AUSTRALIAN COMMUNICATIONS AUTHORITY

Spectrum Licence Allocation
800 MHz Band
Remote Central Area

APPLICANT INFORMATION PACKAGE

5 March 1999
Foreword

This Applicant Information Package (the Package) contains important information about the allocation which you must read and understand before taking part in the allocation process.

The Package contains:

• an overview of what is being allocated;
• a guide to the allocation process, including instructions for participating;
• all of the legal instruments under which the allocation will take place, and
• application documents which must be completed and forwarded by the closing date.

The closing time and date for applications is 5:00 pm on Friday 9 April 1999. **No late applications will be accepted after this date.** The date for the commencement of the auction will be set by the ACA after the closing date for applications.

To register for the auction the ACA must receive:

• your correctly completed application documents; and
• payment of the entry fee plus a Performance Bond, if you elect not to provide a Deed of Financial Security. **Bank cheques** for this amount should be made payable to “The Collector of Public Monies, Australian Communications Authority” and be crossed “Not Negotiable”. Alternatively, payment can be made by electronic funds transfer. Payment must be in Australian dollars. Personal or company cheques will not be accepted.

**BY: 5.00 pm (Canberra Time) on Friday 9 April 1999.**

**AT: ACA Auction Centre**
Locked Bag 3321
BMDC ACT 2617
Australia.

Questions about the allocation process may be directed to Mr Ian Hayne, Manager, Spectrum Marketing Team on Tel. (02) 6256 5262 (international +61 6256 5262), by fax to (02) 6256 5122 (international +612 6256 5122), or by email to ihayne@aca.gov.au
Important Notice

The allocation of spectrum by issuing spectrum licences is provided for by the Radiocommunications Act 1992 ("the Act"). Amendments under the Radiocommunications Amendment Act 1997 provide for the sale of spectrum while encumbered; that is, while apparatus licensees are operating in the band. Clearance of these existing licensees will take place after sale, during a re-allocation period. Persons wishing to apply are urged to familiarise themselves with all the provisions of the Act, not just those pertaining to spectrum licensing and should be aware that any activities associated with radiocommunications may also be regulated by the Trade Practices Act 1974, the Broadcasting Services Act 1992, and the Telecommunications Act 1997. Depending on the activity undertaken using the spectrum under a licence, other Commonwealth, State and Territory laws may apply.

The Australian Communications Authority ("the ACA") is a statutory authority established under the Australian Communications Authority Act 1997 ("the ACA Act") to, amongst other things, administer the Radiocommunications Act 1992. The ACA is required by section 10 of the ACA Act to perform its functions in a manner consistent with any general policies of the Commonwealth notified, and with any directions given, to the ACA by the Minister administering that Act (sections 11 and 12 of the ACA Act respectively). The policies of the Commonwealth, a sovereign entity, may change from time to time. Furthermore, in exercising its powers and functions, including those conferred on the ACA by the Radiocommunications Act 1992, the ACA may be expected to apply its own policies which may also change from time to time.

This paper provides advice on how the ACA proposes to allocate spectrum licences. Nothing in this paper should be taken to bind the ACA to any particular course of action in relation to the allocation of licences in the spectrum under discussion. Interested persons should not rely on statements made in this document about the policies that may be followed by other authorities, nor about the effect of any legislation, but should take what steps they consider necessary to inform themselves on those matters independently of the ACA. The comments made in this paper about the Radiocommunications Act 1992 and the Telecommunications Act 1997 reflect the present policies of the ACA.

Australia is a signatory to the International Telecommunication Constitution and Convention and to other international treaties relating to communications. The administration of radiocommunications by the ACA is undertaken with respect to these conventions and treaties.

Prospective applicants should, on their own responsibility, take whatever steps they consider necessary to ensure they have access to appropriate technical or other specialist advice independently of the ACA concerning their application, operation of radiocommunications equipment and services, or other matters relevant to the proposed licence allocation system and operation of transmitters and services under the licences. Applicants are also advised to seek advice independently of the ACA on the treatment of spectrum licences and other investments under Australian taxation laws, and on the operation of foreign investment laws and policy on proposed investment in communications in Australia.
ACA Reservations

ACA May Change Process

The ACA may, under the Act, vary or deviate from these processes, or terminate the auction process.

The ACA reserves to itself the right to add to, vary or amend the information, terms and procedures set out in this document, in its sole discretion.

Other ACA Rights

The ACA reserves the right, in its absolute discretion at any stage of the auction process to do all or any of the following:

(a) require additional information from any registered applicant; and

(b) change the structure and timing of the auction process.

Registered Applicants to Meet Own Costs

Registered Applicant’s participation in any stage of the auction process shall be at the registered applicant’s sole risk, cost and expense.

Applications Become Property of the ACA

All application documents submitted in response to the Invitation document shall become the property of the ACA.

Collusive Bidding

Registered applicants and their officers, employees, agents and advisers must not engage in any collusive bidding, anti-competitive conduct or any other similar conduct with any other registered applicants, or any other person in relation to the preparation or lodgement of applications or bids for a spectrum licence under the auction process.

Confidential Information

Registered applicants and their respective officers, employees, agents and advisers must not take steps to obtain, or use, confidential information of the ACA relating to its businesses or the auction process other than information which is publicly available or made available by the ACA to registered applicants during the auction process.
Return of Information to the ACA

The ACA reserves the right, in its absolute discretion, to require that all written information provided to registered applicants (and copies of the information) be returned to the ACA at any stage.

Conflict of Interest

Registered applicants and their respective officers, employees, agents and advisers must not place themselves in a position which may, or does, give rise to a conflict of interest (or a potential conflict of interest) between the interests of the ACA or the Commonwealth (on the one hand) or any interests (on the other hand) during the Auction Process.

Application of Laws

The laws of the Australian Capital Territory apply to the auction process.

Protection of GSM Base Receivers

The ACA makes no representation as to the utility or otherwise of the spectrum. Applicants are advised, however, that a spectrum allocation lot that includes the frequency band 885-890 MHz will have reduced utility owing to a requirement to protect Telstra’s GSM base receivers operating above 890 MHz. The adjacent base transmit / base receive arrangement at 890 MHz is a result of operating AMPS adjacent to GSM and is not usual spectrum management practice. To allow for optimum use of the spectrum in both these frequency segments, special technical and regulatory frameworks were put in place. A feature of the framework is that filters were fitted at sites where AMPS base transmitters and GSM base receivers were co-located. It is expected that spectrum licensees in the band 885-890 MHz will find it difficult to deploy equipment within several kilometres and within a few MHz of a GSM base without interference, unless additional high performance filtering is employed. The filters already in place on GSM receivers can assist in this regard. Negotiation between affected parties is seen as essential to optimising spectrum utility and access near the 890 MHz boundary.
## Glossary

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<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACA</strong></td>
<td>Australian Communications Authority, established on 1 July 1997. The ACA administers the <em>Radiocommunications Act 1992</em>, under which this allocation will be made.</td>
</tr>
<tr>
<td><strong>ACCC</strong></td>
<td>Australian Competition and Consumer Commission. The ACCC administers trade practices, competition and business conduct regulation.</td>
</tr>
<tr>
<td><strong>accredited person</strong></td>
<td>a person accredited by the ACA to issue Interference Impact Certificates (IICs) and Frequency Assignment Certificates (FACs).</td>
</tr>
<tr>
<td><strong>the Act</strong></td>
<td>the <em>Radiocommunications Act 1992</em>.</td>
</tr>
<tr>
<td><strong>allocation area</strong></td>
<td>the area covered by a lot.</td>
</tr>
<tr>
<td><strong>AMPS</strong></td>
<td>Advanced Mobile Phone System.</td>
</tr>
<tr>
<td><strong>applicant</strong></td>
<td>a person who has applied to participate in the auction in accordance with the Determination.</td>
</tr>
<tr>
<td><strong>Application Form</strong></td>
<td>the form approved by the ACA under clause 8(1) of the Determination, to be used by Applicants when applying for registration.</td>
</tr>
<tr>
<td><strong>auction</strong></td>
<td>an auction held by the ACA to allocate lots which become the subject of spectrum licences.</td>
</tr>
<tr>
<td><strong>bank cheque</strong></td>
<td>a bank cheque issued by a bank licensed to operate in Australia.</td>
</tr>
<tr>
<td><strong>Bid Co-ordinator</strong></td>
<td>a person appointed to invite bids and identify the highest bidder.</td>
</tr>
<tr>
<td><strong>bidder</strong></td>
<td>an applicant or applicant representative who has registered to be a bidder on an allocation day (also known as a registered bidder).</td>
</tr>
<tr>
<td><strong>Bidder Identification Form</strong></td>
<td>the form approved by the ACA under clause 8 of</td>
</tr>
</tbody>
</table>
the Determination for the identification of authorised bidders in the auction.

*Bidder's Acknowledgement Form* the form approved by the ACA under clause 8 of the Determination, to be signed by a bidder acknowledging their responsibilities under the Determination.

*bid price* the amount that an applicant offers for a licence.

carrier the holder of a carrier licence granted by the ACA under the *Telecommunications Act 1997*.

closing date the date identified in the notice published by the ACA inviting people to apply to take part in an auction. This is the last date that Application Forms will be accepted by the ACA.

*Commonwealth* the Commonwealth of Australia.

*DECT* digital enhanced cordless telecommunications.

*Deed of Acknowledgment* the Deed approved by the ACA under clause 8 of the Determination to be executed by the Applicant when applying to participate in this auction.

*Deed of Financial Security* the Deed approved by the ACA under clause 8 of the Determination, guaranteeing the payment of deposits and certain damages that the ACA may claim if a company defaults in its bid for a licence.

*Determination* the *Radiocommunications (Spectrum Licence Allocation - Open Outcry Auction) Determination 1998*.

*Dollars or ‘$’* whole Australian dollars.

effective occupied bandwidth the minimum width of a frequency band having fixed upper and lower limits that is necessary to contain 99% of the true mean power of the transmitter’s emission at any time.

*EIRP* equivalent isotropically radiated power.

*emission centre frequency* the frequency midway between the lower and
upper frequency limits of a transmitter’s effective occupied bandwidth.

**entry fee**
an amount payable by an applicant to register for an auction. The ACA has set this amount at $500. The entry fee will not be refundable.

**FAC**
frequency assignment certificate.

**Form of Authority**
the form approved by the ACA under clause 8 of the determination that authorises an individual to act on behalf of an applicant.

**GSM**
Global System for Mobiles.

**horizontally radiated power**
the radiated maximum true mean power, within the frequency band of the licence authorising the operation of the device, summed over all polarisations and measured in units of dBm EIRP in a direction referenced from, and in the horizontal plane containing, the phase centre of the antenna used with the device.

**IIC**
interference impact certificate, issued by an accredited person certifying that a device will not cause an unacceptable level of interference.

**interference**
Has the same meaning as ‘interference’ in the Act.

**ITU**
International Telecommunication Union.

**lot**
spectrum allocation lot; a part of the spectrum covering a specified area and identified in a Marketing Plan as available for allocation.

**Marketing Plan**
a Marketing Plan prepared by the ACA under s.39 or 39A of the Act.

**maximum true mean power**
the true mean power measured in a 30 kHz rectangular bandwidth that is located within a specified frequency band, such that the true mean power is the maximum of true mean powers produced.
**mean power**
the average power measured during an interval of
time that is at least ten times the period of the
lowest modulation frequency.

**Nominated Applicant**
the applicant identified as offering the highest bid price for a lot.

**PCS**
personal communications services.

**peak power**
the average power during one radio frequency
cycle at the crest of the signal envelope measured
in a 30 kHz rectangular bandwidth that is located
within a specified frequency band.

**performance bond**
an amount of money held as a security which an
applicant may elect to pay instead of providing a
Deed of Financial Security.

**PHS**
personal handiphone system.

**RADCOM**
the ACA’s computerised radiocommunications
licensing management system.

**Registered Applicant**
an applicant who is registered under clause 10 of
the Determination.

**Registered Bidder**
An Applicant or Applicant Representative who
has registered to be a Bidder at an allocation
under clause 23 of the Determination.

**RF**
radiofrequency.

**SMA**
Spectrum Management Agency. A predecessor
of the ACA.

**Spectrum Licence**
has the same meaning as *spectrum licence* in the
Act.

**STU**
standard trading unit, the smallest unit of spectrum
space that the ACA will register for the purposes
of licensing.

**successful applicant**
an applicant who makes the highest final bid on a
lot.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TDMA</strong></td>
<td>time division multiple access.</td>
</tr>
</tbody>
</table>
| **true mean power**       | (a) if an unmodulated carrier is present - the mean power measured while the unmodulated carrier is present; and  
(b) if an unmodulated carrier is not present - the mean power measured while transmitted information is present. |
| **working day**           | a day that is not a Saturday, a Sunday or a public holiday in the Australian Capital Territory. |
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1. What is Being Offered?

In this Chapter...

- a description of the areas in which spectrum is being offered
- a description of the bandwidth parcels that are being offered in each area
- a description of spectrum allocation lots being offered
- other important information about the spectrum being offered.

On 25 May 1998, the Australian Communications Authority (ACA) completed an auction of 230 spectrum allocation lots in the 800 MHz and 1.8 GHz bands of the radiofrequency spectrum. In that allocation, 19 spectrum allocation lots were passed in either without a bid, or with their bid being withdrawn in the closing stages of the auction.

These 19 spectrum allocation lots were offered in a second auction on 25 September 1998, and all but one lot, the lot on offer in this allocation, was allocated.

This chapter describes the lot being offered for allocation and the area in which it is available.

Minister's Declarations

The Minister for Communications, the Information Economy and the Arts, Senator the Hon Richard Alston, has given the ACA copies of Re-allocation Declarations that he has made under s.153B of the Act.

Copies of the Minister's declarations are at Attachment 1.

Allocation Areas

For the purposes of the re-allocation process, the ACA divided Australia into 21 areas determined by considering population distribution, communities of common interest, geography and ability to shield radio signals, and existing radio site usage.

In this allocation, the lot being offered is in the Remote Central area, (area number 20 in the Marketing Plan). This lot is classed as an "outback" lot with a population of 127,600.

The population has been set by the ACA based on an estimate derived from census collection data from 1992. These population figures are provided for the purposes of the auction only.
Bandwidth Parcels for the Allocation

The radiofrequency band on offer is in the 800 MHz band (2 x 5 MHz), in the frequency ranges 825-830/870-875 MHz. The band is defined as Band 1 in the Marketing Plan. The lot number is 225.

Paired bands

The lot on offer consists of paired bands. Since this spectrum is being re-allocated primarily to promote competition in the newly liberalised telecommunications market, it is being configured in a way that facilitates telecommunications use. However, pairs could be broken or ‘subdivided’ if a licensee were able to find a buyer if a secondary market in spectrum were to develop. (For information on trading see the Radiocommunications (Trading Rules for Spectrum Licences) Determination 1998.) All trading is subject to the requirement that it be undertaken in terms of standard trading units (STUs) of spectrum space (see Chapter 3 - Spectrum Licensing).

Any person wishing to bid for spectrum in configurations that do not require the regular pairing imposed by the operating arrangements for mobile telephony (for example, fixed links) would be able to bid for spectrum pairs and then seek to offer for sale any unused parts of the spectrum if any secondary market were to develop.

Other Information about the Spectrum Being Offered

Spectrum subject to spectrum licensing

A spectrum licence will be issued to the applicant who is the highest bidder on the lot and who pays the bid price. Spectrum licences authorise the use of spectrum space in a particular band and over a particular area, rather than the use of specified devices.

People interested in the auction are urged to read and understand all of the provisions related to spectrum licensing set out in the Radiocommunications Act 1992.

An overview of spectrum licensing and how it works is provided in Chapter 3 - Spectrum Licensing. An overview of the technical framework applying to spectrum licences in the 800 MHz bands and applied through the s.145 determinations and s.262 advisory guidelines is contained in Chapter 4 - Technical Framework.

Applicants should, on their own responsibility, take whatever steps they consider necessary to ensure that they have access to appropriate technical or other specialist advice independent of the ACA concerning their applications, operation of radiocommunications equipment and services, or other matters relevant to the proposed licence allocation system and operation of transmitters and services under the licences. These enquiries should include, but not be limited to, engineering assessment,
Applicant Information Package

availability of transmission sites, environmental and health considerations and Commonwealth, State and Local Government planning requirements.

Applicants should be aware that they will need to co-ordinate services to be operated under the spectrum licences with both existing and future apparatus licensed services within and outside the spectrum to be allocated. Furthermore, in some cases spectrum licensees will have to co-ordinate their services with other spectrum licensees, and the ACA will not play a role in that co-ordination. The co-ordination requirements will be set out in s. 145 determinations and s. 262 advisory guidelines as issued and varied from time to time by the ACA. Copies of the s. 145 determinations and s. 262 advisory guidelines that will be applied from the time of the spectrum allocation are included in this Applicant Information Package.

Spectrum to be allocated while encumbered

Prospective applicants should be aware that the spectrum allocation lots will be allocated and become the subject of spectrum licences while the spectrum in these bands is encumbered; that is, certain apparatus licensed services will be able to continue to operate in the spectrum that is to be allocated in this auction during the re-allocation period. The procedure for encumbered allocation is set out in Part 3.6 of the Radiocommunications Act 1992 (the Act). Applicants should familiarise themselves with the provisions of this Part.

The Act guarantees continuity for these incumbent services until the end of the period set out in the Minister’s re-allocation declarations, known as the re-allocation period. For incumbent services in the 800 MHz bands, the re-allocation period will be two years from 21 July 1997 (to 21 July 1999) for the first 2 × 15 MHz, and ends on 31 December 1999 for the remaining 2 × 5 MHz, in accordance with the AMPS phase-out timetable.

IMPORTANT NOTE

The effect of the re-allocation provisions of the Act is that whilst a spectrum licence may be issued for spectrum in a particular area, the spectrum licensee may not be able to use spectrum that may still be used by an incumbent apparatus licensee until the end of the relevant re-allocation period. Prospective applicants should note that this may mean that they will obtain unrestricted access to spectrum under a spectrum licence at different times, and should carefully examine the potential effect of the re-allocation declarations on their proposed acquisitions of spectrum.

AMPS phase-out timetable.

The Minister for Communications, the Information Economy and the Arts, Senator the Hon Richard Alston announced on 21 October 1996 arrangements for the analogue advanced mobile phone system (AMPS) phase-out. These arrangements were determined following extensive consultation between the former Spectrum Management
Agency and AUSTEL, the mobile telephone carriers, and representatives of mobile telephone users.

There will be a phased withdrawal of spectrum to reflect the expected progressive reduction in capacity needed for the AMPS mobile phone service. Until 1 January 2000, AMPS service will continue to be available in all parts of Australia where it is currently available.

The phase-out is a requirement of Part 19 of the *Telecommunications Act 1997*, which closely reflects licence conditions imposed in 1992 under the previous regulatory regime on the then public mobile licence holders (Telstra, Optus Mobile and Vodafone).

The Minister’s announcement noted that the AMPS phase-out has particular implications for certain rural mobile phone users. In some locations, AMPS coverage extends further from transmitters (base stations) than GSM coverage. Accordingly, some rural phone users who currently receive an AMPS service would not necessarily be within the radius of GSM coverage.

Following a request by the Government, the ACA completed an investigation of analogue AMPS coverage in regional areas. The ACA’s Report provided advice on areas which have analogue AMPS coverage, but do not have reasonably equivalent coverage by alternative technologies such as GSM. The Government has given a commitment that all areas of regional Australia which currently receive mobile phone coverage will continue to enjoy reasonably equivalent coverage after 2000.

Telstra, Vodafone and Optus have now reached an agreement between themselves as to how they will meet the Government’s requirement. That agreement has been reflected in the *Carrier Licence Conditions (Telstra Corporation Limited) Declaration 1997 (Amendment No. 1 of 1999)*. That declaration provides that Telstra must by 31 December 2000 install and operate an 800 MHz digital mobile telecommunications network. It also must ensure that it operates in non-metropolitan areas one or more terrestrial digital mobile telecommunications networks which together provide coverage in non-metropolitan areas that is reasonably equivalent to that of its AMPS network that was in place on 30 June 1998. Telstra must cease operation of non-metropolitan AMPS sites within 90 days of commencing to supply an alternative digital mobile telecommunications service which has a coverage reasonably equivalent to AMPS services provided at those sites.

Further, the declaration requires Telstra to cease operation of at least 130 non-metropolitan sites by 31 December 1999, 50 per cent of the remaining non-metropolitan AMPS sites by 30 June 2000, and the remaining 50 per cent of those sites by 31 December 2000. All metropolitan AMPS sites must cease operation by 31 December 1999.

Changes have also been made to the competition rules for the auction (see below), which have some implications for the proposed timetable for the withdrawal of AMPS spectrum. The Government has decided that the timetable for the withdrawal of AMPS spectrum will now be as set out in Table 1.
Table 1
AMPS Phase-Out Timetable

<table>
<thead>
<tr>
<th>Stage</th>
<th>Withdrawal Date</th>
<th>Amount</th>
<th>Frequency bands</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 January 1997</td>
<td>2 x 3</td>
<td>887-890/842-845</td>
</tr>
<tr>
<td>2</td>
<td>1 July 1997</td>
<td>2 x 2</td>
<td>885-887/840-842</td>
</tr>
<tr>
<td>3</td>
<td>1 October 1998</td>
<td>2 x 5</td>
<td>870-875/825-830</td>
</tr>
<tr>
<td>4</td>
<td>1 April 1999</td>
<td>2 x 5</td>
<td>880-885/835-840</td>
</tr>
<tr>
<td>5</td>
<td>31 December 1999</td>
<td>2 x 5</td>
<td>875-880/830-835</td>
</tr>
</tbody>
</table>

Details of existing licensees

Details of current apparatus licensees are contained in the ACA’s public Register of Radiocommunications Licences. A CD-ROM extract from this Register is available from the ACA for AUD$109.00. More current information can be obtained by search of the ACA’s live database from ACA area offices. A set of order forms and end-user agreements, together with instructions for purchasing a copy of the CD-ROM, is at Attachment 11.

Applicants need to be aware that, while the ACA has taken reasonable steps to confirm device details recorded in the Register by writing to licensees, the ACA cannot give any guarantee as to the accuracy of the data. Applicants should make their own enquiries about existing spectrum users.

Nothing in the auction procedures prevents a successful bidder in the auction from approaching incumbent licensees and entering into negotiations for the incumbent to vacate the spectrum before the end of the re-allocation period.

Advisory Guidelines for Protecting Incumbents

The ACA has made advisory guidelines under s.262 of the Act for the protection of services of incumbent apparatus licensees from interference while their licence continues under a re-allocation declaration (see Chapter 4 - Technical Framework).

Competition/Bidding Limits

The spectrum segment 825-830/870-875 MHz (Band 1) will be reserved Australia wide for new entrants only (that is, not Telstra, Optus or Vodafone), with the restriction being enforced through carrier licence conditions. In addition, in major capital cities the spectrum segment 830-835/875-880 MHz (Band 2 - not available in this allocation)
has similarly been reserved for new entrants only. These "reservations" are given effect through telecommunications carrier licence conditions (Attachment 2).

**Prohibition on Deployment of Analogue AMPS**

Government policy required the phase out of the AMPS network by the year 2000.

Under ss.360-361 of the *Telecommunications Act 1997*, no one other than Telstra may install or operate an analogue AMPS network. Section 362 of the Act enables a limited exemption from this prohibition to be made by the Minister in certain circumstances, including where the three current GSM mobile carriers have agreed to such a retention. A limited exemption has been given, following the review of AMPS service coverage completed in 1998, in specified existing AMPS rural service planned areas not adequately supplied with alternative mobile telephone services. That limited exemption expires on 31 December 1999.

2 x 5 MHz of 800 MHz spectrum has been withheld from the spectrum auction in regional Australia to enable the operation of such a 'residual' AMPS network.

**Application of the Trade Practices Act 1974**

In this auction, an applicant can nominate to bid on any lot, or any combination of lots on offer, in any area or any band. Applicants should be aware that under the *Radiocommunications Act 1992* certain provisions of the *Trade Practices Act 1974* (TPA) apply to aspects of radiocommunications licensing. In particular, s.71A of the Act deems the issue of a spectrum licence to a person to be an acquisition by the person of an asset of another person for the purposes of s.50 of the TPA. Similarly, s.68A of the Act deems the authorisation, in accordance with s. 68(1) of the Act, of a person to operate radiocommunications devices under a spectrum licence to be an acquisition by the person of an asset of another person for the purposes of s.50 of the TPA.

The acquisition of assets within Australia is subject to provisions contained in Part IV of the TPA. The TPA prohibits (s.50) acquisitions of shares or assets where the acquisition is likely to have the effect of substantially lessening competition in a substantial market. Such acquisitions can nevertheless be authorised under the TPA if the Australian Competition and Consumer Commission (ACCC) is satisfied that they would result in such benefit to the public that they should be allowed to take place. Alternatively, undertakings can be given to the ACCC under the TPA, where appropriate, to resolve matters where the proposed acquisition is, in the ACCC’s view, likely to contravene the TPA.

The ACCC’s approach to the administration and enforcement of the acquisition provisions of the TPA is outlined in its revised Merger Guidelines published in July 1996. A copy of the merger guidelines may be obtained from the ACCC or downloaded from the ACCC’s website.
There is no formal requirement for proposed acquisitions to be notified to the ACCC. However, the ACCC would encourage parties interested in acquiring spectrum licences to consider whether the acquisition is likely to raise issues under the TPA. If this is the case, then the ACCC would encourage the parties to approach the ACCC on an informal and confidential basis prior to participating in the sale process.

The ACA will be providing details of all applicants to the ACCC.

Applicants should therefore seek such legal or other advice as they consider necessary as to their ability to use spectrum for the purposes intended. Information on the ACCC can be found on its home page at:

http://www.accc.gov.au

Taxation Treatment of Spectrum Licences

The ACA is not able to provide any advice on the treatment which may be accorded spectrum licences under Australian taxation laws. Applicants should seek such specialist advice as they consider necessary on how spectrum licences may be treated under tax laws.

The Australian Treasurer issued a press release on 11 March 1998 which flags the Government’s intention to make changes to the Income Tax Assessment Act 1997 (ITAA), and to make consequential amendments to the Radiocommunications Act 1992 to amend the taxation treatment of spectrum licences. The Government has decided to legislate to allow for the amortisation of the acquisition costs of domestic spectrum licences over the 15 year effective life of the licence. The Government has also announced measures to ensure that Australia is able to assert its taxing rights over income from the use of the spectrum where a spectrum licence is owned by a non-resident.

Full details of the Treasury’s proposals are in the press release available from the Treasury world wide web site:


Foreign Investment Approval

Foreign applicants intending to establish a business in Australia may need prior approval under the Government’s foreign investment policy and the Foreign Acquisitions and Takeovers Act 1975.

The Government’s foreign investment policy is framed and administered with a view to encouraging foreign investment and ensuring that such investment is consistent with the needs of Australia. The Government recognises the substantial contribution foreign investment makes to the development of Australia’s industries and resources.
The types of proposals by foreign interests to invest in Australia that require prior approval and should be notified to the Australian Government include (but are not limited to) the following:

- acquisitions of substantial interests in existing Australian businesses with total assets of $5 million or more;
- plans to establish new businesses involving a total investment of $10 million or more;
- direct investments by foreign governments or their agencies irrespective of size;
- certain acquisitions of real estate.

With regard to the telecommunications sector specifically, prior approval is required for foreign involvement in the establishment of new entrants to, or investment in existing businesses in, the telecommunications sector. Proposals above the notification thresholds will be dealt with on a case by case basis and will be normally approved unless judged contrary to the national interest. (In a press release by the Treasurer of 14 August 1997, the Government noted that it “considers it important from a competition viewpoint that participants in the telecommunications sector not be unnecessarily constrained by foreign investment regulation.”)

Foreign applicants are encouraged to make their own inquiries about foreign investment approval. Detailed information is available from the Treasury website at:


Further information can also be obtained from, or submissions made to:

The Executive Member
Foreign Investment Review Board
C/o The Treasury
CANBERRA ACT 2600 AUSTRALIA

Telephone: (02) 6263 3795 (international + 612 6263 3795)
Fax: (02) 6263 2940 (international + 612 6263 2940)

Licensing under the Telecommunications Act 1997

The Telecommunications Act 1997 introduces a regulatory regime designed to achieve full and open competition in the Australian telecommunications market. A key element of the new arrangements introduced in the Act is that there is no limit on the number of carriers permitted to enter the market.

Under this regime, any person may install and operate telecommunications facilities and networks. A carrier licence, however, must generally be held by any person owning specific infrastructure (referred to as “network units”) where those facilities are used to supply carriage services to the public.
A carrier licence need not be held where the network units are used solely or principally for exempt purposes (such as defence, and certain transport, electricity supply or broadcasting activities) or where the ACA has determined (through the ‘nominated carrier declaration’ provisions) that another person who holds a carrier licence accepts the carrier related responsibilities for the facilities.

There are four categories of network unit set out in the Act, one of which deals with radiocommunications facilities.

A designated radiocommunications facility is a network unit if it is used, or is for use, to supply a carriage service between a point in Australia and one or more other points in Australia (notwithstanding whether the supply involves the use of a satellite or a line or other facility outside Australia). The following kinds of facility are designated radiocommunications facilities for the purposes of the Telecommunications Act 1997:

- a base station for the supply of public mobile telecommunications services;
- a base station that is part of a terrestrial radiocommunications customer access network;
- a fixed radiocommunications link;
- a satellite based facility;
- a radiocommunications transmitter or receiver of a kind specified in a Ministerial determination.

Carriers are individually licensed, subject to initial application and annual licence charges intended to recover the costs of regulating the industry.

Persons wishing to apply for carrier licences including applicants for spectrum licences which could be used to provide carriage services under the Telecommunications Act 1997, are urged to familiarise themselves with the provisions of that Act, not just those pertaining to the granting of licences. Applicants should make their own enquiries as to the legislative and other obligations (including industry development obligations) that are imposed on carriers and those declared to be nominated carriers.

Further advice on the requirements relating to the carrier licensing and nominated carrier declaration schemes can be obtained from the:

Licences and Infrastructure Team
Australian Communications Authority
PO Box 13112
Law Courts PO
MELBOURNE VIC 8010
Levels 11-14
200 Queen Street
MELBOURNE VIC 3000

Telephone: (03) 9963 6813 (international + 613 9963 6813)
Fax: (03) 9963 6979 (international + 613 9963 6979)
PCS Spectrum Auction

A guide and applicant information on carrier licences can also be found on the ACA’s website at the following address:


Telecommunications Standards

Under s.376 of the Telecommunications Act 1997 the ACA may make standards relating to specified customer equipment. Customer equipment is equipment that operates in connection with a carriage service beyond the network boundary of a carrier or carriage service provider. If the licensee is a carrier and is offering an air interface to customers, the customer’s equipment will be subject to technical standards under s.376. All customer equipment is subject to TS001 (safety) and AS/NZS2772.1 (Radiofrequency radiation). Except for certain technology specific standards for Customer Equipment, (GSM, AMPS, CT2 CAI, DECT, PHS, & Mobilesat) there are no applicable mandatory standards for the air interface.

Further information on technical standards can be obtained from:

Mr Grant Symons
Executive Manager
Telecommunications Standards
Australian Communications Authority
PO Box 13112
Law Courts PO
Levels 11-14
200 Queen Street
MELBOURNE VIC 9010
MELBOURNE VIC 3000

Telephone: (03) 9828 7461 (international + 613 9828 7461)
Fax: (03) 9828 7438 (international + 613 9828 7438)

Defence use of the Spectrum

The Australian Defence Force is a large user of the radiofrequency spectrum.

Under the Act and the Radiocommunications Regulations, a wide range of defence and national security uses of the spectrum is exempt from the application of the Act.

All spectrum users need to be aware that they may, from time to time, have to share use of the spectrum with agencies engaged in activities associated with defence and national security and whose services are exempt from the Act in this way (‘exempt services’). The ACA can give no guarantee that the use of spectrum by such exempt services will not cause interference, and prospective applicants should note that civil proceedings under s.50 of the Act will not lie if interference is caused by exempt services to spectrum licensees.
Co-ordination with existing radiocommunications services

Nothing in the ACA's spectrum licensing approach absolves licensees from the obligation to avoid interfering with services provided by other legitimate users of the radiofrequency spectrum. This may require a spectrum licensee to co-ordinate proposed new devices with existing apparatus licences, and with the devices operated by other spectrum licensees (see Chapter 4 - Technical Framework).

Protection for Adjacent Services

The ACA has made advisory guidelines under s.262 of the Act for protecting from interference, devices that are operated under apparatus licences in spectrum that is adjacent to spectrum that is the subject of spectrum licences issued as a result of the auction (see Chapter 4 - Technical Framework).

Protection for the MOST

The Molonglo Observatory Synthesis Telescope (MOST) is a scientific research facility located at Bungendore about 40 km from Canberra. This facility is engaged in research into weak cosmic sources in the 800 MHz band. All spectrum licensees are required to provide protection to the MOST facility until 31 December 2008 (see Chapter 4 - Technical Framework).

Imposition of Licence Conditions

The ACA reserves the right at all times to impose on spectrum licensees such licence conditions as it considers necessary to allow the ACA to fulfil its statutory obligations regarding the management of radiofrequency spectrum. In particular, Australia is a signatory to the International Telecommunication Constitution and Convention and will impose any licence conditions necessary to enable Australia to fulfil its international treaty obligations.

Duration of licences

Under the Act, licences are issued for a fixed term not exceeding fifteen (15) years. There is no automatic right of renewal. The ACA intends that all licences in these bands have end-dates which coincide, and since licences in the previous allocation will expire in June 2013, these licences will be issued with an expiry date of 30 June 2013.
2. How to Get a Licence.

In this chapter ...

- a step-by-step guide to the allocation process
- details about how to fill in the application form
- what will happen after you apply and the auction progresses.

Introduction

IMPORTANT NOTE

The following information is only intended to provide a general overview of the allocation scheme which is contained in the Radiocommunications (Spectrum Licence Allocation - Open Outcry Auction) Determination 1998 ('the Determination'). Potential applicants should **not** rely on this information, but should instead rely on the content of the Determination itself. Potential applicants are also urged to seek appropriate independent legal and other advice in relation to the Determination. A copy of the Determination is at Attachment 5.

In this auction, applicants will compete for **spectrum licences**. Broadly speaking, instead of authorising the operation of a specific device or type of device, a spectrum licence authorises the use of spectrum within a geographic area, provided that the device when used complies with the engineering framework for spectrum licensing in the band.

The spectrum allocation lot on offer in the auction is defined in the Radiocommunications Spectrum Marketing Plan (800 MHz and 1.8 GHz Bands) 1998 (Attachment 3), and is described in the Chapter 1 - What is being offered?

To get a licence, follow these steps carefully:

1. Inform yourself - read and understand all of the information in this Applicant Information Package!

2. Apply to participate in the auction, lodge the required documents and pay the entry fee of $500 before the closing time and date of **5:00 pm Canberra time on Friday 9 April 1999**;

3. Register bidders on the day of the auction - only registered bidders may bid for the licence and act on the applicant’s behalf at allocation days. Bidder registration will entail showing the ACA the Bidder Identification Form, showing identification and signing a Bidder’s Acknowledgement Form.
4. Bid in the Auction - a Bid Co-ordinator will conduct an auction-style process to identify the highest bid price for the licence. Only registered bidders may bid for the licence. The applicant who bids, or whose registered bidder bids, the highest amount for the licence will become the Nominated Applicant for that licence. The nominated applicant or a registered bidder representing the nominated applicant must then immediately tender a deposit of 10% of the bid price.

5. Pay for your licence - the nominated applicant will have 15 working days from the date of the allocation to pay the remainder of the bid price. Final payment can only be made at the ACA's offices in Canberra, Sydney or Melbourne by bank cheque or electronic funds transfer.

**Step 1 - Inform yourself**

Before participating in this auction make sure that you read and understand all of the material in this Package. Understand the opportunities and responsibilities that spectrum licensing entails. You are strongly urged to seek your own legal and engineering advice to help you do this.

Once you have your licence, the ACA expects you to manage the potential for interference. The ACA requires that before you operate any devices as part of your system you conduct, or contract someone else to conduct for you, an engineering analysis of your system to make sure that it fits within the spectrum space authorised by your licence and will not cause unacceptable interference to other users of the spectrum. There is a determination under s.145 and advisory guidelines under s.262 of the Act that must be followed to avoid unacceptable interference.

The ACA also requires that before you operate any devices in your spectrum space, you register them. You cannot use the devices unless they are registered, or are exempt from the requirement to be registered. Mobile telephone handsets are exempt from registration.

More information about spectrum licensing is in Chapter 3 - Spectrum Licensing, and in the technical framework for spectrum licensing, in Chapter 4 - Technical Framework.

**IMPORTANT NOTE**

*Spectrum licences are issued for fixed terms of up to 15 years. Under the Radiocommunications Act 1992, spectrum licences must be re-allocated by a price-based allocation (eg. another auction). They can only be re-issued to the persons to whom they were previously issued without another price-based allocation process, when that would be in the public interest.*
Step 2 - Applying for the auction

If, after you have considered your spectrum needs, you decide that you want to participate in this spectrum auction, you MUST register with the ACA by the closing time and date which is 5:00 pm (Canberra time) on Friday 9 April 1999. Late applications will not be accepted.

You should register as early as possible. This will enable the ACA to contact any applicants who have not completed or submitted all the necessary forms and ask them to do so by the closing date.

Late Application Forms cannot be accepted.

To register in this auction, you MUST:

- Fill out the application form (included in Attachment 12).
- Pay an entry fee of $500 for this allocation, which must be lodged at the time of application. The instrument setting the entry fee is at Attachment 6.
- Complete the Deed of Financial Security (included in the documents in Attachment 12), or elect to remit a Performance Bond if you are required to do so under the auction rules.
- Complete the Deed of Acknowledgment (included in the documents in Attachment 12) in every case, which commits you to your actions in the auction.
- Submit the Application Form, and all appropriate Deeds to ACA Auction Centre
  Australian Communications Authority
  Locked bag 3321
  BMDC ACT 2616

  Street Address

  ACA Auction Centre
  Australian Communications Authority
  Level 4, Purple Building
  Benjamin Offices
  Chan St
  Belconnen ACT 2617

  Telephone: 02 6256 5262
  Facsimile: 02 6256 5122

by 5:00 pm (Canberra time) on Friday 9 April 1999.
**IMPORTANT NOTE**

When submitting your application documents, you MUST PAY the entry fee of $500 and, if you elect to pay a Performance Bond rather than submit a Deed of Financial Security, the amount of Performance Bond. Payment must be made by bank cheque or by electronic funds transfer. Late Application Forms cannot be accepted.

The application form

**IMPORTANT NOTE**

Take care in completing the application forms. These are important for establishing your right to participate and bid during the auction.

Any individual or body that wishes to bid for a spectrum licence in this auction MUST complete the application form.

One copy of the application form is included in this Applicant Information Package at Attachment 12.

Further copies are available from the ACA and the ACA’s world wide web site:

http://www.aca.gov.au

An application form jointly submitted by more than one person must be signed by each of those persons. Each party to an application is jointly and severally liable in respect of the application.

Where the applicant is a company, the application form must be executed under seal with a certification that the seal was duly affixed.

The application form must have an original signature or other means of execution. A facsimile or a copy of a completed application form cannot be accepted. The ACA can only accept application forms that are complete and legible. To assist legibility all forms should be completed in block letters, or be typed.

Applicants must also submit one or more Forms of Authority which authorise individuals to make bids at the auction. The ACA will require each person nominated in a Form of Authority to complete a Bidder Identification Form which identifies them when they attend the auction.

The ACA will only register an Applicant if it receives the required entry fee and a Deed of Financial Security or Performance Bond for the correct amount, all the necessary forms, completed and legible, and all by the time and date published. The ACA will confirm receipt of the application documents and any money remitted.
The ACA will send Registered Applicants a Bidder Identification Form for the Applicant (if an individual) and for any Applicant Representative(s) for whom the Applicant has submitted Forms of Authority. The Bidder Identification Form enables an individual to register as a bidder on an allocation day.

**Entry Fee**

To register in this auction, applicants MUST pay an Entry Fee of $500 (Item G on the Application Form). The Entry Fee will not be waived. The Entry Fee is not refundable.

**Total Amount Payable**

If you elect to pay a Performance Bond, rather than submit a Deed of Financial Security, you must pay the amount of the Performance Bond at the time of allocation. The amount of Performance Bond for this allocation is $20,000.

To work out the total amount payable to the ACA in order to participate in this auction, add the amounts in boxes F and G and enter the amount in box H.

**IMPORTANT NOTE**

*When you lodge your Application Form with the ACA, the Form MUST be accompanied by a bank cheque made payable to the ACA for the amount in box H on the application form, or equivalent funds must have been lodged by electronic funds transfer in the ACA’s bank account, in strict accordance with the reporting requirements set out in the Determination.*

**Deed of Financial Security and Financial Security Amounts**

Applicants have the option of providing either a Deed of Financial Security or a Performance Bond for their participation in the auction.

The Deed of Financial Security or the performance bond MUST be for the Financial Security Amount set by the ACA for this allocation which is $50,000.

The instrument setting the Financial Security Amount is at Attachment 6.

Applicants must nominate their preference of either the Deed of Financial Security OR Performance Bond, and if they choose the Deed of Financial Security, it must accompany their application. If they elect to pay a Performance Bond, then the amount of the Performance Bond must be paid with their Entry Fee and all money must accompany the application documents. Note that if the funds are being deposited by electronic funds transfer, the amounts must be on deposit with the ACA bank account at the time the application forms are received and the mandatory notification requirements set out in the Determination must have been followed. If the procedures are not followed, the ACA may be unable to reconcile amounts in its bank account with your application, and may conclude that the requirements of the Determination have not been met, in which case you will be excluded from participation.
The Deed of Financial Security or Performance Bond guarantees and secures the payment of any moneys owing to the ACA by applicants under the Determination. All applicants must provide a Deed of Financial Security or a Performance Bond UNLESS they satisfy the ACA that they:

- are an authority of the Commonwealth, or of a State or Territory, or
- are a subsidiary of an authority of the Commonwealth or of a State or Territory (within the meaning of the Corporations Law), or
- are an Australian company which does not carry on a business for a profit.

**IMPORTANT NOTE**

An applicant is not automatically exempt from the requirement to provide a Deed of Financial Security or a Performance Bond if it thinks it falls into one of these categories. The ACA must be satisfied that the applicant falls into one of these categories. An applicant must take action to satisfy the ACA that it meets the criteria. If the ACA is not satisfied, the applicant will have to provide a Deed of Financial Security or a Performance Bond.

To be satisfied that the applicant falls into one of the exempt categories, the ACA requires that evidence produced be in the form of a properly made statutory declaration. The statutory declaration should:

- be made by a director, or a responsible officer of the governing body of the applicant; and
- state the capacity in which the person is making the declaration; and
- state the matters relied upon in order to establish that the company or body is exempt.

Applicants should also provide full details of all other matters of which they are aware that may be relevant to the ACA’s consideration of the issue.

**Guarantor must be qualified to give Deed**

An applicant who provides a Deed of Financial Security must also satisfy the ACA that the guarantor is qualified to give the guarantee (as set out in clause 13 of the Determination - Attachment 5).

To be satisfied that the guarantor is qualified the ACA requires that evidence be produced in the form of a properly made statutory declaration that:

- states the capacity in which the person is making the declaration; and
- states the specific status of the guarantor which satisfies the requirements in clause 13 of the Determination.
Submitting a Deed of Financial Security

Deeds may only be provided by completing and submitting the Deed of Financial Security in the form approved by the ACA. A copy of the Deed form is included in application documents included in this Applicant Information Package. You can obtain more Deeds from the ACA website.

Instructions for completing the Deed of Financial Security are provided on the form. These instructions should be followed carefully. The Deed must have an original signature or other means of execution. Photocopies and facsimile transmissions are not acceptable. A Deed of Financial Security must be complete and legible to be accepted by the ACA.

The originals of the statutory declaration attesting to the status of the guarantor must accompany Deeds of Financial Security that are submitted.

Deeds of Financial Security must be received by the ACA at the same time as the Application Form (before closing time on the closing date).

If a Deed of Financial Security has not been received from an applicant by the closing date, then the applicant will be excluded from participating in the auction unless it satisfies the ACA that it falls within one of the categories referred to in subclause 13(1) of the Determination (Attachment 5).

Deed of Acknowledgment

All applicants MUST complete a Deed of Acknowledgment. This Deed acknowledges, amongst other things, that an applicant will honour all bids that are made by them during the auction. A copy of the Deed of Acknowledgment is included in the application documents included in this Applicant Information Package.

Applicant registration will be complete only when the applicant has completed registration requirements and the ACA enters the names of the applicants in the register of applicants. The ACA must refuse registration if all required forms, the entry fee, and if nominated, the Performance Bond payment, are not provided in accordance with the Determination (Attachment 5).

Confirmation of Registration

The ACA will send a package of information by receipted mail to registered applicants in accordance with the Determination (Attachment 5). This package, which will be sent at least 10 working days before the starting date of the auction set by the ACA, will contain:

- advice of the starting date and time of the auction;
- advice that the applicant is registered.
Completing and Submitting the Form of Authority

Forms of Authority are provided to permit an applicant to authorise an individual to act on the Applicant’s behalf in applying for a licence under the Determination. An individual applicant may authorise one or more persons to act on his or her behalf in an allocation, if the applicant wishes to do so. An applicant that is not an individual must authorise at least one individual to act on its behalf, for only individuals may bid in the auction.

Applicants should note that a Form of Authority authorises an individual to represent an applicant generally during the process. This will include bidding on the applicant’s behalf and tendering money. (For details of the extent to which bidders are authorised see the Form of Authority). Applicants will be bound by any action of their representatives taken under the Form of Authority.

A copy of the Form of Authority is included in the application documents in Attachment 12. Forms of Authority are available from the ACA Auction Centre of the ACA. The authority must be in the form approved by the ACA.

There is no limit to the number of representatives an Applicant may authorise to act on its behalf. Applicants must complete a separate Form of Authority for each individual.

The Applicant named on the Form of Authority must be the same as on the Application Form. Where there are joint Applicants, each Applicant must execute the Form of Authority. In the case of a company Applicant, the seal of the company must be duly affixed to each Form of Authority the company gives.

Individuals authorised to represent Applicants do not need to sign the Form of Authority. It is the responsibility of Applicants to make their representative aware of their duties and obligations.

A facsimile or a copy of a signed Form of Authority cannot be accepted. The ACA can only accept Forms of Authority that are both complete and legible. To assist legibility, Forms of Authority should be completed in block letters or typed.

Forms of Authority must be received by the ACA with the Application Form, unless submitted in special circumstances (see following section). In the case of Applicants that are companies, at least one Form of Authority must be provided prior to the closing date in order for an Applicant to be registered.

Receipt of Late Forms of Authority in Special Circumstances

Registered Applicants may be able to lodge Forms of Authority after the close of registration in special circumstances. The ACA will decide whether special circumstances exist allowing for late lodgement. An example of special circumstances might be an illness that will prevent a previously authorised representative from attending an allocation period. The Applicant must submit the additional Forms of Authority and set out the special circumstances in a letter accompanying the Forms of Authority.
No additional Forms of Authority may be accepted within two business days of the allocation period at which the Applicant’s Representative intends to represent the Applicant.

**Acceptance of Registration**

Applicant registration will be complete only when the applicant has completed registration requirements and the ACA enters the names of Applicants in the register of applicants (clause 17 of the Determination). The ACA must refuse registration if the Application Form, Entry Fee or required Forms of Authority and Deeds of Financial Security/evidence of exempt status are not provided in accordance with the Determination.

Where all necessary and completed forms and Entry Fee have been received, and the Applicants registered, the ACA will make available Bidder Identification Forms to Registered Applicants. A separate Bidder Identification Form will be issued for each Applicant who is an individual, and for each individual authorised by a Form of Authority (clause 19 of the Determination).

Bidder Identification Forms will be sent to Registered Applicants. It will be the responsibility of the Applicants to distribute the forms to their Applicant Representatives as necessary.

An original Bidder Identification Form must be presented by the individual named in it, in order to register as a Bidder on the allocation day (see ‘Bidder Registration’ below).

**Step 3 - Register Bidders**

**Bidders are advised not to leave their registration to the last moment.**

Individuals holding Bidder Identification Forms who wish to bid must register as a bidder on the day of the allocation. Only Registered Bidders may bid in an allocation period (clause 24 of the Determination). Any person who intends tendering a deposit on behalf of an Applicant must also be registered as a bidder (clause 25 of the Determination).

Bidder registration will take place on the day of the allocation, as notified by the ACA, before bidding on the first lot is called.

Once closed, bidder registration cannot be re-opened. Arrangements for bidder registration will be notified to all applicants.

To become Registered Bidders, individuals must produce an original Bidder Identification Form provided to them and meet the other requirements of clause 23 of the Determination. Photocopies of the Bidder Identification Form will not be accepted. Persons wishing to register as Bidders must also provide the evidence of
their identity referred to in the Bidder Identification Form. The evidence required is:

• photographic identification being either a driver’s licence or passport;

or

• two forms of other identification (such as a birth certificate or credit card),
  one of which must include a signature.

A photocopy of the identification will be retained by the ACA for records purposes.

After showing the ACA a Bidder Identification Form and identification, bidders will be asked to sign a Bidder’s Acknowledgement stating, amongst other things, that they are the person authorised by the relevant applicant and they understand the obligation of bidders (clause 23(3)(c) of the Determination). A copy of the Bidder’s Acknowledgement Form is included in the application documents at Attachment 12.

Persons who have not registered as Applicants, and who have not given the ACA Forms of Authority for their representatives, can neither register as a Bidder, or have their representatives registered as bidders. Applicant Representatives who do not show the ACA a Bidder Identification Form and identification on the allocation day will not be able to bid for spectrum allocation lots.

Replacing Lost or Destroyed Bidder Identification Forms

Lost or destroyed Bidder Identification Forms can be replaced (subclause 23(3)(a)(ii) of the Determination). The ACA can also replace a Bidder Identification Form if satisfied that the Form cannot reasonably be made available.

The ACA will accept a statutory declaration as evidence of loss or destruction, and of the reasons for unavailability. Prior to the allocation period, the ACA would prefer that Applicants, rather than their representatives, seek replacement Bidder Identification Forms.

Bidder’s Paddle

Registered Bidders will be provided with a bidder’s paddle with which they may bid (clauses 23(5) of the Determination).

Only one paddle will be issued for each Bidder Identification Form presented.

Step 4 - Bid in the Auction

Reserve Prices

The ACA reserves the right to set reserve prices after applications close. These will be notified to applicants.
Applicant Information Package

Process

The ACA will manage the allocation process.

A Bid Co-ordinator will be appointed by the ACA. The Bid Co-ordinator will conduct an auction-style allocation process in accordance with the Determination.

Timetable

The timetable for the allocation, including for bidder registration, will be notified to applicants after applications close.

Any changes to this proposed timetable will be made known to Registered bidders.

Identifying the Highest Bidder

The Bid Co-ordinator will identify the Registered Bidder who bids the highest amount for the lot (subclause 24(2)(b) of the Determination).

To assist identification the Bid Co-ordinator will ask that bidder to show the bidder’s paddle for the relevant Applicant.

Any bid below the reserve price will not be accepted (subclause 24(4) of the Determination). If the highest bidder is an applicant, he or she becomes the nominated applicant. If that person is an applicant representative, he or she represents the nominated applicant.

Persons intending to bid should note that s.302 of the Act provides that a person may be prosecuted for making a false or misleading statement for the purposes of or in connection with the Act.

Payment of Deposit

Immediately on being identified, the Nominated Applicant or a Registered Bidder representing the Nominated Applicant must meet with ACA staff, and will be required to prove that he or she is registered to bid as, or on behalf of, the Nominated Applicant (clause 25(2) of the Determination).

The nominated applicant or a registered bidder representing the nominated applicant must tender 10% of the bid price as a deposit. The deposit tendered must be in one payment and may consist of cash, personal/company cheque or a combination of these methods of payment. Any cash payment made must be less than $10,000 (clause 25(3) of the Determination). Cheques should be made payable to the “Australian Communications Authority”. Note: Personal/company cheques are accepted for the deposit because it is recognised that it may not be feasible to arrange a bank cheque in the time available. Personal/company cheques are not however acceptable for the balance of the bid price.
Following payment of the deposit, the nominated applicant will be given a receipt.

Failure to tender the deposit as directed by the ACA will exclude the applicant from being allocated that lot. The ACA may offer the lot again on the same allocation, or another allocation (clause 26 of the Determination).

**Step 5 - Paying for Your Licence**

Payment of the balance of the bid price must be paid within 15 working days of the allocation. Payment can be made only at the ACA’s Canberra, Sydney or Melbourne Area Offices, or by electronic funds transfer.

Payment may be made only by bank cheque or electronic funds transfer. Bank cheques should be made payable to the “Australian Communications Authority”.

**IMPORTANT NOTE**

*Personal or company cheques cannot be accepted for payment of the balance of the bid price.*

If the nominated applicant fails to pay the full amount of the bid price by the specified time then the Nominated Applicant will have defaulted (clause 28 of the Determination).

As soon as practicable after payment of the balance of the bid price the ACA will issue a spectrum licence or licences.

The ACA will make the following information public with regard to the allocated licence:

- name of licensee;
- spectrum allocation lot or lots assigned to the licensee;
- amount paid by the Applicant for the allocation of the spectrum allocation lots, and
- contact name and address.

**Licence start dates**

Licence start dates will be the date of issue of the licence.

**Default**

If a nominated applicant defaults by failing to pay the balance of the bid price, the allocation of the licence will be set aside (clause 28 of the Determination). A deposit paid will be forfeited, or an amount equal to a deposit tendered but not paid will become a debt to the ACA.
In addition, the nominated applicant may be sued by the ACA for damages, including the cost of conducting another auction and compensation for lost revenue. The ACA may proceed under any relevant Deed of Financial Security or Performance Bond for the amount of the damages. If the nominated applicant had lodged a Performance Bond, that performance bond may be called by the ACA in satisfaction of any amount owing.

**Unallocated Lots**

If the lot is unsold or defaulted, it may be allocated by the ACA by another auction, by tender, or by a pre-determined or negotiated price.
3. Spectrum Licensing

In this Chapter ...

- information about spectrum licensing
- an introduction to the concept of "spectrum space" standard trading units (STUs) of spectrum space
- information for people wanting to use spectrum space themselves
- information about authorising others to use spectrum space
- information about trading spectrum space
- other important information about licence conditions, spectrum licence tax, and regulatory compliance.

Spectrum licensing is a form of licensing introduced in Australia by the *Radiocommunications Act 1992*. Spectrum licences were issued for the first time in 1997, following the auction of the 500 MHz band. Spectrum licences are a tradeable, technology neutral spectrum access right for a fixed non-renewable term. Instead of authorising the use of a specific device, spectrum licences authorise the use of spectrum space and give licensees the freedom to deploy any device from any site within their spectrum space, provided that the device is compatible with the core conditions of the licence, and other conditions imposed by the ACA on the licence, and the technical framework of determinations and advisory guidelines established for the bands (see Chapter 4 - Technical Framework). Compliance with the core conditions is undertaken in accordance with a set engineering framework for interference management.

Spectrum licences offer a new way of managing the radiofrequency spectrum. Licensees will have much greater flexibility than under apparatus licensing to manage the deployment of devices within the spectrum space authorised by the licence for a fixed term of up to fifteen (15) years.

Within the bounds of spectrum space and the technical co-ordination framework, licensees may be able to operate whatever type of communications service they choose, and be able to change that service in response to technical improvements or changes in consumer demand.

Spectrum licences are tradeable. Licensees are free to seek to buy and sell spectrum space in the open market as the need arises, or to authorise other people to operate devices in their spectrum space, including under commercial arrangements. Spectrum licences can be aggregated or sub-divided to form new licences.
Spectrum Space

The concept of "spectrum space" is fundamental to the ACA's approach to spectrum licensing. Spectrum space is conceptually like other types of three dimensional space. It covers an area and it has a height. Spectrum space, if thought of as a cube, covers a geographic area authorised by a licence. The area is like the floor of the cube. The radiofrequency bandwidth is represented by the height of the cube.

Standard Trading Units

The challenge in developing spectrum licensing was the need to have a licensing and management system that was capable of dealing with a medium which is effectively a continuum in four dimensions (latitude, longitude, frequency and time - note that, for convenience, the ACA effectively holds "time" constant for all licences, so allowing spectrum space to be thought of in three dimensions).

The solution to this problem was to commoditise the spectrum subject to spectrum licensing, that is, to create finite indivisible three-dimensional units of spectrum space that can be aggregated into useful configurations. These finite indivisible units of spectrum space are called standard trading units, or STUs (Figure 1).

STUs are like building blocks, or house bricks. By themselves, they may be too small to have much utility, but because of their regular shape, and their referential relationship with their immediate neighbours, they can be stacked vertically, or horizontally with neighbouring STUs to form larger bodies of spectrum space that do have utility (Figure 2). The utility of spectrum space increases as more STUs are stacked together.

Figure 1

Standard Trading Units (STUs)

*Standard Trading Units are like cubes of spectrum space. They cover an area in the horizontal plane, and they have height, representing bandwidth*
The main use of the STU concept is in trading spectrum space. The ACA permits spectrum space to be bought and sold in terms of STUs. Licensees who wish to trade part of a licence can divide the licence into its component STUs and offer them for sale individually or in multiples. A single STU is the smallest unit of spectrum space for which the ACA will issue a licence or register trading.

The frequency bandwidth of STUs may vary in size depending on the spectrum band in which licences are being issued, but the minimum areas which may be traded will be constant for all bands. For the purposes of spectrum licensing in the 800 MHz bands, the following definitions apply.

**Frequency Band**

The frequency bandwidth of each STU is 1 MHz in the 800 MHz band, even though this spectrum is proposed to be sold in parcels of 5 MHz. The technical framework (see Chapter 4 - Technical Framework) for spectrum licensing in this bands has been predicated on these STU sizes.

**Geographic area**

In the geographic dimension, STUs follow the spectrum map grid (SMG) published by the ACA. The SMG has three resolutions related to population density. In outback Australia the resolution is 3 degrees of arc. In rural Australia, it is one degree of arc and in the metropolitan and regional parts of Australia where the bulk of the people live, and where the need for efficient spectrum use is highest, the resolution is 5 minutes of arc. It should be noted that the size and shape of STUs varies with latitude, but the sides of an area covered by an STU will be approximately 330 km, 110 km, and 9 km respectively.
The ACA reserves the right to vary the areas where each resolution applies. It may need to do this, for example, in response to shifts in population density identified from an Australian census, or because there is a demonstrated need to do this to facilitate trading. In general terms the ACA expects that any change in resolution will tend to facilitate trading at a finer resolution. (It should be noted that areas for the purposes of STU’s are not the same as the areas described in the marketing plan.)

Using Spectrum for Communications Systems

Under spectrum licensing, licensees are responsible for planning the use of equipment within their own spectrum subject to the core conditions of the licence and the technical framework described in the various determinations and guidelines (see Chapter 4 - Technical Framework). The core conditions specify for each licence:

- the part or parts of the spectrum in which the operation of devices is authorised under the licence;
- the area within which the operation of devices is authorised;
- the maximum emission levels outside the bandwidth of the licence; and
- the maximum emission levels outside the area of the licence.

In addition to the core conditions, and the conditions required by the Act to be included, there may be licence conditions included by the ACA under s.71 of the Act (see also Chapter 4 - Technical Framework). Examples of the licence conditions that the ACA will impose are set out in the sample licence included in the Marketing Plan at Attachment 3. Most of these are related to interference management. These conditions are very important, as they relate to the management of actual interference that may be experienced or caused by devices operated under the licence. They are also important because some conditions impose responsibilities on spectrum licensees, especially responsibility for the management of interference, and responsibilities to negotiate with other licensees (or site managers) in relation to co-sited devices.

Before a device will be registered for use under a licence, the ACA may need to be satisfied that use of the device has been properly planned and that it will not cause unacceptable interference to other spectrum users. The ACA will accept an Interference Impact Certificate (IIC), issued by an accredited person (see below - The Role of Accredited Persons) as evidence that a device will not cause unacceptable interference. Licensees may engage an accredited person to conduct an engineering assessment of the proposed transmitter, and if satisfied that the device will not cause unacceptable interference, the accredited person may issue such a certificate.

The procedure for checking whether or not there is a probability that a device will cause unacceptable interference is set out by the ACA (see Chapter 4 - Technical Framework).
An accredited person cannot properly issue an IIC unless he or she follows this process.

If a licensee seeks registration of a device directly from the ACA and does not have an IIC, the ACA will charge for the work necessary to be satisfied that the device will not have an unacceptably high probability of causing interference. The ACA will charge for work done at an independently determined full commercial rate.

Registered devices must be identified with a label carrying their registration number (see below).

**The Radiocommunications (Unacceptable Levels of Interference) Determinations**

A Determination that applies to this lot relating to unacceptable levels of interference has been made under s.145 of the *Radiocommunications Act 1992* (Attachment 7).

The Determination applies to all devices to be registered under a spectrum licence in the bands being allocated, irrespective of the type of service that a licensee proposes to operate.

The determinations (see Chapter 4 - Technical Framework) set out procedures that licensees should follow to ensure that their systems satisfy the core conditions of the licence relating to emission limits both outside the geographic area and outside the frequency band of the licence. The emission limit outside the band establishes an emission buffer zone along the frequency boundaries of the licence. The determinations also require the calculation of a ‘device boundary’ for the device. The device boundary check establishes an emission buffer zone along the area boundaries of the licence.

**Compulsory Registration of Certain Devices**

It will be a condition of all spectrum licences issued in these bands that licensees must not operate transmitters under those licences unless the transmitters are registered with the ACA, or have been exempted from the registration requirements.

**Registration Exemptions**

Certain kinds of transmitters are exempt from the registration requirements. These are mobile transmitters that operate outside the limits of towns that are on the towns mobile list; or on roads that are not on the roads mobile list; and mobile transmitters that only transmit at sea and only communicate with mobile receivers at sea. Cellular mobile telephone handsets will be exempt from device registration.

**The Role of Accredited Persons**

An accredited person is someone who has been accredited by the ACA to perform engineering work traditionally undertaken by the ACA and its predecessors. Under the Act, only an accredited person can issue the Interference Impact Certificate (IIC) that
may be required before a transmitter can be registered for operation under a spectrum licence. Anyone with the appropriate qualifications and experience can apply to the ACA for accreditation.

Spectrum licensing is intended to provide industry with freedom to manage their spectrum in the way that best suits their needs. Consistent with this theme, the ACA has reviewed its approach to device registration policy and developed a set of principles on how registration requests to the ACA are to be handled. The ACA is now encouraging industry to take responsibility for the management of their licences by seeking the registration services of ACA accredited persons or having their employees accredited. The registration strategy and principles are:

1. Licensees must not operate devices (transmitters) under spectrum licences unless those devices are registered with the ACA or specifically exempted (cellular mobile handsets and certain other devices have been exempted).

2. Before a device can be registered, the licensee must either:
   
   (a) ensure that it meets the requirements of the relevant S.145 determination; or
   
   (b) ensure that sufficient internal guard space exists within the licence; or
   
   (c) ensure that external guard space is provided, in that written agreements exist between all potentially affected adjacent licensees.

   In case (a), before the device is entered in the Register, the ACA must receive an Interference Impact Certificate issued by an accredited person stating that the device will not cause unacceptable interference, or the ACA must have carried out the necessary checks to ensure that the device meets the requirements of the S.145 determination.

   In cases (b) and (c) checks must be carried out to ensure that the necessary guard space is provided.

   **NOTE:** Accredited persons would also normally take account of any compatibility requirements specified in relevant Advisory Guidelines made under S.262.

3. Licensees should be encouraged to use accredited persons for device registration wherever possible.

4. Licensees should be encouraged to seek appropriate accreditation on behalf of their employees.

5. The ACA will only carry out the work associated with device registration when the following type of circumstances apply:

   (a) no accredited person is available or willing to take on the task;
   
   (b) use of an accredited person will cause an unreasonable delay to
the licensee;

(c) the licensee can show that the issuing of an IIC by available accredited persons would give rise to a conflict of interest and the licensee is unable to satisfactorily resolve this conflict.

The timing of completion of any such work carried out by the ACA will need to take account of other ACA priorities.

6. The ACA will charge independently determined fully commercial rates for any work associated with a device registration service.

7. The ACA will be prepared to provide recourse to a device registration service only until the end of June 1999. Before that date, however, the ACA will review the working device registration services by accredited persons to ensure that licensees have adequate opportunity to have devices registered. Licensees and accredited persons will be consulted in this review.

8. The ACA will not make software related to a device registration service available externally unless it is satisfied that adequate software is not available from external sources. Any ACA software would be charged for on a fully commercial basis.

9. The ACA does not intend for coordination procedures used or developed by the ACA to become ‘standard’ procedures. The ultimate gauge of the effectiveness of a coordination procedure is the level of spectrum utility it makes available and the actual interference rate it causes.

10. The ACA intends to audit the work of both accredited persons and internal staff in an equitable manner.

11. To ensure that they are not disadvantaged and are kept properly informed, the ACA will ensure that accredited persons have access to all relevant device registration policy when it is adopted.

12. The ACA offers accredited persons facilities to enter devices directly into RADCOM through a remote registration facility. Hard copy applications for device registration will also be accepted, but they may take a little longer to process than automatic transactions.

Labelling Requirements for Transmitters

It is a requirement of the ACA that licensees label all transmitters with the Registration Number provided when the transmitter is registered.

There are some exemptions to the requirement for labelling. The exemptions apply to devices that have low interference potential, for example, low power mobile transmitters. For further details contact the ACA for a copy of the Radiocommunications (Labelling) Determination 1996.
Authorising Third Parties

There is nothing to prevent a spectrum licensee from authorising other people to operate devices in its spectrum space under a commercial arrangement.

The ACA points out to potential applicants and potential third party authorisees that the authorisation of a third party under the Act by a spectrum licensee would appear to be the exercise of a statutory power, and that it is not clear that the power of a spectrum licensee to revoke a third party authorisation can be fettered by any contractual or other arrangement. The ACA notes, however, that some licensees have, in the past, entered into agreements that, if valid, would have the effect of preventing the licensee from revoking a third party authorisation unless, for example, there had been a breach of contract as between the licensee and the third party authorisee.

The ACA further points out to potential applicants and potential third party authorisees that such arrangements can lead to difficulties when there is a dispute as to whether or not a third party authorisation has been validly revoked. In this situation, the ACA may be placed in the position of having to decide whether a third party authorisee is lawfully operating a transmitter, which could involve the ACA having to make an assessment of, for example, the contractual rights of the parties. The ACA may find this difficult or impossible to do.

The ACA, therefore, suggests that spectrum licensees should carefully consider the arrangements under which they make third party authorisations, and seek their own legal advice on how the requirements of the Act might be met in relation to the authorisation of the use of devices under spectrum licences.

All devices operated within the spectrum space, including those operated by third parties, have to be registered with the ACA, unless exempt, and the spectrum licensee would be responsible for ensuring that devices are registered.

Spectrum licences will include a condition that operation of devices by a person other than the licensee must comply with any rules made by the ACA about third party use (s.68(2)(a) of the Act).

Spectrum licences will include a condition that the licensee must notify any authorised third parties under the licence of their obligations under the Act, in particular, registration requirements for devices and any rules made (s.68(2)(b)).

**IMPORTANT NOTE**

A device cannot be operated unless authorised directly by a licence, or by the licensee issuing an authorisation to another person to operate the device. Licensees operating a mobile telephone service, in order to comply with this requirement, will need to individually authorise every handset that operates in their spectrum space. This is a separate issue from the exemption from device registration extended to mobile telephone handsets.
Applicants should also note that for the purposes of certain sections of the *Trade Practices Act 1974*, authorisation to operate devices under a spectrum licence is taken to be acquisition of an asset by the authorised third party.

**Trading in Spectrum Space**

Spectrum licensees will be able to seek to negotiate the purchase of additional spectrum space if a market place were to develop, to cover larger areas, or more bandwidth, or both. Licensees will also be able to subdivide their licences and offer to sell spectrum space as, for example, a number of narrower bandwidth channels, or a number of smaller areas subject to the requirements as to STUs (see below). It will be up to licensees to find their own buyers and sellers of spectrum space, and the ACA will not have a role in facilitating such trading, other than to make available through the Register of Spectrum Licences (see below) the contact details of all spectrum licensees.

An important rule regarding trading is that the transfer of spectrum space made under a trade does not have effect until registered with the ACA, and new licences, or variations to existing licences, to reflect the changed ownership arrangements are issued (see below). This means that as soon as practicable after any transaction involving spectrum space is concluded, the seller and the buyer should jointly register the trade with the ACA. There is a form for this available from the ACA.

Spectrum licences may not be traded for the purpose of securing loans. This restriction is necessary to ensure that the ACA is not involved in registering transactions that are concerned only with such a transfer, and where there is no change in the relevant spectrum space.

Trading of spectrum space can only take place in terms of whole STUs of spectrum space defined by the ACA. The area and the bandwidth of each spectrum licence can be subdivided and sold, or the licences can also be sold in their entirety.

**Registration of Trading**

Both parties to a trade, or an assignment, should notify the ACA as soon as practicable after a trade has been agreed so that the Register of Spectrum Licences can be updated. The parties to a trade must complete a ‘Notice of Trading’ Form setting out the new ownership details and send it to the ACA for registration.

The ACA will register assignments as soon as practicable after receiving a Notice of Trading Form. A trade does not take effect until the Register has been changed by the ACA. The ACA will then vary, issue or cancel licences as appropriate to give effect to the change. There will be a fee charged to recover the ACA’s costs in registering any trade, and for issuing the new licence(s).
The Register of Spectrum Licences

The Register of Radiocommunications Licences is a public reference source containing information about the use of spectrum by radiocommunications licensees (ss. 143-144 of the Act). The ACA has established a Register of Spectrum Licences in electronic form. This is accessible over the ACA's web site. It includes the following information in respect of each spectrum licence:

- the name and postal address of the licensee;
- the date of issue and expiry of the licence; and
- details about the conditions of spectrum licences.

These details are similar to the registration requirements for apparatus licences.

The ACA is also required to keep in the Register a record of transmitters, above a certain power, operated under spectrum licences so that users can co-ordinate spectrum use with other licensees. Each licence will include a condition that transmitters are not to be operated under the licence unless the registration requirements of the ACA have been met (s. 69 of the Act). The condition may exempt transmitters of particular kinds (for example, small transceivers) from meeting the requirements for registration. The details that the ACA will record are:

- date of registration;
- location;
- radiated power as a function of frequency; and
- antenna details (height).

The registration requirements may include a requirement that the licensee present a certificate (an interference impact certificate) issued by an accredited person stating that operation of the device under the licence will not cause unacceptable interference (see Chapter 4 - Technical Framework). In certain circumstances the ACA may accept an application to register a device without a certificate being furnished, for example, when sufficient guard space is provided. Once details of a device have been registered, the licensee or person authorised by the licensee will need to comply with those details in operating the device until such time as the registration is varied. Operation of a device will not be authorised under a licence if it is operated in a manner that is not in accordance with the details in the Register.

The ACA will update the Register as soon as practicable if a spectrum licence is varied, suspended, cancelled or surrendered, or if the licence or part of the licence is assigned to another person, or resumed by the ACA (s. 146 of the Act).

Transmitters that are part of a group of transmitters may be registered individually or as a group.
The ACA does not propose to register mobile transmitters that operate:

- outside the limits of a town on the towns mobile list; or
- on a road that is not on the roads mobile list; or
- at sea and only communicate with a mobile receiver at sea.

Low powered handsets used under spectrum licences are not required to be registered with the ACA. However, spectrum licensees intending to use spectrum for mobile telecommunications will be required to authorise the use of third party operated handsets under the licence in accordance with s.68 of the Act (see Authorising Third Parties above).

### Spectrum Licence Conditions

A spectrum licence authorises the licensee, or a person authorised by the licensee, to operate radiocommunications devices in accordance with the conditions contained in the licence. Each spectrum licence will include core conditions (s.66 of the Act) that specify:

- the part or parts of the spectrum in which the operation of radiocommunications devices is authorised under the licence;
- the area of Australia within which the operation of radio communication devices is authorised; and
- the maximum permitted level of radio emissions outside these spectrum and area boundaries.

Effectively the core conditions define the spectrum space within which the licensee is authorised to operate radio communications devices under the licence.

The licence will also include conditions about:

- payment of charges (s.67);
- use by third parties, especially in relation to handsets (s.68);
- registration of transmitters (s.69); and
- any other matters that the ACA may need to include in the licence to provide for efficient administration of the Act, for example, to require proper co-ordination with other devices or to manage devices in a way that does not compromise Australia's international treaty obligations.

### Spectrum Licence Tax

The ACA will recover from all licensees a share of the overhead costs of maintaining the spectrum through an annual fee or ‘spectrum licence tax’. Apparatus licensees contribute towards these costs through the spectrum maintenance component in their annual
licence fees. The other two components paid annually by apparatus licensees are the spectrum access tax and a cost recovery charge for licence issue or renewal. Spectrum licensees will not pay a spectrum access tax.

The spectrum licence tax will be calculated for each spectrum licensee as its share, on a MHz per person basis, of the spectrum maintenance component that would apply if the spectrum subject to the Minister's declaration had been allocated by issuing apparatus licences. This means that instead of each spectrum licensee contributing the same amount to overhead costs as apparatus licences, they each contribute to the amount that would apply to one apparatus licence.

The total revenue collection may vary from year to year, but will be linked to the apparatus licence fee table. The proportion paid by each licensee from year to year may vary depending on the number of licences on issue and their total coverage. The factors affecting each licensee’s contribution for the band will be reviewed annually.

The total amount of spectrum licence tax that the ACA expects to collect from all licensees in the 800 MHz and 1.8 GHz bands (i.e. from licence allocated in this allocation and all licences from the previous allocation) under the ACA's current licence fee table is expected to be of the order of $100,000. All licensees from all allocations in the band will make a proportional contribution to this, based on their coverage in terms of MHz and population.

**Licence Term**

The licences issued will be for a maximum term of fifteen (15) years. In view of the desirability of the end dates of all licences in these bands to coincide, the ACA intends setting an end date of all licences as 30 June 2013. The ACA will publish information regarding licences that are due to expire.

Spectrum licences, like apparatus licences, are issued with no automatic right of renewal. At the end of the licence period, replacement licences will generally be reallocated following a price based procedure (s.81 of the Act). This provision does not prevent a spectrum licence being reissued to a person to whom it was previously issued.

A spectrum licence may be reissued to the same licensee without participating in a price based allocation process where this is in accord with a determination by the Minister (s.82(3) of the Act), or the ACA is satisfied that special circumstances exist as a result of which it is in the public interest for that person to continue to hold the licence (s.82(1)(b) of the Act).

The Act does not exempt the licensee from paying a spectrum access charge in these circumstances.
Licence Sanctions

Suspending and Cancelling Spectrum Licences

If the ACA is satisfied that a licensee, or an authorised third party has:

• breached a licence condition or the Act, or
• operated a device in breach of any other Commonwealth, State or Territory statutory or common law, or
• operated the device in the course of contravening such a law,

the ACA may, by written notice giving reasons, suspend a spectrum licence (s.75 of the Act). The suspension will cease within 28 days unless proceedings for an offence against the Act are instituted. The ACA may revoke the suspension at any time.

The ACA may also take action to cancel a spectrum licence (s.77 of the Act).

Application may be made to the ACA for reconsideration of a decision to suspend or cancel a spectrum licence (s.285 of the Act).

It should also be noted that in the event that licence conditions are breached by a licensee or an authorised third party, other licensees may also be able to pursue a remedy through the courts by undertaking civil proceedings.

Licence Resumption

The ACA is empowered to resume spectrum licences by agreement, or by compulsory process subject to payment of just compensation (ss.89-95 of the Act). The ACA may only exercise its powers to resume spectrum licences where the Minister has given written approval (s.91(2)(a) of the Act).

Charging for ACA Services

Under its enabling legislation, the ACA may recover its costs. Any services provided by the ACA to spectrum licensees will be charged at the ACA’s normal charging schedule.

In many instances, the ACA has set a standard charge for services offered, including registration of devices and registration of trading of spectrum space.

Each spectrum licence will include a condition that the licensee meet its obligations to pay any cost recovery charges levied by the ACA (s.67 of the Act).

Licences that are about to expire

The ACA will periodically publish notices in the Commonwealth Gazette stating where information can be obtained about spectrum licences that are due to expire within the
next two years (s.78 of the Act). These publications will also invite expressions of interest from members of the public who would like a spectrum licence to be issued to them. This information can also be obtained from any of the ACA’s area offices.

The ACA also proposes to send regular expiry reminders to licensees during the last two years of their licence. The first batch of these notices is not likely to be issued until 2010/2011.
4. Technical Framework

In This Chapter...

- an explanation of the technical framework underpinning spectrum licensing in the 800 MHz bands
- an explanation of the purpose and operation of the s.145 Determinations of unacceptable interference
- an explanation of the various Advisory Guidelines that protect apparatus licensed devices in adjacent spectrum and in the spectrum licensed spectrum during the re-allocation period
- an explanation of other interference management mechanisms
- other important information about the technical framework.

Introduction

The technical framework has been established by the ACA to support the use of many different types of service, including the following:

- all types of digital or analogue modulation (although, under Government policy, analogue AMPS is not permitted in re-allocated spectrum);
- narrowband and broadband services;
- frequency or time domain duplexing (in certain deployment configurations);
- large mobile or point to multipoint service areas of around 40 km radius in urban areas at 800 MHz;
- point to point services when both ends of the link have transmitters operating in the upper band at 800 MHz; and
- mobile transmitters with high radiated power (up to 40 W) at 800 MHz.

Broadly speaking, the technical framework for spectrum licensing in the 800 MHz bands is constructed from three interlocking tools. Two of these tools are used to deal with the management of emission levels, namely the core conditions of the licences themselves, and the registration of devices under the Act. The third tool, advisory guidelines to be made by the ACA under the Act, will provide a framework for the coordination of spectrum licensed services with apparatus licensed services operating within the spectrum to be re-allocated, and with apparatus licensed services that operate in spectrum surrounding the spectrum to be spectrum licensed. One of the advisory...
guidelines will also provide a co-ordination framework for spectrum licensed services.

The entire technical framework is predicated on the assumptions that:

• spectrum and apparatus licensees will employ good engineering practice in establishing and maintaining their services;

• receivers employed by spectrum licensees will, as a minimum, meet the notional receiver performance levels set out in Schedule 1 of the Radiocommunications Advisory Guidelines (Managing Interference from Apparatus-licensed Transmitters - 800 MHz Band) 1998 (see Receiver Performance below); and

• receivers employed by apparatus licensees will, as a minimum, meet the relevant standard made under the Radiocommunications Act 1992 or, if there is no such standard, the level of performance referred to in the advisory guideline that applies to the apparatus licensed service in question; and

• spectrum licensees will be responsible for managing interference that they, or their authorised third parties, cause to their own services through their operation of devices under any spectrum licence or apparatus licence.

The following general principles have also been followed in developing the technical framework:

• the ACA has attempted to provide the maximum flexibility to spectrum licensees to establish services;

• absolute power levels have been specified as emission limits rather than power levels that are relative to the transmitter power;

  - this allows licensees to strike a balance between the maximum radiated power of a device and its out-of-band performance;

• the core conditions indirectly specify frequency stability by requiring the emission limits outside the band to be maintained under all conditions;

  - this allows a licensee to balance emission bandwidths along with frequency stability, as well as transmitter rise and fall times providing ‘internal guard bands’ as necessary.

The interference mechanisms that the technical framework seeks to manage are those caused by:

• unwanted in-band emissions;

• the modulation process;

• the frequency generation process;

• transient unwanted emissions such as those caused by switching a transmitter on and off; and

• intermodulation effects.
All five of these mechanisms are dealt with by a combination of the core conditions relating to out-of-area and out-of-band emissions, and those parts of the registration process which give effect to those conditions at the point of registration of devices prior to their operation.

The technical framework also provides additional controls in relation to out-of-band interference, such as that caused by intermodulation effects. Firstly, a series of constraints are imposed on the deployment of transmitters and receivers by means of the registration process. Secondly, a licence condition imposes on spectrum licensees the responsibility to manage out-of-band interference that arises from devices being located within 200 metres of each other.

It should be noted that in all cases, the technical framework established by the ACA for the 800 MHz bands is a basis upon which further flexibility may be achieved. The ACA is prepared to consider alternative management arrangements for emission levels agreed between spectrum licensees and, where relevant, apparatus licensees. Spectrum licensees should, however, note that the ACA will not give effect to alternative arrangements unless all affected and potentially affected licensees have agreed to the arrangements.

For example, spectrum licensees might agree alternative arrangements with other licensees under which higher powers for smaller bandwidths inside the frequency band of the licence would be allowed. The variation to the level of power would depend on the width of the guard bands being proposed, and the notional RF selectivity expected for receivers operating under adjacent licences.

Furthermore, it should be noted that agreements between licensees can only continue to apply while the size and the shape of the spectrum space owned by the licensees remains the same. Where trading of licences takes place and new boundaries are formed, these agreements will need to be re-negotiated. This re-negotiation can occur at any time, that is, before or after the trade, so that there is no loss of flexibility to licensees.

When trading occurs by means of the division of spectrum space, a check will be required to ensure that the devices already registered continue to satisfy the registration requirements. The ACA intends to issue provisional licence numbers before a trade to facilitate the redistribution of devices between the portions of spectrum space that occur after the trade.

**Core Conditions**

This part of the Chapter explains what the core conditions relating to emissions are intended to achieve, and how the emissions subject to those conditions are further managed under the technical framework.

**Out-of-area emissions**

Emissions from a fixed transmitter operated under a spectrum licence located anywhere in the geographic area of the licence are limited by core conditions to a horizontally radiated power (measured within a 30 kHz bandwidth) of 59 dBm EIRP at 800 MHz.
The conditions, therefore, effectively place an overall cap on power at the boundary and also throughout the entire geographic area of a licence.

Under the s.145 Determinations, emissions from a mobile transmitter are limited to a horizontally radiated power (measured within a 30 kHz bandwidth) of 46 dBm EIRP at 800 MHz.

An additional layer of management is imposed at the point of registration of devices. Before registering a device a licensee or accredited person must calculate the device boundary of the transmitter in accordance with the relevant determination made by the ACA under s.145 of the Act. *Attachment 7 is the Radiocommunications (Unacceptable Levels of Interference - 800MHz Band) Determination 1998.* This involves establishing the distance, along radials from the transmitter, that is required for the emission level to drop below what the ACA considers to be the typical sensitivity that will be achieved by receivers in adjacent geographic areas. The distance along each radial is based on a mathematical propagation model. The model takes account of the terrain loss of emissions by adjusting the antenna height of a device according to its height above average terrain, called its effective antenna height. Effective antenna heights are calculated every 5 minutes in distance along each radial.

If the device boundary so calculated falls outside the geographic area of the relevant spectrum licence the ACA will, generally speaking, refuse to register the device because the levels of emission outside the licence that it would cause will be ‘unacceptable interference’ within the meaning of s.145 of the Act. The ACA will consider registration in these circumstances where sufficient internal ‘guard space’ within the meaning of the Radiocommunications Advisory Guidelines (Registration of Devices under Spectrum Licences without an Interference Impact Certificate) 1998 (available on the ACA Internet site) will be maintained for the management of interference caused by a device or, all licensees who may be affected by the operation of a device agree to the device being operated in that way.

The effect of these two layers of management is to create ‘emission buffer zones’ along the geographic boundaries of the licences.

The corollary of this aspect of interference management is that spectrum licensees must expect that certain levels of emission will legitimately cross their geographic boundaries from points within other spectrum licensed areas. Accordingly, when considering what services they might establish within their own geographic areas, spectrum licensees will have to take into account the fact that transmitters may be located at certain points within other spectrum licensed areas, and that those transmitters may radiate power into the spectrum licensee’s area at any level up to that allowed under the relevant s.145 determination of unacceptable interference.

**Out-of-band emissions**

Out of band emission limits are imposed by a core condition. To establish whether the operation of a device will cause ‘unacceptable interference’ by breaching the out-of-band emission limits, a licensee or accredited person must work out the radiated power
of the device within bandwidths outside the frequency band of the licence using good engineering practice. If the power so calculated is greater than a figure specified in the relevant licence condition, two things follow:

- if the device is not yet registered - the ACA will generally speaking refuse to register it, because the interference that it would cause will be ‘unacceptable interference’ within the meaning of s.145 of the Act, (unless, for example, all relevant licensees agree alternative arrangements);

- if the device is already registered - there will be a breach of the core licence condition, unless, once again, all relevant licensees have agreed the alternative arrangements, and the ACA varies the relevant licence or licences to reflect those varied arrangements (see s.72 of the Act).

Levels of protection not provided

It should be noted that under the interference management regime established for spectrum licensing in the 500 MHz regime, receivers in adjacent areas are further protected from in-band interference by ‘levels of protection’, which were enforced by means of a licence condition. This protection was afforded by requiring that the power at a receiver must not exceed a specified level measured in a certain manner. That gave protection to receivers on a sliding scale, which varied with the antenna height and distance to the boundary of the geographic area. This is not necessary under the current allocation, because the STU bandwidth is sufficiently large for licensees to avoid interference from adjacent areas by relocating their service within their own spectrum space as necessary, including within their own frequency band.

Deployment constraints

Whilst the two core conditions aimed at emission levels provide some measure of protection from intermodulation effects, the ACA considers it will be necessary to provide further means of protecting against this interference mechanism. To this end, the ACA proposes to impose some constraints on the deployment of transmitters in both bands. The ACA does not intend to impose deployment constraints on receivers, and the onus will lie on spectrum licensees to determine the best siting for their receivers, having regard to the overall technical framework.

It is, however, important to note that (as mentioned above) the technical framework does not provide any protection from intermodulation effects where transmitters are sited within 200 metres of each other. Consequently, the ACA proposes to impose a special condition on the spectrum licences that will have the effect of requiring spectrum licensees to come to an arrangement amongst themselves in relation to interference in such cases.

The deployment constraints vary from band to band, and from area to area. The constraints are expressed in terms of effective antenna height which is calculated using
the average ground height within approximately 10 kilometres of each device. For a more detailed explanation of effective antenna height, please see the s.145 determination.

**Lower 800 MHz Band (825 - 845 MHz)**

In this band transmitters must be deployed at less than an effective antenna height of 10 metres. In this case the effect of the framework is to effectively protect high sited receivers, and the ACA anticipates that spectrum licensees will site their receivers in this way to obtain a reasonable service area. Potential licensees should have regard to this when considering potential sites and the utility of the spectrum.

**Upper 800 MHz Band (870 - 890 MHz)**

In this part of the 800 MHz Band transmitters may be deployed at any effective antenna height. The ACA has adopted this course to provide maximum flexibility for spectrum licensees in country areas where the likelihood of nearby services (receivers) at low sites is low, and consequently the siting of transmitters at low sites may be expected, generally speaking, not to cause any problems. The potential for interference in the 800 MHz Band is further limited by the fact that transmitters will be confined below the 10 metre level across the whole of the lower 800 MHz Band across the entire country. Consequently, because transmitters in the lower band must be at low sites, and because it is assumed that the spectrum will be used in paired bands (but not necessarily - see below), it can be anticipated that transmitters in the upper band will generally be at high sites. Although the ACA has not required that transmitters in the upper band be placed at high sites, and the receivers at low sites, the ACA considers that this will be the natural result of the combination of the deployment constraint in the lower band plus paired band usage.

If spectrum licensees follow this anticipated siting of transmitters in the upper 800 MHz Band, interference from intermodulation effects will normally be a co-siting issue, and fall for resolution between spectrum licensees and others under the special condition requiring negotiation where transmitters are sited within 200 metres of each other.

If, however, spectrum licensees take advantage of the flexibility open to them to site transmitters operating in the upper 800 MHz Band at less than 10 metres above effective ground level, and intermodulation interference arises as a result of the siting of such a transmitter within 200 metres of a receiver, the spectrum licensee who places the transmitter at the low site will bear the responsibility for managing the interference. Managing interference includes investigating possible causes of interference, taking steps to resolve disputes concerning interference, and taking steps to reduce the likelihood of interference occurring.
Managing interference between apparatus licensed and spectrum licensed devices

The ACA proposes that interference between devices operated under spectrum licences and devices operated under apparatus licences (and in one case operated under more than one spectrum licence) will be managed by advisory guidelines made under s.262 of the Act. The guidelines have been developed so as to, generally speaking, provide apparatus licensees with the same levels of protection from other services as they currently enjoy under the apparatus licensing system. The guidelines achieve this by specifying compatibility requirements between spectrum licensed services and apparatus licensed services. The compatibility requirements are essentially a model on the basis of which spectrum and apparatus licensees are expected to develop co-ordination procedures for the management of interference to each others services, using good engineering practice. Licensees who cannot resolve interference problems between themselves may expect the ACA to have regard to the guidelines in dealing with such disputes.

However, the guidelines are not binding either on licensees or the ACA, and the ACA has adopted this approach in order to provide the maximum flexibility for both spectrum and apparatus licensees in how they arrange their affairs so as to avoid interference with each others services. Once again, the ACA is prepared to consider alternative interference management arrangements agreed between spectrum licensees and, where relevant, apparatus licensees. Spectrum licensees should, however, note that the ACA will not give effect to alternative arrangements unless all affected and potentially affected licensees have agreed to the arrangements, and that subsequent trading will impact on any agreements reached.

The ACA recommends that radiocommunications devices be registered at the system design stage (especially services that are near the frequency boundary of Telstra’s GSM service at 890 MHz) to enable apparatus licensees, if they wish, to re-check the coordination and if an obvious error is detected, negotiate directly with the spectrum licensee before further costs are incurred when transmitters are not able to be operated due to interference. Registration at the system design stage, however, should not to be used for the purpose of inhibiting the operation of devices by adjacent licensees through the requirements of coordination for devices that are never intended to be operated.

The compatibility requirements that the ACA would normally expect to be maintained in relation to apparatus licensed receivers (including incumbent services during the time of the re-allocation period), are described in the guidelines as follows.

Radiocommunications Advisory Guidelines (Protection of Apparatus-licensed Receivers - 800 MHz Band) 1998 (Attachment 8)

These guidelines apply to receivers of trunked land mobile services, narrowband point to point services, wideband point-to-point services, studio transmitter links, GSM base receivers and AMPS receivers. A special situation exists at the AMPS-GSM boundary where a spectrum licensee will probably have to provide high performance filters to
GSM base receivers in order to extract maximum utility from the 5 MHz of spectrum that is adjacent to the GSM services. An overview of propagation models is given in the guideline to assist licensees in the development of suitable co-ordination procedures.

The ACA recognises that the potential for interference to GSM operations from the spectrum licensee of the band immediately adjacent to Telstra's GSM system is higher than any other interference scenario. The ACA has undertaken to Telstra that it will act quickly to ensure that no interference is caused. The ACA will rely on these s.262 advisory guidelines to establish a benchmark against which complaints of interference will be investigated and resolved.


The Molonglo Observatory Synthesis Telescope (MOST) is a radio telescope located approximately 30 km to the east of Canberra that monitors radio signals from weak celestial radio sources in a frequency band centred on 843 MHz. These advisory guidelines set out the compatibility requirement to provide the MOST with a reasonable level of interference protection from transmitters operating in this band. A suggested approach to assessing the compatibility is also provided. The compatibility requirement will cease at the end of 2008.

Radiocommunications Advisory Guidelines (Managing Interference from Apparatus-licensed Transmitters - 800 MHz Band) 1998 (Attachment 10)

Broadly speaking, these guidelines specify the compatibility requirements that apparatus licensed transmitters should meet in relation to receivers that have been registered for operation in the 800 MHz Band under spectrum licences. (For a more detailed description of the services to which these guidelines apply, prospective spectrum licensees and apparatus licensees should see the guidelines themselves.) A notional receiver performance level is also specified to enable licensees to develop appropriate co-ordination procedures. The ACA intends to assume that all receivers operating under spectrum licences have a performance at least equal to the notional performance when settling interference disputes.

Receiver Performance

As mentioned above, licensees will need to take account of the emission limits permitted under the technical framework when deciding the level of performance they require for their receivers. Receivers will cope with emission levels with differing degrees of success depending on their interference susceptibility performance. For example, a receiver with poor performance would normally deny large amounts of spectrum space for transmitters to use in order to protect it from interference. The ACA does not intend to enforce receiver standards. It is for each licensee to balance the cost of receiver performance against the cost of spectrum space denied to their transmitters.
Poor receiver performance is only a problem when a licensee uses spectrum space belonging to an adjacent licensee. The framework provides for the operation of receivers that have an interference susceptibility equal to or better than that achieved by current technology and intends for this level of performance to guide the interference settlement process. Receivers with poor interference susceptibility performance can be used, but in those cases, a licensee may have to use part of their own spectrum space as a guard band. For example, interference that results from a receiver having an RF bandwidth that is larger than the frequency band of the licence, will be the licensee’s responsibility. It is the licensee’s responsibility to use receivers in a manner that is both consistent with good engineering practice and effectively copes with the levels permitted under the technical framework.

**Interference that the technical framework does not prevent**

No matter how rigorous the engineering analysis of a device, there is always a possibility of actual interference when devices are deployed in the field. This is because the technical framework is designed on a probabilistic basis. Under the framework described in this Chapter, it is anticipated that interference between spectrum licensed devices will occur at about the same rate as between apparatus licensed devices, that is, interference will arise in less than one percent of cases. Such interference may be caused by emissions at frequencies either inside or outside licensees’ spectrum space.

Licensees are strongly advised before making an interference complaint to attempt to locate the source of any interference by checking the Register of Radiocommunications Licences. This investigation may reveal the cause of the interference and it may be possible to settle the problem without the ACA’s intervention. If the ACA becomes involved, licensees may be charged for any work undertaken.

**Registering groups of transmitters**

Transmitters must always be registered as either an individual transmitter or as part of a group of transmitters. If two or more transmitters are operated for the purpose of communicating with the same receiver or same group of receivers and they have identical emission characteristics, then those transmitters may be treated as a group for registration purposes. A transmitter may belong to more than one group. Groups are defined to help minimise the work associated with the registration process of similar transmitters, for example, mobile transmitters and cellular base stations. Low power mobile transmitters, and low power fixed transmitters operated in enclosed spaces (for example, those usually associated with PCS systems) are exempted from device registration requirements.

Both fixed and mobile transmitters must be registered (unless exempted). Mobile devices may be registered as a group (or one logical device), and in some cases that one logical device may operate in a number of locations called effective mobile loca-
Lists of effective mobile locations are available from the ACA. An effective mobile location has an associated effective radius which is used to further expand the device boundary to take account of the roaming nature of a mobile transmitter.

International co-ordination

The ITU Radio Regulations have international treaty status and are binding on Australia. Transmitters operated under a spectrum licence, other than in accordance with ITU Radio Regulations, must not cause interference to any services of any other country (for example, Papua New Guinea or Indonesia) which are operating in accordance with ITU Radio Regulations. If operation of a transmitter does cause harmful interference to overseas services operating in accordance with ITU Radio Regulations, the transmission must cease. Spectrum licensees must also accept interference from any overseas service operating in accordance with ITU regulations. Potential spectrum licensees should note that the ACA will impose such additional licence conditions on spectrum licences as may be necessary to meet its international obligations.

Health and safety

Every spectrum licensee will need to take into account occupational health and safety requirements for radiofrequency devices. Occupational health and safety requirements that concern use of radiofrequency devices are currently the responsibility of the relevant State or Territory Governments.

In addition, licensees will be required to comply with any health exposure standards that may be made by the ACA for the health and safety of persons who operate, work on or use radiocommunications transmitters and receivers.

Environmental and other considerations

Antenna siting, height and construction may be regulated by State, Territory or local government legislation. Before planning for a device to operate in a certain location, licensees should investigate the local rules pertaining to the erection of towers and antennas.

Obtaining a permit to operate non-standard devices

A licensee who wishes to operate standard devices under a spectrum licence (that is, equipment that conforms to mandatory ACA standards) will not have to apply to the ACA for permission to do so. However, a permit will be required to operate non-standard devices. These permits may be issued by the ACA under s.167 of the Radiocommunications Act 1992, and will only be issued for the term of the licence.

Permits to supply non-standard devices for operation under a spectrum licence may also be issued by the ACA under s.174 of the Act.
Minister's Declarations under s.153B of the Radiocommunications Act 1992
Minister’s Carrier Licence Conditions

Carrier Licence Conditions (Spectrum Re-allocation) Declaration 1998

Carrier Licence Conditions (Access and Roaming) Declaration 1998
Radiocommunications Spectrum Marketing Plan (800 MHz and 1.8 GHz Bands) 1998

Radiocommunications Spectrum Marketing Plan (800 MHz and 1.8 GHz Bands) 1998
(Variation No.1)
Area Map and Boundary Coordinates
Radiocommunications (Spectrum Licence Allocation - Open Outcry Auction)

Determination 1998
Setting of Entry Fee, Financial Security Amount and Closing Date and Time
Radiocommunications (Unacceptable Levels of Interference - 800 MHz Band) Determination 1998
Radiocommunications Advisory Guidelines
(Protection of Apparatus-licensed Receivers - 800 MHz Band) 1998
Radiocommunications Advisory Guidelines
(Protection of Molonglo Observatory Synthesis Telescope) 1998
Radiocommunications Advisory Guidelines
(Managing Interference from Apparatus-licensed Transmitters - 800 MHz Band) 1998
Order Form and Information for the ACA CD-ROM Extract from the Register of Radiocommunications Licences
Application Documents