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Foreword

This Technical Committee Reference Technical Report (TCR-TR) has been produced by the Terminal Equipment (TE) Technical Committee of the European Telecommunications Standards Institute (ETSI). This TCR-TR was approved as a TCR-TR by the 20th Technical Assembly (TA).

A TCR-TR is a deliverable for use inside ETSI which records output results of ETSI Technical Committee (TC) or Sub-Technical Committee (STC) studies which are not appropriate for European Telecommunication Standard (ETS), Interim European Telecommunication Standard (I-ETS) or ETSI Technical Report (ETR) status. They can be used for guidelines, status reports, co-ordination documents, etc. They are to be used to manage studies inside ETSI and shall be mandatorially applied amongst the concerned TCs. They shall also be utilised by the TC with overall responsibility for a study area for co-ordination documents (e.g. models, reference diagrams, principles, structures of standards, framework and guideline documents) which constitute the agreed basis for several, if not all, TCs and STCs to pursue detailed standards.

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1 Scope

This TCR-TR defines the basic aspects of the Multimedia Project. It follows the layout proposed by the ETSI Technical Assembly (TA) as "Project-oriented management of standardization" (ETSI/TA 18 (93)32 [1]).

This TCR-TR contains a definition of the meaning of Multimedia as seen by ETSI, identifies the milestones to be achieved by the project and the involvement of the ETSI TCs/STCs in it. It should be noted that this involvement could change during the life of the project as work progresses.

2 References

For the purposes of this TCR-TR the following references apply:

- [1] ETSI/TA 18 (93)32: "Project-oriented management of standardization".
- [2] ITU-T Recommendation X.25: "Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit".
- [3] ITU-T Recommendation H.221: "Frame structure for a 64 to 1 920 kbit/s channel in audiovisual teleservices".

3 Title of the project

The project title is MULTIMEDIA APPLICATIONS AND SERVICES.

4 Proposer and sponsors

The ETSI TA has assigned the task of managing Multimedia related activities within ETSI to TC-TE and to carry this out as a project following the concept of "Project Management" as proposed by ETSI SRC4.

Within TC-TE this task will be carried out using STC-TE10 for the planning and co-ordination function and by appointing a Multimedia Project Manager to work closely with STC-TE10 and present reports to TC-TE. See the respective Terms of References (Annexes A and B).

5 Scope of the Multimedia Project

5.1 The project

The scope of the Multimedia Project is to identify and define multimedia scenarios for which there is a market opportunity and which can potentially be implemented across existing and future networks, to identify related standardization activities, to identify gaps and propose relevant additional work and to co-ordinate the standardization activities within ETSI while liaising with other bodies and fora outside ETSI.

The following are considered to be within the scope of the project for the areas that directly relate to Multimedia Applications and Services:

- definition and selection of teleservices, i.e. combinations of media into specific applications;
- specification of multi-service terminal equipment including requirements on Man-Machine-Interface aspects, network aspects and end-to-end interworking;
- coding standards: voice, video, data, etc.;
- network requirements (related e.g. to numbering, addressing and routing);
- control capabilities and management capabilities to support key service components and features offered to the users and to service providers (e.g. navigation and multipoint);
- management capabilities supporting specific key operational supports to service providers and subscribers (e.g. Quality of Service (QoS) management, accounting and revenue sharing);
- access aspects up to the transport layer (e.g. ADSL related issues, access to the previously mentioned control and management capabilities);

- performance aspects;
- identification and specification of protocols for end-to-end communication;
- mapping of applications onto bearer services of various networks, e.g. Integrated Services Digital Network (ISDN), Asynchronous Transfer Mode (ATM);
- interworking of multimedia services among different types of networks and across multiple service provisioning domains;
- Application Programming Interface (API) definitions;
- testing aspects (including conformance testing);
- liaisons with other multimedia fora outside of ETSI.

5.2 The area of multimedia

Multimedia applications and services are those that involve at least two different information types, e.g. text, graphics, still picture, audio and video. Currently this means: videotelephony, messaging, electronic mail, Open Document Architecture (ODA), file transfer, information storage and retrieval, database access and Videotex.

Multimedia has come into existence as a result of developments in three areas which used to be exclusive:

- communications;
- information;
- entertainment (TV/film industry).

In a number of aspects they used to be easily distinguished from each other. Examples of these aspects are:

- a) element: what information types are transported;
- b) service: what does it offer to the user;
- c) network: what kind of transport is used.

Table 1 shows the traditional segregation of these areas:

Table 1

	Communications	Information	Entertainment
Element:	speech	digital data	audio & video
Service:	communication	processing and distribution of information	information
Network:	PSTN	Data networks, (packet switched)	Aerial, coax cables

The contents of all aspects are changing and the areas are increasingly overlapping:

- 1) communications: by adding video and data to telephone conversations the direction for multimedia has been set. Networks for communication are becoming digital and, therefore, are well suited for these new communication media;
- 2) information: addition of audio and video at the user interface makes it more user friendly to control;
- 3) entertainment: more interactivity can also be observed here;
- 4) networks: an integration of networks can be observed. Telephone communications are using radio spectrum, television signals come via cable networks, telephone and datacommunications are making use of cable TV networks, computer networks are integrated into the conversational networks.

The overlapping of these areas is visualised in figure 1 as follows. It shows the three areas separated in topology, equipment, media and application. Migration from one area to another can be seen as previously described. These movements represent the evolution of multimedia.

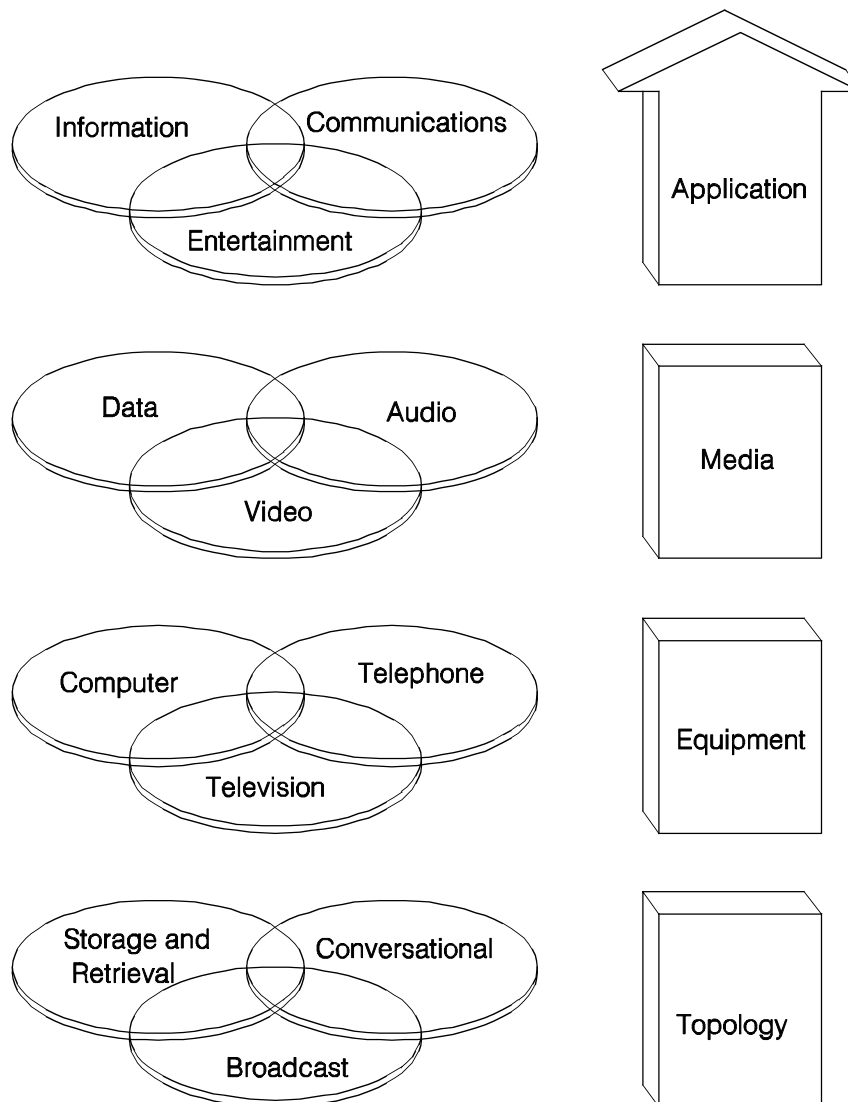


Figure 1: Multimedia - the merging of today's media

Although migrations can be seen, there is not a complete convergence. There will be a large number of developments that will coexist and influence each other. The general trend is the integration of elements of the different areas to enhance functionality to terminal equipment and services. The separation between the three areas will become more vague, but in many cases the origin of an application can still be found in one area.

6 Objectives

The final objective of the project is to get a complete set of standards covering all aspects of Multimedia Applications which will minimise incompatibilities and ensure interoperability when the borders between services tend to vanish.

Interim milestones are identified which are planned to converge on this objective.

The Multimedia Project has been created at a time when there already exists a large number of Work Items (WIs) either directly or indirectly related to the project, which are held in the ETSI database. Further, these WIs exist in many of the STCs of ETSI. As a consequence, the Project Plan is constructed using both the top-down and bottom-up approaches, as identified in the guidance document from the TA (ETSI/TA 18 (93)32 [1]).

All the activities in the Multimedia Project will take into account the work done and scheduled in other standardization bodies and other recognized organisations as a way to avoid duplication and to increase the efficiency.

6.1 The top-down approach

MILESTONE 1: Multimedia Portfolio (DTR/TE-10010)

The Multimedia Portfolio defines a list of desired multimedia applications and services. This TCR-TR is being elaborated by collecting and cataloguing multimedia communication requirements from the examples of desired applications described by the ETSI members (see Annex C: "Summary of the Multimedia Portfolio").

MILESTONE 2: Functional model for multimedia applications (DTR/TE-10002)

One or more reference models for Multimedia Applications shall be identified. These models shall be established according to the needs and wishes of ETSI members, keeping in mind the promotion of telecommunication multimedia applications and services, and the interworking between the different services.

Until the model is completed a basic classification of the Multimedia Applications has been performed based on the Multimedia Portfolio (Milestone 1) and the Multimedia Project Report (Milestone 0). The Multimedia Applications can be classified into three broad groups allowing combinations between them:

- a) Multimedia Retrieval Services (video on demand, interactive TV...);
- b) Multimedia Conversational Services (videotelephony, teleconference);
- c) Multimedia Distribution Services (Broadcasting TV and Messaging).

(For further details see Annex E: "Multimedia Classification").

MILESTONE 3: Identification of standardization areas not yet covered (no work item yet)

This work will be based on the results of the Multimedia Portfolio (Milestone 1) in addition to the analysis of the valuable activities and projects from recognized international or European organisations, or from commercial initiatives, such as Multimedia Communication Community of Interest group (MCCOI) and Multimedia Communication Forum (MMCF). International and open standards will be promoted.

Until this work is done, a preliminary set of 7 areas has been identified which have major importance:

- 1) definition of a core multimedia "tool-box";
- 2) definition of multimedia transport service;
- 3) convergence between broadcast and interactive services;
- 4) multimedia & multiservice convergence;
- 5) integration of MHEG ISO work;
- 6) multimedia Application Programming Interfaces (APIs);
- 7) distributed multimedia architectures.

These areas are briefly described in Annex D, "Preliminary identified standardization needs".

MILESTONE 4: Identification of the specific work items needed, assignation to TCs/STCs, and priority setting (no work item yet)

Based on the result of the 3 previous milestones, this activity will conclude the top-down approach and will converge with the bottom-up approach explained below.

6.2 The bottom-up approach

MILESTONE 0: Identification of multimedia Work Items within ETSI

An analysis of the existing work items in the ETSI database has been carried out. This shows that ETSI currently has 161 WIs directly related to Multimedia (of which 44 are currently published) spread among several TCs/STCs as shown in table 2 below:

Table 2: Size of the Multimedia Project

TC (STCs)	No of WIs
BTC (BTC 4)	2 (1%)
HF (HF 1,3)	13 (8%)
JTC	10 (6%)
NA (NA 1,5)	21 (13%)
RES (RES 10)	1 (1%)
SAGE	2 (1%)
SPS (SPS 1,5)	11 (7%)
TE (TE 1,2,3,4,5,10)	100 (62%)
TM (TM 3)	1 (1%)
TOTAL	161 (100%)

For more details see Annex F ("Status list of the Multimedia Work Items").

This activity has been the first one to be finalised.

7 Justification

The project is based on the fact that the SRC4 on Public Networks made a number of recommendations regarding the organisation of ETSI in relation to project management.

Recommendation number 24 proposed that ETSI be organized to deal with the subject of Multimedia Applications and Services as a project across all TCs and STCs in ETSI. The TA assigned the responsibility for the project management to TC-TE, thereby endorsing Recommendation 24.

Discussions within the groups involved in Multimedia have shown that there is a growing interest in this subject, and that ETSI should not lose any opportunity to take an initiative in this area.

The investigation made through the entire ETSI Work Programme (EWP) as part of the "bottom-up" approach applied to the Multimedia Project, has shown that more than 100 existing work items are directly related to Multimedia. These work items have been proposed by ETSI members and approved by the ETSI TA (following the ETSI procedures) without any logical link and in an isolated manner (apart from the normal liaisons between TCs, STCs and working groups). It is clear that a rational approach following a model and identifying standardization gaps is urgently needed to increase the efficiency and good investment of the technical resources.

In parallel with this project management organisation, there have been a number of commercial initiatives, such as the MCCOI and the MMCF, and it is important for ETSI to assist with the ITU-T in defining the appropriate standards rather than allow Publicly Available Specifications (PASs) to emerge that are not supported by all the players in the Multimedia scene.

The term "Multimedia" links together several fields historically separated which are now clearly connected and even overlapped: telecommunications, information technology, TV broadcasting and entertainment. ETSI is responsible for the standardization of the first field and it shall present properly structured information of what it is doing to those working in the other areas so that a fully co-ordinated solution is achieved.

8 Time schedule

The scheduled time to reach the final target explained in Clause 6 is 3 years. It is recognized that the market may require the standards earlier, but a practical analysis of the time required to reach the target gives a period of 3 years as being more likely.

Therefore, a complete set of standards for the integration of the 3 fields identified in subclause 5.2 (communications, information and entertainment) should be available by the end of 1997.

An alternative step could be to get the standards for the integration of the Conversational services and the Retrieval services which could be done by mid-1996.

The detailed schedule for the Milestones is:

- Milestone 0: June 1994;
- Milestone 1: December 1994;
- Milestone 2: December 1994;
- Milestone 3: March 1995;
- Milestone 4: December 1995.

Ongoing co-ordination activities will take place in parallel with the above milestones and are expected to last until December 1997.

9 Global context

Work related to multimedia is going on in many organisations. The following is an overview of some of the more important with relevance to multimedia.

It is among the tasks for this project to provide a more complete overview.

ITU-T

Similar to ETSI, the ITU-T is covering most aspects of multimedia. Of special interest to the Multimedia Project is the newly formed Joint Co-ordination Group for Audio-Visual and Multimedia Services (AVMMS). This group shall co-ordinate within ITU-T in a similar way to our project.

The following ITU-T Study Groups have, or are planning, multimedia related activities:

- SG 1 Service definitions;
- SG 8 Terminals for telematic services;
- SG 9 (formerly CMTT) – Television and Sound Transmission;
- SG 11 Switching and signalling;
- SG 12 Transmission Performance;
- SG 13 General Network Aspects;
- SG 15 Transmission systems and equipment including video coding.

ITU-R

- SG 10 Broadcasting Services-Sound;
- SG 11 Broadcasting Services-Television.

Joint Technical Committee on Digital Television between the ETSI and the EBU (JTCDT)

The JTCDT is the interface from the pre-standardization work in the area of digital television actually performed by the MoU on Digital Video Broadcasting to ETSI.

ISO IEC/JTC1`

ISO IEC/JTC1 has multimedia related activities in the following Sub Committees:

SC 6	Telecommunications and Information Exchange between systems;
SC 18	Document Processing and related Communications;
SC 24	Computer Graphics and Image Processing;
SC 29	Coding of Picture, Audio, Multimedia and Hypermedia information.

US specific activities

There are three major organisations which provide secretariat support and sponsorship to telecommunications standards making in the United States. They are:

The **Telecommunications Industry Association (TIA)**, an accredited organisation which sponsors Engineering Committees working in the fibre optics and telecommunications equipment area.

The **Exchange Carriers Standards Association (ECSA)** which sponsors Accredited Standards Committee T1-Telecommunications.

The **Computer and Business Equipment Manufacturers Association (CBEMA)** which sponsors Accredited Standards Committee X3 - Information Processing Systems.

These diverse organisations work together, closely co-ordinating their various committee mission and scope statements and work programmes through the **American National Standards Institute (ANSI)**, thus optimising the voluntary industry resources available for standards making.

Committee T1

Committee T1 is the peer to ETSI within the USA and performs work in roughly the same areas.

The following are some of the Sub Committees with multimedia related activities:

T1A1	Performance and Signal Processing;
T1E1	Network Interfaces (including e.g. ADSL);
T1S1	Signalling and services descriptions.

Committee X3

X3H3	Computer Graphics;
X3L3	Audio and Picture coding;
X3V1	Text processing.

Engineering Committees sponsored by TIA

TR-29	Facsimile and Audio graphic Teleconferencing (T.120 Series);
TR-30	Data Transmission Systems and Equipment, modem interface;
TR-41	Telephone Terminal Equipment, private networks.

IEEE 802

The scope for IEEE 802 is the development of standards for the area of Local and Metropolitan Area Networks.

Within 802.1 there is a new group formed to study the aspects of multimedia transport over packet based networks.

802.6 is working with Metropolitan Area Networks, including support for isochronous services.

802.9 is working on hybrid LAN technology for support of isochronous traffic.

European Workshop for Open Systems (EWOS)

EWOS is working with OSI based functional standards and profiles. EWOS is working with IT functions in general but much of the work is relevant for multimedia as well.

The Interactive Multimedia Association (**IMA**) is a US based International trade association.

The IMA is working with "recommended practices" with the aim to create application interoperability.

Current work includes:

- Interactive Video;
- Digital Audio;
- Multimedia Services.

The IMA is also working with IPR issues.

The Multimedia Communications Community of Interest (**MCCOI**) is a non-profit making industry organisation with the objective of accelerating global market acceptance of desktop Multimedia collaborative applications. The MCCOI is focusing on Multimedia interoperability over existing public and private ISDNs and work spans from network interworking to end user application interoperability.

The MultiMedia Communications Forum (**MMCF**) is a non-profit industry organisation with similar objectives to the MCCOI but with a little different focus.

The MMCF is performing basic architectural work and is also working with end user organisations to understand application requirements and priorities. It is focusing on network independent interoperability.

European Multimedia Forum (EMF)

The EMF is a non-governmental organisation representing all parties involved in the Multimedia community who share a common interest in the successful production, delivery and use of Multimedia technology in Europe.

The EMF will serve as an open platform for the exchange of views, opinions and technical proposals within the expanding European Multimedia community.

The EMF will:

- collect and distribute information;
- act as a think-tank;
- promote Multimedia technologies and services;
- provide specific services to its members.

ATM Forum

The ATM Forum's Charter is to accelerate the use of ATM products and services. To be able to define the network requirements, the ATM Forum is also defining and prioritising services which, to a large extent, includes Multimedia.

The ATM Forum has set up a working group, "Service Aspects and Applications", to work in this area. The target for this group is to have a document describing "Audiovisual Multimedia Services" ready by the end of 1994 and including both interactive and distributive video as well as real-time conferencing and desktop services.

Digital Audio-Visual Council (DAVIC)

DAVIC was recently established with the support of large parts of the MPEG community. The purpose of the DAVC is to promote the success of emerging audio-visual applications and services, in the first instance of broadcast and interactive types of services. The DAVIC intends to contribute and to co-operate with the formal standards bodies.

European Videotelephony (EV)

European Videotelephony (EV) is promoted by six European telecommunication companies: BT, Deutsche Bundespost Telekom, France Telecom, Norway's Televerket, PTT Telecom Netherlands and the Italian Societa Italiana per l'Esercizio delle Telecomunicazioni (SIP). Joint efforts between these companies have resulted in the EVE2 trial whose objective was to evaluate the market structure and user requirements in order to develop a successful introduction strategy for videotelephony. The six companies will continue their efforts to systematically pursue their goal of creating a European and eventually a global videotelephony network.

CATS

CATS is a non-profit corporation established in August 1993 specifically to assist and promote the adoption of international standards for audiographic conferencing. Their single focus is to ensure that the audiographic applications and the market do not fragment because the required solutions are based on individual supplier's unique and proprietary technology.

Personal Conferencing Specification and Work Group

Intel Corp. has formed a working group to define interoperability for a broad range of PC-based conferencing products. The group will define an interconnected set of data types, protocols and interfaces that are matched to the PC environment. This structure will be extensible to a wide-range of networks, services and conference types. It will enable mixed-data-type conferencing, so that users with mixtures of audio, video and data conferencing capability can interoperate.

Internet Engineering Task Force (IETF)

The IETF is aiming at the extension of Internet to real-time communication capabilities and at the widening of applications supported by Internet in general.

The IETF is divided into the following Working Groups:

Applications	Internet
IP: Next Generation	Network Management
Operational Requirements	Routing
Security	Service Applications
Transport	User Services
Standards Management	

Some of the relevant Work Items are:

- Audio/Video Transport;
- Multiparty Multimedia Session Control;
- IP Over Asynchronous Transfer Mode.

10 Resource requirements

According to the investigation made through the ETSI Work Programme, the following TCs and STCs are presently involved in the Multimedia Project:

TC	STC
BTC	BTC4
HF	HF1, HF3
JTC	JTC-DT
NA	NA1, NA5,
RES	RES10
SAGE	
SPS	SPS1, SPS5
TE	TE1, TE2, TE3, TE4, TE5, TE10
TM	TM3

It is not envisaged to create any new TC or STC.

Annex A: Terms of reference for STC-TE10: Multimedia Planning and Co-ordination

- 1) Keep under review and make recommendations for the strategy for timely evolution of multimedia¹⁾ telecommunication²⁾ standards taking into account evolving market requirements and the increasing demand for new forms of multimedia applications and services.

NOTE: Broadcasting applications are under the responsibility of the ETSI/EBU Joint Technical Committee (JTC). The co-ordination of areas of common interest for telecommunication/broadcasting applications will be mutually agreed between STC-TE10 and JTC, as set out in the TCC approved co-operation agreement of 11.03.1992 between JTC and TE/AVM.

- 2) Develop one or more "Reference Models/Functional Models" for multimedia applications and services, and identify related standardization issues, covering market and user requirements.
- 3) Take responsibility as delegated by TC TE for ensuring drafting, by the appropriate TC's and STCs, of European standards and technical reports necessary for the implementation of the multimedia services for which a demand has been identified, in accordance with the strategy as adopted by ETSI. The mandate includes the planning, co-ordination, and as an exception and only after the approval of TC TE, the working on:
 - definition of services (taking into account services interworking);
 - identification of network requirements (related to network capability, numbering, addressing, routing, interworking) stemming from multimedia applications and services;
 - telecommunication transmission standards (including coding) for multimedia information;
 - identification and specification of protocols for end-to-end communication;
 - specification of multi-service terminal equipment including requirements on man machine interface aspects and network access.
- 4) Provide guidance to ETSI TCs and STCs on the general multimedia telecommunication infrastructure and make recommendations to add, delete or change multimedia work items in the work program of TCs and STCs.
- 5) Co-ordinate the ETSI position in relation to liaison between ETSI TCs/STCs and other standardization bodies working in the same field, recognising that the TCs/STCs have the primary responsibility for such liaison.
- 6) Establish a forum to receive inputs from the following:
 - business computer manufacturers;
 - multimedia application software designers;
 - multimedia application user groups.

1) Multimedia General understanding: Multimedia applications and services are those that involve at least two different information types, e.g. text, graphics, still picture, audio and video. In terms of services this may mean: telephony, videotelephony, messaging, electronic mail, office document architecture, file transfer, information and retrieval, data base access, Videotex.

2) The term "telecommunication" includes all classes of service (conversational, storage/retrieval, and distribution: except broadcasting) in both point-to-point and multipoint call configurations.

Annex B: Terms of reference for Multimedia Project Manager

- To ensure that TQM quality management techniques are applied to standards and reports in the Multimedia field.
- To work in close collaboration with STC TE 10 to help to establish, and keep updated, a Multimedia Project Plan, for approval by TC TE.
- To present a "Multimedia Project Report" to TC TE and other invited TC and STC chairmen during the TE Plenary, in a way that allows the TE members to manage the project, highlighting the problems encountered by the STCs in trying to meet their targets. (In order to give TE members the chance to exercise management, the "Multimedia Project Report" must be sent as a Permanent Document prior to the Plenary meetings).
- To present interim "Multimedia Project Reports" as necessary.
- To work in close collaboration with STC TE10 chairman, and attend STC TE10 meetings, in order to ensure that the work progresses in accordance with the guidance from TC TE.
- To attend TEM meetings as necessary.
- To work in close collaboration with the ETSI Secretariat in order to keep the ETSI data base updated with regard to the subset of the ETSI Programme of Work related to the Multimedia Project. (Note: administrative support from ETSI Secretariat will be needed).
- To contact the TC chairman, STC chairman and PROs involved in Multimedia work as required, in order to monitor the activities and to ensure the liaison with STC TE 10.

These Terms of Reference and the position of Multimedia Project Manager will be reviewed at the June 1995 Plenary meeting of TE.

Annex C: Summary of the Multimedia portfolio

This annex contains the result of a first study carried out by the STC-TE10 in order to identify multimedia services and applications which have a real interest for the ETSI members.

This action is part of the top-down approach of the Multimedia Project to assist in the definition of one or more functional models for multimedia services and applications, keeping in mind the promotion of telecommunication multimedia applications and services, and the interworking between the different services.

This actual compilation of multimedia applications and services is not exhaustive, but a considerable number of ETSI members have been invited to contribute by means of a questionnaire elaborated by STC-TE10.

A set of 41 examples of multimedia services and applications have been catalogued. This collection of multimedia services and applications may be divided into two categories:

- a first set of examples are based on existing projects or services;
- the other examples were proposed in order to stimulate the standardization process of the most important missing aspects and parameters of the future standardized multimedia services.

In this first analysis, both types of examples are considered equally.

Three families of services have been analysed: teleconference services, retrieval services and TV on demand as a basic service for residential users.

From the few examples of TV on demand services (5), the need for multi-network capability can already be noted.

The majority of the collected examples are describing:

- teleconferencing services¹⁾, e.g. videoconference, videotelephony or audio graphic conferencing services (22 examples), as main services;
- retrieval services.

Both mainly with a transmission rate of maximum 2 Mbit/s.

The main service parameters requested for both types of services are multiservice capability, heterogeneous multimedia terminals, variable allocation of the bandwidth, security, charging capability, local storage and processing of information.

In the teleconference service proposals, 4 other service parameters or media are also requested. These are: addition and/or cancellation of a call during a session, shared workplace, transmission of still images and stores moving pictures.

Copyright protection and control are sought for the proposed retrieval services.

Multi-network capability is proposed in half of the retrieval services and a third of the teleconference services.

In conclusion, the service features listed above, reflect a real need for standardization activities, in order to extend the actual teleconference services. Most of these standardization activities should also consider retrieval services, as the majority of the teleconference services are used in combination with them.

1) The term "teleconferencing" refers to communication between groups of people situated in two or more different locations; as such it is clearly a subset of "telecommunications".

Annex D: Preliminary identified standardization needs

One of the main responsibilities within the Multimedia Project is to identify new standardization areas that are needed, and which are not yet covered by Work Items within the ETSI overall work programme. This will be carried out by considering the existing Work Items, together with the proposals made by ETSI members in the Portfolio (Annex C) and the activities taking place in other organisations. A properly coordinated approach needs to be followed, so that all the different types of Multimedia Applications and Services in each of the classification groups of Annex E ("Retrieval, Conversational, Distribution etc.") are achievable through the use of a harmonized set of standards.

In order to assist with carrying out this activity, a preliminary set of 7 tasks has been identified:

- 1) definition of a core multimedia tool-box;
- 2) definition of Multimedia transport service;
- 3) convergence between broadcast and connected services;
- 4) Multimedia & Multiservice convergence;
- 5) integration of MHEG ISO work
- 6) Multimedia APIs;
- 7) distributed Multimedia architectures.

These tasks will be discussed and refined during the project, and are briefly described in the following sections.

Definition of a core multimedia "tool-box"

The goal of this task is to develop a working methodology through which the integration of Multimedia features in the context of the various service families would be made easier and faster, while diminishing the risk of diverging choices. The methodology will be based on the establishment (and continuous update) of a catalogue of all the Multimedia core components; the entry-points in the catalogue will be oriented towards the ETSI TC client needs and may comprise:

- pointers to existing standards (or parts of standards);
- identification of building blocks (accessible through APIs).

Definition of Multimedia transport service

The following issues have been identified:

- definition of the transport service required at the functional level. This question has not yet been really dealt with, because historically those responsible for network architecture have usually considered that services are based on the establishment and release of homogeneous connections. In practical terms this has resulted in circuit-like connections appropriate for the transfer of synchronous media (through AAL1 adaptation layers for instance in an ATM environment), and packet-like connections appropriate for the transport of "asynchronous" data (through AAL5 adaptation layers in the ATM context) In the case of Multimedia communications, the required transport service is more like an "object transfer service" or a sequence of "object transfer services", where the type of required service transport is defined object by object (or at least object-type by object-type);
- an analysis of whether Multimedia communications should be based on 2 or more parallel connections, or appear as a temporal multiplex within a single connection;
- definition of specific "traffic profiles" in order to allow efficient dynamic resource management (based on statistical data for instance).

Convergence between broadcast and connected services

This item is probably one of the most urgent to be considered due to the high level of activity in the domain of digital TV services. These new TV services appear to be developing very rapidly both in the USA (for instance the DIREC TV project) and in Europe (under the ELG/DVB umbrella). Moreover, in the USA several significant initiatives have been reported, under the generic name of "interactive TV". Within the interactive TV family, VOD (Video On Demand) is the one that most operators seem to consider as likely to be the most popular, and likely to pose the greatest problems with regard to standardization. VOD systems, and the architecture for them show large opportunities for the technical convergence with the Multimedia evolution of data retrieval services, such as:

- sharing MPEG Multiplex;
- sharing set-top adapters;
- sharing general service architectures, or at least identification of those parts of the architectures that could be shared (at specification or even deployment level) between the two families of services.

Multimedia & Multiservice convergence

Currently, the level of integration between the Videotex service, the file transfer service and videotelephony/videoconferencing services is not really satisfactory. For both historical and technical reasons, the Videotex family is based on ITU-T Recommendation X.25 [2] packet-switching network and protocols while the videotelephony family is based on the ITU-T Recommendation H.221 [3] synchronous framing principle. Interworking situations are not yet frequently encountered but there is a growing need to access text, facsimile encoded documents and, soon, full Multimedia databases (including MPEG encoded video clips) during a videoconferencing session. The specification recently adopted in ITU-T SG 8 is a first step in this direction, defining access to JPEG pictures and file transfer protocols during a videoconferencing session. However the proposed solution is not fully satisfactory, in particular in Europe, as it is incompatible with ETSI standardized Multimedia Videotex and file transfer.

Symmetrically, it may be of interest to access recorded videotelephony databases in Videotex mode; in the future, when Videotex terminals incorporate MPEG decoders, such access will require no additional hardware and very limited (if any) software from the multimedia processing point of view.

Current trends at network level (ATM) as well as at information coding level (through explicit clock information in the bit-streams) provide technical solutions to manage "synchronous media" in an asynchronous world. This observation indicates that it is technically feasible to reconcile the two families and have a unique protocol-stack rather than two protocol stacks side-by-side in a multiservice terminal.

Integration of MHEG ISO work

This item could be seen as a sub-item of item 1. While the MPEG standard is rather well established for audio and video coding and transport, the emerging MHEG specifications have not yet reached the same level of awareness.

However, even if it is recognized that one of the main assets of the MHEG standard is its generality (potential use in Multimedia/Hypermedia applications ranging from retrieval applications, messaging applications, interactive television applications, Multimedia broadcasting,...), a great deal of work is still needed to develop the set of APIs which will popularise its use, enabling a progressive migration of existing information systems (for production, management, distribution of Multimedia information) towards MHEG.

Multimedia APIs

In the past, telecommunication services have been specified mainly through the protocols from terminal-to-terminal and between terminals and servers. A complementary approach consists in the definition of generic functional building blocks from which generic equipment such as terminals and servers can be defined. The blocks are related to each other through APIs or PCI in an object oriented environment. As these interfaces are internal to communicating devices, such devices may conform to the service protocol without physically implementing these blocks and the corresponding internal APIs.

As the same set of basic generic blocks can be used to support the Multimedia functions of equipment belonging to different services, it is a pragmatic approach to maximise the commonality of Multimedia

features between services. The definition of these blocks and APIs could be part of the Multimedia toolbox mentioned in Item 1.

This strategic area has already been addressed by a number of fora/bodies, for example ISO/IEC JTC1/SC21, ISO/IEC JTC1/SC6, the MMCF and ETSI (for instance PT27V, PT28 or more recently PT63 on MHEG APIs).

Distributed Multimedia architecture

Due to the amount of storage required for multimedia representations , the cost of networks and the cost of memories (tape, disc, RAM), it is possible that the multimedia databases will be distributed rather than centralised. This needs to be examined, in order to determine the impact on the necessary standards.

Annex E: Classification of the multimedia work items

As a result of the decision taken by TC-TE during the plenary meeting in December 1993 about the need of having a classification of the Multimedia Work Items according to a model, and the guidance given by the ETSI TA for each project to be divided into sub projects, a first classification into sub projects was discussed and endorsed by STC-TE10 and was approved by correspondence by TC-TE. It could be revised in the future as a result of the output of the STC-TE10 Work Item entitled "Functional Model for Multimedia Systems" (ref. DTR/TE 10002).

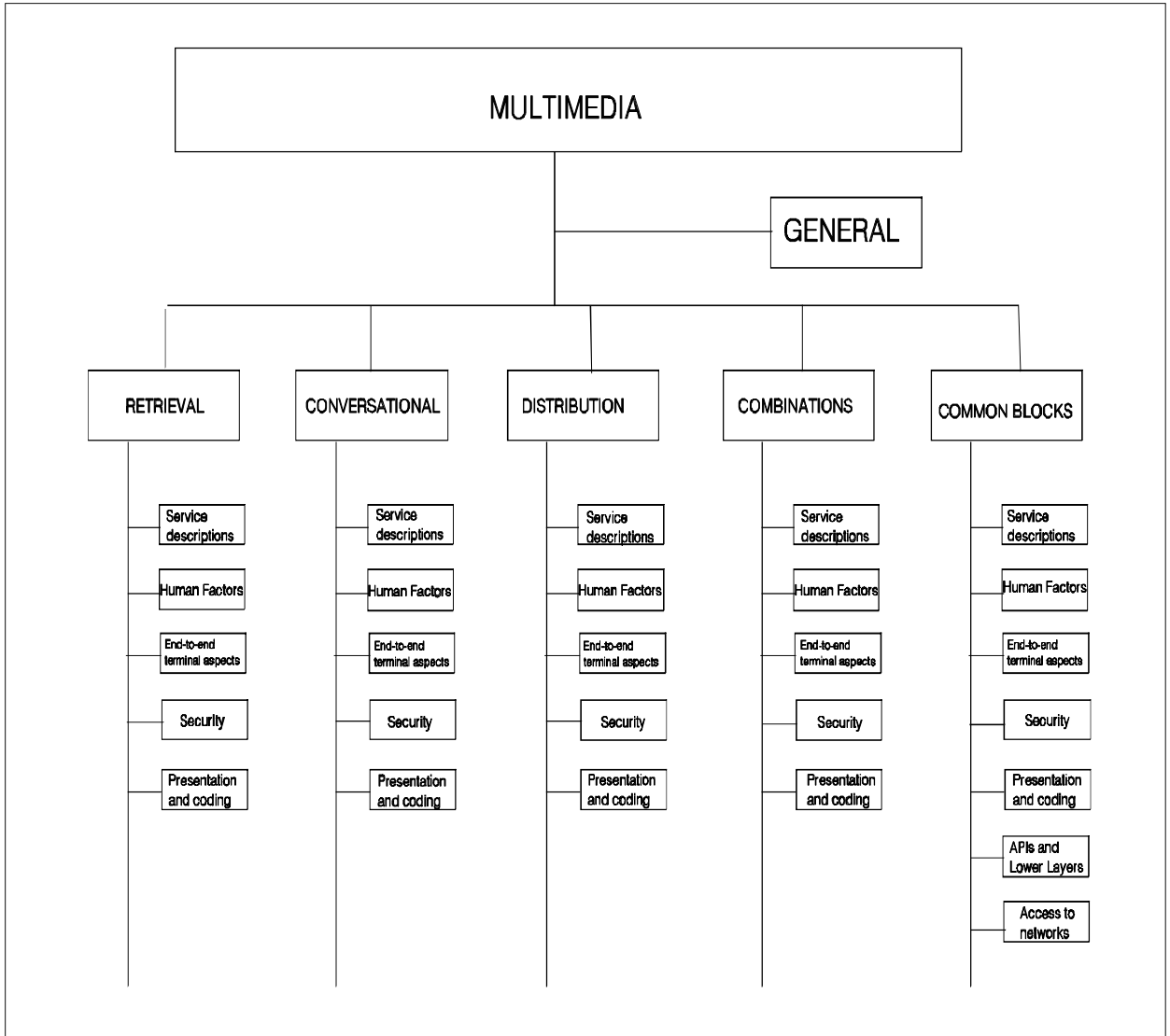


Figure E.1: Classification of the Multimedia Project

The concepts expressed in figure E.1 have the following meaning:

GENERAL:	Multimedia Reference Documents (e.g. the Multimedia Project Plan, the Multimedia Functional Model...).
RETRIEVAL:	WIs related to Multimedia Retrieval applications and services (unidirectional, sink-controlled, point-to-point).
CONVERSATIONAL:	WIs related to Multimedia Conversational applications and services (bi-directional, source & sink-controlled, point-to-point or point to multipoint) e.g. videotelephony and teleconference.
DISTRIBUTION:	WIs related to Multimedia Distribution applications and services (unidirectional, source-controlled, point-to-multipoint), as e.g. messaging, broadcasting, etc...
COMBINATIONS:	WIs related to Multimedia applications and services including two or more of the 3 categories defined before. At this moment only the combination of CONVERSATIONAL + RETRIEVAL is envisaged.
COMMON BLOCKS:	WIs related to elements to be used in the different applications as e.g. video coding, general APIs...

Within each sub-project a 2nd level decomposition has been made which currently gives similar results for every sub project:

Denomination	Includes WIs related to:
Service descriptions and architectures	Service descriptions Service components General architectures
Human Factors	Human factors Man Machine Interfaces
End-to-end/terminal	End-to-end protocols Terminal aspects Inband signalling
Security	Security Encryption Access restrictions Terminal identification
Presentation and coding	Presentation of information Syntax's and media coding
APIs and Lower Layers	API Lower Layer protocols
Accesses to networks	Network aspects related to Multimedia Access requirements

Annex F: Status list of multimedia work items

Please note that this annex contains its own page numbers.

TC/STC PT	(I-)ETS/ETR No Working Doc No Version	Title	Rapporteur/Responsible Company Project	Stable draft STC approval TC approval Comments to TC	PE V UAP	S T A T	Date of draft held by ESA
BTC 4	ETR DTR/BTC-04001 1	Private Networks - Integrated Services, non-voice and voice - Architectural Aspects	Fromm, Ingrid SIEMENS AG MMEDIA MMEDIA_COM-BLOC MMEDIA	30-06-94 01-09-94 08-09-94*		8	
BTC 4	ETR DTR/BTC-04004 1	Private Networks - Multiple n x 64 kbit/s channels Technology Aspects	Boal, John MMEDIA MMEDIA_COM-BLOC MMEDIA	06-08-93 15-10-93 17-11-93			
HF 1	prETS 300 375 DE/HF-01010-A 1	Human Factors (HF); Pictograms for point-to-point videotelephony	Böcker, Martin MMEDIA MMEDIA_CONVERSE MMEDIA	31-03-93* 31-03-93* 31-08-93* 14-03-94*	PE 52 V 61	10F	15-07-94
HF 1	prI-ETS DI/HF-01018 1	Human Factors (HF); User control procedures for ISDN videotelephony	Ferris, Alan IMCC IMCC_NCR IMCC_PR-3 MMEDIA MMEDIA_CONVERSE MMEDIA	31-03-95 30-04-95 30-06-95 04-02-96		2	25-10-93
HF 1	HF-TRO02 -1 DTR/HF-01006A 1	Human Factors (HF); Human factors in Videotelephony Part 1	Böcker, Martin MMEDIA MMEDIA_CONVERSE MMEDIA	31-10-91* 10-06-92*		12	15-05-92
HF 1 47	ETR DTR/HF-01006B 1	Human Factors in Videotelephony, Part 2	Böcker, Martin MMEDIA MMEDIA_CONVERSE MMEDIA	30-09-93 31-12-93		2	19-01-94
HF 1	HF-TR DTR/HF-01008 1	User Procedures for Multipoint Videotelephony	Mühlbach, Lothar MMEDIA MMEDIA_CONVERSE MMEDIA	28-02-94* 31-03-94* 30-06-94*		8	

TC/STC PT	(I-)ETS/ETR No Working Doc No Version	Title	Rapporteur/Responsible Company Project	Stable draft STC approval TC approval Comments to TC	PE V UAP	S T A T	Date of draft held by ESA
HF 1	ETR 113 DTR/HF-01010-C 1	Human Factors (HF); Results of an evaluation study of pictograms for point-to-point videotelephony	Böcker, Martin MMEDIA MMEDIA_CONVERSE MMEDI	30-03-93* 18-03-93* 31-08-93*		12	15-10-93
HF 1	ETR DTR/HF-01016 1	Human factors aspects of multimedia telecommunications	Dickerson, Keith RIC - RACE Industrial Consortium MMEDIA MMEDIA_COM-BLOC MMEDI	30-04-94* 30-09-94 30-11-94		6	
HF 1	HF-TR DTR/HF-01019 1	Human Factors (HF); Human factors issues in PSTN videotelephony	Anderson, Donald MMEDIA MMEDIA_CONVERSE MMEDI	30-09-94 30-11-94 30-11-94			
HF 1 47	HF-TR005 DTR/HF-01020 1	Human Factors Study of Integrated Services Digital Network (ISDN) videotelephony for conference interpreters	Anderson, Donald MMEDIA MMEDIA_CONVERSE MMEDI	20-02-93* 31-03-93* 30-06-93*		12	22-06-94
HF 1	ETR DTR/HF-01021 1	Human Factors (HF); Generic user control procedures for ISDN terminals and services	Anderson, Donald MMEDIA MMEDIA_COM-BLOC MMEDI	19-03-93* 11-06-93* 11-06-93*		8	
HF 1	ETR DTR/HF-01022 1	Human Factors (HF); User trials of user control procedures in ISDN videotelephony	Anderson, Donald MMEDIA MMEDIA_CONVERSE MMEDI	19-03-93* 11-06-93* 11-06-93*		8	
HF 1	HF-TR002 -1 RTR/HF-01015 2	Human Factors (HF); Human factors in Videotelephony Part 1	Anderson, Donald MMEDIA MMEDIA_CONVERSE MMEDI			12	13-10-92

TC/STC PT	(I-)ETS/ETR No Working Doc No Version	Title	Rapporteur/Responsible Company Project	Stable draft STC approval TC approval Comments to TC	PE V UAP	S T A T	Date of draft held by ESA
HF 3	ETR DTR/HF-03004 1	Usability checklist for Videophone terminals	Gilberg, Ib MMEDIA MMEDIA_CONVERSE MMEDI	30-03-95 30-03-95 30-06-95		1	
JTC 55 V	prETS DE/JTC-DVB-4-1 1	Digital broadcasting systems for television, sound and data services; Part 4-1 - Specification for conveying ITU-R system B Teletext in Digital Video Broadcasting (DVB) streams	Kozamernik, Franc DIGITAL_TV MMEDIA MMEDIA_DIS MMEDIA_END-END	07-09-94* 10-10-94 11-10-94		6	29-12-93
JTC 55 V	prETS 300 468 DE/JTC-DVB-5 1	Digital broadcasting systems for television, sound and data services; Part 5 - Service Information (SI) in digital video broadcasting systems	Kozamernik, Franc DIGITAL_TV MMEDIA MMEDIA_DIS MMEDIA_SER-DESC	07-09-94* 10-10-94 11-10-94		6	19-01-94
JTC 55 V	prETS 300 421 DE/JTC-DVB-6 1	Digital broadcasting systems for television, sound and data services; Framing structure, channel coding and modulation for 11/12 GHz satellite services	Kozamernik, Franc DIGITAL_TV MMEDIA MMEDIA_DIS MMEDIA_END-END	04-03-94* 13-07-94* 13-07-94*	UAP 17	9B	08-08-94
JTC 55 V	prETS 300 429 DE/JTC-DVB-7 1	Digital broadcasting systems for television, sound and data services; Framing structure, channel coding and modulation Cable systems	Kozamernik, Franc DIGITAL_TV MMEDIA MMEDIA_DIS MMEDIA_END-END	04-03-94* 04-07-94 13-07-94*	UAP 17	9B	08-08-94
JTC	prETS DE/JTC-DVB-8 1	Digital Video Broadcasting (DVB); Part 8 - Channel coding and modulation for terrestrial distribution of corresponding services	Weber, Jorgen TELE DANMARK AS DIGITAL_TV MMEDIA MMEDIA_DIS MMEDIA_END-END	30-04-95 15-06-95 15-06-95		b	19-01-94

TC/STC PT	(I-)ETS/ETR No Working Doc No Version	Title	Rapporteur/Responsible Company Project	Stable draft STC approval TC approval Comments to TC	PE V UAP	S T A T	Date of draft held by ESA
JTC	prETS 300 231 DE/JTC-PDC 1	Television Systems; Specification of the domestic video Programme Delivery Control system (PDC)	Wilson, E MMEDIA MMEDIA_DISTRI B MMEDIA	28-02-92* 28-02-92* 12-11-93*	PE 43 V	9D	01-06-93
JTC	prETS 300 163 DE/JTC-SPB424 1	Television Systems; NICAM 728: Specification for transmission of two-channel digital sound with terrestrial television systems B, G, H, I and L	Kozamernik, Franc MMEDIA MMEDIA_DISTRI B MMEDIA	04-03-94* 21-10-91*	PE 19 V 35	9B	01-07-94
JTC	prETS 300 294 DE/JTC-WSS 1	Television Systems; 625-Line television Wide Screen Signalling (WSS)	Westerkamp, D MMEDIA MMEDIA_DISTRI B MMEDIA	26-02-93* 28-09-93* 28-09-93* 14-03-94*	PE 52 V 62	10F	01-11-93
JTC	MI MI/JTC-DVB-1	Digital Video Broadcasting (DVB); Implementation guidelines for the use of MPEG 2 systems, video and audio in satellite and cable broadcasting applications in Europe	Weber, Jorgen TELE DANMARK AS DIGITAL_TV MMEDIA MMEDIA_COD MMEDIA_DISTRI B			b	29-12-93
JTC	MI MI/JTC-DVB-9	Digital Video Broadcasting (DVB); Part 9 - Common scrambling system	Weber, Jorgen TELE DANMARK AS DIGITAL_TV MMEDIA MMEDIA_DIS MMEDIA_SECURITY			b	19-01-94
NA	ETS 300 174 DE/NA-00001* 1	Network Aspects (NA); Digital coding of component television signals for contribution quality applications in the range 34 - 45 Mbit/s	Lodge, Nick MMEDIA MMEDIA_CODING MMEDIA_		UAP 3 V 26	12	10-11-92
NA 1	prETS DE/NA-010019-1 1	Network Aspects (NA); Broadband Connection Oriented Bearer (BCOB) service category Part 1: Overview	Ullio, Mario CSELT MMEDIA MMEDIA_COM-BLOC MMEDI	30-09-94 28-02-95 31-05-95 05-01-96		2	31-05-92

TC/STC PT	(I-)ETS/ETR No Working Doc No Version	Title	Rapporteur/Responsible Company Project	Stable draft STC approval TC approval Comments to TC	PE V UAP	S T A T	Date of draft held by ESA
NA 1	prETS DE/NA-010019-2 1	Network Aspects (NA); Broadband Connection Oriented Bearer (BCOB) service category Part 2: Procedures for the permanent mode	Ullio, Mario CSELT MMEDIA MMEDIA_COM-BLOC MMEDI	30-09-94 28-02-95 31-05-95 05-01-96		2	31-05-92
NA 1	prETS DE/NA-010019-3 1	Network Aspects (NA); Broadband Connection Oriented Bearer (BCOB) service category Part 3: Procedures for the reserved mode	Ullio, Mario CSELT MMEDIA MMEDIA_COM-BLOC MMEDI	30-09-94 31-03-95 31-05-95 05-01-96		2	31-05-92
NA 1	prETS DE/NA-010019-4 1	Network Aspects (NA); Broadband Connection Oriented Bearer (BCOB) service category Part 4: Procedures for the on-demand mode	Ullio, Mario CSELT MMEDIA MMEDIA_COM-BLOC MMEDI	30-09-94 31-03-95 31-05-95 05-01-96		2	31-05-92
NA 1	prETS DE/NA-010019-5 1	Network Aspects (NA); Broadband Connection Oriented Bearer (BCOB) service category Part 5: Specific service aspects	Ullio, Mario CSELT MMEDIA MMEDIA_COM-BLOC MMEDI	30-09-94 31-03-95 31-05-95 05-01-96		2	31-05-92
NA 1	prETS 300 455 DE/NA-010020 1	Vitural Path Service for reserved and permanent communications	Balcou, Y FRANCE TELECOM MMEDIA MMEDIA_COM-BLOC MMEDI	30-09-93* 10-03-94* 20-05-94* 08-02-95		8A	31-05-92
NA 1	prETS 300 389 DE/NA-010021 1	Integrated Services Digital Network (ISDN); Circuit-mode multiple-rate unrestricted 8 kHz structured bearer service category Service description	Vibe, Soren JYDSK TELEFON MMEDIA MMEDIA_COM-BLOC MMEDI	31-12-93 28-02-94 10-11-93* 02-05-94*	PE 55 V 64	10F	05-09-94
NA 1	ETS 300 120 DE/NA-012202 1	Integrated Services Digital Network (ISDN); Service requirements for telefax group 4	Le Gac, Marie Lise ALCATEL France IMCC IMCC ITAEGT IMCC_NCR IMCC_PR-2 ISM MMEDIA MMEDIA_COM-BLOC MMEDIA_SER-DE	16-02-90* 10-07-90* 08-02-91*	PE 15 V 24	12	10-11-92

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NA 1	ETS 300 264 DE/NA-012231 1	Integrated Services Digital Network (ISDN); Videotelephony teleservice Service description	Jezequel, Michel FRANCE TELECOM IMCC IMCC_NCR IMCC_PR-2 ISM MMEDIA MMEDIA_CONVERSE MMEDIA_SER-DESC	15-02-91* 26-04-91* 05-05-93*	PE 35 V 47	12	01-03-94
NA 1	ETS 300 263 DE/NA-012232 1	Integrated Services Digital Network (ISDN); Telephony 7 kHz teleservice Service description	Mohr amler, K DEUTSCHE BUNDESPOST TELEKOM IMCC IMCC_NCR IMCC_PR-2 ISM MMEDIA MMEDIA_COM-BLOC MMEDIA_SER-DESC	15-02-91* 26-04-91* 05-05-93*	PE 35 V 47	12	01-03-94
NA 1	ETS 300 262 DE/NA-012239 1	Integrated Services Digital Network (ISDN); Syntax-based Videotex teleservice Service description	Le Gac, Marie Lise ALCATEL France IMCC IMCC_ITAEGT IMCC_NCR IMCC_PR-2 ISM MMEDIA MMEDIA_RETRIEVE MMEDIA_SER-DE	31-03-92 09-05-92* 09-03-93*	PE 33 V 35	12	23-08-93
NA 1	ETR DTR/NA-012409 1	Base document on multimedia services	Dickerson, Keith RIC - RACE Industrial Consortium MMEDIA MMEDIA_GENERAL	30-09-93* 30-09-94 31-10-94		6	
NA 5 45	prETS 300 142 DE/NA-051108 1	Integrated Services Digital Network (ISDN) and other digital telecommunications networks Audiovisual teleservices Video codec for audio visual services at p* 64 kbit/s (T/N 31-04)	Guichard, Jacques CNET IMCC IMCC_BASE IMCC_PR-2 ISM MMEDIA MMEDIA_CODING MMEDIA_CONVERSE	30-09-93* 30-04-94 30-06-94 07-02-95		6	25-03-91
NA 5	prI-ETS DI/NA-051105 1	Video coding for ATM environments	Guichard, Jacques CNET MMEDIA MMEDIA_CODING MMEDIA_	30-06-94 31-10-94 10-05-95			

TC/STC PT	(I-)ETS/ETR No Working Doc No Version	Title	Rapporteur/Responsible Company Project	Stable draft STC approval TC approval Comments to TC	PE V UAP	S T A T	Date of draft held by ESA
NA 5	ETR DTR/NA-051 102 1	Impact of video coding requirements on B-ISDN design	Guichard, Jacques CNET MMEDIA MMEDIA_CODING MMEDIA_	31-12-92 30-04-93			
NA 5	ETR DTR/NA-051 109 1	Support of video & multimedia services in B-ISDN	Beaumont, David BT MMEDIA MMEDIA_COM-BLOC MMEDI	07-10-94 31-10-94		1	25-03-91
NA 5	ETR DTR/NA-052620 1	ATM adaptation layer type(s) for the support of video and multimedia services	Beaumont, David BT MMEDIA MMEDIA_API-LL MMEDIA_	07-10-94 31-10-94		1	
NA 5	MI MI/NA-051 104	Contributions to CCITT H.series on video coding	Guichard, Jacques CNET MMEDIA MMEDIA_CODING MMEDIA_				
NA 5	MI MI/NA-051 107	Studies related to ISO/MPEG activities in relation to the CCITT video coding work	Guichard, Jacques CNET MMEDIA MMEDIA_CODING MMEDIA_			1	
NA 5	MI MI/NA-051 110	Video Source Encoding for Digital TV	Guichard, Jacques CNET MMEDIA MMEDIA_CODING MMEDIA_				
RES10 56 V	ETR DTR/RES-10-06 1	Radio Equipment and Systems (RES); High Performance Radio Local Area Networks (HIPERLAN); Architecture of HIPERLAN for Time Bound Services (TBS) and Multimedia	Bourin, Bernard DASSAULT Automatismes et Télécommunications HIPERLAN MMEDIA MMEDIA_COM-B MMEDIA_SER-DESC	15-12-94 30-12-94 03-02-95		1	19-01-94

TC/STC PT	(I-)ETS/ETR No Working Doc No Version	Title	Rapporteur/Responsible Company Project	Stable draft STC approval TC approval Comments to TC	PE V UAP	S T A T	Date of draft held by ESA
SAGE 38 V	SAGE-TR DTR/SAGE-00001 1	European Encryption Algorithm for the use in audiovisual systems	Roelofsen, Gerd PTT NEDERLAND NV MMEDIA MMEDIA_CONVERSE MMEDI	31-12-93 31-03-94		1	
SAGE 38 V	SAGE-TR001 DTR/SAGE-00002 1	Security Algorithms Group of Experts (SAGE); Requirements for an encryption algorithm for use in audio visual systems	Roelofsen, Gerd PTT NEDERLAND NV MMEDIA MMEDIA_CONVERSE MMEDI	01-06-93* 31-10-93*		12	29-12-93
SPS 1	ETS 300 265 T/S 22-14 1	Integrated Services Digital Network (ISDN); Telephony 7 kHz teleservice Functional capabilities and information flows	Collins, Richard IMCC IMCC_NCR IMCC_PR-2 ISM MMEDIA MMEDIA_COM-BLOC MMEDIA_SER-DESC	08-12-89* 26-10-90* 18-12-91* 05-05-93*	PE 35 V 47	12	01-02-94
SPS 1	ETS 300 266 T/S 22-16 1	Integrated Services Digital Network (ISDN); Videotelephony teleservice Functional capabilities and information flows	Drage, Keith GPT Limited IMCC IMCC_NCR IMCC_PR-2 ISM MMEDIA MMEDIA_CONVERSE MMEDIA_SER-DESC	08-12-89* 22-03-91* 18-12-91* 05-05-93*	PE 35 V 47	12	01-02-94
SPS 5	ETS 300 267-1 DE/SPS-05010 1	Integrated Services Digital Network (ISDN); Telephony 7 kHz and videotelephony teleservices Digital Subscriber Signalling System No. one (DSS1) protocol Part 1: Protocol specification	Drage, Keith GPT Limited IMCC IMCC_BASE IMCC_PR-2 ISM MMEDIA MMEDIA_CONVERSE MMEDIA_END-END	08-03-91* 01-11-91* 19-12-91* 05-05-93*	PE 35 V 47	12	01-02-94
SPS 5 58 V	prETS 300 267-3 DE/SPS-05048-3 1	Integrated Services Digital Network (ISDN); Telephony 7 kHz and videotelephony teleservices Digital Subscriber Signalling System No. one (DSS1) protocol Part 3: Test Suite Structure and Test Purposes (TSS&TP) for the user side	Testa, Marcello CSELT IMCC IMCC_ATS IMCC_PIXIT IMCC_PR-2 MMEDIA MMEDIA_CONV MMEDIA_END-END	01-11-94 29-12-94 11-07-95			

TC/STC PT	(I-)ETS/ETR No Working Doc No Version	Title	Rapporteur/Responsible Company Project	Stable draft STC approval TC approval Comments to TC	PE V UAP	S T A T	Date of draft held by ESA
SPS 5 58 V	prETS 300 267-4 DE/SPS-05048-4 1	Integrated Services Digital Network (ISDN); Telephony 7 kHz and videotelephony teleservices Digital Subscriber Signalling System No. one (DSS1) protocol Part 4: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) for the user side	Testa, Marcello CSELT IMCC IMCC_ATS IMCC_PIXIT IMCC_PR-2 MMEDIA MMEDIA_CONV/ MMEDIA_END-END	01-11-94 29-12-94 11-07-95			
SPS 5 58 V	prETS 300 267-5 DE/SPS-05048-5 1	Integrated Services Digital Network (ISDN); Telephony 7 kHz and videotelephony teleservices Digital Subscriber Signalling System No. one (DSS1) protocol Part 5: Test Suite Structure and Test Purposes (TSS&TP) for the network side	Testa, Marcello CSELT IMCC IMCC_ATS IMCC_PIXIT IMCC_PR-2 MMEDIA MMEDIA_CONV/ MMEDIA_END-END	01-11-94 29-12-94 11-07-95			
SPS 5 58 V	prETS 300 267-6 DE/SPS-05048-6 1	Integrated Services Digital Network (ISDN); Telephony 7 kHz and videotelephony teleservices Digital Subscriber Signalling System No. one (DSS1) protocol Part 6: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) for the network side	Testa, Marcello CSELT IMCC IMCC_ATS IMCC_PIXIT IMCC_PR-2 MMEDIA MMEDIA_CONV/ MMEDIA_END-END	01-11-94 29-12-94 11-07-95			
SPS 5	prETS 300 267-2 DE/SPS-05054 1	Integrated Services Digital Network (ISDN); Telephony 7 kHz and videotelephony teleservices Digital Subscriber Signalling System No. one (DSS1) protocol Part 2: Protocol Implementation Conformance Statement (PICS) proforma	Drage, Keith GPT Limited IMCC IMCC_PICS IMCC_PR-2 MMEDIA MMEDIA_CONVERSE MMEDI	17-09-93* 25-11-93* 23-06-94*	PE 57	9D	15-01-94
SPS 5	prETS 300 267-1/prA1 RE/SPS-05062-1 1	Integrated Services Digital Network (ISDN); Telephony 7 kHz and videotelephony teleservices Digital Subscriber Signalling System No. one (DSS1) protocol Part 1: Protocol specification	Drage, Keith GPT Limited IMCC IMCC_BASE IMCC_PR-2 ISM MMEDIA MMEDIA_CONVERSE MMEDIA_END-END	15-03-94* 14-10-94 02-12-94		6	

TC/STC PT	(I-)ETS/ETR No Working Doc No Version	Title	Rapporteur/Responsible Company Project	Stable draft STC approval TC approval Comments to TC	PE V UAP	S T A T	Date of draft held by ESA
SPS 5	ETR 018 RTR/SPS-05044 2	Integrated Services Digital Network (ISDN); Application of the BC-, HLC-, LLC- information elements by terminals supporting ISDN services	Schwetje, Dieter DEUTSCHE BUNDESPOST TELEKOM IMCC IMCC_ITAEGT IMCC_NCR IMCC_PR-2 ISM MMEDIA MMEDIA_COM-BLOC MMEDIA_END-EN	30-04-92* 04-06-92*		12	01-12-92
SPS 5	ETR 018 RTR/SPS-05053 3	Integrated Services Digital Network (ISDN); Application of the BC-, HLC-, LLC- information elements by terminals supporting ISDN services	Schwetje, Dieter DEUTSCHE BUNDESPOST TELEKOM IMCC IMCC_NCR IMCC_PR-3 MMEDIA MMEDIA_COM-BLOC MMEDIA	17-09-93* 25-11-93*		8A	
TE 1	ETS 300 076 DE/TE-01005 2	Terminal Equipment (TE); Videotex Terminal Facility Identifier (TFI)	Surzur, Yannick FRANCE TELECOM MMEDIA MMEDIA_RETRIEVE MMEDIA	05-02-92*	PE 24 V 23	12	31-08-92
TE 1 22	ETS 300 177 DE/TE-01006 1	Terminal Equipment (TE); Videotex Photographic Syntax	Scarr, J. MMEDIA MMEDIA_CODING MMEDIA	31-12-90* 31-12-90 30-06-91* 05-02-92*	PE 24 V 23	12	11-09-92
TE 1 21	ETS 300 149 DE/TE-01007 1	Terminal Equipment (TE); Videotex Audio syntax	Surzur, Yannick FRANCE TELECOM MMEDIA MMEDIA_CODING MMEDIA	05-10-90* 07-12-90* 28-08-91*	PE 18 V 17	12	20-03-92
TE 1	ETS 300 079 DE/TE-01010 1	Integrated Services Digital Network (ISDN); Syntax-based videotex End-to-end protocols, circuit mode DTE-DTE	Welser, Michael ETSI Secretariat IMCC IMCC_BASE IMCC_PR-2 ISM MMEDIA MMEDIA_END-END MMEDIA_RETRIEVE	09-04-90* 18-05-90* 15-06-90* 01-02-91*	PE 14 V 10	12	21-10-91

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TE 1 30	ETS 300 218 DE/TE-01012 1	Integrated Services Digital Network (ISDN); Syntax-based videotex lower layer protocols for ISDN packet mode (CCITT Recommendation X.31 Case A and Case B)	Welser, Michael ETSI Secretariat IMCC IMCC_BASE IMCC_PR-3 MMEDIA MMEDIA_END-END MMEDIA	30-09-91* 04-10-91* 17-12-91* 03-07-92*	PE 27 V 29	12	30-01-93
TE 1 10 V	ETS 300 223 DE/TE-01013 1	Terminal Equipment (TE); Syntax-based Videotex Common end-to-end protocols	Wiemers, U. IMCC IMCC_BASE IMCC_PR-3 MMEDIA MMEDIA_END-END MMEDIA	30-09-91* 04-10-91* 03-02-92* 03-07-92*	PE 27 V 29	12	31-01-93
TE 1	ETS 300 221 DE/TE-01014 1	Terminal Equipment (TE); Syntax-based Videotex lower layer protocols using packet mode access over the Public Switched Telephone Network (PSTN)	Surzur, Yannick FRANCE TELECOM MMEDIA MMEDIA_END-END MMEDIA	04-10-91* 06-12-91* 03-07-92*	PE 27 V 29	12	31-01-93
TE 1	ETS 300 222 DE/TE-01015 1	Terminal Equipment (TE); Framework of Videotex terminal protocols	Surzur, Yannick FRANCE TELECOM MMEDIA MMEDIA_END-END MMEDIA	04-10-91* 17-12-91* 03-07-92*	PE 27 V 29	12	31-01-93
TE 1 49	prETS 300 382 DE/TE-01016 1	Terminal Equipment (TE); Videotex Enhanced Man Machine Interface service (VEMMI)	Dallemagne, Philippe MMEDIA MMEDIA_END-END MMEDIA	02-07-93* 01-10-93* 29-03-94*	PE 53	9E	09-11-93
TE 1 44 V	prETS 300 383 DE/TE-01042-1 1	Integrated Services Digital Network (ISDN); File transfer over the ISDN EUROFILE transfer profile	Corte, Carlo CSELT IMCC IMCC_AIS IMCC_BASE MMEDIA MMEDIA_COM-BLOC MMEDIA	02-07-93* 27-09-93* 11-04-94*	PE 54 V 63	10F	22-08-94

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TE 1 44 V	prETS 300 388 DE/TE-01042-2 1	Integrated Services Digital Network (ISDN); File Transfer Access & Management (FTAM) over ISDN based on simple file transfer profile	Corte, Carlo CSELT IMCC IMCC_AIS IMCC_BASE MMEDIA MMEDIA_COM-BLOC MMEDIA	02-07-93* 27-09-93* 11-04-94*	PE 54 V 63	10F	22-08-94
TE 1 R V	prETS DE/TE-01043 1	Application Programme Interface (API) for simple file transfer over Integrated Services Digital Network (ISDN)	Layec, Hervé FRANCE TELECOM IMCC IMCC_AIS IMCC_BASE MMEDIA MMEDIA_API-LL MMEDIA	01-05-95 22-10-95 03-12-95 07-07-96		1	
TE 1 63	prETS DE/TE-01045 1	Terminal Equipment (TE); Application Programme Interface (API) for the manipulation of multimedia and hypermedia information objects	Blaschitz, Michael MMEDIA MMEDIA_API-LL MMEDIA	11-10-94 11-02-95 11-04-95 16-11-95		1	
TE 1	prETS DE/TE-01046 1	Real-time interchange of multimedia & hypermedia information in retrieval services	Layec, Hervé FRANCE TELECOM MMEDIA MMEDIA_END-END MMEDIA	01-12-94 01-12-94 01-03-95 06-10-95		1	
TE 1 63	prETS DE/TE-01047 1	Terminal Equipment (TE); Representation of scripts for Audio Visual Information (AVI) applications	Blaschitz, Michael MMEDIA MMEDIA_END-END MMEDIA	01-07-95 01-10-95 01-12-95 10-06-96		1	
TE 1	prETS DE/TE-01048 1	Protocols for Audio Visual Information (AVI) scriptware services.	Layec, Hervé FRANCE TELECOM MMEDIA MMEDIA_END-END MMEDIA	01-01-95 01-06-95 01-09-95 09-03-96		1	
TE 1	prETS DE/TE-01049 1	Videotex protocols & syntaxes for real-time transmission of low bit-rate moving video.	Layec, Hervé FRANCE TELECOM MMEDIA MMEDIA_END-END MMEDIA	11-01-95 11-01-95 01-04-95 05-11-95		1	

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TE 1	prETS DE/TE-01054 1	Profiles of ODA & HyperODA for use in M&HIRS	Layec, Hervé FRANCE TELECOM MMEDIA MMEDIA_CODING MMEDIA_	01-12-94 01-12-94 01-03-95 06-10-95		1	
TE 1	prETS DE/TE-01057	End-to-end protocols for multimedia information retrieval services	Layec, Hervé FRANCE TELECOM MMEDIA MMEDIA_END-END MMEDIA	31-10-95 31-12-95 31-03-96 08-10-96			
TE 1 10 V	I-ETS 300 236 DI/TE-01011 1	Terminal Equipment (TE); Syntax-based Videotex Protocol Terminal conformance testing	Don, Christian Telecommunications Consultant Te sting and Certification IMCC IMCC_ATS IMCC_PR-2 MMEDIA MMEDIA_END-END MMEDIA	12-07-91* 31-03-92* 17-04-92* 12-10-92*	PE 29 V 32	12	01-05-93
TE 1 59 V	prI-ETS DI/TE-01044 1	Terminal Equipment (TE); File transfer over Integrated Services Digital Network (ISDN) Conformance test specification	Hänel, Jörg SIGOS Systemintegration GmbH IMCC IMCC_AIS IMCC_ATS MMEDIA MMEDIA_COM-BLOC MMEDIA	15-07-94 01-11-94 01-01-95 12-07-95		2	19-01-94
TE 1 28 V	ETR 084 DTR/TE-01017 1	Terminal Equipment (TE); Multimedia & Hypermedia Information Retrieval Services (M&HIRS) Investigation of candidate architectures for M&HIRS	Bol, Henri MMEDIA MMEDIA_RETRIEVE MMEDIA	20-11-92* 10-03-93*		12	14-06-93
TE 1 48	ETR 074 DTR/TE-01019 1	Terminal Equipment (TE); File transfer over the Integrated Services Digital Network (ISDN)	Hoffmann, Harald MMEDIA MMEDIA_COM-BLOC MMEDIA	20-11-92* 03-12-92*		12	28-09-93
TE 1	ETR DTR/TE-01050 1	Interworking of retrieval services with audiovisual services	Bol, Henri MMEDIA MMEDIA_COMBINAT MMEDIA	22-04-94* 01-11-94 01-01-95		6	

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TE 1	ETR DTR/TE-01051 1	Real-time transmission of moving video on high-speed interactive networks (around 1,5 Mbit/s)	Layec, Hervé FRANCE TELECOM MMEDIA MMEDIA_RETRIEVE MMEDI	01-05-94 01-12-94 01-03-95		2	
TE 1	ETR DTR/TE-01052 1	Interchange representation of access restrictions to information within M&HIRS	Layec, Hervé FRANCE TELECOM MMEDIA MMEDIA_RETRIEVE MMEDI	11-01-95 11-01-95 01-04-95		1	
TE 1	ETR DTR/TE-01053 1	Recommendation for a common user interface for M&HIRS	Layec, Hervé FRANCE TELECOM MMEDIA MMEDIA_HF MMEDIA_RETR	11-01-96 11-01-97 01-04-97			
TE 1 49	ETR DTR/TE-01059	Videotex enhanced man machine interface (VEMMI) implementation guidelines	Ferris, Alan MMEDIA MMEDIA_HF MMEDIA_RETR	24-02-94 01-11-94 01-01-95			
TE 1	MI MI/TE-01030	Matters arising from the work of ITU TS SG 8 (previously CCITT SG VIII) with respect to videotex syntax and protocol aspects, and audiovisual interactive system.	Layec, Hervé FRANCE TELECOM MMEDIA MMEDIA_COMBINAT MMEDI			1	
TE 1	prETS 300 072 R1 RE/TE-01040 1	Extension videotex data syntax for alpha-mosaic display	Kartmann, Kurt DANET GMBH MMEDIA MMEDIA_CODING MMEDIA_	26-03-95 26-03-95 11-06-95		1	
TE 1	ETS 300 075 RE/TE-01041 2	Terminal Equipment (TE); Processable data File transfer	Savary, Jean Yves FRANCE TELECOM MMEDIA MMEDIA_CODING MMEDIA_	26-03-93* 10-06-93*	UAP 9	12	28-02-94

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TE 1	prETS 300 177 RE/TE-01055 2	Terminal Equipment (TE); Videotex Photographic Syntax	Cailleaux, Jean-Michel MMEDIA MMEDIA_CODING MMEDIA_	18-12-93* 22-04-94* 09-06-94*	UAP 17	9B	08-08-94
TE 1	prETS 300 076 RE/TE-01056 3	Terminal Equipment (TE); Videotex Terminal Facility Identifier (TFI)	Layec, Hervé FRANCE TELECOM MMEDIA MMEDIA_RETRIEVE MMEDI	15-04-94 22-04-94* 09-06-94*	UAP 16	9B	01-07-94
TE 1	prETS 300 075 RE/TE-01058 3	Terminal equipment processable data, file transfer	Savary, Jean Yves FRANCE TELECOM MMEDIA MMEDIA_COM-BLOC MMEDI	20-07-94 01-11-94 01-01-95 12-07-95			
TE 2 46	prETS 300 243-1 DE/TE-02015-1 1	Terminal Equipment (TE); Programming Communication Interface (PCI) APPLI/COM for facsimile Group 3, facsimile Group 4, teletex and telex services Part 1: CCITT Recommendation T.611 (1992) [modified]	Stoye, Gunther MMEDIA MMEDIA_API-LL MMEDIA_	26-03-93* 23-11-93* 05-09-94*	PE 62	9D	01-05-94
TE 2 46	prETS 300 243-2 DE/TE-02015-2 1	Terminal Equipment (TE); Programming Communication Interface (PCI) APPLI/COM for facsimile group 3, facsimile group 4, teletex and telex services Part 2: Conformance testing	Stoye, Gunther MMEDIA MMEDIA_API-LL MMEDIA_	26-03-93* 23-11-93* 05-09-94*	PE 62	9D	15-04-94
TE 2 30 V	prETS DE/TE-02019-2 1	Conformance testing for Group 4/class 1 (G4:CL1) Facsimile Apparatus	Stadler, R MMEDIA MMEDIA_COM-BLOC MMEDI	31-03-92 31-03-94 30-06-94 05-02-95		1	
TE 2 61	prETS DE/TE-02022 1	Open Document Architecture (ODA) communication service profile(s) Part 1: Definition	Stoye, Gunther MMEDIA MMEDIA_CODING MMEDIA_	01-05-94 31-10-94 31-12-94 11-07-95		2	

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TE 2 27	prETS DE/TE-02023 1	Open Document Architecture (ODA) communication service profile(s) Part 2: Conformance testing	Stoye, Gunther MMEDIA MMEDIA_CODING MMEDIA_	30-06-94 31-12-94 01-03-95 07-12-95		1	
TE 2 26 V	prETS DE/TE-02024-2 1	Integrated Services Digital Network (ISDN) lower layer protocols for telematic terminals Protocol testing for ETS 300 080	Boulay, G IMCC IMCC_ATS IMCC_PR-2 ISM MMEDIA MMEDIA_API-LL MMEDIA_COM-BLOC	01-06-95 01-06-95 01-12-95 10-06-96		1	
TE 2 27 V	prETS DE/TE-02025 1	Architecture for Programming Communication Interfaces (PCIs)	Dick, Jean Paul CNET MMEDIA MMEDIA_API-LL MMEDIA_	01-04-94 01-04-94 30-06-94 08-01-95		1	
TE 2 43 V	prETS DE/TE-02028 1	Terminal Equipment (TE); Programming Communications Interface (PCI) for Euro-ISDN Conformance testing	Dick, Jean Paul CNET MMEDIA MMEDIA_API-LL MMEDIA_	01-07-94 31-10-94 31-12-94 11-07-95			
TE 2 19 V	ETS 300 325 DE/TE-02029 1	Integrated Services Digital Network (ISDN); Programming Communication Interface (PCI) for Euro-ISDN	Lequeux, Pascal MMEDIA MMEDIA_API-LL MMEDIA_	31-08-92 31-10-92 04-12-92* 13-08-93*	PE 40 V 51	12	15-03-94
TE 2	prETS DE/TE-02030 1	Terminal Equipment (TE); Optional application for Teletex and Facsimile Group 4 equipments; Telematic File Transfer, testing aspects	Stoye, Gunther MMEDIA MMEDIA_COM-BLOC MMEDI	01-11-94 01-03-95 01-06-95 09-12-95			
TE 2	prETS DE/TE-02032 1	Generic Programming Communication Interface (PCI) for Multimedia applications	Dick, Jean Paul CNET MMEDIA MMEDIA_API-LL MMEDIA_	01-12-95 01-03-96 01-07-96 09-01-97			

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TE 2 40	ETR 081 DTR/TE-02017 1	Open Document Architecture (ODA); Identification of characteristics Integrated Services Digital Networks (ISDN) for Open Document Architecture (ODA) applications.	Vogt, G DEUTSCHE BUNDESPOST TELEKOM MMEDIA MMEDIA_CODING MMEDIA_	26-03-93 31-01-93*		12	05-07-93
TE 2	ETR DTR/TE-02034	Generic Programming Communication Interface (PCI) for Multimedia Applications: Identification of PCIs needed	Dick, Jean Paul CNET MMEDIA MMEDIA_API-LL MMEDIA_	01-02-95 30-04-95 01-07-95			
TE 2	MI MI/TE-02013	Enhancement of CCITT T.30 protocol : T.30 - Programming Communications Interface (PCI) (extension of XTI).	Dick, Jean Paul CNET MMEDIA MMEDIA_API-LL MMEDIA_				
TE 2	MI MI/TE-02033	Work within TE2 on Multimedia activities (including close liaison with TE10)	Giuseppini, Alberto MMEDIA MMEDIA_COM-BLOC MMEDI				
TE 2	prETS 300 242/prA1 RE/TE-02020 1	Terminal Equipment (TE); Group 3 facsimile equipment	Duarte Pina, Fernando IMCC IMCC_BASE IMCC_PR-2 MMEDIA MMEDIA_COM-BLOC MMEDI	26-03-93* 18-10-93*	UAP 14	10G	01-05-94
TE 2 51	prETS 300 080 R1 RE/TE-02026 1REV	Integrated Services Digital Network (ISDN); ISDN lower layer protocols for telematic terminals	Stadler, R MMEDIA MMEDIA_API-LL MMEDIA_	31-08-94 01-03-95 01-06-95 06-01-96		1	
TE 2 42 V	prETS 300 325 R1 RE/TE-02027 1REV	Provision of a Programming Communications Interface for Euro-ISDN (Enhanced functions)	Dick, Jean Paul CNET MMEDIA MMEDIA_API-LL MMEDIA_	30-04-94 31-10-94 31-12-94		1	

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TE 2	ETS 300 242 T/TE 05-05 [AJ] 1	Terminal Equipment (TE); Group 3 facsimile equipment	Stadler, R IMCC IMCC_BASE IMCC_PR-2 MMEDIA MMEDIA_COM-BLOC MMEDIA	28-02-89 06-10-89	PE 2 V 27	12	31-12-92
TE 2	ETS 300 112 T/TE 05-07 1	Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN End-to-end protocols	Hertlein, H.K. DEUTSCHE BUNDESPOST TELEKOM IMCC IMCC_BASE IMCC_PR-2 ISM MMEDIA MMEDIA_COM-BLOC MMEDIA_END-END	30-01-90* 10-03-90* 10-05-90* 01-02-91*	PE 14 V 54	12	01-05-94
TE 2	prETS 300 155 T/TE 05-08 1	Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN End-to-end protocol tests (Interconnection capability testing)	Hertlein, H.K. DEUTSCHE BUNDESPOST TELEKOM IMCC IMCC_ATS IMCC_PR-2 ISM MMEDIA MMEDIA_COM-BLOC MMEDIA_END-END	30-09-90* 30-10-90* 20-05-93* 23-06-94*	PE 18 PE 57	9D	15-01-94
TE 2	ETS 300 087 T/TE 05-09 1	Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 on the ISDN Functional specification of the equipment	Hertlein, H.K. DEUTSCHE BUNDESPOST TELEKOM MMEDIA MMEDIA_COM-BLOC MMEDIA	30-04-90* 30-06-90* 28-08-91*	PE 18 V 54	12	01-05-94
TE 2	ETS 300 280 T/TE 05-10 1	Terminal Equipment (TE); Facsimile group 4 class 1 equipment on the Integrated Services Digital Network (ISDN) Terminal testing	Boulay, G MMEDIA MMEDIA_COM-BLOC MMEDIA	26-05-92* 11-09-92* 15-03-93*	PE 34 V 47	12	15-02-94
TE 2	TE-TR T/TE 05-11 1	Facsimile Group 4 Class 1 equipment on the Integrated Services Digital Network (ISDN) : Interworking between Group 3 (G.3) and Group 4 (G.4).	Edmondson, Peter BFICC - British Facsimile Industry Consultative Committee IMCC IMCC_BASE IMCC_PR-2 MMEDIA MMEDIA_COM-BLOC MMEDIA	01-10-94 01-12-94 01-06-95		2	

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TE 2	ETS 300 154 T/TE 07-09 1	Terminal Equipment (TE); Terminal characteristics for the telematic file transfer within the teletex service [ITU-T Recommendation T.571 (modified)]	Stoye, Gunther IMCC IMCC_BASE IMCC_PR-2 MMEDIA MMEDIA_COM-BLOC MMEDIA	18-12-92*	PE 18 PE 31	12	15-02-94
TE 3	ENV DEN/TE-03041 1	Functional standard A/MH 31 Message handling systems - Electronic Data Interchange Messaging Interchange Messaging Service (EDIMS) : Electronic Data Interchange (EDI) to EDI User Access (EDIUA)	Ackzell, B MMEDIA MMEDIA_DISTRI	31-01-92 30-06-92*		12	
TE 3	MI MI/TE-03044	AMH1n - Message Handling System (MHS) - common messaging	Stranger, J MHS MMEDIA MMEDIA_DISTRI MMEDIA_END-END			3	
TE 3	MI MI/TE-03045	AMH2n - Message Handling System (MHS) - Interpersonal messaging (IPM)	Stranger, J MHS MMEDIA MMEDIA_DISTRI MMEDIA_END-END			3	
TE 3	MI MI/TE-03046	AMH3n - Message handling System (MHS) - Electronic Data Interchange (EDI) messaging.	Ackzell, B MHS MMEDIA MMEDIA_DISTRI MMEDIA_END-END			2	
TE 3	ENV 41 214 T/TE 09-02 1	Message Handling Common Facilities MTS End-User to MTS End-User and MTA (FS A/3311)	Ackzell, B MMEDIA MMEDIA_DISTRI MMEDIA	30-04-91 30-06-91*		12	

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TE 3	ENV T/TE 09-03 1	Message Handling Common Facilities User Agent to Message Store (A/MH12)	Piquereau, P FRANCE TELECOM MMEDIA MMEDIA_DISTRIB MMEDIA	31-10-91 15-06-92*		12	
TE 3	MI T/TE 13-06	Directory Usage by Message Handling System (MHS) (Functional Standard (FS) F/DI11).	Willmott, R MMEDIA MMEDIA_DISTRIB MMEDIA			2	
TE 3	ENV TE3-01.3 1	Functional standard A/MH13 Message Transfer Service (MTS) user to Message Transfer Agent (MTA) (P3).	Piquereau, P FRANCE TELECOM MMEDIA MMEDIA_DISTRIB MMEDIA	31-01-92 30-06-92*		12	
TE 4	prETS DE/TE-04029 1	Integrated Services Digital Network (ISDN); Channel aggregation of B-channels. Procedures and terminal requirements	Kenyon, Norman D. BT MMEDIA MMEDIA_COM-BLOC MMEDIA	22-04-94* 30-09-94 31-12-94 11-07-95		6	
TE 4	prETS DE/TE-04030 1	Integrated Services Digital Network (ISDN); Videoconference teleservice. Service Description.	BLIN, Jean Pierre FRANCE TELECOM MMEDIA MMEDIA_CONVERSE MMEDIA	31-12-93 31-05-94 31-03-95 08-10-95		2	
TE 4	prETS DE/TE-04031 1	Integrated Services Digital Network (ISDN); Audiographic conference teleservice. Service description.	Ulseth, Trond NORWEGIAN TELECOM MMEDIA MMEDIA_CONVERSE MMEDIA	22-04-94* 30-09-94 31-12-94 11-07-95		6	
TE 4	prETS DE/TE-04032 1	Integrated Services Digital Network (ISDN); Audiovisual Services. Multipoint Control Unit (MCU).	Lavoisard, Jean Louis SAT MMEDIA MMEDIA_CONVERSE MMEDIA	22-04-94* 30-09-94 31-12-94 11-07-95		6	

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TE 4	prETS DE/TE-04111 1	Videotelephone reference terminal-ISDN basic access signalling aspects	BELERER, Manfred IMCC IMCC_BASE IMCC_PR-2 MMEDIA MMEDIA_CONVERSE MMEDIA	30-09-94 31-01-95 31-03-95 08-10-95		2	19-01-94
TE 4 45	ETS 300 143 DE/TE-04116 1	Integrated Services Digital Network (ISDN); Audiovisual services Inband signalling procedures for audiovisual terminals using digital channels up to 2 048 kbit/s	Ulseth, Trond NORWEGIAN TELECOM IMCC IMCC_BASE IMCC_PR-2 ISM MMEDIA MMEDIA_CONVERSE MMEDIA_END-END	31-03-92* 31-10-92* 04-12-92*	UAP 8	12	01-05-94
TE 4 45	ETS 300 144 DE/TE-04117 1	Integrated Services Digital Network (ISDN); Audiovisual services Frame structure for a 64 kbit/s to 1 920 kbit/s channel and associated syntax for inband signalling	Hinz, Ralf IMCC IMCC_BASE IMCC_PR-2 ISM MMEDIA MMEDIA_CONVERSE MMEDIA_END-END	31-03-92* 31-10-92* 04-12-92*	UAP 8	12	01-05-94
TE 4 45	ETS 300 145 DE/TE-04118 1	Integrated Services Digital Network (ISDN); Audiovisual services Videotelephone systems and terminal equipment operating on one or two 64 kbit/s channels	Ulseth, Trond NORWEGIAN TELECOM IMCC IMCC_BASE IMCC_PR-2 ISM MMEDIA MMEDIA_CONVERSE MMEDIA_END-END	31-03-92* 31-10-92* 04-12-92*	UAP 8	12	01-05-94
TE 4 57 V	prETS DE/TE-04120 1	Integrated Services Digital Network (ISDN); Audiovisual services Videotelephony in-band signalling conformance testing	Ulseth, Trond NORWEGIAN TELECOM IMCC IMCC_ATS IMCC_PR-2 MMEDIA MMEDIA_CONVERSE MMEDIA	15-02-95 30-04-95 28-04-95 06-12-95		2	
TE 4	prl-ETS 300 302-1 DI/TE-04008.1 1	Integrated Services Digital Network (ISDN); Videotelephony teleservice Part 1: Electroacoustic characteristics for handset telephony function when using Pulse Code Modulation (PCM) encoding	Dolidet, Jean-Francois MATRA Communication MMEDIA MMEDIA_CONVERSE MMEDIA	11-09-92* 04-12-92* 29-11-93*	PE 44 V 63	10F	22-08-94

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TE 4	prl-ETS 300 302-2 DI/TE-04008.2 1	Integrated Services Digital Network (ISDN); Videotelephony teleservice Part 2: Audio aspects - Pulse Code Modulation (PCM) A-law loudspeaking and handsfree	Dolidet, Jean-Francis MATRA Communication MMEDIA MMEDIA_CONVERSE MMEDI	01-10-93* 22-04-94* 09-06-94* 30-12-94	PE 69	9B	22-08-94
TE 4	prl-ETS DI/TE-04008.3 1	Videotelephony audio aspects: wideband handset	Dolidet, Jean-Francis MATRA Communication MMEDIA MMEDIA_CONVERSE MMEDI	22-04-94* 30-09-94 31-12-94 11-07-95		6	
TE 4	prl-ETS DI/TE-04008.4 1	Videotelephony audio aspects: wideband coding and loudspeaking or handsfree function	Dolidet, Jean-Francis MATRA Communication MMEDIA MMEDIA_CONVERSE MMEDI	30-04-94 31-10-94 31-12-94 11-07-95		2	
TE 4	prl-ETS DI/TE-04008.5 1	Videotelephony audio aspects: application of 3,1 kHz bandwidth 16 kbit/s speech coding algorithm	Dolidet, Jean-Francis MATRA Communication MMEDIA MMEDIA_CONVERSE MMEDI	30-04-94 31-10-94 31-12-94 08-11-95		1	
TE 4	prl-ETS DI/TE-04033 1	Public Switched Telephone Network (PSTN); Audiovisual applications. Videotelephony Systems and Terminal Equipment.	Klok, Frits MMEDIA MMEDIA_CONVERSE MMEDI	31-12-94 30-04-95 30-06-95 05-02-96		2	
TE 4	prl-ETS 300 442 DI/TE-041 12 1	Integrated Services Digital Network (ISDN); Videotelephony teleservice Terminal characteristics	Ulseth, Trond NORWEGIAN TELECOM MMEDIA MMEDIA_CONVERSE MMEDI	30-06-93* 01-10-93* 09-06-94* 13-01-95	PE 70	9B	05-09-94
TE 4	prl-ETS DI/TE-041 14 1	Videotelephone reference terminal - data communication using in-band signalling principles	Schnurr, L. MMEDIA MMEDIA_CONVERSE MMEDI	28-01-94* 30-09-94 31-12-94 11-07-95		6	

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TE 4	ETR DTR/TE-04113 1	Videotelephone reference terminal-Technical Report	Buchner, Georges FRANCE TELECOM MMEDIA MMEDIA_CONVERSE MMEDI	30-04-94 30-10-94 31-12-94		2	
TE 4	MI MI/TE-04034	Inband signalling to be applied when invoking ISDN Supplementary services by audiovisual terminals	Hinz, Ralf MMEDIA MMEDIA_CONVERSE MMEDI			1	
TE 4	MI MI/TE-04035	Inband signalling to be applied when invoking the Explicit Call Transfer (ECT) ISDN Supplementary service by audiovisual terminals	Hinz, Ralf MMEDIA MMEDIA_CONVERSE MMEDI			2	
TE 4	prETS 300 143 R1 RE/TE-04036 1	Integrated Services Digital Network (ISDN); Audiovisual services Inband signalling procedures for audiovisual terminals using digital channels up to 2 048 kbit/s	Kenyon, Norman D. BT IMCC IMCC_BASE IMCC_PR-2 ISM MMEDIA MMEDIA_CONVERSE MMEDIA_END-END	30-09-94 30-09-94 31-12-94		2	
TE 4	prETS 300 144 R1 RE/TE-04037 1	Integrated Services Digital Network (ISDN); Audiovisual services Frame structure for a 64 kbit/s to 1 920 kbit/s channel and associated syntax for inband signalling	Kenyon, Norman D. BT IMCC IMCC_BASE IMCC_PR-2 ISM MMEDIA MMEDIA_CONVERSE MMEDIA_END-END	30-09-94 30-09-94 31-12-94		2	
TE 4	prETS 300 145 R1 RE/TE-04038 1	Integrated Services Digital Network (ISDN); Audiovisual services Videotelephone systems and terminal equipment operating on one or two 64 kbit/s channels	Lavoisard, Jean Louis SAT IMCC IMCC_BASE IMCC_PR-2 ISM MMEDIA MMEDIA_CONVERSE MMEDIA_END-END	31-10-94 30-04-95 30-06-95			

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TE 4	ETS 300 082 T/TE 12-05 1	Integrated Services Digital Network (ISDN); 3,1 kHz telephony teleservice End-to-end compatibility	Ulseth, Trond NORWEGIAN TELECOM IMCC IMCC_ATS IMCC_BASE IMCC_PR-2 ISM MMEDIA MMEDIA_COM-BLOC MMEDIA_END-EN	30-04-90* 13-06-90 01-02-91*	PE 14 V 14	12	31-01-92
TE 4	I-ETS 300 281 T/TE 12-06A 1	Integrated Services Digital Network (ISDN); Telephony 7 kHz teleservice Terminal requirements necessary for end-to-end compatibility	Ulseth, Trond NORWEGIAN TELECOM IMCC IMCC_BASE IMCC_PR-2 ISM MMEDIA MMEDIA_COM-BLOC MMEDIA_END-END	08-05-92* 28-06-92* 22-06-93*	PE 38 V 55	12	20-05-94
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TE 4	ETS 300 084 T/TE 12-08 1	Integrated Services Digital Network (ISDN); Circuit mode structured bearer service category usable for 3,1 kHz audio information transfer Terminal requirements necessary for end-to-end compatibility	Ulseth, Trond NORWEGIAN TELECOM IMCC IMCC_ATS IMCC_BASE IMCC_PR-1 ISM MMEDIA MMEDIA_COM-BLOC MMEDIA_END-EN	30-04-90* 13-07-90* 01-02-91*	PE 14 V 28	12	31-03-93
TE 5	MI MI/TE-05038	Terminal Aspects of Broadband ISDN (BISDN)	Becker, Karl MMEDIA MMEDIA_COM-BLOC MMEDIA			1	
TE10	ETR DTR/TE-10002 1	Functional Model(s) for Multimedia Systems	Kenyon, Norman D. BT MMEDIA MMEDIA_GENERAL	30-06-94 31-10-94 31-12-94			19-01-94

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TE10	TCRTR 026 DTR/TE-10009 1	Terminal Equipment (TE); Multimedia Project Plan	Lundgren, Lars Eric MMEDIA MMEDIA_GENERAL	06-05-94* 06-05-94* 09-06-94*		8A	01-09-94
TE10	ETR DTR/TE-10010	Multimedia portfolio: A compilation of multimedia applications and services provided by ETSI members	Pralong, M SWISS TELECOM PTT MMEDIA MMEDIA_GENERAL	06-05-94 10-12-94			
TE10	ETR DTR/TE-10011	Multimedia services and applications; Inband and Outband signalling protocols - a survey	Dybvik, P.E. MMEDIA MMEDIA_GENERAL	31-08-94 31-10-94 08-12-94			
TE10	MI MI/TE-10008	Privacy and Access Control Systems for Audiovisual Systems	Roelofsen, Gerd PTT NEDERLAND NV MMEDIA MMEDIA_CONVERSE MMEDIA_				19-01-94
TM 3	MI MI/TM-03034	Study and investigation of Asymmetrical Digital Subscribers Loop (ADSL)	Frizlen, Hans-Jörg ERICSSON L.M. Telefonaktiebolaget MMEDIA MMEDIA_ACCESS MMEDIA_				

History

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