TERMS OF REFERENCE FOR R&D PROJECT

1. Title: A Comprehensive Study on Computer to Plate (CTP) Offset Printing Machines

2. Background:

2.1 Computer-to-plate (CTP) printing is an advanced method of printing used in the field of commercial printing and publishing. A computer-to-plate printing machine is a device used in this process. It involves the direct digital transfer of an image onto a printing plate, eliminating the need for producing film negatives. This process offers several advantages over traditional methods, such as increased efficiency, higher image quality, and reduced costs.

2.2 CTP offset printing machines find applications in industries that require high-resolution printing, consistent print quality, and efficient production processes. These machines have become an essential tool for meeting the demands of modern printing requirements, where high-speed production, cost-effectiveness, and superior print quality are critical factors. Also, there are standards available on manual offset machines and plates. But, there is no national or International standards which covers holistically the CTP offset machines.

2.3 In the above context, it is required that a detailed study may be conducted on CTP machines and comprehensive report may be prepared.

3. Objective:

This project for study on Computer to Plate (CTP) offset printing machines will involve visiting the manufacturing units, collecting the data about manufacturing process, performance parameters, test methods, latest technological advancements etc., and submitting the final report.

4. Scope:

4.1 Study the available literature like national and international standard such as ASTM, JIS, EN, ISO etc available on the subject, research papers, any study conducted by other organisations, companies' brochure. Identify the design specifications and any other requirements which can be included in the standard.

4.2 Collect data of the manufacturing base of the product.

4.3 Visit the manufacturers of the product and get the information on the following:

a) Types of Raw material used;
b) Quality parameters (chemical, electrical and mechanical properties) of plates;
c) Manufacturing process;
d) Safety requirements;
e) In process quality checks;

f) Test facilities and test methods used;
g) Marking and labelling being done;
h) Packaging requirement;
i) Tests being undertaken;
j) Testing facilities in the plant;
k) Addressing sustainability in processes such as using energy efficient process, using renewable energy sources, recycling and reuse; and
l) Waste recycling

4.4 Identification and visit to the laboratories.

4.5 Check the quantity of the product imported and exported and countries with which the trade for this product is occurring. Also check if any technical regulations exist for this product in these countries. Take data of the foreign specification as per which the product is being imported or exported.

4.6 Identify the users of the product and take data of the quantity being used by them, specification used, check for the test certificates received by them and study the chemical and physical properties mentioned in the TC. Also understand from the user the main properties required by them in the product.

4.7 Prepare a comprehensive project report incorporating the points mentioned above.

5. Methodology:

5.1 Study the literature and analyse the findings.

5.2 Visit laboratories and make report on manufacturing process, performance parameters, test equipment required, test method being used, testing charges, and testing time required.

5.3 Prepare the project report.

5.4 Analyse the data and test reports from NABL accredited labs and include the same in the project report.

6. Sampling plan:

6.1 Two manufacturers from each large, small and micro scale shall be visited.

6.2 Three samples for each variety/model shall be tested.

6.3 Two users of the product shall be visited.

6.4 Two laboratories, preferably one in government sector and one in private sector shall be visited.

7. Deliverables:

7.1 Final project report, in hard copy format as well as in soft copy, covering all aspects mentioned in the scope.

7.2 Questionnaire, discussion, visit reports, test reports collected from industry site visits to be appended with the final project report

8. Timeline:

The duration of the project is 6 months from the date of award of the project. The proposed indicative timeline stage-wise is given below:

Sl No	Stage	Time from date of award of project (cumulative)
1	Literature review and identification of manufacturing base, testing laboratories, user/user industry, and discussion with BIS for the finalization of sampling plan	1 month
2	Visit to manufacturers, testing laboratories, users and importers and exporters and data collection	2 month
3	Mid-term Review	3 month
4	Preparation and submission of first draft report to BIS	5 month
5	Submission of final project report	6 month

Note: The proposer may submit the draft report to BIS without waiting for test report from independent laboratories if the test is of long duration test.

9. Support BIS will Provide:

BIS will provide access to latest available editions of Indian standards and/ or international standards relevant to the project, on request.

10. Relevant sectional committee and Nodal officer from BIS

Sectional committee :

MED 25 (Printing Machinery Sectional Committee)

Nodal officer :

Mr Lokraj Meena, Scientist B/ Assistant Director & Member Secretary, MED 25

Email: med@bis.gov.in