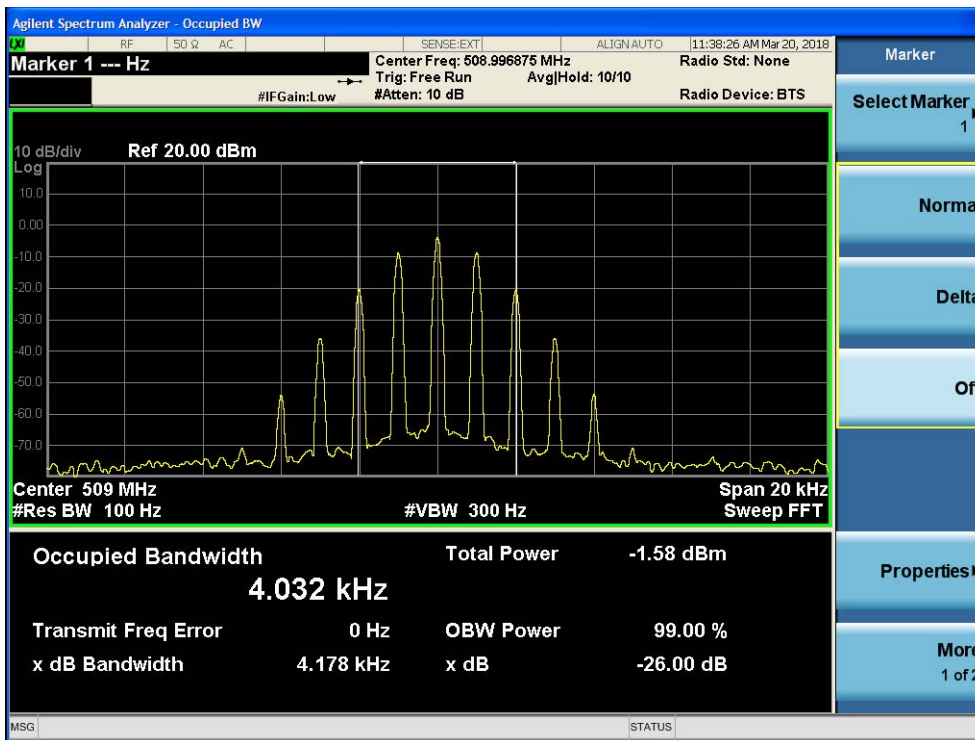
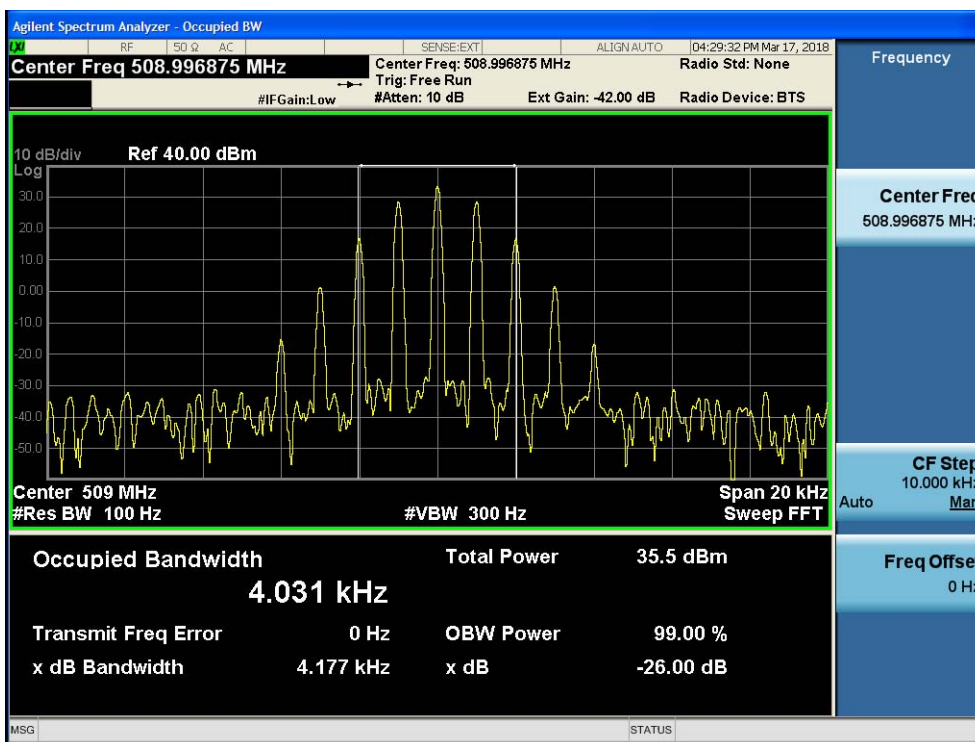


1.5 highest frequency—Input

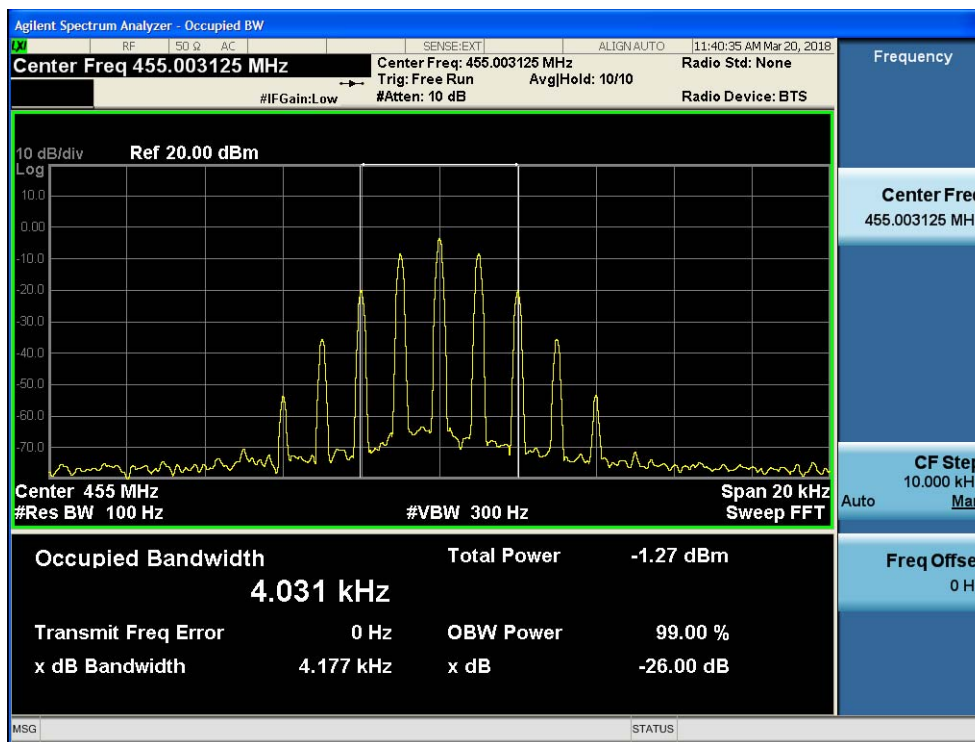


1.6 highest frequency—Output

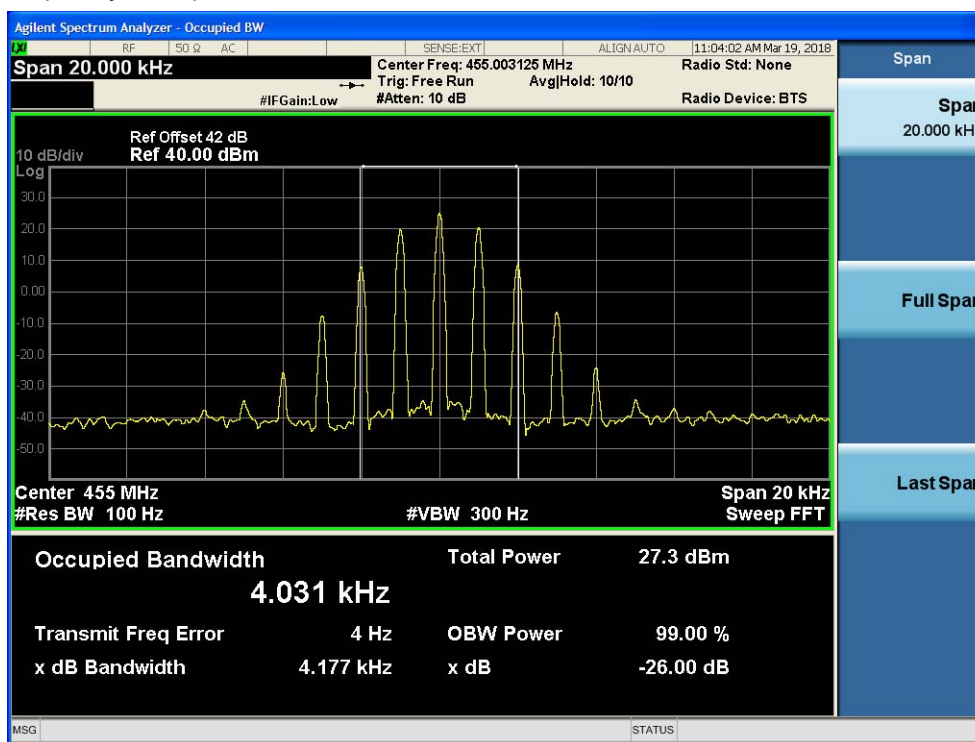


**4. Uplink:455MHz to 512MHz  
(for FM 6.25K mode)**

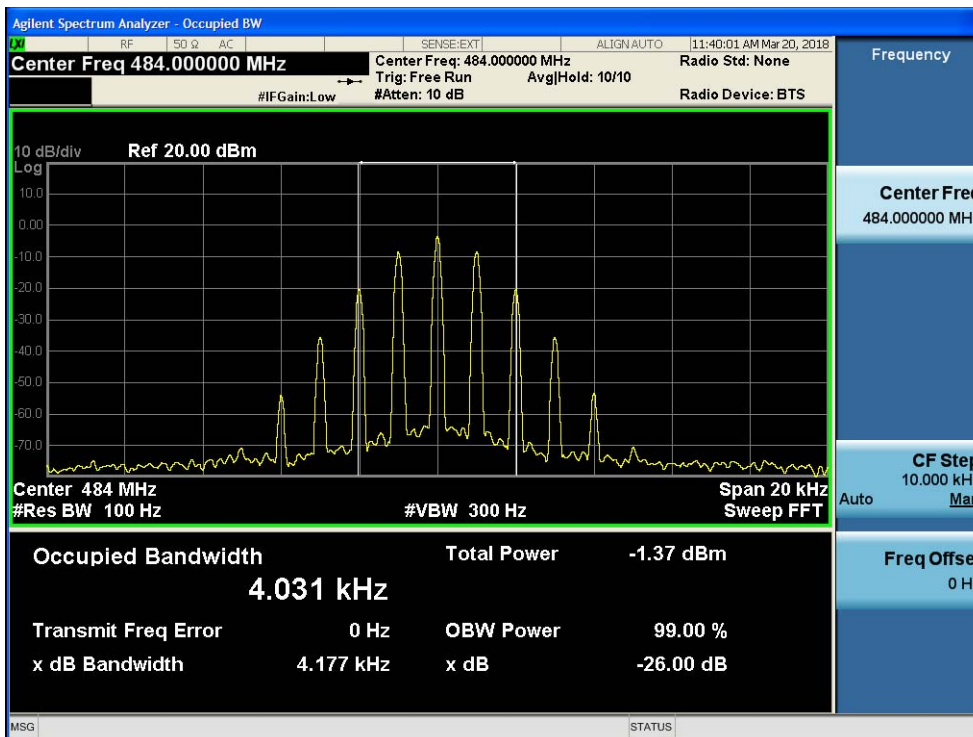
**1.1 lowest frequency – Input**



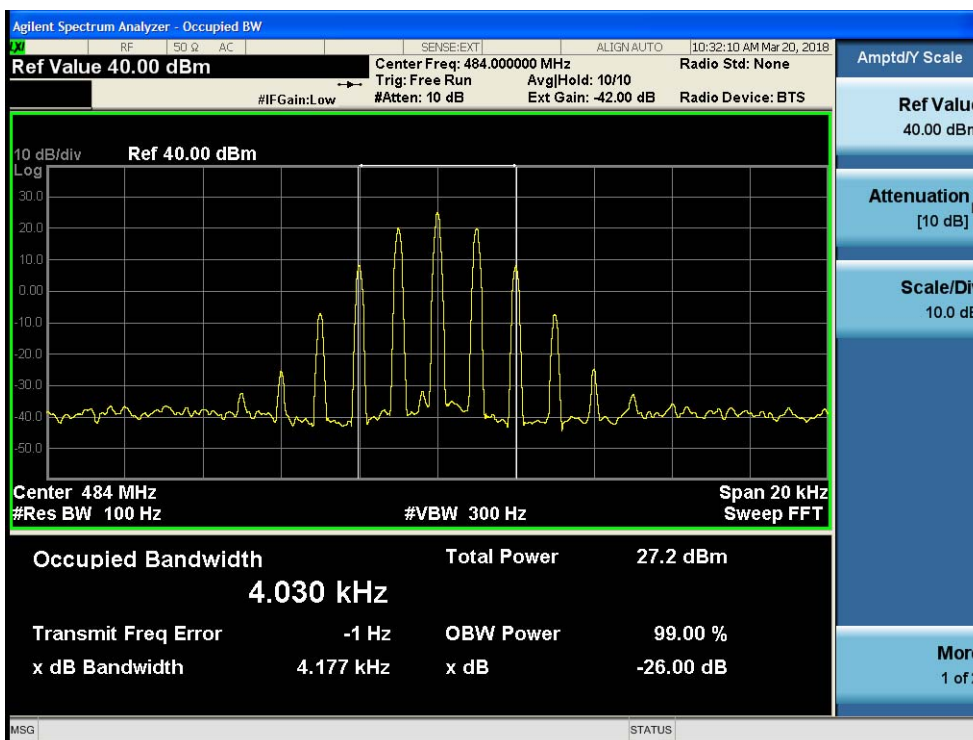
**1.2 lowest frequency—Output**



### 1.3 middle frequency—Input

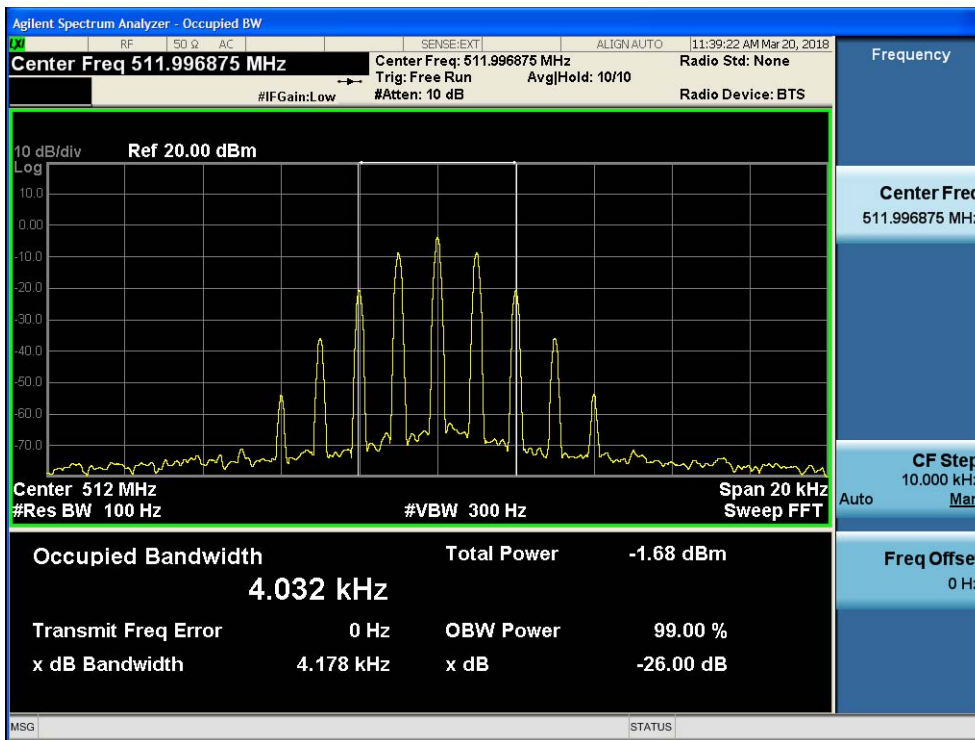


### 1.4 middle frequency—Output

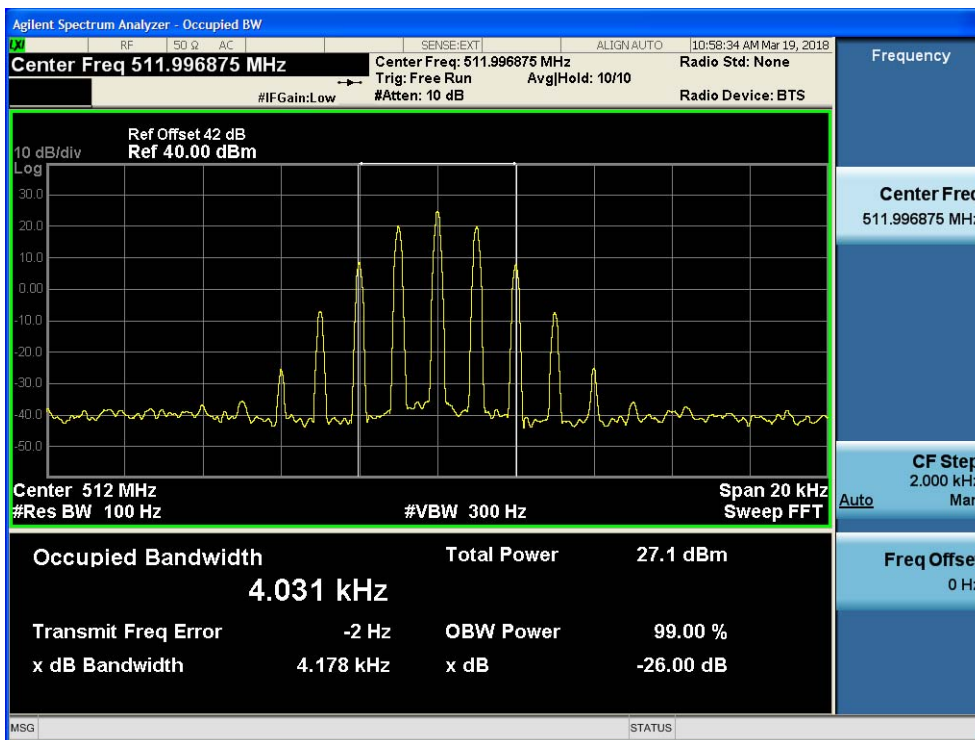




1.5 highest frequency—Input

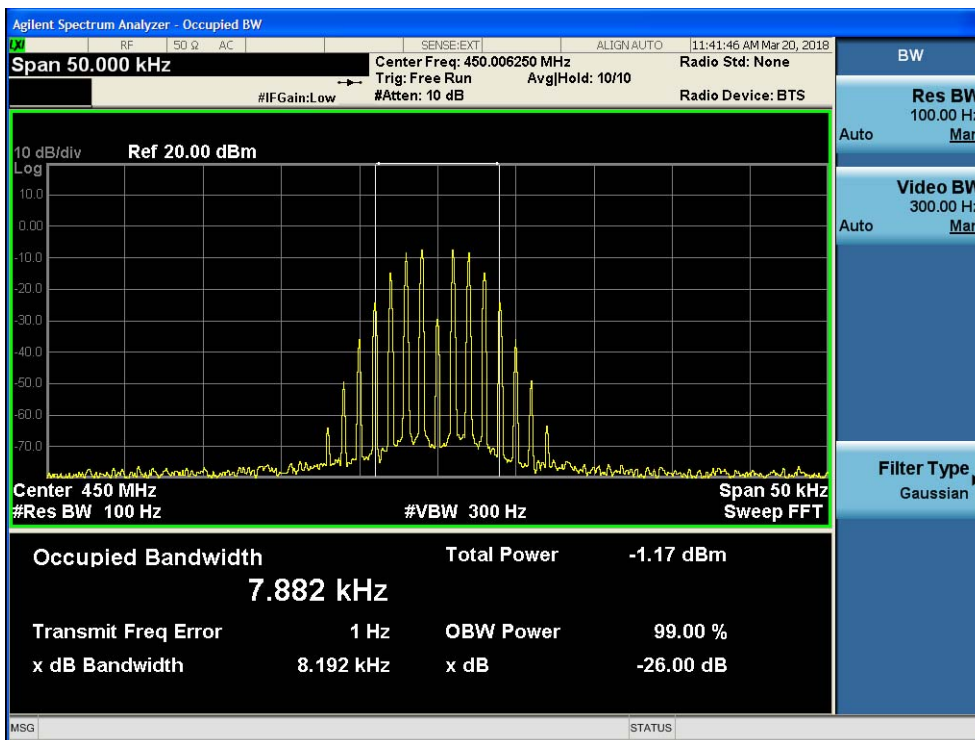


1.6 highest frequency—Output

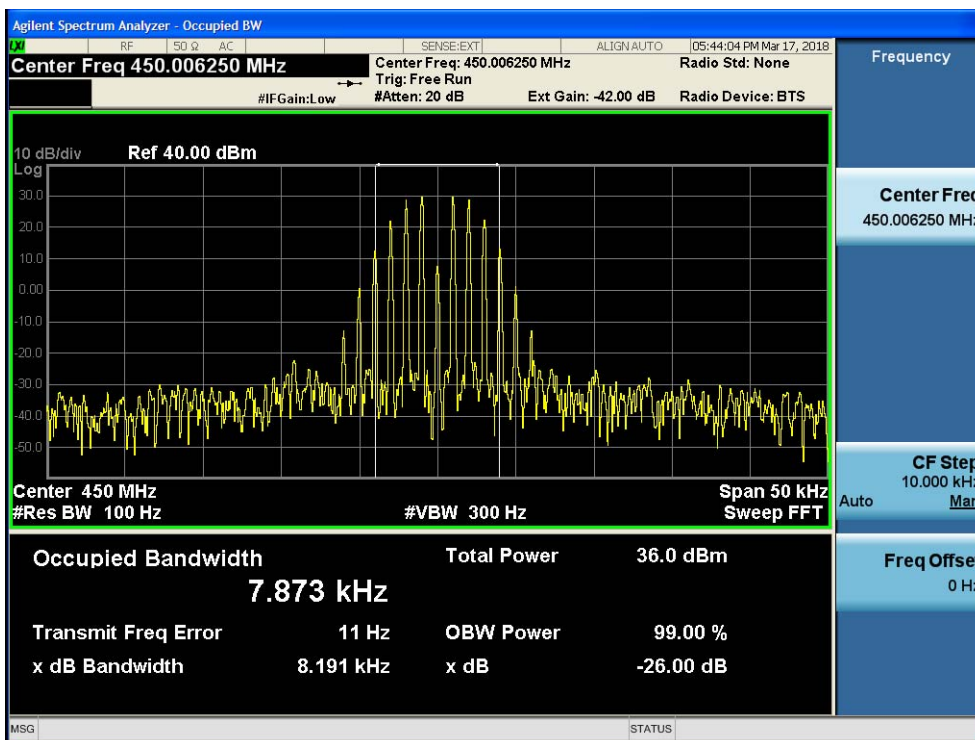


**5. Downlink:450MHz to 509MHz  
(for FM 12.5K mode)**

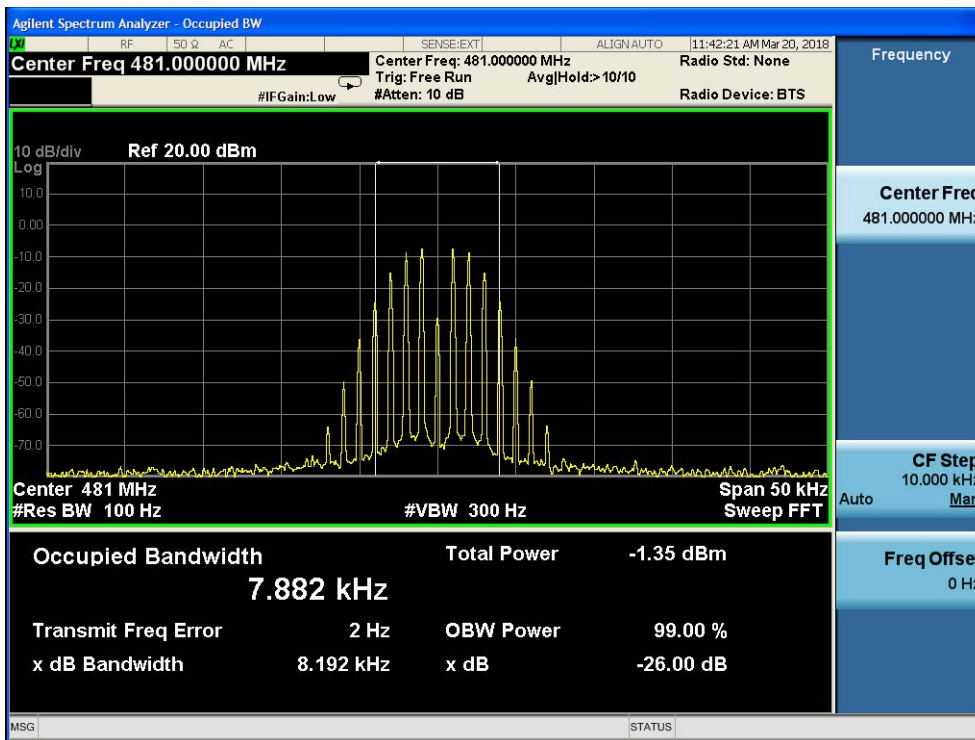
1.1 lowest frequency – Input



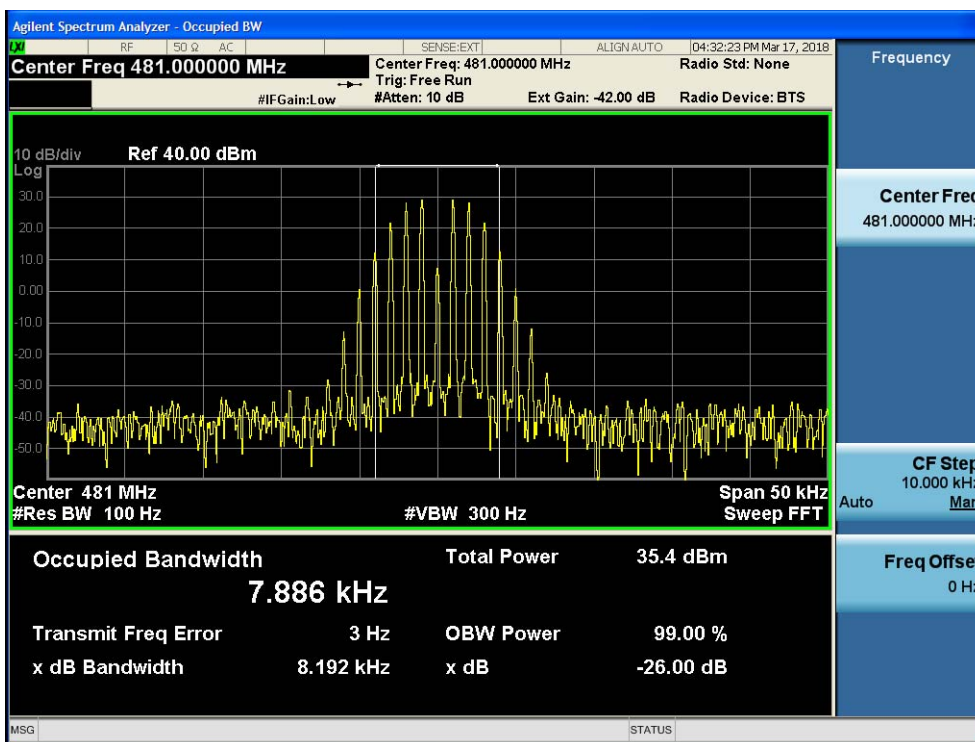
1.2 lowest frequency—Output



### 1.3 middle frequency—Input

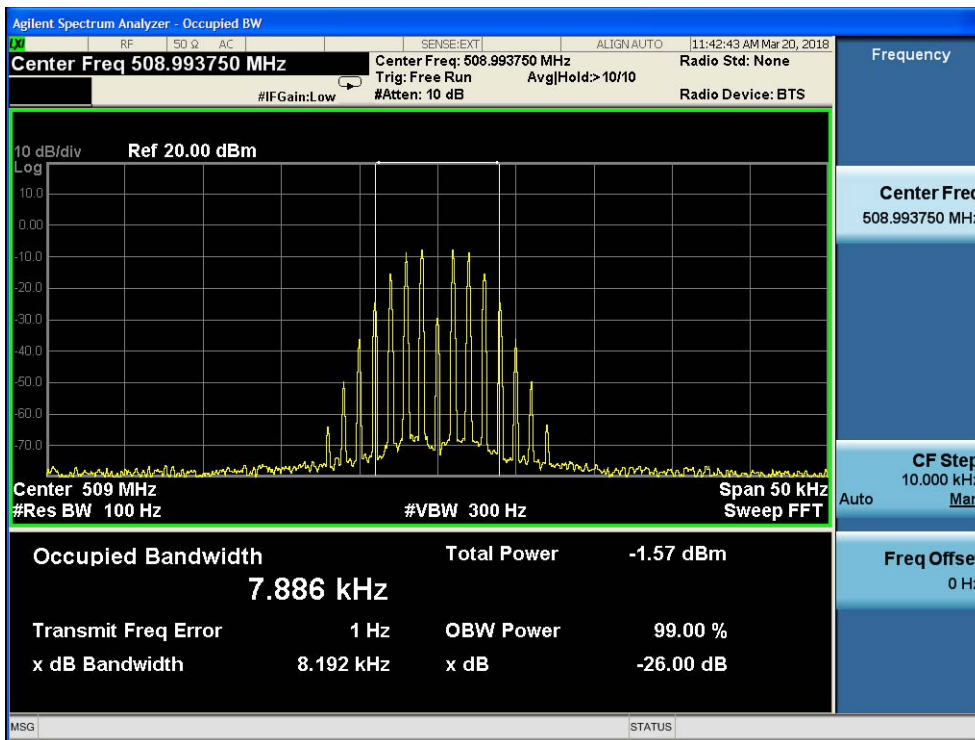


### 1.4 middle frequency—Output

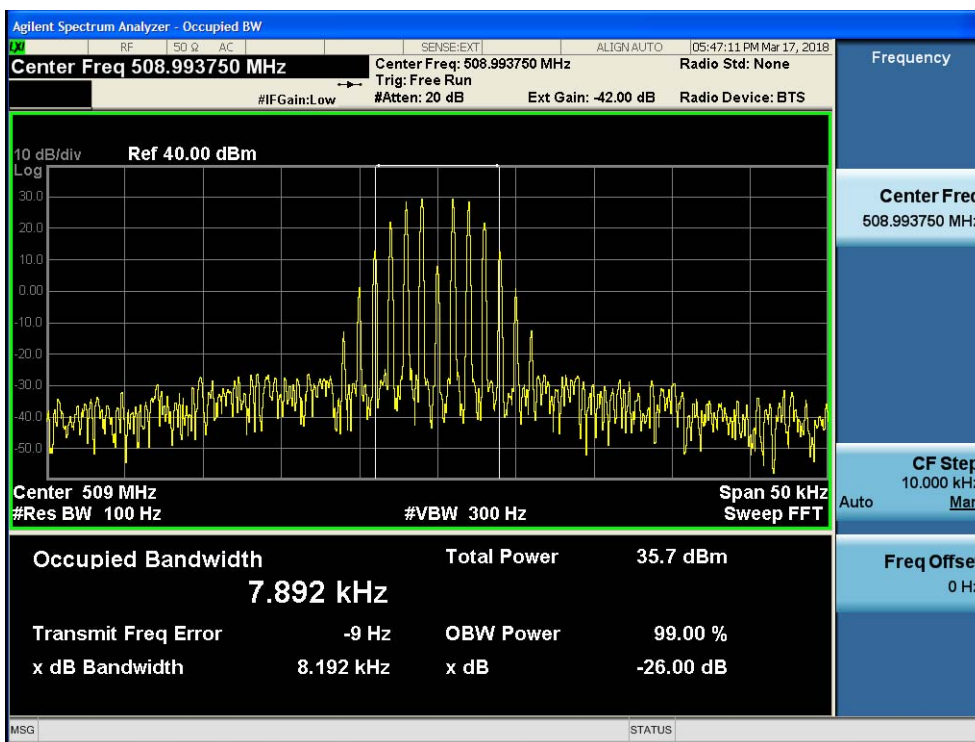




1.5 highest frequency—Input

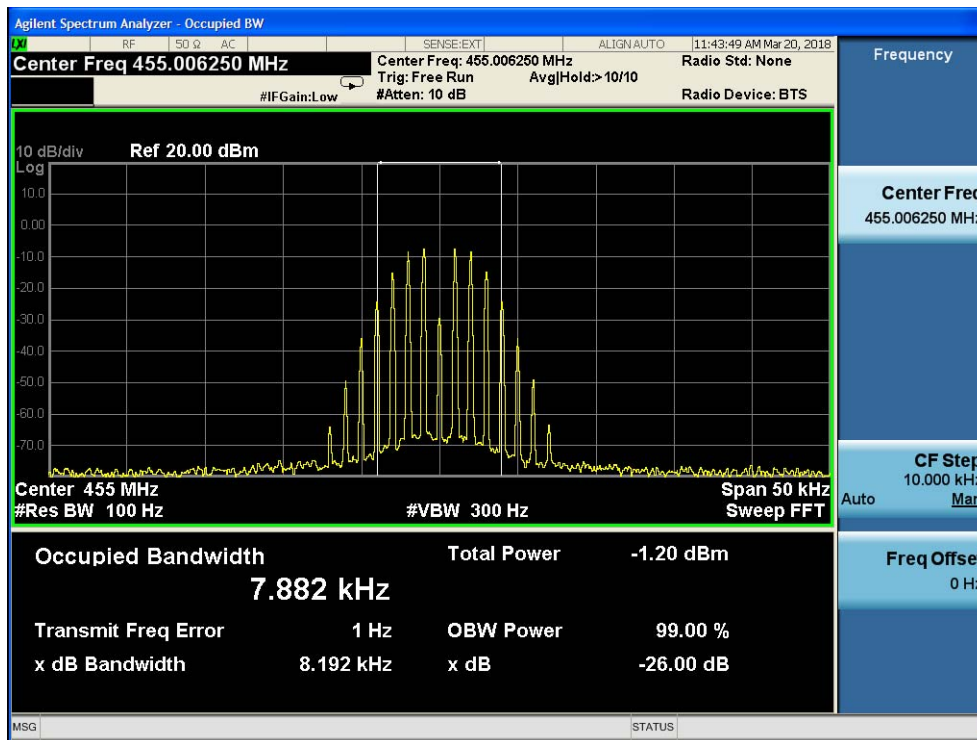


1.6 highest frequency—Output

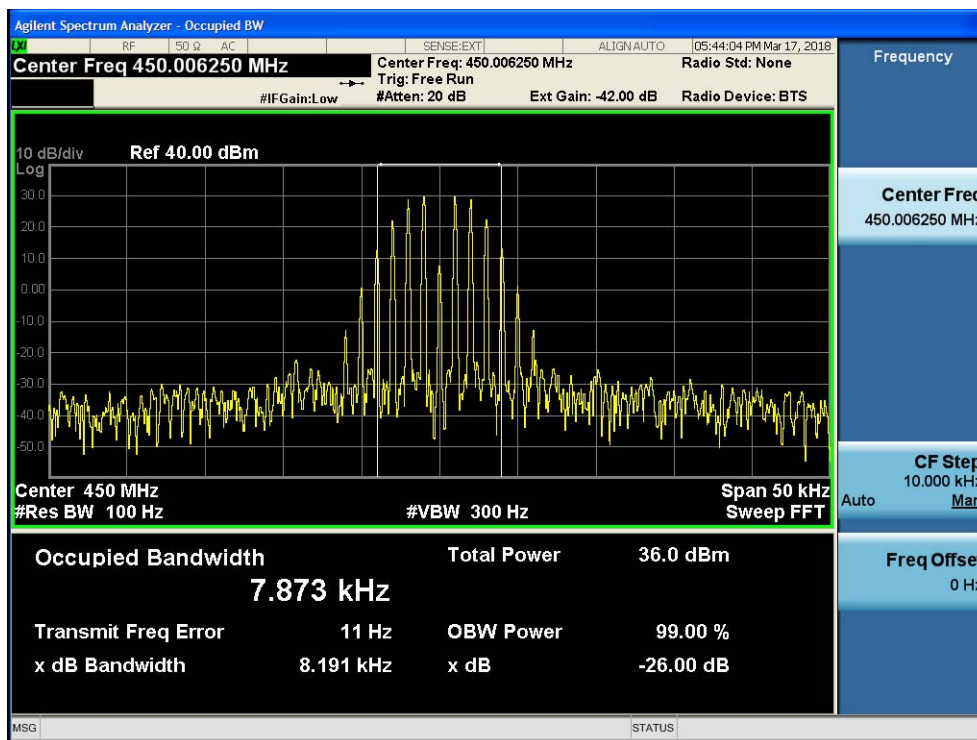


**6. Uplink:455MHz to 512MHz  
(for FM 12.5K mode)**

**1.1 lowest frequency – Input**

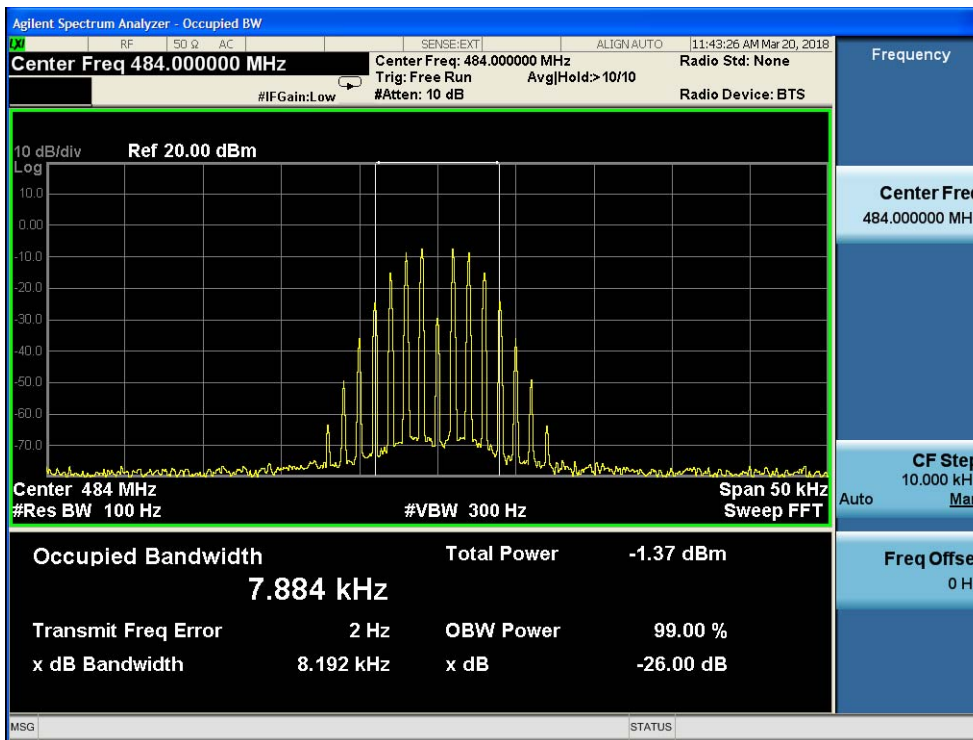


**1.2 lowest frequency—Output**

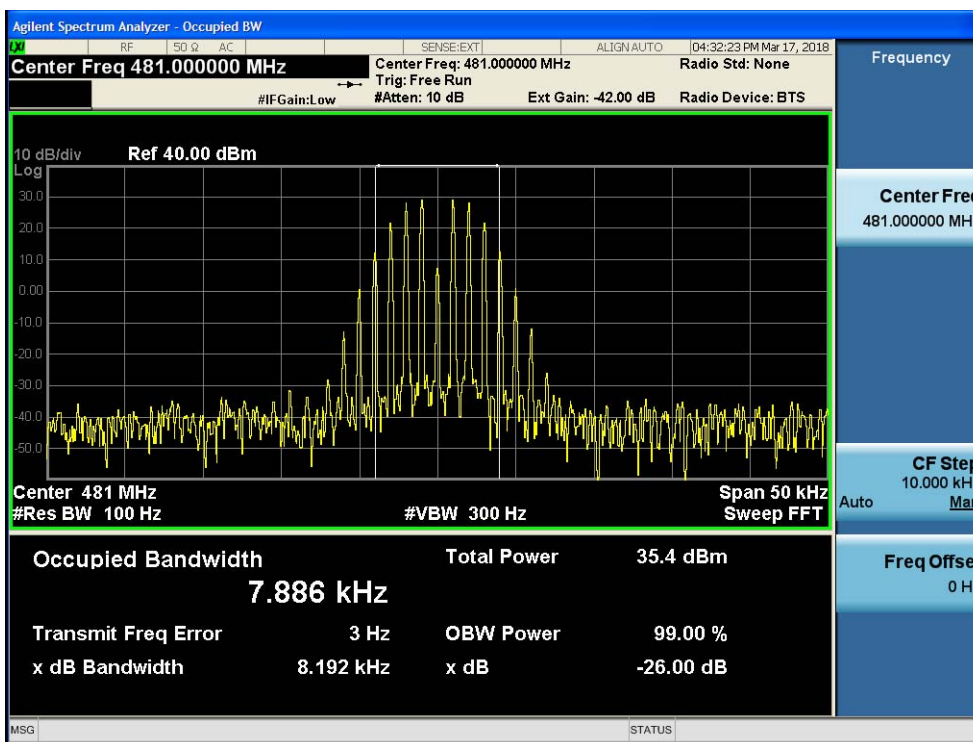




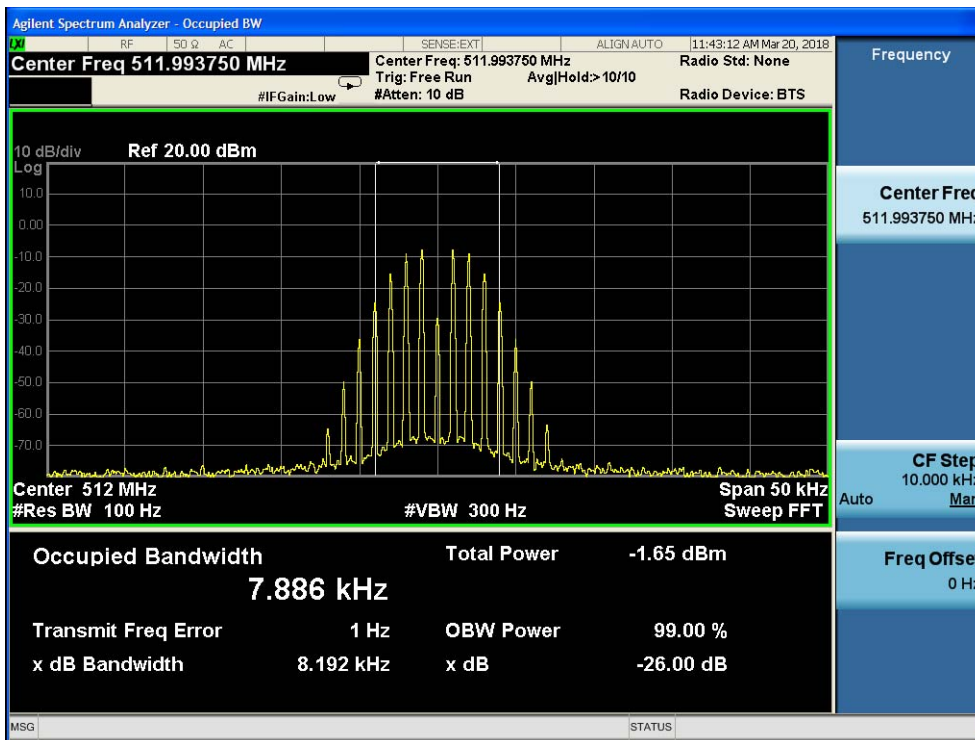
### 1.3 middle frequency—Input



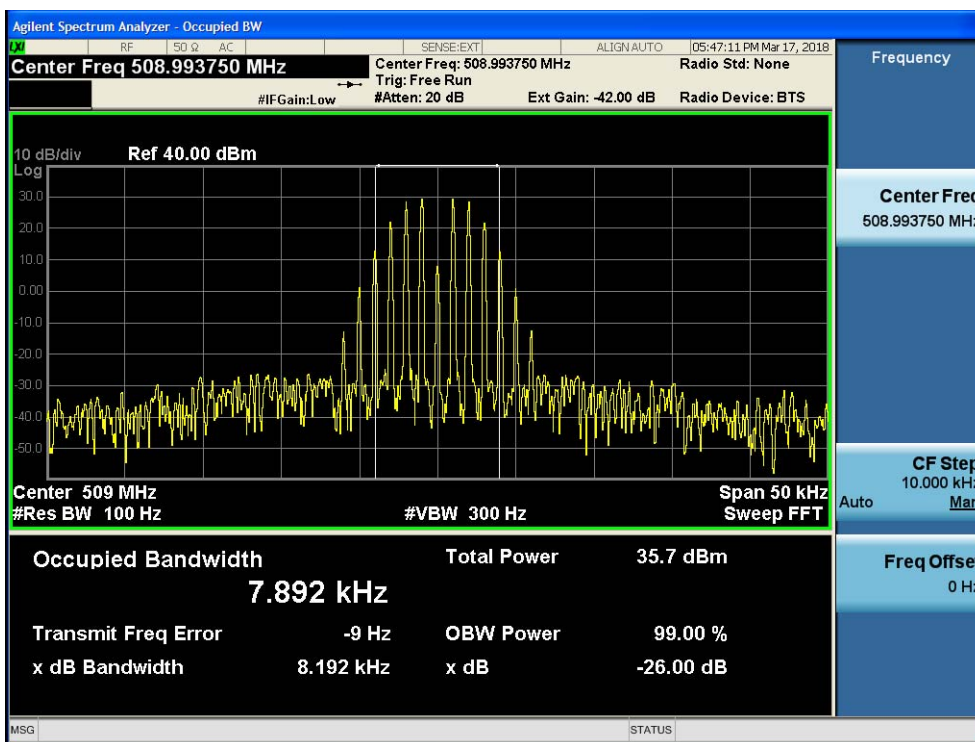
### 1.4 middle frequency—Output



1.5 highest frequency—Input

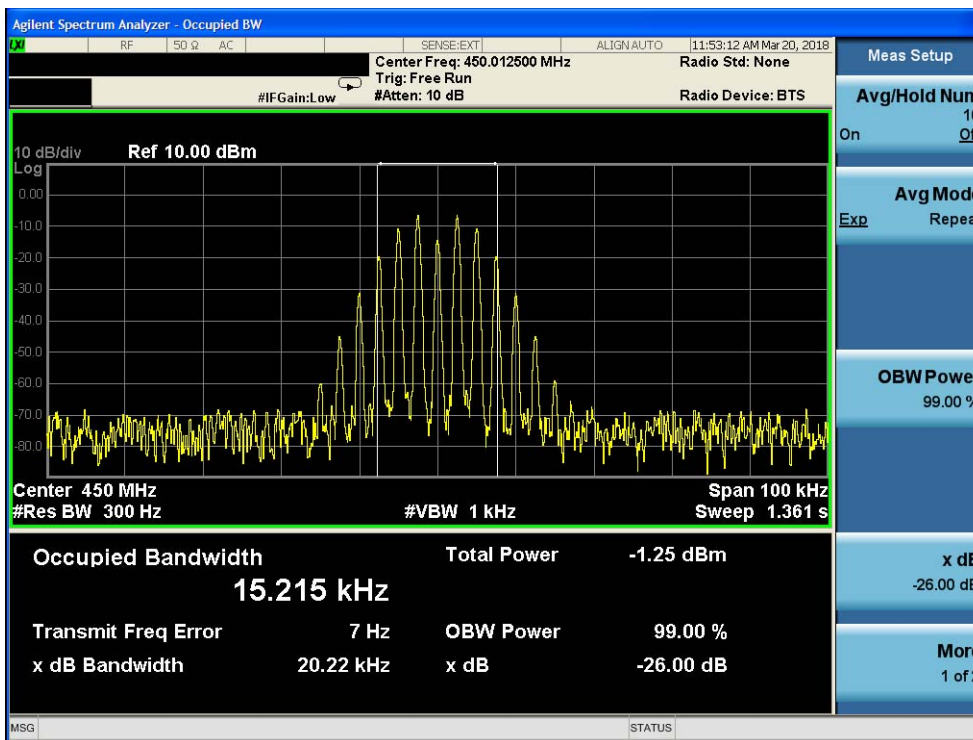


1.6 highest frequency—Output

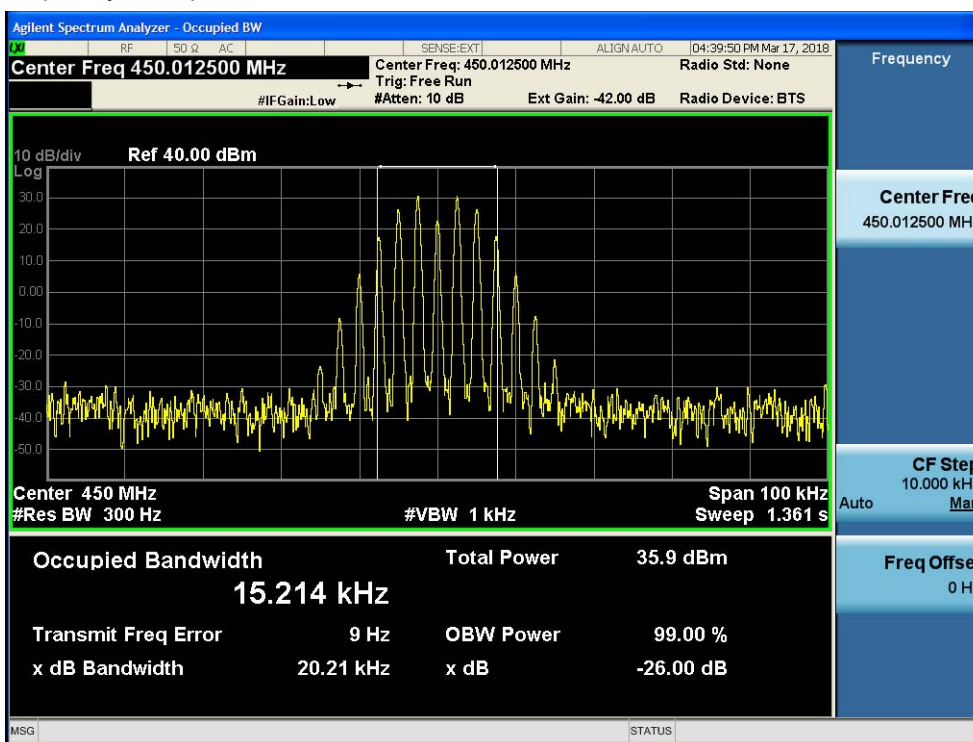


## 7. Downlink:450MHz to 509MHz (for FM 25K mode)

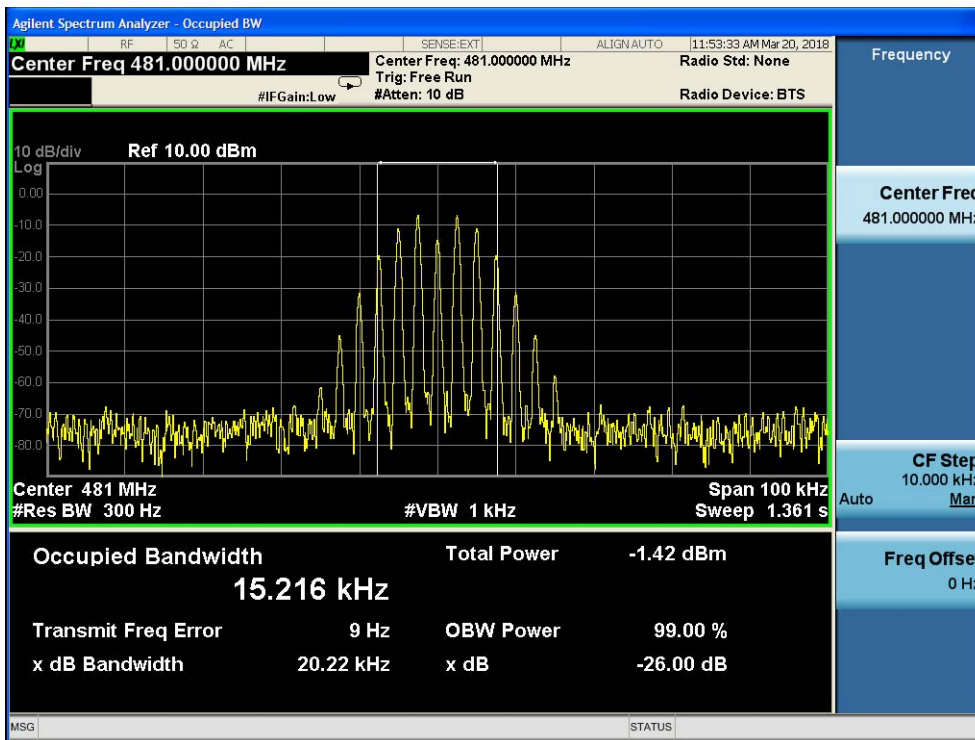
### 1.1 lowest frequency – Input



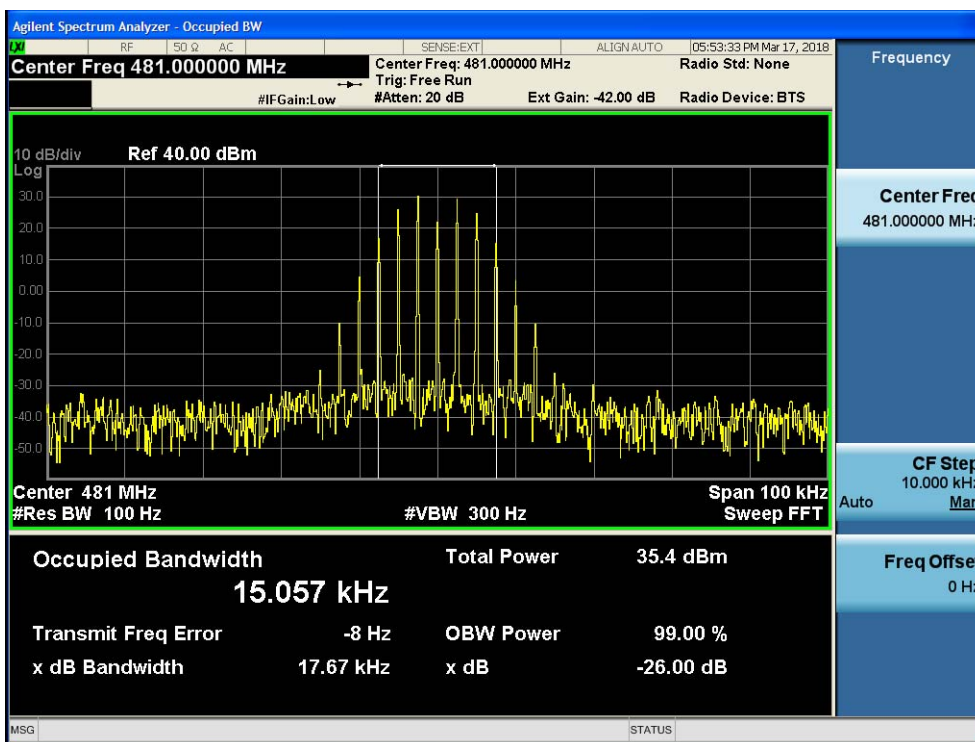
### 1.2 lowest frequency—Output



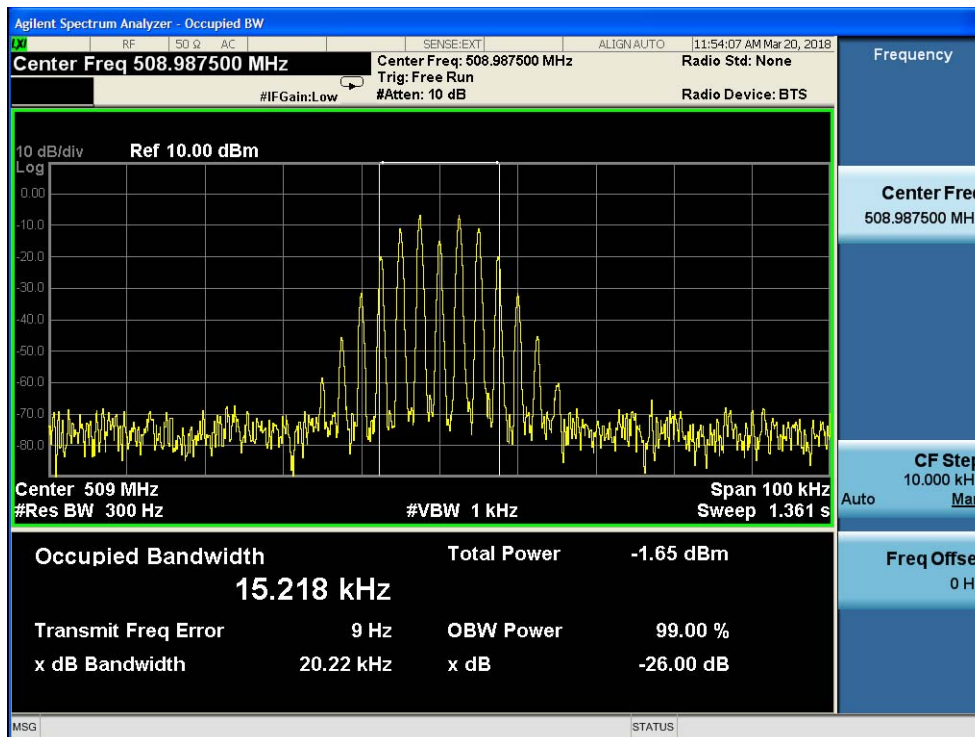
### 1.3 middle frequency—Input



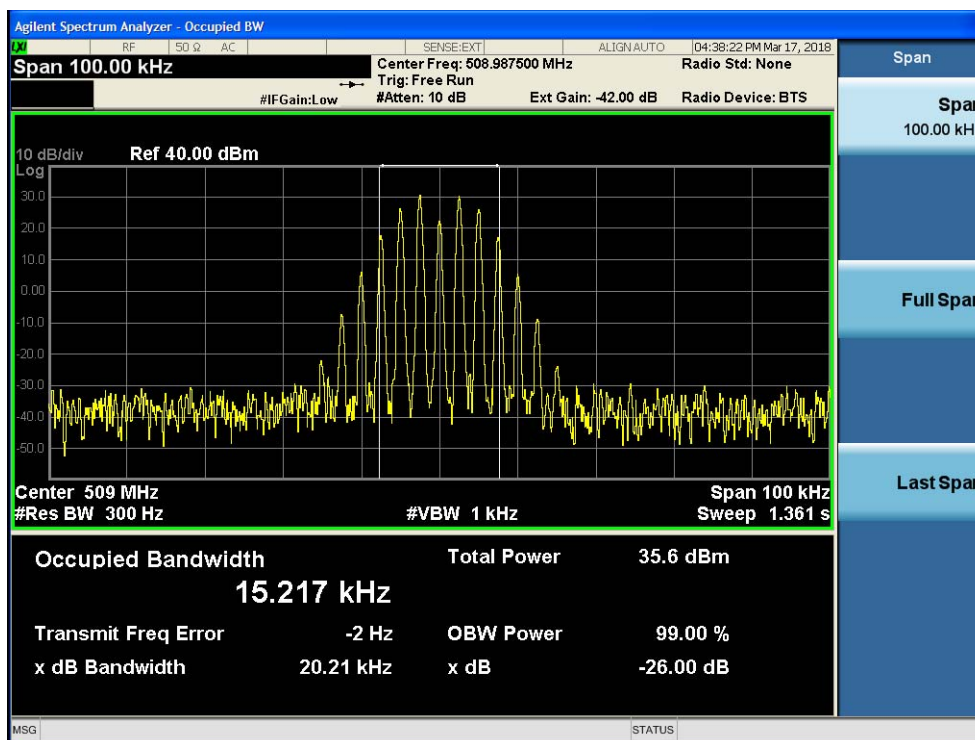
### 1.4 middle frequency—Output



1.5 highest frequency—Input

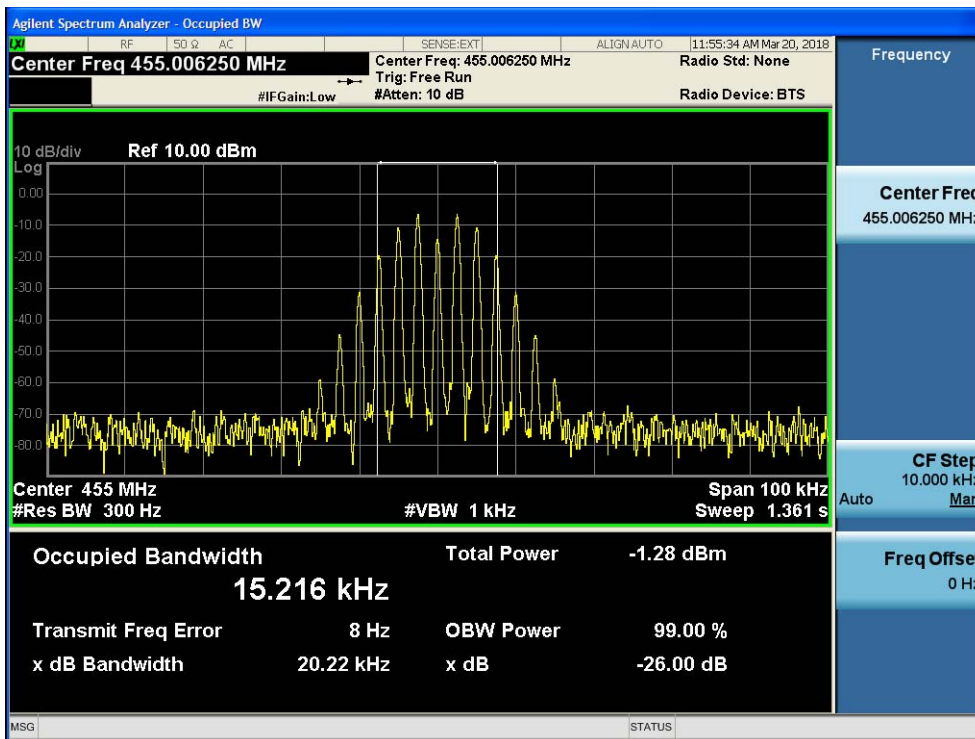


1.6 highest frequency—Output

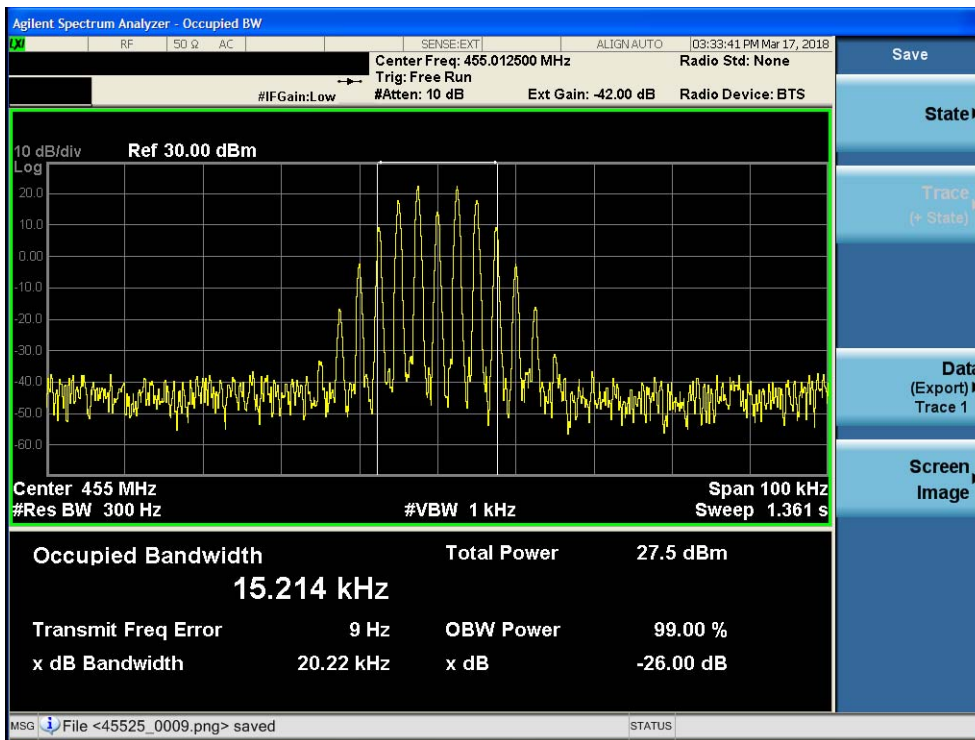


**8. Uplink:455MHz to 512MHz  
(for FM 25K mode)**

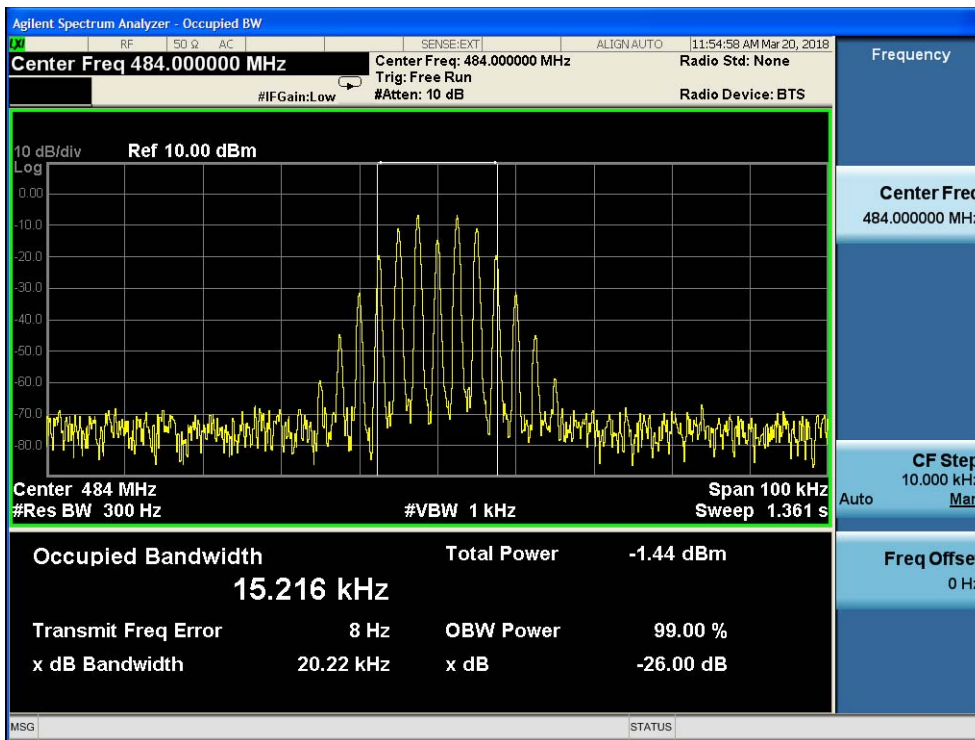
**1.1 lowest frequency – Input**



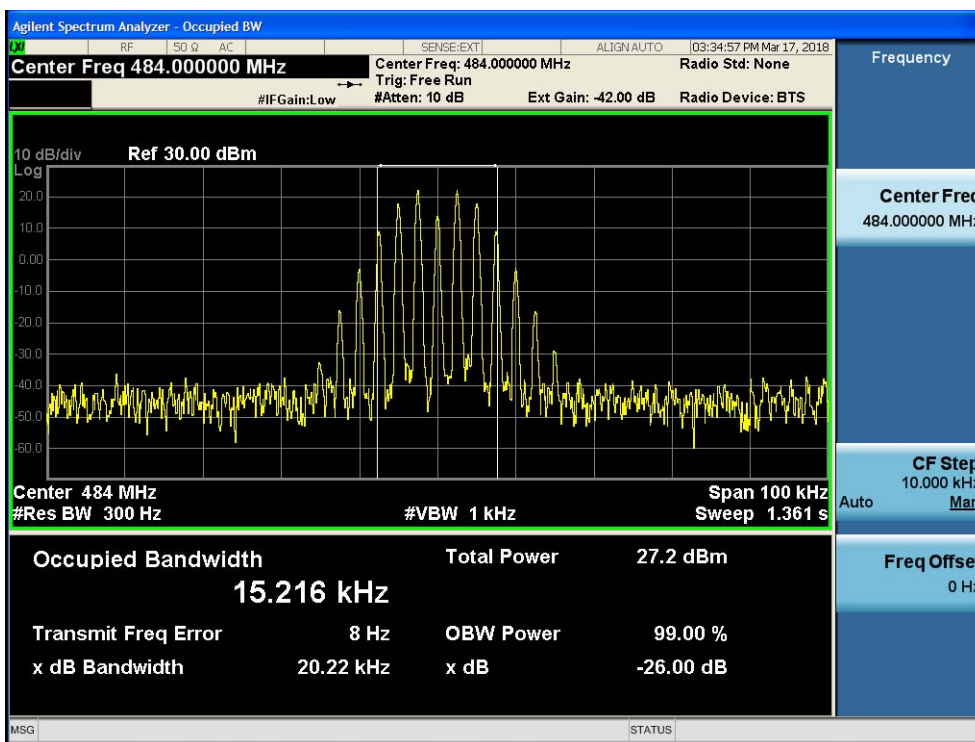
**1.2 lowest frequency—Output**



### 1.3 middle frequency—Input

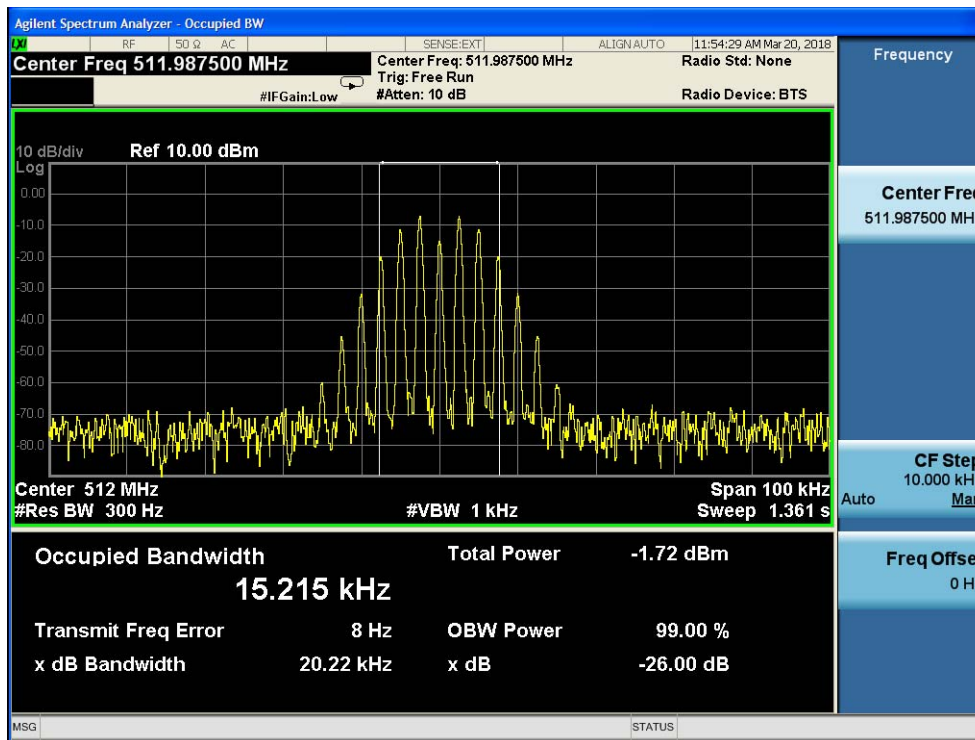


### 1.4 middle frequency—Output

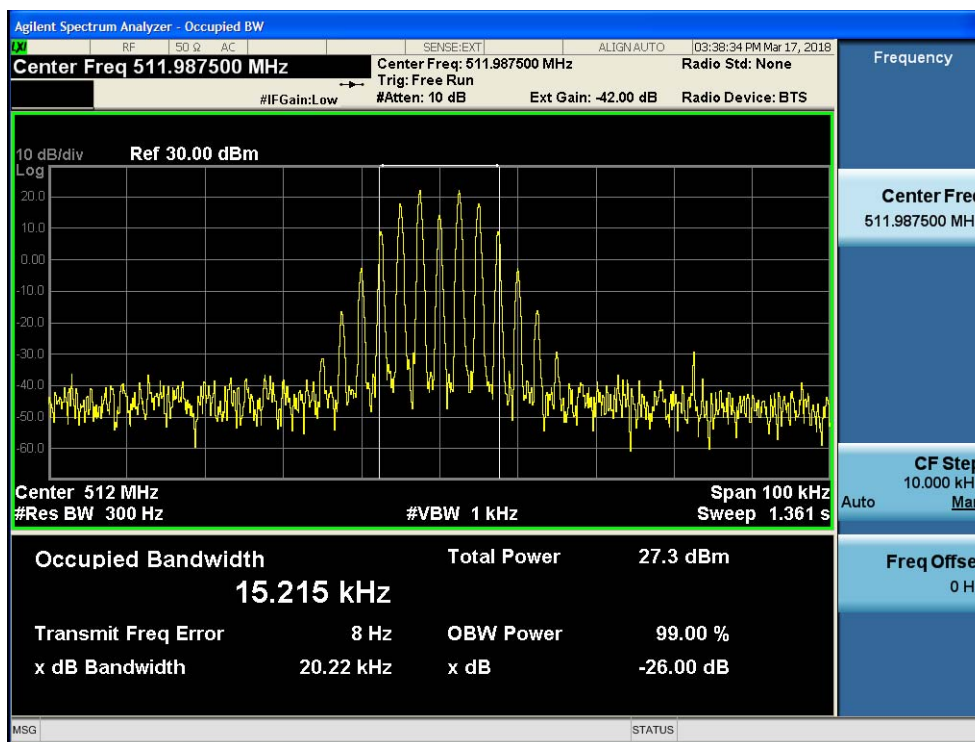




1.5 highest frequency—Input



1.6 highest frequency—Output





### 7.2.10 Out of Band Rejection

Test Requirement:	KDB935210 D02
	Test for rejection of out of band signals. Filter freq. response plots are acceptable.
Test Method:	KDB935210 D02
EUT Operation:	
Status:	Drive the EUT to maximum output power. .
Conditions:	Normal conditions
Application:	Cellular Band RF output ports
Test Configuration:	

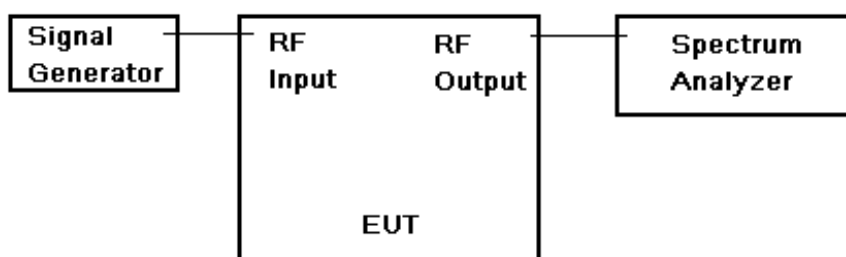


Fig.4. Out of Band rejection test configuration

- 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;
- With the aid of a CW Swept signal generator and spectrum analyser, the bandwidth and frequency response of the open channel (i.e. at the point where the gain has fallen by 20dB) is measured.
- This measurement shows the gain-versus-frequency response of the open channel from the midband frequency  $f_0$  of the channel up to at least  $f_0 + 250\%$  of the 20dB bandwidth.



**7.2.10.1 Measurement Record:**

**Downlink:**

Lower 25kHz Channel 449.9985625MHz-450.0264375MHz

Middle 25kHz Channel 480.9860625MHz-481.0139375MHz

Upper 25kHz Channel 508.9735125MHz-509.0014375MHz

Frequency (MHz)	FL(MHz)	FH (MHz)	20dB Bandwidth (kHz)
450.0125	449.9985625	450.0264375	27.875
481	480.9860625	481.0139375	27.875
508.9875	508.9735125	509.0014375	27.875

**Uplink:**

Lower 25kHz Channel 454.998625MHz-455.0264375MHz

Middle 25kHz Channel 483.9860625MHz-484.0139375MHz

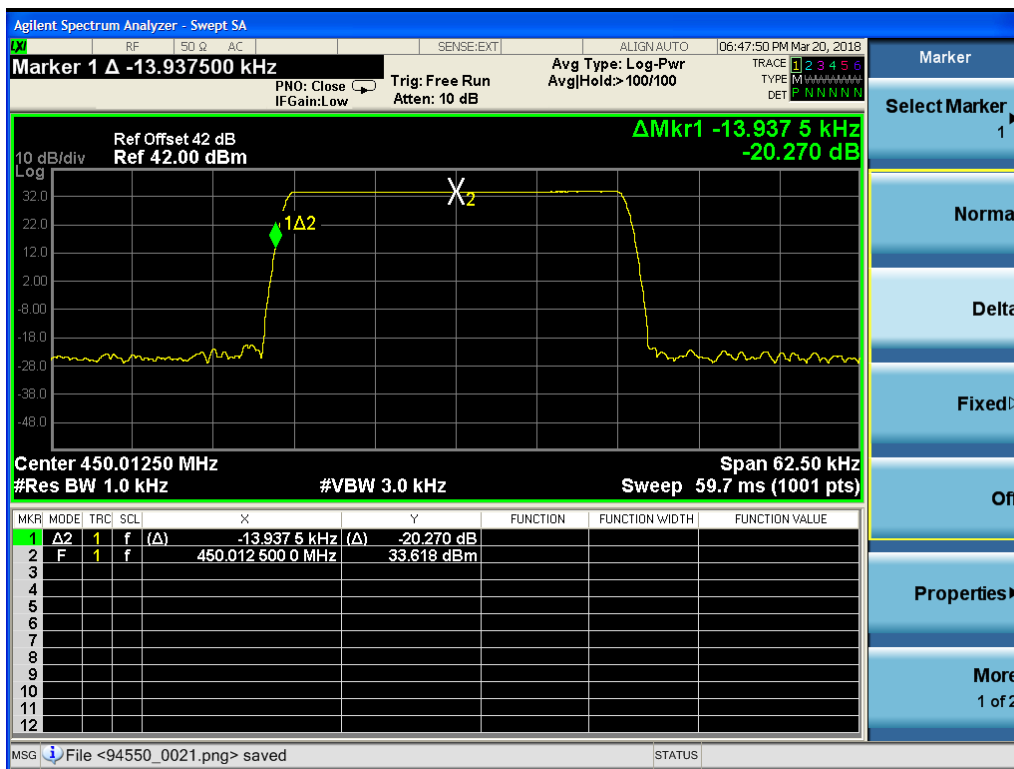
Upper: 25kHz Channel 511.9735625MHz-512.001375MHz

Frequency (MHz)	FL(MHz)	FH (MHz)	20dB Bandwidth (kHz)
455.0125	454.998625	455.0264375	27.8125
484	483.9860625	484.0139375	27.875
511.9875	511.9735625	512.001375	27.8125

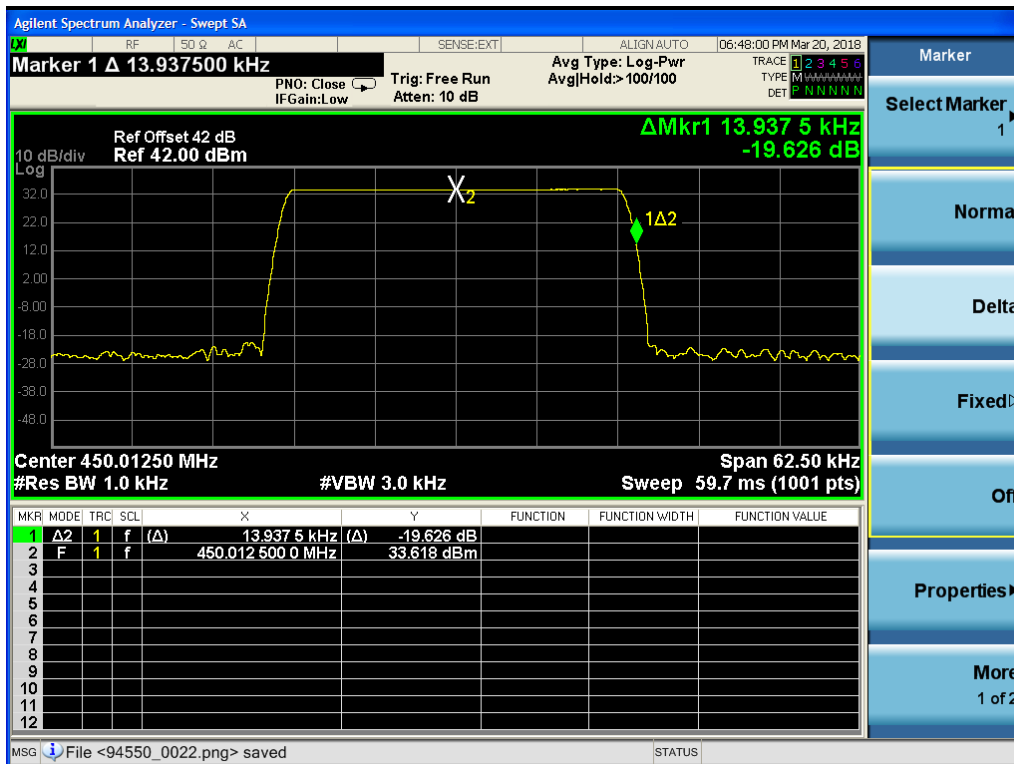
1. Test for Downlink: 449.9985625MHz to 450.0264375MHz 25k

1) Lowest frequency

left

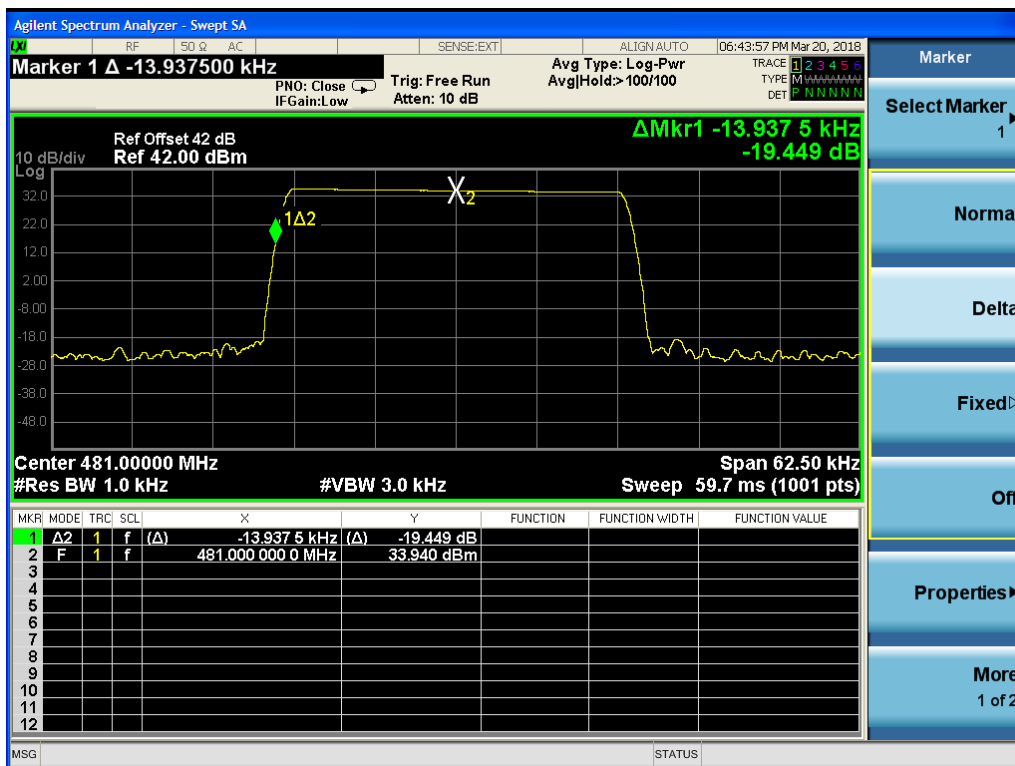


right

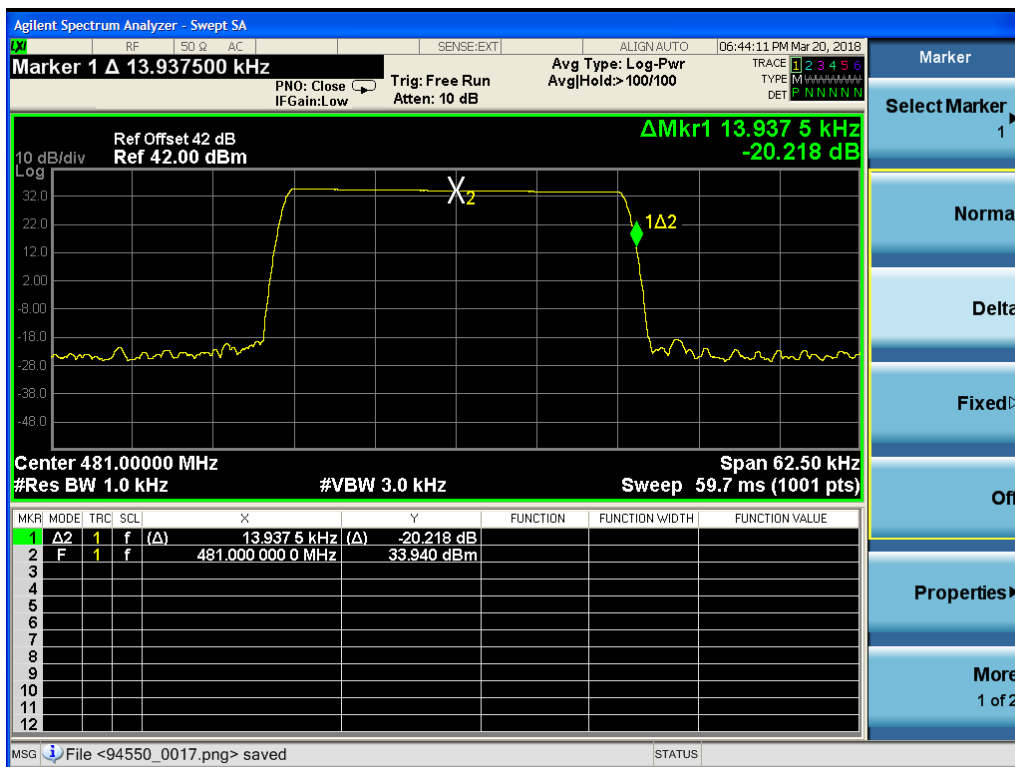


#### 4) Middle frequency

Left



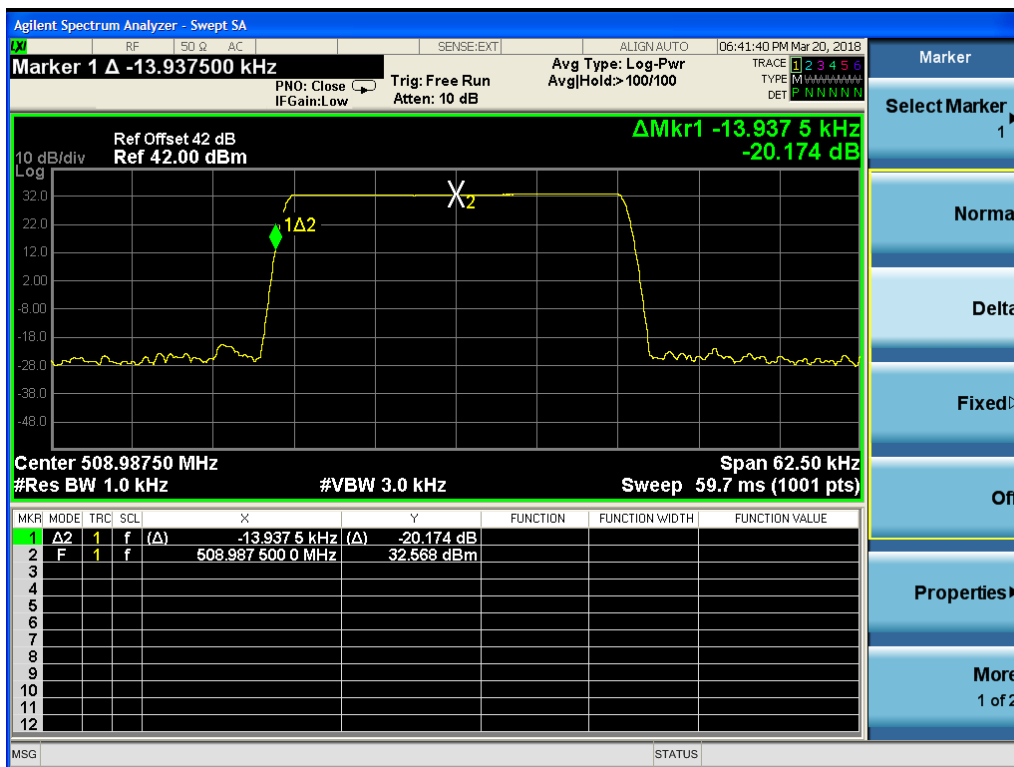
right



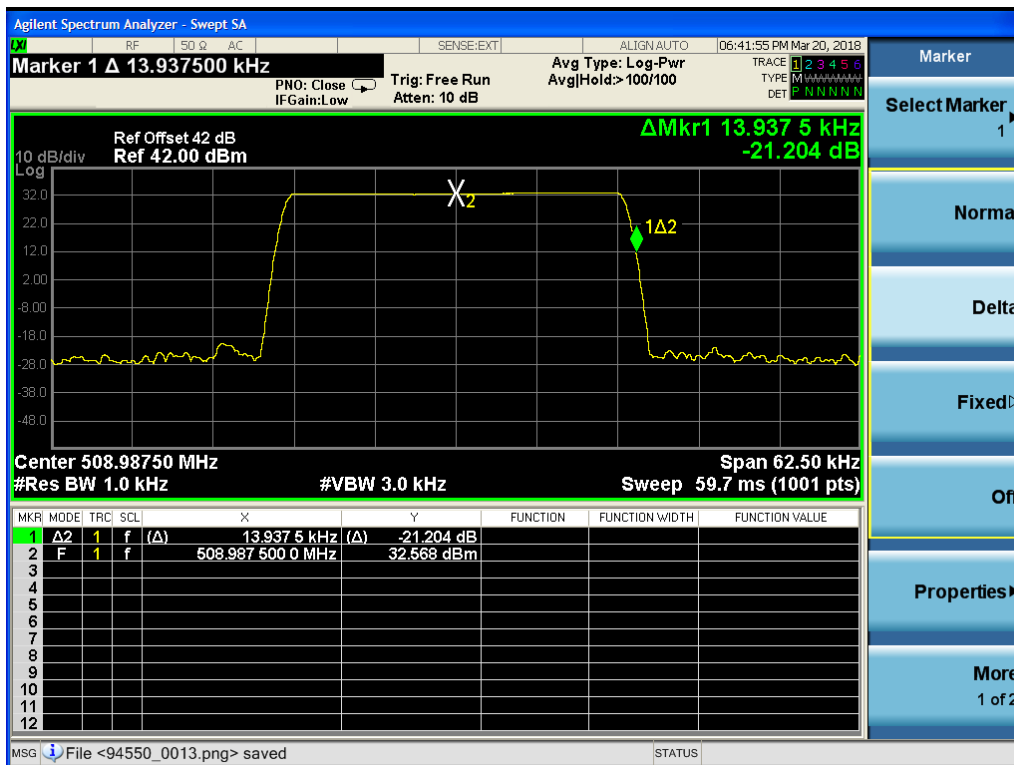
#### 3) Highest frequency

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Left



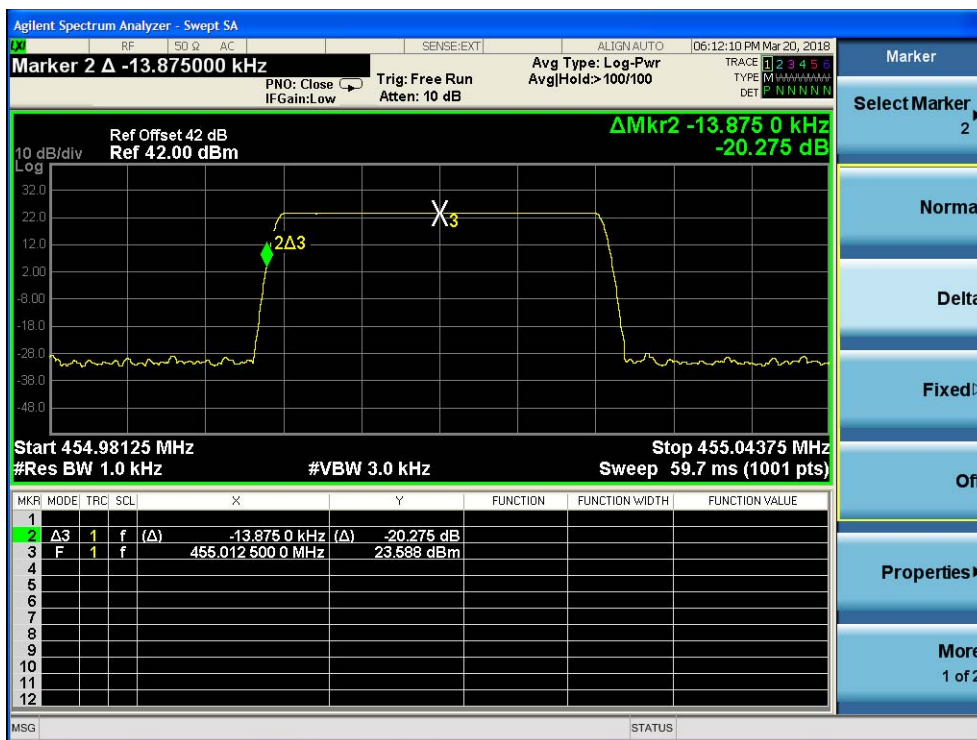
right



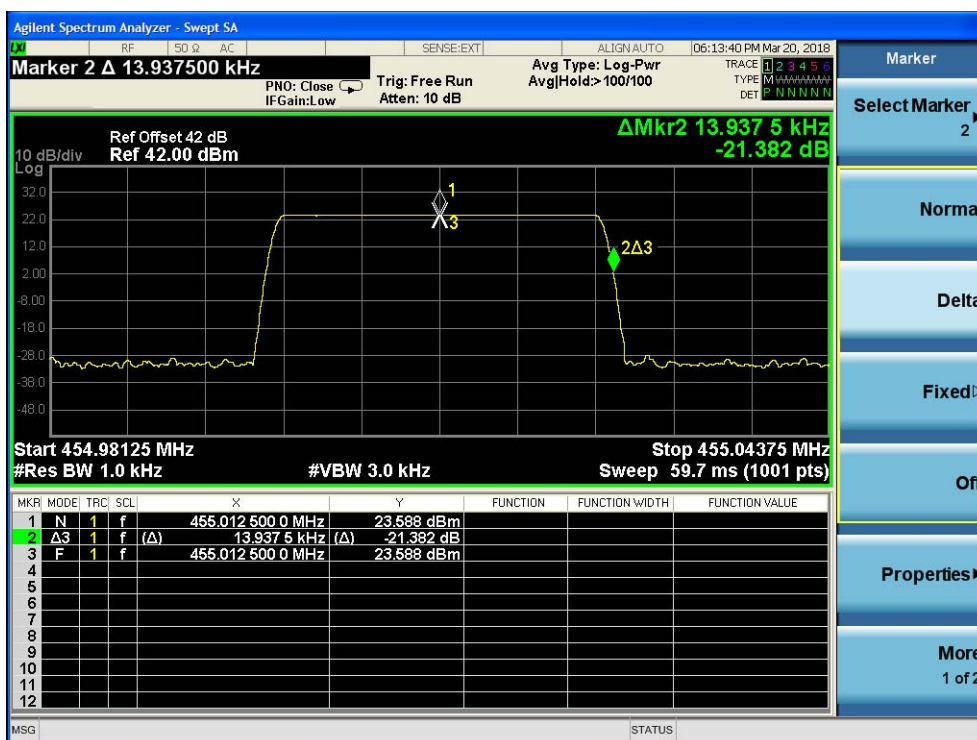
2. Test for Uplink: 454.998625MHz to 455.0264375MHz 25k

1) Lowest frequency

left

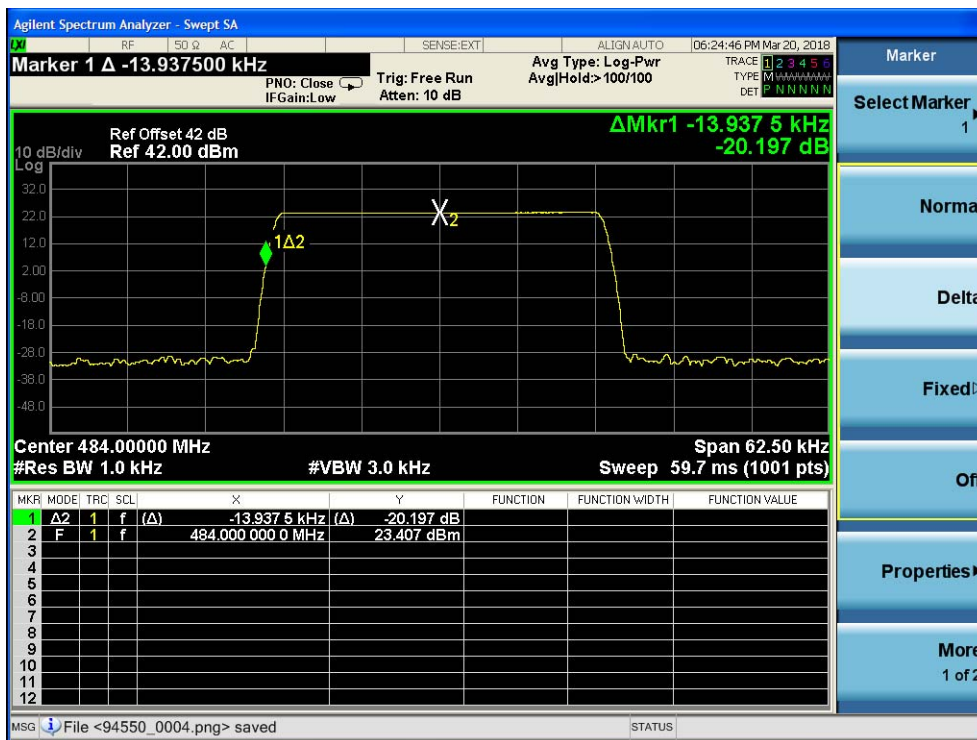


right

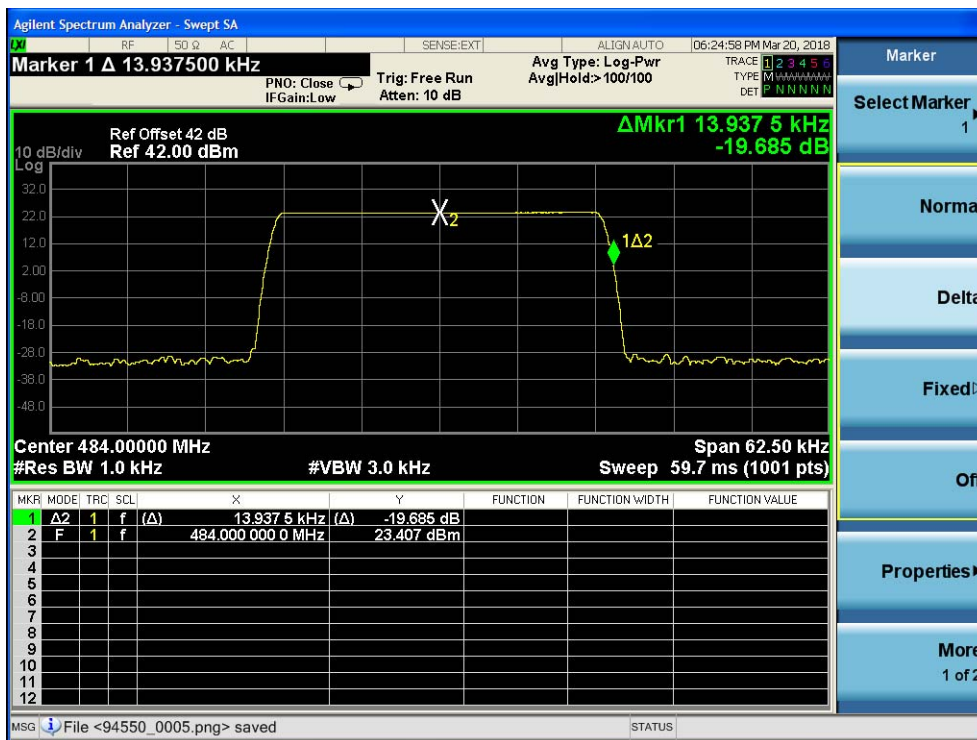


5) Middle frequency

Left

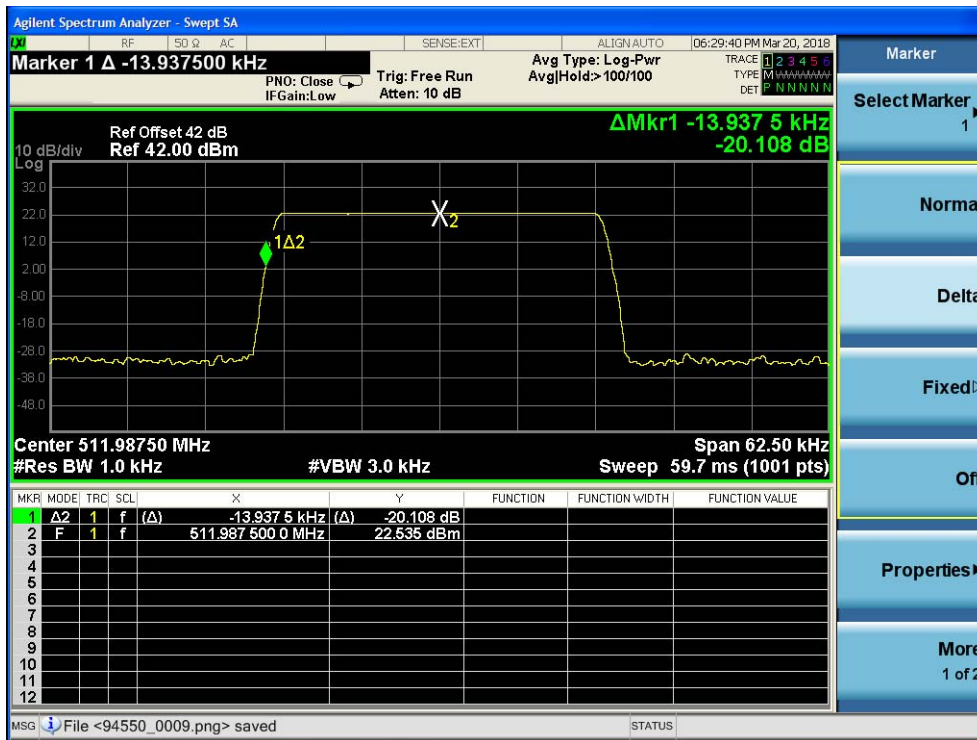


right

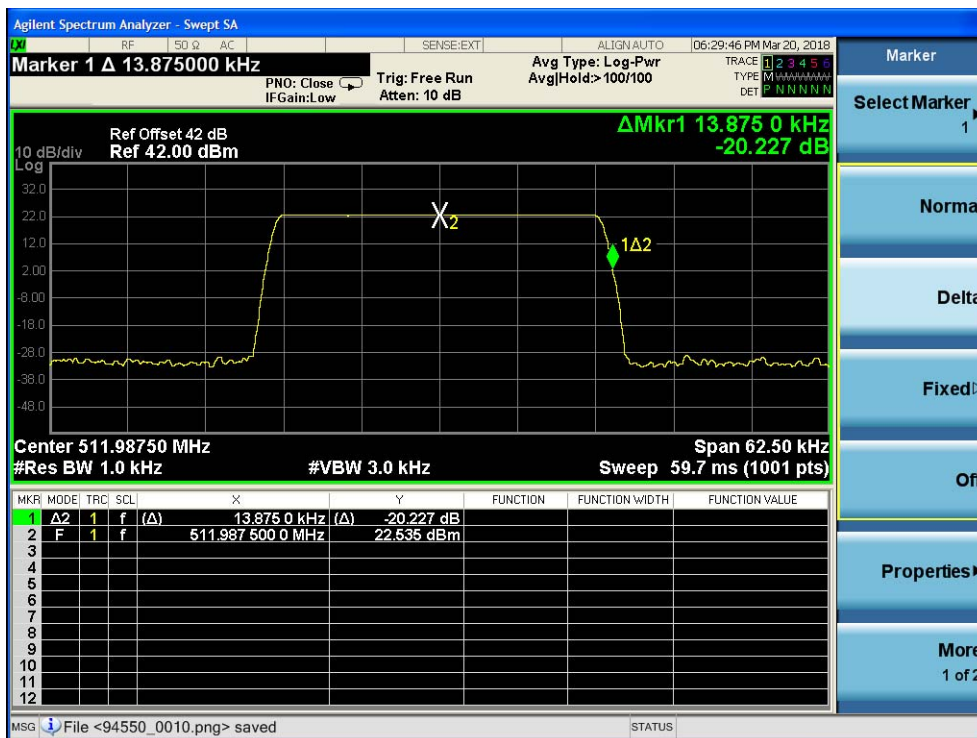


### 3) Highest frequency

Left



right







## 7.2.11 Frequency Stability

- Test Requirement: FCC part 90.213  
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 -30°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.



7.2.11.1 Measurement Record:

1) Frequency Stability vs temperature:

1.1) Test for Downlink: 450~509MHz (middle channel 481MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	481.0000021	0.000623700
40	481.0000017	0.000207900
30	481.0000023	0.001039500
20	481.0000018	Reference
10	481.0000025	0.001455300
0	481.0000019	-0.000207900
-10	481.0000022	0.000831600
-20	481.0000015	-0.000623700
-30	481.0000022	0.000831600

1.2) Test for Uplink: 455~512MHz (middle channel 484MHz)

Temperature(°C)	Frequency(MHz)	Tolerance(ppm)
50	484.0000021	0.000826446
40	484.0000023	0.001239669
30	484.0000019	0.000413223
20	484.0000017	Reference
10	484.0000014	-0.000619835
0	484.0000023	0.001239669
-10	484.0000022	0.000133067
-20	484.0000017	0
-30	484.0000015	-0.000413223

**2) Frequency Stability vs voltage:**

**2.1) For AC supplied:**

2.1.1) Test for Downlink:450~509MHz (middle channel 481.0MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	481.0000017	0.000062370
120	481.0000020	Reference
138 (120*1.15)	481.0000022	0.000041580

2.1.2) Test for Uplink:455~512MHz (middle channel 484.0MHz)

Voltage(V AC)	Frequency(MHz)	Tolerance(ppm)
102 (120*0.85)	484.0000021	0.000041322
120	484.0000019	Reference
138 (120*1.15)	484.0000024	0.001033058

**3) Frequency Stability vs voltage:**

**2.1) For DC supplied:**

2.1.1) Test for Downlink:450~509MHz (middle channel 481.0MHz)

Voltage(V DC)	Frequency(MHz)	Tolerance(ppm)
-40.8 (-48.0*0.85)	481.0000019	0.000062370
-48.0	481.0000021	Reference
-55.2 (-48.0*1.15)	481.0000016	0.000103950

2.1.2) Test for Uplink:455~512MHz (middle channel 484.0MHz)

Voltage(V DC)	Frequency(MHz)	Tolerance(ppm)
-40.8 (-48.0*0.85)	484.0000022	0.000082644
-48.0	484.0000018	Reference
-55.2 (-48.0*1.15)	484.0000026	0.000165289

**--The End of Report--**