SBAS Approaches in Europe: Another Step Closer

In March 2009, the European Aviation Safety Agency released its first guidance material for the certification and operation of onboard navigation systems used for RNAV GNSS approach operations to Localizer Performance with Vertical (LPV) minima procedures. The draft Notice of Proposed Amendment (NPA 2009-4) to the acceptable means of compliance for airworthiness of products, parts and appliances (AMC 20) addresses several requirements operators must meet in order to fly LPV approaches in European airspace.

The RNAV GNSS LPV approach type utilizes the European Geostationary Navigation Overlay Service (EGNOS) Satellite Based Augmentation System (SBAS) – the European equivalent to the North American Wide Area Augmentation System (WAAS). The segment of EGNOS service intended for aviation, maritime and rail use is expected to be operational in 2010. In the meantime, the aviation community awaits regulatory guidance for the certification of onboard equipment supporting EGNOS operations. The release of this NPA is the first glimpse of the certification requirements for LPV operations in European airspace.

Operators interested in obtaining LPV approval under EGNOS may find this NPA useful when considering future upgrades to their aircraft. Among the several airworthiness criteria set forth in the draft NPA, Universal notes that display requirements would require suitable full-scale deflection for the required track keeping, which might require an older aircraft to upgrade its displays or add a new display.

For more information about European SBAS development or to download a copy of NPA 2009-4, visit www.easa.europa.eu.

New Product News

Legacy Manuals Now Available Electronically

The process of converting hard-copy Operators and Installation manuals to digital files has begun. These older documents, some created as far back as 20 years ago, have previously only been available in paper format.

Due to their original format and size, Universal has been challenged in converting some of these documents into easily managed digital files. Now with those obstacles resolved, Universal is moving forward with making more legacy documents available on UniNet.

A few manuals have been uploaded to UniNet already, but more documents will be available electronically soon.

Is there an Operators or Installation manual you’d like electronically? Email techpubs@uasc.com to let us know.

Improved Battery Life for Older FMS Units

In July 2009, Universal will introduce a redesigned internal battery for legacy FMS units. With twice the lifespan of the original-production battery, this new design substantially extends the time between replacements. It also greatly reduces the low battery warning indication.

The new battery will be available as a hardware modification to Super FMSs UNS-1E, -1Esp, -1C+, -1Csp+, -1F, -1D+, -1L, -1K+ and older UNS-1B, -1C, -1Csp, -1D, -1K FMS units. Contact Universal’s Service Center at (800) 595-5906 or (520) 573-7627 for price and availability.

Do You Tweet?

Follow Universal on Twitter. Get up-to-the-minute updates on hardware and software releases and other news from Universal Avionics. Search for @UnivAvionics.
Much has been written about the advantages provided to pilots by Synthetic Vision Systems (SVS). The benefits are clear: lower mental workloads, enhanced situational awareness in low-visibility conditions, reduced flight technical error and enhanced ability to detect and avoid controlled-flight-into-terrain (CFIT) situations. Clearly, significant safety benefits are realized when this technology is available in the cockpit.

With SVS, onboard terrain databases are used to create a computer-generated 3D perspective of the topography outside the aircraft. In a sense, it brings visual rules flight into the cockpit.

Developed by NASA and the Air Force in the 1970s and 1980s, the technology has since migrated into the civilian aviation community. Universal Avionics was one of the first to apply SVS to business aircraft with Part 23 approval of its Vision-1® SVS in 2006. Soon thereafter, Universal was the first to certify SVS in a Part 25 aircraft, making the technology available to operators of larger aircraft.

Late last year, NASA explored the effect of varying types of cockpit display combinations upon the four primary benefits of SVS (mental workloads, situational awareness, flight technical error and CFIT). The study evaluated six display combinations consisting of one of two Primary Flight Displays (PFD) combined with one of three Navigation Displays (ND). The PFD displays used traditional blue sky/brown ground imagery with either standard symbology or egocentric terrain view. The three ND options were center map mode with TAWS, center map mode with terrain information or multimode SVS with two 3D exocentric views.

The results, as published in Tech Brief LAR-17354-1 “Development and Evaluation of 2-D and 3-D Exocentric Synthetic Vision Navigation Display Concepts for Commercial Aircraft”, are significant to any operator of SVS or those looking to add SVS to their aircraft.

As expected, the research indicated that SVS, when displayed on the PFD, was “pivotal for pilot use in terrain avoidance and situation awareness” while SVS terrain on the 2D ND was not found to provide much benefit. The data also highlighted that the 3D exocentric multi-mode ND “effectively and significantly enhanced pilot situational awareness”. It also “substantially enhanced” the pilot’s ability to detect and avoid CFIT situations by increasing the amount of time a pilot would have to react in a CFIT situation by approximately 2.5 minutes, on average.

Exocentric view was not found to significantly effect flight technical error or mental workload, above those benefits already established by egocentric display on the PFD.

To download full details of the study, visit www.techbriefs.com.

Sales and Marketing Support
Added for Southeastern U.S. Region

Universal Avionics is pleased to welcome Matt Cowan in the newly created position of U.S. Southeast Region Marketing Manager. Mr. Cowan will be responsible for the overall growth and development of Universal product sales in the Southeast region, which includes Louisiana, Mississippi, Alabama, Georgia and Florida.

“With over 14 years experience, Mr. Cowan brings extensive knowledge of aviation sales to his new position. Mr. Cowan is a member of AOPA and holds a private instrument rating and is working on his commercial multi-engine license.”

Software and Hardware Updates

**SSDTU**
SCN 10.1 expected September. This minor change adds compatibility for USB devices with non-standard partitioning that do not interface with the SSDTU.

**RCU**
SCN 1016.0.5 expected July. This minor change adds functionality to support RUAG, C21A, CASA212 and CL-601 installations.

**FMS**
SCN 802.7/902.7 approved 5/21/09. Minor change addresses VNAV issue and other minor changes.

SCN 1000.3/1100.3 expected October. This minor TSO change incorporates several improvements to the Multi-Missions Management System (MMMS).
Universal Avionics' navigation database contains Instrument Approach Procedures (IAP) that are not published as part of the standard chart set. Conversely, operators may have noticed approach types missing from the database. While navigation data tends to be standard industry-wide, there are exceptions; as discussed below.

I see a procedure in the database that I don’t have a standard published chart for. Why is this?

When entering your destination in the flight plan (via MENU / ARRIVE), operators might notice a procedure for which there is no standard published chart. There are two reasons this can occur: 1) In the U.S., it is an FAA-designated “Special Procedure” or in Canada, it is a NAV CANADA-designated Restricted Canada Air Pilot “RCAP” (2) It is a Private Approach designed by a company or individual to a certain location. Both of these types of procedures are not publicly available but are included in Universal's navigation database.

Can I fly these procedures?

No. Special Procedures, private procedures and RCAPs require permission.

How do I get permission?

Operators should seek permission through their local certification agency. For Special Procedures, contact the local Flight Standards District Office (FSDO). Certain navigational capabilities must be proven to obtain permission to fly the procedure. Once permission has been granted, the operator will receive the chart from Jeppesen (or other database supplier).

For Private Procedures, operators must contact the owner of the procedure.

The permission basis and airport owner can be found on the web; e.g. www.airnav.com.

What does a Special Procedures look like on the chart?

The published chart will indicate (Special) at the top, as the graphic below illustrates:

KASE/AEO -PASER CO/SARDY

<table>
<thead>
<tr>
<th>LOC</th>
<th>IASE</th>
<th>Final</th>
<th>Minimum Alt</th>
<th>MDA (M)</th>
<th>Apr Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>111.15</td>
<td>148°</td>
<td>1000'</td>
<td>8780'/1043'</td>
<td>7820'</td>
<td>7737'</td>
</tr>
</tbody>
</table>

Why Special Procedures?

The FAA develops Special Procedures at airports with challenging terrain or obstacles. Typically, they have greater obstacles and lower minimum descent altitudes than standard approaches that make them worthy of special permission.

The LOC DME Rwy 15 (LOC 15) arrival at KASE Aspen, CO for example, has an MDA 1000 ft lower than other approaches.
New Look for Universal Avionics’ King Air

Universal’s King Air 350 N10UN recently became a bit more recognizable. The aircraft, which the company has owned and operated for over 12 years, received a custom paint scheme earlier this year. The new look features Universal’s logo and signature blue and gray color scheme.

Universal worked with a local artist to create the design while the paint was completed by Elliot Aviation based out of Moline, Illinois USA.

Over 45% of the King Air’s flight hours support Universal’s marketing and sales activities, which include demonstration flights for customers, dealers and the press.

The aircraft’s unique look makes it stand out among other aircraft at FBOs and allows demo flight participants to easily recognize the Universal King Air on the tarmac.

Universal typically conducts U.S. regional demonstration flights during the summer months. Contact your sales representative to find out if a demo tour is scheduled in your area.

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