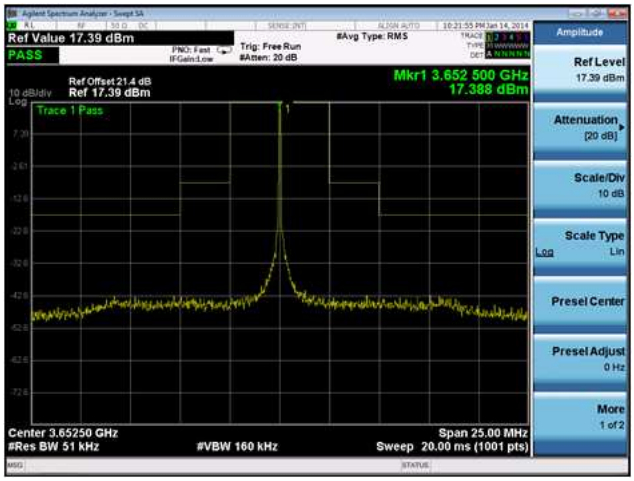
1. Set EUT to transmit un-modulation signal to spectrum analyzer for getting reference level.
2. According reference level and channel bandwidth to create emission mask limit.
3. Set RBW=1% of 26dBc bandwidth, VBW=3 X RBW, detector=RMS, Sweep time = Auto.
4. Set EUT to transmit modulation signal to spectrum analyzer and confirm that the signal complies the limit or not.
5. Record the max trace value and capture the test plot.

3.4.3 Test Setup

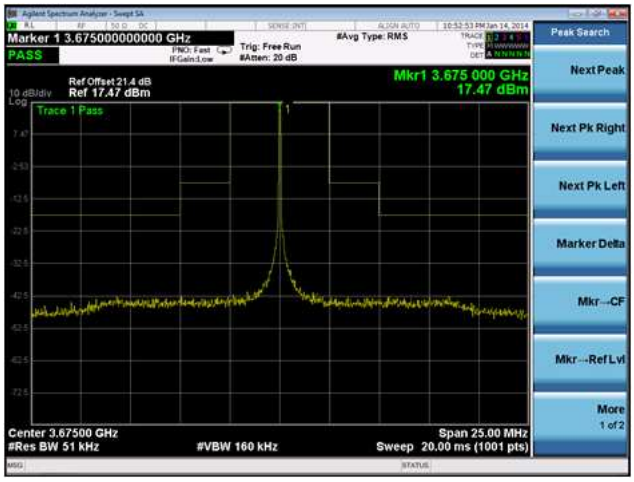


3.4.4 Test Result of Emission Mask

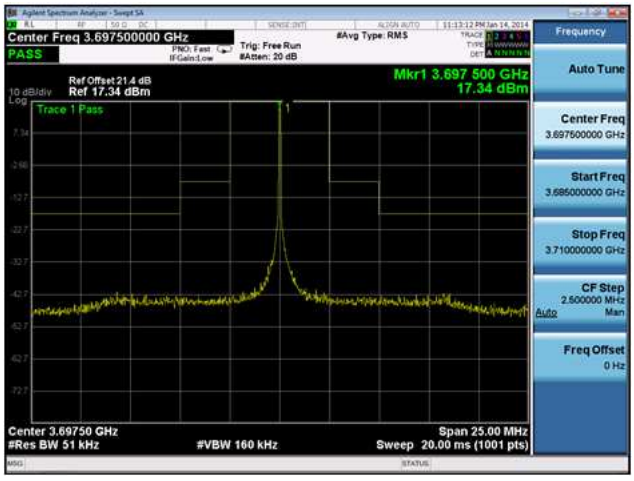
Mode	QPSK, CB: 5MHz	Channel	3652.5 MHz



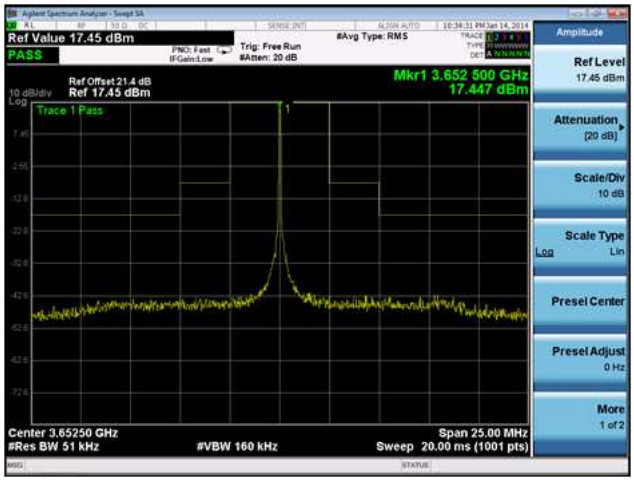
Mode	QPSK, CB: 5MHz	Channel	3675.0 MHz



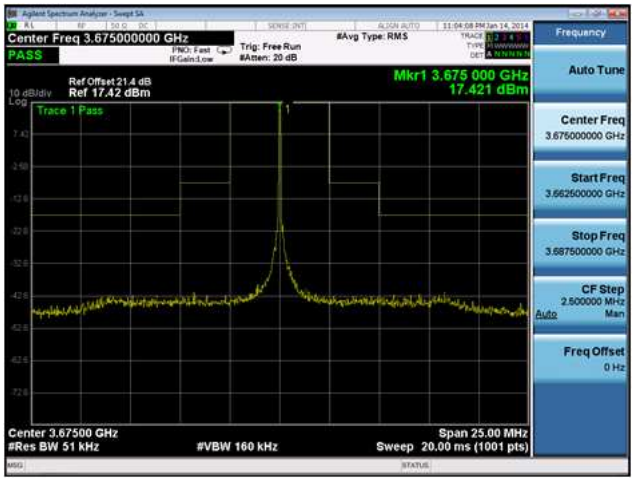
Mode	QPSK, CB: 5MHz	Channel	3697.5 MHz



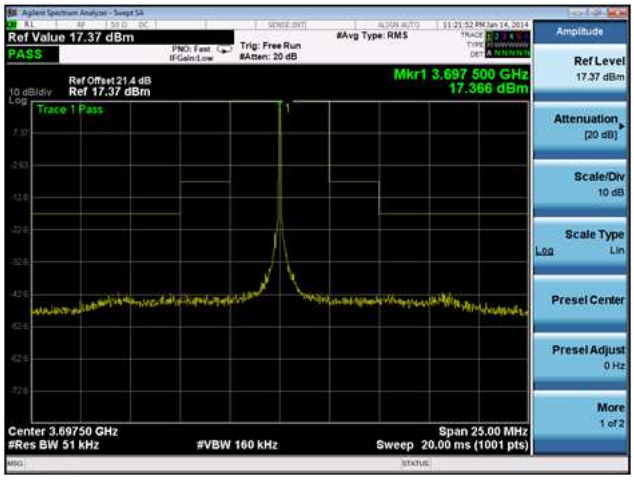
Mode	16QAM, CB: 5MHz	Channel	3652.5 MHz



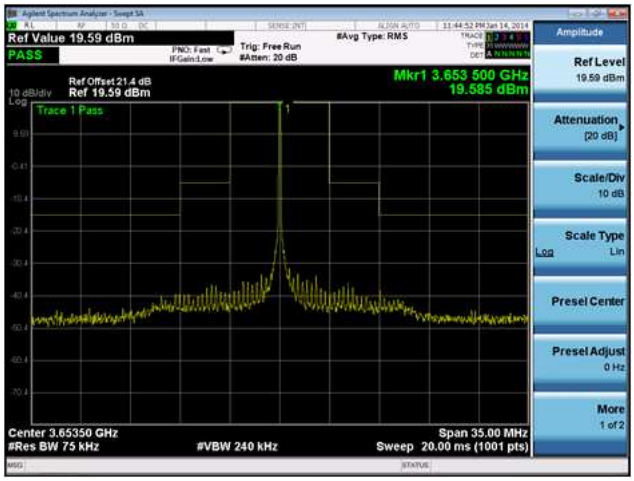
Mode	16QAM, CB: 5MHz	Channel	3675.0 MHz



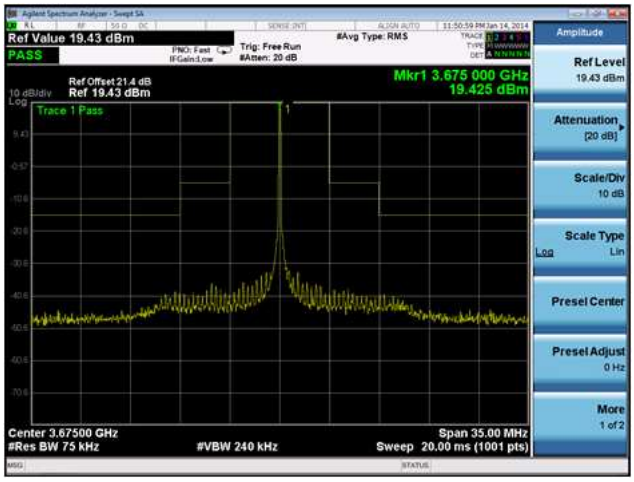
Mode	16QAM, CB: 5MHz	Channel	3697.5 MHz



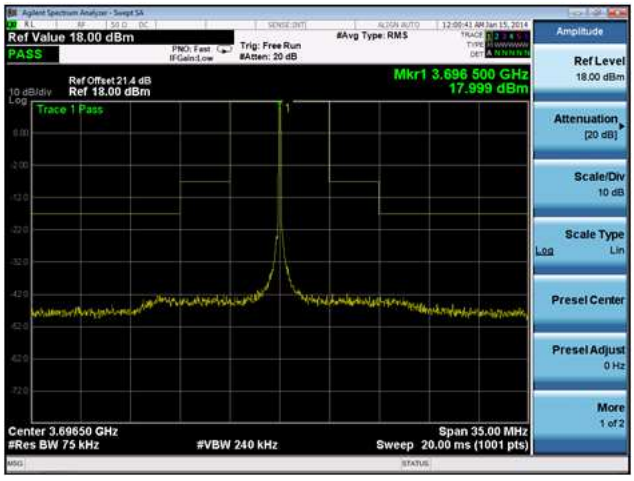
Mode	QPSK, CB: 7MHz	Channel	3653.5 MHz



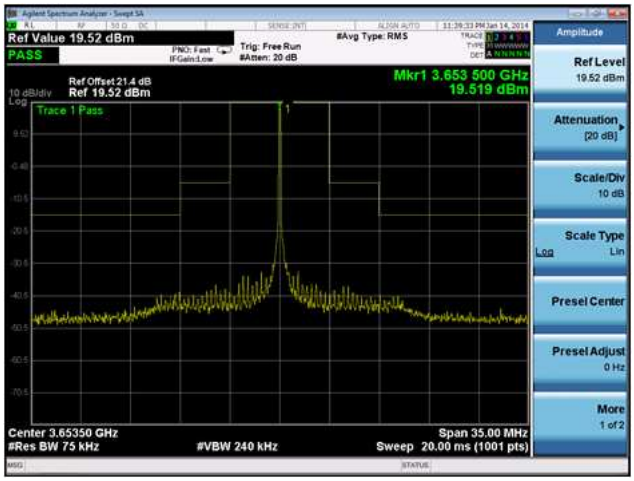
Mode	QPSK, CB: 7MHz	Channel	3675.0 MHz



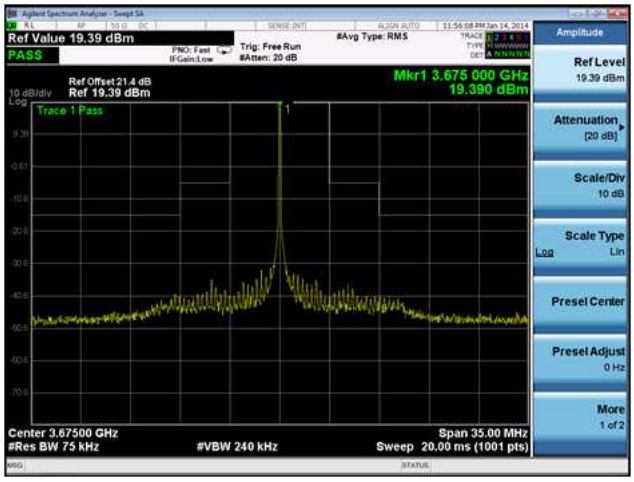
Mode	QPSK, CB: 7MHz	Channel	3696.5 MHz



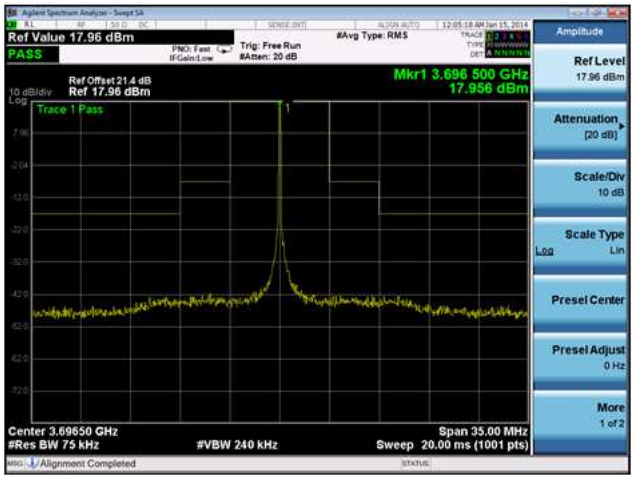
Mode	16QAM, CB: 7MHz	Channel	3653.5 MHz



Mode	16QAM, CB: 7MHz	Channel	3675.0 MHz

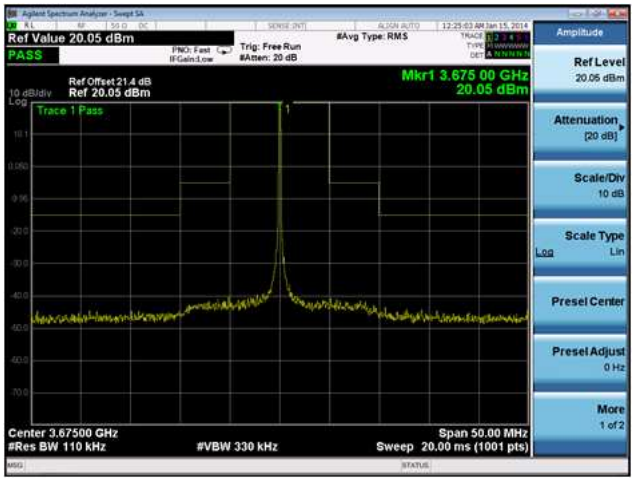


Mode	16QAM, CB: 7MHz	Channel	3696.5 MHz

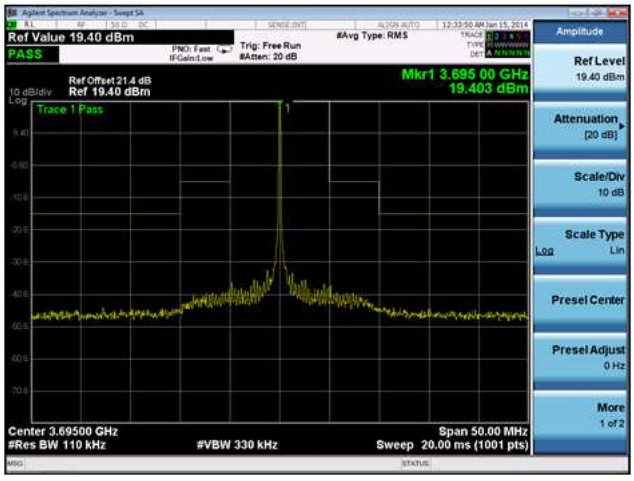


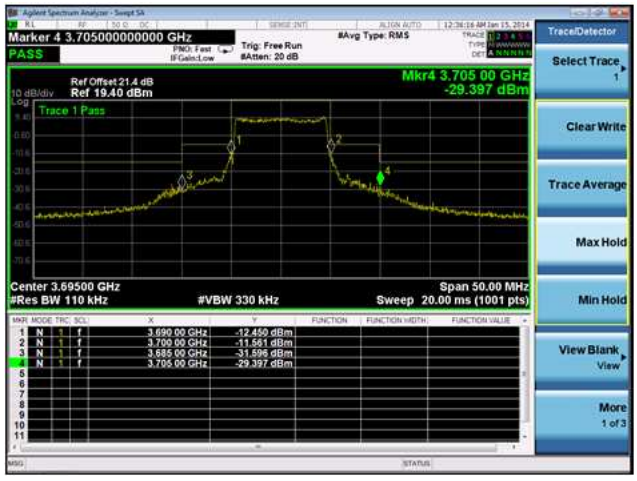
Mode	QPSK, CB: 10MHz	Channel	3655.0 MHz

Mode	QPSK, CB: 10MHz	Channel	3675.0 MHz



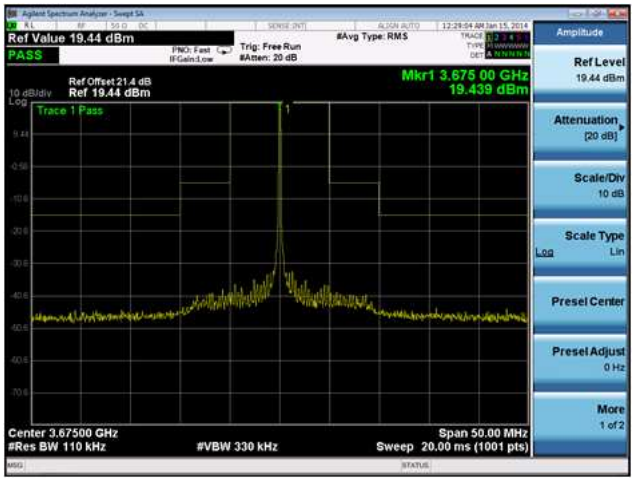
Mode	QPSK, CB: 10MHz	Channel	3695.0 MHz



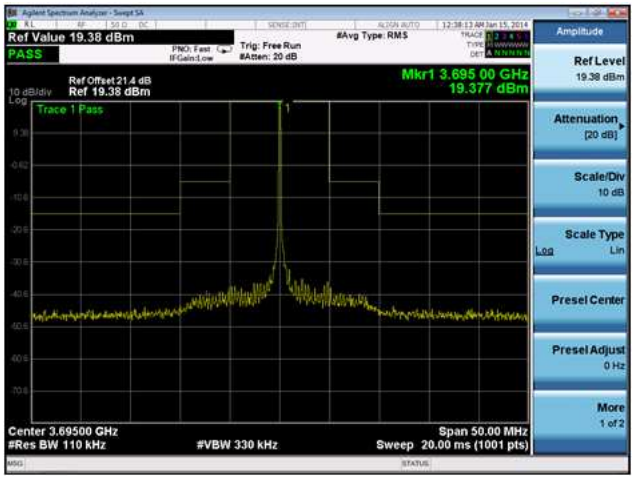


Mode	16QAM, CB: 10MHz	Channel	3655.0 MHz

Mode	16QAM, CB: 10MHz	Channel	3675.0 MHz



Mode	16QAM, CB: 10MHz	Channel	3695.0 MHz

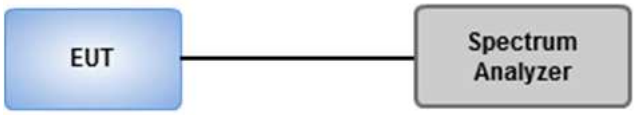


3.5 26dBc Bandwidth

3.5.1 Test Procedures

1. Set resolution bandwidth (RBW) = 51 / 75 / 110 kHz, Video bandwidth=160 / 240 / 330 kHz for channel bandwidth = 5 / 7 / 10 MHz.
2. Detector = Peak, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Using 26dBc bandwidth measurement function of spectrum analyzer to measure 26dBc bandwidth.

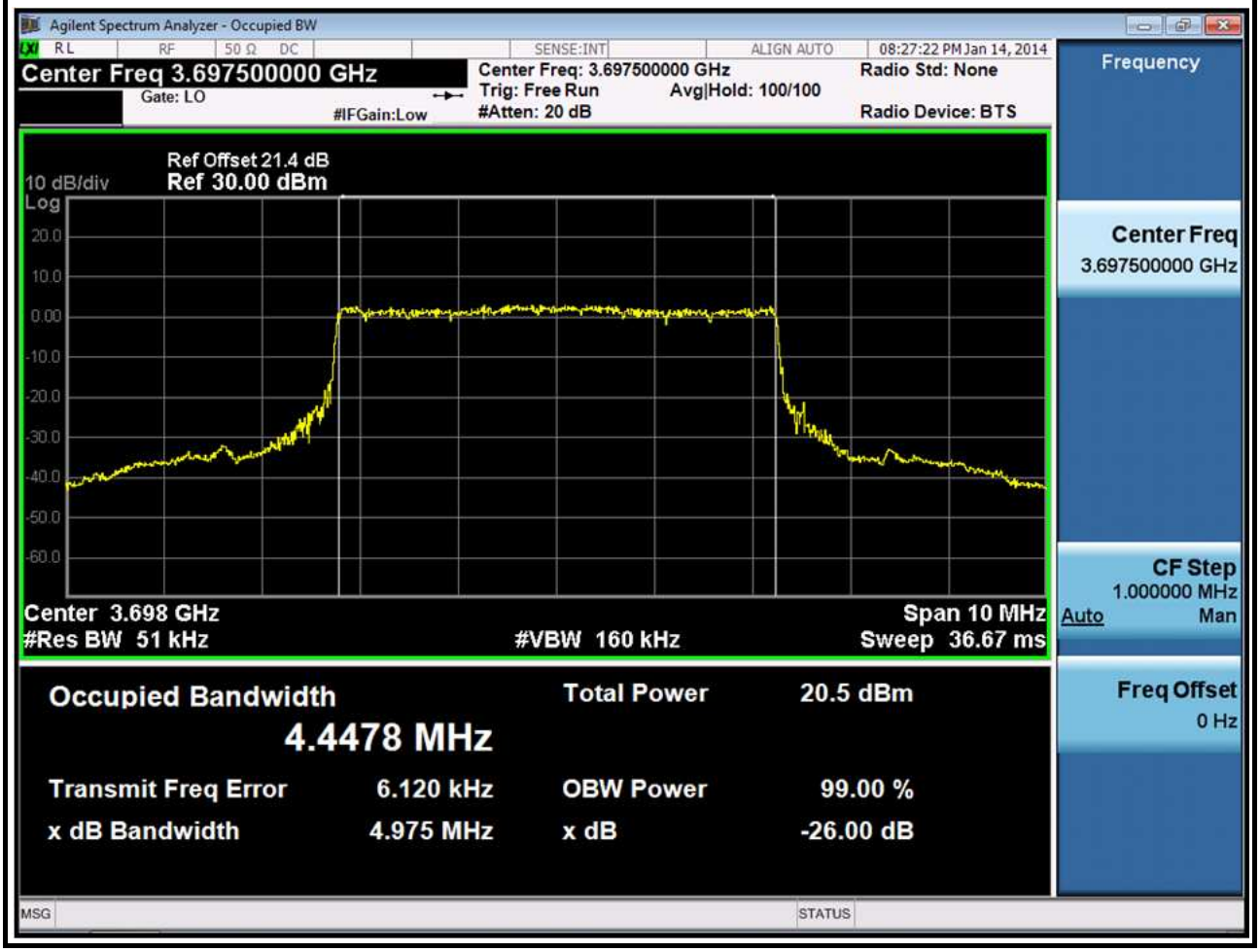
3.5.2 Test Setup



3.5.3 Test Result of 26dBc Bandwidth

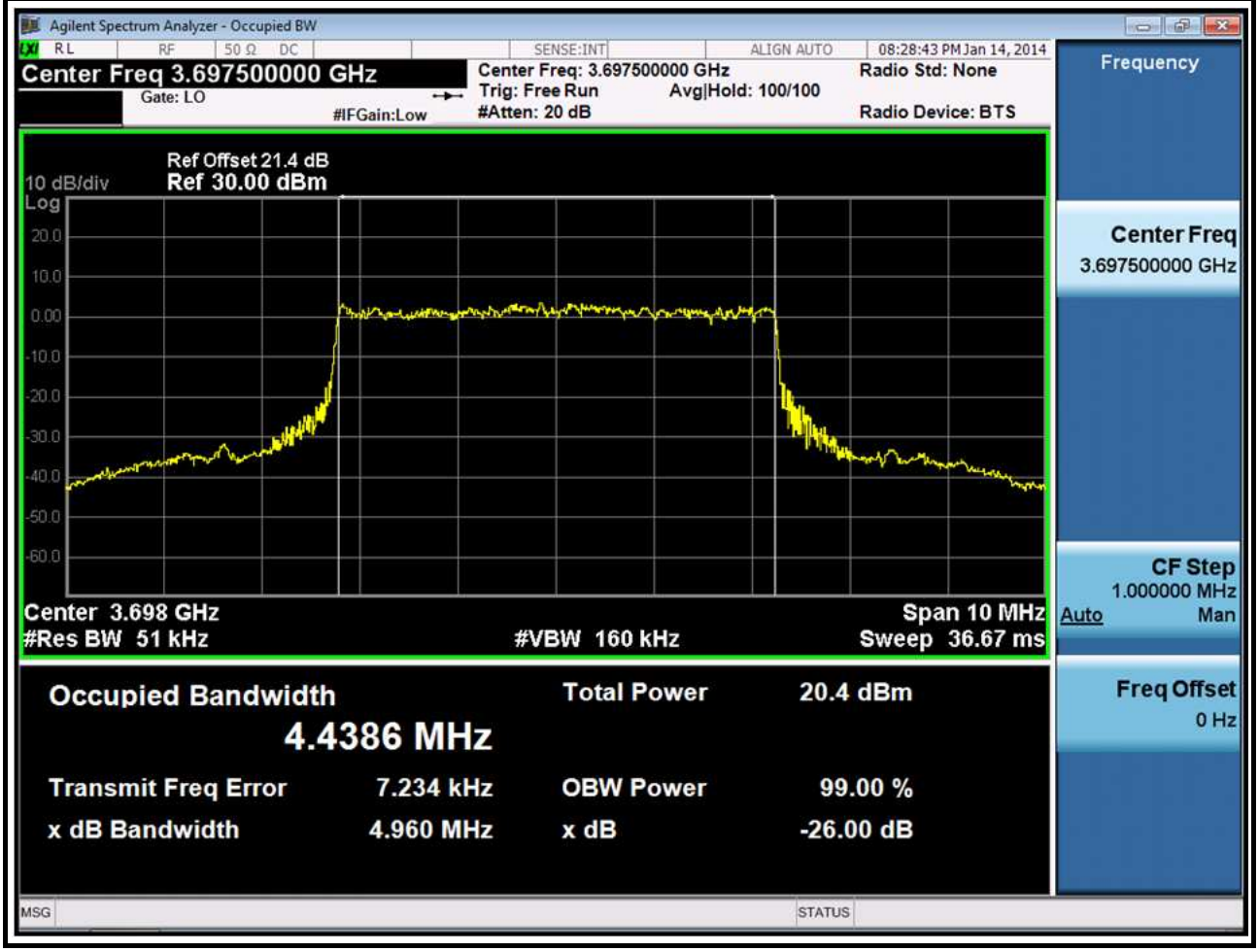
Channel Bandwidth	Modulation	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
5	QPSK	3652.5	4.962	4.4461
5	QPSK	3675.0	4.969	4.4477
5	QPSK	3697.5	4.975	4.4478

Worst plots



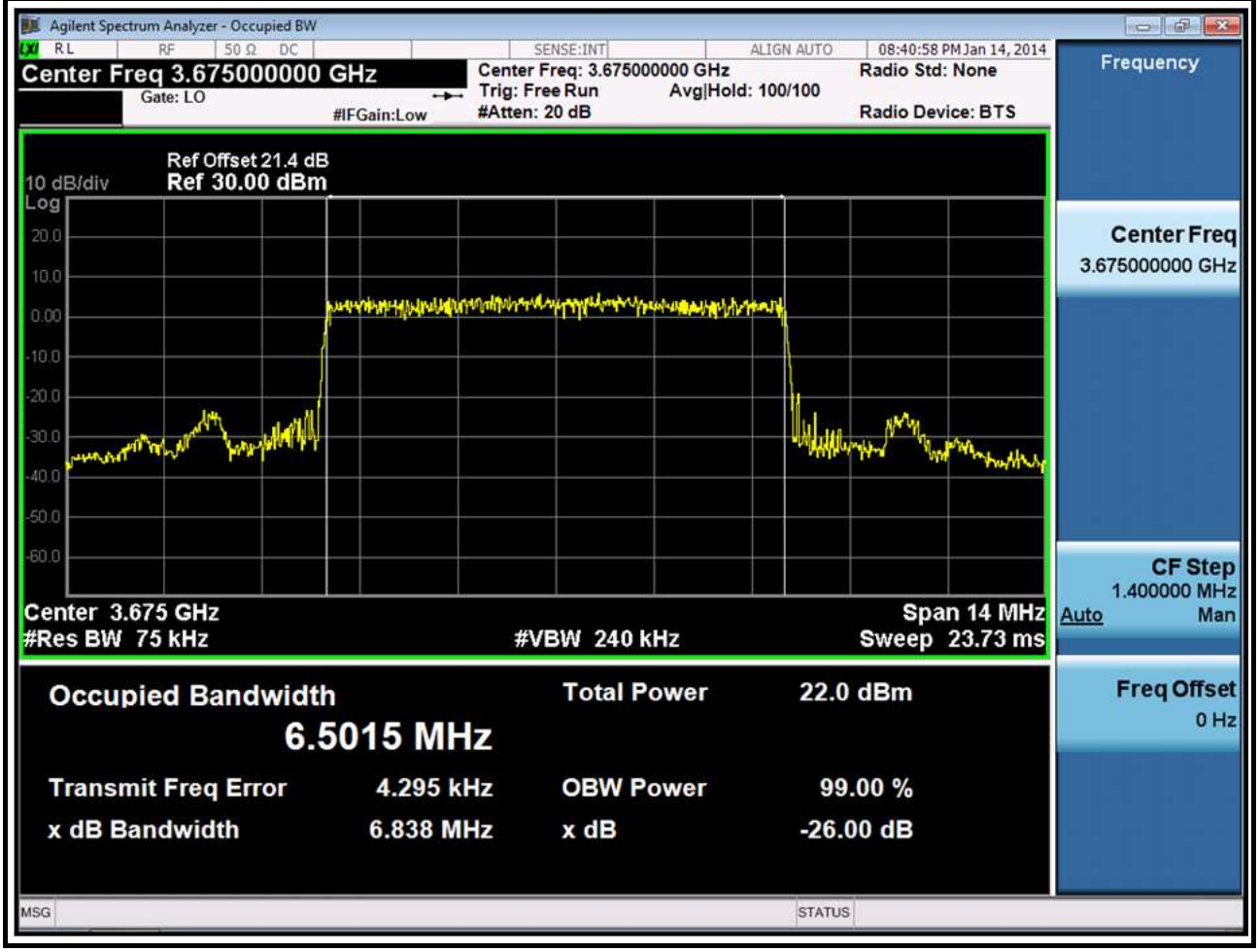
Channel Bandwidth	Modulation	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
5	16QAM	3652.5	4.954	4.4460
5	16QAM	3675.0	4.883	4.4387
5	16QAM	3697.5	4.960	4.4386

Worst plots



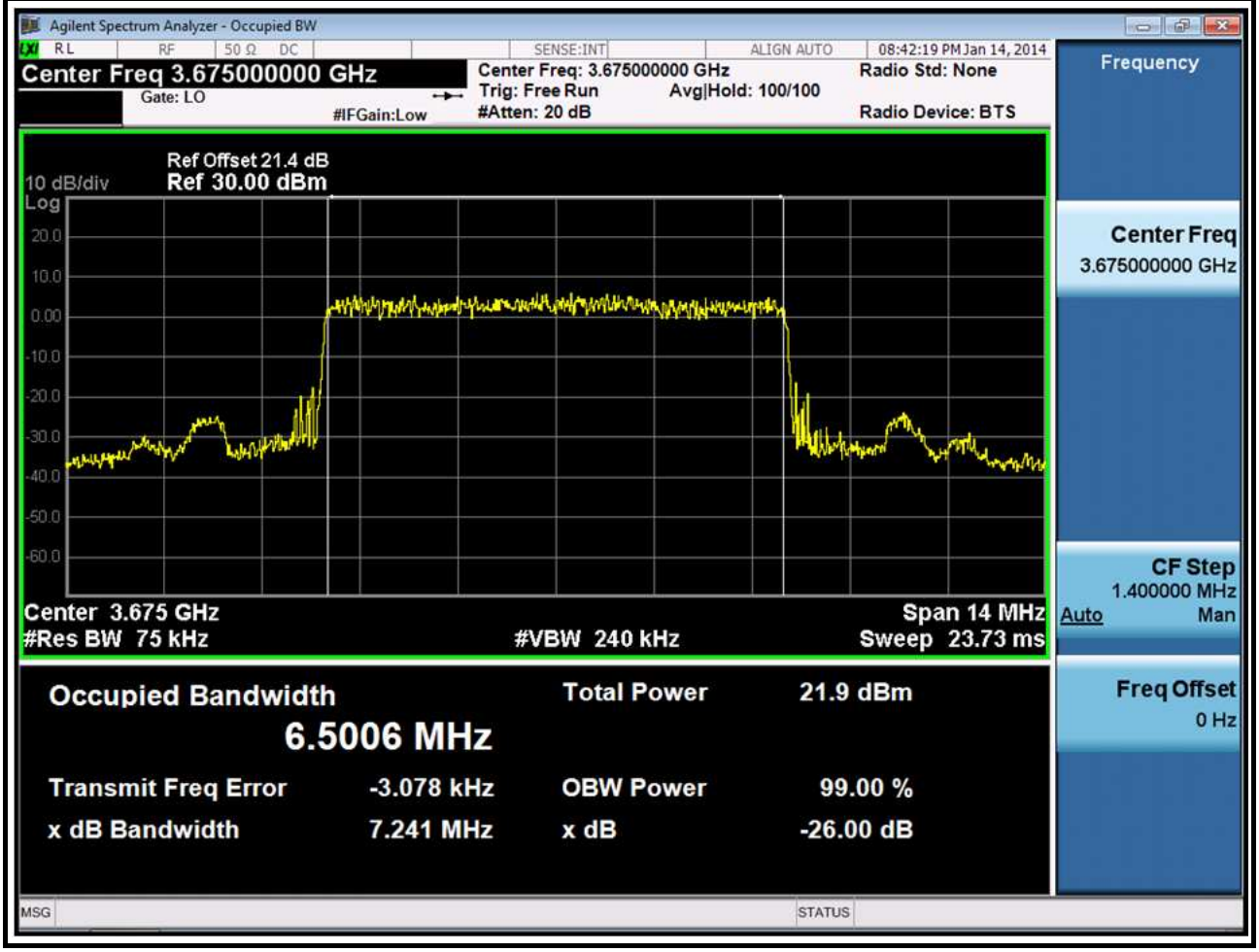
Channel Bandwidth	Modulation	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
7	QPSK	3653.5	6.783	6.4945
7	QPSK	3675.0	6.838	6.5015
7	QPSK	3696.5	6.835	6.5009

Worst plots



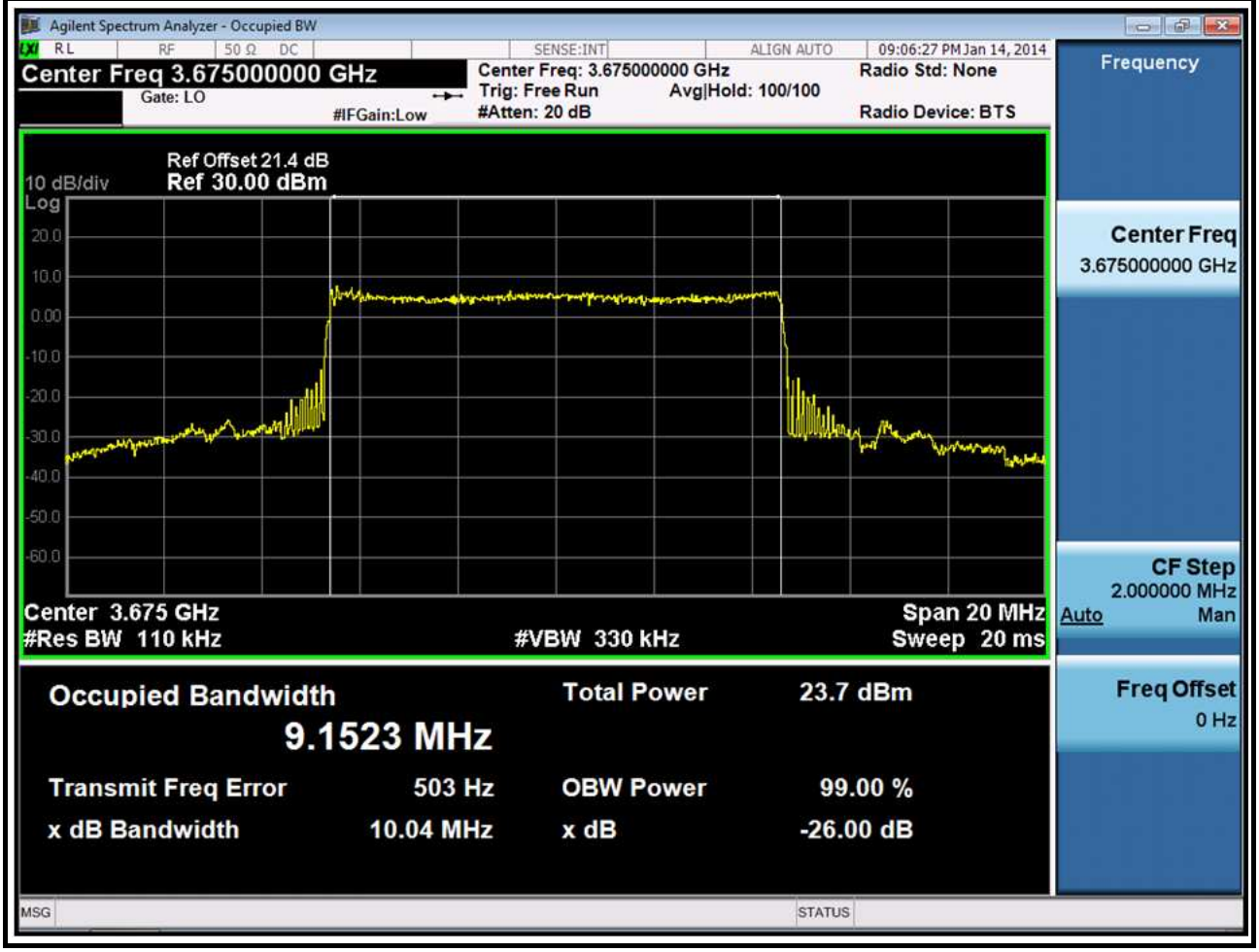
Channel Bandwidth	Modulation	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
7	16QAM	3653.5	6.843	6.4951
7	16QAM	3675.0	7.241	6.5006
7	16QAM	3696.5	6.802	6.4959

Worst plots



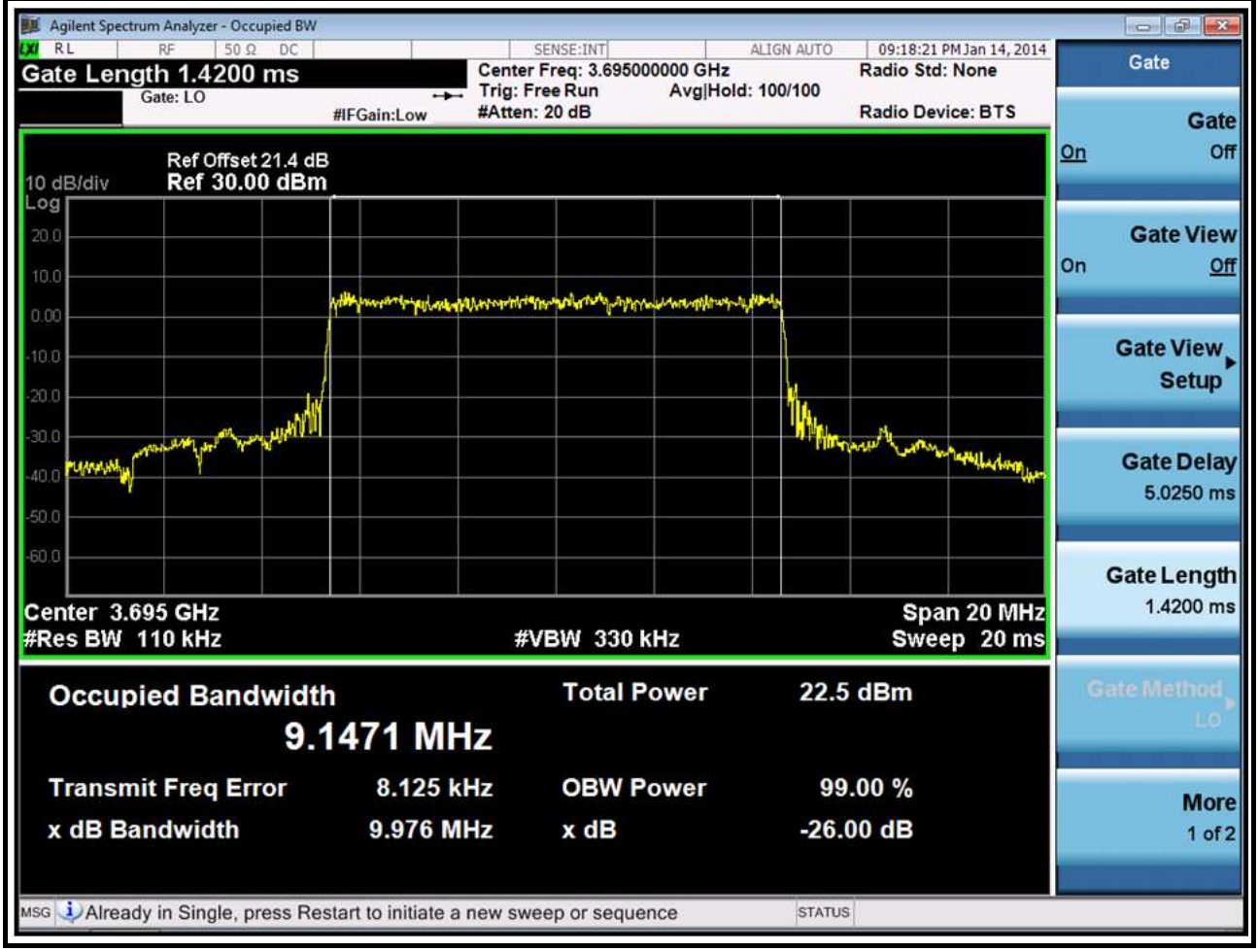
Channel Bandwidth	Modulation	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
10	QPSK	3655.0	10.02	9.1510
10	QPSK	3675.0	10.04	9.1523
10	QPSK	3695.0	10.03	9.1492

Worst plots



Channel Bandwidth	Modulation	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
10	16QAM	3655.0	9.528	9.1493
10	16QAM	3675.0	9.523	9.1450
10	16QAM	3695.0	9.976	9.1471

Worst plots



3.6 Frequency Stability

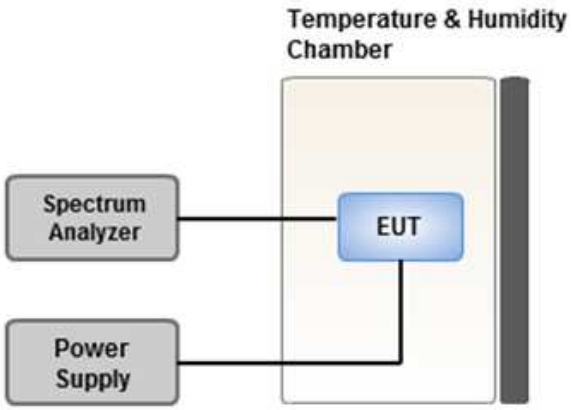
3.6.1 Limit of Frequency Stability

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

Temperature(°C)	Frequency Drift (ppm)			
	0 minute	2 minutes	5 minutes	10 minutes
T20℃Vmax	0.79	0.43	0.61	0.36
T20℃Vmin	0.73	0.88	0.92	0.95
T55℃Vnom	0.41	0.33	0.80	-0.03
T50℃Vnom	0.12	0.49	-0.06	0.21
T40℃Vnom	-0.02	0.13	0.28	0.71
T30℃Vnom	0.24	0.85	0.99	0.01
T20℃Vnom	0.65	0.28	0.81	0.14
T10℃Vnom	0.01	0.43	-0.27	0.69
T0℃Vnom	0.66	0.97	0.83	0.93
T-10℃Vnom	0.83	0.40	1.05	0.47
T-20℃Vnom	0.41	0.92	0.28	0.75
T-30℃Vnom	0.27	0.65	0.60	0.89
Vnom [V] : 110		Vmax [V] : 126.5		Vmin [V] : 93.5
Tnom [℃] : 20		Tmax [℃] : 55		Tmin [℃] : -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, 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 Hsiang. Location map can be found on our website http://www.icertifi.com.tw.

Linkou

Tel: 886-2-2601-1640

No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.

Kwei Shan

Tel: 886-3-271-8666

No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.

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

Tel: 886-3-271-8666
Fax: 886-3-318-0155
Email: ICC_Service@icertifi.com.tw

==END==