

# Content Best Practices for Direct View LED Displays

By Keith Yanke



Direct View LED, or dvLED, is a video display technology that uses light emitting diodes to produce bright, vibrant colors. Because LEDs can produce images that are brighter and higher in contrast than traditional displays, dvLEDs are particularly well suited for providing eye-catching content for digital signage applications in almost any indoor or outdoor environment.

Deploying a dvLED display solution, however, requires a thoughtful approach when it comes to the content displayed on it. The overall goal when adopting a dvLED display solution is to ensure that it provides the viewing audience a great experience while also designing the content so that will help boost ROI by reducing energy consumption and extending the life of the display.

## Technical Factors to Consider

The range of content displayed on dvLEDs is broad, and specific best practices will vary depending on how the display is used. For example, a roadside message display or an advertisement display will have different requirements than a video display located in a corporate lobby or a display in a large entertainment venue. But no matter the type of deployment used, several crucial technical factors should be considered in order to optimize the performance and lifespan of a dvLED display.

### Overall brightness

Because LED is an emissive technology, dvLED displays consume more power as they get brighter. LEDs also get hotter as they consume more power, and they will decay slowly over time due to heat. When designing content to be displayed on a dvLED, several best practices help reduce power consumption and lower heat build-up:

- When creating content, use an overall darker background to reduce overall brightness or average brightness.
- Show off the amazing capabilities of dvLED displays by using bright, vibrant colors whenever possible but avoid using all white or overly bright images. Keep the content dark yet colorful.
- High dynamic range (HDR) content will provide a wider range of luminance and richer colors than standard dynamic range (SDR) content, but HDR content favors the brighter end of the spectrum, which may generate extra power consumption and heat. Consider using HDR only when necessary.
- Image retention, also known as image persistence or screen burn-in, isn't as common an issue with dvLED technologies as it is for liquid-crystal display (LCD) technologies. However, image retention can still crop up if the content displayed on a dvLED is static, for example if the display shows the same ad for days at a time. To avoid the risk of image retention, it's a good practice to design content that changes periodically.
- Use a system with an ambient light sensor that controls the overall brightness of the display. Most municipalities require this for outdoor signage, but this same technology can be used indoors as well and can be a key element in reducing the power consumption of a display over the course of a 24-hour period.

### Scaling and text size

A dvLED display typically does not have a traditional native resolution, for example full HD (1920 × 1080 pixels). As a result, the content size or resolution needs to be taken into consideration:

- Because dvLED displays are large and can be oddly shaped, the active area may not match a traditional desktop resolution or any resemblance of a standard display resolution (think LCD or projector). Because of this, we need to consider whether it's best for the intended content to be created and distributed using either a scaled-to-fit method, a pixel-for-pixel method or crop the content to fit.
- Scaling: Scaling can be the easiest method, but it can lead to some challenges, especially with the look of the content that might get stretched or compressed. This is especially noticeable with circular items (O vs 0), and many companies may have issues if their logos are not displayed true to form. In certain circumstances, some details of the content can be lost when scaling: This can oftentimes be seen when displaying spreadsheets on a smaller resolution display where the lines between cells line up between two pixels, making it appear that the two cells are actually one.



- **Pixel for pixel:** When determining resolution or frame size, you need to know how big resolution of the dvLED canvas is and how to display the content onto it correctly. Using an native LED display resolution with 1287×347 as an example, place the active content with the 1287×347 resolution in the top left of a 1920×1080 video or desktop to achieve the pixel-for-pixel content distribution method. This method will provide the best reproduction of the content without the inherent stretching or compressed image characteristics seen when the image is scaled to fit.



- **Cropping:** The best practice in most cases is to avoid cropping because it can inadvertently remove important information from the active display area if the content creator is unaware – or forgets – that the image has been cropped.



- **Font size:** Determine what size is optimal based on the pixel spacing being used and the intended viewing distance. Ideally, the font size needs to be readable from the location of the viewing audience and also must work within the pixel spacing. Other considerations to take into account include type of font, color of font and the proper amount of text to use by following the 3×5 rule: three lines of text with a maximum of five words per line or five lines of text with 3 words in each line.

### Transitions

The third major technical factor to consider is how content transitions for one item to the next. For example, some municipalities have regulations on outdoor signage that specify how long content must remain static. These regulations vary among different municipalities, so research local laws and keep them in mind when designing content for dvLED displays. This consideration usually applies to images and not to video.

### Other Key Benefits to Consider

In addition to following content best practices, several other factors that will help optimize the impact and longevity of a dvLED display:

**Simplified solutions:** Look for a display solutions partner that's easy to do business with and makes installation and content management simple. A trusted partner will put together the perfect team to provide the right solution for your needs.

**Easy maintenance:** Seek out products that are designed to be serviced on site, which will result in quicker maintenance and repairs, thus maximizing up time.

**Industry-leading warranties:** For peace of mind, find products backed by longer warranties, such as three years, so you'll be covered in case of equipment malfunction. Also ask whether an extended warranty is available.

### Making dvLED Work for You

Adopting these content best practices, along with finding the right display solutions partner, can go a long way to ensure that your dvLED display fulfills its business critical functions.

*As Senior Director of Product Marketing for NEC Display Solutions of America, Keith Yanke is responsible for providing strategic direction for display products in the Americas. Since joining NEC in 1994, he has spent time in sales, engineering and marketing capacities for projectors and flat panel displays, ensuring products are meeting the market's ever-changing needs.*