

# IllumiNation

APRIL - JUNE 2022

THE LIGHTING MAGAZINE BY ELCOMA

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# IllumiNation

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# Focus on Localizing Components Manufacturing

**B**ased on ELCOMA's Vision 2024 and government's Atmanirbhar Bharat program, 18 electronic components being used in LED Lighting have been identified that are to be manufactured in India. ELCOMA and its members identified several manufacturers who will be able to deliver most of these components well before the end of year 2024.

By the end of Vision 2024 period, it is expected that about 80% of these electronic components used for LED Lighting product manufacturing will be made in India. For some of the other components like LED Chip, ICs, etc, Government of India has already signed MOUs with few international and Indian organizations, who will make these products in India. Therefore, it is expected that in another three to four years the industry could be completely self-reliant with 100% of required electronic components being made in India.

In order to achieve the best product reliability, many of the specifications of these components will need to be modified as per Indian conditions. Getting the components redesigned will require significant efforts and funding. ELCOMA is looking to establish a Centre of Excellence for supporting such activities and is seeking the government and industry's support for this.

I am glad to see new and innovative products are being launched by almost every brand on a regular basis. These innovations not only benefit consumers but are also a measure of the maturity and creativity of our Indian Lighting Industry. The Product Showcase section of this magazine has been created specifically for this purpose and highlights the enormous talent and strength of our industry.

I am also happy to inform you that IllumiNation has an ever growing readership. Its soft version is visited by many stake holders in Lighting around the world. We also mail the magazine to a very large global reader base. I would like to thank the readers, contributors to the articles and other service providers, without whose support, this magazine would not have been so popular.

Best wishes

A handwritten signature in black ink that reads "Shyam Sujan".

**SHYAM SUJAN**

Secretary General

Electric Lamp and Component Manufacturers Association of India (ELCOMA)



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# Atmanirbhar Lighting

**E**LCOMA has started taking bold steps to support various government initiatives that will provide a strong stimulus to manufacturing in India. These reforms across sectors will not only enable us to become self-reliant as a country, but also bring back our lost ground in manufacturing. To spur growth and to build a self-reliant lighting Industry, we have to focus on the Atmanirbhar Bharat Abhiyan which rests on 5 important pillars. Our plans will replicate these five pillars.

**Local to Global:** We must ensure that we not only bring incremental change but a quantum leap so that we can convert the current adversity into an advantage. Component ecosystem development, targeted export promotion and suitably negotiated FTAs will enable the industry to grow by leaps and bounds.

**Deeper Backward Integration:** We are going to add and create newer capabilities to manufacture components in India that could soon become the identity of our industry, de-risk local supply chains and achieve export competitiveness as we scale, thus prospecting integration into global supply chains.

**Futuristic and Sustainable Technologies:** We will adopt, adapt, design, develop and manufacture products using futuristic and sustainable technologies. IOT, AI and renewable energy powered products and systems will be the preference of current and coming generations and India has the potential to soon emerge as the world leader in such products and systems. We will also design, develop and manufacture products on circular economy principles to avoid straining natural resources.

**Harmonization with Global Standards and Enforcement:** As we aim to integrate our manufacturing base in global supply chains, we must harmonize our standards with the global ones to have seamless acceptance of our products in global markets. We need to have greater enforcement and surveillances to put a check on non-quality products being introduced in the market which ultimately result in consumers losing confidence and they also result in a loss of national resources.

**Demand:** State and central budgets are focusing on creating a huge infrastructure base to support rapid urbanization and desirability of a better lifestyle by common people. We are also upgrading and modernizing the existing infrastructure base to meet the ever-changing demands. All this is going to result in an increasing demand which will help the industry scale and optimally utilize the existing and newly established manufacturing base.

These reforms and stimulus measures will provide the necessary boost to enable our industry to deliver unprecedented growth in the near future and slowly become an export hub for lighting products.

I am proud to say that we have received encouragement and full support from all of our members. ELCOMA has already started implementing its Vision 2024 and we have planned conferences and exhibitions to showcase our growth plans to the world. In November 2022 edition of the Light India exhibition, we have planned to invite a large contingent of stakeholders from around the world, to showcase what the self-reliant and self-sufficient Indian Lighting Industry of the future will look like.

Best wishes

**SUMIT PADMAKAR JOSHI**  
President, ELCOMA





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# Carrying forward the Legacy

IllumiNation in conversation with Mr. Sumit Joshi,  
Vice Chairman and Managing Director - South Asia for Signify Innovations India



Sumit Joshi is Vice Chairman and Managing Director - South Asia for Signify Innovations India (Formerly Philips Lighting India Limited), the global leader in lighting products, systems and services. He took on this role in September 2017 and is responsible for driving and building the business in the Indian Subcontinent.

Sumit joined Philips in 2011 as Marketing Director for Philips Lighting India and was elevated as Global Head of Marketing Excellence in 2015, based at the Philips Lighting Headquarters in the Netherlands. He was instrumental in leading global initiatives in Marketing Excellence including global marketing planning and execution. He is a Mechanical Engineer and a Postgraduate in Management from Symbiosis Institute of Business Management.

He brings more than 24 years of experience in marketing and business leadership roles. Prior to Philips, he has had successful stints at Britannia, Marico, Boots Healthcare International and Whirlpool Corporation. He has extensive experience in leadership positions, managing both large and small business units and teams, establishing global businesses and successfully turning around challenging business units.

In this interview with "IllumiNation", Mr Joshi talked about his professional journey and his views on current issues and challenges faced by the Indian Lighting Industry.

**"Signify (erstwhile Philips Lighting) has a huge legacy and history in India. We have been in this market for close to 90 years and have given the lighting industry many leading innovations. What we are today is because of our strong foundation laid over many years by many strong people leaders."**

**You have a background of multiple industry verticals including FMCG, Consumer Durables and healthcare. Please tell us a bit about how you entered into the Indian Lighting industry.**

After having successful stints both nationally and internationally with MNCs and Indian companies, I found this opportunity with Philips Lighting very exciting as it was in a different industry than all the other industries I have worked in previously, and it also involved both B2C and B2B customers. Industry at that time was just about starting to look at LED technology and there was huge transformation which was about to start. So my decision to join Philips was first and foremost about joining an exciting company, new learning opportunities, a chance to work with a very talented team in a leading company in a transforming industry.

**You have been responsible for South East Asia as Vice Chairman and Managing Director - South Asia for Signify Innovations. What are the differences/similarities between the Indian and South Asian markets?**

There are lot of similarities in these markets with regards to consumer / customer needs. India has been a leader in transitioning to LED, not only in Southeast Asia but also across the world. Other markets have lagged behind in this transformation but are catching up fast. Competition scenario however is different in each market, and while the Philips brand continues to be a leader across markets, each market has its own different local and Chinese competitors. There is a growing adoption of connected lighting across these markets, just like in India.

**What were the key takeaways from your stint in Europe as the Global Head of Marketing Excellence based at the Signify Headquarters in the Netherlands? How would you compare the Indian Industry/Lighting**

**scenario as compared to Europe?**

In my role I had an opportunity to work across the world such as US, LATAM, Africa, Asia, China & Pacific. I could understand different customer needs across segments in consumer and B2B segments. I think more than differences there are lot of commonalities across the world when it comes to lighting and emerging trends in lighting. Across the world there is consolidation taking place in lighting industry and newer and sustainable technologies are fast emerging. While the pace of adoption in each market is different e.g. adoption of connected lighting in consumer and prof is much higher in Northern Europe and Americas than in Africa and Asia but the trend is same where consumers are wanting different lighting experiences for their homes, for their offices, cities which is now possible with advent of LED technology.

**You have been part of Philips when the organization was undergoing a transformation and has introduced multiple brands and many other structural changes. What were the challenges faced during this time and how did you ensure that Philips/Signify emerged stronger in the long run?**

Signify (erstwhile Philips Lighting) has a huge legacy and history in India. We have been in this market for close to 90 years and have given the lighting industry many leading innovations. What we are today is because of our strong foundation laid over many years by many strong people leaders.

With advent of LED, the business models of all players got questioned and competition changed dramatically. Over the last many years we have ensured that we are adopting faster and proactively to the changing business dynamics. We have increased our focus and investment on innovation. In last few years we have launched lot of innovative products across segments in India. We continue to



invest big globally as well as in India on emerging technology. We have enhanced our focus on sustainability, we are a carbon neutral company worldwide and I am proud that India became carbon neutral 1 year before entire global operations. We have ensured that we have a rock-solid business in terms of both topline and bottom-line. So while conventional continues to decline and despite us being the largest conventional player, we ensured that our pace of growth in LED is good and we continue to be the leading brand across segments both in conventional and LED. We have launched several new brands apart from Philips such as Interact, Philips Hue and EcoLink in the market. We are entering into newer categories so overall the transformation has made us stronger and we are deeply committed to our purpose of “Unlocking the extraordinary potential of Light for Brighter Lives and a Better World” and we will further progress towards realizing this purpose.

**As ELCOMA President, you have championed the cause of self-sufficiency in the Indian Lighting Industry and during your tenure the blueprint for Lighting Industry that will pave the way for maximum products being made in India followed by exports has been created. What is the current status of this program and how is the Indian Lighting Industry looking to fulfil these aspirational goals?**

The PLI scheme for AC & LEDs has

**“In the coming time we can expect an even higher degree of localization of components which will result in more competitively priced final products. In the future, we also expect the government to introduce a scheme for finished goods as well that will enhance India's export potential over the long term.”**

been very well received by the industry. DPIIT, as part of nodal ministry, has worked closely with the industry and held several stakeholder consultations to better understand the actual challenges and needs of the industry before formulating the scheme. ELCOMA members have whole heartedly participated in the scheme and several of them have also qualified. In the coming time we can expect an even higher degree of localization of components which will result in more competitively priced final products. In the future, we also expect the government to introduce a scheme for finished goods as well that will enhance India's export potential over the long term.

**The Indian Government on its part has launched several programs like Atmanirbhar Bharat and PLI schemes to support Indian electronics manufacturing and Localize Semiconductor manufacturing. What is your opinion on these programs?**

I think these government schemes will play a significant role in enabling a greater local value addition in electronic products and will help de-risking supply chains. It will also open doors for our integration into global supply chains and help build the ecosystem around local innovation and R&D with a design-led approach. Some of these sectors are very cost intensive and require huge capex requirements and support not only from the government but from rest of the industries as well, who in turn would become potential customers for these upcoming manufacturing bases.

**How is Signify gearing up for the next generation of lighting products given that the success of LED Lighting business will also depend on a strong R&D set up and capability to develop newer designs with speed in the future?**

Signify's success in the global and Indian market is built on our strong foundation of innovation. Since the past

130 years, we continue to transform ourselves in a transforming industry. We're now seeing a shift to integrated luminaires and systems, marked by stronger growth in connectivity and data services. The landscape of our industry is transforming through acquisitions and consolidation and new entrants. There is increasing competition and more direct selling online. Consumers have become less brand loyal and parts of the LED market is facing commoditization.

Demand for connectivity and online services is also growing. At Signify, it's not just about how we sell to customers. It's also about how we digitalize our processes and create connectable offers. For example, using the predictive power of Artificial Intelligence for products, systems and services, and digitalizing our supply chain. All of this requires operations and workforce skills to evolve drastically and rapidly.

Within LED space in India, we've been innovating through groundbreaking products especially designed for the Indian market such as our Philips T-bulb, CeilingSecure and HexaStyle downlighters. During the pandemic as well, we introduced several innovative and impactful products that utilize the power of UV-C technology to mitigate the spread of pathogens in an indoor environment. These UV-C air disinfection systems include household air purification plus disinfection devices, air handling unit solutions, upper air disinfection system for commercial spaces and disinfection trolleys to disinfect large areas in a short span of time. We have also designed UV-C disinfection services for professional and consumers looking for an effective and cost-efficient disinfection solution.

**There have been several new Lighting Brands that have come up in India in the last few years with a disruptive approach and aggressive marketing. What kind of an impact do these have on Signify as an Industry leader and**



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## CAPTAIN SPEAKS

### **the Indian Lighting Industry as a whole?**

We take our competition seriously whether it is new or an existing player. We consider ourselves a 130-year-old startup, as our way of working is extremely agile, our speed of innovation is phenomenal, and our talent pool is remarkable. We believe that a healthy competition in an industry pushes all brands to bring their best solutions forward to the consumer as it speeds up innovation, thereby offering the consumers a wider choice of options.

### **The grey market in Lighting is supposed to be in excess of 25% of the entire industry. Has the government been doing enough to address this issue? What more steps should the government take to curb this?**

We've seen a lot of improvement on this front in the last couple of years, but there is still a lot of ground that needs to be covered. We believe that enforcement is a continuous process in any economy and needs to be pursued diligently and persistently to ensure a level playing field for all players. In my opinion, the government needs to focus a lot on creating consumer awareness around quality and safety compliance of products. An aware and well-informed consumer would automatically stop buying unsafe and poor-quality products, thereby pushing non-compliant players out of the industry.

### **The last couple of years, the entire world and all businesses have been severely impacted by COVID. Have we seen the end of this pandemic or is this here to stay in some form or the other? Are 2022 and 2023 going to face any business disruptions due to COVID?**

Global healthcare experts have indicated that the ongoing pandemic has now entered an endemic phase across the globe. I believe that COVID will remain here for some time, but like in the case

of other endemics, now we do have effective vaccines available which are only going to improve going forward. Besides vaccines, we are seeing some very innovative usage of existing technologies that can mitigate the spread of airborne pathogens in indoor environments. One such potent technology is UV-C that has been proven to eliminate viruses, bacteria and moulds from water, air and surfaces. It can also be integrated in HVAC systems to ensure a healthy and clean indoor

environment, thereby protecting occupants from several air-borne diseases including COVID-19.

### **Besides leading the largest Lighting brand in India and South Asia and being actively involved in ELCOMA and industry forums, you are a passionate traveler, a sports enthusiast and a family man. How do you manage the time?**

I take each day as it comes and try and give 100% commitment to what I am doing at that point in time.

## IN A LIGHTER VEIN

### **How do you unwind after a hectic day or week at work?**

I believe unwinding and spending time with oneself is extremely important and I try and do that every day, I run a few kilometers, watch movies, read interesting books and spend time with myself for at least some part of every day. Of course, spending time with family and friends always helps me to unwind. I also have a dog who ensures that when I go back home there is never a dull moment

### **What is/are your favourite holiday destination/s?**

I don't have a specific favorite holiday destination. The world and India especially, is so huge that even a lifetime is less to explore newer areas to visit and things to do. So, I love traveling to places I haven't been before on lighter note the people whom I holiday with, and the time spent together is more important than the holiday destination

### **What kind of food/cuisine do you like?**

I love Indian food be it Punjabi, Maharashtrian, Gujarati or South Indian Food but yes I love my dose of Puranpoli, Modaks. I also like Thai and Japanese food

### **Which is/are your favourite restaurant/s?**

It keeps changing but now a days it is YUM YUM CHA

### **Who is your inspiration in life?**

My parents, My wife and Sachin Tendulkar

### **Your favourite book**

I read different genres and am currently reading Gulzar's account of people who left a mark on him. My all-time favourite is "Jonathan Livingston Seagull" by Richard Bach - a timeless fable of a seagull who is trying to learn about life and flight

### **A movie that has left a lasting impact on you**

Movie which left lasting impression on me was "The Pursuit of Happyness"

### **Your favourite Actor (Male / female)**

I am a big Amitabh Bachchan fan and must have watched his movies "n" number of times. I also like Aamir Khan, Govinda, Tom Hanks, Jack Nicholson and Anthony Hopkins

I like many actresses, but off-course my all-time favorite is Juhi Chawla

INTERVIEWED BY ILLUMINATION  
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# Lights that bring your home to life



Garnet



Wipro Lighting is proud of being one of the most trusted brands in lighting industry. We have continuously focused on embracing the latest & finest technology to deliver highly efficient products for different lighting application areas & have always believed in offering our customers the best in class, latest design, environment friendly lighting products & solutions. Wipro lighting has introduced IOT based smart connected home lighting solutions that are easy to use and can be controlled through mobile app & Voice control assistant. Wipro Lighting has won several prestigious awards for product design, innovation & quality excellence like the Red dot design awards, Frost & Sullivan award for LED lighting visionary innovation leadership and many more.



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- Driver with 2.5 kV surge protection
- Good color quality with Ra>80





# Manufacturing the Future



**Illumination chats with Mr. B S Praveen, President, Uniglobus Electricals and Electronics Private Limited a wholly owned subsidiary of Polycab India Ltd about their future plans**

Uniglobus Electricals and Electronics Private Limited is a wholly owned subsidiary of Polycab India Ltd and is located at Halol in Gujarat. Uniglobus was setup in March 2021 by Polycab to expand their business in the Electronics domain, from current wires and cables and FMEG goods business. Uniglobus is also envisaged to become a high level Electronics Competence Centre for the Polycab group. Mr. B S Praveen is the President of Uniglobus Electricals and Electronics Private Limited which recently joined ELCOMA as member and have also participated in the DPIIT announced PLI Scheme with an investment plan of INR 125 Crores and plans to manufacture LED Chip (Packaging), LED Drivers, LED modules and Wire Wound Inductors in India. At the new plant at Halol, Uniglobus plans to design and manufacture various electronics assemblies, components and lighting products. They are expected to contribute in a big way to create an ecosystem in India for component manufacturing.

**You have vast experience in the field of LED lighting, controls and electronics. Tell us a bit about your career journey so far.**

I have been in the field of Electronics/Lighting for the past 12 years. Prior to that I was in Mechanical / Automotive field. After having completed my Masters in Engineering from IIT Varanasi and Madras, I worked

in various manufacturing companies in India, including BHEL, Eicher Motors and Enfield among others in production, Engineering and R&D for about 13 years. Then I moved to Australia and worked there in Autoliv, an Automotive Restraints System company for another 13 years in Engineering, Program Management and Marketing and Sales. In the last 15 years, I moved back to India – initially working for the same company Autoliv, then at BAG Electronics and now with Uniglobus (a Polycab company) primarily in the field of Electronics. Overall I have had a mixed career comprising of many fields in engineering, different functions, different companies and in different countries. This journey has also given me an opportunity to travel to numerous countries and have a culturally multi-faceted experience.

**What are your plans for manufacturing products and components at your Halol plant? Under which brand name these products be sold?**

Our mainstay would be on Electronics assemblies and certain components. Although majority of it would be in the lighting field, but it would generally be in the area of Power Electronics. We would be making some luminaire assemblies to support the parent company's FMEG business. We are working on setting up of LED Chip Packaging manufacturing plant, as currently most of the LED Chips are imported in India, despite having a domestic consumption of about 7,000 Crores.

We would be selling products in Uniglobus brand, but we could also be manufacturing white label products for customers to brand, including our group company, Polycab. We will have flexibility in this aspect.

**What kind of challenges did you face while setting up this new plant?**

Apart from the usual challenges involved in setting up a greenfield project, there were many other challenges. Our whole team was setup from zero and all the people in the team were new to Polycab – so this involved the challenge of adjusting to a new style of working. We were dependent on many services support from the parent group – so this created a steep learning curve to understand and operate within the Group processes etc. Uniglobus being a newly incorporated company, there were various statutory and other processes that needed to be completed.

Since we did not have any immediate foreseeable income stream, the team was very conscious of having tight control on costs – due to this the team resources were kept limited, and there were lot of new things that all of us had to learn very fast, on the run. The team was absolutely committed on maintaining its committed deliverables, including the target timing, which was set by us almost a year in advance – so this meant that we had to continuously find alternatives and compensatory actions for all sorts of delays which were out of our control. Getting people, especially those whose skills were in high demand generally, to a location like Halol, was also a challenge.

**When do you plan to launch your products and what are your plans for the future?**

We started working on the project in February 2021, with the initial two people joining Polycab and setting up the Electronics Business Unit from scratch, without even having an initial office setup. The company Uniglobus was formed in March 2021. In April we set a target of having full-fledged R&D, with sufficient products developed for initial start of production, having a full-fledged electronics production line, starting from equipment selection and procurement and also finding appropriate location and building for

production – and start volume production by end of March 2022. This target has been achieved. We now have started volume production of LED drivers and luminaires and will start production of LED modules shortly. The plan for electronic components is being scripted out i.e. LED chip and Wire Wound Inductors. These are slated for next year.

**You have qualified under the government's Production Linked Incentive scheme. What products are you planning to manufacture under the scheme?**

The main reason behind considering manufacture of LED Chips was the absence of any significant Indian manufacturer of these components, despite almost Rs. 7,000 Crore worth of consumption per annum in India itself and almost all of it being imported, mainly from China. We were the only one to put in PLI application for this component and to date, we are the only one approved under the PLI scheme for LED Chip Packaging, or for that matter any kind of Chip Packaging.

The main challenge in this is justifying a business case and getting technical know-how for making this product family. The imported products are very cheap, due to numerous direct and indirect incentives being given by Chinese Government to Chinese manufacturers and their scale of operations. Whereas for Indian manufacturers, the incentives available are just a fraction of what the Chinese manufacturers get from their government. Also almost all of the raw material to make the LED Chip Packaging still needs to be imported, again from China, albeit most of it duty free. So matching the cost of production and selling price to make any sustainable profit is the biggest challenge.

There are other challenges of setting up brand acceptability with Indian



customers, managing the frequent changes in technology and thus the obsolescence. Overcoming the skepticism that the Indian customers have about quality of Indian manufactured products, especially in such high tech and new areas, and when the brand is new.

### **Do you have plans to manufacture products / components related recent technologies like IoT and Intelligent lighting?**

We have already designed products in this area and will be launching some of such LED Drivers soon. Subsequently we will add more such products.

### **COVID19 gave a great setback to most of the businesses around the world. Slowly, it is becoming a new normal. What is your opinion on this?**

COVID19 did have severe effect on businesses as well as on individuals. Last two years were tough, but in sustaining this period all of us learnt a lot of new things that helped us cope and manage the situation. Certain things are now a new normal, but most of the other things seem to be fast coming back to how things were prior to COVID. Hopefully after this third wave, there will be no fourth wave in India, as has happened in many other countries – thanks to the effective vaccines availability and their widespread application in India at a fast rate. We saw loss of a number of colleagues and family members due to COVID and there was loss of productivity due to it. But now things are fast returning to normal – business as well as personal travel has started, more face-to-face meetings now etc. But COVID started online meetings, conferences, seminars – which have their own advantages, even without COVID – so they are also continuing. Many events have now become hybrid – face-to-face as well as online – running in parallel.

### **What is your vision, say for the next 5**

### **years, where you find Uniglobus to be?**

The vision of Polycab's CMD for Uniglobus is to grow its business in the field of electronics – not only in electronics assembly, but also in those electronic components on which the country is solely dependent on imports. Although presently Uniglobus is very

small and hasn't even started any significant sales, the backing from the strong Polycab Group will ensure that this baby grows fast and big and will be a name to reckon with, hopefully not only in India, but globally. But we believe in taking few steps successfully and firmly before leaping – that's what we are doing right now.

## IN A LIGHTER VEIN

### **How do you unwind after a hectic day or week at work?**

After having been out every day for almost 12 hours (including travel time to and from office included), there isn't much left in the day. And after working 6 days in a week, there isn't much left in a week. But whatever is left, is partly spent in watching TV or movies and series on OTT, occasional eating out or visiting friends. Technology excites me – so sometimes I dabble into reading or watching things related to that, or in the past I have done things like assembling computers myself etc. I am also interested in Management, Spirituality, and Human behaviour as a subject – so, sometimes I watch or read things related to that. I am not much into sports, neither playing or watching – except that I used to play Golf while in Australia – but since coming back to India even that's lost due to lack of company. Since last few years, I am a regular Iyengar Yog practitioner.

### **What is/are your favourite holiday destination/s?**

Mostly places related to Indian heritage, or religion. Have seen a fair bit in the world and also in India, so very few places look new to me. But still like traveling, mostly by own car, long distances – enjoying the trip more than the destination.

### **What kind of food/cuisine do you like?**

I am an essential vegetarian and survived being one in all sorts of countries, even at times, when vegetarian cuisine was very hard to find in many countries. But having tasted all kinds of cuisine (vegetarian), my preference is Indian cuisine. Not much of a health conscious person as far as food is concerned – so I enjoy taste – snacks from various parts of India, be it south Indian, or chat, or farsan (Gujarati snacks) etc.

### **Which is/are your favourite restaurant/s?**

Keep trying out various. Don't stick to one.

### **What inspires you in life?**

Making a difference to things and people around me. Trying to do new things or different things and doing things with thought and understanding rather than just following the trend thoughtlessly. Trying to make sense deeper sense of old Indian scriptures and to see how they are applicable even to modern day life. Trying to understand how and why things happen to you, and how to react to them. Learning and implementing management principles and understand what makes teams click, how work cultures evolve and change, how motivation works in the workplace, how to create self-motivated teams are some of the things that make me tick.

INTERVIEWED BY ILLUMINATION  
EDITORIAL TEAM



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# Memorial in honor of Late J Jayalalitha Receives a facelift courtesy Havells





Globally renowned for its historical monuments, India's architectural wonders define its cities, towns, drawing millions of visitors each year. The stunning monuments like the famed Taj Mahal in Agra, built-in 1632, and the most recent Statue of Unity (near Vadodara), completed in 2018, are architectural masterpieces that will stand for centuries reminding the world of our vibrant culture and legacy.

While being splendidly beautiful on its own, lighting can play a catalyst to magnify its beauty. It not only illuminates but also beautifies these constructions. The dynamic multi-

coloured light language transforms structures, evoking grandeur. Lighting can dramatically enhance the beauty of these monuments while also bringing new life to the cityscape.

Late J. Jayalalitha's Memorial in Chennai was initially built in 1988 and inaugurated by former chief minister Edappadi K. Palaniswami. The memorial has been renovated multiple times due to damage as a result of a natural disaster as well as time related restorations.

The memorial was renovated again recently, wherein the focus was not only on the memorial itself, but also on the overall façade and surrounding walls.

The restoration included the construction of a new entrance with the AIADMK party's two-leaf symbol. A granite pathway shaped like a guitar, stainless steel handles around the memorial, a fountain in the middle, a waterfall at the back, installation of decorative lamps and an overhead tower with lights at the entrance and on the arch were also included as part of this restoration. Two 18-metre-wide pergolas were also built, as well as ramps for the physically challenged.

Havells India undertook the illumination for the entire Amma Memorial. The products used for the lighting of the Grand Phoenix themed memorial for



## COVER STORY

Amma comprises of Havells lighting DMX controlled LED system. Havells Lighting used LED lights in DMX /Monochrome colour to enhance the architectural features of the memorial complex in the remembrance of former chief ministers of Tamil Nadu.

The museum exhibits culture as well as human history. Jayalalithaa and her political mentor, AIADMK founder MG Ramachandran, are commemorated with bronze busts and two lion sculptures at the entrance of the memorial. Lighting a beautiful memorial of the former political legends necessitates a careful and subtle, balanced lighting approach for each rich element to create landmark memories of these personalities. The goal is to keep the luminaires concealed from public view as much as possible, allowing illumination to do its work. The sculptures are beautifully accentuated with compact but powerful DMX floodlights. The main attraction is the lighting of Former Chief Minister

Jayalalithaa's Phoenix structure, lit up with high wattage floodlights to create a lighting ambience on the Phoenix structure. This structure is spread over 14,100 square feet and is 15 meters high, 30.50 meters in length and 43 meters in width. A combination of 300W and 600W floodlights with special optics were installed to enhance the front and back. A special effort has been made to reduce all forms of light pollution on the memorial.

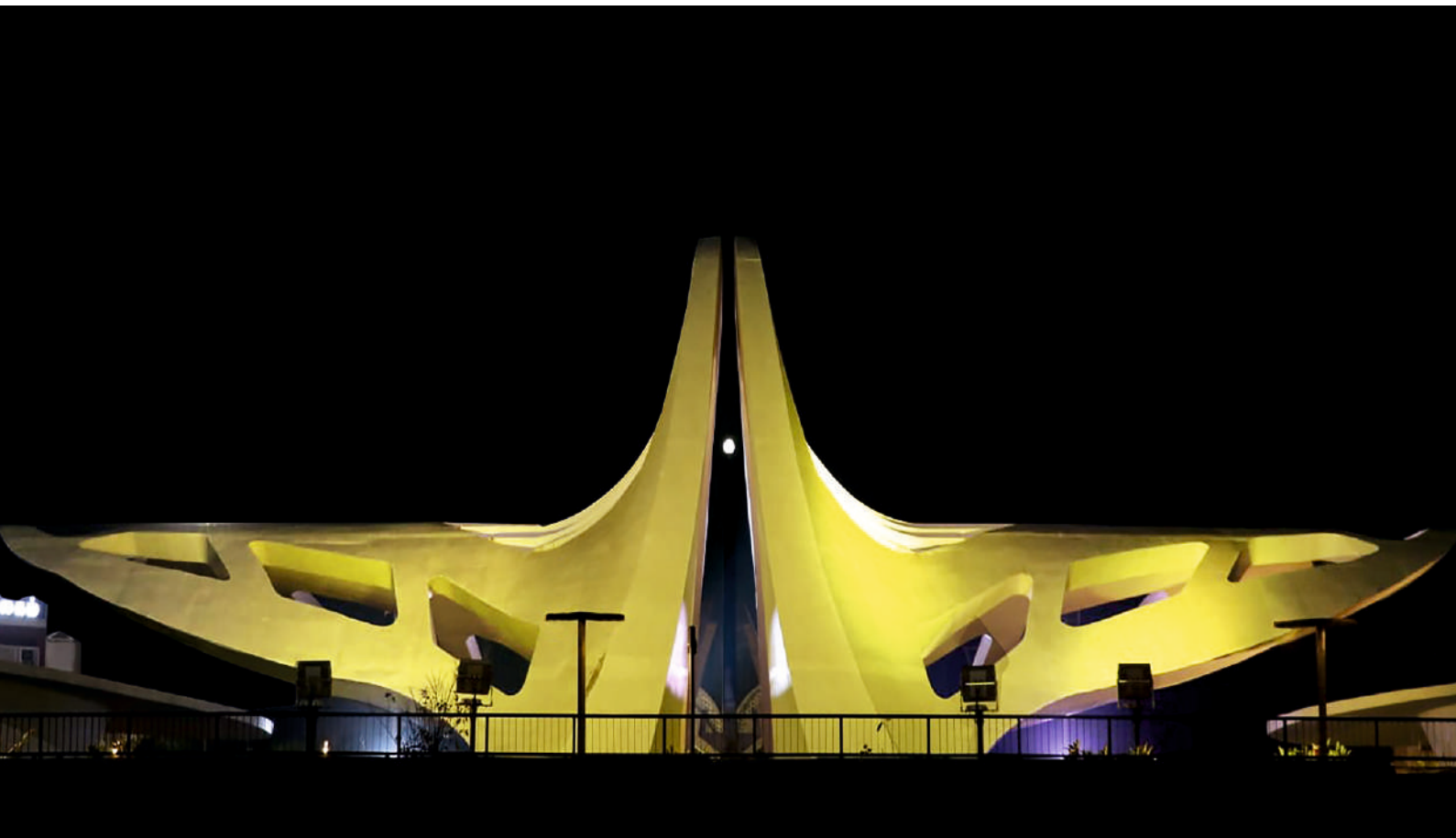
The mausoleum features Jayalalithaa's signature slogan, "Makkalal Naan Makkalukkaga Naan," which means that her prominence was due to the people, and she was for the people. It also features linear in-ground burials that are IP67 rated and that have a unique feature that doesn't allow glass temperatures to rise above 40 degrees Celsius thus ensuring no burn marks on anyone who steps on it. Additionally, a lot of trees were also addressed with circular ground burials adding beauty to the landscape.

Besides being an ornament, lighting is also a catalyst for dynamism. A well-designed lighting scheme creates an atmosphere of uniqueness and security while arousing curiosity. An area that is brightly lit connects with the people on an emotional level. Appropriate lighting gives form to a building's shape, enhances its visual perception and therefore plays with the spectator's senses. Each monument and the architectural story has a unique story to tell and that story can be told beautifully through striking and dramatic lights.

The Amma Memorial is another feather in the cap of Havells Lighting, who have showcased their excellence in lighting such well known monuments.

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EXECUTIVE VICE PRESIDENT & SBU  
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Views expressed in this article are those of the contributors and do not necessarily reflect those of the editors or publishers



# Horticultural Lighting Showcase

Commercial Plant Factories under Artificial Lighting (PFAL)

**The largest commercial plant factory under  
artificial lighting**

Anxi, China (10,000 sq m)







## The first PFAL in a city in the desert

7,000 Sq m, Las Vegas, USA



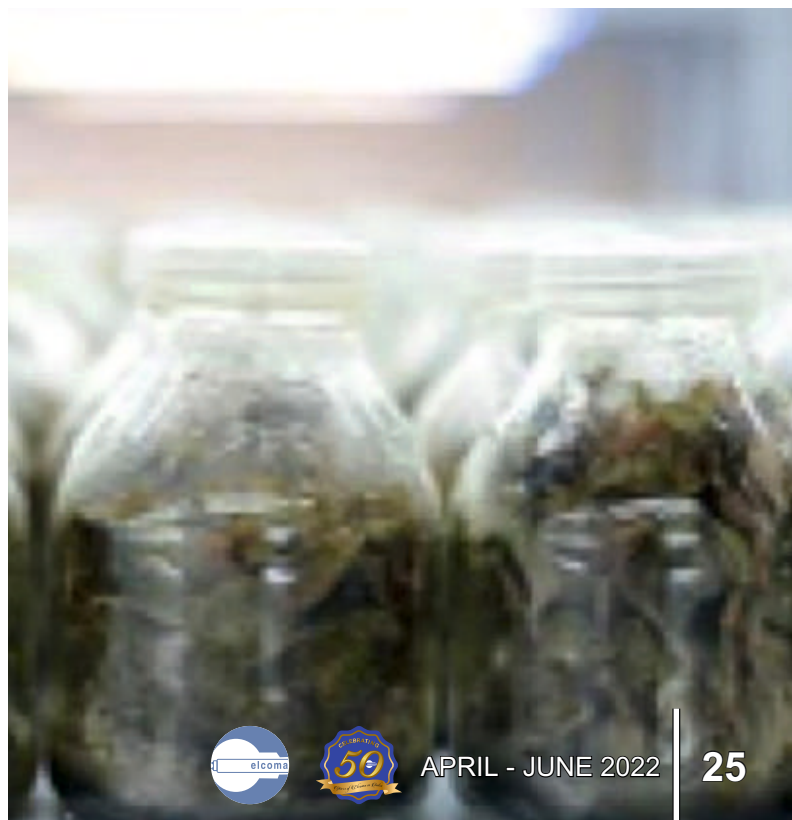


SPECIAL FEATURE



## The first organic production of Chinese medicinal plants in PFAL

15,000 Sq m, Anxi, China







**Urban Dreamfarm**  
Fuzhou, China





# Dynamic Illumination for Greater Safety and Visual Comfort in Tunnel Lighting

Part two of our article on practical approach to Designing Tunnel Lighting



In the article published in the previous issue, we understood the technicalities of the complex and demanding field of Tunnel Lighting and discussed about illumination requirements in tunnels, different zones of a tunnel and the lighting associated with them. In this article we will examine the quality parameters and the dynamic nature of illumination in tunnels and how to achieve the same.

Visual performance criteria for a motorist while approaching, entering and leaving the Tunnel must be ensured. The tunnel illumination should facilitate this comfortable journey of traveler by way of balancing it with respect to the natural light outside the tunnel.

## Critical Design Criteria for Tunnels

**Lighting Level:-** The lighting parameter considered for Tunnels is 'Luminance' unlike other applications. The

'Luminance' levels in all the zones should be calculated and provided using an appropriate luminaire and should meet other Quality parameters as well.

Luminance is a vector quantity the value of which changes when measured from different viewing points. Luminance level for Road as well as for the 'Tunnel Walls' should be measured as perceived by the motorist. For calculation purpose observer position needs to be defined accordingly. For motorists, Luminance of walls is critical as it forms a major part of the visual field along with the road. The lower parts of walls act as background for the traffic and hence both wall and road must be considered with equal importance

Standard software like Dialux, which is used for indoor applications cannot be used for carrying out calculations for tunnel lighting design. 'Luminance'

should be calculated in the direction of motorist in software using a moving observer.

**Uniformity:-** Good uniformity of luminance must be provided on the road surface as well as on the walls up to a height of 2m.

UR (uniformity ratio) of 0.4, for Min/Avg Luminance, for both road and walls individually is recommended.

A longitudinal uniformity ratio of 0.6 along the center of each lane is recommended for the road. These values of uniformity must be achieved for all dimming steps, and various zones

Lighting of the walls and the ceiling in all zones

Tunnel walls contribute to the adaptation level and to the visual guidance. The average luminance of the tunnel walls, up to at least a height of 2 m, must be at



least 60% of the average road surface luminance at the relevant locations.

**L<sub>wall</sub> / L<sub>road</sub> = 0.6**

**Glare restrictions:-** Glare reduces visibility, and it is important that it should be minimized. The glare measure employed in tunnel lighting is the same as that employed in road lighting, namely the threshold increment, TI. This should be less than 15 per cent for all zones, except for the exit zone during the hours of daylight. The following formula should be used to calculate TI:

$$TI = 65 L_v / L_{road}^{0.5} \text{ if } L_{road} < 5 \text{ cd/m}^2$$

$$TI = 95 L_v / L_{road}^{1.05} \text{ if } L_{road} \geq 5 \text{ cd/m}^2$$

Please note that Streetlight software cannot be used for Tunnel lighting calculations since the Luminance Values involved here are typically > 5cd/m<sup>2</sup>.

**Flicker:-** Flicker sensations are seen when driving through spatially periodic

changes in luminance. Under specific conditions, the flicker may cause discomfort that sometimes can be severe.

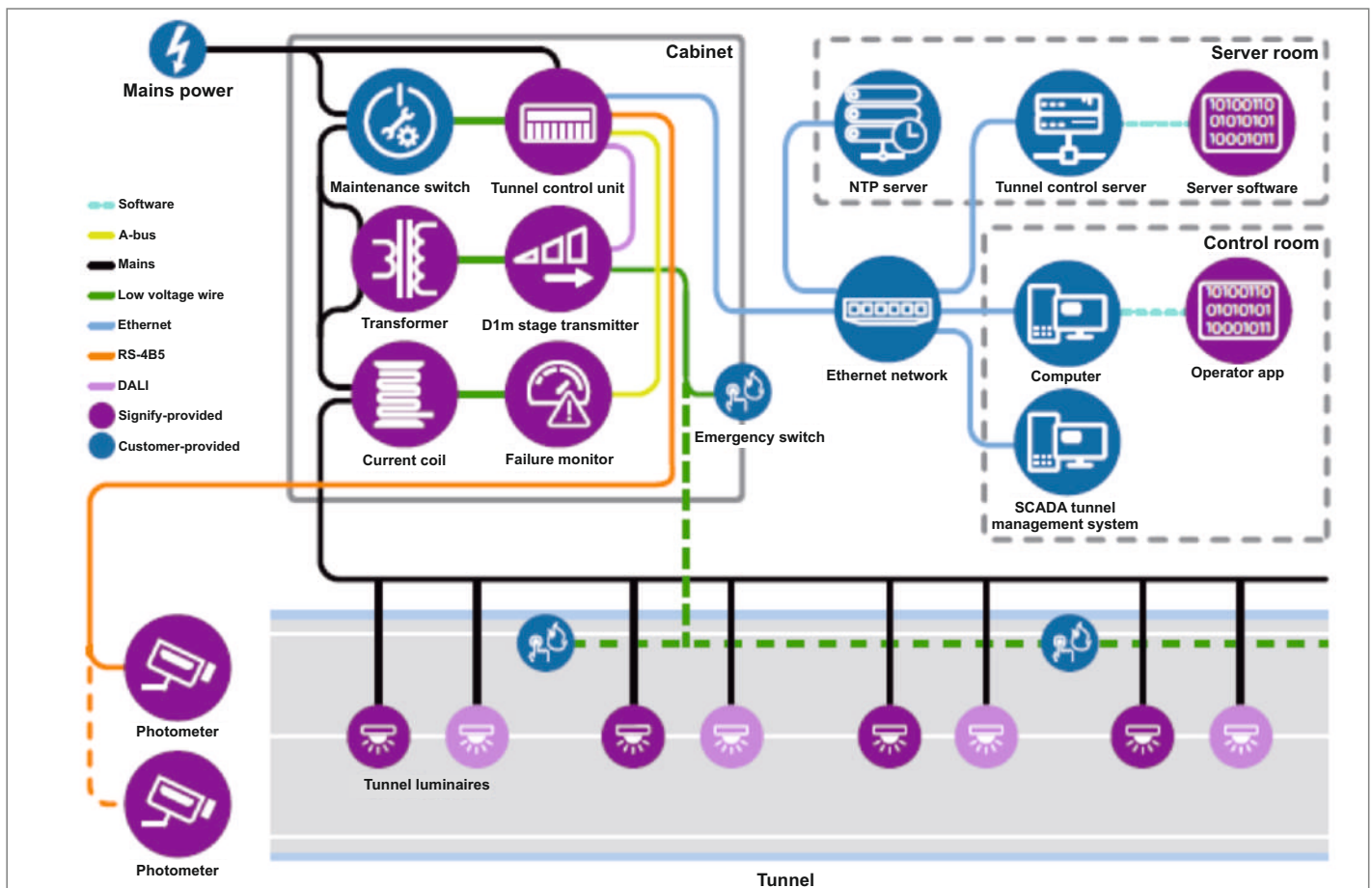
The degree of visual discomfort experienced due to flicker depends upon various factors and one of the important is 'the number of luminance changes per second (flicker frequency)'. In general, the flicker effect is negligible at frequencies below 2.5 Hz and above 15 Hz. When the frequency is between 4 Hz and 11 Hz and has duration of more than 20s, discomfort may arise provided no other measures are taken. It is recommended that, in installations where the duration is more than 20s, the frequency range between 4 Hz and 11 Hz be avoided.

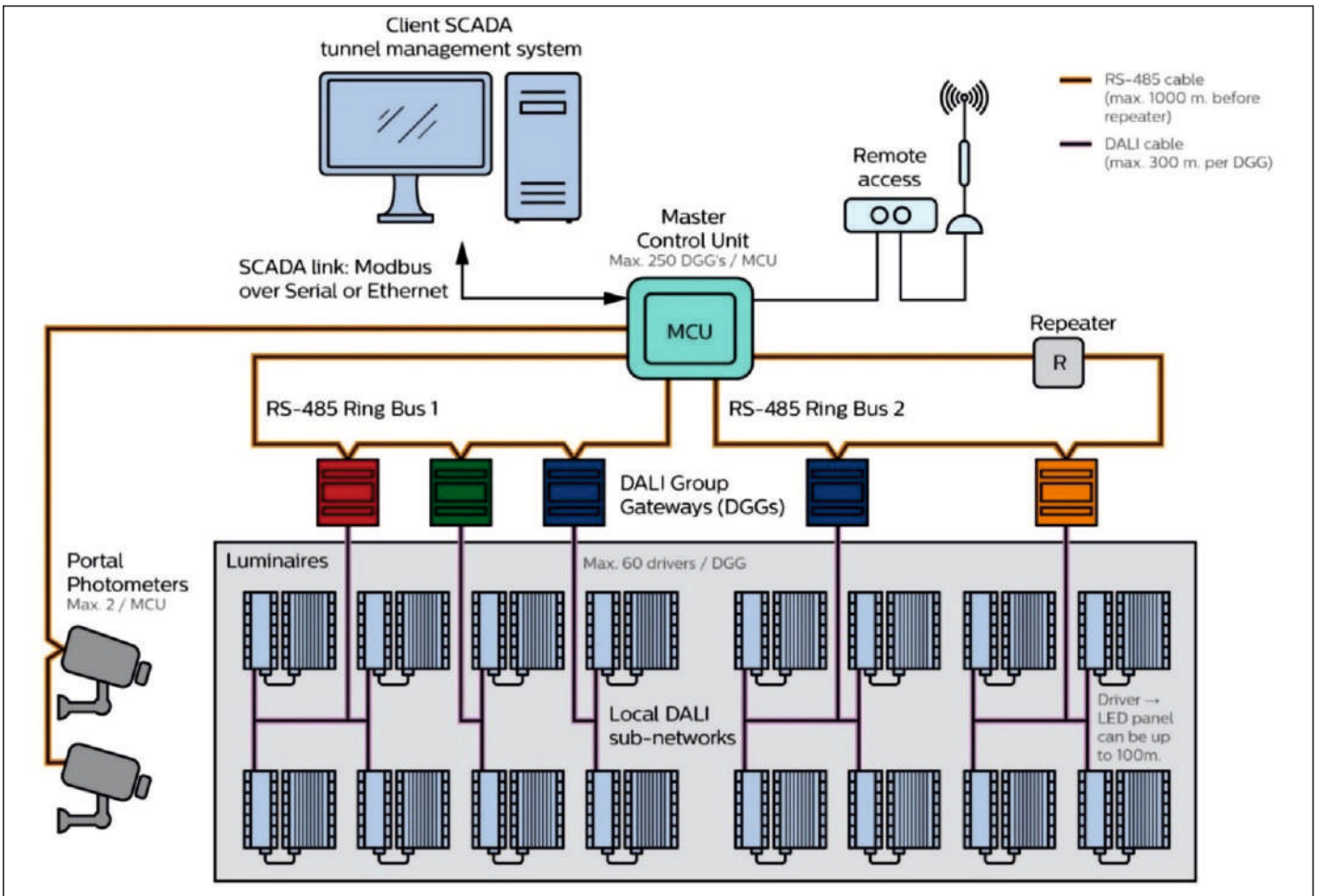
**Intelligent Lighting Systems**

We know that Natural Light varies in intensity and direction during different hours of the day. It also varies due to

changes in environment conditions during the day. The prime requirement of Lighting in Tunnels is to ensure that traffic, both driving day and night, can approach, pass through, and leave a tunnel at the appropriate speed with the same degree of safety and comfort as on the adjacent stretches of open road. Hence Illumination in Tunnel is also required to be 'Dynamic'.

This asks for Intelligent Lighting Systems that should enable better traffic management, minimize capital expenditure for the lifetime of the tunnel lighting infrastructure, should be an easy and cost-effective system to control LED tunnel lighting, both for new as well as refurbishment projects. The ideal system should eliminate the need for new separate control infrastructure. Modular systems which can be standalone or driven by schedule and /or sensors can be integrated in SCADA tunnel





management system for remote monitoring or control. The controls could consist of dimming of devices, continuous or step, or could be switching of devices in groups.

**'Basic control and monitoring step dim'** adaptive lighting system uses photometer at the tunnel entrance (portal) to adjust the illumination in the tunnel to changing environment. Such a system can use technology to communicate dimming signal over mains wiring and can be modular and scalable from single bore to multi bore tunnels.

Such intelligent systems fulfill all needs to Dynamic Lighting application with fewer building blocks to meet the requirements. Depending on the complexity of the structure and use of multiple Control Units, Tunnel Control Server is employed with standard

ethernet connections and photometer with high level RS 485 communication link. System architecture can be depicted as seen in figure below

The System can use various components for different functions, such as Control units + Server connectivity for Control of light, Dim stage communicator for superimposing communication signal, Unit for broadcasting signal, Failure monitoring, Surge protections, Photometer etc.

**Ideal Features of Control system**

Some of the important features that should be part of the system package are

- Commissioning Free Luminaires
- Manual Override Light Control
- Luminaire group failure detection
- Remote management integration for – Operational Status information,

Failure warnings, alarms, Manual Stage Override, Remote Emergency override.

Control systems always demand project specific control philosophy such as SCADA integration interface, DGC, driver locations, interface, failsafe mode, system redundancy. Figure below depicts example of system with Master Control Unit.

**System Components**

**SCADA - The Supervisory Control And Data Acquisition (SCADA)** system, is a networked computer controlled system for high-level process supervisory management. The TCS (tunnel control server) and TCUs (tunnel control unit) are the interface between the SCADA system and the luminaires. The SCADA system and TCS are part of the IT system of the customer.





**TCS – Tunnel Control Server** - hosts an application programming interface (API) for system control and monitoring. It is also required, in case more than one TCU is used within one bore, to connect these together to create a complete system. The server is used as a commissioning tool during commissioning, and it creates service logs. It is part of the IT system of the customer.

**TCU** - As the name suggests, the TCU is the main control unit. Standard Ethernet is used to communicate with the NTP server and via the TC server to the SCADA system. It connects the peripherals like the photometer, failure monitor units and emergency switch together and sends a digital control signal via the CMT and transformer to the luminaire drivers. The TCU uses DALI protocol to communicate with the CMT. Automatic status monitoring of lamp, twelve level dimming to ensure that the tunnel lighting is managed as

efficiently and reliably as possible. The TCU uses luminance information, received from the tunnel entrance photometers. This information is received via the RS-485 bus over ABUS, to control the CMTs in accordance with the lighting design to dim the lighting to the appropriate level. During the night, the TCU(s) will use their internal schedule to dim the lighting to the configured levels. Time information received via NTP, is used to run the scheduler.

A photometer measures the level of luminance, or brightness, created by natural light at the tunnel entrance, to ensure that the visual perception of drivers will be maintained. The output signal is used by the system to adapt the light level of the tunnel luminaires. During daytime this avoids sudden variations in lighting levels and a “black hole effect”.

**System Operations**

In automatic mode, the control and

monitoring system operates continuously and fully autonomously, without the requirement for any manual user intervention. With reference to the system topology, the TCU obtains portal luminance data from the photometer(s) and uses lighting design information contained in the system database to derive the required lighting levels within the tunnel. It then sets those lighting levels by sending control commands via the coded mains signals to the luminaire drivers.

The photometer-controlled tunnel lighting shall be overridden by various external interfaces with increasing levels of priority.

In case of a loss of communication between the TCU and the luminaire drivers, or any other failure conditions or power loss the lighting will go to the preprogrammed failsafe level.

Whilst controlling the lighting levels in the tunnel, the system also monitors the light degradation per outgoing power group, detect failures accurately.

The TCU generates alarms if the fault percentages exceed the configured thresholds. The system also monitors and reports the state of the photometer, failure monitor units, and the cabinet door open switch. The TCU will provide a connected SCADA system with remote control and monitoring functionality via the API running at the TCS.

The TCU hosts and runs the tunnel lighting control and monitoring software. It performs various operation and maintenance tasks: manual lighting stage control, status monitoring, report generation, data archiving etc. Most tasks can be performed while the system is running in automatic/run mode.

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# Sahasra to Setup India's First IC Packaging Plant



Leveraging the Government's Semiconductor PLI scheme and ELCOMA support, Sahasra Semiconductors is planning to package ICs specifically for the Indian Lighting Industry

Sahasra Semiconductors is part of the Sahasra Group that was conceived in the year 2000 and is one of the fastest growing electronic companies in India. The group comprises of 6 businesses providing end-to-end electronic



solutions from design to manufacturing to distribution. Sahasra Group has four manufacturing plants situated in the NCR, India, one manufacturing plant in Rwanda, Africa as well as 8 sales and marketing offices in India, USA, Canada, Africa and Europe.

Sahasra has 30+ years of experience in Electronics design and manufacturing and has an annual revenue of USD 30M with 550+ employees and presence in 5 countries. The group has been assembling and distributing Memory products in India for global brands like Sony and HP and has supplied millions of USBs / SSDs / Micro SDs in India, Asia, Middle East and Africa. They have a Technical Collaboration for Solid state memory products manufacturing with strategic partners in Taiwan and also have a joint-venture with MiTAC Holdings Corporation, Taiwan to manufacture & assemble Dash-cams, Server Motherboards and IT Products.

The company provides EMS (electronics manufacturing services) to US, Europe,

Canada, Rwanda and India customers and has 2 PCB Fabrication facilities, both ISO/TS 16949:2016 and ISO 9001:2015 certified, which help in meeting captive demand as well as serving other EMS & OEM requirements.

Sahasra Semiconductors is a new entity under Sahasra Group, that has setup its factory at Bhiwadi, Rajasthan for IC packaging and testing. The plant capacity is expected to be 120M Units by Dec'23 and further ramp up is planned in subsequent years. The company is targeting local and global customers with its LED Driver ICs, eMMC and BGA Products. The major materials required for packing these products in India would include Wafers, Substrate, Au wire, Adhesives and Mold compound, all of which would probably be imported.

Sahasra Semiconductors plans to design the LED driver chip in India and then fabricate the chip design outside India. This design would then be packaged and



## SPECIAL FEATURE

### CHIP



### PACKAGE



tested at Sahasra Semiconductors in India.

In year 2022, Sahasra will complete design, fabrication, packaging and testing study. Outsourcing of fabrication plant is ongoing and the selection and discussion would be closed by end of Q1 CY22. Sahasra plant setup will also be ready by the end of May 2022. Procurement of equipment for packaging is in process and the equipment and machinery will be on site by end of Q3CY22. By the end of the

year, first LED driver will be ready for small volume production.

In year 2023, first LED driver will be manufactured at small scale in Q1CY23 and high volume mass production of driver will start in Q2. Parallel research to upgrade existing product as well as add new products (MicroSD and COB memory cards) will continue. During customer qualification stage, Sahasra will focus on developing quality products and providing best support to all customers. In the same year, Sahasra

will start developing global customers. In year 2024, Sahasra will start adding more products for different applications such as high-grade memory and controllers. Focus on enhancing design and skilled labour capabilities for other products will be increased. Production capacity will also be increased as per plan.

**AUTHOR : AMRIT MANWANI,  
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# SSL for Horticulture Lighting

The potential economic and social benefits of using Artificial Light instead of natural light to promote plant growth are huge.

Traditional agriculture is heavily affected by weather conditions. Artificial light works all year long and won't change as the seasons change. Using artificial lighting also means that we can have more options for where to grow the plants. Lack of sunlight at certain times prevents plants from giving optimum yield. With artificial light we have the ability to control the amount and strength of the light the plants get, which means that we can grow plants that need different amounts of light as well as adjust the lighting depending on the type of plant and the way that each plant gets what it needs.

The continuous advances in LED lighting make it the best candidate for supplemental lighting for growing plants. According to reports published by Frost

and Sullivan, conservative estimates peg worldwide market size of Horticulture lighting and equipment for horticulture lighting at US\$ 11.5 Bn by 2024. Horticulture lighting had 1.39% of global lighting share in 2015, 3.52% of global lighting share in 2020 and expected to have a 7.42% of global lighting share in 2024 which is a CAGR of over 25% in the period between 2020 and 2024. India is in its very initial stages of adopting Horticulture Lighting and the potential for the future is enormous in the Indian context.

The Photobiology Industry is the summation of the scientific research and application in interactions of light and living organisms. This industry aims to develop innovative technology and cultivation systems adapting in vertical farming to industrialize production of vegetables, fruits and medicinal plants in vertical farming. Photobiology develops innovative light spectrum, LED luminaries and facilities that are

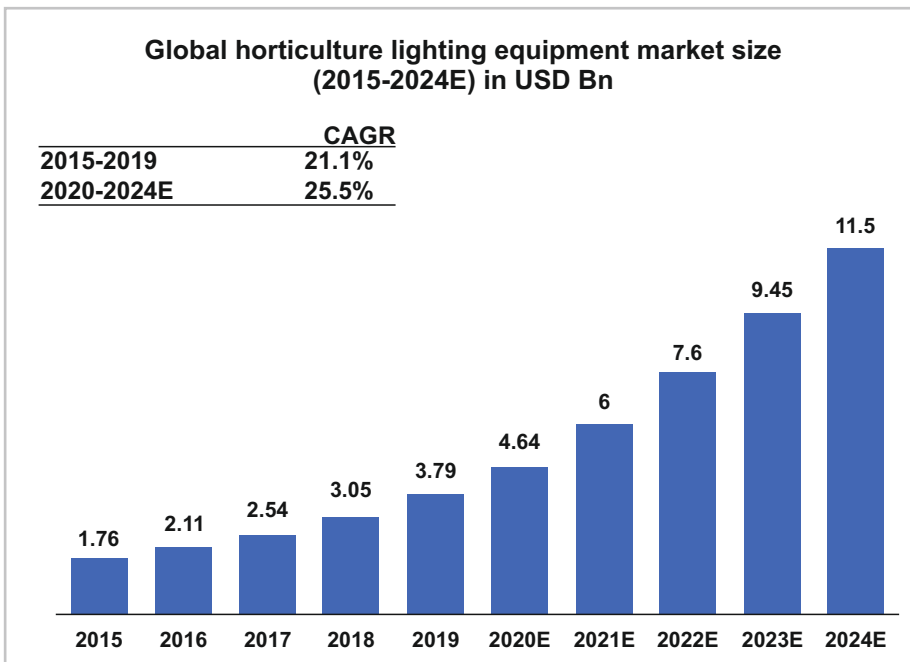
extensively used in vertical farming, photobiology research, open-field and protected agriculture. Another aspect of photobiology is to innovate drugs originating from natural compounds of plants. There is wide application of LEDs in Photobiology industry for (a) Growing organisms under artificial light, (b) Metabolites production and extraction and (c) Equipment for use in Photobiology.

## Principle of Horticulture Lighting

Chlorophyll is the main element for photosynthesis in plants, including chlorophyll A and chlorophyll B, which absorb red and blue light. Photosynthesis is the basis of plant growth and development. The organic matter produced is mainly sugar, which stores energy and is conducive to the robust growth of plants. With supplemental lighting, the plants have high yield and quality. When the light intensity is lower than the compensation point, the consumption of organic matter is more than accumulation, and therefore the dry weight of plant is decreased or may die.

When the light intensity exceeds the

## Horticulture Lighting industry



## Why Supplemental Lighting

- Improves fruit quality
- Bad weather degrades fruit taste and quality
- Fruit taste and nutrition can be significantly improved
- Increases crop yield
- Fruit yield can be increased by 50-100% under bad weather
- Fruit yield can be increased by 30-50% under good weather
- Regulates fruit pickup time
- Advances fruit pickup season
- Greatly increases fruit unit price



## SPECIAL FEATURE

saturation point, the total photosynthetic effect no longer increases as the light intensity is increased.

### Supplemental Lighting for Open Field Cultivation

The problems of open field cultivation are manifold. Besides excessive or uneven growth, poor quality and low

#### Why is light spectrum so important in Photobiology Industry?

- Photosynthesis and phenotype difference at different light
- Blue and red light can cover more 90% effective photosynthesis
- Yellow-green, UV and far-red is involved in signal regulation, morphological responses
- LEDs eliminate the light that is contained in sunlight but not conducive to plant growth

germination are also problems that plague this kind of cultivation. There are also occasional large-area death under extreme weather conditions causing severe financial stress on farmers.

Supplemental Lighting in Open-Field cultivation solves the problems of weak-lighting environment due to weather and haze and also improves yield and quality of crops. Supplemental lighting greatly improves fruit quality, fruit taste and nutrition because bad weather degrades fruit taste and quality. Fruit yield can be increased by 50-100% under good weather and fruit yield can be increased by 20-40% under bad weather. Supplement light also regulates fruit pickup time and advances fruit pickup season. No doubt, all this greatly increases fruit unit price

Economics for Supplemental Lighting

For open field bayberry farm, total Investment is estimated to be around US b\$2500 per Chinese Acre. The average annual income is increased from \$1500 to about \$3000. Therefore the ROI period is less than 2 years (without government subsidies).

For green house bayberry farm, total investment is estimated to be around \$2500 per Chinese Acre. The average annual income is increased from \$12000 to about \$15000. ROI period is around 1 year (without government subsidies).

For other fruits like dragon fruits, grapes, and tomatoes, ROI period is 1 to 1.5 years (without government subsidies)

**AUTHOR : DR. GARY HUA,  
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# OSRAM





# OSRAM CSR Activities

**O**SRAM entered into Corporate Social Responsibility Contribution Agreement with various NGO(s) to undertake its CSR activities as per the requirement of the Companies Act, 2013 to support projects / programs which fall under the sectors of **Education, Environment and Health Care (elderly care).**

## The details of CSR activities undertaken by OSRAM:

Project Details	Project activities & Description
Education to students at Government Model Senior Secondary School, Sector 4/7, Gurugram, Haryana under 'Shikshaantra Plus programme' through Kinship for Humanitarian, Social & Holistic Intervention "KHUSHII"	<p>The project focused on improving:</p> <ul style="list-style-type: none"> <li>Teaching learning environment, providing counselling to children and working on their psychosocial development, creating groups of parents and students, improved awareness around health &amp; WASH and digital classroom.</li> <li>Learning levels of around 300 students in School to the substantial level through remedial teaching, digital learning and other curricular activities.</li> <li>Mental health support to all the students in the target school under the project.</li> <li>Coordination between parents and teachers for the benefit of the child.</li> <li>Awareness on appropriate hygiene practices.</li> </ul>
Girl Child education in SDMC Primary School Girls Tugalakabad, Delhi under "Gyantatra Udbhav Digital Dost" through LITERACY INDIA	<ul style="list-style-type: none"> <li>To involve children in Digital Learning Education/ Smart Classroom intervention.</li> <li>To improve school performance &amp; tech integrated activity-based learning approach.</li> <li>Build the foundation of Government school children and curve dropout rates.</li> <li>Improvement in reading and learning level of girl students.</li> <li>Subject wise improved performance of the children.</li> </ul>
Healthcare (elderly care) - Provision of food items for the abandoned senior citizens and people with mental disability through The Earth Saviours Foundation	<ul style="list-style-type: none"> <li>To support the abandoned and destitute elderly people and people with mental disabilities through provision of food items residing at old age home/ rescue centre operated and run by the Earth Saviours Foundation.</li> <li>Improving and enhancing the overall quality of life for elderly people and persons with disabilities through provision of nutritious meals.</li> </ul>
Societal Awareness on Importance of Segregation-at Sources and Safe Handling of E-Waste through Indian Pollution Control Association	<p>The project aims to create societal awareness on importance of segregation-at sources and safe handling of e-waste through:</p> <ul style="list-style-type: none"> <li>Contribution towards Societal awareness on importance of segregation-at sources and safe handling of e-waste, through effective partnerships with key stakeholders.</li> <li>Workshops / training program for waste handling manpower.</li> <li>Development of SOP for waste handling manpower to effectively manage e-waste and develop a network with authorized E-Waste Recycler for the scientific recycling.</li> </ul>



**AUTHOR : OSRAM LIGHTING PVT. LTD**

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# Signify lights up five rural school playgrounds in Gautam Buddha Nagar



Signify recently illuminated five playgrounds in rural government schools in the Gautam Buddha Nagar District of Uttar Pradesh under its CSR program called 'Khel Jyoti'. These playgrounds have badminton courts that are illuminated using high-mast LED lighting, powered by solar energy. This interesting project has benefited more than 1,285 school children, who can now play and practice badminton even after sunset in their newly illuminated playground.

In addition to improving a child's physical fitness, playing sports also strengthens their holistic development. Under the Khel Jyoti program, Signify seeks to create opportunities for young

and budding sports talent to play for longer hours even after sunset and enhance their skills, by lighting up their playgrounds.

Signify has partnered with Gurgaon-based SRF Foundation for this project. The project is enabling young sportsmen, and especially young girls, to improve their playing skills and many of them have now managed to qualify for district and state level competitions, thanks to their newly lit badminton courts.

**AUTHOR : SIGNIFY INNOVATIONS INDIA LIMITED**

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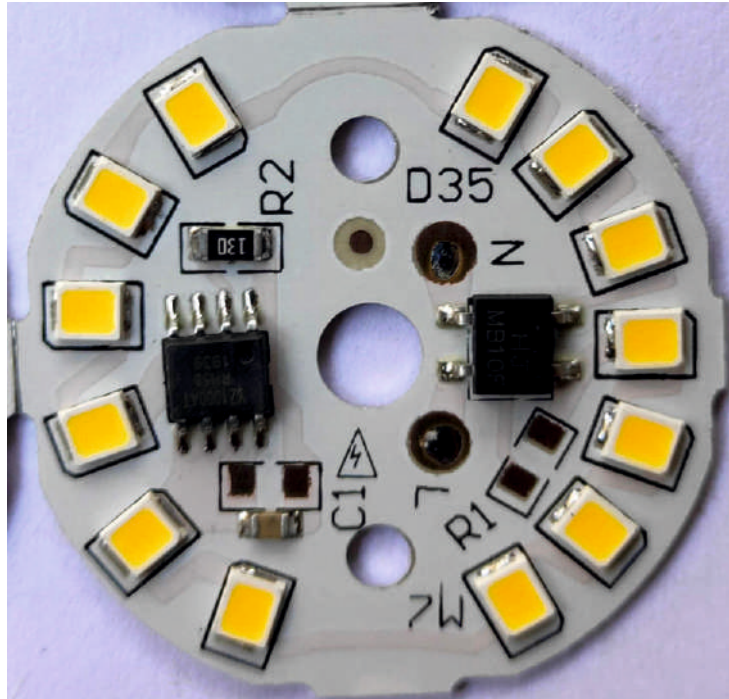




# Are DOB Circuits the future of Lighting?

A study highlighting the pros and cons of DOB circuits

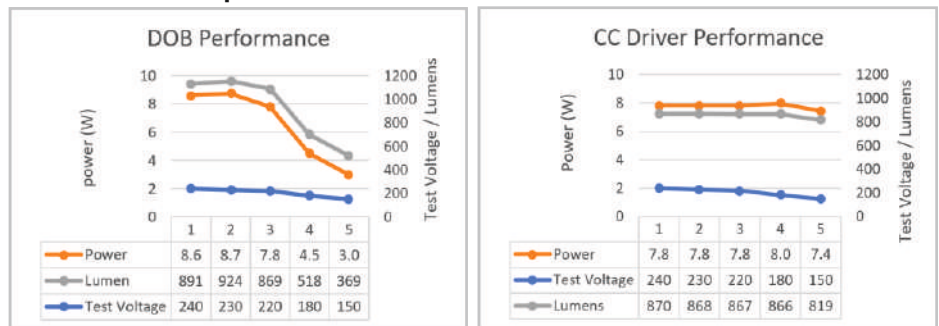
Recently the Indian Lighting industry is looking for cost competitive solutions for control gears. In order to reduce cost of products in the cost-competitive Indian market, DOB (Driver on Board) circuits are being evaluated by all brands. IS 16102 Part 1 (safety) and IS16102 Part 2 (performance) is applicable on LED bulbs that are to be sold in Indian market. With the recent evolution of IC technologies, some DOB circuit bulbs can possibly meet Indian standard requirements and are being seriously evaluated to replace CC (constant current) LED drivers. This article evaluates the advantages and disadvantages of DOB technologies.



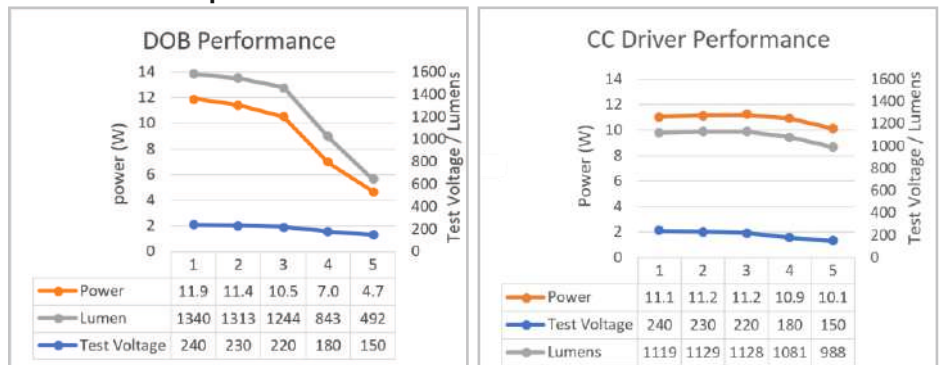
## Some of the advantages of DOB circuits are

- Complexity in DOB circuits is less
- It is easier to manufacture DOB circuits since several process such as MI insertion of driver components are not required which leads to lower production costs
- There are no electrolytic capacitor leading to higher life of lamp (calculated theoretically)
- Number of components are less and mounted by machines so manual interventions in making DOB circuits are less, therefore lesser manufacturing and process defects
- With the recent improvements in technology, DOB circuits can now meet PF, THD and EMC requirements as defined in both IS 16102 Part 1 and Part 2.
- With technology upgrades, DOB ICs can now provide several protections

### Comparison between 9W DOB and 9W CC Driver



### Comparison between 12W DOB and 12W CC Driver





like input UVP, input OVP and OTP which increases reliability of these products in Indian market

**However there are some disadvantages of DOB circuits as well.**

- Flicker in DOB circuit bulbs is higher as in every cycle all LEDs switch off and on depending on input voltage. In CC drivers flicker index

can be controlled. At present Indian standards do not address this as a performance requirement

- Bulbs made with CC drivers give constant power over the voltage range, hence constant lumen and output over the range is achieved. For example such lamps can operate between 170-270 Vac which are suitable for both rural and urban markets in India. In DOB however this is not possible. Constant lumens output in DOB is only achievable with rated voltage of 220-240 Vac. As voltage reduces, lumens reduce drastically.

As is evident from the graphs, in DOB circuits, the Lamp Power and Lumens reduce drastically when voltage drops,

while in the constant current driver, voltage drop variation don't make too much difference on the power and output of the lamp. The result for a 12W driver is also similar.

It is evident that DOB technology has its pros and cons. The decision on whether DOB will replace CC technology in the future is still ongoing and only time will tell which technology will be the dominant one in the future.

**AUTHORS : SANTOSH AGNIHOTRI, D.G.M / HEAD- QUALITY & TECHNICAL AND SOURISH DE, HEAD- R&D, ORIENT ELECTRIC LIMITED**

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# New Guidelines on EPR on Plastic Packaging under Plastic Waste Management Rules Released

India has been a country where circular economy concepts were practiced in households for ages. It is only with the advent of newer materials and phenomenal rise in consumption of such material in day-to-day usage, that the problem of heaping waste across the country started. This is a problem that a common citizen is not able to solve on his own, while it hurts environment, health and economy.

Hon. Prime Minister of India has set a vision for the fellow countrymen and businesses to phase out single use plastic by end of 2022 to stop plastic littering which ultimately reaches to landfills and sea thus affecting life at both land and sea. The recently notified guidelines on Extended Producer Responsibility on 'Plastic Packaging' under Plastic Waste Management Rules, 2016 is in line with the vision set by our Hon'ble Prime Minister for addressing this burgeoning waste of modern world through principles of circular economy i.e., reduce, reuse, recycle, and end of life safe disposal.

The guidelines bring obligation on producers, importers, brand owners, online platforms/marketplaces, supermarkets/retail chains, collectively called PIBO on the generation side of the value chain, through well-defined roles and responsibilities of each stakeholder in overall value chain of plastic packaging and waste generated through the same. Obligated entities are required to get registered on centralized portal (<http://www.cpcbepplastic.in>) developed by CPCB.

Four categories of plastic packaging

have been covered under the EPR which almost includes all type of plastic packaging typically used –

- Rigid plastic packaging
- Flexible plastic packaging of single layer or multilayer (more than one layer with different types of plastic)
- Multi-layered plastic packaging (at least one layer of plastic and at least one layer of material other than plastic)
- Plastic sheet or like used for packaging as well as carry bags made of compostable plastics

The EPR guidelines cover aspects like reuse, recycling, use of recycle plastic content and end of life disposal related to plastic packaging and EPR targets have been set for each plastic packaging category for Producer, Importer and Brand Owners on these aspects. Average weight of last two financial year consumption, category wise for Plastic Packaging material, forms basis of targets for the obligated entities at the time of registration. Subsequent year targets are based on the data provided by PIBO at the time of filing returns. State-wise details of waste introduced needs to be collected and furnished.

The overall target, to be made part of the action plan of PIBO, has been kept at 25% for 2021-22, 70% for 2022-23 and 100% for 2023-24. From the year 2025-26 and onwards there is an obligation for PIBOs for use of recycled plastic content in plastic packaging as per the percentages provided in the guidelines. Brand owners have reuse targets also under the guidelines for usage of

category 1 plastic packaging material i.e., rigid plastic. If one accomplishes activity beyond the approved targets, there is provision of generating surplus EPR certificates, carry forward and offset previous year EPR targets and obligations, and sale and purchase of surplus EPR certificates.

The EPR targets are not applicable to the 100% biodegradable plastic packaging material used in packaging given that it meets the definition criteria of biodegradable plastic provided in guideline document and is certified by the regulator.

While few forward-looking businesses are already in process of phasing out or have already phased out usage of plastic in packaging, many have been working towards finding alternative solutions to the plastic packaging, these guidelines are going to provide the required impetus to tackle this widespread environmental issue in a manner which is win-win situation for all.



**AUTHOR : NITISH POONIA, HEAD – PUBLIC & GOVT. AFFAIRS, SIGNIFY INNOVATIONS INDIA LTD.**

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# Government reopens application window for PLI Scheme for White Goods (ACs and LED Lights)

Department for Promotion of Industry & Internal (DPIIT) under Ministry of Commerce & Industry vide Trade Press Note March 7th, 2022 announced that Government has reopened the application window for PLI Scheme for White Goods (ACs and LED Lights) from 10th March to 15th April 2022 to give a second chance to prospective investors to apply for an secure the benefits of the Scheme.

The Union Cabinet had given approval for the PLI Scheme for White Goods for manufacture of components and sub-assemblies of Air Conditioners (ACs) and LED Lights in April 2021 in pursuance of Prime Minister's clarion

call for 'Atmanirbhar Bharat' to bring manufacturing at the centre stage and emphasize its significance in driving India's growth and creating jobs. The Scheme is to be implemented over a seven-year period, from FY 2021-22 to FY 2028-29 and has an outlay of Rs. 6,238 crore. The Scheme was notified by DPIIT in April 2021 and the Guidelines were published on 04.06.2021.

Total 52 companies had filed their application under the PLI scheme and after evaluation of all applications, 42 applicants with committed investment of Rs.4,614 crore have been provisionally selected as beneficiaries under the PLI scheme. Of the selected applicants, 16

are for LED Lighting manufacturing with committed investments of Rs.716 crore.

Additional applications have been invited under the Scheme Guidelines for investments on the same terms and conditions. The incentive shall be available only for the remaining tenure of the Scheme. The application window for the Scheme shall remain open for the period from the 10 March to 25 April, 2022 (both days inclusive) on the on-line portal <https://pliwhitegoods.ifcilt.com/>.

Consolidated Scheme Guidelines are available at <https://pliwhitegoods.ifcilt.com/> and the website of DPIIT <https://dpiit.gov.in>.

## ELCOMA part of CoE for PLI

DPIIT recently announced the Constitution of the Committee of Experts (CoE) for the PLI Scheme of White Goods.

The terms of reference of this Committee are:

- To examine the cases for relaxation of pre-qualification criteria related to (a) Gross Block , (b) Global Revenue, and (c) Net Worth of the applicant or its group of Companies as on 31st March 2020.
- To examine and recommend the sales price of the eligible product(s) in the calculation of incentive applicable for a selected applicant in case of captive consumption of eligible product(s) or sale of eligible product(s) by the selected applicant

### CoE Members

Additional / Joint Secretary in-charge DPPIT	Chairman
Additional / Joint Secretary FDI DPIIT	Member
Nominee of AS&FA DPIIT	Member
Nominee of President of Institute of Cost Accountants of India	Member
Nominee of President of Institute of Chartered Accountants of India	Member
Nominee of President of RAMA	Member
Nominee of President of CEAMA	Member
Nominee of President of ELCOMA	Member
Nominee of President of ELCINA	Member
DS/Director/Senior DO level officer In-charge PLIWG DPIIT	Member

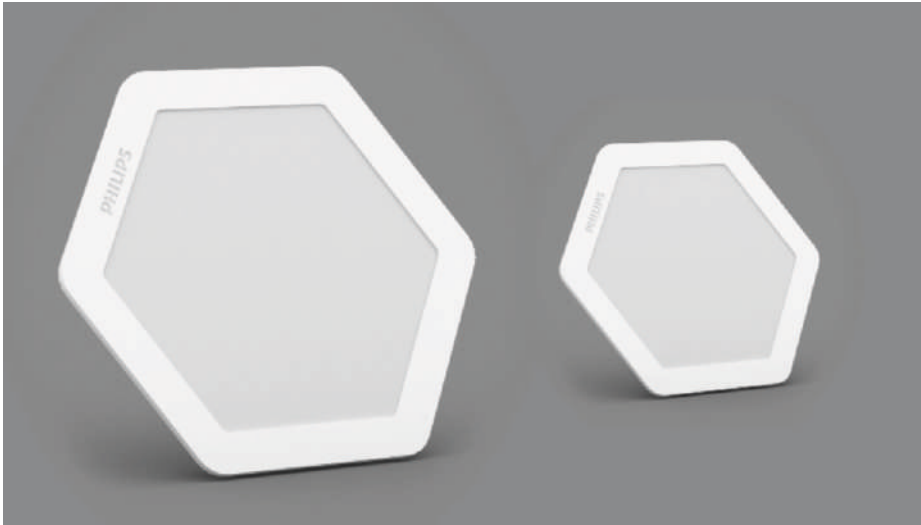
only to group companies, the gross sales turnover of eligible product(s) by the following method of computation: **Actual quantity of the eligible product(s) sold to group company(ies) or used for captive consumption multiplied by lower of the sale price offered to the group of company(ies) or the transaction price for eligible**

**product(s) between the independent unrelated parties.**

- Any other method referred by the DPIIT

**Nominees by the President of ELCOMA : Mr. Avinder Singh, OSRAM, Mr. Krishan Sujan, LEDVANCE, Mr. Rajesh Naik, Bajaj Electricals**

# Signify launches Philips HexaStyle, India's first hexagon-shaped LED downlight



**H**exagonal shape can be used to create unique patterns in the ceiling

- Fits in regular round cut-outs in ceiling, enabling easy installation

New Delhi, India – Signify (Euronext: LIGHT), the world leader in lighting,

today launched its Philips HexaStyle LED downlight in India. It is a unique, first-of-its-kind hexagonal shaped downlight that can be arranged in different patterns to create unique designs in the ceiling. Moreover, it is built with a round fitment, making it

easy to install in regular round-shaped cut-outs in the ceiling.

The downlight offers high energy efficiency of 100 lumens per watt and is available in both warm white and cool white options and three wattages - 8W, 12W and 15W. It also features the company's EyeComfort Technology which is designed to be easy on the eyes.

Downlights are a growing category in India and are very popular amongst people building new homes or making structural renovations. Currently, downlights are only available in 2 shapes - round or square, that are installed as single units offering functional and ambient lighting. With its Philips HexaStyle downlight that can be arranged in unique patterns, Signify is redefining the usage of downlights as a design element as well, in addition to offering just functional and ambient lighting. Customers can use their imagination to create unlimited designs in their ceiling by placing the hexagonal shaped downlights in different configurations.

Commenting on the launch, Sumit Joshi, CEO and Managing Director, Signify Innovations India said, “We are proud to introduce our latest innovation – the Philips HexaStyle downlight in India. Its hexagonal shape will enable consumers to express their creativity and design a truly personalized lighting experience for their home, by creating unique patterns in their ceilings. With this innovative product, we have expanded the product functionality from only illumination to illumination and design as well.”





# Orient Electric launches Deco Cabinet Light

Orient Electric has recently added a new portfolio in its basket, that of Cabinet light.

This segment is primarily catered to by unorganized players who sell imported, non-certified and unsafe products. Most of these imported products have very low light output and mostly do not meet all aspects of product safety. Orient has undertaken an initiative to introduce a range of decorative products that meets all BIS standard requirements and safety norms along with high lumen efficacy. All these products have been designed keeping in mind the Indian electrical conditions hence pass all electrical conditions and abnormal test



requirements. To support the government initiative, all these products are Made in India and BIS approved.

These cabinet lights are available in 5W (length -1 foot), 10W (length-2 feet), 16W (length-3 feet) and 20W (length - 4 feet) in cool white (6500K), warm white (3000K) and neutral white (4000K) color temperature. Some models are

available with motion sensor features as well.

These lights can be used under kitchen cabinets, study tables, wardrobes, etc. which provide the light specifically where you are working rather than spilling the light everywhere. It is a high energy efficient product and easy to install. It gives the smartness to the overall aesthetics of a room.

# Halonix launches Styl LED Batten



Halonix has unveiled one-of-a-kind Styl LED Batten under its sub-brand Halonix Prime. The Halonix Prime Styl LED Batten offers three Modes (Relax Mode, Work Mode and Designer Mode) in one Batten. These modes can be enabled by powering on and off the batten.

Halonix Prime Styl LED Batten creates the perfect mood and ambience for different activities and sets a new style

statement for homes. While the relax mode is ideal for watching TV, relaxing, dining and carrying out any regular everyday activities, the work mode is ideal for working,

reading and studying as in this mode the lighting does not strain the eyes of the consumers. Most suitable for creating ambience, the designer mode enhances the aesthetics of the room and complements the contemporary lifestyle of the consumers.

In the 'Relax' mode Halonix Prime Styl LED Batten throws a 20 watt yellow light upwards, giving a golden hue to the room which looks very aesthetic and

calming while in the 'Work' mode the batten works like a normal 20 watt white light batten. Further, the designer mode is most suitable for creating ambience. The 20 watt warm yellow cozy light from top with cool white light from down enhances the aesthetics of the room and complements your contemporary lifestyle.

Commenting on the launch of Halonix Prime Styl LED Batten, Mr. Rakesh Zutshi, Managing Director, Halonix Technologies Pvt Ltd said, "Halonix Prime Styl LED Batten is designed to offer the right ambience and light for various activities. It creates a welcoming space where you can easily work or relax without any strain to your eyes. At Halonix, we remain committed to create the most innovative LED lighting solutions for our valued consumers."

# Luker launches Solar LED Street Light

**L**uker has launched Solar Street Light solutions for commercial usage under the MAKE IN INDIA concept to promote energy saving products in India. Presently these are available in LED Wattages 12W / 18W / 40W / 50W / 60W / 75W / with separate LiFePO4 Battery box and Solar PV panels 40W / 50W / 100W / 120W / 150W.

This range has an in-built PIR sensor which helps in controlling the brightness

of the LED, thereby increasing the Back-up time. These street lights are

suitable for Pole height of 4-6 meters and has sensing range of 12 meters.



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