Acceptable Means of Compliance and Guidance Material to Regulation (EU) 2019/947 — Issue 1, Amendment 2

'AMC and GM to Regulation (EU) 2019/947 — Issue 1, Amendment 2'

This document shows deleted, new or amended text as follows:

— deleted text is ~~struck through~~;

— new or amended text is highlighted in blue;

— an ellipsis '[…]' indicates that the rest of the text is unchanged.

Note to the reader

In amended, and in particular in existing (that is, unchanged) text, 'Agency' *is used interchangeably with* 'EASA'. *The interchangeable use of these two terms is more apparent in the consolidated versions. Therefore, please note that both terms refer to the* 'European Union Aviation Safety Agency (EASA)'.

Annex I to ED Decision 2019/021/R of the Executive Director of the Agency of 9 October 2019 is amended as follows:

List of abbreviations

AIP	aeronautical information publication
CRM	crew resource management
DSSS	direct-sequence spread spectrum
ERM	emergency response manager
ERT	emergency response team
EVLOS	extended visual line of sight
FTD	flight training device
ICAO	International Civil Aviation Organization
LACA	low-altitude controlled airspace (below 150 m (500 ft))
MS	Member State
OFDM	orthogonal frequency-division multiplexing
SDS	safety data sheets
TOM	take-off mass
USSP	U-space service provider

AMC1 Article 2(11) Definitions

DEFINITION OF 'DANGEROUS GOODS'

~~Under the definition of dangerous goods, blood may be considered to be capable of posing a hazard to health when it is contaminated or unchecked (potentially contaminated). In consideration of Article 5(1)(b)(iii):~~

~~(a) medical samples such as uncontaminated blood can be transported in the 'open', 'specific' or 'certified' categories;~~

~~(b) unchecked or contaminated blood must be transported in the 'specific' or the 'certified' categories. If the transport may result in a high risk for third parties, the UAS operation belongs to the 'certified' category (see Article 6 1.(b) (iii) of the UAS Regulation). If the blood is enclosed in a container such that in case of an accident, the blood will not be spilled, the UAS operation may belong to the 'specific' category, if there are no other causes of high risk for third parties.~~

'Dangerous goods' should be considered any articles or substances which are capable of posing a hazard to health, safety, property or the environment, and which are listed as dangerous goods in the ICAO *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (ICAO Doc 9284), known as the 'Technical Instructions', or which are classified as such according to the Technical Instructions.

GM1 Article 2(11) Definitions

DEFINITION OF 'DANGEROUS GOODS'

The definition of 'dangerous goods' in Article 2(11) of the UAS Regulation stems from the definition and classification of 'dangerous goods' in the ICAO Technical Instructions. ICAO Advisory Circular (AC) 102-37, Revision 0, issued on 23 June 2020, contains further information.

Under the definition of 'dangerous goods' in Article 2(11), blood is considered capable of posing a hazard to health when it contains or may contain infectious substances.

'Infectious substances' means substances that are classified under Division 6.2 of the Technical Instructions. The definition and classification of such substances are also available in the above-mentioned ICAO AC 102-37.

Blood for transfusion and medical samples that are not subject to the provisions of the Technical Instructions may be transported in the 'open', 'specific', or 'certified' categories.

Blood that contains or potentially contains infectious substances should be transported in the 'specific' or 'certified' categories. If such transport results in a high risk for third parties in case of an accident, the UAS operation falls under the 'certified' category (as per Article 6(1)(b)(iii) of the UAS Regulation). If the blood contains or potentially contains infectious substances and is enclosed in such a container such that the blood will not be spilled in case of an accident, the UAS operation may fall under the 'specific' category if there are no other causes of high risk for third parties.

Articles and substances which would otherwise be classified as dangerous goods (e.g. fuel, batteries and other goods used during the flight to supply energy to the drone's system) but which are required to be on board the aircraft for the propulsion of the UAS or for the operation of its specialised equipment during transport, or which are required in accordance with the pertinent operating requirements should not be considered as transported dangerous goods and their safety should verified during the design verification of the UAS.

GM1 Article 2(16) Definitions

DEFINITION OF 'PRIVATELY BUILT UAS'

A UAS is considered privately built when it is manufactured or assembled by the operator for their own use and not placed on the market (i.e. there is no offer or agreement (written or verbal) for the transfer of its ownership or any other property right). In the context of this definition, the terms 'assembled' or 'manufactured' by the operator concerns one of the following actions:

(a) the complete manufacturing of the UAS, or at least the most of it;

(b) the assembly of the UAS from parts or sub-assemblies sold separately;

(c) the modification of a class C4 UAS (aeromodel).

A change of one or a few components of a UAS bearing a class identification label (apart from a C4 UAS) does not qualify it as a privately built UAS, unless the change is described in the manufacturer's instructions. For more information, please refer to AMC1 UAS.OPEN.020(5)(c) and (d), UAS.OPEN.030(3) and UAS.OPEN.040(4)(c), (d) and (e).

A UAS assembled from the elements provided in a 'ready-to-assemble kit' is also not considered 'privately built'.

GM1 Article 2(18) Definitions

DEFINITION OF 'UNINVOLVED PERSONS'

Due to the huge variety of possible circumstances, this GM only provides general guidelines.

An uninvolved person is a person that does not take part in the UAS operation, either directly or indirectly, and that could be potentially affected by the UAS operation. Persons protected by a shelter (e.g. a roof) are not considered to be affected by the UAS operation nor exposed to direct risks if the MTOM of the UA is below 25 kg or if the UA complies with the conditions defined in criterion #2 of mitigation M1 of the SORA (refer to point B.2 of Annex B to the SORA).

People that sit at a beach or in a park, or walk on a street or on a road, are also generally considered uninvolved persons.

A person may be considered to be 'involved' in the UAS operation when ~~they have~~the following conditions are met.

Before the flight, the person:

(a) has given explicit consent (it may be verbal) to the UAS operator or to the remote pilot to be part of the UAS operation (even indirectly as a spectator or just accepting to be overflown by the UAS); and

(b) has received from the UAS operator or from the remote pilot clear instructions and safety precautions to follow in case the UAS exhibits any unexpected behaviour.

UAS operators are responsible for ensuring that all persons involved are able to follow in a timely manner the emergency procedures.

In principle, in order to be considered a 'person involved', one:

(a) is able to decide whether or not to participate in the UAS operation;

(b) broadly understands the risks involved;

(c) has reasonable safeguards during the UAS operations, introduced by the site manager and the aircraft operator; and

(d) is not restricted from taking part in the event or activity if they decide not to participate in the UAS operation.

The person involved is expected to follow the directions and safety precautions provided by the UAS operator or the remote pilot, and the UAS operator or the remote pilot should check by asking simple questions to make sure that the directions and safety precautions have been properly understood.

It should be reminded that UAS operations over assemblies of people (e.g. sport activities or other mass public events) are never allowed in the 'open' category. These operations may be classified as falling into the 'specific' or 'certified' category, depending on the risk involved. Spectators or any other people gathered for sport activities or other mass public events for which the UAS operation is not the primary focus are generally considered ~~to be~~ 'uninvolved persons'.

~~People sitting at a beach or in a park or walking on a street or on a road are also generally considered to be uninvolved persons.~~

An example: when filming with a UAS at a large music festival or public event, it is not sufficient to inform the audience or anyone present via a public address system, or via a statement on the ticket, or in advance by email or text message. Those types of communication channels do not satisfy the points above. In order to be considered a person involved, each person should be asked for their permission and be made aware of the possible risk(s). ~~This type of operation does not fall into the 'open' category and may be classified as 'specific' or 'certified', according to the risk.~~

GM1 Article 2(21) Definitions

DEFINITION OF 'CONTROLLED GROUND AREA'

'Controlled ground area' is an area on the ground (on the surface of the Earth) where the UAS operator is able to ensure that only the persons involved are present. Such area comprises the 'flight geography area', the 'contingency area' and the 'ground risk buffer'. The UAS operator may protect the controlled ground area by means of fencing or using other methods, as appropriate, considering the population density.

GM1 Article 2(28), (29), (30), (31), (32) and (33) Definitions

DEFINITIONS OF 'FLIGHT GEOGRAPHY', 'FLIGHT GEOGRAPHY AREA', 'CONTINGENCY VOLUME', 'CONTINGENCY AREA', 'OPERATIONAL VOLUME' AND 'GROUND RISK BUFFER'

The '**flight geography**' is the spatially and temporally defined volume of airspace in which the UAS operator plans to conduct the operation under normal procedures; the projection of such volume on the surface of the Earth constitutes the '**flight geography area**'. Additionally, the UA positioning errors must be accounted for in the definition of this area.

To cope with abnormal situations (e.g. navigation errors, UA drifting due to wind/gusts, etc.), the UAS operator should define the '**contingency volume**' as an airspace volume where contingency procedures are applied in order to bring the UA back to a normal situation within the 'flight geography' (for example, if the UA exits the boundaries of the flight geography, the remote pilot should take actions to pilot the UAS back into the flight geography. If the contingency situation persists, the remote pilot should activate the FTS (if available) before the UAS exits the contingency volume). The projection of the contingency volume on the surface of the Earth is the '**contingency area**'.

The '**operational volume**' includes the 'flight geography' and the 'contingency volume'. To define the operational volume, the UAS operator should consider the position-keeping capabilities of the UAS in a 4D space (latitude, longitude, height, and time).

The accuracy of the navigation solution, the flight technical error of the UAS, as well as the path definition error (e.g. map error) and latencies should be considered and addressed in defining the operational volume. For navigation errors: the UAS operator should take into account that such errors are determined by the interaction of several contributes, like positioning sensors providing position, navigation and flight control systems, system and human latencies, and environment.

The UAS operator should, therefore, establish sufficient margins to cater for such errors.

The '**ground risk buffer**' is the area on the surface of the Earth surrounding the operational volume, which is defined by the UAS operator to minimise the risk to third parties on the surface in case the UA leaves the operational volume (i.e. the area the UA is expected to impact if its FTS is triggered when the UA leaves the operational volume). Point 2.3.1(c)(3) of AMC1 to Article 11 (SORA) provides additional information.

The relation between 'flight geography', 'flight geography area', 'contingency area', 'operational volume' and 'ground risk buffer' are depicted in Figure 1 below:

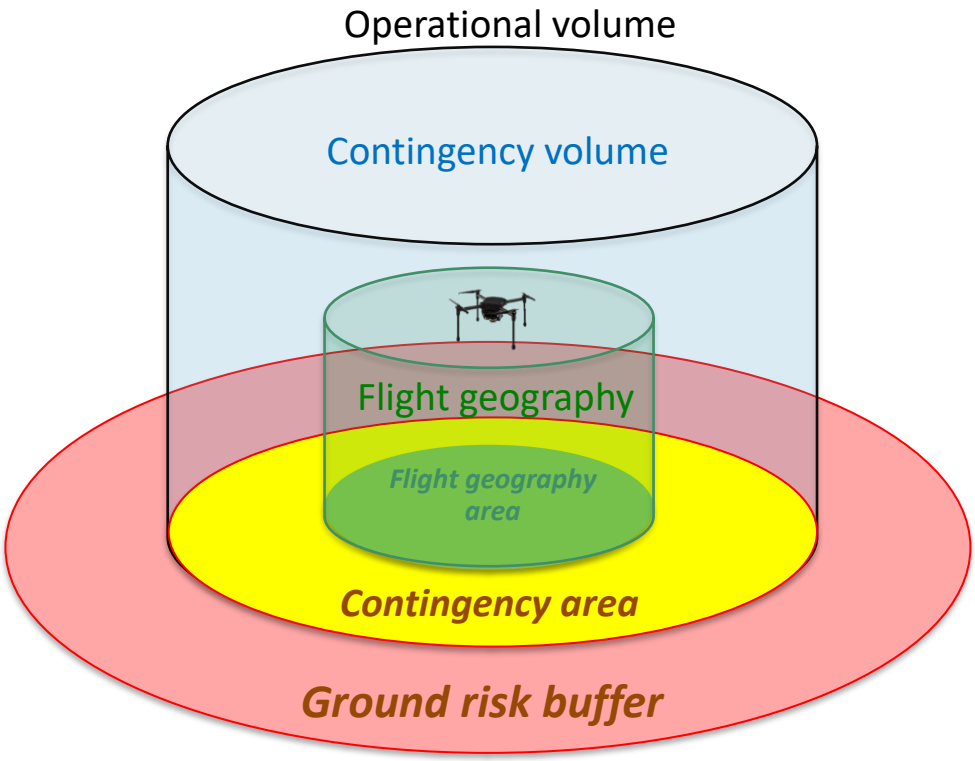

Figure 1 — Relation between 'flight geography', 'flight geography area', 'contingency area', 'operational volume' and 'ground risk buffer'

GM1 Article 2(25) Definitions

RESPONSIBILITIES OF THE AIRSPACE OBSERVER (AO)

The employment of AOs is not limited to operations covered by STSs — they can be employed also in other operations under the 'specific' category. The AO's main responsibilities, as defined in point UAS.STS-02.050, are to:

(1) maintain a thorough visual scan of the airspace surrounding the unmanned aircraft (UA) in order to identify any risk of collision with any manned aircraft;

(2) maintain awareness of the position of the UA through visual contact or through assistance provided by electronic means;

(3) alert the remote pilot when a hazard is detected and assist in avoiding or minimising the potential negative effects;

AMC1 Article 5 'Specific' category of UAS operations

TRANSPORT OF DANGEROUS GOODS IN THE 'SPECIFIC' CATEGORY

(a) Dangerous goods may be transported in the 'specific' category of UAS operations only if the UAS operator is able to demonstrate that these goods will not cause harm or damage to third parties or to the environment in case of accident. When compatible with the operation, a crash-protected container, which will prevent the leakage/dispersion of dangerous goods in case of accident, would be acceptable. In this case, the UAS operator should demonstrate that the container is capable of maintaining/protecting the dangerous goods without causing damage or harm to third parties or the environment in case of accident. In demonstrating the conformity of the container, the operational characteristics of the flight (flight speed, altitude, weather conditions, etc.) shall be taken into account, as well as the defining aspects of the geographical area of operation.

(b) The assessment of the operational risk of transporting dangerous goods should take into account the following:

(1) the risk that such goods pose to persons that are directly involved in their handling, to the environment, and to third parties and their properties;

(2) the hazard posed by the quantity and class of the dangerous goods;

(3) the characteristics of the container for the dangerous goods;

(4) the level of competence of those handling the dangerous goods; and

(5) the geographical area in which the flight will be operated.

(c) The UAS operator that wishes to carry out operations in the 'specific' category to transport dangerous goods should establish a dangerous goods training programmes for the personnel involved, as required by the Technical Instructions. Such training programmes should be commensurate with the responsibilities of the personnel involved in those operations. The training programmes should be subject to review and approval by the competent authority, and should cover at least the following aspects:

(1) dangerous goods terminology;

(2) classification of dangerous goods;

(3) labelling of dangerous goods;

(4) identification of dangerous goods that use 'SDSs' and the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) consumer labelling;

(5) use of the dangerous goods list provided in the Technical Instructions;

(6) storage and handling of dangerous goods, including but not limited to the segregation of incompatible dangerous goods, dangerous goods loading, and dangerous goods securing;

(7) instructions and safety precautions to be provided to employees and third parties; and

(8) emergency/reporting procedures included in the ERP in case of an accident/incident with dangerous goods.

GM1 ~~to~~ AMC1 Article 11 Rules for conducting an operational risk assessment

GENERAL

[…]

When UAS operators intend to conduct an operation covered by a PDRA, they should fill in the last two columns of the table related to the selected PDRA, named 'integrity' and 'proof'. In the column 'integrity' they should explain how the level of integrity is met, and in the column 'proof' how the level of integrity is demonstrated. To support UAS operators, the two columns are already prefilled; however, the UAS operator may adapt the text to their needs.

If the UAS operation does not fit completely within the limits of the PDRA, the UAS operator is required to conduct a full risk assessment and submit it to the competent authority. Changes to the PDRA should not be done, unless the competent authority accepts that minor changes should be made.

PDRA#	Edition/date	UAS characteristics	BVLOS / VLOS	Overflown area	Maximum range from remote pilot	Maximum height	Airspace	AMC# to Article 11	Notes
PDRA-S01	1.~~0~~1 / ~~July~~ January 2022~~0~~	Maximum characteristic dimension of up to 3 m and take-off mass of up ~~of~~ to 25 kg	VLOS	Controlled ground area that might be located in a populated area	VLOS	15~~2~~0 m	Controlled or uncontrolled, with low risk of encounter with manned aircraft	AMC4	
PDRA-S02	1.~~0~~1 / ~~July~~ January 2022~~0~~	Maximum characteristic dimension of up to 3 m and take-off mass of up to 25 kg	BVLOS	Controlled ground area that is entirely located in a sparsely populated area	2 km with ~~(~~an~~)~~ AO(s) 1 km, if no AO	15~~2~~0 m	Controlled or uncontrolled, with low risk of encounter with manned aircraft	AMC5	
PDRA-G01	1.~~0~~2 / ~~July~~ January 2022~~0~~	Maximum characteristic dimension of up to 3 m and typical kinetic energy of up to 34 kJ	BVLOS	Sparsely populated areas	If no AO, up to 1 km	150 m (operational volume)	Uncontrolled, with low risk of encounter with manned aircraft	AMC2	
PDRA-G02	1.~~0~~1 / ~~July~~ January 2022~~0~~	Maximum characteristic dimension of up to 3 m and	BVLOS	Sparsely populated areas	~~N~~n/a (direct C2 link)	As established	~~As r~~Reserved or segregated	AMC3	

PDRA#	Edition/date	UAS characteristics	BVLOS / VLOS	Overflown area	Maximum range from remote pilot	Maximum height	Airspace	AMC# to Article 11	Notes
		typical kinetic energy of up to 34 kJ				for the reserved or segregated airspace	for the UAS operation		
PDRA-G03	1.0 / January 2022	Maximum characteristic dimension of up to 3 m and typical kinetic energy of up to 34 kJ	BVLOS	Sparsely populated areas	n/a (direct C2 link)	50 m from ground unless in reserved or segregated airspace	Controlled or uncontrolled airspace if height is below 50 m, otherwise reserved or segregated airspace	AMC6	

Table 2 — List of PDRAs published as AMC~~2 5~~ to Article 11 ~~t~~of the UAS Regulation

For the purposes of the SORA, the following definitions should apply:

— ‘populated area’ should be understood as ‘congested area’, as defined in Regulation (EU) No 965/2012 (the ‘Air Operations Regulation’): ‘in relation to a city, town or settlement, any area which is substantially used for residential, commercial or recreational purposes’; and

— ‘rural area’ is used in the context of the air risk and it means the volume outside a populated area and not within the aerodrome traffic zone (ATZ) of an aerodrome.

AMC2 Article 11 Rules for conducting an operational risk assessment

PREDEFINED RISK ASSESSMENT PDRA-G01 Version 1.2~~1~~

EDITION ~~December 2020~~January 2022

[…]

(b) PDRA characterisation and ~~provisions~~ conditions

The characterisation and ~~provisions~~ conditions for this PDRA are summarised in **Table PDRA-G01.1** below:

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
1. Operational characterisation (scope and limitations)				
Level of human intervention	Self-declaration	1.1 No autonomous operations: the remote pilot should have the ability to maintain control of the UA, except in case of a loss of the command and control (C2) link.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.2 The remote pilot should operate only one UA at a time.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.3 The remote pilot should not operate the UA from a moving vehicle.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.4 The remote pilot should not hand ~~over~~ the control of the UA over to another command unit.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
UA range limit	Self-declaration	1.5 Launch/recovery: at VLOS distance from the remote pilot, if not operating from a safe prepared area. *Note: 'safe prepared area' means a controlled ground area that is suitable for the safe launch/recovery of the UA.*	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.6 In flight:		

[1] To be filled in by the UAS operator.

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		1.6.1 If no AOs are employed: the UA is not operated further than 1 km (or other distance defined by the competent authority) from the remote pilot. *Note: The remote pilot's workload should allow them ~~remote pilot~~ to continuously visually scan the airspace.*	*Please include a reference to the relevant chapter of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		1.6.2 If AOs are employed: the range is not limited as long as the UA is not operated further than 1 km (unless a different distance is defined by the competent authority) from the AO who is nearest to the UA.	*Please include a reference to the relevant chapter of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
~~Areas~~ ~~e~~Overflown areas	Declaration supported by data	1.7 UAS operations should be conducted over sparsely populated areas.	*Please include a reference to the relevant chapter of the OM where the procedures for determining the population density are provided.*	'I declare compliance.' *Please describe how population density data is identified.*
UA limitations	Self-declaration	1.8 Maximum characteristic dimensions (e.g. wingspan, rotor diameter/area or maximum distance between rotors in case of a multirotor): 3 m	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.9 Typical kinetic energy (as defined in paragraph 2.3.1(k) of AMC1 to Article 11 of the UAS Regulation: up to 34 kJ	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Flight height limit	Self-declaration	1.10 The maximum height of the operational volume should not be greater than 150 m (500 ft) above the overflown area~~surface~~ (or any other altitude reference defined by the Member State). *Note: In addition to the vertical limit of the operational volume, an air risk buffer is to be considered (see 'Air risk' under point 3 of this table).*	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
Airspace	Self-declaration	1.11 The UA should be operated:		
		1.11.1 in uncontrolled airspace ~~(Class F or G)~~ (corresponding to an air risk that can be classified as ARC-b); or	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.11.2 in a segregated area (corresponding to an air risk that can be classified as ARC-a); or	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.11.3 as otherwise established by the Member States in accordance with Article 15 (with an associated air risk that can be classified as not higher than ARC-b).	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Visibility	Self-declaration	1.12 The UA should be operated in an area where flight visibility is greater~~more~~ than 5 km. ~~*Note: This flight visibility should be understood as the distance from which a UA can be visually detected by the remote crew*~~ *Note: Please refer to* GM1 UAS.STS-02.020(3).	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Others	Self-declaration	1.13 The UA should not be used to drop material or to carry dangerous goods, except for dropping items in connection with agricultural, horticultural or forestry activities~~ in which~~where the carriage of ~~the~~such items does not contravene any other applicable regulations.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
2. Operational risk classification (according to the classification defined in AMC1 to Article 11 of the UAS Regulation)				
Final GRC	3	**Final ARC**	ARC-b	**SAIL** II
3. Operational mitigations				
Operational volume (see Figure 2 of	Self-declaration	3.1 To determine the operational volume, the applicant should consider the position-keeping capabilities of the UAS	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
AMC1 Article 11)		in 4D space (latitude, longitude, height, and time).		
		3.2 In particular, the accuracy of the navigation solution, the flight technical error of the UAS, as well as the flight path definition error (e.g. map error) and latencies should be considered and addressed when determining the operational volume.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.3 The remote pilot should apply emergency procedures as soon as there is an indication that the UA may exceed the limits of the operational volume.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Ground risk	Self-declaration	3.4 The UAS operator should establish a ground risk buffer to protect third parties on the ground outside the operational volume.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.4.1 The minimum criterion should be the use of the '1:1 rule' (e.g. if the UA is planned to operate at a height of 150 m, the ground risk buffer should at least be 150 m).	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.5 The operational volume and the ground risk buffer should be all contained in a sparsely populated area.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.6 The applicant should evaluate the area of operations typically by means of an on-site inspection or appraisal, and should be able to justify a lower density of people at risk in the operational area and the ground risk buffer.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Air risk	Self-declaration	3.7 The UAS operator should establish an air risk buffer to protect third parties in the air outside the operational volume.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		3.8 This air risk buffer should be contained in ~~the~~ an airspace that meets the conditions defined in 1.11 and ~~class F or G' (uncontrolled airspace)~~ over sparsely populated areas~~, and in UAS geographical zones defined by the MSs where the probability of encounter with manned aircraft and other airspace users is not low.~~ If the operation is limited at a height below 120 m, no additional vertical air risk buffer is required.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.' *If the height of the operation is above 120 m and up to 150 m, please add the following:* 'Supporting evidence is included in the OM.' 'Justification supporting the appropriate air risk buffer is documented in […].'
		3.9 The operational volume should be outside any geographical zone corresponding to a flight restriction zone, as defined by the responsible authority, unless the UAS operator has been granted ~~an~~ appropriate permission.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.10 Prior to the flight, the remote pilot should assess the proximity of the planned operation to manned aircraft activity.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
	Declaration supported by data	3.11 If the UAS operation is performed above 120 m and up to 150 m, the UAS operator should develop appropriate procedures to not jeopardise other airspace users.	*Please include a reference to the relevant chapter/section of the OM.* *Please describe how the remote pilots and, if employed, the AOs are able to assess the height of the UA compared to other airspace users[2].*	'I declare compliance and supporting evidence is included in the OM.'
Observers[3]	Self-declaration	3.12~~1~~ If the UAS operator decides to employ one or more airspace observers (AOs), the remote pilot may operate the	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'

[2] The UAS operator should demonstrate that they have sufficient confidence in the accuracy of the information about the height of the UA and the means to advert and avoid other airspace users and obstacles in the vicinity of the UA.

[3] Please refer to point UAS.STS-02.050 for the AO's main responsibilities.

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		UA up to the distance that is specified in point 1.6.2.		
		3.13~~2~~ The UAS operator should ensure the correct placement and the appropriate number of AOs along the intended flight path. Prior to each flight, the UAS operator should verify that:	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		3.13~~2~~.1 the visibility and the planned distance of the AOs are within the acceptable limits that are defined in the operations manual (OM);	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		3.13~~2~~.2 there are no potential terrain obstructions for each AO;	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		3.13~~2~~.3 ~~that~~ there are no gaps between the zones that are covered by each of the AOs;~~.~~	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		3.13~~2~~.4 communication with each AO is established and effective; and	*Please include a reference to the relevant chapter/section of the OM, otherwise 'n/a'.*	'I declare compliance.' or 'n/a'
		3.13~~2~~.5 if means are used by the AOs to determine the position of the UA, those means are functioning and effective. *Note: Instead of an AO, the remote pilot may perform the visual scan of the airspace, provided that the workload allows them ~~remote pilot~~ to perform their duties.*	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
4. UAS operator and UAS operations conditions~~provisions~~				
UAS operator and UAS operations	Declaration supported by data	4.1 ~~In addition to the responsibilities that are defined in point UAS.SPEC.050 of the Annex to the UAS Regulation and the provisions for UAS operators in previous~~		

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		~~points of this AMC, t~~The UAS operator should:		
		4.1.1 develop an operations manual (OM) (for the template, refer to AMC1 UAS.SPEC.030(3)(e) and to the complementary information in GM1 UAS.SPEC.030(3)(e));	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.2 develop procedures to ensure that the security requirements applicable to the area of operations are complied with during in the intended operation;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.3 develop measures to protect the UAS against unlawful interference and unauthorised access;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.4 develop procedures to ensure that all operations comply with Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data; in particular, the UAS operator should carry out a data protection impact assessment, when this is required by the data protection national authority of the Member State with regard to the application of Article 35 of that Regulation;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.5 develop guidelines for its remote pilots to plan UAS operations in a manner that minimises nuisance, including noise and other emissions-related nuisance, to people and animals;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		4.1.6~~2~~ develop an emergency response plan (ERP) ~~(see point 7 of GM1 UAS.SPEC.030(3)(e))~~ in accordance with the conditions for a 'medium' level of robustness (please refer to AMC3 UAS.SPEC.030(3)(e);	*Please describe how this condition is met.*	'I declare compliance and that the ERP is available to the competent authority for review.'
		4.1.7~~3~~ validate the operational procedures ~~against standards that are recognised by the competent authority and/or in accordance with a means of compliance acceptable to that authority~~ in accordance with the conditions for a 'medium' level of robustness, which are included in AMC2 UAS.SPEC.030(3)(e);	*Please describe how this condition is met.*	'I declare compliance and that the description for meeting this condition is available to the competent authority for review.'
		4.1.8~~4~~ ensure the adequacy of the contingency and emergency procedures, and prove ~~them~~it through any of the following: (a) dedicated flight tests; or (b) simulations, provided that the representativeness of the simulation means is proven for the intended purpose with positive results; or (c) any other means acceptable to the competent authority; ~~and~~	*Please describe how this condition is met.*	'I declare compliance and that the description for meeting this condition is available to the competent authority for review.'
		4.1.9~~5~~ have a policy that defines how the remote pilot and ~~all~~any other personnel in charge of duties essential to the UAS operation can declare themselves fit to operate before conducting any operation;~~.~~	*Please describe how this condition is met.*	'I declare compliance and that the description for meeting this condition is available to the competent authority for review.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		4.1.10 designate for each flight a remote pilot with adequate competency and other personnel in charge of duties essential to the UAS operation if needed;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.11 ensure that the UAS operation effectively uses and supports the efficient use of the radio spectrum in order to avoid harmful interference;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.12 keep for a minimum of 3 years and maintain up to date a record of the information on UAS operations, including any unusual technical or operational occurrences and other data as required by the declaration or by the operational authorisation.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that record-keeping data is available to the competent authority for review.'
UAS maintenance	Self-declaration	4.2 The UAS operator should:		
		4.2.1 ensure that ~~T~~the UAS maintenance instructions that are defined by the UAS operator ~~should be~~are included in the OM and cover at least the UAS manufacturer's instructions and requirements, when applicable;~~.~~	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.~~3~~2.2 ensure that ~~T~~the maintenance staff ~~should~~ follow the UAS maintenance instructions when performing maintenance;~~.~~	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.2.3 keep for a minimum of 3 years and maintain up to date a record of the maintenance activities conducted on the UAS;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		4.2.4 establish and keep up to date a list of the maintenance staff employed by the UAS operator to carry out maintenance activities;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.2.5 comply with point UAS.SPEC.100, if the UAS uses certified equipment;	*Please include a reference to the relevant chapter/section of the OM or n/a.*	'I declare compliance.' or 'n/a'
External services	Self-declaration	4.3~~4~~ The UAS operator should ensure that the level of performance for any externally provided service that is necessary for the safety of the flight is adequate for the intended operation. The UAS operator should declare that this level of performance is adequately achieved.	*Please describe how this condition is met.*	'I declare compliance.'
		4.4~~5~~ The UAS operator should define and allocate the roles and responsibilities between the UAS operator and the external service provider(s), if applicable.	*Please describe how this condition is met.*	'I declare compliance.'
5. Conditions~~Provisions~~ for the personnel in charge of duties essential to the UAS operation				
	~~As per Appendix A to AMC2 Article 11 *The personnel in charge of duties essential to the UAS operation*~~			
General	Declaration supported by data	5.1 The UAS operator should ensure that all personnel in charge of duties essential to the UAS operation are provided with competency-based, theoretical and practical training specific to their duties, which consists of the applicable theoretical elements derived from AMC1 UAS.SPEC.050(1)(d), and practical elements from AMC2 UAS.SPEC.050(1)(d) and UAS.SPEC.050(1)(e). In addition, for non-remote pilots, also from AMC3 UAS.SPEC.050(1)(d).	*Please describe how this condition is met.*	'I declare compliance.' Evidence of training is available for inspection at the request of the competent authority or its authorised representative. The training programme is documented in the OM.
		5.2 The UAS operator should keep and maintain up to date a record of all the	*Please describe how this condition is met.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		relevant qualifications and training courses completed by the remote pilot and the other personnel in charge of duties essential to the UAS operation and by the maintenance staff for at least 3 years after those persons have ceased to be employed by the organisation or have changed position within the organisation.		Record-keeping data is available for inspection at the request of the competent authority.
Remote pilot	Self-declaration	5.3 The remote pilot should have the authority to cancel or delay any or all flight operations under the following conditions:	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.1 when the safety of persons is jeopardised; or	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.2 when property on the ground is jeopardised; or	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.3 when other airspace users are jeopardised; or	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.4 when there is a violation of the terms of the operational authorisation.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.4 If AOs are employed, the remote pilot should ensure that the necessary number of AOs is available and correctly placed, and that the communication with them can be adequately established.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.5 The remote pilot should:		
		5.5.1 not perform duties under the influence of psychoactive substances	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		or alcohol, or when they are unfit to perform their tasks due to injury, fatigue, medication, sickness or other causes;		
		5.5.2 be familiar with the manufacturer's instructions provided by the manufacturer of the UAS;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.5.3 ensure that the UA remains clear of clouds;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.5.4 perform unaided visual scan of the airspace and ensure that the AO(s) can perform the same, if required, to avoid any potential collision hazard;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.5.5 obtain updated information relevant to the intended operation about any geographical zones defined in accordance with Article 15 of the UAS Regulation; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.5.6 ensure that the UAS is in a safe condition to complete the intended flight safely, and if applicable, check whether the direct remote identification is active and up to date.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
	Self-declaration	5.6 Where multi-crew cooperation (MCC) is required, the UAS operator should:		

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
Multi-crew cooperation (MCC)		5.6.1 designate the remote pilot-in-command to be responsible for each flight;	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		5.6.2 include procedures to ensure coordination between the remote crew members through robust and effective communication channels; those procedures should cover, as a minimum:	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or n/a'
		5.6.2.1 the assignment of tasks to the remote crew members; and	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or n/a'
		5.6.2.2 the establishment of step-by-step communication; and	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or n/a'
		5.6.3 ensure that the training of the remote crew covers MCC.	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or n/a'
Maintenance staff	Declaration supported by data	5.7 Any maintenance staff member that is authorised by the UAS operator to perform maintenance activities should have been adequately trained in the documented maintenance procedures.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.' Evidence of training is available at the request of the competent authority.
Personnel in charge of duties essential to the UAS operation are fit to operate	Self-declaration	5.8 The personnel in charge of duties essential to the UAS operation should declare that they are fit to operate before conducting any operation, based on the policy that is defined by the UAS operator.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
6. Technical conditions~~provisions~~				

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		6.1 The UAS should be equipped with means to monitor the critical parameters of a safe flight, in particular the following:		
		6.1.1 the UA position, height or altitude, ground speed or airspeed, attitude and trajectory;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.1.2 the UAS energy status (fuel, battery charge, etc.); and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.1.3 the status of critical functions and systems; as a minimum, for services based on RF signals (e.g. C2 Link, GNSS, etc.), means should be provided to monitor the adequate performance and trigger an alert when ~~if~~ the performance level becomes too low.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.2 The UA should have the performance capability to descend safely from its operating altitude to a 'safe altitude' in less than 1 minute, or have a descent rate of at least 2.5 m/s (500 fpm).	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Human~~-~~machine interface (HMI)	Self-declaration	6.3 The UAS information and control interfaces should be clearly and succinctly presented and should not confuse, cause unreasonable fatigue, or contribute to causing any disturbance to the personnel in charge of duties essential to the UAS operation in such a way that could adversely affect the safety of the operation.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.4 If an electronic means is used to support AOs in their role of maintaining awareness of the position of the UA~~unmanned aircraft~~, its HMI should:		

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		6.4.1 be sufficiently easy to understand to allow ~~the~~ AOs to determine the position of the UA during the operation; and	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		6.4.2 not degrade the AOs' ability to:		
		6.4.2.1 perform unaided visual scan~~ning~~ of the airspace where the UA is operating for any potential collision hazard; and	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		6.4.2.2 maintain effective communication with the remote pilot at all times.	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		6.5 The UAS operator should conduct a UAS evaluation that considers and addresses human factors to determine whether the HMI is appropriate for the operation.	*Please describe how this condition is met.*	'I declare compliance.'
C2 links and communication	Self-declaration	6.6 The UAS should comply with the applicable requirements for radio equipment and the use of the RF spectrum.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.7 Protection mechanisms against interference should be used, especially if unlicensed bands (e.g. ISM) are used for the C2 link (mechanisms such as FHSS, DSSS or OFDM technolog~~y~~ies, or frequency deconfliction~~de-confliction~~ by procedure).	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.8 The UAS should be equipped with a C2 link that is protected against unauthorised access to the command-and-control functions.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		6.9 In case of a loss of the C2 link, the UAS should have a reliable and predictable method to recover the command-and-control link of the UA or to terminate the flight in a way that reduces any undesirable effect on third parties in the air or on the ground.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.10 Communication between the remote pilot and the AO(s) should allow the remote pilot to manoeuvre the UA with sufficient time to avoid any risk of collision with manned aircraft, in accordance with point UAS.SPEC.060(3)(b) of the UAS Regulation.	*Please describe how this condition is met.*	'I declare compliance.'
Tactical mitigation	Self-declaration	6.11 The UAS design should be adequate to ensure that the time required between a command given by the remote pilot and the UA executing it does not exceed 5 seconds.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.12 Where an electronic means is used to assist the remote pilot and/or AOs in being aware of the UA position in relation to potential 'airspace intruders', the information is provided with a latency and an update rate for intruder data (e.g. position, speed, altitude, track) that support the decision criteria.	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
Containment	Declaration supported by data	6.13 To ensure a safe recovery from a technical issue that involves the UAS or an external system that supports~~ing~~ the operation, the UAS operator should ensure that:		

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		6.13.1 no probable failure of the UAS or of any external system that supports~~ing~~ the operation ~~sh~~would lead to operation outside the operational volume; and	*Please describe how this condition is met.*	'I declare compliance.' 'A design and installation appraisal is available and it covers at least: — the design and installation features (independence, separation, and redundancy); and — the particular risks (e.g. hail, ice, snow, electromagnetic interference, etc.) relevant to the type of operation.'
		6.13.2 it is reasonably expected that a fatality will not occur due to any probable failure of the UAS or of any external system that supports~~ing~~ the operation.	*Please describe how this condition is met.*	
		6.14 The vertical extension of the operational volume should be 150 m above the surface (or any other reference altitude ~~reference~~ defined by the Member State). *Note: The term 'probable' should be understood in its qualitative interpretation, i.e. 'anticipated to occur one or more times during the entire system/operational life of an item'.*	*Please describe how this condition is met.*	
	Declaration supported by data	6.15 The following additional conditions~~provisions~~ should apply if the adjacent area includes an assembly of people or if the adjacent airspace is classified as ARC-d (in accordance with the SORA~~AMC1 Article 11 of the UAS Regulation~~):		
		6.15.1 The UAS should be designed to standards that are considered adequate by the competent authority and/or in accordance with a means of compliance that is acceptable to that competent authority such that:	*Please include a reference to the relevant chapter/section of the OM or indicate 'n/a'.*	'I declare compliance.' Analysis and/or test data with supporting evidence is available.

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		6.15.1.1 the probability of the UA leaving the operational volume should be less than 10^{-4}~~$^{-4}$~~/FH; and	*Please include a reference to the relevant chapter/section of the OM or indicate 'n/a'.*	
		6.15.1.2 no single failure of the UAS or of any external system that supports~~ing~~ the operation should lead to operation outside the ground risk buffer. *Note: The term 'failure' should be understood as an occurrence that affects the operation of a component, part, or element in such a way that it can no longer function as intended. Errors may cause failures but are not considered to be failures. Some structural or mechanical failures may be excluded from this criterion if it can be shown that these mechanical parts were designed according to aviation industry best practices.*	*Please include a reference to the relevant chapter/section of the OM or indicate 'n/a'.*	
		6.15.2 SW and AEH whose development error(s) could directly lead to operations outside the ground risk buffer should be developed according to an industry standard or methodology that is~~are~~ recognised as adequate by the competent authority. *Note 1: The proposed additional safety conditions~~provisions~~ cover both the integrity and the assurance levels.* *Note 2: The proposed additional safety conditions~~provisions~~ do not imply a systematic need to develop the SW and AEH according to*	*Please include a reference to the relevant chapter/section of the OM or indicate 'n/a'.*	

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[1]**	**Proof[1]**
		an industry standard or methodology that is~~are~~ recognised as adequate by the competent authority. For instance, if the UA design includes an independent engine shutdown function that systematically prevents the UA from exiting the ground risk buffer due to single failures or an SW/AEH error of the flight controls from occurring, the intent of the conditions~~provisions~~ of point 6.15~~4~~.1 above could be considered ~~to be~~ met.		
Remote identification[4]	Self-declaration	6.16 The UAS has a unique serial number compliant with standard ANSI/CTA-2063-A-2019, *Small Unmanned Aerial Systems Serial Numbers*, 2019, according to Article 40(4) of Regulation (EU) 2019/945.	*Please describe how this condition is met.*	'I declare compliance.'
		6.17 the UAS is equipped with a remote identification system according to Article 40(5) of Regulation (EU) 2019/945.	*Please describe how this condition is met.*	'I declare compliance.'
Lights[4]	Self-declaration	6.18 If the UAS is operated at night, it is equipped with at least one green flashing light according to point UAS.SPEC.050(1)(l)(i) of the UAS Regulation.	*Please describe how this condition is met.*	'I declare compliance.' or 'n/a'

Table PDRA-G01.1~~2~~ — Main limitations and conditions~~provisions~~ for PDRA-G01

[4] Applicable from 1 July 2022.

~~Appendix A to AMC2 Article 11 The personnel in charge of duties essential to the UAS operation~~

~~The following are provisions applicable to UAS operators in relation to ensuring the proficiency, competency and clear duty assignment to the personnel in charge of duties essential to the UAS operation. UAS operators may decide to expand these requirements as applicable to its operation.~~

~~A.1 Training and qualifications for the personnel in charge of duties essential to the UAS operation~~

~~A.1.1 The UAS operator should ensure that all the personnel in charge of duties essential to the UAS operation (i.e. any people involved in the operation) are provided with competency-based theoretical and practical training specific to their duties that consists of the following elements:~~

~~A.1.1.2 The basic competencies from the competency framework that are necessary for staff to be adequate for the operation, to ensure safe flight, are as follows:~~

~~A.1.1.2.1 the UAS regulation,~~

~~A.1.1.2.2 UAS airspace operating principles,~~

~~A.1.1.2.3 airmanship and aviation safety,~~

~~A.1.1.2.4 human performance limitations,~~

~~A.1.1.2.5 meteorology,~~

~~A.1.1.2.6 navigation/charts,~~

~~A.1.1.2.7 UA knowledge,~~

~~A.1.1.2.8 operating procedures,~~

~~A.1.1.2.9 assignment of tasks to the crew,~~

~~A.1.1.2.10 establishment of step-by-step communications, and~~

~~A.1.1.2.11 coordination and handover.~~

~~A.1.1.3 Familiarisation with the 'specific' category of operations~~

~~A.1.1.3.1 The training programme should be documented (at least the training syllabus should be available).~~

A.1.1.3.2 Evidence of training should be presented for inspection upon request from the competent authority or authorised representative.

A.2. AOs

A.2.1 The AO's main responsibilities should be to:

A.2.1.1 maintain a thorough visual scan of the airspace that is surrounding the UA, to identify any risk of collision with manned aircraft;

A.2.1.2 maintain awareness of the position of the UA through direct visual observation or through assistance provided by an electronic means; and

A.2.1.3 alert the remote pilot if a hazard is detected and assist in avoiding or minimising the potential negative effects.

A.3 Remote pilot

A.3.1 The remote pilot has the authority to cancel or delay any or all flight operations under the following conditions:

A.3.1.1 the safety of persons is threatened; or

A.3.1.2 property on the ground is threatened; or

A.3.1.3 other airspace users are in jeopardy; or

A.3.1.4 there is a violation of the terms of this authorisation.

A.3.2 If VOs are used, then the remote pilot should ensure that the necessary VOs are available and correctly placed, and that the communications with them can be adequately performed.

A.3.3 The remote pilot should ensure that the UA remains clear of clouds, and that the ability of the remote pilot, or one of the VOs, to perform unaided visual scanning of the airspace where the unmanned aircraft is operating for any potential collision hazard is not hampered by clouds.

A.4. Multi-crew cooperation (MCC)

A.4.1 In applications where MCC might be required, the UAS operator should:

A.4.1.1 include procedures to ensure coordination between the remote crew members with robust and effective communication channels. Those procedures should cover as a minimum:

A.4.1.1.1 the assignment of tasks to the remote crew members; and

~~A.4.1.1.2 the establishment of step-by-step communication; and~~

~~A.4.1.2 ensure that the training of the remote crew covers MCC.~~

~~A.5. The remote crew is fit to operate~~

~~A.5.1 The UAS operator should have a policy defining how the remote crew can declare themselves fit to operate before conducting any operation.~~

~~A.5.2 The remote crew shall declare that they are fit to operate before conducting any operation based on the policy defined by the UAS operator.~~

~~A.6. Maintenance staff~~

~~A.6.1 Any staff member authorised by the UAS operator to perform maintenance activities should have been duly trained regarding the documented maintenance procedures.~~

~~A.6.2 Evidence of training should be presented for inspection upon request from the competent authority or authorised representative.~~

~~A.6.3 The UAS operator may declare that the maintenance team has received training regarding the documented maintenance procedures; however, evidence of this training shall be made available upon request from the competent authority or authorised representative.~~

AMC3 Article 11 Rules for conducting an operational risk assessment

PREDEFINED RISK ASSESSMENT PDRA-G02 Version 1.1~~0~~

EDITION ~~December 2020~~ January 2022

(a) Scope

This PDRA is the result of applying the methodology that is described in AMC1 to Article 11 of the UAS Regulation to UAS operations ~~performed~~ conducted in the 'specific' category with the following main attributes:

(1) ~~with~~ UA with maximum characteristic dimensions (e.g. wingspan, rotor diameter/area or maximum distance between rotors in case of a multirotor) of up to 3 m and typical kinetic energies of up to 34 kJ;

(2) BVLOS of the remote pilot;

(3) over sparsely populated areas;

(4) in airspace that is reserved or segregated for the UAS operation, corresponding to an air risk that can be classified as ARC-a~~: either a danger area or a restricted area appropriate for unmanned aircraft operations~~.

(5) within the range of the direct C2 link[5] (radio line of sight) up to the height of the upper boundary of the reserved airspace.

(b) PDRA characterisation and conditions~~provisions~~

[5] Due to the lack of experience in the use of communication services for extending the C2 link coverage through communication networks (e.g. mobile networks) in the type of UAS operations that are addressed by this PDRA, the scope of the PDRA is initially limited to the coverage of a direct C2 Link (direct link between the control station and the UA). As more experience in the use of those communication services is gained, the conditions of this PDRA may be revised to encompass their uses.

The characterisation and conditions~~provisions~~ for this PDRA are summarised in Table PDRA-G02.1 below.

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[6]**	**Proof[8]**
1. Operational characterisation (scope and limitations)				
Level of human intervention	Self-declaration	1.1 No autonomous operations: the remote pilot should have the ability to maintain control of the UA, except in case of a loss of the command-and-control (C2) link.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.2 The remote pilot should operate only one UA at a time.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.3 The remote pilot should not operate the UA from a moving vehicle.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.4 The remote pilot should not hand the control of the UA over to another command unit.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
UA range limit	Self-declaration	1.5~~3~~ Launch/recovery: ~~a~~At VLOS distance from the remote pilot, if not operating from a safe prepared area. *Note: 'safe prepared area' means a controlled ground area that is suitable for the safe launch/recovery of the UA.*	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.6~~4~~ In flight: The range limit should be within the coverage of the direct C2 link (radio line of sight), ~~coverage that~~which ensures the safe conduct of the flight.	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
~~Areas o~~**Overflown areas**	Declaration supported by data	1.7~~5~~ UAS operations should be conducted over sparsely populated areas.	*Please include a reference to the relevant chapter/section of the OM where the procedures for determining the population density are provided.*	'I declare compliance.' *Please describe how the population density data is identified.*
UA limitations	Self-declaration	1.8~~6~~ Maximum characteristic dimension (e.g. wingspan, rotor diameter/area or maximum distance between rotors in case of a multirotor): 3 m	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

[6] To be filled in by the UAS operator.

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[6]**	**Proof[8]**
		1.9~~7~~ Typical kinetic energy (as defined in paragraph 2.3.1(k) of AMC1 to Article 11 of the UAS Regulation: up to 34 kJ	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Flight height limit	Self-declaration	1.10~~8~~ The maximum height of the operation volume is limited by the size of the reserved or segregated airspace. *Note: In addition to the vertical limit of the operational volume, an air risk buffer is to be considered (see 'Air risk' under point 3 of this table).*	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Airspace	Self-declaration	1.11~~9~~ Operations should only be conducted in airspace that is reserved or segregated for the purpose of conducting UAS operations (corresponding to an air risk that can be classified as ARC-a). ~~*Note: 'Reserved airspace' means here either a danger area or a restricted area that is designated for UAS operations.*~~	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Visibility	Self-declaration	1.12~~0~~ If take-off and landing are conducted in VLOS of the remote pilot, the visibility should be sufficient to ensure that no people are in danger during the take-off/landing phase. The remote pilot should abort the take-off or landing in case people on the ground are in danger.	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
Others	Self-declaration	1.13~~1~~ The UA should not be used to drop material or to carry dangerous goods, except for dropping items in connection with agricultural, horticultural or forestry activities ~~in which~~where the carriage of such ~~the~~ items does not contravene any other applicable regulations.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~					
Topic	**Method of proof**	**Condition**		**Integrity[6]**	**Proof[8]**
2. Operational risk classification (according to the classification defined in AMC1 to Article 11 of the UAS Regulation)					
Final GRC	3	**Final ARC**	ARC-a ~~b~~	**SAIL**	II
3. Operational mitigations					
Operational volume (see Figure 2 of AMC1 Article 11)	Self-declaration	3.1	To determine the operational volume, the applicant should consider the position-keeping capabilities of the UAS in 4D space (latitude, longitude, height, and time).	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.2	In particular, the accuracy of the navigation solution, the flight technical error of the UAS, as well as the flight path definition error (e.g. map error) and latencies should be considered and addressed when determining the operational volume.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.3	The remote pilot should apply emergency procedures as soon as there is an indication that the UA may exceed the limits of the operational volume.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Ground risk	Self-declaration	3.4	The UAS operator should establish a ground risk buffer to protect third parties on the ground outside the operational volume.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.4.1	The minimum criterion should be the use of the '1:1 rule' (e.g. if the UA is planned to operate at a height of 150 m, the ground risk buffer should at least be 150 m).	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.5	The operational volume and the ground risk buffer should be all contained in a sparsely populated area.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.6	The applicant should evaluate the area of operations typically by means of an on-site inspection or appraisal, and should	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[6]**	**Proof[8]**
		be able to justify a ~~lower~~ reduced density of people at risk in the operational area and the ground risk buffer.		
Air risk	Self-declaration	3.7 The operational volume, including the air risk buffer, if applicable, should be entirely contained in the reserved or segregated airspace.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Observers		~~N/A~~n/a		
4. UAS operator and UAS operations conditions~~provisions~~				
UAS operator and UAS operations	Declaration supported by data	4.1 ~~In addition to the responsibilities that are defined in point UAS.SPEC.050 of the Annex to the UAS Regulation and the provisions for UAS operators in previous points of this AMC, t~~The UAS operator should:	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.1 develop an operations manual (OM) (for the template, refer to AMC1 UAS.SPEC.030(3)(e) and to the complementary information in GM1 UAS.SPEC.030(3)(e));	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.2 develop procedures to ensure that the security requirements applicable to the area of operations are complied during the intended operation;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.3 develop measures to protect the UAS against unlawful interference and unauthorised access;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.4 develop procedures to ensure that all operations comply with Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data; in	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[6]**	**Proof[8]**
		particular, the UAS operator should carry out a data protection impact assessment, when this is required by the data protection national authority of the Member State with regard to the application of Article 35 of that Regulation;		
		4.1.5 develop guidelines for its remote pilots to plan UAS operations in a manner that minimises nuisance, including noise and other emissions-related nuisance, to people and animals;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.6~~2~~ develop an emergency response plan (ERP) ~~(see point 7 of GM1 UAS.SPEC.030(3)(e))~~ in accordance with the conditions for a 'medium' level of robustness (please refer to AMC3 UAS.SPEC.030(3)(e);	*Please describe how this condition is met.*	'I declare compliance and that the ERP is available to the competent authority for review.'
		4.1.7~~3~~ validate the operational procedures ~~against standards that are recognised by the competent authority and/or in accordance with a means of compliance acceptable to that authority~~in accordance with the conditions for a 'medium' level of robustness, which are included in AMC2 UAS.SPEC.030(3)(e);	*Please describe how this condition is met.*	'I declare compliance and that the ERP is available to the competent authority for review.'
		4.1.8~~4~~ ensure the adequacy of the contingency and emergency procedures and prove ~~them~~it through any of the following: (a) dedicated flight tests; or	*Please describe how this condition is met.*	'I declare compliance and that the description for meeting this condition is available to the competent authority for review.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[6]**	**Proof[8]**
		(b) simulations, provided that the representativeness of the simulation means is proven for the intended purpose with positive results; or (c) any other means acceptable to the competent authority; and		
		4.1.9~~5~~ have a policy that defines how the remote pilot and ~~all~~any other personnel in charge of duties essential to the UAS operation can declare themselves fit to operate before conducting any operation.	*Please describe how this condition is met.*	'I declare compliance and that the description for meeting this condition is available to the competent authority for review.'
		4.1.10 designate for each flight a remote pilot with adequate competency and other personnel in charge of duties essential to the UAS operation if needed;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.11 ensure that the UAS operation effectively uses and supports the efficient use of the radio spectrum in order to avoid harmful interference;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.12 keep for a minimum of 3 years and maintain up to date a record of the information on UAS operations, including any unusual technical or operational occurrences and other data as required by the declaration or by the operational authorisation;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that record-keeping data is available to the competent authority.'
		4.1.13~~6 a~~As part of the procedures ~~that are~~ contained in the OM (point 4.1.1 above), include the description of the following:		

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[6]**	**Proof[8]**
		(a) The method and means of communication with the authority or entity responsible for the management of the airspace during the entire period of the reserved or segregated ~~restricted~~ airspace being active, as mandated by the authorisation. *Note: The communication method should be published in the NOTAM activating the reserved airspace to also allow coordination with manned aircraft.*	*Please describe how this condition is met.*	'I declare compliance and that evidence is available to the competent authority for review.'
		(b) The member(s) of personnel in charge of duties essential to the UAS operation, who are responsible for establishing that communication.	*Please describe how this condition is met.*	'I declare compliance and that evidence is available to the competent authority for review.'
UAS maintenance	Self-declaration	4.2 The UAS operator should:	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.2.1 ensure that ~~T~~the UAS maintenance instructions that are defined by the UAS operator ~~should be~~are included in the OM and cover at least the UAS manufacturer's instructions and requirements when applicable~~.~~; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.~~3.~~2.2 ensure that ~~T~~the maintenance staff ~~should~~ follow the UAS maintenance instructions when performing maintenance~~.~~;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.2.3 keep for a minimum of 3 years and maintain up to date a record of the	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[6]**	**Proof[8]**
		maintenance activities conducted on the UAS;		
		4.2.4 establish and keep up to date a list of the maintenance staff employed by the operator to carry out maintenance activities;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.2.5 comply with point UAS.SPEC.100, if the UAS uses certified equipment.	*Please include a reference to the relevant chapter/section of the OM or indicate 'n/a'.*	'I declare compliance.' or 'n/a'
External services	Self-declaration	4.3~~4~~ The UAS operator should ensure that the level of performance for any externally provided service that is necessary for the safety of the flight is adequate for the intended operation. The UAS operator should declare that this level of performance is adequately achieved.	*Please describe how this condition is met.*	'I declare compliance.'
		4.~~5~~4 The UAS operator should define and allocate the roles and responsibilities between the UAS operator and the external service provider(s), if applicable.	*Please describe how this condition is met.*	'I declare compliance.'
5. Conditions~~Provisions~~ for the personnel in charge of duties essential to the UAS operation				
	~~As per Appendix A to AMC2 Article 11 *The personnel in charge of duties essential to the UAS operation*~~			
		5.4 The remote pilot should:		
		5.4.1 not perform duties under the influence of psychoactive substances or alcohol, or when they are unfit to perform their tasks due to injury, fatigue, medication, sickness or other causes;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[6]**	**Proof[8]**
		5.4.2 be familiar with the manufacturer's instructions provided by the manufacturer of the UAS;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.4.3 ensure that the UA remains clear of clouds;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.4.4 perform unaided visual scan of the airspace, as required, to avoid any potential collision hazard;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.4.5 obtain updated information relevant to the intended operation about any geographical zones defined in accordance with Article 15; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.4.6 ensure that the UAS is in a safe condition to complete the intended flight safely and, if applicable, check whether the direct remote identification is active and up to date.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Multi-crew cooperation (MCC)	Self-declaration	Where multi-crew cooperation (MCC) may be required, the UAS operator should:		
		5.5 designate a remote pilot-in-command to be responsible for each flight;	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		5.6 include procedures to ensure coordination between the remote crew members through robust and effective communication channels; those procedures should cover, as a minimum:	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[6]**	**Proof[8]**
		5.6.1 the assignment of tasks to the remote crew members; and	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		5.6.2 the establishment of step-by-step communication; and	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		5.7 ensure that the training of the remote crew covers MCC.	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
Maintenance staff	Declaration supported by data	5.8 Any staff member that is authorised by the UAS operator to perform maintenance activities should have been adequately trained in the documented maintenance procedures.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.' Evidence of training is available at the request of the competent authority.
Personnel in charge of duties essential to the UAS operation are fit to operate		5.9 The personnel in charge of duties essential to the UAS operation should declare that they are fit to operate before conducting any operation, based on the policy that is defined by the UAS operator.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
6. Technical conditions~~provisions~~				
General	Self-declaration	6.1 The UAS should be equipped with means to monitor the critical parameters of a safe flight, in particular the following:		
		6.1.1 the UA position, height or altitude, ground speed or airspeed, attitude and trajectory;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.1.2 the UAS energy status (fuel, battery charge, etc.); and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.1.3 the status of critical functions and systems; as a minimum, for services based on RF signals (e.g. C2 ~~L~~link, GNSS, etc.), means should be	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[6]**	**Proof[8]**
		provided to monitor the adequate performance and trigger an alert when~~if~~ the performance level becomes too low.		
Human~~-~~machine interface (HMI)	Self-declaration	6.~~3~~2 The UAS information and control interfaces should be clearly and succinctly presented and should not confuse, cause unreasonable fatigue, or contribute to causing any disturbance to the personnel in charge of duties essential to the UAS operation in such a way that could adversely affect the safety of the operation.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.~~4~~3 The UAS operator should conduct a UAS evaluation that considers and addresses human factors to determine whether the HMI is appropriate for the operation.	*Please describe how this condition is met.*	'I declare compliance.'
C2 links and communication	Self-declaration	6.~~5~~4 The UAS should comply with the applicable requirements for radio equipment and the use of the RF spectrum.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.~~6~~5 Protection mechanisms against interference should be used, especially if unlicensed bands (e.g. ISM) are used for the C2 link (mechanisms such as FHSS, DSSS or OFDM technolog~~y~~ies, or frequency deconfliction~~de-confliction~~ by procedure).	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.6 The UAS should be equipped with a C2 link that is protected against unauthorised access to the command-and-control functions.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[6]**	**Proof[8]**
		6.7 In case of loss of the C2 link, the UAS should have a reliable and predictable method to recover the command-and-control link of the UA or to terminate the flight in a way that reduces any undesirable effect on third parties in the air or on the ground.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.~~7~~8 The UAS operator should ensure that reliable and continuous means of two-way communication for the purpose that is indicated in point 4.13~~6~~(a) above are available.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Tactical mitigation		~~N/A~~n/a		
Containment	Declaration supported by data	6.~~8~~9 To ensure a safe recovery from a technical issue that involves the UAS or an external system that supports~~ing~~ the operation, the UAS operator should ensure that:		
		6.~~8~~9.1 no probable failure of the UAS or of any external system that supports~~ing~~ the operation ~~sh~~would lead to operation outside the operational volume; and	*Please describe how this condition is met.*	'I declare compliance.' A design and installation appraisal is available and it covers at least: — the design and installation features (independence, separation, and redundancy); and — the particular risks (e.g. hail, ice, snow, electromagnetic interference, etc.) relevant to the type of operation.
		6.~~8~~9.2 it is reasonably expected that a fatality will not occur due to any probable failure of the UAS or of any external system that supports~~ing~~ the operation. *Note: The term 'probable' should be understood in its qualitative interpretation, i.e. 'anticipated to occur one or more times*	*Please describe how this condition is met.*	

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[6]**	**Proof[8]**
		during the entire system/operational life of an item'.		
		~~6.9 A design and installation appraisal should be made available and should cover at least:~~		
		~~6.9.1 the design and installation features (independence, separation, and redundancy); and~~		
		~~6.9.2 the particular risks (e.g. hail, ice, snow, electromagnetic interference, etc.) relevant to the ConOps .~~		
	Declaration supported by data	6.10 The following additional conditions ~~provisions~~ should apply if the adjacent area includes an assembly of people or if the adjacent airspace is classified as ARC-d (in accordance with the SORA ~~AMC1 Article 11 of the UAS Regulation~~):		
		6.10.1 The UAS should be designed to standards that are considered adequate by the competent authority and/or in accordance with a means of compliance that is acceptable to that competent authority such that:	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' Analysis and/or test data with supporting evidence is available.
		6.10.1.1 the probability of the UA leaving the operational volume should be less than 10^{-4} ~~-4~~/FH; and	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	
		6. 10.1.2 no single failure of the UAS or of any external system that supports~~ing~~ the operation should lead to operation outside the ground risk buffer.	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[6]**	**Proof[8]**
		Note: The term 'failure' should be understood as an occurrence that affects the operation of a component, part, or element in such a way that it can no longer function as intended. Errors may cause failures but are not considered to be failures. Some structural or mechanical failures may be excluded from this criterion if it can be shown that these mechanical parts were designed according to aviation industry best practices.		
		6.10.2 SW and AEH whose development error(s) could directly lead to operations outside the ground risk buffer should be developed according to an industry standard or methodology that is~~are~~ recognised as adequate by the competent authority. *Note 1: The proposed additional safety conditions~~provisions~~ cover both the integrity and the assurance levels.* *Note 2: The proposed additional safety conditions~~provisions~~ do not imply a systematic need to develop the SW and AEH according to an industry standard or methodology that is~~are~~ recognised as adequate by the competent authority. For instance, if the UA design includes an <u>independent</u> engine shutdown function that systematically prevents the UA from exiting the ground risk buffer due to single failures or an SW/AEH error of the flight controls from occurring, the*	*Please include a reference to the relevant chapter/section of the OM or indicate 'n/a'.*	

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[6]**	**Proof[8]**
		intent of the conditions~~provisions~~ of point 6.10.1 above could be considered ~~to be~~ met.		
		~~6.11 Compliance with the provisions of points 6.10.1 and 6.10.2 above should be substantiated by analysis and/or test data with supporting evidence.~~		
Remote identification[7]	Self-declaration	6.11 The UAS has a unique serial number compliant with standard ANSI/CTA-2063-A-2019, *Small Unmanned Aerial Systems Serial Numbers*, 2019, according to Article 40(4) of Regulation (EU) 2019/945.	*Please describe how this condition is met.*	'I declare compliance.'
		6.12 The UAS is equipped with a remote identification system according to Article 40(5) of Regulation (EU) 2019/945.	*Please describe how this condition is met.*	'I declare compliance.'
Lights[7]	Self-declaration	6.13 If the UAS is operated at night, it is equipped with at least one green flashing light according to point UAS.SPEC.050(1)(l)(i) of the UAS Regulation.	*Please describe how this condition is met or indicate 'n/a'.*	'I declare compliance.' or 'n/a'

Table PDRA-G02.1 — Main limitations and conditions for PDRA-G02

[7] Applicable from 1 July 2022.

AMC4 Article 11 Rules for conducting an operational risk assessment

PREDEFINED RISK ASSESSMENT PDRA-S01 Version 1.1~~0~~

EDITION ~~December 2020~~ January 2022

(a) Scope

This PDRA addresses the same type of operations that are covered by the standard scenario STS-01 (Appendix 1 to the Annex to the UAS Regulation); however, it provides the UAS operator with the flexibility to use UASs that do not need to be marked as ~~C~~class C5.

This PDRA addresses UAS operations that are conducted:

(1) with UA with maximum characteristic dimensions (e.g. wingspan, rotor diameter/area or maximum distance between rotors in case of a multirotor) of up to 3 m and MTOM of up to 25 kg;

(2) in VLOS of the remote pilot;

(3) over a controlled ground area that might be located in a populated area;

(4) below 150 m~~not higher than 120 m~~ above ~~the surface overflown~~ ground level (AGL) (except when close to obstacles); and

(5) in controlled or uncontrolled airspace, provided that there is a low probability of encountering manned aircraft[8].

(b) PDRA characterisation and conditions~~provisions~~

[8] Member States are required to establish the appropriate measures (e.g. UAS geographical zones) to ensure this low probability of encounter. Such a low probability of encounter is equivalent to an ARC that is no higher than ARC-b. Thus, ARC-b is to be considered here as the highest residual (final) ARC.

The characterisation and conditions~~provisions~~ for this PDRA are summarised in **Table PDRA-S01.1** below:

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
1. Operational characterisation (scope and limitations)				
Level of human intervention	Self-declaration	1.1 No autonomous operations: the remote pilot should have the ability to maintain control of the UA, except in case of a loss of the command-and-control (C2) link.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.2 The remote pilot should operate only one UA at a time.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.3 The remote pilot should not operate the UA from a moving vehicle.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.4 The remote pilot should not hand ~~over~~ the control of the UA over to another command unit.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
UA range limit	Self-declaration	1.5 VLOS distance from the remote pilot at all times.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
~~Areas o~~**Overflown areas**	Self-declaration	1.6 UAS operations should be conducted over a controlled ground area.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.7 For the operation of a tethered UA, the area should have a radius equal to the tether length plus 5 m, and should be centred on the point of the surface of the Earth where the tether is fixed.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
UA limitations	Self-declaration	1.8 The UA should have an MTOM of less than 25 kg, including payload.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.9 The UA should have a maximum characteristic dimension (e.g. wingspan, rotor diameter/area or maximum distance between rotors in case of a multirotor) of less than 3 m.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Flight height limit	Self-declaration	1.10 The remote pilot should maintain the UA within 120 m (unless making use of the	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

[9] To be filled in by the UAS operator.

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
		option defined in point 1.12) from the closest point of the surface of the Earth. The measurement of the distances should be adapted according to the geographical characteristics of the terrain, such as plains, hills, and mountains.		
		1.11 When flying a UA within a horizontal distance of 50 m from an artificial obstacle that is taller than 105 m, the maximum height of the UAS operation may be increased up to 15 m above the height of the obstacle, at the request of the entity responsible for the obstacle.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.12 When UAS operators intend to operate at a height above 120 m, up to 150 m, they should define a risk buffer according to point 3.8 below.~~maximum height of the operational volume should not exceed by 30 m the maximum height that is allowed by points 1.10 and 1.11 above.~~	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
	Self-declaration	1.13 The UA should be operated:		
		1.13.1 in uncontrolled airspace ~~(Class F or G)~~, unless different limitations are provided for by the Member States for their UAS geographical zones in areas where the probability of encountering manned aircraft is not low; or	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.13.2 in controlled airspace after coordination and flight authorisation in accordance with the published procedures for the	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
		area of operation, to ensure that the ~~a low~~ probability of encountering manned aircraft is low. *Note: ~~An a~~Airspace with an air risk that is classified as not higher than ARC-b can be considered having a low probability of encountering manned aircraft.*		
Visibility	Self-declaration	1.14 The flight visibility should allow the remote pilot to conduct the entire flight in VLOS.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Others	Self-declaration	1.15 The UA should not be used to carry dangerous goods, except for dropping items in connection with agricultural, horticultural or forestry activities ~~in which~~where the carriage of such ~~the~~ items does not contravene any other applicable regulations.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
2. Operational risk classification (according to the classification defined in AMC1 to Article 11 of the UAS Regulation)				
Final GRC	3	**Final ARC** ARC-b	**SAIL** II	
3. Operational mitigations				
Operational volume (see Figure 2 of AMC1 Article 11)	Self-declaration	3.1 The UAS operator should define the operational volume for the intended operation, including:	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.1.1 the flight geography; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.1.2 the contingency volume, with its external limit(s) at least 10 m beyond the limit(s) of the flight geography if the operation is conducted with untethered UA.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.2 To determine the operational volume, the UAS operator should consider the position-keeping capabilities of the UAS	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

<table>
<tr><th colspan="5">PDRA characterisation and conditions~~provisions~~</th></tr>
<tr><th>Topic</th><th>Assurance level</th><th>Condition</th><th>Demonstration of integrity [9]</th><th>Demonstration of assurance[38]</th></tr>
<tr><td></td><td></td><td>in 4D space (latitude, longitude, height, and time).</td><td></td><td></td></tr>
<tr><td></td><td></td><td>3.3 In particular, the accuracy of the navigation solution, the flight technical error of the UAS, as well as the flight path definition error (e.g. map error) and latencies should be considered and addressed when determining the operational volume.</td><td>Please include a reference to the relevant chapter/section of the OM.</td><td>‘I declare compliance.’</td></tr>
<tr><td></td><td></td><td>3.4 The remote pilot should apply emergency procedures as soon as there is an indication that the UA may exceed the limits of the operational volume, as per point 5.3.8~~1.4~~(d) below.</td><td>Please include a reference to the relevant chapter/section of the OM.</td><td>‘I declare compliance.’</td></tr>
<tr><td>Ground risk</td><td>Self-declaration</td><td>3.5 The UAS operator should establish a ground risk buffer to protect third parties on the ground outside the operational volume.</td><td>Please include a reference to the relevant chapter/section of the OM.</td><td>‘I declare compliance.’</td></tr>
<tr><td></td><td></td><td>3.6 For the operation of untethered UA, the ground risk buffer should cover a distance beyond the external limit(s) of the contingency area. That distance should be at least as defined below:
<table>
<tr><th rowspan="2">~~Maximum height above ground~~</th><th colspan="2">~~Minimum distance to be covered by the ground risk buffer for untethered UA~~</th></tr>
<tr><th>~~with an MTOM of up to 10 kg~~</th><th>~~with an MTOM of more than 10 kg~~</th></tr>
<tr><td>~~30 m~~</td><td>~~10 m~~</td><td>~~20 m~~</td></tr>
<tr><td>~~60 m~~</td><td>~~15 m~~</td><td>~~30 m~~</td></tr>
<tr><td>~~90 m~~</td><td>~~20 m~~</td><td>~~45 m~~</td></tr>
<tr><td>~~120 m~~</td><td>~~25 m~~</td><td>~~60 m~~</td></tr>
</table></td><td>Please include a reference to the relevant chapter/section of the OM.</td><td>‘I declare compliance.’</td></tr>
</table>

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<tr><th colspan="5">PDRA characterisation and conditions~~provisions~~</th></tr>
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<tr><td></td><td></td><td>
<table>
<tr><th>Max height AGL[10]</th><th colspan="2">Minimum distance for ground risk buffer</th></tr>
<tr><th></th><th>with MTOM of up to 10 kg</th><th>with MTOM greater than 10 kg</th></tr>
<tr><td>30 m</td><td>10 m</td><td>20 m</td></tr>
<tr><td>60 m</td><td>15 m</td><td>30 m</td></tr>
<tr><td>90 m</td><td>20 m</td><td>45 m</td></tr>
<tr><td>120 m</td><td>25 m</td><td>60 m</td></tr>
<tr><td>150 m</td><td>30 m</td><td>75 m</td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td></td><td></td><td>3.7 For the operation of tethered UA, the ground risk buffer is considered in point 1.7 above.</td><td>Please include a reference to the relevant chapter/section of the OM.</td><td>‘I declare compliance.’</td></tr>
<tr><td>Air risk</td><td rowspan="4">Declaration supported by data</td><td>3.8 If the UAS operation is performed above 120 m and up to 150 m, the UAS operator should:</td><td>Please include a reference to the relevant chapter/section of the OM.</td><td>‘I declare compliance.’</td></tr>
<tr><td></td><td>3.8.1 establish an air risk buffer to protect third parties in the air outside the operational volume; and</td><td>Please include a reference to the relevant chapter/section of the OM.</td><td>‘I declare compliance and that supporting evidence is included in the OM.’

Justification supporting the reduction of the air risk buffer is documented in […].</td></tr>
<tr><td></td><td>3.8.2 if the air risk buffer is part of controlled airspace, coordinate the operation with the respective ANSP;</td><td>Please include a reference to the relevant chapter/section of the OM.</td><td>‘I declare compliance and that supporting evidence is included in the OM.’</td></tr>
<tr><td></td><td>3.8.3 develop appropriate procedures to not jeopardise other airspace users.</td><td>Please include a reference to the relevant chapter/section of the OM.

Please describe how the remote pilots and, if employed, the AOs are able to</td><td>‘I declare compliance and that supporting evidence is included in the OM.’</td></tr>
</table>

[10] The closest point from the Earth should be considered.

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
			assess the height of the UA compared to other airspace users[11].	
	Self-declaration	3.~~8~~9 The operational volume should be outside any geographical zone corresponding to a flight restriction zone of a protected aerodrome or of any other type, as defined by the responsible authority, unless the UAS operator has been granted ~~an~~ appropriate permission.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.~~9~~10 Prior to the flight, the UAS operator should assess the proximity of the planned operation to manned aircraft activity.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Observers		Airspace observers (AOs): n/a~~N/A.~~ UA observers: refer to point 5.3.8~~1.4~~(b) below.		
4. UAS operator and UAS operations conditions~~provisions~~				
UAS operator and UAS operations	Declaration supported by data	4.1 ~~In addition to the responsibilities that are defined in point UAS.SPEC.050 of the Annex to the UAS Regulation and the provisions for UAS operators in previous points of this AMC, t~~The UAS operator should:		
		4.1.1 develop an operations manual (OM) (for the template, refer to AMC1 UAS.SPEC.030(3)(e) and to the complementary information in GM1 UAS.SPEC.030(3)(e));	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.2 define the operational volume and ground risk buffer for the intended	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'

[11] The UAS operator should demonstrate that they have sufficient confidence in the accuracy of the information about the height of the UA and the means to advert and avoid other airspace users and obstacles in the vicinity of the UA.

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
		operation, as per points 3.1 to 3.6 above, and include them in the OM;		
		4.1.3 develop procedures to ensure that the security requirements applicable to the area of operations are complied with during the intended operation;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.4 develop measures to protect the UAS against unlawful interference and unauthorised access;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.5 develop procedures to ensure that all operations comply with Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data. In particular, the UAS operator should carry out a data protection impact assessment, when this is required by the data protection national authority of the Member State with regard to the application of Article 35 of that Regulation;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.6 develop guidelines for its remote pilots to plan UAS operations in a manner that minimises nuisance, including noise and other emissions-related nuisance, to people and animals;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.7~~3~~ ensure the adequacy of the contingency and emergency procedures and prove ~~them~~it through any of the following: (a) dedicated flight tests; or	*Please describe how this condition is met.*	'I declare compliance and that evidence is available to the competent authority for review.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
		(b) simulations, provided that the representativeness of the simulation means is proven for the intended purpose with positive results; or (c) any other means acceptable to the competent authority; and		
		4.1.8~~4~~ develop an emergency response plan (ERP) that is suitable for the intended operation ~~(see point 7 of GM1 UAS.SPEC.030(3)(e))~~ in accordance with the conditions for a 'medium' level of robustness (please refer to AMC3 UAS.SPEC.030(3)(e);	*Please describe how this condition is met.*	'I declare compliance and that the ERP is available to the competent authority for review.'
		4.1.9~~5~~ upload updated information into the geo-awareness function, if such system is installed on the UAS, when required by the UAS geographical zone for the intended location of the operation;	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.10~~6~~ ensure that before starting the operation, the controlled ground area is in place, effective, and compliant with the minimum distance that is defined in points 3.1 and 3.5 above and, when required, ~~coordination~~ coordinate with the appropriate authorities ~~has been established~~;	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.11~~7~~ ensure that before starting the operation, all persons that are present in the controlled ground area:		

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
		(a) have been informed of the risks of the operation;	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		(b) have been briefed on or trained in, as appropriate, the safety precautions and measures that the UAS operator has established for their protection; and	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		(c) have explicitly agreed to participate in the operation;	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.12 designate for each flight a remote pilot with adequate competency and other personnel in charge of duties essential to the UAS operation if needed;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.13 ensure that the UAS operation effectively uses and supports the efficient use of the radio spectrum in order to avoid harmful interference;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.14 keep for a minimum of 3 years and maintain up to date a record of the information on UAS operations, including any unusual technical or operational occurrences and other data as required by the declaration or by the operational authorisation.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that record-keeping data is available to the competent authority.'
		~~4.1.8 ensure that the UAS that is used in the intended operation complies with the technical provisions of point 6 below.~~		
		~~4.2 A UAS operation under this PDRA should be conducted:~~		
		~~4.2.1 keeping the UA in VLOS of the remote pilot at all times;~~		

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
		~~4.2.2 in accordance with the OM that is referred to in point 4.1.1 above;~~		
		~~4.2.3 over a controlled ground area that comprises the area of the operational volume that is indicated in point 3.1 above and the ground risk buffer that is indicated in point 3.5 above, both projected on the surface of the Earth;~~		
		~~4.2.4 at a ground speed of less than 5 m/s in case of untethered UA;~~		
		~~4.2.5 by a remote pilot that complies with point 5.1 below; and~~		
		~~4.2.6 with a UA that complies with point 6 below.~~		
UAS maintenance	Self-declaration	4.2 The UAS operator should:	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.~~3~~2.1 ensure that ~~T~~the UAS maintenance instructions that are defined by the UAS operator ~~should be~~are included in the OM and cover at least the UAS manufacturer's instructions and requirements when applicable~~.~~; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.~~4~~2.2 ensure that ~~T~~the maintenance staff ~~should~~ follow the UAS maintenance instructions when performing maintenance;~~.~~	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.2.3 keep for a minimum of 3 years and maintain up to date a record of the maintenance activities conducted on the UAS;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.2.4 establish and maintain up to date a list of the maintenance staff employed	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
		by the operator to carry out maintenance activities;		
		4.2.5 comply with point UAS.SPEC.100, if the UAS uses certified equipment.	*Please include a reference to the relevant chapter/section of the OM or n/a.*	'I declare compliance.' or 'n/a'
External services	Self-declaration	4.~~5~~3 The UAS operator should ensure that the level of performance for any externally provided service that is necessary for the safety of the flight is adequate for the intended operation. The UAS operator should declare that this level of performance is adequately achieved.	*Please describe how this condition is met.*	'I declare compliance.'
		4.~~6~~4 The UAS operator should define and allocate the roles and responsibilities between the UAS operator and the external service provider(s), if applicable.	*Please describe how this condition is met.*	'I declare compliance.'
5. Conditions~~Provisions~~ for the personnel in charge of duties essential to the UAS operation				
	~~As per Appendix A to AMC2 Article 11 *The personnel in charge of duties essential to the UAS operation*~~			
General		5.1 The UAS operator should keep and maintain up to date a record of all the relevant qualifications and training courses completed by the remote pilot and the other personnel in charge of duties essential to the UAS operation and by the maintenance staff for at least 3 years after those persons have ceased to be employed by the organisation or have changed position within the organisation.	*Please describe how this condition is met.*	'I declare compliance.' Record-keeping data is available for inspection at the request of the competent authority.
		5.2 The remote pilot should have the authority to cancel or delay any or all flight operations under the following conditions:	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
		5.2.1 the safety of persons is jeopardised; or	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.2.2 property on the ground is jeopardised; or	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.2.3 other airspace users are in jeopardy; or	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.2.4 there is a violation of the terms of the operational authorisation.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Remote pilot	Self-declaration	5.3~~1 In addition to complying with the requirements of point UAS.SPEC.060 of the Annex to the UAS Regulation and with the provisions for remote pilots in previous points of this AMC, a~~ The remote pilot ~~who is engaged in operations under this PDRA~~ should:		
		5.3.1 not perform any duties under the influence of psychoactive substances or alcohol, or when they are unfit to perform their tasks due to injury, fatigue, medication, sickness or other causes;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.2 be familiar with the manufacturer's instructions provided by the manufacturer of the UAS;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.3 ensure that the UA remains clear of clouds;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.4~~1.1~~ hold a certificate of ~~remote pilot~~remote pilot theoretical	*Please describe how this condition is met.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
		knowledge, in accordance with Attachment A to Chapter I of Appendix 1 to the Annex to the UAS Regulation , which is issued by the competent authority or by an entity that is designated by the competent authority of a Member State;		
		5.3.5~~1.2~~ hold an accreditation of completion of a practical-skills ~~practical skill~~ training course for this PDRA, in accordance with Attachment A to Chapter I of Appendix 1 to the Annex to the UAS Regulation, which is issued by: (a) an entity that has declared compliance with the requirements of Appendix 3 to the Annex to the UAS Regulation and is recognised by the competent authority of a Member State; or (b) a UAS operator that has ~~declared~~ been authorised by the competent authority of the Member State of registration ~~compliance with~~ to operate according to this PDRA (or declared to the same competent authority, compliance with STS-01) and with the requirements of Appendix 3 to the Annex to the UAS Regulation.~~;~~	*Please describe how this condition is met.*	'I declare compliance.'
		5.3.6 If operations are conducted at a height between 120 and 150 m, the		

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
		remote pilot should undergo additional theoretical knowledge training in the following topics:		
		(a) raising awareness about the air risk and about the existence of other airspace users;	*Please describe how this condition is met.*	'I declare compliance and that the training syllabus is available for inspection at the request of the competent authority.'
		(b) checking height determination/ limitation devices; and	*Please describe how this condition is met.*	'I declare compliance and that the training syllabus is available for inspection at the request of the competent authority.'
		(c) using applicable procedures in case a manned aircraft is detected.	*Please describe how this condition is met.*	'I declare compliance and that the training syllabus is available for inspection at the request of the competent authority.'
		5.~~1~~3.7 ~~b~~Before starting the UAS operation, the remote pilot should:~~, verify that the means to terminate the flight of the UA as well as the remote identification system are operational; and:~~		
		(a) verify that the means to terminate the UA flight and the remote identification system are operational;	*Please describe how this condition is met.*	'I declare compliance.'
		(b) obtain updated information relevant to the intended operation about any geographical zones defined in accordance with Article 15 of the UAS Regulation; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(c) ensure that the UAS is in a safe condition to complete the intended flight safely and, if applicable, check whether the direct remote	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
		identification is active and up to date.		
		5.~~1.4~~3.8 ~~d~~During the flight:		
		(a) keep the UA in VLOS and maintain ~~a~~ thorough visual scan of the airspace that surrounds ~~is surrounding~~ the UA to avoid any risk of collision with manned aircraft; the remote pilot should discontinue the flight if the operation poses a risk to other aircraft, people, animals, environment or property;	*Please describe how this condition is met.*	'I declare compliance.'
		(b) for the purpose of point (a) above, be possibly being assisted by a UA observer[12]; clear and effective communication should be established between the remote pilot and the UA observer;	*Please describe how this condition is met.*	'I declare compliance.'
		(c) use the contingency procedures that are defined by the UAS operator for abnormal situations, including situations where the remote pilot has an indication that the UA may exceed the limits of the flight geography; and	*Please describe how this condition is met.*	'I declare compliance.'
		(d) use the emergency procedures that are defined by the UAS	*Please describe how this condition is met.*	'I declare compliance.'

[12] Please refer to point UAS.STS-02.050 for the responsibilities of the UA observer.

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
		operator for emergencies, including triggering the means to terminate the flight when the remote pilot has an indication that the UA may exceed the limits of the operational volume; the means to terminate the flight should be triggered at least 10 m before the UA reaches the limits of the operational volume;~~.~~		
		(e) keep the UA at a ground speed of less than 5 m/s in case of untethered UA;	*Please describe how this condition is met.*	'I declare compliance.'
		(f) activate the direct remote identification system[13].	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
6. Technical conditions~~provisions~~				
UAS		6.1 The UAS operator should use a UAS marked as class C5 and complies with the requirements of that class, as defined in Part 16 of the Annex to Regulation (EU) 2019/945.		'I declare that the UAS is marked with a class C5 identification label.' or 'n/a'
	Self-declaration[14]	6.2 As an alternative to point 6.1, the UAS operator may use a UAS that complies with the requirements of Part 16 of the Annex to Regulation (EU) 2019/945, except that the UAS does not need to:	*Please describe how this condition is met.*	'I declare compliance.' or 'n/a'

[13] Applicable from 1 July 2022.
[14] The containment requirements (reference to point 5 of Part 16 of Regulation (EU) 2019/945) should be demonstrated with a medium assurance level.

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
		6.~~1~~2.1 bear a ~~C~~class C3 UAS or a ~~C~~class C5 UAS identification label ~~on itself~~;		
		6.~~1~~2.2 be exclusively powered by electricity, if the UAS operator ensures that the environmental impact that is caused by the use of non-electric UAS is minimised;		
		6.~~1~~2.3 include a notice that is published by EASA and provides the applicable limitations and obligations, as required by the UAS Regulation; and		
		6.~~1~~2.4 include the manufacturer's instructions for the UAS if it is privately built; however, information on its operation and maintenance, as well as on the training of the remote pilot, should be included in the OM. ***Note 1:*** *The UAS can comply with point (9) of Part 4 of the Annex to Regulation (EU) 2019/945 by using an add-on that complies with Part 6 of the Annex to that~~said~~ Regulation.* ***Note 2:*** *If the UA does not ~~have~~ bear a physical serial number that is compliant with standard ANSI/CTA-2063-A 'Small Unmanned Aerial Systems Serial Numbers' and/or does not have an integrated system of direct remote identification, it can comply with point (9) of Part 4 of the Annex to Regulation (EU) 2019/945 by using an add-on that complies*		

PDRA characterisation and conditions~~provisions~~				
Topic	**Assurance level**	**Condition**	**Demonstration of integrity [9]**	**Demonstration of assurance[38]**
		with Part 6 of the Annex to that~~said~~ Regulation. ***Note 3**: If the UAS is privately built, there may be no identification on the UA of its MTOM. In that case, the UAS operator should ensure that the MTOM of the UA, in the configuration of the UA before take-off, does not exceed 25 kg.*		

Table PDRA-S01.1 — Main limitations and conditions~~provisions~~ for PDRA-S01

AMC5 Article 11 Rules for conducting an operational risk assessment

PREDEFINED RISK ASSESSMENT PDRA-S02 Version 1.~~0~~1

EDITION ~~December 2020~~ January 2022

(a) Scope

This PDRA addresses the same type of operations that are covered by the standard scenario STS-02 (Appendix 1 to the Annex to the UAS Regulation); however, it provides the UAS operator with the flexibility to use UASs that do not need to be marked as ~~C~~class C6.

This PDRA addresses UAS operations that are conducted:

(1) with UA with maximum characteristic dimensions (e.g. wingspan, rotor diameter/area or maximum distance between rotors in case of a multirotor) of up to 3 m and MTOM of up to 25 kg;

(2) at a distance of up to 2 km from the remote pilot if airspace observers (AOs) are employed; otherwise at a distance of up to 1 km;

(3) over a controlled ground area that is entirely located in a sparsely populated area;

(4) below 150 m~~not higher than 120 m~~ above ground level (AGL)~~the surface overflown~~ (except when close to obstacles); and

(5) in controlled or uncontrolled airspace, provided that there is a low probability of encountering manned aircraft[15].

(b) PDRA characterisation and conditions~~provisions~~

[15] Member States are required to establish the appropriate measures (e.g. UAS geographical zones) to ensure this low probability of encounter. Such low probability of encounter is equivalent to an ARC that is no higher than ARC-b. Thus, ARC-b is to be considered here as the highest residual (final) ARC.

The characterisation and conditions~~provisions~~ for this PDRA are summarised in **Table PDRA-S02.1** below:

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
1. Operational characterisation (scope and limitations)				
Level of human intervention	Self-declaration	1.1 No autonomous operations: the remote pilot should have the ability to maintain control of the UA, except in case of a loss of the command-and-control (C2) link.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.2 The remote pilot should operate only one UA at a time.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.3 The remote pilot should not operate the UA from a moving vehicle.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.4 The remote pilot should not hand ~~over~~ the control of the UA over to another command unit.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
UA range limit	Self-declaration	1.5 UAS operations should be conducted:		
		1.5.1 keeping the UA in sight of the remote pilot during the launch and recovery of the UA, unless the recovery of the UA is the result of an emergency flight termination;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.5.2 if no airspace observer (AO) is employed in the operation, with the UA no further than 1 km from the remote pilot; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.5.3 if one or more AOs are employed in the operation, with the UA no further than 2 km from the remote pilot.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
~~Areas~~ ~~o~~Overflown areas	Self-declaration	1.6 UAS operations should be conducted over a controlled ground area.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

[16] To be filled in by the UAS operator.

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
UA limitations	Self-declaration	1.7 The UA should have an MTOM of less than 25 kg, including payload.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.8 The UA should have a maximum characteristic dimension (e.g. wingspan, rotor diameter/area or maximum distance between rotors in case of a multirotor) of less than 3 m.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.9 The UA should have a maximum ground speed in level flight of not more than 50 m/s.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Flight height limit	Self-declaration	1.10 The remote pilot should maintain the UA within 120 m (unless making use of the option defined in point 1.12) from the closest point of the surface of the Earth. The measurement of the distances should be adapted according to the geographical characteristics of the terrain, such as plains, hills, and mountains.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.11 When flying a UA within a horizontal distance of 50 m from an artificial obstacle that is taller than 105 m, the maximum height of the UAS operation may be increased up to 15 m above the height of the obstacle, at the request of the entity that is responsible for the obstacle.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.12 The UAS operator may propose to operate at a height above 120 m, but up to 150 m. In that case, the UAS operator **should** define a risk buffer according to point 3.7 below.~~maximum height of the operational volume should not exceed~~	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		~~by 30 m the maximum height that is allowed by points 1.10 and 1.11 above.~~		
	Self-declaration	1.13 The UA should be operated:		
		1.13.1 in uncontrolled airspace ~~(Class F or G)~~, unless different limitations are provided for by the Member States for their UAS geographical zones in areas where the probability of encountering manned aircraft is not low; or	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.13.2 in controlled airspace after coordination and flight authorisation in accordance with the published procedures for the area of operation, to ensure that the ~~a low~~ probability of encountering manned aircraft is low. *Note: ~~An a~~Airspace with an air risk that is classified as not higher than ARC-b can be considered having a low probability of encountering manned aircraft.*	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Visibility	Self-declaration	1.14 The UA operation should be conducted in an area where the flight visibility is greater~~more~~ than 5 km. *Note: Please refer to* GM1 UAS.STS-02.020(3).	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Others	Low	1.15 The UA should not be used to carry dangerous goods, except for dropping items in connection with agricultural, horticultural or forestry activities ~~in which~~where the carriage of such ~~the~~ items does not contravene any other applicable regulations.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~					
Topic	**Method of proof**	**Condition**		**Integrity[16]**	**Proof[16]**
2. Operational risk classification (according to the classification defined in AMC1 to Article 11 of the UAS Regulation)					
Final GRC	3	**Final ARC**	ARC-b	**SAIL**	II
3. Operational mitigations					
Operational volume (see Figure 2 of AMC1 Article 11)	Self-declaration	3.1 The UAS operator should define the operational volume for the intended operation, including the flight geography and the contingency volume.		*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.2 To determine the operational volume, the UAS operator should consider the position-keeping capabilities of the UAS in 4D space (latitude, longitude, height, and time).		*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.3 In particular, the accuracy of the navigation solution, the flight technical error of the UAS, as well as the flight path definition error (e.g. map error) and latencies should be considered and addressed when determining the operational volume.		*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.4 The remote pilot should apply emergency procedures as soon as there is an indication that the UA may exceed the limits of the operational volume, as per point 5.3.10~~1.4~~(h) below.		*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Ground risk	Self-declaration	3.5 The UAS operator should establish a ground risk buffer to protect third parties on the ground outside the operational volume.		*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.6 The ground risk buffer should cover a distance that is at least equal to the distance most likely to be travelled by the UA after activation of the flight termination system specified by the UAS manufacturer's instructions, considering		*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		the operational conditions within the limitations specified by the UAS manufacturer.		
Air risk	Declaration supported by data	3.7 If the UAS operation is performed above 120 m and up to 150 m, the UAS operator should:	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.7.1 establish an air risk buffer to protect third parties in the air outside the operational volume; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.' Justification supporting the reduction of the air risk buffer is documented in […].
		3.7.2 if the air risk buffer is part of controlled airspace, coordinate the operations with the respective ANSP.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		3.7.3 develop appropriate procedures to not jeopardise other airspace users.	*Please include a reference to the relevant chapter/section of the OM.* *Please describe how the remote pilots and, if employed, the AOs are able to assess the height of the UA compared to other airspace users[17].*	'I declare compliance and that supporting evidence is included in the OM.'
	Self-declaration	3.~~7~~8 The operational volume should be outside any geographical zone corresponding to a flight restriction zone of a protected aerodrome or of any other type, as defined by the responsible authority, unless the UAS operator has been granted ~~an~~ appropriate permission.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.~~8~~9 Prior to the flight, the UAS operator should assess the proximity of the planned operation to manned aircraft activity.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

[17] The UAS operator should demonstrate that they have sufficient confidence in the accuracy of the information about the height of the UA and the means to advert and avoid other airspace users and obstacles in the vicinity of the UA.

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
Observers[18]	Self-declaration	3.~~9~~10 If the UAS operator decides to employ one or more airspace observers (AOs), the UA may be operated at a distance from the remote pilot greater than that referred to in point 1.5.2 above.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.11~~0~~ In relation to AOs, the UAS operator should comply with the conditions ~~provisions~~ of point 4.1.15~~8~~ below.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.12 AOs should comply with the conditions ~~provisions~~ of point 5.4~~2~~ below.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
4. UAS operator and UAS operations conditions ~~provisions~~				
UAS operator and UAS operations	Declaration supported by data	4.1 ~~In addition to the responsibilities that are defined in point UAS.SPEC.050 of the Annex to the UAS Regulation and the provisions for UAS operators in previous points of this AMC, t~~The UAS operator should:	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.1 develop an operations manual (OM) (for the template, refer to AMC1 UAS.SPEC.030(3)(e) and to the complementary information in GM1 UAS.SPEC.030(3)(e));	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.2 define the operational volume and ground risk buffer for the intended operation, as per points 3.1 to 3.6 above, and include them in the OM;	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.3 develop procedures to ensure that the security requirements applicable to the area of operations are complied with during the intended operation;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'

[18] Please refer to point UAS.STS-02.050 for the AO's main responsibilities.

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		4.1.4 develop measures to protect the UAS against unlawful interference and unauthorised access;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.5 develop procedures to ensure that all operations comply with Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data. In particular, the UAS operator should carry out a data protection impact assessment, when this is required by the data protection national authority of the Member State with regard to the application of Article 35 of that Regulation;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.6 develop guidelines for its remote pilots to plan UAS operations in a manner that minimises nuisance, including noise and other emissions-related nuisance, to people and animals;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.7~~3~~ ensure the adequacy of the contingency and emergency procedures and prove ~~them~~it through any of the following: (a) dedicated flight tests; or (b) simulations, provided that the representativeness of the simulation means is proven for the intended purpose with positive results; or	*Please describe how this condition is met.*	'I declare compliance and evidence is available to the competent authority for review.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		(c) any other means acceptable to the competent authority; ~~and~~		
		4.1.8~~4~~ develop an emergency response plan (ERP) that is suitable for the intended operation ~~(see point 7 of GM1 UAS.SPEC.030(3)(e))~~ in accordance with the conditions for a 'medium' level of robustness (please refer to AMC3 UAS.SPEC.030(3)(e);	*Please describe how this condition is met.*	'I declare compliance and that the ERP is available to the competent authority for review.'
		4.1.9~~5~~ upload updated information into the geo-awareness function, if such system is installed on the UAS, when required by the UAS geographical zone for the intended location of the operation;	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.10~~6~~ ensure that before starting the operation, the controlled ground area is in place, effective, and compliant with the minimum distance that is defined in points 3.1 and 3.6 above and, when required, coordinate~~ion~~ with the appropriate authorities ~~has been established~~;	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.11~~7~~ ensure that before starting the operation, all persons that are present in the controlled ground area:		
		(a) have been informed of the risks of the operation;	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		(b) have been briefed on or trained in, as appropriate, the safety precautions and measures that the UAS operator has established for their protection; and	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		(c) have explicitly agreed to participate in the operation;~~ and~~	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.12 designate for each flight a remote pilot with adequate competency and other personnel in charge of duties essential to the UAS operation if needed;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.13 ensure that the UAS operation effectively uses and supports the efficient use of the radio spectrum in order to avoid harmful interference;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.14 keep for a minimum of 3 years and maintain up to date a record of the information on UAS operations, including any unusual technical or operational occurrences and other data as required by the declaration or by the operational authorisation;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that record-keeping data is available to the competent authority.'
		4.1.~~8~~15 before starting the operation, and if airspace observers (AOs) are employed:		
		(a) ensure the correct placement and the appropriate number of AOs along the intended flight path;	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		(b) verify that:		
		(i) the visibility and the planned distance of the AOs are within the acceptable limits as defined in the OM;	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		(ii) there are no potential terrain obstructions for each AO;	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		(iii) there are no gaps between the zones that are covered by each of the AOs;	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		(iv) the communication with each AO is established and effective; ~~and~~	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		(v) if means are used by the AOs to determine the position of the UA, those means are functioning and effective; and	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		(c) ensure that the AOs have been briefed on the planned flight path of the UA and on the associated timing.; ~~and~~	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		~~4.1.9 ensure that the UAS that is used in the intended operation complies with the technical provisions of point 6 below.~~		
		~~4.2 A UAS operation under this PDRA should be conducted:~~		
		~~4.2.1 keeping the UA in sight of the remote pilot during the launch and recovery of the UA, unless the recovery of the UA is the result of an emergency flight termination;~~		
		~~4.2.2 in accordance with the OM that is referred to in point 4.1.1 above;~~		
		~~4.2.3 over a controlled ground area that comprises the area of the operational volume that is indicated in point 3.1 above and the ground risk buffer that is indicated in point 3.5 above, both projected on the surface of the Earth;~~		
		~~4.2.4 by a remote pilot that complies with point 5.1 below; and~~		
		~~4.2.5 with a UA that complies with point 6 below and is operated with:~~		

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		~~(a) an active system to prevent the UA from exceeding the limits of the flight geography; and~~		
		~~(b) an active and updated system of direct remote identification.~~		
		4.2~~3~~ If no AO is employed in the operation, the operation should be conducted with the UA flying no further from the remote pilot than the distance that is indicated in point 1.5~~2~~.2 above and following a preprogrammed trajectory when the UA is not in the VLOS of the remote pilot.	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.3~~4~~ If one or more AOs are employed in the operation, the following conditions should be complied with:		
		4.3~~4~~.1 the AO(s) should be positioned so as to adequately cover the operational volume and the surrounding airspace, having the minimum flight visibility that is indicated in point 1.14~~0~~ above;	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.3~~4~~.2 the UA should be operated no further than 1 km from the AO who is nearest to the UA;	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.3~~4~~.3 the distance between any AO and the remote pilot should not be greater~~more~~ than 1 km; and	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.3~~4~~.4 robust and effective means are available for the communication between the remote pilot and the AO(s).	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
	Self-declaration	4.4. The UAS operator should:	*Please describe how this condition is met.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
UAS maintenance		4.4~~5~~.1 ensure that ~~T~~the UAS maintenance instructions that are defined by the UAS operator ~~should be~~are included in the OM and cover at least the UAS manufacturer's instructions and requirements when applicable~~.~~; and	*Please describe how this condition is met.*	'I declare compliance.'
		4.~~6~~4.2 ~~The~~that maintenance staff ~~should~~ follow the UAS maintenance instructions when performing maintenance;~~.~~	*Please describe how this condition is met.*	'I declare compliance.'
		4.4.3 keep for a minimum of 3 years and maintain up to date a record of the maintenance activities conducted on the UAS;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.4.4 establish and maintain up to date a list of the maintenance staff employed by the operator to carry out maintenance activities;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.4.5 comply with point UAS.SPEC.100, if the UAS uses certified equipment.	*Please include a reference to the relevant chapter/section of the OM or indicate 'n/a'.*	'I declare compliance.' or 'n/a'
External services	Self-declaration	4.~~7~~5 The UAS operator should ensure that the level of performance for any externally provided service that is necessary for the safety of the flight is adequate for the intended operation. The UAS operator should declare that this level of performance is adequately achieved.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.~~8~~6 The UAS operator should define and allocate the roles and responsibilities between the UAS operator and the external service provider(s), if applicable.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
5. Conditions ~~Provisions~~ for the personnel in charge of duties essential to the UAS operation				
	~~As per Appendix A to AMC2 Article 11 *The personnel in charge of duties essential to the UAS operation*~~			
General		5.1 The UAS operator should keep and maintain up to date a record of all the relevant qualifications and training courses completed by the remote pilot and other personnel in charge of duties essential to the UAS operation and by the maintenance staff for at least 3 years after those persons have ceased to be employed by the organisation or have changed position within the organisation.	*Please describe how this condition is met.*	'I declare compliance.' Record-keeping data is available for inspection at the request of the competent authority.
		5.2 The remote pilot should have the authority to cancel or delay any or all flight operations under the following conditions:	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.2.1 the safety of persons is jeopardised; or	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.2.2 property on the ground is jeopardised; or	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.2.3 other airspace users are in jeopardy; or	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.2.4 there is a violation of the terms of the operational authorisation.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Remote pilot	Self-declaration	5.3~~1 In addition to complying with the requirements of point UAS.SPEC.060 of the Annex to the UAS Regulation and with the provisions for remote pilots in previous points of this AMC, a~~ The remote pilot ~~who~~	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		~~is engaged in operations under this PDRA~~ should:		
		5.3.1 not perform any duties under the influence of psychoactive substances or alcohol, or when they are unfit to perform their tasks due to injury, fatigue, medication, sickness or other causes;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.2 be familiar with the manufacturer's instructions provided by the manufacturer of the UAS;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.3 ensure that the UA remains clear of clouds; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.4~~1.1~~ hold a certificate of remote pilot ~~remote pilot~~ theoretical knowledge, in accordance with Attachment A to Chapter II of Appendix 1 to the Annex to the UAS Regulation~~,~~, which is issued by the competent authority or by an entity that is designated by the competent authority of a Member State;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.5~~1.2~~ hold an accreditation of completion of a practical-skills ~~practical-skill~~ training course for this PDRA, in accordance with Attachment A to Chapter I of Appendix 1 to the Annex to the UAS Regulation, which is issued by:	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		(a) an entity that has declared compliance with the requirements of Appendix 3 to the Annex to the UAS Regulation and is recognised by the competent authority of a Member State; or (b) a UAS operator that has ~~declared~~ been authorised by the competent authority of the Member State of registration ~~compliance with~~ to operate according to this PDRA (or declared to the same competent authority compliance with STS-01) and with the requirements of Appendix 3 to the Annex to the UAS Regulation;		
		5.3.6 if operations are conducted at a height between 120 and 150 m, receive additional theoretical knowledge training in the following topics:		
		(a) raising awareness about the air risk and about the existence of other airspace users;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(b) checking height determination/ limitation devices;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(c) using procedures for the coordination between the remote pilot and the AO(s);	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		(d) using the applicable procedures in case a manned aircraft is detected;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.7 obtain updated information relevant to the intended operation about any geographical zones defined in accordance with Article 15 of the UAS Regulation; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.8 ensure that the UAS is in a safe condition to complete the intended flight safely and, if applicable, check whether the direct remote identification is active and up to date;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.~~1~~.3.9 before starting the UAS operation:		
		(a) verify that the remote identification system is operational;	*Please describe how this condition is met.*	'I declare compliance.'
		(b) obtain updated information relevant to the intended operation about any geographical zones defined in accordance with Article 15 of the UAS Regulation;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(c) ensure that the UAS is in a safe condition to complete the intended flight safely and, if applicable, check whether the direct remote identification is active and up to date;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(~~a~~d) set the programmable flight volume of the UA to keep it within the flight geography; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		(~~b~~e) verify that the means to terminate the flight as well as the programmable flight volume functionality of the UA are operational; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.~~1.4~~3.10 during the flight:		
		(a) unless supported by aerial observers (AOs), maintain ~~a~~ thorough visual scan of the airspace that surrounds ~~is surrounding~~ the UA to avoid any risk of collision with manned aircraft; the remote pilot should discontinue the flight if the operation poses a risk to other aircraft, people, animals, environment or property;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(b) maintain control of the UA, except in case of a loss of the command-and-control link;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(c) operate only one UA at a time;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(d) not operate the UA from a moving vehicle;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(e) not hand ~~over~~ the control of the UA over to another control unit;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(f) inform the AO(s), when employed, in a timely manner of any	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		deviations of the UA from the intended flight path, and of the associated timing;		
		(g) use the contingency procedures that are defined by the UAS operator for abnormal situations, including situations where the remote pilot has an indication that the UA may exceed the limits of the flight geography; ~~and~~	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(h) use the emergency procedures that are defined by the UAS operator for emergencies, including triggering the means to terminate the flight when the remote pilot has an indication that the UA may exceed the limits of the operational volume;~~.~~	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(i) activate the system to prevent the UA from exceeding the limits of the flight geography; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(j) activate the direct remote identification system[19].	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Airspace observer (AO)	Self-declaration	5.~~2~~4 The AO's main responsibilities are laid down in point UAS.STS-02.050 of the Annex to the UAS Regulation.~~A.2 of Appendix A to AMC2 Article 11 *The*~~	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

[19] Applicable from 1 July 2022.

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		~~*personnel in charge of duties essential to the UAS operation.*~~		
		5.5 If operations are conducted at a height between 120 and 150 m, the AO(s) should undergo additional theoretical knowledge training in the following topics:	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(a) raising awareness about the air risk and about the existence of other airspace users;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(b) checking height determination/ limitation devices;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(c) using the procedures for the coordination between the remote pilot and the AO(s); and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		(d) using the applicable procedures in case a manned aircraft is detected.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
6. Technical conditions~~provisions~~				
UAS	Self-declaration[20]	6.1 The UAS operator should use a UAS marked with a class C6 identification label and which complies with the requirements of that class, as defined in Part 17 of the Annex to Regulation (EU) 2019/945.		'I declare that the UAS is marked with a class C6 identification label.' or 'n/a'

[20] The containment requirements (reference to points 4 and 5 of Part 17 of Regulation (EU) 2019/945) should be demonstrated with a 'medium' assurance level.

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		6.2 As an alternative to point 6.1, the UAS operator may use a UAS that complies with the requirements of Part 16 of the Annex to Regulation (EU) 2019/945, except that the UAS does not need to:	*Please describe how this condition is met.*	'I declare compliance.' or 'n/a'
		6.2.~~1.~~1 bear a ~~C~~class C3 UAS or a ~~C~~class C6 UAS identification label ~~on itself~~;		
		6.2.~~1.~~2 be exclusively powered by electricity, if the UAS operator ensures that the environmental impact that is caused by the use of non-electric UAS is minimised;		
		6.2.~~1.~~3 include a notice that is published by EASA and provides the applicable limitations and obligations, as required by the UAS Regulation; and		
		6.2.~~1.~~4 include the manufacturer's instructions for the UAS if it is privately built; however, information on its operation and maintenance, as well as on the training of the remote pilot, should be included in the OM. *Note 1: The UAS can comply with point (9) of Part 4 of the Annex to Regulation (EU) 2019/945 by using an add-on that complies with Part 6 of the Annex to that ~~said~~ Regulation.* *Note 2: If the UA does not bear ~~have~~ a physical serial number that is compliant with standard ANSI/CTA-2063-A 'Small Unmanned Aerial*		

PDRA characterisation and conditions~~provisions~~				
Topic	**Method of proof**	**Condition**	**Integrity[16]**	**Proof[16]**
		Systems Serial Numbers' and/or does not have an integrated system of direct remote identification, it can comply with point (9) of Part 4 of the Annex to Regulation ~~(EU) 2019/945~~ by using an add-on that complies with Part 6 of the Annex to that ~~said~~ Regulation. *Note 3: If the UAS is privately built, there may be no identification on the UA of its MTOM. In that case, the operator should ensure that the MTOM of the UA, in the configuration of the UA before take-off, does not exceed 25 kg.*		

Table PDRA-S02.1 — Main limitations and conditions~~provisions~~ for PDRA-S02

AMC6 Article 11 Rules for conducting an operational risk assessment

PREDEFINED RISK ASSESSMENT PDRA-G03 Version 1.0

EDITION January 2022

(a) Scope

This PDRA is the result of applying the methodology described in AMC1 Article 11 of the UAS Regulation to UAS operations performed in the 'specific' category:

(1) with UA with maximum characteristic dimensions (e.g. wingspan, rotor diameter/area or maximum distance between rotors in case of a multirotor) of up to 3 m and typical kinetic energies of up to 34 kJ;

(2) BVLOS of the remote pilot;

(3) over sparsely populated areas;

(4) within the range of the direct C2 link in an operational volume under 30 m above the overflown area (or any other altitude reference defined by the Member State of operations);

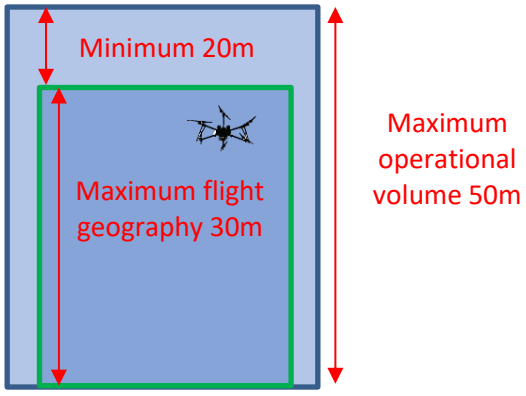
(5) following preprogrammed or preplanned flexible routes within the operational volume;

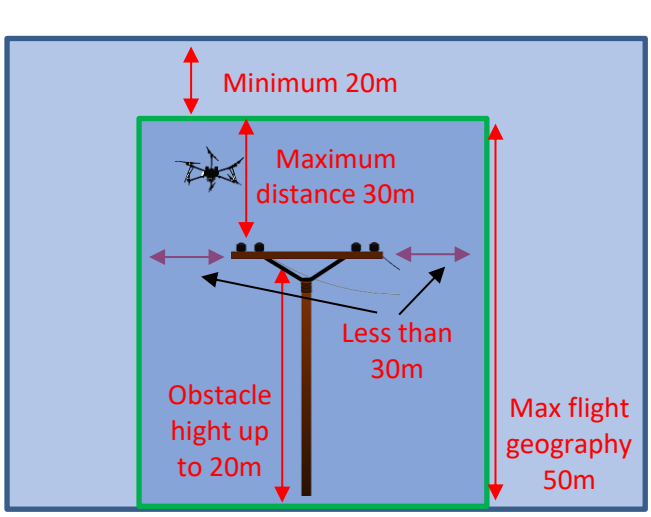
(6) in one of the following conditions:

(i) reserved or segregated airspace for UAS operations;

(ii) operating at a maximum height not exceeding 30 m from the ground;

(iii) when operating at no more than 30 m horizontally from an obstacle, operating at a maximum height not exceeding 15 m from the obstacle; if the height of the obstacle does not exceed 20 m, then the hight of the operation may be up to 30 m from the obstacle (meaning no more than a total of 50 m from the ground);





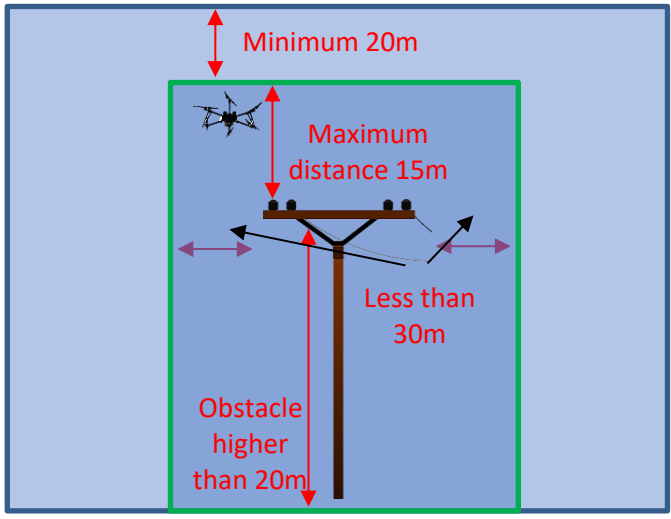


Figure 1 — Flight geography and operational volume when the operation is not conducted in reserved or segregated area

(7) operated routinely for regular inspections of facilities and infrastructure, e.g. industrial plants and similar, and operating in the atypical airspace within the shielding of such artificial obstacles as well as the natural obstacles, if any. The area of operation should be clearly identified within the application and the competent authority should issue a 'precise' operation authorisation according to GM1 UAS.SPEC.040(1).

Note 1: This PDRA has been tailored for routine automated surveillance operation and inspection of facilities and infrastructures. It may be used as a basis for other purposes and, thus, may require an additional risk assessment.

Note 2: Many UAS operations under this PDRA may be conducted with a high level of automation, which should be considered by the competent authorities in terms of the required level of practical-skills training and assessment, as it should be proportionate to the lower level of intervention required by the remote pilot.

(b) PDRA characterisation and conditions

The characterisation and conditions for this PDRA are summarised in Table PDRA-G03.1 below:

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Integrity[21]**	**Proof[21]**
1. Operational characterisation (scope and limitations)				
Level of human intervention	Self-declaration	1.1 No autonomous operations: the remote pilot should have the ability to maintain control of the UA, except in case of a loss of the command-and-control (C2) link.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.2 The remote pilot should always be able to terminate the flight.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.3 Either the flight path should be preprogrammed or flexible routes should be preplanned to ensure the UA avoids obstacles in the operational volume.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.4 The remote pilot should only operate one UA at a time.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.5 The remote pilot should not operate the UA from a moving vehicle.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.6 The remote pilot should not hand the control of the UA over to another command unit.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
UA range limit	Self-declaration	1.7 Launch/recovery: at VLOS distance from the remote pilot, if not operating from a safe prepared area. *Note: 'Safe prepared area' means a controlled ground area that is suitable for the safe launch/recovery of the UA.*	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

[21] To be filled in by the UAS operator.

		1.8 In flight: The range limit should be within the C2 link direct coverage which ensures the safe conduct of the flight.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Overflown areas	Declaration supported by data	1.9 UAS operations should be conducted:		
		1.9.1 over sparsely populated areas, and	*Please include a reference to the relevant chapter/section of the OM where the procedures for determining the population density are provided.*	'I declare compliance.' *Please describe how the population density data is identified.*
		1.9.2 over or up to 15 m horizontal distance from a facility or infrastructure at the request of the person or entity that is responsible for that facility or infrastructure.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
UA limitations	Self- declaration	1.10 Maximum characteristic dimensions (e.g. wingspan, rotor diameter/area or maximum distance between rotors in the case of a multirotor): up to 3 m	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.11 Typical kinetic energy: up to 34 kJ	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Flight height limit	Self-declaration	1.12 The maximum height of the operational volume should not be greater than the size of the reserved or segregated airspace, if applicable, or the height defined according to para 3.9. *Note: See point 3.10 defining the air risk buffer to be considered.*	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Airspace	Self-declaration	1.13 The UA should be operated: *(refer also to point 3.9)*		

		1.13.1 in 'atypical airspace' that is included in uncontrolled airspace;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		1.13.2 in controlled airspace which the competent authority has defined it meets 'atypical airspace' requirements and with the relevant coordination as defined by competent authority; or	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Visibility	Self-declaration	1.14 If take-off and landing are conducted in VLOS of the remote pilot, the visibility should be sufficient to ensure that no people are in danger during the take-off /landing phase. The remote pilot should abort the take-off or landing in case people on the ground are in danger.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Others	Self-declaration	1.15 The UA should not be used to drop material or to carry dangerous goods, except for dropping items in connection with agricultural, horticultural or forestry activities where the carriage of such items does not contravene any applicable regulations.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

2. Operational risk classification (according to the classification defined in AMC1 to Article 11 of the UAS Regulation)					
Final GRC	**3**	**Final ARC**	**ARC-a**	**SAIL**	**II**

3. Operational mitigations				
Operational volume (see Figure 2 of AMC1 Article 11)	Self-declaration	3.1 To determine the operational volume, the UAS operator should consider the position-keeping capabilities of the UAS in 4D space (latitude, longitude, height, and time).	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

		3.2 In particular, the accuracy of the navigation solution, the flight technical error of the UAS and the path definition error (e.g. map error) and latencies should be considered and addressed when determining the operational volume.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.3 The remote pilot should apply the emergency procedures as soon as there is an indication that the UA may exceed the limits of the operational volume.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Ground risk	Self-declaration	3.4 The UAS operator should establish a ground risk buffer to protect third parties on the ground outside the operational volume.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.4.1 The default criterion should be the use of the '1:1 rule' (e.g. if the UA is planned to operate at a height of 25 m, the ground risk buffer should at least be 25 m).	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.4.2 A smaller ground risk buffer value may be applied by the applicant for a rotary wing UA using a ballistic methodology approach acceptable to the competent authority. The 1:1 rule may in certain cases not be sufficient to meet the target level of safety. In such a case, the competent authority may ask for a refinement of the definition of the ground risk buffer, based on criteria defined	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

		in SORA Step #9 depending on the adjacent air and ground risks.		
		3.4.3 The 1:1 rule may in certain cases not be sufficient to meet the target level of safety. In such a case, the competent authority may ask for a refinement of the definition of the ground risk buffer.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.5 The operational volume and the ground risk buffer should be all contained in a sparsely populated area.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.6 The UAS operator should evaluate the area of operations, typically by means of on-site inspection or appraisal, and should be able to justify the significantly lower density of people at risk than in sparsely populated areas within the entire operational volume including the ground risk buffer.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.7 The UAS operator should ensure that the person or entity responsible for the facility or infrastructure has taken the necessary measures to protect the uninvolved persons present within the limits of the facility or infrastructure during the UAS operation.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.8 The UAS operator should include points 3.4 to 3.7 in the Operations Manual (OM) (see point 4.1.1) and declare compliance with those	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

		conditions.		
Air risk	Self-declaration	3.9 The UAS operation should be conducted: 3.9.1 in 'atypical airspace' which, for the purpose of this PDRA, is one of the following: 3.9.1.1 in reserved or segregated airspace; the claim for ARC-a is met if a reserved or segregated airspace is established and approved for the purpose of conducting UAS operations under this PDRA, with the operational volume and air risk buffer, if applicable, being entirely contained in that reserved or segregated airspace; 3.9.1.2 at a height of the flight geography of less than 30 m; 3.9.1.3 when operating in the proximity of natural or artificial obstacles (e.g. trees, buildings, towers, cranes, fences, etc.) whose height is below 20 m, keeping the UA within the following distances: (i) 30 m horizontal distance;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

		(ii) 15 m vertical distance from the top of the overflown obstacle; 3.9.1.4 when operating in the proximity of natural or artificial obstacles (e.g. trees, buildings, towers, cranes, fences, etc.) whose height is above 20 m, keeping the UA within the following distances: (i) 15 m horizontal distance; (ii) 15 m vertical distance from the top of the overflown obstacle; 3.9.2 away from all of the following: (i) any known permanent or temporary take-off and landings areas for all types of manned aircraft; this also includes parking lots, parks and other areas where helicopters occasionally operate from, as well as sites where police and helicopter emergency medical services (HEMS), and search and rescue (SAR) helicopters occasionally operate from in cases of accidents or other emergencies; (iii) known military aircraft low-flying routes;		

		(iv) any other known low-level manned aircraft operations in the intended area of operation (e.g. balloon operations authorised en route below 500 ft); (v) harbour/coastal areas where SAR operations may transit or operate; (vi) any known areas where other unmanned aircraft operate (including areas for model aircraft clubs or associations); or 3.9.2 in reserved or segregated airspace; the claim for ARC-a is met if a reserved or segregated airspace is established and approved for the purpose of conducting UAS operations under this PDRA, with the operational volume and air risk buffer, if applicable, being entirely contained in that reserved or segregated airspace.		
		3.10 The UAS operator should establish an air risk buffer to protect third parties in the air, outside the operational volume, if: 3.10.1 airspace classified as ARC-d is adjacent to the operational volume; or 3.10.2 the competent authority or the	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

		entity responsible for the airspace management considers it necessary to require that the protection of third parties in the air be ensured.		
		3.11 The air risk buffer as per point 3.10 should be contained where the probability of encounter with manned aircraft and other airspace users is low, as defined by the competent authority.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		3.12 Before the flight, the UAS operator should assess the proximity of the planned UAS operation to manned aircraft activity.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Observers		n/a		
4. UAS operator and UAS operations conditions				
UAS operator and UAS operations	Declaration supported by data	4.1 The UAS operator should:		
		4.1.1 develop an operations manual (OM) (for the template, refer to AMC1 UAS.SPEC.030(3)(e) and to the complementary information in GM1 UAS.SPEC.030(3)(e));	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.2 develop a procedure to ensure that the security requirements applicable to the area of operations are complied with during the intended operation;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'

		4.1.3 develop measures to protect the UAS against unlawful interference and unauthorised access;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.4 develop procedures to ensure that all operations comply with Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data. In particular, the UAS operator should carry out a data protection impact assessment, when this is required by the data protection national authority of the Member State with regard to the application of Article 35 of that Regulation;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.5 develop guidelines for its remote pilots to plan UAS operations in a manner that minimises nuisance, including noise and other emissions-related nuisance, to people and animals;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.6 develop an emergency response plan (ERP) in accordance with the conditions for a 'medium' level of robustness (please refer to AMC3 UAS.SPEC.030(3)(e);	*Please describe how this condition is met.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.7 validate the operational procedures in accordance with the provisions for a 'medium' level of robustness included in AMC2 UAS.SPEC.030(3)(e);	*Please describe how this condition is met.*	'I declare compliance and that the description for meeting this condition is available to the competent authority for review.'

		4.1.8 ensure the adequacy of the contingency and emergency procedures and prove it through any of the following: (a) dedicated flight tests; (b) simulations, provided that the representativeness of the simulation means is proven for the intended purpose with positive results; (c) any other means acceptable to the competent authority;	*Please describe how this condition is met.*	'I declare compliance and that the description for meeting this condition is available to the competent authority for review.'
		4.1.9 have a policy that defines how the remote pilot and any other personnel in charge of duties essential to the UAS operation can declare themselves fit to operate before conducting any operation;	*Please describe how this condition is met.*	'I declare compliance and that the description for meeting this condition is available to the competent authority for review.'
		4.1.10 if the operation takes place in reserved or segregated airspace, as part of the procedures that are contained in the OM (point 4.1.1 above), include the description of the following:		

		(a) the method and means of communication with the authority or entity that is responsible for the management of the airspace during the entire period of the reserved or segregated airspace being active, as mandated by the authorisation; *Note: The communication method should be published in the notice to airmen (NOTAM), which activates the reserved airspace to also allow coordination with manned aircraft.*	*Please describe how this condition is met.*	'I declare compliance and that evidence is available to the competent authority for review.'
		(b) the personnel in charge of duties essential to the UAS operation, who are responsible for establishing that communication;	*Please describe how this condition is met.*	'I declare compliance and that evidence is available to the competent authority for review.'
		4.1.11 designate for each flight a remote pilot with adequate competency and other personnel in charge of duties essential to the UAS operation if needed;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.12 ensure that the UAS operation effectively uses and supports the efficient use of the radio spectrum in order to avoid harmful interference;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that supporting evidence is included in the OM.'

		4.1.13 keep for a minimum of 3 years and maintain up to date a record of the information on UAS operations, including any unusual technical or operational occurrences and other data as required by the declaration or by the operational authorisation.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance and that record-keeping data is available to the competent authority.'
UAS maintenance	Self-declaration	4.2 The UAS operator should:		
		4.2.1 ensure that the UAS maintenance instructions that are defined by the UAS operator are included in the OM and cover at least the UAS manufacturer's instructions and requirements, when applicable; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.2.2 ensure that maintenance staff follow the UAS maintenance instructions when performing maintenance;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.2.3 keep for a minimum of 3 years and maintain up to date a record of the maintenance activities conducted on the UAS;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.2.4 establish and keep up to date a list of the maintenance staff employed by the operator to carry out maintenance activities;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		4.2.5 comply with point UAS.SPEC.100, if the UAS uses certified equipment.	*Please include a reference to the relevant chapter/section of the OM or indicate 'n/a'.*	'I declare compliance.' or 'n/a'

External services	Self-declaration	4.3 The UAS operator should ensure that the level of performance for any externally provided service necessary for the safety of the flight is adequate for the intended operation. The UAS operator should declare that this level of performance is adequately achieved.	*Please describe how this condition is met.*	'I declare compliance.'
		4.4 The UAS operator should define and allocate the roles and responsibilities between the UAS operator and the external service provider(s), if applicable.	*Please describe how this condition is met.*	'I declare compliance.'
5. Conditions for the personnel in charge of duties essential to the UAS operation				
General	Self-declaration	5.1 The UAS operator should ensure that all personnel in charge of duties essential to the UAS operation are provided with competency-based theoretical and practical training specific to their duties, which consists of theoretical elements defined in AMC1 UAS.SPEC.050(1)(d) and practical elements defined in AMC2 UAS.SPEC.050(1)(d).	*Please describe how this condition is met.*	'I declare compliance. Evidence of training is available for inspection at the request of the competent authority or its authorised representative. The training programme is documented in the OM.'
		5.2 The UAS operator should keep and maintain up to date a record of all the relevant qualifications and training courses completed by the remote pilot and the other personnel in charge of duties essential to the UAS operation and by the maintenance staff for at least 3 years after those persons have ceased to be employed by the organisation or have changed position within the organisation.	*Please describe how this condition is met.*	'I declare compliance. Record-keeping data is available for inspection at the request of the competent authority.'

Remote pilot	Self-declaration	5.3 The remote pilot has the authority to cancel or delay any or all flight operations under the following conditions:	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.1 the safety of persons is jeopardised;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.2 property on the ground is jeopardised;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.3 other airspace users are in jeopardy;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.3.4 there is a violation of the terms of the operational authorisation.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.4 The remote pilot should:		
		5.4.1 not perform any duties under the influence of psychoactive substances or alcohol, or when they are unfit to perform their tasks due to injury, fatigue, medication, sickness or other causes;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.4.2 be familiar with the manufacturer's instructions provided by the manufacturer of the UAS;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.4.3 ensure that the UA remains clear of clouds;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

		5.4.4 perform unaided visual scan of the airspace as required to avoid any potential collision hazard;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.4.5 obtain updated information relevant to the intended operation about any geographical zones defined in accordance with Article 15 of the UAS Regulation; and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		5.4.6 ensure that the UAS is in a safe condition to complete the intended flight safely and, if applicable, check whether the direct remote identification is active and up to date.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
Multi-crew cooperation (MCC)	Self-declaration	Where multi-crew cooperation (MCC) is required, the UAS operator should:		
		5.5 designate the remote pilot-in-command to be responsible for each flight;	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		5.6 include procedures to ensure the coordination between the remote crew members with robust and effective communication channels; those procedures should cover as a minimum the following:	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		5.6.1 the assignment of tasks to the remote crew members; and	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'

		5.6.2 the establishment of step-by-step communication; and	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
		5.7 ensure that the training of the remote crew covers MCC.	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.' or 'n/a'
Maintenance staff	Self-declaration	5.8 Any staff member authorised by the UAS operator to perform maintenance activities should have been duly trained regarding the documented maintenance procedures.	*Please describe how this condition is met.*	'I declare compliance. Evidence of training is available at the request of the competent authority or its authorised representative.'
Personnel in charge of duties essential to the UAS operation are fit to operate	Self-declaration	5.9 The personnel in charge of duties essential to the UAS operation should declare that they are fit to operate before conducting any operation based on the policy defined by the UAS operator.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
6. Technical conditions				
General	Self-declaration	6.1 The UAS should be equipped with means to monitor the critical parameters for a safe flight, and in particular the following:		
		6.1.1 UA position, height or altitude, ground speed or airspeed, attitude, and trajectory;	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.1.2 UAS energy status (fuel, battery charge, etc.); and	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

		6.1.3 the status of critical functions and systems; as a minimum, for services based on RF signals (e.g. C2 link, GNSS, etc.), means should be provided to monitor the adequate performance and trigger an alert when the performance level becomes too low.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.2 The UAS performance and in particular its capability to keep the position in 4D space (latitude, longitude, height, and time) should be such that allows the remote pilot to conduct safely operations close to natural or artificial obstacles. *Note: The UA should be able to fly safely at a distance closer than 30 m to artificial or natural obstacles.*	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.3 The UAS should provide means to programme the UA flight path prior to take-off, or if utilising flexible routes, be equipped with means to avoid obstacles while staying within the intended operational volume.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.3.1. If flexible routes are utilised, the UAS should provide means to prevent the UA from breaching the horizontal and vertical limits of a programmable operational volume.	*Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.*	'I declare compliance.'
		6.4 The UAS should be protected against potential electromagnetic interferences from the infrastructure/facilities in the overflown area.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'

Human–machine interface (HMI)	Self-declaration	6.5 The UAS information and control interfaces should be clearly and succinctly presented and should not confuse, cause unreasonable fatigue, or contribute to causing any disturbance to the personnel in charge of duties essential to the UAS operation such that this could adversely affect the safety of the operation.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.6 The UAS operator should conduct a UAS evaluation that considers and addresses human factors to determine whether the HMI is appropriate for the operation.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
C2 links and communication	Self-declaration	6.7 The UAS should comply with the appropriate requirements for radio equipment and the use of the RF spectrum.	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.8 Protection mechanisms against interference should be used, especially if unlicensed bands (e.g. ISM) are used for the C2 link (mechanisms such as FHSS, DSSS or OFDM technologies, or frequency deconfliction by procedure).	*Please include a reference to the relevant chapter/section of the OM.*	'I declare compliance.'
		6.9 The UAS should be equipped with a C2 link that is protected against unauthorised access to the C2 functions.	*Please include a reference to the relevant chapter/section of the OM.*	*'I declare compliance.'*

		6.10 In case of a loss of the C2 link, the UAS should have a reliable and predictable method for the UA to recover the C2 link or terminate the flight in a way that reduces the effect on third parties in the air or on the ground.	*Please include a reference to the relevant chapter/section of the OM.*	*'I declare compliance.'*
		6.11 In the event of an emergency, the remote pilot should have effective means to communicate with the relevant bodies.	*Please include a reference to the relevant chapter/section of the OM.*	*'I declare compliance.'*
Tactical mitigation		n/a		
Containment	Declaration supported by data	6.12 To ensure a safe recovery from a technical issue that involves the UAS or an external system that supports the operation, the UAS operator should ensure that:		
		6.12.1 no probable failure of the UAS or any external system that supports the operation should lead to operation outside the operational volume; and	*Please describe how this condition is met.*	'I declare compliance. A design and installation appraisal is available, and covers at least the following: — the design and installation features (independence, separation, and redundancy); and — the particular risks (e.g. hail, ice, snow, electromagnetic interference, etc.) relevant to the type of operation.'
		6.12.2 it is reasonably expected that a fatality will not occur from any probable failure of the UAS, or any external system that supports the operation. *Note: The term 'probable' should be understood in its qualitative interpretation, i.e. 'anticipated to occur one or more times during the entire system/operational life of an item'.*	*Please describe how this condition is met.*	
		6.13 The following additional conditions should apply if the adjacent area		

	Declaration supported by data	includes an assembly of people or if the adjacent airspace is classified as ARC-c or ARC-d (in accordance with the SORA):		
		6.13.1 The UAS should be designed to standards that are considered adequate by the competent authority and/or in accordance with a means of compliance that is acceptable to that authority such that:	*Please include a reference to the relevant chapter/section of the OM or indicate 'n/a'.*	'I declare compliance. Analysis and/or test data with supporting evidence are/is available.'
		6.13.1.1 the probability of the UA leaving the operational volume should be less than 10^{-4}/FH; and	*Please include a reference to the relevant chapter/section of the OM or indicate 'n/a'.*	
		6.13.1.2 no single failure of the UAS or of any external system supporting the operation should lead to operation outside the ground risk buffer. *Note: The term 'failure' should be understood as an occurrence which affects the operation of a component, part, or element such that it can no longer function as intended. Errors may cause failures but are not considered to be failures. Some structural or mechanical failures may be excluded from the criterion if it can be shown that these mechanical parts were designed according to aviation industry best practices.*	*Please include a reference to the relevant chapter/section of the OM or indicate 'n/a'.*	
		6.13.2 SW and AEH whose development error(s) could directly lead to operations outside the ground risk buffer should be developed according to an industry standard	*Please include a reference to the relevant chapter/section of the OM or indicate 'n/a'.*	

		or methodology that is recognised as adequate by the competent authority. *Note 1: The proposed additional safety conditions cover both the integrity and the assurance levels.* *Note 2: The proposed additional safety conditions do not imply a systematic need to develop the SW and AEH according to an industry standard or methodology recognised as adequate by the competent authority. For instance, if the UA design includes an independent engine shutdown function that systematically prevents the UA from exiting the ground risk buffer due to single failures or an SW/AEH error of the flight controls from occurring, the intent of the conditions of point 6.13.1 above could be considered met.* *Note 3: For this PDRA, having adjacent airspace classified as ARC-c like a hospital heliport in uncontrolled airspace is also deemed subject to the above additional conditions (in addition to ARC-d, as per SORA Step #9 (c)).*		
Remote identification[22]	Self-declaration	6.15 The UAS bears a unique serial number compliant with standard ANSI/CTA-2063-A-2019, *Small Unmanned Aerial Systems Serial Numbers*, 2019, according to Article 40(4) of Regulation (EU) 2019/945.	*Please describe how this condition is met.*	'I declare compliance.'

[22] Applicable from 1 July 2022.

		6.16 The UAS is equipped with a remote identification system according to Article 40(5) of Regulation (EU) 2019/945.	*Please describe how this condition is met.*	'I declare compliance.'
Lights[22]	Self-declaration	6.17 If the UAS is operated at night, it is equipped with at least one green flashing light according to point UAS.SPEC.050(1)(l)(i) of the UAS Regulation.	*Please describe how this condition is met or indicate 'n/a'.*	'I declare compliance.' or 'n/a'

Table PDRA-G03.1 — Main limitations and provisions for PDRA-G03

AMC1 Article 13 Cross-border operations or operations outside the State of registration

CROSS-BORDER OPERATIONS

(a) A UAS operator that intends to conduct an operation, for which an operational authorisation is required, partially or fully in a Member State other than the State of registration, it should firstly obtain any required authorisation for that operation from the State of registration, unless the UAS operator has a LUC with the appropriate privileges. This process applies also when the UAS operator intends to conduct an operation only in a MS other than the State of registration.

(b) The UAS operator should:

(1) identify the applicable local conditions in the area of operation;

(2) adapt the operational procedures, as necessary:

(i) to comply with the applicable local conditions[23]; and

(ii) as required by the application to the new location(s) of the mitigation measures, identified in the operational authorisation;

(3) submit to the competent authority of the MS of operation (refer to https://www.easa.europa.eu/domains/civil-drones/naa for the links to the NAA websites) an application for a cross-border operation using the form provided in AMC1 Article 13(1), attaching the following:

(i) a copy of the operational authorisation issued by the competent authority of the MS of registration, or a copy of the LUC terms of reference if the operation is conducted under the privileges of the LUC;

(ii) those chapter(s)/section(s) of the operations manual (OM) providing the operational procedures and the relevant information, amended as necessary, to comply with the local conditions and apply the mitigation measures to the new intended location(s), unless the UAS operator holds a LUC with the appropriate privileges; and

(iii) evidence of compliance of the amended procedures (refer to point ii) according to the level of robustness of the mitigation measures, if any, unless the UAS operator has a LUC with the appropriate privileges.

(c) The competent authority of the MS of operation should, without undue delay, evaluate the information provided by the UAS operator and verify the application of local condition(s) and of the updated mitigation measures applicable to the intended location(s) of the operation.

(d) Once the competent authority of the MS of operation is satisfied, it should provide the competent authority of the MS of registration and the UAS operator with the confirmation of

[23] Consisting in compliance with the provisions defined in the applicable national regulations. Local conditions should be published by each MS.

acceptability (refer to the template provided in AMC1 Article 13(2)) that the updated mitigation measures and procedures are satisfactory for the intended location(s).

(e) After receiving the confirmation of acceptability, the UAS operator may start its operation.

(f) The competent authority of the MS of registration should issue a revision of the operational authorisation listing the additional new location(s), and provide a copy of the revised operational authorisation to the MS of authorisation and to the UAS operator.

(g) A UAS operator that holds a LUC with the appropriate privileges listed in its terms of reference may operate without following the above procedures. However, the UAS operator:

(1) must provide to the MS of operation the application using the form provided in AMC1 Article 13(1), attaching the following:

(i) a copy of the terms of approval received in accordance with point UAS.LUC.050 of the Annex to the UAS Regulation; and

(ii) the location(s) of the intended operation in accordance with paragraph 1(b) of Article 13(1) of the UAS Regulation.

(2) If the LUC terms of reference include the privileges to assess the local conditions and to apply the mitigation measures in other locations, than the UAS operator may start the operation as soon as it has received confirmation of receipt and completeness of the application.

(3) If the LUC terms of reference do not include the privileges to assess the local conditions and/or apply the mitigation measures in other locations, than the UAS operator may start the operation only after it has received the confirmation of acceptability (refer to the template provided in AMC1 Article 13(2)) that the updated mitigation measures and procedures are satisfactory for the intended location(s).

AMC1 Article 13(1) Cross-border operations or operations outside the State of registration

APPLICATION FORM FOR A CROSS-BORDER UAS OPERATION

Application for a cross-border UAS operation in the 'specific' category

Data protection: Personal data included in this application is processed by the competent authority pursuant to Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation). Personal data will be processed for the purposes of the performance, management and follow-up of the application by the competent authority in accordance with Articles 12 and 13 of Regulation (EU) 2019/947 of 24 May 2019 on the rules and procedures for the operation of unmanned aircraft.

If the applicant requires further information concerning the processing of their personal data or exercising their rights (e.g. to access or rectify any inaccurate or incomplete data), they should refer to the point of contact of their competent authority.

The applicant has the right to file a complaint regarding the processing of their personal data at any time to the national data protection supervisory authority.

☐ New application	☐ Amendment to confirmation of acceptability NNN-CBO-xxxxx/yyy	
1. UAS operator and approval data		
1.1 UAS operator registration number		
1.2 UAS operator name		
1.3 Operational point of contact Name Telephone Email		
1.4 Type of approval	**1.4.1 Operational authorisation / LUC number issued by the MS of registration**	**1.4.2 Expiry date**
☐ Operational authorisation ☐ LUC		DD/MM/YYYY
2. Locations		
2.1 Expected date of start of the operation	DD/MM/YYYY	**2.2 Expected end date** DD/MM/YYYY
2.3 Intended location(s) for the operation		
2.4 Operational volume height limit	_____ m (_____ ft)	
2.5 Airspace of the intended operation	☐A ☐B ☐C ☐D ☐E ☐F ☐G ☐U-space ☐Other, specify	
2.6. Applicable local conditions		
3. Update of the application of the mitigation means and local conditions		
3.1 Updated 'Location of UAS operation' chapter of the operations manual (OM), if applicable		
3.2 Compliance evidence for updated mitigation measures and local conditions, if applicable		

4. Remarks	
5. Declaration of compliance	
I, the undersigned, hereby request the confirmation of acceptability of the cross-border UAS operation in xxx (name of the Member State) and declare that the UAS operation will comply with: *— any national rules related to privacy, data protection, liability, insurance, security, and environmental protection;* *— the applicable requirements of Regulation (EU) 2019/947; and* *— the limitations and conditions defined in the operational authorisation provided by the competent authority of the Member State of registration and in the confirmation of acceptability of the cross-border UAS operation provided by the competent authority of the Member State of operation.* *Moreover, I declare that the related insurance coverage, if applicable, will be in place at the start date of the UAS operation.*	
Date DD/MM/YYYY	**Signature and stamp**

Instructions for filling in the application form

If the application relates to an amendment to a confirmation of acceptability for a cross-border UAS operation, please indicate the number of the confirmation of acceptability and fill out in red the fields that are amended compared to the last confirmation of acceptability.

1.1 UAS operator registration number in accordance with Article 14 of the UAS Regulation.

1.2 UAS operator's name as declared during the registration process.

1.3 Contact details of the person responsible for the operation, in charge to answer possible operational questions raised by the competent authority.

1.4 Select one of the two options.

1.4.1 Number of the operational authorisation or of the LUC terms of approval issued by the competent authority of the MS of registration. The referenced document should be attached to the application.

1.4.2 Expiry date of the document listed in 1.4.2. If the validity is unlimited, indicate 'Unlimited'.

2.1 Date on which the UAS operator expects to start the operation.

2.2 Date on which the UAS operator expects to end the operation. The UAS operator may ask for an unlimited duration; in this case, indicate 'Unlimited'.

2.3 Location(s) in the MS of operation where the UAS operator intends to conduct the UAS operation. The identification of the location(s) should contain the full operational volume and ground risk buffer (the red line in Figure 1). The location(s) should be expressed in the same way as in the operational authorisation (e.g. 'generic' or 'precise' (refer to GM2 UAS.SPEC.030(2)).

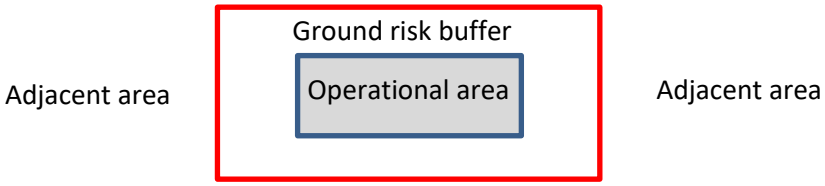


Figure 1 — Operational area and ground risk buffer

2.4 Insert the upper limit, expressed in metres and feet in parentheses, of the contingency volume (adding the air risk buffer, if applicable) using the AGL reference when the upper limit is below 150 m (492 ft) or use the MSL reference when the upper limit is above 150 m (492 ft).

2.5 Select one or more of the nine options. Select 'other' in case none of the previous is applicable (i.e. military areas).

2.6 List the local conditions applicable to the location(s) defined in point 2.3 (e.g. special frequency to be avoided, national insurance regulation, etc.). If needed, a separate document may be attached.

3.1 If operational procedures need to be updated to take into account the new locations or the local conditions, indicate either the identification and revision number of the OM or the document providing an extract of the OM including the chapter describing the operational procedures and the relevant information, amended by the UAS operator. This document should be attached to the application. Otherwise indicate 'n/a'.

3.2 If procedures are updated to address the characteristics of the new location or to meet the local conditions, indicate the compliance evidence file identification and revision number. This document should be attached to the application. Otherwise indicate 'n/a'.

4 Free-text field for the addition of any relevant remark.

Note: In case of LUC, point 3 should not be filled in if according to the LUC terms of approval the organisation has the privilege to extend the operational authorisation to different locations.

AMC1 Article 13(2) Cross-border operations or operations outside the State of registration

FORM FOR THE CONFIRMATION OF ACCEPTABILITY OF A CROSS-BORDER UAS OPERATION IN THE 'SPECIFIC' CATEGORY

	Confirmation of acceptability of a cross-border UAS operation in the 'specific' category	NAA Logo
1. UAS operator and approval data		
1.1 UAS operator registration number		
1.2 UAS operator name		
1.3 Operational point of contact **Name** **Telephone** **Email**		
1.4. Type of approval	**1.4.1. Operational authorisation / LUC number issued by the MS of registration**	**1.4.2 Expiry date**
☐ Operational authorisation ☐ LUC		DD/MM/YYYY
2. Locations		
2.1 Location(s) for the operation		
2.2 Operational volume height limit	_____ m (_____ ft)	
3. Remarks		

4. Confirmation of acceptability	
4.1 Confirmation number	
4.2 Expiry date	DD/MM/YYYY
4.3 Updated 'Location of UAS operation' chapter of the operations manual, if applicable	
4.4 Compliance evidence for updated mitigations and local conditions	

_____ (name of the competent authority) confirms that the updated mitigation measures and application of local conditions proposed by the applicant are satisfactory for the operation at the location(s) defined in point 3.1. This certificate is valid for as long as the applicant complies with the operational authorisation or the LUC terms of approval defined in point 1.4.1 of the application, with Regulation (EU) 2019/947 and with any applicable Union and national regulations related to privacy, data protection, liability, insurance, security, and environmental protection.

Date DD/MM/YYYY	**Signature and stamp**

Instructions for filling in the form for the 'Confirmation of acceptability of a cross-border UAS operation in the "specific" category'.

1.1 UAS operator registration number in accordance with Article 14 of the UAS Regulation.

1.2 Name of the UAS operator as declared during the registration process.

1.3 Contact details of the person responsible for the operation, in charge to answer possible operational questions raised by the competent authority.

1.4 Select one of the two options.

1.4.1. Number of the operational authorisation or of the LUC terms of approval issued by the competent authority of the MS of registration.

1.4.2 Expiry date of the document listed in 1.4.2. If the validity is unlimited, indicate 'Unlimited'.

2.1 Location(s) in the MS of operation where the UAS operator is authorised to operate. The identification of the location(s) should contain the full operational volume and ground risk buffer (the red line in Figure 2). The location(s) should be expressed in the same way as in the operational authorisation (e.g. 'generic' or 'precise' (refer to GM2 UAS.SPEC.030(2)).

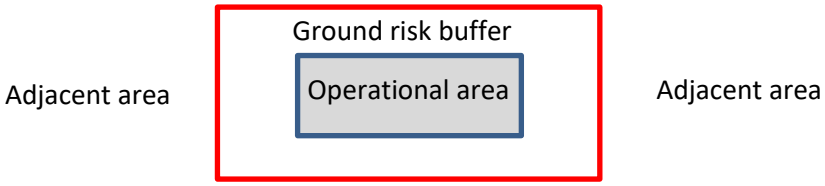


Figure 2 — Operational area and ground risk buffer

2.2 Insert the upper limit, expressed in metres and feet in parentheses, of the approved contingency volume (adding the air risk buffer, if applicable) using the AGL reference when the upper limit is below 150 m (492 ft), or use the MSL reference when the upper limit is above 150 m (492 ft).

3. Free-text field for the addition of any relevant remark.

4.1 Reference number of the confirmation of acceptability, as issued by the competent authority. The number should have the following format:

NNN-CBO-xxxxx/yyy

Where:

— 'NNN' is the ISO 3166 Alpha-3 code of the MS that issues the confirmation of acceptability of the operational authorisation number;

— 'CBO' is a fixed field meaning 'cross-border operation';

— 'xxxxx' are up to 12 alphanumeric characters defining the confirmation of acceptability of the operational authorisation number; and

— 'yyy' are 3 alphanumeric characters defining the revision number of the confirmation of acceptability of the operational authorisation number. Each amendment of the confirmation of acceptability of the operational authorisation number will determine a new revision number.

4.2 The duration of the confirmation of acceptability of the operational authorisation may be unlimited; in this case, indicate 'Unlimited'. The confirmation of acceptability will be valid for as long as the UAS operator complies with the relevant provisions of the UAS Regulation and with the conditions defined in the operational authorisation and in the confirmation of acceptability.

4.3 If the UAS operator has submitted to the competent authority of the MS of operation the full revised operations manual (OM), indicate its identification and revision number. Otherwise, in case only the chapter/section of the OM with the updated locations and procedures is submitted, provide its identification and revision number. In case no local conditions are identified or there is no need to update the procedures in the OM, indicate 'n/a'.

4.4 If provided, indicate the compliance evidence file identification and revision number.

Note 1: In case of LUC, points 4.3 and 4.4 may not be filled in if according to the LUC terms of approval the organisation has the privilege to extend the operational authorisation to different locations.

Note 2: The signature and stamp may be provided in electronic form. The QR code should provide the link to the national database where the confirmation of acceptability for cross-border operations is stored.

GM1 Article 15 Operational conditions for UAS geographical zones

MEANS TO INFORM MANNED AVIATION OF UAS GEOGRAPHICAL ZONES

Depending on the duration of the validity of a UAS geographical zone, Member States may use AIPs and NOTAMs, as deemed appropriate, to inform manned aviation of:

— UAS geographical zones in which UASs are exempted from one or more of the 'open' category requirements in accordance with Article 15(2) of the UAS Regulation;

— other UAS geographical zones which are of relevance for manned aviation (e.g. U-space).

For temporary zones, NOTAMs may be used whereas for zones with longer duration, a publication in the AIP is more appropriate.

AMC1 Article 15(1) Operational conditions for UAS geographical zones

CROSS-BORDER UAS GEOGRAPHICAL ZONE(S)

When more than one Member State decide to designate a cross-border UAS geographical zone(s), those Member States should establish coordination procedures in accordance with Article 19(1) of the

UAS Regulation. Those coordination procedures should indicate which country codes should be used for the identification of the zone(s).

AMC2 Article 15(1) Operational conditions for UAS geographical zones

DATA INTEGRITY

When data related to the UAS geographical zones described in GM3 to Article15(1) Example 2 is processed, as a minimum, data integrity is ensured as prescribed in Part-ATM/ANS.OR.A.085(b)(2) 'Aeronautical data quality management' and in Part-AIS.TR.200(c) 'General' of Commission Implementing Regulation (EU) 2017/373 of 1 March 2017[24].

GM2 Article 15(1) Operational conditions for UAS geographical zones

GENERAL ASPECTS

In line with the Chicago Convention[25], UAS geographical zones with restrictions and prohibitions should not be designated over the high seas / international airspace.

UAS geographical zones are defined in accordance with policies and procedures established by the Member States. Various entities (e.g. public institutions, law enforcement authorities, ANSPs, local authorities, nature park authorities, the military, etc.) may initiate the identification of UAS geographical zones. The initiating entity may provide the approving entity with the data on the UAS geographical zone(s) together with supporting material in accordance with the Member States' arrangements for validation and confirmation or approval, as necessary.

Formal arrangements between the initiating entity and the entity that processes the data for the identification of the UAS geographical zone(s) may be considered. Such formal arrangements may include specific requirements on data quality.

If a flight authorisation is required to enter a UAS geographical zone, the Member States should also establish the related procedure and designate the entity responsible for providing such authorisation.

GM3 Article 15(1) Operational conditions for UAS geographical zones

DATA QUALITY

When establishing UAS geographical zones, the Member States may require specific data quality requirements based on the purpose and location of a given zone.

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[24] Commission Implementing Regulation (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 (OJ L 62, 8.3.2017, p. 1) (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017R0373&qid=1642077976836).

[25] ICAO Doc 7300 — Convention on International Civil Aviation.

Example 1

If a UAS geographical zone is of relevance to manned aviation (e.g. U-space or zones established according to Article 15(2)) of the UAS Regulation, it should, as far as practicable, comply with the data quality requirements applicable to prohibited/restricted/danger areas included in Appendix 1 'Aeronautical data catalogue' to Annex III (Part-ATM/ANS.OR) to Commission Implementing Regulation (EU) 2017/373[26].

Example 2

If a UAS geographical zone is relevant to UAS operations only, for example, over terrain that contains one of the infrastructures or areas/zones listed below, the MS may adapt the data quality requirements (e.g. accuracy) defined in Appendix 1 'Aeronautical data catalogue' to Annex III (Part-ATM/ANS.OR) to Commission Implementing Regulation (EU) 2017/373 to the peculiarities of UAS operations:

— highways, express ways, and roads,

— railroads,

— hospitals,

— artworks,

— rural and urban areas,

— local restrictions to reduce noise, climate, and nature impact,

— nature parks,

— reserved areas,

— populated areas,

— bridges,

— critical sites,

— secure areas,

— electrical power lines,

— zones forbidden for aerial photography,

— harbour areas,

— industrial areas,

— emergency drone zones (e.g. areas for stacking or emergency landings in the event of traffic conflicts or equipment failure).

[26] Commission Implementing Regulation (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 (OJ L 62, 8.3.2017, p. 1) (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017R0373&qid=1642077976836).

GM1 Article 15(2) Operational conditions for UAS geographical zones

EXEMPTION(S) FROM ONE OR MORE OF THE REQUIREMENTS FOR UAS OPERATIONS IN THE 'OPEN' CATEGORY

Member States may designate UAS geographical zones in which UAS operations are exempted from one or more of the requirements for the 'open' category. UAS operators, when complying with the remaining requirements for the 'open' category, may operate without the need to apply for an operational authorisation.

GM2 Article 15(2) Operational conditions for UAS geographical zones

EXEMPTION(S) FROM ONE OR MORE OF THE REQUIREMENTS FOR UAS OPERATIONS IN THE 'OPEN' CATEGORY

Examples of operations that the Member States may authorise in UAS geographical zones without an application for an operational authorisation are:

— operations in the 'open' category, conducted with UASs that exceed 25 kg (a different mass threshold may be defined by the Member States);

— operations in the 'open' category, conducted at a height that exceeds 120 m (a different height threshold may be defined by the Member States).

Exemptions may also apply to all categories, for example, geographical zones where UASs are exempted from some technical features, such as electronic identification or geo-awareness.

AMC1 Article 15(3) Operational conditions for UAS geographical zones

COMMON UNIQUE DIGITAL FORMAT

The 'common unique digital format' should be as described in Chapter 8 'UAS restriction zone data model' and Appendix 2 'INFORMATION DEFINITION AND DATA STRUCTURES' of EUROCAE ED-269 'MINIMUM OPERATIONAL PERFORMANCE STANDARD FOR GEOFENCING', Edition June 2020.

AMC2 Article 15(3) Operational conditions for UAS geographical zones

PUBLICATION OF INFORMATION ON UAS GEOGRAPHICAL ZONES IN THE AERONAUTICAL INFORMATION PRODUCTS AND SERVICES

(a) The Member States should publish in Section ENR 5.3.1 'Other activities of a dangerous nature' of the aeronautical information publication (AIP) the information on where and how the data on UAS geographical zones is publicly available in the common unique digital format.

(b) The Member States should publish information on UAS geographical zones that are relevant to manned aircraft operations in Section ENR 5.1 'Prohibited, restricted and danger areas' of the AIP.

(c) In addition to making UAS geographical zones publicly available in the common unique digital format, the Member States, when publishing data in the AIP, should ensure consistency.

AMC3 Article 15(3) Operational conditions for UAS geographical zones

CROSS-BORDER UAS GEOGRAPHICAL ZONE(S)

All affected neighbouring Member States should make data available for the entire cross-border UAS geographical zone including the part(s) that is (are) located in their own territory and the part(s) that is (are) located in the territory(ies) of the neighbouring State(s) (the responsibility for data quality of the respective parts remains with the respective Member State). The conditions for the coordination process should ensure consistency across all resulting data sets.

AMC4 Article 15(3) Operational conditions for UAS geographical zones

PUBLICATION OF MAPS OF UAS GEOGRAPHICAL ZONES

When Member States decide to publish maps of UAS geographical zones on their website or via smartphone applications, in addition to the data made available in the common unique digital format, consistency with Chapter 8 of ED-269, Edition June 2020, should be ensured.

The Member States should ensure consistency with the relevant aeronautical information publication (AIP) data in cases where a UAS geographical zone is at the same time established and published for the purpose of manned aviation. This, for instance, is the case for U-space airspace.

GM1 Article 15(3) Operational conditions for UAS geographical zones

EXAMPLES OF MAPS OF UAS GEOGRAPHICAL ZONES WITH COLOUR-CODE INDEX

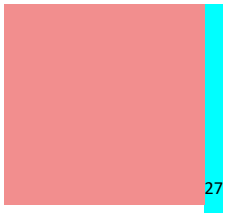
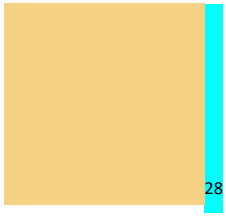
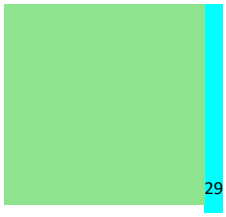
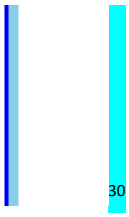
Note: The following examples, including colour codes and explanations, are courtesy of the 'Latvijas gaisa satiksme', the Latvian ANSP, for the purpose of illustration only and should not be used for UAS operations.

The examples represent a possible approach of a Member State to present UAS geographical zones in a way which is proven to be compliant with the ED-269 standard. A maximum level of standardisation/harmonisation would be beneficial for the EU-wide implementation of Article 15 of the UAS Regulation.

This example provides a simplified and clearly understandable way to visualise UAS geographical zones to non-ATM professionals. The set of colours is limited to the three colours of the traffic light scheme illustrating the purpose of a UAS geographical zone.

Detailed information related to a respective UAS geographical zone, such as details of restrictions, maximum height, maximum noise level, application procedure for flight authorisation, etc., may be

provided when the UAS operator selects the respective zone on the website or on the smartphone application.

COLOUR CODE	MEANING
 [27]	UAS geographical zones where UAS operations are prohibited. However, restrictions may be waived for particular users. UAS operations in some UAS geographical zones may be subject to the fulfilment of special requirements, e.g. compliance with published procedures, request for flight authorisation, etc. The competent authority should publish the conditions for obtaining the waiver and the point of contact of the entity from which the flight authorisation needs to be requested.
 [28]	UAS geographical zones where UAS operations are limited and subject to the fulfilment of a set of conditions that are imposed for such zones. Such limitations and conditions may concern administrative procedures, operational limitations, or technical requirements for the UAS or mandatory functions. For example, UAS operations are permitted in such UAS geographical zones if the UAS MTOM does not exceed 1.5 kg and the flight altitude is below 50 m above the ground.
 [29]	UAS geographical zones that facilitate UAS operations in the 'open' category (UAS operations are exempt from one or more of the 'open' category requirements).
 [30]	U-space airspace where UAS operations are supported by a set of U-space services. UAS operations are compliant with the capability and performance requirements that are determined for the particular U-space airspace. The Member States should list the U-space service provider(s) (USSP(s)) that is (are) identified for that geographical zone.
	Riga flight information region (FIR) boundary.

[27] Colour red, RGB 255.,0,0
[28] Colour yellow, RGB 255.,255,0
[29] Colour green, RGB 0. 255,0
[30] Colour blue, RGB 0.,0, 255

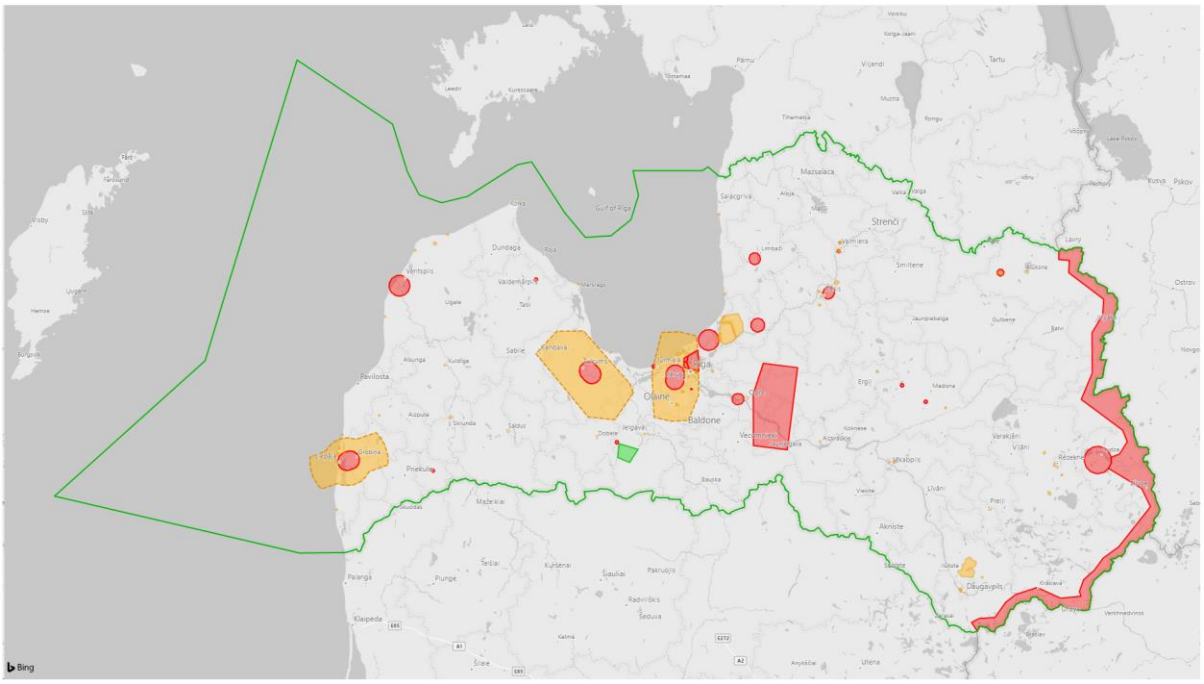


Figure 1 — Example of UAS geographical zones

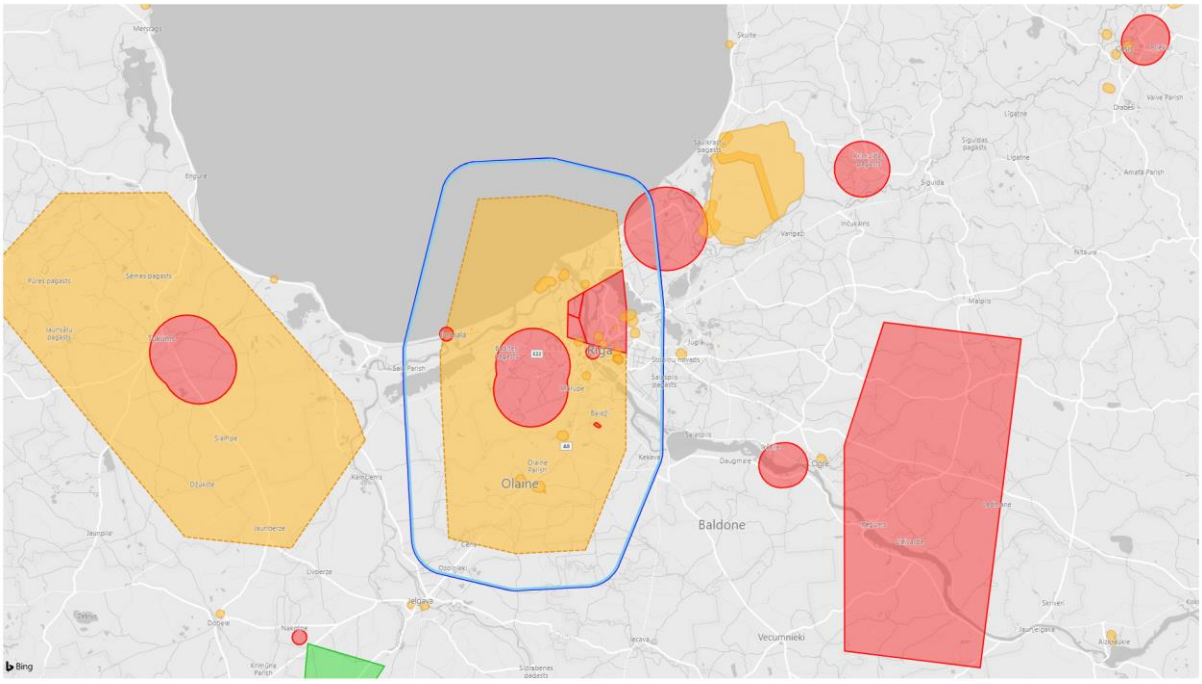


Figure 2 — Example of UAS geographical including representation of planned U-space

AMC1 Article 18(e) Tasks of the competent authority

DOCUMENTS, RECORDS AND REPORTS TO BE ~~KEPT~~ RETAINED

(a) The competent authority should retain ~~keep~~ at least the following documentation:

[…]

(5) Documentation related to audits and inspections regarding the oversight of the competent authority by EASA, as well as the oversight of UAS operators and other entities by the competent authority. This documentation should include at least the following:

(i) training, qualifications, and authorisation of team leaders and team members of the competent authority;

(ii) audit/inspection programmes;

(iii) reports, including at least the following information:

— objectives of the audit/inspection;

— date of the audit/inspection;

— type of the audit (on-site, off-site);

— personnel involved;

— summary of the main elements discussed;

— reference to the related evidence.

Note: In case of off-site audits/inspections, it should also be indicated the extent to which remote information and communication technology (ICT) has been used in conducting the audit and the effectiveness of the ICT in achieving the audit/inspection objectives. Other aspects to be considered in case of off-site activities are digital data protection and security of access.

(iv) findings and related evidence;

(v) agreed corrections and corrective actions; and

(vi) closure of findings of non-conformities and related evidence.

(b) The records should be kept for at least 3~~for three~~ years after their validity date expires.

GM1 Article 19(1) Safety information

CROSS-BORDER GEOGRAPHICAL ZONE(S)

The coordination among the Member States includes the designation of cross-border geographical zones as per AMC1 Article 15(1).

GM1 Article 22(b) Transitional provisions

UAS OPERATIONS CLOSE TO PERSONS

When operating a UAS with a maximum take-off mass (MTOM) of up to 2 kg, the remote pilot may fly the UAS keeping a minimum horizontal distance of 50 m from involved persons (please refer to GM1 Article 2(18) for additional information).