

**30 Nov 21**

## **MAA/RN/2021/12 – Certification of Novel Technologies**

### **Issue**

1. The Regulated Community (RC) requires guidance regarding how to approach the certification of new technologies that MAA considers to be novel.

### **Scope**

2. This Regulatory Notice (RN) is intended as an informative correspondence for the whole RC, directing the RC to a new chapter within the Manual of Military Air System Certification (MMAC)<sup>1</sup>, Chapter 7 – Novel Technologies.

### **Implementation**

3. This guidance is effective immediately and complements the up-issue of the MMAC to Issue 3.

### **Background**

4. The rapidly-evolving design of Air Systems has led to increasingly complex certification requirements to ensure Airworthiness through the safe design of structure, systems and propulsion which utilize new production methods, materials and design philosophies. However, invariably technological innovations occur for which extant certification requirements are insufficient to adequately ensure the Airworthiness of the design. As a consequence, Special Conditions (SC) are often devised to bridge this gap in certification requirements. However, as these novel innovations mature, certification requirements, that previously existed within the SC, become normalized within the relevant Certification Specifications.

5. Thus, a new chapter within the MMAC looks at technologies that are currently deemed novel by the MAA and, as a result, require additional assurance as part of the Military Air System Certification Process (MACP). Note, that as these technologies become normalized, this Chapter will be updated to incorporate the next group of novel technologies; currently this chapter concentrates on Additive Manufacturing (AM) and Multi-Core Processors (MCP).

6. As these, currently novel, technologies become normalized, and their associated Airworthiness requirements evolve into certification specifications, the MMAC chapter will be updated to remove the existing technologies and replace them with contemporary technologies that are deemed novel; examples that are already emerging are Digital Certification and Machine Learning / Artificial Intelligence.

### **Summary**

7. The pace of change of technology invariably exceeds the ability of Airworthiness Regulators to provide robust Airworthiness requirements to use during the certification of these technologies.

---

<sup>1</sup> Refer to [MMAC Chapter 7 – Certification of Novel Technologies](#).

Accordingly, additional assurance is therefore often required during the MACP in order to provide a level of safety that is acceptable to the MAA. Accordingly, the new chapter within the MMAC explains not only what additional assurance is required but, importantly, why.

### **Queries**

8. Any observations or requests for clarification on the content of this RN should be submitted by email to [DSA-MAA-MRPEnquiries@mod.gov.uk](mailto:DSA-MAA-MRPEnquiries@mod.gov.uk).

### **MAA Head Regulation and Certification**