

APPENDIX D

APPENDIX D – The Radio Spectrum – An Overview

Following this page is a fold-out diagrammatic representation of the electromagnetic spectrum.

The purpose of the chart is to provide a simple, high-level view of typical uses of the various frequency ranges which comprise the radio spectrum. It shows:

1. that the radio spectrum, which is regulated by the ODTR, is a small fraction of the total electromagnetic spectrum;
2. that the radio spectrum is traditionally divided into different bands, such as VLF (Very Low Frequency) and UHF (Ultra High Frequency), based on wavelengths, i.e. the shorter the wavelength the higher the frequency;
3. typical services and systems found in each of the different bands;
4. the current limit of 300GHz above which the spectrum has not yet been allocated to specific services.

Following the general overview of the radio spectrum in Appendix D there is a more detailed fold-out view of the UHF and SHF frequency bands in:

End

THE RADIO SPECTRUM – *An Overview*

Key Features and Use

Characteristics of the Radio Spectrum

In general terms:

- The *higher* the frequency the *greater* the available bandwidth (information carrying capacity). Optical fibers use light waves hence have far greater bandwidth than a radio link.
- As frequency increases (VHF and above) radio waves behave more like light waves, i.e., they travel in straight lines, penetration of buildings becomes more difficult, they are reflected or obstructed by surfaces. Above 3 GHz a clear line of sight is generally needed.
- Frequencies in the VHF and UHF bands are ideal for mobile communications (e.g., mobile phones, emergency services, business radio (e.g. taxis, etc), aeronautical communications, broadcasting) - they offer a good match of propagation characteristics and component sizes (Integrated Circuits, antennas, etc).



