



*Australia's Source for Telecommunications Intelligence*

## **Telecommunications Access Networks in Australian Capital Cities Prepared for Mallesons Stephen Jaques**

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The Market Clarity team has made every effort to include a relevant sample of Australian Telecommunications Infrastructure owners with access fibre, fixed wireless and HFC investments in capital city statistical divisions in this study.

All surveys, forecasts, projections and recommendations made in this Study are made in good faith on the basis of information available to Market Clarity at the time; and Market Clarity disclaims any liability for any loss or damage caused by errors or omissions, whether such errors or omissions resulted from negligence, accident or other causes.

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## 1 Introduction

In this report, Market Clarity provides information on the presence of various access fibre network technologies in the Sydney, Melbourne, Brisbane, Adelaide, Perth, Canberra, Hobart and Darwin statistical divisions (as defined by the Australian Bureau of Statistics).

### 1.1 Access Networks

#### 1.1.1 Access Fibre

For the purposes of this report, an access fibre POP is defined as a location from which a telecommunications carrier can provide network access using fibre owned by that carrier.

POPs may include:

- Fibre access points within multi-tenant business premises such as industrial parks;
- Basement switches in CBD office towers;
- Interconnect points within Internet exchanges, from which customers can gain fibre-based access to the carrier network; or
- Exchanges from which the carrier uses fibre for last-mile connections to new customers.

This analysis does not include the presence of a long-haul fibre network route in a given city, except where that network is also associated with access fibre POPs.

#### 1.1.2 Fixed Wireless Access

For the purposes of this report, a fixed wireless access POP is defined as a location from which a telecommunications carrier can provide network access using licensed or unlicensed radio spectrum. A POP may be an antenna serving a single customer (on a point-to-point basis).

However, this does not include the following:

- **Public Wireless Access Points (“Hotspots”)** — Hotspot services are not included in this analysis;
- **Long-haul Microwave Networks** — These networks do not directly provide end-user access services, but rather are used by carriers for backhaul between exchanges. These are excluded from this analysis.

### 1.1.3 Hybrid Fibre-Coaxial Networks

For the purposes of this report, an HFC network is defined as a location from which a carrier provides access to its network using hybrid fibre-coaxial networks. These networks’ primary purpose is pay-TV delivery, but they also support telecommunications services.

## 1.2 Location Definition and Data Accuracy

To ensure consistent treatment across all POPs, Market Clarity has used **the Australian Bureau of Statistics’ Statistical Divisions** as the basis for defining the city in which a POP is installed.

All POP records in Market Clarity’s Telecommunications Infrastructure Database are identified by name, postcode, latitude and longitude. This allows Market Clarity to identify the relevant ABS Statistical Division with a high degree of accuracy.

For each owner of infrastructure, Market Clarity maintains a record of the location of known points of presence. For the majority of carriers, Market Clarity has obtained POP data to at least suburb (or in the case of regional centres, town) level. In some cases, this is supplemented by greater detail (street address) for POP locations. (Section 1.4 provides information about Market Clarity’s data sources.)

However, the following should be noted with respect to Market Clarity’s Telecommunications Infrastructure Database:

- **Building Lists** — Market Clarity does not yet have access to detailed building lists for all access fibre owners. As a result, the number of POPs, particularly in CBD locations, is likely to be larger than recorded in Table 1, below.
- **POP Locations** — A small number of providers offer no access fibre POP information beyond the city or cities in which they have built networks. In this case, Market Clarity has only identified a “single” POP location in each relevant “city” (ABS Statistical Division).

- **Commercial-in-Confidence (CIC) Data** — Some data held by Market Clarity has been provided on a commercial-in-confidence basis. The analysis in this document does not infringe on CIC data, since this restriction is generally based on detailed location information about POPs and fibre location, rather than the city or suburb in which that POP exists.

Market Clarity derives location data including geographic co-ordinates, postcodes, and Census locations, from the following data sources:

- **Geographic Co-ordinates** — The geographic co-ordinates assigned to Australian locations are derived from the Gazetteer of Australia 2006. The geographic identification of locations is used to assist in correctly assigning information such as Census Statistical Division to locations.
- **Postcodes** — Postcodes are assigned using the Australia Post database of postcodes.
- **Census Locations** — Census locations are obtained from the Australian Bureau of Statistics, using database tables and maps available from the ABS.

Market Clarity does not guarantee the accuracy of these external data sources.

## 1.3 Access Network Ownership in Selected Australian Capital Cities

Table 1, below, shows the number of owners identified in Market Clarity's Telecommunications Infrastructure Database, for Access Fibre, Fixed Wireless Access, and HFC networks in Sydney, Melbourne, Brisbane, Adelaide and Perth.

Table 1, below, records the total number of Access Fibre owners known to possess infrastructure in Sydney, Melbourne, Brisbane, Adelaide and Perth.

Table 1. — Access Network Ownership in Selected Capital Cities

City	Sydney	Melbourne	Brisbane	Adelaide	Perth	Canberra	Hobart	Darwin
Access Fibre Owners in City	11	14	12	11	8	6	3	3
Fixed Wireless Access Owners in City	10	12	8	4	4	2	3	2
HFC Owners	2	2	2	1	2	0	0	1

## 1.4 Analysis of Access Fibre Networks in Australian Capital Cities

Table 2, below, identifies Access Fibre owners known to hold infrastructure in the ABS Statistical Divisions (as defined by the Australian Bureau of Statistics) of Sydney, Melbourne, Brisbane, Adelaide, Perth, Canberra, Hobart and Darwin.

Table 2. — Access Fibre Networks in Capital Cities

Access Fibre Owner	Sydney	Melbourne	Brisbane	Adelaide	Perth	Canberra	Hobart	Darwin
<b>AAPT</b>	Yes	Yes	Yes	Yes	Yes	Yes		
<b>Agile</b>				Yes				
<b>Amcom</b>				Yes	Yes			Yes
<b>CITEC</b>			Yes					
<b>Digital River</b>	Yes	Yes	Yes					
<b>Macquarie Telecom</b>	Yes	Yes						
<b>NextGen</b>	Yes	Yes	Yes	Yes	Yes	Yes		
<b>Optus</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Pipe Networks</b>	Yes	Yes	Yes	Yes			Yes	
<b>Pivit</b>			Yes					
<b>PowerTel</b>	Yes	Yes	Yes	Yes	Yes	Yes		
<b>Primus</b>	Yes	Yes	Yes	Yes	Yes			
<b>QR Telecommunications</b>	Yes		Yes					
<b>SABRENet</b>				Yes				
<b>Silk Telecom</b>		Yes		Yes	Yes			
<b>SPI PowerNet</b>		Yes						
<b>Telstra</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>TransACT</b>						Yes		

Access Fibre Owner	Sydney	Melbourne	Brisbane	Adelaide	Perth	Canberra	Hobart	Darwin
Uecomm	Yes	Yes	Yes					
Verizon	Yes	Yes						
VicTrack		Yes						

Table 3, below, provides the total number of Access Fibre POPs known to be installed in Australian capital cities.

Table 3. — Access Fibre POPs in Australian Capital Cities

City	Sydney	Melbourne	Brisbane	Adelaide	Perth	Canberra	Hobart	Darwin
Access Fibre POPs in City	245	405	184	113	158	29	37	23

## 1.5 Analysis of Fixed Wireless Broadband Access Networks in Australian Capital Cities

Table 4, below, identifies Fixed Wireless Broadband owners known to hold infrastructure in the ABS Statistical Divisions (as defined by the Australian Bureau of Statistics) of Sydney, Melbourne, Brisbane, Adelaide, Perth, Canberra, Hobart and Darwin.

Table 4. — Fixed Wireless Broadband Access Networks in Australian Capital Cities

Fixed Wireless Broadband Owner	Sydney	Melbourne	Brisbane	Adelaide	Perth	Canberra	Hobart	Darwin
Arafura Connect								Yes
BigAir	Yes	Yes						
Broadband Anywhere				Yes				
BroadbandNet					Yes			
Central Coast Internet	Yes							
Cirrus Communications	Yes		Yes	Yes				
Clear Networks		Yes					Yes	



Fixed Wireless Broadband Owner	Sydney	Melbourne	Brisbane	Adelaide	Perth	Canberra	Hobart	Darwin
Clever Communications Australia	Yes	Yes	Yes	Yes				
DCS Internet		Yes						
Eastern Wireless		Yes						
Hotspotzz	Yes							Yes
iWireless					Yes			
Link Innovations	Yes							
Megalink		Yes						
154 Collins Street Pty Ltd (OneWire Communities)							Yes	
Optic Fibre and Wireless	Yes	Yes	Yes					
Pacific Wireless		Yes						
Personal Broadband	Yes	Yes	Yes	Yes	Yes	Yes		
Pivit			Yes					
Satellite & Wireless			Yes					
Stenzel Farming Enterprises Pty Ltd			Yes					
Tasmanet							Yes	
Unwired	Yes	Yes						
West Australian Networks					Yes			
Wideband Networks		Yes						
Wizz Pty Ltd	Yes	Yes	Yes					
YLess4U						Yes		

## 1.6 Analysis of HFC Access Networks in Australian Capital Cities

Table 5, below, identifies HFC network owners known to hold infrastructure in the ABS Statistical Divisions (as defined by the Australian Bureau of Statistics) of Sydney, Melbourne, Brisbane, Adelaide, Perth, Canberra, Hobart and Darwin.

Table 5. – HFC Access Networks in Australian Capital Cities

Owner	Sydney	Melbourne	Brisbane	Adelaide	Perth	Canberra	Hobart	Darwin
Austar								Yes
e-Wire					Yes			
Optus	Yes	Yes	Yes					
Telstra	Yes	Yes	Yes	Yes	Yes			

## 1.7 About Market Clarity's Telecommunications Infrastructure Database

Market Clarity holds an inventory of Australia's telecommunications transmission infrastructure, covering such diverse technologies as DSLAM deployment, fixed wireless broadband base stations, HFC networks, mobile base station locations, access fibre, long-haul fibre, and point-to-point microwave systems.

Recent additions to the [Telecoms Infrastructure Database](#) include tracking of FTTN networks, Academic networks, Wireless Hotspots, Data Centres and Internet Peering Points.

As of September 2007, Market Clarity's database of telecommunications infrastructure tracks information from 113 infrastructure owners:

- DSLAM Locations (close to 4,500 DSLAMs) – 19 Owners
- Access Fibre Networks (more than 700 service areas and 1,630 POPs) – 25 Owners
- Fixed Wireless Broadband Base Stations (over 1,900 base stations) – 62 Owners
- Mobile Networks (over 17,000 2G and 3G base stations) – 4 Owners

- Long-Haul Fibre Networks (200+ towns served by long-haul links, close to 600 POPs) — 13 Owners
- HFC Networks (over 270 service areas) — 4 Owners
- Long-haul Microwave (over 8,600 base stations) — 29 Owners
- Wireless Hotspots (over 1,700 base stations) — 18 Owners
- Academic Networks (over 180 network POPs) — 5 Owners
- Data Centres (over 140 data centre locations) — 101 Owners
- Internet Peering Points (over 290 peering point locations) — 20 Owners
- Fibre-to-the-Node Networks (over 100 Node locations) — 1 Owner
- Market Clarity analysis: OPEL Planned WIMAX Base Stations (over 870 base stations)
- Market Clarity analysis: OPEL Planned ADSL2+ DSLAMs (over 250 DSLAMs)
- Market Clarity analysis: OPEL Planned Long-Haul Fibre POPs (6 fibre POPs)

New technologies, systems and builds are tracked separately and added as they come on-line:

- OPEL Network planned (and actual) deployments
- BPL moving from trial to live through 2007
- Fibre in housing developments
- 3G upgrades
- Existing carriers expanding their networks

Market Clarity has over 200,000 specific pieces of information in the Telecoms IDB.

The information contained in Market Clarity's [Telecoms Infrastructure Database](#) was compiled via primary research:

- The initial compilation of the **Telecoms Infrastructure Database** utilised a wide range of research sources, including Market Clarity service provider databases, service provider annual reports, service provider presentations, ACMA Radiocomm licenses, news articles, press releases, and services maps. Market Clarity also reviewed published industry studies by DCITA, ACMA, the ACCC, and state and local governments for additional information.
- This information was supplemented with primary research wherein Market Clarity contacted infrastructure owners and requested their latest fibre maps, DSLAM locations, and so on. This is a core part of Market Clarity's ongoing research activities.
- Telecommunications assets from utilities such as electricity and rail operators are also tracked in this database, to the extent that this infrastructure is available for third-party wholesale access or is used to provide an external telecommunications service. Note: Our initial focus has been on telecommunications sector transmission infrastructure, and we are gradually adding information from utilities.
- Infrastructure owner websites are checked on a monthly basis, to see whether any new service locations have been added. We also contact DSLAM infrastructure owners on a regular basis to obtain their latest list of DSLAM locations. We regularly contact Tier 1 and Tier 2 carriers via phone or email to ask questions about their services, and this too provides us with infrastructure updates.
- In addition to primary research, we receive press releases from a wide range of organisations and subscribe to industry newsletters, magazines, and so on, where we also learn of new service launches, which we then investigate.

The service provider community has embraced this innovative resource, and as a result Market Clarity is regularly provided with infrastructure updates, and permission to utilise the information in the **Telecoms IDB**.

**For this project, Market Clarity verified to the full extent possible, the accuracy of carrier investment in capital city fibre, HFC and wireless infrastructure. Where necessary we have confirmed the locations served through direct interviews with the relevant owner.**