Operational risk analysis overview for operations in the specific category PDRA – S01 Version 1.1: AMC 4 to Article 11 IR (EU) 2019/947

Data of authorised UAS and operation	
1. UAS Operator Identification (eID)	
2. Manufacturer or type certificate holder	
3. Model name	
4. Type of UAS configuration	☐Conventional Airplane ☐Helicopter ☐Multirotor ☐Hybrid/VTOL ☐Lighter than air ☐Other, please specify:
5. Is the UAS tethered during the operation?	☐Yes ☐No
6. Maximum characteristic dimension (including propellers)	
7. Maximum take-off mass (MTOM) (indicated by the operator equal to or less than the manufacturer's specification)	
8. Maximum operational speed	
9. Type of propulsion system	☐Electric ☐Combustion ☐Hybrid, specify type: ☐Other, please specify:
10. Number of type certificate or design verification report (if available)	
11. Certificate of airworthiness (if available)	
12. Number of noise certificate (if available)	
13. Short description of proposed operation including the locations	Please provide the geo-coordinates for the operational volume (flight geography and contingency volume), the ground risk buffer and the air risk buffer (if available) as a separate file using either .txt; .kmz or .kml. Give reference to the file name: _____
Short description of proposed operation	
Place, Date	**Name and Signature**

Compliance Matrix for PDRA – S01 Version 1.1

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
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.	Document name: Page number:	☐"I declare compliance."
		1.2 The remote pilot should operate only one UA at a time.	Document name: Page number:	☐"I declare compliance."
		1.3 The remote pilot should not operate the UA from a moving vehicle.	Document name: Page number:	☐"I declare compliance."
		1.4 The remote pilot should not hand the control of the UA over to another command unit.	Document name: Page number:	☐"I declare compliance."
UA range limit	Self-declaration	1.5 VLOS distance from the remote pilot at all times.	Document name: Page number:	☐"I declare compliance."
Overflown areas	Self-declaration	1.6 UAS operations should be conducted over a controlled ground area.	Document name: Page number:	☐"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.	Document name: Page number:	☐"I declare compliance."

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
UA limitations	Self-declaration	1.8 The UA should have a MTOM of less than 25 kg, including payload.	Document name: Page number:	☐"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.	Document name: Page number:	☐"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.	Document name: Page number:	☐"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 responsible for the obstacle.	Document name: Page number:	☐"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.	Document name: Page number:	☐"I declare compliance."

PDRA characterisation and conditions					
Topic	**Method of proof**	**Condition**		**Reference to documentation**	**Proof**
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		Document name: Page number:	☐"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.		Document name: Page number:	☐"I declare compliance."
Visibility	Self-declaration	1.14 The flight visibility should allow the remote pilot to conduct the entire flight in VLOS.		Document name: Page number:	☐"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.		Document name: Page number:	☐"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**

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
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:	Document name: Page number:	☐"I declare compliance."
		3.1.1 the flight geography; and	Document name: Page number:	☐"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.	Document name: Page number:	☐"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).	Document name: Page number:	☐"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.	Document name: Page number:	☐"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.	Document name: Page number:	☐"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.	Document name: Page number:	☐"I declare compliance."

<table>
<tr><th colspan="5">PDRA characterisation and conditions</th></tr>
<tr><th>Topic</th><th>Method of proof</th><th>Condition</th><th>Reference to documentation</th><th>Proof</th></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">Max height AGL</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>
<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>Document name:
Page number:</td><td>☐”I declare compliance.”</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>Document name:
Page number:</td><td>☐”I declare compliance.”</td></tr>
<tr><td>Air risk</td><td rowspan="3">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></td><td></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>Document name:
Page number:</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.</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>Document name:
Page number:</td><td>☐”I declare compliance and that supporting evidence is included in the OM.”</td></tr>
</table>

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
		3.8.3 develop appropriate procedures to not jeopardise other airspace users.	Document name: Page number: *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.*	☐"I declare compliance and that supporting evidence is included in the OM."
	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 an appropriate permission.	Document name: Page number:	☐"I declare compliance."
		3.10 Prior to the flight, the UAS operator should assess the proximity of the planned operation to manned aircraft activity.	Document name: Page number:	☐"I declare compliance."
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));	Document name: Page number: *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;	Document name: Page number: *Please describe how this condition is met.*	☐"I declare compliance and that supporting evidence is included in the OM."

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
		4.1.3 develop procedures to ensure that the security requirements applicable to the area of operations are complied with during the intended operation;	Document name: Page number:	☐"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;	Document name: Page number:	☐"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;	Document name: Page number:	☐"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 minimizes nuisance, including noise and other emissions-related nuisance, to people and animals;	Document name: Page number:	☐"I declare compliance and that supporting evidence is included in the OM."

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
		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;	Document name: Page number: *Please describe how this condition is met.*	☐"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 in accordance with the conditions for a 'medium' level of robustness (please refer to AMC3 UAS.SPEC.030(3)(e));	Document name: Page number: *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 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;	Document name: Page number: *Please describe how this condition is met.*	☐"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, coordinate with the appropriate authorities;	Document name: Page number: *Please describe how this condition is met.*	☐"I declare compliance and that supporting evidence is included in the OM."

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
		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;	Document name: Page number: *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	Document name: Page number: *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;	Document name: Page number: *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;	Document name: Page number:	☐"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;	Document name: Page number:	☐"I declare compliance and that supporting evidence is included in the OM."

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
		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.	Document name: Page number:	☐"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	Document name: Page number:	☐"I declare compliance."
		4.2.2 ensure that the maintenance staff follow the UAS maintenance instructions when performing maintenance;	Document name: Page number:	☐"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;	Document name: Page number:	☐"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;	Document name: Page number:	☐"I declare compliance."
		4.2.5 comply with point UAS.SPEC.100, if the UAS uses certified equipment.	Document name: Page number:	☐"I declare compliance." ☐n/a

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
External services	Self-declaration	4.3 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.	Document name: Page number: *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.	Document name: Page number: *Please describe how this condition is met.*	☐"I declare compliance."
5. Conditions for the personnel in charge of duties essential to the operation				
General	Self-declaration	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.	Document name: Page number: *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:	Document name: Page number:	☐"I declare compliance."
		5.2.1 the safety of persons is jeopardised; or	Document name: Page number:	☐"I declare compliance."
		5.2.2 property on the ground is jeopardised; or	Document name: Page number:	☐"I declare compliance."

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
		5.2.3 other airspace users are in jeopardy; or	Document name: Page number:	☐"I declare compliance."
		5.2.4 there is a violation of the terms of the operational authorisation.	Document name: Page number:	☐"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;	Document name: Page number:	☐"I declare compliance."
		5.3.2 be familiar with the manufacturer's instructions provided by the manufacturer of the UAS;	Document name: Page number:	☐"I declare compliance."
		5.3.3 ensure that the UA remains clear of clouds;	Document name: Page number:	☐"I declare compliance."
		5.3.4 hold a certificate of remote pilot theoretical knowledge, in accordance with Attachment A to Page 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.	Document name: Page number: *Please describe how this condition is met.*	☐"I declare compliance."

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
		5.3.5 hold an accreditation of completion of a practical-skills training course for this PDRA, in accordance with Attachment A to Page 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 recognized 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 the UAS Regulation.	Document name: Page number: *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 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;	Document name: Page number: *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."

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
		(b) checking height determination/ limitation devices; and	Document name: Page number: *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.	Document name: Page number: *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."
		5.3.7 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;	Document name: Page number: *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	Document name: Page number:	☐"I declare compliance."
		(b) 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.	Document name: Page number:	☐"I declare compliance."

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
		5.3.8 During the flight:		
		(a) keep the UA in VLOS and maintain a thorough visual scan of the airspace that 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;	Document name: Page number: *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; clear and effective communication should be established between the remote pilot and the UA observer;	Document name: Page number: *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	Document name: Page number: *Please describe how this condition is met.*	☐"I declare compliance."
		(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 10 m before the UA reaches the limits of the operational volume.	Document name: Page number: *Please describe how this condition is met.*	☐"I declare compliance."

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
		(e) keep the UA at a ground speed of less than 5 m/s in case of untethered UA;	Document name: Page number: *Please describe how this condition is met.*	☐"I declare compliance."
		(f) activate the direct remote identification system[1].	Document name: Page number:	☐"I declare compliance."
Technical conditions				
UAS	Self-declaration	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." ☐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:	Document name: Page number: *Please describe how this condition is met.*	☐"I declare compliance." ☐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 minimized;		
		6.2.3 include a notice that is published by EASA and provides the applicable limitations and		

[1] Applicable from 1 July 2022.

PDRA characterisation and conditions				
Topic	**Method of proof**	**Condition**	**Reference to documentation**	**Proof**
		obligations, as required by the UAS Regulation; 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: 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.* *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.* *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.*		

Place, Date	**Name and Signature**