

HDTV

High-definition television (HDTV) is a digital television broadcasting system with greater resolution than traditional television systems (NTSC, SECAM, PAL). HDTV is digitally broadcast because digital television (DTV) requires less bandwidth if sufficient video compression is used.

There are three key differences between HDTV and what's become known as standard definition TV ie regular NTSC, PAL or SECAM. The three differences are; an increase in picture resolution, 16:9 widescreen as standard, and the ability to support multi-channel audio such as Dolby Digital.

The most important aspect of HDTV, and the one which gives it its name is the increased resolution. Standard definition NTSC broadcasts have 525 horizontal lines, and PAL broadcasts are slightly better at 625 lines. In both these systems however, the actual number of lines used to display the picture, known as the active lines, is fewer than that. In addition, both PAL and NTSC systems are interlaced, that is, each frame is split into two fields, one field is the odd-numbered lines and the other is the even lines. Each frame is displayed alternately and our brain puts them together to create a complete image of each frame. This has an adverse affect on picture quality.

HDTV is broadcast in one of two formats; 720p and 1080i. The numbers refer to the number of lines of vertical resolution and the letters refer to whether the signal is progressive scan, 'p', or interlaced, 'i'. Progressive scan means that each frame is shown in its entirety, rather than being split into fields. Both systems are significantly better quality than either PAL or NTSC broadcasts.

The first is 720p ("p" stands for progressive), which is an image comprised of 1280 lines along the horizontal by 720 vertical lines. It shows the whole image in a single frame – that is, progressively.

The second is 1080i, which measures 1920 x 1080 lines and is displayed as two fields that are interlaced. You get a bit more detail with 1080i but the interlaced image is not as smooth as a progressively scanned one.

A high-res screen with at least 720 lines will show both formats but only a 1080-line screen will show 1080i footage at its best, i.e. in an un-scaled form.

The 1080p format, which is the absolute best form of HD is not used by broadcasters. Movies made in 1080p (e.g. the last three Star Wars films) might appear in Blu-ray and/or HD DVD format. Sony's PlayStation 3 produces 1080p output.

There are more and more 'Full HD' screens (capable of displaying 1080p) appearing. A 1080p screen can de-interlace a 1080i signal. With very few 1080p sources available, the main benefit of a Full HD screen is its ability to map a source such as Sky TV (1080i) pixel for pixel to the screens resolution (ie 1920 x 1080).

HDTV uses 16:9 widescreen as is its aspect ratio so widescreen pictures are transmitted properly and not letterboxed or panned. Dolby Digital multichannel sound can be broadcast

as part of an HDTV signal, so if you have a surround sound speaker set-up you can use it to listen to TV rather than just DVDs.

To receive an HDTV broadcast you need either a TV with a built-in HDTV tuner or a HDTV receiver which can pick-up off the air HDTV channels, or cable or satellite HDTV like. You also need to live in are where HDTV channels are broadcast or distributed by cable or satellite.

Currently HDTV is widespread in Japan and is becoming commonplace in the US, with most major networks distributing HDTV versions of their popular content.

The situation in Europe is not so bright. There is only one company broadcasting HDTV in the whole of Europe, Euro1080, and it has only two HDTV channels, both in the 1080i format. Euro1080HDe shows major cultural and sporting events to cinemas and clubs around Europe, while HD1 broadcasts sports, opera, rock music, and lifestyle programs via satellite to homes in Europe. UK satellite broadcaster, Sky, which is owned by Fox proprietor Rupert Murdoch, has announced plans to broadcast some HDTV content in 2006. The BBC has also made noises about broadcasting HDTV programs (it already films some programs in HD format).

However, it will be a while before HDTV in Europe catches up with the rest of the world. The controversy created by the confirmation of plans by the UK government to start switching off analogue transmitters in 2008 showed how many people have yet to make the switch to DVB-T. That will be used as an argument to show that there is no appetite in the UK for another major change in TV broadcasting - particularly as most people think they already have 'digital TV' in the form of DVB-T.



