

PAT HAWKER Independent Broadcasting Authority

INDEPENDENT LOCAL RADIO IN THE U.K

INTRODUCTION

Independent Local Radio – still often known as 'commercial radio' – has come to the United Kingdom. The first two ILR services, those of the London Broadcasting Company and Capital Radio, came on the air in October 1973. On December 31, 1973 Glasgow's 'Radio Clyde' became the first local radio station in Scotland and the first station to provide a regular service of stereo broadcasting in Scotland. By the end of 1974 it is expected that there will be services also in Birmingham (BRMB), Manchester (GMIR), Swansea (Swansea Sound), Tyneside and Wearside (Metropolitan Broadcasting), Edinburgh, Liverpool and possibly either Plymouth or Sheffield.

Then before the summer of 1976 another seven are expected to be in service: Bradford, Ipswich, Nottingham, Portsmouth, Reading, Teesside and Wolverhampton. Others will follow including Belfast, Blackburn, Bournemouth, Brighton, Bristol,

Cardiff, Coventry, Huddersfield and Leeds. By the time these first 27 services are on the air at least half the population of the United Kingdom will be within range of the ILR stations – in practice many other listeners will be able to hear the stations if only occasionally. Ultimately it is hoped that as many as 60 different ILR services will come into existence.

The Independent Broadcasting Authority Act 1973 (which incorporates the Sound Broadcasting Act 1972) provides the legal framework for this new network of ILR stations under the control of the Independent Broadcasting Authority. The IBA is thus now responsible for both Independent Television and Independent Local Radio. For both, the 1973 Act makes it clear that the IBA selects and appoints the programme companies; supervises the programme planning; builds, owns and operates all the transmitters; provides the distribution links; and establishes the technical standards.

Indeed the framework for ILR has emerged from Parliament very much along the lines of the long-established system of Independent Television, although a number of additional safeguards, including special provisions as to newspaper share holdings, apply specifically to sound broadcasting.

The IBA has stated the programme companies will be encouraged to combine popular programming with the fostering of a greater awareness of local affairs and involvement in the community. This is not, it must be admitted, the approach that some people associate with 'commercial radio'. The IBA are conscious that great care will be needed to ensure that good intentions are not just 'intentions'. It is well recognized, however, that the stations will have to attract large audiences for much of the time if they are to attract advertising revenue.

Quite specifically the new radio stations will be expected, so far as possible, to provide a service aimed at their local communities; in order to do this the men and women who produce the programmes will need to be closely identified with their localities. The programme schedules are expected to seek to provide a reflection of life in the area through entertainment, news, information and education. Clearly the services will differ in the sense that some have very large potential audiences – up

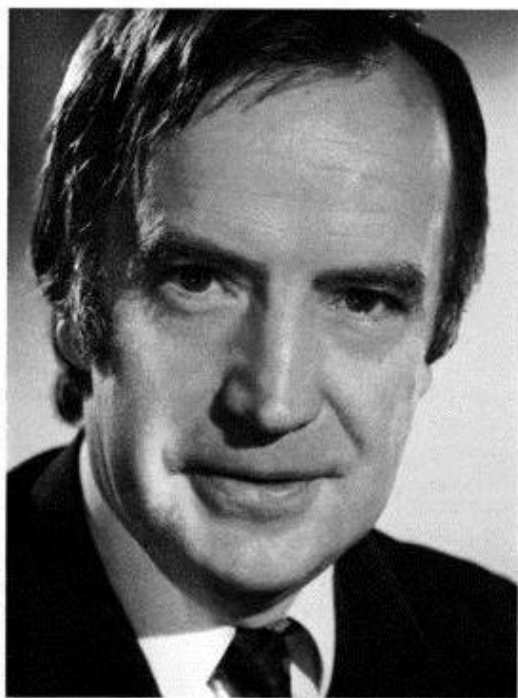


Fig.1 John Thompson IBA's Director of Radio.



Fig.2 The v.h.f antenna at Croydon used by both London Independent Radio stations.

to 8.5 million in the London area – others of the more modest order of a quarter-million.

SELECTING THE PROGRAMME COMPANIES

How does the IBA go about the task of selecting and appointing the programme companies?

In the first place it announces that applications for a particular area are invited by a specified date. At that stage the potential programme companies are provided with a good deal of background information, the term of contract, about programming, advertising, about the composition of programme companies and the like. It also provides technical details of the transmitters (v.h.f and m.f) which will serve the area, and draws attention to the Code of Studio Practice, and requirements for monitoring (every programme company has to record off-air the contents of all programmes and advertising and to make these tapes readily available to the IBA).

In October 1971, Mr John Thompson – an experienced broadcaster and journalist – was appointed as Senior Adviser on Radio Broadcasting to the Minister of Posts and Telecommunications. When the Sound Broadcasting Act reached the Statute Book on July 12, 1972 he joined the IBA, first as Head of Radio and later as Director of Radio. He is responsible to Mr Brian Young, IBA's Director General for matters which are exclusive to radio, and in particular its programme service. John Thompson has thus been intimately concerned from the very beginning with the setting up of the new ILR services.

Other matters covered in these documents concern copyright music, licences from the Performing Right Society and Phonographic Performance Ltd, and other copyright matters.

The applicant thus knows at this stage the sites, powers, antenna characteristics and is given a predicted coverage map for v.h.f (to the 1mV/m contours), together with an estimate of the population within the v.h.f coverage. Because of the differences in day-time and night-time coverage on m.f, it is not practicable to provide a meaningful m.f coverage map, but it is made clear that, in addition to v.h.f, a back-up m.f service will be provided, based on the 3mV/m contour, matching as far as possible the 1mV/m v.h.f contour.

The document also indicates the rental charges – these may vary from a first year rental of over £300,000 for the London General station to £85,000 for Glasgow and £15,000 for Plymouth.

Another section lists the information required of applicants – formidable indeed – although it is made clear that the Authority leaves applicants with the freedom to present their application in the form they consider suitable. And it stresses that it is the contents and not the presentation or packaging that is important.

At the application stage the IBA seeks to judge the general quality of the submissions: the competence of applicants in the field of radio; the relevance of the suggested programming to the locality; the style of approach to the concept of independent local radio; the realism of the plans submitted and the financial soundness of what is planned. Selected applicants then have to discuss in greater detail with the IBA their plans for staffing and programming.

The companies are also expected to indicate their plans for studio and outside-broadcast facilities and equipment, as well as by what date they would be ready to start.

As for ITV, advertising time has to be sold for spot advertising with no programme sponsorship or advertising magazines. Advertisements have to be readily distinguishable from programmes and are limited to a maximum of nine minutes of advertising, particularly in periods of day and night less attractive to advertisers.

The IBA has had for many years a code governing standards and practice in advertising on television, and this is being applied also to radio.

A feature of the process of selection of companies that will best meet the needs of the community has been a series of visits by members of the Authority and senior staff to hold preliminary interviews in the areas concerned. Usually the opportunity is taken to invite members of the public to an open session where those interested in the way that ILR will operate in the area are able to make their views known directly to Authority members. This also helps in the later selection of members of local advisory committees.

The Authority (that is the Chairman, Deputy Chairman and the nine members, all of whom are appointed by the Minister of Posts and Tele-

communications under the Independent Broadcasting Act) then interviews in London the more promising applicants. The whole selection process takes several months. In some areas as many as eight companies have submitted applications, in others as few as two.

When a company is selected the IBA publishes details of the shareholders and directors and the Authority's approval has to be obtained before the company can acquire interests in certain prescribed activities such as music publishing and record manufacturing. The Act governs the continuing relationship between the Authority and its programme contractors.

Once a company is on the air, the Act makes it essential for the IBA to make available to the public those details of a successful application in so far as these relate to the character of the local sound broadcasts – in other words the public can if they so wish check themselves that the programme schedules live up to the plans outlined in the successful application.

One of the features of the ILR plans has been the emphasis placed on providing a reliable news service as one of the most important elements in the programming. The first service to come on the air – on October 8, 1973 was the specialist news station operated by the London Broadcasting Company. This station is being provided with a distribution

network to allow other programme companies to broadcast its bulletins live, or to record them for slotting into their own schedules. The news station can also communicate with the other companies by teleprinter, telephone or by circulating taped material.

LBC thus not only supplies its own news service which can be taken when required by the other companies, but it is also expected to develop a news background service suitable for use by the other stations. LBC is expected to set a standard for other companies and to aim to match the standards of accuracy set over the years by the BBC and Independent Television News. However, unlike ITN (which is jointly owned by the ITV programme companies), LBC is itself a major ILR programme company, selling its services to other companies.

From an engineering viewpoint one of the vital documents for the applicant companies is the IBA's 'Code of practice for the technical performance of studios and specification of audio distortion measurements.' This provides the companies with a clear idea of the technical standards expected in their studios and outside broadcasting facilities. It includes, for example, sections on studio acoustics, in terms of reverberation time and ambient noise levels; the tolerances of tape recorders and disc reproducers; the performance of monitoring loudspeakers, and the like.

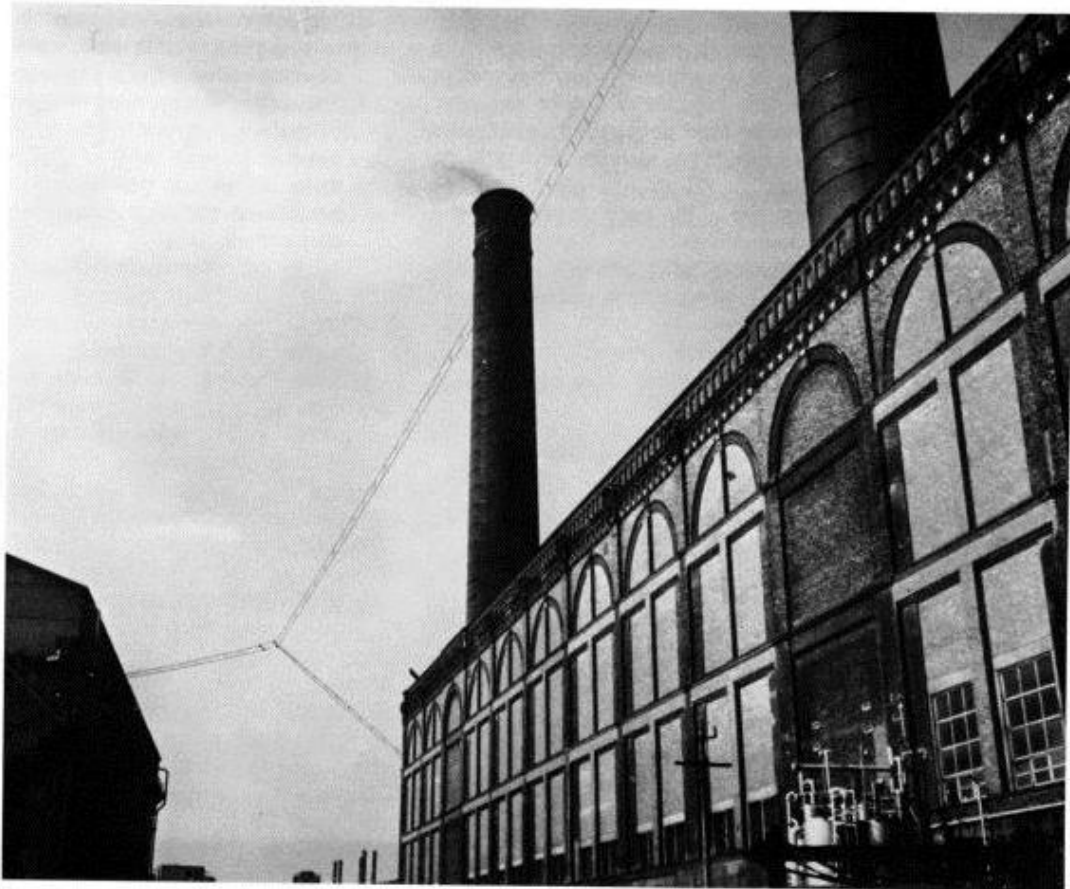


Fig.3 The Independent Radio m.f antenna for both Capital Radio and London Broadcasting is temporarily slung between two of the smoke stacks at the L.T.E generating station at Lot's Road, on the bank of the River Thames.



Fig.4 Sean Kelly, the popular D.J at Capital Radio.

TECHNICAL PLANNING

Alongside all the administrative planning and setting up of ILR as a new programme service, has been taking place the equally complex technical planning. The engineering of a completely new network of sound broadcasting services is not an everyday affair; there can be little doubt that sound radio differs in many significant respects from the life style of television.

The problems that in the early stages were the most pressing included:

- 1 Determination of the towns and urban conurbations which could potentially support a local radio service
- 2 The search for suitable frequency allocations and the need to achieve close co-operation

with existing users of the very crowded frequency spectrum

- 3 The search for suitable transmitter sites close to major cities with sufficient area to make possible complex m.f antenna arrays
- 4 The difficulties involved in providing roughly equivalent coverage on m.f/a.m and v.h.f/f.m. Because many of the v.h.f sites were expected to be at existing television sites, it was not considered advisable to co-site m.f with v.h.f transmitters.
- 5 All of the engineering facilities need to be related to 'local' radio; it would be no use making the whole operation technically perfect but so costly that it would be no longer viable.

Before the Sound Broadcasting Act 1972 reached the Statute Book in July 1972, preliminary technical planning was begun by the Ministry of Posts and Telecommunications. To assist in this work two IBA engineers – J. B. Sewter and Fred Wise – were seconded to the Ministry.

The problems of finding frequencies and relating these to possible coverage areas were truly formidable. The state of the medium waveband in Europe has been notorious for many years. Many more stations, at much higher powers, are operating than were envisaged in the Copenhagen Plan. This is reflected in the difficulty in achieving good reception from stations after dark over distances of more than a very few miles. Yet in daytime, with the absence of skywaves, listeners have not had the programme choice theoretically possible.

Now it was proposed to set up a whole new network of up to 60 stations each carrying a different programme service. How could this be done without reducing the m.f spectrum to utter

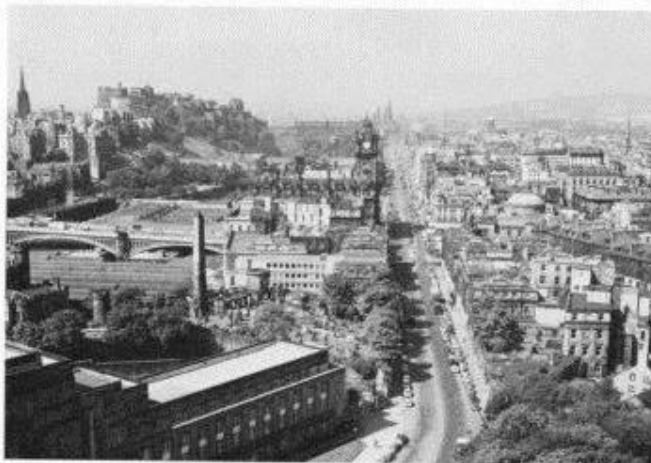


Fig.5 Princes Street, Edinburgh. Both v.h.f and m.f transmitters will be used to cover the Edinburgh areas.

chaos and without breaking the international obligations of the U.K?

Then again, although Band II might appear rather less crowded, large sections have been used by police, ambulance and similar public service mobile communications. Another problem was the anomalies in the BBC v.h.f network, including the use of Wenvoe to carry Welsh and West regional programmes. It was also necessary to consider the influence of stereo, with its requirement for high signal levels and its added susceptibility to adjacent channel interference. As though these were not enough, yet another restriction is imposed by the need to avoid harmonics of the 10.7MHz i.f channel widely used in v.h.f receivers.

Despite all these inherent problems, there was an eager enthusiasm among IBA engineers to ensure that full advantage was taken of this unusual opportunity to examine anew the whole area of technical standards and practices of modern sound broadcasting. For example planning standards, particularly for m.f, reflected in some respects an era of few steel-framed buildings and even fewer car radios.

The problem of the crowded m.f spectrum meant that only one main 'U.K.-assigned' channel (261m, 1151kHz) was allotted by MPT for the sole use of ILR stations. Another, 1546kHz (194m), is being shared with the BBC. For other channels it is necessary to rely on those which can be agreed internationally under Article 8 of the 1948 Copenhagen Convention and Article 9 of the Radio Regulations. These articles permit the use of frequencies with the agreement of existing authorities users for low-power transmissions.

Early in the planning a joint team, including engineers from the MPT and what was then still the ITA, visited a number of local stations in the

United States and Canada. They found that benefit was being gained from the use of complex, multi-element m.f directional arrays using a number of mast radiators. Such arrays are capable of producing deep nulls in the radiation pattern and it is this feature, rather than the forward gain, that makes them so attractive. The null can be placed to limit interference with co-channel stations.

It was also noted that in North America local stations were planned to provide very strong m.f fields of 50 or even 100 mV/m in the city centres to overcome screening within and by buildings. The IBA would have liked to plan its m.f stations to provide the highest possible field strengths in urban centres but after many discussions a service area contour of 3 mV/m was adopted, less than had been requested so making site selection more important than ever.

The use of directional antennas seems likely to overcome what may appear to be mutually contradictory requirements: strong signals and multiple use of the same channel. By opting for three and four-mast radiators the 1151kHz channel will be used in London, Birmingham, Manchester, Glasgow, Tyneside, and Plymouth. But multiple-element arrays require more site area than conventional m.f antennas and impose other restrictions. In the London area over 200 different sites were investigated. Since the radiation null had to be placed to reduce radiation towards Birmingham without reducing coverage in the metropolitan area, this meant that only sites towards the north-east of London could be considered really suitable.

SITING

A site to meet such a specification is difficult to find: obtaining planning permission for use over any reasonable period of time is even more



Fig.6 Janet Street-Porter and Paul Callan, joint presenters of the L.B.C programme 'Two in the Morning'.



Fig.7 One result of ILR – the unique Television Gallery at IBA's Brompton Road headquarters which combines history with current details of how Independent Television is organized has been renamed the 'Broadcasting Gallery'. It is to be enlarged to include something of the history and practice of sound radio. Illustrated is some of the early history of television.

difficult. Local residents and local authorities hesitate at the suggestion of erecting even moderately high antennas in their locality. It was soon realized that there was no chance whatsoever of obtaining clearance to use any of three possible sites in time to launch the service by October 1973 yet 1151kHz could not be used with an omnidirectional antenna or it would interfere with Birmingham.

This impasse was overcome by building a temporary station, using temporary frequencies, at the London Transport Executive's power station at Lot's Road, Chelsea. The tall chimneys provide supports for a simple T-antenna with 212ft, twin-wire horizontal top loading section and a 275ft vertical radiator. This antenna is completed by an effective earthing system which benefits from the presence of the River Thames and is used simultaneously for the programmes of Capital on 557kHz and LBC on 719kHz. The effective radiated power is less than 500W but daytime coverage of the station is extremely good; at night time, in common with most m.f channels, interference is a problem.

For example, clearance for the use of 557kHz was sought in the summer of 1972 when interference levels were found to be low; subsequently however the unauthorized ship station 'Radio Veronica', off the Dutch coast, shifted to this frequency, and caused some interference in the eastern part of the London coverage area. On 719kHz a night-time problem is the intentional

jamming by Eastern European countries of 'Radio Free Europe' which shares this channel.

It is hoped to transfer both these services to the new higher-power transmitters and four-mast directional antenna being built at Saffron Green, near Barnet, towards the end of 1974. The frequencies will then change to 1151kHz and 1546kHz.

The team visiting the United States also looked into the question of v.h.f local radio stations. They found that on v.h.f many American stations were successfully using mixed polarization including circular polarization to provide a more homogeneous coverage for car radios and portable sets operated out of doors; for receivers with vertical telescopic antennas a significant polarization loss occurs with conventional horizontally polarized signals. It was felt that circular polarization would be attractive for the new ILR stations.

For v.h.f coverage most of the stations are being built at existing television sites. In London the station is at the IBA's Croydon site. While this introduces to the London area some of the problems associated with v.h.f broadcasting from different sites (all the BBC v.h.f transmissions are from Wrotham, Kent about 20 miles away), the more central Croydon site is felt to offer significant advantages for local broadcasting. To avoid 'swamping' local listeners, the circular polarized antenna – it was the first broadcasting antenna in the U.K designed for circular polarization – is of six tiers, limiting the signal reaching homes less than

about a mile away to the equivalent of less than 100W e.r.p compared with 2kW in the main lobe.

North American experience suggests that, while circular polarization is of only limited advantage in cluttered surroundings or for domestic reception on well installed antennas, in open sites it can provide a benefit of from 6dB to 12dB for portable and car radio receivers.

In the Autumn of 1972, the IBA placed a contract with Marconi for a total of 47 transmitters: eight pairs of 1kW v.h.f/f.m transmitters, 21 1kW m.f units, two 125W v.h.f/f.m pairs and six 10kW m.f equipments; those operating in pairs having automatic changeover facilities.

All the v.h.f stations are being designed for pilot-tone stereo, and a stereo-capable link is being provided between the local studio centres and the v.h.f transmitters. This has meant, for example, that the ILR service of Radio Clyde provided the first regular stereo transmissions in Scotland. It is expected that all the ILR programme companies (other perhaps than the special news station in London) will make considerable use of locally originated stereo.

The studio centres, as for Independent Television, are built and owned by the programme companies. These centres are linked by monophonic 'music' lines to the local m.f stations; there is also a monophonic distribution link between the London studios of LBC and all the stations requiring a central news feed. The studio centres are expected to conform to the technical specifications of the IBA Code of Practice, and are subject to inspections carried out by the IBA's quality control engineers. This is part of the determination that ILR broadcasting, once over initial settling in problems, should be based on completely up-to-date engineering techniques and provide stereo and other transmissions to standards which take full advantage of modern developments in sound broadcasting.

It is still early days to determine the extent to which the aspirations are being met; nevertheless even now it is clear that the setting up in the United Kingdom of the new local sound broadcasting services, additional to those of the BBC, has engendered much public interest and a new lease of life to British sound broadcasting.

THE FIRST ILR STATIONS

<i>Service</i>	<i>Band</i>	<i>Site</i>	<i>Frequency</i>	<i>Power (e.r.p)</i>	<i>Polarization and Radiation</i>
London (LBC)	V.H.F	Croydon	97.3MHz	2kW	Circular omni-directional
	M.F (temporary)	Chelsea	719kHz	0.5kW	Vertical omni-directional
	M.F (permanent)	Saffron Green	1151kHz	25kW (max)	Vertical directional
London (Capital)	V.H.F	Croydon	95.8MHz	2kW	Circular omni-directional
	M.F (temporary)	Chelsea	557kHz	0.5kW	Vertical omni-directional
	M.F (permanent)	Saffron Green	1546kHz	100kW (max)	Vertical directional
Glasgow (Radio Clyde)	V.H.F	Black Hill	95.1MHz	4kW	Circular directional
	M.F	Dechmont Hill	1151kHz	4kW	Vertical directional
Birmingham (BRMB)	V.H.F	Lichfield	94.8MHz	2kW	Circular directional
	M.F	Langley Mill	1151kHz	3kW	Vertical directional
Manchester (GMIR)	V.H.F	Saddleworth	97.0MHz	2kW	Circular directional
	M.F	Ashton Moss	1151kHz	4kW	Vertical directional
Swansea (Swansea Sound)	V.H.F	Kilvey Hill	95.1MHz	1kW	Circular omni-directional
	M.F	Jersey Road	1169kHz	0.5kW	Vertical omni-directional
Tyneside/Wearside (Metropolitan)	V.H.F	Burnhope	97.0MHz	5kW	Circular directional
	M.F	Greenside	1151kHz	2.5kW	Vertical directional
Edinburgh	V.H.F	Craigkelly	96.8MHz	0.5kW	Circular omni-directional
	M.F	Barns Farm	1546kHz	1.6kW	Vertical omni-directional
Liverpool	V.H.F	Allerton Park	96.7MHz	1kW	Circular directional
	M.F	Rainford	1546kHz	5kW	Vertical directional