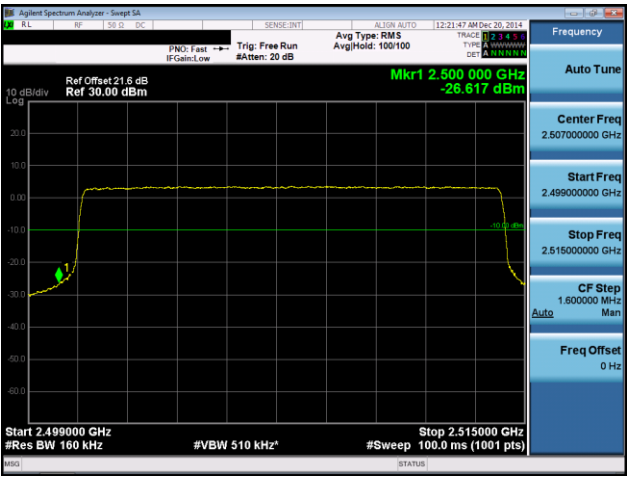
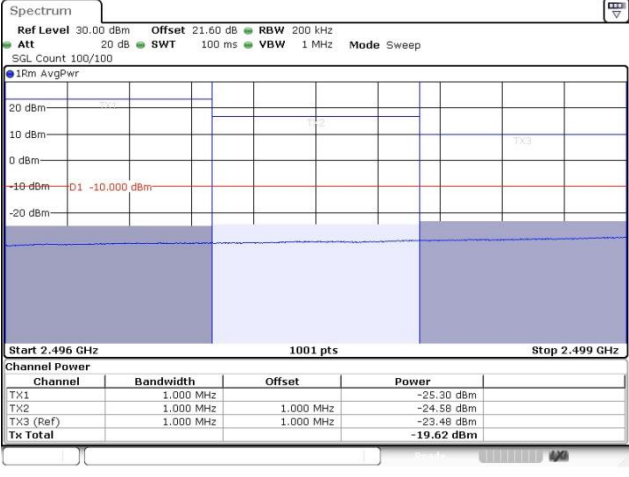
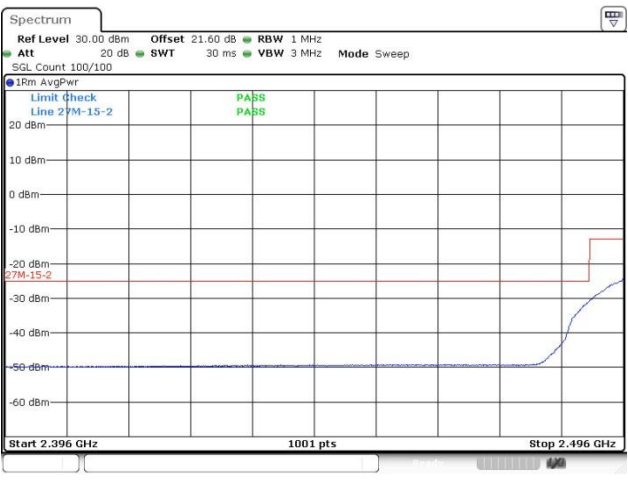
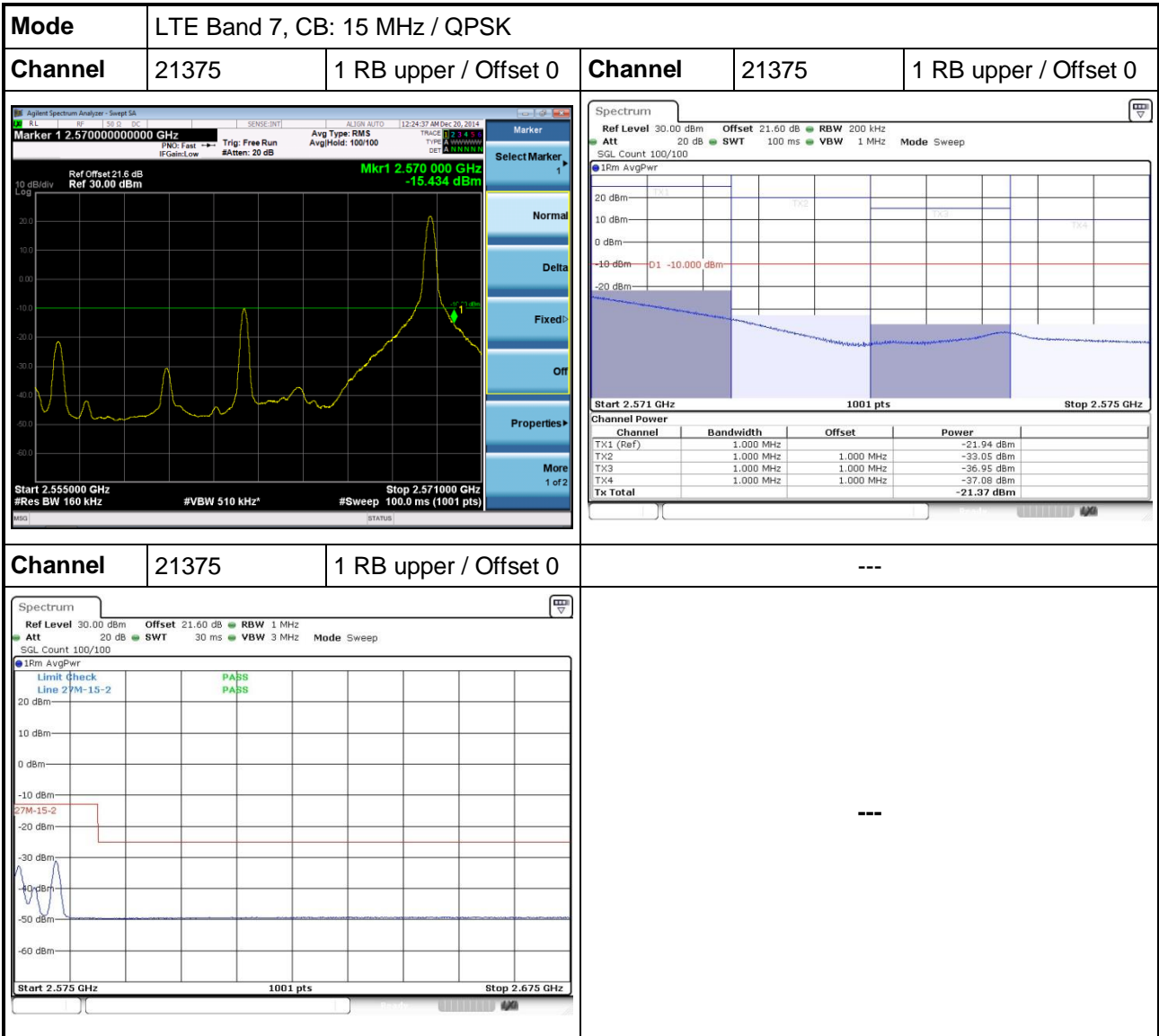
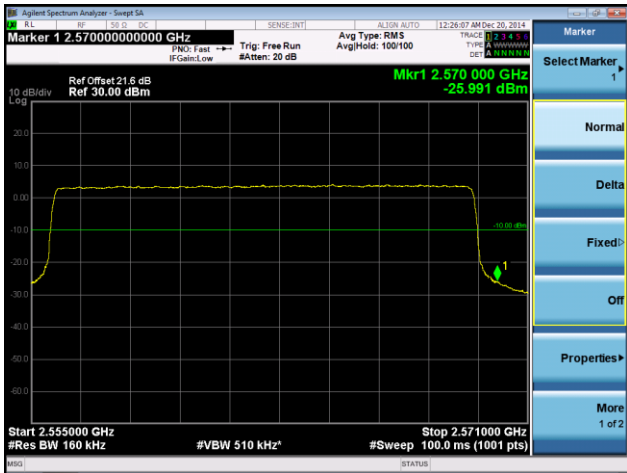


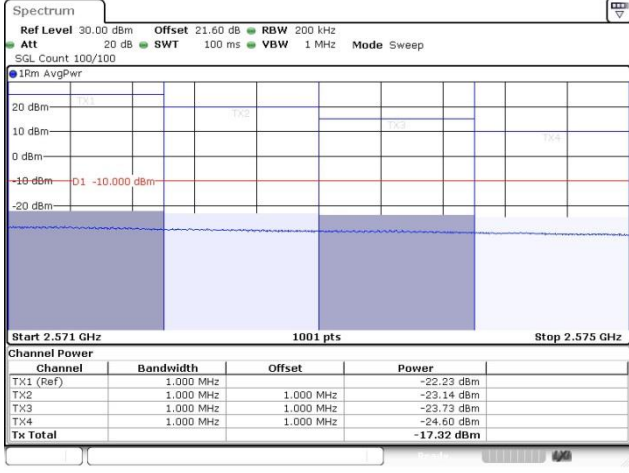
Mode		LTE Band 7, CB: 15 MHz / QPSK			
Channel		20825	100% RB / Offset 0	Channel	
		20825	100% RB / Offset 0	20825	100% RB / Offset 0
					
Channel		20825	100% RB / Offset 0	---	
			---		



Mode		LTE Band 7, CB: 15 MHz / QPSK			
Channel	21375	100% RB / Offset 0	Channel	21375	100% RB / Offset 0




Agilent Spectrum Analyzer - Sweep SA
Marker 1 2.570000000000 GHz
Ref Level 30.00 dBm
Mkr1 2.570 000 GHz
-25.991 dBm
Start 2.555000 GHz
#Res BW 160 kHz
#VBW 510 kHz
#Sweep 100.0 ms (1001 pts)



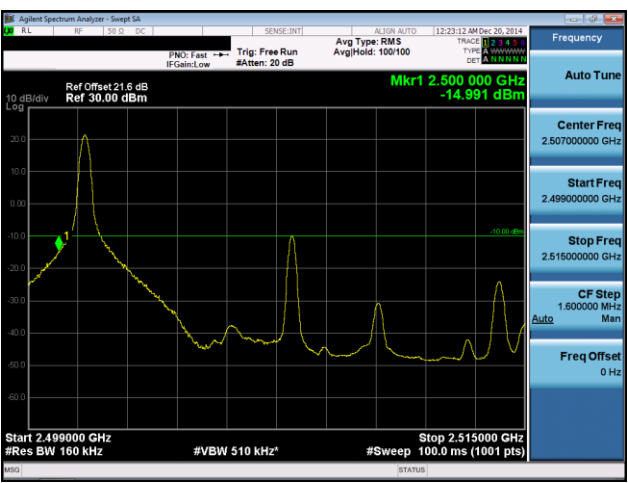
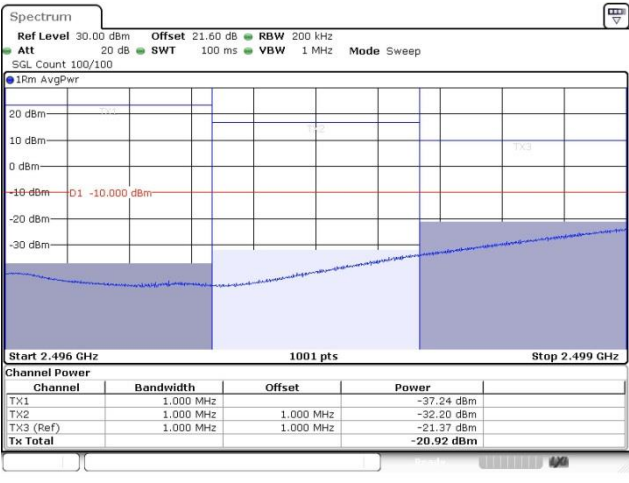
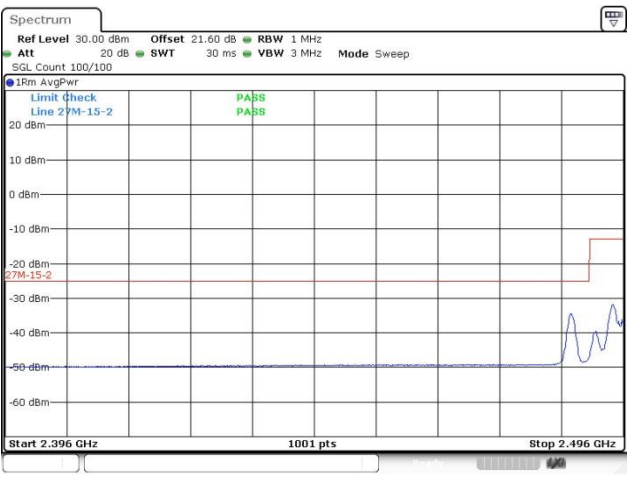
Spectrum
Ref Level 30.00 dBm Offset 21.60 dB RBW 200 kHz
Att 20 dB SWT 100 ms VBW 1 MHz Mode Sweep
SGL Count 100/100
1Rm AvgPwr
Start 2.571 GHz 1001 pts Stop 2.575 GHz
Channel Power

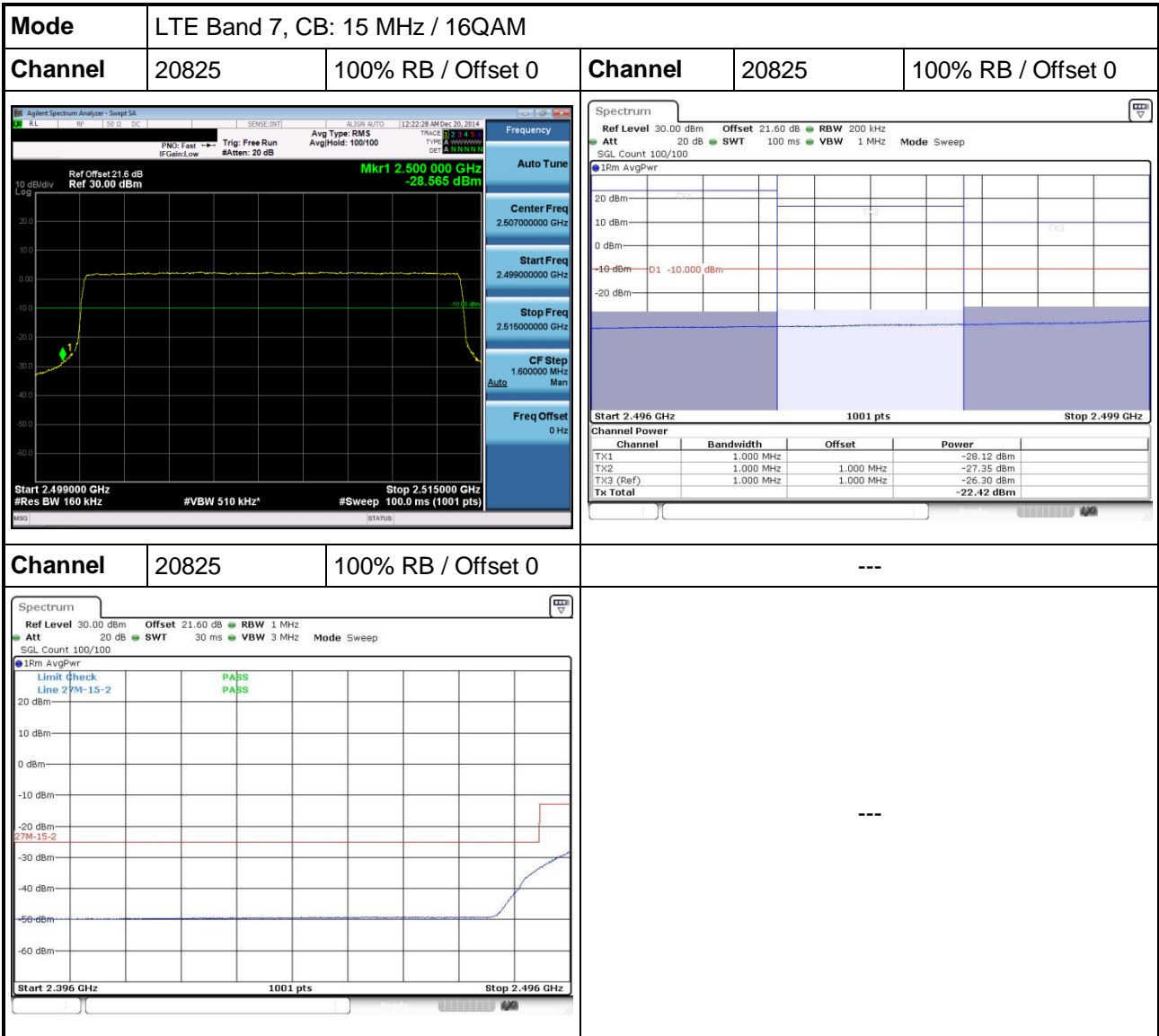
Channel	Bandwidth	Offset	Power
TX1 (Ref)	1.000 MHz		-22.23 dBm
TX2	1.000 MHz	1.000 MHz	-23.14 dBm
TX3	1.000 MHz	1.000 MHz	-23.73 dBm
TX4	1.000 MHz	1.000 MHz	-24.60 dBm
Tx Total			-17.32 dBm

Channel	21375	100% RB / Offset 0	---
----------------	-------	--------------------	-----




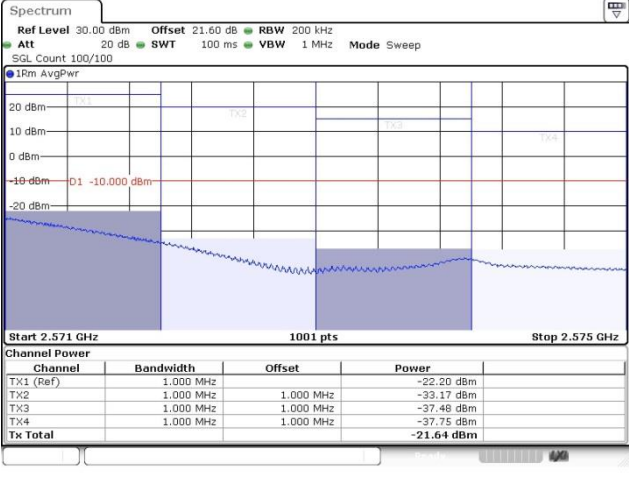
Spectrum
Ref Level 30.00 dBm Offset 21.60 dB RBW 1 MHz
Att 20 dB SWT 30 ms VBW 3 MHz Mode Sweep
SGL Count 100/100
1Rm AvgPwr
Limit (check) PASS
Line 27M-15-2 PASS
Start 2.575 GHz 1001 pts Stop 2.675 GHz

Mode		LTE Band 7, CB: 15 MHz / 16QAM				
Channel		20825	1 RB Lower / Offset 0	Channel	20825	1 RB Lower / Offset 0
						
Channel		20825	1 RB Lower / Offset 0	---		
		---				




Mode		LTE Band 7, CB: 15 MHz / 16QAM				
Channel		21375	1 RB upper / Offset 0	Channel	21375	1 RB upper / Offset 0



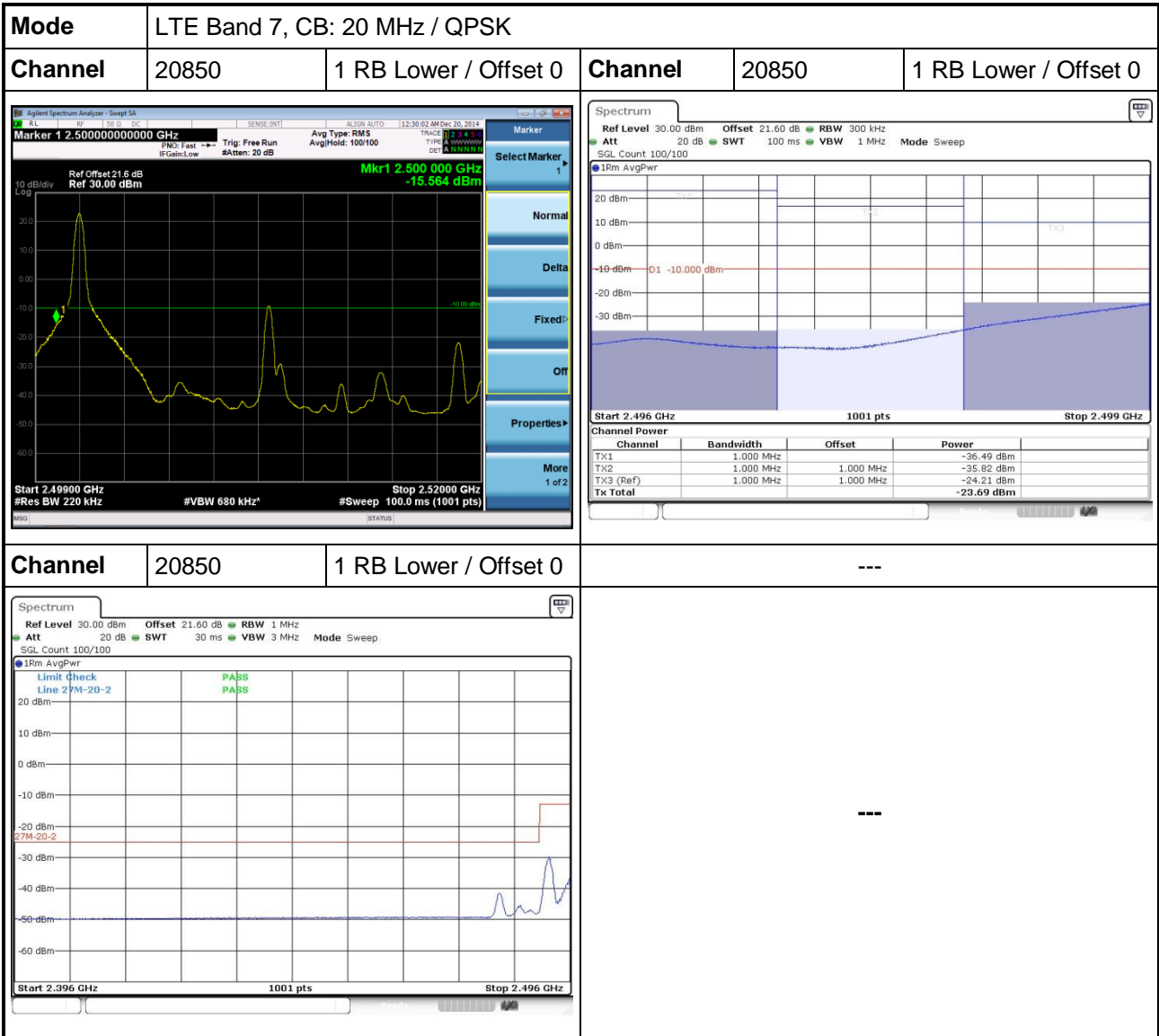


Channel	Bandwidth	Offset	Power
TX1 (Ref)	1.000 MHz		-22.20 dBm
TX2	1.000 MHz	1.000 MHz	-33.17 dBm
TX3	1.000 MHz	1.000 MHz	-37.48 dBm
TX4	1.000 MHz	1.000 MHz	-37.75 dBm
Tx Total			-21.64 dBm

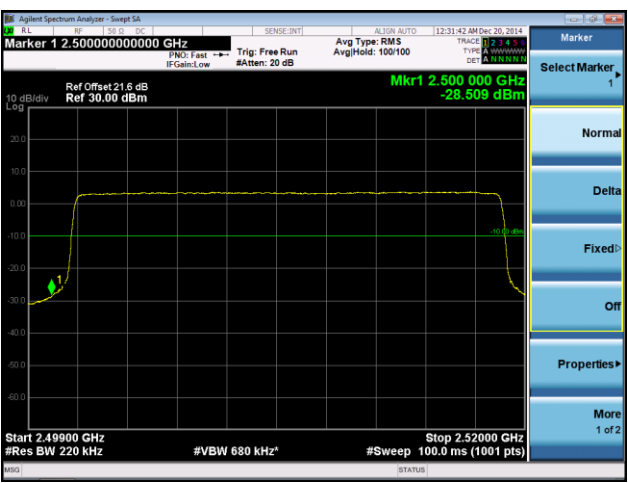
Channel		21375	1 RB upper / Offset 0	---
----------------	--	-------	-----------------------	-----



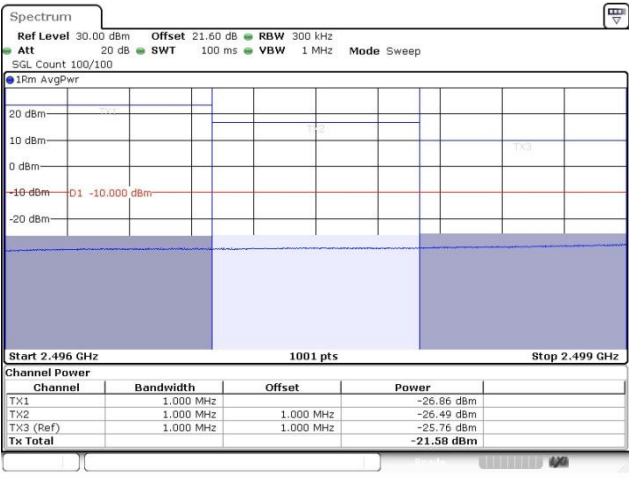




Mode		LTE Band 7, CB: 20 MHz / QPSK			
Channel	20850	100% RB / Offset 0	Channel	20850	100% RB / Offset 0



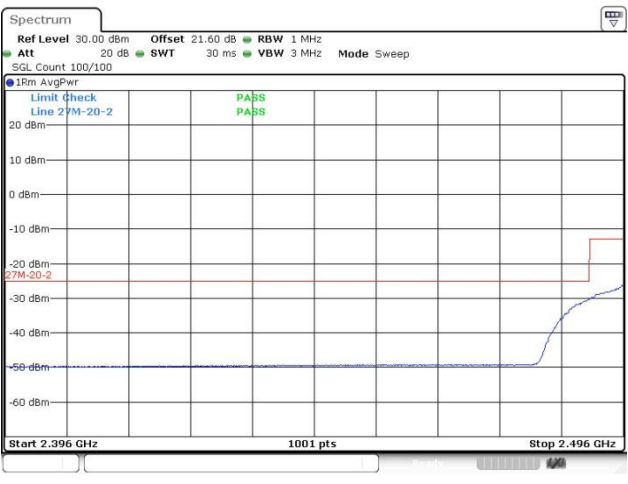
Agilent Spectrum Analyzer - Sweep SA
 Marker 1 2.500000000000 GHz
 Ref Level 30.00 dBm
 Offset 21.60 dB
 RBW 300 kHz
 Att 20 dB
 SWT 100 ms
 VBW 1 MHz
 Mode Sweep
 SGL Count 100/100
 1Rm AvgPwr
 Start 2.49900 GHz
 Stop 2.52000 GHz
 Res BW 220 kHz
 #VBW 680 kHz
 #Sweep 100.0 ms (1001 pts)




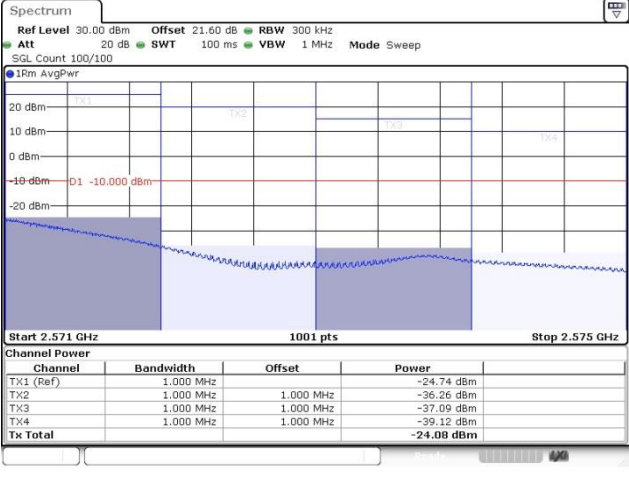
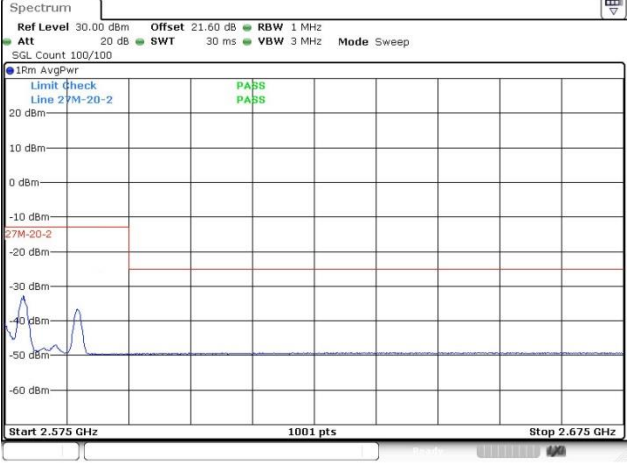
Spectrum
 Ref Level 30.00 dBm
 Offset 21.60 dB
 RBW 300 kHz
 Att 20 dB
 SWT 100 ms
 VBW 1 MHz
 Mode Sweep
 SGL Count 100/100
 1Rm AvgPwr
 Start 2.496 GHz
 Stop 2.499 GHz
 1001 pts

Channel	Bandwidth	Offset	Power
TX1	1.000 MHz		-26.86 dBm
TX2	1.000 MHz	1.000 MHz	-26.49 dBm
TX3 (Ref)	1.000 MHz	1.000 MHz	-25.76 dBm
Tx Total			-21.59 dBm

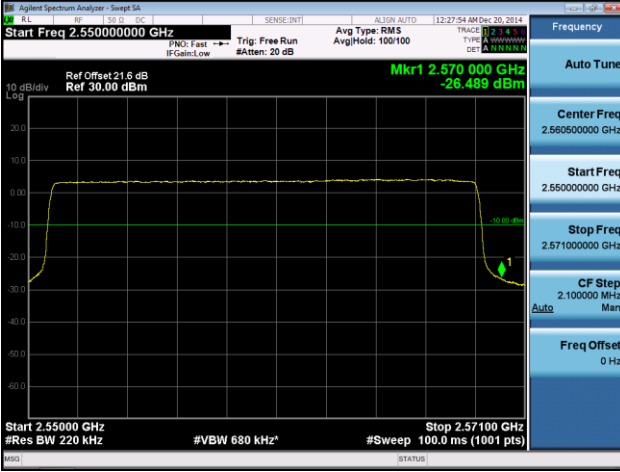
Channel	20850	100% RB / Offset 0	---
----------------	-------	--------------------	-----



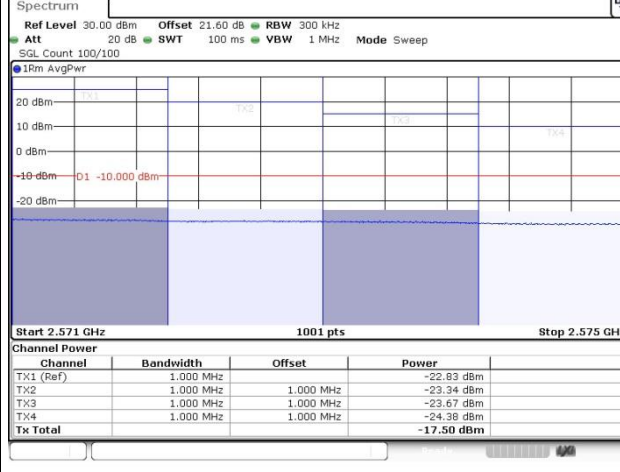
Spectrum
 Ref Level 30.00 dBm
 Offset 21.60 dB
 RBW 1 MHz
 Att 20 dB
 SWT 30 ms
 VBW 3 MHz
 Mode Sweep
 SGL Count 100/100
 1Rm AvgPwr
 Limit (check)
 Line 27M-20-2
 PASS
 PASS
 Start 2.396 GHz
 Stop 2.496 GHz
 1001 pts

Mode		LTE Band 7, CB: 20 MHz / QPSK																											
Channel		21350	1 RB upper / Offset 0	Channel	21350	1 RB upper / Offset 0																							
		 <table border="1"> <thead> <tr> <th>Channel</th> <th>Bandwidth</th> <th>Offset</th> <th>Power</th> </tr> </thead> <tbody> <tr> <td>TX1 (Ref)</td> <td>1.000 MHz</td> <td></td> <td>-24.74 dBm</td> </tr> <tr> <td>TX2</td> <td>1.000 MHz</td> <td>1.000 MHz</td> <td>-36.26 dBm</td> </tr> <tr> <td>TX3</td> <td>1.000 MHz</td> <td>1.000 MHz</td> <td>-37.09 dBm</td> </tr> <tr> <td>TX4</td> <td>1.000 MHz</td> <td>1.000 MHz</td> <td>-39.12 dBm</td> </tr> <tr> <td>Tx Total</td> <td></td> <td></td> <td>-24.09 dBm</td> </tr> </tbody> </table>				Channel	Bandwidth	Offset	Power	TX1 (Ref)	1.000 MHz		-24.74 dBm	TX2	1.000 MHz	1.000 MHz	-36.26 dBm	TX3	1.000 MHz	1.000 MHz	-37.09 dBm	TX4	1.000 MHz	1.000 MHz	-39.12 dBm	Tx Total			-24.09 dBm
Channel	Bandwidth	Offset	Power																										
TX1 (Ref)	1.000 MHz		-24.74 dBm																										
TX2	1.000 MHz	1.000 MHz	-36.26 dBm																										
TX3	1.000 MHz	1.000 MHz	-37.09 dBm																										
TX4	1.000 MHz	1.000 MHz	-39.12 dBm																										
Tx Total			-24.09 dBm																										
Channel		21350	1 RB upper / Offset 0	---																									
		---																											

Mode	LTE Band 7, CB: 20 MHz / QPSK				
Channel	21350	100% RB / Offset 0	Channel	21350	100% RB / Offset 0




Agilent Spectrum Analyzer - Sweep SA
Start Freq 2.550000000 GHz
Ref Level 30.00 dBm
Ref Offset 21.6 dB
Mkr1 2.570 000 GHz
-26.489 dBm
Center Freq 2.560500000 GHz
Start Freq 2.560000000 GHz
Stop Freq 2.571000000 GHz
CF Step 2.100000 MHz
Freq Offset 0 Hz
Start 2.550000 GHz
#Res BW 220 kHz
#VBW 680 kHz
#Sweep 100.0 ms (1001 pts)



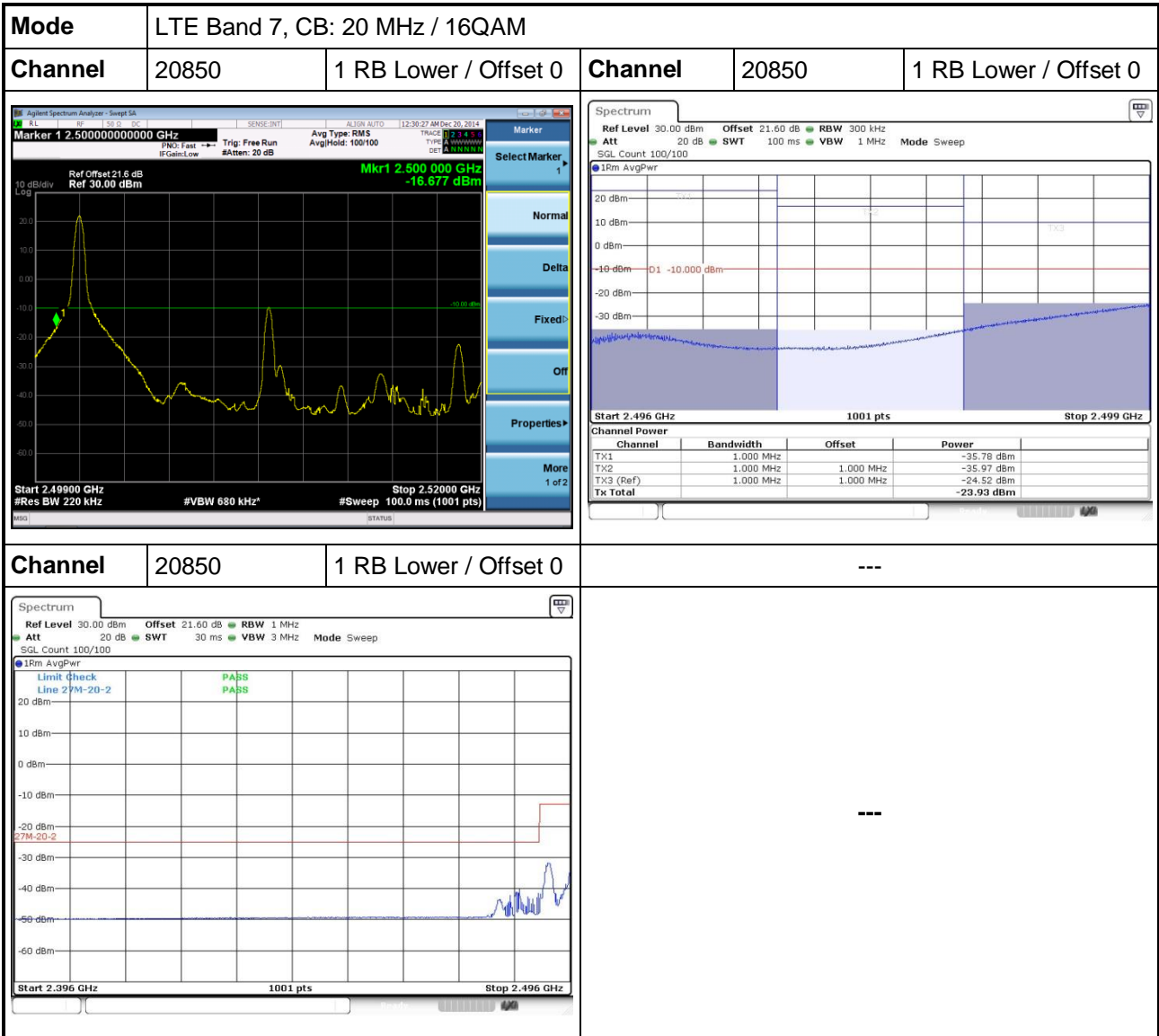
Spectrum
Ref Level 30.00 dBm
Offset 21.60 dB
RBW 300 kHz
Att 20 dB
SWT 100 ms
VBW 1 MHz
Mode Sweep
SGL Count 100/100
1Rm AvgPwr
Start 2.571 GHz
1001 pts
Stop 2.575 GHz

Channel	Bandwidth	Offset	Power
TX1 (Ref)	1.000 MHz		-22.83 dBm
TX2	1.000 MHz	1.000 MHz	-23.34 dBm
TX3	1.000 MHz	1.000 MHz	-23.67 dBm
TX4	1.000 MHz	1.000 MHz	-24.38 dBm
Tx Total			-17.50 dBm

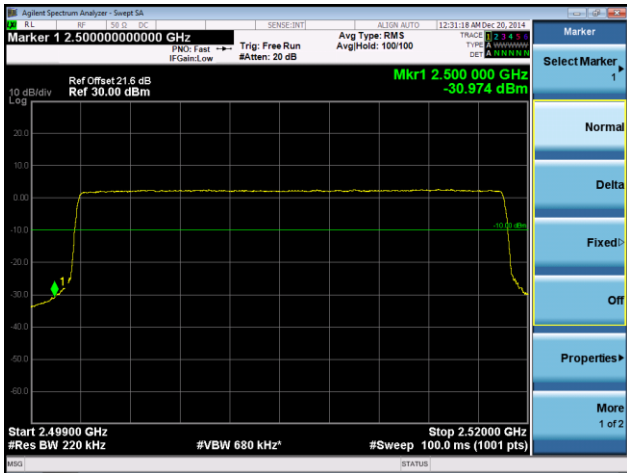
Channel	21350	100% RB / Offset 0	---
----------------	-------	--------------------	-----



Spectrum
Ref Level 30.00 dBm
Offset 21.60 dB
RBW 1 MHz
Att 20 dB
SWT 30 ms
VBW 3 MHz
Mode Sweep
SGL Count 100/100
1Rm AvgPwr
Limit (check)
Line 27M-20-2
PASS
PASS
Start 2.575 GHz
1001 pts
Stop 2.675 GHz



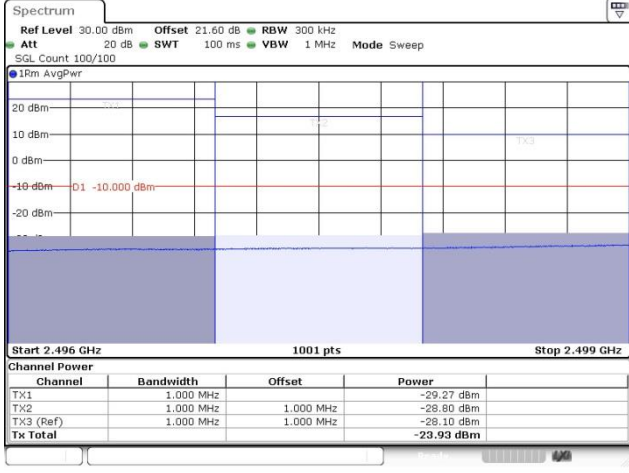
Mode		LTE Band 7, CB: 20 MHz / 16QAM			
Channel	20850	100% RB / Offset 0	Channel	20850	100% RB / Offset 0



Agilent Spectrum Analyzer - Sweep SA
Marker 1 2.500000000000 GHz
Ref Level 30.00 dBm
Offset 21.60 dB
RBW 300 kHz
Att 20 dB
SWT 100 ms
VBW 1 MHz
Mode Sweep
SGL Count 100/100
1Rm AvgPwr

Mkr1 2.500 000 GHz
-30.974 dBm

Start 2.49900 GHz
#Res BW 220 kHz
#VBW 680 kHz
#Sweep 100.0 ms (1001 pts)




Spectrum
Ref Level 30.00 dBm
Offset 21.60 dB
RBW 300 kHz
Att 20 dB
SWT 100 ms
VBW 1 MHz
Mode Sweep
SGL Count 100/100
1Rm AvgPwr

Start 2.496 GHz
1001 pts
Stop 2.499 GHz

Channel	Bandwidth	Offset	Power
TX1	1.000 MHz		-29.27 dBm
TX2	1.000 MHz	1.000 MHz	-28.80 dBm
TX3 (Ref)	1.000 MHz	1.000 MHz	-28.10 dBm
Tx Total			-23.93 dBm

Channel	20850	100% RB / Offset 0	---
----------------	-------	--------------------	-----




Spectrum
Ref Level 30.00 dBm
Offset 21.60 dB
RBW 1 MHz
Att 20 dB
SWT 30 ms
VBW 3 MHz
Mode Sweep
SGL Count 100/100
1Rm AvgPwr

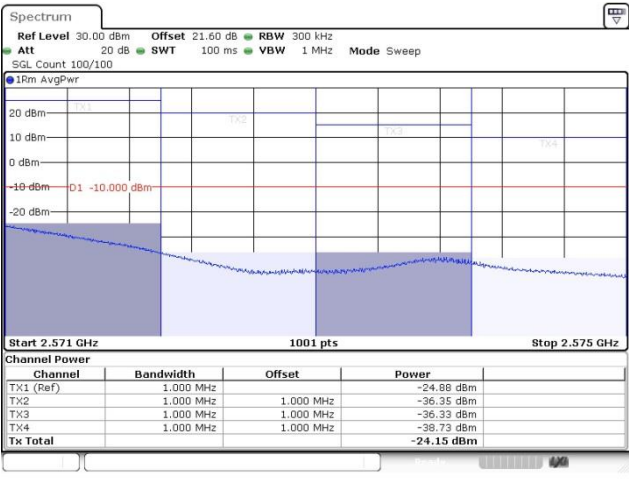
Limit (check)
Line 27M-20-2
PASS
PASS

Start 2.396 GHz
1001 pts
Stop 2.496 GHz

Mode		LTE Band 7, CB: 20 MHz / 16QAM				
Channel		21350	1 RB upper / Offset 0	Channel	21350	1 RB upper / Offset 0



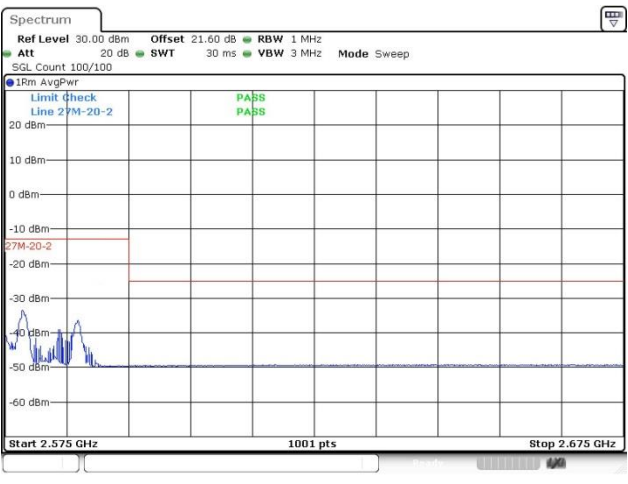
Agilent Spectrum Analyzer - Sweep SA
Start Freq 2.550000000 GHz
Ref Offset 21.6 dB
Ref 30.00 dBm
Mkr1 2.570 000 GHz
-16.884 dBm
Center Freq 2.560500000 GHz
Start Freq 2.560000000 GHz
Stop Freq 2.571000000 GHz
CF Step 2.100000 MHz
Freq Offset 0 Hz
Start 2.550000 GHz
#Res BW 220 kHz
#VBW 680 kHz
#Sweep 100.0 ms (1001 pts)



Spectrum
Ref Level 30.00 dBm
Offset 21.60 dB
RBW 300 kHz
Att 20 dB
SWT 100 ms
VBW 1 MHz
Mode Sweep
SGL Count 100/100
1Rm AvgPwr
Start 2.571 GHz
1001 pts
Stop 2.575 GHz
Channel Power

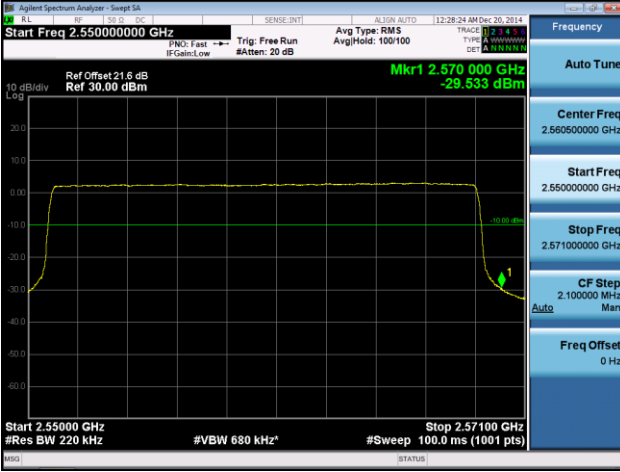
Channel	Bandwidth	Offset	Power
TX1 (Ref)	1.000 MHz		-24.88 dBm
TX2	1.000 MHz	1.000 MHz	-36.35 dBm
TX3	1.000 MHz	1.000 MHz	-36.33 dBm
TX4	1.000 MHz	1.000 MHz	-38.73 dBm
Tx Total			-24.15 dBm

Channel	21350	1 RB upper / Offset 0	---	
----------------	-------	-----------------------	-----	--



Spectrum
Ref Level 30.00 dBm
Offset 21.60 dB
RBW 1 MHz
Att 20 dB
SWT 30 ms
VBW 3 MHz
Mode Sweep
SGL Count 100/100
1Rm AvgPwr
Limit (check)
Line 27M-20-2
PASS
PASS
Start 2.575 GHz
1001 pts
Stop 2.675 GHz

Mode		LTE Band 7, CB: 20 MHz / 16QAM			
Channel	21350	100% RB / Offset 0	Channel	21350	100% RB / Offset 0




Agilent Spectrum Analyzer - Sweep SA
Start Freq 2.550000000 GHz
Ref Level 30.00 dBm
Ref Offset 21.6 dB
Mkr1 2.570 000 GHz
-29.533 dBm
Center Freq 2.560500000 GHz
Start Freq 2.560000000 GHz
Stop Freq 2.571000000 GHz
CF Step 2.100000 MHz
Freq Offset 0 Hz
Start 2.550000 GHz
#Res BW 220 kHz
#VBW 680 kHz
#Sweep 100.0 ms (1001 pts)



Spectrum
Ref Level 30.00 dBm
Offset 21.60 dB
RBW 300 kHz
Att 20 dB
SWT 100 ms
VBW 1 MHz
Mode Sweep
SGL Count 100/100
1Rm AvgPwr
Start 2.571 GHz
1001 pts
Stop 2.575 GHz

Channel	Bandwidth	Offset	Power
TX1 (Ref)	1.000 MHz		-27.02 dBm
TX2	1.000 MHz	1.000 MHz	-27.58 dBm
TX3	1.000 MHz	1.000 MHz	-27.97 dBm
TX4	1.000 MHz	1.000 MHz	-28.55 dBm
Tx Total			-21.72 dBm

Channel	21350	100% RB / Offset 0	---
----------------	-------	--------------------	-----



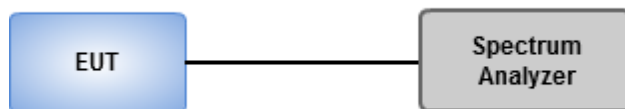
Spectrum
Ref Level 30.00 dBm
Offset 21.60 dB
RBW 1 MHz
Att 20 dB
SWT 30 ms
VBW 3 MHz
Mode Sweep
SGL Count 100/100
1Rm AvgPwr
Limit (check)
Line 27M-20-2
PASS
PASS
Start 2.575 GHz
1001 pts
Stop 2.675 GHz

3.5 Occupied and 26 dB Bandwidth

3.5.1 Test Procedures

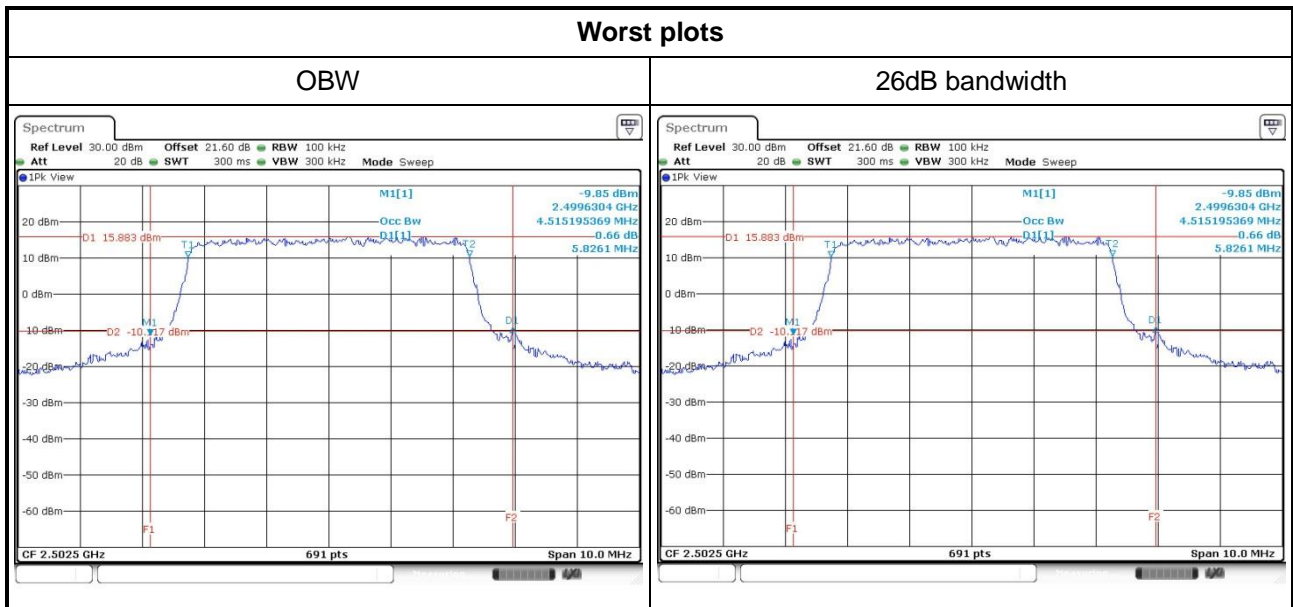
1. Set RBW = 100 / 200 / 200 / 300 kHz, VBW = 300 / 1000 / 1000 / 1000 kHz for channel bandwidth 5 / 10 / 15 / 20 MHz.
2. Set Detector = Peak, Trace mode = max hold, Sweep = auto couple, Allow the trace to stabilize.
3. Using occupied bandwidth measurement function of spectrum analyzer to measure occupied bandwidth.
4. 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

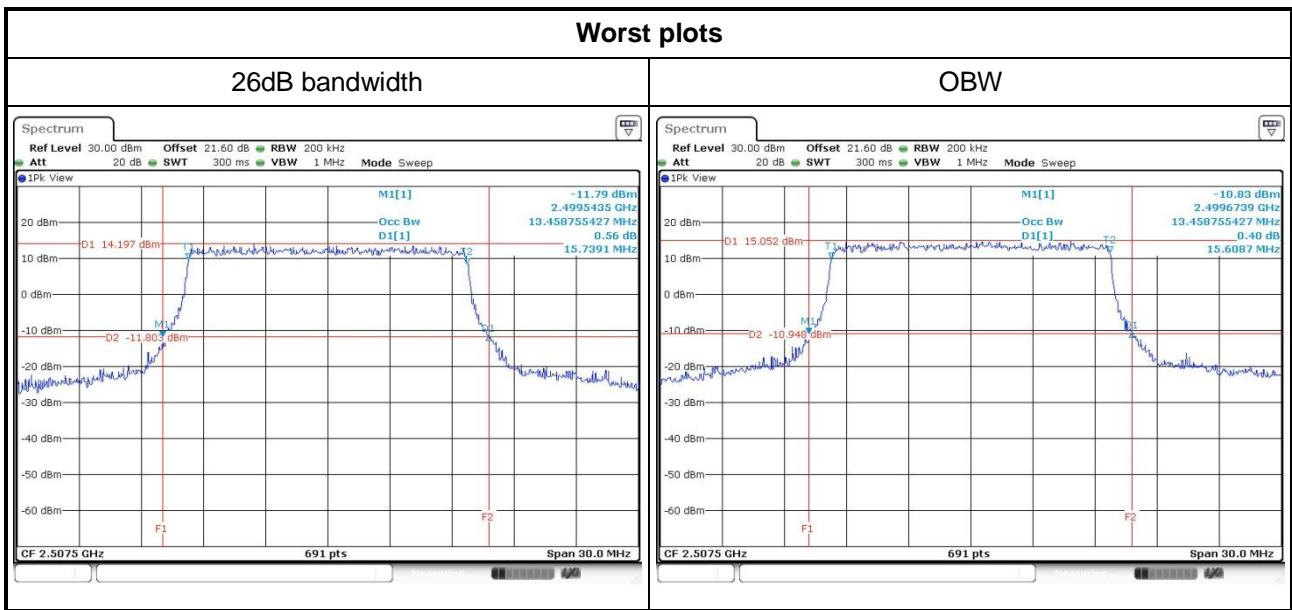
Channel Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
5	QPSK	20775	2502.5	5.8261	4.52
5	QPSK	21100	2535	5.3913	4.52
5	QPSK	21425	2567.5	5.4203	4.50
5	16QAM	20775	2502.5	5.4058	4.50
5	16QAM	21100	2535	5.1594	4.50
5	16QAM	21425	2567.5	5.2754	4.50



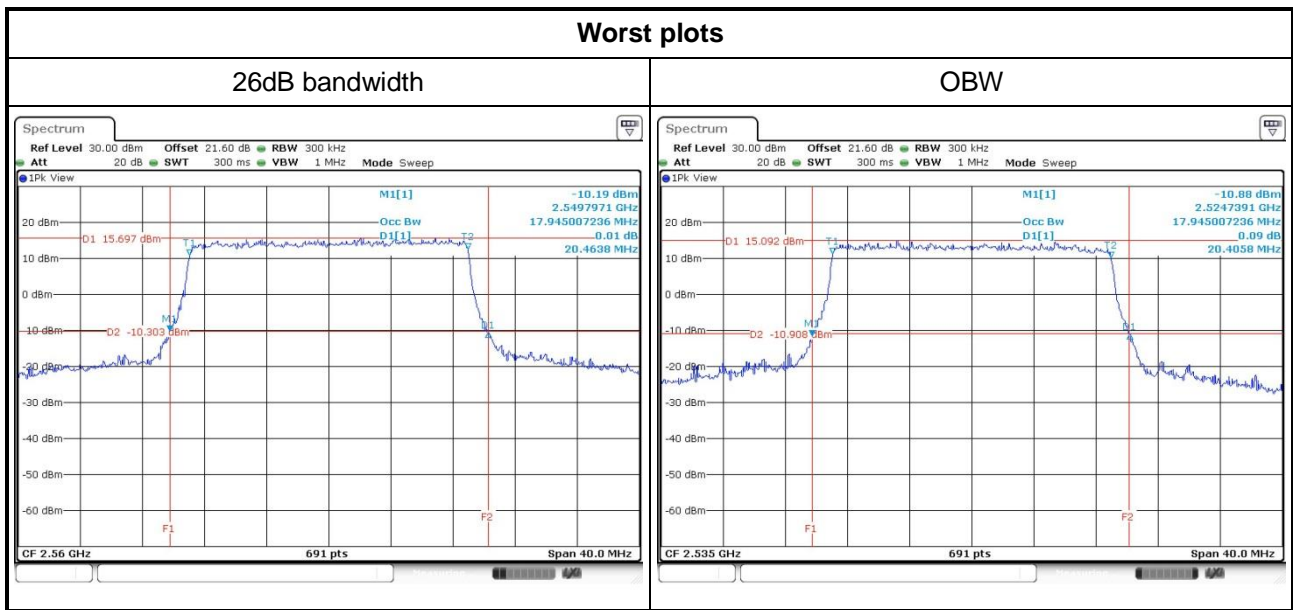
Channel Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
10	QPSK	20800	2505	10.3478	9.03
10	QPSK	21100	2535	10.3478	9.03
10	QPSK	21400	2565	10.3768	9.03
10	16QAM	20800	2505	10.1739	8.97
10	16QAM	21100	2535	10.4058	8.97
10	16QAM	21400	2565	10.2319	8.97



Channel Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
15	QPSK	20825	2507.5	15.6087	13.46
15	QPSK	21100	2535	15.3478	13.46
15	QPSK	21375	2562.5	15.4348	13.46
15	16QAM	20825	2507.5	15.7391	13.46
15	16QAM	21100	2535	15.6957	13.42
15	16QAM	21375	2562.5	15.6087	13.46



Channel Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	26dB BW (MHz)	99% OBW (MHz)
20	QPSK	20850	2510	20.2319	17.95
20	QPSK	21100	2535	20.2899	17.95
20	QPSK	21350	2560	20.4638	17.95
20	16QAM	20850	2510	20.3478	17.95
20	16QAM	21100	2535	20.4058	17.95
20	16QAM	21350	2560	20.2899	17.95



3.6 Frequency Stability

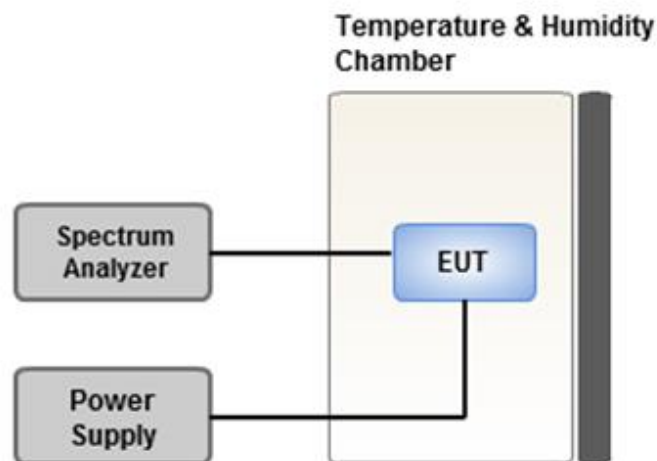
3.6.1 Limit of Frequency Stability

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation

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 -30~55°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.

3.6.3 Test Setup



3.6.4 Test Result of Frequency Stability

LTE Band 7, CB: 5MHz			
Temperature (°C)	Voltage (Vac)	Frequency Drift (ppm)	Limit (ppm)
55	7.4	0.008	2.5
50	7.4	0.009	2.5
40	7.4	0.008	2.5
30	7.4	0.006	2.5
20	7.4	0.007	2.5
10	7.4	0.007	2.5
0	7.4	0.006	2.5
-10	7.4	0.005	2.5
-20	7.4	0.007	2.5
-30	7.4	0.006	2.5
20	8.14	0.007	2.5
20	6.66	0.007	2.5

LTE Band 7, CB: 10MHz			
Temperature (°C)	Voltage (Vac)	Frequency Drift (ppm)	Limit (ppm)
55	7.4	0.010	2.5
50	7.4	0.009	2.5
40	7.4	0.010	2.5
30	7.4	0.009	2.5
20	7.4	0.008	2.5
10	7.4	0.007	2.5
0	7.4	0.008	2.5
-10	7.4	0.007	2.5
-20	7.4	0.006	2.5
-30	7.4	0.007	2.5
20	8.14	0.009	2.5
20	6.66	0.007	2.5

LTE Band 7, CB: 15MHz			
Temperature (°C)	Voltage (Vac)	Frequency Drift (ppm)	Limit (ppm)
55	7.4	0.007	2.5
50	7.4	0.009	2.5
40	7.4	0.009	2.5
30	7.4	0.008	2.5
20	7.4	0.008	2.5
10	7.4	0.006	2.5
0	7.4	0.007	2.5
-10	7.4	0.007	2.5
-20	7.4	0.008	2.5
-30	7.4	0.007	2.5
20	8.14	0.009	2.5
20	6.66	0.008	2.5

LTE Band 7, CB: 20MHz			
Temperature (°C)	Voltage (Vac)	Frequency Drift (ppm)	Limit (ppm)
55	7.4	0.009	2.5
50	7.4	0.010	2.5
40	7.4	0.009	2.5
30	7.4	0.008	2.5
20	7.4	0.009	2.5
10	7.4	0.009	2.5
0	7.4	0.010	2.5
-10	7.4	0.011	2.5
-20	7.4	0.009	2.5
-30	7.4	0.009	2.5
20	8.14	0.010	2.5
20	6.66	0.008	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>.

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.

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

Fax: 886-3-318-0155

Email: ICC_Service@icertifi.com.tw

==END==