



Amerlux's People-First Solution Boosts Comfort, Productivity

Amerlux announced that it will begin shipping in early 2020 an innovative lighting solution that caters to the needs of people inside the building. Amerlux's new [AERUS lighting solution](#)—which delivers a unique style and look compared to other indirect/direct pendants in the marketplace—maximizes technological advances in electronics and optics to create better work environments that promote productivity and employee health. The new Linea 1.5" Mini Indirect is part of a larger Linea product family: <https://www.amerlux.com>



- [Linea 1.5" Direct Wall Wash LED](#)
- [Linea 1.5" Direct LED](#)
- [Linea 1.5" Direct/Indirect LED](#)
- [Linea 2.5" Direct/Indirect LED](#)
- [Linea 2.5" Direct LED](#)
- [Linea 2.5" Indirect LED](#)

More Amerlux Innovation

National LED Energy Market Observer:

1. New Report: Energy Efficiency Efforts Have Made Significant Impact - The first-of-its-kind report from three entities — Alliance to Save Energy, the American Council for an Energy-Efficient Economy, and the Business Council for Sustainable Energy provides a consolidated analysis of the sweeping impacts of efficiency investments, policies, and innovation, and the potential energy savings still ahead across a variety of sectors including residential and commercial buildings, industry, and transportation. This "Energy Efficiency Impact Report" quantifies the scale of U.S. efficiency investments made over decades and their many impacts, ranging from energy savings, job growth, and reduced carbon emissions to public health and worker productivity savings. It notes these investments since 1980 have prevented a 60% increase in energy consumption and carbon emissions and are responsible for half of the carbon dioxide emissions reductions in the U.S. power sector since 2005. The new report uses 54 indicators to quantify energy efficiency impacts, drawing primarily on data from federal and international sources. It examines efficiency progress in a wide variety of sectors including utilities, buildings, industry, and transportation, and explores the impacts of policy and other market tools used to incentivize efficiency. The full report is published at: <http://energyefficiencyimpact.org/>

2. **DOE Study Validates TM-30 Color Preference Specification** - The ANSI/IES TM-30-18 results support TM-30 Annex E recommendations that allow lighting professionals to communicate different color rendition goals (preference, vividness, and fidelity) with far greater precision than prior methods. In the new study – the third in a The Pacific Northwest National Laboratory (PNNL) series – 90 lighting conditions with systematically varied color rendition and chromaticity were evaluated by 25 participants who provided ratings for normalness, saturation, preference, and acceptability. The lighting conditions were designed to test the bounds of previously proposed color preference criteria, while also verifying their applicability across different correlated color temperature and Duv values. In keeping with the preceding work, there were substantial differences in ratings based on color rendition, but minimal differences based on chromaticity. This supports the use of color rendition specification criteria that are independent of chromaticity (within the range of nominally white light). <https://www.energy.gov/>

3. **Energy Department Announces Winner of Sustainable Manufacturing of Luminaires Prize** - DOE announced the winner of the Manufacturing Innovator Challenge for Sustainable Manufacturing of Luminaires. BAMBOO PENDANT, Submitted by Brad Koerner, Koerner Design. The winning entry embodies DOE priorities to increase material and energy efficiency while improving building occupant comfort and quality of life. The design incorporates bio-derived and biodegradable, low-toxicity, sustainable materials and is applicable to net-zero-energy buildings. The forward-thinking design anticipates centralized DC power for buildings, allowing for simplified and efficient driver electronics. This entry also incorporates simple construction, fast disassembly, and reduced toxicity, which can help realize reduced lifecycle costs and liabilities. The design avoids adhesives and screws in large parts of the housing to aid end-of-life processing, while the flax-based printed circuit board and DC-power capabilities show innovation at many aspects of the electric power and manufacturing value chains. <https://www.energy.gov/eere/buildings/articles/energy-department-announces-winner-sustainable-manufacturing-luminaires>

4. **DOE Announced a Final Determination for Incandescent Light Bulbs** - On September 5, 2019 DOE proposed a determination that the existing standards for general service incandescent lamps (GSILs) do not need to be amended. After considering data and a wide range of public comments, today DOE is announcing its final determination that the existing standards for GSILs will not be amended because stricter standards are not economically justified. For more information on the final determination: https://www.energy.gov/sites/prod/files/2019/12/f70/gsil_final_rule.pdf DOE expects that progress to continue in the absence of more stringent standards for GSILs. LED bulbs and luminaires are anticipated to hold the vast majority of lighting installations by 2035.

5. **NEMA's New Lighting Standard Offers Performance Specifications for LED Lamps** - The National Electrical Manufacturers Association (NEMA) published ANSI C78.53-2019 American National Standard for Electric Lamps— Performance Specifications for Direct Replacement LED (Light Emitting Diode) Lamps. This new Standard describes the electrical, mechanical, and photometric characteristics of LED lamps that are direct replacements for existing ANSI standardized non-LED lamps. The primary audience for this Standard is manufacturers of LED electric lamps. ANSI C78.53-2019 is available for \$79 in hard copy and electronic download on the NEMA website. <https://www.nema.org/>

6. **NEMA New Standard Provides Specifications for Street Lighting** - The National Electrical Manufacturers Association (NEMA) published ANSI C136.58-2019 Luminaire Four-Pin Extension Module and Receptacle—Physical and Electrical Interchangeability and Testing. This new Standard provides mechanical and electrical specifications for interfacing street and area lighting with controls and sensor accessories. This Standard was developed for use by roadway and area lighting manufacturers, municipalities, and utilities. ANSI C136.58-2019 is available for \$50 in hard copy and electronic download on the NEMA website. <https://www.nema.org/>

7. **NEMA Applauds Announcement to Advance USMCA** - USMCA, as agreed and signed in November 2018, builds on and is intended to replace the North American Free Trade Agreement. USCMA includes many provisions that will advance North American cooperation and boost the region's global competitiveness. Once submitted to Congress under exclusive authority, legislation to implement USMCA is expected to move rapidly since amendments are not allowed. <https://www.nema.org/>

8. **NEMA Welcomes Decision to Delay, Reduce Tariffs as Part of Agreement with China** - The President and Chinese officials in Beijing announced December 13, the contents of a trade agreement that includes a commitment from the U.S. to suspend plans to place 15 percent additional tariffs on Chinese products effective December 15. The President indicated that 15 percent tariffs implemented on some Chinese goods on September 1 of this year would be reduced to 7.5 percent. The 25 percent tariffs on \$250 billion of Chinese goods targeted on three separate lists since 2018 will remain in place. The agreement includes commitments by China on intellectual property protection, financial services, currency and foreign exchange, and purchases of U.S. goods and services. No information was immediately available on when the agreement is to be signed. <https://www.nema.org/news/>

9. **Google Maps Reportedly to Add Lightning Feature to Improve Safety** - When arriving at a new place, Google Maps usually helps to locate our destinations and lead us there. However, some of the route might include streets and roads that are too dark or narrow which we would avoid when traveling at night but we could not find out until reaching there. To enhance travel safety, Google Maps is reportedly working on a new layer of "lighting," which marks brightly lit streets on the maps, reported XDA Developer. XDA Developer found codes in Google Maps v10.31.0 beta indicating that Google is adding a new feature to highlight streets with good lighting with yellow line and show streets with poor or no lighting. The function enables users to avoid streets without good lighting at night for safety reason. https://www.ledinside.com/news/2019/12/googlemaps_streetlighting

10. **Apple, Google and Amazon Are Cooperating to Make Your Home Gadgets Talk to Each Other** -Amazon, Google and Apple are all competing for people to buy products that work with their in-home-systems and are still trying to build a solution that's simple for everyone to use. But the competition itself has created a really confusing landscape for consumers and manufacturers of smart home products. According to September figures from IDC, the "worldwide market for smart home devices is expected to grow 23.5% year over year in 2019 to nearly 815 million device shipments." That figure is expected to grow to 1.39 billion devices in 2023. For that to happen, and for consumers to keep their sanity, consumers are going to need some sort of standard that gets everything talking to one another. That's why companies that typically compete against one another are teaming up. <https://www.cnn.com/2019/12/18/apple-google-amazon-zigbee-partner-on-smart-home.html>

11. **California to Debut First IoT Law** - Signed into law in September 2019, SB-327 Information Privacy: Connected Devices. According to market research firm IHS, London, current projections peg 30 billion connected devices in 2020 and more than 75 billion by 2025. With everything-connected networks and IP systems come additional risks. California's law requires all IoT devices made and sold in the state to be equipped with "reasonable security features" to protect the device and any information it contains from "unauthorized access, destruction, use, modification or disclosure." The law defines these devices as anything that connects directly or indirectly to the internet and has an IP or Bluetooth address, covering a wide range of devices and services. According to the law, all devices with a means for authentication outside a local area network (LAN) need cybersecurity safeguards in place. <https://www.ecmag.com/section/integrated-systems/california-debut-first-iot-law>

12. **Eaton and LRC Partner to Develop 3D Printing Luminaires** - Lighting Research Center (LRC) announced the partnership with Eaton to work on a project of additively manufactured LED-integrated luminaire, which is to use 3D printing technology to produce LED luminaires. The 3D printing luminaire development project is under funding from the United States Department of Energy and aims to address the main barriers to widespread adoption of 3D printing technology as applied to solid-state lighting. Over the next two years, the project partners will conduct material science, electronics, optics, and advanced manufacturing research to investigate the transformational potential of a fully additively manufactured, LED integrated luminaire, with a focus on reducing the cost of the luminaire's dominant subsystems. Components of a solid-state luminaire will be fabricated using additive manufacturing methods, including mechanical and thermal management structures, electrical and electronic structures (on three-dimensional representative substrates), and optical and light reflector structures. . <https://www.ledinside.com/>

13. **IES Issues Call for Speakers for 2020 Street & Area Lighting Conference** - Speaker proposals for the 2020 IES Street & Area Lighting Conference in Dallas, TX are now being accepted. Seminar sessions generally run 25-35 minutes. Speakers will be notified of acceptance for the conference program by early spring, and if accepted, final presentations will be due by summer 2020. submit a proposal. https://catalyst.omnipress.com/#event-home/ies_2020_salc

14. **Signify to Launch 3D Printing Manufacturing Facility in the US** - Signify recently unveiled its facilities to 3D print light shades and luminaires in the Netherlands, and plans to establish 3D printing factories in the US, India and Indonesia. The company has developed 3D printing methods using a 100% recyclable polycarbonate material, which allows luminaires to be bespoke designed or tailored to customer's exact needs. Signify aims to have up to 500 3D printers of different sizes with the ability to create luminaires up to 60 cm height and width. In January 2020, new Signify 3D printing facilities will be operational in Burlington, Massachusetts, US, serving both professional and consumer markets. Additional facilities in Noida, India and Jakarta, Indonesia will follow quickly after. LED lights will be integrated into the luminaires at all these sites. <http://www.lightnowblog.com/2019/12/signify-launches-3d-printing-manufacturing-facilities/>

15. **Lighting Industry Sues to Block California's Jan. 1 Expanded Light Bulb Efficiency Standards** - The lawsuit by NEMA and American Lighting Association, filed in U.S. District Court for the Eastern District of California, seeks to reverse the California Energy Commission's Nov. 13 decision to update its minimum efficiency standards for light bulbs, which added such common household types as the candle- and flame-shaped bulbs used in chandeliers and sconces, reflector bulbs used in recessed cans and track lighting, round globe bulbs, and the bulbs that can operate at three different light levels. The bulb types covered under the commission's expanded standards are the same ones that the U.S. Department of Energy previously eliminated from being covered by national lighting efficiency standards. The bulbs added by the commission fill 260 million lighting sockets in California. Energy efficient LED and CFL bulbs will continue to be sold in the state after Jan. 1 but incandescent and halogen bulbs will be removed from store shelves because they do not meet the minimum efficiency level of 45 lumens per watt. <https://www.nrdc.org/media/2019/191219>

16. **Autonomous Driving Technology and Smart City Solutions to Materialize the Future at CES 2020** - Each year the innovative products and technologies showcased at CES bring us closer to our imaginative future life. This year at the event, LiDAR manufacturers, sensor chip providers, automobile companies and other technology builders are joining force to present solutions for autonomous driving and smart city applications. <https://www.ledinside.com/>

17. **EW's LED Lighting Picks for December, 2019** - Congratulations to the project managers and marketing teams who had their products picked for this month's LED lighting product picks: Douglas Lighting Controls, EarthTronics, eos Light, Flex Lighting Solutions, Focal Point, Lind Equipment, Lutron Electronics, Spring Lighting Group, Universal Lighting Technologies, Inc. and WAC Landscape Lighting. Do you have a product you would like us to consider for our future monthly picks? Send a brief description of the product and high-resolution image (300 dpi or better) to Jim Lucy, Content Director, Electrical Wholesaling, at jim.lucy@informa.com <https://www.ewweb.com/>

18. **WESCO Jumps Into the Bidding to Buy Anixter** - An interesting series of events between December 23 and 24 has WESCO offering \$4 per share more than private equity group Clayton, Dubilier & Rice for the opportunity to buy Anixter International. On Monday, December 23, Anixter announced CD&R had raised its acquisition price from \$82.50 a share to \$86 a share, making the deal worth about \$3.9 billion. WESCO responded to the December 23rd announcement with one of its own on December 24, stating that it will offer \$90 a share to acquire Anixter. <https://tedmag.com/wesco-jumps-into-the-bidding-to-buy-anixter/>

19. **Detroit Receives \$4 Million Settlement over Defective Streetlights** - The city of Detroit will receive a \$4 million settlement from LED manufacturer Leotek Electronics over thousands of LED streetlights the city believed threatened to dim a third of its lighting grid, according to a recent report from The Detroit News. The city alleged that 19,500 lights were faulty, causing \$7 million in total damages. After the settlement, the Public Lighting Authority Detroit paid the remaining \$3 million. <https://www.detroitnews.com/>

20. **Ivanka Trump Will Reportedly Appear on a Panel at CES 2020** - Supposedly, she's slated as a headline speaker in a panel with Consumer Technology Association (CTA) President Gary Shapiro. Trump will deliver her speech on Wednesday, January 8th at 3PM in Las Vegas. Trump has been involved with a few tech initiatives as part of the Trump administration. She joined Google CEO Sundar Pichai at a tech jobs announcement in October and accompanied President Trump on a visit to an Apple production facility in November. In the past, Shapiro has spoken out against the Trump administration but following Trump's election, Shapiro has appeared to warm up to the commander in chief and his administration. <https://www.cnet.com/news/ivanka-trump-expected-to-speak-at-ces-2020/>

21. **The Replacements by Chuck Ross** - There's no doubt that LED-based lighting has rapidly become the favored option for both consumers and commercial building owners. But many consumers and business owners (and perhaps even a few electrical contractors) remain confused about what to look for in LED replacement lamps. This dramatic price drop has led to extraordinarily rapid adoption, with LEDs now accounting for 70.9% of consumer lamp market sales. However consumers' knowledge of what to look for with these lamps, as well as LED replacements for the reflector-style bulbs used in recessed downlights and track fixtures, can still be spotty. LED-based replacements are also moving into commercial and exterior settings at an equally rapid pace. Whether as fluorescent-style tubes, retrofit lighting kits or "corn cob" replacements for exterior metal halide lamps, LED products now dominate these markets as well. <https://www.ecmag.com/section/lighting/replacements>

22. **Companies Continue Their Transformation in 2019** - Many companies of the LED industry initiated their organization or business restructuring since 2018 and their rebuilding have come to an end in 2019. In 2018, we have seen companies announcing sales of their old lighting business and diving into new areas. By the end of 2019, most of the companies are ready to enter a new page with the coming 5G connection and more. Again LEDinside would like to wrap up the year with some of the significant events in the past year.

- a. Cree Concentrates on GaN-on-SiC Products, Cutting Lighting Business
- b. Osram Sold to AMS and Its Digital Lighting Unit May not Keep
- c. Signify Acquires Cooper Lighting and Launches LiFi Brand

https://www.ledinside.com/news/2019/12/led_companies_transformation_2019

23. **Five Micro LED Highlights You Can't Miss in 2019** - The year of 2019 was a fruitful year for Micro LED as the technology entering a more mature stage with increasing global manufacturers announcing their progresses and updates in Micro LED applications. LEDinside pointed out in its "2019 Micro LED Next Generation Display Key Technology Report," that with outstanding performance in brightness, contrast, response time and energy saving, Micro LED technology might out beat LCD and OLED and be adopted in wearable applications, automotive displays, AR/VR and large displays. In the past year, many of the Micro LED applications mentioned above have been demonstrated and more innovative products are expected at the coming big event CES 2020. LEDinside picked the top 10 Micro LED news in 2019 at: https://www.ledinside.com/news/2019/12/microled_high-light_2019

24. **LEDs Magazine's Top 20 Articles of 2019 by Carrie Meadows** - If there was a moment when we thought it might be a quiet year as 2018 closed, it quickly passed when many companies made big changes in 2019 — as reported in our top articles. <https://www.ledsmagazine.com/leds-ssl-design/article/14073721/leds-magazine-top-20-reveals-2019-as-a-business-rebuilding-year>

1. [Osram confirms it's in talks to be acquired, and overhauls an IoT segment](#)
2. [Signify will acquire the Eaton SSL business Cooper Lighting Solutions](#)
3. [Sapphire Awards finalists forge new paths in solid-state lighting](#)
4. [GE officially exits commercial smart lighting](#)
5. [Former Acuity IoT boss makes headlines](#)
6. [Signify ratchets up the Li-Fi trials, pureLiFi cranks the speed](#)
7. [Smart bulb pioneer LIFX acquired by IoT services specialist](#)
8. [Employees say lighting affects their productivity](#)
9. [Out with 'human centric,' in with 'nutritional light'](#)
10. [Over 1,000 companies now pay Signify for rights to luminaire and lamp technology](#)
11. [Is it time to say goodbye to blue-pump LEDs?](#)
12. [St. Peter's Basilica relights with LEDs](#)
13. [Oil and gas industry issues circadian lighting guidelines](#)
14. [Zumtobel CEO: "Li-Fi will play a decisive role"](#)
15. [Horticultural LED demos at LightFair illustrate the emphasis on red spectrum](#)
16. [LED business news: Cree sells lighting unit to Ideal; Amerlux, Echelon, and more](#)
17. [Target finally confirms that Acuity provides the IoT lighting](#)
18. [Security giant Securitas wants to redefine the way lights deter the burglars](#)
19. [University of Basel publishes sleep research tied to Seoul SunLike LEDs](#)
20. [Experts examine plant response to SSL and market potential at horticultural conference](#)

Global LED Energy Market Observer:

25. **Display Manufacturers to Quit LCD; Mini LED or OLED Might Take over to be the Next Leading Display Technology** - Global leading display producers are shifting the production focus from LCD display, cutting down manufacture facility or even quitting the business, majorly due to the fierce price competition and market transformation. The new display technologies, OLED, Mini LED are now competing to take over the role of leading display technology. Micro LED might also join the competition in the near future. <https://www.ledinside.com/>

26. **Wireless Platform Turns Square Mile into Smart City** - A WIRELESS control network encompassing 15,000 luminaires is set to turn the City of London into a 'smart city'. As well as lighting control, including dimming, the system supports applications such as traffic and parking monitoring, occupancy sensing, environmental monitoring and asset management. Already the system is monitoring the presence of the lifebelts on the riverbanks. The platform, supplied by Itron and Urban Control, is an open-source network based on the Wi-Sun Alliance mesh standard. The two-year project, which has already won a 2019 Lux Award is set to be completed in 2020. <https://luxreview.com/article/2019/12/wireless-platform-turns-square-mile-into-smart-city>

27. **Mini LED as Major Target for LED and Panel Producers in Taiwan and China** - Since the initial production began in the second half of 2018, Mini LED products including backlit panel and RGB displays are gaining more and more visibility in the industry with a wide range of applications launched in 2019 and the coming 2020. The LED industry players in Taiwan and China see the rising market of Mini LED and are putting their strength into product development and capacity increase. Epistar, as a Mini LED pioneer, has already shipped backlight product for high-end monitors, notebooks, automotive displays and smartphones. The company is going to double its capacity to meet the growing applications. <https://www.ledinside.com/>

28. AMS Acquires Osram - In a dramatic race to the finish line, the Austrian sensor company gets enough shares to take over the world's second-largest lighting company, approvals pending. With an eleventh-hour surge of commitments from Osram shareholders, Austrian sensor company AMS has succeeded in its bid to acquire Munich-based Osram. Just after 5:30 PM CET Dec. 6, AMS announced that it had "exceeded" 55%. It outright owns 19.9% of the shares, and, in a tendering process, Osram shareholders have indicated their willingness to sell the balance to AMS. The acquisition, which has faced employee opposition at Osram, must still pass approval by antitrust and foreign trade regulators. <https://www.ledsmagazine.com/leds-ssl-design/article/14073258/ams-acquires-osram>

29. AMS' Acquisition of Just-Enough Osram Shares Leaves It Needing More for True Control - AMS has revealed that it barely squeaked by its minimum threshold for acquiring Osram, garnering 59.3% of shares. While the amount met the required 55%, the Austrian sensor company still faces a battle for full control of Osram cash, and will also have to deal with aggrieved employees. But even though ams now has governing control of Osram, it is well short of the 75% it would need to control Osram cash flow, under German "domination agreement" laws that hold sway in the country's mergers and acquisitions. The details of the takeover will continue to unfold. <https://www.ledsmagazine.com/>

30. Telensa Partners LIGMAN to Provide Smart Street Lighting and Smart City Sensing to Asia Pacific Market - Telensa and LIGMAN today announced that they have signed a partnership agreement to combine LED luminaires and wireless controls. With energy and carbon reduction increasingly in the forefront of many cities' agendas, switching lighting to LED is an obvious next step. Including wireless controls maximizes the benefits of LEDs, generating further energy and maintenance cost-savings, and smart city sensing. <https://www.ledinside.com/>

31. Wiltshire Expands Its Smart Network to 42,000 Street Lights - Wiltshire Country Council in South West England has added another 7,000 street lights to its smart lighting network, making a total of 42,000. The controls are being upgraded as part of a broader LED replacement program for which Ringway is the contractor and Atkins is the consultant. The combination of Telensa smart controls and advanced LED lights from Urbis Schröder has enabled the Council to implement sophisticated lighting profiles that save energy and create a more pleasant urban environment. The project is due for completion in October 2021. Telensa PLANet is an end-to-end intelligent street lighting system, consisting of wireless nodes connecting individual lights, a wireless network and a central management system. <https://luxreview.com/article/2019/12/wiltshire-expands-its-smart-network-to-42-000-street-lights>

32. LUX Reviewed: Wallwashers by Alan Tulla - A proper wallwasher has a specially designed optical system so that you can achieve even illumination on a wall from top to bottom and, where you don't want a continuous run, wide spacings between the luminaires. Obviously, you can achieve uniform illumination on a wall if the luminaires are a long way from it. The trick with a wallwasher optic is to produce an even illumination, top to bottom and side to side, when the fittings are mounted close to the wall. This technical information is sometimes presented as the height of the wall compared with the setback or offset distance.

Related articles:

- [Lux Recommends: LED ceiling panels](#)
- [Lux Recommends: LED tubes](#)
- [Lux Recommends: Industrial lighting](#)
- [Framing spotlights](#)
- [Reviewed: Lighting control sensors](#)
- [Reviewed: LED battens](#)

33. Rotterdam Installs "Street Light of the Future" - A pilot will start in January with three units of the Connective Energy Network Tool - Rotterdam (CENT-R) installed in the Reyeroord district of the city. Dutch manufacturer Lightwell says the trial will enable the city to work towards an infrastructure filled with smart city applications. The multifunctional streetlighting pole can double as a power socket for electric cars, a 5G transmission tower, a CCTV unit, an air quality monitor – and anything else a city might ask for. With its circular and modular design, future changes are easy says Lightwell, allowing it to be continuously updated with the latest technological innovations and serve as a marketplace for partners with applications that can benefit citizens of the city. <https://luxreview.com/article/2019/12/rotterdam-installs-street-light-of-the-future->

Monthly Feature:

10 Things We Learned in 2019 by LuxReview -

<https://luxreview.com/article/2019/12/10-things-we-learned-in-2019>

It's been a funny old year in the lighting business. We spent the first half trying say 'Signify' instead of 'Philips' and the second half wondering who's going to buy Osram. And we've learned a LOT, mainly from scientists, about light and er, cows. Here's our stand-out takeaways from 2019:

- 1. Blue LED lighting increases ageing** - Prolonged exposure to blue light, such as from LED lighting and devices such as mobile phones, could be affecting your longevity, even if it's not shining in your eyes. A study by Oregon State University suggests that the blue wavelengths produced by LEDs damage cells in the brain as well as retinas. The work involved testing the effects of light on a common fruit fly, an important model organism because of the cellular and developmental mechanisms it shares with humans.
- 2. You can use Bluetooth for location-tracking** - Earlier this year, Bluetooth unveiled a direction-finding feature that means Bluetooth-enabled lights could be used for way finding, location tracking and proximity services. The feature allows devices to determine the direction of a Bluetooth signal, thereby enabling the development of so-called 'proximity applications' such as asset tracking. The launch of Bluetooth location-tracking will rival Philip's YellowDot programme which allows certified LED luminaires containing YellowDot drivers to be interoperable with Philips' technology.
- 3. You can make luminaires from concrete** - The world's first light fittings made from light-emitting concrete were unveiled in April. The material is a mixture of fine concrete and tiny light-transmitting fibres. Each luminaire – which is made in Germany by Lucem – features hundreds of thousands of embedded optical fibres which transmit the light incident on the back through the material. The manufacturing process is highly complex and requires numerous steps, some of which are patented. The light-transmitting concrete panels boast 200,000 light-transmitting fibres per square metre.
- 4. The right light can stop meat from discolouring** - Even when stored and displayed in refrigerated cabinets, pre-packed meat discolours over time. UK supermarket Coop had a particular problem: the pre-packed meats – including sliced hams, chicken, salami and chorizo – started to discolour within 24 hours of shelf stacking. Philips installed a version of its InteGrade narrow beam fixtures which use the low-powered LED chips in a 30-degree narrow beam arrangement. After eight days, the meats closest to the mullions showed minimal discolouration, though still at acceptable levels.
- 5. Light can boost the quantity of milk from cows** - James Bruna of South Alston Farm in Cornwall is one of hundreds of UK dairy farmers who has seen milk production boosted...by lighting. Bruna estimates that his investment in lights has increased yield by 2,000 litres per cow lactation period, an increase of a fifth over average. Milking cows exposed to 16 to 18 hours of light with a brightness of at least 160-200 lux followed by six to eight hours of darkness have consistently increased their milk yield by 10 per cent.
- 6. The luminaires for Crossrail will have an output of 58,000 lm** - Luminaires on the new £15 billion Crossrail railway project in London will have an output of 58,000 lumens. The primary lighting in the new stations will rely on custom, high-output, upright LED luminaires that indirectly illuminate the space via reflective surfaces on walls and ceilings, creating a sense of spaciousness. The indirect lighting concept created unique challenges for the project team while promising to result in a pleasing space for the millions that will use Crossrail, recently renamed the Elizabeth Line.
- 7. You can now get downlights with Alexa built in** - The industry's first downlight with built-in voice control by Amazon's Alexa was unveiled by Eaton in the summer. While Alexa is becoming increasingly common for lighting control in the residential sector, this is the first luminaire to have the voice-control assistant completely built into a standard-sized unit. As well as the LED unit and driver circuitry, the Eaton Halo Home Voice downlight includes two tiny microphones, a processor, and enough memory to support Alexa control.

8. **To reduce jet lag, get a private jet** - The next generation of private aeroplane is set to feature 'the most advanced circadian lighting system in aviation', said its maker Gulfstream. The lighting in the £58 million flagship G700 will recreate sunrise and sunset through thousands of white and amber LEDs, 'gently coaxing' its high net worth passengers into their new time zone and 'greatly reducing the physical impact of traveling halfway around the world nonstop', says the company. Oh, and it can fly 7,500 nautical miles at Mach 0.85.

9. **Blue and red lighting keeps office workers alert** - A combination of blue light in the morning and red light in the afternoon is best for keeping office workers alert, a study showed us this year. Researchers from the Lighting Research Center (LRC) at Rensselaer Polytechnic Institute and the U.S. General Services Administration have just published the latest in a series of analyses exploring how light impacts alertness during the day and the quality of sleep. The study tested a special luminaire developed by the LRC.

10. **British lights may get a new symbol after Brexit** - UK manufacturers of lighting may replace the CE mark in the British market with a new 'UK Conformity Assured' symbol in the event of a no-deal Brexit. If there is no agreement between the EU and the British government at the end of 2020, the UKCA symbol could start appearing on luminaires. It is designed to assure buyers that the lighting equipment complies with all the relevant standards. The rules will mirror those which currently apply for the CE marking.