

## Proceedings of The Institute of Acoustics

ANOTHER YEAR ON WITH STEREO SOUND AT BBC TV

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It seems hard to believe that a full year has passed since I made my first presentation to the "REPRODUCED SOUND" conference, here at Windemere, on the subject of stereo sound for TV. For us in BBC Television a lot has happened during 1988 as we hopefully move closer to providing a full public service using "NICAM 728" stereo sound.

### TIMETABLE

As those present at last year's conference will recall, I reluctantly had to be somewhat vague as to a possible starting date for the new service. At that time, information was based on the BBC's projected 5 year development plan which, when announced, placed a start date some time in 1990. That date remains substantially correct, for as recently as the beginning of October '88 in a speech to the Institute of Electrical Engineers in London, Michael Checkland, the BBC's Director General, re-affirmed that he did not wish to start stereo sound for TV until the majority of the UK could be provided with a 70-80% service on both BBC networks.

It is now anticipated that final decisions on this will be taken in the Spring of '89 with a view to an early 1990 start-up.

### TECHNICAL DEVELOPMENTS

Irrespective of a declared public service start-up, the experimental service from the Crystal Palace transmitter has been maintained on both networks throughout the past year. Similarly, the development of those aspects of BBC TV's infrastructure necessary for the handling of stereo signals has continued.

As a result of previous experience following field trials, modifications to the dual sound-in synchs equipment was deemed necessary in order to optimise the performance of this system. This work was undertaken and modified equipment has now been giving improved results following extensive use, particularly on outside broadcast contribution links throughout the past summer.

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Within the Central Apparatus Room at the Television Centre in Shepherd's Bush, work on providing the routing, by remote switching systems, of stereo signals is nearing completion, as is the provision of the requisite stereo to mono and mono to stereo combiners and splitters. These devices take account of the fact that not all sources and destinations within the current system are as yet fully stereo capable.

The specification of the complete "NICAM 728" system has moved from a previous draft form to a final UK agreed format. This document was published jointly by the BBC, IBA and BREMA, with DTI approval in August '88. This specification has now been embraced by the EBU as the recommended system for terrestrially transmitted stereo sound for TV.

Included in the final specification is the change in the audio line-up level that was introduced earlier this year. The alteration, a lowering by 2.8dB, now sets the reference level 14.8dBu at 2kHz below peak bits, i.e. clipping. This was done for a number of reasons. Firstly, it brought about a harmonisation of levels for the current users within the UK, i.e. BBC TV and BBC Radio (for multi-channel distribution) and British Telecom. Secondly, by lowering the line-up reference level sufficient headroom (14.8dB) was now left above this point so as not to require front end protection limiters. By the very nature of the basic "NICAM" system, if limiters had been used side-chain de-emphasis types would have been required. Past experience of this device gave rise to the view that if the system could be used without recourse to such limiters the fidelity of "NICAM" as a total system would be safeguarded.

### TRAINING

During the early part of 1987 it became obvious that within BBC TV at least, some form of training would be required. This would provide sound practitioners who had passed through formal sound training courses in earlier times with some basic factual information on the fundamentals of stereo sound. This was felt to be most essential if only to dispel some widely held myths and provide a common vocabulary for the future. The preparation of this material during the latter half of 1987 came to fruition at the beginning of '88 with an individual learning package based on a booklet, an audio cassette with stereo sound examples, and a video cassette offering visual interpretation using graphics etc.

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Amongst the audio enthusiasts for TV stereo sound, it was soon realised that if this new "tool" was going to be used in any meaningful way programme makers like producers and directors etc. would require help and guidance as well. It has to be remembered that irrespective of a sound supervisor's enthusiasm for stereo, unless a producer is similarly enthused and is prepared to bid and pay for the appropriate resources on behalf of his production, stereo sound for TV is a non-starter. So as to kindle this enthusiasm a "Production Guide to Stereo TV Sound" was produced. This is designed to introduce programme makers to stereo in a non-technical way, again providing the vocabulary, and explaining what can be achieved so as to give help and guidance to the uninformed.

The third training aid that is nearing completion is another technically orientated digest of the various methods and techniques that have been tried and used so far. This later material is designed to build on the fundamentals explained in the earlier learning package and offers real examples in the use of ideas and techniques developed thus far.

### PRODUCTION

As in previous years, any and every opportunity that has presented itself for the production of programmes with stereo sound has been utilised.

The year has also been one of consolidation where successful attempts have been made to undertake productions in stereo but working within a mono sound timescale.

The twice weekly "EastEnders" has provided just such a situation. With the rapid production turn-around from original recording through video tape editing then to sound post-production, direct comparisons of different approaches can quickly be made.

The weekly "Top of the Pops" is now produced and transmitted in stereo on "NICAM 728" from Crystal Palace and simultaneously on the increasing number of Radio 1 FM stereo transmitters up and down the UK.

From the beginning of the year our Music and Arts features on TV have all been originated with stereo sound. This is to meet increasing demands from our co-producers irrespective of whether the BBC transmits in stereo or not.

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TV stereo has not been limited to UK production only. For example, any cinema feature film that has stereo sound available will now pass through the system as a stereo product, "Dolby Surround Sound" processing included. The most spectacular example of this was the film "A Passage to India" shown earlier this spring. Similarly, programmes originating abroad and relayed via satellite with stereo sound have been transmitted. Examples here include "Simon Rattle with the City of Birmingham Symphony Orchestra" from Los Angeles and just recently "Il Trovatore" from New York. Both these relays used the Wegner system to carry the high quality stereo sound which was also used simultaneously by Radio 3.

From Korea the opening and closing ceremonies for the summer Olympics also had stereo sound via satellite, on those occasions the Australian VIMCAS system was used. October also saw the first use by BBC TV of the Dolby SR system with video tape. The Scottish production of Leonard Bernstein's "Candide" was originally recorded in stereo using the digital F1 system, then after editing, the stereo sound was copied onto the master 1" C format video tape using Dolby SR processing. It was then transmitted off tape simultaneously on "NICAM 728" and the normal BBC2 sound-in-synchs distributions throughout the UK together with Radio 3 also throughout the UK. To those in the know at the time, the improvements to the off-video tape sound quality indicated a possible course of action for future improvements to aid stereo sound quality from video tape pending the arrival of the all digital D2 format.

### CONCLUSION

This has been a brief resume of BBC TV's work with stereo sound during 1988. For those of you fortunate enough to have had the chance to share the increased enjoyment that it brings to programmes, albeit from an experimental service, be assured, this is just the beginning.

And for those people yet to experience the extra dimension that stereo sound gives to TV programmes, it is on its way, even if not from the BBC at the outset.