CONTRIBUTING STAKEHOLDERS

European Unmanned Systems Centre

By André Clot, Centre Director

EuroUSC is a relatively new organisation formed in March 2003. It is the first organisation in Europe to gain Qualified Entity status in regard to the design, construction and operational competency assessment of light Unmanned Aircraft Systems (UAS) operators and manufacturers. Its main objectives are the enabling of key infrastructure elements for the development of civil UAS applications. As this is the first time EuroUSC has written for the UVS International Yearbook, I thought it appropriate to provide a brief history surrounding EuroUSC, before discussing its current and future work.

A Brief History

EuroUSC's choice of the UK for its base is historical and centred around the innovative approaches to Light UAS that have evolved in the UK. In 1998, the UK Industry Trade Association UAVS was formed after a workshop in London supported by EuroUVS (now UVS International), Eurocontrol, UK CAA, UK Ministry of Defence, the National Air Traffic Services and key industry players. I became its first General Secretary.

Later in 1999 the UK CAA formed its UAV Steering Group and invited UAVS to represent industry. It is at these meeting that the notion of a "point of contact" document was discussed for the industry which evolved into CAP 722, the UK CAA guidance document for UAS operations in the UK Airspace.

In 2002, a UVS International initiative spearheaded by Peter van Blyenburg, gave rise to the JAA/Eurocontrol UAV Task Force. As a member of the steering group alongside Yves Morier (then JAA, now EASA), it became apparent that there was a need for an industry organisation that was not a manufacturer or operator, that could look at the infrastructure picture in a European dimension. The reason was simple. Regulators and industry had tended to concentrate on specific issues such as airworthiness, operations, air traffic, crew licensing etc. in an isolated way, but UAS demand a different approach.

In a NATO conference in Brussels in 1999, two presentations on 'communications, command and control' and one encompassing aircraft 'detection and avoidance' went largely unnoticed. However in those presentations, the 'Achilles Heels' of UAS were apparent. It was not enough to look at individual components of a UAS operation and regulate them in isolation; it needed a wider co-ordinated approach. The present infrastructure has been developed for manned aircraft operations and that includes the whole of the regulatory regime, the airspace, the airports and the air traffic management systems. However the UAS community was focussed on just the aircraft.

In 2003 on the JAA/Eurocontrol Task Force at the then, JAA Headquarters in Hoofddorp, Netherlands, I was privileged to be the lead on the Safety and Security aspects of UAS as a member of the steering committee chaired by Yves Morier (JAA now with EASA). The high calibre and commitment of all the various subgroups resulted in solid foundations within the final Task Force report that are now the basis of further EASA and EUROCAE work.

Practical Application

It was clear by the autumn of 2002 that to complement all this regulatory activity some practical application was needed. It was also apparent that the UK was taking an early lead. We visited a small airfield in West Wales at the invitation of the Welsh Government. It had just been sold to a local businessman and the Welsh Assembly Government were about to develop a Technology Park alongside. However the UAS element was still considered to be the operations in the Aberporth Danger Area, not directly from the airfield. So by 2004, EuroUSC had developed the demonstration support for the first flight demonstrations of a UAS at a civil airport in front of some 400 people to show the potential of the site.

A year later EuroUSC went one step further when at PAUS 2005, the EuroUSC safety case for the operation of the 450Kg Hermes 450 was accepted by the CAA. EuroUSC was recognised as the overall safety authority for all the Hermes five flights which accomplished over 10 hours flying around the airfield and out into the cardigan bay D201 range area. EuroUSC had also gained clearance for the 18Kg Aerosonde to cross the Atlantic again, but unfortunately Aerosonde Inc. had run out of funds.

On the back of this work, It was decided that the UK was the right place to development the EuroUSC business further. The UK had a forward looking National Aviation Authority, the UK CAA, it had a developing infrastructure supporting UAS test and development operations, and most importantly, UK companies such as QinetiQ, were taking up the challenge of seriously investing in the development of the industry.

The birth of the ASTRAEA programme in the UK during 2006 provided the platform to launch a new initiative. It was clear that extremely large amounts of resource would be needed to develop a mainstream UAS business. So in the spring of 2007, EuroUSC decided to focus in the near term on light UAS, and presented its Light UAS Scheme to the UK CAA for approval. EuroUSC successfully proved the processes for its introduction using two 70Kg all composite fixed wing aircraft fitted with a specially developed Flight Control System, assessing them from design drawings, through manufacture and onto flight operations.

Light UAS Revolution / Heavy UAS Evolution

In the latest European Union (EU) 2020 report, it is recognised that economic growth in the EU is determined by small companies not large companies. Large companies provide sustainability for large projects but they are slow to embrace new challenges. It will be small companies that drive the light UAS revolution and larger companies that will be associated with the follow on Heavy UAS evolution. This is no different to the case of Microsoft and Apple as small companies at the dawn of the microcomputer era and there are many lessons to learn from the birth of that industry.

During the summer of 2009, UVS International, again in the

guise of Peter van Blyenburg, provided the impetus and drive to get the EU involved. In October 2009, at the resulting EU DG TREN Light UAS hearing in Brussels, I was extremely pleased to see small companies from all over Europe actively involved and developing the light UAS industry. The problem as always it there was no practical in-country co-ordination for these small companies and a lack of real finance commensurate with the challenges they face. This is compounded by a lack of a common approach to operations resulting in “short-cuts” and practices that could at some point initiate a public backlash against the wider introduction of light UAS

Light UAS Scheme - Practical Approach

The Light Unmanned Aircraft System Scheme (LUASS™) is run by EuroUSC under its A8-22 approval (DAI/9932/09) from the Civil Aviation Authority (CAA) as an EASA Qualified Entity. The Scheme is for Visual Line of Sight (VLOS) operations at present although beyond VLOS requiring segregated airspace has been achieved.

Manufacturers of light UAS have a duty to ensure that products they sell can be operated and maintained in a safe and responsible manner by Operators. To this end the design, construction and operation of the light UAS should meet certain standards and the Scheme provides the independent assessment.

Manufacturers can now demonstrate that the light UAS meets the requirements for safe operation and obtain a Design and Construction Certificate as proof. Also covered is the functional assessment of embodied software associated with the UAS control systems. Importantly light UAS that are not designed to undertake the rigours of commercial work on a daily basis are unlikely to be recommended. As an added benefit, and where appropriate, manufacturers can request assessment against emerging international standards or specific national standards thereby ensuring the Design & Construction Certificate remains current.

Operators can gain confidence in those manufacturers who have gained the necessary the Design & Construction Certificates for their aircraft. Although not yet a requirement in the UK for light UAS below 20Kg, it is the way the industry will eventually have to proceed in order to mature successfully.

Operators can also take advantage of the Basic National UAS Certificate (BNUCTM). This is a UK CAA nationally recognised certificate for the operation of light UAS whose MTOM is less than 150kg. A BNUC-STM is granted for light UAS whose MTOM is less than 20Kg.

The Light UAS Scheme adopted in the UK already provides an excellent platform for the management of the introduction of light UAS and tackles in a cost effective way, the early stage issues posed by the light UAS industry. EuroUSC constantly updates its practices based on the most current work of EASA and EUROCAE, providing an up to date practical approach applicable at national level.

Developing Sound Businesses

EuroUSC employs experienced UAS technical and business aviation professionals who provide advice and guidance on a number of aspects of developing safe operations, effective safety management and aviation business skills.

EuroUSC is currently negotiating with the insurance industry to launch the first European Light UAS Insurance Policy linked to the Light UAS Scheme. This will make insurance available to small sized businesses at a cost that is commensurate with the risks of their operations.

It will be available within most countries linked specifically to the assurances provided by the Light UAS Scheme. Wider adoption of the Scheme within Europe would undoubtedly provide early benefits and to this end EuroUSC are looking with great interest towards the evolving EU approach on light UAS. It remains to say thank you to UVS International for highlighting light UAS at the European level and highlighting the Light UAS industry. I predict that this will be the next revolution recognised by future aviation historians. I look forward to the opportunity to provide an update on the work of EuroUSC in the next issue the UVSI Yearbook.

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