Workshop
Smart Inspectors

October 25th, 2013
Wageningen

Operational Aspects of Flying with RPAS

Rob van Heeswijk – RPAS pilot
Outline

- Flight planning
  - desk phase
  - field phase

- Flight execution

- Rules and regulations
Flight planning

desk phase

field phase

desk phase
Ground Control Station (GCS)

GeoSkyHawk’s software tool for flight planning: GCS.
Background map containing the area of interest imported in GCS.
Explicit designation of the area of interest: cleanness for all...
Prepare a flight plan for the predominant wind direction
And make a backup plan for other wind directions...
Select a preferred set-up location.
And designate a number of alternatives..
Optimize flight parameters.
Optimize flight parameters.
Special objects

- Windmills
- Pylons
- Transmission towers
height up to 125 meters
high voltage network

height from 50 till 180 meters
Transmission towers
Turbulence

- Windmills
- Trees
- Buildings
- Transmission masts
- Pylons

The affected length is up to 7 times the height of the obstacle
Special interest areas

Controlled Airspace
Special interest areas

Natura 2000 areas
Special interest areas

Gas Pipeline Network
TAF

Terminals Aerodrome Forecast

ZCZC FT220555 EHEH EINDHOVEN/EINDHOVEN NLD 22 m. TAF EHEH 220545Z 2206/2312 15005KT CAVOK BECMG 2208/2211 17012KT TEMPO 2219/2222 22020G35KT SCT060CB PROB40 TEMPO 2219/2222 VRB30G45KT 3000 TSRA SCT012 BKN040CB BECMG 2309/2312 22015KT=
METAR

- **MET**eorological **Aerodrome** **Report**

- ZCZC SA221055 EHDL ARNHEM/DEELEN NLD 48 m. METAR EHDL 221055Z AUTO 16012KT 9999 NCD 20/15 Q1005 BLU=
NOTAM

- NOTice to AirMen

- M1462/13 -
  PJE WILL TAKE PLACE AT TEXEL PSN 5306N00450E.
  GND - FL160, 26 OCT 07:00 2013 UNTIL 26 OCT 16:45 2013. CREATED: 16 SEP 10:52 2013
Flight planning

desk phase

field phase
Field phase planning

- Survey area of interest
- Verify desk phase preparations
- Select final set-up point
- Assemble plane (pilot)
- Assemble GCS (observer)
- Pre-flight checks
Launch
During the flight

- Pilot tracks the airplane and keeps the manual control unit stand-by at all times
- Observer monitors GCS + airspace and keeps the emergency flight abort button stand-by at all times
- Intensive information exchange between pilot and observer
Information exchange

- Pilot ➔ Observer
- Information:
  - Battery voltage airplane
  - Battery voltage control unit
  - Flight plan execution (complete flight plan, pictures, RPAS speed, wind speed)
  - Flight level
  - Tracks and turns
  - Number of tracks
  - Observations of airspace
Special events

- Helicopter Emergency Medical Service (HEMS)
- Pipeline Monitoring Flights
- Police Flights
- Military Flights
- Hot Air Balloons
- Parachutes
- Gliders / Deltawings
- **Other RPAS operations**
Landing
Rules and regulations

- Starting July 1\textsuperscript{st}, 2013 all RPAS flights in Dutch airspace are prohibited...
- unless...
- the pilot successfully completes a certified “How to safely operate RPAS” course and
- the organisation has and acts according to an “Operational RPAS handbook”

Class 1 operations
Class 1 operations (1)

- Uncontrolled airspace only
- Flight performance by two persons (pilot and observer)
- Work with checklist for flight planning and aircraft preparation
- Maximum start weight: 150 kg
- Max altitude: 120 meters
Class 1 operations (2)

- Within Visual Line of Sight (VLOS): operations within 500 meters from Ground Control Station
- In daylight period (Visual Flight Rules; VFR)
- Visual Meteorological Conditions (VMC)
- At least 150 meters away from crowd and buildings
Class 1 operations (3)

- Maximum speed: 129 km/h
- Knowledge level: PPL (Private Pilot License)
- Logbook required for every flight
- The basic principle is uncontrolled airspace, but arrangements are possible for flights within controlled airspace (around airfields)
Class 2 operations (1)

Designed for using RPAS
- directly above people and buildings
- higher than 120 meters
- in the dark (Instrument Flight Rules; IFR) or
- beyond Visual Line of Sight
Additional requirements

Class 2 operations (2)

- The type RPAS is equipped with a type certificate (based on internationally accepted airworthiness requirements),
- The RPAS designer is qualified
- The RPAS system is built by a qualified builder
- The RPAS system is maintained by a qualified organization
Additional requirements

Class 2 operations (3)

- Incidental Class 2 permission is only possible with great social importance in combination with acceptable risks.
Successful RPAS operations impossible?

NO!
Thank you for your attention

www.vb-ecoflight.nl
info@vb-ecoflight.nl
What do you need to fly with an light UAS in Amsterdam FIR (Flight Information Region)

- Flight crew license (per type)
- Medical Certificate
- Certificate of registration
- The certificate of airworthiness
- A permit from the owner of the place
- A permission of the “Provincie” (TUG)