Statutory Rules 1991 No. 354[1]

VHF High Band Frequency Band Plan (148 to 174 MHz)

I, WARREN EDWARD SNOWDON, Parliamentary Secretary to the Minister of State for Transport and Communications acting for and on behalf of the Minister of State for Transport and Communications, make the following band plan, under section 19 of the *Radiocommunications Act 1983*.

Dated 14 November 1991.

WARREN SNOWDON
Parliamentary Secretary to the
Minister of State for Transport and Communications
for and on behalf of the
Minister of State for Transport and Communications

Name of plan

1. This plan is the *VHF High Band Frequency Band Plan (148 to 174 MHz) 1991*.

General

2. The following notes describe the intention of this plan and outline the approach adopted for its implementation.

[**GENERAL NOTE:**

(1) This plan provides for the expansion of existing services and the introduction of new types of services.

(2) The principal changes to the VHF High Band provide for:

(a) predominant use of the band for land mobile services; and

(b) a band structure which accommodates predominantly two frequency systems to facilitate more efficient use of radiocommunications sites; and

(c) the introduction of land mobile services (trunked) and amplitude companded single sideband services to increase the long term productivity of the band; and

(d) the existing 30 kHz channelling to be replaced by a more spectrum efficient 12.5 kHz channelling to increase the short and medium term productivity of the band; and

(e) flexibility to accommodate services which provide more efficient use of the spectrum.

(3) This plan commences on gazettal.

Definitions

3. (1) Unless the contrary intention appears, a word or expression used in this plan and in the spectrum plan has the same meaning in this plan as it has in the spectrum plan (even if the word or expression is also defined in the *Radiocommunications (Interpretation) Determination 2000.*

[NOTE For the definitions of other expressions used in this plan, see the *Radiocommunications Act 1992*, the *Radiocommunications (Interpretation) Determination 2000* and the *Radiocommunications Regulations 1993*.

(2) In this plan, unless the contrary intention appears:

"Act" means the *Radiocommunications Act 1992*;

"allocation" means the purpose for which a segment may be used;

"allowed area" means the geographic area in which services specified in this plan may be operated;

"authorised" means authorised by the ACA;

"bandwidth" means the frequency difference between the upper frequency limit and the lower frequency limit of a sub-band;

"base receive" means a segment which may be used at a base station for reception only;
"base transmit" means a segment which may be used at a base station for transmission only;
"channel" means a sub-band in a segment, with a specified centre frequency;
"channelling" refers to the frequency separation between 2 consecutive channel centre frequencies in the same segment;
fixed service (paging) means the fixed service used for paging.
"HSD area" has the meaning it is given in clause 13;
"interior paging talkback channel" means a channel in a land mobile service (single frequency) which is used in conjunction with an interior paging service, but which may not be used for transmissions between ambulatory stations on land;
land mobile service (paging) means the land mobile service used for paging.
"miscellaneous service" means a mobile service, or a fixed service, that uses unconventional or innovative radiocommunications technologies;
"narrowband area service" means a service provided by a narrowband area service station;
"non-HSD area" means an area outside (or on the rural area side of) an HSD area;
"non-rural area" means an area outside (or on the HSD area side of) a rural area;
paging means exterior paging or interior paging.
Note The definitions of **exterior paging** and **interior paging** in the *Radiocommunications (Interpretation) Determination 2000* refer to communication. **Communication** is defined in that determination as including communication in any form, including speech, music or other sounds, data, text, visual images and signals.

"primary service" has the same meaning as in the spectrum plan;
"rural area" has the meaning it is given in clause 13;
"secondary service" has the same meaning as in the spectrum plan;
"segment" is a sub-band of the VHF High Band, represented by a letter in the range 'A' to 'W', as indicated in Column 2 of an item in Table 2 or 3, to which the frequency range in Column 3 of Table 2 corresponds;
"single frequency" means a mode of operation in which transmissions can be made between 2 stations in either one or both directions, but not simultaneously in both directions, and for which only one channel is used;
"sub-band" means any part of the VHF High Band;
"transmit/receive split" means the frequency separation between the transmit channel centre frequency and receive channel centre frequency of

a station in a two frequency service;
"trunked" means a mode of operation in which base stations are used for communicating with mobile stations and in which a number of users share the use of 2 or more channels selected automatically by the base station;
"two frequency" means a mode of operation in which transmissions can be made between 2 stations and in which 2 channels are used;
"VHF High Band" is the range of frequencies from 148 MHz (exclusive) to 174 MHz (inclusive).

General Purposes for Band Segments

6. Subject to clause 9 and the spectrum plan, the VHF High Band, represented diagrammatically in Figure 1, may only be used for a service:

(a) which transmits or receives signals in a channel in the range specified in Column 3 of an item in Table 2, to which range the segment in Column 2 corresponds; and
(b) whose purpose accords with the allocation specified in Column 4 of that item; and
(c) in a geographic area specified in Column 5 of that item.

Channelling Arrangements for Band Segments

7. (1) Subject to clause 9 and subclause 7 (3) and the spectrum plan, the VHF High Band may only be used for a service which operates:

(a) within a channel whose centre frequency is determined by the formula specified in Column 3 of an item in Table 3, where the values of "n" in the formula are specified in Column 4 of that item; and
(b) within a channel bandwidth as specified in Column 5 of that item.

(2) The transmit/receive split in the VHF High Band is 4.6 MHz.

(3) Channelling arrangements other than those specified by subclauses 7 (1) and 7 (2) may be authorised where such arrangements provide for more efficient use of the spectrum, as compared to the channelling arrangements specified for that segment.

[NOTE: In determining the spectrum efficiency of a service, without limiting the range of matters which may be taken into account, the following matters may be considered:
(a) occupied bandwidth;
(b) adjacent channel performance;
(c) the distance from the transmitter that the channel may be used

again without causing harmful interference;

(d) the impact that introduction of the service will have upon existing services.]

Status of Allocations

8. Unless the contrary intention appears, a service which is operated according to clauses 6 and 7 is a primary service.

Exemption from compliance with clause 6 or 7—existing services

9. (1) An existing service may use frequencies in the VHF High Band, on a secondary basis, to supply a service that does not comply with either clause 6 or 7.

(2) For subclause (1), an ***existing service*** is a service for the operation of which a licence:

(a) was, or is taken to have been, in force on 30 June 1998; and

(b) has continued, or is taken to have continued, in force after that date.

(3) For this clause:

(a) a licence is taken to have been ***in force on 30 June 1998*** if the operation of the service became unlicensed between 2 May 1998 and 30 June 1998 and was unlicensed for not more than 60 consecutive days; and

(b) a licence is taken to have ***continued in force*** after 30 June 1998 if the operation of the service has been unlicensed for not more than 60 consecutive days.

Exemption from compliance with clause 7—new services

9A. (1) A new service may use frequencies in the VHF High Band, on a secondary basis, in a non-HSD area, to supply a service that does not comply with clause 7.

(2) For subclause (1), a ***new service*** is a service for which a licence was not in force, or taken to have been in force for clause 9, on 30 June 1998.

Table 2

10. TABLE 2: SERVICE ALLOCATIONS

Column 1 Item	Column 2 Segment	Column 3 Segment Limits (MHz) (Lower limit exclusive, upper limit inclusive)	Column 4 Allocation	Column 5 Allowed Areas
1	A	148.00000 to 149.25000	Land Mobile Service (paging) Fixed Service (paging) (See notes 1 and 8)	Australia Wide
2	B	149.25000 to 149.75625	Land Mobile Service (two frequency, base transmit) (See note 8)	Australia Wide
3	C	149.75625 to 149.90000	Land Mobile Service (single frequency) (See notes 2 and 8)	Australia Wide
4	D	149.90000 to 150.05000	Radionavigation Satellite Service (See note 9)	Australia Wide
5	E	150.05000 to 151.39375	Land Mobile Service (two frequency, base transmit)	Australia Wide
6	E	150.05000 to 151.39375	Fixed Service (two frequency)	Rural Areas (See note 3)
7	F	151.39375 to 152.49375	Miscellaneous Service (See note 10)	Australia Wide
8	G	152.49375 to 153.85000	Land Mobile Service (single frequency) (See note 4)	Australia Wide
9	H	153.85000 to 154.35625	Land Mobile Service (two frequency, base receive)	Australia Wide

Column 1 Item	Column 2 Segment	Column 3 Segment Limits (MHz) (Lower limit exclusive, upper limit inclusive)	Column 4 Allocation	Column 5 Allowed Areas
10	I	154.35625 to 154.65625	Land Mobile Service (single frequency)	Australia Wide
11	J	154.65625 to 156.00000	Land Mobile Service (two frequency, base receive)	Australia Wide
12	J	154.65625 to 156.00000	Fixed Service (two frequency)	Rural Areas (See note 3)
13	K	156.00000 to 157.45000	Maritime Mobile Service (See note 5)	Australia Wide
14	L	157.45000 to 158.29375	Land Mobile Service (two frequency, base receive) OR (single frequency) (See note 6)	Australia Wide
15	M	158.29375 to 160.60000	Land Mobile Service (two frequency, base receive)	Australia Wide
16	N	160.60000 to 160.97500	Maritime Mobile Service (See note 5)	Australia Wide
17	O	160.97500 to 161.47500	Land Mobile Service (single frequency)	Australia Wide
18	P	161.47500 to 162.05000	Maritime Mobile Service (See note 5)	Australia Wide
19	Q	162.05000 to 162.89375	Land Mobile Service (two frequency, base transmit) OR (single frequency) (See note 6)	Australia Wide
20	R	162.89375 to 165.19375	Land Mobile Service (two frequency, base transmit)	Australia Wide
21	S	165.19375 to 168.19375	Land Mobile Service (trunked, base transmit) (See note 7)	Australia Wide
22	T	168.19375 to 169.79375	Land Mobile Service (single frequency)	Australia Wide

Column 1 Item	Column 2 Segment	Column 3 Segment Limits (MHz) (Lower limit exclusive, upper limit inclusive)	Column 4 Allocation	Column 5 Allowed Areas
23	U	169.79375 to 172.79375	Land Mobile Service (trunked, base receive) (See note 7)	Australia Wide
24	V	172.79375 to 173.29375	Land Mobile Service (single frequency)	Australia Wide
25	W	173.29375 to 174.00000	Miscellaneous Service (See note 10)	Australia Wide

Notes:

Note 1 The land mobile service (paging) in a channel with centre frequency 148.3375 MHz or 149.1875 MHz is a primary service when used for interior paging and is a secondary service when used for exterior paging.

The fixed service (paging) in a channel with centre frequency 148.3375 MHz or 149.1875 MHz is a primary service when used for interior paging and is a secondary service when used for exterior paging.

The land mobile service (paging) in segment A (other than in a channel with centre frequency 148.3375 MHz or 149.1875 MHz) is a primary service when used for exterior paging and is a secondary service when used for interior paging.

The fixed service (paging) in segment A (other than in a channel with centre frequency 148.3375 MHz or 149.1875 MHz) is a primary service when used for exterior paging and is a secondary service when used for interior paging.

Note 2 In a channel with centre frequency 149.7875, 149.8375 or 149.8875 MHz, the land mobile service (paging) or the fixed service (paging) may be authorised as a primary service when used for exterior paging or as a secondary service when used for interior paging.

3. Fixed services (two frequency) may be operated in non-rural areas on a secondary basis.

4. The frequency 153.8 MHz may be used as the centre frequency for an interior paging talkback channel.

5. The operation of maritime mobile services is subject to the provisions of Appendix 18 of the International Telecommunication Union Radio Regulations.

6. Land mobile segments referenced by this note may be used in a single frequency mode or a two frequency mode in non-HSD areas of any State

or Territory. In HSD areas of any State or Territory, either single frequency or two frequency modes may be used, but not both. The mode of operation for these segments in HSD areas may be determined by the ACA, based upon relative demand for these modes of operation in each State and Territory.

7. Segments referenced by this note may be authorised for use by users of:
(a) other land mobile services that make equivalent or more efficient use of the spectrum, as compared to the designated service allocation; or
(b) land mobile services (two frequency), if such services are used in conjunction with a land mobile service (trunked).

8. Segments A, B and C may also be used for a mobile-satellite service.

9. Segment D may also be used for a land mobile-satellite service.

10. Segments F and W are predominantly allocated to miscellaneous services. However, they may also be used for narrowband area services.

Table 3

11. TABLE 3: CHANNELLING ARRANGEMENTS

Column 1 Item	Column 2 Segment	Column 3 Channel centre frequencies formula (MHz)	Column 4 Range of integer values for the variable 'n' (inclusive)	Column 5 Channel bandwidth (kHz)
1	A	147.9875 + (n x (0.025)) (see note 7)	1 to 50	25 (see note 7)
2	B	149.2500 + (n x (0.00625)) (see note 7)	1 to 80	6.25 (see note 7)
3	C	149.7500 + (n x (0.0125)) (See note 1)	1 to 11	12.5 (See note 1)
4	D	See note 2	See note 2	See note 2
5	E	150.0500 + (n x (0.0125))	1 to 107	12.5
6	F	151.3875 + (n x (0.0125)) (See note 3)	1 to 88	12.5 (See note 3)
7	G	152.4875 + (n x (0.0125))	1 to 108	12.5 (See note 4)
8	H	153.8500 + (n x (0.00625))	1 to 80	6.25
9	I	154.3500 + (n x (0.0125)) (See note 5)	1 to 23	12.5 (See note 5)
10	J	154.6500 + (n x (0.0125))	1 to 107	12.5
11	K	See note 6	See note 6	See note 6
12	L	157.4500 + (n x (0.0125))	1 to 67	12.5
13	M	158.2875 + (n x (0.0125))	1 to 184	12.5

14	N	See note 6	See note 6	See note 6
15	O	160.9750 + (n x (0.0125))	1 to 39	12.5
16	P	See note 6	See note 6	See note 6
17	Q	162.0500 + (n x (0.0125))	1 to 67	12.5
18	R	162.8875 + (n x (0.0125))	1 to 184	12.5
19	S	165.1875 + (n x (0.0125))	1 to 240	12.5
20	T	168.1875 + (n x (0.0125))	1 to 128	12.5
21	U	169.7875 + (n x (0.0125))	1 to 240	12.5
22	V	172.7875 + (n x (0.0125))	1 to 40	12.5
23	W	173.2875 + (n x (0.0125))	1 to 56	12.5
		(See note 3)		(See note 3)

Notes:

Note 1 A station that is part of the land mobile service (paging) or the fixed service (paging) may be used in this segment in a channel with centre frequency 149.7875, 149.8375 or 149.8875 MHz and a channel bandwidth of 25 kHz. The channelling arrangements for the mobile-satellite service are not defined.

2. The channelling arrangements for the radionavigation satellite service and land mobile-satellite service are not defined.

3. The channelling arrangements are for miscellaneous services only, and are nominal. Any user of a miscellaneous service may be authorised to operate with a channel centre frequency and channel bandwidth other than that specified. The channelling arrangements for narrowband area services are not defined.

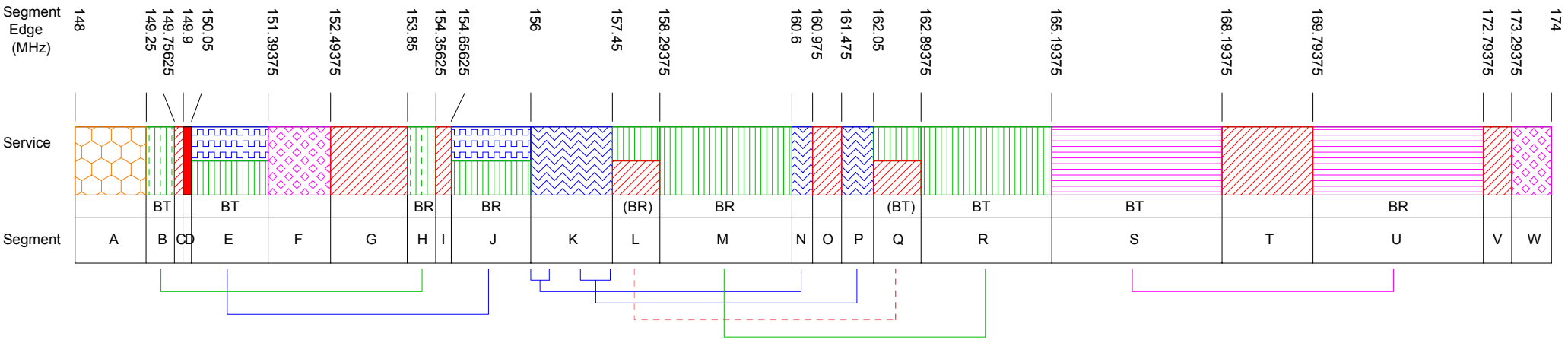
4. The interior paging talkback channel, with channel centre frequency 153.8 MHz, has a bandwidth of 25 kHz.

5. Any user of a land mobile service (single frequency) may be authorised to operate their service with a channel bandwidth of 25 kHz and a channel centre frequency other than that specified in this segment, if their service is used in conjunction with a maritime mobile service.

6. The operation of maritime mobile services is subject to the provisions of Appendix 18 of the International Telecommunication Union Radio Regulations.

7. The channelling arrangements for a mobile-satellite service are not defined.

12. FIGURE 1 : VHF HIGH BAND PLAN DIAGRAM



SERVICES

Land mobile (two frequency)	12.5 kHz channelling	Land mobile (trunked)	12.5 kHz channelling
Land mobile (two frequency)	6.25 kHz channelling	Land mobile (paging) and fixed (paging)	25 kHz channelling
Land mobile (single frequency)	12.5 kHz channelling	Miscellaneous	12.5 kHz channelling
Land mobile (either two frequency or single frequency)	12.5 kHz channelling	Maritime mobile	25 kHz channelling
Fixed (two frequency, rural areas only) and land mobile (two frequency)	12.5 kHz channelling	Radionavigation satellite	

BT = Base transmit

BR = Base receive

⌊⌋ = Paired segments

(BT),(BR) and ⌊⌋ have the same meaning as above, if the segment is used for a land mobile service operating in a two frequency mode. These symbols are not applicable if the segment is used for a land mobile service operating in a single frequency mode.

Note : This diagram should be read with reference to Tables 2 and 3 of the Band Plan.

High Spectrum Demand And Rural Areas

13. (1) A High Spectrum Demand (HSD) area is the area on or within a circular contour drawn with a radius specified in Column 5 of an item in Table 4, centred on a point specified as an Australian Map Grid coordinate in Column 4 of that item.

(2) The centre point is nominally described by reference to a nearby town, specified in Column 3, situated in a State specified in Column 2 of that item.

(3) Where adjacent areas overlap, an HSD area then becomes the combination of those adjacent areas.

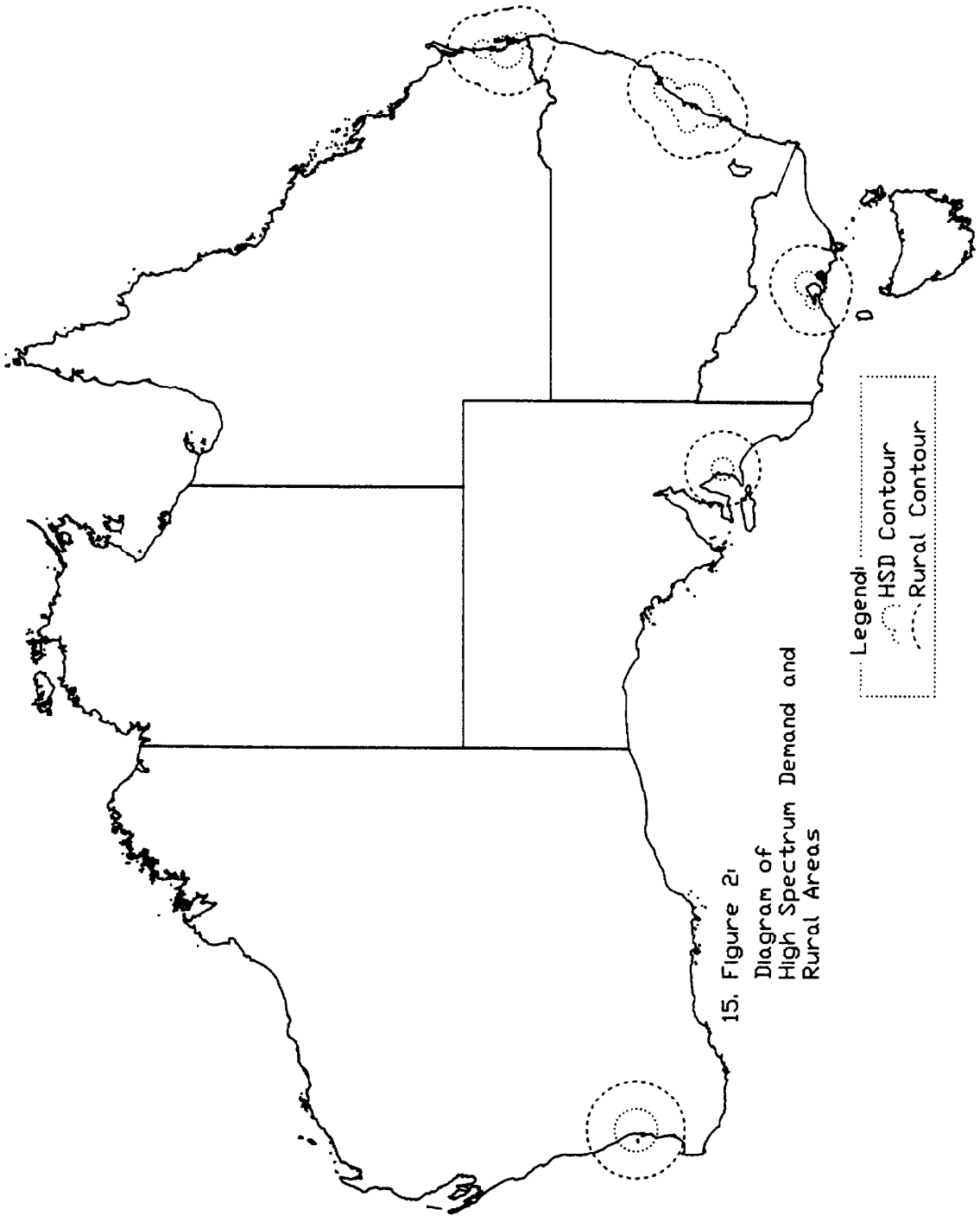
(4) The Rural area is defined by a contour which lies 100 km outside the HSD areas and encloses the HSD areas.

(5) Diagrammatic representations of the HSD and Rural areas are set out in Figure 2.

Table 4

14. TABLE 4: HIGH SPECTRUM DEMAND CONTOUR CENTRE COORDINATES AND RADII

Column 1 Item	Column 2 State	Column 3 Town	Column 4 Coordinate (Easting, Northing, Zone)	Column 5 Radius
1	New South Wales	Newcastle	384722 6355447 56	50 km
2	New South Wales	Sydney	335103 6249367 56	60 km
3	New South Wales	Penrith	279726 6267448 56	35 km
4	New South Wales	Wollongong	301116 6177146 56	35 km
5	Queensland	Maroochydore	509952 7052315 56	35 km
6	Queensland	Brisbane	501674 6961834 56	55 km
7	Queensland	Surfers Paradise	542065 6902340 56	35 km
8	South Australia	Adelaide	280600 6132250 54	40 km
9	Victoria	Melbourne	320605 5812740 55	50 km
10	Victoria	Mornington	328000 5768000 55	50 km
11	Victoria	Geelong	268300 5774265 55	20 km
12	Western Australia	Perth	391314 6464517 50	50 km



15. Figure 2: Diagram of High Spectrum Demand and Rural Areas

NOTE

1. VHF High Band Frequency Band Plan (148 to 174 MHz), notified in the *Commonwealth of Australia Gazette* on 27 November 1991 comprises VHF High Band Frequency Band Plan (148 to 174 MHz) as amended by the band plan variations specified in the following table:

(a) VHF High Band Frequency Band Plan (148 to 174 MHz) (Variation), notified in the *Commonwealth of Australia Gazette* on 26 June 1996; and

(b) VHF High Band Frequency Band Plan (148 to 174 MHz) (Variation), notified in the *Commonwealth of Australia Gazette* on 24 June 1998.

(c) VHF High Band Frequency Band Plan (148 to 174 MHz) (Variation), notified in the *Commonwealth of Australia Gazette* on 7 July 1999.

(d) VHF High Band Frequency Band Plan (148 to 174 MHz) (Variation) 2002 (No.1), notified in the *Commonwealth of Australia Gazette* on 18 September 2002.