

The Gated Carrier to Noise measurement test should be performed using a bandpass filter at the analyzer's input as shown in Figure 1. This prevents overloading in the analyzer. To ensure accurate measurements, the bandpass filter needs to be tuned correctly. See the document on tuning bandpass filters "Proper Alignment of Tunable Bandpass Filters for Noise and Distortion Testing" (#AP-AT10-012-A).

A preamplifier is not normally needed because the AT2000 analyzer has its own internal pre-amp. A signal level of 5 dBmV will produce a 70 dB CNR dynamic range.

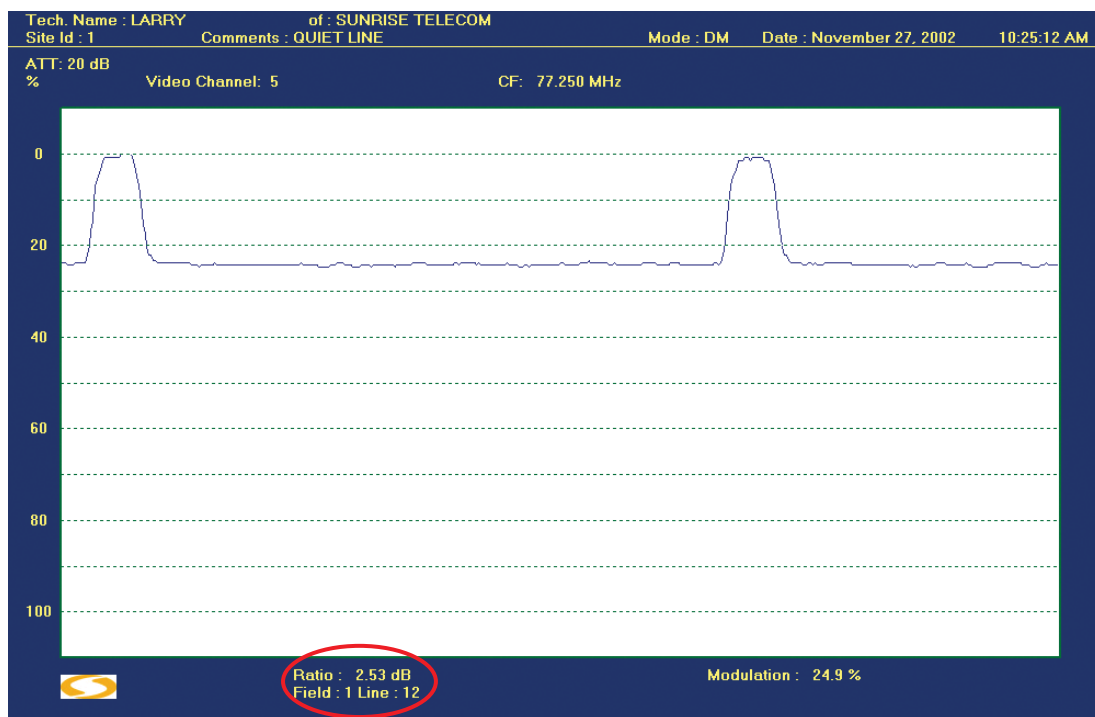


Figure 1

In order to make a gated CNR measurement, a quiet line of video is necessary. Sunrise recommends the use of a quiet line inserter at the headend. If this is not available, we recommend using a local origination channel because the video normally originates at the headend. This measurement can be made using quiet lines from a broadcaster.

The first step in making this measurement is to verify which are quiet lines on the channel to be measured. This is most easily accomplished using the Depth of Modulation measurement in the main menu. To verify a quiet line, use the following steps from the turn on condition of the analyzer.

1. From the main menu, highlight the Depth of Mod measurement and press ENTER.
2. Press the Video Carrier soft key and enter the desired channel number, then press ENTER.
3. Using the Amplitude hard key, raise or lower the attenuation until the sync tips of the video are between the top 2 graticles.
4. Press the Escape key and to return the analyzer to the Depth of Mod mode.
5. Using the Line Select soft key, step up through the lines of video until a quiet line is displayed as shown in Figure 2. Notice the field and quiet line number displayed on the bottom.



Field and Line Number

Figure 2

Once a quiet line is found, the next step is to make the carrier to noise measurement. From the depth of modulation measurement, take the following steps.

1. Press the MENU hard key and select the C/N, CSO, CTB measurement.
2. Make sure "Single Measurement" is selected on the top soft key.
3. On the second soft key, make sure that "C/N" is selected.
4. This is a gated measurement so be sure that "Gated" is selected on the third soft key.
5. Since a filter is being used select "Yes" on the external filter soft key.
6. Press the Set Measurement Parameters soft key. Ensure that the Field and Line are selected from the depth of modulation measurement above. Then save the set up with the soft key. This returns you to the Measurement menu.
7. Press the Measure soft key and you will get an indication to set the attenuator even though it has auto-ranged to make the carrier level measurement. To get more dynamic range, use the down arrow key and set the attenuator so that the carrier is about 5 db above the reference line as shown by the black trace in Figure 3. Note that this can only be done if a bandpass filter is used.
8. Press ENTER and the measurement will continue. The results are displayed on the bottom of the screen as shown in Figure 4. Notice also the noise correction factor. The lower this number, the better the accuracy of the measurement. A correction factor of 5 dB or more indicates inaccuracy.

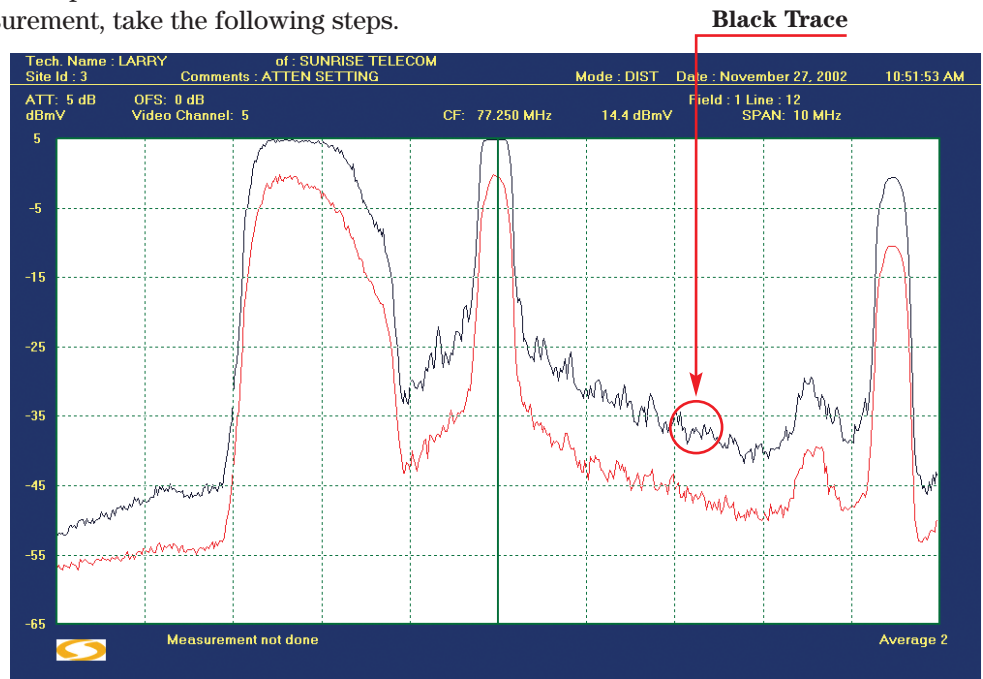


Figure 3

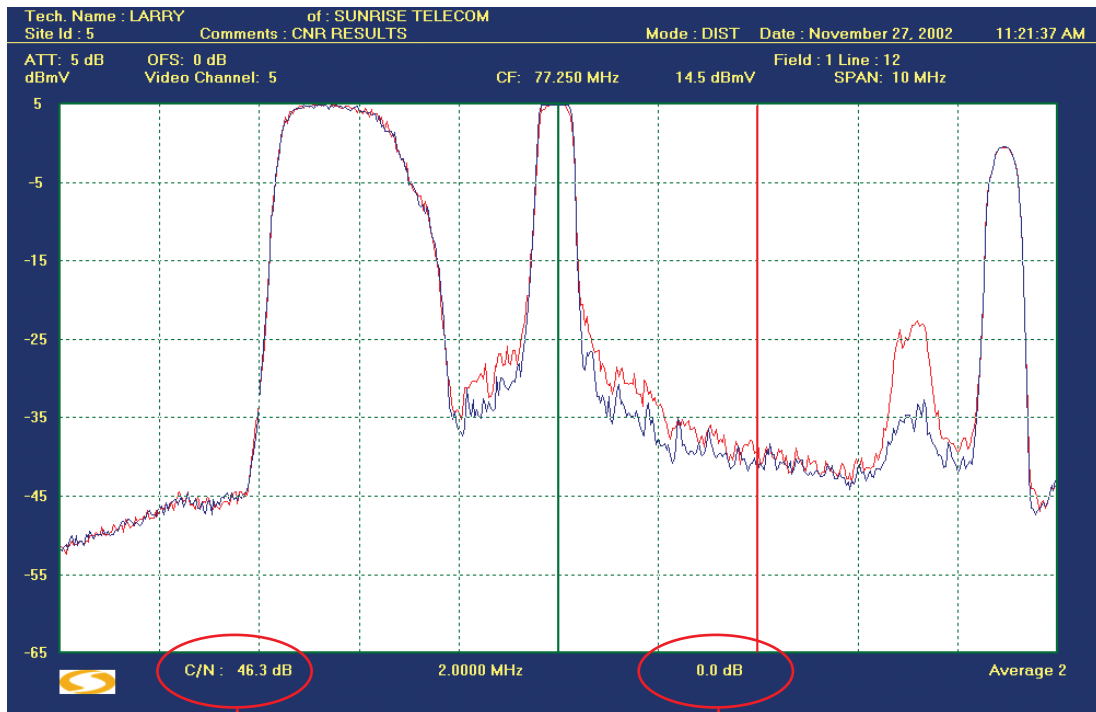


Figure 4