Introduction to How HDTV Works

When the first high-definition television (HDTV) sets hit the market in 1998, movie buffs, sports fans and tech aficionados got pretty excited, and for good reason. Ads for the sets hinted at a television paradise with superior resolution and digital surround sound. With HDTV, you could also play movies in their original widescreen format without the letterbox "black bars" that some people find annoying.

But for a lot of people, HDTV hasn't delivered a ready-made source for transcendent experiences in front of the tube. Instead, people have gone shopping for a TV and found themselves surrounded by confusing abbreviations and too many choices. Some have even hooked up their new HDTV sets only to discover that the picture doesn't look good.

High-definition television (HDTV) yields a better-quality image than does standard television, because it has a greater number of lines of resolution. Because the signal is a digital signal, it produces neither a snowy nor pale image from a weak signal or signal interference effects, such as herringbone patterns, or vertical rolling. Image colors are more realistic, because of the greater bandwidth. The visual information is some 2-5 times sharper because the gaps between the scan lines are narrower or invisible to the naked eye. Television content photographed and preserved on 35 mm film can be viewed at nearly its original resolution.

The lower-case "i" appended to the numbers denotes interlaced; the lower-case "p" denotes progressive. The interlaced scanning method, the 1,080 lines of resolution are divided into two, the first 540 lines are painted on a frame, the second 540 lines are painted on a second frame, reducing the bandwidth and increasing frame rate to 50-60 frames per second. The progressive scanning method simultaneously displays all 1,080 lines of resolution at 60 frames per second, on a greater bandwidth.

Often, the broadcast HDTV video signal soundtrack is Dolby Digital 5.1 surround sound, enabling full, surround sound capabilities, while STBC television signals include either

monophonic or stereophonic audio, or both. Stereophonic broadcasts can be encoded with Dolby Surround audio signal.