SENCORE®
Means Success In Electronic Servicing

tech tips

Using The FS74A Video Output Jack

Your FS74A CHANNELIZER™ SR. thoroughly analyzes RF distribution signals with several patented and automatic tests. For further analyzing capabilities, the FS74A's VIDEO OUT jack lets you view the baseband video signal with an oscilloscope or waveform monitor. This Tech Tip shows you how to use this feature and describes some of its uses and applications.

How To Use The "VIDEO OUT" Jack

The "VIDEO OUT" jack is located on the FS74A's front panel just above the RF INPUT jack. The output of this jack is a 1 VPP into 75 ohms composite video waveform with negative-going sync.

The 1 VPP video signal is present at the VIDEO OUT jack anytime you have a video-modulated RF signal tuned in with your FS74A CHANNELIZER SR. The RF signal is demodulated by the FS74A's detector circuits and amplified into a 1 VPP baseband video output signal. The video signal is autoranged with the meter and attenuators so you don't have to continually adjust the scope's or waveform monitor's vertical attenuators as the RF signal changes amplitude.

***NOTE**: The level at the VIDEO OUT jack will vary slightly as the RF input level changes. However, the output will always be near 1 VPP so you don't have to reset vertical attenuators.*

To use the VIDEO OUT jack:

1. Connect an oscilloscope or waveform monitor to the VIDEO OUT jack on the FS74A. Use a phono-to-BNC cable; or connect the probe to the center conductor, and ground to the outer shield.

2. Connect an RF video signal source to the RF INPUT jack of the FS74A.

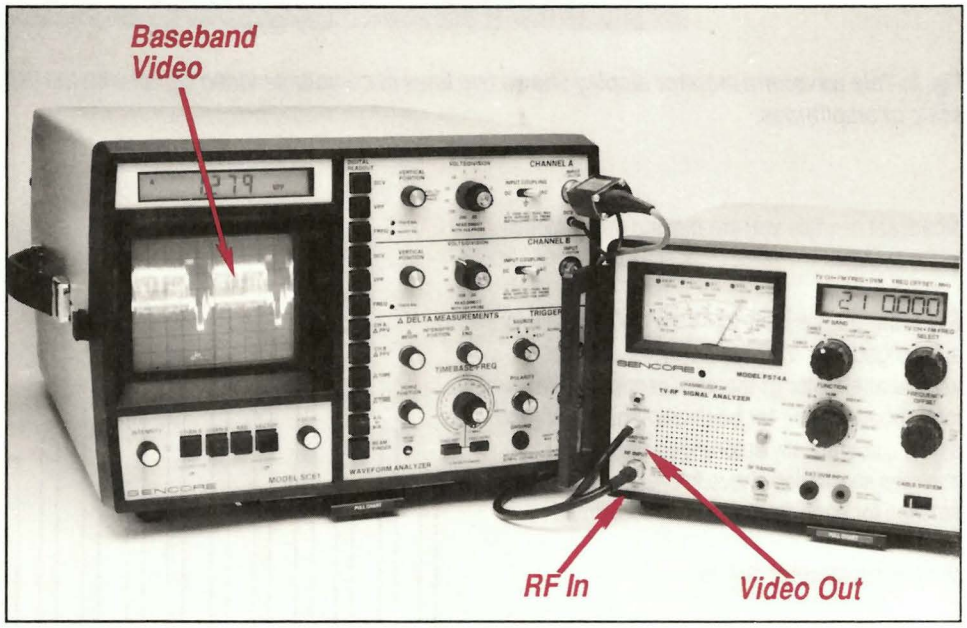

Fig. 1: The FS74A lets you analyze the video signal even further by providing a 1 VPP output signal for viewing on an oscilloscope or waveform monitor.

3. Turn the FS74A's FUNCTION switch to RF VIDEO-FM and tune in an RF video signal with the FS74A's microprocessor-controlled tuner.

4. Adjust the oscilloscope or waveform monitor for best viewing of the 1 VPP composite video waveform.

***NOTE**: Most oscilloscopes are set up for use with a x10 probe. If a direct cable is used, the amplitude shown may appear to be ten times larger than the actual value.*

The VIDEO OUT jack provides a composite video signal on all of the RF INPUT positions of the FUNCTION switch. If one of the EXT INPUT positions of the FUNCTION switch is chosen, the output of the VIDEO OUT jack is bypassed.

Uses And Applications

The baseband video signal of the FS74A's VIDEO OUT jack is meant for relative quality and level tests of the demodulated RF signal. It is not meant to replace a broadcast quality demodulator specially made for signal parameter tests. The following section explains some of the uses for the VIDEO OUT jack of the FS74A.

Simple Visual Inspection

One of the most common uses for the FS74A's VIDEO OUT jack is to make simple visual inspections of the video waveform using your oscilloscope or waveform monitor. With one hookup, you can view the video waveform during regular

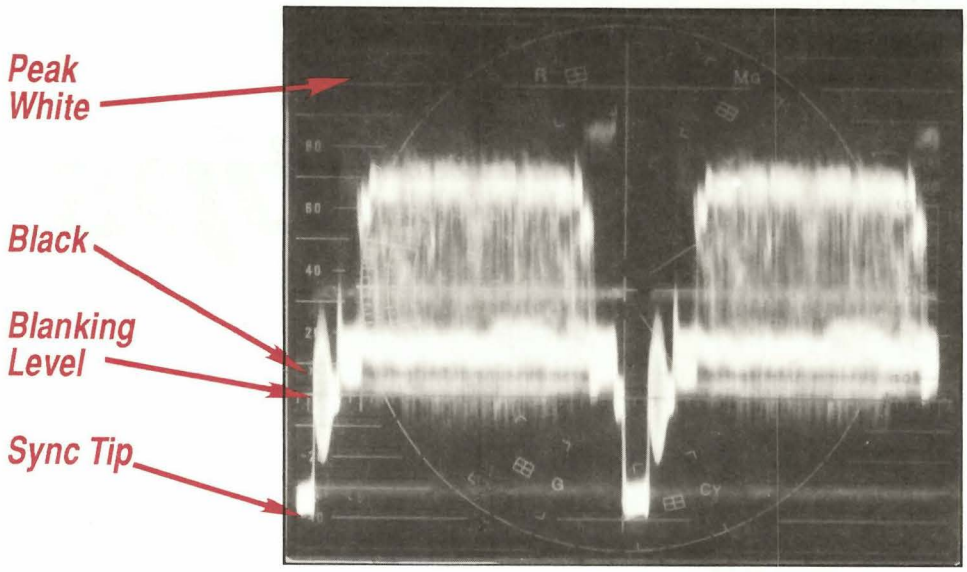

Fig. 2: This waveform monitor display shows two lines of composite video signal with the IRE scale of amplitudes.

broadcast or while you are making adjustments to the system.

Since the output from the VIDEO OUT jack is autoranged at 1 VPP, you only have to set the vertical attenuator of the oscilloscope or waveform monitor once for best viewing. The video signal automatically autoranges as the RF input changes so you don't have to change attenuator settings for each strength of input signal.

Waveform Monitor Setup

A waveform monitor is often used to check the video signal amplitude or the amplitude relationships of the individual parameters of the video signal. You can hook up the FS74A's VIDEO OUT jack to the input of a waveform monitor and make level adjustments to the video signal while you view the signal on the waveform monitor.

The video signal is set up on a waveform monitor according to IRE (Institute of Radio Engineers) units. The total IRE scale includes 140 units, with 100 up from zero and 40 down from zero. The peak-to-peak composite video signal consists of 140 IRE units (see figure 2).

Of the total 140 IRE units, 40 are for sync. All the sync pulses have the same amplitude and represent the portion of the signal down from the zero level.

The zero point of the IRE scale represents the blanking level. The black peaks of the video signal are offset from the blanking level by 7.5 IRE units. The two levels are offset to insure that color subcarrier signals near black in the video signal do not interfere with the sync amplitudes.

Peak white goes to approximately 100 IRE units. The white units (100) minus the black units (7.5) leave 92.5 IRE units for the video signal variations.

Viewing Hum Modulation

The FS74A automatically measures the amount of 60 Hz or 120 Hz hum modulation present on any in-use RF channel. The percent of hum is displayed on the meter scale.

Occasionally you may want to view the hum modulation on an oscilloscope. The FS74A lets you view hum by providing the demodulated video signal at the VIDEO OUT jack.

Simply connect an oscilloscope to the FS74A's VIDEO OUT jack and adjust the timebase to view signals at the 60 or 120 Hz rate. Low frequency hum modulation will look similar to the drawing in figure 3.

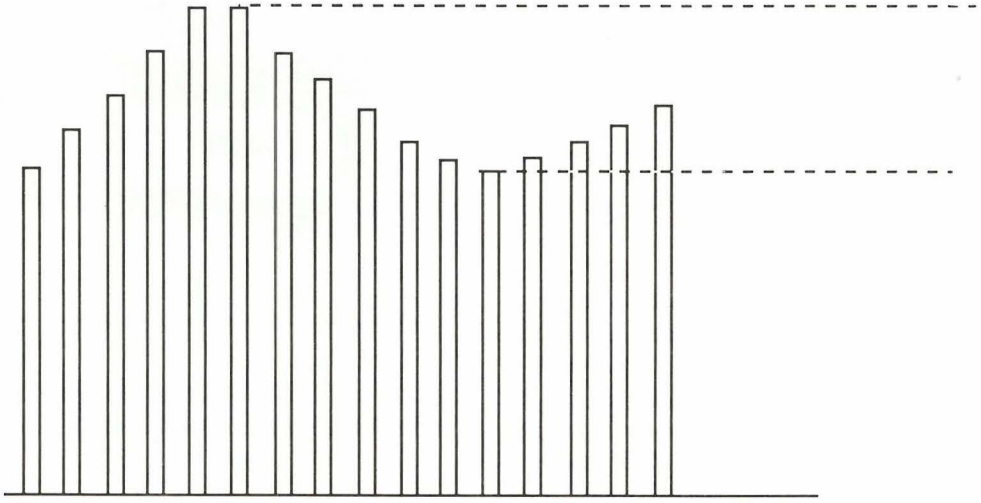

Fig. 3: Hum shows up as low frequency modulation of the composite video signal.