

## **Topic 105**

### **TV Production Overview**

#### **Film frame**

In filmmaking, video production, animation, and related fields, a film frame or video frame is one of the many still images which compose the complete moving picture. The term is derived from the fact that, from the beginning of modern filmmaking toward the end of the 20th century, and in many places still up to the present, the single images have been recorded on a strip of photographic film that quickly increased in length, historically; each image on such a strip looks rather like a framed picture when examined individually.

The term may also be used more generally as a noun or verb to refer to the edges of the image as seen in a camera viewfinder or projected on a screen. Thus, the camera operator can be said to keep a car in frame by panning with it as it speeds past.

When the moving picture is displayed, each frame is flashed on a screen for a short time (nowadays, usually  $1/24$ ,  $1/25$  or  $1/30$  of a second) and then immediately replaced by the next one. Persistence of vision blends the frames together, producing the illusion of a moving image.

The frame is also sometimes used as a unit of time, so that a momentary event might be said to last six frames, the actual duration of which depends on the frame rate of the system, which varies according to the video or film standard in use. In North America and Japan, 30 frames per

second (fps) is the broadcast standard, with 24 frames/s now common in production for high-definition video shot to look like film. In much of the rest of the world, 25 frames/s is standard.

In systems historically based on NTSC standards, for reasons originally related to the Chrominance subcarrier in analog NTSC TV systems, the exact frame rate is actually  $(3579545 / 227.5) / 525 = 29.97002616$  fps.[1] This leads to many synchronization problems which are unknown outside the NTSC world, and also brings about hacks such as drop-frame time code.

In film projection, 24 fps is the norm, except in some special venue systems, such as IMAX, Showscan and Iwerks 70, where 30, 48 or even 60 frame/s have been used. Silent films and 8 mm amateur movies used 16 or 18 frame/s.