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Annual General Meeting

Monday September 8 1997

5-30 - 6-30pm

Balcony Room, Hilton International Hotel

Guest speaker - Tony Carlisle

The AGM will be held at the end of the first day of PERMIT 97 and prior to the conference welcome reception. The meeting will commence at 5-30pm sharp to enable proceedings to be complete by 6-30. Following the business part of the meeting, Tony Carlisle from BME department at Flinders Medical Centre will be giving a presentation covering his experiences while working in Saudi Arabia last year. You will find this a very interesting talk as Tony reveals the problems encountered in Biomedical Engineering there, as well as life in general in a culture very different from our own.

Why not come to our AGM an hour earlier. The substantial trade display at PERMIT97 will be open until 5-30.

PERMIT □ 97

The annual conference is now only two weeks away. You would all have received some information in the post by now including a registration form. Of course you would all have registered by now ! If not , there is still time so check out all the latest , including the program , at the conference web site. You can print an application form to send off. Web address <http://www.camtech.net.au/~plevin/permit.html>

The program is very full and covers a large range of interesting topics. In keeping with the theme there are several innovative sessions including teleconferencing and telemedicine sessions.

A number of excellent keynote speakers have been arranged as well as invited speakers and many excellent proffered papers.

The social program , cocktail reception and dinner , will again be a highlight as has been the case will all Adelaide conferences.

So get those registrations in , a range of registrations are available , and take advantage of having such a high calibre conference here in Adelaide.

If you need more information contact the secretariat on Telephone 8379 8222 Facsimile 8379 8177

Email plevin@camtech.net.au

ANNUAL GENERAL MEETING

One of the items on the agenda for the AGM is the election of office bearers. This year the positions of Vice President , Treasurer and two councillors will be vacated. If you wish to be on the council , or know someone who would like to be , please complete the nomination form at the end of this newsletter and send to the address given before COB on Friday 5 September.

This is your Society , so have a say in how it is run.

INTERNET AND EMAIL

John Kirby has been working hard setting up our very own web page. It is very close to being ready and will include our constitution , notice of meetings , newsletters , and links to other interesting sites. More details as they become available.

While on the subject of web sites , check out the WA SMBE site at http://www.wt.com.au/~SMBE_WA/index.html.

This site has been set up by Chris Dickmann of Fremantle Hospital.

Several newsletters ago I raised the issue of distributing the newsletter by EMAIL. I had little response then so I am bringing it up again. This has the potential to save some money plus a few trees. I know not everyone will have access to EMAIL but a large percentage of members will have. If you are interested in trying the EMAIL system out please give me a call or send me an EMAIL at swoolre@rgh.sa.gov.au . If there is enough interest I will try it next newsletter.

THE YEAR 2000 DATE ISSUE AKA THE MILLENNIUM BUG

The Year 2000 date issue is a world wide problem that concerns computer hardware and software which treat the date wherever used , stored or incremented as a two digit number , ie. 97 instead of 1997. The problem is that when the clock strikes midnight on 31 December 1999 and the new millennium begins any personal computer , embedded microcomputer or computer program running on a mainframe may not function correctly or predictably.

The use of a two digit number was mandated in early computer systems with limited memory and processing power in order to save on these valuable resources. Those programmers and designers who realised that their hardware or software may have problems when the date changed from a 19 prefix to a 20 prefix at midnight on 31 December 1999 either thought there would be no problem or rationalised that their equipment or programs would be obsolete and replaced by then. It did not occur to others!

The scope of the problem is that there are millions of computers in the world running countless applications which have the possibility of crashing. The world-wide estimate for fixing the problem runs into billions of dollars. The New South Wales Department of Health estimates that

somewhere between \$28M and \$44M will be required to fix the systems and computers under its control. In health , medical equipment based on microprocessors , large scale software for patient accounting/billing/reporting (so called legacy systems) , building management systems , PABXs , laboratory systems and security systems are under the microscope as possible problems.

In New South Wales , in 1996 , the Public Works Department was given the responsibility of coordinating an estimate of the cost of the Year 2000 issue to Government. The Health Department commissioned a consultant to report on potential problems in the health system. The consultants conducted testing and cataloguing of equipment and systems at pilot sites in Sydney and elicited responses from the Area Health Services with regards local equipment. The result was the estimate above. In response to the consultants report a Statewide Year 2000 Date Issue Steering Committee was setup to coordinate the Department response.

The Statewide Committee has requested all Area Health Services to setup Year 2000 working parties to identify local equipment and systems and to coordinate an education campaign for staff. In the Hunter Area Health Service based around Newcastle , NSW , a working party was setup in 1996 with a project officer and membership from the disciplines mentioned above. The working party has setup a database of equipment and systems and has written to vendors asking for information on whether the vendors system is Year 2000 Compliant and if not then what steps are being taken or can be taken to rectify the problem. A number of medical devices have been tested for compliance.

The Year 2000 Problem concerns not only large scale computer software involved in financial reporting , patient administration , reporting and billing , but smaller programs written on PCs which may be non-compliant and equipment medical and non-medical.

The clock is ticking away and fixes , upgrades or replacements for large software systems must be in place by 3rd Quarter 1998 to be implemented and tested in time before the clock strikes midnight on New Years Eve 1999.

Bruce Morrison

10 June 1997

Chairperson , National Panel on Clinical Engineering

Institution of Engineers Australia

AS3003 0.01 OHM EARTHING REQUIREMENT

At the last SMBE (NSW) Tech Training Seminar , one issue raised was the cost of installing CF areas. The discussion largely focused on the 0.01 ohm earthing requirement in AS3003 , the implementation of which is a major cost. Whilst there were many in favour of removing this requirement , some wanted a reason or rationale for the removal. Hopefully the following will help.

To recap , equipotential bonding of 0.01 ohm is used to minimise differences in earth potential's that could cause patient cardiac arrest in designated cardiac areas as a result of an earth fault.

There is no doubt that this could theoretically occur, given all the right conditions. But how likely are all the right conditions likely to occur at the same time?

To assess things I looked at the series of sub-events that would have to happen for the main event to occur, and assigned each with a conservative probability. It is then possible to calculate the overall probability , to give an idea of how likely the main event is.

In this case there is basically only three sub-events , but these are further broken down by having variable parameters , as shown in the brackets.

-the earth fault (frequency of occurrence , current level and duration)

-operator simultaneously touching earthed site and cardiac site:
e.g. via catheter (average daily duration of contact , area of contact , wetness of hands , □)

-ventricular fibrillation being induced (current level , duration)

Without going into details , I used some data from IEC601.1 (Appendix A-19), experiments on myself at 1V 50 Hz , plus some very conservative estimates. The resultant probability of all the necessary sub-events occurring at the same time in any one day was 0.00000003858 , which is not much more than the generally accepted figure for a snow balls chance in hell.

If this figure was accurate , then if there were 10,000 cardiac sites in Australia , each used 6 days a week; on average one patient in Australia would receive a serious shock every 26,000 years.

Of course , the figure is not accurate □ but keep in mind that the idea of this exercise is only to get an idea whether the occurrence is anywhere near likely.

To give some credibility , it should be possible for some biomed of other interested parties to perform their own event analysis (you can skip the self experiments □ it was a shock to find out that even 1v 50 Hz can pass high currents with sufficiently wet hands!). Although there are many factors , assume the worst case for the ones you can□t assess , and use conservative estimates for the others.

It may be possible to build a strong logical case for removing the 0.01 ohm requirement.

Peter Selvey

Testing & Certification Australia.

Note: I believe the relevant Standards Australia committee will be looking at this issue for the next revision of AS3003. There is also a breakfast session at Permit□97 on Thursday 11 September on this topic.

CONFERENCE CALENDAR

Sept 8th 1997 Annual Biomedical Engineering Conference, Adelaide, SA

Sept 14-19 1997 World Congress on Medical Physics and Biomedical Engineering, Nice, France

Information on the above are available from the editor or president.

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