

**INCOSE TECHNICAL BOARD**  
**LIAISON ADVISORY STATEMENTS**  
**(INCOSE-TA-2003-012-01)**

**Approved by the INCOSE Technical Board on February 10, 2004**

**A. Name of Liaison Effort** – INCOSE liaison effort to the IEEE Project 1583, Voting Equipment Standard; Project 1622, Voting Equipment EDI Standard; and parent committee SCC 38, Election System Engineering.

**B. INCOSE Liaison Representative** – Jerry Bauknight

**C. Point of contact and participants**

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**D. Description of proposed standard or liaison activity**

Project P1583 is charged with the development of a standard of requirements and evaluation methods for election voting equipment. The standard will provide technical specifications for electronic, mechanical, and human factors that can be used by manufacturers of voting machines or by those purchasing such machines.

Project P1622 will develop electronic data interchange formats to be used by components of the voting system for exchange of electronic data.

SCC 38 will produce an authoritative technical resource (i.e., set of standards) to provide a systems engineering approach in validating election system processes and implementing hardware and software systems. This effort will include technical requirements for these systems, testability for validating and calibrating such systems, and providing recommendations for validating alternate election systems and approaches. Examples of projects to be considered will include:

- Validation of election machine functioning
- Recommended maintenance of machine in service, during shipment, and in storage between uses
- Validation that vote was recorded correctly at the time of vote
- Guidance for valid system operation
- Associated and necessary system activities

**E. INCOSE's level of participation**

Project P1583 schedules meetings every other month on the average, and uses telephone conferences and electronic balloting as required. Meetings have been held in New York City, New York; Washington, D. C.; Austin, Texas; Denver,

Colorado; and other cities. The INCOSE representative participated in the New York meeting during 10-11 September 2002 and has voted in balloting online.

**F. Justification, including relevance to INCOSE and its members**

Refer to Sections D and E above. Also, consider the need in the world today for secure, reliable, economically affordable, and maintainable voting systems. Further, consider the problems that challenge such electronic voting systems, including mischievous hackers and especially terrorist organizations who would seek to corrupt the outcome of democratic elections. There are many problems to be solved as these systems are introduced around the world.

**G. Objectives satisfied or to be satisfied**

IEEE does significant business in the area of standards development. INCOSE should consider the value of continuing to be a part of the project P1583 effort to include:

- Perform as an active SE stakeholder with IEEE Standards Committee
- Influence the participation of working groups to help in this effort
- Work within anti-terrorism and anti-crime areas to help develop secure systems
- Continue to have INCOSE as a recognized resource for SE expertise and acknowledge INCOSE participation in IEEE Standards to which INCOSE contributes
- Continue to provide INCOSE a vote in IEEE Standards to which INCOSE contributes

**H. Dependencies, risks, and issues**

INCOSE needs to continue to be a part of the SE aspects of the P1583 effort, expanding our participation whenever possible. Currently, there is a high level of discussion with respect to software security and reliability in P1583; this type of discussion is going on in P1622 too, where INCOSE has no representation. Various viewpoints are argued between specialists (including many true experts) in the voting machine industry and academicians of the computer science variety. Also, there are a number of specialists from state and federal governments, as well as producers from Europe. The challenge to INCOSE would be formidable, even if we engaged some 6-7 working groups in these projects.

Dependencies and risks seem to be minimal, except that we are in need of much more extensive participation. Although this effort began three years ago, the issues are still there and still being discussed; draft version 5.0 is under review in this timeframe. The IEEE teams and committee people are quite cordial and helpful, and appreciate INCOSE's participation.

Although this project has been funded over the last two years, there has been no expenditure by the present representative. The budgeted amount for the P1583 liaison effort would have been sufficient to support several meetings each year.

**I. Anticipated schedule**

The next meeting for P1583 and P1622 is scheduled for 9-10 February 2004 in Piscataway, New Jersey (the IEEE Headquarters' location). Future meetings are planned as closing business in each meeting.

**J. Relationship to existing or planned collaborations or other standards activities**

IEEE has nearly 900 internationally renowned standards and is developing new ones all the time. INCOSE could plan to participate further in P1583 and P1622 work, and investigate participation in others as well.

**K. Relationship to INCOSE Technical Operating Plan, if any**

It is implied that this effort would enhance the INCOSE position as being the authoritative organization in the area of SE work.

**L. Expected duration of effort**

This effort continues until a finished set of standards is completed and put on sale by IEEE.

**M. INCOSE privileges and other benefits**

INCOSE gets to participate in a history-making engineering project. (There is a slight discount in price of standards if one is a member of IEEE.) INCOSE also gets a vote on the standards in which it participates.

**N. Draft joint working agreement (or plan for developing one)**

Such an agreement does not exist nor is there a plan to develop one.

**O. Key Issues and INCOSE Advisories**

Main issues involve the discussion and balloting on each section of the standards, as well as participating in special task groups. It is feasible to provide INCOSE advisories to the general membership. The INCOSE representative would be the person to do that task.

Many of these voting system issues are in the news on a frequent basis. For example, the San Jose Mercury News had an article in the 22 January 2004

newspaper: Scientists reported that the Pentagon's new internet-based voting system is vulnerable to tampering and should be shut down. The Secure Electronic Registration and Voting Experiment, or SERVE, was developed by the Accenture consulting firm for the Department of Defense. The Pentagon wanted an online system that could be used by U.S. military personnel and overseas civilians. The system will have its debut during a few primary elections and is expected to be used by up to 100,000 voters during the general elections. The field of electronic voting systems could be a great challenge to the INCOSE community!

Prepared by Jerry Bauknight, January 23, 2004

Approved by the INCOSE Technical Board William F. Mackey, Chairman

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