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AIRSPACE MANAGEMENT - A HISTORY AND OVERVIEW

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Prior to the advent of ASP FM in 1990, the entertainment industry had no legal access to the radio spectrum other than a limited number of radiomicrophone channels and private mobile radio. The history of the Company starts with the McLoughlan reports of the early eighties. The first of these considered the spectrum requirements of the authorised broadcasters for services ancillary to broadcasting, ie: spectrum required in support of programme making., This would include radiomicrophones, constant carrier talkback systems, video and audio links, camera control frequencies and the many other requirements of the television programme maker.

Towards the end of their deliberations the 4th television channel was born. This had an exciting new method of producing programmes. To date the BBC and IBA companies had produced almost all of their programme output in-house. The remaining items being purchased from film libaries and foreign broadcasters. In contrast Channel 4 was to have no in-house facilities for the production of programmes. All programmes would either be commissioned by Channel 4 with a specific independent company or would be bought on spec from the independent sector. This posed legal problems when defining the licensee. Whereas the BBC and IBA had direct control over those staff members using the radio spectrum, Channel 4 overcame this problem in the case of commissioned programmes by having this "control" written into it's contracts. This left the problem of programmes made by independent programme makers without a commission. Nigel Tilbury, the Channel 4 consultant also raised the question of the requirements for a multitude of other users including the infant pop video industry, theatre and film

production ,visual presentations and foreign broadcasters, who at that point had no legal access to exclusive frequencies within the radio spectrum.

A second McLouglan committee was convened with some 300 invitations being sent to all parts of the Independent sector ranging from professional organisations through to independent communication consultants. Some twelve replies were received with some individuals reporting back to a number of organisations. After some two and a half years of meetings, a report was published in 1986 entitled "Study of the Requirements for a radio frequency plan for radio services ancillary to the making of programmes, films, presentations, advertisements and other entertainment and sporting purposes" (Hereafter referred to as "The Blue Book" to distinguish it from the first McCloughlan report which had a brown cover).

Within the report the range of services required by the entertainment industry had been identified and specific recommendations made as to spectrum to be made available on a licensable basis.. At this point the members of the committee made the presumption that these recommendations would be implemented forthwith and they could enjoy the commercial rewards of their considerable labour. At the last meeting the unpalatable truth was explained by Mr McLoughlan that unless negotiations were started with the then Department of Trade and Industry to implement the findings of the report, no further action would take place.

Members of the committee therefore formed themselves into a group given the title "Association of Service Providers", Nigel Tilbury was elected Chairman and Brian Copsey Secretary, with a mandate to discuss the implmentation of the "Blue Book". Negotiations were somewhat protracted, partly due to the resources of the DTI being taking up with the viability of a 5th and 6th Television Channel, it also became apparent that the issue of these licences could not be undertaken by the DTI in the time scales required by the industry, bearing in mind that programme makers required licenses for use either same day or next day and the nearest licensing regime was the Private Mobile Radio group whose turn around time varied between nine and thirty six months. Thus not only the spectrum requirements but also

the legal implications of a private licensing regime had to be resolved and it was not until 1989 that a twelve month trial of free permits at ASP's expense started. In 1990 ASP Frequency Management Ltd was granted a licence by The Secretary of State to distibute Wireless Telegraphy licences.

With the limited amount of spectrum available, Nigel Tilbury had produced a computerised booking and spectrum management scheme using the experience gained during 1989 as well as feedback from users and prospective users.

Licensing was based on 3 criteria. The first being annual radiomicrophone licences where no frequency management was required. The second, annual licences for low power talk back systems in fixed sites such as studios and theatres where frequency management was required and thirdly site specific use where frequency management was also required to ensure exclusive use.

The scheme worked around the 6 figure grid reference provided by the user, creating an exclusion zone of approximately 5 kilometres around the grid reference. The zone would vary with the frequency in use and the output power required. To further complicate the issue vision frequencies were shared with the Ministry of Defence and complex algorithms were required within the programme to generate exclusion zones around sensitive areas which could not be used.

Unlike existing licensing regimes who in the main had fixed bandwidth channels, with the limited spectrum resources available to ASP, maximum flexibility was achieved by the use of the computer programme allowing the booking of channels in predefined bandwidths varying from 12.5 kHz to 200 kHz. Having booked the channel the computer sterilised that area for the duration of the licence. Microwave channels were allocated in 20 mHz bands, however whilst in the main these are used for vision links, there is no prohibition on their use for audio or data channels and in fact could possibly be the next home for radiomicrophones if further expansion is required.

Initially only "UK General" radiomicrophones using 5 channels operating in the 191-216 mHz band and channel 35 were available. From April 1991 we were requested to take over the then theatre licensing for the "indoor" only use of

microphones. For some time discussions had been taking place with users and manufacturers on their requirements of a licensing regime for radiomicrophones within the context of increasingly complex productions being required by producers. The first outcome of these discussions was the requirement to raise the output power of bodyworn radiomicrophones. After discussions with the DTI and a demonstration on stage at Miss Saigon, agreement was reached to change the microphone specification MPT 1350 from a single power output of 10 mw to a dual output of 10 mw for handheld devices and 50 mw for bodyworn systems. The figure of 50 mw was a compromise between power output, battery life and the low power licensing regime. The second outcome was the broadening of the definition of theatre "licences" to include any "fixed site" whether it be village hall or concert hall.

One feature which had proved to be of great use to the industry was a high power radiomicrophone channel of 1 watt on 199.7mHz. This had some geographical restrictions in the South East of England between The Isle of Sheppey and Dover where the power was reduced to 100 mw in case of interference to French Television. Unlike other radiomicrophone licensing which was carried out on an annual basis with no control on their use, because of the interference potential to other users, the high power channel requires a seven day licence with a site specific location. Its main use has been on outside broadcasts especially golf courses and to provide a link between "special event" transmitters and their studios or for hospital radio outside broadcast.

During 1991 many meetings took place between ASP and the Radiocommunications Agency (as it had now become) over the replacement spectrum for channel 35 radiomicrophones with the imminent allocation of this band in the majority of the country to the 5th T V Channel. After exhaustive searches the only available area of spectrum was found to be in channel 69.

ASP then convened seminars where manufacters, importers and hire companies met ,(in many cases for the first time), with the RA sections involved with both policy and type approval of radiomicrophones. From these seminars a better understanding of each others' problems was reached. There

was also a dramatic change of direction of indoor radiomicrophone licensing for the new band. To date radiomicrophone channels had been based on spot frequencies.

This did not allow any flexibility for production of sets of radiomicrophones channels where close proximity of venues generated reception problems. It also meant that those manufacturers producing spectrum efficient products were unable to take advantage of this technology. Channel 69 broke new ground in simply defining the band edges within the licence. This left open the number of channels achievable and their location within the allocated band open to discussion between user and supplier. Manufacturers have achieved between three and I believe fourteen channels for simultaneous use within the band edges.

Outdoor or UK General use was catered for initially by a set of 5 spot frequencies common to all manufacturers and now, after representation from users particulary touring groups, this has been increased to 6.

A problem which had been with us for some years was that of large events such as pop concerts which were held outdoors. A number of venues including Wembly Stadium fall into this category. In order to cater for their requirements "site specific" licensing can be carried out by ASP in conjunction with the technical section of the promoter or group to generate a frequency plan which will cater for the multitude of radio requirements which todays music seems to require. Help and assistance in spectrum planning for events of any size is always available and we are happy to point people in the direction of the most suitable licensing regime if we are unable to help.

Using an outdoor pop concert as a convenient example, I would like to give some brief description of the spectrum licensing available from ASP. **Radiomicrophones**, 5 VHF frequencies , 6 Channel 69 frequencies or the channel 69 spectrum available to ASP divided into channels suitable for the equipment giving in excess of 10 channels. **Audio links** for feeding remote speaker systems using up to 200 kHz wide channels on the 48 and 52 mHz band. **Constant carrier talkback systems**, up to 24 duplex pairs in the 460 and 467 mHz band. **Artist talkback**, 4 channels in the 467 and 462 mHz band. **5 vision link** frequencies feeding Star Screen from

remote and helicopter cameras. I would emphasise that user requirements can, in most cases, be accommodated if sufficient time is given for discussions with ASP.

Licences for spectrum which does not require special clearance will normally be issued within a maximum of 24 hours of receipt of cheque and completed application. A 24 hour service is available via pagers carried by key personnel with a premium of £100.00.per licence. This facility has mainly been used when spectrum is required at short notice as in the case of the release of hostages. Because of the nature of the exclusive "site specific" licensing fewer restrictions are placed on the use of ASP spectrum than most other regimes. This allows airborne and marine use with a high degree of protection from other users. The computer system will also check in the case of links, whether audio or vision, for conflicts over the whole path of the link irrespective of its length.

Within the last year, with a view to the future, we have also obtained a spectrum allocation between 48 and 48.2 gHz. To date this has mainly been used for short distance vision links, however with the proliferation of low power devices in the derestricted 60 gHz range it should not be long before reasonably priced equipment appears on these frequencies. Once again we have not designated the band solely for vision link use and for example the short range nature of the spectrum makes it ideal for multiplex links between sound desk and stage and the small size of antenna and transmitter would make remote feeding of PA stacks worthwhile.

Use of ASP spectrum is limited more by the imagination and requirements of the user than the licensing regime. An on going dialogue takes place between ASP and the entertainment industry in order to find legal methods of satisfying their future requirements. As part of this strategy ASP sits on a number of committees, including ETSI committees writing Pan European standards, and is involved in many diverse areas affecting the industry. One current example being EMC.

The ASP regime is unique throughout the world and is hopefully pointing the way for other countries to deregulate their spectrum to allow more private and commercial use of this valuable resource. Links have been established with

many foreign administrations and a consultancy service is available for those wishing to licence equipment for use abroad. Many people both within the RA and ASP have spent considerable time and effort in obtaining the vast amount of spectrum required for use by radiomicrophones and similar devices. With the commercial attitude now being adopted by government towards the radio spectrum, commercial pressure is constantly being directed to remove ASP spectrum and reallocate it to other more profitable uses such as PMR where a single radiomicrophone channel would currently provide 8 PMR channels. The only defence against this argument is for a greater number of users of the ASP spectrum, in short "use it or lose it".