

**RALI : MS 22**  
**DATE OF EFFECT : 10/12/2002**

**Sequence Number : 164, (161),  
(106), (60)**

---

**Radiocommunications Assignment and Licensing Instruction**

**400 MHz PLAN**

# **RADIOCOMMUNICATIONS ASSIGNMENT AND LICENSING INSTRUCTIONS**

## **DISCLAIMER**

The Australian Communications Authority (ACA) advises that these instructions reflect the current policies of the ACA.

Prospective applicants for licences should, however, on their own responsibility, take whatever steps necessary to ensure that they have access to appropriate technical or other specialist advice independently of the ACA concerning their applications, the operation of radiocommunications equipment and services, or any other matters relevant to the operation of transmitters and services under the licences in question.

The policies of the ACA, and the laws of the Commonwealth, may change from time to time, and prospective licensees should ensure that they have informed themselves of the current policies of the ACA and of any relevant legislation. Furthermore, prospective applicants for licences should not rely on statements made in these instructions about the policies that may be followed by other authorities, nor about the effect of legislation.

Radiocommunications Assignment and Licensing Instructions are subject to periodic review and are amended as necessary. To keep abreast of developments, it is important that users ensure that they are in possession of the latest edition.

No liability is or will be accepted by the Minister for Communications, the Information Economy and the Arts, the ACA, the Commonwealth of Australia, or its officers, servants or agents for any loss suffered, whether arising directly or indirectly, due to reliance on the accuracy or contents of these instructions.

Suggestions for improvements to Radiocommunications Assignment and Licensing Instructions may be addressed to the ACA at PO Box 78, Belconnen, ACT, 2616, or by e-mail to [freqplan@aca.gov.au](mailto:freqplan@aca.gov.au). It would be appreciated if notification to the ACA of any inaccuracy or ambiguity found, be made without delay in order that the matter may be investigated and appropriate action taken.

---

## **400 MHz Plan**

### **1.0 Purpose**

The purpose of this Radiocommunications Assignment and Licensing Instruction (RALI) is to codify planning arrangements for radiocommunication services in the two bands 403 - 420 MHz and 450 - 520 MHz (known collectively as the 400 MHz Band), by way of issuing the 400 MHz Plan. The Plan advises the service allocations in the two bands, specifies the segment frequency limits applicable to these allocations, and the channelling arrangements within these segments.

This RALI, the “400 MHz Plan”, replaces RALI MS 22, dated 4 December 2000, Sequence Number 161.

The information in this RALI reflects the Australian Communications Authority’s statement of current policy in relation to planning arrangements for radiocommunications services in the 400 MHz band. In making decisions, accredited frequency assigners and Australian Communications Authority (ACA) officers should take all relevant factors into account and decide each case on its merits. If an issue related to this document appears to fall outside the enunciated policy, please consult the Manager, Spectrum Planning Team, PO Box 78, Belconnen, ACT, 2616.

### **2.0 Spectrum Arrangements**

Allocation and channelling arrangements for the 400 MHz band are contained at [Appendix A](#) of this Plan. Service allocations and channelling arrangements for narrowband services throughout Australia are detailed in Table 1 of the Appendix and illustrated in Figure 1 of the Appendix. Channelling arrangements for wideband fixed point-to-point and point-to-multipoint services that are provided for in rural Australia are detailed in Tables 3 and 4 of the Appendix and illustrated in Figures 2 and 3 of the Appendix respectively.

#### **2.1 Narrowband Services**

The 400 MHz Plan provides for the operation of narrowband land mobile services (single/two frequency with 12.5/25 kHz channelling and two frequency trunked with 12.5 kHz channelling) and fixed services (single frequency with 12.5/25 kHz channelling, two frequency point-to-point with 25 kHz channelling and two frequency point-to-multipoint with 12.5/25 kHz channelling).

Narrowband services should be assigned in accordance with this Plan.

For reasons of interoperability, any new assignments not meeting the planning arrangements in this Plan but required to extend existing services that are not assigned in a manner consistent with this Plan may continue to be made.

Segments allocated for 25 kHz land mobile use may be used by 12.5 kHz land mobile systems, as advised in Spectrum Planning Report SPP 13/92. The report also advises the preferred approach for implementing such assignments. It is recommended that this approach be followed, as an aid to any future replanning that may need to be done.

Stations in the fixed service (point-to-multipoint) may, if frequencies are not available in segments allocated to the fixed service (point-to-multipoint), use segments allocated for the land mobile service, except those allocated for the land mobile service (trunked). The principles specified in this Plan for the land mobile service apply to the use of these segments by stations in the fixed service (point-to-multipoint).

## **2.2 Wideband Rural Services**

The 400 MHz Plan provides for the operation, in rural parts of Australia, of the wideband fixed point-to-point service with emission bandwidths between 150 and 750 kHz in parts of the 403 - 420 MHz band, and the wideband point-to-multipoint service with a nominal emission bandwidth of 1.82 MHz in parts of the 501 - 520 MHz band.

Wideband fixed services should be assigned in accordance with this Plan.

## **3.0 History**

Detailed information on changes made to the 400 MHz Plan since its initial release is provided at [Appendix B](#).

## **RALI Authorisation**



.....

**Geoff Hutchins**  
**Manager**  
**Spectrum Planning Team**  
**Australian Communications Authority**

**10 December 2002**

## **Allocation and Channelling Arrangements**

**Table 1: Service Allocations and Channelling Arrangements for Narrowband Services in the Bands 403 - 420 MHz and 450 - 520 MHz**

**Table 2: High Spectrum Demand Areas (Contour Centre Coordinations and Radii)**

**Figure 1: 400 MHz Narrowband Services Diagram**

**Table 3: Channelling Arrangements for the 400 MHz Wideband Fixed Point-to-Point Services**

**Figure 2: 400 MHz Wideband Fixed Point-to-Point Service Diagram**

**Table 4: Channelling Arrangements for the 400 MHz Wideband Fixed Point-to-Multipoint Service**

**Figure 3: 400 MHz Wideband Fixed Point-Multipoint Service Diagram**

**Table 1: Service Allocations and Channelling Arrangements for Narrowband Services in the Bands  
403 - 420 MHz and 450 - 520 MHz  
December 2000**

| Segment | Service Allocation  | Segment Frequency Limits (MHz) | Paired Segment | Channel Bandwidth (kHz) | Channel Centre Frequency Formula | Range of integer values for variable 'n' | First channel / last channel centre frequency |
|---------|---|--------------------------------|----------------|-------------------------|----------------------------------|--|---|
| A       | Land Mobile Service<br>(two frequency, base receive)            | 403.0000<br>403.9875           | I              | 25                      | $403.0000 + n (0.025)$           | 1 to 39                                  | 403.0250<br>403.9750                          |
| B       | Fixed Point-to-Point<br>(two frequency)                         | 403.9875<br>405.0125           | J              | 25                      | $403.9750 + n (0.025)$           | 1 to 41                                  | 404.0000<br>405.0000                          |
| C       | Land Mobile Service<br>(two frequency, base receive)            | 405.0125<br>406.0000           | K              | 25                      | $405.0000 + n (0.025)$           | 1 to 39                                  | 405.0250<br>405.9750                          |
| D       | Mobile Satellite Service  | 406.0000<br>406.1000           | -              | -                       | -                                | -  | -   |
| E       | Land Mobile Service<br>(trunked, base receive)                  | 406.1000<br>408.6375           | M              | 12.5                    | $406.1125 + n (0.0125)$          | 1 to 200                                 | 406.1250<br>408.6125                          |
| F       | Land Mobile Service<br>(two frequency, base receive)            | 408.6375<br>410.5375           | N              | 25                      | $408.6250 + n (0.025)$           | 1 to 76                                  | 408.6500<br>410.5250                          |
| G       | Land Mobile + Fixed Services<br>(single frequency) (see note 1) | 410.5375<br>410.96875          | -              | 12.5<br>(see note 2)    | $410.5375 + n (0.0125)$          | 1 to 34                                  | 410.5500<br>410.9625                          |
| H       | Land Mobile Service<br>(single frequency) (see note 1)          | 410.96875<br>412.4625          | -              | 12.5                    | $410.9625 + n (0.0125)$          | 1 to 119                                 | 410.9750<br>412.4500                          |
| I       | Land Mobile Service<br>(two frequency, base transmit)           | 412.4625<br>413.4375           | A              | 25                      | $412.4500 + n (0.025)$           | 1 to 39                                  | 412.4750<br>413.4250                          |
| J       | Fixed Point-to-Point<br>(two frequency)                         | 413.4375<br>414.4625           | B              | 25                      | $413.4250 + n (0.025)$           | 1 to 41                                  | 413.4500<br>414.4500                          |
| K       | Land Mobile Service<br>(two frequency, base transmit)           | 414.4625<br>415.4375           | C              | 25                      | $414.4500 + n (0.025)$           | 1 to 39                                  | 414.4750<br>415.4250                          |

| Segment | Service Allocation   | Segment Frequency Limits (MHz) | Paired Segment | Channel Bandwidth (kHz) | Channel Centre Frequency Formula | Range of integer values for variable 'n' | First channel / last channel centre frequency |
|---------|--|--------------------------------|----------------|-------------------------|----------------------------------|--|---|
| L       | Land Mobile Service (single frequency) (see note 1)            | 415.4375<br>415.5625           | -              | 25                      | $415.4250 + n (0.025)$           | 1 to 5                                   | 415.4500<br>415.5500                          |
| M       | Land Mobile Service (trunked, base transmit)                   | 415.5625<br>418.0875           | E              | 12.5                    | $415.5625 + n (0.0125)$          | 1 to 200                                 | 415.5750<br>418.0625                          |
| N       | Land Mobile Service (two frequency, base transmit)             | 418.0875<br>420.0000           | F              | 25                      | $418.0750 + n (0.025)$           | 1 to 76                                  | 418.1000<br>419.9750                          |
| -       | -  | -                              | -              | -                       | -                                | -  | -   |
| P       | Land Mobile + Fixed Services (single frequency) (see note 1)   | 450.0000<br>450.4875           | -              | 25                      | $450.0000 + n (0.025)$           | 1 to 19                                  | 450.0250<br>450.4750                          |
| Q       | Fixed Point-to-Point (two frequency)                           | 450.4875<br>451.5125           | U              | 25                      | $450.4750 + n (0.025)$           | 1 to 41                                  | 450.5000<br>451.5000                          |
| R       | Fixed Point-to-Multipoint (two frequency, base receive)        | 451.5125<br>452.5000           | V              | 12.5<br>(see note 3)    | $451.50625 + n (0.0125)$         | 1 to 79                                  | 451.51875<br>452.49375                        |
| S       | Land Mobile Service (two frequency, base receive)              | 452.5000<br>453.5125           | W              | 12.5                    | $452.5000 + n (0.0125)$          | 1 to 80                                  | 452.5125<br>453.5000                          |
| T       | Land Mobile Service (see note 4) (two frequency, base receive) | 453.5125<br>459.9875           | X              | 25                      | $453.5000 + n (0.025)$           | 1 to 259                                 | 453.5250<br>459.9750                          |
| U       | Fixed Point-to-Point (two frequency)                           | 459.9875<br>461.0125           | Q              | 25                      | $459.9750 + n (0.025)$           | 1 to 41                                  | 460.0000<br>461.0000                          |
| V       | Fixed Point-to-Multipoint (two frequency, base transmit)       | 461.0125<br>462.0000           | R              | 12.5                    | $461.00625 + n (0.0125)$         | 1 to 79                                  | 461.01875<br>461.99375                        |
| W       | Land Mobile Service (two frequency, base transmit)             | 462.0000<br>463.0125           | S              | 12.5                    | $462.0000 + n (0.0125)$          | 1 to 80                                  | 462.0125<br>463.0000                          |

| Segment | Service Allocation  | Segment Frequency Limits (MHz) | Paired Segment | Channel Bandwidth (kHz) | Channel Centre Frequency Formula | Range of integer values for variable 'n' | First channel / last channel centre frequency |
|---------|---|--------------------------------|----------------|-------------------------|----------------------------------|--|---|
| X       | Land Mobile Service<br>(see note 4)<br>(two frequency, base transmit) | 463.0125<br>469.4875           | T              | 25                      | 463.0000 + n (0.025)             | 1 to 259                                 | 463.0250<br>469.4750                          |
| Y       | Land Mobile Service (see note 5)<br>(single frequency) (see note 1)   | 469.4875<br>469.9875           | -              | 25                      | 469.4750 + n (0.025)             | 1 to 20                                  | 469.5000<br>469.9750                          |
| Z       | Land Mobile Service<br>(two frequency, base transmit)                 | 469.9875<br>471.2125           | DD             | 25                      | 469.9750 + n (0.025)             | 1 to 49                                  | 470.0000<br>471.2000                          |
| AA      | Land Mobile + Fixed Services<br>(single frequency) (see note 1)       | 471.2125<br>472.2125           | -              | 25                      | 471.2000 + n (0.025)             | 1 to 40                                  | 471.2250<br>472.2000                          |
| BB      | Land Mobile Service<br>(two frequency, base transmit)                 | 472.2125<br>474.7875           | FF             | 25                      | 472.2000 + n (0.025)             | 1 to 103                                 | 472.2250<br>474.7750                          |
| CC      | Land Mobile Service (see note 5)<br>(single frequency) (see note 1)   | 474.7875<br>475.1875           | -              | 25                      | 474.7750 + n (0.025)             | 1 to 16                                  | 474.8000<br>475.1750                          |
| DD      | Land Mobile Service<br>(two frequency, base receive)                  | 475.1875<br>476.4125           | Z              | 25                      | 475.1750 + n (0.025)             | 1 to 49                                  | 475.2000<br>476.4000                          |
| EE      | Land Mobile Service<br>(Citizen Band Radio, single frequency)         | 476.4125<br>477.4125           | -              | 25                      | 476.4000 + n (0.025)             | 1 to 40                                  | 476.4250<br>477.4000                          |
| FF      | Land Mobile Service<br>(two frequency, base receive)                  | 477.4125<br>479.9875           | BB             | 25                      | 477.4000 + n (0.025)             | 1 to 103                                 | 477.4250<br>479.9750                          |
| GG      | Land Mobile Service<br>(two frequency, base receive)                  | 479.9875<br>484.7875           | II             | 25                      | 479.9750 + n (0.025)             | 1 to 192                                 | 480.0000<br>484.7750                          |
| HH      | Land Mobile Service<br>(single frequency) (see note 1)                | 484.7875<br>485.1875           | -              | 25                      | 484.7750 + n (0.025)             | 1 to 16                                  | 484.8000<br>485.1750                          |
| II      | Land Mobile Service<br>(two frequency, base transmit)                 | 485.1875<br>489.9875           | GG             | 25                      | 485.1750 + n (0.025)             | 1 to 192                                 | 485.2000<br>489.9750                          |
| JJ      | Land Mobile Service<br>(two frequency, base transmit)                 | 489.9875<br>494.7875           | LL             | 25                      | 489.9750 + n (0.025)             | 1 to 192                                 | 490.0000<br>494.7750                          |



| Segment | Service Allocation   | Segment Frequency Limits (MHz) | Paired Segment | Channel Bandwidth (kHz) | Channel Centre Frequency Formula | Range of integer values for variable 'n' | First channel / last channel centre frequency |
|---------|--|--------------------------------|----------------|-------------------------|----------------------------------|--|---|
| KK      | Land Mobile Service (single frequency) (see note 1)          | 494.7875<br>495.1875           | -              | 25                      | 494.7750 + n (0.025)             | 1 to 16                                  | 494.8000<br>495.1750                          |
| LL      | Land Mobile Service (two frequency, base receive)            | 495.1875<br>499.9875           | JJ             | 25                      | 495.1750 + n (0.025)             | 1 to 192                                 | 495.2000<br>499.9750                          |
| MM      | Land Mobile Service (two frequency, base transmit)           | 499.9875<br>500.99375          | RR             | 12.5                    | 499.9875 + n (0.0125)            | 1 to 80                                  | 500.0000<br>500.9875                          |
| NN      | Designated for Spectrum Licensing (see note 6)               | 500.99375<br>504.99375         | -              | -                       | -                                | -  | -   |
| OO      | Land Mobile Service (two frequency, base transmit)           | 504.99375<br>507.01250         | TT             | 12.5                    | 504.9875 + n (0.0125)            | 1 to 161                                 | 505.0000<br>507.0000                          |
| PP      | Land Mobile Service (two frequency, base transmit)           | 507.0125<br>509.5375           | UU             | 25                      | 507.0000 + n (0.025)             | 1 to 101                                 | 507.0250<br>509.5250                          |
| QQ      | Land Mobile Service (single frequency) (see note 1)          | 509.5375<br>509.9875           | -              | 25                      | 509.5250 + n (0.025)             | 1 to 18                                  | 509.5500<br>509.9750                          |
| RR      | Land Mobile Service (two frequency, base receive)            | 509.9875<br>510.99375          | MM             | 12.5                    | 509.9875 + n (0.0125)            | 1 to 80                                  | 510.0000<br>510.9875                          |
| SS      | Designated for Spectrum Licensing (see note 6)               | 510.99375<br>514.99375         | -              | -                       | -                                | -  | -   |
| TT      | Land Mobile Service (two frequency, base receive)            | 514.99375<br>517.01250         | OO             | 12.5                    | 514.9875 + n (0.0125)            | 1 to 161                                 | 515.0000<br>517.0000                          |
| UU      | Land Mobile Service (two frequency, base receive)            | 517.01250<br>519.53750         | PP             | 25                      | 517.0000 + n (0.025)             | 1 to 101                                 | 517.0250<br>519.5250                          |
| VV      | Land Mobile + Fixed Services (single frequency) (see note 1) | 519.5375<br>520.0000           | -              | 25                      | 519.5250 + n (0.025)             | 1 to 18                                  | 519.5500<br>519.9750                          |

**Notes:**

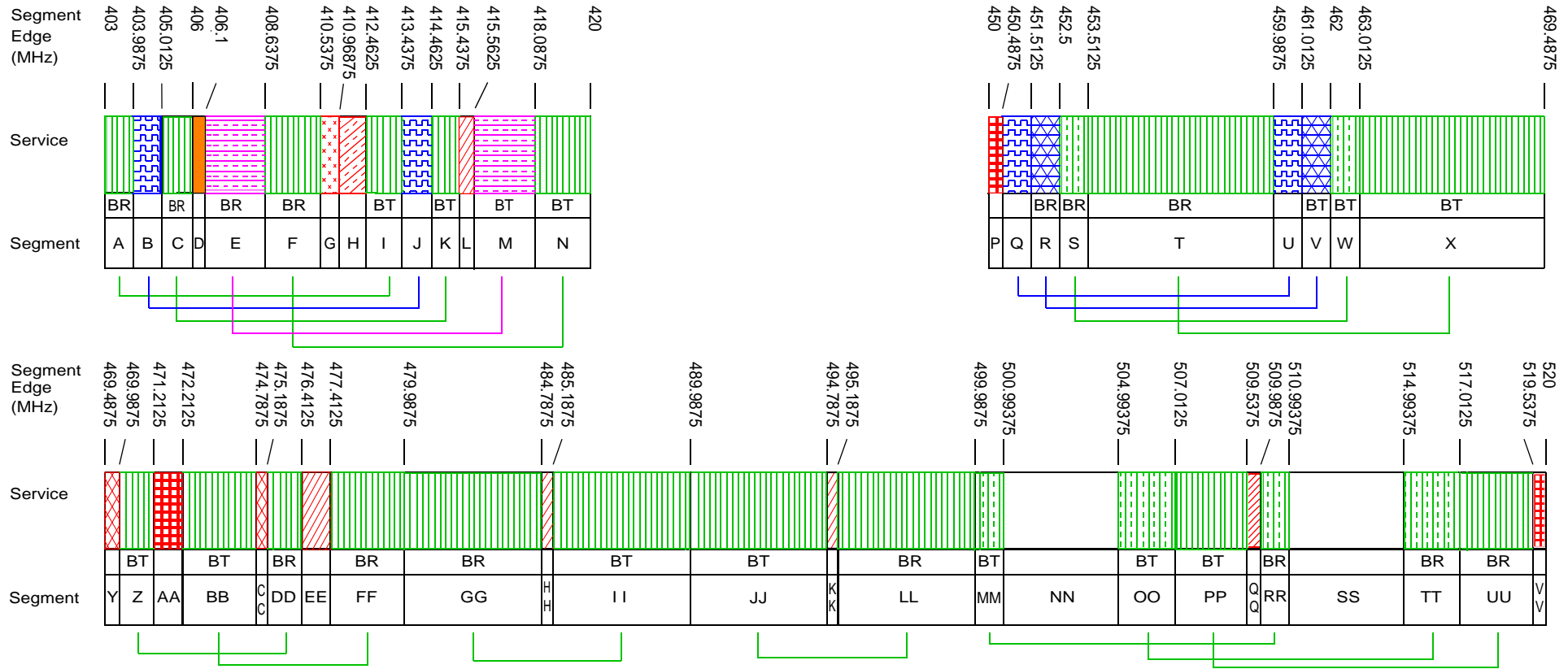
1. The land mobile service allocation in segments G, H, L, P, Y, AA, CC, HH, KK, QQ, and VV is intended primarily to support single frequency low power applications; assignments may be made to single frequency high power land mobile applications if required.
2. In segment G (410.5375 - 410.96875 MHz) channel bandwidths of 25 kHz may be used.
3. In segments R (451.5125 - 452.5 MHz) and V (461.0125 - 462.0 MHz) channel bandwidths of 25 kHz may be used provided the requirements of Spectrum Planning Report SP 2/90 '*400/900 MHz Point to Multipoint Assignment Guidelines*' are met.
4. The frequencies 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz may be used by on-board communication stations in the Maritime Mobile Service.
5. The segments Y (469.4875 - 469.9875 MHz) and CC (474.7875 - 475.1875 MHz) may be used by the fixed service outside of the areas defined as high spectrum demand areas (see Table 2).
6. On 16 May 1996, the Minister for Communications and the Arts designated that the bands 500.99375 - 501.39375 MHz and 510.99375 - 511.39375 MHz throughout Australia, and the bands 501.39375 - 504.99375 MHz and 511.39375 - 514.99375 MHz in parts of Australia, be allocated by issuing spectrum licences. No apparatus licences may be issued in the designated spectrum licensed bands and areas.

**Table 2: High Spectrum Demand Areas (Contour Centre Coordinates And Radii)\*  
April 1997**












| <b>State</b>      | <b>Town</b>      | <b>Zone</b> | <b>Easting</b> | <b>Northing</b> | <b>Radius</b> |
|-------------------|------------------|-------------|----------------|-----------------|---------------|
| New South Wales   | Newcastle        | 56          | 384722         | 6355447         | 50 km         |
| New South Wales   | Sydney           | 56          | 335103         | 6249367         | 60 km         |
| New South Wales   | Penrith          | 56          | 279726         | 6267448         | 35 km         |
| New South Wales   | Wollongong       | 56          | 301116         | 6177146         | 35 km         |
| Queensland        | Maroochydore     | 56          | 509952         | 7052315         | 35 km         |
| Queensland        | Brisbane         | 56          | 501674         | 6961834         | 55 km         |
| Queensland        | Surfers Paradise | 56          | 542065         | 6902340         | 35 km         |
| South Australia   | Adelaide         | 54          | 280600         | 6132250         | 40 km         |
| Victoria          | Melbourne        | 55          | 320605         | 5812740         | 50 km         |
| Victoria          | Mornington       | 55          | 328000         | 5768000         | 50 km         |
| Victoria          | Geelong          | 55          | 268300         | 5774265         | 20 km         |
| Western Australia | Perth            | 50          | 391314         | 6464517         | 50 km         |


\* Reproduced from Table 4 of the VHF High Band Frequency Band Plan (148 to 174 MHz)

# Figure 1: 400 MHz Narrowband Services Diagram - December 2002



## SERVICES

- |   |   |   |  |   |  |
|---|---|---|--|---|--|
|  | Land mobile (two frequency, 25 kHz channelling).    |  | Land mobile. Fixed services may be assigned in non-HSD areas (see note 4, Table 1) (single frequency, 25 kHz channelling). |  | Fixed (two frequency, point to point, 25 kHz channelling).           |
|  | Land mobile (two frequency, 12.5 kHz channelling).  |  | Land mobile (single frequency, 12.5 kHz channelling).  |  | Fixed (two frequency, point to multipoint, 25/12.5 kHz channelling). |
|  | Land mobile (trunked, 12.5 kHz channelling).        |  | Land mobile and fixed (single frequency, 25 kHz channelling).  |  | Mobile-satellite (Earth to space).                                   |
|  | Land mobile (single frequency, 25 kHz channelling). |  | Land mobile and fixed (single frequency, 25/12.5 kHz channelling).   |   |  |

BT = Base station transmit segment  
 BR = Base station receive segment  
 = Paired segments

Note: This diagram should be read in conjunction with Section 2.1 and Table 1 (including Notes) of the Plan.

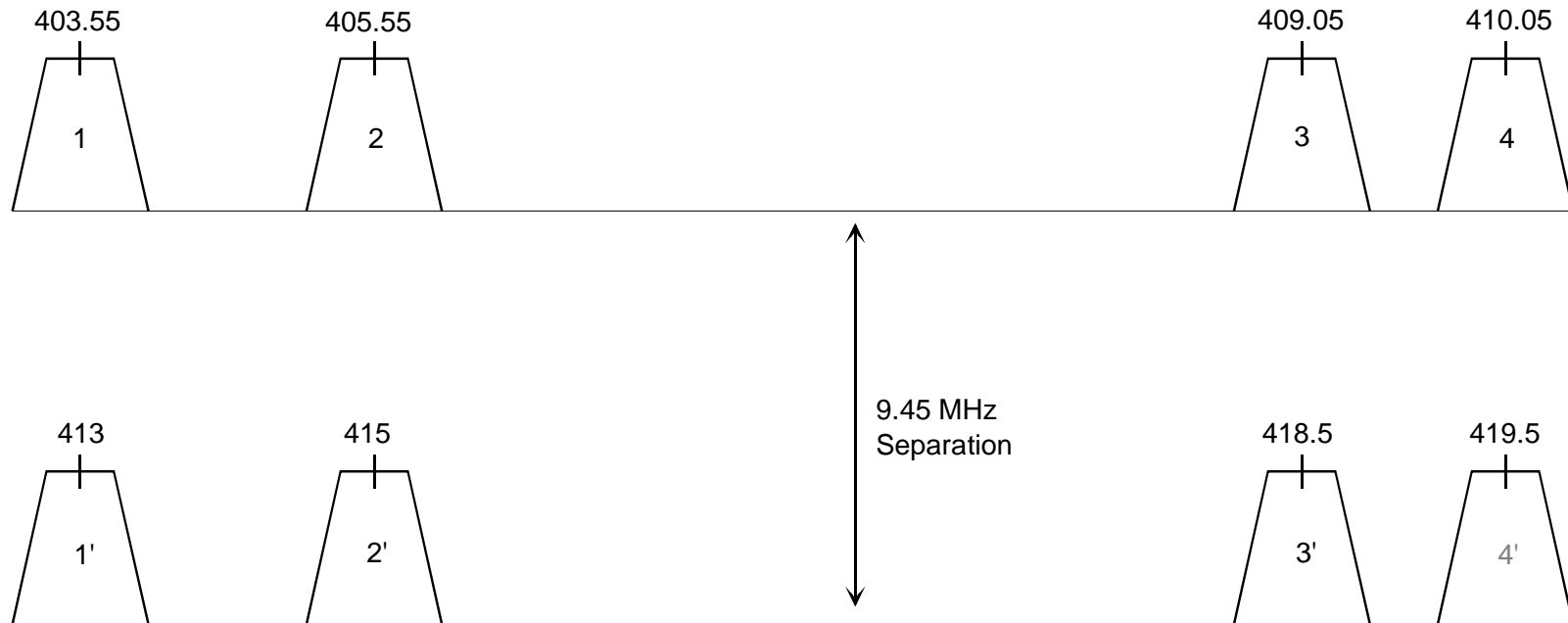
**Table 3: Channelling Arrangements for the 400 MHz Wideband Fixed  
Point-to-Point Service (see Notes)  
April 1997**

| Channel |                        | Paired Channel |                        |
|---------|------------------------|----------------|------------------------|
| No      | Centre Frequency (MHz) | No             | Centre Frequency (MHz) |
| 1       | 403.55                 | 1'             | 413                    |
| 2       | 405.55                 | 2'             | 415                    |
| 3       | 409.05                 | 3'             | 418.5                  |
| 4       | 410.05                 | 4'             | 419.5                  |
| 1'      | 413                    | 1              | 403.55                 |
| 2'      | 415                    | 2              | 405.55                 |
| 3'      | 418.5                  | 3              | 409.05                 |
| 4'      | 419.5                  | 4              | 410.05                 |

**Notes:**

1. Assignments to the 400 MHz wideband fixed point-to-point service should not be made within 200 km of Adelaide, Brisbane, Melbourne, Perth or Sydney.
2. The emission bandwidth of the 400 MHz wideband fixed point-to-point service is between 150 - 750 kHz.

**Figure 2 : 400 MHz Wideband Fixed Point-to-Point Service Diagram - April 1997**



Note: See Table 3 and associated notes for geographic constraints and applicable emission bandwidths.

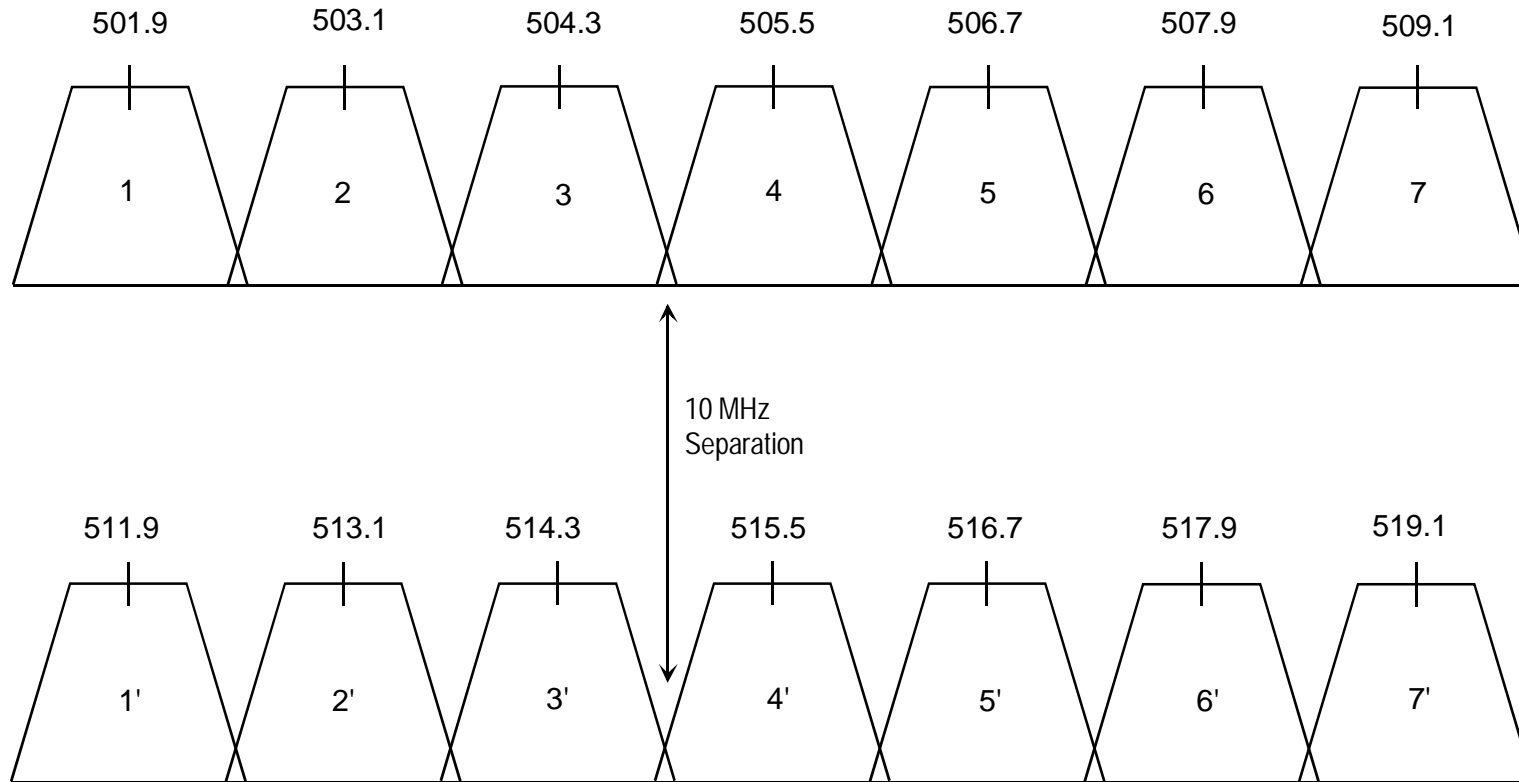
**Table 4: Channelling Arrangements for the 400 MHz Wideband Fixed  
Point-to-Multipoint Service (see Notes)  
April 1997**

| Channel |                        | Paired Channel |                        |
|---------|------------------------|----------------|------------------------|
| No      | Centre Frequency (MHz) | No             | Centre Frequency (MHz) |
| 1       | 501.9                  | 1'             | 511.9                  |
| 2       | 503.1                  | 2'             | 513.1                  |
| 3       | 504.3                  | 3'             | 514.3                  |
| 4       | 505.5                  | 4'             | 515.5                  |
| 5       | 506.7                  | 5'             | 516.7                  |
| 6       | 507.9                  | 6'             | 517.9                  |
| 7       | 509.1                  | 7'             | 519.1                  |
| 1'      | 511.9                  | 1              | 501.9                  |
| 2'      | 513.1                  | 2              | 503.1                  |
| 3'      | 514.3                  | 3              | 504.3                  |
| 4'      | 515.5                  | 4              | 505.5                  |
| 5'      | 516.7                  | 5              | 506.7                  |
| 6'      | 517.9                  | 6              | 507.9                  |
| 7'      | 519.1                  | 7              | 509.1                  |

**Notes:**

1. Assignments to the 400 MHz wideband fixed point-to-multipoint service should not be made within 200 km of capital cities.
2. The nominal emission bandwidth of the 400 MHz wideband fixed point-to-multipoint service is 1.82 MHz.
3. Emission bandwidths up to 2 MHz may be used on a case by case basis provided due consideration is given to services operating in the bands designated for spectrum licensing (see Note 4) and services operating in adjacent spectrum.
4. On 16 May 1996 the Minister for Communications and the Arts designated that the bands 500.99375 - 501.39375 MHz and 510.99375 - 511.39375 MHz throughout Australia, and the bands 501.39375 - 504.99375 MHz and 511.39375 - 514.99375 MHz in parts of Australia, be allocated by issuing spectrum licences. No apparatus licences may be issued in the designated spectrum licensed bands and areas.

Figure 3: 400 MHz Wideband Fixed Point-to-Multipoint Service Diagram - April 1997



Note: See Table 4 and associated notes for geographic constraints and applicable emission bandwidths.



## **History**

### **1995**

Spectrum arrangements for services operating in the 400 MHz Band were previously described in a number of technical documents that specified such requirements as service allocations, channelling arrangements, frequency assignment procedures and equipment minimum performance requirements. The initial release of the Plan was based on information contained in:

- Spectrum Planning Report SP 2/87 “Plan for use of the Band 403 - 520 MHz”.
- Draft “400 MHz Band Frequency Band Plan”, gazetted for public comment on 6 January 1988.
- Spectrum Planning Report SP 4/89 “Guidelines for the Assignment of Frequencies to the Two Frequency Point-to-Multipoint Service using 12.5 kHz Channelling in the 400 and 900 MHz Bands”.
- Spectrum Planning Report SP 2/90 “400/900 MHz Point-to-Multipoint Assignment Guidelines”.
- Draft 400 MHz Plan (1991).
- RALI LM 3 “Trunked Land Mobile Services”.
- Spectrum Planning Report SP 11/92 “Lynx Version 3 - Computer Assisted Frequency Assignment for Two Frequency Single Channel Fixed Systems in the 150, 400 and 900 MHz Bands”.

Segment limits for narrowband services allocations in the 400 MHz Band were specified in some of these documents in inconsistent ways that had led to confusion in interpreting the actual arrangements. Specifically, the 400 MHz Plan has 49 segment boundaries for narrowband services, most of which were consistent with the planned arrangements described in the aforementioned documents. However, 16 boundaries were adjusted when this Plan was first issued in 1995 to account for a significant number of assignments that were not consistent with the previously advised planning requirements; in all cases this amounted to a shift across the spectrum of one channel width. The segment boundaries that were changed are between segments A/B, I/J, P/Q, T/U, X/Y, Y/Z, BB/CC, CC/DD, FF/GG, GG/HH, HH/II, II/JJ, JJ/KK, KK/LL, LL/MM and QQ/RR.

The documents also appear to have led to some confusion regarding the allocation arrangements for single frequency narrowband services. To remove any uncertainty, this Plan drew on the information in those documents to produce the authoritative reference on the spectrum arrangements for these narrowband services.

Spectrum arrangements for 400 MHz wideband fixed point-to-point and

point-to-multipoint services in rural areas were previously specified in draft channel plan diagrams. Channel plans for these wideband services were included in this Plan in order to remove any uncertainty regarding the status of those channel plan diagrams and to provide a consolidated planning reference for all 400 MHz services.

### **1997**

The Plan allocates 11 segments for single frequency services. Allocations for a number of these single frequency segments were changed in 1997 to accommodate a significant number of assignments that were not consistent with the previously advised planning requirements. The segments to which these changes were made are G, P, Y, AA, CC and VV. In some instances the changes introduced sharing between fixed and land mobile services outside of high spectrum demand (HSD) areas (see table 2, [Appendix A](#) for the definition of these areas). Also, as there was little demand for the single frequency point-to-multipoint service allocated to segment G, this segment was reduced in bandwidth by approximately 600 kHz, by adjusting its frequency boundary with segment H. All of the changes to the single frequency segments are summarised in [Table 1](#).

| <b>Segment</b> | <b>Before April 1997</b>                              | <b>Now</b>  |
|----------------|---|---|
| G              | Fixed Point-to-Multipoint<br>410.5375 - 411.55625 MHz | Land Mobile + Fixed Services<br>410.5375 - 410.96875 MHz                    |
| H              | Land Mobile Service<br>411.55625 - 412.4625 MHz       | Land Mobile Service<br>410.96875 - 412.4625 MHz                             |
| P              | Land Mobile Service<br>450 - 450.4875 MHz             | Land Mobile + Fixed Services<br>450 - 450.4875 MHz                          |
| Y              | Land Mobile Service<br>469.4875 - 469.9875 MHz        | Land Mobile Services,<br>Fixed outside HSD areas<br>469.4875 - 469.9875 MHz |
| AA             | Land Mobile Service<br>471.2125 - 472.2125 MHz        | Land Mobile + Fixed Services<br>471.2125 - 472.2125 MHz                     |
| CC             | Land Mobile Service<br>474.7875 - 475.1875 MHz        | Land Mobile Services,<br>Fixed outside HSD areas<br>474.7875 - 475.1875 MHz |
| VV             | Land Mobile Service<br>519.5375 - 520 MHz             | Land Mobile + Fixed Services<br>519.5375 - 520 MHz                          |

**Table 1 - 1997 changes to single frequency segments**

Previously, the nominal emission bandwidth for the wideband rural fixed point-to-multipoint service was 1.4 MHz. The nominal emission bandwidth for this service was increased to 1.82 MHz to support the use of this service in providing enhanced telecommunications services to rural Australia.

**2000**

Existing policy regarding support for low and high power mobile applications within segments allocated to the single frequency land mobile service was clarified (see Attachment 1, Table 1, Note 1 for details). Background to this policy is described in Spectrum Planning Report SP 2/00, "Review of the ACA Policy on the Assignment of Single Frequency High Power and Low Power Mobile Services in the 400 MHz Band".

**2002**

This release provides new opportunities for point-to-multipoint applications in segments allocated for land mobile use (see 2.1 Narrowband Services for details). The Plan has also been restructured to more appropriately present policy and historical information.

-----