

Annex 3 The Role of Spectrum Management

Management of the radio spectrum is the combination of administrative, regulatory and technical procedures necessary to ensure the efficient operation of radiocommunication equipment and services. Simply stated, spectrum management is the overall process of regulating and administering use of the radio frequency spectrum. A primary goal of spectrum management is to ensure optimal use of the radio spectrum, in social, economic and technical terms.

In managing the radio spectrum, regulators must weigh up all competing factors to ensure the optimal use of all frequency bands. These factors include:

- ensuring that we meet the requirements of all radio services and that there is a balance between the public policy requirements;
- maximising social benefits arising from radio use, for example in relation to public safety, national security and health care; and
- enhancing Ireland's competitiveness by ensuring that adequate spectrum is allocated and assigned to uses that derive the highest economic value from it.

In addition, there is a need to ensure the efficient use of the spectrum within the bounds of spectrum constraints and technology developments. Clearly, the regulatory process of ensuring the optimal use of the spectrum needs to be flexible and responsive in order to adapt to changes in technologies, demand, markets and public policy.

Public policy goals play a significant role in determining spectrum management policies. Efficiencies may have to be compromised in order to safeguard the provision of certain public services such as safety, defence and public broadcasting services. Technical and economic efficiencies may sometimes be constrained by international obligations related to spectrum use.

ComReg's role as a spectrum manager is to ensure as far as possible the optimal use of spectrum resources, within the constraints set by national and international legislation and regulations, technology considerations and national public policy objectives. ComReg's spectrum management activities embraces four main areas namely frequency allocation, the regulatory framework, frequency assignment and enforcement. The process of allocating frequencies to radio services and the regulatory framework are largely determined by external factors such as public policy, legislation and international agreements or regulations. ComReg plays an active role, along with DCMNR, in international fora to ensure that as far as possible the international allocation and regulatory framework accommodates Ireland's specific requirements. ComReg also participates in technical compatibility studies and in the development of technical standards to support more efficient and flexible use of the spectrum.

Access to the spectrum is granted by ComReg assigning frequencies for use by a service, either to individual users by issuing individual rights to spectrum use or by general authorisation (licence exemption) as is the case for many short range device applications, for example Wi-Fi. Where demand for the available spectrum exceeds supply a comparative selection process is used to determine which entities will be granted spectrum rights of use.

Frequency assignment and enforcement activities govern how individual users may access radio spectrum and ensure that legal and technical conditions are complied with, in order to avoid interference. Frequency assignment includes the processing of licence applications and the issue and renewal of licence documents. Enforcement includes monitoring the spectrum to ensure that use is in accordance with licence conditions, and taking legal action where the conditions

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are infringed. The resources available to ComReg to carry out its spectrum management role include technical and administrative staff, technical planning tools and databases containing information on licences and spectrum use. Together these resources enable ComReg to manage the use of radio spectrum in a way that maximises the benefit to individual users and the country as a whole.

Figures A3.1 and A3.2 below illustrate how the spectrum is apportioned between different services in the bands above and below 3,000 MHz. It can be seen that most of the spectrum below 3,000 MHz is used for broadcast, mobile and aeronautical applications, reflecting the long transmission range and non-line of sight reception capability at these frequencies, whereas the higher frequencies are predominantly used by fixed terrestrial and satellite services.

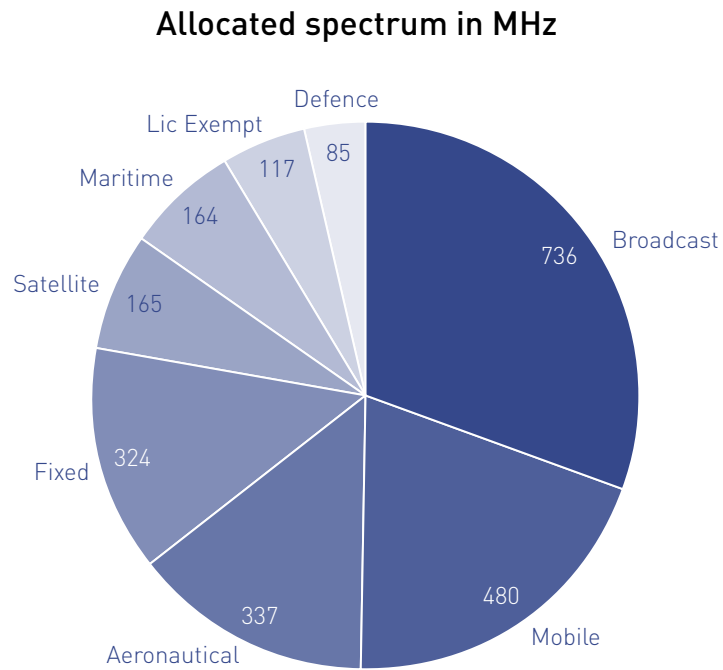


Figure A3.1: Principal spectrum allocations in Ireland in the VHF & UHF range (30 MHz to 3000 MHz)

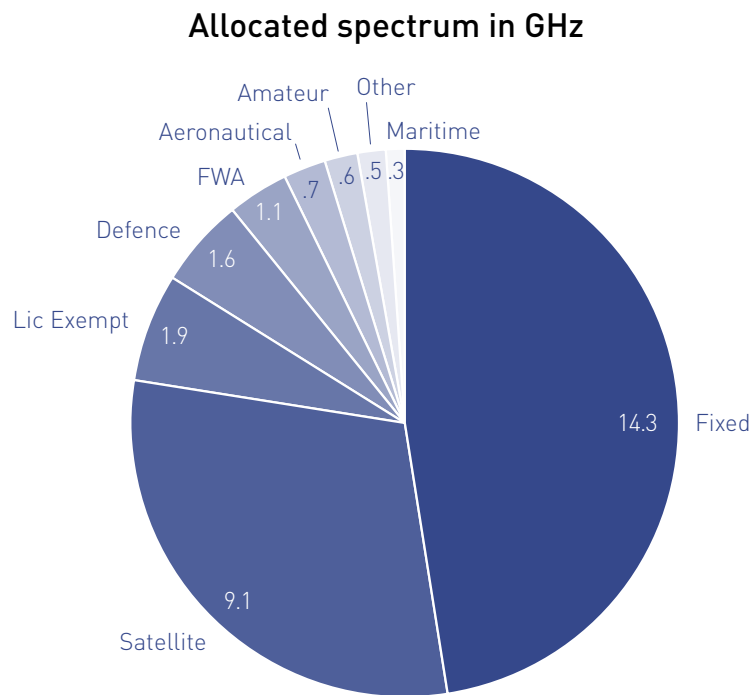


Figure A3.2: Principal spectrum allocations in Ireland in the microwave range (3000 MHz to 30 GHz)

Figure A3.3 illustrates the breakdown of individual licences issued by ComReg. It can be seen that three categories account for the majority of licences issued, namely fixed links, ships radio and business radio. Fixed links are used extensively to support the roll-out of mobile phone networks for example and are individually licensed by ComReg. Ships and business radio licences are held by many individuals and companies in Ireland, whereas other licence categories are relatively specialised and issued in correspondingly smaller quantities.

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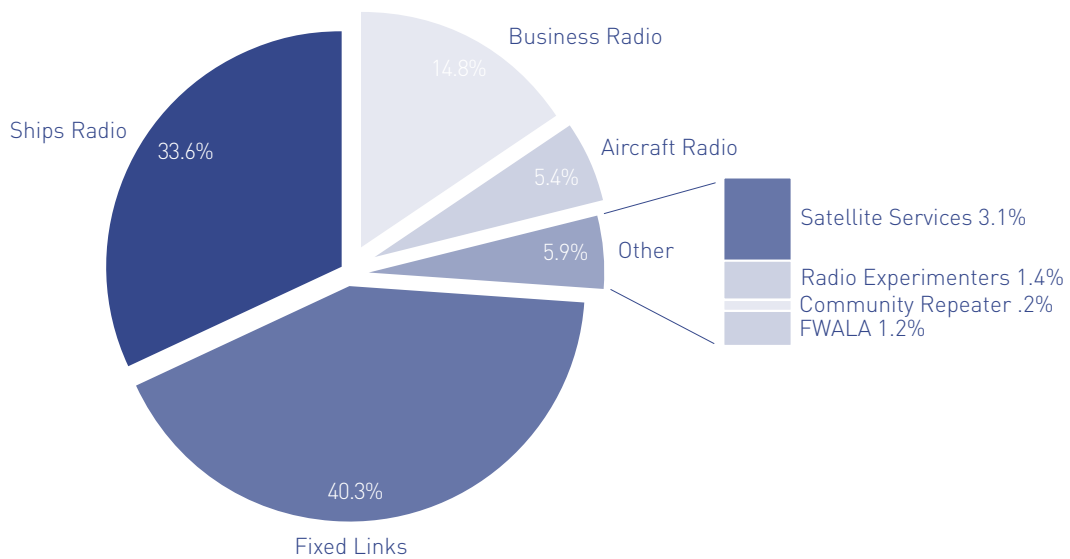


Figure A3.3: Breakdown of the total volume of licenses issued in the three year period from May 2002 to May 2005.

Figure A3.4 presents details on the number of live radio licences per year from 2000. Live radio licences is the difference between the number of licences issued and the number of licences cancelled. This gives a better picture of the increase or decrease of holders of licences. In some cases, for example in the satellite licensing area, the decrease is due to the licence exempting of a number of services.

Number of Live Radio Licences '00 to '05

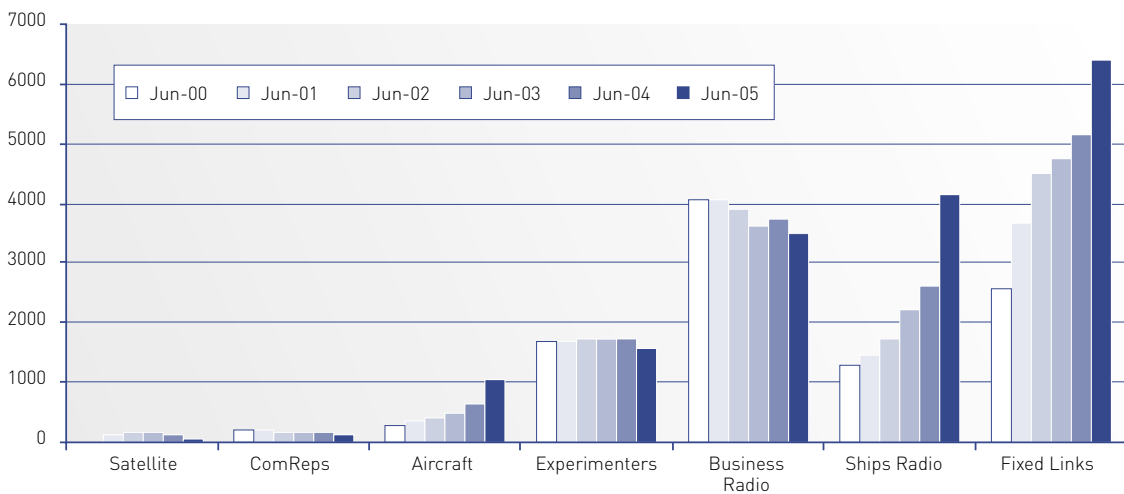


Figure A3.4. Breakdown of the total number of active licenses issued - 2000 to 2005.