



Commission for
Communications Regulation

Response to Consultation

Regional DVB in the UHF Band

Document No:	06/48
Date:	8 september 2006

Contents

1	Foreword.....	2
2	Introduction.....	4
2.1	BACKGROUND	4
2.2	LIST OF RESPONDENTS	4
2.3	FORMAT OF THE DOCUMENT	5
3	Consultation Issues	6
3.1	COMREG'S APPROACH TO SPECTRUM PRIORITIES AND THE APPROPRIATE MANAGEMENT OF THE RADIO SPECTRUM	6
3.1.1	<i>Views of respondents</i>	6
3.1.2	<i>ComReg's Position</i>	7
3.2	SPECTRUM AVAILABILITY	7
3.2.1	<i>Views of respondents</i>	8
3.2.2	<i>ComReg's Position</i>	9
3.3	COMPRESSION TECHNIQUES AND SERVICE OFFERINGS	10
3.3.1	<i>Views of respondents</i>	10
3.3.2	<i>ComReg's Position</i>	11
3.4	LICENCE AWARD PROCESS	11
3.4.1	<i>Views of respondents</i>	12
3.4.2	<i>ComReg's Position</i>	13
3.5	LICENCE FEES.....	14
3.5.1	<i>Views of respondents</i>	14
3.5.2	<i>ComReg's Position</i>	14
4	Next Steps	15

1 Foreword

Throughout Europe there is increasing application and usage of digital technology in the broadcasting sector, particularly in television.

In view of the fact that many countries, particularly in Europe, have begun to use digital broadcasting technology and that parts of Europe are beginning to reach spectrum limits, a Regional Radio conference was organised under the aegis of the International Telecommunications Union to establish an agreement and associated frequency plans for digital broadcasting, both audio and video. The Regional Radio Conference held in Geneva during May and June of this year produced a plan for spectrum availability in the VHF (174 to 230 MHz) and UHF (470 to 862 MHz) bands for countries in Europe, Africa and the Middle East in an all digital era. The agreement allows for flexible use of the entries in the Geneva plan and accordingly, it can be expected that countries, particularly in Europe, will over the next few years move to identify their terrestrial broadcasting requirements and possible surplus spectrum which would arise due to the deployment of more efficient digital technology which could be used for services such as

- More broadcasting services,
- Services other than broadcasting, and
- Spectrum made available on a service neutral basis, to be used as the operator sees fit, provided no interference is caused to other users.

In Ireland digital television has heretofore been available via cable, MMDS and satellite. The option of Digital Terrestrial Television (DTT) is being considered by the Department of Communications, Marine and Natural Resources which, in conjunction with RTÉ Networks, is currently conducting a trial of DTT in the Eastern Region.

ComReg considers that in addition to a national DTT service, there will potentially be scope for regional Terrestrial Digital Video Broadcasting (DVB-T) services and for mobile broadcasting services to handheld devices which will in one handset provide converged broadcasting and telecommunications services. Trials of the various standards are ongoing in a number of European countries. In Germany for instance, a trial of mobile TV took place to coincide with the 2006 World Cup. Full mobile broadcasting services have been launched in Italy. Finland is due to launch a full service before the end of the year. In Ireland trials of mobile services are scheduled to commence later this year.

ComReg believes that Irish consumers should have the opportunity to avail of such digital services, be they broadcasting or converged services, as are available to consumers in other countries. With this in mind it intends to engage with other stakeholders to clarify the spectrum requirements for national broadcasting services so that the availability of spectrum which can be released for other applications can be identified.

This paper is a response to a consultation launched by ComReg in December 2005 to seek opinions and to gauge the level of potential interest in interim short term licensing schemes for local or regional DVB-T and for mobile broadcasting

applications. Fourteen responses were received and I would like to express the appreciation of the Commission to all of those who responded to the consultation.

Isolde Goggin
Chairperson
Commission for Communications Regulation

2 Introduction

2.1 Background

This document is ComReg's response to the consultation on Regional DVB in the UHF Band (05/96) which issued in December 2005. The consultation explored the possibility of putting interim licensing regimes in place for local or regional terrestrial television broadcast services and for mobile services using the DVB-H or equivalent standard on a regional or broader basis pending clarification of the spectrum requirements for national DTT and the resultant clarity as to what spectrum could be made available longer term for other uses.

The background to the consultation is that throughout Europe there is a migration from analogue to digital broadcasting, which holds many attractions for both broadcasters and consumers arising from the more efficient use of spectrum by digital technology. This allows broadcasters to offer and consumers to enjoy an increased number of services, better quality audio and video, enhanced programming and interactive services. Converged telecommunications and broadcasting services also become realities, as do the potential of portable and mobile reception.

The Regional Radio Conference for the European, African and Middle Eastern regions held in Geneva this year (RRC-06) resulted in a plan for digital broadcasting in an all digital era in which, inter alia, Ireland was allocated 8 frequencies in the UHF band at 43 sites around the country for digital terrestrial television.

In Ireland, at the end of the first quarter of 2006, there were some 641,000 digital TV subscribers which include cable, MMDS and satellite customers. This represented approximately 45% of all households with a television. Digital terrestrial television (DTT) has not launched, though a trial from sites at Three Rock and Clermont Carn commenced in August of this year. In addition, a number of trials of mobile broadcasting services are planned using both the DVB-H and DAB-IP standards. The first of these will commence in September of this year in the Dublin area.

ComReg sees a need for further discussion with stakeholders such as the Department of Communications, Marine and Natural Resources, broadcasters, mobile phone operators and potential operators to establish what Ireland's requirements for digital broadcasting will be in the future on the various platforms.

2.2 List of Respondents

ComReg thanks the following who submitted comments and suggestions on the consultation and looks forward to working with them to bring terrestrial digital video broadcasting to Irish consumers:

Arqiva Ireland
bmcoforum
eircom Ltd
Hutchison 3G Ireland Limited
Mobile Marketing Forum
Motorola Limited
National Grid Wireless

O2
RTÉ
Sky Ireland
South Coast TV
TV3
UPC Ireland
Vodafone

A further response was received after the closing date for receipt of responses which has not been included in this document.

2.3 Format of the Document

Section 3 deals with the consultation issues, the questions raised, the responses submitted in relation to those issues and ComReg's current thinking following consideration of the points made.

Section 4 sets out the next steps which ComReg intends to take in order to progress the introduction of terrestrial digital broadcasting services.

3 Consultation Issues

3.1 ComReg's approach to spectrum priorities and the appropriate management of the radio spectrum

ComReg stated in the consultation paper that its proposal was to accommodate regional DVB in the UHF band which is already used by the national analogue terrestrial TV channels and in some areas by analogue deflectors. It is also planned to accommodate national DTT in the UHF band. ComReg considered that priority should be given in the first instance to the national analogue terrestrial channels and the national DTT services.

It believed that as the amount of spectrum available in the UHF band to accommodate the competing demands was finite and there would be a risk of harmful interference to other users of the band resulting from the introduction of services utilising the DVB-T and DVB-H standards, effective management of the radio spectrum would require the implementation of licensing in respect of DVB transmissions.

ComReg sought comments in relation to its assessment of spectrum priorities and its proposal that any DVB services should be subject to licensing.

3.1.1 Views of respondents

Of the twelve responses in relation to spectrum priorities, eight respondents generally agreed with ComReg's assessment. It was felt that national public service broadcasting should take precedence over regional DVB services.

Of the four who did not agree with ComReg's approach, one considered that country wide systems with DVB-H should be included in broadcasting planning and introduced into Ireland. A second argued that given the flexibility and potential of the DVB technology standard, it should not be given "second class status" in ComReg's spectrum management strategy. Two responses suggested that it was premature to set such priorities at this stage, while another felt that if other national digital TV platforms are or will be widespread and accessible, or if there is any doubt about future commitment to national DTT, released analogue UHF spectrum should be made available for other uses such as regional, local or mobile digital TV. A final respondent was not convinced at this stage that regional licences for DVB would be a viable long term prospect. It suggested that to keep options open as much as possible, a top down national DTT plan should be conducted which enables the inclusion of regional, local and mobile assignments so that the latter can be assigned licences early without the need for damaging reversion terms.

All but one of the respondents who commented, supported ComReg's view that there would be a danger of harmful interference and that accordingly licensing of any new services was appropriate. A number suggested that the conditions of licences issued should not be unnecessarily arbitrary and should relate to matters such as avoidance of interference and health and safety.

The respondent who disagreed with ComReg's assessment felt that there would not be significant risk of harmful interference to other users of the broadcast bands due to the operation of DVB-H based delivery systems, if careful network and frequency planning is observed.

3.1.2 ComReg's Position

ComReg considers that the national analogue services and the proposed national DTT service should take precedence in terms of spectrum usage in the UHF band. It would be important, however, that national broadcasting policy decisions are made in relation to the number of such services which will proceed, in order to allow ComReg to manage the remaining spectrum to facilitate additional services in the band, whether broadcasting or otherwise, for the benefit of Irish consumers and the economy in general.

The number of competing demands for the finite amount of spectrum available in the band means that in order to accommodate prospective users of the band and to avoid harmful interference, good spectrum management practice would dictate that licensing would be required for new services. ComReg is satisfied that regulation should be as light handed as possible and the conditions incorporated in any licence issued will adhere to those set down in the EU framework for Electronic Communications networks and services in relation to spectrum rights of use.

3.2 Spectrum Availability

In the consultation paper, ComReg stated that spectrum for services additional to existing analogue and future national DTT services is not evenly distributed in all areas. It considered that the scope for licensing regional or local DVB in any particular area would be dependent on the use of spectrum for national services in that area, in adjoining areas and in neighbouring countries. As concrete decisions had not been made in relation to the requirements of national DTT or in relation to the switch off of analogue services, ComReg considered that there was a possibility of licensing local, regional or mobile services in the interim for a period of up to five years. Due to the uncertainties relating to the national services, however, it pointed out that the term of any licence awarded might be amended or terminated in particular instances, if the spectrum nominated by a regional or mobile operator were subsequently required for national DTT.

ComReg considered that in most areas it should be possible to facilitate a service utilising the DVB-H or other mobile standard. It suggested that where services are to be provided to handheld devices which would inevitably incorporate GSM or UMTS mobile telephones, the use of high powers from high sites may not represent effective and efficient management of spectrum. It suggested that it was minded to require such services to be transmitted by networks involving a number of lower sites operating as part of a single frequency network.

3.2.1 Views of respondents

Thirteen respondents commented on the licence duration. All but two considered that a five year licence term was too short to enable proper business planning and recovery of costs. Concern was expressed in relation to the uncertainty attaching to any licence which could be terminated if the spectrum was required for another service (i.e. national DTT). Various suggestions were made, ranging from 7 to 10 years to 15 to 20 years as to what would be an appropriate licence term. It was also suggested that regulatory certainty should be provided as regards the availability of spectrum for the licence duration.

One of the respondents who agreed with the proposed licence term felt that there should be a provision to renew the licence beyond 5 years, as long as the operator's frequencies did not interfere with national DTT. The other, in agreeing with the licence term, recognised the difficulty of providing a sufficient period for a potential service provided to secure a return on investment while at the same time ensuring the availability of spectrum for national DVB-T services. It was concerned that regional DVB-T services could in some way inhibit the introduction of a national service, either through restricting optimum spectrum availability or through a reduction in consumer demand.

All eleven respondents who commented on the question as to whether mobile services should be provided agreed that they should and most considered that a technology neutral approach should be taken in spectrum management policy, allowing market players to select the best technologies and solutions. One respondent noted that the DVB-H standard allows for the delivery of a large number of parallel streams (programmes) compared to other known broadcast platforms and as it has the highest uptake in Europe also opens for the possibility of pan-European roaming.

There were varying views in relation to the ComReg suggestion that mobile services might be required to be transmitted by networks involving a number of lower sites operating as part of a single frequency network.

Seven respondents considered that mobile broadcasts will be intended to converge with mobile phones in the same hand set and that the lower sites networks developed for mobile phones would therefore be more appropriate.

Three responses considered that using high sites or a combination of high sites and lower power boosters would be more cost effective than using a large number of lower sites, as each site would require a dedicated baseband stream which would need to be distributed via fibre, leased line or microwave link.

Two suggested that the use of the L- band (1452 to 1492 MHz range) particularly in towns and cities should be considered, especially if such services are deployed in the UK, as this could lead to economies of scale in terms of network build and handset manufacture. It was suggested that the theoretically larger number of sites required by L- band is mitigated in urban environments by practical issues of site locations available, antenna sites and planning requirements and certain aspects of non line of sight propagation and reception.

Most respondents considered it logical that mobile services would be national rather than regional. One felt that further consultation and co-ordination discussions must take place to determine spectrum priorities and to assess whether the proposed use of spectrum is the right one for citizens and consumers in Ireland.

A respondent, in agreeing with the ComReg suggestion in relation to mobile networks, stated that the use of high power from high sites does not represent effective or efficient management of the spectrum for Regional DVB either. Deflector systems, it said, have been operating without interference to other operators on low to medium power transmitters for twenty years.

A final respondent believed that when a DVB-H licence is issued it would require its own distinct allocation of spectrum and not be either subordinate to or forced to share spectrum with other wireless broadcasters or communication licence holders. It did not believe that the market in Ireland would commercially support multiple DVB-H platform build-outs and therefore believed that the licence should also include wholesale provisions allowing access to the platform by both broadcasters and mobile operators on reasonable terms.

3.2.2 ComReg's Position

ComReg accepts that a licence duration of five years for either regional or mobile services may not be commercially viable. At this point in time, however, in the absence of certainty about the requirements of national DTT and the timing of analogue switch-off, it is unable to provide the regulatory certainty it would like to in relation to the duration of any licence it would offer in the UHF band. It intends to work with the Department of Communications, Marine and Natural Resources and other interested parties in the medium term to identify the future requirements of the national services and to monitor the progress of various trials of DVB technologies which are, or will shortly be ongoing, in order to be able to provide the regulatory certainty needed.

It has become apparent to ComReg from the responses to the consultation paper and from subsequent developments, that while there is considerable interest in the provision of mobile services, at this point in time interest in the provision of regional or local DVB-T services is weak. ComReg does not intend to pursue the latter until such time as the planning and requirements of the national DVB-T network are clearer.

Trials of mobile broadcasting technologies are, or will shortly be, ongoing not only in Ireland, but across Europe. A number of standards are being trialled and as yet there seems to be no clear indication as to what, if any, standard will become the international norm. In addition, longer term licensing regimes have been put in place in Italy and Finland. ComReg will continue to monitor the progress of mobile broadcasting with a view to implementing an appropriate regulatory regime in respect of mobile applications. While it intends to regulate in a technology neutral manner and does not intend to prescribe a standard (DVB-H, DMB, MediaFLO, other), it will await further clarity in the market before committing to any particular

licensing regime. ComReg considers, however, that if mobile broadcasting applications are to become a feature in the market, Ireland should not lag behind in facilitating such applications. It will, over the next year, in the interests of consumers, seek clarification in relation to national broadcasting policy and will work with relevant stakeholders to ensure that the appropriate regulatory regime is put in place to support the introduction of these new and innovative products and services.

In finalising any licences, ComReg will need to clarify what the approach of prospective licensees will be to the provision of services. An optimal solution from a commercial and spectrum management perspective may be for a single operator of a broadcast multiplex to provide content to all operators of mobile services under the scheme via one or two multiplexes. In those circumstances, a mix of high and low sites may be appropriate. On the other hand if there is a high demand for frequencies to provide mobile broadcasting services, ComReg considers that networks developed for mobile telephony use would be more appropriate. ComReg notes that a trial of DAB including DAB-IP took place in the eastern region earlier this year and that a further year long trial on a wider geographic scale is proposed, commencing in September. While the frequencies proposed for the trial are in VHF Band III, the potential for the use of the L- band for mobile television delivery in Ireland may also become clearer as a result of the trial in question if it is extended to that band. ComReg, of course, is open to proposals from other interested parties in relation to trialling of the L- band for television delivery or other potential uses.

3.3 Compression Techniques and Service Offerings

ComReg asked whether, in introducing digital terrestrial television services into Ireland, the opportunity should be taken to mandate the use of MPEG-4 compression in order to increase the number of services which could be carried on each multiplex. It also asked for opinions as to which service offerings would best introduce innovation and or competition into the market.

3.3.1 Views of respondents

There were nine responses in relation to the compression standard. Six disagreed with the mandating of a particular standard. It was argued that quicker introduction and a more affordable service for customers would derive from MPEG-2. It was also argued that the market should determine the appropriate coding scheme, that where there are possibilities of further compression schemes or alternative compression technologies being introduced, such that mandating a particular approach could actually limit the efficiency with which the spectrum is used, it would be inappropriate to specify a particular compression technique and that open standards should be encouraged which ensure compatibility with related services.

Three responses favoured the specification of MPEG-4 because of the greater compression efficiency offered, one with the proviso that future licensing provisions should allow for future improvements. It was recognised that MPEG-4 boxes are currently in short supply but that over the next two years they are expected to become available in volume as well as MPEG-2/MPEG-4 compatible boxes.

Eight responses expressed an opinion in relation to service offerings. It was suggested that the service offerings that would best enhance competition would have positive attributes in terms of providing compelling and unique or differentiated features and content.

Five considered that mobile TV would achieve innovative, competitive exploitation of the spectrum. It was suggested that it would be likely to be complementary to the delivery of video to consumers via one to one networks such as 3G mobile networks. Other opinions included delivery of broadcast channels over a digital terrestrial network combined with an IP based on demand and interactive service, true local television services broadcasting to large towns and their hinterlands or opt-outs to enable a number of local programmes to be broadcast at the same time to a number of different areas in a region. One respondent believed that all such service offerings must be mindful of existing programme services, particularly of the rights held by such services. Innovation in the form of High Definition, interactivity and triple play would, it considered, all contribute to the potential success of such services.

3.3.2 ComReg's Position

As set out earlier, ComReg does not intend to proceed with licensing of local or regional DVB-T services in advance of the planning and requirements of the national DTT service being clarified. In those circumstances, it is likely that time will have clarified the appropriate standard to be applied to such services. In any case the standard for the national service will have been decided on and it would make sense for any regional service to adhere to the same standard.

MPEG-4 is the standard which is generally accepted for use for mobile services. In order to ensure efficient use of spectrum, while at the same time not foreclosing on other comparably efficient techniques, ComReg intends not to specify a particular standard in any mobile licence, provided that it delivers an equivalent, or better, compression rate to MPEG-4.

ComReg agrees that mobile TV services have the potential to introduce innovation into the market, but intends to monitor the market further and to obtain additional clarification of national broadcasting policy in relation to digital broadcasting, before making a final decision in relation to the introduction of an appropriate regulatory regime in Ireland.

3.4 Licence Award Process

In the consultation paper ComReg proposed to issue regional DVB licences on a first come first served basis and to include a “use it or lose it” provision in the licence. It set out the following selection criteria which would be applied in order to select a licensee, in the event of there being a need for a comparative evaluation where the demand for spectrum exceeds availability and there was more than one applicant for the available frequencies in any one area:

- Speed of Service Introduction
- Population Coverage
- Geographic Coverage

- Service Innovation
- Potential to Increase Competition

It asked for opinions in relation to the licence award process and for suggestions in relation to other selection criteria.

3.4.1 Views of respondents

There were ten respondents in relation to the licence award process. Five generally agreed with the process, though a question was raised about how potential applicants would determine which channels were available and which were the most promising ones. One respondent would welcome a further consultation on the detailed rules, should ComReg elect to offer spectrum for DVB-H or other equivalent service.

Of those who disagreed with the selection process two considered that it was premature at this stage to select the spectrum award process, particularly for DVB-H. Two also felt that insufficient detail had been given in relation to the process and that further clarification was required, potentially by way of a separate consultation process in relation to the licence award process. One felt that ComReg may have underestimated the potential demand for these licences and recommended that they should be awarded on the basis of a competitive tender from the beginning. One believed that the spectrum should be assigned on a national not a regional or local basis consistent with a top down plan for all DTT and disagreed with the “use it or lose it” proposal which it considered had a history of damaging business planning. It felt that the emergence of spectrum trading also mitigated against the inclusion of a “use it or lose it” condition in a licence.

Three responses had specific comments on the selection criteria proposed by ComReg. One supported the criteria but called on ComReg to specify the weighting to apply to each. Another had concerns about the definitions of some of the apparently more subjective criteria and the basis on which they would be scored. It felt that ComReg should take considerable care to provide clear and objective definitions of these criteria. The final response suggested a number of alternative criteria which it considered should be prioritised in a comparative selection process.

Additional criteria which could be considered included:

- The incremental consumer value of proposed services over the existing services available
- The potential to increase competition
- The expected take up and usage of services provided
- The viability and sustainability of proposed business model and the adherence of any model to defined industry standards for all service elements
- The experience of the bidder in aggregating content, satisfying the needs of content rights holders and transmitting TV signals in the State.
- Checking that the applicant had the financial backing to deliver their plan
- Involvement of a party with experience in building, owning and operating digital terrestrial TV, radio and mobile TV networks, and achieving business success with others for a whole platform

- Benefits to consumers/society of the proposed services
- Priority for deflector operators, if they meet the other criteria as it is an opportunity for them to upgrade their systems to digital
- Track record of responsibly operating other electronic communications licences that they hold
- Potential spin-off economic benefits – additional employment and further increased R&D expenditure arising from the acceptance of the licence application

The question was raised as to whether the release of spectrum for DVB-H or an equivalent service is best supported by a wholesale model where access is granted to a single entity supporting broadcast services to any appropriate mobile device or alternative models where a network operator dedicated one or more multiplexes to its services and customers.

3.4.2 ComReg's Position

At such time as ComReg initiates a licensing scheme for local or regional DVB-T, it believes that, as the planning for national DTT will be at an advanced stage and as the demand for local/regional licences is not expected to be high, it should be possible to award licences on a “first come first served” basis. Competitive selection criteria will be employed in the event of the necessity for a comparative analysis where competing applications are made for particular frequencies in any local area or region. It appears that the original selection criteria proposed by ComReg and some of the additional criteria suggested in responses to the consultation could form the basis for a comparative analysis. ComReg will indicate the relative weightings of the criteria in any invitation for submission of proposals. While ComReg endeavours to act reasonably in relation to the enforcement of licence conditions, it would be concerned that spectrum awarded to a licensee would be used within a reasonable period of time. Its current licences contain “use it or lose it” clauses and until such time as spectrum liberalisation and spectrum trading become a feature in the Irish market it sees a necessity to retain such clauses, especially in situations where there is a demand for the spectrum in question from other potential operators.

ComReg is satisfied from the level of interest expressed in such spectrum in response to the consultation, that spectrum for mobile broadcasting applications should be awarded on a national or quasi-national basis. It believes that demand for such spectrum is likely to exceed supply. In those circumstances, it considers that a competitive process is appropriate. The number of frequencies which will be made available at any given location will become clearer as national digital broadcasting policy evolves. The form of the competition will be finalised at that time, but the option of auctioning the spectrum would be one approach worth considering. ComReg intends during 2007, as the situation in relation to spectrum availability becomes clearer, to publish a further paper setting out its proposals in relation to the release of spectrum for mobile broadcasting applications.

3.5 Licence Fees

ComReg proposed that the licence fee which would be applicable to regional DVB services would be similar to that payable by MMDS platforms. The fee would be calculated according to the number of homes in the licensed area as a proportion of all TV homes in the country multiplied by a fee per MHz for the amount of spectrum licensed. In addition a levy would be payable by each provider of a digital terrestrial network as provided for in the Communications Regulation Act, 2002 (Section 30) (Amendment) Levy Order, 2003.

No specific proposals were outlined in relation to mobile networks and services.

3.5.1 Views of respondents

One respondent agreed that a fee based on spectrum usage and geographic area was appropriate, while one sought further explanation and clarity on the proposed fee and administrative levy.

Two respondents felt that the fee proposal was inappropriate for mobile TV licensing while another argued that, as the proposed five year licence duration made recovery of rollout and service delivery costs doubtful, no licence fee should be charged. A final response suggested that the selection of licence award procedures, including licence fee, for mobile broadcasting applications was premature at this stage.

3.5.2 ComReg's Position

ComReg believes that at such time as it offers licences for regional or local digital TV networks, a fee based on spectrum usage and geographic area is likely to be appropriate.

A similar formula is unlikely to be suitable for mobile television, as it would not reflect the value of the spectrum, especially in a situation where demand is expected to greatly outweigh supply. An alternative fee structure based on the award of national or quasi-national spectrum will be devised and as stated earlier, an auction of spectrum would be worth considering.

4 Next Steps

RRC-06 has provided a framework within which digital broadcasting, both audio and video, can progress both in the current analogue environment and in a post analogue environment, all digital era. ComReg believes that a debate should take place in the next few months to establish what Ireland's needs are for future terrestrial broadcasting, especially television. There may be other valid uses of and demands for the spectrum and ComReg believes that they have to be taken into account in the management of the spectrum in question.

As outlined in part 3 of this report, ComReg sees no immediate demand or possibility of introducing a regulatory scheme for DVB-T on a local or regional basis. It will, depending on the level of interest at the time, consider whether to introduce such a scheme when the planning and development of a national DTT network is more advanced and it becomes apparent what spectrum is available at regional or local level which could be made available on a longer term basis for DVB-T services.

The level of interest in provision of mobile television services is, however, more definable. ComReg considers it prudent, nevertheless, to await clarity as to what spectrum will be available for longer term licensing and as to the likely business models which may apply, before committing to the introduction of a regulatory regime for mobile networks and services. It intends to engage with the Department of Communications, Marine and Natural Resources in regard to the likely spectrum requirements of national DTT in order to identify the spectrum resources which can be made available for other possible users in the longer term. It will also monitor developments in other countries and the progress of trials of mobile applications both here and abroad before committing to any specific regulatory regime. This approach will, we believe, give potential providers of DVB mobile services more clarity on the regulatory regime that will be in place, which will in turn assist them to make decisions in relation to their own continued interest in the provision of mobile television broadcasting services in Ireland. ComReg believes that clarification is now necessary and that it should be provided to potential licensees in the course of 2007.