

**DRAFT MINUTES OF THE 15th PLENARY MEETING OF
ISO/TC 108/SC 5
Charlottenlund, DK
2009-06-15 and 06-19**

1. Opening of the meeting

Mr. Mathew opened the meeting at 9 00h and welcomed the delegates. He introduced Mr. Leif Nielsen from Danish Standards who organized the meeting.

2. Greeting from Host

Mr. Nielsen welcomed the delegates and gave a brief introduction to DS and the building. He outlined the plans for the week including plans for meals, coffee breaks and the social event.

3. Roll call of delegates

The delegates introduced themselves. Prior to the meeting, the list of delegates registered as of 2009-06-03 was circulated as document number **ISO/TC 108/SC 5 N391**. The attendance list for the opening and closing plenary meetings is given at the end of this document.

4. Adoption of the agenda

The draft agenda, document number **ISO/TC 108/SC 5 N385**, was approved.

5. Appointment of the drafting committee

The French delegation waived the preparation of resolutions in French. Mr. Mills volunteered to work with the Secretary on the preparation of the resolutions.

6. Approval of the minutes of the 14th plenary meeting of ISO/TC 108/ SC 5 held in Kyoto, JP

The minutes of the Kyoto meeting given in document number **ISO/TC 108/SC 5 N361** were approved without change.

7. Comments from the Chairman

Mr. Mathew thanked the delegates for coming to the meeting and thanked Mr. Nielsen and Danish Standards for extending their hospitality. He commented on the success of the training series of standards (ISO 18436) and noted as well that some WGs have projects that have languished over the years, especially WG 4 and WG 10. He urged the delegates to work to bring those projects to completion.

Mr. Mathew also discussed the need to promote the work done in SC 5. He suggested that the delegates obtain copies of the SC 5 standards and take the opportunity to promote their use within their own professional networks.

Finally, Mr. Mathew invited everyone to attend the AG E meeting to discuss their views on the issues facing the SC and visions for the future of the SC. He invited anyone wishing to discuss a specific proposal to prepare a short presentation for the AG E meeting.

8. Report of the Secretariat

The report of the Secretariat, given in document number **ISO/TC 108/SC 5 N383**, and the status of the work program, given in **ISO/TC 108/SC 5 N384**, were reviewed. The results of the actions resulting from the Kyoto resolutions were reviewed. Some of the resolutions had not been completed and the reasons were noted. The Secretary presented a report on ISO news which was circulated subsequent to the meeting as document **ISO/TC 108/SC 5 N392**.

The Secretary advised the delegates that ISO has a marketing form to be used when a document is believed to be of special interest. There was some discussion in regard to the issue of marketing and promotion. Mr. Hitchcock suggested that ISO add online tool in a public area (perhaps in the online store) to encourage end-user feedback on each standard. The thinking was that many users have opinions about the standards they purchase and use but do not have a relationship with their national member bodies and may not go to the effort to find and establish a link with them. It was also suggested that users would not necessarily go to the trouble of tracking down the committee secretariat unless the problem is very severe.

Mr. Vendittis suggested that ISO undertake a marketing survey along the lines of e-mail surveys done by hotels shortly after the hotel stay is completed. The idea would be to get direct input from users, not filtered through the MBs, shortly after the standard was purchased.

It was also suggested that ISO should add text to the Foreword inviting comments and responses. For example where the Foreword currently says "ISO 18436-7 was prepared by Technical Committee ISO/TC 108, Mechanical vibration, shock and condition monitoring, Subcommittee SC 5, Condition monitoring and diagnostics of machines", an additional sentence should be added along the lines of "Comments and suggestions to improve this standard are welcome. Submit your feedback to the secretariat at <e-mail address>." The Secretary was asked to contact the ISO/CS to determine if there is any objection to editing the boilerplate text for SC 5 documents. Alternatively, it was suggested that the SC could decide to add this to the Introduction.

The ISO marketing form was also discussed. The Secretary was asked to find out if the ISO marketing department would undertake a marketing effort focused on raising awareness of the work of a committee rather than just on the end product, i.e., a particular standard. Likewise, there was renewed discussion of the need for an informational document related to the ISO 18436 series and the question was asked if ISO would help market this even though it will not be a typical deliverable.

[Secretariat's note: These questions were forwarded to SC 5's TPM on 2009-06-15 and ISO is taking them under consideration.]

9. Reports of Liaison Officers

9.1. ISO/TC67 (ANSI) Materials equipment and offshore structures for the Petroleum and natural gas industries – M. White

Mr. White was not present and did not submit a report.

9.2. ISO/TC 135 (JISC) Non-destructive testing – D. Henning

9.3. ISO/TC 135/SC 7 Personnel qualification – D. Henning

9.4. ISO/TC 135/SC 8 Infrared thermography for non-destructive testing – D. Henning

9.5. ISO/TC 135/SC 9 Acoustic emission testing – D. Henning

Mr. Henning was not present at the opening plenary when these reports were given and did not submit a written report. It was noted that this TC has established a new WG on conformity assessment in qualification of personnel.

9.6. ISO/TC 184 (AFNOR) Industrial automation systems integration – K. Bever

Mr. Bever gave a brief oral update on the activities of ISO/TC 184 and in particular TC 184/SC 5. They have established a new task force on Manufacturing Asset Management Integration that may be of interest to some in TC 108/SC 5 and Mr. Bever indicated that he will prepare a written report for later circulation in TC 108/SC 5.

9.7. ISO/TC 192 (ANSI) Gas turbines – S.R.W. Mills

Mr. Mills reported that ISO 19820 has recently been confirmed, and there is currently no other work of mutual interest between TC 192 and TC 108/SC 5.

9.8. IEC/TC 2 (BSI) Rotating machinery – F. Duffeau & A.J.M. Cardoso

Mr. Cardoso reported that IEC/TC 2 has completed work on its Technical Specification IEC TS 60034-24: *Rotating electrical machines – Part 24: Online detection and diagnosis of potential failures at the active parts of rotating electrical machines and of bearing currents - Application guide*. He expressed concerns about this document and suggested that the only way forward would be to establish the long-awaited JWG. It appears that TC 2 is agreeable to this proposal now. The relationship between TC 108/SC 5 and IEC/TC 2 was discussed in more detail under the report of WG 10.

9.9. IEC/TC 14 (BSI) Power Transformers – A.J.M. Cardoso

Mr. Cardoso stated that there is no activity in regard to this liaison at this point. TC 14 is not working on any documents with condition monitoring in their scope and the WG 10 project on CM of power transformers is still a PWI.

Mr. Cardoso noted that IEEE is very active in online monitoring of power transformers and suggested that a liaison be established with the relevant IEEE committee.

9.10. IEC/TC 56 (BSI) Reliability – K. Culverson

Mr. Culverson reported that he has been reviewing TC 56 documents, which are primarily modelling methods. He reported that a vocabulary document was recently reverted to stage 0.

9.11. IEC/TC 88, Wind turbines – S-G Lee

Mr. Lee reported that he has been in regular communication with IEC/TC 88 since the Kyoto meeting. They are currently not working on any document that falls within the scope of SC 5.

Mr. Vendittis reminded SC 5 that TC 88 uses a different data format than that used in SC 5 which could present problems for a standard on CM of wind turbines.

9.12. CEN/TC 138 Non-destructive testing – D. Henning

Mr. Henning was not present at the opening plenary when the liaison reports were given and did not submit a written report.

10. Reports from the ISO/TC 108/SC 5 Working Groups and Advisory Groups

10.1. AGA – Vibration condition monitoring procedures and instrumentation used for the purposes of diagnostics – J. Niemkiewicz, USA

Mr. Niemkiewicz was not present and it was agreed to cancel the planned meeting of AG A. There was a question about Mr. Niemkiewicz's plans regarding future participation in SC 2 and SC 5 and the Secretary was asked to discuss it with him. In the event that he will not be participating in the future, Mr. Taddeo, who participates in both SCs, agreed to convene the AG.

10.2. AGE – Long range planning for SC 5 – J. Mathew, SC 5 Chair

Mr. Mathew convened AG E immediately prior to the SC 5 closing plenary to allow open discussion of ideas and concerns and plans for the future of the SC. In keeping with the history of the Advisory Group, no minutes are maintained. No resolutions were adopted. A brief summary of the topics of discussion is provided here.

Mr. Taddeo gave a presentation on the proposal for TC 108 reorganization made by the Chairman of ISO/TC 108, at the TC meeting in St. Louis, MO, USA in November 2008. Details about this proposal are available in document **ISO/TC 108 N 1005**, which may be requested from the Secretariat.

The proliferation of new professional societies and meetings was discussed. Members expressed concern to plan future SC 5 meetings so as not to conflict with other important meetings. This is

especially difficult since SC 5's scope covers several different technical areas such as tribology and thermal imaging. Mr. Mathew advised the members of a new Australian Asset Management Collaborative Group. Mr. Roe announced that BINDT is establishing an International Society for Condition Monitoring. Mr. Hess noted the newly formed Prognostics and Health Management Society. The Secretary offered to maintain a page in the public portion of SC 5's ISO Livelink page that would list meetings of interest to the CM community. Members are invited to submit listings. This page will only contain information submitted by the SC 5 community.

[Secretariat's note: This spreadsheet can be found on Livelink, in folder "01. Public information" at <http://isotc.iso.org/livelink/livelink?func=ll&objId=101128&objAction=browse&sort=name>]

10.3. AGG – Wind turbines – S-G Lee, KR

Mr. Lee reported that AG G met and discussed the issue of beginning work on equipment-based standards. To date, the work of the SC has primarily been on high level standards that are relevant to a wide variety of machines. Initiating a working group for a specific type of machine would be a significant change in approach. It was pointed out that this could bring in some representation of the OEM community. The discussion also encompassed including sector-based standards such as marine sector, utilities, oil and mining, aerospace. Some felt this may make more sense, especially as relates to training and qualification documents. BINDT is planning to embark soon on a training series focused on the needs of the marine sector. The need to avoid encroaching on the scope of other TCs was discussed. The idea of expanding the scope of the AG to encompass renewable energy was also discussed. In that case, it was proposed, the wind turbine project could be one part of a larger series of standards.

In the end, AG G recommended that the AG be converted to a Working Group which would give it more visibility among the MBs and help attract the necessary experts to the table. AG G also recommends that a PWI be established with the title "Condition monitoring and diagnostics of wind turbines." **Resolution 18/2009 was approved.**

10.4. WG1 – Terminology – K. Culverson, USA

Mr. Culverson reported that WG 1 met and reviewed the comments received on NP 13372. Mr. Culverson will prepare an updated draft by 2009-07-31 for WG review with the goal of submitting it to the Secretariat by the end of August for a 2 month CD ballot. **Resolution 1/2009 was approved.**

10.5. WG2 – Data interpretation and diagnostics techniques – R. Chevalier, France

Mr. Chevalier reported that WG 2 met and discussed the comments on CD 13379-1. The WG recommends that the revised draft resulting from this discussion be submitted to ISO/CS for voting as a DIS. **Resolution 2/2009 was approved.**

WG 2 further recommends that Parts 2 and 3 of the series be reversed since they anticipate working on the data-driven applications next. Thus the new titles will be:

- PWI 13379-2 *Condition monitoring and diagnostics of machines – Data interpretation and diagnostics techniques – Part 2: Data-driven applications*
- PWI 13379-3 *Condition monitoring and diagnostics of machines – Data interpretation and diagnostics techniques – Part 3: Knowledge-based applications.*

Resolution 3/2009 was approved.

In line with the above, Mr. Chevalier suggested that the SC approve the issuance of a new work item proposal as soon as the WG completes its review of the draft. **Resolution 4/2009 was approved.**

10.6. WG4 – Tribology-based monitoring and diagnostics – L. Hitchcock, AU

Mr. Hitchcock reported that WG 4 met and discussed the comments on DIS 18436-5 and prepared the FDIS for submission to the ISO/CS for voting. **Resolution 5/2009 was approved.**

WG4 also continued discussions on PWI 14830-1. A draft has been supplied to the Secretary for circulation as a new work item proposal. **Resolution 6/2009 was approved.**

The secretary noted that PWI 14830-1 is designated as Part 1 but there is currently no PWI for Part 2. Mr. Hitchcock explained that the title for Part 2 is "Wear debris analysis." It was agreed to establish the PWI so that this will be on the record. **Resolution 7/2009 was approved.**

WG 4 intends to hold an interim meeting at a time and location to be determined.

10.7. WG5 – Prognostics – A. Hess, USA

Mr. Hess reported that WG 5 met and continued discussions on PWI 13381-1. He plans to have a draft ready for NP ballot by the end of January 2010. **Resolution 8/2009 was approved.**

Going forward, the WG anticipates working on Parts 2 and 3 simultaneously with Neil Eklund (US) as Project Leader for Part 2 and Hugo Pfortner (Germany) as Project Leader for Part 3. Subsequently, Kai Goebel (US) will serve as Project Leader for Part 4. Discussion on Part 5 (validation and certification) will be deferred.

10.8. WG6 – Formats and methods for communicating, presenting and displaying relevant information and data – K. Bever, USA

Mr. Bever reported that Mr. Narasimhan would no longer be able to serve as Project Leader for ISO 13374-3 so he will take on this task. The WG met in Charlottenlund and discussed revisions to NP 13374-3. Mr. Bever will update the document as discussed by the WG and submit it for voting as a CD. **Resolution 9/2009 was approved.**

WG 6 also recommends that SC 5 establish a PWI for Part 4 of the ISO 13374 series with the part title "Presentation." **Resolution 10/2009 was approved.**

10.9. WG7 – Training and accreditation in the field of condition monitoring and diagnostics of machines – R. Eshleman, USA

Mr. Eshleman was not present at this meeting and Mr. Culverson served as acting convenor. The meeting was originally scheduled for ½ day but because of extensive comments on CD 18436-2 additional time was required and the meeting was extended to a full day.

The WG discussed comments on NP 18436-1 in detail. Mr. Culverson will update the document according to that discussion and circulate the revised draft to the entire WG for review before submitting it to the Secretariat for a 2 month CD ballot. **Resolution 11/2009 was approved.**

The WG also discussed comments on CD 18436-2 in detail. Because of the significant change to the vibration analyst training programme proposed by the UK, the UK delegates were asked to prepare an alternate draft for WG review and further revision. If the WG agrees to the proposed revisions, the document will be circulated as a 2nd CD with a 3 month voting period. **Resolution 12/2009 was approved.**

There was not time to discuss the status of the informational document and no draft was available before the meeting. Ms. Jamieson agreed to prepare a draft for WG review before the end of the year. **Resolution 13/2009 was approved.**

10.10. WG8 – Condition monitoring and diagnostics of machines – S.R.W. Mills, UK

Mr. Mills reported that CD 17359 had been approved unanimously. The WG met and reviewed the comments and made revisions to the draft accordingly. Mr. Mills will update the draft and submit it to the Secretariat by the end of August for DIS voting. **Resolution 14/2009 was approved.**

10.11. WG10 – Condition monitoring and diagnostics of electrical equipment – A.M Cardoso, Portugal

Mr. Cardoso was not present at the closing plenary. The minutes of the WG meeting were reviewed and discussed. WG 10 discussed the previously-approved work item 20958-1 which was reverted to Stage 0 in Kyoto. In light of the WG discussion, it was agreed to reinstate this work item. A roll call vote was taken and all nine of the countries present at the closing plenary approved reinstating the work item. Five countries nominated experts, either the same person who had been named previously or another expert. Mr. Cardoso was named to continue as convenor. **Resolution 15/2009 was approved.**

There was detailed discussion of the future relationship with IEC/TC 2. It was decided to invite IEC/TC 2 to participate in the development of AWI 20858-1 either under a JWG under the convenorship of Mr. Cardoso with SC 5 as administrative lead or through the existing liaison. **Resolution 16/2009 was approved.**

10.12. WG11 – Thermal imaging – L. Hitchcock, Australia

Mr. Hitchcock reported that WG 11 discussed PWI 18434-2, which is still in the early stage of development. They trimmed the table of contents and drafted the body of the standard. They are working on obtaining the images and case histories, which is expected to take some time. As with Part 1, this document must be produced in colour. At this point, WG 11 recommends maintaining PWI 18434-2 at Stage 0. WG 11 intends to hold an interim meeting at a date and location to be determined.

10.13. WG14 – Acoustic techniques – D. Mba, UK

WG 14 did not meet in Charlottenlund and has no current work programme.

10.14. WG15 – Ultrasonics – M. Goodman, USA

Mr. Goodman reported that WG 15 met but had an unfortunately small attendance because of the extension of the WG 7 meeting, which created a conflict for some WG members. The WG members who were present reviewed the comments on CD 29821-2 and revised the draft. Mr. Goodman recommends that the revised draft be submitted for DIS voting as soon as possible since this work item is on the ISO critical list because it has passed the target date for the DIS. **Resolution 19/2009 was approved.**

Mr. Goodman recommended that SC 5 approve the circulation of a new work item proposal ballot on PWI 18436-8 by 2010-01-31. **Resolution 17/2009 was approved.**

WG 15 intends to hold an interim meeting at a date and location to be determined.

11. Result of 2008 Systematic Review

The result of the 2008 Systematic Review of ISO 13374-1:2003 *Condition monitoring and diagnostics of machines – Data processing, communication and presentation – Part 1: General guidelines*, given in document ISO/TC 108/SC 5 N360, was confirmed. **Resolution 21/2009 was approved.**

12. Consideration of Preliminary Work Items on the SC 5 Work Programme

The preliminary work items were reviewed and the **resolution 21/2009 was approved**, maintaining the following at Stage 0:

PWI 13379-3 *Condition monitoring and diagnostics of machines – Data interpretation and diagnostics techniques – Part 3: Knowledge based applications*

PWI 13381-2 *Condition monitoring and diagnostics of machines – Prognostics – Part 2: Performance based approaches*

PWI 13381-3 *Condition monitoring and diagnostics of machines – Prognostics – Part 3: Cyclic-driven life usage techniques*

PWI 13381-4 *Condition monitoring and diagnostics of machines – Prognostics – Part 4: Useful-life-remaining prediction models*

PWI 18436-9 *Condition monitoring and diagnostics of machines – Requirements for qualification and assessment of personnel – Part 9: Condition monitoring specialists*

PWI 20958-2 *Condition monitoring and diagnostics of machines – Electrical signature analysis – Part 2: Power transformers*

PWI 27045 *Condition monitoring and diagnostics of machines – Thermal imaging vocabulary*

PWI 29821-2 *Condition monitoring and diagnostics of machines – Ultrasound – Part 2: Procedures and validation.*

13. Consideration of any work items not considered elsewhere on which no progress is being made

All work items were discussed. The progress of each work item was covered in the WG report.

14. Working groups to be disbanded

No WG were disbanded. AG G was converted to a WG.

15. Proposals for future work

Several topics for future work were mentioned, including thermodynamic performance monitoring, water current turbine monitoring, turbo-machinery monitoring, and blade health monitoring. No specific proposals were made at this time.

16. Plans for the next meeting

The Secretary explained that at the TC 108 meeting in St. Louis there was discussion about the possibility of arranging a meeting of the entire TC. Unfortunately, at this time no offer to host such a meeting has been confirmed. Some possibilities have been explored but have not worked out. It was agreed that if a plan for a whole-TC meeting could not be finalized quickly plans would be made for an independent SC 5 meeting. Mr. Chevalier extended the invitation to meet at EDF. The Secretary and Chairman will work together to set a date and location at the earliest possible opportunity.

17. Other business

Mr. Vendittis raised the question of how to proceed when there exist International Standards that are in conflict and either or both may be applicable. This is something that will require more detailed discussion.

During the week of the meeting SC 5 was invited to submit an article for the November issue of ISO Focus which is devoted to training and competence. Ms. Jamieson, Mr. Mills, and Mr. Hitchcock agreed to work on this jointly with Mr. Eshleman, who was not present but on the belief he would agree to do so.

18. Approval of resolutions

The resolutions given in document number **ISO/TC 108/SC 5 N395** were read and discussed individually and approved unanimously. Upon approval, the document was posted on the Livelink site.

19. Close of the meeting

There being no additional business to discuss, the meeting was closed at 14 00 h, with thanks to the hosts (see **resolution 22/2009**).

Respectfully submitted,
Susan Blaeser
Secretary, ISO/TC 108/SC 5

Attendance at the 15th plenary meeting of ISO/TC 108/SC 5 held in Charlottenlund, DK 2009-06-15 and 06-19					
Country	Chief Delegate	Surname	Given Name	2009-06-15	2009-06-19
Chair, ISO/TC108/SC 5		Mathew	Joseph	X	X
AUSTRALIA	X	Hitchcock	Leith	X	X
AUSTRALIA		Jamieson	Suzy	X	X
AUSTRALIA		Ma	Lin		X
AUSTRALIA		Stumptner	Markus	X	X
CANADA	X	Robichaud	Michael	X	X
CANADA		Balhaddad	Abdullah	X	
CZECH REPUBLIC	X	Svoboda	Jiri	X	X
DENMARK	X	Hastings	Mike		X
DENMARK		Dossing	Ole	X	
DENMARK		Jensen	Richard	X	
DENMARK		Nysted	Henrik	X	X
DENMARK		Nielsen	Leif	X	X
FRANCE	X	Chevalier	Roger	X	X
FRANCE		Provost	Daniel	X	X
GERMANY		Kunze	Ulrich	X	
GERMANY		Pfoertner	Hugo	X	X
GERMANY		Kolerus	Josef		X
GERMANY		Henning	Dietmar		X
KOREA	X	Choi	Byoung-nam	X	X
KOREA		Lee	Sang-Guk	X	X
PORTUGAL	X	Cardoso	Antonio J. M.	X	
SWEDEN	X	Noremark	Anders	X	
SWEDEN		Larsson	Bjorn	X	
UK	X	Mills	Simon	X	X
UK		Hubbard	Andrew	X	
UK		Roe	Stephen	X	X
US	X	Vendittis	David	X	X
US		Bever	Kenneth	X	X
US		Culverson	Kenneth	X	X
US		Goodman	Mark	X	X
US		Hess	Andrew		X
US		Orlove	Gary	X	
US		Taddeo	Richard	X	X
Secretary, SC 5		Blaeser	Susan	X	X

P members not represented at this meeting: China (SAC), Egypt (EOS), Finland (SFS), , Ireland (NSAI), Japan (JISC), Nigeria (SON), Norway (SN), Russian Federation (GOST R), Switzerland (SNV),