



Consultation Paper

Future of the 2.6 GHz radio spectrum band

Consultation seeking views on extending the termination date of three MMDS licences in force in the 2.6 GHz band in Dublin, Galway and Waterford to April 2014 and band-sharing update

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All responses to this consultation should be clearly marked:-
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Please note ComReg will publish all respondents submissions with the Response to this Consultation, subject to the provisions of ComReg’s guidelines on the treatment of confidential information – ComReg 05/24

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Contents

1	Introduction	2
2	Background on the review of the 2.6 GHz spectrum band	4
2.1	INTRODUCTION.....	4
2.2	CURRENT NATIONAL USAGE.....	4
2.3	RANGE OF USES OF THE BAND AND THE EC DECISION 2008/477/EC	5
3	Consultation issue: Updates on the 2.6GHz band review	7
3.1	INTRODUCTION.....	7
3.2	UPDATE ON TECHNICAL FEASIBILITY OF SHARING THE 2.6 GHZ BAND	7
3.2.1	<i>Aegis and Plum's technical evaluation of feasibility of sharing options</i>	7
3.2.2	<i>Aegis and Plum's economic analysis</i>	9
4	Consultation issue: Co-terminating existing MMDS licences	12
4.1	COMREG'S PROPOSAL	12
5	Submitting Comments.....	14
6	Annex A Overview of ComReg's objectives and obligations in relation to spectrum	15
7	Annex B Legal framework to vary existing licences	23
8	Annex C – Consultation Questions	24

1 Introduction

In May 2010 the Commission for Communications Regulation (“ComReg”) published Information Notice 10/38¹, which sought views on potential services in the 2.6 GHz band and their associated spectrum requirements. Responses to the Information Notice² highlight a broad range of issues for ComReg to consider in its ongoing review of this spectrum band.

To further this review, ComReg now invites views on two matters. Firstly it gives notice of its intention to amend the licence conditions of the three Microwave Multipoint Distribution Systems (“MMDS”) licences in the 2.6 GHz band in force in Dublin, Galway and Waterford so that they terminate in April 2014. ComReg seeks respondents’ views on this proposal. Secondly ComReg invites respondents to comment on a report on the technical feasibility of the 2.6 GHz band being shared by MMDS and Next Generation Mobile Broadband (“NGMB”) systems.

In brief, one licensee, UPC (Ireland) Ltd (“UPC”), holds ten licences in the 2.6 GHz band covering most of the state outside of the areas covered by cable for the distribution of licensed programme television services by means of an MMDS. Three of the licences, for Dublin, Galway and Waterford, expire in April 2012, which is two years earlier than the other seven MMDS licences in the band. The difference in expiry date arises from regulatory compliance action taken by ComReg in 2001 which resulted in a shortening of the licence duration of the three licences in question by two years, so that they would expire in April 2012³. With the ongoing 2.6 GHz band review in mind, however, and having regard to achieving its objectives and exercising its functions in relation to the efficient management of spectrum (as summarised at Annex A), ComReg believes that it would be appropriate to co-ordinate the termination dates of all ten licences by extending the termination date of the three licences in force in Dublin, Galway and Waterford as this would be the most efficient use of the spectrum. ComReg is consulting due to the unique background circumstances.

The proposal set out in this paper would, in ComReg’s view, be proportionate, and help it to achieve its statutory objectives and exercise its functions in relation to spectrum. This consultation gives notice of ComReg’s intention to amend the licence conditions to extend the termination date to 19 April 2014 and invites interested parties to submit views on the proposal.

In addition, and in accordance with Regulations 7 and 8 of the Wireless Telegraphy (Multipoint Microwave Distribution System) Regulations 2003 (S.I. No. 529 of 2003) (the “2003 Regulations”), ComReg must also determine whether existing

¹ ComReg Document 10/38 on *Call for input on potential uses and future licensing options of the 2.6 GHz spectrum band in Ireland* (“the Call for Input”)

² ComReg Document 10/58s on *Inputs received on potential uses and future licensing options of the 2.6 GHz spectrum band*

³ ComReg Media Release No. *pres011002.pdf*, which references ntl (now known as UPC (Ireland) Ltd.) as the licensee.

licences should be extended beyond 2014. As part of its 2.6 GHz band review, ComReg engaged independent consultants Aegis Systems Limited assisted by Plum Consulting Limited (“Aegis and Plum”) to provide views on the technical feasibility of the 2.6GHz band being shared by MMDS and NGMB systems. Aegis and Plum were also tasked with providing an economic review of the allocation of the band solely for either MMDS or NGMB. ComReg is publishing the Aegis and Plum Report in tandem with this paper and interested parties are invited to comment on various matters raised in Aegis and Plum’s report.

Once ComReg has dealt with the matter at hand in relation to the three licences, it intends to issue a further consultation which will consider the licensing options for the 2.6 GHz band post 2014.

The document is structured as follows:

- Chapter 2 sets out a short background on the 2.6 GHz spectrum band.
- Chapter 3 provides an update on issues concerning the 2.6 GHz band review. In particular, it addresses the technical feasibility of sharing between MMDS and NGMB and draws on the findings of the Aegis and Plum report on the matter. It asks for respondents’ views on the findings.
- Chapter 4 outlines ComReg’s proposal to amend the licence conditions of the three MMDS licences in the 2.6 GHz band (in force in Dublin, Galway and Waterford) to provide that the termination date be extended for a further two years to 2014 and the key considerations relating to the consultation issue. It asks for respondents’ views on this proposal.
- Chapter 5 sets out the next steps for interested parties and how parties may respond to any of the issues raised in this paper.

2 Background on the review of the 2.6 GHz spectrum band

2.1 Introduction

The 2.6 GHz band review arises from the pending expiry of existing MMDS licences in April 2012 and April 2014⁴. ComReg is obliged under the terms of the 2003 Regulations to review the operation of the licences and to consider whether they should be renewed for a period of up to 5 years following April 2014. As part of this review, and in the context of achieving its objectives and exercising its functions in relation to the efficient use and management of spectrum, ComReg considers that it must have regard to potential alternative uses of the band. Related to this, it considers that it would be appropriate to update its views on the issue of whether or not it would be technically feasible to share the band⁵.

The 2.6 GHz band review will inform ComReg on these issues to assist it in deciding on the future use of this band in Ireland.

By way of further relevant background, an overview of the current national and international usage of the 2.6 GHz band is set out below.

2.2 Current national usage

The 2003 Regulations govern the licensing of MMDS in Ireland. There are ten licences currently in force in the 2.6 GHz band. These permit the licensee to distribute licensed television programme material in non-cabled areas by means of an MMDS. Currently all licences are held by a single licensee⁶.

MMDS provides competition in the pay television market for TV viewers. The current MMDS coverage footprint covers some 700,000 homes and there are 59,900 subscribers in place⁷ (circa 9% of the coverage footprint).

Seven of the ten licences are due to expire in April 2014. The remaining three licences were curtailed and so the expiry date of the licences was brought forward to April 2012.

The earlier expiry of three licences in Dublin, Galway and Waterford impacts the review of 2.6 GHz band and the options for the future licensing of the band in Ireland. These are dealt with in more detail in Chapter 3 below.

⁴ This spectrum band has been in use for an MMDS since 1988. Licences were first issued by the Office of Director of Telecommunications Regulation (ComReg's predecessor) in 1999 under the Wireless Telegraphy (Programme Service Distribution) Regulations 1999, and subsequently updated and re-issued by ComReg under the 2003 Regulations.

⁵ A study was carried out by ComReg in 2003, see ComReg. Doc. No. 03/105 *Use and Development of Radiocommunications Services in the 2500 - 2690 MHz Bands - Responses to Consultation Document 03/70* which was based on information available at that time and which concluded band sharing given existing technologies would not be possible.

⁶ The current licensee is UPC (Ireland) Ltd

⁷ Subscriber numbers for the second quarter 2011 are available at the following link: http://www.lgi.com/PDF/UPC_Holding_BV_Q2_2011_Final.pdf

2.3 Range of uses of the band and the EC Decision 2008/477/EC

The 2.6 GHz band is one of a group of spectrum bands identified worldwide for deployment of mobile services. The potential availability of this band of frequencies for mobile services in all regions of the world makes the band highly attractive to the mobile sector and potentially advantageous to consumers.

In addition to distributing television content using an MMDS⁸, mobile services can be provided in the band using LTE, a cellular mobile technology which uses paired (“FDD”) spectrum. Other mobile broadband services can be provided using WiMAX in unpaired (“TDD”) spectrum. The band is therefore considered suitable for use by a large range of capacity type services as it is a relatively high frequency band.

The band is subject to a European Commission Decision⁹ (the “EC Decision”) that aims at harmonising the conditions for the availability and efficient use of the 2.6 GHz band for terrestrial systems capable of providing electronic communication services (“ECS”) ¹⁰ in the Community. ComReg is obliged to consider the usage of the 2.6 GHz band within the scope of the EC Decision. Further, where an MMDS is deployed in the 2.6GHz band in a Member State, the Member State is obliged to ensure that the MMDS is compliant with the EC Decision¹¹.

The EC Decision on the harmonisation of the 2.6 GHz band: :

- Aims at harmonising the conditions for the availability and efficient use of 2500 – 2690 MHz band for terrestrial systems capable of providing electronic communications services in the Community;
- Allows for more flexible use, for example enabling a greater proportion of TDD/unpaired spectrum, if required, based on national requirements. This gives scope to award a significant amount of unpaired spectrum if such demand exists; and
- Assigns blocks in multiples of 5 MHz.

Moreover, the EC Decision points to achieving flexibility in the assignment of the band by applying ‘least restrictive’ technical conditions in line with the EC

⁸ In Europe, MMDS is used in Ireland, Latvia, Lithuania and Slovakia.

⁹ Commission Decision of 13 June 2008 on the harmonisation of the 2500 - 2690 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community No. 2008/477/EC

¹⁰ Electronic Communications Service has the same meaning as set out in European Communities (Electronic Communications Network and Services (Framework) Regulations 2011 (“S.I. No. 333 of 2011”) (“the Framework Regulations”).

¹¹ See Section 4 of the Radio Spectrum Committee Explanatory Memorandum on MMDS for a discussion of the aspects that need to be taken into account to ensure that MMDS applications can comply with the EC Decision. For example, applying in-block power levels and other general means to ensure compliance of MMDS systems with the technical parameters of the Decision.

WAPECS¹² initiative for frequency bands for use by mobile and wireless broadband services.

¹² Wireless Access Platforms for Electronic Communications Services

3 Consultation issue: Updates on the 2.6GHz band review

3.1 Introduction

The views expressed in response to ComReg’s Call for Input on the future uses and licensing options of the 2.6 GHz band in Ireland were wide ranging and at times conflicting.

A view was expressed, however, that ComReg should consider the feasibility of sharing the band between MMDS use and other new potential uses. This Chapter provides an update on ComReg’s work on assessing the feasibility of sharing the band and invites comments on Aegis and Plum’s report on same.

ComReg will have regard to the following in its wider review of the 2.6 GHz band:

- the responses received to its Call for Input (ComReg Doc. No. 10/58s¹³);
- Aegis and Plum’s report;
- the relevant comments and views received in response to this consultation;
- the responses to the proposed upcoming consultation in relation to this issue;
- an analysis of the extent to which certain options for the band would fulfil ComReg’s objectives and functions in relation to the efficient management of spectrum¹⁴; and
- any other relevant issues.

Attached at Annex A is a summary of ComReg’s statutory objectives and obligations in relation to spectrum.

3.2 Update on technical feasibility of sharing the 2.6 GHz band

Aegis and Plum were engaged by ComReg to provide it with a report on various sharing scenarios between MMDS and NGMB systems in the 2.6 GHz band. Aegis and Plum’s report (the “Report”) is published in tandem with this document¹⁵. The Report is a high-level technical assessment of the potential for sharing the band between MMDS and NGMB and an economic review of the allocation of the band solely for either MMDS or NGMB.

3.2.1 Aegis and Plum’s technical evaluation of feasibility of sharing options

In considering the potential for sharing, Aegis and Plum performed a technical analysis to examine the implications of uplink and downlink interference paths in the following cases:

¹³ Please also see ComReg Document 10/58s which includes a report on the potential uses and future licensing options for the 2.6 GHz band submitted by UPC (Ireland) Ltd.

¹⁴ See Annex A for further details.

¹⁵ ComReg Doc. No. 11/80a on “Technical and Economic Study on Multipoint Microwave Distribution Systems and Next Generation Mobile Broadband Services in the band 2500 to 2690 MHz”

- Interference from NGMB base station (“NGMB BS”) transmitter into MMDS receiver;
- Interference from NGMB user terminal (“NGMB MS”) transmitter into MMDS receiver;
- Interference from MMDS transmitter into NGMB BS receiver; and
- Interference from MMDS transmitter into NGMB MS receiver.

The above modelling approach was used to derive minimum separation distance requirements from the edge of MMDS coverage area for co-channel and adjacent channel operating conditions in the following four scenarios:

1. In the same geographic area co-channel operating conditions;
2. In the same geographic area adjacent channel operating conditions;
3. In different geographic area co-channel operating conditions; and
4. In different geographic area adjacent channel operating conditions.

Taking the co-channel and adjacent scenarios in turn, Aegis and Plum are of the view that:

- Scenarios of MMDS co-channel interference into NGMB BS receivers require the largest separation distances (between 45.6 and 67.5km)¹⁶. The requirement for such separation distances means that it would be unlikely to be feasible for the two services to share the band on a co-channel basis, as MMDS has virtually contiguous geographic coverage; and
- Adjacent channel sharing requirements are determined by the Net Filter Discrimination (“NFD”) level, which depends on transmitter and receiver selectivity masks and require a separation distance of 14.5km.¹⁷ Further in the adjacent channel case scenarios, Aegis and Plum conclude that it would be necessary for MMDS transmitters to be moved to radio frequency channels away from NGMB ones to provide adequate NFD levels or for additional filtering to be added to minimise the size of guard bands and / or to minimise the separation distances. In this regard, Aegis and Plum consider that the option of moving radio frequency channels away from potential NGMB ones would not be feasible as the current plan of radio frequency channels uses all the odd channels or all the even channels at a given MMDS transmitter site¹⁸. This means that sharing the band is most likely never going to prove to be an efficient use of spectrum.

¹⁶ For an MMDS effective radiated power (“EIRP”) of 18dBW/8 MHz the minimum separation distance distances from the edge of the MMDS coverage area are between 45.6 and 67.5km when an MMDS effective transmitter height is assumed to be between 100 and 300m.

¹⁷ If it can be assumed that the NGMB BS receiver is the dominant factor and an NFD of 30 dB (decibel) is available, the distance from the edge of the MMDS coverage area is approximately 14.5km.

¹⁸ A diagram of the existing plan of radio frequency channels is set out in Section 1.1 of Aegis and Plum’s report

Finally, the Report notes that the separation distances could possibly be reduced, and therefore the feasibility of sharing improved, if mitigation techniques were applied to reduce interference. The mitigation techniques outlined in the Report include the following:

- Reducing the interfering transmitter effective isotropic radiated power (“EIRP”), as this could decrease the required separation distances, however, at the expense of a reduced coverage area. This could have implications for MMDS service depending on the geographic location of its users;
- Operating MMDS and NGMB on opposite polarisations, as this could reduce separation distances particularly for certain cases. It should however be noted that mobile systems generally operate at slant polarisation and this would provide only limited polarisation discrimination at MMDS receivers;
- Operating the receiver below the local clutter height, as an additional path loss could be applied resulting in a reduced separation requirement. However, this could not be applied to scenarios involving receiver antenna heights above the local clutter (for example MMDS interference into NGMB base stations)¹⁹;
- Antenna radiation patterns with better off-axis signal suppression may improve the sharing feasibility for scenarios where requirements are not determined by on-beam interference entries; and
- Depending on the elevation radiation pattern, an antenna down tilting may also help to reduce required separations at the expense of a reduced coverage.

Given the findings in relation to the feasibility of sharing the 2.6 GHz band outlined in the Report and summarised above, ComReg is of the preliminary view that the potential case for sharing ultimately remains limited. It is also of the preliminary view that the benefits, which could in principle arise, need to be balanced against the cost of conducting any necessary studies or implementing any practical interference mitigation techniques. Further, with the relatively short timeframe up until licence expiry in 2014 and possible extension to 2019, the window of opportunity for sharing would be small. ComReg therefore does not propose to conduct further studies on sharing.

3.2.2 Aegis and Plum’s economic analysis

Aegis and Plum’s economic assessment focuses on an analysis of the incremental changes to the costs and benefits of different policy options relative to a base case involving renewal of all ten MMDS licences from 2014 to 2019, followed by a competitive award process for the band which could result in an alternative use of the band²⁰. It does not consider an economic analysis of sharing the band based on the results of the technical analysis.

¹⁹ Whilst NGMB base stations may be deployed at low levels to provide hot spot coverage there is no guarantee this will always be the normal case.

²⁰ In the study it was assumed that a competition could be held for the spectrum rights of use on a service and technology neutral basis. Merely for the purpose of analysis, it was assumed that the winner of the competition used the spectrum for mobile broadband.

The two analysis options identified in the Report and evaluated against the possible extension of the MMDS licences to 2019 are as follows:

- Option 1: End all MMDS licences in 2014²¹; and
- Option 2: End all MMDS licences in 2017²².

It is Aegis and Plum's view that there are two key benefits (both private and public) associated with the 2.6 GHz band being used for alternative uses, namely:

- The avoidance of the costs of operating MMDS over the period 2014 to 2019; and
- The value of the 2.6 GHz spectrum band if it is used to provide mobile broadband services rather than MMDS over the period 2014 to 2019²³.

Aegis and Plum identify that the main costs (both private and public) associated with the 2.6 GHz band being used for alternative uses would be the costs of MMDS customers switching from MMDS to an alternative pay TV platform, and that the switching costs would depend on three factors, namely:

- The number of MMDS customers at the date of the switch to an alternative pay TV platform;
- The cost of new equipment (set top box and receiver, with installation); and
- The amount and cost of time it takes viewers to switch to alternative TV platforms.

Aegis and Plum's analysis concludes that if MMDS licences end in 2014, this would offer significant net benefits relative to scenarios where MMDS licences were extended to 2017²⁴ or 2019. The net benefits of release of the band in 2014 are estimated to range from between €16.5 to €1.4 m whilst the benefits if the release of the band was delayed until 2017 are estimated to range from between €4.8 to €3.5m (again, figures are quoted relative to delaying the release until 2019).

²¹ This analysis option assumed that MMDS would not be successful in a competitive award process for the spectrum rights were a service and technology neutral competition held for the rights of use in 2014. This is merely for the purpose of analysis and comparison against the option of extending the licences to 2019. It should be noted that MMDS would not be excluded from such a competitive process.

²² This analysis option assumed that MMDS licences would remain in the band until the mid-point between 2014 and 2019. These results were compared to the results of option 1 and of extending the licences until 2019.

²³ Aegis and Plum consider that in relation to NGMB, the relevant consideration is the cost of the service with and without 2.6 GHz spectrum and the benefits of this potential cost reduction are reflected via the value attributed to 2.6 GHz spectrum for NGMB use.

²⁴ For analysis purposes, the benefits of extending the MMDS licences to a midpoint between 2014 and 2019 was considered.

In coming to its conclusions that the benefits of early release of 2.6 GHz spectrum outweigh the costs, Aegis and Plum made a range of assumptions (including high and low estimates of the parameters used in its modeling)^{25,26}.

Uncertainty regarding both the future demand for mobile broadband and spectrum demand for MMDS in the future are noted by Aegis and Plum as matters for ComReg's consideration. In this regard, Aegis and Plum suggest that ComReg should consider allocating the 2.6 GHz spectrum using a technology and service neutral competitive process, allowing bids for both NGMB and MMDS uses (or other suitable uses). In the view of Aegis and Plum, such an approach would enable the market rather than ComReg determine the most economically attractive use of the 2.6GHz spectrum band.

Q. 1. Please provide your views on the possible approach of allocating 2.6 GHz spectrum using a technology and service neutral competitive process as outlined by Aegis and Plum?

²⁵ These are set out in Section 4.6 of Aegis and Plum's Report. In summary form Aegis and Plum's assumption include the following:

- (1) the value of 2.6 GHz spectrum per MHz per capita (varying from €0.0466 to €0.1883 per MHz, these equate to a total spectrum value of between €6.3 to €25.5m);
- (2) base station costs (varying from £25,000 equipment plus opex €5,000, to £50,000 site acquisition plus £25,000 equipment plus opex at 10% of site acquisition);
- (3) Forecasted number of MMDS subscribers 2014 – 2019 based on current trends (decreasing from 60,291 to 40,261)
- (4) Savings resulting from the non-incurrence of MMDS operating costs (varying between 30 – 50% of MMDS revenues based on a midpoint package of €24.75 per month per subscriber and a total number of subscribers as 69,500)
- (5) Set top box costs (varying between €56 and €250)
- (6) Satellite dish receiver cost with installation (varying between €90 and €159)
- (7) Time taken to switch at 2hours
- (8) Value of leisure time at €6.10 per hour

²⁶ It is important to note that Aegis and Plum were attempting to contrast the value of 2.6 GHz spectrum (between NGMB and MMDS uses) rather than set a benchmark price on the spectrum. ComReg notes that there have been some awards for 2.6 GHz spectrum in the interim, notably in France in September which yielded a price per MHz per pop (EUR) of approx 0.11, which would tally close to the 'High' range estimated by Aegis and Plum and an award in Italy which yielded a price per MHz per pop (EUR) of approx 0.06 which would tally just above the 'Low' value estimated by Aegis and Plum. This suggests that the high and low values used in the analysis are not outdated and remain reasonable.

4 Consultation issue: Co-terminating existing MMDS licences

4.1 ComReg's proposal

ComReg proposes to amend the licence conditions of the three existing MMDS licences in force in Dublin, Galway and Waterford, so that the licences terminate in April 2014.²⁷ As a result, the licences would become co-terminus with the other seven MMDS licences in the band. This amendment would be pursuant to Regulation 18 of the 2003 Regulations.

The main issue arising from the issue of different expiry dates, in ComReg's view, relates to the extent to which the different expiry dates would affect its ability to achieve its objectives and exercise its functions in relation to the efficient use and management of spectrum.

In particular, and based on Aegis and Plum's technical study, which is discussed at Section 3.2 above, ComReg considers that it would be difficult to utilise the spectrum freed up by the expiry of the three licences in question for services other than MMDS while the remaining MMDS licences continue to operate.²⁸

The 2.6 GHz band is in effect encumbered and not available for other uses in the relatively short period between the expiry of the three licences in April 2012 and the expiry of the other licences in April 2014. ComReg does not believe it would be an efficient use of spectrum to allow this band lie fallow in those licence areas for 2 years when it could be used to continue the existing MMDS services.

The alternative to ComReg's proposal would be to let the licences expire in April 2012. The main benefit of this particular option seems to ComReg to be that it would uphold the principal of regulatory predictability.

Further ComReg's proposal could be characterised as unfairly providing an existing licensee with spectrum rights of use for two years, in respect of the three licences, for which it did not have to compete to acquire. ComReg, however, notes that the regulatory compliance action taken by it was for a failure of the licensee to meet its network rollout obligations, and that following the action, the licensee rectified the issue satisfactorily. No further licence compliance issues have been notified in the period since 2001.

If the three licences were to terminate in April 2012, ComReg notes that there could be some negative impacts to viewers of the existing television services provided using an MMDS. For example those in the three areas where the licences expire in 2012 would have less than five months to replace the source of their TV programme

²⁷ Annex B sets out the legal framework covering varying existing licences.

²⁸ While Aegis and Plum's report acknowledges that mitigation techniques could be investigated to improve the separation distances required between MMDS and NGMB systems, such investigations would require detailed coordination with the existing MMDS licensee in the band. ComReg considers that given the relatively short timeframe between April 2012 and April 2014 that it would be unrealistic for the parties involved to conclude and implement the detail, nature/scale of such coordination.

services assuming that they were notified in Winter 2011 of the termination of the MMDS service in April 2012. Early termination of the MMDS licences could result in a loss of television services to subscribers in the areas in question even though the spectrum still could not be used for other services because of potential interference to, and from, MMDS services in adjacent licence areas. Additionally, because of the overlap of coverage from transmitters in different MMDS franchise areas there could be uncertainty in some areas as to which customers would in fact suffer a loss of service. Therefore it could be argued that the different expiry dates would lead to unwarranted confusion.

ComReg is required to have regard to the needs of specific social groups (in particular elderly users and users with special social needs²⁹) and believes that the earlier expiry of the three licences and the difficulties identified above have the potential to confuse viewers from these social groups in particular.

On balance and given the unique background circumstances to the expiry of the three licences, ComReg is of the preliminary view that its proposal is appropriate, proportionate and objectively justified. Therefore it hereby gives notice of its intention to amend the licence conditions of the MMDS licences in Dublin, Galway and Waterford so that the licences terminate in April 2014 and invites interested parties, including users and consumers, to make representations on the proposed amendment³⁰.

Q. 2. Do you agree with ComReg's proposal to amend the licence conditions of the three MMDS licences in Dublin, Galway and Waterford so that the licences terminate in April 2014? Please provide reasons for your view.

²⁹ See Section 12(2)(c)(vi) of the Communications Regulation Acts 2002 to 2010 and Regulation 16 (1)(d) of the Framework Regulations.

³⁰ This notice is given pursuant to Regulation 15 of the European Communities (Electronic Communications Network and Services (Authorisation) Regulations 2011 and pursuant to Regulation 18 of the 2003 Regulations.

5 Submitting Comments

All comments are welcome, however it would make the task of analysing responses easier if comments were referenced to the relevant question numbers from this document.

The consultation period will run from 2 November to **2 December 2011** during which the Commission welcomes written comments on any of the issues raised in this paper.

Having analysed and considered the comments received, ComReg will review responses and publish a report in quarter 1 2012 which will, inter alia summarise the responses to the consultation.

In order to promote further openness and transparency ComReg will publish all respondents' submissions to this consultation, subject to the provisions of ComReg's guidelines on the treatment of confidential information – ComReg 05/24. We would request that electronic submissions be submitted in an-unprotected format so that they can be appended into the ComReg submissions document for publishing electronically.

Please note: ComReg appreciates that many of the issues raised in this paper may require respondents to provide confidential information if their comments are to be meaningful.

As it is ComReg's policy to make all responses available on its web-site and for inspection generally, respondents to consultations are requested to clearly identify confidential material and place confidential material in a separate annex to their response.

Such Information will be treated subject to the provisions of ComReg's guidelines on the treatment of confidential information, contained in ComReg Document No. 05/24.

6 Annex A - Overview of ComReg's objectives and obligations in relation to spectrum

The Communications Regulation Acts 2002 to 2010 (“the 2002 Act”), the Framework Regulations³¹), the Authorisation Regulations³², and the Wireless Telegraphy Acts 1926 to 2009 set out, amongst other things, functions and objectives of ComReg. Apart from licensing and making regulations in relation to licences, these functions include the management of Ireland’s radio frequency spectrum in accordance with ministerial Policy Directions under Section 13 of the 2002 Act, which ComReg is to carry out effectively, and in a manner serving to ensure that the allocation and assignment of radio frequencies is based on objective, transparent, non-discriminatory and proportionate criteria.

ComReg’s primary objectives in carrying out its statutory functions in the context of electronic communications are to:

- promote competition³³;
- contribute to the development of the internal market³⁴;
- promote the interests of users within the Community³⁵;
- ensure the efficient management and use of the radio frequency spectrum in Ireland in accordance with a direction under Section 13 of the 2002 Act³⁶; and
- unless otherwise provided for in Regulation 17 of the Framework Regulations, take the utmost account of the desirability of technological neutrality in complying with the requirements of the Specific Regulations³⁷ in particular those designed to ensure effective competition³⁸.

³¹ European Communities (Electronic Communications Network and Services (Framework) Regulations 2011 (“the Framework Regulations”)

³² European Communities (Electronic Communications Network and Services (Authorisation) Regulations 2011 (“the Authorisation Regulations”)

³³Section 12 (1)(a)(i) of the 2002 Act.

³⁴Section 12 (1)(a)(ii) of the 2002 Act.

³⁵Section 12(1)(a)(iii) of the 2002 Act.

³⁶Section 12(1)(b) of the 2002 Act. Whilst this objective would appear to be a separate and distinct objective in the 2002 Act, it is noted that, for the purposes of ComReg’s activities in relation to ECS and ECN, Article 8 of the Framework Directive identifies “encouraging efficient use and ensuring the effective management of radio frequencies (and numbering resources)” as a sub-objective of the broader objective of the promotion of competition. In light of this, the assessment of different regulatory options against this objective is set out in the context of the RIA contained in document 11/60.

³⁷ The ‘Specific Regulations’ comprise collectively the European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011), the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations 2011 (S.I. No. 335 of 2011), the European Communities (Electronic Communications

Promotion of Competition

Section 12(2)(a) of the 2002 Act requires ComReg to take all reasonable measures which are aimed at the promotion of competition, including:

- ensuring that users, including disabled users, derive maximum benefit in terms of choice, price and quality;
- ensuring that there is no distortion or restriction of competition in the electronic communications sector; and
- encouraging efficient use and ensuring the effective management of radio frequencies and numbering resources.

In so far as the promotion of competition is concerned, Regulation 16(1)(b) of the Framework Regulations also requires ComReg to:

- ensure that elderly users and users with special social needs derive maximum benefit in terms of choice, price and quality, and
- ensure that, in the transmission of content, there is no distortion or restriction of competition in the electronic communications sector.

Regulation 9(11) of the Authorisation Regulations also provides that ComReg must ensure that radio frequencies are efficiently and effectively used having regard to Section 12(2)(a) of the 2002 Act and Regulations 16(1) and 17(1) of the Framework Regulations. Regulation 9(11) further provides that ComReg must ensure that competition is not distorted by any transfer or accumulation of rights of use for radio frequencies, and, for this purpose, ComReg may take appropriate measures such as mandating the sale or the lease of rights of use for radio frequencies.

Contributing to the Development of the Internal Market

Section 12(2)(b) of the 2002 Act requires ComReg to take all reasonable measures which are aimed at contributing to the development of the internal market, including:

- removing remaining obstacles to the provision of electronic communications networks, electronic communications services and associated facilities at Community level;
- encouraging the establishment and development of trans-European networks and the interoperability of transnational services and end-to-end connectivity; and

Networks and Services) (Access) Regulations 2011 (S.I. No. 334 of 2011), the European Communities (Electronic Communications Networks and Services) (Universal Service and Users' Rights) Regulations 2011 (S.I. 337 of 2011) and the European Communities (Electronic Communications Networks and Services) (Privacy and Electronic Communications) Regulations 2011 (S.I. No. 336 of 2011).

³⁸ Regulation 16(1)(a) of the Framework Regulations.

- co-operating with electronic communications national regulatory authorities in other Member States of the Community and with the Commission of the Community in a transparent manner to ensure the development of consistent regulatory practice and the consistent application of Community law in this field.

In so far as contributing to the development of the internal market is concerned, Regulation 16(1)(c) of the Framework Regulations also requires ComReg to co-operate with the Body of European Regulators for Electronic Communications (BEREC) in a transparent manner to ensure the development of consistent regulatory practice and the consistent application of EU law in the field of electronic communications.

Promotion of Interests of Users

Section 12(2)(c) of the 2002 Act requires ComReg, when exercising its functions in relation to the provision of electronic communications networks and services, to take all reasonable measures which are aimed at the promotion of the interests of users within the Community, including:

- ensuring that all users have access to a universal service;
- ensuring a high level of protection for consumers in their dealings with suppliers, in particular by ensuring the availability of simple and inexpensive dispute resolution procedures carried out by a body that is independent of the parties involved;
- contributing to ensuring a high level of protection of personal data and privacy;
- promoting the provision of clear information, in particular requiring transparency of tariffs and conditions for using publicly available electronic communications services;
- encouraging access to the internet at reasonable cost to users;
- addressing the needs of specific social groups, in particular disabled users; and
- ensuring that the integrity and security of public communications networks are maintained.

In so far as promotion of the interests of users within the EU is concerned, Regulation 16(1)(d) of the Framework Regulations also requires ComReg to:

- address the needs of specific social groups, in particular, elderly users and users with special social needs, and
- promote the ability of end-users to access and distribute information or use applications and services of their choice.

Other Obligations under the 2002 Act

In carrying out its functions, ComReg is required amongst other things, to:

- seek to ensure that any measures taken by it are proportionate having regard to the objectives set out in Section 12 of the 2002 Act;³⁹
- have regard to international developments with regard to electronic communications networks and electronic communications services, associated facilities, postal services, the radio frequency spectrum and numbering⁴⁰; and
- take the utmost account of the desirability that the exercise of its functions aimed at achieving its radio frequency management objectives does not result in discrimination in favour of or against particular types of technology for the provision of ECS.⁴¹

1.1 Other Relevant Obligations under the Framework and Authorisation Regulations

Framework Regulations

Regulation 17 of the Framework Regulations governs the management of radio frequencies for electronic communications services. Regulation 17(1) requires that ComReg, subject to any directions issued by the Minister pursuant to Section 13 of the 2002 Act and having regard to its objectives under Section 12 of the 2002 Act and Regulation 16 of the Framework Regulations and the provisions of Article 8a of the Framework Directive, ensure:

- the effective management of radio frequencies for electronic communications services
- that spectrum allocation used for electronic communications services and issuing of general authorisations or individual rights of use for such radio frequencies are based on objective, transparent, non-discriminatory and proportionate criteria, and
- ensure that harmonisation of the use of radio frequency spectrum across the EU is promoted, consistent with the need to ensure its effective and efficient use and in pursuit of benefits for the consumer such as economies of scale and interoperability of services, having regard to all decisions and measures adopted by the European Commission in accordance with Decision No. 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the EU.

³⁹Section 12(3) of the 2002 Act.

⁴⁰ Section 12(5) of the 2002 Act.

⁴¹Section 12(6) of the 2002 Act .

Regulation 17(2) provides that, unless otherwise provided in Regulation 17(3), ComReg must ensure that all types of technology used for electronic communications services may be used in the radio frequency bands that are declared available for electronic communications services in the Radio Frequency Plan published under section 35 of the 2002 Act in accordance with EU law.

Regulation 17(3) provides that, notwithstanding Regulation 17(2), ComReg may, through licence conditions or otherwise, provide for proportionate and non-discriminatory restrictions to the types of radio network or wireless access technology used for electronic communications services where this is necessary to—

- (a) avoid harmful interference,
- (b) protect public health against electromagnetic fields,
- (c) ensure technical quality of service,
- (d) ensure maximisation of radio frequency sharing,
- (e) safeguard the efficient use of spectrum, or
- (f) ensure the fulfilment of a general interest objective as defined by or on behalf of the Government or a Minister of the Government in accordance with Regulation 17(6).

Regulation 17(4) requires that, unless otherwise provided in Regulation 17(5), ComReg must ensure that all types of electronic communications services may be provided in the radio frequency bands, declared available for electronic communications services in the Radio Frequency Plan published under section 35 of the Act of 2002 in accordance with EU law.

Regulation 17(5) provides that, notwithstanding Regulation 17(4), ComReg may provide for proportionate and non-discriminatory restrictions to the types of electronic communications services to be provided, including where necessary, to fulfil a requirement under the International Telecommunication Union Radio Regulations.

Regulation 17(6) requires that measures that require an electronic communications service to be provided in a specific band available for electronic communications services must be justified in order to ensure the fulfilment of a general interest objective as defined by or on behalf of the Government or a Minister of the Government in conformity with EU law such as, but not limited to—

- (g) safety of life,
- (h) the promotion of social, regional or territorial cohesion,
- (i) the avoidance of inefficient use of radio frequencies, or
- (j) the promotion of cultural and linguistic diversity and media pluralism, for example, by the provision of radio and television broadcasting services.

Regulation 17(7) provides that ComReg may only prohibit the provision of any other electronic communications service in a specific radio spectrum frequency band where such a prohibition is justified by the need to protect safety of life services. ComReg may, on an exceptional basis, extend such a measure in order to fulfil other general interest objectives as defined by or on behalf of the Government or a Minister of the Government.

Regulation 17(8) provides that ComReg must, in accordance with Regulation 18, regularly review the necessity of the restrictions referred to in Regulations 17(3) and 17(5) and must make the results of such reviews publicly available.

Regulation 17(9) provides that Regulations 17(2) to (7) only apply to spectrum allocated to be used for electronic communications services, general authorisations issued and individual rights of use for radio frequencies granted after 1 July 2011. Spectrum allocations, general authorisations and individual rights of use which already existed on 1 July 2011 Framework Regulations are subject to Regulation 18.

Regulation 17(10) provides that ComReg may, having regard to its objectives under Section 12 of the 2002 Act and Regulation 16 and its functions under the Specific Regulations, lay down rules in order to prevent spectrum hoarding, in particular by setting out strict deadlines for the effective exploitation of the rights of use by the holder of rights and by withdrawing the rights of use in cases of non-compliance with the deadlines. Any rules laid down under this Regulation must be applied in a proportionate, non-discriminatory and transparent manner.

Regulation 17(11) requires ComReg to, in the fulfilment of its obligations under that Regulation, respect relevant international agreements, including the ITU Radio Regulations and any public policy considerations brought to its attention by the Minister.

The extent to which various options might meet this objective would need to be carried out in addition to the proposed RIA analysis. Below is further detail on the relevant Policy Directions. Policy Directions⁴²

Section 12(4) of the 2002 Act provides that, in carrying out its functions, ComReg must have appropriate regard to policy statements, published by or on behalf of the Government or a Minister of the Government and notified to the Commission, in relation to the economic and social development of the State. Section 13(1) of the 2002 Act requires ComReg to comply with any policy direction given to ComReg by the Minister for Communications, Energy and Natural Resources (“the Minister”) as he or she considers appropriate, in the interests of the proper and effective regulation of the electronic communications market, the management of the radio frequency spectrum in the State and the formulation of policy applicable to such proper and effective regulation and management, to be followed by ComReg in the exercise of its functions. Section 10(1)(b) of the 2002

⁴²ComReg also notes, and takes due account of, the Spectrum Policy Statement issued by the DCENR in September 2010.

Act also requires ComReg, in managing the radio frequency spectrum, to do so in accordance with a direction of the Minister under Section 13 of the 2002 Act, while Section 12(1)(b) requires ComReg to ensure the efficient management and use of the radio frequency spectrum in accordance with a direction under Section 13.

The Policy Directions which are most relevant in this regard include the following:

Policy Direction No.3 on Broadband Electronic Communication Networks

ComReg shall in the exercise of its functions, take into account the national objective regarding broadband rollout, viz, the Government wishes to ensure the widespread availability of open-access, affordable, always-on broadband infrastructure and services for businesses and citizens on a balanced regional basis within three years, on the basis of utilisation of a range of existing and emerging technologies and broadband speeds appropriate to specific categories of service and customers.

ComReg is conscious that the three year objective described in this policy direction has now expired making this direction less relevant currently.

Policy Direction No.4 on Industry Sustainability

ComReg shall ensure that in making regulatory decisions in relation to the electronic communications market, it takes account of the state of the industry and in particular the industry's position in the business cycle and the impact of such decisions on the sustainability of the business of undertakings affected.

Policy Direction No.5 on Regulation only where Necessary

Where ComReg has discretion as to whether to impose regulatory obligations, it shall, before deciding to impose such regulatory obligations on undertakings, examine whether the objectives of such regulatory obligations would be better achieved by forbearance from imposition of such obligations and reliance instead on market forces.

Policy Direction No.6 on Regulatory Impact Assessment

ComReg, before deciding to impose regulatory obligations on undertakings in the market for electronic communications or for the purposes of the management and use of the radio frequency spectrum or for the purposes of the regulation of the postal sector, shall conduct a Regulatory Impact Assessment in accordance with European and International best practice and otherwise in accordance with measures that may be adopted under the Government's Better Regulation programme.

Policy Direction No.7 on Consistency with other Member States

ComReg shall ensure that, where market circumstances are equivalent, the regulatory obligations imposed on undertakings in the electronic communications market in Ireland should be equivalent to those imposed on undertakings in equivalent positions in other Member States of the European Community.

Policy Direction No.11 on the Management of the Radio Frequency Spectrum

ComReg shall ensure that, in its management of the radio frequency spectrum, it takes account of the interests of all users of the radio frequency spectrum.

General Policy Direction No.1 on Competition (2004)

ComReg shall focus on the promotion of competition as a key objective. Where necessary, ComReg shall implement remedies which counteract or remove barriers to market entry and shall support entry by new players to the market and entry into new sectors by existing players. ComReg shall have a particular focus on:

- market share of new entrants;
- ensuring that the applicable margin attributable to a product at the wholesale level is sufficient to promote and sustain competition;
- price level to the end user;
- competition in the fixed and mobile markets;
- the potential of alternative technology delivery platforms to support competition.

7 Annex B - Legal framework to vary existing licences

When proposing to take measures relating to the granting, varying or revoking of licences under the Wireless Telegraphy Acts 1926 to 2009 , ComReg must also comply with various regulations contained in the Electronic Communities (Electronic Communications Networks and Services (Authorisation) Regulations 2011 (the “Authorisation Regulations”)(S.I. No. 335 of 2011) and the Framework Regulations as transposed into Irish Law in July 2011.

In this regard, Regulation 15(1) and (4) of the Authorisation Regulations provides for “*Amendment of rights and obligations*” as follows:

“15. (1) The Regulator may amend the rights, conditions and procedures concerning the general authorisation, rights of use for radio frequencies and rights of use for numbers provided that any such amendment may only be made in objectively justified cases and in a proportionate manner, taking into consideration, where appropriate, the specific conditions applicable to transferable rights of use for radio frequencies.

(4) Except where the proposed amendments are minor in nature and have been agreed with the holder of a general authorisation, a right of use for radio frequencies, a right of use for numbers, a consent referred to in paragraph (2) or a licence referred to in paragraph (3), before making any amendment under this Regulation, the Regulator, the NRA, a road authority or a planning authority, as the case may be, shall—

(a) give notice, in such manner as it considers appropriate, of its intention to make the amendment and invite interested parties, including users and consumers, to make representations on the proposed amendment within such period as may be specified in the notice but not being, except in exceptional circumstances, less than 28 days from the date of the notice, and

(b) have regard to any representations made to it under subparagraph (a).”

8 Annex C – Consultation Questions

List of Questions

Q. 1. Please provide your views on the possible approach of allocating 2.6 GHz spectrum using a technology and service neutral competitive process as outlined by Aegis and Plum? 11

Q. 2. Do you agree with ComReg's proposal to amend the licence conditions of the three MMDS licences in Dublin, Galway and Waterford so that the licences terminate in April 2014? Please provide reasons for your view. 13