



DESIGNS DEPARTMENT

BBC

ENGINEERING DESIGNS DEPARTMENT

OPEN DAYS

OCTOBER 1985

**BRITISH BROADCASTING CORPORATION
ENGINEERING DIVISION**

BBC

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THE DEPARTMENT

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, from the studio to the 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.

At present, most of the equipment made from the Department's designs is produced by Equipment Department, although to satisfy urgent requirements, the Production Unit within Designs Department makes small numbers of new designs for field trials.

There are about 200 staff in Western House, the home of Designs Department; qualified electronic engineers and technicians account for about 100 and the remainder are draughtsmen, wiremen, mechanical technicians, secretaries and other supporting staff. The design staff is 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 with each Section concentrating on a particular aspect of broadcasting. The activities of each Section are described in later pages of this brochure.

THE FUTURE

Following the "Priorities for the Future" document adopted by the Board of Governors, Designs Department, Research Department, and Equipment Department, are in the course of being reorganised. As part of the plan to move funds from central departments - which includes Engineering Division - to programme areas and to reduce the numbers of staff posts, it is intended to cease in-house production at Equipment Department and to reduce the total Research and Designs effort available.



HEAD OF DESIGNS DEPARTMENT

Ian Millar
LBH 4059

HEAD OF TRANSMISSION GROUP

David Kitson
LBH 4591

HEAD OF STUDIO GROUP

Tim Shelton
LBH 4593

**MONITORING
AND CONTROL**

David Savage
LBH 4417

**RADIO
FREQUENCY**

John Sykes
LBH 4143

TRANSMISSION

Martin Ellen
(Rhys Lewis acting
until 2-12-85)
LBH 4594

MEASUREMENTS

Eric Holder
LBH 4741

TELEVISION STUDIO

John Astle
LBH 4595

SOUND

Richard Lawrence
LBH 4308

RECORDING

Ray Taylor
LBH 4415

**SPECIAL
STUDIES**

David Bradshaw
LBH 4325

**SECTION
HEADS :-**

ENGINEERS:-

David Carter
David King
John Went
Richard Russell
Alan Tresadern
Brandon Butterworth
Jeff Raynor
Rob Heaton

Bill Murray
Brian Bower
John Salter
John Fitch
Peter Moss
Gerry Wimpenny

Rhys Lewis
John Robinson
Alan Rowe
Owen Cullum
David Birt
Mel Long

Vivian Weeks
Colin Spicer
Nick Spenceley
Richard Hubbard

Brian Mason
Paul Reeve
Richard Cooper
Nick Cutmore

Robin Caine
David Smart
Ken Conie
Brian Drummond
Trevor Newlin

Mick Gleave
Ron Spencer
Simon Parnall
Bill Chandler
Gerald Pye

Simon Auty
Peter Randall
Joe Allen
Simon Aglionby
Humphrey Lau
Phil Layton

**COMPUTER APPLICATIONS
ENGINEER**
Michael Burl
LBH 8419

HEAD OF GENERAL SERVICES

Ray Marie
LBH 4058

PRODUCTION UNIT

Derek Simmons
LBH 4117

DRAWING OFFICE

Roger Allen
LBH 4616

LIAISON ENGINEER

Peter MacMurdie
LBH 4345

ADMINISTRATION

Linda Flay
LBH 8306

STUDIO GROUP

Head of Studio Group: W.T. Shelton

Section 1 SPECIAL STUDIES - Section Head: D.J. Bradshaw

Activities

Synchronisation of video signals from local and remote sources.
Digital video feasibility studies, including routing, switching and clock generation.
Support for standards conversion and transcoding.
PAL decoding.
Computer applications in the work of Designs Department.

Section 3 SOUND - Section Head: R.K. Lawrence

Activities

Audio system and equipment design for studios and control rooms.
Amplifiers for line sending and receiving, intercommunications and headphones.
Monitoring loudspeakers for balance and control.
Digital audio standards and equipment.
Programme meters.
Audio test equipment.
Assessment of commercial audio systems, equipment and components.
Engineering safety standards in audio equipment and for high sound levels and mains hardware practices.

Section 7 RECORDING - Section Head: R.J. Taylor

Activities

Design of equipment associated with the recording of video, audio and data signals including:-
Video and audio tape machine synchronisation and editing control using timecode.
Ancillary timecode equipment.
Telecine colour and wide screen film control systems.
Live and prepared subtitling for the deaf and hard of hearing.

Section 8 TELEVISION STUDIO - Section Head: J.M. Astle

Activities

The design of vision equipment and systems for studios and studio centres:-

Electronic generation of symbols and graphics.
Digital video equipment including mixers.
Special purpose analogue mixers, including automation.
Colour separation overlay equipment.
Video and pulse distribution amplifiers, and PAL coders.
Appraisal of commercial picture monitors and other commercial studio equipment.

TRANSMISSION GROUP

Head of Transmission Group: D.M. Kitson

Section 2 MONITORING AND CONTROL - Section Head: D.C. Savage

Activities

Automatic control of HF Transmitting Stations.
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.

Section 5 RADIO FREQUENCY - Section Head: J.B. Sykes (Acting)

Activities

Transmitters, transposers and receivers.
Radio links, analogue and digital.
Drive equipment.
Radio microphone and radio talkback.
RF amplifiers.
Filters.
RF test equipment.
RF distribution systems, including digital over-video carriers.
RFI screening and consultation

Section 6 TRANSMISSION - Section Head: M.T. Ellen
A.R. Lewis acting until 2.12.85

Activities

Transmission of vision, sound and data over analogue and digital circuits:-

68 PAL (digital video transmission).
Digital video transmission over optical fibre.
NICAM (digital audio transmission).

Equalisers.
Frequency division multiplex equipment.
Time division multiplex equipment.
ULA (Uncommitted Logic Array) design.
ADZE single card microcomputer.

Section 9 MEASUREMENTS - Section Head: J.E. Holder

Activities

Assessment and development of measuring techniques for television and audio.
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.P. Marie

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: D.B. Simmons

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, and a comprehensively equipped machine shop capable of undertaking sheet metal fabrication, punching, engraving, tool design and the injection moulding of plastics.

Drawing Office - Drawing Office Manager: R.B. 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: P.W. MacMurdie

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.

Administrative Unit - Administrative Unit Supervisor: Mrs L. Flay

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

EXHIBITS AND DEMONSTRATIONS

1st Floor

Room 113 - Measurements Laboratory

Fast audio measuring equipment.

High resolution TV waveform analyser for studio use.

YRGB waveform monitor.

Oscilloscope trigger generator.

Video equalising amplifier.

An experimental ITS waveform which provides new features.

2nd Floor

Room 201 - Special Studies Laboratory

Digital PAL Decoder.

Units for digital video systems.

Video sync timing/phase meter.

Programmable matrix-control module.

Colour bar generator

Room 203 - Sound Laboratory

AM companding.

Stereo PPM amplifier.

Digital audio signal processing.

A range of 3 U audio line amplifiers.

Digital co-ordination channel equipment.

SATIRE - recording equipment for a line identification generator.

3rd Floor

Room 321 - Listening Room

SALT - Semi-automatic loudspeaker testing.

Room 301 - Radio Frequency Laboratory

UHF 4-tone tester.

Narrow-banding of FM music links.

7.5 MHz/2048 kbit digital bearer over-video.

Room 307 - Radio Frequency Laboratory

UHF TV transmitter demodulator.

Replacement power supplier for the VHF FM 2 kW bay.

Proposals for a replacement RF test set.

4th Floor

Room 403 - Video Recording Laboratory

Jog control of an Ampex VPR machine.

5th Floor

Room 506 - Sound Recording Laboratory

Remote control using the EBU standard.

AUDITOR - audio tape recording monitor.

Room 508 - Monitoring and Control Laboratory

M.I.C.s

H.F. automation

Transmitter control indication panels

} recent developments.

6th Floor

Room 601 - Transmission Laboratory

NICAM 3 developments: Dual channel SIS NICAM (LSI - based).
: Low cost version of NICAM 3.

Expansion of the PCM network - error checking of 8 Mb/s data.

Mark II ADZE, single card microcomputer.

Room 609 - Television Studio Laboratory

BBC 1 symbol generation equipment.

Real time video effects.

Digital video mixer developments.

Analogue CSO Key Generator.

Room 605 - Viewing Room

Surface mounting technology and devices.

Tea or coffee will be available during the day in the Viewing Room.

NOTES

