



**Ipera Communications Submission to the
Inquiry into Wireless Broadband
Technologies**

**Standing Committee on Communications,
Information Technology and the Arts**

Wireless Networks in Newcastle NSW

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Introduction

Ipera Communications is a licenced regional carrier that provides broadband data services in the inner Newcastle area, utilizing Optical Fibre, DSL and Wireless technologies.

Our Operation

Ipera was the 39th carrier to gain a telecommunications licence from the Department of Communications Information Technology and the Arts in April 2000.

The original focus of Ipera was to provide broadband connectivity between offices in the CBD of Newcastle, and between business houses and Application Service Providers housed in the Ipera Data Centre located in the West end of the Newcastle CBD. In the time of our operation, we have attracted companies such as Powertel and Nextep DSL to Newcastle to partner with Ipera to deliver a diverse array of long distance bandwidth products.

Ipera has now developed an 802.11b wireless solution to reach a larger area than was our original intention as a response to a large number of requests for service from customers outside of our small coverage area. This is despite the fact the Telstra has rolled out ADSL services to a large part of the Newcastle area.

The Newcastle Scene

Newcastle is the 6th largest city in Australia, however is not seen as a major earning centre by the large telecommunications providers. In a frustrating dichotomy, Newcastle is seen as a small market by service providers, but also seen as part of the Sydney region when it comes to the ACA dividing radio spectrum for auctions.

Ipera had made several submissions to the ACA in the preparation for the 3.4Ghz auction in the year 2000, however our requests to have Newcastle separated from Sydney were rejected. The reasons given were based on the fact that the Central Coast populated region is situated between Sydney and Newcastle, therefore there is no clear boundary line between the two regions. We did point out that Telstra had used the Hawksberry River as a boundary for many years for the 840Mhz AMPs mobile network due to the terrain attributes of region, however the status quo prevailed.

Newcastle is the home of three licenced regional based carriers: Ipera Communications, Soul Pattinson Telecommunications and Integrated Data Labs. (IDL).

All three carriers use the 2.4Ghz or 5.8Ghz ISM spectrum for either point-to-point links, or point-to-multi point links. Also there is a host of private 2.4Ghz links

operated by parties such as education and medical providers and community wireless groups.

The Attraction of using 2.4Ghz Microwave Technology

The ISM spectrum is very attractive to small regional telcos because the entry-level equipment is inexpensive and easy to obtain. Equipment vendors readily provide the training for designing and operation of Wireless LAN networks, and the network is maintainable by anyone who understands common LAN technologies.

An issue with using this unlicensed spectrum is that each user network can cause radio interference with other user networks, therefore reducing the data throughput rate of each network. Also household appliances such as microwave ovens utilize this spectrum. Faulty appliances will cause further interference. Service delivery via Microwave wireless products is conditional on line of sight from the customers' antenna to an access point.

By utilizing antennae with narrow beam radiation paths, multi-point cells that can be easily split into numbers of sectors, vertical and horizontal polarization and careful selection of available channels, networks can be engineered to work in cohabited space.

The Problems of using 2.4Ghz Microwave Technology

Problems will occur in the future in Newcastle when the number of users on each network increases. The available bandwidth is quite narrow in the 802.11b technology, and as customer numbers increase, available bandwidth to each user will diminish. Also with the growth of the number of cells, interference will increase and therefore available data throughput to each customer will decrease. For this reason carriers cannot provide performance level guarantees. The product can be looked at critically as a substandard product, however at the price points set by local providers, it is competitive with the Telstra DSL product (which, I understand also does not give data throughput guarantees in the standard ADSL SLA).

Customer Attraction

Typical prices in Newcastle for 802.11b products including Internet data are:

<i>Monthly Rate</i>	<i>Data Included</i>
\$55	300 Megabytes
\$77	500 Megabytes
\$110	1000 Megabytes

These prices compare favorably with Telstra ADSL for home & small business.

Conclusion

802.11b technology is not a true broadband product. It can be used to deliver an Internet product that is competitive with ADSL, and its' properties lend well with providing Internet services from omni directional or sectorized access points to small townships from local elevated positions. However the reality is that if a small communications company is willing to take on this sort of development, then they have to price a product at a point that the customer is willing to pay for an Internet connection. In regional areas where money is not easy to obtain the price level is lower than that of a metropolitan area. The carrier then has to cover the costs of the "tail" or connection into the Internet. Long distance carriers provide these links, and the cost of such links is governed by distance. Therefore delivering services to customers in regional areas is more costly than delivering the same services in metropolitan areas with returns from customers that are less than metropolitan customers.

A problem will arise from any Government funded program that artificially forces down the price of delivering telecommunications services to a region, utilizing inexpensive technologies such as 802.11b to deliver a basic Internet access product without Service Level Guarantees, is that any larger provider that wants to deliver a true broadband product will not be able to compete with these low income products. Therefore the development of high quality infrastructure in regional areas will be impeded further.
