

**केन्द्रीय मुहर विभाग -III**

संदर्भ- केन्द्रीय मुहर विभाग-III/16:आई एस - 16444 (Part 2)

31 May 2019

विषय :IS 16444 (Part 2) : 2017 के प्रमाणन हेतु एस आई टी

इसे उपरोक्त विषय का संदर्भ प्राप्त है।

सक्षम प्राधिकारी ने अनुपालन हेतु एस आई टी को अनुमोदित कर दिया है।

सभी क्षेत्रीय और शाखा कार्यालयों से अनुरोध है की उपरोक्त एस आई टी का अनुपालन तत्काल प्रभाव से सुनिश्चित करें।

**अलिस्मिता खाग  
वैज्ञानिक बी (सी एम डी-III)**

**प्रमुख (सी एम डी-III)**

सभी क्षेत्रीय/ शाखा कार्यालय  
प्रतिलिपि : आई टी एस विभाग - बी आई एस इंटरनेट पर डालने हतू

**CENTRAL MARKS DEPARTMENT III**

Our Ref: CMD III/16: IS 16444(Part 2)

31May 2019

**Subject: SIT for implementation of IS 16444 (Part 2):2017**

This has reference to the subject mentioned above.

The SIT for implementation of IS 16444(Part 2):2017 have been approved by the Competent Authority.

All ROs/BOs are requested to ensure the implementation of the SIT with immediate effect.

**Alismita Khag  
Sc.B (CMD-III)**

**Head (CMD III)**

Circulated to: All ROs/BOs

Copy to: ITS for hosting on Intranet

**SCHEME OF INSPECTION AND TESTING FOR CERTIFICATION OF  
a.c. STATIC TRANSFORMER OPERATED WATTHOUR AND VAR-HOUR  
SMART METERS, CLASS 0.2S, 0.5S AND 1S  
ACCORDING TO IS 16444 (PART 2):2017**

**1. LABORATORY**- A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

**1.1** The manufacturer shall prepare a calibration plan for the test equipment.

**2. TEST RECORDS** - The manufacturer shall maintain test records for the tests carried out to establish conformity.

**3. LABELLING AND MARKING** - As per the requirements of IS 16444 (PART 2):2017.

**4. CONTROL UNIT** - All the Smart Meters of the same design manufactured in a day shall constitute a control unit.

**5. LEVELS OF CONTROL** - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

**6. REJECTIONS** - Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE 1

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
6.1,6.2	Metering requirement/ General Constructional requirement	4, 5.1 to 5.4, 6.1, 6.2, 6.3	IS 14697	R	Each smart meter	In case of failure of any smart meter, cause of failure shall be identified and corrective action shall be taken to remove the non-conformity.	
6.10.6	Insulating Properties (ac High Voltage test)	12.7.6.1, 12.7.6.3	IS 14697	R			
	Insulation Properties (Insulation resistance)	12.7.6.1, 12.7.6.4	IS 14697	R			
6.12	Accuracy requirement (Limit of Error due to variation of current)	11.1	IS 14697	R			
	Accuracy requirement (Starting Condition)	11.5	IS 14697	R			
	Accuracy requirement (No Load condition)	11.4	IS 14697	R			

TABLE 1

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
6.10.1	Electrical requirement (Power consumption)	6.10.1	IS 16444 (Part 2)	R	As per Cl. 9.2 of IS 16444 (Part 2)	Once in six months for each type, communication module and rating	In the case of failure of any sample, double the number of samples shall be taken for testing and no failure in those samples shall be permitted. Otherwise the control unit shall be rejected. After corrective actions two consecutive control units shall be tested as per the samples indicated in the table and then original frequency shall be restored if both the samples pass. For Cl. 6.6 non volatile memory supplier's test certificate may also be accepted.
6.10.2	Electrical requirement (Influence of supply voltage)	9.2.1, 9.2.2	IS 14697	S			
6.10.3	Electrical requirement (Short time over current)	9.2.3	IS 14697	S			
6.10.4	Electrical requirement (Influence of self-heating)	9.3	IS 14697	S			
6.10.5	Electrical requirement (Influence of heating)	9.4	IS 14697	S			
6.12	Accuracy requirement (Meter Constant)	11.6	IS 14697	R		Once in six months for each type and rating	
	Accuracy requirement (Repeatability of Error)	11.7	IS 14697	S			

TABLE 1

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
6.3	Clearance & Creepage distances	6.6	IS 14697	S	As per Cl. 9.2 of IS 16444 (Part 2)	Once in six months for each type and rating	In case of failure of any smart meter, cause of failure shall be identified and corrective action shall be taken to remove the non-conformity.
6.6	Display of values	6.6	IS 16444 (Part 2)	R			
		6.10	IS 14697	R			
6.7	Output Device	6.11	IS 14697	R			
10.3	Display	9.3	IS 16444 (Part 2)	R			
9.2	R F Technology Requirements	8.2	IS 16444 (Part 2)	S	—	Whenever there is a change in Model/supplier of RF Module	In case of unavailability of in house test facility, the same shall be got tested from BIS recognized OSL for ascertaining the conformity. Alternatively, Test Certificate of supplier may also be accepted.

TABLE 1

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
7, 9.4	Data Exchange Protocol	—	IS 15959 (Part 1) IS 15959 (Part 3)	S	One	Once in two years from BIS recognized Laboratory for Each category as per Cl. 11 of IS 15959 (Part 3)  Once in a year for Each category as per Cl.11 of IS 15959 (Part 3) and variant as per IS 16444 (Part 2)  In the case of failure of any sample, double the number of samples shall be taken for testing and no failure in those samples shall be permitted. Otherwise the control unit shall be rejected. After corrective actions two consecutive control units shall be tested as per the samples indicated in the table and then original frequency shall be restored if both the samples pass.	
8, 9.5	Test of smart meter communicability	8, 9.5	IS 16444 (Part 2)	S	One		
10	Functional Requirement	10	IS 16444 (Part 2)	S	One		

TABLE 1

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
6.10.7	Electrical requirement (Immunity to earth fault)	9.6	IS 14697	S	As per Cl. 9.2 of IS 16444 (Part 2)	Once in a year for each type and rating	In the case of failure of any sample, double the number of samples shall be taken for testing and no failure in those samples shall be permitted. Otherwise the control unit shall be rejected. After corrective actions two consecutive control units shall be tested as per the samples indicated in the table and then original frequency shall be restored if both the samples pass.
6.11	Electromagnetic Compatibility	10	IS 14697	S			
6.12	Accuracy requirement (Limits of error due to influence quantities)	11.2	IS 14697	R			
6.12	Accuracy requirement (Ambient temperature influence)	11.3	IS 14697	R			
6.5	Mechanical Requirements (Shock Test)	12.3.1	IS 14697	S			
	Mechanical Requirements (Vibration Test)	12.3.2	IS 14697	S			
	Mechanical Requirements (Spring Hammer Test)	12.3.3	IS 14697	S			
	Mechanical Requirements (Protection against penetration of dust & water)	6.9, 12.5	IS 14697	S			
6.9	Test for Climatic Influence	8, 12.6	IS 14697	S			
6.10.6	Insulation Properties (Impulse Voltage Test)	9.5	IS 14697	S			

TABLE 1

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
6.2.1, 6.2.2	Terminal Blocks and Terminal Cover	6.4, 6.5, 6.5.1, 6.5.2 & 6.7	IS 14697	S	As per Cl. 9.2 of IS 16444 (Part 2)	Every consignment of insulating material received	Test certificate from manufacturer may be accepted. In case of failure, such lot of consignment shall be rejected.
6.4	Mechanical Requirements (Resistance to heat and fire)	6.8	IS 14697	S			

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: Levels of control given in column 3 are obligatory in nature.

Note-3: For varieties covered in the scope of License, samples manufactured solely for the purpose of technical qualification which are of non-commercial value and are not going for installation may be kept out of the purview of periodic type testing subject to proper supporting documents with the licensee.