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## Standard Terminology for Unmanned Air Vehicle Systems<sup>1</sup>

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### 1. Scope

1.1 This terminology standard identifies and defines important concepts and terms related to unmanned air vehicle systems. It is intended to establish the boundaries and characteristics that will guide the development of other standards for the committee.

### 2. Referenced Documents

#### 2.1 AIAA Standard:<sup>2</sup>

R-103–2004 AIAA Recommended Practice—Terminology for Unmanned Aerial Vehicles and Remotely Operated Aircraft

#### 2.2 Code of Federal Regulations:<sup>3</sup>

14 CFR Aeronautics and Space

14 CFR Part 91.113 General Operating and Flight Rules—

Right-of-Way Rules: Except Water Operations

14 CFR Part 1 Definitions and Abbreviations

### 3. Significance and Use

3.1 This terminology standard is written to provide: (1) precise understanding and interpretation of ASTM standards, (2) the characteristics of the UAV classes, requirements, and profiles which must be addressed by standards, (3) standard terminology to use in standards, reports, and other technical writings on the subcommittees, and (4) an explanation of the meanings of technical terms for the benefit of those not conversant with them.

3.2 This terminology standard is not intended to prevent the use of descriptive terms used to distinguish between aircraft, such as tactical, high-altitude long endurance, or micro.

### 4. Terminology

**beyond line-of-sight, BLOS**, *n*—transmitter and receiver are not in direct, point-to-point contact. See R-103–2004.

**fully autonomous**, *adj*—mode of control of a UAV where the UAV is expected to execute its mission, within the pre-programmed scope, with only monitoring from the pilot-in-command. As a descriptor for *mode of control*, this term includes: (1) fully automatic operation, (2) autonomous functions (like takeoff, landing, or collision avoidance), and (3) “intelligent” fully autonomous operation.

**light unmanned air vehicle, light-UAV**, *n*—UAV with a maximum gross takeoff weight of 1320 lbs or less.

**line of sight, LOS**, *n*—direct, point-to-point contact between a transmitter and receiver. See R-103–2004.

**miniature unmanned air vehicle, mini-UAV**, *n*—UAV with a maximum gross takeoff weight of 55 lbs or less.

**mode of control**, *n*—means the pilot uses to direct the activity of the UAV. There are three modes of control: fully autonomous, semi-autonomous, and remote control. A UAV may use different modes of control in different phases of flight.

**operator**, *n*—means any person who causes or authorizes the operation of an aircraft, such as the owner, lessee, or bailee of an aircraft. Also, the entity responsible for compliance with airworthiness and continuing airworthiness requirements.

**pilot**, *n*—person who has final authority and responsibility for the operation and safety of flight. See also 14 CFR Part 1 for “pilot-in-command.” Sometimes called the UAV controller, ASTM reserves the term controller for air traffic services provider.

**rating**, *n*—statement that, as part of a certificate, sets forth special conditions, privileges, or limitations. See 14 CFR Part 1.

**remotely operated aircraft, ROA**, *n*—UAV that complies with the applicable parts of 14 CFR (airworthiness type certificate, operated by certified pilot) and is approved for routine, integrated operations similar to a manned aircraft of the same class and category. See R-103–2004.

**DISCUSSION**—Other terms sometimes used to describe UAVs include: robotic aircraft, remotely piloted vehicles, drones, unmanned combat aerial vehicles, etc. These terms do not create an operational distinction separated from the above terms for the purposes of ASTM standards.

**semi-autonomous**, *adj*—mode of control of a UAV where the pilot executes changes and conducts the mission through a flight management system interface. Without this input, the UAV will perform pre-programmed automatic operations.

<sup>1</sup> This terminology is under the jurisdiction of ASTM Committee F38 on Unmanned Air Vehicle Systems and is the direct responsibility of Subcommittee F38.02 on Flight Operations.

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<sup>2</sup> Available from American Institute of Aeronautics and Astronautics (AIAA), 1801 Alexander Bell Drive, Suite 500, Reston, VA 20191-4344.

<sup>3</sup> Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401.