



CEPT Workshop on  
*Spectrum for Drones - UAS*  
Organised by the Electronic Communications Committee (ECC)



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# Administration View

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# RPAS history in Finland

- Military target planes



1967



1982



2004



[www.avartek.fi](http://www.avartek.fi)

# Test flight 16.8.2016 Finland -> Estonia



**Avartek AR-3000**  
• Wingspan 3 m

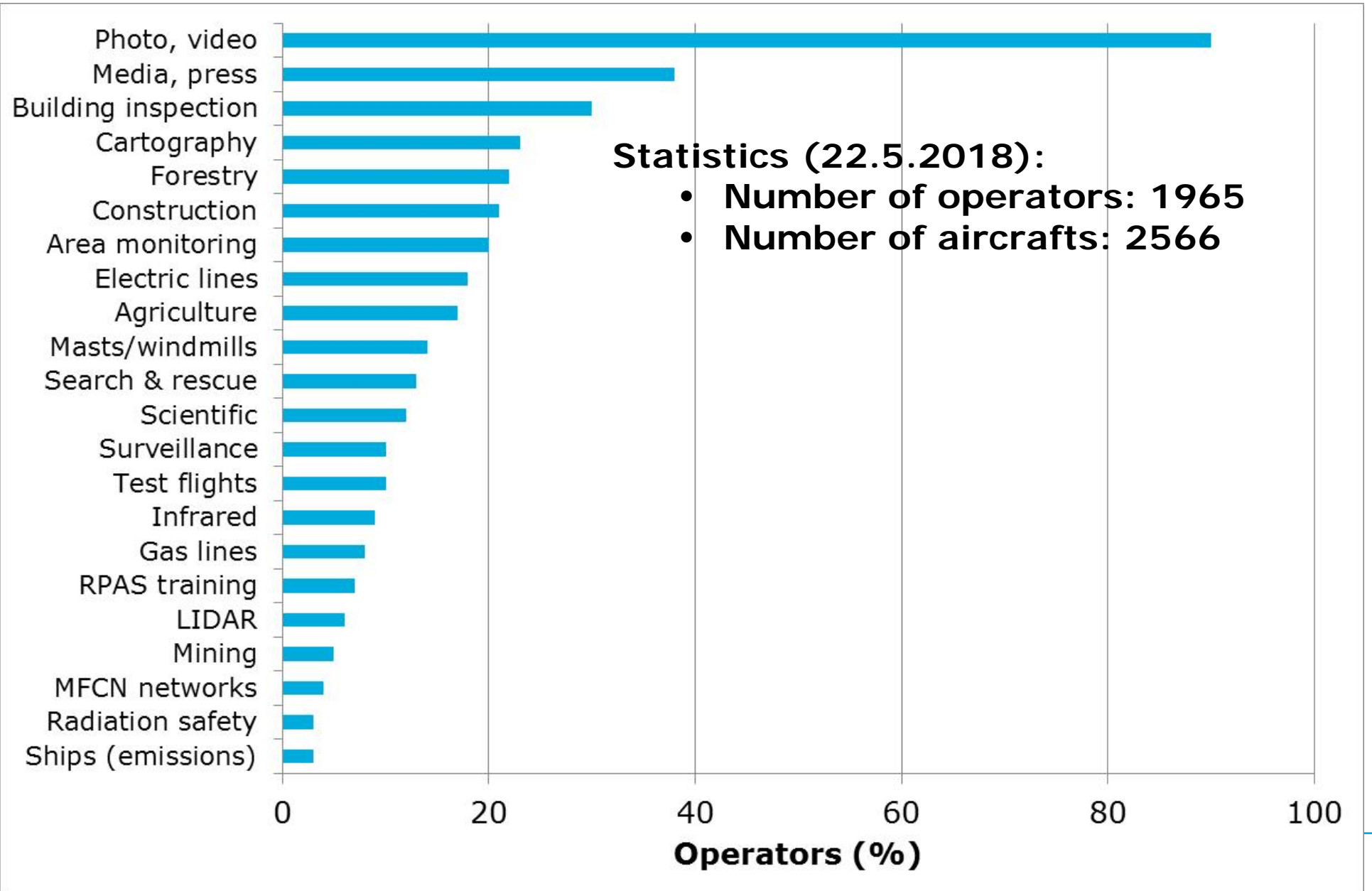


**C&C-frequencies around 440 MHz,  
handover above the sea**

# Notifications on the intended use of RPAS

**Professional RPAS users have to make notification before first flight**  
(Fee: 20€/year)

[Notification web-form](#)

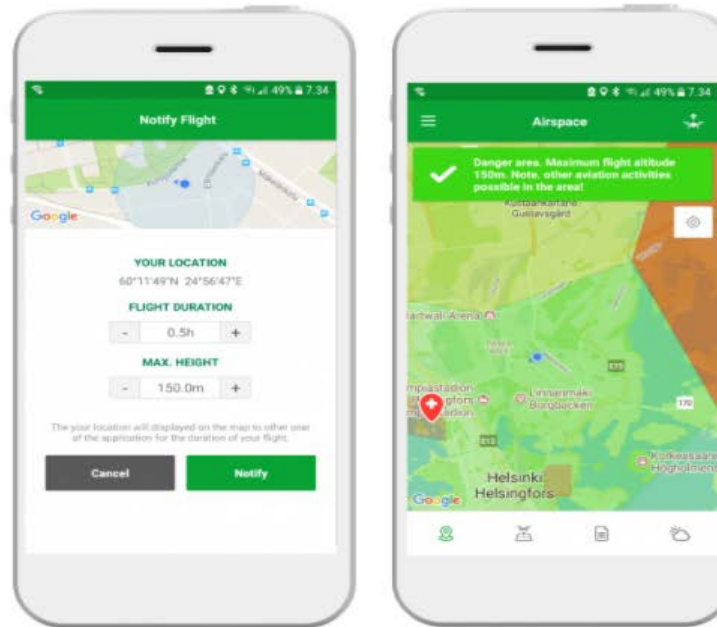


[Main](#) / [No drone zones](#) / [Download Droneinfo app](#)

## Download the free Droneinfo app!

The best mobile application for drone pilots is now available for download on Android and iOS devices.

From this application, you will find information about restricted areas, maximum flight altitudes and no drone zones in Finland.



Notify your flight

- Location
- Flight duration
- Max altitude



Own location

Notifications from others

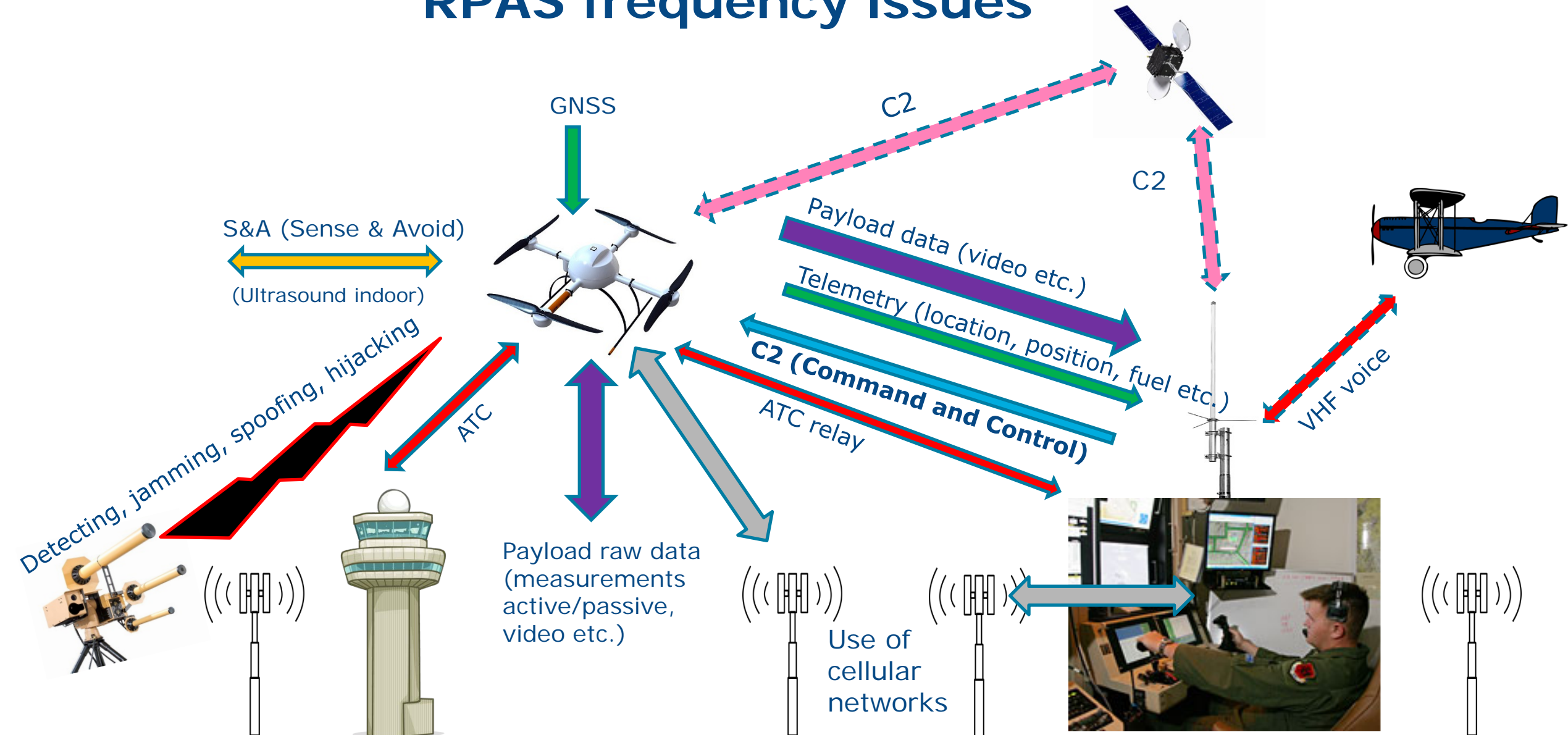
No-flight zones

Weather information

Flight rules and other info

[Download-website for Droneinfo Application](#)

# RPAS frequency issues



# Frequency licenses

- Video transmissions (air-to-ground):
  - » 1320 MHz (BW: 20 MHz), max 4 W EIRP
  - » Number of licences issued: 72
- Increased power at 2.4 and/or 5.8 GHz
  - » For example 100 mW -> max 1 W
- Use of mobile phones
  - » Geographical and height limits
- Use of jammers (2.4, 5.8 and GNSS)
  - » Only for short tests at remote areas
- VHF/UHF frequencies
  - » On case by case basis for test flights
- National aerodromes 133,325 (133,3) MHz (COM related to RPAS operation)

# Use of mobile cellular networks

- **Regulatory issues: some bands exclude aeronautical use**
- **Legal issues: operators have bought the spectrum**
- **Technical issues:**
  - Networks currently planned for land coverage, C/I above altitude of 25 m?
  - Base station antennas not designed for high elevations, steerable antennas in 5G?
- **Operational issues:**
  - What is the business case for the operators?
  - Dedicated SIMs for drones?
  - Network configuration?
- **Benefits**
  - No application specific bands needed
  - Operation BVLOS
  - Connection to Flight Management System
  - Electronic identification
  - Flight logs for later inspections
  - Availability (over land area), if technical obstacles are solved



# Radio measurements and monitoring



- Radiation pattern
- Field strength
- Interference investigation



Centria Image 5G project

# Legislation under preparation



**Police** can use technical device (e.g. jammer) to prevent RPAS use

- on no-drone zones
- over crime inspection area
- or causing harm or hazard



**Border guard** and **Military** forces will get similar rights to prevent RPAS use

- smuggling of goods (drugs, tobacco, firearms)
- flying over restricted military areas



Criminal Sanction Agency (**Prisons**) has expressed its will to get similar rights

- smuggling of goods (mobile phones, drugs, weapons)



# THANK YOU!



**Viestintävirasto**

Finnish Communications  
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