

HD 101: Why there are black bars on HDTVs

It never fails, one of the first thing just about every new HDTV owners asks is; why are there black bars on my new widescreen TV? So we figured we'd have our go at trying to give a simple answer to an age old question. The most basic explanation is because the image you want to watch isn't the same shape as the your TV. Of course that seems too obvious and now you're thinking; but why not, they're both widescreen? But rather than getting into the why are there so many shapes -- called aspect ratios from here on out -- we'll show you the various formats and the different ways they might be displayed on your HDTV. Just about all HDTVs have an aspect ratio of 16x9. This basically means that if the screen was 16 inches wide, then it would be 9 inches tall. This is much wider than older TVs which were 4x3. Now It is pretty obvious that when we watch 4x3 content on a 16x9 HDTV -- or vica versa -- that we'd see black bars to make up the difference. But obviously this isn't the only scenario, because not only does it matter what the original aspect ratio of the material is, but it also matters what it was optimized to be displayed on.

4x3 on a 16x9 HDTV Pillar box



We'll start out with an easy one. We've all seen this right, turn on your brand new HDTV switch to an SD channel and you are greeted with black bars on each side to make up the difference. Sure it isn't ideal, but at least the part of the image that is full doesn't look out of wack.

Stretching



Ok, so you paid all that money for a TV, you want to use up the whole thing right? So you hit the stretch button and now you can see how fat this women just got because it's all stretched out. Although this might seem like a good idea at first, the fact that everything looks out of proportion starts to get to most people.

Non-linear stretch



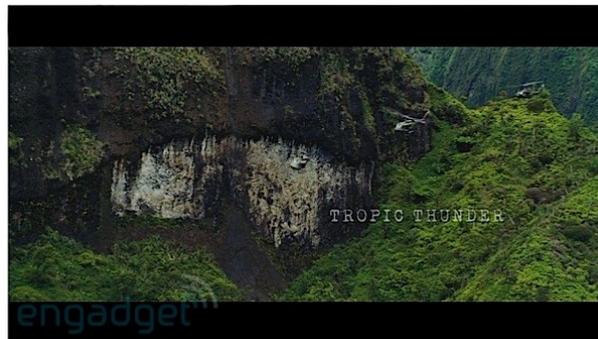
If you hate black bars, then at this point you're thinking, "now we're talking." Sure it seems great at first because her face doesn't look bad at all. But just wait, because as soon as the camera pans from right to left you might just lose your lunch. Just stretching the edges seems like a great idea because most of everything you care about is in the middle, but it isn't worth it either.

Cropping



In this example, the image is simply cropped on the top and bottom -- some TVs call this zoom because the image is zoomed in on, which effectively cuts off the top and bottom. At least with this one though you won't feel sick when the camera pans and no one looks fat, but who knows what you might be missing. Just look at the logo for a glimpse of how much of the image is lost.

2.35:1 framed in 16x9



This is the best example that gets new HDTV owners in a tizzy. Here we are trying to enjoy our brand new HDTV and now we are faced with the realization that even though they thought life with black bars was over, it isn't. This can be avoided very easily by using the crop feature, and since the bars aren't that big, most won't notice.

So these are the examples of why you'd see black bars on your HDTV. The only other thing we'd like to point out is that HD comes in many different aspect ratios and although content specifically created for HDTVs is 16x9, an old movie shot at 4x3 can have just as much detail as a newer movie can.