Federal Aviation Administration

Memorandum

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To: Dennis Roberts, Director, Airspace Services, AJV-1

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Subject: Interpretation as to whether 14 C.F.R. § 91.143 applies to amateur rocket operations

This is in response to your November 4, 2011 memorandum requesting an interpretation as to whether 14 C.F.R. § 91.143 applies to amateur rocket operations. Although the history of this provision only addresses orbital launch, the FAA may apply section 91.143 to Class 2 and 3 amateur rocket operations, but not to Class 1 amateur rocket operations.

Section 91.143 provides for the issuance of a temporary flight restriction (TFR). When a Notice to Airmen (NOTAM) is issued under this section designating an area for space flight operation, "no person may operate any aircraft of U.S. registry, or pilot any aircraft under the authority of an airman certificate issued by the Federal Aviation Administration" within the area designated for space flight operation "except when authorized by [air traffic control]."[1]

Section 91.143 may be read to include both launch and reentry operations. Although the regulatory history of § 91.143 shows that it was originally designed to assist in the recovery, which appears to refer to reentry, of space vehicles,[2] specifically the U.S. space shuttle, the preamble to a 1984 amendment references the need to keep aircraft out of a restricted area during launch as well.

Next, we examine 14 C.F.R. part 101, which governs amateur rocket operations,[3] to determine whether those operations are "spaceflight operations." Part 101 categorizes amateur rocket operations into three different classes.[4] Class 1 contains model rockets,

[1] 14 C.F.R. § 91.143
[2] *See* 49 Fed. Reg. 38933 (Oct. 2, 1984) (discussing the purpose of § 91.102, which later became § 91.143).
[3] § 101.1(a)(3).
[4] § 101.22.

Class 2 contains high-power rockets, and Class 3 contains advanced high-power rockets. Generally speaking, Class 2 rockets are more powerful than Class 1 rockets, and Class 3 rockets are more powerful than Class 1 and 2 rockets.[5] Class 2 and 3 amateur rockets share two important hazard-based characteristics with vehicles that are licensed pursuant to 14 C.F.R. Ch. III: (1) these rockets have the capability to fly high into the airspace; and (2) these rockets fly at extremely fast speeds. Because Class 2 and 3 amateur rockets can very quickly fly high into the airspace, these rockets have the potential to significantly interfere with air traffic. Accordingly, part 101 requires that a person operating a Class 2 or 3 amateur rocket notify air traffic control (ATC) about the planned operation at least 24 hours before beginning the operation.[6] Amateur rocket operations also need a waiver to operate in controlled airspace.

The regulatory history of part 101 shows that the FAA intended ATC oversight of amateur rocket activities. In December 2008, the FAA adopted ATC notification requirements for Class 2 and 3 amateur rocket operations, finding that the notification is needed in order for ATC "to ensure the safety and integrity of the [National Airspace System], to issue a NOTAM, or take other action."[7]. The FAA did not require ATC notification for Class 1 rockets because the FAA determined that the rockets of Class 1 cannot "affect air traffic if operated in accordance with this regulation."[8]

Because part 101 requires ATC notification before a Class 2 or 3 amateur rocket is launched and because the regulatory history for this part shows that the FAA intended ATC oversight over Class 2 and 3 amateur rockets, § 91.143 permits the issuance of a TFR for amateur rocket operations involving Class 2 and 3 rockets. However, because the FAA has found that Class 1 amateur rockets cannot affect air traffic if operated in accordance with part 101, it does not appear that § 91.143 permits a TFR to be issued for amateur rocket operations involving only Class 1 rockets.

We also note that the term "space flight operation" used in § 91.143 is ambiguous and does not appear in any other regulation. Accordingly, we recommend conducting a rulemaking to replace the term "space flight operation" in § 91.143 with references to launch and reentry vehicles so that this section uses terminology that is consistent with the Commercial Space Launch Act.

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[5] *See* 73 Fed. Reg. 73768, 73769-70 (Dec. 4, 2008) (discussing the different classes of amateur rockets).
[6] § 101.27 .
[7] 73 Fed. Reg. at 73771.
[8] *Id.* at 73769.