

ACTIVITY IN THE BBC

Some HD test programmes have already been broadcast in standard definition letterbox format (Mahler's Eighth Symphony and the Handel Opera – Ariandante). Other programmes, including Chopin, Mid-summer Nights Dream and a Gala Concert from Glyndebourne, have been made in collaboration with *BBC Worldwide* and *Playback HD* and will be broadcast later this year. A drama trial earlier this year confirmed that the current electronic drama production, based on Digibeta, could convert to HD with little disruption if the market developed.

R&D experience to date is that the overall risk with HD is higher than with standard definition because the technology is, in some cases, unfamiliar but required to be operated to high standards to achieve a product with added value. There are also costs/risks associated with the "front of camera" which add to the commercial risk of any HD production. Work in R&D will help avoid undue risk with the new technology by making its expertise available to support the divisions of the BBC.



HD update

In Europe, HDTV became known for the "clunky" kit and high costs – but things are changing:

- "The Lakes" and "Holby City" are examples of successful BBC electronic drama production.
- New generations of HD equipment are compact and easy to use.
- The developing market for HD productions in America, Australia and Japan provides new commercial drivers.



BBC

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THE TECHNOLOGY

New HD equipment has the appearance and flexibility of that for standard definition productions and is now available from a number of manufacturers. The waiting list is long for recorders that can be used in conjunction with film telecines but few are yet buying the complex studio or outside broadcast equipment to support major studio productions or sporting events.

Domestic HD stills cameras achieve more than 1000 line images and electronically capture 30 stills on a removable electronic pack. This is available at highstreet stores for about £300! HD domestic camcorders will be around in a year or two.

Camera technology has now advanced to the stage where enough pixels for HD can be achieved within a 2/3 inch CCD sensor and the processing has the necessary bandwidth for HD whilst consuming modest power.

Recorders use compression to keep close to the data-rate of standard definition equipment but achieve considerable advantages, in overall picture quality, compared to standard definition operations with less compression.

HD camcorders (like the SONY HD Cam) achieve good HD operation within the same physical outline as SD DigiBeta camcorders.

The one area of technology that is still causing difficulties is the lens. Lenses with good HD performance and the range suitable for the distant coverage of sporting events are still very large and costly. Lenses with the ranges normally used in television productions (up to 40 times) can still be several times the cost of the camera or camcorder.

Thus, the technology favours HD productions where camcorders with limited range lenses are used or studio shows where the cameras can be placed within reasonable distance of the performers.

THE INTERNATIONAL SCENE

Japan introduced an analogue HD standard (MUSE) some ten years ago. It has had limited success and there have been announcements that Japan will adopt a digital HD system.

In America, the digital broadcast standard (ATSC) is suitable for delivering HD and a large number of different HD standards have been proposed: these are now being adopted by different broadcasters. Ambitious targets have been set for the switch-on of digital services and the number of transmitters is running ahead of targets. However, the amount of HD programming is still very small with many stations running looped demo material. The FCC (which regulates broadcasting in the US) is urgently trying to resolve a list of difficulties to maintain the impetus for the new digital services. These include:

- resolving a "must carry" commitment on cable companies which is seen as consuming the extra capacity they achieve with digitising their services,
- resolving rights issues over digital broadcasting and digital domestic recording,
- poor receiver performance which might be traceable to inadequacies in the chosen system
- confusion over the multiplicity of standards (480i, 480p, 720p, 1080i, 1080p at 24, 30 and 60 frames per second).

Films are available in "close to HD" quality when 35 mm is used and, in the US, the output of *Hollywood* offers a significant early attraction for HD. There is also evidence that the US is turning to other countries, including the UK, for electronic HD productions.

There is little doubt that the US will make a successful entrance into HD. The main question is "how quickly?"

Australia has announced a digital TV with HD as the main services. They have avoided many of the pitfalls of the US by adopting a more robust digital system (the DVB system also used in the UK) and by limiting the HD standard to 1080-lines at 25 and 50 Hz. There is also evidence that Australian broadcasters are looking to the UK to help supply programme material.

At NAB there were 1024-line 50-inch plasma displays of very good performance and some very impressive projectors. When large-scale production causes prices to fall the attractiveness of the HD proposition to the consumer can be tested.

HD drama test (*EastEnders*).



Glyndebourne Gala concert – collaborative production in HD.

