**PART 21 SUBPART G – PRODUCTION ORGANISATION APPROVAL – ADDITIVE MANUFACTURING CHECKLIST**

| **Track #**  | **Comments** | **Answer / Evidence** | **Missing** | **Acceptable?** |
| --- | --- | --- | --- | --- |
| 1 | Do the **internal documents** cover the category of parts to be produced? Criticality of the parts? Metallic or plastic? What is the method to be used? |  |  |  |
| 2 | **Capability list** should contain the new part numbers to be produced with 3D and identification that they are to be produced with 3D printing. |  |  |  |
| 3 | Is each of the **Part number** qualified? |  |  |  |
| 4 | **POE** reflecting the change (roles and responsibilities of EF4 holder, org chart if applicable, reference to internal procedure(s), scope of the 3D printing, layout of the facilities…)  |  |  |  |
| 5 | What is the **status of the design** of the part? Where is it stated? |  |  |  |
| 6 | Is there an impact on the **DO/PO arrangement**? If yes, is the DO/PO arrangement updated? |  |  |  |
| 7 | Does the supplied design data provide a set of **process parameter**s and process control limits? **Key parameters?** |  |  |  |
| 8 | Have they provided the result of their **internal audit**? |  |  |  |
| 9 | How has the company demonstrated the **repetitiveness** of the process? |  |  |  |
| 10 | **How many machine(**s) do they intend to use? Which one? Where is it described? |  |  |  |
| 11 | How was the **machine** used qualified? What is the maintenance planning for the machine? Where is it described? |  |  |  |
| 12 | Is the **machine** used to produce parts of different material types, when yes has this been agreed with the DO? |  |  |  |
| 13 | Do they plan to use the 3D printer for other parts than the POA parts? How do they **change the configuration** of the machine? Where is it described? |  |  |  |
| 14 | How are the **raw material** qualified? How are they stored (use of fridges? Calibration?) ? Under which conditions? What are the specifications? How do they manage a change of material? Where is it described? |  |  |  |
| 15 | In case of use of powder, have controls for the **storage and re-use** of powder been agreed with the DO? |  |  |  |
| 16 | What are the requirements for qualification and training of **operators?** Where is it described? |  |  |  |
| 17 | Are the **suppliers** used in the frame of 3D printing identified? Qualified? |  |  |  |
| 18 | How was the manufacturing process qualified? Which record (**FAI report**?) |  |  |  |
| 19 | How often do you expect to requalify the process (linked to **repetitiveness**)? Where is it described? |  |  |  |
| 20 | How is the **transfer of design data** ensured? Where is it described? |  |  |  |
| 21 | How does the company approve the **software** used (received from design)? Where is it described? |  |  |  |
| 22 | How are the human resources related to AM (Manufacturing engineering, operator, inspectors and CS) trained and qualified? |  |  |  |
| 23 | Have they identified the **certifying staff** for the release of these parts? Is it mentioned on its **record?** |  |  |  |
| 24 | **Sample** of production of parts |  |  |  |
| 25 | Demonstration that the machine has been calibrated addressing all key parameters etc. (again subject to criticality)  |  |  |  |

For additional guidance please refer to the EASA Certification Memorandum ref. CM-S-008 on "Additive Manufacturing". This document provides guidance regarding the introduction and use of Additive Manufacturing (AM) technologies across a broad range of Products (Aircraft, Rotorcraft and Propulsion) and Parts and Appliances subject to EASA Type Certification. You can access the latest revision of this document under the list of Certification Memoranda that have been accepted by the Agency following a public consultation under the link below:

<https://www.easa.europa.eu/document-library/public-consultations/certification-memoranda>