

**ANSI/OEOSC TAG to ISO/TC 172 Annual Report  
2006  
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DATE: January 15<sup>th</sup>, 2007  
TO: Gene Kohlenberg  
FROM: Dave Aikens  
SUBJECT: 2006 TAG report for TC172/SC1

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### **Summary**

SC1 is extremely active at this time, with several projects underway in the fields of both wavefront standards as well as fundamental standards. The US delegation was extremely successful at advancing the US agenda at the Boulder meeting, and intends to continue with an "activist" participation policy. The US delegation has a project underway to draft a new version of ISO 10110-8, led by Peter Takacs of Brookhaven National Laboratory, in anticipation of its renewal vote in 2007. The US delegation has also offered to lead a project to re-write ISO 10110-6, to be led by Walt Czajkowski of Edmund Optical. Neither of these projects has begun at the ISO level, so they should be treated as PWI's for now.

SC1 held one meeting at Boulder, CO this year, June 26-29. The US hosted the meeting. Notes from the meeting are included below.

Overall, the US did extremely well, with several major successes and a few minor ones. The US has continued its strategy of working with the Japanese delegation and the UK delegation to serve as a balance to the German/Swiss delegations. At this meeting the French delegation, who usually vote with the German and Swiss delegations, did not attend any of the WG1 or WG2 meetings, focusing instead on the WG4 discussions regarding the data dictionary and the electronic data transfer formatting.

### **Active Projects in SC1: 10**

- ISO 10110-5 Surface form
- ISO 10110-7 Surface Imperfections
- ISO 10110-12 Aspheric surfaces
- ISO 10110-14 Transmitted wavefront
- DIS 14999-4.2 surface and wavefront form measurement
- PWI 14999-5 Measurement methods
- FDIS 15529 Principles of measuring MTF
- PWI "raw optical glass"
- WI 23584 Specification of Reference Dictionary
- WI 25297 NODIF Optical data communication



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**Active Projects led by US: 0**

**Published Standards in 2006: 1. ISO 10110-1 Drawings- General**  
**US Position: yes**

**Notes from ISO Standards meetings on the 26<sup>th</sup> through 29<sup>th</sup>.**

Venue:

National Institute of Standards and Technology (NIST) in Boulder.

Attendees:

- The ISO meetings of SC1 and its working groups were attended by a very small number of members of the optics community. Represented were Japan, (7), Germany (6), USA (6), United Kingdom (4), France (3), and Switzerland (1).
- The standards committees are currently dominated by the German and Swiss delegations, which work hand-in-glove for all standards of interest to the US. Of the key controlling positions (convener, secretariat, 3 group leaders, and 6 project leaders), all but one (project leader, electronic data transfer standard is Prudence Worell of the UK) is currently in the hands of Swiss or German delegates.

Issues and Concerns of interest to the US:

1) The US needs to be aware of the significant presence, bordering on dominance, of SC1 by the German and German-speaking Swiss delegations. Going into this session, all projects and leadership positions for both WG1 and WG2 were held by a member of one of these delegations. Since Germany and Switzerland both used DIN 3140 before the ISO movement, the ISO 10110 standard continues to be heavily influenced by the DIN 3140 format.

2) While the wavefront notation standards (10110-5, and -14) and the wavefront testing standard (14999-4) have now moved to the DIS stage, this was only possible by trimming out significant content, to the point where there is no mention of calibration, uncertainty, or test setup at all in the testing standard, except for the use of test plates. The committee agrees that, once these standards are released, we will immediately begin revising them. The US should be preparing a national standard which will address this industry need.

3) A significant revision was made to 14999-4.2 during committee. The informative Annex A, which describes the use of test glasses for surface measurements, was changed to a normative reference.

4) The second method of specifying surface imperfections, Method II, has been struck from 10110-7, at the recommendation of the US delegation.

5) Both the Japanese and German delegations expressed interest in reviewing the new ANSI standard for surface imperfections, OP1.002.



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Actions taken to make the US more effective:

The US delegation met the day before the meeting to review the work of the ANSI ASC/OP subcommittees and establish clear guidelines on the US positions and our presentation plans for the ISO meeting. This was very effective, and will be repeated before the next ISO meeting as well.

Key Decisions from the Boulder meeting:

The decision to delay work on 14999-5 until after the completion of the current work to release 14999-4 is significant, and very disappointing to the UK delegation, who authored the draft for 14999-5. The US delegation believes that the best path forward is to include into a single standard the notation, definition, and test guidance required to validate the specifications for wavefront and surface form. This includes calibration, uncertainty, and test setup. Such a standard would render obsolete 10110-5, -14 as well as 14999-3, -4, and -5.

The decision, again led by the US, to eliminate Method II from ISO 10110-7 is significant. Method II is based on a special measurement tool which is described in the appendix to 10110-7, however the information provided is not sufficient to construct such a tool, and there are no such commercially available tools in the US, or possibly in the world. As far as the committee is aware, there are no examples of this standard being used in commercial transactions in the world. Further, this method cannot be used for surface imperfections in optical assemblies, which is now part of the work scope of 10110-7.

Current TAG actions required:

1) The US delegation is responsible for beginning preparatory work for a new project to re-write ISO 10110-8. ASC/OP observer Peter Takacs will lead the project, which will revise -8 to allow better notations for specification of mid-spatial frequency surface ripple. This is expected to result in changes in the notation for spatial frequency limits as well as notation for 1D and 2D PSD.

2) The US delegation will also begin a NWP for re-writing ISO 10110-6 based on the work of Harvey Pollicove in 2003. US Expert Walt Czajkowski will lead the project.

3) The US delegation is responsible for proposing a language for notation of slope tolerance for ISO 10110-12. US HOD Dave Aikens will propose such language to the project leader.

4) US representatives must be identified to serve in SC1/WG4 as well as for the TC172 project for a "reference dictionary".

Other notes:

The US should continue its activist role in SC1, by offering work items, and extensive comments on CD's especially. Our previous strategy of obstructionism was not as successful as our current approach. We should also begin offering ASC/OP standards and other work items which serve the US industry for consideration as ISO standards. Finally, we should work actively to



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reverse an SC1 decision from more than 10 years ago which requires the separation of the notation and metrology standards.

ISO/WD 25297, also called NODIF, being developed as an optical equivalent of ISO 10303 "step" for "stepping out" optical information for transfer into CAD programs, has proceeded to the CD level, and will likely be approved for DIS. The US has not participated in this effort, led by the Japanese Delegation. The US delegation must review this document to determine if there is a commercial impact of the standard. No current US Delegation experts, or ASC/OP experts, are qualified to comment on this document. The HOD and the ANSI OEOSC Executive Director will begin research to find an expert.

ISO/CD 23584, properties dictionary, is an enormous undertaking which, if it is ever achieved, could be as important as the formation of ISO itself. This ambitious project intends to define all of the properties associated with every optics device and component, and to identify the attributes of each property. This would be used to create an enormous, searchable database like some sort of grand, unified product standard, complete with commercial information such as price and lead-time. Again, there is no US participation. The CD has been elevated to the TC 172 level. HOD will contact TC172 TAG chairman to identify an expert who can represent the US in further discussions.

# ISO TC172/SC3 Optical Materials and Components, Activity for 2006

Prepared by Gordon Boulton, January 10, 2007

There were no SC3 meetings in 2006.

The SC 3 secretariat was reallocated from AFNOR (France) to JISC (Japan).

N139 dated 9/30/2006 was a vote on a request from the SC3 chairperson to the member bodies to reduce the required number of P-members for acceptance of new work item proposals from 5 to 4 for SC 3. The US voted to agree.

## WG1 – Raw optical glass

DATE	TITLE	TYPE	STATUS
10/15/2006	N140. ISO/WD Specification of raw optical glass (to replace ISO 12123)	WD	Ballot due 1/16/2007. No inputs received.

## WG2 – Coatings

Revision of ISO 9211-4, Optical coatings – Part 4: Specific test methods, was completed and published. Revisions included a crosshatch adhesion test; additional degrees of severity for solubility; and a normative annex for preparing the cheesecloth pad for moderate abrasion testing.

Revision of ISO 9211-3, Optical coatings – Part 3: Environmental durability, has been revised and edited by the convenor (Boulton) and JISC per member body inputs on the CD. The revision was completed in December 2006 and it will be circulated as a DIS in 2007.

DATE	TITLE	TYPE	STATUS
10/30/2006	N141. NWIP to revise ISO 9211-1, Optical coatings—Part 1: Definitions	NWIP	Ballot due 1/16/2007. No inputs received.
10/30/2006	N142. NWIP to revise ISO 9211-2, Optical coatings—Part 1: Optical properties	NWIP	Ballot due 1/16/2007. No inputs received.

JISC has proposed a SC 3 meeting in Kyoto, Japan in the fall of 2007. No other details are available at this time.

# ISO/TC 172/SC4, Telescopic Systems

## Annual Report for 2006

Prepared by Chung-Chieh Cheng

- The standard for Night Vision Devices is the area of focus in 2006.
- The working group meeting of ISO/TC 172/SC 4/WG5 on “Night Vision Devices” was held in Baden, Switzerland, from April 24 to 25, 2006. The United States was represented with two delegates, Dr. Chung-Chieh Cheng and Mr. Morris Bierig. The report of the meeting is available on the website of the OEOSC.
- Summary of the report:
  - 1) ISO/WD 14490-8.2 Optics and photonics -- Test methods for telescopic systems -- Part 8: Test methods for night vision devices:
    - \* The correlated color temperature of the source of radiation is discussed and agreed upon.
    - \* Test methods for exit pupil and eye relief are amended based upon the standard DIN 58388.
    - \* Methods for measuring “working resolution” and “range of vision” are amended.
    - \* The working draft would be revised and issued as a committee draft for circulation.
  - 2) ISO/DIS 21094 Optics and photonics -- Telescopic systems -- Specifications for night vision devices:
    - \* A new work item is proposed for high performance instruments, in addition to general purpose instruments.
    - \* The revised manuscript would be submitted to ISO/CS for official circulation.
  - 3) ISO/DIS 14132-5 Optics and photonics -- Vocabulary for telescopic systems -- Part 5: Terms for night vision devices
    - \* The definition of “range of vision” is revised.
    - \* Notes are added to include the resolution for an object at finite distance.
    - \* The revised manuscript would be sent to AFNOR for translation into French and submitted to ISO/CS for official circulation.

## **ISO/TC 172/SC 5, Microscopy and Endoscopes, Activity for 2006**

SC 5 met in New York City, October 10-13 2006.

Attending for the US Delegation was Lee Shuett, US TAG SC5 Leader; Gerd Weigert Carl Zeiss Micro-imaging; George Steares consultant; Bill Fester, Olympus America; Dr. D Barlow, Olympus America and M J Cornelius FDA.

Other countries represented were Great Britain, Germany, Japan, China and Switzerland. P-Members not represented in the meeting: Austria (ON), Romania (ASRO), Russian Federation (GOST R), Republic of Korea.

Members of the first plenary meeting held October 10<sup>th</sup> discussed future work items including four standards scheduled for review that P members wish to review. These are:

### **ISO 8038-2:2001 Screw threads for microscope objectives and related nosepieces - Part 2: Screw thread type M25 X 0,75 mm (N 392, N 400)**

As a conclusion from the 2006 systematic review the Sub-committee decided that ISO 8038-2:2001 shall be revised. The new project was attributed to WG 9. The Japanese delegation will nominate a project leader for this revision. WG 9 shall consider a merger with ISO 8038-1. However, it was mentioned that in the sense of standardization not too many threads shall be drawn up. WG 9 shall consider this fact too. As a target date for a first working document 2007-03-01 is envisaged.

**Resolution NYC 101/2006**

### **ISO 8255-1:1986 Microscopes - Cover glasses - Part 1: Dimensional tolerances, thickness and optical properties (N 394, N 402)**

Conclusion: The US delegation will invite Schott, Corning and Fisher to nominate experts for this project group. Yeung will invite Chinese manufacturers to give input for this project. The PG shall prepare a first draft by 2007-02-01.

**Resolution NYC 102/2006**

### **ISO 9344:1996 Microscopes - Graticules for eyepieces (N 396, N 404)**

As a conclusion from the 2006 systematic review the Sub-committee decided that ISO 9344:1996 shall be revised. The new project was attributed to WG 9. The Japanese delegation will nominate a project leader for this revision. As a target date for a first working document 2007-01-01 is envisaged.

**Resolution NYC 103/2006**

### **ISO 10935:1996 Microscopes - Interfacing connection type C (N 398, N 406)**

As a conclusion from the 2006 systematic review the Sub-committee decided that ISO 10935:1996 shall be revised. The new project was attributed to WG 3. The Japanese delegation volunteered to make a first working draft prior to the next meeting of WG 3.

**Resolution NYC 104/2006**

### **Need for reactivation or creation of new WGs**

This agenda item featured a delegation wise performed brainstorming session for new areas and topics of possible future standards. All delegations were free to propose any item which they think to be worth for drawing up new standards.

Six new items were brought forward and were then ranked by giving points from the different delegations. Three of those new items have received points and were therewith judged with some priority. Three of those items did not receive any points and were listed for being kept under surveillance at future meetings.

During the discussions on the three accepted new items the following was resolved:

#### **Establishment of ad hoc group "Basic requirements for microscopes"**

The Subcommittee decided to set up an ad hoc group under the convenership of Thomas Bocher. A project leader from Germany will be appointed.

**Resolution NYC 105/2006**

#### **Establishment of ad hoc group "Advanced methods of light microscopy"**

The Subcommittee decided to set up an ad hoc group under the convenership of Lee Shuett. A project leader from Germany will be appointed.

**Resolution NYC 106/2006**

#### **New project concerning requirements for application related spectral transmission; classification of spectral transmission of objectives**

**Resolution NYC 107/2006**

Reports from the attending Working Groups are as follows:

#### **WG 3 "Terms and definitions"**

Report on the working group meeting and confirmation of results

Lee Shuett (on behalf of the absent convener Peter Evennett) gave a report on the WG 3 meeting in New York, where 16 experts from 5 countries attended. The following conclusions and recommendations by the WG were adopted by the Subcommittee:

#### Further processing of item WI 10934-2:

It was reported that the comments to the DIS were deliberated deeply and detailed at the meeting of WG 3 and was released by WG 3 for launching FDIS.

**Resolution NYC 108/2006**

The Subcommittee unanimously agreed to move the task of contribution to the reference dictionary to WG 3. Mr Baur will report to the WG 3 on how to access the database and the method of inclusion of SC 5- content.

**Resolution NYC 109/2006**

The project for revision of ISO 10935:1996 was attributed to WG 3 (see agenda item 5.1). The Japanese delegation volunteered to make a first working draft prior to the next meeting of WG 3.

### **Resolution NYC 104/2006**

#### **WG 6 "Endoscopes"**

Report on the working group meeting and confirmation of results Yutaka Otani gave the report on the WG 6 meeting (a written report is available as a separate WG 6. Yutaka Otani furthermore reported that WG 6 is currently considering several items on a sophisticated level for possible future work. These topics include "Terms and definitions of flexible endotherapy devices", "Terms and definitions of rigid endoscopic endotherapy devices" and "Reprocessing and maintenance requirements".

Discussions continued the following topics:

**1) revised WI 'Terms and definitions of flexible endotherapy devices',**

Document ISO/TC 172/SC 5/WG 6 N 62, N 66, N 70, N 77 and 10 October 2006 document from JNC. By 30 April 2007 – these will then be considered by the Japanese NC before subsequent circulation of the revised document, in draft Technical Report format, as a formal New Work

**2) Discussion on NWIP 'Reprocessing and maintenance requirements'**

**3) Proposal for revision of ISO 8600-1 (Japan)**

Document ISO/TC 172/SC 5/WG 6 N 81: Mr Ogasawara introduced this topic, explaining that during the translation of ISO 8600-1:2005 into JIS T1553:2005, comments were made relating to the detail of the wording in several clauses. The document N 81 had therefore been distributed for discussion at this meeting.

**4) Discussion of progress on Luer Connectors - Status of work in CEN BT/TF 123**

Documents ISO/TC 172/SC 5/WG 6 N 72 and N 73 Mr Gray updated the meeting on progress in CEN BT TF123 relating to the restriction of Luer connectors to vascular and hypodermic applications.

**5) 10.1 Status of revised IEC 60601-2-18, Particular standard for the safety of endoscopic equipment**

#### **WG 8 "Immersion media for light microscopy"**

Report on the working group meeting and confirmation of results

Thomas Bocher gave a report on the status of WG 8. Since ISO 8036 was published in May 2006, WG 8 has fulfilled its task and will be dormant until the standard is to be reviewed or other items are allocated to WG 8.

#### **WG 9 "Optical performance of microscope components"**

Report on the working group meeting and confirmation of results

Kimiaki Yamamoto gave a report on the WG 9 meeting (a written report is available as a separate WG 9 document). The following conclusions and recommendations by the WG were adopted by the Subcommittee:

Further processing of item WI 19012-1:

It was reported that the comments to the DIS were deliberated deeply and detailed at the meeting of WG 9. On recommendation by WG 9, the Subcommittee decided to submit the draft, as modified by the project leader, Kimiaki Yamamoto, in accordance with the decisions agreed at the WG 9 meeting as FDIS for formal vote. As a target date for completion of the FDIS manuscript and its submission to ISO CS 2006-11-30 was envisaged.

**Resolution NYC 110/2006**

A future Part 2 "Chromatic correction, Minimum specifications" of ISO 19012 was under discussion in WG 9 and was felt now to be mature enough for launching a new work item proposal. ISO/TC 172/SC 5 Report meeting New York City/USA, On recommendation by WG 9 the Subcommittee decided to release the working draft, as modified by WG 9 at the meeting, as a new work item proposal with associated draft. The associated draft shall be proposed for immediate submission as a CD. The project leader, Kimiaki Yamamoto, will send the manuscript to the subcommittee secretariat. The secretary is committed to the target date 2007-02-01 for circulation of the new work item proposal.

**Resolution NYC 111/2006**

**WG 10 "Microscope digital image data"**

Report on the working group meeting and confirmation of results  
Lee Shuett, acting convener, gave a report on the WG 10 meeting held in New York. After much discussion at the WG 10 meeting it was decided after a report of the German delegation, that there is no possibility to get consensus of attending delegations to proceed with this work so the meeting was adjourned. Since resolution 94/2004 (Berlin) has upgraded the former provisional WG X to a permanent WG 10, it was decided that WG 10 shall stay for possible future actions on this issue.  
After all WGs gave their reports, the chairman thanked the conveners and secretariats for their work during the last reporting period.

**Resolution NYC 112/2006**

**Status report on revisions to current Standards**

**ISO 11884-1 "Minimum requirements for stereomicroscopes – Part 1:**

**Stereomicroscopes for general use"**

**ISO 11884-2 "Minimum requirements for stereomicroscopes – Part 2: High performance microscopes"**

**Status report on five-years-revisions**

**ISO 10936-1:2000 - Operation microscopes - Part 1: Requirements and test methods**

**ISO 10937:2000 - Microscopes - Diameter of interchangeable eyepieces**

**ISO 15227:2000 - Microscopes - Testing of stereomicroscopes**

**Requirements concerning a subsequent meeting**

The chairman informed about an invitation from the Chinese delegation to hold the next meeting session of SC 5 on 2007-10-23/26 in Xiamen/China. Richard Yeung kindly invited the subcommittee to his place (Motic Company) and volunteered to provide details about public transport, hotels etc. in due time before the meeting.

Respectfully Submitted

Lee C. Shuett  
US TAG SC-5 Leader  
January 17, 2007

**ISO/TC 172/SC 6 2006 Annual Report**  
**Fundamental Standards**

Charles Fronczek

Not available

January 12, 2007

**ISO/TC 172/SC 7 Ophthalmic Optics**

**Annual Report for 2006**

Prepared by

Charles Campbell, SC7 US Delegation Leader

ISO/TC172/SC7 and its associated working groups met in Baden, Switzerland on April 24 to 28, 2006. 30 experts from the United States attended the meeting.

Of particular note, organizationally, was the creation of a new working group within SC7 called Devices for the Dioptric Power Measurement of Lenses and designated Working Group 10 (WG10). The convener for this new working group is Ms. LiRu Wang of China.

There was also a meeting of ISO/TC172 held in conjunction with the SC7 meeting at which the main topic of discussion was the issue of encouraging national standardization bodies to adopt International Standards directly as their national standards. A letter had been sent to the ISO Central Secretariat from SC7 to inquire as to ISO policy on this issue and a response received. Quite a number of the SC7 delegations were outraged by the response of the Central Secretariat as, in their opinion, it did not firmly support the view that national bodies should be very strongly encouraged, or perhaps required, to adopt ISO standards as issued as national standards. There was a resolution adopted to draft a letter, to be signed by all delegation leaders, to the Central Secretariat expressing this view. The letter has been drafted and circulated to various member countries. The United States does support this view however and did not sign the letter. We are of the opinion that the response of the Central Secretariat was a balanced one with which we concur. In the field of Ophthalmic Standards we in the United States (ASC Z80) find that issued International Standard do not fully meet the requirements nor receive consensus support from our national members. Therefore, although in general we agree with the substance of the various International Standards in our field, we think it best to create national standards that are not identical with International Standards in all respects but which have the support of interested bodies in the United States.

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) – 5

WG3 – 1

WG6 – 2

WG7 – 2

CD (committee drafts) - 9

WG3 – 1, disagree - 1

WG6 5, agree – 4/3 with comment, disagree - 1

WG7 agree – 1

WG9 disagree - 2

DIS (draft international standard) – 5

WG3 agree - 2

WG6 agree –2/1 with comment

WG7 1 - agree with comment

FDIS (final draft international standard) - 16

WG3 agree – 1

WG6 agree – 4

WG7 agree – 6

WG8 agree – 1

WG9 agree - 4

Systematic 5-year review – 8

WG6 – 2

WG7 – 1

WG9 – 2

Technical reports

WG2 –1

WG6 - 1

It can be seen that the work of SC7 in 2006 includes work at the end of the standardization cycle with many standards in FDIS stage and more work at the beginning of the cycle in the CD stage than there was in 2005. Much of the work in the CD stage results from existing standards that are under revision.

WG3 – The major issue being addressed by WG3 is the standardization of finished spectacle lenses. The United States has had for years a standard for these in ANSI Z80.1 but this has never before been addressed by other countries. As a result the United States finds that the proposed requirements are not completely satisfactory and voted against both of the initial drafts in this area.

WG6 – Much of the revision of existing standards was finished in 2006. 4 revised standards were published by year end. Major work on the Fundamental Standard for

Ophthalmic Instruments was completed by year end. This is important as the other instrument standards refer to this two part document.

WG7 – 7 International Standards relating to intraocular lenses, which were created by WG7 were published in 2006. They are 7 of the parts of the overall International intraocular lens standard, ISO 11979.

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

During 2006, 19 new International Standards originating in SC7 were published. They came from the following working groups.

WG3 - 3  
WG6 - 4  
WG7 - 7  
WG8 - 1  
WG9 - 4

In addition one technical report was published, created by WG7.

The next meeting of ISO/TC172/SC7 will be held from October 29 to November 2, 2007 in Tokyo, Japan.

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

**Annual Report for 2006**

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 Boulder, Colorado, USA on June 28-30, 2006. The meeting was hosted by the National Institute of Standards and Technology (NIST). The following US members were in attendance: R. Faaland (US Delegation Leader), T. Lieb (IEC/TC 76 liaison), C. Camelio, M. Dowell, L. Endelman, and J. Guttman.

The following SC 9 developed standards were published in 2006:

1. ISO 11145:2006 – *Optics and photonics – Lasers and laser-related equipment – Vocabulary and symbols (3<sup>rd</sup> edition)* [published May 1, 2006]
2. ISO 11254-3:2006 – *Lasers and laser-related equipment – Determination of laser-induced damage threshold of optical surfaces – Part 3: Assurance of laser power (energy) handling capabilities* [published September 1, 2006]
3. ISO 11554:2006 – *Optics and photonics – Lasers and laser-related equipment – Test methods for laser beam power, energy and temporal characteristics (3<sup>rd</sup> edition)* [published May 1, 2006]
4. ISO 13697:2006 – *Optics and photonics – Lasers and laser-related equipment – Test methods for specular reflectance and regular transmittance of optical laser components* [published May 1, 2006]
5. ISO 14880-2:2006 – *Optics and photonics - Microlens arrays – Part 2: Test methods for wavefront aberrations* [published February 1, 2006]
6. ISO 14880-3:2006 – *Optics and photonics – Microlens arrays – Part 3: Test methods for optical properties other than wavefront aberrations* [published June 1, 2006]
7. ISO 14880-4:2006 – *Optics and photonics – Microlens arrays – Part 4: Test methods for geometrical properties* [published June 1, 2006]

8. ISO 24013:2006 – *Optics and photonics – Lasers and laser-related equipment – Measurement of phase retardation of optical components for polarized laser radiation* [published November 15, 2006]

The following SC 9 developed standards were the subject of a systematic review:

1. ISO 11807-1:2001: *Integrated optics – Vocabulary – Part 1: Basic terms and symbols*. Standard was confirmed.
2. ISO 11807-2:2001: *Integrated optics – Vocabulary – Part 2: Terms used in classification*. Standard was confirmed.
3. ISO 14880-1:2001: *Microlens arrays – Part 1: Vocabulary*. Standard was confirmed. However, WG 7 was encouraged to investigate proposals for revision including revision of the definitions of microlens and microlens array to reflect current uses and to incorporate corrections of Corrigendum 1 and Corrigendum 2 as well as to align Part 1 with recently published Part 2, Part 3 and Part 4 of the ISO 14880 series.
4. ISO 14881:2001: *Integrated optics – Interfaces – Parameters relevant to coupling properties*. Standard was confirmed.
5. ISO/TR 11552:1997 (confirmed: 2001): *Lasers and laser-related equipment – Laser materials-processing machines – Performance specifications and benchmarks for cutting of metals*. Standard was confirmed. (Germany recommended that the document be upgraded to an International Standard due to a distinct market relevance.)

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

1. New Work Item Proposal (NWIP): Revision and restructure of the ISO 11254 series (resulting in an ISO 21254 series): *Lasers and laser-related equipment – Test methods for laser radiation-induced damage threshold – Part 1: Definitions and general principles; Part 2: Threshold determination; Part 3: Assurance of laser power (energy) handling capabilities*. Voting will terminate on February 3, 2007.
2. NWIP for Amendment 1 to ISO 11553-1:2005: *Safety of machinery – Laser processing machines – Part 1: General safety requirements*. Voting which terminated on May 10, 2006 approved addition to program of work. [Note – at the Boulder meeting, it was decided that instead of an amendment to Part 1, there would be a new Part 3 document.]
3. FDIS 11553-2: *Safety of machinery – Laser processing machines – Part 2: Safety requirements for hand-held laser processing devices*. Voting will terminate on January 16, 2007.
4. DIS 11810-2, *Lasers and laser-related equipment – Test method and classification for the laser resistance of surgical drapes and/or patient protective covers – Part 2: Secondary ignition*. Voting on the DIS manuscript, which terminated on April 10, 2006, approved the issuance of an FDIS. However, the FDIS manuscript has not yet been circulated.

5. NWIP: ISO 11990-2: *Lasers and laser-related equipment – Determination of laser resistance of tracheal tubes – Part 2: Tracheal tube cuffs*. Voting terminated on December 14, 2006.
6. NWIP: ISO 14880-5: *Optics and photonics – Microlens arrays – Part 5: Guidance on testing*. Voting, which terminated on June 6, 2006, approved addition of project to program of work. [Note – at the Boulder meeting, it was clarified that this document will be a Technical Report.]

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

1. Item 11146 series, *Lasers and laser-related equipment – Test methods for laser beam widths, divergence angles and beam propagation ratios*: It was agreed to issue new work item proposals to start a revision of the three parts of the ISO 11146 series.
2. Item 11254 series, *Lasers and laser-related equipment – Determination of laser-induced damage threshold of optical surfaces*: In consideration of resolution 347 (London 15) and the recommendations of WG 6, it was agreed to issue new work item proposals for the revision and restructure of the 11254 series for parts 1 to 3 as follows: *Part 1: Definitions and general principles*; *Part 2: Threshold determination*; *Part 3: Assurance of laser power (energy) handling capabilities*. The standards will be published under the ISO number 21254. Furthermore, it was decided to develop a part 4 as a Technical Report (English only): *ISO/TR 21254-4 - Lasers and laser-related equipment – Determination of laser-induced damage threshold of optical surfaces – Part 4: Inspection, detection and measurement*.
3. Item 11553-1, *Safety of machinery – Laser processing machines – Part 1: General safety requirements (Amendment 1 to ISO 11553-1:2005)*: It was decided that the approved NWIP for an Amendment 1 to ISO 11553-1:2000 shall result in a Part 3 of the dual logo ISO/IEC 11553 instead of an Amendment of Part 1, in order to allow a better accomplishment of the noise requirements of the EU and of the semiconductor industry. The title of ISO project 11553-3 shall read: *Safety of machinery – Laser processing machines – Part 3: Requirements for noise hazards*.
4. Item 11553-2, *Safety of machinery – Laser processing machines – Part 2: Safety requirements for hand-held and hand-operated machines*: An amended FDIS manuscript (resolving the negative assessments of the CEN Consultants for machinery and noise) is to be submitted to SC 9 members for voting and comment.
5. Item 11810-2, *Lasers and laser-related equipment – Test method and classification for the laser resistance of surgical drapes and/or patient protective covers – Part 2: Secondary ignition*: An FDIS manuscript is to be submitted to SC 9 members for voting and comment.
6. Item 11990-2, *Optics and photonics – Lasers and laser-related equipment – Part 2: Determination of laser resistance of tracheal tube cuffs*: It was agreed to issue a new work item proposal for a part 2 of ISO 11990 in order to specify a test

- method for the determination of the laser resistance of tracheal tube cuffs.
7. Item 12005, *Lasers and laser-related equipment – Test methods for laser beam parameters – Polarization*: It was agreed to issue a new work item proposal to investigate the need for a revision of ISO 12005:2000.
  8. Item 13694, *Optics and optical instruments – Lasers and laser-related equipment – Test methods for laser beam power (energy) density distribution*: It was agreed to refrain from revising ISO 13694:2000 and to keep the determination of 'goodness of fit' deleted from the document as per Technical Corrigendum 1:2005-11 to ISO 13694:2000.
  9. Item 14880-1, *Optics and photonics – Microlens arrays – Part 1: Vocabulary*: It was agreed to issue a new work item proposal for a revision of ISO 14880-1:2001 in order to deal with the comments from Japan and USA listed in document N 306 (Report of systematic review) and in order to incorporate Technical Corrections 1 and 2 into the standard. The work item shall be registered as a preliminary work item (stage 00.20) in the work program of SC 9 and a new work item proposal will be circulated for vote after availability of a working draft.
  10. Item 14880-5, *Optics and photonics – Microlens arrays – Part 5: Guidance on testing*: It was recognized that New Work Item Proposal N 299 for a part 5 of the ISO 14880 series was intended to introduce a project aiming to a Technical Report instead of an International Standard into the work program of SC 9. Further, due to the positive vote of a majority of the P-members (N 309), SC 9 is to request that the ISO Central Secretariat register work item ISO/TR 14880-5 *Optics and photonics – Microlens arrays – Part 5: Guidance on testing*.

SC 9 continues in its intention to contribute to the ISO/TC 172 Online Properties Dictionary (approved ISO/TC 172 Work Item 23584). Initially, the Secretariat will upload standardized terminology from ISO 11145 (*Optics and optical instruments – Lasers and laser-related equipment – Vocabulary and symbols*), ISO 11807-1 (*Integrated optics – Vocabulary – Part 1: Basic terms and symbols*) and -2 (*Integrated optics – Vocabulary – Part 2: Terms used in classification*), ISO 14880-1 (*Optics and photonics – Microlens arrays – Part 1: Vocabulary*), ISO 15367-1 (*Lasers and laser-related equipment – Test methods for determination of the shape of a laser beam wavefront – Part 1: Terminology and fundamental aspects*), and ISO 15902 (*Optics and photonics – Diffractive optics – Vocabulary*) to the ISO/TC 172 properties server. Additional terms, definitions and contributions will follow.

It is with deep regret that the US Delegation to ISO/TC 172/SC 9 notes the passing of Dr. Gerald Wolf and the passing of Dr. Jay Sommers. Gerry and Jay had been valued members of WG 4, contributing to WG 4 – developed standards applicable to laser systems for medical applications. Gerry served for many years as the Convener of WG 4 and Jay frequently volunteered to record the minutes of WG 4 meetings. Their participation in the deliberations of WG 4 will be missed.

The next meeting of ISO/TC 172/SC 9 will be held in 2 years at the latest. Working groups may meet separately and earlier, if required. The secretariat was requested to investigate with the WG conveners whether there was the need for a meeting before the 2 year period.