

Special Feature on  
D & ED page 8

# ENG INF

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## INTEGRATION OF D & ED NOW COMPLETE

In early June, Design Group and its support services moved from Western House in Central London to Avenue House in West London thereby completing the integration of the former Designs and Equipment Departments.

This edition of 'Eng Inf' carries a six page special feature on Design and Equipment Department, starting on page 8.

### RESEARCH AGREEMENT ON DIGITAL AUDIO EDITING

Dr Bruce Moffat, HRD, recently signed a co-operative agreement with Real World Research (RWR), of Bath, which covers the development of hardware and software for the newly launched RWR 'Tablet' random



Dr Moffat signs the agreement with Carl Schofield of RWR, watched by Simon Shute (G.M.Ops&Eng.R), David Meares (RD) and Stephen Paine, MD of RWR's distribution company, Syco Systems Ltd.



The front entrance to Avenue House

access, digital, audio editor.

The agreement will consolidate on RD's expertise in random access audio editing techniques for broadcast applications, first publicly demonstrated at IBC 84. Said Dr. Moffat: "...it will pull our research ideas through into a product range which I believe will be attractive to broadcasters and recording studios, as they develop digital systems."

Six RWR 'Tablet' editors have already been ordered by BBC Radio for delivery, from Syco, to BH and Maida Vale studios during July and August. The new editors - one more step towards the all-digital radio studio - will be used across the whole range of radio programmes and, says Simon Shute, General Manager, Operations and Engineering, Radio, "...come closer to our vision of what ought to be achieved than anything else we have seen".

An enhanced version of the editor, hopefully showing some of the results of the agreement, will be demonstrated by the BBC at IBC 88.

# LICENCE AGREEMENTS

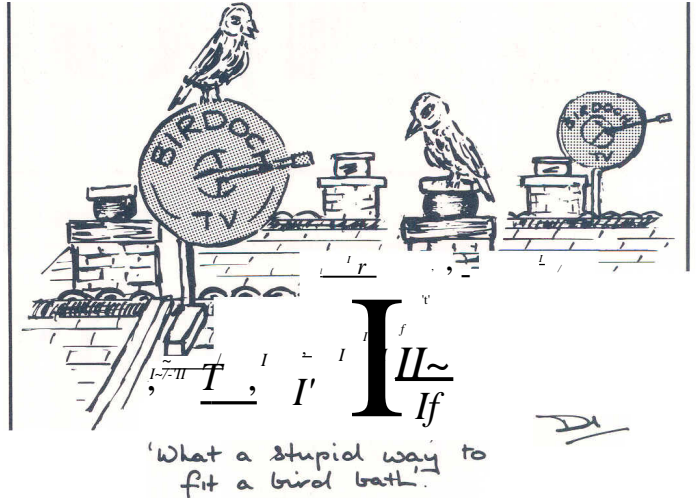
Three licences have been granted to different companies since our last issue:

Digi-Tel Systems (UK) Ltd, of London, has been granted the second licence to manufacture the Festival modification kit for Rank Cintel Mk III telecines. The first licence for the kit, which includes a superior burn and shading corrector, and a new head amplifier, was awarded to Digi-Grade Systems Ltd, of Farningham, and was reported in 'Eng Inf' No 30, last autumn.

A set of four units which together make up a TFM Modem, operating on 2048 kbit/sec digital signals, has been licensed to Continental Microwave Ltd, of Luton. They plan to package the equipment in a slim-line bay-mounting rack, which will incorporate the BBC-designed TFM Coder (CD2/40), Modulator (MD4/8), Demodulator (DM4/10) and Decoder (CD3/56) in a single unit.

Finally, a patent licence has been granted to Oxley Developments Co. Ltd, of Ulverston, Cumbria, for BBC British Patent No. 2 156 178. This document embodies the work carried out by Research Department on the design parameters and implementation of an Optical Switching Matrix. Oxley, who are well known for their wide range of electronic components, plans to use the BBC's research as a basis to develop a commercial optical switch module.

For further details of these and other licence agreements, please contact the D&ED Liaison Engineer, Peter Jefferson, on Avenue House 375.



## TRANSMITTER NEWS

The following stations have opened since 1 April:

### Television

Birchover	Matlock, Derbyshire
Bradford West	Bradford, W. Yorkshire
Brockwell	Chesterfield, Derbyshire
Coed Derw	Betws-y-Coed, Snowdonia
Minnigaff	Newton Stewart, Galloway
Overstrand	Cromer, Norfolk
Whitaside	Richmond, N. Yorkshire

### FM Radio

Ridge Hill, in Herefordshire, originally entered service in late March but had to close down shortly after due to a technical problem. The station re-opened on 30 June and the Hereford relay (which it replaces) closed down on 15 July.

# THE IEE/BBC FARADAY LECTURES

..... .. Where to see the BBC's Presentation:

1988			1989		
12 Oct	Liverpool	Philharmonic Hall	19 Jan	Belfast	Sir Wm. Whitla Hall
19 Oct	Newcastle	City Hall	26 Jan	Dublin	Nat. Concert Hall
3 Nov	Harrogate	Conference Centre	31 Jan	London	Barbican Hall
10 Nov	Birmingham	Town Hall	1 Feb	London	Barbican Hall
15 Nov	Cardiff	St. David's Hall	2 Feb	London	Barbican Hall
23 Nov	Manchester	Free Trade Hall	8 Feb	Exeter	Univ. Great Hall
29 Nov	Glasgow	Scot. Exhib. Centre	22 Feb	Bristol	Colston Hall
1 Dec	Edinburgh	Usher Hall	1 Mar	Sheffield	City Hall
13 Dec	Norwich	Univ. of E Anglia	8 Mar	Derby	Assembly Room
			15 Mar	Southampton	Guildhall

# SOME CURRENT VT RECORDING FORMATS

Several VT Recording formats are currently in use and the following brief notes, describing their main features, may be of interest to readers of 'Eng Inf':

## 1" C

Uses 1" wide, 26 micrometre (urn) thick, 650 Oersted (Oe), cobalt-doped gamma ferric oxide tape, loaded on open reels having nominal durations of 30', 60', 90', 120' and 180'.

(Note most BBC 1" C VTRs can only cope with up to 90' duration.)

An FM signal, modulated by the composite video, is recorded at a slight angle along the tape with one head on a rotating drum. The helical transport of tape round the drum results in an average of 312t lines being recorded by the head, during one drum rotation. Approximately 10 lines of the vertical interval are lost as the head crosses from one edge of the tape to the other. The missing blanking is re-generated in the timebase corrector (tbc).

Modulation and format standards are 625 and 525 lines and the video bandwidth is up to 5 MHz.

Colour processing standards are PAL, SECAM, NTSC and PAL M.

It has four longitudinal audio tracks, one of which is normally used for timecode (track 3). Some machines are not equipped with track 4, which is used mainly during editing and occasionally to carry a mono mix when tracks 1 & 2 are stereo. A servo control track is also recorded.

## D1

Uses 19mm (t") wide, 16/13um thick, 850 Oe, cobalt-doped gamma ferric oxide tape, loaded into three sizes of cassettes having nominal durations of 11', 34' and 76' (94' using 13um tape).

(Note that the SONY DVR 1000 cannot handle the small-sized cassette).

Records the video and audio in digital form, using multiple head segmented helical techniques. The video signal is

digitised and processed in component form, ie luminance component Y and the two colour difference components U & V. The resulting data is recorded in four parallel bit streams and is subjected to shuffling and error correction strategies to eliminate catastrophic failure in the presence of dropouts or loss of one of the data channels.

## A D1 cassette recorder

Sampling rates (CCIR Rec 601) with 8 bit resolution are 13.5 MHz for the Y signal, resulting in a bandwidth of up to 5.5 MHz. U and V are each sampled at 6.75 MHz giving bandwidths of up to 2.75 MHz.

Use of D1 as a recorder for signals originating in composite form involves decoding and because the U & V components are band-limited by the PAL system, the capacity of the U & V channels is under-utilised.

Switchable format standards are 525 and 625 lines.

It has four digital audio tracks recorded  
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