28th March 2023
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कार्यवृत्त

MINUTES

4th MEETING OF OPTICS AND PHOTONICS SECTIONAL COMMITTEE, PGD 39

28th March 2023
Tuesday

भारतीय मानक ब्यूरो
मानक भवन, 9 बहादुरशाह ज़फर मार्ग,
नई दिल्ली - 110002

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI – 110002

AGENDA

4th Meeting of Optics and Photonics Sectional Committee, PGD 39

Date and Day: 28th March 2023, Tuesday **Time**: 10:30 AM

Venue: Through Video Conference [WebEx]

Chairperson: **Dr. Vinod Karar**
Chief Scientist & Hon. Professor-AcSIR, Traffic Engineering and Safety Division, Central Road Research Institute, CRRI- New Delhi

Member Secretary: **Shri Ajay Kumar**
Scientist – B, Production and General Engineering Dept. Bureau of Indian Standards, New Delhi

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Members Present

Sl No.	Organization Name	Member Name	Contact Details
1	Central Road Research Institute, CRRI- New Delhi	Dr. Vinod Karar	vinodkarar@csio.res.in
2	Bhabha Atomic Research Centre, Mumbai	Dr. M L Shah	mlshah@barc.gov.in
3	CSIR-Central Scientific Instruments Organisation, Chandigarh	Dr. Neelam Kumari	neelam@csio.res.in
4	Instrument Research and Development Establishment, Dehradun	Dr. Ranabir Mandal	ranabir@irde.drdo.in
5	Raja Ramanna Centre for Advanced Technology, Indore	Dr. Sendhil Raja S	sendhil@rrcat.gov.in
6	Optics and Allied Engineering Private Limited, Bengaluru	Dr S. V. Ramagopal	ramagopal@opticsindia.com
7	The Optical Society of India,Kolkata	Prof. LakshminarayanHazra	lakshminarayanhazra@gmail.com
8		Dr. K. Nithyanandan	nithi.physics@gmail.com
9	Infinity optics	Shri Pranav Bahl	Pranavnahl07@gmail.com

Item 0. GENERAL

0.0 Welcome by the Member Secretary

Mr. Ajay Kumar, Sc-B, cordially greeted the Chairman and other members of the Optics and Photonic Sectional Committee, PGD 39, to their 4th meeting. He expressed his gratitude towards Dr. Vinod Karar and Prof. Lakshminarayan Hazra for their physical presence in the meeting, and encouraged other members to attend future meetings in person. He further thanked all the members for their valuable time and active participation in the meeting.

0.1 Opening remarks by the Chairman

The members were welcomed to the meeting by the Chairman, Dr. Vinod Karar. He encouraged active participation from all members in the sectional committee meeting and highlighted the committee's wide scope. Finally, he requested the member secretary to commence with the proceedings.

Item 1. CONFIRMATION OF MINUTES OF LAST MEETING

In view of the non-receipt of any comments on the minutes, the committee formally confirmed the minutes of the last meeting of the Optics and Photonics Sectional Committee, PGD 39, held on 13th October 2022.

Item 2 COMPOSITION OF THE SECTIONAL COMMITTEE

The committee acknowledged the information provided in the agenda. Dr. Vinod Karar volunteered to furnish the contact details of organizations in the geodetic and surveying instruments field and optical equipment manufacturers, while Dr. S. V. Ramagopal offered to reach out to General Optics (Asia) Limited in Pondicherry for their nomination to the committee work.

Item 3 DRAFT INDIAN STANDARDS UNDER WIDE CIRCULATION DUE FOR FINALISATION

In view of the non-receipt of any comments**,** the committee deliberated and decided to send the following documents for printing.

3.1 PGD/39/22109 IS/ISO 9849 (Identical to: ISO 9849 : 2017) Optics and Optical Instruments Geodetic Instruments Vocabulary.

3.2 PGD/39/22111 IS 14820 (Part 1) (Identical to: ISO 11146-1 : 2021) Lasers and laser-related equipment — Test methods for laser beam widths, divergence angles and beam propagation ratios — Part 1: Stigmatic and simple astigmatic beams.

3.3 PGD/39/22120 IS 14820 (Part 2) (Identical To: ISO 11146-2 : 2021) Lasers and laser-related equipment Test methods for laser beam widths divergence angles and beam propagation ratios Part 2: General astigmatic beams.

3.4 PGD/39/22132 IS 14965 (Identical To: ISO 12005 : 2022) Lasers and laser-related equipment — Test methods for laser beam parameters — Polarization.

Item 4 REVIEW/REAFFIRMATION OF PUBLISHED INDIAN STANDARDS

During the meeting, the Member Secretary informed the committee of the 5-yearly periodic review of published Indian Standards. The committee discussed the standards that are due for review in the 2023-24 financial year. Below is the list of standards along with the corresponding committee member who volunteered to provide the review report within 60 days after the circulation of minutes:

Sl No.	IS No.	Title	Member Name
1.	IS 1632 : 1993	Optical instruments - Bubbles - Specification	**Dr. Ranabir Mandal**, IRDE Dehradun
2.	IS 5415 : 1969	Code of practice for packing and packaging of optical and mathematical instruments and components	**Dr S. V. Ramagopal**, Optics and Allied Engineering Private Limited, Bengaluru **Dr. K. Nithyanandan**, The Optical Society of India,Kolkata **Mr. Neeraj Bahl**, Infinity optics
3.	IS 5920 : 1970	Recommendation for preparation of drawings for optical elements and systems	Review completed
4.	IS 7009 : 1973	Specification for optical square (for Surveying)	NIL
5.	IS 7545 : 1975	Specification for optical bench (Advanced type)	NIL
6.	IS 10236 (Part 15) : 1988	Procedure for basic climatic and durability tests for optical instruments part 15 drop test	**Dr. Vinod Karar**, CRRI, New Delhi
7.	IS 10236 (Part 16) : 1988	Procedure for basic climatic and durability tests for optical instruments part 16 solar radiation test	**Dr. Vinod Karar**, CRRI, New Delhi
8.	IS 10236 (Part 17) : 1988	Procedure for basic climatic and durability tests for optical instruments: Part 17 acceleration (Steady - State) test	**Dr. Vinod Karar**, CRRI, New Delhi
9.	IS 10236 (Part 18) : 1988	Procedure for basic climatic and durability tests for optical instruments: Part 18 sealing test	**Dr. Vinod Karar**, CRRI, New Delhi
10.	IS 10679 : 1983	Specification - On for photoelectric spectrophotometer (Single Beam Type)	**Dr. Neelam Kumari**, CSIR Chandigarh
11.	IS 12713 : 1989	Optical instruments - Permissible cosmetic defects and inspection of optical components	**Dr. Ranabir Mandal**, IRDE Dehradun **Dr. Sendhil Raja S**, RRCAT, Indore
12.	IS 12874 : 1989	Optical and mathematical instruments - Telescopic alidade - specification	**Prof. Lakshminarayan Hazra,** The Optical Society of India, Kolkata **Dr. Ranabir Mandal**, IRDE Dehradun
13.	IS 12888 : 1989	Optical and mathematical instruments - Short range infrared distance measuring instruments	**Prof. Lakshminarayan Hazra,** The Optical Society of India,

		specification	Kolkata **Dr. Ranabir Mandal**, IRDE Dehradun
14.	IS 13108 : 2019 ISO 8036 : 2015	Optics and photonics - Microscopes - Immersion liquids for light microscopy (Second Revision)	It was decided during the meeting that theses ISO Standards adopted by the committee will be reaffirmed at the end of the year, provided there are no changes in the ISO Standards.
15.	IS 14146 : 1994 ISO 9689 : 1990	Raw optical glass - Resistance to attack by aqueous alkaline phosphate - Containing detergent solutions at 50°C - Testing and classification	
16.	IS 15269 : 2018 ISO 8039 : 8039	Optics and optical instruments - Microscopes - Values, tolerances and symbols for magnification (First Revision)	
17.	IS 15483 (Part 1) : 2019/ISO 12858-1	Optics and optical instruments - Ancillary devices for geodetic instruments: Part 1 Inver levelling staffs (First Revision)	
18.	IS 15483 (Part 2) : 2004/ISO 12858	Optics and optical instruments - Ancillary devices for geodetic instruments: Part 2 tripods	

Item 5 ISSUES ARISING OUT OF THE PREVIOUS MEETING

As per the decision taken during the last meeting of the above Committee on the issues arising, the actions taken are given below:

Sl No.	Subject	Decision taken in the last meeting	Decision taken in the current meeting
5.1	Revision of **i) IS 1399 : 1959** Glossary of terms used in optical technology **ii) IS 1400 : 1960** Specification for optical glass **iii) IS 2754 : 1964** General requirements for optical instruments **iv) IS 5920 : 1970** Recommendation for preparation of drawings for optical elements and systems	In 2nd meeting of PGD 39 Prof. Lakshminarayan Hazra, Optical Society of India had volunteered to provide inputs/comments on the mentioned standard. In 3rd meeting of PGD 39, the committee also formed a panel to review **IS 5920.** The panel members are given below: i) Dr S. V. Ramagopal, ii) Dr. Ranabir Mandal iii) M. Sadanandam iv) Dr. Neha Khtri v) Dr. Neelam Kumari	Prof. Lakshminarayan Hazra, Optical Society of India had provided the comments on **IS 1399**, **IS 1400** and **IS 5920** (attached in Annex A). The committee deliberated and approved the comments received from Prof. Lakshminarayan Hazra. The member secretary will incorporate the suggest changes and circulate the documents for wide circulation for period of 60 days. The member secretary will provide the review documents for **IS 2754** to Prof. Lakshminarayan Hazra.
5.2	Revision of	Dr. Ranabir Mandal, Instrument Research and Development	The Member Secretary recommended prioritizing the

	i) IS 988 : 1959 General requirements for optical Components **ii) 1399 : 1959** Glossary of terms used in optical technology **iii) IS 2754 : 1964** General requirements for optical instruments **iv) IS 5706 : 1993** Optical instruments - Spirit levels for use in precision engineering -Specification First Revision **v) IS 8248 : 1976** Specification for antireflection coating on glass optical components **vi) IS 11444 : 1985** Specification for grinding and polishing materials for optical components **vii) IS 12713 : 1989** Optical instruments – Permissible cosmetic defects and inspection of optical components **viii) IS 12874 : 1989** Optical and mathematical instruments - Telescopic alidade –specification	Establishment, Dehradun volunteered to provide inputs/comments on these standards.	review of standards due for the 2023-24 financial year and requested the review **IS 12874** first (Mentioned in item 4 of the Agenda), while the other standards can be taken up later. The Member Secretary will provide the relevant documents to **Dr. Ranabir Mandal** for the review of IS 12874.
5.3	Revision of **IS 10236 (Part 1) : 1989** Procedure for basic climatic and durability tests for optical instruments: Part 1 general **IS 10236 (Part 2) : 1982** Procedure for climatic and durability tests for optical instruments Part 2 dry heat test **IS 10236 (Part 3): 1982** Procedure for basic climatic and durability tests for optical instruments: Part 3 cold test **IS 10236 (Part 4): 1982** Procedure for basic climatic and durability for optical instruments: Part 4 damp heat test **IS 10236 (Part 5) : 1982** Procedure for basic climatic and durability tests	**Dr. Vinod Karar**, CSIR-Central Scientific Instruments Organisation, Chandigarh had volunteered to provide inputs on the mentioned standards.	The Member Secretary recommended prioritizing the review of standards due for the 2023-24 financial year and requested the review **IS 10236 part (15)**, **IS 10236 part (16)**, and **IS 10236 part (17)**, and **IS 10236 part (18)** first (Mentioned in item 4 of the Agenda), while the other standards can be taken up later. The relevant documents for the review of mentioned standards had already been provided by the Member Secretary to **Dr. Vinod Karar.**

	for optical instruments: Part 5 damp heat (Cyclic) test **IS 10236 (Part 6) : 1982** Procedure for basic climatic and durability tests for optical instruments: Part 6 salt mist test **IS 10236 (Part 7) : 1983** Procedure for basic climatic and durability tests for optical instruments: Part 7 mould growth test **IS 10236 (Part 8) : 1983** Procedure for basic climatic and durability tests for optical instruments: Part 8 thermal shock (Rapid change of Temperature) test **IS 10236 (Part 9): 1983** Procedure for basic climatic and durability tests for. optical instruments: Part 9 low air pressure (Altitude) test **IS 10236 (Part 10) : 1985** Procedure for basic climatic and durability tests for optical instruments: Part 10 bump test **IS 10236 (Part 11) : 1985** Procedure for basic climatic and durability tests for optical instruments: Part 11 vibration test **IS 10236 (Part 12) : 1985** Procedure for basic climatic and durability tests for optical instruments: Part 12 shock test **IS 10236 (Part 13) : 1986** Procedure for basic climatic and durability tests for optical instruments: Part 13 dust test **IS 10236 (Part 14) : 1986** Procedure for basic climatic and durability tests for optical instruments: Part 14 driving rain test **IS 10236 (Part 15) :1986** Procedure for basic climatic and durability tests		

	for optical instruments Part 15 drop test **IS 10236 (Part 16) : 1988** Procedure for basic climatic and durability tests for optical instruments part 16 solar radiation test **IS 10236 (Part 17) : 1988** Procedure for basic climatic and durability tests for optical instruments Part 17 acceleration Steady - State test **IS 10236 (Part 18) : 1988** Procedure for basic climatic and durability tests for optical instruments Part 18 sealing test		

Item 6 INTERNATIONAL ACTIVITIES

6.1 The committee members noted the information given in the Agenda.

During the meeting, the Member Secretary shared the details of the ISO Technical Committee 172, which focuses on Optics and Photonics, along with its various subcommittees and working groups. The committee members were encouraged to nominate themselves in the different working groups based on their area of expertise. The details of the ISO Committee were provided as follows:

ISO/ TC 172 **Optics and Photonics** (6 Subcommittee and 2 active working group) (https://www.iso.org/committee/53686.html)	ISO/ TC 172/ SC 1 **Fundamental Standards** (3 active working group) (https://www.iso.org/committee/53688.html)	ISO/ TC 172/ SC 1/ WG 1 **General optical test methods**
		ISO/ TC 172/ SC 1/ WG 2 **Preparation of drawings for optical elements and systems**
		ISO/ TC 172/ SC 1/ WG 3 **Environmental test methods**
	ISO/ TC 172/ SC 3 **Optical materials and components** (3 active working group) (https://www.iso.org/committee/53700.html)	ISO/ TC 172/ SC 3/ WG 1 **Raw optical glass**
		ISO/ TC 172/ SC 3/ WG 2 **Coatings**
		ISO/ TC 172/ SC 3/ WG 3 **Characterization of IR materials**
	ISO/ TC 172/ SC 4 **Telescopic systems** (1 active working group) (https://www.iso.org/committee/53708.html)	ISO/ TC 172/ SC 4/ WG 2 **Telescopic devices**
	ISO/ TC 172/ SC 5	ISO/ TC 172/ SC 5/ WG 3

	Microscopes and endoscopes (4 active working group) (https://www.iso.org/committee/53720.html)	**Terms and definitions**
		ISO/ TC 172/ SC 5/ WG 6 **Endoscopes**
		ISO/ TC 172/ SC 5/ WG 9 **Optical performance of microscope components**
		ISO/ TC 172/ SC 5/ WG 10 **Microscope systems**
	ISO/ TC 172/ SC 6 **Geodetic and surveying instruments** (2 active working group) (https://www.iso.org/committee/53732.html)	ISO/ TC 172/ SC 6/ WG 3 **Laboratory procedures for testing surveying and construction instruments**
		ISO/ TC 172/ SC 6/ WG 4 **Field procedures and ancillary devices**
	ISO/ TC 172/ SC 9 **Laser and electro-optical systems** (4 active working group) (https://www.iso.org/committee/53764.html)	ISO/ TC 172/ SC 9/ WG 1 **Terminology and test methods for electro-optical systems**
		ISO/ TC 172/ SC 9/ WG 4 **Laser systems for medical applications**
		ISO/ TC 172/ SC 9/ WG 7 **Electro-optical systems other than lasers**
		ISO/ TC 172/ SC 9/ JWG 3 **Joint ISO/TC 172/SC 9-IEC/TC 76 WG: Safety**
	ISO/ TC 172/AHG	**AR/VR as related to ISO/TC 172**
	ISO/ TC 172/ WG 1	**Reference wavelengths**

ISO : International Organization for Standardization
TC : Technical Committee
SC : Sub Committee
WG : Working Group
AHG : Ad hoc group
JWG : Joint working group

6.2 Dr. Vinod Karar, from Central Road Research Institute (CRRI), New Delhi, has put forth his nomination for ISO/TC 172/AHG AR/VR in connection with ISO/TC 172.

Item 7 NEW SUBJECT

7.1 Dr. Neelam Kumari from CSIR-Central Scientific Instruments Organisation, Chandigarh recommended adopting a mentioned ISO Standard as an Indian Standard during the meeting. After deliberation, the committee decided that the Member Secretary will prepare a draft and circulate it widely for a period of 30 days before making a final decision on adoption.

Sl No.	ISO Number	Title
1.	9211-2 : 2010	Optics and photonics — Optical coatings — Part 2: Optical properties

7.2 Prof. Lakshminarayan Hazra, Optical Society of India recommended adopting a mentioned ISO Standards as an Indian Standards during the meeting. After deliberation, the committee decided that the Member Secretary will prepare a draft and circulate it widely for a period of 30 days before making a final decision on adoption.

Sl No.	ISO Number	Title
1.	ISO 14880-1:2019	Optics and photonics — Microlens arrays — Part 1: Vocabulary
2.	ISO 14880-2:2006	Optics and photonics — Microlens arrays — Part 2: Test methods for wavefront aberrations
3.	ISO 14880-3:2006	Optics and photonics — Microlens arrays — Part 3: Test methods for optical properties other than wavefront aberrations
4.	ISO 14880-4:2006	Optics and photonics — Microlens arrays — Part 4: Test methods for geometrical properties
5.	ISO/TR 14880-5:2010	Optics and photonics — Microlens arrays — Part 5: Guidance on testing

Item 8 PROGRAMME OF WORK

The committee noted the information given in the Agenda.

Item 9 ANY OTHER BUSINESS

The committee discussed the list presented in Annex D of the Agenda and made a decision to transfer following standards from the Educational Instruments and Equipment Sectional Committee, PGD 22 to the Optics and Photonics Sectional Committee, PGD 39.

Sl No.	IS No.	TITLE
1.	IS 3135 : 1965	Specification for cathetometer
2.	IS 6471 : 1971	Specification for spectrometer Student Type
3.	IS 7919 : 1975	Specification for refractometer - abbe type
4.	IS 8651 : 1977	Specification for flame photometer
5.	IS 8661 : 1977	Specification for polarimeter and saccharimeter Optical
6.	IS 9107 : 1979	Specification for autocollimator
7.	IS 9571 : 1980	Specification for photoelectric colorimeter Single Beam
8.	IS 7011 : 1973	Specification for back - Silvered mirrors used in insturment industry
9.	IS 9514 : 1980	Specification for front surface aluminized mirrors
10.	IS 3113 : 1965	Specification for prismatic binoculars for common use
11.	IS 8691 : 1986	Specification for mirror stereoscope First Revision

Item 10 DATE AND PLACE OF NEXT MEETING

The committee may please discuss and decide the date and place of the next meeting.

The e-mail address of BIS is as follows:
BIS: info@bis.gov.in

Website: www.bis.gov.in
For downloading the published Indian Standards please visit:
https://standardsbis.bsbedge.com/

ANNEX A
(Item 5.1)

Comments received on **IS 1399**, **IS 1400** and **IS 5920**

1. In **IS 1399** Glossary of terms used in optical technology, following changes are recommended:

(i) Page 3, Sl. No. 2.1.2: Change the word 'colours' by "wavelengths".
(ii) Page 3, Sl. No. 2.1.4: Change the word 'colours' by "wavelengths".
(iii) Page 3, Sl. No. 2.1.8 Change the word 'object' by "obstruction'.
(iv)Page 3, Sl. No. 2.1.10 Change the word 'complex' by "polychromatic".
(v) Page 16, Sl. No.5.1: Change the word 'colours' by "wavelengths"
(vi) Page 16, Sl. No. 5.6: Change the word 'colours' by "wavelengths"
(vii) Page 16, Sl. No. 5.11: Change the word 'colour' by "wavelength", and The word 'colours' by "wavelengths".
(viii) Page 26, Sl. No. 7.15 (a) Change the words 'of axial distance' by "in of the off-axial point from the axis".
(ix) Page 26, Sl. No. 7.15 (b) Change the words 'of axial distance' by "in distance of the off-axial point from the axis".
(x) Page 29, Sl. No. 8.34 First line: Change 'Plane' by 'Points', and 'planes' by 'points' Third line: Change 'plane' by "point" Fourth line: Change 'plane' by "point".

2. **IS 1400** Specification for optical glass, should preferably be replaced by the following ISO standards:

i) **ISO 12123** Optics and photonics — Specification of raw optical glass;
ii) **ISO 11455** Raw optical glass — Determination of birefringence; and
iii) **IS 9802** Raw optical glass — Vocabulary.

3. **IS 5920** Recommendation for preparation of drawing for optical element and systems, should be replaced by the following:

i) **ISO 10110-1:2019** Optics and photonics — Preparation of drawings for optical elements and systems — Part 1: General
ii) **ISO 10110-5:2015** Optics and photonics — Preparation of drawings for optical elements and systems — Part 5: Surface form tolerances
iii) **ISO 10110-6:2015** Optics and photonics — Preparation of drawings for optical elements and systems — Part 6: Centring tolerances
iv) **ISO 10110-7:2017** Optics and photonics — Preparation of drawings for optical elements and systems — Part 7: Surface imperfections
v) **ISO 10110-8:2019** Optics and photonics — Preparation of drawings for optical elements and systems — Part 8: Surface texture
vi) **ISO 10110-9:2016** Optics and photonics — Preparation of drawings for optical elements and systems — Part 9: Surface treatment and coating
vii) **ISO 10110-11:2016** Optics and photonics — Preparation of drawings for optical elements and systems — Part 11: Non-toleranced data
viii) **ISO 10110-12:2019** Optics and photonics — Preparation of drawings for optical elements and systems — Part 12: Aspheric surfaces
ix) **ISO 10110-14:2018** Optics and photonics — Preparation of drawings for optical elements and systems — Part 14: Wavefront deformation tolerance

x) **ISO/FDIS 10110-16** Optics and photonics — Preparation of drawings for optical elements and systems — Part 16: Diffractive surfaces
xi) **ISO 10110-17:2004** Optics and photonics — Preparation of drawings for optical elements and systems — Part 17: Laser irradiation damage threshold
xii) **ISO 10110-18:2018** Optics and photonics — Preparation of drawings for optical elements and systems — Part 18: Stress birefringence, bubbles and inclusions, homogeneity, and striae
xiii) **ISO 10110-19:2015** Optics and photonics — Preparation of drawings for optical elements and systems — Part 19: General description of surfaces and components