NATIONAL REGULATION OF (SMALL AND SIMPLE) UNMANNED AIRCRAFT SYSTEMS
CZECH REPUBLIC

ALEŠ BÖHM
CIVIL AVIATION AUTHORITY
The Civil Aviation Act No. 49/1997 Coll., as amended
- Contains a transposed Chicago convention Article 8 (requirement for CAA Special Authorization for all RPA)

The implementing Decree of Ministry of Transport No. 108/1997 Coll.
- Contains exception on take-off/landing possibilities outside aerodromes

The aviation regulation of Ministry of Transport – Rules of the Air
- Contains specific conditions and limitations on RPAS operation
Model aircraft:
- An unmanned aircraft for recreational or sports purposes only;
- Not equipped for an automatic flight to a pre-selected location;
- Which is remotely piloted in a permanent direct visual line-of-sight.

Must not fly close to aerodromes w/o permit + other safety recommendations. Otherwise no authority involvement for small systems.

Remotely piloted aircraft:
- If any of the conditions above is not complied with. E.g.:
  - Multicopter with GPS and autopilot must not fly over people and follows other operational limitations. If recreationally operated – no authority involvement.
  - Professional use (commercial or non-commercial) follows operational limitations, need for authorizations

Operator: A person, organization or enterprise engaged in or offering to engage in an RPAS operation.

Remote pilot: A person charged by the operator with duties essential to the operation of a RPA and who manipulates the flight controls, as appropriate, during flight time.
OUT of scope:
1) Model aircraft < 20 kg maximum take-off mass (MTOM)
   • Have to observe operational recommendations and some mandatory limitations (e.g. Restricted in 3 NM proximity to aerodromes)
   • Usually no camera = no temptation to fly in congested areas
2) RPA < 20 kg MTOM, used solely for recreational purposes
   • Usually multicopters with a camera, very popular in cities => safety/security issues
   • Have to comply with mandatory operational limitations (e.g. safe distances from people on ground)

WITHIN the scope:
1) Giant model aircraft > 20 kg MTOM
   • Need for Special Authorization only, no RPAS Operator Certificate (ROC)
2) **Professional RPA (of any mass)**
   • Special Authorization and ROC
   • main conditions: VLOS, keeping safe distances from people on ground
OUT of scope:

1) Moored/tethered balloons of size < 2 m, volume < 3,25 m³, height < 45 m
   - No explosive gas, no payload above people, no hazardous material for aircraft
2) Unmanned free balloons without payload
   - Small amounts, small size, safe distance from aerodrome

WITHIN the scope:

1) Large moored/tethered balloons or operated higher than 45 m AGL
   - With or without passengers on board
2) Unmanned free balloons **without** payload
   - Large amounts / size or bundles
3) Unmanned free balloons **with** payload
   (ICAO Annex 2, Appendix 5)
Application to CAA for Restricted Special Authorization for RPA
- details on the applicant and on the RPAS
- insurance certificate
- Operations Manual Part B (details on RPAS) and Part F (security, unlawful int.)
- “Remote” assessment, no on-site inspection at this time
- RPA and remote pilot registered
- Nationality and registration mark issued – to be placed on the RPA

Application to CAA for Full Special Authorization for RPA
On-site inspection necessary with:
- Inspection of the RPAS – compliance with the data submitted in the application, detection of obvious non-safe settings
- Remote pilot theoretical exam
- Remote pilot practical skills exam
- Flight test including the Fail-safe procedure test

Administrative process

Restrict Special Authorization

Full Special Authorization

Application to CAA for RPAS Operator Certificate (ROC)
Applicant decides to apply for:
- **Aerial Work** (RPA services offered for compensation)
- **Corporate Flights** – RPA used to support current undertaking (e.g. real-estate agencies, own powerline inspections, etc.) or
- **Commercial Air Traffic** (cargo transport)

Attachments:
- Full Operating Manual
- Details on the Organisation

Usual timeframe for the whole process 2-5 months based on the quality of attachments.
Administrative fees: About 500 € in total.
Operators with ROC: 12  Operators with Special Authorization: ca 80
On-site inspection focused on verification of all details declared in the authorization (type, size, color, MTOM, systems, equipment)

Detection of obvious non-safe settings

In-flight test together with remote pilot practical skills exam

Fail-safe procedure test
  - no autonomous flight in class G airspace;
  - C2 loss => immediate flight termination

RPAS not certified on airworthiness, reliability, functionality.

No trust in non-certified parts, appliances, systems, software.

No flight in a dangerous proximity to 3rd persons on the ground.

BUT: what are the safe and dangerous distances?
The remote pilot must visually monitor the RPA and the area of operation – to avoid unsafe proximity to people on ground.

General rule for rotorcraft: „keep horizontally twice your height“

RPA of MTOM > 7 kg: d shall not be < 50 m (take-off/landing) and 100 m (during flight)
Remote pilot assessment

✓ Remote pilot questioning on:
  – RPAS functions understanding (e.g. RPS handling, RPA warning indicators)
  – Flight planning (airspace and meteorological considerations)
  – Site planning (compliance with safe distances, area cordon off)
  – Pre-flight procedures
  – Emergency procedures

✓ Remote pilot theoretical exam:
  – 30 questions written test on specific Rules of the Air regulations
  – minimum pass = 75%

✓ Remote pilot practical skills exam:
  – Predefined flight patterns to be performed and demonstration of specific planned operations (e.g. mapping or wind power plant inspection)
1. MTOM type registration mark holder.
2. Aircraft type according to ICAO Annex 7, Table 1.
3. List of approved remote pilots.
5. No flight over densely populated areas, people, buildings and vehicles on ground.
6. Maintaining direct visual line of sight.
7. FPV (first person view) flight with crew of 2, 1 maintains VLOS and is responsible for flight.
8. Loss of C2 link = Flight termination, no autonomous preprogrammed flight.
9. Liability insurance.
10. ICAO RPAS Symposium 24. 3. 2015.
Aerial Work Operator Certificate Application

Attachments required by the Trade Licensing Act:

1 – Proof of legal or undertaking natural person existence *(trade register statement, tax number)*

2 – Evidence of professional experience *(at least one responsible person in the company has some aviation experience)*

3 – Evidence of education achieved *(at least one responsible person in the company has economy or technical education)*

4 – Criminal record statement *(clean)*

5 – Business plan *(planned extent and frequency of operation)*

6 – Financial stability declaration

7 – Operations Manual *(descriptions of: the organization, responsibilities, the RPAS, the planned activities, training, maintenance, privacy, security)*

8 – RPA fleet list

9 – Remote pilots list

ICAO RPAS Symposium 24. 3. 2015
This certifies that the Operator


splnil požadavky ust. § 74 zákona č. 49/1997 Sb. o civilním letectví a o změně a doplňení zákona č. 455/1991 Sb., o živnostenském podnikání (živnostenský zákon), ve znění pozdějších předpisů, ve znění pozdějších předpisů (dále jen „letecký zákon“) a vyhlášky č. 108/1997 Sb., kterou se provádí letecký zákon, ve znění pozdějších předpisů pro vydání tohoto povolení a je tímto oprávněn provádět letecké práce bezpilotními letadly splňujícími kritéria přílohy II nařízení Evropského parlamentu a Rady (ES) č. 216/2008 v platném znění v souladu s provozní specifikací, která je nedílnou součástí tohoto povolení.

has met the requirements of Article 74 of Act No 49/1997 Coll., on civil aviation and amending Act No 455/1991 Coll., on trade licensing (Trade Licensing Act) as amended, as amended (hereinafter referred to as “Aviation Act”) and of the Decree No 108/1997 Coll., implementing the Aviation Act as amended, for the issuance of this permit, and is hereby approved to perform aerial work using unmanned aircraft that meet the criteria of Annex II of Regulation (EC) No 216/2008 of the European Parliament and of the Council as amended in accordance with the Operations Specifications which are an integral part of this permit.

Toto povolení je platné pouze ve spojení s provozní specifikací označenou stejným číslem, je nepřenesné, a pokud se jej držitel povolení nevzdá nebo nebudou jeho platnost pozastavena nebo zněla, zůstává v platnosti do 17. 6. 2016.

This Permit is valid only in connection with the Operations Specifications designated with the identical number; it is not transferrable and, unless it has been surrendered, suspended or revoked, it shall remain valid until 17. 6. 2016.
ÚŘAD PRO CIVILNÍ LETECTVÍ
CIVIL AVIATION AUTHORITY

ČESKÁ REPUBLIKA
CZECH REPUBLIC

PROVOZNÍ SPECIFIKACE
OPERATIONS SPECIFICATIONS

Příloha povolení k provádění leteckých prací bezpilotními letadly splňujícími kritéria přílohy II
nařízení Evropského parlamentu a Rady (ES) č. 216/2008 v platném znění vydaného provozovateli:

Annex to the Aerial Work Operator Permit using unmanned aircraft that meet the criteria of Annex II
of Regulation (EC) No 216/2008 of the European Parliament and of the Council as amended issued to:

Operator

Types of aerial works:
- agricultural;
- forestry and environmental protection;
- inspection, measurement, observation and patrol flights;
- aerial photography.

Specific conditions of aerial work operations:
- the permit holder is hereby approved to perform take-offs and landings using any site in accordance
  with the conditions of Article 14 of Decree No 108/1997 Coll., implementing Aviation Act
  as amended;
- the permit holder shall operate unmanned aircraft in accordance with the valid Unmanned aircraft
  special authorization issued by the Civil Aviation Authority Czech Republic (hereinafter referred
to as the “Authority”) in accordance with Article 52 of Aviation Act;
- the permit holder shall perform aerial work using unmanned aircraft in accordance with
  the Operations Manual approved by the Authority (Ref. 3752-14-701).

Oblastí provozu: Česká republika
Areas of operations: Czech Republic

Tyto provozní specifikace jsou nedílnou součástí povolení číslo: 0004 / LPUA
These Operations Specifications are an integral part of the Permit No: 0004 / LPUA

Vydáno pod č.j. / Issued with Ref.: 3795-14-701

Místo a datum vydání:
Place and date of issue:
Praha
17. 6. 2014

Ing. David Balhar
vedoucí referátu bezpilotních systémů
Unmanned Aerial Systems Section Manager

Robodrone Kingfisher
OK-X003X

Typy letadel:
Types of aircraft:

Poznávací značka:
Registration:

Pravidla letu, zvláštní podmínky a specifikace:
Flight rules, special conditions and specifications:

VFR
(pravidla letu za viditelnosti / visual flight rules)

VLOS
(provoz ve vizuálním dohledu / visual line-of-sight operation)
A – recreational use of RPA – only operational limitations promulgated (safe distances from 3rd persons, VLOS), to be enforced by police, etc. =>
Generally authorized, no registry, etc. There is no revenue-driven attempt to overcome the limitations.

B – professional (commercial/corporate) use of RPA – low risk (safe distance from 3rd persons, VLOS) =>
Authorization required, aircraft registry, operator certification, to ensure they will operate within the limitations.

C – professional (commercial/corporate) use of RPA – high risk (operations above 3rd persons, VLOS) =>
same as B, but systems reliability approval (or airworthiness certification)

D – any use of RPA – very high risk (BVLOS, high altitude, etc.) =>
Same as C, but a D&A system to be certified as well.
Public awareness of the regulations
  – May be enhanced by a leaflet and/or video campaign.

Police officers awareness of the regulations and certificates
  – CAA inspectors are not everywhere.

Administrative demands of the application processes
  – May be facilitated by law amendment to present only 1 process.

Constant pressure on flights above people with RPA without reliability or airworthiness certification
  – Some sort of light CS-LURS certification basis for small RPA < 20 kg might be a solution to enable for a safe flight in the city.

Traceability issues
  – It is hard to trace the remote pilot responsible for an unsafe flight.

Enforcement measures against reckless RPA operation
  – Penalty from 2.000 € up to 200.000 € may be imposed.
Thank you for your attention.

Questions?

Aleš Böhm
contact email: bohm@caa.cz