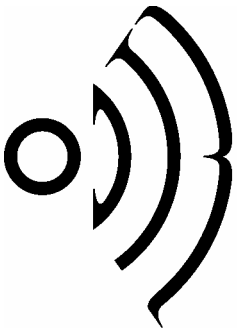

Office of the Director of
Telecommunications
Regulation

Consultation paper on deflector licensing

Document No. ODTR 99/32 **May 1999**

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FOREWORD

I am pleased to publish this paper outlining proposals for deflector licensing. The approach of this Office has been driven by the interests of the consumer – in all parts of the Country, *both now and into the future*.

Looking ahead, we are working on the licensing of Digital Terrestrial Television (DTT), which will provide better quality and range of services than those generally available at present. DTT will provide a universal TV service but it will take time before it will be operational. While we await this, the consumer of *today* deserves a range of TV services. There is therefore a need to grasp the deflector issue now while we complete preparations for DTT.

Deflector operators showed initiative in bringing multi-channel viewing to parts of Ireland. We recognise the useful role they have played in the past and can play in this transition period. There should be no doubt though, in any quarter, that this transition period is short and the viability and use of deflector operations after the introduction of DTT is uncertain.

Currently, deflector operators have a substantial number of customers and they keep subscriptions low. According to operators surveyed the average annual charge is less than £20, although there is likely to be a rise in subscriptions to the extent that deflector operators are not fulfilling obligations in respect of fees, copyright, planning and remaining issues that face other operators in the TV retransmission business. While operators and consumers may be enthusiastic about the low costs of unlicensed arrangements, it is hardly "pro-consumer" to allow any group to supply or access low priced services where the benefits are being paid for elsewhere. Car insurance raises motoring costs, but uninsured driving is not allowed. It is not acceptable for the rest of us to have to pick up the tab.

Some deflector operators are now interested in pushing out the boundaries of their operations further in relation to programming. This is an attractive approach, but given the outlook for spectrum availability, I do not consider that it would be right to encourage such developments on short-lived deflector platforms and to add to the complexity of the scheme for all operators. There is to be a new Broadcasting Bill sponsored by the Minister for Arts, Heritage, Gaeltacht and the Islands that will tackle issues of local programming.

Although the future does not augur well for deflector operations, there are related businesses that may attract them. The development of local programming may be one such business, with the material of great interest to the providers of digital transmission or of Internet services. Transmission construction services or sale/rental of assets such as masts with full planning permissions for example may also provide appropriate opportunities. If there are any longer term opportunities for deflector operations, they are likely to be limited, and will be dealt with under a new regime specially designed for the purpose. It is right to say here that persons who continue unlicensed operations after

the introduction of the proposed current scheme may not be eligible to apply for licences in any such new process.

Spectrum is a national resource of ever-increasing value, with an essential role to play in ensuring economic development in the rapidly growing e-commerce world. It is our duty to provide for the types of services that will give all citizens throughout Ireland, competitive access to the Information Society. This is the surest way of ensuring that they and their children can continue to live and work in those same locations, and not have to move to other places and other countries.

The proposals outlined here seek to provide for as simple a scheme as possible, given the relatively short period of operation and the complex spectrum issues. Assigning spectrum for broadcasting is a complex business even where standards of equipment and other matters have been set from the beginning and when use is not fragmented as in this case among many very tiny operations.

The proposals in this paper are of course all part of a much wider process. My target is to provide the framework for advanced competitive television /telecommunications transmission services where the consumer must be the winner. Already we have completed a new regime for telecom licensing and are revising the mobile phone licences to take account of liberalisation. We have completed a new regime for digital transmission on cable and MMDS, and have issued a consultation paper on satellite links. We have a tender process underway for new wireless local loop licences that can transform the economics of providing increased bandwidth in less populated areas.

The pace of change is accelerating but my determination to ensure that every voice is heard remains. I look forward to receiving responses to this paper for they will help finalise my position on the questions involved.

ETAIN DOYLE
DIRECTOR OF TELECOMMUNICATIONS REGULATION

Introduction

1.1 Since the ODTR was established in mid 1997, the Director has been engaged in a major review and updating of the regulatory framework for the delivery of television services in Ireland. This has been carried out against the background of the development of digital technology and the recognition of the increasing importance to Ireland of the communications sector generally, signaled in particular by the early liberalization of the telecommunications sector in 1998 and also by the increased focus on the development of media production services in Ireland. This paper follows on from the two major ODTR papers issued last year – the Smith/NERA report ODTR 98/06, which analyzed the options for the future delivery of television services in Ireland and ODTR Document 98/20 – "The Future of TV Transmission in Ireland The Way Forward", – which outlined the Director's position, having taken account of the response to the consultation on ODTR 98/06.

1.2 The Smith/NERA report concluded that DTT provided the best possibility of universal provision of free to air national services and retransmission of UK services. A combination of DTT on the one hand and cable/MMDS on the other would provide national competing networks, providing consumers with a choice of advanced services that should lead to enhanced service and lower pricing than if there were only one network. UHF retransmission systems (deflectors) could be accommodated in the short term, but prospects would be very limited with the introduction of DTT.

1.3 In this paper, the Director of Telecommunications Regulations outlines her views on the position of deflector systems, and her proposals in regard to providing a licensing framework within which they may operate. Before finalising her proposals, the Director wishes to consult with interested parties so that her final position may be informed by their views.

1.4 In Document No. ODTR 98/20, the Director indicated that, subject to resolving certain legal issues and unless convinced that universal access to multichannel television services would be undermined by the continuing activities of deflectors, she was minded to provide for licensing deflector operations.

1.5 Of the four companies which currently hold MMDS licences, three companies have indicated their willingness to accept new licences which have issued or will issue shortly. The fourth company has indicated that it wishes its claims to exclusivity and renewal of its licences to be adjudicated upon by the Courts. The Director is taking steps to bring the matter before the Courts.

1.6 Before proceeding to implement the licensing framework which she has outlined in this document, the Director of Telecommunications Regulation would welcome comments in writing from interested parties on the proposals which she has outlined. Comments should be sent to Ms. Mary O'Donnell, Office of the

Director of Telecommunications Regulation, Abbey Court, Irish Life Centre, Lower Abbey Street, Dublin 1 to arrive before 5.00 p.m. on 17 June, 1999. The Director will not be in a position to enter into correspondence with all those supplying comments but will publish a report on the consultation.

1.7 All comments are welcome, but it would make the task of analysing responses easier if comments reference the relevant question numbers or paragraph numbers from this document. In the interests of promoting openness and transparency, the ODTR will summarise the comments received in its report on the consultation. The Director appreciates that many of the issues raised in this paper may require respondents to provide a considerable amount of commercially sensitive information if their comments are to be meaningful. Such information will be treated as confidential. Respondents are requested to identify confidential material and if possible to include it in an Annex to the response.

1.8 This paper does not constitute legal, commercial or technical advice. The Director is not bound by it. This consultation paper is without prejudice to the legal position of the Director or her rights and duties to regulate the market generally.

History and Background

2.1 Demand for access to multichannel television has traditionally been driven by demand for access to UK television services. For a number of years, UK services were receivable off air only in the border counties and along the east coast. In the early 1970's the emergence of cable television systems removed the necessity of households to use an external aerial to receive these television services. Cable systems first developed in areas where off-air reception was also possible and subsequently developed into other areas through the erection of suitable receiving means.

2.2 In 1974 Regulations were put in place which provided a framework for licensing cable systems and today approximately 470,000 households receive television services from licensed cable companies. The programme services available for relay to cable operators originally were limited to 1 National service and 3 UK services.

2.3 At this stage, most cable systems provide a minimum package of 12 programme services as their basic service including the 4 national services and 4 UK terrestrial services. In addition to basic services as described, premium services (films and sport) are also available.

2.4 In many (mainly rural) areas it was not considered economically feasible to install cable systems because of relatively low housing density. There was nevertheless a demand for access to UK channels in those areas and in many cases deflector operations commenced to meet it. Typically, deflectors re-broadcast the UK terrestrial channels only. National services are not normally carried.

2.5 In 1989, the Minister for Communications provided for the licensed retransmission of television services through Multipoint Microwave Distribution System (MMDS) with licences being issued at various dates between 1991 and 1994. The deployment of MMDS networks was planned to provide television services in non-cabled areas. At this stage in its development, coverage is not complete and a number of reasons why this is the case have been advanced, including the kind of competition represented by unlicensed deflectors.

2.6 The NERA/Smith Report published by the ODTR in March 1998 (Document No. ODTR 98/06) pointed out that DTT offers the possibility of universal provision of free-to-air national services and retransmission of UK services at a relatively low cost. The benefits of DTT also include:

- transmission of a greater number of programme services
- improved sound and picture quality
- a transmission infrastructure which could in principle compete with digital cable and digital MMDS for pay TV services

- the opportunity to release broadcasting spectrum for alternative use when analogue transmission ends.

2.7 In July 1998 the Minister for Arts, Heritage, Gaeltacht and the Islands announced that the Government had decided to accept her proposals that Digital Terrestrial Television (DTT) services be introduced as early as possible.

2.8 It is envisaged that DTT will compete with digital cable and digital MMDS, providing competition and bringing the benefits to consumers which arise from competition. Deflector operators on the other hand cannot provide a universal service being, locally based. Furthermore, because of a lack of available spectrum they cannot provide a comparable range of services. Just as black and white TV moved from being a luxury to a necessity, and was followed along this path by colour and multichannel TV, the range and quality of digital services may be expected to become the norm demanded by Irish consumers. It is essential to provide for the next wave of TV development, particularly as it can provide access to the Information Society.

2.9 Deflector operators are currently unlicensed and building a profile of this sector of the market is difficult. A limited survey was conducted on behalf of the ODTR by Indecon Economic Consultants in March 1999. Information provided by 42 deflector operators who responded was collated by Indecon and the following features of deflector operations emerged:

- The majority (75%) of deflector systems surveyed described themselves as "community organisations".

- The majority (87%) stated that they had commenced operations prior to 1989.

- 62% of those responding stated that MMDS was not available in their operational area. Of those operating in areas where MMDS was stated to be unavailable, the majority stated that they served less than 150 households.

- Based on data supplied the average user base among those surveyed was estimated as 999 households while the average paying customer/subscriber/membership base was 427. Because of the distorting effect of a small number of large operators, a more representative result was derived by calculating the median numbers which were 280 and 190 respectively.

- Based on 39 operators who currently provide a service or have done so in the past, BBC1 and ITV were offered by all 39; BBC2 was offered by 38, Channel 4/S4C by 37 and Channel 5 by 1 operator. Eurosport was carried by 3 and Sky News and Cartoon Network/TNT were carried by 2. National services RTE1, Network 2, TnaG and TV3 were also carried in some cases and 2 operators provided "Community Television Services".

- The average annual charge was stated to be £17 with 40% charging between £20 and £30 and 11% charging between £30 and £45. No operator indicated that it charges more than £45.

- 60% of operators indicated that they have less than £2,000 annual income. 23% had between £2,000 and £10,000 while 15% had income in excess of £10,000.

- 55% of deflector systems stated that they received the TV signals directly off air while the remainder received the signals from another deflector.

The consultants did not have access to detailed financial information. The above key points were identified by Indecon from information supplied and the source data has not been independently verified.

The Framework for Licensing

Deflectors and DTT

3.1 In March 1998, the ODTR published the NERA/Smith Report (Document No. ODTR 98/06) as a foundation for the public consultation regarding the regulation of television retransmission. The report considered the position of deflectors and it is useful to identify a number of points which the Director has accepted and endorses.

- Availability of spectrum for deflectors is critically dependant on the likelihood of interference
- Spectrum within which deflectors could operate will be restricted by the roll-out of TnaG and TV3 and will also be restricted by the introduction of DTT in the UK
- Whether there is sufficient spectrum will also be dependent on planned future services.
- Planning for DTT in Ireland should not be compromised by the presence of deflectors.
- Before DTT is rolled out, spectrum which it will use will need to be cleared.
- Prior to the introduction of DTT there is spectrum available for some deflectors.
- It would not be practicable to licence deflectors as "primary" services (as defined by the ITU radio regulations)
- Licensing deflectors as "secondary" services would simplify the process but problems would still arise with future "primary" services.

3.2 Following publication of ODTR 98/06 and a period of public consultation, the Director expressed the policy she was adopting towards television transmission (and re-transmission) in "The Future of TV Transmission in Ireland, The Way Forward" Document No. ODTR 98/20. Dealing with the issue of spectrum availability the report expressed the position as follows:-

> *3.4.5 The Smith/NERA report also examined the issue of deflectors and indicated that there will be spectrum available for some additional stations in some locations following the roll-out of TnaG and TV3 in full. In this regard the report concurred with the findings of the consultants nominated by the European Broadcasting Union who examined the issue of deflectors*

from a technical point of view in the context of the Carrigaline Case. Both consultants highlighted, however, that the availability of spectrum for deflectors would be further limited with the launch of DTT. The Director wishes to put deflector groups on notice that the amount of available spectrum is diminishing due to the further development of national analogue services and would be severely reduced by DTT .

3.4.6 Reference was made in the response to the consultation to regional digital multiplexes, but the first priority must be to roll-out the national DTT services. A review of the UHF broadcasting bands will be published at regular intervals indicating current and planned usage. It would not be possible to accommodate regional/local multiplexes for some 3 to 5 years.

The report went on to express the Director's intentions in respect of the licensing of deflector operations:

3.5.1 Deflector operators provide a service to some 100,000 to 150,000 people at present. The ODTR would wish to avoid market disruption. Subject to resolving the matters referred to in Section 3.3, and unless convinced (which she is not at present) that universal access to multichannel television services would be undermined by the continuing activities of deflectors, the Director is minded to provide for licensing deflector operations. This would need to be done by way of short term licences, or licences revocable with a short period of notice, where development of national platforms required additional spectrum capacity. Regulations necessary for the licensing of deflectors would be subject to Ministerial consent.

3.5.2 The Director believes that the cost of the necessary licensing system should, in principle, be borne by those wishing to operate the system. In this context the Director considers it would be appropriate to require such licensees to provide security for costs which might be incurred by her in moving to terminate deflector operations where this became necessary in circumstances such as those described.

3.5.3 DTT would operate in the same frequency bands as the existing analogue services. The ODTR will plan the initial DTT services taking account of the national services. It believes that the accommodation of deflectors must not compromise the development of DTT services and consequently would not take account of such systems in planning.

3.5.4 The Director believes that limitations of deflector systems which include inability to provide universal service, a limited range of services and no guarantee of quality, would make it inappropriate to rely on such systems in an advanced telecommunications sector for Ireland. The development of competing digital platforms and services, the expense of converting to digital and the requirement of spectrum by DTT does not augur well for the longer term viability of deflector operations. The Director would encourage discussions between existing licensees and deflector operators which could result in arrangements to the benefit of consumers. The ODTR is also conscious of the fact that deflector operators have assets, in particular sites and masts which (subject to planning permissions and safety standards)

could be used for other purposes. Such use would be subject to private arrangements, but it should be noted that licensed activities may not take place on any facility still being used for unlicensed activities.

3.5.5 The Director received comments suggesting irregularities in the royalty, tax and planning situations of deflector operators and recognises that regularisation, if necessary, would impose additional costs on the parties in question. Nothing in any licence issued by the Director would absolve the licensee from the requirement to obtain whatever additional consents, permissions, authorisations or licences may be necessary for the exercise of the rights conferred by that licence.

3.3 While recognising limited possibilities for deflector licensing at this stage, the Director concluded (and wishes again to emphasise) that spectrum available for deflector operations will become more restricted with the continued roll-out of TnaG and TV3 and the development of DTT in the UK. She also again emphasises that when DTT is introduced in Ireland, there is likely to be a major reduction in available frequencies and a fundamental review of available spectrum will be required to establish the extent to which deflectors may continue in such a changed environment.

3.4 With DTT expected to begin testing in mid 2000, television viewers will have access to another source of advanced television programme delivery (along with MMDS in rural areas and cable in urban settings). It is expected that all alternative platforms will carry the services now carried by deflectors and unnecessary use of scarce spectrum for the carriage of such services must be avoided. Having regard to her duty to ensure the efficient use of spectrum, the Director considers it unlikely that she will provide for the long term licensing of two platforms in the UHF TV bands (DTT and deflectors) only one of which has the potential to provide universal services.

3.5 At present there is sufficient UHF spectrum available to enable a number of deflectors to operate without interference to the national services or other licensed spectrum users. It is not yet possible to be precise as to the limiting effects (on spectrum used by deflectors) of future national developments. It is therefore not realistic to decide now on the assignment, if any, of spectrum for longer-term deflector operations. This decision will be made after the rollout of DTT in Ireland, will include a review of the use of spectrum and is likely to involve a competitive process for such spectrum as may be made available for deflector operations. Persons who continue unlicensed operations after the introduction of the proposed current scheme may not be eligible to apply for licences in any such new process.

3.6 In view of the uncertainty regarding the extent to that spectrum which could be used by deflectors may be available in the future, the Director does not propose at this time to provide for licences other than on a short term basis. There are two options for ensuring this – to provide for licences which expire at a date coinciding with the expected introduction of DTT or to provide for longer term

licences but with a provision allowing for termination at the discretion of the Director. The Director's view is that the first option is the correct choice as it provides certainty for operators in that they will know how long they may expect to operate.

Other networks

3.7 It is essential to the development of the Irish economy that the telecommunications sector is advanced quickly and provides the widest range of services at the lowest possible prices. Cable television networks have been identified by a variety of sources as powerful potential providers of telecommunications services to consumers. The European Commission, IBEC, Forfás, the Telecommunications Advisory Group and the National Competitiveness Council have all referred to the potential that cable television networks have as providers of telecommunications services. Cable television networks certainly have the potential to offer a greatly increased variety of services to the consumer above and beyond traditional television services and the Director is therefore anxious to facilitate the development of broadband multimedia services via cable networks. However, the existing networks need varying degrees of upgrade before they would be capable of delivering these advanced services to the public. Cable infrastructure is comparatively more expensive to install than many wireless systems but as it is not limited by considerations of availability of spectrum it has the potential of much greater capacity than wireless systems.

As with many technological developments the cost of installing the necessary infrastructure and the need to assure wayleaves will not be cheap. While it is likely that the cost of equipment will decrease over time, the initial investment will be substantial. Most of the existing cable television networks in Ireland would not be able to carry telecommunications services without substantial investment.

3.8 Three of the largest existing cable television operators (Cablelink Ltd., Cable Management Ireland Ltd. and Princes Holdings Ltd.) have been granted General Telecommunications Licences by the Director under the 1983 Postal and Telecommunications Act. These licences permit the licensee to provide telecommunications networks and services, including voice telephony, to the public. A fourth (Casey Cablevision Ltd.) has been granted a Basic Telecommunications Licence which includes all services apart from the processing of voice telephony and services involving numbers from the national numbering scheme for allocation to customers.

3.9 Taking account of what is noted above and with the aim of ensuring wide and rapid roll out of digital capability, the Director has provided cable licensees with a limited 5 year exclusivity against other cable operators in respect of certain

services. MMDS operators are currently precluded, except in exceptional circumstances, from offering services within a cabled area.

3.10 For similar reasons the Director is not at present inclined to permit deflectors to operate in areas where cable has been installed. If cable is not available and will not be made available within a reasonable timeframe within a portion of a licensed cable area, the Director may permit deflector services to operate in such areas. This however will be as an exception to the general principle and would require the prior express written approval of the Director.

> ***Q.1 In the circumstances described above what is the feasibility of providing limited deflector coverage within areas licensed for cable where cabled transmissions are unlikely to be available within a reasonable timeframe?***

3.11 MMDS currently provides for the carriage of 11 programme services. In addition, RTE1, Network 2 and Teilifís na Gaeilge can be accessed by householders on a free to air basis, resulting in 14 programme services being available to them. With a digital service, MMDS can offer approximately up to 55 programme services and, while not approaching the potential of digital cable, it can provide a greatly enhanced service including some interactive service for areas where it would be uneconomic to provide the necessary cable infrastructure.

3.12 MMDS is a proven and accepted technology in widespread use in many countries. In Ireland's case, its introduction provided a practical solution to the difficulties of providing high quality multi-channel television to non-cabled areas, while observing national and international frequency management obligations.

3.13 Most deflectors operate in areas included in MMDS franchises. Discussions with operators on new licences took place against the background of document ODTR 98/20, in which the Director indicated that she was minded to licence deflectors unless convinced (which she is not a present) that universal access to multichannel services would be undermined by the continuing activities of deflectors. Evidence to support this contention has not been convincing. In particular, there is no reason to suppose that the type of short term licensing scheme being proposed for deflectors could affect the situation. The Director would, therefore, intend to provide for short term licensing of deflector operations in areas served by MMDS.

3.14 Deflector operations will compete with DTT for spectrum, but not with MMDS. Accordingly, a choice has had to be made in terms of spectrum use between DTT and Deflectors, but not between MMDS and deflectors. In considering the submissions by the MMDS operators for digital licences, the Director was impressed with the plans that had been formulated for the further development of those networks in the face of competition. The Director notes that NERA/Smith

Report indicated that MMDS is a robust TV delivery system in the wide range of scenarios examined.

Q.2 Do you agree that the proposals above will assist the availability of multichannel television? Please give reasons for your answer.

Q.3 Do you agree that licences for deflector operations should be provided in areas where multichannel television is available? If not, please give your reasons (separately for cable and MMDS).

Q.4 Do you believe there are any circumstances under which deflectors should be licensed after DTT is launched? If so, please give your reasons.

Provisions to apply to deflector licences

4.1 The Director proposes to implement a licensing scheme subject to compliance by applicants/licensees with the conditions as set out below. In providing for licensing, the Director wishes to create a level playing field as between transmission platforms, having regard to key differences such as technological and market constraints and duration. Thus the proposed conditions outlined below are less onerous, in particular in respect of consumer protection, than those which apply to cable and MMDS operators who have accepted new digital licences. Comments from customers of deflector operators would be of particular interest in this regard (Q. 10 below).

Suitability of Applicant

4.2 Applicants will be required to demonstrate that sufficient financial resources are available to ensure that the costs involved in operating a licensed service can be fully met. In particular they will need to demonstrate that the revenue base is sufficiently buoyant to meet expenditure required as a result of licence conditions along with other expenditures (taxation, copyright, etc.). The Director intends to require applicants to provide information in the form of standard financial reports, certified by a person qualified to perform an audit along with financial forecasts for the licence period. Due to the short term nature of the envisaged licensing scheme, the scope of the information sought will so far as possible be limited so as to ensure that its preparation does not present major difficulties to applicants. The Director will specify the scope and detail of the required information when applications for licenses are invited. Applicants in contiguous areas may wish to combine to provide a single application. A single organisation covering combined areas would reduce the expense of preparing applications, in particular of providing the security as outlined in 4.12.

> ***Q. 5 Are there other criteria which should apply in assessing the suitability of applicants?***

Non-Interference

4.3 In accordance with the provisions of the Wireless Telegraphy Acts, licensees will be prohibited from causing interference to other licensed users. Given the expected numbers of transmitters for which licences will be sought, and the necessity to provide for DTT and further roll-out of analogue national services, it will not be practical to ensure non-interference with deflectors. Accordingly, deflectors can only be licensed on a secondary basis. In effect this means that no protection can be given to the reception of a broadcast signal which a transmitter might rely upon nor can protection be given to the signal which a licensed deflector may transmit. If a deflector is licensed to use a particular frequency channel and subsequently continued use causes interference to the operation of DTT or the national channels, such use will have to terminate with immediate

effect. There will be no responsibility on the Director to identify any alternative frequency but the operator may make an application for an alternative frequency which it has identified.

Co-ordination obligations with other states

4.4 The Director is required under the terms of the Stockholm Agreement 1961 to co-ordinate all assignments within certain "limiting distances" of other countries. The limiting distance is dependent on the frequency, the effective radiated power (ERP), the effective antenna height of the proposed station and the distance of the site from the territory of the other state. (This distance varies depending on whether the intervening distance is over land or over water). It is not expected that co-ordination with countries other than the UK will be required in the case of deflector stations for which applications for licences may be made.

4.5 In practice, all stations in County Donegal would require co-ordination, as would most stations located along the east and south coasts. Sites in North West Kerry and South West Clare are least likely to require co-ordination but the Director cannot state this with certainty until the characteristics of the transmitters are known. It should be noted that co-ordination can take a minimum of 12 weeks and the Director cannot guarantee successful co-ordination at the ERP requested.

Number of frequency channels

4.6 The rationale for the existence of deflectors is to provide reception of the four main UK terrestrial television programme services where off-air reception is not possible or is problematic. The Director proposes to consider applications for a maximum of four frequency channels only per location. In some locations, four channels may not be available for licensing – in such cases the Director will only consider licensing those frequency channels which are available for use. The Director does not intend to specify which programme services shall be carried on frequency channels which she may license – this will be a matter for the operators concerned. Neither will the Director specifically preclude the carriage of any particular service on the licensed frequencies subject only to the proviso that programme services which are retransmitted fall within one of the following three categories.

(a) television broadcasts that originate in another Member State of the European Communities and that fall within the fields co-ordinated by Council Directive 89/552/EEC of 3 October 1989 as amended by Council Directive 97/36/EEC of 30 June 1997;

(b) a television programme service that originates in a state (other than a Member State of the European Communities) being a party to the European Convention on Transfrontier Television done at Strasbourg on the 5th day of May, 1989 and that complies with the terms of the Convention;

(c) a programme service that originates in the State, authorised, for the time being, by law (currently RTE1, Network 2, TnaG, TV3).

It is not the Director's intention that the ODTR would subject the grant of licences to a system of prior authorisations. Licensees should however be aware of their responsibilities under domestic and EU law in regard to the carriage of television services, including the law of copyright.

4.7 The ODTR will not be in a position to suggest or allocate an alternative channel and can only assess proposals made by applicants. As applications will be considered by reference to currently available spectrum, the ODTR will accept proposals for frequency channels in excess of the maximum four which would be made available. The purpose is to allow applicants to specify a second choice if their preferred frequency channel is not available

Q.6 Do you agree with the above proposals? If not please state your reasons.

Q.7 Are there grounds for varying the number of frequency channels to be licensed?

Duration of licences

4.8 As indicated earlier, the Director proposes to provide for licences which would terminate on the introduction of DTT. DTT transmissions will commence prior to the full launch of the service. It will be necessary to clear spectrum to accommodate such transmissions. As the timescale for DTT is not established with certainty, the Director intends to provide for an expiry date of end December 2000. If DTT is introduced at an earlier date, the Director will reserve the power to terminate licences (on an individual basis) before the expiry date. Similarly if DTT is delayed the Director may extend the licences if appropriate, but in any event not beyond 31 December 2001. If there is available spectrum after that date, as indicated at paragraph 3.5, a new competitive scheme may be introduced for the allocation of this.

Q. 8 Do you agree that deflector licences should terminate with the introduction of DTT? If not, please give your reasons and suggested alternatives.

Application Fees

4.9 In considering applications, the ODTR will need to examine, on a case by case basis, the characteristics of each transmitter and its impact on other licensed users of wireless telegraphy apparatus. This examination will involve the ODTR in significant costs through staff resources and the acquisition of specific hardware and software tools to process the information under examination. In order to contribute towards the costs of the ODTR in assessing applications, a non-returnable fee of £200 in respect of each transmitter for which an application is made will be payable at the time of application. This fee will be distinct from licence fees which are discussed in the next section.

Licence Fees

4.10 The Director considers that it would be appropriate that, in line with licence fees payable by other television rebroadcasters, a fee of 3.5% of revenue arising from the service shall be payable to the ODTR. The Director proposes that fees would be payable on a quarterly basis subject to the payment of a minimum fee of £25 per quarter. The need to manage spectrum and therefore the basis for charging fees in respect of its licensing is that spectrum is a valuable finite resource. The Director is aware of views that a lower fee should apply on the basis that fewer services would be available on deflector platforms. The Director is not satisfied that a comparison on the basis of the number of television services provided is valid. Under the proposed arrangements the amount of the fee will be determined by the prices fixed by the licensed operator and the number of their customers. The Director expects that the charges to customers and costs of operations for any delivery platform would be related to the number of services provided. Accordingly a fee based on a common percentage rate, subject to payment of a minimum amount, is a means of treating all licensees equitably. Non-payment of a licence fee will constitute grounds for forfeiture of a licence, and late payments of fees (to be accepted only at the discretion of the Director) will be subject to the payment of interest.

4.11 It is generally appropriate that the cost of regulating any segment of the telecommunications sector should be borne by those wishing to operate such segment and it is anticipated that the cost of examining applications for the licences proposed may be significant. In view of the small customer base of many operators, it is likely however that application fees based on the full cost to the ODTR in processing applications would act as a prohibitive barrier to applying for licences. The fees envisaged, both for applications and licences, are not expected to cover the costs of the ODTR in the administration of the scheme. The Director considers that this departure from normal practice is justified in view of the short term duration of proposed licences. In the event that a future scheme is established, the Director intends that fees would fully reflect the costs involved. Accordingly, the fees now proposed should not be regarded as an indication of what might apply into the future.

Security

4.12 The Director considers however that special account ought be taken of costs which may be incurred in giving effect to the termination of short term licences such as these, which cost could not be reflected in licence fees charged over so short a period. She accordingly proposes to require licensees, prior to the granting of a licence, to provide security which would be forfeit to the Director in the event of failure to cease the use of a frequency channel or channels if so directed by the Director or upon the expiry of the licence. The purpose of such security would be to meet the Director's costs, should they arise, in enforcing a

direction given under the licence or to ensure compliance with regulatory requirements concerning unlicensed wireless telegraphy apparatus. The Director considers that security calculated on the basis of £10,000 plus £2,000 for each transmitter site should be provided subject to a maximum of £15,000 per licence. The Director feels that a cash deposit direct to the ODTR or a bank guarantee are the most appropriate forms in which security could be provided but is open to suggestions as to other possible forms of security which might be acceptable.

Restrictions on licensee.

4.13 Licensees will be prohibited from placing any restrictions on subscribers in their sourcing of equipment (TV, Video recorder, Aerials, etc.). Direct purchase of aerials from a particular source, whether this is the licensee itself or a third party, may not be imposed as a condition by the licensee on its subscribers.

Restricted Application process

4.14 The purpose of the proposed scheme is to provide short term licensing of an existing service. Accordingly, the Director intends that applications will only be considered from operators who are in a position to operate under licences granted to them within 1 month of the granting of a licence. The Director intends that licensees who fail to use a licensed frequency within a period of one month from when they receive a licence, will automatically forfeit the licence. As the proposed licences are for a short-term period, the Director considers it reasonable to make the rapid deployment of services a qualifying condition and, in practical terms, it would be impossible to her to apply or administer such a scheme for a wider range of potential applicants. Potential licensees who might otherwise qualify but are excluded from the scope of the scheme under this condition would, in all likelihood, be unable to recoup their investment due to the short-term nature of the scheme. However such categories of operators will have an opportunity to apply for licences in the future if there is scope for deflector licensing in the longer term. If it is possible to provide for a future scheme, it is the Director's intention that an open application procedure would apply.

4.15 The Director intends to consider all applications under the scheme within the same timeframe. In order to provide for this, all applications will have to be received by the Director by a specific date. Accordingly the Director will specify a closing date after which no further applications will be accepted. In nominating a closing date, the Director will allow sufficient time to permit applications to be completed. When the Director's consideration of the applications is complete, it is intended that all licences would issue on the same date.

Non-ionising radiation

4.16 In line with ODTR policy on standards, licensees shall be required to ensure that non-ionising radiation emissions arising from the operation of the retransmission station are within the limits outlined in any standards specified by the European

Committee for Electrotechnical Standards (CENELEC) or standards specified by the European Union.

Other authorisations/obligations

4.17 Licensees may be required to obtain other authorisations and/or fulfil other obligations in respect of, for example, planning permission and copyright law. These matters will not be covered by the ODTR licensing process and the onus will be on individual licensees to obtain all such approvals, consents, licences, permissions and authorisations required in connection with the provision of the retransmission service.

Q. 9 Do you agree with the proposed approach towards calculating licence fees and security? If not, please give your reasons.

Q.10 Do you consider that any other conditions should apply? If so, please specify these and give your reasons.

Q. 11 Do you consider that the objectives outlined in paragraphs 4.13 to 4.16 are met by the proposed measures. If not, please give your reasons and suggested alternatives.

Q.12 Are there other issues which you wish to bring to the ODTR's attention in respect of deflector licensing? Please outline them briefly and indicate their impact on future developments.

Technical Conditions

5.1 The general technical conditions proposed are set out in Appendix 1. The Director reserves the right to amend the conditions as appropriate. Licensees will also be required to perform audits of the transmission stations as requested by the Director to demonstrate compliance with the conditions.

Q.13 Do you consider that these conditions will provide for reasonably good quality standards having regard to the proposed short term duration of licences? If not, please state your reasons.

Q.14 Do you consider that these conditions will provide appropriate safeguards against interference to other licensed spectrum users? If not, please state your reasons.

Appendix 1

CONDITIONS RELATING TO THE ESTABLISHMENT AND OPERATION OF AN ANALOGUE UHF TELEVISION RETRANSMISSION SERVICE IN THE FREQUENCY BAND 470.0 - 862.0 MHz

1 PURPOSE

This document specifies the general conditions attached to a licence issued under Regulations to be made by the Director of Telecommunications Regulation for the establishment and operation of UHF-TV redistribution stations in the Frequency Band 470.0 to 862.0 MHz. These conditions are set out in accordance with Regulation __.

2 GENERAL

2.1 These conditions detail the characteristics of the equipment that need to be considered for the purposes of frequency spectrum management and safety and do not include detailed equipment specifications.

2.2 The technical parameters specified in this document are in accordance with the values specified in the Radio Regulations (Edition 1998), by ITU-R study group 11 (television), in the Final Acts of the European Broadcasting Conference Stockholm 1961 and in the Multilateral Co-ordination Agreement of 1997.

2.3 The Director does not require evidence of type approval of equipment. Instead a procedure of station certification, by a suitably qualified person, will apply.

2.4 These conditions specify the procedures for making an application for frequency assignment and the conditions which will apply to the operations of a licensed retransmission service.

2.5 The conditions specified in this document may be varied from time to time in accordance with Regulation __.

2.6 In cases of doubt regarding the interpretation of the conditions, the decision of the Director will be final.

3 DEFINITIONS AND GLOSSARY OF TERMS

3.1 Radio Regulations

Radio Regulations, Edition of (1998), as published by the International Telecommunications Union (ITU).

3.2 Assignment (of a radio frequency or radio frequency channel):

A radio frequency or radio frequency channel for which authorisation by the Director has been received for its use at a specified station with specified characteristics.

3.3 Stockholm 1961 Agreement

The Final Acts of the European VHF/UHF Broadcasting Conference, Stockholm 1961. An updated plan of assignments constitutes part of this agreement.

3.4 Nominal Television Channel

A radio frequency channel containing a vision modulated carrier (including a colour sub-carrier) and one or more sound modulated carriers. The standard channels and carrier frequencies are listed in Annex 1.

3.5 Offset.

The difference between the actual frequency of the vision carrier and the frequency of the vision carrier of the nominal television channel. This frequency difference is usually chosen to be a positive or negative whole number of units of one twelfth of the television horizontal line scanning frequency.

3.6 Station

One or more transmitters or receivers or a combination of transmitters and receivers, including the associated equipment, necessary at one location for carrying on a television retransmission service.

3.7 Effective Radiated Power (e.r.p.) (in a given direction)

The product of the power supplied to the antenna and its gain in a given direction relative to a half-wave dipole. For the vision carrier of the television retransmission it is the peak envelope power. For the sound carrier of the television retransmission it is the unmodulated carrier power. This is usually expressed in decibels relative to one watt (dBW).

3.8 Maximum Effective Radiated Power

The maximum effective radiated power in any direction

3.9 Effective Antenna Height (Eff. Ht.)

The height in metres above the average level of the ground between distances of 3 and 15 km from the transmitter. This is calculated for each of 36 evenly spaced radials (10 degree separation) starting from true North[1].

3.10 Maximum Effective Antenna Height

The maximum value in metres for the Effective Antenna Height in any one of the 36 directions referred to in section 3.7.

3.11 Omnidirectional Antenna.

An antenna having a horizontal radiation pattern with variations of 2 dB or less over 360 degrees.

3.12 ODTR

Office of the Director of Telecommunications Regulation.

3.13 Director

The Director of Telecommunications Regulation.

[1]This can be calculated by the ODTR using the national grid reference, consisting of one letter and six digits, for the transmitting station, provided the site height above sea level and the antenna height above ground level are supplied.

4 TRANSMITTER CONSTRUCTION.

4.1 General

All controls, meters, indicators and terminals shall be clearly labelled. Details of the main and any auxiliary power supply from which the equipment is intended to operate shall be clearly indicated. The equipment should be housed in one complete unit.

4.2 Controls

Controls which, when wrongly adjusted, increase the risk of causing interference or of improper functioning of the transmitter shall be immediately accessible to qualified personnel only.

4.3 Manufacturer's Identification.

The transmitter and associated equipment shall be labelled with the manufacturer's trademark, type designation and serial number. The label shall be fitted on the outside of the transmitter and associated equipment, and shall be clearly readable, non-removable and indelible.

5. SAFETY AND WEATHER PROTECTION.

5.1 General Safety.

The station and its premises must comply with the relevant statutory safety regulations.

5.2 Safety Controls

There shall be a single control to isolate power for the entire installation. If a form of auxiliary power (such as; diesel generators or an Un-interruptable Power Supply) is provided, then the same control should isolate these. The 'on' position of such a device must be clearly indicated. Guards may be fitted to the device to prevent accidental operation.

5.3 Safety Standards

The system must comply with the following requirements:

- I.S./EN 60215 : 1990
  Safety Requirements for Radio Transmitting Equipment.
- ENV50166-2
  Human exposure to electromagnetic fields. High frequency (10 kHz to 300GHz)

These standards are available from the National Standards Authority of Ireland[2].

5.4 Weather Protection.

All apparatus and cables exposed to weather, corrosive atmosphere or other adverse conditions shall be so constructed or protected as may be necessary to prevent danger or interference to other services arising from such exposure.

6. SITE ENGINEERING.

6.1 General

The practice of good site engineering is a necessary requirement to ensure good coverage, safety of personnel and minimum interference to other services. Careful consideration is required for other services, when operating from the same site or operating in close proximity to them.

6.2 Spurious Emissions and Transmitter Filtering

Careful consideration should be given to the levels of spurious emissions given in Section 7.2.

7. TRANSMISSION CHARACTERISTICS.

7.1 Frequency Aspects.

The equipment shall be designed to operate on the assigned frequency in the frequency Band 470.0 to 862.0 MHz only.

The frequency tolerance shall be
- ± 500 Hz,

Except for stations of 0dBW (Vision Peak Envelope power) or less where is may be
- ± 10 kHz.

The transmit frequency shall be derived from a crystal oscillator. If use is made of a synthesiser and/or a phase locked loop system, the transmitter shall be inhibited when synchronisation is absent. The transmitter frequency adjustment control shall be accessible to qualified personnel only.

[2]Please note that the standard ENV 50166-2 is a European Pre standard and shall be replaced by the respective European Standard when it becomes available.

7.2 Maximum Permitted Levels of Spurious Emissions

The maximum permitted level of spurious emission for a transmitting station shall be;

- at least 40 dB below the transmitting station e.r.p. and shall not in any case exceed -46 dBW for a transmitter station e.r.p. less than or equal to 14dBW.

- at least 60dB below the transmitting station e.r.p. and shall not in any case exceed -17 dBW for transmitter station e.r.p. above 14 dBW.

7.3 Class of Emission, Bandwidth, and Modulation Standards.

7.3.1 Designation of Emission and Maximum permitted Bandwidth.

The total bandwidth of the radiated signal shall not exceed 8 MHz. The emissions shall comply with the following designations,

A) 7M25C9FNW where,

7M25	=	necessary bandwidth	=	7.25 MHz
C	=	type of modulation	=	Vestigial sideband
9	=	Modulating signal	=	Composite analogue/digital signal
F	=	Information type	=	Television (video)
N	=	Colour	=	
W	=	Combination of frequency-division and time-division multiplex	=	

B) 750KF3EGN where,

750K	=	necessary bandwidth	=	750 kHz
F	=	type of modulation	=	Frequency modulation
3	=	modulating signal	=	a single channel containing analogue information
E	=	information type	=	Sound broadcasting
G	=	Sound of broadcasting quality (monophonic)		
N	=	Nature of multiplex	=	None

7.3.2 Television Standard

The television standard used shall be PAL system I. or the PALPlus system.

Summary list of parameters (for PAL I only):-
Frequency spacing

Nominal radio-frequency channel bandwidth	8 MHz
Vision/Sound Carrier separation	5.9996MHz(±0.0005 MHz)
Nearest edge of channel relative to vision carrier	-1.25MHz
Nominal width of vestigial sideband	1.25 MHz
Nominal width of main sideband	5.5 MHz

Modulation

Type and polarisation of vision modulation	C9F neg.
Type of sound modulation	F3E
Maximum frequency deviation	±50 kHz
Pre-Emphasis for modulation	50 μS

Levels in the radiated signal (% of peak vision carrier)

Synchronising level	100
Blanking level	76 ±2
Difference between black level and blanking level (nominal)	0
Peak white level	20 ±2
Ratio of vision to sound effective radiated powers	10/1 [3]

7.3.3. Permitted second sound carrier for the transmission of stereo or bilingual sound.

An additional carrier at 6.552 MHz above the vision carrier for the NICAM 728 multi channel sound system as specified in ITU-R Rec. 707 is permitted.

7.4 Additional Services

7.4.1. Permitted Additional Services.

[3] In certain cases an alternative vision to sound carrier ratio may be specified by the ODTR

The retransmission of a teletext service during the field blanking interval is permitted. The system used must conform to Teletext System B parameters described in ITU-R Rec. 653-1. Insertion reference signals may be carried on lines 17 and 330 as outlined in ITU-R Rep. 628-4. Insertion test signals for automatic monitoring of the television system may also be carried on other blank lines.

A widescreen television service may operate in the 16:9 aspect ratio using the PALPlus system as described in ITU-R BT 1197-1 ensuring compatibility with the current PAL I system.

7.5 Power and Polarisation.

For a given assignment the radio frequency power specified in the licence is in terms of the total effective radiated power for both the vision carrier (peak envelope power) and the sound carrier (unmodulated carrier power).

As the total effective radiated power is the sum of the transmitter output power (in dBW) and the gain of the antenna (in dB) the output carrier power of transmitter shall be adjustable so that the value of the effective radiated power permitted for each station is not exceeded.

If the equipment is designed to operate with different levels of carrier power, the rated output power for each power level must be declared by the manufacturer and clearly labelled on the equipment.

8. OVERVIEW OF NATIONAL BAND PLAN.

8.1 Frequency Channels

The UHF frequency band for broadcasting is 470 to 862 MHz. The designated television frequency channels for the UHF band are detailed in Annex 1.

Due to the phased development of UHF television broadcasting including the introduction of additional stations it is expected that the initial coverage of retransmission stations may be reduced as further broadcasting stations are introduced.

8.2 Assignment List

A list of the Assignments, which constitute the UHF plan for national television services, will be maintained by the Director.

8.3 Planning Parameters

The planning parameters used by the Director correspond to those recommended by the ITU-R. However the Director cannot guarantee protection for RBL stations in a television redistribution service. A summary of these parameters is given below.

Parameter	**Description**	**Value used**
Propagation using terrain data	Wanted Signal: Unwanted Signal, Domestic: Unwanted Signal, RBL[4]:	50% location, 50% time 50% location, 5% time 50% location, 1% time
Quality of service	Continuous Interference: Tropospheric Interference:	Grade 4 [5] Grade 3 [6]
Polarisation Discrimination	Domestic: RBL:	15 dB 20 dB
Maximum Receive antenna directivity	Domestic: RBL:	16 dB 20 dB

[4]Radio Broadcasting Link, The Director cannot guarantee protection for such links used in television retransmission services

[5]Grade 4: Perceptible, but not annoying

[6]Grade 3: Slightly annoying

Protection Ratio	
Co-channel, continuous:	52 dB ,no offset 40 dB, 4/12 line offset
Co-channel, continuous: (PAL I interfered with by DVB-T 8 MHz)	41 dB
Co-channel, tropospheric:	45 dB, no offset 30 dB, 4/12 line offset
Co-channel, tropospheric: (PAL I interfered with by DVB-T 8 MHz)	37 dB
Lower adjacent channel	-9 dB, tropospheric 1dB, continuous
Analogue vision signal interfered with by lower adjacent channel DVB-T 8MHz	-8 dB, tropospheric -4 dB, continuous
Upper adjacent channel	-12 dB, tropospheric -2dB, continuous
Analogue vision signal interfered with by upper adjacent channel DVB-T 8MHz	-10 dB, tropospheric -6 dB, Continuous
Image channel and Local oscillator channel	-10 dB, tropospheric 0 dB, continuous

8.4 Minimum Field Strength

The minimum field strengths used in planning national services are:

1). +65dB(μV/m) for band IV
(470 MHz to 582 MHz)

2). +70dB(μV/m) for band V
(582 MHz to 862 MHz)

The above values are for 10 metres above ground level.

9. ASSIGNMENTS.

9.1 Requisite information

The Director shall be provided with all the necessary details in support of an application for an assignment. Annex 2 contains details of the format in which such information is to be provided.

9.2 Field Strength Measurements

It may be necessary to supply the ODTR with field strength measurements in connection with an interference complaint.

9.3 International Agreements

The Director is bound by the provisions of the Radio Regulations and the Final Acts of the European VHF/UHF Broadcasting Conference, Stockholm 1961, in relation to the use of the UHF broadcasting bands. These agreements require the Director to undertake certain co-ordination procedures when considering additions / modifications of the assignment plan.

A minimum of three months is allowed for co-ordination. However, co-ordination can not be guaranteed. An applicant for a licence should be aware of this feature and provide the Director with all relevant information, to ensure compliance with these agreements.

10. STATION CERTIFICATION AND MAINTENANCE.

10.1 Access and Personnel

Only authorised personnel shall have access to the station equipment for the purpose of adjustment / maintenance of that equipment.

The licensee shall ensure that all authorised personnel are adequately trained for the functions they are to undertake.

10.2 Facilities for testing transmitter installation

Adequate and accurately calibrated test equipment shall be available for non radiative measurements of transmitter power, modulation characteristics and spurious emissions whilst the station is undergoing initial alignment and regular maintenance.

10.3 Certification

On commencement of operation the licensee shall inform the Director of the date of commencement and provide certification indicating that the station is operating in accordance with the specified conditions and characteristics.

10.4 Maintenance

The station equipment and associated installations shall be so maintained as to always comply with these conditions. The licensee shall ensure that a suitably qualified person has the necessary technical training, knowledge and practical experience so as to be able to certify that the installation and maintenance of the station complies with these conditions. The licensee shall examine a station on a quarterly basis to ensure compliance and shall keep a log indicating the dates and results of these examinations.

ANNEX 1

TABLE OF CHANNEL FREQUENCIES and CHANNEL GROUPS

NOTE

The carrier frequencies do not include offsets.
The offsets to be used will be specified in the licence.

TABLE 1

BAND IV CHANNELS

Frequency Band 470.00 to 582.00 MHz

Channel Number	Channel Frequencies (MHz)	Vision Carrier (MHz)	Sound Carrier (MHz)
21	470 - 478	471.25	477.25
22	478 - 486	479.25	485.25
23	486 - 494	487.25	493.25
24	494 - 502	495.25	501.25
25	502 - 510	503.25	509.25
26	510 - 518	511.25	517.25
27	518 - 526	519.25	525.25
28	526 - 534	527.25	533.25
28	534 - 542	535.25	541.25
30	542 - 550	543.25	549.25
31	550 - 558	551.25	557.25
32	558 - 566	559.25	565.25
33	566 - 574	567.25	573.25
34	574 - 582	575.25	581.25

TABLE 2

BAND V CHANNELS

Frequency Band 582.00 to 862.00

Channel Number	Channel Frequencies (MHz)	Vision Carrier (MHz)	Sound Carrier (MHz)
35	582 - 590	583.25	589.25
36	590 - 598	591.25	597.25
37	598 - 606	599.25	605.25
38	606 - 614	607.25	613.25
39	614 - 622	615.25	621.25
40	622 - 630	623.25	629.25
41	630 - 638	631.25	637.25
42	638 - 646	639.25	645.25
43	646 - 654	647.25	653.25
44	654 - 662	655.25	661.25
45	662 - 670	663.25	669.25
46	670 - 678	671.25	677.25
47	678 - 686	679.25	685.25
48	686 - 694	687.25	693.25
49	694 - 702	695.25	701.25
50	702 - 710	703.25	709.25
51	710 - 718	711.25	717.25
52	718 - 726	719.25	725.25
53	726 - 734	727.25	733.25
54	734 - 742	735.25	741.25

TABLE 2 (continued)

BAND V CHANNELS

Channel Number	Channel Frequencies (MHz)	Vision Carrier (MHz)	Sound Carrier (MHz)
55	742 - 750	743.25	749.25
56	750 - 758	751.25	757.25
57	758 - 766	759.25	765.25
58	766 - 774	767.25	773.25
59	774 - 782	775.25	781.25
60	782 - 790	783.25	789.25
61	790 - 798	791.25	797.25
62	798 - 806	799.25	805.25
63	806 - 814	807.25	813.25
64	814 - 822	815.25	821.25
65	822 - 830	823.25	829.25
66	830 - 838	831.25	837.25
67	838 - 846	839.25	845.25
68	846 - 854	847.25	853.25
69	854 - 862	855.25	861.25

ANNEX 2

Information on Retransmission Station to accompany Application

1	Name of Retransmission Station:	_____		
2	Geographic Coordinates:	Lat: _____	Long: _____	
3	National Grid Reference:	_____		
4	Channel(s):	_____		
5	Offset(s)(twelfth line):	_____		
6	Frequency (MHz)	Programme Services	Vision	Sound
		_____	_____	_____
		_____	_____	_____
		_____	_____	_____
		_____	_____	_____
7	Altitude of Site above sea level(m):	_____		
8	Height of Antenna above ground level (m):	_____		
9	Polarisation:	_____		
10	Total Effective Radiated Power (dBW):	_____		
11	Directivity of Antenna (D or ND):	_____		

12 Radiation Restrictions (dB) if Directional

AZIMUTH	0°	10°	20°	30°	40°	50°	60°	70°	80°
Horizontal Polarisation									
Vertical Polarisation									

AZIMUTH	90°	100°	110°	120°	130°	140°	150°	160°	170°
Horizontal Polarisation									
Vertical Polarisation									

AZIMUTH	180°	190°	200°	210°	220°	230°	240°	250°	260°
Horizontal Polarisation									
Vertical Polarisation									

AZIMUTH	270°	280°	290°	300°	310°	320°	330°	340°	350°
Horizontal Polarisation									
Vertical Polarisation									