



## 3.5 Occupied Bandwidth

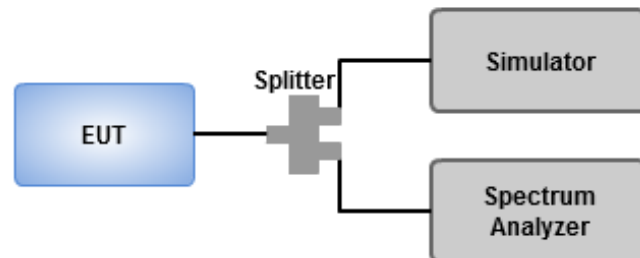
### 3.5.1 Test Procedures

- 1 Set RBW =30kHz,VBW = 100 kHz, detector =Peak, sweep time = auto for CDMA mode
- 2 Set as below setting for LTE mode

Bandwidth (MHz)	RBW (kHz)	VBW (KHz)	Detector	Sweep time
1.4	20	100	Peak	Auto
3	50	200	Peak	Auto
5	100	300	Peak	Auto
10	200	1000	Peak	Auto
15	200	1000	Peak	Auto
20	300	1000	Peak	Auto

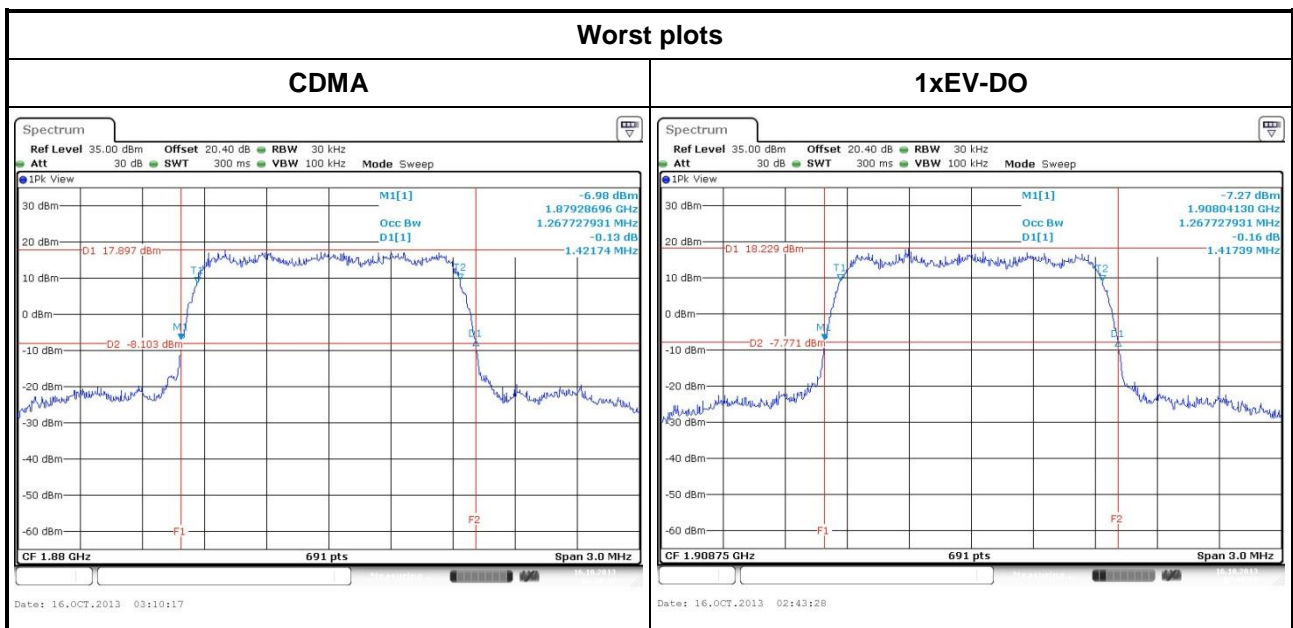
- 3 Using occupied bandwidth measurement function of spectrum analyzer to measure occupied bandwidth.

### 3.5.2 Test Setup



### 3.5.3 Test Result of Occupied Bandwidth

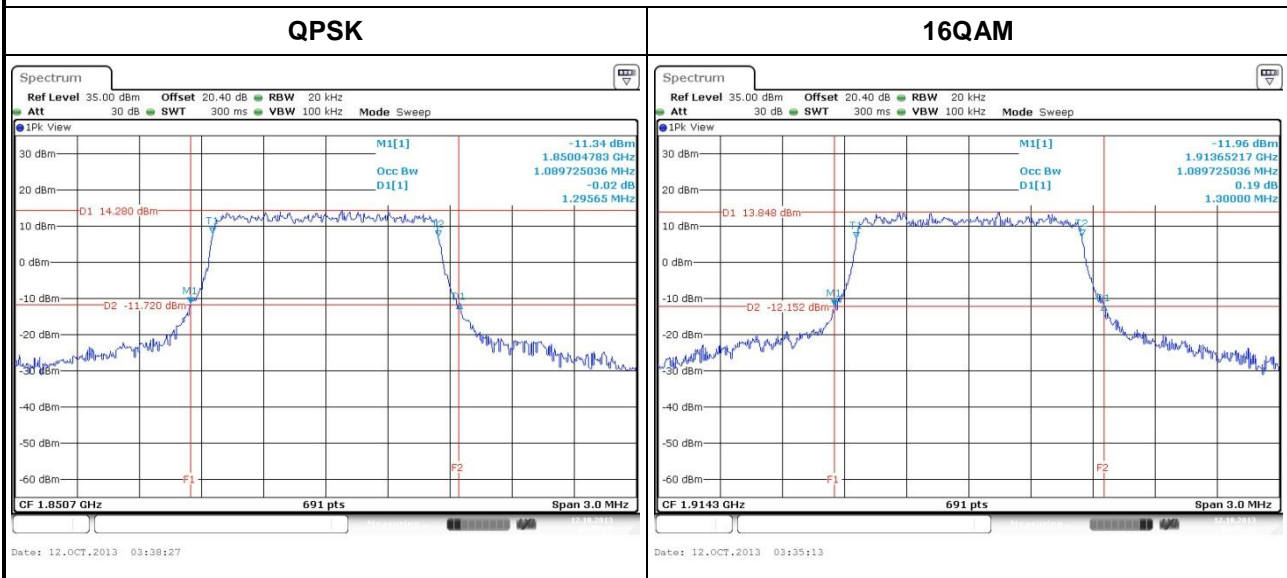
MODE	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
CDMA	25	1851.25	1.42174	1.27
CDMA	600	1880.00	1.42174	1.27
CDMA	1175	1908.75	1.41739	1.27
1xEV-DO	25	1851.25	1.41304	1.27
1xEV-DO	600	1880.00	1.41739	1.27
1xEV-DO	1175	1908.75	1.41739	1.27



**LTE Band 25, CB: 1.4MHz**

MODE	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
QPSK	26047	1850.7	1.2957	1.09
QPSK	26365	1882.5	1.2913	1.09
QPSK	26683	1914.3	1.2870	1.09
16QAM	26047	1850.7	1.2696	1.09
16QAM	26365	1882.5	1.2783	1.09
16QAM	26683	1914.3	1.3000	1.09

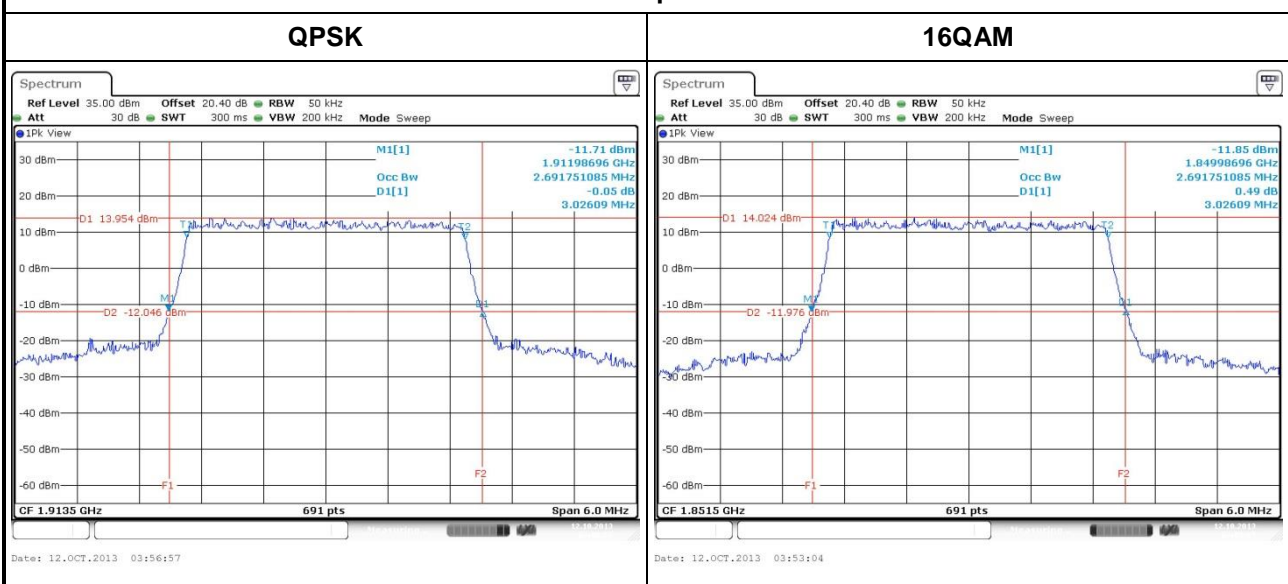
**Worst plots**



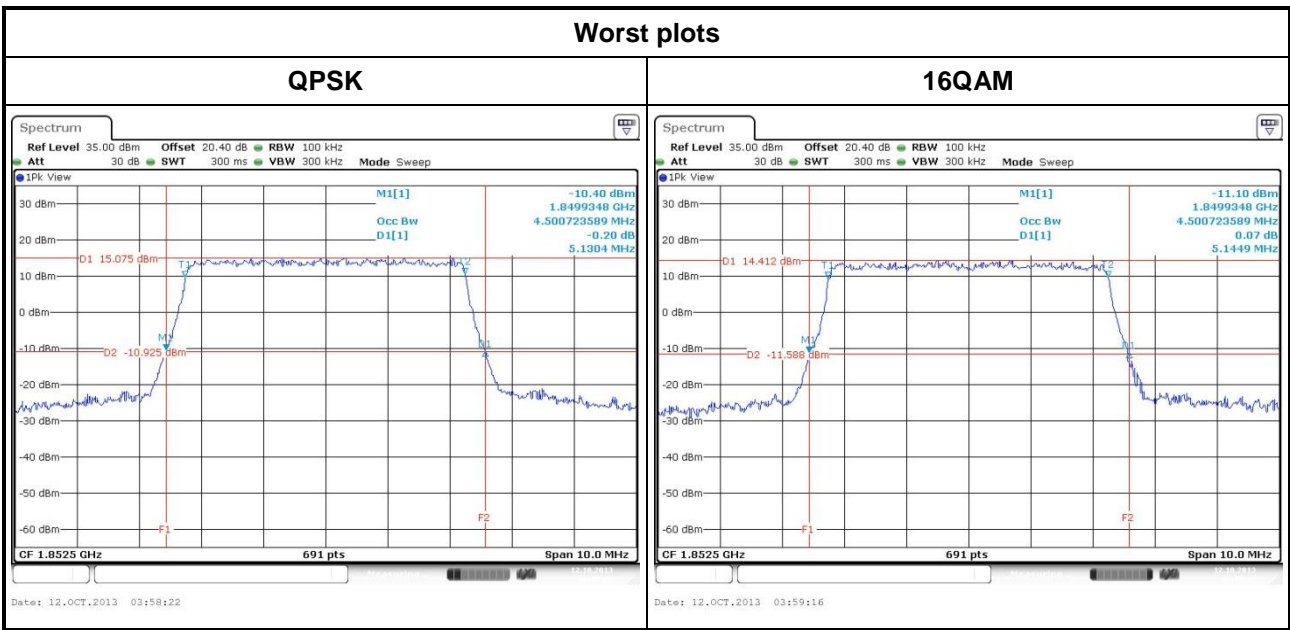
**LTE Band 25, CB: 3MHz**

MODE	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
QPSK	26055	1851.5	3.0087	2.68
QPSK	26365	1882.5	3.0087	2.69
QPSK	26675	1913.5	3.0260	2.69
16QAM	26055	1851.5	3.0260	2.69
16QAM	26365	1882.5	3.0260	2.69
16QAM	26675	1913.5	3.0087	2.69

**Worst plots**



LTE Band 25, CB: 5MHz				
MODE	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
QPSK	26065	1852.5	5.1304	4.50
QPSK	26365	1882.5	5.1159	4.49
QPSK	26665	1912.5	5.1159	4.49
16QAM	26065	1852.5	5.1449	4.50
16QAM	26365	1882.5	5.1159	4.49
16QAM	26665	1912.5	5.1014	4.50





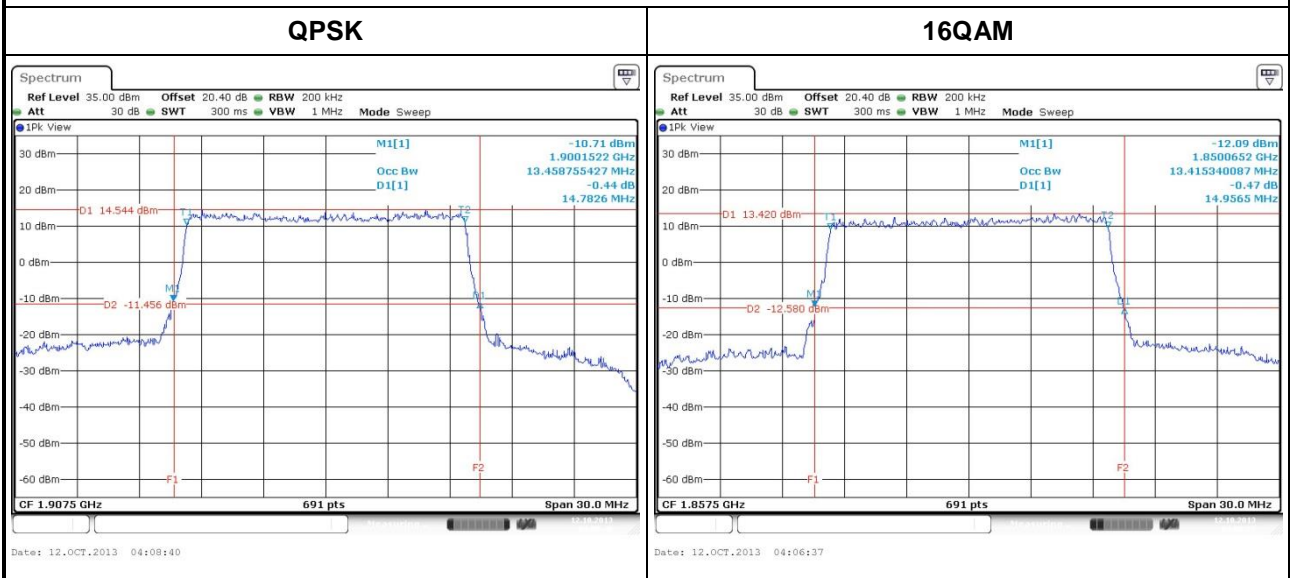
LTE Band 25, CB: 10Hz				
MODE	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
QPSK	26090	1855.00	9.9130	9.00
QPSK	26365	1882.50	9.9130	8.97
QPSK	26640	1910.00	9.9130	9.00
16QAM	26090	1855.00	9.8841	8.94
16QAM	26365	1882.50	9.8551	8.94
16QAM	26640	1910.00	9.7971	8.94



**LTE Band 25, CB: 15MHz**

MODE	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
QPSK	26115	1857.5	14.6957	13.42
QPSK	26365	1882.5	14.7391	13.42
QPSK	26615	1907.5	14.7826	13.46
16QAM	26115	1857.5	14.9565	13.42
16QAM	26365	1882.5	14.9130	13.46
16QAM	26615	1907.5	14.8696	13.46

**Worst plots**



LTE Band 25, CB: 20MHz				
MODE	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
QPSK	26140	1860.0	19.5362	17.83
QPSK	26365	1882.5	19.7101	17.95
QPSK	26590	1905.0	19.5362	17.95
16QAM	26140	1860.0	19.4783	17.89
16QAM	26365	1882.5	19.5942	17.95
16QAM	26590	1905.0	19.5942	17.95



## 3.6 Peak to Average Ratio

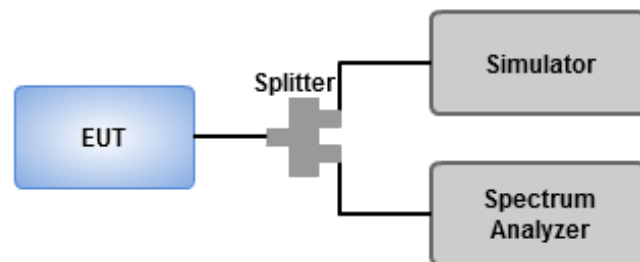
### 3.6.1 Limit of Peak to Average Ratio

Peak-to-average ratio (PAR) of the transmission may not exceed 13 dB

### 3.6.2 Test Procedures

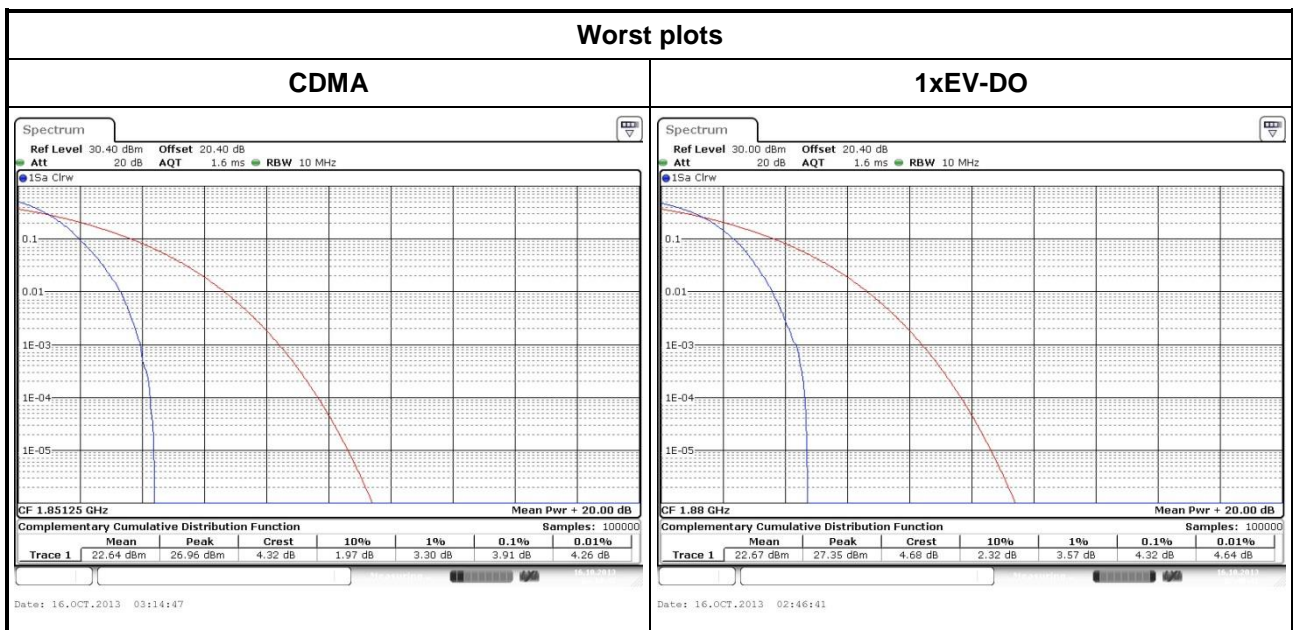
1. Enable CCDF function of spectrum analyzer and set RBW=10MHz
2. Set the number of counts to a value that stabilizes the measured CCDF curve
3. Record the maximum PAPR level associated with a probability of 0.1%.

### 3.6.3 Test Setup



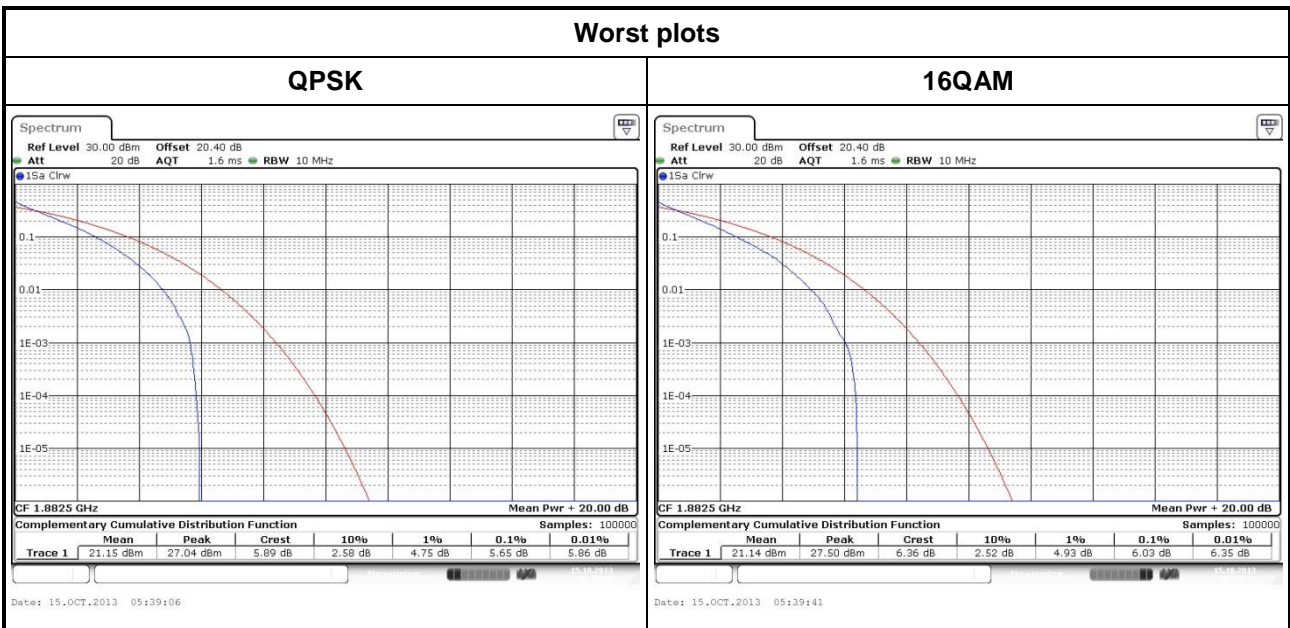
### 3.6.4 Test Result of Peak to Average ratio

MODE	Channel	Frequency (MHz)	Peak to Average ratio (dB)
CDMA	25	1851.25	3.91
CDMA	600	1880.00	3.88
CDMA	1175	1908.75	3.77
1xEV-DO	25	1851.25	4.17
1xEV-DO	600	1880.00	4.32
1xEV-DO	1175	1908.75	4.12

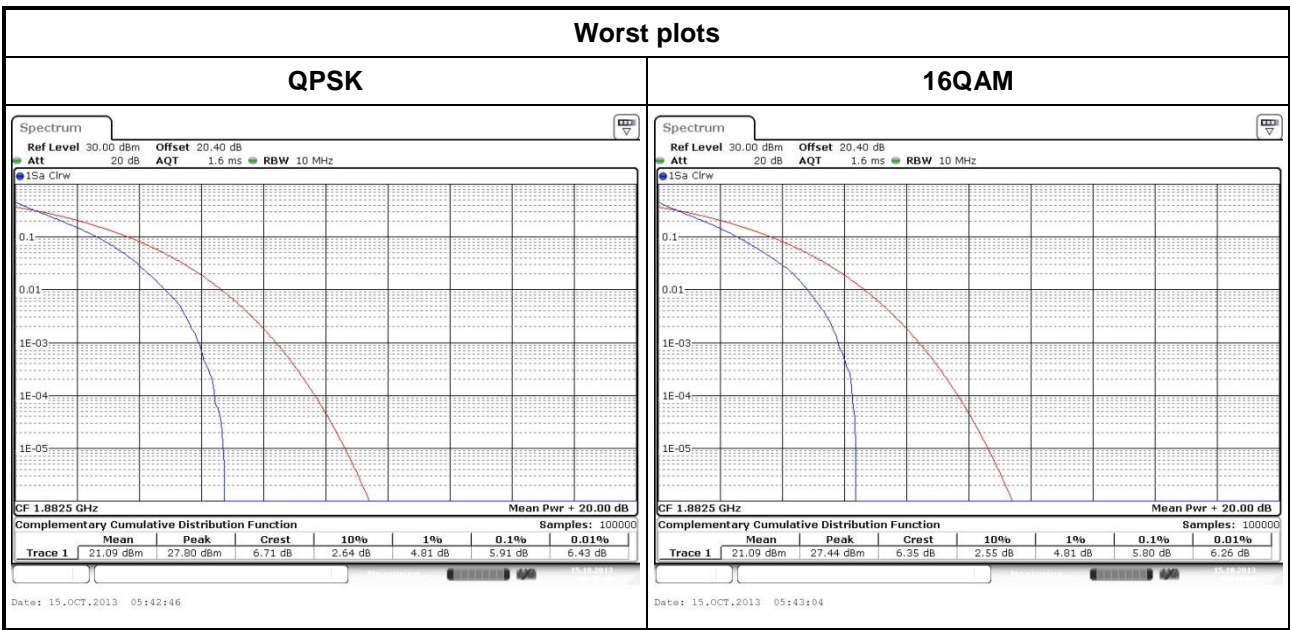




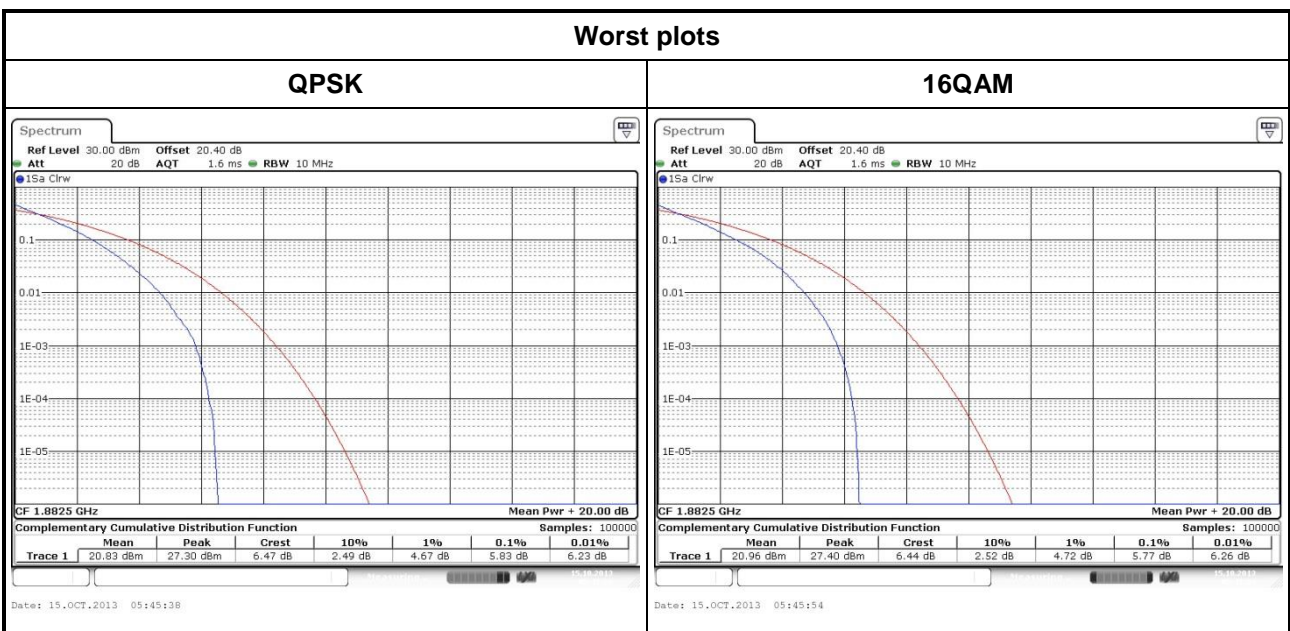
LTE Band 25, CB: 1.4MHz			
MODE	Channel	Frequency (MHz)	Peak to Average ratio (dB)
QPSK	26047	1850.7	5.42
QPSK	26365	1882.5	5.65
QPSK	26683	1914.3	4.29
16QAM	26047	1850.7	5.33
16QAM	26365	1882.5	6.03
16QAM	26683	1914.3	4.26



LTE Band 25, CB: 3MHz			
MODE	Channel	Frequency (MHz)	Peak to Average ratio (dB)
QPSK	26055	1851.5	5.57
QPSK	26365	1882.5	5.91
QPSK	26675	1913.5	4.46
16QAM	26055	1851.5	5.45
16QAM	26365	1882.5	5.80
16QAM	26675	1913.5	4.55



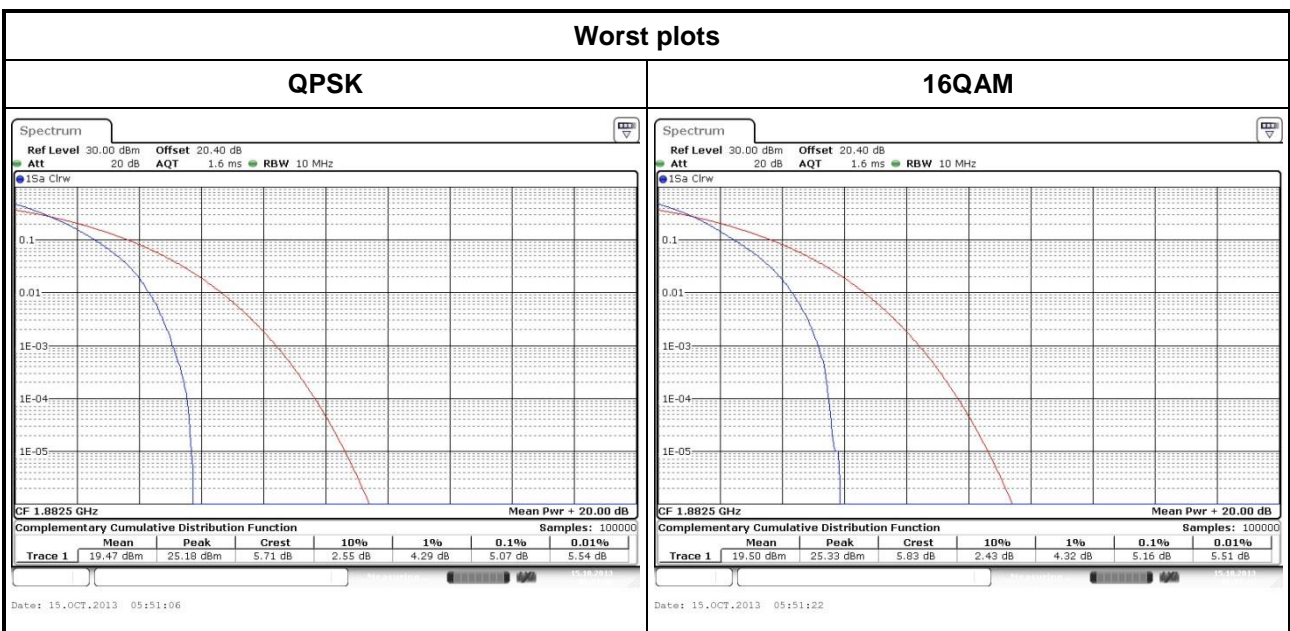
LTE Band 25, CB: 5MHz			
MODE	Channel	Frequency (MHz)	Peak to Average ratio (dB)
QPSK	26065	1852.5	5.51
QPSK	26365	1882.5	5.83
QPSK	26665	1912.5	4.78
16QAM	26065	1852.5	5.59
16QAM	26365	1882.5	5.77
16QAM	26665	1912.5	4.84



LTE Band 25, CB: 10MHz			
MODE	Channel	Frequency (MHz)	Peak to Average ratio (dB)
QPSK	26090	1855.0	5.59
QPSK	26365	1882.5	5.71
QPSK	26640	1910.0	5.22
16QAM	26090	1855.0	5.68
16QAM	26365	1882.5	5.68
16QAM	26640	1910.0	5.07

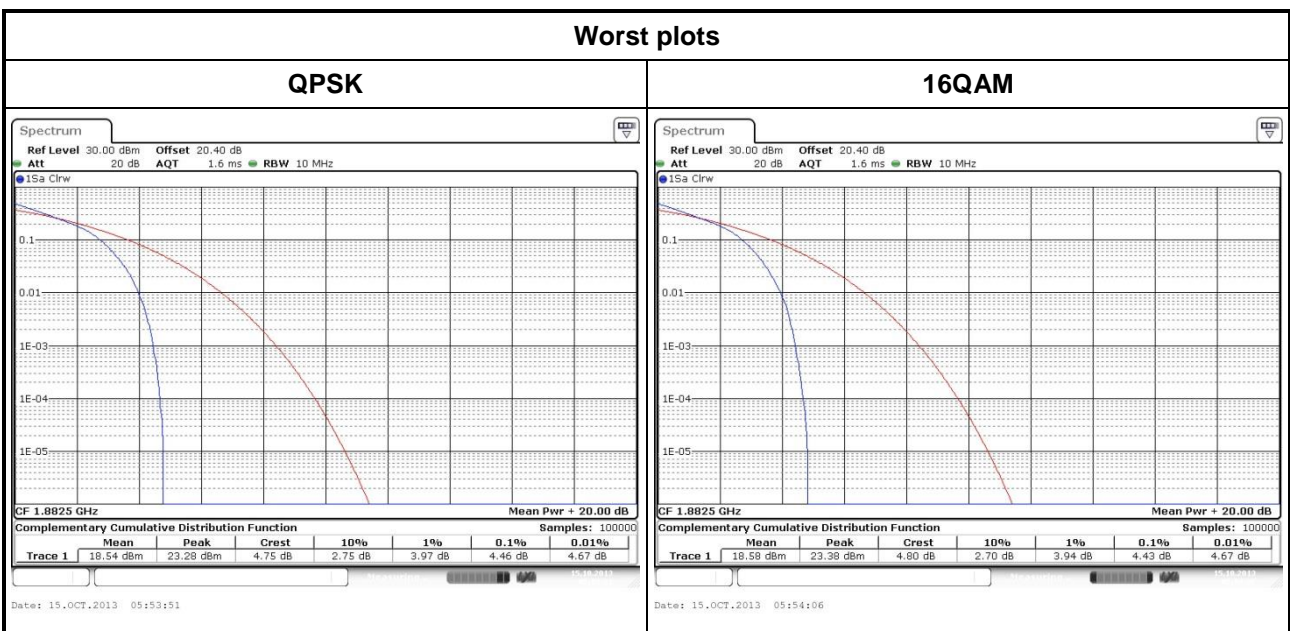


LTE Band 25, CB: 15MHz			
MODE	Channel	Frequency (MHz)	Peak to Average ratio (dB)
QPSK	26115	1857.5	5.01
QPSK	26365	1882.5	5.07
QPSK	26615	1907.5	4.84
16QAM	26115	1857.5	4.99
16QAM	26365	1882.5	5.16
16QAM	26615	1907.5	4.81





LTE Band 25, CB: 20MHz			
MODE	Channel	Frequency (MHz)	Peak to Average ratio (dB)
QPSK	26140	1860.0	4.29
QPSK	26365	1882.5	4.46
QPSK	26590	1905.0	4.38
16QAM	26140	1860.0	4.26
16QAM	26365	1882.5	4.43
16QAM	26590	1905.0	4.35



## 3.7 Frequency Stability

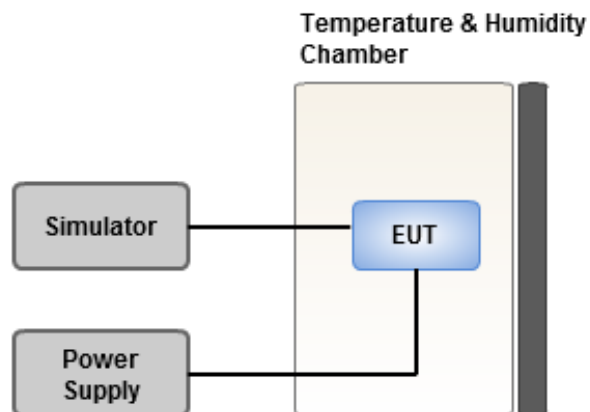
### 3.7.1 Limit of Frequency Stability

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

### 3.7.2 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.

### 3.7.3 Test Setup



### 3.7.4 Test Result of Frequency Stability

Mode	CDMA		
Temperature (°C)	Voltage (Vac)	Frequency Drift (ppm)	Limit (ppm)
50	110	0.009	2.5
40	110	0.010	2.5
30	110	0.010	2.5
20	110	0.009	2.5
10	110	0.009	2.5
0	110	0.008	2.5
-10	110	0.007	2.5
-20	110	0.006	2.5
-30	110	0.007	2.5
20	126.5	0.010	2.5
20	93.5	0.008	2.5

Mode	1xEV-DO		
Temperature (°C)	Voltage (Vac)	Frequency Drift (ppm)	Limit (ppm)
50	110	0.010	2.5
40	110	0.009	2.5
30	110	0.010	2.5
20	110	0.008	2.5
10	110	0.007	2.5
0	110	0.006	2.5
-10	110	0.007	2.5
-20	110	0.007	2.5
-30	110	0.007	2.5
20	126.5	0.009	2.5
20	93.5	0.009	2.5

Mode	LTE Band 25, CB: 1.4MHz		
Temperature (°C)	Voltage (Vac)	Frequency Drift (ppm)	Limit (ppm)
50	110	0.010	2.5
40	110	0.011	2.5
30	110	0.009	2.5
20	110	0.010	2.5
10	110	0.011	2.5
0	110	0.008	2.5
-10	110	0.010	2.5
-20	110	0.008	2.5
-30	110	0.009	2.5
20	126.5	0.011	2.5
20	93.5	0.009	2.5

Mode	LTE Band 25, CB: 3MHz		
Temperature (°C)	Voltage (Vac)	Frequency Drift (ppm)	Limit (ppm)
50	110	0.009	2.5
40	110	0.010	2.5
30	110	0.011	2.5
20	110	0.008	2.5
10	110	0.010	2.5
0	110	0.011	2.5
-10	110	0.009	2.5
-20	110	0.008	2.5
-30	110	0.008	2.5
20	126.5	0.011	2.5
20	93.5	0.010	2.5

Mode	LTE Band 25, CB: 5MHz		
Temperature (°C)	Voltage (Vac)	Frequency Drift (ppm)	Limit (ppm)
50	110	0.010	2.5
40	110	0.008	2.5
30	110	0.010	2.5
20	110	0.010	2.5
10	110	0.009	2.5
0	110	0.008	2.5
-10	110	0.008	2.5
-20	110	0.010	2.5
-30	110	0.010	2.5
20	126.5	0.012	2.5
20	93.5	0.008	2.5

Mode	LTE Band 25, CB: 10MHz		
Temperature (°C)	Voltage (Vac)	Frequency Drift (ppm)	Limit (ppm)
50	110	0.011	2.5
40	110	0.010	2.5
30	110	0.010	2.5
20	110	0.009	2.5
10	110	0.010	2.5
0	110	0.008	2.5
-10	110	0.011	2.5
-20	110	0.007	2.5
-30	110	0.009	2.5
20	126.5	0.012	2.5
20	93.5	0.010	2.5



Mode	LTE Band 25, CB: 15MHz		
Temperature (°C)	Voltage (Vac)	Frequency Drift (ppm)	Limit (ppm)
50	110	0.010	2.5
40	110	0.011	2.5
30	110	0.009	2.5
20	110	0.010	2.5
10	110	0.008	2.5
0	110	0.008	2.5
-10	110	0.007	2.5
-20	110	0.010	2.5
-30	110	0.009	2.5
20	126.5	0.013	2.5
20	93.5	0.011	2.5

Mode	LTE Band 25, CB: 20MHz		
Temperature (°C)	Voltage (Vac)	Frequency Drift (ppm)	Limit (ppm)
50	110	0.010	2.5
40	110	0.008	2.5
30	110	0.010	2.5
20	110	0.009	2.5
10	110	0.010	2.5
0	110	0.011	2.5
-10	110	0.009	2.5
-20	110	0.010	2.5
-30	110	0.008	2.5
20	126.5	0.011	2.5
20	93.5	0.010	2.5

## 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>.

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