



Office of the Director of
**Telecommunications
Regulation**

Opening the market for Satellite services

Consultation Paper

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Foreword by the Director

From deep space exploration to public telephony, from weather forecasting to the distribution of television signals, the applications of satellite communications continue to evolve and expand the quality and types of service available to the general public.

Satellite Networks, as an alternative means of communicating, can provide a valuable addition to the telecommunications infrastructure in Ireland. Satellite communications can be cost effective with short set up times providing global access to the remotest of regions with the minimum of infrastructure requirements.

Please take this opportunity to influence the development of satellite communications in Ireland through your response to this consultation.

Etain Doyle
Director of Telecommunications Regulation

1. Introduction

1.1 The Director of Telecommunications Regulation intends to develop a regulatory framework to provide for the establishment and operation of earth stations for space related radiocommunications, including public telecommunication, Very Small Aperture Terminals (VSATs) and certain types of mobile and receive only earth stations. This will be done by way of introducing regulations pursuant to the Wireless Telegraphy Act 1926, as amended, providing for the establishment of a licensing framework. Such regulations can only be made with the consent of the Minister for Public Enterprise.

1.2 This paper seeks views on a proposed framework for the licensing and introduction of satellite services. Interested parties are invited to make submissions on this proposed framework. Particular points currently under consideration are listed, but any comments will be considered.

1.3 One Stop Shopping Procedure

1.3.1 While this consultation is focussed on developing a regulatory framework for satellite licensing in Ireland, the Director is aware of the development of the One Stop Shop (OSS) for satellite licences in Europe. This is being brought about through initiatives by the European Radiocommunications Committee (ERC), the European Committee for Telecommunications Regulatory Affairs (ECTRA) and the European Commission.

1.3.2 The ODTR intends to actively participate in the work of the One Stop Shop Special Investigation Group (OSS SIG) and particularly in the development of a harmonised licensing process for satellite operators across Europe.

1.4 While the main demand in Ireland for space services is for access to licences for the establishment of earth stations in the ground segment, the Director would welcome comments on the licensing of the space segment i.e. the satellite and the associated telecommand and control systems.

1.5 This consultation paper is not a legal document and does not constitute legal, commercial, or technical advice, nor is the Director bound by it. The consultation is without prejudice to the legal position of the Director or her rights and duties under relevant legislation and does not form part of any formal tender process.

2. Structure of the paper

2.1 This paper is structured in a number of main sections as follows:

- section four identifies the different licences which may be required by satellite earth station operators
- section five outlines the general principles for radio licences
- section six outlines the categories of licences proposed
- section seven outlines the proposed application process
- section eight outlines the proposed fee structure

3. Consultation procedures and timetable

3.1 The consultation period will run from March 4th 1999 to June 4th 1999. Written comments should be marked 'Satellite earth station licensing' and submitted before 5.00 p.m. on June 4th to:

Noel Singleton
The Office of the Director of Telecommunications Regulation
Abbey Court Irish Life Centre
Lower Abbey Street
Dublin 1

Due to the international nature of the provision of satellite services, a three month period has been given to this consultation.

- 3.2 Comments on all sections of this paper are welcome. In making comments, it would make the task of analysing replies much easier, if comments reference the relevant section numbers and, where appropriate, the relevant question numbers.
- 3.3 The Director expects to publish a report, which will outline her decisions in respect of this consultation. This report will take account of the responses received within the three month period date indicated above. If there are elements of any response that are commercially confidential, then it is essential that these are clearly identified. The Director regrets that it will not be possible to enter into written correspondence with those supplying comments.

4. Licences which may be required by Satellite Earth Station Operators.

- 4.1 While this consultation focuses on the wireless telegraphy aspects it should be noted that in some cases a telecommunications service licence may also be required (see section 4.3.1 below).

Wireless Telegraphy Licence

- 4.2.1 Unless otherwise exempted (see section 4.2.4 below), a wireless telegraphy Licence is required under Section 3 of the Wireless Telegraphy Act 1926, as amended, by any person proposing to keep and have possession of apparatus for wireless telegraphy for the purpose of installing and operating an earth station. Any licence issued by the Director of Telecommunications Regulation does not absolve the licensee from complying with any other statutory obligations.
- 4.2.2 It should be noted that the powers of the Minister to make regulations in relation to wireless telegraphy licences specified in this Act, have been transferred to the Director in accordance with the provisions of the Telecommunications (Miscellaneous Provisions) Act, 1996. Regulations to introduce new licensing frameworks, as proposed here, require the consent of the Minister for Public Enterprise.
- 4.2.3 The applicant should be aware that any wireless telegraphy licence, granted by the ODTR, is for the keeping and operating of the apparatus for wireless telegraphy in accordance with the terms and conditions specified in the licence.
- 4.2.4 In line with the decisions of the European Radiocommunications Committee (ERC), the Director proposes to exempt from the obligation to hold an individual licence, certain classes of terminal equipment. A list of the proposed exemptions is given in Appendix 1.

Period of licences

- 4.2.5 Licenses will generally be issued for a period of one year, subject to payment of fees on an annual basis. The issuing of licences may also be subject to more general reviews of spectrum use. On written application for renewal, the ODTR will review individual licences on a case by case basis.

Temporary licences

- 4.2.6 It is proposed that temporary licences may be issued for any period up to a maximum of six months, subject to payment of a fee calculated on a pro-rata basis as outlined in section 8. It should be noted that licences issued on a temporary basis will not be renewed.

Modification to licences

- 4.2.7 It is recognised that licensees, from time to time, may wish to request a modification to an existing licence. Where the modification could increase the potential for interference with other users, the licensee may be required to make a new application. A new licence, in these circumstances, would replace the old licence.

Commissioning/Site Inspections

- 4.2.8 The licensee will be required, within a specified period of time, to submit a completed declaration form to the ODTR. This declaration form will indicate that the system has been installed and conforms to the licence. This is necessary to ensure that an earth station is operated within its licence conditions. The licensee will be required to allow an authorised officer of the Director entry onto any site which contains apparatus for wireless telegraphy, including satellite transmitting or receiving apparatus. This is to facilitate attendance at commissioning tests, inspection of installations (which in exceptional circumstances may necessitate taking earth stations out of service), and for the monitoring of the use of the radio spectrum.

Implications for existing operators

- 4.2.9 The ODTR currently issues permits granting approval for the use of radio frequencies, in conjunction with the operation of earth stations. Such permits are issued without prejudice to any fees or any licence conditions, which may be prescribed in the future. It is intended that the new licensing framework will replace the existing permit system. The holders of permits will be required to apply for appropriate licences, as these are introduced. The ODTR may not in all cases be in a position to licence the radio frequencies requested, although the user's requirements will be taken into consideration in assessing applications.

Applications for Permits

- 4.2.10 Applications already received for permits will continue to be processed and permits may be issued for periods of up to six months. Renewals will also be considered on the same basis. Save in some exceptional circumstances, no new applications will be accepted after March 4th until the new licensing regime is introduced.

4.3 *Telecommunications Service licence*

- 4.3.1 A service licence is required where an applicant intends providing telecommunications services to the public. There are two types of service licences, The Basic Telecommunications Licence and The General Telecommunications Licence. A brief description of service licences is given in Appendix 2.

Q 4.1 Opinions are invited on the above proposals concerning licences which may be required by satellite earth station operators.

5 General principles for licensing of satellite services under WT Act of 1926

5.1 Frequency Spectrum Information

- 5.1.1 The radio frequency spectrum is an important national resource. In accordance with its statutory obligations, it is the policy of the ODTR to manage the spectrum in an efficient and orderly manner, so that optimum use may be obtained from this resource.
- 5.1.2 In accordance with international procedures, the spectrum allocated to satellite services is often also allocated to terrestrial based services, thereby requiring sharing (see section 5.2). The ODTR does not intend to make block allocations of spectrum to individual licensees for satellite services purposes. Rather, frequency channels shall be assigned to individual Earth Stations on a non-exclusive basis. Accordingly, licensees should be aware that the ODTR will, where possible, permit other users to share the use of the same frequency channels.
- 5.1.3 While the ODTR will endeavour to minimise the potential for interference between licencees, no liability shall accrue to the ODTR arising from any interference.
- 5.1.4 A licence does not confer any right of ownership of the frequency spectrum. It allows the assigned frequency channel to be used during the term of the licence, in accordance with the conditions of the licence.
- 5.1.5 The National Table of Frequency Allocations¹ provides details on spectrum allocations in Ireland. Applicants should be aware that some of the frequency spectrum available for use by satellite services will be shared with other services, including fixed radio links.
- 5.1.6 In the interest of efficient use of the radio spectrum, it is the policy of the ODTR to review the use of the spectrum on an ongoing basis. Changes in the spectrum allocated for satellite services can arise for a number of reasons, including those:
- which arise in accordance with the requirements of international organisations;
 - required in accordance with EU legislation;
 - necessary to meet national requirements.
- 5.1.7 The ODTR will endeavour to accommodate the needs of applicants, with due regard to the efficient and orderly use of spectrum.
- 5.1.8 Where an applicant requests channels in a specified band, it should be noted that the ODTR cannot guarantee that the spectrum requested can be made available at specific locations.

¹ Updated from time to time. Currently document number ODTR 98/03 and available from this office.

5.1.9 It is normal practice for the ODTR to specify particular operational parameters so as to minimise the potential for interference and to facilitate greater frequency reuse.

5.2 *Sharing with other services*

5.2.1 As referred to above, some of the frequency spectrum available for use by satellite services will be shared with other services - including fixed radio links. Consequently it is proposed that access to the full frequency bands shared with terrestrial services will not be permitted.

5.2.2 In the case of shared bands used for satellite downlinks, protection from transmitters in the terrestrial services may be required. Where a band used for earth station receive is shared with the terrestrial services, care in site shielding may minimise the potential for interference from the terrestrial services.

5.2.3 In the case of shared bands used for satellite uplinks, protection may need to be afforded for terrestrial services' receivers.

5.2.4 The development of multiple earth stations at one general location may be encouraged in order to minimise the impact of satellite earth stations on radio link networks and other terrestrial services (and vice versa).

Opinions are invited on:

Q 5.1 a methodology for sharing between the terrestrial fixed and satellite services (see Appendix 3)

Q 5.2 on whether the development of multiple earth stations at one general location should be encouraged by the office

5.3 *Coordination*

5.3.1 Coordination is the process by which the requirements of the various users of the radio spectrum are balanced against the available resources and the probability of interference between the various users minimised. This process requires consideration of the frequency channels and associated operational characteristics assigned, in conjunction with the geographical locations of those users. International as well as national coordination may be required, particularly where there is a possibility of interference being caused to the terrestrial and/or satellite services of a neighbouring country. International coordination can, in some cases, be a lengthy process which could take several years to complete. A proposed methodology for coordination is briefly outlined in Appendix 3.

- 5.3.2 Applicants should note that, as international coordination may take some time, satellite systems may be licensed subject to the condition that successful coordination is achieved. If not achieved, the licence may be amended or withdrawn and cancelled. Successful coordination cannot be guaranteed.

5.4 Exclusion zones

It is proposed that geographical areas, where satellite earth stations will be allowed to be located, will be restricted. Exclusion zones are likely to include airports and other electro-magnetically sensitive locations.

Q 5.3 Opinions are invited on coordination, and on the necessity and nature of exclusion zones

5.5 Equipment requirements

- 5.5.1 All earth stations (licensed or otherwise) must comply with the requirements, as specified in Directive 98/13/EC of the European Parliament and of the Council of February 12th 1998, relating to telecommunications equipment and satellite earth stations (including the mutual recognition of their conformity). Please refer to appendix 4.

6. Scope and categories of licences proposed

- 6.1 The proposed categories of satellite licences are highlighted in this section.

6.2 Definition of Very Small Aperture Terminals

There are differing opinions on the definition of Very Small Aperture Terminals (VSATs). Some definitions are based on antenna size, others on channel spacing. For the purposes of this document, a VSAT is defined as a fixed earth station (geostationary orbit) with an antenna diameter of not greater than two meters and a bit rate not greater than 2 Mbits/s (see also Appendix 5).

6.3 Licence Exempt (Receive Only) Earth Station

It is intended that this category will provide for the exemption of all receive only earth stations, unless the operator wishes to have his station licensed under more restrictive conditions. Licence exempt (receive only) earth stations will not be coordinated. It is intended that receive only VSATs and Television Receive Only (TVRO) earth stations will fall under this category.

6.4 Non-Exempt (Receive Only) Fixed Earth Station

Receive only earth stations, operating in shared bands and for which the applicant requires that the earth station be coordinated, will necessitate the holding of a licence from the ODTR. A licence fee will apply in this class. Earth Stations falling into this category could include, for example, earth stations for cable TV and MMDS headends, radio astronomy stations and professional metsat stations, etc.

6.5 *Earth Station (Geostationary Orbit, Fixed Stations)*

Only permanent earth stations (excluding VSATs, as defined above) will be permitted in this category.

6.6 *VSAT Earth Station (Geostationary Orbit, Fixed Stations)*

This category is intended to provide for the licencing of fixed telecommunications stations, principally Very Small Aperture Terminals (VSATs).

6.7 *Earth Station (Geostationary Orbit, Transportable Stations)*

6.7.1 This category is intended to provide for the licensing of Satellite News Gathering Transportable Earth Stations (SNG TES). Transportable earth stations cannot be afforded protection.

6.7.2 It is proposed that licences for transportable earth stations would be issued for periods of up to one year. However, the duration at any one location will be limited to a maximum of one month.

6.7.3 It may not be possible to licence SNG TES in bands below 10 GHz because of the extensive use by the terrestrial services of the shared bands below this frequency.

6.7.4 It is envisaged that operators who wish to use SNG TES in Ireland on a regular basis will

- 1) apply for a one year licence, and
- 2) arrange for pre-transmission clearance at any given location with the ODTR.

6.7.5 Provisions will also be made for operators who may wish to operate SNG TES's in Ireland on an infrequent basis. In such cases, operators will apply on a per event basis for temporary licences and, as part of each application, seek clearance for the operating characteristics of relevant SNG TES's

6.8 *This consultation does not propose to deal with the following categories of earth stations. The Office proposes to address these categories at a later date.*

6.9 *Earth Station (Non Geostationary Orbit, 1 to 3 GHz)*

This category is intended for mobile stations including maritime, land and aircraft mobile, with the exception of S-PCS devices otherwise exempted.

6.10 *Earth Station (Non Geostationary Orbit, below 1 GHz)*

Intended for LEOSAT earth stations in the VHF and UHF bands, used for data relay.

Opinions are invited on :

Q 6.1 the proposed definition for VSAT

Q 6.2 the scope and categories proposed for licensing

7. Proposed application process

7.1 Application process

7.1.1 Applications in respect of licences for earth stations, will be made on ODTR application forms. Application forms will be made available from the ODTR or from the Web Site www.odtr.ie.

7.1.2 It is likely that, among others, the following details will be requested in the application forms:

- Company name and complete address of applicant
- Contact details including phone and fax numbers
- Name of contact person, position in company, phone and fax details
- Locations in Ireland at which it is proposed to deploy satellite earth stations
- Description of circuit type – receive only, transmit only or transmit and receive
- Details concerning type of service to be provided – voice, data, video etc
- Category of licence requested
- Network details – stand alone point to point or element in network
- Relevant experience and technical expertise of applicant

- Details concerning space station with which communication is to be established (including name, orbital status, location, network description)
- Hub station details
- Earth station details (including earth station code, location details, station make and model, antenna details, frequency and bandwidth details, emission details, a horizon profile diagram)
- A copy of the approval from the relevant satellite organisation or agent acting for the satellite organisation, for the provision of a particular service to/from the satellite organisation's satellite
- A statement from the equipment manufacturer declaring that the equipment complies with relevant technical requirements

7.1.3 The ODTR may provide procedural and technical guidelines for applicants.

7.2 *Evaluation of Applications*

7.2.1 It is proposed that all applications for licences will be evaluated on the basis of the written information provided on the application forms. Additional information may be requested by the ODTR. All decisions of the ODTR will be communicated in writing.

7.2.2 Each application will be evaluated to determine the extent to which the following criteria would be satisfied by the granting of the licence:

- orderly and efficient use of the spectrum
- fairness in the assignment of spectrum between licensees
- the promotion of fair competition for the provision of telecommunications services
- compliance with other licensing regimes operated by the ODTR
- compliance with international obligations
- the effective and efficient delivery of non-telecommunications essential services²

7.2.3 Where an application is unsuccessful, the applicant will be notified and reasons will be given for the refusal.

7.2.4 In some cases an applicant may require clearance to more than one satellite. It is proposed that separate applications must be made in respect of each satellite with which an earth station will communicate.

7.2.5 Upon written notification of the ODTR's intention to issue a licence, payment of the relevant licence fee will be due within 1 month. If the licence fee is not paid within 1 month, the application will be deemed to have lapsed.

² Non telecommunication essential services include state/safety services etc.

- 7.2.6 The licensee will be required, within a specified period of time, to bring the earth station into operation in compliance with the terms of the licence. This period of time will typically be three months. Failure to do so may result in the licence being revoked.

Opinions are invited on:

Q 7.1 this proposed application and evaluation process

Q 7.2 what the associated guidelines should contain

8. Proposed fee structure

- 8.1 A fee is payable on the issue of a licence whether the applicant intends making immediate use of the assigned frequency spectrum or not. Failure to pay the relevant fee within the prescribed time will result in termination of the application and cancellation of the frequency assignment. Manufacturing and delivery lead times for equipment, as well as planning permissions lead times, are not considered justifiable circumstances for a delay in payment of the appropriate licence fees.
- 8.2 Fees will be charged both for the initial application process and for the subsequent radio spectrum licence. The radio spectrum fee will reflect the spectrum usage.
- 8.3 It is proposed that different fee structures will apply for permanent earth stations, transportable earth stations and VSAT's. Fees for VSAT's may be based on a network basis rather than on an individual basis.

8.4 Proposed Application Fee

8.4.1 The proposed application processing fees (including co-ordination with the UK administration) is shown below in Table 1.

Table 1 – Proposed Application Processing Fees.

Category of earth station	Licence type	Fee in Euros
Permanent Earth Station	Full Licence	€250 per station
Transportable Earth Station	Full Licence	€125 per station
	Monthly Licence	€75 per station
VSAT	Full Licence	€250 for first station plus €25 for each additional station

8.4.2 International Co-ordination

Where international co-ordination is required, with administrations other than the United Kingdom, the following additional fees will apply:

Table 2 Additional Application Processing fees for international co-ordination

Number of earth stations	Fee in Euros
1	€500
1 to 5	€500 for first plus €125 for each additional earth station
More than 5	€1000 for first five plus €25 for each additional earth station

8.5 Proposed annual licence Fees

8.5.1 The tables below indicate the proposed annual (pa) fee structure. Clearance to only one satellite is included in these fees. Clearance to additional satellites will require additional applications and additional fees.

Table 3 Permanent Earth Station Annual Licence Fees.

Assigned Bandwidth (BW)	Fee per assignment per annum in Euros
BW <10 MHz	€1,250
10 MHz ≤ BW < 20 MHz	€1,900
20 MHz ≤ BW < 40 MHz	€3,800
BW ≥ 40 MHz	€6,350

Table 4 *Transportable Earth Station Licence Fees.*

Assigned Bandwidth (BW)	Fee in Euros
BW ≤ 40 MHz	€640 per assignment for one month or less
BW < 20 MHz	€1,900 per assignment per annum
20 MHz ≤ BW < 40 MHz	€3,800 per assignment per annum
BW ≥ 40 MHz	€6,350 per assignment per annum

8.5.2 The bandwidth ranges shown in the tables above are intended to reflect transponder size/segmentation.

8.5.3 Based on the definition proposed in section 6.2 for VSATs, the suggested fee for an individual VSAT will be €640 pa. Each additional VSAT in a network will attract a fee of €64.

8.5.4 Licence fees for periods of less than one year, in respect to permanent earth stations and VSATs, will be charged on a pro-rata basis.

Opinions are invited on:

Q 8.1 Application processing fees

Q 8.2 Bandwidths proposed and related fees

Q 8.3 Should an additional spectrum reservation fee be charged for the use of spectrum for satellite services and, if so, which services and at what rates?

9 Conclusions

The Director is pleased to present this consultation paper for comment by interested parties. Comments received will be considered carefully as the process of licensing Satellite services moves forward.

Appendix 1 Proposed licence exemption classes

It is currently proposed to licence-exempt the following types of earth station equipment:

- A1.1 Licence exempt (Receive Only) Earth Stations(refer to section 6.3).
- A1.2 Inmarsat-D terminals.
Inmarsat-D Facility is a global mobile telecommunications system in the Inmarsat satellite network. It supports bi-directional store-and-forward short message data communications.
- A1.3 Inmarsat-C terminals.
Inmarsat-C provides a low bit-rate data service in order to satisfy the need for very small lightweight terminals.
- A1.4 Inmarsat-M terminals.
Inmarsat-M provides portable voice communication, as well as fax/data capabilities.
- A1.5 Omnitrac terminals (for the Euteltrac system).
These terminals allow for the continual tracking of vehicles.
- A1.6 EMS-Prodats terminals.
The PRODAT system is a low data rate message handling system, designed to serve land, maritime and aeronautical mobile satellite communication.
- A1.7 Inmarsat mini-M terminals.
Inmarsat mini-M provides portable voice communication, as well as fax/data capability. Its functions are as those of the Inmarsat-M terminal. It differs in that it is more compact.

Appendix 2 Telecommunications service licences

A2.1 General Telecommunications Licence

A General Telecommunications Licence permits the licensee to provide telecommunications networks and services, including voice telephony, to the general public. Holders of such licences can apply to the ODTR for telephone numbers, from the national numbering scheme, for allocation to their customers. General licences are valid for 15 years.

A2.2 Basic Telecommunications Licence

A Basic Telecommunications Licence does not cover voice telephony and services involving telephone numbers. It is thus tailored to the needs of specialised companies providing, for example, data, Internet and cable-based services. Holders of Basic Licences will be able to apply for a General Telecommunications Licence if, at any stage in the future, they wish to expand the range of services that they provide. Basic Licences are valid for 5 years.

A2.3 The fee for a General Telecommunications Licence is €12,500. For a Basic Telecommunications Licence the fee is €2,500. A licensee cannot hold both types of service licence simultaneously.

A2.4 Copies of application forms and further information on licences are available on the ODTR web site (<http://www.odtr.ie> – doc's 98/44, 98/45 and 98/46).

Appendix 3 Coordination issues

- A3.1 The International Telecommunications Union (ITU), which is a specialised agency of the United Nations, has devised rules and recommendations which constitute international agreements. Subsidiary recommendations have been developed by the European Conference of Postal and Telecommunications Administrations (CEPT) for particular application to the European region. It should be noted that these rules and recommendations are subject to change, as the various authorities update the procedures in order to maintain pace with the developing requirements for radio spectrum and with a view to improving methods of coordination.
- A3.2 Where required, coordination will be carried out in accordance with the ITU-R regulations and recommendations appropriate to both the earth station and frequency band of operation. In particular, for fixed satellite service earth stations, the coordination area should be determined in accordance with Appendix S7 (Appendix 28) and Recommendations ITU-R IS.847, ITU-R IS.848 and ITU-R IS.849.
- A3.4 Interference levels will be calculated with respect to other earth stations or terrestrial stations via Recommendation ITU-R P.452.
- A3.4 In order to facilitate the coordination process, stations will be required to meet minimum technical specifications. Stations will be required to have an antenna with a maximum beamwidth of 0.5° (between 3 GHz and 10 GHz) and 0.25° (above 10 GHz) in both the horizontal and vertical axes as well as a front to back ratio of at least 30 dB.
- A3.5 It is intended that the applicant will have to supply a physical site survey, showing the horizon elevation angle from the centre of the proposed antenna. This information is required for the coordination process.
- A3.6 A radio frequency interference site survey will be required for the coordination process. It should include measurements at both the centre of the proposed antenna (extending all around the horizon) and at the highest accessible point within one kilometre of the antenna location.
- A3.7 It is intended that the applicant will be required to take steps (e.g. site shielding) in order to minimise or eliminate interference which may occur to, or from, terrestrial or other transmitters which were in existence prior to the earth station application being made.

Appendix 4 Technical requirements

A.4.1 All operators of satellite earth stations will be required to comply with the relevant national and EU legislation. In particular, operators should comply with the EMC (73/23/EEC) and Low Voltage Directives (89/336/EEC) and (in the case of transmitting earth stations) with the radiation limits set down by The International Commission for Non Ionising Radiation Protection (ICNIRP) in their guidelines published in 1998.

A.4.2 Operators will also be required to comply with the relevant Common Technical Regulation, pursuant to Directive 93/97/EEC or, in the absence of such a Common Technical Regulation, should comply with:

- (a) the relevant standard adopted by the European Telecommunications Standards Institute (ETSI); or
- (b) technical specifications that may be decided periodically by the Director.

A.4.3 In the absence of such Common Technical Regulation or relevant ETSI standard, operators could be required to adhere to technical specifications that may be set out by satellite providers such as Intelsat, Eutelsat etc.

A.4.4 Relevant Common Technical Regulations (CTRs) include:

A4.4.1 For VSATs

CTR028 *“The European Commission Decision on a common technical Regulation for VSATs operating in the 11/12/14 GHz frequency bands.”*

CTR043 *“The European Commission Decision on a common technical Regulation for VSATs operating in the 4 GHz and 6 GHz frequency bands.”*

A.4.4.2 For SNGs

CTR030 *“The European Commission Decision on a common technical Regulation for Satellite News Gathering Transportable Earth Stations (SNG TES) operating in the 11-12/13-14 GHz frequency bands.”*

Appendix 5 Terminology

"the Act of 1926": the Wireless Telegraphy Act, 1926 , as amended (No. 45 of 1926).

“Coordination Area”: the area associated with an earth station outside of which a terrestrial station sharing the same frequency band, neither causes, nor is subject to, interfering emissions greater than a permissible level.

“Terrestrial Station”: a station effecting terrestrial radiocommunications.

“Terrestrial Radiocommunications”: any radiocommunications other than space radiocommunications or space astronomy.

“Space Radiocommunications” any radiocommunications involving the use of one or more space stations or the use of one or more reflecting satellites, or other objects, in space.

“Earth Station”: means apparatus for wireless telegraphy, located at a fixed point on the surface of the Earth, intended for the transmission of radio signals to, and/or the reception of radio signals from, a station aboard a space vehicle in orbit around the earth.

“Fixed Service”: a radiocommunications service between specified fixed points.

“Fixed Satellite Service”: a wireless telegraphy link between two or more Earth Stations, each located at a specified fixed point, or points, on the Surface of the Earth, and using a relay station on board a satellite to establish and maintain the link.

“VSAT Earth Station”: an earth station which operates only under the remote control of another specified earth station with which it communicates via a specified satellite, and which is not normally subject to local control.

“VSAT Hub Station”: an earth station which acts as a control station for a VSAT Network.

“VSAT Network”: one or more VSAT earth stations communicating with a controlling Earth Station (not necessarily in Ireland), or with other VSAT earth stations under the remote control of the controlling earth station.

“Geostationary Orbit”: an orbit which is characterised by the space vehicle remaining in substantially the same position relative the Earth’s surface.

“ITU Coordination”: the procedure recommended by the International Telecommunications Union, used to determine the potential interference between the Earth Station and other stations (whether located in Ireland or elsewhere).

“licence”: a licence, granted under section 5 of the Wireless Telegraphy Act. 1926, as amended (No. 45 of 1926), to keep, have possession of, install, maintain, work or use apparatus for wireless telegraphy for the purpose of operating a fixed earth station.

“licencee”: the holder of a licence.

“the Director”: the Director of Telecommunications Regulation.

“station”: apparatus for wireless telegraphy.

“wireless telegraphy-- and ---apparatus for wireless telegraphy”: meanings as assigned to them by virtue of the Wireless Telegraphy Act. 1926 , as amended.