Commission for
Communications Regulation

Information Notice

Call for input on potential uses and future licensing options of the 2.6 GHz spectrum band

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All responses to this document should be clearly marked:- "Reference: Submission re ComReg 10/38" as indicated above, and sent by post, facsimile, e-mail or on-line at www.comreg.ie, to arrive on or before 2pm, June 25 to:

Ms. Sinead Devey
Commission for Communications Regulation
Irish Life Centre
Abbey Street
Freepost
Dublin 1
Ireland

Ph: +353-1-8049600 Fax: +353-1-804 9680 Email: marketframeworkconsult@comreg.ie

Please note ComReg will publish all respondents submissions subject to the provisions of ComReg's guidelines on the treatment of confidential information – ComReg 05/24

Contents

1 Introduction

This Information Notice is published by the Commission for Communications Regulation ("ComReg") to call for inputs and views on the range of potential uses of, and future licensing options for, the 2500 MHz to 2690 MHz spectrum band (the "2.6 GHz band") in Ireland, noting that the 2.6 GHz band is subject to the European Commission Decision 2008/477/EC[1] (the "EC Decision").

In considering the future usage of the 2.6 GHz band in Ireland, it is necessary to consider that the band is not a "green field" spectrum band in this country. The majority (144 MHz out of a total of 190 MHz) of the 2.6 GHz band is currently licensed for a Multipoint Microwave Distribution System ("MMDS") for the distribution of licensed programme services.

The issue of MMDS in the 2.6 GHz band has also been considered at the EU level, by the Radio Spectrum Committee, which issued a working document on this topic ("Rscom08-39") (the "Explanatory Memorandum").[2]

Having regard to the EC Decision and related activities at an EU level, and the existing use of the 2.6 GHz band in Ireland, ComReg is now seeking views on the range of potential uses and future licensing options for this band. ComReg welcomes written views on this issue by **25 June 2010**. To assist stakeholders prepare their inputs ComReg sets out below, further background relevant to these issues.

John Doherty,
Commissioner

[1] European Commission Decision on *"the harmonisation of the 2500 – 2690 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community".* http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008163:0037:0041:EN:PDF.

[2] Radio Spectrum Committee Working Document RCSOM08-39 on *"Explanatory Memorandum on MMDS in the 2500 to 2690 MHz band".*

1 Current MMDS licences in the 2.6 GHz band in Ireland

Licensed programme material distributed using an MMDS provides competition for consumers in the pay television market in Ireland. MMDS is an outreach technology for cable in non cabled areas of Ireland and the current MMDS coverage footprint covers some 700,000 homes, circa 74k of which are subscribers to the MMDS services[3]. At a national level the issue of MMDS in the 2.6 GHz band is defined by the Wireless Telegraphy (Multipoint Microwave Distribution System) Regulations 2003[4] (the "2003 Regulations").

There are ten licenses in force under the 2003 Regulations to distribute programme material using an MMDS in the 2.6 GHz band all of which expire at the latest in April 2014. All ten licences are currently held by a single entity *UPC (Ireland) Ltd*. The 2003 Regulations provides that the Commission may renew the licences for a period of up to 5 years, and this could have an impact on the timing of availability of the 2.6 GHz band; this is detailed further below.

Regulations 7 and 8 of the 2003 Regulations set out, amongst other things, the provisions for the duration and possible renewal (up to 5 years) of licences for an MMDS, and oblige ComReg to review the operation of current licences after 18 April 2010. The responses to this information notice will form part of the review of MMDS licences, in that the inputs and views will be considered by ComReg prior to any upcoming public consultation that it may enter into in relation to the potential future use of this band and the renewal of the current MMDS licences.

Regulation 7 of the 2003 Regulations, which relates to the continuance in force of a licence for an MMDS, states that:

"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"[5]

Regulation 8 of the 2003 Regulations relates to the renewal of a licence for an MMDS and states that:

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

[3] Consolidated Operating Data from Liberty Global International Annual Report 2009 which owns the "UPC" brand

[4] Statutory Instrument Number 529 of 2003 (S.I. No 529/2003)

[5] As a result of regulatory action arising from licence compliance issues, the expiry of the three original *NTL* licences was brought forward to April 2012

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.

(2) "Where the Commission makes a determination under paragraph (1), not to renew a licence, it may be 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"

Timing of availability

In light of the above Regulations and subject to the outcome of the ComReg review of the operation of the licences, there is potential that all or part of the spectrum licensed for MMDS may not become available for other possible uses prior to 2019, though, of course, renewal of MMDS licences, were it to be granted, could also be for a period shorter than 5 years.

Amount of spectrum in the 2.6 GHz band

As stated earlier, there is 190 MHz of spectrum in the 2.6 GHz band. With the current compression technology deployed in the existing MMDS network[6], 144 MHz (starting at 2524 MHz and extending to 2668 MHz) is currently licensed for MMDS. Since the revised licences were issued in 2003, technological advances have taken place in compression technologies, which could offer a significant reduction in the amount of spectrum potentially required to replicate the distribution of the existing licensed programme material (for example, up to half of the 144 MHz of spectrum currently in use could be freed up with a cessation of analogue transmission and a move to MPEG 4 compression technology). As a result, in the future there may be a greater abundance of available spectrum in the band.

There are however other considerations which interested stakeholders may wish to ponder in developing their input and views on the potential uses and future licensing options for this band, as outlined below.

1.1 Harmonisation of the 2.6 GHz band

Another relevant consideration which should inform the future potential uses of the 2.6 GHz band is the EC Decision.[7]

In overview, the EC Decision harmonises the conditions for the availability and efficient use of the 2.6 GHz band for terrestrial systems capable of providing electronic

[6] Currently the compression technology used by UPC Ireland Ltd is MPEG 2, which is an advanced video compression standard developed by the Moving Picture Experts Group (the "MPEG"). This has since been revised by the MPEG in the MPEG 4 compression technology, which greatly improves spectrum efficiency.

[7] Ibid footnote 1.

communications services[8] ("ECS") in the Community. ComReg is obliged to consider the usage of the 2.6 GHz band within the scope of this EC Decision.

The EC decision requires member states to designate and subsequently make available, on a non-exclusive basis, the 2.6 GHz band for terrestrial systems[9], in compliance with the Block Edge Mask (BEM) parameters as set out in the Annex to the EC Decision.

The BEM parameters in the Annex to the EC Decision set out the technical details that are intended to form part of the authorisation conditions for spectrum use. These have been developed within the context of the EC's Wireless Access Policy for Electronic Communications Services ("WAPECS") [10] initiative which aims is to set down the least restrictive technical conditions while managing the risk of harmful interference between neighbouring networks.

In brief, the BEM parameters associated with the EC Decision set out among other items:

- a 5 MHz block assignment size;
- a recognition that a range of usage modes can be deployed within the band e.g. Frequency Division Duplex (FDD), Time Division Duplex (TDD) and other modes;
- a number of maximum power emission limits for base station and terminal use; and
- a recognition that in certain circumstances member states may develop less stringent technical parameters.

In addition to the EC Decision, another relevant EU level consideration is that of how MMDS can comply with the above technical parameters. This consideration is dealt with in the Explanatory Memorandum, issued by the Radio Spectrum Committee in concert with the publication of the EC Decision, and is set out below.

Explanatory Memorandum on MMDS in the 2.6 GHz band

Several Member States deploy all or part of the 2.6 GHz band for MMDS. As a result, an Explanatory Memorandum was drawn up by Radio Spectrum Committee to explain how MMDS may be handled within the scope of the EC Decision.

The Explanatory Memorandum notes that that several aspects need to be taken into account to ensure an MMDS can be compliant with the EC Decision. These aspects would

[8] Electronic Communications Services has the same meaning as set out in European Communities (ELECTRONIC COMMUNICATIONS NETWORKS AND SERVICES)(FRAMEWORK) Regulations 2003 ("S.I. No. 307 of 2003") ("the Framework Regulations").

[9] Article 2 of the EC Decision stipulates that Member States implement the Decision "no later than 6 months after entry into force of the EC Decision"

[10] See also the Radio Spectrum Policy Group Opinion RSPG05-102 on "Wireless Access Policy for Electronic Communications Services (WAPECS) (A more flexible spectrum management approach)

depend on the geographical spread and the amount of spectrum used for an MMDS, and three main categories of MMDS deployment are noted in the document:

1. Limited use, short expiration deadline;
2. Partial frequency use, long expiration deadline; and
3. Substantial to total frequency use, long expiration deadline.

Ireland is currently categorised as having the third level of MMDS deployment from this list above as illustrated in Figure 1.0 below.

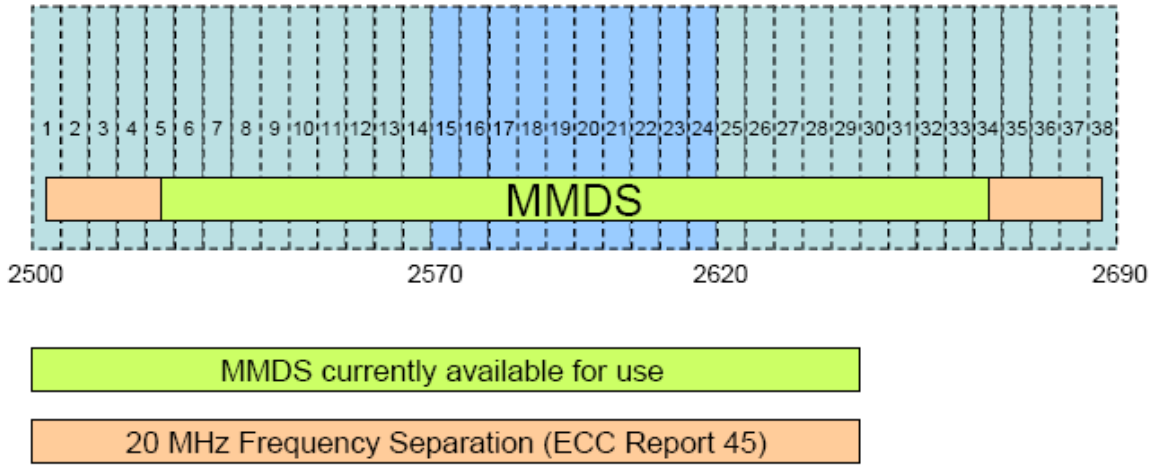

Figure 1.0 MMDS channel plan in 2.6 GHz band.[11]

Even though the Explanatory Memorandum concludes that MMDS can be handled within the scope of the EC Decision it notes that in countries where MMDS has substantial to total use of the frequency band with a long expiration deadline (as is the case in Ireland currently), that the availability of new licences in accordance with the objectives of the EC Decision is likely to be hampered. Consequently, Member States with this level of MMDS deployment are called upon to investigate the extent to which the MMDS operator is using the frequencies efficiently and whether the occupation of the entire 2.6 GHz band is justified.

It would be premature for ComReg to investigate this matter in advance of this call for inputs. Indeed, ComReg will firstly reflect on responses received to this invitation to help better inform it.

[11] (a) The current deployment of MMDS consists of 18 channels (each of 8 MHz) (i.e. a total of 144 MHz of the 2.6 GHz band, starting at 2524 MHz and extending to 2668); and

(b) Electronic Communications Committee ("ECC") Report 45 on "Sharing and adjacent band compatibility between UMTS/IMT 2000 in the band 2500-2690 MHz and other services" states that a 20 MHz frequency separation is required between an International Mobile Telecommunications ("UMTS/IMT 2000") Base Station ("BS") and an MMDS Receivers ("RX") in a shared use of the band

Given the aforementioned considerations it may also be instructive for stakeholders to consider what actions other Member States have taken in response to the EC Decision and related EU initiatives (e.g. WAPECS). These are briefly set out below.

Overview of current European situation in relation to 2.6 GHz spectrum use and harmonisation

In light of the importance of the European wide harmonised availability of the 2.6 GHz band for terrestrial systems capable of providing ECS, and the adoption of the EC Decision, steps are being taken by Member States to realise the benefits of the 2.6 GHz band for European citizens.

In particular, a number of countries[12] have recently held competitions and subsequently awarded spectrum in the 2.6 GHz band. The relevant authorisations in these countries have been based on technology-neutrality and licence durations of between 15 to 20 years, with most countries electing not to impose coverage rollout conditions[13].

Other countries[14] have consulted on matters related to the 2.6 GHz band such as the potential spectrum award designs for it. Among the issues which have been considered important by countries which are making the 2.6 GHz band available are:

- type of services likely to use the spectrum;
- the application of least restrictive technical conditions in the context of the WAPECS;
- the type of award process;
- the eligibility criteria in the award process;
- the number of 5 MHz blocks to be awarded and on what basis (e.g. national or regional); and
- the size of any potential blocks in the duplex centre gap[15];

In providing views in relation to the range of potential services, and their associated spectrum requirements, market stakeholders may wish to refer to some of the above considerations. Where they choose to do so, interested stakeholders should keep in mind that ComReg has not set out detailed views in relation to these matters and therefore would see value in inputs that are pitched at a high-level.

[12] Norway (2007), Sweden (2008), Finland (2009), the Netherlands (2010) and Denmark (2010)

[13] ComReg understands there is a very limited coverage rollout in the new licences in the Netherlands (20km^2 area within 2 years), while there are no coverage rollout obligations in the licences in Norway, Sweden and Finland.

[14] Germany and the UK

[15] In the FDD usage mode, uplink and downlink are separated by a gap referred to as a centre gap

Other considerations

ComReg recognises that it may be necessary for market stakeholders to consider the 2.6 GHz band in conjunction with other frequency bands, when providing inputs and views on the range of potential uses of the 2.6 GHz band.

ComReg notes the value that national factors such as the availability of spectrum in other spectrum bands might have in the context of providing inputs and views on the range of potential uses of the 2.6 GHz band. [16] Considering that some of all of the 2.6 GHz band could become available for licensing in Ireland in a timeframe between 2014 and 2019, it might therefore be useful for stakeholders to consider the potential availability of the 2.6 GHz band in conjunction with other spectrum bands.[17]

[16] For example a trial using spectrum in the 2.6 and 2.3 GHz bands was conducted successful by the existing licensee and this demonstrated that the band may support other uses when taken together with other available spectrum.

[17] For example, Germany is currently holding a competition for multiple spectrum bands, namely the 800 MHz, 1800 MHz, 2 GHz and 2.6 GHz bands. www2.bundesnetzagentur.de/frequenzversteigerung2010

2 Submitting inputs and views

All inputs and views are welcome. The Commission welcomes written views on the potential uses and future licensing options of the 2.6GHz band by **25 JUNE**.

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

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

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

Such Information will be treated subject to the provisions of ComReg's guidelines on the treatment of confidential information – ComReg 05/24