SkyLens™ wearable HUD brings a new vision in flight deck avionics to business aircraft. Ideal for retrofit or forward-fit, SkyLens is the all-weather EFVS solution. Lightweight, comfortable and easier to install than fixed-mounted HUDs. Vive la révolution!

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Stacy Honda
Managing Editor

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The application of Integrated Modular Avionics (IMA) has increased considerably over the last two decades and can be found in all classes of aircraft today. As we move toward a more simplified and augmented future of flying, the use of IMA is expected to accelerate even more.

What is IMA?
Integrated Modular Avionics is a shared set of flexible, reusable, and interoperable hardware and software resources that, when integrated, form a platform that provides services to host applications performing aircraft functions. Historically, these functions would have been contained in separate processors and Line Replaceable Units (LRU) like the UA UNS-1Lw SBAS-FMS. Oftentimes, this adds to an aircraft’s power requirements and weight, and therefore, fuel and operating costs. With an open IMA architecture, there is a physical integration of networks, modules, and Input / Output (IO) devices.

When did the technology first come to market?
The IMA concept originated in the early 1990’s with the design of the fourth-generation jet fighters. By the end of the 1990’s, first uses of the concept were being developed for business and regional jets and were soon flying by the beginning of 2000. Eventually, IMA became more standardized, moving over to the commercial airline world by the end of the 2000’s. Today, aircraft platforms such as the Airbus A350, ATR 42 and 72, Boeing 777 and 787, and Gulfstream G280 feature an IMA architecture.

What benefits does it offer?
Simplicity – from hardware and software development and design to integration, maintenance, and operation, IMA offers a simplified process and more efficient network. Of course, easier integration and maintenance for installers equates to cost savings for the operator.

While the overall process is simplified, it does not mean the functionality is ‘simple’ in the sense that it is basic. Rather, IMA offers an increased availability of avionics functions that are more advanced and reliable than ever. Even more importantly, with future changes and upgrades cheaper and easier to accomplish, IMA is uniquely designed for growth and change.

What does the future look like for IMA?
Forward-fit market trends are moving in the direction of IMA architectures made up of software-based avionics, especially Flight Management Systems (FMS). At UA, we believe IMA is where this market is heading – the future of flying, and we’re seeing a high level of interest in it.

Revolutionary, Meet Evolutionary
UA continues to take the avionics industry forward with the latest iteration of its flagship product, the Flight Management System (FMS). Designed from the ground-up by a company with decades of flight management experience, the next generation ClearVision Interactive FMS (i-FMS) presents a new FMS to the market for easier management of all phases of flight – from flight planning to takeoff, approach, and landing. The i-FMS offers the latest in connectivity between Head-Up Displays (HUD) and Head-Wearable Displays (HWD) and the flight deck itself, allowing pilots to safely ‘fly-by-sight.’

The i-FMS is a software-based FMS designed to be an end-supplier solution for flight management in an IMA infrastructure. The portable FMS with highly modular architecture is ready for deployment to any ARINC 653 compliant platform and a separate Human Machine Interface (HMI). The ARINC 653 compliant system allows customers to run the application in many third-party options to best suit their flight deck, with no need for specific hardware or Line Replaceable Units (LRU). The HMI, implemented with an ARINC 661 User Application, connects to the core operating system and allows pilots to communicate with the application. With UA’s easy-to-use, customizable HMI, customers can design their own flight deck with the hosted FMS software.

Learn more at www.uasc.com/i-FMS.

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Influence of ADS-B Out in the European Market

When it comes to the European aviation market, two technologies seem to be driving demand the most: Automatic Dependent Surveillance – Broadcast (ADS-B) Out and Localizer Performance with Vertical Guidance (LPV). Thus far, operators have been slow to upgrade their aircraft for the June 7, 2020 European ADS-B Out mandate. However, as we get deeper into 2019, UA Authorized Dealers in Europe are seeing an uptick in Satellite-Based Augmentation System-Flight Management System (SBAS-FMS) upgrades in support of the upcoming ADS-B Out requirements.

Top European UA Authorized Dealers share their thoughts:

“ADS-B Out is definitely top of mind in the North Sea. In fact, it has been mandated for flying to certain oilfields for the last couple of years. Heli-One has installed ADS-B Out in older aircraft types, including the Airbus AS332 Super Puma which includes UA’s UNS-1Fw SBAS-FMS as part of the upgrade.”
- Tor Bøstad, Senior Manager, Design Engineering, Heli-One Norway

“At the moment, we are seeing a lot of interest from customers for ADS-B Out upgrades – especially from Citation 550/560 aircraft operators interested in the UA SBAS-FMS. Right now, we’re working on a dual UA UNS-1Ew SBAS-FMS installation with the UniLink™ LL-801 Communications Management Unit on a Lear 31A.”
- Josef Breu, Technical Director, Avionik Straubing GmbH

“The European ADS-B Out mandate in 2020 is causing an extensive workload for Scandinavian Avionics in order to satisfy the market requirements. Different aircraft configurations require different upgrade concepts and the very capable and qualified SBAS-FMSs from UA are a most attractive and successful solution to a vast number of our customers. As such, our customers have succeeded to not only to become ADS-B Out compliant, but to also gain the operational benefits of LPV compliance and additional technologies.”
- Hardy B. Truelsen, Sales & Marketing Director, Scandinavian Avionics A/S

“With the mandate quickly approaching, we are seeing an increase in inquiries and contracts for ADS-B Out modifications. In our experience, operators are using the upcoming mandate to benefit from additional features and functionality like PBN/PL, LPV, and ADS-B In, instead of just complying with the actual mandate. Still, there are several platforms for which no STC is available. Therefore, I highly recommend operators to get in touch with their installers now to confirm the availability of an STC and to book an installation slot right away, as the STC process can easily take 3 to 6 months.”
- Florian Kindzorra, Chief Operating Officer, Airplus Maintenance GmbH

June 7, 2020:
1,000:
# of aircraft affected by the European ADS-B Out mandate.
7,750:
# of aircraft operating in European airspace at risk of not being equipped with ADS-B Out avionics in time for the region’s airspace equipage mandate.

Countries with ADS-B Out mandates and proposals:

Australia, Canada, Europe, China, Indonesia, Mexico, Singapore, Sri Lanka, Taiwan, United States, Vietnam.

Countries with ADS-B Out mandates and proposals:

Australia, Canada, Europe, China, Indonesia, Mexico, Singapore, Sri Lanka, Taiwan, United States, Vietnam.
UA also owns a Beechcraft King Air F-90 which serves as a cost-effective, reliable, and valuable research and development tool. Many cross-functional teams, including Engineering, Certification, Sales, and Customer Support benefit through the use of this on-aircraft testing during the development and certification of new UA products, as well as providing a vehicle for ongoing customer support for legacy products.

Technical Sales

To help improve our interactions and increase engagement with customers, we’ve harmonized our Technical Sales team with our Engineering Division. This essential integration also helps to facilitate the incorporation of feedback from our customers into product development, allowing us to ensure our products always best serve our customers’ needs.

We welcome Kyle Price, Manager, Avionics Systems Integration, as he leads the Technical Sales team from our Southeast Engineering Division in Duluth, Georgia.

UA’s fleet of company aircraft are located a mile from Corporate Headquarters, which is important because it closely aligns product integration testing onboard the aircraft. Our in-house Flight Test and Designated Engineering Representative (DER) teams also provide valuable user interface feedback to enable UA to design pilot-friendly products. The aircraft are maintained and modified by UA’s in-house Maintenance team, consisting of avionics technicians, airframe and powerplant mechanics, and inspection authorization designers. Our team touts an impressive 100% dispatch record for all aircraft in the UA fleet.

We recently welcomed a Gulfstream G-III (N338UA) to our fleet of company aircraft. During the month of May, the aircraft traveled from Albany, New York to its new home at our Tucson International Airport (TUS) hangar.

Exciting plans are in store for the G-III – first and foremost to install the InSight™ Display System and ClearVision Enhanced Flight Vision System (EFVS) with SkyLens™ Head-Wearable Display (HWD). The G-III will serve as a demonstration platform, an important resource to help support our corporate / business and airline customers who wish to see the system in flight.

The FlightAssure Extended Warranty Program has been revamped to better serve our customers. The program is simpler, provides better coverage, and offers two tiers of service to better fit individual operator needs.

Visit https://www.uasc.com/home/shop/dealers for a quote today.

Kyle Price, Manager, Avionics Systems Integration
For the Swedish Coast Guard, overseeing the safety of the sea involves more than a large fleet of vessels, it also requires the operations of three maritime surveillance aircraft. These aircraft are key to their mission—operating along the entire coastline of Sweden, searching and rescuing, assisting, and monitoring around the clock, every day, all year. In addition to surveillance missions, the aircraft fly regular international assignments.

The three aircraft—named KBV 501, 502, and 503—are all Bombardier Dash 8 Q-300 and are among the world’s most advanced surveillance aircraft. The home base for this specialized Dash 8 fleet is at the Stockholm Skavsta Airport in Nyköpin. Each flight crew consists of two pilots and two system operators. System operators are responsible for the surveillance equipment on the aircraft.

Advanced Mission Support

UA Authorized Dealer, Field Aviation, is currently modifying the last of the three EFI-890R Flight Deck upgrades for the Swedish Coast Guard’s Dash 8 Q-300 aircraft fleet. The installation includes five UA EFI-890R Advanced Flight Displays and dual UA UNS-1Fw Multi-Mission Management Systems (MMMS) for advanced mission support and ADS-B Out capability.

The EFI-890R Advanced Flight Displays replace the legacy Dash 8 OEM electromechanical and electronic flight and engine instrumentation systems, removing more than 40 legacy components, mostly from the flight deck instrument panel.

Four of the EFI-890R Advanced Flight Displays present the pilots with navigation and situational awareness, and the fifth (center unit) displays engine information. The system provides full redundancy by allowing information to be switched between the displays.

The flight deck upgrade not only provides operators with consolidated flight guidance, but it addresses obsolescence issues facing the classic Dash 8 aircraft.

The Field Aviation STC has been approved by Transport Canada, the Federal Aviation Administration (FAA), and European Aviation Safety Agency (EASA), and maintains the Dash 8 common pilot type rating.

Photos provided courtesy of Swedish Coast Guard