



Inspectie Leefomgeving en Transport
Ministerie van Infrastructuur en Waterstaat

AltMoC

AMC4 & AMC5 – Article 11 – Implementing Regulations (EU) 2019/947



AltMoC to AMC4 Article 11 Rules for conducting an operational risk assessment

PREDEFINED RISK ASSESSMENT PDRA-S01 Version 1.1

EDITION 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 [Regulation \(EU\) 2019/947](#)); however, it provides the UAS operator with the flexibility to use UASs that do not need to be marked as 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 multicopter) 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 above 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 aircraft¹.

(b) PDRA characterisation and conditions

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

¹ 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.



PDRA characterisation and conditions				
Topic	Assurance level	Condition	Demonstration of integrity ¹	Demonstration of assurance ²
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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		1.2 The remote pilot should operate only one UA at a time.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		1.3 The remote pilot should not operate the UA from a moving vehicle.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		1.4 The remote pilot should not hand the control of the UA over to another command unit.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
UA range limit	Self-declaration	1.5 VLOS distance from the remote pilot at all times.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
Overflown areas	Self-declaration	1.6 UAS operations should be conducted over a controlled ground area.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
UA limitations	Self-declaration	1.8 The UA should have an MTOM of less than 25 kg, including payload.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
Flight height limit	Self-declaration	1.10 The remote pilot should maintain the UA within 120m (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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		1.11 When flying a UA within a horizontal distance of 50m 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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'

¹ To be filled in by the UAS operator.

² To be filled in by the UAS operator.



PDRA characterisation and conditions					
Topic	Assurance level	Condition	Demonstration of integrity ¹	Demonstration of assurance ²	
		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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'	
Airspace	Self-declaration	1.13 The UA should be operated:			
		1.13.1 in uncontrolled airspace, 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	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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 probability of encountering manned aircraft is low. <i>Note: 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.</i>	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'	
Visibility	Self-declaration	1.14 The flight visibility should allow the remote pilot to conduct the entire flight in VLOS.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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 where the carriage of such items does not contravene any other applicable regulations.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'	
2. Operational risk classification (according to the classification defined in AMC1 to Article 11 of Regulation (EU) 2019/947)					
Final GRC	3	Final ARC	ARC-b	SAIL	II
3. Operational mitigations					
Operational volume (see Figure 2 of AMC1 Article 11 of Regulation (EU) 2019/947)		3.1 The UAS operator should define the operational volume for the intended operation, including:	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'	
		3.1.1 the flight geography; and	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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).	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'	



PDRA characterisation and conditions																								
Topic	Assurance level	Condition	Demonstration of integrity ¹	Demonstration of assurance ²																				
	Self-declaration	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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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 5.3.8(d) below.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'																				
		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 border="1"> <thead> <tr> <th rowspan="2">Max height AGL¹</th> <th colspan="2">Minimum distance for ground risk buffer</th> </tr> <tr> <th>with MTOM of up to 10 kg</th> <th>with MTOM greater than 10 kg</th> </tr> </thead> <tbody> <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> </tbody> </table>	Max height AGL ¹	Minimum distance for ground risk buffer		with MTOM of up to 10 kg	with MTOM greater than 10 kg	30 m	10 m	20 m	60 m	15 m	30 m	90 m	20 m	45 m	120 m	25 m	60 m	150 m	30 m	75 m	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		Max height AGL ¹		Minimum distance for ground risk buffer																				
with MTOM of up to 10 kg	with MTOM greater than 10 kg																							
30 m	10 m	20 m																						
60 m	15 m	30 m																						
90 m	20 m	45 m																						
120 m	25 m	60 m																						
150 m	30 m	75 m																						
3.7 For the operation of tethered UA, the ground risk buffer is considered in point 1.7 above.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'																						
Air risk		3.8 If the UAS operation is performed above 120 m and up to 150 m, the UAS operator should:																						

¹ The closest point from the Earth should be considered.



PDRA characterisation and conditions				
Topic	Assurance level	Condition	Demonstration of integrity ¹	Demonstration of assurance ²
	Declaration supported by data	3.8.1 establish an air risk buffer to protect third parties in the air outside the operational volume; and	<i>Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.</i>	'I declare compliance and that supporting evidence is included in the OM.' Justification supporting the reduction of the air risk buffer is documented in [...] or 'n/a'.
		3.8.2 if the air risk buffer is part of controlled airspace, coordinate the operation with the respective ANSP;	<i>Please include a reference to the relevant chapter/section of the OM, otherwise indicate 'n/a'.</i>	'I declare compliance and that supporting evidence is included in the OM.' or n/a'
		3.8.3 develop appropriate procedures to not jeopardise other airspace users.	<i>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 users¹, otherwise indicate 'n/a'.</i>	'I declare compliance and that supporting evidence is included in the OM.' or n/a'
	Self-declaration	3.9 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 appropriate permission.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		3.10 Prior to the flight, the UAS operator should assess the proximity of the planned operation to manned aircraft activity.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
Observers		Airspace observers (AOs): n/a UA observers: refer to point 5.3.8(b) below.		
4. UAS operator and UAS operations conditions				
UAS operator and UAS operations		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));	<i>Please describe how this condition is met.</i>	'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;	<i>Please describe how this condition is met.</i>	'I declare compliance and that supporting evidence is included in the OM.'

¹ 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				
Topic	Assurance level	Condition	Demonstration of integrity ¹	Demonstration of assurance ²
	Declaration supported by data	4.1.3 develop procedures to ensure that the security requirements applicable to the area of operations are complied with during the intended operation;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.7 ensure the adequacy of the contingency and emergency procedures and prove 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;	<i>Please describe how this condition is met</i>	'I declare compliance and that evidence is available to the competent authority for review.'
		4.1.8 develop an effective emergency response plan (ERP) that is suitable for the intended operation (see GM1 UAS.SPEC.030(3)(e));	<i>Please describe how this condition is met</i>	'I declare compliance and that evidence is available to the competent authority for review.'
		4.1.9 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;	<i>Please describe how this condition is met</i>	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.10 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 with the appropriate authorities has been established;	<i>Please describe how this condition is met</i>	'I declare compliance and that supporting evidence is included in the OM.'



PDRA characterisation and conditions				
Topic	Assurance level	Condition	Demonstration of integrity ¹	Demonstration of assurance ²
		4.1.11 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;	<i>Please describe how this condition is met</i>	'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	<i>Please describe how this condition is met</i>	'I declare compliance and that supporting evidence is included in the OM.'
		(c) have explicitly agreed to participate in the operation; and	<i>Please describe how this condition is met</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance and that recordkeeping 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	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		4.2.2 ensure that the maintenance staff follow the UAS maintenance instructions when performing maintenance;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		4.2.4 establish and maintain up to date a list of the maintenance staff employed by the operator to carry out maintenance activities;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'



PDRA characterisation and conditions				
Topic	Assurance level	Condition	Demonstration of integrity ¹	Demonstration of assurance ²
		4.2.5 comply with point UAS.SPEC.100, if the UAS uses certified equipment.	<i>Please include a reference to the relevant chapter/section of the OM or n/a.</i>	'I declare compliance.' or 'n/a'
External services	Self-declaration	4.5 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.	<i>Please describe how this condition is met.</i>	'I declare compliance.'
		4.6 The UAS operator should define and allocate the roles and responsibilities between the UAS operator and the external service provider(s), if applicable.		
5. Conditions for 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.	<i>Please describe how this condition is met.</i>	'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:		
		5.2.1 the safety of persons is jeopardised; or	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		5.2.2 property on the ground is jeopardised; or	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		5.2.3 other airspace users are in jeopardy; or	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		5.2.4 there is a violation of the terms of the operational authorisation.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
Remote pilot	Self-declaration	5.3 The remote pilot 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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'



PDRA characterisation and conditions				
Topic	Assurance level	Condition	Demonstration of integrity ¹	Demonstration of assurance ²
		5.3.2 be familiar with the manufacturer's instructions provided by the manufacturer of the UAS;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		5.3.3 ensure that the UA remains clear of clouds;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		5.3.4 hold a certificate of remote pilot theoretical knowledge, in accordance with Attachment A to Chapter I of Appendix 1 to the Annex to Regulation (EU) 2019/947 , which is issued by the competent authority or by an entity that is designated by the competent authority of a Member State;	<i>Please describe how this condition is met.</i>	'I declare compliance.'
		5.3.5 hold an accreditation of completion of a practical-skills training course for this PDRA, in accordance with Attachment A to Chapter I of Appendix 1 to the Annex to Regulation (EU) 2019/947 , which is issued by: <ul style="list-style-type: none"> (a) an entity that has declared compliance with the requirements of Appendix 3 to the Annex to Regulation (EU) 2019/947 and is recognised by the competent authority of a Member State; or (aa) an entity that has declared compliance with the requirements of AltMoC Appendix A to this AltMoC and is recognised by the competent authority of a Member State; or (b) a UAS operator that has been authorised by the competent authority of the Member State of registration 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 Regulation (EU) 2019/947; or (bb) a UAS operator that has been authorised by the competent authority of the Member State of registration to operate according to this PDRA and with the requirements of AltMoC Appendix A to this AltMoC. 	<i>Please describe how this condition is met.</i>	'I declare compliance.'
		5.3.6 If operations are conducted at a height between 120 and 150 m, the 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;	<i>Please describe how this condition is met.</i>	'I declare compliance and that the training syllabus is available'



PDRA characterisation and conditions				
Topic	Assurance level	Condition	Demonstration of integrity ¹	Demonstration of assurance ²
				for inspection at the request of the competent authority.'
		(b) checking height determination/ limitation devices; and	<i>Please describe how this condition is met.</i>	'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.	<i>Please describe how this condition is met.</i>	'I declare compliance and that the training syllabus is available for inspection at the request of the competent authority.'
		5.3.7 Before starting the UAS operation, the remote pilot should:		
		(a) verify that the means to terminate the UA flight and the remote identification system are operational;	<i>Please describe how this condition is met.</i>	'I declare compliance.'
		(b) obtain updated information relevant to the intended operation about any geographical zones defined in accordance with Article 15 of the Regulation (EU) 2019/947 ; and	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		5.3.8 During the flight:		
		(a) keep the UA in VLOS and maintain thorough visual scan of the airspace that surrounds 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;	<i>Please describe how this condition is met.</i>	'I declare compliance.'
		(b) for the purpose of point (a) above, be possibly being assisted by a UA observer ¹ ; clear and effective communication should be established between the remote pilot and the UA observer;	<i>Please describe how this condition is met.</i>	'I declare compliance.'
		(c) use the contingency procedures that are defined by the UAS operator for abnormal situations, including situations	<i>Please describe how this condition is met.</i>	'I declare compliance.'

¹ Please refer to point UAS.STS-02.050 for the responsibilities of the UA observer.



PDRA characterisation and conditions				
Topic	Assurance level	Condition	Demonstration of integrity ¹	Demonstration of assurance ²
		where the remote pilot has an indication that the UA may exceed the limits of the flight geography; and		
		(d) 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; the means to terminate the flight should be triggered at least 10m before the UA reaches the limits of the operational volume;	<i>Please describe how this condition is met.</i>	'I declare compliance.'
		(e) keep the UA at a ground speed of less than 5 m/s in case of untethered UA;	<i>Please describe how this condition is met.</i>	'I declare compliance.'
		(f) activate the direct remote identification system ¹ .	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
6. Technical conditions				
UAS	Self-declaration ²	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'
		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:	<i>Please describe how this condition is met.</i>	'I declare compliance.' or 'n/a'
		6.2.1 bear a class C3 UAS or a class C5 UAS identification label;		
		6.2.2 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;		
		6.2.3 include a notice that is published by EASA and provides the applicable limitations and obligations, as required by the Regulation (EU) 2019/947 ; and		
		6.2.4 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.		

¹ Applicable from 1 July 2022.

² 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				
Topic	Assurance level	Condition	Demonstration of integrity ¹	Demonstration of assurance ²
		<p>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 Regulation.</p> <p>Note 2: If the UA does not 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 with Part 6 of the Annex to that Regulation.</p> <p>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.</p>		

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



AltMoC to AMC5 Article 11 Rules for conducting an operational risk assessment

PREDEFINED RISK ASSESSMENT PDRA-S02 Version 1.1

EDITION 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 [Regulation \(EU\) 2019/947](#)); however, it provides the UAS operator with the flexibility to use UASs that do not need to be marked as 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 above 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 aircraft¹.

(b) PDRA characterisation and conditions

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

¹ 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.



PDRA characterisation and conditions				
Topic	Method of proof	Condition	Integrity ¹⁰	Proof ¹¹
1. Operational characterisation (scope and limitations)				
Level of human intervention	Self-declaration	1.1 No autonomous operations: the remote pilot should maintain control of the UA, except in case of a loss of the command-and-control (C2) link.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		1.2 The remote pilot should operate only one UA at a time.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		1.3 The remote pilot should not operate the UA from a moving vehicle.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		1.4 The remote pilot should not hand the control of the UA over to another command unit.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
Overflowed areas	Self-declaration	1.6 UAS operations should be conducted over a controlled ground area.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
UA limitations	Self-declaration	1.7 The UA should have an MTOM of less than 25 kg, including payload.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		1.8 The UA should have maximum characteristic dimensions (e.g. wingspan, rotor diameter/area or maximum distance between rotors in case of a multicopter) of less than 3 m.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		1.9 The UA should have a maximum ground speed in level flight of not more than 50 m/s.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
Flight height limit		1.10 The remote pilot should maintain the UA within 120 m (unless making use of the option defined in	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'

¹⁰ To be filled in by the UAS operator.

¹¹ To be filled in by the UAS operator.



PDRA characterisation and conditions				
Topic	Method of proof	Condition	Integrity ¹⁰	Proof ¹¹
	Self-declaration	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 that is responsible for the obstacle.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
Airspace		1.13 The UA should be operated:		
		1.13.1 in uncontrolled airspace, 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	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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 probability of encountering manned aircraft is low. <i>Note: 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.</i>	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
Visibility	Self-declaration	1.14 The UA operation should be conducted in an area where the flight visibility is greater than 5 km. <i>Note: Please refer to GM1 UAS.STS-02.020(3).</i>	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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 where	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'



PDRA characterisation and conditions					
Topic	Method of proof	Condition		Integrity ¹⁰	Proof ¹¹
		the carriage of such items does not contravene any other applicable regulations.			
2. Operational risk classification (according to the classification defined in AMC1 to Article 11 of Regulation (EU) 2019/947)					
Final GRC	3	Final ARC	ARC-b	SAIL	II
3. Operational mitigations					
Operational volume (see Figure 2 of AMC1 Article 11 Regulation (EU) 2019/947)	Self-declaration	3.1	The UAS operator should define the operational volume for the intended operation, including the flight geography and the contingency volume.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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).	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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(h) below.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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 the operational conditions within the limitations specified by the UAS manufacturer.		
Air risk		3.7	If the UAS operation is performed above 120 m and up to 150 m, the UAS operator should:		
		3.7.1	establish an air risk buffer to protect third parties in the air outside the operational volume; and	<i>Please include a reference to the relevant chapter/section of the OM, or otherwise indicate 'n/a'.</i>	'I declare compliance.'



PDRA characterisation and conditions				
Topic	Method of proof	Condition	Integrity ¹⁰	Proof ¹¹
	Declaration supported by data			Justification supporting the reduction of the air risk buffer is documented in [...]. or 'n/a'
		3.7.2 if the air risk buffer is part of controlled airspace, coordinate the operations with the respective ANSP.	<i>Please include a reference to the relevant chapter/section of the OM, or otherwise indicate 'n/a'.</i>	'I declare compliance and that supporting evidence is included in the OM.' [...]. or 'n/a'
		3.7.3 develop appropriate procedures to not jeopardise other airspace users.	<i>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 users¹², or otherwise indicate 'n/a'.</i>	'I declare compliance and that supporting evidence is included in the OM.' [...]. or 'n/a'
	Self-declaration	3.8 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 appropriate permission.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.
		3.9 Prior to the flight, the UAS operator should assess the proximity of the planned operation to manned aircraft activity.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.
	Observers ¹³	Self-declaration	3.10 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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>
3.11 In relation to AOs, the UAS operator should comply with the conditions of point 4.1.15 below.			<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.
3.12. AOs should comply with the conditions of point 5.4 below.			<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.
UAS operator and UAS operations conditions				
		4.1 The UAS operator should:		

¹² 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.

¹³ Please refer to point UAS.STS-02.050 for the AO's main responsibilities.



PDRA characterisation and conditions				
Topic	Method of proof	Condition	Integrity ¹⁰	Proof ¹¹
UAS operator and UAS operations	Declaration supported by data	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));	<i>Please describe how this condition is met.</i>	'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;	<i>Please describe how this condition is met.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.7 ensure the adequacy of the contingency and emergency procedures and prove 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	<i>Please describe how this condition is met.</i>	'I declare compliance and evidence is available to the competent authority for review.'



PDRA characterisation and conditions				
Topic	Method of proof	Condition	Integrity ¹⁰	Proof ¹¹
		(c) any other means acceptable to the competent authority;		
		4.1.8 develop an emergency response plan (ERP) that is suitable for the intended operation in accordance with the conditions for a 'medium' level of robustness (please refer to AMC3 UAS.SPEC.030(3)(e));	<i>Please describe how this condition is met</i>	'I declare compliance and that the ERP is available to the competent authority for review.'
		4.1.9 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;	<i>Please describe how this condition is met</i>	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.10 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 with the appropriate authorities;	<i>Please describe how this condition is met</i>	'I declare compliance and that supporting evidence is included in the OM.'
		4.1.11 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;	<i>Please describe how this condition is met.</i>	'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	<i>Please describe how this condition is met.</i>	'I declare compliance and that supporting evidence is included in the OM.'
		(c) have explicitly agreed to participate in the operation;	<i>Please describe how this condition is met.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance and that supporting evidence is included in the OM.'



PDRA characterisation and conditions				
Topic	Method of proof	Condition	Integrity ¹⁰	Proof ¹¹
		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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance and that record-keeping data is available to the competent authority.'
		4.1.15 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;	<i>Please describe how this condition is met</i>	'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;	<i>Please describe how this condition is met</i>	'I declare compliance and that supporting evidence is included in the OM.'
		(ii) there are no potential terrain obstructions for each AO;	<i>Please describe how this condition is met</i>	'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;	<i>Please describe how this condition is met</i>	'I declare compliance and that supporting evidence is included in the OM.'
		(iv) the communication with each AO is established and effective;	<i>Please describe how this condition is met</i>	'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	<i>Please describe how this condition is met</i>	'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.	<i>Please describe how this condition is met</i>	'I declare compliance and that supporting evidence is included in the OM.'
		4.2 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	<i>Please describe how this condition is met.</i>	'I declare compliance and that supporting evidence is included in the OM.'



PDRA characterisation and conditions				
Topic	Method of proof	Condition	Integrity ¹⁰	Proof ¹¹
		indicated in point 1.5.2 above and following a pre-programmed trajectory when the UA is not in the VLOS of the remote pilot		
		4.3 If one or more AOs are employed in the operation, the following conditions should be complied with:		
		4.3.1 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 above;	Please describe how this condition is met.	'I declare compliance and that supporting evidence is included in the OM.'
		4.3.2 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.'
		4.3.3 the distance between any AO and the remote pilot should not be greater 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 robust and effective means are available for communication between the remote pilot and the AO(s).	<i>Please describe how this condition is met.</i>	'I declare compliance and that supporting evidence is included in the OM.'
UAS maintenance	Self-declaration	4.4. The UAS operator should:		
		4.4.1 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	<i>Please describe how this condition is met.</i>	'I declare compliance.'
		4.4.2 that maintenance staff follow the UAS maintenance instructions when performing maintenance;	<i>Please describe how this condition is met.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		4.4.5 comply with point UAS.SPEC.100, if the UAS uses certified equipment.	<i>Please include a reference to the relevant chapter/section of the OM or indicate 'n/a'</i>	'I declare compliance.' or 'n/a'



PDRA characterisation and conditions				
Topic	Method of proof	Condition	Integrity ¹⁰	Proof ¹¹
External services	Self-declaration	4.5 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.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		4.6 The UAS operator should define and allocate the roles and responsibilities between the UAS operator and the external service provider(s), if applicable.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
5. Conditions for 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.	<i>Please describe how this condition is met</i>	'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:		
		5.2.1 the safety of persons is jeopardised; or	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		5.2.2 property on the ground is jeopardised; or	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		5.2.3 other airspace users are in jeopardy; or	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		5.2.4 there is a violation of the terms of the operational authorisation.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
Remote pilot		5.3 The remote pilot 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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'



PDRA characterisation and conditions				
Topic	Method of proof	Condition	Integrity ¹⁰	Proof ¹¹
	Self-declaration	5.3.2 be familiar with the manufacturer’s instructions provided by the manufacturer of the UAS;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	‘I declare compliance.’
		5.3.3 ensure that the UA remains clear of clouds; and	<i>Please include a reference to the relevant chapter/section of the OM.</i>	‘I declare compliance.’
		5.3.4 hold a certificate of remote pilot theoretical knowledge, in accordance with Attachment A to Chapter II of Appendix 1 to the Annex to Regulation (EU) 2019/947 , which is issued by the competent authority or by an entity that is designated by the competent authority of a Member State;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	‘I declare compliance.’
		5.3.5 hold an accreditation of completion of a practical-skills training course for this PDRA, in accordance with Attachment A to Chapter I of Appendix 1 to the Annex to Regulation (EU) 2019/947 , which is issued by: <ul style="list-style-type: none"> (a) an entity that has declared compliance with the requirements of Appendix 3 to the Annex to Regulation (EU) 2019/947 and is recognised by the competent authority of a Member State; or (aa) an entity that has declared compliance with the requirements of AltMoC Appendix A to this AltMoC and is recognised by the competent authority of a Member State; or (b) a UAS operator that has been authorised by the competent authority of the Member State of registration 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 Regulation (EU) 2019/947; or (bb) a UAS operator that has been authorised by the competent authority of the Member State of registration to operate according to this PDRA and with the requirements of AltMoC Appendix A to this AltMoC. 	<i>Please include a reference to the relevant chapter/section of the OM.</i>	‘I declare compliance.’



PDRA characterisation and conditions				
Topic	Method of proof	Condition	Integrity ¹⁰	Proof ¹¹
		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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		(b) checking height determination/ limitation devices;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		(c) using procedures for the coordination between the remote pilot and the AO(s);	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		(d) using the applicable procedures in case a manned aircraft is detected;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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 Regulation (EU) 2019/947 ; and	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		5.3.9 before starting the UAS operation:		
		(a) verify that the remote identification system is operational;	<i>Please describe how this condition is met</i>	'I declare compliance.'
		(b) obtain updated information relevant to the intended operation about any geographical zones defined in accordance with Article 15 of the Regulation (EU) 2019/947 ;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		(d) set the programmable flight volume of the UA to keep it within the flight geography; and	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		(e) verify that the means to terminate the flight as well as the programmable flight volume functionality of the UA are operational; and	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		5.3.10 during the flight:		



PDRA characterisation and conditions				
Topic	Method of proof	Condition	Integrity ¹⁰	Proof ¹¹
		(a) unless supported by aerial observers (AOs), maintain thorough visual scan of the airspace that surrounds 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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		(b) maintain control of the UA, except in case of a loss of the command-and-control link;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		(c) operate only one UA at a time;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		(d) not operate the UA from a moving vehicle;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		(e) not hand the control of the UA over to another control unit;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		(f) inform the AO(s), when employed, in a timely manner of any deviations of the UA from the intended flight path, and of the associated timing;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		(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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'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;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		(i) activate the system to prevent the UA from exceeding the limits of the flight geography; and	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'



PDRA characterisation and conditions				
Topic	Method of proof	Condition	Integrity ¹⁰	Proof ¹¹
		(j) activate the direct remote identification system ¹⁴ .	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
Airspace observer (AO)	Self-declaration	5.4 The AO's main responsibilities are laid down in point UAS.STS-02.050 of the Annex to Regulation (EU) 2019/947 .	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		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:		
		(a) raising awareness about the air risk and about the existence of other airspace users;	<i>Please include a reference to the relevant chapter/section of the OM, or otherwise indicate 'n/a'.</i>	'I declare compliance.' or 'n/a'
		(b) checking height determination/ limitation devices;	<i>Please include a reference to the relevant chapter/section of the OM, or otherwise indicate 'n/a'.</i>	'I declare compliance.' or 'n/a'
		(c) using the procedures for the coordination between the remote pilot and the AO(s); and	<i>Please include a reference to the relevant chapter/section of the OM, or otherwise indicate 'n/a'.</i>	'I declare compliance.' or 'n/a'
		(d) using the applicable procedures in case a manned aircraft is detected.	<i>Please include a reference to the relevant chapter/section of the OM, or otherwise indicate 'n/a'.</i>	'I declare compliance.' or 'n/a'
6. Technical conditions				
UAS		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'
		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:	<i>Please describe how this condition is met.</i>	'I declare compliance.' or 'n/a'
		6.2.1 bear a class C3 or a class C6 UAS identification label;		

¹⁴ Applicable from 1 July 2022.



PDRA characterisation and conditions				
Topic	Method of proof	Condition	Integrity ¹⁰	Proof ¹¹
	Self-declaration ¹⁵	6.2.2 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;		
		6.2.3 include a notice that is published by EASA and provides the applicable limitations and obligations, as required by the Regulation (EU) 2019/947 ; and		
		6.2.4 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: <i>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 Regulation.</i> Note 2: <i>If the UA does not 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 by using an add-on that complies with Part 6 of the Annex to that Regulation.</i> Note 3: <i>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.</i>		

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

¹⁵ 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.



AltMoC Appendix A — Additional requirements for entities recognised by the competent authority and UAS operators that conduct practical skill training and assessment of remote pilots for operations covered by PDRA-S01 and PDRA-S02

An entity that intends to be recognised by the competent authority for conducting practical skill training and assessment of remote pilots for PDRA-S01 and/or PDRA-S02, shall declare to the competent authority compliance with the following requirements using the declaration form in AltMoC Appendix D.

An UAS operator that intends to conduct practical skill training and assessment of remote pilots for PDRA-S01 and/or PDRA-S02, in addition to submitting the operational declaration for that PDRA, shall declare to the competent authority compliance with the following requirements using the declaration form in AltMoC Appendix B.

If the competent authority or the UAS operator intends to conduct practical skill training and assessment of remote pilots for PDRA-S01 and/or PDRA-S02 in a Member State other than the Member State of registration, a copy of the declaration form in AltMoC Appendix B shall be submitted to the competent authority of the Member State where the training is conducted.

If an entity recognised by the competent authority intends to conduct practical skill training and assessment of remote pilots for PDRA-S01 and/or PDRA-S02 in a Member State other than the Member State of recognition, a proof of the recognition shall be submitted to the competent authority of the Member State where the training is conducted.


- (1) The entity recognised by the competent authority or the UAS operator shall ensure a clear separation between the training activities and any other operational activity to guarantee the independence of the evaluation.
- (2) The entity recognised by the competent authority or the UAS operator shall have the capability to adequately perform the technical and administrative activities linked with the entire task process, including the adequacy of personnel and the use of facilities and equipment appropriate to the task.
- (3) The entity recognised by the competent authority or the UAS operator shall have an accountable manager, with the responsibility for ensuring that all tasks are performed in compliance with the information and procedures identified in point (8).
- (4) The personnel responsible for the practical skill training and practical skill assessment tasks shall:
 - (a) have the competence to conduct these tasks;
 - (b) be impartial and shall not participate in assessments if they feel that their objectivity may be affected;
 - (c) have a sound theoretical knowledge and practical skill training experience, and satisfactory knowledge of the requirements for the practical skill assessment tasks they carry out as well as adequate experience of such processes;
 - (d) have the ability to administer the declarations, records and reports that demonstrate that the relevant practical skill assessments have been carried out and to draw the conclusions of those practical skill assessments; and
 - (e) not disclose any information supplied by the operator or remote pilot to any person other than the competent authority upon their request.
- (5) The training and assessment shall cover the practical skills corresponding to the PDRA for which the declaration is made, included in Attachment A to the relevant Chapter of the STS on which the PDRA is based.
- (6) The practical skill training and assessment location(s) shall be conducted in an environment representative of the conditions of the PDRA.
- (7) The practical skill assessment shall consist of a continuous evaluation of the student remote pilot.
- (8) The entity recognised by the competent authority or the UAS operator shall produce an assessment report after completing the practical skill assessment, which shall:



- (a) include at least:
 - (i) the student remote pilot's identification details;
 - (ii) the identity of the person responsible for the practical skill assessment;
 - (iii) the identification of the PDRA for which the practical skill assessment has been performed;
 - (iv) performance marks for each action performed by the student remote pilot;
 - (v) an overall practical skill assessment of the student remote pilot's competencies; and
 - (vi) practical skill assessment feedback providing guidance on areas for improvement where applicable;
 - (b) be appropriately signed and dated by the person responsible for the practical skill assessment once complete; and
 - (c) be recorded and made available for inspection by the competent authority upon request.
- (9) An accreditation of completion of the practical skill training for the PDRA shall be delivered to the student remote pilot by entity recognised by the competent authority or the UAS operator if the assessment report concludes that the student remote pilot has achieved a satisfactory level of practical skill. This accreditation shall at least include the following information:
- (a) the full name of the student remote pilot;
 - (b) the remote pilot identification number of the student remote pilot;
 - (c) the PDRA covered;
 - (d) the date(s)/period of the training;
 - (e) the outcome of the training;
 - (f) the date of completion of the training;
 - (g) the signature of the accountable manager;
 - (h) the identification details of the entity recognised by the competent authority, or of the UAS operator.
- (10) The issuance of the accreditation of completion of point (9) shall be notified to the competent authority of the Member State where the practical skill training and assessment are conducted, including the student remote pilot's identification details (full name and remote pilot identification number), the PDRA covered, the date of issuance and the identification details of the entity recognised by the competent authority of a Member State or the UAS operator issuing it.
- (11) The entity recognised by the competent authority or the UAS operator shall include in the operations manual, developed in accordance with AltMoC Appendix C, a separate section covering the training elements, including the following:
- (a) the nominated personnel conducting practical skill training and assessment, including:
 - (i) descriptions of the respective personnel's competence;
 - (ii) the personnel's duties and responsibilities; and
 - (iii) a chart of the organisation showing the associated chains of responsibility;
 - (b) the procedures and processes used for practical skill training and assessment, including the training syllabus covering the practical skill corresponding to the PDRA for which the declaration is made, defined in Attachment A to the relevant Chapter of the STS on which the PDRA is based;
 - (c) a description of the UAS and any other equipment, tools and environment used for the practical skill training and assessment; and
 - (d) a template for the assessment report.



AltMoC Appendix B — Declaration of UAS operators that intend to provide practical skill training and assessment of remote pilots in PDRA-S0x

	PDRA-S0x		
	Declaration of UAS operators that intend to provide practical skill training and assessment of remote pilots		
<p>Data protection: Personal data included in this declaration 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). It will be processed for the purposes of the performance, management and follow up of the oversight activities according to Commission Regulation (EU) 2019/947.</p> <p>If you require further information concerning the processing of your personal data or you wish to exercise your rights (e.g. to access or rectify any inaccurate or incomplete data), please refer to the contact point of the competent authority.</p> <p>The applicant has the right to make a complaint regarding the processing of the personal data at any time to the national Data Protection Supervisory Authority.</p>			
UAS operator registration number			
UAS operator name			
<p>I hereby declare that:</p> <p>I have submitted the operational declaration for PDRA-S0x;</p> <p>I comply with the requirements defined in AltMoC Appendix A to the AltMoC to AMC4 & AMC 5 – Article 11 of Regulation (EU) 2019/947, by the CAA-NL; and</p> <p>when operating an UAS in the context of training activities for PDRA-S0x, I comply with all the applicable provisions of Regulation (EU) 2019/947, including requirements for operations under PDRA-S0x.</p>			
Date		Signature or other verification	



AltMoC Appendix C — Operations manual for PDRA-S0x

The operations manual for a PDRA based on an STS defined in Appendix 1 to Regulation (EU) 2019/947 shall contain at least the following:

- (1) a statement that the operations manual complies with the relevant requirements of this Regulation and with the declaration, and contains instructions that are to be complied with by the personnel involved in flight operations;
- (2) an approval signature by the accountable manager or the UAS operator in the case of a natural person;
- (3) an overall description of the UAS operator's organisation;
- (4) a description of the concept of the operation, including at least:
 - (a) the nature and description of the activities performed in the UAS operations, and the identified associated risks;
 - (b) the operational environment and geographical area for the intended operations, including:
 - (i) the characteristics of the area to be overflown in terms of the population density, topography, obstacles, etc.;
 - (ii) the characteristics of the airspace to be used;
 - (iii) the environmental conditions including at least the weather and the electromagnetic environment;
 - (iv) the definition of the operational volume and risk buffers to address the ground and air risks;
 - (c) the technical means used and their main characteristics, performance and limitations, including the UAS, external systems supporting the UAS operation, facilities, etc.;
 - (d) the required personnel for conducting operations, including the composition of the team, their roles and responsibilities, selection criteria, initial training and recent experience requirements and/or recurrent training;
- (5) the maintenance instructions required to keep the UAS in a safe condition, covering the UAS manufacturer's maintenance instructions and requirements, if applicable;
- (6) operational procedures, which shall be based on manufacturer's instructions provided by the UAS manufacturer, and shall include:
 - (a) consideration of the following to minimise human errors:
 - (i) a clear distribution and assignment of tasks; and
 - (ii) an internal checklist to check that staff are performing their assigned tasks adequately;
 - (b) consideration of the deterioration of external systems supporting the UAS operation;
 - (c) normal procedures, including at least:
 - (i) pre-flight preparations and checklists, covering:
 - (A) the assessment of the operational volume and related buffers (the ground risk buffer, and air risk buffer when applicable), including the terrain and potential obstacles and obstructions that may reduce the ability to keep the unmanned aircraft in visual line of sight or to scan the airspace, the potential overflight of persons who are not involved and potential overflight of critical infrastructure;
 - (B) the assessment of the surrounding environment and airspace, including the proximity of UAS geographical zones and potential activities by other airspace users;
 - (C) the environmental conditions suitable for conducting the UAS operation;
 - (D) the minimum number of personnel in charge of duties essential to the UAS operation who are required to perform the operation, and their responsibilities;



- (E) the required communication procedures between the remote pilot(s) and any other personnel in charge of duties essential to the UAS operation and with any external parties, when needed;
 - (F) compliance with any specific requirements from the relevant authorities in the intended area of operations, including those related to security, privacy, data and environmental protection, and the use of the RF spectrum;
 - (G) the required risk mitigations in place to ensure the safe conduct of the operation; in particular, for the controlled ground area:
 - (a) determination of the controlled ground area; and
 - (b) securing the controlled ground area to prevent third parties from entering the area during the operation, and ensuring coordination with the local authorities, when needed;
 - (H) the procedures to verify that the UAS is in a suitable condition to safely conduct the intended operation;
- (ii) launch and recovery procedures;
 - (iii) in-flight procedures, including those to ensure that the unmanned aircraft remains within the flight geography;
 - (iv) post-flight procedures, including the inspections to verify the condition of the UAS;
 - (v) procedures for the detection of potentially conflicting aircraft by the remote pilot and, when required by the UAS operator, by airspace observer(s) or unmanned aircraft observer(s), as applicable;
- (d) contingency procedures, including at least:
 - (i) procedures to cope with the unmanned aircraft leaving the designated 'flight geography';
 - (ii) procedures to cope with persons who are not involved entering the controlled ground area;
 - (iii) procedures to cope with adverse operating conditions;
 - (iv) procedures to cope with the deterioration of external systems supporting the operation;
 - (v) if airspace observers are employed, the phraseology to be used;
 - (vi) conflict avoidance procedures with other airspace users;
 - (e) emergency procedures to cope with emergency situations, including at least:
 - (i) procedures to avoid, or at least minimise, harm to third parties in the air or on the ground;
 - (ii) procedures to cope with the unmanned aircraft leaving the 'operational' volume;
 - (iii) procedures for the emergency recovery of the unmanned aircraft;
 - (f) security procedures as referred to in point (1)(a)(ii) and (iii) of point UAS.SPEC.050;
 - (g) the procedures for the protection of personal data referred to in point (1)(a)(iv) of point UAS.SPEC.050;
 - (h) the guidelines to minimise nuisance and environmental impact referred to in point (1)(a)(v) of point UAS.SPEC.050;
 - (i) occurrence reporting procedures;
 - (j) record-keeping procedures; and
 - (k) the policy defining how the remote pilot(s) and any other personnel in charge of duties essential to the UAS operation can declare themselves fit to operate before conducting any operation.



AltMoC Appendix D — Declaration of the entity intending to be recognised by the competent authority to provide practical skill training and assessment of remote pilots in PDRA-S0x

	PDRA-S0x		
	Declaration of the entity intending to be recognised by the competent authority to provide practical skill training and assessment of remote pilots		
<p>Data protection: Personal data included in this declaration 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). It will be processed for the purposes of the performance, management and follow up of the oversight activities according to Regulation (EU) 2019/947.</p> <p>If you require further information concerning the processing of your personal data or you wish to exercise your rights (e.g. to access or rectify any inaccurate or incomplete data), please refer to the contact point of the competent authority.</p> <p>The applicant has the right to make a complaint regarding the processing of the personal data at any time to the national Data Protection Supervisory Authority.</p>			
Identification of the entity			
First and last name, telephone number and email address of the responsible person			
<p>I hereby declare that:</p> <p>I comply with the requirements defined in AltMoC Appendix A to the AltMoC to AMC4 & AMC 5 – Article 11 of Regulation (EU) 2019/947, by the CAA-NL; and</p> <p>when operating an UAS in the context of training activities for PDRA-S0x, I comply with all the applicable provisions of Regulation (EU) 2019/947, including requirements for operations under PDRA-S0x.</p>			
Date		Signature or other verification	