BUSINESS PLAN

CENELEC/TC or SC	Secretariat	Date
86A	France	2023-09-13

Please ensure this form is annexed to the TC Report to the CENELEC Technical Board if it has been prepared during a meeting, or sent to CCMC promptly after its contents have been agreed by the Committee by correspondence.

TC or SC title: Optical fibres and optical fibre cables

A Background

A.1 General

Within CENELEC, CLC/TC 86A is in charge of preparing standards, technical specifications and technical reports on optical fibres and optical fibre cables primarily intended for use in communication networks for example in wide area, metropolitan, access and premises networks including fibre-to-the-X (FTTX) and radio access networks (RAN). These documents are also used in a broad spectrum of transportation and industrial applications such as automotive, avionics, railway, ships, sensors, military, industrial automation, testing and calibration, power generation/transmission/distribution, oil and gas, and others.

CLC/TC 86A activity covers terminology, characteristics, related tests, calibration and measurement methods and functional interfaces. Optical, environmental and mechanical requirements are defined to ensure reliable system performance.

As stated on CLC website, the objective of ESOs is to agree on common specifications and/or procedures that respond to the needs of business and meet citizen expectations and sustainable development goals. To comply with this objective, CLC/TC 86A develops generic, sectional and family product specifications. Detailed specifications may be derived from those documents, at national or even company level. Generic, sectional and family product specifications foster the openness of the market whereas detailed specifications may not.

This view is shared by IEC/TC 86/SC 86A. Besides, CLC/TC 86A cooperates with IEC/TC 86/SC 86A in the framework of the Frankfort Agreement.

A.2 Sustainable development goals

- ☐ **GOAL 1:** No Poverty
- ☐ **GOAL 2:** Zero Hunger
- ☐ **GOAL 3:** Good Health and Well-being
- ☐ **GOAL 4:** Quality Education
- ☐ **GOAL 5:** Gender Equality
- ☐ **GOAL 6:** Clean Water and Sanitation
- ☐ **GOAL 7:** Affordable and Clean Energy
- ☐ **GOAL 8:** Decent Work & Economic Growth
- ☐ **GOAL 9:** Industry, Innovation & Infrastructure
- ☐ **GOAL 10:** Reduced Inequality
- ☐ **GOAL 11:** Sustainable Cities and Communities
- ☐ **GOAL 12:** Responsible Consumption & Production
- ☐ **GOAL 13:** Climate Action
- ☐ **GOAL 14:** Life Below Water
- ☐ **GOAL 15:** Life on Land
- ☐ **GOAL 16:** Peace, Justice Strong Institutions
- ☐ **GOAL 17:** Partnerships to achieve the Goals

A.3 Management structure of the committee

CLC/TC 86A is structured as follows:

Working group	Title
CLC/TC 86A/JWG TC46X	Fire issues
CLC/TC 86BXA/JWG with CLC/TC86A	Interaction between connectors and cables
CLC/TC 86A/WG 04	Ad-hoc working group for the revision of CLC/TR 50510
CLC/TC 86A/WG 05	Topics covering the repair of optical fibre cables

TC86A and its working groups meet in general one or two time(s) a year.

B Business Environment

B.1 General

The work of TC86A and its working groups has a profound impact on the broad band communications and fibre optics market. The market has undergone a slow but steady growth and diversification of fibre optics applications since the early 2000. This has resulted in continued participation by users and suppliers, as well as a shift from a few participants from large organizations to more participants from smaller organizations.

B.2 Market demand

There is an increase in the use of high speed data, which continues to grow unabated annually. Fibre optic technology has penetrated deeper in communications and data transmission related applications. While the market for long haul communication applications has remained somewhat saturated, demand continues to emerge in LANs, data centres, residential cabling, industrial cabling and automotive applications. Demand has increased steadily in metropolitan and access networks including radio access networks (RAN). This includes applications known as "the last mile" or Fibre to the X (FttX, where X stands for curb, node, cabinet, premises building or home), stimulating optimized fibre designs (like bend-insensitive fibre) and cable designs (like high fibre count compact cables or cables specifically designed for brown-field Multi-Dwelling-Units applications). These swings impacted the worldwide market and not just the European one. As is evident, the underlying data transmission demand has resulted in renewed market growth.

Thanks to the increased demand of digital services (video streaming and gaming, web conferencing, etc.) it is expected that the continuous increase of fibre optics technology penetration in the access network in many countries will contribute (jointly with the growth of IP applications) to guarantee a steady market growth for optical fibres and optical fibre cables falling under the TC86A standardization scope.

In addition to the previous bottom-up driver, a synergic top-down driver for optical technology market increase can be identified in the investment programs that some central or local governments plan to devote to the modernization of telecommunications infrastructure as a vital country asset (like other countrywide infrastructures, e.g. railways, airports, motorways, power transmission, etc.) to compensate for the difficulty of investments of traditional Telco operators. Such public programs, intended more to stimulate than to follow market demand growth, may have a crucial effect in a slow-down temporal frame to trigger applications and developments whose investments may not have been sustainable on a strict financial analysis.

The lockdown due to the Covid-19 pandemic has fostered “home office” work everywhere, which in turn has made broadband communication infrastructure - mostly built on fibre technology for speed, security, sustainability and environmentally friendliness - strategic assets all over the world. The advent of 5G technology backhauled by the fibre to the antenna infrastructure is adding even more incentive to the market demand for optical fibre.

Aside of this context of optical fibre demand for communication is emerging another context. The need for "Smart Grid" from power sources up to the end users in all countries is creating a new market demand. "Smart Electrification" will require transmission media in each of the grid segments and the Smarter the grid, the higher will be the data rate requirements. This could result in more optical networks along Overhead High Voltage Lines, as well as hybrid MV and LV cables including optical fibre use in the electrical distribution network and even optical home networking.

As technologies converge, CLC/TC 86A will continue exploring application of existing or newly developed products in traditional areas (focusing on enhanced performance, wider usability, improved economics, and smaller, more dedicated spaces), as well as in new, emerging fields of application of optical technology (automotive, avionics, enhanced sensors, medical equipment, etc.), and for more demanding environmental and transmission requirements. Additional work is also foreseen in cooperation with other Technical Committees in the use or adaptation of CLC/TC 86A work.

B.3 Trends in technology

The shift from traditional telephony driven applications to IP based ones has resulted in the convergence of data, video and telephony markets, and demands for ever increasing data transport throughput. This is putting a stronger emphasis on finding solutions to technical aspects that limit transport data rates. These include improved and accurate measurement, calibration and reproducibility of parameters such as attenuation, return loss, polarization mode dispersion (PMD), chromatic dispersion, bandwidth and latency. There is also a need for design guides and technical reports explaining measurements as well as the use and limitations in operational situations, in view of innovative modulation techniques, for very high capacity transmission links. In addition to the impact of higher bit rates, market demands have also led to conversion to optical transport for many point-to-point applications that were traditionally realized electrically. During this conversion period, more combined active/passive applications in the outside plant will be seen. The combination of active electronics in enclosures is creating a typical operating environment with higher operating temperatures due to "trapped heat". Since most optical components are only specified for use in

passive optical network elements, there will be a need for extending the temperature ranges in the existing environmental categories for optical components used in combination with enclosed active electronics.

Under development are standards to address new optical fibre designs including alternatives to all glass silica based fibres such as plastic or plastic clad silica, hollow core fibre and new designs of optical fibres optimized for ultra-tight bends that will have a positive impact on installation practices and on the size of network elements.

Further developments include new optical cable designs for cables better matching their targeted installation environment. This includes optimized mechanical properties, higher fibre density as well as fire behaviour and installation practices for dedicated cables.

Work in fibre optic sensors has been re-instituted and promises to be an important area, although it is outside of the telecommunication area.

B.4 Market trends

As the market has stabilized from previous years of turbulence, new entrants have emerged and new products are also emerging (e.g. optical circuit boards, active optical cables for device to device connections or fibre optic sensing devices). The challenge for CLC/TC 86A is to continue attracting the participation of these new market entrants to the CENELEC and CLC/TC 86A's work. Additionally, as technologies converge, more communication technologies are being realized using optical solutions. CLC/TC 86A will continue striving to develop a useful base of standards for these technologies to utilize in development of optical communication solutions.

The European market trends are also including the Mandates, now renamed to Standardization Requests, which are issued by the European Commission for the development of European specific standards as procedural instructions supporting European laws, within the framework of the so-called New Approach. This is aimed is at building a common and open European market by overcoming the multiple national regulations within the individual Member States. One example of such a Standardization Request is M/443 on the standardization of the Construction Product Directive (CPD) later superseded by the Construction Products Regulation (CPR), here especially for cables to be installed in construction works with respect to their individual reaction to fire and resistance to fire performances. Such Standardization Requests are given by the European Commission to the European Standardization Bodies in order to take the advantage of the technical and standardization expertise of the experts within the Technical Committees and therefore with the involved European Industries. The resulting European standards (ENs) must be approved by HAS consultants in order to be published in the Official Journal of the EU (OJEU) and to become legally applicable. They are then said “Harmonized standards” and can’t be overruled by international standards, but they can be issued as NPs in IEC to promote their international acceptance.

The close cooperation between CLC/TC 86A and IEC/SC 86A on the basis of the Frankfurt Agreement between CENELEC and IEC allows a broader view of the market trends not only on the European but also on the worldwide needs.

B.5 Ecological environment

Sustainable products will be requested by the future market and thus CLC/TC 86A will address the environmental impact of products during standardization, by taking into account the appropriate SDGs (Sustainable Development Goals) of the UNO.

B.6 Involvement of societal stakeholders

CLC/TC 86A is always pleased to welcome societal stakeholders among the National members.

B.7 Involvement of SMEs

SMEs are directly involved as members of National committees and/or national professional associations being stake holders of the national committees.

B.8 Involvement of Universities and Research Institutes

Experts from Universities and Research Centres as members of National Committees and/or national professional associations being stakeholders of national committees are welcomed to be involved in standardization work of CLC/TC 86A.

C System approach aspects

CLC/TC 86A and its Working Groups / joint Working Groups are component committees dealing with optical fibres and cables.

CLC/TC 86A and its Working Groups act as supplier of component specifications to the systems specified in other CENELEC TCs (e.g. CLC/TC 215) and other bodies including other component committees (e.g. CLC/TC 86BXA).

The awareness of all system aspects of the components that CLC/TC 86A is called to standardize greatly helps CLC/TC 86A's understanding of the market environment in which we operate and promotes communication, reciprocity and cooperation between TC86A and the numerous bodies with which we cooperate/interact.

CLC/TC86A and its Working Groups work directly in component specification work through liaisons and/or joint working groups to several CENELEC Technical Committees such as CLC/TC 46X (Communication cables), CLC/TC 86BXA (Fibre optic interconnect, passive and connectorised components, CLC/TC 215 (Electrotechnical aspects of telecommunication equipment) and others.

D Objectives and strategies (3 to 5 years)

CLC/TC 86A looks to the future with the following objectives:

(1) Continue to sustain the quality and appropriate work required by our industry enabling medium and long term growth in relevant markets;

(2) Establish and nurture relationships to other Technical Committees and external organizations;

Undertaking work relevant to CLC/TC 86A's mission:

- Feed those Technical Committees and external organisations that deal with optical systems with TC 86A relevant technical specifications to be referred to into their documents;
- Utilise technical inputs (i.e. environmental, mechanical, performances requirements) that are provided by Technical Committees and external organisations to establish technical specifications that support actual market demand;
- Nurture systems committees with technical specifications for new innovative products

  To be incorporated in their applications.

(3) Deliver useful documents for industry in a timely manner;

(4) Continue to maintain the critical mass for all fibre optics related work, evolving as our industry and markets change, while ensuring that the composition of TC86A experts reflects the makeup of our industry.

E Action plan

For the items outlined in D above:

Objective D-1

- Manage the TC and WG organization, structure, frequency and location of meetings to ensure improved efficiency and optimum use of expert time and resources;
- Continue to measure and report voting with the objective to ensure availability of experts to actively participate and contribute to technical meetings and to ensure that internal procedures are adapted to cope with voting on documents within the requested time periods.

Objectives D-2 and D-3

- Continuously improve quality, quantity, timeliness and effectiveness of joint work with TC46X on Optical functionality for electronic assemblies;
- Continuously improve quality, quantity, timeliness and effectiveness of joint work with TC86BXA on Optical / electrical hybrid connectors.

Objective D-4:

- Review annually the industry market leaders in the areas addressed by TC86A Working Groups, with a goal of attaining increased representation of the major market manufacturers and users.

F Digital transformation aspects

CLC/TC 86A standards are key to digital transformation. Hyper-connectivity infrastructures build upon optical fibre cables. These components also contribute to cybersecurity, energy efficiency in addition of having low carbon footprint.

CLC/TC 86A standards help widen the use of these components across the EU, supporting the EU Gigabit Society and Digital Decade targets of achieving “Universal connectivity offering a download speed of at least 100Mbps, upgradable to Gigabit speed by 2025” and “Gigabit connectivity for all by 2030”.

G Useful links to CENELEC web site

TC home page giving access to Membership, TC/SC Officers, Scope, Publications, Work programme [password-protected area].

CLC/TC 86A working documents are available on CLC collaboration platform through CLC website. CLC/TC 86A has a particular location at the CNELEC website:

https://standards.cencenelec.eu/dyn/www/f?p=305:7:0::::FSP_ORG_ID:1258369.

Ladji DIAKITE