CLC/TC9X/Sec/567C

BUSINESS PLAN

CENELEC/TC or SC	Secretariat	Date
TC9X	France	2012-12-22
Final Draft as approved on 2012/12/22		

TC9X: Electrical and electronic applications for railways.

SC9XA: Communication, signalling and processing systems.

SC9XB: Electrical, electronic and electromechanical material on board rolling stock.

SC9XC: Electric supply and earthing systems for public transport equipment and ancillary apparatus (Fixed installations).

A Background

A.1 Tasks:

CENELEC TC9X and its Sub-Committees are in charge:

To prepare a single set of electrotechnical standards in the field of railway applications for Europe, in order to achieve the free market for goods and services inside Europe.

To mirror Technical Committee 9 (TC 9) of the International Electrotechnical Commission (IEC) following the 1990 agreement between IEC and CENELEC (replaced in 1996 by the Dresden Agreement).

A.2 History:

CENELEC TC 9X was set up in 1989 by CENELEC as a new committee, with the specific task to prepare European standards in support of the EU Directive 93/38/CEE dealing with the opening of the European market in the excluded sectors (water, railways...). After a preliminary survey during 1988 , touching all the interested circles (railway operators, industry, standardization bodies) both CEN and CENELEC decided for the creation of two railway specific standardization bodies, one within CEN dealing with the "mechanical" contents, and one within CENELEC dealing with the electrical and electronic systems and components.

The first official CENELEC TC 9X meeting took place in May 1990, where the title and scope of the Committee was agreed as " Electric and Electronic applications for Railways "

Aiming at investigating the first TC 9X work program and need of standards, four survey groups were set up, dealing with the different disciplines, i.e. signalling, rolling stock, fixed installations, and common items like fire protection, RAMS, systems..... These survey groups had the mandate of identifying the different European standards to be produced, and whenever possible, the existing documents to be considered as starting points (for instance existing IEC standards, UIC leaflets, National Standards), some months later these Survey groups became the today existing Sub-Committees ; common disciplines were incorporated within the main Committee.

The 2nd TC 9X plenary meeting of december 1990 in Brussels resolved the setting up of the Committee organization, with a plenary Committee TC 9X and three Subcommittees SC 9XA, SC 9XB and SC 9XC and the first Working Groups of the main Committee and of the Subcommittees were agreed and decided.

The today structure and tasks/scopes of TC 9X and its subcommittees fully reflect the original setting up; of course, new working groups in accordance with the specific needs were decided and set up in the following years.

Following the coming into force of the Interoperability Directives (96/48/CE etc...) TC 9X was also mandated in the following years to set up the European standards needed for supporting the TSI interoperability specifications.

A.3 Current situation:

Now it has the task to prepare standards for the railway and urban guided transport fields which include rolling stock, fixed installations, management systems (including communication, signalling and processing systems) for railway and mass transit operations, their interfaces and their ecological environment.

These standards therefore cover the fields of railway networks, metropolitan transport networks (including metros, tramways, trolleybuses and fully automated transport systems) and magnetic levitated transport systems.

They relate to various parts such as systems, subsystems, software and hardware components and they deal with electrical, electronic and mechanical aspects, the latter being limited to items depending on electrical factors.

TC 9X tasks are undertaken in close liaison with Technical Committee 9 (TC 9) of the International Electrotechnical Commission (IEC), Electrical equipment and systems for railways. They also take into account the needs expressed by the European Railway Agency (ERA) and the users (e.g. UNIFE, UITP and CER).

A major feature of the railway field is its specificity: even if some topics are similar to those covered in other industrial fields the requirements have to take into account the overall constrains of coherence of the railway system.

TC 9X working groups are dealing with subjects that are related to the whole railway system or to interfaces between sub-systems, as its three subcommittees are considering subjects that are related to a single subsystem such as signalling, rolling stock and fixed installations for energy supply.

The three TC 9X SCs cover different fields of expertise addressing different stakeholders and having pretty much no overlap amongst them, as it will be better described later on, whenever new Standards to be developed have to deal with cross-SCs areas of competences, then dedicated WG are directly managed by the TC 9X and not allocated to a particular SC.

SC 9XA field of activities is communication, signalling and processing systems, taking into account the relevant safety requirements

SC 9XB field of activities is electrical, electronic and electromechanical material on board rolling stock, including associated software.

SC 9XC field of activities is electric AC and DC supply lines, both overhead and third rail type, and earthing systems for public transport equipment and ancillary apparatus, machinery and equipment of special feature for traction, installations and safety requirements in fixed installations.

As the railway system is a fully integrated system, its subsystems cannot be considered separately. This is the reason why the business plans of TC 9X subcommittees are presented together with its own business plan. As a further support of this statement, whenever new standards are needed whose topics are too generic and not falling under one single SC's assignments, the Working Group in charge of preparing the standard is directly managed by TC 9X and not allocated in one single specific SC. Example for this is the WG 14 in charge of Safety Standard whose scope of work is across the three SC's and who has its Convenor reporting directly to TC 9X.

B Business Environment

B.1 General

In the recent years, the railway sector has been subject to changes which have greatly influenced the design of railway systems and these changes concern operating characteristics as well as the technology involved.

One consequence of the recent evolutions made is that after a period when the users were the leaders of the standardisation works, the manufacturers are now more deeply involved and they act on a worldwide area.

At European level, a large number of railway standards are deemed necessary due to the publication of the European Railway Directives and the associated Technical Specifications for Interoperability. These standards are either harmonized standards to give presumption of conformity to the essential requirements of the Directives, or mandatory standards that are referred to in the Technical Specifications for Interoperability.

In parallel to these activities, European sector organizations have launched research projects funded by the European Commission. Results of some of these projects are offered to European Standardization Organizations to be endorsed as normative documents.

All the standardization activities resulting from the above shall be implemented at the European level first, with a possibility for the final result to be offered to an International Standardization Organization.

B.2 Market demand

The demand for European standardization in the railway field is driven by the technical development of modern transportation and the movement towards computer-based management, control and communication systems while the need to maintain a high level of safety remains a top priority.

It is important that standards do not jeopardize development and/or application of new technology for the benefit of the railway industry as a whole (i.e. users, operators, manufacturers, etc.). Therefore, as a minimum, standards should be drafted in a way that allows use of newer technology, through a performance/interface design specification rather than a description of technology.

Cooperation has been put in place with the European Regional Assembly of the UIC for the transposition of UIC leaflets into European standards.

UNIFE and CER, European professional railway sector organizations, are offering documents to TC 9X as input for the preparation of standards.

Harmonized European standards are being developed according to European Commission Mandate M/483 under Directive 2008/57/EC in the field of the interoperability of the European rail system.

European standards are being developed or amended according to European Commission Mandate M/486 in the field of urban rail.

Standards are also being drafted or amended upon requirements from the European Railway Agency, in order to give the Railway Sector a coherent set of Technical Specifications for Interoperability, other mandatory European documents, and European standards.

B.3 Trends in technology

Increasing performance in traction systems has become possible through techniques based on on-board power electronics allowing the use of traction motors having higher power-to-weight ratio.

In the meantime high speed processors were developed for:

- power control (electronics converters or inverters),
- operating control (new operating procedures, automation of some functions, monitoring, diagnostic and maintenance procedures, data transmission for operation and overhaul).

Both power control and operating control have relevant functionalities that are implemented with equipment where software is playing a more and more important role.

Traction systems involve three “paths”:

- intelligence path,
- electric power path,
- mechanical power path,

the whole including all apparatus, components and connections of those paths inside/between vehicles, taking the following into account:

- presence of high frequencies, even inside power equipment, requires to take EMC into account when drafting specifications;
- operation on the same network of various traction systems (i.e. dc and ac supply) demands further attention to galvanic compatibility concerns between them and with the environment;
- interchangeability of locomotives and rolling stocks requires to maintain compatibility for modern control systems;
- automatic people movers require specific provisions as well as fully automatic systems
- on-board and board-to-ground communication (including wireless) is developing for train control, signalling systems and advanced (multimedia) services for passengers;
- new technologies, such as linear motors, magnetic levitation and hybrid propulsion, are now developing in railway applications.

Similar trend is present in the actual Signalling Control Systems, where both for wayside and on board systems recent technologies have moved from the either relay based wayside (e.g. interlocking) or analog-based train control equipment (e.g. Automatic Train Protection ATP) to microprocessor based systems in the last 10 to 15 years. It is in this scenario that standards, particularly in the safety-related field have become more and more important to all the stakeholders involved. While microprocessor-based systems become more and more powerful and performing, the Industry and Railways need standards to assess their vitality, functionality, interoperability as well as required feature and functions.

B.4 Market trends

The expansion of urban and suburban transport systems as well as automatic people movers together with the increasing speed of inter-city trains should be emphasised.

This evolution has nevertheless not deeply changed some specific conditions applying to the use of electrical equipment on railways, namely electric propulsion by motors, particular environmental conditions on board vehicles, an exceptional life cycle (up to 40 years) and high reliability.

The increase of trade exchange and the development of new technology lead to an ever growing need of technical compatibility between systems and sub-systems. This is particularly true for the Trans European Network (TEN) that foresees the possibility for trains to move from one country to the other throughout Europe without stopping and changing neither train driver nor locomotives nor signalling system on-board the train.

B.5 Ecological environment

In terms of environment, when developing or revising railway product standards, necessary provision shall be taken to consider disposal, recyclability, reusability and toxicity concerns where necessary.

For environmental matters that will be dealt with by TC 9X, the support and advice of TC 111X will be sought.

In addition to product standards, specific environmental railway generic standards are developed for:

- EMC and EMF specifications to cover the emission of the railway system towards the external world;
- Other environmental aspects such as stray currents;

TC 9X will explore further possibilities for standardization projects to assist the reduction of energy consumption in trains and associated infrastructure. A series of standards is being developed on energy measurement on-board trains, as well as TRs on specification and verification of energy consumption for railway rolling stock and on reversible direct current substations.

B.6 Involvement of societal stakeholders

Being a system technical committee, TC 9X has no direct relation with societal stakeholders, as they are considered by other TCs (such as TC 111X) that may have liaisons with TC 9X.

B.7 Involvement of SMEs

TC 9X welcomes SMEs and received a presentation by Normapme of the CEN-CENELEC Guide 17.

Workings groups are constantly encouraged to apply the recommendations drawn up in this guide.

C System approach aspects

The traditional approach (i.e. product by product) should be supplemented by an approach making better allowance for the functional aspects of systems and subsystems. This approach is justified by the increasing complexity of interaction between equipment and by the application of quality control procedures during the design and testing phases

The whole railway field is technically a very important system because it involves a lot of various technologies having to work efficiently together inside equipment or railway

subsystems in order to be able to operate properly and in a safe manner. This aspect explains two main characteristics of TC 9X activity:

- TC 9X is developing standards which can be of various kinds: system, component or principles;
- There is no particular TC in CENELEC with which a standardization system approach can be permanently identified but a lot of liaisons which are set up regarding the current concerns at one moment.

In order to meet that fundamental goal, International railway standardization shall consider in a coherent way the application of standards which could be fully specific, partly specific or not specific to the railway field.

On the other hand TC 9X is fully integrated into the whole European CEN and CENELEC process which involves a lot of TCs of various kinds: horizontal, technology-specialized, concept or safety or environment oriented.

It is the reason why TC 9X has been adopting the following policy for a long time:

- Once the need for a standard has been identified, it is first investigated whether existing standards prepared by other TCs can apply, fully or partly,
- If they exist and they can fully meet the goal, nothing more is to be done by TC 9X,
- If they exist but there is a need for specific changes or additions for the railway applications, drafting a railway standard can be undertaken within TC9X provided that this standard will refer to the existing more general ones and will specify only what the latter do not contain; In the case where a railway standard includes specific requirements which are derived from a general standard, and when this general standard is revised then the railway standard shall be revised if necessary
- If they do not exist, TC 9X of course undertakes the full task, with possible liaisons as appropriate; in this context TC 9X has set up formal or informal liaisons with the following committees, inside CEN and CENELEC as well as with external organizations:

TC/SC/ Organization	Title	Main goal
CLC/TC 20	Electric cables	To ensure coordination about cables
CLC/TC 111X	Environment	To make sure that environmental aspects are well taken into account in TC 9X standards
CLC/TC 210	Electromagnetic Compatibility (EMC)	To ensure coordination in the development of standards dealing with EMC
CEN/TC 224	Personal identification, electronic signature and cards and their related systems and operations	To ensure coordination on the topics of electronic ticketing, and possibly passenger information
CEN/TC 256	Railway applications	To ensure coordination within railway standardization between electrical and non electrical activities
CEN/TC 278	Road transport and traffic telematics	To ensure coordination in the development of standards dealing with train communication and multi-media applications
CEN/TC 320	Transport – Logistics and	To ensure coordination in the

TC/SC/ Organization	Title	Main goal
	services	field of energy measurement and energy management
CEN/TC 388	Perimeter protection	To ensure coordination in the field of perimeter protection fo railways
CEN/TC 391	Societal and citizen security	To ensure coordination in the ongoing developments in the frame of Mandate M/487 “Security Standards”
ERA	European Railway Agency	To give the Railway Sector a coherent set of Technical Specifications for Interoperability, other mandatory European documents, and European standards
UIC-RAE	European Regional Assembly of the International Union of Railways	To transpose UIC leaflets into European standards
CER	Community of European Railway and Infrastructure Companies	To take into account the need of the railway sector, and to develop standards based on their inputs
EIM	European Rail Infrastructure Managers	To take into account the need of the railway sector, and to develop standards based on their inputs
UNIFE	Association of the European Rail Industry	To take into account the need of the railway sector, and to develop standards based on their inputs
UITP	International Association of Urban Transport	To take into account the need of the urban transport sector, and to develop standards based on their inputs
Sector Forum Rail	Sector forum of CEN, CENELEC and ETSI involving railway stakeholder organizations	To ensure coordination between CEN, CENELEC, ETSI and the stakeholder organizations in the field of railways

D Objectives and strategies (3 to 5 years)

D.1 General

Due to the existence of the Dresden agreement between CENELEC and IEC, the work of TC 9X is then dedicated to those standards that cannot be offered to IEC/TC 9 at the drafting stage.

These standards are:

- mandated by the European Commission;

- requested by the European Railway Agency in support of the Technical Specifications for Interoperability;
- derived from results from European Research Projects;
- derived from inputs from European Cooperating Partners.
- update of existing standards previously prepared by TC9X itself

D.2 Strategy management

In order to anticipate the needs and therefore to investigate the operating medium-term strategy to be proposed for adoption by TC 9X, a Chairman Advisory Group (CAG) has been set up. It is in charge of dealing with the following:

- to identify priorities in the technical activities;
- to identify technologies to be standardised;
- to identify subjects needed but not yet covered by current standardisation;
- to identify and evaluate any contribution offered by TC9X cooperating partners and/or standardisation trend;
- to review market needs of the particular sector taking into account the needs of users including consumers where appropriate;
- to provide guidance to TC 9X in defining its Strategic Business Plan, particularly in light of the above;
- to review and establish priorities of work at the systems level in order to help TC 9X in this development;
- to assess effectiveness of the programme of work in meeting the needs of the sector;
- to advise TC 9X on possible overlaps, conflicts and gaps and recommend corrective action;
- to review all potential new work items;
- to identify the items impacted by the European Interoperability Directive and associated TSIs

This Chairman Advisory Group is chaired by CENELEC/TC 9X chairman, the secretariat being that of TC 9X.

The members are TC and SC officers, CCMC program manager and selected guests.

D.3 Merging Strategy with IEC

In order to implement the Dresden Agreement in a strategic way, and to promote the adoption of European standards at international level, CENELEC and IEC have agreed upon a Merging Strategy between CENELEC TC 9X and IEC TC 9.

This merging strategy is organised as a general principle document and as an implementation document. The latter identifies which of the TC 9X standards will or will not be offered to IEC/TC 9; those decisions are made by TC9X. In general, TRs and TSs are not offered on a regular basis due respectively to their lower importance and to their short life cycle. When a decision is taken not to offer an EN, the justifications are recorded in the implementation document.

These documents are regularly updated by the Officers of CENELEC/TC 9X and of IEC/TC 9.

E Action plan

The current work programmes of TC 9X and SCs are recorded in the CENELEC database.

In addition to this work programme, TC 9X and SCs pave the way for the future by actively taking part in the programming phase of the European Commission mandates, notably on

urban rail (mandate M/486), as well as in the dissemination of results of European Research projects (e.g. Modtrain and TrioTrain).

In order to ensure an accurate follow-up of the work programme and to decide on new actions, TC 9X holds a plenary meeting twice a year. Each plenary meeting is preceded by a Chairman Advisory Group meeting.

In order to make sure that all the major stakeholders attend to this meeting, dedicated invitations are directly sent to them with appropriate notice.

For the same purpose, subcommittees meet usually twice a year. These meetings shall always take place in advance to the TC9X plenary meeting, so that the SC's resolutions are promptly checked and approved accordingly during the TC9X plenary meetings.

Coordination meetings between CENELEC/TC 9X and IEC/TC 9 Officers take place once a year. In addition regular exchanges take place between IEC/TC 9 and CENELEC/TC 9X Secretariats.

Secretaries of CEN/TC 256 (railway applications) and CENELEC/TC 9X meet regularly to ensure the coordination and programming of the actions of interest for both TCs and their stakeholders. A series of standards on fire protection is being developed in the frame of a joint working group, and various other liaisons (mode 4 cooperation) are in place between the two TCs.

Meetings with Officers of other CEN or CENELEC TCs and with organizations that are in relation with TC 9X are organized upon request.

In the frame of the relations put in place between CENELEC and JISC (Japanese Industrial Standards Committee), a Railway Working Group has been set up, and meets on a yearly basis to exchange information on the progress of railway standardisation from both Japanese and European sides. Topics for these meetings are agreed between the 2 parties far in advance and adequate participation of TC 9X Officers and technical experts are constantly guaranteed in order to properly manage the meetings and exchange the information.

TC 9X Officers are also full members of the Joint Programming Control Rail (JPC Rail) recently renamed CEN/CENELEC/ETSI Sector Forum – Rail, whose Terms of Reference have been recently revised and approved.

The CEN/CENELEC/ETSI Sector Forum Rail involves railway stakeholder organizations. It reports to the technical policy bodies of CEN, CENELEC and ETSI (i.e. CEN and CENELEC BTs and ETSI OCG).

The operational activities of the CEN/CENELEC/ETSI Sector Forum Rail are subject to the conditions as stated in the CEN/CENELEC Internal Regulations Part 2 and ETSI Directives.

The main mission of this Strategic Forum – Railways it to be the single sector body providing a platform for stakeholder input and forum for discussion;

- To provide coordination in the railway sector so that issues arising are identified and business needs are prioritized and communicated appropriately;
- To report (at least once a year) to the CEN and CENELEC BTs on developments and issues impacting the railway sector;
- To support the development of a consistent set of European Standards for railway applications (linked to legislation or supporting the railway sector) by acting as a coordination platform for CEN, CENELEC and ETSI;
- To foster good working relations between the European Standards Organizations (ESO), ERA, and the European Commission, for coordination of standards development activities (based on the EC Mandates)
- To provide advisory input to ERA and EC in order to improve the inter-relation between TSI and European Standards (e.g. consistency, contents and priority);

- To identify needs for European Standards and channel them to the technical committees in particular for Urban Rail Transport systems;
- To support the Chairs of technical bodies of CEN, CENELEC and ETSI in progressing standardization work;
- To evaluate, and support R&D programmes, identify and propose, the results of which might be exploited to develop European Standards (or other deliverables) for railway applications

Members of this SF-R are the:

- Sector Forum Rail Chair (also Sector Rapporteur)
- Sector Forum Rail deputy Chair
- Sector Forum Rail Secretary
- CEN/TC 256 Chair (and Secretary)
- CENELEC/TC 9X Chair (and Secretary)
- ETSI/TC RT Chair (and Secretary)
- ETSI Secretariat
- CEN-CENELEC Management Centre
- Representatives nominated by European railway stakeholder organizations including:
  - Union of the European Railway Industries (UNIFE)
  - Community of European Railways and Infrastructures Companies (CER)
  - European Infrastructure Managers (EIM)
  - International Association of Public Transport (UITP)
  - International Union of Wagons Keepers (UIP)
  - European Rail Freight Association (ERFA)
  - European Passengers Train and Traction Operating Lessors' Association (EPTTOLA)
  - International Union of Railways (UIC-RAE)

Other organizations not listed above may be invited by the chair to participate. Sector Forum Rail will maintain efficient and cooperative relations with EC and ERA and will invite representatives of those organizations to participate as the need arises.

F Useful links to CENELEC web site

TC 9X home page

http://www.cenelec.eu/dyn/www/f?p=104:7:4431277146131525::::FSP_ORG_ID,FSP_LANG_ID:74,25

SC 9XA home page

http://www.cenelec.eu/dyn/www/f?p=104:7:1297925308984056::::FSP_ORG_ID,FSP_LANG_ID:120,25

SC 9XB home page

http://www.cenelec.eu/dyn/www/f?p=104:7:3612404336845278::::FSP_ORG_ID,FSP_LANG_ID:121,25

SC 9XC home page

http://www.cenelec.eu/dyn/www/f?p=104:7:1307771611253277::::FSP_ORG_ID,FSP_LANG_ID:122,25

Name or signature of the Secretary

B. LEROUGE and T. LAÎNÉ