

Reported by (Name):	Wesley Culberson
Organization:	University of Wisconsin – Madison
Position Title:	Assistant Professor Research Director of the UWMRRC
Activity:	IEC subcommittee 62C Working Group 3 meeting
Meeting Dates:	June 25-26, 2015
Meeting Location:	Stockholm, Sweden
Payment \$:	(see below)
Reasons for Attending or not Attending	I am a technical expert on radiation dosimetry representing the interests of the AAPM and am a member of the AAPM Working Group for IEC (WGIEC).
Issues from Previous Meetings or Year:	A number of radiation dosimetry standards were discussed at the previous meeting in Austin, TX (2014). The outstanding issues are detailed in the attached meeting agenda. Well chamber calibrations were a large part of the discussion. Also the inclusion of diodes in RT as a new performance standard were discussed.
General Description of Activities of the Organization and/or Meeting:	The IEC sets performance and safety standards for manufacturers of equipment being used in radiation therapy. Working Group 3 deals specifically with the radiation dosimetry standards. Constant work is required to ensure the best safety for our AAPM members as well as the most accurate deliveries of dose to the patients in radiation therapy.
Issues for AAPM:	Incorporation of diodes as standard dosimeters in radiation therapy, accurate calibrations of well chambers, and inclusion of international standard beams in therapeutic x-ray therapies.
Budget Request (\$):	Total reimbursement request for 2015= \$2,423.48

MEETING OF SC62C WG 3, 25th and 26th June 2015

To be held in Stockholm, Sweden
Local organizer: Tomas Bengtsson (member of WG 3)

Meeting room:
SEK Svensk Elstandard
Room "Omega 1"
Kistagången 16
164 29 Kista

Agenda

Time schedule:

Thursday, June 25, 1:00 p.m. – 5:00 p.m.
Friday, June 26, 9:00 a.m. – 5:00 p.m.

PRELIMINARY AGENDA (VERSION 2015-03-23)

1. Opening of the Meeting
2. Approval of the Agenda
3. Confirmation of the minutes of the meeting held in Austin, July 2014
4. Report of
 - Secretary of SC62C
 - Convenor to WG3
5. Revision of IEC 61267 "Medical diagnostic X-ray equipment – Radiation conditions for use in the determination of characteristics"
 - a) Stability date was 2014. Group decided on revision. Review Report (RR) circulated.
 - b) First suggestions for the revision (Ludwig)
 - c) Decide on next steps
6. IEC 62467-1 Edition 1.0 2009-06 "Medical electrical equipment - Dosimetric instruments as used in brachytherapy – Part 1: Instruments based on well-type ionization chambers"
 - a) Stability date is 2015. Review given by Larry and Wes.
 - b) Decide on next steps. *OK ✓*
7. IEC 61676 Edition 1.1 2009-01: "Medical electrical equipment – Dosimetric instruments used for non-invasive measurement of X-ray tube voltage in diagnostic radiology"
 - a) Stability date is 2015. Review prepared by Ludwig.
 - b) Decide on next steps. *Diodes used here*
8. Revision of IEC 60580: "Medical electrical equipment – Dose area product meters"
 - a) The aim is to finish a CD of the revision (based on WD prepared by Doug)
 - b) Decide on next steps.
9. IEC 60731: "Medical electrical equipment - Dosimeters with ionization chambers as used in radiotherapy"
 - a) Voting Result on 62C/596A/CDV (closing date was 2014-12-05): approved
 - b) Discuss comments (Doug, Wes and Edmund)
 - c) Decide on FDIS

Split into Chamber + diodes

10. NWIP “Therapy radiation qualities”

Status report (Ludwig)

11. Further work, any other business and place and date of the next meeting

12. Close of the meeting



INTERNATIONAL ELECTROTECHNICAL COMMISSION

MEETING OF WG3 OF SC62C, 24th and 25th July 2014

InterContinental Stephen F. Austin Hotel, Capital Ballroom A,
701 Congress Avenue Austin, Texas 78701
Thursday, July 24, 1:00 p.m. – 5:00 p.m.
Friday, July 25, 9:00 a.m. – 2:00 p.m.

UNCONFIRMED MINUTES

The meeting was opened on Thursday, July 24, 1:00 p.m. and closed on Friday, July 25, 2:00 p.m.

Participants:

- Ludwig Büermann (Convenor)
- Claus-Peter Hoepfner (Secretary)
- Thomas Bengston
- Edmund Schüle
- Hans-Joachim Selbach
- Doug Pfeiffer
- Paul Sunde
- Larry De Weerd

Guest:

- Wes Culberson

1 Opening of the Meeting

The convenor welcomed the participants. There were no apologies for absence although only 7 of 28 members were present. In the invitation to the next meeting the convenor will please all members to send apologies for absence if they are not able to participate. This is necessary for the organisational logistics.

Wes Culberson participated as a guest for the first time. Larry De Weerd informed the group that he decided to resign as a member and that Wes will become a future member. Nevertheless Larry intends to participate in future meetings as a guest.

2 Approval of the Agenda

The agenda was approved except for topic 8 which was decided to be discussed after topic 5.

3 Confirmation of the minutes of the meeting held in Freiburg, June 2013

The minutes of the last meeting in Freiburg were confirmed.

4 Report of

a) Secretary of SC62C

Claus-Peter reported from the TC62 meeting in Shanghai. An interesting new work item proposal on 4 D radiotherapy was submitted by the Japanese National Committee and discussed during the SC62C plenary meeting in Shanghai. More information is given in the document 62C/559A/INF. There was a discussion whether this complex safety standard would require an additional working group (WG 4). Looking on the IEC Website it is obvious that within SC 62 C it was decided not to open a new working group but to establish a project team PT 62926 with the title: *"PT within WG1: Medical electrical equipment – Requirements of safety and performance of complex real-time controlled radiotherapy systems for a moving target"* and the task to develop a safety standard for complex real-time-controllend radiotherapy systems for a moving target.

Further, there was a discussion on the new scope of TC 62, now reading:

To prepare international standards and other publications concerning electrical equipment, electrical systems and software used in healthcare and their effects on patients, operators, other persons and the environment

Now the scope contains the word "software". This initiated discussions in the other working groups of 62 C and so this was also discussed within WG3 about the scope, which ended in the following proposal (new contents are red marked):

Proposed Scope for SC62C

The preparation of standards for the safety and performance of medical equipment and systems using ionising radiation for the treatment of disease; associated equipment and software used in planning, delivering and monitoring such treatments;

instruments measuring ionising radiation used in the diagnosis and treatment of disease as well as radiation conditions for testing them;

and nuclear medicine equipment used for imaging the distribution of radioactive substances within the human body for both diagnostic purposes and radionuclide therapies

Paul Sunde informed the group that in future the FDA will adopt IEC standards directly. This puts even more importance on those standards.

b) Convenor to WG3

The convenor presented a list of all current members and of all standards maintained in WG 3 and their stability dates (see appendix). One standard, the IEC 61267 Edition 2.0 2005-11-09 has reached its stability date this year (2014). This standard is already under review by the group (see top 7). Four standards will reach their stability date next year (2015):

1. IEC 60580 Edition 2.0 2000-01-14
2. IEC 60731 Edition 3.0 2011-02-25
3. IEC 61676 Edition 1.1 2009-01-26
4. IEC 62467-1 Edition 1.0 2009-06-09

The first two of these standards are already under discussion within the group (see tops 5 and 6). IEC 61676 will be reviewed by Ludwig until the next meeting. It was already discussed whether the practical peak voltage (ppV) is still needed and what would be the consequences if this quantity would no longer be in use. IEC 62467-1 will be reviewed by Larry and Wes until the next meeting. Based on these review results it will be decided whether these two standards can be reconfirmed, withdrawn, replaced by a revised edition or amended. Formally this will be done by a review report (RR).

5 IEC 60731: "Medical electrical equipment - Dosimeters with ionization chambers as used in radiotherapy"

Short history: During the Freiburg meeting in 2013 the group agreed on the amendmend drafted by Edmund to be the group's CDV for the amendment. The following steps were done to follow the IEC procedure:

The Questionnaire (62C/578/Q) on the preparation of an Amendment to IEC 60731 Ed.3.0 was circulated to the NCs in 2013-10-11. Results of the questionnaire (62C/583/RQ) were obtained until 2013-11-22. The P-Members of SC 62C approved the proposal. This positive vote initialized the following action: A maintenance project amending IEC 60731 Ed.3.0 will be established in order to reference the

Amendment 1 to IEC 60731 Ed.3.0. There were some extended comments from Sweden which were discussed during this meeting.

To open the project the Review Report (62C_584_RR) stating that "the publication is to be amended and will be included in the work programme" was circulated in 2013-12-20. The proposed target date for the CDV was 2014-04. However, due to a longer period of disease of our secretary there was a delay in circulating the CDV. This will now be done soon after the meeting by Claus-Peter.

The main comment from Sweden was:

"Not only ion chambers are in use as dosimeters in radiotherapy. Today, there are dosimeters used in radiotherapy that are NOT covered by this standard or any other standard. This situation is not satisfactory."

Consequently, they suggest:

"Include other types of dosimeters in the document".

The members of WG 3 discussed this issue. The opinion was that in current absolute reference dosimetry for therapy only ionisation chambers are in use. Other detectors (e.g. solid state based detectors, alanine or diamond detectors) are only used for relative measurements, e.g. in small fields or in other radiation fields under non-reference conditions. It was decided not to address this point within the framework of the current amendment to the IEC 60731 Ed.3.0 but possibly in a further separate standard. A working group consisting of Doug, Wes and Edmund will prepare suggestions until the next WG 3 meeting in 2015.

Claus-Peter will report this answer of the group to the Swedish NC.

6 Revision of IEC 60580: "Medical electrical equipment – Dose area product meters"

Doug posted a revised working draft (WD) of this standard to the collaboration tool in November 2013 which contained the results of the discussions in Freiburg. This WD was discussed again during this meeting. Results of this discussion will be worked into the document by Doug and posted to the collaboration tool after the meeting for further comments of the members.

The stability date of this standard is 2015. Following IEC procedures, the next step is to issue a review report (RR) stating that the publication is to be revised. It was agreed that the group aims at a Committee Draft (CD) at the next meeting. To achieve this goal all members are asked to post their comments to the collaboration tool as soon as the new working draft is available but at least about 3 months before the next meeting!

7 Revision of IEC 61267 "Medical diagnostic X-ray equipment – Radiation conditions for use in the determination of characteristics"

Ludwig presented a comprehensive table with reference radiation qualities as used in mammography. A new characterization was proposed. The filtration now includes 0.1 mm of Aluminum to account for the paddle. The group agreed with the new proposal. Next it was discussed whether this standard should simply be amended or revised. The group agreed on the necessity of revision of the whole standard because not only mammography qualities need to be considered. Ludwig will review the whole standard and will make suggestions for a revised version until the next meeting.

Formally, the stability date of this publication is 2014. Therefore it is necessary to issue a review report (RR) with the result that this publication needs a revision. The RR will be drafted by Ludwig and officially issued by Claus-Peter soon after this meeting.

8 NWIP "Therapy radiation qualities"

This project was initialized by a current European Metrology Research Project running from May 2012 until May 2015 summarized in:

http://www.euramet.org/fileadmin/docs/EMRP/JRP/JRP_Summaries_2011/Health_JRPs/HLT09_Publishable_JRP_Summary.pdf

Among other goals, in work package 1 (WP 1) this project is aimed at the development and comparison of new primary standards for the absorbed dose to water at medium-energy x-rays. Further, guidelines for updating the dosimetry protocol based on absorbed dose to water primary standards will be proposed. Within WP 1 a list of the radiation qualities used for radiotherapy was established based on the 39

answers received from the end users. The evaluation of this list will support the definition of reference radiation qualities and beam qualifiers.

Ludwig will evaluate those results and will prepare suggestions for reference radiation qualities and beam qualifiers for possible a new IEC standard. Formally, to start a new project, the IEC form "New Work Item Proposal (NP)" must be drafted and issued. This will be done by Ludwig and Claus-Peter soon after this meeting.

9 Further work, any other business and place and date of the next meeting

The next meeting will be held in 2015, June 25-26, in Stockholm.

10 Close of the meeting

The convenor thanked all participants for their very engaged discussions and special work on several standards, in particular Doug for his work on IEC 60580. A special thank was given to Paul and Doug for organizing and sponsoring the beautiful meeting room and the communicative dinner in the Mexican Restaurant. The meeting was closed at 2 p.m.

Braunschweig, 21.08.2014
Ludwig Büermann
SC62C/WG3, Convenor

Appendix: List of WG3 members and standards

Appendix

List of members of IEC SC 62C WG 3 (2014-06)

Member	Mr Ricardo Amorim Barbosa	BR
Member	Mr Tomas Bengtsson	SE
Member	Mr Hans Bjerke	NO
Member	Mr Francois Bochud	CH
Member	Mr Daniel Alexandre Baptista Bonifácio	BR
Member	Mr Márcio Bottaro	BR
Convenor	Mr Ludwig Büermann	DE
Member	Ms Lidia Vasconcellos de Sá	BR
Member	Mr Larry Dewerd	US
Member	Ms Clare Grehofsky	US
Member	Mr Lars Herrnsdorf	SE
Member	Mr Yuichi HIRATA	JP
Member	Mr Takayuki Kuwahara	JP
Member	Mr William Maloney	US
Member	Mr Homero Lavieri Martins	BR
Member	Mr Brian McAuliffe	IE
Member	Mr José Carlos Teixeira Barros Moraes	BR
Member	Mrs Pirunthavany Muthuvelu	MY
Member	Ms Michelle O'Brien	US
Member	Mr Douglas Pfeiffer	US
Member	Mr Carl Ross	CA
Member	Ms Anna Russo	IT
Member	Mr Edmund Schüle	DE
Member	Mr Bernd Seidel	DE
Member	Mr Hans-Joachim Selbach	DE
Member	Mr Ralph E Shuping	US
Member	Mr Paul Sunde	US
Member	Mr Bill Zimmermann	US

All standards currently maintained by WG 3:

Current (07-2014) edition	Title	Stability date	Comment
IEC 60580 Edition 2.0 2000-01-14	Medical electrical equipment - Dose area product meters	2015	Revision Ed. 3.0 in progr. CD Austin 2014
IEC 60731 Edition 3.0 2011-02-25	Medical electrical equipment - Dosimeters with ionization chambers as used in radiotherapy	2015	Amendment 1 in progress
IEC 61267 Edition 2.0 2005-11-09	Medical diagnostic X-ray equipment - Radiation conditions for use in the determination of characteristics	2014	Add Mammo- Qualities?
IEC 61674 Edition 2.0 2012-11-29	Medical electrical equipment - Dosimeters with ionization chambers and/or semiconductor detectors as used in X-ray diagnostic imaging	2019	
IEC 61676 Edition 1.1 2009-01-26	Medical electrical equipment - Dosimetric instruments used for non-invasive measurement of X-ray tube voltage in diagnostic radiology	2015	
IEC 62467-1 Edition 1.0 2009-06-09	Medical electrical equipment - Dosimetric instruments as used in brachytherapy - Part 1: Instruments based on well-type ionization chambers	2015	
NWIP	Radiation qualities for use in x-ray therapy		Discussion Austin 2014