STRATEGIC POLICY STATEMENT

IEC/TC or SC	Secretariat	Date
56	United Kingdom	August 2004

Please ensure this form is annexed to the Report to the Standardization Management Board if it has been prepared during a meeting, or sent to the Central Office promptly after its contents have been agreed by the committee.

Title of TC
Dependability

A Background

Scope

To prepare international standards in the field of dependability, in all appropriate technological areas, including those not normally dealt with by IEC Technical Committees. Dependability describes the availability performance and its influencing factors: reliability performance, maintainability performance and maintenance support performance. The standards provide systematic methods and tools for the dependability assessment and management of equipment, services and systems throughout their life cycles.

The standards cover generic aspects on reliability and maintainability programme management, testing and analytical techniques, software and system dependability, life cycle costing, technical risk analysis and project risk management. This includes standards related to product issues from component reliability to guidance for engineering dependability of systems, standards related to process issues from technological risk analysis to integrated logistics support and standards related to management issues from dependability program management to managing for obsolescence.

The standards do not cover safety, although their application may raise safety-related issues. They may be applied to business risk analysis but these risk areas are not dealt with by TC 56.

Within ISO and IEC, TC 56 is classified as a horizontal Technical Committee.

Working Groups (WGs)

The four WGs perform a dual role: they constitute the four Maintenance Teams, and it is their responsibility to establish and manage Project Teams as required for specific tasks. The policy is to make increasing use of the confirmation and withdrawal options given in the maintenance procedure in order to save the available resources for responding to current needs.

WG 1, Dependability terminology

Terms of reference:
To produce terms and definitions related to TC 56 dependability standards. To review emerging projects and advise TC 56/WG Project Leaders on terminology and to define new terms for inclusion in IEC 60050-191, as appropriate.

To ensure that the terms defined clarify any linkages to terms used in other fields, particularly quality.

To identify terms that are influencing factors on systems dependability life cycle process.

To define terms that are applicable to systems and networks for dependability.

To liaise with other IEC terms and definitions TCs, as appropriate.

To maintain a work plan for the activities required by these terms of reference.

WG 2, Dependability techniques
Terms of reference:
To produce publications on dependability analysis and assessment techniques, as required, for approved New Work Item Proposals.

To produce and maintain a work plan for the publications being developed by WG 2 Project Teams, and to act as the Maintenance Team for published TC 56 dependability analysis and assessment technique standards.

To identify and recommend tools for the dependability analysis and assessment of components, systems and networks including tools for analysing technical risks. (To make recommendations, via TC 56, to national committees to ascertain the degree of support for such standards).

To identify and recommend dependability assurance techniques for components, equipment and systems including embedded software and COTS (Commercial Off The Shelf) items. (To make recommendations, via TC 56, to national committees to ascertain the degree of support for such standards).

WG 3, Dependability management
Terms of reference:
To produce dependability management publications, as required by approved New Work Item Proposals.

To produce and maintain a work plan for the publications being developed by WG 3 Project Teams, and to act as the Maintenance Team for published TC 56 dependability management standards.

To make recommendations to TC 56 on how to take into account the framework of the ISO/IEC management system standards.

To recommend tailoring guidelines for cost effective dependability programme implementation.

WG4, System aspects of dependability
Terms of reference:
To produce system dependability engineering publications, as required by approved New Work Item Proposals. Systems may include hardware and software, and may be affected by human factors. Systems may be simple or complex.

To produce and maintain a work plan for the publications being developed by WG 4 Project Teams, and to act as the Maintenance Team for published TC 56 system and software standards.

To address the relationships between dependability and integrity from a system perspective.

To recommend generic dependability characteristics and metrics for systems.

Advisory Groups
SAG: Strategic Advisory Group
The objective of the SAG members is to be advised on the requirements of National Committees and the TC 56 market, to enable them to plan the future work and activities of TC 56, so enabling a faster response to changing technology and business needs. This includes reviewing the TC 56 documentation structure to enhance the understanding and accessibility of TC 56 standards to those seeking dependability standards.

LAG: Legal Advisory Group
As many TC 56 standards are involved with generic dependability management and evaluation techniques, the legal implications need to be thoroughly understood and taken into account when the standards are written. It is the function of the Legal Advisory Group to assist the TC 56 Project Teams in this respect taking into consideration national and international legislation.

History
The committee was formed in 1965 as TC 56, Reliability and Maintainability, the title being changed to Dependability in 1989. In 1990, following consultations with ISO, it was agreed that the scope should no longer be limited to the electrotechnical field but should address generic dependability issues across all disciplines.

Publications
Number of publications – 50
Number of projects in development – 5 (new), 15 (maintenance work)
A complete list of current TC 56 publications is given at http://www.iec.ch/cgi-bin/procgi.pl/www/iecwww.p?wwwlang=e&wwwprog=TCpubs.p&committee=TC&number=56

Members
Number of P Members – 23
Australia, Austria, Belgium, Canada, China, Czech Republic, Denmark, Finland, France, Germany, Hungary, India, Israel, Italy, Japan, Poland, Republic of Korea, Romania, Russian Federation, Sweden, Switzerland, United Kingdom, USA

Number of O members – 10
Bulgaria, Croatia, Indonesia, Ireland, Netherlands, Norway, Serbia and Montenegro, Singapore, Spain, Ukraine.

An analysis of the participation of National Committees in the work of TC 56 is given in Annex 1.

Liaisons

IEC/TC 1	Terminology
IEC/TC 13	Equipment for electrical energy measurement and load control
IEC/TC 44	Safety of machinery – Electrotechnical aspects
IEC/TC 47	Semiconductor devices
IEC/TC 65	Industrial-process measurement and control
IEC/TC 104	Environmental conditions, classification and methods of test
IEC/TC 107	Process management for avionics
ISO/TC 69	Applications of statistical methods
ISO/TC 108/SC 5	Mechanical vibration and shock – Condition monitoring and diagnostics of machines
ISO/TC 176	Quality management and quality assurance
ISO/TC 199	Safety of machinery
ITU-T	International Telecommunication Union – Standardization Sector
JTC 1/SC 7	Information technology – Software and system engineering

B. Environment

B.1 Business environment

External environment
The world market place is changing dramatically and rapidly, and dependability objectives have become more generally understood and now more important for successful cooperation between organizations.

End-user demand for dependability and quality of service has been, and is still, increasing because customers have higher expectations concerning the dependability of products and they now include dependability criteria in the choice of a service or product.

TC 56 uses the best practice developed in different industries as a major input to achieve standards that are generic and not market specific.

TC 56 standards and their concepts may also be applicable to non-industrial areas.

TC 56 standards are influenced by the emerging environmental standards and legislation, ensuring that dependability does not contravene the requirements.

There are difficulties in obtaining a sufficient number of active experts for some of the project teams due to the worldwide economic climate. Increased support for the project teams that have limited life, i.e. the production of one standard only, would be welcomed.

Internal environment
A major key to the achievement of dependability is the need to ensure that all concerned in the design, development and use of products and services have a common understanding of the terms and definitions of dependability. This is increasingly important as businesses are increasingly using more subcontractors to produce items within a system. Similarly the methodology for achieving dependable products and services needs to be consistent across industry and industries hence TC 56 produces.

– Generic dependability standards developed for ease of integration into one overall management system;
– A limited but crucial set of business oriented dependability standards (IEC 60300 series) to help emerging business/industry sectors establish a common dependability culture;
– Non-prescriptive guidelines, Technical Reports, Technical Specifications and Publicly Available Specifications to support dependability programmes;
– A fundamental set of dependability principles, terms and definitions that can be easily understood and adapted for industry specific applications;

These publications encourage the use of a common dependability terminology through IEC 60050-191.

B.2 Market demand

Customers of published and future standards
Customers are those involved directly or indirectly in industry sectors, such as electronics, telecommunications, energy and electrical utilities, transportation, automotive, aerospace, chemical, medical devices, government agencies, educational institutions, customer support, which are concerned with dependability performance in their respective objectives, products and services.

The standards produced by TC 56 are applicable across both large and small companies, which deal with items ranging from components to systems. All future standards will take into account legal, environmental and safety requirements although TC 56 standards do not directly cover these aspects. (Where applicable, TC 56 standards refer to appropriate environmental and safety standards produced by other IEC/ISO committees).

TC 56 standards are horizontal standards, which should be referenced by both ISO and IEC Technical Committees, where appropriate. The committee, therefore, recognizes other ISO and IEC TCs as its customers and it is continually looking for more effective ways of making other committees aware of its publications.

Active representation
All of the business areas listed above are actively represented on TC 56. Further representation from other business sectors and from small and medium enterprises is encouraged. There have been difficulties in obtaining sufficient active experts for some of the Project Teams. Financial support would foster increased participation by experts.

The work load of TC 56 is being carried out effectively, but additional representation from existing P and O members would be welcomed as would membership of TC 56 by other IEC Technical Committee members, particularly those with whom TC 56 has liaison.

New and emerging technology-based organizations are also needed.

Use of TC 56 standards at regional/national level
TC 56 projects are parallel voted in Europe, unless CENELEC/SR 56 makes a recommendation to the contrary. TC 56 standards are generally recognized throughout the world by industries and the dependability community and have been implemented as national standards in many countries. Some standards that are specific to a narrow spectrum may not be so widely applied and TC 56 is continually reassessing its work programme to ensure that it meets the changing needs of industry.

Competing standards
There is no competing set of dependability standards but there are organizations, such as IEEE, developing similar dependability standards for specific industry applications. TC 56 is aiming to minimize the proliferation of standards and duplication of effort through activities, such as collaboration with IEC/TC 107 and cross-committee membership with organizations such as IEEE and ASQ. TC 56 also tries to work closely with CEN/TC 319, Maintenance, with the same purpose.

Product committees are responsible for establishing and maintaining the closest possible links with relevant TCs performing a horizontal function, such as TC 56, when preparing or revising their own product publications and when such TCs are preparing or revising relevant basic publications.

Maintenance and development of standards
The committee's maintenance programme takes into account the anticipated future needs of industry to ensure that TC 56 standards meet these needs. The Maintenance Teams are encouraged to make use of the confirmation and withdrawal options in the current MCR form to save capacity for essential work.

The committee has been reassessing its document structure in order to facilitate use and to cover current and future market needs. As a result, TC 56 standards have been divided into three categories:

– **Core standard**
  Standard providing overview on dependability fundamentals, objectives or management.
– **Process standard**
  Standard giving guidance on a particular dependability issue related to an aspect of management or to a life cycle phase.
– **Support standard**
  Standard giving technical information of general relevance in various dependability issues.

Within these categories, the standards are further grouped according to their content. In addition, information is given on the phase or phases of the life cycle during which the standard can be applied.

B.3 Trends in technology and trade

There is increased demand for dependable, safe and environmentally friendly products and services.

Time to market is critical and so there is extensive use and adaptation of commercial off-the-shelf (COTS) products to enable rapid design and system integration. Both these requirements are impacting upon TC 56 standards.

TC 56 is monitoring and reacting to the rapid technology evolution and innovation by developing broader-based process-orientated standards, in addition to tool standards.

Business is recognizing the benefit of the integration of dependability into the overall management system. TC 56 has established guidelines for dependability management including aspects of risk management.

B.4 Ecological environment

Dependable products contribute significantly towards protecting the environment.

TC 56 standards address environmental issues where applicable, and TC 56 monitors projects in order to include ways in which they can contribute positively to the environment.

C. Work programme

C.1 Current work

Normally, TC 56 holds a plenary meeting each autumn. The SAG, LAG and WGs usually meet at the same time. The SAG and WGs meet additionally in the spring, and PTs meet as necessary, if possible in conjunction with the other meetings.

The next TC 56 plenary meeting will be in Cheju Island, Republic of Korea, in September 2005. All WGs, the SAG and LAG will also meet in Korea. The meetings to be held in the first half of the year will take place in Paris in April.

There are 22 projects being worked on in the current Work Programme. Notable amongst these is the revision of IEC 60050-191, for which additional expertise is being recruited. Fresh expertise is also needed in the area of human reliability, and from representatives of small businesses.

C.2 Resources/infrastructure needed

The use of email and the TC 56 ftp site has expedited WG and project team communication and work progress, enabling much of the work to be conducted by correspondence.

D. Future work

New work is planned as follows:

– applying dependability to items from large systems to components, including multiple dependability factors and risk assessment
– maintenance of a large existing set of standards

Each WG takes responsibility for its own area – maintaining its portfolio of existing standards and undertaking any new activities allocated by TC 56. The SAG will use the new document structure to identify gaps in the existing list of standards and will continue to investigate market needs, so that it can advise the WGs in developing their plans.

E. Maintenance cycle

Publication no.	Date of publication	Review date	Maintenance result date	Responsibility (Maintenance Team)
60300-1 Ed.2	2003	2007	2010	WG 3
60300-2 Ed.2	2004	2007	2010	WG 3
60300-3-1 Ed.2	2003	2004	2007	WG 2
60300-3-2	2004	Ed.2 published 2004	2010	WG 2
60300-3-3	2004	Ed.2 published 2004	2009	WG 3
60300-3-4	1996	Revision in progress	2007	WG 3
60300-3-5	2001	2006	2009	WG 2
60300-3-7	1999	2004	2007	WG 2
60300-3-9	1995	2004	2007	WG 3
60300-3-10	2001	2006	2009	WG 3
60300-3-11	1999	Revision in progress	2007	WG 3
60300-3-12	2001	2006	2009	WG 3
60300-3-14	2004	2006	2009	WG 3
60319 Ed.3	1999	2004	2007	WG 2
60410	1973	2013	2015	
60605-2	1994	2006	2009	WG 2
60605-3-1	1986	2006	2009	WG 2
60605-3-2	1986	2006	2009	WG 2

Publication no.	Date of publication	Review date	Maintenance result date	Responsibility (Maintenance Team)
60605-3-3	1992	2006	2009	WG 2
60605-3-4	1992	2006	2009	WG 2
60605-3-5	1996	2006	2009	WG 2
60605-3-6	1996	2006	2009	WG 2
60605-4 Ed.2	2001	2003	2012	WG 2
60605-6 Ed.2	1997	Revision in progress	2006	WG 2
60706-1	1982	To be withdrawn when IEC 60706-2 Ed.2 is published	–	WG 3
60706-2	1990	Revision in progress	2004	WG 3
60706-3	1987	Revision in progress	2004	WG 3
60706-5	1994	Revision in progress	2006	WG 3
60706-6	1994	To be withdrawn when IEC 60706-2 and –3 are published	–	WG 3
60812	1985	Revision in progress	2005	WG 2
61014	2003	2008	2011	WG 2
61025	1990	Revision in progress	2005	WG 2
61070	1991	2003	2012	WG 2
61078	1991	Revision in progress	2004	WG 2
61123	1991	2003	2012	WG 2
61124	1997	Revision in progress	2004	WG 2
61160	1992	Revision in progress	2004	WG 4
61163-1	1995	Revision in progress	2004	WG 2
61163-2	1998	2006	2009	WG 2
61164, Ed.2	2004	2008	2011	WG 2
61165	1995	Revision in progress	2005	WG 2
61649	1997	Revision in progress	2006	WG 2
61650	1997	2007	2010	WG 2
61703	2001	2006	2009	WG 1
61709	1996	2006	2009	WG 2
61710	2000	2006	2009	WG 2
61713	2000	2004	2007	WG 4
61882	2001	2006	2009	WG 3
62198	2001	2004	2007	WG 3
62309	2004	2006	2009	WG 2

Name or signature of the secretary

M Maghar

ANNEX B

Analysis of the participation of National Committees in the work of TC 56

Country	Participation in plenary meetings			No. WG members	Participation in voting (%)		
	Oct 02	Oct 03	Jun 04		2001	2002	2003
Australia	✓	✓	✓	1	18	20	24
Austria	✓	✓		1	91	100	92
Belgium	–	–		0	100	100	100
Canada	✓	✓	✓	6	100	100	100
China	✓	✓		4	100	100	100
Czech Rep	–	–		1	91	100	100
Denmark	✓	✓	✓	3	100	100	100
Finland	✓	✓	✓	3	91	100	100
France	✓	✓	✓	7	100	100	100
Germany	✓	✓	✓	7	100	100	100
Hungary	✓	✓	✓	1	64	60	96
India	–	–		0	0	0	16
Israel	✓	–		1	27	60	80
Italy	–	–	✓	1	100	100	100
Japan	✓	✓	✓	13	100	100	100
Korea	✓	✓	✓	2	27	100	96
Poland	✓	✓	✓	2	82	80	100
Romania	–	–		0	36	60	16
Russian Fed	–	✓		3	100	100	68
Sweden	✓	✓		3	100	100	100
Switzerland	–	–		1	100	100	88
UK	✓	✓	✓	13	100	100	100
USA	✓	✓	✓	20	100	60	60