

Progress on the definition of norms for digital TV

The adoption of a code of conduct on access control by the DVB working group on 28 September 1994 seems to have dispelled the last uncertainties over the harmonisation of European norms for digital television.

DVB

The European Digital Video Broadcasting Project (DVB) is a European-market lead initiative whose aim is to provide the standards necessary for digital satellite, cable and terrestrial services. Now comprising more than 145 organisations from all areas of the television industry, DVB aims to establish a framework in Europe for the harmonious and market-driven development of digital television. On 28 September 1994, the DVB group issued a code of conduct that will govern key relationships in the industry between providers of conditional access facilities and broadcasters. The aim is to ensure that all those who control conditional access elements in decoders offer to provide fairly for these decoders by co-signatories. The code will be in force from 1 January 1995 to 31 December 1997.

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The question of harmonising broadcasting norms for high definition television is one that has been around for a long time. As we know, nothing came of the initial plan of the Commission of the European Communities and the Council of Ministers to establish a single standard for analogue broadcasting based on the MAC/packet systems (Council Directive of 3 November 1986, 86/529/EEC, OJEC, 6.11.86; Directive 92/38/EEC of 11 May 1992, OJEC, 20.5.92). In the directive of 11 May 1992, the HD-MAC norm was defined as the sole standard for high definition broadcasting within the framework of the European Union. With effect from 1995, all new satellite television channels were to have been broadcast in D2-MAC in order to prepare the way for HD-MAC.

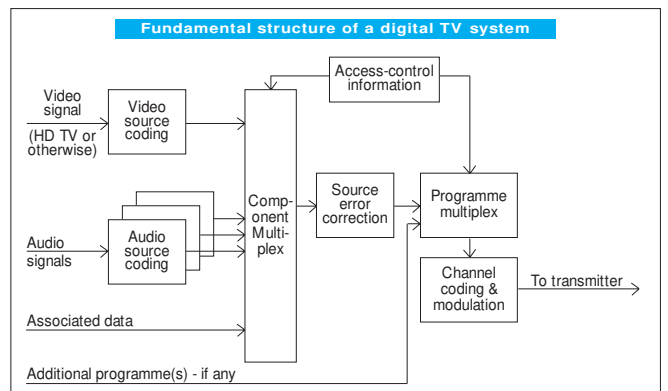
This plan was rejected by a large number of operators and the prospect of the arrival of digital television made the notion of a transition phase of recourse to MAC norms increasingly tenuous. The Council Resolution of 22 July 1993 (93/C 209/01, OJEC, 3.8.1993) recognised the need to proceed to a re-examination of Directive 92/38/EEC "in order to ensure the consistency of the latter with the realities of the current market and technology" and to take into account the important place that digital technology is destined to occupy in future television systems. Thus, the Commission and the Council have reoriented their policy by adopting an action plan for the introduction of advanced television services designed to promote the 16/9 format whatever the European norm used or the mode of transmission (land-based radio signal, satellite or cable) (Council Decision of 22 July 1993, 93/424/EEC, OJEC, 5.8.1993). By financing additional costs, this action plan is intended to support broadcasters transmitting in 16/9 format and producers

investing in works created in this format.

On 15 November 1993, the Commission also sent the Council a draft directive on the use of norms for the transmission of television signals (COM(93) 556 final). This directive takes the HD-MAC system as the only norm authorised for HD-TV broadcasting that is not entirely digital but allows broadcasters using 625 line standards to adopt either the D2-MAC or other systems compatible with PAL and SECAM or any entirely digital system established in Europe by a standards authority. All big screen services (designed for reception on sets with a screen diagonal of 42 cm or more) must be in 16/9 format, whether broadcast by land-based radio signal, satellite or cable. Cable operators must relay large screen signals irrespective of the European television standard adopted by the broadcasters. The manu-

facturers of large screens will be obliged to incorporate an open interface plug to permit the connection of such peripherals as digital decoders or decryptors.

from the absence of any consensus: out of the 202 services broadcast by satellite to western Europe in June 1994 (certain channels being broadcast several times on different satellites in different standards), 140 were broadcast in PAL, 27 in SECAM and only 35 in one of the MAC family standards. The diversity of coding norms is even more complex. The main encryption systems currently in use are: Eurocrypt S and Eurocrypt M (initially designed for D2-MAC packet broadcasting but compatible with digital broadcasting, as demonstrated by TDF at Montreux in June 1993); System 2000 (used by FilmNet in the Nordic countries and Benelux); Syster (used by Canal Plus and related thematic channels in France, Spain and Germany); and Videocrypt (used mainly by BSkyB and related channels in Form I for broadcasting to the UK and in Form II for broadcasting to



facturers of large screens will be obliged to incorporate an open interface plug to permit the connection of such peripherals as digital decoders or decryptors.

Disparity of encryption systems

The situation of European satellite broadcasting reflects the disparity of norms resulting

Germany, see annexed table). Out of 69 encrypted broadcasts, 21 are in Eurocrypt, 19 in Videocrypt, 17 in Syster, 3 in System 2000, 3 in B-MAC, 2 in Discret, 2 in Nagravision and 1 in Luxcrypt. This disparity weighs heavily on the EU's study regarding the harmonisation of standards in the perspective of digital broadcasting. The Commission defined its philosophy with regard to digital

television in a document of 18 November 1993, entitled "Digital Television the framework for a Community policy", addressed to the Council and to the European Parliament. This was accompanied by a draft resolution of the Council with regard to a framework for an EU policy on digital television broadcasting (COM(93)0557 – C3-0528/93). In this communication, the Commission recognised that digital techniques present considerable advantages for the future of television and the coming "information highways". It considered that the best way to realise these advantages was, from the very outset, to adopt a harmonised long-term approach, based on standards agreed with the main economic participants in this domain and taking into account the prospects for international compatibility. If there were no consensus among these economic participants and/or if the need to guarantee fair and open competition, protection for the consumer or safeguards for the public interest so required, the Commission suggested that the Council should adopt regulatory measures.

The Commission further sent to the Council of Ministers and to the European Parliament a proposed directive with regard to the use of norms for the transmission of television signals (COM(93)0556 – C3-0471/93 – COD, OJEC, C 341 of 18.12.1993, p. 18). In this proposal, the Commission held that the best way of defining "common digital norms for transmission of television signals ... is to resort to the services of a recognised standards institution".

The Council of Telecommunications Ministers meeting on 27 June 1994 welcomed the Commission's proposal but delayed the decision on adopting a digital broadcasting standard. It adopted a resolution with regard to a framework for an EU policy on digital television broadcasting (94/C 181/02, OJEC, 2.7.1994). The ministers recognised that, with the formal abandonment of the analogue standard D2-MAC and HD-MAC as compulsory

The DUB "Memorandum of Understanding" (September 93) was a decisive step towards a European strategy for common digital TV standards.

transmission norms, it was necessary to adopt a more flexible framework, taking into account current work on digital transmission. According to Commissioner Bangemann, it is desirable to wait for the results of the DVB working group (European Launching Group for Digital Video Broadcasting).

The work of the group for digital video broadcasting (DVB)

A working group consisting of 85 European operators concerned with developments in digital television (broadcasters, manufacturers – including the main Japanese constructors – satellite operators, government representatives, and the Commission) was established in 1992 at the instigation of Germany's Post and Telecommunications Ministry. In September 1993, this group signed a "Memorandum of Understanding", which constitutes a decisive step forward in a European strategy for the introduction of digital television by adopting the MPEG-2 standard defined by the International Standards Organisation (ISO) as an international norm for digital compression. The agreement provides for the adoption of an articulated system, consisting of norms for every type of transmission and reception (radio, satellite, cable and SMATV). This support for an international standard allows us

to envisage a process of convergence with non-European partners. The DVB group has made approaches to the US Federal Communications Advisory Committee on Advanced TV Service with a view to opening a dialogue.

Controversy over access control

The work of the DVB working group was complicated at the beginning of 1994 by the formation of a group of pay-television operators (BSkyB, Canal Plus, FilmNet, TelePiù, etc.), which proposed the "Simulcrypt" plan on 1 March 1994. According to this proposal, all digital decoders should have an access control system and a single memory card that would be compatible with the decoders already in use. Given that the three main pay-television operators already own these systems (BSkyB/Videocrypt; Canal Plus/Syster; FilmNet/System 2000), the suspicion immediately arose that the Simulcrypt group was seeking domination of the market by its members. The other broadcasters who wished to offer access control services would be obliged to enter into commercial agreements with broadcasters already in a dominant position in their respective market areas. Thus, the public service broadcasters and the small satellite broadcasters opposed the position of the Simulcrypt

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The European Parliament launches the Intergroupe Audiovisuel

October the Intergroupe audiovisuel of the European Parliament in Strasbourg elected the French socialist European member of parliament and Mayor of Strasbourg, Ms Catherine Trautmann as its president. The members of this important forum for the future of the audiovisual industry in Europe, which continues and enlarges the scope of action of the previous Intergroupe cinéma headed by Léon Schwartzenzenberg.

Ms Catherine Trautmann, French Euro MP

During its mandate the group will enhance the value of the work carried out by the European Parliament and its various sub-committees, by contributing to the examination of a number of important issues, such as the action plan regarding the information society, the revision of the "Television without frontiers" directive, Media II, etc.

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DVB: system philosophy

The general technical solution valid for all media adopted by DVB has the following basic system philosophy.

- Systems are designed as containers to carry flexible combinations of MPEG-2 video and audio, or other, data.
- Use of the common MPEG-2 "transport stream" multiplex, as well as service information systems, giving details of the programme being broadcast, etc.
- Use of common first level RS-FEC system
- A common scrambling system will be available
- Modulation and channel coding systems, and any necessary additional error correction systems, are chosen to meet the different media transport circumstances.

DVB standards:

- DVB-S: The satellite systems for use in the 11-12 GHz band, able to be configured to suit a range of transponder bandwidths and powers.
- DVB-C: The cable network system, designed to be compatible with the above, and normally to be used with 8 MHz cable channels.
- DVB-CS: The SMATV system, currently under study, and which may be the same as the DVB-C system above.
- DVB-T: The terrestrial system designed to be used with terrestrial channels with a nominal width of 7-8 MHz.

The DVB-S and DVB-C specifications have been submitted to the European Telecommunications Standards Institute, and are currently the subject of a formal public enquiry. They could be expected to become formal European standards at the end of the year 1994. The Service Information System, applicable to all media, will follow shortly afterwards. The DVB-S and DVB-C specifications are being submitted to the ITU as potential world-wide standards.

- • group. What they wanted was a common interface in the digital decoder that could be used by different operators and different access control systems.

On 19 May, the steering committee of the DVB working group agreed on a transmission system, adopting the MPEG-2 norm and on a coding system, the Super Scrambler (developed by a joint venture of News Datacom and Irdeto).¹ However, the committee failed to agree on a common access control standard. It got round the problem by approving both an open interface for Multicrypt digital decoders (defended by France Telecom) and the Simulcrypt group proposal that the encryption standards currently in use should be maintained in their respective geographical areas and that a smart card interface should be introduced. Certain members of the Simulcrypt group (particularly BSkyB) argue that an open system permitting the use of more than one smart card would facilitate piracy.

The proposal by the Simulcrypt group was accompanied by a proposed code of conduct,

these services are generally considered to be one of the most attractive features for the introduction of digital television.

On 28 September, the DVB group finalised a new version of the code, which gathered a broader consensus, even though a certain number of the large broadcasters (including the BBC, ITV, TF 1 and CLT) indicated that they would not sign this text. Only the operators who signed the code would be bound by its terms and the duration of its application was limited to the period from 1 January 1995 to 1 January 1997.³ It thus remains to be seen whether the Commission, the Council and the Parliament will consider that the consensus achieved is sufficient for the final elaboration of the directive.

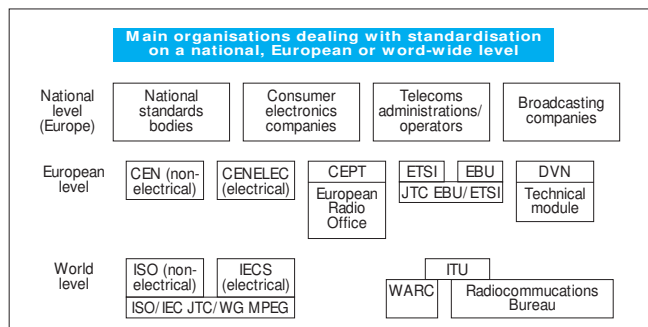
Examination by the European Parliament

The European Parliament has paid close attention to the question of the definition of European norms. It has amended and approved the Council's draft resolution on the framework for an EU policy on

competition and to protect consumers as well as to safeguard the public interest requires the Community to establish a regulatory framework for digital television". At the same time, it notes that "this regulatory framework must be sufficiently flexible and progressive to adapt to technological developments and must stem from an ongoing dialogue between the economic and social parties concerned (especially the consumers)". With regard to the question of access control, the Parliament advocates "the establishment of access control systems that, though protected, are also open and standardised in such a way as to ensure that consumers enjoy simplicity of use and minimum costs and that suppliers are able to offer conditional access services under fair conditions".

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European Audiovisual
Observatory

Source: European Audiovisual Observatory 1994.



which immediately aroused controversy. The DVB steering committee rejected the initial proposal of this code because of the lack of consensus.² One aspect of the controversy was the fact that the proposed code of conduct contained a clause, according to which the signatories of the code were not to divulge its contents, thus preventing any legal arbitration. In addition, the Simulcrypt proposal sought to eliminate pay-per-view services from its scope of application, whereas

digital television broadcasting (see EP 180.706, minutes 8 II, 19.04.1994, pp. 29-33) and the proposed directive on the use of standards for the transmission of television signals (EP 180.706, minutes 8 II, 19.04.1994, pp. 25-28).

As far as the draft resolution is concerned, the Parliament is insisting on the need to involve the national and regional authorities in the search for a consensus. It states "that the need to guarantee fair and open

Footnotes

1. Other encryption systems for compressed transmission in accordance with MPEG-2 norms have been announced. In January 1994, Sony UK presented a system that is compatible with the MPEG-2 norm and which incorporates the News Datacom access control system developed by the News International subsidiary of the same name. This system could be used for encryption of the BSkyB channels, which will be broadcast in digital with effect from 1995.

2. J.L. Renaud, "Code of conduct rejected", *ATM*, June 1994.

3. The wording adopted had not been made public at the time of going to press. We will return to the contents in the next issue of *Sequentia*.

References

The texts adopted by the Commission with regard to high definition television and advanced television are, at the present time, collected in *Official Documents, Community Policy on Telecommunications*, Commission of the European Communities (DG XIII), XIII (94) 114, Brussels, May 1994. For an initial evaluation of EU action within the framework of the 16/9 action plan, see *Sequentia*, special issue, May-June 1994.

In April 1994, the Office of Fair Trading opened an enquiry into the agreements concluded between BSkyB and News Datacom, a subsidiary of News International, for the use of the Videocrypt encryption system, in order to see whether the agreements constituted an abuse of the company's dominant position in the decoder and pay-television markets.