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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

DRAFT INTERNATIONAL STANDARD

ISO/IEC DIS 22460-1

ISO/IEC JTC 1/SC 17

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Cards and security devices for personal identification — ISO UAS license and drone/UAS security module —

Part 1:

Physical characteristics and basic data sets for UAS licence

Cartes et dispositifs de sécurité pour l'identification des personnes — Permis ISO et module d'identité de drone pour les drones (véhicules ultralégers ou systèmes d'aéronefs sans équipage à bord) —

Partie 1: Caractéristiques physiques et jeu de données de base pour les permis de systèmes d'aéronefs sans équipage à bord

ICS: 35.240.15

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees (TCs) established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/IEC JTC 1, Information technology, SC 17, Cards and security devices for personal identification.

ISO/IEC 22460 consists of the following parts, under the general title Personal Identification — ISO UAS License, and DSM (Drone/UAS security module)

- Part 1: Physical Characteristics and Basic Data Set for UAS License. Part 1 describes the basic terms for this Standard including the physical characteristics, basic data element set, visual layout, and physical security features
- Part 2: Drone/UAS security module. Part 2 describes the electronic security features that can be incorporated under this Standard, including mechanisms for controlling access to data, verifying the origin of a DrL, and confirming the data integrity;
- Part 3: Logical Data structure. Access Control, Authentication, and Integrity Validation. Part 3 describes the technologies that can be used for this Standard, including the logical data structure and data mapping for each technology.

Introduction

This international standard prescribes requirements for an ISO compliant DroneUAS remote pilot License (IDrL). The intent of the standard is to allow the issuance of one document to serve the purpose of both a domestic Drone/UAS remote pilot License (DDrL) and an international Drone/UAS remote pilot License (IDrL). Issuing authorities of domestic Drone/UAS Licenses that do not confirm to this ISO/IEC Standard could benefit from using parts of the standard for their own domestic purposes. These issuing authorities should provide the definition and function of Drone/UAS remote pilot License and requirements of drone License and DSM(Drone/UAS security module).

The possibility of a pilotless aircraft was first mentioned in the 1929 Protocol, after amendment at the Paris Convention on October 13, 1919. A formal description appeared as Article 8 of the International Convention on Civil Aviation (ICAO Doc 7300) signed in Chicago on December 7, 1944 and this was amended by the ICAO General Assembly in 1947. According to ICAO Document 10019 Manual, Item 2.2.1 of the Remotely Piloted Aircraft System (RPAS) classifies aircraft without pilots as unmanned aircraft and remotely controlled aircraft as remote controlled aircraft (ICAO Document 2015).

ICAO RPAS (Remotely Piloted Aircraft System) defined as operation and personal licensing.

- RPAS operation including the certification, oversight, human performance aspects, RPAS operators, safety management of RPAS;
- The pilot of every aircraft and the other members of the operating crew of every aircraft engaged in international navigation shall be provided with certificates of competency and licenses issued or rendered valid by the State in which the aircraft is registered.
- Personal licensing covers the area of remote pilot and air traffic controller licensing and medical requirements.

The ISO/IEC 22460 series is a standard for using license IDs for drones/UAS remote pilots. The UA, which is remotely operated/controlled without boarding, is intended to be controlled by a remote pilot based on cybersecurity and integrity by storing the eID/RID ISO/FDIS 23629-8, including information about the pilot in an ISO7816-based DSM container.

Cyberattacks attempting to remotely identify the eID/RID of the UA in flight by UTM or related entities are prevented by implementing the eID/RID with cryptography and integrity by protecting the access rights to the ISO7816 Elementary File in the DSM.

In addition, the standard is intended to realize the interoperability of eID/RID recorded in the drone security module with integrity after the remote pilot of the UA has obtained flight permission not only for local operation but also abroad.

Similarities and differences between driver's license and Drone/UAS license

There are similarities and differences between automobile driving licenses and drone/UAS licenses.

First, an automobile is operated from inside by a driver who has boarded the vehicle, whereas a drone/UAS is remotely operated or controlled by a remote pilot unmanned aircraft system.

Second, an automobile and a drone/UAS should be registered with the related agencies and it is mandatory to take injury and property insurance. This is necessary because both automobiles and drones/UASs are responsible for accidents in the event of an accident.

Third, Certificates of airworthiness and certificates of competency and licenses issued or rendered valid by the contracting State in which the aircraft is registered, shall be recognized as valid by the other contracting States, provided that the requirements under which such certificates or licenses were issued or rendered valid are equal to or above the minimum standards which may be established from time to time pursuant to this Convention.

Fourth, motorcycles (e.g., 50cc or less) may be driven without license. ultra-light toy-level drones (e.g., 250 g, 0.9 kg: ISO21895 maximum take-off grade I, II, or EASA LUC / open category subcategory A, B, C)

A3) may be remotely piloted with certificate. In order to pass the remote pilot certificate, the remote pilot should acquire the necessary knowledge. The preregistered drone owned by the certificate holder shall be driven only in permitted flight areas before sunset.

Fifth, the Dutch Automobile Registration Card (DA12EN) is used to record the vehicle identification number and automobile registration information on the ISO7816 IC card EF at the time of release and to prevent cyberattacks with public key information. In addition, DSM performs UAS eID/RID and security functions similar to the mobile phone subscriber identification module.

Harmonization and Interoperability

All the human-readable Drone/UAS licenses issued in each country, including the Drone/UAS licenses in use, should include the following:

- The document contains sufficient information to enable the license holder to be identified.
- The document is difficult to counterfeit.
- The document is secure to resist alteration.

Considering today's worldwide freedom of movement, not only the Drone/UAS population and market is increasing but also the application of these systems is expanding. Thus, a need has arisen to prevent Drone/UAS collisions and various types of accidents. In this regard, Drone/UAS license systems impose additional requirements with the advent and need for machine-assisted storage, retrieval, reading, and verification technologies for the facilitation of data protection and secure communication.

To achieve maximum global harmonization and interoperability of UTM and ATM, standards are required to provide common platforms for visual human-readable evidence as well as for machine-assisted storage, retrieval, reading, and verification by the use of ISO data storage technologies incorporated into the drone license UAS document.

Cards and security devices for personal identification — ISO UAS license and drone/UAS security module —

Part 1: Physical characteristics and basic data sets for UAS licence

1 Scope

This International Standard establishes guidelines for the design format and data content of an ISO-compliant drone/UAS remote pilot and remote crew license in regard to both visual human-readable features and machine-readable technologies. The standard creates a common basis for a Drone/UAS remote pilot and remote crew license without impeding the efforts of individual national or regional Drone/UAS related authorities to take care of their specific needs.

It should be noted that not all jurisdictions require drone/UAS remote pilot and remote crew licenses.

The design approach of the “ISO drone/UAS remote pilot and remote crew license” ISO ID-1 size card is to establish a secure “drone/UAS remote pilot and remote crew license, not only for domestic purposes, but also an internationally compatible remote pilot and remote crew license” for both human verification and machine readability.

Existing domestic drone/UAS remote pilot and remote crew licenses may be disallowed in and invalid for use in other countries. However, an ISO drone/UAS remote pilot and remote crew license would be valid for use in any other country.

The basic document design premises include:

- A minimum mandatory data element set.
- A common layout for ease of recognition.
- Minimum security requirements for both human and machine verification.
- Interoperability of the machine-readable content.

At the discretion of national or regional Drone/UAS related authorities:

- Allows for inclusion of supplementary optional data elements to meet the needs of specific national or regional requirements apart from the minimum common mandatory data element set.
- Allows for additional physical security elements at the option of national or regional authorities and facilitates international procurements.
- Allows for the incorporation of ISO/IEC JTC1/SC17 machine-readable technologies including ISO7816 integrated circuit with contacts and ISO14443 contactless integrated circuit technology, at the option of national or regional authorities.
- Allows for the incorporation of current and future technologies (including mobile, biometrics, cryptography, data compression) at the option of national or regional authorities.

This Drone/UAS remote pilot and remote crew license design yields a document that:

- Provides security features to prevent counterfeiting and alteration.
- Allows authorities to verify the authenticity of the document.

- Integrates the personal data into a secure ID-1 size medium.
- Allows a more reliable identification of the license holder.
- Allows for machine-readable technologies.

Facilitates information exchange and mutual recognition among drone/UAS-related authorities.

Issuing authorities may introduce other functions to an IDrL provided that it does not interfere with the drone/UAS remote pilot and remote crew license function and the requirements of this standard are not compromised.

A drone/UAS remote pilot license is in conformance with this standard if it meets all mandatory requirements specified by each aviation authority.

2 Normative reference(s)

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EASA Easy Access Rules for Unmanned Aircraft System , 2019/947— UAS OPERATIONS .

ICAO RPAS CONOPS, Annex 1—Personnel Licensing, Doc 10019—Manual on Remotely Piloted Aircraft Systems

Doc ICAO, 9750—Global Air Navigation Plan for CNS/ATM systems.

ISO/IEC 7810, *Identification cards — Physical characteristics*

ISO/IEC 7816, *Identification cards — Integrated circuit cards*

ISO/IEC 8859-1, *Information technology — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1*

ISO/IEC 14443, *Cards and security devices for personal identification — Contactless proximity objects*

ISO/IEC 18013:2018, *Identification cards — **ISO**-compliant driving licence (IDL)*

ISO/IEC 18013-5:2021, *Identification cards —mobile driving licence (mDL)*

ISO/IEC 18013:2018, *Information technology – Personal identification - ISO compliant driving licence*

ISO/IEC 18013:2021, *Information technology – Personal identification – mobile driving licence(mDL)*

ISO/DIS 21384, *Unmanned Aircraft System*

ISO/DIS 21895, *Categorization and classification of civil unmanned aircraft systems*

ISO/DIS 23629 UAS, *Traffic Management*

ISO/CD 23629-8, *UAS eID/RID*

ISO/CD 23665 UAS, *Operation Training*

3 Terms and definitions

3.1

alphabetic character

A

hexadecimal ranges '41' – '5A' (Latin uppercase letters), '61' – '7A' (Latin lowercase letters), 'C0' – 'D6', 'D8' – 'F6' and 'F8' – 'FF' of ISO/IEC 8859-1

[SOURCE: ISO/IEC 18013-1:2017]

3.2

aircraft traffic management

ATM

dynamic, integrated management of air traffic and airspace including air traffic services, airspace management, and air traffic flow management—safely, economically, and efficiently—through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions.

3.3

beyond visual line of sight/extended line of sight/visual line of sight

BVLOS/EVLOS/VLOS

beyond visual line of sight “BVLOS”: operation of UAS other than VLOS or EVLOS. extended line of sight “EVLOS”: operation beyond the unaided visual range of the remote pilot, but where the remote pilot is supported by vision systems or one or more visual observers visual line of sight “VLOS”: operation in which the remote pilot or unmanned aircraft observer maintain direct unaided visual contact with the unmanned aircraft system

[SOURCE: ISO21384-4:2020]

3.4

data element

item of data that may appear on the drone/UAS license in either human or machine-readable form

Note 1 to entry: a distinction is made between static data elements and dynamic data elements.

3.5

document recognition

educational knowledge and ability to recognize the validity of the drone license of both national and international jurisdictions including data elements, formatting, visual biometrics (e.g., a portrait, signature), electronically readable features, and document security features.

3.6

dynamic data element

data element associated with the license holder and thus varies from one DrL to the next for a particular licensing authority, thus specifically excluding data elements from the issuing authority

3.7

drone

unmanned system which is remotely or autonomously operated

[SOURCE: ISO 21384-4:2020, 3.23]

3.8

drone security module

security device that serves as a container and cryptographic function provider for the drone pilot/operator license and other personal identification and for drone ID, flight permit ID, and etc. as optional elements

Note 1 to entry: In this document, drone security module has the same meaning as drone/UAS security module.

3.9

drone license / UAS license

DrL / UASL

document issued by an issuing authority to a drone DrL / UASL holder granting the individual the privilege to operate a Drone/UAS within its jurisdiction

Note 1 to entry: The document may facilitate drone/UAS license transactions and provide input data for such transactions. This issued document incorporates several elements and qualifications regarding the license holder: positive identification of the individual; evidence of knowledge of laws and practices; practical driving proficiency in specific Unmanned Aircraft/Drone/UAS class categories;

Note 2 to entry: Drone/UAS licenses are classified into graded tiers of documents, namely TG1, TG2, ...TG5, ISO compliant drone license and IDrL / IUASL (ISO Drone/UAS License)

3.10

flight permit

permit required by an unmanned aircraft to fly in the permitted airspace

3.11

ISO compliant UAS license

domestic drone/UAS license issued in conformance with ISO/IEC 22460

3.12

license holder

individual to whom a DrL is issued, i.e., the legitimate holder of the TG1/TG2/TG3/TG4/TG5/ TG6 living privileges reflected on a DrL / UASL

3.13

license/issuing Authority

authorized agent organization that issues a DrL / UASL

3.14

machine-readable data / information

data or information that is encoded into a machine-readable medium, such as a bar code or contact or contactless integrated circuit cards in a mobile smart phone mDrL

3.15

mandatory data element

element required as obligatory

3.16

numeric character

N

hexadecimal range '30' – '39' (digits 0 to 9) of ISO/IEC 8859-1

[SOURCE: ISO/IEC 18013-1:2017]

3.17

operator

person, organization or enterprise engaged in offering to engage in an operation of an unmanned aircraft system

[SOURCE: ISO21384-4:2020]

3.18

pictograph

graphical representation associated with a specific value or instance of a predefined classification or restriction, such as a Drone/UAS category.

Note 1 to entry: See [annex B](#)

3.19**portrait**

two- or three-dimensional representation of the face of a person in a minimum of full-face frontal pose

3.20**portrait side of card**

face of the card-carrying visual information containing the reproduction of the portrait of the license holder

3.21**remote co-pilot**

remote pilot serving in any piloting capacity other than as a remote PIC but excluding a remote pilot who is an operating crew member for the sole purpose of receiving flight instruction

[SOURCE: ISO 21384-4:2020, 3.60]

3.22**remote crew member**

crew member charged with duties essential to the operation of an unmanned aircraft, during flight time

[SOURCE: ISO 21384-4:2020, 3.61]

3.23**remote cruise relief pilot**

remote crew member who is assigned to perform remote pilot tasks during cruise flight, to allow the remote pilot-in-command to obtain planned rest

[SOURCE: ISO 21384-4:2020, 3.62]

3.24**remote pilot**

person charged by the operator with duties essential to the operation of an unmanned aircraft and who manipulates to flight controls as appropriate, during flight time

[SOURCE: ISO 21384-4:2020, 3.63]

3.25**remote pilot station****RPS**

station at which the remote pilot manages the flight of an unmanned aircraft

[SOURCE: ISO 21384-4:2020, 3.64]

3.26**remote pilot-in-command remote****PIC**

remote pilot designated by the operator, as being in command and charged with the safe conduct of flight

[SOURCE: ISO 21384-4:2020, 3.65]

3.27**remotely-piloted**

<of an aircraft> controlled from a pilot station which is not on board the aircraft

[SOURCE: ISO 21384-4:2020, 3.66]

3.28

remotely piloted aircraft

RPA

unmanned aircraft which is piloted from a remote pilot station

[SOURCE: ISO 21384-4:2020, 3.67]

3.29

RPA observer

remote crew member who, by visual observation of the unmanned aircraft, assist the remote pilot in the safe conduct of flight

[SOURCE: ISO 21384-4:2020, 3.68]

3.30

remotely-piloted aircraft system

RPAS

set of configurable components consisting of a remotely-piloted aircraft, its associated remote pilot station(s), the required command and control links(C2 links) and any other system components as may be required, at any point during flight operation

[SOURCE: ISO 21384-4:2020, 3.69]

3.31

RPAS operator certificate

ROC

certificate authorizing an operator to carry out specific RPAS operation

[SOURCE: ISO 21384-4:2020, 3.70]

3.32

Static data element

data element associated with the issuing authority, and which is the same for all DrLs issued on behalf of or by that issuing authority

3.33

special characters

S

hexadecimal ranges '20' - '2F' (<space> ! " # \$ % & ' () * + , - . /), '3A' (:), '3C' - '40' (< = > ? @), '5B' - '60' ([\] ^ _ `), '7B' - '7E' ({ | } ~), 'A1' - 'AC' (¡ ¢ £ ¤ ¥ ¦ § ¨ © ª « ¬), 'AE' - 'A5' (@ ¯ ° ± ² ³ ´ µ), and 'A7' - 'BF' (· , ¹ ° » ¼ ½ ¾ ¿) of ISO/IEC 8859-1

[SOURCE: ISO/IEC 18013-1:2017]

3.34

unmanned aircraft

aircraft which is designed to be operated remotely or autonomously

[SOURCE: ISO 21384-4:2020, 3.79]

3.35

unmanned aircraft system

UAS

aircraft and its associated elements which are operated remotely or autonomously

[SOURCE: ISO 21384-4:2020, 3.80]

3.36**UAS traffic management****UTM**

a specific aspect of air traffic management which manages UAS operations safely, economically, and efficiently through the provision of facilities and a seamless set of services in collaboration with all parties and involving airborne and ground-based functions.

[SOURCE: ICAO Unmanned Aircraft Systems Traffic Management (UTM) – A Common Framework]

4 Abbreviated terms

AAM	Advanced Air Mobility
ADS-B	Automatic dependent surveillance - broadcast
ATM	Aircraft Traffic Management
ATPL	Airline transport license
BVLOS	Beyond Visual Line of Sight
CPL	Commercial Pilot License
DDrL	Domestic Drone/UAS License
DSM	Drone Security Module
DrL	Drone/UAS License
DrL TG1	Drone/UAS License Tiered Grade 1
EVLOS	Extended Visual Line of Sight
ICAO	International Civil Aviation Organization
IDrL	ISO Drone License
LUC	Light UAS operator Certificate
MPL	Multi-crew Pilot License
PIC	Pilot in command
PPL	Private Pilot License
RAM	Regional Air Mobility
ROC	RPAS operator certificate
RPA	Remotely Piloted Aircraft
RPAS	Remote Pilot Aircraft System
RPS	Remote Pilot Station
UAM	Urban Air Mobility
UAS	Unmanned Aircraft System
UASL	UAS License

UTM	UAS Traffic Management
VLOS	Visual Line of Sight

5 Drone/UAS remote pilot and remote crew license overview

5.1 Drone/UAS remote pilot license and crew license

Remote pilots are fundamental to the safe operation of RPAS. They have the same basic responsibilities as pilots of manned aircraft for the operation of the aircraft in accordance with the rules of the air, and the laws, regulations and procedures of those States in which operations are conducted. However, the competencies of these individuals shall be carefully reviewed to ensure that the knowledge, skills and attitude are relevant for these new types of operations.

According to FAA Code of Federal Regulations in US, Drone/UAS pilots operating under Part 107 (Category 1,2,3,4 small UAS) may fly at night, over people and moving vehicles without a waiver as long as they meet the requirements defined in the rule. Airspace authorizations are still required for night operations in controlled airspace under 400 feet.

As for what pilot licenses would be required to fly an air taxi, the EISA plan would initially allow only fully licensed and experienced pilots of aircraft or helicopters to fly an air taxi. They will have to undergo certain training and inspections before they can obtain additional qualifications for air taxis flying with passengers. Later, a new pilot qualification and licensing scheme will be established, particularly aimed at piloting air taxis. Operations begin with a proven system currently in place, relying on fully qualified pilots.

There are multiple types of pilot licenses private pilot license(PPL), commercial pilot license(CPL), multi-crew pilot license(MPL) and airline transport pilot license(ATPL) are addressed. The remote pilot is a new category of aviation professional. Unlike manned aircraft, ISO22460 is promoted by applying tiered licenses by open category, specific category, and certified category with a single remote pilot license covering all types of scenarios. This license will be annotated with ratings, limitations and endorsements, as appropriate.

This is because the use of aircraft (and their associated elements) with no pilot on board, collectively known as unmanned aircraft systems or UASs, has grown over the years from being used mostly for military use to other varied uses such as border and coastal patrols, environmental research, communications, agriculture, digital mapping and planning, and firefighting. New areas of drone/UAS applications include aerial photography, search and rescue operations, shipping and delivery, wireless internet access, law enforcement, and wildlife tracking. With these varied uses, routine access to civilian airspace is inevitable.

Recently, a passenger-on-board UAS/UAM, RAM, AAM are being developed and is developing into a means of transportation mobility that enables vertical take-off and landing from the vertiport of a densely populated city and movement to the corridor.

5.2 Licensing authority

The licenses of remote pilots should be issued or rendered valid by the licensing authority of the State in which the RPS is located, even if the RPS is only temporarily located in the State. This facilitates oversight of the remote pilot by the licensing authority.

Note Article 32 of the Chicago Convention which stipulates that the licenses of the pilot and other members of the operating crew of an aircraft engaged in international navigation shall be issued or rendered valid by the State in which the aircraft is registered does not apply to remote pilot licenses.

(Source: ICAO Doc 10019 AN/507 Manual on RPAS 8.3)

5.3 License requirement

Remote pilot license requirements and the requirements for the RPA observer competencies should consider the integration of human performance issues within a competency-based training and assessment approach.

All stakeholders (instructors, assessors, course developers, training providers, inspectors, etc.) involved in the training and assessment process should be provided with guidance on how to develop, implement and manage or oversee competency-based training and assessments that integrate human performance elements. Human performance training should not stand out as a separate subject.

(Source: ICAO Doc 10019 AN/507 Manual on RPAS)

5.4 Obligation for personnel to carry documents

When operating an RPA or RPS:

- a) a remote pilot should hold a current medical assessment;
- b) a remote pilot should have in his/her possession a valid remote pilot license;
- c) an RPA observer should have proof of RPA observer competency issued by the RPAS operator or an approved training organization in his/her possession;
- d) the remote pilot should meet the requirements for recent experience established by the licensing authority or, if greater, the requirements for recent experience established by the State of the Operator; and
- e) in case of international flights, a copy of the remote pilot license(s), should be provided to the involved authorities as per Annex 2, Appendix 4, 3.2 g of ICAO Doc10019).

(Source: ICAO Doc 10019 AN/507 Manual on RPAS)

5.5 Language proficiency of remote pilot

Remote pilots that are required to communicate with ATS should demonstrate the ability to speak and understand the language used for ATS communications to the level specified in the language proficiency requirements in Annex 1, Appendix 1, and have proof of language proficiency.

Proof of language proficiency in either English or the language used for communications involved in the remotely piloted flight should be endorsed on the remote pilot license.

Such proof of language proficiency should indicate the language, the proficiency level and the validity date.

The applicant for a proof of language proficiency should demonstrate at least an operational level of language proficiency both in the use of phraseologies and plain language. To do so, the applicant should demonstrate, in a manner acceptable to the licensing authority, the ability to:

- a) communicate effectively in voice-only and in face-to-face situations;
- b) communicate on common and work-related topics with accuracy and clarity;
- c) use appropriate communicative strategies to exchange messages and to recognize and resolve misunderstandings in a general or work-related context; and
- d) handle successfully, and with relative ease, the linguistic challenges presented by a complication or unexpected turn of events that occurs within the context of a routine work situation or communicative task with which they are otherwise familiar; and