


INDIA'S FOREMOST MAGAZINE ON THE LIGHTING INDUSTRY

Lighting India ^{₹ 125}

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July-August 2017



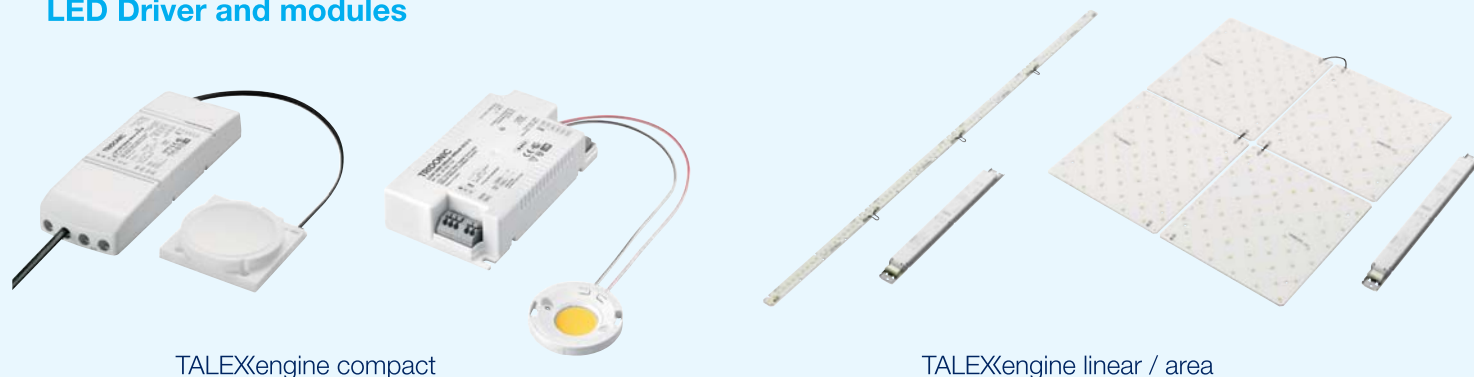
A ray of light on the
Entertainment Sector



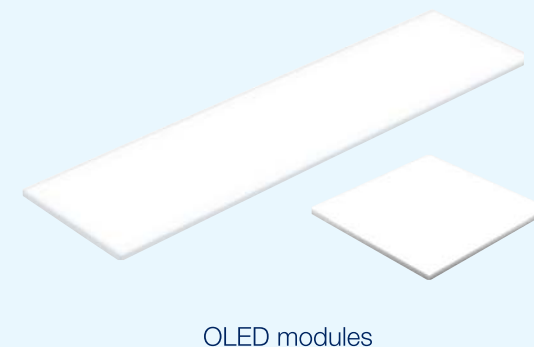
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Hello and welcome once again to *Lighting India*, the oldest magazine in India exclusively on the lighting industry. This issue focuses on lights creating atmosphere, drama and intrigue in the entertainment industry. Stage lighting market is segmented on the basis of different applications into entertainment venues, concerts and other. Asia Pacific stage lighting market is expected to register the fastest growth rate over the forecast period, according to Zion Market Research reports. The report throws light on some of the key players in the global stage lighting market.

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J Davis Prosound & Lighting, a Bangalore-based Rental Company provided complete technical support for David Guetta Concert in Hyderabad. Santana Davis, Managing Director & Chief Sound Engineer of the company expresses his views about outdoor stage lighting in the country. 4Wall DC, Washington DC- that specialises solely in providing entertainment lighting systems provided lighting for a theatrical show. HSL, UK based lighting rental specialist supplied assistance to John Mayer's 'The Search for Everything' tour.

We have introduced a new section 'Legacy'. This section focuses on lighting business that has been passed on to the younger generation by the previous ones. Maurice Dery, Karice's owner and co-founder, tells us about his experiences and changes occurred in the lighting industry ever since the inception of his company.

Dr. Amardeep M. Dugar, Founder of Lighting Research & Design has shared one of his projects on 'Restaurant Lighting'. According to him, one unique quality about this restaurant is that it could probably be the first fine-dining restaurant in Chennai with a total LED-lighting solution. Then we have an exclusive interview with Diya Kapoor, Executive Director, GPL Technical Solutions, who speaks about her company and the significance of LED.

I believe, Mumbaiites would have witnessed the beautiful lighting of our iconic structure 'Gateway of India' on the 70th Independence Anniversary celebration. We shall try to get more information on that in the subsequent issue. We also look forward to meeting you at LED Expo 2017 in New Delhi, from 30th November to 2nd December.

Hope you enjoy reading this issue as much as we in the editorial and design team have in bringing this to you. Until next time, happy reading and do send in your comments to me at miyer@charypublications.in

Mahadevan Iyer

Publisher & Editor-In-Chief

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For years, business sectors and lighting companies have been setting new standards in the lighting entertainment sector by offering lighting solutions to cover all requirements and presented the latest generation entertainment lighting e.g., broad range of moving lights, colour changers, projectors for buildings, and various effect lights...



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"LED is poised to dominate
the market in the years
ahead"

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– **Diya Kapoor**
Executive Director, GPL Technical Solutions Pvt. Ltd.



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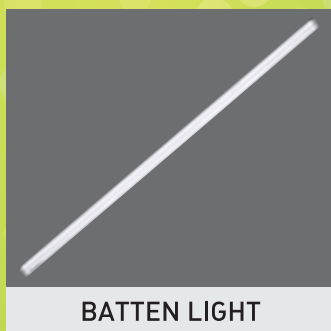
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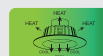
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IEC Standards 60598 (Safety) & 61347 (Performance)

America's first Platinum LEED Certified Hotel Colourises with ILUMINARC

It may be located only a short drive from one of the fastest growing cities in the U.S., but the Proximity Hotel has a way of making guests feel connected to nature. The environmental connection is more than just aesthetic for this luxury 147-room boutique hotel. In 2008, it became the first establishment in the hospitality industry to receive the LEED Platinum Certification from the U.S. Green Building Council.

Signs of Proximity Hotel's commitment to protecting the ecosystem can be seen everywhere, from its roof with its 4,000 square feet of solar panels, to its geothermal refrigeration system. Not surprisingly, when the hotel wanted to add colour changing lighting to its spacious



Weaver Room, it selected energy-efficient Iluminarc fixtures designed by Audio & Light and installed by QW Services, both of Greensboro.

Cox and his team installed 20 Iluminarc Ilumipod LOGIC Tri-4 circular fixtures and 20 Ilumiline LOGIC 36 linear fixtures in the Weaver Room. With their RGB colour mixing capabilities, the new lights are able to accent the 200-capacity room's structural beams and brick walls in an array of rich colours, all while consuming very little power. With brightness rated at 139 lux at five metres, the LOGIC Tri-4 also delivered the output needed to make its colours stand out. Its beam angle of 16° and field angle of 29° make it easy for the hotel to control the coverage area. ■

EESL lights up High Commission of India, London in Tri-Colour lighting

Energy Efficiency Services Limited (EESL) has lit up the High Commission of India, London with Tri-colour lightings. The High Commission, which is situated in the iconic 'India House' building, in the heart of London, is now lit up with energy efficient façade lighting. The UK High Commission, which is also the largest Indian mission outside India, is the first to sign up an ESCO contract with EESL. Notably, the contract was signed in the presence of Piyush Goyal, Hon'ble minister of state with Independent Charge for Power, Coal, New & Renewable Energy and Mines, Government of India, during his visit to London on 13th May 2017.



Under the contract EESL will install 1,700 LED lights in High Commission of India. The installation of these LED lights will lead to annual energy saving of 147,000 units and cost savings of 23,000 pounds over seven years. The building will be turned energy efficient by retrofitting LED lights inside the building as well as the façade lighting which will lead to 66% reduction in energy consumption.

Under the ESCO model, a utility purchases energy savings and/or demand reductions using a predetermined rate. Implementation of the LED programme results in energy savings which are monetised. EESL is paid fixed amounts per kWh upon completion of the LED project. The savings achieved are assessed by an authorised measurement and verification (M&V) organisation. The project duration is for 7 years within which EESL will also provide operational maintenance of the installed lights. ■

Entire Nation adopts Gol's UJALA scheme

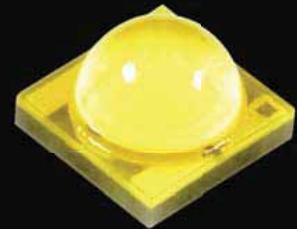
With the implementation of the Gol's UJALA programme in Arunachal Pradesh, the world's largest non-subsidised LED bulb distribution programme is now being implemented across India. Moreover, over 25 crore LED bulbs have been successfully distributed under UJALA, in addition to over 28 lakh LED tubelights and 10 lakh energy efficient fans. The programme is being implemented by EESL, a joint venture of PSUs under the Ministry of Power, in collaboration with various power distribution companies in each of the 29 states and 7 Union Territories. Saurabh Kumar, MD, EESL, said, "EESL is proud that the UJALA scheme is being implemented in each and every corner of India. We take this opportunity to express our gratitude to every citizen of the country, who has pledged towards leading the way towards an energy efficient lifestyle, and contributed towards an energy efficient nation. The UJALA scheme is being hailed by reputed international agencies like the International Energy Agency and the United Nations as a viable case study for other developed and developing markets, and the 25-crore LED bulb milestone as well as the pan-India implementation of the scheme is only a testimony to the international recognition." ■



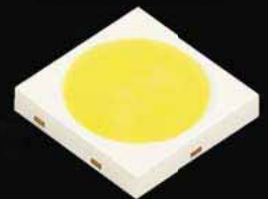
Saurabh Kumar



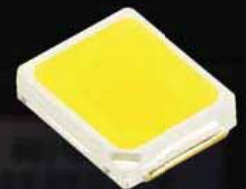
MLS INDIA is a subsidiary of **MLS Co. Ltd.** which was founded in 1997 and is one of the largest manufacturers & suppliers of **SMD & DIP LEDs**. **MLS** was one of the earliest LED manufacturers and light-source provider for various kinds of lighting products. Headquartered in Zhongshan City of China, with a workforce of more than 12000 employees, **MLS** has fully-integrated, world class facilities supported by the most advanced technologies. A wide choice of LM80 certified **MLS LEDs** are available in Warm white, Natural White and Cool White CCTs. Lamp manufacturers using **MLS LEDs** can bid for all BEE, EESL, Municipal Corporation and Government Tenders & BIS based LED projects with our 2835, 3030 and 3535 LEDs. **MLS** also has a wide range of Color LEDs available in 3014, 2835 and 5050 packages.



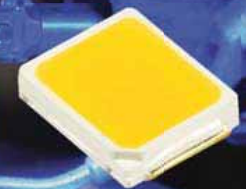
M3535



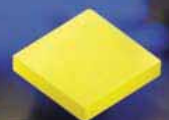
M3030



E2835 (CW)



E2835 (WW)



M2020

LumiGrow Pilot customers have the Sun Manage their lights with Grow Light Sensor

LumiGrow, a smart horticultural lighting company, revealed that they have begun a pilot program for the industry's first dynamic horticultural grow light sensor. The grow light sensor works in tandem with LumiGrow LEDs to target the precise amount of light that a plant receives. By specifying precise light levels, greenhouse crops can experience perfect lighting conditions regardless of changes in weather or other light-limiting factors.



The LumiGrow Grow Light Sensor works in conjunction with the LumiGrow SmartPARTM Wireless Control System, a cloud-based software that empowers growers to schedule changes in light intensity and spectrum by zone. The sensor measures how much of the sun's light enters the greenhouse, then feeds this information into the SmartPARTM System to automatically adjust LumiGrow LEDs and manage precise light levels inside the greenhouse.

By having lights that ramp up or down due to outside conditions, LumiGrow is taking grow light technology further away from static full-power settings, a potentially wasteful and expensive strategy. Traditionally, High Pressure Sodium (HPS) lamps were an industry standard, but as with many older technologies there have been limitations. When creating a lighting strategy that optimises growth while maximising growers' profits, HPS technology cannot adjust to changes in crop production requirements. ■

Carbon Neutral GMR Hyderabad International Airport marching towards 100% LED

GMR Hyderabad International Airport Ltd. (GHIAL), which operates Rajiv Gandhi International Airport (RGIA), Hyderabad, has revealed that it has become South India's first and India's second airport to convert the entire Taxiway Edge Lights from halogen lamps to energy efficient LEDs (Light Emitting Diodes). Complementing the recently achieved recognition of being Carbon Neutral Airport (Level 3 + Neutrality), GHIAL is on its green journey of transforming RGIA into a 100% LED Airport, out of which 75% of the work has been already completed.

RGIA, which currently caters to more than 15 Million Passengers Per Annum (MPPA) (FY16-17) with close to 400 daily air traffic movements, requires consistent supply of electricity to operate round the clock. With its mission to move from conventional energy to renewable energy sources for environmental sustenance, the airport had recently commissioned a captive 5MW Solar Power Plant for its captive use. While a significant proportion of the airport's total daytime energy requirement is met by the solar power plant, RGIA has now gone a step ahead by deciding to convert the entire lighting at the airport to LEDs. Even the airside, which is the busiest and the most critical area of the airport, has also undergone LED transformation, where close to 500 halogen lamps of Taxiway Edge Lights were converted to LEDs. Length wise the conversion of all LEDs at Taxiway Edge lights covered around 26 km of the area in the airside.



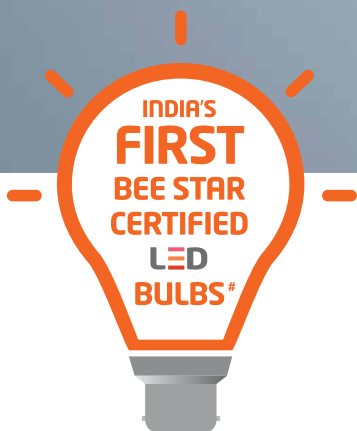
Taxiway Edge lights play a critical role in airside operations. They are used to outline the edges of taxiways during periods of darkness or restricted visibility conditions. Around 500 airport taxiway edge lights were converted to LED in a span of mere six days, owing to the meticulous planning and coordination between the teams of Airport Technical Services and Airside Operations. All 36 W halogen lamps have been converted to 01W LED lamps. The lumen level of these LED lights installed at Taxiway Edges meet the ICAO (International Civil Aviation Organization) and DGCA (Directorate General of Civil Aviation) requirement. Extensive tests and trials were carried out after the installation of the LED lights and regular observations were collected from the pilots. The replacement of lights was done in a phased manner considering criticality, cost and availability of suitable replacements.

Lighting is a major contributor to energy consumption and energy costs. It has been found that the conventional lighting lamps like MV (Mercury Vapour), SV (Sodium Vapour) lamps and FL (Fluorescent Lamp) have chemicals such as lead, phosphorus and mercury which are hazardous to environment and LEDs are environment friendly. LED or Light Emitting Diodes are extremely energy-efficient and helps in reducing greenhouse gas emission. The lights emitted by LEDs are directional, as opposed to incandescent bulbs which spread the light more spherically.

LED lights offer better control on lighting and reduction in maintenance cost as they do not have a filament. LED lights last up to 10 times longer than the usual halogen light. An LED light lasts more than 50,000 hours while a traditional light lasts around 800 hours. This in turn reduces the need to enter the critical zones in the airport to carry out any maintenance or replacement of exhausted lights. These LED bulbs do not cause heat build-up; LEDs produce 3.4 BTU/hour, compared to 85 for traditional bulb.

For an airport like RGIA, which has more than 26,000 conventional lamps, it has been a gargantuan task to convert them into LED. As of now more than 19,500 traditional lamps have been converted into LED. This effort has a huge impact on overall electricity consumption, since migration to LEDs has amounted to a saving of 2.2 Million Units of electricity per annum. ■

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Wipro Lighting sets up automated streetlights in PEC Chandigarh's 'Smart City Innovation Centre'

Wipro Lighting has installed automated streetlights at the Smart City Innovation Centre (SCIC), sector 12 campus, PEC University of Technology, Chandigarh in an endeavour to model and test smart outdoor lighting solutions for the union territory's Smart City Project.

PEC's sprawling campus is being used as a miniature township for testing high-tech public services proposed to be introduced in Chandigarh under the Centre's flagship project. To begin with, PEC Campus has Wipro's smart streetlight poles installed.

The smart outdoor lighting system is based on LPRF (Lower Power Radio Frequency) technology along with GPRS. It is deployed on smart street lights with individual level luminaire control, also facilitated with dimming option. The system is termed as CCMS (Centrally Control and Monitoring System) where multiple street lights are centrally controlled and monitored. This helps in real time energy monitoring, dynamic energy saving based on astronomical time clock. Features like remote monitoring of the street lights and automated fault finding & proactive correction makes system more effective. The system also generates reports on energy consumption pattern, alarms (theft, failure) and sends alerts.

The streetlights are capable of detecting daylight and adjusting their lumen output accordingly. They will also be compatible with pollution sensors which will further be used for monitoring oxygen and carbon dioxide levels on the streets. ■

MEGAMAN unveils ENSIO Outdoor Integrated LED Floodlight

MEGAMAN has launched ENSIO Outdoor Integrated LED Floodlight as true replacement for 250W and 400W metal halide lamp floodlights. The new series provides superb brightness and gives instant light with a homogeneous illumination and perfect for outdoor floodlight applications such as signage, billboards, gated areas and façade.

MEGAMAN has designed its luminaires with high reliability and a long lifetime. Available in 90W and 180W options with colour temperature of 3000K and 4000K, the ENSIO integrated LED floodlight delivers superb performance up to 122lm/W and has a substantial 50,000 hours lifetime. Heat management is a deciding factor in the development of innovative LEDs, and the outstanding design of ENSIO series enables it to meet this challenge. It can operate in ambient temperatures ranging from -30°C to +50°C. The virtually maintenance free floodlight provides both cost and manpower savings. Strong and durable, the pre-heated and powder coated aluminium housing allows for protection against corrosion. Coupled with water resistance at IP66 rating and vandal resistance at IK08 rating, the ENSIO series is ideal for any harsh outdoor environments. ■



MEGAMAN ENSIO Outdoor Integrated LED Floodlight offers superb light levels and ultimate uniformity for billboard and signage lighting.

Wimbledon unveiled state-of-the-art LED Lighting System at Centre Court for the Championships 2017

Players, spectators, and fans from around the world watching the action on Wimbledon's Centre Court enjoyed an enhanced experience for The Championships this year, following the recent installation of a state-of-the-art LED lighting system.

The LED system was installed by U.S.-based Musco Lighting—which worked in close partnership with ME Engineering—and features the company's Total Light Control—TLC for LED system-based technology. The installation of the new lighting was the culmination of more than two years of extensive research, planning, and testing to ensure the solution was custom engineered precisely to the needs at Centre Court.

The project team conducted testing at Wimbledon, bringing in professional tennis players to review the lights at Centre Court and offer input for final adjustments. Installation was completed in November 2016.

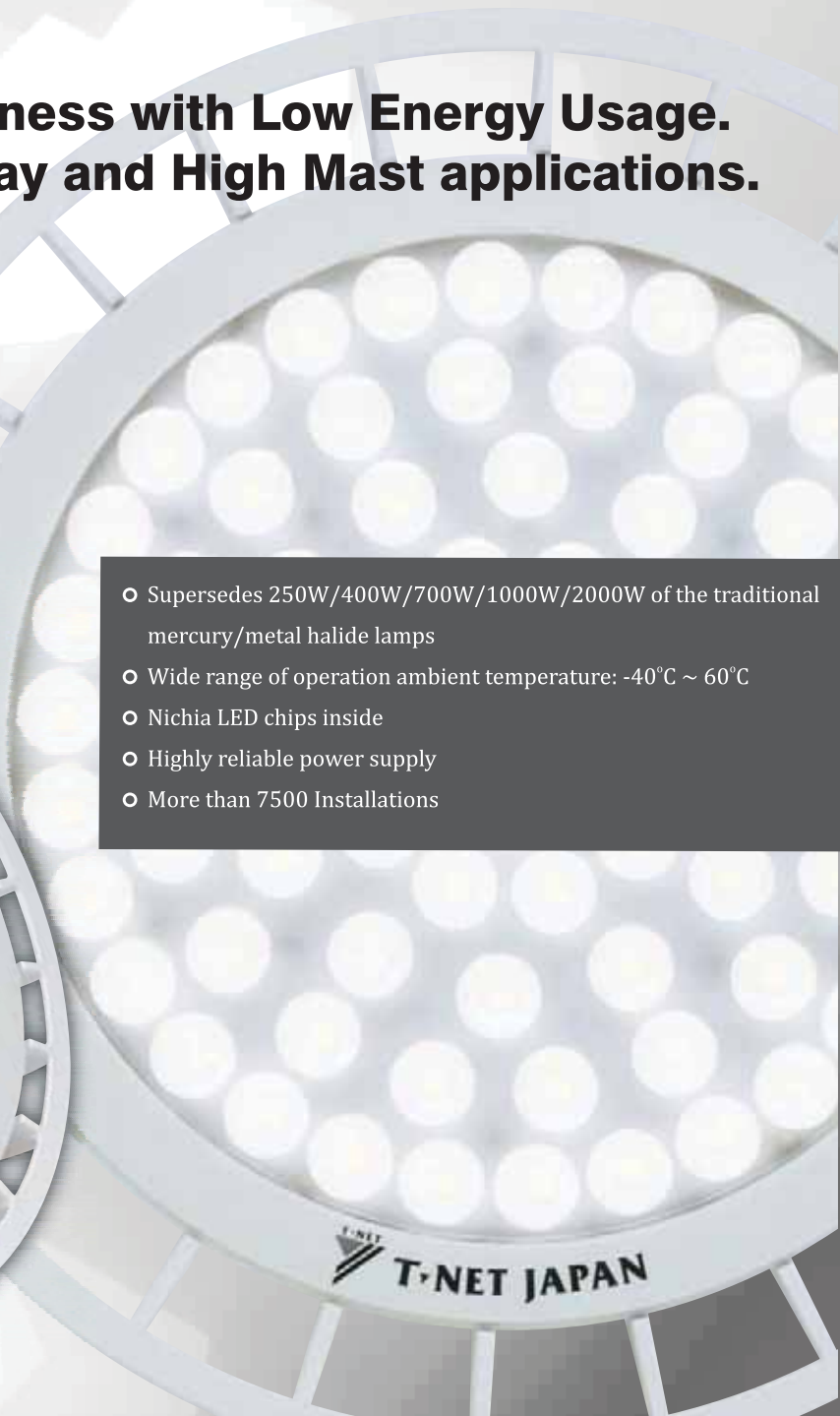
The TLC for LED system—which was installed on Centre Court's retractable roof and will be used when the roof is closed—features patented light control technology, delivers a more uniform light, and virtually eliminates glare from impacting players and spectators. The system's LED fixtures, structural, and electrical components were engineered to work together to ensure long-term reliability. ■



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Lumileds officially becomes an Independent Company



Mark Adams

Lumileds revealed that funds affiliated with Apollo Global Management, LLC (together with its subsidiaries, 'Apollo'), and Royal Philips completed their previously disclosed transaction, resulting in Lumileds operating as an independent company. Lumileds develops lighting solutions for the automotive, mobile, IoT and illumination segments, enabling customers to push the boundaries of light.

As announced in December 2016, Apollo and Philips agreed to a transaction where Philips would sell 80.1% interest in Lumileds to certain funds managed by Apollo and retain the remaining 19.9% interest in the company. Apollo is a leading global alternative investment manager with assets under management of approximately US\$ 197 billion (As of March 31, 2017) in private equity, credit and real estate funds, invested across a core group of nine industries, where Apollo has considerable knowledge and resources.

Mark Adams, CEO of Lumileds, said, "We are fortunate to have Apollo's and Philips' support as Lumileds embarks upon our next chapter as an innovator of high performance LEDs and a leader in advanced lighting solutions."

Lumileds develops, manufactures and distributes groundbreaking LED technology and advanced lighting products, employing over 9,000 team members with operations in over 32 countries. ■

Philips Lighting partnered with a leading Vietnamese construction company

Philips Lighting, a well known leader in lighting, revealed the completion of Hanoi's latest luminous landmark, the Nhật Tân Bridge.

An urban icon—in techni-colour

Each night, the new lighting system bathes the bridge in a prism of colours, turning the structure into an ever-changing work of art. The new architectural lighting illuminates the five majestic spans, along with the cables that run high above the bridge.

Now, all who cross Hanoi's Red River are met with the Nhật Tân Bridge's five colourful spans, which symbolise the five ancient gates to this capital city. The bridge, built in 2015, is currently Vietnam's longest 'cable-stayed' bridge, a technological advance over the suspension bridge. A vital, visible link between Hanoi and its main airport, the newly illuminated Nhật Tân Bridge is already attracting tourists and locals alike.

Advanced lighting technology

The actual light points on the bridge's spans are Philips Colour Kinetics, which can create a staggering 16.7 million different colours, enabling the bridge to be lit in special colours to commemorate events and holidays.

Keeping lighting sustainable

Like most of the world's tourist-destination cities, Hanoi is in the process of becoming an even 'smarter', more sustainable city. And the bridge's new system supports Hanoi's sustainability goals. Compared to conventional lighting, the new long-life LED system may deliver up to 75 % energy savings, as well as saving on operation and maintenance costs. ■



Prices of appliances under UJALA revised after GST comes into effect

The prices of energy efficient appliances distributed under the Government of India's Unnat Jeevan by Affordable LEDs and Appliances for All (UJALA) scheme have been revised, owing to the rollout of the Goods & Services Tax (GST). The 9W LED bulbs are priced Rs70/-, 20W LED tube light Rs 220/- and 5-star rated fans will be available at Rs1, 200/- only.

Energy Efficiency Services Limited (EESL), under the administration of Ministry of Power, Government of India and the nodal agency for implementation of the UJALA programme-- has appealed all consumers not to pay any amount over and above the prices fixed by EESL for the UJALA appliances.

BEE 5-star rated energy efficient fans distributed by EESL are of 50 Watts, which are 30 % more efficient than the fans available in market. The LED bulbs and LED tube lights provided under the UJALA scheme come with a three-year free replacement warranty while the energy efficient fans come with a 2.5 year technical warranty. ■



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Amerlux promotes Lezlie Johannessen to Director of Sales



Lezlie Johannessen

Amerlux CEO/President Chuck Campagna revealed the appointment of Lezlie Johannessen to Director of Sales, Pacific Northwest. Johannessen is responsible for managing the Amerlux network of sales agencies that reach interior/exterior commercial and institution (C&I) channels, including healthcare, retail, roadway, government, utilities, industrial and education, from Northern California up through Western Canada and Alaska. In addition she will work closely with influential specifiers and distributors, as well as the world-class Amerlux inside sales and product development teams, to deliver a diverse array of customisable lighting solutions.

Her professional experience includes: Regional Sales Manager, Sistemalux Group of Iguzzini

North America; Western Regional Sales Manager for Cree, Inc. and Pathway Lighting; Outside Specifications Sales for Lighting Systems, Inc.; Outside/Inside Specifications Sales Manager for Cal Lighting; and Lighting Designer for Jan Moyer Design. Johannessen graduated with a BFA in Interior Design from the Academy of Art University in San Francisco.

Amerlux's CEO/President, Chuck Campagna, said, "With more than 26 years of lighting industry experience, Lezlie is a dynamic results-driven sales pro with proven success. She has a strong focus on evaluating client needs, developing strong relationships, and delivering outstanding service with exceptional lighting solutions." ■

William J. Sims takes helm as CEO of Cooledge Lighting



William J. Sims

Cooledge Lighting Inc. revealed the appointment of William J. Sims as CEO, underscoring its opportunity to drive the most significant advancement in illumination since LEDs were first embraced nearly two decades ago. A board member since 2015, Sims served as interim CEO for the past year, during which time the company nearly tripled its project pipeline and expanded its sales presence in Europe, the Middle East and Asia. His acceptance of the role on a permanent basis positions Cooledge for rapid growth, fuelled by proprietary technology that fuses digital light with architecture

in wide-ranging retrofit and new construction projects.

Sims is well known as the former President and CEO of Color Kinetics, the company largely credited as the pioneer of intelligent LED lighting. In his seven-year tenure he guided the company to profitability and oversaw its successful IPO, secondary offering and eventual sale to Philips for nearly \$800 million. He has more than 30 years' experience growing both emerging and established companies, including the successful launch of industry-first technologies in both the consumer and business-to-business space. ■

Bluetooth SIG appoints Philips Lighting and Google to its Board of Directors



Ruud van Bokhorst

The Bluetooth Special Interest Group (SIG) has appointed representatives from Philips Lighting and Google to its board of directors. Ruud van Bokhorst and Martin Turon began serving their two-year board terms on July 1, 2017. The Bluetooth SIG Board of Directors is responsible for the management of the Bluetooth SIG, and has played a vital role in growing 'Bluetooth' technology into the global wireless standard for simple, secure connectivity, shipping more the 3 billion products each year.

Ruud van Bokhorst manages the Wireless Networks Program within Philips Lighting – Standards & Regulations, and is responsible for the wireless network standardisation roadmap within the Philips Lighting Innovation sector. Over the course of his career, van Bokhorst has had the opportunity to lead change processes, negotiate Philips' interests with competitors, steer teams of

experts, and build bridges between various disciplines, nationalities, and cultures. In addition to his new role within the Bluetooth SIG, van Bokhorst serves in leadership positions in Lighting and Building Automation Standardisation organisations, including Secretary General of the Fairhair Alliance and General Manager of the new organisation for DÄLI technology (DiiA).

Martin Turon is a Wireless Architect at Google and Nest Labs focusing on Internet of Things platforms and embedded low-power wireless products.

Martin has more than 13 years of experience in the development of wireless sensor network products and standards, and has pioneered commercialisation of the technology in the asset tracking, environmental monitoring, structural monitoring, and smart home verticals. ■



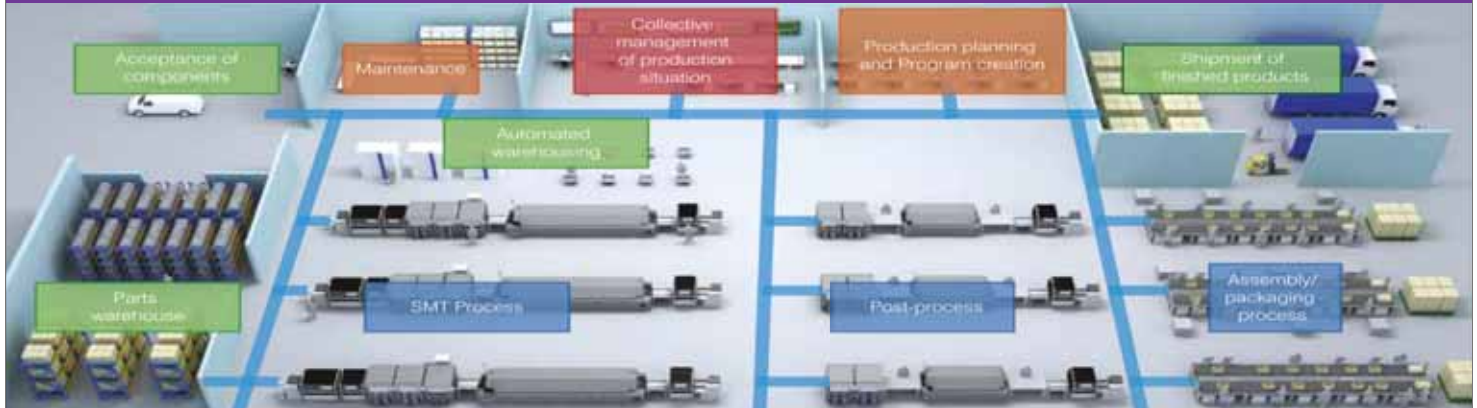
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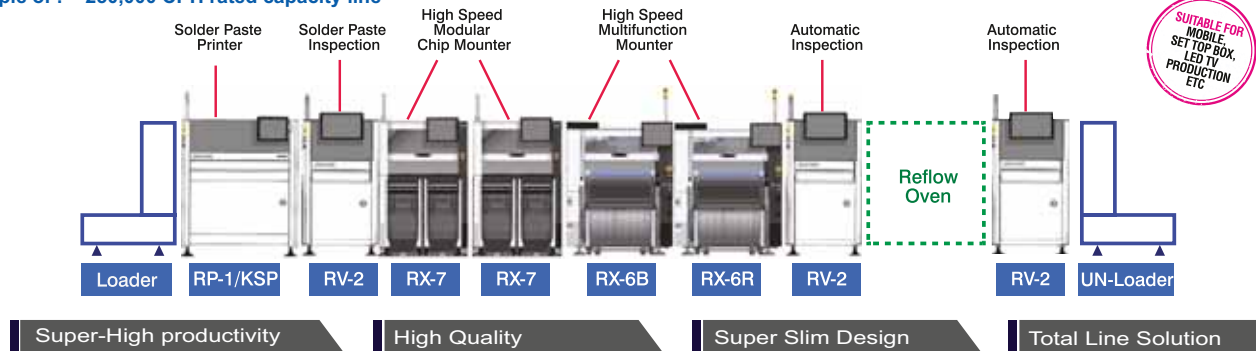
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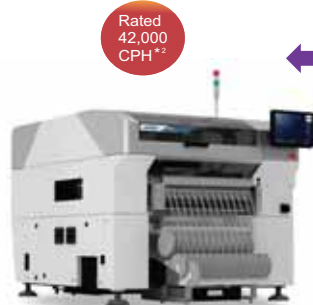


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RV-2

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Karice shines brightly at the 2017 International Design Awards

A Surrey-based design team has won gold in the Illumination category at the 10th annual International Design Awards competition in Los Angeles, California. Competing against thousands of entries from more than 52 countries around the world, Karice's Electron pendant, which reflects efficient engineering without compromising beauty or functionality, triumphed against some of the best design visionaries and upcoming emerging talents in design on a global level.

Karice co-founder Maurice Dery and his son, Jordan, work tirelessly to produce custom lighting and metalwork for different organisations in the West, many fixtures of which stay true to Maurice's guiding philosophy that



aesthetic beauty is the by-product of intelligent design. Their Electron Pendant is part of a broader lighting series that includes a wall sconce—a design that won silver in the A' Design Awards, was nominated for a London Design Award and was a Lighting Design Awards finalist in 2016.

The award-winning pendant is deceptively simple (much like the subatomic particle it's inspired by): suspended by a co-axial cable that

allows for the pendant to illuminate without wires, the fixture has a sleek finish. Further contributing to this refined aesthetic, the pendant's surface is free of visible fasteners. Because it's also free of electrical wiring pollution, the fixture appears to be floating in mid-air. ■

Leviton's William W. Marshall honoured with Edison Report's Lifetime Achievement Award

Leviton revealed the recognition of William W. Marshall, the company's senior vice president of marketing and sales, with the Edison Report's Lifetime Achievement Award, which is presented annually to individuals who have made outstanding contributions to the lighting industry over their career. The honour was announced at LIGHTFAIR International (LFI) 2017 in Philadelphia and cited Marshall's innovation in marketing and sales, as well as his integrity.

Over a career spanning four decades, Marshall has been known as a thought leader in the industry and a businessman of exceptional integrity. To those who have had the pleasure of working with Marshall, he is also a

strong coach and mentor. He has been with Leviton for over 20 years, credits his success to the support of his colleagues.

Daryoush Larizadeh, Leviton's President and Chief Operating Officer, said, "Within Leviton, Bill is an admired, respected and supportive leader. To see his excellence being recognised outside of our organisation as well brings us great pride, and we are so very lucky to have Bill as part of our Leviton family."

Marshall said, "I am extremely humbled to have received this honour. I have been grateful to have such a rewarding, fulfilling career over the past four decades, and I owe much of my own success to the success of those I've had the pleasure of working with over the course of my career." ■

George Craford recognised for major contributions to LED Lighting

Lumileds revealed that George Craford, Lumileds Solid State Lighting Fellow, was selected for the IEEE Edison Medal for 'a lifetime of pioneering contributions to the development and commercialisation of visible LED materials and devices'. Craford was presented with the medal at the IEEE Honours Ceremony in San Francisco, during the IEEE Vision, Innovations, and Challenges (IEEE VIC) Summit.

Craford's career spans from the early days when LEDs were first developed to delivery of high brightness LEDs suitable for commercial use in a variety of applications, including LED bulbs. He is best known for his



George Craford

invention of the yellow LED in 1972. He then led the development of increasingly brighter red, orange and amber LEDs. In 1979, he began work at Hewlett-Packard, where his team pioneered the development of AlInGaP LEDs using metalorganic chemical vapour deposition (MOCVD). MOCVD was then a relatively expensive lower volume process and had not been utilised for the high volume commercial production of LEDs. AlInGaP LEDs increased the performance of red and yellow LEDs by more than 10 times. Craford's team continued to achieve technology breakthroughs in AlInGaP LEDs, eventually reaching 100 lm/W. ■

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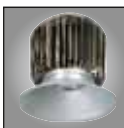
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Some of the key players in the global stage lighting market include ACME, ADJ Group, Deliya, ETC, Fine Art Light, GoldenSea, JB Lighting, and Visage among others...

Global Stage Lighting Market

Stage lighting plays a key role in enhancing the attention span of the audience. Entertainment or theatrical lighting is used to enhance the scene. The lighting should pull all the aspects of the stage together. The basic function of stage lighting is visibility, mood, composition, revelation of the form, reinforcement, etc. Different lighting positions are used to front light, side light, back light, side light, down light. Today's stage lighting tools are a combination of technology and creativity, and allow designers to let their imaginations take flight. Requiring their own vocabulary of sorts, the tools of today's lighting designers are high-tech marvels that are a far cry from the rudimentary candles and torches of old, but all accomplish the same goal, that of beautiful illumination for the action onstage.

Stage lighting market is mainly driven by increasing application of stage lights in different venues such as entertainment venues, photography, corporate events and others. Stage lighting market is segmented on the basis of different application into entertainment venues, concerts and other. In 2016, an entertainment venue is one of the largest segments of the stage lighting market and accounted for

largest share of the total market. Nevertheless, the concerts application segment is estimated to dominate the market due to increasing popularity in young generation and growing music industry.

Geographically, North America was one of the largest markets for stage lighting in 2016. Asia Pacific stage lighting market is also expected to register the fastest growth rate over the forecast period. It is also expected to have significant growth during the years to come owing to the fast growth in music industry and higher adoption of laser lighting by countries such as China, Japan, India and others. Indian music industry is expected to grow at the range of USD 169 million to 200.7 million by 2020, has managed to grow at a steady pace over the period of the last five years from 2010 to 2015. Europe is expected to grow at a moderate growth within the forecast period.

Some of the key players in the global stage lighting market include ACME, ADJ Group, Deliya, ETC, Fine Art Light, GoldenSea, JB Lighting, and Visage among others. ■

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VENTURE
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HSL Searches for Everything to Supply John Mayer Tour

... and what the Blackburn, UK based lighting rental specialist couldn't source from their extensive stock, they purchased for John Mayer's 'The Search for Everything' tour ... including brand new VL4000 Beam Washes, which were on lighting designer Nathan Alves' plot, together with Robe BMFLs and Claypaky Sharpy Washes.



HSL project manager Jordan Hanson co-ordinated everything from their end and three of Nate's regular crew, chief Chris Coyle, Benji Meserole and Holly Lloyd, went to HSL ahead of the tour and prepped the lighting rig, which was supplied as a complete dry hire package for the European and UK legs of the tour.

The overall production design concept for this new tour by Grammy Award winning John Mayer - an artist who's crafted a distinctive blend of musical accessibility and critical acclaim - was designed by Sam Pattinson from Treatment Studio, also responsible for the stunning video content.

Once the primary architecture of the stage was established by Sam and the artist himself, Nate started work on the lighting plot, choosing his fixtures and deciding on a framework to hang them that was in keeping with the overall look.

The set has a strong video aesthetic with a large LED back wall, an LED floor and LED top-and-front-clad risers for the band, bringing a cinematic feel. It is also extremely neat, clean and definite in terms of visual lines and perspective.

A serious amount of lumens is output by the LED screen and this was one of the challenges for Nate, who has been working with the artist since 2010.

In addition to finding the right and most effective lights for the high light LED environment, he also had to create the numerous moods needed to help capture the dynamics of John Mayer's set, which embraces his full guitar repertoire - from funky soul and blues to rock and pop to acoustic guitar - plus a strong vocal presence.

The BMFLs and the Vari*Lite are hung on eight upstage / downstage orientated trusses flown in a grid directly overhead the stage. The linear structure of this keeps the ordered geometric style of the stage design which is a nice juxtaposition with the very organic nature of the live performance.



Twenty-four of the Sharpy Washes are on the front truss where they can wash the band or they can be turned out into the audience, with the other four on the downstage corners for low level cross-stage lighting.

The ruggedly elegant metalwork of the eight over-stage trusses is subtly and effectively illuminated by the ambient light emitted from the video surfaces.

Sections of the playback video material are spatial and abstract. Some of the live IMAG mix cut by Kevin Williams is graded and coloured in a bold pop art style, and video is also used as a base lightsource with lots of single colour blocks and wipes across the surfaces, so lighting this set and performance in a complimentary and interesting way ... is very different to a standard lightshow.

The artist and the band have to be seen for both camera and live audience.

The lighting also has to match the screen material with big movements and accents at times, but it's not a conventional beamy or flashy show. It is more sophisticated, complex and mood-orientated, with lots of drama and climatic interventions.

The show is divided into five sections, each chapter opened with a short title slide - usually referencing the band set up.

Four haze machines and fans are rigged in the roof on top of the trusses, positioned and used judiciously to build up without encroaching on the playing area. The haze philosophy is to produce a layer of atmosphere all around the venue that

optimises the space for some epic beamy lighting looks that feature in the fourth section.

Nate is running the show on a grandMA2 full size console.

This is Nate's fourth tour utilising HSL as the lighting supplier. "They pay great attention to detail, the kit is in great condition and they are also really friendly to deal with, which is fantastic", he comments.

Nashville, Tennessee based Nate first met HSL on ZZ Top in 2011 when they provided his control system. The company supplied lighting for the 2013 John Mayer tour, and then last year, the collaboration continued with Barry Manilow's tour.

Simon Stuart, HSL's MD, comments, "It's always fantastic working with Nate and his designs are fresh and different. We take it as a great compliment that he and his crew are confident sourcing lighting from us and of course, it's great to continue the working relationship with John Mayer's production team". ■

Photo Credit: Louise Stickland



Louise Stickland

Freelance Journalist working with Loosplat company, UK.



Ambient Lighting: The Need for Modern Lighting System

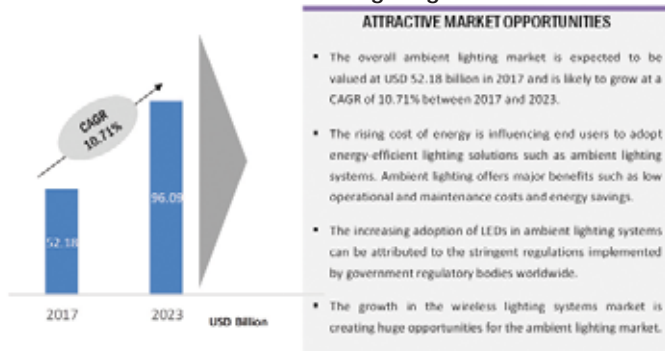
Ambient lighting systems are expected to be the combination of automation and controllable units in the near future; this would lead to the easy installation of complex lighting units and would ensure improved safety and comfort to users. The phasing out of incandescent lamps from various applications in countries such as the US, the UK, Mexico, and Germany is driving the growth of the ambient lighting market for LED lamps.



The rising standard of living and the increasing demand for comfortable lighting worldwide are driving the concept of ambient lighting. Ambient lighting helps in creating engaging environment by adding dynamic lights and projections to bring comfort to users. It is responsible for radiating the illumination effect according to the mood of the users. The ambience created by this lighting system is widely in demand among the hospitality, residential, and retail industries. To bring the effect of ambient lighting, multiple light sources, such as LEDs, halogens, and fluorescents, are used. Also, multiple light fixtures, such as suspended, recessed, surface mounted, track, and strip lights, are widely used in the commercial sector, industrial, and residential sectors. According to the American Lighting Association, a good lighting plan requires the use of a central source of ambient light in rooms to get an ambient lighting effect.

Driving Factors in the Global Ambient Lighting Market

Figure 1: Need For Energy-Efficient Lighting Solutions To Drive The Ambient Lighting Market



Source: American Lighting Association, Middle East Lighting Association, Investor Presentations, Annual Reports, Press Releases, Expert Interviews, and MarketsandMarkets Analysis

Driving factors and opportunities that are expected to boost the growth of the ambient lighting market in the future have been listed below:

- Modernisation of infrastructure and increasing demand for innovative lighting solutions
- Need for energy-efficient lighting solutions
- Rising demand for automated and connected lighting systems
- Increasing applications of ambient lighting strips in vehicles
- Introduction of wireless technology in ambient lighting systems
- Rise in vehicle production fueling the growth of the ambient lighting market in Europe and the Middle East

Benefits of using lighting control units in ambient lighting systems

- Offers an energy-efficient lighting solution
- Reduces dependence on humans to turn lights off
- Extends life span of lamps and luminaires

- Ensures reduced installation costs and increased flexibility by using wireless lighting control
- Offers flexibility in lighting a specific space by using dimmers
- Helps in regulating the lights according to the presence of humans in space by using motion and time sensor control units

Industry experts on ambient lighting market:



Source: Industry Experts and Primary Interviews

Key Competitors in the Ambient Lighting Market:

The presence of numerous local lighting market players worldwide has led to an increase in competition in the ambient lighting market. The leading players operating in the ambient lighting market include:

1. Philips Lighting Holding B.V. (Netherlands): The company offers an extensive array of lighting solutions for the residential, commercial, and public sectors. It operates through five major segments: Lamps, LED, Professional, Home, and Others.
2. General Electric Company (US): The company manufactures and sells a variety of energy-efficient solutions for use in commercial, industrial, municipal, and residential applications worldwide. Its solutions are integrated with LED, fluorescent, halogen, and HID technologies.
3. OSRAM Licht AG (Germany): The company operates through its Specialty Lighting, Opto Semiconductors, Lighting Solutions and Systems, and Lamps segments. It also provides lighting solutions and specialty products featuring energy-saving technologies.
4. Acuity Brands Lighting, Inc. (US): The company offers conventional lighting solutions and connected lighting control technology for consumer, industrial, and decorative lighting applications. Its key offerings include devices such as luminaires, lighting controls, lighting components, power supplies, and integrated lighting systems for indoor and outdoor applications.
5. Cree, Inc. (US): The company develops and manufactures lighting-class LED products, lighting products, and semiconductors for Use in power and radio-frequency applications. It provides products for indoor and outdoor lighting, video displays, transportation, electronic signs and signals, power supplies, inverters, and wireless systems.



Key Innovators Increasing their Market Presence

Several new players are entering the ambient lighting market. Some of the key innovators in the ambient lighting market are Ketra (US), Illuminarc (US), TAO Light (China), Nualight limited (Ireland), and Lafit lighting (India).

Ambient Lighting Market: Key Trends

- **LED lamps** comprise a major segment of the ambient lighting market. LED lamps are expected to offer more complex solutions, ensuring comfort, security, and flexibility to end users.
- The presence of major lighting players and the increasing population in APAC are contributing to the growth of the ambient lighting market in this region. A significant share of the population in this region prefers cool colours effects (cool colours are the hues from blue green) in their ambient lighting systems. The rising demand for interior designing has boosted the demand for ambient lighting in the residential sector.
- **The ambient lighting market in Europe** is expected to mature first, owing to high standard of living of the

people in this region. The hospitality and retail sectors in this region are expected to contribute to the growth of the ambient lighting market in this region in the coming years. Consumers in this region prefer warm colours (warm colours are hues from red) to cool colours.

- **In North America**, the regulatory ban on incandescent light sources is boosting the demand for LEDs for use in ambient lighting. Extensive research and development is being carried out to implement automatic controlling unit mechanism in ambient lighting systems in North America. Acuity Brand Lighting Inc., Cree, Inc., and Hubbell Inc. are some of the major companies that offer ambient lighting solutions in this region.
- **In the Middle East**, the hospitality industry is focusing more on replacing traditional lighting systems with ambient lighting systems owing to the benefits offered by them, such as better comfort, energy-efficient sources, and improved controllability of the lighting systems. The rising focus toward adjusting lights in various spaces according to the mood of users is further boosting the



demand for ambient lights in this region.

- **APAC** holds the largest share of the ambient lighting market, and this trend is expected to continue between 2017 and 2023.
- **On the basis of end-user applications, the ambient lighting market for the hospitality and retail sectors** (Including hotels, restaurants, cafés, retail shops, and supermarkets) is likely to grow at the highest rate between 2017 and 2023; and the residential sector is expected to hold the largest share (in terms of revenue) of the market by 2023.
- **Among various light fixtures**, the market for recessed and surface-mounted luminaires is expected to grow at a high rate owing to their wide application and presence in the residential and commercial sectors.
- **Further advancements** in products related to ambient lighting include maximising cost savings and enhancing the competence of the products.
- **Smart lighting systems**, including automation and connected lighting, is expected to create huge growth opportunities for the players in the ambient lighting market.
- **The demand for LED strip lighting for use in vehicles** is increasing. The ambient lighting in vehicles ensures comfort and safety of drivers, along with the presence of comfortable illumination inside the vehicles.

Future of LED Lamps in Ambient Lighting:

LED lamps offer comfortable and soothing illumination effect. The rising demand for energy-efficient lighting systems and the phasing out of incandescent lamps are increasing the awareness about and the usage of LED lamps in various applications. The implementation of control units and automation in LED lighting units makes ambient lighting simpler and more efficient. The LED luminaires of companies such as GE Lighting are backed by intelligent lighting control systems that are capable of delivering massive savings on

energy costs. These products not only improve the look and feel of the space but also help create a positive corporate image using their outstanding aesthetics. The increasing competition among the companies to offer the latest technology-based products in the ambient lighting market is increasing their focus on R&D.

End Users of Ambient Lighting Systems:

Residential Sector:

- Increasing end-user awareness and falling prices of light sources
- Implementation of LEDs in ambient lighting systems helps support zero carbon emissions

Offices:

- Replacement of traditional light sources by energy efficient sources leading to energy saving
- Comfortable ambience for employees resulting in greater productivity

Retail and Hospitality Sectors:

- High demand for ambient lighting systems in secondary facilities (corridors and staff rooms)
- Increasing use of LEDs in ambient lighting for improving customers' mood

Industrial Sector:

- Creating comfortable lighting environment for assembly and precision working processes
- Suspended lights to offer precision in works performed

Healthcare:

- Relaxed light effects in rooms of patients

Automobile:

- Increasing use of LED strip lights in vehicles to offer comfort and safety to drivers

Summarising the Key Points of the Market:

The increasing need for energy-efficient lighting solutions and the rising number of lighting companies entering the market are contributing to the growth of the ambient lighting market. The phasing out of incandescent lamps from various applications in countries such as the US, the UK, Mexico, and Germany is driving the growth of the ambient lighting market for LED lamps. Ambient lighting systems are expected to be the combination of automation and controllable units in the near future; this would lead to the easy installation of complex lighting units and would ensure improved safety and comfort to users. However, a significant amount of the market revenue will be generated from the hospitality and retail sectors owing to the fact that these sectors are closely related to customer comfort. ■



Nikita Singh

Research Analyst
MarketsandMarkets

Lighting for Entertainment

For years, business sectors and lighting companies have been setting new standards in the lighting entertainment sector by offering lighting solutions to cover all requirements and presented the latest generation entertainment lighting e.g., broad range of moving lights, colour changers, projectors for buildings, and various effect lights...

Entertainment has always been an integral part of human life. Much before the invent of technology, man used to have different methods of entertainment e.g., gardening, listening or practicing music, sports, etc. Live entertainment has been an important part of human life for thousands of years. The technology to illuminate actors, musicians, and speakers has changed immensely, although the source of the light has only changed a few times through history. From sunlight to LEDs, the illumination of stages has been varied and exciting. With the advancement towards efficient, durable, cost-effective colourful and control based lighting sources, people are making best use of lighting towards their entertainment through light applications like stage shows, banquet, architecture & landscaping, façade, illumination, decorations and optical illusions etc. It is no exaggeration to say that at present, it would be difficult to

imagine the entertainment sector without lighting effects and precision lighting.

For years, business sectors and lighting companies have been setting new standards in the lighting entertainment sector by offering lighting solutions to cover all requirements and presented the latest generation entertainment lighting e.g., broad range of moving lights, colour changers, projectors for buildings, and various effect lights. Stage lighting is the craft of lighting as it applies to the production of theatre, dance, opera and other performance arts.

Journey of entertainment lighting

Delivering unforgettable experiences for users is the challenge that inspires to create the most exciting innovations in light. Entertainment lighting has traditionally been the term used to describe the production lighting for theatres, films, television shows, concert tours, discotheques, exhibitions,





awards ceremonies, cruise ships and holiday camps but today people are making use of light for their entertainment at every level with exotic applications. In fact, anywhere professional lighting equipment is used for lighting entertainment productions, including educational establishments such as schools, colleges and universities, all feature entertainment lighting. Entertainment lighting requires spectacular and delicate effects, a dynamic atmosphere, and lighting that shows people, objects, and buildings to their best advantage to meet the customers' needs by offering lighting applications and making the 'faces' of objects, people, and nature more spectacular, vibrant, and exciting. Moreover, by providing high value-added services including light planning, sound design, software, and contents production, companies are offering total solutions that combine light, visuals, and sound. Recently, lighting sources productions have grown in technical expertise and quality. The entertainment lighting used in worship productions is now cutting edge and rivals many high end professional shows. Presently, from the smallest of stages to the most ambitious of professional venues, entertainment lighting is there to light up the show.

Developmental status

The professional sectors using entertainment lighting are: Theatre, Television, Live Events, Discotheques and Clubs, Trade Fair Exhibitions, Theme Parks, Shops, Commercial Centres, Conference, Industrial Presentations, Car Showrooms and many other sectors in the show business and architectural lighting fields.

With revolutionary products lighting is fluid and dynamic. Present lighting control systems are designed to unlock our vision and creativity, giving us the power to animate our lighting like never before. The answer to entertainment is lighting and sound systems.

products as an essential part of everyday life, from convention centers to nightclubs, theaters to houses of worship and the common denominator is quality used throughout the technology infrastructure. Successful productions are the result of close teamwork, as is getting the

right lighting solution. Lighting source and fixture manufacturers are working to design stage lighting solutions that are more efficient, more powerful, more compact and easier to handle. Both are jointly developing innovative solutions for high performance fixtures in the entertainment market. Manufacturers are looking to design stage lighting solutions that are more efficient, more powerful, more compact and easier to handle. Innovative controls combine durable construction, universal ease-of-use features, and overall superior performance. For the design professional, this means more options for delivering the ideal entertainment lighting control solution for each application. Some lighting sources control techniques are as:

Lighting control systems - working from the back end, a lighting control system allows hosts to dim fixtures to produce comfortable lighting scenes.

Layered lighting - incorporating a variety of illumination sources like step, wall and recessed lighting, will improve both the safety and aesthetics in your room. The beauty of today's lighting options is that multiple fixture styles are available to suit a variety of preferences.

Using LEDs

Entertainment lighting sources have varied through the ages, but the main purposes of illuminating the stage and creating effects has remained the same. From early sunlight to modern LED fixtures, the path has been varied. The future will surely see further innovations and new methods of light creation. Earlier lighting sources were: sunlight, candle light, oil lamps, gas lamps, limelight and carbon arc. Situation of entertainment lighting changed with the development of lighting sources as: Incandescent Lamp, Tungsten Halogen, High-Intensity Discharge (HID) and Light Emitting Diode (LED). Originally invented in the early 1960's, LED's have recently taken over as a primary light source in entertainment fixtures. Starting around 2008, LED-based stage luminaires could be found on stages worldwide. LED's are extremely energy efficient and have a long lifespan. The rich colours and high output of LEDs has led to the creation of many new



types of lighting products. With today's growing trend of integrating LED walls in stage lighting design, a new generation of lamps with more powerful beams is required to cut through the sea of homogenous light they provide – and add additional accents to the show. LED lighting further offers exciting possibilities in lighting entertainment but it is important to recognise that LED lighting is not currently a complete replacement for all other entertainment lighting sources. Traditional tungsten profile fixtures offer a consistent quality of light that is difficult to replicate with LED fixtures and discharge moving lights offer output and features yet to be achieved with an LED alternative. However, embrace LED technology for what it can do well and it will surely add a new dimension to almost any production lighting system.

Opportunities & Challenges

When it comes to entertainment, present lighting sources deliver precision lighting and dazzling effects, infusing events with energy and excitement. These products enable great entertainment and bring a gleam to the eyes of artists, light designers and most importantly – the audience. The wide range of products includes moving body and moving mirror projectors, colour-changers, followspots, projectors for architectural lighting and various lighting effects. The entertainment industry spends approximately \$4.6 billion on energy each year to light and operate facilities catering to a wide variety of events. With increasing costs and stalled ticket sales, entertainment venues are working with narrow margins to remain profitable in today's market. New generations of energy management options, such as LEDs, controllers and dimming systems, are creating new demand in the market for updated and energy-efficient products. Highly public and visual venues, such as sports stadiums and convention

centers, are setting an example by pledging energy reductions and green technology in their facilities. Energy efficient technologies reduce maintenance costs, saving facility significant costs over time.

Entertainment lighting is one of the most beautiful aspects of any application, as it can instantly set the right mood for user. However, if the stage is flooded with unnecessary lighting, it can certainly drop the entire act in mere seconds. To avoid the mistakes, we must know some of the basic principles and techniques for entertainment lighting on a stage.

Coordinate lighting to the performance – One stage lighting is not for all performances, and it needs to be tailored according to different acts on a stage.

Dance lighting: Dance lighting is all about movement, and has to synchronise with the performers' dancing moves. For this, sidelights are recommended due to their ability to highlight tone and movement with perfection.

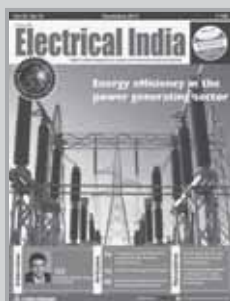
Play lighting: It ensures that the light is directed from the audiences' viewpoint, and also showcases facial movements of the actors.

Live music: Stage lighting for live musical performances are setup as per the musicians' style. For instance, a single spotlight is needed for a singer, whereas use of bold and colourful lighting is required for an energetic band's performance. ■



Dr S S Verma

Department of Physics
S.L.I.E.T.
Longowal, Punjab



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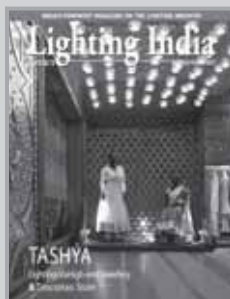
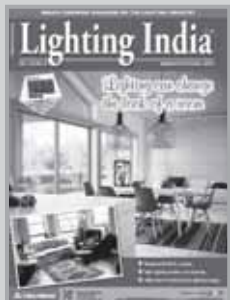
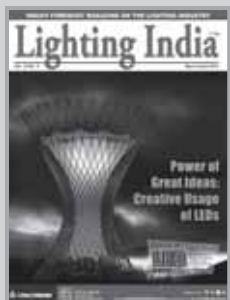
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“LED is poised to dominate the market in the years ahead”

Golden Peacock Group is one of the oldest and most preferred manufacturer and supplier of Electrical Lighting Components such as Lamp holders, Brass Components, Electrical Wiring Accessories & other light fixtures across the globe. **Diya Kapoor, Executive Director, GPL Technical Solutions Pvt Ltd**, speaks to **Lighting India** about the company and the significance of LED.

Q How is the advent of LED lamps changing the whole world of lighting?

A There's a revolution in the lighting market, and the catalyst is light-emitting diode technology, better known as LED. The LED revolution in lighting technology is comparable to any another technological transformation in the past. LEDs are smaller and have a longer operating life and lower Total Cost of Ownership than previous technologies. LED is poised to dominate the market in the years ahead, which has grown

roughly 50 % until 2015. Global LED Lighting market in 2010 was around US\$ 5bn and grown to approximately US\$ 36bn in 2015.

The LED revolution is also gaining momentum in terms of market dynamics. While demand for replacement lamps has accounted for significant growth thus far, that market is dwindling as fewer replacements are needed given LEDs' longer life span. Also, new players from the semiconductor and consumer-electronics segments are entering the general lighting market with LED products.

All of these developments are having a substantial impact on players up and down the value chain—from manufacturers to distributors to service providers.

We have been pro-active in pre-empting this change a long time ago. Today, all our lamp holders being LED compatible, gives us a big edge in the market.

Q Who are your major clients from lighting industry? What are the company's efforts in research and development?

A We have quite a few big brands associated with this from the lighting industry, though we cannot be more descriptive about them. The key to success in the LED lighting market is to focus on what makes someone unique: Because of its technological flexibility, it offers numerous possibilities for design and application. With this in mind, we believe LED's main areas of differentiation are in what we call the LED innovation trilogy: technology, design, and application and our R & D is very much working towards this.

The key to success in the LED lighting market is to focus on what makes someone unique: Because of its technological flexibility, it offers numerous possibilities for design and application. With this in mind, we believe LED's main areas of differentiation are in what we call the LED innovation trilogy: technology, design, and application and our R & D is very much working towards this.

Q What would you like to communicate to your potential customers?

A Golden Peacock has always been a preferred vendor for their customers and this achievement is a result of strong R & D and delivering value to the customers and stakeholders. The group is well equipped to address technological advancements in the industry. We believe the last 70 years of your expertise has taught us a lot and continue to do so, so as to remain ahead of competition.

Q What are the new products launched in 2017? How will those help the users?

A We have launched Wire Rope Suspension Solutions for the MEP services, which have applications across industries for supporting HVAC ducts, Electrical Cable Trays, Plumbing Lines etc. These

products are of international standards and have been tested by TUV NORD for its performance. Apart from testing all our products have their design registered or patented for their unique designs.

Q Can you tell us about the company's recent Corporate Social Responsibility (CSR)?

A Corporate Social Responsibility (CSR) in the GPL Group is rooted in its Corporate Purpose - the belief that 'to succeed requires the highest standards of corporate behaviour towards our employees, consumers and the societies and world in which we live', GPL's CSR philosophy is deeply embedded in its commitment to all stakeholders – consumers, employees, the

environment and the society that the company operates in. GPL strongly believes that it is this commitment which will provide sustainable, profitable growth to the enterprise

In addition to the community initiatives, the GPL Group has been working with various NGOs on multiple social programs. It is associated with

- Khushii (kinship for Humanitarian Social and Holistic interventions in India)
- Helpage India

GPL Group actively contributes towards the various projects being undertaken by the above NGOs towards reaching out to the marginalised section of the society, especially in rural area, creating an environment conducive to people's empowerment, integration of the under privileged into the mainstream of society, executive people's programme through need based interventions etc. ■

I ♥ Bell Bottoms



'Entertainment lighting' is a term used to describe 'Celebration' concerning architecture, theatres, films, television, concert etc. Traditionally, it has been the most important aspect for adding value to an event that makes it look visually special, unique, iconic and exceptional. Themed designed lighting effects with strong colour impact can help reveal information and enhance the display. Extensive range of lighting sources and equipment's are used for this purpose. Entertainment lighting is not only restricted to indoor lighting but also effectively used for outdoors. One such example is the lighting project 'I love bell bottoms', where different kinds of colourful illumination are used making it a momentous sight.



Located on Ozran Beach Road near famous Vagator Anjuna beach, Hotel, 'I ♥ BELL BOTTOMS' was looking for an eye-catching and dynamic colour changing façade lighting system which would display variations in colour changing and colour movement completely synchronised with live music to create an mesmerising effect to take us back to colourful, spirited and magical world of 70s and 80s era!

With QLITE on board, this was achieved using specialised digital RGB control system showcasing various patterns of colour changing lights with movement, creating powerful visual effects. To achieve the concept and achieve seamless operation that would distinguish it from other hotels in the area and attract potential customers, complete lighting as well as digital RGB control system was supplied, as well as, installed and programmed by QLITE to avoid any issues of interfacing or workmanship at all stages of the project.

For this prestigious hotel project, system consisted of QLITE RGB LED strip lights and digital RGB controllers were installed and interconnected at calculated distances on the grid-like structure in front of hotel facade. Synchronised, time-based program with customised patterns as per requirement was uploaded on controllers followed by fine-tuning with music to achieve the specified requirement and required ambience. ■



Sameer Agarwal

Director
Qlite Ltd

Old Diptyque gets Recreated

PSLab worked closely with the brand to develop a lighting solution overcoming all technical and electrical constraints due to the historical aspect of the building.

Diptyque was created in 1961. It opened its first store at 34 Boulevard Saint-Germain in the heart of Paris. Today and after 54 years, the brand is unveiling a renovated space that reflects its creative and elegant spirit like no other Diptyque store in the world; with the challenge of giving it a new face without changing the soul.

To preserve the shop's authenticity, original colours such as olive green on the inside and burgundy on the facade, as well as display wooden furniture, were given a refreshed look.

The boutique has a hand painted wall, the 'Lapis & Malachite', made by co-founder Desmond Knox-Leet. It needed a special care in order to erase damages that appeared with time.

The authentic spirit did not retain Diptyque from adding a touch of modernity when it comes to lighting. PSLab worked closely with the brand to develop a lighting solution overcoming all technical and electrical constraints due to the historical aspect of the building.

PSLab designed two bespoke steel and ribbed glass chandeliers that found their places in the heart of the space making them the first thing you notice when entering the boutique. They also provide a more balanced interior lighting emphasized by their aesthetical aspect while preserving the strong identity of the brand.

PSLab's technical expertise allowed the development of





another custom-made mechanism that is adapted to each of three the different boutique's vitrines. The created system's added value is in its discrete and wireless LED projectors that slide on a prewired frame all over the vitrine's perimeter. Products and displays change constantly, and require a flexible lighting that adapts accordingly. We have dedicated 40 projectors that can be used randomly in terms of quantity and in any direction depending on the window design's requirements. ■

Project Photography: [PSLab](#)

Highlighting the Chef's Table

Lighting is used to evoke the purpose of this restaurant right from the entrance walkway. Miniature and discreet 1W LED 3000K surface- and wall-mounted downlights integrated with the pergola and the boundary wall-columns respectively, provide an elegantly warm and subtle illumination while highlighting the architectural features...

Photo Credits: Gowtham Raj

Project details –

Location – **Chennai, India**

Client – **Madhulika Sundaram**

Architecture – **Edifice**

Lighting design – **Lighting Research & Design**

Luminaire supply – **Gojis Lifestyle**

Products applied

Battens – ABBY Aqua 30W

Inground uplights – ABBY Moonwalker 1W LED

Spike-mounted projectors – LEDS-C4 Hubble 5.5W MR-16 LED

Suspended downlights – ABBY Ovo 10W LED

Surface-mounted downlights – ABBY Ovo 10W LED

Surface-mounted downlights (Exterior) – ABBY Dot D 1W LED

Recessed downlights – ABBY Aqua Romeo 10W LED

Track spotlights – ABBY Ovo 10W LED

Wall-mounted downlights (Exterior) – LEDOS OD-424 1W LED

Wall-mounted floor-washers (Exterior) – LEDS-C4 Kossel 3.3W LED

Wall-mounted up-downlights – LEDS-C4 Jet Wall 3W LED

Decorative pendants – Custom with LED filament lamps

The South Indian city of Chennai has very few standalone high-end restaurants, as this has largely been the monopoly of five-star hotels. Located in the posh and tranquil neighbourhood of Poes Garden, the Chef's Table is an exclusive 60-seater restaurant serving a finely crafted upscale menu. Not one for labels, its owner and newly anointed Chef de Cuisine, Madhulika Sundaram is reluctant to pin her assorted menu down to a specific cuisine. Possibly a reflection of her globetrotting education – from Institut Villa Pierrefeu, a finishing school in Glion/Switzerland to Le Cordon Bleu in London/UK and more recently, the Ballymalloe Cookery School in Cork/Ireland – Sundaram established this dream venture with a firm belief of 'being true to the cuisine.' This implies that the master chef and not the customers decide the menu: dishes are not customised to customers' preferences, and the service staffs are expected to explain this to the customers without offending them. However, every dish coming out of the see-through kitchen, where the master chef herself supervises her personally trained team of chefs is a culinary delight. True to its name, the restaurant also boasts an actual chef's table – a teppanyaki grill, which seats five to eight diners. The master chef will herself cook the meal in front of the diners at the chef's table, with the menu and ingredients chosen by the diners in advance. While the ingredients aren't all organic, quite a few are either grown locally or imported. If a particular ingredient is unavailable in the market, the dish is taken off the menu, as the master chef doesn't believe in substitutions.

After two-and-a-half years of renovation, a space that was once a residential parking garage now sports a modern and minimalist look with black, grey and white décor. The wooden flooring, beige chairs and unadorned tables provide a refreshing and unique dining experience while ensuring that food is the primary focus. When considering how to light such a restaurant, it was important to consider what mood the master chef wanted to create and communicate. The master chef was very clear from the beginning that lighting should not detract from the overall dining experience while creating an environment where diners will want to come back again and again. As light contributes to the other senses of taste, touch, sound, and smell in such culinary environments, the



factors taken into consideration while designing the lighting were: the types of food being served, the outfits worn by the chefs, the colours of the restaurant interior, the formality the establishment, and the hours of operation.

Lighting is used to evoke the purpose of this restaurant right from the entrance walkway. Miniature and discreet 1W LED 3000K surface- and wall-mounted downlights integrated with the pergola and the boundary wall-columns respectively, provide an elegantly warm and subtle illumination while highlighting the architectural features. An additional layer of functional illumination is provided using low-height 3W LED 4000K wall-mounted floor washers to demarcate the pathway and guide diners towards the restaurant main entrance. The subtle use of two different colour temperatures



window adjoining the main entrance. Although similar luminaires characteristics are maintained throughout the restaurant, the lighting for the chef's table is brighter than the ambient lighting in the remaining areas so as to make it stand out.

Chef's Table offers a menu that is exotic as well as sublime, and lighting only adds to this unique culinary environment. Lighting is designed to be easy on the eyes and evoke a relaxed mood for the diners who like to linger, unwind and take their time to eat, which in turn could make them spend more money since they aren't in a rush to leave.

One more unique quality about this restaurant is that this could probably be the first fine-dining restaurant in Chennai with a total LED-lighting solution! ■



Dr. Amardeep M. Dugar
Founder
Lighting Research & Design

4Wall DC Lights ATF's Largest Production, Nikola Tesla Drops the Beat

With the show's story revolving around the progression of electrical technology and lighting invention and innovation, the lighting design is a fundamental part of the audience's experience...

Kicking off Adirondack Theatre Festival's (ATF) 23rd summer season of professional theatre is Nikola Tesla Drops the Beat, an electronic pop musical about one of history's most influential and controversial innovators. 4Wall DC provided the lighting for the show that can be described as 'Hamilton meets Tesla.'

"This is hands-down the most exciting show to come to Glens Falls since I've been here," said Producing Artistic Director, Chad Rabinovitz. "The story is historically insightful and fascinating, and the music is incredibly cool, catchy and just plain energising. It's not just a show, it's a major musical event. This is ATF's biggest production ever and I'm willing to bet it has a large future ahead of it."

With the show's story revolving around the progression of

electrical technology and lighting invention and innovation, the lighting design is a fundamental part of the audience's experience.

"The writers have woven a variety of light symbolism and metaphors into almost every scene and every character, so it was up to the Director (Marshall Paillet), the Choreographer (Maxx Reed), the scenic designer (Jason Sherwood), and myself to come up with different ways to bring that to life onstage," explained, Lighting Designer (LD), Jake DeGroot.

The LD and Director were both determined to give each musical number its own distinctive look and feel, and base many of them in specific lighting gestures.

"In some cases, this means the actors are holding and dancing with hand-held lights ranging from tiny LED finger





lights to tungsten-filament Edison bulbs, to cool-white CFL bulbs to Tesla's famous Plasma Globe," said DeGroot. "In other cases, it means heavy usage of practicals including coloured fluorescent tubes built into the set and an upstage wall, which contains an array of 620 light bulbs which can do tricks like spell the name of their inventor, 'Edison'.

During pre-production, the design team knew they needed a way to render a dream-world for several sequences during the show.

"We needed a tool that would allow us to use light, motion, and colour to enchant and seduce both Tesla and the audience," explained the LD. "This world had to be just out of reach and separated from the more tangible technology of Tesla's rival, Thomas Edison and the dirty gritty world of the Industrial Revolution in which most of the story takes place."

DeGroot worked closely with set designer Jason Sherwood to create a tiered grid structure of 130 Elation SixPar 200s provided by 4Wall. The structure fills the space above the stage, beginning low in the back and climbing to the full height of the proscenium by the time they reach downstage.

"The SixPars point straight out into the audience and, depending on the moment, can create a canvas we can paint on with colour, an intense bank of audience blinders, or even a low-resolution 'screen' that we can use for energetic animations and spelling words," said DeGroot. "Their built-in UV diodes also made for an exciting extra trick they could do and a different type of lighting technology we could exploit.

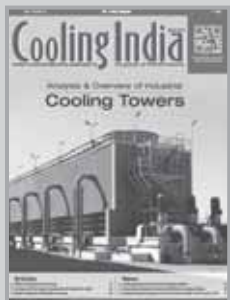
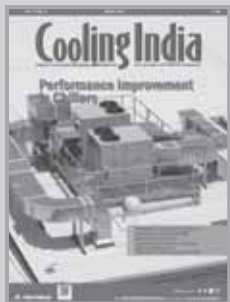
By using a combination of techniques to control the fixtures, I could make them come to life as characters of their own."

One of the biggest challenges of the grid structure was that most of the overstage electric positions the LD would normally utilise to hang backlight and downlight were obstructed. This meant getting creative to light the rest of the show with 4Wall's Martin MAC Quantum Profiles and MAC Auras.

"Having fixtures as versatile as these moving lights was the only way to get the variety of looks and the level of specificity we needed in the tiny slivers of space we have within and between the SixPars," explained the LD. "The Auras served a unique purpose in that the look of their face was similar enough in shape and size to the SixPars. I was able to replace 4 of the SixPars in the grid with Auras which would let them participate in larger grid gestures sometimes, but are the workhorse backlights the rest of the time."

Technical Director David Pierce spoke highly of the service 4Wall provided.

"I was pleased with the service we received at 4Wall. Katie Kudrick in the DC office worked with our budget to make the best possible rental for us. As you can imagine, we went through many different versions of rental packages and a lot of back and forth for a couple weeks," said Pierce. "Katie was happy to continue to work with us to find us a package that was within our budget. We can't thank Katie and 4Wall enough, without this gear, our production would not have been possible!" ■



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- Hospitals
- Cold Chains
- Food Processing
- Storages
- Entertainment
- Other Allied Industries
- Institutions

Professionals:

- Top industrialists
- Manufacturers
- Consultants
- Architects
- Interior Designers
- Process Engineers
- Importers & Exporters
- Traders

Several Others...

Would you like to know all about the medical equipments and what they do to us...

Who can Subscribe?

Industries:

- Pharmaceutical Machineries
- Medical implements & implants
- Oxygen setup & Dental equipments
- Hearing aids
- Pathological equipments
- Ophthalmologic equipments, devices & solutions
- Ambulance & Air sterilization
- Surgical equipments
- Electro medical equipments / Medical technology
- Rescue & Emergency equipments
- Medical Diagnostic & hospital supplies
- Physiotherapy / Orthopedic equipments & technology
- Communication & IT
- Medical furnitures & equipments & Cardiology equipments
- Radiology & Imaging equipment technology
- Medical disposable disinfection
- Hospital utilities & supplies
- Neonatal / Pediatric equipments & patient monitoring equipments
- Electromechanical linear actuator system for hospital, beds, O.T tables, O.T lights
- Dental chairs, Blood donor coach
- Power backup systems (UPS, Inverters & SMF batteries)
- Rehabilitation aids

... and related accessories.

Professional Readers - MEA

Industries:

- Medical and Surgical Equipment & Supplies
- Pharmaceutical & Bulk Drugs
- Disposable Supplies
- Diagnostics & Laboratory Instruments
- Hospital Furnishing & Related computer software
- Rehab. & Therapeutic aids
- Ophthalmic Instruments
- Oral & Dental Equipment
- Optical Equipment and supplies
- Institutions & Other allied industries

Professionals:

- Medical Professional / Doctors
- Surgeons
- Paramedical Professionals
- Hospital Administrators
- Pathologists
- Radiologists
- Physiotherapists

Several Others...

State-of-the-art electronic components from BAG bring together high performance values with reliability and efficiency. The result is constantly high quality of light with an above-average life time of 85,000 hours. Thanks to energy efficiency of 139 lm/W and low installation and maintenance complexity, the luminaire in use achieves low overall operating costs...

'Open-air' – ZALEDA EVOL II

Premium weatherproof luminaire for indoors and outdoors

Highly robust and efficient, with quality of light for increased demands and flexible, versatile use. The new LED weatherproof luminaire ZALEDA EVOL II meets all specifications for a highly durable premium solution. Both indoors and outdoors. This is the very first indoor luminaire just as suitable for outdoor applications – even without roofing.

Slender design with high resistance

The premium quality of ZALEDA EVOL II becomes apparent at the first glance: the high quality luminaire body made of die-cast aluminium brings together good looks with high resistance to a wide range of external factors, while also contributing to highly effective thermal management. Impact-resistant UV-stabilised polycarbonate or PMMA ensures robustness and durability, as do the mounting clips of rust-free steel. The LED weatherproof luminaire also features a modern design and compact dimensions of 1047 x 105 x 95 mm (L x H x W).

The luminaire is resistant to low temperatures, heat, humidity, dust, knocks and impact and complies to protection rating IP66 and IK08. It can be used in a wide -30 to +45 degrees Celsius temperature range. As a result, ZALEDA EVOL II is the universal solution for a variety of applications



ranging from cold stores and production halls to car parks and outdoor areas.

Energy-efficient light

In common with its attractive and highly resistant outer, the luminaire also meets high demands in terms of quality of light: ZALEDA EVOL II generates uniform, glare-free and especially energy-efficient light. State-of-the-art electronic components from BAG bring together high performance values with reliability and efficiency. The result is constantly high quality of light with an above-average life time of 85,000 hours. Thanks to energy efficiency of 139 lm/W and low installation and maintenance complexity, the luminaire in use achieves low overall operating costs. The quality of light also wins over – with a length of just 1 metre the luminaire achieves the same effect as conventional 1.50 metre-length weatherproof luminaires.

The HF sensor version improves the energy balance even further. Presence- and daylight sensors automatically switch off the luminaire or dim it to a pre-set level. The result: further energy savings of up to 35%. Sensor control also increases the lighting comfort – e.g. in the form of 'running light' that tracks people on their way through buildings. ■



J Davis Prosound & Lighting illuminates David Guetta concert

The Bangalore based rental company has been providing high quality sound and precision lighting using Professional equipments for commercial and International events all over the country. Santana Davis expresses his views about outdoor stage lighting in the country to Lighting India.

J Davis Prosound & Lighting, originating from Bangalore was founded in 1980 by J Davis. It is an established firm with over 35 years of experience in the industry of providing Professional Sound Lighting, LED, Projections & Trussing systems for International, Commercial, Sporting, Corporate, Religious Wedding events, TV Shows & Large Scale Political Gatherings across the country mostly having a strong base in South Of India.

J Davis Prosound & Lighting primarily started as a Sound company later adding lighting and went on to add high end

AV, LED & trussing systems along with Holographic Projections under its wing Graflex Inc. JD Pro Technicals under the Headship of Santana Davis specialises in Installation & Sales of professional Audio, Lighting, Trussing...

The company has been associated with Percept Live for over 10 years now. They provided complete technical solution for First Ever Sunburn Festival in Goa. They have been working for almost all major sunburn Arena & Concert events held in Bangalore, Hyderabad & Chennai.

They recently, they provided complete technical support





for David Guetta Concert in Hyderabad. Santana Davis, Managing Director & Chief Sound Engineer - J Davis Prosound & Lighting, said, "The Lighting Design was from the David Guetta team itself. Most of the shows the designs are made by the Artist Lighting engineers, which is followed by us. David Guetta had quite an elaborate setup with close to 100 Intelligent Fixtures."

The brands used by J Davis Prosound & Lighting for the concert were Elation Platinum Beam 5 R Sharp, Silver Star LED Moving Head Wash, Robe 2500 AT Moving Head Spots, Atomic Strobes 3000, Silver star LED Pars, Look & Smoke

Factory Haze Machines, Grandma 2 Full Size & Grandma 2 Lite Lighting Consoles.

According to Santana, "Indian Market is the recent past has a huge potential for lighting as there is increased number of festivals, sporting events, televised events, corporate events. So the market has been growing steadily for lighting in India. The downside can only be the competition as Chinese is making lighting fixtures at a very affordable price where most of the smaller rental companies are in a position to buy the Chinese brands. This has lead to competition in the market with prices going really low." ■

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The Goblin Room was reopened in autumn 2015 and one look inside cannot fail to impress – the new luminaires blend discretely into the background, their shape complementing the architecture of this historical building superbly, their light supporting the room effect and its purpose as a conference room...

Selux Kju Square illuminates the Goblin Room at the Villa Reitzenstein



The Villa Reitzenstein is to Baden-Württembergers what the White House is to US citizens. Initially, starting in the 1920s, the villa served as the residence for the President of the State of Württemberg and, since 1952 and the foundation of a new state, it has been home to the Prime Minister of Baden-Württemberg in Germany's south-west.

This triple-winged, prestigious, neo-baroque building is more of a small palace than a villa, having been built between 1910 and 1913 as the residence of Baron Helene von Reitzenstein based on drafts by the architects Hugo Schlösser and Johann Weirether. Over the course of time, annexes were then added to the villa to enable the prime minister to be accommodated in the direct vicinity of his workplace. Between 2013 and 2015 this historic building underwent extensive reconstruction at the cost of the state and its technology was upgraded. The Ministry of State extension, which was found to be contaminated with asbestos, was then replaced by a new building by the Berlin architectural bureau Sting architects – accurately to scheduled costs and deadlines as both planner and constructor are keen to emphasise.

Where history was made

One room in particular in this historical villa is of particular interest for Selux purposes – The Goblin Room. It was here, at the end of the Second World War, that the US General Lucius D. Clay met with the provincial government to lay the foundations for the rebuilding of modern Germany. Yet this is not the only reason for our interest in the room. For, as the

Head of the State Chancellery Klaus-Peter Murawski recently commented in the press, this is also the room which has benefited most from the refurbishment. And one key aspect of this gain is the room's new LED lighting system, which is precisely harmonised with the needs of listed buildings, combining as it does aspects of aesthetics, power and functionality superbly.

Reader-friendly light

In refurbishing the villa the goal, to quote Klaus-Peter Murawski again, was to compensate the '1970's trend for modernisation'. Accordingly the lighting planners from the Berlin bureau Lichtvision removed an ungainly pendant light structure for direct and indirect room lighting that used outdated, conventional light sources and had previously dominated this conference room. Quadratic Kju LED luminaires by Selux were then installed in the individual compartments of the carefully restored cassette ceiling made from cream-coloured varnished wood via a special suspension.

As well as its highly-efficient LED lighting technology, a further particular feature of this luminaire is its flat, precisely shaped luminaire body made from transparent PMMA. The double wall design with additional, opal optics on the inside generates an attractive look and feel, enabling particularly uniform diffusion of LED light in the warm light colour 3000 Kelvin. This creates soft lighting within the room, which is perceived by users as particularly reader-friendly.

Bespoke, systematic design

The Goblin Room was reopened in autumn 2015 and one look inside cannot fail to impress – the new luminaires blend discretely into the background, their shape complementing the architecture of this historical building superbly, their light supporting the room effect and its purpose as a conference room. Yet at the same time, the luminaire confidently maintains the required distance from the building substance to lend it the air of an independent, contemporary interior design element. The Kju program by Selux has been skilfully used by planners here to create a virtually bespoke solution from the numerous system components with their various light distributions and assembly options. The Selux high product quality with its highly durable components and premium quality materials in addition ensures refurbishments of this type are both pleasing to the eye while at the same time creating the effect of sustainability in the long term. ■



“Current market is hungry for new innovative lighting products”

Karice brings ideas to light. With its enormous passion for creating beautiful lighting products, it pushes its creative boundaries and craft the unimaginable with their cutting-edge, custom lights. Owner and co-founder Maurice Dery leads his team with an appreciation for collaborative workmanship. This team spirit is best exemplified in the recent launch of the Retta Linear Light – an innovative interior luminaire co-designed and developed by Maurice and his son, Jordan. Maurice Dery shares his views with Lighting India about his company and the lighting industry.

How long have you been in this business? Can you tell us about your process in the product category from start till date?

Karice Enterprises has been in business since 1993. The company started with co-founders **Maurice and Karen Dery**.

PRODUCT PROCESS

Process starts with an idea, a concept or a notion.

Lighting product design goes much further than the concept. A concept is merely a big idea or reflection. The real work in the design is making that concept work. How do we illuminate the light, how do we engineer the light, how does it hang? How do we wire it? These are some of the many questions that need to be answered in designing a light. Many problems we encounter in the design concept stage are completed and engineered by the design team at Karice.

Once a lighting product has been design engineered, production begins.

A simple outline of the process of a project proceeds as follows:

- Client brings an idea or concept to Karice
- Product/project budget is approved
- Karice designs the product
- Product goes into production

- Product is shipped to client.

We would like to know about the company evolution?

Karice's grass roots started in the Architectural Metal Products. The company was primarily designing and building metalwork products for the Hospitality Industry. Our company was working closely with Robert Clark of CLO Design out of Seattle when he suggested in early 2000 that we should begin building lighting fixtures. At the time, the Milestones Restaurant Chain was putting custom lighting products into all of their locations.

Clark would design the concepts and Karice would design engineer those concepts to bring them to reality for the Restaurant Chain owned by Cara Foods Ltd.

Shortly thereafter, other restaurant chains that we were working with began utilising the skills of the Karice team to bring their lighting ideas to reality. The custom lighting business was booming and our company was able to deliver new innovative products that were completely new and unique to the market.

In 2014 Karice began designing and prototyping their own lighting designs. This culminated in December 2015 with the introduction of the Electron Wall Sconce. The design of this light was well received. In 2016, it was short listed for the Lighting Design Awards in



London England, it won a silver A'Design award in Italy and won Gold at the International Design Awards in Los Angeles, CA.

Since the introduction of the Electron Wall Sconce, Karice has introduced over 18 new products into its line-up.

What were the ups and downs faced by the business?

Today's marketplace has totally revolutionised from when we started our business in 1993. Back then, our marketing was 100% word of mouth.

Our company relied heavily on this resolve, but learned quickly in 2015 that this was not the way companies do business today. Today, it is all about the story you tell, not just what you know. Today, with the Internet and Social Media, in order to survive you need to keep current. Internet marketing, social media profiles, investment in a good website are all paramount to keeping current in today's marketplace. Companies today must be on the forefront of marketing exposure. Without it you become the Picasso in the closet.

How do you perceive the current market?

The current market is favourable; it is hungry for new innovative light products. The market has a new-found love of lighting. Lighting is hot right now. Our company aims to deliver.

Can you talk about the future of your business into this market (current scenario)?

Our company is expanding its horizons. We are expanding in both the European and North American markets.

What suggestion would you like to give to the current entrepreneurs in the industry?

Hard work pays off. ■



Philips Lighting names Harsh Chitale as CEO of its Business Group Professional

Philips Lighting, a global leader in lighting, revealed that Harsh Chitale, CEO – South Asia, Philips Lighting, has been appointed CEO of its Business Group Professional, reporting directly to CEO Eric Rondolat. For his new role, Chitale will relocate to the Netherlands on September 1.

Sumit Joshi, Head of Marketing Excellence, will succeed Chitale as CEO – South Asia, reporting to Murali Sivaraman, Market Group Leader - Growth Markets at Philips Lighting.

Philips Lighting has a long tradition of building global talent. Philips Lighting's South Asian operations have steadily contributed to the global organisation. This year alone more than two dozen employees from the operations in South Asia have taken up global and regional roles at the parent company across Europe and Asia.

Chitale led the South Asian business of Philips Lighting since January 2015, helping to drive the company's



leadership in the fast growing LED and Professional businesses, further consolidating the company's position as the largest lighting company in South Asia. ■

Tata Power facilitates distribution of 1.1 lakh LED bulbs to its customers in Mumbai

Tata Power, India's largest integrated power company, has always been committed to the cause of energy conservation, and has been contributing extensively towards a brighter and greener tomorrow by undertaking several initiatives. In line with this philosophy, and further to its commitment to light up lives, Tata Power facilitated the implementation of National-level Program (DELP/UJALA) which is being implemented by M/s. EESL, a Union Govt. Undertaking, with the aim to increase the penetration of LED lighting technology in the residential sector. The DELP/UJALA program witnessed the distribution of more than 1.1 lakh LED bulbs for Tata Power consumers in Mumbai during FY17.

Facilitation of UJALA is one of the measures implemented by Tata Power under its demand side management (DSM) initiative. DSM is an intervention by a utility on the 'customer side of the meter' to change the way customers use electricity. To encourage its consumers to switch to energy



Ashok Sethi

efficient practices, Tata Power has launched exchange and new purchase programmes for various home appliances.

Online registration, doorstep delivery, and extended warranty for the products are some of the hallmarks of these programs. Ceiling fans, split ACs, refrigerators, and LED tube lights are the appliances covered under these programmes.

Ashok Sethi, ED- Operations, Tata Power, said, "At Tata Power, we constantly strive to add value to the lives of our customers. The importance of energy management and conservation is increasing with each passing day and it is here that LED lighting solutions can play a very important role. We are happy with the response we have received from our consumers with reference to the implementation of the DELP/UJALA program. We are confident that when we lead by example, our customers will follow us in our effort to conserve energy." ■

Appointments

Awards

Recognition

Product Launch

Technical Articles

Lighting India invites professionals and industry experts to write articles on their areas of expertise and interest.

If you feel that the industry needs to know your experiences, it's times you write to us. Our team will guide you on various topics we cover in each and every issue. Hence, will help conserve a lot of your effort and time.

We would love your involvement in your favourite magazine!

Think no further just e-mail your interest to – info@charypublications.in

International Lighting Fair on it's way again

The fair this time will bring in together state-of-the-art technology and the latest design trends in lighting.
More than 2,660 exhibitors are expected...



HKTDC Hong Kong International Lighting Fair (Autumn Edition) 2017, organised by the Hong Kong Trade Development Council at the Hong Kong Convention and Exhibition Centre (HKCEC) from 27–30 October 2017, brings together state-of-the-art technology and the latest design trends in lighting. More than 2,660 exhibitors are expected in 2017.

The Autumn Lighting Fair and the concurrent HKTDC Hong Kong International Outdoor and Tech Light Expo 2017, together form the world's largest lighting marketplace. The Outdoor and Tech Light Expo will run from 26-29 October 2017 at the AsiaWorld-Expo (AWE).

Comprehensive Product Categories

Zero in on the products relevant to your business. The fair covers:

Commercial Lighting



LED Recessed Spotlight

Meko Electronics (Hong Kong) Co., Ltd

Hall of Aurora



LED Grow Light for Plant

Home Resource Ind'l Co Ltd

Household Lighting



Wireless Speaker with Dimmable LED Lighting

Green First Corporation

LED & Green Lighting



Bluetooth LED Ceiling Light & LED Downlight

AZ E-Lite (HK) Limited

Smart Lighting & Solutions



LightSpion

MPHK Group Limited

Testing & Certification



CCD Spectroradiometer Integrating Sphere Compact System

Lisun Group (Hong Kong) Limited

Highlighted Zones

LED & Green Lighting - A proliferation of LED products, as well as other energy-saving solutions.

Hall of Aurora - Top-tier branded lighting for upmarket retail stores and prestigious developments.

Smart Lighting & Solutions - Components and complete solutions in smart lighting technology.

Household Lighting - Many styles and price points in domestic lighting.

Rewarding Activities - Seminars and forums as well as social activities such as the Networking Reception.

Supporting Services for Buyers

Among the services and facilities offered for buyers'

convenience are:

- **Dragon Green**, a haven for VIP buyers, offering complimentary snacks and beverages, Internet access, newspapers and magazines and private rooms for meetings;
- **Courtesy Shuttle Bus Service** runs between AWE and HKCEC, as well as serving major hotels and shopping centres in Kowloon.

HKTDC offers exclusive incentive for first-time overseas buyers

First-time overseas buyers are entitled to exclusive travel incentive. Pre-registration is required.

For enquiries, please contact HKTDC at tel: (852) 2240 4235, or email: hklighting.visitor@hktdc.org

Guangzhou International Lighting Exhibition 2017 welcomed over 156,000 global visitors

The fair remained true to its mission of promoting global dialogue and exploring the convergent future .
Visitors celebrated the fair as an effective sourcing and networking platform...



Kicking off on 9th June, the 22nd edition of the Guangzhou International Lighting Exhibition (GILE) welcomed visitors for the four-day fair during which key industry players had the chance to explore the convergent future of the lighting industry. The fair maintained its position as an influential and comprehensive lighting and LED event by receiving strong industry support – support that was demonstrated by its largest visitor figures in recent years. The fair welcomed 156,898 visitors (2016: 145,080) – an increase of over 8% from last year's exhibition – from 134 countries and regions. The top 10 overseas visitors were from Hong Kong, India, Korea, Taiwan, Singapore, US, Thailand, Russia, Malaysia and Australia.

The trade fair spanned 17 halls of the China Import and Export Fair Complex including a total of 2,428 exhibitors (2016: 2,399). The exhibition was segmented into three sections; production, technology and applications. These sections covered the entire industry spectrum from components and materials to packaging and implementation. The show's

180,000 gross sqm of floors were abuzz with visitors, cutting-edge products and talks by experts in the lighting community.

Regarding this year's show, Lucia Wong, Deputy General Manager of Messe Frankfurt (Shanghai) Co Ltd, said, "The convergence of lighting with different technologies is a defining factor for the achievement of GILE 2017. I am sincerely grateful for the global lighting community's support in demonstrating the diverse application of core lighting technology beyond illumination. Unrelenting innovation and the exchange of market intelligence are vital for progression. We will continue with our efforts to link up technological innovation, lighting design and sales channels into a platform for the lighting industry to network and achieve its business objectives."

The convergence of lighting with state-of-the-art designs and technologies was prevalent in every aspect of the 2017 fair. Fixtures such as panel lights, linear lights and hidden lighting have moved into the mainstream. Concepts like smart control, programmable lights, anti-glare, super slim



and frameless designs are the in-demand products for this year. Split into three defining sections, the below are some of the highlights from each:

Production sector: Equipment and assembly solutions

Exhibitors presented light and display metrology products which can quantify lighting quality as well as new colour metrics and flicker. Also on display were assembly solutions such as silicone adhesives, conformal coatings, encapsulants, gap fillers and thermal interface materials. In response to the emerging trend of Chip Scale Package (CSP) use, the LED package industry is moving in the direction of downsizing its components. Silicon encapsulation techniques meanwhile have seen upgrades in terms of photo-thermal resistance and mechanical stability.

Technology sector: LED packaging and lighting control

One of the highlights within the technology sector was to see high CRI (Colour Rendering Index) LED packages on display. These products project light in a way which significantly reduces the problem of glare and faithfully reveals the true colour of objects as seen under natural light sources. LED applications in automation, medical and horticulture lighting were also prominently featured. Visitors were able to see first-hand how a wide variety of packaged LEDs, including filament LEDs, IR LEDs, LED backlights and displays, each contain their own unique features to be applied for different functions.

Application sector: Smart lighting and speciality lighting

With the advent of IoT (Internet of Things), more and more electrical devices are becoming 'smart' due to greater analytical capabilities and improvements in sensor technology. Exhibitors presented lighting which highlighted the theme of

'Intelligent and Human Centric', focussing not only on the functionality of lighting but on a person's physical and emotional needs and responses.

Smart home lighting systems, smart bulbs as well as Internet Protocol (IP) camera were also widely seen during the fair. Many smart streetlight manufacturers showcased products that offer traffic monitoring and rerouting, security, parking availability, temperature control, humidity and flood monitoring through sensor integration and city-wide networking. VLC (Visible Light Communication) technology gave fairgoers an insight into a not-so-distant future where light sources will be used for transmitting data.

The fair remains true to its mission of promoting global dialogue while exploring the convergent future

Embracing the theme 'THINKLIGHT: The Convergent Future', the 2017 edition of the fair curated a matching event programme with over 100 seminars featuring expert speakers from the lighting community.

The convergent future: Light and IoT, lighting and digital art

Guest speaker, Tjaco Middel, Head of R & D, Tridonic (Shenzhen) Co Ltd stated: "I think the future belongs to IoT and



connectivity. To make your devices connected is the key to success. What I like most about the fair is the level of interaction with the audience. Sessions were packed to the rafters and the audience was extremely engaged and ready to participate in the discussions. GILE is truly a great event."

Another guest speaker, Jack Chen, Business Director, Taiwan, Telensa, shared a similar view: "In the future, the development of smart control systems will be more and more integrated, not only in the lighting sector but in other applications such as the monitoring and control of traffic and temperature. The organisation of the event has been superb with many valuable audience discussions."

The forum also touched on the convergence of lighting and digital arts to reach new aesthetic levels. Guest speaker, Dr M Hank Haeusler, Director of Computation Design, UNSW Built Environment, UNSW Australia, shared: "Outdoor media advertisements exist in many cities around the world and making sure these advertisements are effective is crucial. Convergence is what the industry must do, bringing building, lighting, software and other kinds of technology together to facilitate developments".

New concept of lighting: Embedded technology, plant factory

Guest speaker Brad Koerner, Product Marketing Manager, Philips Lighting, shared his new concept for embedded lighting: "IoT and digital controls add tremendous value to lighting, they allow full customisation, rhythm, temperature control and dimming of animated lighting. I believe embedded lighting will be the future of architectural lighting as we move away from simple LED fixtures. I think the conference and exhibition were great. It is a high-level event worth returning to in the future".

Facing continued issues caused by pollution, Professor Toyoki Kozai, Chief Director, Japan Plant Factory Association, shared his company's new method of plantation. "LED is the key technology for Plant Factory as it can increase the plant yield and quality by 20% to 30%. Since LEDs are small we can grow plants in a much more compact space."



Lighting application: City and museum lighting

Qu Guojun, National A – Level Lighting and Stage Designer, Production Department, Technical Production Centre, China Central Television, shared his professional view on city lighting: "Among China's tourism sectors, night tours are the most popular. The so-called "Moon Economy" implies extending the stay of tourists and thus increasing their expenditure. Telling unique stories with lighting to attract tourists is now the main way to achieve this purpose."

Museum Lighting is another issue undergoing greater levels of discussion. Ai Jing, National Level 1 of Lighting Designer, National Museum of China, said: "Museums are all unique and require extremely high quality lighting. The ultimate concern should be the preservation of the museum's cultural relics, but with more and more people visiting our museums we must ensure that they are also aesthetically pleasing."

LEDs offer endless possibilities to designers, such as the use of intelligent control and colour control, but museum lighting and its installation must be thought about very carefully." ■



LG Innotek unveils the world's first 70mW UV-C LED

LG Innotek revealed that the company has developed the world's first 70mw UV-C LED for sterilisation applications. As its sterilisation performance is 1.5 times higher than the competitor's 45mW module.

UV-C LED produces the short wavelength ultraviolet rays in the range of 200 – 280nm, allowing it to be used for sterilisation purpose. It prevents the proliferation of bacteria by de-destroying their DNA. LG Innotek's product emits UV in the range of 280nm.

Until now, UV-C LED has been mainly applied in small sanitary products because its low op-tical power led to low sterilisation performance. The power of LEDs for toothbrush sterilisers is 1mW and that for sterilising the water tank of humidifier is 2mW.

LG Innotek improved UV-C LED's optical power to 70mW by utilising its proprietary LED ver-tical chip technology. While the product measures only 6mm in both its length and width, its sterilisation performance is the world's best.

The company overcomes the UV output limit with specialised LED chip technology. The epi-taxial structure design and vertical chip technology to maximise light extraction have in-creased the output and ensured quality reliability by effectively exhausting heat.

As the company's product is compact and boasts high sterilisation performance, it can be applied to various fields such as water purifier and air purifier. Because it allows you to steri-lise flowing water and air.

It is also good for use in hardening equipment in the manufacturing industry. As the UV output is strong, the performance of the curing device can be enhanced.

Manufacturers of water purification, cleaning and curing device can benefit from stable sup-ply of UV-C LEDs optimised for respective purposes from LG Innotek. Because LG Innotek is equipped with a consistent production system that produces Epi-wafers, chips, packages, and modules, and offers its products to its customers after rigorous quality management. ■



Website: www.lginnotek.com

New Cortet enables manufacturers to sell systems and solutions, not just lamps & luminaires



Cortet by CEL revealed the availability of its new Cortet Lighting Control Solution and its 'Powered By Cortet' partnership program that enables lamp and luminaire OEMs to provide a full range of local and IoT connected control systems, integrated solutions and lighting accessories to their clients and customers.

As a 'Powered By Cortet' partner, a lamp or luminaire OEM can expand its product lines and increase overall profit margins by leveraging Cortet's industry leading lighting control system with a full line up of tested and certified accessories like sensors, switches, luminaire control adapters, LED drivers, etc. Additionally, the Cortet engineering team, with decades of experience in real world commercial control systems, can provide integration expertise to help with the design, installation and fine tuning of entire systems required for industrial and commercial buildings.

By adding a lighting control system to its portfolio, a luminaire and lamp OEM can increase sales of its existing product lines by selling more luminaires and/or lamps, gain new revenue by selling lighting controls, and open the door to sell new products and services that build on an IoT connected system.

One of the most critical issues that luminaire and lamp OEMs face today is the more rapid than expected deterioration of profit margins for LED products (which last longer than incandescent and fluorescent products, which is another stress on OEMs' top and bottom lines).

Cortet's proven technical advantages as well as its unique user interfaces, enable lighting manufacturers to differentiate themselves from the competitors and to better establish long and rewarding relationships with their industrial and commercial facility customers. ■

Website: www.cortet.com

Philips Lighting raises bar for ambient lighting with its new Philips ExpertColor technology

Philips Lighting launched Philips Master LED ExpertColor GU10 and MR16, a new range of LED spot lamps enabling customers to create a warm and comfortable ambience with superior colour realisation using a customised light spectrum with advanced phosphor technology and deep dimming. The new range is aimed at providing a superior lighting experience for premium hospitality and residential spaces where ambience matters.

Today, many high-end hospitality and residential spaces continue to use halogen spot lamps due to a lack of alternatives with sufficiently warm coloured light, high colour realisation and deep dimming. Philips Master LED ExpertColor GU10 and MR16 lamps answer the need for an LED alternative that provides a light spectrum and effects almost identical to halogen with the highest quality dimming.

With a customised light spectrum that is over 94 % identical to halogen light colour, compared to only about 60 % with standard LED lights, the new Philips Master LED ExpertColor 2700K spots provide a warm and comfortable ambience. The deep dimming enables users to adjust the lights to the most comfortable levels.

Philips ExpertColor technology offers best in class colour realisation. It has high colour fidelity with a Colour Rendering Index of 97, enhanced rendering of reds ($R9 > 85$) and saturated colours, bringing out the true colours and textures in interior decors and furnishings as originally intended by the designer. The minimalist look of the trimless V-groove lens design for edge-to-edge lighting ensures that the lamp fits in seamlessly with any décor.

Philips Master LED ExpertColor spots retain their superior colour with long lasting high lumen output over a lifetime of 40,000 hours which is especially beneficial for the hospitality segment where operations can continue 24 hours a day. Also, it is a retrofit spot lamp ensuring a quick and hassle free transition to LEDs. ■

Website: www.lighting.philips.com



Rambus introduces Off-the-Shelf LED Light Guides

Rambus revealed a new family of off-the-shelf Optical light guides that are used to create ultra-thin LED edge-lit luminaires for a broad range of lighting applications. The new products deliver the performance and efficiency benefits of Rambus' proven MicroLens technology, which have shipped in over 6 million light guides and used in fixtures around the world. The new LED light guides provide the time-to-market advantage of standard products.

Standard LED Light Guides with MicroLens Optics

The LED light guides use MicroLens Optics with a constant density pattern that can be used in a variety of form factors and applications. They are particularly well suited for recessed and suspended luminaires in offices, schools, hospitals and high-bay buildings. The products are cost effective, energy efficient and provide greater control and directionality of light, allowing designers more time to spend on developing creative luminaires. The light guides are manufactured in our state-of-the-art, high-volume manufacturing facility in the United States.

The initial launch includes three product families with distinct optical patterns for varying aesthetic and functional requirements including:

- The S-Series uses specular optics and offers maximum ray angle control and lowest glare.
- The SD-Series provides good glare control and a wider downlight and uplight distribution.
- The D-Series provides a uniform light distribution with a more diffuse appearance.

Website: www.rambus.com



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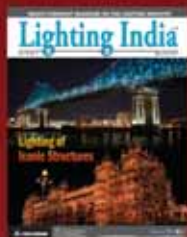
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Event Calendar

Shanghai International Lighting Fair 2017

Venue: Shanghai New International Expo Centre

Date: 5 - 7 September, 2017

Website: <http://www.light.messefrankfurt.com.cn/>

Istanbul Light

Venue: Istanbul Expo Centre

Date: 21- 24 September, 2017

Website: www.istanbullight.com

LED professional Symposium + Expo

Venue: Festspielhaus Bregenz

Platz der Wr. Symphoniker 1, 6900 Bregenz, Austria

Date: 26 - 28 September, 2017

Website: www.led-professional-symposium.com

LED Expo New Delhi 2017

Venue: Pragati Maidan

Date: 30 November - 02 December, 2017

Website: <http://www.theledexpo.com/index.html>

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BAG CCD (Isolated) Series 350 mA - 1400 mA - 18W - 140W 12 Products



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(LxWxH): 360 x 30 x 21 [mm]



(LxWxH): 280 x 39 x 21 [mm]



(LxWxH): 135 x 75 x 21 [mm]

BAG NCD (Non-Isolated) Series 400mA - 800 mA - 70W - 100W 4 Products



(LxWxH): 280 x 30 x 21 [mm]



(LxWxH): 280 x 30 x 21 [mm]

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