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MASTER'S THESIS

Practical Aspects & Upcoming Developments of European Regulations for UAS below 150 kg in Context with Austrian Rulemaking

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Abstract

The numerous questions regarding regulations for Unmanned Aircraft Systems (UAS) in Europe have recently stirred a fascinating and highly topic debate on the issue of manifold rulemaking activities on the international, European and national levels. This thesis describes and summarizes the latest developments and national regulations in relevant European states, while also comparing those current rules and finally anticipating the further evolution of UAS regulations in Europe, particularly in Austria.

Regulations for UAS are important because civil applications of Unmanned Aerial Vehicles (UAV), or so called „drones", are an upcoming topic due to the rapid development in the computing power of microprocessors and consequently their miniaturization. Therefore UAVs decrease in size, weight and acquisition costs but increase in their flying capabilities. Hence this thesis was initiated and supervised by the Austrian Aeronautics Industries Group (AAI) within the project Austrian UcM (Austrian UAS for civil Missions), supported by the Austrian Research Promotion Agency (FFG) in the context of the TAKE OFF funding program. The aim is to support the further harmonization of UAS regulations in Europe also by the dissemination of this thesis to international and national associations, working groups as well as rulemaking institutions.

At the beginning this thesis identifies the key stakeholders and institutions which influence the development of regulations for UAS, beginning with the International Civil Aviation Organization (ICAO), the European Commission (EC), the European Aviation Safety Agency (EASA) up to the National Civil Aviation Authorities (NCAA) and the international working group JARUS.

Thereafter this thesis works to minimize the lack of knowledge about current UAS regulations in Europe that has been observed during discussions on international and national UAS conferences. Engineers are often ignorant about regulations and more focused on the technical aspects of a system, but only a profound knowledge about the appropriate regulations will lay a solid foundation for certifying a technical system in the aeronautics domain and lead to a successful business case.

Therefore this thesis provides a detailed legal comparison and subsequent analysis about European and selected national UAS regulations, to finally elaborate the differences, parallelisms, advantages and disadvantages of the present regulations. This thesis will conclude with an outlook and a final conclusion on future developments in Europe, particularly in Austria, as to the direction that these UAS regulations are headed.

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