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DIRECTORATE GENERAL OF AERONAUTICAL QUALITY ASSURANCE

GOVERNMENT OF INDIA, MINISTRY OF DEFENCE

STANDARD OPERATING PROCEDURE (SOP)

FOR

APPROVAL OF TESTING LABORATORIES

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Director General

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PREFACE

1. Testing of equipment and materials for Defence use particularly in the field of Aviation is very vital and crucial as their failure will prove to be very catastrophic with respect to day to day operations during peace time and strategic / tactical operations during war and also will lead to loss of valuable lives of skilled manpower.

2. The systems / equipment will undergo a large number of tests as a part of QTP & ATP before the equipment is considered suitable for use. The range of tests being so wide, some tests are required to be conducted at private laboratories. A number of test laboratories in private sector, have started operating in the country with an impressive array of test facilities. The need was, therefore, felt to approve suitable laboratories pertaining to different disciplines in different parts of the country to avail their test facilities in order to facilitate indigenization and quality assurance of aeronautical equipment.

3. Thus, a system to assess and approve certain test laboratories was intended to be evolved. Accordingly, a document titled "General criteria for the assessment of testing laboratories" was prepared in July 1993. The approval of test laboratory was being undertaken by DGAQA based on requests as per the above referred document but was kept as a low key activity owing to time & manpower constraints. In 1999 CEMILAC also initiated test house approvals, but presently is not able to sustain and support this activity with limited resources and has requested DGAQA to take-up approval of test laboratories which have approached it for fresh as well as renewal of approvals.

4. In view of the above, an SOP has been prepared as per latest ISO /IEC 17025 (General requirements for the competence of testing and calibration laboratories) and in line with SOP for registration of firms. It is hoped that systematic approach as outlined in the document will ultimately result in approval of deserving laboratories for testing products to the desired level of quality standards to meet the expectations of the customer.

Bhatte

Place: New Delhi
Date: 19 June 19

(AK Bhatte)
Director General, AQA

C O N T E N T S

LIST OF APPENDICES

SOP FOR APPROVAL OF TESTING LABORATORIES

1. INTRODUCTION

1.1 During the course of evaluation of any aeronautical equipment of any particular discipline, large numbers of tests are required to be carried out before the equipment is considered suitable for use. The range of tests being so wide, some tests are required to be conducted at different gov/private laboratories. Therefore, It was felt necessary to approve suitable laboratories pertaining to different disciplines in different parts of the country to avail their test facilities in order to facilitate indigenization and quality assurance of aeronautical equipment.

1.2 Thus, a system to assess/accredit certain test laboratories was intended to be evolved. Accordingly, a document titled" General criteria for the assessment of testing laboratories" was prepared in July 1993. The approval of test laboratory was being undertaken by DGAQA as per the above referred document. In 1999 CEMILAC also initiated test house approvals to help the MSME's that were struggling to get the testing slots for their QT requirements in various test labs. But now they intimated DGAQA to take-up test house approval henceforth. Hence, a need was felt to prepare a Standard Operating Procedure (SOP) for approval of Laboratories. Accordingly, the present SOP has been formulated based on **ISO/IEC 17025**.

2. SCOPE

The scope of this document is confined to laying down Standard Operating procedure (SOP) for assessment/approval of the test laboratories which perform the tests regularly and repeatedly. Laboratories run by any department of the Ministry of Defence, the Services or OFB and the firms holding valid AFQMS approval from DGAQA shall be considered as an approved laboratory and need not obtain separate approval from DGAQA. Vendors engaged in defence production and Design and development activities for military aviation stores may approach DGAQA approved laboratories for the testing and calibrations as per the scope of approval. The reports signed by the approved labs shall be recognised by DGAQA.

3. DISCIPLINES OF TEST LABORATORY

Test laboratories can apply for approval in the following test disciplines:

(i) Electrical
(ii) Electronics
(iii) Mechanical
(iv) Chemical

(v) Non-destructive
(vi) Optical/photometry
(vii) Metallurgical

A laboratory may apply for as little as one test in any discipline or multiplies test of multiplies discipline.

4. VALIDITY OF APPROVAL & ITS RENEWAL

The approval and subsequent renewal (as per Appendix `C') given to laboratory shall remain valid for 3 years from the date of issue of certificate. It is mandatory for an approved test laboratory to apply for renewal at least three months before the expiry of the approval certificate. A compendium of approved laboratories would be published and also updated regularly on Quarterly basis. However, for initial approval, the period of validity may be reduced by the assessor at his discretion.

5. COMPETENT AUTHORITY

Capacity assessment & verification is required to be carried out by DGAQA for approval of Test laboratory. Whenever a testing laboratory approaches HQ DGAQA, New Delhi, Tech-Coord Group shall give necessary technical guidance/ assistance to the testing laboratory in respect of approval process. The delegated competent authorities and their responsibilities would be as under.

(a) **Initial assessment for approval and renewal of approval** –

(i) Submission of application (Appendix-A) – By testing laboratory
(ii) Initiation – By Director, Tech-Coord group at HQ DGAQA
(iii) Assessment Committee – Assessment committee to be formed by Tech-Coord group with the approval of accepting/competent authority
(iv) Recommendation – Team leader of assessment committee will submit recommendation through Director, Tech-Coord to ADG, HQ for approval
(v) Accepting Authority – ADG AQA, HQ

(b) **Review and appeal against initial approval** – DG, AQA

(c) **Performance Rating of testing laboratory.**

(i) Committee for rating – A committee to be formed by Tech-Coord group with the approval of accepting/ competent authority
(ii) Recommendation – By team leader of committee will submit the rating of testing laboratory. through Director, Tech-Coord for approval of ADG, HQ
(iii) Accepting Authority – ADG AQA, HQ

(d) **Removal of testing laboratory from compendium of approved testing laboratories on various grounds –**

(i) Initiation– By Director, Tech-Coord group at HQ DGAQA

(ii) Recommendation – By Addl. Director General* at HQ

(iii) Approving Authority – DG, AQA

(* Addl. Director General will be competent authority to order removal of testing laboratory from compendium of approved testing laboratories in cases such as non-renewal of previous approval or close down of lab for any reason).

(e) **Re-instatement of testing laboratory in compendium of approved testing laboratory** – Director General, AQA at HQ New Delhi

6. GRACE PERIOD

When application for renewal has been made in time as mentioned at para 4 above and if there happens to be delay in processing the case for renewal of approval at HQ DGAQA, the existing approval will remain valid for a period of three months from the date of expiry.

7. SCRUTINY OF ASSESSMENT REPORT

The DGAQA nominated team shall carry out verification/assessment of the laboratory as per the Appendix B and submit its report and recommendations to Director Tech Coord for obtaining approval of the Accepting Authority.

8. ACTION ON REJECTION FOR APPROVAL

8.1 In case it is not possible to approve a testing laboratory due to certain deficiencies noticed during assessment, the details of the deficiencies noted will be intimated to the testing laboratory as an advice by the recommending authority indicating that the lab may apply for approval afresh within a prescribed time frame with due improvement as suggested. Normally, reassessment of such testing laboratory. will be taken up only after six months and on payment of fresh assessment charges for initial approval. However, reassessment may be taken up earlier at the discretion of the accepting Authority for reasons to be recorded in writing depending on the nature of deficiencies noted earlier and merits of the case.

8.2 To avoid the possibility of approval of a testing laboratory for a particular discipline for which it might have been rejected for approval by other authority, it will be incumbent on the part of testing laboratory to furnish all

information regarding previous assessment results. Failing to which (For such serious acts of omission and commission), the testing laboratory will not be considered for approval for a period of three years.

9. APPROVAL FEE

The approval fee of Rs. 2000/- and renewal Rs 1000/- per discipline or as fixed by DGAQA from time to time will be paid by Demand Draft in favour of "Account Officer, HQ DGAQA" payable at New Delhi". This fee is non-refundable.

10. GRADING OF TESTING LABORATORY

All the testing laboratories will be graded and approved according to the mandatory requirements available with them. The grading will be awarded based on a system of allotment of marks by the assessment team deputed to verify the lab in their survey report given at Appendix 'B'. Based on the marks obtained, the following grading will be awarded to testing laboratory.

Sl. No.	Points	Grading	Remarks
(a)	80% and more marks	I	Fit for Approval.
(b)	60% to 80% marks	II	Fit for approval with an advice to improve
(c)	Less than 60% marks	III	Not fit for approval

11. ISSUE OF APPROVAL CERTIFICATE

HQ DGAQA, New Delhi will issue the approval certificate as per specimen given at Appendix 'C' to the testing laboratory after successful completion of assessment and approval of recommendations by the competent authority.

12. TIME LIMIT FOR ASSESSMENT

As far as possible, capacity assessment against requests for approval will be completed **within 90 days** after the receipt of complete set of documents from the intending testing laboratory.

13. COMPENDIUM OF APPROVED TESTING LABORATORIES

Compendium of Approved Test Laboratories updated on quarterly basis shall be made available on DGAQA website. The compendium uploaded on website should

have provision of search and sorting. The details of the layout of compendiums are given below:

COMPENDIUM OF APPROVED TEST LABORATORIES

Sl. No.	Name and Address of Test Lab	Registration No	Date	Discipline	Full Grading with month & Year
1	2	3	4	5	6

14. REMOVAL OF TESTING LABORATORY FROM COMPENDIUM OF APPROVED TESTING LABORATORIES.

14.1 Removal of testing laboratory from the Compendium of Approved testing laboratories may be ordered by DGAQA if a testing laboratory no longer has the required competence. This when brought to the notice of the Approval Authority, a show cause notice will be issued to the lab with the approval of the competent authority concerned; about the action proposed & grounds there for. After consideration of the reply thereto or after the expiry of the notice period, the Competent Authority will pass appropriate orders for cancellation of the approval of the lab. Period of removal from compendium shall be decided by the competent authority at DGAQA on case to case basis. After taking due corrective measures / after expiry of the period of removal from compendium, as the case may be, the lab will make a request to the competent authority to review its case accordingly.

14.2 Effect of Removal from the List: Whenever a lab is removed from the list of approved testing laboratory its approval stands cancelled. Such removal must be communicated to all the QA agencies and concerned stakeholders.

15. REFERENCE DOCUMENT:

ISO_IEC_17025_2017(E): General requirements for the competence of testing and calibration laboratories.

Appendix 'A'

APPLICATION FOR APPROVAL OF TESTING LABORATORIES BY DGAQA

1. Applicant's Name, Designation and Address

Telephone No: Fax No:
E-mail address:

2. Test Laboratory's Name & Address (if different from paragraph 1)

Telephone No Fax No:
E-mail address:

3. Registration with Local Authorities & Date of Establishment (Attach Certificate)

4. Senior Management

4.1 Name & Designation of the Head of the Test Laboratory .
4.2 Name & Designation of the person responsible for the quality management system in the Testing Laboratory(s).

4.3 Name & Designation of the principal contact nominated by Testing Laboratory.

4.4 Organisation Chart of Testing Laboratory showing each function (on a separate sheet)

5. Range of Laboratory activities /Scope of Approval being sought
5.1 Discipline:

Sl. No.	*Name of tests/ Parameters*	*Range with accuracy limits*	*Minimum sample size/ quality required*	*Remarks*

5.2 Discipline:

Sl. No.	*Name of tests/ Parameters*	*Range with accuracy limits*	*Minimum sample size/ quality required*	*Remarks*

5.3 Is approval held from any other authority? If so, give details and attach certificate.

6. Equipment:

6.1 List the major items of test equipment available for which approval is sought:

Sl. No.	*Name of equipment Model/ type/ Manufacturer*	*Parameters Range & Accuracy*	*Mfg Date*	*Details of Calibrating Agencies, & Calibration equipments/ Standards/ References*	*Remarks*

6.2 What type of testing is to be subcontracted in respect of which the approval is being sought?

6.3 Do environmental facilities exist?

7. Employees

7.1 Total number Employees:
7.2 Furnish details about the technical staff responsible for tests, calibration, reports, QC activities, in an annexure:

Sl. No.	*Name*	*Designation*	*Academic & Professional Qualifications*	*Experience*	*Remarks*

7.3 Furnish details about the authorized person for release of reports/ items to customers:

Sl. No.	*Name*	*Designation*	*Responsible Activities & Areas of Testing*	*Specimen Signature*

8. Quality Policy
8.1 Name the documents and Records being maintained.
Preservation Period and method of record be intimated.

8.2 Is ISO 9001/ ISO/IEC 17025:2017(E)
certified Laboratory ? (Attach Copy).

8.3 Adopted standard test methods
viz ISO/BIS/BSI/IEC/ASTM etc

10. **IMPARTIALITY and CONFIDENTIALITY** A statement that all activities are conducted independent to any pressure that may influence the results of the work to be submitted. A description of how confidential information from the clients and their ownership rights are protected, included procedures to protect electronic storage and transmission of results to be submitted.

13. Test reports: Do test reports contain all the required Information and comply with the requirements given in para 7.8 of ISO/IEC 17025:2017(E). Attach Test Report Performa.

14. Preparedness for Assessment: On what date will the testing laboratory be ready for assessment?

Applicant's name
……
Signature of the person authorized
to sign for the applicant
……

Date……...

Appendix-B

LABORATORY ASSESSMENT REPORT (LAR)

Name of the Lab: Date of Assessment:

1	**GENERAL REQUIREMENTS**	ISO Para No.	Assigned Marks	Marks Obtained	Remarks
2	**STRUCTURAL REQUIREMENTS**				
2.1	The laboratory legal entity, on the basis of its governmental status.	5.1	5		
2.2	a) Whether organization and management structure of the laboratory, its place in any parent organization, and the relationships between management, technical operations and support services are defined? b) specify the responsibility, authority and interrelationship of all personnel who manage, perform or verify work affecting the results of laboratory activities; c) document its procedures to the extent necessary to ensure the consistent application of its laboratory activities and the validity of the results.	5.2 to 5.7	5		
3	**RESOURCE REQUIREMENTS**				
3.1	**Personnel** Whether the competence requirements including qualification, training, skills and experience are defined and retain records for: a) selection of personnel; b) training of personnel; c) supervision of personnel; d) authorization of personnel; e) monitoring competence of personnel. . The personnel have the competence to evaluate the significance of deviations. Whether the Duties, responsibilities and authorities are communicated to the personnel. Whether Lab authorize personnel to perform specific laboratory activities for the following: a) development, modification, verification and validation of methods; b) analysis of results, including statements of conformity or opinions and interpretations; c) report, review and authorization of results	6.2.1 to 6.2.6	20		
3.2	**Lab environmental conditions:** Whether Lab environmental condition (e.g.- microbial contamination, dust, electromagnetic disturbances, radiation, humidity, electrical supply, temperature, sound and vibration etc) is suitable for the laboratory activities and shall not adversely affect the Test results. Whether the laboratory monitor, control and record environmental conditions in accordance with relevant specifications, methods or procedures or where they influence the validity of the results.	6.3.1 to 6.3.5	20		
3.3	**Equipment** Whether the laboratory has access to necessary equipments having desired range, accuracy and recording facilities as per the scope of approval? Whether the laboratory has a procedure for handling, transport, storage, use and planned maintenance of equipment in order to ensure proper functioning and to prevent contamination or deterioration.	6.4.1 to 6.4.13	20		

	Whether the laboratory has established calibration programme, defined period of validity and methodology to identify the status of calibration. Whether the laboratory take practicable measures to prevent unintended adjustments of equipment from invalidating results. Whether the laboratory maintain Records of calibrations, acceptance criteria, maintenance plan and maintenance carried out to date, details of any damage, malfunction, modification to, or repair?				
3.5	**Metrological traceability** The laboratory shall establish and maintain by means of a documented unbroken chain of calibrations to ensure traceable of calibration provided by a competent laboratory.	6.5.1 to 6.5.3	10		
3.6	**Externally provided products and services** Whether the laboratory has a procedure and retain records for: a) defining, reviewing and approving the laboratory's requirements for externally provided products and services; b) defining the criteria for evaluation, selection, monitoring of performance and re-evaluation of the external providers; c) taking any actions arising from evaluations, monitoring of performance and re-evaluations of the external providers. Whether the laboratory communicates its requirements services to be provided, acceptance criteria, competence qualification of personnel etc..	6.6.1 to 6.6.3	10		
4	**PROCESS REQUIREMENTS**				
4.1	**Review of requests, tenders and contracts** The laboratory shall have a procedure for the review of requests, tenders and contracts in respect of requirements are adequately defined, capability and resources etc. NOTE 2 For internal or routine customers, reviews of requests, tenders and contracts can be performed in a simplified way. Records of reviews, including any significant changes, shall be retained.	7.1.1 to 7.1.8	10		
4.2.1	**Selection, verification and validation of methods** Whether All methods, procedures and supporting documentation, such as instructions, standards, manuals and reference data relevant to the laboratory activities are adequate, implemented as documented, kept up to date and readily available to personnel? NOTE Customer acceptance of deviations can be agreed in advance in the contract.	7.2.1 & 7.2.2	10		
4.4	**Technical records** The laboratory maintains technical records, identity of personnel responsible for each laboratory activity and for checking data and results.	7.5	10		
4.5	**Evaluation of measurement uncertainty** Laboratories shall identify the contributions to measurement uncertainty. When evaluating measurement uncertainty, all contributions that are of significance, including those arising from sampling, shall be taken into account using appropriate methods of analysis and estimation based on an understanding of the theoretical principles or practical experience of the performance of the method.	7.6	10		

4.6	**Reporting of results**	7.8			
4.7	**General** The results shall be reviewed and authorized prior to release. Each report shall also include method used, deviations if any,	7.8.1 & 7.8.2	10		
4.7.1	**Complaints** The laboratory shall have a documented process to receive, evaluate, track on action taken complaints and ensuring its effectiveness.	7.9	10		
4.8	**Nonconforming work** Whether a procedure be implemented when any aspect of its laboratory activities or results of this work do not conform to its own procedures or the agreed requirements of the customer and it is effective	7.10	10		
4.9	**Control of data and information management** Whether information management system(s) used for the collection, changes, configuration or modifications processing, recording, reporting, storage or retrieval of data. Whether Work-instructions, manuals and reference data relevant to the laboratory information management system(s) are made readily available to personnel.	7.11	10		
4.10	**Management system requirements**	8			
5	The laboratory shall establish, document, implement and maintain a management system that is capable of demonstrating the consistent achievement of the requirements of ISO 9001 mainly: — management system documentation — control of documents and records — actions to address risks and opportunities — improvement and corrective actions — internal audits — management reviews	8.2 to 8.9	10		
	Total Marks				
	Marks Obtained				

$$\text{Percentage Obtained} = \frac{\text{Total Marks Obtained}}{\text{Total assigned Marks (as applicable)}} \times 100 = \frac{\quad}{\quad} \times 100 = \quad \%$$

Recommendation of Assessment Team:

Do you recommend the Lab for approval as per scope applied for?	
If not, give detailed reasons highlighting deficiencies and recommendations for re-verification	
Any other relevant information including past performance and Test Laboratory rating of the Lab.	
Assessment fee paid by Lab	

Signature of Members of Assessment Team

Name and Designation Signature with Date

Final Recommendation of Director Tech Coord:

I having gone through the various documents attached with LQSR from assessment team report and agree/do not agree with final recommendations of assessment team. The Test Laboratory/supplier is recommended, for the following disciplines:

a)
b)
c)

Station:
Date:

Director/Tech-Coord

ORDERS OF ADDL DIRECTOR GENERAL

APPROVED / NOT APPROVED

Station:
Date:

Addl. Director General,
AQA, HQrs

Appendix 'C'

DIRECTORATE GENERAL OF AERONAUTICAL QUALITY ASSURANCE

GOVERNMENT OF INDIA, MINISTRY OF DEFENCE

This is to certify that M/s …… after verification of their capacity / capability are approved vide Approval No …….. Dated ……. and are found capable of undertaking tests in the following disciplines.

Sl. No.	Discipline	Test Parameters with range and accuracy limits

(Attach on separate sheet as Annexure if required)

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2. No of disciplines for which approved: ……..…….. only

3. Approval Certificate No.: .....

4. This certificate is valid upto: .....

5. Conditions of Approval/ limitations (if any):

( )
Director General, AQA or
Approving Authority on behalf of
DGAQA Ministry of Defence

Place:
Date:

(www.dgaeroqa.gov.in/ e-mail < hq.dgaqa@nic.in>)