STRATEGIC BUSINESS PLAN (SBP)

IEC/TC or SC	Secretariat	Date
TC 46	USA	2012-01

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
CABLES, WIRES, WAVEGUIDES, R.F. CONNECTORS, R.F. AND MICROWAVE PASSIVE COMPONENTS AND ACCESSORIES

Title of SCs
SUBCOMMITTEE 46A: COAXIAL CABLES
SUBCOMMITTEE 46C: WIRES AND SYMMETRIC CABLES
SUBCOMMITTEE 46F: RF AND MICROWAVE PASSIVE COMPONENTSs

A Background

A1 Date of establishment of the Technical Committee and a brief historical background

IEC TC 46 (formerly SC 40-2) was established in 1960 with the title “Cables, wires and waveguides for telecommunication equipment.” The title and scope of the Committee were most recently revised in 2002 when Subcommittees SC46B and SC46D were disbanded. Also in 2002 a new Subcommittee, SC46F was formed with title given above. In 2005, SC46A/WG2 was disbanded and a new working group TC46/WG9 was formed with title noted below.

A2 Overview of responsibilities, sub-committees and working groups

TC 46 is responsible for the standardization of electromagnetic transmission lines, R.F. connectors and R.F. and microwave passive components and accessories used primarily in telecommunications, networking, the communications infrastructure and microwave systems for both analog and digital transmission. The standardization projects are carried out by three working groups in TC 46 and in three subcommittees.
The TC 46 working groups are
WG 5—Screening Effectiveness
WG 6—Passive Intermodulation Measurement (PIM)
WG 9—Metallic Cable Assemblies for ICT

SC 46A, “Coaxial Cables” is responsible for standardization activities related to coaxial cables used primarily in ICT (Information and Communications Technology), microwave, multimedia distribution networks and systems, and telecommunications systems.
The SC 46A working group is
WG 3—Coaxial cables for ICT (Information and Communications Technology), multimedia distribution networks and systems, and telecommunications systems.

SC 46C, “Wires and Symmetric Cables” is responsible for standardization activities related to symmetric cables used primarily in ICT (Information and Communications Technology) and analogue and digital transmission systems and equipment for communication and signaling.
The SC 46C working group is
WG 7—Premises cables for digital communication

SC46F, “RF and Microwave Passive Components” is responsible for standardization activities related to r.f. & microwave connectors, filters, splitters, waveguides, telecommunications, multimedia distribution networks and systems used in networks and cabling. Magnetic components and ferrite devices are covered by TC51.

B Business Environment

B.1 General

The demand for wire and cable has followed the overall drop in business activity due to the global recession.

B.2 Market demand

The customers of the publications developed by TC/SC 46 includes the manufacturers of the specific cable, connector and assembly products as well as those companies providing materials used in the make-up of the products.

The publications are also of interest to companies engaged in the product distribution/training aspects of the market. Building infrastructure systems designers, planners, installers, conformance certification organizations as well as local, regional and national government bodies are also users of the publications.

In some regions such as Europe, the IEC standards are adopted as national standards with little or no change. In other areas such as North America there is usage of competing standards from TIA, EIA, ICEA, ASTM, Mil Specs and UL for example.

In China there is new interest and participation in IEC standards developments for coax/connectors for the growing microwave industry/market

B.3 Trends in technology

Copper cable technology is successfully adapting to meet changing requirements for cable materials, higher performance requirements of new applications and a crowded regulatory environment. The field of nanotechnology shows promise to provide solutions to improve the performance of cable insulating and jacketing materials.

Unscreened balanced pair cables are currently being developed and deployed in new IEEE Ethernet 10GBASET networks. This new application has led to the identification of a new type of crosstalk (alien, or exogenous) for which new test methods and requirements have been developed.

Use of balanced pair cables to convey DC power in addition to data signals is now a common practice. Work is ongoing to study the impact of increasing the level of DC power carried. The higher DC current levels could lead to requirements for higher temperature rated cables. The use of the data cable also for conveying power could lead to new regulatory requirements. Such technology changes could also affect the technology of related components such as connectors, couplers, dividers, and waveguides that might need to have similar characteristics.

The above-referenced developments are taking place in a global marketplace where customers and manufacturers are spread throughout the world with many facilities manufacturing identical products.

Cables and related passive components are the main part of the cabling infrastructure. To favour the implementation of communication infrastructure, we need a certain stability and consensus reached between a large number of manufacturers and customers, many of which are from small or medium companies that are only able to participate in the global consensus development process through their National Committees of the IEC or National Bodies of ISO or ISO/IEC JTC1.

Some key trends in technology that are important to TC/SC 46 are

- continued development of higher frequency/data rate applications for balanced copper cables. Recent work in the IEEE is focusing on 40 GBS and may extend to 100 GBS Interest has been expressed to extend IEC 61156 frequency range to 2.5 GHz and a NP is anticipated in 2010.

- continued and growing utilization of premises cabling infrastructure as a DC power supply network. SC46C has been asked by JTC1/SC 25/WG3 to develop a test to determine the temperature/current performance of cable bundles. An NP has been issued and work is anticipated to start in 2010

- green. Data center cabling.

- smart grid. Upgrades to the communications capability of power utility networks are anticipated to create new demand, applications and requirements for telecommunications cables.

- wireless. Continued growth in wireless applications continues to provide demand, opportunities for copper cable products.

- these trends are requiring the development of new test procedures for signal transmission performance and shielding performance.

- service providers worldwide are moving to next-generation networks (NGNs). Built on IP transport, SIP signalling, and a strictly layered architecture, NGNs promise to increase operational efficiency, reduce capital expense, accelerate the rollout of new services, and deliver any service over any network.

B.4 Market trends

We are currently facing a reduction of investment in the telecommunication sector. However, there is felt to be an opportunity for metallic cables since these cables are capable of providing both effective and inexpensive solutions for both the current and future demands of the market. For example, in order to respond to today's urgent market demand for high bit rate transmission, there is now a need to upgrade the access loop with adequate solutions. Enhanced twisted pair copper cables will have to replace existing ones in a very near future. This access, of course, could be provided by using CATV networks. However, the coaxial cables that are used in CATV networks are not always able to adequately support the necessary low frequency signals (1 - 5 MHz), due to immunity considerations. In the area of customer premises cabling (ISO/IEC JTC1/SC25), as well as in those of other TC/SC46 "customer" system committees such as IEC TC100, electrical (e.g., EMC, frequency and transmission) and environmental (e.g., climatic, materials compatibility) requirements are becoming more and more demanding. Metallic cables can provide both effective and inexpensive solutions to these more stringent system requirements now demanded by the market.

The components included in the TC46 family of products are mainly intended to be used in the infrastructure of communication networks. They are used either as the backbone of the trunk or in the distribution or access networks. Only a few of the TC/SC46 products have other specific uses that are, nonetheless, closely related to the communication area. The standardization of communication networks has, up to now, always been accomplished while considering two levels: the "System level" dealing with overall system transmission aspects and the "Physical layer level" based on the standardization of the different components of the networks. The standards that have been produced have allowed the growth of the TC46 - related industries to take place with the assurance that products would be available on a worldwide basis and have the capability of intermateability and interoperability. TC46 and its sub-committees have contributed over 100 standards in this major undertaking.

With the establishment of the “Global Information Infrastructure” (GII) as a federation of networks, and “The Global Standards Collaboration” (GSC), there is a new urgency for the standardized passive components that are dealt with by the IEC. It is obvious that the characteristics of the TC/SC46 components are dependent on both the requirements of system committees as well as on the state of the technologies. Furthermore, environmental aspects such as electromagnetic behaviour, lightning protection, green cables, and waste and disposal problems cannot satisfactorily be dealt with from only the component point of view as there are “system” aspects that need to be taken into account such as installation conditions, network configuration, and combination of products. Considering the tendency towards hybrid networks in which coaxial, symmetric and fibre optic technologies converge, it would appear that there are a large number of characteristics that should be harmonised or synchronised for each of the components of communication networks. This means that there is a need for a common understanding of modelling and simulation, including terms and definitions of cascaded two-ports, in order to be able to optimally specify the characteristics of cables, waveguides and associated passive components. For this and other reasons, TC/SC46 has developed and continues to pursue active and productive liaison activities with its sister IEC copper and fibre optic component committees such as SC48B and SC86A.

B.5 Ecological environment

TC46 actively supports the consideration of the ecological environment in its standards. A key area Is fire propagation phenomena. A technical report, IEC/TR 62222 has been published in 2005 and is currently being updated. The report provides recommendations for the requirements and test methods to be specified for the fire performance of communication cables when installed in buildings. The recommendations relate to typical applications and installation practices for copper and optical cables. This technical report includes an assessment of the fire hazards presented by such installations, and describes fire scenarios that have been established and the appropriate cable fire performances to mitigate these hazards. The recommendations also take into account legislation and regulation applicable to the fire performance of cables, the results of known research work and an assessment of known test methods and their ability to measure the recommended fire performance.

Electromagnetic compatibility (EMC) of cable networks and installations is a second key area.

Development of test methods and performance requirements applicable to both screened and unscreened cable products continues to be a vital TC 46 activity.

Material conservation, recycling and elimination of hazardous materials (such as heavy metal compounds) are all taken into account as TC 46 develops standards for cables, connectors and waveguides.

The usage of hazardous materials, in cables is restricted by law in many countries. These materials may contain halogenated chlorofluorocarbons, ethylene-based compounds, cadmium, lead, and hexavalent-chromium.
It is essential that TC 46 monitor emerging regulations under consideration that would further restrict cable materials or compounds commonly used in its products.

Other regulations and laws are either in force or under consideration which impact the handling, recycling and removal of packing/packaging material and electronic scrap (especially electronic equipment such as computers, television sets, populated printed circuit boards, electronic components and electromechanical components.)

TC46 relies on the P-members and WG experts to bring information related to the above regulations to the TC/SC plenary meetings and working group meetings respectively so that TC46 members/experts can be properly informed. Then revisions to the standards that are under preparation and published can be considered.

C System approach aspects

TC 46 utilizes and establishes, as needed, liaisons with other committees;

System Committees (TC 46 as a supplier of standards)	JTC1/SC 25	Interconnection of information technology equipment
	SC 65C	Industrial networks
	TC 100	Audio, visual, multimedia systems and equipment
	TC 103	Transmitting equipment for radio communication
System Committees (TC 46 as a customer of standards)	TC 20	Electric cables
Other Committees (horizontal committees that produce standards used by TC 46)	TC 104	Environmental conditions, classification and methods of test
	TC 89	Fire Hazard Testing
	TC 111*	Environmental standardization for electrical and electronic products and systems
	ITU ITU-R ITU-T	International Telecommunications Union- Radio communications Sector Telecommunication Standardization Sector
Other Committees (committees that produce standards similar to TC46 to be in liaison with for technical consistency)	TC 48 TC 48B TC 51 SC 86B	Electromechanical components and mechanical structures for electronic equipment Connectors Magnetic components and ferrite materials Fibre optic interconnecting devices and passive components

Cooperation established:
–Liaison officers, experts participating in product/horizontal committees, TC 48B, TC 86B, TC 100,
–Experts working in other TC/SCs and reporting to TC 46 for information, JTC1/SC 25
* Liaison with TC 111 to be established in 2010.

D Objectives and strategies (3 to 5 years)

To develop and publish the required international standards in a timely manner.

To identify relevant areas for future standardization projects to be initiated within IEC TC 46, while remaining aware of the ongoing work in other IEC Technical Committees and relevant standards groups., and liaising with them as appropriate in order to, *inter alia,* reduce duplication, avoid inconsistencies, and ensure that the work of IEC TC 46 creates added value.

To promote the value of IEC in order to attract increased participation, recognizing that participants have a choice in committing their resources to IEC and other standards bodies.

To liaise and collaborate with other IEC Technical Committees, and relevant standardization groups.

E Action plan

TC 46
To establish a liaison relationship with IEC TC 111 in 2010

To complete the revision of the IEC 62037 PIM test procedures with CDV's to be published 2010-05.

To complete the update of the IEV 726 vocabulary standard by 2013

To evaluate and develop a combined electromagnetic screening effectiveness tests for coaxial and symmetrical cables. 2012

To perform comparative measurements between the tube in tube and absorbing clamp method (CENELEC EN 50289-1-14) using coaxial and symmetrical (CATV) connectors. 2010

To investigate coupling attenuation of symmetrical cables up to 1GHz with the triaxial set-up. 2010

To investigate UTP cables/connectors using the triaxial method. 2010

Evaluate the feasibility and develop a test, as appropriate, for lightning effects withstand capability of coaxial cable following the ITU-T K.21, K.44 and K.66 standards. 2011

SC 46A

To complete the revision of the Generic specification for coaxial cables, IEC 61196-1-x and its different test procedures. 2011

To complete the revision of Guide to the design of detail specifications - Coaxial cables IEC 60096-0-1 2011

To establish sectional specification standards for coaxial cables for ICT and multimedia distribution networks and systems. 2011

To evaluate, and establish as appropriate, detail specification standards for microwave coaxial cables. 2012

To develop standards for coaxial cables with PTFE insulation and with tin soaked braids up to 18 GHz. 2012

To introduce phase dispersion problems testing into the IEC 61196-1-108 standard. 2012

SC 46C

To develop standards for balanced cables and appropriate test methods for the emerging (40-100) GBS Ethernet market. 2013

To complete the revision of Fire performance of communication cables installed in buildings - Update new methods of fire retardancy. IEC/TR 62222. 2011

To develop Electrical transmission parameters for modelling cable assemblies. IEC/TS 61156-1-3. 2013

To develop methods to measure the temperature behaviour of cables in bundles when fed with DC.

SC 46F

To develop Sectional specification for SMP series RF coaxial connectors IEC 61169-44 Ed. 1.0, 2012

To develop Sectional specification for RBMA series blind mating RF coaxial connectors IEC 61169-43 Ed. 1.0, 2012

To develop Sectional specification for SQMA series 2.92 series R.F. coaxial connectors IEC 61169-35 Ed. 1.0, 2012

F Useful links to IEC web site

IEC/TC 46 dashboard giving access to Membership, TC/SC Officers, Scope, Liaisons, WG/MT/PT structure, Publications issued along with their Stability Dates and Work Programme and similar information for SCs.

Name or signature of the secretary

David Wilson