

David Withers, 1999, 2nd edition, *Radio Spectrum Management: Management of the spectrum and regulation of radio services*, The Institute of Electrical Engineers, Stevenage, UK (pp 348)

For a non-engineer like myself this book represents everything that you ever wanted to know about spectrum management but never dared ask. It is also everything you come to expect of an IEE publication. Written in clear and concise language by a specialist with years of working experience. In fact the author was Chief Engineer for British Telecom's International Division until his retirement in 1984, and he has since been a consultant, principally to the UK's Radiocommunications Agency.

The first edition of this book appeared in 1991, but as the author points out, much has changed since then as anyone familiar with the explosive growth of cellular telephony, satellite services, and the advent of digital transmissions will be aware. The world of spectrum management sounds pretty dry, not to say highly technical, stuff to most folks, and by and large it is. But it is also the nuts and bolts of making available at acceptable levels of quality a veritable explosion of radio services worldwide, to say nothing of the growing convergence between radio services that were previously provided by different service operators using widely separated spectrum frequencies.

The primary task of regulators is to prevent spectrum interference between users. To accomplish this objective a range of methods and procedures have been developed as best practice over the years and these make up the central theme of the book. In his Preface the author explains that his treatment of these issues "concentrates on the principles of the methods used, references being provided for the technical and administrative details where appropriate." For engineers this will be a handbook of invaluable reference to the documents of the ITU, its Radio Regulations (RR) and to the proceedings of the World Radio Conference (formerly the World Administrative Radio Conference or WARC) and the Regional Radio Conferences (RRCs).

For the non-specialist this book is an introduction to the high-level role of the ITU and the WRC, in particular with regard to the Radio Regulations that guide efforts to minimize radio interference between states. It also introduces the basic concepts of spectrum bands, frequency allocations and frequency assignments, and the broad classification of radio services into fixed and fixed satellite service (FS and FSS), mobile and mobile satellite service (MS and MSS), broadcasting and broadcasting satellite service (BS and BSS), Amateur and Amateur satellite service (AmS and AmSS), Inter-satellite service (ISS) and numerous Technical and Scientific services. Each of these is allotted either exclusive use of spectrum, or more usually primary or secondary status within a shared frequency allocation. The book follows through with an introduction to spectrum management at the level of the regulator in local administrations, the procedures and guidelines to be followed, and the range of issues confronting regulators. As one would expect of an author who is an engineer, the book is completely systematic, devoting chapters in turn to the role of the ITU and its various bodies, to generic spectrum issues, and

then in turn to each of the major categories of radio services and their band allocations and the issue of frequency assignment. Inevitably the text at times gets crowded with detail, but a really splendid job had been done of translating the complex into the comprehensible.

The author also touches on the role of spectrum pricing as a policy instrument for a more efficient allocation of scarce spectrum, but this issue is not given detailed discussion which is a pity. It would have been useful to highlight the distinctions between technical and economic efficiencies and relate these to the need for ever-closer co-ordination between the engineering and policy sides of the regulator's office. There are moments, but rare ones, when the book touches upon national or political sensitivities that have influenced frequency allocations, one such being the rather shadowy distinction between direct-to-home satellite broadcasting (DTH) and direct broadcasting by satellite (DBS). DTH is a fixed satellite service (FSS) that has no international ramifications as the service is directional to within a state, whereas DBS is a broadcast satellite service (BSS) that has a regional footprint. The take-up of BSS has been much slower than FSS for broadcasting, in part, suggests the author, for political, cultural or religious reasons.

Given the fast pace of technological and commercial change overtaking the industry naturally there are omissions in the book, but one may be worth mentioning. The rollout of xDSL over the copper wire in the customer access network raises an interesting issue of spectrum management at the micro-level. No one yet really knows what, if any, issues of interference will arise in buildings that have copper wires and cables running in close proximity operating at broadband speeds. Incumbent local loop operators traditionally raise engineering objections to opening the local network, but in this case some of them may be reasonable. And one last comment, why no glossary? The book is littered with acronyms, and the author painstakingly defines almost all of them upon first usage, but for a non-engineer it gets a bit tedious having to search back for them. Even so, I found it well worth persevering.

John Ure
Director of the Telecommunications Research Project
Centre of Asian Studies
University of Hong Kong

www.trp.hku.hk