



**Federal Aviation
Administration**

Operational impact of §25.1420 and Appendix O

Presented by: **Roger Sultan, FAA Aviation
Safety Inspector; AFS-400**

Date: **February 25, 2015**



Background

New regulation, CFR §25.1420 and associated Part 25, Appendix O

- ***11/4/2014***
- ***SLD icing conditions – freezing drizzle (FZDZ) and freezing rain (FZRA) environments***
 - When the terms freezing drizzle and freezing rain are used in meteorology, it is usually with respect to ground conditions, but for this new rule they encompass conditions aloft as well



Rule Application

Aircraft less than 60,000 lbs

- Detect appendix O conditions and then operate safely while *exiting* all icing conditions (§ 25.1420(a)(1))
- Safely operate in a selected portion of appendix O conditions, detect when the airplane is operating in conditions that exceed the selected portion, and then operate safely while exiting all icing conditions (§ 25.1420(a)(2))
- Operate safely in all of the appendix O conditions (§ 25.1420(a)(3))

“Grandfathered” aircraft

- Aircraft designs which are currently certified or have begun the icing certification process for Appendix C will not be subject to the new rule



AFM Statements

Based on the certification, a statement will be placed in the Limitations Section of the Airplane Flight Manual

- a(1): “Intentional flight, including takeoff and landing, into freezing drizzle or freezing rain conditions is prohibited.”
- a(2): “Intentional flight, including takeoff and landing, into freezing rain conditions is prohibited.”
(Assumes “selected portion” is FZDZ environment)



AFM Statements

Based on the certification, a statement will be placed in the Limitations Section of the Airplane Flight Manual

- “Intentional flight, including takeoff and landing, into freezing drizzle or freezing rain conditions is prohibited. If freezing drizzle or freezing rain conditions are encountered, or if {insert cue description here}, immediately request priority handling from air traffic control to facilitate a route or altitude change to exit all icing conditions. Stay clear of all icing conditions for the remainder of the flight, including landing, unless it can be determined that ice accretions no longer remain on the airframe.”



General Operating and Flight Rules

§91.9 Civil aircraft flight manual, marking, and placard requirements

- (a) Except as provided in paragraph (d) of this section, no person may operate a civil aircraft without complying with the operating limitations specified in the approved Airplane or Rotorcraft Flight Manual, markings, and placards, or as otherwise prescribed by the certificating authority of the country of registry.



Appendix O Impact

- *The SLD rule will impact terminal area icing operations*
- *Consequence of the rule is new limitations on takeoff and landing in freezing drizzle and/or freezing rain conditions for aircraft that are not certificated to operate in all SLD icing conditions*
- *This will require major changes in identifying freezing precipitation in the terminal area and determining operational capabilities or limitations for these conditions*



Appendix O Impact

Problem: The icing information currently available to pilots is not deemed robust enough to make sound decisions such as diverting to an alternate airport

Solution = Improve the information on icing, particularly SLD icing, available in terminal area.



WX TCRG Project

TAIWIN: AFS and AIR sponsored a WX TCRG research project

- A real-time representative rate measurement of all ground-level precipitation types and accurate identification of precipitation type
- Highly-resolved, timely diagnoses, and forecasts for terminal area freezing precipitation that provide local-area information
- Highly-resolved, timely icing conditions aloft in the terminal area that quantify cloud properties in four-dimensions (4-D) to support aircraft trajectories
- **Researchers – FAA, NCAR, & other organizations**



AFS Issues

Operational Control

- ***8900.1, Volume 3, Chapter 25, Operational Control For Air Carriers. Paragraph 3-1921(C), includes the following functions:***
 - ***Specifying the conditions under which a flight may be dispatched or released (weather minimums, flight planning, airworthiness of aircraft, aircraft loading, and fuel requirements)***
 - ***Restricting or suspending operations in accordance with §§ 121.551, 121.553, as applicable***

If aircraft cannot be operated within a significant portion of the all-weather envelope, while remaining in compliance with an existing AFM limitation, their commercial value may be compromised



AFS Issues

Pre-Dispatch Flight Planning

- Planning must be accomplished to ensure that the intended route of flight can be flown in compliance with the AFM or POH limitations, as well as Operating Specifications (where applicable) and the applicable operating rule
 - Alternate planning – Should the FAA modify alternate requirements when the destination is reporting or forecasting Appendix O icing conditions?
 - Additionally, does a selected alternate airport need to be outside of the Appendix O icing forecast conditions? (CFR §121.619, §91.167)



AFS Issues

Point of Dispatch and Takeoff Decision

- The point at which the brakes are released to begin to takeoff. A takeoff decision must be evaluated immediately prior to brake release
- If Appendix O icing conditions exist or are forecast at the planned destination, can a Part 121 flight dispatch?



AFS Issues

Decision to Initiate the Approach

- At or shortly prior to the final approach point, a decision must be made as to whether to initiate the final approach segment
- FAR 121 approach ban concept – Should FAA create a “no approach zone” similar to the visibility requirement to start an approach per CFR §121.651b(2)
 - Would have to move decision point out further into the terminal area than final approach fix



Next Steps

***Continue AFS support of TAIWIN Project
Coordinate with AFS leadership on path
forward***

***Draft Advisory Circular guidance on operational
impacts of §25.1420 and Appendix O***

Questions?

Contact

Roger.Sultan@FAA.Gov



Federal Aviation
Administration