

## Tech Terms You've Heard of But Were afraid To Ask About

Understanding more about the basics of the video signal will help you in your job whether you're a shooter, an editor or a producer.

**IRE units** - A unit equal to 1/140 of the peak-to-peak amplitude of the video signal, which is typically one volt. The 0 IRE point is at blanking level, with sync tip at -40 IRE and white extending to +100 IRE. IRE stands for Institute of Radio Engineers, the organization which defined the unit.

**Pedestal (Set-up)**... why we needed it in the first place and whether or not we still need it - In NTSC systems, video black is typically 7.5 IRE above the blanking level. This 7.5 IRE level is referred to as the black setup level, or simply as setup.

**Knee** - By convention, the circuitry introducing white compression into the opto-electric transfer function and thereby modifying the curve for a more gradual approach to white clip. The knee point control allows the operator to control the highlight areas and where the curve begins towards white clip. The knee slope determines the angle of that curve from the knee point to white clip.

**Gamma** - Since picture monitors have a nonlinear relationship between the input voltage and brightness, the signal must be correspondingly predistorted. Gamma correction is always done at the source in television systems. Gamma correction is almost always set to "on".

**Master Gamma** – Adjustments will produce more or less shades of gray, depending on the setting. This is similar to black stretch, except that changes to Master Gamma will affect all black levels below the Master Gamma setting except pedestal (set-up).

**Black Stretch** – Alters how tones are reproduced in shadow areas. Positive black stretch values produce more shades of gray, while negative values produce fewer shades of gray. This is similar to Master Gamma settings, except that it doesn't affect the levels above the Master Gamma. Like Master Gamma adjustments, black stretch should not affect pedestal (set-up).

**Zebra Pattern** - A camera viewfinder display that places stripes over a part of an image which has reached a pre-determined video level, usually set at about 70 IRE units and used to ensure correct exposure of skin tones.

**Skin Tone Detail** – Reduces the amount of detail (and/or hue and saturation) in skin tone areas. The area to be affected is chosen using a special indicator in the camera's viewfinder (often similar to Zebra).

**Termination** - In order to accurately send a signal through a transmission line, there must be an impedance at the end which matches the impedance of the source and of the line itself. Amplitude errors and reflections will otherwise result. Video is a 75 Ohm system, so a 75 Ohm terminator must be put at the end of the signal path.

### **Waveform/Vectorscope Reading and Video Test/Measurement Resources**

#### **Tektronix Home Page for Video Test and Measurement**

[http://www.tek.com/Measurement/video\\_audio/home.html?wt=257](http://www.tek.com/Measurement/video_audio/home.html?wt=257)

NTSC Video Measurements (Tektronix specific link)

[http://www.tek.com/Measurement/cgi-bin/framed.pl?Document=/Measurement/App\\_Notes/NTSC\\_Video\\_Msmt/&FrameSet=television](http://www.tek.com/Measurement/cgi-bin/framed.pl?Document=/Measurement/App_Notes/NTSC_Video_Msmt/&FrameSet=television)

## Video Signal Components

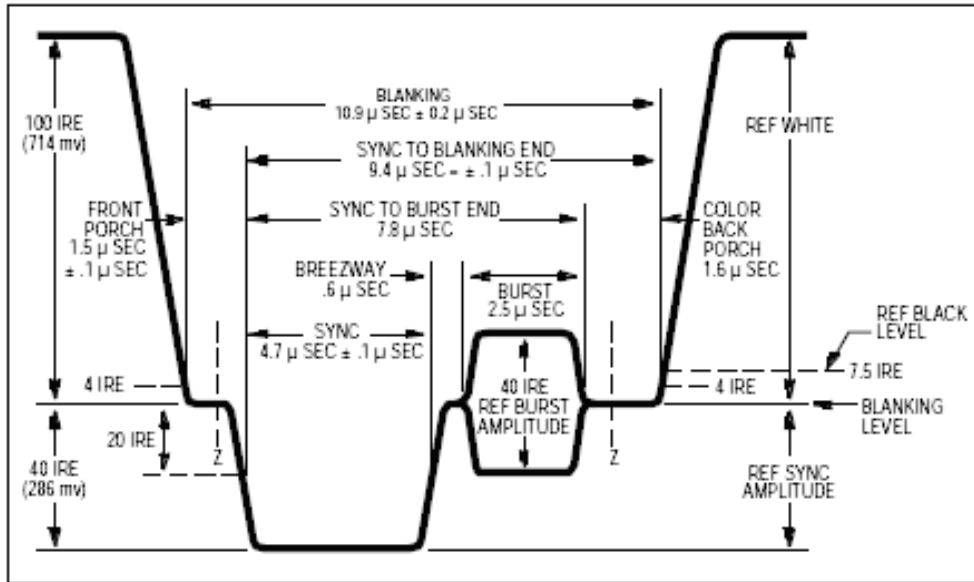


Figure 8-1. Horizontal blanking interval.

## SMPTE Color Bars

100 IRE LUMINANCE SIGNAL

