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STANDARD **13871**

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Information technology — Telecommunications and information exchange between systems — Private telecommunications networks — Digital channel aggregation

Technologies de l'information — Télécommunications et échange d'information entre systèmes — Réseaux privés de télécommunications — Agrégation de canal numérique

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 13871 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*.

Annexes A to C form an integral part of this International Standard. Annex D is for information only.

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Introduction

This International Standard is one of a set of International Standards designed to facilitate the global interconnection of applications across both private telecommunications networks and public ISDNs. This is achieved by ensuring compatibility and interworking of services offered by the private and public networks.

In line with the above aims, this International Standard defines a service offering flexible bandwidth allocation that provides unrestricted information transfer between special terminal adapters called Channel Aggregation Units. A Channel Aggregation Unit can provide a high bandwidth capability to an attached terminal application by combining multiple 56 kbit/s or 64 kbit/s digital communications channels that are available across public and/or private networks. It also ensures that bit sequence integrity of the aggregated bandwidth is maintained across the network(s). The number of individual communications channels aggregated may range from one up to the practical limits imposed by the Channel Aggregation Unit.

The service defined in this International Standard can be used for a number of applications, including

- o LAN interconnection
- o image transfer
- o bulk file transfer
- o video conferencing.

ITU-T Recommendation H.244 defines the means by which the appropriate choice of channel aggregation procedures may be made, in accordance with the requirements of the application being served. This choice is made from two available sets of procedures, one of which is also defined by ITU-T Recommendation H.244, the other of which is defined in this International Standard.

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Information technology - Telecommunications and information exchange between systems - Private telecommunications networks - Digital channel aggregation

1 Scope

This International Standard defines a set of procedures collectively called 'Digital Channel Aggregation', which are used in the provision of an aggregated bearer service. Digital channel aggregation involves a means for the combination of multiple switched or unswitched 56 kbit/s or 64 kbit/s digital communications channels across one or more public and/or private networks into higher bandwidth digital bi-directional channels between Channel Aggregation Units (CAUs) serving terminal applications at network endpoints. Figure 1 below illustrates a typical channel aggregation scenario.

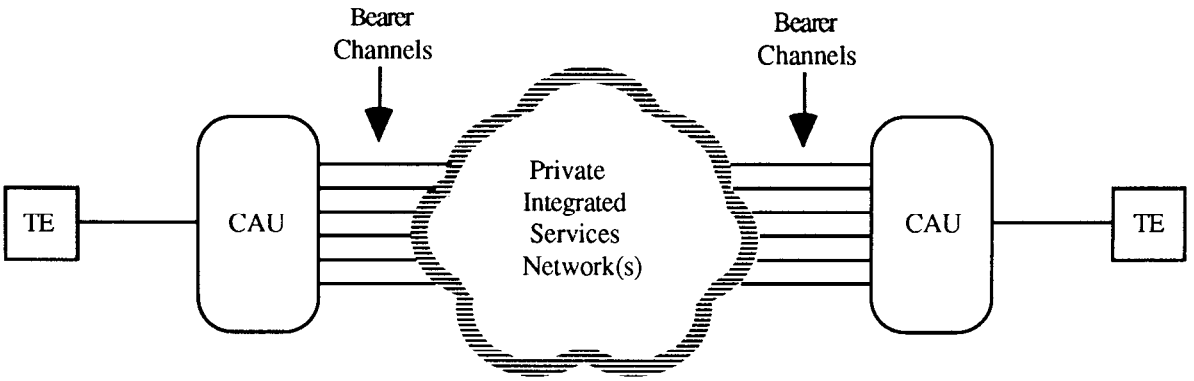

Figure 1 - Channel Aggregation Scenario

In defining the channel aggregation procedures, this International Standard sets out the means used by a CAU to

- o establish the parameters to be used for the aggregated connection
- o synchronise and align multiple communications channels to maintain the bit sequence integrity of the aggregated bandwidth across the network(s)
- o optionally monitor data transfer throughout a call to detect failure modes
- o institute failure recovery procedures
- o optionally dynamically vary the bandwidth on demand during a call.

The channel aggregation procedures above are defined at the interface between the CAU and the network in terms of the frame structure and information messages applied to individual communications channels. Not defined by this International Standard are

- o the call control procedures used to establish and disconnect the individual communications channels that make up the higher bandwidth connections
- o the higher level protocols or applications that use the channel aggregation services
- o the frame structure on the individual communications channels at the physical interface between the CAU and the network as required for 'normal' 56 kbit/s or 64 kbit/s bearer services as opposed to aggregated bearer services
- o the electrical characteristics of the individual communications channels at the physical interface between the CAU and the network.