ADVANCING STANDARDS
TRANSFORMING MARKETS

EMERGING AIRSPACE – June 2025 Update

HEALTH AND SAFETY

ADVANCED MANUFACTURING

BUILT ENVIRONMENT AND INFRASTRUCTURE SYSTEMS

CLEAN ENERGY AND DECARBONIZATION TECHNOLOGY

Standardization Impact Report

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Emerging Airspace

RELEVANT ASTM COMMITTEES
Committee F37 on Light Sport Aircraft
Committee F38 on Unmanned Aircraft Systems
Committee F39 on Aircraft Systems
Committee F44 on General Aviation Aircraft
Committee F46 on Aerospace Personnel
Committee F47 on Commercial Spaceflight

Airspace has been a pillar of global industry since the 20th century. Nevertheless, this area is still undergoing significant industrial growth and technological change. Commercial space missions are now available, and aircraft are being designed and manufactured with autonomous and advanced mobility technology. Aircraft manufacturers are also changing common practices and standards to make aircraft more sustainable.

Despite promising advancements, these technologies are not yet mature. Commercial spaceflight comes with increased health risks for passengers, and unmanned aircraft systems have outpaced existing regulations. New standards can help consumers feel more comfortable taking flights that utilize these technologies, and manufacturers can facilitate their production and usage with confidence.

Emerging Airspace
Commercial Spaceflight

Commercial spaceflight has two major emerging application areas: high-speed, point-to-point flights via space and space tourism. Both areas present major new market opportunities, with point-to-point spaceflight in particular offering the potential to dramatically increase the ease and speed with which people and goods move around the globe. However, these possible benefits are balanced by increased health and safety risks and a need for new standards and regulations to safeguard passengers.

FUTURE OF COMMERCIAL SPACEFLIGHT

ASTM NEWS STORIES

- Classification of Commercial Spaceflight Safety Events
- New Standard Will Aid in Classification of Commercial Spaceflight Safety Events
- Design of Orbital and Suborbital Space Vehicles
- Passenger Medical Qualifications
- Return to Space
- Safety of Suborbital Vehicles
- New Commercial Spaceflight Standard Supports Safety of Suborbital Vehicles
- The Launch of a New Era for Space
- Standards in Zero Gravity
- How Commercial Spaceflight is Propelled by Safety Standards
- Spaceflight Standards for a New Era
- Case Study on Standards: Aircraft Braking Measurement
- Spacecraft Vehicle Types

U.N. Sustainable Development Goals Supported

MARKET SIZE

High-speed travel via outer space, which will compete with long-distance airline flights, has an estimated annual market value of at least $20B.[1] The space tourism industry is expected to be a $3B[2] market by 2030.

MARKET GROWTH

Innovations in space tourism are expected to drive growth in the broader space industry to a value of $805B by 2030—or more than double the value over an 11-year period.[3] Another projection suggests the space tourism industry may grow to more than $1T by 2040.[4]

EXTREME REDUCTION IN TRAVEL TIME

By traveling at higher altitudes with reduced atmospheric friction, commercial spacecraft could travel a distance comparable to a 10-hour airline flight in less than an hour.[5]

INCREASED HEALTH HAZARDS

Space travel exposes passengers to extreme environmental conditions such as radiation, acceleration, and microgravity; consequently, it presents greater risks to physiological and psychological health compared to traditional airline flights, as well as increased safety risks.[6]

LACK OF REGULATION

Regulations for passenger safety in commercial spaceflight are largely absent due to a regulatory moratorium preventing the Federal Aviation Administration (FAA) from regulating "spaceflight passenger safety or [certifying] the safety of commercial spacecrafts" until late 2023, which was intentionally designed to give the industry time to mature.[7]

NEED FOR PREVENTIVE ACTION ON SAFETY

As the moratorium nears its end and industry begins to take the first commercial passengers into space, establishing safety regulations preemptively—ahead of a major passenger safety incident—may be key to increasing public confidence in the commercial spaceflight industry.[8]

OPPORTUNITY FOR STANDARDS

Congress may consider whether the federal government should adopt voluntary standards to regulate the safety of commercial spacecraft with humans onboard.[9]

Emerging Airspace
Commercial Spaceflight

ASTM IMPACT ACTIVITY Commercial Spaceflight Federation (CSF)		Through partnership with the CSF, ASTM consistently receives updates on industry advancements, member concerns/challenges, policy goals, and more. This information helps ASTM set strategic objectives and share information with those responsible for evaluating new activities, prioritizing standards-development efforts, and identifying gaps.
ASTM IMPACT ACTIVITY FAA Office of Commercial Space Transportation (AST)		ASTM International's committee on commercial spaceflight (F47) actively engages with the FAA's Office of Commercial Space Transportation (AST) to develop industry safety standards and evaluate how ASTM standards can be used as a way to ensure compliance.
ASTM IMPACT ACTIVITY Commercial Space Transportation Advisory Committee (COMSTAC)		F47's proactive engagement with COMSTAC positions ASTM as the world's leading SDO for the development of human spaceflight standards. Members of COMSTAC depend on regular updates from F47 to assist with the creation of safety frameworks for Congress to prepare for future regulatory action.
RELEVANT ASTM STANDARD Standard Classification for Space Launch and Reentry Vehicles	F3388	This classification provides the commercial space industry an accepted method of commonly classifying space launch and reentry vehicles through the use of commonly accepted and defined terms based on operational and flight envelope of the vessel.
RELEVANT ASTM STANDARD Standard Guidance for Space Data Exchange to Support Integration of Space Operations into Air Traffic Management	F3514	This guidance focuses on data exchange between space operators and the FAA for air traffic management (ATM) operations during FAA-licensed launches and reentries.
RELEVANT ASTM STANDARD Standard Classification for Descriptions of Spaceport Capabilities	F3610	This classification provides voluntary guidance for spaceports to provide information about their capabilities, systems, restrictions, and other information for use by customers and potential customers.
RELEVANT ASTM STANDARD Standard Guide for Medical Qualifications for Suborbital Vehicle Passengers	F3568	This standard will help the commercial spaceflight industry agree on common medical considerations that should be reviewed prior to flights. This will be used by operators and passengers to understand the basic medical questions to consider prior to flying.
RELEVANT ASTM STANDARD Guide for Occupant Survivability in Orbital Vehicles	F3668	This guide is focused upon the design and operational capabilities necessary to support flight crew survivability when failure tolerance has been exhausted.
STANDARD IN PROGRESS Standard Practice for Safe Operating Practices In-Space for Space Fission Reactors Used for Nuclear Power and Propulsion	WK86387	The scope of this standard is to develop a codified, consensus state-of-practice that can be used as a benchmark by the developers, analyzers, and evaluators of space reactors when assessing and assuring safety during in-space reactor operations.

Emerging Airspace
Advanced Air Mobility

Electric vertical take-off and landing (eVTOL) vehicles have the capability to take off and land in urban environments and are envisioned to allow rapid, zero-emission transport of passengers and goods. Potential applications of this technology include commercial air taxis, cargo delivery, inner-city travel, and agriculture, as well as emergency services, military use, and recreation. eVTOL technology is still under development and faces regulatory and logistical hurdles. However, several eVTOL manufacturers have stated that they expect to launch commercial operations of eVTOLs for passenger and cargo transportation as early as 2024.[10,11]

FUTURE OF ADVANCED AIR MOBILITY VEHICLES

ASTM NEWS STORIES

- Building the Standards Launch-Pad for Emerging Airspace Industries
- Hybrid-Electric Powerplant Design
- New ASTM International Standard Supports Vertiport Design and Development for Advanced Air Mobility
- Making Autonomous Flight a Reality
- Standards Shape the New Age in Air Travel
- Parachute Standard Supports a Safe Landing
- Vertiport Standards Take Off
- White Paper on Autonomy in Aviation

ADDITIONAL RESOURCES

- TR1-EB Autonomy Design and Operations in Aviation: Terminology and Requirements Framework
- TR2-EB Developmental Pillars for Increased Autonomy for Aircraft Systems
- TR3-EB Regulatory Barriers to Autonomy in Aviation
- Roles and Responsibilities for Operational Control in the Age of Increasingly Autonomous Flight White Paper
- A Safety Intent-Based Application of Part 23 "Pilot" and "Flightcrew" Requirements for Uncrewed Aircraft White Paper

U.N. Sustainable Development Goals Supported

MARKET GROWTH

A study from Fortune Business Insights sees the global commercial drone market value reaching $47.38 billion by 2029 at a CAGR of 28.58% over a 2022-2029 forecast period. Other studies see the market reaching up to $217 billion by 2028 at a CAGR of 56.4% over a 2022-2028 forecast period.[12,13]

PILOTLESS EVTOL TRAVEL

Certification Will Be Challenging. The vast majority of eVTOL startups will begin with human pilots before transitioning to fully autonomous flights.14 While some companies have initiated the certification process with the FAA for piloted eVTOLs, significant challenges are expected for the certification of autonomous AAM vehicles.[15]

Critical for Cost Competitiveness. Achieving full autonomy is a critical requirement for reducing the average cost per mile of eVTOLs to economically compete with automotive ride-share services.[16]

ZERO-EMISSION AIR TRAVEL

Promising Option for Sustainability. One of the major goals driving the advancement of electric aviation across the globe is to reduce emissions.[17] eVTOLs could be a first-mover technology in the push toward zero-emission air travel.[18]

Lowering Emissions Across Multiple Sectors. eVTOLs have the potential to lower the carbon cost of varied application areas such as public safety operations, humanitarian aid, inspections of infrastructure, and remote sensing.[19]

Emerging Airspace
Advanced Air Mobility

ASTM IMPACT ACTIVITY ASTM International's Strategic Administrative Committee AC377		AC377 works to ensure that aviation regulations are compatible with autonomous systems and comprise members from ASTM's committees on light sport aircraft (F37), unmanned aircraft systems (F38), aircraft systems (F39), general aviation aircraft (F44), and aerospace personnel (F46). The committee examines autonomy in all aspects of aviation including the design and operations of these vehicles including airplanes, air taxis, or eVTOLs, and drones.
ASTM IMPACT ACTIVITY Alliance for Zero Emission Aviation (AZEA)		ASTM is a member of the Alliance and actively participates in Working Group 3 on standardization. The group is currently updating a mapping document and conducting a gap analysis, with a focus on standardization efforts that support the certification of emerging electric, hybrid-electric, and hydrogen-powered aircraft, as well as the development of harmonized, interoperable solutions for ground infrastructure, operations, and the supply chain.
RELEVANT ASTM STANDARD Standard Specification for Vertiport Design	**F3423**	This specification establishes minimum standards for vertiports and vertistops on which aircraft capable of vertical takeoff and landing may safely operate.
STANDARD IN PROGRESS Standard Specification for Vertiport Automation Supplemental Data Service Provider (SDSP) Performance	**WK85153**	This specification defines performance-based standards for vertiport automation supplemental data service provider (SDSP) data and services to UAS service suppliers/providers (USS/USP), operators in a UAS traffic management (UTM) and provider of services for UAM (PSU) ecosystem.
STANDARD IN PROGRESS Standard Specification for UAM PSU Interoperability	**WK85415**	This proposed standard will define interoperability protocols, APIs, and functional requirements for digital traffic management systems supporting Advanced Air Mobility (AAM). It focuses on PSU functions and interfaces, building adaptable digital traffic infrastructure, and addresses AAM-specific elements such as constrained waypoints, volumes, Vertiports, and integration with legacy ATM and UTM systems.
STANDARD IN PROGRESS Standard Specification for Standard Guide for Advanced Air Mobility (AAM) Maintenance Technician Qualification	**WK88720**	The purpose of this standard is to address the fundamental subject knowledge, task performance, and task knowledge activities and functions for Advanced Air Mobility (AAM) and other next generation aircraft maintenance professionals. With regards to this standard AAM are aircraft systems with innovative capabilities, including aircraft that use 2 or more lift or thrust units to generate powered lift and control during vertical takeoff or landing, that may be piloted, remotely piloted, or autonomous, including those powered by alternative propulsion and related systems.

Emerging Airspace
Advanced Air Mobility

STANDARD IN PROGRESS Standard Guide for Design and Production of Energy Storage Systems to Power Aircraft Propulsion	**WK56255**	This document provides guidance to assist in understanding the process and means for showing compliance to regulatory requirements for rechargeable energy storage systems sized for aircraft propulsion. An ESS designer or manufacturer can use this standard to show a means of compliance to regulatory or other requirements. It will complement the ASTM electric propulsion system design and integration standards for General Aviation aircraft.
STANDARD IN PROGRESS Standard Guide for Exercising a Contextual Framework for Increasingly Autonomous Aviation Systems	**WK76044**	This proposed standard will provide consistent guidance on the best practices for analyzing system requirements and presenting information to regulators, supporting the aviation community's transition to increasingly autonomous systems. As OEMs pursue type certification for highly automated aircraft, including simplified vehicle operations and configurations where a single pilot controls multiple aircraft, this framework will assist both developers and regulatory authorities.
STANDARD IN PROGRESS Standard Specification for Design of Integral Propulsors of Electric Engines	**WK87967**	This specification creates performance-based airworthiness standards for propulsors that are either variable pitched or fixed pitched and can have a containment case. This specification is for integral propulsors that are certified as part of electric engines. This specification applies to propulsors that are used in conventional takeoff and landing (CTOL), short takeoff and landing (STOL), vertical takeoff and landing (VTOL), and other configurations. This will not apply to conventional rotorcraft configurations.

Emerging Airspace
Unmanned Aircraft Systems (UAS)

Unmanned aircraft systems (UAS) are controlled remotely or autonomously. They have a broad range of applications, including filming, package delivery, meteorological research, aerial surveillance, mapping, monitoring, inspection, and search and rescue. UAS can also be used to perform tasks in environments that would be hazardous to human pilots, such as areas that are unstable, difficult to access, or contaminated with toxins or radiation.[20] In recent years, UAS have seen significant advancements in beyond visual line of sight (BVLOS) capabilities, which allow drones to fly beyond the visual distance of operators.[21] FAA convened an Aviation Rulemaking Committee (ARC) on BVLOS drones to develop rules for these operations and currently requires a waiver for BVLOS flights.[22]

FUTURE OF UNMANNED AIRCRAFT SYSTEMS

ASTM NEWS STORIES

- Charting the Future of Drone Delivery
- Training and Certification Help Improve Aircraft Safety
- Security Framework for Uncrewed Aircraft Systems
- The Sky Is the Limit: The Future of Unmanned Aircraft Systems
- A New Era for UAS Standards
- Standards Enable the Future of Drone Operations
- Traffic Management Requirements for Drones
- Safer Skies
- Standards Up in the Air
- Subcommittee on UAS Infrastructure

MARKET GROWTH

The global commercial drone market had an estimated value of $14.82B in 2021 and is projected to reach $217B by 2028.[23] A different projection claims this market will grow from $8.15B in 2022 to $47.38B by 2028.[24]

PRIVACY AND SAFETY CONCERNS

The ability of UAS to operate in lower altitude airspace raises concerns about safety,[25] privacy, data protection security, data sharing, and surveillance.[26]

REGULATIONS LAGGING BEHIND TECHNOLOGY

UAS technology development has outpaced the regulatory landscape for jurisdictions worldwide. The FAA's BVLOS ARC recently concluded that the current aviation regulatory framework is unable to accommodate existing UAS operations.[27]

STRATEGIES FOR SAFER AND MORE SECURE UAS BVLOS OPERATIONS.

The development of Detect and Avoid (DAA)[28] and Command, Control, and Communications (C3)[29] technologies will help to accelerate FAA efforts to certify BVLOS operations for drones. DAA uses sensors to help UAS avoid collisions, while C3 enables secure communications between UAS and ground-based pilots and air traffic control.

UAS TRAFFIC MANAGEMENT (UTM) INFRASTRUCTURE.

UTM—a UAS analog of Air Traffic Control (ATC)—is under development to enable the safe and secure management of low-altitude uncontrolled drone operations.[30]

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Emerging Airspace
Unmanned Aircraft Systems (UAS)

ASTM IMPACT ACTIVITY National Center for Aircraft Technician Training (NCATT) Certification		ASTM's National Center for Aircraft Technician Training (NCATT) Certification provides training and certifications to foster safety and professionalism in the aerospace workforce. ASTM's committee on aerospace personnel (F46) currently supports the development of technical standards and updates and maintains the ASTM NCATT certification program. ASTM's NCATT program recently endorsed the Unmanned Aircraft Systems Certification for advanced aerospace technicians working in UAS maintenance.
ASTM IMPACT ACTIVITY How to Use ASTM F3586 Remote ID Means of Compliance for FAA Regulation 14 CFR Part 89 – eLearning Course	F3586	This course is intended to introduce how to use F3586 to comply with FAA Regulation 14 CFR Part 89. Throughout the course, subsections of F3411, are highlighted.
ASTM IMPACT ACTIVITY Subcommittee on Infrastructure	F38.04	The mission of the new subcommittee is to identify, evaluate, and establish best practices for the design, construction, and maintenance of UAS infrastructure. This includes landing and takeoff zones, charging and refueling stations, and data communications systems.
ASTM IMPACT ACTIVITY Subcommittee on Autonomous and Electric Aircraft Maintenance Personnel	F46.06	This subcommittee develops and maintains international standards and guidance for endorsement level requirements for the education, training and certification of aerospace personnel working in electric-powered and electric propulsion aircraft.
ASTM IMPACT ACTIVITY The Joint Authorities for Rulemaking on Unmanned Systems (JARUS)		The Joint Authorities for Rulemaking on Unmanned Systems (JARUS), is a global group of national aviation authorities and stakeholders working to develop harmonized regulations and guidance for the safe integration of unmanned aircraft systems (UAS) into airspace worldwide. ASTM actively participates in JARUS as a member of the Industry & Stakeholder Body (ISB), contributing expertise and standards knowledge to support global rulemaking efforts. Through this collaboration, ASTM helps promote international alignment on UAS regulations and supports the development of practical, consensus-based guidance for safe and efficient UAS operations.
ASTM IMPACT ACTIVITY British Standards Institution (BSI)		ASTM and the British Standards Institution (BSI) have signed a memorandum of understanding to support the global aerospace community by coordinating the development of technical standards and guidance aimed at promoting global harmonization, interoperability, and certification support. This effort encompasses government and regulatory priorities, standardization roadmaps for UAS, AAM, and sustainability, gap analyses to identify areas in need of standards, and the development of future work programs.

Emerging Airspace
Unmanned Aircraft Systems (UAS)

ASTM IMPACT ACTIVITY
ASTM UAS Standards Supporting U-Space Integration and European Regulatory Alignment

ASTM standards F3411 and F3548 have been published as Acceptable Means of Compliance (AMC) to Regulation (EU) 2021/664, which establishes the regulatory framework for U-space—the EU's version of UTM (Unmanned Traffic Management).

ASTM F3411 was licensed to CEN, the European Committee for Standardization, and adopted as part of the European harmonized standard EN 4709-002:2023 on remote identification of drones. This falls under Commission Delegated Regulation (EU) 2019/945, addressing unmanned aircraft systems and third-country operators.

Between 2022 and 2024, 25 ASTM UAS standards were evaluated against European regulatory requirements for UAS and U-space under the SHEPHERD Project. Findings and recommendations from this assessment will inform EASA's development of AMC and guidance materials. ASTM played an active role in the SHEPHERD Project and in the European UAS Standardization Coordination Group (EUSCG), which seeks to globally map UAS-related standards.

Several SESAR 3 Joint Undertaking projects, which aim to accelerate the realization of the Digital European Sky through collaborative public-private R&I, have referenced ASTM UAS standards in their work on U-space and its integration into air traffic management (ATM).

RELEVANT ASTM STANDARD Standard Guide for Unmanned Aircraft System Maintenance	F3600	This guide is used to assess competencies of qualified individuals who wish to become certified as a UAS technician through a certification program.
RELEVANT ASTM STANDARD Standard Specification for Remote ID and Tracking	F3411	This specification covers the performance requirements for remote identification (Remote ID) of UAS. Remote ID allows governmental and civil identification of UAS for safety, security, and compliance purposes. The objective is to increase UAS remote pilot accountability by removing anonymity while preserving operational privacy for remote pilots, businesses, and their customers. Remote ID is an enabler of enhanced operations such as beyond visual line of sight (BVLOS) operations as well as operations over people.
RELEVANT ASTM STANDARD Standard Practice for Remote ID Means of Compliance to Federal Aviation Administration Regulation 14 CFR Part 89	F3586	This practice provides a means of compliance (MOC) that gives sufficient clarity to the UAS or broadcast module manufacturers to produce a compliant remote ID system (RIDS) such that submitting a Declaration of Compliance to this MOC will satisfy the requirements of FAA 14 CFR Part 89 rule. This practice also explains what to expect from aircraft operating in compliance to this MOC.
RELEVANT ASTM STANDARD Standard Specification for UAS Traffic Management (UTM) UAS Service Supplier (USS) Interoperability	F3548	This global specification provides components that may be used to satisfy requirements expected to be common to many UTM-related regulations. This specification is not intended to comprehensively address all aspects of any particular UTM-related regulation or concept of operations. Similarly, because varying terminology for the same concept is frequently used across different regulations, readers should not expect an exact terminology consistent with any particular UTM-related regulation.

Emerging Airspace
Unmanned Aircraft Systems (UAS)

RELEVANT ASTM STANDARD Standard Test Method for Assessing the Safety of Small Unmanned Aircraft Impacts	F3389	This test method is used for assessing the safety of small UAS impacts on people on the ground during operations that involve flight over people. It provides a framework for creating new designs and evaluating existing designs to determine blunt-force trauma injury potential to the head or neck, or both, during a collision with a person on the ground.
RELEVANT ASTM STANDARD Standard Specification for Detect and Avoid System Performance Requirements	F3442	This specification outlines the system objectives, activities, and evidence required to demonstrate adequate design and safe use of a detect and avoid (DAA) system. Such systems, in concert with other systems and equipment, enable UAS to operate beyond the visual line of sight (BVLOS) of the pilot in command (PIC). As the name suggests, these systems comprise a function for sensing potential flight hazards and assessing hazard severity ("detect") and a function for maneuvering the aircraft out of the way of the hazard ("avoid"). Such systems may also support operations within the PIC's VLOS.
RELEVANT ASTM STANDARD Standard Guide for Credential-Based A2X Broadcast Security	F3742	This standard provides guidance on using cryptographic credentials to secure localized A2X-Direct communications, with a focus on Detect and Avoid (DAA) safety-related applications to illustrate the intersection of security controls, communications performance, and safety risk. It is intended to help organizations developing across various communication technologies understand how credential-based security approaches affect system performance.
STANDARD IN PROGRESS Revision of F3478-20 Standard Practice for Development of a Durability and Reliability Flight Demonstration Program for Low-Risk Unmanned Aircraft Systems (UAS) under FAA Oversight	WK95223	This proposed revision will bring the standard in line with the anticipated direction of CAA rulemaking, address gaps identified by regulators, and complement the developing meta-standard in support of Part 108. Of particular interest are refining the requirements relating to design change testing requirements and system life limits.
STANDARD IN PROGRESS Revision of F3298-24 Standard Specification for Design and Construction of Lightweight Unmanned Aircraft Systems (UAS)	WK94078	This proposed revision will support beyond visual line of sight UAS operations as required for design compliance elements under Part 108 and address gaps identified under the SHEPHERD project.
STANDARD IN PROGRESS Revision of F3657-23 Standard Specification for Verification of Lightweight Unmanned Aircraft Systems (UAS)	WK94232	This revision will support beyond visual line of sight UAS operations as required for design and verification compliance elements under Part 108 and gaps identified under the SHEPHERD project.

Emerging Airspace
Unmanned Aircraft Systems (UAS)

STANDARD IN PROGRESS New Test Method for Standard Guide for Testing Detect and Avoid Systems (DAA) for Unmanned Aircraft Systems (UAS)	**WK62669**	The proposed test method for DAA systems and sensors is applicable to smaller UAS BLVOS operations for the protection of manned aircraft in lower altitude airspace.
STANDARD IN PROGRESS New Practice for Standard Practice for Airborne Risk Analysis of Unmanned Aircraft Systems (UAS)	**WK93896**	This proposed standard will provide practical guidance for conducting airborne collision risk assessments to support safe integration of UAS with manned aviation. It will complement ASTM F3178 by offering standardized methods for evaluating air traffic density, detect-and-avoid capabilities, coordination protocols, contingency procedures, and risk mitigation strategies.
STANDARD IN PROGRESS New Practice for Standard Practice for Ground Risk Analysis of Unmanned Aircraft Systems (UAS)	**WK93993**	This proposed standard will define best practices for conducting ground risk analysis in support of UAS operational risk assessments. It will provide practical guidance on applying quantitative methods, including population density mapping, accounting for varying densities and sheltering, and calculating impact areas. The standard will also support compliance with the proposed FAA Part 108 BVLOS rules.
STANDARD IN PROGRESS New Specification for Cooperative Detect and Avoid System Requirements	**WK95242**	This proposed standard will define risk criteria and required reliability levels for highly automated DAA systems in cooperative airspace, building on approaches used in traditional aviation. It will complement F3442/F3442M by focusing on specific operational risk categories and leveraging outputs from the draft standard for airborne risk analysis (WK93896), using risk ratios that may differ from those in the existing standard.
STANDARD IN PROGRESS New Practice for UAS Ground Control System Human Factors	**WK90326**	This proposed practice will evaluate existing manned and unmanned aviation guidance on human factors to define the minimum set of requirements that should be applied to GCS where the crewmember is beyond visual line of sight of an automated Unmanned Aircraft (UA).
STANDARD IN PROGRESS New Guide for In-Time Aviation Safety Management System (IASMS) Functionality	**WK93681**	This proposed guide will help UAS designers, integrators, and service providers understand and implement approaches for In-Time Aviation Safety Management System (IASMS) functionality. It will support system design, evaluation, and operation by outlining key components—monitoring, assessment, mitigation, and data exchange—and serve as a reference for developing or enhancing IASMS capabilities.
STANDARD IN PROGRESS Revision of F3196-18 Standard Practice for Seeking Approval for Beyond Visual Line of Sight (BVLOS) Small Unmanned Aircraft System (sUAS) Operations	**WK94636**	This proposed revision to F3196 will address the emerging need to provide guidance to assist manufacturers and operators in understanding and using ASTM F38 standards as means of compliance for the FAA's notice of proposed rulemaking regarding Normalization of UAS Beyond Visual Line of Sight Operations (NUBO), aka Part 108. The standard may also be usable as a means of compliance to the Canadian Lower Risk BVLOS regulations (SOR/2025-70).
STANDARD IN PROGRESS New Practice for Drone Show Operations	**WK95240**	The drone show industry is growing rapidly, and the FAA has encouraged the development of a standard to establish minimum safety requirements. This proposed standard will support manufacturers and operators by outlining baseline requirements for UAS technology—such as navigation, geofencing, and communications—and operational procedures to ensure safe outdoor drone show operations.

Emerging Airspace
End Notes/References

COMMERCIAL SPACEFLIGHT

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ADVANCING STANDARDS
TRANSFORMING MARKETS

ASTM INTERNATIONAL HEADQUARTERS

100 BARR HARBOR DRIVE
P.O. BOX C700
WEST CONSHOHOCKEN, PA 19428-2959
USA

Tel +1.610.832.9500

Web go.astm.org