



# **Unmanned Aerial Systems Friend or Foe - Part 2**

**Graham Lynn MBE**

EAS UAS and Aeromodelling Technical Officer



# Topics

- **Background**
- Working Group 73 Progress
- UAS for VLOS Operations
- Scenarios
- Meeting at European Commission
- Our Concerns
- Summary



## A “Model Aircraft” is one flown:

- For sporting or recreational purposes
- At National, Continental and International Competitions
- For Display – at trade shows to promote model flying
- Within the “Visual Range of the Operator”
- Is not flown for financial gain i.e.: not for a commercial purpose



# **The Vision Statement from all Aeromodellers is:**

“The Development and Introduction of Small UAS’s should not have any detrimental effects on the long-established practices for sporting and recreational model flying”.



# The Vision of Europe Air Sports

“ The overall objective of EAS is the long-term continuity of sport and recreational aviation in Europe with an “appropriate” amount of regulation without unnecessary restrictions, to ensure flight safety, access to airspace, free movement and efficient and cost-effective organisation of the operation”

---

# Status Report

## Working Group 73 UAV

### European Organisation for Civil Aircraft Equipment - EuroCAE

# WG73 UAV

- Staffing started in 2005 based on need to address lack of regulations and guidance for the operation of UAVs for civilian purposes in Europe
- Initial work based on existing documents, especially:
  - JAA-EUROCONTROL Task Force Final Report: A Concept for European Regulations for Civil Unmanned Aerial Vehicles (UAVs): 11<sup>th</sup> May 2004.
  - EASA Advance Notice of Proposed Amendment (NPA) No 16/2005 Policy for Unmanned Aerial Vehicle (UAV) certification: 2005.
- Kick-Off meeting held at Eurocontrol, Brussels, 20-21 April 2006

# Deliverable 3

## Operational Concept

---

- Vol 1 - General Requirements
- Vol 2 - Operational Requirements
- Vol 3 - Airworthiness Requirements – Over 150kgs
- Vol 5 – Command, Control and Communications
- Vol 4 - UAS for VLOS Operations
- Terminology
  
- Vol 5a - Command and Control
- Vol 5b – Communications, Sense and Avoid



# Sub Group 4

## UAS for VLOS Operations

- Established in 2007 to define standards for UAS less than 150kg
- UAS under 150kg under National Control
- Need for Common Standards recognised
- Little consensus on how to proceed
- Initial concept – “mimic” Model Aircraft Procedures (strongly resisted by EAS)
- Recognised UK already had Regulation Document
- UK Prepared “sanitised” version of CAP 722
- SG4 “Europeanised” document into EUROCAE format
- Recognised 150kg legal limit not technology based

# Sub Group 4

## UAS for VLOS Operations

- SG4 Tasking amended to include all UAS Operating within Visual Line of Sight of the Operator
- VLOS - Within “Unaided” visual range of Operator
  - Maximum of 400ft/150m altitude
  - 500m max Radius of Operations from the Operator
  - Class 1 – No flying above or within 150m of people, property, structures etc not under the control of the operator
  - Class2 – Flying above people, property, structures etc not within the control of the operator
  - Airworthiness dependant on mass and operating conditions, greater requirements for Class 2 – Formal Regulation



# Model Flying versus UAS

---

This statement was published recently within W/G 73 :

“It is clear that UAS are not flown in a similar manner to model aircraft because, in all cases, the management of the flight is a secondary objective, with the achievement of the mission being the primary goal.”

“In model flying the management of the flight is the only goal”

**THIS IS PROGRESS INDEED**

# Scenarios

## Europe

- Class A,B and C plus private airfield
- VLOS Operations for “small UAS
- First Scenario Meeting 23 April 2009

## USA

- Class A, E and G
- Pre flight, private airfield, departure, on route, Oceanic, arrival, private airfield
- Covers IFR and VFR Operations transiting class E, G - A
- Class B-C-D plus ATC provision deferred

# UAS Progress Summary

- 5 Reports issued to EAS
- Report No 6 Tabled Today
- Guidelines - UAS for VLOS Operations ( under 150kg) finalised
- Initial Standards unlikely before 2015 for over 150kg
- Spectrum Allocation to be discussed at WRC 2012
- US FAA predicts Standards nearer to 2019
- Concern that Scenarios are not realistic
- GA Community appear disinterested (only CPU and EAS on W/G73

**EUROCONTROL** have stated:

It is not “IF” UAS will operate in the ATM it is “WHEN”



# Meeting at the EC

Present: Gilles Fartek, Hoang Vu Duc, Timo Schubert  
Rudi Schuegraf, Martel Felten, Graham Lynn

Purpose: Establish direct contact with the Commission  
Obtain overview of Commission's intentions  
Exchange views on UAS regulation



# Commission Activities

- No regulation forthcoming Internationally
- Pressure from Industry to permit flights – under 150kg
- Mandate only for civil UAS, cooperate with military
- Period of Reflection, then propose “rules” for small UAS
- Two major options:

Reliable “Sense and Avoid” System

Segregated Airspace

Commission welcomed EAS Initiative – as “Stakeholder”





# Aeromodelling

- Commission appreciates EAS expertise in this area
- Strong willingness to consider our inputs
- No intention to affect model flying in any way
- Main differences Accepted:

**Model Flying:** Flown for leisure and recreation  
**main purpose “ to fly the model ”**

**UAS:** Flown for commercial purposes / gain  
**main purpose “ to achieve the mission ”**



# Safe Operations of UAS

EAS concerns in respect of operations in uncontrolled airspace

“Sense and Avoid” may not be as “reliable” as “See and Avoid”

Commercial pressures to permit operations

Commission agreed:

- UAS should not enter this airspace until “Sense and Avoid” technology is reliable and robust
- Proving the concept must occur in “segregated” airspace
- Commission believe UAS should carry “Recovery” system
- Only consider “controlled” UAS – not autonomous

The information in this Paper includes draft material and recommendations for use by EUROCAE and should not be regarded as statements of EUROCAE policy unless approved by the Council.



# Safe Operations of UAS

- UAS flights may need to obtain specific authorisation
- Not the intent to compel other users to purchase additional equipment to support UAS operations
- EC not pro or anti UAS – Just evidence gathering
- A step by step approach is envisaged

However

The Commission made the point that: aspects of the “ Sense and Avoid “, if installed in GA aircraft, might increase safety



# Next Step

Commission highly appreciative of EAS initiative

EAS Participation as a “Significant” Stakeholder

Rulemaking at a very early stage – under 150kg

Establish an “Open” and “Transparent” Dialogue

Political Conference planned for 1 July 2010

EAS to participate as a Stakeholder

Purpose: To establish level of support for UAS operations from Member States

Next meeting with Mr Fartek – 3<sup>rd</sup> Quarter 2010

The information in this Paper includes draft material and recommendations for use by EUROCAE and should not be regarded as statements of EUROCAE policy unless approved by the Council.



# The Way Ahead

The UAS Community must work together to:

Develop its own operational and maintenance procedures for “Small UAS’s”

Attain its own “harmonised” frequency allocations

Develop a robust “Sense and Avoid” system to replicate or better the “See and Avoid”

Cause minimal disruption to:

established procedures

current airspace users



# Remember

Large UAS are flying in Controlled airspace now  
Small UAS are flying now, many illegally, and this trend will continue until positive controls in place  
EAS need to remain vigilant as there are several groups involved in the inception of civil UAS  
If introduced under strict control with a robust and proven autonomous Sense and Avoid system fitted UAS could have the ability to operate safely

## Questions