

# COMMISSION OF THE EUROPEAN COMMUNITIES

SEC(92) 1598 final

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REPORT FROM THE COMMISSION TO THE COUNCIL  
AND THE EUROPEAN PARLIAMENT

on

Standardization in the field of Information Technology and  
Telecommunications

1990-1991 Report

SUMMARY

This report is presented pursuant to Article 8 of Council Decision 87/95/EEC of 22 December 1986<sup>(1)</sup> and describes progress on standardization in the field of information technology and telecommunications in the years 1990 and 1991.

It illustrates:

- . the extension of the technical fields covered, particularly in telecommunications;
- . the development of tools and procedures aimed at achieving faster and more effective standardization;
- . the launching of projects for effective application of the standards in the Member States (user guides etc.);
- . promotion and information activities aimed at improving public awareness of standardization.

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(1) OJ L 36 of 7.2.1987, p. 31.

INTRODUCTION

This report concerns the years 1990 and 1991 and was preceded by a first report on the years 1988-1989. (1)

The authors of the first report placed particular emphasis on:

- . the legal basis for standardization activities;
- . the importance of standardization for completing the Single Market;
- . the structures and procedures for European standardization;
- . the results achieved over the years in question (production of standards, conformity testing and certification, reference to standards in public procurement, etc.);

With a view to keeping the present report brief, it was felt unnecessary to reiterate these developments.

The years 1988-1989 were the years of "build-up" of standardization activity, while 1990-1991 are the years of development and application of the standards.

The period 1990-1991 was marked by:

- . extension of the fields covered by standardization;
- . development of "tools" to speed up and improve the working;
- . practical application of the projects launched previously;
- . promotion of the standards by the Commission.

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(1) SEC(91)786 final of 30.4.1991

I. The first characteristic is the impressive extension of the fields dealt with.

- . In the field of information technology (IT), besides the subjects already tackled such as electronic message systems or file transfer, considerable attention has been devoted to new subjects such as computer-integrated manufacturing, smart houses, computer graphics, computer processing and exchange of medical data, electromegnetic compatibility, exchange of information between libraries and electronic payment systems.

Standardization at the service of the people of Europe - let us take two concrete examples to illustrate the impact of standardization on our daily life.

- Thanks to the efforts made by the Commission and the European standards organizations, in liaison with the banking circles concerned and naturally taking the existing ISO international standards as a basis, a fully compatible electronic payment system covering some 100 million payment cards will be set up in Europe by 31.12.1992. The results achieved at European level thus also have a favourable effect on the work of the ISO and promote convergence at international level.

- In the field of medical computerization a comprehensive programme of work has been drawn up by the European Committee for Standardization (CEN). This programme is aimed at developing European standards for the processing of images (medical imaging) and data for medical purposes, and for the exchange of such data to improve the quality of health care;

- . In the case of telecommunications equipment and terminals the idea has been to reduce - or even eliminate - the fragmentation of the Community market by taking specific measures to open up the markets for services (ONP concept) and promoting the production of standards by the European Telecommunications Standards Institute (ETSI), essentially in liaison with network operators, the telecommunications industry and users.

The scope of these objectives involved:

- a large amount of legislative work, culminating in the adoption of highly important Directives such as the Council Directive of 28 June 1990<sup>(1)</sup> on the establishment of the internal market for telecommunications services through the implementation of open network provision (ONP), or the Council Directive of 29 April 1991, known as the "terminals" Directive, on the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity;<sup>(2)</sup>

(1) OJ L 192 of 24.7.1990, p. 1.


(2) OJ L 128 of 23.5.1991, p. 1.

- an exponential increase in standardization work on the basis of mandates<sup>(3)</sup> given by the Commission to the European standards organizations, in liaison with the EFTA Secretariat, which contributes to the partial financing (14%) of this work.

In the field of IT some fifty standards were produced in the course of the period 1990-1991 (see Annex 1);

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(3) see previous report SEC(91)786 final of 30.4.1991, p. 9.



- . In the field of telecommunications, cooperation with the ETSI was stepped up, and 40 standards (ETS) (1) have so far been published by this organization (see Annex 2).

These mandates cover the following:

- . in the regulated field, the technical tasks involved in the development of new standards for the implementation of the ONP concept and the mutual recognition of terminal type acceptances; these are standards which will in part serve as a basis for establishing common technical rules (CTR) laid down in the above-mentioned new "Terminals" Directive (terminal equipment and network access);
- . in the non-regulated field, the work involved in setting up the basic infrastructure such as the trans-European networks (ISDN), mobile communications (GSM, radio message systems), HDTV, computer telecommunications services, satellite communications, as well as technical aspects connected with the trial methodologies and specifications, the security of teleconferences, digital audio broadcasting (DAB) and the general architecture of interface standards for communications between terminals (API - Application Program Interfaces).

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(1) European Telecommunications Standards

II. The period 1990-1991 saw the setting-up of methods and procedures to speed up and improve the work.

- . With this in mind, the Commission published at the end of 1990 a Green Paper<sup>(1)</sup> on "The Development of European Standardization: Action for Faster Technological Integration in Europe".
- . The main aim of this document - addressed for information and comment to all parties concerned - was to draw the attention of producers and users in the public and private sectors to the strategic importance of standardization for the completion of the Single Market.

The Green Paper was also intended to speed up the production of European standards and to open a debate on how to ensure, in the long term, a dynamic and stable European system of standardization.

In the light of the comments received and the discussions conducted, the Commission adopted, in December 1991, a Communication<sup>(2)</sup> containing a number of recommendations to the European standardization bodies, various socio-economic groups, and the Member States. In addition, the Council was asked to confirm its commitment to and backing for European standardization by adopting a resolution.

- . Anticipating the results of the consultation initiated by the Green Paper, the European standards organizations have taken steps to improve the efficiency of the European system of standardization by introducing the following measures:
  - effective implementation of the cooperation initiated in 1989 between the three European standardization organizations<sup>(1)</sup> and between these and the international organizations (ISO, IEC, CCITT etc.)<sup>(2)</sup>,
  - adoption of working methods, statutory rules and management systems intended to simplify, accelerate and ensure effective application of the harmonized standards in the Member States, with particular reference to the mechanisms for transposition,
  - pursuit and intensification of the involvement of private bodies representing industry and consumers - with more flexible and less complex methods and procedures - in a process of pre-standardization. The recognition, in the (electronic data interchange (EDI)) sector, of the Edifact Board as an associated standards body is an example of this.

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(1) COM(90) 456 final of 8.10.1990

- (2) COM(91) 521 final of 16.12.1991
- (3) Agreement of June 1990 setting up a "CEN/CENELEC/ETSI Joint Presidents' Group" and laying down the fields of application, the responsibilities and the functions of the group of the three presidents of the three standards organizations.
- (4) In particular, the IEC-CENELEC agreement of November 1990 and the ISO-CEN agreement of June 1991 on the exchange of information and the establishment of technical cooperation between the bodies involved.



III However, the work carried out in the period 1990-1991 is also characterized by the results achieved and the specific measures taken to ensure the effective application of the standards.

1. In the field of testing

The CTS Programme - which has no equivalent in other fields - was launched in 1985 to assist in achieving one of the principal aims of Community policy in I&TT: "The creation of a Community market in equipment and services in the field of information and telecommunications technologies". To this end, the Commission has co-financed (generally on a 50/50 basis) the creation of harmonized testing tools and the establishment of laboratories which will provide harmonized services for testing the conformity of products and equipment with European standards (or with international standards in the case of telecommunications).

The first two phases (1, 2 and 2a) implemented between 1985 and 1989 saw the launch of 43 CTS projects involving 11 countries and some 70 European bodies, including two located in an EFTA country (associate partners).

The third phase devoted to telecommunications, which was launched in December 1990, dealt with fields of crucial importance for the telecommunications of tomorrow, such as mobile telephony (GSM) or pan-European radio messaging (ERMES), satellites etc. About a dozen countries, including one from EFTA (associate partner), are involved in this phase.

In all, nearly 90 different partners have taken part in this technical programme since it was started in 1985.

Finally, the fourth phase (CTS 4 telecoms phase), officially launched by publication in the OJ in May 1991, is expected to start early in 1992. The four subjects selected essentially concern various aspects of the ISDN network and the field of interoperability.

2. In the field of certification

a) IT

In April 1990 the Commission signed with CEN/CENELEC and EFTA a Memorandum of Understanding (MOU) containing the objectives, principles and structures for the establishment of a European organization for testing and certification (EOTC), i.e. a global outline for encouraging and managing, on the basis of a coherent approach, the development of a European system of certification and of agreements on mutual recognition, and more generally for dealing with all questions concerning the assessment of conformity in the voluntary, non-regulated sector.

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This EOTC activity was of course to be conducted in the framework of the global approach to conformity testing laid down in a Council Resolution of 21 December 1989<sup>(1)</sup>.

Within the framework of this overall structure, several sectoral agreements on mutual recognition of test results and certificates were concluded by accredited laboratories and certification bodies in the course of 1990.

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<sup>(1)</sup> OJ C 10 of 16.1.1990, p.1.

Under this scheme, a special committee on IT (ECITC)<sup>(1)</sup> became the first sectoral committee recognized by the EOTC.

b) Telecommunications

The Council Directive of 29 April 1991 on "the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity" relates to putting harmonized equipment onto the Community market, i.e. equipment which can function together regardless of the manufacturer or user. This reinforces the need for well-defined testing and certification structures in Europe.

In other words, what is needed is a series of guidelines for the creation of a reference framework for the harmonized functioning of national certification systems, based on identical criteria of responsibility and transparency.

Negotiations were held during 1991 in the field of telecommunications with a view to reconciling the points of view through informal meetings such as the "Telecommunications Testing and Certification Forum" organized in Brussels in June 1991.

In the short term, all these measures should lead to the establishment in the telecommunications sector of a harmonized framework in close synergy with that obtaining in IT.

In application of this policy, a study in the field of European infrastructures for calibration, testing, inspection, certification and quality control was launched in 1991 in connection with the work needed to ensure the completion of the Single Market (1993).

3. Practical application of standards

- a) This was undertaken with particular reference to public procurement, for which Council Decision 87/95 of 22.12.1986 requires reference to be made to standards in the field of I&TT. This requires adequate information to be made available to the officials responsible for awarding contracts in the Member States in order to facilitate their task. To this end, two projects supported by the Commission and the Public Procurement Group<sup>(2)</sup> (PPG) were launched - EPHOS (European Procurement Handbook for Open Systems) and Euromethod, for which calls for proposals were launched<sup>(3)</sup> and initial contracts negotiated.

The aim of the EPHOS project is to facilitate the task of those entrusted with drawing up the specifications for public contracts relating to open systems in information technology. When this project is completed, the information directly usable for drawing up specifications will be published in the form of a guide (handbook) for public procurement officials who are obliged to make reference to the standards to achieve the interworking of IT systems, as laid down by European legislation.

- (1) European Committee on IT Testing and Certification.
- (2) Group of national officials acting under the aegis and on behalf of SOGITS (Senior Officials Group for Information Technology Standardization).
- (3) Published in OJ C 145 of 4.6.1991, p. 17 for EPHOS, and OJ C 208 of 9.8.1991, p. 26 for Euromethod.

For its part, Euromethod will aim to lay down a common European approach to the overall planning, development and maintenance of open systems.

Euromethod will naturally be addressed not only to public procurement officials but also to all those involved in public procurement, to those using computer systems and to the various providers of services.

- b) This aim of practical implementation of the standards recurs in connection with the exchange of computerized information in Community projects such as TEDIS<sup>(1)</sup>, as well as more recently in 1991 programmes, such as IMPACT 2<sup>(2)</sup>, which support the application and promotion of the standards for the information sector (e.g. CD-ROM, SGML, ODA).

TEDIS is intended mainly to provide information on electronic data interchange systems (EDI) to European business. The compatibility of various EDI systems naturally entails preliminary work on standardization of the messages to be exchanged, as well as specific action to ensure the interconnection of the telecommunications services and the networks.

This compatibility - and hence the necessary ongoing standardization - is required in the information technology systems for the exchange of data between the national administrations and the Commission in the following three fields: customs (Customs Union), agriculture (CADDIA<sup>(3)</sup> programme) and statistics.

#### 4. Promotion of standards

In 1990-1991 an intensive campaign to inform all interested circles about the importance of standardization, its players, its procedures and its results was carried out through:

- . the publication of information sheets on standardization in IT&T for a wide public<sup>(1)</sup> and on the CTS programme<sup>(2)</sup>,
- . the production of two video films on standardization in IT&T<sup>(3)</sup> and the CTS programme<sup>(4)</sup>,
- . the organization of seminars for specialists, such as the "European Conference on Conformance Testing and Certification in IT and T" held in Brussels in June 1990 under the joint patronage of the Commission and the EFTA SECRETARIAT, the "Forum on Testing and Certification" in Brussels on 10-11 June 1991, and the Commission's major presence at Telecom 91 (Geneva).

<sup>(1)</sup> Trade Electronic Data Interchange Systems.

<sup>(2)</sup> Information Market Policy Actions.

<sup>(3)</sup> Cooperation in Automation of Data and Documentation for Imports/exports and Agriculture

- (4) "Standardization in IT and T" (November 1990).
- (5) "Conformance testing services" (1991).
- (6) Available in the following languages: FR, EN, DE, IT, ES, GR, PL, HU (1990).
- (7) Available in FR and EN (1991).

IV. Finally, the period 1990-1991 was marked at international level and in all sectors of standardization (not only IT&T) by:

- . a strengthening, as already mentioned in paragraph 1, of cooperation between the European standards organizations (CEN, CENELEC, ETSI) and the international standards bodies (ISO, IEC, CCITT), in application of agreements signed since 1989;
- . the practical establishment of exchanges of information between the Commission (DG III) and EFTA, with particular reference to the field of technical rules (November 1990) and steps to take account of corresponding measures in the IT&T sector;
- . continued exchanges of views with non-Community countries (USA, Canada and Australia) and the setting-up of technical assistance programmes (ASEAN<sup>(1)</sup> countries, China, India, Poland, Hungary and Yugoslavia) and a regional quality-assurance programme in Central and Eastern Europe;
- . the creation of a "non-Community countries" unit within the European Committee for Standardization (CEN) responsible, in association with ETSI and CENELEC, for providing information on European Standardization and for coordinating the above-mentioned technical assistance programmes under an agreement concluded between the Commission (DG I) and the said body.

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(1) Association of South-East Asian Nations.

## CONCLUSIONS

The development of standardization in information technologies and telecommunications has thus had a positive effect during the reference period from various points of view:

- extension of the technical fields covered;
- introduction of tools and procedures to achieve faster and better standardization;
- launching of projects for the effective application of standards in the Member States (user guides etc.);
- promotion and information activities.

Although the theoretical framework needed to eliminate technical barriers to trade will be set up in time for the Single Market, this framework will, if it is to be effective, have to be correctly and pragmatically applied by the end of 1992.

The practical steps in this direction already taken during 1990-1991 will therefore have to be strengthened in future as regards the following:

- the practical application in all the Member States of Decision 87/95/EEC, which is the subject of this report, in particular in the field of public contracts<sup>(1)</sup>;
- the conversion of European standards into national standards<sup>(1)</sup>;
- increasing the awareness of standardization (European and national) and its penetration of the industrial fabric of the Member States; these measures should be aimed in particular at SMEs, which have neither the financial resources nor the means of communication to have access to the requisite knowledge;
- in the field of public contracts, the publication of lists of software and hardware which meet European standards and, of course, the publication of the titles of these standards, in particular in the Official Journal of the European Communities ('S' series).

This awareness campaign undoubtedly requires the cooperation of the groups concerned and above all the participation of the standardization bodies, but the Commission wishes to assist them in ways to be agreed jointly. The programmes for transferring the results of research and innovation (e.g. SPRINT or VALUE) could doubtless help to fulfil this aim (standardization being in that case an accompanying technical measure). These initiatives planned for next year or subsequent years obviously still need to be studied, discussed and accepted by the parties concerned. It seemed appropriate, however, to mention them in this report as possible future projects.

To this end, a readjustment of the financial resources will have to be envisaged in due course.

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(1) Impact studies will be carried out during 1993.



RESULTS  
OF THE STANDARDIZATION WORK COVERED BY MANDATES  
IN THE FIELD OF INFORMATION TECHNOLOGY  
AND TELECOMMUNICATIONS

Standards published as at 31.12.1991

<p>RESULTS OF STANDARDIZATION WORK COVERED BY ORDER VOUCHERS IN  INFORMATION TECHNOLOGIES AND TELECOMMUNICATIONS  Published Standards</p>
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Standard	Title
EN 27185:1985	Programming languages Pascal (ISO 7185-1983)
EN 27942:1986	Information processing systems. Computer graphics - Graphical Kernel System (GKS) - Functional description (ISO 7942-1985, 1st edition, 1985-08-15)
EN 27942/AC1:1986	Information processing systems. Computer graphics - Graphical Kernel System (GKS) - Functional description (ISO 7942-1985, 1st edition, 1985-08-15)
ENV 41101:1986	Information Systems Interconnection; Local Area Networks; Provision of the OSI Connection-mode Transport Service using Connectionless-mode Network Service on a CSMA/CD single LAN
ENV 41102:1986	Information Systems Interconnection; Local Area Networks; Provision of the OSI Connection-mode Transport Service and the OSI Connectionless-mode Network Service on a CSMA/CD LAN in a single or multiple LAN configuration
ENV 41001:1987	ISDN connector up to 8 pins and up to 2,048 Mbits/s
ENV 41103:1987	Information Systems Interconnection -- Local Area Networks -- Provision of the OSI Connection-mode Transport Service and the OSI Connection-mode Network Service in an End System on a CSMA/CD LAN
ENV 41104:1987	Information Systems Interconnection -- Packet switched data networks - permanent access
ENV 41202:1987	Information Systems Interconnection; Message Handling Systems; User Agent (UA) plus Message Transfer Agent (MTA) : access to an Administration Management Domain (ADMD)
ENV 41901:1987	Information Systems Interconnection. X.29-mode procedures between a packet mode DTE or a PAD and a PAD via a public or private X.25 packet switched network or ISO 8208 packet level entity and ISO 7776 link level entity. X.3 character-mode access ... ..
EN 60950:1988	Safety of information technology equipment including electrical business equipment (IEC 950:1986 ed 1 Modified)
ENV 30149:1988	Information processing systems -- Data interchange on read-only 120 mm optical data disks (CD-ROM)
ENV 41003:1988	Particular safety requirements for equipment to be connected to telecommunication networks
ENV 41105:1988	Information Systems Interconnection -- Packet switched Data Network

Standard	Title
ENV 41106:1988	Information Systems Interconnection -- Digital data circuit (circuit switched data networks) -- Provision of the OSI connection-mode transport service in the T.70 case for telematic and systems
ENV 41107:1988	Information Systems Interconnection -- Digital data circuit (circuit switched data networks) -- Provision of the OSI connection-mode transport service and the connection-mode network service
ENV 41108:1988	Information systems interconnection -- Local area networks -- Provision of the OSI connection-mode transport service and the OSI connection-mode network service in an end system on a token ring LAN
ENV 41109:1988	Information systems interconnection -- Local area networks -- Provision of the OSI connection-mode transport service using connectionless-mode network service in an end system on a token ring single LAN
ENV 41110:1988	Information systems interconnection -- Local area networks -- Provision of the OSI connection-mode transport service and the OSI connectionless-mode network service in an end system on a token ring LAN in a single or multiple configuration
ENV 41201:1988	Private message handling system -- User agent and message transfer agent -- Private management domain to private management domain
EN 21539:1989	Programming languages -- FORTRAN (ISO 1539, 1st edition 1980)
EN 21989:1989	Programming languages -- COBOL (ISO 1989, 1st edition 1985)
EN 24909:1989	Bank cards -- magnetic stripe data content for track 3 (ISO 4909, 2nd edition, 1987)
EN 26160:1989	Programming languages -- PL/1 (ISO 6160, 1st edition 1979)
EN 26373:1989	Data processing -- Programming languages -- Minimal BASIC (ISO 6373, 1st edition, 1984)
EN 27372:1989	Trade Data Interchange -- Trade data elements directory (ISO 7372, 1st edition, 1986)
EN 27487-1:1989	Information processing - Data interchange on 130mm (5.25 in) flexible disk cartridges using modified frequency modulation recording at 7958 ftprad, 1,9 tpmm (48 tpi), on both sides - Part 1: dimensional, physical and magnetic characteristics (ISO 7487-1)
EN 27487-2:1989	Information processing -- Data interchange on 130 mm (5.25 in) flexible disk cartridges using modified frequency modulation recording at 7958 ftprad, 1,9 tpmm(48 tpi), on both sides -- Part 2: track format A (ISO 7487-2, 1st edition, 1985)
EN 27487-3:1989	Information processing -- Data interchange on 130 mm (5.25 in) flexible disk cartridges using modified frequency modulation recording at 7958

Standard	Title
	ftprad, 1,9 tpmm(48 tpi), on both sides -- Part 3: track format B (ISO 7487-3, 1st edition, 1987)
EN 27498:1989	Information processing systems -- Open systems interconnection -- Basic Reference Model (ISO 7498, 1st edition, 1984 and its Addendum 1, 1987)
EN 27810:1989	Identification cards -- Physical characteristics (ISO 7810, 1st edition, 1985)
EN 27811-1:1989	Identification cards -- Recording technique -- Part 1: Embossing (ISO 7811-1, 1st edition, 1985)
EN 27811-2:1989	Identification cards -- Recording technique -- Part 2: magnetic stripe (ISO 7811-2, 1st edition, 1988)
EN 27811-3:1989	Identification cards -- Recording technique -- Part 3: Location of embossed characters on ID-1 cards (ISO 7811-3, 1st edition, 1985)
EN 27811-4:1989	Identification cards -- Recording technique -- Part 4: Location of read-only magnetic tracks -- Tracks 1 and 2 (ISO 7811-4, 1st edition, 1985)
EN 27811-5:1989	Identification cards -- Recording technique -- Part 5: Location of read-write magnetic track -- Track 3 (ISO 7811-5, 1st edition, 1985)
EN 27812:1989	Identification cards -- Numbering system and registration procedure for issuer identifiers (ISO 7812, 2nd edition, 1987)
EN 27813:1989	Identification cards -- Financial transaction cards (ISO 7813, 1st edition, 1985)
EN 27816-1:1989	Identification cards -- Integrated circuit(s) with contacts -- Part 1: physical characteristics (ISO 7816-1, 1st edition, 1987)
EN 27816-2:1989	Identification cards -- Integrated circuit(s) with contacts -- Part 2: dimensions and location of the contacts (ISO 7816-2, 1st edition, 1988)
EN 28378-1:1989	Information processing - Data interchange on 130mm (5.25 in) flexible disk cartridges using modified frequency modulation recording at 7958 ftprad, 3,8 tpmm (96 tpi), on both sides - Part 1: dimensional, physical and magnetic characteristics (ISO 8378-1)
EN 28378-1/AC1:1989	Information processing - Data interchange on 130mm (5.25 in) flexible disk cartridges using modified frequency modulation recording at 7958 ftprad, 3,8 tpmm (96 tpi), on both sides - Part 1: dimensional, physical and magnetic characteristics (ISO 8378-1)
EN 28378-2:1989	Information processing -- Data interchange on 130 mm (5.25 in) flexible disk cartridges using modified frequency modulation recording at 7958 ftprad, 3,8 tpmm (96 tpi), on both sides -- Part 2 : Track format A (ISO 8378-2, 1st edition, 1986)
EN 28378-3:1989	Information processing -- Data interchange on 130 mm (5.25 in) flexible disk cartridges using

Standard	Title
EN 28652:1989	modified frequency modulation recording at 7958 ftprad, 3,8 tpmm (96 tpi), on both sides -- Part 3 : Track format B (ISO 8378-3, 1st edition, 1986)
EN 28860-1:1989	Programming languages -- Ada (ISO 8652, 1st edition, 1987)
EN 28860-2:1989	Information processing -- Data interchange on 90 mm (3.5 in) flexible disk cartridges using modified frequency modulation at 7958 ftprad, 5,3 tpmm (135 tpi), on both sides -- Part 1: dimensional, physical and magnetic characteristics (ISO 8860-1, 1st ed)
EN 29293:1989	Information processing -- Data interchange on 90 mm (3.5 in) high density flexible disk cartridges using modified frequency modulation recording at 7958 ftprad, 5,3 tpmm (135 tpi), on both sides -- Part 2 : Track format (ISO 8860-2, 1st edition, 1987)
EN 29660:1989	Information processing -- Volume and file structure of flexible disk cartridges for information interchange (ISO 9293, 1st edition, 1987)
EN 50049-1:1989	Information processing -- Volume and file structure of CD-ROM for information interchange (ISO 9660, 1st edition, 1988)
HD 40001:1989	Domestic and similar electronic equipment interconnection requirements: Peritelevision connector
EN 28877:1990	Information Systems Interconnection -- Combinations of reference documents for the elaboration of Functional Standards
EN 28879:1990	Information processing systems -- Interface connector and contact assignments for ISDN basic access interface located at reference points S and T (ISO 8877, 1st edition 1987)
EN 29069:1990	Information processing -- Text and office systems -- Standard Generalized Markup Language (SGML) (ISO 8879, 1st edition, 1986, and its Amendment 1, 1988)
EN 29316:1990	Information processing -- SGML support facilities -- SGML Document Interchange Format (SDIF) (ISO 9069, 1st edition, 1988)
EN 29735:1990	Information processing systems -- Small Computer Systems Interface (SCSI) (ISO 9361, 1st edition, 1989)
EN 41102:1990	Electronic data interchange for administration, commerce and trade (EDIFACT); application syntax rules
EN 41102:1990	Information Systems Interconnection; Local Area Networks; Provision of the OSI Connection-mode Transport Service and the OSI Connectionless-mode Network Service on a CSMA/CD LAN in a single or multiple LAN configuration

Standard	Title
EN 60948:1990	Numeric keyboard for home electronic systems (HES) (IEC 948, ed 1, 1988)
ENV 40003:1990	Computer Integrated Manufacturing -- Systems Architecture -- Framework for Enterprise Modelling
ENV 41005:1990	Method for the specification of basic and supplementary services of private telecommunication networks
ENV 41006:1990	Scenarios for interconnexions between exchanges of private telecommunication networks
ENV 41007-1:1990	Definition of terms in private telecommunications networks - Part 1: Definition of general terms
ENV 41208-1:1990	Information Systems Interconnection -- Basic class virtual terminal -- S-mode forms -- Part 1: Virtual terminal service
ENV 41208-2:1990	Information Systems Interconnection -- Basic class virtual terminal -- S-mode forms -- Part 2: Check list
ENV 41208-3:1990	Information Systems Interconnection -- Basic class virtual terminal -- S-mode forms -- Part 3: Underlying layers check list
ENV 41209:1990	Information Systems Interconnection -- Basic class virtual terminal -- Common control objects
ENV 41503:1990	Information Systems Interconnection; European Character Repertoires and their Coding
ENV 41504:1990	Information Systems Interconnection -- Character Repertoire and their Coding for Interworking with Telex Services
ENV 41508:1990	Information Systems Interconnection -- East European graphic character repertoires and their coding
ENV 41509:1990	Information Systems Interconnection -- Office Document Architecture (ODA) -- Document Application Profile -- Processable and Formatted Documents -- Basic Character Content
ENV 41510:1990	Information Systems Interconnection -- Office Document Architecture (ODA) -- Document Application Profile -- Processable and Formatted Documents -- Extended Mixed Mode
ENV 41511:1990	Information Systems Interconnection -- Office Document Architecture (ODA) -- Document Application Profile -- Layout Independent Documents -- Simple Messaging Profile
EN 21864:1991	Information processing -- Unrecorded 12.7 mm (0.5 in) wide magnetic tape for information interchange -- 32 ftpmm (800 ftpi) NRZ1, 126 ftpmm (3200 ftpi) phase encoded and 356 ftpm (9042 ftpi) NRZ1 (ISO 1864:1985 - 3rd edition)
EN 27982-1:1991	Bank telecommunication -- Funds transfer messages -- Part 1 Vocabulary and data elements (ISO 7982-1:1987 - edition 1)

Standard	Title
EN 28583:1991	Bank card originated messages -- Interchange message specifications -- Content for financial transactions (ISO 8583 -- 1st edition, 1987)
EN 29529-1:1991	Information processing systems - Data interchange on 90mm (3.5 in) flexible disk cartridges using modified frequency modulation recording at 15916 ftprad, on 80 tracks on each side - Part 1: Dimensional, physical and magnetic characteristics (ISO 9529-1)
EN 29529-2:1991	Information processing systems -- Data interchange on 90 mm (3.5 in) flexible disk cartridges using modified frequency modulation recording at 15 916 ftprad, on 80 tracks on each side -- Part 2: Track format (ISO 9529-2 - 1st edition, 1989)
EN 29592-1:1991	Information processing systems -- Computer graphics -- Programmer's Hierarchical Interactive Graphics System (PHIGS) -- Part 1: Functional description (ISO/IEC 9592-1:1989 - edition 1)
EN 29592-2:1991	Information processing systems -- Computer graphics -- Programmer's Hierarchical Interactive Graphics System (PHIGS) -- Part 2: Archive file format (ISO/IEC 9592-2:1989 - edition 1)
EN 29592-3:1991	Information processing systems -- Computer graphics -- Programmer's Hierarchical Interactive Graphics System (PHIGS) -- Part 3: Clear-text encoding of archive file (ISO/IEC 9592-3:1989 - edition 1)
EN 29661:1991	Information processing -- Data interchange on 12.7 mm (0.5 in) magnetic tape cartridges -- 18 tracks, 1491 data bytes per millimetre (37871 data bytes per inch) (ISO 9661 - 1st edition, 1988)
EN 29983:1991	Information processing systems -- Designation of unrecorded flexible disk cartridges (ISO 9983 - 1st edition, 1989)
EN 30149:1991	Information processing systems -- Data interchange on read-only 120 mm optical data disks (CD-ROM) (ISO/IEC DIS 10149, September 1989)
EN 41003:1991	Particular safety requirements for equipment to be connected to telecommunication networks
EN 50065-1:1991	Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz. Part 1: General requirements, frequency bands and electromagnetic disturbances
ENV 40003/AC1:1991	Computer Integrated Manufacturing -- Systems Architecture -- Framework for Enterprise Modelling
ENV 41111:1991	Information Systems Interconnection - ISDN - Provision of the OSI connection-mode transport service over OSI connection-mode network service by using an ISDN circuit-mode 64 Kbit/s unrestricted bearer service - Permanent Case
ENV 41112:1991	Information Systems Interconnection - ISDN - Provision of the OSI connection-mode transport

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ENV 41204:1991	service over OSI connection-mode network service by using an ISDN circuit-mode 64 Kbit/s unrestricted bearer service - Demand case
ENV 41205:1991	Information Systems Interconnection -- File transfer, access and management -- Simple file transfer
ENV 41206:1991	Information Systems Interconnection - File transfer access and management - File management
ENV 41210:1991	Information Systems Interconnection -- File Transfer Access and Management (FTAM) - Positional file transfer
ENV 41501:1991	Information Systems Interconnection -- Directory Access
ENV 41502:1991	Information Systems Interconnection. Graphic character repertoire for information received from or transmitted to CEPT Videotex services or private videotex systems
ENV 41505:1991	Information Systems Interconnection -- Character repertoires for information received from or transmitted to the Teletex Service or private information processing systems using Teletex technology
ENV 41506:1991	Information Systems Interconnection -- Graphic character repertoire and coding for line drawing
ENV 41507:1991	Information Systems Interconnection -- Data stream formats for information received from or transmitted to the Teletex service or private information processing systems using Teletex technology
ENV 41510/A1:1991	Information Systems Interconnection -- Data string formats for information received from or transmitted to CEPT Videotex services or private videotex systems
ENV 41512:1991	Information Systems Interconnection -- Office Document Architecture (ODA) -- Document Application Profile -- Processable and Formatted Documents -- Extended Mixed Mode
ENV 41512:1991	Information Systems Interconnection -- Common Directory use





RESULTS  
OF THE STANDARDIZATION WORK CARRIED OUT  
BY THE ETSI IN THE FIELD OF TELECOMMUNICATIONS

Standards published as at 31.12.1991

<b>RESULTS OF STANDARDIZATION WORK ENTRUSTED TO ETSI IN TELECOMMUNICATIONS</b> <b>Published Standards</b>
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ETS 300 158	Satellite Earth Stations (SES); Television Receive-Only (TVRO) satellite earth stations (DE/SES-4001)
ETS 300 159	Satellite Earth Stations (SES); Transmit/receive VSATs used for data communications
ETS 300 160	Satellite Earth Stations (SES); Control and Monitoring functions at a VSAT
ETS 300 161	Satellite Earth Stations (SES); Centralised control and monitoring functions for VSAT networks
ETS 300 007	Integrated Services Digital Network (ISDN); Support of packet-mode terminal equipment by an ISDN
ETS 300 011	Integrated Services Digital Network (ISDN); Primary rate user-network interface Layer 1 specification and test principles (T/L 03-14)
ETS 300 012	Integrated Services Digital Network (ISDN); Basic user-network interface Layer 1 specification and test principles (T/L 03-07)
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- ETS 300 079 Integrated Services Digital Network (ISDN); Syntax-based videotex End-to-end protocols (T/TE 06-10)
- ETS 300 089 Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service Service description
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- ETS 300 091 Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) and Calling Line Identification Restriction (CLIR) supplementary services Functional capabilities and information flows
- ETS 300 092 Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service Digital Subscriber Signalling System No. one (DSS1) protocol
- ETS 300 093 Integrated Services Digital Network (ISDN); Calling Line Identification Restriction (CLIR) supplementary service Digital Subscriber Signalling System No. one (DSS1) protocol

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- ETS 300 104 Integrated Services Digital Network (ISDN);  
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- ETS 300 122 Integrated Services Digital Network (ISDN); Generic  
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- ETS 300 125 Integrated Services Digital Network (ISDN);  
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