

EBU Village in Montreux

The 18th Montreux International Television Symposium and Technical Exhibition was the venue for an EBU stand bringing together the research departments of several Member organizations. Some of their most forward-looking development projects were on show and the EBU Village was a major attraction for exhibition visitors keen to discover technologies destined to under-pin broadcasting in the years ahead.

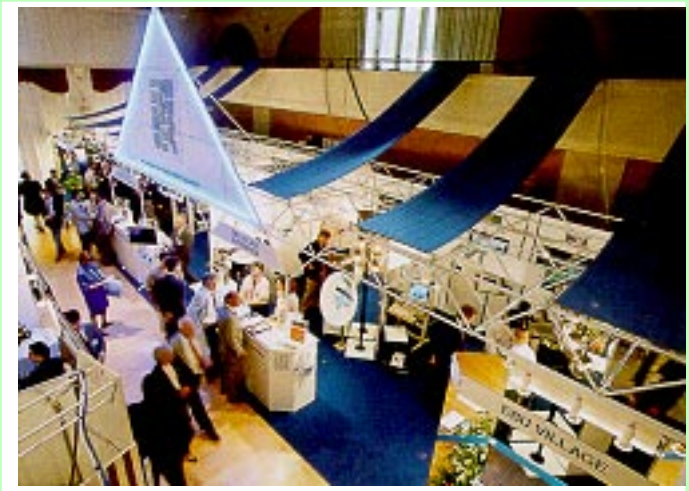
The BBC participated with two projects. **WDTM**, a wavelength-division time multiplex project for fibre-optic signal routing being developed under the RACE umbrella, aims to free broadcasters from the constraints of coaxial cables for the distribution of video signals in studio centres. The system is based on a series of local routing centres, each serving a number of sources and destinations. At each centre, 16 digital video signals are time-multiplexed into a 2.48 Gbit/s data-stream using the STM-16 level of the synchronous digital hierarchy. Up to 16 such multiplexes then each modulate a laser in the 1500 nm wavelength range, each laser being spaced from the next, in a wavelength-multiplex, by 4 nm. The signals are combined in an optical star coupler and the complete multiplex is delivered to each local centre where any of the video signals can be obtained by selecting the appropriate wavelength and the required signal in the time multiplex.

The second BBC project, **Extended Studio PAL**, allows component production signals according to CCIR Recommendation 601, as required for the origination of PAL-plus and MAC programme services, to be carried in existing conventional PAL installations while maintaining high technical quality. This digital system permits cascaded component-composite and composite-component conversions without excessive accumulations of errors or crosstalk. Tests at BBC Television Centre in London have shown that it is possible to mix normal PAL and extended PAL in a conventional video mixer and to decode the output with an enhanced PAL decoder.

HD-DIVINE, the Scandinavian project which was first shown in public at IBC'92, is a robust and flexible system for digital HDTV broadcasting. The demonstration in the EBU Village at Montreux included terrestrial and satellite transmissions (via Eutelsat) and – in collaboration with the BBC demonstration – the transmission of HD-DIVINE on optical-fibre links, thus demonstrating the portability of the system, devised initially as a digital terrestrial system, in a comprehensive digital TV/HDTV environment.

Sveriges Television (SVT) offered an exciting glimpse into the future with a prototype multimedia broadcasting called **IDUN**. It can be expected that with the mass arrival of digital technologies in the home, the public will want a more personalised form of television coupled with interactive features like those found in the computer world. IDUN is a response to such expectations. Through an appropriate decoder the television viewer would be able,

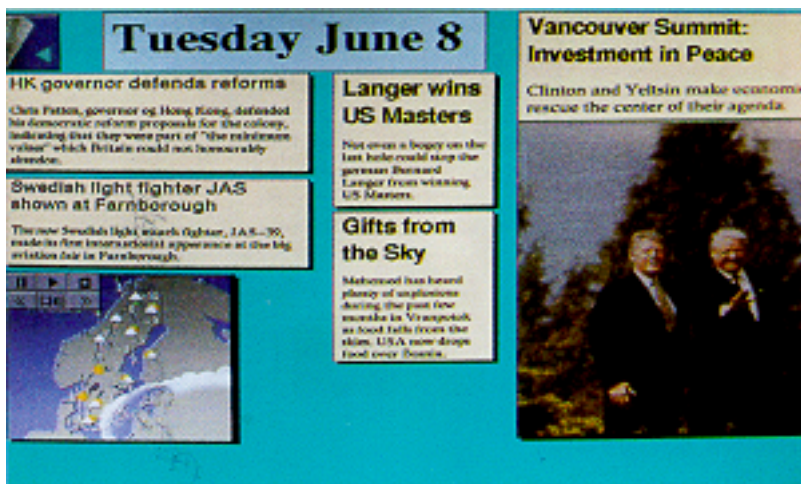
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▲ Bird's-eye view of the EBU Village

Mr. J-B Münch, Secretary General of the EBU welcomes Mr. M. Oudin, Director-General of Vision 1250, during a reception organized by the EBU





▲ Interactive television in the IDUN project (Photo : SVT)

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for example, to enjoy interactive multimedia programmes (educational programmes, games, etc.), a regularly-updated programme schedule, an electronic newspaper, multi-lingual subtitles, domestic video recorder control, and other features.

The Centre Commun d'Études de Télévision et de Télécommunications (CCETT) showed two of its current projects. The first, **DIGICAST**, is a generic application of the COFDM system able to carry data, sound or television broadcasting. DIGICAST is adaptable as regards the modulation parameters and the protection ratios, thereby allowing the transmissions to be optimized according to the specific demands of different applications.

The second CCETT project, **STERNE**, is a development within the European VADIS and dTTb projects which derives its name from *Système de Télévision en Radiodiffusion Numérique*. The demonstration system allows the transmission, for portable reception, of one or more television programmes of normal or enhanced quality. It uses MPEG2 and ISO-MUSICAM audio level 2 source coding to carry normal quality programmes at 5 Mbit/s or enhanced-quality signals at 10 Mbit/s. The multiplex also includes synchronization and service management data and conditional-access features.

The Independent Television Commission (ITC), which conducts studies on behalf of EBU Member-broadcasters in the independent sector in the United Kingdom, presented the **SPECTRE** project which is concerned with digital television broadcasting in the VHF bands. The project aims to determine the real potential of this sort of technology: increased numbers of channels, suitability for high-definition programming, ruggedness as regards picture errors, possibilities for portable reception, data broadcasting options, etc. The project is also examining other options such as multi-level coding and multimedia features.

Another project presented by the ITC was **AUDETTEL**. This is a response to the difficulties encountered by television viewers with visual handicaps and it involves the inclusion in the television signal of a commentary giving additional information about the scene, during pauses in the dialogue. By exploiting digital signal processing techniques, the spoken commentary can be delivered with entirely adequate quality with a very low bit-rate.

The ITV Association, representing independent broadcasters in the United Kingdom, is a partner in the AUDETEL project, and at the EBU Village was also showing a **still-store for 16:9 aspect-ratio** pictures. This equipment is one of results of extensive work done by the Association on enhanced PAL technologies. The system can store up to 1080 wide-screen 625-line frames in RGB or YP_rP_b formats, using 18-MHz sampling. The luminance bandwidth of the output pictures is 8.5 MHz, satisfying the demands of enhanced television. Pictures can be taken from D1-format video recordings or a variety of other sources using 13.5 MHz sampling, such as Apple Mac and photo CD.

The Institut für Rundfunktechnik (IRT) gave demonstrations of a **140 Mbit/s HDTV transmission** system. This complete transmission chain including bit-rate reduced source coding, channel coding and error protection, MUSICAM audio coding, multiplexing and framing, transmission, decoding and recovery of video and multi-channel sound signals, gives viewers a subjective display quality equivalent to that obtained in an HDTV studio, whether the transmission is via satellite or the B-ISDN at 140 Mbit/s.

A second demonstration offered by the IRT was a **picture format signalling** system conveying data to the receiver about the picture aspect ratio, display mode, the presence of sub-titles, the dominant field, etc. The data are inserted in the first half of line 23 of the 625-line signal. Suitably-equipped receivers are therefore able to adapt their display mode automatically.

The RAI-Radiotelevisione Italiana was present in the EBU Village to mark the success of a **second HD-SAT demonstration** which took place in February 1993 in collaboration with the European Space Agency and Telespazio. These tests of wideband HDTV transmission in the 20-GHz frequency range confirmed the subjective equivalence of broadcasts carried out with bit-rates of 70 and 140 Mbit/s, and suggest that even more powerful bit-rate reduction schemes may be applicable in this application in the future.

The remaining "residents" of the EBU Village at Montreux were two European service companies. One, the Dutch company **NOB**, has at Hilversum a film and video production centre which is among the largest and most modern in Europe. The Radio and Television Research Institute, **VURT**, is established in Prague. Since its foundation in 1949 VURT has made substantial contributions to the development of broadcasting in the former OIRT region and it hopes to see its horizons broaden following the unification of the OIRT and EBU in January 1993.



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(Photos : Piraud & Grivel)