



# Unmanned Aerial Systems Association, UASA (Russia)

## Operational Experience and Development Trend of Civil Unmanned Aerial Systems in Russia

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# Russian civil drone tasks overview

## INVENTORY & MAPPING

- Aerial photography;

## PROTECTION & SEARCH

- real-time video surveillance in visible and IR ranges;
- patrolling the forest with fire danger;
- radar imagery survey for aircraft and vessel rescue;

## NATURE SURVEY

- state agricultural land and forests;
- precision agriculture;
- ice reconnaissance during floods;

## TECHNICAL OBJECTS SURVEY

- the technical condition of pipelines, power lines, roads and railways;
- ice reconnaissance for piloting vessels;

## DELIVERY

- Long distance post delivery for hard-to-reach settlements;
- trench forwarding through ceiling structures under the roofs;
- spraying solutions with herbicides, pesticides, desiccation;



# Evolution of UAS in Russia civil apps for last three years

Property	2011	2014
Maximum time of flight for electrical aircraft	1-1,5 h	2-3 h
Maximum time of flight for electrical multicopters	10-15 min	35-40 min
Maximum time of flight for gasoline aircrafts	4 h	8 h
MTFB for electrical aircraft	5	20
MTFB for electrical multicopters	n/a	4
MTFB for gasoline aircrafts	8	45
Failure, times per 100 takeoffs for electrical aircraft	32	20
Failure, times per 100 takeoffs for electrical multicopters	n/a	25
Failure, times per 100 takeoffs for gasoline aircrafts	40	25
Loss, times per 100 takeoffs for electrical aircraft	4	1
Loss, times per 100 takeoffs for electrical multicopters	n/a	3
Loss, times per 100 takeoffs for gasoline aircrafts	3	0,4



# The procedure for obtaining permits for use UAS in Russia airspace

- Request for airspace use (restricted for another) 5 days before the flight;
- Negotiation with more priority airspace user;
- Confirmation – flight plan sending, one day before the flight;

## Problem for obtaining permits

- Reserving days – 2 reserve days for every flight day (weather forecast, aircrafts with higher priority etc.);
- Small flight time for UAS operation – 3 hours only, query several times in a row - not always give;

## Problems with general aviation

- lack of discipline - does not look NOTAMs in G-area ;
- Lack of discipline users with soft wing - motorized hang gliders, paragliders;



# Interaction between UAS operator & traffic controller

- Negotiation process before flight – by the e-mail, phone, fax;
- Flight time – cellular phone in GSM coverage; satellite phone in other areas;
- AM radio (aviation range) – in straight radio coverage;

# Interaction between UAS operator and airspace users

- Negotiation with more priority airspace user before flight – by the e-mail, phone, fax;
- Flight time – AM radio (aviation range) – in straight radio coverage;

**The operator must always be available to the dispatcher of any communication channel !!!**



# Insurance

## What we are use now?

- insurance liability to third parties;
- yet it is not necessarily by law – we create a self-regulatory organization with compulsory insurance drones all members of the organization;

## What we are want?

- insurance against loss and destruction - but it does not work without an independent confirmation of flight;
- So, we will create a single point of registration of flight trajectories using IRIDIUM SBD technology;





# C2

## What we are use now?

- the use of modems in license-free bands - often with excess power;
- the use of GSM modems – in GSM covering area;
- the use of IRIDIUM SBD modems – for long distance operation;

## What we are want?

- Aviation official channel of communication – for commands, for telemetry, for ADS-B and so on;

## What we are look out for?

- VDL-4 - the only choice available, but it good choice!



# ADS-B

## 1090

- can be used if it appropriate weighs and price – but UAS flight altitude not more 3 km – is it problem?
- no protection for traffic controller against UAS imitation;

## UAT

- Can't be used – close band;

## VDL-4

- can be used if it appropriate weighs and price;
- no other difficulties;





# ПТЕРО



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