

A Method to Ease the Military Certification Process by Taking Advantage of Civil Standards in the Scope of Human Factors

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Abstract : The certification approach differs in civil and military projects in aviation. Sets of criteria and standards created by airworthiness authorities for the determination of certification basis are distinct. While the civil standards are more understandable and clear because of not only include detailed specifications but also the help of guidance materials such as Advisory Circular, military criteria do not provide this level of guidance. Therefore, specifications that are more negotiable and sometimes more difficult to reconcile arise for the certification basis of a military aircraft. This study investigates a method of how to develop a military specification set by taking advantage of civil standards, regarding the European Military Airworthiness Criteria (EMACC) that establishes the airworthiness criteria for aircraft systems. Airworthiness Certification Criteria (MIL-HDBK-516C) is a handbook published for guidance that contains qualitative evaluation for military aircrafts meanwhile Certification Specifications (CS-29) is published for civil aircrafts by European Union Aviation Safety Agency (EASA). This method intends to compare and contrast specifications that MIL-HDBK-516C and CS-29 contain within the scope of Human Factors. Human Factors supports human performance and aims to improve system performance by encompassing knowledge from a range of scientific disciplines. Human Factors focuses on how people perform their tasks and reduce the risk of an accident occurring due to human physical and cognitive limitations. Hence, regardless of whether the project is civil or military, the specifications must be guided at a certain level by taking into account human limits. This study presents an advisory method for this purpose. The method in this study develops a solution for the military certification process by identifying the CS requirement corresponding to the criteria in the MIL-HDBK-516C by means of EMACC. Thus, it eases understanding the expectations of the criteria and establishing derived requirements. As a result of this method, it may not always be preferred to derive new requirements. Instead, it is possible to add remarks to make the expectancy of the criteria and required verification methods more comprehensible for all stakeholders. This study contributes to creating a certification basis for military aircraft, which is difficult and takes plenty of time for stakeholders to agree due to gray areas in the certification process for military aircrafts.

Keywords : human factors, certification, aerospace, requirement

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