BBC

DESIGNS DEPARTMENT

DESIGNS DEPARTMENT "OPEN DAY"

20TH & 21ST OCTOBER 1982

BRITISH BROADCASTING CORPORATION
ENGINEERING DIVISION

THE DEPARTMENT

Head of Designs Department : F.G. Parker

Designs Department produces designs for electronic equipment required by the BBC, which cannot be obtained from commercial sources. The Department covers the whole field of broadcasting technology, audio, video and radio frequency, studio to transmitter.

The programme of design and development work is based on close contact with Project Engineers in the Radio, Television, External Services and the Capital Projects Departments. Most of the equipment made from our designs is produced by Equipment Department although the Production Unit within Designs Department makes small numbers for field trials of new designs to satisfy urgent requirements.

There are about 200 staff in Western House, the home of Designs Department; qualified engineers and technicians account for about 100 and the remainder are draughtsmen, wiremen, technician mechanics, secretaries and other supporting staff. The design staff are divided into two groups, one concentrating on studio equipment and the other on point-to-point and broadcast transmission equipment. Each Group has four Sections, each with its own technical specialism. These are described in later pages of this brochure.

DEMONSTRATIONS AND EXHIBITS

6TH FLOOR

Assembly Area and Display of Work from Production Unit

CADET	-	computer-aided pcb layout.
Extrusions	-	specialised aluminium extrusions for the Silverstreak Transposer and Band II, 2 kW amplifier projects.
Current Projects	-	loudspeaker cones, wire wrapped and prototype cards, castings and tools.

NICAM 3

Further developments including insertion, separation, distribution amplifier and test generator.

Optical Fibres

280 Mbit/s transmission of two television channels.

"ADZE"

Adaptable half card Z80 microcomputer for monitoring applications etc.

"MASS"

Solid state Modular Audio Storage System for line identification, jingles etc, replacing cartridge or cassette machines.

New Video DA Family

This new video distribution amplifier offers significantly improved performance, together with savings in cost. It includes a complete family of equalisers, timing delays, termination panels and bulk power supplies.

CSO Fringe Suppression for LDK5 Cameras

A replacement key generator card has been made for the camera, which produces "exclusive key". A further unit processes the coded output from the camera base station to achieve the suppression.

Electronic Graphics

Digitally Originated Graphics (DOG), Microprocessor Open University Symbol Equipment (MOUSE) and Animated News Titles (ANT) generators as shown on the IBC stand.

DOG includes the new colour matching unit which allows precise matching of the graphics colour to studio sets.

Linear Split-Screen Switch

Modules to replace existing designs with improved facilities and a linear key to video transfer characteristic. The linear characteristic will also make this switch useful in text keying and CSO applications.

The switch will be used extensively in designs for the telecine A-B roll mixer and in the Effects Workshop project.

Picture Monitor Appraisal

Demonstration of some Grade One monitor tests with details of the complete assessment made on picture monitors and the monitor tests of the last two years.

5TH FLOOR

MIC's

Latest developments including data dissemination to Transmitter Maintenance Teams.

SHF Receiver Control

Remote panning control and telemetry of SHF receiving installation for Outside Broadcasts.

HF Transmitter Automation

Latest developments including system for Skelton A.

4TH FLOOR

VTR Controller

A special-purpose unit based on the EDITRACE editing equipment for controlling a single C-format VT machine and the associated 16 mm SEPMAG Telecine in the Video Rostrum Suite.

Cinemascope Panning Rates

The presentation of wide screen films on television creates problems in that television can only show half of the available frame. This demonstration shows the results of a feasibility study into a method of "panning" on a DIGISCAN telecine. The equipment, known as CINETRACE, gives the effect of movement equivalent to a picture rate of 50 frames/second from a film source.

TARIF

The exhibit shows the pre-programmed correction of signals from slides using TARIF memory and Auto-TARIF.

Shot-Change Detector

A demonstration of detection techniques on the twin lens and DIGISCAN Telecine machines.

3RD FLOOR

Radio Microphone Receiver

New Band I radio microphone receiver for outside broadcast programme use.

TV Receiver

General purpose off-air television receiver for medium grade applications offering improved quality over commercial equipment.

Band II 2 kW Amplifier.

Solid state, high efficiency 2 kW amplifier for Band II FM Radio.

16-Bit Digital Audio

A demonstration of digital audio parameters via a 16-bit ADC/DAC system, showing improvements in S/N ratio and volume range.

LS5/9

Demonstration of new monitoring loudspeaker fitted with BBC-designed LF unit.

2ND FLOOR

Safety Headphone Protection

Safe sound level ensured for the user by a self powered limiter allowing maximum loudness.

Remote Control of Audio

Remote control for programme monitoring positions in London Control Room.

Polypropylene Loudspeaker Cones

Display of components and jigs for manufacture by the BBC of loudspeaker units.

Digital YUV Transmission

Demonstration of the transmission of 13.5 : 6.75 : 6.75 sampled YUV signals through multipair cables.

Generation and detection of digital synchronising patterns.

Sequential Sync Monitoring

Up to 16 sources can be comprehensively monitored for Sync timing into commercial vision mixers.

Sub-Nyquist PAL Processing

Conversion of a PAL television signal into 8-bit digital signals sampled at 4 fsc with digital filtering for reduction to 2 fsc for the 68 Mbit/s transmission project.

Test DAC

A simple test unit to enable 8-bit digital video signals to be viewed on a standard picture monitor.

SLUG

The Saturation Line-Up-Generator produces a modified colour bar signal which can be used to set accurately the saturation control of studio picture monitors.

TV Waveform Analyser

A new integrated TV Measuring System for the measurement of signal amplitude, K rating, non-linearity distortion and S/N ratio.

AF Test Set

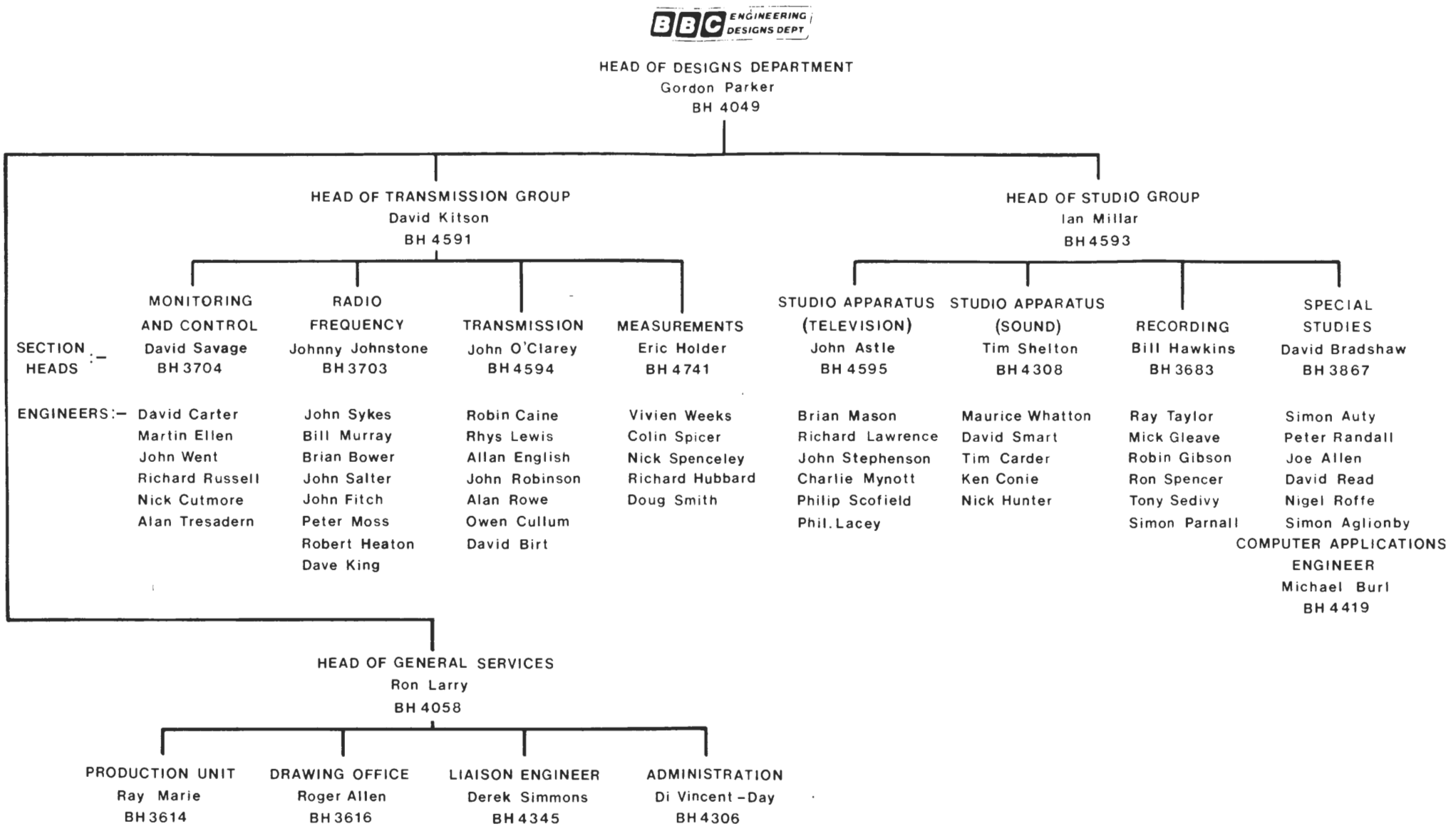
General purpose audio measurement set. Provides test generator and measurement system including sweep generator.

AF Sequence Generator

Automatic measurement of audio circuits. Provides test signal for the measurement of amplitude response, harmonic distortion and crosstalk.

Switched Mode Power Supply

General purpose, high efficiency, multi-output power supply based upon a commercial module.


BBC ENGINEERING DESIGNS DEPT
HEAD OF DESIGNS DEPARTMENT
Gordon Parker
BH 4049
HEAD OF TRANSMISSION GROUP
David Kitson
BH 4591
HEAD OF STUDIO GROUP
Ian Millar
BH 4593
SECTION HEADS :-
MONITORING AND CONTROL
David Savage
BH 3704
RADIO FREQUENCY
Johnny Johnstone
BH 3703
TRANSMISSION
John O'Clarey
BH 4594
MEASUREMENTS
Eric Holder
BH 4741
STUDIO APPARATUS (TELEVISION)
John Astle
BH 4595
STUDIO APPARATUS (SOUND)
Tim Shelton
BH 4308
RECORDING
Bill Hawkins
BH 3683
SPECIAL STUDIES
David Bradshaw
BH 3867
ENGINEERS :-
David Carter
Martin Ellen
John Went
Richard Russell
Nick Cutmore
Alan Tresadern
John Sykes
Bill Murray
Brian Bower
John Salter
John Fitch
Peter Moss
Robert Heaton
Dave King
Robin Caine
Rhys Lewis
Allan English
John Robinson
Alan Rowe
Owen Cullum
David Birt
Vivien Weeks
Colin Spicer
Nick Spenceley
Richard Hubbard
Doug Smith
Brian Mason
Richard Lawrence
John Stephenson
Charlie Mynott
Philip Scofield
Phil. Lacey
Maurice Whatton
David Smart
Tim Carder
Ken Conie
Nick Hunter
Ray Taylor
Mick Gleave
Robin Gibson
Ron Spencer
Tony Sedivy
Simon Parnall
Simon Auty
Peter Randall
Joe Allen
David Read
Nigel Roffe
Simon Aglionby
COMPUTER APPLICATIONS ENGINEER
Michael Burl
BH 4419
HEAD OF GENERAL SERVICES
Ron Larry
BH 4058
PRODUCTION UNIT
Ray Marie
BH 3614
DRAWING OFFICE
Roger Allen
BH 3616
LIAISON ENGINEER
Derek Simmons
BH 4345
ADMINISTRATION
Di Vincent-Day
BH 4306

STUDIO GROUP

Head of Studio Group : I.D.B. Millar

SPECIAL STUDIES Section Head : D.J. Bradshaw

Activities

Synchronisation of video signals from local and remote sources.

Synchronisation pulse generation and monitoring.

Digital video investigation.

Standards Conversion and Transcoding.

Disk Reproduction.

STUDIO APPARATUS (SOUND) Section Head : W.T. Shelton

Activities

Audio unit and system design for studios and continuities.

Amplifiers for line sending and receiving, intercommunications and headphones.

Programme meters.

Monitoring loudspeakers for balance and control.

Audio test equipment.

Assessment of commercial audio equipment and components.

RECORDING SECTION Section Head : W.R. Hawkins

Activities

Recording of video, audio and data.

Video and audio tape editing using Timecode.

Telecine colour control systems.

Programme subtitling by Qwerty and Palantype methods.

Photographic slide scanning.

STUDIO APPARATUS (TELEVISION) Section Head : J.M. Astle

Activities

The design of vision equipment and systems for studios and studio centres.

Special effects and colour separation overlay equipment.

Colour coders and decoders.

Video and pulse switching systems and distribution amplifiers.

Electronic generation of symbols and graphics.

Appraisal of commercial picture monitors and other commercial studio equipment.

TRANSMISSION GROUP

Head of Transmission Group : D.M. Kiston

MONITORING AND CONTROL Section Head : D.C. Savage

Activities

Automatic control of unattended transmitters.

Remote control and switching systems.

Monitoring and Information Centres:

Automatic fault reporting systems.
Data acquisition, transmission, storage, processing and display systems.

General purpose microprocessor hardware family (Zeus).

Microprocessor applications.

RADIO FREQUENCY Section Head : G.G. Johnstone

Activities

Transmitter, Transposers and Receivers.

Radio Links.

Radio microphone and Radio talkback.

RF Amplifiers.

Filters.

RF Test equipment.

RF Distribution Systems.

Satellites

TRANSMISSION Section Head : J.W. O'Clarey

Activities

Line transmission of Television and sound programmes.

Stereo coders.

Line testing methods and test apparatus.

Pulse code modulation for transmission of television sound in the picture waveform (Sound-in-Syncs).

Cable transmission and carrier systems.

Analysis of the performance of vision distribution networks

MEASUREMENTS Section Head : J.E. Holder

Activities

Assessment of measuring techniques for television and audio signals.

Design of measuring apparatus, test signal generators, waveform monitors, etc.

Evaluation of commercial audio and television measuring instruments.

GENERAL SERVICES

Head of General Services : R. Larry

General Services provide all the supporting technical, financial and administrative services to the Department and is organised into four units.

Production Unit (Head of Production Unit : R.P. Marie)

The Production Unit provides internal and external manufacturing facilities, advises engineers on production engineering problems and maintains a component store. The workshop contains the printed circuit board processing equipment which is used to give a prototype printed circuit board service.

Drawing Office (Drawing Office Manager : R. Allen)

The Drawing Office produces full manufacturing drawings suitable for batch production of all equipment designed in the Department and also provides the service of draughtsmen in the early development of equipment, particularly when mechanical requirements are paramount.

Liaison Unit (Liaison Engineer : D.B. Simmons)

Liaison Unit is responsible for technical liaison with other BBC Departments and external organisations; negotiations with British Industry in the course of exploitation of BBC engineering designs; production of technical information documents and giving technical assistance at exhibitions, seminars etc.

Administration Unit (Administrative Assistant : Mrs. D. Vincent-Day)

The Administrative Unit is responsible for operating the Department's financial procedures, providing management information, maintaining a library service and giving general administrative support.