Stefan Vilner steers JetBird
PrivatAir straddles the divide
Shopping spree for DAE
Gulfstream talks technology
Cabin lighting lifts the mood
Transition from other sectors

Alan Oliver is the Sales and Marketing Director of Beadlight in the UK. His company specialises in intelligent solid-state lighting systems for three sectors: professional task lighting, architectural decorative lighting and aircraft.

He talks of lighting technology transitioning from one market to another with hotel and cruise ship lighting technology now influencing lighting in the aircraft cabin. "Primarily our business has been in first and business class aircraft cabins, with private jets also addressed because of the overlap between these two sectors," comments Oliver.

"Obviously everything is subject to testing but ultimately we can provide almost anything a customer is looking for," comments Oliver.

Beadlight’s aerospace cabin lighting products are very much seat-oriented. There is a flexible product which comprises a shaped lamp head incorporating LED technology and Beadlight’s diffusion system. The swivel lighting product is an LED light that sits flush in the seat surround when in the "off" position. The Beadlight capsule offers diffuse colour washes, mini-bar illumination and bespoke table lights. Each light is designed with the customer’s electronic, mechanical and programming requirements in mind.

lights, cry-ball lights, in vanity mirrors and many more products that may be built into or near the passenger’s seat.

Changing the mood

Airline influence aside, there is nothing like experimenting with lighting to shift the mood of the cabin. EMTEQ Lighting & Cabin Systems too is a supplier of LED technology for private jet cabin lighting. It offers indirect wash lighting systems to direct lights, reading, marker, accent and emergency lighting.

"Were involved in all the lighting in the cabin and in the cockpit for that matter," comments Ed Callahan who is responsible for the business jet and helicopter markets at EMTEQ.

He says private jet owners are looking for three results from their cabin lighting schemes: higher functionality — that would be dynamic lighting systems managed through a cabin management system; enhanced aesthetics — that is lighting that is more design led and that enhances the design of fabrics and fixtures; and increased reliability along with reduced weight.

LED moodwash lighting is most definitely an area that has shown significant development in the last couple of years. Callahan comments: "This is a technically advanced product which has been in the market for the last two years. A lot of customers are looking for an integrated cabin experience." He explains that EMTEQ has had requests for mood lighting which combines lighting effects simultaneous with other functionality, such as sunset lighting with seat heating.

"The cabin interior designers are really going for a holistic cabin approach. They want the cabin management system, the lighting system, the in-flight entertainment system and the seats to be on the same page. In some cases we develop products and in other cases we work extremely closely with other providers to make sure that everything is integrated," remarks Callahan.

Further, most cabin designers are opting for hidden lighting options, adds Callahan. But he adds that mood lighting is being taken up throughout the cabin, even in the lavatories and the galleys. "Clients want to experience the benefits of lighting but they do not want passengers to focus on the lighting components," he comments. Boundaries are being pushed, says Callahan, to the extent that customers are asking for the whole cabin ceiling to light up using many different products.

EMTEQ is just one of many suppliers experimenting with the mood of the cabin through lighting, B/E Aerospace offers its Full Spectrum Digital Mood Lighting product to fulfil mood lighting requirements, explains Ramos.

"Mood lighting affects the psychology of the passenger and this too is being driven by the commercial airlines," says Ramos. After all, airline tend to have more range and longer flight times than most business jets and so the impact of the cabin environment on the psychology of the passenger is a very important component to the success of an interior design.

An end to end solution

Developing a total cabin lighting solution is the aim for Sven Koppert, Business Development Manager at Goodrich Interiors’ Lighting Systems division in Germany (formerly part of Hella AG, an automotive company with an aviation lighting unit). He explains that Goodrich’s relationship is very much with completion centres and OEMs rather than the end customer. There is a very strong relationship with Airbus on the commercial airliner side and a long cooperation with Bombardier on the business jet side. In fact Goodrich developed the first LED wash lighting system in a series production business aircraft — that is for the Global 5000 which is offered to customers as a complete aircraft and not just green.

With this new lighting product already developed for Bombardier, Goodrich was then able to take it to the market to offer it for other applications.

"Goodrich is able to provide the entire
The light fantastic

The airline industry is trailblazing new concepts in cabin lighting and the private jet community is fast picking up on them. Jo Murray speaks to the cabin lighting providers to find out what is driving the design of the lit private cabin environment and why airlines have become leading lights.

Easy-on-the-eye luxury aircraft interiors deserve to be lit to their best advantage. Gone are yesterday’s eye-watering lighting strips and blink-inducing spots; today’s cabins are gently lit with mood-enhancing colours and generous task lighting that does not overwhelm the overall effect.

Frank Ramos is the Senior Product Line Manager of the lighting division of B/E Aerospace’s Business Jet Group – the former Aerospace Lighting Corporation (ALC) operation based in Holbrook, NY – which focuses on cabin lighting for both business jets and premium airline cabins. He talks in terms of the cross pollution between commercial airline applications of his company’s lighting products and private jet applications, and demonstrates just how sophisticated the wash lighting, seat lighting and task lighting in premium class airline cabins have become.

"One of the reasons the market is driving the other way is purely economic: from a commercial aspect, if you are going to retro-fit a fleet of 747s, you can afford the time and expense of the full FAA process," comments Ramos. Of course private jets rarely come in large fleets and the economics of certifying new products on a case by case basis simply do not stack up. "The upshot is that we certify these products on the commercial side and then we are able – by similarity – to achieve certification for private jet applications. Obviously we can scale the lighting products for each aircraft type," says Ramos.

"We cut our teeth in the business jet side of the business. We hold numerous patents on the fluorescent lighting systems used in many aircraft from OEMs such as Bombardier, Cesna, Dassault, Gulfstream, Hawker and Learjet. Our fluorescent lighting systems are still flying today in many business jet aircraft throughout the world," comments Ramos. "As the business jet community continues to evolve and seek more cutting edge technology, we now introduce concepts and products developed for the commercial airline market to the business jet world."

Ramos continues: "Now we have a number of active programmes for business jet customers that utilise derivative products developed for the super first class category of commercial airlines. We are successful in serving these two markets with similar products because the higher end first class offerings in the commercial side are targeting the same type of passenger with similar expectations as the business jet market customer."

B/E Aerospace goes to the market two different ways. "Firstly we go to the OEMs to become designed in on part of the original equipment and become part of the original type certificate," explains Ramos. "Secondly we do a lot of work with the completion centres." B/E Aerospace’s products include wash lights, task
lighting system in a cabin. This includes the wash lighting, the reading lights, table lights, accent lights, mirror lights, emergency lights and any other applications the customer has in mind,” comments Koppert.

“The trend today is away from fluorescent tubes for wash lights and away from incandescent or halogen lights for other applications, and towards LEDs.” Koppert explains that the reason for this trend is the longevity of the products. “Considering the low usage of VIP aircraft, LED lights can simply be installed and forgotten,” he remarks.

He points to a further important shift in this market which is away from switches for single lights and towards changing the ambiance of the cabin through a control panel. “Our system can come with central intelligence which can offer pre-settings prior to flight. This allows you to alter the settings of the different lights in order to achieve the ambiance required during different flight phases using different colours and dimming levels,” comments Koppert. “This can either come into play through a button in the arm rest or a button close to the passenger, and/or through the cabin management system which usually comes with a touch screen, depending upon the size of the aircraft.”

Lighting the future

Given the innovation already seen, the future for cabin lighting is bright. Gerhard Zwickel is an expert in aviation lighting and spokesperson for Schott AG in Germany, on EASA Part 21 supplier of lighting products. He explains that Schott’s aircraft cabin lighting products have grown out of its fibre optic reading light range, which has now mostly evolved into LED products. Beyond this type of lighting, Schott has developed LED lighting systems for installation within cabin components and fixtures. Mood lighting – which plays with the overall aircraft lighting scheme – is regarded as standard and also comes within its portfolio. Schott’s customer is often the seat manufacturer with the aircraft owner having already chosen Schott’s products for installation in the seat. Zwickel explains that the future for this type of technology very much revolves around LED technology: “In the future, most of the lighting systems in an aircraft will be LED based,” comments Zwickel. “The tendency for mood lighting will continue but I believe the white light will be produced with white LEDs because of the struggle to get the right colour temperature and alteration over time from RGB light.”

He continues: “In terms of new materials, we are seeing combinations with fiber optics which are very simple to qualify. The major advantage of using a combination of LED light and fiber optics is that there is no heat from the light outlet. This means that you can actually bring light to areas in which it is not possible to bring LED light. It also creates new design features and unlimited design alternatives for cabin designers.”

What might seem a limited cabin component becomes – in the hands of companies like Schott – a tool to set off and display all the other design features of the cabin. There is no doubt that there will be more innovation to come; equally we can be sure that lighting arrangements for private aircraft cabins will be inspired by not only airliner premium cabins but also by architecture, the entertainment world and the natural environment.

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