Joint Authorities for Rulemaking on Unmanned Systems

By Ron van de Leijgraaf, Chairman

Introduction

In late 2007, CAA The Netherlands contacted a number of colleague national aviation authorities to start a harmonisation group for international regulations for light UAS Rotorcraft. Earlier in that year, a Dutch applicant filed a request for the (restricted) type certification of a rotorcraft UAS of 100 kg maximum weight. Once it was decided that CAA NL would accept this certification request, it was also decided to work together with other civil aviation authorities to harmonise the regulations that need to be developed to support the type certification and subsequent operation.

The need to harmonise is primarily due to the special situation in Europe regarding the responsibility for aviation safety. In 2003, the European Aviation Safety Agency (EASA) was established, which is responsible for the airworthiness of aircraft within the European Union. The basic regulation with which EASA was established dictated that for unmanned aircraft below 150 kg, the national aviation authorities will be responsible, while EASA would take responsibility for UAS over 150 kg. This means that for light UAS, each European country would have to handle a national request on their own.

In order to avoid duplication of the work of developing regulation and certification standards by each country and to enable easy and open interchange of UAS between the countries participating, most countries recognised the benefit of a harmonised approach and are enthusiastic to join JARUS. Besides the European countries, other national authorities from across the globe were approached to participate in this harmonisation group. Furthermore EASA and Eurocontrol were asked to join the group. EASA was contacted because the 150 kg limit which divides the responsibility within Europe is merely a legal limit. Technically, there is no reason to treat a UAS of 140 kg differently from a 160 kg UAS. With this approach, the applicants would be assured that when they develop a UAS which would be the responsibility of EASA, but not much heavier than 150 kg, the requirements would be the same as when the responsibility was with a national aviation authority. Eurocontrol was invited to join to make sure the operational regulations would be harmonised with the Eurocontrol approach and the future developments of SESAR.

Participating countries

At the moment, the following countries participate in JARUS: Australia, Austria, Belgium, Canada, Czech Republic, France, Germany, Italy, Malta, The Netherlands, Norway, South Africa, Spain, Switzerland, United Kingdom and the United States of America. Other countries have indicated that they have an interest in participating or are actively contacted with the request to join the group. This group contains, amongst others: Brazil and Sweden.

Goals

The goal of JARUS is to draft technical and operational requirements for the certification and airspace access of light UAS. These draft requirements will be provided to EUROCAE WG 73, RTCA SC 203 and NATO FINAS group through various subgroups for consultation with industry and other stakeholders.

Due to the certification applications being processed by the NAAs, the group started with the adaptation of CS-VLR, resulting in draft certification requirements for light rotorcraft UAS. Since most of the tailoring work is equally applicable to light aeroplane UAS, the group will subsequently work on the adaptation of CS-VLA, resulting in draft certification requirements as well.

From the start of working on these specifications, it was recognised that these adaptations cannot be performed without developing a view on operational requirements for the UAS. So JARUS is also developing draft operational requirements.

During the development of these draft requirements, the group will gain invaluable experience in tailoring a certification specification from manned aircraft to unmanned aircraft. If EASA wants to make use of this experience, the group might be available to assist them with tailoring CS-23/25/27/29. A decision on whether or not the group will assist on this task will need to be taken by EASA (the primary responsible in Europe for developing regulation for these aircraft).

During the development of the technical requirements special attention will be given to the requirements on system safety, since it is anticipated that most UAS will heavily depend on automated system for their operation. The JARUS group has established a dedicated subgroup which is looking into the requirements on system safety. The goal of this group is to draft similar (not equal!) requirements for all categories of UAS, both fixed wing and rotary wing.

Interaction with industry and other stakeholders

It is common practise in aviation to open concept regulation for comments from industry and other stakeholders through an open consultation process. Of course, the JARUS group has no intention to break with this very valuable tradition. Therefore, the group decided that the draft proposals of this group will be put out for discussion and comments through the various international regulatory groups that are currently working on UAS; EUROCAE WG 73 and RTCA SC 203. Since the military authorities are adapting more and more to civil regulations and within the NATO FINAS group have already developed regulation for fixed wing aircraft based on civil standards, the consultation will also be done through the NATO FINAS group.

Current status

At the moment of writing this article, the status of the activities of the JARUS group is that a first draft for a certification specification for a light rotorcraft UAS (CS-LURS) has been written (based on EASA CS-VLR) and has been presented to EUROCAE WG73. In parallel, the operational requirements group has drafted a proposal for requirements for UAS crew and presented this toe EUROCAE WG73 as well. This group will now focus on requirements on the operator.

The system safety group (the '1309' group) has drafted a common approach to the system safety requirement, based on the certification specification for large transport aircraft. The difference for various categories of aircraft is established through defining different safety target levels. The group has drafted a proposal for the system safety requirement and presented it to EUROCAE WG 73, where it is under further development.

Once the final subparts of the CS-LURS draft has been finalized, which is expected in the first half of this year, the JARUS group will focus on adapting the EASA CS-VLA (certification requirements for very light fixed wing aircraft) for use with UAS certification. There is no specific timeline established for this work yet, but it is expected that this work will progress much quicker, due to the experience gained in the current work on regulation for light rotorcraft UAS.

There has no decision been taken yet whether or not the group will assist in proposing requirements for heavier aircraft. Since, within Europe, this is the responsibility of EASA, this needs to be decided by EASA.

Join JARUS

The JARUS group is open to participation from all civil aviation authorities. When a country is interested in joining the group to either actively participate in the development of regulation, or participate to observe what the developments are regarding these developments, please get in contact with me.

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