

VOL.1 Issue 4

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IllumiNation

OCTOBER 2019

THE LIGHTING MAGAZINE

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CELEBRATING 50 YEARS OF ELCOMA

This year India celebrated its 73rd Independence Day on 15 August. On this day the lighting fraternity had another reason to celebrate. The iconic Parliament House was provided a new patriotic sheen with Tri-colour LED lights illuminating its façade.

Continuing our practice of using the front page of "IllumiNation" to highlight the best lighting projects in India by covering important government or heritage buildings, monuments or places of historic importance, we have covered the Parliament House, which was illuminated with tri colour LED lights in a project carried out by Signify (Philips). The project was launched on 15th August 2019 to celebrate India's 73 years of independence. It is a proud moment for our industry to see such wonderful projects being implemented by our members from time to time.

ELCOMA organized an international conference on LVDC (Low Voltage DC) on 9th August 2019 at the India Habitat Centre in Delhi, which was attended by a large number of participants from the Indian industry, government departments, EESL, among others, who got to hear about the advances in this technology from eminent speakers hailing from India and Europe. This was another feather in the cap of ELCOMA as once again we have been at the forefront of emerging trends and have introduced another technology of the future that may very well be the norm in the coming years.

ELCOMA will continue to organize similar workshops and conferences with the next one being planned in Mumbai on 14th November 2019 and in Bangalore on 15th December, 2019 on Smart Home Lighting.

In the next issue of the magazine, besides covering the latest happenings in the Lighting Industry, we will also kick off our celebrations for the 50th Anniversary of the foundation of ELCOMA. We will pay homage to those that have contributed to making ELCOMA what it is today through a series of articles and features in the coming issues.

Hope you will enjoy reading this edition of "IllumiNation". We would love to get your feedback and critical comments on this and earlier issues. Please write to nikita@elecomaindia.com with your comments and feedback.

Best Wishes

SHYAM SUJAN
Secretary General
Electric Lamp and Component Manufacturers Association of India (ELCOMA)



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NEW BUSINESS OPPORTUNITIES

As ELCOMA enters into the 50th year of its establishment, elaborate celebrations are being planned. We have lined up many programs which will be announced by ELCOMA over 12 months starting November 2019 and I wish that all our members join in the celebrations and make them a big success.

India is growing at a fast pace as per the first quarter results. With the rapid urbanization of India, infrastructure development is at the forefront of this growth and is transforming our country. Lighting has always played a very important role in urban development and helps cities and localities become safe and smart. We expect this infrastructure development to also fuel the next generation of lighting products in India and lead the Indian Lighting Industry into its next phase of growth.

It is wonderful to see that all ELCOMA members have quickly introduced products on new and emerging technologies like Connected and Intelligent Lighting, which are contributing immensely to make commercial and residential spaces more efficient, safe, smart and stylish.

Another segment that has recently emerged is domestic decorative lighting which promises to provide a much larger portfolio of Lighting luminaires and variety of accessories and new designs to end consumers. These lighting solutions are expected to be based on protocols like Bluetooth Low Energy (BLE), Wireless and Human-centric lighting. Li-Fi and smart city solutions is another segment that has emerged in a big way and is suitable for large-scale installations and projects like smart Street Lights, facade lighting and illumination for monuments and historical buildings.

The lighting business is transforming into a very interesting segment that will combine lighting, mobility, personalization, controls and cloud computing among others and only the fittest will survive.

Unauthorized and illegal products that are flooding Indian markets are a source of worry for genuine manufacturers since they eat into the credibility as well the revenue of such manufacturers. ELCOMA is working hard to counter this menace by bringing in awareness and reporting the matter to government agencies and also releasing press reports for publication to important dailies, newspapers and magazines. We are confident, that with further strong actions, this market will be contained and only genuine products will be accepted by the consumers.

With best wishes

A handwritten signature in black ink that reads "Raju". The signature is stylized and written in a cursive-like font.

RAJU BISTA
President, ELCOMA

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Osram is considered a serious player in the Intelligent Lighting and Luminaire space. What are the opportunities afforded by this category of Lighting?

Osram is evolving from a leading lighting producer to the hi-tech champion of photonics. Photonics is the physical science of light generation (both visible and invisible), detection and manipulation through emission, transmission, modulation, signal processing, switching, amplification and sensing. At Osram, we unlock the potential of light to improve people's lives.

Lights can be found throughout every building and street and are connected to the electricity supply. When combined with sensors, they provide the ideal means of collecting and analysing key data about space and operating

conditions. This unfolds a lot of use cases for Smart-connected, Intelligent lighting solutions which go way beyond illumination. For example, movement detectors installed to control lighting can also be used by alarm systems and at the same time be used for heating management. Air quality sensors can be leveraged by systems such as air conditioning, automated window controls and fire alarms. Brightness sensors that control blinds can also be used to dim interior lighting and can be accessed by the fire alarm and intrusion alarm systems. Installation and running costs can be significantly reduced through multiple analyses of sensors across various control systems. All this is possible with a unique Open IoT Platform solution offered by Osram called "Lightelligence".

How do you match the challenges of manufacturing Light engines and LED drivers in the context of a very large variety of models to be offered to consumers? How do you plan to support connectivity in Lighting Systems and LED drivers?

Yes, this is indeed a challenge. But to a large extent we solve this complexity by our innovative approach of modularity, platform commonality and system standardisation. Standardisation in form, fit and functionality across the full range of product segments helps our customers to build a variety of solutions with great ease.

AC, DC, linear, square and round shapes; high-power, mid-power and low-power LED packages – the possibilities to create a light source seem endless. On one hand, this provides the perfect opportunity to escape from the rigid boundaries of conventional lamps but on the other hand this also creates new challenges like living up to the expectations of the market for sustainable product propositions with fast-paced LED technology development.

Managing the technical changes required to keep a luminaire attractive over its entire production lifetime involves regular development efforts, e.g. component updates and qualification. These tasks increasingly bind valuable resources that are needed to



UNLOCKING THE POTENTIAL OF LIGHT TO IMPROVE PEOPLE'S LIVES

In a tete-a-tete with Illumination, Avinder Singh, Managing Director, Osram Lighting Private Limited talks about connected lighting and how it will impact the Indian Lighting industry in the near future

innovate and stay competitive. We strive to support our customers by a smart component strategy to limit the effort for future product updates.

The advent of LEDs in the lighting industry has created unlimited freedom in light source design thus enabling luminaires that have been unthinkable before. With our comprehensive portfolio of light engines and modules, our competence in lighting and uncompromised quality we make our customers more successful in their businesses.

Osram has a very technological advanced portfolio. From a wide range of LED drivers - standard on/off driver to fully programmable to digitization and Internet of Things (IoT), we are taking giant strides. With DEXAL, we have developed a future-proof interface that will be of great help in making lighting play an important role in digitalization. LED drivers with DEXAL interface lay the foundation for a digital ceiling that connects luminaires with integrated sensors and RF modules to set-up a close-meshed, radio-based network.

Do you believe that there are many benefits of connected applications? Can you give few applications which are well accepted and in demand by the market?

Undoubtedly Intelligent connected lighting solutions open the door for many smart applications and digital services.

Depending upon the level at which the benefits are derived, these can be categorised as Luminaire Level, Illumination Level and Beyond Illumination.

At the Luminaire level, energy reports can be generated per fixture by dates and locations. They can contain information related to energy usage, cost savings and comparison of actual energy usage v/s promised and

“Lighting industry in India is also witnessing a transformation phase which is nothing less than a paradigm shift. Today IoT platforms are becoming a disruptive force in lighting industry and this seems to unlock a variety of applications and digital services”

calculated ROI. Such reports can also indicate probable cause of failure to know where the fault lies, which can trigger predictive maintenance before the end of life of fixture by giving alerts for replacing various components before they go faulty and cause complete darkness. This helps to minimise down time and reduce maintenance cost drastically.

At the Illumination level, we know that Light always has multifaceted effects, visually, emotionally and biologically. Human Centric Lighting (HCL) has a specific long-term effect on our health, well-being and on the productivity of any human being through holistic planning and implementation of the visual, emotional and particularly biological impacts of light. The balance between the parameters of artificial lighting, natural daylight, architecture and technology creates the right light at the right time for each use. Our CHRONOGY eyewear is another example of high technology in this field. CHRONOGY eyewear are light treatment glasses that create supplemental lighting comparable to natural light from the sky, whenever and wherever you need it. The amount, timing and quality of light during day and night has substantial impact on our performance and health. The product harvests the benefits of the latest advances in scientific research and years of experience in lighting to enable personalized light treatment plans to enhance the user's health, well-being and performance.

The concept of Beyond Illumination is not so simple to explain. It can be better understood when we take the example of a smart phone. Is it a phone? Not really. It is a computer with a capability of making and receiving calls. Similarly Osram's Digital Lumen fixture is not just a light fixture. It is a computer that has illumination capability.

IoT Based connected LED Luminaires open the door to a variety of applications and digital services. We have only scratched the tip of the surface and I am sure there are so many more of these applications and services that will touch our lives in the coming years that we

have not even imagined now.

Some of the most talked about applications which have already started making an impact into the lives of consumers are:

Space Utilisation is an application of connected lighting that helps to save rental costs in offices, factories or in industry by analysing the Area Heat Map and recommending the best utilization of space

Indoor navigation is an application which leverages the fact that Light is omni-present in indoor areas and when fitted with a BLE beacon, can provide navigation when you are in a shopping mall, etc. Such systems can push messages to guide you to the products with best offers and are of interest to you, based on analysing your buying patterns and demographic behavioural data. These indoor navigation systems obviously help consumers but at the same time also help the retailers to increase their revenue. There are many more indoor navigation applications that are making a mark in the industry like smart parking, museum guide, etc.

Connected Smart Street Lighting is an area which has shown a lot of promise and allows for the delivery of multiple services like energy monitoring, fault logging, asset tracking, traffic monitoring, air quality monitoring etc on the same shared infrastructure.

Connected Warehouse allow business owners to realize improvement and new value across all aspects of their warehouses through energy efficiency, layout optimization, streamlined processes and the automation of manual tasks. Digital Lumens intelligent LEDs fixtures, lighting controls and SiteWorks Industrial IoT platform can help facility managers or anyone involved in warehouse operations, run a more efficient, profitable business. With Site Works, facilities become a source of actionable data and facility managers are equipped with new insights and advanced controls that can help reduce energy spend, mitigate risks to product quality, better allocate production costs and streamline workflows.

What kind of obstacles do you see for such

intelligent products in India?

Any technology transformation has its own challenges. Lighting industry in India is also witnessing a transformation phase which is nothing less than a paradigm shift. Today IoT platforms are becoming a disruptive force in Lighting Industry and this seems to unlock a variety of applications and digital services.

Thus, it becomes imperative to create mass awareness for intelligent and smart applications to create demand. A right balance of price and technology offering can also lead to mass adoption. As far as Product Development, Testing and manufacturing of these products are concerned, a fully matured eco system needs to be developed both by cumulative efforts from Industry experts, Test houses, ELCOMA, ISLE and the Government of India.

How do you think that intelligent Lighting effects illumination delivery?

The only effect we see is a positive one. It is helping to enhance the opportunities coming out of illumination. We can see that the luminaires are gaining intelligence and are becoming more like a computer having illumination capability and can also accomplish a variety of other applications and tasks including tuning the lights as per our mood to assisting us in indoor navigation, etc.

A wide range of components and control systems can be integrated into IoT platform. A broad variety of software can run on such a platform, making new applications possible that go beyond lighting. Osram's Lightelligence platform is one such IoT platform that is open to products, applications and interfaces from all manufacturers. This reaps synergies and reduces costs. Osram's sensor-based logistics solutions, for example, can use a warehouse's lighting infrastructure to record inventories, monitor temperature and humidity for perishable goods, or optimize the way in which warehouses are used.

“The advent of LEDs in the lighting industry has created unlimited freedom in light source design thus enabling luminaires that have been unthinkable before.”

Motion detectors in office buildings can be used to manage meeting rooms more efficiently and arrange targeted cleaning. In retail stores, customers can be better addressed via localized digital services. Mobile assets, such as beds and medical equipment in hospitals, can be located immediately. Beyond buildings, smart city solutions, such as the identification and reporting of free parking spaces through intelligent street luminaires, become feasible.

Can you give some examples of Products/Services/Verticals where Osram would be focusing their Intelligent Lighting product portfolio?

Today Osram is focussed on four areas of expertise namely Connectivity, Mobility, Safety and Security and Health and Well-Being.

In these mentioned areas of expertise, we offer a wide range of intelligent & smart products.

The ENCELIUM Light Management system, suitable for both wired & wireless lighting, is a flexible and powerful way to monitor, analyse and manage interior and exterior commercial lighting spaces. It is the only lighting control system that can gather data from a range of lighting devices to adjust lighting usage with changing building and occupancy needs and requirements - making any building fit for the future. It provides 360-degree, 3D graphical control and reporting and can save up to 75% energy by using various energy management techniques like Smart scheduling, Day lighting, task tuning, Presence detections & individual controls. It can integrate into other BMS systems via a BACnet® interface.

Our DALI Professional lighting management system is suitable for lighting control in several rooms, halls or on entire floors, especially in industrial or office buildings, hospitals, hotels or restaurants. It can control light colours (RGB), colour temperatures in addition to standard functions such as switching, dimming, presence detection and daylight-dependent lighting control. DALI PRO Control app enables users to adjust each luminaire or group of luminaires in all

rooms according to their individual requirements and can also be integrated to building management systems through KNX interface.

Osram's Traxon Technologies with its control brand, e:cue, is a global leader in solid state lighting and control systems providing complete, sustainable and intelligent lighting solutions. We have completed over 5,000 installations worldwide, including renowned architectural landmarks such as Hypercube Skolkovo in Moscow, Klodzko Fortress in Klodzko, Barry J Kaplan Bridge in Texas USA, Kempinski Ambience Hotel, Delhi, Hanjie Wanda Plaza in Wuhan, Flame Towers in Baku, the National Stadium in Warsaw and Christ the Redeemer Monument in Rio de Janeiro among many other prestigious entertainment, hospitality and retail interiors and facades.

Our Digital Lumens products offer a fully integrated IoT Luminaire – that controls & monitors things in places remotely from anywhere & anytime.

Osram is also at the forefront of advancements in plant / horticultural lighting with everything from LED grow lights to complete solutions. Our Smart farming solutions use the right light recipes to influence the development of plants, from their growth pattern to their appearance & nutrient content.

What timeframe do you see these kinds of applications becoming a reality in India?

Intelligent applications are already here, and early indications of their acceptability are very encouraging. Osram being a technology leader is already witnessing smart applications being a reality in India.

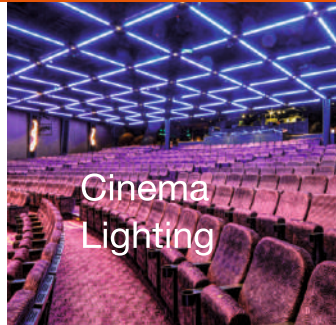
We have a rich portfolio of intelligent and technological advanced applications and we have already used many of these in our noteworthy projects in India and across the world including the Illumination of Golden Temple at Amritsar and the beautification of Jaipur City with smart lighting.

AUTHOR: ILLUMINATION EDITORIAL BOARD

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Dynamic Lighting



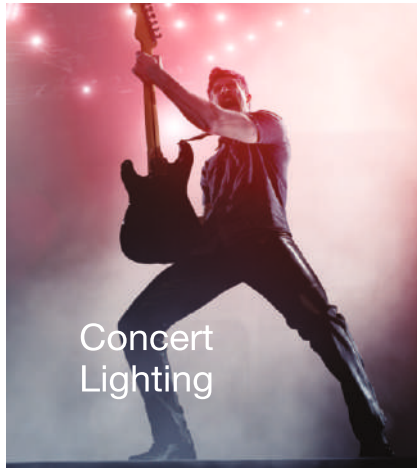
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Light is OSRAM

OSRAM

I AM AN ETERNAL OPTIMIST

Mohit Sharma, Global Business Head, Jaquar Lighting chats with Illumination



Tell us a something about your early life.

I was born in December 1970 at New Delhi. I received an Honours degree in Chemistry from Kirori Mal College, Delhi University and I am an alumnus of IIM Calcutta.

I enjoy travelling and love to explore new places by meeting local people and understanding social and cultural style of living in these areas. I think this has helped me in creating new relationships and has given me the ability to make and find friends everywhere.

Do you have a memory or an incident that you believe has shaped your career or your attitude or given you a life lesson?

I am an eternal optimist and a never say die kind of person. But everyone has their highs and lows.

I was a sales representative in a small firm in which I started my career. One day after completing a cold call, where I did not get much luck or response, I was feeling very frustrated and disappointed. It was probably one of the lowest points of my life where I had been exceptionally unsuccessful in several sales calls. While returning from the call, I saw a blind man selling pens at the roadside and I bought two pens from him. Maybe he sensed my mood and finding me in low spirits, he started talking to me. He asked me why I was feeling in so low and what my problem was. I told him about my sustained run of bad luck where I was not getting any orders. He assured me in a very calm voice and told me that everyone faces disappointments, but one should not brood on them. Time is great leveller and whoever is down in the dumps today will be up in the clouds tomorrow. He said that opportunities come to everyone, but not everyone utilizes these opportunities. Those who succeed have the ability to identify that opportunity and grab it with both hands. Sometimes you have to take a risk and that one bold step in your career may set you on the path to success. If you are sincere in your efforts and work hard to achieve your desired results, you will never receive a setback.

I ended up chatting with him for quite some time. The blind man and his wisdom struck a chord with me and I went away from that chance encounter feeling in higher spirits than I had ever been. That one incident taught me so much about life and probably helped shape my thinking and approach to life as well.

Tell us a bit about your work at Jaquar

I joined the Jaquar Group in 2017 at a stage when the lighting vertical was being expanded and needed a growth strategy to strengthen its operations. My primary role was to build the lighting vertical within a group that was primarily famous for sanitary products while

ensuring that the lighting vertical stayed true to values and aesthetics of the Jaquar brand.

I took on the challenge to prepare complete range of products and develop the market for the same in India and abroad. We initiated first lighting factory in 2017 and now our second state of art lighting factory is going to be starting operations by end of 2019.

Jaquar is India's most trusted brand in luxurious sanitary products and Jaquar Lighting is an extension of this expression of aesthetics and efficiency. Our 'complete lighting solutions' represent the cleanest, brightest, softest lights and are designed to suit the taste of the millennium.

Staying true to our concept of 'Light up your lives', we provide home light in all forms - commercial, outdoor and decorative. Be it home lights, chandeliers or decorative lights, we have developed various ranges for all our potential customers, catering to all sections.

What are the future plans of Jaquar Lighting?

We are investing Rs. 150 crore in our new lighting manufacturing facility which is coming up soon. We plan to manufacture many of the lighting components in-house. We already manufacture our own LED drivers and at present produce close to a million LED drivers each month. Ever since we started manufacturing our own drivers, the failure rate of our lights is almost zero. We also manufacture bulbs and tube lights at our automated bulbs assembly line at the factory in Manesar.

We found a synergy between our bath ware business and lighting. Water and electricity are two lifelines of each home and the end consumers remain the same. The company first invested into lighting 15 years back when we identified a vacuum in good quality lighting. Since then, we have focussed on high quality designer lighting such as chandeliers and decorative lighting.

Jaquar's lighting products are carefully monitored at each and every step, right from the manufacturing process to the final delivery of the products. That is because Jaquar seeks

"If you are sincere in your efforts and work hard to achieve your desired results, you will never receive a setback"



to fulfill customer needs as well as anticipate future market needs and trends, an effort, which has enabled us to achieve constant growth in an increasingly competitive market

We are one of the fastest growing lighting companies in India. We have worked aggressively on design recently and hope to open up the markets in Europe, Asia, and Africa soon.

What are the lighting products that you recommend for the ideal home?

Lighting is one of the most important design elements in any home. Without lighting, the appeal and texture of the house is completely lost. Lighting adds depth into any space and plays an important role in enhancing the mood you come home to. It becomes very important to choose the perfect lighting fixture which adds an elegant touch while providing the perfect amount of light in the space.

Jaquar's lighting range for homes add a contemporary, minimalistic look to the décor and their accessibility in an extensive range of outputs makes them suitable for any room's lighting requirement. They offer great flexibility for homes that seek to create the right atmosphere by illuminating smaller zones to complement the arrangement of furniture, highlight other décor pieces in the room, or to keep lighting unpretentious.

Along with the advantage of saving up to 90% energy, lifespan of over 50,000 hours and emitting no UV/IR radiations, our lighting solutions are maintenance-free, have a long life and provide uniform illumination. Their sleek and compact design also provides glare-free lighting.

Jaquar has a wide range of lighting solutions in indoor, outdoor and lighting automation. We are one of the largest companies in terms of lighting range and specialize in architecture products.

We have an extensive range of chandeliers including those with Gold plating and Swarovski crystals. In fact one of our exclusive products, the Celeste Chandelier is proud to have the honour of being a part of India's most prominent building, the

Parliament House.

What is the real Mohit Sharma like?

I am a happy-go-lucky type of person that likes to socialize and enjoy life as it comes. My family is my strength and my weakness as well. My wife Abha teaches at Delhi Public School and is a great supporter in all my life events. My daughter Bhavya is perusing her BBA and my son Aryan is studying in 10th in DPS.

I like nothing better than spending time with the family and my ideal day is one where we all are together, watching a movie or just catching up and eating some home cooked food.

IN A LIGHTER VEIN

Favorite book : Leo Tolstoy's "War and Peace"

Favorite movie : Purab aur Paschim, Sultaan

Favorite Cuisine : Punjabi comfort food like Rajma chawal.

Hobbies : Jogging and listening to music

My Hero : Shri Narendra Modi

My childhood ambition ... when I was a child I wanted to become a fighter pilot

I am a devout fan of ... My father and mother

If I could go back in time ... given an opportunity, I would love to time-travel to the Dwapar Era and meet Lord Krishna

Something that most people don't know about you ... every time I see someone who is underprivileged or poor, I try to help them

AUTHOR: ILLUMINATION EDITORIAL BOARD

"Those who succeed have the ability to identify that opportunity and grab it with both hands. Sometimes you have to take a risk and that one bold step in your career may set you on the path to success"

Where lighting meets the IoT

Interact lets you collect data from the illuminated environment via sensors embedded in the lighting system. The data gets transformed into insights for smarter decision making.

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interact

COVER STORY

SIGNIFY SHINES A DYNAMIC LIGHT ON THE INDIAN PARLIAMENT HOUSE

Dynamic Façade Lighting inaugurated by Prime Minister Narendra Modi on
the country's 73rd Independence Day





Signify, the world leader in lighting, recently announced that it has illuminated the Indian Parliament House in New Delhi using its Color Kinetics dynamic façade lighting. The lighting system was inaugurated by Prime Minister Sh. Narendra Modi, ahead of the country's 73rd Independence Day celebrations, in the presence of other luminous dignitaries including the Honourable Lok Sabha Speaker Sh. Om Birla, Union Ministers, Deputy Chairman of Rajya Sabha, Members of Parliament and former Members of Parliament.

The iconic building is a political and cultural landmark that defines our country's rich heritage and history. The newly installed lighting system features 875 light points, capable of creating 16 million colour combinations and stunning lighting effects that can be used for important national festivals and celebrations. The installation will illuminate the whole facade of the Parliament House building, including the porches of the building's gates.

"As the seat of the biggest democracy in the world, the iconic Parliament House deserved

attractive and dynamic lighting that emphasizes its architectural splendor and rich heritage. We are proud to illuminate this historic landmark building with our dynamic LED façade lighting using a palette of 16 million colors" said Sumit Padmakar Joshi, Vice Chairman and Managing Director, Signify Innovations India Limited (formerly known as Philips Lighting).

The majestic building, also known as the Sansad Bhavan, was designed by Edwin Lutyens and Herbert Baker in 1912-1913 and its circular shape has been inspired by the Ashoka Chakra. The construction of the buildings took six years, beginning in 1921 and were completed by 1927. The parliament is 170 metres (560 ft) in diameter and covers an area of 2.4 hectares (6 acres). The Central Hall consists of the chambers of Lok Sabha, Rajya Sabha and the Library hall. Surrounding these three chambers is the four-storeyed circular structure providing accommodations for members and houses Parliamentary committees, offices and the Ministry of Parliamentary Affairs.

The energy-efficient LED light fixtures installed in the building are water and dust

"As the seat of the biggest democracy in the world, the iconic Parliament House deserved attractive and dynamic lighting that emphasizes its architectural splendor and rich heritage. We are proud to illuminate this historic landmark building with our dynamic LED façade lighting using a palette of 16 million colors"

Sumit Padmakar Joshi
Vice Chairman and Managing Director
Signify Innovations India Limited
(formerly known as Philips Lighting)

COVER STORY

875 LED lights, which change colour every few seconds, have been placed on the facade of the Parliament House

resistant and will enable a significant reduction in power consumption. It is interesting to note that the installation of dynamic facade lighting in the Parliament House, Parliament Library Building and Parliament House Annexe buildings was completed by the Central Public Works Department and the Signify India team in just 22 days. The permanent dynamic LED facade lighting has a high return on investment, considering its higher energy efficiency and year-round availability, with lighting effects being available for all 365 days as compared

to 10-15 days in case of temporary illumination, which also involves recurring expenditure.

This project follows the company's success in illuminating other prestigious cultural landmarks in the country such as the Rashtrapati Bhavan, India Gate, Qutub Minar and the North, South Blocks of Central Secretariat, with its Color Kinetics dynamic façade lighting system.

**AUTHOR: SIGNIFY INNOVATIONS INDIA LIMITED
(FORMERLY KNOWN AS PHILIPS LIGHTING)**

Views expressed in this article are those of the contributors and do not necessarily reflect those of the editors or publishers



ELCOMA MEETS SH. RAVI SHANKAR PRASAD, TO DISCUSS NATIONAL POLICY FOR ELECTRONICS



A round table meeting was chaired by Shri Ravi Shankar Prasad, Honorable Minister of Electronics and IT on 16th September 2019 at Vigyan

Bhavan, New Delhi. The minister in his keynote address said that India is to set to become one of the top 5 electronic markets in the world with US\$ 400 billion potential by 2025. He said government has notified National Policy on Electronics 2019 (NPE 2019) which envisions making India the next Global Electronics Hub via promoting domestic manufacturing and exports in the entire value-chain.

Nearly 60 CEO's from various organizations were invited to join in this meeting. ELCOMA was represented by Mr. Sumit Padmakar Joshi, MD, Signify Innovations India Ltd (Formerly known as Philips India), Mr. Rakesh Zutshi, MD, Halonix Technologies Pvt Ltd, Mr. Gautam Seth, JMD, HPL Electric & Power Ltd, Mr. KV Gupta, CEO, Kwaliti Photonics Pvt. Ltd, Mr. Shyam Sujan, Secretary General, ELCOMA and Mr. Sunil Sikka, Advisor, ELCOMA

In the inaugural session Mr. Ajay Prakash Sawhney, Secretary, MeitY, Shri Dhotre Sanjay Shamrao, Honorable Minister of State, MeitY, Mr. Sanjay Kumar Rakesh, Joint Secretary, MeitY, Mr. Rajiv Kumar, Secretary, Department of Finance, all emphasized on the National Initiative to prepare the industry to reach ambitious plans of India in becoming global hub of Electronics by 2025.

In his presentation, Mr. Sumit Padmakar Joshi

said that the Lighting Industry has always supported the government's policies and have brought down LED Lamp price from Rs. 400 to Rs. 40 in the shortest possible time. However, the implementation of CRO program has not been found helpful to the industry as more than 36% of LED products that are sold in the market still do not bear CRO certification and hence these products are not safe.

Mr. Rakesh Zutshi and Mr. Gautam Seth reiterated similar views on the subject.

Mr. Sunil Sikka, Advisor ELCOMA, introduced the role and achievements of ELCOMA, which shall be completing 50 years of its meaningful existence in the year 2020. He informed those present that ELCOMA has started working with MeitY only after lighting turned into solid state lighting, in the biggest disruption worldwide. For many years lighting was being governed by Ministry of Power (BEE) and Ministry of Consumer Affairs (BIS). The Compulsory Registration Order (CRO) which was initiated by MeitY with good intention of curbing poor quality imports has not been found effective as the same is being grossly misused by unscrupulous importers in short of adequate vigilance mechanism in place.

Mr. Sikka emphasized that India is a power deficient country and to save energy the Lighting Industry worked over time to build capacity and capability to produce world class LED lamps and luminaires in record time. The Industry has a healthy ecosystem of manufacturing finished goods and components at competitive cost and which can now be well utilized to enhance Exports.

In his closing statements, Mr. Sikka proposed that ELCOMA would submit a white paper after seeking inputs from its members for specific support required from the government through MeitY to promote exports in the Lighting Industry.

ELCOMA will prepare a plan for Export Promotion by appointing a special committee that will create a Vision 2022 whitepaper for MeitY which will focus for inputs required and support sought for government in this direction. ELCOMA is likely to prepare and submit the plan to government by first week of November 2019

Author: ILLUMINATION EDITORIAL BOARD

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50 % LEDs SOLD IN MARKET ARE UNSAFE AND NON-COMPLIANT : A. C. NIELSEN MARKET SURVEY

Business Standard carried out a special edition on 6th August, 2019, covering more than 4 pages on the subject. The newspaper gave a break-up of various cities where A. C. Nielsen had undertaken a survey which found that 47% of LED Lamps and 52% of down lighters at National level were non-compliant



The LED market in India is fragmented with the easy availability of non-branded products placed at various price points. These non-standardised and low quality products possess serious safety

hazards for the consumers besides causing significant losses not only in terms of energy output but also in tax revenues for the Government. The lower entry barrier aids these products to reach newer markets and attracts attention from a wide range of consumers. Today, most consumers are evolving and adopting safe, well designed and innovative products which enhance not only their lifestyles but also ensure well being at home. With the relentless efforts of BIS (Bureau of Indian Standards), standardisation of LED products has been practiced across the industry in order to ensure consumers' safety and benefits. However, in this ever-evolving market and technology spectrum, serious enforcement measures must be deployed to ensure seamless standardisation for all products for the advantage of our end consumers.

SHEKHAR BAJAJ
CMD, BAJAJ ELECTRICALS LIMITED



Spurious & non-branded LED products are not safe for the consumer and doesn't help the Industry. These products do not follow any specified quality parameters or standards. Consumers expect LEDs to provide long life and lower power consumption. Non-branded LEDs consume more energy, have a much shorter life and low lumen output. In the long term consumer ends up spending more money buying a non branded LED products as he has to use more lights for the same light output or the product fails too soon. Although

laws are in place against sale of non-standard LED products; strict enforcement is required to ensure everyone conforms to the BIS standards thereby protecting the consumer interest and safety

SANJAY GUPTA
SENIOR VICE PRESIDENT AND BUSINESS HEAD, WIPRO LIGHTING



It is imperative to adhere to stringent safety standards and foster energy efficiency in the country. The survey by Business Standard on compliance levels in BIS and legal metrology norms across India has shed light on some alarming trends in the country. The survey reveals that 52% brands surveyed are BIS non compliant & 67% are legal metrology non-compliant. This necessitates for the industry, at large, to reinforce corrective measures,

conduct rigorous quality checks and ensure products that are safe, secure and standardized. At Havells, we enforce strict production and certification norms on all our products, including lighting range and maintain quality control to appeal to our consumers. If we are vigilant in our approach and make sure to offer products with authentic certification, this in turn will curb influx of low-quality, counterfeit products as well.

ANIL BHASIN
PRESIDENT, HAVELLS INDIA LIMITED



This survey done by ELCOMA through Nielsen highlights the presence of high levels of non-compliance with respect to BIS standards and legal metrology for LED Lighting products in India. As per the survey which is a follow up to the similar survey done last year, more than 50% of the brands surveyed were found to be non-compliant in terms of BIS standards and legal metrology requirements. "This is an alarming situation and we expect the

government to address the issue to ensure that consumer rights are not compromised. The industry and the consumers believe that government should step in quickly as it not only impacts quality and reputation, but it eventually impacts manufacturing in India as low-cost imports of components is eating away the edge that the Indian manufacturing industry is trying to establish. We at Orient Electric strongly believe in "Make in India" and have set up two manufacturing facilities for LED Lighting and are committed to BIS Standards and other standards established by the government. We look forward to the authorities for increased vigilance and enforcement of standards so that the organized players who are following all the standards and rules are motivated to keep on providing the quality products and get a level playing field.

PUNEET DHAWAN
EXECUTIVE VICE PRESIDENT & HEAD OF LIGHTING BUSINESS, ORIENT ELECTRIC



As a leading player in the lighting category in India, Jaquar Lighting follows the highest standards in manufacturing and testing of LED bulbs. All our lighting products are BIS compliant

and adhere to government regulations. In order for the category to grow and present itself as a trusted commodity for consumers, it is imperative that all brands comply with the necessary regulations and help light up India

RANBIR RAJ MEHRA
DIRECTOR, JAQUAR LIGHTING

CAPTAINS OF THE INDUSTRY SPEAK

on the need to adhere to safety standards, gain consumer trust



LED lighting has not just been a technological revolution but a revolution that completely disrupted the prevailing market scenario for better. In the year 2014, LED lighting segment was given a major leg-up by the Government. The LED revolution helped the market get rid of unscrupulous players upto some extent, but still safety and performance considerations were not adhered to by all the players. Further cheap imports kept the market flooded and turned out to be a major challenge for the organized sector. Though the BEE star rating has been made mandatory from July 2014, its positive effect is yet to be observed and currently there are insufficient resources at BEE to completely weed out the sub-standard products from the market. We had already seen the similar proliferation of sub-standard products in the early 2000's in CFL lighting segment, but once the BIS certification was made mandatory in 2007-08, such products were gradually weeded out over the next couple of years. In line with the government's commitment towards Make In

India, it is imperative to curb the influx of cheap imports which at one hand promotes evasion of tax and duties by the unscrupulous players who give a severe blow to government's revenues and on the other hand they compromise with the safety of the consumers, which is a major threat. It's high time the government and the Industry should come together to end the menace of illegal imports and a concrete step in this direction will ultimately create a win-win situation for all the stakeholders including the government, consumers and the industry.

RAKESH ZUTSHI
MANAGING DIRECTOR, HALONIX TECHNOLOGIES LTD.



The LED lighting industry is poised to grow swiftly, and to make a significant contribution to India's economic growth. As any industry enters such a period, safety norms become an important factor. This industry is no different. In fact, it assumes even greater significance, since the vast majority of our products are deployed in public spaces. Low energy costs will definitely benefit the public, but this must not be at the cost of public safety. In this context, the BIS Compliance Study, conducted by Nielsen on behalf of ELCOMA, yields disturbing results. Overall BIS non compliance averages at close to 50% nationally, with select key states registering far higher levels. What causes even greater alarm is the fact that the incidence of non-compliance shoots up in newer markets, compared to older ones. This means that a higher proportion of sub-standard products are cropping up in precisely

those markets that the industry needs to develop for future growth. This obviously places a lot of responsibility on the shoulders of the industry, as well as consumers. Industry players, both big and small, must maintain single-minded focus on one simple thing – the manufacturing of high quality products, which adhere to the highest safety standards. In our own organization, we take this very seriously and ensure thorough testing at every stage of manufacturing. Consumers are the ones who are ultimately affected. This is why it is important for the public to actively check the safety ratings of products before purchase, and choose only products which are safe. There may be a difference in the pricing, but is it worth taking the risk of buying unsafe products, which may affect the safety of their entire home? Once they factor safety into their purchase decision, as a matter of habit, the industry will follow suit. Campaigns educating the public, by both individual players and industry bodies, are the need of the hour.

ANIRUDH KAJARIA
MANAGING DIRECTOR, CENTURY LED LTD.



The continued availability of non-BIS compliant products, in spite of a strict mandatory order by Ministry of Electronics and Information Technology (MeitY) and Bureau of Indian Standards (BIS) has disturbed the India

Lighting Industry which has proactively followed all the regulations. All the members of the Association have registered their products falling under Compulsory Registration Order (CRO) of MeitY. After investing a large sum in getting these products compliant to standards, getting them tested and obtaining the certification, if the proliferation of unauthorized product continues, the industry will suffer a heavy setback and will be discouraged in manufacturing of lighting products.

SHYAM SUJAN
SECRETARY GENERAL, ELCOMA



Over the past 5-6 years we have noticed the entry of several LED lighting products that are non-compliant to safety standards defined by BIS. These products are a safety hazard for consumers and also evade taxes, thereby causing revenue loss to the government. Strict actions and surveillance against these products is urgently required, as these can negatively impact the government's focus on promoting energy efficient products and discouraging "Make in India" initiative of the Lighting Industry.

SUMIT PADMAKAR JOSHI,
VICE-CHAIRMAN &
MANAGING DIRECTOR, SIGNIFY
INNOVATIONS INDIA LIMITED
(FORMERLY KNOWN AS PHILIPS
LIGHTING INDIA LTD.)



ELCOMA has undertaken several surveillance initiatives in many cities across India from time to time. Population of unauthorised lighting products continue to grow unabated owing to lack of action being taken by compliance agencies. Samples of unregistered products have been purchased and submitted by ELCOMA to MeitY along with proof of purchase for initiating punitive action. Non action is not only disturbing interest of legitimate industry but actual user / consumer at large.

SUNIL SIKKA
ADVISOR, ELCOMA



QUTUB MINAR DAZZLES WITH LED LIGHTS FROM SIGNIFY

Signify's Color Kinetics system highlights the architectural features of the iconic 800-year-old brick minaret, offering cost effectiveness and energy efficiency at the same time

The Qutub Minar is one of New Delhi's most well-known landmarks and is popular among citizens and tourists alike due to its commanding view over the city and its place in history. The 13th century minaret forms part of the Qutub complex which is a UNESCO World Heritage Site. The Qutub Minar is a 73-metre tall tapering tower with five storeys, a 14.3 metres base diameter that reduces to 2.7 metres at the top of the peak. The construction of the building was started in 1192 by Qutub-ud-Din Aibak, founder of the Delhi Sultanate, and was completed by Aibak's successor and son-in-law Shamsuddin Iltutmish in the year 1220. It is the highest brick structure in India which is hollow from within and has a circular staircase with 378 steps.

A towering icon for New Delhi's citizens and visitors, the Qutub Minar has been standing strong for more than 800 years. Over the years, the minaret has been damaged several times by natural calamities and rebuilt by different rulers. The minar's topmost storey was damaged by lightning in 1369 and was rebuilt by Firuz Shah Tughlaq, who added another storey. In 1505, an earthquake damaged Qutub Minar which was repaired by Sikander Lodi. On 1 September 1803, a major earthquake caused serious damage and Major Robert Smith of the British Indian Army renovated the tower in 1828.

Signify (formerly Philips Lighting) has recently illuminated the monument in association with The Archaeological Survey of India (ASI) and NBCC (National Buildings Construction Corporation Limited). The lighting project included illumination of the iconic minaret and the historically significant monuments of the Qutub complex surrounding it. This complements the various façade lighting projects executed by the company to illuminate other historical monuments in the city, such as the Red Fort and Safdarjung

Tomb, in a bid to encourage night tourism.

The ASI has been carrying out illumination on a number of monuments across the city as means to promote night tourism. In the recent past, the central government body, along with the NBCC has completed the illumination of the Purana Qila, the Red Fort, and the Safdarjung Tomb.

As part of the effort to increase tourism in the evening, timings for public entry at Red Fort, Safdarjung Tomb, and Humayun's Tomb have been extended to 9 PM. Earlier they were open for public only till 6 PM. The Qutub Minar, however, is one among eight monuments in Delhi which was already open till 10 PM.

The new illumination, similar to the ones installed at Red Fort, will spruce up the Minar complex enabling visitors a detailed view of its opulent architecture, calligraphic verses, corbels, and intricate carving even at night.

The Project

The monument was illuminated using 445 LED light points in warm white colour to create an impressive design that emphasizes the tower's architectural features. The new LED lighting also enables the tower to project itself as an urban icon in the heart of New Delhi's Mehrauli area, further enhancing the image of the city. The newly installed LED lights are not only energy efficient, but also more cost effective over the long run due to their lower power consumption, when compared to conventional lighting.

"We at Signifyare committed to helping Indian cities develop more eco-friendly tourist landmarks by using LED lighting to lower energy use and reduce operating costs. The Qutub Minar has an enduring social texture reflecting the city's identity as the historic political center of the country. We are proud to bring the magic of the minaret to life at night with our Color Kinetics LED lighting that highlights its architectural features and at the same time is cost effective and energy efficient," says Sumit Padmakar Joshi, Vice Chairman and Managing Director, Signify Innovations India Limited (formerly known as Philips Lighting).

"Parts of the Qutub Minar complex were already illuminated. But we have increased the lighting now," an official from ASI said. "We are expecting that with further illumination, footfall in the monument will increase." he added.

"All lights used are warm LEDs which highlight the architectural features of the monument. They will not harm the monument in any way, nor attract mosquitoes and other insects," said an official from NBCC. "Apart from the minaret, all the pathways and the smaller structures around the Qutub Minar have also been lit."

AUTHOR: SIGNIFY INNOVATIONS INDIA LIMITED (FORMERLY KNOWN AS PHILIPS LIGHTING)

Views expressed in this article are those of the contributors and do not necessarily reflect those of the editors or publishers

6TH MEETING OF BRICS SSL COLLABORATION WORKING GROUP IN CHINA

Illumination brings an update on the SSL meeting held during the BRICS summit in China in July



Beijing Landsky Environmental Technology co., Ltd. (Landsky) and Signify attended this meeting. There were more than 40 participants in total.

Xuemei Yang, Director of International Cooperation Division, International Cooperation Department, Ministry of Science and Technology of China (MOST), inaugurated the program and in her welcome address, she said that since 2003, China has become the largest producer, application developer and exporter of SSL all over the world. In 2018, the total output value of SSL industry of China reached 737.4 billion yuan. She said that in 2018 China's LED epitaxial slice production capacity reached about 12 million pieces per month and with the addition of 213 new MOCVD equipments, produced about 13.5 billion LED lighting products, which helped save 279 billion kilowatt hours of electricity and reducing carbon emissions by 220 million tons. In her opinion, SSL has not only greatly improved the quality of life of people, but also made a corresponding contribution to the sustainable development of mankind.

The 6th Meeting of BRICS SSL (solid state lighting) Collaboration Working Group (BRICS SSL WG) was held on July 8th -11th, 2019 in Beijing, China. The meeting was hosted by the Secretariat of BRICS SSL Collaboration Working Group (the Secretariat of International SSL Alliance). 8 delegates from Ministry of Science and Technology, Research Institute and SSL Associations of BRICS countries and 7 delegates from 'BRICS+' countries (Vietnam, Thailand, Malaysia, Belarus, America and Myanmar) participated this meeting. Representatives from the Department of International Cooperation of Ministry of Science and Technology of China, Kunming Science and Technology Bureau, Hangzhou

Standardization International Exchange Center, Beijing Tsinghua Holdings Habitat Development Lighting Institute Co., Ltd. (THDLI), Beijing New Space Technology Co., Ltd. (New Space), Dr. Jianlin Cao, President of ISA and former Vice Minister of MOST, welcomed the international cooperation and was willing to share past experience of SSL development in China with friends from all over the world. He opined that working together to deal with future problems of SSL development, the international SSL community can draw on each other's strengths and make the world a better place.

BRICS SSL Development Forum

Eight delegates from Ministry of Science and Technology, Research Institute and SSL Associations of BRICS countries introduced the latest policy, planning, developments, present situation and prospects of national SSL industry and the market demand in





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BRICS. They also shared the SSL innovation, research and development and deployment, the opportunities and challenges in the process of application in their countries.

Mr. Sergio Celaschi, Co-Coordinator in the Smart Cities field from the

Information Technology Center (CTI) of Ministry of Science, Technology and Innovation (MCTI) in Brasil, introduced the situation of SSL development and applications in Brazil with respect to research and development demand, market challenges and member demand.

Mr. Carlos Ferreira, permanent representative of Brazilian Association of the Lighting Products Importers (ABILUMI) in Shenzhen, introduced the latest developments, market situation and government policy of Brazilian SSL products in recent two years.

Dr. Anton Chernyakov, Researcher of Submicron Heterostructures for Microelectronics Research and Engineering Center of RAS (SHM R&E Center) in Russia, introduced new Russian LED test methods and provided an overview of the current standards in Russia.

Mr. Evgeny Dolin, CEO of NPRPSS (LEDs and LED-based Systems Russian Manufacturers' Nonprofit Partnership), introduced the new developments and significant measures and initiatives of Russian SSL market.

Mr. Kishor Chavan, Deputy General Manager (Technical) of EESL India, introduced the unique models employed by EESL to further Energy Efficiency in India, the projects it has carried out, the street lighting renovation in India and EESL's achievements.

Mr. Jun Ruan, Deputy Secretary General of

China SSL Alliance, introduced the development of China SSL industry, the development and application of standards, and future plans.

Dr. Natasha van der Walt, Former President of Illumination Engineering Society of South Africa (IESSA), introduced the development status of South African SSL industry from the aspects of South African national lighting quality testing standard, South African quality assurance framework, SSL market focus, lighting standards and lighting cost management.

Mr. Sihle Qwabe, Electrotechnical Engineering Senior Manager of South African Bureau of Standards, introduced the SSL policy of South African government from the aspects of stakeholders, legislation, standard evaluation, SSL industry, and market challenges.

Seminar on the development trends of SSL in 'BRICS+' countries

Four delegates from 'BRICS+' countries introduced the research, development, application and market trends of SSL in 'BRICS+' countries. Dr. Yuri Trofimov, Director of Center of LED and Optoelectronic Technologies in National Academy of Sciences of Belarus, Mr. Lim Hoo Kooi, LED/SSL Program Director of Collaborative Research in Engineering, Science & Technology (CREST), Malaysia, Dr. Nan Sandalar Lwin, Director of Renewable Energy and Electronic Technology Research Center (Department of Research and Innovation) in Myanmar and Mr. Sakda Boonthongmai, Chief of Appliance Efficient Promotion Department of Demand Side Management and Social Affairs Division of Electricity Generating Authority of Thailand (EGAT) introduced the development of SSL industry in their respective countries from the perspective of market situation, product quality, technology and beyond lighting applications.

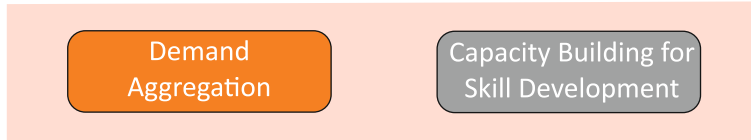
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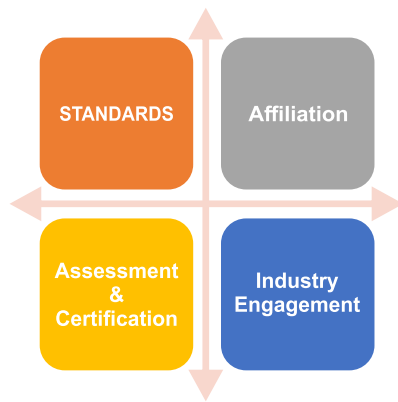


ESSCI is an autonomous industry-led body under the Ministry of Skill Development and Entrepreneurship (MSDE), Govt. of India. We create, and maps skill competency frameworks to jobs in the industry. Our mandate is to establish an effective and efficient ecosystem for imparting outcome-oriented skills for the Electronics System Design and Manufacturing (ESDM) industry.

Supporting Associations



Responsibility



Standards – National Skill Qualification Framework, Qualification Pack, National Occupational Standard

Affiliation – Training Partner, Training of Trainer, Assessment Partner, Training of Assessor, Master Trainer

Assessment & Certification – National Skill Qualification Framework & Skill India Certificate

Industry Engagement – Subject Matter Expert, Demand Aggregation, Model Training Center, Recognition Prior Learning & Apprenticeship

Knowledge Partner

Knowledge Partner Name	Curriculum	Content	Tools	Expert Support
IESA – Talent CIG Team	✓	✓		✓
IPCA	✓	✓	✓	✓
IEEE	✓	✓	✓	✓
IPC	✓	✓		✓
SCTE	✓	✓		✓
arm	✓	✓	✓	✓
Microchip	✓	✓	✓	✓
Infineon	✓	✓	✓	✓
Mentor Graphics	✓	✓	✓	✓
Cadence	✓	✓	✓	✓
III, Taiwan	✓	✓	✓	✓

ESSCI Sub-Sectors	Employed 2017(L)	5 Year Growth(L)
1 Consumer & IT Hardware	28,27,612	42,18,253
2 Comm & Broadcasting	7,31,661	11,62,003
3 PCB Assembly (EMS)	2,44,041	10,41,575
4 PCB Design & Manufacturing	1,15,048	2,08,171
5 Solar & LED	3,94,562	7,13,933
6 Security Surveillance	34,863	1,63,082
7 Semicon & Components	1,79,070	5,24,015
8 Industrial Automation	5,62,340	10,17,516
9 E Mobility	3,486	1,63,062

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LIFI – MAKING WAVES IN THE LIGHTING WORLD

Signify expands its LiFi offerings with the launch of Trulifi



Have you ever imagined that your humble light bulb could help you connect to the internet? Thanks to a technology called Light Fidelity, commonly known as LiFi, this is very much a reality now. LiFi is a technology in which high quality LED lighting provides a stable broadband Internet connection through light waves.

With the radio spectrum becoming congested every day, devices trying to connect can overload networks and in certain cases, WiFi is not suitable or permitted. This is where LiFi comes in. Unlike other communication technologies that use radio waves, LiFi uses the broader spectrum of light waves to transmit and receive data wirelessly. Each LiFi enabled luminaire is equipped with a built-in modem that modulates light at speeds imperceptible to the human eye. Light is then detected by a LiFi USB access key/dongle plugged into the socket of a laptop or tablet (in the future such technology will be built into laptops and devices). The LiFi USB dongle

then returns data to the luminaire through an infrared link.

As the world leader in lighting, Signify has leveraged its deep expertise in lighting for the Internet of Things and its global footprint to offer this truly game-changing technology. LiFi-enabled luminaires from Signify offer dual benefits of excellent light quality as well as a stable and fast two-way broadband connection.

Merging the worlds of lighting and telecommunications, Signify recently launched a new range of LiFi systems called Trulifi, which is the world's fastest and most reliable LiFi system commercially available. It goes another step further than existing LiFi systems by leveraging a customer's existing and future professional luminaires, using the optical wireless transceiver technology built, or retrofitted, into Philips luminaires. This means customers don't have to rip and replace their existing lighting infrastructure to receive great quality light and wireless

"...Customers don't have to rip and replace their existing lighting infrastructure to receive great quality light and wireless connectivity with LiFi"



connectivity with LiFi. Trulifi uses light waves to enable highly reliable, secure two-way wireless communications at speeds far above most conventional workplace wireless technologies.

The new range comprises Trulifi-enabled luminaires providing wireless connectivity at speeds up to 150 Megabits per second (Mbps) over large spaces, such as meeting rooms and office floors. There is a seamless handover between each Trulifi-enabled luminaire enabling users to roam around. The speed is fast enough to simultaneously stream 30 1080p HDTV movies.

LiFi is highly suitable for use in banks, schools, government, healthcare and industry, indeed anywhere where WiFi is poor or unavailable. It offers a secure, personal connection for anyone concerned about data privacy as light cannot pass through solid walls and a line-of-sight to the light and a personalized USB access key are needed to access the LiFi network. Therefore, LiFi offers an extra layer of security, further enhanced by the selective authorization of USB access keys.

“LiFi offers an extra layer of security, further enhanced by the selective authorization of USB access keys”



Its bandwidth is more than 1,000 times the size of the radio spectrum (used by WiFi) and hence it is able to connect many more smart devices and multiple users. And with a seamless handover between one luminaire to the other, you can move around without losing your connection. LiFi is also comparatively safer for the human body than other radio communication technologies, as no electromagnetic environment is generated.

Signify has already secured nine pilot installations in India across different segments, including Banks, Information technology, Co-Working spaces, B2G and Infrastructure clients amongst many others.

A leading multinational firm which is one of the largest construction companies in India has recently installed Signify's LiFi system in their customer experience center spread over an area of 10,000 sq ft in Chennai. The company is an early adopter of world-class technology and wanted to create a unique experience for their customers using LiFi. Signify's LiFi installation has been a key pillar of the experience centre that showcases how futuristic technologies can redefine the building experience.

In Bangalore, managed offices provider Incubex has also established a LiFi meeting room to enable the many start-ups and firms it serves to explore the futuristic technology.

“Since our inception, we've been actively experimenting with and promoting new technologies. We're giving our 450 plus members at Manya Tech Park hub, and more than 3,500 members at our 10 other hubs, the opportunity to be the first to get a hands-on experience with this new technology which is set to go places. So far, we've had great feedback and received lots of enquiries from our members.” Says Alap Uttamchandani, Founder of Incubex.

**AUTHOR: SIGNIFY INNOVATIONS INDIA LIMITED
(FORMERLY KNOWN AS PHILIPS LIGHTING)**

Views expressed in this article are those of the contributors and do not necessarily reflect those of the editors or publishers

GLOBAL LIGHTING ASSOCIATION : POSITION STATEMENT ON TEMPORAL LIGHT ARTEFACTS

Temporal Light Artefacts (TLAs) are undesired effects in the visual perception of a human observer induced by temporal light modulations. Two well-known examples of such effects are flicker and stroboscopic effect.

Until recently, several metrics such as Modulation Depth, Flicker Index and Flicker Percentage were used. However, none of these metrics were suitable to predict human perception which is affected by modulation depth, frequency, wave shape and duty cycle. New metrics have been developed to include all these influences and to predict human perception.

The term 'flicker' refers to variation in the luminance or spectral distribution of a light source (i.e. visible without motion of eye, light source or illuminated objects) generally visible in the frequency range less than 80Hz. The widely accepted metric used to measure the perception of flicker is short term flicker severity (P_{stLM}).

Guidelines for P_{st} and SVM Acceptance Criteria

Application area	P_{st} limit	SVM limit
Outdoor	≤ 1.0	None
Indoor	≤ 1.0	≤ 1.6

'Stroboscopic effect' is the apparent discrete movement of moving objects in flickering light as perceived by a stationary observer. This effect can occur when light is fluctuating at a rate above 80Hz. Stroboscopic Visibility Measure (SVM) is the widely accepted metric developed to predict human perception of stroboscopic effect.

SVM is not applicable for industrial applications (e.g. rotating machines) or to predict interference with devices with an optical input (e.g. cameras, barcode scanners). SVM is based on visibility and has been determined from measurements

The Global Lighting Association (GLA) advises against overly strict flicker and stroboscopic visibility measure (SVM) requirements for lighting products that would add unnecessary costs to most lighting products.

GLA supports the use of the NEMA 77:2017 guidelines for limits on Temporal Light Artefacts metrics as this is the only existing Standards Development Organisation (SDO) publication that has developed acceptance criteria.

GLA rejects any stricter criteria unless SDO science-based publications establish the need for stricter criteria based on peer reviewed research findings.

involving around 200 human observers.

Measurement of these new metrics is described by IEC: IEC TR61547-1, edition 2 for P_{stLM} and IEC TR63158, edition 1 for SVM.

The global lighting industry supports the use of these new metrics in specifications as well as in research, including future research to investigate potential links between temporal light modulations and health-related effects.

GLA Recommendations

With respect to Temporal Light Artefacts and regulatory initiatives, GLA recommends the following:

1. Parameters

- The terms Modulation Depth, Flicker Index or Flicker Percentage should not continue to be used as they are not suitable to predict human perception and are not widely accepted by the scientific community.
- The use of definitions and terminology



according to CIE TN 006:2016 is strongly recommended. As above, these definitions include the metrics P_{StLM} and SVM.

2. Regulatory limits

- The global lighting industry would accept the limits recommended in NEMA 77:2017.
- The implementation of limits that are more stringent than those recommended by NEMA 77: 2017 without compelling peer reviewed research findings will add unnecessary costs to products. This is unacceptable to the global lighting industry and would likely be regarded as unacceptable by consumers.
- Scientific research to define acceptance criteria for various applications are still in progress.
- Although measurement methods have

been published, there are few test institutes capable and accredited to test to these new metrics.

Further Reading

1. CIE TN 006:2016 contains a widely accepted definition of flicker
2. CIE TN 006:2016 contains a widely accepted definition of stroboscopic effect
3. <https://www.nema.org/Standards/Pages/Temporal-Light-Artifacts-Flicker-and-Stroboscopic-Effects.aspx>
4. https://lightingeurope.org/images/publications/positionpapers/LightingEurope_-_position_paper_-_flicker_and_stroboscopic_effect_-_final.pdf

**Author: ILLUMINATION EDITORIAL BOARD
WITH INPUTS FROM GLA**

LVDC CONFERENCE A HUGE SUCCESS

ELCOMA hosted LVDC conference helped create awareness among stakeholders from the industry and beyond about DC based technology, its implications, status and future prospects



Relevance of LVDC in India today

The Indian government is working on a war footing to provide power in new and non-electrified areas through renewable sources like solar, wind etc. which means that most of this power generation will be in DC. We also know that most of our present consumer products use DC power, even though power supplied to our homes and offices is AC which is converted to DC using a driver leading to power loss due to conversion

LVDC is an important technology to expand real, reliable access to electricity. The future power supply systems are expected to change to 50V DC. Renewable energy generation is expected to become the norm and as a result there is an urgent need to prepare for new products and manufacturing technology to meet this paradigm shift.

The conference gave the participants an opportunity to provide their inputs, discuss India specific needs and requirements and know about the technological and economic opportunities linked to LVDC.

Conference Highlights

The ELCOMA LVDC conference was inaugurated by Dr. Ajay Mathur, DG, TERI along with other eminent dignitaries like Mr. Venkatesh Dwivedi, Director-Projects & BD, EESL, Mr. Vimal Mahendru, Chair, IEC Special Committee and Mr. Rajeev Sharma, Head ETD, BIS.

Mr. Shyam Sujan, Secretary General, ELCOMA welcomed all VIPs, Speakers and delegates and introduced LVDC and how it is going to impact the power supply grid system and electronic products in India in the future. Dr. Ajay Mathur opined that LVDC would not only bring in a new revolution in power supply systems, but will be cheaper, safer and save more power. In his keynote address, Mr. Venkatesh Dwivedi talked about how EESL has already initiated projects to install street lights in various locations that are electrified

On 9 August 2019, ELCOMA organized a conference on Low Voltage Direct Current (LVDC) at India Habitat Centre, New Delhi. This conference was attended more than 150 elite delegates who came from various cities and different organizations in private and government sector and included representatives from equipment manufacturers, technical experts, funding agencies, power utilities and NGOs among others.

Senior managers from BSES, BIS, CPWD, PWD, C-FARM, Delhi Transco Ltd, EESL, Engineers India, Test Labs, Certification Institutes, ISLE, Technical colleges, MeitY, National Productivity Council and various manufacturers were also present at the conference.

This conference gave the participants an opportunity to interact with Indian and International experts in this field and discuss and plan on how to prepare for LVDC, from the perspective of power generation, transmission and supply as well as end products.

“LVDC would not only bring in a new revolution in power supply systems, but will be cheaper, safer and save more power”

Dr. Ajay Mathur, DG, TERI



The conference gave the participants an opportunity to interact with Indian and International experts in this field and discuss and plan on how to prepare for LVDC, from the perspective of power generation, transmission & supply as well as end products.

with LVDC grid systems. He estimated that EESL could install 8 to 9 million streetlights in next 2 years in India on LVDC grids.

In his presentation, Mr. Rajeev Sharma, Head ETD, BIS informed that BIS has played a very important role in introducing LVDC in India by establishing a special committee on LVDC with a large member of stakeholders as its members. This committee is holding regular meetings to prepare standards and specifications on LVDC grid supply system and other components of the generation and distribution system.

Mr Sunil Sikka, Advisor, ELCOMA then brought the first keynote session to a close with a vote of thanks.

In the two technical sessions that followed, the delegates heard from several eminent speakers.

Mr. Vimal Mahendru, President, Legrand India and Chair, IEC Systems Committee on LVDC and Member, Standardization Management Board of IEC talked about the importance of LVDC in the new world order and its journey into our lives so far.

Dr. R. Ramarathnam, Executive Chairman,

Basil Energetic's Private Ltd., Chennai and Chairman, Westcott Electrical's (P) Ltd., Chennai made a presentation on Rooftop Solar Systems with Smart Nano/Micro Grid & DC Appliances. The highlight of his presentation was the innovative, energy efficient products like DC based Air Conditioners, DC Refrigerators, DC Fans, etc that they have successfully developed and commercially deployed.

Mr. Cristiano Masini, Manager Wiring Devices and Cable Management Standardization Coordination, Bticino, Italy talked about the Impact of LVDC on buildings and emerging opportunities in a European context and Mr. Harry Stokman, Chairman Member, of the IEC Systems Committee – LVDC and Chair of WG2, SyC LVDC in Netherlands also spoke about the opportunities and application of LVDC in the coming years.

Mr. Varun Bhatia, GM- Standards & AQ at Electronic Sector Skills Council of India (ESSCI) also spoke about the skills programs designed specifically for DC based products and components to prepare the workforce for LVDC products.

Author: ILLUMINATION EDITORIAL BOARD

EVENT CORNER

LVDC CONFERENCE PICTURE GALLERY



CROMPTON UNVEILS ANTI-BACTERIA LED BULB



“Anti-Bac LED bulb that kills up to 85 per cent of germs while the light is on and makes the living environment of consumers healthy and safe. Having launched revolutionary products like the Anti-Dust fan range and the Tricool Window cooler, we are elated to be the first company to create a new category within the lighting segment with the launch of Anti-Bac LED bulb and growing the range that fulfils the brand promise of making home a great place to hangout.”

Mathew Job, CEO, CGCEL

Crompton Greaves Consumer Electrical's Ltd. (CGCEL) announced the launch of 'Crompton Anti-Bac LED Bulb' that helps provide dual benefits to consumers, delivering regular LED light and also killing germs.

This first-of-its-kind launch is all set to position Crompton as a pioneer in the industry within the LED segment. Now, with the flip of a switch, homes can be disinfected and protected thereby killing germs and visibly reducing the dreadful build-up of mold in kitchens, laundry rooms, kids' playrooms, bedrooms and other family living spaces. This innovation comes with advanced EnviroSAFE technology and is recommended by the Indian Medical Association.

Rajesh Naik, Business Head-Lighting, CGCEL said that “Light of different wavelengths have been used for various specialized applications e.g. UV for sterilization, IR for pain relief etc. We are putting light to work for our consumers in new and exciting ways. Our consumer insights revealed that the concern on hygiene in homes coupled with leading a quality life is becoming increasingly relevant.”

Currently available in Cool Day White Light with a range of 2 wattages -7W and 9W at an MRP of Rs. 180 and Rs. 190 respectively, the anti-bac LED will soon be available in and extended to Warm White Light as well.

ORIENT ELECTRIC LAUNCHES EYELUV LED LIGHTS



“Orient Electric has always been committed to pioneering innovation and we are happy to launch the “EyeLuv series” LED bulbs, battens and other popular LED luminaires which will directly benefit the society at large and take care of the problem of invisible flicker in normal LED lights which seriously impacts human health.”

Rakesh Khanna, MD & CEO, Orient Electric Ltd

Orient Electric Limited, part of the diversified USD 2 billion CK Birla Group, has expanded its LED lighting portfolio with new “EyeLuv series LED Lights” range which has Flicker-Control technology which reduces the harmful invisible flicker present in LED light that causes various health complications. Studies have revealed that prolonged exposure to flicker emitted by LED lights with flicker percentage above 30 per cent can lead to negative health impact such as eye strain, headaches, blurred vision, fatigue, apparent slowing or stopping of motion, reduced visual task performance and in some cases, neurological problems.

Flicker is the rapid change in brightness of LED light, and it is of two types, visible and invisible. Visible flicker can be detected by eyes, and the frequency generally is below 100 hertz and hence is easier to avoid or control. The invisible flicker is the one that we all should be concerned about. This flicker is a rapid fluctuation with frequency above 100 hertz that human eye cannot detect. However, one can easily experience this invisible LED flicker with the help of a smart phone by simply seeing the normal LED Lights in slow motion video mode of the smart phone camera. This flicker in the light is seen sometimes in form of striations and sometimes just as a strong flicker.

Commenting on this development, Rakesh Khanna, MD & CEO, Orient Electric Ltd said, “Orient Electric has always been committed to pioneering innovation and we are happy to launch the “EyeLuv series” LED bulbs, battens and other popular LED luminaires which will directly benefit the society at large and take care of the problem of invisible flicker in normal LED lights which seriously impacts human health.”

EyeLuv series LED Lights range with Flicker Control Technology from Orient Electric has also been awarded a certificate of recommendation by Indian Medical Academy (IMA) for Preventive Health.

JAQUAR LIGHTING LAUNCHES VIVID 'SMART' BULBS



Jaquar Lighting, the lighting solutions brand from Jaquar Group, has introduced Vivid, a new range of smart lighting bulbs, further strengthening its innovative lighting portfolio. The 7 Watts (W) LED smart bulb is equipped with 3 million hues that allows users to illuminate their homes with a myriad of different colour choices.

The new range of smart lights come with multiple features to enhance the lighting, while also adding a decorative element to the customer's home. The Vivid range works with a wireless connection, supported by Bluetooth 4.0 and a mobile-based app. This highly efficient bulb is supported by Android and IOS devices as well.

The Vivid bulb range integrates the CCT adjustable feature that allows customers to change different shades of the bulb, from cool white to warm white. These bulbs also enable seamless dimming through the app which allow for the brightness range to be adjusted according to the mood from 2 to 100 per cent


HIGHLIGHT OF NEXT ISSUE



Jaquar lighting illuminates **Pulpukhta Sahib Ji Gurudwara** at Tanda, Jalandhar, Punjab

Watch out for the full story in the next issue of IllumiNation

FIREFLIES HELP RESEARCHERS IMPROVE LED EFFICIENCY



The way fireflies light up their lanterns has become an inspiration to increase the efficiency of LEDs. Researchers at the Pennsylvania State University (Penn State) found out that LEDs made with firefly-mimicking structures could improve lighting efficiency.

The research team noticed that fireflies and LEDs face similar challenges in releasing the light that they produce because the light can be lost when it reflects backwards. One solution for LEDs is to texture the surface with microstructures -- microscopic projections -- that allow more light to escape. In most LEDs these projections are symmetrical, with identical slopes on each side.

Fireflies' lanterns also have these microstructures, but the researchers found out that the microstructures on firefly lanterns were asymmetric with one side slanted at different angles. The team noticed that other glowing insects have similar structures and decided to try the asymmetric structure approach with LEDs.

Researchers successfully applied asymmetrical microstructure and increase light extraction in two different ways. First, the greater surface area of the asymmetric pyramids allows greater interaction of light with the surface, so that less light is trapped. Second, when light hits the two different slopes of the asymmetric pyramids there is a greater randomization effect of the reflections and light is given a second chance to escape.

With the method, the team managed to improve light extraction efficiency to 90 percent and filed a patent on the research. Researchers said that they are looking for cooperation with related manufacturers to commercialize the technology.

BASED ON ARTICLE PUBLISHED IN LEDINSIDE

INDUSTRY NEWS

Increasing Tariffs on LED Products Continue to Impact the Industry

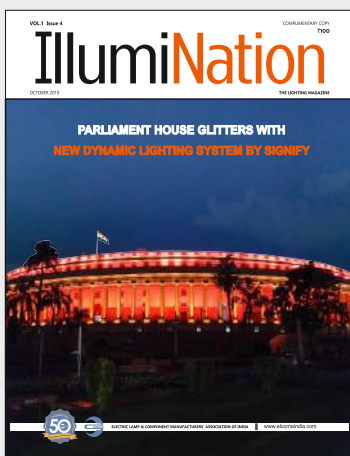
On August 1, 2019, US President Donald Trump announced an additional 10% tariff on US\$300 billion Chinese imports which came into effect in September. The new listed products which have been imposed with taxes also include several LED products.

LED products that are listed in the new 10% tariff list include “Ballasts for discharge lamps or tubes”, “electrical lighting equipment of a kind used on bicycles”, “flashlights”, and a series of electrical filament lamps, as well as LED lamps.

According to data from the China Association of Lighting Industry, these lighting items in the new list accounted for 18.2% of China's lighting exports to the US in 2018, which were valued several billion US dollars. Among which, the export amount of “LED lamps” was US\$1.768 billion in 2018. All these products listed have not been charged with extra tariffs previously.

Since 2018, the U.S. government has imposed additional tariffs on Chinese imported product. Currently, all the listed products are charged with 25% extra taxes. Due to the tariffs, several U.S.-based lighting companies including Acuity Brands and Eaton have increased prices of the products. Meanwhile, many LED product manufacturers are also moving their production lines from China to Vietnam or other countries to avoid the extra cost.

Supply chain of the LED industry was also affected by the trade war. International lighting companies including Osram and Signify have reported sales decline in their recent quarterly reports as uncertainty of the global market goes on. Semiconductors equipment makers like AIXTRON and VEECO also announced sluggish business performance as customers are reluctant to invest in production expansion.



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FLICKER IN LED LIGHTS IS NOT VISIBLE. BUT IT AFFECTS EYE HEALTH.

Orient EyeLuv LED lights come with Flicker-Control Technology that reduces the impact of LED flicker and its effects, like eye strain and eye fatigue, making them better and safer for overall eye health.

How to check for flicker?

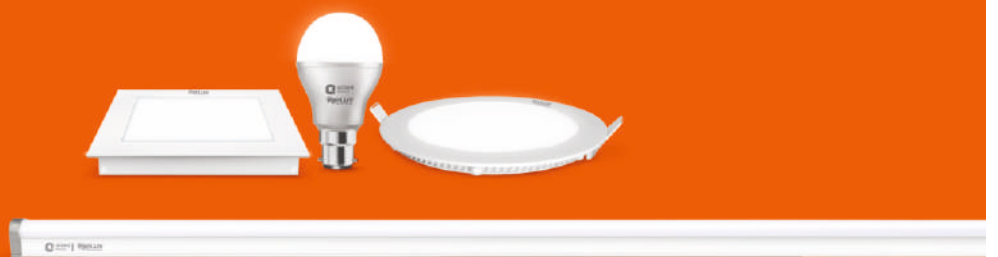
- 1 Open your smartphone camera in slow-motion video mode.
- 2 Point the camera towards the lights & check for flicker.



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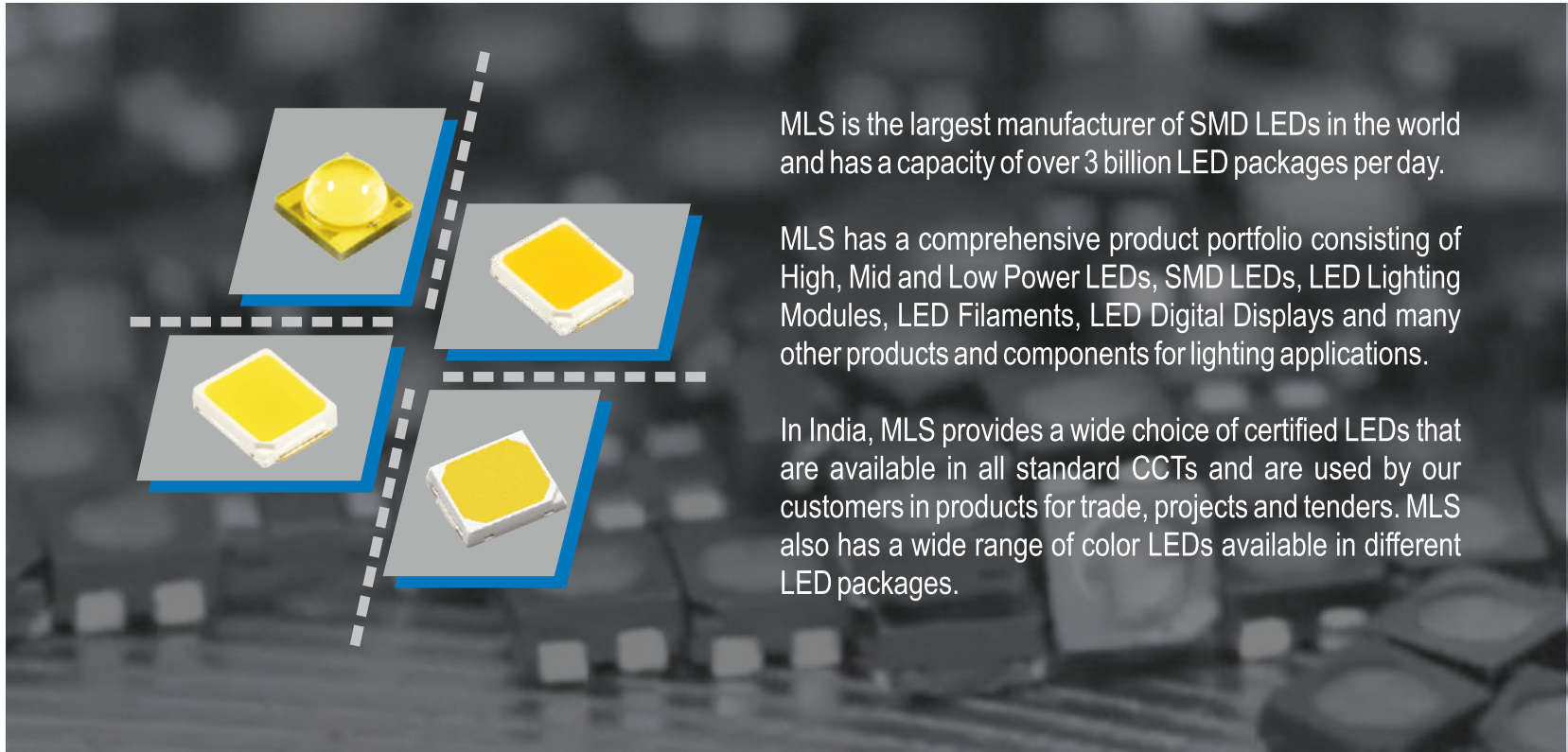
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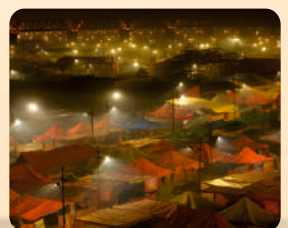
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