



**Consultation on the Licensing of 4G Mobile Services  
and  
Notice of Proposed Modification to Existing Licences**

**1 July 2013**

## Contents

Executive Summary .....	4
1. Introduction .....	6
Background to 4G .....	6
Legal and Regulatory Background .....	7
Legislative background .....	7
Current licensing arrangements for Isle of Man mobile operators .....	7
UK legislation relevant to spectrum licensing in the Isle of Man .....	8
Regulatory framework for the licensing of 4G services .....	9
Preliminary conclusion .....	11
Consultation structure .....	11
2. Spectrum availability for 4G services .....	13
Current 2G and 3G spectrum assignments .....	13
The 900MHz band .....	13
The 1800MHz band .....	14
The 2.1 GHz band .....	14
Potential spectrum bands for licensing 4G services .....	15
The 800MHz band .....	15
The 2.6GHz band .....	18
Spectrum liberalisation .....	19
Potential for a third 4G operator .....	20
Equalisation of spectrum holdings .....	22
Consultation proposals .....	22
3. 4G licence fee and financial bid .....	25
International comparators .....	25
Covering costs .....	26
Recommended fee .....	27
Wireless Telegraphy fees for using 4G spectrum .....	28
4. Award process for the Telecommunications Act licences to provide 4G services .....	29
Background to selection of 4G award process .....	29
Details of proposed 4G licence award process .....	31
Minimum service criteria to be included in the 4G licences .....	33

5. Notice of Proposal to Modify Licences issued under s.5 of the Telecommunications Act 1984.....	35
6. Next steps.....	36
Annex 1 .....	37
ADDITIONAL OBLIGATIONS IN RESPECT OF 4G SERVICE PROVISION .....	37
INTERPRETATION AND APPLICATION .....	37
ROLLOUT CONDITIONS.....	38

## Executive Summary

This consultation is concerned with the Communications Commission's proposals to licence the provision of 4G mobile communications services in the Isle of Man. The introduction of 4G mobile is particularly suited to the provision of better mobile data services, faster speeds and improved quality of service, which means that, potentially, broadband delivered over mobile networks could be as good as or, in some circumstances, even better than broadband delivered over the fixed network.

The Communications Commission has already established its objectives in previous consultations on spectrum policy. In its January 2012 response to the radio spectrum consultation, the Commission stated clearly that its spectrum strategy is one that seeks to maximise investment and economic growth, given that the development of communications networks and services is fundamental to the benefit of consumers and the Island as a whole.

The focus of this consultation is on the process for licensing 4G services in the Isle of Man and, in this context, to set out the Commission's plans for the spectrum bands to which the Commission, in conjunction with Ofcom, should grant access for the provision of 4G services. In this regard, the Commission has considered current spectrum assignments, and has considered what spectrum is available, and how this may best be offered to mobile operators.

The Commission's proposals are that spectrum should be made available in the 800MHz, 1800MHz and 2.6GHz bands to support the provision of 4G services. The Commission proposes that there is sufficient spectrum for relatively large contiguous awards to be made, which would allow operators to offer higher data rates. In order to ensure that such awards can be made, the Commission proposes to licence up to three 4G operators. This would support the Commission's policy of facilitating the introduction of innovative services on the Island. The Commission also proposes that, in parallel with the 4G awards, spectrum already allocated should be liberalised, so that operators could choose which technologies to use for the services they provide.

In order to provide 4G services in the Isle of man, operators will be required to hold: (a) a valid Wireless Telegraphy Act licence issued by Ofcom which allows the use of specific spectrum bands (the 'WTA Licence'); and (b) a valid Isle of Man Telecommunications Act licence issued by the Commission, which allows the provision of telecommunications services (the 'Telecommunications Licence'). For ease of reference when referring to these two types of licence collectively, we have referred to them as the '4G Licences'. If 4G Licences are awarded to an operator already holding a valid Telecommunication licence, that Telecommunications Licence will be varied by way of a new Part.

The Commission has considered what fee to charge for the award of a Telecommunications Licence/ variation of the Telecommunications Licence (in the case of an operator holding such a licence) and proposes to set a fee of £150,000 per Telecommunications Licence/Telecommunications Licence variation together with any sealed bid amount (if

matters proceed to a sealed bid stage). There will also be a separate annual fee for the WTA Licence. The 4G Telecommunications fee has been derived from international comparators, an analysis of the availability of spectrum in the Island, and the characteristics of the Manx market. The price has also been set at a level that ensures that the Commission can recover the costs associated with a robust, transparent and professionally guided award process.

The process proposed by the Commission is designed to be efficient and timely, with a view to awarding or amending licences as soon as possible against the backdrop of the current legislative framework. A new market entrant would be issued with both a WTA licence and a Telecommunications Licence. An existing operator would be issued with a WTA licence and their existing operator's Telecommunications Licence would be varied as set out in Annex 1. Manx Telecom ('MT') and Sure (Isle of Man) Ltd. ('Sure')<sup>1</sup> currently hold Telecommunications Licences. The purpose of the proposed modifications is to ensure that 4G services will be introduced and operated in the Isle of Man in a manner which will best achieve the objectives set out by the Commission. The time period within which representations or objections to the licence variation may be made will run concurrently with this consultation, so that representations on the proposed licence modifications may be made within one month of the publication of this consultation.

The Commission has built into the award process a methodology that takes account of the possibility of higher than expected interest in the awards. The Commission proposes to define a set of service and performance criteria, which all applicants will be expected to meet. Should there be three or fewer valid applications, the award can be made at this stage. Should there be more than three valid applications from suitably qualified bidders, the Commission proposes to invite sealed bids setting out financial offers in excess of the reserve price.

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<sup>1</sup> Sure informed the Communications Commission on 20 June 2013 that it changed its name from Cable & Wireless IOM Limited to Sure (Isle of Man) Limited.

# 1. Introduction

## Background to 4G

- 1.1. This consultation is concerned with proposals for the licensing of 4G mobile communications services on the Isle of Man and the spectrum bands that should, in conjunction with Ofcom, be assigned for use for this purpose. The Commission has already consulted on its spectrum policy. In 2011, the Commission consulted on options for managing the radio spectrum. In its January 2012 response to the radio spectrum consultation, the Commission stated that its spectrum strategy is one that seeks to maximise investment and economic growth, given that the development of communications networks and services is fundamental to the benefit of consumers and the Island as a whole.<sup>2</sup> The Commission's objectives and approach have therefore already been established, and this consultation focuses on the process whereby 4G services may be licensed, with 4G operators being granted access to sufficient spectrum to enable the provision of leading-edge 4G services.
- 1.2. With 4G technology, the distinction between voice and data is less marked than is the case in previous mobile technologies. While 2G mobile introduced customers to texts and emails from their phones, and 3G supported smartphones and data, 4G is ideally suited for high-bandwidth data services, such as live TV or streaming high quality video. According to Ofcom, for a typical user, download speeds of initial 4G networks are likely to be at least 5-7 times faster than existing 3G networks, and as the networks develop, significantly higher speeds are expected.<sup>3</sup>
- 1.3. There has been a rapid growth in demand for mobile data over the last few years, and this is likely to continue. In the Isle of Man, this has been driven primarily by the use of data services on mobile phones. Demand for mobile broadband services on a PC using a dongle has been less significant to date. This may be because 3G mobile broadband is not a very good substitute for fixed broadband, particularly as the quality of retail fixed broadband in the Isle of Man is relatively high. This means that customers are not likely to choose mobile broadband if they can use fixed broadband. Also, the island is not large, and the 'mobility' benefit of mobile broadband, both for 'nomadic' use and accessing mobile broadband on, for example, public transport, is not likely to be as significant as in other larger jurisdictions.
- 1.4. The introduction of 4G mobile will facilitate the offering of better mobile data services, in particular faster speeds and improved quality of service, which means that, in some cases, broadband delivered over the mobile network could be as good as or even better than broadband delivered over the fixed network.

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<sup>2</sup> Response to Consultation on Options for Managing the Radio Frequency Spectrum, Communications Commission, January 2012, available at: <http://www.iomcc.im/lib/docs/cc/consultations/responsetoconsultationoptions1.pdf>.

<sup>3</sup> Ofcom suggests 3G at 1 Mbps and 4G at 6 Mbps, Ofcom statement 20.12.12.

## Legal and Regulatory Background

### Legislative background

- 1.5. The Isle of Man Communications Commission is responsible for issuing licences for telecommunications and broadcasting services on the Island. The Commission's powers include:
  - specifying the nature of the telecommunications systems and services which operators are permitted to operate and provide under the licence;<sup>4</sup> and
  - setting conditions on such operation and provision.<sup>5</sup>
- 1.6. Spectrum management is the responsibility of the UK Office of Communications (Ofcom). Ofcom licenses and regulates the use of radio spectrum in the Island, under the Wireless Telegraphy Act 2006 of Parliament, which is extended to the Isle of Man, with Tynwald's consent, by Order in Council. The Commission works closely with Ofcom to ensure that Isle of Man Government policies are taken into account in licensing decisions.
- 1.7. The legislative basis for the proposals to license the provision of 4G mobile communications services in the Isle of Man is provided by the Telecommunications Act 1984. This consultation is undertaken as part of the process leading to such licensing.

### Current licensing arrangements for Isle of Man mobile operators

- 1.8. MT and Sure have telecommunications licences granted under section 5 of the Telecommunications Act 1984 (of Tynwald). MT's current licence was granted by Council of Ministers (CoMin) effective from 1 January 2004 and Sure's by the Communications Commission (the 'Commission') effective from 1 June 2006. These licences allow the operators to offer telecommunications services in the Isle of Man. The definition of telecommunications services is broad (e.g. it does not distinguish between fixed and mobile), and there are no schedules attached to the licences covering frequency allocations or technical specifications.
- 1.9. MT and Sure have Public Wireless Network Licences for 2G and 3G mobile services, issued by Ofcom under the Wireless Telegraphy Acts ('WTA') 1949 and 1998.<sup>6</sup> These licences, issued in consultation with the Commission, have a linkage to the operator holding a telecommunications licence in the Isle of Man, in that the licence may be revoked:

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<sup>4</sup> See s.5(1) and 5(4)(b) TA 1984.

<sup>5</sup> See s.5(5) TA 1984.

<sup>6</sup> The Wireless Telegraphy Act 2006 repealed the 1949 and 1998 Acts.

*"If there is no longer in force a licence granted to the Licensee by the **Communications Commission, Isle of Man** for the provision of a telecommunications service in that territory;" [Clause3b].*

- 1.10. These WTA licences provide for variation in the licence, and the attached schedule specifies several technical parameters, including which frequency bands are allocated.
- 1.11. At present, then, a mobile operator in the Isle of Man needs to have (a) a Telecommunications Act licence from the Communications Commission, and (b) a WTA licence from Ofcom.

### **UK legislation relevant to spectrum licensing in the Isle of Man**

- 1.12. The use of spectrum in the Isle of Man is governed by UK legislation that has been extended to the Isle of Man, as well as by international agreements between the UK and other countries on the use to which various bands of radio spectrum can be put and the avoidance of interference across borders. The licensing of the use of spectrum, in the UK and in the Isle of Man, is carried out by Ofcom, by virtue of the powers given to it by the Wireless Telegraphy Act 2006 and the Communications Act 2003, which have been extended to the Isle of Man.
- 1.13. Ofcom's principal and secondary duties are in Section 3 of the Communications Act 2003 ('General duties of Ofcom'), which provides that:
  - (1) *It shall be the principal duty of OFCOM, in carrying out their functions—*
    - (a) *to further the interests of citizens in relation to communications matters;*
    - and*
    - (b) *to further the interests of consumers in relevant markets, where appropriate by promoting competition.*
  - (2) *The things which, by virtue of subsection (1), OFCOM are required to secure in the carrying out of their functions include, in particular, each of the following—*
    - (a) *the optimal use for wireless telegraphy of the electro-magnetic spectrum;*
    - (...)
- 1.14. Moreover, Section 3 of the WTA ('Duties of OFCOM when carrying out functions') further specifies Ofcom's duties as follows:
  - (1) *In carrying out their radio spectrum functions, OFCOM must have regard, in particular, to—*
    - (a) *the extent to which the electromagnetic spectrum is available for use, or further use, for wireless telegraphy;*
    - (b) *the demand for use of the spectrum for wireless telegraphy; and*
    - (c) *the demand that is likely to arise in future for the use of the spectrum for wireless telegraphy.*



- (2) *In carrying out those functions, they must also have regard, in particular, to the desirability of promoting—*
- (a) the efficient management and use of the part of the electromagnetic spectrum available for wireless telegraphy;*
  - (b) the economic and other benefits that may arise from the use of wireless telegraphy;*
  - (c) the development of innovative services; and*
  - (d) competition in the provision of electronic communications services.*

1.15. For the purposes of the spectrum relevant to this consultation, the respective roles of the Commission and Ofcom in coordinating the award of spectrum licences in the Isle of Man are as follows:

- Ofcom consults the Commission for advice about the level and nature of demand for the spectrum in the specified bands in the Isle of Man. It is established practice that the allocation of spectrum in the Isle of Man is dealt with by way of a call for expressions of interest by the Commission. The Commission carries out an open, non-discriminatory and transparent selection process on behalf of Ofcom. In light of responses to the selection process the Commission has carried out (if demand exceeds supply), the Commission makes a recommendation to Ofcom as to how it considers the spectrum in the Isle of Man should be allocated; and
- Ofcom may act on the recommendation and grant licences for spectrum use under the WTA provided it is satisfied the Commission's recommendation is likely to be consistent with its own statutory duties.

### **Regulatory framework for the licensing of 4G services**

- 1.16. Mobile operators in the Isle of Man will continue to need both a WTA Licence issued by Ofcom, with the Commission's recommendation, which will allow the use of specific spectrum bands for the provision of 4G mobile services on the Island, and a Telecommunications Act licence issued in the Isle of Man which allows the provision of 4G mobile telecommunications services in the Isle of Man. It is important that both new entrants and existing mobile operators are subject to appropriate regulatory conditions in respect of the provision of 4G services. For the purposes of this consultation, the term '4G licence' is therefore used to mean the combination of (a) either the award to a new entrant of a Telecommunications Act licence containing conditions appropriate to the provision of 4G mobile services or the modification of the Telecommunications Act licence held by an existing mobile operator to contain such conditions, in each case together with (b) the relevant WTA licence issued by Ofcom granting usage rights to the relevant spectrum bands.
- 1.17. Should a new market entrant successfully apply for a 4G licence, the Commission proposes to issue a mobile operator's licence under the Telecommunications Act. A draft of this licence will be made available when the Commission seeks expressions of interest in the 4G awards.

- 1.18. The Commission considers that successful application by current operators would require a variation in the current Telecommunications Act licences. The Commission proposes to meet the objectives of the 4G process by inserting the new conditions in a new Part of the current Telecommunications Act licences. The new Part would contain licence conditions in relation to 4G service provision, and would formally link the Telecommunications Act licence to the WTA licence issued by Ofcom, as at present the only formal link is from the WTA licence which implies the holding of a Telecommunications Act licence. There is no mechanism in the current Telecommunications Act licence which connects the permission for an operator to offer telecommunications services with the WTA licence which allows the operator to use particular spectrum bands to offer these services.
- 1.19. Under section 10(1) of the Telecommunications Act 1984, the Commission is empowered to modify a licence, save to the extent that the terms of the licence specifically provide, in accordance with section 10(2), that the licence should not be modified. The licences of both the current operators provide that there should be no licence modifications prior to the end of the fifth year after the grant of the licence, but, in each case, that period has now expired. Accordingly, the Commission has power to modify the current operators' licences, consistently with section 10 of the Telecommunications Act 1984, and proposes to do so. The Commission's preference would be to modify the licence with the consent of both existing mobile operators, as this is likely to be most practical and time efficient. The Commission has attached to this Consultation Document a proposed licence variation as Annex 1.
- 1.20. Under the provisions of section 10(3) of the Telecommunications Act 1984, before making modifications to operators' licences, the Commission is required to give notice:
- "(a) stating that it proposes to make the modifications and setting out their effect; (b) stating the reasons why it proposes to make the modifications; and (c) specifying the time (not being less than 28 days from the date of publication of the notice) within which representations or objections with respect to the proposed modifications may be made",*
- 1.21. The modifications proposed to current mobile operators' licences are those set out in Annex 1, which will be attached as a new Part 7 to the current Telecommunications Act licence held by MT and a new Part 5 to the Telecommunications Act licence of Sure. The purpose of the proposed modifications is to ensure that 4G services will be introduced and operated in the Isle of Man in a manner which will best achieve the objectives set out by the Commission. The time period within which representations or objections may be made will run concurrently with this consultation, so that representations on the proposed licence modifications may be made within one month of the publication of this consultation.
- 1.22. For a new market entrant, the Commission would issue an appropriate licence under the Telecommunications Act, which would licence the operator to provide

mobile communications services on the Island, and which would contain the same provisions for 4G services as discussed above in the context of existing licences.

### Preliminary conclusion

- 1.23. The Commission proposes to insert new conditions into the Telecommunications Act licences, as being the best route to secure licensing consistency between incumbents and any new licensees, local regulatory control and speedy delivery of 4G services. The Commission wishes to ensure that the new 4G services are launched at the earliest date possible in a way which is most effective and which will offer optimum service for customers.
- 1.24. For the purposes of this consultation, the term '4G licence' is taken to mean either the award of a new Telecommunications Act licence or the modification of an existing Isle of Man Telecommunications Act licence in conjunction with the relevant WTA licence issued by Ofcom granting usage rights to the relevant spectrum bands.
- 1.25. The consultation proceeds therefore on the basis that the most suitable way to bring forward licensing of 4G mobile communications services in the island is by inserting conditions in a licence issued under the Telecommunications Act 1984 to an operator (including any new operator). The aim of this proposal is that each of the successful applicants will be ultimately operating under a consistent set of licence conditions relevant to their provision of any mobile services, including 4G.
- 1.26. The Commission would welcome views in relation to this proposal as part of the consultation responses.

**Proposal 1:** in order to provide 4G services, a mobile operator in the Isle of Man will require a WTA licence issued by Ofcom on the recommendation of the Commission, and the acceptance of a new Part inserted into its Isle of Man Telecommunications Act licence which will include appropriate licence conditions relating to 4G mobile service provision.

### Consultation structure

- 1.27. This Consultation Document is structured in the following way:
  - **Section 2** describes current spectrum assignments, and identifies spectrum bands which may be made available in this award process. Section 2 also sets out the Commission's proposals on the specific spectrum allocations which could be awarded.
  - **Section 3** explains how the Commission has calculated its proposed charge for licensing 4G services.

- **Section 4** sets out the Commission's proposals for the process which will be followed in awarding the 4G licences.
- **Section 5** gives notice of a proposal to modify the licences of the incumbents, should they be successful in the 4G licence award, issued under s.5 of the Telecommunications Act 1984.

## 2. Spectrum availability for 4G services

2.1 In this Section, the spectrum bands that may be made available for use in the provision of 4G services in the Isle of Man are examined. This analysis covers both the bands that are currently in use for 2G and 3G mobile services as well as the other bands where spectrum may also be made available for 4G. The options for the liberalisation of all mobile spectrum assignments is then discussed, following which the Commission's proposals for the award of up to three 4G licences are set out.

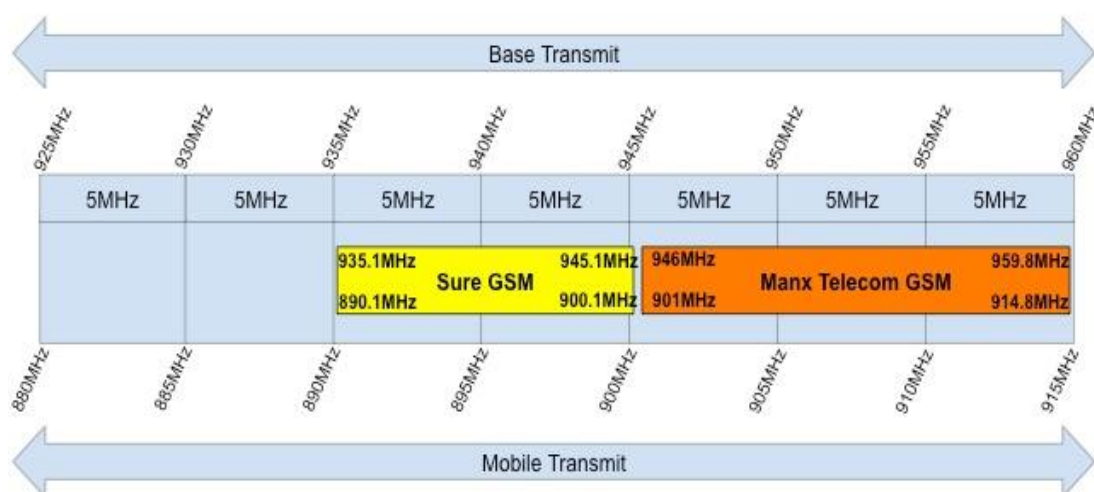
### Current 2G and 3G spectrum assignments

2.2 At the present time, MT and Sure hold WTA licences to provide 2G and 3G mobile services on the Island. The two operators utilise spectrum in the 900MHz and 1800MHz bands to support the provision of 2G mobile services and they are also licensed to use 2.1GHz spectrum for the provision of 3G services.

### The 900MHz band

2.3 Figure 1 below illustrates the current position regarding the assignment of spectrum in the 900MHz band. As Figure 1 shows, MT holds 2 x 13.8MHz of spectrum within this band, while Sure holds an assignment of 2 x 10MHz. Both operators are licensed to provide 2G (GSM) mobile services within the 900MHz band. As Figure 1 also shows, a further block of 2 x 10MHz of spectrum remains unassigned within the 900MHz band.

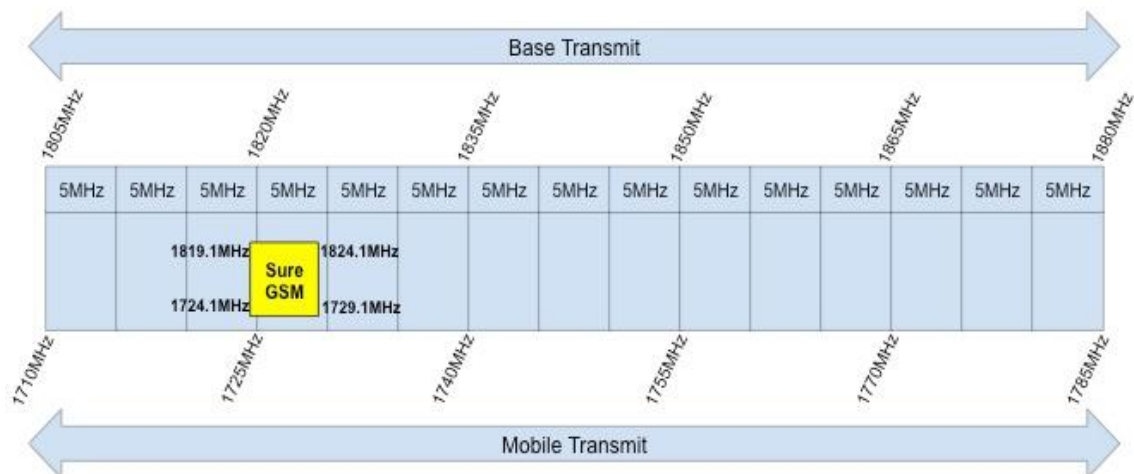
Figure 1: spectrum assignments in the 900MHz band



## The 1800MHz band

- 2.4 The current position in relation to the assignment of spectrum in the 1800MHz band is shown in Figure 2 below. This shows that the sole current assignment within this band is one of 2 x 5MHz held by Sure for the provision of 2G (GSM) services. MT does not currently hold any spectrum assignment within the 1800MHz band. A total of 2 x 70MHz of spectrum is currently available for assignment within this band.

Figure 2: spectrum assignments in the 1800MHz band

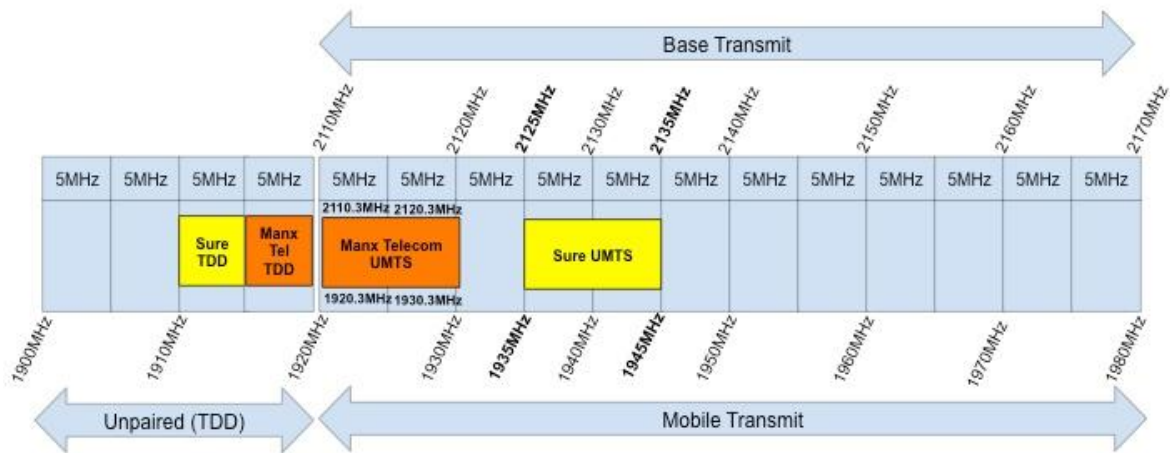


## The 2.1 GHz band

- 2.5 Both MT and Sure hold spectrum assignments within the 2.1GHz band for the provision of 3G mobile services, as is illustrated in Figure 3 below. The allocation of spectrum within this band differs from that in the 900MHz and 1800MHz bands, in that provision has also been made for the allocation of unpaired TDD spectrum as well as paired (FDD) spectrum assignments.<sup>7</sup>
- 2.6 As may be seen from Figure 3 below, both MT and Sure hold 5MHz each of unpaired TDD spectrum while both also hold assignments of 2 x 10MHz paired spectrum within this band. The assignments that both operators currently hold within the 2.1GHz band are for the provision of 3G (UMTS) services.
- 2.7 At the present time, a further 10MHz of unpaired spectrum and 2 x 40MHz of paired spectrum remains unassigned within the 2.1GHz band.

<sup>7</sup> The process of undertaking two-way radio communications over a communications channel is known as *duplexing*. Duplexing can take two forms, half (i.e. where the parties take turns to transmit over a shared channel, for example using two-way radios) and full (i.e. where simultaneous two-way communication is enabled). Full duplexing may be enabled in two basic ways: frequency division duplex (FDD) or time division duplex (TDD), with FDD requiring two separate symmetrical segments of spectrum for the uplink and downlink radio channels (shown as 'base transmit' and 'mobile transmit' in the illustrations in this section) while TDD uses a single frequency band to transmit and receive with alternative time slots allocated to transmit and receive operations.

**Figure 3: spectrum assignments in the 2.1GHz band**



### Potential spectrum bands for licensing 4G services

- 2.8 4G mobile networks are being deployed across the world using spectrum in a number of different frequency bands. Typically, 4G networks are being deployed so that both coverage and capacity are maximised and, in order to do this, a mix of spectrum bands – which offer different radio propagations – are being used.<sup>8</sup>
- 2.9 In considering the possible spectrum bands that might be used to support the provision of 4G services in the Isle of Man, the Commission has the option of using both the 800MHz band (i.e. the 'Digital Dividend' spectrum released from switching off analogue terrestrial television) and the 2.6 GHz band but it is also open to it to recommend making available spectrum assignments in the existing 2G and 3G bands.

### The 800MHz band

- 2.10 This band (encompassing spectrum in the range 791MHz to 862MHz) is one of the bands that has been identified by the International Telecommunication Union (ITU) as a global harmonised band for the provision of International Mobile Telecommunications (IMT) services.<sup>9</sup> The band comprises the so-called 'Digital Dividend' spectrum that has been freed up for re-use arising from the Digital TV switchover to support the deployment of advanced mobile broadband services. The

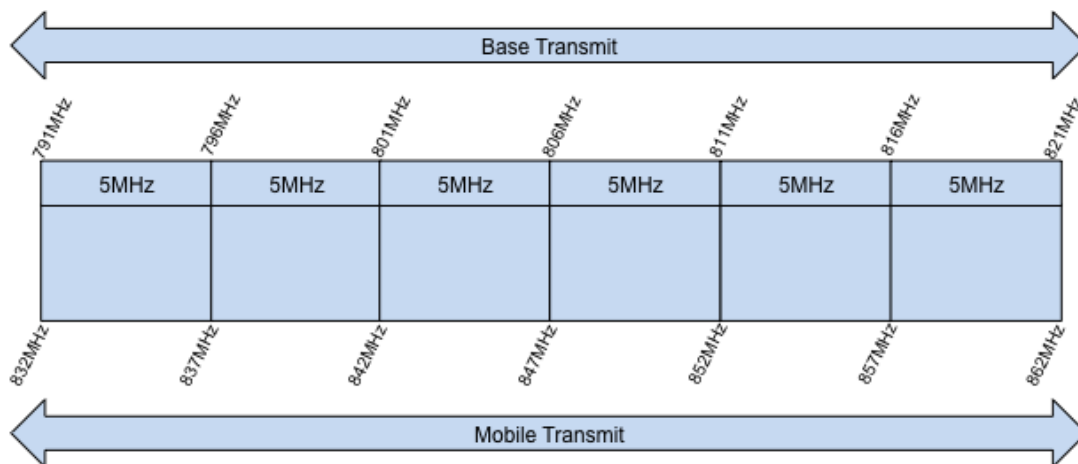
<sup>8</sup> The lower the frequency band, the wider the area that can be covered from a given cell site. Lower frequency bands (i.e. sub- 1GHz) also facilitate greater in-building coverage than higher frequency bands (e.g. 3G services provided over the 2.1GHz band).

<sup>9</sup> At the 2007 World Radiocommunication Conference (WRC-07) the ITU designated the 450–470 MHz band, the 698–862 MHz band (in Region 2 and nine countries of Region 3), the 790–862 MHz band (in Regions 1, i.e. Europe and 3), the 2.3–2.4 GHz band and the 3.4–3.6 GHz band (no global allocation, but accepted by many countries) as globally harmonised spectrum for use by IMT. See ITU press release at: [http://www.itu.int/newsroom/press\\_releases/2007/36.html](http://www.itu.int/newsroom/press_releases/2007/36.html).

Digital switchover was completed in the UK in October 2012 and so the 800MHz band is now free for allocation for 4G services.

- 2.11 Spectrum usage rights to the 800MHz band (and in the 2.6GHz band) in the UK were recently allocated via an auction process.<sup>10</sup> A similar process was also completed in Ireland with spectrum usage rights being assigned in the 800MHz band as part of a multi-band process.<sup>11</sup> Digital switchover in Ireland was also completed in October 2012.
- 2.12 Within the EU, the European Commission’s Decision 2010/267/EU of 6 May 2010<sup>12</sup> confirmed the recommendation contained in CEPT’s report to the EC of 30 October 200<sup>13</sup> that the 800MHz band plan be based on a channel arrangement whereby 2 x 30MHz of spectrum be made available in six FDD paired blocks of 2 x 5MHz bandwidth, as is illustrated in Figure 4 below. This band plan, which is mandatory within the EU, has now been implemented in a number of Member States, including Germany, Ireland and the UK.

**Figure 4: The 800MHz band**



<sup>10</sup> The 4G spectrum auction in the UK, which was undertaken by Ofcom and was completed in February 2013, resulted in the allocation of 250MHz of spectrum in the 800MHz and 2.6GHz bands and the raising of over £2.3 billion for the UK Treasury. For further information on the UK auction see: <http://media.ofcom.org.uk/2013/02/20/ofcom-announces-winners-of-the-4g-mobile-auction/>.

<sup>11</sup> ComReg’s spectrum auction in Ireland encompassed usage rights within the 800MHz, 900MHz and 1800MHz bands. See: <http://www.comreg.ie/fileupload/publications/PR15112012.pdf>

<sup>12</sup> European Commission Decision of 6 May 2010 on harmonised technical conditions of use in the 790-862 MHz frequency band for terrestrial systems capable of providing electronic communications services in the European Union (Commission Decision 2010/267/EU), available at: <http://bit.ly/12s18MG>.

<sup>13</sup> Report from CEPT to the European Commission in response to the Mandate on Technical considerations regarding harmonisation options for the digital dividend in the European Union, “Frequency (channelling) arrangements for the 790-862 MHz band” Final Report on 30 October 2009 by the Electronic Communications Committee (ECC) within the European Conference of Postal and Telecommunications Administrations (CEPT), available at: <http://bit.ly/159eOyK>.



- 2.13 The UK auction enabled participants to bid for access to each of the paired blocks of 2 x 5MHz in the 800MHz band, with two bidders securing access to a single paired 2 x 5MHz block while another two secured access to 10 x 5MHz blocks.<sup>14</sup> In the recently concluded Irish auction, three operators each secured access to 2 x 10MHz of spectrum within the band.<sup>15</sup>
- 2.14 The Commission is considering the 800MHz band as the main low-frequency band to be used in the deployment of 4G services. 4G networks using the 800MHz band will, inside the next twelve months, be live in both the UK and Ireland and increasing volumes of 800MHz-compatible terminal equipment (mobile handsets, tablets and dongles) are already being sold commercially. Operators deploying 4G networks in the Isle of Man are likely to want to do so using the harmonized 800MHz band and so it makes sense for the Commission to provide access to this spectrum, of which there is ample bandwidth (2 x 30MHz) available for assignment.
- 2.15 In making access available to the 800MHz band, the Commission wishes to draw attention to the possible need to mitigate interference from mobile services to Digital Terrestrial Television (DTT) services in the band below 790MHz. In the UK this issue is being dealt with by the implementation of a programme of remedial work, to be part-funded by the successful bidders for the 800MHz spectrum, undertaken by a joint-venture company, DMSL, owned by the four UK mobile operators.<sup>16</sup> The Commission has considered how best this issue might be dealt with by 4G operators in the Isle of Man and it has concluded that it would not be feasible or proportionate to put in place in the Isle of Man the type of programme being implemented in the UK to deal with the issue.<sup>17</sup> Instead, the Commission takes the view that it is up to the 4G licensees themselves to deal with possible DTT interference and to implement whatever remedial work they see fit, in order to ensure that interference is not an issue. Such action could, in the Commission's opinion, include co-operation by the Isle of Man 4G operators with activities being undertaken by DMSL.
- 2.16 The Commission has discussed the issue of possible DTT interference with Ofcom, and it is proposed that an obligation to deal with possible DTT interference should be included within the WTA licences that Ofcom will issue to the Isle of Man 4G operators.

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<sup>14</sup> Everything Everywhere and Hutchison 3G UK each secured 2 x 5MHz while Vodafone and Telefónica UK each secured 2 x 10 MHz, the block secured by the latter coming with additional coverage obligations attached.

<sup>15</sup> The operators in question were Vodafone Ireland, Telefónica Ireland and Meteor.

<sup>16</sup> This company, Digital Mobile Spectrum Limited (DMSL), formerly MitCo, was formed in October 2012 by the mobile operators EE, Telefónica O2, Three and Vodafone. See Ofcom press release dated 18<sup>th</sup> October 2012 at: <http://media.ofcom.org.uk/2012/10/18/further-progress-in-the-speed-up-of-delivering-4g-to-consumers/>

<sup>17</sup> In this respect, the Commission notes that no such initiative of this kind has yet been implemented to deal with possible DTT interference in Ireland.

## The 2.6GHz band

- 2.17 The 2.6GHz band, encompassing spectrum in the range 2500MHz to 2690MHz, has also been identified - globally by the ITU<sup>18</sup> and within the EU by the European Commission<sup>19</sup> - as a spectrum band that is suitable for use in the provision of terrestrial electronic communications services, including mobile broadband services.
- 2.18 The assignment of spectrum in the 2.6GHz band for advanced mobile services began in Norway (in 2007) and Sweden (in 2008). Spectrum access rights for 4G services using the 2.6GHz band have since been assigned in a number of EU Member States, as well as elsewhere across the world. In a number of countries, multi-band 4G spectrum auctions have been undertaken, with access to spectrum being offered simultaneously in the low frequency 800MHz band and the high-frequency 2.6GHz band.<sup>20</sup>
- 2.19 As noted above, the recently concluded UK spectrum auction incorporated both the 800MHz band and the 2.6GHz band. In the auction, three operators secured access to spectrum in the 2.6GHz band.<sup>21</sup> In Ireland, the 2.6GHz band was not included within the recent multi-band auction, as the band is still in use there to support the provision of Microwave Multipoint Distribution Systems (MMDS) (MMDS) pay-TV services. ComReg has since decided to clear the 2.6 GHz band in Ireland for re-assignment after April 2016.<sup>22</sup>
- 2.20 Spectrum in the 2.6GHz band has been auctioned within Europe for both FDD and TDD use. In the UK, the 2.6GHz band plan accords with that set out in the annex to the European Commission's Decision of 13 June 2008 (2008/477/EC, referenced above) which designates 2500 to 2570 MHz paired with 2620 to 2690 MHz for FDD

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<sup>18</sup> Initially, at WRC 2000, as the 'IMT-2000 expansion band' with the intention that it be assigned as additional 3G spectrum. This decision was made at a time when it was believed that there would be rapid growth in 3G services, thus creating a requirement for 3G operators to secure access to additional spectrum. Slower than anticipated deployment of 3G networks and lower than expected take-up meant that this 3G spectrum requirement never materialized. At WRC-07, the band was harmonised on a global basis for the provision of terrestrial mobile services.

<sup>19</sup> European Commission Decision of 13 June 2008 on the harmonisation of the 2500 – 2690 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community (Commission Decision 2008/447/EC), available at: <http://bit.ly/X2HR3O>. In addition, the European Council and Parliament Decision of 14 March 2012 (Decision No. 242/2012/EU) on establishing a multiannual radio spectrum policy programme (available at: <http://bit.ly/GHYZCX>) obliges Member States to carry out authorization processes for access to the 2.6GHz band before the end of 2012.

<sup>20</sup> For an overview of recent European spectrum auctions, see European Spectrum Auctions - Outcome and analysis of recent spectrum auctions in Europe, Coleago Consulting, 15<sup>th</sup> July 2012, available at: [http://www.coleago.co.uk/uploads/tx\\_downloads/European\\_Spectrum\\_Auctions\\_Coleago\\_Report\\_V009\\_150712\\_SZ.pdf](http://www.coleago.co.uk/uploads/tx_downloads/European_Spectrum_Auctions_Coleago_Report_V009_150712_SZ.pdf)

<sup>21</sup> Assignments in the UK auction in the 2.6GHz band were secured by Everything Everywhere (2 x 35 MHz), BT, which bid through Niche Spectrum Ventures (2 x 15 MHz paired and 1 x 20 MHz unpaired) and Vodafone (2 x 20 MHz paired and 2 x 25 MHz unpaired).

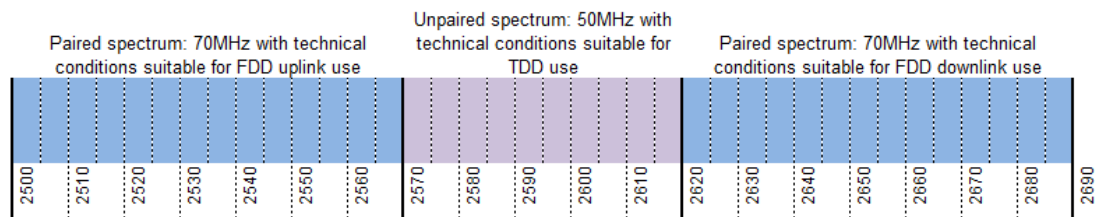
<sup>22</sup> See ComReg's Decision 06/13 at: <http://www.comreg.ie/fileupload/publications/ComReg1331.pdf>

use and indicates that administrations may assign 2570 to 2620 MHz for TDD use or for external FDD downlink.<sup>23</sup>

- 2.21 Details of Ofcom’s UK 2.6 GHz band plan are set out in Figure 5 below. The 2.6GHz band is currently vacant within the Isle of Man and so would be available for assignment for 4G services.
- 2.22 An issue which has arisen in the UK and elsewhere in relation to the use of the 2.6GHz band for 4G mobile services is the possible interference with radar equipment, in particular those used for air traffic control purposes.<sup>24</sup> In releasing the 2.6GHz band to the mobile operators for 4G usage in the UK, Ofcom has included specific provisions within the operators’ WTA licences relating to the siting of 4G base stations close to radars to ensure that no interference with radar equipment takes place. Ofcom has signalled to the Commission that it intends to include similar obligations within the WTA licences it will issue to the Isle of Man 4G operators.<sup>25</sup> The Commission fully concurs with Ofcom’s proposed approach on this issue.

2.23

**Figure 5: UK 2.6GHz band plan**



Source: Ofcom<sup>26</sup>

## Spectrum liberalisation

- 2.24 The Commission has considered whether it should, in conjunction with Ofcom, liberalise spectrum rights of use in all bands. This would mean that all the bands would be freed from service and technology restrictions, leaving operators free to make their own operational choices regarding which services to provide in which bands.

<sup>23</sup> As already noted, operators secured access to both paired and unpaired spectrum blocks in the 2.6GHz band, enabling a mix of FDD and TDD usage of the band.

<sup>24</sup> See: [http://stakeholders.ofcom.org.uk/spectrum/spectrum-awards/prospective-awards/award\\_2010/comm-signals-26-band/](http://stakeholders.ofcom.org.uk/spectrum/spectrum-awards/prospective-awards/award_2010/comm-signals-26-band/)

<sup>25</sup> [http://stakeholders.ofcom.org.uk/binaries/spectrum/clearance-coexistence/Final\\_Radar\\_coordination.pdf](http://stakeholders.ofcom.org.uk/binaries/spectrum/clearance-coexistence/Final_Radar_coordination.pdf)

<sup>26</sup> Award of 800 MHz and 2.6 GHz spectrum, Ofcom Information Memorandum, 24<sup>th</sup> July 2012, available at: <http://stakeholders.ofcom.org.uk/binaries/consultations/award-800mhz/statement/IM.pdf> (Figure 2.3).

- 2.25 The liberalisation of current 2G and 3G spectrum allocations would need variation in the current WTA licences, so that they are no longer technology-specific. Ofcom has consulted on liberalising some spectrum bands in the UK.<sup>27</sup>
- 2.26 The WTA licences, for both 2G and 3G spectrum holdings, currently held by MT and Sure may be varied with the consent of the licence holders.<sup>28</sup> The Commission has held preliminary discussions with both MT and Sure about liberalising 2G and 3G spectrum usage rights and both operators have, in principle, expressed support for such a move. The Commission therefore intends to proceed with the liberalisation of these spectrum usage rights, with the formal consent of both operators and in conjunction with Ofcom, with the intention that the necessary licence variations will be completed to coincide with the conclusion of the 4G licensing process.
- 2.27 The Commission also proposes that new 4G WTA licences will not be technology specific. This means that they will specify which frequency bands the licence holder has access to but will not be prescriptive as regards the technologies deployed within the bands. The Commission proposes that a new Part inserted into the Isle of Man Telecommunications Act licences will contain general obligations in relation to the provision by the licensee of a mobile broadband service, covering such issues as the availability of the service and the minimum data speeds that may be offered. Unlike the existing 2G and 3G WTA licences, however, the new 4G WTA licences issued by Ofcom will not be prescriptive in terms of the specific technologies that should be deployed in order to meet the licence conditions.

### **Potential for a third 4G operator**

- 2.28 The Commission has previously raised the possibility of awarding a third mobile licence, and the award of 4G spectrum offers such an opportunity, not least given the amount of unused spectrum that is available for allocation.
- 2.29 The Commission has considered the extent to which experience in other jurisdictions can suggest whether the market in the Isle of Man could support a third operator. While many jurisdictions now have multiple mobile operators and virtual operators (MVNOs), the size of the Isle of Man market means it is more realistic to compare the market with jurisdictions of a similar size.
- 2.30 In the Channel Islands, for example, there are three operators in both Jersey (population approximately 90,000) and Guernsey (population just under 60,000). On both islands, the respective incumbent operator is an entrant in the other, i.e. Jersey Telecom (JT) is the incumbent in Jersey and an entrant in Guernsey while Sure is the incumbent in Guernsey and an entrant in Jersey. In both Jersey and

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<sup>27</sup> Variation of 900 MHz, 1800 MHz and 2100 MHz Mobile Licences, Ofcom, 1<sup>st</sup> February 2013, available at: <http://stakeholders.ofcom.org.uk/binaries/consultations/variation-900-1800-2100/summary/condoc.pdf>

<sup>28</sup> Licence Condition 3(a).

Guernsey, Airtel has succeeded in achieving a market share equivalent to that held by the second operator (i.e. both Airtel and Sure each hold 20% of the mobile market in Jersey, while Airtel and JT hold around 17% each of the market in Guernsey).

- 2.31 There are examples outside Europe of island jurisdictions with small populations where three mobile operators are active. For example, in the Caribbean, Anguilla (population 15,000), Antigua (population 80,000), British Virgin Islands (population 23,000) and St Kitts & Nevis (population 53,000) all have three mobile operators. However, there are also examples of small jurisdictions which have only one or two mobile operators.
- 2.32 The Commission's view on the appropriate number of licences is that experience from elsewhere indicates only that a third licence should not be precluded, because there are instances where third operators are successful in small markets. There are examples of where a third licence holder has failed, and examples where it has been successful, but eventually this will primarily depend on commercial decisions made by a potential new entrant operator.
- 2.33 The key role of the Commission in relation to the licensing of 4G services in the Isle of Man is to recommend which spectrum should be made available and to offer this to the market. In the context of the 4G award process, there is, given the significant amount of spectrum that is available, no good reason for the Commission not to seek to licence a third operator, leaving it to the market to decide on whether or not this offer should be taken up.
- 2.34 The Commission has considered what should happen if there are fewer than three applications for 4G licences, as in this situation, the spectrum which was assumed to be for a third operator (including unallocated spectrum that is currently assigned for 2G and 3G services in the 900MHz and 2.1GHz bands) would remain unallocated.
- 2.35 If a third operator is not licensed as a result of the current award process, the Commission does not intend to close off the possible licensing of an additional 4G operator at some future point. However, the Commission would take the position that any future interest shown by a potential 4G operator would be subject to the same terms and conditions as govern this current 4G award process.
- 2.36 Should any 4G spectrum remain unallocated, the Commission will examine how best to make use of this resource. In this regard, the Commission may, for example, consider making this spectrum available for alternative, non-commercial uses, such as for the test and trial of new services and technologies. Alternatively, the Commission may consider recommending that further spectrum is made available to 4G operators.
- 2.37 The Commission does not propose to set out a definitive position on this issue at this time, given that it will only be clear at the conclusion of the current award process if in fact there will be any unallocated spectrum. The Commission simply

wishes to make clear at this stage that, should spectrum remain unallocated in this 4G award process, it will in due course consider separately the best use of this spectrum.

### Equalisation of spectrum holdings

- 2.38 A final spectrum-related issue that the Commission intends to deal with in the context of the award of 4G licences - bearing in mind its proposed concurrent move to liberalise spectrum mobile usage and allow for the licensing of a third operator – is to seek to ensure that at the end of the process all (potentially) three mobile operators have usage rights over equal amounts of spectrum. The Commission would seek to equalise current holdings with the consent of existing operators.
- 2.39 At the present time, MT and Sure have equal spectrum assignments within the 2.1GHz band but this is not the case in either the 900MHz band, where MT holds an allocation of 2 x 13.8 MHz while Sure holds 2 x 10MHz, or the 1800MHz band, where Sure is the sole spectrum holder with an allocation of 2 x 5 MHz.
- 2.40 In moving to a position of equal spectrum holdings at the end of the 4G licensing process, should both current operators be awarded 4G licences, the Commission would seek operators' consent in order to recommend to Ofcom the following steps:
- In the 900MHz band, MT's current holding would be reduced to 2 x 10 MHz;
  - In the 1800MHz band, the amount of spectrum to be made available to Sure would be 2 x 5 MHz less than that allocated to the two other potential 4G licensees;
  - Should the process result in the award of a third mobile licence, the new licensee would also be entitled to take up spectrum assignments in the 900 MHz band (i.e. 2 x 10 MHz) and the 2.1 GHz band (i.e. 2 x 10 MHz paired and 1 x 5MHz unpaired).
  - Should spectrum remain unallocated (for example, if there is no third licence awarded) the Commission will consider in due course how to make best use of that spectrum.

It is the Commission's view that equalisation of spectrum holdings is a desirable, but not essential, part of the process.

### Consultation proposals

The Commission has considered current and potential spectrum assignments, and proposes that the entire 800MHz and 2.6GHz bands and all but 5MHz (paired) of the 1800MHz band be made available for award within the 4G licensing process.

**Proposal 2:** spectrum for 4G services should be made available in the 800MHz, 1800MHz and 2.6GHz bands.

2.41 In terms of possible spectrum assignments within the various bands, the Commission has considered the following options:

- **2 x 10 MHz per operator in the 800MHz band:** such an assignment would be consistent with emerging practice across the EU and elsewhere and it would also mean that the Commission would have the option of licensing a third 4G operator in this band;
- **Up to 2 x 20 MHz per operator in the 1800MHz band:** given the volume of spectrum in this band and its key importance as the emerging preferred high-capacity 4G band, the Commission could either mirror the assignments made in the 800MHz band or else could adopt an alternative approach of providing three 4G licensees with additional spectrum within the band. The benefit of this would be that, with each having a contiguous allocation of 2 x 20 MHz bandwidth, each of the operators would be in a position to provide higher data rates over their 4G networks than would otherwise be the case.<sup>29</sup> This would be consistent with the Commission's aim to facilitate the introduction of innovative mobile broadband services on the Island.
- **Up to 2 x 20 MHz per operator in the 2.6GHz band:** the availability of large volumes of unassigned spectrum in this band opens the way for the Commission to consider providing large individual spectrum assignments to each 4G operator within this band, subject to the band plan adopted by Ofcom which the Commission intends to use for the 2.6GHz band on the Island. In making provision for the possible licensing of up to three 4G operators, this means that the Commission could consider the allocation of individual assignments of up to 2 x 20MHz of 2.6GHz spectrum for FDD use, with the possibility, if required, of assigning additional unpaired spectrum within the band for TDD usage.
- Depending on applicants' requirements for spectrum, 4G spectrum assignments in the 2.6GHz band could be held back until such time as there is demonstrable operator need for the spectrum. As a result, the Commission is proposing to build into the 4G licensing process a means by which the 4G operators would have the automatic right to a specific spectrum allocation within the 2.6GHz band but that this allocation would not be granted immediately and would instead be granted at a later stage, once there is greater clarity around the need for large carriers to support the provision of higher-speed mobile broadband services.<sup>30</sup>

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<sup>29</sup> This is because higher data rates can only be achieved by increasing the overall bandwidth that is used and so a 20MHz carrier can support a far higher data speed than a 5MHz one can. In addition, the assignment of contiguous spectrum blocks (in, say, 5MHz carriers) makes the required carrier aggregation process simpler to implement from a radio engineering point of view.

<sup>30</sup> Such an approach would also be advantageous from the operators' point of view as they would not be required to pay annual WT licence fees to Ofcom on their 2.6GHz spectrum holdings until such time as the spectrum has been formally allocated to them.

**Proposal 3:** the Commission will consider assignments of up to 2 X 10MHz per operator in the 800MHz band; 2 x 20 MHz per operator in the 1800MHz band; and 2 x 20 MHz per operator in the 2.6GHz band, with the option of reserving spectrum in the 2.6GHz band for later assignment to the 4G licensees.

At present, MT and Sure are restricted to using spectrum in the 900MHz and 1800MHz bands for 2G services and spectrum in the 2.1GHz band for 3G. As is currently being done in the UK, these bands could be liberalised so that operators could then choose which mobile services to provide in which bands.

**Proposal 4:** all spectrum bands should be liberalised at the same time as the 4G spectrum is awarded.

There is sufficient spectrum to licence a third operator, and evidence from elsewhere suggests this option should not be precluded. However, the Commission's aim of facilitating the introduction of innovative services and maximising investment suggests that there should be no more than three licences.

**Proposal 5:** up to three licences for the provision of 4G services should be awarded.

Current spectrum holdings are not equal, with MT holding more 900MHz spectrum than Sure while MT, unlike Sure, holds no spectrum in the 1800MHz band. The Commission aims to ensure that all mobile spectrum holdings are equalised upon completion of the 4G licensing process and that this process will need to include, if necessary, making spectrum in the 900MHz and 2.1GHz bands available to a third operator.

**Proposal 6:** all mobile operators should hold equal amounts of mobile spectrum upon completion of the 4G licensing process.

4G operators who are granted usage rights to the 800MHz band need to be aware of the possible need to mitigate interference from mobile services to DTT services in the band below 790MHz. It is the Commission's position that it will be up to the 4G licensees themselves to deal with possible DTT interference and to implement whatever remedial work they see fit, in order to ensure that interference is not an issue. The Commission has discussed options for implementing this requirement with Ofcom, and it is proposed that WTA licences issued by Ofcom will include a condition that licensees will be required to minimise interference with DTT.

**Proposal 7:** 4G operators with usage rights in the 800MHz band will need to take appropriate steps to deal with possible DTT interference in the band and to implement whatever remedial work is necessary to deal with such possible interference.



### 3. 4G licence fee and financial bid

- 3.1 In 2011, the Commission consulted on options for managing the radio spectrum.<sup>31</sup> In its Consultation, the Commission proposed not to auction spectrum in the Isle of Man, but instead to use some form of comparative selection. While auctions have raised large sums in some (though far from all) jurisdictions, this has been on account of competition for scarce spectrum, and in anticipation of large and potentially lucrative market opportunities. In the Isle of Man, there is ample spectrum available to licence three 4G mobile operators (there are currently two licensed operators), spectrum is not therefore scarce, and scale of the market opportunity is more limited.<sup>32</sup>
- 3.2 In its January 2012 response to the radio spectrum consultation, the Commission stated clearly that its spectrum strategy is one that seeks to maximise investment and economic growth, given that the development of communications networks and services is fundamental to the benefit of consumers and the Island as a whole.<sup>33</sup>
- 3.3 In considering the level at which it is proposed to set a licence fee for accessing appropriate Telecommunications Act licences or modifications to existing Telecommunications Act licences to provide 4G services in the Isle of Man, the Commission has adopted the following approach:
- an examination of prices paid internationally for 4G spectrum, using benchmarking data on spectrum pricing prepared for the Commission by DotEcon. This has enabled the setting of an international comparator level on the recommended licence fee and financial bid for accessing 4G in the Isle of Man;
  - a calculation of the costs that relate to the 4G licensing process; and
  - an examination of factors specific to the Isle of Man which justifiably could have a bearing on the level at which the proposed licence fee for providing 4G services should be set, bearing in mind prices that have been paid internationally and the need to recover, via the licence fee, costs relating to the licensing process.

#### International comparators

- 3.4 The Commission's assessment of international comparators indicated that spectrum in both the 800MHz and 1800MHz bands has been assigned predominantly by way

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<sup>31</sup> Response to Consultation on Options for Managing the Radio Frequency Spectrum, Communications Commission, January 2012, available at: <http://www.iomcc.im/lib/docs/cc/consultations/responsetoconsultationoptions1.pdf>

<sup>32</sup> It can be noted that Guernsey and Jersey each has 3 mobile operators.

<sup>33</sup> Response to Consultation on Options for Managing the Radio Frequency Spectrum, Communications Commission (Op.cit).

of auction. Prices paid for spectrum, both in these bands and more generally, using administrative assignment processes are at the lower end of the scale, while those paid at auction are at the higher end.

- 3.5 Given the Commission’s clear preference not to use auctions for assigning 4G licences in the Isle of Man, it follows that the lower end of the benchmark range is likely to be more appropriate for setting the fee for providing 4G services in the Isle of Man. In this regard, based on the international benchmarking exercise, the fee could be set at £450,000 per licence, based on the benchmarking figures set out in Table 1 below. It should be noted that the international comparator is calculated for the purposes of setting a 4G fee, and is not intended to indicate a maximum price which could be paid in the event of a sealed bid.

**Table 1: spectrum price benchmarks**

	<i>Benchmark range (Per MHz per capita)</i>	<i>Price of a package containing 2x10MHz of 800MHz spectrum 2x20MHz of 1800MHz spectrum and 2x40MHz of 2.6GHz spectrum*</i>
<i>Mobile awards</i>	£0.169-£0.397	£862,000 - £2,025,000
<i>Mobile auctions</i>	£0.261-£0.551	£1,331,000 - £2,810,000
<i>Band specific lower bound</i>	800MHz: £0.162 1800MHz: £0.052 2.6GHz: £0.017	£568,000 - £2,989,000 <b>£452,200 - £2,091,000 **</b>
<i>Band specific upper bound</i>	800MHz: £0.680 1800MHz: £0.275 2.6GHz: £0.132	

\* Assuming an Isle of Man population of 85,000

\*\* In this instance, the package comprises 2x10MHz of 800MHz spectrum and 2x20MHz of 1800MHz spectrum

Source: DotEcon Report to Communications Commission on Spectrum Price Benchmarks

### Covering costs

- 3.6 While it is likely that the Commission may seek to licence up to three 4G operators (and so spread the above costs paid by three licensees) there is no guarantee that this number of licences will, in fact, be taken up by potential 4G players in the Isle of Man. As a result, it is safer to assume that the above costs will need to be recovered from the issuing or modification of no more than two licences. Adopting an even more conservative approach leads to an assumption that all of the 4G licensing costs may need to be recovered from the issuing or modification of one Telecommunication Act licence to accommodate 4G services.

3.7 The Commission has therefore made the working assumption that it may need to recover all the licensing costs from the issuing of one Telecommunications licence and, hence, from the collection of a single fee for the Telecommunications Licence.

### **Recommended fee**

3.8 The Commission has carefully considered the appropriate level at which the 4G Telecommunications licence fee should be set, bearing in mind factors that are specific to the deployment of 4G services within the Isle of Man. It is the Commission's view that these factors strongly support a lower fee than the level outlined above which has been derived from the international benchmarking process.

3.9 The factors considered by the Commission in this context include the following:

- The possibility that the mainly auction-based prices within the international benchmark review may have unduly inflated benchmark price range levels;
- The Commission's spectrum strategy of utilising spectrum to the maximum extent possible in the development of new products and services;<sup>34</sup>
- The large amount of spectrum that is available for 4G services in the Isle of Man and the possibility that, as a result, there may not be excess demand for the three 4G licences that the Commission intends to award;
- The limited scale of the 4G commercial opportunity in the Isle of Man, in particular given the population of the island and the widespread availability of high-speed fixed broadband services across the Island.

3.10 Bearing all of these factors in mind, the Commission has concluded that a substantial discount on the fee derived from the international benchmarking process should be applied to the fee for the 4G Telecommunications licences in the Isle of Man.

3.11 In other jurisdictions, regulators have set a 'reserve' price for accessing 4G spectrum. The Commission has also decided, in setting the 4G fee, that it should differentiate between the situations where (a) there is excess demand for the licences on offer and (b) where there is no excess demand. Such an approach means that the price charged for the 4G licences will be set in a way that takes explicit account of the demand for 4G spectrum.

3.12 Using this approach and bearing in mind the factors outlined above that are specific to the deployment of 4G services within the Isle of Man, the Commission has decided to set a fee of £150,000 per 4G Telecommunications licence. This charge represents a two-thirds discount on the fee derived from the international

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<sup>34</sup> Response to Consultation on Options for Managing the Radio Frequency Spectrum, Communications Commission, January 2012, pages 6-7.

benchmarking process. The Commission proposes to levy this fee in the situation where there are three or fewer valid applications received for the three 4G Telecommunications licences the Commission intends to award.

- 3.13 If the situation arises that more than three valid applications are received for the three Telecommunications licences, the Commission is of the view that it would be appropriate for applicants to pay a higher 4G fee. In this instance, the exact amount to be paid would be determined via the award process itself, through the use of sealed bids. This element of the awards process is explained in further detail in Section 4 of this Consultation Document.

**Proposal 8:** the 4G Telecommunications licence fee should be set at £150,000 per licence.

### Wireless Telegraphy fees for using 4G spectrum

- 3.14 Licences granted by Ofcom under the Wireless Telegraphy Act 2006 for the use of radio spectrum are subject to the payment of annual fees. These are set out in the Statutory Instrument Wireless Telegraphy (Licence Charges) Regulations 2011. Currently, for Public Wireless Networks in the Isle of Man, this fee is £8,000 per 2 x 5 MHz channel or slot. It is anticipated that Wireless Telegraphy fees for spectrum awarded for the provision of 4G services utilising the 800MHz and 1800MHz bands will be priced by Ofcom at this rate.<sup>35</sup>

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<sup>35</sup> Noting the proposal that spectrum in the 2.6GHz band may be reserved at this time, payment for spectrum in the 2.6GHz band will be required on its assignment.

## 4. Award process for the Telecommunications Act licences to provide 4G services

### Background to selection of 4G award process

- 4.1 In this section, the Commission sets out its plans on how it intends to award 4G licences. In framing its proposals, the Commission has been mindful of the aim, as enunciated in its Spectrum Strategy,<sup>36</sup> to ensure that spectrum usage rights are assigned in a manner that maximises investment in communications infrastructure and services on the Island. The Commission also wishes to use an award process that will ensure that access to 4G spectrum is granted at the earliest possible opportunity, so that the Island can build on its already well-established history of early deployment of advanced mobile communications infrastructure.
- 4.2 In its Spectrum Strategy, the Commission stated that it favoured using a comparative selection process to award commercial spectrum licences, including those for 4G services.<sup>37</sup> In doing so, the Commission emphasised its wish to see spectrum being used to the maximum effect and to facilitate the development of new products and services.<sup>38</sup> The Commission noted that the use of a comparative evaluation process (or 'beauty contest') would also ensure that service commitments made by licence applicants could be included as part of their licences and so become subject to regulatory oversight.<sup>39</sup>
- 4.3 In light of this, the Commission's starting point in devising an award process for 4G has been that a comparative selection process should be used. That said, the Commission's main objective is to ensure the early completion of the 4G licensing process and also that this process should be one that ensures maximum investment in infrastructure. As a result, the Commission has reviewed its options for licence award to see if a comparative selection process is, in fact, the optimum one to use in the case of 4G or whether a more effective award method is available.
- 4.4 A major consideration in this regard is the large volume of spectrum – in the 800MHz, 1800MHz and, potentially the 2.6GHz bands – that is available for assignment to support the deployment of 4G services. As we have already seen in Section 2, there is ample spectrum available to licence at least three 4G operators, providing each with 2x10MHz of paired 800MHz spectrum and 2x20MHz of paired 1800MHz spectrum.

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<sup>36</sup> Response to Consultation on Options for Managing the Radio Frequency Spectrum, Communications Commission, January 2012, pages 6-7.

<sup>37</sup> Ibid., pages 9-10.

<sup>38</sup> Ibid., page 10.

<sup>39</sup> Ibid.

- 4.5 Given the large amount of spectrum that is available, this raises the question of whether or not there is likely to be any excess demand for the three 4G licences that the Commission intends to grant. Making available three 4G licences could potentially result in licences being granted to both of the existing mobile operators (although it is not planned to reserve 4G spectrum for existing players) as well as to a new market entrant. If this were to happen then despite the fact that it would result in new market entry it could still be the case that there is no excess demand for 4G spectrum on the Island at this point in time.
- 4.6 If it is the case that there is no excess demand for the 4G licences that the Commission intends to offer, i.e. that three or fewer applications are received, this raises the question as to whether or not a comparative selection process is, in fact, the optimal method to use to assign the 4G licences. The Commission is mindful of the burden such a process tends to place on applicants, as a 'beauty contest' typically involves the preparation of detailed bids, setting forth applicants' plans for how they would intend to meet (or exceed) whatever evaluation criteria may be laid down in the Invitation to Tender. A significant period of time would need to be given to prospective applicants to prepare such bids and sufficient time would also need to be factored in for the evaluation of the bids by the Commission.
- 4.7 The Commission is concerned that, in a situation where there is no excess demand for the 4G licences, a comparative selection process may result in applicants expending a large amount of unnecessary effort, given that, under a scenario where there is no excess demand, all applicants who submit a valid bid would eventually secure a 4G licence. While a 'beauty contest' would result in applicants making competitive commitments in relation to issues such as service deployment, speed of rollout etc. – which the Commission is keen to see - the process would, of necessity, take several months to conclude. This, in turn, could mean a delay in the launch of 4G services on the Island.
- 4.8 As a result, the Commission has some doubts as to whether or not a fully-fledged comparative selection process would meet its key aim of ensuring the early completion of the 4G licensing process. It has therefore considered if an alternative award method could be used; one that would result in a more rapid completion of the licensing process while at the same time capturing the most important elements that would arise from a comparative evaluation process, i.e. commitments on key service issues made by licence applicants. The Commission is happy that its proposed award process – details of which are set out below – meets these twin objectives and that, as a result, it is appropriate that this method rather than a comparative selection be used to award 4G licences.
- 4.9 While the Commission is keen to put in place a process that allows for the 'fast-track' of 4G where there is no excess demand for the spectrum, it has also factored into its proposed award process the scenario where there is excess demand. In such a situation there would need to be a competitive element introduced to the process, in order to arrive at the three winning bids. In this regard, the Commission has considered if it would be advisable to use a comparative selection as the competitive

element in the process or if some other selection method should be used. Having considered this issue carefully, the Commission has concluded that the use of sealed bids would be preferable to a comparative selection in a situation where there is excess demand for the spectrum.

- 4.10 It is the Commission's view that its chosen award process is one that is best placed to meet its aims in relation to the allocation of 4G licences to interested parties and that this method will provide a more efficient outcome than the alternative of using a comparative selection process. By using this method, the Commission will be able to ensure that the licensing process is carried out swiftly and, if the situation arises whereby there is excess demand for the spectrum on offer, the use of sealed bids will ensure that the licences are allocated to those parties who value the spectrum the greatest.
- 4.11 In addition, the Commission is confident that its award process will be able to guarantee that commitments in areas such as service launch, speed of rollout, network coverage and quality of service are reflected in the licences of the 4G operators. In this way, virtually all of the benefits of using a comparative selection process will be captured by this method, with none of the attendant downsides in terms of the burden that would be imposed on 'beauty contest' applicants and the additional time that would be required to complete this kind of licensing process.
- 4.12 Finally, the Commission is confident that its proposed licensing process – which should be completed by the end of Q3 this year – will enable operators to launch 4G services on the Island before the end of 2013. Such an outcome would enhance the Isle of Man's already strong track record in innovation in this area, to the benefit of the wider economy on the Island.

### Details of proposed 4G licence award process

- 4.13 As explained above, in putting in place an award process for 4G, the Commission has considered two possible outcomes, i.e. (i) where there is no excess demand for the spectrum on offer and (ii) where there is excess demand. These alternative scenarios may be catered for by using an award process in which the level of interest in the spectrum is assessed at the outset. Assuming there is no excess demand, licences can be awarded to all valid applicants who express an interest in acquiring a licence. The process also caters for a situation where there is excess demand and where, as a result, the licences are awarded on a competitive basis.
- 4.14 Based on the foregoing, details of the Commission's proposed award process are as follows:
- **Application Stage:** this stage involves the Commission issuing a public call for Expressions of Interest to prospective 4G operators. The 4G licences will, as explained earlier in this document, comprise a WTA licence issued by Ofcom on the recommendation of the Commission, and conditions attached to the Telecommunications Act licence held by or issued to the operator that is being

licensed to provide 4G services. The call for expressions of interest will set out details of the fee to be charged for each 4G Telecommunications licence and a set of minimum criteria which the Commission considers should be required of each operator providing 4G services, and hence which each 4G licence applicant will need to meet. The set of minimum criteria are conditions attached to the Telecommunications Act licences, and the Commission will ensure compliance with licence conditions as set out in Section 11 of the Telecommunications Act 1984 and/or via enforcement provisions in the licence. The Commission will not recommend to Ofcom that a WTA Licence should be issued to a particular communications provider unless that communications provider accepts these conditions.

Potential service criteria are outlined in the next section. These criteria will be included in the conditions to be inserted in the Telecommunications Act licences. A draft Telecommunications Act licence for a new mobile operator will be made available with the call for expressions of interest. Draft new conditions are attached as Annex 1. Applicants for the 4G licences will be required to complete an application form that will be published in the call for Expressions of Interest, in which applicants will be required to confirm their willingness to accept as licence conditions to be included in the Telecommunications Act licences, the prescribed minimum criteria for the provision of 4G services. This will constitute the contractual acceptance of the award process.

- **Qualification Stage:** this stage involves the Commission's evaluation of the applications received in response to its call for Expressions of Interest in order to determine the number of valid applications received. If three or fewer valid applications are received, the Commission will inform each valid applicant that they have qualified for the right to be awarded a 4G licence. Each valid applicant will then be required to confirm that they wish to be awarded a licence. If there are three or fewer valid applicants, the process will then proceed to the Award Stage. If four or more valid applications are received, however, all valid applicants will be informed that the process will continue with the Sealed Bid Stage.
- **Sealed Bids Stage:** this stage will only be required under a scenario where more than three valid applications are received and it involves the Commission inviting all valid applicants to submit sealed bids setting out their financial offers for a licence. The Commission will evaluate the sealed bids received from valid applicants and will rank the applicants' bids in descending order according to the highest monetary values contained in the sealed bids. The three highest-ranked applicants will then be informed that their licence application has been successful. Each successful applicant will be required to confirm that they wish to be awarded a licence and to confirm that they will pay the Commission the 4G Telecommunications fee (£150,000) plus the appropriate sealed bid amount.



- Award Stage:** this final stage in the process involves the Commission awarding the 4G Telecommunications licences to the successful applicants, either following the Qualification Stage or the Sealed Bid Stage. The award of 4G Telecommunications licences to existing mobile operators will entail a variation to the Telecommunications Act licence in the form of a new part. Variation in the Telecommunications Act licences will be carried out as prescribed in section 10 of the Telecommunications Act 1984. A draft variation is attached as Annex 1, and representation may be made on this proposed variation within one month from the date of publication of this consultation. At this stage, the Commission will recommend to Ofcom that it awards Wireless Telegraphy licences relating to usage of spectrum within the 800MHz and 1800MHz bands, with provision also being made at this stage for access by the 4G licensees to spectrum in the 2.6GHz band as and when the Commission is satisfied that this is required.<sup>40</sup> On award, successful applicants will furnish the Commission with payment in respect of the 4G Telecommunications fee, i.e. £150,000, plus the amount determined through the sealed bid process, if applicable.

**Proposal 9:** the 4G licence award process will comprise four stages, i.e. an Application Stage, Qualification Stage, Sealed Bid Stage and Award Stage. If three or fewer qualified applications are received, the Sealed Bid Stage will not be required and, in this instance, the process will proceed directly to the Awards Stage. The Commission is proposing this award process as the best method to meet its objective of concluding the licence award process as rapidly and efficiently as possible.

### Minimum service criteria to be included in the 4G licences

- 4.15 As outlined above, the Commission plans to specify within each of the 4G licences it intends to offer the minimum service criteria that will apply to the provision of 4G services on the Isle of Man. The Commission proposes that service criteria are included in conditions inserted into the Telecommunications Act licences.
- 4.16 In this respect, the Commission intends to include the following service characteristics within each of the 4G licences:
- Launch date:** 4G operators will be obliged to launch commercial services within nine months of licence award;
  - Coverage at launch:** 4G operators will be obliged to provide at least 33% population coverage at launch;

<sup>40</sup> WTA fees for spectrum in the 2.6GHz band will be payable on their assignment.

- **Population coverage to be achieved:** 4G operators will be obliged to provide at least 95% population coverage within two years of service launch;
- **Minimum mobile broadband data speed provided:** 4G operators will be obliged to offer minimum download speeds of at least 5 Mbps over their networks.

4.17 In line with Section 11 of the Telecommunications Act 1984, and any applicable licence conditions, the Commission will ensure compliance with the minimum service criteria set out in the attached new Part.

**Proposal 10:** the Commission proposes to include a number of service criteria in the areas outlined above within the 4G licences. Respondents are invited to provide views on the proposed characteristics, including what parameters they believe would be appropriate for each.

## **5. Notice of Proposal to Modify Licences issued under s.5 of the Telecommunications Act 1984**

5.1 Under the provisions of section 10(3) of the Telecommunications Act 1984, before making modifications to operators' licences, the Commission is required to give notice:

*"(a) stating that it proposes to make the modifications and setting out their effect;  
(b) stating the reasons why it proposes to make the modifications; and  
(c) specifying the time (not being less than 28 days from the date of publication of the notice) within which representations or objections with respect to the proposed modifications may be made,"*

5.2 Should one or both current operators be awarded 4G licences, the modifications proposed to current mobile operators' licences are those set out in Annex 1, which would be attached as a new Part to current Telecommunications Act licences held by MT and Sure. The purpose of the proposed modifications is to ensure that 4G services will be introduced and operated in the Isle of Man in a manner which will best achieve the objectives set out by the Commission. The time period within which representations or objections may be made will run concurrently with this consultation, so that representations on the proposed licence modifications may be made within one month of the publication of this consultation.

## 6. Next steps

- 6.1 Your views are sought on this Consultation paper. Please respond in writing by 17.00 on 1 August 2013 to:

Mr Yoav Harel  
Regulatory Manager, Communications Commission,  
2<sup>nd</sup> Floor St Andrew's House,  
Finch Road, Douglas,  
Isle of Man, IM1 2PX  
or by email: yoav.harel@iomcc.im

- 6.2 Electronic copies of this document are also available at [www.iomcc.im](http://www.iomcc.im).
- 6.3 When submitting your views please indicate if you are responding on behalf of an organisation. To ensure that the process is open and honest and in line with the Government's Code of Practice on Consultation, responses can only be accepted if you provide your name with your response. Unless specifically requested otherwise, any responses received may be published either in part or in their entirety, within 3 months of the closing date for this consultation, and will be available on the Commission's website.
- 6.4 It is the Commission's view that it is important that consultations are carried out in a transparent manner, that the views of respondents are published, and that the reasoning behind the Commission's consideration of these views can be made clear. Please put any parts of your response you consider should be kept confidential in a separate annex to your response and include your reasons why this part of your response should not be published. Please indicate clearly if any part of your response should be considered to be commercially sensitive, and so required to be confidential. Confidential responses will be included in any statistical summary and numbers of comments received.
- 6.5 The purpose of consultation is not to be a 'referendum' but an information, views and evidence gathering exercise from which to make an informed decision. In any consultation exercise the responses received do not guarantee changes will be made to what has been proposed.

## Annex 1

### ADDITIONAL OBLIGATIONS IN RESPECT OF 4G SERVICE PROVISION

New Part 7 Manx Telecom Licence and New Part 5 Sure (Isle of Man) Ltd Licence

#### INTERPRETATION AND APPLICATION

- i. The conditions in this Part are binding upon the Communications Provider insofar as the Communications Provider:
  - runs a telecommunications system making use of 4G telecommunications standards; and/or
  - provides telecommunications services making use of 4G telecommunications standards.
- ii. The conditions in this Part apply only to the Communications Provider's:
  - running of a 4G telecommunications system; and/or
  - provision of 4G telecommunications services.

In this Part:

- iii. "4G telecommunications standards" means:
  - the Long Term Evolution (LTE) standard specified by the 3rd Generation Partnership Project ("3GPP");
  - the Mobile WiMAX (IEEE 802.16e-2005) standard specified by the Institute of Electrical and Electronics Engineers ("IEEE");
  - the Long Term Evolution Advanced (LTE-Advanced) standard specified by the 3GPP;
  - the Wireless MAN-Advanced (IEEE 802.16m) standard specified by the IEEE;
  - any standard recognised as a fourth generation (4G) standard by the International Telecommunication Union; and/or
  - any standard based upon or derived from standards falling within those contained within this definition.
- iv. "4G telecommunications system" means a telecommunications system which makes use of 4G telecommunications standards and is capable of delivering the Minimum Speeds under normal conditions;

- v. "4G telecommunications services" means services, which are provided by means of the use of 4G telecommunications standards, and which under normal conditions deliver the Minimum Speeds.
- vi. The "Minimum Speeds" means a mobile data download speed of 5Mbps.

## **ROLLOUT CONDITIONS**

- vii. The Communications Provider shall ensure that at all times after the Launch Date it is:
  - running a 4G telecommunications system in the Isle of Man; and
  - providing 4G telecommunications services to consumers in the Isle of Man.
- viii. The Communications Provider shall ensure that at all times after the Launch Date that it provides and maintains an electronic communications network that is capable of providing, with 90% confidence, a mobile telecommunications service with a sustained downlink speed of not less than five megabits per second (5Mbps) when that network is lightly loaded, to users in an area within which at least 33% of the population of the Isle of Man lives;
- ix. The Communications Provider shall ensure that at all times after the Coverage Date that it provides and maintains an electronic communications network that is capable of providing, with 90% confidence, a mobile telecommunications service with a sustained downlink speed of not less than five megabits per second (5Mbps) when that network is lightly loaded, to users in an area within which at least 95% of the population of the Isle of Man lives;
- x. The Communications Provider shall not be in breach of this condition by reason of temporary interruptions to service, provided that it has taken reasonable precautions to minimise such temporary interruptions.
- xi. For the purposes of this Condition:
  - the Launch Date is nine months following 4G licence award;
  - the Coverage Date is two years following Launch Date.

## **PAYMENT OF FEES**

- xii. The Communications Provider shall pay, or cause to be paid, to the Treasury the following sum:
  - £150,000 within 14 days of the Commission's award of an appropriate Telecommunications Act 1984 licence incorporating this Part, or the modification of an existing Telecommunications Act licence to incorporate this Part ("the 4G licence fee");

- provided that the Communications Provider shall not be required to pay more than one 4G licence fee.
- xiii. For the purposes of paragraph 1(b) of Schedule 2, amounts payable under this Condition shall be deemed to be amounts payable under Condition 26 of the MT Licence and Condition 23 of the Sure Licence.