

**For BIS Use ONLY**

**AGENDA**

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| **MEETING** | **DAY & DATE** | **TIME** | **VENUE** |
| **Forty-first meeting of Refrigeration and Air Conditioning Sectional Committee, MED 03** | **Monday**  **24 June 2024** | **1030-1500 hr** | **VC through WEBEX** |

**CHAIRPERSON:** Prof (Dr) Ravi Kumar,Department of Mechanical & Industrial Engineering, Indian Institute of Technology (IIT), Roorkee, Uttarakhand.

**MEMBER SECRETARY**: Miss Neha Thakur, Scientist ‘C’/Deputy Director (MED), BIS, New Delhi.

**Item 0 WELCOME AND OPENING REMARKS**

* 1. Welcome & Opening remarks by Head (MED), BIS

**0.2** Welcome & Opening remarks by Chairperson.

**Item 1 CONFIRMATION OF THE MINUTES OF THE LAST MEETING**

The minutes of the 40th meeting of Refrigeration and Air Conditioning Sectional Committee, MED 03 held on 21 March 2024 through VC (WebEx) was circulated vide email bearing reference MED 03/A-2.40 dated 26 April 2024. The last date comment was 12 May 2024.

No comment has been received on the minutes of the meeting.

The Committee may **CONSIDER** and **CONFIRM** the Minutes of the meeting**.**

**Item 2 SCOPE AND COMPOSITION OF COMMITTEE**

**2.1 SCOPE**

a) Formulation of standards for refrigeration and air- conditioning equipment and appliances including terminology, definitions and symbols, designation of refrigerants, testing of refrigerating systems; and refrigerating units.

b) Co-ordination of work with ISO/TC 86 Refrigeration and Air conditioning; ISO/TC 142 Cleaning equipment for air and other gases; IEC/TC 61 Safety of household appliances for refrigeration and air- conditioning and IEC TC 59/SC 59M Performance of Electrical Household and Similar Cooling and Freezing Appliances.

**Liaison:**

**ISO TC-86 (P):**Refrigeration & Air-Conditioning

**ISO TC-86 SC-1 (P):**Safety and environmental requirements for refrigerating systems

**ISO TC-86 SC-4 (P):**Testing and rating of refrigerant compressors

**ISO TC-86 SC-6 (P):**Testing and rating of air-conditioners and heat pumps

**ISO TC-86 SC-7 (P):**Testing and rating of commercial refrigerated display cabinets

**ISO TC-86 SC-8 (P):**Refrigerants and refrigeration lubricants

**ISO TC-142 (P):**Cleaning equipment for air and other gases

**IEC TC- 59M SC- 59M (P):** Performance of Electrical Household and Similar Cooling and Freezing Appliances

**IEC TC- 61C SC- 61C (P):**Safety of Refrigeration Appliances for Household and Commercial Use.

**IEC TC- 61 D SC- 61 D (P):**Appliances for Air-conditioning for Household and Similar Purposes.

During the last meeting, the Committee finally arrived at following revised scope:

*‘Standardization in the fields of refrigeration and air-conditioning, including terminology, mechanical and electrical safety, methods of testing and rating equipment, measurement of sound levels, circular economy and the end of the lifecycle of the product, with consideration given to environmental protection*

*The scope also includes:*

* 1. *Refrigerating and similar appliances for household and commercial use;*
  2. *Factory-assembled air-conditioners (cooling), heat pumps, dehumidifiers, and refrigerant reclaiming and recycling equipment as well as other devices, components and equipment such as humidifiers, ventilation equipment, line components, and refrigeration controls used in air-conditioning and refrigeration systems;*
  3. *Automotive air conditioning; and*
  4. *Selection, installation, commissioning and maintenance of HVAC System considering the conducive environment, safety, and human health’.*

Following comment has been received from Shri Vikas Mehta dated 27 March 2024:

‘I would like to propose that refrigerants be kept a part of the in the present scope as some piece of refrigerants will be worked on by MED 03’

The Committee may **CONSIDER**, **REVIEW** and **FINALIZE** the draft scope.

**2.2 COMPOSITION OF THE SECTIONAL COMMITTEE AND ITS SUB-COMMITEES**

**2.2.1** The composition of the Sectional Committee as last reviewed is given in **Annex 1**.

1. Revised nomination has been received from Blue Star Limited to the Sectional Committee vide email dated 03 May 2024 – Shri Jitendra Bhambure (Principal), Shri Sunil kumar Jain (Alternate -I), and Shri Christy Abraham (Alternate -II/Young Professional).

The Committee may **CONSIDER** and **DECIDE.**

**2.2.2** With reference to the BIS office order ref. no.: PNC09/18/2023-PNC-BIS dated 06 September 2023, all members of Technical Committees have to sign and sent back the declaration (attached here), mandatorily.



Committee members are kindly requested to provide the signed declaration as above to BIS.

**2.2.3** Committee is referred to letter ref. no. PNC09/18/2023-PNC-BIS dated 09 November 2023 by DG BIS (attached here).

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**2.2.4** Extracts from the Standards Formulation Manual of BIS regarding the guidelines for participation in the technical committee work of BIS are given in **Annex 2.**

**2.2.5** As per the BIS guidelines, committees should represent all interest groups such as organized consumers/users, industry, technologists and regulatory bodies/NGOs, etc. However, consumer interests shall as far as possible predominate. Where non-industry interests are less than 2/3, it may be reviewed. Stakeholders such as manufacturers/service providers as well as consumer activists should as far as possible represent industries association and organizations and not individual companies. Also, it may be desirable to induct and involve new people in the work of Sectional Committees with an aim to infuse fresh ideas and it is suggested that member organizations may like to keep this aspect in view while nominating their representations in the technical committees.

Also, the Committee may **IDENTIFY** and **INVOLVE** talent available in the country related to the subject of the Committee and also **suggest a methodology** to involve them in the proceedings of the Committee.

Recently towards encouraging the participation of young professionals representing the member organizations on the Committee, it was decided by BIS that an additional member up to the age of 37 years may also be nominated by each organization.

**2.2.6 Gender Responsive Standards Initiative**

Bureau of Indian Standards is a signatory to the UNECE Gender Responsive Standards Declaration. The UNECE Gender Responsive Standards Initiative aims to provide a practical framework for standards bodies seeking to make the standards they develop, and the standards development process they follow, gender-responsive. Established in 2016, the Initiative has the objectives of:

(i) strengthening the use of standards and technical regulations as powerful tools to attain SDG 5 (Achieve Gender Equality and Empower all Women and Girls);

(ii) integrating a gender lens in the development of both standards and technical regulations; and

(iii) elaborating gender indicators and criteria that could be used in standards development.

In line with these objectives, BIS aims to work towards:

* Gender-responsive standards;
* Gender balance at all levels in all Committees including leadership positions;
* Enhanced expertise to create and deliver gender inclusivity;

The Committees is **REQUESTED** to work in tandem with these aims to create a gender balanced environment in all walks of life through standards.

**2.2.7 Requests for Nomination to Committee/ Sub-Committee/ Panel/ Working group**

1. The details of experts from various academia like IIT Delhi, IIT Bombay, IISC Bangalore, etc to be added in the mailing list, is awaited from Shri Chethan Tholpady and Shri V Manjunath.

The committee may **REVIEW**the composition in order to have focused representation as per **2.2.1 to** **2.2.7** of the Agenda.

**2.3 Composition of the Sub-committee**

**2.3.1** Composition of the Sub-committee under the Committee, MED 03 is given below:

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| --- | --- | --- | --- |
| Sl No | Title of the Subcommittee | Composition listed at | Date of last few meetings |
|  | Automotive Air-Conditioning and Mobile Air-Conditioning, MED 03:1 | **Annex 3** | 15 July 2022 |

The committee may **REVIEW**the composition in order to have focused representation as per **2.2.1 to 2.2.7** and **2.3.1** of the Agenda.

**Item 3** **ANNUAL CALENDAR AND** **PROCESS OF STANDARDISATION**

1. **Annual calendar** for Technical Committee meetings

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| --- | --- | --- | --- | --- |
| **Technical Committee** | **1st Quarter** | **2nd Quarter** | **3rd Quarter** | **4th Quarter** |
| **MED 03** | **24 Jun 2024** | **18 Sep 2024** | **09 Dec 2024** | **06 Mar 2025** |

1. **Research & Development Projects**

Bureau of Indian Standards (BIS), as the National Standards Body of India is responsible for formulating Indian Standards for products, processes and services. In the pursuit of this endeavour, it has so far developed more than 22000 Indian Standards. Action Research and Research & Development Projects have always been part of the standardization process. However, there has been a growing realization in the context of the increasing diversification, innovation and complexities in the manufacturing sector and evolution of services and also due to the fast pace of changes in the manufacturing and services landscapes, research & development projects have to be made an integral part of the standardization process. The idea is that in principle no standard should be developed without intensive and insightful research work, which is not confined only to the review of the existing literature and focus group discussions on the subject chosen for standardization, but also covers the detailed field level study of the existing processes and practices in product manufacturing and service delivery. This requires a large network of domain area experts to carry out the research & development work. The existing network encompasses only a small segment of experts, who are either associated with technical committees as members or belong to some R&D organizations. The Memorandum of Understanding with the premier educational institutions imparting technical and professional education opens the window to the opportunities to expand this network substantially by utilizing the intellectual capital that resides with the faculty and the research scholars in these institutions. This association is conceived not only as a way to promote research & development work necessary for standards formulation but also to enrich the research ecosystem in these educational institutions.

BIS has revised its R&D Guidelines and is attached here for reference.



*The Committee may please note.*

1. Closer examination of **new work item proposals** received from ISO/IEC.

India has established itself as a significant manufacturing hub and has a considerable stake in international trade. To ensure our active involvement in trade-related norms set by different countries, it is essential for us to participate in the standardisation process of ISO/IEC and provide input for the betterment of our industries. Standardisation is the key to influence these norms, and a **closer examination of new work item proposals** received from ISO/IEC is necessary for us to standardise products at the international level. This activity will benefit Indian manufacturers at all levels to keep up with or enter into international level trade, ultimately improving their competitiveness in the global market.

1. The measures to ensure **effective participation** by the Indian experts at ISO/IEC level.

Effective participation in ISO/IEC activities is crucial for our nation as we have a significant stake in international trade and ISO/IEC standards. Therefore, it is essential that the committee participates effectively and thoroughly examines ISO/IEC ballots with respect to their relevance. If the ballot is relevant to us, the committee should nominate experts to represent our nation in ISO/IEC meetings. This will help to ensure that our national interests are well-represented and safeguarded in the international arena.

1. **National and International events** to be participated

BIS has envisaged participation in events organized at national and international level as these events showcases the latest trends in the field of standardization and technological advancements.

Considering the importance of these events, committee may please **suggest** other such event where participation of BIS can benefit development of national standards.

1. **Scientific journals and periodicals** to be subscribed

BIS has taken a new initiative to subscribe to scientific journal and periodicals relevant to committee work. It is also envisaged that relevant articles from these journal and periodicals are shared with members of sectional committee.

Committee members may please **suggest** other important journals and magazines that may benefit this committee.

1. Creation of **pool of experts**

As part of its initiative to develop a pool of experts for standardization activities, BIS has established standardization chairs in technical institutes of national repute, including IITs, NITs, and others. In addition, BIS plans to establish standardization cells in various manufacturer's associations to further this effort. By tapping into the knowledge and skills available in the country, this initiative can assist BIS in developing more effective and technically sound standards. This approach can also ensure that technical experts are linked with the National Standards Body to foster a high-quality ecosystem in India.

**Item 4 ACTION ARISING OUT OF THE PREVIOUS MEETING(S)**

**4.1** The summary of actions taken on the minutes of the last meeting and present status are given below:

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| **Sl No.** | **Item no.** | **Decision of 40th meeting** | **Present Status** |
| 1 | 4.1 (1) | **MED 03 (24952) Adjusted Volume Calculation For Refrigerating Appliances ( Adoption of IEC TR 63061 ):**  The Committee noted the information. If no comment is received on the wide circulated draft, the Committee approved the draft to be sent for printing.  Comments received if any shall be disposed of by the Panel. | Last date for comments on WC draft was 27 April 2024.  No comment has been received.  The Committee may **CONSIDER** and **APPROVE** the draft for finalization and printing. |
| 2 | 4.1 (2) | **Amendment no. 1 to IS 17773 : 2022 Closed-Circuit Ammonia**  **Refrigeration System — Code of Practice for Design and Installation (ANSI/IIAR 2 : 2014, NEQ)**    MS and Shri Kiran Kumar apprised the members of the comments by Shri Anand. The Committee requested the panel to dispose of the comments of Shri Anand and provide draft amendment to IS 17773: 2022.  On the recommendation by the panel, the Committee approved the draft, to be put for wide circulation for two months time. If no comment is received, the Committee approved the draft to be sent for printing. | Panel meeting was held on 16 April 2024. The minutes of meeting is attached here.    The panel proposed the above recommendations to MED 03 Committee for draft amendment no. 1 to IS 17773 : 2022.  The Committee may **CONSIDER** and **DECIDE**. |
| 3 | 4.1 (3) | **MED 03 (19252)/ IS 1474:1959 Commercial Refrigerators (ISO 23953-2 : 2015, MOD)**  The Committee approved the draft to be sent for printing. However, the Committee recommended to add reference of ANSI AHAM HRF-1 : 2004 in the foreword inline with the Indian Standard drafting guidelines and IS 12.  The Committee also requested Shri Satish Kumar, Shri P K Mukherjee and Shri Manjunath to review the ‘net volume calculation’ **5.2.3** clause.  **Background**  MED 03 (19252) ‘Refrigerated display cabinets Part 2 Classification requirements and test conditions’ document was finalized during 37th meeting. The draft is under preparation as per Panel & Committee recommendation for printing.  The final draft (19252) was circulated to the Panel and comment has been received from Shri Vishal Nichite of M/s Western Refrigeration Private Limited on 30th March 2023.    The Committee decided that the comments of M/s Western Refrigeration Private Limited will be taken in the amendment and decided to send the final draft for printing. | Few comments have been received from Shri P K Mukherjee vide email dated 09 June 2024 on the finalized draft.  1) Clause 5.2.2 addition, requirement of measurement of volume is not required.  2) Clause 5.3.2.2, this clause also need to be modified since we are allowing both horizontal and vertical air flow.  3) As per table 2, reference to clause 4.1.1.6 is given for physical dimension, however there is no such clause in part 2 unless it is in para 1 and in that case the table should give a reference to Part 1.  4) In the national forward reference to ANSI standard is given which is for a different product but not for RDC.  Accordingly, the Convener of the panel has provided the following clarification in response to the objection.  The Committee may **CONSIDER** and **APPROVE** the clarification for incorporation in the underprint draft. |
| 4 | 4.1 (3) | **IS 2167/ ISO 22044 : 2021 Commercial Beverage Coolers (fourth revision)**  The Committee approved the recommendations by the panel. However, Shri Satish Kumar apprised the members of the draft National Deviation (ND) and informed that few editorial changes are left out for which the comments from Shri Vishal Nichite of Western refrigeration has been received. He agreed to provide the revised draft National deviation.  The Committee approved the draft to be put up for wide circulation for two months time as soon as the third revision of IS 2167 (identical adoption of ISO 22044:2021) is published. If no comment is received, the Committee approved the draft to be sent for printing. | The revised draft ND has been received by Shri Satish Kumar of UL vide email dated 15 May 2024.  The revised draft ND will be put for Wide Circulation once the third revision of IS 2167, gets published.  The Committee may **NOTE**. |
| 5 | 4.1 (4) | i) **IS/IEC 60335-2-40: 2018 Household and similar electrical appliances – Safety : Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers**  The Committee requested the panel to expedite and provide the Draft National deviation.  **Background**  Committee approved to wide circulate the draft received from the panel for one month time.  The Committee also agreed that once the standard is published the same will be referred to in IS 1391 (Part 1) and (Part 2). | The Draft National deviation to IEC 60335-2-40: 2022 is awaited from the panel.  The Committee may **CONSIDER** and **DECIDE**. |
| 6 | 4.1 (4) | **ISO/ TC 86/ SC6/ WG15 Advanced performance standards :**  **Testing and calculating methods for seasonal performance factors of air-cooled air conditioners and air-to-air heat pumps: Part 1 Cooling seasonal performance factor**  Shri Srinivasu apprised the members of the development of ISO/NP 21280 'Testing and rating including seasonal performance of air-to-air air-conditioners and heat pumps considering the effect of native control'. He further informed that dehumidification factor is being considered for the calculations in the draft which is very different to the current practice in India also referring to the BEE regulations.  The Committee requested the experts to provide the document’s update and plan of action in the next meeting.  Presently, following members have been registered to ISO/ TC 86/ SC6/ WG15 Advanced performance standards:   1. Dr. Jyotirmay Mathur of ISHRAE 2. Dr. Yash Shukla of CEPT University 3. Shri Srinivasu M of Voltas 4. Shri V Manjunath of UL   **Background**  The Committee decided to ‘Approve’ the ballot on document ISO/NP 21280 'Testing and rating including seasonal performance of air-to-air air-conditioners and heat pumps considering the effect of native control' and nominate Dr. Jyotirmay Mathur of ISHRAE, Shri V Manjunath, and Shri Srinivasu M of Voltas in the development of this project. It decided to give additional comments once the outline of the draft is more elaborate. | Experts may update on the meeting and draft document.  The Committee may **CONSIDER** and **DECIDE**. |
| 7 | 4.1 (5) | **Selection, operation and maintenance of room AC – Code of Practice**    Committee requested the panel to inform the status by the next meeting.  **Background**  Shri Shankar (*Convener*) informed the code contains two chapters – Part 1 Domestic and Part 2 Commercial. The code is more of service related. Part 1 document is almost ready while more data for required for the Part 2. | 5th Panel meeting was held on 24 April 2024. The MoM is attached here.    The Committee may **CONSIDER** and **DECIDE**. |
| 8 | 4.1 (6) | **IS 3615 Glossary of terms used in refrigeration and air conditioning**  The Committee decided to revise IS 3615:2020 instead of the amendment.  It also requested to expedite the preparation of the draft and approved it for wide circulation for 1 month time. If no comment is received the draft shall be sent for printing. | Last date for comments on WC draft was 25 May 2024.  No comment has been received.  The Committee may **CONSIDER** and **APPROVE** the draft for finalization and printing. |
| 9 | 4.1 (8) | **Panel on Compressors**  Regarding the Panel meeting held on 13th June 2023 it was informed that clarification was sought from CMD-III if a separate BIS certification would be required if IS/IEC 60335-2-34 is certified by IEC. CMD-III had clarified that separate licence would be required for IS/IEC 60335-2-34 for safety if performance and safety standards are separate.  The Committee noted the information and accepted the Panel recommendations based on meetings held on 18th April 2023, 9th May 2023, and 13th June 2023.  Further it added the following organizations in the working groups of the Panel:  WG2 (Special compressors):  f) Representative from M/s Danfoss  WG3 (Semi-hermetic compressor):   1. Shri Jeyaprakash Gurusamy of M/s Ingersol Rand (TRANE); 2. Representative from M/s Bitzer; 3. Representative from M/s Frascold; 4. Representative from M/s Danfoss; 5. Representative from M/s Copeland/Copland; 6. Shri P K Mukherjee in Personal Capacity; 7. Shri Manmohan K of M/s Carrier; 8. Representative from UL; and 9. Shri Srinivasu M of M/s Voltas. 10. Shri Shankar Sapaliga of ICA | Panel meetings were held on 18th April 2023, 9th May 2023, and 13th June 2023.    Minutes of 3rd Panel meeting is under preparation and will be circulated to the Panel for its confirmation and to the Committee.    The Committee may **NOTE**. |
| 9 | 4.1 (9) | **ISO 16890-2:2022 ‘Air filters for general ventilation — Part 2: Measurement of fractional efficiency and air flow resistance’**  **ISO 16890-4:2022 ‘Air filters for general ventilation — Part 4: Conditioning method to determine the minimum fractional test efficiency’**  The Committee requested the Panel to provide recommendation for adoption of ISO 16890-2:2022 ‘Air filters for general ventilation — Part 2: Measurement of fractional efficiency and air flow resistance’ along with the national deviation present in IS 17570 (Part 2) : 2021.  **Background**  ISO 16890-2:2022 Air filters for general ventilation — Part 2: Measurement of fractional efficiency and air flow resistance  Panel noted that at present there is only 1 laboratory i.e, TEST MASTER for testing as per 17570 (Part 1): 2021/ISO 16890-1: 2016. Availability of more test facility needs to be ascertained for making recommendation on the direct/modified adoption of ISO 16892-2. Mr Anil Chopra, M/s Camfil Air Filtration India Pvt. Ltd and MS will write to various laboratories to get confirmation at the earliest. | 5th Panel meeting was held on 11 June 2024.  The MoM will be presented.  The panel recommended to identically adopt ISO 16890-2:2022 without any National Deviation.  The Committee may **CONSIDER** and **DECIDE**. |
| 10 | 4.1 (9) | **MED 03 (25074)/ ISO 16890-4:2022 Air filters for general ventilation — Part 4: Conditioning method**  The Committee noted the information that Last date of comments on WC draft is 18 April 2024. If no comment is received on the wide circulated draft, the Committee approved the draft to be sent for printing.  Comments received if any shall be disposed of by the Panel. | Last date for comments on WC draft was 18 April 2024.  No comment has been received.  The Committee may **CONSIDER** and **APPROVE** the draft for finalization and printing. |
| 11 | 8.3 | **MED 03 (22778) Electronic Expansion Valve — Specification**  The Committee requested the panel to dispose of the comments on P-draft from Shri Chethan Tholpady of Copeland and provide the revised draft. The Committee decided to wide circulate the draft for 1 month time. If no comment is received, it approved the draft to be sent for printing.  Comments received if any shall be disposed of by the Panel. | The 3rd panel meeting was held on 17 April 2024. The minutes of meeting is attached here.    Accordingly, the revised draft for wide circulation has been received from Shri Kiran vide email dated 20 May 2024 and recommended by the panel. So, the draft has been put for wide circulation vide Chairperson approval dated 11 June 2024.  The last date for comments on WC draft is 12 July 2024.  The Committee may **CONSIDER** and **DECIDE**. |
| 12 | 8.2 | **MED 03 (22144) : Refrigerating systems and heat pumps Competence of personnel (Adoption of ISO 22712: 2023)**  The Committee approved the draft to be put up for wide circulation for two months time for identical adoption of ISO 22712: 2023. If no comment is received, the Committee approved the draft to be sent for printing. | Last date for comments on WC draft was 07 June 2024.  No comment has been received.  The Committee may **CONSIDER** and **APPROVE** the draft for finalization and printing. |
| 13 | 5.21 | **MED 03 (19768) Finned type heat exchanger for room air conditioner (First Revision) Amendment – 3**  The Committee noted the information. | Objection has been raised from CMD-3 dept with regard to draft document MED 03 (19768).  The objection raised is reproduced as below.  'Annex-D - It is observed that chemical composition of alloys listed in Annex-D are not covered in either IS 2927 or ISO 17672 . However, as per cl. D-1, IS 2927 and ISO 17672 are to be referred for test methods, as applicable. It is not understood that for which alloy, IS 2927 shall be applicable and for which ISO 17672 shall be applicable. Further, alloy composition number assigned in Table 3 and Table 4 under Annex D are common, which will create confusion to user and to certification body. '  Accordingly, the Convener of the panel has provided the following clarification in response to the objection.  The Committee may **CONSIDER** and **APPROVE** the clarification for incorporation in the underprint draft. |
| 14 | 5.17 | **MED 03 (22200) Drinking Water Coolers ― Specification [ First revision of IS 1475 (Part 1)]**  The Committee noted the information. | Objection has been raised from CMD-3 dept with regard to draft document MED 03 (22200).  Following objections have been raised:  1) Anomaly among para 2 of 6.1.2 and applicability of Table 1 for storage type water coolers only.  2) Under Schedule of tests, review of pull down test applicability under routine test clause 14.2.  3) In cl.13.2, second line, Missing of word 'withdrawal' after 'water'.  Accordingly, the panel has provided the following clarification in response to the objection.  The Committee may **CONSIDER** and **APPROVE** the clarification for incorporation in the underprint draft. |
| 15 | - | **-** | Please refer to email dated 05 June 2024 titled ‘AC gas and Mixing of R-152a in Air Conditioners’. Members are requested to provide their inputs on the following:  a) Incidents of mixing of R152a or other gases  b) Safety measures/ compliances to be incorporated in the relevant MED 03 standards  c) Instruction/User's Manual format for safety precautions  The Committee may **CONSIDER** and **DECIDE**. |
| 16 | - | **-** | Query on IS 1391 (Part 1& 2) :2023 and IS 8148:2018 regarding Product Manual has been received from Shri Rahul Ramtekkar of JCI Hitachi vide email dated 03 April 2023:   1. Is it allowed to go completely digital for the product Manual and eliminate the paper-based manual ? 2. The manual will always be available for view and download and use offline as well . 3. The manual can be accessed online by searching a specific model number or scanning the QR code on the product.   The Committee may **CONSIDER** and **DECIDE**. |
| 17 | 5.10 | **MED 03 (19119) Non-Ducted Portable Air-Cooled Air Conditioners And Air-to-Air Heat Pumps Having A Single Exhaust Duct Testing And Rating For Performance (MOD Adoption of ISO 18326: 2018)**  The Committee requested to expedite the preparation of the draft for printing. | The draft is under preparation as per IS 12 for printing.  The Committee may **NOTE**. |
| 18 | - | **-** | **IS 302 (Part 2/Sec 24) : 1994/ IEC 60335-2-24 Safety of household and similar electrical appliances: Part 2 particular requirements: Sec 24 refrigerators, food - Freezers and ice – Makers:**  The standard has been transferred by ETD 32 to MED 03.  The standard may be accepted or referred back. If accepted, the standard may be reaffirmed.  The Committee may **CONSIDER** and **DECIDE**. |

***\**** *The Item number refers to the proceedings of the last meeting of MED 03.*

**4.2** The summary of the action points of the 6th Automotive Air-Conditioning and Mobile Air-Conditioning Sub Committee, MED 03:1 meeting held on 15th July 2022 through WebEx are given below:

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| --- | --- | --- | --- | --- |
| **S No** | **\*Item No.** | **Recommendation of the sub-committee in 5th meeting** | **Action taken on the Minutes of the previous meeting** | **Recommendation of the sub-committee in 6th meeting** |
| **1** | **1** | Shri Vishnu Suthar of M/s Subros apprised the sub-committee on the status of the draft. He informed that no further comment has been received on the draft.  Shri Noel Peters of M/s Denso put forward his comment on the **5.1.5.4** Corrosion of heater core where the leakage test has to be done on the specimen by holding pressurized N2 gas at 1.67 MPa. Heater core generally uses maximum pressure up to 140KPa hence the value mentioned in the draft is very high for leakage test. He proposed that the pressure should be around maximum 0.2MPa considering the real pressure situation.  Shri Kamal of M/s Maruti  Suzuki was in consensus with the proposal of Shri Noel Peters  Shri Suresh Tadigadapa of M/s Tata Motors Ltd informed the sub-committee that in last ad hoc group meeting it was decided that each and every member to the group will submit comments/observation specific to each clauses which could not be done due to various engagements. Hence he proposed the ad hoc group to review the document again.  Shri Vishnu Suthar of M/s Subros informed that such comments should be received beforehand for any meeting to be conducted.  Shri Kamlesh of Damler India expressed that for the leak test working pressure is 1.4 bar and leak test 2 bar is the proposal from M/s Denso, which is close to the working pressure. Generally the leak test/ check will be at least 5 or 10 time of working pressure. Also leak test cannot be done by the coolant but with N2. Therefore 1.67 MPa cannot be reduced as it will lead to coolant leak. The same was also the viewpoint of M/s Ashok Leyland.  Dr. Nitin Karwa of M/s Honeywell apprised the members that as per ASME B31.1 non-destructive test with N2 which permits the pressure to be reduced to the lower of 100 psig (690 kPa) or the design pressure during the examination for leakage. Hence it cannot be more than the working pressure.  After detailed deliberation as consensus could not be achieved the sub-committee decided that following panel will dispose of the comments and provide the revised draft within 1 week:   * Shri Roopak Agarwal of M/s Subros (Convener), * Shri Prasanna N of M/s TATA Motors, * Suresh T of M/s TATA Motors, * Shri Noel Peters of M/s Denso, * Shri Shriganesh Umbarkar of M/s Maruti Suzuki, * Shri Anil Kumar of Mahindra & Mahindra, * Shri Dharmarajan S M/s MAHLE Anand Thermal System, * Shri Kamal K Sharma M/s Sanden Vikas, * Shri Sonu Kumar S of ICAT, and * Representative of Ashok Leyland   The draft will be wide circulated for 2 months. Comments received in wide circulated draft will be disposed by the above panel. | |  | | --- | | The revised draft is awaited from the Panel.  The sub-committee may kindly consider and decide. | | The members of the Panel informed that consensus was not achieved on all the points on the working draft. Due to change in the role of members from M/s Subros further Panel meeting was not held.  The sub-committee revised the Panel as follows:   1. Shri Himanshu Bajpai of M/s Subros (Convener), 2. Shri Prasanna N of M/s TATA Motors, 3. Shri Suresh T of M/s TATA Motors, 4. Shri Noel Peters of M/s Denso, 5. Shri Shriganesh Umbarkar of M/s Maruti Suzuki, 6. Shri Anil Kumar of Mahindra & Mahindra, 7. Shri Dharmarajan S M/s MAHLE Anand Thermal System, 8. Shri Kamal K Sharma M/s Sanden Vikas, 9. Shri Sonu Kumar S of ICAT, 10. Shri VP Gautam of Ashok Leyland; and 11. Shri Parmod Kumar, Calsonic Kansei Motherson   The Committee in its 34th meeting had requested the panel to provide the revised draft by 1st week of Sept 2022.  The draft is awaited. |
|  | **Present Status:**  Further update is awaited from the Sub-Committee.  The Committee may **ADVICE**. | | | |

**ITEM 5** **COMMENTS ON PUBLISHED STANDARDS**

**5.1 IS 7872: 2020 Deep Freezers ― Specification**

The Committee had requested Shri P K Mukherjee, Shri Srinivasu Moturi, and Shri Satish Kumar to discuss the comments of UL and additional comments of Voltas and provide a draft amendment.

* The draft amendment is awaited.

The committee may **CONSIDER** and **DECIDE**.

**5.2 IS 2370: 2014 ‘Walk-in Cold Rooms — Specification’**

The Committee requested the panel to dispose of the comments from Shri P K Mukherjee and provide recommendation by the next meeting.

* The panel recommendation is awaited.

The committee may **CONSIDER** and **DECIDE**.

**5.3 IS 1391 (Part 1) : 2023 Room Air Conditioners Specification Part 1 Unitary Air Conditioners (Fourth Revision) and IS 1391 (Part 2) : 2023 Room Air Conditioners Specification Part 2 Split Air Conditioners (Fourth Revision)**

The Committee requested the panel to dispose of the comments from Shri P K Mukherjee, M/s UL, M/s Voltas and M/s Blue Star; and provide recommendation by the next meeting.

* The panel recommendation is awaited.

The committee may **CONSIDER** and **DECIDE**.

**5.4 IS 17550 (Part 1) : 2021 Household Refrigerating Appliances Characteristics And Test Methods Part 1 General Requirements**

The Committee requested the panel to dispose of the comments from Shri P K Mukherjee and Shri Satish Kumar and provide recommendation by the next meeting.

* The panel recommendation is awaited.

The committee may **CONSIDER** and **DECIDE**.

**5.5 IS 11329 : 2018 Finned type heat exchanger for room air conditioner (First Revision)**

The Committee deliberated at length and it pointed out to modify the 5.3 b) of IS 11329: 2018 to specifically refer the applicable clauses of IS 737. In addition, it was also proposed to review the clauses on copper tubes referring IS 10773 as IS 10773 does not cover inner grooved tube. So, IS 11329 should refer to only relevant clauses of IS 10773.

Considering the above, the Committee requested Shri Srinivasu Voltas, Shri P K Mukherjee and the panel to provide the draft amendment to the Committee for approval via email or panel meeting.

* The 17th panel meeting was held on 09 May 2024. The minutes of meeting is attached here.

****

The committee may **CONSIDER** and **DECIDE**.

**5.6 IS 17693: 2022 Non-Electric Cooling Cabinet Made of Clay**

Background

‘The Committee noted the information and requested the previous Panel to prepare the draft amendment 2 based on the earlier comments and also by adding additional tests. The draft amendment 2 shall be wide circulated for 1 month for eliciting comments.’

During the 39th meeting, the Committee requested Shri V Manjunath of UL to provide draft amendment no. 2 and decided to wide circulate it for 1 month.

* The draft amendment no.2 is awaited.

The Committee may **CONSIDER** and **DECIDE**.

**ITEM 6 PROGRESS OF PANELS AND WGs**

**6.1 Panel on Commercial Air Coolers**

The 3rd panel meeting was held on 10 May 2024. The minutes of meeting is attached here.



The Committee may **NOTE.**

**6.2 Panel on Ammonia**

Vide Item 4.1, Sl No.2.

**6.3 Panel on Selection, Operation, and Maintenance of RAC (HVAC)**

The 1st panel meeting was held on 24 April 2024. The minutes of meeting is attached here.

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The Committee may **NOTE.**

**6.4 Panel on Finned Type Heat Exchanger**

Vide Item 5.5.

**6.5 Panel on Heat Pump Water Heaters**

The 1st panel meeting was held on 08 May 2024. The minutes of meeting is attached here.



The Committee may **NOTE.**

**6.6 Panel on Electronic Expansion Valve**

Vide Item no.4.1 Sl No.11

**6.7 Panel on Air Filters**

Vide Item no.4.1 Sl No.9

**ITEM 7 PROGRAMME OF WORK**

The present position of work programme under the Committee MED 03 is attached.



The Committee may **NOTE**.

**ITEM 8 ROLLING ANNUAL ACTION PLAN OF 2024-2025**

**8.1 New Work Item Proposal – Carried Forward**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl No.** | **Subject / IS** | **Decision of 40th meeting** | **Present Status** |
|  | MED/03/22778 Electronic Expansion Valve - Specification | Vide Item 4.1, Sl no. 11 | Vide Item 4.1, Sl no. 11 |
|  | MED/03/22144 Refrigerating systems and heat pumps Competence of personnel | Vide Item 4.1, Sl no. 12 | Vide Item 4.1, Sl no. 12 |
|  | [MED/03/18921](https://www.services.bis.gov.in:8071/php/BIS_2.0/StandardsFormulationV2/Upload3.php?ID=SFJuRFI5Y2RSWHU5UzRDQTRGTnFqQT09) Multiple split-system air conditioners and air-to-air heat pumps (VRF air conditioners) - Specification | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/19119 Non-Ducted Portable Air-Cooled Air Conditioners and Air-to-Air Heat Pumps Having a Single Exhaust Duct Testing And Rating For Performance | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/24952 ADJUSTED VOLUME CALCULATION FOR REFRIGERATING APPLIANCES (Adoption of IEC TR 63061) | Vide Item 4.1, Sl no. 1 | Vide Item 4.1, Sl no. 1 |
|  | MED/03/17393 Air Handling Units -Specification | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/22552 Commercial beverage coolers - Classification, requirements and test conditions (Third Revision) | - | The document is under printing.  The Committee may **NOTE**. |
|  | Heat pump water heaters - Testing and rating for performance Part 1 Heat pump water heater for hot water supply based on ISO 19967-1:2019 | The Committee requested the above panel to provide recommendation for the direct adoption or National Deviation of ISO 19967-1:2019 by the next meeting. | Vide Item 10.5 |
|  | NWIP proposal on Service Valves related to HVAC | The Committee requested the following working group to provide recommendation on the NWIP for service valves:  a) Shri Srinivasu of Voltas;  b) Shri Shankar Sapaliga of ICAI; and  c) Shri Santosh Kumar of Daikin. | The WG recommendation is awaited.  The committee may **CONSIDER** and **DECIDE**. |
|  | NWIP proposal on highly energy efficient deep freezer products such as combination product in deep freezer : Cooler & freezer and vertical models, also PCM /Eutectic based freezers | Shri Srinivasu apprised the members of the current market of combination products for cooling as well as freezing. He informed that IS 7872:2020 does not include the combination products and also the freezers on wheels which are eutectic based freezers.  So, the Committee deliberated and requested the panel on deep freezers to review the NWIP and provide recommendation by the next meeting. | The Panel recommendation is awaited.  The committee may **CONSIDER** and **DECIDE**. |

**8.2 Standard under Five year Review– Carried Forward**

As on on-going activity, Sectional Committee reviews the Indian Standards formulated by it at an interval of five years from the date of publication. Following is the list of standards reviewed during the last year but pending for publication.

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl No.** | **Subject / IS** | **Decision of 40th meeting** | **Present Status** |
|  | MED/03/19252/ IS 16672 (Part 2) ‘Refrigerated Display Cabinets Part 2 Classification, Requirements and Test Conditions’ | Vide Item 4.1 Sl No.3 | Vide Item 4.1 Sl No.3 |
|  | MED/03/25447/ IS 3615 REFRIGERATION AND AIR CONDITIONING GLOSSARY OF TERMS ( Third Revision ) | Vide Item 4.1 Sl No.8 | Vide Item 4.1 Sl No.8 |
|  | MED/03/25074/ IS 17570 (Part 4) ‘Air Filters for General Ventilation Part 4 Conditioning Method to Determine the Minimum Fractional Test Efficiency First Revision’ | Vide Item 4.1 Sl No.10 | Vide Item 4.1 Sl No.10 |
|  | MED/03/22235/ IS 17550 (Part 1) Household Refrigerating Appliances - Characteristics and Test Methods Part 1 General Requirements (First Revision) | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/22236/  IS 17550 (Part 2) Household Refrigerating Appliances - Characteristics And Test Methods Part 2 Performance Requirements (First Revision) | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/22237/ IS 17550 (Part 3) Household Refrigerating Appliances - Characteristics and Test Methods Part 3 Energy Consumption and Volume ( First Revision ) | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/21813/ IS 16678 (Part 4) Refrigerating systems and heat pumps Safety and environmental requirements Part 4: Operation maintenance repair and recovery | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/21815/ IS 16753 (Part 5) High-efficiency filters and filter media for removing particles in air Part 5: Test method for filter elements | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/22387/ IS 3315 Direct Evaporative Air Cooler - Specification (Fourth Revision) | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/21881/ IS 11951 PUMPSET FOR DIRECT EVAPORATIVE AIR COOLER - SPECIFICATION (Second Revision) | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/22200/ IS 1475 Drinking Water Coolers - Specification (Fourth Revision) | - | Vide Item 4.1 Sl No. 14 |
|  | MED/03/24169 Household and Similar Electrical Appliances - Safety - Part 2-89: Particular Requirements For Commercial Refrigerating Appliances and Ice-Makers With An Incorporated Or Remote Refrigerant Unit Or Motor-Compressor (Modified adoption of IEC 60335-2-89:2019) | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/25153/ IS 17681 : 2022 Bottled water dispensers - Specification (Amendment No. - 1) | Vide Item 9.3 | Vide Chairperson approval through email dated 08 May 2024, the document has been sent for printing.  The Committee may **NOTE**. |
|  | MED/03/22115/ IS 16656 : 2017 Refrigerants - Designation and safety classification Amendment - 2 | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/22117/ IS 16678 : Part 2: 2018 Refrigerating systems and heat pumps - Safety and environmental requirements: Part 2 design, construction, testing, marking and documentation, Amendment - 1 | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/19768/ IS 11329: 2018 Finned type heat exchanger for room air conditioner (First Revision) Amendment - 3 | - | Vide Item 4.1 Sl No. 13 |
|  | MED/03/22118/ IS 16678 : Part 3: 2018 Refrigerating systems and heat pumps - Safety and environmental requirements: Part 3 installation site Amendment - 1 | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/22116/ IS 16678 : Part 1: 2018 Refrigerating Systems and Heat Pumps - Safety and Environmental Requirements Part 1 Definitions, Classification and Selection Criteria Amendment - 2 | - | The document is under printing.  The Committee may **NOTE**. |
|  | MED/03/22552/ IS 2167 Commercial beverage coolers - Classification, requirements and test conditions (Third Revision) - (Identical To: ISO 22044:2021) | - | The document is under printing.  The Committee may **NOTE**. |

**8.3 Standard under Five year Review – due for 2024-2025**

As on on-going activity, Sectional Committee reviews the Indian Standards formulated by it at an interval of five years from the date of publication. Following is the list of standards pending to be reviewed for this year.

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl No.** | **Subject / IS** | **Decision of 40th meeting** | **Present Status** |
|  | IS 2370 : 2014 Walk - In cold rooms - Specification (First Revision) | Vide Item 9.2 | The standard may be reaffirmed.  The Committee may **CONSIDER** and **DECIDE**. |
|  | IS 3615 : 2020 Glossary of Terms Used in Refrigeration and Air Conditioning ( Second Revision ) | Vide Item 4.1 Sl No. 8 | The standard may be reaffirmed and revised.  The Committee may **CONSIDER** and **DECIDE**. |
|  | IS 7872 : 2020 Deep Freezers - Specification ( Second Revision ) | Vide Item 9.1 | The standard may be reaffirmed.  The Committee may **CONSIDER** and **DECIDE**. |
|  | IS 302 (Part 2/Sec 24) : 1994/ IEC 60335-2-24 Safety of household and similar electrical appliances: Part 2 particular requirements: Sec 24 refrigerators, food - Freezers and ice - Makers | - | Vide Item 4.1 Sl No.18 |

**8.4 Review of Pre-2000 Standards**

The BIS management has decided to revise the old standards which are A5 or pre-2000 and requested the relevant technical committees to take up the revision of the standard. In this regard, the member secretary of the committee is also directed to review the standards at their level and prepare comments in the proforma provided by the management. Further, the proforma along with its details will be put up to the committee for its review and further decision.

|  |  |  |
| --- | --- | --- |
| **Sl No.** | **Subject / IS** | **Present Status** |
|
|  | IS/ISO 11650 : 1999 Performance of refrigerant recovery and/or recycling equipment | This standard was last reviewed and reaffirmed in September, 2022.  1999 version is the latest valid version. Accordingly, the standard may be reaffirmed.  The Committee may **CONSIDER** and **DECIDE**. |
|  | IS/ISO 13261-1 : 1998 Sound power rating of air - Conditioning and air - Source heat pump equipment: Part 1 non - Ducted outdoor equipment | This standard was last reviewed and reaffirmed in August, 2021.  1998 version is the latest valid version. Accordingly, the standard may be reaffirmed.  The Committee may **CONSIDER** and **DECIDE**. |
|  | IS/ISO 13261-2 : 1998 Sound power rating of air Conditioning and air - Source heat pump equipment: Part 2 non - Ducted indoor equipment | This standard was last reviewed and reaffirmed in September, 2022.  1998 version is the latest valid version. Accordingly, the standard may be reaffirmed.  The Committee may **CONSIDER** and **DECIDE**. |
|  | IS 1474 : 1959 Specification for commercial refrigerators | The standard is being superseded by upcoming standard MED/03/19252/ IS 16672 (Part 2) ‘Refrigerated Display Cabinets Part 2 Classification, Requirements and Test Conditions’.  The Committee may **NOTE.** |
|  | IS 5111 : 1993/ ISO 917:1989 Testing of refrigerant compressors (First Revision) | This standard was last reviewed and reaffirmed in May, 2022.  However, ISO 917 is under development CD stage at ISO with ref. no. ISO/CD 18976 ISO 917, Testing of refrigerant compressors.  Accordingly, the standard may be reaffirmed.  The Committee may **CONSIDER** and **DECIDE**. |
|  | IS 302 (Part 2/Sec 24) : 1994 Safety of household and similar electrical appliances: Part 2 particular requirements: Sec 24 refrigerators, food - Freezers and ice - Makers | Vide Item 4.1 Sl No.18 |

**ITEM 9 NEW SUBJECT PROPOSAL RECEIVED**

NWIP proposal foradoption ofISO 5222-1:2023 ‘Heat recovery ventilators and energy recovery ventilators Testing and calculating methods for seasonal performance factor Part 1: Sensible heating recovery seasonal performance factors of heat recovery ventilators (HRV)’, has been submitted by Shri (Dr) Jyotirmay Mathur, Shri V. Manjunath, Shri Vikas Mehta, Shri Shankar Sapaliga and Shri Rahul Ramtekkar vide email dated 08 February 2023.

The committee may **CONSIDER** and **DECIDE**.

**ITEM 10 NEW SUBJECTS**

**10.1** As per the policy and guidelines, before any new subject is taken up for formulation of National Standard the following issues are to be examined by BIS.

1. Whether the subject is financed by the proposer;
2. Sale ability of the standard;
3. Standards shall be user friendly;and
4. Social needs with regards to safety, health and environment.

Only after assessing the above aspects, it will be possible for BIS to consider the formulation of Indian standard. The proposal should essentially be taken in the below prescribed Performa, as preliminary work item*.* When members propose in the Technical Committee (TC) meeting, they have to fill-in the Performa beforehand which is then be considered by the TC.



MS had proposed the development of new standards for Precision Air Conditioning (PAC) Units, Blast chillers and freezers, Display-cum-cold rooms, and Pre-Coolers in the last meeting. Shri Satish of UL had also suggested the development of standards on PAC Units and Panel cooling systems and shared information about some manufacturers. The Committee requested members to provide input on these proposals and decided to discuss the item in the next meeting

The Committee may **DELIBERATE** and **DECIDE**.

**10.2** The Committee had requested the following Panel to provide recommendations on way forward for formulating Indian Standards on Cold chain and CO2 trans-critical systems:

1. Shri Ashish Fotedar of NCCD (Convener),
2. Shri Aditya Narayan, MoEFCC
3. Shri Vikas Malhotra, Carrier India
4. Shri Chethan Tholpady, Copeland
5. Shri P K Mukherjee, Personal Capacity
6. Representative from Tecumseh
7. Representative from ICE Make Refrigeration Limited, Ahmedabad
8. Representative from Rinac India Ltd.

The recommendation is awaited.

The committee may **DELIBERATE** and **DECIDE**.

**10.3** **Assistance for framing Relevant National Standards**

The Committee had requested the Panel on Cold-chain to provide proposal and boundary condition by next meeting.

The committee may **DELIBERATE** and **DECIDE**.

**ITEM 11 STATUS OF INDIAN STANDARDS**

**11.1 Quality Control Order**

The Committee may note that the following standards prepared by MED 03 have been brought under mandatory certification by Department for Promotion of Industry and Internal Trade:

|  |  |  |
| --- | --- | --- |
| **Sl. No.** | **IS No.** | **Date of implementation** |
|  | IS 1391 (Part 1): 2017 Room air conditioners - Specification: Part 1 Unitary air conditioners | 01October 2023 |
|  | IS 1391 (Part 2): 2018 Room air conditioners - Specification: Part 1 Split air conditioners | 01October 2023 |
|  | IS 7872: 2020 Deep Freezers - Specification ( Second Revision ) | 01January 2024 |
|  | IS 8148 : 2018 Ducted and package air - Conditioners - Specification | 01October 2023 |
|  | IS 10617: 2018 Hermetic Compressors - Specification | 01October 2023 |
|  | IS 11329: 2018 Finned type heat exchanger for room air conditioner | 01October 2023 |
|  | IS 17550 (Part 1) : 2021 Household Refrigerating Appliances — Characteristics and Test Methods Part 1 General Requirements | 01January 2024 |

The Committee may **NOTE**.

**11.2 Notified Quality Control Orders**

|  |  |  |
| --- | --- | --- |
| **Sl. No.** | **IS No.** | **Date of implementation** |
|  | IS 1475 (Part 1) : 2001 Self- Contained Drinking Water Coolers – Energy Consumption and Performance | 01 October 2024 |
|  | IS 17681 : 2022 Bottled Water Dispensers ― Specification | 01 July 2024 |
|  | IS 3315: 2019 Evaporative air coolers (Desert Coolers) ― Specification | 05 September 2024 |
|  | IS 17570 (Part 1) : 2021/ISO 16890-2:2016 Air Filters for general ventilation Part 1 Technical specifications requirements and classification system based upon particulate matter efficiency ePM | 05 September 2024 |

The Committee may **NOTE**.

**11.3 Proposed Quality Control Orders**

|  |  |  |
| --- | --- | --- |
| **Sl. No.** | **IS No.** | **Proposed Date** |
|  | IS 18801 : 2023/ ISO 22041:2019 Refrigerated storage cabinets and counters for professional use Performance and energy consumption | 31 May 2024 |
|  | IS 18802 : 2023/ ISO 22042:2021 Blast chiller and freezer cabinets for professional use Classification requirements and test conditions | 31 May 2024 |

The Committee may **NOTE**.

**11.4 BIS Domestic Licences**

|  |  |  |
| --- | --- | --- |
| **Sl. No.** | **IS No.** | **Number of Licences as on Date** |
|  | IS 1391 (Part 1) : 2023 Room Air Conditioners Specification Part 1 Unitary Air Conditioners Fourth Revision | 11 |
|  | IS 1391 (Part 2) : 2023 Room Air Conditioners Specification Part 2 Split Air Conditioners Fourth Revision | 49 |
|  | IS 11329 : 2018 Finned type heat exchanger for room air conditioner (First Revision) | 49 |
|  | IS 10617 : 2018 Hermetic compressors - Specification (Second Revision) | 08 |
|  | IS 8148 : 2018 Ducted and package air - Conditioners - Specification (Second Revision) | 12 |
|  | IS 17550 (Part 1) : 2021 Household Refrigerating Appliances Characteristics And Test Methods Part 1 General Requirements | 21 |
|  | IS 7872 : 2020 Deep Freezers - Specification ( Second Revision ) | 12 |
|  | IS 1475 (Part 1) : 2001 Self - Contained drinking water coolers - Specification: Part 1 energy consumption and performance (Third Revision) | 10 |

The Committee may **NOTE**.

**ITEM 12 INTERNATIONAL ACTIVITIES**

**12.1** The list of ISO Standards published by ISO/ IEC Committees and their sub-committees are given in the website of ISO and IEC can be accessed with official ISO website.

The committee may review ISO/IEC Standards published and identify the Standards for possible adoption as Indian Standards or inputs can be taken for revising the existing Indian Standards.

The committee may **DELIBERATE** and **DECIDE**.

**12.2** In case of ‘P-membership’ of ISO /IEC Technical Committees, it is obligatory on the part of Member Organization (country) to send ballots on documents. Committee drafts (CD), Draft International Standards (DIS) and Final Draft International Standards (FDIS) are received from the respective ISO Secretariat of the Technical Committee through E-mail only. The documents are sent to members of the committee through E-mail for eliciting their comments. The comments so received are reviewed and collated by BIS Secretariat and then put up to Chairman of the committee and a final decision is taken as to whether to send an approval/ disapproval or abstention ballot. The approval/ disapproval ballots can be sent with comments also. Once approval ballot is sent on the document, as per WTO, the member organization may be under obligation to use the ISO Standard in International Trade. It is not practically feasible to send the documents by post, accordingly all members are requested to keep BIS Secretariat updated about E-mail addresses of their respective members.

Committee may **NOTE**.

Guidelines for participation in ISO/IEC work can be downloaded from [www.iso.org](http://www.iso.org).

**12.3** List of the Sub Committees and Working Groups of ISO/TC 86

**ISO/TC 86 Refrigeration and air-conditioning (*new WG/AHG/TF highlighted in red*)**

ISO/TC 86/SC 1 Safety and environmental requirements for refrigerating systems

ISO/TC 86/SC 1/WG 1 Safety and environmental requirements for refrigerating systems and heat pumps

ISO/TC 86/SC 4 Testing and rating of refrigerant compressors

ISO/TC 86/SC 4/AHG Work programmes of refrigerant compressor standards

ISO/TC 86/SC 4/WG 2 Positive displacement refrigerant compressor

ISO/TC 86/SC 4/WG 3 Centrifugal refrigerant compressor

ISO/TC 86/SC 6 Testing and rating of air-conditioners and heat pumps

ISO/TC 86/SC 6/AHG Ad Hoc Group on definitions of terms for different types of products

ISO/TC 86/SC 6/TG 13 Next generation of performance standards

ISO/TC 86/SC 6/WG 1 Air-source air-conditioners and heat pumps

ISO/TC 86/SC 6/WG 3 Water and brine source heat pumps and air-conditioners

ISO/TC 86/SC 6/WG 10 Energy recovery ventilators

ISO/TC 86/SC 6/WG 12 Heat pump water heaters

ISO/TC 86/SC 6/WG 13 Update of measuring technologies

ISO/TC 86/SC 7 Testing and rating of commercial refrigerated display cabinets

ISO/TC 86/SC 7/WG 1 Refrigerated, blast cabinets and ice makers for professional use

ISO/TC 86/SC 7/WG 2 Commercial beverage coolers and ice cream freezers

ISO/TC 86/SC 7/WG 3 Commercial refrigerated display cabinets

ISO/TC 86/SC 8 Refrigerants and refrigeration lubricants

ISO/TC 86/SC 8/TF 1 ISO 817 Technical Alignment

ISO/TC 86/SC 8/TF 2 Toxicity safety classification

ISO/TC 86/SC 8/MA ISO 817 Maintenance agency

ISO/TC 86/SC 8/WG 5 Refrigerants - Designation and safety classification

ISO/TC 86/SC 8/WG 7 Refrigerant properties

ISO/TC 86/SC 8/WG 8 Burning Velocity Test Methods

The committee may **NOTE**.

**12.4 List of the Working Groups of IEC/TC 59/ SC 59M ‘Performance of electrical household and similar cooling and freezing appliances’**

Working Groups

WG 4 Electrical household and similar cooling and freezing appliances, food preservation and storage

WG 6 Test standard for refrigerated appliances for use with off grid or weak grid

Maintenance Teams

MT 2 Electrical household and similar cooling and freezing appliances, maintenance of performance standard

Joint Working Groups

JWG 2 Acoustical noise of household and similar electrical appliances Managed by TC 59

The committee may **NOTE**.

**12.5 List of the Working Groups of IEC/TC 61/SC 61 C ‘Safety of refrigeration appliances for household and commercial use’**

Working Groups

WG 4 IEC 60335-2-89-A2/Ed2: Household and similar electrical appliances - Safety - Part 2-89: Particular requirements for commercial refrigerating appliances with an incorporated or remote refrigerant unit or compressor –

Maintenance Teams

MT 1 Safety of motor-compressors

MT 5 Maintenance Team for IEC 60335-2-24 - Particular requirements for refrigerating appliances, ice-cream appliances and ice-makers

MT 7 Maintenance Team for IEC 60335-2-118 - Particular requirements for professional ice-cream makers

Joint Working Groups

JWG 3 TC 55/SC61C: Resistance to refrigerants of winding wires Managed by TC 55

Editing Group

EG 6 Editing Committee

The committee may **NOTE**.

**12.6 List of the Working Groups of IEC/TC 61/SC 61 D ‘Appliances for air-conditioning for household and similar purposes’**

Working Groups

WG 21 Address A2L, A2 and A3 refrigerants and maintenance of 60335-2-40

WG 22 Alignment of IEC 60335-2-40 with IEC 60335-1

Maintenance Teams

MT 19 Revision of 60335-2-104 work

Ad-Hoc Groups

ahG 24 Air conditioners for cooling driver and passenger compartments when the vehicle is stationar

The committee may **NOTE**.

**12.7 List of experts in various ISO/IEC**

|  |  |  |
| --- | --- | --- |
| **ISO/TC 86** **Refrigeration and air-conditioning** | | |
| ISO/TC 86/SC 1 | Safety of Refrigeration Systems | Shri Sunil Jain of Blue Star,  Shri Vikas Mehta of Chemours  Shri Bimal Tandon of Carrier  Miss Neha Thakur, BIS |
| ISO/TC 86/SC 1/WG 1 | Safety and environmental requirements for refrigerating systems and heat pumps | Shri Srinivasu of Voltas,  Shri Vikas Mehta of Chemours  Miss Neha Thakur, BIS |
| ISO/TC 86/SC 4 | Testing and rating of Refrigerant Compressors | Shri Chetan Tholpady of Copeland  Miss Neha Thakur, BIS |
| ISO/TC 86/SC 4/WG 1 | Testing and rating of refrigerant compressors | Shri Chetan Tholpady of Copeland  Miss Neha Thakur, BIS |
| ISO/TC 86/SC 4/WG 2 | Positive displacement refrigerant compressor | Shri Chetan Tholpady of Copeland |
| ISO/TC 86/SC 6 | Testing and rating of Air-Conditioners and Heat Pump | Dr. Jyotirmay Mathur of ISHRAE  Miss Neha Thakur, BIS |
| ISO/TC 86/SC 6/WG 1 | Air-source air-conditioners and heat pumps | Miss Neha Thakur, BIS |
| ISO/TC 86/SC 6/WG 3 | Water and brine source heat pumps and air-conditioners | Miss Neha Thakur, BIS |
| ISO/TC 86/SC 6/WG 10 | Energy recovery ventilators | Dr. Jyotirmay Mathur of ISHRAE |
| ISO/TC 86/SC 6/WG 12 | Heat pump water heaters | Dr. Jyotirmay Mathur of ISHRAE |
| ISO/ TC 86/ SC6/ WG15 | Advanced performance standards | Dr. Jyotirmay Mathur of ISHRAE  Shri Srinivasu M of Voltas  Dr. Yash Shukla  Shri V Manjunath of UL |
| ISO/TC 86/SC 7 | Testing and rating of Commercial Refrigerated Display Cabinets | - |
| ISO/TC 86/SC 7/WG 1 | Refrigerated, blast cabinets and ice makers for professional use | - |
| ISO/TC 86/SC 7/WG 2 | Commercial beverage coolers and ice cream freezers | - |
| ISO/TC 86/SC 8 | Refrigerants and Refrigeration Lubricants | Shri Sunil Jain of Blue Star,  Shri Vikas Mehta of Chemours, and  Miss Neha Thakur, BIS |
| ISO/TC 86/SC 8/MA | ISO 817 Maintenance agency | - |
| ISO/TC 86/SC 8/WG 5 | Refrigerants - Designation and safety classification | Shri Sunil Jain of Blue Star  Shri Vikas Mehta of Chemours, and  Miss Neha Thakur, BIS |
| ISO/TC 86/SC 8/WG 7 | Refrigerant properties | Miss Neha Thakur, BIS |
| ISO/TC 86/SC 8/WG 8 | Burning Velocity Test Methods | - |
| **IEC/TC 59/ SC 59M ‘Performance of electrical household and similar cooling and freezing appliances’** | | |
| WG 4 | Electrical household and similar cooling and freezing appliances, food preservation and storage | Shri Srinivasu of Voltas  Miss Neha Thakur, BIS |
| WG 5 | TC 59/WG 2 - Acoustical noise of household appliances | - |
| MT 2 | Electrical household and similar cooling and freezing appliances, maintenance of performance standard | Shri Srinivasu of Voltas  Miss Neha Thakur, BIS |
| **IEC/TC 61/SC 61 C ‘Safety of refrigeration appliances for household and commercial use’** | | |
| WG 4 | IEC 60335-2-89-A2/Ed2: Household and similar electrical appliances - Safety - Part 2-89: Particular requirements for commercial refrigerating appliances with an incorporated or remote refrigerant unit or compressor | Shri Vikas Mehta of Chemours,  Miss Neha Thakur, BIS |
| WG 5 | Review the fire safety of products covered by IEC 60335-2-24 | - |
| MT 1 | Safety of motor-compressors | Copeland / Danfoss  Miss Neha Thakur, BIS |
| MT 7 | Maintenance Team for IEC 60335-2-118 - Particular requirements for professional ice-cream makers | - |
| JWG 3 | Resistance to refrigerants of winding wires | - |
| EG 6 | Editing Committee | - |
| **IEC/TC 61/SC 61 D ‘Appliances for air-conditioning for household and similar purposes’** | | |
| WG21 | WG 21 Address A2L, A2 and A3 refrigerants and maintenance of 60335-2-40 | Shri V Manjunath of UL,  Shri Vikas Mehta of Chemours Miss Neha Thakur, BIS |
| MT 19 | Revision of 60335-2-104 work | - |
| MT 28 | Maintenance of IEC 60335-2-40 | Shri Vikas Mehta of Chemours |
| MT 29 | Maintenance of requirements for detection of leaked refrigerant | Shri Vikas Mehta of Chemours |
| Ad hoc Group 30 | Alignment of requirements for flammable refrigerant systems in appliances | Shri Vikas Mehta of Chemours |
| WG 27 | Air conditioners for cooling driver and passenger compartments when the vehicle is stationary | Shri Vikas Mehta of Chemours  Ms Shweta Kulkarni of Trane Technologies |

The committee may **CONSIDER** and **DECIDE**.

**12.8 Participation in ISO/IEC meetings**

**12.8.1 Upcoming meetings of ISO/IEC**

| **Date** | **Month** | **Location** | **TC/SC** | **Nomination Received** |
| --- | --- | --- | --- | --- |
| 04-06 | September 2024 | Eschborn (Germany) | IEC/TC 61/SC 61C/WG 4 Household and similar electrical appliances - Safety - Part 2-89 | Shri Vikas Mehta of Chemours  Ms Neha Thakur |
| 07-10 | October 2024 | Peachtree Corners (United States) | ISO/TC 142 ‘Cleaning equipment for air and other gases’ | - |
| 09-13 | December 2024 | IEC | IEC/ TC 61/SC 61C Plenary meeting and its WG meetings | Shri Vikas Mehta of Chemours  Ms Neha Thakur |

The Committee may **CONSIDER** and **DECIDE.**

**12.8.2 ISO/IEC meetings participated**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Date** | **Month** | **Location** | **TC/SC** | **Nomination Received** | **Status** |
| 15 | April 2024 | Virtual | IEC/ TC 61/SC 61D/MT 28 ‘Maintenance of IEC 60335-2-40’ | Shri Vikas Mehta of Chemours | Report of the meeting will be presented by Shri Vikas Mehta during the meeting. |
| 08-10 | April 2024 | Tokyo (Japan) | ISO/ TC 86/ SC 1/ WG1 | Shri Vikas Mehta of Chemours | Shri Vikas Mehta of Chemours participated in the meetings. The report of the meeting was circulated to the Committee vide email dated 14 June 2024. |
| 10-12 | April 2024 | Chuo City (Japan) | ISO/ TC 86/ SC 8/ WG 5 | Shri Vikas Mehta of Chemours | Shri Vikas Mehta of Chemours participated in the meetings. The report of the meeting was circulated to the Committee vide email dated 14 June 2024. |
| 13-17 | May 2024 | Chemours (United States) | MT 28 and MT 29 | Shri Vikas Mehta of Chemoirs | Report of the meeting will be presented by Shri Vikas Mehta during the meeting. |

The committee may **CONSIDER** and **DECIDE.**

**12.8.3 New subject proposal to ISO/ IEC**

The Committee had decided to discuss regarding IS 17681 : 2022 Bottled water dispensers – Specification to be proposed to ISO as a new subject in the next meeting.

The committee may **CONSIDER** and **DECIDE**.

**ITEM 13** **PRIORITY LIST**

The Committee may **DECIDE** on **future work plan** and **strategies** to be adopted say in the next 5 years aiming at contribution in related standardization activity both at national and international level (if available, ISO).

The Committee requested MS to prepare list of priority items and circulate to the Committee for preparing the future work plan and strategies to be adopted for the next 5 years.

* Priority 1: Quality Control Order and request received from Ministries and Govt. departments like (DPIIT, MoEFCC, BEE, etc)
* Priority 2: Standards to be revised/reviewed under review and reaffirmation and update in base ISO and IEC standard
* Priority 3: New subjects to be taken up for standardization

The committee may **ADVISE**.

**ITEM 14 RECOMMENDATION OF THE PLANNING AND DEVELOPMENT ADVISORY COMMITTEE (PDAC) OF BUREAU OF INDIAN STANDARDS**

The Planning and Development Advisory Committee (PDAC) of Bureau of Indian Standards in its 12th meeting decided as follows:

a) Technical Committee should be sensitized for Eco requirements and standards should be formulated considering the environmental aspects.

b) The committee felt that BIS should be proactively involved so as to have greater impact in International Standardization. For this purpose, the key areas are to be identified for formulating standards for new products.

The Committee may please note.

**ITEM 15 TRANSLATION OF INDIAN STANDARDS FROM ENGLISH TO HINDI**

As per directive issued by ‘Raj Bhasha Vibhag’ to the Bureau “hence forth all new standards (or standards to be revised) are to be published both in Hindi and English simultaneously.”

Whereas a panel for Hindi translation has been identified by Hindi Deptt. of the Bureau however, the members of the technical committees of BIS may undertake translation of Indian standards from English to Hindi. Remuneration of Rs.250/- per A-4 size page (approximately 300 words) is provided for the translation. The members who are interested to do this work of translation can register their name with BIS, details available at: <http://www.bis.org.in/other/EOIHT.htm>

The Committee may **NOTE**.

**ITEM 16 E-SALE OF INDIAN STANDARDS**

The Bureau has made all the indigenous standards free of cost. The adopted standards can be either purchased from the sales office of BIS or through BIS website. Please follow the link to **register and download** the indigenous standards: <https://standardsbis.bsbedge.com/>

Please visit our website [www.bis.org.in](http://www.bis.org.in/) for more details.

The Committee may **NOTE**.

**ITEM 17 DATE AND PLACE FOR THE NEXT MEETING**

**ITEM 18 ANY OTHER BUSINESS**

**18.1 Off-grid and weak-grid refrigerators**

The Committee had requested M/s Godrej to share information with the Committee regarding off-grid and weak-grid medical refrigerators and home & small business fridges in the next meeting.

The committee may **DELIBERATE and DECIDE**.

**Annex 1**

(Item**2.2.1**)

**COMPOSITION OF REFRIGERATION AND AIR CONDITIONING SECTIONAL COMMITTE, MED 03**

|  |  |  |
| --- | --- | --- |
| **Meeting** | **Date** | **Place** |
| 37th | 17 Apr 2023 | BIS HQ |
| 38th | 17 July 2023 | WebEx |
| 39th | 13 Dec 2023 | WebEx |
| 40th | 21 Mar 2024 | WebEx |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Sl No** | **Organisation Represented** | **Principal Member/**  **Alternate Member** | **37th** | **38th** | **39th** | **40th** | **Total** |
|  | Indian Institute of Technology, Roorkee | Prof..(Dr.) Ravi Kumar  (*Chairman*) | Y | Y | Y | Y | 4/4 |
|  | BSH Household Appliances Manufacturing Pvt Ltd., Chennai | Shri V.K. Loganathan  Shri A. Balasubramanian (Alt) | Y | Y | Y | Y | 4/4 |
|  | Blue Star Limited, Mumbai | Shri Jitendra Bhambure  Shri Sunil Kumar Jain (Alt)  Ms. Sneha Harsora (YP) | Y | Y | Y | Y | 4/4 |
|  | Bureau of Energy Efficiency, New Delhi | Ms P. Samal  Shri Kamran Shaikh (Alt)  Ms D. Wadhwa (Alt)  Shri Dheeraj Pandey | N | Y | Y | Y | 3/4 |
|  | CEPT University | Dr Yash Shukla | NA | NA | Y | Y | 2/2 |
|  | [Carrier Air Conditioning and Refrigeration Limited, Gurugram](javascript:;) | Shri Bimal Tandon  Shri Manmohan Kulashri (Alt)  Shri Jatinder Sharma (Alt) | Y | Y | Y | N | 3/4 |
|  | Central Power Research  Institute, Bengaluru | Dr P. Chandra Sekhar  Shri Gujjala B.Balaraja (Alt) | Y | Y | N | Y | 3/4 |
|  | Copeland India Private Limited, Pune | Shri Chetan Tholpady | Y | Y | Y | Y | 4/4 |
|  | Daikin Air Conditioning India Private Limited, Gurugram | Shri Gaurav Mehtani | Y | Y | Y | Y | 4/4 |
|  | Danfoss Industries Pvt Ltd, Gurugram | Shri Madhur Sehgal  Shri K.L. Nagahari (Alt)  Shri M.N.S.V Kiran Kumar (Alt) | Y | Y | N | Y | 3/4 |
|  | Directorate General of Quality Assurance, Ministry of Defence, New Delhi | Lt. Col. Deepak Sharma  Shri S.S. Nikam (Alt) | Y | Y | N | Y | 3/4 |
|  | Electrical Research and Development Association., Vadodara | Shri Guatam Brahmbhatt  Shri Rakesh Patel (Alt) | N | Y | Y | Y | 3/4 |
|  | [Frigoglass India Private Limited, Gurugram](javascript:;) | Shri Mahesh Kumar Mawai  Shri Mandeep Singh (Alt)  Ms. Ritu Chouhan (Alt) | NA | Y | N | Y | 2/3 |
|  | Godrej & Boyce Mfg. Co. Ltd (Appliance Division) | Shri Burzin J. Wadia  Shri Jasvir Singh (Alt)  Shri Narendra Shedge (Alt) | Y | Y | N | Y | 3/4 |
| 1. h | Honeywell International India Pvt Ltd | Shri Aaditya Pegallapati  Shri Avinash Kumar (Alt) | Y | Y | Y | N | 3/4 |
|  | In Personal Capacity | Shri J. K. Agrawal | Y | Y | Y | Y | 4/4 |
|  | In Personal Capacity | Shri P.K. Mukherjee | Y | Y | Y | Y | 4/4 |
|  | Indian Institute of Chemical Engineering, Kolkata | Dr D Sathiyamoorthy  Prof Sudip K Das (Alt) | N | Y | N | Y | 2/4 |
|  | Indian Institute of Technology Madras | Dr. G. Venkatarathnam | N | Y | Y | Y | 3/4 |
|  | Indian Society of Heating, Refrigerating And Air Conditioning Engineers (ISHRAE) | Dr Jyotirmay Mathur  Shri Ashish Rakheja (Alt)  Shri V. Manjunath (Alt) | Y | Y | Y | Y | 4/4 |
|  | [Ingersoll Rand India Limited, Bengaluru](javascript:;) | Shri M. Venkanna  Shri J. Gurusamy (Alt) | Y | Y | N | N | 2/4 |
|  | International Copper Association India, Mumbai | Shri Mayur Karmakar  Shri Shankar Sapaliga (Alt) | Y | Y | Y | Y | 4/4 |
|  | Intertek India Pvt Ltd, New Delhi | Shri C.M. Pathak | Y | Y | N | Y | 3/4 |
|  | Johnson Controls-Hitachi, Ahmedabad | Shri Rahul Ramtekkar  Ms. Heena Ramsinghani (YP) | Y | Y | Y | Y | 4/4 |
|  | LG Electronics India Pvt Ltd , New Delhi | Shri Aditya Anil | Y | Y | Y | Y | 4/4 |
|  | Refrigeration & Air-conditioning Manufacturers Association , New Delhi | Shri Kanwaljeet Jawa  Shri Harsh Vardhan Pant (Alt) | Y | Y | Y | Y | 4/4 |
|  | Samsung India Electronics Ltd., Noida | Shri Kalicharan Sahu  Shri Amit Kumar Jha (Alt) | Y | Y | Y | Y | 4/4 |
|  | Sierra Aircon Pvt Ltd | Shri D.K. Mudgal  Shri S. Dhiman (Alt) | Y | Y | N | Y | 3/4 |
|  | The Chemours India Pvt Ltd., Gurgaon | Shri Vikas Mehta  Shri Nishit Shah (Alt) | Y | Y | Y | Y | 4/4 |
|  | UL India Pvt Ltd, Bengaluru | Shri V. Manjunath  Shri Satish Kumar (Alt) | Y | Y | Y | Y | 4/4 |
|  | Voltas Ltd, Mumbai | Shri Srinivasu Moturi  Shri A.D. Kumbhar (Alt) | Y | Y | Y | Y | 4/4 |
|  | Voluntary Orgn In Interest of Cons Education New Delhi | Shri H. S. Wadhwa  Shri B.K. Mukhopadhyay (Alt) | Y | Y | Y | Y | 4/4 |

**ANNEX 2**

(Item **2.2.4**)

**EXTRACTS ON GUIDELINES FOR PARTICIPATION IN THE TECHNICAL**

**COMMITTEE WORK OF BIS**

|  |
| --- |
| * Where an organization offered representation in BIS work feels that it has limited interests in the scope of activity of a committee it shall communicate so to the committee secretary before accepting the representation. * All organizations represented in a technical work of BIS I shall be conscious of the national role they play in the preparation of standards. They shall nominate the best available ta1.ent for this work and ensure that their nominees are fully briefed, and utilize all opportunity to express their organization’s view point in the Bureau forums. For continuity of participation, it shall be ensured that representatives once nominated are continued as long as possible and changes where inevitable are proceeded smoothly and shall be communicated to Secretary without delay. * Organizations participating in the technical work of the Bureau may also consider initiating wherever possible formal standardization activity within the organization that would amongst other things aid participation and act as permanent liaison with Bureau on all standardization matters and shall coordinate adoption and implementation of national standards. * Organizations 'representing the interests of a group/association/federation may ensure that all constituent members (whose interest he/she represent) are consulted/kept informed of the committee work. * All expenses related to the nominees for participating in this activity are to be borne by the participating organizations. * Authorities nominating representatives as members of Sectional Committee of the Bureau, if they so choose, may nominate two representatives one to be known as the principal and the other as the alternate, subject to the following:   + Generally, one representative shall attend the meeting but if this department or body so desired both the principal and alternate may attend the meeting.   + Only the principal representative shall have the right to vote.   + In the absence of the principal representative, the alternate may exercise the right to vote.   + All documents concerned with the work of the technical committee shall ordinarily be sent to the Principal representative, if both principal and alternate representatives are located at the same station. However, if principal and alternate representatives are from different stations, all documents shall be sent to both the representatives.   + Organizations may, if they so choose, nominate experts by designation instead of by name.   + In exceptional circumstances where a case in made out on the basis of regional representation or representation of special interests within any organization, more than one alternative may be accepted by the officer-in charge of the Division.   + Only the designated Principal/Alternate members can attend Sectional Committee meetings. In case of their absence, their representatives can attend the meetings. However, BIS should be given prior intimation in such cases. In any case, no more than two representatives from one organization can attend the committee meetings. * Comments on documents at any stage, as well as on printed Indian Standards, though are welcome at all times, members are requested to send them well in advance for inclusion in the agenda in order to consider them in the meeting. Comments received very late or brought along for tabling during the meeting will be liable not to be considered as other members have not had the opportunity to deliberate within their organization on these comments and form their viewpoint and are unable to put forth their views at a short notice. * In case there is continual failure to contribute either through correspondence or by attending meetings for a period of three years/three technical Committee meetings by the members, the membership of such organizations will be recommended for withdrawal. |

**ANNEX 3**

(Item **2.3.1**)

**COMPOSITION OF AUTOMOTIVE AIR CONDITIONING AND MOBILE AIR-CONDITIONING SUB-COMMITTEE, MED 03:1**

|  |  |  |
| --- | --- | --- |
| Meeting | Date | Place |
| Fourth  Fifth  Sixth | 31 07 2020  18 03 2021  15 07 2022 | WebEx  WebEx  WebEx |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| SL NO | ORGANISATION REPRESENTED | CAT. | PRINCIPAL MEMBER/  ALTERNATE MEMBER | 4th | 5th | 6th | Total |
|  | INTERNATIONAL CENTRE FOR AUTOMOTIVE TECHNOLOGY | R&D | DR MADHUSUDAN JOSHI (CONVENER)  SH SONU KUMAR SUDRANIA | Y | Y | Y | 3/3 |
|  | AUTOMOTIVE RESEARCH ASSOCIATION OF INDIA | A | - | NA | NA | Y | 0/1 |
|  | ASHOK LEYLAND | M | SH VED PRAKASH GAUTAM  SH FAUSTINO V (ALT) | Y | Y | Y | 3/3 |
|  | CALSONIC KANSEI MOTHERSON | M | SH G. KARUNAKARAN  SH DIXIT UMANG (ALT) | N | N | Y | 1/3 |
|  | CARRIER AIRCON LTD ,  GURGAON | M | SH BIMAL TANDON | N | N | N | 0/3 |
|  | DENSO INTERNATIONAL INDIA PVT LTD | M | SH NOEL A. PETERS  SH ALKA SHARMA (ALT) | Y | Y | N | 2/3 |
|  | HANON AUTOMOTIVE SYSTEMS INDIA PVT LTD | M | SH M. SURESH KUMAR | N | N | N | 0/3 |
|  | HONDA CARS INDIA LTD. | M | KOJI TAMENORI  S. MUTHU KUMAR (ALT) | NA | NA | N | NA |
|  | HONEYWELL | M | SH NITIN KARWA | N | Y | N | 1/3 |
|  | INDIAN INSTITUTE OF TECHNOLOGY, NEW DELHI |  | PROF. SANJEEV JAIN | NA | NA | N | NA |
|  | INGERSOLL RAND | M | SHRI J. GURUSAMY | N | Y | N | 1/3 |
|  | IN PERSONAL CAPACITY | P | LT COL SANTANU ROY | N | N | Y | 1/3 |
|  | IN PERSONAL CAPACITY | P | SH P.K. MUKHERJEE | N | N | N | 0/3 |
|  | MAHINDRA & MAHINDRA LTD | M | SH A. PRABHAKARAN  SH ANIL KUMAR ANUGU  SH JATIN MEHTA (YP) | Y | Y | Y | 3/3 |
|  | MAHLE ANAND THERMAL SYSTEMS PVT LTD | M | SH SACHIN CHITNIS  SH S. SATHYANARAYAN (ALT) | Y | Y | Y | 3/3 |
|  | MARUTI SUZUKI INDIA LTD | M | SH MANISH KHANDELWAL  SH GURURAJ RAVI (ALT)  SH SHRIGANESH UMBARKAR (ALT)  SMT BUVANESWARI (YPP) | Y | Y | Y | 3/3 |
|  | MG MOTOR INDIA PRIVATE LIMITED | M | VAIBHAV UTPAT  T. VISWANATHAN (ALT) | NA | Y | N | 1/2 |
|  | REFRIGERATION & AIRCONDITIONING MFR ASSOCIATION, NEW DELHI | M | SH GURMEET SINGH  SH R.K. MEHTA (ALT) | N | N | N | 0/3 |
|  | RENAULT NISSAN TECHNOLOGY & BUSINESS CENTRE INDIA. | M | SH. GNANASEKARAN | Y | Y | Y | 3/3 |
|  | SUBROS LTD., NEW DELHI | M | SH ROOPAK AGARWAL  SH VISHNU SUTHAR | Y | Y | N | 2/3 |
|  | SANDEN VIKAS INDIA LIMITED | M | SH PRABHAKAR BHARDWAJ  SH KAMAL KISHORE SHARMA (ALT) | N | Y | Y | 2/3 |
|  | THE CHEMOURS INDIA PVT LTD., GURGAON | M | SH VIKAS MEHTA  SH NISHIT SHAH (ALT) | Y | Y | Y | 3/3 |
|  | TATA MOTORS LTD | M | SH SANGEET HARI KAPOOR | Y | Y | Y | 3/3 |
|  | TRANSPORT ENGINEERING DEPARTMENT, BIS |  |  | N | N | N | 0/3 |
|  | VOLKSWAGON | M | SH TOUHID SHAIKH | N | N | N | 0/3 |