



Satellite Licensing Framework: Gateway Earth Stations and User Terminal Network Services

T1539G

Response to Consultation & Final Decision

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CONTENTS

1. Overview	1
Introduction	1
Summary of final decision	1
Government policy and benefits	2
2. Introduction and background	2
Background	2
Structure of the rest of this paper	3
3. Legal and regulatory framework	3
Guernsey	3
UK legislation relevant to spectrum in Guernsey	4
Guernsey spectrum allocation	5
4. Ofcom’s recent NGSO satellite licensing changes	5
5. GCRA telecommunications licence framework	6
December 2021 Consultation licence change proposals	6
Responses to the proposals	7
GCRA consideration	8
GCRA final decision	9
6. Award process for satellite telecommunications licence and access to spectrum	12
December 2021 Consultation award process proposals	12
Responses to the proposals	12
Response to call for Expressions of Interest	13
GCRA consideration and Final Decision	13
Licence application process	14
Ofcom process	15
Annex 1: Satellite services	16
Annex 2: GCRA legal and regulatory framework	18
Annex 3: Ofcom duties under the Communications Act and WTA	19
Annex 4: Telecommunications licence Part authorising satellite services	20
Annex 5: Licence Exemption for Wholesale model	22
Annex 6: Amendments to all Fixed Telecommunications Licences	23

LIST OF TABLES

Table 1: Satellite Licensing Framework – Final decision	10
Table 1: Expression of Interest – Satellite spectrum	13

LIST OF FIGURES

Figure 1: Satellite system example	16
Figure 2: Satellite frequency bands	16

1. Overview

Introduction

- 1.1. In December 2021, the Guernsey Competition and Regulatory Authority (**GCRA**) consulted on the development of a framework for licensing satellite services in Guernsey. It also invited Expressions of Interest from parties interested in being licensed to provide gateway earth station and/ or user terminal network services in Guernsey. Satellite gateway earth stations are large hubs that connect the satellite network to the internet and/or to private networks and cloud services. A satellite user terminal network service is the provision of a network encompassing, for example, the dish and equipment installed at a customer's premises.
- 1.2. Following consideration of four responses to the consultation from satellite operators, one Expression of Interest in gateway earth station services and two in user terminal network services, this paper sets out the GCRA's final decision on the framework it intends to apply to licensing non-geo-stationary orbit (**NGSO**) and geo-stationary orbit (**GSO**) satellite services in Guernsey.

Summary of final decision

General

The licensing and award framework applies to satellite systems in non-geostationary orbit (NGSO) and geo-stationary orbit (GSO).

GCRA telecommunications licences to authorise satellite services

General:

- For new entrants, or existing licensees wishing to provide user terminal network services, a new Part VI to be attached to the standard fixed licence that authorises satellite services and links to the relevant Wireless Telegraphy Act (WTA) licence.
- Modification of existing fixed licences to amend and insert certain definitions.

Gateway earth station services:

- Restricted to a satellite operator holding:
 - WTA Satellite (Non-Geostationary Earth Station) or Satellite (Permanent Earth Station) licence, following recommendation from the GCRA to Ofcom.
 - GCRA telecommunications licence with Part VI authorising the licensee to establish, operate or maintain a telecommunications network and provide a telecommunications service.

User terminal network services:

- Wholesale model – permits a satellite operator holding a WTA Satellite (Earth Station Network) licence and a GCRA licence exemption, to contract with a Guernsey telecommunications licensee holding a Part VI licence, with the latter providing retail services to the public.
- Retail model – permits a satellite operator holding a WTA Satellite (Earth Station Network) licence and a GCRA telecommunications licence with Part VI to provide retail services to the public.

Award process for satellite telecommunications licence and access to spectrum

The GCRA will issue telecommunications licences authorising provision of gateway earth station and/ or user terminal network services and recommendations to Ofcom to consider gateway earth station licences on a case-by-case basis.

Government policy and benefits

- 1.3. The States of Guernsey published a telecoms strategy, *The Future of Telecoms*, in June 2018. Although satellite broadband services are not a major focus, the strategy notes that alternative networks also have a role to play in expanding network coverage and capacity and encourages industry to engage with providers of innovative new solutions, such as satellites, on how to deliver ubiquitous, high-quality, broadband connectivity.
- 1.4. The GCRA is confident that the efficient and effective framework to license satellite services in Guernsey presented in this paper is consistent with States of Guernsey telecoms policy.
- 1.5. The licensing of competitive satellite services in Guernsey is expected to provide the following benefits:
 - A cost-effective alternative mode of high-speed broadband service delivery for remote parts of the Bailiwick where laying fibre is uneconomic.
 - An alternative solution for cellular backhaul for existing mobile network operators so they can extend their coverage in areas where terrestrial network infrastructure investment is not commercially or geographically feasible.

2. Introduction and background

Background

- 2.1. In December 2021, the GCRA consulted on the development of a framework for licensing satellite services on Guernsey, including the basis for recommendations to Ofcom on spectrum allocations for such services (the **December 2021 consultation**).¹ It also invited Expressions of Interest from parties interested in being licensed to provide satellite gateway earth station and/ or user terminal network services in Guernsey.
- 2.2. The consultation followed interest expressed in providing satellite broadband services to user terminal network services (referred to as **network** services) located in Guernsey and in operating satellite gateway earth stations (referred to as **gateways**) on Guernsey, using satellites in a non-geostationary satellite orbit (**NGSO**).² [Annex 1](#) provides a description of the key elements of a satellite system. The December 2021 Consultation indicated that provision of satellite user terminal network and satellite gateway earth station services requires two licences: a telecommunications licence from the GCRA and a spectrum licence from Ofcom under the *Wireless Telegraphy Act 2006 (WTA)*, the latter informed by a recommendation from the GCRA.
- 2.3. The GCRA received four responses to the consultation, from **OneWeb**, Kepler Communications Inc. (**Kepler**), Mangata Networks Ltd (**Mangata**) and Eutelsat S.A. (**Eutelsat**). The four responses

¹ GCRA (2021). *Satellite Licensing Framework: Satellite User Terminals and Earth Station Gateways – Consultation & Call for Expressions of Interest*, 14 December 2021: <https://www.gcra.gg/media/598394/t1539g-satellite-licensing-framework-user-terminals-earth-station-gateways-consultation-expressions-of-interest.pdf>

² This contrasts with satellite systems in geostationary satellite orbit (**GSO**).

are available on the GCRA website.³ OneWeb submitted an Expression of Interest in providing satellite user terminal network services. Starlink Internet Services Limited (**Starlink**) submitted an Expression of Interest in providing gateway earth station and user terminal network satellite services. The GCRA would like to thank all respondents for their comments.

- 2.4. The respondents welcomed the GCRA's consultation on an efficient framework for the provision of satellite services to and from Guernsey and provided constructive feedback that has assisted the GCRA in designing an improved framework.
- 2.5. This paper, having considered the responses received, sets out the GCRA's final decision on the framework that it will apply when making decisions on the licensing of satellite services in Guernsey.

Structure of the rest of this paper

- 2.6. The remainder of this paper is structured as follows:
 - Section 3 describes the legal and regulatory bases for the GCRA's role in the licensing of telecommunications companies and allocation of spectrum for telecoms purposes as well as Ofcom's role under United Kingdom (**UK**) legislation in this area.
 - Section 4 describes Ofcom's recent changes to its satellite licensing processes.
 - Section 5 sets out the GCRA's decisions regarding changes to licences under the *Telecommunications (Bailiwick of Guernsey) Law, 2001* (the **Telecommunications Law**) to authorise the provision of satellite services.
 - Section 6 presents the GCRA's decisions on the award process for telecommunications licences and recommending spectrum awards for satellite service providers to Ofcom.

3. Legal and regulatory framework

Guernsey

- 3.1. In previous spectrum allocation award processes, the GCRA followed certain objectives to guide the process and criteria for allocation of spectrum, most of which remain relevant for the purposes of this decision:⁴
 - To further consumers' interests in the short and long term, having regard to prices and costs, and the availability and range of services suitable to consumers' different needs.
 - To promote competition as a mechanism to further its consumer interest objective.
 - To have regard to and, where it lies within its powers and is practicable, to lessen the impact of the spectrum dependent activities it regulates on the environment.

³ <https://www.gcra.gg/cases/2021/satellite-licensing-framework-user-terminals-and-earth-station-gateways/>

⁴ The principle 'To the extent allowed by legislation, to deal with the Jersey and Guernsey Bailiwicks as a single economic and social entity' has been removed following the reversion to separate regulatory authorities.

- To seek to ensure the processes and criteria adopted by the GCRA are consistent with Ofcom’s duties, including the duty to secure the optimal use of wireless telegraphy of the electromagnetic spectrum.
- 3.2. The first three objectives relate to the duties that GCRA has under *The Regulation of Utilities (Bailiwick of Guernsey) Law, 2001* (the **Regulation Law**), as shown in [Annex 2](#). The last one is necessary to ensure that Ofcom is able to act on the GCRA’s recommendations, as they need to be made in furtherance of objectives consistent with those assigned to Ofcom.
 - 3.3. Detailed provision for the regulation of telecommunications in Guernsey is contained in the Telecommunications Law. Section 2 provides for the GCRA to grant licences authorising the establishment, operation and maintenance of a telecommunications network and the provision of telecommunications services. Section 5 permits the GCRA to include in licences such conditions as it considers appropriate, having regard to objectives set out in Section 2 of the Regulation Law.
 - 3.4. In developing this licensing framework, the GCRA is also mindful of the six principles for economic regulation it is required to follow viz. accountability, focus, predictability, coherence, adaptability and efficiency, as summarised in [Annex 2](#).

UK legislation relevant to spectrum in Guernsey

- 3.5. The use of spectrum in Guernsey is governed by Orders in Council extending certain provisions of UK legislation to Guernsey, 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 spectrum, in the UK and in Guernsey, is carried out by Ofcom, by virtue of the powers given to it by the WTA and the *Communications Act 2003* (the **Communications Act**).
- 3.6. The GCRA does not have authority to authorise spectrum use in Guernsey but may determine a proposed allocation of spectrum, which it then formally notifies Ofcom in the form of a recommendation, for Ofcom to issue spectrum licences with powers held under the WTA.
- 3.7. The Communications Act sets out Ofcom’s principal and secondary duties (see [Annex 3](#)), which include a requirement to further consumer interests, where appropriate by promoting competition and secure the optimal use for wireless telegraphy of the electro-magnetic spectrum.
- 3.8. The WTA places further duties on Ofcom (see [Annex 3](#)) when carrying out its radio spectrum functions. These include having regard to current and future demand for spectrum and the desirability of promoting the efficient management and use of spectrum, economic and other benefits that may arise from that use, the development of innovative services and competition in the provision electronic communications services.
- 3.9. Ofcom authorises satellite user terminal networks by a Satellite (Earth Station Network) licence.⁵ These ‘**user terminal network licences**’ allow the use of unlimited NGSO and GSO user terminal networks, for example the dish and equipment installed at a customer’s premise. Network

⁵ Ofcom (2018a). *Licensing Procedures Manual For Satellite (Earth Station Network) Applications*, January 2018: https://www.ofcom.org.uk/data/assets/pdf_file/0021/19434/esn-licensing-procedures-manual.pdf

licences issued by Ofcom permit the licensee to use satellite spectrum anywhere in the UK and Channel Islands.

- 3.10. Gateway earth stations, which are hubs that connect the satellite network to the internet and/ or to private networks and cloud services, are authorised by a Satellite (Non-Geostationary Earth Station)⁶ or Satellite (Permanent Earth Station)⁷ licence. Such NGSO and GSO ‘**gateway earth station licences**’ specify the location from which the gateway earth station can be operated, the allocated spectrum authorised for use along with a range of licence conditions, such as national and international obligations and apparatus requirements.

Guernsey spectrum allocation

- 3.11. Spectrum that has been allocated by Ofcom for use in Guernsey to date is published on the Ofcom website.⁸ There are currently no WTA telecommunications licensees operating in the Ka or Ku band frequencies providing services to Guernsey, and Ofcom has not issued any gateway earth station licences, GSO or NGSO, for Guernsey.

4. Ofcom’s recent NGSO satellite licensing changes

- 4.1. The GCRA needs to work closely with Ofcom and therefore developments and progress made by the UK regulator are explained below.
- 4.2. In July 2021, Ofcom suspended NGSO satellite licensing, for user terminal network and gateways earth stations, while it consulted on updates to its licensing process to mitigate the increased risks of harmful radio interference between NGSO systems.⁹ In December 2021, Ofcom announced the following key changes that will affect Satellite (Earth Station Network) and Satellite (Non-Geostationary Station) licences:¹⁰
- A new application process that:
 - restricts applications for user terminal network and gateway earth station licences to satellite operators;
 - includes a check that systems being licensed can coexist without degrading consumer services;

⁶ Ofcom (2018b). *Licensing Procedures Manual for Satellite (Non-Geostationary Earth Station) Applications*, January 2018: https://www.ofcom.org.uk/data/assets/pdf_file/0028/78274/non-geo-licensing-procedures-manual.pdf

⁷ These licences apply to GSO earth stations. Ofcom (2018c). *Licensing Procedures Manual for Satellite (Permanent Earth Station) Applications*, January 2018: https://www.ofcom.org.uk/data/assets/pdf_file/0016/60604/pes-licensing-procedures-manual.pdf

⁸ https://www.ofcom.org.uk/data/assets/pdf_file/0014/100670/channel-islands-frequency-chart.pdf

⁹ Ofcom (2021a). *Consultation: Non-geostationary satellite systems – Licensing updates*, 26 July 2021: https://www.ofcom.org.uk/data/assets/pdf_file/0015/222450/ngso-licensing-consultation.pdf

¹⁰ Ofcom (2021b). *Statement: Non-geostationary satellite systems – Licensing updates*, 10 December 2021: https://www.ofcom.org.uk/data/assets/pdf_file/0018/229311/statement-ngso-licensing.pdf

- introduces a check to guard against any restriction of competition that could arise if granting the licence could prevent subsequent parties entering the market; and
 - involves the publication of licence applications and a period for comments for stakeholders to provide information regarding interference or competitive impact.
- New licence conditions that will:
 - require technical cooperation between operators;
 - for gateway earth station licences, require regular transmissions to commence within 12 months of licence issue and be maintained thereafter;
 - require gateway earth stations to only operate with an NGSO satellite system authorised under a user terminal network licence; and
 - enable Ofcom, where required, to manage local cases of interference that are impacting services.
- 4.3. To ensure that all relevant satellite equipment will be subject to these updated rules, Ofcom also advised it would begin the process to remove an existing licence exemption for user terminal networks operating in the Ka band.
- 4.4. In relation to its competition check, Ofcom decided to continue to issue licences as they are requested, provided it has the opportunity to consider any competition concerns arising from an application that would limit options for others to the extent they could not enter the market. As an example, Ofcom cites one or a number of operators seeking to acquire licences for a large number of sites.
- 4.5. Ofcom notes that in considering whether acquisition of additional gateways earth stations could restrict competition, a relevant factor would be the extent to which the satellite system has the flexibility to accommodate other operators deploying gateway earth stations near to them in the future. For example, Ofcom indicates that systems which are likely to require other gateway earth stations to be at least 200 km away would likely raise greater competition concerns than those that are flexible enough to accommodate others much closer.

5. GCRA telecommunications licence framework

December 2021 Consultation licence change proposals

New market entrants

- 5.1. In the December 2021 Consultation, the GCRA proposed attaching a new Part to the standard fixed licence that specifically authorises gateway earth station and user terminal network services. This approach provides a means to clearly distinguish those licensees that, having provided the necessary supporting information in their license applications to the GCRA, are authorised to provide satellite services, from standard 'land-based' fixed licensees. It also provided a means to clearly link the telecommunications licence to the relevant WTA gateway earth station and user terminal network licence(s) issued by Ofcom. The GCRA noted that this option requires consequential amendments to the definitions in clause 1 for all fixed licences.

- 5.2. The GCRA did not propose to replicate, or add additional technical conditions or restrictions to those in Ofcom's satellite licences in the proposed new Part. This was on the basis that Ofcom is responsible for the management and licensing of radio spectrum in Guernsey on behalf of the GCRA and is best placed to determine the appropriate technical conditions and restrictions that may be placed on WTA licences.
- 5.3. The proposed new Part contained a clause that relates to Ofcom proposals for gateway earth station licences, which is that regular transmissions should commence within 12 months of licence issue and be maintained thereafter. The new Part proposed a commencement date of 18 months after the issue of the telecommunications licence, to allow time for the licensee to apply for a WTA licence after the telecommunication licence is issued by the GCRA.

Existing licences

- 5.4. The GCRA did not propose to modify existing fixed telecommunications licences as part of the process to authorise provision of satellite services, save for consequential amendments to the definitions in clause 1. The GCRA indicated that should an existing licensee wish to provide satellite services, and is successful in its application to the GCRA following the process that will result from the December 2021 consultation, a licence modification process to vary the licence to include the new Part would be undertaken.

Responses to the proposals

Separate licence Part

- 5.5. Mangata, Kepler and OneWeb agreed that best approach for adapting the fixed telecommunications licence to authorise the provision of satellite services is to attach a new Part for the standard fixed licence that specifically authorises such services.

User terminal network licensing arrangements

- 5.6. OneWeb did not agree that the fixed telecommunication licensee must also hold the WTA licence(s) itself:

This is because Ofcom's licensing process only allows Satellite (Earth Station) Network licenses to be held by NGSO satellite operators; meaning only satellite operators would be able to provide NGSO satellite services directly to end users in Guernsey. This would prevent Guernsey's already licensed and established telcos and Mobile Network Operators (MNOs) from partnering with satellite operators to deliver a range of tailored and competitive services to the benefit of Guernsey's consumers and businesses.¹¹

- 5.7. To resolve this concern, OneWeb proposed an amendment to Section 3 of the GCRA's proposed Telecommunications licence Part authorising satellite services, to permit a satellite operator to hold the WTA licence and a local telecommunications company, for example, that holds a Guernsey telecommunications licence to provide user terminal network services to the end user.

¹¹ OneWeb (2022). *Response to the December 2021 Satellite Licensing Framework Consultation*, February 2022: page 2.

Timescale for commencement of services

- 5.8. OneWeb agreed with the proposed 18-month timescale for a gateway earth station licensee to commence services, but suggested that there should be an exceptional circumstances clause to deal with situations beyond the control of the licensee.
- 5.9. Mangata recommended that user terminal network service provision should be excluded from the 18-month service condition.

GCRA consideration

Licensing arrangements

- 5.10. OneWeb has indicated that it will be employing a wholesale business model, providing satellite services to telecommunication companies (including cellular backhaul, for example), governments, and large-scale enterprise business users, rather than supplying services directly to retail consumers.
- 5.11. OneWeb contended that the GCRA's proposed approach would compromise the wholesale business model as it would mean only satellite operators would be able to provide satellite services directly to end users in Guernsey, restricting competition and reducing value and choice for consumers.
- 5.12. The GCRA agrees with OneWeb's position that restricting competition in the provision of user terminal network services to satellite operators may not serve the interests of Guernsey consumers. The GCRA's preference is to enable satellite systems to provide services and increase choice for people and businesses in Guernsey. It is also likely that other satellite operators will adopt OneWeb's wholesale business model. However, the GCRA must also be mindful to ensure its licensing processes are consistent with Ofcom's recent changes to its NGSO licensing processes.
- 5.13. In its December 2021 final decision, Ofcom decided that the satellite operator is the most appropriate entity to hold a user terminal network licence on the basis that NGSO network licensees must have control over the whole of the satellite system, including satellites, user terminal networks and gateway earth stations, to ensure the ability to cooperate with other satellite systems so they are able to coexist.
- 5.14. As such, the GCRA's has decided to amend its licensing arrangements for user terminal network services to permit a satellite operator holding a WTA network licence to provide wholesale services to a Guernsey licensed telecommunications operator, which would then provide retail services to end users. To meet Ofcom's requirements, the satellite operator would be required to retain control over the user terminal networks.

Timescale for commencement of gateway earth station gateway services

- 5.15. The GCRA sees merit in OneWeb's proposal to include an exceptional circumstances clause to deal with situations beyond the control of the licensee. Such a clause has been incorporated into the GCRA's final decision.
- 5.16. For avoidance of doubt, with reference to Mangata's submission, the 18-month service condition and continual maintenance thereafter only applies to gateway earth station licences.

Clarity

5.17. Although not raised directly in the responses received, it is evident that the GCRA's proposed licensing approach, which is based on a definition of satellite services that encompasses both gateway earth stations and user terminal networks, lacks the necessary distinction. As such, the GCRA's final decision more clearly distinguishes between these types of services and their licensing pathways.

GCRA final decision

General

5.18. The GCRA has made several changes to its proposed licensing framework, either in response to comments received, or in order to present a clearer, more efficient framework.

5.19. The final framework retains the proposal to attach a new Part to the standard fixed licence and make consequential amendments to clause 1 of all existing fixed licences. It also makes a clearer distinction between gateway earth station and user terminal network services. For completeness, the framework encompasses NGSO and GSO satellite systems.

5.20. The GCRA's final decision is summarised in Table 1, with the text of the new licence Part set out in [Annex 4](#), the licence exemption presented in [Annex 5](#) and consequential amendments to clause 1 shown in [Annex 6](#). The key elements of the final framework are summarised below.

Table 1: Satellite Licensing Framework – Final decision

Satellite Licencing Framework (GSO & NGSO)	A. Gateway earth station	B. User Terminal Networks	
		B1. Wholesale model	B2. Retail model
Licences required	<ul style="list-style-type: none"> • Satellite Operator: <ul style="list-style-type: none"> ○ WTA Earth Station Gateway licence – on GCRA recommendation ○ GCRA Telco licence with Part VI 	<ul style="list-style-type: none"> • Satellite Operator: <ul style="list-style-type: none"> ○ WTA User Terminal Network licence ○ GCRA Licence Exemption • Guernsey Licensed Operator – holding GCRA Telco Licence with Part VI modification 	<ul style="list-style-type: none"> • Satellite Operator: <ul style="list-style-type: none"> ○ WTA User Terminal Network licence ○ GCRA Telco licence with Part VI
GCRA conditions	<ul style="list-style-type: none"> • GCRA Telco licence – 18 month service start date and continual service provision thereafter, with exceptional circumstances clause 	<ul style="list-style-type: none"> • GCRA Licence Exemption: <ul style="list-style-type: none"> ○ Restricted to providing user terminal network services through a specific Guernsey licensed operator ○ Licensed operator must have Part VI GCRA licence modification 	
Notes	<ul style="list-style-type: none"> • Restricted to a Satellite Operator holding both WTA and GCRA licences 	<ul style="list-style-type: none"> • WTA User Terminal Network licensee must be a Satellite Operator 	<ul style="list-style-type: none"> • Restricted to a Satellite Operator holding both WTA and GCRA licences

Gateway earth station services

5.21. The provision of gateway earth station services in Guernsey, for NGSO and GSO satellite systems, is restricted to a satellite operator holding two licences:

- WTA Satellite (Non-Geostationary Earth Station) or Satellite (Permanent Earth Station) licence authorising a Guernsey site location, following a recommendation from the GCRA to Ofcom.
- GCRA telecommunications licence with Part VI authorising the licensee to establish, operate or maintain a satellite telecommunications network and/ or provide a satellite telecommunications service.

User terminal network services

5.22. There are two options for the provision of user terminal network services, for NGSO and GSO satellite systems:

- The **Wholesale** model permits a satellite operator holding a WTA Satellite (Earth Station Network) licence to contract with a local Guernsey telecommunications licensee holding a Part VI licence, with the latter providing retail services to the public:
 - The satellite operator requires a GCRA exemption from licensing, which contains several conditions (see Table 1). The conditions balance a proportionate approach, given the limited scope of services that would be provided, with the necessary level of regulatory control over the satellite operator to ensure a level playing field with other telecommunications operators.¹²
 - The local telecommunications licensee will require a modification to its GCRA telecommunications licence authorising it to establish, operate or maintain a satellite telecommunications network and/ or provide a satellite telecommunications service.
- The **Retail** model, which is restricted to a satellite operator holding a WTA and a GCRA telecommunications licence, permits the satellite operator to provide services direct to the public:
 - WTA Satellite (Earth Station Network) licence.
 - GCRA telecommunications licence authorising the licensee to establish, operate or maintain a satellite telecommunications network and/ or provide a satellite telecommunications service.

5.23. A satellite operator wishing to provide both gateway earth station and user terminal network services can apply for both at the same time for joint consideration for the purposes of the GCRA licence and Ofcom recommendation.

¹² An application for a license exemption will attract an application fee in an amount to be determined in the GCRA's current Telecoms License Fees consultation: <https://www.gcra.gg/media/598416/telecoms-licence-fees-call-for-information.pdf>. For avoidance of doubt, standard GCRA license fees will apply to Part VI GCRA license holders.

5.24. In coming to its final decision, the GCRA has taken a pragmatic and proportionate approach to balancing several goals, including the promotion of competition, consumer protection, consistency with the GCRA's current regulatory approaches on the island and Ofcom's revised licensing processes.

6. Award process for satellite telecommunications licence and access to spectrum

December 2021 Consultation award process proposals

6.1. The GCRA proposed a two-stage contingent award mechanism in the December 2021 Consultation. Stage 1, carried out in concert with the consultation, tested for excess demand through an Expression of Interest process. In the event there is excess demand, the GCRA proposed a second stage, competitive award process to ensure optimal use is made of the spectrum.

Responses to the proposals

6.2. Several respondents took the view that a competitive process is unnecessary for both gateway earth station and user terminal network services on the basis that satellite spectrum is non-exclusive and coordinated through the International Telecommunications Union (ITU). Most respondents expressed a preference for an administrative, first-come first-served, licensing approach.

6.3. OneWeb submitted that satellite spectrum is shared on a non-exclusive basis between satellite systems providing services, and therefore one satellite operator using spectrum will not deny that spectrum's availability to another operator. OneWeb noted that this contrasts with terrestrial spectrum where mobile operators, for example, require exclusive use of a specific range of spectrum frequencies.

6.4. OneWeb argued that satellite spectrum should only be assigned administratively on a case-by-case basis because, unlike terrestrial spectrum for mobile operators, satellite spectrum is coordinated internationally and accessed on a non-exclusive basis.¹³ OneWeb's view is that the two-stage competitive mechanism should only be applied to 'securing the location of NGSO gateways in the occasion of demand from the Expression of Interest exceeding the number of suitable sites (which may be limited due to geographic, planning and infrastructure constraints for example).

6.5. Mangata submitted that applying a competitive process to gateway earth station licences would distort market entry and is irrelevant in the case of user terminal network service provision since several NGSO systems will be able to share the available spectrum, and where necessary apply mitigation techniques to avoid interference between systems.

6.6. Eutelsat submitted that user terminal networks should not be included in the proposed two-stage process to access spectrum on the basis that:

¹³ OneWeb, 2022: page 4.

While the issue of interference may arise in the case of NGSO gateways, the situation of user terminal networks of satellite services is different, and terminals from different satellite systems can coexist as long as these satellite systems are compliant with the coordination process at International Telecommunications Union (ITU) level.¹⁴

- 6.7. Eutelsat also sought confirmation that the proposed competitive framework will not be applied to GSO satellite services, gateway earth stations and user terminal networks, that can coexist with other GSO and NGSO satellite services as long as the satellite systems are compliant with the coordination process at ITU level.

Response to call for Expressions of Interest

- 6.8. The GCRA received two Expressions of Interest. OneWeb expressed an interest in providing wholesale user terminal network services working with a distribution partner to provide services to end users in Guernsey. Starlink expressed an interest in providing gateway earth station and user terminal network services in Guernsey. The preferred spectrum frequency range for both are shown in Table 1. OneWeb¹⁵ and Starlink¹⁶ hold WTA Satellite (Earth Station Network) licences issued by Ofcom.

Table 1: Expression of Interest – Satellite spectrum

Satellite service	Company	Link direction	Frequencies	Band
User terminal network	OneWeb	Uplink	14.0 - 14.50 GHz	Ku
		Downlink	10.7 - 12.7 GHz	
	Starlink	Uplink	14.0-14.50 GHz	
		Downlink	10.7-12.7 GHz	
Gateway earth station	Starlink	Uplink	27.5-30.0 GHz	Ka
		Downlink	17.8-27.5-30.0 GHz	

GCRA consideration and Final Decision

Gateway earth station services

- 6.9. The GCRA only received one Expression of Interest in providing NGSO gateway earth station services on Guernsey. The GCRA’s final decision, therefore, is that a competitive process is not warranted and intends to deal with applications on an administrative, first-come first-served basis, with parties that responded to the call for Expressions of Interest being given preference. This is consistent with Ofcom’s approach to WTA gateway earth station licensing.

¹⁴ Eutelsat (2022). *Response to the December 2021 Satellite Licensing Framework Consultation*, February 2022: page 1.

¹⁵ https://www.ofcom.org.uk/data/assets/pdf_file/0021/229215/network-access-associates.pdf

¹⁶ https://www.ofcom.org.uk/data/assets/pdf_file/0022/229216/starlink-internet-services.pdf

User terminal network services

6.10. Two Expressions of Interest in providing user terminal network services were received. The GCRA acknowledges the points made by respondents in respect of the ability of satellite operators providing user terminal network services, whether using NGSO or GSO satellite systems, to effectively coexist by sharing spectrum in compliance with ITU coordination processes. The GCRA also notes that Ofcom's new licence conditions for NGSO systems, where the propensity for interference is higher, will further ensure coordination and minimise interference between operators. The new conditions include a requirement to:

- use frequencies in common with other licensees;
- cooperate with other licensees to ensure coexistence without causing harmful interference; and
- comply with an Ofcom notice if services are degraded.

6.11. As such, the GCRA's final decision is that a competitive process is not warranted and intends to deal with applications on an administrative, first-come first-served basis, with parties that responded to the call for Expressions of Interest being given preference. This is consistent with Ofcom's approach to user terminal network licensing.

Licence application process

Satellite operators – gateway earth station services

6.12. The application process for a satellite operator wishing to provide gateway earth station services on Guernsey is:

- Step 1: Apply to the GCRA for a telecommunications licence, setting out required details of the proposed satellite services and the applicant's preferred spectrum frequency.
- Step 2: Following GCRA consideration and any approval of the telecommunications licence, the GCRA will make a recommendation to Ofcom to consider issuing the relevant WTA gateway earth station licence.
- Step 3: The applicant must separately apply to Ofcom for the relevant WTA gateway earth station licence.

Satellite operators – user terminal network services

6.13. The application process for a satellite operator that wishes to provide Wholesale or Retail user terminal network services in Guernsey is:

- Step 1: Apply to the GCRA for a telecommunications licence (Retail model) or exemption (Wholesale model), setting out details of the proposed satellite service, including the Guernsey partner in the Wholesale model case, and evidence of the satellite operator's WTA Satellite (Earth Station Network) licence.
- Step 2: The GCRA will consider and where appropriate issue the telecommunications licence or exemption.

Guernsey licensed operators

6.14. The application process for a Guernsey licenced operator that wishes to provide user terminal network services in partnership with a satellite operator is.

- Step 1: Apply to the GCRA for a licence modification, setting out details of the proposed satellite service, including its satellite operator partner.
- Step 2: The GCRA will consider and modify the telecommunications licence to include the new Part VI.

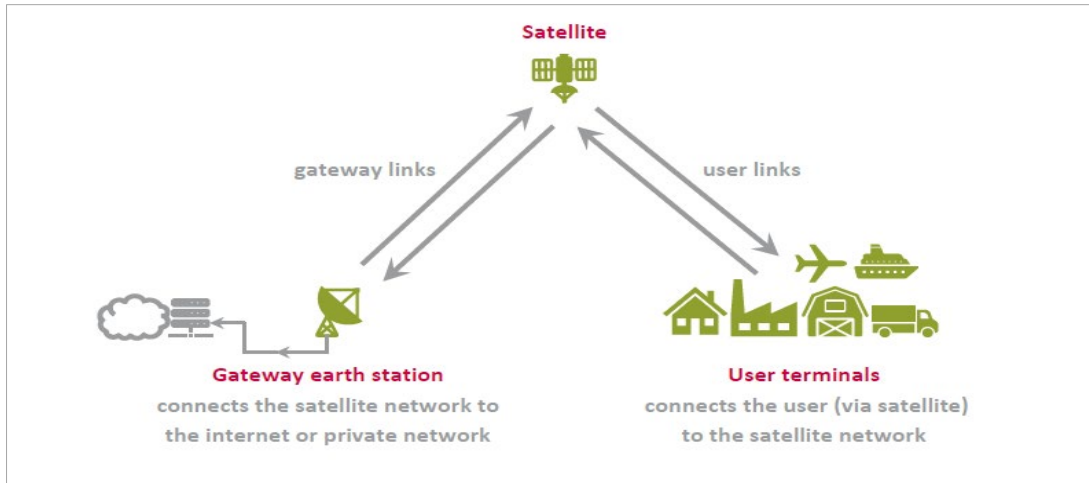
Ofcom process

6.15. For avoidance of doubt, any satellite telecommunications service authorised under the process set out above would be subject to that applicant either holding or successfully obtaining the relevant Ofcom WTA satellite licence(s). Ofcom's assessments in respect of those licences are independent of GCRA processes.

Annex 1: Satellite services

This section briefly describes the key elements of a satellite system, in particular distinguishing between user terminal network and gateway earth station services, and explains the difference between GSO and NGSO satellite systems. The three key elements of a satellite system are shown in Figure 1.

Figure 1: Satellite system example

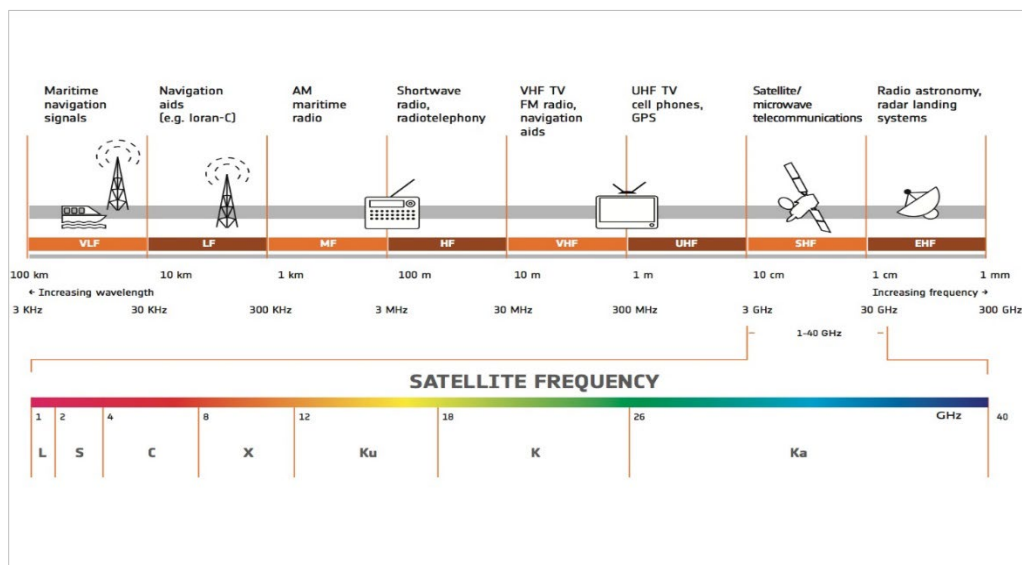


Source: Ofcom, 2021a: page 40.

User terminal networks

User terminal networks typically comprise a small antenna and associated equipment. User terminal networks can communicate with satellites in geostationary orbit (**GSO**) or NGSO in certain frequency bands allocated to the fixed-satellite service. These include commonly used frequencies in the Ku band (13.78 – 14.5 GHz), globally one of the most heavily used satellite uplink bands, and Ka band (26 – 40 GHz).

Figure 2: Satellite frequency bands



Source: The European Space Agency.¹⁷

¹⁷ https://www.esa.int/Applications/Telecommunications_Integrated_Applications/Satellite_frequency_bands

Gateway earth stations

Gateway earth stations are hubs that connect the GSO and NGSO satellite system to the internet and/or to private networks.¹⁸ The frequency bands allocated to the fixed-satellite service are defined by the ITU Radio Regulations and commonly include frequencies in Ku band (approximately 14 GHz for the uplink and 11 GHz for the downlink) and Ka band (approximately 28 GHz for the uplink and 18 GHz for the downlink). The parts of spectrum in the UK between 27.5 – 30 GHz that are routinely made available by Ofcom for transmitting earth stations, are: 27.5 – 27.8185 GHz, 28.4545 – 27.8185 GHz and 29.4625 – 30 GHz.

Ofcom notes that there are a number of companies developing NGSO systems comprising constellations of satellites, including Amazon, Kepler, OneWeb, SpaceX, and Telesat.¹⁹

Satellites

GSO satellites remain in a stationary position relative to the earth's surface because they are orbiting at same speed and direction as the earth is rotating. This means they stay in the same spot in the sky, and so satellite dishes can be fixed to point at them without needing to track them. Multiple GSO gateway earth stations can be located on a single site, each communicating with a different satellite system in a different orbital location, without causing harmful interference to each other. As such, GSO operators do not need to be concerned about the location of other GSO operators' gateway earth stations.

In contrast, NGSO satellites, such as medium earth orbit (MEO) or low earth orbit (LEO) satellites, move around the earth along predefined 'orbital planes'. There may be hundreds or thousands of satellites strategically spaced so that, from any point on the surface, at least one satellite is always visible on a direct line of sight. To achieve a continuous connection, NGSO gateway earth stations and user terminal networks are required to track these satellites as they move across the sky, transmitting and receiving information as they do so. NGSO gateways are therefore likely to require large minimum separation distances (for example 10s of kilometres or more) from the gateways of other systems, in order to avoid harmful interference, even if there is agreement on coordination of the satellite systems as a whole.

Ofcom notes that if the separation distances needed between NGSO gateway earth stations were to be very large (say much greater than 100 km) and/or demand for sites were sufficiently high, then this introduces the possibility of a scarcity of sites within the UK.²⁰ Such scarcity could contribute to competition being restricted if enough sites were acquired by a single player (or concentrated number of players) such that other operators requiring UK sited gateways could not enter the market.

This matter is relevant to Guernsey, as even with a small separation distance of only tens of kilometres, this would imply that only one NGSO gateway earth station on Guernsey (and potentially Guernsey, Jersey and parts of France) would be feasible to avoid harmful interference.

Spectrum use by satellites in space, which is coordinated by the International Telecommunication Union (ITU),²¹ is not licenced by Ofcom.

¹⁸ In the Guernsey context, a gateway earth station is likely to comprise an array of about 10 antennas on a 0.3 to 0.8 acre site.

¹⁹ Ofcom (2021a): page 7.

²⁰ Ofcom (2021a): page 16.

²¹ For more information see: <https://www.itu.int/en/mediacentre/backgrounders/Pages/itu-r-managing-the-radio-frequency-spectrum-for-the-world.aspx>

Annex 2: GCRA legal and regulatory framework

Section 2 of *The Regulation of Utilities (Bailiwick of Guernsey) Law, 2001* (the **Regulation Law**). requires the GCRA, in exercising its functions and powers, to promote and, where they conflict, to balance the following objectives:

- a) *to protect the interests of consumers and other users in the Bailiwick in respect of the prices charged for, and the quality, service levels, permanence and variety of, utility services,*
- b) *to secure, so far as practicable, the provision of utility services that satisfy all reasonable demands for such services within the Bailiwick, whether those services are supplied from, within or to the Bailiwick,*
- c) *to ensure that utility activities are carried out in such a way as best to serve and contribute to the economic and social development and well-being of the Bailiwick,*
- d) *to introduce, maintain and promote effective and sustainable competition in the provision of utility services in the Bailiwick, subject to any special or exclusive rights awarded to a licensee by [the Authority] pursuant to States' Directions,*
- e) *to improve the quality and coverage of utility services within the Bailiwick, and*
- f) *to lessen, where practicable, any adverse impact of utility activities on the environment,*

and, in performing the duty imposed by this section, have equal regard to the interests of the residents of all islands of the Bailiwick.

The Regulation of Utilities (States' Directions) (Bailiwick of Guernsey) Ordinance, 2012 sets out six principles of economic regulation, summarised below: ²²

- Accountability – regulate within the framework of duties and policies set by the States.
- Focus – focus on protecting consumer interests through competition where possible, or a system replicating competitive outcomes if not, with a focus on outcomes.
- Predictability – provide a stable and objective regulatory environment.
- Coherence – develop frameworks that are a logical part of States broader policy context and priorities.
- Adaptability – evolve as circumstances change.
- Efficiency – make proportionate, cost-effective, timely and robust interventions and decisions.

²² *The Regulation of Utilities (States' Directions) (Bailiwick of Guernsey) Ordinance, 2012:*
<https://www.guernseylegalresources.gg/CHttpHandler.ashx?id=75588&p=0>

Annex 3: Ofcom duties under the Communications Act and WTA

Ofcom's principal and secondary duties are in Section 3 of the Communications Act ('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;*
 - (...)

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.*

Annex 4: Telecommunications licence Part authorising satellite services

PART VI: ADDITIONAL CONDITIONS IN RESPECT OF THE PROVISION OF SATELLITE TELECOMMUNICATIONS SERVICES

1. SCOPE OF THIS PART

- 1.1 This Part of the Licence authorises the Licensee to establish, operate and maintain the Licensed Satellite Telecommunications Network and/or provide the Licensed Satellite Telecommunications Services in the Bailiwick of Guernsey for the Term.
- 1.2 Conditions within the other parts of this licence are equally applicable to the establishment, operation and maintenance of the Licensed Satellite Telecommunications Network and provision of the Licensed Satellite Telecommunications Services, except when in conflict with this Part or where clearly incapable of such application.

2. DEFINITIONS FOR THIS PART

- 2.1 For the purposes of this Part, in addition to the general definitions in Clause 1:

“Latest Service Launch Date”: means eighteen months after the date that a Licence authorising Part VI activities is issued, although the GCRA may extend this date prior to the expiry of the eighteen month period, but only in exceptional circumstances.

“Gateway earth station Network”: means any number of gateway earth station terminals operating in a network where traffic is routed via satellite to and from a hub or gateway earth station (save that in the case of the Wholesale Telecommunication Service Provider this hub or gateway earth station cannot be in the Bailiwick).

“Gateway earth station Services”: means the provision of Licensed Satellite Telecommunications Services that utilise a Permanent or Non-Geostationary Earth Station in Guernsey.

“Non-Geostationary Gateway earth station”: A non-geostationary gateway earth station is a satellite gateway earth station operating from a permanent, specified location for the purpose of providing wireless telegraphy links with one or more non-geostationary satellites in certain frequency bands allocated to the fixed-satellite service by OFCOM.

“Permanent Gateway earth station”: means a fixed sited gateway earth station that communicates with geostationary satellites operating in certain frequency bands allocated to the fixed-satellite service and assigned for Earth-to-space transmission by OFCOM.

“Retail Satellite Telecommunications Provider”: means a telecommunication licensee authorised under this Part VI, who provides Licensed Satellite Telecommunication Services to any end-consumers in the Bailiwick through a Wholesale Satellite Telecommunications Provider with whom it has a service contract.

“Wholesale Satellite Telecommunications Provider”: means any person who is exempted from holding a telecommunications licence, operates a Gateway earth station Network in the Bailiwick, but who only supplies Satellite Telecommunications Services to any Retail Satellite Telecommunications Provider and not to any end-consumers in the Bailiwick.”

3. OBLIGATION TO COMPLY WITH WIRELESS TELEGRAPHY LICENCE

- 3.1 The Licensee shall comply with any other requirement in law or practice to obtain any additional consents, permissions, authorisations or licences as may be necessary for the provision of the Licensed Satellite Telecommunications Services or Licensed Satellite Telecommunications Network. Such licences may include, but not be limited to, a Wireless Telegraphy Licence to use appropriate radio frequency spectrum to operate the Licensee's Satellite Telecommunications Network.

4. PROVISION OF GATEWAY EARTH STATION SERVICES

- 4.1 A Licensee who holds a Satellite (Non-Geostationary Earth Station) Licence or a Satellite (Permanent Earth Station) Licence shall ensure that it begins providing Earth Station Services by the Latest Service Launch Date.
- 4.2 The Licensee shall ensure that at all times after the Latest Service Launch Date it provides Gateway earth station Services.

5. CERTAIN LICENSEES TO BE THE SAME AS THE WTA LICENCE HOLDER

- 5.1. Save where the Licensee is a Retail Satellite Services Provider, the Licensee authorised under this Part may only be the same person that holds the relevant Satellite (Earth Station Network), Satellite (Non-Geostationary Earth Station) or Satellite (Permanent Earth Station) Licence issued in terms of the UK Wireless Telegraphy Act 2006 (as this Act has effect in the Bailiwick) and which is required to operate its Licensed Satellite Telecommunications Network and to deliver its Licensed Satellite Telecommunications Services.

Annex 5: Licence Exemption for Wholesale model

LICENCE EXEMPTION: WHOLESALe SATELLITE GATEWAY EARTH STATION NETWORK SERVICES

1. Definitions

For the purposes of this Exemption, the following terms shall have the meaning indicated:

“Gateway earth station Network”: means any number of gateway earth station terminals operating in a network where traffic is routed via satellite to and from a hub or gateway earth station (save that in the case of the Wholesale Telecommunication Service Provider this hub or gateway earth station cannot be in the Bailiwick).

“Licensed Satellite Telecommunications Services”: means Satellite Telecommunication Services licensed by the GCRA.

“Retail Satellite Telecommunications Provider”: means a telecommunication licensee authorised under Part VI of a fixed telecommunications licence, who provides Licensed Satellite Telecommunication Services to any end-consumer in the Bailiwick through a Wholesale Satellite Telecommunications Provider with whom it has a service contract.

“Satellite Telecommunication Services”: means those Telecommunications Services provided by way of transmissions between satellites and satellite gateway earth stations and/or satellite user terminal networks, where those gateway earth stations, terminals and, to the extent applicable, any transmissions over them are those which are authorised under and envisaged by the following types of Wireless Telegraphy Licence(s) under the UK Wireless Telegraphy Act 2006 (as this Act has effect in the Bailiwick), insofar as they are licensed:

- a) Satellite (Earth Station Network) Licence;
- b) Satellite (Non-Geostationary Earth Station) Licence;
- c) Satellite (Permanent Earth Station) Licence.

“Wholesale Satellite Telecommunications Provider”: means any person who is exempted from holding a telecommunications licence, operates a Gateway earth station Network in the Bailiwick, but only supplies Satellite Telecommunications Services to any Retail Satellite Telecommunications Provider and not to any end-consumers in the Bailiwick.

2. Operative provision

For a period of five years, the GCRA exempts [**Name**] from any obligation to hold a telecommunications licence under the Telecommunications (Bailiwick of Guernsey) Law, 2001, in regard to its activities as a Wholesale Satellite Telecommunications Provider, provided that:

- a) within the Bailiwick, it remains exclusively a Wholesale Satellite Telecommunications Provider.
- b) provides any information or documentation requested by the GCRA in order to determine whether it has remained exclusively a Wholesale Provider in the Bailiwick.

Annex 6: Amendments to all Fixed Telecommunications Licences

The following changes to clause 1 of all fixed licences:

1. Substituting the definition of “**Licensed Telecommunications Services**” with:

“means the provision of any Telecommunications services to the public, but excluding: Mobile Telecommunications Services and Licensed Satellite Telecommunications Services (save where the latter is additionally and specifically authorised and then regulated by way of a further Part VI to this licence);”
2. Substituting the definition of “**Licensed Telecommunications Network**” with:

“means the Telecommunications Network which the Licensee is authorised to establish, operate and maintain in the Bailiwick for the purposes of providing the Licensed Telecommunications Services, but excluding: the Licensed Mobile Telecommunications Network (used for the purpose of providing the Licensed Mobile Telecommunications Services) and any Licensed Satellite Telecommunications Network (save where the latter is additionally and specifically authorised and then regulated by way of a further Part VI to this licence);”
3. Inserting the following new definition, “**Licensed Satellite Telecommunications Network**”:

“means any Telecommunications Network which the Licensee may be additionally and specifically authorised by Part VI of this licence to establish, operate and maintain in the Bailiwick for the purposes of providing the Licensed Satellite Telecommunications Services;”
4. Inserting the following new definition, “**Licensed Satellite Telecommunications Services**”:

“means Satellite Telecommunications Services licensed by the GCRA in terms of Part VI of this licence;”
5. Inserting the following new definition, “**Satellite Telecommunications Services**”:

“means those Telecommunications Services provided by way of transmissions between satellites and satellite gateway earth stations and/or satellite user terminal networks, where those gateway earth stations, user terminals and, to the extent applicable, any transmissions over them are those which are authorised under and envisaged by the following types of Wireless Telegraphy Licence(s) under the UK Wireless Telegraphy Act 2006 (as this Act has effect in the Bailiwick), insofar as they are licensed:

 - a) Satellite (Earth Station Network) Licence;
 - b) Satellite (Non-Geostationary Earth Station) Licence;
 - c) Satellite (Permanent Earth Station) Licence.”
6. Inserting the following new definition, “**Wireless Telegraphy Licence**”

“means a licence issued in terms of the UK Wireless Telegraphy Act, 2006 (as extended to Guernsey);”