

Commonwealth of Australia

Australian Communications Authority

Radiocommunications Act 1992

Radiocommunications Spectrum Marketing Plan (2 GHz Band) 2000

THE AUSTRALIAN COMMUNICATIONS AUTHORITY makes this Marketing Plan under section 39A of the *Radiocommunications Act 1992*.

Dated 4 December 2000

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Chair

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Summary of marketing plan

The Minister for Communications, Information Technology and the Arts has made a spectrum re-allocation declaration under section 153B of Part 3.6 of the Act with respect to the 2 GHz bands in specified geographic areas. The effect of this declaration is that the areas and parts of the spectrum referred to in the declaration are subject to re-allocation by issuing spectrum licences. The declaration sets a “re-allocation period” during which time it is intended that the spectrum licences will be allocated. Apparatus licences in a part of the spectrum covered by a declaration will be cancelled automatically at the end of the re-allocation period (section 153H of the Act). The Act also requires that the declaration must set a “re-allocation deadline”. The significance of the re-allocation deadline is that where a re-allocation declaration states that a part of the spectrum should be re-allocated by issuing spectrum licences, at least one licence must be issued by the re-allocation deadline. If no spectrum licences are issued by the re-allocation deadline, the declaration is taken to have been revoked immediately after the deadline (section 153K of the Act).

A summary of the overall process is as follows:

- Parts of the 2 GHz bands have been divided into lots for sale. The lots consist of a geographic area and a particular bandwidth. It is intended that these lots will be allocated and become the subject of spectrum licences.
- Allocation will be by way of a simultaneous ascending auction (details are in the *Radiocommunications (Spectrum Licence Allocation — 2 GHz Band) Determination 2000*).
- The ACA will advertise details of the auction as soon as practicable after this Plan is published. This will be at least one month before the date of the auction. Interested parties must register to take part in the auction before the closing date.
- The successful applicant for a lot will be entitled to have a spectrum licence issued that includes the lot as soon as practicable after the ACA has received payment of the final bid price for the lot and payment of the spectrum access charge (section 62 (2) of the Act).
- A spectrum licence will contain core conditions and conditions relating to other aspects of spectrum use (sections 66-71 of the Act). An example of a spectrum licence is attached.
- The licence will come into force on the day specified in the licence, and will be in force for the period set out in the licence (section 65 of the Act). This period cannot be longer than 15 years. The ACA intends that all licences for a particular band be in force for 15 years.
- The ACA will publish information regarding licences that are due to expire during the two years before the expiry date (section 78 of the Act). Current licensees will also receive periodic reminders that their licence is due to expire.
- Re-allocation of licences will be by way of price based allocation (sections 80, 81). Only if it is in the public interest to do so will the ACA re-issue spectrum licences to existing licensees without conducting a re-allocation (section 82).

PART 1-PRELIMINARY

Title

1.1 This Plan is called the *Radiocommunications Spectrum Marketing Plan (2 GHz Band) 2000*.

Commencement

1.2. This Plan commences on 4 December 2000.

Purpose

1.3. (1) This Plan sets out procedures and a timetable for issuing spectrum licences that authorise the operation of radiocommunications devices in those parts of the 2 GHz band that are subject to a re-allocation declaration.

(2) This Plan also sets out matters a licensee must take into account in operating devices under a licence.

Interpretation

1.4. (1) In this Plan:

Act means the *Radiocommunications Act 1992*.

Advisory Guidelines means the following documents made by the ACA under section 262 of the Act, as in force from time to time:

- (a) *Radiocommunications Advisory Guidelines (Protection of Apparatus-licensed and Class-licensed Receivers - 2 GHz Band) 2000*; and
- (b) *Radiocommunications Advisory Guidelines (Managing Interference from Apparatus-licensed and Class-licensed Transmitters - 2 GHz Band) 2000*; and
- (b) *Radiocommunications Advisory Guidelines (Registration of Devices under Spectrum Licences without an Interference Impact Statement) 1998*.

Allocation Determination means the *Radiocommunications (Spectrum Licence Allocation — 2 GHz Band) Determination 2000*.

cell means a square with a side measured in degrees, and where appropriate, minutes and seconds, by reference to the Australian National Spheroid.

geographic area, for a licence, means the area within which operation of a radiocommunications device is authorised under the licence.

HAPS means a high altitude platform station located on an object at an altitude of 20 to 50 km and at a specified, nominal, fixed point relative to the earth (see ITU Radio Regulations Article S1.66A).

harmful interference means interference that:

- (a) endangers the functioning of a radio-navigation service or other safety services; or
- (b) seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service.

horizontally radiated power, for a radiocommunications device, means the product of:

- (a) the maximum true mean power within the frequency band of the licence authorising the operation of the device, measured in units of dBm EIRP per 30 kHz at the antenna connector; and
- (b) the antenna gain relative to an isotropic antenna in a specified direction reference from, and in the horizontal plane containing, the phase centre of the antenna used with the device.

in-band, means:

- (a) for a transmitter operated under a spectrum licence, the frequencies within the frequency band to which the licence relates; and
- (b) for a receiver operating within the space of a spectrum licence, the frequencies within the frequency band to which the licence relates; and
- (c) for a transmitter or receiver operating under an apparatus licence, the frequencies within the lower frequency limit and the upper frequency limit of its spectrum access.

lot means a part of the spectrum described in section 2.2.

lot rating, for a lot, means the value for the lot set by the ACA under section 2.5.

maximum true mean power means 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;

[Note: The power within a 30 kHz rectangular bandwidth is normally established by taking measurements using either an adjacent channel power meter or a spectrum analyser. The accuracy of measuring equipment, measurement procedure and any corrections to measurements necessary to take account of practical filter shape factors would normally be in accordance with good engineering practice.]

mean power means the average power measured during an interval of time that is at least 10 times the period of the lowest modulation frequency;

peak power means the average power measured within a specified bandwidth during one radio frequency cycle at the crest of the signal envelope;

population means the notional population of a lot, fixed by the ACA and set out in column 4 of an item in Schedule 1;

re-allocation means the re-allocation of spectrum by the issue of spectrum licences in accordance with a re-allocation declaration;

re-allocation declaration means the declaration made by the Minister under section 153B of the Act for a part of the spectrum in the 2 GHz band;

spectrum map grid means the map grid developed by the ACA for Australia, showing cells the sides of which measure 3 degrees of arc, 1 degree of arc or 5 minutes of arc, published by the ACA.

standard trading unit (STU) means a parcel of spectrum space that consists of:

- (a) a geographic area equal to a cell of the spectrum map grid; and
- (b) a frequency band having lower and upper frequency limits of each segment defined by:
 - (i) $1900 + [n \times 0.25]$ MHz and $1900 + [(n+1) \times 0.25]$ MHz respectively, where n is an integer from 0 to 79 (inclusive); or
 - (ii) $1920 + [n \times 0.25]$ MHz and $1920 + [(n+1) \times 0.25]$ MHz respectively, where n is an integer from 0 to 239 (inclusive); or
 - (iii) $2110 + [n \times 0.25]$ MHz and $2110 + [(n+1) \times 0.25]$ MHz respectively, where n is an integer from 0 to 239 (inclusive).

terrestrial, for a transmitter, means a transmitter that is not located on a HAPS.

true mean power means:

- (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.

2 GHz band means the following frequency bands:

- (a) 1900 MHz – 1920 MHz (the 2 GHz Lower Band)
- (b) 1920 MHz – 1980 MHz (the 2 GHz Upper Band A)
- (c) 2110 MHz – 2170 MHz (the 2 GHz Upper Band B).

[Note: A number of expressions used in this Plan are defined in the Act, including:

ACA	Licensee
apparatus licence	public or community service
core condition	spectrum licence.]
frequency band	

(2) In this Plan, the range of numbers that identifies a frequency band includes the higher, but not the lower, number.

PART 2-ALLOCATION OF SPECTRUM LICENCES

Issue of spectrum licences

2.1. (1) The ACA will issue spectrum licences for the parts of the spectrum in the 2 GHz band that are subject to the re-allocation declaration.

(2) The ACA will issue the licences to the persons to whom the licences are allocated under a price-based allocation system determined under section 60 of the Act.

(3) No part of the spectrum in the 2 GHz band subject to this Marketing Plan will be reserved for public or community services.

Identification of lots

2.2. (1) The ACA has divided the parts of the spectrum that have been declared for re-allocation by the Minister into lots.

(2) Each lot represents a part of the spectrum that is defined in terms of its geographic area and frequency band.

(3) The geographic area of a lot is the area described in Schedule 2 for the area named in column 2 of Schedule 3 for the lot.

(4) The frequency band of a lot described in Schedule 3 comprises the frequencies in the frequency range greater than the frequency set out in columns 4 and 6 of an item in Schedule 3 up to and including the frequency set out in columns 5 and 7 of the item.

Allocation of lots

2.3. (1) Lots will be allocated and will then become the subject of spectrum licences.

(2) The ACA will issue spectrum licences to cover the lots that have been allocated in accordance with this Marketing Plan.

[Note: The ACA issues spectrum licences under Subdivision B of Division 1 of Part 3.2 of the Act.]

How licences will be allocated

2.4. (1) The first allocation will be by simultaneous ascending auction, in accordance with the procedures set out in the Allocation Determination.

[Note: The determination sets out the procedures for allocating spectrum licences by a simultaneous ascending auction.]

(2) All of the lots listed in Schedule 3 will be available for auction at the same time.

(3) The ACA may hold further allocations by a means to be determined by the ACA under section 60 of the Act.

(4) However, the ACA will not hold an auction if:

- (a) the total amount of bandwidth nominated for each area by all applicants for the area, is equal to or less than the bandwidth available for the area; and
- (b) the ACA offers each applicant a licence for a bandwidth, in the area nominated by the applicant, at the starting bid price; and
- (c) each applicant accepts the licence offered.

[Note: In this case, the ACA will allocate the licences for a pre-determined price - see Part 3 of the *Radiocommunications (Spectrum Licence Allocation — 2 GHz Band) Determination 2000*.]

(5) If an applicant rejects a licence offered, the ACA may:

- (a) withdraw from sale all spectrum covered by the licences offered; or
- (b) allocate all that spectrum by auction; or
- (c) allocate licences to the applicants who have accepted the offered licences and, for lots covered by licences that were refused:
 - (i) allocate those lots by auction, in accordance with the Allocation Determination; or
 - (ii) withdraw those lots from allocation and allocate the spectrum covered by those lots at a later date.

Lot ratings

2.5. (1) Each lot has a lot rating fixed by the ACA.

(2) The lot rating for a lot is the value set out in column 3 of the item in Schedule 3 in which the lot is mentioned.

(3) The lot rating is used as the basis for working out an applicant's initial eligibility and the eligibility payment payable by an applicant. Details of these are in sections 2.5A, 2.6 and 2.7 of the Allocation Determination.

Advertising auction

2.6. (1) The ACA will advertise details of the auction as soon as practicable after this Plan is published.

(2) Details of the advertisement is set out in section 2.2 of the Allocation Determination.

(3) The ACA will not conduct an auction until at least 30 days after the publication of this advertisement.

Registration

2.7. (1) The advertisement will invite people to apply to the ACA to take part in the auction.

(2) The ACA will make available to interested people an Applicant Information Package that contains more detail about application requirements and the auction process. Details of what is in the Package are in section 2.3 of the Allocation Determination.

(3) Anyone wishing to take part in the auction must lodge their application by the application closing date in the advertisement and pay their eligibility payment and performance payment or lodge their Deed of Financial Security by the eligibility payment date. Details of how to apply are in Part 2 of the Allocation Determination.

Amount of eligibility payment

2.8. An applicant for registration must pay an eligibility payment by the eligibility payment date. The amount of eligibility payment payable is based on the eligibility nominated by the applicant in the application for registration.

[Note: To find out how the eligibility payment is worked out see section 2.7 of the Allocation Determination.]

Entitlement to licence

2.9. Except where allocation limits set out in Part 1A of the Allocation Determination are exceeded, a successful applicant for a lot is entitled to be issued a licence that includes the lot as soon as practicable after the balance of bid price is received by the ACA.

[Note: Details of payment requirements for the balance of bid price are in Part 5 of the Allocation Determination.]

Sample licence

2.10. Schedule 4 sets out:

- (a) a sample spectrum licence; and
- (b) the conditions that may be included in a spectrum licence that is issued in a part of the spectrum referred to in the re-allocation declaration.

Core licence conditions

2.11. (1) Section 66 of the Act requires a licence to contain core conditions that define the parts of the spectrum that can be used under the licence, in terms of:

- (a) frequency band; and
- (b) geographic area; and
- (c) emission limits outside the area; and
- (d) emission limits outside the band.

(2) These conditions will be included in the licence.

Other licence conditions

2.12. The licence will also include conditions about:

- (a) payment of charges (section 67 of the Act); and
- (b) use by third parties (section 68); and
- (c) registration of transmitters (section 69); and
- (d) other matters that the ACA may include in the licence (section 71).

Determination of core licence conditions

2.13. (1) The core conditions for the geographic area of a licence will apply to the area or the aggregation of areas described in Schedule 2 that cover the lots allocated to the licensee in the allocation under section 60 of the Act.

(2) The core conditions for frequency bands will apply to the bands or aggregation of bands described in columns 4 and 5 of Schedule 3 that cover the lots allocated to the licensee.

Emission limits

2.14. (1) The emission limits outside the area for all licences are worked out in accordance with Schedule 5.

(2) The emission limits outside the band for all licences are worked out in accordance with Schedule 6.

[Note: These core conditions may be varied by the ACA with the licensee's agreement - see section 72 of the Act.]

Agreements about emission limits

2.15. A licensee may enter into an agreement for the purpose of:

- (a) core condition 7 as specified in the sample licence in schedule 4 (about emission limits outside the geographic area of the licence); or
- (b) core condition 15 as specified in the sample licence in schedule 4 (about emission limits outside the frequency band of the licence); or
- (c) both of those core conditions.

The agreement must be in accordance with the form set out in Schedule 5 to the licence.

Duration of licences

2.16. The licences issued under this Plan will be for fixed terms of 15 years.

[Notes: 1. Section 65 of the Act provides that the maximum duration of a spectrum licence is 15 years.
2. The licences will start on 12 October 2002, immediately after the end of the reallocation period.]

Registration of licences

2.17. (1) The ACA will register licences, as required by section 144 of the Act.

[Note: Details about registration are in *the Radiocommunications (Contents of Register) Determination No.1 of 1997.*]

(2) Each spectrum licence will include a condition that prohibits operation of a transmitter unless any requirements under Part 3.5 of the Act to have the transmitter registered have been met.

[Note: Section 69 of the Act deals with this.]

(3) Transmitters that are part of a group of transmitters may be registered individually or as a group.

(4) The ACA does not propose to register a mobile transmitter that operates in the 2 GHz band with maximum radiated true mean power of 24.5 dBm or less.

Trading in licences

2.18. As permitted by Division 5 of Part 3.2 of the Act, a licensee may assign or otherwise deal with the whole or any part of a licence. The ACA has made rules under section 88 of the Act to regulate trading in licences. The rules restrict trading by reference to whole standard trading units and minimum contiguous bandwidth.

Spectrum licences that are about to expire

2.19. (1) As required by section 78 of the Act, the ACA will publish notices periodically in the *Gazette*:

- (a) stating where information can be obtained about spectrum licences that are due to expire within the next two years; and
- (b) inviting expressions of interest from people who want to have these licences issued to them.

(2) The information will also be available from any of the ACA's Area Offices.

(3) The ACA will also send licensees regular reminders during the last two years of the term of their licences that the licences are due to expire.

Re-issue of licences

2.20. (1) The ACA will re-issue licences, in accordance with Division 4 of Part 3.2 of the Act.

(2) As a general rule, licences will only be re-issued after the lots they cover are offered for re-allocation by auction, tender, or predetermined or negotiated price. In re-allocating the licences, the ACA will follow the procedures set out in the determinations made under section 60 of the Act that are in force at the time.

(3) However, as set out in section 82 of the Act, the ACA may re-issue a licence to the previous licensee without re-allocating the licence if it is in the public interest to do so.

(4) Spectrum licences that are re-issued are unlikely to take the same form as originally issued as the spectrum lots may be divided and distributed differently. Licensees should not assume that they will be re-issued with their existing licence.

PART 3—SPECTRUM USAGE AND COMPATIBILITY

Compatibility requirements

3.1. (1) The Advisory Guidelines set out:

(a) compatibility requirements for the receivers of various apparatus licensed services in the 2 GHz band and in adjacent frequency bands; and

(b) recommended methods of coordinating radiocommunications services to be operated in spectrum licensed space.

(2) The Advisory Guidelines provide a means of coordinating services operating under spectrum licences with other services operating under spectrum licences and with those operating under apparatus licences.

(3) Each licensee must ensure that the operation of their service does not cause an unacceptable level of interference to other services that they are obliged to protect.

(4) These compatibility requirements apply to a receiver that:

(a) operates or will operate under an apparatus licence or a class licence; and

(b) is outside:

(i) the frequency bands of spectrum licences; or

(ii) the geographic limits of spectrum licences; and

(c) operates inside the frequency bands or geographic areas to be subject to spectrum licenses.

SCHEDULE 1

Section 1.4

DESCRIPTION OF AREAS CONTAINING LOTS FOR RE-ALLOCATION

Column 1	Column 2	Column 3	Column 4
Item No.	Area Number	Name	Notional Population
1.	1.	Sydney	4,297,000
2.	2.	Melbourne	3,246,700
3.	3.	Brisbane	1,921,100
4.	4.	Adelaide	1,094,900
5.	5.	Perth	1,189,100
6.	6.	Hobart	224,300
7.	7.	Darwin	90,000
8.	8.	Canberra	320,600
9.	9.	Capital city	12,383,700
10.	10.	National	16,184,100
11.	11.	Cairns	368,200
12.	12.	Mackay	305,100
13.	13.	Maryborough	583,500
14.	14.	Grafton	39,500
15.	15.	Dubbo	284,300
16.	16.	Albury	637,700
17.	17.	Regional VIC	773,200
18.	18.	Regional TAS	258,200
19.	19.	Regional SA	308,600
20.	20.	Regional WA	241,800

SCHEDULE 2

Sections 1.4 and 2.2(3)

COORDINATES OF GEOGRAPHIC AREAS

Description: The geographic area of a lot is the area of land described in a table below, bounded by a line starting at the intersection of the first coordinates listed in the table for the area and then bounded by a line passing sequentially through the intersections of each set of coordinates shown in the table to the point of commencement.

CAPITAL CITY 1 to 6

ADELAIDE

° ' " East	° ' " South
138 05 0	34 20 0
139 05 0	34 20 0
139 05 0	34 55 0

° ' " East	° ' " South
139 00 0	34 55 0
139 00 0	35 30 0
138 05 0	35 30 0

° ' " East	° ' " South
138 05 0	34 20 0

BRISBANE

° ' " East	° ' " South
152 30 0	26 05 0
154 00 0	26 05 0
154 00 0	28 35 0

° ' " East	° ' " South
153 05 0	28 35 0
153 05 0	28 20 0
152 50 0	28 20 0

° ' " East	° ' " South
152 50 0	28 05 0
152 30 0	28 05 0
152 30 0	26 05 0

CANBERRA

° ' " East	° ' " South
148 45 0	34 50 0
149 30 0	34 50 0

° ' " East	° ' " South
149 30 0	35 50 0
148 45 0	35 50 0

° ' " East	° ' " South
148 45 0	34 50 0

DARWIN

° ' " East	° ' " South
130 30 0	12 00 0
131 15 0	12 00 0

° ' " East	° ' " South
131 15 0	12 45 0
130 30 0	12 45 0

° ' " East	° ' " South
130 30 0	12 00 0

HOBART

° ' " East	° ' " South
146 45 0	42 20 0
148 00 0	42 20 0

° ' " East	° ' " South
148 00 0	43 35 0
146 45 0	43 35 0

° ' " East	° ' " South
146 45 0	42 20 0

CAPITAL CITY 1 to 6 (cont)

MELBOURNE

° ' " East	° ' " South
144 45 0	37 20 0
145 05 0	37 20 0
145 05 0	37 25 0
145 15 0	37 25 0
145 15 0	37 30 0
145 20 0	37 30 0
145 20 0	37 35 0

° ' " East	° ' " South
145 35 0	37 35 0
145 35 0	37 45 0
145 45 0	37 45 0
145 45 0	38 15 0
145 25 0	38 15 0
145 25 0	38 45 0
144 05 0	38 45 0

° ' " East	° ' " South
144 05 0	37 55 0
144 10 0	37 55 0
144 10 0	37 50 0
144 15 0	37 50 0
144 15 0	37 25 0
144 45 0	37 25 0
144 45 0	37 20 0

PERTH

° ' " East	° ' " South
115 00 0	31 25 0
116 30 0	31 25 0

° ' " East	° ' " South
116 30 0	32 50 0
115 00 0	32 50 0

° ' " East	° ' " South
115 00 0	31 25 0

SYDNEY

° ' " East	° ' " South
151 05 0	32 35 0
153 00 0	32 35 0
153 00 0	33 00 0
152 00 0	33 00 0
152 00 0	35 00 0

° ' " East	° ' " South
150 30 0	35 00 0
150 30 0	34 35 0
150 20 0	34 35 0
150 20 0	34 00 0
150 00 0	34 00 0

° ' " East	° ' " South
150 00 0	33 20 0
150 55 0	33 20 0
150 55 0	33 05 0
151 05 0	33 05 0
151 05 0	32 35 0

End of Capital City 1 - 6

SYDNEY 1 to 4

SYDNEY

° ' " East	° ' " South
151 05 0	32 35 0
153 00 0	32 35 0
153 00 0	33 00 0
152 00 0	33 00 0
152 00 0	35 00 0

° ' " East	° ' " South
150 30 0	35 00 0
150 30 0	34 35 0
150 20 0	34 35 0
150 20 0	34 00 0
150 00 0	34 00 0

° ' " East	° ' " South
150 00 0	33 20 0
150 55 0	33 20 0
150 55 0	33 05 0
151 05 0	33 05 0
151 05 0	32 35 0

MELBOURNE 1 to 4

MELBOURNE

° ' " East	° ' " South
144 45 0	37 20 0
145 05 0	37 20 0
145 05 0	37 25 0
145 15 0	37 25 0
145 15 0	37 30 0
145 20 0	37 30 0
145 20 0	37 35 0

° ' " East	° ' " South
145 35 0	37 35 0
145 35 0	37 45 0
145 45 0	37 45 0
145 45 0	38 15 0
145 25 0	38 15 0
145 25 0	38 45 0
144 05 0	38 45 0

° ' " East	° ' " South
144 05 0	37 55 0
144 10 0	37 55 0
144 10 0	37 50 0
144 15 0	37 50 0
144 15 0	37 25 0
144 45 0	37 25 0
144 45 0	37 20 0

BRISBANE 1 to 4

BRISBANE

° ' " East	° ' " South
152 30 0	26 05 0
154 00 0	26 05 0
154 00 0	28 35 0

° ' " East	° ' " South
153 05 0	28 35 0
153 05 0	28 20 0
152 50 0	28 20 0

° ' " East	° ' " South
152 50 0	28 05 0
152 30 0	28 05 0
152 30 0	26 05 0

ADELAIDE 1 to 4

ADELAIDE

° ' " East	° ' " South
138 05 0	34 20 0
139 05 0	34 20 0
139 05 0	34 55 0

° ' " East	° ' " South
139 00 0	34 55 0
139 00 0	35 30 0
138 05 0	35 30 0

° ' " East	° ' " South
138 05 0	34 20 0

PERTH 1 to 4

PERTH

° ' " East	° ' " South
115 00 0	31 25 0
116 30 0	31 25 0

° ' " East	° ' " South
116 30 0	32 50 0
115 00 0	32 50 0

° ' " East	° ' " South
115 00 0	31 25 0

HOBART 1 to 4

HOBART

° ' " East	° ' " South
146 45 0	42 20 0
148 00 0	42 20 0

° ' " East	° ' " South
148 00 0	43 35 0
146 45 0	43 35 0

° ' " East	° ' " South
146 45 0	42 20 0

DARWIN 1 to 4**DARWIN**

° ' " East	° ' " South
130 30 0	12 00 0
131 15 0	12 00 0

° ' " East	° ' " South
131 15 0	12 45 0
130 30 0	12 45 0

° ' " East	° ' " South
130 30 0	12 00 0

CANBERRA 1 to 2**CANBERRA**

° ' " East	° ' " South
148 45 0	34 50 0
149 30 0	34 50 0

° ' " East	° ' " South
149 30 0	35 50 0
148 45 0	35 50 0

° ' " East	° ' " South
148 45 0	34 50 0

NATIONAL 1 & 2**ADELAIDE - See Regional SA****ALBURY**

° ' " East	° ' " South
147 00 0	33 30 0
147 10 0	33 30 0
147 10 0	33 45 0
147 20 0	33 45 0
147 20 0	33 55 0
147 30 0	33 55 0
147 30 0	34 05 0
147 40 0	34 05 0
147 40 0	34 15 0
147 50 0	34 15 0
147 50 0	34 25 0
148 00 0	34 25 0
148 00 0	34 30 0
148 10 0	34 30 0
148 10 0	34 35 0
148 20 0	34 35 0
148 20 0	34 40 0
148 30 0	34 40 0
148 30 0	34 50 0
148 45 0	34 50 0
148 45 0	35 50 0
149 30 0	35 50 0
149 30 0	34 40 0
149 35 0	34 40 0
149 35 0	34 25 0
149 45 0	34 25 0

° ' " East	° ' " South
149 45 0	34 15 0
150 00 0	34 15 0
150 00 0	34 00 0
150 20 0	34 00 0
150 20 0	34 35 0
150 30 0	34 35 0
150 30 0	35 00 0
151 00 0	35 00 0
151 00 0	38 00 0
150 00 0	38 00 0
150 00 0	37 25 0
149 45 0	37 25 0
149 45 0	37 20 0
149 30 0	37 20 0
149 30 0	37 15 0
149 20 0	37 15 0
149 20 0	37 10 0
148 55 0	37 10 0
148 55 0	37 05 0
148 45 0	37 05 0
148 45 0	37 00 0
148 40 0	37 00 0
148 40 0	36 55 0
148 25 0	36 55 0
148 25 0	36 50 0
148 15 0	36 50 0

° ' " East	° ' " South
148 15 0	36 45 0
147 45 0	36 45 0
147 45 0	36 50 0
147 15 0	36 50 0
147 15 0	37 00 0
146 45 0	37 00 0
146 45 0	37 05 0
146 10 0	37 05 0
146 10 0	36 55 0
145 40 0	36 55 0
145 40 0	36 40 0
144 45 0	36 40 0
144 45 0	36 30 0
144 20 0	36 30 0
144 20 0	36 15 0
143 50 0	36 15 0
143 50 0	36 00 0
143 35 0	36 00 0
143 35 0	35 45 0
143 20 0	35 45 0
143 20 0	35 25 0
143 00 0	35 25 0
143 00 0	34 00 0
147 00 0	34 00 0
147 00 0	33 30 0

NATIONAL 1 & 2 (cont)

BRISBANE

° ' " East	° ' " South
152 30 0	26 05 0
154 00 0	26 05 0
154 00 0	28 35 0

° ' " East	° ' " South
153 05 0	28 35 0
153 05 0	28 20 0
152 50 0	28 20 0

° ' " East	° ' " South
152 50 0	28 05 0
152 30 0	28 05 0
152 30 0	26 05 0

CAIRNS

° ' " East	° ' " South
145 00 0	16 00 0
147 00 0	16 00 0
147 00 0	19 00 0

° ' " East	° ' " South
148 00 0	19 00 0
148 00 0	21 00 0
146 00 0	21 00 0

° ' " East	° ' " South
146 00 0	19 00 0
145 00 0	19 00 0
145 00 0	16 00 0

CANBERRA

° ' " East	° ' " South
148 45 0	34 50 0
149 30 0	34 50 0

° ' " East	° ' " South
149 30 0	35 50 0
148 45 0	35 50 0

° ' " East	° ' " South
148 45 0	34 50 0

DARWIN

° ' " East	° ' " South
130 30 0	12 00 0
131 15 0	12 00 0

° ' " East	° ' " South
131 15 0	12 45 0
130 30 0	12 45 0

° ' " East	° ' " South
130 30 0	12 00 0

DUBBO

° ' " East	° ' " South
148 00 0	31 00 0
149 00 0	31 00 0
149 00 0	31 20 0
149 40 0	31 20 0
149 40 0	31 25 0
149 45 0	31 25 0
149 45 0	31 30 0
149 50 0	31 30 0
149 50 0	31 35 0
149 55 0	31 35 0
149 55 0	31 40 0
150 05 0	31 40 0
150 05 0	31 45 0
150 15 0	31 45 0
150 15 0	31 50 0
150 40 0	31 50 0

° ' " East	° ' " South
150 40 0	31 45 0
150 50 0	31 45 0
150 50 0	31 40 0
151 00 0	31 40 0
151 00 0	31 35 0
151 05 0	31 35 0
151 05 0	31 30 0
151 30 0	31 30 0
151 30 0	32 35 0
151 05 0	32 35 0
151 05 0	33 05 0
150 55 0	33 05 0
150 55 0	33 20 0
150 00 0	33 20 0
150 00 0	34 15 0

° ' " East	° ' " South
149 45 0	34 15 0
149 45 0	34 25 0
149 35 0	34 25 0
149 35 0	34 40 0
149 30 0	34 40 0
149 30 0	34 50 0
148 30 0	34 50 0
148 30 0	34 40 0
148 20 0	34 40 0
148 20 0	34 35 0
148 10 0	34 35 0
148 10 0	34 30 0
148 00 0	34 30 0
148 00 0	34 25 0
147 50 0	34 25 0

NATIONAL 1 & 2 (cont)

DUBBO (cont)

° ' " East	° ' " South
147 50 0	34 15 0
147 40 0	34 15 0
147 40 0	34 05 0
147 30 0	34 05 0
147 30 0	33 55 0

° ' " East	° ' " South
147 20 0	33 55 0
147 20 0	33 45 0
147 10 0	33 45 0
147 10 0	33 30 0
147 00 0	33 30 0

° ' " East	° ' " South
147 00 0	33 00 0
148 00 0	33 00 0
148 00 0	31 00 0

GRAFTON

° ' " East	° ' " South
152 10 0	28 20 0
153 05 0	28 20 0
153 05 0	28 35 0
154 00 0	28 35 0
154 00 0	32 00 0
153 00 0	32 00 0
153 00 0	32 35 0
151 30 0	32 35 0

° ' " East	° ' " South
151 30 0	31 05 0
151 35 0	31 05 0
151 35 0	30 40 0
151 45 0	30 40 0
151 45 0	30 15 0
151 50 0	30 15 0
151 50 0	29 50 0
151 55 0	29 50 0

° ' " East	° ' " South
151 55 0	29 40 0
152 00 0	29 40 0
152 00 0	29 25 0
152 05 0	29 25 0
152 05 0	28 25 0
152 10 0	28 25 0
152 10 0	28 20 0

HOBART

° ' " East	° ' " South
146 45 0	42 20 0
148 00 0	42 20 0

° ' " East	° ' " South
148 00 0	43 35 0
146 45 0	43 35 0

° ' " East	° ' " South
146 45 0	42 20 0

MACKAY

° ' " East	° ' " South
148 00 0	19 00 0
149 00 0	19 00 0
149 00 0	20 00 0
150 00 0	20 00 0

° ' " East	° ' " South
150 00 0	21 00 0
151 00 0	21 00 0
151 00 0	23 00 0
152 00 0	23 00 0

° ' " East	° ' " South
152 00 0	24 00 0
148 00 0	24 00 0
148 00 0	19 00 0

NATIONAL 1 & 2 (cont)

MARYBOROUGH

° ' " East	° ' " South
149 00 0	24 00 0
154 00 0	24 00 0
154 00 0	26 05 0
152 30 0	26 05 0
152 30 0	28 05 0
152 50 0	28 05 0
152 50 0	28 20 0
152 10 0	28 20 0
152 10 0	28 25 0
152 05 0	28 25 0
152 05 0	29 25 0
152 00 0	29 25 0
152 00 0	29 40 0
151 55 0	29 40 0
151 55 0	29 50 0
151 50 0	29 50 0
151 50 0	30 15 0

° ' " East	° ' " South
151 45 0	30 15 0
151 45 0	30 40 0
151 35 0	30 40 0
151 35 0	31 05 0
151 30 0	31 05 0
151 30 0	31 30 0
151 05 0	31 30 0
151 05 0	31 35 0
151 00 0	31 35 0
151 00 0	31 40 0
150 50 0	31 40 0
150 50 0	31 45 0
150 40 0	31 45 0
150 40 0	31 50 0
150 15 0	31 50 0
150 15 0	31 45 0
150 05 0	31 45 0

° ' " East	° ' " South
150 05 0	31 40 0
149 55 0	31 40 0
149 55 0	31 35 0
149 50 0	31 35 0
149 50 0	31 30 0
149 45 0	31 30 0
149 45 0	31 25 0
149 40 0	31 25 0
149 40 0	31 20 0
149 00 0	31 20 0
149 00 0	29 00 0
150 00 0	29 00 0
150 00 0	25 00 0
149 00 0	25 00 0
149 00 0	24 00 0

MELBOURNE - See Regional Vic

PERTH

° ' " East	° ' " South
115 00 0	31 25 0
116 30 0	31 25 0

° ' " East	° ' " South
116 30 0	32 50 0
115 00 0	32 50 0

° ' " East	° ' " South
115 00 0	31 25 0

REGIONAL SA

° ' " East	° ' " South
130 00 0	31 00 0
135 00 0	31 00 0
135 00 0	32 00 0
141 00 0	32 00 0
141 00 0	39 00 0
140 00 0	39 00 0
140 00 0	38 00 0

° ' " East	° ' " South
139 00 0	38 00 0
139 00 0	37 00 0
136 00 0	37 00 0
136 00 0	36 00 0
135 00 0	36 00 0
135 00 0	34 00 0
134 00 0	34 00 0

° ' " East	° ' " South
134 00 0	33 00 0
132 00 0	33 00 0
132 00 0	32 00 0
130 00 0	32 00 0
130 00 0	31 00 0

Including ADELAIDE

° ' " East	° ' " South
138 05 0	34 20 0
139 05 0	34 20 0
139 05 0	34 55 0

° ' " East	° ' " South
139 00 0	34 55 0
139 00 0	35 30 0
138 05 0	35 30 0

° ' " East	° ' " South
138 05 0	34 20 0

NATIONAL 1 & 2 (cont)

REGIONAL VIC

° ' " East	° ' " South
141 00 0	33 00 0
143 00 0	33 00 0
143 00 0	35 25 0
143 20 0	35 25 0
143 20 0	35 45 0
143 35 0	35 45 0
143 35 0	36 00 0
143 50 0	36 00 0
143 50 0	36 15 0
144 20 0	36 15 0
144 20 0	36 30 0
144 45 0	36 30 0
144 45 0	36 40 0
145 40 0	36 40 0
145 40 0	36 55 0
146 10 0	36 55 0

° ' " East	° ' " South
146 10 0	37 05 0
146 45 0	37 05 0
146 45 0	37 00 0
147 15 0	37 00 0
147 15 0	36 50 0
147 45 0	36 50 0
147 45 0	36 45 0
148 15 0	36 45 0
148 15 0	36 50 0
148 25 0	36 50 0
148 25 0	36 55 0
148 40 0	36 55 0
148 40 0	37 00 0
148 45 0	37 00 0
148 45 0	37 05 0
148 55 0	37 05 0

° ' " East	° ' " South
148 55 0	37 10 0
149 20 0	37 10 0
149 20 0	37 15 0
149 30 0	37 15 0
149 30 0	37 20 0
149 45 0	37 20 0
149 45 0	37 25 0
150 00 0	37 25 0
150 00 0	38 00 0
149 00 0	38 00 0
149 00 0	40 00 0
143 00 0	40 00 0
143 00 0	39 00 0
141 00 0	39 00 0
141 00 0	33 00 0

Including MELBOURNE

° ' " East	° ' " South
144 45 0	37 20 0
145 05 0	37 20 0
145 05 0	37 25 0
145 15 0	37 25 0
145 15 0	37 30 0
145 20 0	37 30 0
145 20 0	37 35 0

° ' " East	° ' " South
145 35 0	37 35 0
145 35 0	37 45 0
145 45 0	37 45 0
145 45 0	38 15 0
145 25 0	38 15 0
145 25 0	38 45 0
144 05 0	38 45 0

° ' " East	° ' " South
144 05 0	37 55 0
144 10 0	37 55 0
144 10 0	37 50 0
144 15 0	37 50 0
144 15 0	37 25 0
144 45 0	37 25 0
144 45 0	37 20 0

REGIONAL TAS

° ' " East	° ' " South
143 00 0	40 00 0
149 00 0	40 00 0
149 00 0	44 00 0

° ' " East	° ' " South
145 00 0	44 00 0
145 00 0	42 00 0
144 00 0	42 00 0

° ' " East	° ' " South
144 00 0	41 00 0
143 00 0	41 00 0
143 00 0	40 00 0

NATIONAL 1 & 2 (cont)

REGIONAL WA

° ' " East	° ' " South
113 00 0	28 00 0
117 00 0	28 00 0
117 00 0	30 00 0
118 00 0	30 00 0
118 00 0	32 00 0
119 00 0	32 00 0
119 00 0	36 00 0

° ' " East	° ' " South
116 00 0	36 00 0
116 00 0	35 00 0
114 00 0	35 00 0
114 00 0	33 00 0
115 00 0	33 00 0
115 00 0	32 50 0
116 30 0	32 50 0

° ' " East	° ' " South
116 30 0	31 25 0
115 00 0	31 25 0
115 00 0	31 00 0
114 00 0	31 00 0
114 00 0	29 00 0
113 00 0	29 00 0
113 00 0	28 00 0

SYDNEY

° ' " East	° ' " South
151 05 0	32 35 0
153 00 0	32 35 0
153 00 0	33 00 0
152 00 0	33 00 0
152 00 0	35 00 0

° ' " East	° ' " South
150 30 0	35 00 0
150 30 0	34 35 0
150 20 0	34 35 0
150 20 0	34 00 0
150 00 0	34 00 0

° ' " East	° ' " South
150 00 0	33 20 0
150 55 0	33 20 0
150 55 0	33 05 0
151 05 0	33 05 0
151 05 0	32 35 0

End of National 1 & 2

CAIRNS 1 & 2

CAIRNS

° ' " East	° ' " South
145 00 0	16 00 0
147 00 0	16 00 0
147 00 0	19 00 0

° ' " East	° ' " South
148 00 0	19 00 0
148 00 0	21 00 0
146 00 0	21 00 0

° ' " East	° ' " South
146 00 0	19 00 0
145 00 0	19 00 0
145 00 0	16 00 0

MACKAY 1 & 2

MACKAY

° ' " East	° ' " South
148 00 0	19 00 0
149 00 0	19 00 0
149 00 0	20 00 0
150 00 0	20 00 0

° ' " East	° ' " South
150 00 0	21 00 0
151 00 0	21 00 0
151 00 0	23 00 0
152 00 0	23 00 0

° ' " East	° ' " South
152 00 0	24 00 0
148 00 0	24 00 0
148 00 0	19 00 0

MARYBOROUGH 1 & 2

MARYBOROUGH

° ' " East	° ' " South
149 00 0	24 00 0
154 00 0	24 00 0
154 00 0	26 05 0
152 30 0	26 05 0
152 30 0	28 05 0
152 50 0	28 05 0
152 50 0	28 20 0
152 10 0	28 20 0
152 10 0	28 25 0
152 05 0	28 25 0
152 05 0	29 25 0
152 00 0	29 25 0
152 00 0	29 40 0
151 55 0	29 40 0
151 55 0	29 50 0
151 50 0	29 50 0
151 50 0	30 15 0

° ' " East	° ' " South
151 45 0	30 15 0
151 45 0	30 40 0
151 35 0	30 40 0
151 35 0	31 05 0
151 30 0	31 05 0
151 30 0	31 30 0
151 05 0	31 30 0
151 05 0	31 35 0
151 00 0	31 35 0
151 00 0	31 40 0
150 50 0	31 40 0
150 50 0	31 45 0
150 40 0	31 45 0
150 40 0	31 50 0
150 15 0	31 50 0
150 15 0	31 45 0
150 05 0	31 45 0

° ' " East	° ' " South
150 05 0	31 40 0
149 55 0	31 40 0
149 55 0	31 35 0
149 50 0	31 35 0
149 50 0	31 30 0
149 45 0	31 30 0
149 45 0	31 25 0
149 40 0	31 25 0
149 40 0	31 20 0
149 00 0	31 20 0
149 00 0	29 00 0
150 00 0	29 00 0
150 00 0	25 00 0
149 00 0	25 00 0
149 00 0	24 00 0

DUBBO 1 & 2

DUBBO

° ' " East	° ' " South
148 00 0	31 00 0
149 00 0	31 00 0
149 00 0	31 20 0
149 40 0	31 20 0
149 40 0	31 25 0
149 45 0	31 25 0
149 45 0	31 30 0
149 50 0	31 30 0
149 50 0	31 35 0
149 55 0	31 35 0
149 55 0	31 40 0
150 05 0	31 40 0
150 05 0	31 45 0
150 15 0	31 45 0
150 15 0	31 50 0
150 40 0	31 50 0
150 40 0	31 45 0
150 50 0	31 45 0
150 50 0	31 40 0
151 00 0	31 40 0

° ' " East	° ' " South
151 00 0	31 35 0
151 05 0	31 35 0
151 05 0	31 30 0
151 30 0	31 30 0
151 30 0	32 35 0
151 05 0	32 35 0
151 05 0	33 05 0
150 55 0	33 05 0
150 55 0	33 20 0
150 00 0	33 20 0
150 00 0	34 15 0
149 45 0	34 15 0
149 45 0	34 25 0
149 35 0	34 25 0
149 35 0	34 40 0
149 30 0	34 40 0
149 30 0	34 50 0
148 30 0	34 50 0
148 30 0	34 40 0
148 20 0	34 40 0

° ' " East	° ' " South
148 20 0	34 35 0
148 10 0	34 35 0
148 10 0	34 30 0
148 00 0	34 30 0
148 00 0	34 25 0
147 50 0	34 25 0
147 50 0	34 15 0
147 40 0	34 15 0
147 40 0	34 05 0
147 30 0	34 05 0
147 30 0	33 55 0
147 20 0	33 55 0
147 20 0	33 45 0
147 10 0	33 45 0
147 10 0	33 30 0
147 00 0	33 30 0
147 00 0	33 00 0
148 00 0	33 00 0
148 00 0	31 00 0

ALBURY 1 & 2

ALBURY

° ' " East	° ' " South
147 00 0	33 30 0
147 10 0	33 30 0
147 10 0	33 45 0
147 20 0	33 45 0
147 20 0	33 55 0
147 30 0	33 55 0
147 30 0	34 05 0
147 40 0	34 05 0
147 40 0	34 15 0
147 50 0	34 15 0
147 50 0	34 25 0
148 00 0	34 25 0
148 00 0	34 30 0
148 10 0	34 30 0
148 10 0	34 35 0
148 20 0	34 35 0
148 20 0	34 40 0
148 30 0	34 40 0
148 30 0	34 50 0
148 45 0	34 50 0
148 45 0	35 50 0
149 30 0	35 50 0
149 30 0	34 40 0
149 35 0	34 40 0
149 35 0	34 25 0
149 45 0	34 25 0

° ' " East	° ' " South
149 45 0	34 15 0
150 00 0	34 15 0
150 00 0	34 00 0
150 20 0	34 00 0
150 20 0	34 35 0
150 30 0	34 35 0
150 30 0	35 00 0
151 00 0	35 00 0
151 00 0	38 00 0
150 00 0	38 00 0
150 00 0	37 25 0
149 45 0	37 25 0
149 45 0	37 20 0
149 30 0	37 20 0
149 30 0	37 15 0
149 20 0	37 15 0
149 20 0	37 10 0
148 55 0	37 10 0
148 55 0	37 05 0
148 45 0	37 05 0
148 45 0	37 00 0
148 40 0	37 00 0
148 40 0	36 55 0
148 25 0	36 55 0
148 25 0	36 50 0
148 15 0	36 50 0

° ' " East	° ' " South
148 15 0	36 45 0
147 45 0	36 45 0
147 45 0	36 50 0
147 15 0	36 50 0
147 15 0	37 00 0
146 45 0	37 00 0
146 45 0	37 05 0
146 10 0	37 05 0
146 10 0	36 55 0
145 40 0	36 55 0
145 40 0	36 40 0
144 45 0	36 40 0
144 45 0	36 30 0
144 20 0	36 30 0
144 20 0	36 15 0
143 50 0	36 15 0
143 50 0	36 00 0
143 35 0	36 00 0
143 35 0	35 45 0
143 20 0	35 45 0
143 20 0	35 25 0
143 00 0	35 25 0
143 00 0	34 00 0
147 00 0	34 00 0
147 00 0	33 30 0

REGIONAL VIC 1 & 2

REGIONAL VIC

° ' " East	° ' " South
141 00 0	33 00 0
143 00 0	33 00 0
143 00 0	35 25 0
143 20 0	35 25 0
143 20 0	35 45 0
143 35 0	35 45 0
143 35 0	36 00 0
143 50 0	36 00 0
143 50 0	36 15 0
144 20 0	36 15 0
144 20 0	36 30 0
144 45 0	36 30 0
144 45 0	36 40 0
145 40 0	36 40 0
145 40 0	36 55 0
146 10 0	36 55 0

° ' " East	° ' " South
146 10 0	37 05 0
146 45 0	37 05 0
146 45 0	37 00 0
147 15 0	37 00 0
147 15 0	36 50 0
147 45 0	36 50 0
147 45 0	36 45 0
148 15 0	36 45 0
148 15 0	36 50 0
148 25 0	36 50 0
148 25 0	36 55 0
148 40 0	36 55 0
148 40 0	37 00 0
148 45 0	37 00 0
148 45 0	37 05 0
148 55 0	37 05 0

° ' " East	° ' " South
148 55 0	37 10 0
149 20 0	37 10 0
149 20 0	37 15 0
149 30 0	37 15 0
149 30 0	37 20 0
149 45 0	37 20 0
149 45 0	37 25 0
150 00 0	37 25 0
150 00 0	38 00 0
149 00 0	38 00 0
149 00 0	40 00 0
143 00 0	40 00 0
143 00 0	39 00 0
141 00 0	39 00 0
141 00 0	33 00 0

But Not Including the MELBOURNE area

° ' " East	° ' " South
144 45 0	37 20 0
145 05 0	37 20 0
145 05 0	37 25 0
145 15 0	37 25 0
145 15 0	37 30 0
145 20 0	37 30 0
145 20 0	37 35 0

° ' " East	° ' " South
145 35 0	37 35 0
145 35 0	37 45 0
145 45 0	37 45 0
145 45 0	38 15 0
145 25 0	38 15 0
145 25 0	38 45 0
144 05 0	38 45 0

° ' " East	° ' " South
144 05 0	37 55 0
144 10 0	37 55 0
144 10 0	37 50 0
144 15 0	37 50 0
144 15 0	37 25 0
144 45 0	37 25 0
144 45 0	37 20 0

REGIONAL TAS 1 & 2

REGIONAL TAS

° ' " East	° ' " South
143 00 0	40 00 0
149 00 0	40 00 0
149 00 0	44 00 0

° ' " East	° ' " South
145 00 0	44 00 0
145 00 0	42 00 0
144 00 0	42 00 0

° ' " East	° ' " South
144 00 0	41 00 0
143 00 0	41 00 0
143 00 0	40 00 0

REGIONAL SA 1 & 2

REGIONAL SA

° ' " East	° ' " South
130 00 0	31 00 0
135 00 0	31 00 0
135 00 0	32 00 0
141 00 0	32 00 0
141 00 0	39 00 0
140 00 0	39 00 0
140 00 0	38 00 0

° ' " East	° ' " South
139 00 0	38 00 0
139 00 0	37 00 0
136 00 0	37 00 0
136 00 0	36 00 0
135 00 0	36 00 0
135 00 0	34 00 0
134 00 0	34 00 0

° ' " East	° ' " South
134 00 0	33 00 0
132 00 0	33 00 0
132 00 0	32 00 0
130 00 0	32 00 0
130 00 0	31 00 0

But Not Including the ADELAIDE area

° ' " East	° ' " South
138 05 0	34 20 0
139 05 0	34 20 0
139 05 0	34 55 0

° ' " East	° ' " South
139 00 0	34 55 0
139 00 0	35 30 0
138 05 0	35 30 0

° ' " East	° ' " South
138 05 0	34 20 0

REGIONAL WA 1 & 2

REGIONAL WA

° ' " East	° ' " South
113 00 0	28 00 0
117 00 0	28 00 0
117 00 0	30 00 0
118 00 0	30 00 0
118 00 0	32 00 0
119 00 0	32 00 0
119 00 0	36 00 0

° ' " East	° ' " South
116 00 0	36 00 0
116 00 0	35 00 0
114 00 0	35 00 0
114 00 0	33 00 0
115 00 0	33 00 0
115 00 0	32 50 0
116 30 0	32 50 0

° ' " East	° ' " South
116 30 0	31 25 0
115 00 0	31 25 0
115 00 0	31 00 0
114 00 0	31 00 0
114 00 0	29 00 0
113 00 0	29 00 0
113 00 0	28 00 0

SCHEDULE 3

Sections 1.4, 2.2, 2.4, 2.5

DESCRIPTION OF LOTS

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Lot number	Name	Lot rating	Lower bound (MHz)	Upper bound (MHz)			Bandwidth (MHz)
1	Capital city 1	75	1900	1905			5
2	Capital city 2	75	1905	1910			5
3	Sydney 1	25	1910	1915			5
4	Melbourne 1	20	1910	1915			5
5	Brisbane 1	12	1910	1915			5
6	Adelaide 1	6	1910	1915			5
7	Perth 1	7	1910	1915			5
8	Hobart 1	2	1910	1915			5
9	Darwin 1	1	1910	1915			5
10	Canberra 1	2	1910	1915			5
11	Sydney 2	25	1915	1920			5
12	Melbourne 2	20	1915	1920			5
13	Brisbane 2	12	1915	1920			5
14	Adelaide 2	6	1915	1920			5
15	Perth 2	7	1915	1920			5

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16	Hobart 2	2	1915	1920			5
17	Darwin 2	1	1915	1920			5
18	Canberra 2	2	1915	1920			5
19	Sydney 3	500	1920	1930	2110	2120	10
20	Melbourne 3	400	1920	1930	2110	2120	10
21	Brisbane 3	240	1920	1930	2110	2120	10
22	Adelaide 3	120	1920	1930	2110	2120	10
23	Perth 3	140	1920	1930	2110	2120	10
24	Hobart 3	40	1920	1930	2110	2120	10
25	Darwin 3	20	1920	1930	2110	2120	10
26	Sydney 4	250	1930	1935	2120	2125	5
27	Melbourne 4	200	1930	1935	2120	2125	5
28	Brisbane 4	120	1930	1935	2120	2125	5
29	Adelaide 4	60	1930	1935	2120	2125	5
30	Perth 4	70	1930	1935	2120	2125	5
31	Hobart 4	20	1930	1935	2120	2125	5
32	Darwin 4	10	1930	1935	2120	2125	5
33	Capital city 3	750	1935	1940	2125	2130	5
34	Capital city 4	1,500	1940	1950	2130	2140	10
35	National 1	1,750	1950 1960**	1960 1965**	2140 2150**	2150 2155**	10 5**
36	Capital city 5	750	1960	1965	2150	2155	5
37	Capital city 6	750	1965	1970	2155	2160	5
38	National 2	1,750	1970 1975**	1980 1980**	2160 2165**	2170 2170**	10 5**
39	Cairns 1	20	1965	1970	2155	2160	5
40	Mackay 1	20	1965	1970	2155	2160	5

Radiocommunications Spectrum Marketing Plan (2 GHz Band) 2000

41	Maryborough 1	30	1965	1970	2155	2160	5
42	Grafton 1	20	1965	1970	2155	2160	5
43	Dubbo 1	20	1965	1970	2155	2160	5
44	Albury 1	40	1965	1970	2155	2160	5
45	Regional VIC 1	50	1965	1970	2155	2160	5
46	Regional TAS 1	20	1965	1970	2155	2160	5
47	Regional SA 1	20	1965	1970	2155	2160	5
48	Regional WA 1	10	1965	1970	2155	2160	5
49	Cairns 2	20	1970	1975	2160	2165	5
50	Mackay 2	20	1970	1975	2160	2165	5
51	Maryborough 2	30	1970	1975	2160	2165	5
52	Grafton 2	20	1970	1975	2160	2165	5
53	Dubbo 2	20	1970	1975	2160	2165	5
54	Albury 2	40	1970	1975	2160	2165	5
55	Regional VIC 2	50	1970	1975	2160	2165	5
56	Regional TAS 2	20	1970	1975	2160	2165	5
57	Regional SA 2	20	1970	1975	2160	2165	5
58	Regional WA 2	10	1970	1975	2160	2165	5

** Applies to designated areas outside the eight capital cities

SCHEDULE 4

Section 2.10

SAMPLE LICENCE

This Schedule sets out a sample spectrum licence, and the conditions that may be included in a spectrum licence, issued in the parts of the spectrum that are subject to the re-allocation declaration. The frequency and the technical details are examples only.

COMMONWEALTH OF AUSTRALIA

AUSTRALIAN COMMUNICATIONS AUTHORITY

Radiocommunications Act 1992

Sample Spectrum Licence

This licence is issued under Part 3.2 of the *Radiocommunications Act 1992* ('the Act') by the person named at Item 8 of Schedule 1 of this licence.

1. The person named at Item 1 of Schedule 1 of this licence ('the licensee'), or a person authorised under subsection 68(1) of the Act, is authorised to operate radiocommunications devices in accordance with:
 - (a) the Act; and
 - (b) the core conditions set out in Schedule 2; and
 - (c) the statutory conditions set out in Schedule 3; and
 - (d) the core conditions specifying periods of operation, and the other conditions, if any, included in this licence by the ACA and set out in Schedule 2.
2. This licence comes into force on the date shown at Item 4 of Schedule 1 and remains in force until the end of the day shown at Item 5 of Schedule 1.
3. Unless the contrary intention appears, terms and expressions used in this Licence have the meaning given to them by the *Radiocommunications Spectrum Marketing Plan (2 GHz Band) 2000*.

Licensee:

Client Number:

Band Release: **2 GHz Upper Band A**

Licence Number:

SCHEDULE 4 (continued)

LICENCE SCHEDULE 1 Part 2 (continued)

Item	Core Condition - Emission Limits Outside the Band <i>(these are worked out in accordance with Schedule 6 of the Marketing Plan)</i>	
13	<i>Range of offsets for core condition 10(a)</i>	0 to 0.75 MHz
14	<i>Maximum true mean power for core condition 10(a)</i>	12 dBm per 30 kHz
15	<i>Range of offsets for core condition 10(b)</i>	0 to 0.75 MHz
16	<i>Maximum true mean power for core condition 10(b)</i>	12 dBm per 30 kHz
17	<i>Range of offsets for core condition 10(c)</i>	0.75 to 1.0 MHz
18	<i>Maximum true mean power for core condition 10(c)</i>	2 dBm per 30 kHz
19	<i>Range of offsets for core condition 10(d)</i>	0.75 to 1.0 MHz
20	<i>Maximum true mean power for core condition 10(d)</i>	2 dBm per 30 kHz
21	<i>Range of offsets for core condition 10(e)</i>	1 MHz to 5 MHz
22	<i>Maximum true mean power for core condition 10(e)</i>	-9 dBm per 30 kHz
23	<i>Range of offsets for core condition 10(f)</i>	1 MHz to 5 MHz
24	<i>Maximum true mean power for core condition 10(f)</i>	-9 dBm per 30 kHz
25	<i>Range of offsets for core condition 10(g)</i>	Greater than 5.0 MHz
26	<i>Maximum true mean power for core condition 10(g)</i>	-16 dBm per 30 kHz
27	<i>Range of offsets for core condition 10(h)</i>	Greater than 5.0 MHz
28	<i>Maximum true mean power for core condition 10(h)</i>	-16 dBm per 30 kHz
29	<i>Band for core condition 11(a)</i>	9 kHz to 150 kHz
30	<i>Mean power for core condition 11(a)</i>	-36 dBm per 1 kHz
31	<i>Band for core condition 11(b)</i>	150 kHz to 30 MHz
32	<i>Mean power for core condition 11(b)</i>	-36 dBm per 10 kHz
33	<i>Band for core condition 11(c)</i>	30 MHz to 1 GHz
34	<i>Mean power for core condition 11(c)</i>	-36 dBm per 100 kHz

Radiocommunications Spectrum Marketing Plan (2 GHz Band) 2000

35	<i>Band for core condition 11(d)</i>	1 GHz to 3.7 GHz
36	<i>Mean power for core condition 11(d)</i>	-11 dBm per 100 kHz
37	<i>Band for core condition 11(e)</i>	3.7 GHz to 12.75 GHz
38	<i>Mean power for core condition 11(e)</i>	-30 dBm per 100 kHz
39	<i>Band for core condition 12(a)</i>	9 kHz to 1 GHz
40	<i>Mean power for core condition 12(a)</i>	-57 dBm per 100 kHz
41	<i>Band for core condition 12(b)</i>	1 GHz to 3.7 GHz
42	<i>Mean power for core condition 12(b)</i>	-23 dBm per 100 kHz
43	<i>Band for core condition 12(c)</i>	3.7 to 12.75 GHz
44	<i>Mean power for core condition 12(c)</i>	-47 dBm per 100 kHz

Device Registration

45	<i>Section 145 Determination for registration of transmitters</i>	<i>Radiocommunications (Unacceptable Levels of Interference - 2 GHz Band) Determination 2000</i>
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SCHEDULE 4 (continued)

LICENCE SCHEDULE 1

Part 3 - Geographic Area

Core Condition - Geographic Area of Licence

For core condition 2, the area or aggregate of areas within which operation of radiocommunications devices is authorised by this licence is that area of land described by the aggregation of rectangular areas, each having:

- (a) a North to South (Latitude) and East to West (Longitude) orientation; and
- (b) a South West corner that is represented by a geographic coordinate set out in column 1 in the table below; and
- (c) a North East corner that is represented by a geographic coordinate set out in column 2 opposite to the coordinate set out in column 1.

Column 1		Column 2	
<u>° ' " South</u>	<u>° ' " West</u>	<u>° ' " North</u>	<u>° ' " East</u>
43:35:00	148:00:00	42:20:00	146:45:00

SCHEDULE 4 (continued)

LICENCE SCHEDULE 2

CORE CONDITIONS

Frequency Band

1. This licence authorises the operation of radiocommunications devices in the frequency band that consists of the contiguous range of frequencies between the upper and lower frequency limits set out in Items 9 and 10 of Part 2 of Schedule 1, respectively.

Geographic Area

2. This licence authorises the operation of radiocommunications devices in the geographic area set out at Part 3 of Schedule 1.

Emission Limits Outside the Area

3. Core conditions 4 and 5 apply in those geographic areas :
 - (a) that are outside the geographic areas set out at Part 3 of Schedule 1; and
 - (b) for which there is no agreement for the purposes of core condition 7 in force; and
 - (c) for which the licensee does not hold another spectrum licence in the 2 GHz band.
4. For in-band radio emissions, the emission limits in a geographic area to which this condition applies are:
 - (a) for a terrestrial transmitter, the transmitter horizontally radiated power set out at Item 11 of Part 2 of Schedule 1; and
 - (b) for a HAPS transmitter, the transmitter radiated power set out at Item 12 of Part 2 of Schedule 1.
5. The level of emission in a geographic area to which this condition applies is to be estimated with a level of confidence not less than 95 percent that the true level of emission remains below the relevant emission limit plus 2 dB.

[Notes:

1. This core condition is designed to assist technological neutrality and at all times limits the power spectral density of a terrestrial transmitter located anywhere within the geographic area of the licence to a specified EIRP in a rectangular bandwidth of 30 kHz. The limit has an important function in the management of receiver intermodulation. It also limits the power flux density of signals present on the earth's surface outside the area, caused by high altitude platform stations. There may be additional constraints on radiated power caused by the device boundary criterion of the relevant s.145 Determination or the compatibility requirements of related Advisory Guidelines.

SCHEDULE 4 (continued)

LICENCE SCHEDULE 2 (continued)

CORE CONDITIONS (continued)

Except where the occupied bandwidth of a transmitter is less than 30 kHz, the core condition does not place a limit on the total radiated power for a transmitter. However, total radiated power is limited indirectly by:

- (a) the cost of high power amplifiers;
- (b) the general requirement to use low powers in cellular systems; and
- (c) the emission limits outside the band becoming increasingly difficult to satisfy as total transmitter power increases.]

6. Core condition 7 applies in those geographic areas that are outside the geographic areas set out at Part 3 of Schedule 1 and:
 - (a) for which there is an agreement in force for the purposes of that core condition; or
 - (b) for which the licensee holds another spectrum licence in the 2 GHz band.
7. The emission limits outside the area are the level that does not cause the core emission limits to be exceeded in any geographic area:
 - (a) for which there is no agreement for the purposes of this core condition in force; and
 - (b) for which the licensee does not hold another spectrum licence in the 2 GHz band.

Emission Limits Outside the Band

8. Core conditions 9-13 (inclusive) apply in those parts of the spectrum:
 - (a) for which there is no agreement for the purposes of core condition 15 in force; and
 - (b) for which the licensee does not hold another spectrum licence in the 2 GHz band.
9. The following maximum permitted levels of emission outside the frequency band of the licence apply except where:
 - (a) a written agreement exists, between the licensee and all the affected licensees of frequency-adjacent spectrum licences, setting out increased maximum permitted levels; and
 - (b) if non-spectrum licensed space is affected, the licensee provides written agreement to increase maximum permitted levels to the ACA and the ACA has varied the relevant licence conditions.

SCHEDULE 4 (continued)

LICENCE SCHEDULE 2 (continued)

CORE CONDITIONS (*continued*)

10. For radio emission that is not spurious emission, caused by transmitters, at frequencies outside the frequency band of the licence, the emission limits outside the band are:
- (a) for frequency bands only containing frequencies that are removed from the upper frequency limit of the frequency band of the licence by offsets within the range set out at Item 13 of Part 2 of Schedule 1 - the radiated maximum true mean power is set out at Item 14 of Part 2 of Schedule 1 of this licence; and
 - (b) for frequency bands only containing frequencies that are removed from the lower frequency limit of the licence by offsets within the range set out at Item 15 of Part 2 of Schedule 1 - the radiated maximum true mean power is set out at Item 16 of Part 2 of Schedule 1 of this licence; and
 - (c) for frequency bands only containing frequencies that are removed from the upper frequency limit of the licence by offsets within the range set out at Item 17 of Part 2 of Schedule 1 - the radiated maximum true mean power is set out at Item 18 of Part 2 of Schedule 1 of this licence; and
 - (d) for frequency bands only containing frequencies that are removed from the lower frequency limit of the licence by offsets within the range set out at Item 19 of Part 2 of Schedule 1 - the radiated maximum true mean power is set out at Item 20 of Part 2 of Schedule 1 of this licence; and
 - (e) for frequency bands only containing frequencies that are removed from the upper frequency limit of the licence by offsets within the range set out at Item 21 of Part 2 of Schedule 1 - the radiated maximum true mean power is set out at Item 22 of Part 2 of Schedule 1 of this licence; and
 - (f) for frequency bands only containing frequencies that are removed from the lower frequency limit of the licence by offsets within the range set out at Item 23 of Part 2 of Schedule 1 - the radiated maximum true mean power is set out at Item 24 of Part 2 of Schedule 1 of this licence; and
 - (g) for frequency bands only containing frequencies that are removed from the upper frequency limit of the licence by offsets within the range set out at Item 25 of Part 2 of Schedule 1 - the radiated maximum true mean power is set out at Item 26 of Part 2 of Schedule 1 of this licence; and

SCHEDULE 4 (continued)

LICENCE SCHEDULE 2 (continued)

CORE CONDITIONS (continued)

- (h) for frequency bands only containing frequencies that are removed from the lower frequency limit of the licence by offsets within the range set out at Item 27 of Part 2 of Schedule 1 - the radiated maximum true mean power is set out at Item 28 of Part 2 of Schedule 1 of this licence.
11. For radio emission that is spurious emission from transmitters at frequencies outside the frequency band of the licence, the emission limits outside the band are:
- (a) a radiated mean power set out at Item 30 of Part 2 of Schedule 1 and measured within a 1 kHz rectangular bandwidth that is within the band set out at Item 29 of Part 2 of Schedule 1 of this licence; and
 - (b) a radiated mean power set out at Item 32 of Part 2 of Schedule 1 and measured within a 10 kHz rectangular bandwidth that is within the band set out at Item 31 of Part 2 of Schedule 1 of this licence; and
 - (c) a radiated mean power set out at Item 34 of Part 2 of Schedule 1 and measured within a 100 kHz rectangular bandwidth that is within the band set out at Item 33 of Part 2 of Schedule 1 of this licence; and
 - (d) a radiated mean power set out at Item 36 of Part 2 of Schedule 1 and measured within a 100 kHz rectangular bandwidth that is within the band set out at Item 35 of Part 2 of Schedule 1 of this licence; and
 - (e) a radiated mean power set out at Item 38 of Part 2 of Schedule 1 and measured within a 100 kHz rectangular bandwidth that is within the band set out at Item 37 of Part 2 of Schedule 1 of this licence.
12. For radio emission caused by receivers, the emission limits outside the band are:
- (a) a radiated mean power set out at Item 40 of Part 2 of Schedule 1 and measured within a 100 kHz rectangular bandwidth that is within the band set out at Item 39 of Part 2 of Schedule 1 of this licence; and
 - (b) a radiated mean power set out at Item 42 of Part 2 of Schedule 1 and measured within a 100 kHz rectangular bandwidth that is within the band set out at Item 41 of Part 2 of Schedule 1 of this licence; and
 - (c) a radiated mean power set out at Item 44 of Part 2 of Schedule 1 and measured within a 100 kHz rectangular bandwidth that is within the band set out at Item 43 of Part 2 of Schedule 1 of this licence.
13. The level of emission outside the band of the licence is to be estimated with a level of confidence not less than 95 percent that the true level of emission remains below the relevant emission limit plus 2 dB.

SCHEDULE 4 (continued)

LICENCE SCHEDULE 2 (continued)

CORE CONDITIONS (continued)

14. Core condition 15 applies in that part of the spectrum:
 - (a) for which there is an agreement in force for the purposes of that core condition; or
 - (b) for which the licensee holds another spectrum licence in the 2 GHz band.
 15. The emission limits outside the band are the level that does not cause the emission limits in this Schedule to be exceeded in any part of the spectrum:
 - (a) for which there is no agreement for the purposes of this core condition in force; and
 - (b) for which the licensee does not hold another spectrum licence in the 2 GHz band.
-

SCHEDULE 4 (continued)

LICENCE SCHEDULE 3

STATUTORY CONDITIONS

Liability To Pay Charges

1. The licensee must meet all obligations to pay charges fixed by determinations made under section 294 of the Act and section 53(1) of the *Australian Communications Authority Act 1997*.

Third Party Use

2. (1) The licensee must notify any person authorised to operate radiocommunications devices under the licence of that person's obligations under the Act, in particular of any registration requirements under Part 3.5 of the Act for operation of radiocommunications devices under the licence, and any rules about third party use made under section 68(3) of the Act.
(2) Each operation of a radiocommunications device under the licence by a person other than the licensee must comply with rules made by the ACA under section 68(3) of the Act.

Transmitter Registration Requirements

3. The licensee must not operate a transmitter under this licence unless:
 - (a) the transmitter has been exempted from the registration requirements under clause 4, or:
 - (b) both:
 - (i) the requirements of the ACA under Part 3.5 of the Act relating to registration of the transmitter have been met; and
 - (ii) the transmitter complies with the details about it that have been entered in the Register.

Exemption From Registration Requirements

4. The following kinds of transmitters do not have to be registered:
 - (a) a mobile or indoor fixed transmitter that operates in the 2 GHz band with a radiated true mean power within its effective occupied band that is always less than or equal to 25 dBm EIRP per 30 kHz.

[Notes:

1. The *Radiocommunications (Unacceptable Levels of Interference - 2 GHz Band) Determination 2000* sets out the unacceptable levels of interference for the purpose of registering transmitters to be operated under this licence, and is to be used for the issue of certificates by accredited persons under section 145(3) of the Act .
2. Although not mandatory, the registration of receivers is advised because one of the matters the ACA will take into account in settling interference is the time of registration of the receiver involved in the interference.]

SCHEDULE 4 (continued)

LICENCE SCHEDULE 3 (continued)

STATUTORY CONDITIONS (continued)

Residency etc

5. (a) At all times when the licensee derives income, profits or gains from operating radiocommunications devices under this licence or from authorising others to do so:
- the licensee must be an Australian resident; or
 - the income, profits or gains must be attributable to a permanent establishment in Australia through which the licensee carries on business.
- (b) At all times when an authorised person derives income, profits or gains from allowing third parties to operate radiocommunications devices under the licence, either:
- the authorised person must be an Australian resident; or
 - the income, profits or gains must be attributable to a permanent establishment in Australia through which the authorised person carries on business.
- (c) In this condition:

Australian resident has the same meaning as in the *Income Tax Assessment Act 1997*.

authorised person means a person authorised under section 68 of the *Radiocommunications Act 1992* by the licensee to operate radiocommunications devices under this licence.

permanent establishment has the same meaning as in:

- if the licensee or authorised person (as appropriate) is a resident of a country or other jurisdiction with which Australia has an agreement, within the meaning of the *International Tax Agreements Act 1953*—that agreement; or
- in any other case—the *Income Tax Assessment Act 1997*.

SCHEDULE 4 (continued)

LICENCE SCHEDULE 4

CONDITIONS INCLUDED BY THE ACA

Interference management

1. In this licence:

“manage interference” includes:

- (a) investigating the possible causes of the interference; and
- (b) taking all steps reasonably necessary to resolve disputes about interference where more than 1 person is involved; and
- (c) taking steps (or requiring persons authorised to operate devices under this licence to take steps) reasonably likely to reduce interference to acceptable levels; and
- (d) negotiating with other persons to reduce interference to acceptable levels.

Responsibility to manage interference

2. The licensee must manage:

- (a) interference between radiocommunications devices operated under this licence; and
- (b) interference between radiocommunications devices operated under this licence and under each other spectrum licence held by the licensee.

Co-sited devices

3. Interference can occur between radiocommunications devices that are co-sited. If:

- (a) interference occurs between a radiocommunications device operated under this licence and any other radiocommunications device located within 200 metres of the first device, and the interference is measured by reference to the location of the phase centre of the antenna used with each device; and
- (b) the interference does not occur because a radiocommunications device is operated in a manner that does not comply with the conditions of the relevant licence; and
- (c) either the licensee or the holder (or third party authorisee) of the other licence wishes to resolve the interference;

SCHEDULE 4 (continued)

LICENCE SCHEDULE 4 (continued)

CONDITIONS INCLUDED BY THE ACA (continued)

the licensee must take reasonable steps to negotiate arrangements reasonably likely to reduce the interference to acceptable levels with:

- (d) the holder of the other licence; or
- (e) if a site manager is responsible for managing interference at that location, that site manager.

Information for Register

4. The licensee must give the ACA all information the ACA requires from time to time for inclusion in the Register.

International coordination

5. If operation of a transmitter under this licence causes harmful interference to a receiver that operates in accordance with International Telecommunication Union Radio Regulations and that is located in a country other than Australia, the transmission must cease.

Agreements for purpose of core conditions

6. A licensee may enter into an agreement for the purpose of:
 - (a) core condition 7 (about emission limits outside the geographic area of this licence); or
 - (b) core condition 15 (about emission limits outside the frequency band of this licence); or
 - (c) both of those core conditions.

The agreement must be in accordance with the form set out in Schedule 5 to this Licence.

SCHEDULE 4 (continued)

LICENCE SCHEDULE 5

FORM OF AGREEMENT FOR CORE CONDITIONS

AGREEMENT made [*insert date*]

BETWEEN A [*insert name of party*] and B [*insert name of party*].

1. BACKGROUND

A holds spectrum licence [*details of A's licence*].

B holds spectrum licence [*details of B's licence*].

2. B agrees with A for [core condition 7 *or* core condition 15 *or* core conditions 7 and 15] of A's licence in relation to B's licence.

3. B may terminate this licence at will by notice in writing given to A.

SIGNED on behalf of A:

SIGNED on behalf of B:

SCHEDULE 4 (continued)

LICENCE NOTES

Variation to licence conditions

1. The ACA may, with the written agreement of the licensee, vary this licence by including 1 or more further conditions, or revoking or varying any conditions of the licence. However, the conditions as varied must still comply with the requirements about licence conditions in Subdivision C of Division 1 of Part 3.2 of the Act.
2. The ACA may, by written notice given to the licensee, vary this licence by including 1 or more further conditions or revoking or varying any non core conditions of the licence. However, the licence as varied must still comply with the requirements about licence conditions in Subdivision C of Division 1 of Part 3.2 of the Act.

Guidelines

3. The ACA has issued written Advisory Guidelines under section 262 of the Act about:
 - (a) co-ordinating the operation of transmitters under this licence with apparatus-licensed or class licensed receivers:
 - *Radiocommunications Advisory Guidelines (Protection of Apparatus-licensed and Class-licensed Receivers - 2 GHz Band) 2000*; and
 - (b) co-ordinating the operation of apparatus licensed or class licensed transmitters with receivers operated in the space of spectrum licences:
 - *Radiocommunications Advisory Guidelines (Managing Interference from Apparatus-licensed and Class-licensed Transmitters - 2 GHz Band) 2000*; and
 - (c) ways in which a device can be registered although it does not comply with the requirements of the *Radiocommunications (Unacceptable Levels of Interference - 2 GHz Band) Determination 2000*:
 - *Radiocommunications Advisory Guidelines (Registration of Devices under Spectrum Licences without an Interference Impact Statement) 1998*.
4. The guidelines should be read in conjunction with the *Radiocommunications (Unacceptable Levels of Interference - 2 GHz Band) Determination 2000* made under section 145(4) of the Act. This determination sets out the unacceptable levels of interference for the purpose of the registration of transmitters to be operated under this licence. Licensees (and accredited persons) should follow the guidelines before operating transmitters. The ACA intends to afford protection to

receivers in accordance with the guidelines in the settlement of interference disputes. Copies of the guidelines are available from the ACA.

The suspension and cancellation of spectrum licences

5. The ACA may, by written notice given to a licensee, suspend or cancel a spectrum licence where the ACA is satisfied that the licensee, or a person authorised by the licensee to operate a radiocommunications device under the licence, has:
 - (a) contravened a condition of the licence; or
 - (b) in any other way contravened the Act; or
 - (c) operated a radiocommunications device under the licence, or purportedly under the licence, in contravention of any other law of the Commonwealth, a State or a Territory.

Reissue

6. A spectrum licence may not be reissued to the same licensee without a price-based allocation procedure unless:
 - (a) the ACA is satisfied under section 82(1) of the Act that special circumstances exist as a result of which it would be in the public interest for that licensee to continue to hold that licence; or
 - (b) the licensee provides a service of a kind determined by the Minister under section 82(3) of the Act for which reissuing licences to the same licensees would be in the public interest.

Trading

7. (1) A licensee may assign or otherwise deal with the whole or any part of a spectrum licence provided that this is done in accordance with any rules determined by the ACA under section 88 of the Act.
- (2) An assignment under section 85 of the Act of the whole or part of a licence that involves a change to a licence does not take effect until:
 - (a) the ACA has been told of the change; and
 - (b) the Register of Radiocommunications Licences has been altered to take account of the change.

Appeals

8. An application may be made to the ACA for re-consideration of decisions listed under section 285 of the Act. A person affected by and dissatisfied with the decision may seek a re-consideration of the decision by the ACA under section 288(1) of the Act. This decision can be subject to further re-consideration by the Administrative Appeals Tribunal, subject to the provisions of the *Administrative Appeals Tribunal Act 1975*.

SCHEDULE 4 (continued)

LICENCE NOTES (continued)

Labelling of transmitters

9. Transmitters operated under this licence are to be labelled in accordance with the *Radiocommunications (Labelling) Determination 1997*.
-

SCHEDULE 5

Section 2.14(1)

EMISSION LIMITS OUTSIDE THE AREA

PART 1—BASE EMISSION LIMITS

1. This Part applies in those parts of the spectrum:
 - (a) for which there is no agreement for the purposes of core condition 7 in force; and
 - (b) for which the licensee does not hold another spectrum licence in the 2 GHz band.
2. The emission limits outside the area, for frequency bands only containing in-band frequencies, are:
 - (a) for a terrestrial transmitter in the Lower Band, a transmitter horizontally radiated power of 45 dBm per 30 kHz;
 - (b) for a terrestrial transmitter in the 2 GHz Upper Bands A and B, a transmitter horizontally radiated power of 55 dBm per 30 kHz; and
 - (c) for a HAPS transmitter, a transmitter radiated power that would not cause a power flux-density of -136 dBW/m^2 (per 30 kHz) to be exceeded at the earth's surface at any point outside the area.
3. For this Schedule, the level of emission outside the area is to be estimated with a level of confidence not less than 95 percent that the true level of emission remains below the relevant emission limit.
4. For the purposes of paragraph 2, the level of emission is to be estimated after taking into account:
 - (a) the kind of antenna; and
 - (b) the kind of equipment used with the antenna; and
 - (c) the location and immediate physical environment in which the antenna operates.

PART 2—OTHER EMISSION LIMITS

1. This Part applies in that part of the spectrum:
 - (a) for which there is an agreement in force for the purposes of core condition 7; or
 - (b) for which the licensee holds another spectrum licence in the 2 GHz band.
2. The emission limits outside the area are the level that does not cause the base emission limits in Part 1 of this Schedule to be exceeded in any part of the spectrum:
 - (a) for which there is no agreement for the purposes of core condition 7 in force; and
 - (b) for which the licensee does not hold another spectrum licence in the 2 GHz band.

SCHEDULE 6

Section 2.14(2)

EMISSION LIMITS OUTSIDE THE BAND

[Note: Emission limits outside the band manage levels of:

- (a) modulation and intermodulation products outside the frequency band of the licence associated with:
 - (i) the transmitted information; and
 - (ii) where applicable, multicarrier transmitters.
- (b) transmitter broadband noise; and
- (c) transmitter narrowband signals from frequency combining processes, including multicoupling of transmitters into an antenna; and
- (d) receiver emissions.]

PART 1—BASE EMISSION LIMITS

- 1.** This Part applies in those parts of the spectrum:
 - (a) for which there is no agreement for the purposes of core condition 15 in force; and
 - (b) for which the licensee does not hold another spectrum licence in the 2 GHz band.

2. Spurious emission - 2 GHz transmitters

For radio emission that is:

- (a) spurious emission; and
- (b) caused by transmitters operating under spectrum licences issued for the 2 GHz band; and
- (c) at frequencies outside the frequency band of the licence;

the emission limit outside the band is a radiated mean power of:

- (d) -36 dBm EIRP measured within a 1 kHz rectangular bandwidth that is within the band 9 kHz to 150 kHz; and
- (e) -36 dBm EIRP measured within a 10 kHz rectangular bandwidth that is within the band 150 kHz to 30 MHz; and
- (f) -36 dBm EIRP measured within a 100 kHz rectangular bandwidth that is within the band 30 MHz to 1 GHz; and
- (g) -11 dBm EIRP measured within a 100 kHz rectangular bandwidth that is within the band 1 GHz to 3.7 GHz; and
- (h) -30 dBm EIRP measured within a 100 kHz rectangular bandwidth that is within the band 3.7 GHz to 12.75 GHz.

3. Non-spurious emission outside the designated bands - 2 GHz transmitters

3.1 For radio emission that is:

- (a) not spurious emission; and
- (b) caused by a transmitter operating under a spectrum licence issued for the 2 GHz band; and
- (c) at frequencies outside the frequency bands 1900 MHz to 1920 MHz; and
- (d) offset from 1900 MHz;

the emission limits outside the band are for frequency bands containing frequencies that have offsets:

- (e) within the range 0 kHz to 0.4 MHz - a radiated maximum true mean power of -16 dBm EIRP per 30 kHz; and
- (f) within the range 0.4 MHz to 1.0 MHz - a radiated maximum true mean power of -20 dBm EIRP per 30 kHz; and
- (g) greater than 1.0 MHz - a radiated maximum true mean power of -30 dBm EIRP per 30 kHz.

3.2 For radio emission that is:

- (a) not spurious emission; and
- (b) caused by a transmitter operating under a spectrum licence issued for the 2 GHz band; and
- (c) at frequencies outside the frequency bands 1920 MHz to 1980 MHz and 2110 MHz to 2170 MHz; and
- (d) offset from 1980 MHz, 2110 MHz and 2170 MHz;

the emission limits outside the band are for frequency bands containing frequencies that have offsets:

- (e) within the range 0 kHz to 0.75 MHz - a radiated maximum true mean power of 12 dBm EIRP per 30 kHz; and
- (f) within the range 0.75 MHz to 1 MHz - a radiated maximum true mean power of 2 dBm EIRP per 30 kHz; and
- (g) within the range 1 MHz to 5 MHz - a radiated maximum true mean power of -9 dBm EIRP per 30 kHz; and
- (h) greater than 5 MHz - a radiated maximum true mean power of -16 dBm EIRP per 30 kHz.

3.3 However, when the emission limits outside the band at any frequency and specified in Clause 4 are lower, the limits set out in Clause 4 apply.

4. Non-spurious emission inside the designated bands - 2 GHz transmitters

4.1 For radio emission that is:

- (a) not spurious emission; and
- (b) caused by a transmitter operating under a spectrum licence issued for the 2 GHz band within the band 1900-1920 MHz; and,
- (c) at frequencies outside the frequency band of the licence; and
- (d) offset from the upper and lower limits of the frequency band;

the emission limits outside the band are for frequency bands containing frequencies that have offsets:

- (e) within the range 0 kHz to 0.4 MHz - a radiated maximum true mean power of 4 dBm EIRP per 30 kHz; and
- (f) within the range 0.4 MHz to 5 MHz - a radiated maximum true mean power of -16 dBm EIRP per 30 kHz; and
- (g) greater than 5 MHz - a radiated maximum true mean power of -25 dBm EIRP per 30 kHz.

4.2 For radio emission that is:

- (a) not spurious emission; and

- (b) caused by a transmitter operating under a spectrum licence issued for the 2 GHz band within the bands 1920-1980 MHz and 2110-2170 MHz; and,
 - (c) at frequencies outside the frequency band of the licence; and
 - (d) offset from the upper and lower limits of the frequency band;
- the emission limits outside the band are for frequency bands containing frequencies that have offsets:
- (e) within the range 0 kHz to 0.75 MHz - a radiated maximum true mean power of 12 dBm EIRP per 30 kHz; and
 - (f) within the range 0.75 MHz to 1.0 MHz - a radiated maximum true mean power of 2 dBm EIRP per 30 kHz; and
 - (g) within the range 1 MHz to 5 MHz - a radiated maximum true mean power of -9 dBm EIRP per 30 kHz; and
 - (h) greater than 5 MHz - a radiated maximum true mean power of -16 dBm EIRP per 30 kHz.

5. 2 GHz receivers

For radio emission that is;

- (a) caused by receivers operating under spectrum licences issued for the 2 GHz band; and
 - (b) at frequencies outside the frequency band of the licence;
- the emission limit outside the band is a radiated mean power of:
- (c) -57 dBm EIRP measured within a 100 kHz rectangular bandwidth that is within the band 9 kHz to 1 GHz; and
 - (d) -23 dBm EIRP measured within a 100 kHz rectangular bandwidth that is within the band 1 GHz to 3.7 GHz; and
 - (e) -47 dBm EIRP measured within a 100 kHz rectangular bandwidth that is within the band 3.7 GHz to 12.75 GHz

6. For the purposes of paragraph 5, the level of emission is to be estimated after taking into account:

- (a) the kind of antenna; and
- (b) the kind of equipment used with the antenna; and
- (c) the location and immediate physical environment in which the antenna operates.

PART 2—OTHER EMISSION LIMITS

1. This Part applies in that part of the spectrum:
 - (a) for which there is an agreement in force for the purposes of core condition 15; or
 - (b) for which the licensee holds another spectrum licence in the 2 GHz band.
2. The emission limits outside the band are the level that does not cause the base emission limits in Part 1 of this Schedule to be exceeded in any part of the spectrum:
 - (a) for which there is no agreement for the purposes of core condition 15 in force; and
 - (b) for which the licensee does not hold another spectrum licence in the 2 GHz band.

