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**BUREAU OF INDIAN STANDARDS**

### **MINUTES**

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| --- | --- | --- | --- |
| ***Committee*** | ***Meeting No.*** | ***Day, Date and Time*** | ***Venue*** |
| **Statistical Methods for Quality, Data Analytics and Reliability Sectional Committee, MSD 03** | **38th  Meeting (MSD 3)** | **Wednesday,**  **10 July 2024**  **1100h** | **Manak Bhawan**  **Bureau of Indian Standards**  **9, Bahadurshah Zafar Marg**  **New Delhi 110 002** |

**Chairman: Shri P K Gambhir Member Secretary: Ashish V Urewar**

**Item 0 GENERAL**

* 1. **Welcome by BIS**

Shri A. S. Bhatnagar, Sc. ‘G’ & Head, MSD, BIS extended a warm welcome to the Chairman and distinguished members present in the Statistical Methods for Quality, Data Analytics and Reliability Sectional Committee, MSD 3. He has expressed gratitude and appreciation for the work done by Prof Bimal Kumar Roy as chairperson of MSD 3.He also welcomed the new chairperson Shri P K Gambhir for accepting this responsibility. He apprised all the members about the major reform in standardization to make technical committees efficient with emphasis on attendance, active participation by experts, submission of comments on draft standards, ISO ballots.

* 1. **Opening remarks by the Convener**

Shri P K Gambhir heartily welcomed all the members present in the meeting. He thanked Prof Bimal Roy for guiding the work of this committee. He requested members to actively participate in the work of the committee. He expressed happiness about the significant contribution made by the members in the standardization work in this field. He requested the members to actively deliberate on various agenda points and express their views for further development of useful Standards in this field. He also requested members to give comments on the documents circulated to them.

* 1. **Appreciation of services by Prof Bimal Roy**

The committee placed on record the appreciation of services of Prof Bimal Roy as the chairman of this committee for the period from 2013 to 2024. The committee prepared useful standards and actively participated in the work of ISO/TC 69

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

The committee confirmed the minutes of 37th meeting of Statistical Methods for Quality, Data Analytics and Reliability Sectional Committee, MSD 03held on 05 March 2024.

1. **ACTION TAKEN REPORT**

The committee noted the information given in item 2 of agenda.

It was decided that henceforth, the ISO documents received from ISO/TC 69 would be sent to the members of concerned subcommittee and subcommittee for ISO/TC69 only.

It was also decided that Action Taken Report would be submitted on decisions taken on all items of the Agenda of previous meeting.

1. **SCOPE AND COMPOSITION OF MSD 03 SECTIONAL COMMITTEE AND ITs SUBCOMMITTEES/PANEL**

The committee noted the information given by the Secretary that as per the directions of BIS Management, the member who will remain absent from two consecutive meetings of Sectional Committee and/or fifty percent or more meetings of the Sectional Committee in an year shall automatically become disqualified to continue as member of the Sectional Committee; unless on receiving a representation to this effect, the DC decides upon the recommendation of the SC concerned to condone the absence in view of his/her valuable contribution to SC.

* 1. **Statistical Methods for Quality, Data Analytics and Reliability Sectional Committee (MSD 03)**

The Committee reviewed the scope and composition of Statistical Methods for Quality, Data Analytics and Reliability Sectional Committee, MSD 03 and decided as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| Sr No | Member | Organization | Decision |
|  | Prof. Bimal K. Roy | Indian Statistical Institute, Kolkata | Indian Statistical Institute, Kolkata changed as in personal capacity |
|  | Shri Avijit Das (Alt) | NABL/QCI, New Delhi | Withdraw (Retired) |
|  | Mrs. Asmita Ghate  Mr Kanchan Mondal *(Alt)* | Tata Motors Limited, Mumbai | Co-opted |
|  | Mr Sanjay Bhure | Personal capacity | First, he may initially be coopted in the subcommittee of interest to him. |

* 1. The Committee reviewed and agreed with the present composition of Subcommittees for ISO/TC69 ‘Application of Statistical Methods’ Work (MSD 3:3).
  2. The Committee reviewed the composition of Subcommittee for Basic Statistical Methods (MSD 3:4) and decided the following

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| --- | --- | --- | --- |
| Sr No | Member | Organization | Decision |
|  | Mrs. Asmita Ghate  Mr. Kanchan Mondal*(Alt)* | Tata Motors Limited, Mumbai | Co-option |

* 1. The Committee reviewed and agreed with the present composition of Subcommittee for Process control (MSD 3:5).
  2. The Committee reviewed the composition of Subcommittee for Sampling Techniques (MSD 3:6)and decided the following

|  |  |  |  |
| --- | --- | --- | --- |
| Sr No | Member | Organization | Decision |
|  | Mrs. Asmita Ghate  Mr. Kanchan Mondal*(Alt)* | Tata Motors Limited, Mumbai | Co-option |

* 1. T The Committee reviewed and agreed with the present composition of Subcommittee for Measurement methods and results, MSD 3:7
  2. The Committee was informed that no meeting of the Panel for Future Strategy of MSD 03 (MSD 3/P-8) had taken place. The committee agreed to review the necessity of continuation of this panel in its next meeting.

1. **ANNUAL PROGRAM FOR STANDARDIZATION**

The Committee noted the information of Item 4 the Agenda.

1. **NEW WORK ITEM PROPOSAL**
   1. The Committee reviewed the information given in item 5.1 of agenda and taken following decision

| **SL No.** | **ISO No.** | **Title** | **Decision** |
| --- | --- | --- | --- |
|  | [ISO/TR 13519:2012](https://www.iso.org/standard/53977.html?browse=tc) | Guidance on the development and use of ISO statistical publications supported by software | Smt Sandhya Kakkar was requested to review the standard in last (37th) meeting. She was again requested to review in this meeting. |
|  | [ISO 5479:1997](https://www.iso.org/standard/22506.html?browse=tc) | Statistical interpretation of data -- Tests for departure from the normal distribution | Smt. Snehlata was requested that while reviewing IS 6200 (Part 3), can the contents of this ISO standard may suitably be included in the Indian Standard?  The recommendation should be placed by the BIS Secretariat to MSD3:4. |
|  | [ISO 3494:1976](https://www.iso.org/standard/8845.html?browse=tc) | Statistical interpretation of data -- Power of tests relating to means and variances | Smt. Snehlata was requested that while reviewing IS 6200 (Part 1) and (Part 2), can the contents of these ISO standards may suitably be included in the Indian Standards?  The recommendation should be placed by the BIS Secretariat to MSD3:4. |
|  | [ISO 3301:1975](https://www.iso.org/standard/8540.html?browse=tc) | Statistical interpretation of data -- Comparison of two means in the case of paired observations |
|  | [ISO 2854:1976](https://www.iso.org/standard/7854.html?browse=tc) | Statistical interpretation of data -- Techniques of estimation and tests relating to means and variances |
|  | [ISO 2602:1980](https://www.iso.org/standard/7585.html?browse=tc) | Statistical interpretation of test results -- Estimation of the mean -- Confidence interval | Shri Deepayan Sarkar was requested to review the standard along with ISO 2602:1980. |
|  | ISO/TS 23471:2022 | Experimental designs for evaluation of uncertainty — Use of factorial designs for determining uncertainty functions | Dr Sampangi Raman was requested to review the standard in last (37th) meeting. Dr Raman was again requested to review in this meeting.  The recommendation should be placed by the BIS Secretariat to MSD3:7. |
|  | ISO 10576:2022 | Statistical methods — Guidelines for the evaluation of conformity with specified requirements | Dr Deepayan Sarkar was requested to review the standard in last (37th) meeting. He was again requested to review in this meeting.  The recommendation should be placed by the BIS Secretariat to MSD3:4. |
|  | ISO 7870-1:2019 | Control charts — Part 1: General guidelines | Smt Sneh Lata was requested to review the standard in last (37th) meeting. She was again requested to review in this meeting.  The recommendation should be placed by the BIS Secretariat to MSD3:5. |
|  | ISO 28596:2022 | Sampling procedures for inspection by attributes — Two-stage sampling plans for auditing and for inspection under prior information | The recommendation of adoption of this ISO standard by Shri Anuj Swarup Bhatnagar be placed to MSD 3:6 by the Secretariat. If MSD 3:6 recommends for adoption, then with the approval of the Chairman, MSD3; then this document be widely circulated. |
|  | [ISO 5725-5:1998/Cor 1:2005](https://www.iso.org/standard/42913.html?browse=tc) | Accuracy (trueness and precision) of measurement methods and results — Part 5: Alternative methods for the determination of the precision of a standard measurement method — Technical Corrigendum 1 | If the changes in corrigendum/ amendment are of editorial nature , Shri Anuj Swarup Bhatnagar to decide for the adoption, if not MSD 3:7 to review and give recommendation to the Chairman, MSD 3 for approval. |
|  | ISO 5725-6:1994/Cor 1:2001 | Accuracy (trueness and precision) of measurement methods and results — Part 6: Use in practice of accuracy values — Technical Corrigendum 1 |
|  | [ISO 11843-2:2000/Cor 1:2007](https://www.iso.org/standard/50401.html?browse=tc) | Capability of detection — Part 2: Methodology in the linear calibration case — Technical Corrigendum 1 |
|  | ISO 11843-5:2008/Amd 1:2017 | Capability of detection — Part 5: Methodology in the linear and non-linear calibration cases — Amendment 1 |
|  | [ISO/TR 13587:2012](https://www.iso.org/standard/54052.html?browse=tc) | Three statistical approaches for the assessment and interpretation of measurement uncertainty | Shri A S Bhatnagar to firstly review India’s 2011 Comments |
|  | [ISO/TS 17503:2015](https://www.iso.org/standard/59900.html?browse=tc) | Statistical methods of uncertainty evaluation -- Guidance on evaluation of uncertainty using two-factor crossed designs | Prof S M Bendre was requested to review the standard in last (37th) meeting. She was again requested to review in this meeting.  The recommendation should be placed by the BIS Secretariat to MSD3:7 |
|  | [ISO/TS 21749:2005](https://www.iso.org/standard/34687.html?browse=tc) | Measurement uncertainty for metrological applications -- Repeated measurements and nested experiments | MSD 3:7 was requested to review these standards. |
|  | ISO 24185:2022 | Evaluation of the uncertainty of measurements from a stationary auto correlated process |
|  | ISO/TR 27877:2021 | Statistical analysis for evaluating the precision of binary measurement methods and their results |
|  | [ISO/TS 28037:2010](https://www.iso.org/standard/44473.html?browse=tc) | Determination and use of straight-line calibration functions |
|  | [ISO/TS 28038:2018](https://www.iso.org/standard/66349.html?browse=tc) | Determination and use of polynomial calibration functions |
|  | [ISO/TR 12845:2010](https://www.iso.org/standard/51963.html?browse=tc) | Selected illustrations of fractional factorial screening experiments |
|  | [ISO/TR 12888:2011](https://www.iso.org/standard/52899.html?browse=tc) | Selected illustrations of gauge repeatability and reproducibility studies |
|  | [ISO/TR 13195:2015](https://www.iso.org/standard/53479.html?browse=tc) | Selected illustrations of response surface method -- Central composite design |
|  | [ISO/TR 14468:2010](https://www.iso.org/standard/52900.html?browse=tc) | Selected illustrations of attribute agreement analysis |
|  | [ISO/TR 16705:2016](https://www.iso.org/standard/57453.html?browse=tc) | Statistical methods for implementation of Six Sigma -- Selected illustrations of contingency table analysis |
|  | [ISO 17258:2015](https://www.iso.org/standard/59489.html?browse=tc) | Statistical methods -- Six Sigma -- Basic criteria underlying benchmarking for Six Sigma in organizations | Allotted to MSD 3:4 for Review |
|  | [ISO 18404:2015](https://www.iso.org/standard/62405.html?browse=tc) | Quantitative methods in process improvement -- Six Sigma -- Competencies for key personnel and their organizations in relation to Six Sigma and Lean implementation | Allotted to MSD 3:4 for Review |
|  | [ISO/TR 20693:2019](https://www.iso.org/standard/68849.html?browse=tc) | Statistical methods for implementation of Six Sigma -- Selected illustrations of distribution identification studies | Allotted to MSD 3:4 for Review |
|  | [ISO/TR 22914:2020](https://www.iso.org/standard/74154.html?browse=tc) | Statistical methods for implementation of Six Sigma -- Selected illustration for ANOVA | Allotted to MSD 3:4 for Review |
|  | [ISO/TR 29901:2007](https://www.iso.org/standard/45731.html?browse=tc) | Selected illustrations of full factorial experiments with four factors | Allotted to MSD 3:7 for Review |
|  | ISO/TR 29901:2007/Cor 1:2009 | Selected illustrations of full factorial experiments with four factors — Technical Corrigendum 1 | Allotted to MSD 3:7 for Review |
|  | [ISO 16355-1:2021](https://www.iso.org/standard/62626.html?browse=tc) | Application of statistical and related methods to new technology and product development process -- Part 1: General principles and perspectives of Quality Function Deployment (QFD) | Allotted to MSD 3:4 for Review |
|  | [ISO 16355-2:2017](https://www.iso.org/standard/62627.html?browse=tc) | Applications of statistical and related methods to new technology and product development process -- Part 2: Non-quantitative approaches for the acquisition of voice of customer and voice of stakeholder | Allotted to MSD 3:4 for Review |
|  | [ISO 16355-3:2019](https://www.iso.org/standard/70662.html?browse=tc) | Applications of statistical and related methods to new technology and product development process -- Part 3: Quantitative approaches for the acquisition of voice of customer and voice of stakeholder | Allotted to MSD 3:4 for Review |
|  | [ISO 16355-4:2017](https://www.iso.org/standard/62631.html?browse=tc) | Applications of statistical and related methods to new technology and product development process -- Part 4: Analysis of non-quantitative and quantitative Voice of Customer and Voice of Stakeholder | Allotted to MSD 3:4 for Review |
|  | [ISO 16355-5:2017](https://www.iso.org/standard/62633.html?browse=tc) | Applications of statistical and related methods to new technology and product development process -- Part 5: Solution strategy | Allotted to MSD 3:4 for Review |
|  | [ISO/TS 16355-6:2019](https://www.iso.org/standard/70663.html?browse=tc) | Applications of statistical and related methods to new technology and product development process -- Part 6: QFD -- related approaches to optimization | Allotted to MSD 3:4 for Review |
|  | [ISO/TR 16355-8:2017](https://www.iso.org/standard/62639.html?browse=tc) | Applications of statistical and related methods to new technology and product development process -- Part 8: Guidelines for commercialization and life cycle | Allotted to MSD 3:4 for Review |

* 1. The Committee reviewed the information given in item 5.2 of agenda and decided the following

| **Sl. No.** | **ISO No.** | **Title** | **Decision** |
| --- | --- | --- | --- |
| 1) | ISO/FDIS 7870-6 | Control charts — Part 6: EWMA control charts for the process mean | FDIS approved for WC |
| 2) | ISO/DIS 11843-7 | Capability of detection — Part 7: Methodology based on stochastic properties of instrumental noise | Decided to review at FDIS stage |

* 1. The Committee reviewed the information given in item 5.3 of agenda and decided the following

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| --- | --- | --- |
| **Sl. No.** | Topic | Decision |
| 1) | Indian standard on Quality of measurement Results – Criteria for repeat and replicate testing | Shri P K Gambhir to review and give recommendation to MSD 3:7 for further action. |
| 2) | Data ethics - Ethical use of Data by Organization -Guideline | Shri Anuj Swarup Bhatnagar Sc-G, BIS and Member secretary MSD 3 to edit the draft in standard format and submit to MSD3:4 |
| 3) | Statistical Software - development and use - Guideline | Shri Anuj Swarup Bhatnagar Sc-G, BIS and Member secretary MSD 3 to edit the draft in standard format and submit to MSD3:4. |

1. **INDIAN STANDARDS PUBLISHED/UNDER ADOPTION**

The committee noted the information given in item 6 of agenda.

1. **DRAFTS INDIAN STANDARDS UNDER PRINT**

The committee noted the information given in item 7 of agenda.

1. **DRAFTS INDIAN STANDARDS UNDER WIDE CIRCULATION**

The Committee noted the information given in item 8 of the agenda and decided to request MSD 3:7 to review the comments, if any; and to recommend if the following ISO documents be adopted as Indian Standards or not.

| Sl | IS/ISO No. | Title |
| --- | --- | --- |
|  | MSD/03(26006)/ ISO/TS 21749:2005 | Measurement uncertainty for metrological applications -- Repeated measurements and nested experiments |
|  | MSD/03 (26008)/ ISO 24185:2022 | Evaluation of the uncertainty of measurements from a stationary auto correlated process |
|  | MSD/03(26009)/ ISO/TR 27877:2021 | Statistical analysis for evaluating the precision of binary measurement methods and their results |
|  | MSD/03(26012)/ ISO/TS 28037:2010 | Determination and use of straight-line calibration functions |
|  | MSD/03(26013)/ISO/TS 28038:2018 | Determination and use of polynomial calibration functions |

1. **DRAFTS INDIAN STANDARDS COMPLETED WIDE CIRCULATION**

The Committee was informed that the draft Indian Standard “Quality of measurement results – Criteria for repeat and replicate testing” had completed wide circulation and no comments were received. The committee decided to request Shri P K Gambhir to scrutinize this document before recommending for its finalization.

1. **STANDARDS TO BE REVISED (PRE 2000)**

The committee noted the information given in item 10 of agenda and decided as follows:

| **Sl. No.** | **IS No.** | **Title** | Decision |
| --- | --- | --- | --- |
|  | IS 7200 ( Part 2) : 1975 | Presentation of statistical data: Part 2 diagrammatic representation of data | Prof S M Bendre was again requested to review standard along with ISO 16269-4 and submit the revised draft |
|  | IS 7600 : 1975 | Analysis of variance | Shri P K Gambhir informed that this document was finalized in a subcommittee meeting about 2 years ago, but no further action was taken. Shri Gambhir was requested to review the document as finalized in subcommittee meeting |
|  | IS 10427 ( Part 1) : 1982 | Designs for industrial experimentation: Part 1 standard designs | Dr Sampangi Raman was again requested to review IS 10427 Part1 & Part 2. |
|  | IS 9300 : Part 1 : 1979 | Statistical models for industrial applications Part 1 discrete models | The work of review of the standard was given in last meeting to Prof S M Bendre, but no comments were received.  Shri P K Gambhir was requested in this meeting to review the standard |
|  | IS 9300 : Part 2 : 1989 | Statistical models for industrial applications Part 2 continuous models First Revisions | Prof S M Bendre was requested to submit the revised draft in the last meeting, but it is still awaited.  Shri P K Gambhir was requested in this meeting to review the standard. |
|  | IS 12347 : 1988 | Analysis of means - A graphical procedure | Prof S M Bendre was requested in last meeting to review the standard, but it is still awaited.  Shri Deepayan Sarkar was requested in this meeting to review the standard. |

1. **REVIEW OF PUBLISHED INDIAN STANDARDS**

Committee reviewed the information given in item 11 of agenda and taken following decision

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| **SI. No.** | **IS/ISO No.** | **TITLE** | **Decision** |
|  | IS 397 (Part 1) : 2003 | Method for statistical quality control during production Part 1 control charts for variables Second Revision | Smt Snehlata was requested to review and recommend whether IS 397 (Part1) and (Part2) may be replaced by ISO FDIS 7870-2 |
|  | IS 397 (Part 2) : 2003 | Method for statistical quality control during production Part 2 control charts for attributes Third Revision |
|  | IS 6200 (Part 1) : 2018 | Statistical tests of significance Part 1 normal t - And f - Tests Fourth Revision | Decision already taken in Item 5.1 of the minutes |
|  | IS 6200 (Part 3) : 2003 | Statistical tests of significance Part 3 tests for normality Second Revision |
|  | IS 6200 (Part 4) : 2008 | Statistical tests of significance Part 4 non - Parametric tests First Revision |
|  | IS 7200 (Part 1) : 2019 | Presentation of statistical data Part 1 tabulation and summarization Third Revision | Shri Deepayan Sarkar was requested to review the standard along with ISO 2602:1980. |
|  | IS 7300 : 2003 | Methods of regression and correlation Second Revision | Dr Sampangi Raman was again requested to review |
|  | IS 14978 : 2002 | New seven tools for quality management | Smt Sandhya Kakkar was again requested to review |
|  | IS 15280 : 2003 | Quality function deployment | Shri L K Mehta to again requested to review the standard along with ISO 16355 series |
|  | IS 16716 : 2018 | Robust Estimation for Location and Scale Parameters | Prof Deepayan Sarkar was again requested to review |

1. **INTERNATIONAL ACTIVITIES**
   1. The Committee noted the information Item 12.1 of the Agenda.
   2. The Committee noted the information Item 12.2 of the Agenda.
   3. The Committee noted the information Item 12.3 of the Agenda.
   4. **Nomination of Indian Experts In ISO Global Directory**

The Committee reviewed the information given in of agenda and taken following decision

| **Sl. No.** | **Name** | **Committees** | **Decision** |
| --- | --- | --- | --- |
|  | Shri Avijit Das | SC 4, SC 4/WG 11, SC 4/WG 12, SC 6, SC 6/WG 7, SC 6/WG 1, SC 6/WG 5, SC 7 | withdrawn |

**12.5** The Committee noted the information given in of agenda. Shri P K Gambhir informed that he participated virtually in the ISO/TC 69/ SC 4/WG12 meetings held from 17-21 June 2024 at Portugal.

1. **ANNUAL CALENDAR FOR TC MEETING**

The Committee noted the information given in 13 of agenda. It was informed that the dates for the next meetings of this committee as given in this item are tentative, and the final dates would be decided in consultation of the Chairman.

1. **MEASURES TO ENSURE EFFECTIVE PARTICIPATION BY INDIAN EXPERTS**

The Committee noted the information given in 14 of the Agenda.

1. **SCIENTIFIC JOURNALS AND PERIODICALS TO BE SUBSRIBED BY BIS**

The Committee noted the information given in 15 of the Agenda.

1. **MAPPING OF IMPORTANT GOVERNMENT SCHEMES BY BIS**

The Committee noted the information given in 16 of the Agenda.

1. **ANY OTHER NATIONAL/INTERNATIONAL EVENT TO BE PARTICIPATED**

The Committee noted the information given in 17 of the Agenda.

1. **GENDER RESPONSIVE STANDARDS INITIATIVE**

The Committee noted the information given in 18 of the Agenda.

1. **BIS CERTIFICATION SCHEMES**

The Committee noted the information given in 19 of the Agenda.

1. **NATIONAL INSTITUTE FOR TRAINING IN STANDARDIZATION (NITS)**

The Committee noted the information given in 20 of the Agenda.

1. **BIS ACTIVITIES ON SOCIAL MEDIA**

The Committee noted the information given in 21 of the Agenda.

1. **INFORMATION ON E-SALE OF STANDARDS BY BIS**

The Committee noted the information given in 22 of the Agenda.

1. **NOMINATING YOUNG PROFESSIONALS IN BIS TECHNICAL COMMITTEES**

The Committee noted the information given in 23 of the Agenda.

1. **BIS CONNECT**

The Committee noted the information given in 24 of the Agenda.

1. **DATES AND PLACE FOR THE NEXT MEETING**

It was decided that the date and place for the next meetings of this committee would be decided in consultation with the Chairperson.

1. **ANY OTHER BUSINESS**

In the absence of any other item, the meeting ended with vote of thanks to the Chair.

Annex A

**MEMBERS WHO ATTENDED THE MEETING**

**Physical Attendance**

1. Mr. P. K. Gambhir, Chairperson, Individual Capacity
2. Mr. Deepayan Sarkar, Indian Statistical Institute, New Delhi
3. Shri A. S. Bhatnagar, Sc. G & Head (MSD), Bureau of Indian Standards

**Virtual Attendance**

1. Ms. Anjali Sharma, CSIR - National Physical Laboratory, New Delhi
2. Dr. Jiji T. J. Pulikkotil, CSIR - National Physical Laboratory, New Delhi
3. Mr. S. C. Arora, Federation of Indian Chambers of Commerce and Industry, New Delhi
4. Mr. Lalit Kumar Mehta, Individual Capacity
5. Dr. Sampangi Raman, Indian Statistical Institute, Chennai
6. Ms. Anita Rani, National Accreditation Board for Testing and Calibration Laboratories, Gurugram
7. Dr. H. K. Chaturvedi, National Institute of Medical Statistics, New Delhi
8. Mr. Rakesh Kumar, Rail India Technical and Economic Service, Gurugram
9. Mr. Kanchan Mondal, Tata Motors Limited, Pune
10. Dr. V. K. Bhatia, In Personal Capacity, New Delhi
11. Prof. Bimal Roy, In Personal Capacity, New Delhi
12. Prof. S. Chakraborty, In Personal Capacity, Lucknow
13. Mr. Venkateswaran, NABL, Invitee
14. Smt. Sneh Lata, Sc. G, DLBO-2, Bureau of Indian Standards
15. Shri Ashish V Urewar, Sc. C (MSD), Secretary, Bureau of Indian Standards