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Cine-GT 3403

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Analog Vectorscopes

An analog vectorscope is a type of oscilloscope designed specifically for measuring color in video signals (Weynand et al. 83). Vectorscopes are used in analog videotape digitization setups to monitor the pre-digitization signal for color accuracy. Usually, there are two "loop-through" connectors on the vectorscope so that if the signal is fed through one side and out the other, it can be passed to another device unmodified (Tektronix 1-3). This allows the same signal to be viewed on a vectorscope, waveform monitor, and a CRT monitor at the same time (Tektronix 1-3).

A vectorscope display consists of two parts, the graticule and the trace (Tektronix 3-1). The graticule includes the markings and lines against which the signal is judged, and the trace is the representation of the color information in the video signal itself (Tektronix 3-1). Amplitude (saturation) and Phase (hue) are the two main components of a color signal that a Vectorscope can help monitor (Tektronix 3-1). Color hues are represented by the angle of a vector in relation to the graticule circle, while color saturation is represented by the distance of that vector from the center of the circle (Weynand et al. 92). Vectorscope graticules are designed to calibrate equipment using color bar test pattern signals (Tektronix 3-1). The graticule displays six square targets, three for the primary colors (Red, Green, Blue) and three for the secondary ones (Cyan, Magenta, Yellow) (Caldwell 1). When adjusting any signal for calibration using a vectorscope, the goal is for the endpoint of each color vector to end up in these squares (Caldwell 5).

A burst signal on a vectorscope is the vector pointing straight left (9 O'clock) from the center cross hairs on the graticule. If a 75% SMPTE color bar test pattern is used for calibration, the burst vector should end on the 75% marking on the vectorscope 0-degree line (Caldwell 6). A vectorscope can be used to calibrate settings on a TBC so that a test tape reflects accurate colors on the vectorscope. This is accomplished by adjusting the Chroma and Phase settings on a TBC until the vectors are hitting their designated color targets on the vectorscope (BAVC 4).

Sources

Caldwell, Jim. *How to Read a Waveform Monitor and Vectorscope*.
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