



## Telstra Corporation Limited

Submission to the Australian Competition  
and Consumer Commission

DTCS Exemption Applications of 21 December 2007  
(CBD / Metro IEN and Tail Transmission)

Telstra's Response to ACCC Draft Decision

PUBLIC VERSION

October 2008

## Overview

Telstra welcomes the Commission's proposed decision of 22 September 2008 ("**Draft Decision**") to grant Telstra exemption from the standard access obligations in respect of the supply of the domestic transmission capacity service ("**DTCS**") for inter-exchange transmission for 16 CBD Exchange Service Areas ("**ESAs**") and 70 metropolitan ESAs, based on the presence of sufficient competition in the inter-exchange transmission market in those areas.

However It remains Telstra's view the threshold for exemption proposed by Mike Smart in his 20 December 2007 report in support of Telstra's applications for IEN exemption better promotes the long-term interest of end-users ("**LTIE**") and therefore is preferable to that proposed by the Commission in the Draft Decision. In his report, Mr Smart proposed that exemption should be granted in those ESAs where three fibre infrastructure owners had installed IEN fibre anywhere in an ESA. Accordingly, Telstra considers that granting exemption for all ESAs in Telstra's IEN applications would be in the LTIE, and that there is no legitimate basis upon which to reduce the list of ESAs for which exemption is granted.

Telstra believes that the Commission should reassess its proposed rejection of the applications for tail transmission in CBD and metropolitan areas, given the level of competitive fibre tail infrastructure in CBD areas and the availability of ULLS as an input for tail transmission using single-pair high-speed digital subscriber line ("**SHDSL**") technology for up to 2 Mbps in metropolitan areas.

Finally, there is no need for a transition period - the exemption (as sought by Telstra) should take effect immediately. There is already extensive entry in the form of fibre infrastructure for inter-exchange transmission in CBD and metropolitan areas, and for transmission tails in CBD areas. The only exemption where a transition period could be appropriate is the exemption of transmission tails in metropolitan areas. Even in that case, there is already extensive provision of transmission tails provided over copper lines.

This submission incorporates a report by Mike Smart on the economic aspects of the Draft Decision together with witness statements on the use of copper by Telstra for tail transmission deployment. Telstra relies upon Mike Smart's report for the purposes of its response to the Draft Decision and adopts his conclusions.



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## **1 IEN transmission - CBD and metropolitan areas**

### ***Telstra's position***

The Commission should exempt IEN transmission in all ESAs where there are at least 3 competitors with IEN infrastructure in that ESA (even if it is not at the Telstra local exchange) who have fibre network to a CBD.

### **1.1 Market definition**

The Commission recognises, as it did previously in its 2004 DTCS Declaration Review, that there is a separate product market for IEN DTCS.<sup>1</sup>

Telstra welcomes the Commission's proposal to adopt the geographic market definition of IEN transmission proposed by Telstra for the purposes of its consideration of Telstra's applications.

It also welcomes the Commission's rejection of Optus' overly narrow proposal to limit the market to each individual route, as the Commission recognises the range of interconnection possibilities for inter-exchange transmission that extend beyond the route between two exchanges.

### **1.2 Exemption threshold**

Nonetheless, Telstra is of the view that the threshold for exemption proposed by Mike Smart in his 20 December 2007 report in support of Telstra's applications for exemption is preferable to that proposed by the Commission in the Draft Decision. Telstra considers that Mr Smart's approach is likely to bring additional benefits to end-users by promoting efficient competition in additional ESAs.

The Commission proposes to adopt a criterion for exemption with respect to IEN transmission based on the presence of two optical-fibre networks, in addition to Telstra, which have a point of interconnect at a Telstra exchange in an ESA and a fibre network to a CBD.

The Commission states:

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1 Draft Decision, p 34.

*“Using fibre maps obtained through the Infrastructure RKR and CAN RKR, the ACCC has applied the underlying logic in the “1 km criterion” used for capital-regional transmission to derive criteria for establishing competitive inter-exchange transmission networks. The proposed criteria is evidence of two optical-fibre networks, in addition to Telstra, which have a point of interconnect at a Telstra exchange in an ESA and a fibre network to a CBD. Further, only ESAs which are connected in a contiguous cluster that adjoins a CBD ESA are proposed to be exempted.”<sup>2</sup>*

The Commission’s Draft Decision has not explained the rationale for confining competitor count to those present at the local exchange. In particular, the Commission has singularly failed to explain how it *“has applied the underlying logic in the “1 km criterion” used for capital-regional transmission to derive the criteria”*.

**Annexure 1** contains a report from Michael Smart in response to the Draft Decision. In his report, Mike Smart considers that the continued declaration of tail-end services makes it unnecessary to insist that inter-exchange transmission competitors be located at the Telstra exchange before they can be counted under the 3 competitor rule.

Telstra considers that the Commission should exempt IEN transmission in respect of those ESAs in which there are at least 3 competitors with IEN infrastructure anywhere within the ESA, as proposed by Mike Smart. The rationale for such a rule is as follows:

- (a) The **market for IEN transmission** is more appropriately characterised as a market for the supply of transmission **between any points (other than end-users premises)** within the geographic boundary of that market, not the supply of transmission **between local exchanges** within the geographic boundary of that market. As Mike Smart explains, the essential character of IEN transmission is its ability to bring together different ESAs within a global trunk network. It is not logically necessary that a Telstra exchange be the only point of access to a global inter-exchange network. Other carriers’ POPs in the particular ESA that form part of their own inter-exchange networks would serve that purpose equally well, as long as end users are able to access those intra-ESA PoPs located away from the Telstra exchange.<sup>3</sup> In this way, the term “inter-exchange” is better understood as “inter-ESA” rather than

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2 Draft Decision, p. 50.

3 Mike Smart report, 24 October 2008, section 3.1.

“inter-local exchange”.

- (b) If the Commission does not grant Telstra’s tail exemption applications, transmission within an ESA will continue to be available as a regulated service (as tail transmission). On the other hand, to the extent transmission within an ESA is exempted from regulation (e.g., if the Commission grants Telstra’s application for exemption of tail transmission), it will only be because it is in the LTIE to do so. That is, because it is supplied on a competitive basis.
- (c) Since transmission within an ESA (i.e., “**intra-ESA transmission**”) is either regulated or competitive, a competitor supplying IEN transmission (i.e., “**inter-ESA transmission**”) is capable of supplying IEN transmission from any point within an ESA as it will be able to access the intra-ESA (i.e., tail) component on a regulated basis or in a competitive market. There is no need for the competitor to have a POI at Telstra’s local exchange for it to supply IEN transmission from the ESA.

For example, if a carriage service provider (“**CSP**”) wishes to supply transmission between two customer premises, one located in the Melbourne ESA of Exhibition and the other located in another capital city (e.g., Sydney), that CSP could do so by acquiring:

- IEN transmission from any carrier with fibre in Exhibition ESA; and
- Tail transmission from Telstra connecting the customer premise in Exhibition ESA to the carrier’s PoP anywhere within that ESA.

Initially if, notwithstanding Telstra’s submissions, the Commission takes the view that there must be at least 3 competitors with PoPs at the Telstra local exchange for the ESA to be included in the IEN individual exemption order for Telstra, this requirement ought equally to apply to the IEN class exemption order - i.e., IEN transmission between exchanges that are not Telstra local exchanges may be exempted only if there are at least 3 competitors with PoPs at those local exchanges.

### **1.3 Drafting of Orders**

Telstra wishes to draw the Commission’s attention to an apparent drafting error in

the draft orders in the Draft Decision.<sup>4</sup>

Perhaps unsurprisingly given Telstra's separate applications, the Commission's draft orders divide IEN transmission into two geographic areas: metropolitan and CBD.

- The draft order in Appendix F to the Draft Decision relates to transmission between exchanges in metropolitan areas.
- The draft order in Appendix G to the Draft Decision relates to transmission between exchanges in CBD areas.

However, as currently drafted, the two draft orders would not cover IEN transmission between a metropolitan ESA and a CBD ESA. This potential result would be contrary to the Commission's view that inter-exchange transmission is dependent upon connectivity to the CBD exchange. The Commission noted:

*"The ACCC accepts that as the ability to service customers relies on connectivity with the CBD exchange, decisions to supply particular metropolitan ESAs will depend on whether the ESAs involved in the supply of the inter-exchange service are connected to the CBD exchange."*<sup>5</sup>

Therefore, exemption of connectivity between an exempt CBD ESA area and an exempt metropolitan ESA area should also be in the draft orders.<sup>6</sup>

In addition, Telstra considers that the draft orders should allow for the possibility of the DTCS being re-declared, not just "varied from time to time".

**Annexure 2** sets out Telstra's proposed amendments to the draft orders which addresses these issues.

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4 Draft Decision, Appendices F and G.

5 Draft Decision, pp 42-3.

6 It should be noted that Telstra's exemption application for Inter-Exchange Transmission Capacity in CBD Areas dated 21 December 2007 includes a draft order which provides that the exemption should cover inter-exchange DTCS between a CBD exemption area and a transmission point in an ESA adjoining each CBD exemption area.



## 2 Tail transmission - metropolitan areas

### *Telstra's position*

The Commission should exempt metropolitan tail DTCS of up to 2 Mbps. ULLS is a close substitute for wholesale tail transmission (including over fibre) for two primary reasons:

- **Telstra itself supplies wholesale transmission over copper:** Service providers (including Telstra) use copper to supply transmission services. Telstra Wholesale itself supplies copper-based transmission to carriers at prices, and at SLAs, that are identical with fibre-based transmission.
- **Business grade symmetric DSL (“BDSL”) is a close substitute for transmission:** Service providers (including Telstra) also use copper to supply data products to business customers that are close substitutes for transmission. Wholesale customers use ULLS as an input to these services. The services include products such as business grade symmetric DSL which are supplied to business customers at prices and at SLAs that are similar to transmission prices and SLAs. Nevertheless, they are considered close substitutes for transmission by business customers in terms of a wide range of their end-user applications.

ATM, Frame Relay, DAR and Ethernet can be used as access services (as well as complements to SHDSL). These data products are also close substitutes for tail transmission supplied over fibre or copper.

Finally, Telstra's fibre tail coverage in metropolitan areas is not ubiquitous. Since other carriers are equally well-placed to supply transmission tails over fibre, there is no reason for transmission tails to continue to be declared under Part XIC.

### 2.1 Market Definition

The Commission recognises, as it did previously in its 2004 DTCS Declaration Review,

that there is a separate product market for tail DTCS.<sup>7</sup>

Telstra welcomes the Commission's rejection of Optus' overly narrow proposal to limit the geographic market definition to each individual route, as the Commission recognises the range of interconnection possibilities for tail transmission that extend beyond the route between two points in the customer access network.

## **2.2 Substitutability of ULLS - reservations identified by the Commission are unwarranted**

Telstra also welcomes the Commission's recognition that ULLS may be substitutable for tail transmission provided over fibre in some cases.<sup>8</sup> However, it disagrees with the Commission's assessment that ULLS does not form a sufficiently close substitute to justify exemption in metropolitan ESAs where there are 3 competing IEN networks.

### Commission's reservations

The Commission recognises that it may be technically feasible to use ULLS to provide tail transmission. However, the Commission also expresses the view that ULLS is "*not always*" a close substitute for tail transmission. The Commission's reservations seem to be:

- (a) *ULLS declaration description*: In the Commission's interpretation, the ULLS declaration description implies that ULLS is a substitute only where the tail transmission is provided from a POI located at or associated with a customer access module ("**CAM**");
- (b) *Exchange capping*: Where the POI is located in an access provider's exchange, there are supply constraints such as exchange capping;
- (c) *Distance limitation*: The availability of symmetric transmission using ULLS is dependent on distance of the end-user's premises from the exchange and is a limiting factor;
- (d) *Guaranteed service*: Business customers are mostly the end-users of DTCS, and require a guaranteed service. Equivalent quality of service is relevant for substitutability, but service assurance and provisioning times for tail

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7 Draft Decision, p 34.

8 Draft Decision, pp 34, 43.

transmission are distinctly better than for ULLS.

Telstra's response

Telstra responds to the Commission's reservations as follows.

(a) ULLS declaration description

Where the CAM is located at the Telstra exchange, ULLS is a close substitute for tail transmission provisioned over fibre from the Telstra exchange. There are relatively few instances of the CAM being located outside the Telstra exchange. If this were a concern, it is best addressed by limiting any tail transmission exemption to circumstances where the CAM is located at the local exchange.

(b) Exchange capping

Exchange capping is an uncommon supply constraint for ULLS. Under Telstra's published list of TEBA capped sites, only 49 exchanges out of over 5071 throughout the whole of Australia are currently affected by capping issues.<sup>9</sup> About half of the 49 exchanges are categorised as only "potentially capped".

Furthermore, in respect of the 128 ESAs the subject of Telstra's exemption application for tail transmission in metropolitan areas ("**Metro Tail Application ESAs**"), there is only one ESA, namely Nerang, that is affected by exchange capping issues and it is in the category of "potentially capped".<sup>10</sup> Thus, to the extent that the Commission is troubled by this concern, it would be preferable to simply limit any exemption by excluding Nerang rather than

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9 Telstra, TEBA - Capped sites for Telstra Equipment Building Access (TEBA), 1 October 2008, at: [http://telstrawholesale.com/products/docs/teba/teba\\_fixed\\_facilities\\_access\\_capped\\_sites.pdf](http://telstrawholesale.com/products/docs/teba/teba_fixed_facilities_access_capped_sites.pdf).

10 It is noted that Pitt and Roma Street ESAs, which form part of Telstra's exemption application for tail transmission in CBD areas, are also subject to capping issues. However, Telstra's exemption application for tail transmission in CBD areas is mainly based on the presence of competitive tail fibre infrastructure at all rates, and is not wholly reliant on the availability of ULLS.

adversely diminishing the LTIE by denying exemption where it is otherwise justified.

(c) Distance limitation

Telstra recognises that ULLS may be subject to limitations such as attenuation due to distance from the exchange.

However, to the extent distance limitations are a concern for the Commission, it is not a reason to continue regulating all tail transmission services. Distance limitations only affect the substitutability of ULLS for transmission services over the relevant distance limit. They do not affect the substitutability of ULLS for transmission services within the relevant distance limit.

Telstra refers to the earlier statement of [c-i-c] [Telstra employee name withheld]<sup>11</sup> [end c-i-c] which showed that ULLS deployment class 9f (SHDSL 2 Mbps symmetrical) is satisfied for [c-i-c] [end c-i-c] of copper lines (both business and residential) in the Metro Tail Application ESAs.

Subject to availability of two or more copper pairs for bonding, [c-i-c] [end c-i-c] of copper lines in the 128 ESAs in Telstra's Metro Tail Application can be used to support bonded pairs of ULLS deployment class 9d for 2 Mbps transmission tails.<sup>12</sup>

Furthermore, the distance limitation of ULLS is unlikely to preclude many businesses from obtaining a copper based data transport service. It is likely that most business customers are located relatively close to a Telstra exchange in Band 2 areas because Telstra's exchanges are typically located at the centre of suburban business districts. The only significant exception is business parks where fibre can be installed just as easily by Telstra as by competitors (and routinely is).

Telstra considers the distance limitation of ULLS does not pose a barrier to entry. Telstra adopts the views of Mike Smart in his report dated 20 December 2007 in which he stated:

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11 Statement of [c-i-c] Telstra employee name withheld [end c-i-c] dated 18 December 2007.

12 Ibid.

*“A new entrant to the transmission markets in metro areas would find that a group comprising [c-i-c] [end c-i-c] of all customer premises on average would be addressable via ULLS for tail transmission of 2 Mbps. Subject to the availability of two or more copper pairs, this group could represent as many as [c-i-c] [end c-i-c] of SIOs.*

*“Those premises that are not within that group would not be addressable via copper transmission tails for new entrants or Telstra, as the limiting factor is signal attenuation in the copper loop, which affects all carriers equally. In my view, this information demonstrates that an inability to run transmission tails to a significant proportion of customers in these exchange service areas would not pose a barrier to entry or expansion for competitors. However, for the group of end-customers that is unable to access 2 Mbps tail services over ULLS, both entrants and Telstra would face a similar cost hurdle in installing a fibre tail, although to the extent that Telstra may have an installed base of fibre tails in these metro areas the relevant sunk costs could potentially pose a barrier to entry. I do not have sufficient information about the incidence or importance of fibre tails in these metro exchange service areas to form a view on the materiality of any such barrier”.<sup>13</sup>*

It should be noted that Mike Smart’s reservation regarding the extent of Telstra’s installed metro fibre tails was addressed in his later statement of 20 August 2008, in which he concluded that it did not constitute a material barrier to entry.<sup>14</sup> Thus, given that distance limitation affects all carriers equally, that factor does not pose a barrier to entry.

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13 M Smart, statement of 20 December 2007, paragraphs 78 and 79.

14 M Smart, Analysis of extent of transmission tail deployment in metropolitan ESAs, 20 August 2008.

(d) **Guaranteed service**

Competitors offer guaranteed service speeds and availability<sup>15</sup> over data transport services to businesses using ULLS. This CAN component of competitors' offerings is a dedicated line that is not contended and therefore capable of high levels of service guarantee.

In addition, if enhanced service level guarantees are desired for any particular customer or application, ULLS access seekers can obtain higher levels of service guarantee from Telstra than the standard basic levels upon agreed terms. If access seekers cannot reach agreement with Telstra, then they can notify the Commission of an access dispute.

**2.3 Substitutability of ULLS - Telstra itself supplies transmission tails over copper lines**

Telstra supplies wholesale transmission tails over both fibre and copper lines. Table 1 is an extract from the statement of [c-i-c] [Telstra employee name withheld] [end c-i-c] dated 24 October 2008 (**Annexure 3**) which indicates that around [c-i-c] [end c-i-c] of wholesale transmission tails in the Metro Tail Application ESAs are provisioned over copper lines.

**Table 1 - Proportion of wholesale transmission tails that are provisioned over copper lines in Metro Tail Application ESAs**  
[c-i-c] [end c-i-c]

There is no reason why other carriers could not also supply transmission services over copper lines.

**2.4 Substitutability of ULLS - wholesale transmission supplied over copper is a close substitute for wholesale transmission supplied over fibre**

In Telstra's case, wholesale transmission tails are supplied at prices and SLAs that are identical whether or not the transmission medium is fibre or copper. (See **Annexure 4** for the statement of [c-i-c] [Telstra employee name withheld] [end c-i-c], who is Telstra's Wholesale Transmission product manager.) The only occasion in which the transmission medium could make a difference is where the availability of certain

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15 <http://www.xyzed.com.au/products/zedline.pdf>.

premium grade options may depend on whether the transmission medium is fibre or copper. As at February 2008, only around [c-i-c] [end c-i-c] of the wholesale transmission tails provisioned by Telstra Wholesale in the Metro Tail Application ESAs have been provisioned with premium grade options. This indicates that the availability of premium-grade option is of limited importance to customers. In addition, not all premium-grade options depend on the availability of fibre as the transmission medium.

## **2.5 Substitutability of ULLS - business grade symmetric DSL is a close substitute for wholesale transmission supplied over copper**

Telstra and a number of other carriers and service providers supply business grade symmetric DSL services (“**BDSL**”). See **Annexure 5** for a non-comprehensive list of carriers and service providers (in addition to Telstra) that are known to supply BDSL products.

The technology underlying business grade symmetric DSL products is SHDSL. SHDSL (ITU G.991.2) is a standard DSL technology that fulfils the requirements of business end users for symmetrical, two-way traffic.

Business grade symmetric DSL is provided at SLAs that are comparable to those that apply to Telstra’s wholesale transmission service. The following table is a comparison of Optus / XYZed’s Business grade symmetric DSL product known as ZedEthernet. In fact, ZedEthernet is marketed by Optus / XYZed as a “Leased Line” product, emphasizing its perceived substitutability for DTCS.

**Table 2 - Comparison of Service Levels for Telstra Wholesale Transmission and Optus’s Business grade symmetric DSL**

	<b>Telstra Wholesale Transmission</b>	<b>Business grade symmetric DSL (ZedEthernet)</b>
Response Time	Default: 2 hours, Available: 1 hour	Call response: 30 minutes, Site response: 2 hours
Restoration Options	12 hour (default)  8 hour  4 hour	Standard: Next Business Day  Business: 12 hours  Express: 4 hours

	2 hour	
Service Availability	N/A – TW does not contract availability with customers.	99.9%

Wholesale transmission tails supplied over copper and Business grade symmetric DSL (“BDSL”) are both supplied using SHDSL technology. In the former, the price and SLAs are identical with wholesale transmission tails supplied over fibre. In the latter, the price and SLAs are similar to, but not identical with transmission prices and SLAs. Those differences (in price and SLAs) between transmission over copper and BDSL reflect differences in the backhaul (i.e., inter-exchange) component in terms of:

- its interface with the customer’s network (G.703 interface for transmission, Ethernet hand off for BDSL);
- the contention ratio (no contention for transmission, customer defined contention for BDSL from 1:4 to 1:1); and
- The class of service of the Private Virtual Circuit (constant bit rate for transmission, variable bit rate for BDSL<sup>16</sup>).

The fact that such offerings are available now is evidence that there is nothing stopping competitors from offering SLAs similar to Telstra’s Wholesale Transmission service .

Wholesale transmission supplied over copper and business grade symmetric DSL should therefore be viewed by the Commission as close substitutes.

**2.6 Substitutability of ULLS - there is no material difference in service quality between copper-based transmission and fibre-based transmission**

Any concerns that ULLS has lower SLAs than wholesale transmission in terms of

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16 While Telstra Wholesale’s BDSL service is available only with variable bit rate, it is open to competitors to provide constant bit rate on their business grade DSL services.



provisioning or repair times have no practical effect on the ability of competitors to supply leased line products (whether as a full transmission service or a business grade DSL service) over copper lines using SHDSL technology at service quality levels that are competitive with those that apply to wholesale transmission supplied over fibre. The substitutability of copper-based transmission for fibre-based transmission should take account of both price and non-price considerations. To the extent that fibre-based transmission offers superior service quality levels to copper-based transmission:

- (a) the difference in quality is small and more than capable of being compensated for by lower prices (since the cost of building fibre is higher than the regulated cost of ULLS); and
- (b) any difference in quality is largely attributable to the inter-exchange component of the product being offered (e.g., in terms of contention levels).

#### **2.7 Substitutability of ULLS - Ofcom views Symmetric DSL as a substitute for SDH/PDH services in the leased line service market for dedicated transmission capacity**

In a recent study, Ofcom found that SDSL (Symmetric DSL) is substitutable for digital SDH/PDH services in the leased line service market for the provision of dedicated transmission capacity between customer sites. Ofcom found leased lines may take the form of partial private circuits, which in turn can be made up of ‘terminating segments’. Terminating segments run from a customer site to a Tier 1 node in BT’s network. Ofcom refers to these terminating segments as Symmetric Broadband Origination services. TISBO refers to Traditional Interface Symmetric Broadband Origination, where ‘traditional interface’ includes analogue or digital circuits using SDH and PDH transmission, as opposed to ‘alternative transmission’ such as Ethernet. TISBO is what the Commission might term as tail-end DTCS. Ofcom concluded:

*“We propose that SDSL [symmetric DSL] is a symmetric broadband origination service and that it should be included within the TISBO market. This proposed conclusion has been informed by the assessment of demand and supply-side substitution opportunities at the retail level, which we consider are also relevant at*

*the wholesale level.”<sup>17</sup>*

There is no apparent reason why substitutability of SHDSL delivered over ULLS with DTCS tails should be different in Australia as compared to the UK for the same products.

## **2.8 Substitutability of ULLS - other data products that are close substitutes for wholesale transmission**

Other technologies can be used to deploy copper tails for data transmission or equivalent services, such as:

- ATM;
- Frame Relay; and
- DDAS (also known as Data Access Radial or “**DAR**”) for up to 1,984 kbps transmission.

**Annexure 6** sets out a comparison of copper based services and fibre-based transmission. ATM, Frame Relay and DAR can each be used as access services supplied over copper line (as well as fibre). They may also be used in combination with SHDSL access tails, with ATM, Frame Relay or Ethernet being used for the inter-exchange component. Nevertheless, this does not detract from the use of ATM, Frame Relay and DAR as copper-based access services that are close substitutes for transmission tails.

## **2.9 Absence of market power in fibre tail transmission**

Finally, Telstra considers that tail transmission should not be regulated at all in metropolitan areas, due to the relative absence of fibre tails, whether owned by Telstra or a competitor. Telstra has few fibre tails in metropolitan areas and would face the same costs as competitors when building and provisioning new fibre tail connections to buildings where Telstra does not have a pre-existing fibre connection.

The statement of Mike Smart dated 20 August 2008, briefly referred to by the Commission in the Draft Decision, examined the empirical evidence of building

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17 Ofcom, Business Connectivity Market Review - Review of the retail leased lines, wholesale symmetric broadband origination and wholesale trunk segments markets, 17 January 2008,

termination points connected to Telstra's fibre network in metropolitan areas and concluded that:

*"First, Telstra's fibre tail coverage is not ubiquitous in metropolitan areas. Second, Telstra's first mover advantage in fibre tail construction in metro areas has been exaggerated by the submitters. It would not require construction of a large number of fibre tails for a new entrant to achieve Telstra's current scale in any single band 2 ESA.*

*Third, the shortcomings of ULLS as a means of providing for 2 Mbps tail transmission do not necessarily translate into enhanced market power for Telstra in fibre tail transmission. The foregoing data and analysis has shown that what Telstra does have in place is insufficient to provide the number of tail services that ULLS fails to deliver."<sup>18</sup>*

The above findings suggest that continued declaration of fibre tail transmission is unwarranted, as Telstra has no real ability to deter entry or control price. On that basis alone, the exemption should be granted for the Metro Tail Application.

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18 paragraph 5.60, p. 133.  
M Smart, statement of 20 August 2008.

### 3 Tail transmission - CBD areas

#### ***Telstra's position***

The Commission should exempt CBD tail transmission.

- There is an abundance of competitive fibre in CBD areas and therefore already substantial new entry in transmission tails using fibre. There is no evidence of Telstra being dominant in supplying transmission tails in CBD areas.
- Entry barriers are low, particularly for 2 Mbps transmission tails which can be provisioned over copper lines.

#### **3.1 Market concentration in CBD areas is low**

The Commission appears to acknowledge that Telstra's fibre network is not connected to 100% of buildings in CBD areas. Nevertheless, the Commission indicated that it considers that Telstra "*is still the dominant provider of connections to tail-end transmission customers*".<sup>19</sup> The Commission does not cite any evidence for this view. It seems to merely be an assertion<sup>20</sup>. As set out below, the available evidence in fact indicates that Telstra is not dominant in supplying transmission tails in CBD areas.

#### ***There is extensive competitor fibre in CBD areas***

Telstra refers to the Market Clarity report in **Annexure 7** and makes the following observations: **[c-i-c]**

**[end c-i-c]**

The Commission has data about fibre in CBDs obtained through the Infrastructure Audit RKR. By comparing the Market Clarity data with the RKR data, the Commission will see the competitors fibre that is omitted from the Market Clarity report. It is clear that competitive fibre offering transmission services in competition to Telstra in CBDs

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19 Draft Decision, p 55.

20 The Commission, in forming its conclusion that the market for tail-end DTCS in CBD areas is not competitive, footnotes its conclusion with footnote 133 that refers to the ACCC's 2004 Declaration Review. The Commission's assessment on concentration levels appears to be based on data that are now over 4 years old, but gives little apparent attention to the more recent evidence provided by Telstra.

is abundant.

Applying the Commission's approach in the context of capital-regional transmission and inter-exchange transmission that:

- (a) competition is effective wherever there are at least 3 competitor with their own infrastructure present; and
- (b) an infrastructure owner should be counted as a competitor so long as the infrastructure is sufficiently close to the end-user(s) such that it is economically feasible to extend the infrastructure to the end-user<sup>21</sup> including by building a fibre connection from the fibre network passing a CBD building to end-users in the building,

the Commission should conclude that there is effective competition in the provision of transmission tails in CBD areas.

While the Market Clarity report is limited to Melbourne and Sydney (due to time constraints), there is no logical reason why a similar finding should not apply to the other capital cities that are the subject of Telstra's exemption applications.

***Wholesale transmission tails supplied by Telstra in CBD areas are limited***

Telstra is not dominant in the CBD tail transmission market, based on the evidence of the small number of tail transmission services sold in CBD areas and the small number of buildings connected by Telstra fibre. This data was submitted by Telstra in its response to the Commission's information request, and is reproduced below.

**Table 4 - Telstra CBD fibre building count**

[c-i-c]

[end c-i-c]

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21 Please refer to M Smart's payback analysis on the economic feasibility of building a fibre connection. For the reasons set out later in section 3.2 of this submission, M Smart's payback analysis is conservative.

As a percentage of all buildings, the proportion of fibre connections of Telstra is [c-i-c] [end c-i-c], which does not indicate dominance or any ability to deter entry in the market for fibre tail transmission in CBD areas.

**Table 5 - Telstra CBD services in operation (wholesale transmission only)**

[c-i-c]

[end c-i-c]

Table 5 shows that Telstra sells [c-i-c] [end c-i-c] wholesale tail services in the 17 CBD ESAs. Only a small subset of Telstra fibre connections are active - i.e., there is a wholesale transmission service supplied over those fibre connections.

Contrary to the Commission's conclusions, Telstra actually experiences high levels of competition in tail transmission CBD markets.

**3.2 Barriers to entry in CBD areas are low**

The Commission expresses the view that Telstra has not provided sufficient evidence for the Commission to conclude that barriers to entry in the CBD tail-end market are low, notwithstanding Mr Smart's payback analysis.<sup>22</sup> This view is unwarranted for the reasons set out in Mr Smart's report of 27 October 2008 which are summarised as follows:

- (a) There is already considerable entry into the market as indicated in the Market Clarity report of 27 October 2008. This evidence should throw a different light to the Commission's view of the payback analysis - in particular, the Commission's assumption that prices will fall post-entry, and this is not captured in the payback analysis. Given that entry has already occurred, the payback analysis already reflects post-entry prices.
- (b) The payback analysis itself is conservative in so far as it relies on the cost estimates in the Craig Lordan report of 20 December 2007. Those cost estimates were in respect of building a fibre connection from a PoP to a building in the CBD. Mr Lordan was asked to provide cost estimates for "the most expensive building in an ESA" and "for the 75th percentile building in an ESA". In practice, there are considerable economies of scope in provisioning transmission tails. Fibre connections to individual buildings are built, not

from a single PoP, but from the closest available fibre access point.

It is commonly understood that fibre infrastructure owners deploy fibre networks in ring configurations.<sup>23</sup> In CBD areas, these rings form overlapping circles of fibre cable running up and down major streets. At regular intervals along these fibre rings are junction boxes which are constructed not only to facilitate access for maintenance of the fibre rings but also to enable other installed lines to connect to the fibre ring at those points. Based on these fibre rings, customer access is achieved by installing a spur from the nearest junction box in the fibre ring network to the customer's building (normally to the telecommunications equipment room of the building). Where a fibre ring passes along the same street of the customer building (especially if on the same side of the street), the cost of installing the spur to connect to the building (even if that cost is sunk) is relatively low.

Craig Lordan in his supplementary statement of 23 July 2008 provides some insights on the manner in which fibre connections to a new customer building are installed in CBD areas. He states:

*“3.3 Based on my experience the normal industry approach is to connect fibre to a new customer building by extending the existing fibre network rather than installing a new cable from the POI.*

*3.4 The long term approach to the development of a fibre distribution network is to install large fibre count cables from the POI along a route. Typically, many points to access the available fibres (joints) are also installed during construction. As highlighted in the Optus Submission, the standard Optus practice appears to be to install a joint (access point) every 200 metres. It should be noted that a joint every 200 metres is not required for the hauling and installation of the cable but is rather an option to enable additional building connections.*

*3.5 By installing surplus fibre capacity, joints and access pits at the time of construction, the carrier will have fibre network capacity within approximately 100 metres of every building along that route.*

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22 Draft Decision, p 63.

23 ACCC, Transmission network cost model - Discussion paper, May 2007, pp. 8-9.

*3.6 Any customer request for fibre capacity along that route can be connected quickly and with a short distance of fibre infrastructure installation.”<sup>24</sup>*

- (c) The case for exempting 2 Mbps transmission tails in CBD areas does not rely on the availability of competitor fibre in CBD areas. Competitors without an extensive fibre network can provision 2 Mbps transmission tails using SHDSL technology over copper lines. SHDSL-based transmission is a close substitute for fibre-based transmission for the reasons set out earlier in this submission.

Telstra refers to the earlier statement of [c-i-c] [Telstra employee name withheld]<sup>25</sup> [end c-i-c] which showed that ULLS deployment class 9f (SHDSL 2 Mbps symmetrical) is satisfied for [c-i-c] [end c-i-c] of copper lines (both business and residential) in the CBD Band 1 ESAs.

**Telstra Corporation Limited**  
**24 October 2008**

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24 Craig Lordan, Response to Cost Issues raised in the Optus DTCS Exemption Statement April 2008 (Confidential version), 23 July 2008, p. 5.

25 Statement of [c-i-c] [Telstra employee name withheld] [end c-i-c] dated 18 December 2007.



**Annexure 1 - Statement of Michael Smart of LECG dated  
24 October 2008 (confidential version)**

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## **Annexure 2 - Draft Orders**

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Attached:

- Appendix F: DRAFT ORDER in respect of Telstra's DTCS exemption application of 21 December 2007 in relation to inter-exchange DTCS in metropolitan areas
- Appendix G: DRAFT ORDER in respect of Telstra's DTCS exemption application of 21 December 2007 in relation to inter-exchange DTCS in CBD areas

# **Appendix F: DRAFT ORDER in respect of Telstra's DTCS exemption application of 21 December 2007 in relation to inter-exchange DTCS in metropolitan areas**

## **Order under paragraph 152AT(3)(a) by the Australian Competition and Consumer Commission in respect of Telstra's DTCS individual exemption application of 21 December 2007 relating to Inter-Exchange Transmission Capacity in Metropolitan Areas**

### **Individual exemption from standard access obligations in respect of DTCS**

#### **1. Title**

This Order may be cited as Individual Exemption Order No. X of 2008.

#### **2. Commencement and Expiry**

(41) This Order comes into effect 12 months after the date of release of the Commission's Final Decision on Telstra's individual applications for exemption from the standard access obligations set out in section 152AR of the Act in respect of DTCS in certain nominated metropolitan areas, lodged 21 December 2007.

(52) This Order will expire on 31 December 2012 or the expiry or revocation of the DTCS Declaration, whichever occurs first.

#### **3. Interpretation**

(1) Unless the contrary intention appears, where words or phrases used in this Order are defined in the *Trade Practices Act 1974*, the *Telecommunications Act 1997* or the instrument declaring the declared service, those words or phrases have the same meaning in this Order.

(2) In this Order, unless the contrary intention appears –

**Act** means the *Trade Practices Act 1974* (Cth).

**Commission** means the Australian Competition and Consumer Commission.

**DTCS** means domestic transmission capacity service declared by the Commission under subsection 152AL(3) of the Act pursuant to the DTCS Declaration.

**DTCS Declaration** means the Declaration made by the Commission under 152AL(3) of the Act in respect of the DTCS with effect from the 7 April 2004 and published in the Commonwealth of Australia Gazette No. GN 14 of 7 April 2004, as varied from time to time [and any subsequent re-declaration of the DTCS](#).

Note: The Commission may extend or further extend the expiry date of the DTCS Declaration under subsection 152ALA(4).

**Exchange Service Area or ESA** has the meaning given to that phrase by the Australian Communications Industry Forum Limited definition in ACIF C559:2006, Part 1.

**Exchange** means a telecommunications exchange owned or controlled by Telstra and includes the land, buildings and facilities (within the meaning of section 7 of the *Telecommunications Act 1997* (Cth)) that comprise or form part of the exchange.

**Final Decision** means the written statement setting out the ACCC's final decision titled '*Telstra's domestic transmission capacity service exemption applications – final decision and class exemption*' dated XX 2008.

**Telstra** means Telstra Corporation Limited (ACN 051 775 556).

#### 4. Exemption

Telstra is exempt from the standard access obligations set out in section 152AR of the Act in respect of the supply of DTCS:

- (1) in Sydney between transmission points located at an Exchange in any of the following ESAs: Ashfield, Balgowlah, Bankstown, Blacktown, Burwood, Campsie, Carramar, Castle Hill, Chatswood, Coogee, Cremorne, East, Edgecliff, Epping, Glebe, Granville, Harbord, Homebush, Hornsby, Hurstville, Kensington, Kingsgrove, Kogarah, Lakemba, Lane Cove, Lidcombe, Liverpool, Mascot, Mosman, Newtown, North Parramatta, North Ryde, North Sydney, Parramatta, Pendle Hill, Pennant Hills,

Petersham, Randwick, Redfern, Revesby, Rockdale, Rydalmere, Seven Hills, Silverwater, St Leonards, Undercliffe, Waverley;

- (2) in Brisbane between transmission points located at an Exchange in any of the following ESAs: Paddington, South Brisbane, Toowong, Valley, Woolloongabba;
- (3) in Melbourne between transmission points located at an Exchange in any of the following ESAs: Ascot, Brunswick, Caulfield, Coburg, Elsternwick, Footscray, Heidelberg, Malvern, Moreland, North Melbourne, Port Melbourne, Preston, Richmond, South Melbourne, St Kilda, Toorak; and
- (4) in Perth between transmission points located at an Exchange in the ESAs South Perth and Subiaco.

[Signed]

.....

Graeme Julian Samuel  
Chairman

DATED: ..... 2008

# **Appendix G: DRAFT ORDER in respect of Telstra's DTCS exemption application of 21 December 2007 in relation to inter-exchange DTCS in CBD areas**

## **Order under paragraph 152AT(3)(a) by the Australian Competition and Consumer Commission in respect of Telstra's DTCS individual exemption application of 21 December 2007 relating to Inter-Exchange Transmission Capacity in CBD Areas**

### **Individual exemption from standard access obligations in respect of DTCS**

#### **1. Title**

This Order may be cited as Individual Exemption Order No. X of 2008.

#### **2. Commencement and Expiry**

- (1) This Order comes into effect 12 months after the date of release of the Commission's Final Decision on Telstra's individual applications for exemption from the standard access obligations set out in section 152AR of the Act in respect of DTCS in certain nominated CBD areas, lodged 21 December 2007.
- (2) This Order will expire on 31 December 2012 or the expiry or revocation of the DTCS Declaration, whichever occurs first.

#### **3. Interpretation**

- (1) Unless the contrary intention appears, where words or phrases used in this Order are defined in the *Trade Practices Act 1974*, the *Telecommunications Act 1997* or the instrument declaring the declared service, those words or phrases have the same meaning in this Order.
- (2) In this Order, unless the contrary intention appears –  
  
**Act** means the *Trade Practices Act 1974* (Cth).

**Brisbane Metro Exemption ESAs** means the ESAs set out in sub-paragraph 4(2) of Individual Exemption Order No. X of 2008.

Note: Individual Exemption Order No. X of 2008 is the individual exemption order made by the Commission in relation to the Commission's Final Decision on Telstra's individual applications for exemption from the standard access obligations set out in section 152AR of the Act in respect of DTCS in certain nominated metropolitan areas as lodged on 21 December 2007.

**Commission** means the Australian Competition and Consumer Commission.

**DTCS** means domestic transmission capacity service declared by the Commission under subsection 152AL(3) of the Act pursuant to the DTCS Declaration.

**DTCS Declaration** means the Declaration made by the Commission under 152AL(3) of the Act in respect of the DTCS with effect from the 7 April 2004 and published in the Commonwealth of Australia Gazette No. GN 14 of 7 April 2004, as varied from time to time and any subsequent re-declaration of the DTCS.

Note: The Commission may extend or further extend the expiry date of the DTCS Declaration under subsection 152ALA(4).

**Exchange Service Area** or **ESA** has the meaning given to that phrase by the Australian Communications Industry Forum Limited definition in ACIF C559:2006, Part 1.

**Exchange** means a telecommunications exchange owned or controlled by Telstra and includes the land, buildings and facilities (within the meaning of section 7 of the *Telecommunications Act 1997* (Cth)) that comprise or form part of the exchange.

**Final Decision** means the written statement setting out the ACCC's final decision titled 'Telstra's domestic transmission capacity service exemption applications – final decision and class exemption' dated XX 2008.

**Melbourne Metro Exemption ESAs** means the ESAs set out in sub-paragraph 4(3) of Individual Exemption Order No. X of 2008.

**Perth Metro Exemption ESAs** means the ESAs set out in sub-paragraph 4(4) of Individual Exemption Order No. X of 2008.

[Sydney Metro Exemption ESAs means the ESAs set out in sub-paragraph 4\(1\) of Individual Exemption Order No. X of 2008.](#)

**Telstra** means Telstra Corporation Limited (ACN 051 775 556)

#### 4. Exemption

Telstra is exempt from the standard access obligations set out in section 152AR of the Act in respect of the supply of DTCS:

- (1) in Sydney between transmission points located at an Exchange in any of the following ESAs: City South, Dalley, Haymarket, Kent and Pitt;
- (2) in Brisbane between transmission points located at an Exchange in any of the following ESAs: Charlotte, Edison, Roma Street and Spring Hill;
- (3) in Adelaide between transmission points located at an Exchange in any of the following ESAs: Flinders, Waymouth;
- (4) in Melbourne between transmission points located at an Exchange in any of the following ESAs: Batman, Exhibition and Lonsdale;
- (5) in Perth between transmission points located at an Exchange in the ESAs Pier and Wellington;
- (6) [in Sydney between transmission points located at an Exchange in:](#)
  - (a) [any of the following ESAs: City South, Dalley, Haymarket, Kent and Pitt; and](#)
  - (b) [any of the Sydney Metro Exemption ESAs;](#)
- (7) [in Brisbane between transmission points located at an Exchange in:](#)
  - (a) [any of the following ESAs: Charlotte, Edison, Roma Street and Spring Hill; and](#)
  - (b) [any of the Brisbane Metro Exemption ESAs;](#)
- (8) [in Melbourne between transmission points located at an Exchange in:](#)
  - (a) any of the following ESAs: Batman, Exhibition and Lonsdale; and
  - (b) [any of the Melbourne Metro Exemption ESAs; and](#)



(9) in Perth between transmission points located at an Exchange in:

(a) any of the following ESAs: Pier and Wellington; and

(b) any of the Perth Metro Exemption ESAs.

[Signed]

.....

Graeme Julian Samuel

Chairman

DATED: ..... 2008

**Annexure 3 - Statement of [c-i-c] [end c-i-c] dated  
24 October 2008 (confidential)**

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**Annexure 4 - Statement of [c-i-c] [end c-i-c] dated  
24 October 2008 (confidential)**

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## Annexure 5 - Carriage Service Providers using copper to supply transmission or data products that have SLAs comparable to transmission

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### (1) Optus

Optus offers a Business SHDSL service, a description of which can be found on Optus' website via the following link -

[http://smb.optus.com.au/web/ocaportal.portal?\\_nfpb=true&\\_pageLabel=Template\\_wRHS&FP=/smallbusiness/internet/businessshdsl&site=smallbusiness](http://smb.optus.com.au/web/ocaportal.portal?_nfpb=true&_pageLabel=Template_wRHS&FP=/smallbusiness/internet/businessshdsl&site=smallbusiness).

Optus' Service Description for IP Data Services provides service targets for its SHDSL service, which can be found in the following document found on Optus' website (at clause 15) -

<http://www.optus.com.au/dafiles/OCA/AboutOptus/LegalAndRegulatory/SharedStaticFiles/SharedDocuments/IPDServDescSME.doc>

Of relevance, Optus identifies the following service targets:

<b>15.3</b>	<b>Provision of the service</b>
(a)	<i>Service activation - within 19 working days. (Service activation will be dependent on the results of a feasibility study).</i>
(a)	<i>Variation of the service - within 10 working days after receiving notification from you (excluding variation to bandwidth that exceeds forecast).</i>
(b)	<i>CIR and bandwidth change - within 2 business days after receiving notification from you.</i>
<b>15.4</b>	<b>What is the availability of the service?</b>
(a)	<i>We will endeavour to provide service availability of 99.90%.</i>
(b)	<i>We will use our reasonable endeavours to provide the following performance objectives:</i>
(i)	<i>international IP network objective: 95% of all international test packets over a discrete IP performance measurement aggregation period will have an IRTT of less than 300 ms per calendar month.</i>
(ii)	<i>national IP Network objective: 95% of all domestic test packets over a discrete IP performance measurement aggregation period will have a NRTT of less than or equal to 120 ms per calendar month. When other</i>

carriers have affected test packet loss or *NRTT* these periods are excluded from the objective calculation.

Optus also offers a wholesale Zed Ethernet product, based on SHDSL, for data transmission. It offers “Clear PVC Connectivity” and “Guaranteed Full Access Throughput”. A brochure of this product can be found through Optus’ website at the following link

[http://www.optus.com.au/dafiles/OCA/Wholesale/ProductAndServices/BusinessGradeDSLolutions/StaticFiles/Documents/zedethernet\\_broch.pdf](http://www.optus.com.au/dafiles/OCA/Wholesale/ProductAndServices/BusinessGradeDSLolutions/StaticFiles/Documents/zedethernet_broch.pdf)

Optus offers the following “Business Quality SLAs” for Zed Ethernet:

<b>Call Response Time</b>	30 Minutes
<b>Response Time to Site</b>	2 Hours
<b>Coverage/Fault Reporting</b>	24 x 7
<b>Restoration Options</b>	Standard: 24 Hours
<b>Business</b>	12 Hours
<b>Express</b>	4 Hours
<b>Network Availability Target</b>	99.9%
<b>Provisioning</b>	20 Working Days
<b>Standard Bandwidth Change</b>	2 Working Days
<b>Max Reach - Radial</b>	2.7 km

## (2) TPG

TPG offers a Premium Business SHDSL product for data transmission. A brochure on this product can be found through TPG’s website at the following link

<http://www.tpg.com.au/shdsl/document/brochure.pdf>. TPG claims the service “connects branch office computer systems to the head office”. There does not appear to be any information on TPG’s website regarding its service targets.

## (3) XYZed

XYZed offers DSL based products under the following categories:

- **Leased line products** comprising of ZedLine, ZedLine Frame, and ZedEthernet; and
- **Business class ADSL** comprising of ZedBiz, ZedBiz Lite, and ZedX.

The product catalogue for ZedEthernet is attached:



ZEDethernet.pdf

Product catalogues for the other products are available at

<http://www.xyzed.com.au/products/index.asp>

#### (4) PowerTel

PowerTel offers a Business SHDSL product. Its agreement for supply of services can be found at

[http://www.powertel.com.au/documents/SFOA/SFOA\\_19.13.pdf](http://www.powertel.com.au/documents/SFOA/SFOA_19.13.pdf). This document discloses the following service targets for the SHDSL (at pages 57 - 58):

Performance Targets	
Parameter	Target
Mean Time To Repair (MTTR) (The mean is taken over a calendar month)	24 Hours
Availability target	99.9%

  

Accumulated Outage on a Circuit (in a calendar month)	Rebate
> 4 hours ≤ 6 hours	15%
> 6 hours	30%

  

Installation Targets	
Access	Time
Business SHDSL	25 Business Days
Business ADSL	25 Business Days

  

Installation Rebates		
Installation Time Frames	Installation Delay	Recurring Charge Rebate
Installation Targets as defined in clause 3.3 or as otherwise agreed in writing with you.	Up to 5 Business Days delay	1 month Recurring Charge
	6 to 10 Business Days delay	2 months Recurring Charge

	11 to 20 Business Days delay	3 months Recurring Charge
	Greater than 20 Business Days delay	4 months Recurring Charge

**(5) Macquarie Telecom**

Macquarie Telecom offers business grade DSL service based on G.SHDSL for data transmission ([http://www.macquarietelecom.com/data/business\\_grade\\_dsl.htm](http://www.macquarietelecom.com/data/business_grade_dsl.htm)). Macquarie claims the service is “Suitable for use as the VPN access for connections between sites, fast file transfer, video streaming, video conferencing as well as hosting email or web servers.” Availability target is 99.6%. There does not appear to be any other information on Macquarie’s website regarding its service targets.

**(6) Primus**

Primus offers a business SHDSL service (<http://www.primus.com.au/PrimusWeb/BusinessSolutions/InternetAndData/>). There does not appear to be any information on Primus’ website regarding its service targets.

**(7) AAPT**

AAPT has a symmetric business broadband product (<http://aaptbusiness.com.au/business/products/Internet/BusinessBroadband/AAPTBusinessBroadbandSymmetric.cfm?o=114>). There does not appear to be any information on AAPT’s website outlining its service targets.

**(8) NEXTEP**

Nextep relies on the broadband network of its parent, NEC. There does not appear to be any information on its website about the type of internet products on offer, however, it does outline the technology utilised by Nextep, which includes business grade SHDSL services (<http://www.nextep.com.au/Solutions/AbouttheTechnology/tabid/135/Default.aspx>). There does not appear to be any information on service level descriptions on the website.

**(9) Internode**

Internode provides business SHDSL ([http://www.internode.on.net/business/internet/corporate\\_internet/internode\\_shdsl/](http://www.internode.on.net/business/internet/corporate_internet/internode_shdsl/)). There does not appear to be any information on service level on Internode’s website.

## Annexure 6 - Alternative Telstra Wholesale CAN copper based services comparable to transmission

Alternative Services	Transmission Type that it substitutes for	Capabilities	Limitations	Products	Availability
ULL	CAN Access to end user	<ul style="list-style-type: none"> <li>Up to 2.7 km</li> <li>2 Mbps without bonding</li> <li>40 Mbps with bonding gives 3-4 km BDSL over 2 copper pairs</li> </ul>	Up to 3 km. With bonding, can increase the distances.	Broadband data services, narrow band voice. BDSL and ADSL Asymmetric DAR Frame Relay	Australia wide
SHDSL BDSL	CAN Access substitute for E1 point to point	<ul style="list-style-type: none"> <li>256 kbps – 4 Mbps</li> <li>Point to Point / Point to Multi Point</li> <li>Guaranteed bandwidth (when 1:1 contention ratio and CBR / VBRrt PVC used)</li> </ul>	Electrical delivery only, access tails 3-4 km.	WBDSL	1800 Exchanges nationally
Frame Relay	CAN Access via Electrical (copper) or Optical.	<ul style="list-style-type: none"> <li>64 kbps – 45 Mbps</li> <li>Point to Point / Point to Multi Point / Multi – Multi.</li> </ul>	45 Mbps maximum speed, non real time variable bit rate.	Wholesale Frame Relay (Rebill of the retail solution)	Australia wide
ATM	CAN Access substitute for SDH when used with constant bit rate CoS. Access can be via Electrical (copper) or Optical.	<ul style="list-style-type: none"> <li>2-622 Mbps access speed</li> <li>Point to Point / Point to Multi Point / Multi – Multi.</li> </ul>	<ul style="list-style-type: none"> <li>622 Mbps maximum access speed (Effective Information Rate: 542.5 Mbps)</li> <li>Maximum EIR per PVC: 152 Mbps (can use</li> </ul>	Wholesale ATM	Australia wide



			multiples)		
<b>DAR</b>	CAN Access to end user and interexchange. Access via Electrical (copper) or Optical	64 kbps to 1,984 kbps (n X 64Kbps). Point to point.	Max speed 1984 kbps Intra-state only	DAR	Australia wide. Suitable for meeting short term demand as not scalable

**Annexure 7 - Market Clarity report dated 24 October 2008**  
**(confidential - ACCC only)**

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