

## Enhanced Low Visibility Operations (ELVO)

Over the past several years, the Federal Aviation Administration (FAA) has been diligently working to increase airspace capacity and safely achieve the lowest possible weather minimums for all operators in the National Airspace System.

Vaisala recently sat down with FAA Aviation Safety Inspector, Chris Hope, to help us gain insight into their project and here is some of the information we learned:

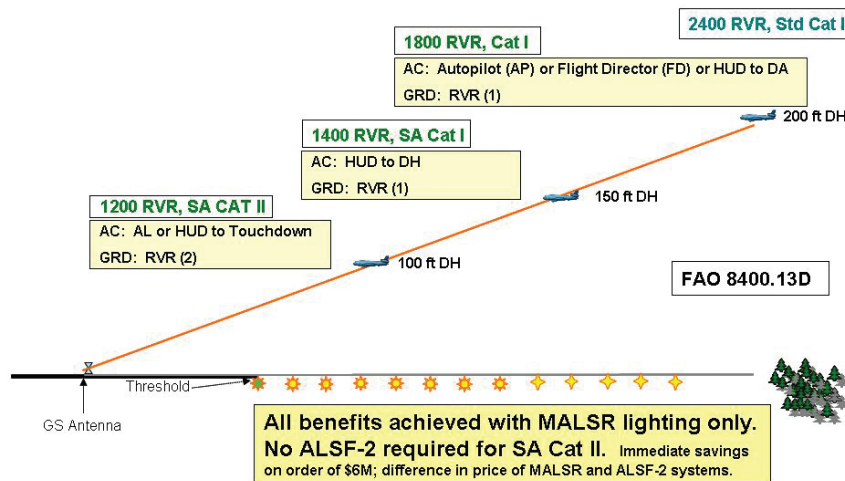
Aircraft avionics have improved significantly over the years and yet the Category I ILS minimums remained at 200 ft decision altitude and half mile visibility. The FAA thinks the lower minimums can be achieved mostly by aircraft avionics' improvements instead of costly ground-based navigation infrastructure.

**Q: What is the Low Visibility Project and its objectives within the FAA?**

A: Simply put, we are trying to safely achieve the lowest possible weather minimums for all operators in the National Airspace System by leveraging new and existing aircraft technologies combined with any necessary improvements to the existing ground structure. The ELVO project includes everything from start, taxi, takeoff, approach, landing and taxiing to the gate. We have done most of these improvements through the implementation of FAA Order 8400.13D, Procedures for the Evaluation and Approval of Facilities for Special Authorization Category I Operations and All Category II and III Operations.

**Q: What are the key benefits to an airport?**

### SA Cat II, SA Cat I, 1800 RVR Cat I (ILS)



A: The main benefits are increased capacity during low visibility situations and increased safety. The capacity is easy to see because more aircraft can land and takeoff during periods of poor weather. Delays tend to be cumulative in our airspace system, so if the morning takeoffs or landings are delayed in Chicago or Atlanta, that has a ripple effect across the entire country as more and more flights experience delays because their originating flight was late.

While the safety benefit is harder to quantify, it is still very real. The aircrews authorized to conduct these operations are better trained and are flying newer and better aircraft.

**Q: In what way will this project affect airports (i.e., cost, new equipment, special requirements, etc.)?**

A: The cost will be dependent on the airport because the requirements will be unique to each airport.

Many airports will require no investment at all, and it will just be a change to the instrument procedure. Some airports may only require a new RVR sensor to get lower minimums while another airport may require a brand new ILS system. We have developed a cost/benefit model for this program that we can run on each runway in the U.S. and it is dependent on actual traffic, weather conditions and other factors. Based on its unique operating environment, each airport can decide the level of investment necessary for its type of operation.

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**Q: Is it already being implemented at certain airports? If so, which ones?**

**A:** Currently there are 20 SA CAT II approaches and 15 SA Cat I approaches in the US, with numerous more in production for publication in the near future.

Let me give you an example of a success story for each:

- Boston Runway 33L SA CAT II ILS provides a second CAT II capable runway. If the primary CAT II/III runway is out, the benefit for the SA CAT II is ~ \$110,000 per week (~\$5.7M per year). This is obtained because aircraft and passengers can land at the airport and do not have to divert to another location or cancel their flights when the weather is low.
- Portland, OR Runway 10R SA CAT I ILS. The primary low visibility runway at Portland, runway 10R, experienced an outage of its CAT II/III ILS signal during the Christmas holidays in 2009. The signal would still support CAT I operations but only to a minimum of 1800 RVR. We were able to quickly authorize

a SA CAT I ILS approach per Order 8400.13D to runway 10R with a decision height of 150' and a weather minimum of 1400 RVR. During this period, the weather in Portland hovered between 1800-1400 RVR and nearly 3,700 people were able to land at the airport that otherwise would have had to divert to another location without the SA CAT I approach.

**Q: How does an airport decrease their minimums for Instrument approaches?**

**A:** There will always be ground infrastructure requirements to support low visibility operations. As a rule, the lower the visibility you operate at, the more ground infrastructure will be required. With this program, we are trying to reduce some of those expensive ground requirements by leveraging the more advanced avionics and capabilities in today's modern aircraft.

**Q: How does it fit with the NextGen objectives?**

**A:** Our program is funded out of the NextGen Navigation

Initiative funding line and is a part of two NextGen Operational Improvements (OI):

- 1) OI 107118 Low Visibility Ceiling/Landing Operations
- 2) OI 107119 Expanded Low Visibility Operations Using Lower RVR Minima.

Our program is also a part of the NextGen Segment Implementation Plan (NSIP) Alpha, which is the FAA's internal management plan to implement operational improvements through 2015.

**Q: How do "Enhanced Flight Vision Systems (EFVS) and "Synthetic Vision Systems" (SVS) relate to the overall Low Visibility Project?**

**A:** EFVS and SVS are the next evolutionary technologies that can aid aircrews in extreme low visibility conditions. The FAA is doing a lot of work in writing regulations and policy to support Enhanced Vision Systems, a group of technologies that are in use today but have a significant amount of growth ahead. Future versions of 8400.13 will no doubt include EFVS and SVS.

**MEET US HERE**

Look for us at the following conferences this year:

- July 25 - 31 EAA AirVenture Oshkosh, WI
- July 31 - August 2 Northeast Chapter Large Hub Winter Operations Conference Seattle, WA
- August 17 - 19 Virginia Aviation Conference Roanoke, VA
- September 10 - 13 NASAO Annual Convention Nashville, TN
- September 14 - 16 Pennsylvania Aviation & Aerospace Conference State College, PA at the Penn Stater Conference Center Hotel
- September 27 - 28 FAA Central Region Conference Kansas City, MO
- September 28 - 30 Georgia Airport Conference Greensboro, GA
- October 2 - 5 ATCA Washington, DC

## VAISALA AIRPORT SOLUTIONS

Vaisala's aviation safety solutions continue to help airports around the country. Here's a sampling of airports that have recently received AWOS system installations or upgrades, system relocation and/or maintenance contracts from Vaisala:

Quad City International Airport – Moline, IL: RWIS upgrade equipment

Baltimore International Airport – Baltimore, MD: RWIS

Fed Ex – Indianapolis, IN: TWX300 lightning system

Lansing Municipal Airport – Lansing, IL: AWOS upgrade

Schenectady County Airport – Glenville, NY: AWOS Equipment

Ted Stevens Anchorage International Airport – Anchorage, AK: RWIS equipment

Madras Airport – Madras, OR: AWOS

Andrews County Airport – Andrews, TX: AWOS

U.S. Airways – Jacksonville, FL: TWX300 Lightning System

City of Gonzales – Gonzales, LA: AWOS Equipment

Greater Moncton International Airport – Canada: RWIS system

## FCC narrows VHF/UHF bandwidth

The Federal Communications Commission (FCC) has issued a public notice to narrow the VHF and UHF bandwidth. The goal is for all VHF/UHF transmitters to operate on 12.5 kHz or narrower channels. As a result, the FCC will no longer accept applications for new wideband 25 kHz operations or modification of existing wideband 25 kHz stations that expands the authorized interference contour (21 dBu UHF). Additionally, all licensees must be operating on 12.5 kHz or narrower channels by January 1, 2013.

This notice may impact some of Vaisala's customers. The T400 UHF radio that is supplied with Vaisala's current model VC and VD AWOS meets this channel spacing. However, the older model TEKK UHF radios,

which were primarily supplied with Vaisala VB AWOS systems, had 25 kHz channel spacing.

The FCC notice may also impact some of Vaisala's RWIS customers. In general, any radios installed prior to 1997 will not meet the new FCC requirements and should be replaced. Specifically, the following radio types will need to be upgraded: Motorola Maxtrac M100, M120 and GM300. Radios installed after 1997 will most likely not require replacement, but may need to be reprogrammed for narrower band. This specifically includes the Motorola CDM750.

Each airport is responsible for verifying their VHF/UHF licenses are issued at the 12.5 kHz channel spacing.

### BRIEFLY NOTED

#### Vaisala newsletter going digital

We are pleased to announce that beginning in 2012, Vaisala's newsletter will be available in electronic format only. To ensure you are registered to receive future digital issues of the newsletter, please e-mail [sales@vaisala.com](mailto:sales@vaisala.com).

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## Vaisala Aviation Sales Territories



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