

4 May 1998

*For Immediate Release*

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## ***DVB and EUTELSAT show Africa Internet over the Air***

Africa Telecom 98 - Johannesburg, South Africa - Today, the international Digital Video Broadcasting (DVB) Project, in cooperation with EUTELSAT, demonstrated World Wide Web service delivery via the DVB-S digital satellite standard. This application, also known as "Turbo-Internet" owing to its high bandwidth (6 Mbit/s), is one of the many applications of the DVB-S satellite transmission system.

DVB-S is the de facto world standard for digital satellite transmission. Although it was designed primarily to deliver digital television programmes direct to homes, DVB-S is capable of carrying many different kinds of digital information, encapsulating specific protocols such as TCP/IP, and delivering HTML and the many different files associated with web pages at high speeds.

For the DVB demonstrations at Africa Telecom 98, the participation of a number of different organisations was essential. **EUTELSAT** provided the space segment, from **HOTBIRD™ 3**, a fully digital member of the family of EUTELSAT satellites positioned at 13° East. Although the EUTELSAT vehicles are positioned to deliver the majority of their services to the European and North African regions, the **HOTBIRD™** satellites feature a steerable beam, which was directed for the purposes of this demonstration to cover the African subcontinent.

Other participants in this historic demonstration include **ORBICOM**, a South African DVB Member who have since 1995 operated a DVB multiplex on PAS-4, and **M-WEB**, one of South Africa's largest Internet Service Providers.

The demonstration makes use of standard PSTN or ISDN dial-up access to carry the minimal information outgoing from the client PC, in the path through the web known as the "return channel". Once requested, the pages are not directly sent back via the Web to the PC client. Instead they are delivered to EUTELSAT partners **BT** via the UK ISP **Easynet** in the UK for uplink to **HOTBIRD™ 3** where they are inserted into a DVB multiplex alongside several digital television programmes and multimedia services and sent down the steerable beam to the African subcontinent.

At the client side in Johannesburg, the multiplexed DVB-S signal is received on a PC connected to a satellite dish via a DVB-S Receiver Card. The DVB-S signal is demodulated by the card and the resulting MPEG-2 bitstream is decoded to provide the requested web pages. With the phenomenal speed of delivery over the satellite channel, the most likely bottleneck will be the speed of the hard drive of the web server from which the pages are retrieved.

South Africa is 16<sup>th</sup> in the world in terms of number of Internet hosts and the World Wide Web represents a highly valuable resource for people living well away from the traditional centres of content provision in North America and Europe. As such, web access through the normal PSTN can often be highly frustrating, owing to the slow net bandwidth surfers can expect.

Bringing superfast "Turbo-Internet" services to Africa is a historic demonstration which shows just how close digital media convergence truly is, and how DVB will benefit people all over the globe.

## **Background**

The **Digital Video Broadcasting Project** (DVB) is a consortium of over 200 broadcasters, manufacturers, network operators and regulatory bodies in more than 30 countries worldwide, committed to designing a global standard for the delivery of digital television. Numerous broadcast services using DVB standards are now operational, in Europe, North and South America, Africa, Asia, and Australasia.

As one of the founding members of the DVB group, **EUTELSAT** contributed to the definition of the DVB standard for satellite transmission. Currently, EUTELSAT uses the DVB technology for a large variety of clients in Europe. Eutelsat are already marketing the Turbo-Internet service in Europe and DVB-S PC plug-in receiver cards are becoming commercially available from a number of manufacturers.

The new steerable beams on EUTELSAT's satellites can be directed anywhere over the earth visible from geostationary orbit and can transmit television, multimedia or telecommunications services to small (80 cm) antennas. HOT BIRD™ 3 and 4 are both equipped with steerable beams, and six of the seven EUTELSAT satellites currently under construction will offer the same facility (the four W satellites, SESAT and Europesat 1).

The digital multiplex shown in Johannesburg is operated by BT and uplinked from London to HOT BIRD™ 3's steerable spot beam. At the same time, the service is being trialed in the UK on another HOT BIRD™ satellite via a transponder switched to a European beam. Pilot users in the UK are accessing services from the multiplex via standard dial-up accounts and can receive high-speed data via a standard consumer antenna and PC card.

**BT** has been a major provider of domestic and international communications services to the broadcast industry for many years. These include contribution and distribution links over satellite facilities & fibre optic, switching and outside broadcast facilities. BT has been active in establishing International Standards wherever appropriate and it has contributed significantly to DVB's work since 1993. BT is also playing an increasingly prominent part in Digital TV, through its Video on Demand trials and in the launch of Interactive Services for Digital TV through British Interactive Broadcasting.

**ORBICOM**, a satellite service provider, is part of the MultiChoice group of companies and offered the first DVB-S satellite service in the world, shortly after the DVB-S standard was completed in 1995. Orbicom is the only South African member of the DVB Project.

**M-WEB** is South Africa's largest home-grown Internet Service Provider.

The DVB stand at Africa Telecom is in Hall 8, No. 8300. DVB technology applications may also be viewed at the Orbicom and EUTELSAT stands.

Please see the System Overview Diagram on Page 3.

# Turbo-Internet

using DVB-S satellite transmission system  
to deliver high speed web pages

→ Return path  
← Delivery path

