

AA Draft 2

# Tasmanian Adventure Activity Standard Communications and Navigation

Advice for Organisations, Guides and Leaders



Tasmania  
Explore the possibilities

# ADVENTURE ACTIVITY STANDARDS

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The following supplementary information has been provided as part of the Tasmanian Adventure Activity Standards. It is not intended to be comprehensive in content but includes additional background information on key aspects of planning, and useful references for further reading.

## **INTRODUCTION**

Hand-held radios, Emergency Position Indicating Radio Beacons (EPIRBS), mobile phones, Global Positioning Systems (GPS) and satellite phones can all provide additional measures of safety in certain circumstances. However, all of them also have limitations and program plans should not depend on their efficacy. Communication and emergency procedures should be planned accordingly.

### **1 Hand-Held Radios**

Radio transmission in mountainous country is notoriously fickle. Reception will vary significantly according to the:

terrain and vegetation

climatic conditions

radio frequency and power

operator's expertise.

In deciding to use radio it is important to be clear about:

who you are trying to communicate with

where they are

when they will be listening.

At present there are two main radio communication systems available state-wide for safety and emergency purposes: VHF radio and UHF radio.

The range of both systems is, essentially, line of sight. Mountainous terrain blocks the path of the radio signals, so repeaters are required to provide adequate cover over wide areas.

#### **1.1 VHF Radio**

At present only the Ambulance and Fire Services have state-wide networks and a 24-hour listening watch. Neither network is readily accessible by commercial or community groups.

#### **1.2 UHF Radio**

UHF radios can be used in local areas to provide intra-group communications.

In addition there is a good UHF Citizen Band Radio network, based on local repeater stations that provide cover over much of the state, except for the west and south-west.

UHF equipment is reasonably inexpensive to buy and is durable and easy to maintain. Advice on purchase and use is available from the Tasmanian Volunteer Emergency Communication Association (Tas VEC) website at <[www.tasvec.taswireless.net/](http://www.tasvec.taswireless.net/)>.

This association can advise on repeater locations, area of cover and channel numbers for use. They may also arrange a listening watch if required.

Amateur radio operators are also able to make use of the wide UHF CB network, thus greatly increasing the potential number of operators should an emergency occur.

### **1.3 Local Area Use**

Groups regularly using a particular area may wish to establish their own communication system using UHF radios.

However, the location of radio shadows and non-reception areas should be established before use. UHF hand-held units should provide adequate intra-group communication.

No system will provide reliable communication underground.

## **2 Mobile Phones**

Mobile phones are easily portable and allow contact with the entire public telephone network. They are inexpensive to buy, easy to operate, relatively cheap to use and provide excellent communication.

However, they are limited in use away from main population areas and phone network providers should be consulted to find out if the area you are visiting has network coverage. Again, if operators are using an area frequently, it may be useful to identify areas where reception is possible and note non-reception areas.

To find out more about Telstra products, please visit:

<[www.telstra.com.au/mobile/networks/coverage/index.htm](http://www.telstra.com.au/mobile/networks/coverage/index.htm)>

To find out more about Optus products, please visit:

<[www.optus.com.au/portal/site/aboutoptus/menuitem.cfa0247099a6f722d0b61a108c8ac7a0/?vgnnextoid=bff454e858697010VgnVCM10000029867c0aRCRD](http://www.optus.com.au/portal/site/aboutoptus/menuitem.cfa0247099a6f722d0b61a108c8ac7a0/?vgnnextoid=bff454e858697010VgnVCM10000029867c0aRCRD)>

## **3 Satellite Phones**

Satellite phones are now more available and much lighter too. However, they remain expensive to buy and use, and most users would probably prefer to hire one than buy one. For information on the satellite network providers see <[www.highspeedsat.com/satellite-phone.htm](http://www.highspeedsat.com/satellite-phone.htm)> and contact your local marine outfitters for details on hiring.

## **4 Emergency Position Indicating Radio Beacon (EPIRB) or Personal Locator Beacon (PLB)**

The Emergency Position Indicating Radio Beacon (EPIRB) and Personal Locator Beacon (PLB) are devices for use in extreme emergency only. Once triggered, they continuously transmit a signal which, when heard, causes an aircraft search to be initiated. They have no provision for voice communications but new ones may have a GPS function as well.

The international council that controls the satellite system, Cospas-Sarsat, decided in October 2000 to cease processing 121.5 MHz analogue signals by satellite on **1 February 2009**. From that date, only 406 MHz beacons will be detected by satellite and processed. The decision was made to reduce the chronically high false alarm rate from analogue

distress beacons. Currently 97 per cent of analogue distress beacon signals are false alarms.

The digital beacons transmit an identity code on the 406 MHz frequency that can be cross-referenced with a database of registered 406 MHz beacon owners by Australian Maritime Safety Authority (AMSA). This database includes phone numbers, next of kin contacts and other vital information that enable the right response to the emergency to be provided. In the case of false alarms, it enables them to make a call to the registered beacon owner to see if he/she is in genuine distress or just has a beacon transmitting by accident.

Most significantly, however, 406 MHz beacons are detected more quickly and accurately (to within five kilometres by satellite compared to 20 kilometres for the analogue beacons), which has an obvious safety advantage. Also, depending on the location of the 406 MHz beacon, it may be detected within minutes, compared to the average one hour and 30 minutes it takes to get confirmed satellite detection from a 121.5 MHz analogue beacon.

Groups visiting more isolated areas should consider purchasing or hiring a beacon. Service Tasmania operates a commercial EPIRB hiring service for all outdoor pursuit enthusiasts. Units are available for hire from Service Tasmania shops in Hobart, Launceston, Burnie and Devonport and can be reached on 1300 135 513. For further information, please visit the Parks and Wildlife Service (PWS) website at <[www.parks.tas.gov.au/recreation/epirbs/epirbs.html](http://www.parks.tas.gov.au/recreation/epirbs/epirbs.html)>.

However, radio beacons are not a substitute for bushcraft and navigation skills or travelling in safe numbers. They should only be considered as an extra safety margin for a venture, that is properly resourced in all other respects. The beacon signal is not reliably received from deep valleys or densely forested terrain, nor does it allow transmission of any information by voice.

## **5 GPS - Global Positioning System receiver**

With the advent of cheaper, hand-held Global Positioning Systems (GPS), leaders/guides have access to a powerful and relatively cheap navigational tool. Essentially, they utilise signals from a series of satellites to calculate a ground position but the quality of the result depends on the number of satellite signals received and their relative positions. Whilst they can be highly accurate, misleading readings can be given when there are too few satellites in range or when in gorges and under trees. They are also battery-operated and liable to failure and their use should always be backed up by a conventional map and compass.

In 2003, Tasmania began changing the coordinate system used for all maps from AGD 66 to GDA 94. All new and revised maps are being issued in the new format. If the GPS being used does not use GDA94, the satellite-derived coordinates based on the World Geodetic System 1984 (WGS84) should be used, as this is virtually equivalent.

To convert map readings from AGD 66 to GDA 94, add 112 metres to the easting and 183 metres to the northing coordinate.

For further details on use of GPS, please visit the University of Tasmania website at <[www.utas.edu.au/spatial/locations/index.html](http://www.utas.edu.au/spatial/locations/index.html)>.

## 6 References

For further information, please contact:

### **State Emergency Service**

83 Melville Street,

Hobart TAS 7000

Telephone: (03) 6230 2700

Website: <[www.ses.tas.gov.au/](http://www.ses.tas.gov.au/)>

### **Tasmanian Volunteer Emergency Communication Association (Tas VEC)**

34 Victor Place,

Montrose TAS 7010

Telephone: (03) 6272 4437

Facsimile: (03) 6273 7532

Website: <[www.tasvec.taswireless.net/](http://www.tasvec.taswireless.net/)>

**Note: The Activity Standards listed are based on generally accepted common practice. Their use in each individual activity or program may vary according to factors such as previous client experiences, weather and environmental considerations. It is strongly recommended that all providers (commercial and non-commercial) obtain independent legal advice to ensure they understand their duty-of-care obligations under the law in Tasmania.**



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