FULL FIELD RED TEST CHART

TRANSPARENCY

The test chart is designed for measuring the behaviour of the chrominance channel expressed as the signal-to-noise ratio. The equipement has to be arranged as shown in Fig. 1.

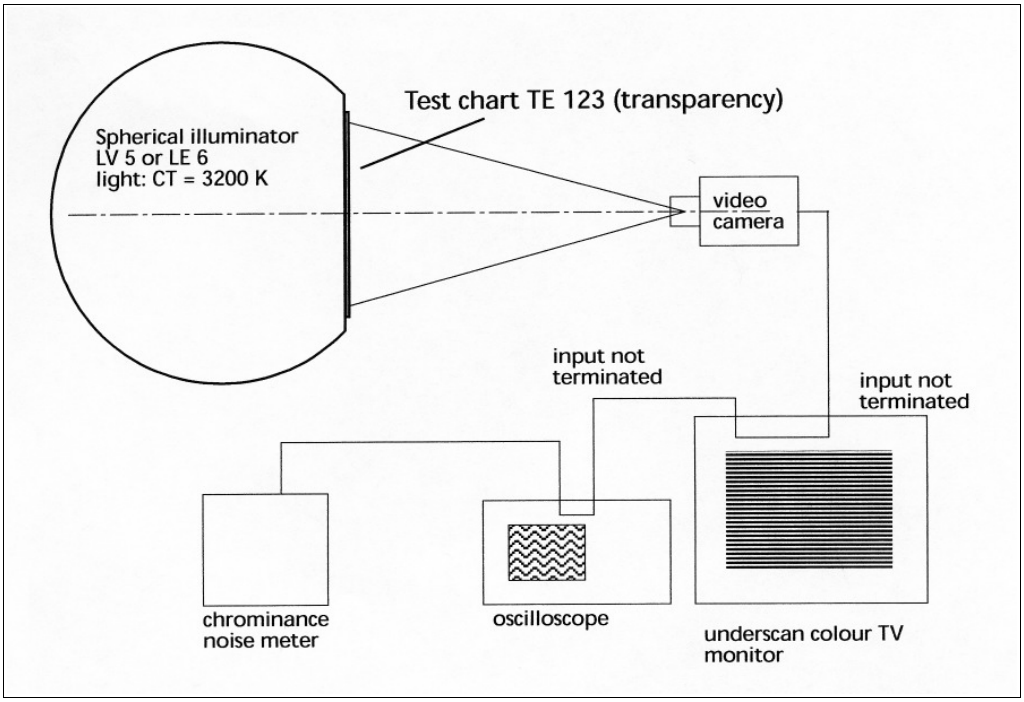

Fig. 1

Conditions of shooting

- The luminance of a transparent test chart, at peak white, shall be 636 cd/m² +/- 5% (= 2000lx)
- The white balance shall be set manually or autmatically to 3200K +/- 100 K
- The test chart shall be shot by the camera so that the frame limited by the arrows exactly coincides with the edges of the picture displayed on the video monitor in underscan mode
- The camera shall be adjusted out of focus
- Gain control shall be set to "0 dB" gain
- Optical filter shall be set to "open position"

The AM chrominance signal-to-noise ratio and the PM chrominance signal-to-noise ratio shall be measured as follows. The method applies to NTSC and PAL color video signals. The chrominance signal-to-noise ratio (S/N) is separated into amplitud-modulated (AM) chrominance S/N ratio (ratio of reference signal level to amplitude-modulated noise component) and phase-modulated (PM) chrominance S/N ratio (ratio reference signal level to phase-modulated noise component). The reference signal is the voltage (V_{ref}) of the chrominance signal to 100% amplitude of the non-composite video signal.

Each ratio is defined as follows

AM chrominance S/N = 20 lg (Vref(p-p)) / (AM noise r.m.s.)

PM chrominance S/N = 20 lg (Vref(p-p)) / (PM noise r.m.s.)

where:

$V_{ref\ (p-\ p)}$ = chrominance voltage corresponding to 100% amplitude on non-composite video signal

AM noise r.m.s. = r.m.s. voltage of the amplitude-modulated component of the noise in the chrominance band width.

PM noise r.m.s. = r.m.s. voltage of the phase- modulated component of the noise in the chrominance band width

The AM and PM noise indications shall be isolated from the influence of PM and AM noise, respectively, by 30dB minimum. The AM detector shall be an averaging detector type that measures power in the AM sidebands.

Chrominance noise measurement circuit

Fig. 2 shows a typical circuit configuration for the measurement of the chrominance noise.

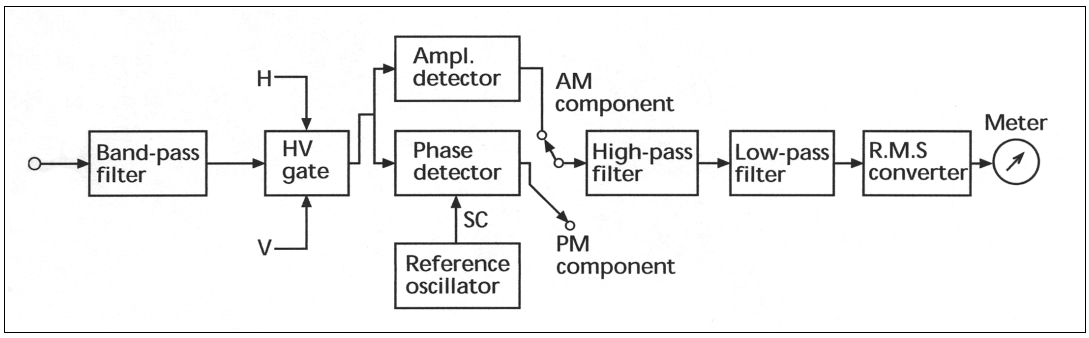

Fig. 2

The noise measuring apparatus shall contain electronic gatin circuits capable of excluding horizontal (H) and vertical (V) blanking intervals from the voltmeter. The duty cycle shall be such as to essentially measure the entire television field. Suitable compensation for the duty cycle of the gating process shall be incorporated in the apparatus to ensure accuracy.

The changes in the color subcarrier are separated into amplitude and phase components and are measured. The color burst shall not be employed as reference for the phase detection since there is no direct relationship to the picture contents due to the frequently used separate processing of the burst.

The demodulated signals are then band-limited by the high-pass and low-pass filters to achieve the overall measuring system having cut-off frequencies as indicated below. The components are converted into r.m.s. voltage by the r.m.s. converter and the value is indicated with the meter.

The ratio between the noise voltage (V_{ms}) and the reference ($V_{ref(p-p)}$) is expressed in decibles. The PM detector in the PAL system is designed so that it is capable of detecting the disturbance components created when the phase is switched to coincide with the PAL phase.

High-pass fc	100 Hz, 1 kHz, 10 kHz, 100 kHz
Low-pass fc	100 kHz, 500 kHz, 1 MHz