

Change Analyzed/Deleted/Revised	Domains	Regulatory activity	Content of the Regulation	Regulatory organisation	Target date for regulatory material publication	EASA UAS categories	Status	Standardisation activity	Short description of the deliverable	SDO	Target date for publication	Type of document (standard, supporting material, etc.)	Status	Comments
General														
	Definition and classification							AS6969	This data dictionary provides a mathematically coherent set of definitions for quality types used in data models for unmanned systems. In this data dictionary, a quality is defined as a property of a phenomenon, substance, or body whose value has magnitude.	EASA AS-4UCS Unmanned Systems (UAS) Control Segment Architecture	Jun-18	standard	ongoing	
	Definition and classification							APP6128 Unmanned Systems Terminology Based on the ALPUS Framework	This SAE Aerospace Recommended Practice (ARP) describes terminology specific to unmanned systems (UAS) and definitions for those terms. It focuses only on terms used exclusively for the development, testing, and other activities regarding UASs. Terms that are used in the community but can be associated with common dictionary definitions are not included in this document. Further efforts to expand the scope of the terminology are being planned.	EASA AS-4UCS Joint Architecture for Unmanned Systems Committee		recommended practice	published	
	Definition and classification							AS6969 LAS Population System Technology		EASA E-19 Unmanned Aircraft Population Committee	May-19	standard	planned	
M	Definition and classification							ASTM WK62416 N-1 Standard Terminology for Unmanned Aircraft Systems	This terminology covers definitions of terms and concepts related to unmanned aircraft systems (UAS). It is intended to encourage the consistent use of terminology throughout all ASTM International UAS standards. Audience: Committee F38 ASTM International, the UAS industry, and the global community. 1.2 This terminology contains a listing of terms, abbreviations, acronyms, and symbols related to aircraft covered by Committee F38 standards. Cross-referenced terms (for example, see or compare) are, for information only and provide support or clarification.	ASTM F38 Unmanned Aircraft Systems	Mar-18	standard	ongoing	Under development. A new description of the deliverable. Sub-committee comments and requests being adjudicated.
	Definition and classification							ISO 21895-1	Requirements for the categorization and classification of civil UAS. The standard applies to their industrial regulation, development and production, delivery and usage.	ISO TC20/SC16/WG1	Dec-18	standard	ongoing	
	Definition and classification							ISO 21384-1	General requirements for UAS for civil and commercial applications, UAS terminology and classification	ISO TC20/SC16/WG1	Dec-18	standard	ongoing	
	Definition and classification							ASTM F3827 General Operations Manual for Professional Operator of Light Unmanned Aircraft Systems (UAS)	This standard defines the requirements for General Operations Manual for Professional Operator of Light Unmanned Aircraft Systems (UAS). The standard addresses the requirements and/or best practices for documentation and organization of a professional operator (i.e., for compensation and hire). The intent is for this standard to support 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. Not all CAAs have operator certification. This scope provides a standard for operators and clearly gaps that are not currently addressed as it relates to: (1) Individuals, who are currently exempt pilots (i.e. FAA under Part 107) or jurisdictions that do not separately certify Operators, who are seeking certification from a CAA for Light Unmanned Aircraft Systems, who want to voluntarily comply with an industry standard; (2) Public agencies interested in developing unmanned aircraft systems programs.	ASTM F38 Unmanned Aircraft Systems	Mar-19	standard	ongoing	
M	Manuals							ASTM F3827-13 Development and Maintenance Manual for Small UAS	This specification provides the minimum requirements for a General Operations Manual (GOM) for an unmanned aircraft system (UAS) designed, manufactured, and operated in the small UAS category as defined by a Civil Aviation Authority (CAA).	ASTM F38 Unmanned Aircraft Systems	Jan-19	standard	ongoing	Subcommittee comments being adjudicated.
	Manuals	Opinion No. 1 2018	Appendix 2, 3, 4. UAS in class C1, C2 and C3 shall be placed on the market with a user's manual providing the characteristics of the UAS (including but not limited to the mass of the UAS and its MTOM, including its payload, the frequency of the electronic identification emission, the general characteristics of allowed payloads in terms of mass and dimensions, a description of the behaviour of the UAS in case of a loss of data link, clear operational instructions, troubleshooting procedures, and operational limitations (including but not limited to meteorological conditions, and day/night operations) as well as an appropriate description of all the risks related to UAS operations.	EASA	Mar-19	open	Opinion published							
	Manuals	Opinion No. 1 2018	Appendix 1 to delegated act UAS in class C0 shall be placed on the market with clear operational instructions and warnings highlighting the risks related to UAS operations, which shall be adapted to the age of the user.	EASA	Mar-19	open	Opinion published							
	Manuals	Opinion No. 1 2018	Appendix 5 to delegated act UAS in class C4 shall be placed on the market with a user's manual providing the characteristics of the UAS (including but not limited to the mass of the UAS and its MTOM, including its payload, and a description of the behaviour of the UAS in case of a loss of data link), clear operational instructions and operational limitations (including but not limited to meteorological conditions and day/night operations) as well as an appropriate description of all the risks related to UAS operations.	EASA	Mar-19	open	Opinion published							
	Manuals	Opinion No. 1 2018	Appendix 1, 2, 3, 4, to delegated act UAS in class C0, C1, C2, and C3 shall be solely attributable to a remote pilot following the manufacturer's instructions.	EASA	Mar-19	open	Opinion published							
	Definition and classification	Opinion No. 1 2018	Appendix 2, 3, 4, 6 to delegated act UAS in class C1, C2, C3 and C0 shall be placed on the market with a unique serial number that must be affixed in a legible manner on the UAS and the packaging or the user's manual.	EASA	Mar-19	open	Opinion published							
	Definition and classification							ANSI/CTA-2063 Small Unmanned Aerial Systems Serial Numbers	This standard outlines the elements and characteristics of a serial number to be used by small uncrewed aerial systems.	CTA 66 Private Aerial Systems and In-Vehicle Electronics Committee WG 23 Unmanned Aerial Systems		standard	published	
	Definition and classification	EASA Decision	OSD 223 Environmental conditions for safe operations defined, measurable and adhered to (Criteria #1 Definition)	EASA	May-19	Specific	ongoing							
	Operator operations	EASA Decision	OSD 41 Ensure the operator is competent and/or proven	EASA	May-19	Specific	ongoing							
	manufacturer organisation	EASA Decision	OSD 42 UAS manufactured by competent and/or proven entity	EASA	May-19	Specific	ongoing							
	Maintenance organisation	EASA Decision	OSD 43 UAS maintained by competent and/or proven entity (i.e. industry standard) (Criteria #2 Definition)	EASA	May-19	Specific	ongoing							
	Maintenance organisation	EASA Decision	OSD 43 UAS maintained by competent and/or proven entity (i.e. industry standard) (Criteria #2 Definition)	EASA	May-19	Specific	ongoing							
	service provider	EASA Decision	OSD 41-3 External services supporting UAS operations are adequate to the operation.	EASA	May-19	Specific	ongoing							
	Operator operations	EASA Decision	OSD 607 - Inspection of the UAS (product inspection) to ensure consistency to the CoDops	EASA	May-19	Specific	ongoing							
	Operator operations	EASA Decision	OSD 608 - Operational procedures are defined, validated and adhered to (to address technical issues with the UAS) Criteria 1, 2, 3	EASA	May-19	Specific	ongoing							
	Operator operations	EASA Decision	OSD 611 - Procedures are in place to handle the deterioration of external systems supporting UAS operation. Criteria 1, 2, 3	EASA	May-19	Specific	ongoing							
	Operator operations	EASA Decision	OSD 614 - Operational procedures are defined, validated and adhered to (to address Human Error) Criteria 1, 2, 3	EASA	May-19	Specific	ongoing							
	Operator operations	EASA Decision	OSD 621 - Operational procedures are defined, validated and adhered to (to address Adverse Operating Conditions) Criteria 1, 2, 3	EASA	May-19	Specific	ongoing							

ASTM

Test method - a definitive procedure that produces a test result.

Guide - information or series of options that does not recommend a specific course of action.

Practice - a definitive set of instructions for performing one or more specific operations that does not produce a test result.

Classification - a systematic arrangement or division of materials, products, systems, or services into groups based on similar characteristics such as origin, composition, properties, or use.

Terminology - a document comprising definitions of terms; explanations of symbols, abbreviations, or acronyms.

EUROCAE

Minimum Aviation Systems Performance Standards (MASPS) - describes and specifies the operational and/or functional requirements of a complete end-to-end system, which may include airborne, on-ground and space segments. It should provide a high-level architecture describing the individual components, and should allocate between those components the performance, safety and interoperability requirements.

Operational Services and Environment Definition (OSD) - a document dedicated to the operational concept description; it provides the definition of the considered services and of the environment, in which they have to be provided. It is usually published as an annex to the SPR.

Safety and Performance Requirements Standard (SPR) - a standalone document dedicated to operational safety and performance issues; it provides an allocation of the requirements between the segments for the different approval types.

Interoperability requirements standard (INTEROP) - a standalone document dedicated to interoperability issues between the different segments; for each of them, it identifies the technical interface and related functional requirements.

Process Standard - specifies generic methods, which are not specific to individual components, e.g. software or hardware development, environmental testing

Minimum Operational Performance Standard (MOPS) - specifies the performance of a component (piece of equipment, protocols, exchange formats, ...) which is the minimum necessary performance to satisfy a regulatory requirement. In particular, it specifies the tests to be made to ensure that the specified performance is achieved.

Technical Standard - specifies performance of a component, which reflects the best industrial practice.

Guidance document - supplements the information contained in the types of documents described above. Usually illustrative information to another EUROCAE document.

Internal Report - represents the opinion of a WG on a certain technical topic. It is identified with a WG reference number and date only.

EUROCONTROL

Specifications - Define technical and/or operational procedures that advance ATM

Guidelines - Provide more general implementation support to stakeholders.

NOTE: Standards are developed and maintained as both harmonising standards and as means of compliance. Standards are used as reference material by ICAO and EASA, and continue to provide the basis of Community Specifications for the extant EU SES regulations in accordance with regulation EC 552/2004 (Interoperability Regulation).

ISO

International Standard - provides rules, guidelines or characteristics for activities or for their results, aimed at achieving the optimum degree of order in a given context. It can take many forms. Apart from product standards, other examples include: test methods, codes of practice, guideline standards and management systems standards.

Technical Specification - addresses work still under technical development, or where it is believed that there will be a future, but not immediate, possibility of agreement on an International Standard. A Technical Specification is published for immediate use, but it also provides a means to obtain feedback. The aim is that it will eventually be transformed and republished as an International Standard.

Technical Report - contains information of a different kind from that of the previous two publications. It may include data obtained from a survey, for example, or from an informative report, or information of the perceived "state of the art".

Publicly Available Specification - is published to respond to an urgent market need, representing either the consensus of the experts within a working group, or a consensus in an organization external to ISO. As with Technical Specifications, Publicly Available Specifications are published for immediate use and also serve as a means to obtain feedback for an eventual transformation into an International Standard. Publicly Available Specifications have a maximum life of six years, after which they can be transformed into an International Standard or withdrawn.

International Workshop Agreement - is a document developed outside the normal ISO committee system to enable market players to negotiate in an "open workshop" environment. International Workshop Agreements are typically administratively supported by a member body. The published agreement includes an indication of the participating organizations involved in its development. An International Workshop Agreement has a maximum lifespan of six years, after which it can be either transformed into another ISO deliverable or is automatically withdrawn.

Guides - help readers understand more about the main areas where standards add value. Some Guides talk about how, and why, ISO standards can make it work better, safer, and more efficiently.

Development assurance (Software)								AS7M F3151 Standard Specification for Verification of Avionics Systems I	This specification provides a process by which the intended function and compliance with safety objectives of avionics systems may be verified by system-level testing. Software and hardware development assurance are not in the scope of this specification and this specification should not be used if development assurance process is required.	ASTM F3151 Avionics Systems	standard	published	This will be reference in AC for Special Class 921 (17b) To be used when appropriate in lieu of DO 178. NEW DELIVERABLE	
UA Design and Airworthiness								AS6000A JAIS Mobility Service Set	This document defines a set of standard application layer interfaces called JAIS Mobility Services. JAIS Services provide the means for software entities in an unmanned system or system of unmanned systems to communicate and coordinate their activities. The Mobility Services represent the vehicle platform-independent capabilities commonly found across all domains and types of unmanned systems. At present, over 15 services are defined in this document many of which are captured in this revision to support Unmanned Underwater Vehicles (UUVs).	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	standard	published		
UA Design and Airworthiness								AS6688A JAIS Service Interface Definition Language	The SAE Aerospace Information Report AR6318 - Generic Open Architecture (GOA) defines a framework to identify interface classes for specifying open systems to the design of a specific hardware/software system. This JAIS Service (Interface) Definition Language defines an XML-based Service Interface Definition Language (SIDL) for the Avionics Application Layer, and Class 3L or System Services Layer of the Generic Open Architecture (see Figure 1). The identification of JAIS services shall be defined according to the JAIS Service (Interface) Definition Language document.	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	standard	published		
UA Design and Airworthiness								AS6002 JAIS Mission Spooling Service Set	This document defines a set of standard application layer interfaces called JAIS Mission Spooling Services. JAIS Services provide the means for software entities in an unmanned system or system of unmanned systems to communicate and coordinate their activities. The Mission Spooling Services represent the platform-independent capabilities commonly found across all domains and types of unmanned systems. At present, 1 service is defined in this document those services are planned for future versions of this document - Mission Spooler: Stores mission plans, coordinates mission plans, and provides out elements of the mission plan for execution. The Mission Spooler service is described by a JAIS Service Definition (JSD) which specifies the message set and protocol required for compliance. The JSD is fully compliant with the JAIS Service Interface Definition Language (SIDL).	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	standard	published		
UA Design and Airworthiness								AS6006 JAIS Environment Sensing Service Set	This document defines a set of standard application layer interfaces called JAIS Environment Sensing Services. JAIS Services provide the means for software entities in an unmanned system or system of unmanned systems to communicate and coordinate their activities. The Environment Sensing Services represent typical environment sensing capabilities commonly found across all domains and types of unmanned systems in a platform-independent manner. At present, two services are defined in this document - Range Sensor: Determines the proximity of objects in the platform's environment - Visual Sensor: Provides camera configuration and setup for different types of imaging systems - Digital Video: A type of Visual Sensor that manages digital video - Raw Video: A type of Visual Sensor that manages analog video - SDR Image: A type of Visual Sensor that manages and encodes individual digital images. Each service is described by a JAIS Service Definition (JSD) which specifies the message set and protocol required for compliance. Each JSD is fully compliant with the JAIS Service Interface Definition Language (AS6684).	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	standard	published		
HMI								AS6040 JAIS HMI Service Set	This document defines a set of standard application layer interfaces called JAIS HMI Services. JAIS Services provide the means for software entities in an unmanned system or system of unmanned systems to communicate and coordinate their activities. The HMI Services represent the platform-independent Human Machine Interface (HMI) capabilities commonly found across all domains and types of unmanned systems. Services are defined in this document - Drawing - Pointing Device - Replacer - Digital Control - Avionics Control. Each service is described by a JAIS Service Definition (JSD) which specifies the message set and protocol required for compliance. Each JSD is fully compliant with the JAIS Service Interface Definition Language (SIDL) (AS6684).	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	standard	published		
UA Design and Airworthiness								AS6170A JAIS Core Service Set	This document defines a set of standard application layer interfaces called JAIS Core Services. JAIS Services provide the means for software entities in an unmanned system or system of unmanned systems to communicate and coordinate their activities. The Core Services represent the infrastructure commonly found across all domains and types of unmanned systems. At present, eight services are defined in this document - Transport Service: Abstracts the functionality of the underlying communication transport - Events Service: Establishes a publish/subscribe mechanism for automatic messaging - Access Control: Manages prioritization and control for safety critical communications - Management: Defines component life-cycle management - Time: Allows clients to query and system time for the component - Linkness: Provides a means to maintain connection between communicating components - Discovery: Enables automatic discovery of remote entities and their capabilities - List Manager: Encapsulates behavior common to study local lists. Each service is described by a JAIS Service Definition (JSD) which specifies the message set and protocol required for compliance. Each JSD is fully compliant with the JAIS Service Interface Definition Language (SIDL).	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	standard	published		
UA Design and Airworthiness								AS6102A JAIS Compliance and Interoperability Policy	This document, the JAIS Compliance and Interoperability Policy (AS6102), recommends an approach to documenting the complete interface of an unmanned system or component in regard to the application of the standard set. While non-SAE AS-4 JAIS documents are referenced in this APP they are not within the scope of this document and should be viewed as examples only.	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	recommended practice	published		
UA Design and Airworthiness								AS6545A JAIS Transport Considerations	This SAE Aerospace Information Report (AIR) discusses characteristics of data communications for the Joint Architecture for Unmanned Systems (JAIS). This document provides guidance on the aspects of transport media, unmanned systems and the characteristics of JAIS that are relevant to the definition of a JAIS transport specification.	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	information report	published		
UA Design and Airworthiness								AS6666A JAIS/ICP Transport Specification	This SAE Aerospace Standard (AS) specifies a data communications layer for the transport of messages defined by the Joint Architecture for Unmanned Systems (JAIS) or other Software Defined Protocols (SDP). This Transport Specification defines the formats and protocols used for communication between compliant entities for all supported layer protocols and media. Although JAIS is the SDP used as the example, requirements through this document, shall not be used for any SDP that meets the required capabilities. A Software Defined Protocol is defined as an application data interface for communicating between software elements. The SDP is a subset of the underlying communications protocol and in fact communicates in much the same manner regardless if the communicating entities are collocated or in the memory space of a separated by a satellite link.	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	standard	published		
UA Design and Airworthiness								AS6001 JAIS Unmanned Ground Vehicle Service Set	This document defines a set of standard application layer interfaces called JAIS Unmanned Ground Vehicle Services. JAIS Services provide the means for software entities in an unmanned system or system of unmanned systems to communicate and coordinate their activities. The Unmanned Ground Vehicle Services represent the platform-specific capabilities commonly found in UGVs, and augment the Mobility Service Set (MS6000) which is platform-agnostic. At present ten (10) services are defined in this document.	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	standard	published		
UA Design and Airworthiness								AS6007 JAIS Mission Services Set	This document defines a set of standard application layer interfaces called JAIS Mission Services. JAIS Services provide the means for software entities in an unmanned system or system of unmanned systems to communicate and coordinate their activities. The Mission Services represent platform-independent capabilities commonly found across domains and types of unmanned systems. At present, twenty-five (25) services are defined in this document.	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	standard	published		
UA Design and Airworthiness								AS6227 JAIS Message Set (OSD) as defined by the Object Management Group (OMG) CORBA 3.2 specification. This document does NOT address how JAIS transport capabilities or JAIS service protocols are implemented or OMG OSO platforms.	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	recommended practice	published			
UA Design and Airworthiness								AS6560B Architecture Framework for Unmanned Systems	This SAE Aerospace Information Report (AIR) describes the Architecture Framework for Unmanned Systems (AFUS). AFUS comprises a Conceptual View, a Capabilities View, and an Interoperability View. The Conceptual View provides definitions and background for key terms and concepts used in the unmanned systems domain. The Capabilities View uses terms and concepts from the Conceptual View to describe capabilities of unmanned systems and of other entities in the unmanned systems domain. The Interoperability View provides guidance on how to design and develop systems in a way that supports interoperability.	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	information report	published		
UA Design and Airworthiness								AS6564A JAIS History and Domain Model	The purpose of this SAE Aerospace Information Report (AIR) is two-fold: to inform the reader of the extent of effort that went into the development of the Joint Architecture for Unmanned Systems (JAIS); and to capture or preserve the domain analysis that provides the underpinnings for the work by the AS-4 Committee (Unmanned Systems).	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	information report	published		
UA Design and Airworthiness								AS6008A JAIS Mission Spooling Service Set	This document defines a set of standard application layer interfaces called JAIS Mission Spooling Services. JAIS Services provide the means for software entities in an unmanned system or system of unmanned systems to communicate and coordinate their activities. The Mission Spooling Services represent the platform-independent capabilities commonly found across all domains and types of unmanned systems. At present, 1 service is defined in this document those services are planned for future versions of this document - Mission Spooler: Stores mission plans, coordinates mission plans, and provides out elements of the mission plan for execution. The Mission Spooler service is described by a JAIS Service Definition (JSD) which specifies the message set and protocol required for compliance. The JSD is fully compliant with the JAIS Service Interface Definition Language (SIDL).	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	standard	published		
UA Design and Airworthiness								AS6111 JAIS Unmanned Maritime Vehicle Service Set	This document defines a message-passing interface for services representing the platform-specific capabilities common across unmanned maritime vehicles.	SAE AS-4JAIS Joint Architecture for Unmanned Systems Committee	Jun-19	standard	ongoing	
UA Design and Airworthiness								AS6671 Test Protocol for IAS Reciprocity (Treatment) Engines as Primary Thrust Mechanism	This standard is intended to provide a method (or methods) to obtain repeatable and consistent measurements to reflect true engine performance and durability to customer. Standardized methodology is needed to normalize engine performance to fairly rate engine operating capabilities. Operational protocols will be defined according to engine class and will be based on those developed for highway applications. Based on the typical engine operation, a series of speed and load transients and/or sequences will be determined. The scope will include powertrain based testing and state probabilities. The industry consists of many platforms that use reciprocating engines. This document is a first step in providing a common test protocol to proper. There are also a significant new trends towards hybridized engine-battery systems that are expected to have different operational requirements. This standard will focus on those using the engine as the main thrust producer. Additional work will also be considered for hybrid designs. The scope will include power correction methodologies to provide a more accurate description of performance.	SAE E-30 Unmanned Aircraft Propulsion Committee	May-19	standard	ongoing	
UA Design and Airworthiness								AS6888 Ground support equipment (preheating, starters, fuel pumps, fuel coolers, fuel filters, fuel filters, preflight weight/balance, weighing of payload, storage containers, alignment hardware, wheel checks, *remove before flight items, electronic and software IRAs.	SAE E-30 Unmanned Aircraft Propulsion Committee	Jun-19	standard	planned		

	UA Design and Airworthiness										AS000 Propeller Type	SAE E-30 Unmanned Aircraft Production Committee	Jul-19	standard	planned	
	UA Design and Airworthiness										AFR0000 Propeller Information Report	E-30 Unmanned Aircraft Production Committee	Aug-19	information report	ongoing	
	UA Design and Airworthiness										AI0692 Ice Protection for Unmanned Aerial Vehicles	SAE AC-9C Aircraft Long Technology Committee	Dec-18	information report	ongoing	
	UA Design and Airworthiness										AP04010 Aerospace - Vehicle Management Systems - Flight Control Design Installation for Small Unmanned Aircraft - Specification Guide For	SAE A4 Aerospace Actuation, Control and Fuel Power Systems		recommended practice	published	
	UA Design and Airworthiness										AP0710 Aerospace Testing of Electromechanical Actuators, General Guidelines For	A4 Aerospace Actuation, Control and Fuel Power Systems		recommended practice	published	
	UA Design and Airworthiness										AP0744 Aerospace Auxiliary Power Source	A4 Aerospace Actuation, Control and Fuel Power Systems		information report	published	
	UA Design and Airworthiness										AS0801F Wiring Aerospace Vehicle	SAE AE-6A Elec Wiring and Fiber Optic Interconnect Sys Install Committee		standard	published	
	UA Design and Airworthiness										AS0801G Wiring Aerospace Vehicle	SAE AE-6A Elec Wiring and Fiber Optic Interconnect Sys Install Committee	Dec-18	standard	ongoing	
	UA Design and Airworthiness										AS0808 Artificial simulator standards for phone FOD identification	SAE G-28 Simulators for Impact and Ingestion Testing	Dec-19	standard	planned	
D	Emergency recovery/termination systems										ASTM W959171 New Specification for SLAS parachutes	F38 Unmanned Aircraft Systems	Mar-18	specification	ongoing	
	Emergency recovery/termination systems										F3202-18 Standard Specification for Small Unmanned Aircraft System (sUAS) Parachutes	F38 Unmanned Aircraft Systems	Sept-18	specification	Published	
	UA Design and Airworthiness										F3400-052013 Standard Guide for Aircraft Electrical Load and Power Source Capacity Ratings	ASTM F37 Aircraft Systems		standard	published	Light Sport Aircraft guidance will be revised to apply to UAS.
	maintenance										F3709-18 Standard Practice for Maintenance of Aircraft Electrical Wiring Systems	ASTM F38 Aircraft Systems		standard	published	
	UA Design and Airworthiness										ASTM W962870 New Specification for Large LAS Design and Construction	F38 Unmanned Aircraft Systems	Jun-19	standard	under development	
	UA Design and Airworthiness										ASTM F32010-14 Standard Specification for Design and Construction of a Small Unmanned Aircraft System (sUAS)	F38 Unmanned Aircraft Systems		standard	published	This will be reference in AC for Special Cases §21.176f)
	UA Design and Airworthiness										F3206-18 Standard Specification for Design, Construction, and Verification of Fixed-Wing Unmanned Aircraft Systems (UAS)	ASTM F38 Unmanned Aircraft Systems		standard	published	Will be revised to include VTOL aircraft under ASTM W964919
	UA Design and Airworthiness										ASTM W963878 W964419 Revision of F3206-18 Standard Specification for Design, Construction, and Verification of Fixed-Wing Unmanned Aircraft Systems (UAS)	F38 Unmanned Aircraft Systems	19-Nov	standard	in progress	Subject pending Sub-Committee approval
	Manufacturer organization										ASTM F2911-14e1 Standard Practice for Acceptance of Small Unmanned Aircraft System (sUAS)	F38 Unmanned Aircraft Systems		standard	published	
	Manufacturer organization										ASTM F3003-14 Standard Specification for Quality Assurance of a Small Unmanned Aircraft System (sUAS)	F38 Unmanned Aircraft Systems		standard	published	
	Batteries/fuel cell power generating system										W9606937 Standard Specification for design of Fuel Cells for Use Unmanned Aircraft Systems (UAS)	ASTM F38 Unmanned Aircraft Systems	TBD	standard	ongoing	
	Development assurance (Software)										ASTM F3301-16 Standard Practice for Ensuring Reliability of Software Used in Unmanned Aircraft Systems (UAS)	F38 Unmanned Aircraft Systems		standard	published	
	UA Design and Airworthiness										ASTM W96285 New Specification for Design and Performance of an Unmanned Aircraft System-Class 1329 (500# Gross Weight to 1320# Gross Weight)	F38 Unmanned Aircraft Systems	TBD	standard	ongoing	This work item will be continued using guidelines from ASTM F37 Light Sport Aircraft Committee
D	UA Design and Airworthiness										ASTM W96352 Design, Construct, and Test of VTOL	F38 Unmanned Aircraft Systems	Aug-18	standard	ongoing	Will be incorporated in F3206 - Draft complete
D	UA Design and Airworthiness										ASTM W96269 Design, Construction and Verification of Fixed Wing UAS	ASTM F38 Unmanned Aircraft Systems		standard	approved	
	Manuals										W96487 Required Product Information to be Provided with a Small Unmanned Aircraft System	ASTM F38 Unmanned Aircraft Systems	TBD	standard	ongoing	
M	maintenance										ASTM F3300-14 Standard Practice for Maintenance and Continued Airworthiness of Small Unmanned Aircraft Systems (UAS)	ASTM F38 Unmanned Aircraft Systems		standard	published	Update revision underway under WK W965091

UA Design and Airworthiness										WK5840 Evaluating AeroResponse RootCause/Power Endurance Dwell Time	A suite of standards test methods has been developed to measure maneuverability, endurance, communications, durability, logistics, autonomy, and safety to guide purchasing decisions, support operator training and measure proficiency.	ASTM E54 Homeland Security Applications	TBD	standard	ongoing	E54 Full Committee adjudication February 26 to March 2, 2018 ongoing, Delayed 18 Apr -18
UA Design and Airworthiness										WK5843 (E) Evaluating AeroResponse RootCause/ Lights and Sounds	A suite of standards test methods has been developed to measure maneuverability, endurance, communications, durability, logistics, autonomy, and safety to guide purchasing decisions, support operator training and measure proficiency.	ASTM E54 Homeland Security Applications	TBD	standard	ongoing	E54 Full Committee adjudication February 26 to March 2, 2018 ongoing, Delayed 18 Apr -18
UA Design and Airworthiness										F2096-13 Standard Practice for Design, Selection, and Certification of Aircraft Electrical Wiring Systems	This practice covers design configuration procedures for aircraft electrical wiring systems.	ASTM F30 Aircraft Systems		standard	published	
UA Design and Airworthiness										F2096-14 Standard Practice for Inspection of Aircraft Electrical Wiring Systems	This practice covers basic inspection procedures for electrical wiring interconnected systems for aircraft electrical wiring systems.	ASTM F30 Aircraft Systems		standard	published	
M	Batteries/fuel cell power generating system									ASTM F3005-14a Standard Specification for Batteries for Use in Small Unmanned Aircraft Systems (sUAS)	This standard defines the requirements for batteries used in small Unmanned Aircraft Systems (sUAS) Small Unmanned Aircraft System	ASTM F30 Unmanned Aircraft Systems		standard	published	Currently being reviewed for updates FAA Notice Of Availability (NOI) Pending approval of ASTM WK5765 as functional document
UA Design and Airworthiness										F2400-09(2013) Standard Guide for Aircraft Electrical Load and Power Source Capacity Analysis	This guide covers how to prepare an electrical load analysis (ELA) to meet Federal Aviation Administration (FAA) requirements.	ASTM F30 Aircraft Systems		standard	published	
UA Design and Airworthiness	Option No. 1 2018	Appendix 5 to Delegated Act A UAS Class C2 shall not be capable of automatic control modes.	EASA	Mar-19	open	Opinion published										
UA Design and Airworthiness	Option No. 1 2018	Appendix 5 to Delegated Act A UAS Class C2 shall unless it is a free-flying UA, be equipped with a top-speed mode selectable by the remote pilot and limiting the maximum cruising speed to no more than 3 m/s.	EASA	Mar-19	open	Opinion published										
UA Design and Airworthiness	Option No. 1 2018	Appendix 3, 4 to Delegated Act A UAS Class C2 and C3 shall in the case of a tethered UA, the tensile length of the tether shall be less than 50 m and its mechanical strength shall be no less than: - 10 for heavier-than-air aircraft, 10 times the weight of the aerodynamic maximum mass, - 10 for lighter-than-air aircraft, 4 times the force exerted by the combination of the maximum static thrust and the aerodynamic force of the maximum allowed wind speed in flight.	EASA	Mar-19	open	Opinion published										
UA Design and Airworthiness	Option No. 1 2018	Appendix 2, 3, 4 to Delegated Act A UAS Class C1, C2 and C3 shall if the UA has a function that limits its access to certain airspace areas or volumes, this function shall operate in such a manner that it interacts smoothly with the flight control system of the UA without adversely affecting flight safety; in addition, clear information shall be provided to the remote pilot when the UA flight control system is automatically engaged to keep the UA out of these areas.	EASA	Mar-19	open	Opinion published										
UA Design and Airworthiness	Option No. 1 2018	Appendix 1, 2 to Delegated Act A UAS Class C2 and C3 shall have a maximum speed (level flight) of 19 m/s;	EASA	Mar-19	open	Opinion published										
UA Design and Airworthiness	EASA Decision	DS044 UAS developed to authority recognized design standards (e.g. industry standards)	EASA	May-19	Specific	ongoing										
UA Design and Airworthiness	EASA Decision	DS045 UAS is designed considering system safety and reliability	EASA	May-19	Specific	ongoing										
UA Design and Airworthiness	EASA Decision	DS048 Safe recovery from technical issue /	EASA	May-19	Specific	ongoing										
UA Design and Airworthiness	EASA Decision	DS042 The UAS is designed to manage the deterioration of essential systems supporting UAS operation	EASA	May-19	Specific	ongoing										
UA Design and Airworthiness	EASA Decision	DS048 Automatic protection of the flight envelope from human error	EASA	May-19	Specific	ongoing										
UA Design and Airworthiness	EASA Decision	DS049 Safe recovery from Human Error (Lithium #3 UAS issue)	EASA	May-19	Specific	ongoing										
HMI	EASA Decision	DS0 #20 - A Human Factors evaluation has been performed and the HMI based appropriate for the mission	EASA	May-19	Specific	ongoing										
UA Design and Airworthiness	EASA Decision	DS0 #24 - UAS designed and qualified for adverse environmental conditions (e.g. adequate sensors, DO-160 qualification)	EASA	May-19	Specific	ongoing										
UA Design and Airworthiness	EASA Decision	DS024 UAS designed and qualified for adverse environmental conditions (e.g. adequate sensors, DO-160 qualification)	EASA	May-19	Specific	ongoing										
UA Design and Airworthiness	EASA Decision	M42 Effects of ground impact are reduced. A category <u>Mission-critical</u> <u>reference the effect of the UAS impact scenario</u> (e.g. emergency parachutes)	EASA	May-19	Specific	ongoing										
UA Design and Airworthiness	EASA Decision	M43 Technical containment in place and effective (e.g. tether)	EASA	May-19	Specific	ongoing										

Operations

Operations										AS000 - Mission Spacing Service Set	This document defines a set of standard application layer interfaces called JAUS Mission Spacing Service. JAUS Services provide the means for software entities in an unmanned system or system of unmanned systems to communicate and coordinate their activities. The Mission Spacing Services represent the platform-independent capabilities commonly found across all domains and types of unmanned systems. At present, 7 services defined in this document (more services are planned for future versions of the documents) - Mission Spacing, Store Mission Plans, Coordinate Mission Plans, and Generate out elements of the mission plan for execution The Mission Spacing service is described by a JAUS Service Definition (JSD) which specifies the message set and protocol required for compliance. The JSD is fully compliant with the JAUS Service Interface Definition Language (SIDL).	SAC AS-4/JAUS Joint Architecture for Unmanned Systems Committee		standard	published	published
Qualified entities										ASTM W662730 UAS Operator Audit Program	Minimum requirements, responsibilities, qualifications for Unmanned Aircraft Systems conducting internal audits against ASTM standards and qualifications.	ASTM F30 Unmanned Aircraft Systems	TBD	standard	ongoing	Under subcommittee ballot
Qualified entities										ASTM W662731 UAS Operator Compliance Audits	-How to conduct a third party audit program for those who execute audits to meet the consensus set of minimum requirements and qualifications.	ASTM F30 Unmanned Aircraft Systems	TBD	standard	ongoing	Under subcommittee ballot
Qualified entities										ASTM W662734 General Operations Manual for Professional Operator of Light Unmanned Aircraft Systems (UAS)	Best practices to support professional entities including operator system certification by a CAA, and provide practice for self- or third-party audit of operators UAS.	ASTM F30 Unmanned Aircraft Systems	TBD	Best practice	ongoing	Draft
Manuals										ASTM F3005-16 Standard Specification for Batteries for Use in Small Unmanned Aircraft Systems (sUAS)	This specification provides the minimum requirements for an Aircraft Flight Manual (AFM) for an unmanned aircraft system (UAS) designed, manufactured, and operated in the small UAS (sUAS) category as defined by a Civil Aviation Authority (CAA). Depending on the size and complexity of the UAS, an AFM may also contain the instruction for maintenance and continuing airworthiness for owner / operator authorized maintenance.	ASTM F30 Unmanned Aircraft Systems		standard	published	published
Automatic modes, takeoff, Landing, testing										WK5801 Evaluating AeroResponse RootCause/Maneuvering Position and Orientation	The purpose of this test method is to specify the apparatuses, procedures, and performance metrics necessary to quantitatively evaluate the system capability to accurately maintain position and orientation (pose) in open space relative to an object of interest. This test method applies to aerial systems operated remotely from a stand-off distance appropriate for the intended mission. The system includes a remote operator in control of all functionality and any assistive features or autonomous behaviors that improve the effectiveness or efficiency of the overall system. This test method may be performed anywhere the specified apparatuses and environmental conditions can be implemented as described. Results should be considered within the context of related test methods in the Manoeuvring suite when comprehensively evaluating robotic system capabilities.	ASTM E54 Homeland Security Applications	TBD	standard	ongoing	E54 Full Committee adjudication February 26 to March 2, 2018. Delayed 18 Apr-18
Automatic modes, takeoff, Landing, testing										WK5902 Evaluating AeroResponse RootCause/Maneuvering Orbit & Pose	The purpose of this test method is to specify the apparatuses, procedures, and performance metrics necessary to quantitatively evaluate the system capability to accurately orbit an object of interest. Results should be considered within the context of related test methods in the Manoeuvring suite when comprehensively evaluating robotic system capabilities. This test method applies to aerial systems operated remotely from a stand-off distance appropriate for the intended mission. The system includes a remote operator in control of all functionality and any assistive features or autonomous behaviors that improve the effectiveness or efficiency of the overall system. This test method may be performed anywhere the specified apparatuses and environmental conditions can be implemented as described.	ASTM E54 Homeland Security Applications	TBD	standard	ongoing	

	Remote pilot competence	EASA Decision	DSO #99 - Remote crew trained and current and able to control the abnormal and emergency situations (ie Technical issue with the DAS)	EASA	May-19	Specific	ongoing											
	Remote pilot competence	EASA Decision	DSO #15 - Remote crew trained and current and able to control the abnormal and emergency situations (ie Human Error)	EASA	May-19	Specific	ongoing											
	Remote pilot competence	EASA Decision	DSO #22 - The remote crew is trained to identify critical environmental conditions and to avoid them	EASA	May-19	Specific	ongoing											
	Remote pilot competence	EASA Decision	DSO#16 Multi crew coordination (Criterion #2 Training)	EASA	May-19	Specific	ongoing											
	Remote pilot competence	EASA Decision	DSO#17 Remote crew is fit for the operation	EASA	May-19	Specific	ongoing											
	Remote pilot competence	EASA Decision	DSO#19 Safe recovery from Human Error (Criterion #2 Training)	EASA	May-19	Specific	ongoing											
	Remote pilot competence	EASA Decision	DSO#23 Environmental conditions for safe operations defined, measurable and adhered to (Criterion #1 Procedures)	EASA	May-19	Specific	ongoing											
	Remote pilot competence	EASA Decision	M41 An Emergency Response Plan (ERP) is in place, operator validated and effective (Criterion #2 Remote Crew Competence)	EASA	May-19	Specific	ongoing											

9	Environment																	
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	Noise/Environment	Opinion No. 1 2018	Appendix 2, 3 to Delegated Act UAS in class C2 and C3 shall have a sound pressure level not exceeding 60 dB(A) (measured at a 3-m distance from the UA).	EASA	Mar-19	open	Opinion published											
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10	Autonomous operations																	
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	Autonomous operations								AS0386 JALIS Autonomous Behaviors Service Set	This document, the JALIS Automated Behaviors and Diagnostics Service Set, defines a message-passing interface for services commonly found in mobile unmanned systems. These services represent the platform-independent capabilities common across all domains. Additional capabilities are specified in the JALIS Core Service Set (AS0710) and are frequently referenced herein.	SAE AS04 JALIS Joint Architecture for Unmanned Systems Committee	May-19	standard	ongoing					
	Autonomous operations								ASTM Aviation Autonomy Roadmap	Task group to matrix autonomy technologies and standards between manned and unmanned aircraft.	ASTM	TBD	standards and practices	ongoing				Task Group Formed	
	Development assurance (Software)								ASTM F3588 Standard Practice for Methods to Safety Assess Flight Behavior of Unmanned Aircraft Systems Containing Complex Functions	This standard practice defines design and test best practices that, if followed, would provide guidance to an applicant for providing evidence to the civil aviation authority (CAA) that the flight behavior of an unmanned aircraft system (UAS) containing complex functions is constrained through a run-time assurance (RTA) architecture to maintain an acceptable level of flight safety.	ASTM F38 Unmanned Aircraft Systems		standard	published					
	Autonomous operations								AS0304 JALIS Autonomous Behaviors Service Set	This document, the JALIS Automated Behaviors and Diagnostics Service Set, defines a message-passing interface for services commonly found in mobile unmanned systems. These services represent the platform-independent capabilities common across all domains. Additional capabilities are specified in the JALIS Core Service Set (AS0710) and are frequently referenced herein.	SAE AS04 JALIS Joint Architecture for Unmanned Systems Committee	May-19	standard	ongoing					The title will change to "JALIS Autonomous Capabilities Service Set"