ENERGY OBSERVER

A MONTHLY NEWSLETTER FROM AMERLUX®

SEP 2021

Introducing the Award-Winning O3 Sensor Hub - Winner of the AHR Expo Innovation Award in Building Automation, Delta's O3 Sensor Hub replaces the traditional thermostat and legacy light switch with an all-encompassing hub that produces a more comfortable space for occupants and provides easy accessibility and management for building owners. Modern and sleek, the O3 provides simple installation and user-friendly flexibility for all conversion and renovation projects. Ceiling-mounted, the O3 connects to your phone and uses sensor fusion technology to detect motion, light, sound, temperature, security and occupancy with new levels of accuracy. Automatically adjust ventilation and lighting output based on occupancy. Reduce energy costs. Create a touchless environment. Replace multiple room sensors with a one-per-room cost-competitive solution. Provide your building with the data it needs to make instant economic and occupant-friendly decisions.

The O3 Sensor Hub is a multi-sensor device that mounts to the ceiling, combining temperature, humidity, motion, sound, and light level and color in a single device. The O3 uses Sensor Fusion technology combined with machine learning techniques applied to over eight space characteristics to produce more accurate, faster and smarter feedback of the conditions of a monitored space. The O3 integrates with lighting applications using the on-board universal I/O ports and wireless EnOcean switches and lighting modules. Remote lighting control can be performed using BLE from a smartphone device or through any network enabled device. As an IoT device, the O3 has excellent interoperability with other systems and integrates easily with home and office automation solutions. The power of cloud based automation and analytical tools can be applied to your lighting applications. Integration with cloud services and publicized APIs facilitates rapid development of customized applications and integrates with latest IoT solutions. Node-RED, a powerful graphical programming tool, is available to support custom programming and dashboards. Node-RED facilitates connection to 3rd party protocols.
O3 Sensor HUB Lighting Feature_F (amerlux.com)

National LED Energy Market Observer:

1. **A Year with Networked Lighting Control** - Today, lighting controls offer significant value. The ultimate in lighting control is a centralized networked lighting control system, which has been shown to reduce energy consumption by an average 47 percent. Networked lighting controls are intelligent (computing-based) systems in which devices communicate within a network to enact control strategies. On the network, each control point has its own unique address, which can be assigned to control strategies and schedules individually or in groups. Three examples show how lighting controls can benefit facility managers over the course of a single year. A Year with Networked Lighting Control - Facilities Management Insights (facilitiesnet.com)

2. **Shaky Connection?** - Adoption of networked intelligent lighting control systems is uncertain, with some in the professional lighting community very positive, while others see it as not ready for prime time for themselves or their clients. Putting whether is a problem in definition aside, the question of where networked control is winning or losing is worthy to explore. To learn more, IES magazine LD+A engaged five lighting designers in a panel around the topic of the state of play in lighting and the IoT. Shaky Connection? – Illuminating Engineering Society (ies.org)

3. **Operation Night Light Marks Milestone** - According to AES Indiana to launch Operation Night Light, the goal of converting thousands of streetlights around Marion County neighborhoods to high-efficiency LED fixtures is almost complete. Mayor Joe Hogsett launched Operation Night Light in 2016, delivering on a promise to lift the 35-year streetlight moratorium endured by residents. Since that time, nearly 27,000 fixtures have been retrofitted with high-efficiency LED lights in neighborhoods across Marion County. As cost savings have been realized through the retrofit, the City has approved over 2,000 additional LED light fixtures for installation in areas where more lighting was needed. New lights will continue to be installed through 2025. Operation Night Light Marks Milestone – lightED (lightedmag.com)

4. **Biden Officials Push to Hike Lightbulb Efficiency after Trump Reversal** - The Energy Department said Tuesday it is proposing a return to the Obama administration's definitions that includes cone, globe and candle-shaped bulbs in certain regulations after the Trump administration exempted them. The proposal indicates a possible two-step process to incorporate the additional bulbs in the rule and then increase regulations on all of the bulbs - including common pear-shaped bulbs. The stricter rules are eyeing the implementation of a standard that's expected to undermine incandescent bulbs and to push the market toward LEDs. Biden officials push to hike lightbulb efficiency after Trump reversal - Texas Environmental News

5. **DOE Report Looks at Long-term Changes in Solid-State Lighting (SSL) Devices as They Age** - The efficiency of light delivered to the task by the four distinct devices received four elements of evaluation: light source efficiency, optical delivery efficiency, spectral efficiency, and intensity effectiveness. These four elements represent the targeted areas of improvement for research and development to increase energy savings in SSL devices while simultaneously providing new capabilities to the lighting system. Key findings reveal the aging factors at play from long-term use of the devices. DOE Report Looks at Long-Term Changes in Solid-State Lighting (SSL) Devices as They Age | Department of Energy

6. **Senate Bill Recognizes Buildings as Infrastructure** - The bipartisan infrastructure deal that passed the Senate on August 10 includes several key provisions that will help modernize the built environment. The Senate is expected to advance a second infrastructure bill through the Budget Reconciliation process this fall. Key provisions that would improve the built environment at: Senate Bill Recognizes Buildings as Infrastructure – LightNOW (lightnowblog.com)

7. **Signify Joins Homegrid Forum to Transform Wireless Communications Through LiFi with Maxlinear G.hn Technology** - Trulifi by Signify provides a range of LiFi systems that ensure a fast, secure and reliable wireless connection. LiFi is a wireless communication technology that uses LEDs to transmit data at high speeds over the visible light, ultraviolet and infrared spectrums. LiFi provides network connectivity within the premises like Wi-Fi does, but uses light waves instead of radio signals. LiFi enables data to be transmitted between multiple connected devices with the light spectrum providing low latency and avoiding the interruption that can often happen with congested radio frequency spectrum. As digital transformation accelerates to meet the growing demand for ultra-fast connectivity, LiFi will play a critical role in complementing Wi-Fi and providing a secure, reliable and spectrum-saving solution. Signify joins HomeGrid Forum to transform wireless communications through LiFi with MaxLinear G.hn technology – HomeGrid Forum

8. **Glint Photonics Wins Award in Novel Materials and Processes for Solid-State Lighting Category** - DOE's Building Technologies Office (BTO) is funding nine SBIR Phase II Release 2 projects, totalling $8.9 million. Glint Photonics of Burlingame, California is developing a new low-cost lighting fixture platform that can be easily customized to produce an infinite variety of different lighting patterns. Small Businesses Awarded $8.9 Million in Building Technology R&D Funding | Department of Energy

9. **IES 2021 Illumination Awards** - A total of 7 projects received highest honors in the 2021 IES Illumination Awards. In addition, 271 projects were recognized with Awards of Merit. Designers submitting projects to the program have the option to include a short video showing the lighting "in action." What follows here are short video highlight reels from the winning projects:

- 2021 IES Illumination Award: ARCTIC ADVENTURE: THE MUSEUM OF SCIENCE, Boston - YouTube
- 2021 IES Illumination Award: FREEDOM SQUARE, Mariupol, Ukraine - YouTube
- 2021 IES Illumination Award: CHONGQING CHANGSHOU SALES GALLERY, Chongqing, China - YouTube
- 2021 IES Illumination Award: FOTOGRAFISKA, New York - YouTube
- For a video of all the 2021 IES ILLUMINATION AWARDS – MERIT AWARD RECIPIENTS: 2021 IES ILLUMINATION AWARDS – MERIT AWARD RECIPIENTS - YouTube

10. **CLTC Releases New 2019 Title 24, Part 6 Lighting Education Videos** - CLTC is excited to release five new videos focused on 2019 Title 24, Part 6 lighting requirements! The videos are designed to increase knowledge and implementation of code-compliant lighting in California's nonresidential and residential buildings. Each video dives into specific lighting topics in the current Energy Code:

- Outdoor Lighting & Sign Control Requirements
- Indoor Lighting Controls Requirements & Technologies – Manual Area Controls
- Indoor Lighting Alterations – Compliance Process
- Lighting Controls & Envelope Acceptance Testing Requirements
- High Efficacy Requirements for Residential Light Sources

11. **Nine Lighting Projects Earn a Share of the DOE's $83 Million Award** - Nine of the projects awarded funds are in the category of Lighting Technology Research, Development, and Field Validation:

1) Eaton Corporation (Menomonee Falls, Wisconsin)
2) OSRAM Opto Semiconductors (Portland, Oregon)
3) Pacific Northwest National Laboratory (Richland, Washington)
4) Palo Alto Research Center Inc. (Palo Alto, California)
5) Pennsylvania State University (University Park, Pennsylvania)
6) Pennsylvania State University (University Park, Pennsylvania)
7) Regents of the University of Michigan (Ann Arbor, Michigan)
8) Thomas Jefferson University (Philadelphia, Pennsylvania)
9) University of California, Santa Barbara (Santa Barbara, California)

Details at: Nine Lighting Projects Earn a Share of $83M Award (inside.lighting)

12. **GE Current Introduces New Daintree® Controls Software** - GE Current, a Daintree company, recently introduced the all-new Daintree® Controls Software (DCS). This web-based application empowers users to monitor, troubleshoot, and report on the energy performance of indoor, outdoor, and industrial spaces from a single application. DCS is built on Current's three pillars of building management: simple, scalable, and flexible. Whether they are managing a single unit or a vast portfolio of spaces, building managers can adjust scheduling or lighting parameters based on hours of operation, seasonality, evolving energy codes, or business energy requirements. With real-time visibility of what's happening in specific zones, an entire building or a network of buildings, those same managers can identify issues when they arise, preventing costly oversights. GE Current Introduces New Daintree® Controls Software (lightingcontrolsassociation.org)

13. **NEMA LSD EB 84-2021 Germicidal Irradiation and the Energy Codes** - Germicidal irradiation is a rapidly deploying technology in buildings across the country with the specific and special purpose of inactivating pathogens. While this technology requires energy to operate, it is exempted from the scope of the energy codes. It is expected that future versions of the codes will have refined language for germicidal irradiation; comments from each of the Standard development organizations have indicated that germicidal irradiation should remain exempt from energy requirements. This document outlines the positions of the three primary energy efficiency Standards with respect to germicidal irradiation in commercial buildings. NEMA-germicidal-lighting-guidelinesLSD_EB_84-2021.pdf (lightedmag.com)

1) ASHRAE/IES Standard 90.1
2) International Energy Conservation Code
3) California Title 24 Part 6

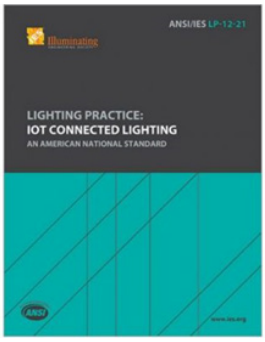
14. **NEMA Announces Debra Phillips as Next President and Chief Executive Officer** - The National Electrical Manufacturers Association (NEMA) recently announced that Debra Phillips will be the next President and CEO of NEMA. NEMA Announces Debra Phillips as Next President and Chief Executive Officer

15. **Is Individual Control the Only Way to Tackle Visual Discomfort? by Willard Warren** - With all the bare lamp lighting in vogue today, we need a glare metric to reduce visual discomfort. We've adopted, and discarded, glare predictive systems including the Scissor Curve, Glare Factor, ESI (equivalent sphere illuminance), VCF (visual comfort factor) and VCP (visual comfort probability), and are now considering the CIE's UGR system. For reference, here's the 10th Edition of the IES Handbook's take on glare: "Discomfort Glare Predictive Systems give reasonable predictions of the discomfort of a group of people, but give only poor predictions of an individual's response." That's like having one hand in ice water and the other in hot water—the average temperature might be acceptable, but the person would still be in pain. Energy: It's Personal – Illuminating Engineering Society (ies.org)

16. **Germicidal UV Light Disinfection Technology by Design Approach** - How ultraviolet light (UV) works as a disinfection technology depends upon the wavelength(s) being employed. The UVC band with a wavelength of 200-280nm has emerged as a highly viable solution for interior architectural settings such as offices, retail settings and schools, due to its proven effectiveness against both bacteria and viruses. Also, UVC is straightforward to apply in a defined area and its predicted effectiveness can be predetermined within a set of application design parameters and in reference to measured output data and laboratory test data. When evaluating a space for application of a UV disinfection solution, there are several UVC-specific technologies to consider: Advertisement Germicidal UV Light Disinfection* Technology by Design Approach – Illuminating Engineering Society (ies.org)

17. **Fed's Powell: There's No Returning to Pre-Pandemic Economy** - "Those changes range from the increase in remote work, to restaurants offering more take-out meals, to real estate agents learning to show homes virtually, he noted. Many companies have already made large investments in technology to adapt to the challenges that the pandemic has presented.....It seems a near certainty that there will be substantially more remote work going forward," Powell said. "That's going to change the nature of work and the way work gets done." Powell said the heavy investment by companies in new technology means there will be more jobs in the future associated with maintaining that technology but also potential job losses in industries focused on in-person contact. He said some of those industries may be moving to an "automated, no-contact model." Fed's Powell: There's No Returning to Pre-Pandemic Economy – tEDmag

18. **RESEARCH: The IoT and Lighting Design** - The Illuminating Engineering Society (IES) recently published ANSI/IES LP-12-21, IoT Connected Lighting. This 43-page Lighting Practice and American National Standard provides guidance for lighting professionals to consider and evaluate connected lighting and Internet of Things (IoT) solutions and applications. In short, an IoT solution builds upon the familiar to incorporate connectivity, integration, and data. As the building industry evolves toward greater IoT adoption, lighting professionals should familiarize themselves with the additional requirements related to this fascinating category of lighting so as to fully realize its opportunities and minimize risk. IoT Connected Lighting provides an excellent foundational starting point, along with LCA Education Express courses addressing lighting control system design and commissioning, centralized networked lighting control systems, and how lighting fits the Internet of Things. To order LP-12-21: IoT Connected Lighting – The IES Webstore



19. **ARISTA Advanced Lighting Control System** - The new ARISTA™ Advanced Lighting Control System contractor-focused solution makes it easy for installers of all technology backgrounds to integrate wireless, code-compliant lighting control in a wide range of indoor applications up to 10,000 ft2. A suite of modular components, including sensors, controllers and manual overrides, makes it easy to install and configure ARISTA to meet diverse project needs. Bluetooth wireless communication and optional battery-powered sensors help speed up installations by reducing wiring needs. ARISTA™ Advanced Lighting Control System Watch the video at: Introducing the ARISTA Advanced Lighting Control System from Intermatic - YouTube

20. **Making Smart Devices at Home: New Buyers Prioritize Smart Home Trends by Claire Swedberg** - Comfort, efficiency and security are driving residential smart home trends that interest many home buyers. What exactly makes a home "smart" differs, but once security systems and temperature or lighting controls are included, by most definitions the home is becoming intelligent. It only accelerates from there. Homeowners are looking for a system that offers high-efficiency performance, worry-free reliability and customizable functionality that fits their family's lifestyle. Lighting serves up a wide variety of challenges and solutions. Lighting control is highly scalable, can be done in new builds or a remodel or retrofit application, and can be programmed to accommodate individual needs. Making Smart Devices at Home: New buyers prioritize smart home trends | Electrical Contractor Magazine (ecmag.com)

21. **WHITEPAPER: Lighting for Health: Human-Centric Lighting by Tom Jory, Yi-Ying Lai, and Paul Sims** - Lighting designers and luminaire makers want to understand how to leverage advanced LEDs to achieve efficient human centric lighting solutions that promote human health, productivity, and rest. This white paper describes the basic science behind healthy lighting to promote a natural circadian rhythm and discusses the benefits of light sources with enhanced spectrums for healthy daytime lighting, without over-lighting and without having to use blue tinted high CCT sources. Key Topics: White Paper Registration – Lighting for Health: Human-Centric Lighting (smartsheet.com)

- Light/Health scientific backgrounds
- How to calculate HCL designs
- Practical solutions
- Case studies
- Graphs, diagrams, charts, formulas, etc.

22. **Bright Idea: New LEDs Can Detect Off Food and Lethal Gases** - Your smart device could soon be even smarter with a new infrared light emitting diode (LED) that is 'tuneable' to different wavelengths of light – it could enable your fridge to tell you when your food is going off and your phone to tell you if that Gucci purse is real. Bacteria found in meat release various gases as they multiply. The presence of these gases is a good indication that the meat is spoiling and is no longer fit for consumption. "The device placed inside a fridge could send a notification that meat is going off. When pointed at a handbag, it could reveal whether the bag is made of real leather or a cheaper substitute," said Professor Crozier. Importantly, the device could make the work of firefighters, miners and military safer, allowing them to identify potentially lethal gases from safe distances as the ultra-thin, ultra-light devices can be placed on small drones. Flying such a drone over a building fire could tell firefighters what dangers they face and equipment they'll need. Bright Idea: New LEDs Can Detect Off Food And Lethal Gases - LEDinside

23. **The All-Electric Home Returns: Revising an Old Idea with Today's Technology by Jeff Gavin** - Today's "all-electric" homes represent a preliminary effort, but one drawing attention in a world attuned to aggressive energy efficiency and calls for reductions of carbon emissions. With the help of clean, solar energy, an all-electric home—if sized right and built with a tight envelope—can achieve, or nearly achieve, zero emissions (net-zero). All-electric homes would feature mechanics, appliances and LED lighting powered by emission-free electricity. All could be programmable to deliver an energy-efficient and emission-free home. While the gas line does not disappear, new homes could forgo one. Technologies include air-source heat pumps, geothermal heat pumps, heat pump water heaters and clothes dryers, and induction stovetops. Electric vehicles play a role, with homes being wired for charging stations. The All-Electric Home Returns: Revising an old idea with today's technology | Electrical Contractor Magazine (ecmag.com)

24. **Lightfair Calls for 2022 Conference Speakers** - LightFair is looking for experts in lighting, technology and design industries to speak at next year's LightFair, the largest commercial and industrial lighting trade show and conference, happening June 19-23 at the Las Vegas Convention Center in Las Vegas, N.V. All applicants must submit criteria to Lightfair.com/call-for-speakers on or before September 24.

25. **NEMA: Next Generation Lighting Industry Alliance Endorses the L-Prize® Competition** - The Next Generation Lighting Industry Alliance (NGLIA) encourages lighting manufacturers to participate in the Department of Energy's Lighting Prize (L-Prize®) competition. The L-Prize® is designed to advance the U.S. clean energy economy for next-generation LED lighting, encouraging innovators and researchers to engage in advanced lighting system development that leads to transformative designs, products, and impact. The submission deadline for the competition's first phase is November 19, 2021, at 5:00 p.m. Eastern. For the full competition details: L-Prize (americanmadechallenges.org)

26. **LEDs Magazine Reveals 2021 Sapphire Awards Winners** - At the end of day one of the online Strategies in Light conference, attendees from around the LED and solid-state lighting (SSL) industry gathered in a virtual setting to learn which products, projects, and innovators would win LEDs Magazine Sapphire Awards honors. In the 7th annual program, lighting and controls excellence was acknowledged across 17 product categories and four networked lighting controls projects, along with the prestigious Illumineer of the Year for innovation in technology. The list of Design Excellence awards recipients and Sapphire Award winners: BREAKING NEWS: LEDs Magazine reveals 2021 Sapphire Awards winners (UPDATED) | LEDs Magazine

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Global LED Energy Market Observer:

27. **Conventional Lighting Is Still Belching CO2 in Europe** - Signify CEO Eric Rondolat issues impassioned plea to pick up the pace of conversion to LED. "To see how this can play out, we can look to the incredible potential for energy renovation in our built environment," Rondolat said in backing a new European Commission climate initiative called Fit for 55. "Europe's aging buildings are our biggest sinks of energy consumption, accounting for 40% of energy consumed and 36% of energy-related greenhouse gas emissions. Yet only 1% of buildings undergo energy efficient renovation per year. This glacial pace cannot continue when the rewards are so tangibly evident in emissions reductions, infrastructure benefits, and job creation across the EU.....One of the quickest wins within energy renovation is lighting," he said. "Replacing the EU's 2.3 billion conventional light points with energy-efficient LED....." Reminder: Conventional lighting is still belching CO2 in Europe | LEDs Magazine

28. **Lumileds Offers EU Ecodesign Tool, Boosts 3030 LED Performance** - The European Commission (EC) in 2019 published a policy called informally the Single Lighting Regulation (SLR) to cover the European Union (EU) going forward. These policies go into effect in September, although existing products can be sold under the old policy for two additional years. Unofficially, the new policy will bring about the end of the market in Europe for halogen, fluorescent, and other legacy sources. Officially, the regulations are energy policy not tied to any specific light-source technology. Moreover, the regulations apply to finished lamps and luminaires and not to packaged LEDs or OLEDs. Still, Lumileds sought to help its customers navigate a path through the new EC policy. LED manufacturer Lumileds has announced the availability of the EU Ecodesign Tool on its website that can help manufacturers as they develop lamps and luminaires with an eye to the Ecodesign and Energy Labeling polices that take effect September 2021. Anyone can experiment with the tool on the Lumileds website. Lumileds offers EU Ecodesign tool, boosts 3030 LED performance | LEDs Magazine

29. **TrendForce Global LED Lighting Market Outlook 2021–2022** - According to TrendForce's latest report "2021 Global Lighting LED and LED Lighting Market Outlook-2H21", the LED general lighting market has comprehensively recovered with increasing demand for niche lighting, leading to growth in global markets of LED general lighting, horticultural lighting, and smart lighting in 2021–2022 to different extents. As vaccination coverage increases in various countries, economies worldwide begin to recuperate. Since 1Q21, the LED general lighting market has witnessed a strong recovery. TrendForce estimates that the global LED lighting market size will reach USD 38.199 billion in 2021 with a YoY growth rate of 9.5%. The following four factors have made the general lighting market thrive at: https://www.ledinside.com/node/view/32209

30. **A Progress Report on Centro de Tecnología en Iluminación** - In 2017, the Mexican Ministry of Energy awarded international funding to the Universidad Autónoma de Guadalajara (UAG) in collaboration with the University of California Davis (UCD) to establish a lighting technology and design research center known as the Centro de Tecnología en Iluminación (CTI). This is a multi-year, public-private investment focused on addressing growing climate change concerns through translational research committed to clean energy and sustainability in Mexico. The purpose of CTI is to accelerate the development and adoption of energy-efficient lighting and daylighting technologies, as well as to help build talent and human capital for Mexico's lighting industry. CTI's research capabilities will help meet Mexico's long-term energy-efficiency and greenhouse gas emission reduction goals. Research: Mexico's New R&D Center – Illuminating Engineering Society (ies.org)

31. **RESEARCH: Automotive Lighting Market Study by FMI** - 2021 Analysis and Review: Automotive Lighting Market by Sales Channel – Original Equipment Manufacturers (OEMs) and Aftersales for 2021 – 2031. The automotive lighting market is expected to reach a valuation of US$34.7 Billion in 2021. According to Future Market Insights (FMI), the overall automotive lighting market is expected to grow at a CAGR of 6.3% for 2021- 2031. The global sales of automotive lighting are anticipated to surpass 1.813 million units in 2021. FMI presents a positive growth outlook for the market. In terms of volume, the automotive lighting market is predicted to expand at 5.2% CAGR over the course of the assessment period. Automotive Lighting Market: Global Sales Analysis and Opportunity 2031 | FMI (futuremarketinsights.com)

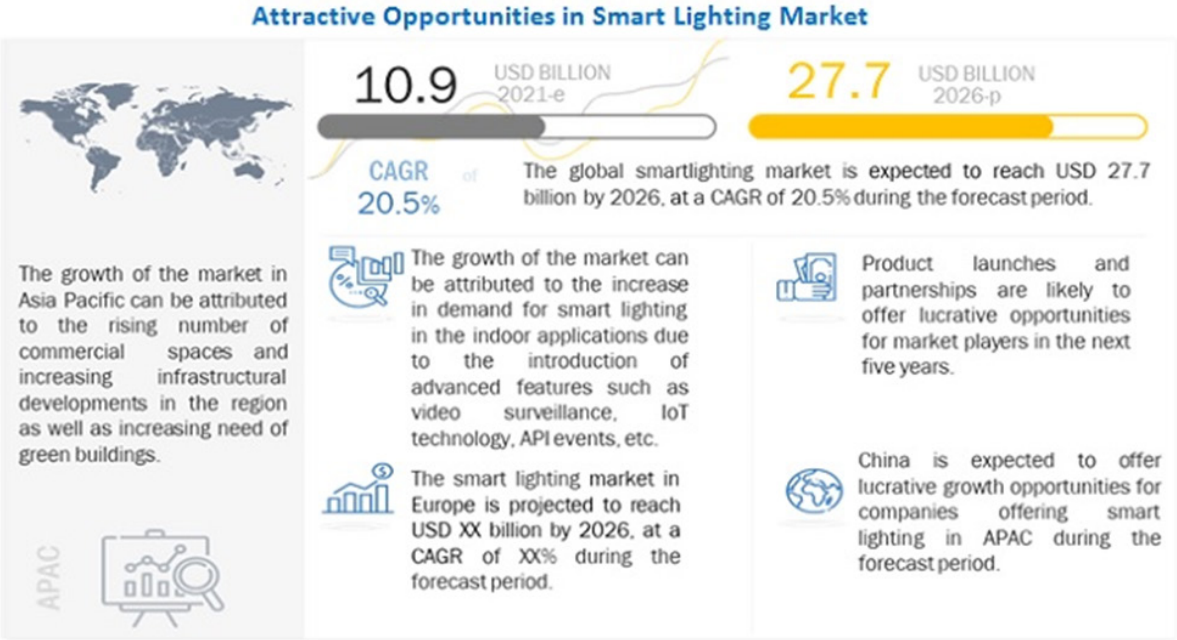
32. **Semiconductor Market to Grow 25% in 2021, Says WSTS** - The worldwide semiconductor market is forecast to surge 25% in 2021, according to the World Semiconductor Trade Statistics (WSTS). WSTS estimated previously a 19.7% increase. Following 6.8% growth in 2020, the worldwide semiconductor market is expected to grow 25.1% to US$551 billion in 2021, WSTS said. All major product categories will enjoy on-year increases this year, with memory set to register the largest growth, WSTS indicated. The memory sector is forecast to post 37.1% revenue growth in 2021, followed by the analog segment with 29.1% growth and logic with 26.2%. Semiconductor market to grow 25% in 2021, says WSTS (digitimes.com)

33. **Mackwell Health Announce Partnership with GE Current** - Mackwell Health announced a partnership with GE Current, a Daintree company to collaborate in the field of LED UV disinfection technology. The 365DisInFx™ UV technology leverages LEDs to help reduce the potential spread of certain common infection-causing pathogens. This allows for continuous disinfection in spaces while occupants are present. The partnership will extend this technology to the European, Middle Eastern and Australia/New Zealand markets. 365DisInFx™ Commercial UV Light for Room Disinfection | Current (gecurrent.com)

34. **LiFi Through Reconfigurable Intelligent Surfaces: A New Frontier for 6G?** - Light fidelity (LiFi), which is based on visible light communications (VLC), is celebrated as a cutting-edge technological paradigm that is envisioned to be an indispensable part of 6G systems. Nonetheless, LiFi performance is subject to efficiently overcoming the line-of-sight blockage, whose adverse effect on wireless reception reliability becomes even more pronounced in highly dynamic environments, such as vehicular application scenarios. Meanwhile, reconfigurable intelligent surfaces (RIS) emerged recently as a revolutionary concept that transfers the physical propagation environment into a fully controllable and customisable space in a low-cost low-power fashion. We anticipate that the integration of RIS in LiFi-enabled networks will not only support blockage mitigation but will also provision complex interactions among network entities, and is manifested as a promising platform that enables a plethora of technological trends and new applications. https://arxiv.org/abs/2104.02390

Monthly Feature:

The Smart Lighting Market Is Projected to Reach USD 27.7 Billion by 2026 from USD 10.9 Billion in 2021 – MarketandMarkets expects growth at a CAGR of 20.5%. Europe has the largest market share for smart lighting. Whereas, APAC has the highest growth rate and is expected to grow at the highest CAGR during the forecast period owing to the rapidly changing face of technology and customer needs in high-potential markets such as China, Japan, South Korea, and Australia. Due to advancements in technology and the emergence of new business models as well as new constructions in the developing cities of the region, the smart lighting market is exhibiting an upbeat outlook. The booming commercial and industrial sectors would further fuel the adoption of smart lightings in APAC. Furthermore, growth in end-use sectors and mounting investments from government bodies are also favoring the growth of the smart lighting market in the region. The most significant factor driving the growth of this market is the requirement of energy-efficient connected lighting controls and ongoing and upcoming smart city projects in developing economies. This requirement is attributed to the increased awareness toward reducing energy consumption. The advent of integrated lighting control systems, upcoming smart city projects in developing economies, increasing adoption and decreasing cost of LEDs, integration of lighting solutions with smart devices, and growing awareness about energy savings among consumers and governments worldwide are the major factors contributing to the growth of the smart lighting market. On the other hand, factors such as the high initial cost of deployment, and security and reliability issues of smart with IoT-based lighting systems are restraining the growth of the smart lighting market. Growing smart office and smart retail trends, geographical opportunities in APAC and RoW regions, development of human-centric lighting solutions, growing demand for PoE-based lighting solutions in commercial and healthcare applications, the rapid transition from traditional lighting to connected lighting, and the growing inclination toward energy-efficient lighting solutions are the major opportunities for the smart lighting market.



Smart Lighting Market by Offering, Installation Type, End Use Application | COVID-19 Impact Analysis | MarketsandMarkets™