

# Transportable Repeater Frequency Assignment Guideline

# DOCUMENT ADMINISTRATION

## Document Location

These guidelines and instructions have been developed for assigning frequencies to support transportable repeater deployment as well as temporary augmentation of capacity at shared trunked network sites.

The master copy of the document is held with the Telco Authority Spectrum Management Office (SMO) currently at the following location:

Level 18, McKell Building

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## Document History

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## Table of Contents

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1	Introduction	1
1.1	Purpose	1
1.2	Background	1
1.3	Scope	1
1.4	Policy details	1
2	HGS bands supporting transportable repeaters	2
2.1	Band 1 frequencies	2
2.2	Band 2 frequencies	2
2.3	Band 5 frequencies	3
3	Capacity extenders for the shared trunked network	4
4	ACMA Licensing details	4
4.1	ACMA Registration details	4
5	Coordination details	5
5.1	Forecast events	5
5.2	Emergency events/incidents	5

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# 1 Introduction

## 1.1 Purpose

This document presents the approach taken by the NSW Telco Authority (Authority) for dedicated spectrum to be assigned from a shared pool of nationally endorsed frequencies from the 400 MHz harmonised government spectrum (HGS) for the deployment of transportable repeaters and temporary capacity extenders when required to support operational requirements.

These frequencies are licensed to the Authority and are registered in the Australian Communications and Media Authority (ACMA) Register of Radiocommunications Licences (RRL) in a dedicated Client holding with a designated Ambulatory/State-wide licence type.

## 1.2 Background

The development of the HGS provided the opportunity for jurisdictions to create nationally endorsed guidelines and licensing instructions to improve radiocommunications interoperability (the capability for users to communicate by radio with whom they need to when they need to, when authorised<sup>1</sup>)

The guidelines and licensing instructions are captured in *RALI GS1 Frequency Assignment Requirements for Government Radiocommunications Services in the 400 MHz Bands* and include nationally endorsed paired frequencies to support wide area transportable repeaters.

## 1.3 Scope

This Guideline is applicable to all government agencies needing to deploy transportable repeaters for supporting operational capability in NSW as well as temporary capacity extenders for the shared trunked network.

## 1.4 Policy details

The policy details that support this guideline can be found in the related Spectrum Management Policy document.

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<sup>1</sup> From the COAG endorsed National Framework to Improve Government Radiocommunications Interoperability

## 2 HGS bands supporting transportable repeaters

The HGS has six designated bands that range from 403-430 MHz and 450-470 MHz. Within those bands there are currently 43 paired frequencies/channels that have been identified and endorsed nationally for supporting transportable repeaters.

### 2.1 Band 1 frequencies

Band 1 of the HGS is a paired allocation (403.0000-403.9875 MHz/412.4625-413.4375 MHz) and is recommended for use by small land mobile systems outside of the coverage areas of shared trunked networks.

Channels 2 to 12 and channels 74 to 77 are nationally endorsed to support transportable repeaters – the individual frequencies are shown below in Table 1.

### 2.2 Band 2 frequencies

Band 2 of the HGS is a paired allocation 405.0125-406.0000 MHz/414.4625-415.4375 MHz and is recommended for use by small land mobile systems outside of the coverage areas of shared trunked networks.

Channels 1 to 12 and channels 74 to 77 are nationally endorsed to support transportable repeaters – the individual frequencies are shown below in Table 1.

Pooled Frequencies to Support Transportable Wide Area Repeater					
Channel Number	HGS Band 1			HGS Band 2	
	Rx (MHz)	Tx (MHz)		Rx (MHz)	Tx (MHz)
1	none	none		405.0250	414.4750
2	403.0375	412.4875		405.0375	414.4875
3	403.0500	412.5000		405.0500	414.5000
4	403.0625	412.5125		405.0625	414.5125
5	403.0750	412.5250		405.0750	414.5250
6	403.0875	412.5375		405.0875	414.5375
7	403.1000	412.5500		405.1000	414.5500
8	403.1125	412.5625		405.1125	414.5625
9	403.1250	412.5750		405.1250	414.5750
10	403.1375	412.5875		405.1375	414.5875

11	403.1500	412.6000		405.1500	414.6000
12	403.1625	412.6125		405.1625	414.6125
74	403.9375	413.3875		405.9375	415.3875
75	403.9500	413.4000		405.9500	415.4000
76	403.9625	413.4125		405.9625	415.4125
77	403.9750	413.4250		405.9750	415.4250

Table 1: Band 1 and 2 Frequencies to Support Transportable Repeaters

### 2.3 Band 5 frequencies

Band 5 of the HGS is a block of spectrum (420.0000-430.0000 MHz) with a 400 kHz mid band separator to create a paired allocation and is recommended for use by shared trunked networks.

Two channel sets in sub-segment II (numbers 29 and 39) are nationally endorsed to support transportable repeaters – the individual frequencies are shown below in Table 2.

<b>Band 5 Pooled Frequencies to Support Transportable Wide Area Repeaters</b>						
<b>Sub Segment</b>	<b>Channel Set</b>	<b>Block</b>	<b>Group</b>	<b>Channel Number</b>	<b>Rx (MHz)</b>	<b>Tx (MHz)</b>
II	29	4	2	169	427.3125	422.1125
II	29	4	2	189	427.5625	422.3625
II	29	4	2	249	428.3125	423.1125
II	29	4	2	269	428.5625	423.3625
II	29	4	2	289	428.8125	423.6125
II	29	4	2	309	429.0625	423.8625
II	39	4	1	179	427.4375	422.2375
II	39	4	1	199	427.6875	422.4875
II	39	4	1	259	428.4375	423.2375
II	39	4	1	279	428.6875	423.4875
II	39	4	1	299	428.9375	423.7375
II	39	4	1	319	429.1875	423.9875

Table 2: Band 5 Frequencies to Support Transportable Repeaters

### 3 Capacity extenders for the shared trunked network

There is the capability for the shared trunked network sites to have capacity augmented by the addition of temporary transceivers, to support incidents where there is operational pressure on the site to provide the required performance levels.

The frequencies assigned to deploy the temporary capacity extenders will be assigned from HGS Band 1 and 2 and are shown in Table 3 below.

Frequencies to Support Trunked Network Capacity Extenders				
Channel Number	HGS Band 1		HGS Band 2	
	Rx (MHz)	Tx (MHz)	Rx (MHz)	Tx (MHz)
16	403.2125	412.6625	405.2125	414.6625
32	403.4125	412.8625	405.4125	414.8625

Table 3: Frequencies to Support Trunked Network Capacity Extenders

### 4 ACMA licensing details

There are currently 43 dedicated paired frequencies/channels that are licensed to the Authority and registered in the ACMA RRL to support deployment of transportable repeaters (as shown in Tables 1 and 2).

There are also four paired frequencies licensed to support the trunked network temporary capacity extenders (as shown in Table 3).

The frequencies are assigned through 3<sup>rd</sup> party provisioning and coordinated either prior to deployment if a forecast event or through the incident command and control processes if supporting an emergency/incident response (see Section 5.1 and 5.2).

#### 4.1 ACMA Registration details

The licence registration details for the dedicated frequencies in the ACMA RRL are:

**Client Number:** 20019468

**Organisation Name:** NEW SOUTH WALES GOVERNMENT TELECOMMUNICATIONS  
AUTHORITY

**Trading Name:** Telco Authority (Repeaters)



## 5 Coordination details

There are two types of events that may require operational support through deployment of transportable repeaters and temporary capacity extenders - each will require a process for coordinating assignment of frequencies.

The four frequency pairs supporting trunked network temporary capacity extension have been programmed in to the system so do not require agencies to profile at terminal level.

### 5.1 Forecast events

These are planned events in NSW that create a response impact on agencies – events such as the City to Surf event in Sydney and visiting dignitaries.

As these events are forecast, agencies that need to deploy a transportable repeater or temporary increased capacity at a trunked network site to meet the required operational capabilities will plan well before the event.

To support these planned events, agencies need to provide the following details to the Telco Authority who will identify and allocate the frequencies.

- Proposed date for initial deployment
- Proposed date for activating the transportable repeater/s or capacity extenders
- Proposed date for deactivating the transportable repeater/s or capacity extenders
- Deployment location
- Period of deployment (in days)
- Number of transportable repeaters/ or capacity extenders proposed to be deployed
- Frequency preference (if any)

Frequencies will be allocated to minimise any interference issues for the duration of the deployment and a list will be made available to all agencies to assist them with coordination around any other planned or unplanned deployments.

### 5.2 Emergency events/incidents

These are unplanned events in NSW that create a response impact on agencies – events such as road accidents and bushfires.

These events are not forecast and as agencies need to be agile in their individual or combined response, deployment of a transportable repeater/s or capacity extenders for increased operational capability will feature in the strategic planning put together for these scenarios.

The agency that establishes command and control at the emergency/incident will determine the most suitable frequencies from the pool of shared frequencies for assigning to support the operational capability. They will provide the assigned

frequency information to the Telco Authority so further coordination activities that may be required can be managed efficiently.

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