



# AFS-400 Field Update

## Flight Technologies and Procedures Division

*"Improving Safety and NAS Operations through Flight Technologies and Procedures"*

Volume 1, Issue 2:

Summer 2014

### A Message from Bruce

Thank you so much for taking the time to check out the second issue of the AFS-400 Field Update. I thought I would begin this quarter's newsletter by giving a little background on how we came up with the layout and content for the newsletter.



Four key goals drive our work in Flight Standards:

1. Communication,
2. Collaboration,
3. Quality Products, and
4. Personal Growth.

We hope that this newsletter will embody these goals in one way or another. First, the newsletter provides transparency to the Division by communicating our work, our challenges, and our opportunities. The Division hopes to highlight stories where collaboration within the Division and with other key stakeholders has led to improvements in flight safety and, consequently, higher quality products. Finally, the newsletter will feature various employees each quarter as a model of personal growth.

We ask that you continuously challenge us to meet these goals by sending your suggestions, ideas, and comments to [AVSNextgen@faa.gov](mailto:AVSNextgen@faa.gov). We received a lot of positive feedback from many of you last quarter and we hope that you remain equally as engaged going forward.

Bruce DeCleene

Manager, Flights Technologies and Procedures Division, AFS-400

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### Trending: Aviation\*



[@AvionicsMag](#)

The FAA shows a look at flight paths with conventional radar versus with NextGen

[#Aviation](#)



[@rpmcb](#)

This visualization by the FAA is beautifully done. Makes the benefits of NextGen routing clear to the average joe.



[@USFleetTracking](#)

Exelis completes nationwide infrastructure upgrade of FAA's NextGen tracking system.

### In this Issue:

- Highlighted Stories ..... 2
- Employee Spotlight .....4
- A Year in Review .....5
- System Safety .....5
- Flash Questions .....6
- Notes and Announcements .....6

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## Highlighted Stories

### Preparing for an Operational Demonstration of Capabilities in Seattle & Protected Low Visibility Taxi Routes

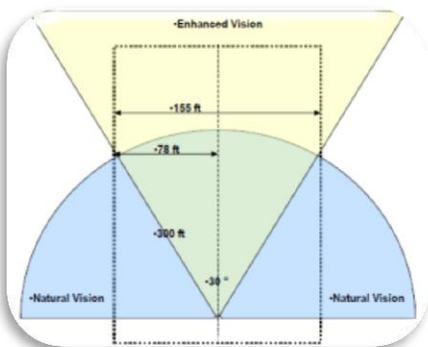
In last quarter's newsletter, we discussed the rulemaking efforts currently underway to allow operators to use an Enhanced Flight Vision System (EFVS) for operational credit on Instrument Approach Procedures (IAP) with straight-in landing minima. EFVS can improve flight safety during instrument approaches and, presumably, the technology should be able to guide operators on the ground as well. Today, no policy exists regarding the use of EFVS during taxi operations. Therefore, operators are left in the unique situation of being able to fly an IAP and land at an airport where the visibility may be less than that prescribed by the IAP, but may not be able to taxi to their gate until the visibility improves.

We are looking at two opportunities to resolve the need for EFVS taxi credit:

1. Operations below present visibility limits and credit for EFVS- and EVS-equipped aircraft at Low Visibility Operations/Surface Movement Guidance Control System (LVO/SMGCS) airports; and
2. Operations below present visibility levels for EFVS- and EVS-equipped aircraft at non-LVO/SMGCS airports with Protected Low Visibility Taxi Routes (PLOWTRs).

Although it seems like a straightforward one-for-one comparison, different issues are presented on the surface than in the air. For example, what happens when an object is outside the EFVS field of regard, yet inside the aircraft's wingspan? Or, what if a pilot is making a 90 degree turn and must look out the side window without the benefit of the EFVS to judge the turn? Additionally, the field of regard is only directed straight out from the airplane's nose, currently, and may only see approximately 15-20 degrees either side of the centerline. Other similar technologies present different issues. It is important to note that certain infrared (IR)-based EFVS cannot sense, nor do they image, light-emitting diodes (LEDs).

The FAA and industry are working together to resolve the



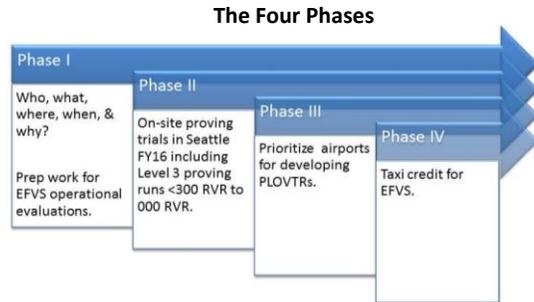
The edge transition point at 300 ft. RVR.

current issues associated with EFVS and LED interoperability. While the ability to sense approach lights and airport lighting systems enables EFVS to be used over a wider range of low-visibility conditions, EFVS can also image

the runway environment and runway markings, which are also visual references permitted to be used during EFVS operations.

Rather than sort through the various technologies' capabilities, the FAA is proposing that operators get limited credit to taxi in bad weather conditions as long as they can pass an Operational Demonstration of Capabilities (ODC) following the criteria of a Flight Standards Validation/Proving test. Therefore, the FAA proposes allowing operators to use emerging technologies as a suitable substitute for established LVO/SMGCS requirements after undergoing a specific Headquarters review. A successful review would lead to approval of the technologies meeting an FAA determined Acceptable Level of Safety as described in FAA Order 8000.94, paragraph 11c.

The Division hopes to have the first ODC completed within the next two years, and it includes four phases of work. We are currently in Phase I for the initial ODC: Planning and preparing for the EFVS operational evaluations. To prepare for the ODC, the ANG human factors team at Headquarters is designing metrics to validate the use of EFVS during low visibility taxi. Such metrics will permit recording actual EFVS improved visibility distances in varying weather obscurations during taxi operations.



Phase II involves live trials. For the EFVS demonstration, Seattle has tentatively agreed to be the participating airport. In Phase III, the Division, in coordination with the regions, will prioritize airports for developing PLOWTRs, set up test PLOWTRs at select airports, and identify common safety mitigations and policies needed for PLOWTR operations (under the allowances of FAA Order 8000.94, paragraph 11c). Individual airports will undergo an evaluation of airport layout, facilities, IFR restrictions and minima, and airport operations procedures in determining PLOWTRs at specific airports. Additionally, the Division will create a job aid for AWOs to assist them in determining how to set up a PLOWTR. For example, AWOs may determine that pilots need enhanced training to use protected taxi routes. A well-designed job aid should help them make those kinds of decisions. In Phase IV, the FAA should be able to begin issuing authorizations to aircraft operators for specific taxi credit in LVO/SMGCS conditions.

For questions regarding this project, please contact Andrew Burns at [Andrew.CTR.Burns@faa.gov](mailto:Andrew.CTR.Burns@faa.gov).

## Highlighted Stories



**A330/340 Simulator at MMAC**

### Effective Collaboration: The Flight Operations Simulation Branch

Translating the science behind the Next Generation Air Transportation System (NextGen) capabilities into an operational reality is no small

feat, but the [Flight Operations Simulation Branch \(AFS-440\)](#) is helping the Division meet the challenge head-on through collaborations with both internal and external stakeholders.

AFS-440, based out of the Mike Monroney Aeronautical Center (MMAC) in Oklahoma City, maintains two full motion, Level D flight simulators that allow the Branch to test new technologies in an operational environment before initial operational capability is achieved. One is modeled after the Boeing 737 (B737); the other is modeled after an Airbus 330/340 (A330/340), which is a wide-bodied airframe, with Fly-By-Wire technology.

Simulator NextGen Equipage	B737	A330/340
ADS-B In		☑
Datalink Capabilities		☑
Electronic Flight Bags (EFB)	☑	☑
Electronic Flight Instrument Systems (EFIS)	☑	☑
Electronic Flight Vision System (EFVS)	☑	
Heads-Up Display (HUD) <sup>1</sup>	☑	☑ ☑
Local Area Augmentation System (LAAS) & Wide Area Augmentation System (WAAS) Instrument Approach	☑	☑
Performance Based Navigation (PBN) Departures & Arrivals	☑	☑
RNP Approach Procedures	☑	
Synthetic Vision Guidance System (SVGS)	☑	

LEGEND	
Current capability =	Updated capability =

Each comes equipped with several key NextGen technologies allowing the Branch to test various NextGen airspace capacity enablers, such as [Closely Spaced Parallel Operations \(CSPO\)](#), [Required Navigation Performance \(RNP\)](#), and Established on RNP. A long-awaited technical refresh of the A330/340 was recently approved and will include:

- ✓ Updated HUD;
- ✓ Airbus 2.5 Software Upgrade;
- ✓ ADS-B In; and

<sup>1</sup> The B737 is equipped with dual Rockwell 6700 series HUDs. The A330 is currently equipped with a BAE Systems HUD, but will be upgraded to a Thales HUD.

- ✓ A320 flight dynamics package provides the simulator the ability to replicate the A320's flight characteristics to expand research to an airframe constituting a significant portion of the U.S. airline fleet.

The Branch also has an Air Traffic Control (ATC) Laboratory, which provides a high fidelity simulated Terminal Radar Approach Control (TRACON) environment (adding Enroute). Data from the flight simulators and ATC can be combined for final analysis.

### Internal Collaboration: The NextGen Orientation

AFS-440 has promoted collaboration within the Division by offering a Flight Standards NextGen Orientation that introduces participants to what the pilot experiences in the cockpit. The orientation is about four hours: two hours in each simulator and about an hour for a pre-brief and de-brief. In those two short flights, people will get practical experience using all of the NextGen technologies, a comparison to what is currently in use, and some free time to experiment with the equipment and procedures.



**A330/340 Simulator Cockpit**

By offering both technical and non-technical personnel this opportunity, participants are given a better understanding of the technologies than they can get from only reading about them.

### External Collaboration & Data Collection

The simulators are not only a valuable resource for the Division but also for various FAA and DOT offices. AFS-440 uses the simulators primarily in a research capacity to study human factors elements of the man-machine relationships, stress factors, and human tolerances. For example, the team is currently collecting data on Human-in-the-Loop simulations of operational concepts like the Third Party Flight ID, CSPO Paired Approach, "RNP Established," and some limited wake vortex work. This data enables AFS-440 to produce objective safety assessments for various FAA program offices to improve flight operations, standards, capacity, and aviation safety within the NAS.

AFS-440 is also investigating methods of using collaborative research with other entities such as the William J. Hughes Technical Center. This offers an alternative to the Division's internal ATC lab and allows testing of en route and oceanic ATC environments to expand existing research capabilities. Not only does this allow AFS-440 to aid various FAA and DOT offices' analyses, but it also provides an integrated research environment.

For more information on the simulators or the NextGen Orientation, please contact David Guy at [David.CTR.Guy@faa.gov](mailto:David.CTR.Guy@faa.gov)

## Employee Spotlight

### Debby Getz



**Q: What do you do, how long have you been with FAA, and where are you based?**

**DG:** *I have been with the FAA in Oklahoma City since 2000. I am currently in the position of Management and Program Analyst for the Management Operations Branch, AFS-405A.*

**Q: How did you end up with the FAA?**

**DG:** *I have worked in Government 27 years. I started my Government career literally in the mail room at the Kapaun Air Base, Germany Post Office as a GS-01, pitching mail. I worked my way through various secretarial jobs for the Air Force at Ramstein AB, Germany. After my husband, Peter, was stationed at Dyess AFB, Abilene, TX, I began my career in contracting. When he retired from the Air Force in 2000, we moved to Oklahoma City where I continued as a Contracting Officer until I was given the opportunity in 2007 to work for AFS-405A.*

**Q: What is your favorite part about working here?**

**DG:** *I enjoy coming to work every day and interacting and supporting the most diverse, talented and interesting group of people who provide all aspects of expertise in support of the safety of the National Air Space*

**Q: Best life lesson?**

**DG:** *Character matters. It's doing the right thing when no one is looking.*

**Q: What is your greatest accomplishment?**

**DG:** *My greatest accomplishment is my marriage of 30 years to my wonderful husband, Peter, and our two daughters, Ashley (16) and Liz (10).*

### Madison Walton



Madison participating at the GTE

**Q: What do you do, how long have you been with FAA, and where are you based?**

**MW:** *I am an Aviation Safety Inspector (Ops) in the Performance Based Flight Systems Branch, AFS-470 specializing in oceanic and international issues. I've been with the FAA since July 2003 and am stationed in Washington, DC.*

**Q: How did you end up with the FAA?**

**MW:** *From July 1970 until we went on strike against Frank Lorenzo in March 1989, I flew for Eastern Airlines. In October 1989, I became a new hire with United Airlines, which went bankrupt in Dec. 2002 and wiped out our pensions. I stayed with UAL until July 2003 when Hank Cabler hired me directly into AFS-430 to work on RVSM implementation. He made me the RVSM liaison with the Caribbean and South American regions.*

**Q: What is your favorite part about working here?**

**MW:** *I appreciate receiving important assignments to advance operational safety and improve airspace efficiency while empowered by management to tackle my assignments with minimum micromanaging.*

**Q: Best life lesson?**

**MW:** *"It's not as bad as you think it is and will not be as good as you are promised." My father used to tell me that a lot growing up and it always stuck with me.*

**Q: What is your greatest accomplishment?**

**MW:** *First and foremost, my family – Ellen and I are married for over 46 years now. We have two daughters and four grandchildren. In aviation, I solo-ed in a Piper PA-18 (tail dragger) and flew in the airlines from 1970-2003 without any incidents. With the FAA, from 2005- 2010, I led the RVSM Grupo del Trabajo de Escrutinio (Scrutiny Group) for Latin America airspace. That group continues to provide a nonthreatening environment where controllers and pilots are able to report errors to improve regional air safety.*

## AFS-400 Accomplishments

### January 2014 – Update to RVSM Policy and Guidance

On January 24, 2014, the FAA streamlined the process to evaluate an application to conduct flight in Reduced Vertical Separation Minimum (RVSM) airspace for both airplane operators and FAA inspectors. [Change 324 to Order 8900.1, Vol. 4, Ch. 10, § 1, Evaluate an Operator's Application to Conduct Flight in RVSM Airspace](#), was published in paragraphs 4-1232 through 4-1242. Concurrent with Change 324 to Order 8900.1, the FAA published [Notice 8900.250](#), which includes the revised template for the Letter of Authorization (LOA) B046 - Operations in RVSM Airspace: 14 CFR Part 91. The new policy and guidance was the culmination of a year-long collaborative effort by the Performance-Based Aviation Rulemaking Committee (PARC) RVSM LOA Process Enhancement Team (PET).

### June 2014 – AVS Work Plan Published

The AVS Work Plan is a yearly deliverable that establishes the Division's May 2014-May 2015 initiatives for publishing policy, approving operations, and overseeing continued operational safety in the national airspace. The AVS Work Plan provides a basis for the Administrator to track the Division's progress on achieving NextGen goals.

## System Safety

### What Is a Safety Management System (SMS)?

SMS is the formal, top-down business approach to managing safety risk, which includes a systemic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures. ([Order VS 8000.367](#)) SMS enables the FAA to integrate the management of safety risk into business planning, operations, and decision making. Through SMS, the FAA may evolve from a reactive to a proactive to a predictive entity. Thus, SMS will enhance the safety of the flying public and strengthen the FAA's worldwide leadership in aviation safety.

The SMS consists of four components:

1. Safety Policy,
2. Safety Risk Management,
3. Safety Assurance, and
4. Safety Promotion.

All four components work together to enable the FAA to manage safety within the aerospace system. In addition, each service/office plays a role in the SMS. Therefore, AVS services/offices must have processes and procedures in place to ensure proper alignment with:

- SMS processes in other AVS services/offices;
- The AVS SMS; and
- SMS processes in product/service provider organizations for which the AVS service has oversight responsibility, if applicable.

For more information on SMS and how safety management has evolved over time, please visit the FAA's [SMS Explained](#) website. You can also learn more about the four SMS components — Policy, Risk Management, Assurance, and Promotion — in the [Components](#) section.

## Flash Questions on Electronic Flight Bags (EFBs)

**Q: Is the FAA getting rid of EFB classes?**

*A: In an effort to harmonize our policy with both ICAO and EASA, the FAA is simplifying our EFB policy so EFB software applications become the focus of our attention instead of hardware. Even though the hardware devices are authorized for use, or approved in the case of installed EFBs, our EFB policy is driven by software functionality. We feel that leaning towards a policy of "installed" and "portable" EFBs appears to be the right part because software applications are now the focus.*

**Q: Are flight attendants allowed to use EFBs?**

*A: The flight attendants manual is considered an EFB function because it is listed among the examples of EFB software applications in Appendix 1 and Appendix 2 of AC 120-76. When our policy was originally written, it was focused on the pilots and EFB use in the cockpit and not flight attendants. In the Division's latest guidance, we included "cabin crew" verbiage to allow operators to develop programs that would allow their flight attendants to replace their paper documents with a digital device.*

**Q: Why does the FAA require rapid decompression testing of EFBs?**

*A: If an operator is going to replace their paper documents with an EFB, an operator must ensure that required information is accessible after a rapid decompression event. We allow operators to acquire rapid decompression data for their devices through a third party source. This information must be provided, along with other EFB application material, to the Principal Operations Inspector (POI) for the issuance of A061, the FAA's OpSpec for use of electronic flight bags.*

**Have a question?** Contact us at [AVSNextgen@faa.gov](mailto:AVSNextgen@faa.gov).

## Notes and Announcements

### AFS-400 Telephone Update

The FAA has moved to one universal phone system under the FAVES contract. In doing so, AFS-400 telephones have been converted from (202) 385-xxxx to (202) 267-xxxx. The new telephone numbers have been updated in the FAA Directory.

### Newsletter Subscriptions

The AFS-400 Newsletter will be distributed on a quarterly basis. If you would like to subscribe to our newsletter, please email us at [AVSNextgen@faa.gov](mailto:AVSNextgen@faa.gov) and we will add you to our distribution list.

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