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Airworthiness Directive 17 / 2022

INCLUSION IN DESIGN ORGANIZATION APPROVAL SCHEME (DOAS)

CENTRE FOR MILITARY AIRWORTHINESS & CERTIFICATION (CEMILAC)
DEFENCE RESEARCH & DEVELOPMENT ORGANIZATION(DRDO),
MINISTRY OF DEFENCE, GOVT OF INDIA (GoI)
MARATHAHALLI COLONY POST,
BENGALURU - 560093

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Abstract	Design Organisation Approval Scheme (DOAS) has been included in DDPMAS Ver 1.0 Framework & Procedures document and the detailed applicable requirements have been stipulated in Subpart G1 of IMTAR-21. This Directive is aimed at bringing out the detailed implementation guidelines on following aspects pertaining to DOAS (a) Eligibility Criteria, (b) Scope of DOAS, (c) Guidelines for preparation of Design Organization Exposition (DOE), (d) Application Process, Audit Process for assessment of Design Organization, (e) Evaluation Criteria to be followed during Audit Process, (f) Privileges granted as part of approval, (g) Periodic Surveillance Audit Process
Organization	CEMILAC, DRDO
Distribution	JAC Members
Prepared By	CEMILAC DOAS Drafting Committee: Mr Prabhat Gupta, Sc G, Director(APS), CEMILAC - Chairman Shri Sanal Kumar T, Sc F, RCMA(APS) – Member Secretary
Review by	Cross Functional Team constituted in accordance with JAC meeting
Approved by	**(APVS Prasad), Outstanding Scientist** **Chief Executive (Airworthiness)** **& Chairman Joint Airworthiness Committee**

Revision History

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Contents

1 Introduction

1.1 Introduction

Design Organisation Approval Scheme (DOAS) has been included in DDPMAS Ver 1.0 Framework & Procedures document and the detailed applicable requirements have been stipulated in Subpart G1 of IMTAR-21. Inclusion of a Design Organisation (DO) in Design Organisation Approval Scheme (DOAS) is a means to recognize that the design organization has a well-defined Design Assurance System (DAS) for enabling the DOs to be an applicant/holder of MTC for Air Systems and TA/IMTSOA for Airborne Stores. This ensures that the Design Organization has all processes/procedures, human resource and infrastructure for the responsibilities the Design Organisation has to take towards Airworthiness Certification including Continued Airworthiness Certification aspects of Air System/Airborne Stores in the identified scope. This scheme also enables effective engagement between CEMILAC and Design Organization (DO). Inclusion in DOAS also empowers the DOs to operate the privileges granted by CEMILAC towards airworthiness certification activities.

1.2 Purpose

This Directive is aimed at bringing out the detailed implementation guidelines on the following aspects pertaining to DOAS:

1. Eligibility Criteria
2. Scope of DOAS
3. Guidelines for preparation of Design Organization Exposition (DOE)
4. Application Process
5. Audit Process for assessment of Design Organization
6. Evaluation Criteria to be followed during Audit Process
7. List of Privileges granted as part of approval
8. Periodic Surveillance Audit Process

1.3 Applicability

This directive is applicable from the date of release.

1.4 References

1. DDPMAS Version 1.0, February 2021, Framework and Procedure for Design, Development and Production of Military Air Systems and Airborne Stores.
2. IMTART-21 Version 1.0, February 2021 Indian Military Technical Airworthiness Requirements

1.5 Definitions

The definition of terms as applicable for this directive is: -

Air System	:	Air Systems include fixed or rotary wing Aircraft, Unmanned Aircraft, Air Launched Missiles and Aero Engines
Airborne Stores	:	Airborne Stores include all Parts & Appliances, Airborne General Stores, Aero Materials, Air Armaments, Crew Personal Protection Equipment, Fuel Oil Lubricants (FOL), Parachutes etc, used in an Air System
Air Launched Missiles (ALMs)	:	ALMs are defined as those missiles which are required to be carried, released and jettisoned (CR&J) from a military airborne platform. This definition covers both live and inert variants of the ALMs. Air Launched Missiles are characterized by own propulsion system and guidance system. ALM is an Air System unlike air armament which is an Airborne Store.
Airworthiness	:	Airworthiness is the continued capability of the military Air Systems and Airborne Stores to perform satisfactorily and fulfil mission requirements, throughout the specified life in the specified environments with acceptable levels of safety and reliability. The acceptable levels are to be mutually agreed between Users, Main Contractor and Technical Airworthiness Authorities.
Airworthiness Certification Plan (ACP)	:	ACP is a document that brings out the details towards compliance to the agreed Type Certification Basis (TCB)/Type Approval Basis (TAB) of the Air System/Airborne Stores and the level of involvement of

		TAA and other stakeholders at each stage of the development
Amended Military Type Certificate (AMTC)	:	AMTC is an approval of a change to a Type design/Military Type Certificate, carried out by the Type Certificate Holder/Original Equipment Manufacturer (OEM).
Air System Design Organisation(ASDO)	:	ASDOs are organisations involved in design & development and modification of an Air System. ASDO shall be responsible for the overall design or through-life configuration management of the design of the Air System, and for co-coordinating the design and integration of the Airborne Stores designed by other design organisations.
Applicant	:	An organisation seeking Airworthiness Approvals/Clearances/Certificates or Organisation Approvals from TAA
Continued Airworthiness	:	All processes to be carried-out to verify that the conditions under which the initial airworthiness approvals have been granted, continue to be fulfilled at any time during its period of validity; this includes all upgrades/modifications to the in-service Air Systems to enhance its usefulness & capability and to also address obsolescence
Continuing Airworthiness	:	All of the processes ensuring that, at any time in its operating life, an Air System and the Airborne Stores complies with the airworthiness requirements in force and is in a condition for safe operation. This includes following the prescribed scheduled maintenance practices, implementing the servicing & technical instructions and daily inspections practices to ensure that the Air System is airworthy for operations.

Design Organisation Approval (DOA)	:	An approval given to an organisation as competent to carry out design, development, modification and repair of Air Systems or Airborne Stores
Design Organisation Approval Scheme(DOAS)	:	DOAS is a mechanism by which the design competence of an organisation is assessed
Indian Military Aviation Technical Standard Order (IMATSO)	:	An IMATSO is a minimum performance standard/specification issued by CEMILAC for specified Airborne Stores to be used on military Air System. Airborne Stores with IMATSO approval are eligible for use on any Air System, provided the IMATSO standard meets the Air System requirements.
Indian Military Technical Airworthiness Requirements(IMTAR)	:	IMTAR is a document that mandates the technical airworthiness requirements to be followed by organisations/stakeholders involved, under which necessary Clearances, Approvals and Certificates related to airworthiness and certification of Indian military Air System for various scenarios and aspects of Air System life cycle, shall be issued by the Technical Airworthiness Authorities (TAA) of India
Military Type Certificate (MTC)	:	MTC is a certificate that the Air System of a particular type design complies with all the agreed Design, Safety and Airworthiness requirements.
Restricted Military Type Certificate (RMTC)	:	When an Air System has not completely demonstrated compliance to the design and safety requirements, wherein it has been assessed that the non-complied requirements have no impact on air safety, a RMTC can be issued for a provisional period until the Type Design can be demonstrated to be accurate and complete

1.6 Acronyms and Abbreviations

ACBS	:	Aircraft Component Build Standard
ACP	:	Airworthiness Certification Plan
AFQMS	:	Approval of Firms and its Quality Management System
ALM	:	Air Launch Missile
AMTC	:	Amended Military Type Certificate
ASDO	:	Air System Design Organization
ATP	:	Acceptance Test Plan
BOM	:	Bill of Material
DAS	:	Design Assurance System
DDPMAS	:	Design, Development and Production of Military Air Systems and Airborne Stores
DO	:	Design Organization
DOA	:	Design Organization Approval
DOAS	:	Design Organization Approval Scheme
DOE	:	Design Organisation Exposition
FHA	:	Functional Hazard Analysis
FMECA	:	Faluire Mode Effect and Criticality Analysis
FTA	:	Fault Tree Analysis
IMATSOA	:	Indian Military Aviation Technical Standard Order Approval
IMTAR	:	Indian Military Technical Airworthiness Regulation
JAC	:	Joint Airworthiness Committee
MTC	:	Military Type Certificate
QMS	:	Quality Management System
QTP	:	Qualification Test Plan
SDO	:	Store Design Organization
SMTC	:	Supplementary Military Type Certificate
SOP	:	Standard of Preparation
STC	:	Supplementary Type Certificate
TA	:	Type Approval
TAB	:	Type Approval Basis
TC	:	Type Certificate
TCB	:	Type Certification Basis
UAS	:	Ùnmanned Air Systems

2 Approach for inclusion in DOAS

2.1 APPLICABILITY

2.1.1 This Directive shall be applicable to all design organizations who are applicant/holder of MTC for Air Systems and TA/IMTSOA for Airborne Stores as per DDPMAS Framework & Procedures and IMTAR-21. The DOs who are applicant for TC/AMTC/SMTC for Air Systems shall be categorized as Air System Design Organisation (ASDO) and the DOs who are applicant for TA for Airborne Stores shall be categorized as Store Design Organizations (SDO).

2.1.2 Inclusion in DOAS is not an essential pre-requisite for the award of design and development contracts for Air Systems and Airborne Stores. However, DOA shall be mandatorily taken by the design and development organisation before applying for:

a. MTC/AMTC/RMTC/SMTC for an Air System
b. TA/IMTSOA for an Airborne Store

2.2 Scope of DOA

2.2.1 Inclusion of a DO in DOAS shall be as per identified Class and Activity. Class is based on the type of Air Systems/Airborne Stores for which DO intends to be holder of MTC/ AMTC/SMTC/TA as per applicable Subpart of IMTAR-21. Activity is based on the nature of work to be undertaken by the DO as per applicable Subpart of IMTAR-21.

2.2.2 The identified classes are as follows:

	Class	Applicable Subpart
ASDO	Fixed Wing Aircraft	Subpart B1
	Rotary Wing	Subpart B1
	UAS	Subpart B2
	ALM	Subpart B3
	Aero Engines	Subpart B4
SDO	Electrical & Avionics	Subpart C1 & C5
	Mechanical Systems	Subpart C1 & C5
	ALWs	Subpart C2

2.2.3 For the classes above identified activities are:

	Activity	Applicable Subpart
ASDO	Ab-initio Design & Development	Subpart B
	Modification	Subpart D
SDO	Ab-initio Design & Development	Subpart C
	Modification	Subpart E

2.3 Eligibility Criteria

2.3.1 Eligibility criteria to apply for design organization approval have been formulated to ensure that the system is in place with matured industries and also with an emphasis on supporting the upcoming design organization in the field of Military Aviation. To ensure this, inclusion in DOAS has not been mandated as an essential pre-requisite for award of design and development contracts for Air Systems and Airborne Stores. Instead, the stage by which DOA shall be mandatorily taken by the design and development organization has been defined. This shall ensure that airworthiness requirements are complied in totality and at the same time business opportunities of the Organization are also not hampered.

2.3.2 The DOs who meet the following requirements are eligible for applying for inclusion in DAOS:

(a) DOs registered in India

(b) DOs Meeting one of the following criteria

i. <u>For ASDO</u>

- One TC/AMTC/SMTC from CEMILAC
- Active Involvement with CEMILAC towards Certification for 06 Years
- A product which is currently under certification with CEMILAC:
  - From the time of submission of ACP

ii. <u>For SDO</u>

- One TA from CEMILAC

- Active Involvement with CEMILAC towards Certification for 02 Years
- A product which is currently under certification with CEMILAC:
  - From the time of submission of ACP

(c) Holding AFQMS and/or AS9100 Approval

2.4 DESIGN ASSURANCE SYSTEM (DAS)

2.4.1 In order to demonstrate that the DO has a well-defined DAS with the attributes given in para 21.G1.3 of Subpart G1 of IMTAR, the DO shall prepare and maintain the following:

a. Design Organisation Expposition (DOE) Document
b. List of Authorised Signatories
c. Evidences of Independent Monitoring Group Audits and necessary corrective and preventive actions.

2.5 Design Organization Exposition (DOE)

2.5.1 The Design Organization is required to prepare a Design Organization Exposition (DOE) for the required scope, which comprehensively brings out all the processes/procedures, organizational structure etc. The DO can use cross-references to their existing documents which may contain the required information. The DO shall ensure that Design Assurance System (DAS) is established and maintained in conformity with the DOE and requirements of IMTAR-21.

2.5.2 A typical format of DOE is given at Appendix 'A'.

2.6 Application Process

2.6.1 An organization seeking inclusion in the scheme shall apply to CEMILAC as per the application form - 80A at Appendix 'D1', along with requisite supporting documents.

2.7 Audit Process for inclusion in DOAS

2.7.1 Once application for inclusion in DOAS is submitted by the Design Organization, assessment of the organization will be carried out by CEMILAC through a structured audit process comprising of four stages.

Evaluation/assessment at each stage will be carried out vis-à-vis the DOE of the organization, IMTAR-21 and established evaluation criteria.

2.7.2 The activities to be carried out at each stage of the audit and steps of each stage are detailed in the succeeding paragraphs.

i. **Stage One: Initial screening by CEMILAC**

(a) **Step 1:** Screening by CEMILAC

(i) Application by DO

(ii) DOE submitted by the DO

(iii) Self-Assessment by DO as per Evaluation Criteria

(iv) Other Details submitted with application

(b) **Step 2:** Observations by CEMILAC on the submitted documents

(c) **Step 3:** Resubmission of amended documents by the DO

(d) **Step 4:** Acceptance for stage two

ii. **Stage two: Detailed review by CEMILAC**

(a) **Step 1:** DO to give presentation covering:

(i) Completeness of DOE

(ii) Mapping/traceability against Evaluation Criteria

(b) **Step 2:** Observations by CEMILAC

(c) **Step 3:** Resubmission of amended documents by the DO

(d) **Step 4:** Acceptance for stage three

iii. **Stage Three: Internal audit by DO**

(a) **Step 1:** Audit by the internal team of DO as per the guidelines in DOE and Evaluation Criteria

(b) **Step 2:** Submission of audit report to CEMILAC with details of non-compliance (if any) and corrective action taken

(c) **Step 3:** Acceptance by CEMILAC for Stage Four

iv. **Stage Four: Audit by committee nominated by CEMILAC**

(a) Audit of the DO by the CEMILAC nominated committee

(i) Audit as per DOE, Evaluation Criteria and other details as per Application

(ii) Observations on shortcomings/noncompliance emerged during audit

(b) Submission of details of corrective actions by DO

(c) Resubmission of amended documents by DO (if required)

(d) Finalization of scope of DOA by CEMILAC committee

(e) Closure of stage 4 audit by CEMILAC committee

(f) Recommending for DOA as per the finalized scope

2.8 Periodic Surveillance Audit

2.8.1 Once Design Organization Approval (DOA) is accorded, independent monitoring of the design assurance system will be carried out by Independent Design Assurance System Monitoring Group. Periodic Internal Audit shall be carried out once in every year.

2.8.2 In addition, periodic surveillance of the organization will be carried out by CEMILAC once in every three (03) years to ensure compliance to applicable requirements for sustaining the approval granted to the organization.

2.8.3 A request for conduct of periodic surveillance shall be submitted to CEMILAC by the design organization in writing along with the latest DOE at least three (03) months prior to completion of the time period of three (03) years from the date of approval award or the date of previous surveillance audit as applicable. Surveillance will be carried out at a mutually agreed date. Activities to be carried out during periodic surveillance are listed below:-

(a) Scrutiny of the latest DOE submitted by the Organization

(b) Audit of the design organization vis-à-vis the latest DOE, IMTAR-21, applicable evaluation criteria and other relevant details.

(c) Preparation of Surveillance Report jointly by the CEMILAC Team and Design Organization

(d) Intimation of findings/non-compliances, if any, to the Head of the Design Organization in accordance with Section 21.G1.6 of IMTAR-21

(e) Necessary corrective actions by the DO to address the reported findings/non-compliance in accordance with Section 21.G1.7 of IMTAR-21

(f) Submission of report to CEMILAC by the DO on completion of corrective actions with regards to the reported findings/non-compliances

(g) Closure of Surveillance Audit by CEMILAC and intimation of the same to DO

2.9 Evaluation Criteria

2.9.1 Evaluation criteria for assessment of a design organization have been evolved to objectively assess organization in respect of the following: --

(a) Adequacy of infrastructure, resources and technical competence of personnel to undertake activities related to design, development and certification of Air Systems /Airborne Stores in accordance with the requirements stipulated in IMTAR-21 within the scope of design organization approval

(b) Capability of design organization to establish and maintain a design assurance system in accordance with the DOE and applicable requirements of IMTAR-21

(c) Capability of the DO to operate the privileges granted by CEMILAC

2.9.2 Towards finalization of evaluation criteria for assessment of a design organization, the processes being operated by the organization have been classified as Organization Processes, Technical & Systems Engineering Processes and Project Management Processes. Each type of process has been categorized into different groups as listed in the table below. Each group has been assigned with a unique Group ID for positive and easy identification. The details of evaluation criteria are enclosed at **Appendix 'C'**.

2.10 Privileges

2.10.1 The design organizations shall be granted privileges as per 21.G1.8 of IMTAR 21. Privileges are those identified CEMILAC responsibilities which may be delegated by CEMILAC to DO after the DO has fulfilled all the requirements and has been accorded DO approval by CEMILAC. Out of these identified CEMILAC responsibilities, either a few or all can be delegated as privileges. CEMILAC may incrementally delegate privileges. The authority of identifying

the CEMILAC responsibilities and delegating it as privileges solely lies with CEMILAC.

2.10.2 The privileges would be granted to a DO only when legal framework for penal action for non-compliance is established through a legislated process. Till then inclusion in DOAS scheme would be without privileges.

2.11 Validity

2.11.1 In accordance with 21.G1.9 of IMTAR Subpart G1, DOA remains valid unless it is suspended or revoked.

2.12 CHANGES TO DAS

2.12.1 After the issue of a Design Organization Approval, any change to the Design Organization, mandating a change to the DAS, DOE and authorized signatories shall be reported to CEMILAC for approval as per Para 21.G1.4 of IMTAR 21. DO shall submit in writing to CEMILAC in the prescribed format (Refer Form 82 at appendix D3) along with the changes to the DAS, DOE, authorized signatories and other relevant supporting documents.

2.13 Suspension/Revocation Of DOA

2.13.1 CEMILAC may suspend/revoke either fully or partially the approval in accordance with 21.G1.11 of IMTAR Subpart G1.

3 Promulgation and Feedback

3.1 Promulgation

1. The draft directive was circulated for review to all members of Cross Functional Team constituted by Member Secretary JAC.
2. The directive is released after incorporating relevant comments received from various members.
3. The directive is forwarded to all JAC members and hosted in CEMILAC website.

3.2 Feedback

This shall be a live document and will be updated based on the feedback obtained from operation of Design Organization Approval Scheme from the time to time. The feedback, if any, of this directive may please be forwarded to:

The Chief Executive (Airworthiness),
CEMILAC, Defence Research & Development Organization
Marathahalli Colony Post Bangalore-560037.

Appendix 'A'

Format for Design Organisation Exposition (DOE)

SECTION 1: DETAILS OF THE ORGANIZATION

The Design Organization Exposition (DOE) shall provide the following details pertaining to the Design Organization.

Sl. No.	Details of Organization to be provided in the DOE	
1.	**(a)** Document title **(b)** Organization document reference number	
2.	Index/ Content	
3.	List of effective pages with revision/date/amendment identification for each page	
4.	Distribution list	
5.	Amendment record sheet	
6.	**(a)** Name of the Design Organization as endorsed in the Registration Certificate **(b)** Address (es) and Location (s) **(c)** Telephone, telex, facsimile numbers etc. **(d)** E-mail address, Web address **(e)** Name, designation and contact details of the person responsible for DOE	
7.	Registration and GST Details of the DO	
8.	Objective of DOE and binding statement	
9.	Scope of DOA	Class
		Activity
10.	Relevant Design Experience *(In the relevant area of work as per the scope)* Documentary evidences supporting the claim can be provided as separate annexure *(Detail of previously completed design projects as applicable for scope selected)*	
11.	Brief Introduction of DO (including locations): *(Design organization is free to provide the relevant information in separate annexure if necessary)*	

	(Brief general information concerning the history and development of the organization and product portfolio of the organization other than that indicated at Sl. No. 10 above, if appropriate, relationships with other organizations which may form part of a group or consortium)
12.	Organization structure. *(Chart bringing out the hierarchal/functional relationship between various Chiefs / Heads of Organization/Departments/Divisions/Sections and members of the teams shall be provided in the DOE. The organization structure should be in line with the requirement of IMTAR-21 Subpart G1 which will in turn aid in sustaining the Design Assurance System within the organization.* *Description of assigned responsibilities to all Chiefs /Heads of the Organization/Departments/Divisions/Sections* shall be provided.*)*
13.	National/International Accreditations/Approvals *(Certificates of Accreditation/Approval to be enclosed)*
14.	Evidence of a QMS (AFQMS/AS9100) *(License/Certificate for QMS Certification to be enclosed)*
15.	Any other relevant information supporting organization's claim for DOA *(Add as annexure if needed)*

SECTION 2: PROCESSES & PROCEDURES:

The design organization is required to have a well-defined design assurance system. This ensures that the Design Organization has all processes/procedures, human resource and infrastructure for the responsibilities the Design Organisation has to take towards Airworthiness Certification including Continued Airworthiness Certification aspects of Air System/Airborne Stores in the identified scope. Each process is required to clearly define inputs to the process, the activities to be carried out for the process execution and the outputs generated from the process. The process and procedure brings out in detail the activities to be performed and artefacts to be generated based on criticality level complying with the applicable standards.

All the processes and procedures being followed as part of the design assurance system/IMTAR-21 shall be detailed in the DOE. An indicative list of such processes and procedures (but not limited to those listed only), has been tabulated below as a guiding measure for preparation of DOE.

1	Processes/Procedures for identifying, preparing, and finalizing various artefacts/ documents/drawings required for design, development, and certification even during continued and continuing certification. *Some such artefacts/documents are Technical Requirements/Specification, FHA, FTA, FMECA, ACP, TCB, TAB,*

	SOP/ACBS/BOM, TTS/QTP, ATP, Test Rig/Setup Specification, Test Results, Test Reports, Analysis Report, IV&V reports, Version Description Document, Checklist, Repair Manual, Maintenance Manual, Overhaul Manual and Operating Manual etc. This includes identifying authorized signatories for preparing, checking, and clearing the artefacts/ documents /drawings.
2	Process/Procedure for review of Technical Requirements/Specifications/Testability/ Safety/Design
3	Process/Procedure for safety study and analysis for arriving at various failure modes. *This also includes study of effect of failures its impact on safety and then accordingly defining criticality.*
4	Process/Procedure for identifying applicable standards to be followed during design, development and certification.
	Process/Procedures for identifying testing requirements and test adequacy
5	Process/Procedures for handling modifications. *This includes handling design changes, classifying design changes as major or minor on the basis of Impact Analysis and approval of design changes.*
6	Process/Procedures for handling, finalizing, and approving Deviations/Concessions/ Waiver from the approved Design Data. *This includes carrying out Impact Analysis of Deviation/Concession/Waiver with regards to its effect on Functioning, Performance, Life, Interface, Safety, Strength, Interchangeability and Maintainability. Based on the Impact Analysis, Deviation/ Concession/Waiver shall be classified as major and minor category.*
7	Process/Procedures for Operation of Bonded Stores
8	Process/Procedures for configuration Management. *It should cater for:--* • *Identification of items (documents, drawings, deliverables etc.) to be under configuration management* • *configuration identification such as versioning/base-lining, change review and control, traceability* • *Problem reporting, tracking, corrective action, and its closure.* • *Process for archiving / retrieving/releasing of configuration item* • *The forms, formats and documents required for versioning/base-lining and change management.* • *List of signatories during all configuration management process*
9	Verification & Validation Process/Procedures.

	This also includes (a) The independence required during V&V process (b) Approach for V&V i.e. through testing, analysis, read across etc. from other projects.
10	Processes for handling manufacturing of prototypes (test samples and deliverables)
11	Processes for transition from Design to Production
12	Failure Reporting and Corrective and Preventive Action (CAPA) Process/Procedures
13	Certification Liaison Processes/Procedures
14	Compliance Verification Processes/Procedures
15	Outsourcing Process/Procedures. *It should also include the processes/procedures for selecting subcontractors and for Control of design carried out by subcontractors.*
16	Quality Assurance Process/Procedures
17	Design Assurance System Independent Monitoring Process/Procedures
18	Processes/Procedures for Audits, Investigation and Inquiry by CEMILAC towards verifying establishment and maintenance of DAS
19	Risk Management Process/Procedures
20	Record Keeping, Information Management & Security Process/Procedures. *This should also include the procedure for establishment of safe and secure storage of information and access of the same. It should include all the information generated during design, development and certification.*
21	Process/Procedures for customer feedback
22	Training process for continuous education program, skill up-gradation programs etc
23	Process for handling and operation of privileges granted to the DO
24	Process/Procedures for Life Cycle Support. *This should also include support to be provided by the design organization towards continued and continuing airworthiness in accordance with the requirements stipulated in IMTAR-21.*

Appendix 'B'

SUMMARY SHEET – Authorized Signatories

Sl. No.	Position	Name	Qualifications	Responsible Area of Work
1.	Head of Design Organization :			
2.	Chief of Design:			
3.	Chief of Quality			
4.	Head of AWG			
5.	Chief of Independent Monitoring			

Note: CVEs for a specific project, with his/her signature, are identified when the ACP for the project is finalized. Any changes to this shall be intimated to CEMILAC for acceptance.

(Signature & Stamp of the Head of the Organization/Authorized Representative)

Appendix 'C'

EVALUATION CRITERIA

PROCESS TYPE	GROUP NAME	GROUP ID
Organizational Processes	Corporate Management & Legal	CML
	Human Resource Management	HRM
	Customer Management	CRM
	Airworthiness Awareness	AWA
	Organization Setup	ORG
	Quality Management System	QMS
	General Details	GEN
Technical and Systems Engineering Processes	Requirements Analysis & Design Process	RAD
	Drawing Office Procedures	DOP
	Configuration Management Process	CMP
	Development (Fabrication) Process	DEV
	Verification & Validation Process	VVP
	Production Transition Process	PTP
	Failure Reporting & CAPA Process	FRC
	Maintenance Process	MTN
	Certification Liaison Process	CLP
	Outsourcing Process	OUT
	Quality Assurance Process	QAP
Project Management Processes	Risk Management	RSK
	Information Management & Security	INF

Details of applicable evaluation criteria for each group of process have been brought in the succeeding paragraphs. Each evaluation criteria in a particular group has been assigned a unique ID, Additional criteria may be formulated by the Independent Monitoring Group of the Design Organization and/or CEMILAC Audit Team, if required. If any additional evaluation criteria is evolved, by the Independent Monitoring Group of the Design Organization shall be finalized in coordination with CEMILAC.

(i) Organizational Processes:

Group	Criteria ID	Evaluation Criteria
Corporate Management & Legal	PI-CML-001	Company registered with Registrar of Companies
	PI-CML-002	Registered Office of company in India
Human Resource Management	PI-HRM-001	Training mechanism, continuous education program, skill up-gradation programs
	PI-HRM-002	Retention of human resources (Technical) in the company (Median ≥ 2 years)
Customer Management	PI-CRM-001	Process for customer feedback
Airworthiness Awareness	PI-AWA-001	Knowledge base on Aviation Safety, Reliability.
	PI-AWA-002	Prior Certification interaction with CEMILAC / Any product certified by CEMILAC
	PI-AWA-003	Awareness of DDPMAS, IMTAR-21 and relevant Airworthiness directives
	PI-AWA-004	Awareness about the stakeholders in Airworthiness Certification process such as CEMILAC, DGAQA etc.
	PI-AWA-005	Awareness about Airworthiness standards in the domain of DOA
	PI-AWA-006	Prior experience of interaction with the Certification Authorities of other nations viz. FAA, EASA, Boeing, Airbus, Embraer etc.
Organization Set-up	PI-ORG-001	Well defined Organizational layout/chart with independence among various heads, CVE and their respective departments.
	PI-ORG-002	Well defined roles and responsibilities
	PI-ORG-003	Head of Organisation
	PI-ORG-004	Head of Design
	PI-ORG-005	Chief of Quality
	PI-ORG-006	Chief of Airworthiness
	PI-ORG-007	Compliance Verification Engineer
	PI-ORG-008	Reporting hierarchy of heads and Compliance Verification Engineer
	PI-ORG-009	Adequacy of Design team size
	PI-ORG-010	Adequacy of Quality assurance team size
	PI-ORG-011	Adequacy of Airworthiness group size

	PL-ORG-12	Adequacy of Design & Analysis Tools, Test Rigs, Test Equipment, Prototype Fabrication Facilities
Quality Management System	PI-QMS-001	Availability of at least one QMS like AFQMS, AS9100 etc.
General Details	PI-GEN-001	Compliance to regulatory Govt. guidelines viz. environmental, ISO, Software Security etc.
	PI-GEN-002	Adequate space from the point of view of Infrastructure

(ii) Technical and Systems Engineering Processes:

Group	Criteria ID	Evaluation Criteria
Requirements Analysis, Safety Analysis & Design Process	PI-RAD-001	Clarity and process for review of requirement / testability / safety / design.
	PI-RAD-002	Well defined design and development process
	PI-RAD-003	Defined criterion for input, process and output at each development activity/stage
	PI-RAD-004	Clarity on documentation requirements during Airworthiness Certification
	PI-RAD-005	Organisation has competent design team & infrastructure for safety assessment, design, manufacturing and testing
	PI-RAD-006	Clarity in the requirement and implementation of bonded stores
	PI-RAD-007	Access to Design & analysis tools
Drawing Office Procedures	PI-DOP-001	Availability of In-house documentation procedure
	PI-DOP-002	Availability of Templates, forms, checklists etc.
	PI-DOP-003	List of Signatories for all the documents generated for example Preparation, Checking at various levels and Approvals
	PI-DOP-004	Implementation of drawing office procedures at all levels for effective execution
	PI-DOP-005	Knowledge of open standards for documentation process such as ATA, S-1000, IEEE etc.

	PI-DOP-006	Access to tools for documentation
Configuration Management Process	PI-CMP-001	Process for configuration Management
	PI-CMP-002	Clarity on items (documents, drawings, deliverables etc.) to be under configuration management
	PI-CMP-003	Process for configuration identification such as versioning / base-lining, change review and control and traceability.
	PI-CMP-004	Process for problem reporting, tracking and corrective action
	PI-CMP-005	List of signatories during all configuration management processes
	PI-CMP-006	Process for archiving / retrieving / releasing of configuration item
Development (Fabrication) Process	PI-DEV-001	Well defined Process for development
	PI-DEV-002	Input , output and process at each stage
Verification & Validation Process	PI-VVP-001	Availability of design V&V process
	PI-VVP-002	Clarity on approach (reviews/ analysis/test)
	PI-VVP-003	Detailed check list for bringing out compliance towards V&V approach
	PI-VVP-004	Independence requirement for V & V activities
	PI-VVP-005	Clarity on tools/test rigs/test setup to be used
	PI-VVP-006	Access of V&V tools/test rigs/test setup
Production Transition Process	PI-PTP-001	Well defined production process
	PI-PTP-002	Testing/inspection at various stages of production
	PI-PTP-003	Clear Guidelines for Transfer of Technology (ToT)
	PI-PTP-004	Identification of production agency
Failure Reporting & CAPA Process	PI-FRC-001	Failure reporting process
	PI-FRC-002	Defect Investigation mechanism
	PI-FRC-003	Process for rectification
	PI-FRC-004	Process for collecting/archiving failure data
Maintenance Process	PI-MTN-001	Process for corrective maintenance
	PI-MTN-002	Process for identifying Preventive Maintenance requirements and process for defining preventive maintenance, if required

Certification Liaison Process	PI-CLP-001	Well defined liaison process for certification by Airworthiness Group
	PI-CLP-002	Clarity on various stages of interaction with Airworthiness Certification authorities
	PI-CLP-003	Clarity on documents to be coordination by Airworthiness Certification authorities at various stages for Certification
Outsourcing Process	PI-OUT-001	Process for Identification, Selection and Control of Vendors/ Subcontractors
	PI-OUT-002	Availability of Outsourcing / Supplier Management Process
	PI-OUT-003	Clarity on activities to be outsourced
	PI-OUT-004	Capability to monitor the quality of outsourced activity
Quality Assurance Process	PI-QAP-001	Clarity on stages of involvement of Quality assurance/Quality Control Group
	PI-QAP-002	Quality Assurance plan and processes
	PI-QAP-003	Clarity in documents/other details required for Endorsement/ Authentication by the Quality Assurance /control group
	PI-QAP-004	Calibration of the instruments/ test rigs/test setup regularly
	PI-QAP-005	Clarity in the requirement and implementation of bonded stores

(iii). **Project Management Processes:**

Group	Criteria ID	Evaluation Criteria	Availability
Risk Management Process	PI-RSK-001	Obsolescence Management	Yes/No
	PI-RSK-002	Process for identifying risks	Yes/No
	PI-RSK-003	Risk mitigation methodologies	Yes/No
Information Management & Security Process	PI-INF-001	Product Life cycle Management	Yes/No
	PI-INF-002	Data Security	Yes/No
	PI-INF-003	Data storage, archival, retrieval mechanism	Yes/No

Appendix 'D1

FORM – 80A

APPLICATION FOR DESIGN ORGANISATION APPROVAL

In accordance with IMTAR – 21, Subpart 21.G1.2

1.	Registered name and address of the Organisation	:	
2.	Registration and GST Details of the Organization	:	
3.	Name, Designation and Contact Details of Nodal Point of Contact	:	
4.	Locations for which the approval is applied for	:	
5.	Brief Summary of the Organisation	:	
6.	Brief summary of proposed Design activities at the Locations for which approval is applied for *(add additional sheets if required)*	:	
7.	List of Air Systems/Air Borne Stores approved by CEMILAC in the past *(add additional sheets if required)*	:	
8.	List of Air Systems/Air Borne Stores under certification by CEMILAC *(add additional sheets if required)*	:	
9.	Period of active engagement with CEMILAC	:	

10.	Scope of approval	:	
	(a) Class	:	
	(b) Activity	:	
11.	Design Organization Exposition Number (Copy of DOE to be attached along with the application)	:	Refer Appendix 'A' of this Airworthiness Directive regarding Format for Design Organisation Exposition (DOE)
12.	Details of Quality Management System (QMS) Certification (Attach proof)	:	
13.	National/International Accreditations/ Approvals (Attach proof)	:	
14.	List of Authorised Signatories (Attach Details)	:	Refer Appendix 'B' of this Airworthiness Directive regarding summary sheet of Authorized Signatories
15.	Infrastructure and Resource Details *(add additional sheets if required)*	:	
16.	Self-Assessment by DO as per Evaluation Criteria *(add additional sheets for details)*	:	Refer Appendix 'C' of this Airworthiness Directive regarding Evaluation Criteria.
17.	Any other relevant information supporting organization's claim for DOA *(Add as annexure if needed)*	:	
Date:			(Signature of Head of the Organization)

Appendix 'D2'

Form-80

DESIGN ORGANISATION APPROVAL CERTIFICATE

In accordance with IMTAR – 21, Subpart G1, 21.G1.2

[CEMILAC, MINISTRY OF DEFENCE, GOVT. OF INDIA]

DESIGN ORGANISATION APPROVAL CERTIFICATE

DESIGN ORGANIZATION APPROVAL NUMBER (DOAN): _____

Pursuant to IMTAR-21 regulation and subject to the conditions specified below, the CEMILAC hereby certifies

[COMPANY NAME AND ADDRESS]

as a Design organization in compliance with IMTAR – 21 and Subpart G1, approved to carried out activities towards design, development and airworthiness certification within the scope of approval enumerated below:--

SCOPE OF APPROVAL:

(a) Class:
(b) Activities:

VALIDITY:

Subject to compliance with the conditions stipulated in this certificate, this approval shall remain valid for an unlimited duration.

PRIVILEGES:

The Design Organisation is entitled to operate the privileges enumerated below:--

Sl. No.	Name of the Privilege	Applicable guidelines for operation

CONDITIONS:

1. This approval is limited to the specified scope.
2. This approval requires compliance with the approved Design Organization Exposition (DOE) Ref. No._____.
3. This approval is valid whilst the approved DO remains in compliance with IMTAR – 21, Subpart G1.

LIMITATIONS:

Date of Original Issue:

Date of Preceding Revision:

Date of this revision:

Revision No.:

Signed:_____

Chief Executive (A) CEMILAC:

Appendix 'D3'

FORM-82

APPLICATION FOR SIGNIFICANT CHANGES TO DESIGN ORGANISATIONAL APPROVAL

1. Name and address of the Approval holder
2. Approval reference number
3. Locations for which changes of approval are requested
4. Brief summary of proposed changes to the activities at the Block 3 addresses
   - 4.1. General
   - 4.2. Scope of approval
   - 4.3. Change in DAS
   - 4.4. Change in DOE
   - 4.5. Changes to key Signatories
   - 4.6. Nature of privileges
   - 4.7. Description of Procedural changes

Date Signature Head of the Design Organisation