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## WORLD FIRST: 2<sup>nd</sup> GENERATION HDTV

### **DVB-S2 & New Video/Audio Codecs Form The Centrepiece Of Future HDTV Services**

**Amsterdam – 10<sup>th</sup> September 2004** – DVB is proud to host the world's first demonstration of a second generation HDTV transmission on its stand at this year's IBC (1.449). The powerful demonstration will utilise the new DVB-S2 satellite specification coupled with the latest generation of coding technologies – H.264/AVC and Windows Media 9 (Enhanced Profile).

The event is transmitted via a satellite provided by SES ASTRA. DVB-S2 modulation is supplied by Radyne ComStream and demodulation by Conexant Systems. 720p content from the EUB, the BBC and BSkyB is encoded in H.264/AVC and Windows Media 9 (Enhanced Profile) by the BBC.

The H.264/AVC and Windows Media 9 decoding is being done on PCs running software decoders from Microsoft (Windows Media 9) and Moonlight Corp. (H.264). These take their video streams from a standard MPEG-2 transport stream which is received over the DVB-S2 modulation scheme.

Peter MacAvock, Executive Director of the DVB Project Office comments, "This HDTV transmission using DVB-S2 is a fantastic achievement and is a credit to all the DVB members that have contributed. In the short time since the DVB-S2 specification was approved we have witnessed the transition from paper to equipment to transmissions that will form the basis of HDTV in the future."

The new DVB-S2 specification is the most advanced satellite distribution technology available today and is already poised to become the international standard widely adopted by satellite operators and service providers around the world. Designed to build upon the success of its predecessor DVB-S, the standard offers greater flexibility and better performance over existing satellites. Leading satellite broadcast operators are already migrating their satellite infrastructure from the current DVB-S standard based transmission system to the more bandwidth efficient DVB-S2 standard to offer more channels and HDTV services.

DVB-S2 benefits from recent developments in channel coding and modulation that give a 30% capacity increase over DVB-S under the same transmission conditions

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and more robust reception for the same spectrum efficiency. DVB-S2 is so flexible that it is able to cope with any satellite transponder characteristics, with a large variety of spectrum efficiencies (from 0.5 to 4.5 bit/s per unit bandwidth) and associated Carrier-to-Noise requirements (from -2 dB to 16 dB).

When used for interactive point-to-point applications like IP unicasting, the gain of DVB-S2 over DVB-S is even greater. Variable Coding & Modulation (VCM) functionality allows different modulations and error protection levels to be used and changed on a frame-by-frame basis. This may be combined with the use of a return channel to achieve closed-loop Adaptive Coding Modulation (ACM), thus allowing the transmission parameters to be optimised for each individual user, dependant on path conditions. ACM allows the reuse of the 4 to 8 dB of power which are typically wasted in conventional satellite links, thus doubling or even tripling the average satellite throughput and reducing dramatically the service cost.

DVB-S2 has been optimised for several satellite broadband applications: broadcast services; interactive services including Internet access; digital TV contribution and satellite news gathering; data content distribution/trunking; and other professional applications.

DVB-S2 is designed to handle a variety of codecs. It is so flexible that it supports any input stream format, including continuous bit-streams, single or multiple MPEG transport streams, IP, ATM. This future proofing will allow other current and future data schemes to be used without the need for a new specification.

### **Background**

#### **The DVB Project**

The Digital Video Broadcasting Project (DVB) is an industry-led consortium of over 250 broadcasters, manufacturers, network operators, software developers, regulatory bodies and others in over 35 countries committed to designing global standards for the delivery of digital television and data services. The DVB standards cover all aspects of digital television from transmission through interfacing, conditional access and interactivity for digital video, audio and data. The consortium came together in 1993 to create unity in the march towards global standardisation, interoperability and future proofing.

To date, there are numerous broadcast services using DVB standards. There are hundreds of manufacturers offering DVB compliant equipment, which is already in use around the world. DVB dominates the digital broadcasting world. A host of other services is also on-air with DVB-T, DVB-S and DVB-C including data on the move and high-bandwidth Internet over the air. Further information about DVB can be found at: [www.dvb.org](http://www.dvb.org).

**DVB is registered trademark of the DVB Project.**