Glossary of Terms

AGC Automatic gain control. Used to keep the output signal of a circuit constant as the input signal amplitude varies.

Artifacts In the video domain, artifacts are blemishes, noise, snow, spots, whatever. When you have an image artifact, something is wrong with the picture from a visual stand-point. Don't confuse this term with not having the display adjusted properly. For example, if the hue control is set wrong, the picture will look bad, but this is not an artifact. An artifact is some physical disruption of the image.

Black Level This level represents the darkest an image can get. This defines what black is for the particular image system. If for some reason the video dips below this level, it is referred to as blacker-than-black. You could say that sync is blacker-than-black.

Blanking On the screen, the scan line moves from the left edge to the right edge, jumps back to the left edge, and starts out all over again, on down the screen. When the scan line hits the right-hand limit and is about to be brought back to the left-hand edge, the video signal is blanked so that you can't "see" the return path of the scan beam from the right to the left-hand edge. To blank the video signal, the video level is brought down to the blanking level, which may or may not be the black level if a pedestal is used.

B-Y In color television, the blue-minus-luma signal, also called a color difference signal. When added to the luma (Y) signal, it produces the blue primary signal.

Chroma The (M) NTSC or (B, D, G, H, I) PAL video signal contains two pieces that make up what you see on the screen: the black and white (luma) part, and the color part. Chroma is the color part.

Chroma Key This is a method of combining two video images. An example of chroma keying in action is the nightly news weatherman standing in front of a giant weather map. In actuality, the weatherman is standing in front of a solid, bright-blue background and his (or her) image is projected on top of the computer-generated map. This is how it works: a TV camera is pointed at the person or object that you want to project on top of the artificial background (e.g., the weather map). The background doesn't actually have to be artificial. It can be another real image-it doesn't really matter. As mentioned, our imaginary weatherman is standing in front of a bright-blue background. This person and a bright-blue background image are fed along with the image of the artificial background into a box. Inside the box, a decision is made. Wherever it sees the bright-blue background, it displays the artificial background. Wherever it does not see bright blue, it shows the original image. So, whenever the weatherman moves around, he's moving around in front of the bright-blue background. The box figures out where he is and where he isn't, and displays the appropriate image.

Color Burst That portion of the video waveform that sits between the breezeway and the start of active video. The color burst tells the color decoder how to decode the color information contained in that line of active video. By looking at the color burst, the decoder can determine what's blue, orange, or magenta. Essentially, the decoder figures out what the correct color is. If you've ever seen a TV picture in which the colors were just not right, a reason might be that the TV can't find the color burst and doesn't know how to make the correct color.

Comb Filter This is another method of performing a Y/C separation. A comb filter is used in place of a chroma bandpass or chroma trap. The comb filter provides better video quality since it does a better job of separating the luma from chroma. It reduces the amount of creepy-crawlies or zipper artifacts. It's called a comb filter because the frequency response looks like a comb.

The important thing to remember is that the comb filter is a better method for Y/C separation than chroma bandpass or chroma trap.

Genlock A video signal provides all of the information necessary for a decoder to reconstruct the picture. This includes brightness, color, and timing information. To decode the video signal properly, the decoder must be "genlocked" to the video signal. The decoder looks at the color burst of the video signal and reconstructs the original color subcarrier that was used by the encoder. This is needed to properly decode the color information. The decoder also generated a pixel clock (done by looking at the sync information within the video signal) that was the same as the pixel clock used by the encoder. The pixel clock is used to clock pixel data out of the decoder into a memory for display or into another circuit for processing. The circuitry within the decoder that does all of this work is called the genlock circuit. Although it sounds simple, the genlock circuit must be able to handle very bad video sources, such as the output of VCRs. In reality, the genlock circuit is the most complex section of a video decoder.

Interlaced An interlaced raster system is one where two (in general-it could be more, but we'll stick with two) interleaved fields are used to scan out one video frame. Therefore, the number of lines in a field are one-half of the number of lines in a frame. In (M) NTSC, there are 262.5 lines per field (525 lines per frame) while there are 312.5 lines per field in (B,D, G, H, I) PAL. Each field is drawn on the screen consecutively-first one field, then the other.

Why did the founding fathers of video decide to go with an interlaced system? It has to do with frame rate. A large TV screen that was updated at 30 frames per second would flicker, meaning that the image would begin to fade away before the next one was drawn on the screen. By using two fields, each containing one-half of the information that makes up the frame and each field being drawn on the screen consecutively, the field update rate is 60 fields per second. At this update rate, the eye blends everything together into a smooth, continuous motion.

Jitter Short-term variations in the characteristics (such as frequency, amplitude, etc.) of a signal.

Luminance In video, the terms luminance and luma are commonly (and incorrectly) inter-changed.

Noninterlaced This is a method of scanning out a video display that is the total opposite of interlaced. All of the lines in the frame are scanned out sequentially, one right after the other. The term field does not apply in a noninterlaced system. Another term for a noninterlaced system is progressive scan.

R-Y In color television, the red-minus-luma signal, also called a color difference signal. When added to the luma (Y) signal, it produces the red primary signal.

S-Video Separate Video, also called Y/C video.

Scaling Scaling is the act of changing the effective resolution of the image. For example, let's take a TV size resolution of 640x480 and display that image as a smaller picture on the same screen, so that multiple pictures can be shown simultaneously. We could scale the original image down to a resolution of 320x240, which is 1/4 of the original size. Now, four pictures can be shown at the same time. That was an example of "scaling down." Scaling up is what occurs when a snapshot is enlarged into an 8"x 10" glossy. There are many different methods for image scaling, and some " look" better than others. In general, though, the better the algorithm "looks," the harder or more expensive it is to implement.

Scart This is a 21-pin connector supported by many consumer audio/video components in Europe. It allows mono or stereo audio, composite video, S-video, and RGB video to be transmitted between equipment.

Timebase Corrector Certain video sources have their sync signals screwed up. The most common of these sources is the VCR. A timebase corrector " heals" a video signal that has bad sync. (I guess

you could call a timebase corrector a " sync doctor.") This term is included because more and more companies making video capture cards are providing this function.

Underscan

Most televisions use overscanning, resulting in some of the video being lost beyond the edges of the screen. Underscanning modifies the video timing so that the entire video signal appears in a rectangle centered on the television screen with a black border. The resolutions for square-pixel underscan and overscan images are:

NTSC overscan:	640 x 480
NTSC underscan:	512 x 384
PAL overscan:	768 x 576
PAL underscan:	640 x 480