ISO/TC 172 – Optics and Photonics Annual Report 2004

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ISO/TC 172/SC 1, Fundamental Standards, Activity for 2004

SC 1 met in St. Petersburg, Russian Federation April 21 — 22, 2004. Gene Kohlenberg represented the United States at these meetings. Other countries represented were France, Germany, Japan, Russian Federation, and United Kingdom.

The following documents were reconfirmed:

ISO 9039 "Quality evaluation of optical systems – Determination of distortion" was confirmed with a technical correction of one equation in Annex A.

ISO 9358 "Veiling glare of image-forming systems – Definitions and methods of measurement

ISO 9336-1 "Optical transfer function – Application – Interchangeable lenses for 35 mm still cameras

ISO 9336-2 "Optical transfer function – Application – Lenses for office copiers"

ISO 9336-3 "Optical transfer function – Application – Telescopes" was transferred to ISO/TC 172/SC 4.

ISO 15529 "Principles of measurement of modulation transfer function of sampled imaging systems" will be revised. A committee draft was to be circulated by the end of June.

ISO/DTR 14999 "Optics and photonics – Interferometric measurement of optical elements and optical systems"

Part 1: Definitions and fundamental relationships
Editorial changes were discussed and will be integrated. A New footnote (Annex 1) will be integrated. This document will be published then as a Technical Report.

Part 2: Measurement and evaluation techniques
Editorial changes were discussed and will be integrated. Japan supplied new images of Zernike polynomials for replacement (Annex 2). Mr. Bray, the convener, agreed to supply a reduced version of Annex A for replacement. . This document will be published then as a Technical Report.

Part 3: Calibration and validation of interferometric test equipment and measurement
Editorial changes were discussed and will be integrated. This document will be published then as a Technical Report.

The US position concerning these documents is that their existence is not important because they contain much information that can readily be found in textbooks. They were written in German phrased English and do not have a uniform style. The committee agreed that the documents need more work, but they never would be released if we were to wait until they were reedited. These documents were later adopted. The US has volunteered to provide experts to who can tackle the job of reediting them.

ISO/CD 14999-4 "Optics and photonics – Interferometric measurement of optical elements and optical systems – Part 4: Application to the evaluation of tolerances specified in ISO 10110"
Mr. Bray agreed to prepare a sample version of future 10110-5 and 10110-14 by the middle of June, and a modified version of 14999-4 by the end of August. These modifications will restrict the measurement to wavefronts and explain the relation between surface and measured wavefront. The duplications will also be eliminated. The goal was to circulate the CD as a DIS by the end of October.

Preliminary Work Item 14999-5 "Optics and photonics – Interferometric measurement of optical elements and optical systems – Part 5: Measurement procedures" was being developed by Keith Birch from the United Kingdom. The committee agreed to allow members to send comments to Mr. Birch until the end of June. He would then integrate pertinent suggestions into the draft. A new work item proposal would then be circulated by the end of August.

The committee agreed to next meet in Weimar, Germany, from May 25 through 27, 2005.

ISO TC 172/SC3 US TAG 2004 Activity

The SC3/WG2 Convener (Mr. Boultbee, US) incorporated the Secretariat's observations (which he wrote) from the comments received on ISO/CD 9211-4 on *Optical coatings, Specific test methods*, into the document, and the DIS was distributed for voting at the end of July 2004. The US has voted in favor of the DIS, with some additional editorial comments to fix a typographical error and to improve clarity.

ISO 9211-1, -2 and -3 were distributed for systematic review. The US voted to confirm them, with the editorial comment that the footnote in -1 and -3 pertaining to "to be published" referenced documents probably needed to be updated.

ISO 12844 Raw optical glass, *Grindability with diamond pellets-Test method and classification*, was distributed for systematic review. The US voted to confirm it.

The Result of DIS vote on ISO 12123: 1996/DAmd 1, dated 15 July 2004 from AFNOR states that there was a unanimous vote for approval. Yet the ballot I submitted as US TAG SC3 leader was a vote for disapproval. This discrepancy was just noticed while preparing this annual report.

GORDON BOULTBEE
US TAG SC3 Leader
SC3/WG2 Convener
10 January 2005

2004 ANNUAL REPORT

ISO / TC 172 / SC4

- The WG5 (Night Vision Devices) meeting was held in June 2004 in Vienna, Austria to revise three ISO standards drafts: 14132-5, 21094 and 14490-8. The United States was represented with two delegates, Dr. Chung-Chieh Cheng and Mr. Morris Bierig. The full report of the meeting (sc4wg5n26.pdf) is available on the website of OEOSC.

- Summary of the report:

  1) ISO 14132-5: Optics and photonics — Vocabulary for telescopic systems — Part 5: Terms for night vision devices

     * Revise definitions of terms such as detection range and spectral sensitivity, etc.
     * Delete redundant terms such as dark luminous exitance, etc.
     * Another Committee Draft (CD) will be issued before DIS.

  2) ISO 21094: Optics and photonics —Telescopic systems — Specifications for night vision devices

     * Revise specifications of tolerances.
     * Determine required and recommended consumer information for night vision devices.
     * Unresolved issues will be discussed in the next meeting.

  3) ISO 14490-8: Optics and photonics — Test methods for telescopic system — Part 8: Test methods for night vision devices (NWIP)

     * Determine the final list of test methods.
     * Discuss several test methods in detail.
     * Assign people responsible for the next draft.

- The next meeting of WG5 in conjunction with the 9th Plenary Meeting of SC 4 is scheduled in April or May 2005 in Saint Petersburg, Russian Federation. Attendance and participation from US delegates are planned.

Prepared by

Chung-Chieh Cheng
Research and Development
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ISO/TC 172/SC 5, Microscopes and Endoscopes Activity for 2004

Report not available

ISO/TC 172/SC 6 Optics and Optical Instruments/Geodetic and Surveying Instruments Highlights for 2004

***11th Annual Meeting of* was held at the National Institute of Standards and Technology (NIST) in Gaithersburg, MD (USA) - 2004-09-27/29**

This was the first time that the SC has met in the United States and was fittingly held at NIST. The SC asked that Dr. W. Tyler Estler of NIST present a seminar on the Expression of Uncertainty in Measurement with the view towards initiating a revision of (or addition to) these International Standards.

Chairman of ISO/TC 172/SC 6, Mr. Karl Zeiske, who has chaired this committee for more than 10 years, decided not to run for re-election. Therefore, the subcommittee nominated Mr. René Scherrer of Leica Geosystems Ltd., Heerbrugg (Switzerland) as chairman of ISO/TC 172/SC 6 for a 6 years term, starting 2005-01-01 ending 2010-12-31 and request its Secretariat to initiate the confirmation of this appointment by the parent committee ISO/TC 172.

The subcommittee Secretary Peter Scheibli has also decided to resign and his replacement is Mr. Nils Tonascia. Of the Swedish Institute of Standards.

The SC thanked NIST, the host of this meeting, for the hospitality and for providing an excellent infrastructure for the meeting and in particular Mr. Charles J. Fronczek Jr. for his helpfulness in the preparation of and during the meeting.

Of note at the meeting:

The SC discussed a proposal for a new committee draft on GPS Kinematic Surveying having rejected the previous draft.

A second attempt by Germany to bring forth a committee draft on Measuring Tapes was defeated.

ISO/DIS 17123-5.3 Optics and optical instruments– Field procedures for testing geodetic and surveying instruments -Part 5: Electronic Tacheometers. (Revision of ISO 8322-1:1989) was sent out for a new vote.

For 2004, the following DISs were voted on and approved as new International Standards:

ISO/DIS 12858-3 Optics and optical instruments– Ancillary devices for geodetic instruments - Part 3: Tribrachs - 2004-06-07

ISO/DIS 17123-7 Optics and optical instruments– Field procedures for testing geodetic and surveying instruments -Part 7: Optical plumbing instruments 2004-06-17

Charles Fronczek

January 2, 2005

ISO/TC 172/SC 7 Ophthalmic Optics

Annual Report for 2004

Prepared by

Charles Campbell, SC7 US Delegation Leader

In 2004 subcommittee SC7 held plenary and working group meetings on October 4 through October 8 in Paris, France. WG1 - Terminology did not meet due to lack of work. All the other working groups held successful meetings and the plenary sessions took place without incident. The new chairman of SC7, Dr. Herbert Krug from Germany, chaired the plenary meetings.

One procedural matter was clarified at the Paris meeting. The United Kingdom had proposed that working group conveners should elected by either the experts on the working group or by the member bodies, such as ANSI in the United States. The United States did not support this point of view as we felt that the current system, in place since 1981, was working well. We thought it is better for the Sub Committee chairman to appoint, after consultation, a person that had the personal characteristics suited to this position thus finding a person that could do the job well and avoiding the introduction of politics into the working of the standardization effort as any election process would. Our view prevailed and the following procedure will be followed for the selection of working group conveners.

Section of new conveners for working groups in ISO/TC172/SC7

If a convener wishes to resign the position for any reason, the chairman shall be notified 6 months in advance.

To change a specific convener in any other way, 2/3 of the P member bodies represented in the working group that the convener leads must petition the Central Secretariat in writing.

In either of the above cases, the sub committee chairman will then nominate a new convener and circulate this name to the member bodies. If no objections to the nomination are received within 3 months, the new convener is selected. If objections are raised the chairman may re-consult.

In addition to the promulgation of the above procedure, the roles of project group leaders and conveners clarified.

Roles and duties of working group conveners and project group leaders
It is the duty of the project group leader to put together and submit working drafts (WD) and committee drafts (CD) for voting stages in consultation with the convener. If the convener makes changes to documents prior to voting without project group consultation, the convener must give the project group leader and the secretariat a written reason for the change. Project groups will be disbanded following the DIS stage with the project group leader still available for consultation.

The secretariat has initiated a program to survey the use of standards created by the committee in the various countries. Surveys on spectacle frames and spectacle lenses were initiated this year and have been completed. The results as of the end of the year are not known.

The next meeting of SC7 is scheduled to be held in Switzerland on April 24 to 28, 2006.

During the course of the year the work of the various working groups, as represented by the documents prepared and voted on, was as follows;

NWIP (new work item proposals) - 3
- WG3 – 1
- WG6 – 1
- WG7 – 1

CD (committee drafts) - 15
- WG3 agree - 3
- WG6 agree – 6/1 with comment
- WG7 agree with comment – 3, disagree –2
- WG8 agree - 1

DIS (draft international standard) – 9
- WG3 agree - 1
- WG6 agree –3/1 with comment
- WG7 agree with comment -1
- WG9 agree – 4

FDIS (final draft international standard) – 2
- WG2 disagree - 1
- WG9 agree – 1

Systematic 5-year review – 11

- WG2 – 2
- WG6 – 3
- WG7 - 2

WG8 - 1
WG9 – 3

It can be seen that the work of SC7 in 2004 is similar to that in 2003. Most of the items that need standardization have been addressed and a good deal of the work now consists in revision of existing standards. This is reflected in the number of standards that came up for 5-year periodic review. This is only reasonable for a subcommittee that has been in active existence for over 20 years.

WG7 – Implants has been revising various sections of the Intraocular Standard and have held a number of special meetings through out the year to do this.

WG9 – Contact Lenses has essentially completed the process of consolidating various standards relating to contact lenses created over a period of over 10 years into a single comprehensive standard.

It will be noted that although there were there were several formal meetings held by working groups WG7 and WG9 in 2004 in addition to the plenary in Paris. Other work continued to flow at a goodly rate through the various working groups by correspondence.

During 2004, 4 new International Standards originating in SC7 were published. They came from the following working groups. These standards were revisions of existing standards and replaced them.

WG2 - 1
WG3 - 2
WG9 - 1

During 2004, 1 new International Technical specification originating in SC9 was published.

December 31, 2004

ISO/TC 172/SC 9 Electro-Optical Systems (Including Lasers)

Annual Report for 2004

Prepared by

Robert Faaland, SC 9 US Delegation Leader

The ISO Electro-Optical Systems (including lasers) Subcommittee (ISO/TC 172/SC 9) held its annual meeting in Pforzheim, Germany on June 16-18, 2004. The meeting was hosted by the Deutsches Institut für Normung e. V. (DIN). The following US members were in attendance: R. Faaland (US Delegation Leader), B. Hitz (Chairman ISO/TC 172/SC 9), T. Lieb (IEC TC 76 liaison), J. Sommers, J. Arenberg, and A. Davies.

An outcome of the Milan (2002) meeting was that an agreement had finally been reached between ISO/TC 172/SC 9 and IEC/SC 47E on how laser diode standards would be handled between ISO and IEC. This had been the result of work during many past annual meetings of the Joint Working Group (JWG) formed by members of the ISO and IEC subcommittees. At the Tokyo (2003) meeting, decisions were made relevant to changes which need to be incorporated into ISO and IEC documents. Work continued at the Pforzheim meeting. These suggested changes, and present status, are:

1. ISO 11145 will include definitions related to misalignment and astigmatic difference in its amendment version. [The DIS manuscript for the amendment of ISO 11145 has been circulated, with voting to terminate on March 7, 2005.]
2. ISO 11146-1 will include astigmatic equation. [The FDIS manuscript has been circulated, with voting having terminated on September 1, 2004. Publication in progress.]
3. ISO 11554 will include definition and measurement method for the fall time in its amendment version. [The DIS manuscript for revision of ISO 11554 has been circulated, with voting to terminate on April 4, 2005.]
4. IEC 60747-5 will include definition and measurement method for the half-intensity angle in the CDV draft. Also, tables of the item of terminologies and easement methods which have been described in the relevant ISO documents will be inserted in the appropriate part of IEC document. [Status of this IEC document is not known.]

The following SC 9 developed standards were published in 2004:

1. ISO TR 11146-3:2004 – *Lasers and laser-related equipment – Test methods for laser beam widths, divergence angles and beam propagation ratios – Part 3: Intrinsic and geometrical laser beam classification, propagation and details of test methods (Revision of ISO 11146:1999)* [published February 1, 2004]
2. ISO 11252:2004, *Laser device – Minimum requirements for documentation (Revision of ISO 11252:1993)* [published November 15, 2004]
3. ISO 11670:2003/Technical Corrigendum 1:2004 – *Lasers and laser-related equipment – Test methods for laser beam parameters – Beam positional stability (Revision of ISO 11670:1999)* [published May 15, 2004]
4. ISO 13695:2004 – *Optics and photonics – Lasers and laser-related equipment – Test methods for the spectral characteristics of lasers* [published June 1, 2004]
5. ISO 15902:2004 – *Optics and optical instruments – Diffractive optics - Vocabulary* [published April 1, 2004]

The following SC 9 developed standard was withdrawn in 2004:

1. ISO 11253:1993 – *Laser device – Mechanical interfaces* [Result of Systematic Review circulated in 2003.]

The following New Work Item Proposals were circulated in SC 9:

1. Item 11145, *Lasers and laser-related equipment – Vocabulary and symbols*: a NWI proposal for an amendment was circulated and was approved. A manuscript containing the clauses to be amended has been circulated to SC 9 members for voting. (Voting on the manuscript terminates on March 7, 2005.)
2. Item 11254-3, *Determination of laser-induced damage threshold of optical surfaces – Part 3: Assurance of laser power (energy) handling capabilities*: a NWI proposal to re-instate this item to the program of work was circulated and requested confirmation of the circulated manuscript at the DIS stage (Voting, which terminated on October 28, 2004, approved the NWI proposal and approved the manuscript at the DIS stage.)
3. Item 11554, *Test methods for laser beam power, energy and temporal characteristics*: a NWI proposal for an amendment was circulated and was approved. However, a decision was made to publish a 3rd edition of ISO 11554 rather than an amendment. A DIS manuscript has been submitted to SC 9 members for voting and comment. (Voting on the manuscript terminates on April 4, 2005.)

The following list summarizes the status of documents being developed by SC 9:

1. ISO 11145:2001/DAmd 1, *Lasers and laser-related equipment – Vocabulary and symbols – Amendment 1*: Voting on the manuscript terminates on March 7, 2005.

2. ISO FDIS 11146-1, *Test methods for laser beam widths, divergence angles and beam propagation ratios – Part 1: Stigmatic and simple astigmatic beams*: Voting on the FDIS manuscript terminated on September 1, 2004. Result of Voting is not yet available.
3. ISO FDIS 11146-2, *Test methods for laser beam widths, divergence angles and beam propagation ratios – Part 2: General astigmatic beams*: Voting on the FDIS manuscript terminated on December 28, 2004. Result of Voting is not yet available.
4. ISO DIS 11254-3, *Determination of laser-induced damage threshold of optical surfaces – Part 3: Assurance of laser power (energy) handling capabilities*: Voting on the NWI proposal to re-instate this item to the program of work, at the DIS stage, which terminated on October 28, 2004, approved the NWI proposal and approved the manuscript at the DIS stage.
5. ISO FDIS 11553-1, *Safety of machinery – Laser processing machines – Part 1: General safety requirements (Revision of ISO 11553:1996)*: Voting on the FDIS manuscript terminated on November 23, 2004. Result of Voting is not yet available. (FDIS circulation had been delayed due to concerns of CEN Machinery Consultant and CEN Noise Consultant. Issues were discussed and resolved at the June 2004 Pforzheim meeting.)
6. ISO DIS 11553-2, *Safety of machinery – Laser processing machines – Part 2: Safety requirements for hand-held laser processing devices*: Voting on the DIS manuscript terminates on March 7, 2005. (Voting on the CD manuscript, which terminated on September 17, 2003, had approved the issuance of a DIS. Comments received on the CD were addressed during the September/October 2003 meeting of IEC/TC 76/JWG 10, held in Rockville, Maryland. Concerns of CEN Machinery Consultant and CEN Noise Consultant were discussed and resolved at the June 2004 Pforzheim meeting.)
7. ISO DIS 11554, *Lasers and laser-related equipment – Test methods for laser beam power, energy and temporal characteristics (Revision of second edition (ISO 11554:2003))*: Voting on the DIS manuscript terminates on April 4, 2005.
8. ISO FDIS 11810-1, *Test method and classification for the laser resistance of surgical drapes and/or patient protective covers – Part 1: Primary ignition and penetration*: Voting on the FDIS manuscript terminates on January 4, 2005.
9. ISO CD 11810-2.2, *Test method and classification for the laser resistance of surgical drapes and/or patient protective covers – Part 2: Secondary ignition*: Voting on the 2nd CD manuscript which terminated on October 25, 2003 approved the issuance of a DIS. However, critical comments were received which had to be resolved at the June 2004 Pforzheim meeting, prior to the issuance of the DIS. The WG decided that the revised manuscript will be circulated as a 3rd CD. The 3rd CD manuscript has not yet been circulated.
10. ISO DIS 13697, *Test methods for specular reflectance and transmittance of optical laser components*: Voting on the DIS manuscript terminates on March 21, 2005.

11. ISO DIS 14880-2, *Microlens array – Part 2: Test methods for wavefront aberration*: Voting on the DIS manuscript terminated on November 15, 2004. Result of Voting is not yet available.
12. ISO CD 14880-3, *Microlens arrays – Part 3: Test methods for optical properties other than wavefront aberrations*: Voting on the CD manuscript which terminated on May 16, 2004 approved the issuance of a DIS. However, the DIS manuscript has not yet been circulated.
13. ISO CD 14880-4, *Microlens arrays – Part 4: Test methods for non-optical properties*: Voting on the CD manuscript which terminated on May 16, 2004 approved the issuance of a DIS. However, the DIS manuscript has not yet been circulated.
14. ISO FDIS 15367-2, *Test method for determination of the shape of a laser beam wavefront – Part 2: Hartmann-Shack sensors*: Voting on the FDIS manuscript terminates on January 18, 2005.
15. ISO PDTR 22588, *Optics and optical instruments – Lasers and laser-related equipment – Measurement and evaluation of strain and distortion in optical components in a laser beam*: Voting on the PDTR manuscript, which terminated on November 6, 2004, approved the publication of a Technical Report (Technical Report will be published in English only).
16. ISO CD 24013, *Optics and optical instruments – Lasers and laser-related equipment – Measurement of the optical phase shift of optical components*: Voting on the CD which terminated on April 16, 2004 approved the issuance of a DIS. However, the DIS manuscript has not yet been circulated.

The following document-related resolutions were made at the Pforzheim meeting:

1. Item 11145, *Lasers and laser-related equipment – Vocabulary and symbols*: an amendment to ISO 11145:2001 will be published. The DIS manuscript is to be submitted to SC 9 members for voting and comment.
2. Item 11254-3, *Lasers and laser-related equipment – Determination of laser-induced damage threshold of optical surfaces – Part 3: Assurance of laser power (energy) handling capabilities*: a New Work Item Proposal to reinstate this deleted work item to the program of work is to be circulated to SC 9 members. A DIS manuscript is to be circulated with the NWIP for voting and comment.
3. Item 11553-2, *Safety of machinery – Laser processing machines – Part 2: Safety requirements for hand-held laser processing devices*: a DIS manuscript is to be circulated to SC 9 members for voting and comment.
4. Item 11554, *Test methods for laser beam power, energy and temporal characteristics*: decision was made to publish a 3rd edition of ISO 11554 rather than an amendment. A DIS manuscript is to be submitted to SC 9 members for voting and comment.
5. Item 13697, *Optics and optical instruments – Lasers and laser-related equipment – Test methods for specular reflectance and transmittance of optical laser components*: a DIS manuscript is to be submitted to SC 9 members for voting and comment.

6. Item 14880-3, *Microlens arrays – Part 3: Test methods for optical properties other than wavefront aberrations*: a DIS manuscript is to be submitted to SC 9 members for voting and comment.
7. Item 14880-4, *Microlens arrays – Part 4: Test methods for non-optical properties*: a DIS manuscript is to be submitted to SC 9 members for voting and comment. The title is to be changed to *Microlens arrays – Part 4: Test methods for geometrical properties*
8. Item 22588, *Optics and optical instruments – Lasers and laser-related equipment – Measurement and evaluation of strain and distortion in optical components in a laser beam*: a PDTR manuscript is to be circulated to SC 9 members for voting and comment.

The next meeting of ISO/TC 172/SC 9 will be held in London, United Kingdom on June 20-22, 2005.