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DRAFT AMENDMENT NO. 1

TO

IS 14618 : 2022

**AUTOMOTIVE VEHICLES — AIR CONDITIONING AND HEATING
SYSTEMS THERMAL PERFORMANCE — METHOD OF MEASUREMENT**
(*Second Revision*)

ICS 43.040.60; 19.060

Refrigeration and Air Conditioning
Sectional Committee, MED 03

Last date for comments
is **16 November 2024**

(Front Page, Title) — Substitute the following for the existing:

**‘ऑटोमोटिव वाहन — एयर कंडीशनिंग और हीटिंग सिस्टम
थर्मल प्रदर्शन — विशिष्टि
(दूसरा पुनरीक्षण)**

**Automotive Vehicles — Air Conditioning and Heating Systems
Thermal Performance — Specification**
(*Second Revision*)’

(Page 1, Title) — Substitute the following for the existing:

**‘AUTOMOTIVE VEHICLES — AIR CONDITIONING AND HEATING SYSTEMS
THERMAL PERFORMANCE — SPECIFICATION**
(*Second Revision*)’

(Page 1, clause 1.1) — Substitute following for the existing:

1.1 This standard specifies performance requirements and method of testing of an automotive air conditioning and heating system.

1.2 This standard is applicable to vehicles of M1, M2, N1, N2, and N3 category as per IS 14272 provided with air conditioning and/or heating systems based on vapor compression refrigeration cycle drawing power from the vehicle engine.

1.3 This standard is not applicable to the following:

- Automotive vehicles which are provided with a completely independent prime mover for the air conditioning system; and
- Pure Electric vehicles.

NOTE — The performance and method of testing of an automotive air conditioning and heating system for pure electric vehicles is under consideration.’

(Page 2, clause 5.1) — Insert the following after the existing para:

‘The acceptance criteria of the vehicle shall be as follows:

a) For N2 and N3 category — The average of all nose level temperatures in the cabin at the end of dynamic test (that is, at the end of 40th minute) conducted as specified in Annex A of this standard shall not exceed 27 °C.

b) For M1, M2 and N1 category — The average of all nose level temperatures in the cabin at the end of dynamic test (that is, at the end of 40th minute) conducted as specified in Annex A of this standard, shall be as declared by the vehicle manufacturer.

In the case of drive away chassis vehicles, a representative or mock up cabin with recommended design shall be tested for establishing compliance to the specified performance requirements.

NOTE — Recommended design which includes cabin dimension and insulations; shall be specified by the drive away chassis vehicle manufacturer. The body building instructions as well as the owner’s manual shall contain the recommended design specifications.’

(Page 2, clause 5.1.1) — Substitute the following for the existing:

‘5.1.1 *Vehicle Preparation* — Sensors, such as, thermocouples for recording temperatures at nose levels of all occupant seating positions shall be fitted with recording instruments having an accuracy of ± 2 °C.’

[Page 2, clause 5.1.4 (e)] — Substitute the following for the existing:

‘(e) After above step, all doors and windows of vehicle shall be closed and solar load lamps to be started as per mentioned environment conditions.’

(Page 3, clause 5.1.6.5) — Delete.

(Page 3, clause 5.2) — Insert the following after the existing para:

‘The acceptance criteria of the vehicle shall be as follows — The average of all nose level temperatures in the cabin at the end of dynamic test (that is, at the end of 40th minute) conducted as specified in Annex B of this standard, shall be as declared by the vehicle manufacturer.

In the case of drive away chassis vehicles, a representative or mock up cabin with recommended design shall be tested for establishing compliance to the specified performance requirements.

NOTE — Recommended design which includes cabin dimension and insulations; shall be specified by the drive away chassis vehicle manufacturer. The body building instructions as well as the owner’s manual shall contain the recommended design specifications.’

(Page 4, clause 5.2.6.5) — Delete.

(Page 4, clause 6) — Insert the following new clauses:

‘7 WORST CASE CRITERIA FOR COOL DOWN TEST VEHICLE SELECTION

To select the worst-case vehicle for the cool-down test, the following criteria shall be considered:

- a) Lowest corresponding engine RPM shall be selected for testing as per test conditions mentioned in Annex A; and
- b) Highest volume of cabin shall be selected for testing.

8 CRITERIA FOR TYPE APPROVAL

In case of the following changes in technical specifications by the manufacturer, the cool down test shall be done:

- 1) Decrease in engine RPM by more than 8 percent;
- 2) Decrease in air conditioner compressor cooling capacity by more than 8 percent;
- 3) Increase in cabin volume by more than 8 percent;
- 4) Decrease in blower capacity by more than 8 percent;
- 5) Decrease in evaporator capacity by more than 8 percent;
- 6) Decrease in condenser capacity by more than 8 percent; and
- 7) Change in cabin model/insulation material.

In case of changes other than those listed above, cool down test may not be repeated for establishing type approval or extension of type approval.’

(Page 5, Annex A, Table 1) — Substitute the following Table for existing Table.

‘Table 1 Test Conditions

| Sl. No. | Requirement | Road/Climatic Chamber | | |
|---------|---------------------------------------|---|----------------------------------|------------------------|
| (1) | (2) | (3) | | |
| i) | Ambient temperature in °C | 40 or more | | |
| ii) | Relative humidity in percent | Greater than or equal to 30 | | |
| iii) | Solar load in W/m ² | Greater than or equal to 800 | | |
| iv) | Socking duration | Time to reach at least 15 °C more than ambient (that is, 55 °C average nose temperature at 40 °C ambient) or 90 minutes whichever is earlier. | | |
| v) | Vehicle running condition during test | <i>Vehicle and Wind Speed</i> kmph | <i>Gear Position</i> | <i>Duration</i> min |
| vi) | | Table 2 requirement a | As specified by the manufacturer | 20 |
| vii) | | Table 2 requirement b | | 20 |
| viii) | | 0 | Neutral | 20’ |

(Page 5, Annex A, Table 2) — Substitute the following table for the existing:

‘Table 2 Vehicle Speed
(Table 1)

| SI No. | Vehicle Category | a Road/Climatic Chamber kmph | b Road/Climatic Chamber kmph |
|---------------|-------------------------|---|---|
| (1) | (2) | (3) | (4) |
| i) | M1, M2 | 50 ± 5 | 80 ± 5 |
| ii) | N1, N2 and N3 | 40 ± 5 | 60 ± 5 |

NOTES

1 Vehicle speed selection as per the table or lower depending on the speed limit restrictions.

2 Alternatively, the test may be conducted in a climatic chamber by selecting corresponding engine RPM at above mentioned vehicle speeds by keeping vehicle in stationary condition, so as to simulate the running of vehicle on chassis dynamometer.’

(MED 03)