

## RA 5103 – Certificate of Design

### Rationale

*Each Air System<sup>1</sup> (including related Products, Parts, Appliances, Airborne Equipment and Air Launched Weapons (ALW)) will be designed to meet the specification requirements. Any deviation from the specification requirements could have significant Airworthiness implications. The Certificate of Design (CofD) identifies the extent to which the requirements of the specification have been achieved and details any related exceptions and limitations.*

### Contents

#### 5103(1): Requirement and Scope for Certificate of Design

#### 5103(2): Management and Authorization of Certificates of Design

### Regulation 5103(1)

#### Requirement and Scope for Certificate of Design

5103(1) The Design Organization (DO) **shall** produce a CofD for new Air Systems, Products, Parts, Appliances, Airborne Equipment and ALW including changes and Repairs.

### Acceptable Means of Compliance 5103(1)

#### Requirement and Scope for Certificate of Design

##### DO AMC

1. The CofD **should** certify the extent to which the design satisfies the requirements of the specification issued by or on behalf of the MOD, including any exceptions or limitations.
2. The DO **should** issue a new CofD in any of the following circumstances<sup>2</sup>:
  - a. New Air Systems, Products, Parts, Appliances, Airborne Equipment and ALW.
  - b. Major Changes in Type Design<sup>3</sup>.
  - c. Major Repairs<sup>4</sup>.
  - d. Modification of a Product, Part, Appliance, Airborne Equipment or ALW which requires re-substantiation of specification compliance.
  - e. When deemed necessary by the Type Airworthiness Authority (TAA)<sup>5</sup>, Commodity Chief Engineer (CE) or Local Technical Committee<sup>6</sup> in consideration of the nature of change.
3. The DO **should** consider the need to repeat qualification tests (re-qualification), in whole or in part, when a change in process, manufacture, material or material source, including explosive materiel, would invalidate the current issue of a CofD.
4. The DO **should** ensure any exceptions or limitations affecting Products, Parts and Appliances supplied to them by a sub-contractor are replicated in the new CofD issued by them.

### Guidance Material 5103(1)

#### Requirement and Scope for Certificate of Design

##### DO GM

5. **Scope of CofD.** The CofD will cover the entirety of the specification. Therefore, it will cover both the Certification requirements from the agreed Type Certification Basis, together with other qualification requirements such as operational performance and maintainability. The CofD is a key element of the evidence required for

<sup>1</sup> For Uncrewed Air Systems (UAS) refer to RA 1600 Series – Uncrewed Air Systems.

<sup>2</sup> This list is not exhaustive and CofDs may be deemed appropriate for other circumstances.

<sup>3</sup> Refer to RA 5820 – Changes in Type Design (MRP Part 21 Subpart D) for definition of Major Changes.

<sup>4</sup> Refer to RA 5865 – Repairs (MRP Part 21 Subpart M).

<sup>5</sup> Refer to RA 1162 – Air Safety Governance Arrangements for Civilian Operated (Development) and (In-Service) Air Systems. Dependant on the agreed split of Type Airworthiness Responsibilities, Type Airworthiness Manager (TAM) may be read in place of TAA as appropriate throughout this RA.

<sup>6</sup> Refer to RA 5301 – Air System Configuration Management.



### Guidance Material 5103(1)

compliance with Phase 4 of the Military Air Systems Certification Process (MACP)<sup>7</sup>. Similarly, exceptions and limitations with the CofD will be considered within the TAA Release To Service Recommendations<sup>8</sup>.

6. If the DO decides that re-qualification testing is considered necessary, they will advise the TAA or Commodity CE and explain any effect this will have on the CofD of the component or equipment. The DO will advise the TAA or Commodity CE of any significant changes to test requirements specified in the relevant production contract.

7. Where a Modification is undertaken by an alternative DO<sup>9</sup> and intended for integration into an Air System it is generally expected that a single CofD be issued covering the complete installation.

8. **New or modified Air Systems, Products, Parts and Appliances – Use of existing evidence.** If evidence supplied by the DO is based on civil-certificated designs, the DO may discuss with the TAA or Commodity CE to what extent the requirement for a CofD is satisfied by appropriately recognized Artefacts such as Civil Aviation Authority / European Aviation Safety Agency (EASA) / Federal Aviation Administration Type Certificates and (European) Technical Standard Order<sup>10</sup>.

9. **UAS.** The CofD requirements for new UAS are dependent on the UAS category  <sup>11</sup>.

### Regulation 5103(2)

#### Management and Authorization of Certificates of Design

5103(2) The TAA, Commodity CE and DO **shall** appropriately manage the CofD.



### Acceptable Means of Compliance 5103(2)

#### Management and Authorization of Certificates of Design

##### DO AMC

10. The CofD **should** be signed by the responsible DO to certify the Air System, Part, Appliance, Airborne Equipment or ALW complies with the design and identifies any associated exceptions and limitations. DO signatories **should** be approved in accordance with (iaw) RA 5850<sup>11</sup>.

11. There is no prescribed format for the CofD. A CofD **should** contain the following, or reference to the following, as a minimum:

- a. Unique reference number.
- b. Item description.
- c. Organization name.
- d. Design Approved Organization Scheme (DAOS) approval reference number.
- e. Applicable Certification basis.
- f. Identification and brief description of the change or Repair  .
- g. Applicable Certification requirements and methods of compliance.
- h. Change / Repair classification<sup>12</sup>.
- i. Compliance documents and independent checking function.
- j. Any exceptions or limitations.
- k. Structural Integrity Artefacts in support of the integrity baseline<sup>13</sup> if applicable.

<sup>7</sup> Refer to RA 5810 – Military Type Certificate (MRP Part 21 Subpart B).

<sup>8</sup> Refer to the RA 1300 Series – Release To Service.

<sup>9</sup> Refer to RA 5305 – In-Service Design Changes.

<sup>10</sup> Refer to RA 5875 – (European) Technical Standard Order (MRP Part 21 Subpart O).

<sup>11</sup> Refer to RA 5850 – Military Design Approved Organization (MRP Part 21 Subpart J).

<sup>12</sup> Refer to RA 5820 – Changes in Type Design (MRP Part 21 Subpart D) and RA 5856 – Repairs (MRP Pt 21 Subpart K).

<sup>13</sup> Refer to RA 5726 – Integrity Management.

**Acceptable  
Means of  
Compliance  
5103(2)**

- l. Configuration Status Record or equivalent.
- m. ALW Structural Design Record<sup>14</sup> (if applicable).
- n. A Safety Assessment iaw Defence Standard 00-056<sup>15</sup> to demonstrate that the design is tolerably safe for the intended purpose.
- o. A statement that the change or Repair has been approved ►by the DO◄ under privilege<sup>11</sup> (if applicable).
- p. Date ►CofD issued◄.
- q. Approved DO design signature ►<sup>16</sup>. This statement declares that the design is compliant with the applicable Certification basis after verifying the satisfactory completion of the Certification process. ◄
- r. ►Approved DO release signature. ◄ This statement confirms that the applicable DO procedures as specified in the Design Organization Exposition<sup>11</sup> have been followed ►and that no feature or characteristic has been identified during the design investigation that may make the Air System including related Products, Parts, Appliances, Airborne Equipment and ALW unsafe. ◄
- s. TAA / Commodity CE acceptance signature ►<sup>17</sup> (only required if not approved by the DO under privilege). ◄

12. When produced a CofD is a key element of the Design Records and **should** be managed iaw RA 5301<sup>6</sup>.

**TAA / Commodity CE AMC**

13. The CofD **should** be signed by the TAA, Commodity CE or their authorized representative ►(only required if not approved by the DO under privilege)◄ to signify their acceptance of the CofD including any exceptions and limitations.

14. When signed by the MOD, the CofD **should** be returned to the originating DO for retention.

**Guidance  
Material  
5103(2)**

**Management and Authorization of Certificates of Design**

►Approved DO design and release GM◄

15. The Approved DO design signature and release signature may be signed by the same individual, combined into a single Signatory box on the CofD, providing that it is clear they are declaring fulfilment of both statements. ◄

**TAA / Commodity CE GM**

16. Acceptance by the TAA or Commodity CE of the CofD does not imply acceptance of responsibility for the design, which remains with the DO.

<sup>14</sup> Refer to Defence Standard 07-085 Part 2.

<sup>15</sup> Refer to Defence Standard 00-056 – Safety Management Requirements for Defence Systems.

<sup>16</sup> ►Refer to RA 5850 Annex C paras 9, 10 and 11 – Authorized Signatories.

<sup>17</sup> Refer to RA 1003 – Delegation of Airworthiness Authority and Notification of Air Safety Responsibility. ◄

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