Indian Standard

TESTING, EVALUATION, INSTALLATION AND MAINTENANCE OF ac ELECTRICITY METERS — CODE OF PRACTICE

1 SCOPE

1.1 This Code outlines informative requirements and good guidance as Code of practices to various stakeholders and service providers in metering industry responsible for maintaining metrological and functional performance throughout the long unattended period of useful life of ac electricity meters, covering their testing, evaluation, installation and maintenance. The objective is also to establish a performance based good meter asset management plan.

1.2 This Code covers the following aspects:

a) Type approval;
b) Life certification;
c) Verification;
d) Sealing and seal management;
e) Acceptance;
f) Transportation;
g) Storage;
h) Installation and commissioning;
j) Maintaining in-service with emphasis on in-service compliance; and
k) Meter test station practices.

1.3 This Code also deals with:

a) Identification and removal of defects in reasonable time;
b) Repair;
c) Re-certification and re-verification; and
d) Disposal.

1.4 This Code covers Class 2.0, 1.0, 1.0 S and 0.5 S low, medium and high voltage meters rated up to 33 kV as per IS 13010, IS 13779 and IS 14697. In-service compliance testing of meters for low and medium voltage applications are generally carried out using statistical sampling techniques; so that metering providers may identify appropriate action plans for divergent meter populations. At present sampling by attributes has been preferred. High voltage meters may be subjected to 100 percent testing.

1.5 The model recommendations and practices are given with special emphasis on:

a) Correct and proper installation;
b) In-service surveillance;
c) Safety measures;

d) Testing at various stages;
e) Standard for meter testing and periodicity of calibration thereof;
f) Concept of certified life;
g) Requirements for in-service compliance testing; and
h) Performance based meter asset register.

NOTES

1 The attributes method of sampling has been considered in this Code.
2 Special requirements for Class 0.2 S extra high voltage meters have been excluded and will be considered later.
3 Presently there is no designated notified body in India responsible for type approval, life certification or verification sealing. Part of the verification function is covered under the BIS Certification Marks Scheme. Once a body is notified for type approval, life certification and verification sealing 4, 5, 6, 7 would become normative.
4 The reference to Electromechanical meters in this Code is for meters already installed.

1.6 The following clauses of the Code are informative.

4 Type approval;
5 Life certification;
6 Verification;
7 Verification sealing;
11.3.3 Installation of instrument transformers;
11.6 Terminations; and
14 Recertification/Re-verification/In-service recompliance **14** (a) and **14** (b) only.

2 REFERENCES

The following standards are necessary adjuncts to this standard:

IS No.	*Title*
732 : 1989	Code of practice for electrical wiring installations (*third revision*)
2500 (Part 1) : 2000/ 1SO 2859-11999	Sampling inspection procedures: Part 1 Attribute sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection (*third revision*)
2705	Current transformers:
(Part 1) : 1992	General requirements
(Part 2) : 1992	Measuring current transformers
3043 : 1987	Code of practice for earthing (*first revision*)
3156 (Part l) : 1992	Voltage transformers: General requirements (*second revision*)
(Part 2) : 1992	Measuring voltage transformers (*second revision*)
3961	Recommended current ratings for cables:
(Part 1) : 1967	Paper insulated lead sheathed Cables
(Part 2) : 1967	PVC insulated and PVC sheathed heavy duty cables
(Part 3) : 1968	Rubber insulated cables
(Part 5) : 1968	PVC insulated light duty cables
4146 : 1983	Application guide for voltage transformers (*first revision*)
4201 : 1983	Application guide for current transformers (*first revision*)
5547 : 1983	Application guide for capacitor voltage transformers (*first revision*)
8061 : 1976	Code of practice for design, installation and maintenance of service lines up to and including 650 V
11448 : 2000	Application guide for ac electricity meters (*first revision*)
12346 : 1999	Testing equipment for ac electricity energy meters (*first revision*)
13010 : 2002	ac Watt-hour meters, class 0.5, 1 and 2 — Specification (*first revision*)
13779 : 1999	ac Static watt-hour meters, class 1 and 2 — Specification (*first revision*)

14697 : 1999	ac Static transformer operated watt-hour and VAR-hour meters, class 0.2S, 0.5S and 1.0S — Specification
14772 : 2005	General requirements for enclosures for accessories for household and similar fixed electrical installations — Specification (*first revision*)
IS/ISO/IEC 17025 : 1999	General requirements for the competence of testing and calibration laboratories (*first revision*)