

**SPD-SMART AIRCRAFT WINDOW SYSTEMS:
DRAMATICALLY IMPROVING THE PASSENGER EXPERIENCE**

The value that SPD-Smart Electronically Dimmable Window (EDW) systems deliver to all segments of the aerospace industry were highlighted at two recent major aviation shows.

Woodbury, NY – October 27, 2014. General aviation and commercial transport aviation are very different in many respects, yet they share a common goal: improve the passenger experience. Features addressing this goal include improved connectivity, more entertainment options, and pleasing and comfortable interior design. The aerospace industry's emphasis on improving the passenger experience was clearly evident at two recent major aviation events: the October 14-16 AIX Americas show (a commercial transport aviation show) and the October 21-23 NBAA show (a general aviation show). SPD-Smart electronically dimmable window (EDW) cabin systems were featured at both shows, and they offer all segments of the aerospace industry a potent and unique solution to improving how passengers feel while in flight.

SPD-Smart EDW systems use Research Frontiers (Nasdaq: REFR) patented SPD-Smart light-control film technology as the foundation that delivers unprecedented benefits to all passengers on board all types of general aviation and commercial transport aircraft. At the touch of a button, passengers at each window have the ability to instantly and precisely control the amount of daylight and glare coming through their window. They continue to enjoy views by tinting their SPD-Smart EDW to control the amount of sunlight and glare to a comfortable level, rather than blocking their entire view with a shade.

The comfort and benefits an SPD-Smart EDW cabin system delivers extends to all passengers – it is not just for those with window seats. Cabin-wide control of the amount of light and glare entering the aircraft improves the flying experience for everyone, regardless of where they are seated. The management and “harvesting” of healthy daylighting instantly transforms the interior at the touch of a button, and synergistically complements other cabin systems, such as interior mood lighting systems and in-flight entertainment systems, for an unequalled passenger experience.

On commercial transport aircraft, from 66% to 80% of passengers are not seated at windows, yet studies show they still place an extremely high value on the windows. Benefits include the daylight windows provide, maintaining their connection to the outside world, an increased perception of space in the cabin, and other benefits. On general aviation aircraft such as private or business jets, passengers are also not all seated at a window, and some windows have no passenger in close proximity. As a result, without an SPD-Smart EDW system, it is problematic with other more conventional shading systems to make shading adjustments at each window to block sunlight, and it is also impossible to maintain a constant level of daylight in the cabin. SPD-Smart EDWs are offered with an option to have each window on the aircraft automatically allow in the same amount of daylight. The level of cabin-wide daylighting can be set by the owner or passenger, and by use of photosensors, each window adjusts the amount of light entering, in reaction to changing outside conditions. These adjustments are made automatically and continuously in real-time, because an SPD-Smart EDW adjusts instantly.

Aircraft windows are a primary path of other environmental elements entering an aircraft cabin through the window opening, including heat and noise. These unwanted elements – cabin heat while the aircraft is at the gate or on the taxiway, and cabin noise during the entire flight – are well known to cause passengers discomfort, fatigue, jet lag and other physical and psychological ailments. SPD-Smart EDW systems, with their multilayer laminated configuration of films and interlayers, provide unprecedented thermal and acoustic insulation, benefitting all passengers on board all types of aircraft.

At the October 14-16 AIX Americas show, Research Frontiers licensee Vision Systems and their strategic partner Vaupell, a leading supplier of interior components and assemblies to commercial aircraft OEMs, showcased Vision Systems' SPD-Smart EDW systems, integrated with Vaupell's window assemblies. The system was demonstrated to OEMs, airlines, and executives responsible for improving the commercial airline passenger experience. The exhibit included a mockup of Vision Systems' new SPD-Smart ultradark EDW. Nuance Ultra Dark provides cabin darkening sufficient for all passengers wishing to sleep, even on long-haul trips when the sun is shining directly on windows.



At the October 21-23 NBAA show, Epic Aircraft unveiled a mockup of their soon-to-be-certified E1000 aircraft. This mockup featured Vision Systems' SPD-Smart EDWs. The E1000 uses carbon fiber composite material in the airframe, and as a result larger, and a greater number, of passenger windows are possible. This provides many passenger experience benefits including greater daylighting, enhanced views, and a more open feeling resulting in greater perceived space. These windows could have presented a light, glare and heat challenge, however the Vision Systems' SPD-Smart EDW system provides the elegant solution.



The benefits that SPD-Smart aircraft EDW systems deliver to all passengers on board all types of aircraft is being covered by the aerospace media. For an example, we invite you to read [the article](#) published by *Aviation International News* at last week's NBAA show, about Research Frontiers licensee Vision Systems and their innovative SPD-Smart EDW systems.

At NBAA, Vision Systems showcased a variety of their SPD EDW innovations at their booth. For details, we invite you to read Vision Systems' [press release](#). One of these innovations, Vision Systems' Energia SPD-Smart EDW, was also featured this past week by Research Frontiers President and CEO Joseph M. Harary during his presentation at the glass industry's largest trade show, the October 21-24 Glasstec 2014 show in Dusseldorf, Germany. Energia is an EDW producing its own energy from the sun, using integrated transparent photovoltaic cells that allow energy storage in a battery to provide the EDW with electricity. Energia can generate twenty times as much energy as it uses, and is a unique green solution for solar harvesting and protection in a variety of industries. In aerospace, benefits include ease of aftermarket retrofit installations, and a USB charging port right at the window to allow passengers to use solar power to charge their mobile phones and other electronic devices.

About Research Frontiers Inc.

Research Frontiers is the developer of SPD-Smart light-control technology which allows users to instantly, precisely and uniformly control the shading of glass or plastic, either manually or automatically. Research Frontiers has built an infrastructure of over 40 licensed companies that collectively are capable of serving the growing global demand for smart glass products in automobiles, homes, buildings, museums, aircraft and boats. For more information, please visit our website at www.SmartGlass.com, and on [Facebook](#), [Twitter](#), [Linked-In](#) and [YouTube](#).

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