



Designation: F3330 – 23

Standard Specification for Training and the Development of Training Manuals for the UAS Operator¹

This standard is issued under the fixed designation F3330; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification defines the requirements for training and the development of training manuals for the unmanned aircraft systems (UAS) operator.

1.2 The specification addresses the requirements or best practices, or both, for documentation and organization of a professional operator (that is, for compensation and hire) for the purposes of internal training programs and for programs offered to the general public.

1.3 This specification supports professional entities that will receive operator certification by a CAA, and provide standards of practice for self- or third-party audit of operators of UAS.

1.4 The standard case study used to develop this specification focused on operators of light UAS (below 1320 lb/600 kg as defined by EASA), but the specification may be applied to larger aircraft for using other methods of classification (that is, risk based classes and pilot privileges classes).

1.5 Training manuals that do not include all the minimum requirements of this specification may not be referred to as meeting this specification.

1.6 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.7 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.8 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recom-*

mendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:²

E2521 Terminology for Evaluating Response Robot Capabilities

F2909 Specification for Continued Airworthiness of Lightweight Unmanned Aircraft Systems

F3060 Terminology for Aircraft

F3178 Practice for Operational Risk Assessment of Small Unmanned Aircraft Systems (sUAS)

F3266 Guide for Training for Remote Pilot in Command of Unmanned Aircraft Systems (UAS) Endorsement

F3341/F3341M Terminology for Unmanned Aircraft Systems

2.2 ICAO Standards:³

Doc 9841 Manual on the Approval of Training Organizations

3. Terminology

3.1 *Unique and Common Terminology*—Terminology used in multiple standards is defined in **F3341/F3341M**, UAS Terminology Standard, and **F3060**, Aircraft Terminology Standard. Terminology that is unique to this specification is defined in this section.

3.1.1 *light UAS, n*—an unmanned aircraft system with the unmanned aircraft weighing less than 1320 lb (600 kg). Derived from the EASA definition in harmonized specifications for Light Unmanned Rotorcraft Systems (CS-LURS).

3.1.2 *maintenance manual(s), n*—manual provided by a UAS manufacturer or supplier that specifies all maintenance, repairs, and alterations authorized by the manufacturer.

3.1.3 *operator, n*—any owner of UAS that operates the UAS, that is, uses, causes to use, or authorizes the use of the UAS.

¹ This specification is under the jurisdiction of ASTM Committee F38 on Unmanned Aircraft Systems and is the direct responsibility of Subcommittee F38.03 on Personnel Training, Qualification and Certification.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from International Civil Aviation Organization (ICAO), 999 Robert-Bourassa Blvd, Montréal, Québec H3C 5H7, Canada, <https://www.icao.int>.