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**PROCEDURE OF THE TRANSPORT  
AUTHORITY FOR THE RISK  
ANALYSIS IMPLEMENTATION AND  
ASSESSMENT RELATED TO  
CATEGORY B UNMANNED AIRCRAFT  
FLIGHT OPERATIONS**

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## 1 ABBREVIATIONS AND DEFINITIONS

### 1.1 Abbreviations

Not applied

### 1.2 Definitions

- 1.2.1 **Risk** – combination of probability level for a certain negative event associated with an unmanned aircraft flight operation and the severity level of this event.
- 1.2.2 **Risk mitigation measures** – Implementing of such technical and performance operations to reduce in the most possible way risk mitigations measures associated with an unmanned aircraft flight operation. Unmanned aircraft operator shall assess and implement risk mitigation measures.
- 1.2.3 **Protected interests on the ground** – Persons and objects on the ground that may be negatively affected by an unmanned aircraft flight operation.
- 1.2.4 **Strategic Mitigations** – Measures of which purpose is to achieve maximum distance (in horizontal plane) during an unmanned aircraft flight operation from persons on the ground in distance at least equal to the flight altitude, in case of sparsely populated location or restricted access location or measures which purpose is to reduce number of persons on the ground that may be endangered by an unmanned aircraft flight operation in case of densely populated locations (for example, an unmanned aircraft flight operation in industrial area outside working hours).
- 1.2.5 **Emergency Response Plan** – Is a plan of actions and operations to be performed in the event of an unmanned aircraft flight operation emergency (*for example, loss of control link, control unit failure, control element failure, interference, third party intervention and so on*).
- 1.2.6 **Means to reduce the impact energy** – technical mitigations whose purpose is to reduce in the most possible way the energy that an unmanned aircraft on impact transmits to a person or object on the ground.

## 2 GENERAL PROVISIONS

### 2.1 The purpose

The purpose of this procedure is to establish a standard procedure for assessing the risk analysis of Category B unmanned aircraft flight operation.

### 2.2 Related legislation

- 2.2.1 Act No 143/1998 Coll. On civil aviation in the form of its later changes and amendments.
- 2.2.2 Decision No 2/2019 of 14 November 2019, On Determination of conditions for unmanned aircraft flight operations and restriction of specific categories aircrafts flight operations in the airspace of the Slovak Republic (later referred as „Decision No 2/2019“).

## **2.3 Related forms**

- F390-B - Application for authorization of Category B unmanned aircraft flight operation
- F352-B - Application for a change of unmanned aircraft aerial work operator certificate
- F353-B – Application to issue unmanned aircraft aerial work operator certificate

## **3 THE RISK ANALYSIS**

### **3.1 General**

3.1.1 The most serious consequence of the unfavourable event associated with unmanned aircraft flight operation is harm to persons and property damage.

3.1.2 As result of unmanned aircraft flight operation, the following harm may occur individually or in combination to:

- a) Protected interests on the ground;
- b) Other air traffic.

3.1.3 For the purpose of this procedure, the treat is also considered as harm.

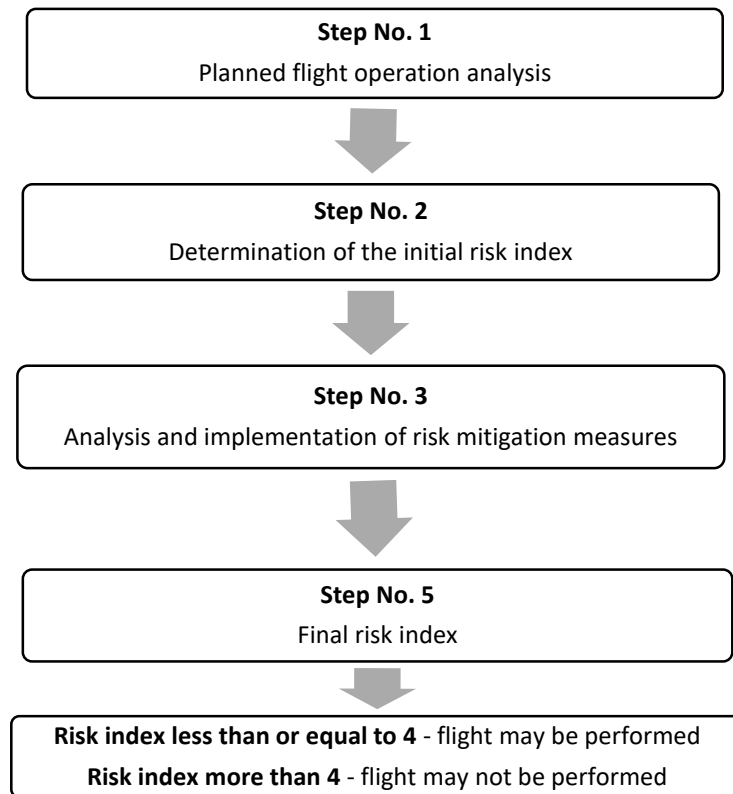
3.1.4 Purpose of the risk analysis is to provide reasonable assurance that risk level associated with unmanned aircraft flight operation does not rise to justified concern for harm to protected interests on the ground and other air traffic.

### **3.2 Procedure for the risk analysis Implementation**

3.2.1 In case of Category B unmanned aircraft flight operation, it is necessary before performance of unmanned aircraft flight operation to implement the risk analysis associated with unmanned aircraft flight operation, resulting in the final risk index.

3.2.2 Category B unmanned aircraft flight operation shall be only performed if the final risk index is equal to or less than 4.

3.2.3 The following 6 steps representing a logical process of risk level assessment involved in unmanned aircraft flight operation for protected interests on the ground and considering the possibility of safe flight operation.



### 3.3 Flight operation analysis

3.3.1 The purpose of planned flight operation analysis is to prepare an unmanned aircraft flight operation and determine whether an unmanned aircraft flight operation shall not be performed under Category A unmanned aircraft flight operation. The content of flight operation analysis shall be in particular:

- a) The purpose of unmanned aircraft flight operation, characteristics of a flight operation task and characteristics of unmanned aircraft flight operation; in particular, it is considered whether is photographic flight operation, an aerial photographic flight operation, aerial applications etc., whether an unmanned aircraft flight operation is to be performed in visual line of sight,
- b) Selection of location for unmanned aircraft flight operation and determination of its specific flight task,
- c) Meteorological situation assessment and forecast for the duration of an unmanned aircraft flight operation, taking into account unmanned aircraft performance limitations,
- d) Analysis of airspace for location of unmanned aircraft flight operation,
- e) Analysis of any other factors that may affect safety of unmanned aircraft flight operation,
- f) Summary of factors for which it is not possible to perform flight operation in category A unmanned aircraft flight operation, in particular distance from persons, constructions, open air people assemblies and other air traffic in controlled airspace.

### 3.4 Initial risk assessment

3.4.1 The purpose of establishing initial risk index is to determine risk level that represents unmanned aircraft flight operation in dependence on maximum take-off mass (MTOW) of an

unmanned aircraft, characteristics of unmanned aircraft flight operation and location characteristics of unmanned aircraft flight operation without taking risk mitigation measures.

- 3.4.2 The location characteristics of unmanned aircraft flight operation shall be determined taking into account in particular:
- Planned flight operation task,
  - Unmanned aircraft range, service ceiling, speed and endurance,
  - Location characteristics and population or whether it is restricted access location.

3.4.3 To determine initial risk level, the following table No 1 shall be used:

Table No 1

Class of an unmanned aircraft	C0	C1	C2	C3	C4
<b>The location characteristics</b>	<b>Initial risk index (K<sub>PMR</sub>)</b>				
Over the restricted access location	1	2	3	4	4
Over the sparsely populated location	2	3	4	5	5
Over the densely populated location	4	5	6	-	-
Over open air people assemblies	7	-	-	-	-

**Explanatory note**

**Restricted access location** – geographically demarcated area to which only involved persons participating in an unmanned aircraft flight operation can access

- 3.4.4 In case that part of an unmanned aircraft flight operation is to be performed in location with higher initial risk index than rest of flight operation task, higher initial risk index shall be used.

**3.5 Analysis and implementation of risk mitigation measures**

- 3.5.1 The purpose of implementation of risk mitigation measures is to reduce the initial risk level that represents unmanned aircraft flight operation for the health of persons and property on the ground.
- 3.5.2 The aim for analysis of risk mitigation measures is to evaluate the rate of effectiveness for implemented risk mitigation measures by establishing overall risk mitigation measures index and implementation of such risk mitigation measures to reduce risk level to an acceptable level.
- 3.5.3 Each type of risk mitigation measures according to following table No 2 is evaluated by relevant index depending on the rate of effectiveness. The rate of effectiveness for each risk mitigation measures of particular unmanned aircraft and flight operation task shall be determined by unmanned aircraft operator or by the holder of the aerial work operator certificate in operations manual authorized by the Transport Authority.

Table No 2

Serial number	Type of risk mitigation measures	The rate of effectiveness		
		Limited / Not effective	Limited	Effective
		<b>Risk mitigation measures index (K<sub>ZO</sub>)</b>		
M1	Strategic mitigation measures	None: 0, limited: -1	-2	-4
M2	Means to reduce the impact energy	0	-1	-2
M3	Emergency response plan	1	0	-1

- 3.5.4 At least one risk mitigation measure shall be used at all time for Category B unmanned aircraft flight operation where the risk analysis and implementation of risk mitigation measures, is required.
- 3.5.5 The individual types of risk mitigation measures are calculated according to the following formula, where each type of risk mitigation measure being counted only once:

$$M1+M2+M3 = \text{Overall risk mitigation measures index}$$

**3.6 Final risk assessment**

- 3.6.1 Final risk assessment is calculated according to the following formula:

$$K_{PMR} + K_{ZO} = K_{KR}$$

**K<sub>PMR</sub>** – Initial risk index  
**K<sub>ZO</sub>** – Overall risk mitigation measures index  
**K<sub>KR</sub>** – Final risk index

- 3.6.2 For final risk assessment each type of risk mitigation measures shall be counted only once.

*For example:*

	<b>Risk index</b>
Flight over the densely populated location	6
Strategic mitigation measures	-1
Means to reduce the impact energy	-2
Emergency response plan	0
Final risk index	<b>3</b>

**4 INHERENCE OF THE TRANSPORT AUTHORITY**

**4.1. Aerial work**

- 4.1.1 The holder of aerial work operator certificate shall implement the risk analysis according to this procedure separately before each Category B unmanned aircraft flight operations, based on operations manual approved by the Transport Authority.
- 4.1.2 The holder of aerial work operator certificate before each Category B unmanned aircraft flight operation fill a protocol about implementing the risk analysis according to this procedure, protocol shall be signed by a person responsible for an unmanned aircraft flight operation. Protocol pattern shall be included in operations manual. Unmanned aircraft operator shall storage the risk analysis for at least 12 months.
- 4.1.3 The holder of the aerial work operator certificate shall provide in operations manual detailed description of implemented risk mitigation measures and their index.

**4.2. Other Category B unmanned aircraft operations authorized by the Transport Authority**

- 4.2.1 An applicant for authorization of Category B unmanned aircraft flight operation shall send the risk analysis created according this procedure together with an application for authorization of Category B unmanned aircraft flight operation to the Transport Authority.

- 4.2.2 The risk analysis according to previous Point include detailed description of implemented risk mitigation measures.
- 4.2.3 The risk analysis not conducted in compliance with this procedure shall be reason for refusing an application for authorization of Category B unmanned aircraft flight operation.