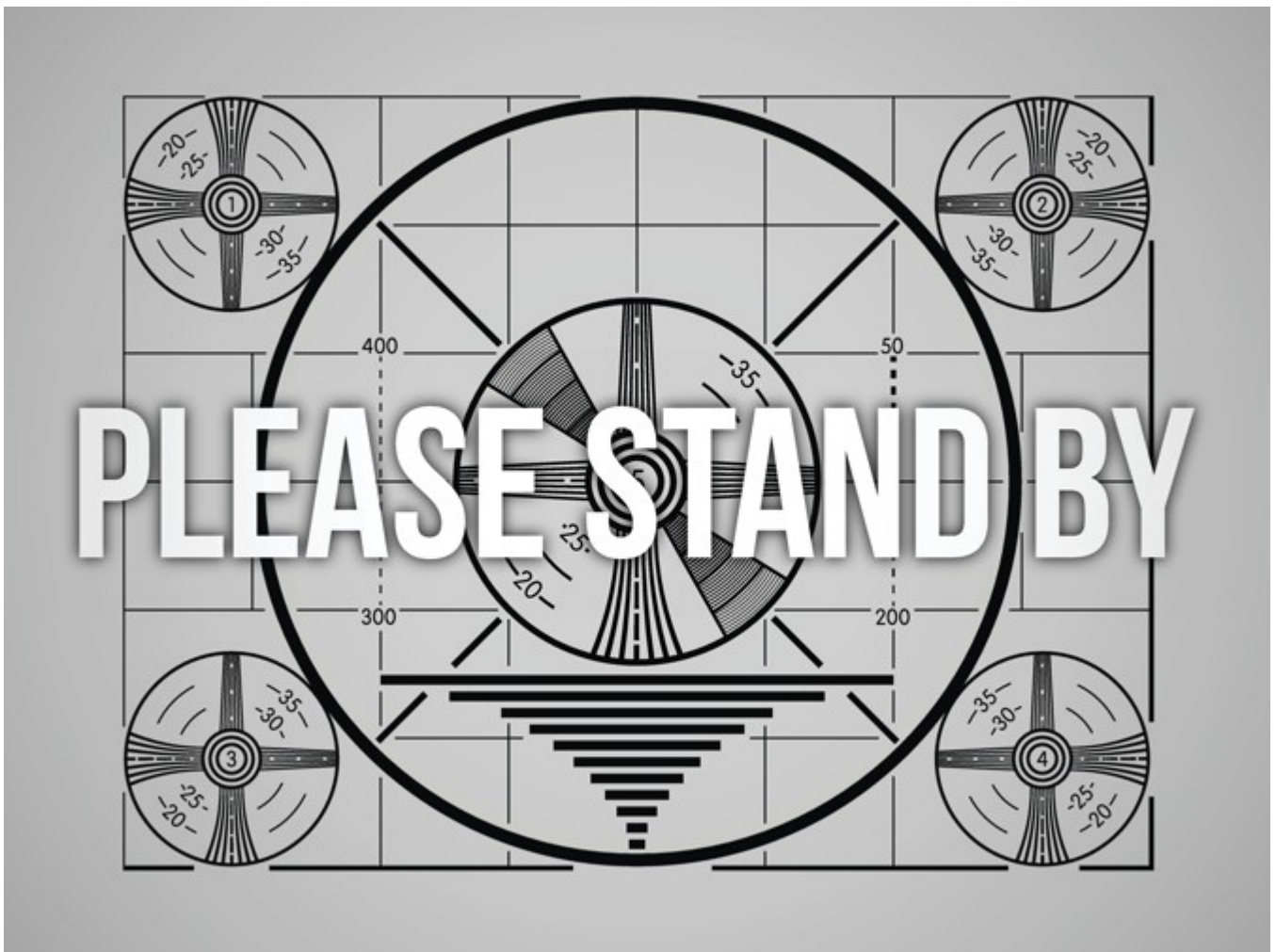


NTSC vs. PAL – Which Is Better?

There are tons of different standards out there for every product, and sometimes these standards are conflicting. Television with its three key standards – NTSC, PAL, and SECAM – is no exception. In this article, we'll talk about [NTSC and PAL](#) in more detail.

You can also check out Movavi Video Suite – an all-in-one video maker that includes a video editor, converter, screen recorder, and more.

What Is NTSC or PAL?



First, let's figure out what NTSC and PAL are.

NTSC (stands for “National Television Standard Committee”) is an analog color-encoding system used in DVD players and, until recently, television broadcasting in North America. In the 1950s, black-and-white television started to yield ground to color, and the previous technical standard became obsolete. At the time, U. S. broadcasting companies were using a wide range of methods to encode color, each of which conflicted with the others. It was not until 1953 that a new TV standard was introduced by the National Television System Committee and named “NTSC.” This format was developed with the intention to be compatible with most TV sets in the country, whether color or black-and-white. Even though modern television broadcasters switched to digital, the number of resolution lines and the frame rate they use are the same as established by the NTSC format.

PAL (or “Phase Alternating Line”) is another system for analog color television, also used in DVD and Blu-ray players. Designed in the late 1950s in Germany, the PAL format was supposed to deal with certain weaknesses of NTSC, including signal instability under poor weather conditions, which was especially relevant for European broadcasters. The new standard was to solve the problem by reversing every other line in a TV signal and thus eliminating errors. PAL also provided the locally required picture frequency – 50 Hz. This format, unlike NTSC, is still employed for broadcasting in the countries where it was adopted.

There’s also a third system called SECAM (Séquentiel couleur à mémoire – “sequential color with memory” in French). It was developed in France as another alternative to NTSC and is used there and in Eastern Europe.

What Is the Difference between PAL and NTSC?



The first real difference between the two standards is the FPS (frames-per-second) rate – 29.97 for NTSC and 25 for PAL. In the case of NTSC, it used to be 30 FPS or a single frame for every complete alternation of a 60-Hz household outlet. However, when color broadcasting emerged,

black-and-white TVs were unable to interpret color and brightness signals correctly, displaying nonsensical images on their screens. To deal with this problem, an additional chrominance signal had to be added between luminance signal oscillations, which could safely be ignored by black-and-white TVs and was properly displayed by color ones with the help of a special adapter. This extra signal led to lengthening of the time needed to transfer each frame and reduced the FPS from 30 to 29.97 for NTSC. The households in PAL regions use a different type of current outlets with a different frequency – 50 Hz, which also explains the different frame-per-second rate for PAL.

Another key difference is the number of resolution lines used by each of the standards. NTSC delivers 525 lines, with 480 appearing visibly (which is known as 480i). For PAL, this parameter corresponds to 625 lines, with 576 being visible (576i). In a PAL video signal, the color information phase is reversed with each line, which is reflected in the very name of the standard (“Phase Alternating Line”). This reversal leads to automatic corrections of phase errors in the signal transmission and, ultimately, to a higher-fidelity image. Nevertheless, some vertical color resolution is lost in the process, and colors on adjacent lines tend to blur together, though imperceptibly to the human eye.

On DVDs, where there is no carrier wave-based signal encoding, the differences in frequency and lines don’t come into play. The only things that matter are the frame rate and the resolution. Videos and movies are stored on DVDs with different frame rates – 24, 25, or 30 FPS; as well as in different resolutions – 720 x 480 pixels for NTSC DVDs and 720 x 576 pixels for PAL ones. The data on a DVD are read by a DVD player and formatted for presentation on a particular TV set – either NTSC or PAL. As a matter of fact, PAL digital video discs seem to have an edge over NTSC discs since the PAL ones feature larger resolution pixels. The same goes for VHS players, GoPro cameras, and some other PAL/NTSC devices.

Now you know what the difference between PAL and NTSC is.

Why Are These Standards Still Around?



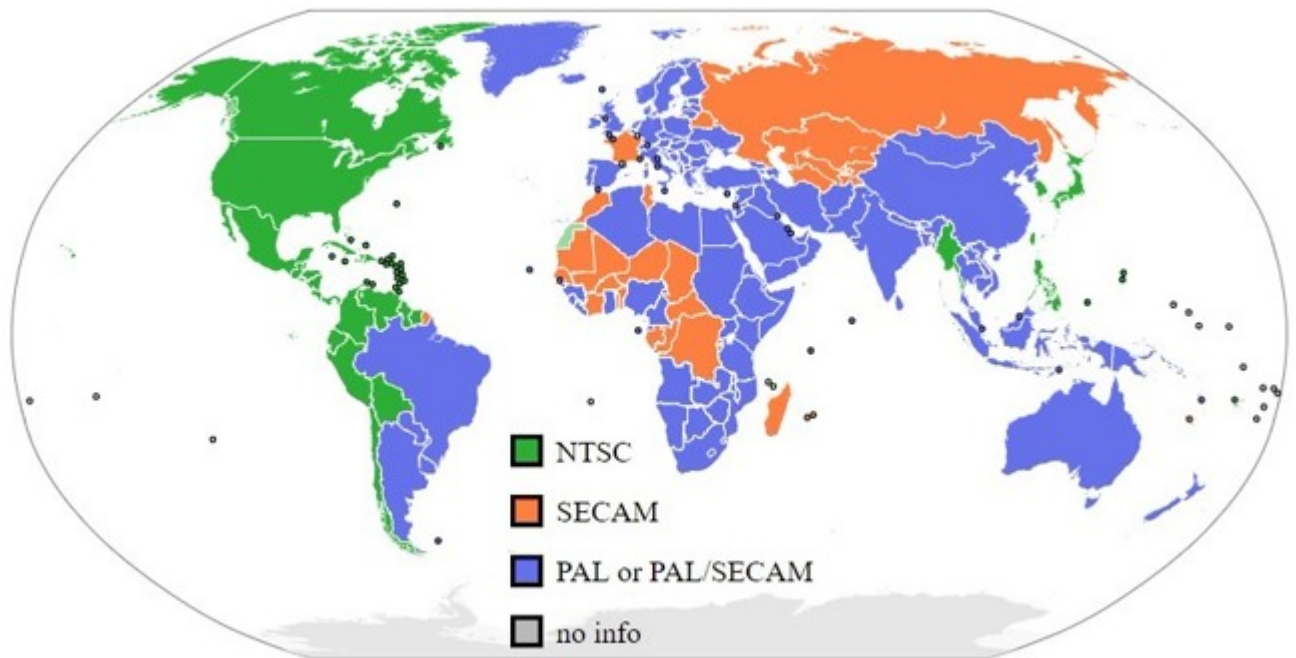
The world has changed quite a bit since the 1950s, and the former challenges that these TV standards were designed to solve simply do not apply anymore. However, Blu-rays, DVDs, and many other media are still labeled PAL or NTSC, and the resolutions, timings, and other parameters established in these standards are still used in modern TV sets and displays.

The main reason for that is the enforcement of national copyright laws. Using a variety of video formats acts as an additional layer of protection, preventing illegal distribution of movies, television shows, and video games in the countries they were not intended for. This use of region-restricted formats is so well-established that the respective distribution areas for electronic products are often called NTSC and PAL regions, despite the software itself working perfectly fine on any type of monitor.

Where Are NTSC and PAL Used?

All the standards are limited to particular parts of the world. NTSC is mostly found in North America, certain countries in South America, the Philippines, Myanmar, Taiwan, South Korea, and Japan. PAL is much more common, covering most of Western Europe, China, India, Australia, most of Africa, and elsewhere. SECAM, the third system, is used in some other parts of Africa, Russia, and France.

See the distribution of the video formats NTSC vs. PAL and SECAM on the map below.



NTSC vs. PAL – Which to Choose?

So, NTSC vs. PAL – which is better? The answer to this question depends mostly on your location and that of your audience. If you're creating videos for global viewership, it's safer to go with NTSC – as most PAL DVD players and VCRs are able to play NTSC video anyway, while NTSC platforms generally don't work with PAL content.