Our Dream

Aspirations in Visual Imaging Systems

Leading the cinema projector industry, paying attention to “sensibilities.”

Principal related products and fields of business
Digital cinema, 3D, virtual reality (VR)/simulations, monitoring and control systems

Fusion of light sources and systems revolutionizes the cinema industry

Christie Digital Systems (Christie), an Ushio group company, holds the leading position* in the world market for digital cinema projectors. Christie became an Ushio group company in 1992 when Ushio acquired the cinema division of Christie Electronics, an American company which was also a buyer of Ushio’s lamps. At the time, Ushio had no plans for building its own projectors. However, the acquisition of Christie, with its long history as a manufacturer of film projectors and its deep ties to the Hollywood film industry served to increase its presence in the industry both domestically and internationally. The synergy born from the fusion of Ushio’s lamp technology and Christie’s device technology exerted a revolutionary influence on the cinema industry and its associated market. As a leading maker of cinema projectors, Christie joins Ushio in advancing the development of video digitization and 3D images, delivering unending surprise and excitement to the silver screen.

Innovative management cannot be captured in a video frame

The strengths of Christie are not limited to video, as the company provides solutions in the form of systems and services that give added value to such products. Besides developing, manufacturing, and marketing for its core cinema projector business, Christie works as a comprehensive enterprise, providing a management service through its Network Operations Center (NOC) to deliver timely remote control and software updates for Christie products via the Internet, a Business Products division that provides projection mapping and digital imaging products, and a Virtual Environments division that provides software and hardware solutions for the simulators used in aviation training and product development.

At the root of these endeavors is the company’s business stance, which is rooted in its vision of “being the global leader in providing high quality, innovative, shared experiences that our customers love.”

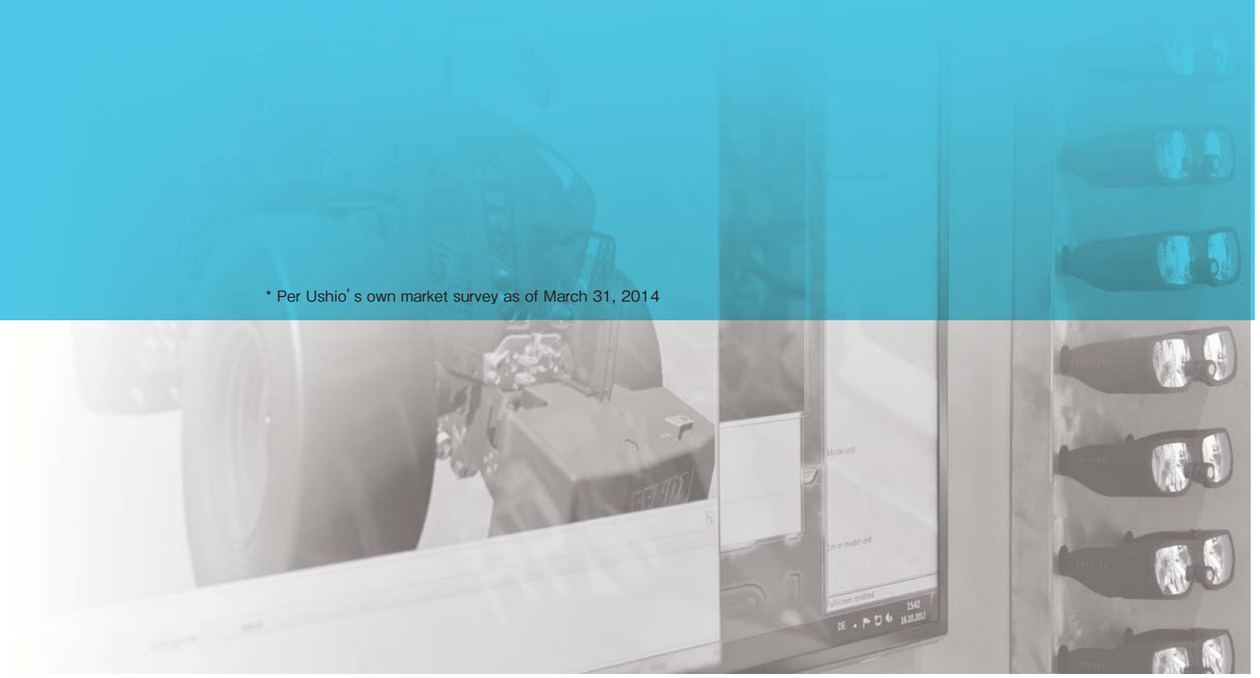
Rich and unfettered ideas: The force that drives dreams and excitement

In businesses that are closer to the end user, the point that should be emphasized is “human sensibilities.” The many innovations impacting video history have all originated in the sensibilities of our employees. Communication with people gives birth to ideas. It is free and unfettered individual ideas, along with an awareness of the significance and role of the individual, that gives rise to innovation whatever the situation, and this is the driving force that lends Christie its presence and supports its business of delivering dreams and excitement.

A hand in a wide variety of projectors, including the LED-based simulation projection system, “Matrix SIM WQ.”

MicroTiles™ can freely combine displays, much like building blocks.

* Per Ushio’s own market survey as of March 31, 2014



USHIO USHIO INC.

The trajectory of challenge

② Systems

The light that drives back darkness has been a wellspring of imagination since ancient times, serving in shadow plays and magic lanterns and giving birth to a infinite range of stories about light. Filmmaking is the apex of this tradition. As a member of the Ushio group, Christie Digital Systems continues advancing together with the filmmaking industry as it revolutionizes the art of cinema expression with leading edge technology. We asked about its future course and prospects.

Going from Lamp Maker to Comprehensive Video Business Group

Ushio and Christie join hands for cinematic development

The relationship between Christie Digital Systems (Christie) and Ushio underwent a great transformation when Ushio invited Christie to join it as a member of its corporate group. Says a manager at Christie, "From that moment, Ushio ceased being simply a lamp maker, and became a corporate group with its hand in wide range of cinema-related businesses." This is from a person who has watched the development of America's filmmaking industry over many years.

Christie is a long-established presence in the industry, having produced its first film projector back in 1929. It was just about that time that the cinema industry was switching from silent movies to "talkies," cinema with synchronized sound. Christie has enjoyed a good relationship with Hollywood industry insiders ever since.

For its part, Ushio established deep connections to filmmaking even before its independence from its predecessor organization, Ushio Kogyo. The first time a xenon lamp was used to show a movie in Japan was in 1958. The replacement of carbon arc lamps, which were the principal light source used in cinema projectors at the time, with the brighter and more vivid colors of the xenon lamp gave a great boost to the success of color movies. Then in 1966, a projector using a horizontally-oriented xenon short arc lamp was developed, providing increased light production efficiency over projectors using vertically oriented lamps. This method is still used in many cinema projectors today.

Christie and Ushio fit together hand and glove: One enjoys an established relationship of trust with Hollywood, and the other has won success as the developer of lamps for use with cinema. In 1992 when Ushio acquired Christie,

1 Xenon short arc lamp for use in cinema projectors
Photo is of a lamp developed while Ushio was a division of Ushio Kogyo. This lamp enabled images of unprecedented brightness and vividness.

Xenon lamps for use in cinema projectors

World share **70%**

Digital cinema projector

World share **40%**

(Per Ushio's own market survey as of March 31, 2014)

in that union, the separate dreams that the two companies shared of “surprising people with ever more wonderful images” were joined into one. Then the move toward digitization accelerated when the digital imaging division of Canada’s Electrohome company merged with Christie in 1999.

The turning point in the digitization of cinema

“During the 1990s, there was a boom in construction of megaplex movie theaters through America which breathed new life into movie-going, a business that was in the doldrums. During this boom, Christie’s sales soared to ten times their pre-acquisition level, and Christie became the world’s top name in projectors. This was just before movies started the transition from film to digital.” Since the 1895 showing of the world’s first movie by the Lumière brothers of France, the cinema industry has undergone great revolutions, advancing from silent films to talkies, and from black and white to color. The transition from film to digital is a revolution that is no less monumental. In fact, the digitization of cinema has enabled their distribution over the Internet, done away with the need to develop and duplicate films, eliminated the cost of physical distribution, and solved forever the problem of film deterioration. It has also contributed to reduction of resource waste, as there is no longer any need to dispose of old films. Thus, digitization has been a force that has changed the entire form of the cinema industry.

Before the digitization of movies, Christie was faced with a huge decision. “Undertaking the digitization of projectors ahead of other companies could give it a tremendous advantage, but there is also great risk in such up-front investment. It was only after considering many different possibilities that the company decided to commit itself to going digital.” The greatest hurdle to digitization was licensing the DLP® (Digital Light Processing) chip that had been developed for cinema by Texas Instruments*.

“Many different makers held licensing negotiations with Texas Instruments, but differences about conditions prevented any of them from concluding contracts. It was only after Christie won out over the competition and succeeded in concluding an exclusive contract for DLP® that it went ahead with development of a digital cinema projector. Currently, there are only a few companies around the world that make digital cinema projectors. Looking back, we can now see that one of the biggest factors behind Christie achieving its position as the world’s leading maker of digital cinema projectors lies in the moment that it made that decision.”

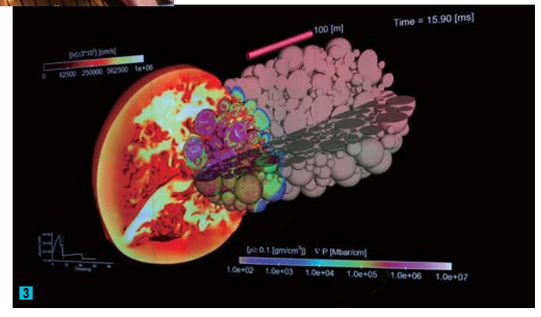
New optical solutions become possible precisely because they are digital

Boasts Christie’s manager, “With digital projectors, almost anything can become a screen for images.” We asked him to talk about this and other new directions being taken by Christie in its relationship with light.

“Currently, cutting-edge spatial performances are attracting a lot of attention. These are produced using a process called projection mapping, which makes it possible to project images onto objects that occupy three dimensions. Displays that use projection mapping for sporting events, anniversary celebrations, and amusement park attractions are growing in popularity around the world, and the demand for Christie’s larger digital projectors has grown accordingly.” High brightness projectors are essential for achieving forms of video expression that create a strong impact by taking advantage of objects’ shadows to produce images that have depth and a 3-dimensional appearance. The technological advances by Christie paralleling developments in filmmaking play a great role in such displays.

1 4K projector: Provides high brightness and resolution along with superior color reproduction, and can be used for 3D cinema. Projector suitable for projecting large images for use in projection mapping, etc.

*Texas Instruments Incorporated: The semiconductor maker headquartered in Dallas, Texas.



2 Using projectors for projection mapping, creating designs and productions that make use of structures and space: Now used around the world for advertising, events and business purposes. **3 Image produced by a simulation system introduced at the Los Alamos National Laboratory:** Provides clear and vivid color representation of even the finest details.

Besides its use in projection mapping to provide entertainment for large audiences, Christie’s technology plays a role in the various sorts of simulators being introduced in professional applications. “For example, rapid response and natural colors are essential requirements of the simulators used to train airline pilots and the operators of marine vessels. Using projectors that are capable of accurately superimposing images and compensating for image distortion makes it possible to accurately reproduce the appearance of the real world. Further, the combination of screen images with goggle-type head tracking systems makes it possible to create virtual reality in three dimensions. The immersive display systems developed by our company are useful not only for training, but are playing a big role in systems used for visualizing natural phenomena, assessing disaster risks, developing products and urban development.” Christie has also developed a rear projector system called MicroTiles™ which makes it possible to combine small 20-inch displays into free-form assemblies, just as if they were building blocks.

The steady expansion of its product line-up to meet the needs of users in various roles and scenarios is one of the reasons that Christie enjoys such a good reputation. So, what magic in light can we expect to see from them in the future?

“We regard projectors as nothing more than one of the elements in larger systems. Presently, the growth is in cinema and business projects such as projection mapping. In the future, we foresee growth in applications for screen and software-based virtual environments, and of course we will also be concentrating on management services and content for such applications. We would like to see the light and services we develop become the impetus for innovation, and for making the world a more interesting place.”

Optical content spun of leading technology and the passion of developers will bring wonder and delight to the people of the world. Therein we will discover the future of light and add a new page to our cultural history.

Visual Imaging Showcase

Ushio Visual Imaging: Making Cities Glow

Ushio light enthralls people around the world with illumination of events and landscapes that shine.

Starlight spectacular
(CANADA)

Mountain at the center of Wonderland entrances visitors with a different aspect than can be seen by day. Butterflies fluttering over a rainbow's arch, and the image on the mountain makes it seem like it might spring forth in a dance, giving rise in viewers to surprise and excitement.

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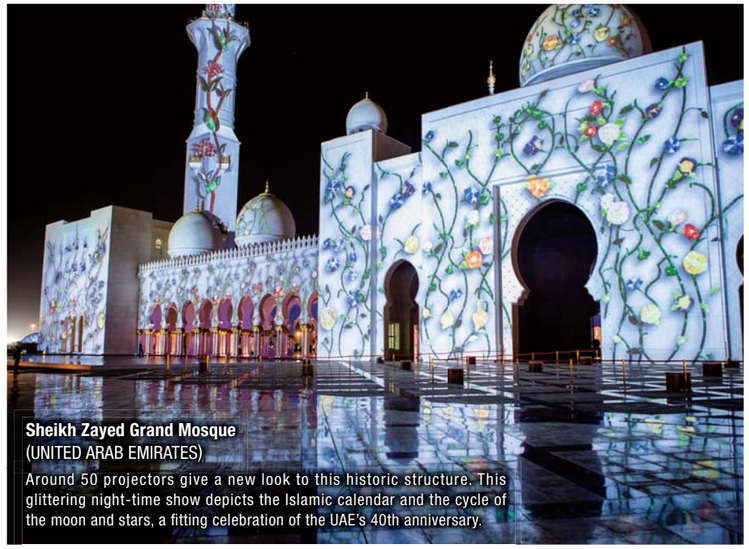

Sheikh Zayed Grand Mosque
(UNITED ARAB EMIRATES)

Around 50 projectors give a new look to this historic structure. This glittering night-time show depicts the Islamic calendar and the cycle of the moon and stars, a fitting celebration of the UAE's 40th anniversary.

Part 1

Projection mapping

Projection mapping makes objects and space the medium for imaging using high-brightness lamps in multiple digital projectors. Striking images that conform to irregularities in the structure combine with sound effects in a new form of "light entertainment."

Universal Studios Japan®
(JAPAN)
"The Gift of Angels II – The Song of an Angel –", one of the Christmas attractions at Universal Wonder Christmas. Images cast by a total of 31 projectors are synchronized with the movements of performers, drawing park visitors into a dramatic new world.

Sydney Opera House
(AUSTRALIA)
Grand images decorated the first performance of the YouTube Symphony Orchestra, giving a fresh look to the unique geometry of Australia's famous opera house.

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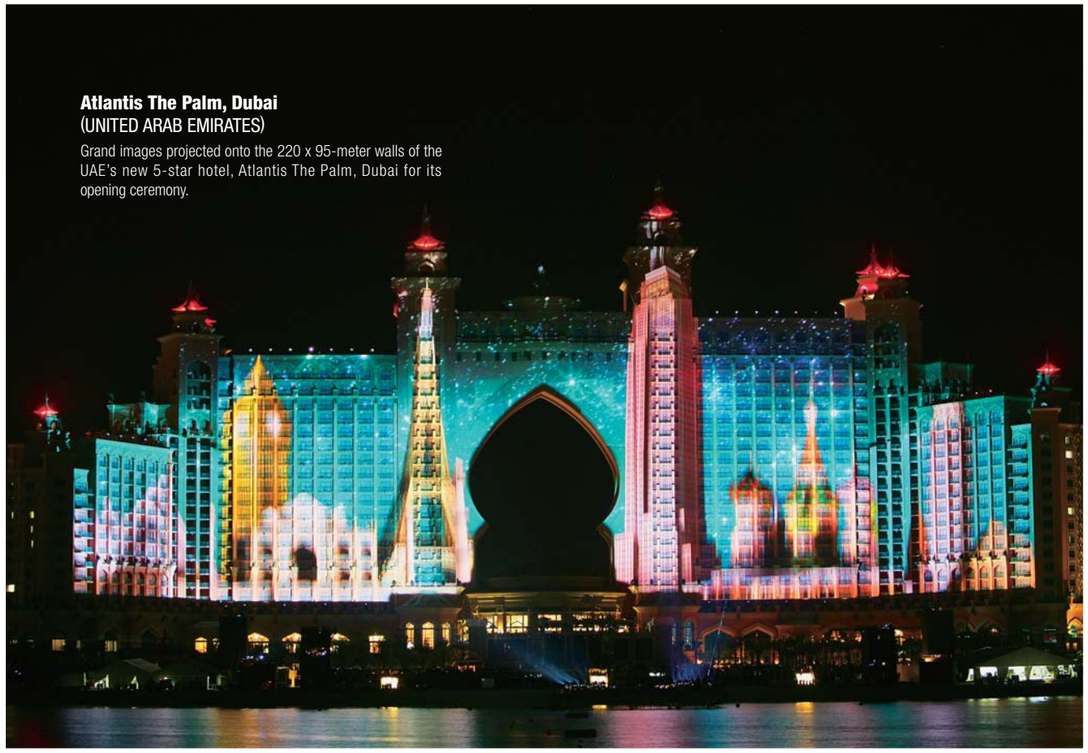


Atlantis The Palm, Dubai
(UNITED ARAB EMIRATES)
Grand images projected onto the 220 x 95-meter walls of the UAE's new 5-star hotel, Atlantis The Palm, Dubai for its opening ceremony.

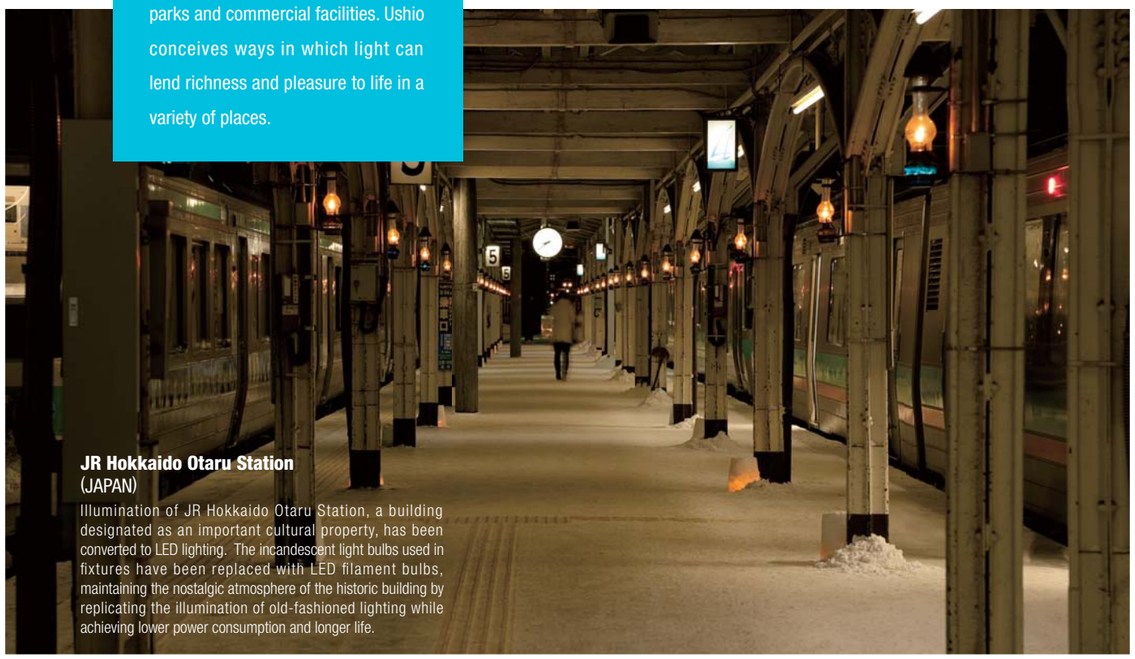
Rhine Festival
(GERMANY)
Art and media festival held in the upper middle Rhine valley, a UNESCO world heritage site, attracted attention from around the world.

Dojima Ohashi
(JAPAN)
The Dojima Ohashi was illuminated as part of the "Aqua Metropolis of the Light" project in Osaka. This project took advantage of the bridge's graceful steel structure and stone arch shape in a manner designed to complement the span's surroundings. Starting at sunset and extending into the night, colors projected onto the bridge were gradually changed as part of a daily performance, and infrared sensors were used to detect approaching boats, triggering color variations in a performance that incorporated both the bridge and its reflection in the river.

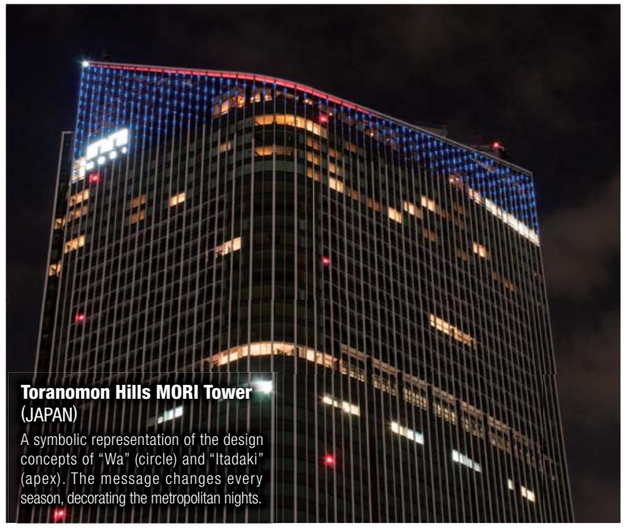
Part2

Landscape illumination

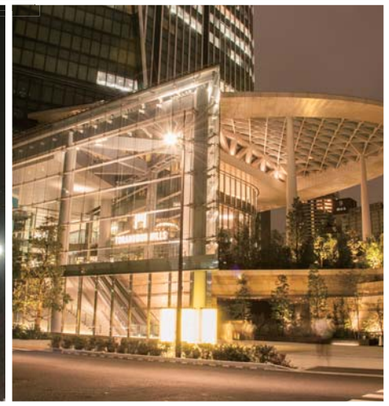
Beautiful illumination of bridges and buildings. Light gracing roads and the walls of buildings in vibrant colors. Entertaining with light in amusement parks and commercial facilities. Ushio conceives ways in which light can lend richness and pleasure to life in a variety of places.



JR Hokkaido Otaru Station
(JAPAN)
Illumination of JR Hokkaido Otaru Station, a building designated as an important cultural property, has been converted to LED lighting. The incandescent light bulbs used in fixtures have been replaced with LED filament bulbs, maintaining the nostalgic atmosphere of the historic building by replicating the illumination of old-fashioned lighting while achieving lower power consumption and longer life.



Toranomon Hills MORI Tower
(JAPAN)
A symbolic representation of the design concepts of "Wa" (circle) and "Itadaki" (apex). The message changes every season, decorating the metropolitan nights.



Kobe Harborland Illumination
(JAPAN)
Courtesy lamps illuminate the seaside promenade with playful lighting. "Deck shadows" portray the animals and background of Kobe.

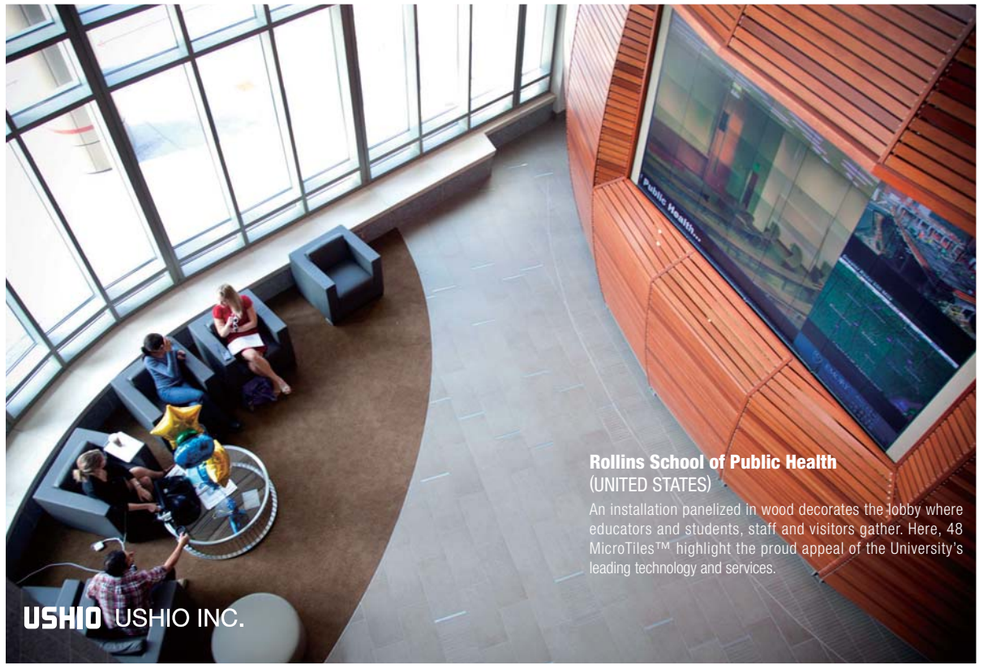
Part3

Digital signage, virtual reality, sports lighting

Besides its use in the MicroTiles™ used in product advertising and TV program displays, Ushio light plays a part in the virtual reality technology used in flight simulators and research simulations, as well as in illumination of sporting events and the like.

Moscow International Automobile Salon (MIAS) 2012
(RUSSIA)

Forty MicroTiles™ installed in a major automobile manufacturer's booth. Featuring superb resolution, beautiful color reproduction, and multi-tap interactive functionality, it drew attention with its representation of innovative concept car images.



Rollins School of Public Health
(UNITED STATES)

An installation panelized in wood decorates the lobby where educators and students, staff and visitors gather. Here, 48 MicroTiles™ highlight the proud appeal of the University's leading technology and services.

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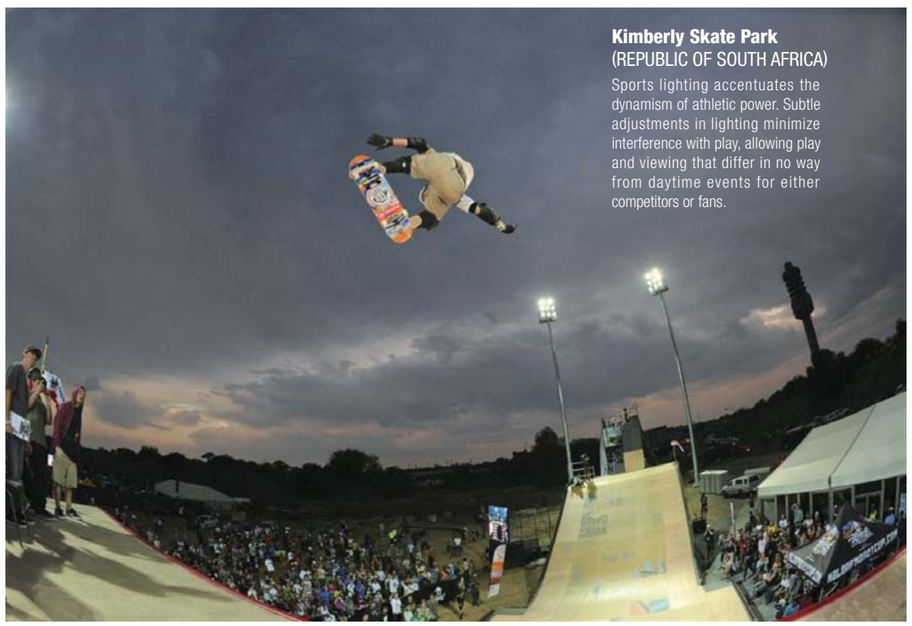
Deutsche Flugsicherung GmbH
(GERMANY)

At any given time, the air is filled with tens of thousands of aircraft. Supporting the safety of all these flights, a high-brightness, high-performance 3D stereo system provides a 3-dimensional view of more information than could be conveyed by former systems. This has made it possible to achieve 3-dimensional prediction that exceeds attempts at simulation.



Kimberly Skate Park
(REPUBLIC OF SOUTH AFRICA)

Sports lighting accentuates the dynamism of athletic power. Subtle adjustments in lighting minimize interference with play, allowing play and viewing that differ in no way from daytime events for either competitors or fans.