TéléDiffusion de France

CCETT

Sécrétariat d'État aux Postes et Télécommunications

CENTRE COMMUN D'ÉTUDES DE TÉLÉVISION ET DE TÉLÉCOMMUNICATIONS (C.C.E.T.T.)

THE TELEVISION AND TELECOMMUNICATIONS RESEARCH CENTRE

ANTIOPE*

The antiope Teletext system*

ANTIOPE is a Teletext system that has been developed at C.C.E.T.T. and experimentally tried out on the network of Télédiffusion de France (T.D.F.).

The Teletext Service enables transmission or broadcasting, over the network, of data which convert to information programme material on specially augmented home receivers. A control keypad gives the viewer a choice between a number of information magazines and the possibility of consulting any particular page of the selected magazine. The thousands of such pages contain information matter of the widest possible variety which is instantly available on call and which is kept up to date by editorials staffs.

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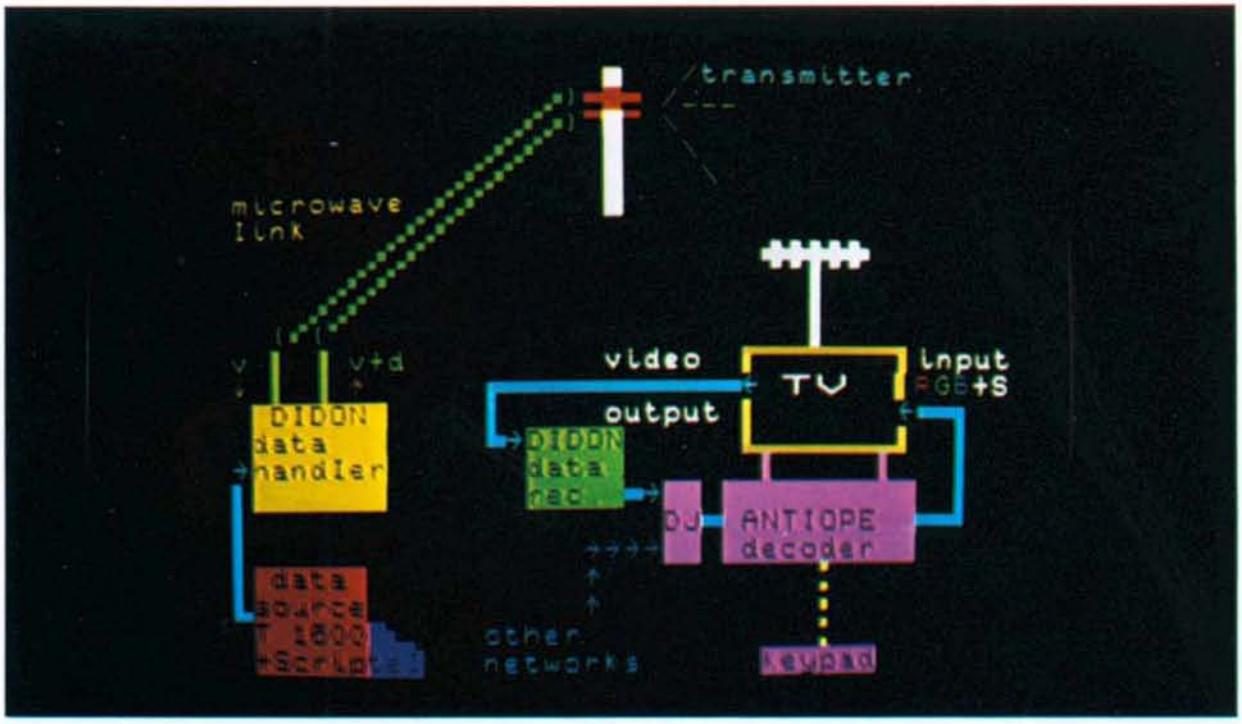
* L'**A**cquisition **N**umérique et **T**élévisualisation d'**I**mages **O**rganisées en **P**ages d'**É**criture (Translator's paraphrase : Digital Signal Processing Conversion to Printed Page Image on Home TV Sets).

SETTING UP ANTIOPE

This Service does not require addition of any special infrastructure. As the photograph below shows, it can be used on TV transmission or broadcasting networks (Broadcast Teletext) or on existing Telephone networks (Wired teletext).



Putting over the Service on the networks require :

— a **Data Source,** consisting essentially of mini-computers storing information material in digital form and to which are connected specialised devices for editorial processing, lay-out and up-dating of the material.
— a **DIDON Data handler** (Diffusion de Données i.e. Data Transmitter), a module the function of which is to insert the digital pulses arriving from the Source into the picture signal.

To be carried on a Telephone network, the Service requires a data source working as a time shared computer.

Reception of the Service requires :

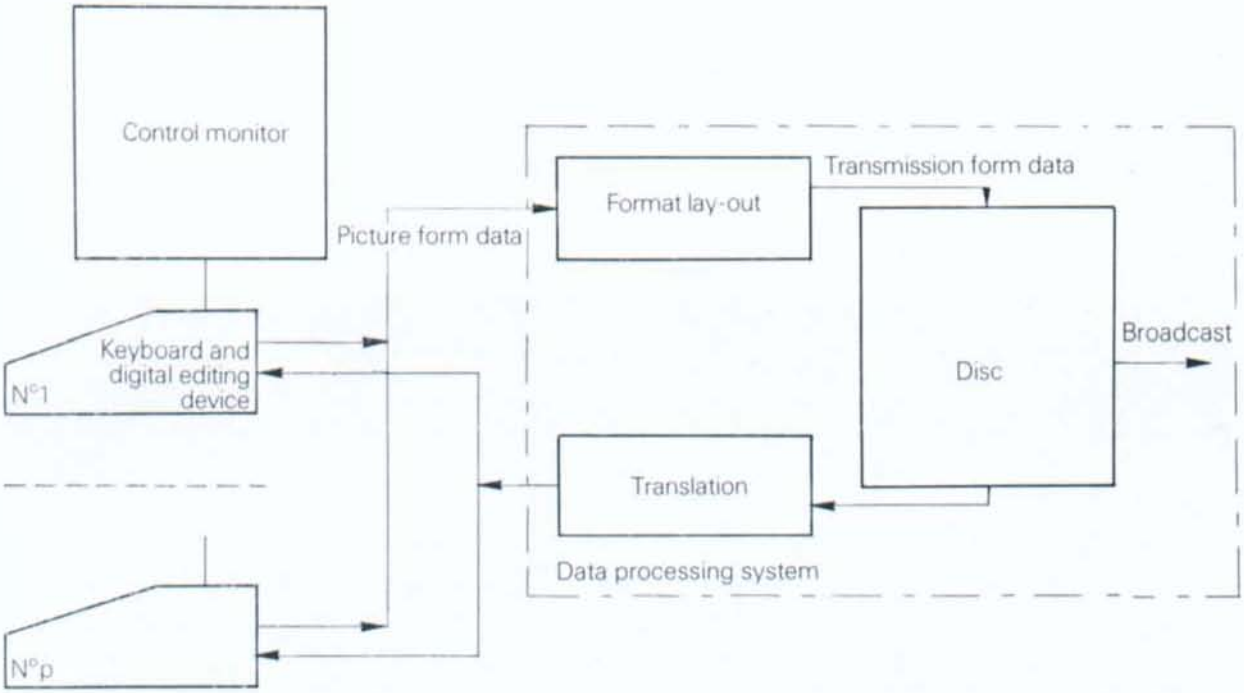
— a colour TV set specially adapted for the new home TV data-processed services.
— a data modem receiver of the data broadcasting network for broadcasted teletext or a telephonic modem for wired Teletext.
— a special receiving device which converts the data into a picture image of the transmitted page and which possesses a control keypad for page numbering and remote control of the set.

AT THE TRANSMITTING SIDE

The Editing

Magazine texts are composed on editing consoles by journalists, and the pages resulting are then laid out and converted into transmission form data by a treating system which can be a mini-computer. The method in the process of being tried out experimentally utilises special SCRIPTEL consoles linked to a T 1600 Telemecanique computer or to a UNITEL autonomous digital system and which enables colour reproduction editing, with graphic characters.

Texts can be composed in a variety of colours : red, green, blue, yellow, magenta, light blue and white, the letters being in colour on a black background or in black on a coloured base. Some of the characters can be reproduced in double height or double width and can be made to flicker. Semi-graphic characters and various scripts such as the Cyrillic, the Arabic etc. can also be used.

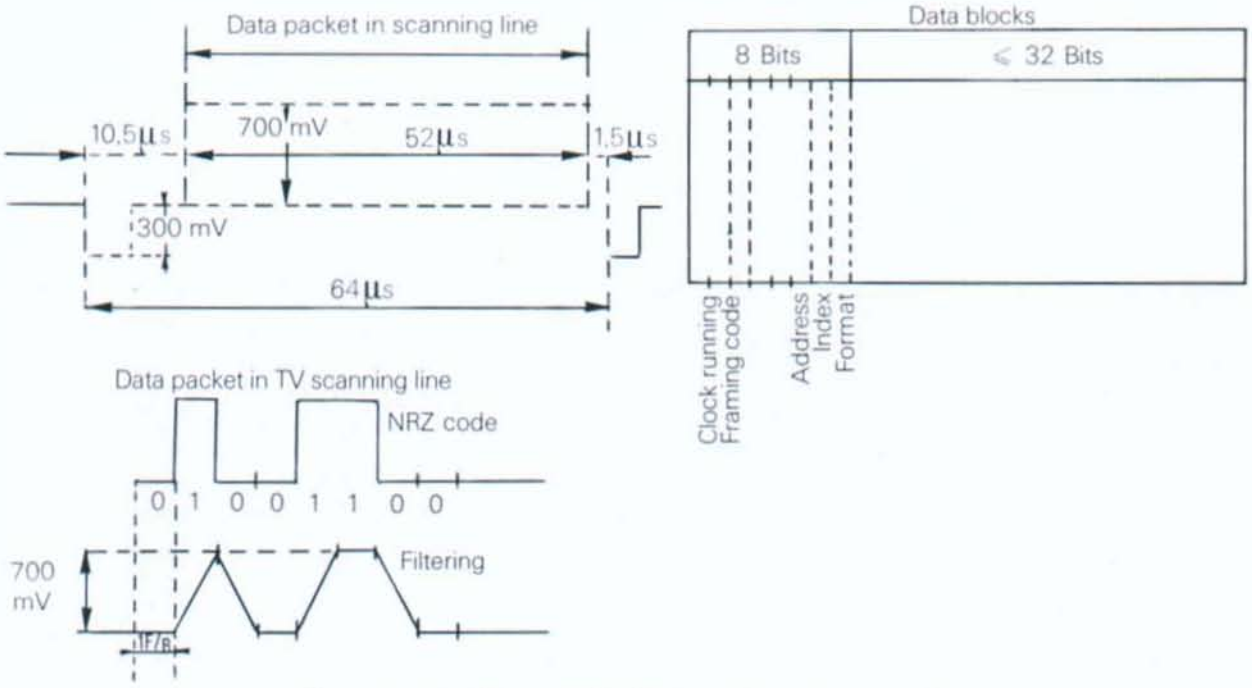


Insertion Module

The magazines stored by the computer or on a floppy disc are cyclically transmitted to a multiplex system in which the data are separated into packet of 32 bits which are inserted in the free scan lines of the TV signal.

The diagram below indicates the specifications for insertion :

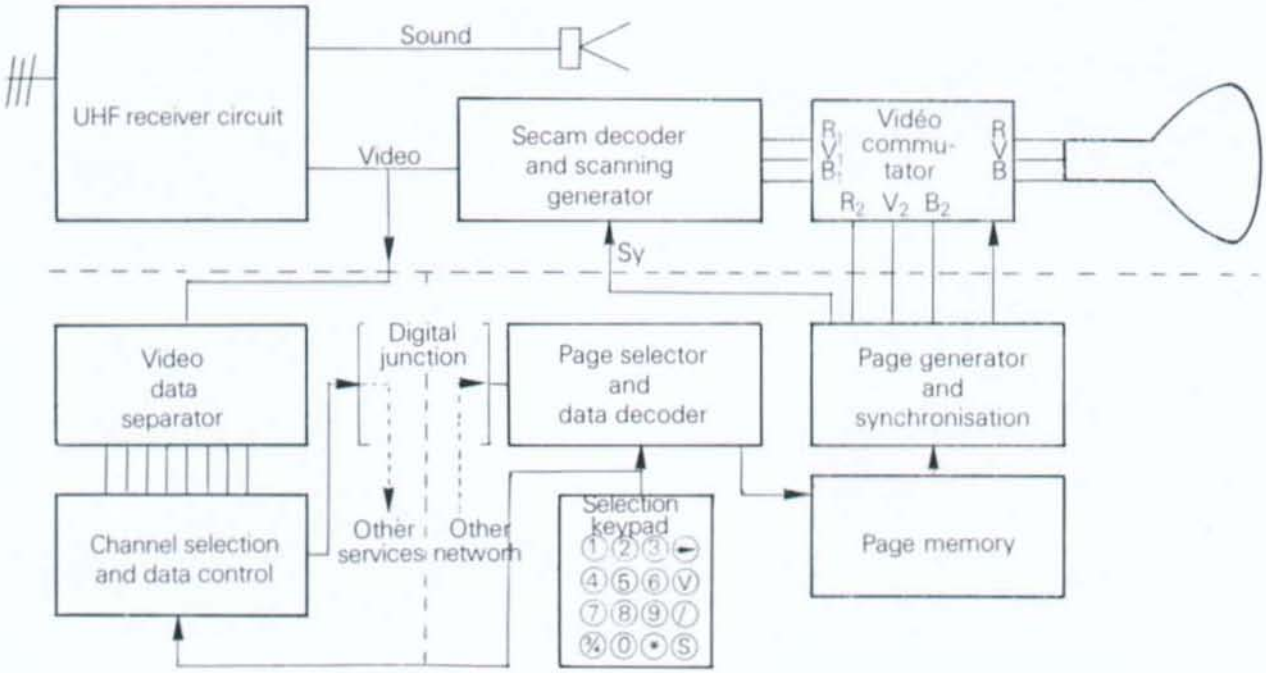
Bit frequency : 397 line frequency.
Organisation : Each packet is preceded by an 8 bits heading consisting of :
— a clock run-in
— a framing code bit
— a 3 bits sender's address
— a continuity index for successive packets from the same sender
— a fill-in index of the packet.



Summary of transmission system standards

Television receiving set equipped with an ANTIOPE decoder, with control keypad. On the screen, the ANTIOPE-C.C.E.T.T. image test page.

RECEIVING EQUIPMENT



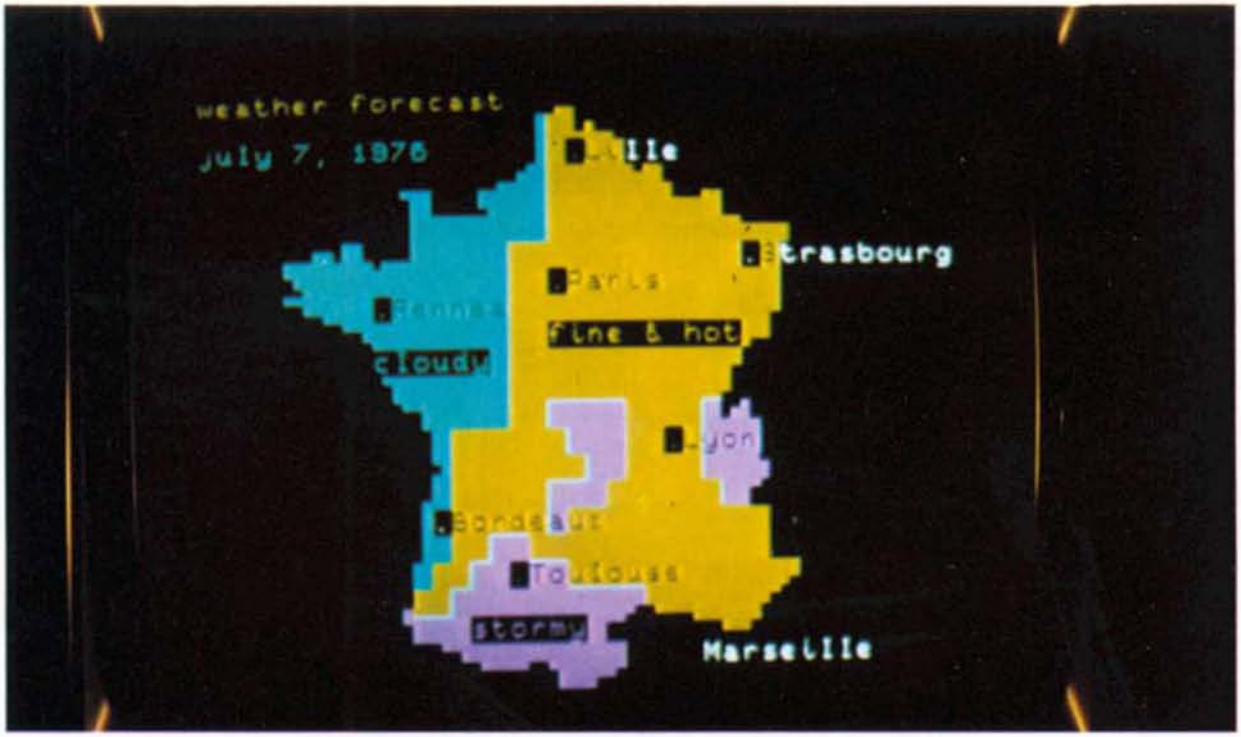
Teletext magazines cannot be received on an ordinary TV set. For the purpose, the receiving set has not only to take in signals from the exterior and commute them into the display tube but has need also of special devices for data reception, decoding and picture generation. This additional device is the broadcasted telext receiver. Modular conception enables utilisation of data received for other services as well as reception of Teletext data by other means. The first generation Teletext receivers presently being manufactured are small enough to be located between the feet of a TV set. Technical progress of course permits from now on the manufacture of TV sets with a complete Teletext receiver as an option.

THE ANTIOPE SERVICE

Journalists, teachers, businessmen, publicity experts etc. - each particular person will be in a position to make up his own particular ANTIOPE magazine, adapting the diverses possibilities of the system to his personal requirments.

Some of its possibilities have been indicated in this document, for example, the "test" page (see previous page) gives the available characters, with the upper case and lower case accented letters : special characters, variation of dimensions flickering.

The photograph below gives an example of the use of semi-graphic characters and of coloured backgrounds in the composition of a weather bulletin.



In its broadcast form, a Teletext Service can be linked up with normal TV services, for example by inserting in Teletext magazines pages presented in the form of sub-titles in the course of broadcast programmes either by way of sub-titling the programme itself in one or more languages or in order to supply the viewer with news flashes which he may be expecting while watching a programme.

FUTURE POSSIBILITIES

ANTIOPE is at the moment at the experimental stage and its future is partly in the hands of the manufacturers of its component parts whose task it is to develop smaller and less expensive equipment than the present experimental equipment but partly also in the hands of the research laboratories which are working on improvements for the future, such as the use of various scripts (Cyrillic, Arabic, etc.) in language teaching or for magazines intended for linguistic minorities, generalisation of the ANTIOPE technique for the purpose of more extensive graphic services, etc.

OTHER RESEARCH UNDER WAY AT C.C.E.T.T.

Research programmes currently being undertaken at C.C.E.T.T. relate to the following sectors :

— teleprocessing and commutation of data by package, a sector concerned especially with the techniques of broadcasting data sequences, a method that provides a transmission support system in particular to Teletext broadcasting.

— community antenna TV within developing networks, ranging from simple community reception systems to more complex networks enabling the distribution of 15 programmes, some of them charged for at the point of consumption.

— digital coding and transmission of TV programmes, a sector which explores problems of digital TV, starting with theoretical research and experimental work on various coding procedures and leading up to the development of whole systems enabling both the production and the transmission of programmes in digital form.

— utilisation in television of the most up-to-date components and techniques, notably research into transfer of charge mechanisms, both for constitution of an image pick-up and treatment system as well as for the effects of the future use of such components on television standard studies are also under way on techniques that will ultimately enable flat screen and wide screen projection systems to be achieved.

— telebroadcasting of new audio-visual services, a sector in which the possibilities of introducing new services on existing networks are being studied. Among such new services, there is of course the ANTIOPE Teletext service but there are also others such as automatic recording of programmes by the viewer, automatic selection of fixed images from an image bank, scrambling of images intended for broadcasting to closed communities etc.

TéléDiffusion de France

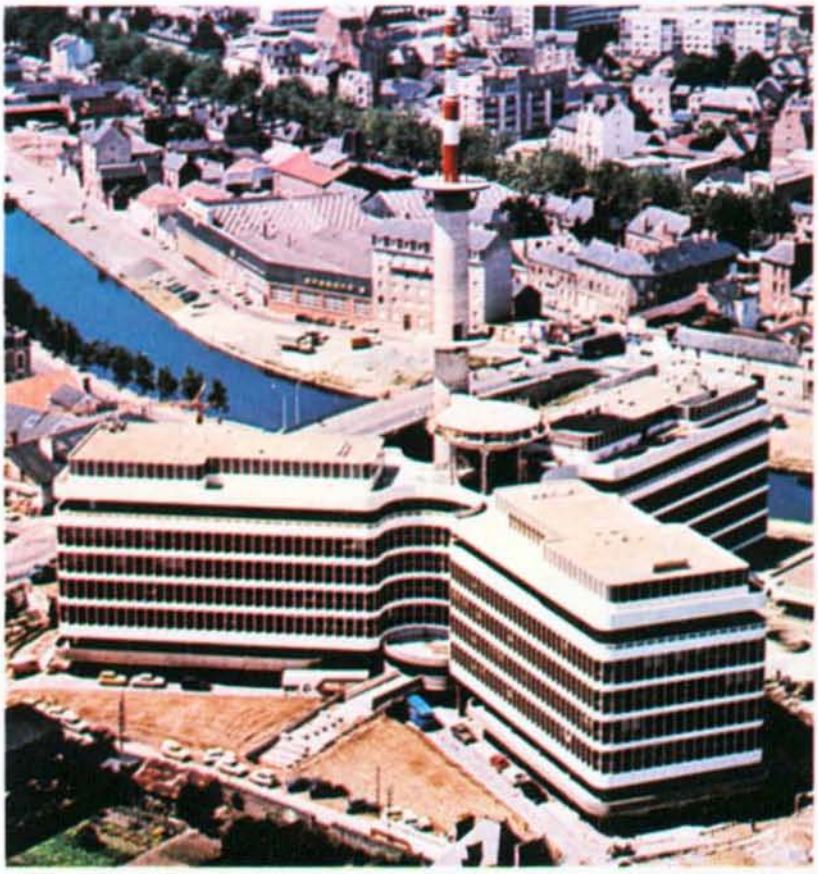
C C E T T

CENTRE COMMUN D'ÉTUDES DE TÉLÉVISION ET DE TÉLÉCOMMUNICATIONS (TELEVISION AND TELECOMMUNICATIONS RESEARCH CENTRE)

Established at Rennes in France, the C.C.E.T.T. serves both the Posts and Telecommunications Administration as well as T.D.F. (Telediffusion de France).

Created in 1972, it now brings together 250 people, searchers, engineers and technicians.

Its creation meets a concern of efficiency for the collecting of researches, which, from similar technical means and bases, would lead up to specific applications in either one or the other organization.



C.C.E.T.T. has been specially entrusted with the task of medium and long term research into the development of new techniques of processing, transmitting and broadcasting audio-visuel signals.

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