



European  
Unmanned  
Vehicle  
Systems  
Association

## **NAVDROC & UAV-REG**

**Furthering The Introduction Of UAVs/ROA  
Into Civil Managed Airspace**

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## WHAT ARE THE PROBLEMS?

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**Emerging market**

**Products not fully mature**

**Most military systems are still “user specific”**

**Insufficient safety & reliability (flight statistics)**

**High development costs + low volume production ->**

**High acquisition cost**

**Operational costs still too high -> High ownership cost**

**Insufficient R&D funding (national & Euro level)**

**Few current producers have aeronautical experience**

**No airworthiness norms**

**No ATM regulations**

**Flight in civil controlled airspace is impossible**

**No international consensus on how to tackle problems**

**Civil/commercial market cannot develop**



## WHAT SHOULD BE DONE ?

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- ◆ **Airworthiness norms for UAVs are to be defined**
- ◆ **Elaboration of ATM regulations is to be initiated**
- ◆ **INDUSTRY SHOULD BE THE DYNAMO**
- ◆ **National approaches in cooperation with CAAs & military**
- ◆ **Efforts to be coordinated on an European scale in cooperation with NATO, Eurocontrol, JAA, DG TREN, national CAAs & military**
- ◆ **Efforts to be coordinated on international scale with FAA, USAF FSA & OSD**
- ◆ **Approaches on both sides of the Atlantic should be coordinated (EURO UVS & AUVSI)**
- ◆ **Australia & Japan to be part of process (commercial flight experience)**
- ◆ **International approaches should be harmonized at the earliest stage**

**A common terminology in English should defined**



## FEDERATING ACTION



Early 2000, the French CAA (DGAC) issued a RFP for the drawing up of recommendations for airworthiness norms for civilian UAVs (based on existing JARs).

## NAVDROC Programme

November 2000, a one year study contract was awarded to **EURO UVS** (prime contractor), federating 3 corporate association members with complementary expertise as equal subcontractors:

- ◆ **Dassault Aviation**
- ◆ **Sagem**
- ◆ **Thales Airborne Systems**



## FEDERATING ACTION



### NAVDROC Programme

### General Objectives

- Description of the current UAV-related airworthiness & air traffic management situation in Europe
- Identification of civil & military authorities involved
- Review & analysis of UAV classification methods
- Evaluate suitability of JAR-VLA, JAR-VLR & JAR 23 and suggest required modifications

**Study Completed in December 2001**

**A Co-operative Effort between Industrial Competitors**

**NAVDROC Conclusions = Inputs for UAV-REG & UCARE**



## FEDERATING ACTION



In June 2001, the French Ministry of Defence (DGA) awarded EURO UVS a 2 year study contract concerning UAV-related airworthiness norms & air traffic management regulations.

## UAV-REG Programme

**EURO UVS** (prime contractor) with:

- coordinated national inputs & study results from corporate EURO UVS members as Participants
  - ♦ **France + Spain**      ♦ **Germany**      ♦ **UK**
- inputs from Euro & non-Euro corporate EURO UVS members & institutional entities as Contributors

**UAV-REG Conclusions = Inputs for New UCARE**





## **FEDERATING ACTION**



### **UAV-REG Programme**

### **General Objectives**

- A- Define within the European context the conceptual standards & acceptable means to demonstrate conformity applicable to all classes of UAVs.**
- B- Make proposals concerning specific means to assure the security of other aircraft sharing the airspace and the security of the population being over-flown.**





## **FEDERATING ACTION**



### **UAV-REG Programme**

#### **Phase 1**

**June 2002**

- 1.a Compilation & examination of the existing certification procedures & methods applicable to UAVs in Europe & outside of Europe.
- 1.b Identification of the involved European authorities (military & civilian).
- 1.c Description of the current situation in Europe.
- 1.d Identification of the current problems on a national & international level.

### **UAV-REG Programme**

#### **Phase 2**

**June 2002**

- 2.a Categorisation of UAV missions (current & envisaged) in Europe.
- 2.b Definition of the pertinent UAV categories (micro to mega), that should be taken into account re: the establishment of certification standards.



## FEDERATING ACTION



**UAV-REG Programme**

**Phase 3**

**Jan 2003**

- 3.a Compilation and examination of the existing certification procedures & methods applicable to UAVs in Europe and outside of Europe.
- 3.b Analysis of the status of the ground-based operator and his acceptance by the civil and military aviation authorities.
- 3.c Recommendations relative to specific certification standards and methods for UAVs (taking into account the absence of an onboard pilot).
- 3.d Recommendations relative to the certification standards and methods for specific UAV sub-assemblies (situational awareness sensors, real-time airborne computer systems, that operate as partial or total substitute of a pilot, ground control station, data links, global system architecture).
- 3.e Examination of the potentially available tools, or their definition, required to assure and demonstrate the operational viability of a UAV system and its critical sub-assemblies, in particular in degraded modes.



## FEDERATING ACTION

**UAV-  
REG**

### OVERALL COORDINATOR

EURO UVS

NATIONAL  
COORDINATORS

### PARTICIPANTS

France &  
Spain

Dassault Aviation, EADS, EDT, INTA (Spain), Sagem, Thales Airborne Systems, Thales Communications

EDT

Germany

BGT, EADS, EADS-Dornier, ESG, IABG, Limbach, STN Atlas

UAV-WG

UK

BAE Systems, Remote Group, Stasys, Thales Defence

UAVS

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**Voice of & Forum for the International UAV Community**