



Standard Practice for UAS Registration and Marking (Excluding Small Unmanned Aircraft Systems)¹

This standard is issued under the fixed designation F2851; 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 practice prescribes guidelines for the display of marks to indicate appropriate UAS registration and ownership for all Unmanned Aircraft Systems (UAS) except those categorized as small UAS (sUAS) by regulatory authorities. The FAA is developing a Special Federal Aviation Regulation (SFAR) to define the term small UAS and provide regulations for these aircraft.

1.2 This practice will allow determination of nationality in cases where UAS may cross international boundaries.

1.3 This practice does not apply to sUAS. The International Civil Aviation Organization (ICAO) has left the designation of sUAS to each state and the states will develop rules and regulations for sUAS.

1.4 This practice does not apply to model aircraft.

1.5 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[F2395 Terminology for Unmanned Aircraft Systems](#)

2.2 *Federal Aviation Regulations:*³

[14 CFR 45 Identification and registration marking](#)

[14 CFR 47 Aircraft registration](#)

¹ This practice is under the jurisdiction of ASTM Committee F38 on Unmanned Aircraft Systems and is the direct responsibility of Subcommittee F38.01 on Airworthiness.

Current edition approved Nov. 1, 2010. Published January 2011. DOI: 10.1520/F2851-10.

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 U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.

2.3 *Other Standard:*

[Annex 7 to the Convention on International Civil Aviation Aircraft Nationality and Registration Marks](#)⁴

3. Terminology

3.1 No new terminology required. See Terminology [F2395](#) for terminology relating to unmanned aircraft systems.

4. Significance and Use

4.1 Aircraft flying in national airspace are required by the ICAO Chicago Convention and national regulatory rules to have visible markings to determine nationality and registration. UAS shall comply with these rules, although small UAS will have unique rules or exemptions from existing rules due to their small size. This standard is designed to allow UAS to comply with these marking requirements in Annex 7 to the Convention on International Civil Aviation as amended by state regulatory rules.

4.2 Many ICAO states are assigning UAS to different classes and categories to define the rules UAS must operate under. The ICAO Annex 7 Standards and Recommended Practices (SARPS) apply to UAS Aircraft with the exception of small UAS. The classification of what constitutes a small UAS (sUAS) has been left to ICAO states and the rules under which sUAS operate are dictated by each state.

4.3 This practice follows ICAO Annex 7 SARPS except in areas where the unique aspects of UAS may not allow compliance. In these cases, this document will address the issue and recommend the need for an alternate compliance method.

5. Location of Nationality, Common, and Registration Marks

5.1 *General*—Annex 7 to the Convention on International Civil Aviation contains the standards and recommended practices for the registration and marking of aircraft. Signatures to the Chicago convention must abide by these SARPS unless an

⁴ Available from International Civil Aviation Organization (ICAO), 999 University Street, Montréal, Quebec H3C 5H7, Canada, <http://www.icao.int/index.html>.

exception is taken for individual states on any part of Annex 7. These exceptions can be found in the supplement to Annex 7.

5.2 Annex 7 applies to unmanned aircraft systems with the exception of those declared small UAS by national regulatory authorities.

5.3 Regulatory authorities will develop national procedures for small UAS.

6. Identification Plate Exception

6.1 An aircraft shall carry an identification plate inscribed with at least its nationality or common mark and registration mark. The plate shall be made of fireproof metal or other

fireproof material of suitable physical properties and shall be secured to the aircraft in a prominent position near the entrance door. Since UAS may not have an entrance door, it is recommended that the identification plate shall be placed in a prominent position on the UAS near the entrance to the payload bay, in the payload bay or other compartment but must be easily accessible.

7. Keywords

7.1 International Civil Aviation Organization; nationality markings; registration and marking; UAS; unmanned aircraft systems

ANNEX

(Mandatory Information)

A1. UNITED STATES RULES ON MARKING AND REGISTRATION OF AIRCRAFT TO INCLUDE UNMANNED AIRCRAFT SYSTEMS

NOTE A1.1—The United States regulations for marking and registration of aircraft are contained 14 CFR 45 (SubPart C) and 14 CFR 47. The applicable portions of these regulations will apply to all classes of UAS except those designated small UAS by the regulatory authority (FAA) due to their small size and limited capabilities.

A1.1 Nationality and Registration Marks

A1.1.1 General:

A1.1.1.1 *14 CFR Part 45 Subpart C*—Nationality and Registration marks regulations shall apply to both manned and unmanned aircraft with the exception of small UAS and in conditions where UAS cannot comply with existing regulations. In these cases, the UAS manufacturer should contact the Federal Aviation Administration for an exemption.

A1.1.1.2 *14 CFR Part 47*—Aircraft registration regulations shall apply to both manned and unmanned aircraft with the exception of small UAS and in conditions where UAS cannot comply with existing regulations. In these cases, the UAS manufacturer should contact the Federal Aviation Administration (FAA) for an exemption.

A1.2 Exceptions to Nationality and Registration Marks

A1.2.1 General:

A1.2.1.1 No person may operate a U.S.-registered unmanned aircraft system unless that aircraft displays nationality and registration marks in accordance with the requirements of this section or receives an exemption from the FAA. UAS above the sUAS category but smaller than most aircraft may require exemptions due to their small size.

A1.2.1.2 Aircraft nationality and registration marks must:

(1) Be painted on the aircraft or affixed by any other means insuring a similar degree of permanence;

- (2) Have no ornamentation;
- (3) Contrast in color with the background; and
- (4) Be legible.

A1.2.2 Location of Marks on Fixed Wing Aircraft:

A1.2.2.1 The operator of a fixed-wing aircraft shall display the required marks on either the vertical tail surfaces or the sides of the fuselage.

A1.2.2.2 The marks shall be displayed as follows:

(1) If displayed on the vertical tail surfaces, horizontally on both surfaces, horizontally on both surfaces of a single vertical tail or on the outer surfaces of a multivertical tail. However, on aircraft on which marks at least 3 inches high may be displayed, the marks may be displayed vertically on the vertical tail surfaces.

(2) If displayed on the fuselage surfaces, horizontally on both sides of the fuselage between the trailing edge of the wing and the leading edge of the horizontal stabilizer. However, if engine pods or other appurtenances are located in this area and are an integral part of the fuselage side surfaces, the operator may place the marks on those pods or appurtenances.

(3) If either one of the surfaces authorized for displaying required marks is large enough for display of marks meeting the size requirements of this section and the other is not, full size marks shall be placed on the larger surface. If neither surface is large enough for full-size marks, marks as large as practicable shall be displayed on the larger of the two surfaces. If no surface authorized to be marked is large enough for full-size marks, marks as large as practicable shall be placed on the largest of the authorized surfaces.

ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.

This standard is copyrighted by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org). Permission rights to photocopy the standard may also be secured from the ASTM website (www.astm.org/COPYRIGHT/).