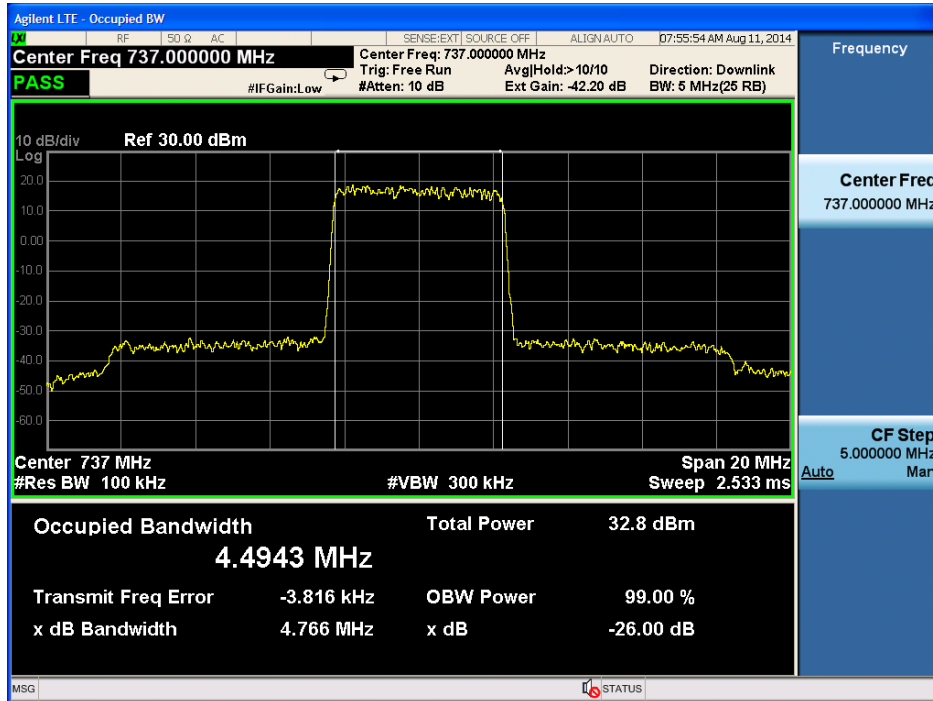
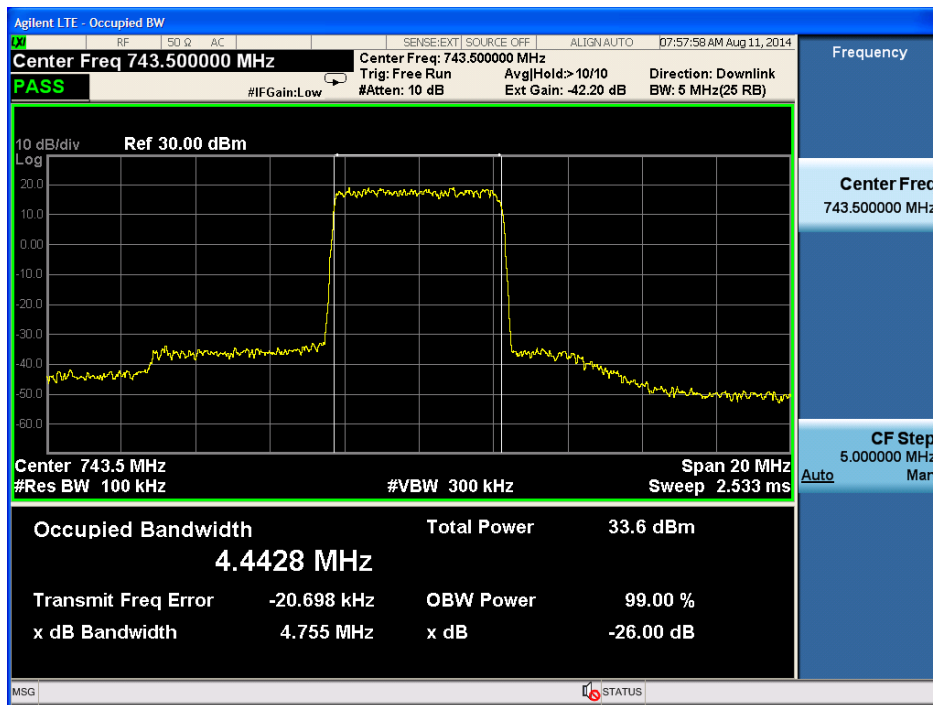




1.5 middle frequency



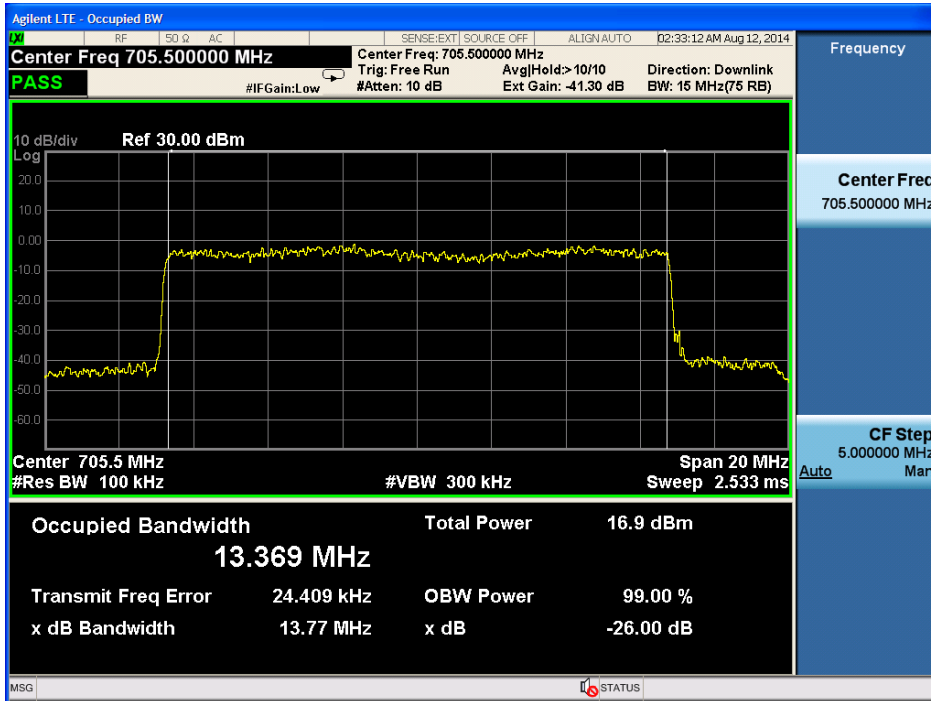
1.6 highest frequency



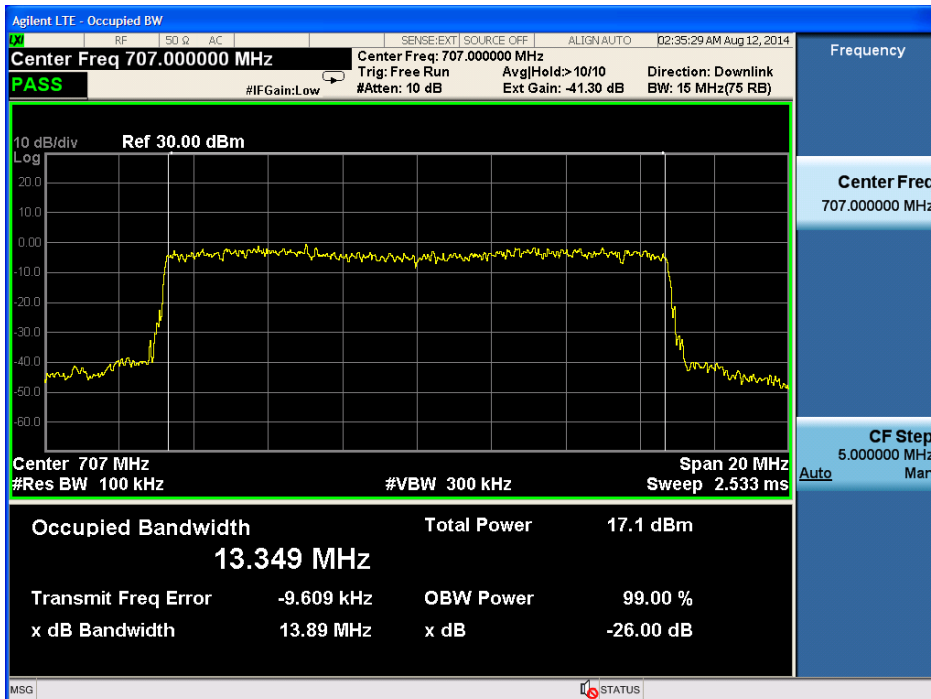


2) Uplink:698MHz to 716MHz(LTE mode)

1.1 lowest frequency(15M modulation)

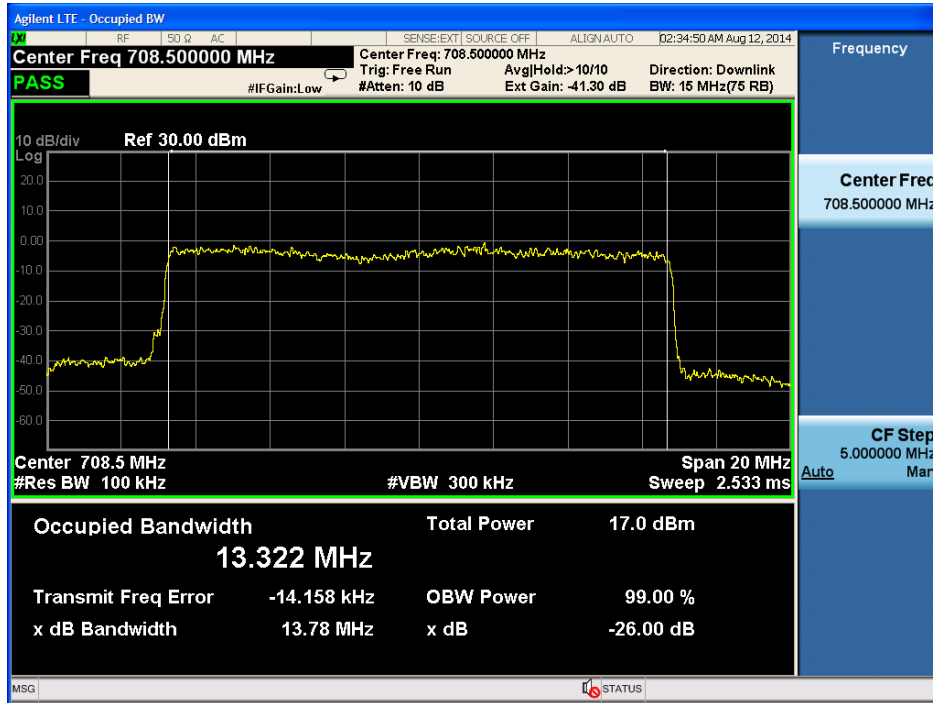


1.2 middle frequency

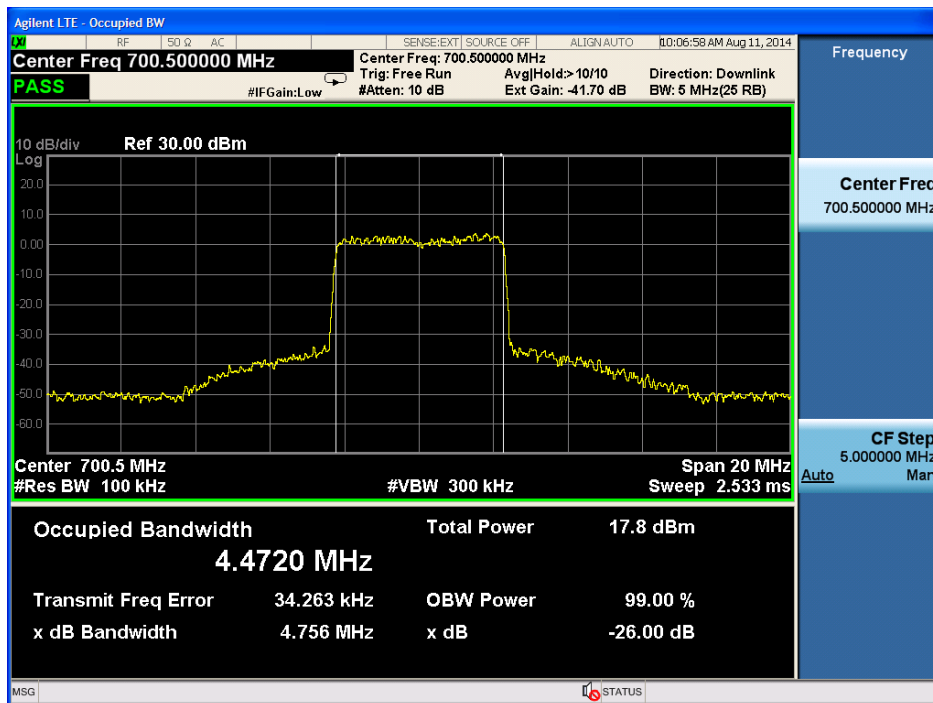




1.3 highest frequency

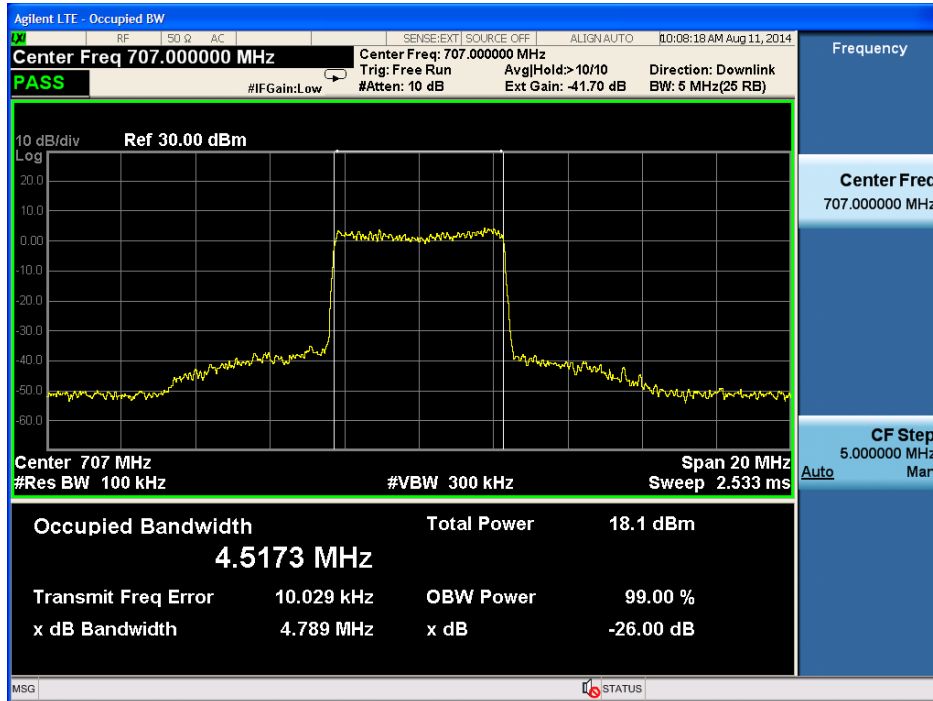


1.4 lowest frequency (5M modulation)

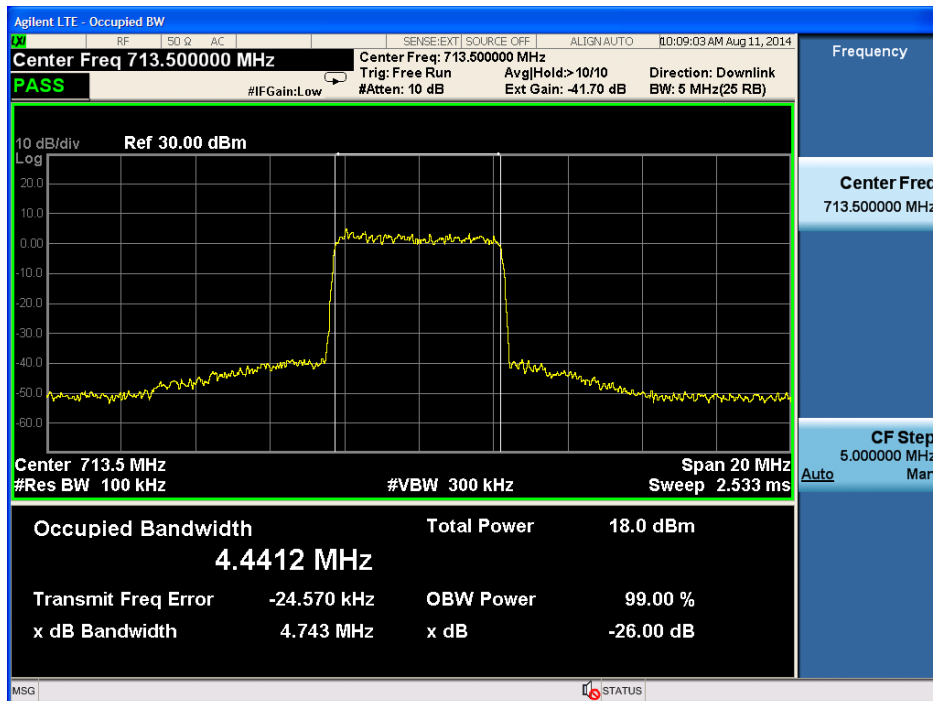




1.5 middle frequency



1.6 highest frequency

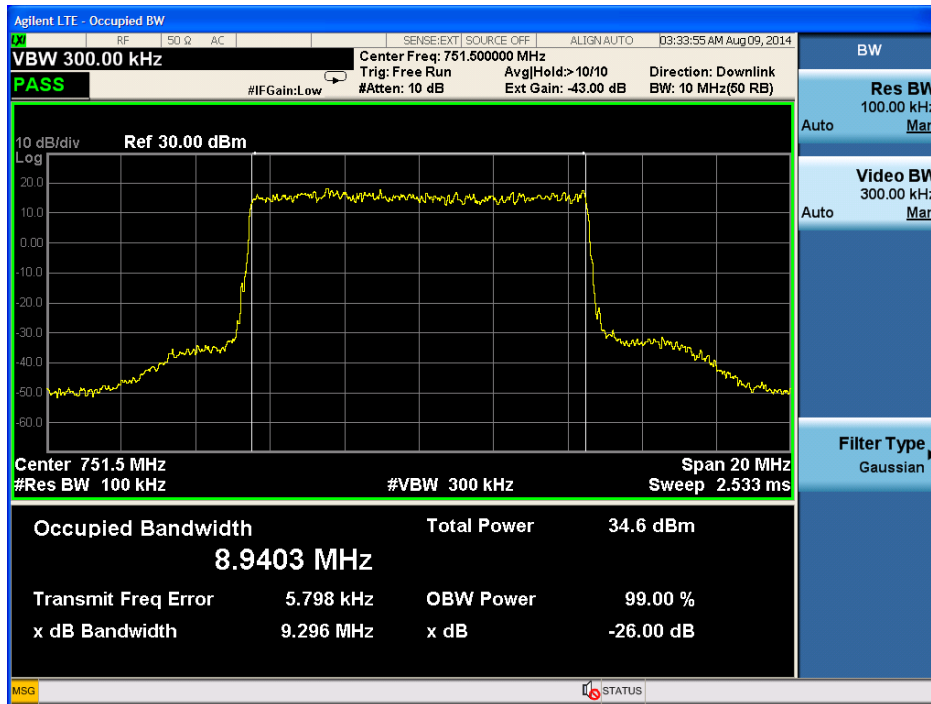


3) Downlink: 746MHz to 757MHz (LTE mode)

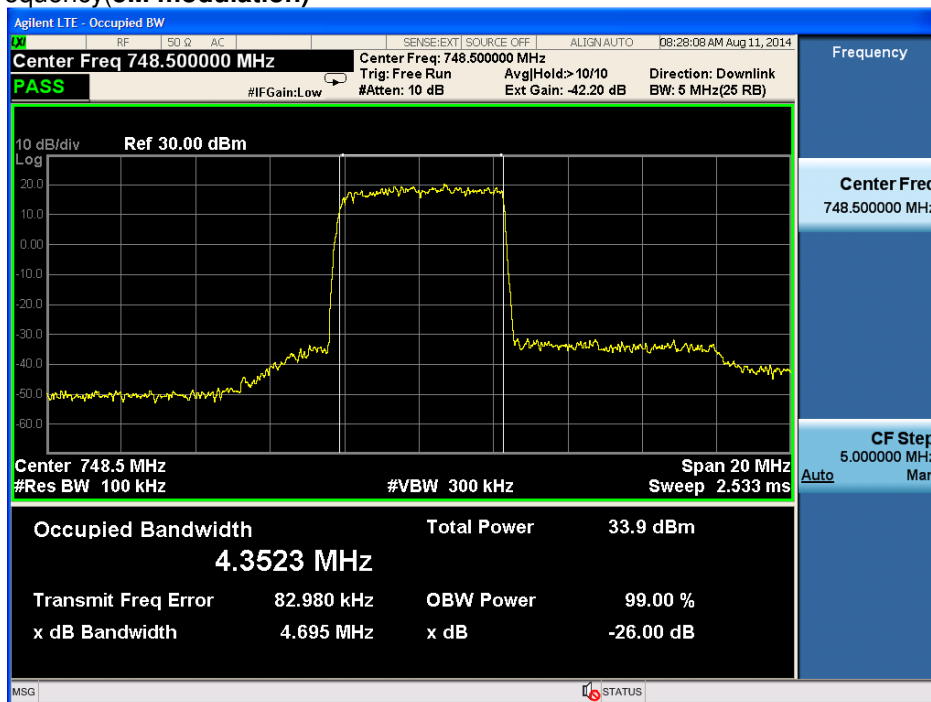
Remark:

Pretest the EUT with Maximum Rated Output Power (27dBm, 30dBm, 33dBm), finally find the worst case as the EUT with Maximum Rated Output power (33dBm).

1.1 middle frequency (10M modulation)

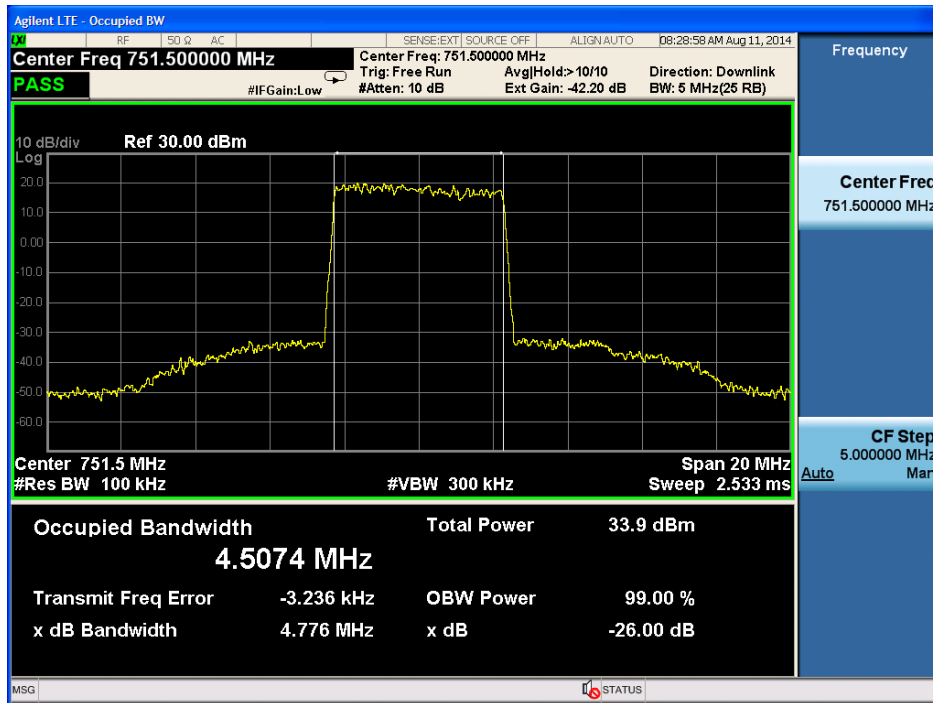


1.2 lowest frequency (5M modulation)

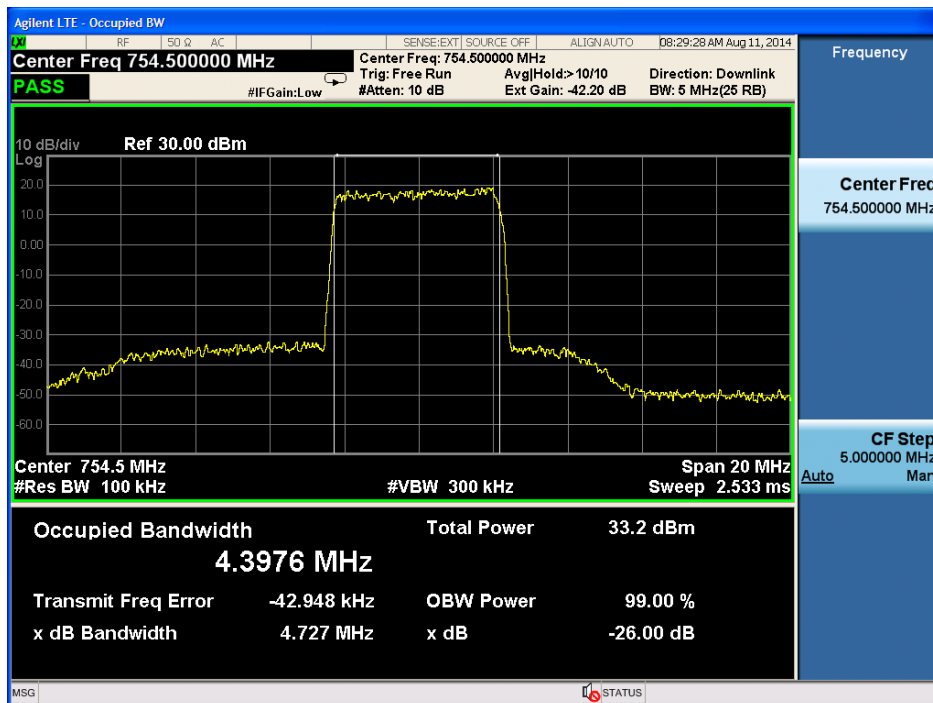




1.3 middle frequency



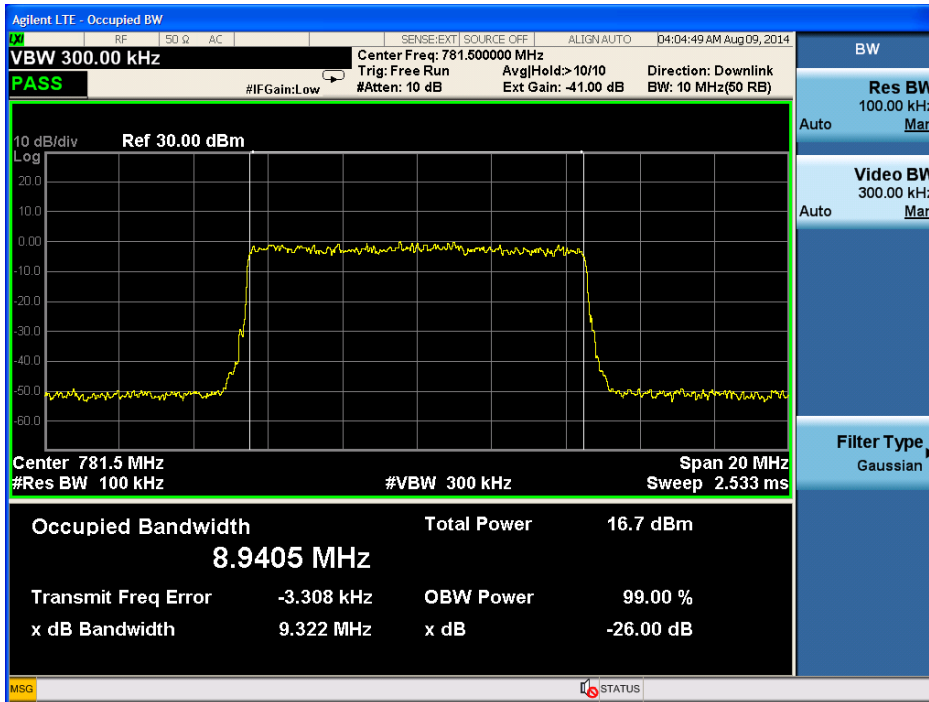
1.4 highest frequency



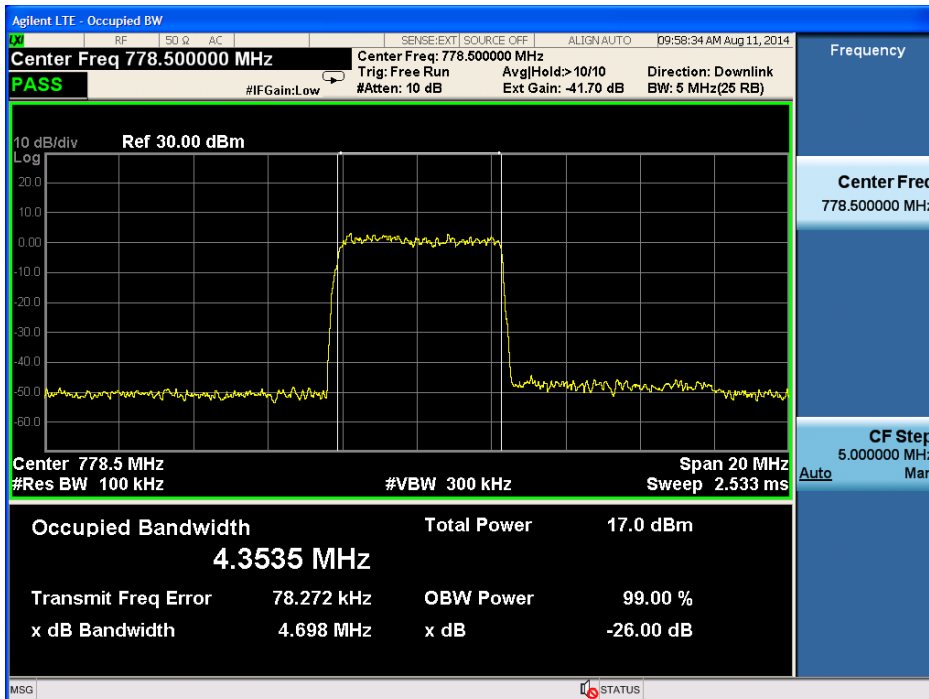


4) Uplink::776MHz to 787MHz(LTE mode)

1.1 middle frequency(10M modulation)

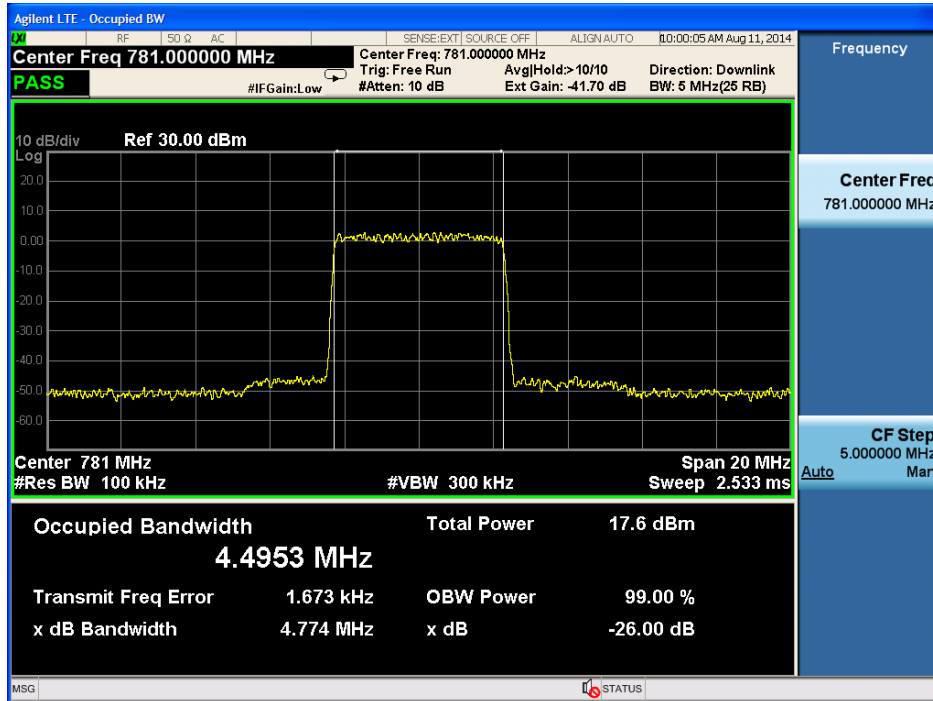


1.2 lowest frequency(5M modulation)

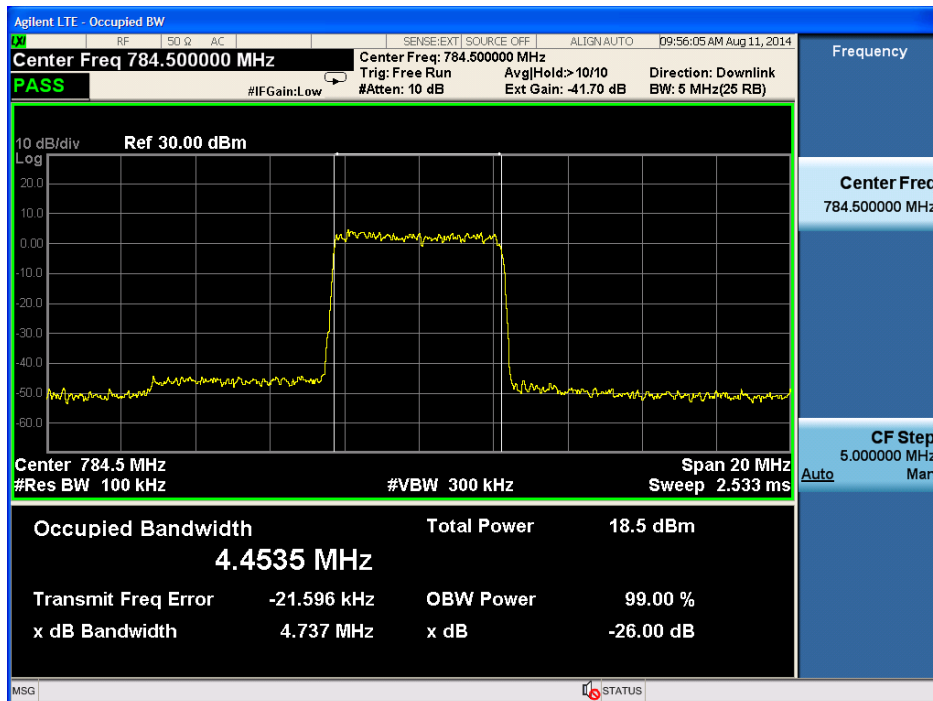




1.3 middle frequency



1.4 highest frequency



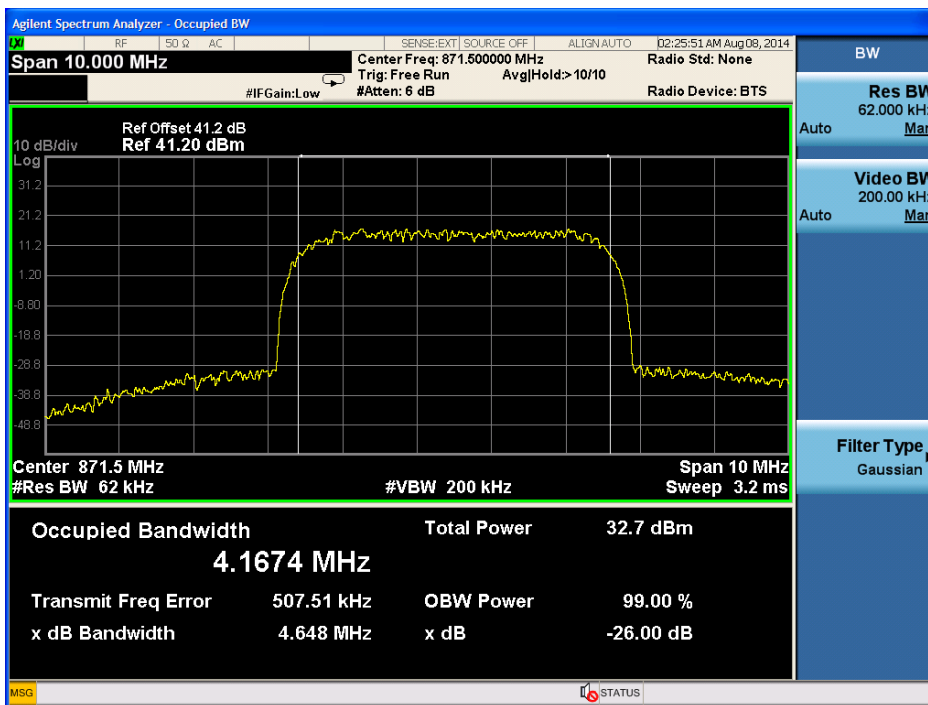
5) Downlink: 869MHz to 894MHz(WCDMA,LTE)

Remark:

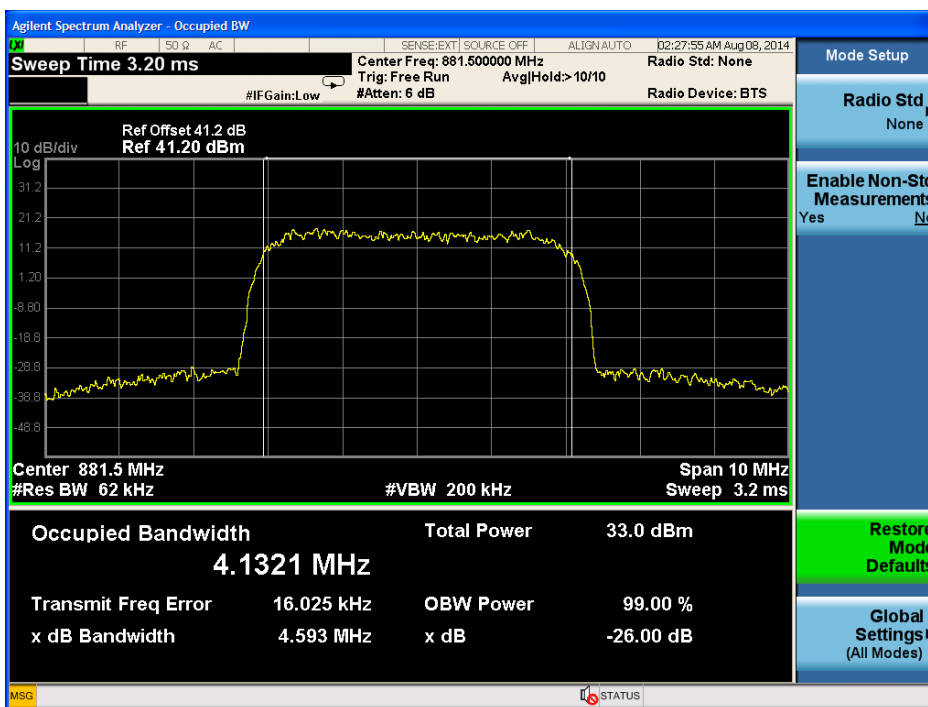
Pretest the EUT with Maximum Rated Output Power(27dBm,30dBm,33dBm),finally find the worst case as the EUT with Maximum Rated Output power(33dBm).

1.wcdma mode

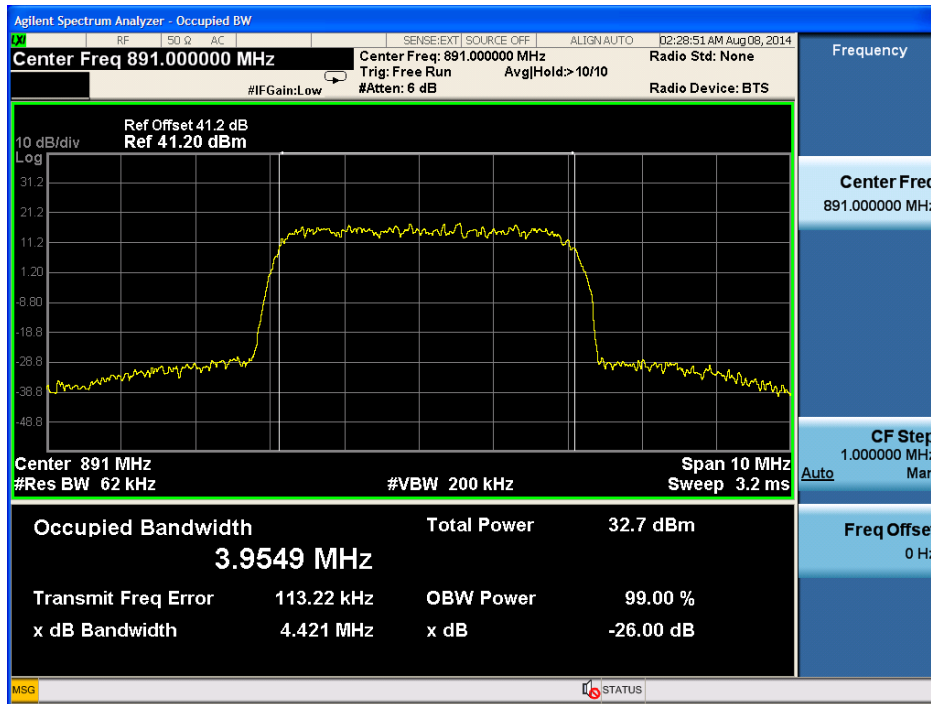
1.1. lowest frequency



1.2 middle frequency

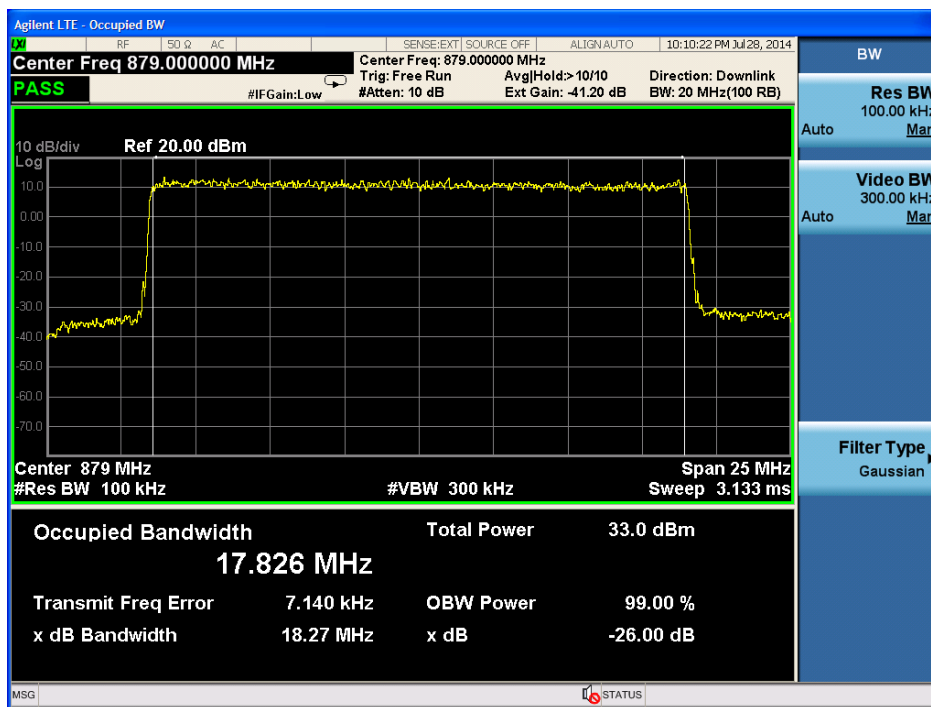


1.3 highest frequency



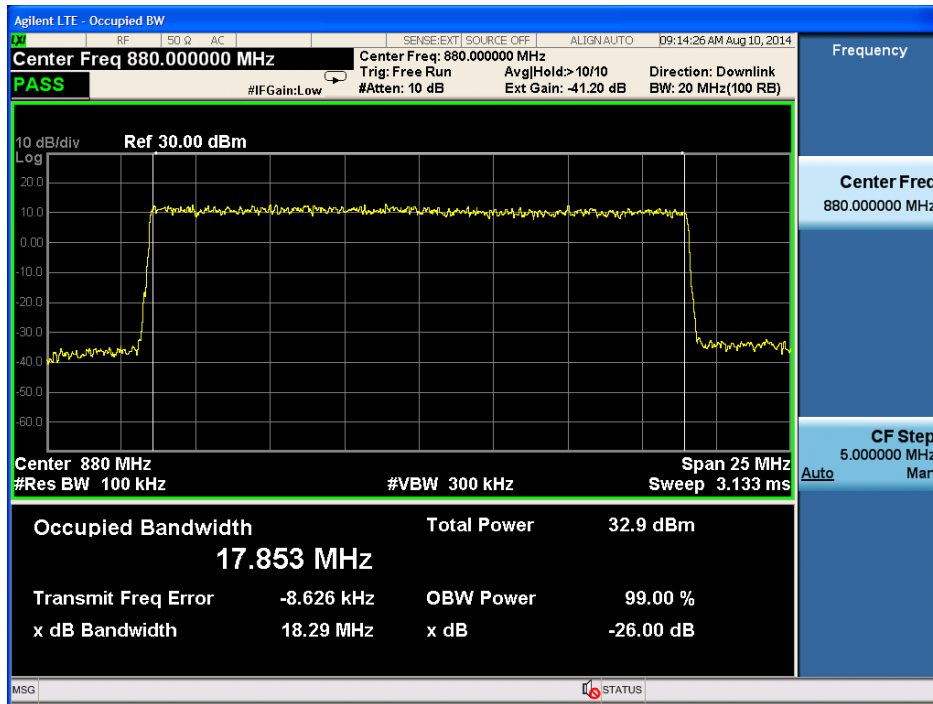
2、LTE mode

2.1 lowest frequency(20M modulation)

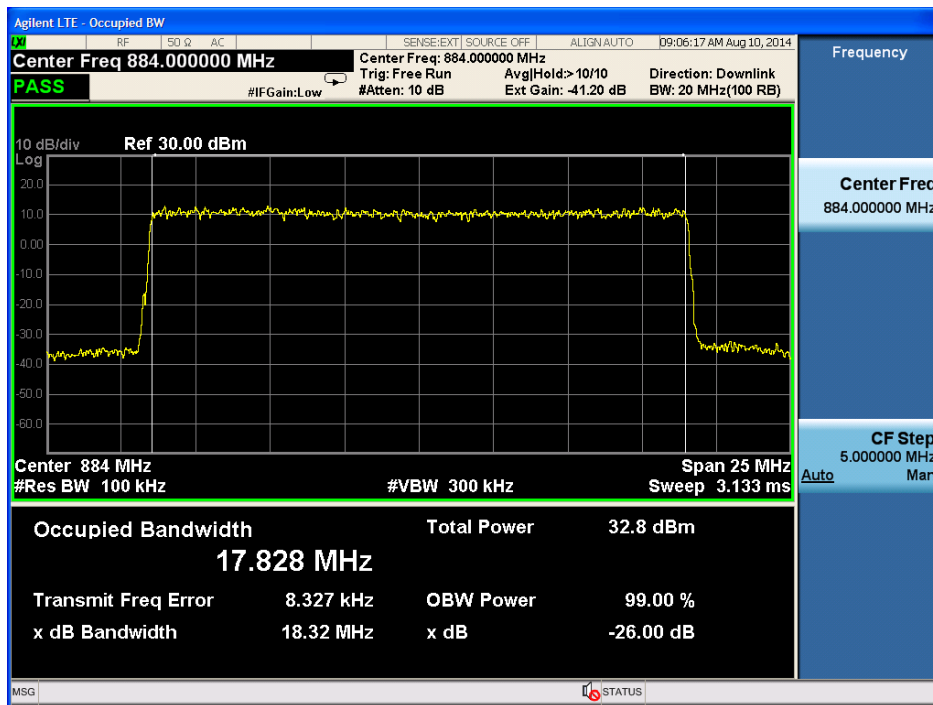




2.2 middle frequency

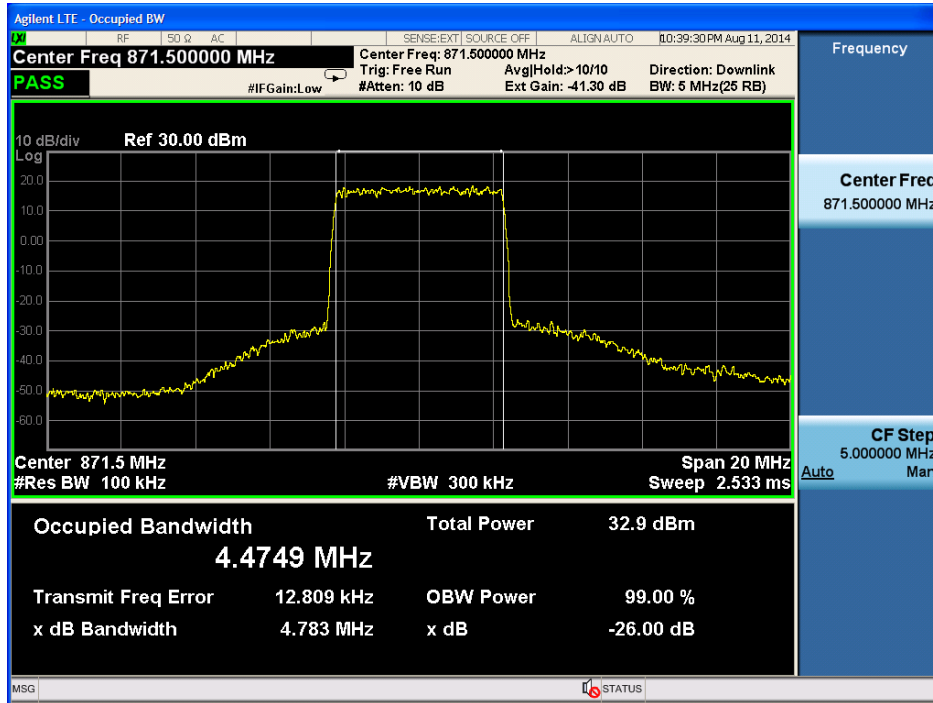


2.3 highest frequency

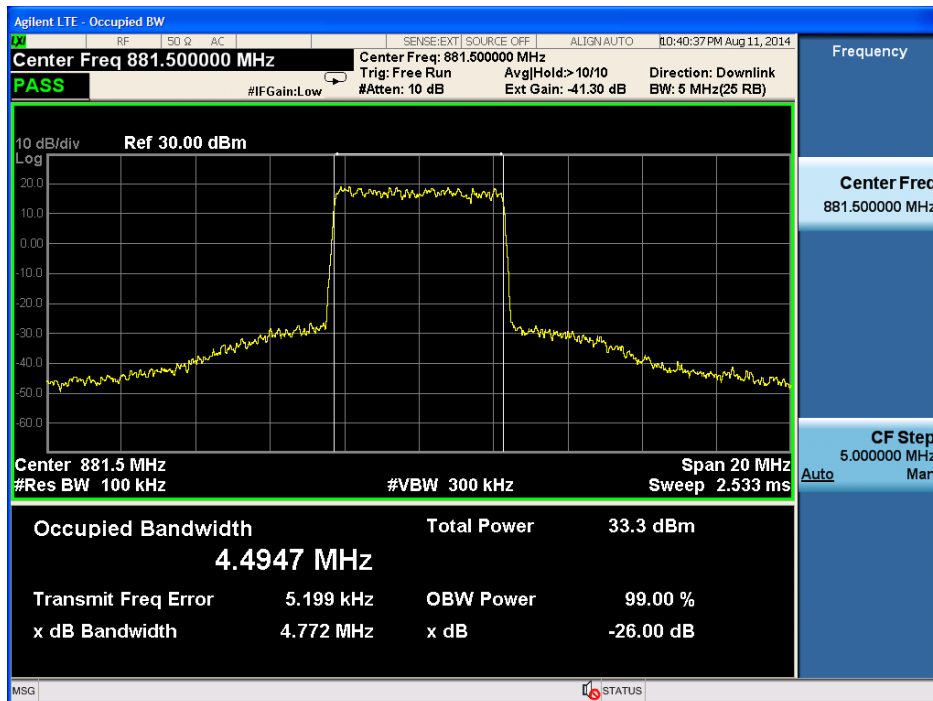




2.4 lowest frequency(5M modulation)

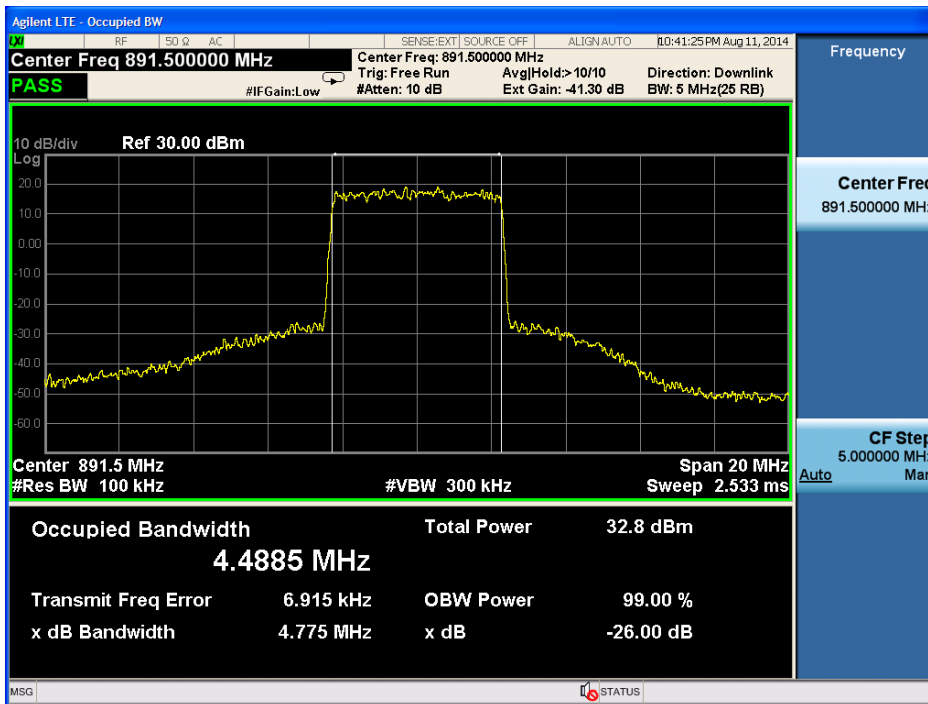


2.5 middle frequency





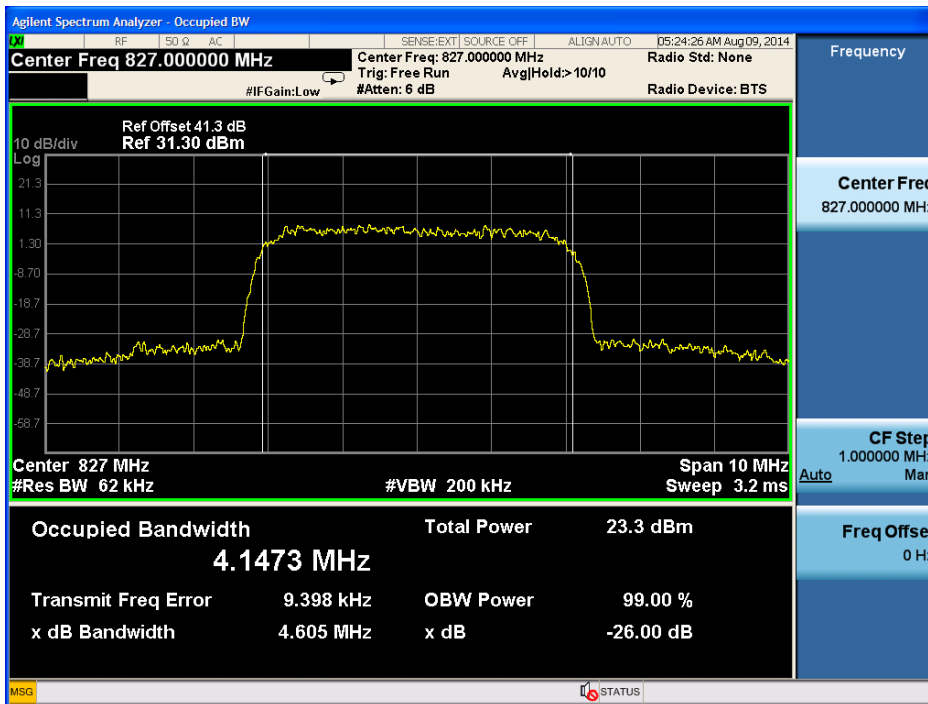
2.6 highest frequency



6) Uplink: 824MHz to 849MHz(WCDMA, LTE)

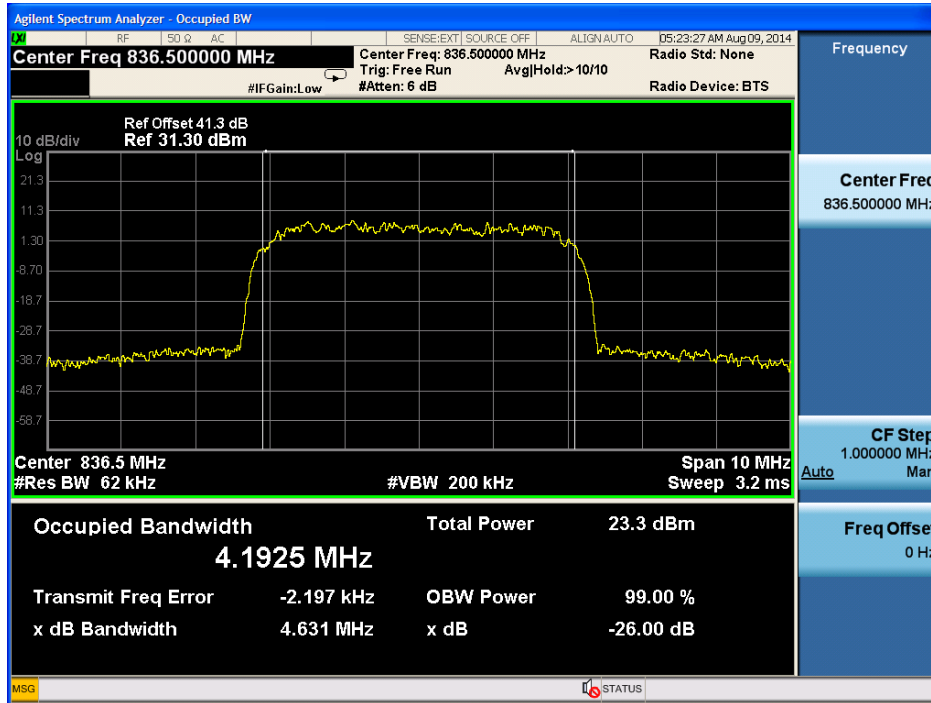
1. WCDMA mode

1.1 lowest frequency

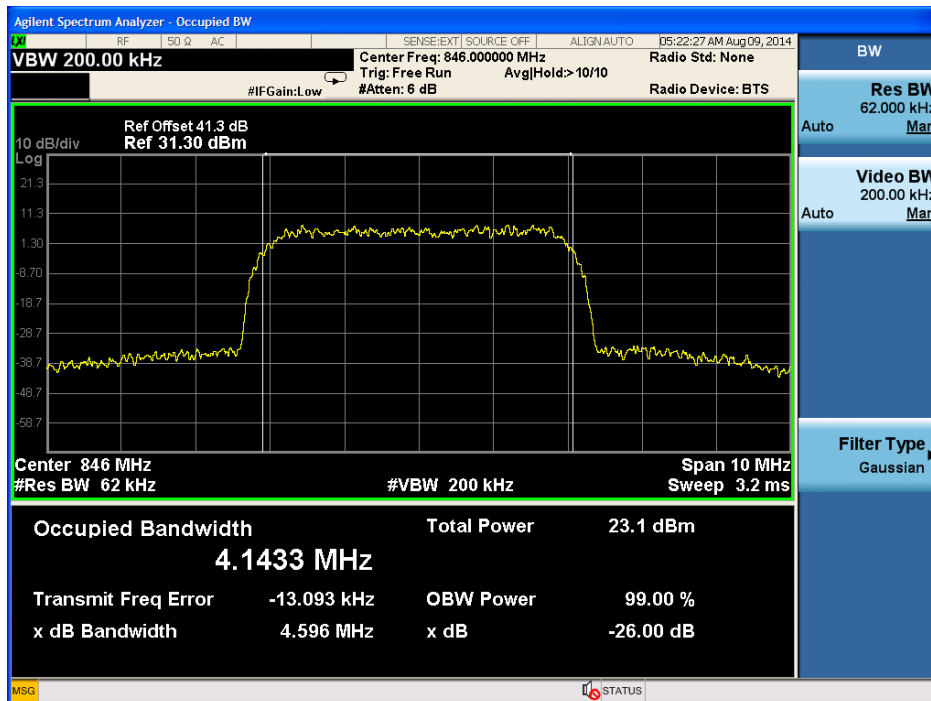




1.2 middle frequency



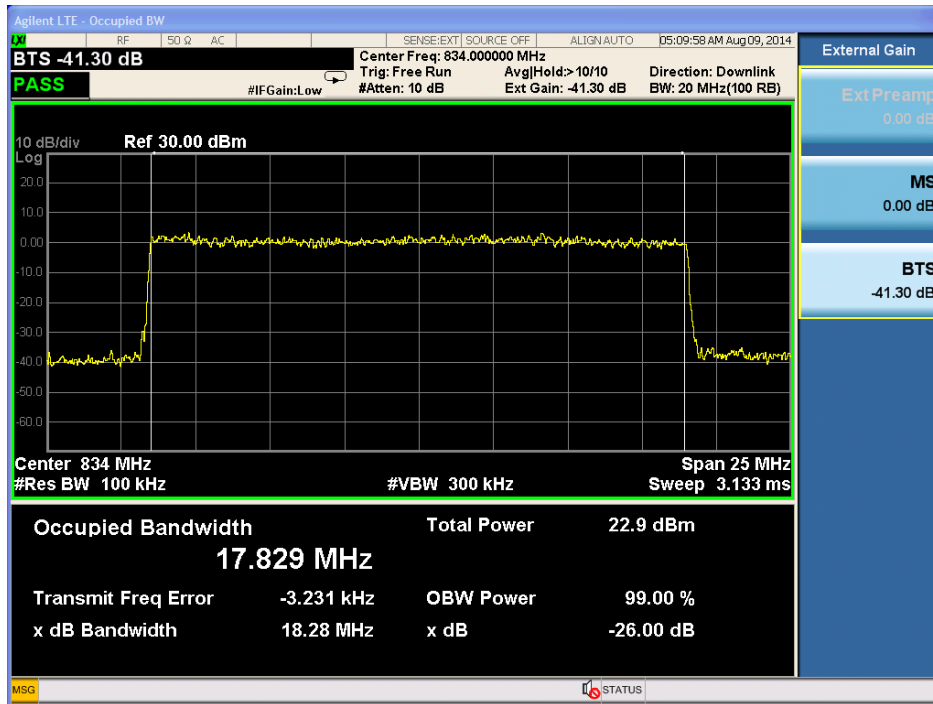
1.3 highest frequency



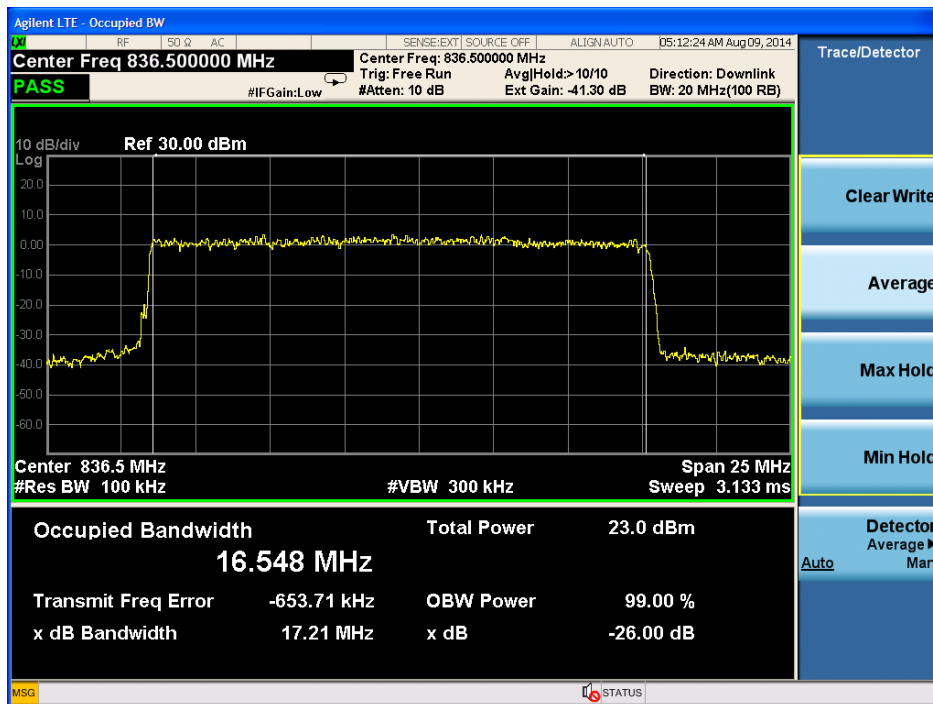


2.LTE mode

2.1 lowest frequency(20M modulation)

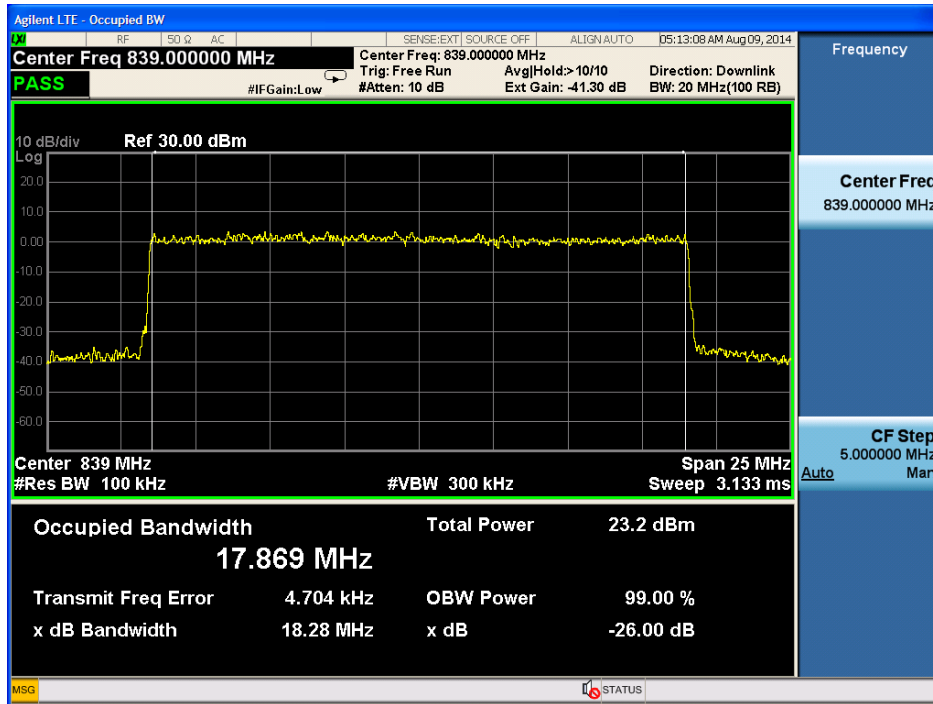


2.2 middle frequency

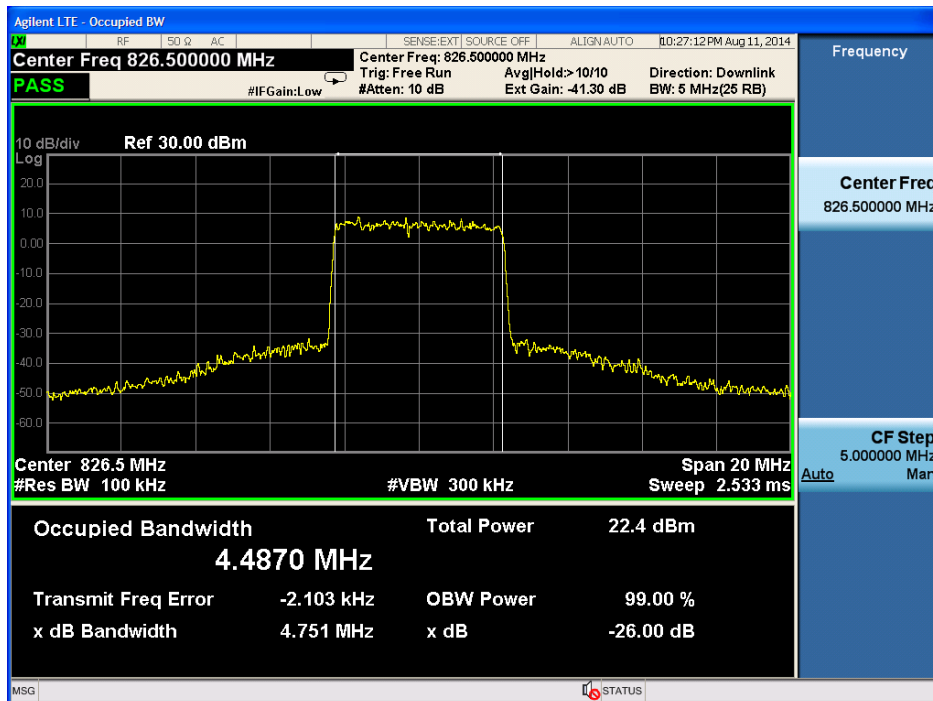




2.3 highest frequency

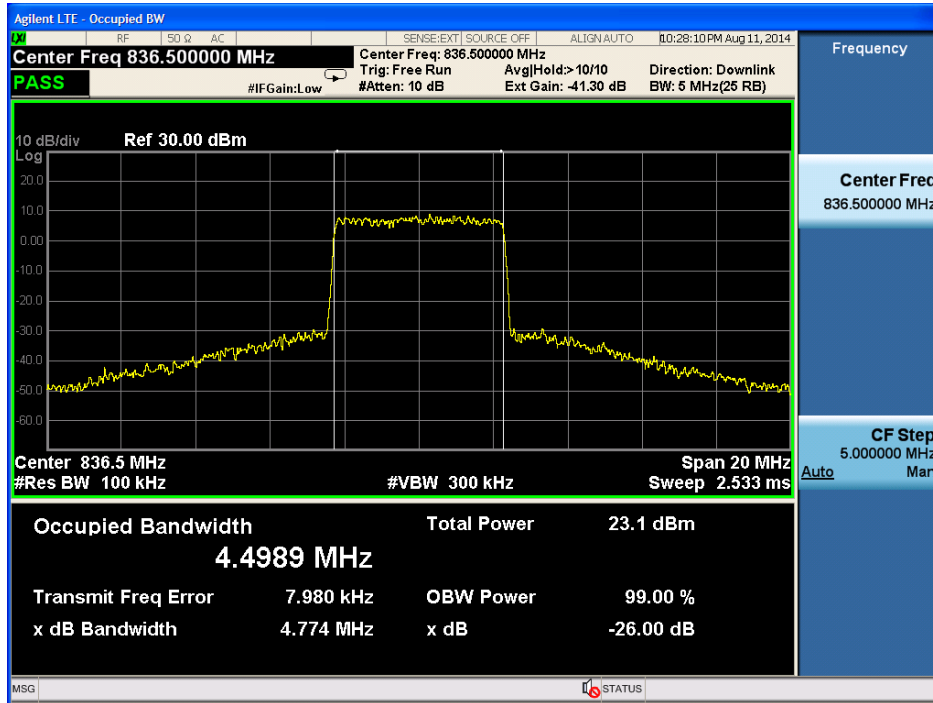


2.4 lowest frequency(5M modulation)

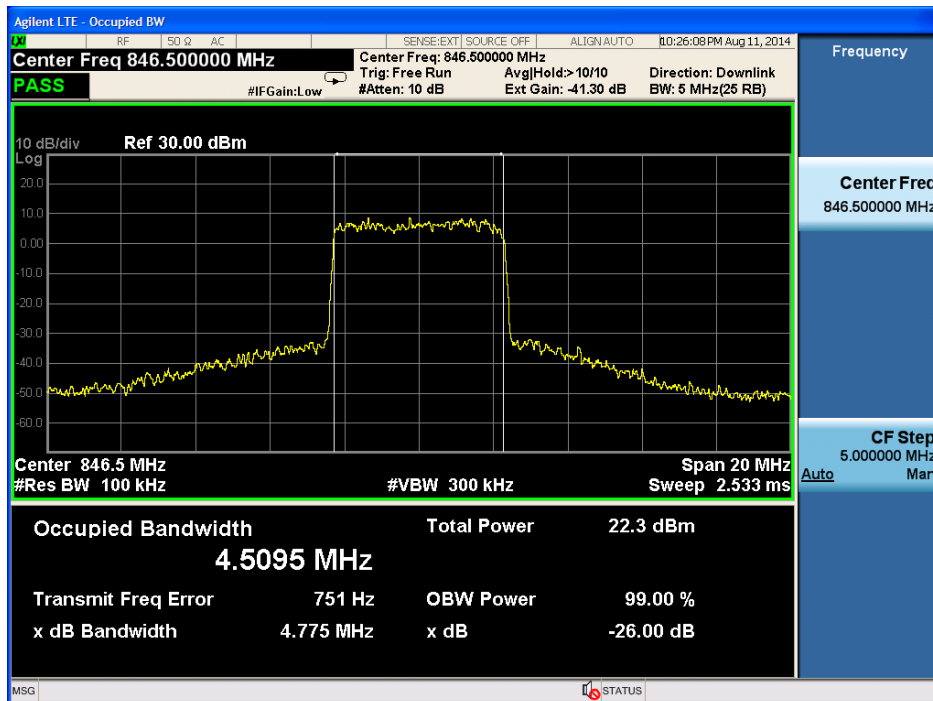




2.5 middle frequency



2.6 highest frequency





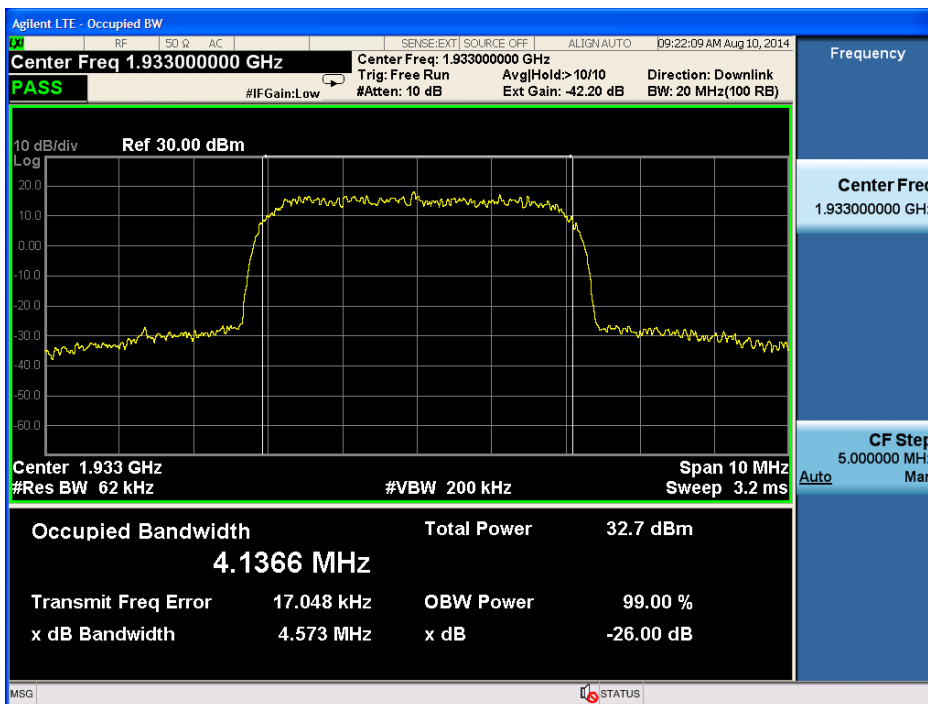
7) Downlink: 1930MHz to 1995MHz(WCDMA,LTE)

Remark:

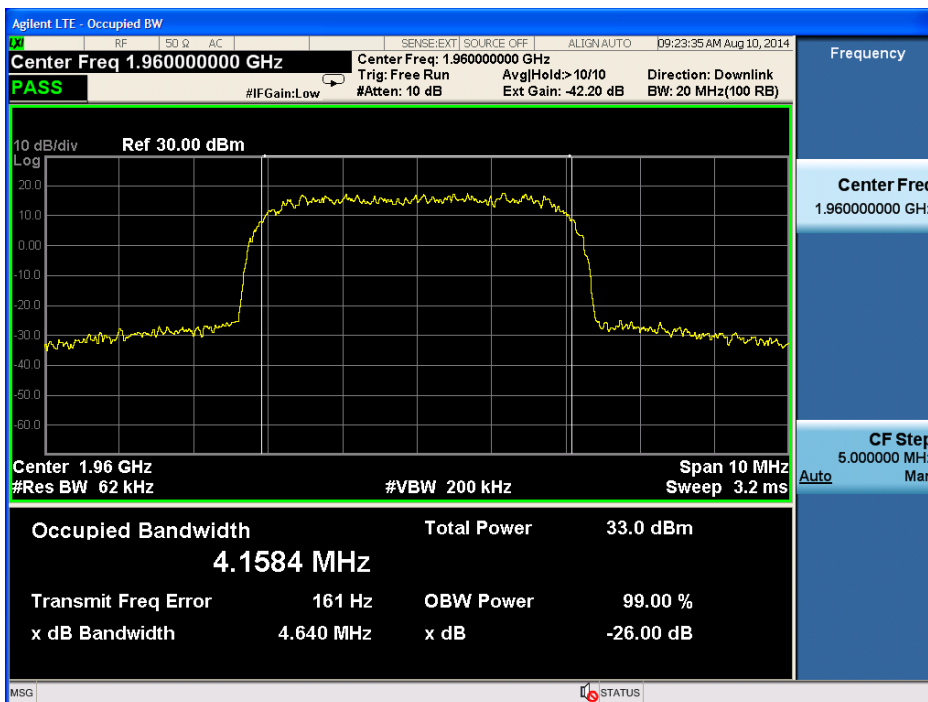
Pretest the EUT with Maximum Rated Output Power(27dBm,30dBm,33dBm),finally find the worst case as the EUT with Maximum Rated Output power(33dBm).

1.WCDMA mode

1.1 lowest frequency

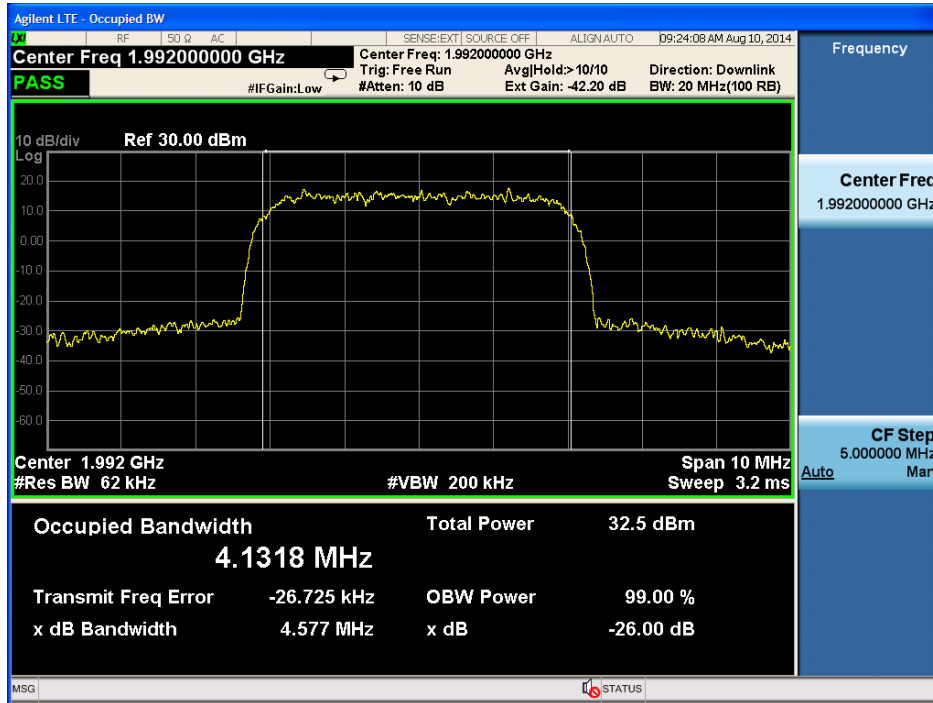


1.2 middle frequency



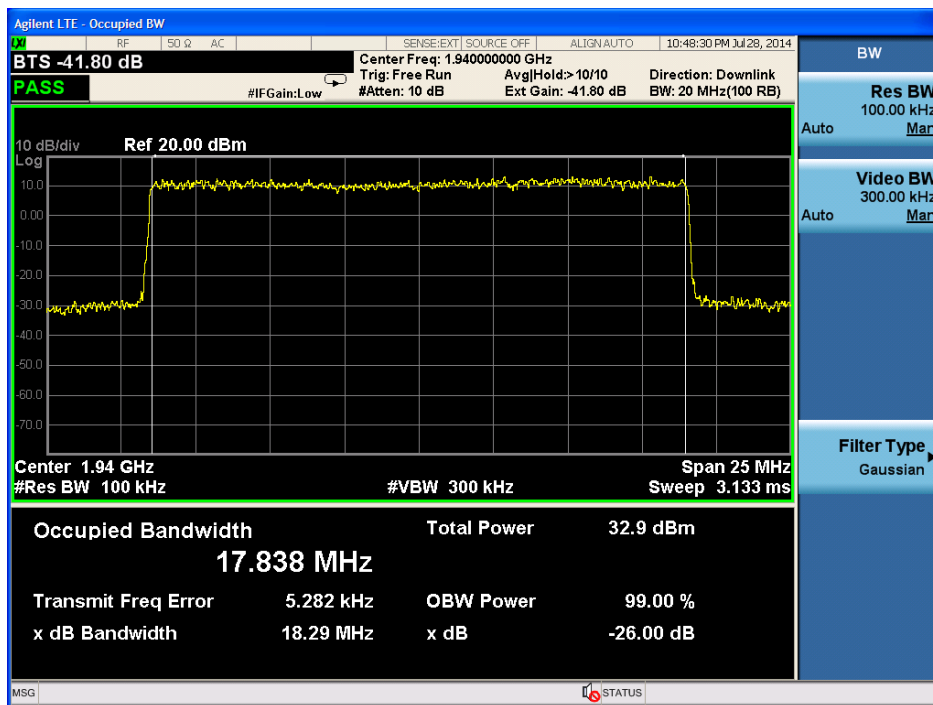


1.3 highest frequency



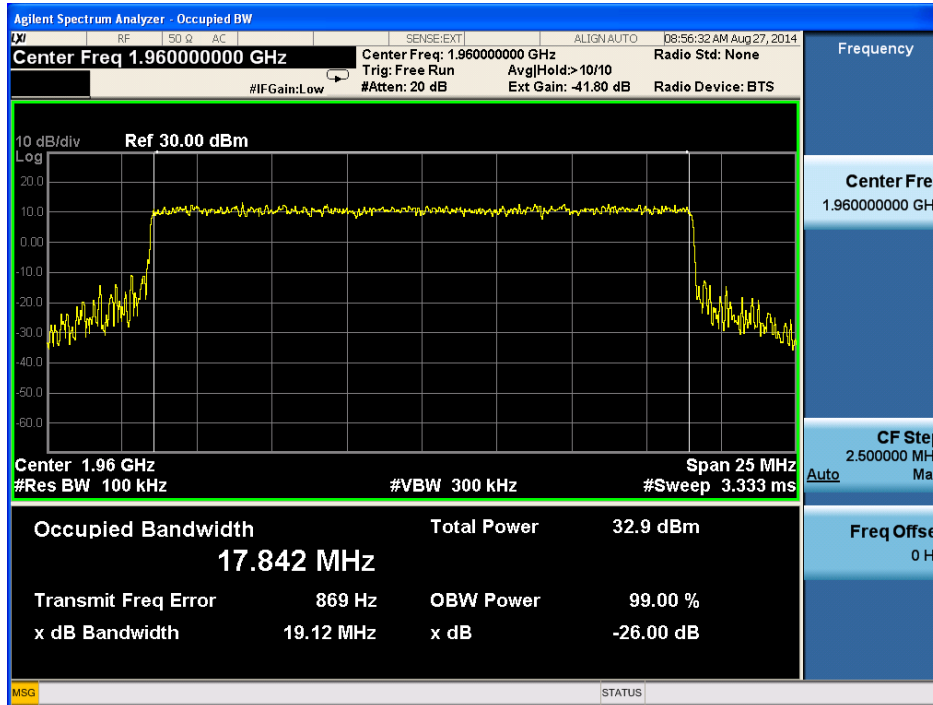
2.LTE mode

2.1 lowest frequency(20M modulation)

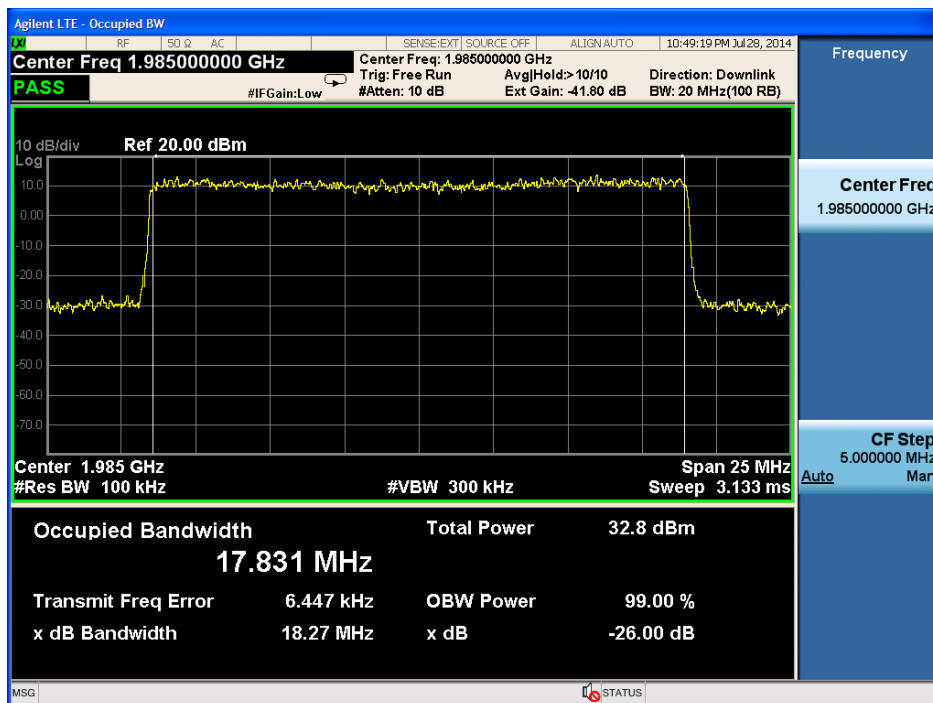




2.2 middle frequency

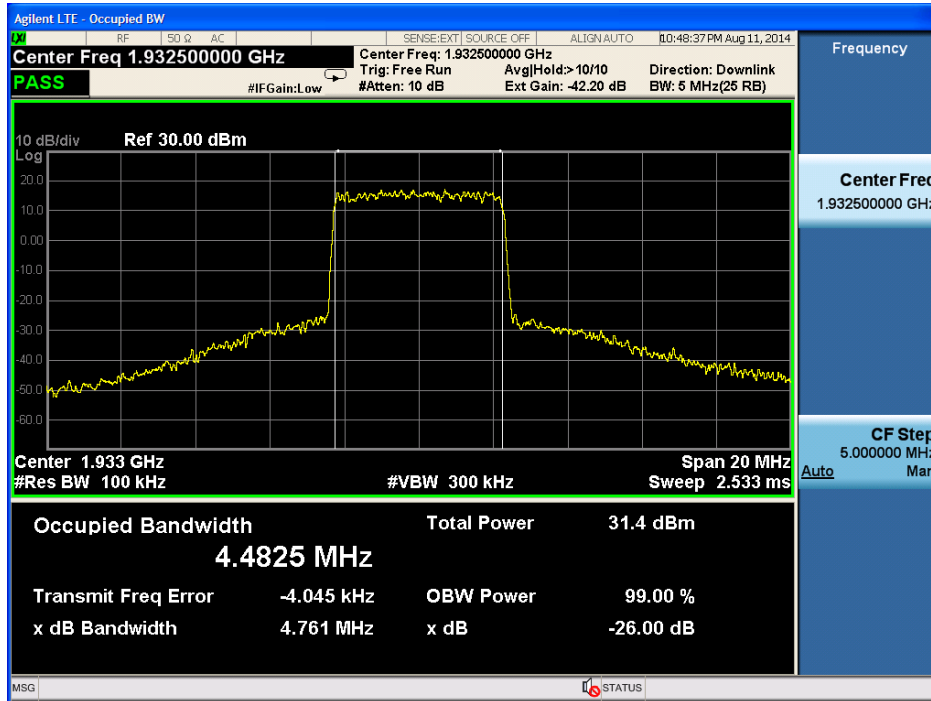


2.3 highest frequency

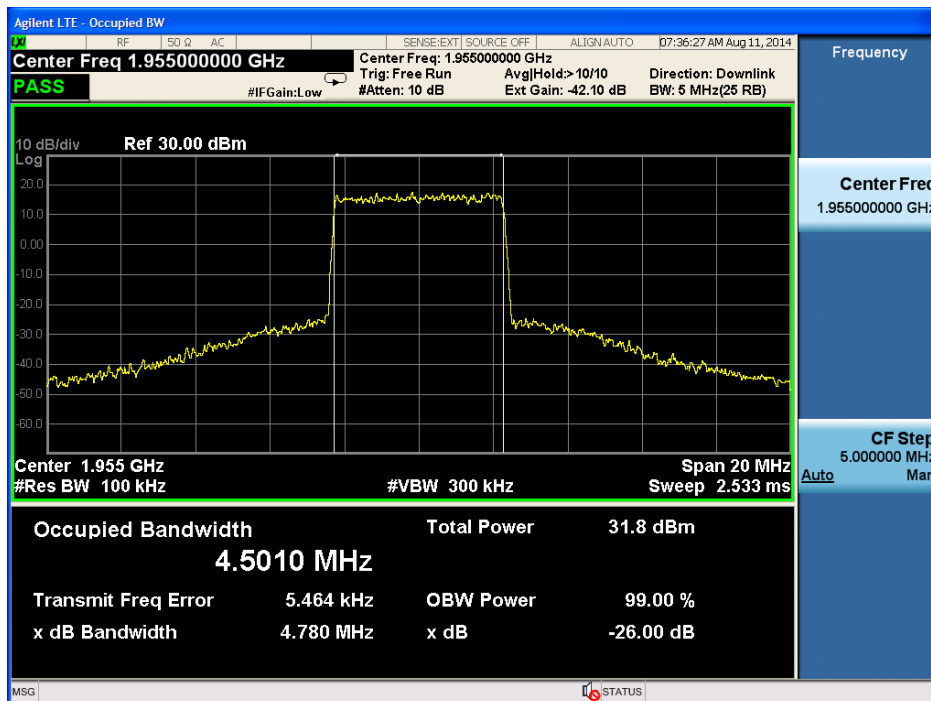




2.4 lowest frequency(5M modulation)

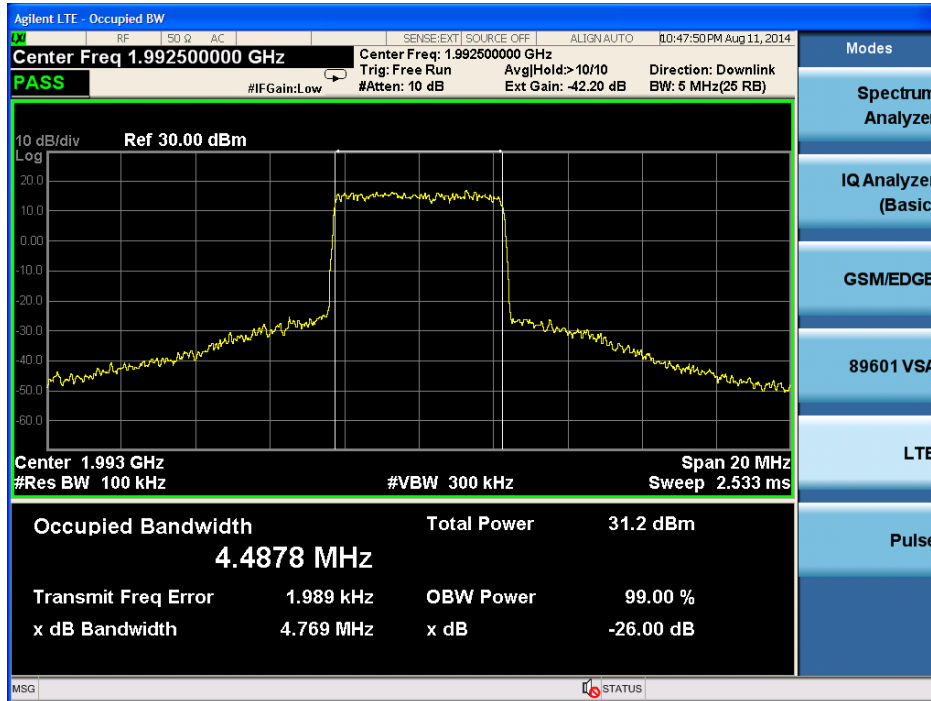


2.5 middle frequency





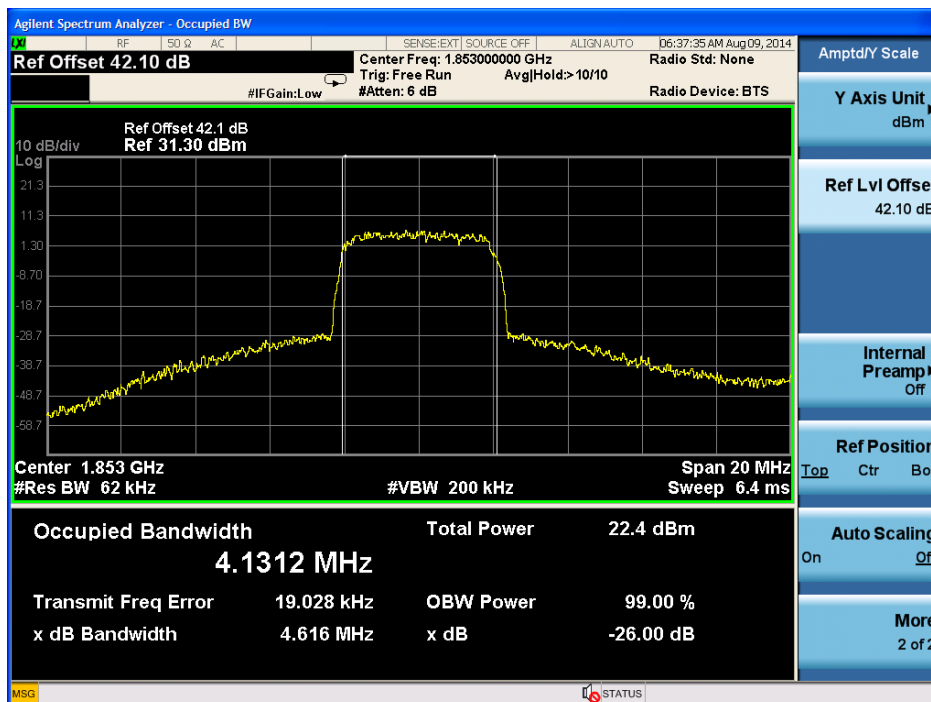
2.6 highest frequency



8) Uplink: 1850MHz to 1915MHz (WCDMA, LTE)

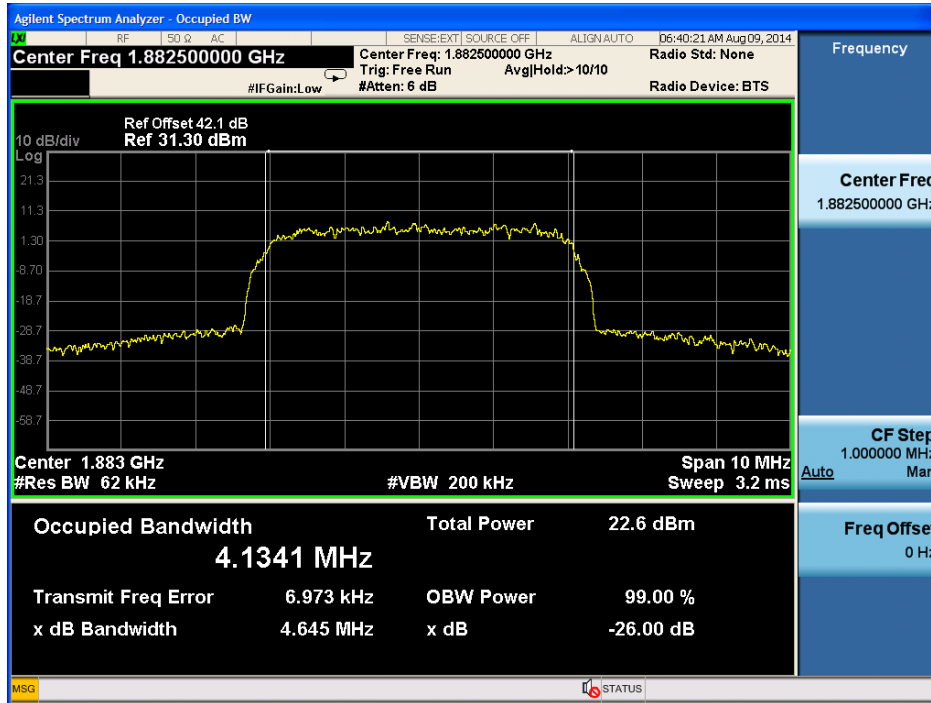
1. WCDMA mode

1.1 lowest frequency



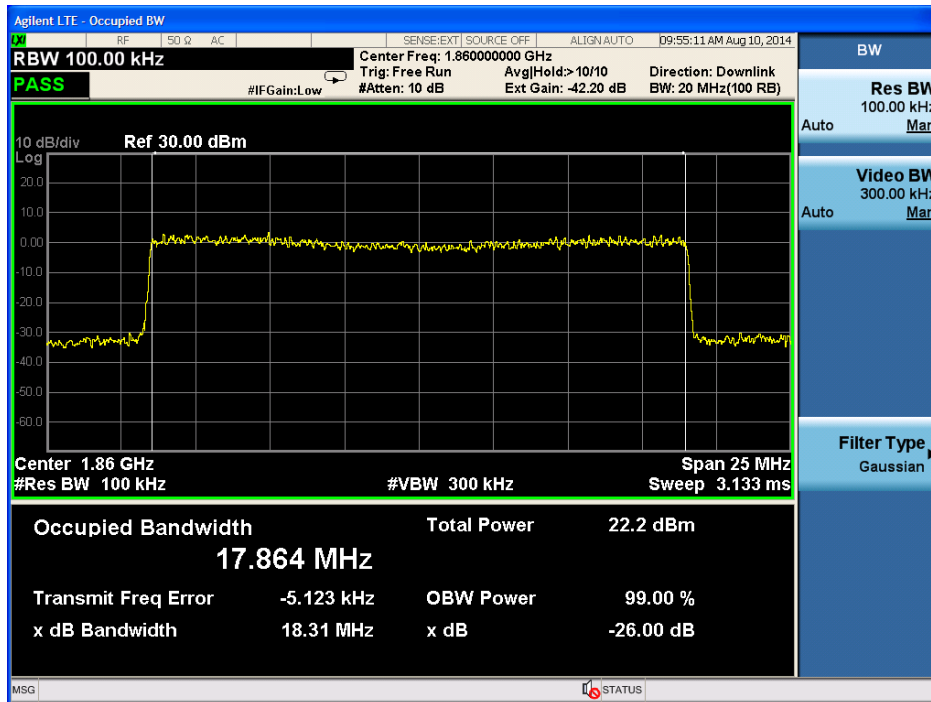


1.2 middle frequency



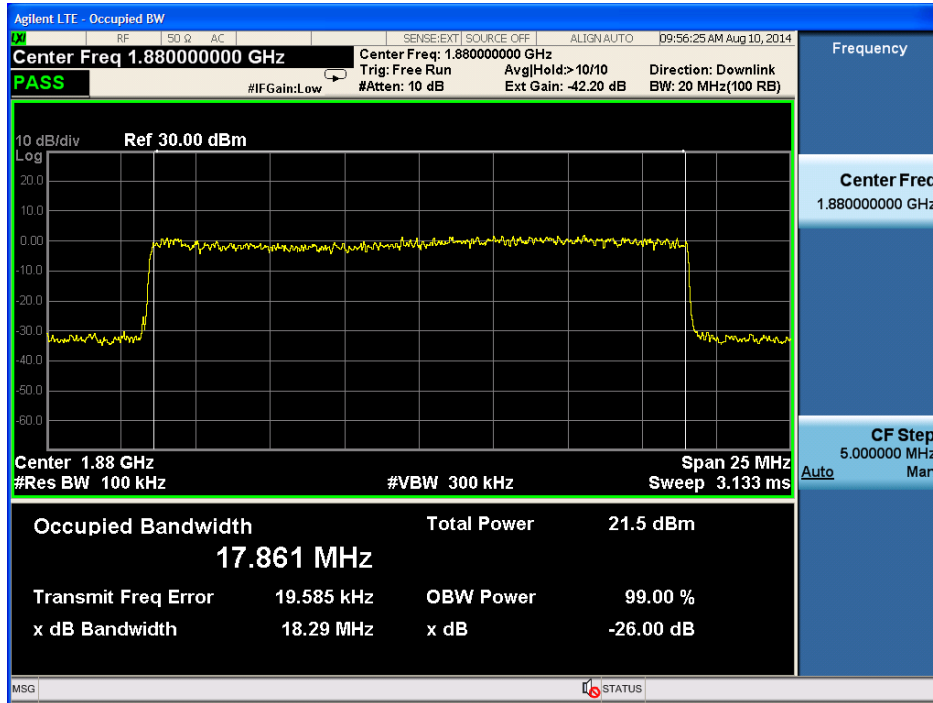
2.LTE mode

2.1 lowest frequency

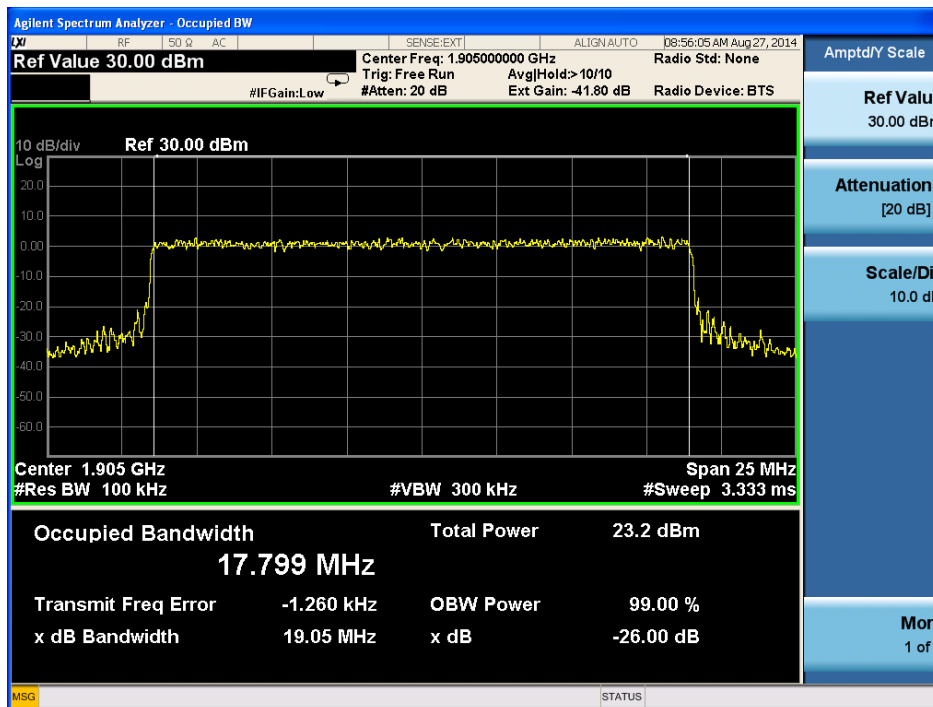




2.2 middle frequency

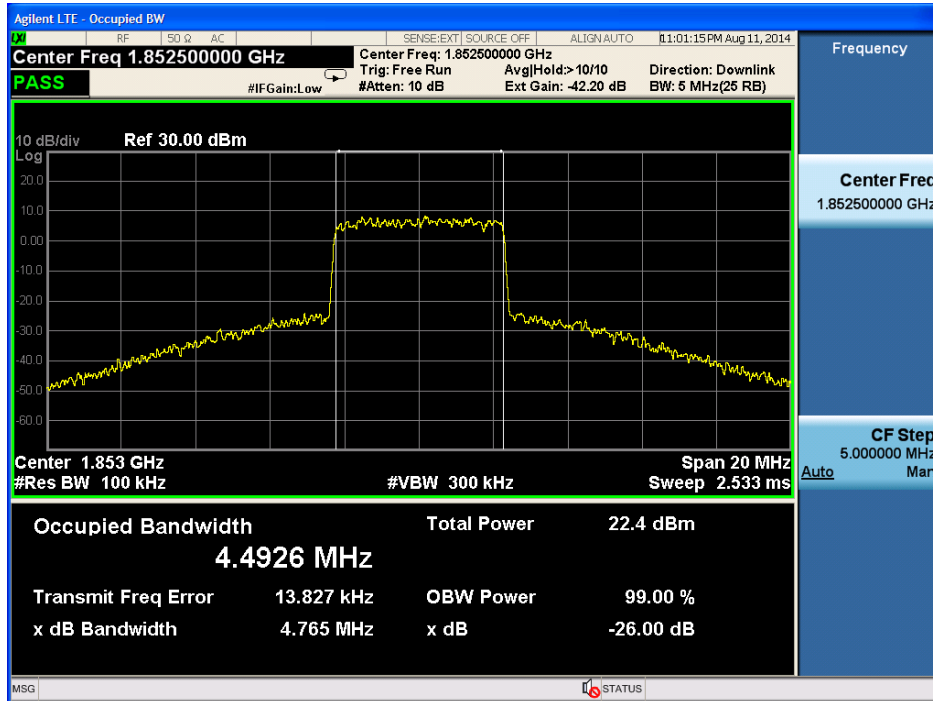


2.3 highest frequency

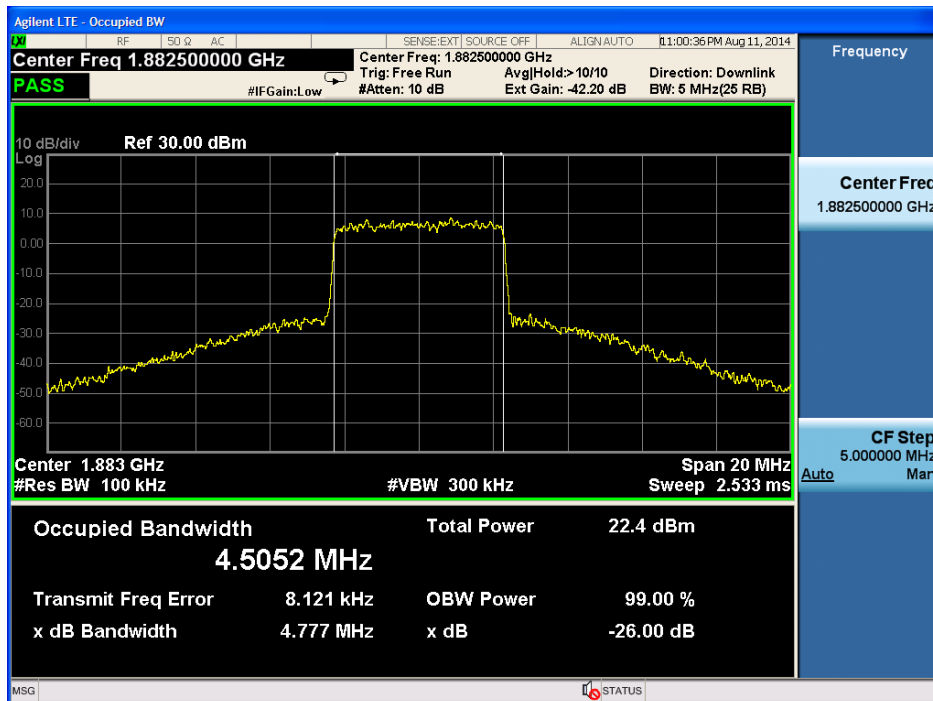




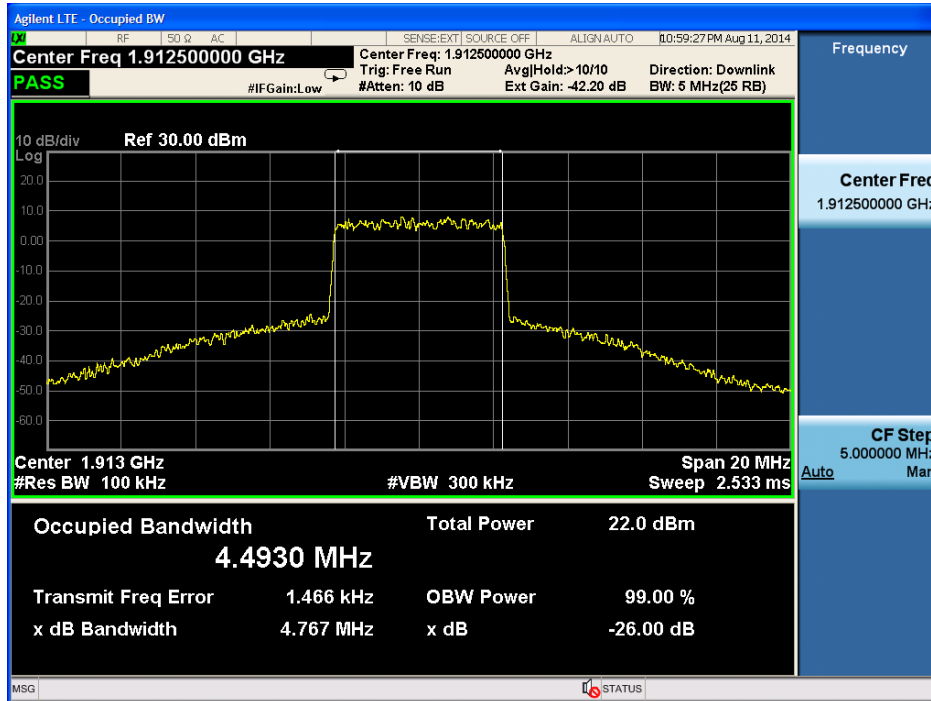
2.4 lowest frequency(5M modulation)



2.5 middle frequency



2.6 highest frequency



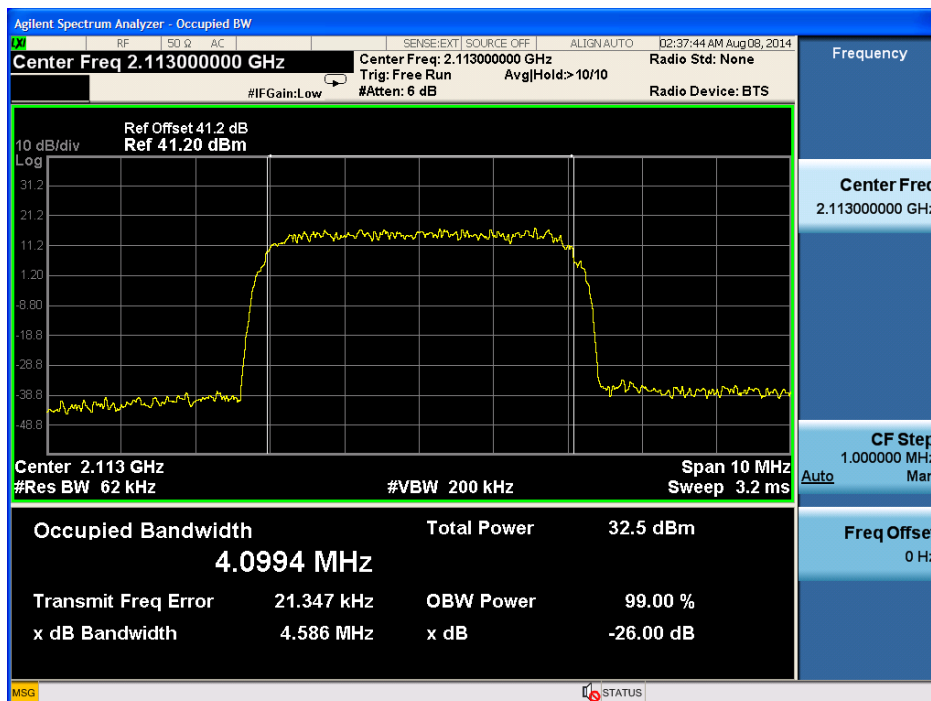
9) Downlink:2110M to 2155MHz(WCDMA,LTE)

Remark:

Pretest the EUT with Maximum Rated Output Power(27dBm,30dBm,33dBm),finally find the worst case as the EUT with Maximum Rated Output power(33dBm).

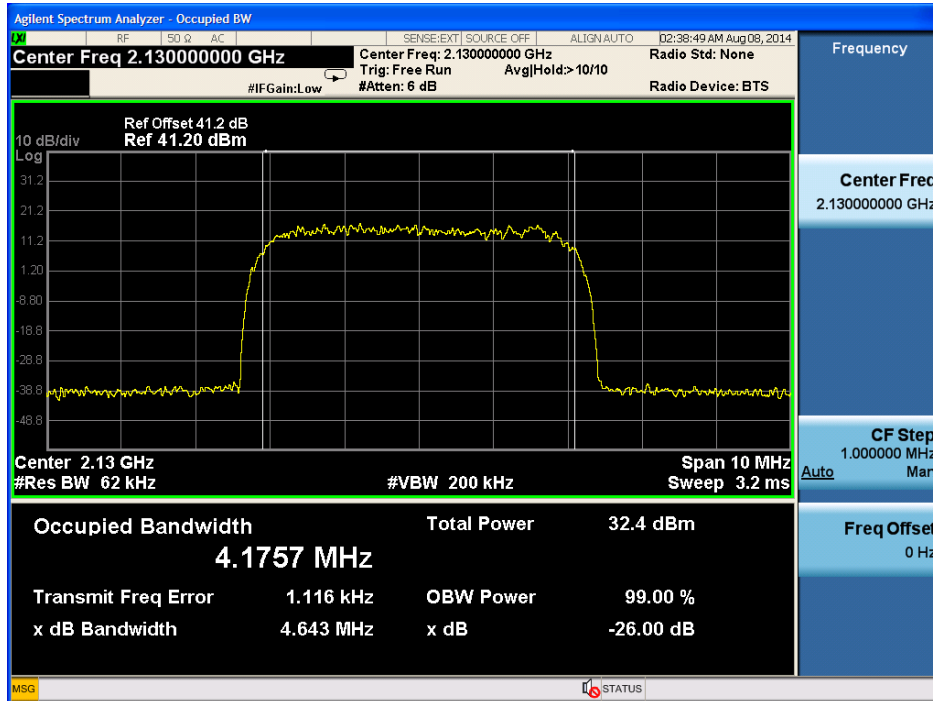
1.WCDMA mode

1.1 lowest frequency

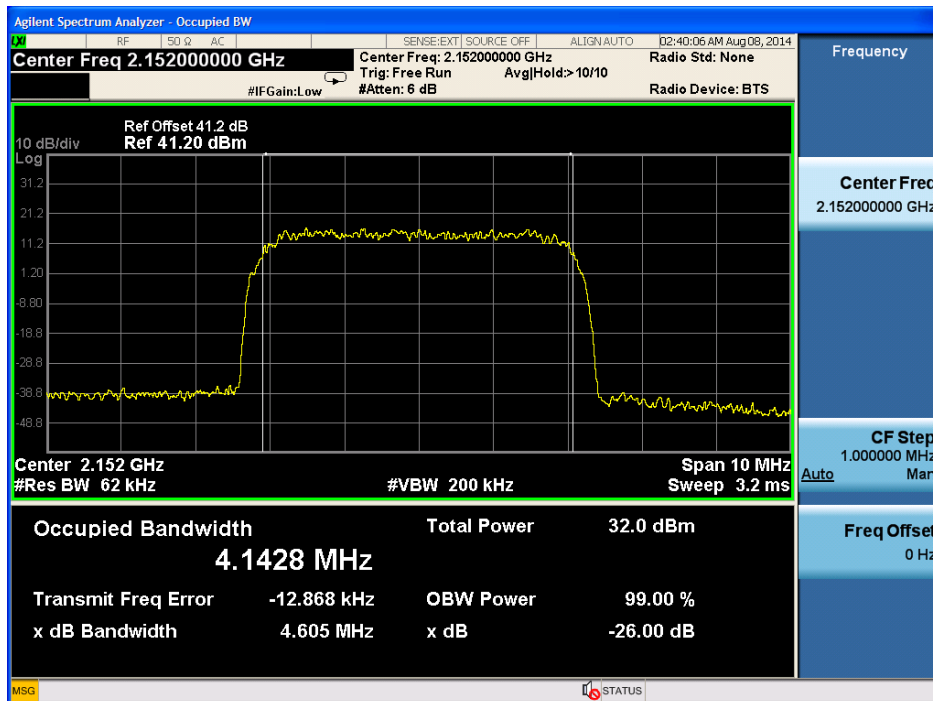




1.2 middle frequency



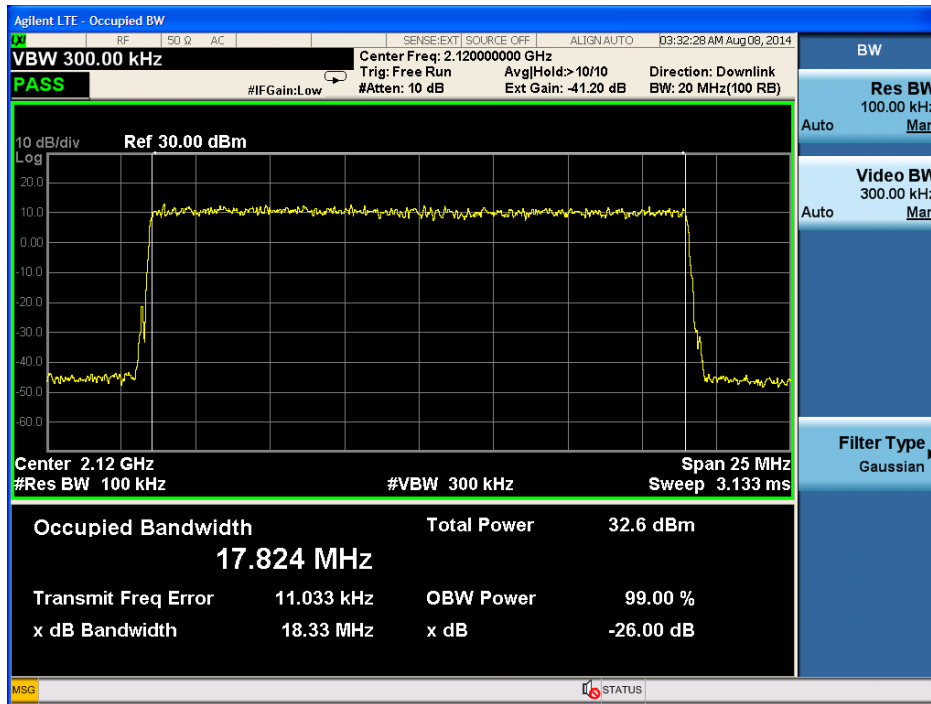
1.3 highest frequency



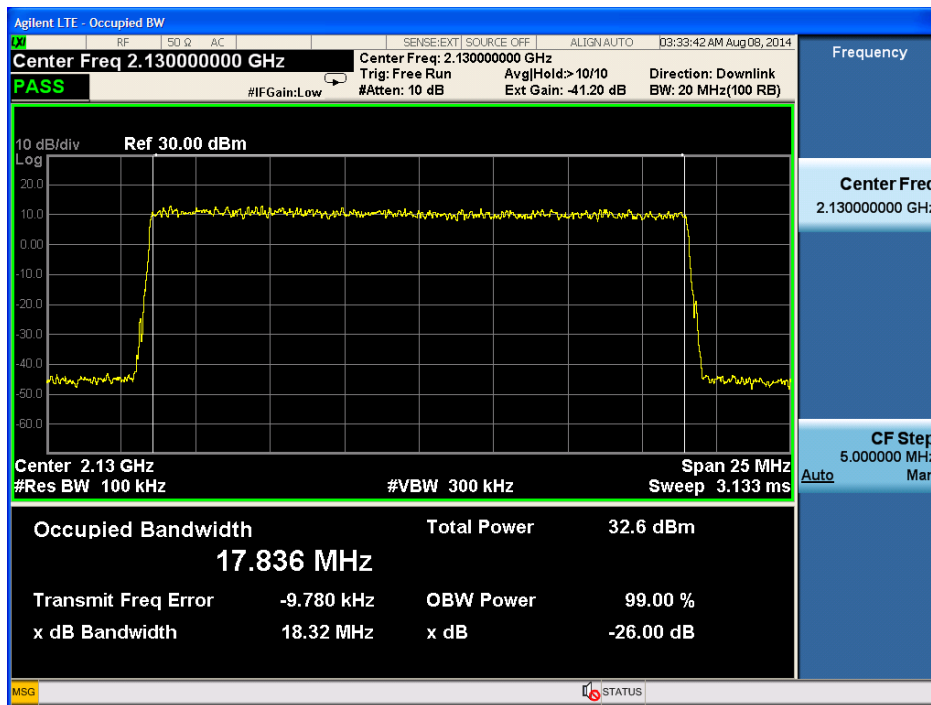


2.LTE mode

2.1 lowest frequency

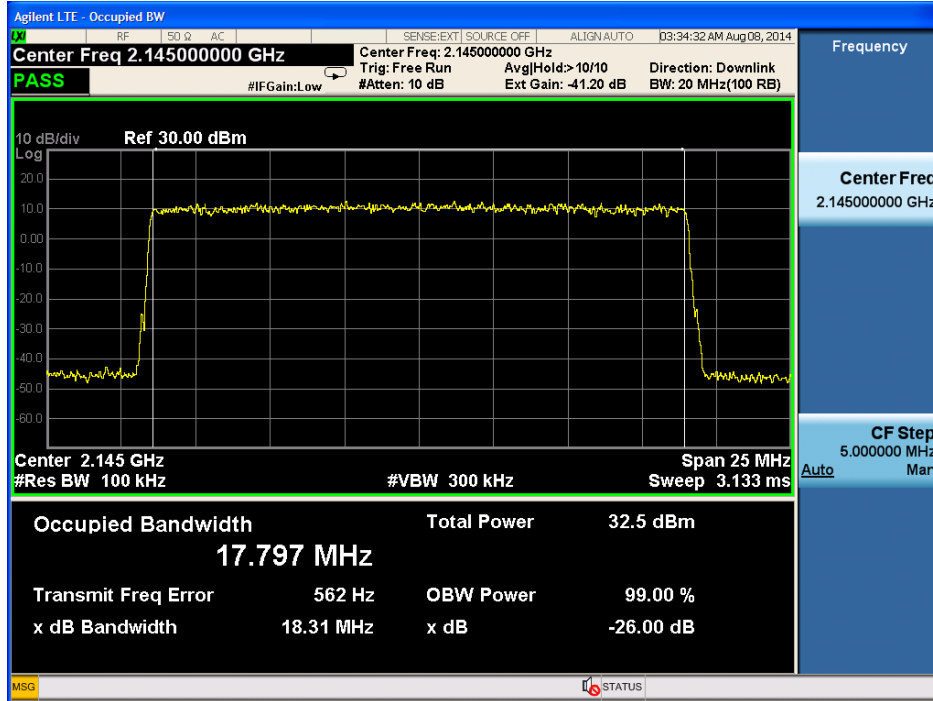


2.2 middle frequency

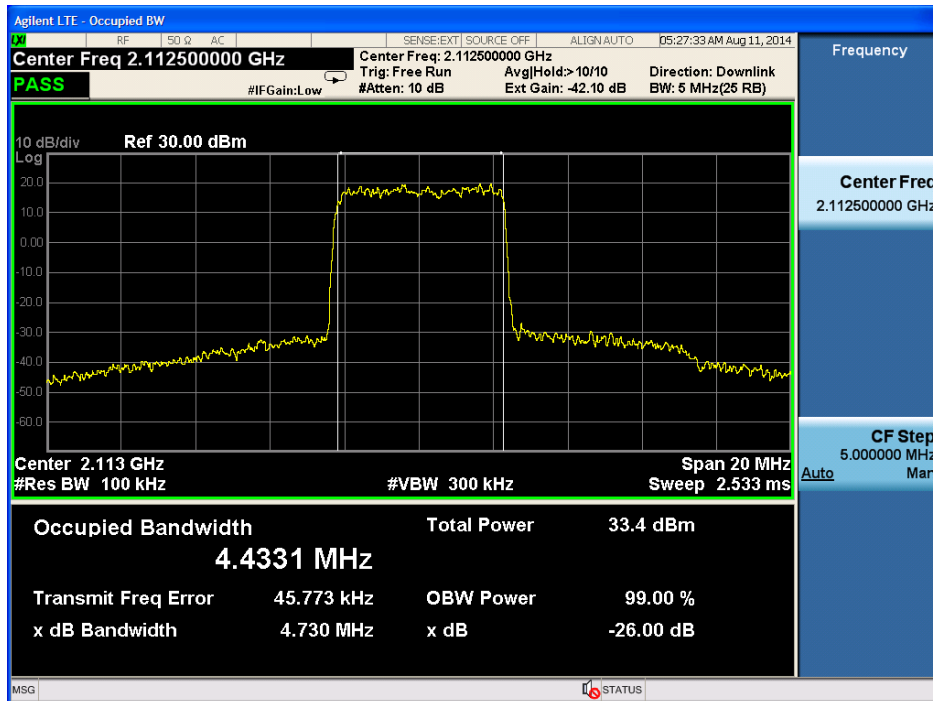




2.3 highest frequency

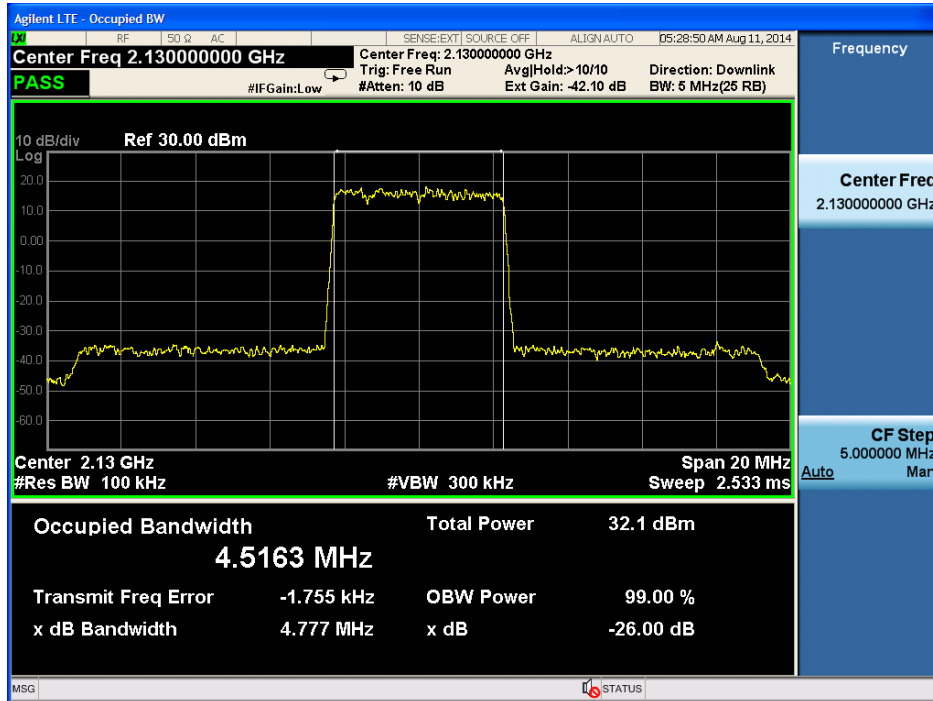


2.4 lowest frequency(5M modulation)

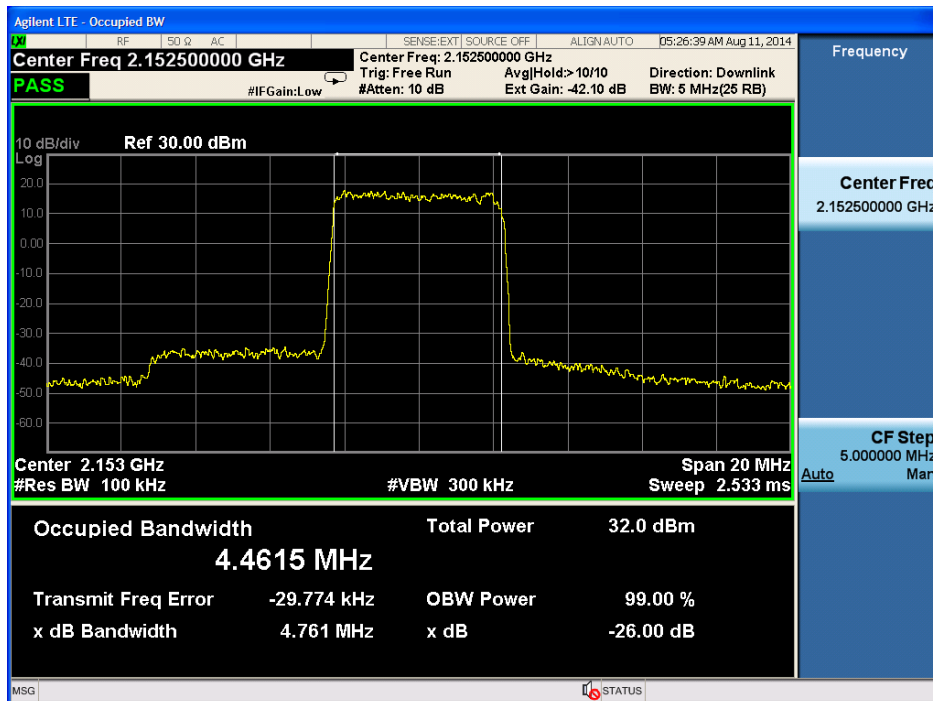




2.5 middle frequency



2.6 highest frequency

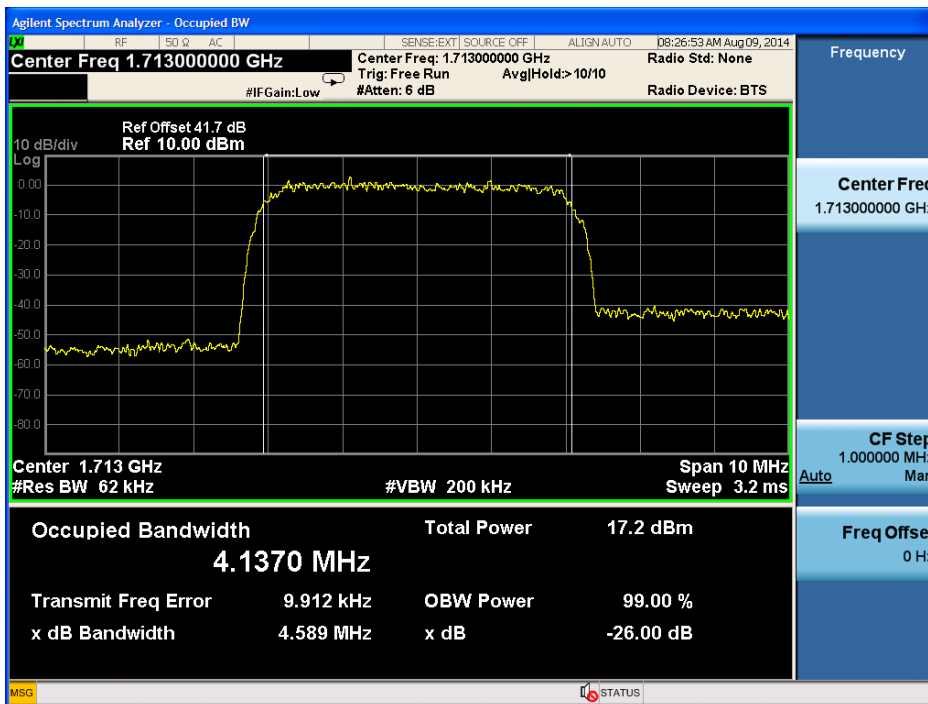




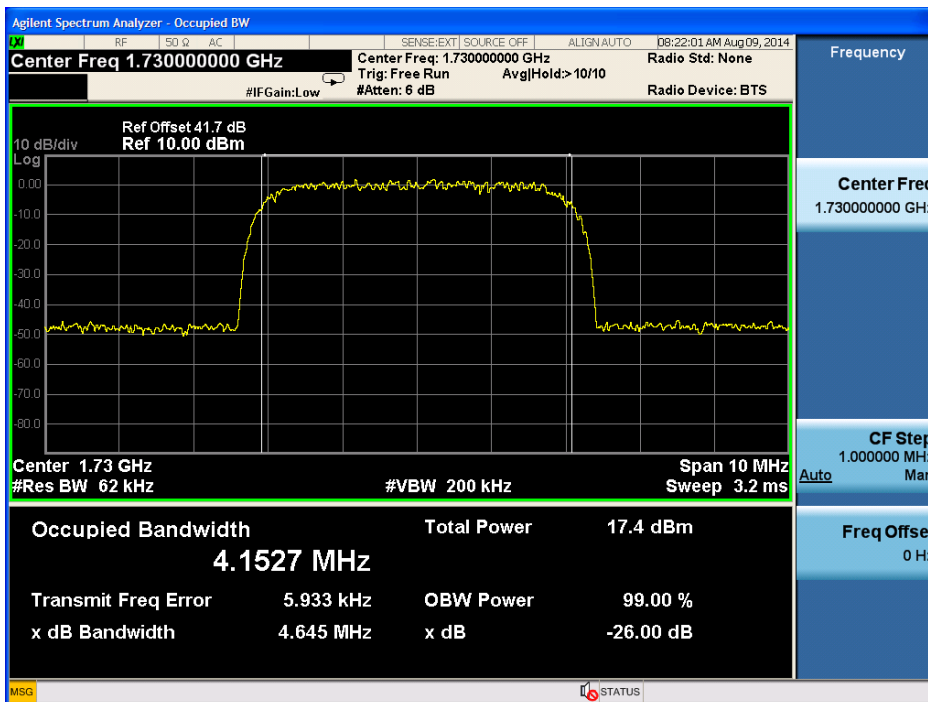
10) Uplink:1710M to 1755MHz modulation (WCDMA,LTE mode)

1.WCDMA mode

1.1 lowest frequency

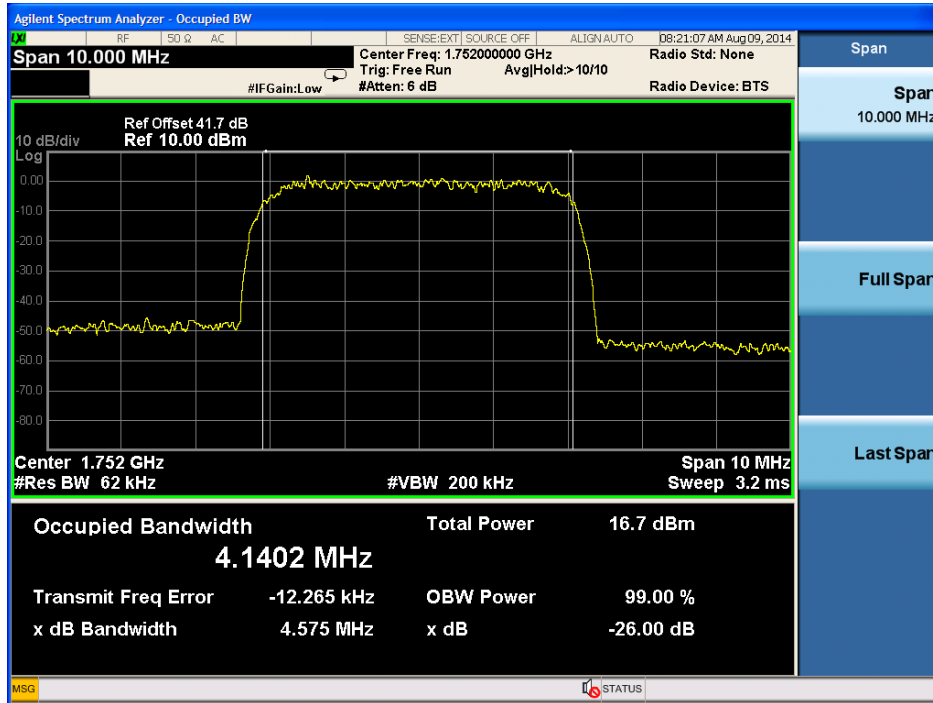


1.2 middle frequency



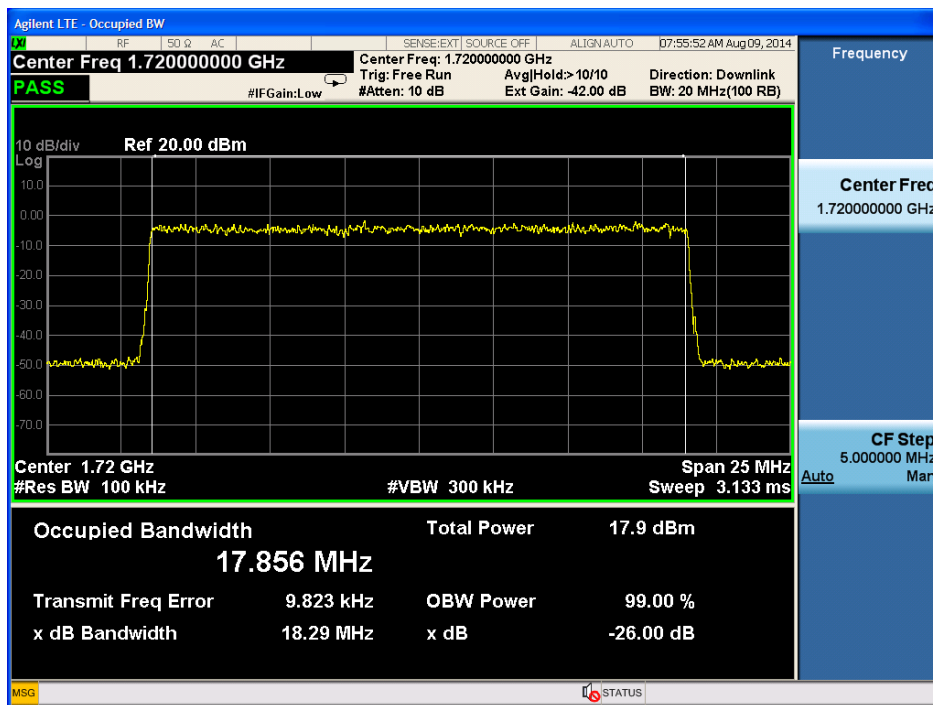


1.3 highest frequency



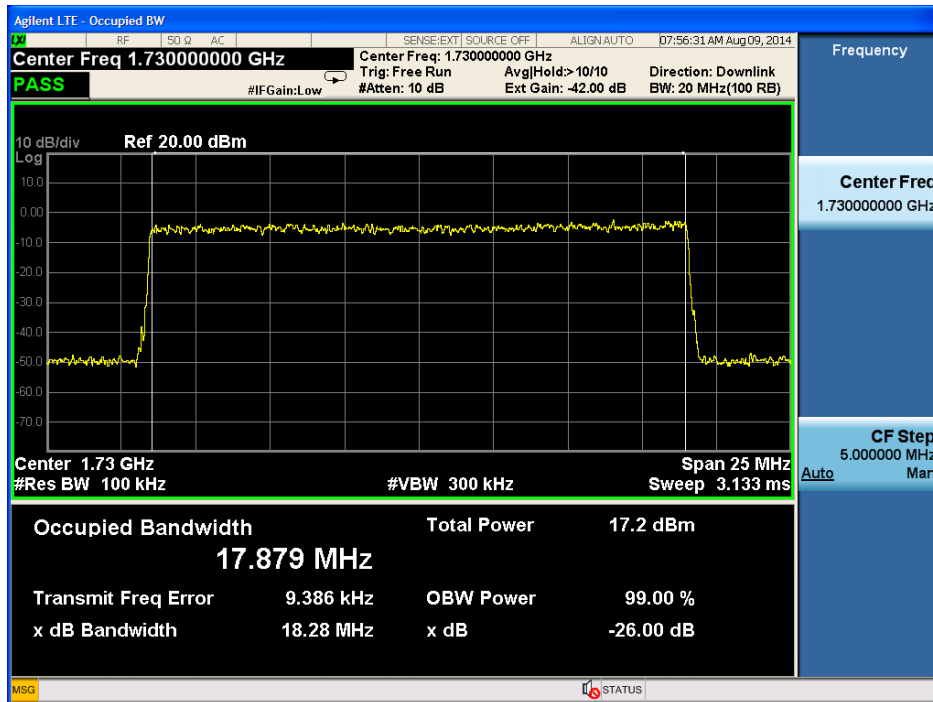
2.LTE mode

2.1 lowest frequency

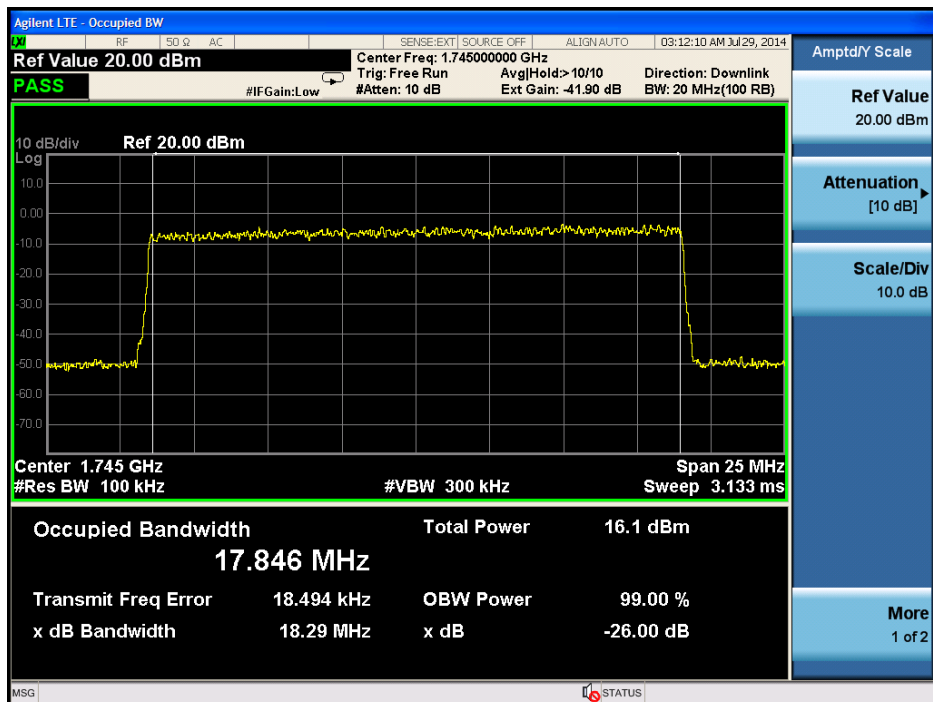




2.2 middle frequency

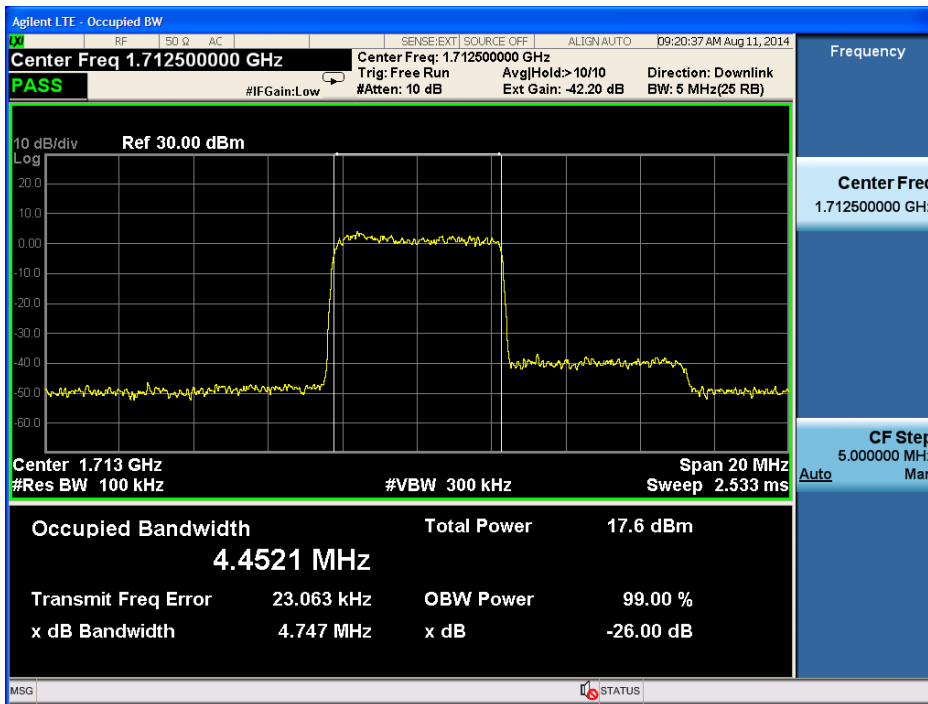


2.3 highest frequency

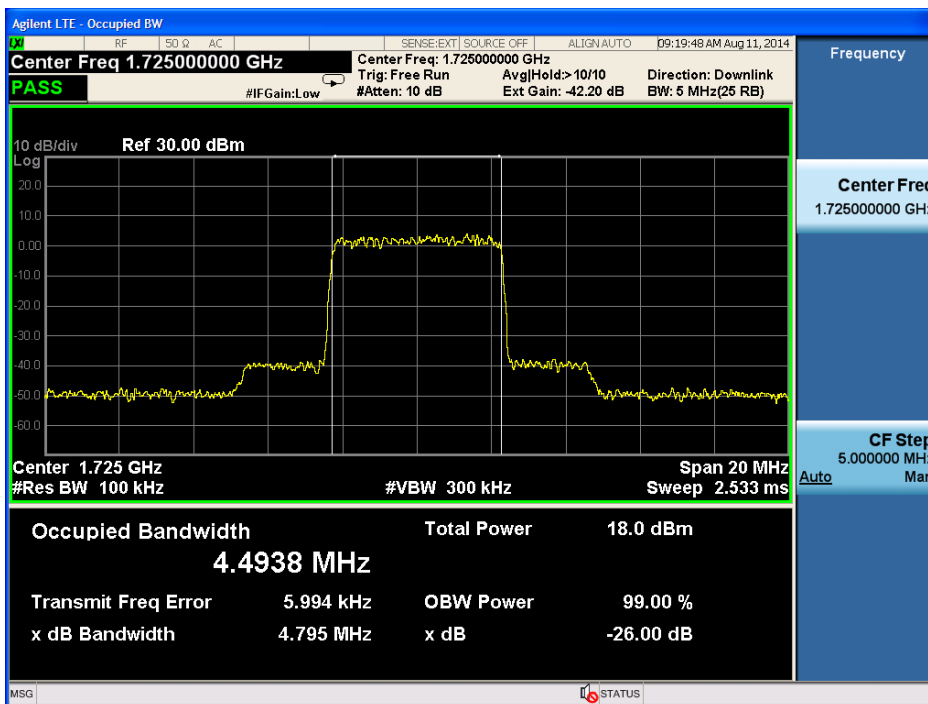




2.4 lowest frequency(5M modulation)

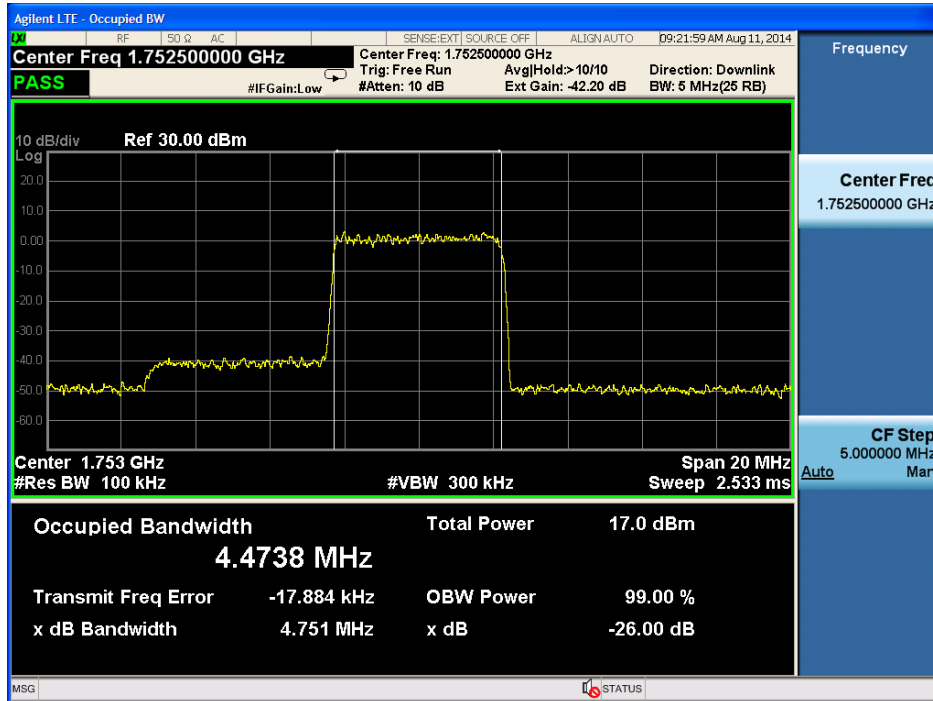


2.5 middle frequency





2.6 highest frequency

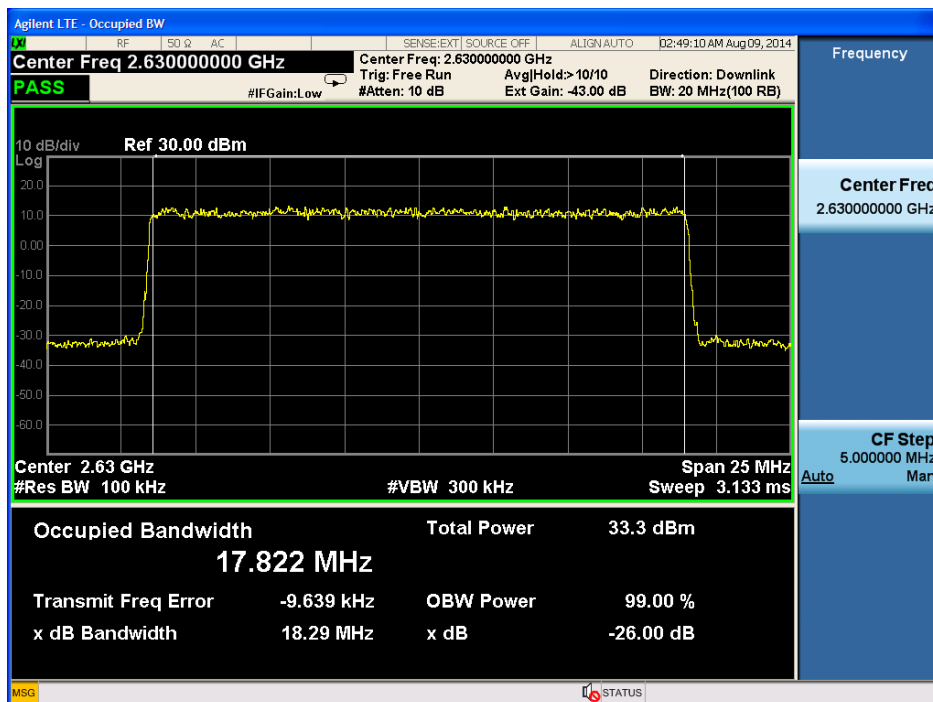


11) Downlink:2620MHz to 2690MHz(LTE mode)

Remark:

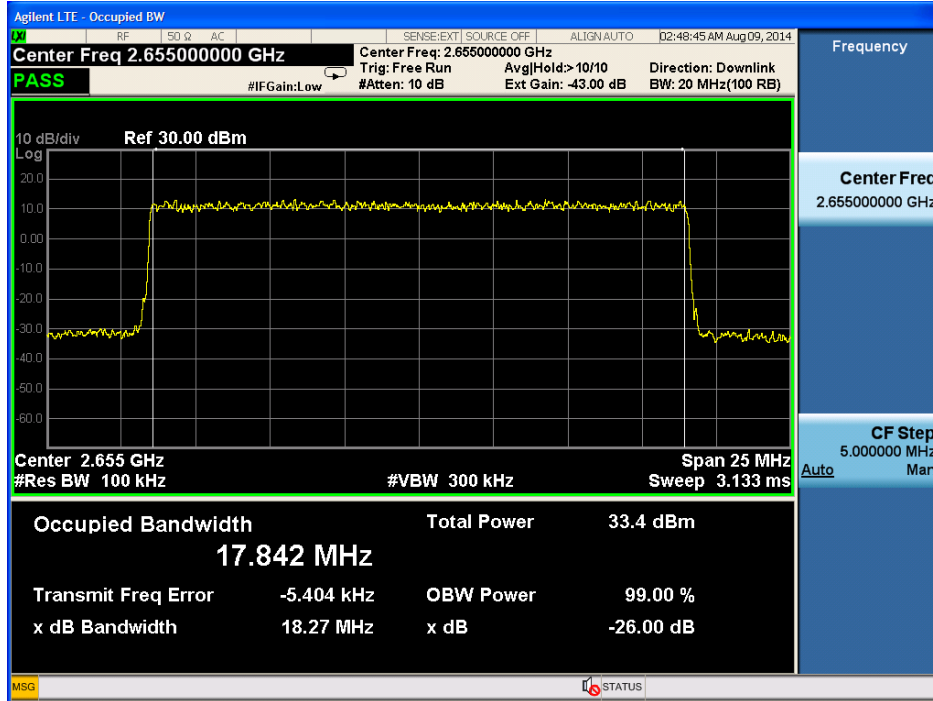
Pretest the EUT with Maximum Rated Output Power(27dBm,30dBm,33dBm),finally find the worst case as the EUT with Maximum Rated Output power(33dBm).

1.1 lowest frequency

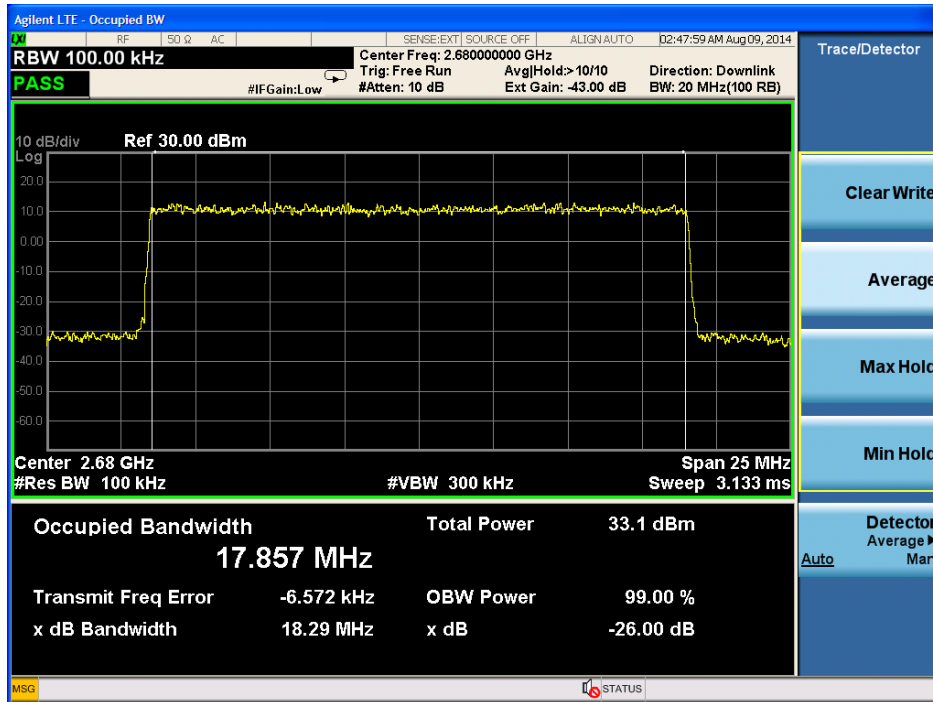




1.2 middle frequency

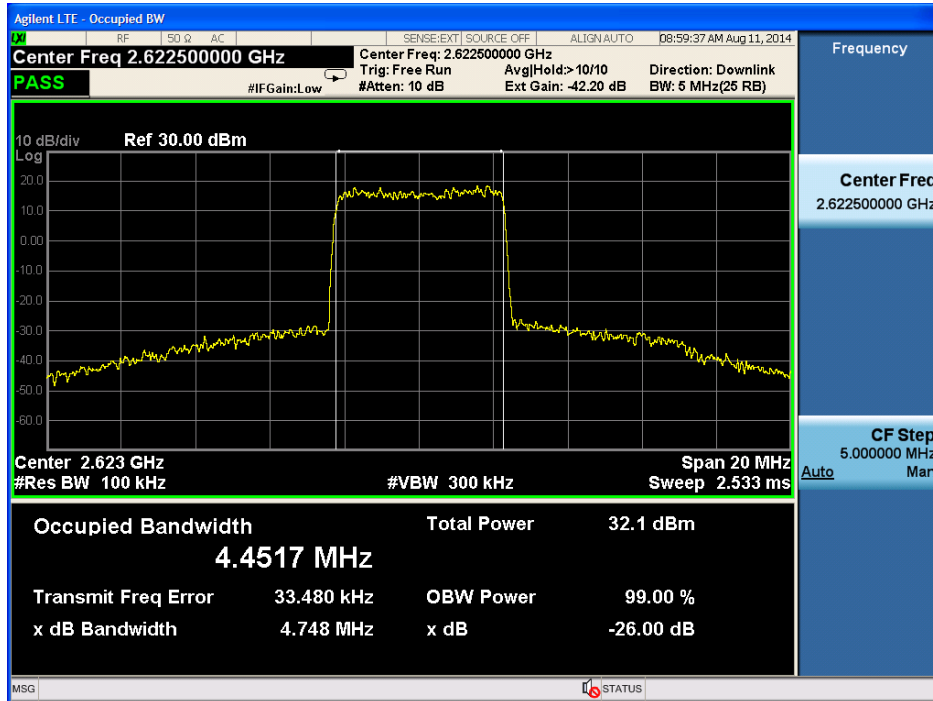


1.3 highest frequency

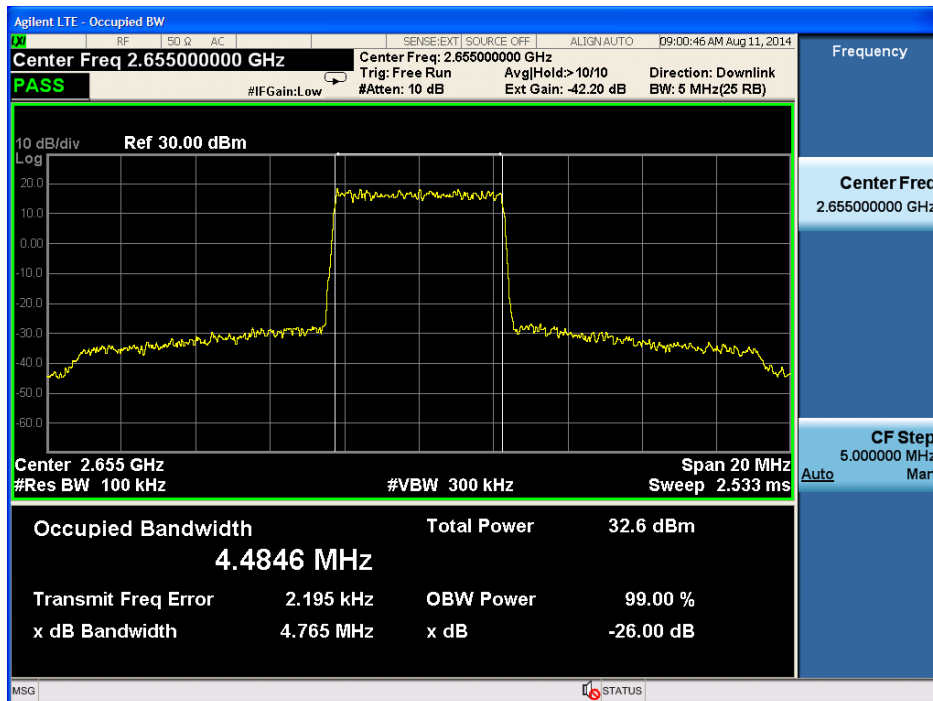




1.4 lowest frequency(5M modulation)

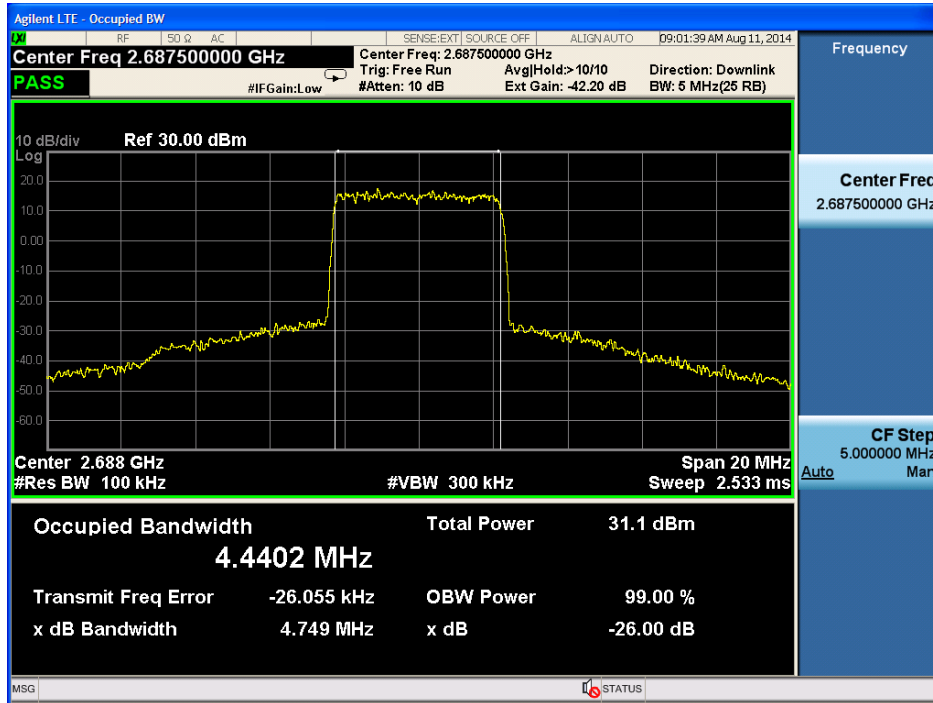


1.5 middle frequency



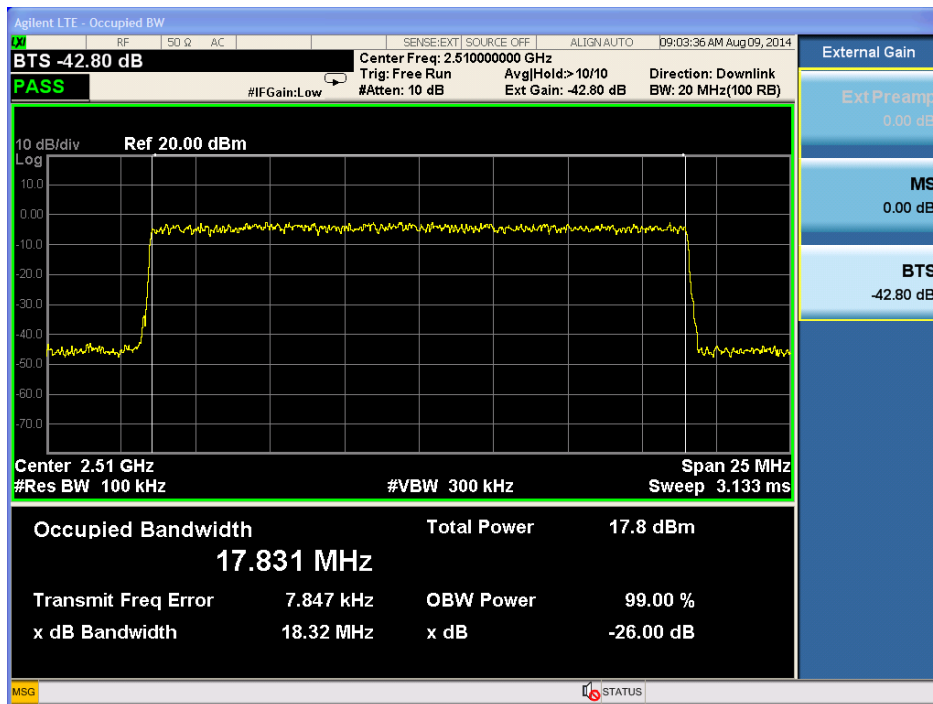


1.6 highest frequency



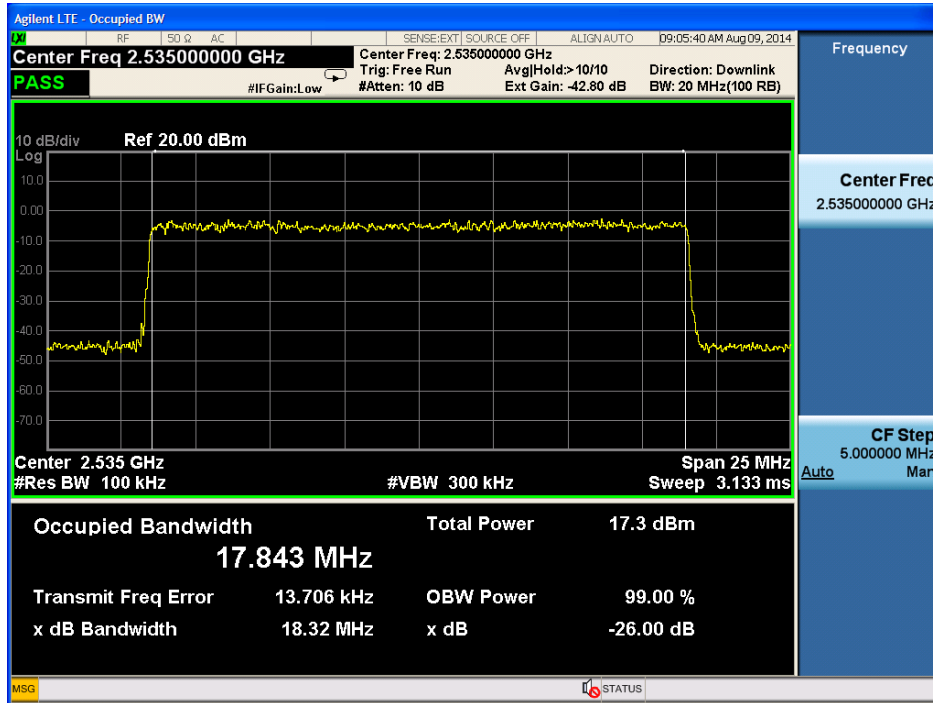
12) Uplink:2500MHz to 2570MHz(LTE mode)

1.1 lowest frequency

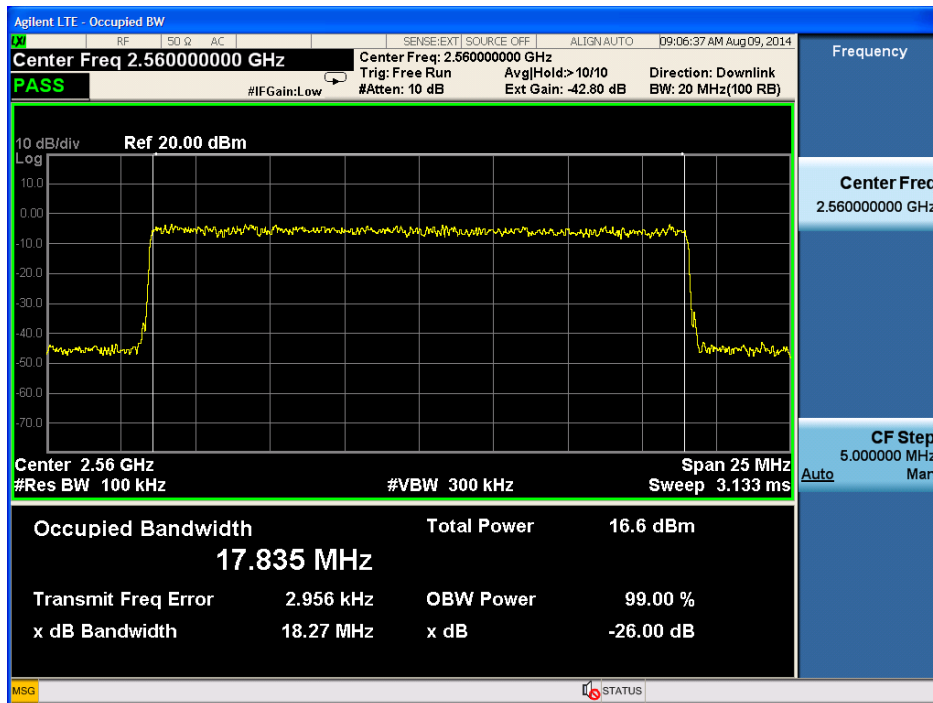




1.2 middle frequency

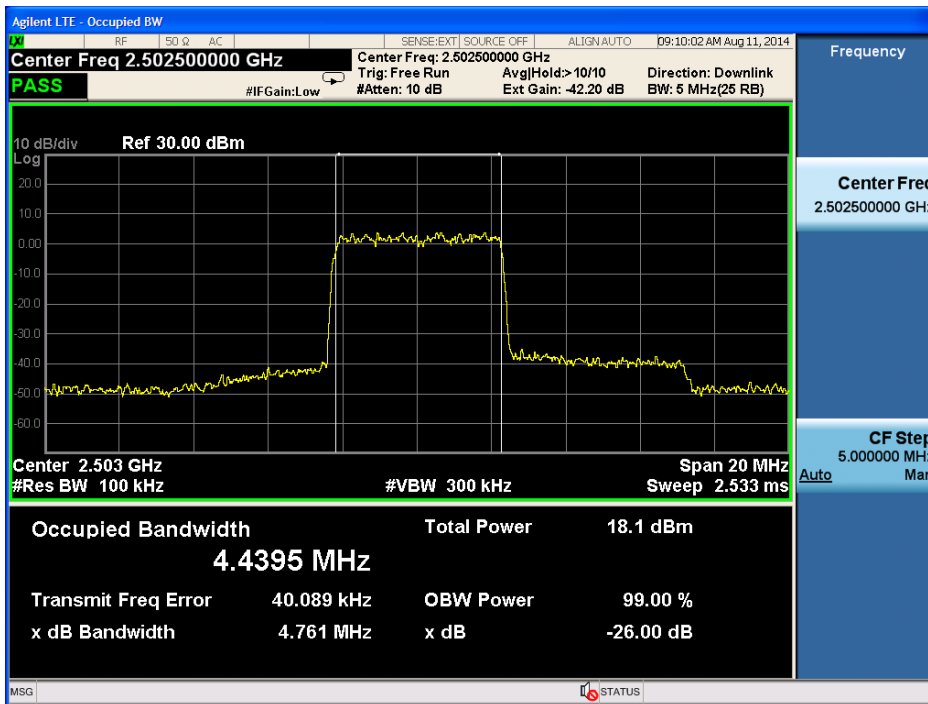


1.3 highest frequency

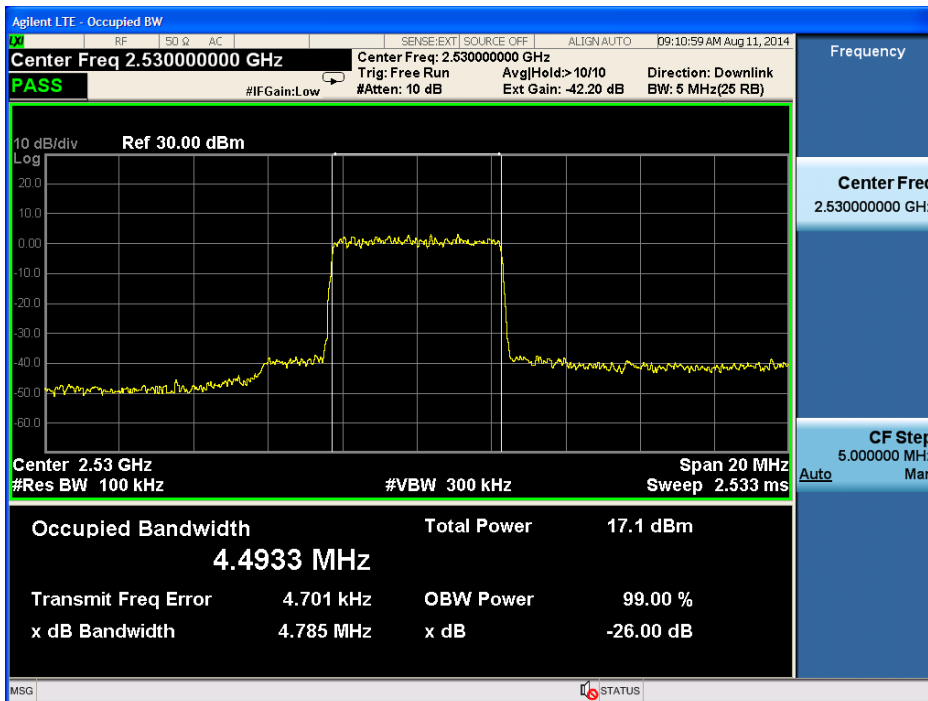




1.4 lowest frequency(5M modulation)

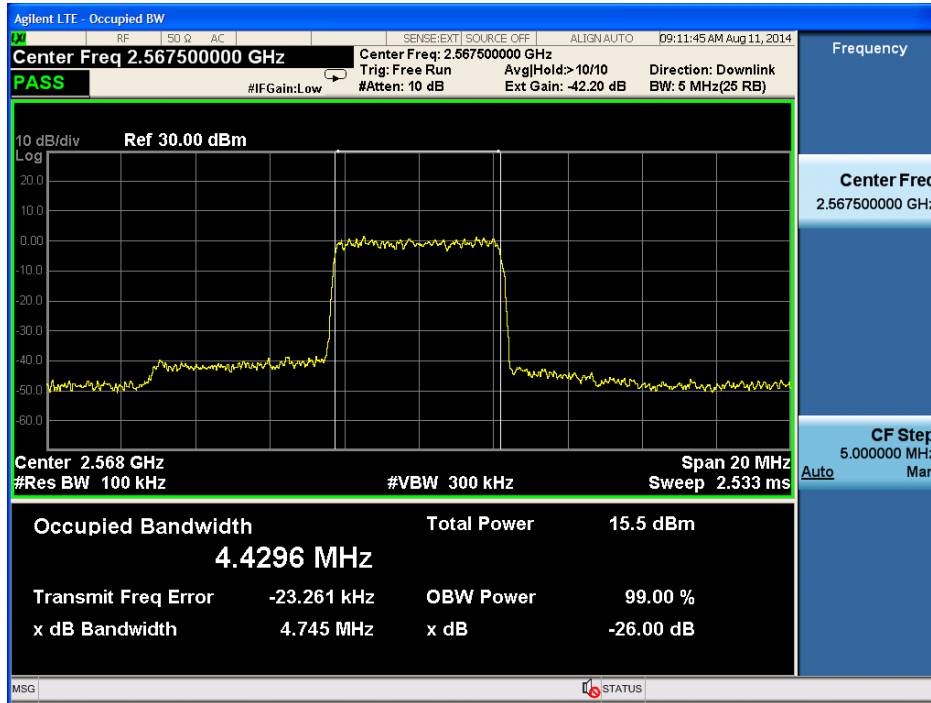


1.5 middle frequency





1.6 highest frequency



7.2.6 Out of Band Rejection

Test Date: 2013-03-17

Test Requirement: 2-11-04/EAB/RF

Test for rejection of out of band signals. Filter freq. response plots are acceptable.

Test Method: 2-11-04/EAB/RF

EUT Operation:

Status: Drive the EUT to maximum output power. .

Conditions: Normal conditions

Application: Cellular Band RF output ports

Test Configuration:

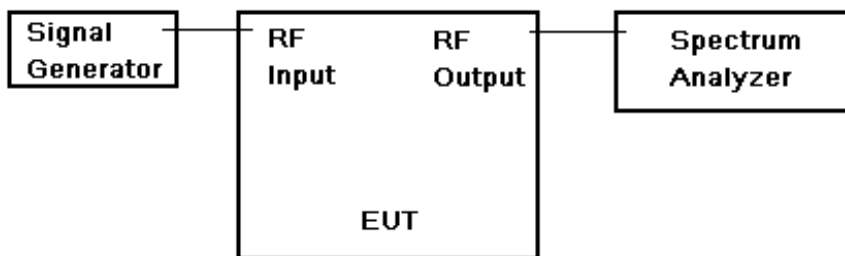


Fig.4. Out of Band rejection test configuration

Test Procedure:

1. Connect the equipment as illustrated;
 2. Test the background noise level with all the test facilities;
 3. Keep one transmitting path, all other connectors shall be connected by normal power or RF leads;
 4. Select the attenuator to avoid the test receiver or spectrum analyzer being destroyed;
 5. Keep the EUT continuously transmitting in max power;
 6. Signal generator sweep from the frequency more lower than the product frequency to the frequency more higher than it, find the product band filter characteristic;
- CW signal rather than typical signal is acceptable (for FM).
 - Multiple band filter will need test each other.

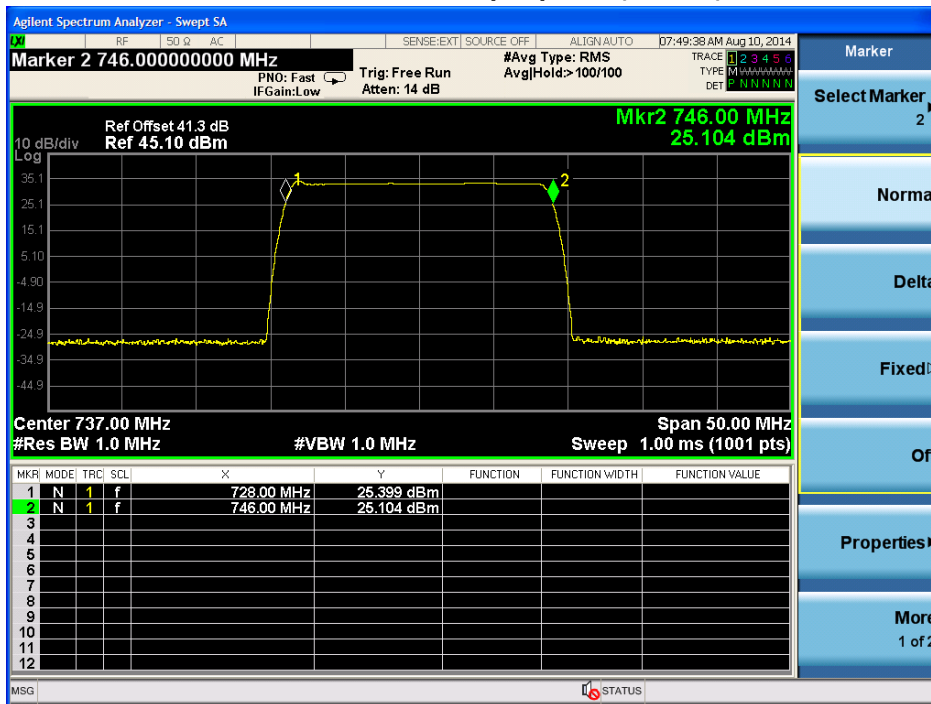


7.2.6.1 Measurement Record:

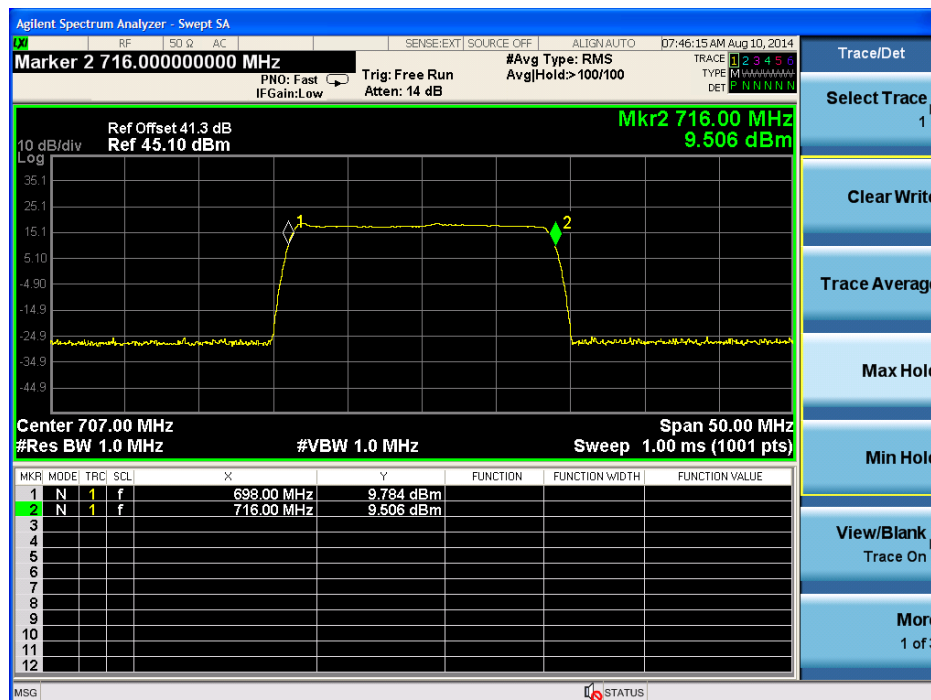
1)Test for Downlink: 728MHz to 746MHz

Remark:

Pretest the EUT with Maximum Rated Output Power(27dBm,30dBm,33dBm),finally find the worst case as the EUT with Maximum Rated Output power(33dBm).



2)Test for Uplink: 698MHz to 716MHz

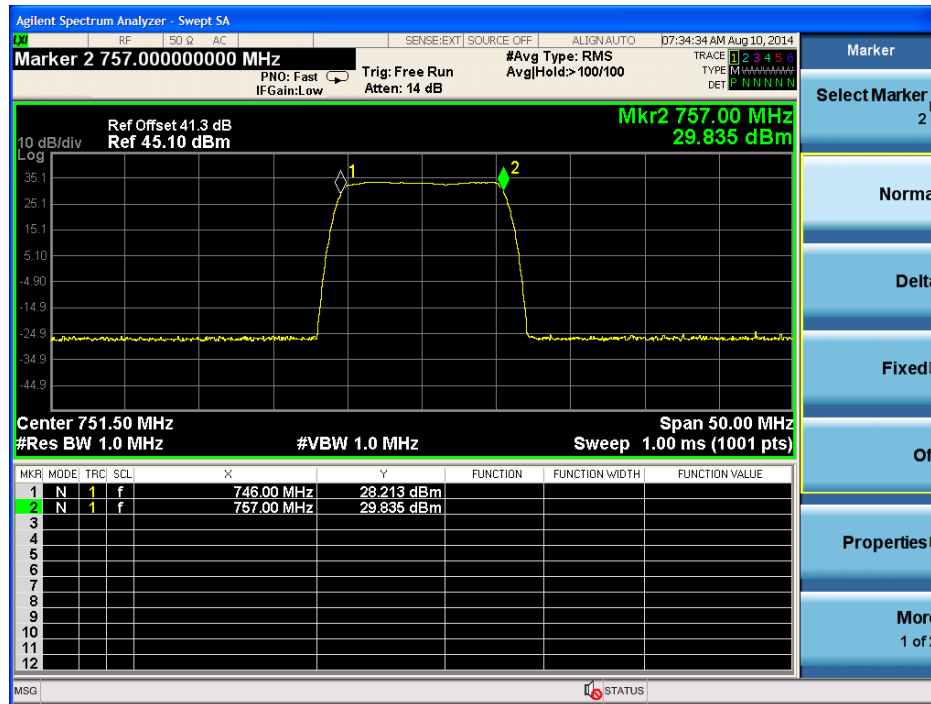




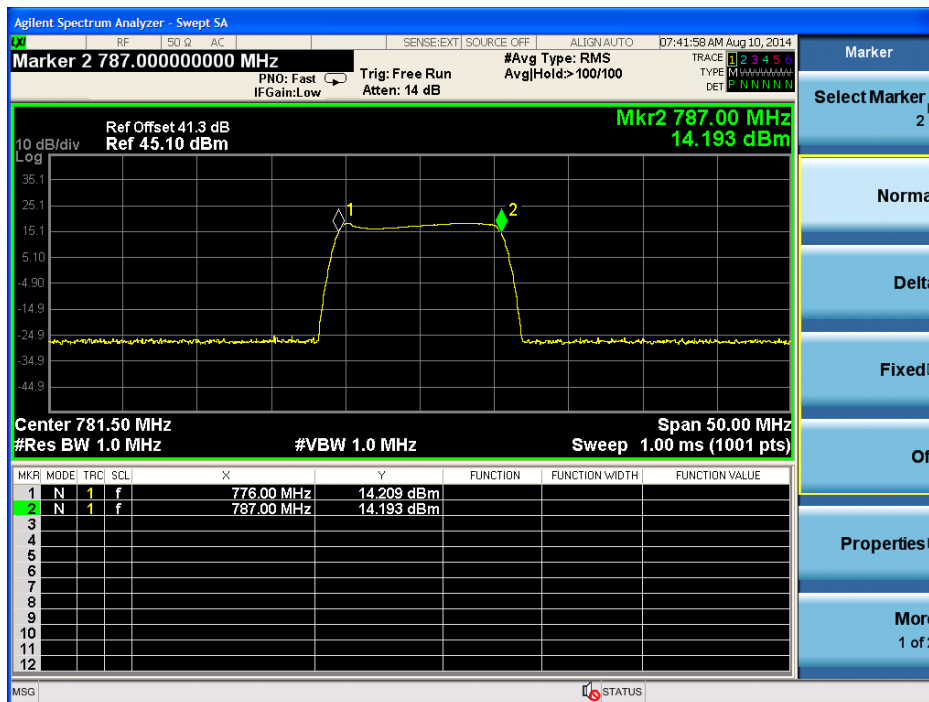
3)Test for Downlink: 746MHz to 757MHz

Remark:

Pretest the EUT with Maximum Rated Output Power(27dBm,30dBm,33dBm),finally find the worst case as the EUT with Maximum Rated Output power(33dBm).



4)Test for Uplink: 776MHz to 787MHz

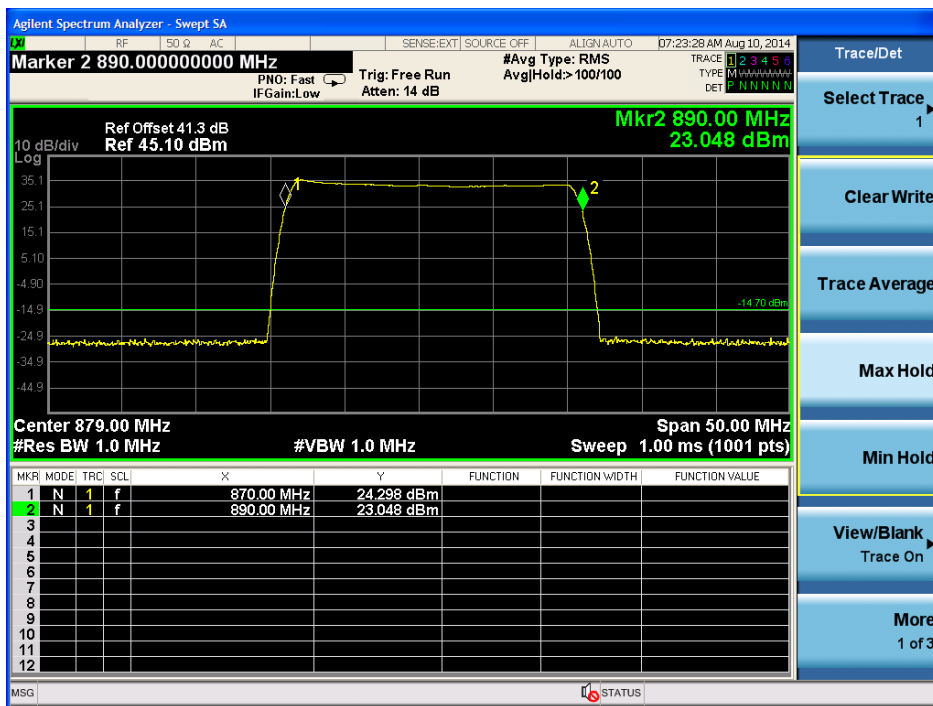
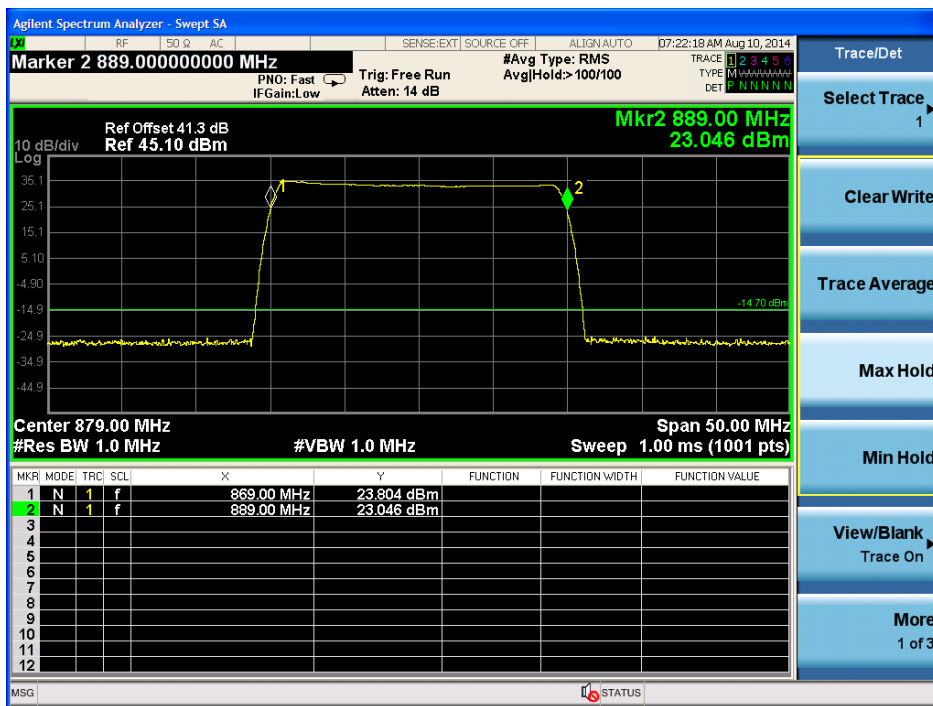


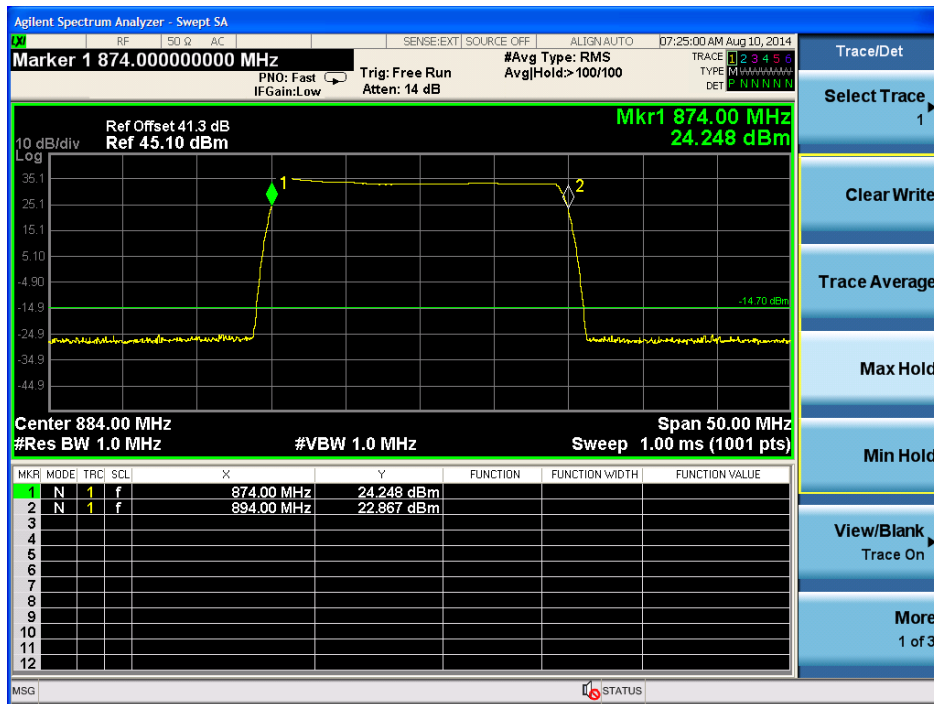


5)Test for Downlink: 869MHz to 894MHz

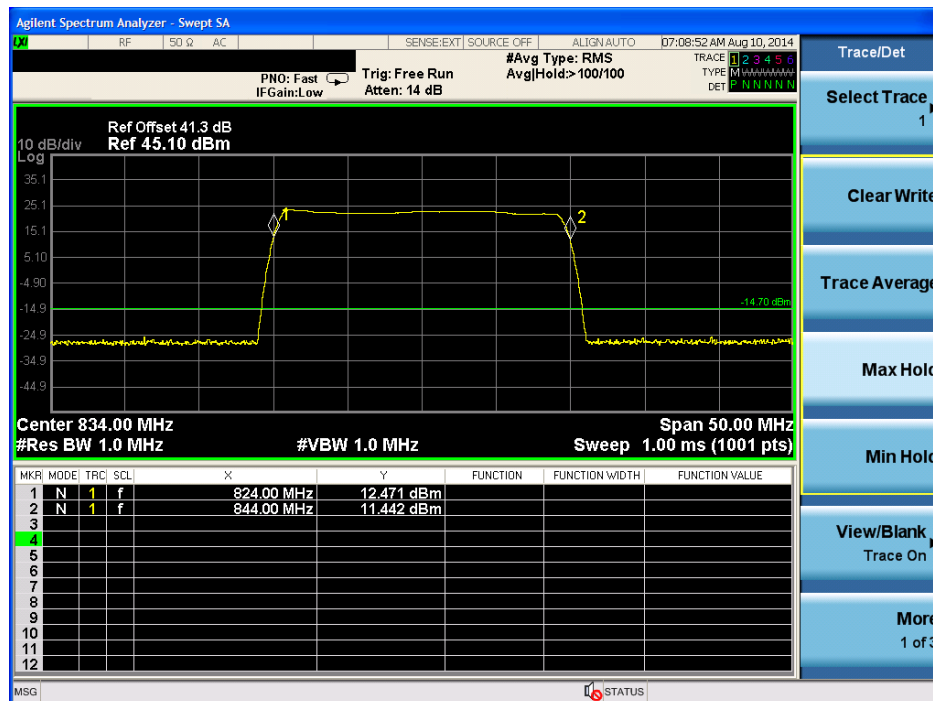
Remark:

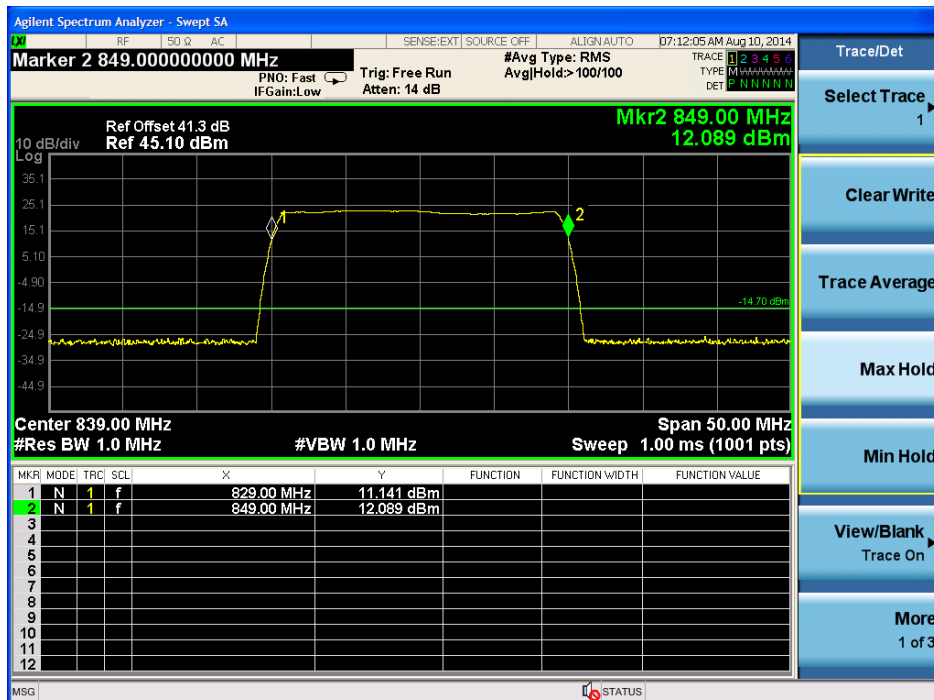
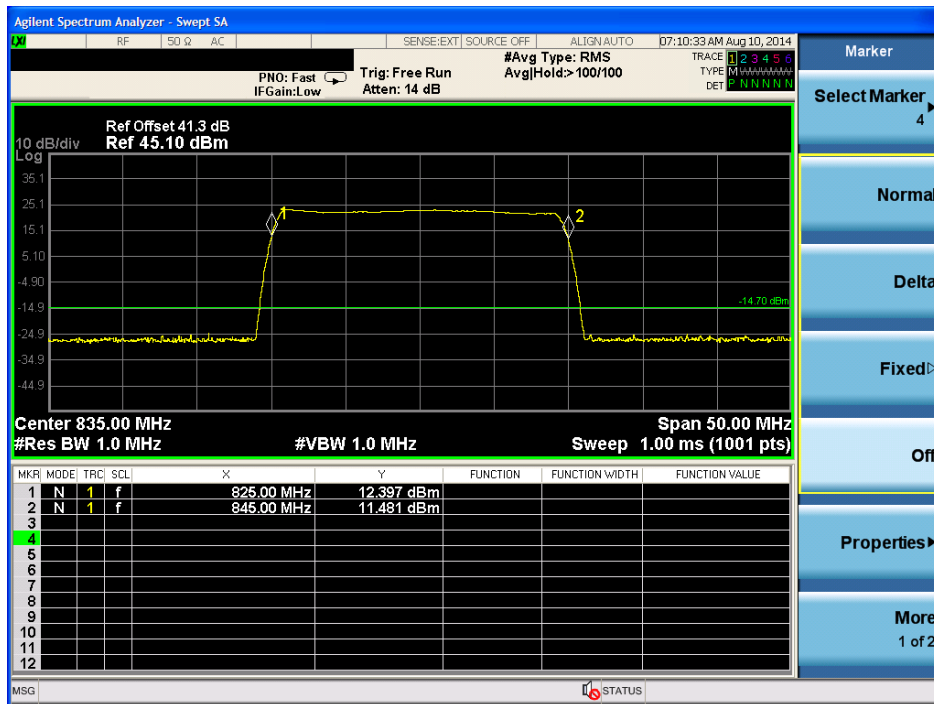
Pretest the EUT with Maximum Rated Output Power(27dBm,30dBm,33dBm),finally find the worst case as the EUT with Maximum Rated Output power(33dBm)





6) Test for Uplink: 824MHz to 849MHz

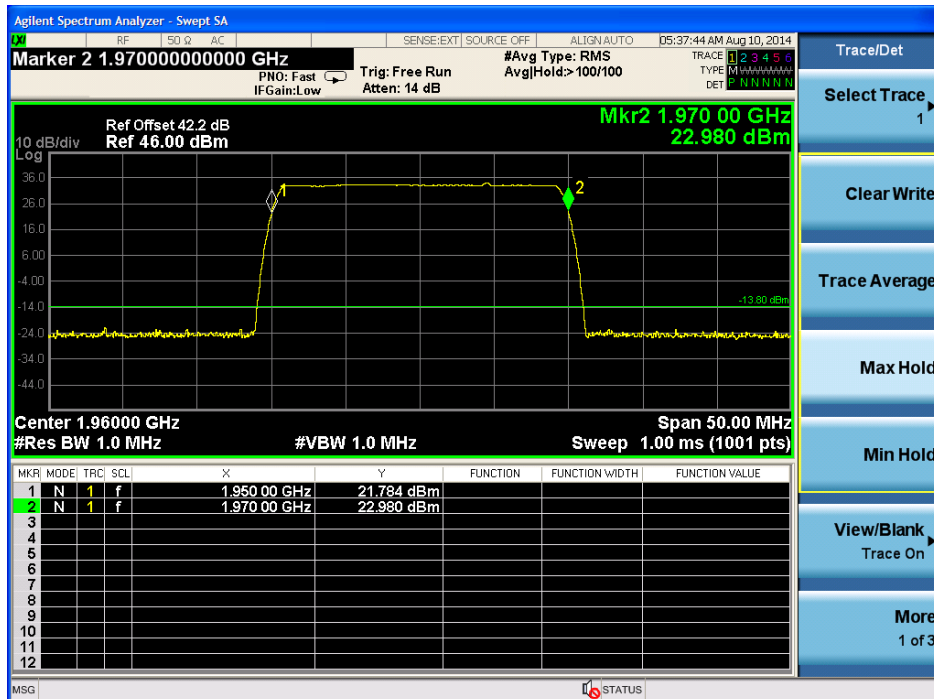
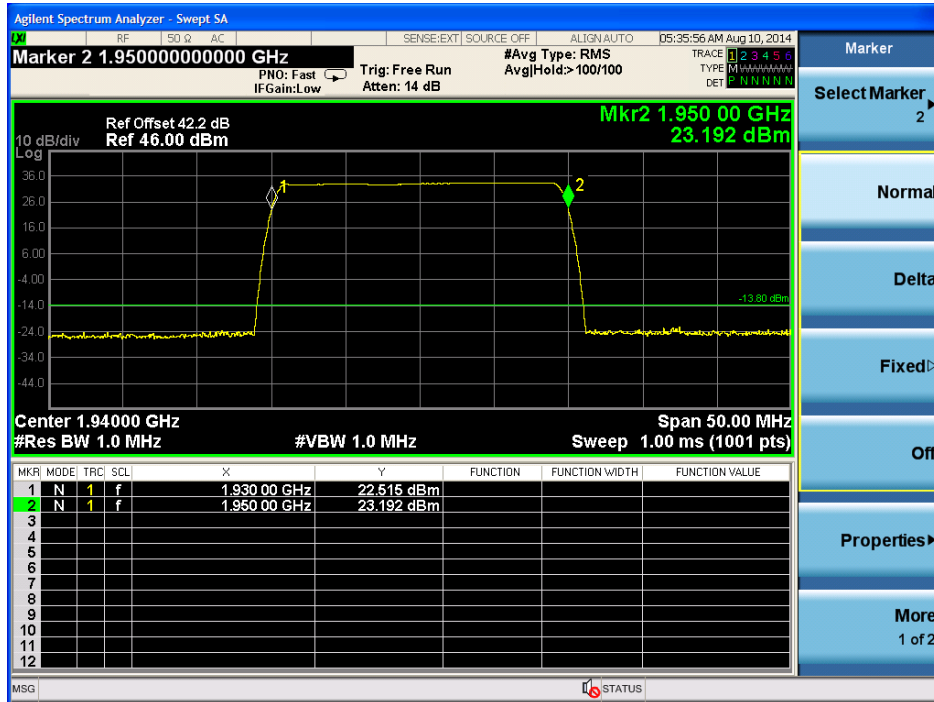


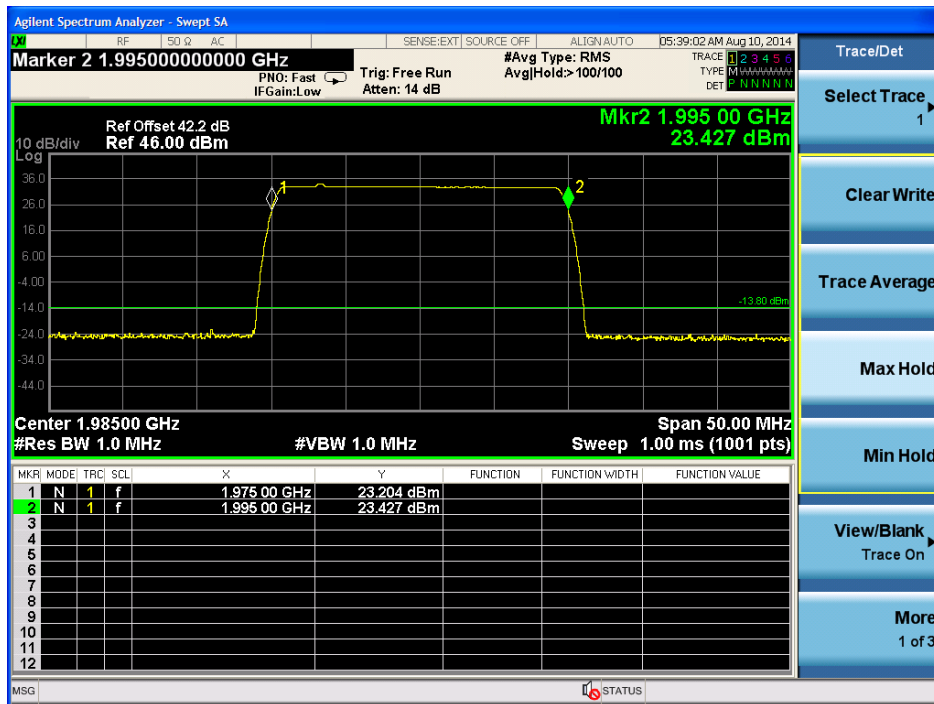


7) Test for Downlink: 1930MHz to 1995MHz

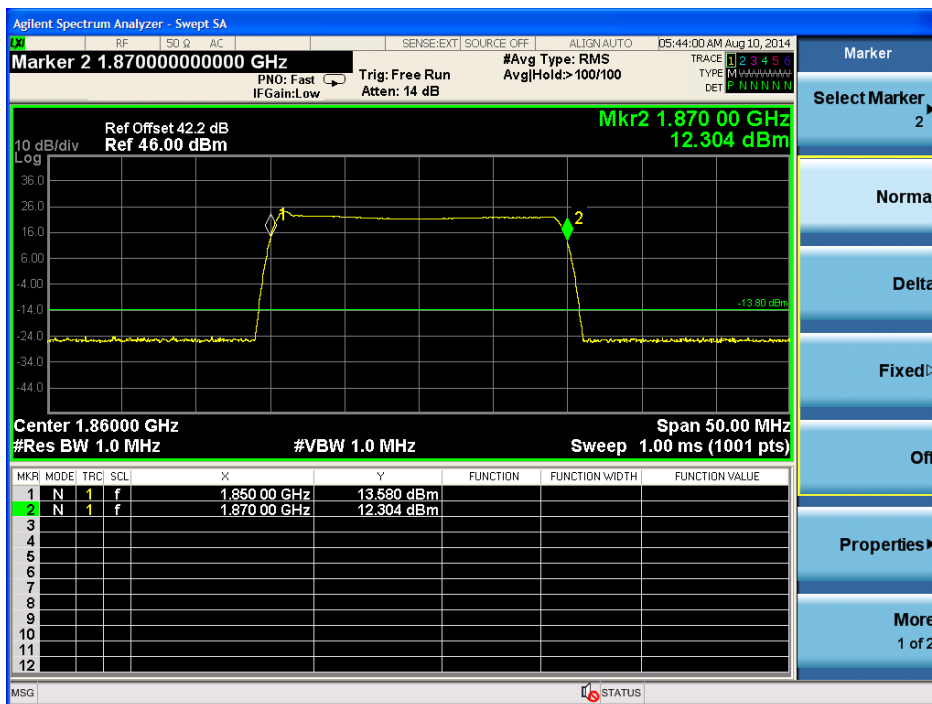
Remark:

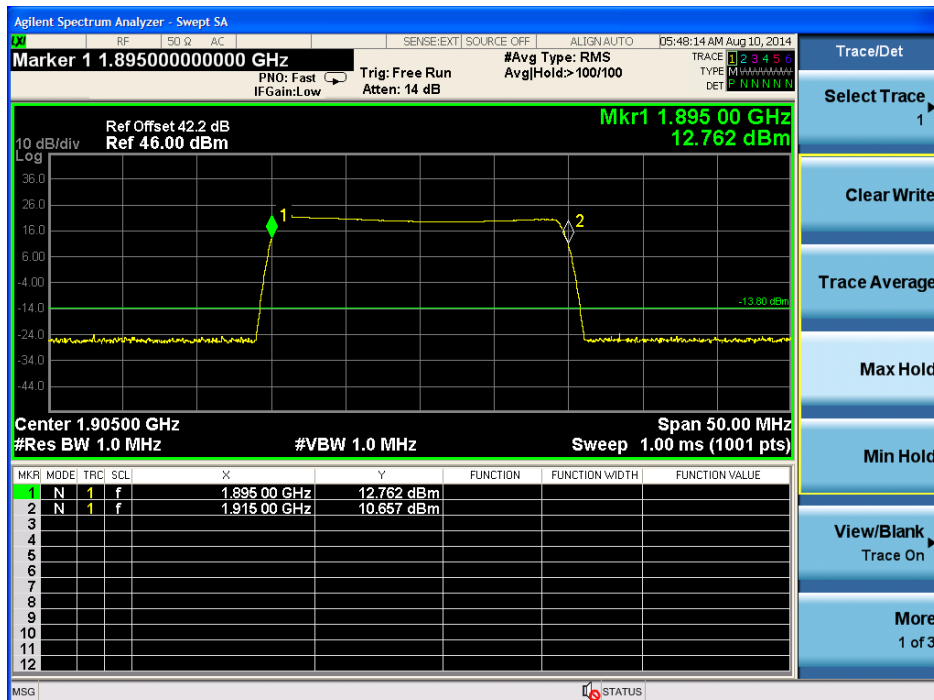
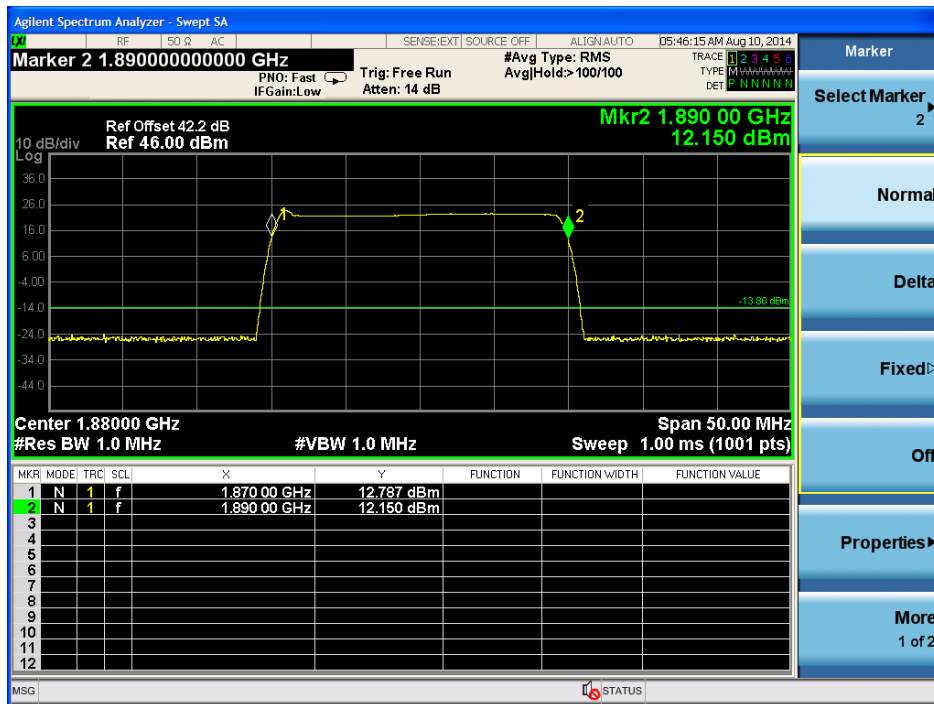
Pretest the EUT with Maximum Rated Output Power(27dBm,30dBm,33dBm),finally find the worst case as the EUT with Maximum Rated Output power(33dBm)





8) Test for Uplink: 1850MHz to 1915MHz



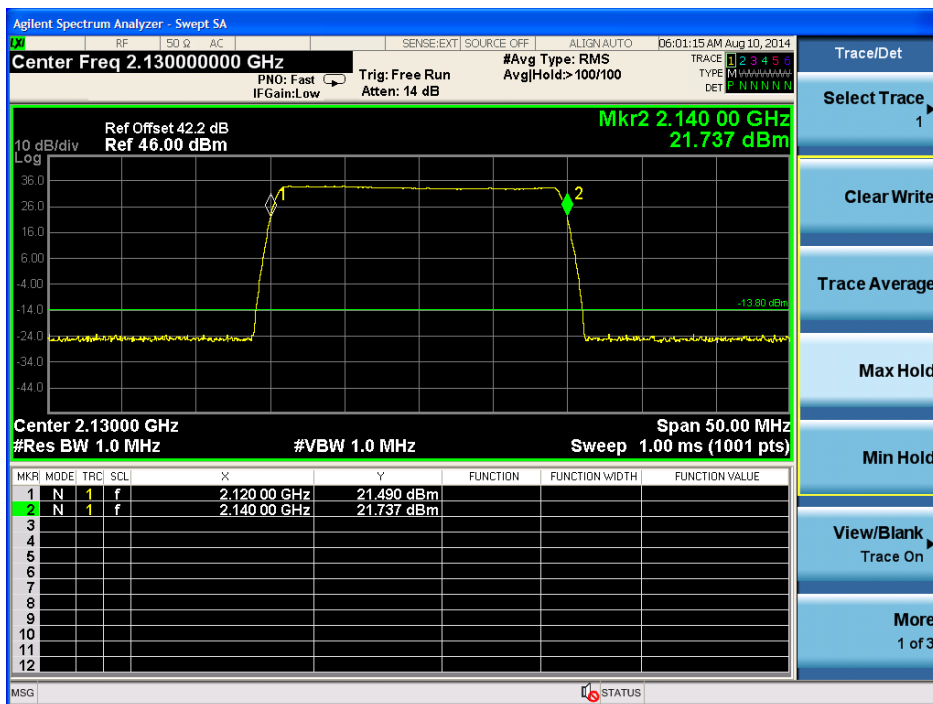
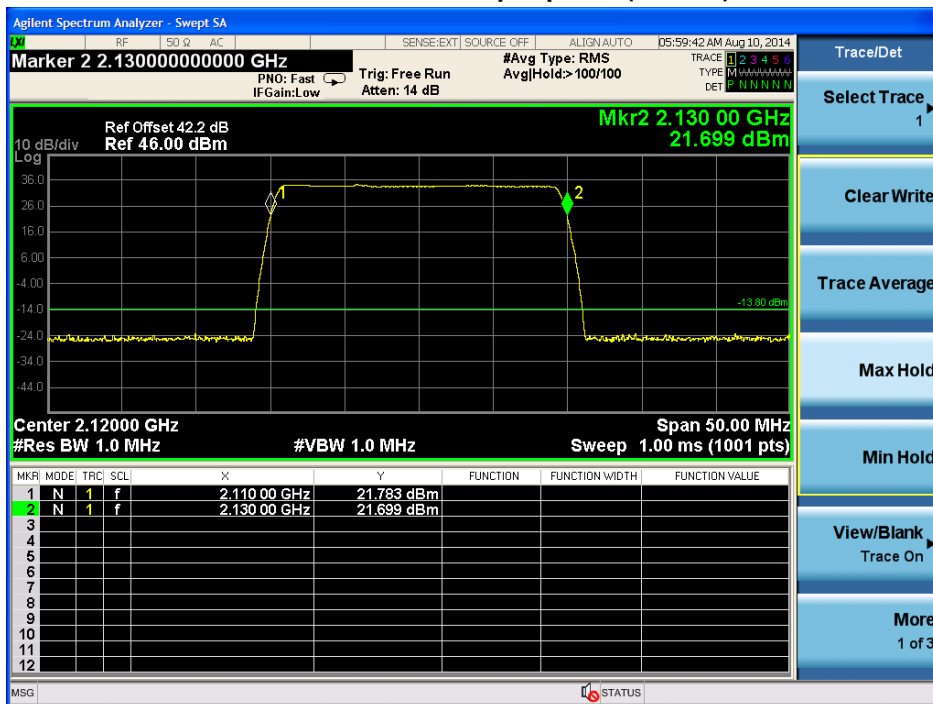


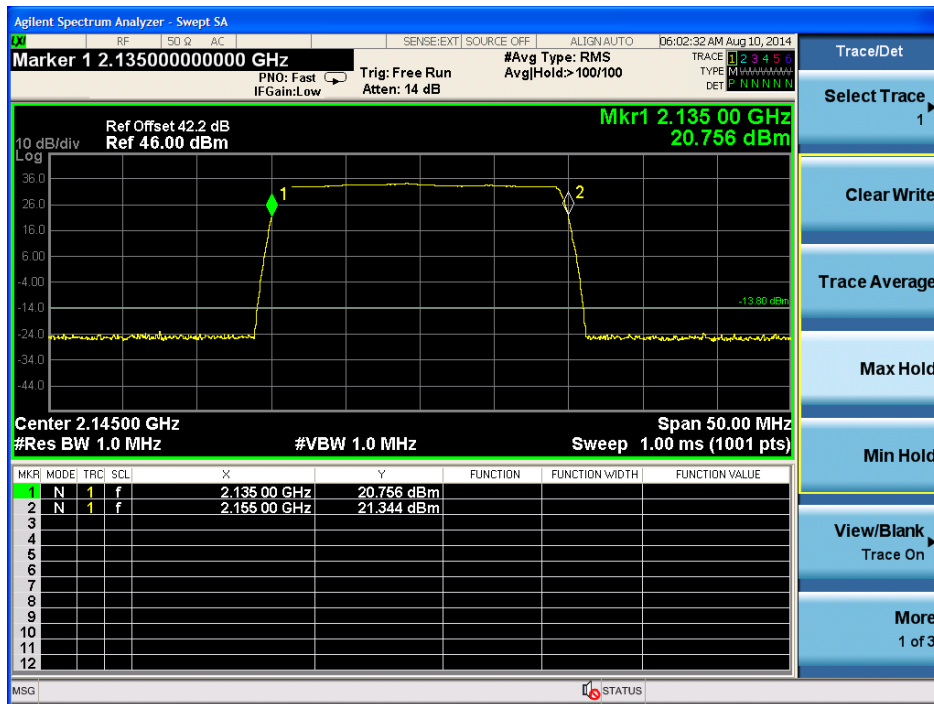


9)Test for Downlink: 2110MHz to 2155MHz

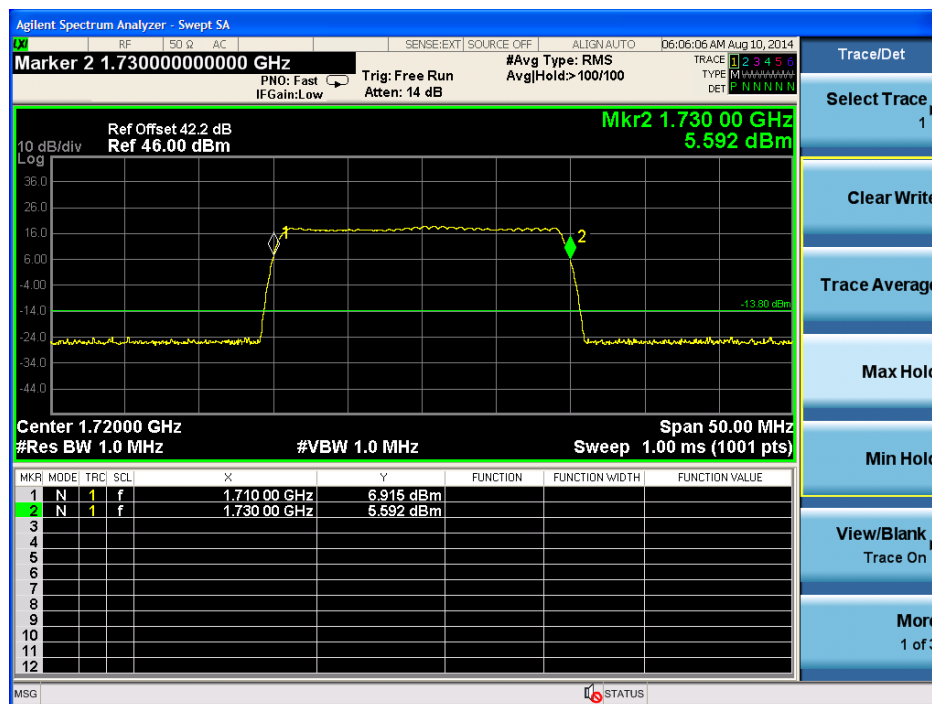
Remark:

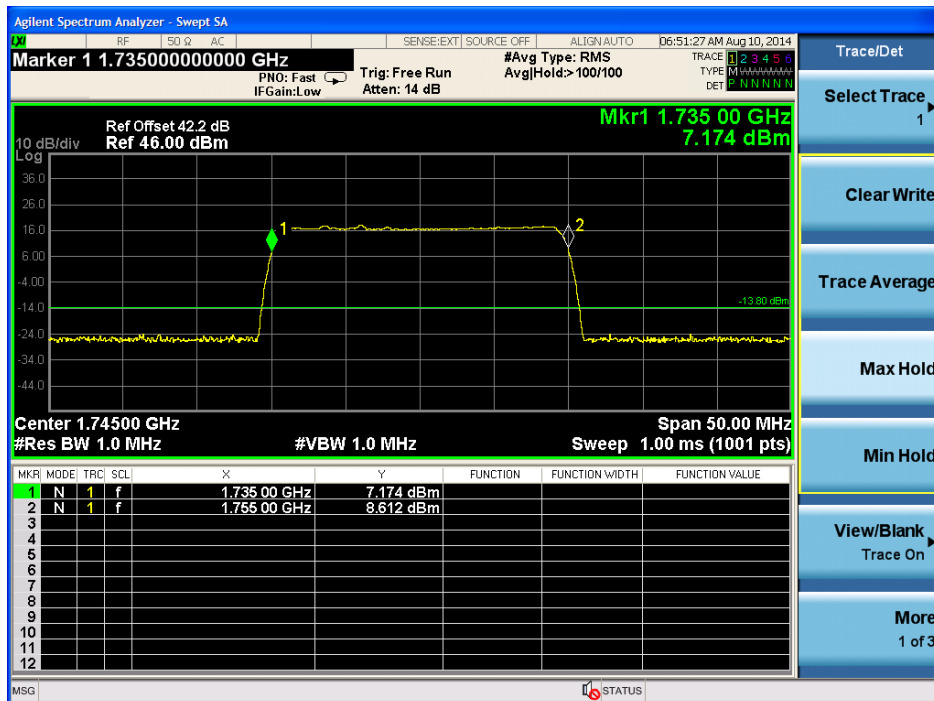
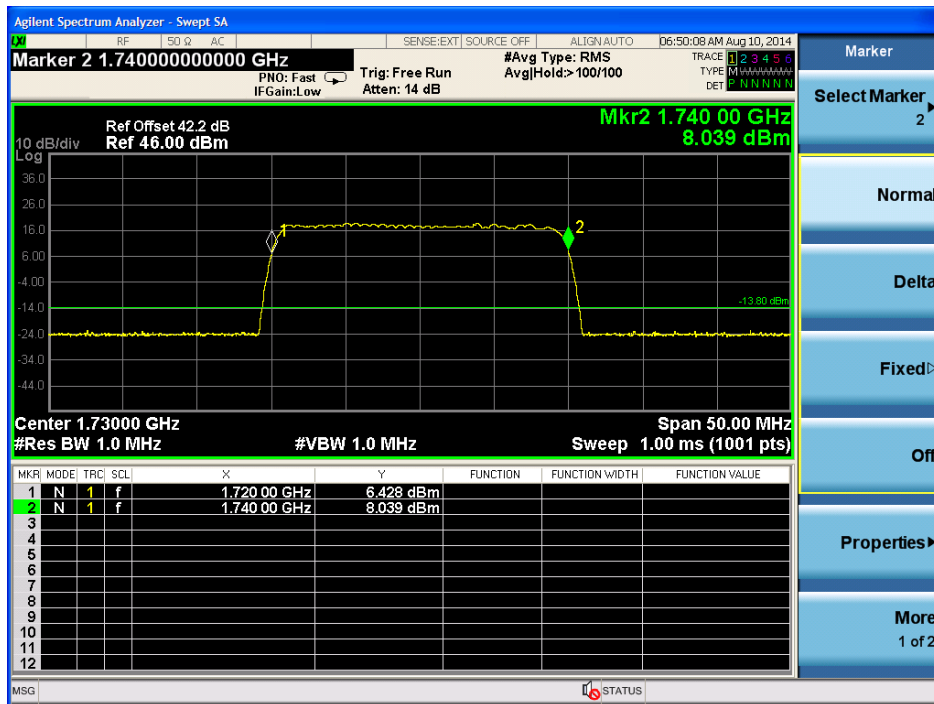
Pretest the EUT with Maximum Rated Output Power(27dBm,30dBm,33dBm),finally find the worst case as the EUT with Maximum Rated Output power(33dBm).





10) Test for uplink: 1710MHz to 1755MHz

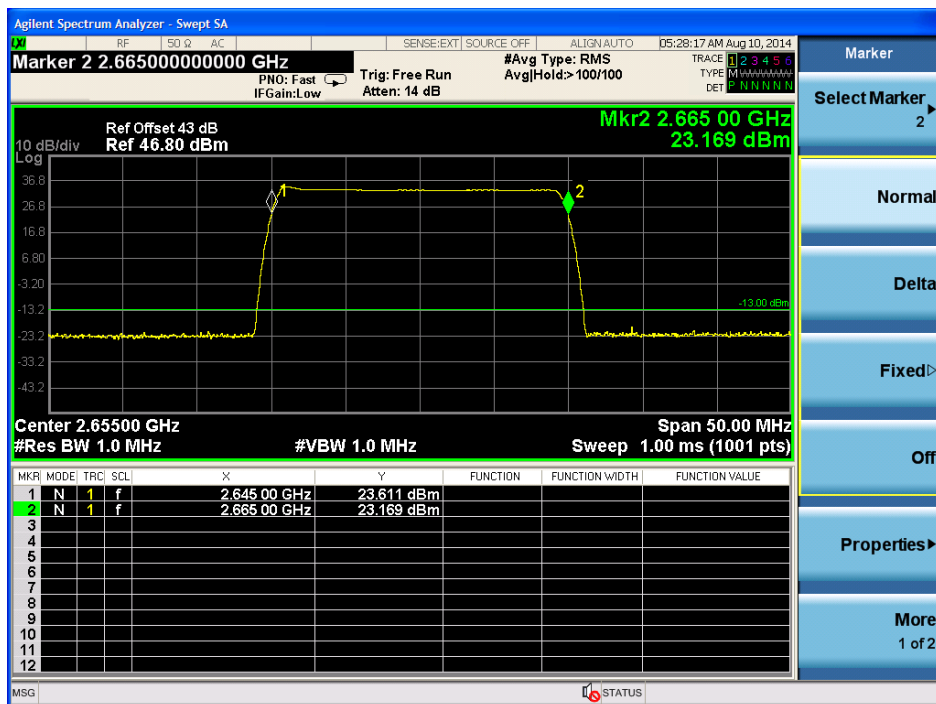
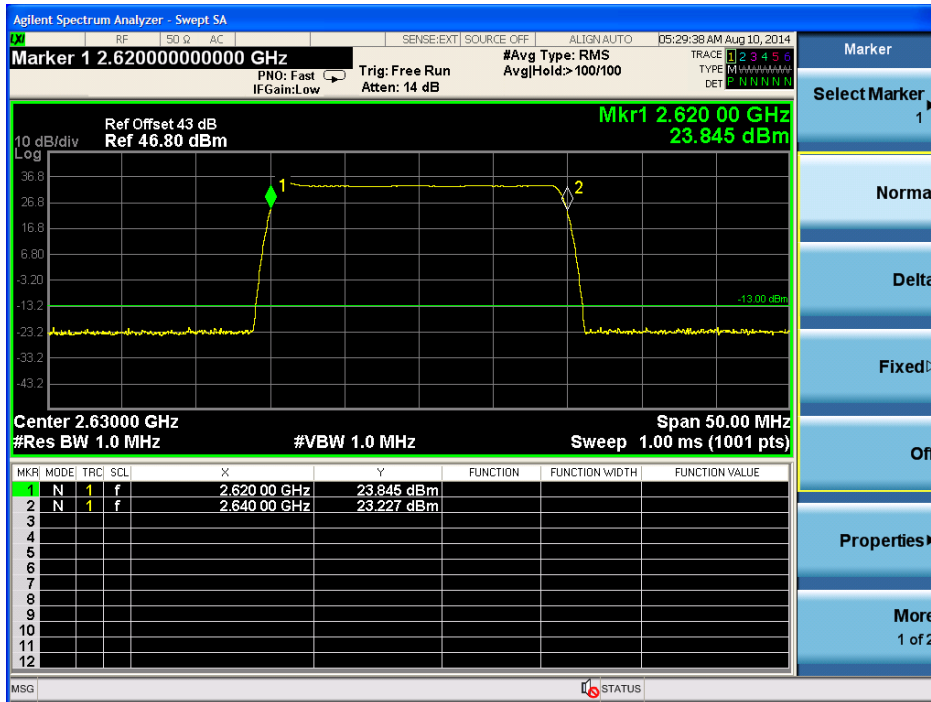


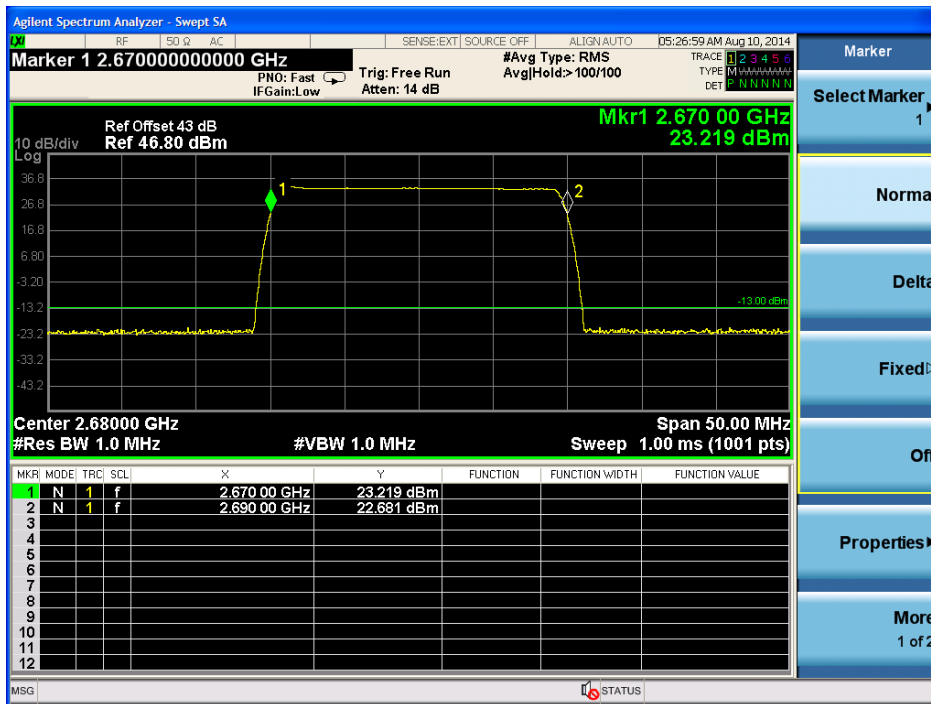


11) Test for Downlink: 2620MHz to 2690MHz

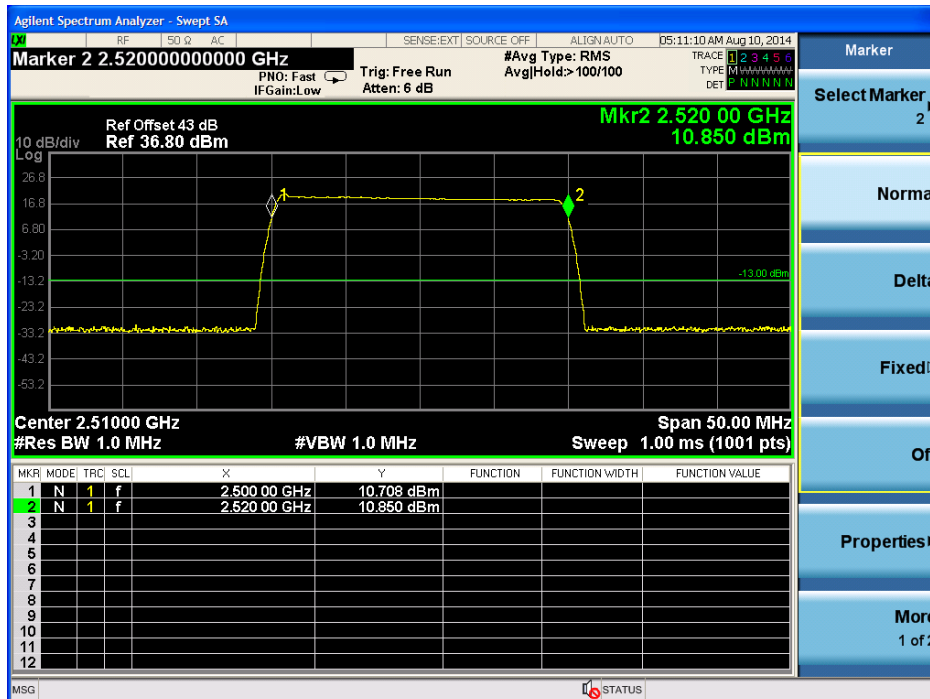
Remark:

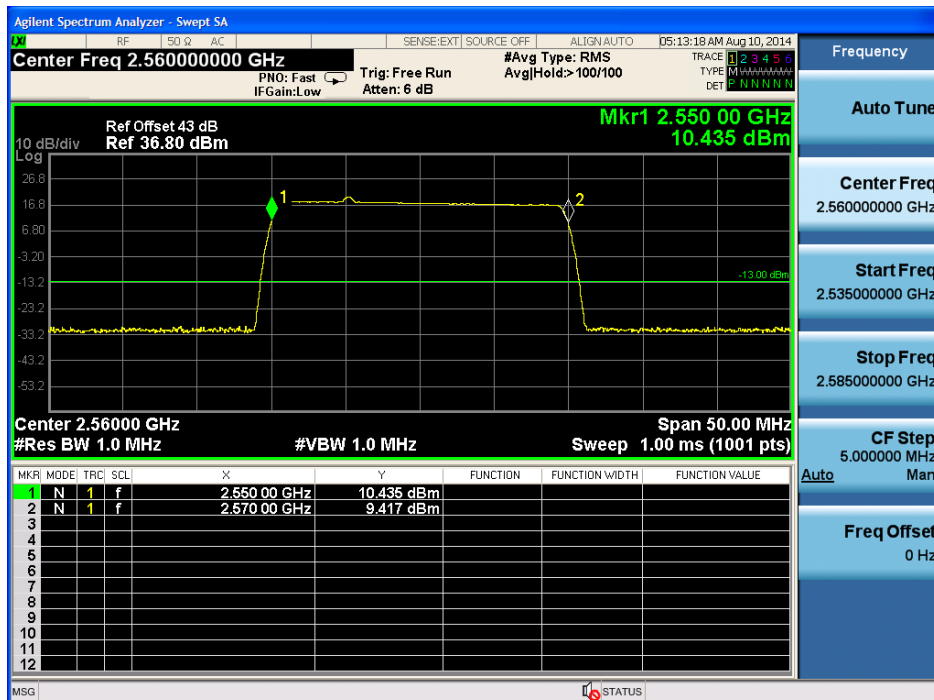
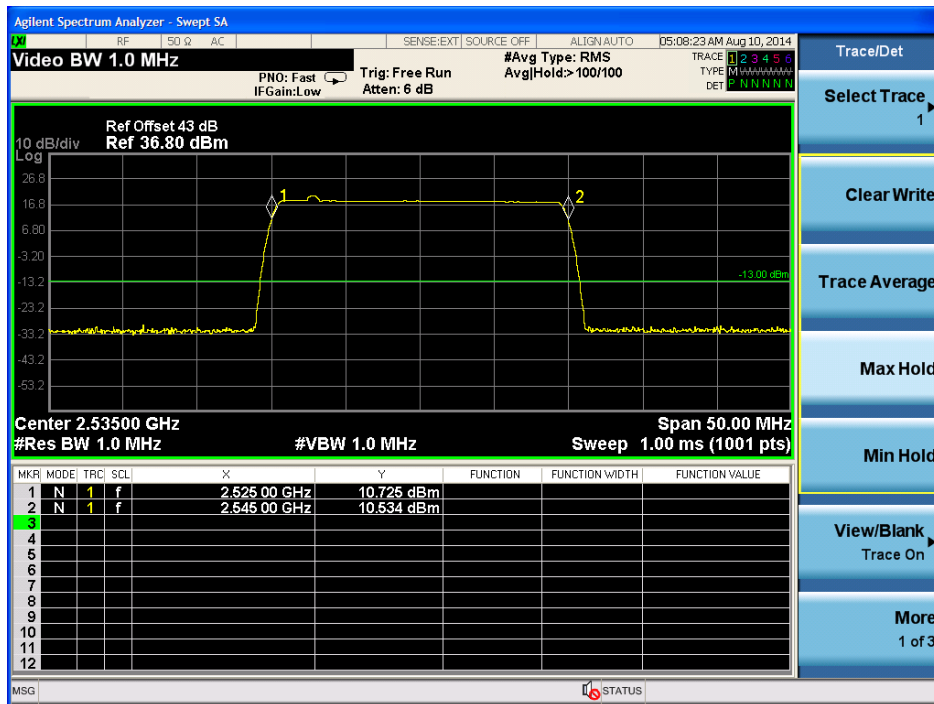
Pretest the EUT with Maximum Rated Output Power(27dBm,30dBm,33dBm),finally find the worst case as the EUT with Maximum Rated Output power(33dBm).





12) Test for Uplink: 2500MHz to 2570MHz







7.2.7 Frequency Stability

Test Date: 2013-03-19

Test Requirement: FCC part 22.355 & FCC part 24.235 & FCC part 27.54

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

Test Method: FCC part 2.1055

EUT Operation:

Status: Drive the EUT to maximum output power.

Conditions: Temperature conditions, voltage conditions

Application: Cellular Band RF output ports

Test Procedure:

1. Temperature conditions:
 - a) The RF output port of the EUT was connected to Frequency Meter;
 - b) Set the working Frequency in the middle channel;
 - c) record the 20°C and nominal voltage frequency value as reference point;
 - d) vary the temperature from -40°C to 50°C with step 10°C
 - e) when reach a temperature point, keep the temperature balance at least 1 hour to make the product working in this status;
 - f) read the frequency at the relative temperature.
2. Voltage conditions:
 - a) record the 20°C and nominal voltage frequency value as reference point;
 - b) vary the voltage from -15% nominal voltage to +15% voltage;
 - c) read the frequency at the relative voltage.



7.2.7.1 Measurement Record:

1) Frequency Stability vs temperature:

1.1) Test for Downlink: 728~746MHz (middle channel 737MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	733.000029	0.00095479
40	733.000025	0.00040927
30	733.000021	-0.00013642
20	733.000022	Reference
10	733.000024	0.00027285
0	733.000022	0
-10	733.000019	-0.00040927
-20	733.000031	-0.00122783
-30	733.000030	0.00109140
-40	733.000021	-0.00013642

1.2) Test for Downlink: 698~716MHz (middle channel 707MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	707.000025	0.00026277
40	707.000024	0.00042432
30	707.000023	-0.00028288
20	707.000021	Reference
10	707.000025	0.00056577
0	707.000026	0.00070721
-10	707.000019	-0.00028288
-20	707.000033	0.00016973
-30	707.000030	0.00147290
-40	707.000025	0.00056577

1.3) Test for Downlink: 746~757MHz (middle channel 751.5MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	751.500031	0.001064538
40	751.500024	0.000133067
30	751.500022	-0.00013307
20	751.500023	Reference
10	751.500025	0.000266134
0	751.500026	0.000399202
-10	751.500019	-0.00053227
-20	751.500033	0.001330672
-30	751.500030	0.00093147
-40	751.500025	0.000266134



1.4) Test for Downlink: 776~787MHz (middle channel 781.5MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	781.5000031	0.000896
40	781.5000024	0
30	781.5000022	-0.00026
20	781.5000024	Reference
10	781.5000025	0.000128
0	781.5000026	0.000256
-10	781.5000019	-0.00064
-20	781.5000032	0.001024
-30	781.5000031	0.000896
-40	781.5000026	0.000256

1.5) Test for Downlink: 869~894MHz (middle channel 881.5MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	881.5000031	0.001021
40	881.5000025	0.00034
30	881.5000021	-0.00011
20	881.5000022	Reference
10	881.5000027	0.000567
0	881.5000024	0.000227
-10	881.5000018	-0.00045
-20	881.5000031	0.001021
-30	881.5000032	0.001134
-40	881.5000026	0.000454

1.6) Test for Downlink: 824~849MHz (middle channel 836.5MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	836.5000030	0.001076
40	836.5000025	0.000478
30	836.5000023	0.000239
20	836.5000021	Reference
10	836.5000027	0.000717
0	836.5000028	0.000837
-10	836.5000019	-0.00024
-20	836.5000030	0.001076
-30	836.5000033	0.001435
-40	836.5000027	0.000717



1.7) Test for Downlink: 1930~1995MHz (middle channel 1962.5MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	1962.5000030	0.000509554
40	1962.5000025	0.000254777
30	1962.5000021	0.0000509554
20	1962.5000020	Reference
10	1962.5000024	0.000203822
0	1962.5000028	0.000407643
-10	1962.5000020	0
-20	1962.5000031	0.00056051
-30	1962.5000032	0.000611465
-40	1962.5000027	0.000356688

1.8) Test for Downlink: 1850~1910MHz (middle channel 1882.5MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	1882.5000030	0.000424967
40	1882.5000025	0.000159363
30	1882.5000021	0.000053120
20	1882.5000022	Reference
10	1882.5000027	0.000265604
0	1882.5000025	0.000159363
-10	1882.5000018	-0.000212483
-20	1882.5000030	0.000424967
-30	1882.5000031	0.000478088
-40	1882.5000029	0.000371846

1.9) Test for Downlink: 2110~2155MHz (middle channel 2132.5MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	2132.5000031	0.000515826
40	2132.5000026	0.00028136
30	2132.5000023	0.00014068
20	2132.5000020	Reference
10	2132.5000024	0.000187573
0	2132.5000023	0.000140680
-10	2132.5000022	0.000093786
-20	2132.5000027	0.000328253
-30	2132.5000031	0.000515826
-40	2132.5000025	0.000234467



1.10) Test for Downlink: 1710~1755MHz (middle channel 1732.5MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	1732.500029	0.00034632
40	1732.500022	0.0000577201
30	1732.500021	-0.00011544
20	1732.500023	Reference
10	1732.500024	0.000187573
0	1732.500023	0.00014068
-10	1732.500018	0.000093786
-20	1732.500031	0.000328253
-30	1732.500032	0.000515826
-40	1732.500027	0.000234467

1.11) Test for Downlink: 2620~2690MHz (middle channel 2655MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	2655.000029	0.000188324
40	2655.000023	-0.000037664
30	2655.000021	-0.000112994
20	2655.000024	Reference
10	2655.000026	0.000075329
0	2655.000025	0.000037664
-10	2655.000018	-0.000225989
-20	2655.000030	0.000225989
-30	2655.000029	0.000188324
-40	2655.000026	0.000075329

1.12) Test for Downlink: 2500~2570MHz (middle channel 2535MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	2535.000028	0.000197
40	2535.000026	0.000118
30	2535.000024	0.00003940
20	2535.000023	Reference
10	2535.000022	-0.0000394477
0	2535.000021	-0.0000788955
-10	2535.000023	0
-20	2535.000029	0.000236686
-30	2535.000027	0.000157791
-40	2535.000025	0.000078895



2) Frequency Stability vs voltage:

2.1) For AC supplied:

2.1.1) Test for Downlink:728~746MHz (middle channel 733MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	733.0000025	0.000409277
120	733.0000022	Reference
138 (120*1.15)	733.0000027	0.000682128

2.1.2) Test for Downlink: 698~716MHz (middle channel 707MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	707.0000024	0.000424328
120	707.0000021	Reference
138 (120*1.15)	707.0000025	0.000565771

2.1.3) Test for Downlink: 746~757MHz (middle channel 751.5MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	751.5000027	0.000532269
120	751.5000023	Reference
138 (120*1.15)	751.5000022	-0.000133067

2.1.4) Test for Downlink: 776~787MHz (middle channel 781.5MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	781.5000026	0.000255918
120	781.5000024	Reference
138 (120*1.15)	781.5000027	-0.003454894

2.1.5) Test for Downlink: 869~894MHz (middle channel 881.5MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	881.5000020	-0.000226886
120	881.5000022	Reference
138 (120*1.15)	881.5000025	0.000340329



2.1.6) Test for Downlink:824~849MHz (middle channel 836.5MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	836.5000024	0.000358637
120	836.5000021	Reference
138 (120*1.15)	836.5000027	0.000717274

2.1.7) Test for Downlink: 1930~1995MHz (middle channel 1962.5MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	1962.5000022	0.000101911
120	1962.5000020	Reference
138 (120*1.15)	1962.5000023	0.000152866

2.1.8) Test for Downlink: 1850~1910MHz (middle channel 1962.5MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	1882.5000027	0.000265604
120	1882.5000022	Reference
138 (120*1.15)	1882.5000024	0.000106242

2.1.9) Test for Downlink: 2110~2155MHz (middle channel 2132.5MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	2132.5000025	0.000234467
120	2132.5000020	Reference
138 (120*1.15)	2132.5000021	0.0000468933

2.1.10) Test for Downlink: 1710~1755MHz (middle channel 1732.5MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	1732.5000021	-0.00011544
120	1732.5000023	Reference
138 (120*1.15)	1732.5000024	0.000057720



2.1.11) Test for Downlink: 2620~2690MHz (middle channel 2655MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	2655.0000022	-0.0000753296
120	2655.0000024	Reference
138 (120*1.15)	2655.0000021	-0.000112994

2.1.12) Test for Downlink: 2500~2570MHz (middle channel 2535MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	2535.0000024	0.000039447
120	2535.0000023	Reference
138 (120*1.15)	2535.0000020	-0.000118343

--The End of Report--