SPECIFICATION

Introduction

The 067-0916-00 Video Amplitude Calibration Fixture (VAC) is a high-precision test fixture used in the measurement of common video test signals, and the calibration of video test signal generators and waveform monitors. It provides a simple means of measuring and calibrating luminance and chrominance signals associated with most video test signals.

A low-impedance output on the VAC provides a precise-amplitude square wave voltage with a resolution of 0.1 mV and an accuracy of 0.05% from 0 to 999.9 mV peak. The precision reference voltage is selected either by setting lever switches of a 4-decade counter on the front panel, or by selecting preset values for the most common signal element amplitudes which are stored in an EPROM. Two front-panel controls provide for varying the output voltage to determine the actual test-signal amplitude or percent of deviation. Other pushbuttons select the color standards (NTSC, PAL, PAL M, or SECAM) and other signal parameters such as half or full amplitude at the output connector.

The video signal to be measured is connected to a 1480-Series Waveform Monitor "A" input. The VAC's output is connected to the waveform monitor "B" input. The "A-B" differential mode of the waveform monitor then permits convenient comparison of signal amplitudes.

The VAC is packaged in a 2-wide TM500 module to take advantage of existing test gear at most testing and servicing locations.

When making chrominance measurements, odd harmonics generated by the subcarrier make peak-to-peak measurements of the chrominance packets an uncertainty. To obtain maximum performance from the VAC when making these measurements, a Subcarrier Harmonic Rejection Filter 015-0407-00 (5 Mhz lowpass) is placed between the signal generator under test and the waveform monitor. Because the 015-0407-00 filter has a 0.6% passband loss, a 0.6% attenuator (011-0134-00) is placed between the VAC and the waveform monitor, thus compensating for the loss. Useful but less accurate measurements can be made without the use of the filter and attenuator.

Performance Conditions

The following electrical characteristics are valid only if the VAC is calibrated at an ambient temperature of 25° ±3°C and is operated at a normal ambient temperature between 15° and 35°C. Operation over the maximum range of 0° to 50°C may result in reduced-amplitude accuracy of ±(0.1% + 0.2 mV). Allow a 20-minute warm up period before performing verification tests.

Table 1-1

ELECTRICAL CHARACTERISTICS

Characteristics	Performance Requirements	Supplemental Information
Output Signal		
Front OUTPUT Connector	37.5 Ω	Bnc connector located on front panel.
Rear Interconnect	0.0 Ω	Rear edge connector pins 27A and 28A.
Amplitude Range (TOLERANCE disabled)	0 mV to 999.9 mV ±(0.05% + 0.1 mV)	Peak-to-peak square wave amplitude.
Amplitude Range (TOLERANCE enabled)	0 mV to 999.9 mV ±(0.5% + 0.1 mV) + TOLERANCE reading	Peak-to-peak square wave amplitude.
Offset		1 mV typical.
VARIABLE Control		2 counts per sec. to 200 counts per sec.
Resolution	0.1 mV	
Risetime		Less than 1 μs.
Frequency		
NTSC, PAL M		270 Hz nominal.
PAL, SECAM		275 Hz nominal.
Waveform		Square wave.
Half Period		
NTSC		9 lines nominal.
PAL		11 lines nominal.
Noise	Less than 1 mV	0 to 5 MHz.

Table 1-2

ENVIRONMENTAL CHARACTERISTICS

Characteristics	Description
Nominal Operating Temperature	+15°C to +35°C
Maximum Operating Temperature	0°C to +50°C
Storage Temperature	-40°C to +65°C
Operating Altitude	To 4,572 m (15,000 feet)
Storage Altitude	To 15,240 m (50,000 feet)

Table 1-3

PHYSICAL CHARACTERISTICS

Characteristics	Description
Length	19.49 cm (7.675 inches)
Width	21.40 cm (8.424 inches)
Height	49.72 cm (19.575 inches)
Net Weight	1.38 kg (3.04 lbs)
Net Shipping Weight	4.53 kg (10.0 lbs)