

TERMS OF REFERENCE FOR THE R&D PROJECTS

1. Title of the Project: Survey of Standards on Environmental Testing Procedures

Sectional Committee: LITD 01 “Environmental Testing Procedures”

Duty Station: All over India

Proposed Duration: 6 Months

2. Background

The proposal aims to address the critical need for understanding of the different Standards being used by the industry for basic environmental tests on electrical and electronic products like shock test, drop test, damp heat tests, dry heat tests etc. Bureau of Indian Standards (BIS) has published a large number of Indian Standards on Environmental Test Procedures. These are the IS 9000, IS 9001, IS 9002 and IS/IEC 60068 series of Standards. Some of these are Indigenous while some are adopted. There are also JSS, IEC and ASTM Standards on this topic. Hence, it is worthwhile to understand which Standards are being followed by the industry and in case the Indian Standards are being used then what modifications can be made in these Standards for smooth implementation.

3. Scope

3.1 The scope of this project is to conduct a comprehensive evaluation of the Standards on Environmental Testing Procedures.

3.2 The details of the scope of this proposal is as follows:

- a. A comprehensive survey of International/ National Standards related to Environmental Testing Procedures for electrical and electronics products
- b. Collection and reporting of the following data:
 - Standards being used by the stakeholders for performing environmental tests on electrical and electronic products
 - Usability of the IS 9000, IS 9001, IS 9002 and IS/IEC 60068 series of Standards – whether these are being used at large by the industry
 - Availability of testing infrastructure as per the IEC 60068 series of Standards
 - Problems faced while using the Indian Standards on Environmental Testing Procedures and modifications that could be made in these Standards for smooth implementation.
 - Problems faced while using the International Standards on Environmental Testing Procedures and modifications that could be made in these Standards for smooth implementation.
 - Define any new aspect of Environmental Testing that can be taken up for the purpose of formulation of a new Indigenous Standard.

4. Expected Deliverables

The expected deliverables for this project are as follows:

- This evaluation will encompass an assessment of various factors, including
 - (a) information regarding the Standards being used by the stakeholders,
 - (b) usability of the IS 9000, IS 9001, IS 9002 and IS/IEC 60068 series of Standards – whether these are being used at large by the industry,
 - (c) Problems faced while using the Indian Standards on Environmental Testing Procedures and modifications that could be made in these Standards for smooth implementation.Additionally, a key aspect of the study would be to define any new aspect of Environmental Testing that can be taken up for the purpose of formulation of a new Indigenous Standard.
- **Standards Review:** A thorough review of existing standards related to environmental testing procedures, both Indigenous and International, need to be conducted. This review would identify gaps and areas where new standards are needed or existing ones require modifications.
- **Review Report:** A detailed performance review report is to be submitted. This report will cover various aspects mentioned above.
- **Testing Methodology:** A thorough review of the testing methodology being followed by the laboratories/ testing agencies for performing Environmental Testing on various electronic and electrical products.
- **Standards on Test Chambers:** A thorough review on the Standards being followed by the Test Chamber (Cold chamber, humidity chamber and others) manufactures, laboratories etc used for performing environmental testing.
- **Gap Analysis:** A detailed report identifying the gaps in the already existing Indigenous Standards and modifications that could be made to address these gaps. Also, a detailed report on new areas of environmental testing where new Standards are needed.

5. Research Methodology:

- **Literature Review:** A comprehensive literature review to be done to understand the existing standards and studies related to environmental testing.
- **Data Collection:** Gathering data on Environmental Testing Standards available in the market.
- **Focus Group Discussions:** Conducting focus group discussions with potential users and experts in the field to identify key performance parameters and safety concerns.

- **Laboratory Visits:** Visits to laboratories to understand the Standards being used for environmental testing and identification of gaps.
- **Manufacturer Visits:** Visits to manufacturing units to understand the production processes and Standards being used by them.
- **Feedback and Expert Consultation:** Seek feedback and consultation from experts in environmental testing.
- Any other research methodology to address the expected deliverables for this project.

6. Requirement for the CVs:

The individuals engaged in this project should possess a strong educational background in electronics or electrical engineering, laboratory skills, and an awareness of relevant environmental testing Standards.

7. Timeline and Method of Progress Review:

- **Project Kick-off (Month 1-2):** The project officially begins with a detailed review of objectives and methodologies. In these first two months, detailed literature review needs to be done.
- **Data Collection and Testing (Months 3-4):** This phase focuses on visits to manufacturing units and laboratories for the purpose of the project.
- **Focus Group Discussion and final report submission (Month 5-6):** The final report needs to be submitted after thorough focused group discussions.

This condensed timeline covers the essential phases of the R&D project within 6 months' timeframe, ensuring efficiency in project execution. Progress reviews will be conducted as needed to track developments and make timely adjustments.

8. Support BIS will Provide:

BIS will offer valuable guidance and access to existing standards and publications relevant to Environmental Testing. Additionally, they can facilitate information exchange regarding recognized manufacturers in the field, as well as accredited laboratories equipped for environmental testing of electronic and electrical products.