

Future Use of Spectrum

Response to Consultation and Decision

Document Number: CD/03/2020

Date: 20th April 2020

Redacted Version

Contents

1	Executive Summary	3
2	The 700MHz Band	4
	2.1 Current and Future Use of The Band	4
	2.2 Alternative Uses.....	5
	2.3 Final Position.....	5
3	The 3.6 GHz Band	6
	3.1 Current and Future Use of the Band.....	6
	3.2 Alternative Uses.....	8
	3.3 Final Position.....	8
4	The 26 GHz Band	9
	4.1 Current and Future Use of the Band.....	9
	4.2 Alternative Uses.....	10
	4.3 Final Position.....	10
5	Other Issues Raised	11
	5.1 Overview of Other Issues.....	11
	5.2 Final Position.....	11
6	Award Issues and Timelines	12
	6.1 Award Principles, Access Fees and Timelines	12

1 Executive Summary

1.1. The Communications Commission published a consultation document on the Future Use of Spectrum in October 2019¹. The Commission received a total of 11 responses to the consultation from the following:

- Bluewave;
- Domicilium (IOM) Limited (Domicilium);
- Manx Telecom;
- Sure;
- SES and;
- 5 Individual responses, of which 2 were anonymous.

1.1. All non-confidential versions of the consultation responses will be available on the Commission's website. The Commission would like to thank all respondents for their comments, which have been taken into account during the production of this consultation response. This document comprises the Responses to the Consultation and further analysis and comment for the Commission.

1.2. The purpose of this document is to set out the Commission's response to those submissions and set out its decision concerning the proposed Future Use of Spectrum.

Legislative Background

1.2. The Commission is responsible for issuing licences for telecommunications and broadcasting services on the Island. Under the Telecommunications Act 1984 (of Tynwald) (TA) its powers include:

- Specifying the nature of the telecommunications systems and services which operators are permitted to operate and provide under the licence² ; and

- Setting conditions on such operation and provision.³

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 (WTA), 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.

1.3. In the consultation, details of the responses received from Licenced Operators and individuals for spectrum assignments in the 700MHz, 3.6GHz, 26GHz were outlined and the implications for spectrum usage and availability in these bands were considered. Summaries of responses received to the consultation regarding each of these requests along with the Commission's analysis of the responses received and its decision on each are set out below.

¹ <https://consult.gov.im/communications-commission/future-use-of-spectrum/>

² See s.5(1) and 5(4)(b) Telecommunications Act 1984.

³ See s.5(5) Telecommunications Act 1984.

2 The 700MHz Band

2.1 Current and Future Use of The Band

Overview of Preliminary Position

- 2.1. Within the 694–790MHz range (the 700MHz Band) there is potential to release 80MHz of spectrum.
- 2.2. The 700MHz Band has been traditionally used for terrestrial television broadcasting, most recently for the provision of Digital Terrestrial Television (DTT). The process of re-farming this spectrum for other uses commenced in 2014 and it is expected that from later this year new services can commence deployment within the band.
- 2.3. The 700MHz Band has been earmarked for mobile communications services across the EU; it has also been identified as a 'Pioneer Band' for 5G services⁴ along with the 3.6GHz and 26GHz Bands.
- 2.4. The 700MHz Band consists of low frequency spectrum which, by virtue of its propagation characteristics, is particularly well suited for providing mobile coverage over wide areas and to some extent, indoors⁵. This coupled with the relatively small amount of spectrum available means that the spectrum in this band would most likely be used to improve the level of mobile coverage in rural and light urban areas, including mobile voice and data coverage in rural areas, in buildings, and other harder-to-reach places.

Summary of Responses Received

- 2.5. Of the 11 responses received the majority either agreed with, or expressed no views on, the Commission's current thinking in respect of the current and future uses of the 700MHz Band. BlueWave, Manx Telecom, and Sure agreed with the Commission's thinking that the utilisation of the 700MHz would enable the provision of wide-

area coverage similar to the 800/900MHz bands. An anonymous individual response also agreed with the Commission's proposals.

- 2.6. Those who responded in favour of the Commission's proposal cited the fact that the 700MHz Band would be complementary to existing and future services in higher bands; would increase wide-area and indoor coverage; and, that it would facilitate the deployment of Machine-to-Machine networks.
- 2.7. Of the 4 respondents who disagreed with the Commission's view two supplied no evidence of their reasoning whilst two stated they disagreed on the basis of unspecified health issues that may be associated with 5G. No evidence of the potential health issues was provided.

Commission Response

- 2.8. The Commission noted that there were no substantiated objections to its thinking on the future use of the 700MHz spectrum.
- 2.9. It also agrees that the use cases outlined above would have a net beneficial effect on the Manx economy, and society as it would facilitate the availability of high-speed internet connections in more rural areas. The Commission must remain cognisant of Government policy and the National Telecommunications Strategy; it notes that its proposals are in the best interests of the Island as a whole, and in keeping with stated policy objectives.
- 2.10. The Commission is of the view that any concerns regarding the potential health issues associated with spectrum, in any of the bands discussed in this document, is a matter for the Director of Public Health; simply put it does not have the required expertise to evaluate any of the claims that 5G is unsafe. Furthermore, the Commission is not mandating the use of 5G, it intends to make the spectrum available on a service and

⁴ <https://ec.europa.eu/digital-single-market/en/news/commission-decides-harmonise-radio-spectrum-future-5g>

⁵ The materials used in the building's construction will have a much greater impact on the level of signal a user experiences and there is little that operators can do to overcome this phenomenon.

technology neutral basis; this approach allows individual operators to retain control of their individual investment decisions. Therefore, whether 5G is deployed on the Island is dependent on factors outside of the Commission's control.

2.2 Alternative Uses

Proposals Received

- 2.11. No alternative use cases for the 700MHz Band were expressed.

Commission Response

- 2.12. As no alternative use cases were expressed and taking into consideration the benefits of releasing the 700MHz Band, the Commission does not propose to adopt any further use cases than those outlined in the consultation.

2.3 Final Position

- 2.13. On balance, the Commission remains of the view that the best approach is to conduct a competitive award process to determine access to the available spectrum in the 700MHz Band on a service and technology neutral basis for fixed, mobile, or nomadic applications.

3 The 3.6GHz Band

3.1 Current and Future Use of the Band

Overview of Preliminary Position

- 3.1. The 3410–3800MHz spectrum (3.6GHz Band) is currently used for Fixed Wireless Access (FWA) services; the Commission considers FWA services to be those using a point-to-multipoint system using fixed antennas, typically for the provision of broadband services.
- 3.2. There are currently two operators licensed within this band; BlueWave and Domicilium. Between them they are assigned 180MHz of the available spectrum within the band. Approximately 1100 customers are currently supplied with broadband services through the above-mentioned licensees with the majority being in rural and remote areas. Customers in these types of location may not have any other options to access broadband at present⁶. There are also other customers, including business customers that have opted to either purchase or retain FWA services in areas where other broadband infrastructure exists, as such it can be inferred that demand exists for, as a minimum, the current allocation of spectrum.
- 3.3. The characteristics of the 3.6GHz Band make it suitable for the provision of fixed or mobile services. The band has already been harmonised across the EU for fixed, mobile, nomadic, or backhaul services, and has been identified as the primary band for 5G services internationally. The Commission is proposing to make all spectrum in the 3.6GHz Band available as part of this award. This would allow operators to support high data rates, and enable large numbers of connections. The Commission is currently in the process of clearing the band, in consultation with the current licensed operators, to enable future allocations.

Summary of Responses Received

- 3.4. Of the eleven responses received BlueWave, Manx

Telecom, Sure, and two anonymous individual responses agreed in principle with the Commission's current thinking in respect of the current and future uses of the 3.6GHz Band.

- 3.5. An individual response agreed stating the Isle of Man needs to be *"moving with technology to boost industry and investment"*.
- 3.6. Manx Telecom was of the view that 3.6GHz will be the main band utilised for 5G rollout supporting a variety of applications. It agreed that re-farming of this band is required to achieve optimal allocations stating that a minimum 100MHz contiguous band would be required for operators to deploy next generation services. It expressed a view that the amount of spectrum available to each operator should be up to 150MHz if available.
- 3.7. Sure largely agreed with the Commission's proposals however, it believes that the upper 200MHz of the band (3.6GHz–3.8GHz) should be exclusively reserved for 5G services.
- 3.8. Domicilium expressed disappointment that the Commission is proposing to re-farm the 3.6GHz Band. It cited the investments that it has already made in equipment that operates in the band; the fact that it received a five year licence for spectrum in the band in April 2019; and, stated that it would in principle accept being asked to relocate to a different part of the band.
- 3.9. Domicilium also state that the Commission *"should not automatically follow that European best practice is in the best interests of the Isle of Man. We believe that our real focus should be on the development of and innovation of new technologies and not exclusively on the deployment of multiple 5G networks"*.
- 3.10. In relation to the use of a competitive award process to allocate the spectrum Domicilium notes that it is *"unsure at this stage of [the Commission's] aim regarding the allocation of spectrum. We believe that if the intention is to maximise the return to Treasury then the auction model described... is probably appropriate"*. It expresses the fear that smaller operators would be potentially excluded from such a process and that an auction has the potential to stifle Government's stated aims

⁶ The Commission acknowledges that the National Broadband Plan is currently progressing but it is likely that this will not be fully delivered in the short-term (1-3 years), as such the current FWA service may continue to be the only viable option for broadband in some areas for the medium-term (3-5 years).

regarding the digital economy.

- 3.11. BlueWave agrees that the Commission must balance both the interests of customers currently served by FWA services in the band, and providing access to spectrum for other use cases, including 5G. BlueWave requested that, given the investment already made, it would be able to continue to use a portion of spectrum in this band to deliver FWA services alongside any future use cases.
- 3.12. BlueWave strongly requested that discussion continues with the Commission over the proposed re-farming of this spectrum.
- 3.13. Six individual responses disagreed with the Commission's view that releasing the 3.6GHz Band in its entirety for mobile, fixed and nomadic use offered the best balance in the interest of customers. Three responders provided no evidence as to their reasoning whilst two disagreed on the basis of unspecified health issues that may be associated with 5G.

Commission Response

- 3.14. The Commission notes that there are no objections to this proposal from MT or Sure.
- 3.15. The Commission understands the rationale behind the response from Domicilium and BlueWave; however, the Commission is cognisant of the fact that the band in question has been identified internationally as a key band for the future deployment of 5G services. When considering the future use of the 3.6GHz Band the Commission must balance the needs of the customers currently served by FWA services in the band and providing access to the band for other use cases.
- 3.16. In re-farming this spectrum the Commission has been in contact with the impacted operators from the earliest possible opportunity and has clearly stated its intention to re-farm the band in its entirety. In relation to the Wireless Telegraphy licences that are currently in force, there is a specific provision in the licences to allow the Commission and Ofcom to review licences for the purposes of spectrum management. However, the Commission notes that from the time it first raised this matter with the operators, to the point at which any required migration or transition would be complete, is likely to be a period of at least 3 years.

- 3.17. Domicilium makes the assertion that the Commission "*should not automatically follow that European best practice is in the best interests of the Isle of Man. We believe that our real focus should be on the development of and innovation of new technologies and not exclusively on the deployment of multiple 5G networks*". The Commission has been clear that it is seeking to award access to the spectrum on a service and technology neutral basis; this is solely intended to ensure that operators are afforded the opportunity to develop new and innovative services. There is no onus on any provider to rollout 5G, or any particular service for that matter; it would ultimately be a commercial decision for each operator that obtains spectrum to determine its most suitable use case.
- 3.18. However, in terms of following harmonised use in bands, the Commission must bear in mind that in terms of market scale the Isle of Man is very small and as such it is limited in the extent to which it can implement 'Manx solutions'. Simply put, to not follow harmonised bands puts Manx consumers and operators at a disadvantage as they may not be able to benefit from economies of scale. As such the Commission is not blindly following what Europe does, it is making an objectively reasoned decision to facilitate economies of scale to ensure that Manx consumers and operators have the most choice and value possible.
- 3.19. The radio spectrum is a valuable and limited natural resource and it is incumbent on the Commission to ensure that it is managed accordingly in the best interests of the Island as a whole. The use of an auction is a fairer and more transparent process for determining who gets access to this valuable resource, and the Commission must ensure that whatever process is used is fair, transparent and non-discriminatory. The Commission will be taking steps to ensure that no parties are precluded from bidding for access to the spectrum and notes that it will be putting in place award caps to ensure that all operators are afforded an equal opportunity.
- 3.20. The use of a competitive award process, such as an auction as outlined, is not to maximise the return to Treasury. The Commission has one overriding objective in relation to spectrum awards – ensure that the spectrum is used as efficiently as possible. To this end

the Commission is seeking to ensure that it gets the available spectrum rights to those who value it most and would therefore make the most use of it. The Commission would likely include a number of measures to facilitate this; for example the use of a 'second-price rule' which would mean that the successful bidder would not pay the price they bid, rather they would pay the price bid by the second place bidder. The Commission will fully consult on the award process in due course but seeks to provide some clarity as to its intentions at this point.

- 3.21. As to Domicilium's claim that the use of an auction would potentially stifle Government's stated aims in relation to the digital economy, it did not provide any evidence to support this, nor is it clear how this would be the case. The Commission is of the view that its approach in terms of re-farming the spectrum to allow for new and innovative services for Manx consumers, especially in rural areas, is in keeping with both Government policy and the Commission's stated objectives. The Commission is of the view that reserving some of the spectrum available would lead to an artificial shortage and would be more likely to stifle the digital economy, artificially inflate the price of spectrum, and ultimately negatively impact consumers and competition.
- 3.22. BlueWave expressed a concern that the Commission should be keeping in contact with affected operators throughout the process. The Commission confirms that this will be the case. Furthermore, the Commission notes that not all parties would be in a position to commence new services immediately after the award and as such will be consulting on transition arrangements post the award to ensure continuity of services and that any migration is carried out in an orderly manner.
- 3.23. In relation to the responses directly referencing the use of 5G, its health implications, or the investment case for such services, the Commission reiterates the view it expressed in paragraph **Error! Reference source not found.** above.

3.2 Alternative Uses

Proposals Received

- 3.24. No alternative non-confidential proposals were received for an alternative use case for the 3.6GHz Band.

Commission Response

- 3.25. The Commission is not minded to change its stated position on the basis of the submissions received.

3.3 Final Position

- 3.26. Having considered the above points the Commission remains of the view that the band should be released in its entirety for the deployment of new mobile, fixed and nomadic services.
- 3.27. Given the level of interest identified, through this consultation, the Commission is of the view that the most suitable option is to conduct a competitive award process to determine access to the available spectrum 3.6GHz Band.

4 The 26 GHz Band

4.1 Current and Future Use of the Band

Overview of Preliminary Position

- 4.1. The 26GHz Band is currently used for point-to-multipoint FWA and fixed links in other jurisdictions; however it is not widely used in the Isle of Man at present. Additionally, due to the large amount of spectrum that is potentially available in the band it is unlikely that a situation would arise where new users could not coexist with existing users.
- 4.2. Although this is one of the pioneer Bands which has been identified for the provision of 5G Services in Europe, the Commission is of the view that there is unlikely to be demand for access to the 26GHz Band in the medium-term on the Island. It is expected that the band will most likely be used to facilitate small cell deployments in densely populated urban areas and so provide greater bandwidths and enhanced download speeds; a use case which is not likely to arise in the Isle of Man. Additionally developments in Massive MIMO⁷ technology in lower frequency ranges should allow for less dense networks with the capability of providing the same quality of service as higher density networks.
- 4.3. As a result of this, the Commission does not intend to deal with access to rights of use in this band as part of this consultation process, however it is acknowledged that there could be demand for access to the band as an alternative to the 3.6GHz spectrum for FWA purposes. Should such a situation arise the Commission would work with licenced operators to ensure that access to the band would be an option for users.
- 4.4. Sure agreed with the Commission's proposal not to deal with access to rights of use in this band as part of this consultation process. The Commission acknowledges that there could be demand for access in this band as an alternative to the 3.6GHz spectrum for FWA purposes, and would ensure access to the band is an option for users if the situation arises.
- 4.6. Sure agreed with the Commission's proposal to not deal with the access rights of use in this band any further within this current consultation. It also expressed a view that excess demand for spectrum in this band would be unlikely.
- 4.7. Manx Telecom agreed with the Commission's views that the 26GHz Band will most likely be used for very high speed 5G services. They also responded that use cases for this band are less well defined at present, but did stress that this is a view that is likely to change as services evolve.
- 4.8. BlueWave agreed that the policy was in line with 5G spectrum GSMA Public Policy Positional Document⁸. Specifically that 1GHz of contiguous spectrum should be released in this band when the Commission deals with the access rights to use this band.
- 4.9. The two individual responses that agreed with the Commission's views provided no evidence or further information in support of their views.
- 4.10. Three responses disagreed with the Commission's thinking with one stating they felt that there is no need for 5G "as the Island has not even got 4G right and that other countries have banned its use due to unknown health issues". Two further individual responses who disagreed provided no evidence or views.
- 4.11. Three respondents provided no views either way.

Summary of Responses Received

- 4.4. Of the eleven responses received only four provided evidence or views to complement their response.
- 4.5. BlueWave, Manx Telecom, and Sure, along with two

Commission Response

- 4.12. The Commission notes that that there was little objection to its view that the 26GHz Band and any rights of access should not form part of this ongoing consultation.

⁷ Multiple Input – Multiple Output antenna technology uses multiple antennas to simultaneously serve many customers over extended distances and is expected to be an integral part of 5G standards.

⁸ https://www.gsma.com/spectrum/wp-content/uploads/2019/08/spec_5g_positioning_web_07_19.pdf July 2019

- 4.13. One of the responses that disagreed with the Commission's proposal presumed that the Commission was in fact referring to the 2.6GHz Band, which is being awarded in some other jurisdictions. To clarify, the Commission was referring to the 26GHz Band, as it was identified as a Pioneer Band, along with the 700MHz and 3.6GHz bands. While it is aware of the potential uses of the band, the Commission has not expressed any views on the 2.6GHz Band to date.
- 4.14. In relation to the responses directly referencing the use of 5G, its health implications, or the investment case for such services, the Commission reiterates the view it expressed in paragraph **Error! Reference source not found.** above.
- 4.15. The Commission also notes that licenced operators agreed that spectrum in this band might be considered for FWA service in the future.

4.2 Alternative Uses

Proposals Received

- 4.16. No alternative use cases for the 26GHz Band were provided.

Commission Response

- 4.17. Given no alternative use cases for the 26GHz Band were expressed the Commission remains of the view that this be a candidate band for future FWA services.

4.3 Final Position

- 4.18. The Commission has concluded that it will, at this time, not include the 26GHz Band as part of this award process.
- 4.19. The Commission will continue to work with licenced operators to provide access to the band should it be needed in the future.

5 Other Issues Raised

5.1 Overview of Other Issues

Overview of Issues Raised

- 5.1. BlueWave outlined that they strongly believe that the 3.6GHz Band should continue to remain integral to the deployment of mobile, FWA, and nomadic services, and therefore should fall in line with Ofcom in terms of ensuring it is not used for other industry services, for example satellite uplink/downlink, which has the possibility to sit in other spectrum bands. They stated that they agree with Ofcom in their statement that this spectrum band needs to be used to “support higher data rates and provide increased capacity to support large numbers of connected devices, and enable higher speeds to concurrently connected devices” for mobile (and FWA) networks.

Commission Response

- 5.2. The Commission agrees with the view that 3.6GHz Band will be integral to mobile, wireless and nomadic services.

5.2 Final Position

- 5.3. The Commission has a statutory function to ensure the efficient management of spectrum. Allocating spectrum in a manner that ensures it is used for the overall benefit of the Island, its consumers, and economy, ensures that everyone continues to benefit from competition in the telecoms markets. For this reason the Commission believe rights to use the 700MHz and 3.6GHz bands should be awarded in as timely a manner as possible.
- 5.4. The Commission remains of the view that the most appropriate and effective approach for the allocation of the 700MHz and 3.6GHz bands is to allow the market to determine the most efficient allocation of the available spectrum through a competitive award process.
- 5.5. The Communications Commission will undertake a further consultation on the spectrum to be awarded.

6 Award Issues and Timelines

6.1 Award Principles, Access Fees and Timelines

Overview of Preliminary Position

- 6.1. The Commission is not in a position to reserve spectrum for any particular user or use case, but must, in conjunction with Ofcom, ensure that spectrum is used in the most efficient way possible. The Commission must also consider how operators utilise as efficiently as possible, the full amount of spectrum at their disposal, in a way that provides the maximum benefit to the Manx consumer and wider economy.
- 6.2. It is incumbent on the Commission to ensure that the maximum amount of spectrum is made available, on a service and technology neutral basis, in a fair, transparent, and non-discriminatory way.
- 6.3. Radio spectrum is a finite natural resource; as such, it must be managed in a way that enables users who value it most to gain access to it on a fair and reasonable basis. This ensures that the Manx consumer and economy derives the maximum benefit from the radio spectrum. The Commission is of the view that the fairest and most transparent way to determine the true value of the spectrum is to use a combination of benchmarking to ensure a reserve fee is set at an appropriate level, and a market based mechanism, such as an auction, to determine any value above and beyond this. In essence both mechanisms reflect the value that the telecoms industry has placed on the spectrum, not an arbitrary value determined by the Commission.
- 6.4. In relation to the benchmarking exercise, the Commission is of the view that the value of spectrum on the Island is inherently the same as in other jurisdictions and that the main factor affecting the final fees paid, other than supply constraints, is the scale and scope of the market. The Commission would take the appropriate steps to ensure that values are corrected in such a way that they can be directly applied in the Isle of Man, and that any outliers are not factored into its thinking.

Summary of responses Received

- 6.5. There was a mixed response to the outlined award principles, fees and timelines with four responses in agreement to the proposals, with two supplying evidence or views and five who disagreed; of these, two provided views and cited unknown health issues.
- 6.6. Of the four in agreement, Manx Telecom noted the award process and timelines described in the consultation document.
- 6.7. Sure agreed with the principle that the spectrum should be used in the most efficient way possible, it also agreed that withholding some of the available spectrum could lead to the value of the spectrum being artificially inflated. It was also noted that the Commission plan to use a combination of benchmarking and market-based mechanism to determine the appropriate value of the spectrum, but fear scales of other jurisdictions will skew the value of the spectrum, and as such would prefer a beauty contest.
- 6.8. Some of the other specific concerns relating to the use of an auction have been dealt with in the previous section.

Commission Response

- 6.9. Following this response to the consultation on Future Use of spectrum the Commission will, in due course, publish a Further Consultation regarding the Award of the Spectrum which will outline the proposed Award format and structure.

