

# Laser TVs VS. Flat Panels: A Bright Future for Big Screen Entertainment

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## Introduction

As consumer demand grows for larger, smarter, and more immersive viewing experiences, the question arises: How can we deliver larger screen sizes without increasing costs, complicating installations or most importantly, sacrificing performance? Laser TV's, specifically ultra short throw (UST) projectors powered by TI DLP® technology are proving to be a compelling solution. This application brief highlights how laser TV's deliver a combination of image quality, flexibility and ease of use in areas where flat panels often face limitations.

## What is a Laser TV?

Laser TVs are becoming the go-to solution for consumers seeking exceptional visual performance without the drawbacks of traditional flat panels. A laser TV is an advanced projection system that uses laser light sources and an ultra short throw optical system to project large, high-resolution images from just inches away from a wall. Laser TVs bridge the gap between traditional projectors and flat-panel displays by offering a versatile solution that combines high-quality visuals with integrated speakers, smart TV platforms and aesthetically pleasing designs.

## Market Trends

The flat panel market is currently moving in two directions. Premium flat panels are increasing performance capabilities with high-end technologies like OLED and QLED, while budget models using LCD or LED panels offer a lower-cost option, often at the expense of performance. The current trends of flat panels show the focus to be centered on higher resolutions like 4K and 8K. However, as screen sizes exceed 85 inches, flat panel costs increase exponentially, become difficult to install, and less portable. This can limit their appeal for at-home use, specifically for consumers looking for flexible and convenient entertainment solutions.

Meanwhile, laser TVs are gaining market traction quickly. With offerings under 30 pounds, display sizes over 100 inches, competitive pricing, smart interfaces and stunning performance, laser TVs are proving to be a compelling alternative to flat panels. Leading models utilizing DLP technology from brands such as Hisense, Samsung, LG, BenQ, Leica, XGIMI, Formovie and Optoma are setting new standards for performance and usability. This growing momentum is a result of the numerous advantages that give laser TVs an edge over flat panels.

## The Advantages of Laser TVs

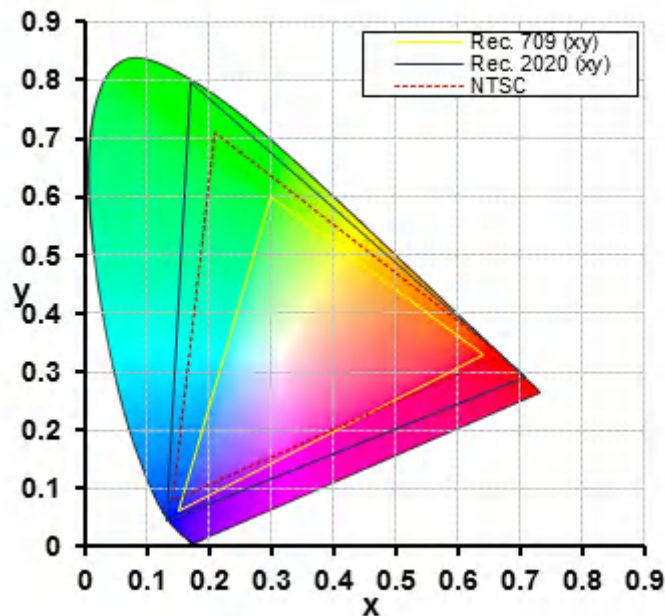
Laser TVs offer a range of benefits that set them apart from flat panels, making them the ideal choice for a variety of modern display applications:

- **Large screen, small footprint:** Laser TVs can project screen sizes ranging from 80 to 200 inches, allowing consumers to customize their display size to their needs without the need for heavy, permanent wall mounts.
- **Portability:** Traditional large flat panels are heavy, large, and difficult to move. With Laser TVs, consumers have the flexibility to easily relocate their device from one room to another.
- **Installation:** Laser TVs can be set up on a TV stand or console in minutes. Large flat panels are difficult to install, especially when wall mounting. Consumers must locate studs, purchase mounts, hide wires, and in some cases, hire a professional due to the installation complexity.

- **Color performance:** Laser TVs equipped with DLP technology deliver a wide color gamut, with models exceeding 90% coverage on the Rec.2020 gamut spectrum, which represents the largest color gamut measurement and the current industry standard for ultra-high-definition (UHD) displays.
- **Low latency:** Each DLP digital micromirror device (DMD) can switch thousands of times per second, enabling higher refresh rates and lower latency.
- **High contrast:** Laser TVs using DLP technology offer high contrast ratios, and when paired with ambient light rejection (ALR) screens that block ambient light, blacks are even deeper, improving the overall picture quality.
- **Reduced screen glare:** When ambient light like a window or surrounding lights are present in front of a flat panel, screen glare appears, showing bright distracting reflections off the surface. With Laser TV's screen glare is not apparent, which provides a more immersive and distraction free viewing experience.
- **Premium audio built in:** While flat panels are limited to very small speakers, Laser TVs can incorporate higher quality audio systems that rival premium sound bars, potentially eliminating the need for an external audio system



**Figure 1. Example of Screen Glare on a Typical Flat Panel Display**



**Figure 2. CIE Chromaticity Diagram Highlighting REC 2020**

## Target Markets

Laser TVs are strongly positioned to meet the needs of both consumer and commercial applications. Whether you're a consumer seeking large-format cinema experiences or a business looking for a mobile presentation solution, laser TVs offer this flexibility without any compromise. With their lightweight and compact design, laser TVs can be easily moved or stored when not in use, making them ideal for shared spaces, temporary setups or design-conscious households. With many Laser TVs designed to blend in with home aesthetics, there is no longer a need for large black rectangles to take over the wall when not in use.

The latest DLP technology products enable features that are essential to gamers, creating a new market for laser TV's. The integration of TI's Single Springtip Torsional Pixel (SST) DMDs paired with advanced controller options in laser TVs supports higher refresh rates, lasting performance and lower input latency, meeting gamers' needs for fast-paced content.



**Figure 3. Laser TV Display Example**

## Advantages of SST Chipsets for Laser TV

Leveraging TI's DLP technology products like the DLP472TE SST DMD along with advanced controller options are pushing the boundaries of what laser TVs can do, with higher refresh rates, lower input latency, brighter outputs, improved contrast, and fast performance - key features driving the next generation of high-performance displays.

- **Brighter outputs:** SST chipsets like the DLP473TE have high power density specs, enabling a higher brightness without compromising color performance.
- **Improved contrast:** The SST chipset architecture allows for higher contrast ratios in addition to dynamic black algorithms, resulting in darker blacks and sharper images.
- **Fast performance:** The DLP472TE supports high refresh rates up to 240Hz, making content with low latency, look smoother without screen tearing.

**Table 1. DLP Chipset Portfolio for 4K UHD Laser TVs**

DMD (4k UHD resolution)	Controller	System Brightness (max) (lm)	Array Diagonal (in)	Input Frame Rate (max) (Hz)
<a href="#">DLP471TP</a>	<a href="#">DLPC6540</a>	2,000	0.47	4K at 60Hz, 1080p at 240Hz
<a href="#">DLP472TP</a>	<a href="#">DLPC8445</a>	2,000	0.47	4K at 60Hz, 1080p at 240Hz
<a href="#">DLP472TE</a>	<a href="#">DLPC7540</a>	7,000	0.47	4K at 60Hz, 1080p at 240Hz
<a href="#">DLP473TE</a>	<a href="#">DLPC8455</a>	7,000	0.47	4K at 60Hz, 1080p at 240Hz
<a href="#">DLP650TE</a>	<a href="#">DLPC7540</a>	8,000	0.65	4K at 60Hz, 1080p at 240Hz
<a href="#">DLP780TE</a>	<a href="#">DLPC4420</a>	7,000	0.78	4K at 60Hz

### **Additional Resources**

- [Display & projection products](#)
- [Laser TV applications](#)

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