

ENG I N F

The quarterly for BBC engineering, technical and operational staff

SUMMER 1991

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DIGITAL AUDIO BROADCASTING

Over 500 people attended the first UK demonstration of Digital Audio Broadcasting (DAB) mounted by BBC engineers in Birmingham at the end of July. The new DAB system - described in *Eng Inf*No. 44 - offers compact disc quality reception via simple push button radios at home, or on the move. It is very frequency efficient, offering up to twelve stereo radio channels in the space normally occupied by just two.

A coach driven round Birmingham was used to demonstrate the ruggedness of the DAB system in a typical city-centre environment, where normal FM radio can suffer from poor reception caused by the many tall buildings. Visitors listening on headphones were able to compare the DAB and FM signals

which were being received from similar transmitters on 211 and 215 MHz, respectively, carrying identical programme material.

The demonstrations were received with acclaim from those who heard them. Comments from journalists, broadcasters, and industrialists alike ranged from "stunning" to "mind-blowing".

The BBC is the sole UK member of the European Eureka 147 consortium that has been researching DAB for several years. Previous demonstrations have been given by Eureka members in Geneva and Las Vegas, and the system will feature at the IFA Berlin later this year.



Research Department

The DAB demonstration bus sets off on its 20 min tour of Birmingham

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ENGINEF

Transmitter News

Edited, designed and typeset by
EID, Room 4616 White City
Tel: (07) 24316

Editor Mike Meyer
Secretary Tracy Quinn
Typesetter Giselle Austin
Graphic Artist Paul Ashton May

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You must be wondering why the summer edition of *Eng Infs* so late this time. Well, EID got very involved in the Birmingham demonstration of DAB which required extensive in-house typesetting and graphics work. Still, I'm reliably informed that summer doesn't run out till 20th September so I think we'll just about make it with this edition!

By the time you receive this issue, I should be well advanced with the autumn edition. However, it's not too soon for you to be thinking about stories for our winter edition. Texts for that issue should be with me by 6th November.

Mike Meyer
23rd August

The following services opened or changed between 29th March and 23rd August:

Nailsworth
Pennar
Gloucs
Gwent

New TV relays

Chalford
Chitterne
Greenwich
Pennsylvania
Perranporth
Pillowell
Poplar
Presteigne
Rugeley
Siston
Warmley Hill
Gloucs
Wiltshire
London
Exeter
Cornwall
Forest of Dean
London
Powys
Staffs
Bristol
Bristol

Radio 1 on FM

Morecambe Bay
Redruth
Cumbria/
Lancs
Cornwall

Radios 1 and 4 on FM

Ashkirk
Darvel
Divis
Haverfordwest
Rosemarkie
Rosneath
Borders
Ayrshire
Belfast
Dyfed
Highland
Firth of Clyde

Addition of Nicam

The following main stations and their relays are now Nicam-equipped: Belmont, Black Hill, Crystal Palace, Emley Moor, Mendip, Pontop Pike, Sandy Heath, Sutton Coldfield, Wenvoe and Winter Hill. However, some of Black Hill's more remote relays in Argyllshire and Inverness-shire are unable, at present, to rebroadcast Nicam stereo sound.

Radio Scotland (Main) on FM

Bowmore
Port Ellen
Islay
Islay

Local Radio

Radio Sheffield gained a new FM transmitter at Chesterfield on 5th June.

Mast flashing safety lights

Ashkirk
Divis
Haverfordwest
Pontop Pike
Rowridge
Borders
Belfast
Dyfed
Durham
Isle of Wight

New FM stations

Abertillery
Olivers Mount
Gwent
Scarborough

The IEE's Residential Home

Present and past members of the IEE (and their dependants) who are undergoing hardship now have available a residential home on the outskirts of London. Known as *Spiers House Residential Home*, it is on the Chesters Estate at New Malden, Surrey, within easy reach of Hampton Court, Richmond Park, Wimbledon Common and Kingston-upon-Thames.

The prestigious Chesters Estate was donated to the IEE's Benevolent Fund after the second world war by a late Honary Fellow of the Institution - Mr C. W. Spiers. In 1987, a decision was made to build an extension to the

main Chesters House in order to provide a modern and well-designed residential home with additional nursing care facilities for thirty-four residents.

The new Spiers House was opened in August 1990 and provides high standard accommodation for up to twenty-six elderly residents in attractive single rooms and four couples in well-equipped flatlets. Being a single-storey building, there are no stairs. Televisions are provided in elegant lounges but each individual room is also provided with a television, and a wall socket for those who wish to provide their own telephone.

All rooms have en-suite toilet facilities and ample showers and baths are provided throughout the building. Three "Parker" baths have been installed which will be appreciated particularly by residents who find a standard bath difficult to use.

Anyone requiring further information on Spiers House should write to:

Miss Janet Nunn,
Benevolent Fund Officer,
Institution of Electrical Engineers,
Savoy Place, London WC2R 0BL.
(Tel: 071-2401871 ext 291).

FAMILY TREES

Transmission and Project Services

Chief Engineer
Transmission and Project Services
Bert Gallon

Head of Personnel and
Administration, Transmission
Terry Wing

Head of Engineering
Information Technology
Ralph Miller

Chief Assistant Corporate Communications
Jim Sleight

Corporate Communications Analyst
Stuart Richardson

Head of Architectural and Civil Engineering Department
Richard Fowler

Principal Mechanical Engineer
Derek Adams

Principal Civil Engineer
Alan Taylor

General Manager, Transmissions Operations
David Sandbrook

HETxOps (UK)
Graham Smith (Acting)

Hd of Sites & Premises Section
Peter Mensforth

HETxOps (Overseas)
Neil Wilkieson

Transmitter Area Manager, North
Tony Kendell (Acting)

Transmitter Area Manager, Midlands & N. Ireland
Jim Gray

Transmitter Area Manager, South and East
Brian Hase/er

Transmitter Area Manager, Wales and West
Nige/ Turner (Acting)

Transmitter Area Manager, Scotland
Ian Lowrie

Overseas Transmitting Stations (x 7)

Principal Architect I
Andrew Fullerton

Principal Architect II
A/an James

General Manager, Transmission Engineering
Noel Sudbury

Engineering

Head of Transmitter Project Group
A/an Rees

H. Antenna Section
John Ward

H. Monitoring & Control Section
Duncan Whittle

H. Transmitter Section
Eddie Docherty (Acting)

Head of Corporate Project Group
Alan English

H. Broadcast Communications Section
Bill Buck/ey

H. Power Systems Section
Nick Davies

H. Telecommunications Network Section
Chris Gill

H. Communications & Business Systems Section
Paul Jarrett

Project Managers

Project Managers

H. Project Management & Technical Services Group
Nigel Turner

Head of Transmitter Technical Investigations
Paul Mitchell (Acting)

Project Finance

Drawing Office

Transmission and Project Services - 1st September 1991

CHARTER REVIEW

The BBC as Technical Innovator

Fifteen Task Forces have been set up to assist the recently-created Charter Review Group, which is looking at the full range and scope of the BBC's activities - and its future role - in the lead up to Charter Renewal at the end of 1996.

Here, Michael Starks - Chairman of the Task Force on Technical Innovation - introduces his team and describes their brief and how they are going about their task.

The BBC has been a technical innovator in the past. It is a technical innovator today. But should it retain this role for the future? And, if so, should it do so in the same way as at present - or does the changing shape of British broadcasting require a fresh approach?

These issues are at the heart of the work of our BBC Charter Renewal Task Force looking at the subject of technical innovation. Since we are genuinely addressing them with open minds, and have a great deal of work ahead of us, we are in no position yet to give any answers. But those with an interest in the subject might like to know who we are and what questions we are asking. We're very keen to gather views and relevant evidence at this stage and, if any readers of this article wish to write to us with thoughts and proposals, they would be most welcome. *

The Task Force

So who are we? We're a mixed group - including technical experts and programme makers - with a range of relevant backgrounds.

Our three professional engineers come from different output Directorates. Peter Marchant is the Chief Engineer, Television; Simon Shute is General Manager Operations and Engineering, Network Radio; and Fiona Lowry is Assistant Head of the World Service's Broadcast Coverage Department.

Phil Harding is Editor of Radio's Today programme and a former Television producer. Adrian Davies is a Television News & Current Affairs producer currently working for the BBC Policy & Planning Unit. Gwyneth Henderson is Head of Training for the World Service and a radio producer by background. And Lawson Brown is Head of Broadcasting Developments, Enterprises.

My own background, before coming to my present job, was in BBC Radio management, regulation of commercial

radio at the IBA, and BBC television production.

Our Mission

Our first task was to formulate our brief. We had been given the heading "The BBC, the Technical Innovator", but it was our job to develop this into what our McKinsey adviser calls our Mission. I should say, in parenthesis, that McKinsey consultants are advising all the Charter Renewal Task Forces "on process but not content": the recommendations will be the BBC's, not the consultants'.

We decided that our Mission should be:

"To consider what future developments in broadcasting are likely, whether technical innovation is a key ingredient in the BBC's future strategy, what areas of technical innovation the BBC should concentrate on, and why".

We felt it was essential to go back to first principles, and the choice of the word "whether" in relation to technical innovation's strategic importance was therefore very deliberate. Traditionally, technical excellence and innovation have been an integral part of the BBC's picture of itself and, in today's world, we could readily argue that if we didn't do it, there's no guarantee that any other British broadcaster would. But there is a school of thought which puts the emphasis differently and sees the BBC as a distinctive public service on account of its programme services, not on account of its technical innovation. We need to recognise and explore that debate.

We will also check what other broadcasters do - especially other public service broadcasters in other countries - in the field of technical innovation. Do they undertake their research and development themselves or do they pursue it in partnership with universities and with the electronics, receiver manufacturing and telecommunications

industries? What financial criteria do they apply to their involvement?

This analysis is likely to lead into other issues. How does partnership and cooperation in technical innovation square with achieving a competitive advantage? What position should the BBC adopt in transmission? And which electronics industries are our natural partners these days - the Japanese firms based in the UK which sustain British jobs, or their European competitors on the continent on whom the EEC's industrial policy tends to focus? We shall want to tease out the connections between public service broadcasting and public policy - and to take views from outside, as well as inside, the BBC on this theme.

We have already visited Kingswood Warren and Avenue House and have invited a number of speakers to come and talk to us. We have started work on selected case studies - to see what lessons for the future can be learned from specific technical innovations made in the past. We are also exploring the criteria used for investing in research and for assessing its success, and the scope which technical innovation offers for revenue earning.

We shall no doubt vigorously debate whether technical innovation is engineering-led and, if so, whether this is good or bad. Do we set high technical standards and spend disproportionate sums of money on improvements which are scarcely detectable by viewers and listeners? Alternatively does the public expect ever increasing standards of quality - witness the compact disc - and is it competitive death to cling too long to yesterday's technology? And if engineers should not be the only people leading technical innovation, then who else should also be involved? The programme-makers looking for competitive advantage? The resource managers and accountants looking for cost reductions? The marketing managers looking for revenue? If the answer is

'yes' to some or all of these, how could their involvement be sensibly organised?

Final objectives

At the end of our deliberations we aim to have:

- 1) a statement of whether and in what ways technical innovation supports the BBC's overall strategy;
- 2) a clear idea of those areas of broadcasting technology where the BBC

should concentrate its own resources and those where it should form partnerships with others;

- 3) a range of options for the BBC as a technical innovator (and for the public debate over Charter renewal it will be important that we have thought through the arguments for and against various possible courses), together with our recommendations on these options.

What will happen then? Well, our work will need to be integrated with that of the fourteen other Task Forces and that will be quite a task in itself!

Michael Starks
General Manager
Radio Administration

* Any written submissions to the Task Force on Technical Innovation should be addressed to: Michael Starks, Room 402, Brock House.

NETWORK RADIO

New studio facilities for Radio 1

Martin Bravery describes Egton Studio 2 which has recently been refurbished for Radio 1, while overleaf Tim Mountain describes Radio 1's new Production Workshop.

STUDIO 2

With the start of round-the-clock broadcasting on FM, Radio 1 needed a simple DJ-operated studio. No new accommodation could be made available, so Egton Studio 2 has been technically refurbished to provide three new modes of operation:

- Day-to-day general programme-making
- Late-night presenter (DJ) operation
- Limited emulation of the BBC-designed Maxicon facility which is available in Radio 1's other studios.

For day-to-day general programme-making, a Clyde 'Producer' series mixer has replaced the original 1979 Audix GP Mk2 desk. In addition, a Clyde 'Presenter' series mixer has been installed as a presenter-operated (DJ) facility for the starlight hours of broadcasting.

Both installations can operate independently: they are fed to the network separately and they can select their own outside sources. At the moment each facility's output covers a different



View of the DJ's hotseat in Egton Studio 2

portion of the 24hr day. On average this means eight to ten hours of general programme-making during the day, and about six hours of DJ operation occupying the small hours.

The third facility is the limited emulation of the Maxicon equipment format, which is used in Radio 1's existing on-air

studios (4 and 5 in Egton House). This allows programmes normally done in the Maxicons to be moved into Studio 2 without changing the programme format or significantly retraining the DJ's.

In this mode, sub grouped outputs from the DJ desk are fed into the control room desk for SM-controlled

- RADIO 1 -

programming (where it is too complex to operate with one person). An example of this is when bands are playing in the same studio (which is quite common, even though it measures only 4m x 5m!) and when complex mixing is necessary using the full facilities of the control room desk.

Switching between the three modes of operation happens at the touch of a button and no replugging is required.

The multipurpose facilities were installed by Elliott Bros (Audio Systems) Ltd to a design brief produced by Radio Projects in conjunction with Radio 1 and Studio Operations.

The inaugural broadcast from Studio 2 took place in the dead of night on the

1st of May - successfully launching Radio 1's 24-hour service.

Martin Bravery
West 1 Project Group
Radio Projects

PRODUCTION WORKSHOP

Radio 1's Workshop is a prepost-production type of area which is responsible for the creation of the majority of trails, promotions and jingles for the network, as well as producing general 'wackiness' for the Steve Wright afternoon show. It is capable of handling anything from a simple dubbing exercise to a full musical production, achieving the desired results in the minimum possible time.

The previous facility was far from ideal so the area has been completely

re-equipped as a hi-tech studio by Harris Grant Associates (HGA). It was designed by Ray White of Radio Projects and includes the following equipment:

- . Mixing desk: Allen and Heath Saber 32-16-16 console
- . Turntables: EMT 938
- . Tape machines: Sonifex cart, Radio Systems DAT and Studer A80? 1/2-inch
- . Multitrack: AMS Audiofile Plus 8-track digital editor, fitted with the 8-simultaneous-input upgrade
- . Samplers: Akai S1000 & Roland S50
- . Effects units: Roland E660 equalisers, Eventide H3000 harmoniser and Yamaha SPX 1000 multi-effects unit