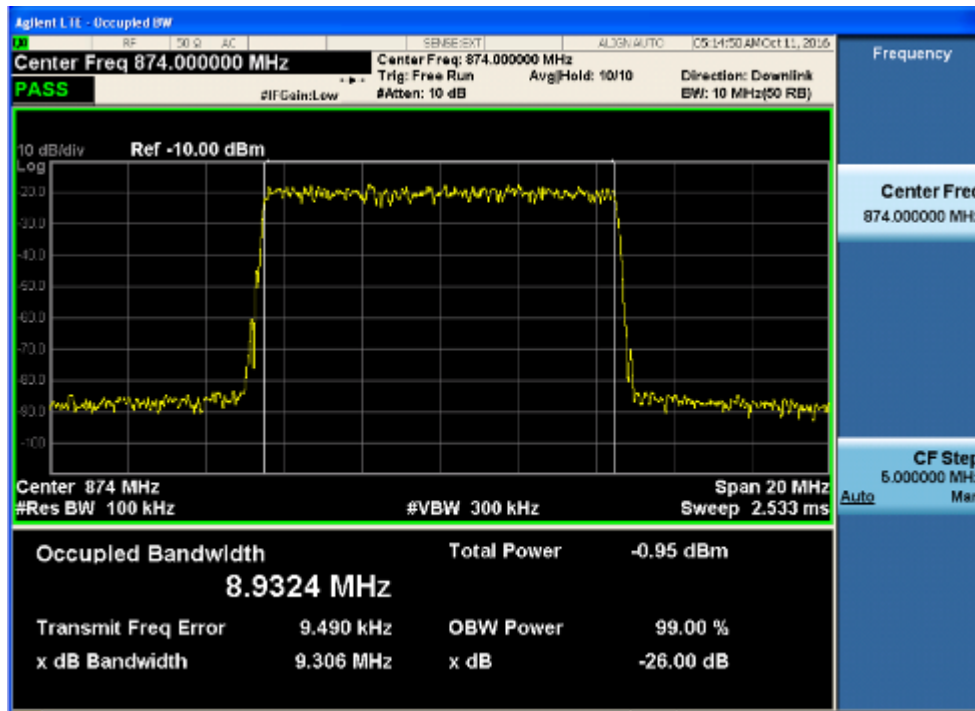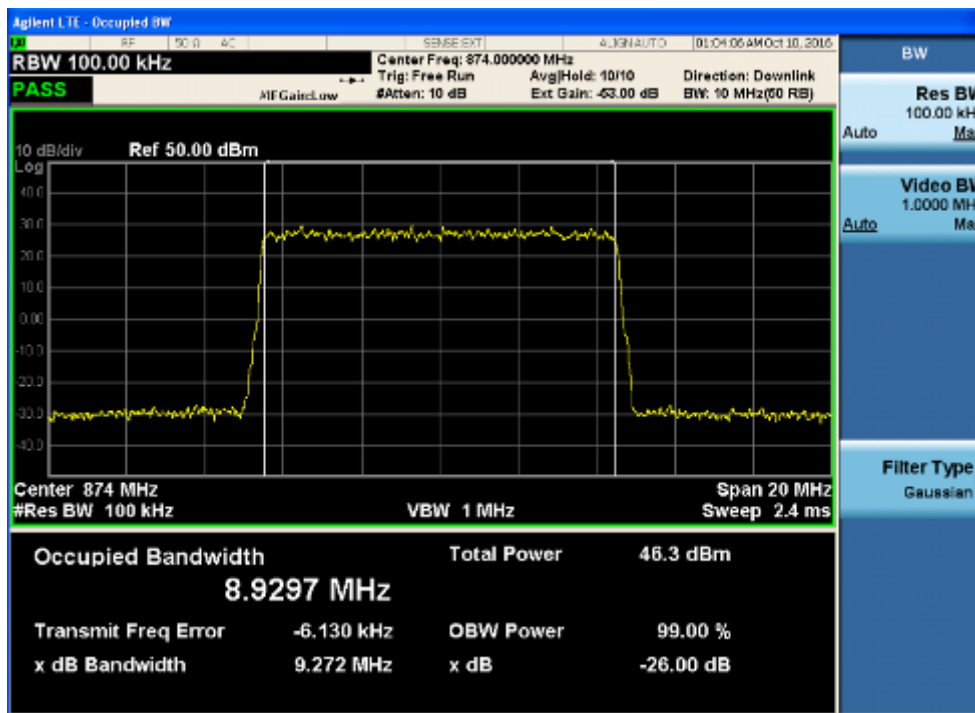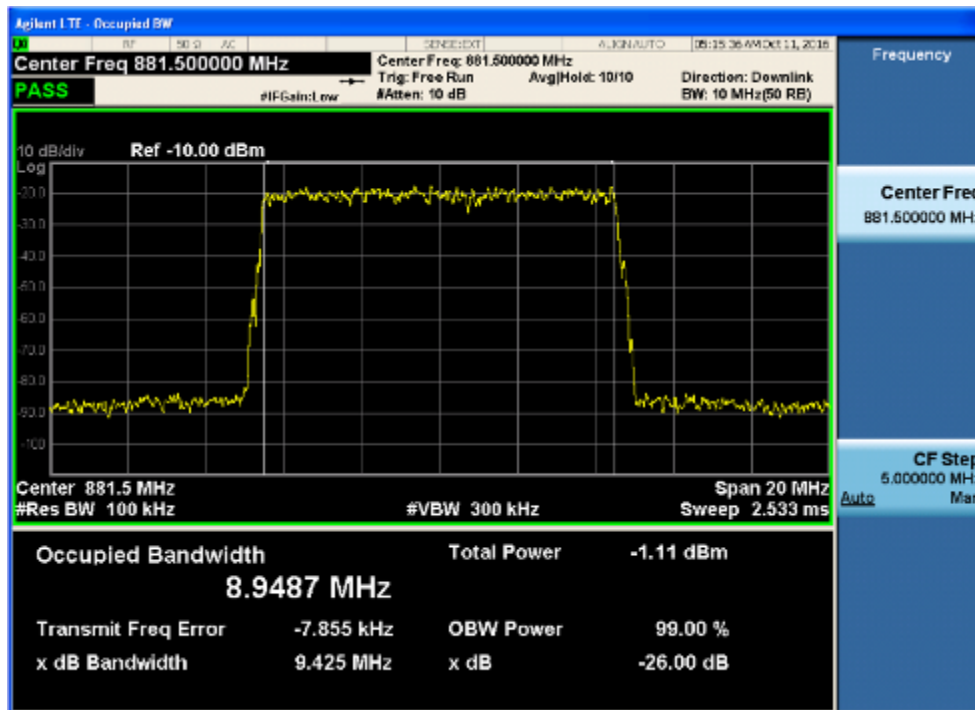2.4 LTEMode:

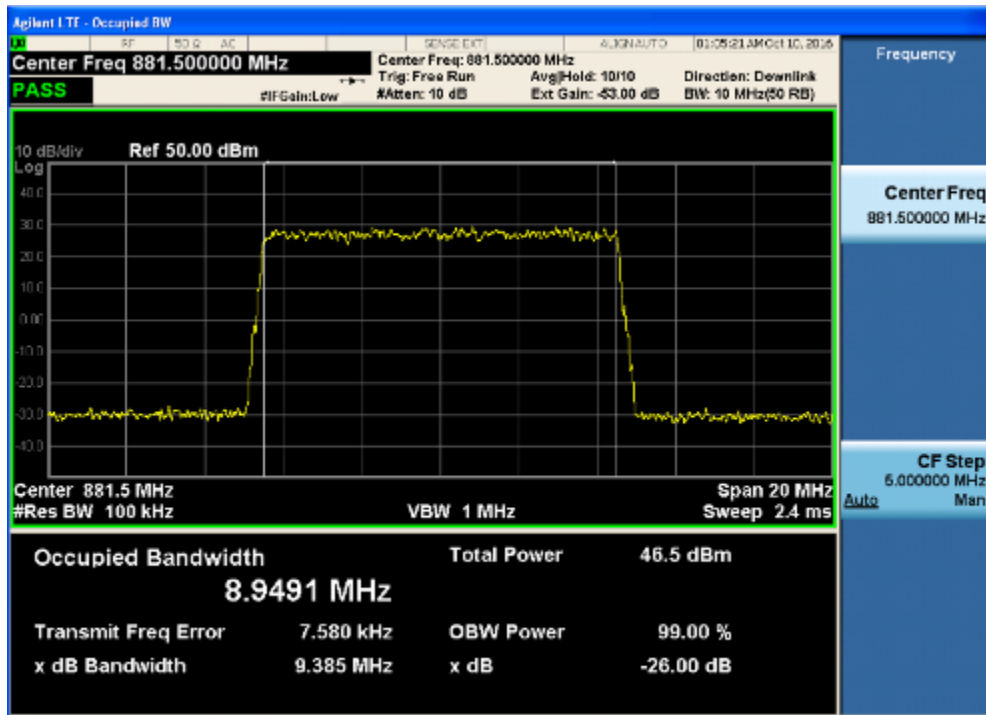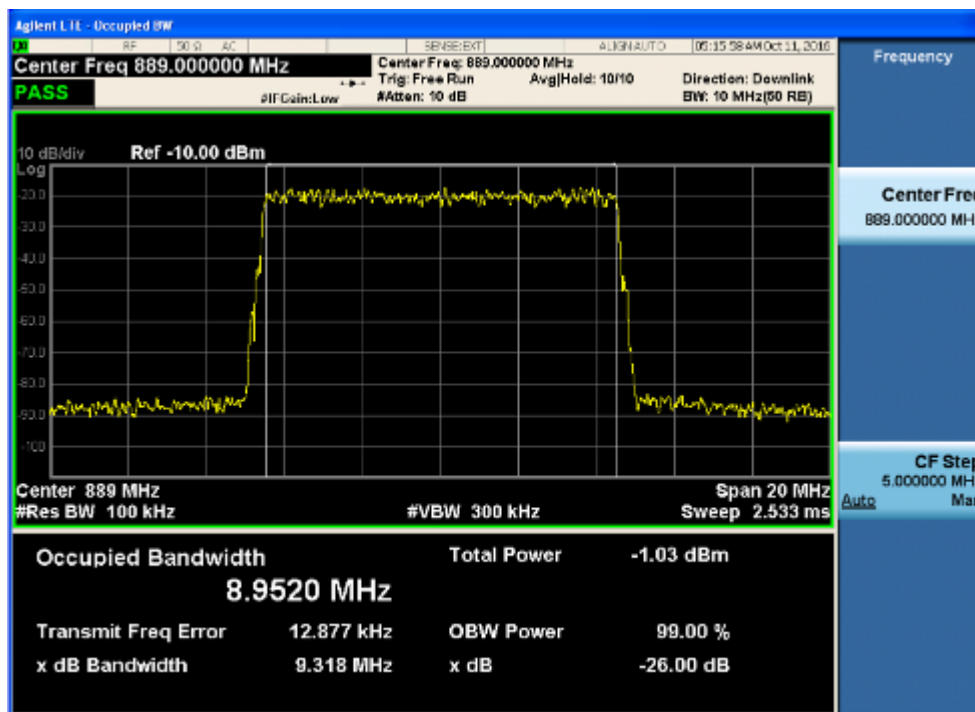2.4.1 lowest frequency– Input

2.4.2 lowest frequency-- Output

2.4.3 middle frequency-- Input

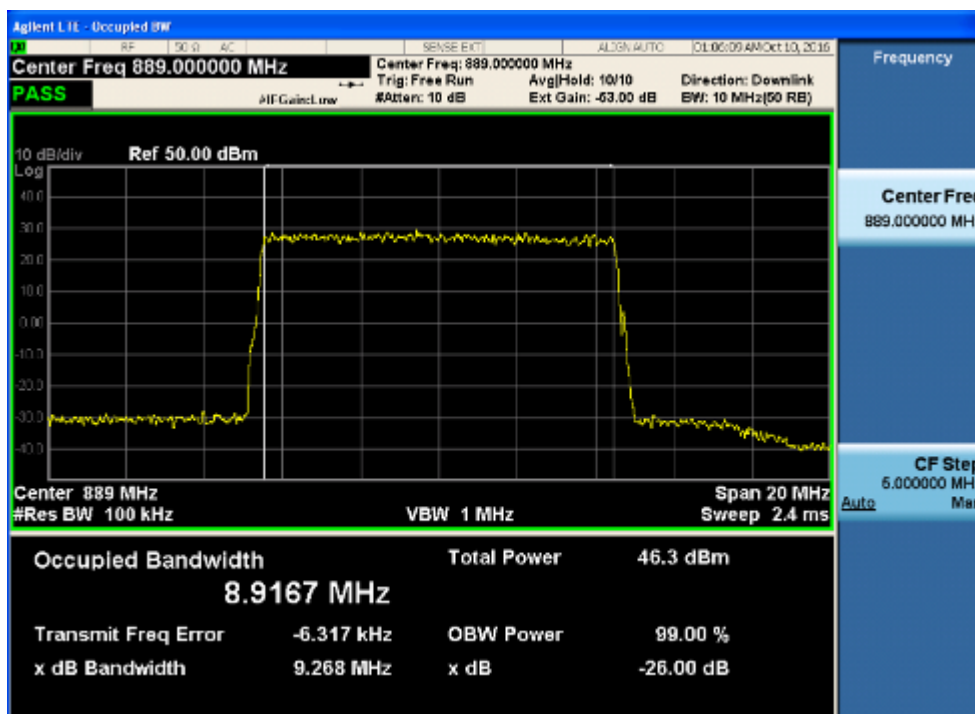### 2.4.4 middle frequency-- Output

2.4.5 highest frequency—Input

2.4.6 highest frequency--Output

3.Downlink: 1930MHz to 1995MHz(GSM,CDMA,WCDMA,LTE)

3.1 GSM Mode:

3.1.1 lowest frequency– Input

3.1.2 lowest frequency-- Output

3.1.3 middle frequency-- Input

3.1.4 middle frequency-- Output

3.1.5 highest frequency—Input

3.1.6 highest frequency--Output

3.2 CDMA Mode:

3.2.1 lowest frequency– Input

3.2.2 lowest frequency-- Output

3.2.3 middle frequency-- Input

3.2.4 middle frequency-- Output

3.2.5 highest frequency—Input

3.2.6 highest frequency--Output
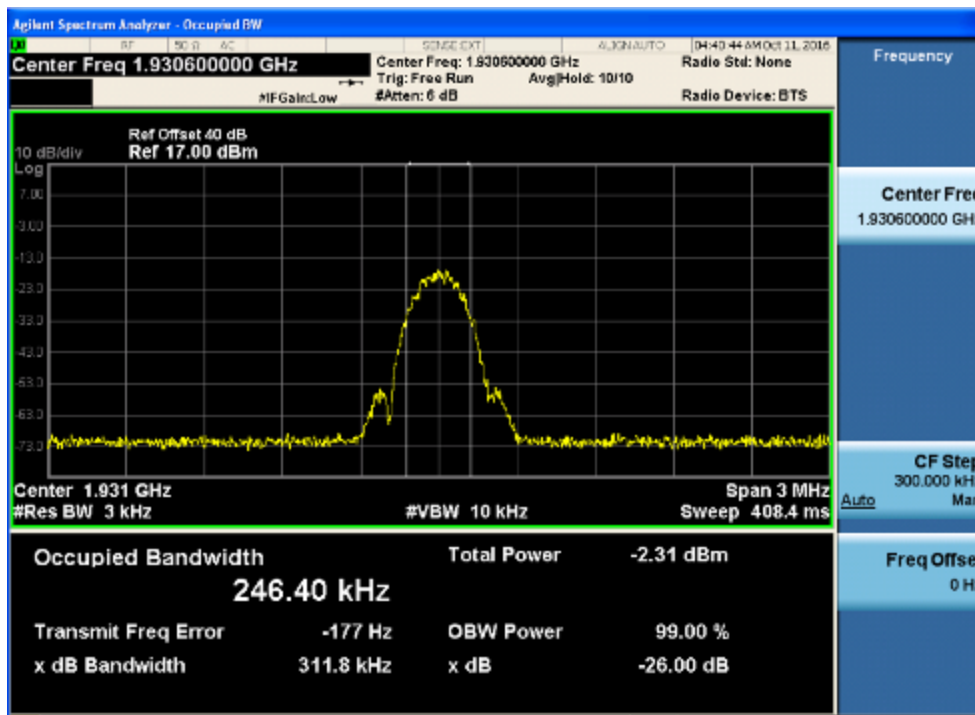
3.3 WCDMA Mode:

3.3.1 lowest frequency– Input

3.3.2 lowest frequency-- Output

3.3.3 middle frequency-- Input

3.3.4 middle frequency-- Output

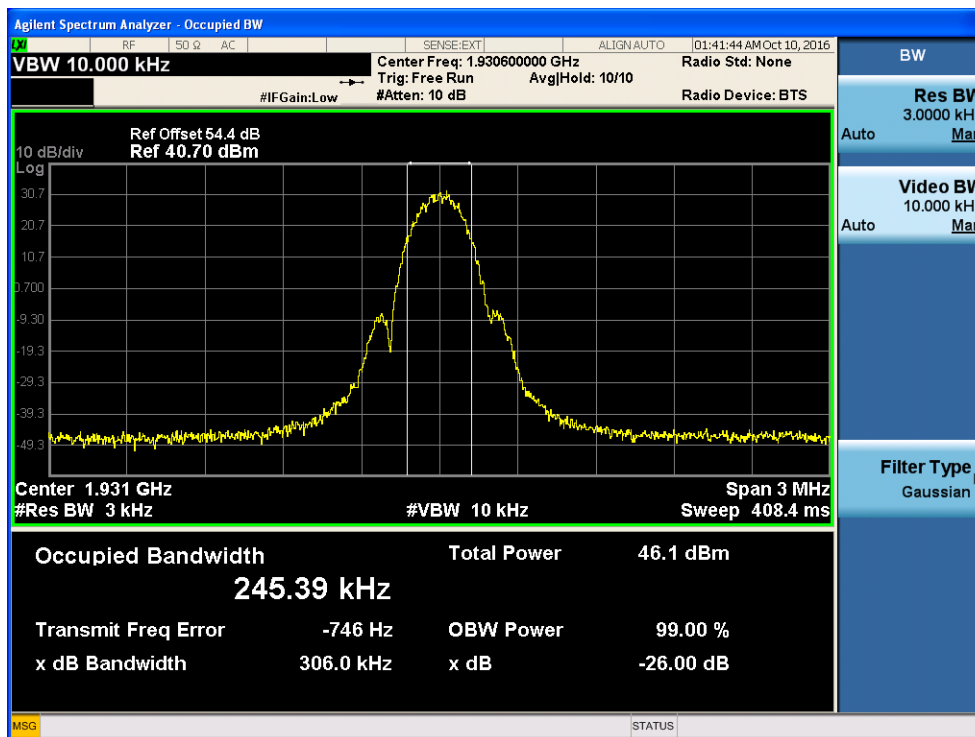### 3.3.5 highest frequency—Input

3.3.6 highest frequency--Output
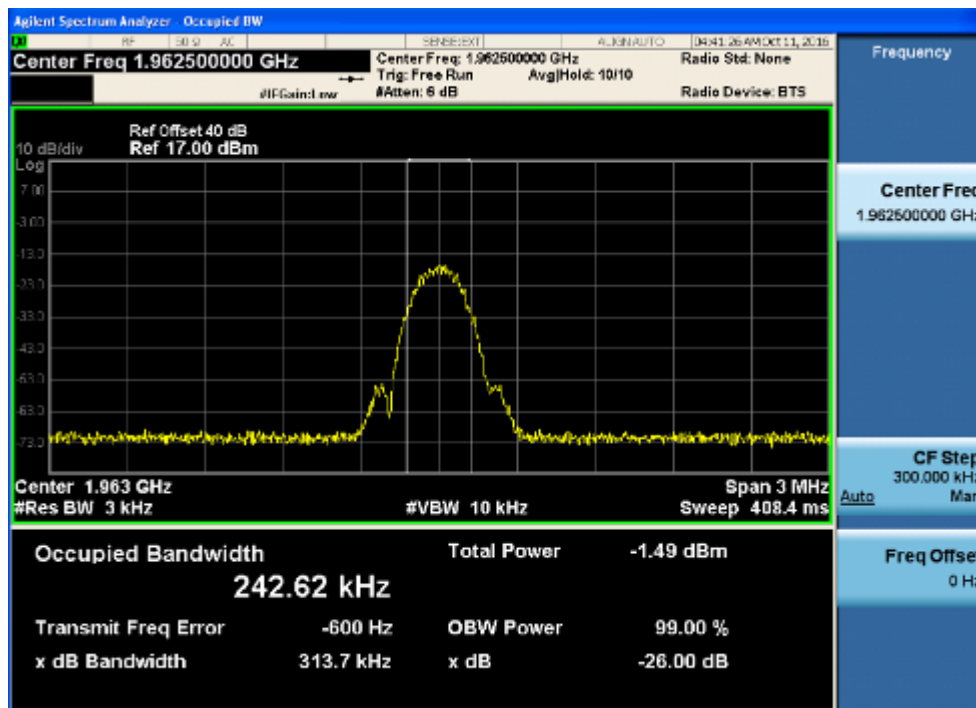
3.4 LTE Mode:

3.4.1 lowest frequency– Input

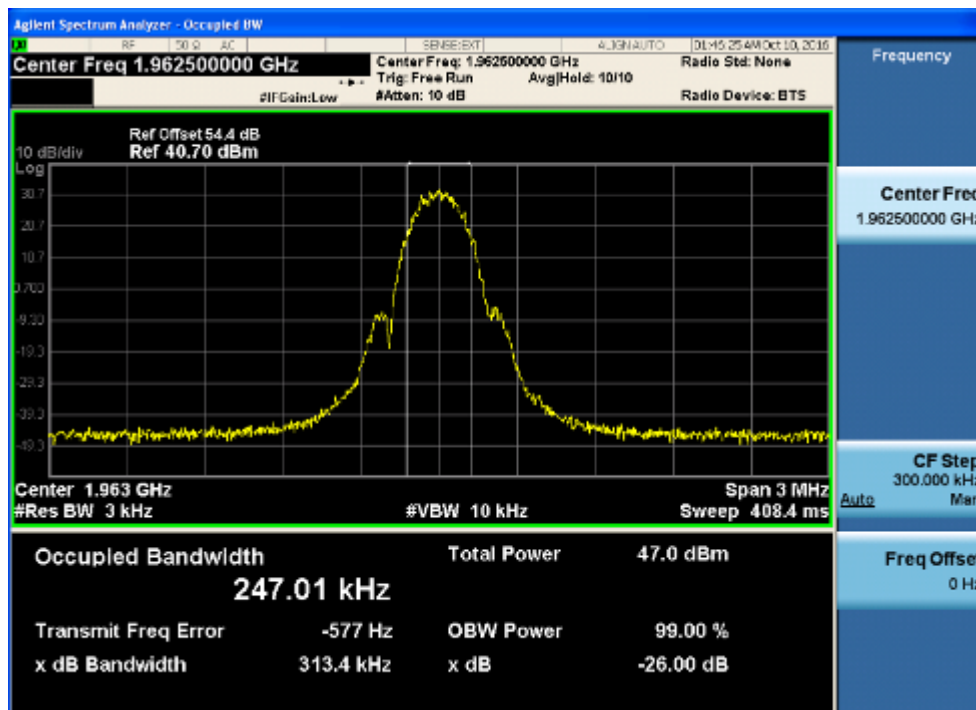3.4.2 lowest frequency-- Output
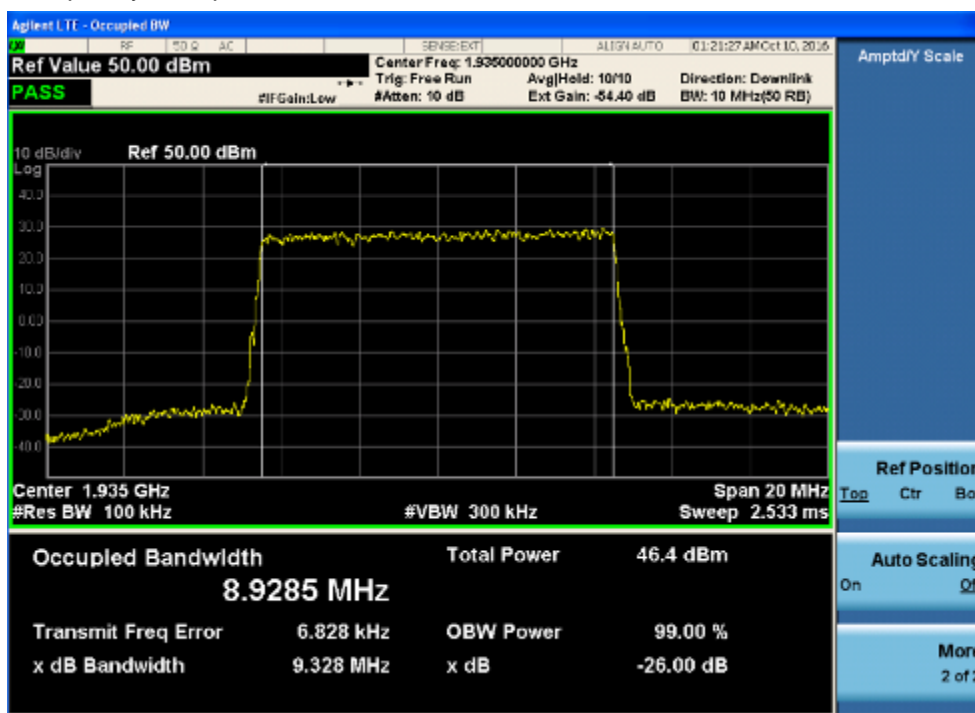
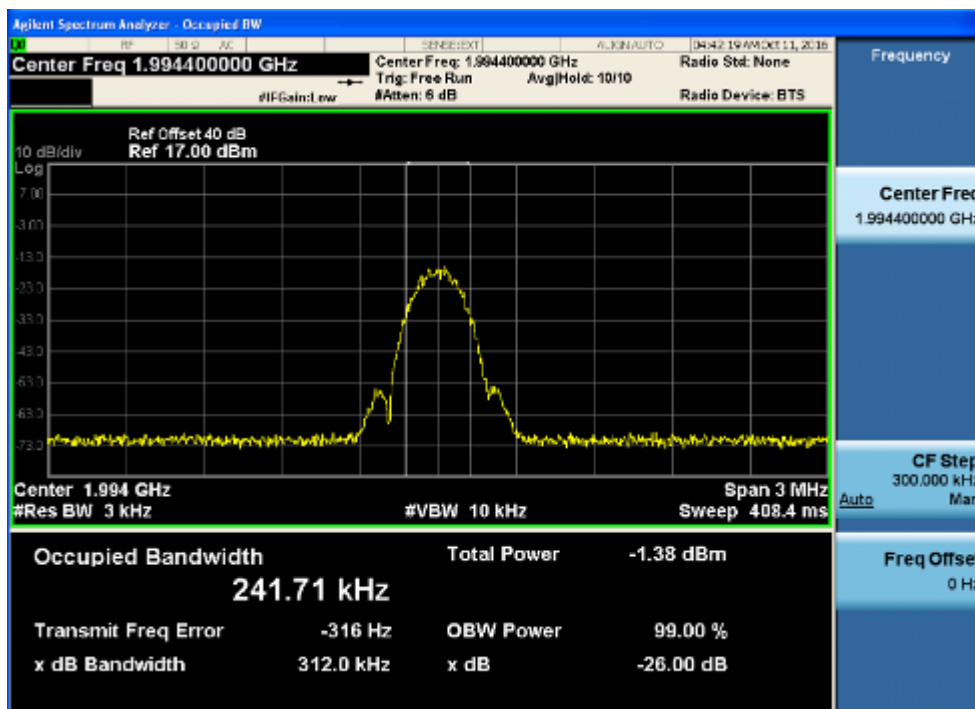### 3.4.3 middle frequency-- Input

3.4.4 middle frequency-- Output
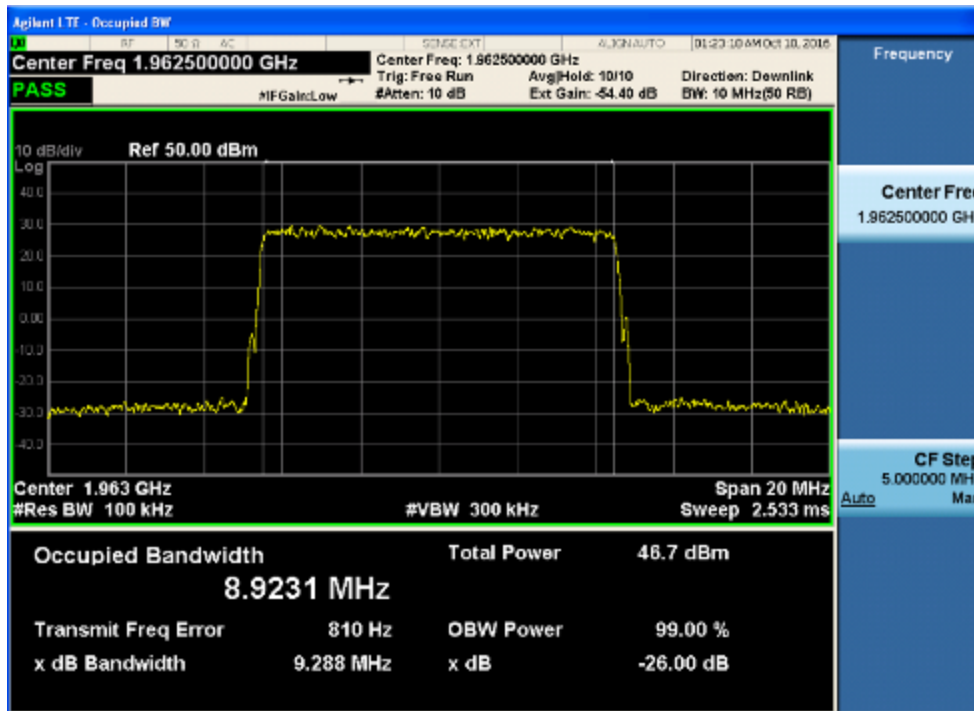
3.4.5 highest frequency—Input
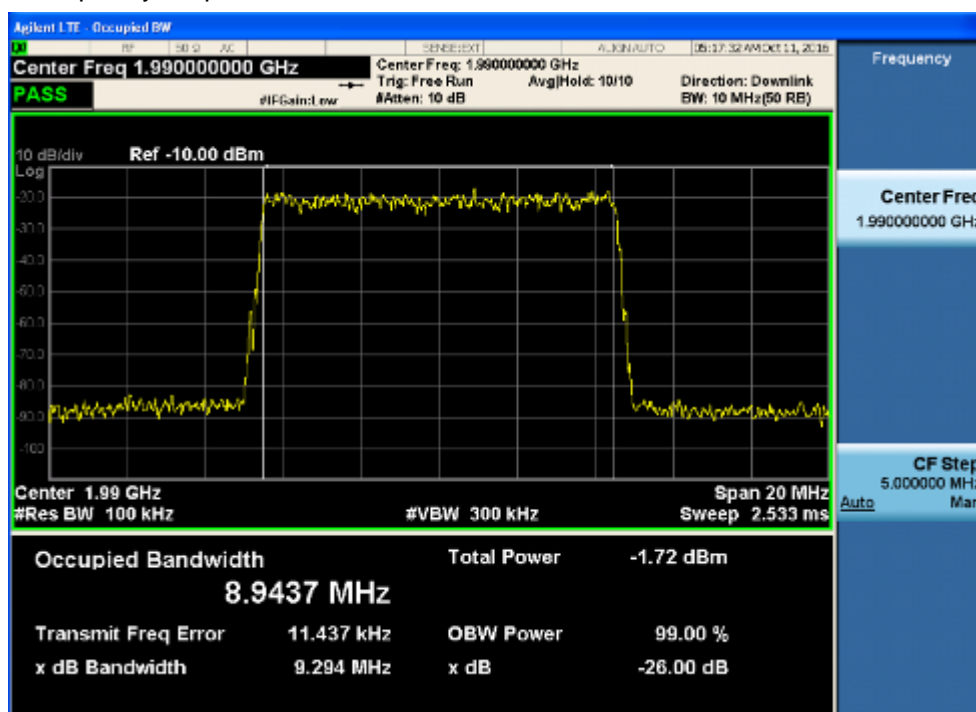
3.4.6 highest frequency--Output
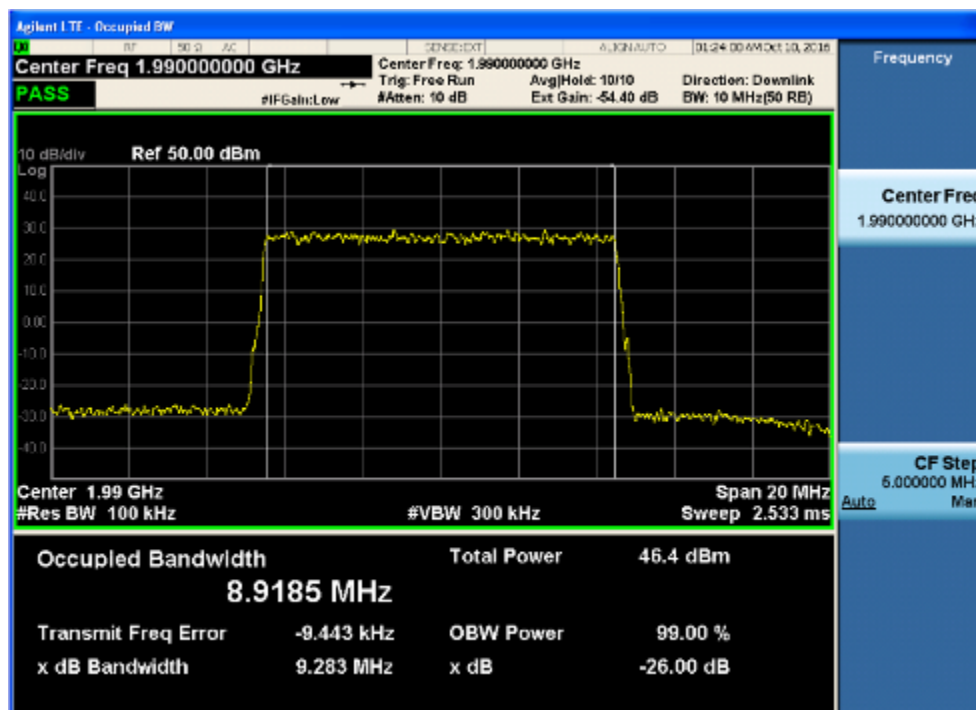
4.Downlink: 2110MHz to 2180MHz(CDMA,WCDMA,LTE)

4.1 CDMA Mode:

4.1.1 lowest frequency– Input
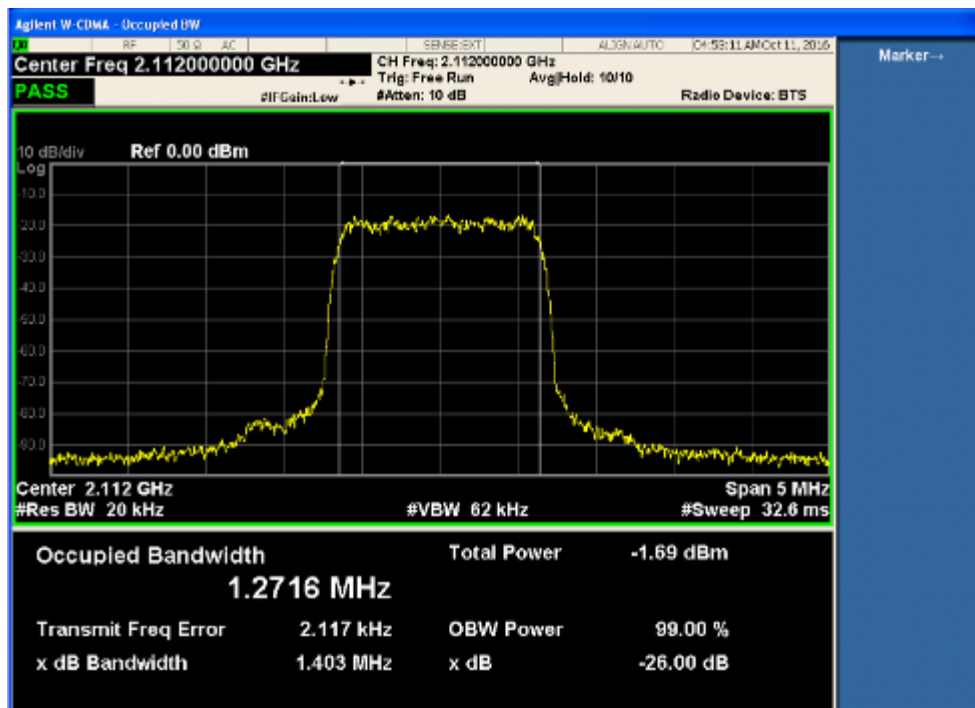
4.1.2 lowest frequency-- Output
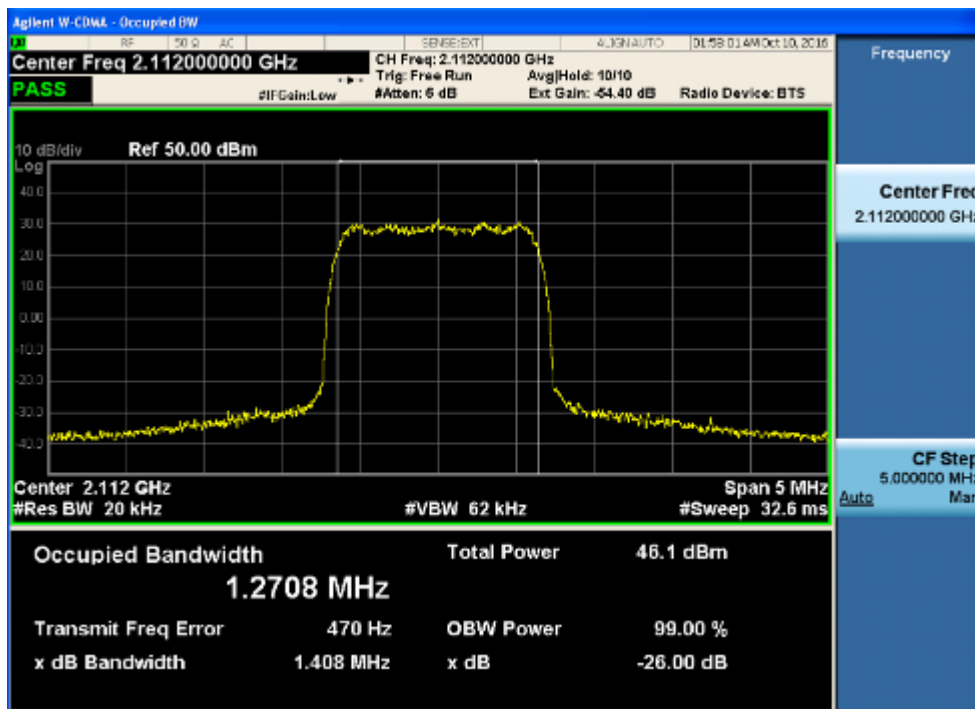
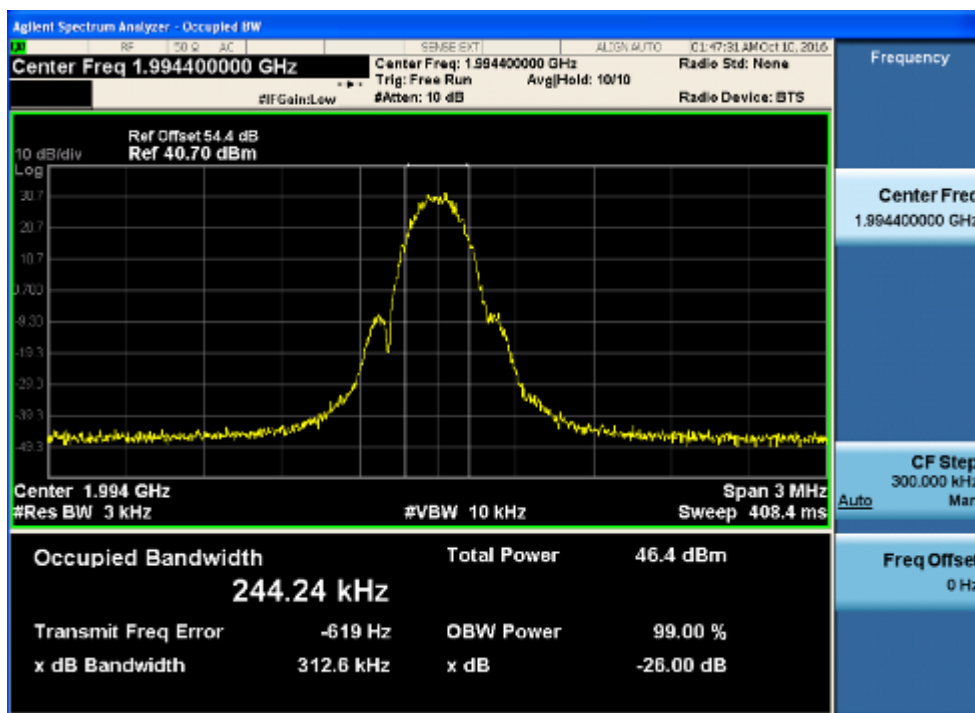### 4.1.3 middle frequency-- Input
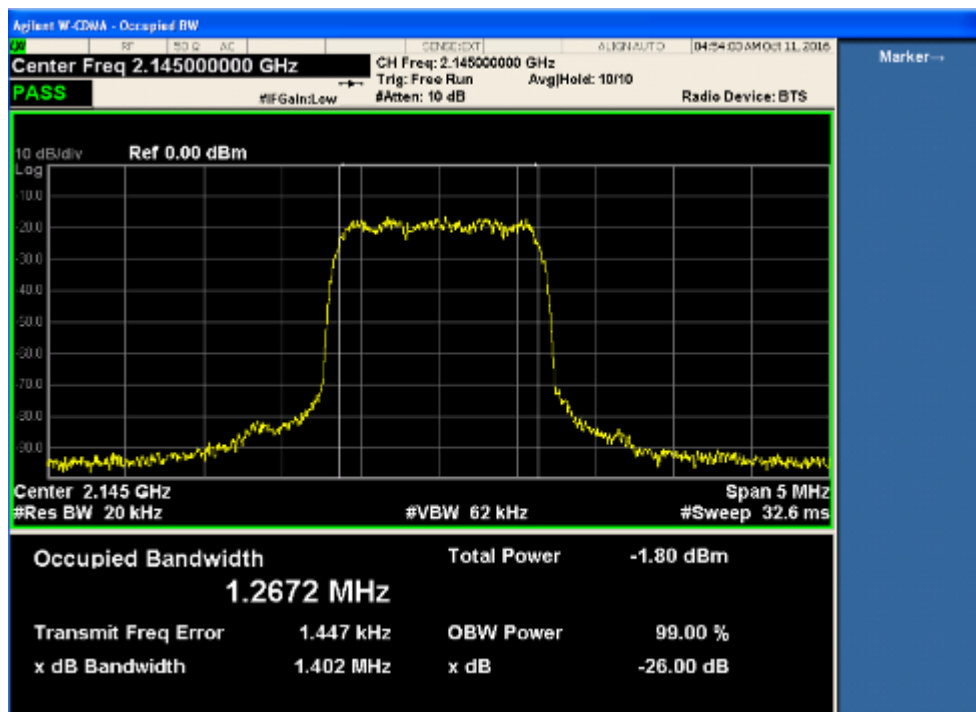
4.1.4 middle frequency-- Output
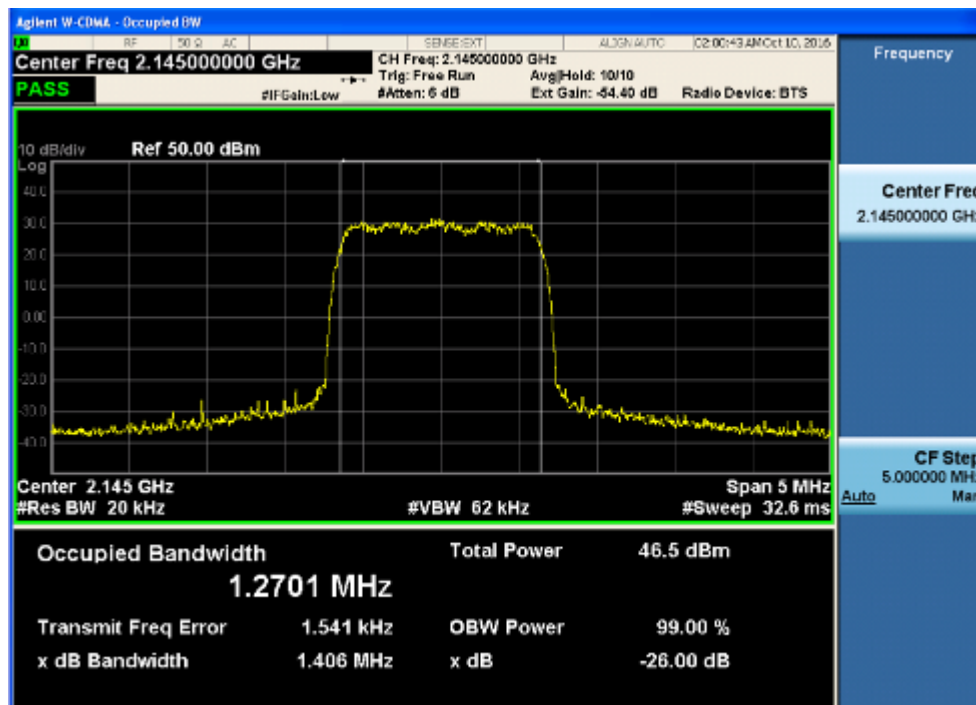
4.1.5 highest frequency—Input
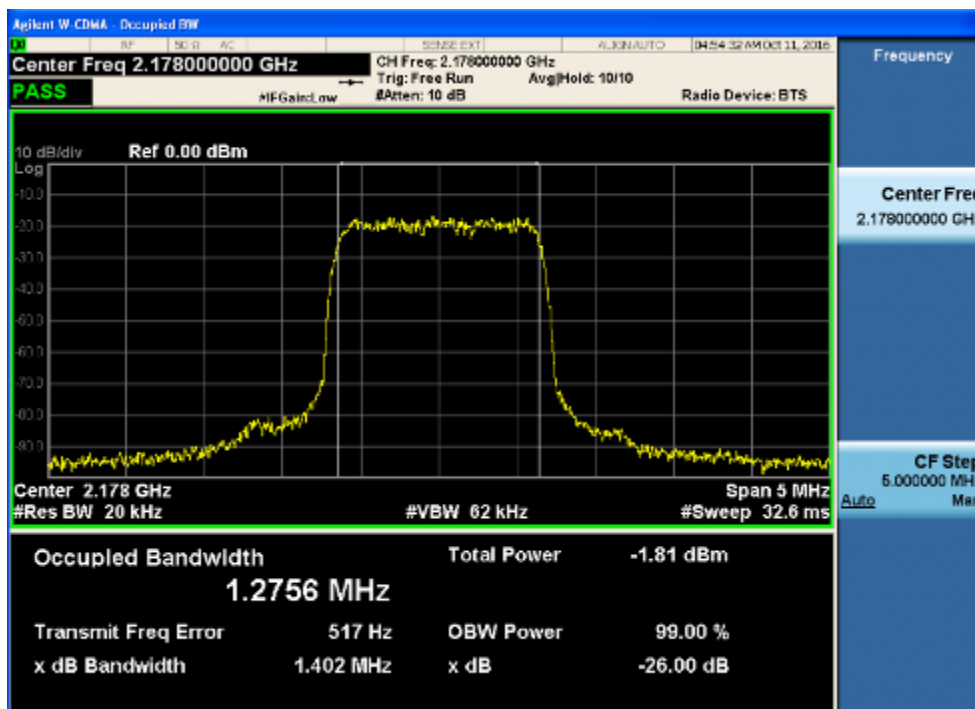
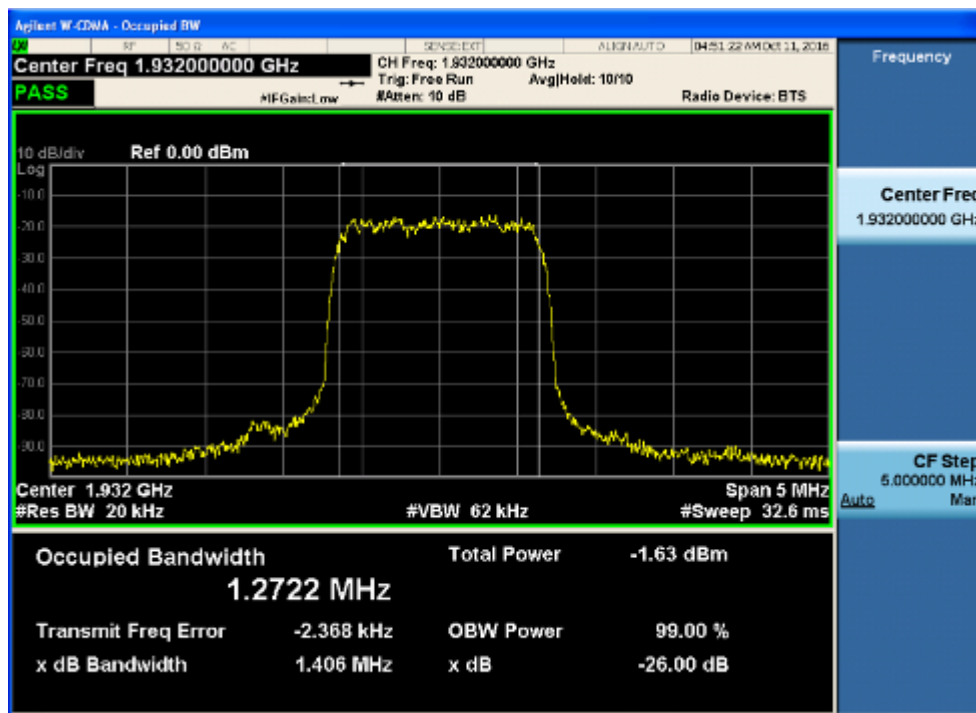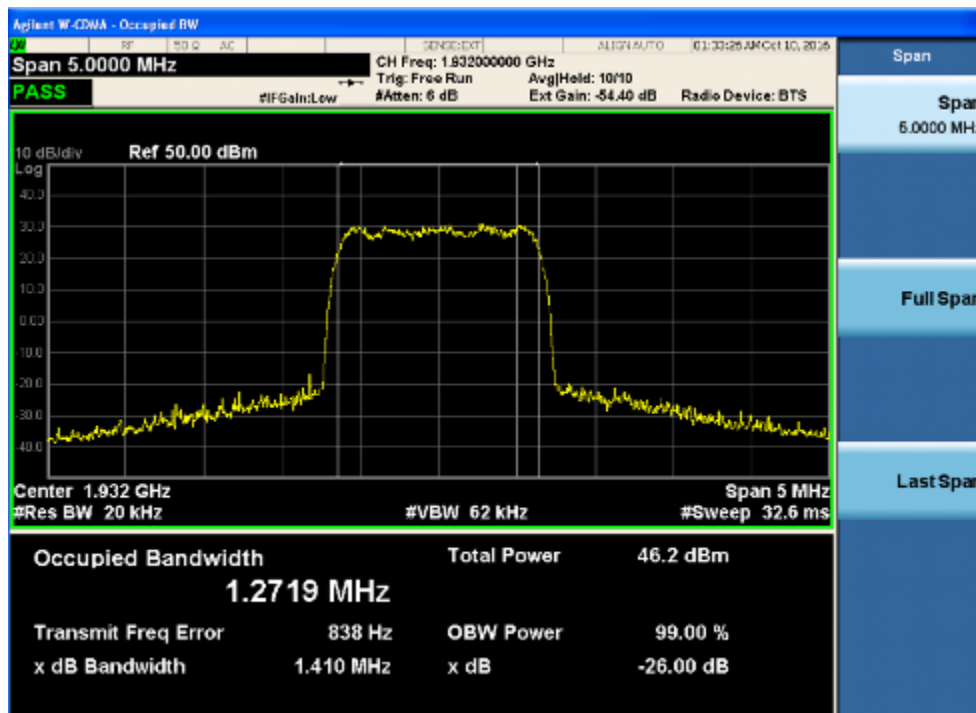4.1.6 highest frequency--Output
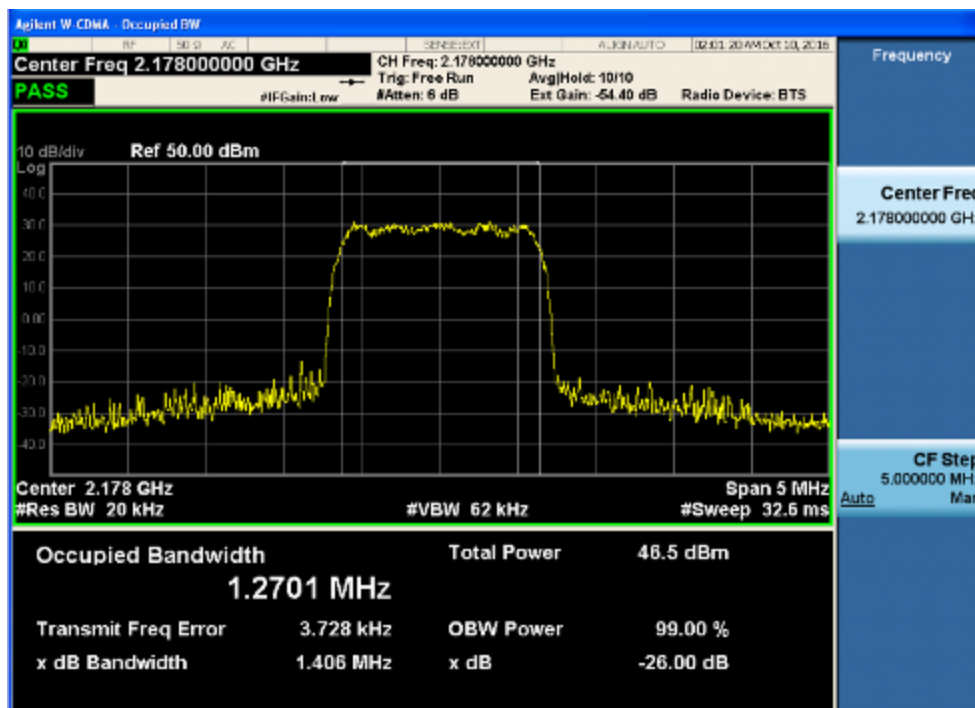
4.2 WCDMA Mode:

4.2.1 lowest frequency– Input
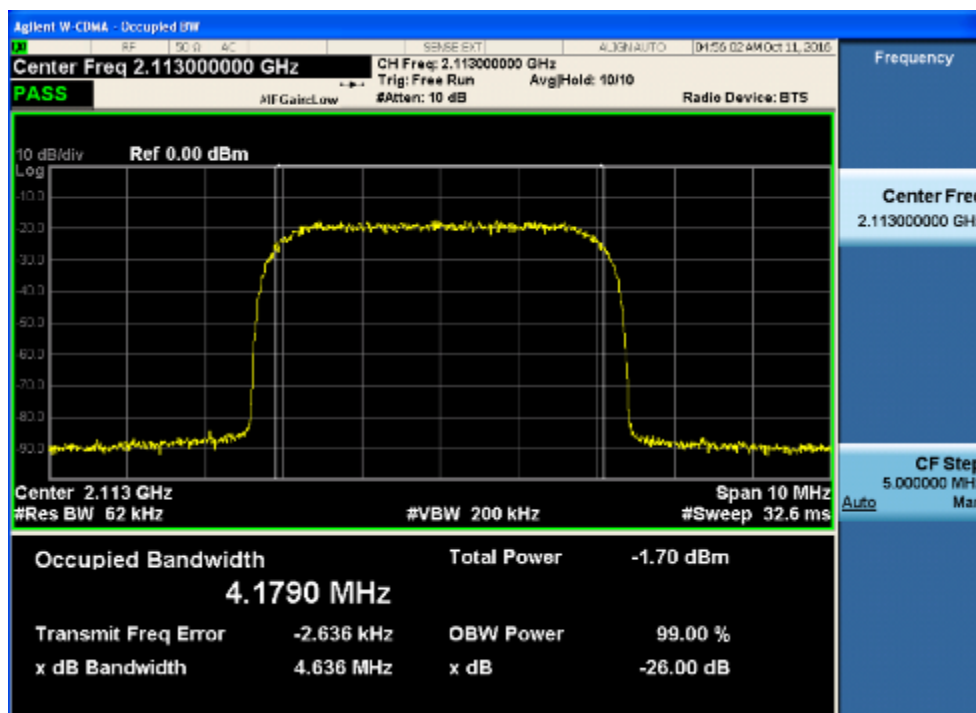
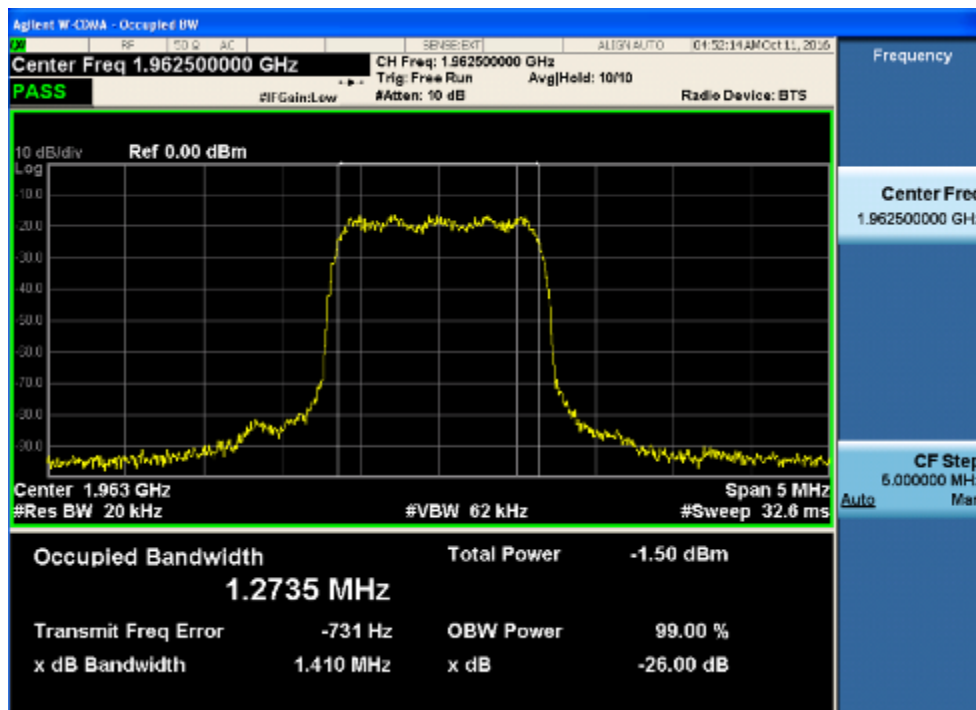4.2.2 lowest frequency-- Output
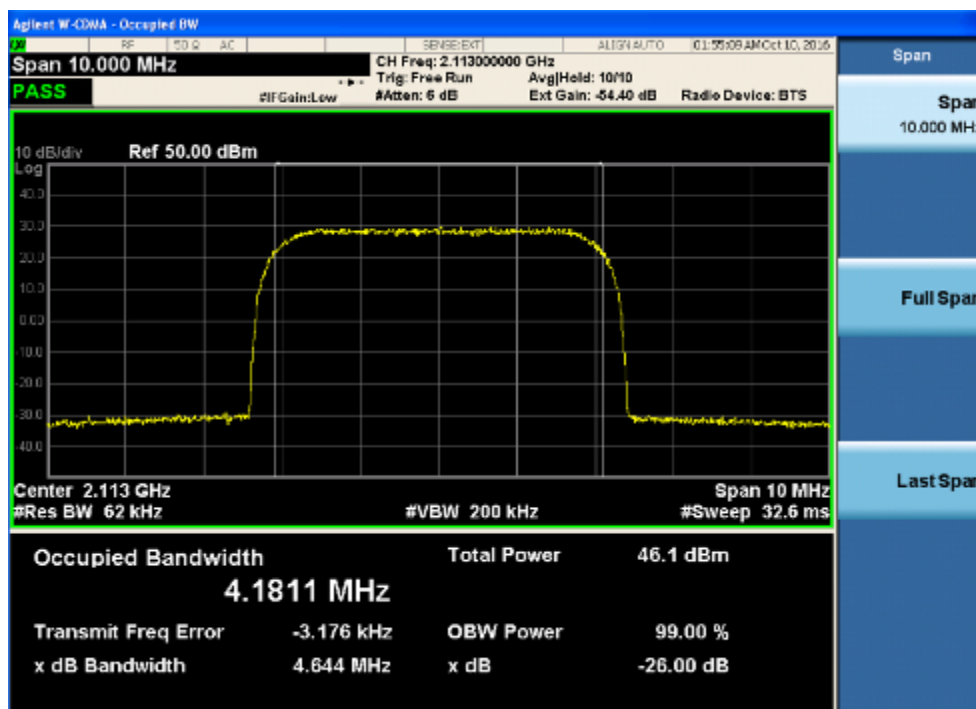
4.2.3 middle frequency-- Input
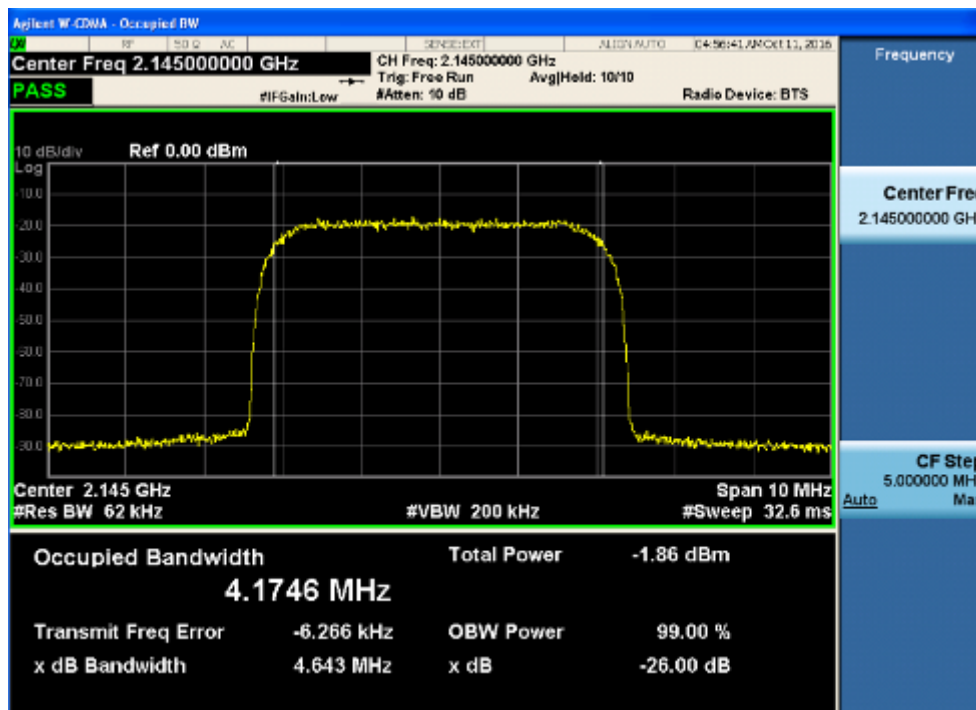
4.2.4 middle frequency-- Output
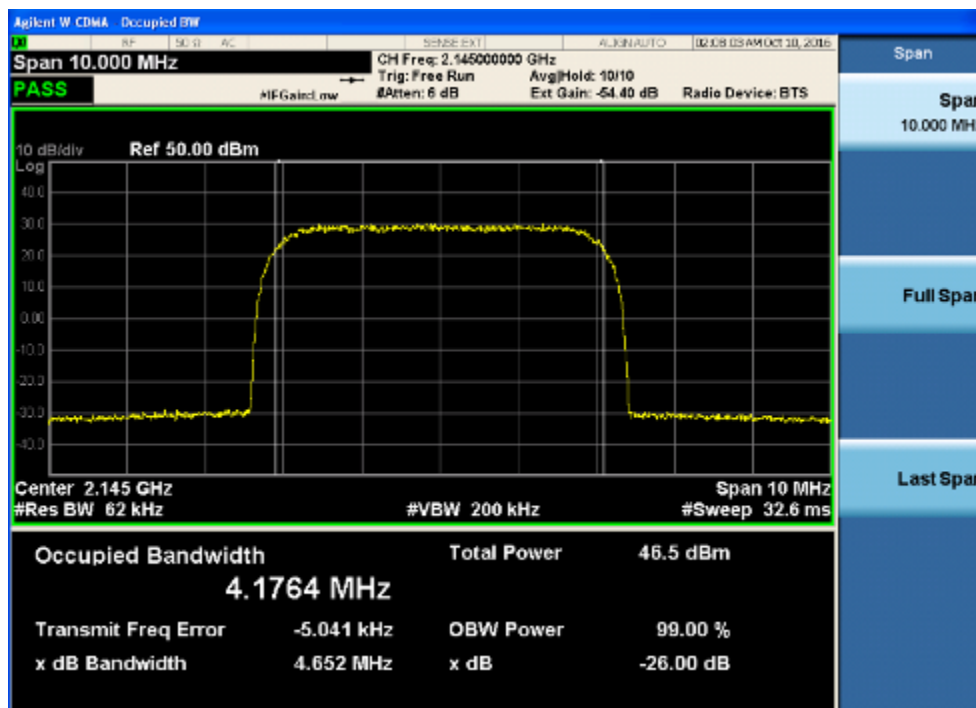
4.2.5 highest frequency—Input
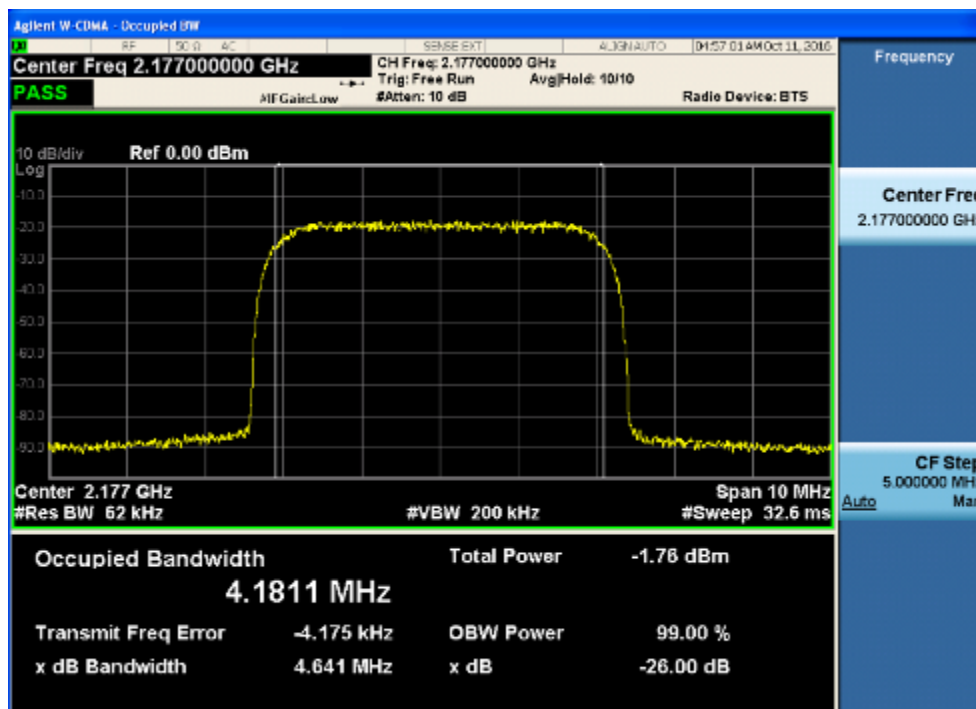
4.2.6 highest frequency--Output
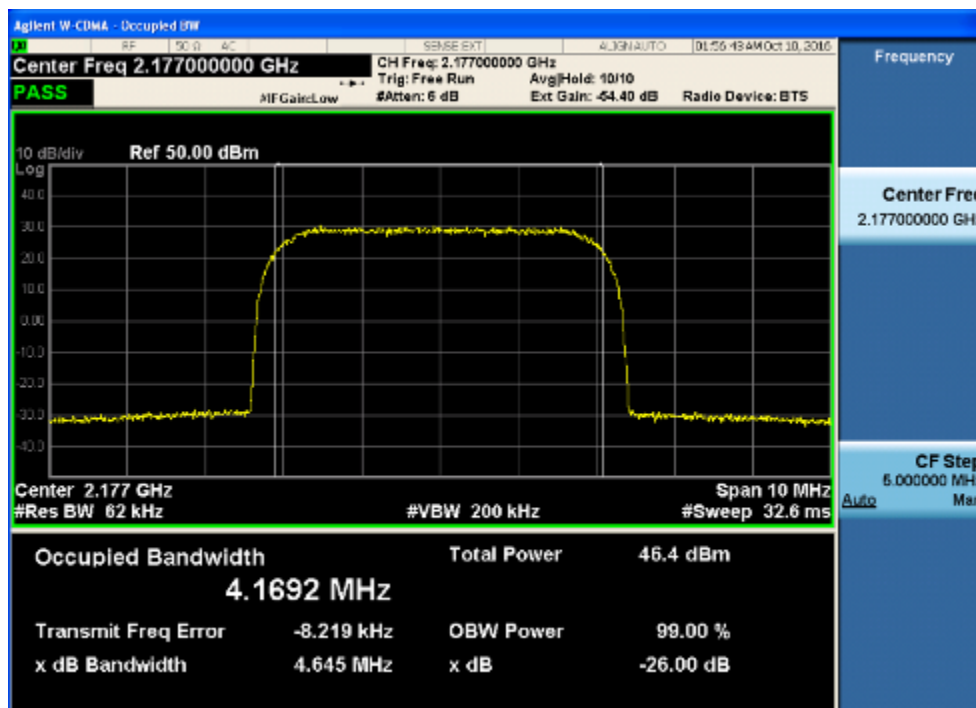
4.3 LTEMode:

4.3.1 lowest frequency– Input
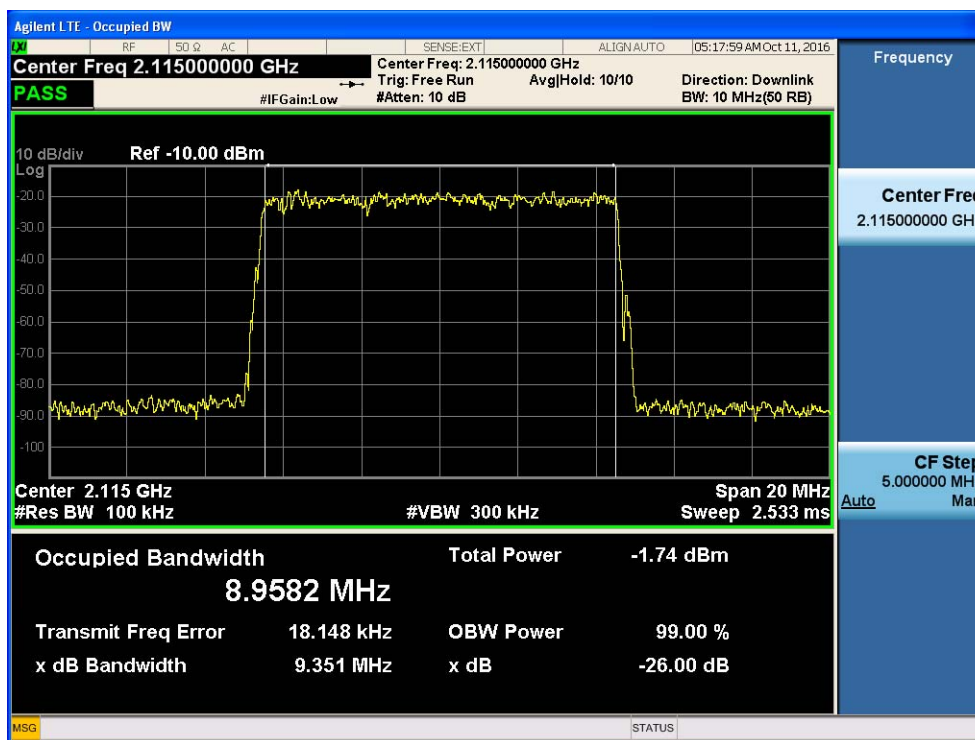
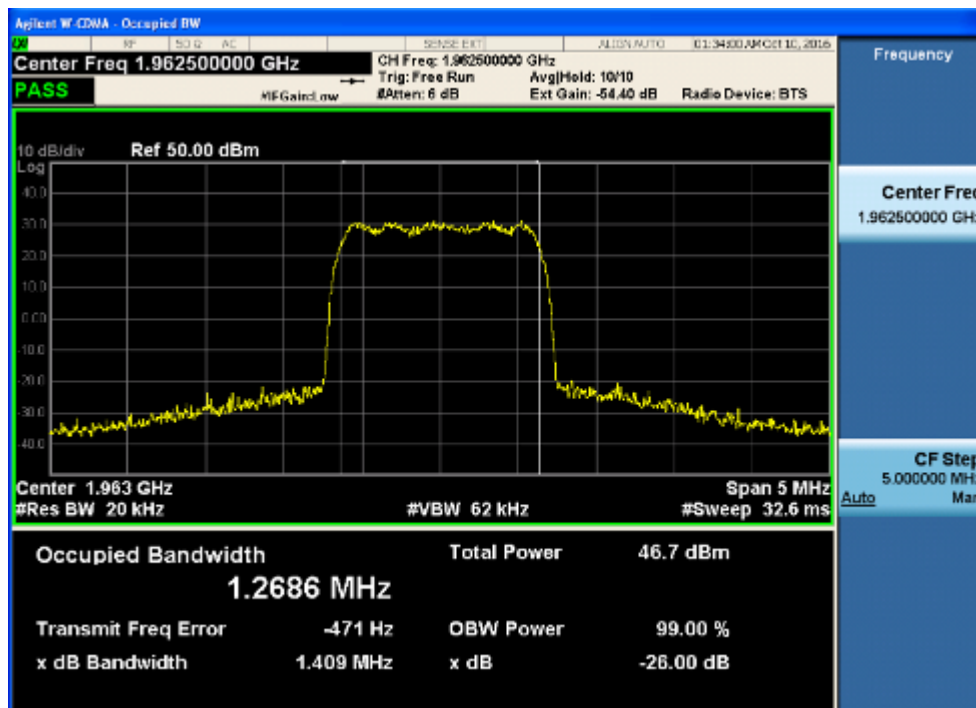4.3.2 lowest frequency-- Output
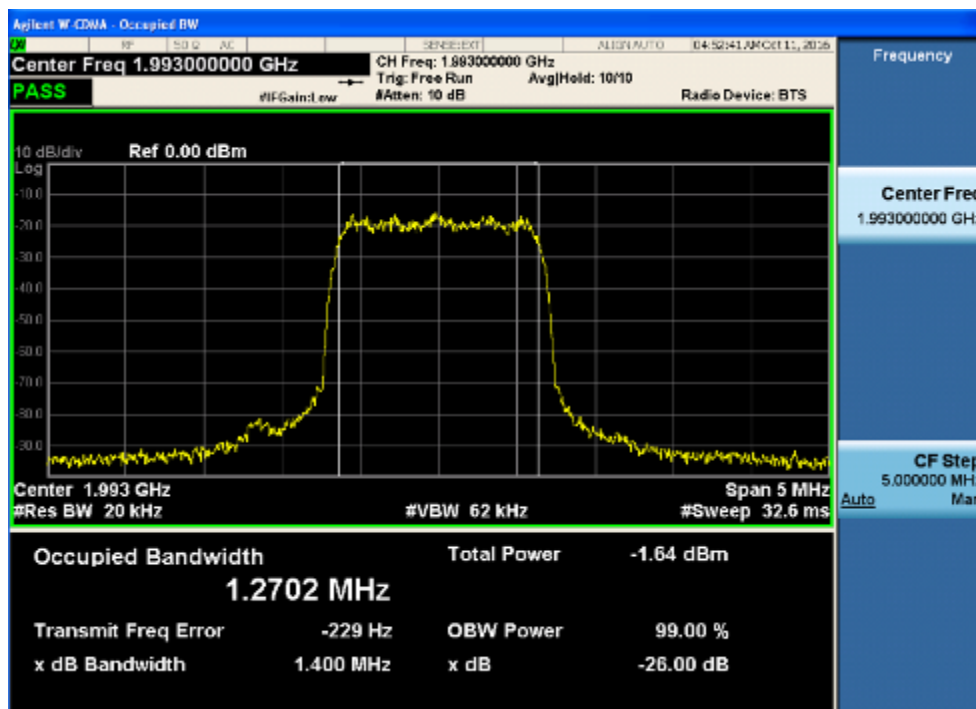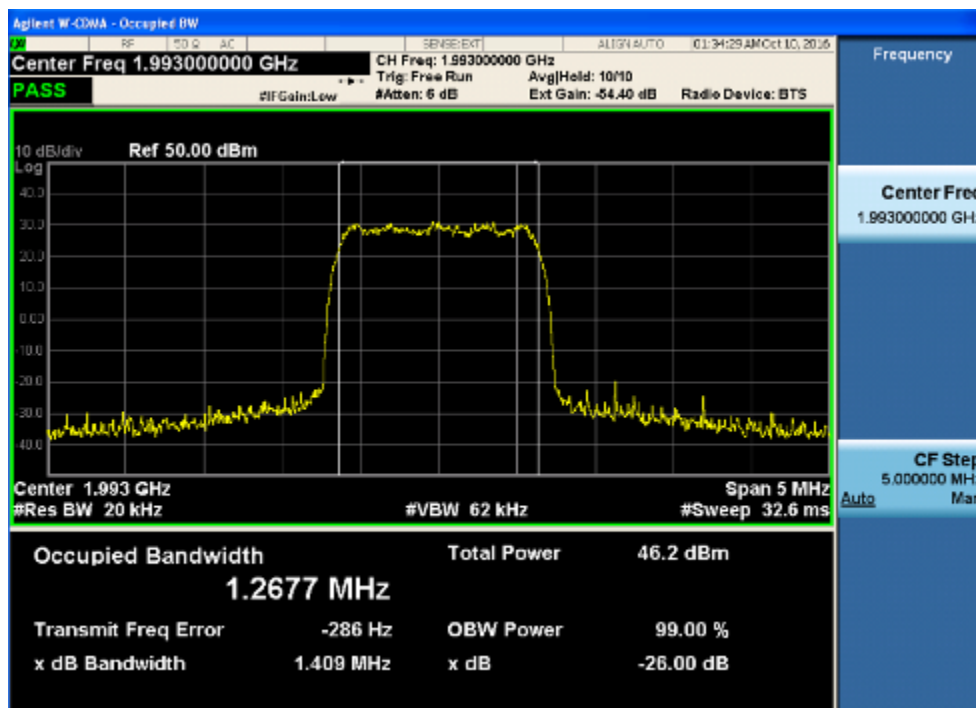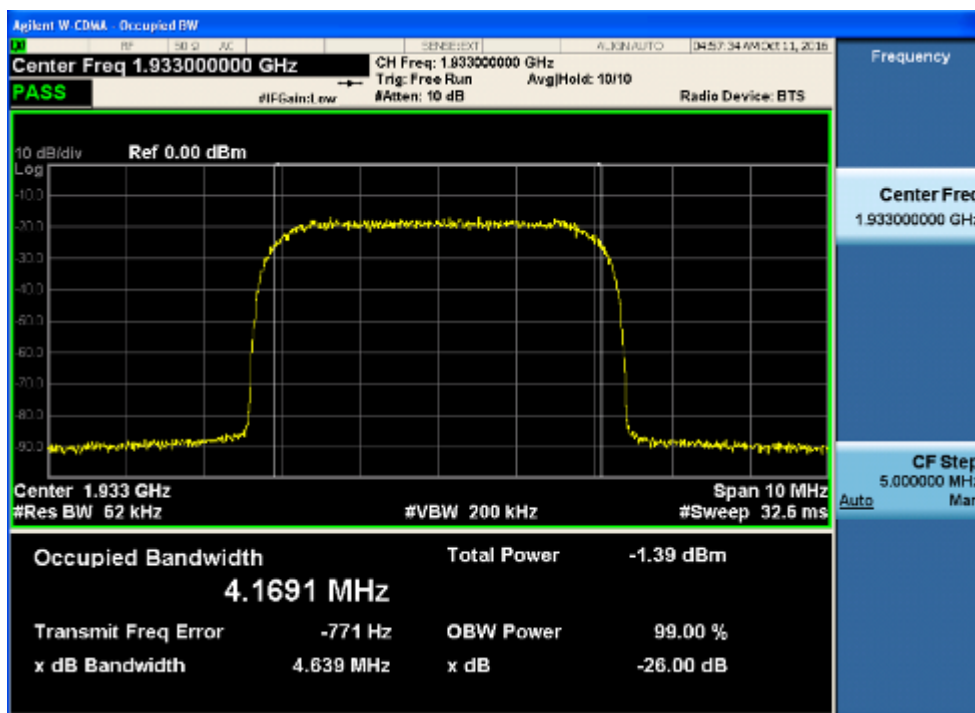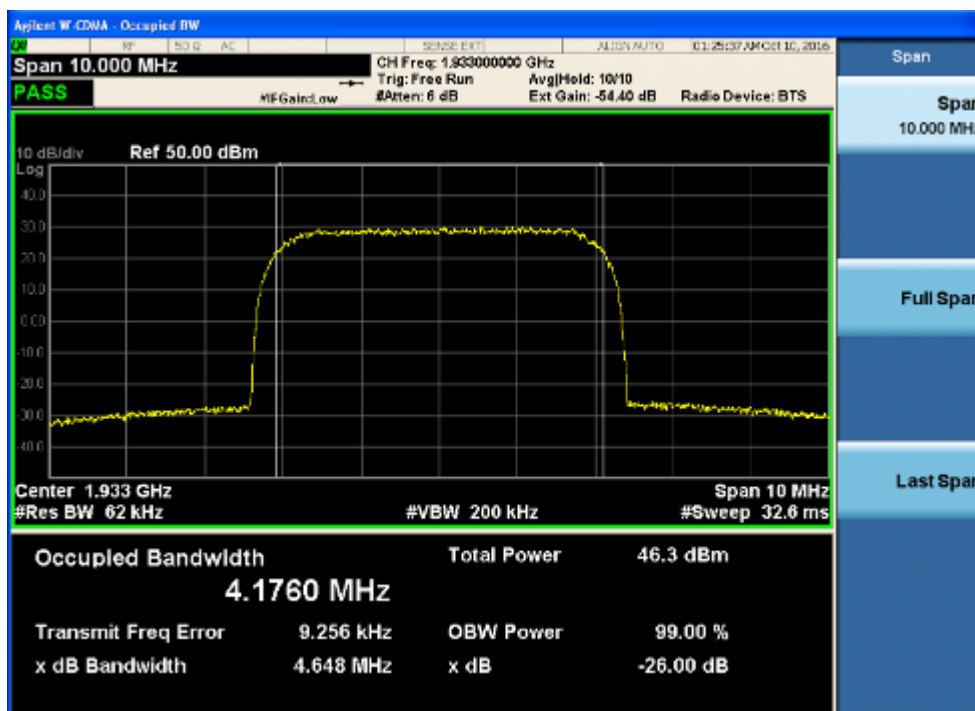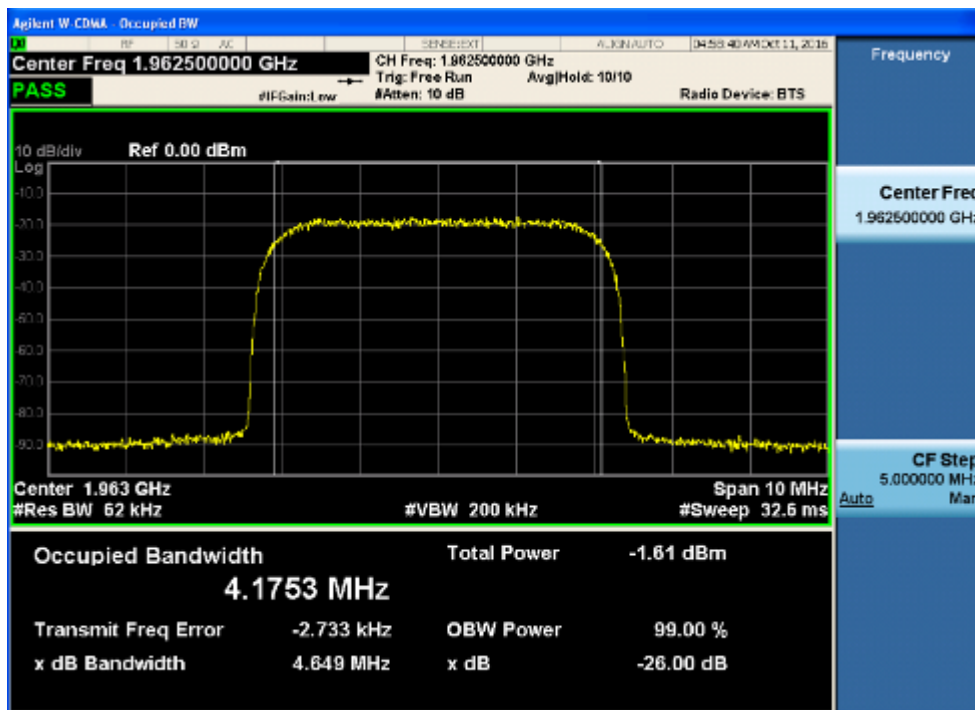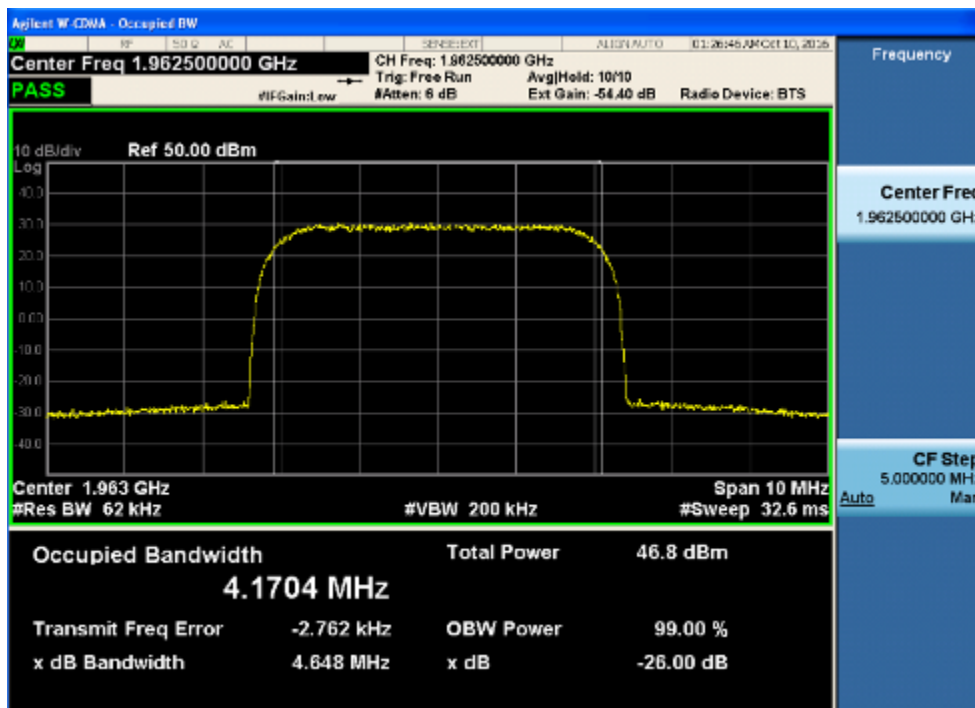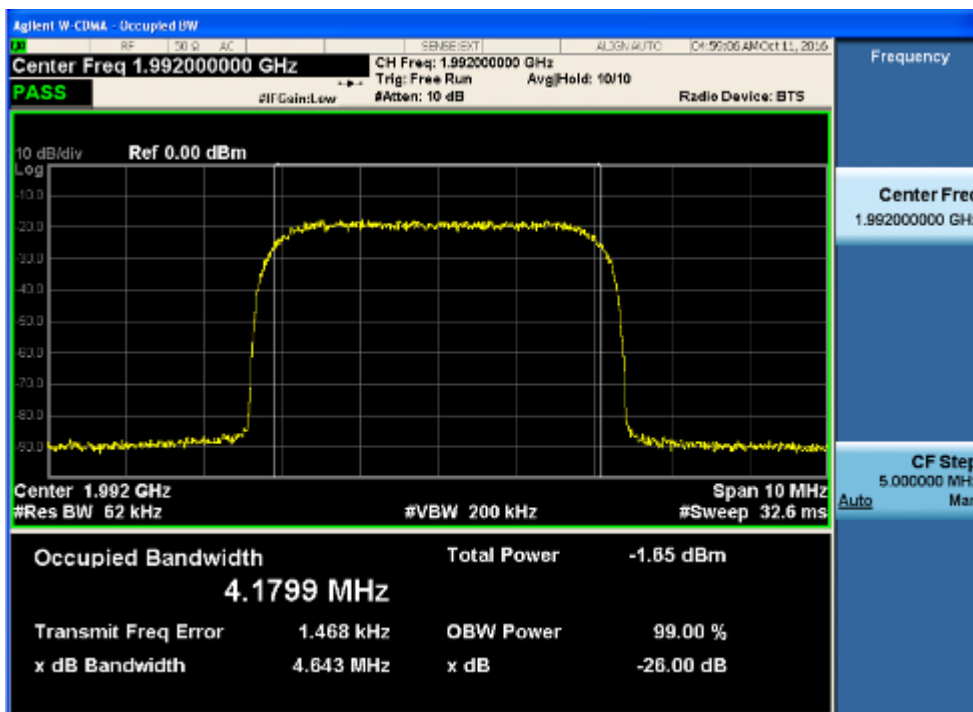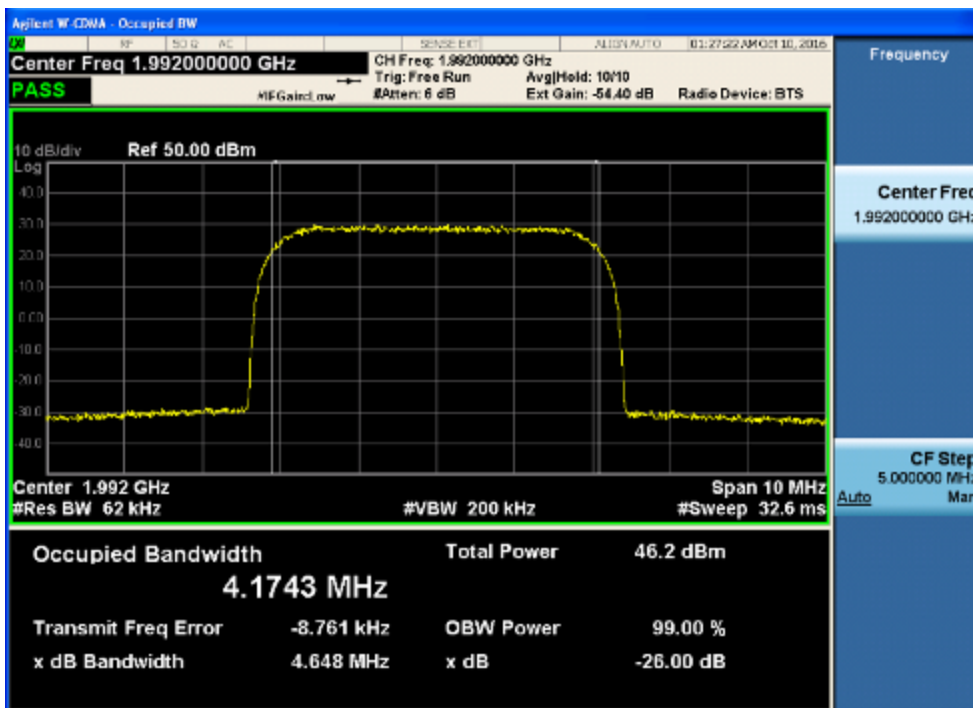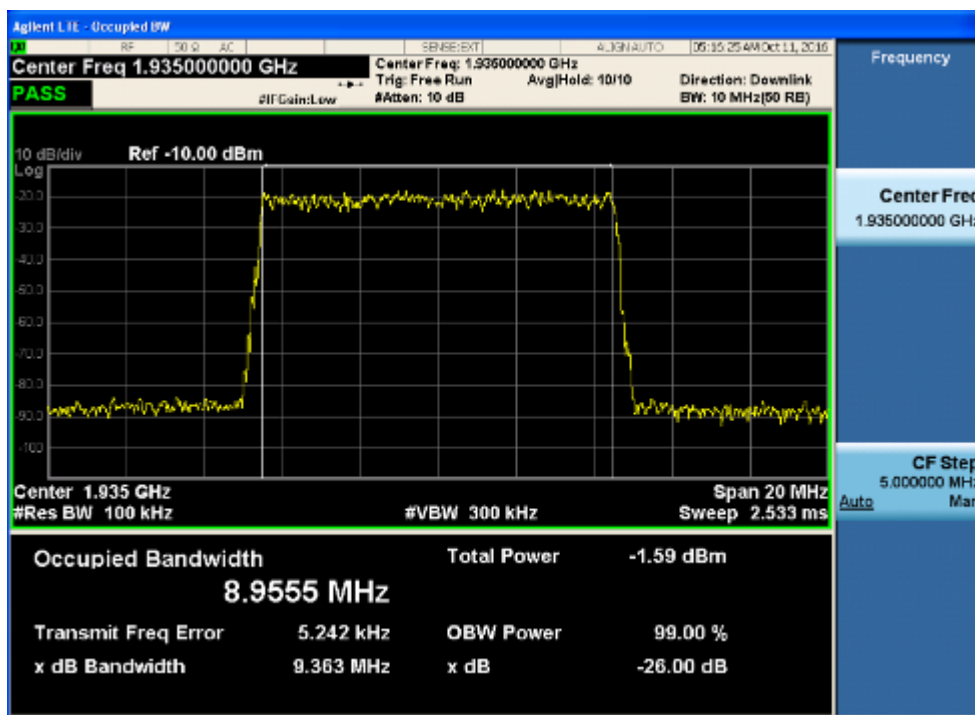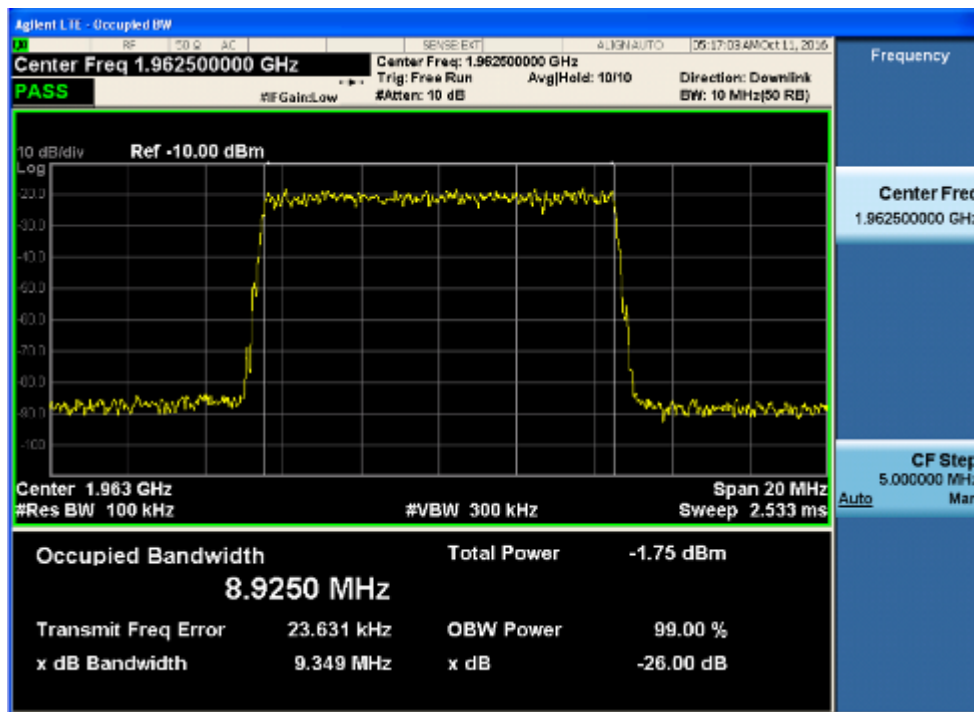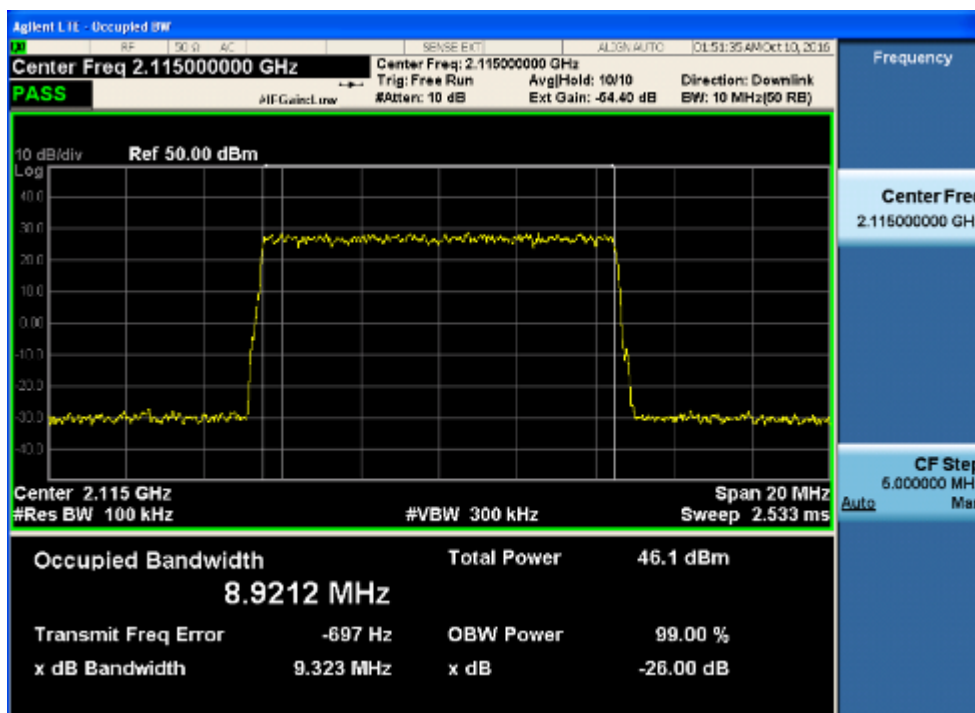
4.3.3 middle frequency-- Input
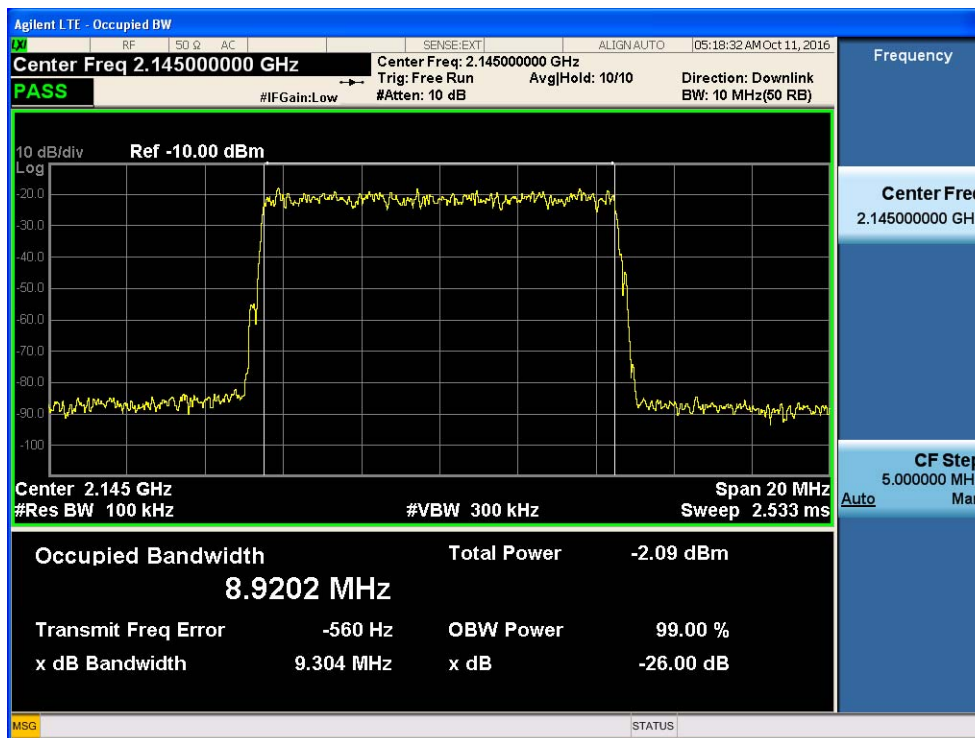
4.3.4 middle frequency-- Output
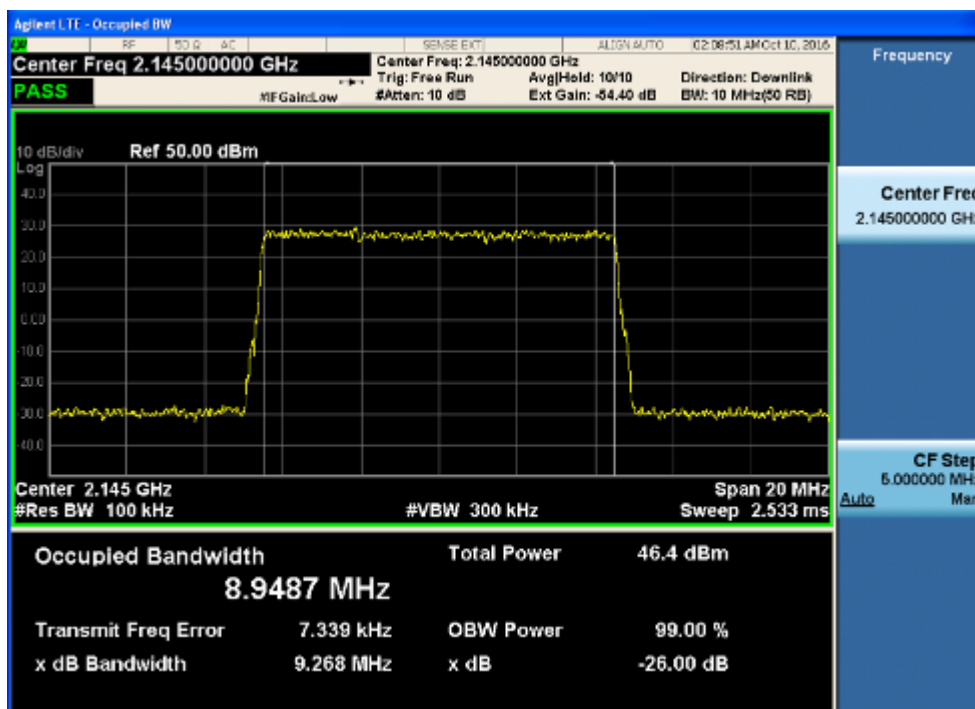
4.3.5 highest frequency—Input
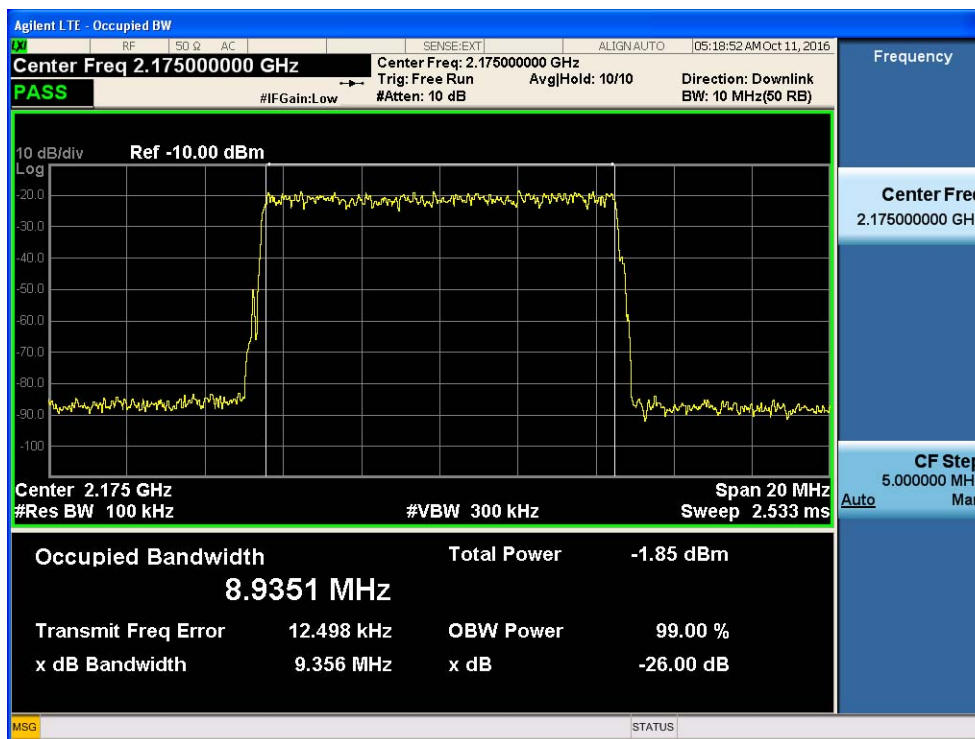
4.3.6 highest frequency--Output
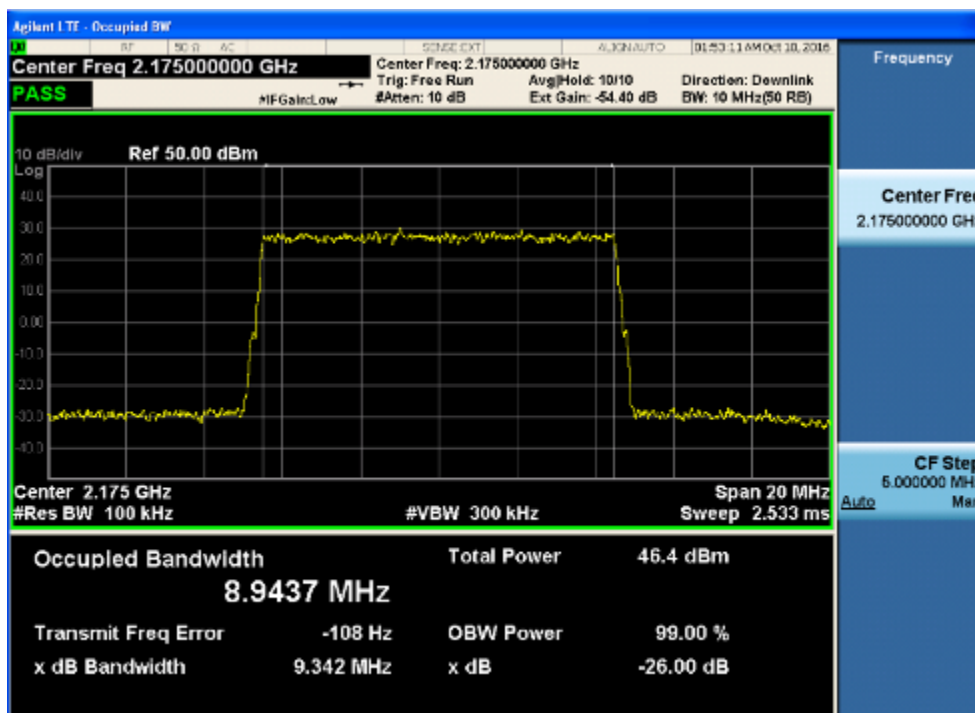
7.2.6 Out of Band Rejection

Test Date:	2013-03-17
Test Requirement:	KDB935210 D02;2-11-04/EAB/RF
	Test for rejection of out of band signals. Filter freq. response plots are acceptable.
Test Method:	KDB935210 D02;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:	
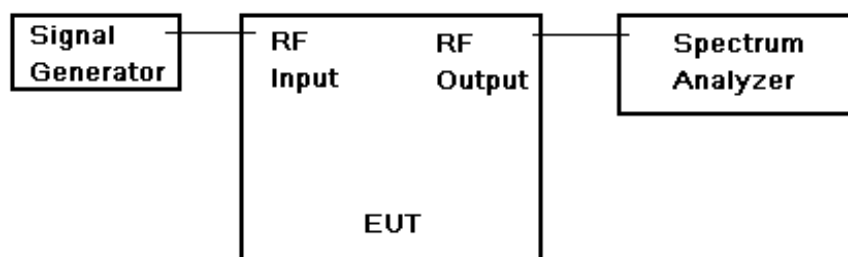
Fig.4. Out of Band rejection test configuration

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 destroied;

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 757MHz
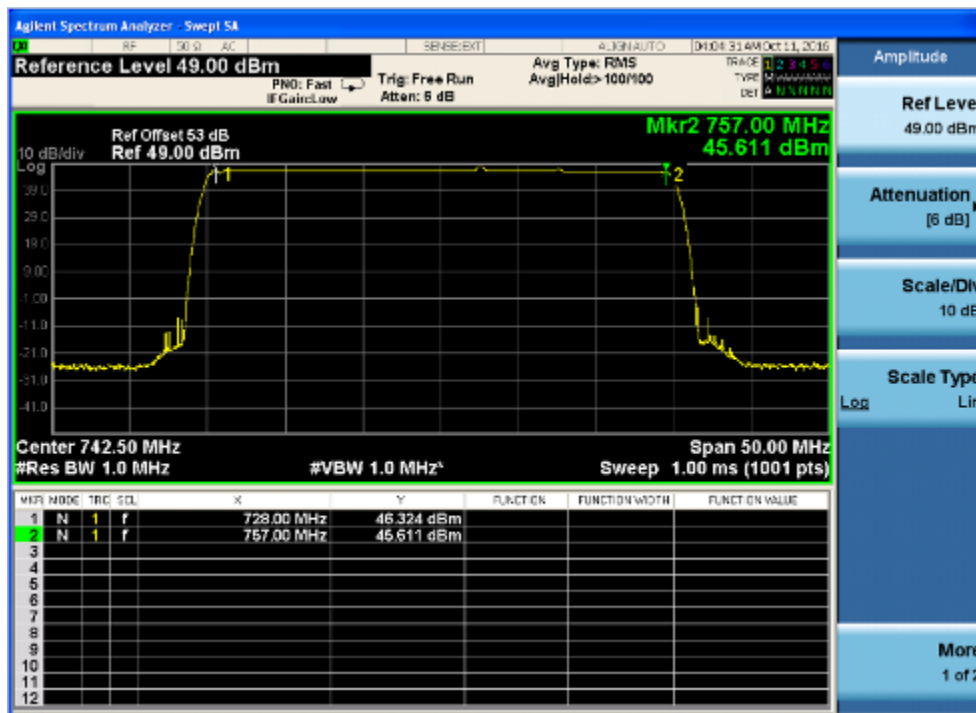
2. Test for Downlink: 862MHz to 869MHz
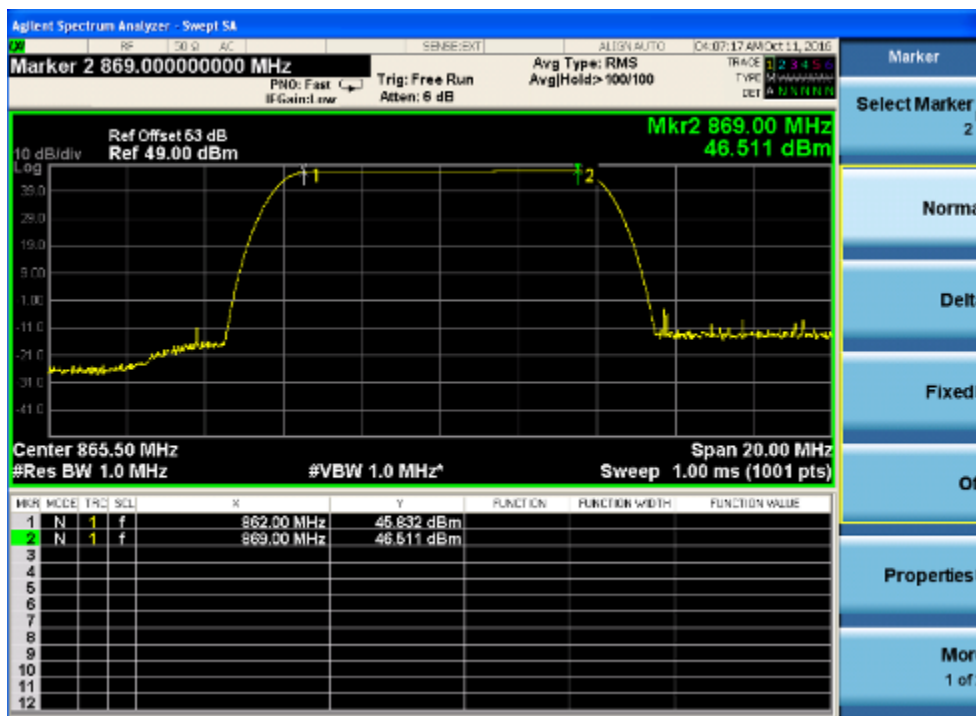
3. Test for Downlink: 869MHz to 894MHz

4. Test for Downlink: 1930MHz to 1995MHz
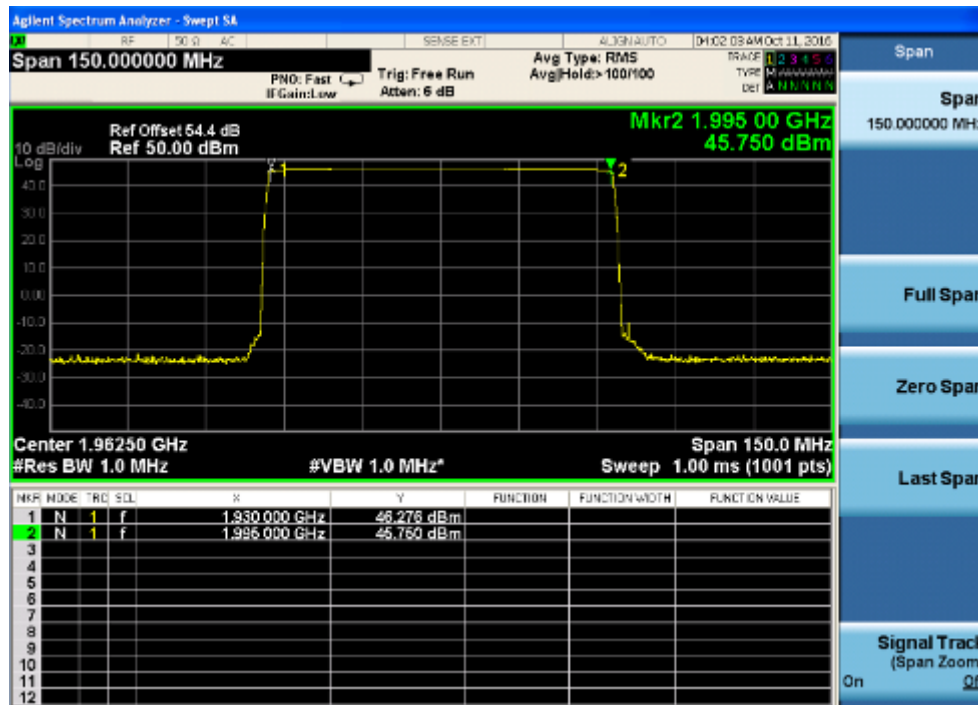
5. Test for Downlink:2110MHz to 2180MHz
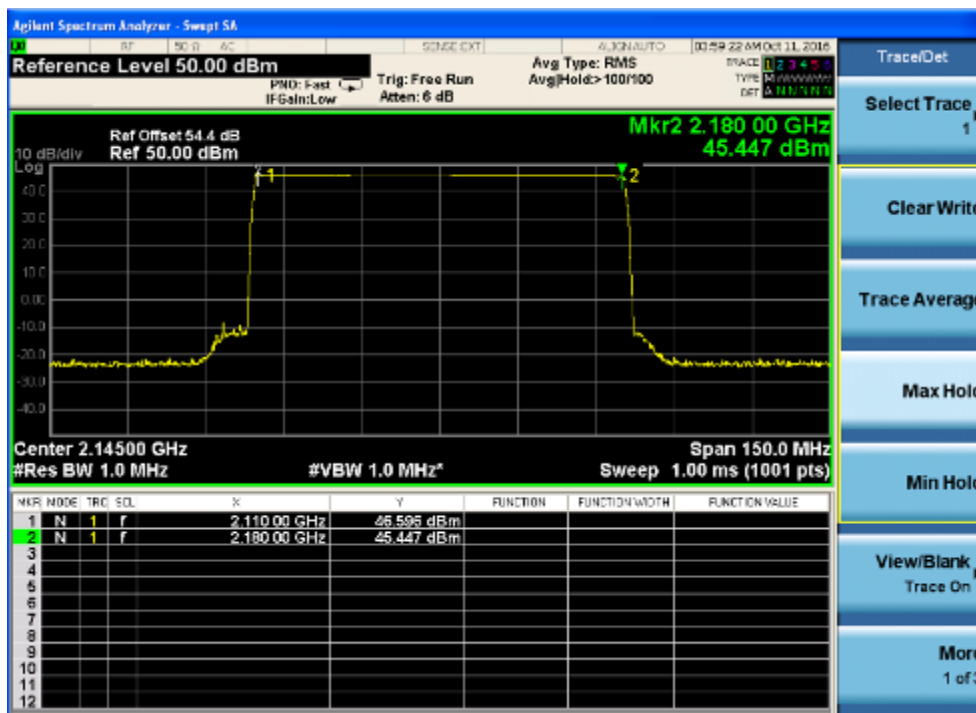
7.2.7 Frequency Stability

Test Date:	2016-10-08 to 2016-10-09
Test Requirement:	FCC part 90.213 &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 norminal 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 banlance 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 norminal voltage frequency value as reference point;

    b) vary the voltage from -15% norminal 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: 728~757MHz (middle channel 742.5MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	742.5000027	0.000808080
40	742.5000023	0.000269360
30	742.5000025	0.000538721
20	742.5000021	Reference
10	742.5000024	0.000404040
0	742.5000029	0.00107744
-10	742.5000021	0
-20	742.5000030	0.001212121
-30	742.5000028	0.000942761
-40	742.5000026	0.000673401

1.2) Test for Downlink: 862~869MHz (middle channel 865.5MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	865.5000029	0.00462160
40	865.5000027	0.00023108
30	865.5000031	0.00069324
20	865.5000025	Reference
10	865.5000023	-0.00023108
0	865.5000028	-0.00034462
-10	865.5000026	0.00011540
-20	865.5000020	0.00057770
-30	865.5000021	0.00046216
-40	865.5000019	0.00069324

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

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	881.5000028	0.000567214
40	881.5000029	0.000680657
30	881.5000031	0.000907543
20	881.5000023	Reference
10	881.5000026	0.000340329
0	881.5000032	0.001020987
-10	881.5000022	-0.000113443
-20	881.5000019	-0.000453772
-30	881.5000024	0.000113443
-40	881.5000033	0.000113442

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

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	1962.5000023	-0.000254777
40	1962.5000024	-0.000203821
30	1962.5000027	0.000050955
20	1962.5000028	Reference
10	1962.5000032	0.000203821
0	1962.5000030	0.000101911
-10	1962.5000025	-0.000152866
-20	1962.5000031	0.000152866
-30	1962.5000033	0.000254777
-40	1962.5000029	0.000509554

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

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	2132.5000024	0.000375147
40	2132.5000029	0.000140679
30	2132.5000031	0.000046893
20	2132.5000032	Reference
10	2132.5000025	-0.000328253
0	2132.5000027	-0.000234467
-10	2132.5000026	0.000281359
-20	2132.5000032	0
-30	2132.5000030	-0.000093787
-40	2132.5000028	0.000187573

2) Frequency Stability vs voltage:

2.1) For AC supplied:

2.1.1) Test for Downlink:728~757MHz (middle channel 742.5MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	742.5000026	0.00067340
120	742.5000021	Reference
138 (120*1.15)	742.5000023	0.00026936

2.1.2) Test for Downlink: 862~869MHz (middle channel 865.5MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	865.5000027	-0.00034662
120	865.5000024	Reference
138 (120*1.15)	865.5000029	0.00057770

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

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	881.5000028	0.00056721
120	881.5000023	Reference
138 (120*1.15)	881.5000025	0.00022688

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

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	1962.5000026	0.000254777
120	1962.5000021	Reference
138 (120*1.15)	1962.5000027	0.000305732

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

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	2132.5000027	0.0000140679
120	2132.5000024	Reference
138 (120*1.15)	2132.5000029	0.000234466

2.2) For DC supplied:

2.2.1) Test for Downlink:728~757MHz (middle channel 742.5MHz)

Voltage(V DC)	Frequency(MHz)	Tolerance(ppm)
-40.8 (-48.0*0.85)	742.5000026	0.00067340
-48.0	742.5000021	Reference
-55.2 (-48.0*1.15)	742.5000018	-0.00040404

2.2.2) Test for Downlink: 862~869MHz (middle channel 865.5MHz)

Voltage(V DC)	Frequency(MHz)	Tolerance(ppm)
-40.8 (-48.0*0.85)	865.5000025	0.00023108
-48.0	865.5000023	Reference
-55.2 (-48.0*1.15)	865.5000026	-0.00034662

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

Voltage(V DC)	Frequency(MHz)	Tolerance(ppm)
-40.8 (-48.0*0.85)	881.5000027	0.00023108
-48.0	881.5000025	Reference
-55.2 (-48.0*1.15)	881.5000029	-0.000453772

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

Voltage(V DC)	Frequency(MHz)	Tolerance(ppm)
-40.8 (-48.0*0.85)	1962.5000024	-0.000152866
-48.0	1962.5000021	Reference
-55.2 (-48.0*1.15)	1962.5000028	0.000203821

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

Voltage(V DC)	Frequency(MHz)	Tolerance(ppm)
-40.8 (-48.0*0.85)	2132.5000027	0.000234466
-48.0	2132.5000022	Reference
-55.2 (-48.0*1.15)	2132.5000026	0.000187573

--The End of Report--