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**MINUTES**

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| **MEETING** | **DAY & DATE** | **TIME** | **VENUE** |
| **Thirty-****Ninth meeting of Refrigeration and Air Conditioning Sectional Committee, MED 03** | **Wednesday**  **13 December 2023** | **1030-1330 hr** | **VC through WebEx** |

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

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

**MEMBERS PRESENT**: *See* Annex 1

**Item 0 WELCOME AND OPENING REMARKS**

* 1. MS informed Shri Navindra Gautam, Sc.E/Director and HMED is on medical leave. MS welcomed all the members present on his behalf.

**0.2** Prof (Dr) Ravi Kumar, Chairperson, MED 03 welcomed the Committee members present to the 39th meeting of MED 03. He also welcomed the new MS MED 03. He appreciated the active participation by most of the Committee members. He informed that refrigerants has been one of the most important subjects and Committee should actively focus on formulating and updating the refrigerants standards. With this, he hoped for fruitful deliberation during the meeting.

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

Committee approved the minutes of the 38th meeting of Refrigeration and Air Conditioning Sectional Committee, MED 03 held on 17th July 2023 through VC (WebEx) was circulated vide email bearing reference MED 03/A-2.38 dated 28th July 2023.

**Item 2 SCOPE AND COMPOSITION OF COMMITTEE**

**2.1 SCOPE**

The Committee noted the present scope and deliberated on the draft revised scope as follows:

*‘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, refrigerant and refrigeration lubricant, with consideration given to environmental protection.*

*The scope also includes:*

* 1. *Refrigerating and similar appliances for household and commercial use such as refrigerators, frozen-food storage cabinets, food freezers, display cabinets, cold chain refrigeration system and components, etc.;*
  2. *Factory-assembled air-conditioners (cooling), heat pumps, dehumidifiers, refrigerants, 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’*

Shri P K Mukherjee apprised the members that IEC TC 111 ‘Environmental standardization for electrical and electronic products and systems’ closely works with the product standards’ Committees with regard to the similar subject to ‘circular economy and the end of the lifecycle of the product’. He further informed the most of the countries have rules and regulations on circular economy and recycling aspects of at least the component parts of the products. Based on this manufacturer has to declare and certify those component parts. He proposed to form small working group (WG) to deliberate on this subject. He also suggested to include members from ETD.

The Chairperson; Dr Jyotirmay Mathur; and Shri Gaurav Mehtani also supported the proposal by Shri P K Mukherjee to form a WG.

Committee members agreed to deliberate on the subject and decided that the following WG will provide its recommendation on circular economy. The composition of the WG for ‘circular economy and the end of the lifecycle of the product’ is as follows:

1. Shri P K Mukherjee (Convener);
2. Shri Manish Begad from Blue Star;
3. Shri Gaurav Mehtani from Daikin;
4. Shri Avinash Kumar from Honeywell;
5. Shri Vikas Mehta from Chemours;
6. Shri Satish Kumar from UL; and
7. Shri Aditya Anil from LG Electronics.

Shri P K Mukherjee proposed to have WG meeting on first week of January 2024.

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

**2.2.1** Committee noted the information.

1. Shri Rakesh Patel informed that ERDA has sent the email for revised nomination of alternate member, Shri Ravi in place of Shri Gautam Brahmbhatt. He agreed to again send the email to MS.
2. Committee requested Ingersoll Rand India Limited, Bengaluru to provide revised nomination in the proforma along with update on the change in the organization name.
3. Dr Jyotirmay informed that nomination of CPWD should be prioritized as many of the Indian Standards are being referred in the HVAC manual and MED 03 standards are also there. MS was requested to follow-up with CPWD and MoEFCC for their nominations.
4. Committee approved the revised nomination from Shri Chirag Gandhi, Honeywell International India Private Limited, Gurugram in place of its Principal member Shri Aaditya Pegallapati.
5. MS was requested to inform the decision of MEDC for withdrawal of Annapurna Electronics and Services Ltd, Hyderabad and National Thermal Power Corporation, Noida.

**2.2.2** Committee agreed to provide the signed declaration as above to MED, BIS.

**2.2.3** Committee noted the information.

**2.2.4** Committee noted the information.

**2.2.5** Committee noted the information.

**2.2.6** Committee noted the information.

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

1. Committee noted the information.
2. Committee noted the information and requested to inform the response of Engineers India Limited, New Delhi and Bharat Heavy Electricals Limited, Project Engineering Management, Noida in the next meeting.
3. Experts from various academia like IIT Delhi, IIT Bombay, IISC Bangalore, etc to be added in the mailing list - Committee decided to discuss this item in the next meeting.
4. Sl No. i) to v) -Committee requested to seek their area of interest and required expertise. Committee decided to share the list of Panels under MED 03 and seek their interest for participation.

**2.3 Composition of the Sub-committee**

**2.3.1** Committee noted the information.

**Item 3** **REFORMS IN THE PROCESS OF STANDARDISATION**

1. A **presentation** has been prepared to showcase the process reforms that have taken place in the standardization process.
2. The Committee noted the **Rolling Annual Action Plan**.
3. Committee approved the **Annual calendar** for Technical Committee meetings as follows.

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| **Technical Committee** | **1st Quarter** | **2nd Quarter** | **3rd Quarter** | **4th Quarter** |
| **MED 03** | **17th April 2023** | **17th July 2023** | **13th Dec 2023** | **Last week of Feb 2024** |

1. **Research & Development Projects**

Committee noted the information.

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

Committee noted the information. Committee also deliberated on Abstention, No response and Negative votings for more clarity among the members.

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| **Sl No.** | **ISO/IEC TC** | **Doc No. & Title** | **Circulated on** | **Last date of comment** | **Decision during 39th meeting** |
|  | ISO/TC 86/SC 6 | ISO/NP 24280 Data from Air Conditioning and Heat Pumps for Energy Efficiency Simulation of Building Systems | 13 Oct 2023 | 26 Dec 2023 | Committee decided to approve the NWIP. |
|  | ISO/TC 86 | ISO/NP 24111 Guidelines for the application of graphical symbols used on air conditioning equipment | 13 Sep 2023 | 30 Nov 2023 | Committee decided to abstain. |

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

The Committee noted the information.

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

Committee noted the information.

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

Committee noted the information.

1. Creation of **pool of experts**

Committee noted the information. Also, vide Item 2.2.7 (c).

**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 38th meeting** | **Present Status** | **Decision of 39th meeting** |
| **REFRIGERATION** | | | | |
| 1 | 4.1 (1) | **Household refrigerating appliances Characteristics and Test Methods IS 17550 (Part 1 to 3)**  MS informed that Shri Mohinder Singh of M/s Whirlpool had confirmed regarding the adoption of IEC TR 63061:2017 ‘Adjusted volume calculation for refrigerating appliances’.  Shri Satish Kumar of UL requested the Committee for 10 more days to review IEC TR 63061:2017.  Shri P K Mukherjee informed that at present in IEC 62552 series the concept of adjusted volume is still not present. He further added that BEE star labelling program is still based on adjusted volume. So having an Indian Standard on the subject will be very useful. However, it needs to be further deliberated on how the standard can be used in IS 17550 series.  The Committee requested the Panel to provide recommendation in the next meeting and also requested the panel to dispose of the comments on WC drafts.  The Committee decided that the final draft received from the Panel shall be sent for printing.  **Background**  Committee requested the panel to consider sound requirement in the standard.  It was decided that a copy of IEC TR 63061:2017 ‘Adjusted volume calculation for refrigerating appliances’ will be circulated to the Panel and Committee for 1 week for feedback. If no response is received the document shall be wide circulated for 1 month.  It further decided to make a reference to IEC TR 63061 in the relevant part of IS 17550 (Part 1 to 3). | 5th Panel meeting was held on 8th August 2023 to dispose of the comments. The recommendation from the Panel and one additional recommendation on marking requirement on Household Refrigerators for finalization of MED 03 (22235), MED 03 (22236), and MED 03 (22237) was circulated to the Committee vide email dated 25th August 2023. No further comment has been received on the drafts.  Panel also recommended to directly adopt IEC TR 63061:2017 ‘Adjusted volume calculation for refrigerating appliances’ and wide circulate the draft for 2 months.  The Panel recommended that study would be required for considering sound requirement in the standard hence should be considered for next amendment/revision.  The Committee may **CONSIDER** and **DECIDE**. | Committee approved the recommendation of the panel and one additional recommendation which was circulated to the Committee vide email dated 25th August 2023 and finalized the drafts MED 03 (22235), MED 03 (22236), and MED 03 (22237) for printing.  Committee decided to wide circulate the draft for direct adoption of IEC TR 63061:2017 for two months time.  Committee decided to co-opt VOICE in the Household refrigerators panel. |
| 2 | 4.1 (2) | **IS 17773 : 2022 Closed-Circuit Ammonia**  **Refrigeration System — Code of Practice for Design and Installation (ANSI/IIAR 2 : 2014, NEQ)**    The Committee requested Shri Kiran Kumar, Danfoss India (Co-convener) to Convene the Panel meeting in case the Convener is not available. It requested the Panel to provide recommendations on comments by the next meeting.  **Background**  The Committee appointed Shri Kiran Kumar, Danfoss India as the Co-convener  of the panel. It requested the Panel to dispose of the comments of IIAR and Shri Ramesh Paranjpey and to consider necessary amendment to the standard.  It further noted the information conveyed by IIAR. | Further update is awaited from the Panel.  The Committee may **ADVICE**. | Committee requested the Panel to provide recommendations on the comments of IIAR and Shri Ramesh Paranjpey, by the next meeting. |
| 3 | 4.1 (3) | **IS 1474:1959 Commercial Refrigerators (ISO 23953-2 : 2015, MOD) and IS 2167/ ISO 22044 : 2021 Commercial Beverage Coolers**  The Committee finalized MED 03 (22552) ‘Commercial beverage coolers — Classification, requirements and test conditions’ for printing.  **Background**  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.  All comments in the agenda were agreed to be taken as fresh comments once ISO 22044 is adopted and implemented by the manufacturers based on experience gained during its implementation. | 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.  MED 03 (22552) is under printing.    Considering the fourth revision of IS 2167, following National Deviation for ISO 22044 has been received from Shri Satish Kumar of UL and Shri P. K. Mukherjee.    The Committee may **CONSIDER** and **DECIDE**. | MED 03 (19252) : Committee noted the information.  MED 03 (22552) : Committee noted the information.  Shri Satish Kumar outlined the main provisions of draft National Deviation which are : i) Vertical air flow in testing labs; and ii) Alternate usage of PET bottles instead of M-cans.  Shri Mukhopadhyay informed that during BEE meeting, it was discussed that the standard should not be restricted to vertical airflow only but more open to better alternatives which lead to more accuracy in the parameter testing.  Shri Satish apprised that testing has been done on closed type coolers using vertical airflow but not on open type coolers. However, he requested for more data wrt. to open type air coolers to conclude.  Committee requested the panel to provide their recommendations for next revision to upcoming third revision of IS 2167 considering above by the next meeting. |
| **AIR CONDITIONING** | | | | |
| 4 | 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**  Shri V Manjunath of UL informed that the WG is revising the comments on IEC 60335-2-40 to be submitted to IEC and shall be provided shortly.  The Committee requested the Panel to expedite the national deviation for IEC 60335-2-40: 2022.  The national deviation for IEC 60335-2-40: 2022 received from the Panel shall be wide circulated for 1 month.  **Background**  The members informed that the comments need to be reviewed again.    The Committee requested the WG to provide the proposal based on comments at the earliest. It also requested the Panel to provide national deviation for IEC 60335-2-40: 2022 within 2 months for modified adoption of IEC 60335-2-40: 2022. The Committee also agreed that once the standard is published the same will be referred to in IS 1391 (Part 1) and (Part 2).  ii) **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**    MS will confirm from Convener of ISO/ TC 86/ SC6/ WG15 for limiting of experts to be registered in WG15 as additional nomination has been received from Shri V Manjunath of UL and Dr. Yash Shukla of CEPT. The Committee decided that if no limitation is there, the members will be added to the WG15.  **Background**  The Committee requested Dr Jyotirmay Mathur of ISHRAE and Shri Srinivasu M of Voltas to attend the next meeting of ISO/ TC 86/ SC6/ WG15 and provide the status report to the Committee. It was noted that there is no Indian viewpoint at present and the meeting will be attended for information so that the Indian industry can proactively take necessary steps for harmonization with ISO.  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. | 1. 11th Panel meeting was held on 17 August 2023. Draft Minutes is attached here and final minutes will be circulated to the Panel for confirmation of the minutes.     Following comments submitted on 61D/506/CDV IEC 60335-2-40 ED8 through e ballot and Committee approved the same comments for India Viewpoint in IEC IEC/TC 61/SC 61D meeting held in November 2023:    Proposal on national deviation for IEC 60335-2-40: 2022 are awaited from the panel.  Following draft national deviation has been received from Shri Vikas Mehta dated 14 September 2023.    The Committee may **CONSIDER** and **ADVICE**.   1. Presently, following members have been registered to ISO/ TC 86/ SC6/ WG15 Advanced performance standards: 2. Dr. Jyotirmay Mathur of ISHRAE 3. Dr. Yash Shukla of CEPT University 4. Shri Srinivasu M of Voltas   The Committee may **ADVICE**. | **i)** : Committee noted the information and requested panel to provide their recommendation by the next meeting.  Shri Satish Kumar and Shri Vikas Mehta agreed to provide the draft National deviation by the next week. After receival of the draft, it was agreed to have the panel meeting and provide their recommendation on the draft for the next revision of IS/IEC 60335-2-40.  Committee approved to wide circulate the draft received from the panel for one month time.  **ii) :** Members informed that the WG15 meeting has not been conducted since the last Committee meeting.  Committee approved the nomination of Shri V. Manjunath of UL as an expert to ISO/ TC 86/ SC6/ WG15. |
| 5 | 4.1 (5) | **Selection, operation and maintenance of room AC – Code of Practice**    The Committee requested the Panel to provide update in the next meeting.  **Background**  The Committee accepted the Panel recommendation as per Minutes of the panel meeting and requested the Panel to expedite the preparation of the draft. | Further update is awaited from the Panel.  The Committee may **ADVICE**. | 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.  Committee requested the panel to inform the status by the next meeting. |
| 6 | 4.1 (6) | b) **IS 3615 Glossary of terms used in refrigeration and air conditioning**  The Committee noted the information.  **Background**  The Committee requested to expedite the preparation of the draft and wide circulate it for 1 month. If no comment is received the draft shall be sent for printing. | The draft amendment is under preparation based on the comments provided by Dr. Jyotirmay Mathur.    The Committee may **ADVISE**. | Committee noted the information and approved to wide circulate the draft amendment for one month time. |
| 7 | 4.1 (7) | **New standards on smart technology (IoT) in RAC**  The Committee noted the information.  **Background**  The Convener apprised that no further progress on the work has been made due to other priority ongoing works of the Committee. Last panel meeting was held on 28th May 2021. | Further update is awaited from the Panel.  The Committee may **NOTE**. | The Committee revised the composition of the Panel as follows:   1. Shri V Manjunath of UL (Convener) 2. Shri Shankar Sapaliga of International Copper Association India. 3. Shri. Satish Kumar of UL 4. Shri Kiran Kumar of M/s Danfoss 5. Shri Prabhat Goel of ISHRAE 6. Prof. Vishal Garg of ISHRAE 7. Shri Vasant Kale of M/s Blue Star 8. Shri Sachin Shah of M/s Blue Star 9. Shri Vikas Mehta of M/s Chemours 10. Shri Shrinivasu of M/s Voltas 11. Shri Bharath B K of M/s TUV Rheinland (LITD 27) 12. Shri Muhammed Shameem PV of M/s Toshiba Software (India) Pvt. Ltd. (LITD 27) 13. Shri Sanjeev Chopra of M/s Electropreneur Park (LITD 27 ) 14. Shri Amit Kumar Jaiswal of M/s Samsung Electronics (LITD 27) 15. Shri Mahesh Babu A K of M/s Samsung Electronics (LITD 27) 16. Shri Praveen Arora of M/s TATA Communications (LITD 27) 17. Shri Sudhakar Mairpadi of M/s Philips India Limited (LITD 27 18. Dr. Kaushik Saha of M/s Samsung Electronics (LITD 27 19. Shri Mahesh Babu A K of M/s Samsung Electronics (LITD 27) 20. Shri Sudhanshu Mittal of M/s Nasscom (LITD 27) 21. Shri Rahul Ramtekkar of M/s Hitachi 22. Shri Chetan Tholpady of M/s Emerson 23. Representative from M/s Carrier. 24. Dr. Yash Shukla, CEPT University; and 25. Representative from M/s Daikin. |
| **RAC COMPONENTS** | | | |  |
| 8 | 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 Emerson/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 **ADVICE**. | The Committee decided to discuss the item in the next meeting. |
| 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**  Last Panel meeting was held on 17th Jan 2023 and following are the recommendation of the panel:  1. 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.  2. ISO 16890-4:2022 Air filters for general ventilation — Part 4: Conditioning method to determine the minimum fractional test efficiency  The panel recommended for direct adoption of ISO 16890-4: 2022.  The minutes of the Panel is attached. | Update on recommendation along with the national deviation for adoption of ISO 16890-2:2022 is awaited from the panel.    Draft Indian standard for Wide circulation for direct adoption of ISO 16890-4: 2022 is under preparation by MS.  The Committee may **CONSIDER** and **ADVICE**. | ISO 16890-2:2022: The Committee decided to discuss the item in the next meeting.  ISO 16890-4: 2022: The Committee noted the information. |
| 10 | 4.1 (10) | **MED 03 (17393): Air Handling Units ― General Requirements Performance Testing and Rating**  The Committee noted the information and requested the Panel to provide recommendation on health and hygiene aspect to be covered under AHU.  **Background**  The Committee approved the Panel recommendation and finalized the draft for printing. It further requested the panel to provide requirements on health and hygiene as recommended in the minutes of the Panel meeting. | The draft is under preparation as per Panel recommendation and IS 12 for printing.  The Panel recommendation on health and hygiene is awaited.  The Committee may **ADVISE**. | The Committee noted the information. |

**\*** 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.  Due to paucity of time, the Committee had decided to discuss the item in the next meeting. |
|  | **Present Status:**  Further update is awaited from the Sub-Committee.  The Committee may **ADVISE**.  **Decision of 39th meeting:**  Ms. Buvaneswari informed that the draft is under finalization by the Sub-Committee. Committee requested the Sub-Committee to provide their recommendations by the next meeting. | | | |

**ITEM 5 DRAFT STANDARDS/AMENDMENTS FOR FINALIZATION/ FINALIZED**

**5.1 MED 03 (20225) Room Air Conditioners Specification Part 1 Unitary Air Conditioners (Fourth Revision of IS 1391-1)**

Committee noted the information.

**5.2 MED 03 (20226) Room Air Conditioners Specification Part 2 Split Air Conditioners (Fourth Revision of IS 1391-2)**

Committee noted the information.

**5.3 MED 03 (22115) Refrigerants - Designation and safety classification Amendment – 2 to IS 16656/ISO 817**

Committee noted the information.

**5.4 MED 03 (22116) Refrigerating Systems and Heat Pumps — Safety and Environmental Requirements Part 1 Definitions, Classification and Selection Criteria Amendment – 2 to IS 16678 (Part 1)/ISO 5149-1**

Committee noted the information.

**5.5 MED 03 (22117) Refrigerating systems and heat pumps - Safety and environmental**

**requirements: Part 2 design, construction, testing, marking and documentation Amendment – 1 to**

**IS 16678 (Part 2)/ISO 5149-2**

Committee noted the information.

**5.6 MED 03 (22118) Refrigerating systems and heat pumps - Safety and environmental requirements: Part 3 installation site Amendment - 1 to IS 16678 (Part 3)/ISO 5149-3**

Committee noted the information.

**5.7 MED 03 (20172) Air-cooled air conditioners and air-to-air heat pumps — Testing and calculating methods for seasonal performance factors — Part 1: Cooling seasonal performance factor (ISO 16358-1 : 2013 MOD)**

Committee noted the information.

**5.8 MED 03 (20173) Air-cooled air conditioners and air-to-air heat pumps — Testing and**

**calculating methods for seasonal performance factors —Part 2: Heating seasonal performance**

**factor (Adoption of ISO 16358-2 : 2013)**

Committee noted the information.

**5.9 MED 03 (20174) Air-cooled air conditioners and air-to-air heat pumps — Testing and**

**calculating methods for seasonal performance factors — Part 3: Annual performance factor**

**(Adoption of ISO 16358-3 : 2013)**

Committee noted the information.

**5.10 MED 03 (21813) Refrigerating systems and heat pumps Safety and environmental requirements Part 4: Operation maintenance repair and recovery [Revision of IS 16678 (Part 4)/ISO 5149-4]**

Committee noted the information.

**5.11 MED 03 (21814) Refrigerant properties (Revision of IS/ISO 17584)**

Committee noted the information.

**5.12 MED 03 (21815) High-efficiency filters and filter media for removing particles in air Part 5:**

**Test method for filter elements [Revision of 16753 (Part 5)/ISO 29463-5]**

Committee noted the information.

**5.13 MED 03 (17393): Air Handling Units ― General Requirements Performance Testing and Rating**

Committee noted the information.

**5.14 MED 03 (19252) Refrigerated display cabinets Part 2 Classification requirements and test**

**conditions (ISO 23953-2 : 2015, MOD, First Revision) Superseding IS 1474**

Committee noted the information. Also, vide Item 4.1 Sl no. 3.

**5.15 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)**

Committee noted the information.

**5.16 MED 03 (20281) Liquid Chilling Package Units — Specification (First Revision of IS 16590)**

Committee noted the information.

**5.17 MED 03 (18921) : Multiple split-system air conditioners and air-to-air heat pumps (VRF air conditioners) ― Specification**

Committee noted the information.

**5.18 MED 03 (22550) Refrigerated storage cabinets and counters for professional use —Performance and energy consumption [Adoption of ISO 22041:2019]**

Committee noted the information.

**5.19** **MED 03 (22551) Blast chiller and freezer cabinets for professional use — Classification requirements and test conditions [Adoption of ISO 22042:2021]**

Committee noted the information.

**5.20 MED 03 (22552) Commercial beverage coolers — Classification, requirements and test conditions [Adoption of ISO 22044:2021]**

Committee noted the information.

**ITEM 6 DRAFT STANDARDS/AMENDMENTS FOR FINALIZATION**

**6.1 MED 03 (21881) Pumpset for evaporative air coolers Specification (Revision of IS 11951)**

Committee noted the information. It also accepted the recommendation of the panel and finalized the draft for printing. Committee approved for editorial corrections in the draft Indian Standard.

**6.2 MED 03 (22387) Direct evaporative air cooler ― Specification (Revision of IS 3315)**

Committee noted the information. It also accepted the recommendation of the panel and finalized the draft for printing. Committee approved the draft Indian Standard with editorial corrections.

* + - 1. **6.3 MED 03 (22200) Drinking Water Coolers ― Specification [ First revision of IS 1475 (Part 1)]**

The Committee noted the information. Committee accepted the recommendation by the panel including addendum to the minutes and finalized the document for printing.

**6.4 MED 03 (22235) Household Refrigerating Appliances Characteristics and Test Methods Part 1 General Requirements [*First revision* of IS 17550 (Part 1): 2021]**

*Vide Item 4.1 Sl No.1.*

**6.5 MED 03 (22236) Household Refrigerating Appliances Characteristics and Test Methods Part 2 Performance Requirements [*First revision* of IS 17550 (Part 2): 2021]**

*Vide Item 4.1 Sl No.1.*

**6.6 MED 03 (22237) Household Refrigerating Appliances Characteristics and Test Methods Part 3 Energy Consumption and Volume [First revision of IS 17550 (Part 3): 2021]**

*Vide Item 4.1 Sl No.1.*

**6.7 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 Committee noted the information.

**ITEM 7 DRAFT STANDARD/ AMENDMENTS FOR APPROVAL FOR WIDE CIRCULATION (WC)**

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

Committee decided to discuss this item in the next meeting.

**7.2 MED 03 (22144) : Refrigerating systems and heat pumps Competence of personnel (Adoption of ISO 22712: 2023)**

Committee decided to discuss this item in the next meeting.

**7.3 MED 03 (22778) Electronic Expansion Valve — Specification**

Committee decided to discuss this item in the next meeting.

**ITEM 8** **COMMENTS ON PUBLISHED STANDARDS**

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

Committee decided to discuss this item in the next meeting.

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

Committee decided to discuss this item in the next meeting.

**8.3 IS 17681 : 2022 Bottled Water Dispensers ― Specification**

Committee decided to discuss this item in the next meeting.

**ITEM 9 NEW SUBJECTS**

**9.1** NWIP has been submitted byRamajayan Pandiayan of CSIR-Indian Institute of Integrative Medicine, Jammyu – Ultra Low freezer (-80°C to -86°C). :

Committee deliberated at length.

Shri Satish Kumar informed that the freezer may be intended for Vaccine storage application. One of the departments ETD or MHD dept is already working on this as WHO has formulated protocols for their requirements. Shri Wadhwa also agreed to this.

Shri Manmohan felt that this product will be used for medical applications. This is more specialized equipment as it is for ultra low temperature applications.

Chairperson apprised that since MED 03 Committee deals with the testing and performance of refrigerating systems and freezers, he proposed to find out the possibility of jointly working with relevant department. So, he suggested MS to contact the relevant department for more clarity and HMED. Committee also agreed with the proposal.

**9.2** Committee noted the information.

**9.3** Committee decided to discuss this item in the next meeting.

**9.4** **Assistance for framing Relevant National Standards**

Committee decided to discuss this item in the next meeting.

**9.5 India Cooling Action Plan of** **Ministry of Environment, Forest and Climate Change**

Committee decided to discuss this item in the next meeting.

**9.6** **HPMP III (HCFC phaseout management plan) work under the supervision of Ozone Cell, Ministry of Environment, Forest and Climate Change**

Committee decided to discuss this item in the next meeting.

**ITEM 10 TECHNICAL COMMENTS AND PROPOSALS**

**10.1 CMD-3 Query on** **IS 16678 (Part 2)/ ISO 5149-2 Refrigerating Systems and Heat Pumps — Safety and Environmental Requirements Part 2 Design, Construction, Testing, Marking and Documentation**

MS apprised the members of the query by CMD-3 and clarified with regard to the aspect of an Indian Standard. Committee decided the following WG will provide its recommendation to the Committee for the aspect of IS 16678 (Part 2)/ ISO 5149-2.

1. Shri Satish Kumar of UL India Private Limited (*Convener*);

2. Shri Vikas Mehta of The Chemours India Private Limited;

3. Shri Kiran Kumar MNSV of Danfoss Industries Pvt Ltd.;

4. Shri S. Chethan Tholpady of Copeland India Private Limited; and   
5. Shri H. S. Wadhwa of M/s VOICE

Committee requested WG to provide their recommendation within 15 days to the Committee which may be submitted to CMD-3.

**10.2 Query on IS 17550 (PART 1): 2021 Household Refrigerating Appliances Characteristics and Test Methods Part 1General Requirements**

MS apprised the Committee of the query and informed that based on the comments by Shri P K Mukherjee, the enquirer has been reverted back dated 06 Dec 2023, to provide complete product specification (particularly the cabinet and freezer temperature) and the photograph of the product. The response has not been received from him.

Committee reviewed his query and decided to provide him the scope the standard IS 17550 (Part 1) : 2021 and its copy for his clarity.

**10.3 Proposal by Steering Committee for finalising the Action Points relating to implementation of the Recommendations of the Thematic Areas of ICAP**

Committee noted the information.

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| **Sl No.** | **Recommendations on**  **Domestic Manufacturing and Production Sector and R&D as per ICAP** | **Synergies to be made**  **with existing**  **governmental schemes/**  **programmes** | **Proposed Action** | **Action to be taken** | **Decision of 39th meeting** |
| 1. | Develop safety standards for  flammable refrigerants  considering IEC60335-2-40  and IEC60335-2-89 | Existing standards of  BIS:   * 1. IEC 60335-2-40   2. IS 16656:2017/ ISO 817: 2014   3. IS 16678 (part 2): 2018/ ISO 5149 Pt 2: 2014   4. IS 16678 (Part 3): 2018/ ISO 5149-3: 2014   5. IS 16678 (Part 4): 2018/ ISO 5149-4: 2014   6. IEC 60335-2-89: 2010   7. IS 17773:2022 | Bureau of Indian  Standards (BIS) to  Periodically update IEC 60335-2-40 and IEC 60335-2-89 w.r.t. safe use of A3, A2 and A2L flammable refrigerants BIS to develop standards  for specifications (for quality assurance of refrigerants in line with AHRI 700, 700C and 700E.  Ministry of Consumer Affairs to issue an advisory for mandatory adoption of purity check of refrigerants available  in the market in order to prevent spurious  refrigerants. Standardization of testing and calibration of equipment for checking purity of refrigerants by CSIR. | An action plan with timelines to be worked out for the following:  1. Standard for IEC 60335-2-40 to be modified as per Indian Conditions.  2. Indian Standard regarding quality assurance of refrigerants inline with AHRI 700, 700c and 700E.  A meeting is to be facilitated by Ozone Cell between BIS, REGMA and AC manufacturers. | 1. There is Indian Standard IS/IEC 60335-2-40:2010 which is identical adoption of the ISO standard. Panel is working on the draft National deviation to the ISO standard as per Indian Conditions which will supersede the Indian Standard. Also, vide Item 4.1 Sl No.4.  2. Committee deliberated at length and decided to refer the UL standard on refrigerants. Shri Satish Kumar informed the UL standard are very much similar to the AHRI standards. Committee requested the panel on ICAP to provide their recommendations inline with it.  Committee decided to co-opt following additional nominations to the panel:   * 1. Representative from M/s Honeywell; and   2. Representative from M/s Copeland |

**10.4 Actionable Points and Recommendations by MOEFCC pertaining to Kigali Amendment to the Montreal Protocol in 2021**

Committee noted the information.

**(A) Short term (up to 3 years)**

* Development and mandatory adoption of Indian Standards (Quality standard) for purity of refrigerants – Committee felt that this will be addressed by Item 3.1 Sl no.1.
* Development of Infrastructure for testing of cooling equipment using low-GWP inflammable refrigerants to facilitate manufacturing by MSMEs. –

Shri Gaurav Mehtani informed that the Indian Standards for testing of cooling equipment using low-GWP refrigerants is already in place like IS 1391 (Part 1 and 2), IS 16590 and upcoming standard on VRF systems. Currently, low-GWP refrigerants are being used in Split room ACs as per IS 1391(Part 2).

Shri Vikas, Shri Mehtani and Shri Shankar informed that testing infrastructure for A2 and A2L refrigerants are already in place in India.

Shri Vikas Mehta informed that standards for testing of equipment using A1, A2, A2L and A3 are there such as IEC 60335-2-40, 2-24, 2-34, 2-89. So, the Committee felt that the task does not pertain to it. However, Committee requested for more clarification on this subject from MoEFCC.

**(B) Medium term (3-5 years)**

* Standards for low energy consuming and low-cost cooling systems like evaporative coolers – Following Indian Standards are there on Desert Coolers - IS 3315:2019 and IS 11951:2009.

IS 3315 and IS 11951 are also under revision as per the latest developments.

* Performance safety standards for foam products using inflammable blowing agents –

Committee deliberated at length and felt that this foam products is with regard to insulation of cabinets of refrigerating systems.

Shri Manmohan Kulashri informed that there is an association pertaining to the inflammable blowing agents. Committee requested him to provide the details of association to MS for their nomination and inputs to ICAP panel.

* Development of calibration standards to check the quality of refrigerants including blends. – Committee felt that the task does not pertain to it.

Committee decided that the ICAP panel will provide their recommendation on the above tasks.

**10.5 STATUS OF INDIAN STANDARDS UNDER BIS CERTIFICATION**

Committee noted the information.

**10.6 Quality Control Order**

Committee noted the information.

**10.7 Draft** **Quality Control Order**

Committee noted the information.

**ITEM 11 INTERNATIONAL ACTIVITIES**

**11.1** Committee noted the information.

**11.2** Committee noted the information.

**11.3** Committee noted the information.

**11.4** Committee noted the information.

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

Committee noted the information.

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

Committee noted the information.

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

Committee noted the information.

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

MS apprised the members of the communication sent by IEC to BIS regarding SC 59M which was circulated to the Committee dated 07 December 2023. In view of this, committee requested MS to circulate the expert list to the members once again so that fresh nominations to the above SCs/WGs/MTs may be provided ensuring active participation to present India’s viewpoint.

Committee also approved the nomination of MS, Ms Neha Thakur as an expert to various TCs/SCs/WGs/MTs of ISO and IEC was sent dated 07 December 2023 and as the following.

|  |  |  |
| --- | --- | --- |
| **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 Emerson  Miss Neha Thakur, BIS |
| ISO/TC 86/SC 4/WG 1 | Testing and rating of refrigerant compressors | Shri Chetan Tholpady of Emerson  Miss Neha Thakur, BIS |
| ISO/TC 86/SC 4/WG 2 | Positive displacement refrigerant compressor | Shri Chetan Tholpady of Emerson |
| 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 |
| 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 | Emerson / 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 | - |

**11.9 Participation in ISO/IEC meetings**

**11.9.1 Upcoming meetings of ISO/IEC**

Committee approved the following nomination.

| **Date** | **Month** | **Location** | **TC/SC** | **Nomination Received** |
| --- | --- | --- | --- | --- |
| 12 | December 2023 | Virtual only | TC 61/SC 61D/MT 28 Maintenance of IEC 60335-2-40 | Shri Vikas Mehta |

Shri Vikas Mehta apprised the members of the work of MT 28. He informed that MT 28 is working on 8th edition of IEC 60335-2-40. The 8th edition would be to bifurcate the 7th edition and to make separate standard on sensors as they are referred in IEC documents like IEC 60335-2-24 and IEC 60335-2-89. DIS for the sensors has been approved. It will first come out as TR then on consensus with NC members, FDIS will be circulated. He further informed that no technical change would be there from the 7th edition to the 8th edition.

**11.9.2 ISO/IEC meetings participated**

Committee noted the information. Shri Vikas Mehta apprised the members of the outlines of the meeting. It also requested MS to circulate reports submitted by Shri Vikas Mehta to the Committee. MS agreed to circulate it by today evening.

**11. 9.3** **New subject proposal to ISO/ IEC**

The Committee decided to discuss the item in the next meeting.

**ITEM 12 PROGRAMME OF WORK (INCLUDING PERIODIC REVIEW OF INDIAN STANDARDS)**

**12.1** Committee noted the information.

**12.2** Committee noted the information.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl No.** | **IS Number** | **Title** | **Due Date** | **Committee Decision** |
| 1. | IS 4831: 2018 | Recommendation on units and symbols for refrigeration | Dec 2023 | The Committee had decided to reaffirm the standard in its present form in the last meeting. |
| 2. | IS 2167: 2019 | Specification for bottle coolers | May 2024 | The Committee had decided to reaffirm and revise the standard in line with the Panel recommendation to adopt ISO 22044. |
| 3. | IS 3315: 2019 | Evaporative air coolers (Desert Coolers) - Specification | May 2024 | The Committee had decided to reaffirm and revise in line with the Panel recommendation and ongoing process of revision of standard. |
| 4. | [IS/IEC 60335 : Part 2 : Sec 89 : 2010](https://www.services.bis.gov.in/php/BIS_2.0/MembershipManagement/CRef.php?ID=MjMwNDE%3D) | Household and similar electrical appliances - Safety: Part 2 - 89: particular requirements for commercial refrigerating appliances with an incorporated or remote refrigerant unit or compressor | May 2023 | The Committee decided to reaffirm the standard and take up its revision. |

**12.3 Review of A5 and pre-2000 Indian Standards**

Committee noted the information.

**12.4** Committee noted the information.

**ITEM 13 RECOMMENDATION OF THE PLANNING AND DEVELOPMENT ADVISORY COMMITTEE (PDAC) OF BUREAU OF INDIAN STANDARDS**

Committee noted the information.

**ITEM 14 TRANSLATION OF INDIAN STANDARDS FROM ENGLISH TO HINDI**

Committee noted the information.

**ITEM 15 E-SALE OF INDIAN STANDARDS**

Committee noted the information.

**ITEM 16 DATE AND PLACE FOR THE NEXT MEETING**

Committee decided to have the next meeting near last week of February 2024.

**ITEM 17 ANY OTHER BUSINESS**

**17.1 Off-grid and weak-grid refrigerators**

The Committee decided to discuss the item in the next meeting.

**17.2** Committee requested MS to again circulate the minutes of meeting of panel on VRF. It also requested MS to circulate the VRF draft under printing for the editorial corrections.

**17.3** Committee also requested MS to again circulate the final draft of AHU standard for editorial corrections.

The meeting ended with a hearty vote of thanks to the Chair.

**Annex 1**

**39th Meeting of Refrigeration and Air Conditioning Sectional Committee, MED 03**

**(13-12-2023)**

*Present Members*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl. No** | **Organization** | **Member** | **Email** | **Contact** |
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|  | [Indian Society of Heating, Refrigerating and Air Conditioning Engineers (ISHRAE), New Delhi](javascript:;) | Dr. Jyotirmay Mathur | [jmathur.mech@mnit.ac.inq](mailto:jmathur.mech@mnit.ac.inq) | 9414250329 |
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|  | [Refrigeration and Air Conditioning Manufacturers Association, New Delhi](javascript:;) | Shri Harsh Vardhan Pant | [secretary@rama-india.org](mailto:secretary@rama-india.org) | 8826997711 |
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***Invitee:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl. No** | **Organization** | **Member** | **Email** | **Contact** |
|  | Maruti Suzuki | Ms. Buvaneswari | m.buvaneswari@maruti.co.in | -- |
|  | Maruti Suzuki | Shri Rohit Meena | rohit.meena@maruti.co.in | -- |

***BIS Directorate:***

1. Ms. Neha Thakur, Sc.B, MED