

IllumiNation

JULY - SEP 2022

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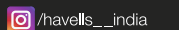
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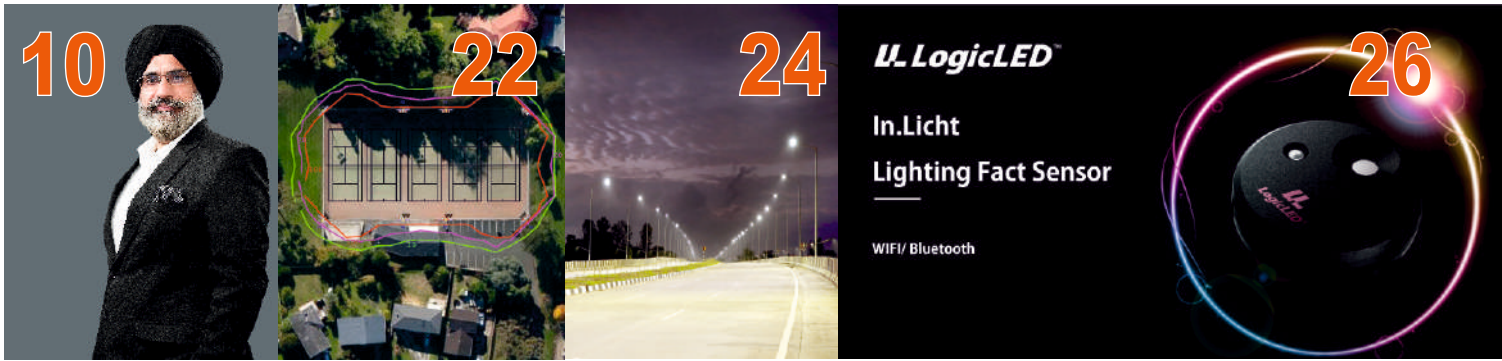
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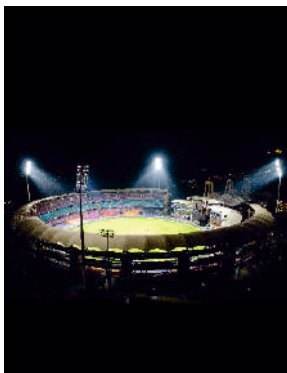
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A Progressive Industry

ELCOMA has always played a very important role in introducing, enabling and propagating new technologies and value for money products to the Indian Lighting Industry. In the two decades of my association with ELCOMA, I have seen the introduction of several new technologies, each being more energy efficient than the previous one. The Indian Lighting Industry is very progressive, forward looking and always proactively responds to the call of the times with innovations and products that not only benefit the country and its citizens but at times are ahead of global release.

India Made products have some of the best specifications in the world and in some cases these products are more cost competitive than imported products with the same specifications.

This magazine is an endeavor to make the stakeholders aware of new and futuristic technologies and for its readers, allowing them to upskill and prepare for such advancements that are yet to propagate in India. Over the years, Illumination has presented articles covering LVDC, UVC, Smart and Intelligent Lighting, LiFi as well as extensive coverage and discussions on lighting for poultry and horticulture. In this issue we are introducing new technology of Fish Gathering LED Lamps for Pelagic (Oceanic) Fishery used to trap specific fish, that are energy-saving and environmentally safe. This issue also features an article on a brand new paradigm that we hope will become the keyword in lighting for the future called LAAS or Lighting-As-A-Service.

As always we are very thankful to our readers and look forward to their feedback and comments to help us improve the magazine.

Best wishes

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

SHYAM SUJAN

Secretary General

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Festive Cheer for the Industry

The fear of another COVID wave has now subsided, thanks to the vigilant and proactive efforts of the government. The health department is also making intensive efforts to ensure availability and administration of booster shots and vaccination for those below 18 years. Most health experts believe that the COVID pandemic is now weakening and will have limited impact going forward, as almost two-thirds of the country's population is now fully vaccinated. This development augurs well for the lighting industry which has seen a couple of lean years due to the pandemic. With the festive season round the corner and predictions for a normal monsoon season, sales are expected to bounce back to pre-COVID levels, and a 'better-than-normal' festive season is on the cards.

There are however some cautionary notes for the coming quarter or two for the Indian economy. Global factors such as increased commodity prices due to the Ukraine war, and rising inflation levels across major global economies are now affecting the Indian economy as well. Energy prices are touching new highs in the country, which is driving up input costs across all industries. The power situation in the country is at a critical level with demand far exceeding supply, resulting in frequent power cuts across states, that are causing production losses in the manufacturing sectors.

Rampant inflation has caused the central bank to take emergency measures by revising repo rates and CRR besides a reduction in rate of interest on cash deposited by banks with RBI. These measures are intended to spur banks to raise lending rates and reduce the amount of credit disbursed, thereby also substantially reducing liquidity in the banking system. At a juncture where the economy is back on a growth path and credit needs are growing, this move to tighten the availability of credit by the central bank will definitely affect the growth of economy and especially the real estate sector, as home loans will become dearer with homeowners having to pay higher EMIs. While these measures may curb inflation in the country, they will also adversely affect several industries like real estate and as a derivative, the lighting industry might also get impacted. As these events are cyclical in nature, we hope that the current cycle is short-lived and has limited impact on the Indian Lighting Industry.

Most ELCOMA members are gearing up for the festive season with new and innovative products which will be a real bonanza for the Indian consumer. Smart products, decorative fixtures and innovative indoor and outdoor connected lighting solutions are expected to be the flavour of the season and will brighten up Indian homes and hopefully drive away the gloom that the pandemic has cast on our lives for the last couple of years.

A handwritten signature in black ink, reading 'Sumit Joshi'.

SUMIT PADMAKAR JOSHI
President, ELCOMA



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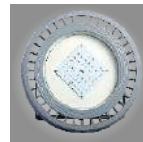
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You have experience spanning three decades in the Indian Industry in various roles. How would you compare the Lighting Industry of twenty years ago and what it is today?

Out of the three decades of my experience, I've been in the lighting industry for over a decade. We don't need to look back twenty years - the industry has undergone a paradigm shift in the last decade itself. The Lighting Industry which had not changed much technologically in the previous century has changed dramatically in the last decade. We used ICL and FTL for many decades before switching to CFL about 10-12 years ago, but CFL is now nearly obsolete, replaced by LED, which is quickly supplemented by smart and connected lighting.

Houses, offices and retail spaces are all talking about dynamically controlled, energy-efficient, customized, smart and connected lighting. This change, of course, is for the better and it has occurred in just a few years.

The lighting industry of today is driven by technology and energy efficient products.

The Indian Lighting Industry has decided to reduce dependency on imports and focus on manufacturing upto 80% of lighting products in India by the year 2024. What is your take on this?

The government's 'Make in India' and 'Atmanirbhar Bharat' initiatives have had a significant impact on the manufacturing landscape. The government-announced production-linked incentive (PLI) schemes have been a huge success and have sparked a lot of interest in the Indian industry. It has inspired many Indian companies to concentrate on manufacturing in India. Our lighting industry is no exception. The PLI scheme for white goods, which includes LED lights, has received an overwhelming response, with many players enthusiastically coming forward and applying for and committing capital investment to take advantage of the incentives being offered under the scheme.



Stage is Set for Industry 4.0

IllumiNation in conversation with **Mr. Avinder Singh, MD, OSRAM Lighting Private Limited, India** about the Lighting Industry in India and its future

Mr. Avinder Singh has over 30 years of professional experience in varied industries - Lighting, Electrical, Telecom, Intra logistics solutions - Baggage handling and Cargo Logistics, Postal automation, etc. He is adept at corporate governance, employee development, finance & accounting, M&A - integration and divestment of businesses. Mr Singh is an expert in leading senior management teams, cross border / multi-cultural interface management, managing internal & external conflicts; turnaround of businesses, building and growing niche businesses. He is proficient in running 'ESG' compliant businesses/organisations.

Presently, he is the Managing Director of OSRAM Lighting Private Limited, India.

LED lighting, intelligent drivers, smart streetlights, lighting fixtures and other lighting products are now manufactured in India. Furthermore, India's exports have increased, indicating that Indian products are cost competitive and of internationally recognized quality. This is a significant (positive) shift compared to our manufacturing and export landscape just a few years ago.

State-of-the-Art technologies are being brought into manufacturing process. Do you think our industry is ready for this?

Today, all over the world the buzzword is Industry 4.0. India is no different.

We are in the midst of the fourth industrial revolution, which is very different from the previous industrial era in terms of both technology and management.

These days, we are moving toward interconnected factories, faster digitalization, widespread use of AI and robotics, 3D printing, and additive manufacturing. As per a white paper published by Heidrick and Struggles, over two-thirds of the Indian manufacturing sector is expected to embrace Industry 4.0 by 2025. As a result, it would not be incorrect to say that it is just around the corner. We must go above and beyond what is currently being done.

According to another report from one of the Big 4 consulting firms, 'MSMEs account for nearly half of Indian manufacturing output and 40% of exports, for that we must make Industry 4.0 technologies available to the region's 50 million businesses.'

Another fellow CIO from the Automotive Industry, said that 'In 2021 alone, the Indian manufacturing industry spent between \$5.5-6.5 billion on Industry 4.0 technology solutions, with automotive, electrical, and electronic segments accounting for 75 percent of it.'

All of these reports and industry colleagues' opinions clearly echo the same sentiments: Industry 4.0 can provide the much-needed platform for

the country's manufacturing sector to remain competitive in the global market.

This leads us to another critical point: despite significant investments in Industry 4.0 technologies, we are struggling to find the right leadership and talent to drive success in the midst of this transition.

Infrastructure cannot be a success mantra in and of itself. This warrants attention on the leadership. Leaders in Industry 4.0 will need to be creative, brave, and capable of making quick decisions based on calculated risks. Virtues such as a quick shift to a growth mindset (from a control mindset) and the ability to effectively and seamlessly balance technological progress and a people-centric leadership style would be critical.

The OSRAM brand has always been well known for world-class, high quality products, especially your prime products for the Automobile Industry. How does OSRAM achieve this?

OSRAM products are well-known for their high quality across the world and this is the legacy that our organization has created since its inception and we are committed to carry this forward in the future.

We enable the rapid development of robust and innovative products based on predictive and stable manufacturing technologies. By continuously improving our business processes, we have created a workplace where we all live a culture of outstanding quality and excellence.

For quality management, we adhere to the following principles:

- Process excellence - making the best use of available resources.
- Quality planning and control - planning that is driven by the business
- Quality mindset and expertise - prioritize quality in our daily work.
- Quality leadership - role model for quality commitment

Furthermore, our products adhere to

most of the national and international certification standards - ISO 9001, IATF 16949, ISO 14001, ISO 45001, ISO 50001.

Our automotive portfolio has products and components to meet all the current automotive trends. Whether for electrification, digitalization, self-driving, or comfort and safety, we are fully prepared to take advantage of opportunities in LEDification, intelligent lighting, sensor ubiquity, LiDAR adoption, car entertainment and comfort.

From success in manufacturing high quality automobile Lighting products earlier and now a diversified LED based product portfolio, what other LED based innovations and products are you planning for the Automobile industry?

OSRAM occupies a distinct and enviable position in the automotive lighting industry. We are the innovative leaders in automotive optical solutions for all the megatrends, including digitalization, smart IoT and energy efficiency. We have advanced display solutions, projected lighting, LiDAR, in-cabin sensing, dynamic forward lighting and ambient lighting.

We see many exciting opportunities in LEDification, intelligent lighting, human-machine interface, entertainment and comfort in automobiles.

This makes us the market leader (#1 and/or #2) in the majority of automotive and industrial markets, including forward lighting, signalling, interior ambient, in-cabin sensing, interior functional and rain sensors.

Technologies of the future such as intelligent Lighting are causing the entire industry to change to smart and connected lighting products. What are your plans for such products?

OSRAM has a vision of being the uncontested leader in optical solutions. Our value proposition is bringing intelligence to light and passion to innovation.

Future lighting technology is going to be smart, intelligent and connected lighting. Our product portfolio consists of

products with the most advanced technology - from light source, optical path and package to IC and software/algorithms, enabling differentiated products and integrated solutions across the value chain.

We, at ams OSRAM, are leading the way for such innovative technologies for the future.

You have ably led OSRAM India through various challenges in recent years. Please tell us how your management style and expertise has helped OSRAM continue to grow in these challenging times.

Our goal at ams OSRAM is to attract, develop, and retain the best talent.

Complimenting to this, my leadership style is simple and forthright. I believe in the growth of teams and leaders. I believe in clearly defined roles, responsibilities, and expectations. As a result, I delegate and hold my team accountable. My team has the authority to make sound decisions in the interests of the company and its goals and objectives. I believe in cultivating an atmosphere of trust, empathy, and inclusivity.

I enjoy working with young and raw talent. Their energy, willingness to learn and zest appeal to me the most. I feel very happy and satisfied when I see that several young people I had trained, mentored, and coached are now effective leaders both within and outside of ams OSRAM.

Another factor that I like to emphasize is training. I like to encourage my team to study and learn while they work. To promote a learning culture and assist our employees in this endeavour, we have ams OSRAM university (aOU). aOU provides access to over 16,000 courses globally, in a variety of fields supporting different career paths. Our learning partners are LinkedIn Learning, eCornell, Semitracks Inc (for technical subjects) and Learnship (for languages). This helps employees in their professional development & growth which in turn helps the organization perform better.

IN A LIGHTER VEIN

The person you admire most

My father. Born in 1924, he was way ahead of his times. He was a simple man with a few needs but highly intelligent deeds. Deep down, I want to be like him!

Do you have a mentor that you would like to name?

I have learnt from most of my managers in last 3 decades. I consider them all to be my mentors. This is an opportunity to name them and I do not want to miss it. M/s Hans Schwabe, Sunil Mathur, PK Ghosal, K. Prabhu, M. K. Vig, S. Krishnan, Micheal Jean Paul, Werner Hoffmann, Sam Wu and H. S. Kapoor. Each one of them has contributed in my making of a person and the leader that I am today.

Which is your favourite movie or a movie that has left a deep lifetime impact on you?

I watch movies for fun & enjoyment. To my liking are lighthearted and comedy genre movies. Medium and language is no barrier for me (sub-titles work well in case of foreign and regional language movies). From the old classics I liked Angoor (based on Shakespeare's Comedy of Errors); I can watch it anytime. From the recent times, '3 Idiots' was worthy of repeat.

Your favourite book?

I am not an avid reader. I enjoy sporadic reading about everything – politics, spiritual, management, law, editorials, etcetera. Of authors, one name that sets apart in my mind is that of Sardar Khushwant Singh. I have always enjoyed all his writings - his articles, editorials, stories, books especially 'Not a nice man to know' and 'With malice towards one and all'.

Your best friend is..

Mukta – my wife. I can share (almost) everything with her except my office. Office, I leave it at the office desk. And, Angad and Karan (our sons). I enjoy their company more than anyone else's.

Your favourite film star?

Rajesh Khanna of early seventies is my evergreen favourite. From the present lot, I appreciate the acting skills of Ranbir Kapoor and Vidya Balan.

What do you do to rejuvenate, to get back in touch with yourself?

I love spending time with my family specially on a vacation at a hill station. I also love listening to Kishore Kumar songs – anytime, anywhere and watching sports – tennis, cricket.

Please answer the following in one word

- **Loyalty to you is** – a non-compromising virtue
- **Fun and recreation to you is** - Rejuvenating and rewinding
- **Experience vs Education** – what would you give higher preference to – Education. It offers us with (many) skill sets which can further be converted into a 'work skill' to thrive.
- **Mountains or the beach ideal vacation spot would be** – Mountains and hills any day
- **Horror, Action, Adventure, Romantic, Comedy** – your favourite genre – Has to be Comedy

If not a corporate leader, what would your professional identity be?

A professor - teaching Criminal law in a college

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Lighting up the Future

IllumiNation chats with Raja Mukherjee, Head Business Group and Sr. Vice President - Lighting Business at Panasonic about their plans for the future

Please tell us a bit about how you entered the Indian Lighting industry.

During my M. Tech days, I was quite fascinated by illumination engineering as a subject. After finishing my college, I got an opportunity to work in Philips Lighting division as Lighting Design and Application Engineer. I worked on lighting designs for various applications like indoor commercial, outdoor area, industrial lighting, façade etc which resulted in orders for the organization. This gave me a lot of motivation as I could see my efforts getting translated into practical applications. This was how I entered the lighting industry and decided to pursue my career here.

India is a vast geography spanning multiple ethnic cultures. How does this influence the product mix in your opinion?

The requirements in both B2B and B2C

segments are region and market specific. In B2C segment while East is more bulb and batten driven market, North is more trade fixtures driven (such as downlighters, panels, tracklights, etc.) while South India is both batten and fixture centric market. West is more balanced. In the B2B and B2G, East is more dominated by industrial applications, North is more of outdoor infra, South is more indoor commercial and West is a mix of all. However all the regions in either B2B or B2C vertical have one thing in common – “value for money” solutions. While West, South and North are ok to explore new technology solutions even at a slightly higher price, East is more conventional in its approach and primarily more price driven. Having said that, there always exists a niche premium market which is 'specifications' driven. I must state that this is purely my personal take and

others may have a different opinion, which I completely respect.

You have long years of experience of interacting with and managing customers consisting of major architects across India, PSUs and other government organizations, government contractors, PMC, electrical consultants, large scale projects, among others. How has this experience helped you professionally?

These exposures and experiences have helped me to understand the overall market, customer behaviour and expectations in a much better way. To successfully bag a project, it is very important to build up strong relationships with all the concerned stake holders. To become a preferred vendor from amongst the approved makes (of lighting brands), requires special skill sets and thorough

knowledge of the ever-evolving technologies, product and the solution. It is important to understand the exact requirement and tailor make a special solution for the given project. With smart and connected platforms gaining popularity, the conventional passive solutions will gradually fade away and lighting systems will become more AI and IoT driven. More focus will be on smart and connected platforms / control systems, rather than just on fixtures. Lighting and Lighting systems will be used as a back bone architecture to control other peripherals like HVAC, surveillance, etc and will help in collection of a lot of data to drive project efficiency.

What were the key takeaways from your experience working with various organizations in India? How would you compare working culture of Panasonic and other Indian organizations?

I have been fortunate to work mostly with very reputed and big multinational organizations and in each organization, I have received great knowledge and exposure. I started my career with Philips which was an institution. It gave me a thorough techno-commercial exposure at a very young age. I was also fortunate to be a part of a great organization like GE. It gave me immense exposure in various business processes. In Cooper, I gained experience of developing a start-up organization and it also helped me to step out of my comfort zone and establish a Fire and life safety business. Seoul Semiconductor gave me an understanding of how to establish component business in India and Bajaj Electricals provided me with an opportunity to handle a very large cross functional team.

Panasonic is a great organization to work with provides an individual a lot of space to operate independently. Employees are exposed to latest global technology and lighting trends and the Japanese colleagues work hand in hand

with you each step of the way. The organization gives a lot of value to individuals, irrespective of system hierarchies. It helps you to shape your career very effectively and also teaches you to stay humble, stay grounded and helps you to mature as an individual.

For many decades, Panasonic was well known worldwide for its strength in manufacturing. In recent times in India, the business model has seen a shift towards outsourcing of manufacturing and winding up of most factories. What were the prime drivers for such a strategy? Do you think this system is working well for the industry?

Panasonic globally is known for its manufacturing strength and has a strong inhouse manufacturing base (for other than lighting products) in India.

Specific to lighting, many of the brands have, on the contrary, started in house manufacturing. Each business model has its pros and cons but I guess it is advisable to have in-house manufacturing facility if your prime focus is supplying bespoke fixtures or differentiated products.

More importantly you should have a strong and competent R&D and product development team to even guide the vendors on electrical / electronic circuits and product designs. End of the day it's the people who build an organization. In today's world of disruptive technologies, you can only survive and have a sustainable growth if you are agile, can adapt quickly to the market conditions and have a very strong, competent and well qualified bunch of people.

What is Panasonic's long term plan? Where do you see the company will be four years from now?

Panasonic has been growing fairly aggressively in the market. We have established the basic range of products with certain USPs and with market rejection of less than 0.8%. Our next step is to get into differentiated products and solutions in the market which will

give us a distinct identity. We have identified various market segments where we want to play and earn good margins. The market is large enough and there is lots of scope for us. We do not want to be part of the price war on basic products.

We have some ambitious plans and are investing accordingly. We have invested around INR 10 Cr to build a world class NABL accredited in house lab with state-of-the-art facility. This shows our long-term commitment to the nation. Four years from now, we would want ourselves to be seen as one of the most 'preferred and liked' brands. There's a huge focus from our Japan HQ on India to achieve this goal and this is also helped by the fact that we are cash rich and India operation is making good profit.

The Indian Government on its part has launched several programs like Atmanirbhar Bharat and PLI schemes to support Indian electronics manufacturing and Localized Semiconductor manufacturing. Is Panasonic joining hands in this initiative?

Not at this stage at least in the field of lighting. However, we are sharing our expertise in the field of electronics to our suppliers, mentoring and guiding them to manufacture good quality products which will eventually benefit the Indian customers. We are playing an active role in skill development initiatives as well.

How is Panasonic gearing up for the next generation of lighting products like smart and intelligent lighting, Li-Fi Lighting, Poultry and Agriculture lighting, etc?

Smart and connected products with ML, AI and IoT platforms are the future of lighting. Very soon we will have all the services and facilities on a common platform. There cannot be different communication protocols for lighting, surveillance etc. We are actively walking that path and gearing ourselves up for

the same. We have already developed an eco-system around this plan.

LiFi is a brilliant technology. With huge data traffic on the internet and the same increasing by the year (data traffic in 2021 was 7.7 Exabytes per day), we would need bandwidth in the spectrum to support such an explosion. Very soon we will be exhausting the RF spectrum range and we will need yet another spectrum for communication. It could be the spectrum of UV and Blue light. However, as of now, LiFi has limited application in India.

With 5G coming to India in near future, the network speed will increase by 100 times compared to 4G with a latency of around 5 ms. This will help the IoT boom and accordingly the lighting systems will also change. However 5G has its own limitations and challenges which I am sure can be addressed with proper network infrastructure.

There is no merit in discussing the conventional approach of lighting - LED types, lenses etc. It is a given that if you want to be a serious player in the lighting space, your edge level device has to be compatible with wireless network systems.

We are not focusing on poultry and horticulture lighting in India as of now.

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 Panasonic as a major Industry player and on the Indian Lighting Industry as a whole?

It is good to see many new brands coming into this ever-evolving industry. This goes to prove that there's a huge potential in this industry. I guess we need to bring in more stringent regulations which will help this industry to serve this country and its citizens in a much better way.

Aggressive marketing and price cutting alone cannot be a long-term strategy for

a brand to grow in a sustained manner. It has to be backed up with strong strategy, long term commitment, giving good quality solutions and have an excellent footprint of strong after sales services. You may also see many organizations shutting shops after a few years in the market as well. This is unfortunate but inevitable. ELCOMA will have a major role to play in these kinds of situations.

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

The government is doing its best to curb

the infiltration from the grey market. However as citizens of our country, we also have a major role to play in this initiative. We need to keep identifying unauthorized sellers and report them to the concerned administrative and govt regulatory authorities. The bigger brands should regularly conduct raids and keep a strong vigil in the markets.

While govt can perhaps design more aggressive campaigns to educate the consumers and discourage them from buying products from grey market, at the same time the courts should also expedite quick closure of such cases by imposing heavy penalty and give severe punishments to those found flouting the norms and law.

IN A LIGHTER VEIN

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

I enjoy my work so it is never stressful for me! However, I unwind by spending quality time with my family or take a break and go out on vacations.

What is/are your favourite holiday destination/s?

Switzerland, Austria, New Zealand (Queenstown), Scotland, Western coast of US – these are destinations outside the country that I love to travel to. In India, my favourite destinations are Kufri, Kashmir, Goa and Darjeeling. I have not seen the Northern lights as yet, so I am planning to visit Rovaniemi in Finland and experience this spectacular phenomenon.

What kind of food/cuisine do you like?

I am not that foodie. However I like Luchi (puri) and Kosha Mansho (mutton curry with very thick gravy)

Who is/are your inspiration in life?

My father and my wife are by inspirations in life. My father has taught me to 'do unto others as you would have them do unto you' while from my wife I have learnt to be always positive and never give up. I believe that power, position, money are all transient, but what always remains is the good impression that you create in peoples' mind about yourself. They should respect you as an individual and not your position. If I can bring smile to at least one person in a day, I feel I have achieved something.

Your favourite book

Who Will Cry When You Die by Robin Sharma

A movie that has left a lasting impact on you

There are many good movies. Hard to choose from them. Just to name a few, it would be '3 Idiots' in Hindi and 'Sound of Music' in English

Your favourite Actor (male/female)

Amitabh Bachchan of course.

INTERVIEWED BY ILLUMINATION
EDITORIAL TEAM

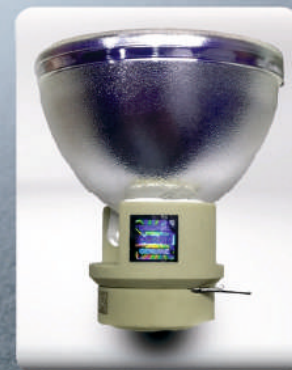


P-VIP® Original



Fake Lamps

Beware of fake P-VIP® projector lamps!



Please buy only original!

As one of the best-selling OSRAM lamps, counterfeits of P-VIP® projector lamps are seen in market.

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Sensing is life

amun OSRAM

DY Patil Sports Stadium in Navi Mumbai becomes Future Ready with Signify's 'Interact Sports' Lighting System





The DY Patil Sports Stadium at Nerul, Navi Mumbai in Maharashtra is one of the most magnificent multi-purpose stadiums in the world. The stadium was officially inaugurated in 2008 and since then it has been a prime venue for various sports tournaments. With an impressive architecture it is also the only privately owned stadium of this stature in India with a spectator capacity of 55,000. The stadium is the brainchild of Hon. President of D Y Patil Sports Academy Dr. Vijay Patil, who is an extremely passionate sports person.

DY Patil stadium quickly became the prime venue for various sporting events in Mumbai. It is also the home of DY Patil Sports academy. Though primarily it was a cricket stadium, it has now become an 'arena' for multiple activities such as special events, concerts and cricket and football matches.

This majestic stadium has hosted the finals of the most watched cricketing event – The Indian Premier League for two seasons - 2008 and 2010. The IPL returned to DY Patil stadium in 2022 with as many as 18 matches being played at this venue. It has also been the proud host for many football tournaments, including the 2017 FIFA

U-17 World Cup matches and the finals of 2022 AFC Women's Asian Cup. It used to be the second home ground for Mumbai City FC and home matches for Mumbai city were played here.

All great ideas become 'Great' only when they get 'Strong' support. As an ardent technophile, Dr. Vijay Patil's vision was to deliver a great experience to sports fans in India. He was quite enthusiastic about providing a unique viewing experience that will turn each match into a very memorable event for sports fans visiting the venue during the IPL. An important factor was to create a seamless and enchanting experience for the spectator, right from when they enter the arena and while viewing the match, so that they carry back the 'Experience' which would remain with them for quite some time in their life.

Due to the healthcare restrictions by the government of Maharashtra and the intensive schedule of the upcoming sporting tournaments, the project was a challenging one in terms of execution and delivery of the final lighting solution. However, under the able leadership of Dr. Patil, the determined DY Patil academy Team collaborated with Signify to bring this new age illumination to the venue in time for the

IPL 2022 season.

Latest technology to deliver a seamless fan experience

The requirements of modern-day stadiums have evolved fast, as the viewers expect a great experience every time. The need of the hour is a future-ready stadium that can deliver the best fan experiences. Today IoT based lighting systems can manage all the lighting in the stadium—including pitch and entertainment lighting, the stadium façade, hospitality areas, and parking. IoT sensors can further improve operations or marketing efforts. They can also entertain fans with customized light shows before, during and after the main event.

In DY Patil stadium, the major task was to replace the existing conventional lighting with new age LED lighting system that had to be installed on the existing high mast infrastructure, which are the tallest in any stadium across India.

Signify equipped the stadium with its Interact Sports connected lighting system and 408 Philips SportsStar LED Sports Light luminaires. The company delivered an end-to-end solution to the stadium including lighting design,



testing, commissioning, and extended warranty support.

All the luminaires used in the stadium are DMX enabled along with DMX networking system, making them individually addressable. The feature of instantaneous switching on and off of LEDs to 100% output and dimming capabilities can be utilized to create an amazing light show during the match breaks. And all this can be done at the touch of a fingertip, due to Signify's Interact Sports system.

Arenas are now becoming multi-purpose hubs and this stadium is also designed to be quite versatile. It is not dedicated to only one unique game and has long been the venue for both Cricket and Football international events. Hence the illumination requirements as stipulated in the respective sport's standards are different from one another. Prior to this project, the stadium team had to re-arrange the positioning of the luminaires depending on the game being played. This was a very tedious and time-consuming activity. Signify's team of expert lighting designers have designed

the lighting in the stadium in such a manner that the illumination requirements for both the games can now be achieved without disturbing the positioning of the luminaires. Signify's IoT based platform 'Interact Sports' also offers individual addressability of luminaires with DMX control support in achieving the lighting requirement irrespective of the game being played.

There are always many stakeholders in such major arena activity such as stadium owners, tournament authorities, players, coaches, spectators, sponsors and TV Crew etc. The broadcasters keep on upgrading their equipment, and the venue must comply with their increasingly stringent broadcasting standards. Above all, there is an increased focus on safety of the people and equipment as well as sustainable standards.

All these factors were considered and the Signify team with the support of the DY Patil Academy team, and the team of suppliers, installers were able to install the new illumination System at the stadium in a record time of just 45 days.

The perfect combination of Signify's DMX controlled luminaires system with 'Interact Sports' platform helped the stadium to integrate Light with Sound to create amazing Light Shows during the recently concluded season of the Indian Premier League. The Cricket Lovers who visited the stadium during the matches enjoyed a unique fan experience. They were not only pleased, but really excited, thrilled even with the Lighting and Light shows which they may never have witnessed any time before in India. The environment in the stadium during the recent tournament was electrifying and everyone experienced the capability of lighting to entertain and enthrall, beyond just illumination.

The new arena lighting system employed in this magnificent stadium has set the bar very high for sports lighting in India.



Project Owner – D Y Patil Sports Academy. Hon'ble President Dr. Vijay Patil

Project Team – Ar. Sanjiv Dongre, Elec. Engg. Mr. Vijay Chougale, IT – Mr. Prashant Gupta

Luminaires – Philips, Signify Innovations India Ltd.

Contractor – Indigenous Control Electricals Pvt. Ltd.

Photographs – D Y Patil Sports Academy.

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Solar LED Lighting

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Solar lighting solutions for brighter & safer streets

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Easy to
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Integrated
lighting
solution



LiFePO₄
battery



≥ 140
lm/W



Microwave
sensor

For more information, please visit our website www.lighting.philips.co.in

Future Ready Stadiums with the Best Fan Experience

A look at the changing needs of Sports Arenas and how New Age Lighting Controls are enabling better Fan Experiences

Interactions with end users, influencers, recent research and in-depth workshops with customers have revealed new and emerging trends in the sports industry around the world. The conventional definition of a 'sports stadium' has changed significantly from the past. Sports stadiums are no longer just a facility where a game can be held and viewed by thousands of spectators, inside a stadium or outdoors.

Only a few years back the industry was thinking and talking of basic points like Illumination levels, energy efficiency, safety, security and sustainability in sports arenas. Though these subjects remain a primary concern, last few years have seen a sea changes in the needs and requirements of the sports Industry and as a result, lighting. The broadcasting world is changing fast, and we have an audience that spans four generations, new business models, new partnerships and alignments are cropping up at an very fast pace and overall, there is a need for venues that are multipurpose in order to stay profitable. New media,

smart devices, online content are the new paradigms that drive live content and live broadcasting. With the evolution of internet and mobile technology these sporting events are required to be available on multiple platforms rather than just TV.

Stadium Lighting projects executed recently have shown that spectators with smart devices share information and their live experiences with the outside world. Their excitement, ecstasy is beyond imagination. They want to share the amazing experiences immediately with the outside world. We need to think of Gen Z which is now very active in the online world and are eager to reach out to their fiends, peers, acquaintances and followers to share their experience.

Today IoT based systems let us get lot more value from light. Modern lighting systems can manage all the lighting in the stadium – including pitch and entertainment lighting, the stadium façade, hospitality areas and parking. IoT sensors can further improve operations or marketing efforts. They

can also entertain fans with customized light shows before, during and after the main event.






The luminaires used in the stadium are DMX enabled along with DMX networking system, making them individually addressable. Advanced technology providing platforms such as 'Interact Sports' combined with DMX enabled individually addressable systems is one of the most ideal solution for the stadiums of today.

Connected Lighting Systems are perfect to provide a unique fan experience in a Smart Stadium. Using web-based interfaces all lighting operations can be monitored, managed and maintained throughout the venue.

Harnessing the Power of Connected lighting for Recreational Facility

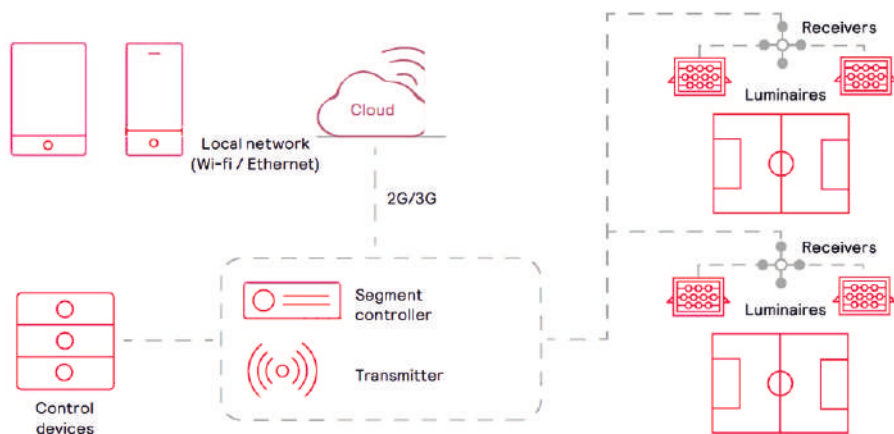
As we see future ready stadiums delivering great Fan experience is the need of the hour, the training facilities are similarly getting transformed. Good

Connected Lighting Systems for Arenas

	Lighting Management	Systems to Monitor all lights in Arena,
	Scene Management	Generate Amazing Light Shows
	Bio-Adaptive Lighting	Improve Well-being
	Single Dashboard	One Dashboard, Simple to operate
	Integration with APIs	Enable integration with other data sources and stadium systems.



System architecture



lighting is important to players and coaches whether during practice sessions or during the tournament. For a player it means improved visibility and safety. However, for facility owners, costs and energy consumption are equally important factors too.

We have seen the trend of people moving to cities and this growing urbanization demands more leisure opportunities as well. People's expectations are high for such facilities and clubs. However, they are looking for the same at affordable costs.

Maintenance personnel also need a system which is easily repairable and easily maintained.

High ceiling and high mast systems not only pose a challenge to the maintenance teams but also disturb neighbors due to light pollution. Those concerned about potential light pollution use luminaires with Spill Light Control devices. This obviously costs a little more, however it is extremely important to control glare and obtrusive light disturbing the neighborhood.

Similarly, in facilities where non-Televised events are planned, depending upon the class of play, lighting level changes from 75lux to 750lux. Lighting needs to be standard specific and therefore modern control techniques can be employed to meet these varying

levels.

Recreational facilities are used by people of various age groups, making age an important factor. Some players would need a higher illumination level than others in the same facility unlike in the professional circuit where the players age group is not that divergent.

All these factors 'Demand' an extensive 'Control' for the Illumination system. 'Interact Sports' is the technology that powers such smart recreational facilities. 'Interact Sports' platform gives infrastructure owners smart ways of controlling their lights across all their sports and training facilities. The platform has a simple system architecture and uses an intuitive dashboard to perform Lighting Management and Scene Management. Open AI enables sharing data with other IT and Facility Management Systems as well.

The system's Light settings can be controlled easily through Tablet, Panel or Smartphone

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Features and specifications



Standard control devices that anyone can control



Option to produce reports on lighting consumption and use



Easy retrofitting - cutting out disruptive and costly cable works



Option of multiple user groups and authorisation profiles for lighting control



Reliable and stable communication and data transfers via power-grid cables



Dedicated installation tool for easy re-configuration and system upgrades



Remote support and hassle-free software upgrades



Future-proof architecture thanks to cloud technology

SPECIAL FEATURE

Crompton executes NHAI Streetlighting Project





Digital transformation has progressed from a boardroom buzzword to a critical strategic priority. The technological revolution in the lighting industry in India is poised to rapidly and dramatically alter every aspect of lighting in our lives. Street Lighting is at the forefront of this technological advancement, since it is one of the biggest contributors to this digital growth among all lighting segments.

Modern street lighting systems are being asked to do more than ever before. In addition to fulfilling their primary purpose of casting light onto dark roadways, parking areas and public spaces, these lighting systems are increasingly being evaluated for how well they reduce energy consumption, improve safety for both pedestrians and drivers and serve as the foundation for a range of Internet-of-Things applications. Parameters such as luminaire system

efficacy (lm/w), Luminance (cd/m²) or illuminance levels (lx), uniformity, glare, light pollution, flexibility of optics, modularity and future-proof designs have always played a key role in making informed decisions about roadway lighting system configurations in addition to optics selection, spacing and mounting height that will lead to the most economical system performance.

Crompton Greaves Consumer Electricals Limited (CGCEL) recently executed a 22.6KM long 6 lane highway streetlighting project for NHAI - BELGAUM KHANAPUR (NH 178). The lighting design was done using state of art optics incorporated with their latest street lighting range called 'FALCON'. This luminaire has the flexibility in terms of optics that support a 'built-in tilt arrangement' to cater to various roads widths and luminaires arrangement such as single-sided, twin-central, Opposite and twin central-

opposite required to achieve necessary qualitative parameters required for the project.

The world is entering a new era in which powerful technologies like artificial intelligence (AI) are being infused into the world around us at an exponential rate. As part of this technological evolution, CGCEL's modern smart street lighting system used in smart city applications also incorporates two-way communication which is built to gather information regarding street lighting functionality and electrical parameters. Autonomous operation, adaptive lighting and maintenance optimization in addition to basic functions like on/off/dimming are some of the key features of this installation.

**AUTHOR : CROMPTON GREAVES
CONSUMER ELECTRICALS LIMITED**

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Light as a Service More than smart. More than Light.

An article that introduces the concept and rationale of LAAS

When Thomas Alva Edison invented incandescent lamps in the 1870s, it launched the era of artificial light source technology. Artificial lighting became a growth catalyst for the industrial revolution and led to the construction of power plants. Due to the popularity of Edison's original lamp, over the next 150 years the lighting industry developed high-pressure and low-pressure discharge lamps, tungsten halogen lamps and eventually, fluorescent lamps. Electric distribution systems brought power and lighting to cities, suburbs and rural communities. We have now been living and working in an artificial lighting environment for the last 150 years. Now, a century after the popularization of artificial electric light source technology, solid-state lighting and Light Emitting Diodes (LEDs) are replacing traditional lighting. The high-speed development of the LED is in response to the environmental protection and energy saving needs of the 21st century. Currently, LEDs account for more than 80% of the production and sales of lighting products.

The digital characteristics of

semiconductors, and even the characteristics of full and selectable spectrums, seem to have unfathomable potential. Very soon solid-state lighting will not only replace traditional lighting with tubes, bulbs or ordinary luminaires, but will touch, change and bring additional value to almost all aspects of human life.

Defining the Role of Light in a Connected World

The Smart World is getting complex and competition is getting fierce with many new entrants as well as horizontal and vertical expansions and collaborations

The Cloud, Big Data, Artificial Intelligence, the Internet of Things and other forward-looking technologies have promoted global communications in recent years and brought about an unprecedented impact to the global Lighting Industry. We know that traditional lighting has entered a period of digital development. But how can smart technologies change lighting? Why do we need smart lighting? Or how can smart lighting change our lives?

When 5G, AI, IoT and other technologies fully enable smart lighting

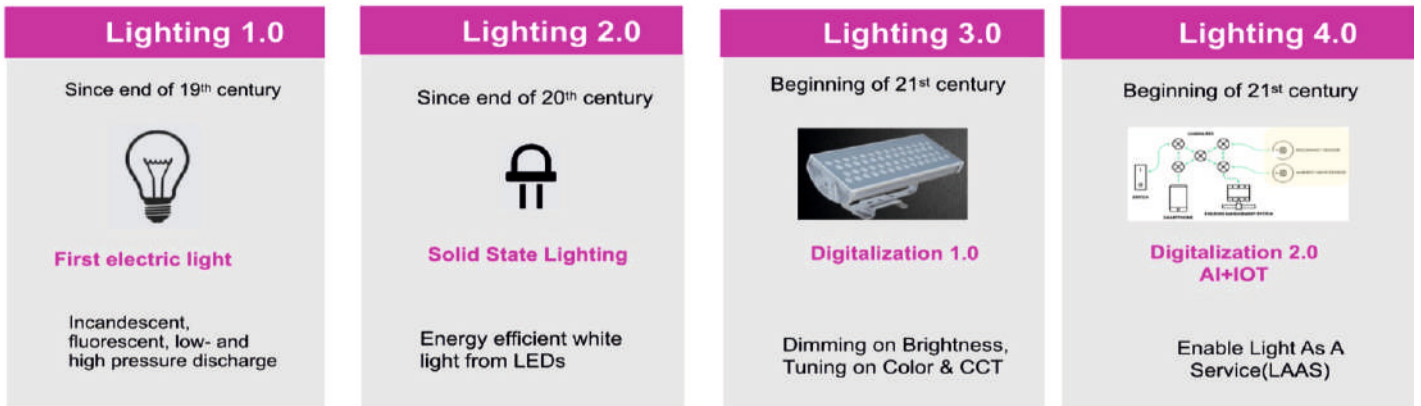
and industry giants compete for WELL lighting and human centric lighting, here's what we should actually think about how to define the core competence of smart lighting.

- **Core Competence and Core Value :** What can smart lighting solve that traditional lighting can't do?
- **Key technologies, product portfolios :** How to implement smart lighting products?
- **Value-added user experience :** What kind of smart lighting do we need?
- **Business models :** What changes can smart lighting bring to the industry landscape?

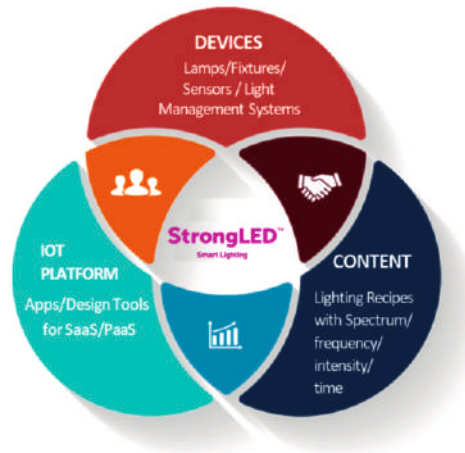
Core Competencies for Smart Lighting

A. Dual-Core

Smart, technology and innovation are just means to an end. The actual core elements of smart lighting are 'Solid-State light source' and 'digitization ability'. At present, known Solid-State light sources in successful mass production include laser, OLED and LED. Their different physical



- 
— DEVICES
 Lamps, Luminaires, Sensors, Control
- 
— CONTENT
 Lighting Recipes to satisfy various demands base on visual, psychology or physiological purposes for people in different spaces, timings, activities.
- 
— AIoT PLATFORMS
 Cloud-base AIoT Platform for professional and consumer applications, Design Tools to engage Co-developer to build a Ecosystem as the foundation of "METaverse of Lighting"



characteristics can meet various application designs such as full-range luminaire size, full spectrum and flexible fixture design when combined with multiple manufacturing materials. The digital ability is perfectly reflected in the multi-dimensional control of the full and selectable spectrum (ultraviolet, visible and infrared), brightness adjustment, frequency control, time programming and so on, which can deliver dynamic and panoramic performance of lighting design.

B. 3 Pillars

The IOT product architecture includes three layers - perception, connection and application. We have learned from Apple's successful development of smart mobile devices and Tesla's smart vehicles, how to build a successful product pillar ecosystem in the application layer. Therefore, the

architecture of lighting products should evolve from the three main elements of 'lamps, luminaires and drivers' of old traditional lighting to 'Hardware, Content and IoT platform' which constitute the three pillars. The hardware under the lighting architecture of the Internet of things includes light sources, lamps, power supplies, sensors, gateways; the content refers to the smart lighting system that can meet the panoramic lighting design principles. This refers to various lighting situations that meet people's needs when engaging in different activities in different spaces and at different times, and also meet people's visual, emotional and physiological needs in various lighting situations. The hardware and content must rely on an IOT platform based on Internet of Things architecture which is similar to the level of smart phone or

smart car and can meet the requirements of setting, using and upgrading.

C. 5 Key Technologies

The three product pillars are inseparable from the development of five core technical capabilities.

ONE: integrated hardware design of optical, mechanical and electrothermal integration.

TWO: full spectrum solid-state light source.

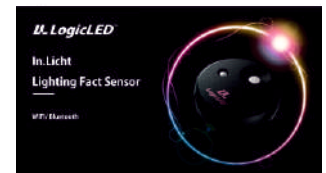
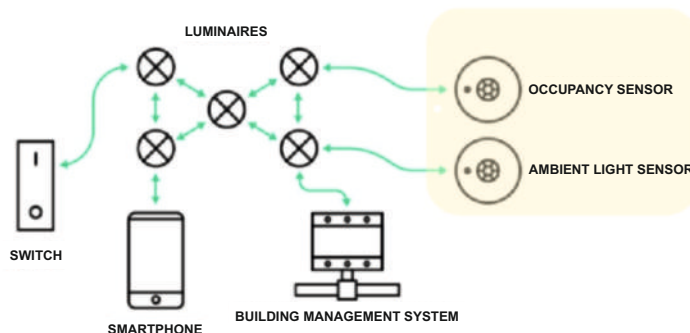
THREE: panoramic light recipes (adjusting spectrum, frequency and light intensity combinations).

FOUR: sensors and drivers.

FIVE: IOT platform and various design tools.

From how Apple redefined the meaning and value of mobile phones through smart phones, to how Tesla changed the automotive industry with the impact of smart electric vehicles, we fully recognize and understand that to change or upgrade the value of an industry is not as simple as loading IC and connecting to the Internet. Technology is only a means to solve problems, not the subject of problems. What we need to really understand and solve is how smart lighting can address the problems that traditional lighting couldn't solve in the past. What value can smart lighting bring to users? What value can it bring to the industry? The added value brought

Sensor-driven lighting control system



- Illuminance: 1-30,000 lx
- CCT: 2,000-10,000 K
- EML lux: 1-45,000 lx
- Flicker index: High/ Medium/ Low

SPECIAL FEATURE

by smart lighting can be mainly from the huge and cross generational changes brought by user experience and the industrial value chain (business model innovation)

Lighting As A Service.

The added value of user experience - the potential of light and human health lighting design.

Sunlight, air and water are three basics of life. We all know what kind of consequences air pollution and air discomfort brings, so we set up air purification equipment and air conditioning equipment to ensure a healthy and comfortable air environment. We also understand the importance of water quality, so we install water purification equipment to ensure that we have clean water. We even adjust the softness, hardness or mineral composition of water to make us feel better about the taste of tea and wine.

However, only after the 2017 Nobel Prize in Physiology and Medicine was awarded to three scientists who made outstanding contributions to the study of humans' inner-clock can we systematically understand how light is closely linked to the health of our circadian rhythm, emotions and endocrine system. Therefore, in order to create a more comfortable and healthy light environment and to prevent our endocrine system from being damaged by inferior artificial lighting systems -

often resulting in new and chronic diseases - we must fully understand what kind of lighting system can make us healthy.

Since the development of wide-spread urbanization after the industrial revolution, most people now spend 90% of their time living in the environment of artificial electric light sources. Since the rise of fluorescent lamps, almost all artificial electric light sources have constant illumination. Constant color temperature cannot be adjusted to the physiological rhythm imprinted by natural light in our human evolution over millions of years. Even most spectra have defects, resulting in circadian rhythm disorders and many modern diseases. This is the dilemma that solid-state lighting- based on LED technology can really solve, but is not yet fully understood.

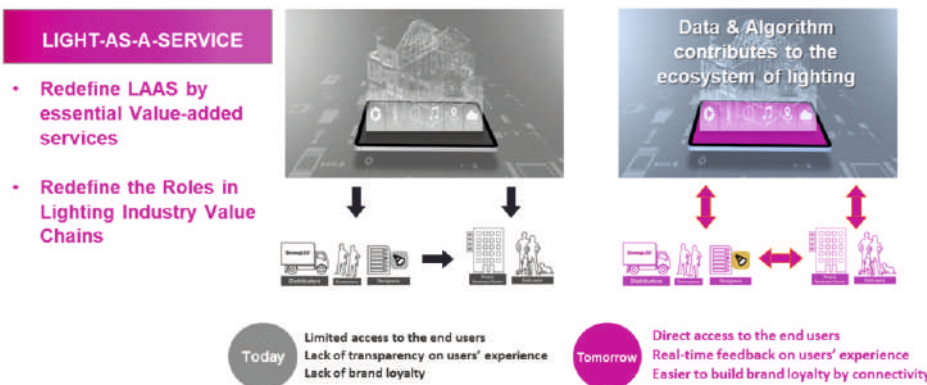
We learn from the IWBI WELL Building Standard that in order to provide a healthy and livable light environment, in addition to the selection of lighting fixtures, we must consider the light source quality, flicker frequency and glare control. We must build a variable and controllable smart lighting system to meet the visual, physiological and psychological requirements of people in different spaces, times and activity states. How to construct these 'light recipes' required by these different 'light scenes', and to solve the problem, must be based on scientific research and complete product systems.

When we achieve this, people will benefit from a healthy and comfortable light environment.

Health, smart and networking are not only the future of lighting. We must also redefine the new future of smart lighting, break down the limitations of existing smart lighting, give multiple definitions to new applications through integrated AI technology, explore the science of how light follows the heart, intelligently adjust human rhythm and light perception, and make smart lighting an indispensable tool for designers and specifiers in creating a healthy light environment.

StrongLED Smart Lighting is one such company that claims to fully understand the potential of solid-state lighting on light and emotion and on light and circadian rhythm. The company combines an experienced team, along with significant funding for advanced industry and university research, to advance the science of light, emotion and circadian rhythms. They are developing scientifically based light recipes that combine with both aesthetic and innovative lighting hardware equipment and a complete smart lighting ecological platform, based on cloud computing.

Since its establishment, StrongLED Smart Lighting has been trying to redefine the smart lighting experience, mastering the art of integrating light and applications. They are focused on the forward-looking application of light in the field of intelligence and health and building an intelligent ecology of light and applications. As an AIOT lighting enterprise they provide one-stop, personalized and immersive artificial smart lighting services or in other words Lighting As A Service.



AUTHOR : LAWRENCE LIN, STRONGLED SMART LIGHTING

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Fish Gathering Lamp for Pelagic (Oceanic) Fishery

The article introduces the technical requirements of LED Lamps for Fishery

Several countries started to research fish gathering lamp for pelagic fishery in the 1980s.

The traditional fish gathering luminaires were mainly metal halide source luminaires, whose spectrum range was from ultraviolet to visible light and infrared. Different marine or fresh-water fishes are only sensitive to light within a specific spectrum range and the proportion of energy effectively used for trapping is low. In addition, traditional light sources produce 360-degree stereo light and only part of it can enter the water, thus the overall light utilization efficiency of the luminaire is further lowered. These reasons led to the waste of the luminous efficiency of traditional fishing gathering luminaire, and the cost of fishing and light pollution of marine or fresh water ecological environment as a result increased.

LED fish gathering luminaires can be designed into a variety of light colors for

specific color sensitive fish trapping. At the same time, LED luminaires have a strong directivity, which can throw most of the luminous flux emitted by the luminaire to the water surface or in a specific direction. These characteristics make them ideal for good fishing and at the same time are energy saving and environmentally safe. At present, LED luminaires have begun to replace the traditional metal halide lamps.

In order to ensure rapid development of LED fishing luminaire industry and standardize the technical requirements of products and at the same time promoting high efficiency, safety, energy saving and long life of such products the standard of technical requirements for LED fish gathering luminaire for fishing vessels has been specially formulated.

Present situation of industrial standards for fish gathering lamp

Initially countries such as Japan and Korea started the research on fish

gathering lamp, but standardization of the fish gathering lamp on the international market was not carried out widely and was deeply affected by technology and patent constraints. The previous international standard for fish gathering lamp for pelagic fishery was IEC 60092-306 : Electrical installations in ships - Part 306: Equipment - Luminaires and lighting accessories 2009 (Edition 4). This standard set out full technical requirements on safety, environmental adaptability and mechanical performance of indoor and outdoor lamps for fishing vessels. The standard described specific standard technical requirements on structure, anti-mechanical damage, lamp seat wiring box, plug and socket and related accessories of the lamp for pelagic fishery. Although it was considered a guide for the fish gathering lamp for pelagic fishery, it was not the standard for the specific purpose of the fish gathering lamp and was only applicable

S/N	Products	Description	Technical requirements
1	Vessel lamp	Vibration	Bearing vibration of 2Hz~130Hz for 90min
2		Impact	Each axial direction bears 100 pulses of semi-sinewave impact
3		Low temperature	Outdoor lamp working for 16h under the temperature of -25°C, and stored 48h under the temperature of -30°C
4		High temperature	Outdoor lamp working for 16h under the temperature of +70°C, and stored for 48h under the temperature of +60°C
5		Salt mist	Withstanding 4 cycles of alternative salt mist, 7-day continuous salt mist.

Table 1 Key Technical Requirements of International Standards of Electric Devices of Fishing Vessel

S/N	Products	Description	Technical requirements
1	LED onboard fish gathering lamp	Working environmental temperature	Normal working within temperature of -20°C~ +40°C
2		Storage environmental temperature	Stored within temperature of -40°C~ +55°C for 2h
3		Vibration	Withstanding wind strength of no less than magnitude 8
4	LED underwater fish gathering lamp	Anti-water pressure rating	Withstanding 0-300m water pressure
5		Underwater optical performance testing	Underwater illuminance, 0m-50m from the lighting lamp

Table 2 Key Technical Requirements of LED Fish Gathering Lamp

to the lamp with conventional lighting source for pelagic fishery. It did not apply to LED lamp for this purpose and had many restrictions.

With the advancement of the Chinese group standards and policies, Chinese LED groups and alliances started to

research drafting and revision of the group standards and industrial standards for fish gathering lamp. In January, 2017, the LED Standards Alliance of Shenzhen, China issued the industrial standards SZTT/LSA 014.1-2017 LED Fish Gathering Lamp Technical

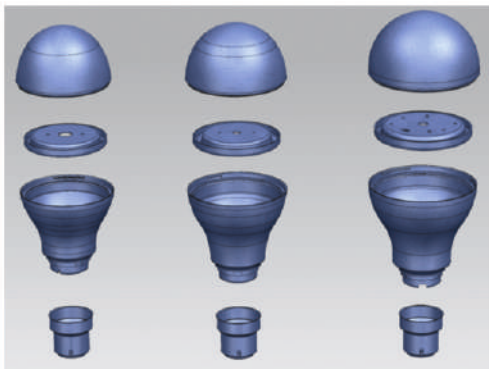
Specifications Part 1: LED Onboard Fish Gathering Lamp and SZTT/LSA 014.2-2017 LED Fish Gathering Lamp Technical Specifications Part 2: LED Underwater Fish Gathering Lamp. These standards describe scope, nomenclature and definition, classification and naming

S/N	Products	Description	Technical requirements
1	Ballast of electric-discharge lamp of high-strength gas	High temperature	Normal working under temperature of +45°C
2		Low temperature	Normal working under temperature of -10°C
3		Vibration	1Hz~12.5 Hz, sinewave vibration with displacement of 1.6mm

Table 3 Key Technical Requirements of Ballast of Fish Gathering Lamp for Pelagic Fishery

S/N	Products	Description	Technical requirements
1	LED waterborne fish gathering lamp	Protection rating	Total protection rating up to IP66
2		Salt mist Ka	Withstanding 48h continuous salt mist
3		Salt mist Kb	Withstanding 4 cycles of alternative salt mist

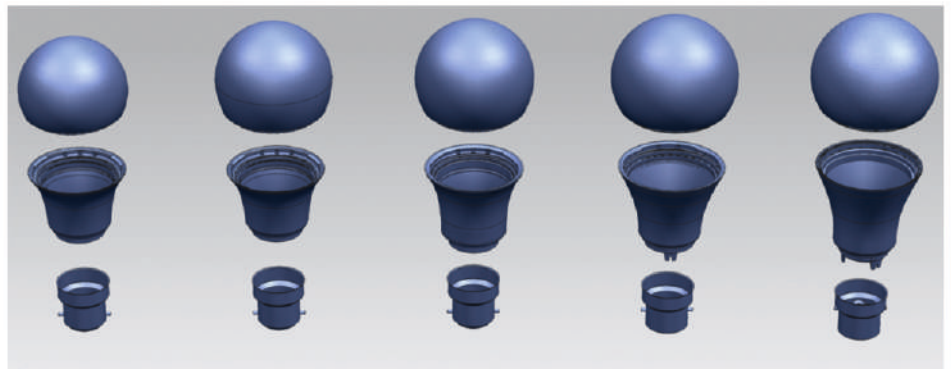
Table 4 Key Technical Requirements of LED Fish Gathering Lamp for Fishing Vessel



A55 LBA

A60 LBA

A65 LBA



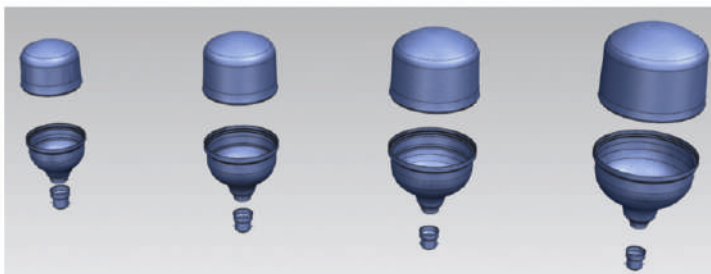
A55 HBA

A60-16B HBA

A60S HBA

A60 P4 HBA

A65 HBA

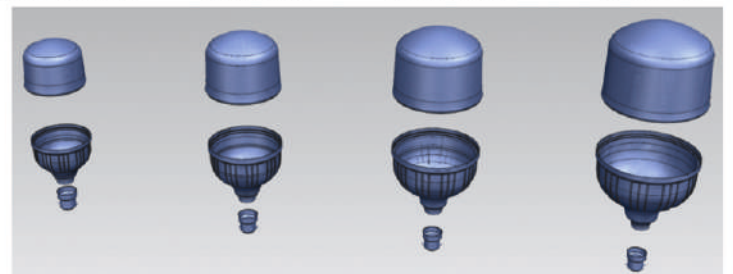


T80 PLAIN

T100 PLAIN

T120 PLAIN

T140 PLAIN

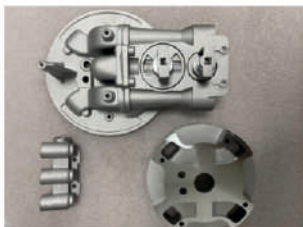


T80 FLOWER

T100 FPLOWER

T120 FLOWER

T140 FLOWER



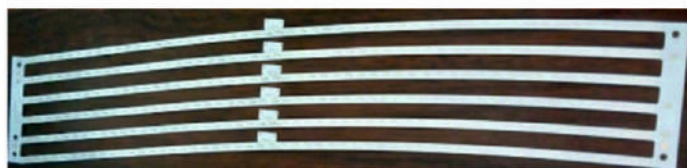
Buner



Die casting lighting parts



Direct type backlight PCB products



Curved backlight PCB products

公司拥有专利共147项，其中发明专利17项，
实用新型专利112项，外观设计专利18项。
Company has a total of 147 patents, including 17 invention patents,
112 utility model patents, and 18 design patents.

S/N	Products	Description	Technical requirements
1	LED waterborne fish gathering lamp	Protection rating	Total protection rating up to IP66
2		Salt mist Ka	Withstanding 48h continuous salt mist
3		Salt mist Kb	Withstanding 4 cycles of alternative salt mist

Table 4 Key Technical Requirements of LED Fish Gathering Lamp for Fishing Vessel

S/N	Products	Description	Technical requirements
1	LED waterborne/ underwater fish gathering lamp LED	Grounding stipulations	Lamp structure of type II or III
2		Initial lighting effects	Classified into 3 grades for red, green, and white lights
3	LED underwater fish gathering lamp	Seawater corrosion	Artificial seawater soaking for 14 days

Table 5 Key Technical Requirements of LED Fish Gathering Lamp

codes of the LED onboard fish gathering lamp and LED underwater fish gathering lamp and set out regulated technical standards in structure, safety, photoelectric performance, electromagnetic compatibility, service and maintainability and hazardous substance limits of the LED fish gathering lamps.

Analysis of technical requirements of the standard

At present, the latest edition of international standards of lamp for pelagic fishery is IEC 60092-306: Electrical installations in ships - Part 306: Equipment - Luminaires and lighting accessories 2009 (Edition 4.0), and the key technologies are as shown in

Compared with the conventional lamp for pelagic fishery, the application

scenarios and purposes of the fish gathering lamps are obviously different, and stricter requirements are proposed to electrical performance, safety structure, and energy efficiency of the products.

In summary, the international IEC standard of the lamp for pelagic fishery set out technical requirements on vibration adaptability, anti-impact adaptability, high-temperature, low-temperature and salt mist adaptability. The industrial standards of fish gathering lamp drafted and issued by Chinese Standards Development Organizations (SDOs), further refine the requirements on lamp energy efficiency, enclosure pressure resistance and underwater optical performance based on concerning environmental adaptability requirements of the products. Based on future technical

advancements, the standards for the newly released LED vessel and underwater LED fish gathering lamp further highlight technical requirements on product performance and seawater adaptability, carried out grading technical requirements for lighting efficiency of the vessel LED fish gathering lamp and fully advanced quality improvement and industrial technological progress of the LED fish gathering lamp.

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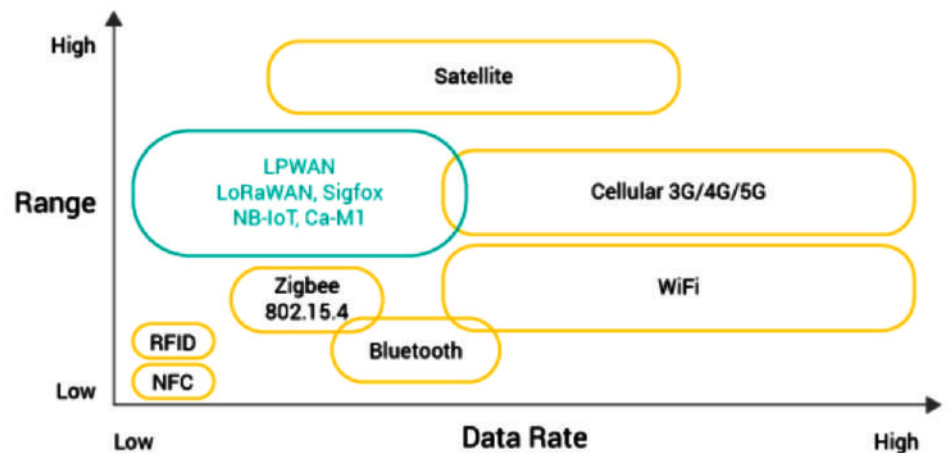


NB-IoT in the space of Connected Lighting

An article exploring the possibilities of Narrow Band IoT for Lighting Applications in future

Today, Industry offers many kinds of wireless technologies for device communications. Each technology offers its own advantages intertwined with some disadvantages. At the end, each application scenario determines which technology is best suited for that application. Currently, there are hundreds of different IoT applications but there is no one-size-fit-to all solution. For example, key machine-to-machine (M2M) communication, such as remote device operation works best with LTE or 5G wireless communications standard. For short-range networks, such as computer networks or connecting smart equipment at home, LAN or Wi-Fi connections are promising.

In today's day and age, Organizations are on the path of accelerating their digitalization strategy for becoming more effective & efficient. Customers are expected to have an enriched experience through rapid IoTisation. To accelerate the IoTisation, the mobile industry has developed and standardized a new class of low power wide area (LPWA) technologies that help network operators to tailor the cost, coverage, and power consumption of connectivity for specific IoT applications. In short, LPWAN stands for low-power wide-area network. It serves as a generic term for any network of connected devices designed to transmit data wirelessly using less power than other communications technologies, such as mobile, satellite communications, or WiFi networks. Low power refers to the ability of an IoT device to function for



Graph: Range Vs Data rate for some popular wireless communication techniques

many years on a single battery charge. There are other low-power networks like BLE, RFID or NFC. But they are short-range solutions, while LPWANs can communicate over significantly longer distances: of a range upto 50 km (depending on the conditions that the networks operate in).

Generally, low power communications over long distances only allow small amounts of data to be transmitted. While modern mobile networks offer speeds within the order of several gigabits per second, as with the LTE Advanced and 5G standards, LPWA is designed to transmit significantly less data, often only a few kilobits per channel.

Not all Long-range technologies are standardized. Unlike other LPWA technologies such as LoRa and Sigfox, NB-IoT is based on the latest 3GPP standard in the licensed band.

Amid all the possible IoT technologies in recent time NB-IoT is most talked about and looks quite promising for

future IoT adoption in various industries. As a relatively new but fast-growing radio technology specially dedicated for the IoT applications, NB-IoT is designed to cover those applications that require sending data over long distances. As per IEEE (The Institute of Electrical and Electronics Engineers) – “Narrowband Internet of Things (NB-IoT) is an emerging cellular technology that will provide improved coverage for massive number of low-throughput low-cost devices with low device power consumption in delay-tolerant applications”. Therefore, it is forecasted to lead the IoT connection growth, especially in areas where high connection density, extended battery life, low cost and enhanced coverage are of critical importance. There it finds its sweet spot in the application of smart outdoor street light solution.

What is NB-IoT?

Narrowband internet of things (NB-IoT) is a low power wide area technology

Benefits of NB-IoT

- **Ubiquitous coverage and connectivity:** NB-IoT can help support massive numbers of devices by establishing NB-IoT networks that can connect to billions of nodes. Designed for extended coverage area, the lower complexity of the devices provides long-range connectivity and communication.
- **Low power consumption:** NB-IoT doesn't need to run a heavy operating system, such as Linux, or do a lot of signal processing, which makes it more power efficient compared to other cellular technologies.
- **Low cost of devices:** Because it's easier to create devices with lower complexity, the cost of the devices is significantly low.
- **Higher battery life:** The enhanced power consumption capability enables NB-IoT to support a multiyear battery life for devices.
- **Security:** NB-IoT is secured much like 4G, including all encryption and SIM-based authentication features.

(LPWA) developed with the aim to connect multiple IoT devices and empower IoT architecture using existing mobile networks. In a nutshell, it is a narrowband and low power technology that handles small amounts of two-way data transmission in an efficient, secure, and reliable manner. NB-IoT is a recent cellular radio access technology based on Long-Term Evolution (LTE) introduced by Third-Generation Partnership Project (3GPP) for Low-Power Wide-Area Networks (LPWAN). Other 3GPP IoT technologies include eMTC (enhanced Machine-Type Communication) and EC-GSM-IoT (Extended coverage GSM IoT).

In the last few years, the evolution of

3GPP standards related to IoT has accelerated due to the pressure of cellular stakeholders who require a standard solution to go one step further to provide a real cellular and standard solution for LPWA (Low Power Wide Area) networks. Behind this pressure are the billions of potential new subscribers originated by the IoT use cases.

IoT covers a wide range of use cases, which can only be partially covered by other previous 3GPP technologies such as GSM or Machine Type Communication (MTC) introduced in Release 8, and new ones such as eMTC or EC-GSM and unlicensed LPWA such as Lora or Sigfox. In contrast, NB-IoT is a 3GPP effort to penetrate the ultra-low

cost, power and throughput, extended coverage, and delay tolerant IoT marketplace, which, in 5G terminology, is the massive Machine Type Communication (mMTC) use case. This use case contains the greatest number of potential IoT subscribers, on the order of several billion.

The NB-IoT network can be widely employed in industry, agriculture, healthcare, logistics, and, quite obviously, in smart cities and buildings. One of the important limbs within smart city domain is smart street lighting application. Lighting today is going beyond illumination and safety. Luminaires can virtually see every centimeter of habitable and inhabitable space. Luminaires, thus, are potential gateways for tapping different sensors and create irresistible value propositions. With infinite possibilities lighting industry has all the ingredients to be a multi-billion-dollar opportunity for businesses. Smartness doesn't stop at making 'Things' intelligent or reducing energy consumption but also has effect on bringing various value propositions for human wellbeing. NB-IoT facilitates this transformation, as it is a revolutionary technology that not only helps connecting outdoor lights but also enables an extended IoT ecosystem which unlock many IoT use cases.

It can seamlessly offer below features in smart street lighting solutions.

- Switch the lamp on manually (ON / OFF), Lamp dimming (0-100%)
- Measurement of Mains supply as well as Lamp power, voltage & current.
- Measurement of Power factor & efficiency.
- Lamp status monitoring (functional, fault)
- City audit option - visualize lights on the map that are not yet installed. Digital twin
- Node temperature measurement (in the luminaire)

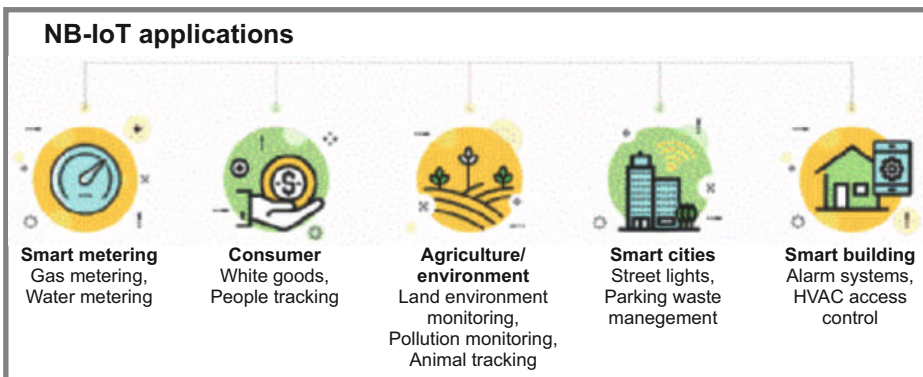
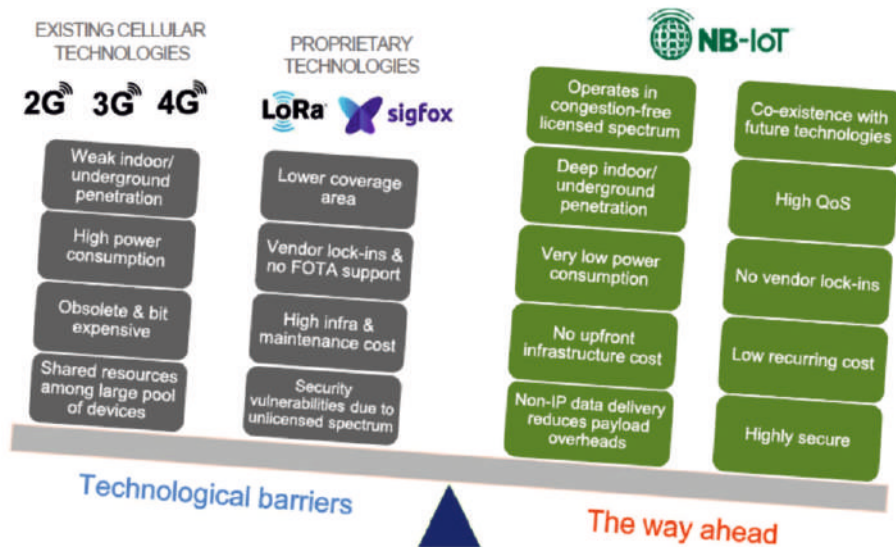
Barriers to NB-IoT becoming a norm

- **Limited device mobility:** NB-IoT devices only remain connected within a finite environment and only to one network operator. This could mean limitations for such uses as wearables that leave specific perimeters. If a person with a wearable device, for example, enters another country, the device could become inoperable if the operator doesn't have a local presence.
- **Limited data transmission:** Voice or video transmission is not an option because NB-IoT can only transmit less than a kilobyte of data per day, about equal to a text message. The NB-IoT data upload rate is around 20 Kbps, low compared to competing technologies. Its bandwidth is about 200 KHz.
- **Lacks proof of concept:** Because commercial rollouts have been relatively limited, it's hard to determine if the technology has been a success.

- Measurement of lamp operating time (hours) & recording of measured values (history) in a graph.
- Digital luminaire label - luminaire serial number, mast number, mast type, mast height, luminaire datasheet etc
- Clear display of lights on the map.
- Possibility of creating groups of luminaires
- Creation & setting autonomous dimming scenarios for luminaires.
- Monitoring of errors and error messages & Sending alarms and alarm messages.
- Monitoring of events and logs

Conclusion

NB-IoT's ability to provide coverage in low power applications amongst the various other versions of IoT makes it unique. It's great interoperability, scalability and standardization that lead to increased flexibility, time-to-market and robustness makes it more popular than its rivals. It is also special in the wide coverage and low cost in its deployment. It has been established that the NB-IoT is very much suitable for developing countries due to its low cost and wide coverage. NB-IoT is very much effective in smart metering, agriculture, environment, manufacturing, healthcare, resource management, asset tracking, smart building & smart cities and several other LPWA applications. According to recent studies, by 2026 cellular LPWAN solutions (that is NB-IoT and LTE-M combined) will be responsible for over 60% of the estimated 3.6 billion Low Power Wide Area network connections, with the remaining 40% covered by non-cellular, of which LoRa and Sigfox will account for the majority.



AUTHOR : PRUTHWIRAJ LENKA, HEAD OF R&D AND OPERATIONS, DIGITAL SYSTEMS OSRAM LIGHTING PVT LTD



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BEE Surveillance of products under Standard and Labelling (S&L) scheme

The article explains in detail the procedure followed for S&L scheme of BEE and its impact on those not complying with the scheme

The S&L Program is one of the major thrust areas of BEE. The Program was launched in 2006 by Ministry of Power. The key objective of this program is to provide the consumer an informed choice about the energy savings and thereby cost saving potential of the relevant star rated appliance/equipment. Under S&L Program, State Designated Agencies (SDAs) are set up at the state level including Union Territories for the purpose of ensuring compliance with energy consumption standards. SDAs are responsible for a) Monitoring and Market Surveillance, b) Enforcement and c) Misuse of Star Label, Search and Seizure

The SDA is responsible for enforcement and related actions to be taken for use of star label without a valid registration or misuse of the label and non-compliance. In such cases, search and seizure of the respective model of the appliance/equipment is the responsibility of SDA. The SDAs refer the matter to BEE, before any action is taken on filing of any complaint in the court.

The Bureau may use the services of independent third parties called Independent Agencies for Monitoring and Evaluation (IAME). In case an applicant is found issuing misleading advertisement with reference to the BEE star label, BEE may hold/ reject/ cancel any or all model registrations.

Monitoring and Verification process is targeted towards appliance and equipment manufacturers, importers, traders, and retailers who have obligations under relevant legislation and regulations.

Monitoring

Monitoring comprises of collection and analysis of data to give an accurate picture of program progress and compliance and is usually an on-going process. It provides the opportunity to identify and act on any implementation issues, as well as providing data for program evaluation.

Monitoring for compliance helps BEE to:

- Determine levels of compliance and identify trends in behavior.
- Detect possible violations or breaches.
- Identify whether, and what type of, education campaigns or enforcement action may be required.
- Assess the effectiveness of the appliance energy efficiency legislation and identify opportunities for improvement.

BEE undertakes a range of activities for compliance monitoring including assessment of information provided in applications for appliance registration, analysis of information gathered from retail, wholesale, and internet outlets, sales literature, and advertisements and

analysis of information reported from other sources, such as the general public, industry groups, non-government organizations, other government agencies, and international organizations.

Verification

Verification is the process specified by the standards and labelling program, to determine through testing whether the declared energy performance of equipment available in the market is accurate.

The MV&E framework consists of the key elements as Market Surveillance, Check testing, Challenge testing and Enforcement.

Market Surveillance

The primary aim of market surveillance is to ensure a high degree of compliance with policy intent of S&L Program once the labeled appliance/equipment reach the marketplace. The Bureau/ SDA engages IAME or any other agency to conduct the market surveillance. The market surveillance periodicity may be enhanced based on consumer complaints or feedback.

Market surveillance helps to ensure that:

- All appliance/equipment in the market covered by mandatory labelling display the BEE star label.
- All appliance/equipment in the market with a BEE star label are registered with BEE.

- Fake labels are not displayed on appliance/equipment.
- BEE star labels are displayed correctly on appliances as specified in the relevant appliance/equipment schedule or regulation. The surveillance shall focus on all the appliance/equipment covered under S&L including mandatory and voluntary labelling requirement.

Priority criteria for sampling may include, but not limited to:

- a) Appliance/equipment with history of non-compliance including customer complaints.
- b) Appliance/equipment with high market penetration.
- c) Appliance/equipment belonging to very high or very low energy efficiency classes.
- d) Purchasing price either very low or very high.
- e) Manufacturing place- imported versus nationally manufactured. The surveillance shall be a comprehensive Pan India market research of retailer/dealer/e-market place including their catalogues and websites that sell appliances to assess whether they are providing the labelling details of the appliances.

Check Testing

The check testing of labeled appliance/equipment is conducted in third party NABL accredited laboratories. In case the sample drawn for the first check testing fails, the Bureau or SDA conducts a second check testing.

- The permittee/user of the label is informed about the failure of the first check testing and is advised to deposit the cost of the samples, cost of check testing and transport for the second check testing in advance.
- If permittee fails to deposit/pay the

expenses, Bureau continues the verification by check/challenge testing and stops further processing of application received for new appliance/equipment's of the respective permittee. Further, the Bureau cancels all labels granted to the permittee after six months from the date of issuance of intimation to permittee to witness challenge testing in accordance with relevant regulations.

- In case the samples are not available in the market and all efforts to trace the samples fail, the Bureau then writes to the permittee to provide that sample, within 3-4 weeks of the date of issuance of such letter. In case permittee is not able to provide sample for the second check testing, then check testing of the first sample is treated as final and this is binding on the permittee.
- BEE or SDA informs the date of second check testing to the permittee to witness the second check testing. If the permittee is unable to witness the testing, the Bureau or SDA proceeds with testing in the presence of BEE/ SDA personnel and the test result is binding on the permittee. The second check testing will not be done in the lab where first check testing was done. However, in case only one laboratory is empaneled with Bureau for the purpose of check testing for that particular appliance/equipment then the second check testing shall be done in the same laboratory where the first check testing was conducted.
- On completion of second check testing, BEE/ SDA reviews the test reports.

In case any one or both samples collected for second check test fail, Bureau/ SDA proceed with the following actions:

- Direct the permittee, under intimation to all the State Designated Agencies, that the permittee within a period of two months from the date of issuance of such intimation, shall
- Withdraw all the stocks from the market to comply with the directions of the Bureau; and
- Change the particulars displayed on advertising material.
- Correct the star level displayed on the label of the appliance/equipment or remove the defects and deficiencies found during testing from the existing and new stock.
- Publish, for the benefit of the consumers, the name of the permittee, brand name, model name or model number, logo and other specification in any national or regional daily newspaper and in any electronic or in any other manner as it deems fit within two months.

The permittee within ten days of the conclusion of the period of two months from the date of issuance of intimation is required to send the action taken report on the prescribed format

Where the permittee fails to comply with the directions issued by the Bureau/ SDA, the Bureau/ SDA under intimation to all other State Designated Agencies, shall-

- withdraw the permission granted to the permittee
- initiate further adjudication proceedings against the permittee and the trader under section 27 of the Act.

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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

Affordable Eye Care for all at the Anant Bajaj Retina Institute



"Anant Bajaj was passionate about eye health and making it available to all. It was Anant's dream to combine cutting-edge technology with philanthropy to make a difference in people's lives. We are grateful that LVPEI has acknowledged the vision of Anant Bajaj and named the centre the 'Anant Bajaj Retina Institute'. Through this association, the Bajaj Group and LVPEI have joined resources to reach out to millions of Indians to provide the best possible eye care",

Mr Shekhar Bajaj, Chairman and Managing Director of Bajaj Electricals Limited.

A third of the world's blind population lives in India. According to research published by the National Program for Control of Blindness, out of 39 million visually impaired people globally, roughly 12 million people are in India. Retinal diseases are among the most important causes of vision impairment and blindness. The Retina is the inner light-sensitive layer of the eye and plays a critical role in seeing the world around us. Once damaged, it may cause severe and irreversible vision loss. Some vision-threatening retinal problems are Diabetic Retinopathy, Macular

Degeneration, Retinal Detachment, Retinitis Pigmentosa, other hereditary retinal diseases, and Retinopathy of Prematurity. These facts are alarming as approximately 80% of blindness is curable or preventable. This only highlights the lack of access to excellent and affordable eye care services.

The world-renowned Bajaj Group plays a catalytic role in India's growth story through its companies and philanthropic initiatives. Over the years, they have forged long-term sustainable partnerships and executed on-ground projects in rural development, healthcare, education, environmental



advocacy, arts, and culture. Taking a step further in this direction, the Bajaj Group has partnered with the L V Prasad Eye Institute (LVPEI) Hyderabad to provide world-class retina care, an endeavour toward eliminating and preventing retinal blindness. The 'Anant Bajaj Retina Institute' - an Institute of Excellence and a Global Resource Centre at LVPEI was formally inaugurated on 18 May 2022. Incepted the loving memory of the late MD of Bajaj Electricals Limited, Mr Anant Bajaj, the 'Anant Bajaj Retina Institute' is an integral part of LVPEI.

Honourable Vice President of India Sri M Venkaiah Naidu, the senior family

members of the Bajaj family, the senior leadership team of LVPEI, and Pullela Gopichand, the Chief National Coach for the India national badminton team, graced the launch event.

More than 100,000 patients are examined for retinal problems at LVPEI, and over 20,000 retinal surgeries have been performed making LV Prasad Eye Institute an apt partner for Bajaj to fulfil Mr Anant Bajaj's vision. The Bajaj Group believes that the available pool of talent, state-of-the-art infrastructure, and global reputation will add to the efforts to bring advanced retina eye care closer to the community's doorstep of communities and making them

accessible and affordable for all and offering better treatment options to patients encompassing the latest technological advances for retinal diseases. It is indisputable that public understanding of preventive and curative eye care, particularly in a specialised subject like retinal health, is poor. As a result, increasing public awareness of eye health is critical. LV Prasad Eye Institute has acknowledged the vision and mission of Anant Bajaj and named the centre the Anant Bajaj Retina Institute.

This Institute of Excellence aims to enhance access to high-quality retina care for several million more people through direct services of the LVPEI network and the work of its alumni and partners, and capacity building across India and other parts of the world. Besides clinical care, the focus will be on training ophthalmologists and eye care personnel, building the capacity of different eye care organisations at national and international levels, promoting and enhancing research capacity in India and other developing countries, scaling up community eye health programs and utilising technology for the better care of retinal diseases.

AUTHOR : BAJAJ ELECTRICALS LIMITED

Bajaj Electricals illuminates IOCL Retail Petrol Pumps in Chennai



IOCL's retail petrol pumps in Chennai were recently illuminated by Bajaj Electricals; uplifting the look and feel through innovative and interesting lighting. It's no secret that conventional light sources have now been replaced by LED lighting but achieving uniform lighting distribution continues to be a challenge. This was addressed by Bajaj by using the 8Ft

Linear Canopy luminaire. Specially designed for fuel retail outlets, the Linear Canopy luminaire is available in 80W and 8ft lengths to fit every need. The product comes with a bottom frame for recessed mount applications while the linear length achieves the desired uniform illumination. To add to this, a non-integrated driver provides ease of maintenance.

Our Journey for investing in the PLI Scheme

A first-hand account of the author's organization with the PLI scheme

The PLI scheme or Production Linked Incentive scheme was launched in March 2020 as part of Atmanirbhar Bharat initiative or Make in India to boost the domestic manufacturing sector. As a part of the Make in India initiative, this scheme offers an incentive to eligible firms on incremental sales for five years.

So far, the government has announced PLI schemes for 14 sectors, and Luker Electric Technologies Pvt. Ltd. (LUKER) applied under White Goods AC and LED Lights Components categories. Luker is one of the fastest growing companies in the country, manufacturing LED Lights, currently offering about over 3000 models, with a manufacturing facility spread over 3 lakh sq ft including a NABL certified Quality Testing Lab spread over 21 Acres of land. Initially, as an organization, we were quite skeptical about the proposed incentive scheme, however, Department for Promotion of Industries and Internal Trade (DPIIT) took an initiative to conduct few online meetings to explain the salient features of the scheme with the help of Trade bodies like ELCOMA. The Ministry's senior officials were present in the

meetings which helped investors to boost their confidence in participating in the program. These meetings were led by the Addl. Secretary, Shri Anil Aggarwal and Dr Ashish Kumar of DPIIT. They introduced us to their officers down the line for onward help and interaction. Even so, there was some reluctance from investors, especially in understanding the process in depth and about the benefits of the PLI Scheme.

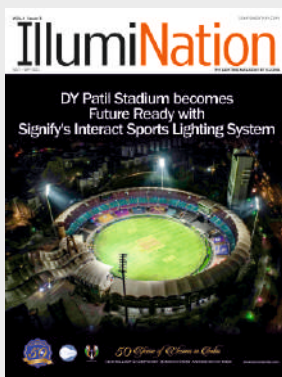
ELCOMA rose up on this occasion, called the members individually to not only explain about the scheme but also connected members to Ministry officials for clarifying our doubts about the proposed scheme. They even accompanied us to many meetings with ministry officials.

Initially while applying for the scheme at the portal, we had faced many problems but later Dr. Ashish Kumar of DPIIT connected us with officers of IFCI Ltd, the Project Monitoring Agency (PMA) for assistance, which was really helpful. Since the roll-out of the Scheme was very fast, and the scheme underwent positive changes post industry consultations during the application window, there were technical hiccups in

the portal. But IFCI's technical team worked round the clock to remove such roadblocks and helped us to upload the applications before the deadline. It was an unique and unimaginable experience of support and handholding for us from a government agency, contradictory to our earlier experience with government machineries. DPIIT and IFCI worked hand in hand with investors to achieve the goal. Luker is participating in the scheme with an investment of 10.10 Cr, aimed to produce Components for LED Lights in Normal Investment Category. We have already invested Rs.2.30 Cr in 21-22 and another 1.7 Cr in the pipeline for this financial year. We could also generate an additional employment for about 140 people from surrounding villages out of which 60% are housewives and young ladies.

We are proud to be a part of this scheme introduced by DPIIT, Government of India and would recommend all entrepreneurs to participate in this unique scheme to help themselves and the nation.

**AUTHOR : E. SIVARAMAKRISHNAN,
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ELECTRIC TECHNOLOGIES PVT LTD**



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IEC Publishes Standard for SELVDC prepared and submitted by BIS

IEC has published the standard, IEC 63318: 2022- Specifications for SELV DC systems conforming to the ESMAP multi-tier framework tier 2 and tier 3 requirements for household electricity supply. This standard was proposed and developed by experts of Indian National Committee at IEC . It is matter of pride and honour for the

country as this is the first Indian proposal published as IEC Standard.

ELCOMA and BIS are thankful to all those who participated in the standard development and for undertaking the project and successfully completing it. BIS sincerely appreciates the support and cooperation provided by all the experts of ETD 50 committee in the

formulation of these standards and hope to have similar active interaction on future projects as well.

This standard is IEC copyright protected and priced versions, therefore, may not be freely available. Those interested, may buy a copy of the standard from BIS website.

Bajaj Electricals appoints Ravindra Singh Negi as COO



Bajaj Electricals has appointed Ravindra Singh Negi as chief operating officer (COO) of its consumer products business and Rajesh Naik as head of the lighting business. Both executives will report to Anuj Poddar, Executive Director, Bajaj Electricals.

Mr Negi will join Bajaj Electricals in July 2022 from Havells India, where he

was president of the Electrical Consumer Durables segment. Prior to that, he spent nearly two decades in Bharti Airtel in various roles, with his final role being CEO of the Delhi and NCR telecom circle

Additionally, the company has also announced the formation of a unified Lighting Business segment by combining its Consumer Lighting

Business and its Professional Lighting Business, which will be led by Rajesh Naik. Naik joined Bajaj Electricals in December 2019 and in this period has led a turnaround of the Illumination Business taking it to the leadership position in the industry. Naik has over two decades of experience in the sector.

AUTHOR : AFAQS! NEWS BUREAU

Bajaj HEXO LED Street Light - Made in India, Made for India

The fast-changing pace of modern living has created an added impetus for efficient illumination of outdoor spaces. From a safety point of view too, efficient lighting solutions for highways and expressways is the need of the hour. Considering that the Government is working towards developing 22 greenfield expressways, 23 other key infrastructure projects, several new highway projects and 35 multi-modal logistics parks through various nodal bodies, it is critical to have a robust infrastructure for such a massive growth.

This streetlight offers a substantially high lumen efficacy of > 135 lm/W making it the go-to choice for highway and city road applications. Bajaj HEXO is available in WH (5700°K), NW (4000°K), WW (3000°K) CCTs. This range of streetlights are made using robust pressure die-cast aluminium housing with corrosion resistant powder coating and UV resistant non-yellowing secondary lens optics to ensure desired photometry. The photometry of these products has been designed considering the Indian Road patterns.



Signify launches Philips Motion Sensing LED Batten



Signify (Euronext: LIGHT), has launched its Philips Motion Sensing LED Batten in India. With an inbuilt motion sensor, the batten automatically turns on upon detecting motion within a 6-metre radius. For enhanced safety, it first dims to Eco-mode after 2 minutes of inactivity and then switches off completely after another 3 minutes of inactivity. With its automatic switch-on function, it offers a convenient lighting solution for lesser accessed areas of a house like balconies,

staircases, washrooms and parking areas. The Philips Motion Sensing LED batten is available in a 20W, 2000 Lumens pack across all small and large electrical stores and e-commerce platforms. In addition to a motion sensor, the LED batten also features an ambient light sensor that helps the batten to automatically adjust light output as per ambient light conditions. These two features help save power, as the light turns on only when you need it.

Commenting on the new launch, Sumit Joshi, CEO & MD, Signify Innovations India Ltd, South Asia said “We are delighted to launch our Philips Motion Sensing LED batten in India. With its superior motion sensor, it is a convenient automated lighting solution for lesser accessed areas of a house. Moreover, for enhanced safety of consumers, we have designed the product to first dim down after 2 minutes of inactivity, before completely switching off after another 3 minutes”.

Luker Launches IRIS Emergency LED Panels

Luker has launched IRIS Emergency LED panels which comes with dual benefits of glare-less lighting and battery backup. These panels have integrated lithium ion battery which offers back-up time upto 2 hours. Presently available in 15W power option, these are ideal for offices, shops, hospitals etc where continuous lighting is required in case of power failure.



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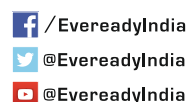
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