

Figure 1

The proper alignment of a bandpass filter is critical in making accurate measurements. The filter is also highly recommended. Without it, the total power of all the carriers present at the front end of the analyzer can cause it to overload when making low-level noise and distortions measurements. The bandpass filter then limits the total power present at the front end of the analyzer to only that of the channel being measured thus minimizing analyzer created distortions. The analyzer also will not become overloaded and will not generate its own inter-modulation beats that would interfere with the measurements.

The spectral width or selectivity of a bandpass filter is rated as a percentage of the center frequency. This means that the width of a 5% filter at 55.25 MHz is only about 2.7 MHz! A filter with the same selectivity at 750 MHz has a width of 37.5 MHz. Therefore extra care must be taken in tuning the filter at the lower frequencies than at the higher. It also means that if you have tunable bandpass filters, you should find out their selectivity rating. Most filter manufacturers publish the selectivity of their filters on their websites.

1. Connect the filter as shown in Figure 1.
2. From the preset condition of the AT2000 analyzer, press the MENU hard key and select the C/N, CSO, CTB measurement.
3. Press the FREQ hard key and using the video carrier soft key, select the desired measurement channel.
4. Press the TRACE hard key and then the No Average soft key.
5. Tune the bandpass filter to peak the video carrier.
6. Peak the audio carrier of the desired measurement channel while watching the video carrier. The audio carrier should be peaked without sacrificing any amplitude on the video carrier as shown in Figure 2. Remember that a 1 dB sacrifice in the amplitude of the video carrier means a 1 dB inaccuracy in the measurement.
7. Press the TRACE hard key then select the Average 1 soft key.
8. Press the ESC hard key and the analyzer returns to the measurement menu.

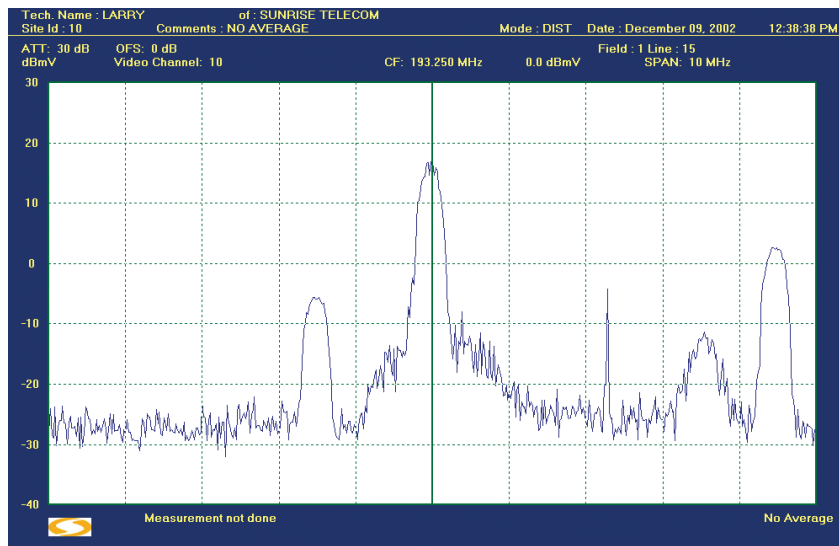


Figure 2

Figure 3 shows a CSO measurement with the bandpass filter properly tuned. Figure 4 shows the same measurement at the same location on the same channel with the filter improperly tuned. Notice that even though the video carrier is peaked in Figure 4, the audio carrier is not and the measurement results are inaccurate.

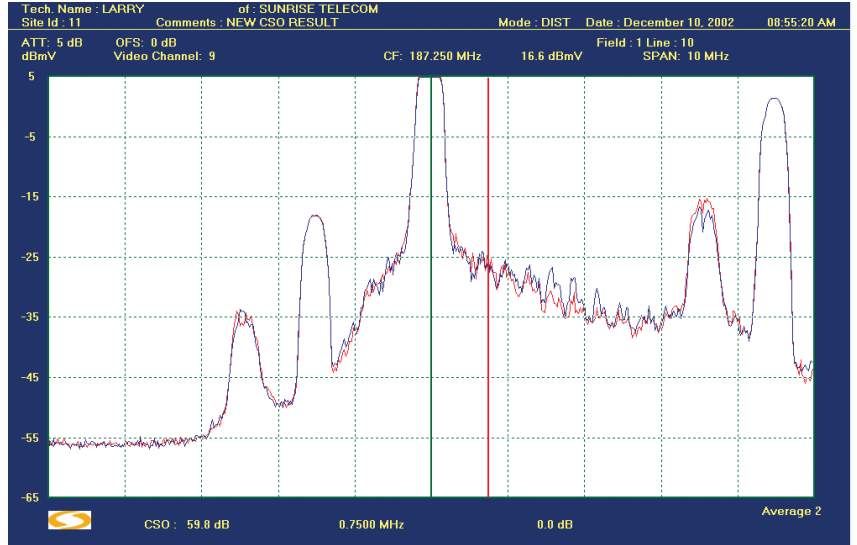


Figure 3

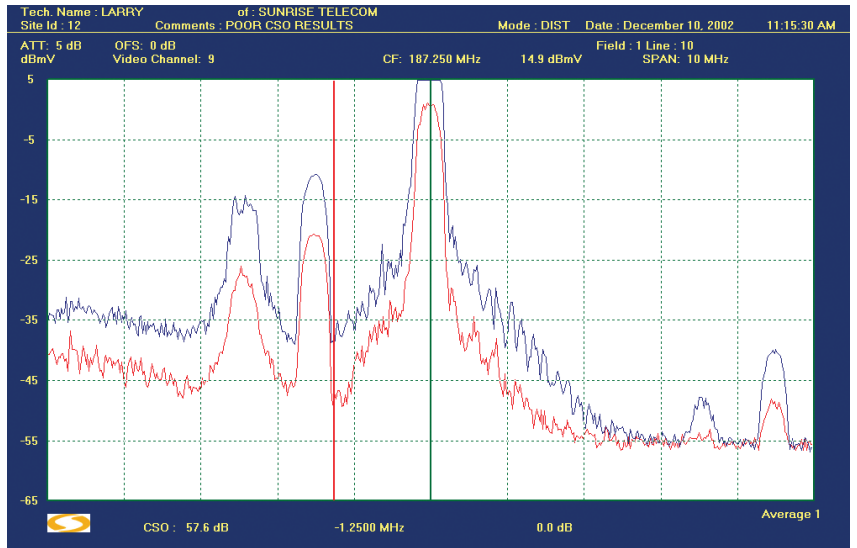


Figure 4