



उत्पाद मैनुअल
आई एस 17550 (भाग 1): 2021 के अनुसार
घरेलु प्रशीतन साधित्र – विशेषताएं और परीक्षण विधियां के लिए

दस्तावेज संख्या – पी एम/आई एस 17550 (भाग 1) /1/ अक्टूबर 2022

भारतीय मानक ब्यूरो की स्कीम-I (अनुरूपता मूल्यांकन) विनियम, 2018 के तहत यह उत्पाद मैनुअल प्रमाणीकरण के प्रचालन में रीति और पारिश्रिता की सुसंगतता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसी द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस प्रमाणीकरण लाइसेंस/ प्रमाणपत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज का उपयोग किया जा सकता है।

PRODUCT MANUAL FOR
HOUSEHOLD REFRIGERATING APPLIANCES-
CHARACTERISTICS AND TEST METHODS
ACCORDING to IS 17550 (Part 1):2021

Document No.- PM/IS 17550 (Part 1)/1/October 2022

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

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1.	Product	:	IS 17550 (Part 1): 2021
	Title	:	Household Refrigerating Appliances- Characteristics and Test methods- Part 1- General Requirements
	No. of Amendments	:	NIL
2.	Sampling Guidelines:		
a)	Raw material	:	Supply cord- IS 694; Compressor- IS 10617, Temperature sensing Controls (Thermostat)- IS 60730-2-9
b)	Grouping guidelines	:	Please refer ANNEX – <u>A</u>
c)	Sample Size	:	01 No.
d)	Sampling guidelines during operation of licence	:	Please refer ANNEX – <u>B</u>
3.	List of Test Equipment	:	Please refer ANNEX – <u>C</u>
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – <u>D</u>
5.	Possible tests in a day	:	Please refer ANNEX – <u>E</u>
6.	Scope of the Licence	:	Please refer ANNEX- <u>F</u>

ANNEX A
Grouping Guidelines

1. Household Refrigerating appliances as per IS 17550 (Part 1): 2021 may be classified based on following parameters:

a) Based on refrigerating appliance technology:

- Frost free
- Direct Cool:
 - ✓ Mechanical
 - ✓ Absorption

b) Rated Total Volume, in litres

b) Rated Voltage

c) Door: Single/ Double

d) Frozen Compartment contained:

- ✓ One-star
- ✓ Two-star
- ✓ Three-star
- ✓ Four-star

2. Based on the above classification, following guidelines shall be followed for considering Grant of Licence (GoL)/Change in Scope of Licence (CSoL):

- a) Separate sample of appliances operating on each refrigerating appliance technology shall be tested for covering both technologies.
- b) If all the other parameters of appliances in the range of appliances offered remain same, Refrigerating appliance of largest Rated Total Volume of the range offered shall be tested to cover the entire range of rated total volume offered.
- b) If all the other parameters of appliances in the range of appliances offered remain same, Separate sample of each rated voltage shall be tested for covering all voltages.
- c) If all the other parameters of appliances in the range of appliances offered remain same, Separate sample of each door type shall be tested for covering both types of door types.
- d) Appliances varying in terms of frozen compartments contained: If all the other parameters of appliances in the range of appliances offered remain same then sample of appliance with highest star rating compartment may be tested to cover appliances with lower star rating compartments as well without separate testing of those appliances.
- e) Wine storage appliance (i.e. appliance containing all compartments as wine storage compartments) shall be tested separately.

f) For ECO Mark, additional requirements as per Annex H of IS 17550-1 shall be complied with.

3. All model numbers, along with their refrigerating appliance technology, rated total volumes, rated voltage and frequency, Door type, and frozen compartments contained, intended to be covered in the scope of licence, shall be declared by the manufacturer. The scope of Licence may be restricted based on the Manufacturing and testing capabilities of the Manufacturer. BIS shall endorse the details of models also as an Annexure in the licence document.

4. During operation of the licence if any new model is intended to be covered within the existing scope of licence, the parameters as per para 3 above for all such new model numbers will be declared by licensee to BIS for records. The declaration shall be submitted by the manufacturer as per APPENDIX I through Manakonline (communication window) and the information shall be noted by BIS and these additional models will be endorsed in the licence document by revising the Annexure to the licence document containing the list of models. After submission of the declaration to BIS Branch Office through Manakonline, the licensee may use the standard mark on such new models without waiting for BIS to endorse the models in the licence. **(Licensee shall be able to produce documentary proof of having submitted this information to BIS).**

However, in case any discrepancy is observed post-facto due to which it is viewed that the models are not to be endorsed in the scope (e.g. if the added models do not fall within granted scope), Head of BIS Branch Office concerned, may, after giving the licensee an opportunity to explain, direct the licensee to cease marking on such models, or in case the appliances are already marked and dispatched, issue directions for product recall.

5. During the operation of the Licence, BO shall ensure that all the appliances covered in the Licence are tested in rotation, to the extent possible.

APPENDIX –I**FORMAT FOR DECLARATION FOR ADDING NEW MODELS WITHIN SCOPE OF LICENCE BY LICENSEE**

Date:

Branch Office
Bureau of Indian Standards

Sir/Madam

Subject: DECLARATION FOR ADDING NEW MODELS WITHIN SCOPE OF LICENCE

With reference to my existing licence for Household Refrigerating Appliances- General requirements (Licence No CM/L-.....), I request BIS to add the following new models in the scope of my licence

List of new models intended to be covered in existing scope of licence

Model	Model 1	Model 2	Model 3
Technical parameter			
Refrigerating appliance technology			
Rated total Volume, in litres			
Rated Voltage			
Door type			
Frozen Compartments contained			

I declare that the above models, as indicated above, fall within the existing scope of my licence.

I declare that the above information is true and correct to the best of my knowledge and undertake that in case my declaration is found defective or incorrect BIS may take action as deemed appropriate as per the BIS Act, Rules and Regulations which we shall comply with including recall of such products from the market.

Signature with date of Firm's authorized signatory

Name and designation

ANNEX B

Sampling Guidelines During Operation of Licence

- During an operative year of a licence, 1 Market Sample shall be drawn for complete testing.
- Factory surveillance shall be conducted for 2 days, during which following tests shall be conducted on minimum 2 models available during visit: Marking (Cl. 5), Temperature Sensing Control setting (Cl. 8.11), Air tightness of doors or lids (Cl. 9), Force of opening of doors and lids (Cl. 10), Water vapor condensation test (Cl. 13 and Cl. 4.6 (d) of IS 17550-2), Protection against access to live parts (Cl. 16 (a)), Power input and current (Cl. 16 (b)), Leakage current and HV test (Cl. 16 (d)), Earth Continuity test (Cl. 20.3 (b)), Electric Strength test (Cl. 20.3 (c)), Pull down test (Cl. 4.6 (a) of IS 17550-2), Measurement of Volume (Cl. 4.8 of IS 17550-3)
- No Factory Sample to be drawn during operation of licence.

ANNEX C**List of Test Equipment***Major test equipment required to test as per the Indian Standard*

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	Air tightness of doors and lids, Cl. 9	Strip of paper of required width and thickness, Micrometer
2.	Force of opening of doors and lids, Cl. 10	Force measuring instrument such as Force gauges or any other suitable device
3.	Durability test for Hinges and Handles of Doors and Lids, Cl. 11	Door Durability Tester / Door Fatigue Tester / Door opening –Closing cyclic arrangement fitted with angle protactor, cycle counter measurement device
4.	Mechanical Strength test of the shelves and similar components , Cl. 12	Height measure, Caliper or Ruler, Load
5.	Water-Vapour Condensation test, Cl. 13	Equipment to maintain humidity and temperature as per Annex D of IS 17550-2
6.	Ice making test, if applicable, Cl. 14	Test room as per Annex A of IS 17550-1
7.	Test for absence of odour and taste, Cl. 15	Analytical samples and check samples as per Cl. 15 of IS 17550-1
8.	Strength-Pressure test for components, Cl. 5.4, Cl. 11.7	HST pressure arrangement with pressure gauges/Air Pressure arrangement or arrangement for pressure with nitrogen gas
9.	Storage test, Cl. 6 of IS 17550-2	• Environment Test Chamber/test room • Thermocouple/Wire Sensors • Instrument for measuring Voltage, Current and power • RTD sensors • Dimmer/ Voltage and power Controller • Data Monitoring System , PLC. • Test Packages & M packages (Dimension and Mass as given in ISS) • Humidifier
10.	Cooling capacity test, Cl. 7 of IS 17550-2	
11.	Freezing capacity test, Cl. 8 of IS 17550-2	
12.	Automatic ice-making capacity test, Cl. 9 of IS 17550-2	
13.	Pull down test, Cl. 4.6 (a) of IS 17550-2	
14.	Wine Storage test, Cl. 4.6 (a) of IS 17550-2	

15.	Temperature rise test, Cl. 4.6 (c) of IS 17550-2	Environment Test Chamber/test room • Thermocouple/Wire Sensors
16.	Determination of Energy Consumption, Cl. 6 of IS 17550-3	• Instrument for measuring Voltage, Current and power • RTD sensors • Dimmer/ Voltage and power Controller • Data Monitoring System , PLC. • Test Packages & M packages (Dimension and Mass as given in ISS) • Humidifier
17.	Measurement of Volume, Cl. 4.8 and Annex H of IS 17550-3	Measuring tape, calliper, micrometer
18.	Thermostat functioning test, Cl. 8.11	Instruments to measure the cut off conditions
Safety requirements , Cl. 16		
19.	Protection Against access to live parts, Cl. 8 of IS 302-1	Test probe B, 13 and 41 of IS 1401, Voltmeter, milli-ammeter, force gauges, 2000 ohm non-inductive resistor,
20.	Power input and current, Cl. 10 of IS 302-1	Voltmeter, Ammeter, Wattmeter, Timer
21.	Heating, Cl. 11 of IS 302-1	Temp recorder, Fine wire thermocouples, Winding resistance measurement system, Test Corner, probe for measurement of surface temperature
22.	Leakage current and electric strength at operating temperature, Cl. 13 of IS 302-1	IR Meter, Micro ammeter, HV Tester, Stopwatch
23.	Leakage current and Electric Strength (after humidity exposure), Cl. 16 of IS 302-1	Humidity Chamber with Temperature and Humidity controller, Leakage Current Tester/ Low impedance ammeter, HV test supply

The above list is indicative only and may not be treated as exhaustive.

ANNEX D

Scheme of Inspection and Testing

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 requirement of IS 17550 (Part 1), IS 17550 (Part 2) and IS 17550 (Part 3).

Additionally, following information shall also be marked on each appliance: Rated Voltage and rated frequency of supply, frozen compartment contained, Number of doors and Energy Consumption in Watts.

4. CONTROL UNIT –All Refrigerating appliances with same model number produced in one shift of production 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.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

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 Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
4	Construction						
5	Marking	5	IS 17500-1	-	One	Each Control Unit	-
8.6	Disposal of defrost water	8.6	IS 17550-1	-	One	Each Control Unit	-
8.7	Refrigerating system	8.7	IS 17550-1	-	One	Each Control Unit	
8.8	Supply cord	8.8	IS 17550-1 IS 694	S	Supply cord and Compressors are under mandatory BIS Certification and only ISI Marked material shall be received and used.		
8.9	Compressors	8.9	IS 17550-1 IS 10617	S			
8.10	Temperature Sensing Controls	8.10	IS 17550-1 IS 60730-2-9	S	One sample from each consignment	No further testing required in case material received is ISI Marked or	

							received along with test certificate
8.11	Temperature Sensing Control setting	8.11	IS 17550-1	R	One	Each Control Unit	-
9	Air tightness of doors or lids	9	IS 17550-1	R	One	Each Control Unit	-
10	Force of opening of doors and lids	10	IS 17550-1	R	One	Once in 3 months	-
11	Durability of hinges and handles of doors and lids	11	IS 17550-1	R	One	Once in a year	Testing shall be done in such a way that sample of all model numbers produced in a year is tested at least once in a year.
8.5, 12	Mechanical strength of shelves and similar components	12	IS 17550-1	R	One	Once in a year	
13	Water vapour Condensation	13 4.6 (d)	IS 17550-1 IS 17550-2	R	One	Once in a year	
14	Ice making test	14	IS 17550-1	R	One	Once in a year	
15	Test for absence of odour and taste	15	IS 17550-1	R	One	Once in a year	
16	Safety Requirements						

	Protection against access to live parts	16 (a) 8	IS 17550-1 IS 302-1	R	Each appliance		-
	Power input and current	16 (b) 10	IS 17550-1 IS 302-1	R	One	Each Control Unit	-
	Heating	16 (c) 11	IS 17550-1 IS 302-1	R	One	Once in a year	Testing shall be done in such a way that sample of all model numbers produced in a year is tested at least once in a year.
	Moisture resistance	16 (e) 15	IS 17550-1 IS 302-1	R	One	Once in a year	
	Leakage current and electric strength (high voltage after humidity)	16 (f) 16	IS 17550-1 IS 302-1	R	One	Once in a year	
	Leakage Current and electric strength at operating temperature	16 (d) 13	IS 17550-1 IS 302-1	R	Each appliance		-
20.1	Storage test	6	IS 17550-2	R	One	Once in a year	Testing shall be done in such a way that sample of all model numbers produced in a year is tested at least once in a year.

20.1	Cooling capacity test	7	IS 17550-2	R	One	Once in a year	Testing shall be done in such a way that sample of all model numbers produced in a year is tested at least once in a year.
20.1	Freezing capacity test	8	IS 17550-2	R	One	Once in a year	
20.1	Automatic Ice making capacity test	9	IS 17550-2	R	One	Once in a year	
20.1	Pull down test	4.6 (a)	IS 17550-2	R	One	Once in a year	
20.1	Wine storage test	4.6 (b)	IS 17550-2	R	One	Once in a year	
20.1	Temperature rise test	4.6 (c)	IS 17550-2	R	One	Once in a year	
20.1	Measurement of volume	4.8 Annex H	IS 17550-3	R	One	Once in a year	
20.1	Determination of Energy Consumption	6	IS 17550-3	R	One	Once in a year	

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, to which the licensee shall comply with.

ANNEX E

Possible Tests in a Day

- 1) Pull down test, Cl. 4.6 (a) of IS 17550-2
- 2) Wine storage test, Cl. 4.6 (b) of IS 17550-2
- 3) Measurement of volume, Cl. 4.8 of IS 17550-3
- 4) Air tightness of doors or lids, Cl. 9 of IS 17550-1
- 5) Force of opening of doors and lids, Cl. 10 of IS 17550-1
- 6) Mechanical Strength of shelves and similar components, Cl. 12 of IS 17550-1
- 7) **Safety tests as per IS 302-1**
 - a) Protection against Access to live parts, Cl. 16 (a) of IS 17550-1 and Cl. 8 of IS 302-1
 - b) Power Input and current, Cl. 16 (b) of IS 17550-1 and Cl. 10 of IS 302-1
 - c) Leakage current and HV Test , Cl. 16(d) of IS 17550-1 and Cl. 13 of IS 302-1
 - d) Earth Continuity test, Cl. 20.3 (b) of IS 17550-1 and A-1 of IS 302-1
 - e) Electric strength test, Cl. 20.3 (d) of IS 17550-1 and A-2 of IS 302-1

ANNEX F**Scope of Licence**

“Licence is granted to use Standard Mark as per IS 17550 (Part 1):2021 with the following scope:	
Name of the product	Household Refrigerating appliances- General Requirements
Refrigerating appliance technology	
Rated total Volume, up to and including, in litres	
Rated Voltage	
Door type	
Frozen Compartments contained	

Annexure to Scope of licence-List of models covered in scope of licence

Model	Model 1	Model 2	Model 3
Technical parameter			
Refrigerating appliance technology			
Rated total Volume, in litres			
Rated Voltage			
Door type			
Frozen Compartments contained			