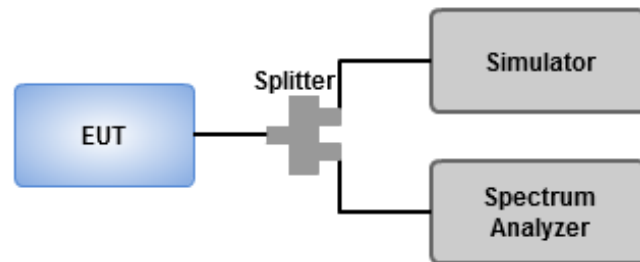


3.5 Occupied and 26 dB Bandwidth

3.5.1 Test Procedures

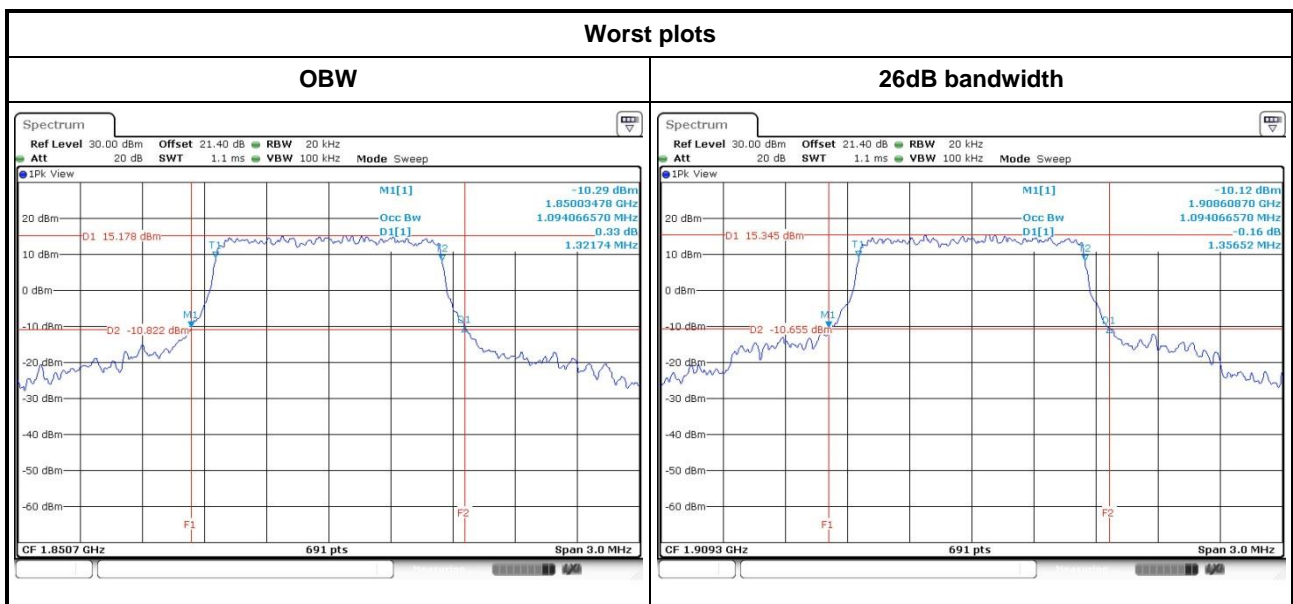
1. Set RBW = 20 / 50 / 100 / 200 / 200 / 300 kHz, VBW = 100 / 200 / 300 / 1000 / 1000 / 1000 kHz channel bandwidth 1.4 / 3 / 5 / 10 / 15 / 20 MHz.
2. Detector = Peak, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Using occupied bandwidth measurement function of spectrum analyzer to measure occupied bandwidth.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 26dB relative to the maximum level measured in the fundamental emission.

3.5.2 Test Setup

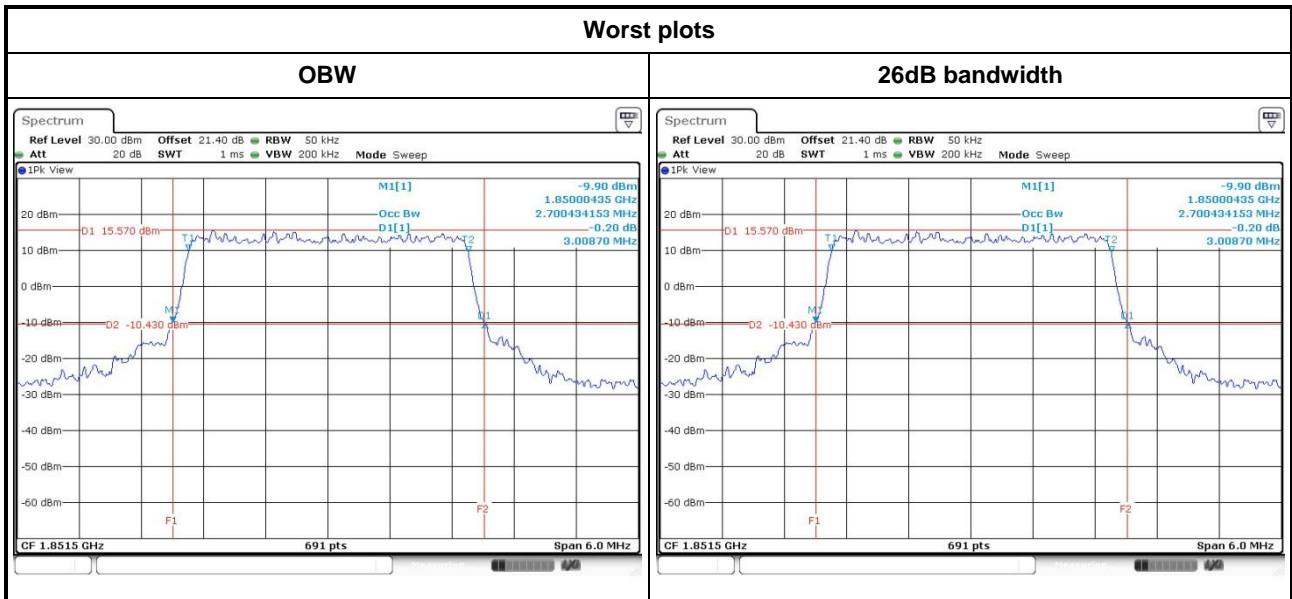


3.5.3 Test Result of Occupied Bandwidth

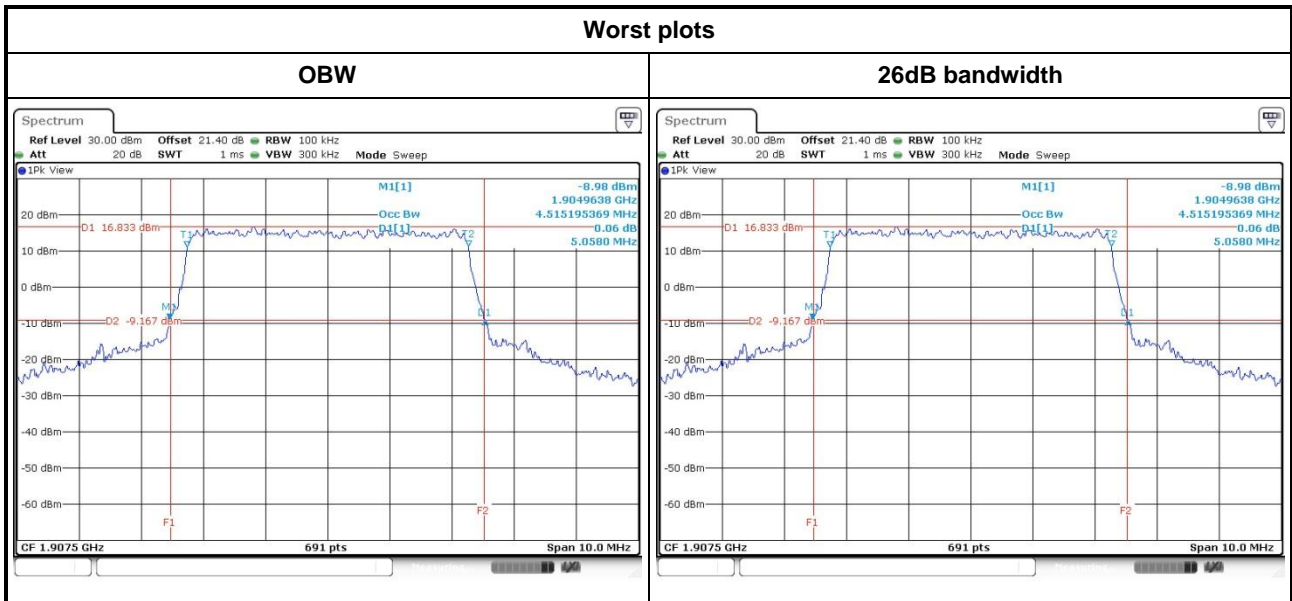
Mode	CB (MHz)	Modulation	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
LTE Band 2	1.4	QPSK	18607	1850.7	1.3217	1.0941
LTE Band 2	1.4	QPSK	18900	1880.0	1.3261	1.0890
LTE Band 2	1.4	QPSK	19193	1909.3	1.3565	1.0940
LTE Band 2	1.4	16QAM	18607	1850.7	1.3130	1.0897
LTE Band 2	1.4	16QAM	18900	1880.0	1.3130	1.0854
LTE Band 2	1.4	16QAM	19193	1909.3	1.3261	1.0897



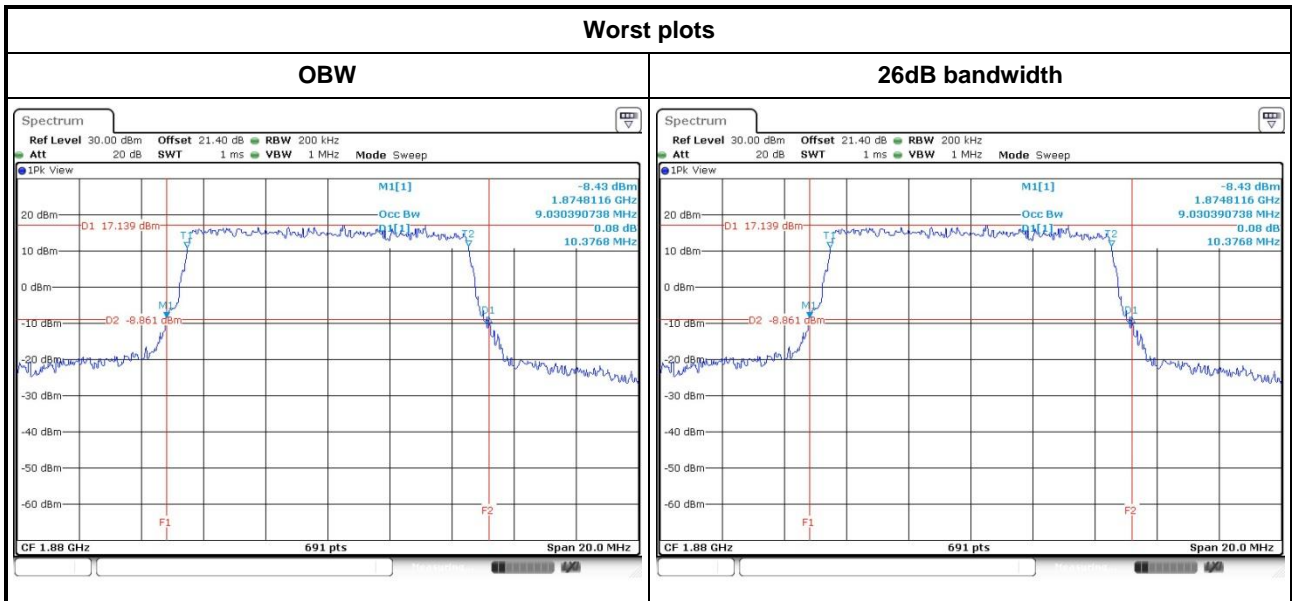
Mode	CB (MHz)	Modulation	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
LTE Band 2	3	QPSK	18615	1851.5	2.9652	2.6918
LTE Band 2	3	QPSK	18900	1880.0	2.9739	2.6918
LTE Band 2	3	QPSK	19185	1908.5	2.9739	2.6918
LTE Band 2	3	16QAM	18615	1851.5	3.0087	2.7004
LTE Band 2	3	16QAM	18900	1880.0	2.9913	2.6918
LTE Band 2	3	16QAM	19185	1908.5	3.0000	2.6918



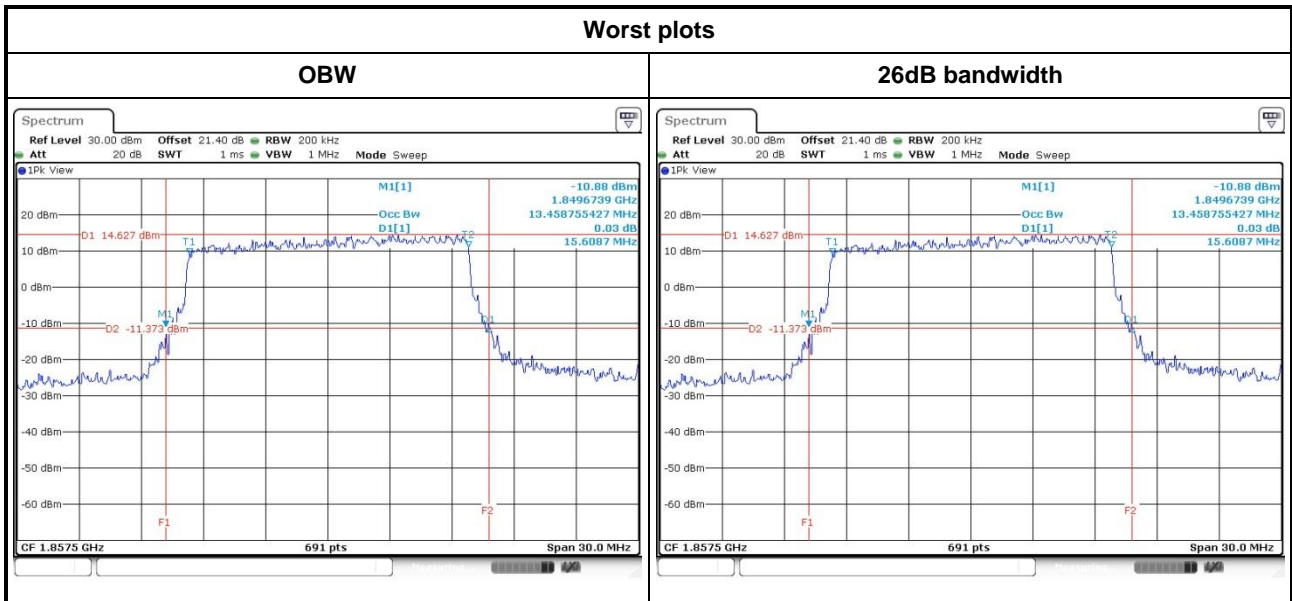
Mode	CB (MHz)	Modulation	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
LTE Band 2	5	QPSK	18625	1852.5	5.0435	4.5007
LTE Band 2	5	QPSK	18900	1880.0	5.0435	4.4862
LTE Band 2	5	QPSK	19175	1907.5	5.0580	4.5152
LTE Band 2	5	16QAM	18625	1852.5	5.0145	4.5007
LTE Band 2	5	16QAM	18900	1880.0	5.0145	4.4863
LTE Band 2	5	16QAM	19175	1907.5	4.9855	4.5007



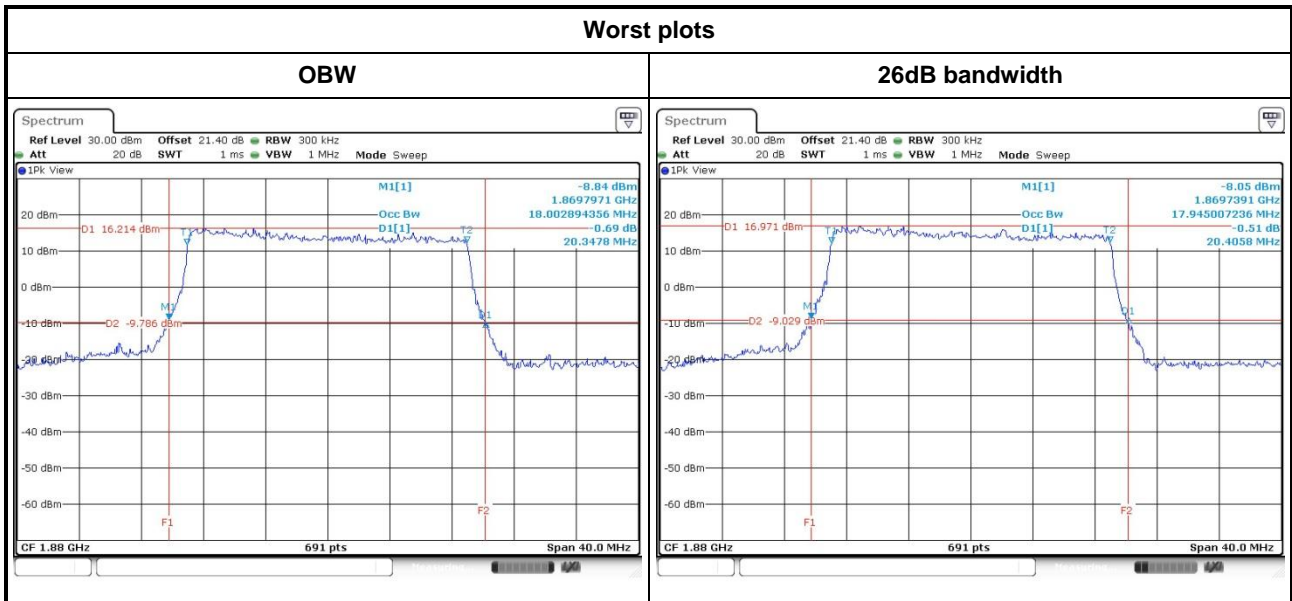
Mode	CB (MHz)	Modulation	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
LTE Band 2	10	QPSK	18650	1855.0	10.1159	9.0014
LTE Band 2	10	QPSK	18900	1880.0	10.3768	9.0303
LTE Band 2	10	QPSK	19150	1905.0	10.1739	9.0303
LTE Band 2	10	16QAM	18650	1855.0	10.0000	9.0014
LTE Band 2	10	16QAM	18900	1880.0	10.1159	9.0014
LTE Band 2	10	16QAM	19150	1905.0	10.1449	8.9725



Mode	CB (MHz)	Modulation	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
LTE Band 2	15	QPSK	18675	1857.5	15.6087	13.4587
LTE Band 2	15	QPSK	18900	1880.0	15.5217	13.4587
LTE Band 2	15	QPSK	19125	1902.5	14.9565	13.4153
LTE Band 2	15	16QAM	18675	1857.5	15.6087	13.4587
LTE Band 2	15	16QAM	18900	1880.0	15.6087	13.4587
LTE Band 2	15	16QAM	19125	1902.5	15.5217	13.4587



Mode	CB (MHz)	Modulation	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
LTE Band 2	20	QPSK	18700	1860.0	20.1159	17.8871
LTE Band 2	20	QPSK	18900	1880.0	20.4058	17.9450
LTE Band 2	20	QPSK	19100	1900.0	20.0580	17.8871
LTE Band 2	20	16QAM	18700	1860.0	20.0000	17.8871
LTE Band 2	20	16QAM	18900	1880.0	20.3478	18.0028
LTE Band 2	20	16QAM	19100	1900.0	20.1739	17.8871



3.6 Peak to Average Ratio

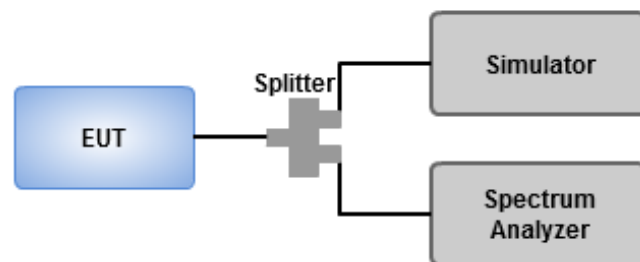
3.6.1 Limit of Peak to Average Ratio

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

3.6.2 Test Procedures

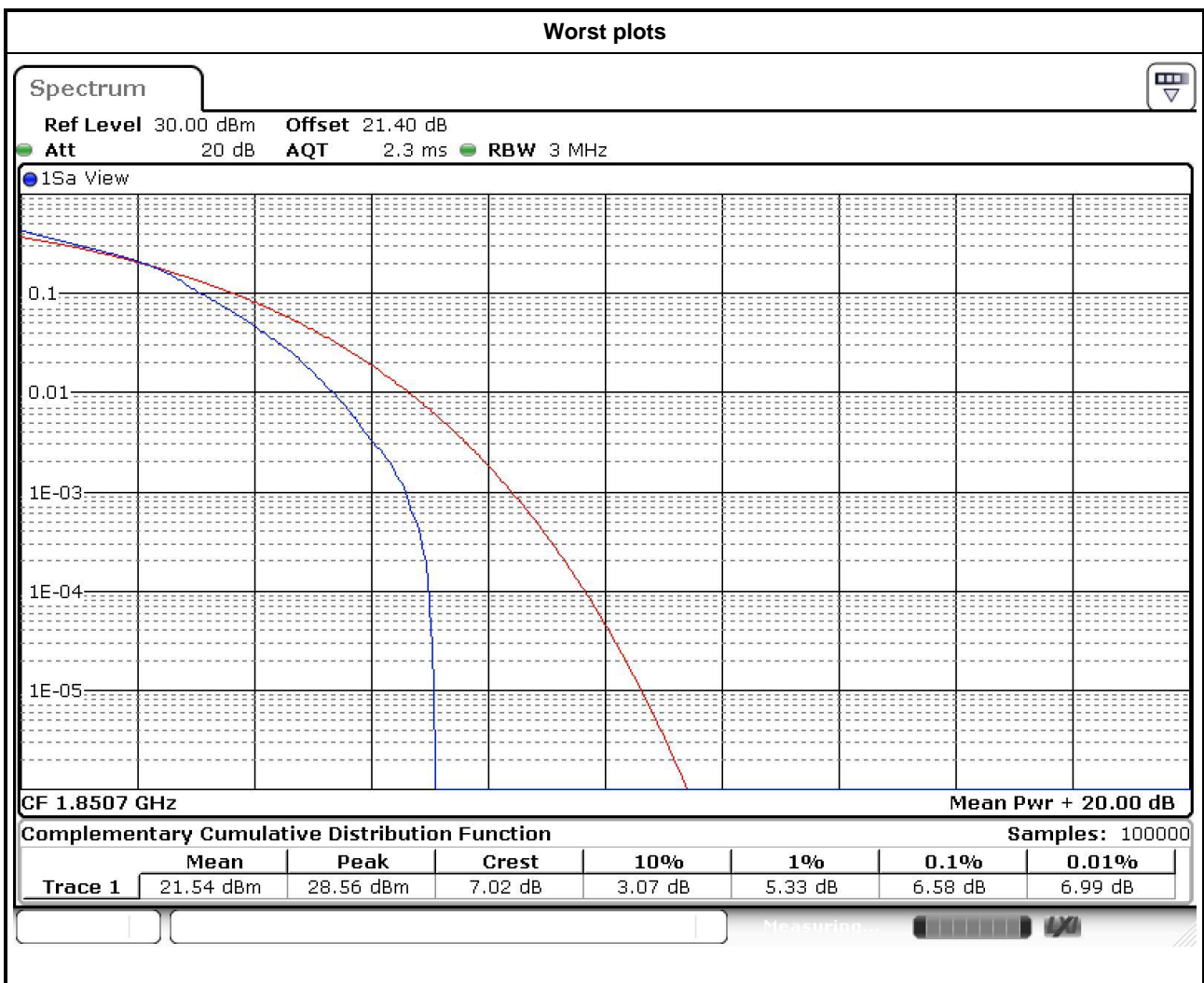
1. Enable CCDF function of spectrum analyzer and set RBW = 10MHz.
2. Set the number of counts to a value that stabilizes the measured CCDF curve.
3. Record the maximum PAPR level associated with a probability of 0.1%.

3.6.3 Test Setup

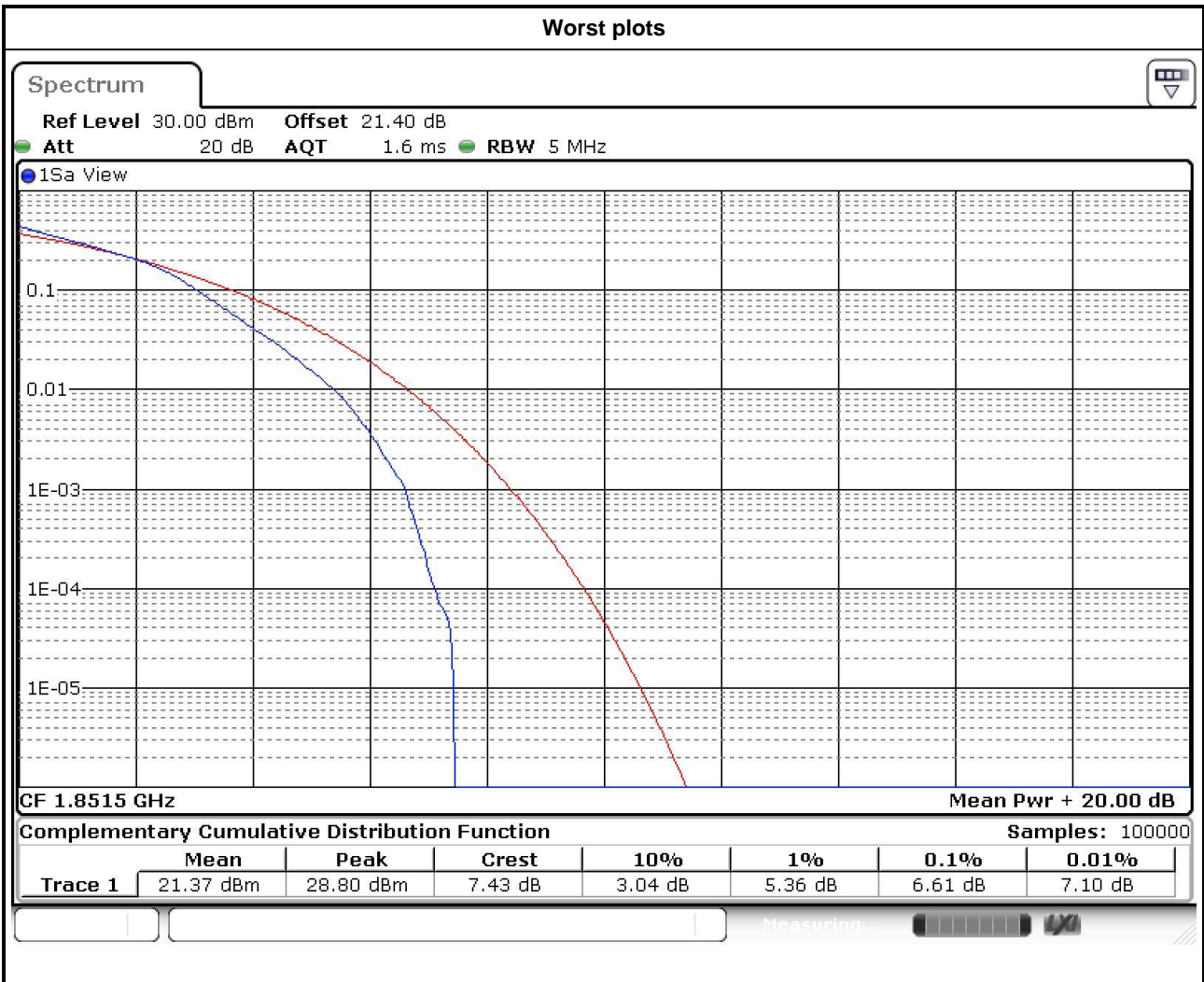


3.6.4 Test Result of Peak to Average ratio

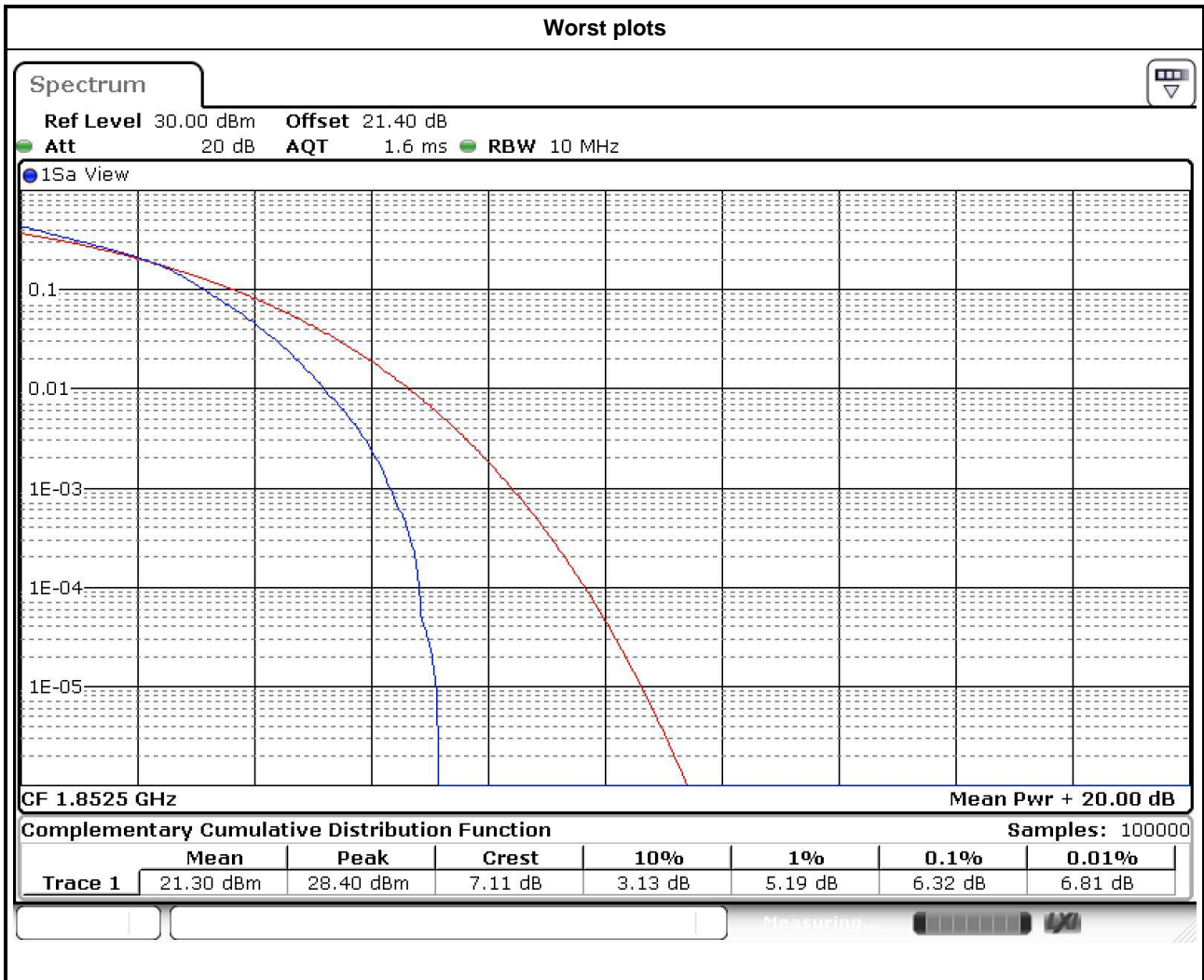
Mode	CB (MHz)	Modulation	Channel	Frequency (MHz)	Peak to Average ratio (dB)
LTE Band 2	1.4	QPSK	18607	1850.7	5.74
LTE Band 2	1.4	QPSK	18900	1880.0	5.39
LTE Band 2	1.4	QPSK	19193	1909.3	5.59
LTE Band 2	1.4	16QAM	18607	1850.7	6.58
LTE Band 2	1.4	16QAM	18900	1880.0	6.14
LTE Band 2	1.4	16QAM	19193	1909.3	6.23



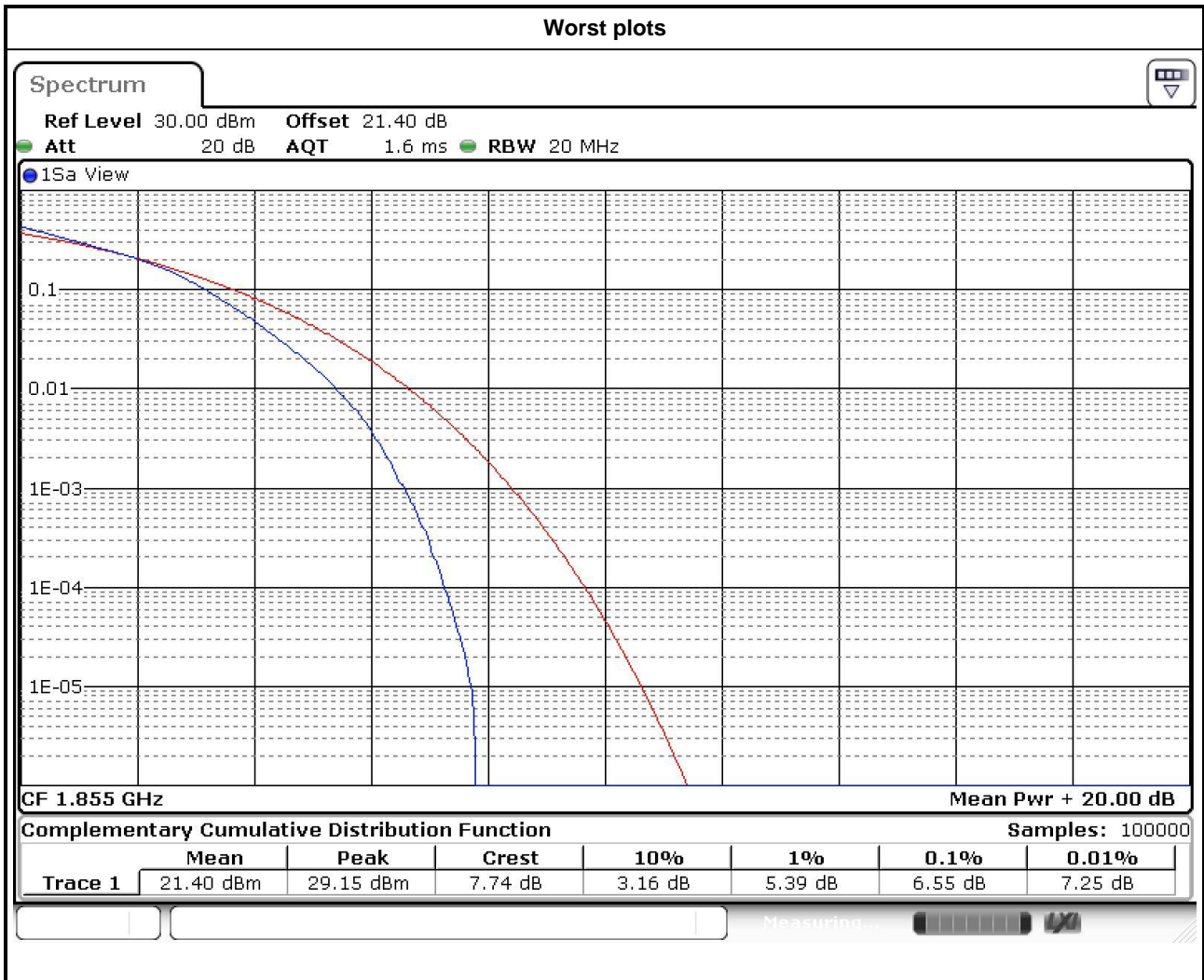
Mode	CB (MHz)	Modulation	Channel	Frequency (MHz)	Peak to Average ratio (dB)
LTE Band 2	3	QPSK	18615	1851.5	5.59
LTE Band 2	3	QPSK	18900	1880.0	5.16
LTE Band 2	3	QPSK	19185	1908.5	5.33
LTE Band 2	3	16QAM	18615	1851.5	6.61
LTE Band 2	3	16QAM	18900	1880.0	6.12
LTE Band 2	3	16QAM	19185	1908.5	6.35



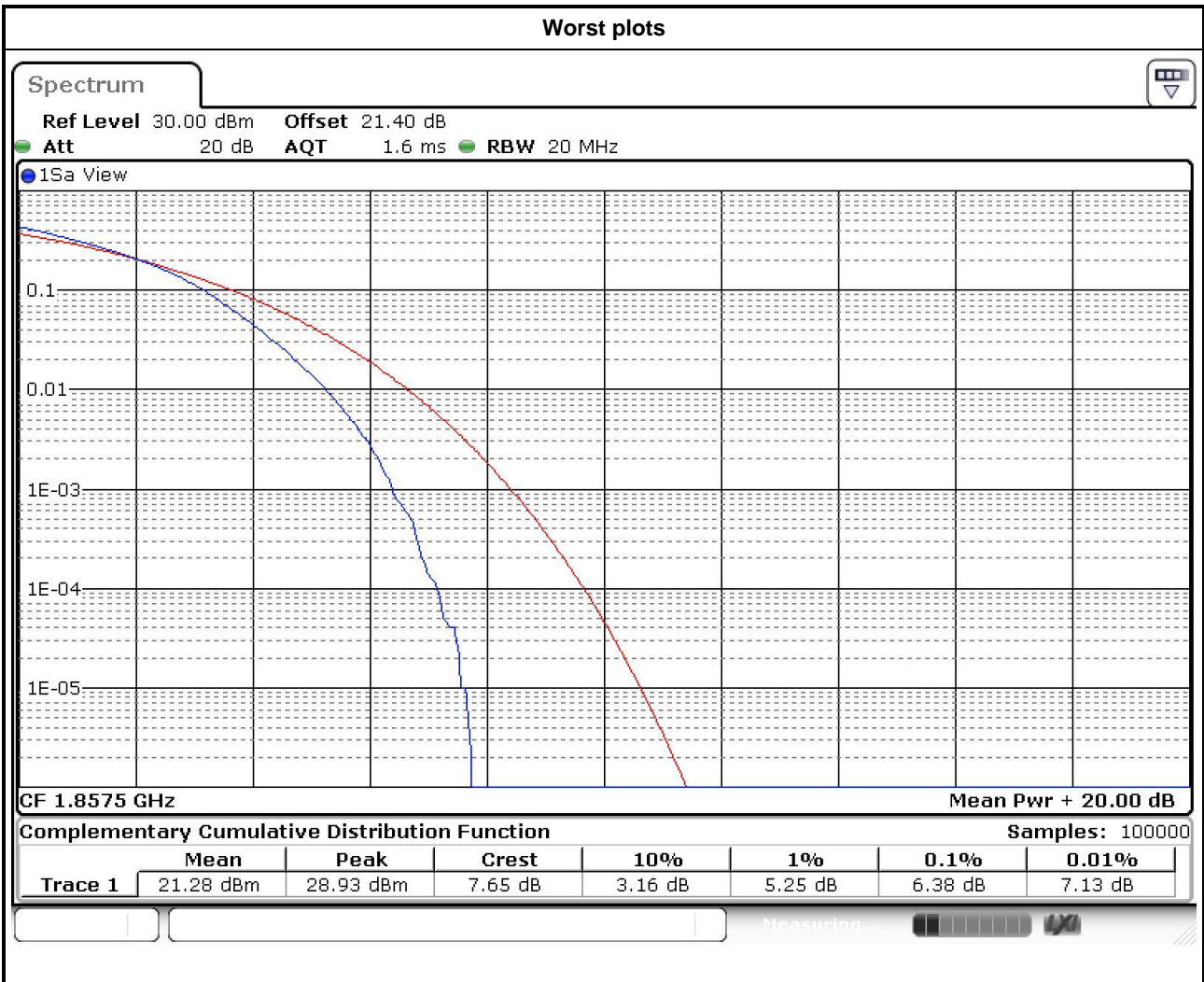
Mode	CB (MHz)	Modulation	Channel	Frequency (MHz)	Peak to Average ratio (dB)
LTE Band 2	5	QPSK	18625	1852.5	5.71
LTE Band 2	5	QPSK	18900	1880.0	5.19
LTE Band 2	5	QPSK	19175	1907.5	5.22
LTE Band 2	5	16QAM	18625	1852.5	6.32
LTE Band 2	5	16QAM	18900	1880.0	6.03
LTE Band 2	5	16QAM	19175	1907.5	6.17



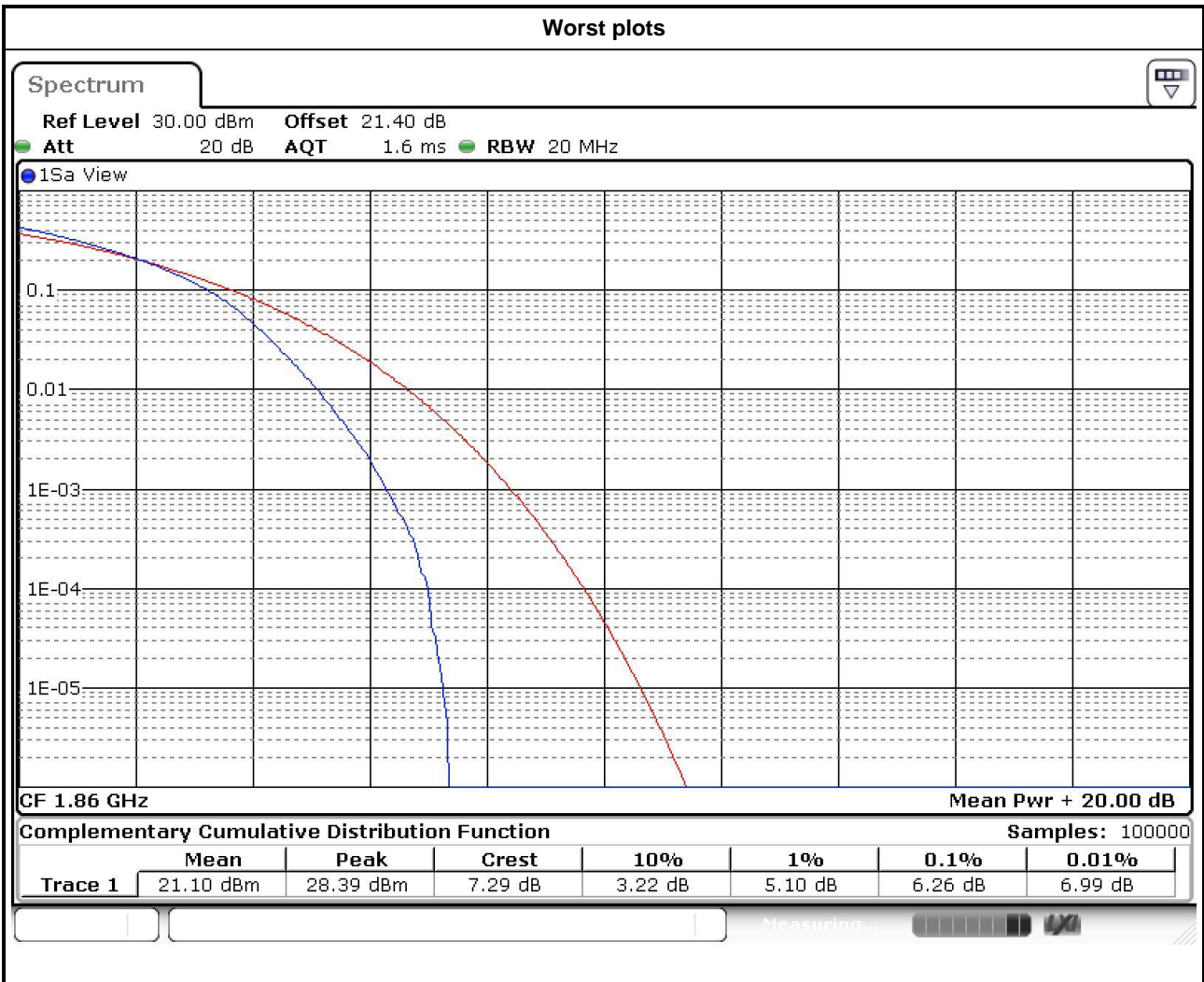
Mode	CB (MHz)	Modulation	Channel	Frequency (MHz)	Peak to Average ratio (dB)
LTE Band 2	10	QPSK	18650	1855.0	5.74
LTE Band 2	10	QPSK	18900	1880.0	5.25
LTE Band 2	10	QPSK	19150	1905.0	5.22
LTE Band 2	10	16QAM	18650	1855.0	6.55
LTE Band 2	10	16QAM	18900	1880.0	5.91
LTE Band 2	10	16QAM	19150	1905.0	5.97



Mode	CB (MHz)	Modulation	Channel	Frequency (MHz)	Peak to Average ratio (dB)
LTE Band 2	15	QPSK	18675	1857.5	5.62
LTE Band 2	15	QPSK	18900	1880.0	5.22
LTE Band 2	15	QPSK	19125	1902.5	5.22
LTE Band 2	15	16QAM	18675	1857.5	6.38
LTE Band 2	15	16QAM	18900	1880.0	5.91
LTE Band 2	15	16QAM	19125	1902.5	5.88



Mode	CB (MHz)	Modulation	Channel	Frequency (MHz)	Peak to Average ratio (dB)
LTE Band 2	20	QPSK	18700	1860.0	5.36
LTE Band 2	20	QPSK	18900	1880.0	5.16
LTE Band 2	20	QPSK	19100	1900.0	5.10
LTE Band 2	20	16QAM	18700	1860.0	6.26
LTE Band 2	20	16QAM	18900	1880.0	6.06
LTE Band 2	20	16QAM	19100	1900.0	6.09



3.7 Frequency Stability

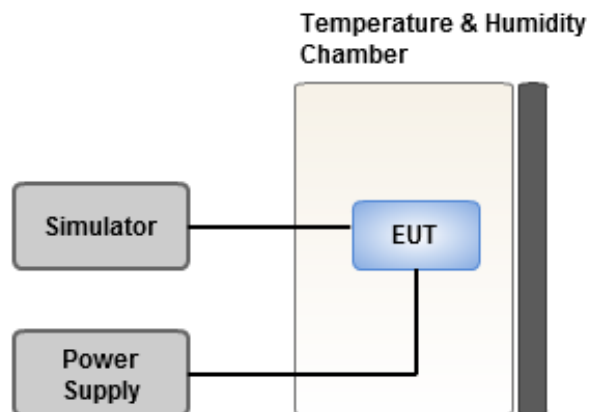
3.7.1 Limit of Frequency Stability

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 -30~55°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

Temperature (°C)	Voltage (Vdc)	Frequency Drift (ppm)					
		CB:1.4MHz	CB:3MHz	CB:5MHz	CB:10MHz	CB:15MHz	CB:20MHz
55	3.7	0.012	0.013	0.013	0.012	0.013	0.012
50	3.7	0.011	0.012	0.011	0.010	0.011	0.011
40	3.7	0.010	0.014	0.012	0.012	0.012	0.013
30	3.7	0.010	0.013	0.014	0.012	0.011	0.011
20	3.7	0.011	0.011	0.011	0.010	0.010	0.010
10	3.7	0.012	0.010	0.011	0.012	0.010	0.011
0	3.7	0.011	0.013	0.012	0.011	0.012	0.011
-10	3.7	0.009	0.012	0.012	0.011	0.011	0.012
-20	3.7	0.010	0.009	0.011	0.010	0.009	0.010
-30	3.7	0.011	0.010	0.010	0.011	0.011	0.010
20	4.5	0.012	0.012	0.013	0.012	0.012	0.011
20	3.2	0.011	0.012	0.011	0.010	0.011	0.011

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

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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.

Kwei Shan Site II

Tel: 886-3-271-8640

No. 14-1, Lane 19, 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

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Email: ICC_Service@icertifi.com.tw

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