

ASPECT RATIO

Aspect ratios are one of the more confusing parts of video, although they used to be simple. That's because television and movie content was all about the same size, 4:3 (also known as 1.33:1, meaning that the picture is 1.33 times as long as it is high). The Academy Standard before 1952 was 1.37:1, so there was virtually no problem showing movies on TV. However, as TV began to cut into Hollywood's take at the theater, the quest was on to differentiate theater offerings in ways that could not be seen on TV. Thus, innovations such as widescreen film, Technicolor, and even 3-D were born. Widescreen film was one of the innovations that survived and has since dominated the cinema. Today, you tend to find films in one of two widescreen aspect ratios: 1. Academy Standard (or "Flat"), which has an aspect ratio of 1.85:1 2. Anamorphic Scope (or "Scope"), which has an aspect ratio of 2.35:1. Scope is also called Panavision or CinemaScope. HDTV is specified at a 16:9, or 1.78:1, aspect ratio. If your television isn't widescreen and you want to watch a widescreen film, you have a problem. The most common approach in the past has been what's called Pan and Scan. For each frame of a film, a decision is made as to what constitutes the action area. That part of the film frame is retained, and the rest is lost.. This can often leave out the best parts of a picture. The second (and growing more popular) approach is to display the original full image on the TV set without filling the whole screen. When watching content formatted for a widescreen TV (1.85:1, 2.35:1, and so on), you see black bars at the top and bottom of the image. This technique is known as letterboxing. Conversely, when watching content formatted for TV (4:3) on a widescreen TV, you see black bars on the left and right of the images. This is known as windowboxing. Most DVDs have both a Pan and Scan and a widescreen format (either letterboxed or anamorphic) on a DVD. Because including both versions creates an added expense to the studios, some DVDs ship with just one format onboard.

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Aspect ratio refers to the size of the image on the screen and to the ratio between the width and height. It dates back to the days of silent cinema, when the ratio was fixed at 1.33:1 (width to height) thanks to a standardization of technology brought about by hard-nosed business strategies on the part of Edison company. Edison contracted its rivals into a cartel which had to use Edison equipment and pay royalties to the company. The cartel dominated the market from 1909 to 1917 when an anti-trust law broke it up. Ironically, this ratio was the one adopted by television for its own screens, even though HDTV uses a ratio of 1.76:1. Edison went out of business, but the aspect ratio for a standard screen

remained the norm internationally. 1.37:1, 35 mm full-screen sound film image, became the nearly universal aspect ratio in movies between 1932 and 1953. In the early 1950s, when the threat posed to film audiences by television obliged the film industry to find visual ways to attract or retain audiences. The first innovation in size was cinemascope with a standard aspect ratio of 2.35:1.

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4:3 standard The 4:3 ratio for standard television has been in use since television's origins and many computer monitors use the same aspect ratio. 4:3 is the aspect ratio defined by the Academy of Motion Picture Arts and Sciences as a standard after the advent of optical sound-on-film. Matching this aspect ratio meant that films previously photographed on film could be satisfactorily viewed on TV in the early days of the medium. When cinema attendance dropped, Hollywood created widescreen aspect ratios to immerse the viewer in a more realistic experience and, possibly, to make the cinema experience more of a spectacle that could not be achieved at home on a regular TV set. **16:9 standard** 16:9 is the international standard format of HDTV as used in Australia, Japan and United States, as well as in Europe on satellite and non-HD widescreen television (EDTV) PAL-plus. Japan's Hi-Vision originally started with a 5:3 ratio but converted when the international standards group introduced a wider ratio of 5? to 3 (=16:9). Many digital video cameras have the capability to record in 16:9. Anamorphic DVD transfers store the information in 16:9 vertically stretched to 4:3; if the TV can handle an anamorphic image the signal will be de-anamorphosed by the TV to 16:9. If not, the DVD player will unstretch the image and add letterboxing before sending the image to the TV. Wider ratios such as 1.85:1 and 2.40:1[1] are accommodated within the 16:9 DVD frame by adding some additional black bars within the image itself.

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