

6 April 1998

For Immediate Release

Contact: Martin Jacklin, DVB Project Office
Ancienne Route 17A
1218 Grand Saconnex
Geneva, Switzerland

Tel: +41 22 717 2719
Fax: +41 22 717 2727

DVB shows COFDM HDTV via DVB-T at NAB 98

Las Vegas, Nevada, April 6 – The European DVB Project demonstrated High Definition Television (HDTV) carried by the DVB-T Digital Terrestrial Television Broadcasting (DTTB) Standard. This is the first time the DVB-T multi-carrier "COFDM" modulation system has been shown delivering HDTV in the United States.

The capacity to deliver high definition TV, with cinematic quality images and sound, is one of the principal benefits of digital television. Digital television systems also allow the possibility of carrying multiple channels of standard or enhanced (Wide-screen 16:9) definition television, or even multimedia data. All of these options need only the bandwidth of a standard analogue TV channel.

The fact that DVB-T fully supports HDTV is good news for broadcasters visiting NAB from all four corners of the world to research their options for making the transition to Digital Terrestrial Television Broadcasting (DTTB).

Although the different US, Japanese and European Digital Terrestrial TV standards all make use of the same MPEG-2 options for compressing their images, there are considerable differences in terms of modulation, sound coding and service information. This means that countries outside Europe, Japan and the US have a tough choice to make. Each system requires a different implementation strategy.

Broadcasters will be happy to know that, whichever modulation standard they choose - ATSC 8-VSB, DVB-T COFDM, or the NHK-proposed Japanese ISBT standard (also using COFDM), that manufacturers will deliver MPEG-2 HDTV and SDTV encoding equipment compliant with their choice of modulation technology.

The worldwide consensus to use MPEG-2 for encoding digital TV images makes it possible for global manufacturers to market their solutions worldwide. The resulting economies of scale will bring the cost of new digital receivers down for the consumer in the home.

This historic demonstration has brought together some of the major players in digital television, including Adherent Technologies, Mitsubishi, NDS, Sony and Tektronix, all DVB Members.

Notably, a Mitsubishi Electric HDTV encoder is used to deliver the required MPEG-2 Main Profile at High Level (MP@HL) HDTV bitstream carried by the DVB-T modulator. DVB-T modulation and demodulation equipment is supplied by NDS, Ltd. Sony provides the HDTV source and monitor. Adherent and Tektronix supply MPEG-2 transport stream generation and analysis equipment. (Please see the overview schematic on Page 3.)

The DVB demonstration shows that a choice of image format and a choice of RF modulation system are independent. Choosing DVB-T allows spectrum planners to benefit from the considerable flexibility and RF performance of COFDM while at the same time broadcasters will be free to choose whichever MPEG-2 image format, HDTV or SDTV, is viable in their markets.

Background

DVB - 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. Adherent Technologies, Mitsubishi Electric, NDS Ltd., Sony Broadcast and Professional and Tektronix are all long standing members of the DVB Project.

DVB-T is the DTTB system universally favored in the 15 European member states. Nationwide DVB-T networks are launching across the UK and Sweden in 1998.

COFDM - Coded Orthogonal Frequency Division Multiplexing. COFDM is a leading-edge digital RF modulation technique which makes use of multiple redundant carriers to achieve extremely robust signal delivery. COFDM has been adopted by both the Japanese and European DTV standards groups.

Having multiple carriers allows transmissions to survive even in extremely hostile reception conditions. Because it uses COFDM, DVB-T digital television signals can be received perfectly in vehicles moving at speeds up to 275 km/h, or through dense urban centers. In-building coverage in built-up city centers also presents no problem to DVB-T.

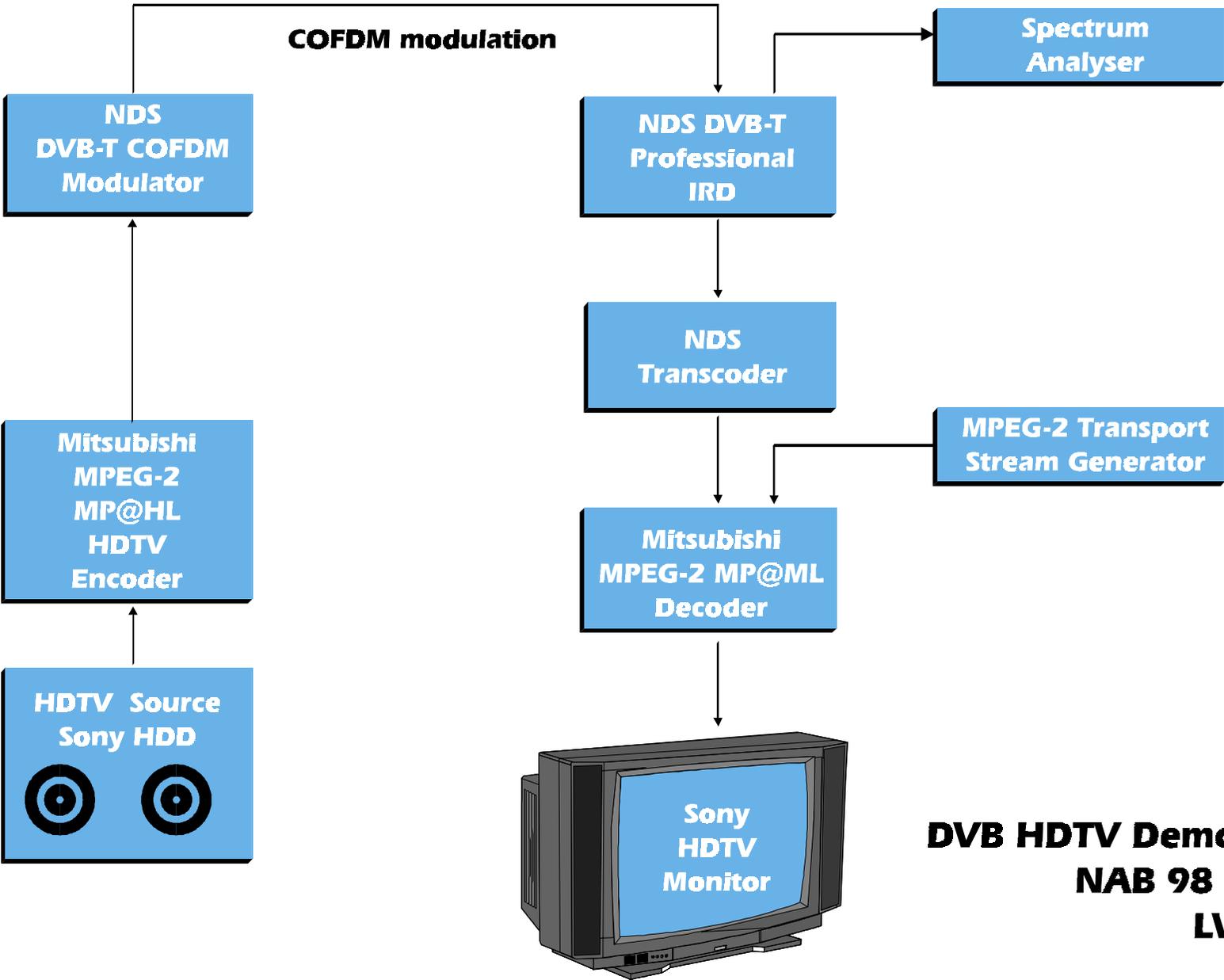
A range of user-selectable parameters in the DVB-T system allow broadcasters the freedom to trade off ruggedness against bit rate. This allows each transmitter to be given an individual set of parameters, optimal for its coverage area. Small "gap-filling" DVB-T transmitters can also be inserted into exceptionally "hostile" parts of a coverage area also served by other transmitters, without any co-channel interference.

Another key advantage of the DVB-T system is that it is seamlessly integrated into the family of DVB standards which cover all delivery media. Thus digital HDTV programming can be delivered to the home making error-free jumps from one medium to another.

8-VSB - The digital terrestrial system proposed in the US by the Advanced Television Systems Committee (ATSC) and adopted by the Federal Communications Commission (FCC) makes use of single-carrier 8 Vestigial Side Band (8-VSB) modulation. Although it promises a slightly higher bit rate, 8-VSB requires a fixed directional roof-top antenna for reception of HDTV. Mobile reception and gap-filling using overlapping transmitters broadcasting on the same frequency are not possible.

MPEG-2 - The global standard for digital video compression designed by the Moving Picture Experts Group (MPEG) chaired by Italy's Dr Leonardo Chiariglioni. MPEG-2 is a flexible toolkit offering a variety of "profiles" and "levels" for encoding High and Standard Definition television. DVB, the Japanese proposal and the ATSC system all use MPEG-2 for image compression, whether for a single HDTV program or for multiple standard definition channels.

The key is the MPEG-2 decoder chip which will be found in all digital receivers. If suitable quantities of this chip are ordered from manufacturers, the cost of the digital receiver will be optimal for the rollout of digital television across the world. An active market already exists in Europe, the USA and indeed around the world for MPEG-2 SDTV chips. SDTV receivers can be modified for HDTV simply by replacing the MPEG-2 SDTV chip-set with an HDTV enabled one.



**DVB HDTV Demonstration
NAB 98 Las Vegas
LVCC 41 45**