

# 400 MHz plan

RALI: MS 22

DATE OF EFFECT: 17 JANUARY 2020

## Amendment history

Date	Comments
1995	Adjustment of segment boundaries and addition of allocation arrangements for single frequency narrowband services and 400 MHz wideband fixed point-to-point and point-to-multipoint services in rural areas.
1997	The allocations for a number of single frequency segments were changed and segment G was reduced in bandwidth by approximately 600 kHz. The nominal emission bandwidth for the wideband rural fixed point-to-multipoint service was increased to 1.82 MHz.
2000	Clarification of support for low and high-power mobile applications within segments allocated to the single frequency land mobile service.
2002	This release provides new opportunities for point-to-multipoint applications in segments allocated for land mobile use. The plan was also restructured to more appropriately present policy and historical information.
February 2011	In response to a review of the 400 MHz band a wide range of changes were introduced including the adoption of 12.5 kHz channels throughout the narrowband channel raster (with advice on channel splitting for 6.25 kHz if required), realignment of segment boundaries and restructure of 450–470 MHz to accommodate a 10 MHz duplex frequency split. Segments were set aside to be used exclusively for federal, state and territory government purposes. The use of trunking was encouraged in all segments allocated for the land mobile service. The frequency range 420–430 MHz was added to the scope of the <i>400 MHz plan</i> .
May 2012	Updated to reflect the revocation of the 500 MHz spectrum licence designation notice and that these segments reverted to apparatus licensing throughout Australia. The segments used for rail purposes were also given greater visibility and channels specifically for area wide applications were added.
January 2015	Updated to identify further channels set aside for use by the rail industry and to reflect changes to the assignment priority of spectrum utilised by the point-to-multipoint services. Also amended to better align segment boundaries to maximise the number of available channels.
January 2020	Addition of frequencies for enclosed and short-range digital systems. Adjustments to Appendix B (transition arrangements) to reflect the passage of time and decisions made to assist in the completion of the 400 MHz implementation

Suggestions for improvements to Radiocommunications Assignment and Licensing Instruction MS 22 may be addressed to:

The Manager, Spectrum Planning Section  
Australian Communications and Media Authority  
PO Box 78  
Belconnen ACT 2616

or by email to: [freqplan@acma.gov.au](mailto:freqplan@acma.gov.au).

Please notify the ACMA of any inaccuracy or ambiguity found in this RALI, so that it can be investigated and appropriate action taken.



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# 1 Introduction

## 1.1 Purpose

The purpose of this Radiocommunications Assignment and Licensing Instruction (RALI) is to codify planning arrangements for radiocommunication services in the two bands 403–430 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.

The information in this RALI reflects the Australian Communications and Media Authority's (ACMA) statement of current policy in relation to planning arrangements for radiocommunications services in the 400 MHz band. In making decisions, accredited persons and ACMA 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 contact:

The Manager, Spectrum Planning Section  
Australian Communications and Media Authority  
PO Box 78  
Belconnen ACT 2616

or by email to: [freqplan@acma.gov.au](mailto:freqplan@acma.gov.au).

## 2 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 2 and 3 of appendix A and illustrated in Figures 2 and 3 of appendix A respectively. Arrangements for the radiolocation and amateur services are outside of the scope of this plan.

### 2.1 Narrowband services

The *400 MHz Plan* provides for the operation of narrowband land mobile services (single/two frequency with 6.25/12.5/25 kHz channelling and two frequency trunked with 6.25/12.5/25 kHz channelling) and fixed services (single frequency with 12.5/25/50 kHz channelling, two frequency point-to-point with 12.5/25/50 kHz channelling and two frequency point-to-multipoint with 12.5/25/50 kHz channelling).

Narrowband services are assigned in accordance with this plan.

High power land mobile<sup>1</sup> assignments using 25 kHz channels for a single communications circuit (for example, for a single voice channel) are prohibited within high density areas (HDAs) and medium density areas (MDAs) and in the area extending 100 km out from the HDA or MDA boundary.<sup>2</sup> The use of a 25 kHz channel for a single communications circuit will be supported 100 km or more outside of HDAs and MDAs. The use of channels greater than 12.5 kHz bandwidth within 100 km of HDAs and MDAs is permitted only for systems carrying two or more circuits through a 25 kHz channel, that is, systems that achieve spectrum efficiencies equal to or better than one communications channel per 12.5 kHz, will be permitted in any area.

Low power land mobile<sup>3</sup> assignments using 25 kHz channels for a single communications circuit (for example, for a single voice channel) are prohibited within HDAs and MDAs. The use of a 25 kHz channel for a single communications circuit will be supported outside of HDAs and MDAs. The use of channels greater than 12.5 kHz bandwidth within HDAs and MDAs is permitted only for systems carrying two or more circuits through a 25 kHz channel, that is, systems that achieve spectrum efficiencies equal to or better than one communications channel per 12.5 kHz, will be permitted in any area.

Stations in the fixed service (point-to-multipoint) are limited to segments allocated to the fixed service (point-to-multipoint) and the top 1.5 MHz of segments NN/SS (that is, Channels 201 to 320 of segments NN and SS). Segments allocated for the land mobile service may only be used by point-to-multipoint services if they cannot be accommodated in the above-mentioned segments. Segments allocated exclusively for the land mobile service (trunked) are not to be used for the point-to-multipoint service. The criteria 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). When fixed service (point-to-multipoint) systems are assigned in 400 MHz land mobile

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<sup>1</sup> For the land mobile service, the term high power is defined as assignments using more than 8.3 Watts EIRP and is typically 83 Watts.

<sup>2</sup> These areas are defined in the [Apparatus Licence Fee Schedule](#).

<sup>3</sup> For the land mobile service, the term low power is defined as assignments using 8.3 Watts EIRP or less.



segments, the assignment process shall be as prescribed in RALI LM8. The use of 25 kHz channels for the fixed service (point-to-multipoint) is supported in all density areas.

Assignments for 6.25 kHz bandwidth may be made within 12.5 kHz channels, by offsetting from the nominal 12.5 kHz channel centre by 3.125 kHz. Assignments to 6.25 kHz systems should be made adjacent to any existing 6.25 kHz assignments in the same area wherever possible.

For the land mobile service, two 12.5 kHz channels may be aggregated if required. In HDAs and MDAs, the aggregation scheme is channels 1 and 2, 3 and 4, et cetera. In other areas this is also the preferred method, however when assignments are made to expand existing 25 kHz systems a 25 kHz assignment may be made on the channel raster used for the existing system.

Segments E and M are allocated exclusively to the land mobile service (trunked). Land mobile trunking systems may also be assigned in all other segments allocated to the land mobile service. The principles detailed in RALI LM3 still apply.

Where the land mobile service allocation permits single frequency operation, the allocation is intended primarily to support single frequency low power applications. Assignments may be made to single frequency high power land mobile applications in low density and remote density areas on sites where the proposed licensee is the only licensee holding assignments in the 400 MHz band, that is, use of high power single frequency applications is not generally permitted on communal sites where more than one licensee holds assignments in the 400 MHz band.

Table 4 of Appendix A lists the channels that shall be used for single frequency area wide operation. Table 5 of Appendix A lists the channels that shall be used for two frequency area wide operation. Channels are nominally 12.5 kHz wide but may be aggregated to form 25 kHz channels as per the tables. Channels within segments used for government purposes may also be used for area wide services.

New assignments not meeting the planning arrangements in this plan but required to extend existing services may continue to be made in areas outside of high and medium density areas. In high and medium density areas, non-compliant assignments may be allowed for reasons of interoperability on a case-by-case basis, assessed by the Manager, Spectrum Planning Section. Short term use pending migration to compliant systems is considered reasonable justification for such assignments.

Two frequencies have been identified for small area model use (enclosed and short-range digital systems). These are 469.9875 MHz and 471.2125 MHz. RALI LM8 defines these systems and their assignment rules.

Transition arrangements that applied to the band after a comprehensive review in 2010 are detailed in Appendix B.

## **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 the channelling arrangements in this plan.

## 3 Exceptions

Exceptions to the requirements of this RALI for prospective assignments require case-by-case consideration by the Manager, Spectrum Planning Section.

A request for exemption from the requirements of this RALI would need to be accompanied by evidence to support the request.

All requests for exemptions should be submitted to [freqplan@acma.gov.au](mailto:freqplan@acma.gov.au).

## 4 RALI authorisation

Approved 17/01/2020

Manager  
Spectrum Planning Section  
Spectrum Planning and Engineering Branch

Communications Infrastructure Division  
Australian Communications and Media Authority

# Appendix A: Allocation and channelling arrangements

**Table 1:** Service allocations and channelling arrangements for narrowband services in the bands 403–430 MHz and 450–520 MHz

**Figure 1:** 400 MHz narrowband services diagram

**Table 2:** Channelling arrangements for the 400 MHz wideband fixed point-to-point services

**Figure 2:** 400 MHz wideband fixed point-to-point service diagram

**Table 3:** Channelling arrangements for the 400 MHz wideband fixed point-to-multipoint service

**Figure 3:** 400 MHz wideband fixed point-multipoint service diagram

**Table 4:** Channels for single frequency area wide assignments

**Table 1: Service allocations and channelling arrangements for narrowband services in the bands 403–430 MHz and 450–520 MHz, January 2020**

Segment	Service allocation	Segment frequency limits (MHz)	Paired segment	Channel bandwidth h (kHz)	Channel centre frequency formula	Range of integer values for variable 'n'	First channel/last channel centre frequency
A	Land mobile service (two frequency, base receive) (see note 7)	403.0000 403.98125	I	12.5	403.0125 + n (0.0125)	1 to 77	403.0250 403.9750
B	Fixed point-to-point (two frequency)	403.98125 405.01875	J	12.5	403.98125 + n (0.0125)	1 to 82	403.99375 405.00625
C	Land mobile service (two frequency, base receive) (see note 7)	405.01875 406.0000	K	12.5	405.0125 + n (0.0125)	1 to 78	405.0250 405.98750
D	Mobile satellite service	406.0000 406.1000	-	-	-	-	-
E	Land mobile service (trunked, base receive) (see note 10)	406.1000 408.64375	M	12.5	406.1125 + n (0.0125)	1 to 202	406.1250 408.6375
F	Land mobile service (two frequency, base receive) (see notes 7 and 8)	408.64375 410.54375	N	12.5	408.6375 + n (0.0125)	1 to 152	408.6500 410.5375
G	Land mobile + fixed services (single frequency) (see note 1)	410.54375 410.96875	-	12.5	410.5375 + n (0.0125)	1 to 34	410.5500 410.9625
H	Land mobile service (single frequency) (see note 1)	410.96875 412.46875	-	12.5	410.9625 + n (0.0125)	1 to 120	410.975 412.4625

I	Land mobile service (two frequency, base transmit) (see note 7)	412.46875 413.43125	A	12.5	412.4625 + n (0.0125)	1 to 77	412.4750 413.4250
J	Fixed point-to-point (two frequency)	413.43125 414.46875	B	12.5	413.43125 + n (0.0125)	1 to 82	413.44375 414.45625
K	Land mobile service (two frequency, base transmit) (see note 7)	414.46875 415.44375	C	12.5	414.4625 + n (0.0125)	1 to 78	414.4750 415.4375
L	Land mobile service (single frequency) (see note 1)	415.44375 415.56875	-	12.5	415.4375 + n (0.0125)	1 to 10	415.4500 415.5625
M	Land mobile service (trunked, base transmit) (see note 10)	415.56875 418.09375	E	12.5	415.5625 + n (0.0125)	1 to 202	415.5750 418.0875
N	Land mobile service (two frequency, base transmit) (see notes 7 and 8)	418.09375 420.0000	F	12.5	418.0875 + n (0.0125)	1 to 152	418.1000 419.9875
O	Land mobile service (see note 7)	420.0000 430.0000	-	-	-	-	-
P	Land mobile + fixed services (single frequency) (see notes 1 and 8)	450.0000 450.4875	-	12.5	450.0125 + n (0.0125)	1 to 37	450.0250 450.4750
Q	Fixed point-to-point (two frequency)	450.4875 451.5125	U	12.5	450.48125 + n (0.0125)	1 to 82	450.49375 451.50625
R	Fixed point-to-multipoint (two frequency, base receive)	451.5125 452.5000	V	12.5 (see note 3)	451.50625 + n (0.0125)	1 to 79	451.51875 452.49375

S	Land mobile service (two frequency, base receive) (see note 2)	452.5000 457.50625	X	12.5	452.5 + n (0.0125)	1 to 400	452.5125 457.5000
T	Land mobile service (two frequency, base receive) (see notes 4 and 7)	457.50625 459.9875	Y	12.5	457.5 + n (0.0125)	1 to 198	457.5125 459.9750
U	Fixed point-to-point (two frequency)	459.9875 461.0125	Q	12.5	459.98125 + n (0.0125)	1 to 82	459.99375 461.00625
V	Fixed point-to-multipoint (two frequency, base transmit)	461.0125 462.0000	R	12.5	461.00625 + n (0.0125)	1 to 79	461.01875 461.99375
W	Land mobile service (single frequency) (see note 1)	462.0000 462.50625	-	12.5	462.0 + n (0.0125)	1 to 40	462.0125 462.5000
X	Land mobile service (two frequency, base transmit) (see note 2)	462.50625 467.50625	S	12.5	462.5 + n (0.0125)	1 to 400	462.5125 467.5000
Y	Land mobile service (two frequency, base transmit) (see notes 4 and 7)	467.50625 469.9875	T	12.5	467.5 + n (0.0125)	1 to 198	467.5125 469.9750
Z	Land mobile service (two frequency, base transmit)	469.9875 471.21875	DD	12.5	469.9875 + n (0.0125)	1 to 97	470.0000 471.2000
AA	Land mobile + fixed services (single frequency) (see note 1)	471.21875 472.21875	-	12.5	471.2125 + n (0.0125)	1 to 80	471.2250 472.2125
BB	Land mobile service (two frequency, base transmit)	472.21875 474.79375	FF	12.5	472.2125 + n (0.0125)	1 to 206	472.2250 474.7875

CC	Land mobile service (single frequency) (see notes 1 and 5)	474.79375 475.19375	-	12.5	474.7875 + n (0.0125)	1 to 32	474.8000 475.1875
DD	Land mobile service (two frequency, base receive)	475.19375 476.4125	Z	12.5	475.1875 + n (0.0125)	1 to 97	475.2000 476.4000
EE	Land mobile service (Citizen Band Radio, single frequency)	476.4125 477.41875	-	12.5/25	See note 6	-	-
FF	Land mobile service (two frequency, base receive)	477.41875 479.99375	BB	12.5	477.4125 + n (0.0125)	1 to 206	477.4250 479.9875
GG	Land mobile service (two frequency, base receive)	479.99375 484.79375	II	12.5	479.9875 + n (0.0125)	1 to 384	480.0000 484.7875
HH	Land mobile service (single frequency) (see note 1)	484.79375 485.19375	-	12.5	484.7875 + n (0.0125)	1 to 32	484.8000 485.1875
II	Land mobile service (two frequency, base transmit)	485.19375 489.99375	GG	12.5	485.1875 + n (0.0125)	1 to 384	485.2000 489.9875
JJ	Land mobile service (two frequency, base transmit)	489.99375 494.79375	LL	12.5	489.9875 + n (0.0125)	1 to 384	490.0000 494.7875
KK	Land mobile service (single frequency) (see note 1)	494.79375 495.19375	-	12.5	494.7875 + n (0.0125)	1 to 32	494.8000 495.1875
LL	Land mobile service (two frequency, base receive)	495.19375 499.99375	JJ	12.5	495.1875 + n (0.0125)	1 to 384	495.2000 499.9875
MM	Land mobile service (two frequency, base transmit)	499.99375 500.99375	RR	12.5	499.9875 + n (0.0125)	1 to 80	500.0000 500.9875



NN	Land mobile + fixed services (two frequency, base transmit) (see note 9)	500.99375 504.99375	SS	12.5	500.9875+ n (0.0125)	1 to 320	501.0000 504.9875
OO	Land mobile service (two frequency, base transmit)	504.99375 507.01875	TT	12.5	504.9875 + n (0.0125)	1 to 162	505.0000 507.0125
PP	Land mobile service (two frequency, base transmit)	507.01875 509.54375	UU	12.5	507.0125 + n (0.0125)	1 to 202	507.0250 509.5375
QQ	Land mobile service (single frequency) (see note 1)	509.54375 509.99375	-	12.5	509.5375 + n (0.0125)	1 to 36	509.5500 509.9875
RR	Land mobile service (two frequency, base receive)	509.99375 510.99375	MM	12.5	509.9875 + n (0.0125)	1 to 80	510.0000 510.9875
SS	Land mobile + fixed services (two frequency, base receive) (see note 9)	510.99375 514.99375	NN	12.5	510.9875 + n (0.0125)	1 to 320	511.0000 514.9875
TT	Land mobile service (two frequency, base receive)	514.99375 517.01875	OO	12.5	514.9875 + n (0.0125)	1 to 162	515.0000 517.0125
UU	Land mobile service (two frequency, base receive)	517.01875 519.54375	PP	12.5	517.0125 + n (0.0125)	1 to 202	517.0250 519.5375
VV	Land mobile + fixed services (single frequency) (see note 1)	519.54375 520.0000	-	12.5	519.5375 + n (0.0125)	1 to 36	519.5500 519.9875

## Notes:

1. The land mobile service allocation in segments G, H, L, P, W, 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 in low density and remote density areas on sites where the proposed licensee is the only licensee holding assignments in the 400 MHz band, that is, use of high power single frequency applications is not generally supported on communal sites where more than one licensee holds assignments in the 400 MHz band.
2. Area wide single frequency data applications employing high duty cycle (for example, differential GPS transmitters) are designated the following channels: Segment S channels 362, 363, 364, 365, 366; Segment X channels 362, 363, 364, 365, 366. The use of 12.5 kHz systems is preferred; however, channels may be aggregated to accommodate 25 kHz systems.
3. In segments R and V channel bandwidths up to 50 kHz may be used provided the requirements of RALI FX16 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. Care should be taken when assigning these channels near the coastline or inland waterways because of the potential to receive interference from, or cause interference to the Maritime Mobile Service.
5. The segment CC may be used by the fixed service outside of the areas defined as high density and medium density areas.
6. See the Radiocommunications (Citizen Band Radio Stations) Class Licence 2002 for channel details.
7. Segments A, C, F, I, K, L, N, O, T and Y are to be used exclusively for Australian, State and Territory Government purposes, with the exception of:
  - > bands in Segment O defined in Australian Radiofrequency Spectrum Plan, Australian footnote AUS94
  - > the frequencies listed in note 4 (used for the maritime mobile service)
  - > rail industry use in the frequency ranges described in note 8.

Any use within these segments must be endorsed by the relevant state/territory communications authority, which is usually its National Coordinating Committee for Government Radiocommunications (NCCGR) representative.<sup>4</sup>

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<sup>4</sup> Information and contact details are at <http://nccgr.govspace.gov.au/>.

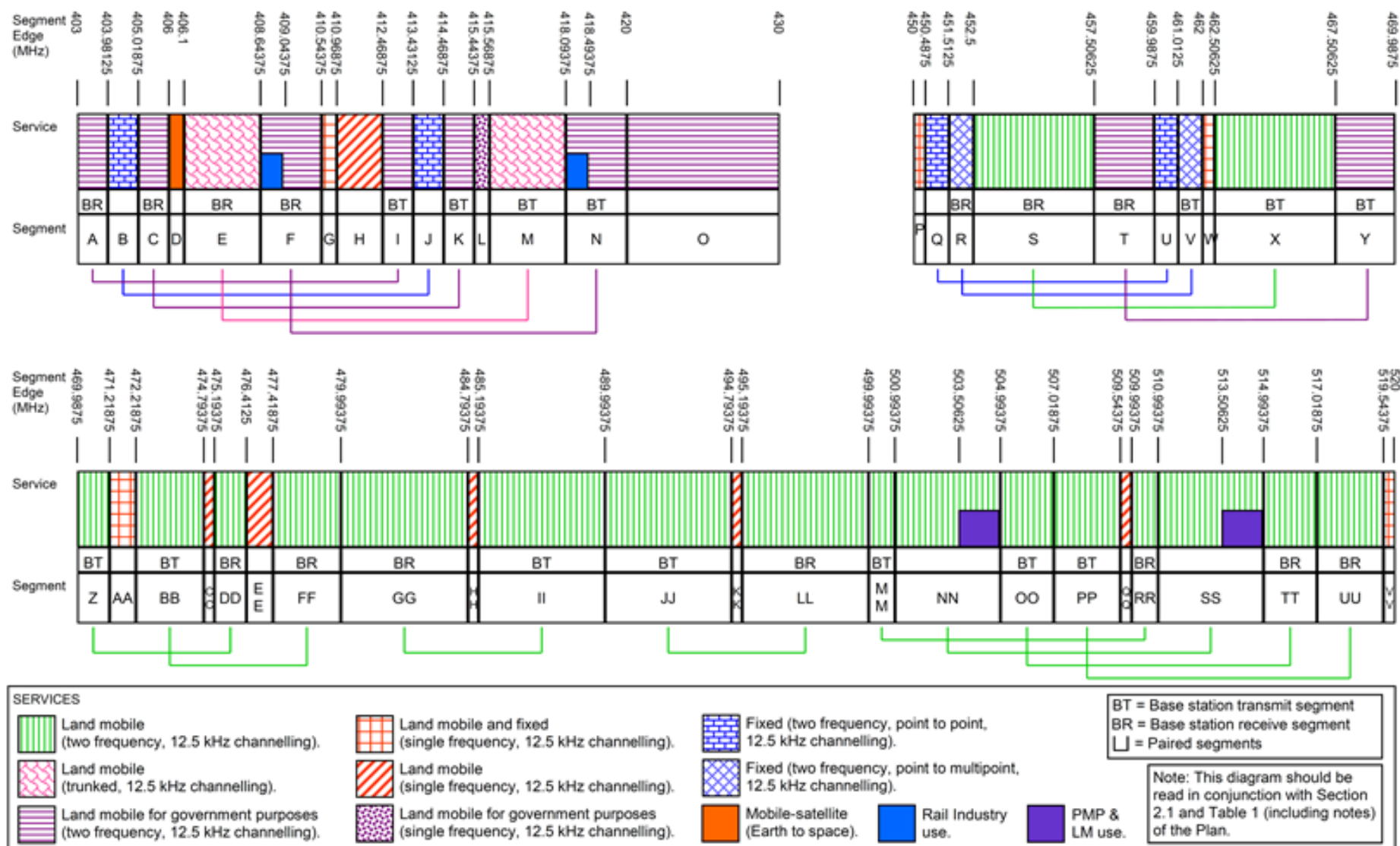
8. Use for the land mobile service within the frequency ranges 408.64375–409.04375 MHz and 418.09375–418.49375 MHz and on the frequencies 410.625 MHz, 411.375 MHz, 411.625 MHz, 412.375 MHz, 450.050 MHz and 450.4125 MHz is principally for the purposes of the rail industry. The Australasian Railway Association<sup>5</sup> is normally consulted in considering use of this spectrum. Frequency assignment practice no. 7, *Assigning rail industry spectrum in the 400 MHz band* should be consulted when making an assignment in this spectrum.
9. Channels 201 to 320 of segments NN and SS (as specified in Table 1) are also available for use for the fixed service (point-to-multipoint, two frequency). Segment NN shall be used for base transmit and segment SS shall be used for base receive.
10. Segments E/M are designated for use by non-government licensees. No new assignments are to be made to government services; however, government services may continue to operate in these segments.

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<sup>5</sup> Contact details are at <http://www.ara.net.au/site/index.php>.

Figure 1: 400 MHz narrowband services diagram, January 2020

## Figure 1: 400 MHz Narrowband Services Diagram – January 2020



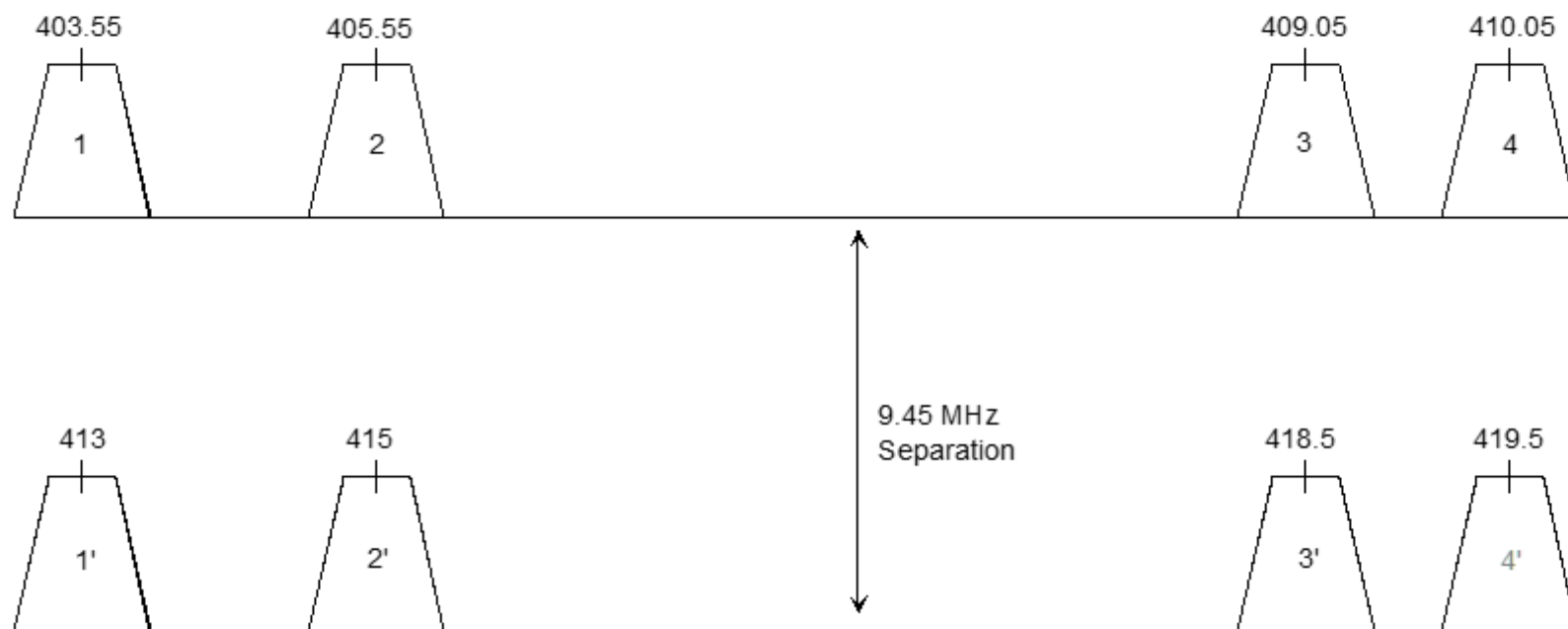
**Table 2: Channelling arrangements for the 400 MHz wideband fixed point-to-point services (see notes), January 2020**

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 kilometres 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, January 2020



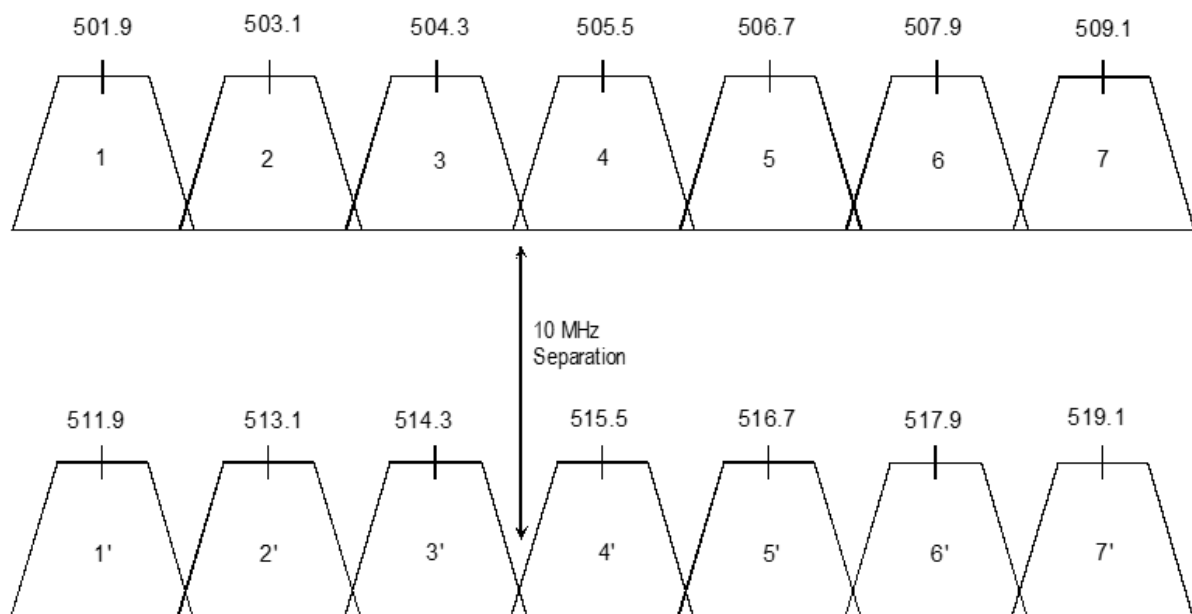
**Table 3: Channelling arrangements for the 400 MHz wideband fixed point-to-multipoint service (see notes), January 2020**

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 kilometres 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 adjacent spectrum.

Figure 3: 400 MHz wideband fixed point-to-multipoint service diagram, January 2020





**Table 4: Channels for single frequency area wide assignments**

Segment/Channel number	12.5 kHz B/W Centre frequency	25 kHz B/W Centre Frequency
Segment G Ch13	410.7 MHz	410.70625 MHz
Segment G Ch14	410.7125 MHz	
Segment P Ch7	450.1 MHz	450.10625 MHz
Segment P Ch8	450.1125MHz	
Segment W Ch9	462.1125 MHz	462.11875 MHz
Segment W Ch10	462.125 MHz	
Segment AA Ch33	471.625 MHz	471.63125 MHz
Segment AA Ch34	471.6375 MHz	
Segment AA Ch55	471.9 MHz	471.90625 MHz
Segment AA Ch56	471.9125 MHz	
Segment CC Ch21	475.05 MHz	475.05625 MHz
Segment CC Ch22	475.0625 MHz	
Segment HH Ch25	485.1 MHz	485.10625 MHz
Segment HH Ch26	485.1125 MHz	
Segment KK Ch17	495.00 MHz	495.00625 MHz
Segment KK Ch18	495.0125 MHz	
Segment QQ Ch27	509.875 MHz	509.88125 MHz
Segment QQ Ch28	509.8875 MHz	

**Table 5: Channels for two frequency area wide assignments**

Paired Segments/Channel number	12.5 kHz B/W frequency pair	25 kHz B/W frequency pair
Segment X/S ch 273	465.9125/455.9125 MHz	465.91875/455.91875 MHz
Segment X/S ch 274	465.925/455.925 MHz	
Segment Z/DD ch 81	471.00/476.2 MHz	471.00625/476.20625 MHz
Segment Z/DD ch 82	471.0125/476.2125 MHz	
Segment BB/FF ch 165	474.275/479.475 MHz	474.28125/479.48125 MHz
Segment BB/FF ch 166	474.2875/479.4875 MHz	
Segment II/GG ch 95	486.375/481.175 MHz	486.38125/481.18125 MHz
Segment II/GG ch 96	486.3875/481.1875 MHz	
Segment JJ/LL ch 191	492.375/497.575 MHz	492.38125/497.58125 MHz
Segment JJ/LL ch 192	492.3875/497.5875 MHz	
Segment OO/TT ch 95	506.175/516.175 MHz	506.18125/516.18125 MHz
Segment OO/TT ch 96	506.1875/516.1875 MHz	
Segment PP/UU ch 61	507.775/517.775 MHz	507.78125/517.78125 MHz
Segment PP/UU ch 62	507.7875/517.7875 MHz	
Segment ch 91	502.125/512.125 MHz	
Segment ch 103	502.275/512.275 MHz	
Segment ch 115	502.425/512.425 MHz	
Segment ch 127	502.575/512.575 MHz	
Segment ch 139	502.725/512.725 MHz	

Table 6:

**Table 6:**

# Appendix B: Transition Arrangements

This Appendix describes the remaining transition arrangements. Further information on changes in the 400 MHz band can be found [on the ACMA website](#).<sup>6</sup>

The ACMA intended to have the arrangements in the 400 MHz band in place by 31 December 2015 in high and medium-density areas, and by 31 December 2018 in other areas.

The updated 400 MHz plan consists of five phases:

- > Phase 1: Creation of vacant channels.
- > Phase 2: Implementation of 10 MHz duplex frequency split in 450–470 MHz.
- > Phase 3: Implementation of the harmonised government spectrum.
- > Phase 4: Milestone 3—Relocation of remaining services into appropriate spectrum.
- > Phase 5: The completion of the 400 MHz implementation project.

These phases will overlap somewhat. Longer time frames for transition are proposed outside of high and medium-density areas where spectrum is less congested. Those high-power land mobile and point-to-multipoint licensees with base stations closer than 100 km to the boundary of a high or medium-density area and a low or remote-density area will be required to meet the high and medium-density area deadlines. For example, a high-power, two frequency land mobile user within 100 km of a high or medium-density area will be required to meet the high and medium-density area deadline. Similarly, high and medium-density area deadlines will be required to be met by fixed point-to-point users with one end of their link in a high or medium-density area and the other outside of these areas.

## Phase 1: Creation of vacant channels

Licensees in high-density areas (HDAs) and medium-density areas (MDAs) were required to implement milestone 1 measures **by 31 December 2012**. Licensees outside of HDAs and MDAs were required to implement the measures applicable in these areas by **31 December 2013**. This deadline was limited to users not affected by the implementation of the harmonised government band and the 10 MHz duplex frequency split in 450–470 MHz.

## Phase 2: Implementation of 10 MHz duplex frequency split in 450–470 MHz

The transition to a 10 MHz duplex frequency split in 450–470 MHz has been broken down into a number of steps. These steps were:

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<sup>6</sup> <https://www.acma.gov.au/managing-spectrum-400-mhz-band>

1. Clearance of users from 452.5–453 MHz and 462–462.5 MHz into temporary licences in 440–450 MHz or into space created in 469.9875–520 MHz. Users were required to implement the measures to address congestion applicable to them simultaneously with their relocation. For example, a 25 kHz channel bandwidth user in a high or medium-density area would be required to transition to 12.5 kHz channelling when transitioning to a new frequency.
2. Clearance of users from segment Y (469.4875–469.9875 MHz) into channels into 462–462.5 MHz or into space created in 469.9875–520 MHz. Users were required to implement the measures to address congestion applicable to them simultaneously with their relocation. For example, a high-power single frequency land mobile user in a high or medium-density area will be required to transition to a low-power service when transitioning to a new frequency.
3. Following step 1, transition of users to a 10 MHz frequency split via a move of the base receive segment down by 0.5 MHz. Alternatively, users can relocate into spectrum reserved for them in 469.9875–520 MHz. Simultaneously, government users in 453–457.5 MHz and 462.5–467 MHz will relocate into harmonised government spectrum and non-government users in 457.5–459.9875 MHz and 467–469.4875 MHz will relocate elsewhere in the 450–470 MHz band, or into another part of the 400 MHz band.

Assignments in segment Y (469.4875–469.9875 MHz), 452.5–453 MHz and 462–462.5 MHz were to be cleared **by 31 December 2012** in high and medium-density areas and **31 December 2013** outside of high and medium-density areas.

The deadline for step 3 was **31 December 2014** in high and medium-density areas and **31 December 2015** outside of high and medium density areas.

To facilitate transition to new arrangements in this part of the 400 MHz band, embargoes were placed Australia-wide on all new assignments in 452.5–457.5 MHz and 462–467.5 MHz other than existing users transitioning from 403–420 MHz, and on new assignments in 457.5–459.9875 MHz and 467.5–469.9875 MHz not authorised by the relevant state or territory government NCCGR representative as part of the implementation of harmonised government spectrum. It is the ACMA's intention to maintain the embargo in 452.5–457.5 MHz and 462–467.5 MHz until the end of the transition period to ensure users in 403–420 MHz are given an opportunity to transition within their equipment tuning range. However, the availability of channels in this band will be monitored throughout transition, and the embargo lifted on all or part of this spectrum earlier if possible.

### **Phase 3: Implementation of the harmonised government band**

The implementation of the harmonised government band will require:

- > the relocation of non-government users currently in segments identified for harmonised government use to elsewhere in the band
- > the relocation of government users into the segments identified for harmonised government use.

Government users currently operating above 470 MHz will require spectrum in 450–470 MHz to enable transition within the tuning range of existing

equipment. Therefore, time was required following the completion of Phase 2 of transition to enable the implementation of the harmonised government band.

Government users who are yet to transition into HGS spectrum are required to perform a retune to ensure they are on a 10 MHz duplex frequency split in 450–470 MHz in all density areas as soon as possible. Non-government users who are yet to relocate out of harmonised government segments in all density areas are urged to do so as soon as possible.

Licensees had until 31 December 2018 to implement the harmonised government band outside of high and medium-density areas. In other words, non-government users were required to relocate out of harmonised government segments by **31 December 2018** outside of high and medium-density areas, and government users were required to move into the harmonised government segments by 31 December 2018 outside of high and medium-density areas.

#### **Phase 4: Milestone 3—Relocation of remaining services into appropriate spectrum**

The implementation of this next step requires those licensees who are yet to transition into appropriate government, rail and non-government spectrum to relocate into the correct spectrum. Government users in band segments above 470MHz may require spectrum in the band segments T and Y to enable transition within the tuning range of existing equipment.

The ACMA contacted licensees affected by Milestone 3 and advised them of their obligation to transition into spectrum designated for their use. The deadline for this transition was the 31 December 2015 in high and medium density areas and 31 December 2018 in all other areas.

#### **Phase 5: Completion of the 400 MHz implementation project**

The transition deadlines for the project have now expired.

To assist in the completion of the 400 MHz implementation project several decisions have been made:

- > There is no longer a requirement for Rail Industry clients to transition into Rail Industry Only (RIO) spectrum. FAP 7 remains in place for new assignments in rail spectrum and should be followed to accommodate assignments within RIO where practicable.
- > All other licensees who are yet to transition into the correct segments are to do so as soon as practicable. The ACMA will engage with, and assist, those licensees who are yet to transition and discuss plans in place to facilitate the move.
- > Single frequency point-to-point and single frequency point-to-multipoint links are not required to transition outside of fixed segments.