



Centre for
Appropriate
Technology

CENTRE FOR APPROPRIATE TECHNOLOGY

SUBMISSION TO

REGIONAL TELECOMMUNICATIONS REVIEW

JULY 2015

Introduction

The Centre for Appropriate Technology (CAT) is making this submission in response to the Regional Telecommunications Independent Review Committee's 2015 review.

CAT is a non-profit Indigenous organisation with specialist expertise in technology for remote Indigenous communities. CAT's purpose is to secure sustainable livelihoods for Indigenous people through appropriate technology. CAT provides information and practical assistance with housing, water supply, energy, waste, telecommunications, transport and other infrastructure issues. CAT supports communities through community development, planning, training processes and project management. CAT was established in Alice Springs in 1980, and has regional offices in Cairns and Darwin.

CAT has made representations to the 2008 and 2011 Regional Telecommunications Reviews on a range of matters, and whilst some progress has been made in addressing remote area issues, major issues in provision of services to remote Australia remain.

In this submission, we wish to focus on a particular area of interest to our constituents, namely the adequacy of cellular mobile services for communities of remote Indigenous residents, noting that mobile services are their telecommunications medium of choice.

With particular focus on mobile coverage, we note that even with the level of funding injection as is currently occurring with the mobile blackspots program (some \$385M of combined Commonwealth Government, State/Territory Government, mobile network provider, Local Government and customer group funding), the additional land area covered Australia-wide will only amount to approximately 260km x 260km in total. Clearly, future coverage provided by these means will only ever represent small incremental improvements when seen in context of the total land area.

In this context we wish to highlight the work that CAT itself has been doing in investigating possible solutions in this area. In particular, we instance the CAT mobile phone hotspot, which we have developed over the past 18 months as a low cost facility to complement and extend the coverage from existing mobile radio base station 'towers'. The hotspot is briefly described below. These facilities have been installed in two remote central Australian customer locations, and have operated successfully for 5 months to date. CAT currently has customer orders for a further 32 units, and is undertaking further development to increase the performance of the hotspot further again. We believe this development has wide application across Australia.

Mobile Phone Hotspot¹ Description

For users of portable mobile-equipped voice or data devices such as smart phones and tablets, typical hand held outdoor coverage is limited to a distance of about 10-15 km from the radio base station i.e. the mobile tower. The main limiting factors are the strength of the signal received by the phone, and conversely the signal strength received

¹ Australian Patent Application no. 2015202582

from the phone at the ‘tower’. These depend in turn mainly on the intervening terrain, vegetation and obstructions in the line of sight path.

The CAT mobile phone hotspot uses unpowered passive parabolic ‘dish’ antenna technology to focus and amplify the received and transmitted signal strength at the user end, thus extending coverage well beyond the existing footprint to locations where hand held mobile use would otherwise not be possible. A very marginal 1 bar signal becomes 2 or 3 bars and enables calls to be made reliably.

The parabolic antenna is mounted some metres above the ground, and is aligned in azimuth (direction) and elevation to point at the nearest or most suitable tower. In the standard configuration, the antenna height is arranged such that the phone can be either hand held by one user at a time standing with the phone at the dish focus or mounted on the cradle provided, for hands-free loudspeaker mode operation. The phone/device antenna is thereby loosely coupled with the dish antenna, and the overall configuration achieves an effective increase in both-way gain.

This solution works regardless of the user mobile device technology, and can be used in conjunction with any mobile network provider’s network. In situations where a distant town provides multiple (Telstra, Optus, Vodafone) services, a single mobile phone hotspot can be used to connect with any of these services.

Whilst other product solutions are available for locations where 240 volt power is available and the associated equipment can be securely housed in an indoor environment, or where solar panel/ inverter equipment can be secured and maintained cost effectively and regularly, the robust CAT mobile phone hotspot is ideally suited to the many outdoor situations such as roadside stops, black spots, small remote Indigenous settlements and remote tourism locations where considerations of public safety are important, and where the provision of power and the cost of maintenance would make the overall cost of ownership for powered solutions prohibitive.

CAT offers a full implementation service for customers, including site survey, fabrication, installation and signage.

