

This 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). This measurement encompasses all necessary distortion measurements for HRC frequency allocation systems.

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 dynamic range.

CTB measurements are different because the inter-modulation beat falls directly at the video carrier frequency. If in an HRC system, both the CSO and CTB beats fall at the video carrier. Due to this, the carrier level must be measured and then removed to allow the measurement of the beat. The two levels are then compared to produce the ratio. Without third party equipment, there is no way to perform this measurement in a gated mode. Therefore this document discusses the measurement as if this equipment is not available.

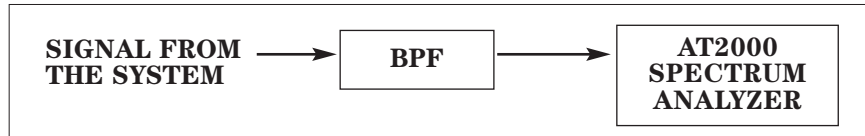


Figure 1

1. Connect the analyzer as shown in Figure 1.
2. Press the MENU hard key and select the C/N, CSO, CTB measurement.
3. Press the FREQ hard key, select the desired video carrier using the soft key. Tune the filter as discussed in the bandpass filter document.
4. Make sure that Single Measurement is selected on the top soft key.
5. On the second soft key, make sure that CTB is selected.
6. This is an in-channel measurement so be sure that in-channel is selected on the third soft key.
7. Since a filter is being used select YES on the external filter soft key.
8. Press the Set Measurement Parameters soft key. The display will be as in Figure 2. Ensure that the CTB measurement is set to 0 as indicated. Save the setup with the soft key and this returns you to the measurement menu.

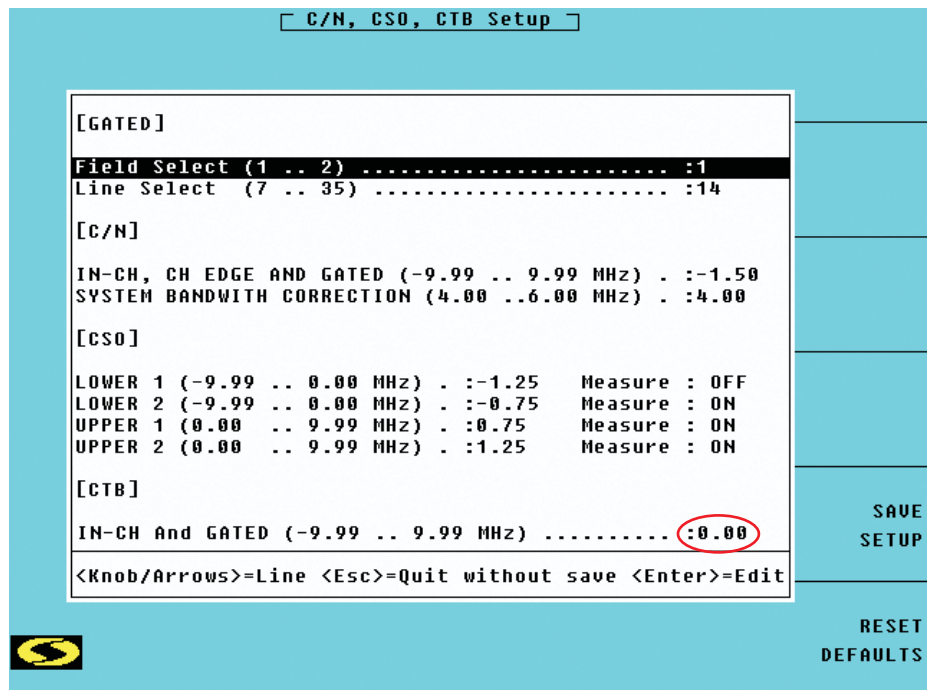


Figure 2

9. 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 blue trace in Figure 3. Note that this can only be done if a bandpass filter is used. Otherwise the signal can only be raised to the reference level.

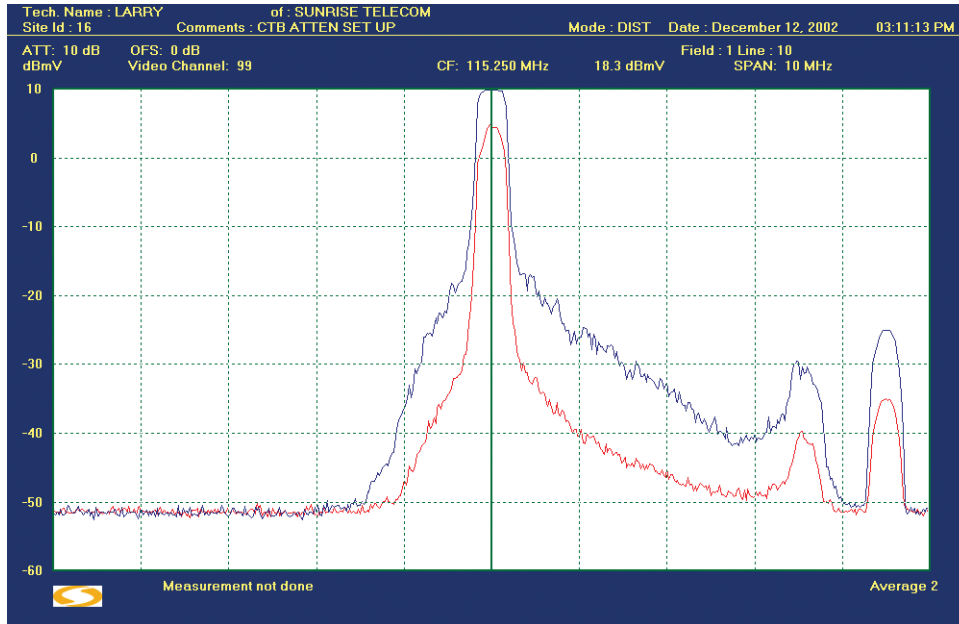
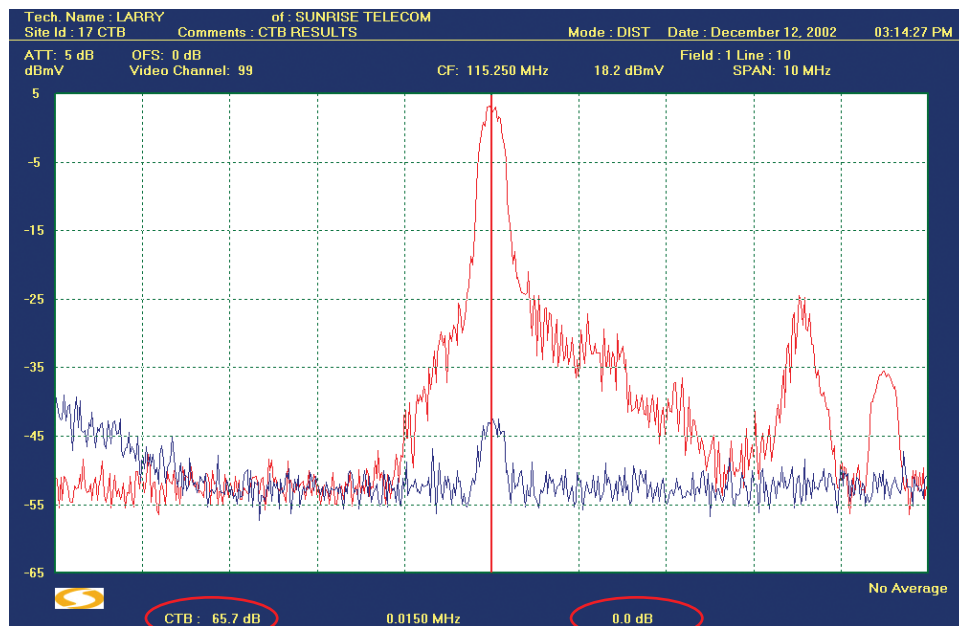


Figure 3

10. Remove the carrier.

11. Press enter and the measurement will continue. The results are displayed on the bottom of the screen as shown in Figure 4. Ensure that the noise correction factor is less than 5dB.



Field and Line Number

Figure 4

Noise Correction Factor