

Aircraft LED Market: Current Analysis and Forecast (2024-2032)

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Abstracts

LED lighting systems are widely used for aviation purposes by the aircraft industry through advanced light-emitting diode (LED) technology for interior as well as exterior illumination. The modern illumination system substitutes traditional incandescent and fluorescent lighting with lighting fixtures that bring high energy efficiency, extended operational time, and superior functioning. The interior LED lighting system includes a cabin illumination system along with reading lamps, and cockpit lighting which uses adjustable mood settings for better passengers' comfort and jet lag reduction. The complete set of exterior navigation lights such as landing lights, taxi lights, and anti-collision lights functions through LED illumination to enhance visibility while boosting safety levels and resisting harsh conditions. Additionally, operational costs decrease for airlines as LEDs require less maintenance and generate less heat as compared to other classic lighting systems. The lightweight design of these systems helps improve the aircraft's fuel efficiency. These days, modern aviation relies extensively on aircraft LED systems which implement adaptive brightness controls, and customizable colors as well as IoT capabilities through smart lighting advancements.

The Aircraft LED Market is expected to grow with a significant CAGR of 9.72% during the forecast period (2024-2032). The aircraft LED market is expanding because the aviation industry requires durable and lightweight lighting solutions with energy-efficient performance. With technological advancement in the LED sector, the airline industry is adopting LED technology to minimize fuel usage while cutting expenses and producing more efficient lighting which enhances passenger comfort. Moreover, the Federal Aviation Administration (FAA) along with the European Union Aviation Safety Agency (EASA) promotes environmentally friendly solutions to accelerate LED adoption through their regulatory efforts. The market for LED lighting systems experiences continuous growth because of rising new aircraft production rates for commercial, and private use

as well as military needs and retrofit activities for existing fleets.

For instance, in April 2023, Aveo Engineering Group announced that it had purchased a one-acre commercial site in Palm Coast, Florida near its existing facility. Aveo will be adding 12,000 square feet of new construction, primarily dedicated to increasing company capabilities in engineering, product customization, and distribution. Through this expansion, the company expects to enhance its aerospace market. Additionally, Aveo uses highly efficient LED lighting technology in its aircraft, which will further assist in escalating the aircraft LED market.

Based on the aircraft type, the aircraft LED market holds the highest demand in commercial aircraft because commercial jet delivery rates remain high. Due to increasing air travel, commercial aircraft concentrate on obtaining both reduced costs and fuel efficiency. Airlines implement LED lighting systems to improve cabin interiors, navigation lights, and landing lights which deliver better passenger satisfaction, lower maintenance costs, and fulfill aviation regulations. Additionally, retrofit programs for aging aircraft fleets have prompted increased acceptance of LED lights in the industry. However, the military aircraft sector is expected to show high growth as defense budgets increase. LED implementation advances within the military aviation sector to boost operational effectiveness at night, leading to high growth in the forecasted period.

Based on the application category, the interior LED segment has the largest share in the aircraft LED market compared to the exterior LED segment because of the rising demand for new-generation, efficient, and versatile cabin lighting solutions in commercial aircraft, business jets, and VIP aircraft. The cabin lighting consists of mood lighting, reading lighting, and many customizable LED systems that are highly implemented in the aircraft industry to increase passenger comfort, reduce jet lag, and offer an impressive flying experience. Also, the long life of LED interior lights and the decreased need to replace them make it even more economical for airlines, which also leads to its increased usage. However, the exterior LED segment is expected to share a larger growth rate in the future due to increasing safety concerns and the introduction of enhanced high-intensity LED technology. This growth is being driven by the growing military sector that demands the use of low-energy LED landing lights, navigation lights as well as anti-collision strobes.

The OEM (Original Equipment Manufacturer) segment holds a significant market share in the aircraft LED market due to the large number of new commercial and

military aircraft, which are being manufactured and are equipped with advanced LED lighting systems. The leading aircraft manufacturers are increasing the application of highly potential and advanced LED solutions in their new aircraft to meet the necessary regulatory standards, increase efficiency, expand durability, and improve passenger experience. However, the aftermarket segment is expected to show high growth in the future, due to several factors such as modernization of the fleet, retrofitting programs of the old aircraft, and strict aviation safety regulations.

For a better understanding of the market, the growth of the aircraft LED market is analyzed based on their worldwide adoption in the aviation sector in regions such as North America (U.S., Canada, and the Rest of North America), Europe (Germany, France, U.K., Spain, Italy, Rest of Europe), Asia-Pacific (China, Japan, India, Rest of Asia-Pacific), Rest of World. The Asia-Pacific region is expected to have the highest growth in the future. This growth is driven by the increasing investments in the commercial aviation sector. The rising flight demand in Asia-Pacific emerging countries such as China, India, and Southeast Asian countries leads airlines to increase their aircraft numbers, to cater to the needs and demand of the passengers. Aircraft manufacturers in the U.S. and Canada are increasingly adopting these latest aircraft LEDs, in their aircraft to increase efficiency, reduce operation costs, and enhance passenger experience, leading to high potential growth in this region.

Some of the major players operating in the market include Honeywell International Inc., Heads Up Technologies, Astronics Corporation, Oxley Group, Beadlight Ltd. (Original BTC Limited), Soderberg Manufacturing Company Inc., Precise Flight Inc., Whelen Aerospace Technologies, Aircraft Lighting International, BaseWest Inc.

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