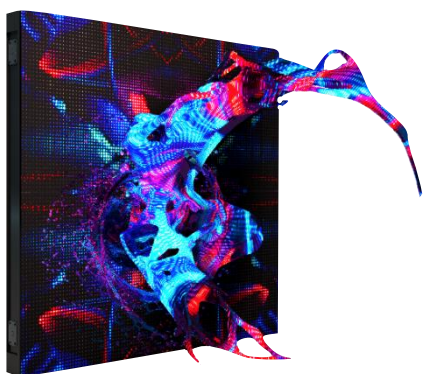


November 1, 2023  
Hibino Corporation

**Introducing Japan’s first Passive 3D LED offering through “Hibino Immersive Entertainment Lab,” an R&D center that will provide new entertainment experiences using LED and advanced technology.**



Liminal Space 3D LED technology  
(conceptual image)



Hibino Immersive Entertainment Lab (conceptual image)

Hibino Corporation (Headquarters: Minato-ku, Tokyo; President & CEO: Teruhisa Hibino) will open the “Hibino Immersive Entertainment Lab” on the 3F of the Hibino Hinode Building (located at 2-7-70, Kaigan, Minato-ku, Tokyo) on November 15 as an R&D center to create new immersive experiences by combining large LED displays and advanced technologies and to disseminate them into the entertainment field.

“Hibino Immersive Entertainment Lab” is Hibino’s new R&D center equipped with experimental and demonstration functions for new staging methods and immersive experiences utilizing large-scale video technology, virtual technology, and 3D LED technology. In August of this year, Hibino made a capital investment and formed a strategic alliance with Liminal Space, Inc (headquartered in the U.S.), to exclusively distribute Liminal Space’s proprietary 3D passive LED display technology in Japan. Rental operations are scheduled to begin in the spring of 2024. Hibino Corporation will install Liminal Space’s spatial LED display that is 21.6 meter wide and 3.6 meter high in “Hibino Immersive Entertainment Lab” for the purposes of R&D, demonstrate new staging methods, and showcase VR-like immersive content experiences.

## **Background**

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Hibino Corporation's hibino visual Div. provides large scale video services that rent and operate large-scale video display systems for a wide range of markets from large-scale concerts to MICE (Meetings, Incentive travel, Conventions, Events/Exhibitions), sporting events, expos, and virtual productions. The entertainment industry has evolved by integrating with advanced technologies. Even during the COVID-19 pandemic, this industry has found a way to take advantage of online and virtual technologies and has made great strides, while at the same time redefining the value of "in person" and its uniqueness. In the post-pandemic era, in-person attendance entertainment is rapidly recovering, and demand for "new experiences" through integration with new technologies is accelerating. We have established the "Hibino Immersive Entertainment Lab" to continue to create new value for in-person attendance entertainment business by integrating the virtual technology that has rapidly developed in the wake of the COVID-19 pandemic, the new 3D LED technology, and next-generation technologies that will appear in the future with "live" performances.

## **About Liminal Space and its "Ghost Tile" 3D LED technology**

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Liminal Space is a U.S. based Technology and Media company that designs and builds immersive experiences using its proprietary next-generation "Ghost Tile" technology. Liminal Space's "Ghost Tile" stereoscopic display technology provides VR-like immersion with its customized 3D glasses where Holographic images <sup>(\*)</sup> float in the air in front of you. Liminal Space's next-generation technology originated in the U.S. and is expanding globally through strategic partnerships. Hibino Corporation provides Liminal Space the opportunity to expand to Asia and will mark the first rental operations in Asia and Japan. Hibino's large-scale video and virtual technologies combined with Liminal Space's passive LED technology will provide customers with a one-of-kind immersive experience like no other for concerts, Location Based Experiences, media events, etc.

### **[Features]**

#### **Immersive experience that combines "reality × Passive LED display × lighting and other effects"**

- The LED display equipped with "Ghost Tile" technology enables immersive staging that blends "reality" with "virtual world (3DCG)" or "augmented reality, mixed reality (AR/MR)" by placing a performer or artistic set in front of the screen. Great effects can be achieved when using it in combination with lighting, lasers, haze, smoke, strobes, and other effect devices. It is possible to realize new combined staging effects in which real people and objects can be blended with the digital images of the LED display.
- Supports 3D and 2D video display. Users can easily and seamlessly switch between the two depending on the scene.
- Liminal Space's glasses can be adapted to both watching actual objects and virtual 3D images at the same time.
- No shadow casting <sup>(\*)</sup> that is common to projection mapping. Performers and scenic elements seamlessly integrate with holographic visuals.

#### **Exceptional Depth and Stereoscopic Effects with Unique Technology**

- Liminal Space's patented optics technology enables a significant improvement in stereo contrast ratios <sup>(\*)</sup>

compared to 3D cinema theaters and 3D/AR attraction experiences with conventional projectors, providing audiences a greater sense of depth.

- It can provide high image quality and 3D effects in a wide viewing angle of 140°, and it can be introduced in a wide range of event sizes from small groups to audiences of several thousand people.
- Flickering and juddering are extremely unlikely to occur, and it does not induce 3D motion sickness <sup>(\*4)</sup>.

### **Hibino’s “Large-Scale Video Service” and “3D Content Production” to Maximize Staging Performances**

- A leader in large-scale video for concerts and events in Japan, Hibino plans, rents, and operates large-scale video systems that best suit the scale, production image, and other details of the event.
- Utilizing our virtual production business platform, we provide 3D content production using the Unreal Engine <sup>(\*5)</sup> and support for production by our clients.

- (\*1) Holographic technology: A technology that makes a three-dimensional image appear in an empty space, making it appear as if it were actually there.
- (\*2) Cast shadow: A shadow cast by a performer or other object that appears in the projected image from a projector.
- (\*3) Stereo contrast ratio: An indicator of the depth effect of a 3D display.
- (\*4) Effect of eliminating screen flickering and afterimage sensation, which are considered to be one of the causes of 3D motion sickness. Symptoms similar to motion sickness (visually-induced motion sickness, VIMS), which occurs when the viewpoint of an image is changed abruptly, can occur with all image display devices, not just 3D devices. However, Liminal Space’s content management makes it possible to obtain the maximum 3D effect while giving adequate consideration to VIMS.
- (\*5) Unreal Engine: A real-time 3D production platform developed by Epic Games that creates photorealistic visuals and immersive experiences. It is used in a variety of industries, including game development, architecture, and video, etc.

### **[Key Market Case Studies in the U.S. and Europe]**

- Popular EDM artist’s new album launch event
- Location based global traveling exhibit based on premiere Hollywood content
- Immersive and interactive experience based on premiere Hollywood movie in New York City
- Immersive digital modern art exhibit in Los Angeles
- Touring immersive modern art exhibit

Among others.

### **Future Development**

With the opening of the “Hibino Immersive Entertainment Lab” and the start of rental operations of LED display systems equipped with 3D LED “Ghost Tile” technology, we hope to create excitement for as many people as possible by actively participating in creating new demand not only for concerts, corporate presentations, exhibitions, and sporting events, but also in the area of location-based entertainment <sup>(\*6)</sup> and providing unprecedented immersive experiences. To accelerate the global expansion of both Hibino and Liminal Space, Hibino will promote and spread in Japan and other markets the business model specialized in “location-based entertainment” that Liminal Space is

developing mainly in Europe and the U.S., and through this new capital and business alliance, Hibino, with its strength in LED technology, will participate in the product development of Liminal Space, aiming to create new value for the global entertainment market.

(*6) Location-based entertainment: Entertainment performances that are mobile in nature that are provided as either temporary or limited-period fixed installations at theme parks, commercial facilities, event halls and other specific locations other than users' homes.
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