ADJUSTING VIDEO BRIGHTNESS AND CONTRAST

Today's technology has produced extraordinary improvements in video picture quality. However, even a small misadjusment of brightness and contrast can have a significant visible impact on the picture image quality. When adjusting brightness and contrast, keep in mind that they interact with each other. Start by adjusting brightness followed by contrast and then repeat if necessary. Also keep in mind that the viewing environment surrounding a video display greatly affects the adjustment of brightness and contrast. Before adjusting, always set the room lighting to match how it will be during normal viewing (operating) conditions.

Brightness
Brightness adjusts the luminance or light level of the darker portions of a picture (which is why it is more accurately called black level). When the black level is set too dark subtle dark gray details of a scene are lost to black. When the black level is set too bright the darkest grays and deep blacks become lighter grays, effectively lowering the contrast ratio and reducing picture quality.

The pattern shown in Figure 1 provides a unique black level alignment signal that is designed for quickly adjusting the brightness for proper black level. This pattern contains several fixed IRE luminance levels and an area of alternating IRE levels. The alternating levels allow you to accurately set the black level.

To adjust brightness with this pattern, watch the second box from the inside (the one that is alternating luminance levels). Adjust brightness until the two luminance levels appear the same and the flashing just becomes invisible. At this level the outer 10 IRE box should still be slightly visible. Use the same method for both NTSC and HDTV formats. Be sure to adjust the contrast after adjusting brightness.

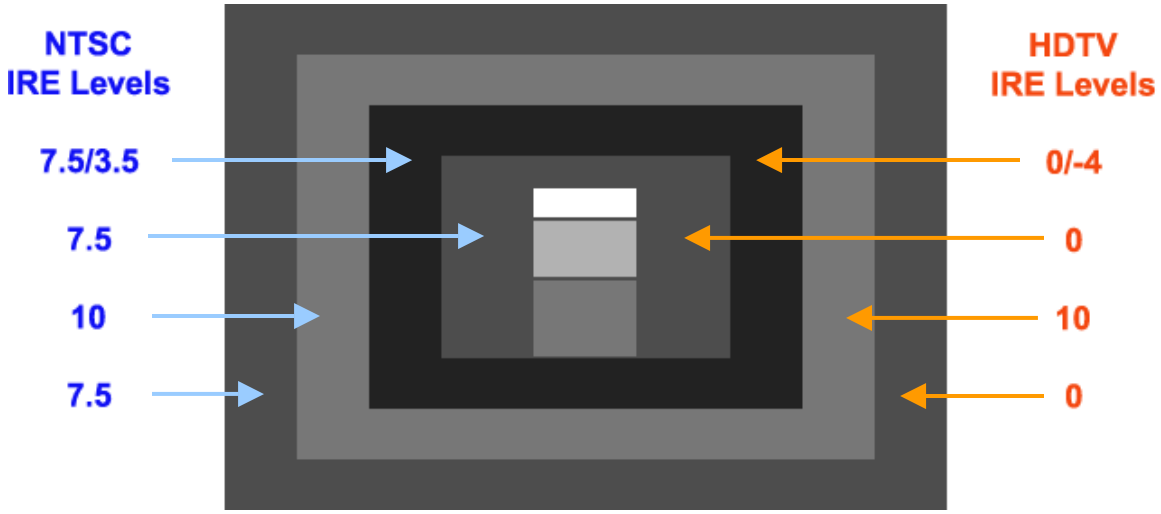

Figure 1: Use this pattern to adjust the brightness in order to achieve proper black level.

Contrast
Contrast adjusts the light level of the white or high luminance portions of a picture (which is why it is more accurately called white level). If the contrast is set too low the image will look dim, the whites become dull and the image looses its luster. If the contrast is set too high the raster may become distorted and pixel blooming occurs. Pixel blooming occurs when the screen phosphors are driven so hard that light spreads to the adjacent pixels, causing white images to appear to be out of focus.

The pattern found in Figure 2 is used for adjusting the contrast for maximum light level while minimizing raster distortion or blooming. Adjust the contrast until the top white bar is the same width as the four gray bars beneath it to ensure that there is no pixel blooming.

Also observe the vertical narrow lines. These lines should be straight without any bowing. If the contrast is set too high the display's power supply may cause raster distortion, which will be visible as bending in the vertical narrow lines. This line bending creates unwanted picture distortion.

For the least picture distortion adjust the contrast to a setting just below where either blooming or raster distortion becomes visible. This setting however, may result in an unacceptably low white picture level and you may want to make a compromise between an accurate picture and a bright picture.

Be sure to recheck the brightness adjustment after adjusting contrast, as the two interact.

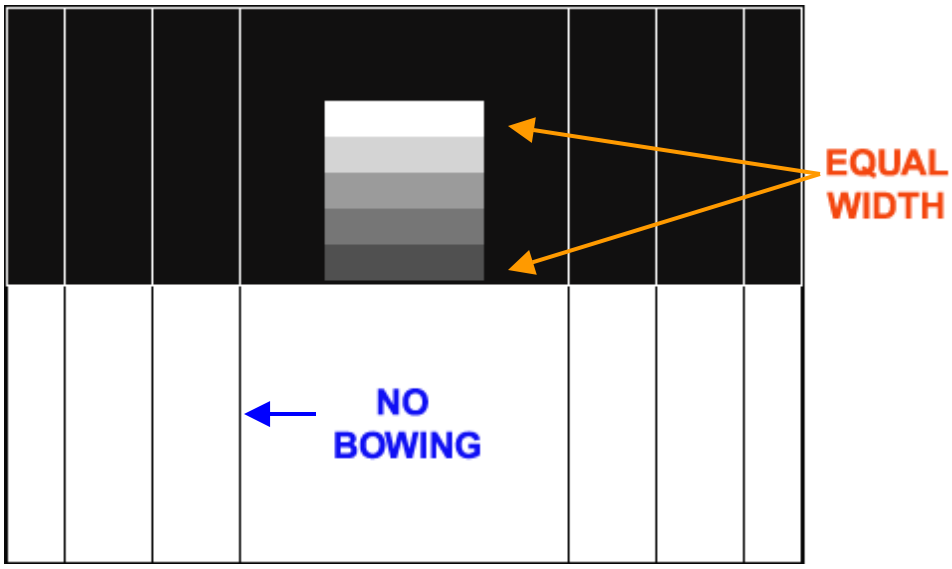

Figure 2: Use this pattern to adjust the contrast so that all five bars are the same width and that the vertical lines are straight.