

## **VHF High Band Frequency Band Plan (148 to 174 MHz) 1991 No. 354**

### **EXPLANATORY STATEMENT**

#### **STATUTORY RULES 1991 No. 354**

ISSUED BY THE AUTHORITY OF THE MINISTER FOR TRANSPORT AND COMMUNICATIONS

Subsection 19(1) of the Radiocommunications Act 1983 (the Act) provides that the Minister may, by instrument in writing, prepare frequency band plans, not inconsistent with the spectrum plan prepared under section 18 of the Act.

Subsection 19(2) provides that a frequency band plan shall make provision for purposes for which the band may be used, including provisions specifying the purposes for which any part of the band (including any particular frequency or frequency channel) maybe used.

Subsection 19(3) provides that a frequency band plan may apply with respect to a specified area and with respect to a specified period.

Subsection 20(1) of the Act provides that before preparing a frequency band plan, the Minister shall publish the plan he proposes to prepare and invite interested persons to make representations in connection with the proposed plan.

The Radiocommunications - Australian Spectrum Plan, prepared by the Parliamentary Secretary to the Minister for Transport and Communications on behalf of the Minister on 7 December 1990, divides the radiofrequency spectrum into frequency bands, designates frequency bands for defence purposes, and specifies the general purposes for which other frequency bands may be used. Frequency band plans specify more particularly the purposes for which any part of the frequency band may be used.

A proposed band plan for the VHF High Band (148 to 174 MHz) was published by the Parliamentary Secretary on behalf of the Minister in the Commonwealth of Australia Gazette No. GN 16 on 1 May 1991.

Eighty six submissions were received in connection with the proposed band plans for the VHF High Band and the VHF Mid Band, which were published for comment on the same day.

The revised VHF High Band Plan was signed by the Parliamentary Secretary on behalf of the Minister on 14 November 1991 and has effect from the date of notification of the Band Plan in the Commonwealth Gazette.

#### The VHF High Band

In the early 1950s, the Government decided to use the VHF High Band principally for privately operated and government operated land mobile services. At that time the mode of operation was single frequency.

During the 1960s, 1970s and 1980s, other services were introduced in this band, including:

- privately operated fixed links used mainly to control remote single frequency base stations;
- rural fixed telephone services, operated by Telecom Australia;
- two frequency land mobile services;
- low powered fixed and mobile services;

- interior and exterior paging services; and
- miscellaneous services.

Channelling (separation between channel centre frequencies) in this band has been progressively reduced from 240 kHz in the late 1940s, through 120 kHz, then 60 kHz and finally 30 kHz which was phased in from 1962. A process of interleaving 30 kHz channels at locations peripheral to major cities was introduced a few years later.

The VHF High Band Plan is the first formal band plan made for the 148 to 174 MHz band and provides for the expansion of existing services and the introduction of new types of services. The principal features of the VHF High Band Plan are:

- predominant use of the band for land mobile services;
- a structure which accommodates predominantly two frequency systems to facilitate more efficient use of radiocommunications sites;
- the introduction of trunked land mobile services and amplitude companded single sideband services to increase the long term productivity of the band;
- 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
- a spectrum allocation to miscellaneous services, allowing flexibility to accommodate future services which may provide innovative and efficient use of the spectrum.

Conversion of services to conform with this Band Plan will generally require modification or replacement of existing equipment and a change in operating frequency. To ensure completion of the program for conversion by the dates specified in the Band Plan, individual users may be required to convert their services earlier than the relevant conversion date.

Following due consideration of the submissions, the Band Plan has been revised by the Parliamentary Secretary and more flexible arrangements have been introduced to relieve requirements on users:

- the conversion date requirement for users operating outside High Spectrum Demand (HSD) areas has been removed, enabling these users to continue to operate their current equipment for as long as is practicable. Services in these areas will be converted as necessitated by spectrum demand;
- new frequency assignments to users in areas outside HSD areas need only comply with the purposes designated for band plan segments for specified geographic areas. Users may operate wide channel (greater than 12.5 kHz) equipment, unless required to use narrow channel (12.5 kHz) equipment, because of spectrum demand;
- conversion dates in all HSD areas, except New South Wales, have been extended;
- HSD areas have been removed from some cities and larger towns; and
- an ability to adapt the channelling arrangements of the land mobile and fixed services segments of the Band Plan to suit the requirements of future, spectrum efficient technologies has also been provided.

The cost impact of the conversion and possible disruption to user operations will also be minimised by:

- generally converting small services ahead of large services;

- implementing conversion in periods when operational demands upon the user's communications system are lowest; and
- a progressive and systematic clearance and conversion on an area by area and channel by channel basis.

Each Regional Office of the Department will develop and manage the detailed program for conversion to the new arrangements in their region.

## **NOTES ON CLAUSES**

### **Clause 1 - Citation**

States that the citation for the band plan for the 148 to 174 MHz band is to be the VHF High Band Frequency Band Plan (148 to 174 MHz).

### **Clause 2 - General**

Describes the intention of the Band Plan and outlines the approach adopted for its implementation.

### **Clause 3 - Interpretation**

Subclauses 3(1) and (2) provide for definitions of terms used in the band plan.

The definitions of "primary service" and "secondary service" state that they have the same meaning as in Part 3 of the Radiocommunications - Australian Spectrum Plan. Essentially, as provided for in subsection 7(4) of Part 3 of the Spectrum Plan, stations of a secondary service have a lower priority than primary and permitted services, shall not cause harmful interference to stations of those services, and cannot claim protection from harmful interference from stations of those services.

Subclause 3(3) provides that the use of the term 'authorised' refers to an authorisation given by the Secretary of the Department, or by an officer of the Department authorised in writing by the Secretary, for the relevant purpose.

### **Clause 4 - Conversion Dates**

Subclause 4(1) provides for implementation of conversion to the VHF High Band Frequency Band Plan to commence on the date of notification of the making of the Band Plan in the Commonwealth Gazette.

Subclause 4(2) refers to Table 1, which specifies conversion dates for HSD areas by State, and notes that there are no HSD areas in Tasmania, the Northern Territory, the Australian Capital Territory or any other territory of Australia.

### **Clause 5 - TABLE 1: CONVERSION DATE IN HIGH SPECTRUM DEMAND AREAS OF STATES**

Table 1 specifies conversion dates for HSD areas in New South Wales, Queensland, South Australia, Victoria and Western Australia.

### **Clause 6 - General Purposes for Band Segments**

Provides that the VHF High Band may only be used for a service which transmits or receives signals in a channel in a range specified in Column 3 of Table 2, for a purpose which accords with the allocation for that range, and in a geographic area specified in Column 5 for that range. This clause is subject to clause 9 of the Band Plan, which provides for exemptions and exceptions to

this clause. This clause is also subject to Part 4 of the Spectrum Plan, which makes provision for general uses of the spectrum, other than those specified in the Band Plan.

### **Clause 7 - Channelling Arrangements for Band Segments**

Subclause 7(1) provides that the VHF High Band may only be used for a service which operates within a channel whose centre frequency and channel bandwidth are as specified in Table 3. This clause is subject to subclause 7(3) and clause 9 of the Band Plan, which provide for exemptions and exceptions to this clause. This clause is also subject to Part 4 of the Spectrum Plan, which makes provision for general uses of the spectrum other than those specified in the Band Plan.

Subclause 7(2) requires the transmit/receive split in the VHF High Band to be 4.6 MHz. The transmit/receive split is defined in subclause 3(2).

Subclause 7(3) provides that 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, when compared with the channelling arrangements specified for that segment. In determining the spectrum efficiency of a service, matters which may be considered include, but are not limited to, the following: occupied bandwidth, adjacent channel performance, the distance from the transmitter that the channel may be reused without causing harmful interference, and the impact that introduction of the service will have upon existing services.

### **Clause 8 - Status of Allocations**

Provides that a service which is operated according to clauses 6 and 7 is a primary service, unless the contrary intention appears.

### **Clause 9 - Exemption From Compliance With Clauses 6 and 7**

Subclause 9(1) is a grandfathering clause which provides for services operating in non-HSD areas at the time of the commencement of the Band Plan, with technical or operational characteristics other than those specified by clauses 6 and 7, to continue operating as secondary services.

Subclause 9(2) provides for a new service which would be operating outside of HSD areas and in accordance with clause 6 but not clause 7, to be authorised as a secondary service only.

Subclause 9(3) provides that, to facilitate implementation of the Band Plan, any segment of the Band Plan may be authorised to be used temporarily, up to the relevant conversion date, for purposes or with technical or operational characteristics other than those specified in the Band Plan.

### **Clause 10 - TABLE 2: SERVICE ALLOCATIONS**

Table 2 allocates segments of the VHF High Band for specified purposes in specified geographic areas.

### **Clause 11 - TABLE 3: CHANNELLING ARRANGEMENTS**

Table 3 specifies the channel centre frequencies and channel bandwidths for the segments of the VHF High Band.

### **Clause 12 - FIGURE 1: VHF HIGH BAND PLAN DIAGRAM**

Figure 1 is a diagrammatic representation of the VHF High Band Plan.

### **Clause 13 - High Spectrum Demand And Rural Areas**

Subclauses 13(1) and (2) define HSD areas with reference to Table 4, which specifies centre coordinates, nominally described by reference to a nearby town, and radii.

Subclause 13(3) provides that where adjacent areas overlap, a HSD area is the combination of those areas.

Subclause 13(4) provides that the Rural area is defined by a contour 100 km outside of and enclosing the HSD areas.

Subclause 13(5) indicates that HSD and Rural areas are set out in the map in Figure 2.

**Clause 14 - TABLE 4: HIGH SPECTRUM DEMAND CONTOUR CENTRE COORDINATES AND RADII**

Table 4 specifies the centre coordinates and radii of HSD areas.

**Clause 15 - FIGURE 2: DIAGRAM OF HIGH SPECTRUM DEMAND AND RURAL AREAS**

Figure 2 is a map of Australia showing the location of HSD and Rural area contours.