Commission for
Communications Regulation

Document 13/31a:

Annexes to ComReg Document 13/31

Future use of 2.6 GHz radio spectrum band

Publication of Decision on proposal to renew the MMDS licences in force at 18 April 2014 in the 2.6 GHz band from 19 April 2014 to 18 April 2016.

Document No:	**13/31a**
Date:	**27 March 2013**

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Annex: 1 Overview ComReg's statutory functions, objectives and duties in relation to the radio spectrum

A 1.1 The Communications Regulation Acts 2002-2010[1] (the "2002 Act"), the Common Regulatory Framework (including the Framework and Authorisation Directives[2] as transposed into Irish law by the corresponding Framework and Authorisation Regulations[3]), and the Wireless Telegraphy Acts[4] set out, amongst other things, powers, functions, duties and objectives of ComReg that are relevant to this response to consultation and decision.

A 1.2 It should be noted that the 2003 Framework and Authorisation Regulations which originally transposed the Framework and Authorisation Directives into Irish law were, on 1 July 2011, revoked and replaced by the following regulations which transpose the amended Framework and Authorisation Directives:

- the European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011); and
- the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations 2011 (S.I. No. 335 of 2011).

[1] The Communications Regulation Act 2002, the Communications Regulation (Amendment) Act 2007 and the Communications Regulation (Premium Rate Services and Electronic Communications Infrastructure) Act 2010.

[2] Directive No. 2002/21/EC of the European Parliament and of the Council of 7 March 2002 (as amended by Regulation (EC) No. 717/2007 of 27 June 2007, Regulation (EC) No. 544/2009 of 18 June 2009 and Directive 2009/140/EC of the European Parliament and Council of 25 November 2009) (the "Framework Directive") and Directive No. 2002/20/EC of the European Parliament and of the Council of 7 March 2002 (as amended by Directive 2009/140/EC) (the "Authorisation Directive")

[3] The European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2011 (S.I. No. 333 of 2011) and the European Communities (Electronic Communications Networks and Services) (Authorisation) Regulations 2011 (S.I. No. 335 of 2011) respectively which revoke and replace S.I.307 of 2003 and S.I. 306 of 2003 respectively.

[4] The Wireless Telegraphy Acts, 1926 and 1956, the Broadcasting Authority Acts, 1960 to 1971, in so far as they amend those Acts, the Wireless Telegraphy Act 1972, Sections 2 , 9, 10,11,12,14,15,16,17 and 19 of the Broadcasting and Wireless Telegraphy Act 1988 and Sections 181 (1) to (7) and (9) and Section 182 of the Broadcasting Act 2009.

A 1.3 References in this document or in the decision to either the Framework or Authorisation Regulations should be understood as referring to the above 2011 regulations, unless the context suggests otherwise.

A 1.4 Apart from licensing and making regulations in relation to licences, ComReg's functions include the management of Ireland's radio frequency spectrum in accordance with ministerial Policy Directions under Section 13 of the 2002 Act, having regard to its objectives under Section 12 of the 2002 Act, Regulation 16 of the Framework Regulations and the provisions of Article 8a of the Framework Directive. ComReg is to carry out its functions 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.

A 1.5 This annex is intended as a general guide as to ComReg's role in this area, and not as a definitive or exhaustive legal exposition of that role. Further, this annex restricts itself to consideration of those powers, functions, duties and objectives of ComReg that appear most relevant to the matters at hand and by way of example excludes those in relation to premium rate services or market analysis.

A 1.6 All references in this annex to enactments are to the enactment as amended at the date hereof, unless the context otherwise requires.

A1.1 Primary Objectives and Regulatory Principles Under the 2002 Act and Common Regulatory Framework

A 1.7 ComReg's primary objectives in carrying out its statutory functions in the context of electronic communications are to:

- promote competition[5];
- contribute to the development of the internal market[6;]
- promote the interests of users within the Community[7];
- ensure the efficient management and use of the radio frequency spectrum in Ireland in accordance with a direction under Section 13 of the 2002 Act[8]; and

[5]Section 12 (1)(a)(i) of the 2002 Act.

[6]Section 12 (1)(a)(ii) of the 2002 Act.

[7]Section 12(1)(a)(iii) of the 2002 Act.

- 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 Regulations[9] in particular those designed to ensure effective competition[10].

A1.1.1 Promotion of Competition

A 1.8 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.

A 1.9 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.

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[8]Section 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.

[9] 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 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).

[10] Regulation 16(1)(a) of the Framework Regulations.

A 1.10 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.

A1.1.2 Contributing to the Development of the Internal Market

A 1.11 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
- 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.

A 1.12 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.

A1.1.3 Promotion of Interests of Users

A 1.13 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.

A 1.14 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.

A1.1.4 Regulatory Principles

A 1.15 In pursuit of its objectives under Regulation 16(1) of the Framework Regulations and Section 12 of the 2002 Act, ComReg must apply objective, transparent, non-discriminatory and proportionate regulatory principles by, amongst other things:

- promoting regulatory predictability by ensuring a consistent regulatory approach over appropriate review periods;
- ensuring that, in similar circumstances, there is no discrimination in the treatment of undertakings providing electronic communications networks and services;
- safeguarding competition to the benefit of consumers and promoting, where appropriate, infrastructure-based competition;

- promoting efficient investment and innovation in new and enhanced infrastructures, including by ensuring that any access obligation takes appropriate account of the risk incurred by the investing undertakings and by permitting various cooperative arrangements between investors and parties seeking access to diversify the risk of investment, while ensuring that competition in the market and the principle of non-discrimination are preserved;

- taking due account of the variety of conditions relating to competition and consumers that exist in the various geographic areas within the State; and

- imposing ex-ante regulatory obligations only where there is no effective and sustainable competition and relaxing or lifting such obligations as soon as that condition is fulfilled.

A1.1.5 BEREC

A 1.16 Under Regulation 16(1)(3) of the Framework Regulations, ComReg must:

- having regard to its objectives under Section 12 of the 2002 Act and its functions under the Specific Regulations, actively support the goals of BEREC of promoting greater regulatory co-ordination and coherence; and

- take the utmost account of opinions and common positions adopted by BEREC when adopting decisions for the national market.

A1.1.6 Other Obligations Under the 2002 Act

A 1.17 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;[11]

- have regard to international developments with regard to electronic communications networks and electronic communications services, associated facilities, postal services, the radio frequency spectrum and numbering[12]; and

- take the utmost account of the desirability that the exercise of its functions aimed at achieving its radio frequency management

[11]Section 12(3) of the 2002 Act.

[12] Section 12(5) of the 2002 Act.

objectives does not result in discrimination in favour of or against particular types of technology for the provision of ECS.[13]

A1.1.7 Policy Directions[14]

A 1.18 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 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.

A 1.19 The Policy Directions which are most relevant in this regard include the following:

Policy Direction No.3 on Broadband Electronic Communication Networks

A 1.20 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.

A 1.21 ComReg is conscious that the three year objective described in this policy direction has now expired making this direction less relevant currently.

[13] Section 12(6) of the 2002 Act .

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

Policy Direction No.4 on Industry Sustainability

A 1.22 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

A 1.23 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

A 1.24 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

A 1.25 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

A 1.26 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)

A 1.27 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.

Other Relevant Obligations under the Framework and Authorisation Regulations

Framework Regulations

A 1.28 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.

A 1.29 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.

A 1.30 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—

- avoid harmful interference,
- protect public health against electromagnetic fields,
- ensure technical quality of service,
- ensure maximisation of radio frequency sharing,
- safeguard the efficient use of spectrum, or
- 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).

A 1.31 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.

A 1.32 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.

A 1.33 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—

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

A 1.34 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.

A 1.35 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.

A 1.36 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 the 1 July 2011. Spectrum allocations, general authorisations and individual rights of use which already existed on the 1 July 2011 Framework Regulations are subject to Regulation 18.

A 1.37 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.

A 1.38 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.

Authorisation Regulations

Decision to limit rights of use for radio frequencies

A 1.39 Regulation 9(2) of the Authorisation Regulations provides that ComReg may grant individual rights of use for radio frequencies by way of a licence where it considers that one or more of the following criteria are applicable:

- it is necessary to avoid harmful interference,
- it is necessary to ensure technical quality of service,
- it is necessary to safeguard the efficient use of spectrum, or
- it is necessary to fulfil other objectives of general interest as defined by or on behalf of the Government or a Minister of the Government in conformity with EU law.

A 1.40 Regulation 9(10) of the Authorisation Regulations provides that ComReg must not limit the number of rights of use for radio frequencies to be granted except where this is necessary to ensure the efficient use of radio frequencies in accordance with Regulation 11.

A 1.41 Regulation 9(7) also provides that:

- where individual rights of use for radio frequencies are granted for a period of 10 years or more and such rights may not be transferred or leased between undertakings in accordance with Regulation 19 of the Framework Regulations, ComReg must ensure that criteria set out in Regulation 9(2) apply for the duration of the rights of use, in particular upon a justified request from the holder of the right.
- where ComReg determines that the criteria referred to in Regulation 9(2) are no longer applicable to a right of use for radio frequencies, ComReg must, after a reasonable period and having notified the holder of the individual rights of use, change the individual rights of use into a general authorisation or must ensure that the individual rights of use are made transferable or leasable between undertakings in accordance with Regulation 19 of the Framework Regulations.

Publication of procedures

A 1.42 Regulation 9(4)(a) of the Authorisation Regulations requires that ComReg, having regard to the provisions of Regulation 17 of the Framework Regulations, establish open, objective, transparent, non-discriminatory and

proportionate procedures for the granting of rights of use for radio frequencies and cause any such procedures to be made publicly available.

Duration of rights of use for radio frequencies

A 1.43 Regulation 9(6) of the Authorisation Regulations provides that rights of use for radio frequencies must be in force for such period as ComReg considers appropriate having regard to the network or service concerned in view of the objective pursued taking due account of the need to allow for an appropriate period for investment amortisation.

Conditions attached to rights of use for radio frequencies

A 1.44 Regulation 9(5) of the Authorisation Regulations provides that, when granting rights of use for radio frequencies, ComReg must, having regard to the provisions of Regulations 17 and 19 of the Framework Regulations, specify whether such rights may be transferred by the holder of the rights and under what conditions such a transfer may take place.

A 1.45 Regulation 10(1) of the Authorisation Regulations provides that, notwithstanding Section 5 of the 1926 Act, but subject to any regulations under Section 6 of the 1926 Act, ComReg may only attach those conditions listed in Part B of the Schedule to the Authorisation Regulations. Part B lists the following conditions which may be attached to licences:

- Obligation to provide a service or to use a type of technology for which the rights of use for the frequency has been granted including, where appropriate, coverage and quality requirements.
- Effective and efficient use of frequencies in conformity with the Framework Directive and Framework Regulations.
- Technical and operational conditions necessary for the avoidance of harmful interference and for the limitation of exposure of the general public to electromagnetic fields, where such conditions are different from those included in the general authorisation.
- Maximum duration in conformity with Regulation 9, subject to any changes in the national frequency plan.
- Transfer of rights at the initiative of the rights holder and conditions of such transfer in conformity with the Framework Directive.
- Usage fees in accordance with Regulation 19.

- Any commitments which the undertaking obtaining the usage right has made in the course of a competitive or comparative selection procedure.

- Obligations under relevant international agreements relating to the use of frequencies.

- Obligations specific to an experimental use of radio frequencies.

A 1.46 Regulation 10(2) also requires that any attachment of conditions under Regulation 10(1) to rights of use for radio frequencies must be non-discriminatory, proportionate and transparent and in accordance with Regulation 17 of the Framework Regulations.

Procedures for limiting the number of rights of use to be granted for radio frequencies

A 1.47 Regulation 11(1) of the Authorisation Regulations provides that, where ComReg considers that the number of rights of use to be granted for radio frequencies should be limited it must, without prejudice to Sections 13 and 37 of the 2002 Act:

- give due weight to the need to maximise benefits for users and to facilitate the development of competition, and

- give all interested parties, including users and consumers, the opportunity to express their views in accordance with Regulation 12 of the Framework Regulations.

A 1.48 Regulation 11(2) of the Authorisation Regulations requires that, when granting the limited number of rights of use for radio frequencies it has decided upon, ComReg does so *"…on the basis of selection criteria which are objective, transparent, non-discriminatory and proportionate and which give due weight to the achievement of the objectives set out in Section 12 of the 2002 Act and Regulations 16 and 17 of the Framework Regulations."*

A 1.49 Regulation 11(4) provides that where it decides to use competitive or comparative selection procedures, ComReg must, inter alia, ensure that such procedures are fair, reasonable, open and transparent to all interested parties.

Fees for spectrum rights of use/licences

A 1.50 Regulation 19 of the Authorisation Regulations permits ComReg to impose fees for a licence which reflect the need to ensure the optimal use of the radio frequency spectrum.

A 1.51 ComReg is required to ensure that any such fees are objectively justified, transparent, non-discriminatory and proportionate in relation to their intended purpose and take into account the objectives of ComReg as set out in Section 12 of the 2002 Act and Regulation 16 of the Framework Regulations.

Amendment of rights and obligations

A 1.52 Regulation 15 of the Authorisation Regulations permits ComReg to amend rights and conditions concerning licences, provided that any such amendments may only be made in objectively justified cases and in a proportionate manner, following the process set down in Regulation 15(4).

Other Relevant Provisions

Wireless Telegraphy Acts

A 1.53 Under Section 5 of the Wireless Telegraphy Acts, ComReg may, subject to those Acts, and on payment of the prescribed fees (if any), grant to persons licences to keep and have possession of apparatus for wireless telegraphy in any specified place in the State.

A 1.54 Such licences are to be in such form, continue in force for such period and be subject to such conditions and restrictions (including conditions as to suspension and revocation) as might be prescribed in regard to them by regulations made by ComReg under Section 6.

A 1.55 Section 5(3) also provides that, where it appears appropriate to ComReg, it may, in the interests of the efficient and orderly use of wireless telegraphy, limit the number of licences for any particular class or classes of apparatus for wireless telegraphy granted under Section 5.

A 1.56 Section 6 provides that ComReg may make regulations prescribing in relation to all licences granted by it under section 5, or any particular class or classes of such licences, all or any of the matters following that is to say:

- the form of such licences,
- the period during which such licences continue in force,
- the manner in which, the terms on which, and the period or periods for which such licences may be renewed,
- the circumstances in which or the terms under which such licences are granted,

- the circumstances and manner in which such licences may be suspended or revoked by ComReg,
- the terms and conditions to be observed by the holders of such licences and subject to which such licences are deemed to be granted,
- the fees to be paid on the application, grant or renewal of such licences or classes of such licences, subject to such exceptions as ComReg may prescribe, and the time and manner at and in which such fees are to be paid, and
- matters which such licences do not entitle or authorise the holder to do.

A 1.57 Section 6(2) provides that ComReg may make regulations authorising and providing for the granting of licences under section 5 subject to special terms, conditions, and restrictions to persons who satisfy it that they require the licences solely for the purpose of conducting experiments in wireless telegraphy.

Article 4 of Directive 2002/77/EC (Competition Directive)

A 1.58 Article 4 of the Competition Directive provides that:

"Without prejudice to specific criteria and procedures adopted by Member States to grant rights of use of radio frequencies to providers of radio or television broadcast content services with a view to pursuing general interest objectives in conformity with Community law:

- *Member States shall not grant exclusive or special rights of use of radio frequencies for the provision of electronic communications services.*
- *The assignment of radio frequencies for electronic communication services shall be based on objective, transparent, non-discriminatory and proportionate criteria."*

Radio Spectrum Policy Programme

A 1.59 On 15 February 2012, the European Parliament adopted the five-year Radio Spectrum Policy Programme (RSPP) which is expected to come into force in due course.

A 1.60 The aim of the RSPP is to establish a multi-annual radio spectrum policy programme for the strategic planning and harmonisation of the use of spectrum in the EU spectrum policy areas such as electronic communications, research, technological development and space, transport,

energy and audiovisual policies. The RSPP contains provisions related to the spectrum needs of wireless broadband communications and it is expected that the RSPP will oblige Member States to, amongst other things:

- make the bands covered by Decisions 2008/411/EC (3,4-3,8 GHz), 2008/477/EC (2,5-2,69 GHz) and 2009/766/EC (900/1800 MHz) available under terms and conditions described in those decisions and to carry out the relevant authorisation process by the end of 2012;

Annex: 2 Final Regulatory Impact Assessment

A 2.1 This section sets out ComReg's final RIA on its proposals for the future use of the 2.6 GHz spectrum band.

A 2.2 The final RIA is prepared in accordance with ComReg's RIA Guidelines (Document 07/56a[15]) ("RIA Guidelines") and has regard to the RIA Guidelines issued by the Department of An Taoiseach in June 2009 ("Department's RIA Guidelines") and any relevant Policy Directions issued to ComReg by the Minister for Communications, Energy, and Natural Resources under Section 13 of the 2002 Act (the "Policy Directions").

A 2.3 ComReg's RIA Guidelines, published in August 2007, set out, amongst other things, the circumstances in which a RIA might be appropriate. In summary, ComReg will generally conduct a RIA in any process that might result in the imposition of a regulatory obligation (or the significant amendment of an existing regulatory obligation) or which might otherwise significantly impact on a market or on stakeholders or consumers.

A 2.4 In the interests of continuing to ensure openness and transparency, and given that the outcome of this overall project may significantly impact on the electronic communications sector in Ireland, a final RIA is being conducted. Together with any submitted comments on the main consultation paper, ComReg invites interested parties to review this final RIA and to submit any comments they may have.

A 2.5 There are five steps to this final RIA:

1. Identify the policy issues and objectives;
2. Identify and describe the regulatory options;
3. Determine and assess the impacts on stakeholders (conduct a stakeholder analysis);
4. Determine and assess the impacts on competition; and
5. Select the best option.

[15] Guidelines on ComReg's approach to Regulatory Impact Assessment, August 2007, ComReg Document 07/56a.

2.1.1 Identify the policy issues and objectives

A 2.6 ComReg is obliged to consider whether existing MMDS licenses in the 2.6 GHz spectrum should be renewed for a period of up to five years, and accordingly the timeframe in which new rights of use to the 2.6 GHz spectrum band might be made available. It should be noted that new rights of use to the 2.6 GHz spectrum band, when they are eventually issued, will be issued on a service and technology neutral basis. This means that any future recipients of such a right of use could use it to distribute television programming content, which is the only permitted use under the current MMDS licenses, but could also use the spectrum to operate or provide any other type of electronic communications network or service.

A 2.7 The relevant statutory provisions include Regulations 7 and 8 of the Wireless Telegraphy (Microwave Multipoint Distribution System)(MMDS) Regulations, S.I. No 529 of 2003 (the "2003 Regulations"), which provide as follows:

- Regulation 7:

  "Subject to the provisions of these Regulations, every licence shall, unless previously surrendered by the licensee, or unless or until it is revoked by the Commission, and subject to any amendment or suspension thereof, continue in force until 18 April 2014 and subject to such conditions and restrictions as are prescribed in regard thereto by these Regulations and shall then expire, unless renewed"; and

- Regulation 8:

  8 (1) "The Commission will, after 18 April 2010, and subject to such conditions and restrictions as are prescribed in regard thereto by these Regulations, and after such public consultation (if any) as the Commission considers appropriate, review the operation of all such licences so granted and continuing in force and may, subject to such terms and conditions as may be specified by the Commission, renew any such licences which are in force on that date for a further period of ***up to 5*** *years from 19 April 2014.* **[emphasis added]**

  (2)"Where the Commission makes a determination under paragraph (1), not to renew a licence, it may by notice in writing served on the licensee, require him or her, from the date of receipt of the notice, until the expiration of the licence term to comply with such measures relating to the upkeep of the system as may be specified in the notice"

A 2.8 Having regard to its discretion to renew any or all of the current MMDS licences for a period of up to five years, following their current expiry dates of **18 April 2014**, ComReg is considering to conduct a competitive award process for the entire 2.6 GHz spectrum band so that when the existing rights of use to the spectrum expire, new rights of use may be issued on a service and technology neutral basis. A key issue to consider, therefore, is when such an award process should take place and when new service and technology neutral licences should commence.

2.1.2 Identify and describe the regulatory options

A 2.9 The options under consideration in this final RIA differ purely on the principle of renewing or not the existing MMDS licences and are as follows:

- Option 1: All MMDS licences **terminate in 2014**, with no renewal granted (i.e. the band would be available on a service and technology neutral basis from 2014 onwards); and

- Option 2: All MMDS licences **are renewed**. It should be noted that ComReg has discretion to renew licences for any period from 19 April 2014 up to 18 April 2019. If licences were to be renewed (i.e. if Option 2 were found to be the preferred option), the crucial issue would be the duration of any such renewal.

A 2.10 In order to assess the options relative to each other, ComReg takes account of the conclusions reached by Aegis and Plum in its scenario assessment of the incremental changes to the costs and benefits of different scenarios relative to a base case involving renewal of all ten MMDS licences from 2014 to 2019. In this regard ComReg compares a potential renewal of the MMDS licences from 2014 to a later termination date such as 2017, which is the mid-point between 2014 and 2019 as it mirrors Aegis and Plum's timeframes set out in its scenario assessment. ComReg notes that if Option 2 were to be the preferred option that further consideration of the potential duration of any renewal may be required as what is now essentially considered is the case for renewal from 2014 or not.

2.1.3 Stakeholder Analysis (Impact on existing operators and potential new entrants)

A 2.11 ComReg's decision will impact on the following stakeholders (noting that impacts on consumers are dealt with in a separate section 2.1.5 below based on the logic that impacts on stakeholders and competition flow into the impacts on consumers):

a) The current incumbent in the 2.6GHz spectrum band (i.e. UPC, the sole provider of pay-TV services using MMDS licences, all of which are currently due to expire on 18 April 2014 subject to their possible renewal for up to 5 years);

b) Organisations claiming to rely directly or indirectly on the ongoing provision of MMDS (for example, TV broadcasters and ancillary / supporting services);

c) Other existing and / or new entrants to the pay-TV market (for example, BSkyB is currently UPC's main competitor); and

d) Other potential alternative users of the band (for example, providers of mobile broadband services).

A 2.12 Each of these stakeholders is considered in turn below.

a.) Impact on incumbent MMDS licensee

A 2.13 The original rationale for issuing MMDS licences was to enable customers in mainly rural areas that were not served by a cable television service to receive a multi-channel TV service (other than free-to-air). This is because it was not considered economically viable to extend a cable network to cover such areas. Unless UPC can provide an alternative product offering for its MMDS customers upon the expiry of its MMDS licences, those customers will have no option but to switch to an alternative service provider and platform if they wish to continue to receive a multi-channel TV service . As UPC has no alternative multi-channel TV service to offer to most of its MMDS customers (as its cable network does not extend into areas covered by MMDS) this in effect means that UPC will lose its MMDS customers and will no longer accrue the profits associated with providing a service to them. The only other question is *when* this will occur and in that regard the applicable statute specifies that the earliest date is 18 April 2014 and the latest date is 18 April 2019, or it could be any date in between.

A 2.14 UPC has been investing across its cable network in recent years[16] and its subscriber base for its pay-TV, broadband and phone services, provided over its cable network, has been growing accordingly. At the end of 2011, UPC claimed that it had successfully 'won back' 70,000 customers from Sky over a 12-month period.[17] This is indicative of strong competition between these two providers to win customers. The majority of UPC's pay-TV customers are on its cable network which provides pay-TV services to some 405,000 cable customers. MMDS accounts for approximately 11% of UPC's pay-TV customer base.

A 2.15 The number of households subscribing to MMDS has been falling steadily over the past 6 years, to the current number of 45,600 customers (Q4 2012)[18] down from circa 114,000 customers in 2006. It is unclear what steps, if any, UPC has taken during this time in order to retain its MMDS customers and prevent them from switching to either BSkyB (which UPC identifies as its main competitor in the pay-TV market)or a free-to-air satellite TV service.

A 2.16 From UPC's perspective, the difference between Option 1 and Option 2 is, in essence, the date upon which it will no longer be able to provide an MMDS service, as it will lose its remaining MMDS customers and all associated revenues from that date unless it can provide an alternative, substitutable service (which would seem unlikely). UPC claims that a renewal of its current existing MMDS licence, until April 2019, would provide it with an incentive to invest in the MMDS network to provide customers with an improved product offering, and that this would stem the ongoing decline in MMDS customer numbers.

Respondents' views

A 2.17 In its submissions to Document 10/38 and 11/80[19], UPC argues in support of renewal of the MMDS licences for the maximum period of five years, up until April 2019, in terms of both economic and spectrum usage considerations. The principal submissions made by UPC are considered below.

Summary of economic considerations

[16] 18 September 2012, http://www.irishtimes.com/newspaper/finance/2012/0918/1224324119245.html
[17] 4 November 2011, http://www.irishtimes.com/newspaper/finance/2011/1104/1224307039574.html
[18] http://www.lgi.com/PDF/press-release/Liberty-Global-2012-Press-Release-FINAL.pdf
[19] Respondents' non confidential submissions are set out in Documents 10/58s and 11/80s.

A 2.18 UPC claims that renewing its MMDS licences up to April 2019 would reap the greatest economic benefit for Ireland. UPC commissioned an independent report to examine the relative benefits to Ireland of renewing the current licences until 2019 as against freeing up the 2.6 GHz spectrum band for alternative uses at an earlier point in time.

A 2.19 UPC claims at page 19 and 20 of its non confidential submission to Document 10/38 that:

1. *"UPC's subscribers will continue to generate VAT receipts for the Irish government amounting to approximately EUR15 million over the period 2010–2014*[20]*";*

2. *"Irish consumers, particularly those in rural Ireland, will continue to have a choice of pay-TV providers";*

3. *"UPC's MMDS-related direct expenditure in Ireland of approximately EUR8–11 million per annum will continue – this includes the continued employment of 50 staff in UPC Ireland whose jobs are associated with the provision of MMDS, as well as direct expenditure on network operations, customer operations and marketing which also has further multiplier effects";*

4. *"The profits generated to date by UPC from the provision of MMDS have been re-invested to support the expansion of UPC's next-generation cable infrastructure and this would continue to be the case in the future;"* and

5. *"…Although difficult to quantify, the value that Irish consumers attribute to these wider societal benefits should not be underestimated. Such social value was recognised when UPC was short-listed for the corporate and social responsibility category of the ICT Excellence Awards. In addition distribution on BSkyB's platform is often not a viable option for start-up channels due to the high transponder cost and the lack of an early page EPG position. To date, UPC has supported many Irish broadcasters for their distribution needs. However were the MMDS platform to be lost cable alone may no longer offer sufficient scale for any broadcaster whose economic model is dependent on advertising and it will also no longer offer a national presence for these channels with the result that future channel innovation may cease entirely in the Irish market;"*

[20] Cumulative value, undiscounted.

ComReg's assessment

A 2.20 In relation to point 1, that UPC's subscribers generate VAT receipts, it is not necessarily correct to argue (as UPC does) that VAT revenue would be lost when comparing Option 1 to Option 2, as new electronic communications services, using 2.6 GHz spectrum on a technology and service neutral basis, such as NGMB, would generate VAT receipts. While there could be a temporary cessation in VAT revenue in the period when any new 2.6 GHz licensees are rolling out their new networks or services, it is also possible that new 2.6GHz services could generate far greater VAT revenues in time than the current MMDS service. ComReg therefore does not consider that VAT receipts to be a relevant consideration in considering either option.

A 2.21 In relation to point 2 that consumers in rural areas would continue to have a choice of pay-TV providers, this argument should be considered in the context of the steady decline in the MMDS subscriber base. Consideration should be given to the strong take up of alternative satellite TV services (both pay-TV and free-to-air TV) and the improved range and quality of programming services offered by RTÉ on its DTT platform, SAORVIEW[21]. These indicate that consumer choice would not be limited to any significant extent under Option 1 or Option 2. Therefore, it would appear that the more than 75,000 MMDS subscribers who migrated away from MMDS in recent years did not view MMDS pay-TV to be more valuable to them than the alternatives available and the matter of a choice of pay-TV offerings does not impact Option 1 and Option 2 to the extent that UPC claims. Following termination of MMDS, people living in areas without cable TV will be able to access a multi-channel television service through either pay-TV satellite or free-to-view satellite - options which were not available to them when MMDS was first introduced - and they will also have access to the Saorview terrestrial service.

[21] www.saorview.ie Saorview is a free digital terrestrial television service received with a rooftop aerial

A 2.22 In relation to point 3 above on UPC's direct expenditure including that relating to jobs associated with the MMDS service, which would be lost if the MMDS platform ceased, ComReg treats these concerns carefully and specifically provides its assessment in text set out at A 2.35 to A 2.38 below . ComReg also notes that UPC assumes that no direct expenditure would be made once the existing licences terminate. ComReg also notes that UPC does not consider the potential direct expenditure arising from alternative uses of the 2.6 GHz spectrum band and new employment that such uses might create. Further, when considering the economic cost-benefit assessment, it is important to compare incremental benefits of using 2.6 GHz band spectrum in relation to both MMDS and whatever electronic communications services are provided using the 2.6 GHz band spectrum in the future, which UPC does not do. Therefore, ComReg considers the impact of direct expenditure to be equal in terms of Option 1 and Option 2.

A 2.23 In addition, ComReg notes Aegis and Plums' views at page 24 of its Report (Document 12/132b) that the explicit consideration of service costs would not be expected to alter the conclusions of its cost-benefit assessment, because service costs apply to both MMDS and any alternative platforms and services.

A 2.24 In relation to point 4 above on reinvestment of profits from the MMDS service to support the expansion of UPC's next generation cable infrastructure and that this could continue if the licences were renewed beyond 2014, ComReg considers the following two points:

- First, Option 2 may maintain the current status quo for reinvestment of profits in the cable infrastructure for longer than would be the case in Option 1. There is no evidence, however, that current re-investment levels have in any great way curtailed the rate of decline of MMDS customers (which seems to be steeper now than at any time since the licences commenced). In addition, ComReg understands there is a greater net economic benefit from a national perspective to be gained from Option 1 over Option 2 as set out in detail by Aegis and Plum in its report (see Document 11/80a).[22] ComReg finds Aegis and Plum's consideration of the net economic benefits to be more persuasive than UPC's claims in relation to the distribution of profits generated from the MMDS business in support of investment in next generation cable infrastructure;

- Second, it seems likely that there would be a further decline in the number of MMDS subscribers if investments are not made in the

[22] See table 1 at page ES-3 of the Executive Summary of Document 11/80a for a discussion of the issues presented.

MMDS platform to attract viewers (not investment in the cable platform). For example, since Document 11/80 and 11/80a first issued, on 2 November 2011, subscriber numbers have fallen again and now stand at 47,900. The question therefore seems to be whether UPC's investment incentives would sufficiently change if the licences were extended.

- Finally, the potential case for the future, more efficient use of the 2.6 GHz spectrum band, which is currently being used to serve what would appear to be a steadily decreasing number of MMDS subscribers, remains a possible point of weakness in UPC's claims.

A 2.25 In relation to point 5 above regarding the social value of accessing programming content, ComReg finds Aegis and Plum's response at page 23 of the Response Document (Document 12/132b) to be persuasive as it addresses not only the potential uncertainty of quantifying social benefits for MMDS but also for NGMB. In particular, Aegis and Plum states therein:

- *"UPC also notes that no account is taken of wider societal benefits of MMDS service. The Aegis/Plum study noted that 'we make the simplifying and conservative assumption that the incremental external social value from additional spectrum for mobile broadband is zero, relative to MMDS';* [emphasis added] *and*

- *Given the diverse and growing applications of mobile broadband we expect that relative to MMDS it will over time offer greater external benefits. However, given the uncertainty involved in assessing such benefits, for MMDS or NGMB, we felt a qualitative conclusion in relation to the relative magnitude of such benefits was appropriate."*

A 2.26 ComReg agrees with Aegis and Plum's consideration that a service and technology neutral licence supporting mobile broadband might be expected to give rise to higher external benefits than the current MMDS service. A much broader range of electronic communications services, likely to be attractive to a larger number of consumers can be offered with a service and technology neutral licence than with an MMDS licence which can only support one service.

A 2.27 In addition, UPC states at page 21 of its submission to Document 10/38 that *"We estimate that the incremental value is equivalent to an NPV [Net Present Value] of EUR129 million over the period 2010 to 2019…"*. Another respondent to Document 11/80 makes a similar claim - Limerick Chamber of Commerce, a representative body for 500 members in the Mid-West Region, claims that non-renewal of the MMDS licences would have a negative impact of at least €129 million on the Irish economy[23].

A 2.28 In response to the above claims by UPC and the Limerick Chamber of Commerce, it is clear that such an analysis was based on the assumption that not only would the MMDS service no longer be available but that it would not be replaced by any electronic communications service, or services, using 2.6 GHz spectrum. This assumption is most likely incorrect as ComReg is of the view that new services would be introduced and that Option 1 would provide a greater net economic benefit as compared to Option 2, since Option 1 would allow the transition to higher valued electronic communications services to occur at an earlier date. The reasons for ComReg's views include Aegis and Plum's consideration that the economic cost-benefit assessment prepared by UPC is incorrect as it does not compare the value of maintaining the use of the 2.6 GHz band for MMDS against the value of using that band for other services.

A 2.29 In particular, Aegis and Plum states at page 19 of the Response Document 12/132b: *"…The Aegis/Plum economic assessment is based on an assessment of the incremental benefits and costs of retaining 2.6 GHz spectrum for MMDS verses reallocation for NGMB. This is the correct approach to economic impact assessment…"* [24].

Summary of spectrum/non-economic considerations

A 2.30 UPC expresses its view that mobile broadband electronic communications services in rural areas are not contingent upon providers of such services having use of 2.6 GHz spectrum:

6. At page 4 of its submission in respect of Document 10/38, UPC states: *"While the continuation of UPC's MMDS service relies entirely on its ability to retain access to its existing spectrum allocation in the 2.6 GHz band,* ***the rollout of mobile broadband services is in no way contingent on the availability of spectrum within this band****. In fact, the underutilised 1800 MHz band – which*

[23] It also claims that there would be a reduction in Irish VAT receipts with non-renewal of the licences.

[24] To support its position, Aegis and Plum also refers to the publication of *Boardman, Greenber, Vining and Weimer (2006) 'Cost-benefit analysis – concepts and practice'* published by Pearson.

is already allocated for mobile services - has superior properties in the area of radio propagation compared to the 2.6 GHz band and it is already available for use as the main high-capacity band for mobile broadband services in Ireland." [emphasis added]

7. At page 21 of its submission to Document 10/38, UPC claims that the benefits of *"…using the 2.6 GHz band could mostly be **realised by using alternative frequency bands**, in particular the 1800 MHz band that is already dedicated to the provision of mobile services and the 2300 MHz when it becomes available later this year…"*. In addition at page 29 of its submission, UPC considers that *"...The 2.6 GHz band is therefore by no means essential for the deployment of LTE, and there are multiple other suitable spectrum bands available to allow mobile operators to develop 4 G services."* [emphasis added]

8. At page 22 of its submission to Document 10/38 UPC states: *"If mobile operators had access to the majority of the 1800 MHz, 2.1 GHz and 2.6 GHz bands, **significant amounts of this spectrum could be unused/underutilised during the period 2014 – 2019**. High-frequency spectrum is generally in plentiful supply – for example, one third of the 1800 MHz band is unassigned. Indeed many European mobile operators are actively developing plans for LTE in the 1800 MHz band and LTE services are likely to be offered in this band by 2012 (i.e. two years before the current UPC licences expire)…"* [emphasis added].

A 2.31 Other spectrum issues raised by respondents concern the potential geographic use of the 2.6 GHz band for mobile broadband and the potential for the 2.6 GHz band to be underutilised:

9. UPC at page 28 of its submission to Document 10/38 states: *"As Ireland has a relatively low population density, and therefore less need for the additional GSM capacity overlay provided by 1800 MHz spectrum, operators may be able to release a large portion of their 1800 MHz allocations for a new technology"* and

10. Another respondent, the Limerick Chamber of Commerce, claims that it only *"makes sense for the mobile operators to use the spectrum for this purpose [being NGMB] in dense urban environments where other available spectrum bands could easily be used instead (1800 MHz). As a result, it this spectrum is released for use in this way on a nationwide basis, we understand it will remain completely unused across much of the country"*.

ComReg's assessment

A 2.32 In relation to the claims by respondent as set out in points 6, 7 and 8 above - that the rollout of mobile broadband services is not contingent upon access to 2.6 GHz spectrum and that the 1800 MHz band is underutilised, has superior propagation characteristics, and that the availability of other bands suitable for providing 4G type service should be considered - ComReg responds as follows:

- The 2.6 GHz band would be released on a service and technology neutral basis at an earlier date under Option 1 than under Option 2 and this is the only real difference between the two options. Different amounts of spectrum will be available for electronic communications services, including mobile broadband, at different points in time. ComReg considers, however, that the important consideration is that providers of electronic communications services are likely to need flexibility and a wide choice of spectrum bands in order to implement electronic communications services, including but not limited to MMDS, in an optimal and efficient manner.[25]

- Utilisation of the 2.6 GHz is a decision that will be left to the market when it is released. ComReg does not consider it appropriate to predetermine the relative values of different bands, but is proposing to make the 2.6 GHz band available on a technology and service neutral basis. If mobile operators attach less value to the 2.6GHz band than a provider of MMDS services using the same band, one would expect an MMDS provider **to win** the spectrum in a competitive auction.

- Projections of data growth[26] and the mobile broadband targets espoused by government at a policy level[27] indicate a future dependent on more spectrum for broadband services. In this regard, making spectrum bands available earlier (as in Option 1) may assist planning by giving potential new providers of broadband services users an opportunity to secure spectrum capacity; and

[25] For example, in Finland, Digita Oy, primarily a television and radio broadcaster, has been offering wireless broadband in the 450 MHz band since 2007. Digita Oy targets users wanting low cost services in remote areas. In Sweden Norway and Denmark, Net1 provides 3G mobile services using a network in the 450MHz band. While various other spectrum bands may have claimed superior coverage characteristics, the 2.6 GHz band is claimed to have superior capacity characteristics. Mobile broadband operators are much more likely to want to have a broad portfolio of spectrum available to them in order to respond to consumer demand and deploy services flexibly.

[26] Various statements from Ericsson, Cisco, IDATE, UMTS Form and operator statements.

[27] http://www.dcenr.gov.ie/Communications/Communications+Policy/Next+Generation+Broadband/

- In addition, ComReg's statutory functions and objectives include to ensure the efficient management and use of spectrum. In that regard, ComReg may consider such tools as are required to ensure spectrum efficiency (which may include coverage and/or rollout obligations)[28]. ComReg also notes the potential role spectrum trading may have in facilitating efficient use of spectrum.

A 2.33 In relation to the claims by respondents set out in points 9 and 10 above, as to the possibility of operators using 1800 GHz spectrum for capacity overlay and that 2.6 GHz spectrum would be unused in rural areas - ComReg again is of view that utilising spectrum in a mix of bands is more likely to ensure the optimal and efficient use of spectrum for mobile broadband. Further, ComReg points to the role that coverage and rollout licence conditions may play in ensuring that spectrum is used efficiently.

b.) Impact on organisations claiming to rely on MMDS provision

A 2.34 The cessation of the MMDS platform may impact on other businesses associated with providing ancillary / supporting services to the MMDS licensee. Views received from such stakeholders are considered next below.

Respondents' views

A 2.35 ComReg received submissions from the following organisations and bodies:

- Anixter Distribution Ireland Limited ("Anixter")[29];
- Connacht Rigging Services ("CRS")[30];
- EMR Integrated solutions ("EMR")[31]
- KN Network Services ("KN networks")[32];
- L.A. Services[33];

[28] Please note, the matter of potential conditions attaching to any future rights of use for spectrum in the 2.6 GHz band are not part of the consultation material set out in this paper and ComReg reserves its position to consult on same when it is appropriate to do so.
[29] Anixter *"…delivers cable, connectors and several hundred other consumable line items to UPC"* see the respondent's submission Document 10/58s.
[30] CRS operates in the mast infrastructure and rigging sector.
[31] MP&E Trading Co. Ltd., trading as EMR, provides UPC with services such as transmission and backhaul network upgrades (it also works in the design and roll out of new point to point microwave links to Government and Enterprise clients).
[32] KN Networks provides and maintains transmission sites that support UPC's MMDS network.

- Thelinor Limited ("Thelinor")[34];
- RD Communications Ltd ("RD Comms")[35];
- Rigney Dolphin;[36]

A 2.36 The main claims made by this stakeholder group are that **they would suffer a loss of direct business with UPC, the sole MMDS licensee, if the MMDS platform ceased**. The affected businesses range from businesses providing consumables / components for receiving MMDS services to business providing transmission and general maintenance services to the MMDS platform operator. Some of these respondents claim to be dependent entirely on the MMDS platform for their trading activities.

A 2.37 The above stakeholders would be highly likely to favour Option 2 over Option 1, as Option 2 would allow MMDS to remain in effect for a longer period of time, thus maintaining the status quo for longer. Indeed many of the respondents submitted that the MMDS licences should be renewed until 2019. ComReg notes however, that with the ongoing decline in MMDS subscribers, the benefits of Option 2 over Option 1 decrease over time.

A 2.38 Further, it is very difficult to know the extent and types of businesses that would benefit from the future use of the 2.6GHz spectrum band on a service and technology neutral basis, as compared to those businesses which claim to rely upon the current MMDS services.

A 2.39 In the main, ComReg notes that Option 1 would bring forward the potential benefits of releasing the 2.6 GHz band as compared to Option 2. It notes however, that businesses directly or indirectly dependent on the MMDS platform would necessarily take a particular view on the options to be considered. This final RIA is intended to provide an impartial assessment of the options.

A 2.40 ComReg also received submissions from the following broadcasting stakeholders:

- Broadcasting Authority of Ireland ("BAI");
- City television network ("City Channel")[37];

[33] L.A. Services is a TV aerial / CATV (community antenna television) company which has a service contract with UPC.
[34] Thelinor's core business is the installation and maintenance of a range of Digital TV products, including on behalf of UPC.
[35] RD Comms services part of UPC's MMDS network in the south east area of the State.
[36] Rigney Dolphin is an outsource service provider and holds service contracts with UPC.

- Dublin Community Television ("DCTV");
- Setanta Sports Ireland Ltd ("Setanta Sports")[38];
- TV3 Television Network Ltd ("TV3");
- UPC Ireland Ltd ("UPC"); and
- Ulster Television Ltd ("UTV").

A 2.41 A summary of the view expreseed by this stakeholder group include that **the MMDS platform provides an outlet for programming content** making it more widely available (meeting plurality objectives in relation to availability of content). It is argued that if the MMDS platform ceases, an 'outlet' for TV programming content would be lost. For example, UPC claims at page 20 of its submission to Document 10/38: *"…The availability of the MMDS service will ensure that media plurality continues to exist, and MMDS will continue to provide support for the distribution of Irish public service and community TV channels."*

A 2.42 In addition, all of the stakeholders in this group, save for Setanta Sports[39], claim that **MMDS provides a valuable public service**. For example, respondents including BAI, TV3 and UPC highlight the fact that the MMDS licensee is obliged to carry certain Irish indigenous programming (in particular reference is made to the fact that the licensee has a 'must carry' obligation requiring it to distribute certain TV programming). Respondents claim this differentiates the MMDS service from other pay-TV services and that this should be considered in any decision on the renewal of the licences.

A 2.43 Another respondent, DCTV, states that it is *"…a new Irish owned resource-poor TV channel"*, and that it has found **UPC to be an important support** to it and claims that without an MMDS platform similar television programme services could miss out on such support. Further, DCTV considers that the MMDS platform is important for community outreach and makes the following two claims:

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[37] ComReg notes that City Channel no longer trades. ComReg notes it was partly owned by Liberty Global Inc., UPC's parent company.

[38] ComReg notes that Setanta Sports offers commercial ventures in several countries around the world such as programming on a pay per view basis and is available as part of UPC's basic cable and MMDS packages.

[39] Setanta Sports considers that *"…the removal of these licences would adversely affect competition and limit the options available to this base [in reference to the 'Premier League football and GAA customer base'] to receive and enjoy premium Irish sports at an affordable price"*.

- Every resident and member of a community should be able to access community TV stations, preferably without incurring a subscription fee; and

- More spectrum should be available for broadcasting as it is important to society. In particular, DCTV contends that the observed lack of demand for spectrum for commercial DTT (under a competition for multiplex contracts for commercial DTT held by the BAI in accordance with obligations placed on it under the Broadcasting Amendment Act, 2007) should not be taken as indicating a lack of demand for spectrum for broadcasting generally. DCTV considers that *"…removing spectrum from the public sphere"* should not occur as this would reduce the number of options that Irish people have to distribute and to access content. In this regard it welcomes and supports the continuation of the MMDS service.

ComReg's assessment

A 2.44 In relation to the above views expressed by respondents in relating to **MMDS providing an outlet for TV programming content**, ComReg notes that Option 2 would be more favourable to these stakeholders as it would maintain the status quo for longer. ComReg notes, however, that such views need to be considered in the context increasing media convergence and the availability of content through other platforms. MMDS customers account for fewer than 5% of the pay-TV viewers in Ireland while public service television programme content is available on the free-to-air DTT service, SAORVIEW, which is available to 98% of the population. When the MMDS service ends, TV viewers will continue to have access to programming content similar to that offered over MMDS platform. Not only is there ubiquitous satellite coverage but Saorview is also available to 98% of the population of the State and is taken up by 12.6% of the total TV homes in the State.[40] The loss of MMDS as an outlet is small relative to the overall TV market.

[40] See Section 5 of Document 12/101 on "Quarterly Key Data Report – data as of Q2 2012"

A 2.45 In relation to the point that **MMDS is a valuable public service**, ComReg would note the distinction between public service broadcasting[41], which is licence fee driven, and commercial TV distribution such as MMDS, which is a commercially driven enterprise. However, ComReg does not dispute that there is a public and private value associated with the MMDS platform. ComReg contends, however, that other uses of the 2.6 GHz band also offer potential high levels of value (public and private). However, there is also a potential social value to mobile broadband services, for example, a trial was conducted by Qaulcomm's Wireless Research Programme and the Portugal Telecom Foundation to improve social inclusion for severely disabled people through use of smartphones, broadband enabled laptops and other specific software and hardware.[42]

A 2.46 In relation to the views of DCTV **on the support to community TV stations** provided by MMDS, ComReg notes that the nature of the claimed support is not set out by DCTV, nor does DCTV identify alternative forms of support that might be available to it.[43] Nonetheless, ComReg considers it important to recognise the context in which claims that MMDS supports Irish broadcasters for their distribution needs are made. It would appear to ComReg that these claims relate only to UPC's cable network and may not be relevant consideration to the MMDS network nor to public service broadcasting considerations. In this connection, ComReg notes are that City Channel, which was supported by UPC through its cable network, no longer trades while Cork Community TV (another community TV station licensed by the BAI) and is available in Cork and its environs on UPC Channel 803 on its cable network only (and not on MMDS)[44].

A 2.47 In relation to DCTV's claims in relation to the importance of the MMDS platform for community outreach ComReg notes the following:

- Service and technology neutral licences for new rights of use to the 2.6 GHz spectrum band would not exclude new licensees from making TV programming content available to users;

- ComReg also notes the trend in convergence of media, such as between broadcasting and other electronic communications services. In particular, there are substantial moves towards on-demand

[41] ComReg also notes that any television programme service that meets a public service requirement can apply to BAI for access to RTÉNL's DTT platform.
[42] http://www.webwire.com/ViewPressRel.asp?aId=81398
[43] In considering this issue ComReg notes that funding for community programming is strongly supported by the BAI through its Broadcasting Funding Scheme (Sound and Vision II) and that DCTV has received programme funding in every round of the funding scheme since 2006, see http://www.bai.ie/?page_id=1701
[44] http://www.corkcommunitytv.ie/corkcommunity.html

(delayed) consumption of TV broadcast content, use of digital media storage players, the emergence of small (and large) screen viewing, and online tv broadcasting. For example, ComReg notes that P5tv, Cork Community Television and DCTV, the three current community television stations licensed by the BAI, provide live online broadcasts of their television programming content.[45] The future potential use of 2.6 GHz spectrum for NGMB would expand the audience for such IPTV programme services, as viewers would have access to the possibility of higher broadband speeds necessary for viewing IPTV.

A 2.48 In addition, ComReg understands that other potential uses of spectrum that are likely to yield high levels of public / social value includes e-health, e-education, public safety and e-government uses. Mobile broadband technology and services are re-shaping social relationships and facilitating the creation and dissemination by individuals of new forms of content and changing the way business is conducted. Ensuring that there is enough spectrum available for mobile broadband greatly contributes to economic growth, job creation, innovation and productivity gains in many sectors.[46]

A 2.49 Rather than attempt to quantify social value, ComReg notes the following statement made by Aegis and Plum: *"…we make the simplifying and **conservative** assumption that the incremental external social value from additional spectrum for mobile broadband is zero, relative [to] MMDS"* (page 30 of Document 11/80a). ComReg is satisfied that Aegis and Plum's assessment removes the potential uncertainty about estimating social value of potential uses whether they be MMDS or other electronic communications services provided using the 2.6 GHz band.

A 2.50 On balance, therefore, ComReg is satisfied that it would not be necessary to try and quantify the potential levels of social value from different uses of the 2.6 GHz band. As a result ComReg is of the view that Option 1 would provide benefits earlier than Option 2, and that the net benefits of Option 1 outweigh the net benefits of Option 2.

c.) Impact on other existing and/or new entrants to the pay TV market

A 2.51 Cessation of the MMDS platform could create opportunities for existing or new pay-TV service providers to attract customers who switch from MMDS services.

[45] P5tv broadcasts worldwide live from Navan, Co. Meath and Cork Community Television also provides online live TV from Cork.
[46] Knowledge Society Strategy Technology Actions to Support the Smart Economy, 2009. http://www.siliconrepublic.com/fs/doc/pdf/TechnologyActionsReport21July09.pdf

A 2.52 Although ComReg received no views from respondents on this, it is likely that other existing providers in the pay-TV market would favour Option 1 as it would give them an opportunity to capture switching viewers sooner than would Option 2.

A 2.53 The cessation of the MMDS platform may also create an opportunity for potential new entrants into the pay-TV market.[47]

d.) Impact on other potential users of the 2.6 GHz band

A 2.54 The earliest date for release of the 2.6GHz band on a service and technology neutral basis is 19 April 2014 (although as set out in Chapter 5 above there are practical considerations which mean that the effective date by which such new rights of use could take proper effect would be circa. **April 2016**).

A 2.55 Under Option 1, any potential users of the 2.6GHz spectrum band would have the opportunity to access the band in April 2014, just over two and a half years earlier than under Option 2.

A 2.56 Given the developments in the 2.6GHz band internationally and the fact that it has already been released on a service and technology neutral basis in a number of countries, ComReg considered that ensuring access to the band on such a basis in Ireland, and as early as possible, is likely to be the preferred option for potential future users of the band (see also section 4.4 in Document 12/132).

Respondents' views

A 2.57 ComReg received submissions from the following respondents in favour of release of band at 2014 (i.e. Option 1):

- Eircom and Meteor Communications Ltd (the "eircom Group");
- Digiweb;
- Hutchison 3G Ireland Ltd ("H3GI");

[47] In relation to this point, ComReg notes that eircom Group states at page 7 of its submission to Document 11/80 that *"eircom Group is itself planning to enter the pay-TV market… ."* Eircom Group argues that even if the MMDS platform ceases to exist there is potential for competition to increase and claims that it intends to offer *"…extensive video-on-demand content in addition to broadcast programming, which is made possible by the bandwidth and flexibility of the fibre network that eircom Group is deploying".* ComReg considers eircom Group's point is unlikely to be a relevant consideration in relation to competition for MMDS as it seems to refer to its Next Generation Access fibre network that is only going to be available in areas where UPC's cable reaches not the MMDS coverage areas under consideration in this paper.

- Imagine;
- Motorola;
- Telefónica O2 Ireland Ltd ("Telefónica");
- Vodafone Ireland Ltd ("Vodafone"); and
- WiMax Forum.

A 2.58 The main reasons submitted by these respondents, as to why Option 1 would be more favourable, included the following:

11. The **2.6 GHz band is strategically significant to the future development of advanced mobile broadband services**. Both eircom Group and Telefónica refer to a number of other jurisdictions where the band is already re-assigned for mobile communications and LTE is deployed. In addition, at page 3 of its submission to Document 10/38, Telefónica refers to a number of trends in the electronic communications sector that it believes demonstrate the increasing demand for spectrum. And H3GI claims that the 2.6 GHz band *"provides mobile operators with a significant amount of spectrum for the purposes of both capacity and speed. As a result, it provides mobile operators with the spectrum they need in order to effectively compete with fibre and cable next generation networks";*

12. **DTT is a suitable replacement service for MMDS**. For example, Digiweb claims that Ireland risks missing the '2.6 GHz innovation trail' by prolonging MMDS use in the band. At page 2 of its submission Digiweb claims that the DTT platform *"…is a natural replacement service for the MMDS platform"*, and it notes that MMDS is not likely to be considered a core business by UPC's parent company as there has been limited investment in the platform. Vodafone makes a similar point at page 4 of its submission to Document 10/38[48];

[48] At page 4 of its submission Vodafone states that *"Reasons that could be advanced in support of continued licensing of MMDS services after 2014 appear to have, at best, limited validity and do not warrant this licensing approach… For example it may be argued that the availability of programme content distributed by the MMDS platform is important in providing additional competition to the other terrestrial and satellite broadcasting services available, particularly in rural areas of the country. While this argument may have had some validity in the past, the essentially ubiquitous availability and strong take up of satellite services and the improved range and quality of programme services to be offered by RTE on the basis of its national DTT multiplex licence, together with potential future competition from commercial DTT service following analogue switch off, indicates that any incremental value of MMDS*

ComReg's assessment

A 2.59 In relation to point 11 above on the strategic importance of the 2.6 GHz band, Option 1 would enable access to the band on a service and technology neutral basis sooner than Option 2. This is likely to appeal more to potential users of the band as they could access it sooner under Option 1 than under Option 2.

A 2.60 ComReg also notes the following points in relation to the strategic nature of the band:

- The bandwidth of the 2.6 GHz band, which is 190 MHz in total, could support multiple operators having access to large allocations of spectrum. For example, one of the key features of the 2.6 GHz spectrum band is that it can support a 2 x 70 MHz frequency division duplex (FDD) allocation and a 50 MHz time division duplex (TDD) allocation. Therefore there is considerable scope for potential operators to obtain large spectrum bandwidths. Large spectrum bandwidths are considered to be of strategic importance as they support substantial capacities for data transmission (i.e. +150MBps).

- In light of these potential large allocations of spectrum, there are likely to be additional benefits in terms of quality of service for consumers of NGMB, as with such allocations greater data capacities can be supported, the number of active users per coverage cell may be increased and/or latency in the data networks may be decreased; and

- There are economies of scale benefits in terms of the availability of equipment for mobile broadband in the 2.6 GHz band, as the band is harmonised across Europe with many deployments for mobile broadband (see section 4.4 in the main paper). Allowing NGMB access to the 2.6 GHz spectrum band would allow Irish consumers to avail of those economies of scale.

A 2.61 In relation to the claims set out at point 12 above, that DTT is a suitable replacement service for MMDS, ComReg would argue that DTT alone might not be a 'natural replacement' (Digiweb's words) to MMDS given the absence of a commercial DTT Service. However, ComReg notes that in combination with a pay or free-to-view satellite service, DTT might well be considered an attractive alternative for some consumers. ComReg considers that satellite pay-TV does offer an alternative to MMDS.

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services from a competitive perspective is now limited, and likely to be substantially further reduced by 2014…"

A 2.62 ComReg notes that Option 1 would require active MMDS subscribers, as at April 2014, to make alternative arrangements as of that date in order that they may continue to receive a multi-channel television service, i.e, sooner than would be the case in Option 2. At page 35 of Document 11/80a Aegis and Plum provides a cost estimate of the likely costs involved in switching from MMDS to an alternative TV platform and argues that these are the relevant costs that might have to be borne earlier in such an option.

A 2.63 Some respondents in this category also requested that ComReg conduct a study of the most efficient use of the 2.6 GHz band. In particular, respondents claim that MMDS is an inefficient use of spectrum as 190 MHz of spectrum across all of Ireland (70,000 square km) is encumbered for a small number of subscribers (being circa 72k at the time the claims were made and 47,900 currently).

A 2.64 ComReg does not propose to conduct an efficiency study of the kind proposed by respondents noting that providing potential access to new rights of use to 2.6 GHz spectrum on a technology and service neutral basis should allow the market identify the most efficient use for the spectrum.

A 2.65 ComReg notes that under Option 1 a service and technology neutral competition could be held sooner than in Option 2.

2.1.4 Impact on competition

A 2.66 The impact on competition is similar for both options except that these impacts would be deferred for an additional period of time in the case of Option 2.

A 2.67 The markets that are likely to be affected are:

a) The pay-TV market; and

b) Markets for potential alternative uses for the 2.6 GHz band.

a.) Pay-TV market

A 2.68 By way of background, pay-TV services are currently available over a number of platforms – direct to home (DTH) satellite, cable and MMDS. There are a number of operators active in the market.

A 2.69 The two main platforms for pay-TV are DTH satellite and cable which together account for over 95% of the pay-TV market. The two largest players in the market are UPC (offering cable) and BSkyB (offering satellite).

A 2.70 UPC offers pay-TV services primarily over its cable network. As of 30 September 2012, UPC had 403,600 cable TV customers and 47,900 MMDS customers. UPC has approximately 37% share of the pay-TV market through its cable customers, rising to 41% by including its MMDS customers. Its MMDS customers account for 4.3% of all pay-TV services. Details of subscribers are set out in table 1.0 below.

Operator	Platform	Subscribers	%
UPC	Cable – Analog	67,500	6.1%
UPC	Cable – Digital	336,100	31%
UPC	MMDS	47,900	4.3%
BSkyB and others[49]	Satellite (and others)	632,130	58.3%
		1,083,630	

Table 1.0 Pay-TV Market Shares 2012

A 2.71 For historical and ownership reasons, MMDS does not compete with cable. MMDS is essentially the provision of multi-channel pay-TV service to mainly rural areas where it is uneconomic to extend the cable network. MMDS has only ever been offeredby cable providers and indeed MMDS services were originally prohibited from being offered in areas where cable was available. This legal restriction has now been removed, however the lack of any direct competition between MMDS and cable has remained a feature of the pay-TV market, particularly as UPC, the largest cable operator, holds all ten MMDS licences in the 2.6 GHz spectrum band (i.e. by providing an MMDS and cable service in the one area, UPC would be competing with itself).

A 2.72 MMDS was once the only form of multi-channel service which many households in Ireland could access.[50] However since the introduction of multi-channel pay-TV and free-to-view satellite services this is no longer the case, while Saorview also has the potential to develop into a substitutable terrestrial multi-channel service. MMDS, therefore, currently competes with multi-channel pay-TV and free-to-view satellite services, but not with cable services.

[49] http://www.irishtimes.com/newspaper/finance/2011/1104/1224307039574.html
[50] See also Document 12/59 on Cessation of the UHF TV Programme Retransmission ("Deflectors") Licensing Scheme as there were some local television deflectors operating under an annually renewable licensing basis

A 2.73 Further, the sharp decline in MMDS subscriber numbers over the past 6 years, which appears to be ongoing, indicates that large numbers of MMDS customers are switching away from MMDS to alternative TV platforms even before the current expiry date of the existing MMDS licences, in April 2014. Over the past 6 years, MMDS subscribers have halved from around 114,000 in 2006 to the current figure of around 47,900.[51]

A 2.74 Since BSkyB entered the Irish market, MMDS customers, who previously had a single pay-TV service provider, have the choice of receiving pay-TV services from via satellite or via MMDS. While ComReg cannot confirm what alternative services former MMDS customer now subscribe to, ComReg believes that it is reasonable to conclude that at least some of the former MMDS subscribers have switched to alternative pay-TV provider, indicating that it is a comparable offering from a price and quality point of view.

Multi-channel TV product offerings

A 2.75 There are different multi-channel TV product offerings available from operators over various platforms. Figure 2.0 sets out a comparison table showing the similarities and differences between the product offerings available to TV households across the State in terms of channels, functionality/features and pricing.

A 2.76 Whilst the basic TV viewing service available under each of the three options is very similar, there are also some clear differences. ComReg notes that due to legacy technology issues which mean that MMDS services outside Dublin, Galway and Waterford do not operate using cable technology, additional functionality (such as digital video recorder, etc) is available from multi-channel pay-TV and free-to-view satellite services that is not available to all existing MMDS customers.

		UPC MMDS	Sky Satellite	SAORVIEW / Freesat
Basic Package	Description	38 Channels[52] Includes - Irish FTA, UK FTA, Setanta Ireland, Sky 1, Discovery Channel	50 Channels Includes – Irish FTA, UK FTA, Sky 1, Sky Atlantic, Sky Living, Sky Arts	Over 50 Channels including UK FTA via Freesat and Irish FTA channels on SAORVIEW
	Monthly Fee	€26.00	€25	N/A
Max Package	Description	Around 80 Channels Includes –	Over 100 Channels Includes – Full	No option to avail of premium channels but high

[51] Data as of Q2 2012. http://www.lgi.com/PDF/press-release/UPC-Holding-Press-Release-Q2-2012-FINAL.pdf

[52] Certain areas may have less

		Select Sky Sports channels, Select Sky Movie channels	**HD Sky Sports Suite, Full HD Sky Movies Suite, ESPN,**	**definition channels available (no pay per view sports)**
	Monthly Fee	**€79.71**	**€111**	**N/A**
HD Capable		✘	✓	✓
DVR Compatible		✓ **53**	✓ **Sky plus**	✓ **54**

Figure 2.0 Comparison of multi-channel TV product offerings available in the State.

A 2.77 In the pay-TV market, the termination of the MMDS licences will mean that this platform will no longer be available for viewing television services in Ireland. This means that UPC's market share would solely be represented by its cable network subscribers.

A 2.78 ComReg does not consider that the current number of MMDS subscribers is of sufficient magnitude (less than 5% of overall pay-TV viewers) to affect the competitive dynamic in the pay-TV market as competition is mainly driven by the cable and satellite interactions (i.e. via UPC's cable network competing against BSkyB's pay-TV satellite network), while this dynamic is also increasingly affected by bundled pay-TV and broadband services. Added to this mix is the growing impact of DTT and free-to-view satellite TV which dampens the argument that MMDS keeps the competitive tension in the multi-channel pay-TV market.

A 2.79 ComReg notes that there is a strong trend in the electronic communications sector for consumers to buy their television and their broadband internet service as a bundle. In that regard, ComReg considers that both UPC and BSkyB are likely to be key players in the provision of bundled television and broadband internet services. However, as the current licensing regime for the 2.6 GHz spectrum band only permits distribution of TV services, the 2.6 GHz band cannot be used to provide such bundled services until the current licences end and the band is re-released on a service and technology neutral basis.

A 2.80 Further in this regard, Option 1 makes the spectrum band available on a service and technology neutral basis sooner than in Option 2, prioviding potential to offer more than just TV services sooner.

[53] Available in previously NTL licensed areas and not available in previously Chorus licensed areas due to legacy technology differences
[54] Only certain models of consumer set top boxes

Respondents' views

A 2.81 At page 23 of its response to Document 10/38, UPC submits that:

> *"…UPC's MMDS offering to its target customer base (mostly located outside the main cities) will remain competitive. This will help to prevent alternative providers (e.g.* BSkyB*) from unduly raising their prices (as they could in the absence of direct competition), and so ensure that less wealthy households can continue to afford a key source of information and entertainment";*

ComReg's assessment

A 2.82 Based on the most recent subscriber numbers available to ComReg (see Table 1.0 above for a summary of subscriber numbers in terms of market shares) ComReg considers that rather than prices of alternative pay-TV providers being constrained by MMDS, as is claimed by UPC and others, price 'constraints' (respondent's words) are much more likely to arise from the competition for viewers between the two main TV viewing platforms of cable and satellite.

A 2.83 With regard to UPC's assertion that MMDS acts as a constraint on alternative providers raising prices, ComReg notes that UPC has recently raised its prices for its basic TV package from €22.50 to €26.00, while the basic package for Sky satellite services has remained unchanged at €25.00. This would suggest that even as MMDS subscriptions continue to decline, the competitive dynamic described by UPC is not observable in the market.

A 2.84 ComReg considers that the submission that a satellite pay-TV operator could price discriminate in rural areas is without evidence. It would appear more likely that any such prices in rural areas will be set by the greater competitive dynamic which exists in urban areas, where cable is also available. In addition, ComReg considers that the possibility for additional DTT services lessens the potential of satellite pay-TV price discrimination. The availability of free DTT channels will constrain the ability of any pay-TV provider to charge excessively.

A 2.85 Further, in response to the claims that the choice of pay-TV services would be limited to satellite in rural areas, ComReg notes that there are free-to-air platforms offering a substantial subset of the channels available from pay-TV providers in these areas. For example, the combined TV- channel package available through Saorview and a free-to-view satellite service ("Freesat"[55]) is broadly comparable to the basic pay-TV subscription package. The main differences include access and provision of premium services such as access to certain premium programming content.

A 2.86 In summary, ComReg finds the claim that a satellite pay-TV operator could operate a strategy of geographic pricing to the detriment of rural viewers to be without any evidence and consideration of the broader digital TV market.

b.) Markets for potential alternative uses of the 2.6GHz band

A 2.87 Mobile broadband is an obvious alternative use of the 2.6 GHz spectrum band and there are various indicators supporting this view:

- Aegis and Plum states at page 25 of Document 11/80a: *"Given the propagation characteristics of the 2.6 GHz band, the most likely alternative use for 2.6 GHz band is to provide mobile broadband services. …"*;

- Various forward-looking statements of worldwide total mobile traffic (exabytes/year) project significant traffic growth in mobile data services driven by consumer demand. ;[56]

[55] "Freesat" is a jointly owned ITV and BBC company, which launched in May 2008, to provide a free-to-view satellite digital TV offering of the 'Freeview' DTT service. See www.freesat.co.uk for more information.
[56] Source UMTS Forum Report 44 at page 74.

- Various winners of rights of use to 2.6 GHz spectrum in Europe now use the band to provide mobile broadband services. In the Scandinavian countries, networks using the 2.6 GHz spectrum developed quickly. *TeliaSonera* launched 4G services in Norway, Sweden and Finland (see also Annex 1 on International Updates) even though its spectrum portfolio includes blocks of spectrum in lower frequency bands, such as in Sweden where it won spectrum in the 800 MHz award process. TeliaSonera covered 28 cities and villages by March 2011[57], rolling out to over 200 cities and villages by the end of 2011 with projected availability of its 4G network to over 600 locations around Sweden.[58] In addition, ComReg notes that in the US, the operator Clear ('Clearwire and Sprint') offers mobile broadband services using 2.5 GHz spectrum band (which is equivalent to the European 2.6 GHz spectrum band but includes an additional 4 MHz); and

- Various multi-national microprocessor manufacturers have sought to encourage the development of mobile broadband in the 2.6 GHz spectrum band. For example, Intel was one of the main winners of spectrum in the 2.6 GHz spectrum band in Sweden in 2008 when it acquired 50MHz of TDD spectrum. In the interim, however, a TDD version of LTE now seems to have overtaken Intel's moves to encourage the adoption of its wireless chipsets in laptops and other devices. [59] More recently, the first Intel-powered smartphone has been launched.[60]

A 2.88 Some of the drivers for mobile traffic are set out in a report by the UMTS Forum[61] and include the level of fixed-mobile substitution, availability of spectrum for LTE and level of demand for non-voice services requiring higher performance networks (see page 23 of the UMTS Forum Report 44). In addition ComRg notes that monthly traffic on mid and high- end smart phones is projected to increase from 100 MB and 250 MB, respectively, up to 1,538 MB and 3,550 MB, respectively, in the period 2010 to 2015 (see also page 74 of the UMTS Forum Report 44).

[57] http://lteworld.org/news/teliasonera-expands-lte-coverage-over-200-locations-2011
[58] http://lteworld.org/news/teliasonera-expands-lte-coverage-sweden
[59] http://www.rethink-wireless.com/2010/12/16/3-sweden-buy-intels-tdd-spectrum.htm
[60] http://www.forbes.com/sites/danielnyegriffiths/2012/09/18/the-intel-motorola-alliance-first-intel-powered-smartphone-launched-today/
[61] The UMTS Forum is a representative body to promote and enable the success of 3G/UMTS mobile broadband networks and their Long Term Evolution (LTE). http://www.umts-forum.org/content/view/2884/202/

A 2.89 Irish mobile broadband operators also provide some evidence that demand for mobile broadband services in the State is growing. ComReg notes the following statements:

- Vodafone Ireland states in an interim management statement for the quarter ended 30 June 2012 that *"smart phone users [in the State] increase 56% year on year and that 53% of its customers now use internet services on their mobile phones*[62]; and

- Eircom Group also made the following statement in its full year results that growth in the groups mobile segment *"…These factors have also contributed to continued smartphone adoption which now account for 37% of the total mobile base on 30 June 2012, up from 23% on 30 June 2011."*[63]

A 2.90 ComReg also notes the general increase in sales of smartphones in the State, with Telefónica claiming mobile internet traffic doubled as a result[64] . In the Irish context, another indicator that ComReg considers to be relevant in relation to the growth projections of mobile broadband is the level of non-business mobile internet traffic in the State, which has increased from 2.9 GB downloaded per month in Q3 2011 to 3.3 GB downloaded per month in Q1 2012.[65]

A 2.91 In light of all of the information before it, ComReg considers that it would be reasonable to suggest therefore, that demand for mobile internet and broadband in the State is in line with international trends. Further the earlier availability of spectrum, such as in Option 1, is likely to provide additional opportunities for potential operators acquire spectrum rights and deliver improved services to customers.

2.1.5 Impact on consumers

A 2.92 The following groups of consumers may be impacted as a result of the proposed ComReg Decision, namely:

a) MMDS subscribers; and

b) Consumers of potential alternative services (e.g. mobile broadband customers).

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[62] http://www.vodafone.ie/aboutus/media/press/show/BAU017531.shtml

[63] http://pressroom.eircom.net/press_releases/article/eircom_Announces_Full_Year_Results_30_June_2012_/

[64] http://www.rte.ie/news/2012/0224/telefonica-business.html

[65] http://www.comstat.ie/data/data.472.data.html

A 2.93 The vast majority of pay-TV customers in the State (95.4%) are unlikely to be impacted by Option 1 or Option 2, as MMDS subscribers make up only 4.3% of the total market. Further, with the availability of television programming content over new platforms and with the trend towards the use of bundles to sell combined television, broadband and phone services, competition in the pay-TV market, even absent the MMDS platform, is likely to increase in future.

a.) MMDS subscribers

A 2.94 UPC had 47,900 MMDS subscribers at 30 September 2012, accounting for 4.3% of the pay TV market, and around 3% of all TV homes in Ireland.[66] The total number of MMDS customers has halved over the last six years, with an annual decrease of around 17% per annum. Based on the current market conditions, as forecast by Aegis and Plum, ComReg believes this rate of decline would not reverse in the coming years.

A 2.95 Under Option 1, MMDS subscribers wishing to continue to view pay-TV services after 2014 would have to switch to an alternative platform to do so. The potential range of substitutes services currently available to these subscribers includes:

- subscription based digital satellite services (e.g. from BSkyB);
- free-to-view satellite (e.g. freesat);
- free to air digital terrestrial (e.g Saorview);
- combined free-to-view satellite and free-to-air terrestrial; and
- internet TV (IPTV) available over either fixed or mobile broadband connections.

[66] Television ownership in the home is almost universal in Ireland and data from the Nielsen TV Audience Measurement (TAM) Establishment Survey indicates that there were 1.57 million homes with a television in the State.

A 2.96 It is possible to make estimates of the difference between the number of MMDS subscribers likely to be affected under Option 1 and Option 2 based on reasonable assumptions. Assuming current trends continuing, in the two and a half year period between April 2014 and September 2017, the total number of MMDS customers could fall by about 14,000. Therefore 14,000 more customers would be forced to find an alternative pay-TV source under Option 1 as compared to under Option 2.[67] It is important to note that what is in question is the option of terminating the MMDS licences in April 2014 or granting a once off renewal for a period of up to five years (using 2017 as a proxy) at some point MMDS subscribers would have to switch regardless and that the issue really relates to the timing of that switch.

A 2.97 ComReg notes that switching from the MMDS service to an alternative pay-TV platform incurs switching costs. Aegis and Plum considers that the switching costs would depend on three factors set out at page 34 of Document 11/80a as follows:

- *"The volume of customers at the date of the switch (see Table 10);*
- *The cost of equipment (new set top boxes, satellite dish receiver and installation); and*
- *The value of customer time involved in making and implementing the switching decision."*

A 2.98 Aegis and Plum makes the following assumptions relating to MMDS customers and switching costs (see page section 4.9.4 of Document 11/80a, as summarised in table 3.0 below):

- Forecasted number of MMDS subscribers 2014 – 2019 based on current trends (assuming an annual decline of 15.5% per annum);
- Set top box costs (varying between €56 and €250);
- Satellite dish receiver costs with installation (varying between €90 and €159);
- Time taken to switch – 2 hours; and
- Value of leisure time at €6.10 per hour.

[67] Based on a continued fall in customer numbers of 3% per quarter: by end of Q1 2014, total customers would be approx 40,000, and 26,000 by the end of Q4 2017. A difference of 14,000 customers

A 2.99 Aegis and Plum estimates that the likely switching costs under Option 1 would be between €1.9 to €4.8 million and under Option 2, between €0.7 to €1.6 million. This includes the cost of set top boxes, satellite dish/terrestrial antenna, including installation, and the value of customer time to switch from MMDS to an alternative provider.

Customer Switching costs	Option 1 (MMDS ends April 2014)		Option 2 (MMDS ends Oct 2017)	
	Low	**High**	**Low**	**High**
Set top box	0.6	2.7	0.2	0.8
Satellite dish receiver (including installation)	1.0	1.7	0.3	0.5
Value of customer time taken to switch from MMDS to alternative	0.4	0.4	0.3	0.3
Total	**1.9**	**4.8**	**0.7**	**1.6**

Table 3.0 MMDS subscriber switching costs (source Aegis and Plum at Document 11/80a).

A 2.100 Aegis and Plum's assessment indicates that aggregate customer switching costs would be lower under Option 2, due to a lower number of customers affected. ComReg considers, however, that it is also possible that there could be wider range of alternatives for MMDS customers to choose from in 2017 compared to 2014. ComReg also notes that the level of switching costs in either Option are much lower than estimated benefits (see also Table

Respondents' views

A 2.101 Over the course of the consultation process to review the future use of the band, ComReg has received 13 submissions from MMDS subscribers (see Documents 10/58s, and 11/80s)[68] and one submission from the consumer representative body Irish Rural Link[69]. There were no responses by consumers of potential alternative services (such as mobile broadband) and ComReg therefore makes some reasonable assumptions in relation to potential views that those consumers may hold towards the options. In addition, ComReg notes that the submissions from MMDS consumers are not likely to be representative of the views of all consumers of TV services in the State (as MMDS accounts for only 3 % of all TV homes).

[68] S. Daly (2), J. Eivers, L. Fisher (2), H. McCarthy, P. McGonagle, K. Millar (2), M. Kilgallen, P. O'Brien, A. O'Connor, and D O'Meara.

[69] *The Irish Rural Link* is a network of organisations and individuals and a non-profit organisation. It campaigns for sustainable rural development in Ireland and Europe and represents members living in rural areas at local, national and international level.

A 2.102 MMDS consumers support renewal of UPC's licences to 2019 on grounds that the service provides competition in the pay TV market in rural areas. Further, MMDS consumers claim that the only equivalent alternative would in their view be BSkyB's satellite pay-TV service. In this regard, MMDS consumers claim MMDS prevents BSkyB from monopolising the multi-channel pay-TV market. They also claim that MMDS services have a positive impact on BSkyB prices.[70] In addition, MMDS consumers claim that:

- the MMDS service is competitive in rural areas and has attractive pricing. They claim that because MMDS is an outreach for multi-channel TV in rural areas, MMDS has more channels than the alternative digital terrestrial free-to-air service (e.g. Saorview). In this connection particular reference is made to the fact that the 'Irish TV channels' have to be carried on the MMDS platform by law as it is regulated in the State (unlike the alternative pay TV service provider BSkyB which is not regulated in the State and would not have an obligation to carry Irish channels). Claims are also made that MMDS contributes to employment in the local economies.

A 2.103 At page 2 of its submission, Irish Rural Link states that *"…any proposal that would forsee the shutting down of UPC's managed pay TV service in rural Ireland and no replacement service (TV or otherwise)…"* should be *"cautioned"* [emphasis added]. It believes that the 2.6 GHz spectrum band would only be used in urban communities and that the rural areas would not benefit from the new incoming services. Similarly, the Limerick Chamber of Commerce states in the last paragraph of its submission to Document 10/38 that *"…the Regulator must encourage and promote competition and not take any action that results in the removal of a service leaving a monopoly in place"*.

ComReg's assessment

A 2.104 In relation to concerns that Irish TV channels are not obliged to be carried by BSkyB, ComReg considers the fact that BSkyB carries the Irish TV channels as one of the reasons the platform has been successful in the State to date. ComReg considers that if BSkyB removed the Irish programming channels then some Irish viewers might no longer subscribe to it. In any case, ComReg notes that viewers in the State will always have access to Irish channels as provided for by primary legislation on DTT via Saorview.

[70] It was noted by one consumer that *BSkyB* charges are subject to annual renewal and that there would be greater uncertainty in relation to future prices in rural areas without effective competition from MMDS.

A 2.105 ComReg notes that consumers claim to prefer the status quo with regard to the MMDS platform, however, ComReg believes for the reasons set out in this final RIA that subject to the potential to undertake the necessary competition to make rights of use to 2.6 GHz spectrum available on a service and technology neutral basis, Option 1 would be a better overall option for the 2.6 GHz spectrum band. In this regard it considers that the new licensees in the band could provide television services if they wished to do so and if it was a higher values use of the spectrum, compared to the alternatives.

A 2.106 As discussed elsewhere in this Final RIA ComReg does not find grounds for consumers concerns in relation to BSkyB 'monopolising' the pay-TV market. In particular ComReg notes that only 4.6% of pay-TV households and 3% of TV households overall, would be affected by the immediate termination of the MMDS service. These percentages are likely to be less in 2014 and might be substantially less in 2016 (the year it is proposed to terminate the existing rights of use to 2.6 GHz). In addition ComReg considers that the loss of MMDS customers is unlikely to affect UPC's ability to compete in the pay-TV market generally, and that the competition dynamic that exists between Sky and UPC is mainly as a result of competition between the cable and satellite platforms.

b.) Impact on consumers of potential alternative services

A 2.107 As the preceding respondents views would, in ComReg's view, only represent the views of MMDS subscribers only, in this section some impacts to consumers of potential alternative services are set out.

A 2.108 Based on evidence from other countries, the most likely alternative use of the 2.6GHz band is for mobile broadband services, although ComReg is not restricting its use to this service alone. The use of the 2.6GHz band for mobile broadband services could enable higher speed mobile broadband to be offered (where networks are rolled out). To the extent that the 2.6GHz band could be made available earlier for the provision of mobile broadband services, benefits to mobile broadband customers would accrue earlier.

A 2.109 In the present context consumers of alternative services are likely to prefer the option that:

- increases the potential to receive services at a competitive price and quality;
- translates into the availability of advanced services earlier than later; and

- In relation to both these points they are likely to prefer an option that provides enhanced services in such a way that promotes competition so as to maximise long term benefits in terms of choice, price and quality.

2.1.6 Option selection: ComReg's preliminary view

A 2.110 For the reasons set out above, ComReg's preliminary view is to select Option 1.

A 2.111 In terms of stakeholder impacts, the cessation of MMDS will involve some redistribution between pay TV providers. However overall producer surplus will remain unchanged on the assumption that MMDS customers switch to an alternative provider of pay-TV services.

A 2.112 ComReg also notes that Aegis and Plum concludes that significant benefits (producer and consumer) may be foregone by a decision to delay the timing of making the 2.6 GHz spectrum band available, hence Option 1 is more favorable than Option 2.

A 2.113 At page ES-3 in the Executive Summary of its study (Document 11/80a), Aegis and Plum concludes that 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 2019 would be in the order of €6.3 - €25.5 million under Option 1, and €2.4 - €9.6 million under Option 2.[71]

A 2.114 Any wider social benefits associated with alternative uses, such as mobile broadband are taken to be the same under both options, except these benefits would accrue earlier under Option 1.

A 2.115 ComReg notes however, that in favouring Option 1 there may be practical considerations in relation to putting a competitive process in place which will allow for a new licensee or licensees to be in place with effect from April 2014.

[71] 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.