



PRODUCT MANUAL FOR DUCTED AND PACKAGE AIR- CONDITIONERS ACCORDING TO IS 8148: 2018

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 license/certificate.

1.	Product	:	IS 8148: 2018
	Title	:	Ducted and Package Air Conditioners
	No. of Amendments	:	NIL
2.	Sampling Guidelines:		
a)	Raw material	:	As per Cl. 4
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	Please refer ANNEX – B
3.	List of Test Equipment	:	Please refer ANNEX – C
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – D
5.	Possible tests in a day	:	Please refer ANNEX – E
6.	Scope of the Licence	:	Please refer ANNEX – F
7.	Any other product specific guidelines	:	Please refer ANNEX – G

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ANNEX--A

GROUPING GUIDELINES

1. The following parameters are taken into consideration for evolving the grouping guidelines for certification as per IS 8148: 2018:
 - a) **Classifications based upon function and construction:**
 - (i) Ducted/Packaged heat pump units for both Cooling and Heating with Air-cooled condenser
 - (ii) Ducted/Packaged Air Conditioner units for Cooling only with Air-cooled condenser
 - (iii) Ducted/packageged Air Conditioner units for cooling only with water-cooled condenser
 - b) **Classifications based upon type of product:**
 - (i) Indoor unit (IDU) only
 - (ii) Outdoor unit (ODU) only
 - (iii) Ducted/Packaged Air Conditioners (Both IDU and ODU)
2. Further, the maximum cooling capacity is not limited by the Standard.
3. Considering the above, separate sample of units with air cooled condenser and water-cooled condenser shall be tested. However, if heat pump units with air-cooled condenser for both cooling and heating are tested then units with air-cooled condenser for cooling only may also be covered. Further, sample of units of maximum cooling capacity shall be tested for covering the entire range of air-conditioners. The test protocol shall be as given below depending upon the type of manufacturer:
 - ***Manufacturer of IDU only - Sample of IDU for Production Routine Tests only.***
 - ***Manufacturer of ODU only - Sample of ODU for Production Routine Tests only.***
 - ***Manufacturer of Ducted/Package AC – Sample of Ducted/Package AC for complete testing.***
4. Samples of either of Ducted or of Packaged units shall be tested to cover both Ducted and Package units as they vary mainly in installation method only.
5. The manufacturer shall declare the type of product, function and construction and cooling capacities they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
6. During the operation of Licence, it shall be ensured that all the varieties covered in the Licence are tested in rotation, to the extent possible.

7. A typical example for drawal of sample to cover the entire varieties under the scope of the License is given for the purpose of general guidance:

(a) Manufacturer of IDU only

Sample 1	Indoor Unit for both Cooling and Heating with Air-cooled condenser - Corresponding to ODU of Maximum Rated Cooling Capacity (in Watts)
Sample 2	Indoor Unit for cooling only with water cooled condenser Corresponding to ODU of Maximum Rated Cooling Capacity (in Watts)

(b) Manufacturer of ODU only

Sample 1	Outdoor Unit for both Cooling and Heating with Air-cooled condenser, Maximum Rated Cooling Capacity (in Watts)
Sample 2	Outdoor Unit for cooling only with water cooled condenser, Maximum Rated Cooling Capacity (in Watts)

(c) Manufacturer of Ducted/ Package AC

Sample 1	Ducted/ Packaged Heat pump units for both Cooling and Heating with Air-cooled condenser, Maximum Rated Cooling Capacity (in Watts)
Sample 2	Ducted/Packaged Air-conditioner units for cooling only with water cooled condenser, Maximum Rated Cooling Capacity (in Watts)

ANNEX--B**SAMPLE SIZE**

1. For considering Grant of Licence/ Change in Scope of Licence, complete Factory Testing shall be carried out as given below:

Type of Manufacturer	Sample details	Remarks
Manufacturer of IDU only	One Indoor Unit	Verification of Constructional Requirements and Production Routine Tests as per Table 1A of SIT
Manufacturer of ODU only	One Outdoor Unit	Verification of Constructional Requirements and Production Routine Tests as per Table 1B of SIT
Manufacturer of Ducted/ Packaged AC	One Ducted/ Packaged Air Conditioner	Complete testing as per IS 8148

2. No separate sample shall be drawn for Independent Testing and Licence is to be operated on Factory Testing basis.

ANNEX-C**List of Test Equipment***Major test equipment required to test as per the Indian Standard**(a) IDU only*

Sr No	Tests used in with clause reference	Test equipment
1.	Corrosion resistance test , Cl. 4	Salt spray chamber
2.	Running Test. Cl 12.2.1	Run test facility
3.	Pressure test or Leakage Test, Cl. 12.2.2	Pressure test set up, Pressure gauge
4.	Insulation Resistance Test, Cl. 12.2.3	Megger
5.	High Voltage Test, Cl. 12.2.4	High Voltage tester
6.	Leakage Current Test, Cl. 12.2.5	Leakage current tester
7.	Earth Resistance Test, Cl. 12.2.6	Voltage Source, Milli-ohmmeter

(b) ODU only

Sr No	Tests used in with clause reference	Test equipment
1.	Corrosion resistance test , Cl. 4	Salt spray chamber
2.	Running Test. Cl 12.2.1	Run test facility
3.	Pressure test or Leakage Test, Cl. 12.2.2	Pressure test set up, Pressure gauge
4.	Insulation Resistance Test, Cl. 12.2.3	Megger
5.	High Voltage Test, Cl. 12.2.4	High Voltage tester
6.	Leakage Current Test, Cl. 12.2.5	Leakage current tester
7.	Earth Resistance Test, Cl. 12.2.6	Voltage Source, Milli-ohmmeter

(c) Ducted/Package AC

Sr No	Tests used in with clause reference	Test equipment
1.	Corrosion resistance test , Cl. 4	Salt spray chamber
2.	Pressure test, Cl. 12.2.2	Pressure gauge
3.	Insulation resistance test, Cl. 12.2.3	Megger
4.	High Voltage Test, Cl. 12.2.4	High Voltage tester
5.	Leakage Current Test, Cl. 12.2.5	Leakage current tester
6.	Earth Resistance test, Cl. 12.2.6	Voltage Source, Milli-ohmmeter
7.	Capacity rating test, Cl. 8.1 and Heating Capacity test , Cl. 9.1	Apparatus as per either Annex D or Annex E
8.	Maximum Cooling Conditions test, Cl. 8.3	Test bench as per Cl. 8.3
9.	Freeze up test Cl. 8.4	Test bench as per Cl. 8.4
10.	Drip test, Cl. 8.5	Test bench as per Cl. 8.5
11.	Enclosure sweat test, Cl. 8.6	Test bench as per Cl. 10.6
12.	Condensate disposal test, Cl. 8.7	Test bench as per Cl. 8.7
13.	Power consumption test, Cl. 8.8	Power meter
14.	Maximum Heating Performance test, Cl. 9.2	Test bench as per Cl. 9.2
15.	Automatic Defrost Performance test, Cl. 9.3	Test bench as per Cl. 9.3
16.	Sound test, Cl. 11	Noise measuring room as per Fig.7, Noise measuring instrument as per Cl. 11.4
17.	Safety test, Cl. 12.3.3	Earth continuity tester, High Voltage tester, Leakage current tester

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 equipments.

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 8148: 2018. Please also refer to *Annex G*.

4. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1A, Table 1B, and Table 1C and the levels of control in column 3 of Table 1A, Table 1B, and Table 1C, as applicable, 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. Please also refer to *Annex G*.

5. 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 1A**(IDU Only)**

(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						
4.1 to 4.11	Construction (except salt spray test as per clause 4.2 and 4.5)	4.1 to 4.11	IS 8148	S	Adequate random Inspection as per Internal Quality Assurance Plan of the Licensee. Raw material/Components as applicable for the manufacturing of IDU which are covered under mandatory certification of BIS shall be ISI marked and received along with manufacturers test certificate. For other materials as applicable for the manufacturing of IDU , conformity shall be established as per Internal Quality Assurance Plan of the licensee and no further testing is required if received with a test certificate or is ISI Marked.		
	Salt spray test	4.2, 4.5 3	IS 8148 IS 101 (Part 6/Sec1)	S	No further testing is required if received with a test certificate		
12.2	<i>Production Routine Test</i>						
12.2.1	Running Test	12.2.1	IS 8148	R	Each IDU	—	
12.2.2	Pressure Test or Leakage Test	12.2.2	IS 8148			—	
12.2.3	Insulation Resistance Test	12.2.3	IS 8148				

12.2.4	High Voltage Test	12.2.4 Annex A	IS 8148 IS 302 (Part 1)	R	Each IDU	—
12.2.5	Leakage Current Test	12.2.5, 12.3.3(f) 13.2	IS 8148 IS 302 (Part 1)			—
12.2.6	Earth Resistance Test	12.2.6, 12.3.3(e) 27	IS 8148 IS 302 (Part 1)			—
12.4	Acceptance Tests	12.4	IS 8148	As agreed to between manufacturer and purchaser.		

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

Note-2: The levels of control as decided by the Bureau are obligatory to which the licensee shall comply with.

TABLE 1B**(ODU Only)**

(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						
4.1 to 4.11	Construction	4.1 to 4.11 3	IS 8148 IS 101 (Part6/Sec1)	S	Adequate random Inspection as per Internal Quality Assurance Plan of the Licensee. Raw material/Components as applicable for the manufacturing of ODU which are covered under mandatory certification of BIS shall be ISI marked and received along with manufacturers test certificate. For other materials as applicable for the manufacturing of ODU , conformity shall be established as per Internal Quality Assurance Plan of the licensee and no further testing is required if received with a test certificate or is ISI Marked.		
	Salt spray test	4.2, 4.5 3	IS 8148 IS 101 (Part 6/Sec1)	S	No further testing is required if received with a test certificate		
12.2	<i>Production Routine Test</i>						
12.2.1	Running Test	12.2.1	IS 8148	R	Each ODU	—	
12.2.2	Pressure Test or Leakage Test	12.2.2	IS 8148			—	
12.2.3	Insulation Resistance Test	12.2.3	IS 8148			—	

12.2.4	High Voltage Test	12.2.4 Annex A	IS 8148 IS 302 (Part 1)	R	Each ODU	—
12.2.5	Leakage Current Test	12.2.5, 12.3.3(f) 13.2	IS 8148 IS 302 (Part 1)			—
12.2.6	Earth Resistance Test	12.2.6, 12.3.3(e) 27	IS 8148 IS 302 (Part 1)			—
12.4	<i>Acceptance Tests</i>	12.4	IS 8148	As agreed to between manufacturer and purchaser.		

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

Note-2: The levels of control as decided by the Bureau are obligatory to which the licensee shall comply with.

TABLE 1C**(Ducted/Packaged Air Conditioner)**

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Subcontracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
4	CONSTRUCTION						
4.1 to 4.11	Construction	4.1 to 4.11 3	IS 8148 IS 101 (Part6/Sec1)	S		Adequate random Inspection as per Internal Quality Assurance Plan of the Licensee. Raw material/Components as applicable for the manufacturing of Ducted and Packaged AC which are covered under mandatory certification of BIS shall be ISI marked and received along with manufacturers test certificate. For other materials as applicable for the manufacturing of Ducted and Packaged AC, conformity shall be established as per Internal Quality Assurance Plan of the licensee and no further testing is required if received with a test certificate or is ISI Marked.	
	Salt spray test	4.2, 4.5 3	IS 8148 IS 101 (Part 6/Sec1)	S		No further testing is required if received with a test certificate	
5, 8, 9, 11, 12.3	RATING REQUIREMENTS, PERFORMANCE REQUIREMENTS, HEATING CAPACITY TESTS, SOUND TEST, TYPE TESTS						
12.3.3	Protection against access to the live part	8	IS 302 (Part 1)	S	One	At the time of design approval or whenever there is change in design (also refer Note 1)	
	Earth continuity test	Type test as per IS 302-1		S	One		

	Electric strength test	13.3	IS 302 (Part 1)	S	One	At the time of design approval or whenever there is change in design (also refer Note 1)
	Functional test	Type test as per IS 302-1		R	One	At the time of design approval or whenever there is change in design (also refer Note 1)
8.1 12.3.1	Capacity rating test	8.1	IS 8148	S	One	Once in two years for each type and rating. (also refer Note 1)
8.3	Maximum cooling conditions test	8.3	IS 8148	S	One	Once in two years for each type and rating. (also refer Note 1)
8.4 12.3.1	Freeze Up Test	8.4	IS 8148	S	One	Once in a year or whenever there is a change in design, whichever is earlier (also refer Note 1).
8.5 12.3.1	Drip test	8.5	IS 8148	S	One	
8.6 12.3.1	Enclosure Sweat Test	8.6	IS 8148	S	One	
8.7 12.3.1	Condensate Disposal Test	8.7	IS 8148	S	One	Once in two years for each rating(also refer Note 1).
8.8 12.3.1	Power Consumption Test	8.8	IS 8148	S	One	Once in two years for each rating (also refer Note 1).
11	Sound Test	11	IS 8148	S	One	Once in two years for each type (also refer Note 1).
9.1	Heating Capacity Test	10.12	IS 8148	S	One	Once in two years for each type and rating (also refer Note 1).
9.2	Maximum Heating Performance Test	9.2	IS 8148	S	One	Once in two years for each type and rating (also refer Note 1).

9.3	Automatic Defrost Performance test	9.3	IS 8148	S	One	Once in two years for each type and rating (also refer Note 1).
12.3.1	Room discharge airflow rating test	Annex C	IS 8148	S	One	Once in two years for each type and rating (also refer Note 1).
12.2	<i>Production Routine Test</i>					
12.2.1	Running Test	12.2.1	IS 8148	R	Each Air Conditioner	—
12.2.2	Pressure Test or Leakage Test	12.2.2	IS 8148	R		
12.2.3	Insulation resistance test	12.2.3	IS 8148	R		
12.2.4	High Voltage Test	12.2.4 Annex A	IS 8148 IS 302 (Part 1)	R		
12.2.5	Leakage Current Test	12.2.5, 12.3.3 (f) 13.2	IS 8148 IS 302 (Part 1)	R		
12.2.6	Earth Resistance Test	12.2.5, 12.3.3 (f) 27	IS 8148 IS 302 (Part 1)	R		
12.4	<i>Acceptance Tests</i>	12.4	IS 8148	As agreed to between manufacturer and purchaser.		

Note- 1: The test shall be done whenever there is a change in design or change in the supplier of either IDU or ODU for outsourced units.

Note- 2: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-3: The levels of control as decided by the Bureau are obligatory to which the licensee shall comply with.

ANNEX – E

Possible tests in a day

(a) Manufacturer of IDU only

- i) Running Test (Cl. 12.2.1)
- ii) Pressure Test or Leakage Test (Cl. 12.2.2)
- iii) Insulation Resistance Test (Cl. 12.2.3)
- iv) High Voltage Test (Cl. 12.2.4)
- v) Leakage Current Test (Cl. 12.2.5)
- vi) Earth Resistance Test (Cl. 12.2.6)

(b) Manufacturer of ODU only

- i) Running Test (Cl. 12.2.1)
- ii) Pressure Test or Leakage Test (Cl. 12.2.2)
- iii) Insulation Resistance Test (Cl. 12.2.3)
- iv) High Voltage Test (Cl. 12.2.4)
- v) Leakage Current Test (Cl. 12.2.5)
- vi) Earth Resistance Test (Cl. 12.2.6)

(c) Manufacturer of Ducted/Package AC

- i) General Running (Cl. 12.2.1)
- ii) Pressure Test (Cl. 12.2.2)
- iii) Insulation Resistance test (Cl. 12.2.3)
- iv) High Voltage Test (Cl. 12.2.4)
- v) Leakage Current Test (Cl. 12.2.5)
- vi) Earth resistance (Cl. 12.2.6)
- vii) Maximum Operating Conditions test (Cl. 8.3)
- viii) Enclosure Sweat test (Cl. 8.6)

Note: During each visit, IO shall check that all the components used in manufacturing (either bought-out or manufactured in-house) which are covered under various QCOs [e.g.: Cables as per IS 694/IS 9968-1, Capacitors as per IS 2993, Finned Type Heat Exchangers as per IS 11329, Hermetic Compressors as per IS 10617, Temperature Sensing Controls as per IS 60730-2-9 etc.], as applicable, are ISI Marked under a valid BIS licence.

ANNEX F**Scope of Licence**

“Licence is granted to use Standard Mark as per IS 8148: 2018 with the following scope:

Name of the product	Ducted/ Packaged Air Conditioners (Please also refer to <i>Annex G</i> for specific situations)
Classification based on function	
Cooling Capacity (up to and including)	

ANNEX - G

Guidelines for Certification of Ducted/Pacakage Air Conditioner (AC)
having Indoor Unit (IDU) and Outdoor Unit (ODU)

1. This has reference to the Certification of Ducted and Packaged Air Conditioner (AC) having Indoor Unit (IDU) and Outdoor Unit (ODU) as per IS 8148.
2. As per Para 1 (i) of Scheme-I of Schedule- II of the BIS (Conformity Assessment) Regulations, 2018, a license can be granted by Bureau for products manufactured in a manufacturing premises. Further, as per Para 3 (1) (a) (ii) of Scheme-I of Schedule- II of these Regulations, a part of the manufacturing activity may be outsourced.
3. The following are the possible scenario in the manufacturing of Ducted/Packaged Air Conditioner having Indoor Unit (IDU) and Outdoor Unit (ODU):
 - (A) In-house manufacturing of IDU only.
 - (B) In-house manufacturing of ODU only.
 - (C) In-house manufacturing of both IDU and ODU and selling as individual units only *or* In-house manufacturing of both IDU and ODU and selling as individual units as well as complete Ducted/Packaged AC.
 - (D) In-house manufacturing of IDU and Outsourcing of ODU (i.e purchasing of ODU either from domestic or foreign manufacturer) and selling as complete Ducted/Packaged AC *or* In-house manufacturing of ODU and Outsourcing of IDU (i.e purchasing of IDU either from domestic or foreign manufacturer) and selling as complete Ducted/Packaged AC.
 - (E) Outsourcing of both IDU and ODU (i.e purchasing of both IDU and ODU either from domestic or foreign manufacturer).
4. (i) The manufacturer who intends to obtain BIS Certification Licence for Ducted/Packaged AC as per IS 8148 shall normally have complete in-house manufacturing facility. However, considering the possible manufacturing scenario of Ducted/Packaged AC Industry, **outsourcing of part of the manufacturing activity may be permitted to the extent of one of the units only (i.e either IDU or ODU only) for certification of Ducted/Packaged AC as per IS 8148.**
 - (ii) **Under any circumstances, purchasing of both the units (i.e ISI marked IDU as well as ISI marked ODU) shall not be permitted for the certification of Ducted/Packaged AC.**
 - (iii) **For obtaining BIS licence, at least one of the units (i.e. either IDU or ODU) shall be manufactured in-house. In other words, persons who are not having in-house manufacturing facilities either for IDU or for ODU shall not be eligible for obtaining BIS licence.**
5. Accordingly, the guidelines given below shall be followed for Certification of Air Conditioners as per IS 8148:

(A) Manufacturer of only IDU (in-house)

- i) Every manufacturer who is carrying out in-house manufacturing of only IDU shall obtain licence from BIS for the product type **Indoor Unit** as per IS 8148. In such cases, the scope of BIS licence will be **“Indoor Unit Only”**.
- ii) The manufacturer shall have complete in-house testing facility for all the **Production Routine tests** for IDU as per IS 8148 and shall carry out due testing of IDU as per the Scheme of Inspection and Testing (SIT) and maintain records.
- iii) The manufacturer shall ensure that all the components used in manufacturing (either bought out or manufactured in-house) which are covered under the mandatory certification of BIS through various QCOs (e.g: Cables as per IS 694/ IS 9968-1, Capacitors as per IS 2993, Finned Type Heat Exchangers as per IS 11329, Hermetic Compressors as per IS 10617, Temperature Sensing Controls as per IS 60730-2-9 etc.), as applicable, are ISI Marked under a valid BIS licence.
- iv) Upon obtaining BIS licence, the licensee shall ensure that all the information as per IS 8148 as well as the SIT are marked on each IDU only after due testing of IDU as per the SIT.
- v) Each IDU shall be marked with the BIS Standard Mark as given below and the **responsibility of the Quality of ISI marked IDU shall vest with the IDU licensee:**



- vi) **(a) The IDU manufacturer shall sell ISI marked IDU to those manufacturers only who holds BIS licence for the complete product Ducted/Packaged AC (i.e Licensee at item ‘5D’ or even to licensee at item ‘5C’).**
 - (b) An undertaking shall be furnished by the IDU manufacturer to BIS to the effect that the ISI marked IDU will be sold to BIS licensees for the complete product Ducted/Packaged AC only.
 - (c) However, the actual physical supply of the ISI marked IDU may be to any place other than the licenced premises of the Ducted/Packaged AC manufacturer also. The details of all such supplies shall be maintained by the IDU licensee and shall be produced to BIS on demand. An undertaking in this respect shall be obtained from the IDU manufacturer.

(B) Manufacturer of only ODU (in-house)

- i) Every manufacturer who is carrying out in-house manufacturing of only ODU shall obtain licence from BIS for the product type ***Outdoor Unit*** as per IS 8148. In such cases, the scope of BIS licence will be ***“Outdoor Unit Only”***.
- ii) The manufacturer shall have complete in-house testing facility for all the ***Production Routine tests*** for ODU as per IS 8148 and shall carry out due testing of ODU as per the Scheme of Inspection and Testing (SIT) and maintain records.
- iii) The manufacturer shall ensure that all the components used in manufacturing (either bought out or manufactured in-house) which are covered under the mandatory certification of BIS through various QCOs (e.g: Cables as per IS 694/ IS 9968-1, Capacitors as per IS 2993, Finned Type Heat Exchangers as per IS 11329, Hermetic Compressors as per IS 10617, Temperature Sensing Controls as per IS 60730-2-9 etc.), as applicable, are ISI Marked under a valid BIS licence.
- iv) Upon obtaining BIS licence, the licensee shall ensure that all the information as per IS 8148 as well as the SIT are marked on each ODU only after due testing of ODU as per the SIT.
- v) Each ODU shall be marked with the BIS Standard Mark as given below and the **responsibility of the Quality of ISI marked ODU shall vest with the ODU licensee:**

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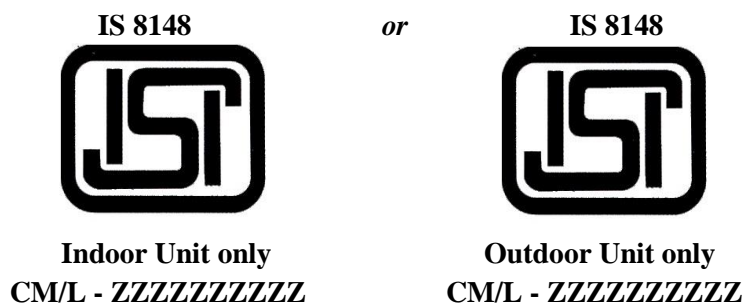
Outdoor Unit only

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- vi) (a) **The ODU manufacturer shall sell ISI marked ODU to those manufacturers only who holds BIS licence for the complete product Ducted/Packaged AC (*i.e Licensee at item ‘5D’ or even to licensee at item ‘5C’*).**
 - (b) An undertaking shall be furnished by the ODU manufacturer to BIS to the effect that the ISI marked ODU will be sold to BIS licensees for the complete product Ducted/Packaged AC only.
 - (c) However, the actual physical supply of the ISI marked ODU may be to any place other than the licenced premises of the Ducted/Packaged AC manufacturer also. The details of all such supplies shall be maintained by the ODU licensee and shall be produced to BIS on demand. An undertaking in this respect shall be obtained from the ODU manufacturer.

(C) Manufacturer of both IDU and ODU (both in-house)

- i) (a) Every manufacturer who is carrying out in-house manufacturing of both IDU and ODU shall obtain licence from BIS for the product types **Indoor Unit** and **Outdoor Unit** as per IS 8148. In such cases, the scope of BIS licence will be “**Indoor Unit Only**” and “**Outdoor Unit Only**”.
- (b) However, if the manufacturer intends to manufacture the complete product Ducted/Packaged AC also in the same premises, the scope of BIS licence will include “**Ducted/Packaged AC**” also.
- ii) (a) The manufacturer shall have complete in-house testing facility for all the **Production Routine tests** for IDU as well as ODU as per IS 8148 and shall carry out due testing of IDU and ODU as per the Scheme of Inspection and Testing (SIT) and maintain records.
- (b) **In addition, the manufacturer who has taken licence for the complete product Ducted/Packaged AC shall also comply with the provisions of the SIT w.r.t testing of the complete product Ducted/Packaged AC and maintain records.**
- iii) The manufacturer shall ensure that all the components used in manufacturing (either bought out or manufactured in-house) which are covered under the mandatory certification of BIS through various QCOs (e.g: Cables as per IS 694/ IS 9968-1, Capacitors as per IS 2993, Finned Type Heat Exchangers as per IS 11329, Hermetic Compressors as per IS 10617, Temperature Sensing Controls as per IS 60730-2-9 etc.), as applicable, are ISI Marked under a valid BIS licence.
- iv) Upon obtaining BIS licence, the licensee shall ensure that all the information as per IS 8148 as well as the SIT are marked on each IDU and each ODU as well as the complete product Ducted/Packaged AC (as applicable) only after due testing of IDU, ODU and the complete product Ducted/Packaged AC (as applicable) as per the SIT.
- v) (a) Each IDU and each ODU intended to be sold as individual unit only shall be marked with the BIS Standard Mark as given below and the **responsibility of the Quality of ISI marked IDU and ISI marked ODU shall vest with the licensee:**



- (b) Each IDU and each ODU used for the manufacturing of the complete product Ducted/Packaged AC shall be marked with the BIS Standard Mark as given below and the **responsibility of the Quality of ISI marked Ducted/Packaged AC shall vest with the Ducted/Packaged AC licensee:**

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vi) (a) **The manufacturer shall sell ISI marked IDU or ISI marked ODU to those manufacturers only who holds BIS licence for the complete product Ducted/Packaged AC (i.e Licensee at item '5D' or even to any other licensee at item '5C').**

(b) An undertaking shall be furnished by the manufacturer to BIS to the effect that the ISI marked IDU or ISI marked ODU will be sold to BIS licensees for the complete product "Ducted/Packaged AC" only.

(c) However, the actual physical supply of such ISI marked IDU or ISI marked ODU may be to any place other than the licensed premises of the Ducted/Packaged AC manufacturer also. The details of all such supplies shall be maintained by this licensee who is making such supplies and shall be produced to BIS on demand. An undertaking in this respect shall be obtained from this manufacturer.

vii) (a) **However, due to any reason, if the Ducted/Packaged AC licensee intends to purchase any of the units (i.e either ISI marked IDU or ISI marked ODU) from any other manufacturer, it shall be purchased from BIS licensees only (i.e. Licensee at item '5A' or '5B' or '5D' or even from any other licensee at item '5C').**

(b) An undertaking shall be furnished by the Ducted/Packaged AC manufacturer to BIS to the effect that the ISI marked IDU or ISI marked ODU (as the case may be) will be purchased from BIS licensees only.

(c) However, the actual physical receipt of such ISI marked IDU or ISI marked ODU may be at any place other than the licenced premises of this Ducted/Packaged AC manufacturer also. The details of all such receipts shall be maintained by this Ducted/Packaged AC licensee and shall be produced to BIS on demand. An undertaking in this respect shall be obtained from this Ducted/Packaged AC manufacturer.

(d) In such cases where one of the units (i.e either ISI marked IDU or ISI marked ODU, as the case may be) is purchased from BIS licensee, the Standard Mark as given below shall be used on the other unit manufactured in-house (i.e ODU or IDU, as the case may be):

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(e) Under any circumstances, purchasing of both the units (i.e ISI marked IDU as well as ISI marked ODU) shall not be permitted for the manufacturing of same Ducted/Packaged AC. In other words, at least one of the units (ie. either IDU or ODU) used in the manufacturing of same Ducted/Packaged AC shall be manufactured in-house.

(D) Manufacturer of Ducted/Packaged AC (where one of the units i.e IDU or ODU is manufactured in-house and the other unit i.e ODU or IDU is purchased from outside)

- i) Every Ducted/Packaged AC manufacturer who is carrying out in-house manufacturing of one of the units (i.e either IDU or ODU) and intends to purchase the other unit (i.e ODU or IDU, as the case may be) from any other manufacturer shall obtain licence from BIS for the complete product ***Ducted/Packaged AC*** as per IS 8148. In such cases, the scope of BIS licence will be “**Indoor Unit Only**” and “**Ducted/Packaged AC**” or “**Outdoor Unit Only**” and “**Ducted/Packaged AC**”, as the case may be.
- ii) The manufacturer shall have complete in-house testing facility for all the ***Production Routine tests*** for the unit which is manufactured in-house (i.e either IDU or ODU, as the case may be) as per IS 8148 and shall carry out due testing of IDU or ODU (as applicable) as per the Scheme of Inspection and Testing (SIT) and maintain records. **In addition, the licensee shall also comply with the provisions of the SIT w.r.t testing of the complete product Ducted/Packaged AC and maintain records.**
- iii) The manufacturer shall ensure that all the components used in manufacturing (either bought out or manufactured in-house) which are covered under the mandatory certification of BIS through various QCOs (e.g: Cables as per IS 694/ IS 9968-1, Capacitors as per IS 2993, Finned Type Heat Exchangers as per IS 11329, Hermetic Compressors as per IS 10617, Temperature Sensing Controls as per IS 60730-2-9 etc.), as applicable, are ISI Marked under a valid BIS licence.
- iv) Upon obtaining BIS licence, the licensee shall ensure that all the information as per IS 8148 as well as the SIT are marked on each IDU or each ODU (as applicable) as well as the complete product Ducted/Packaged AC only after due testing of IDU or ODU (as applicable) and the complete product Ducted/Packaged AC as per the SIT.
- v) Each IDU or each ODU (as the case may be) manufactured in-house and used for the complete product Ducted/Packaged AC shall be marked with the BIS Standard Mark as given below and **the responsibility of the Quality of ISI marked Ducted/Packaged AC shall vest with this Ducted/Packaged AC licensee:**

IS 8148



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vi) (a) **The Ducted/Packaged AC manufacturer shall purchase ISI marked IDU or ISI marked ODU (as the case may be) from BIS licensee only (i.e. Licensee at item ‘5A’ or ‘5B’ or ‘5C’ or even from any other licensee at item ‘5D’).**

(b) An undertaking shall be furnished by this Ducted/Packaged AC manufacturer to BIS to the effect that the ISI marked IDU or ISI marked ODU (as the case may be) will be purchased from BIS licensees only.

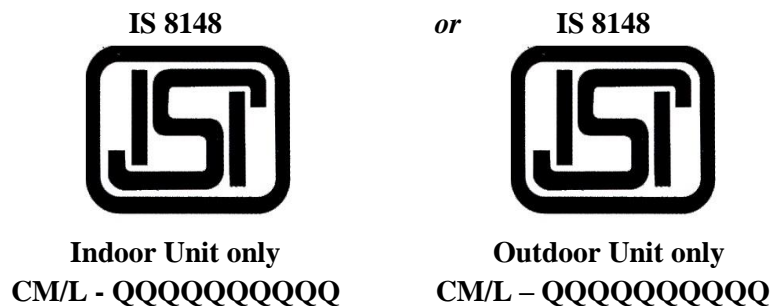
(c) However, the actual physical receipt of such ISI marked IDU or ISI marked ODU may be at any place other than the licenced premises of this Ducted/Packaged AC manufacturer also. The details of all such receipts shall be maintained by this Ducted/Packaged AC licensee and shall be produced to BIS on demand. An undertaking in this respect shall be obtained from this Ducted/Packaged AC manufacturer.

vii) (a) **In case the licensee intends to sell ISI marked IDU or ISI marked ODU (as the case may be) manufactured in-house to any other manufacturer, it shall be sold to those manufacturers only who hold BIS licence for the complete product Ducted/Packaged AC (i.e Licensee at item ‘5C’ or even to any other licensee at item ‘5D’).**

(b) An undertaking shall be furnished by the Ducted/Packaged AC manufacturer to BIS to the effect that the ISI marked IDU or ISI marked ODU (as the case may be) will be sold to BIS licensees for the complete product Ducted/Packaged AC only.

(c) However, the actual physical supply of such ISI marked IDU or ISI marked ODU (as the case may be) may be to any place other than the licensed premises of the other Ducted/Packaged AC licensee also. The details of all such supplies shall be maintained by this Ducted/Packaged AC licensee who is making such supplies and shall be produced to BIS on demand. An undertaking in this respect shall be obtained from this Ducted/Packaged AC manufacturer.

(d) In such cases where ISI marked IDU or ISI marked ODU (as the case may be) is sold to any other manufacturer, the Standard Mark as given below shall be used on IDU or ODU (as the case may be):



(E) Outsourcing of both the units (i.e IDU and ODU)

i) **For obtaining BIS licence for certification of Ducted/Packaged AC as per IS 8148, outsourcing of both the units (i.e IDU and ODU) shall not be permitted under any circumstances (Please see item 4 also).**