Proposed Variation to make the GSM Service Declarations Technology-Neutral

An ACCC *Draft Report* examining a proposed variation to make the Domestic GSM Originating and Terminating Access Service technology-neutral with respect to technologies currently in use

December 2001

Contents

1. Introduction

In September 2001, the Australian Competition and Consumer Commission (the Commission) commenced a public inquiry into whether the domestic GSM originating and terminating access service declarations (the GSM service declarations) should be varied to become mobile technology-neutral with respect to technologies currently deployed or in use.

The domestic GSM originating and terminating access services (the GSM services) are wholesale inputs used by carriers and service providers to supply mobile and fixed-to-mobile retail services to end-users. They were deemed to be declared under s. 39 of the *Telecommunications (Transitional and Consequential Amendments) Act 1997*.[1]

The Commission initiated this inquiry following its decision that a form of retail benchmarking approach is the most appropriate pricing methodology for the domestic GSM terminating access service (the GSM terminating service).[2] In reaching this view, the Commission noted that many of the issues relevant to the GSM terminating service may equally apply to other mobile technologies that are currently deployed or in use in Australia, such as CDMA. These mobile services, despite being considered close substitutes for GSM services, are currently not regulated. Consequently, the purpose of this public inquiry is to consider whether the GSM service declarations should be varied to become technology-neutral with respect to these mobile technologies, having regard to the legislative criteria outlined in section 4 of this Draft Report.

Declaration ensures access seekers have access to the inputs they need to supply competitive telecommunications services to end-users in accordance with the standard access obligations under s. 152AR of the *Trade Practices Act 1974* (the Act). The terms and conditions of supply can be agreed through commercial negotiations. If the access provider or access seeker cannot agree on the terms and conditions of supply, either party can seek Commission arbitration of disputes over access terms and conditions to regulated services. Where a relevant access undertaking (approved by the Commission) exists, an arbitration determination made by the Commission on access to the declared service must not be inconsistent with that undertaking.

To stimulate discussion and assist its consideration of these matters during the inquiry, the Commission issued a Discussion Paper in September 2001 setting out a number of issues which it considered to be pertinent to its decision. In the course of this inquiry, the Commission received a number of submissions from carriers and carriage service providers. Attachment A contains a list of the submission received and copies can be found on the Commission's website at www.accc.gov.au.

[1] The full GSM service declarations, as detailed in the statement, *Deeming of Telecommunications Services*, are provided at Attachment B of this Draft Report.

[2] *Pricing Methodology for the GSM Termination Service*, Australian Competition and Consumer Commission, July 2001, pp. 5-6.

Some of the submissions to the Discussion Paper raised the issue of revocation of the GSM service declarations, which was considered to be more appropriate than the proposed variation to the GSM service declarations.[3] It was considered that the current GSM service declarations are not in the long-term interests of the end-user (LTIE) and that the best manner in which to ensure regulation is applied in a technology-neutral fashion is to revoke the declarations.

In developing the *Pricing Methodology for the GSM Termination Service* (the GSM pricing principles), the Commission concluded that a degree of regulatory intervention (retail benchmarking) is appropriate at this point in time. In forming this view it took into account a variety of regulatory options, including forbearance. Under a forbearance approach access prices would be effectively set by the market using commercial negotiations. This would in many ways be equivalent to a revocation of the GSM service declarations. It was the Commission's view, however, that there was potential for anti-competitive pricing under such an approach and the likelihood that allocative inefficiencies would occur. Accordingly it did not recommend the use of a forbearance approach.

Given these previous considerations, and the Commission's final decision to apply a retail benchmarking approach to determine access prices, it was considered unnecessary to examine the question of declaration of the GSM services. This issue was explored in the course of determining the appropriate pricing principles. Accordingly, it saw the next step as determining whether the concerns that exist in relation to GSM services also apply to other mobile services, such as CDMA. The Commission remains of this view and for that reason intends to continue with this public inquiry.

This said, the Commission does note that as a part of the retail benchmarking approach it proposed to review the approach and consider other forms of regulation or whether the declarations should be revoked after two years.

The Commission understands that as GSM and CDMA are the only mobile technologies currently deployed and in use, and as such that the proposed variation will result in service declarations that only encompass GSM and CDMA services.

Having regard to the submissions received to the Discussion Paper, the Commission's draft view is that varying the GSM service declarations to include other mobile technologies currently deployed or in use would be in the LTIE.

In particular, competition in the fixed-to-mobile services market will likely be improved under the proposed variation. There will be diminished opportunity for integrated mobile carriers to price in an anti-competitive manner and benefits for end-users making fixed-to-mobile calls (lower prices). Further, the competitive-neutrality associated with the proposed variation will ensure a level playing field in the mobile services market.

[3] Optus's submission to the Discussion Paper, Telstra's submission to the Discussion Paper, and Vodafone's submission to the Discussion Paper.

There will also likely be improvements to allocative efficiency under the proposed variation. With a reduced gap between price and cost any allocative inefficiencies caused by cross-subsidisation of mobile phone subscribers by fixed line subscribers will diminish as will any excess profits being earned. Also, any allocative inefficiencies caused by asymmetric regulation would be avoided.

The remainder of this Draft Report is structured as follows:

- **Section Two** summarises the process for declaring a service, or varying an existing service declaration and outlines the process for this public inquiry.
- **Section Three** discusses the existing GSM service declarations under consideration and the proposed variation of the service declarations.
- **Section Four** sets out the Commission's approach to the LTIE test and its application to the proposed variations to the existing GSM service declarations.
- **Attachment A** lists the submissions received.
- **Attachment B** sets out the current service descriptions for the domestic GSM originating and terminating access service.
- **Attachment C** sets out the proposed service descriptions for the technology-neutral mobile service.

2. Process for declaring a service or varying an existing service declaration

2.1. The access regime

Part XIC of the Act establishes a regime for regulated access to carriage services and services which facilitate the supply of carriage services. Access obligations in relation to a particular service are established following the declaration of a service by the Commission. These require that a declared service must be provided, along with specified ancillary services, to an access seeker on request by any access provider supplying, or proposing to supply, those services to any person (including to themselves).

The access regime thus enables access seekers to supply carriage or content services to their customers without the (potentially anti-competitive) restriction of key services by access providers. In addition, the Commission has the power to vary or revoke an existing declaration.[4]

The Commission may hold a public inquiry into whether to declare a new service or vary or revoke an existing service declaration. Although the Commission can declare a service on the recommendation of the Telecommunications Access Forum (TAF) without the need to hold a public inquiry, any variation or revocation, unless it is of a minor nature, can only be made after the Commission has first held a public inquiry. The purpose of a public inquiry is to assist the Commission to determine whether it is satisfied that declaring the carriage service under consideration, or varying or revoking a declaration of that carriage service, would promote the LTIE of carriage services or of services provided by means of carriage services.

In summary, the Commission must:

- hold a public inquiry in accordance with Part 25 of the *Telecommunications Act 1997* on whether to make the proposed declaration, variation or revocation;
- prepare and publish a report setting out the Commission's findings as a result of the public inquiry; and
- be satisfied that declaring the service, or varying or revoking an existing service declaration, will promote the LTIE of carriage services or of services provided by means of carriage services.

[4] Subsection 152AO(1) of the Act stipulates that subs. 33(3) of the *Acts Interpretation Act 1901* applies to the Commission's declaration powers under s. 152AL of the Act. Subsection 33(3) of the *Acts Interpretation Act 1901* provides that the power to make, grant or issue an instrument shall be construed to include a power to repeal, rescind, revoke, amend or vary such an instrument.

Section 152AB(2) of the Act provides that, in determining whether a proposed declaration, variation or revocation promotes the LTIE, regard must be had to the extent to which the proposed declaration, variation or revocation is likely to result in the achievement of the following objectives:

- promoting competition in markets for carriage services and services provided by means of carriage services;
- achieving any-to-any connectivity in relation to carriage services that involve communication between end-users; and
- encouraging the economically efficient use of, and investment in, the infrastructure by which carriage services, and services provided by means of carriage services, are supplied.[5]

The Commission's general approach to an inquiry on a proposed declaration or variation or revocation to a service declaration is to form a view about the likely result of the declaration, variation or revocation on the achievement of each of these objectives. The Commission will then make an overall assessment of whether the proposed declaration, variation or revocation will promote the LTIE, having regard to the impacts on the three objectives.

The Commission generally uses a 'with and without test' to assist in the above assessment. That is, the Commission considers the future without a proposed declaration, variation or revocation and compares this to the future with a proposed declaration, variation or revocation. The 'with and without test' is not a determinative test in its own right, but is, rather, used to identify the effects which are likely to occur as a result of a proposed declaration, variation or revocation.

Further detail and discussion of the Commission's approach to applying the LTIE test is in its *Telecommunications services – Declaration provisions* guidelines.[6] Application of the LTIE test to the proposed variation is outlined in section 4 of the Draft Report.

2.2. Timetable

The Commission considers that six weeks represents a reasonable opportunity for the return of written submissions in relation to the Draft Report. Accordingly, the Commission requests written submissions by no later than **5.00pm, 18 January 2001**.

To foster an informed and robust consultative process, the Commission proposes to treat all submissions as non-confidential, unless the submissions indicate otherwise. It is also proposed that where industry participants wish to submit confidential information they should

[5] Referred to as 'secondary objectives' in the Commission's *Telecommunications services – Declaration provisions* guidelines.

[6] *Telecommunications services – Declaration provisions*, Australian Competition and Consumer Commission, July 1999, pp. 34-37.

provide confidential and non-confidential versions of their submission. In such circumstances, the confidential version will need to highlight any such information. Submissions will be made publicly available on the Commission's website at www.accc.gov.au as soon as it has received all submissions.

After receiving and considering submission on the Draft Report, the Commission will make a decision and expects to issue a final inquiry report by March 2002.

2.3. Making submissions to the public inquiry

The Commission seeks comment from all industry participants and from the public more generally. It encourages industry participants, other stakeholders and the public more generally to consider the matters set out in the Draft Report. Any submissions should be made to the Commission by **5:00pm**, **18 January 2001**.

Submissions can be addressed to:

Doug Campbell
Director – Regulatory
Telecommunications Group
Australian Competition and Consumer Commission
GPO Box 520J
Melbourne VIC 3001

In addition to a hard copy, people making submissions are requested to provide an electronic copy of the submission to douglas.campbell@accc.gov.au

Enquiries can be made to Doug Campbell on (03) 9290 1861.

3. Mobile services

3.1. Overview

In Australia, public mobile telecommunications services are currently provided by means of five cellular networks:

- three digital GSM networks of Telstra, Optus and Vodafone;[7] and
- two digital CDMA networks of Telstra and Hutchison.

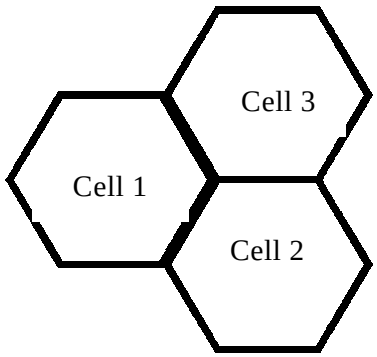
These carriers are able to provide mobile-to-mobile and mobile-to-fixed calls. In addition, the networks may be used to provide fixed-to-mobile calls.

While there are some differences between each of the five public mobile telecommunications networks currently in use in Australia, the Commission understands that the network architecture for each is broadly similar and is described below.

The geographic area that is covered by a network is divided into 'cells' (as illustrated in Diagram 1) which provides continuous uninterrupted geographical coverage. The cellular characteristics of mobile systems also allows spectrum to be reused resulting in high traffic capacity and better spectrum utilisation, since spectrum is a finite resource.

Within each cell is a base station consisting of a radio transmitter and a receiver. Each base station is connected to a mobile services switching centre (MSC) by cable or microwave, with each MSC serving a number of cells.

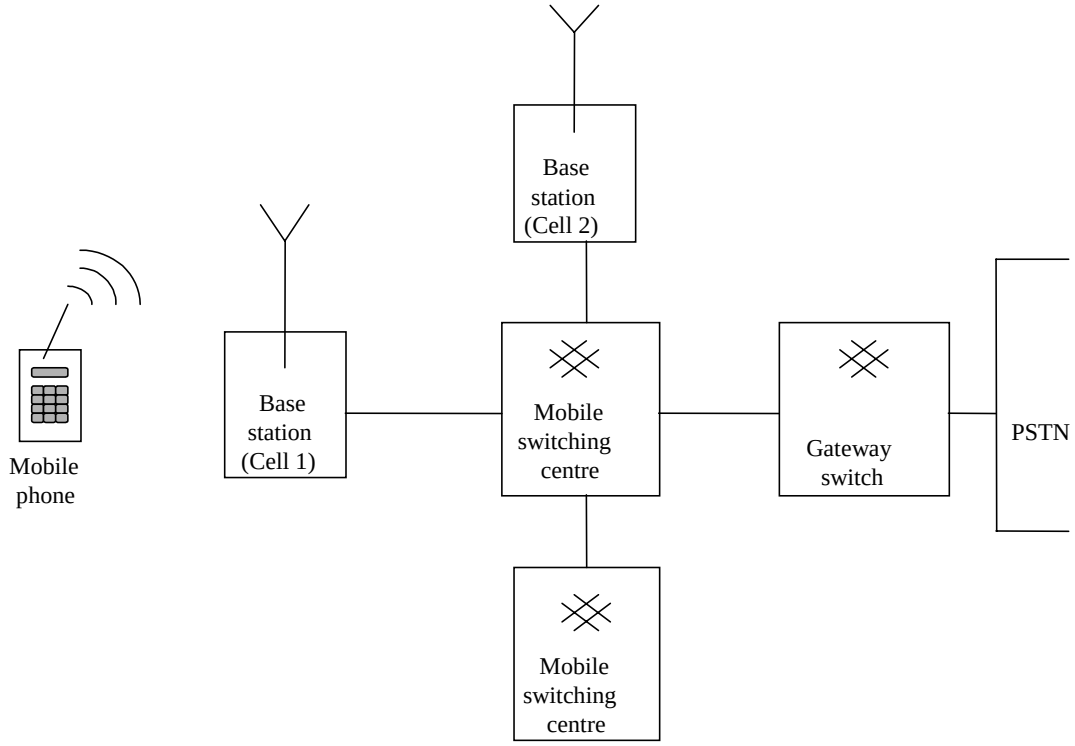
Diagram 1 – Mobile network cells



[7] It is noted that One.Tel also supplied public mobile telecommunications services using a digital GSM network, prior to going into administration.

Calls made to and received from mobile phones are transmitted via the base station as illustrated in Diagram 2. As a mobile user moves towards another cell (for example, from cell 1 towards cell 2 in Diagram 1), the signal to the base station in the initial cell becomes weaker and the signal from the base station in the second cell becomes stronger. Eventually, the call transfers to the second base station, which then takes over the call. The transfer of an ongoing mobile call between different cells is commonly known as intercell hand-over. To the mobile phone user, this transfer is seamless.

Diagram 2 – Mobile Network Architecture



Each MSC controls the switching functions for incoming and outgoing mobile phone calls.[8] To switch calls, an MSC refers to a database known as the visitor location register. This database temporarily stores the information necessary for all mobile phones within cells served by the MSC to make and receive calls. This information is sourced from a central database, known as the home location register (which contains the entire customer information for the network), whenever a mobile phone is in the MSC's area of coverage.

[8] MSCs are connected with other MSCs, with at least one MSC acting as the mobile carrier's gateway switch linking the mobile networks to the fixed network or other mobile networks.

As noted above, these network components and their set-up are applicable to both GSM and CDMA networks. It is the Commission's understanding that the key differences that exist between GSM and CDMA networks pertain to:

- the spectrum required: GSM operates in the 900 MHz and 1800 MHz bands, while CDMA operates in the 800 MHz band;
- cell size: in general, CDMA cells can have a radius of 50 kms compared to the maximum 30 kms radius for GSM cells;
- cell coverage: the larger radius of a CDMA cell means that fewer base stations are required for a CDMA network, relative to a GSM network, to achieve the same coverage;
- how the spectrum is used to transmit information: CDMA uses the spread spectrum technique while GSM uses a combination of FDMA and TDMA; and
- spectrum re-use: CDMA networks can re-use the same spectrum in adjacent cells while GSM networks can re-use the same spectrum but only if the cells are not adjacent.

3.2. Existing GSM service declarations

The domestic GSM originating and terminating access services as provided for in the GSM service declarations are wholesale inputs used by carriers and service providers to supply retail services to end-users.

Both the GSM originating and terminating services were deemed to be declared by the Commission under s. 39 of the *Telecommunications (Transitional and Consequential Amendments) Act 1997* because:

- at that time, GSM, and AMPS, were the only existing technologies utilised to provide mobile services to end-users; and
- the GSM originating and terminating services were covered by registered access arrangements between the existing carriers and considered to be necessary for the purpose of achieving any-to-any connectivity.[9]

In the deeming statement, the domestic GSM originating access service was described as:

> an access service for the carriage of telephone calls (i.e. voice, data over the voice band) to a POI from end-customers assigned numbers from the GSM number ranges of the Australian Numbering Plan and directly connected to the Access Provider's GSM network.[10]

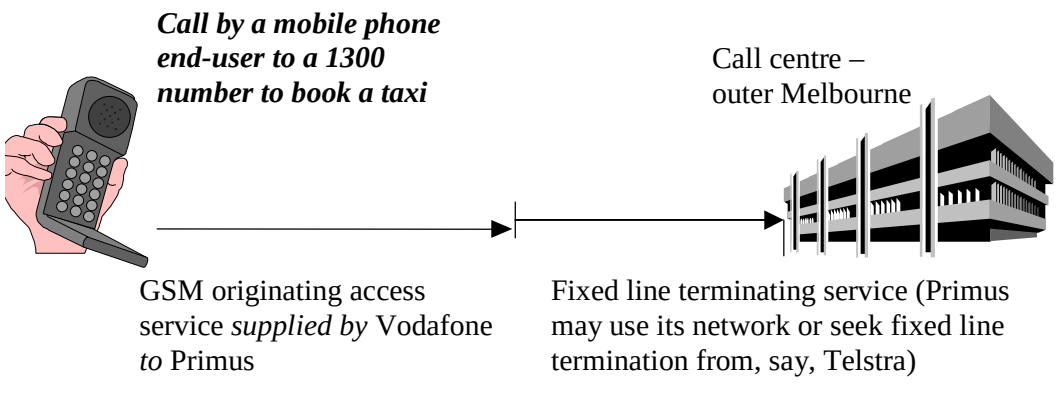
The GSM terminating service was described as:

[9] *Deeming of Telecommunication Services*, Australian Competition and Consumer Commission, June 1997, p. 19.
[10] Ibid, p. 42.

> an access service for the carriage of telephone calls (i.e. voice, data over the voice band) from a POI to B-parties assigned numbers from the GSM number ranges of the Australian Numbering Plan and directly connected to the Access Providers network.[11]

The domestic GSM originating access service is used to originate calls from GSM mobile phones to 13/1300 and 1800 services. It is supplied by mobile carriers to themselves and other carriers to enable mobile subscribers to make calls to 13/1300 and 1800 services. For example, if a mobile subscriber (who is connected to Vodafone's GSM network) wants to book a taxi service using a 1300 number, and Primus provides the network ability for the taxi company to run the 1300 number service, Primus would need to purchase the domestic GSM originating access service from Vodafone for the mobile subscriber to be able to make the call. It may also need to purchase a fixed line terminating service from another carrier where it does not have its own network.[12] This is shown in Diagram 3.

Diagram 3 – The GSM originating access service: use of the GSM originating access service to supply a 13/1300 or 1800 call



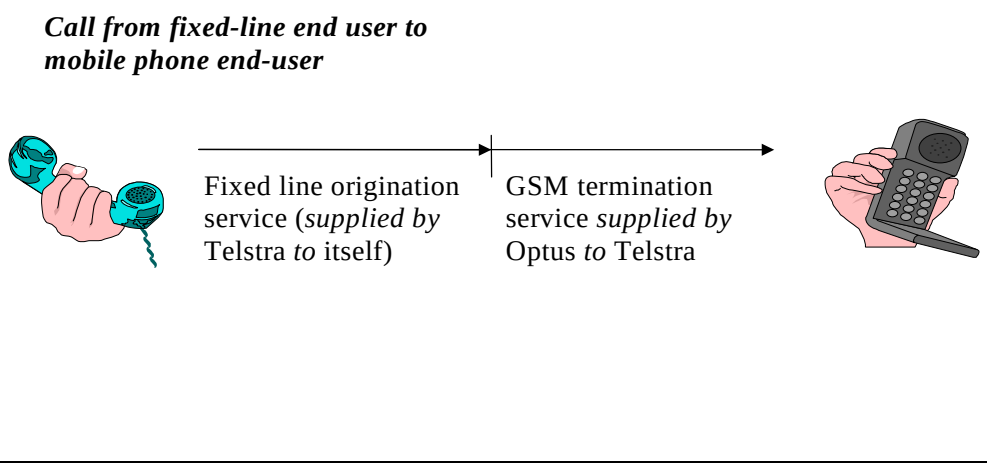
The GSM terminating service, on the other hand, is used to terminate calls to mobile subscribers. Essentially it enables mobile subscribers to receive calls from end-users connected to other networks (a fixed line network, another mobile network, or the same mobile network). The service can be used to supply fixed-to-mobile calls, or mobile-to-mobile calls. It is supplied by mobile carriers to themselves and to other carriers. For example, in the case of a fixed-to-mobile call if an end-user connected to Telstra's fixed line network wants to call a mobile subscriber connected to the Optus's GSM network,

[11] Ibid, p. 42.

[12] It is noted that both Telstra and Vodafone disagreed with this interpretation of the GSM originating access service in their submission to the Discussion Paper. Telstra submitted that this is not the commercial arrangement used between the mobile carriers and the 13 service providers but that, rather, mobile carriers acquire a terminating access service from the 13 service provider. Similarly, Vodafone was of the view such a service does not exist. It also submitted that regulatory intervention is definitely not required. The Commission noted in the GSM pricing principles that its understanding of the GSM originating access service is supported by the Australian Communications Industry Forum (ACIF) interconnection model. In this light, the Commission considered that pricing issues would be best resolved using a similar framework as proposed for GSM termination service.

Telstra would need to purchase the GSM terminating service from Optus in order for the fixed-line end-user to be able to make the call. This is shown in Diagram 4.

Diagram 4 – The GSM terminating service



3.3. Proposed mobile service description

3.3.1. Reasons for the proposed mobile service description

Control over access and consumer ignorance

In the GSM pricing principles, the Commission concluded that a degree of regulatory intervention (retail benchmarking) was appropriate at this point in time. The Commission noted that in forming this view for the GSM services many of the issues considered may equally apply to other mobile technologies currently deployed or in use (e.g. CDMA services). These issues included control over access and consumer ignorance[13] (which allow mobile carriers to sustain above-cost access prices and restrict competition in downstream markets) as well as the broader competition in the mobile services market.

The Discussion Paper noted that it was considered likely control over access and consumer ignorance are not issues specific to GSM services, but rather relevant to all mobile technologies (with the same or a similar functionality) that are currently deployed or in use. Further, it noted that regulation of only one mobile technology while another technology with similar characteristics remains unregulated would appear to be inconsistent, may lead to

[13] If a calling end-user wants to call a mobile subscriber then he/she has no alternative but to purchase GSM termination services from the mobile carrier which the mobile subscriber has chosen. The mobile carrier therefore has **control over access** to that mobile subscriber. Further, if the calling end-user does not know the mobile carrier being called, and the specific access price for GSM termination charged by that mobile carrier, then there is **consumer ignorance**. These characteristics were said to confer market power on mobile carriers supplying GSM services and result in mobile carriers sustaining above-cost access prices for GSM termination.

inefficiencies and could allow for uncompetitive behaviour. One technology would be artificially advantaged over the other.

Most submissions to the Discussion Paper were of the view that these characteristics were equally relevant to GSM and CDMA termination services. AAPT considered that control over access and consumer ignorance apply to all mobile technologies that are presently utilising the number ranges specified for digital mobile telephony.[14] Primus submitted that these characteristics are not specific to particular mobile technologies and that there is no evidence to suggest consumers are any more aware of fixed-to-mobile prices for CDMA than they are for GSM.[15] Hutchison also considered that control over access and consumer ignorance are issues that are independent of the mobile technology (but did not believe that this would require the declaration of CDMA services).[16]

This said, Optus rejected the idea that control over access and consumer ignorance are relevant to networks other that GSM, not because other networks have different characteristics, but because it considered the Commission's analysis in relation to GSM termination is flawed.[17]

The Commission considers that as GSM and CDMA services are close substitutes for each other, a proposition which also seems to be supported by all carriers making submissions, they are likely to share similar characteristics and in particular those of control over access and consumer ignorance. For example, the calling end-user who pays for a call to either a GSM or CDMA mobile subscriber has no alternative but to purchase the termination services from the mobile carrier which that mobile subscriber has chosen. There is no possibility for substitution and, therefore, both GSM and CDMA mobile carriers have control over access.

Further, if a calling end-user is ignorant of the mobile carrier being called, and the access price for termination of that call, then this would apply equally whether they are calling a mobile subscriber connected to GSM or CDMA services. It was noted in the GSM pricing principles that there are various ways in which consumer ignorance might be addressed by mobile carriers. For example, by using a recorded voice announcement at the beginning of a call to indicate the mobile carrier being called. To date, however, the Commission is not aware of any such measures being put in place and certainly not any that would mean consumer ignorance would not equally apply to GSM or CDMA services. There is also the possibility that the introduction of mobile number portability may heighten the extent of consumer ignorance. This is because there is no longer a guarantee that the previously unique mobile carrier prefix (that a calling-end user may have 'learned') is still serviced by that mobile carrier.

[14] AAPT's submission to the Discussion Paper, p. 3.
[15] Primus's submission to the Discussion Paper, p. 1.
[16] Hutchison's submission to the Discussion Paper, p. 2.
[17] Optus's submission to the Discussion Paper, p. 3.

Neutrality

The Discussion Paper also noted that regulation of only one mobile technology while another technology with similar characteristics remains unregulated appeared to be inconsistent, may lead to inefficiencies and could allow for uncompetitive behaviour. One technology would be artificially advantaged over the other.

In this regard the Commission's preference for specifying services in functional, rather than technology-specific, terms was noted in the Discussion Paper. This preference was first voiced in the Commission's report regarding declaration of a technology-neutral subscription television carriage service.

In that inquiry it was the Commission's view that a functional specification would minimise any distorting effects upon investment decisions as well as technological and innovative developments. However, it was noted that where significant technological changes are anticipated a technology-neutral service description may extend the regulatory framework unnecessarily. In this respect when considering digital and analogue carriage the Commission was not choosing between competing technologies currently delivering the same services. Rather it was anticipating the introduction of a new technology which may, in the longer term, fundamentally affect the type of services delivered and the competitive environment in which they are delivered and consumed. For these reasons it was felt prudent to continue to review the effect of technology specific regulation.

Telstra raised this issue of achieving a technology-neutral outcome in its submission to the Discussion Paper.[18] It submitted that technology-neutral regulation of mobile services is inconsistent with the Commission's approach to other declarations and in particular the declaration of an analogue subscription television carriage service.

The Commission notes, however, that there is a distinguishing factor between its consideration of a technology-neutral subscription television carriage service and a technology-neutral mobile services declaration; the mobile services market is a reasonably mature market in which more than one mobile technology is already being used to supply services to end-users (see below).

3.3.2. The proposed description

As noted above and in the Discussion Paper, the Commission decided to hold a public inquiry to consider varying the GSM service declarations such that they are mobile technology-neutral with respect to technologies currently deployed or in use in Australia. In the Discussion Paper, the Commission proposed service declarations which were inclusive of all technologies currently deployed or in use and noted its understanding that this only encompassed GSM and CDMA services.

[18] Telstra's submission to the Discussion Paper, p. 4.

Submissions to the Discussion Paper confirmed (explicitly[19] and implicitly) that CDMA is the only other technology currently used to provide mobile services. Further, most submissions considered CDMA services to be the only technology, with the same degree of functionality, that may be deployed in the future. Accordingly, the Commission is proposing to vary those elements of the GSM service declarations that refer only to the GSM technology such that they also include references to CDMA services. The proposed service declarations are at Attachment C and the Commission has marked the document using 'track changes' to assist in identifying where changes are being proposed.

While a proposed variation to make the GSM service declarations mobile technology-neutral with respect to technologies currently deployed or in use (GSM and CDMA services) will retain a technology-specific distinction, it will still afford neutrality effects in relation to currently deployed mobile services.

Two drafting issues in relation to the proposed service descriptions were specifically raised in the submissions to the Discussion Paper. The first was the references in the proposed service declarations to the tables GOASD1 to GOASD7 and tables TGASD1 to TGASD5 (of Telstra's provisioning manual). There were differing views in relation to this matter, with both AAPT and Hutchison submitting that the references to the various tables should be deleted. AAPT considered that if industry participants believe there is benefit in specifying standards for the construction of such tables this should be conducted as either an Australian Communications Industry Forum or TAF process.[20] Hutchison was of the view that the tables are prescriptive and limit interconnection to voice and services within the voice band supporting standard bandwidth of 3.1KHz.[21] On the other hand, Optus submitted that the tables are still relevant to the proposed service declarations.[22]

The Commission understands that the references to tables GOASD1 to GOASD7 and tables TGASD1 to TGASD5 include detail, which is by nature is similar to the terms and conditions of an access arrangement. The Commission does not consider such detail to be necessary for a service description and proposes to remove these references. It further notes that as these tables are a part of the Telstra provisioning manual, they are not widely available and do not usefully add to the service description.

The second drafting issue was raised by both Telstra and Vodafone.[23] It is in relation to paragraph 3 a) of the proposed service declaration for the originating access service. As it is currently proposed (and exists in the GSM originating access service declaration) this paragraph reads as:

> a) Access via a AS number ranges required to achieve the objective of any-to-any connectivity unless the AP has not sought or is not seeking terminating access to the end-customers in question

[19] Hutchison's submission to the Discussion Paper, p.2 and Primus's submission to the Discussion Paper, p. 2.
[20] AAPT's submission to the Discussion Paper, p. 4.
[21] Hutchison's submission to the Discussion Paper, p. 3.
[22] Optus's submission to the Discussion Paper, p. 25.
[23] Telstra's submission to the Discussion Paper, pp. 11-12 and Vodafone's submission to the Discussion Paper, pp. 6-7.

Vodafone submitted that the 'nots' in this section confuse the definition making it unworkable in practice. It considers the description is nonsensical because if the access seeker has requested terminating access, then there would be no need to apply regulation on the origination service, as none would exist by definition. It suggests that the paragraph should be redrafted to read as:

> a) Access via a AS number ranges required to achieve the objective of any-to-any connectivity unless the AP has **sought or is seeking terminating access to the end-customers in question**

Telstra does not believe that this aspect of the service description fully reflects the intentions of the TAF when the GSM originating access service was recommended for the deeming process. It considers the intention of the TAF in the drafts that were widely circulated was that the paragraph read as:

> a) Access via a AS number ranges required to achieve the objective of any-to-any connectivity **if** the AP has not sought or is not seeking terminating access to the end-customers in question

In regards to this issue, it appears that paragraph 3a) of the current GSM service declarations was incorrectly drafted in developing the description. The Commission considers that, as a consequence, paragraph 3a) as it currently stands may be misleading and confusing. The Commission considers that both changes proposed by Telstra and Vodafone achieve the same result. Its preliminary view, however, is that paragraph 3a) be altered to reflect the changes recommended by Telstra.

These changes are reflected in the proposed service declarations at Attachment C.

3.3.3. Functionality

Currently, the GSM service declarations provide that the GSM services are used 'for the carriage of telephone calls (i.e. voice, data over the voice band)'. The Discussion Paper outlined the Commission's understanding that this essentially allows for the provision of (digitised) voice calls and, where a physical connection is made between a mobile phone, a computer and a dial-up modem, the ability to send and receive data. This data transfer primarily occurs through interaction with the Internet where end-users may for example access e-mail or download a web page. The extent of mobile interactivity is limited to situations where an end-user has proximity to a computer.

The Discussion Paper described this as the functionality of second generation (2G) mobile technologies, such as GSM and CDMA services. However, it noted that there are now two and a half generation (2.5G) as well as the promise of third generation (3G) technologies. These provide functionality beyond that of 2G technologies.

The Discussion Paper also noted that 2.5G technologies enable end-users to be fully mobile and send and receive voice calls as well as data. For example, without physically connecting to a computer and a dial-up modem end-users can connect to the Internet and check their e-mail, make an airline reservation or receive information on stock prices, weather reports,

etc. This functionality is currently provided by General Packet Radio Service (GPRS)[24] and Wireless Application Protocol (WAP). There has been limited rollout of such technologies in Australia to date. In addition, Enhanced Data Rate for GSM Evolution (EDGE) will likely provide similar functionality in the future.

While utilising GSM and CDMA services, 2.5G technologies also incorporate further intelligent network infrastructure by overlaying a packet-based air interface.[25] Further, a new handset is required by the end-user to derive this functionality.

In the Discussion Paper the Commission indicated that it is not yet clear what the full functionality of 3G technologies will be, although it is expected that they will enable higher speed mobile interactivity with the Internet and allow for the carriage of still images, video, audio streaming, software, etc. It was noted that the 3G technologies will be provided using new network infrastructure (i.e. the network infrastructure use to provide existing GSM and CDMA services will not be utilised). This infrastructure, however, is not yet deployed and would unlikely to be fully rolled out in Australia within the next eighteen months.

The Discussion Paper also examined the functionality of SMS messages. It noted the Commission's understanding that SMS messages use part of a GSM or CDMA network's control channels in being sent and received, as opposed to the traffic channels (or voice band). In particular, a paging channel is used, which is generally used to let end-users know they have an incoming call. Control channels, including the paging channel, may quite often have under-utilised capacity and this excess capacity is harnessed for the purpose of delivering SMS messages. It was also noted that SMS messages are not instantaneous; they are stored and then forwarded when the network has capacity available.

In this regard it was considered unclear whether the functionality of delivering a SMS message falls within the current GSM (and proposed) service declarations. These provide 'for the carriage of telephone calls (i.e. voice, data over the voice band)', whereas SMS messages are actually carried over the control channels.

The Commission asked for industry's views as to whether 2.5G (and 3G) services, as well as SMS messages, are currently provided for in the current GSM service declarations. In addition, it asked industry to consider whether they should be included.

In relation to whether 2.5G technologies are currently provided for in the current GSM service declarations, Optus did not believe that the declarations include, or were meant to include 2.5G technologies.[26] It submitted that these are still fledgling technologies that compete with many other sources (such as newspapers) and that it makes no sense to assume a market failure will take place. Further, it considered that because 2.5G technologies utilise

[24] Currently realistic rates for the transfer of data using GPRS are between 10-40kbps.

[25] This is similar to the way in which broadband data services are provided over fixed lines. For example, the unbundled local loop and the public switched telephone network are the core infrastructure to which additional infrastructure or electronics (such as xDSL or ISDN technologies) are added in order to allow for the provision of greater bandwidth.

[26] Optus's submission to the Discussion Paper, p. 24.

packet-based switching it is not clear the Commission's previous competition analysis for circuit switched voice calls would be relevant. As such, Optus argued that a separate declaration inquiry would need to be conducted if the Commission decided to include the functionality provided for by 2.5G technologies.

In relation to whether SMS messages are currently provided for in the current GSM service declarations, both AAPT and Optus did not believe that this functionality is currently provided for. AAPT submitted that the existing declarations only refer to the provision of voice or data services over voice and that new generation services such as SMS messages are delivered through signalling circuits.[27] Optus submitted that, as SMS messages are carried over control channels and are not instantaneous, they are not captured by the GSM service declarations.[28]

Turning to the issue of whether 2.5G services and SMS messages should be provided for in the proposed service declarations, carriers held differing views. For example, in addition to Optus's views regarding 2.5G services (outlined above), it did not consider there was any purpose in including SMS messages in the proposed service declarations.[29] This is because interconnect agreements between mobile carriers have been negotiated and there is no observed market failure. It submitted that there is not an analogous fixed-to-mobile market for SMS messaging as web-based SMS are generally originated at the mobile portals of the mobile carriers. This means interconnection arrangements have similar characteristics to mobile-to-mobile arrangements.

AAPT, however, was of the view that there is merit in considering (separate to the current process) a wider declaration for non-voice services between digital mobile network.[30] It submitted that such an inquiry should consider data-style services, such as packet data services.

Primus submitted that how a SMS message is sent (via the control channel or the voice channel) should be irrelevant to whether SMS is included in the service declarations.[31] Primus, therefore, supported the inclusion of SMS in any variation to the GSM service declarations suggesting that the reference to 'voice channel' in the service description should be removed. Further, Primus considered that the bottleneck issues in relation to fixed-to-mobile voice calls also apply to fixed-to-mobile SMS messaging, because SMS messages can be delivered from a fixed-line (via an Internet service provider) to mobile customers.[32] It noted that declaration of such service would be important for fixed-line carriers.

[27] AAPT's submission to the Discussion Paper, pp. 2-3.
[28] Optus's submission to the Discussion Paper, p. 25.
[29] Optus's submission to the Discussion Paper, p. 25.
[30] AAPT's submission to the Discussion Paper, p. 4.
[31] Primus's submission to the Discussion Paper, p. 2.
[32] Ibid, p. 2.

Hutchison considered that data and SMS should be part of the proposed service declarations. It submitted that only if interconnection of SMS is made mandatory would end-to-end SMS connectivity between all carriers is assured.[33]

Having had regard to submissions on the issue of functionality, the Commission's preliminary view is that the current GSM service descriptions do not include the functionality of 2.5G services or SMS messages. Rather, it is considered that the GSM service declarations, in providing for the carriage of telephone calls (i.e. voice, data over the voice band), allow for the provision of digitised voice calls and the ability to send and receive data when an end-user has proximity to a computer and modem. In particular, it is noted that:

- 2.5G services incorporate further intelligent network infrastructure by overlaying a packet-based air interface on 2G networks, thus providing extended functionality. It is not clear this extended functionality was intended when the GSM services were deemed to be declared; and

- SMS messages use the signalling link, which is not a part of the current GSM service descriptions.

In relation to whether 2.5G services should be provided for in the proposed service declarations, the Commission considers that as these markets are still evolving it would be premature to include such services in the proposed service declarations. In particular, at this point in time there appears to be low take-up of the 2.5G services offered and consequently insufficient information to assess whether they are subject to competitive supply. The Commission is of the view that it would be preferable to monitor market developments (particularly take-up rates) and consider the need for regulation on a case-by-case basis if bottleneck characteristics arise.

Furthermore, (and as noted above) the public inquiry in relation to the declaration of a technology-neutral subscription television carriage service concluded that where significant technological change is anticipated, technology-neutral service declarations may extend the regulatory framework unnecessarily.

At this stage, the Commission does not consider it would be appropriate to provide for the functionality of SMS messages in the proposed service declarations. In this regard, it appears that any-to-any connectivity is already occurring and that where the mobile carriers have uniform (or similar) traffic patterns, there is likely an incentive to negotiate low cost-based reciprocal access prices for interconnection purposes.[34] This said, the Commission would propose to more closely monitor developments in the provision of this service, particularly in light of the following:

- the recent rapid growth of the SMS market as a revenue source for carriers;

[33] Hutchison's submission to the Discussion Paper, p. 3.
[34] This analysis follows from that outlined in footnote 6.

- recent price increases for SMS messages by both Telstra and Optus; and
- ongoing development of an interconnection standard in relation to the transfer of messages between GSM and CDMA services.[35] The Australian Communications Industry Forum is developing this standard.

Ongoing monitoring will enable the Commission to determine whether there is competitive supply of these services, or a market failure, and in addition whether any-to-any connectivity continues to be achieved between GSM and CDMA services.

Primus expressed concerns regarding fixed-to-mobile (or web-based) SMS messaging. The Commission understands that such messaging involves an end-user logging onto a website hosted by a mobile carrier and sending a message to a mobile phone. In this sense it is not clear why Primus consider declaration of a fixed-to-mobile SMS messaging service is important for fixed-line carriers, in particular it is not clear that the same bottleneck issues arise as do for a fixed-to-mobile call.

[35] The Commission understands that carriers have put in place an interim arrangement that enables interconnection between GSM and CDMA services but are developing a longer-term solution.

4. Long-term interests of end-users

As noted in section 2, in deciding whether to vary the GSM service declarations the Commission must have regard to whether the proposed variation would promote the LTIE of carriage services or services provided by means of carriage services. The following sections apply the LTIE test to the proposed variation of the GSM service declarations and provide the Commission's preliminary views in relation to whether the variation will promote the LTIE.

4.1. Will varying the declarations promote the LTIE?

Section 152AB of the Act provides that in determining whether varying the GSM service declarations will promote the LTIE, the Commission must consider to what extent the proposed variation is likely to result in the achievement of the following three objectives:

- promoting competition in markets for carriage services and services provided by means of carriage services;
- achieving any-to-any connectivity in relation to carriage services that involve communication between end-users; and
- encouraging the economically efficient use of, and investment in, the infrastructure by which carriage services, and services provided by means of carriage services, are supplied.

The Commission will consider the likely result of the proposed variation on each of these objectives and then make an overall assessment of whether the cumulative impacts on each objective will promote the LTIE.[36]

The matters outlined above are interrelated. In many cases, the LTIE may be promoted through the achievement of two or all of these criteria simultaneously. In other cases, the achievement of one of these criteria may involve some trade-off in terms of another criteria and the Commission needs to weigh up the different effects to determine whether or not varying the declarations promotes the LTIE. In this regard, the Commission interprets long-term to mean a balancing of the flow of costs and benefits to end-users over time in relation to the criteria. Thus, it may be in the LTIE to receive a benefit for even a short period of time if its effect is not outweighed by any longer term costs.

[36] *Telecommunications services – Declaration provisions*, Australian Competition and Consumer Commission, July 1999, pp. 35-36.

4.2. Will varying the declarations promote competition?

4.2.1. Principles

The concept of competition is of fundamental importance to the Act and has been discussed many times in connection with the operation of Part IIIA, Part IV, Part XIB and Part XIC.

In general terms, competition is the process of rivalry between firms, where each market participant is constrained in its price and output decisions by the activity of other market participants. The Trade Practices Tribunal (now the Australian Competition Tribunal) stated that:

> In our view effective competition requires both that prices should be flexible, reflecting the forces of demand and supply, and that there should be independent rivalry in all dimensions of the price-product-service packages offered to consumers and customers.
>
> Competition is a process rather than a situation. Nevertheless, whether firms compete is very much a matter of the structure of the markets in which they operate.[37]

Competition can provide benefits to end-users including lower prices, and a better quality and range of services over time. Competition may be inhibited where the structure of the market gives rise to market power. Market power is the ability of a firm, or firms, to profitably constrain or manipulate the supply of products from the levels and quality that would be observed in a competitive market, for a significant period of time.

The establishment of a right for third parties to negotiate access to certain services, on reasonable terms and conditions, can operate to constrain the use of market power, which could be derived from the control of these services. An access regime such as Part XIC, or Part IIIA of the Act, attempts to change the structure of a market, to limit or reduce the sources of market power and consequent anti-competitive conduct, rather than directly regulating conduct which may flow from its use, which is the role of Part XIB and Part IV of the Act.

To assist in determining the impact of the proposed variation of the GSM service declarations, it is appropriate for the Commission to consider the market(s) in which that service is, or would be, supplied.

Section 4E of the Act provides that the term 'market' includes a market for the goods or services under consideration and any other goods or services that are substitutable for, or otherwise competitive with, those goods or services. The Commission's approach to market definition is discussed in its *Merger guidelines*, June 1999 and is canvassed in its information paper, *Anti-competitive conduct in telecommunications markets*, August 1999.

[37] Re Queensland Co-operative Milling Association Ltd and Defiance Holdings Ltd (1976), *Australian Trade Practices Reporter* 40-012, at 17,245.

It should be noted, however, that the Commission's approach to market definition in relation to the proposed variation of the GSM service declarations does not require the determination of a definitive market definition as is the case in a Part XIB or Part IV case.[38] This approach was also endorsed by Wilcox J in his decision to uphold the validity of certain broadcasting access declarations made by the Commission.[39]

The second step is to assess the likely effect of the proposed variation on competition in each relevant market. Specifically, section 152AB(4) requires that regard must be had to the extent to which the proposal will remove obstacles to end-users gaining access to carriage services.

The term 'obstacles' is best read, in the Commission's view, as a reference to barriers facing new entrants in the markets for services arising from the need to use the network infrastructure services to be able to compete. In this regard, an access regime can remove those obstacles by facilitating entry and therefore providing end-users with a choice of suppliers from which to obtain services.

Where existing market conditions already provide for the competitive supply of services, the access regime should not impose regulated access.[40] This recognises the costs of providing access, such as administration and compliance, as well as potential disincentives to investment. Regulated provision of services will only be desirable where it leads to benefits in terms of lower prices, better services or improved service quality for end-users which outweigh any costs of regulation.

In the context of considering whether the proposed variation of the GSM service declarations will promote competition, it is therefore appropriate to examine the impact of the potential service declarations on each relevant market and compare the likely state of competition in that market before and after the proposed variation. The question of whether competition will actually improve or increase will be highly relevant but is not determinative of this issue. The key issue when considering the proposed variation is whether it will assist in establishing conditions by which such improvement will be more likely to occur. This interpretation of promoting competition was endorsed by the Australian Competition Tribunal, which stated that the concept of promoting competition:

> …involves a consideration that if the conditions or environment for improving competition are enhanced, then there is a likelihood of increased competition that is not trivial.[41]

It is, however, not enough to determine if the proposed variation will promote competition by simply examining their impact on the competitive process in the market. Rather, the extent to which the proposed variation promotes competition should be examined from the end-users'

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[38] See the Commission's *Telecommunications services – Declaration provisions*, July 1999, report.

[39] Refer to Federal Court of Australia transcript of Foxtel Management Pty Ltd v Australian Competition and Consumer Commission [2000] FCA 589 at p. 65.

[40] *Trade Practices (Telecommunications) Amendment Act 1997*, Explanatory Memorandum.

[41] Re Review of Declaration of Freight Handling Services at Sydney International Airport (2000), *Australian Trade Practices Reporter* 40-775, at 107.

perspectives; that is, to have regard to the likely results from increased competition in terms of price, quality and service diversity.

4.2.2. Market definition

As noted above, the Commission first needs to identify the relevant market(s) in order to determine the impact of the proposed variation of the GSM service declarations on competition.

As outlined in the Discussion Paper, the Commission considered there were two relevant markets when examining the GSM services in the context of the GSM pricing principles. These were the mobile services market and the fixed-to-mobile services market.[42] These markets were also considered to be the relevant markets for assessing the impact of the proposed variation on competition.

A summary of the analysis undertaken in the GSM pricing principles was provided at Attachment C of the Discussion Paper. Briefly, the mobile services market was defined as the market in which mobile calls are supplied. This was viewed as a national market involving distinct wholesale and retail functional elements and, importantly, including the supply of mobile origination and termination services to service providers (and ultimately end-users). The fixed-to-mobile services market was defined as the retail market in which fixed-to-mobile calls are supplied. It was viewed as a related downstream market to the mobile services market and the mobile termination service was seen as a wholesale input.

In the main, submissions to the Discussion Paper did not comment on whether the Commission had identified the relevant markets. This said, Primus's submission to the Discussion Paper noted it had no fundamental objection to the way in which the Commission had identified the relevant markets.[43]

AAPT considered the mobile services and fixed-to-mobile services markets to be technology neutral markets but questioned the relevance of the fixed-to-mobile market and its relation to the mobile services market. AAPT also submitted that there is a need to recognise the wholesale market for mobile termination that is a component of both retail markets (the mobile services market and the fixed-to-mobile services market).[44]

The Commission remains of the view that the mobile services and fixed-to-mobile services markets are the relevant markets for the purpose of considering the impact of the proposed variation of the GSM service declarations on competition. Substitute mobile technologies, which the proposed variation allows for, such as CDMA, are included in the mobile services market definition and are wholesale inputs into the fixed-to-mobile services market. In relation to AAPT's point about the need to recognise the wholesale market for mobile termination, which is an input to both retail markets, the Commission considers that the

[42] The full market definition analysis is set out in *Pricing Methodology for the GSM Termination Service*, Australian Competition and Consumer Commission, July 2001, pp. 24-31 and 43-45.
[43] Primus's submission to the Discussion Paper, p. 3.
[44] AAPT's submission to the Discussion Paper, p. 4.

above market definitions take into account such a distinction. In particular the mobile services market definition recognises both wholesale and retail elements of the market (and the wholesale supply of mobile termination) and the fixed-to-mobile services market definition notes that the mobile services market is a related downstream market (and that wholesale mobile termination services are an input that enable provision of the service).[45]

4.2.3. Impact of the proposed variation on competition

As noted above, in considering whether the proposed variation is likely to promote competition in the relevant markets, the Commission will generally examine the effectiveness of competition in those markets without the variation and then the likely effectiveness of competition with the variation. This involves analysis of features such as market share and barriers to entry, along with market conduct in terms of pricing and supply.

In the Discussion Paper, the Commission noted that it had assessed the extent of competition in the mobile services market and the fixed-to-mobile services market in the GSM pricing principles.[46] It considered this assessment to be relevant to assessing the impact of the proposed variation on competition.

A summary of the competition analysis undertaken in the GSM pricing principles was provided at Attachment D of the Discussion Paper; the main conclusions follow. In the GSM pricing principles it was concluded that there appeared to be an increasing level of competition in the mobile services market, particularly the retail element of the market, although the market is characterised by high concentration levels and barriers to entry. At the wholesale level of the market the Commission expressed concerns that the competitive pressure on the GSM terminating service was relatively weak (because of control over access and consumer ignorance). However, it was noted that at the retail level there are signs that competition is intensifying, with some successful (and some unsuccessful) new entry, continued growth in the market, increased product offerings and reductions in retail prices for mobile calls.

In relation to the competitiveness of the fixed-to-mobile services market, the GSM pricing principles noted that definite conclusions were difficult to make. It was considered that there appears to be a degree of market concentration with one large player, but also a relatively large number of carriage service providers, competing for market share, and low barriers to entry. Further there is some evidence of declining prices for fixed-to-mobile calls. That said, the Commission noted the extent of price reductions appear to be limited by the lack of competitive pressure on access prices for the GSM terminating service.

The Commission sought industry views as to whether the above assessment of competition in the mobile services market and related downstream fixed-to-mobile services market is accurate. A variety of responses were received.

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[45] In particular, it was considered that the fixed-to-mobile market operates at a retail level and that wholesale PSTN origination and GSM termination services were a part of separate markets.

[46] The full competition analysis is set out in *Pricing Methodology for the GSM Termination Service*, Australian Competition and Consumer Commission, July 2001, pp. 32-42 and 45-50.

In its submission to the Discussion Paper, AAPT agreed with the Commission's analysis of the current state of competition in the mobile services market, but did not comment on the competitive state of the fixed-to-mobile services market.[47] Both Optus and Telstra disagreed with the Commission's competition analysis in relation to the mobile services market as they considered that the mobile services market is already competitive but also did not comment on the competitive state of the fixed-to-mobile services market.

Optus submitted that the empirical data available does not support the contention that there is market power in the mobile services market (over mobile termination) since the mobile carriers have continued to lower their mobile termination rates.[48] In addition, Optus considered that the Commission had under-stated the degree of competition in the mobiles market. It submitted the mobiles industry is performing very well as is evidenced by:

- four nationwide ubiquitous competitive networks and another network covering Sydney and Melbourne;
- sufficient spectrum holdings to deploy another four mobile networks;
- vigorous competition at the retail and wholesale levels of the market with low prices, low industry concentration and changing market shares;
- a high elasticity of demand for mobiles;
- output not being restricted below competitive levels with high penetration rates and growth trends exceeding other countries; and
- low barriers to entry.

Telstra submitted that all the evidence clearly suggests that the mobile services market is highly competitive.[49] In particular, it noted that the number of mobile networks in operation, retail price reductions, increases in output (both in terms of the number of subscribers and intensity of use), significant subscriber churn and a competitive focus on the range and quality of services provided clear evidence that a high degree of competition exists.

Primus disagreed with the Commission's finding that there is sufficient competition in the fixed-to-mobile services market.[50] [51]

The Commission remains of the view that its conclusions in relation to the state of competition in the mobile services and fixed-to-mobile services market are an appropriate starting point for assessing the impact of the proposed variation on competition. It notes that

[47] AAPT's submission to the Discussion Paper, p. 4.
[48] Optus's submission to the Discussion Paper, p. 9.
[49] Telstra's submission to the Discussion Paper, p. 5.
[50] Primus's submission to the Discussion Paper, p. 3.
[51] The Commission notes that it was unable to make definite conclusions about the state of competition in the fixed-to-mobile services market and did not conclude there is sufficient competition on the fixed-to-mobile services market.

those issues raised by Optus and Telstra in relation to the mobile services market formed a part of its considerations in the GSM pricing principles competition analysis. While the Commission agrees that competition at the retail level is intensifying with price reductions and increased product offerings, it considers the market is characterised by high concentration levels and barriers to entry that limit the contestability of the market. Therefore, it is of the view that there is an increasing level of competition in the mobile services market but that the market does not yet display effective competition.

Attention is now turned to the impact of the proposed variation on the extent of competition in the mobile services and fixed-to-mobile services market. In the Discussion Paper the Commission did not offer any views as to whether the proposed variation would promote competition in the mobile services market. It did, however, express its preliminary view that the proposed variation may promote competition in the fixed-to-mobile services market. It considered this may occur for two reasons:

- the proposed variation would remove potential barriers (such as, lack of access) facing those carriers or carriage service providers operating in the fixed-to-mobile services market[52]; and

- the proposed variation would remove the potential for anti-competitive pricing of fixed-to-mobile calls which are supplied using CDMA networks.

In relation to this last point the Discussion Paper noted that, as it is likely that the GSM and CDMA networks have similar characteristics, concerns about anti-competitive pricing in the fixed-to-mobile market would also exist if CDMA services were not regulated. Without regulation, there remained the potential for integrated mobile carriers to engage in anti-competitive pricing in the fixed-to-mobile markets. This might occur if an integrated mobile carrier charged itself a lower internal access price (for, say, the CDMA services) than it charged its fixed competitors preventing the entry of efficient competitors into the fixed-to-mobile market.

AAPT submitted that the proposed variation would promote competition in the mobile services market by creating competitive neutrality between the different technologies.[53] It noted that there remains a potential that providers of new networks could attempt to take advantage of the unregulated state of their CDMA networks to try to achieve higher termination payments than those applying to existing network operators and thus try to subsidise their network entry via higher termination payments. It concluded that this would potentially result in greater competition in the mobile services market at the expense of competition in the fixed-to-mobile services market.

[52] Although it was noted that this barrier would likely be minimal in relation to currently deployed or in use technologies, such as CDMA, as the Commission understands they are currently supplied by access providers to access seekers.

[53] AAPT's submission to the Discussion Paper, p. 4.

Primus also considered that the proposed variation would promote competition in the fixed-to-mobile services market.[54] It contended that there is concern that integrated mobile carriers have the opportunity to engage in anti-competitive pricing in the fixed-to-mobile market (which exists presently in regard to GSM operators).

In contrast, the mobile carriers were of the view that as the mobile services market is already competitive the proposed variation could not be found to promote competition. Optus submitted that as mobile carriers do not possess significant market power and the mobile services market is competitive then the proposed variation is not likely to be in the LTIE (and therefore promote competition).[55] In particular, Optus noted that revocation of the GSM declaration, rather than the proposed variation, would promote competition in the mobile services market. It considered there is competitive uncertainty associated with the application of the GSM declaration and extending this to CDMA services.

In this regard, Optus was of the view that pricing in relation to the GSM service declarations would have a significant effect on the structure of pricing in the mobile services market.[56] It considered that pricing intervention in relation to the GSM service declarations would likely increase handset prices and, thereby, slow mobile penetration, undermining efficient pricing structures and competition. As a result, mobile carriers may not compete as vigorously for subscribers. Optus submitted that the proposed variation to include CDMA services in the GSM service declarations would threaten pricing innovation in CDMA networks, to the detriment of their performance in adding new subscribers.

That said, Optus also submitted that if the Commission did not revoke the GSM service declarations the second best policy option would be to accept the proposed variation. This would ensure competitive neutrality between the substitute mobile technologies and that one technology is not artificially assisted in competing against another technology.

Telstra submitted that because of the competitive nature of the mobile services market (at both a wholesale and retail level) the proposed variation could not be found to promote competition, but rather would represent unnecessary regulatory intervention.[57] It acknowledged the Commission's concern regarding the potential bottleneck of mobile termination, and the resulting impact on retail prices for fixed-to-mobile services, but did not believe that this was sufficient reason for the proposed variation. In this respect it considered that even if GSM termination services were not regulated then competitive forces would limit CDMA termination charges. Together, fixed-to-mobile pre-selection, mobile roaming and mobile number portability would provide a competitive discipline on the mobiles market at both the retail and wholesale levels that should accentuate a downward trend in termination and retail charges.

[54] Primus's submission to the Discussion Paper, p. 4.
[55] Optus's submission to the Discussion Paper, p. 5.
[56] It is noted that the GSM pricing principles provide that access prices for GSM termination will decline by the same rate as the reduction in retail prices of a mobile carrier over six monthly periods.
[57] Ibid, p. 7.

Further, Telstra also argued that there are a number of constraints that do, and increasingly will put pressure on mobile termination charges. In this regard it noted that:

- there are competitive substitutes for fixed-to-mobile calls such as fixed-to-fixed calls, e-mail and paging services;
- mobile customers are concerned about the cost of incoming calls with mobile carriers increasingly targeting family and businesses where the mobile subscriber also pays for the incoming calls; and
- as mobile competition intensifies the importance of incoming call costs is likely to increase relative to the total mobile package.

Hutchison did not consider that the proposed variation would promote competition in the mobile services or fixed-to-mobile services market as CDMA networks are currently interconnected without any issues.[58]

It is noted that the starting points in relation to the impact of the proposed variation on competition are a mobile services market which is increasingly competitive and a fixed-to-mobile services market with a degree of concentration and in which retail price reductions appear to be constrained by the lack of competitive pressure on mobile termination services.

It has been argued that, by accepting the proposed variation and consequential regulation of CDMA services (using the same or similar pricing principles as for GSM services), there is the potential for the structure of retail prices of CDMA services to be significantly effected and competition undermined in the mobile services market. This is essentially because the GSM pricing principles link the retail price movements of a mobile carrier to its access price for GSM termination and may therefore act as a disincentive to compete on retail prices.

In the GSM pricing principles the possibility of such an approach providing a disincentive for mobile carriers to compete on retail prices was raised. It was considered that the result of such an approach (retail and access prices moving in line) is not necessarily a disincentive of substance (or inefficient[59]). In this regard, the Commission notes the approach will equally apply to all mobile carriers and that as competition in the market is still considered to be intensifying there will continue to be an impetus for mobile carriers to compete.

The Commission notes the recent price increases for mobile services by both Telstra and Optus. While the reason(s) for these price increases is not clear it is acknowledged they may be a strategic response to the GSM pricing principles. However, given other mobile carriers and re-sellers have not announced similar price increase to date, and subscribers are able to churn between providers more easily in light of mobile number portability, the Commission considers the competitive dynamics in the market remain to be played out.

[58] Hutchison's submission to the Discussion Paper, p. 3.

[59] With increasing competition in the retail element of the mobile services market and if retail and mobile termination costs move in similar ways then the approach will improve allocative efficiency over time.

It was concluded above, in section 3.3, that the characteristics of control over access and consumer ignorance equally apply to CDMA services as to GSM services and that accordingly the competitive forces on CDMA termination services will remain relatively weak, at least in the near future.[60] In this respect, it does not appear that there is competitive supply of the CDMA termination service and as a result above-cost access prices for CDMA termination are likely to occur.[61] This, combined with a mobile services market which is not effectively competitive, means that above-costs access prices for CDMA termination will not necessarily be off-set by below costs retail prices possibly allowing mobile carriers to sustain overall excess profits. It is noted, however, that an increasingly competitive mobile services market means that any excess profits are likely to be transitory. A further implication of above-cost pricing is that integrated mobile carriers who face lower internal access prices than fixed-line carriers seeking access to CDMA termination may use this advantage to undertake anti-competitive pricing in the fixed-to-mobile services market.

In this light, the Commission considers that the proposed variation would likely promote competition in the fixed-to-mobile services market. This is because regulation (using the same or similar pricing principles as for the GSM services) would likely reduce the gap between the price and cost of CDMA termination and hence reduce the opportunity for anti-competitive pricing. It would be expected that with continued competition for mobile services there will be reductions in access prices for CDMA termination services and therefore lower prices for fixed-to-mobile calls.[62]

Furthermore, the proposed variation would ensure there is competitive neutrality between GSM and CDMA services and that one technology is not artificially advantaged over the other (through lack of regulation). This would allow for a level playing field in the mobile services market as the opportunities for mobile carriers operating GSM and CDMA services to subsidise their networks through high access prices would be equally diminished.

[60] The Commission does not consider that the competitive disciplines raised by Telstra would be effective in constraining wholesale access prices for CDMA termination.

[61] It is noted that in the GSM pricing principles the Commission considered the cost of CDMA termination for a US mobile carrier. This broadly illustrated that access prices for CDMA termination services charged by larger carriers exceed long-run efficient cost. It is noted that the reference to larger carriers was to estimates that apply to a carrier that has achieved significant economies of scale. Smaller carriers, who have not captured these economies, will have higher efficient costs although it is still considered they will be below current access prices. The other cost information considered in the GSM pricing principles was for GSM services and it also illustrated that access prices for GSM termination charged by larger carriers exceed long-run efficient cost. The Commission also notes that as CDMA services operate using 800 MHz spectrum, and have a greater propagation distance than GSM services, some of the costs associated with CDMA services will be less than those for GSM services.

[62] The Commission would expect that lower access prices for CDMA termination would be passed through to end-users in the form of lower retail prices for fixed-to-mobile calls and would monitor prices to ensure that this occurred.

4.3. Will varying the declarations achieve any-to-any connectivity?

4.3.1. Principles

The objective of any-to-any connectivity is to ensure that an end-user who is supplied with a communications service can communicate, by means of that service with other end-users who are supplied with the same, or a similar service, even if they are connected to different networks. This allows end-users to communicate with each other, irrespective of the network to which they are connected. The reference to similar services in legislation enables the application of this objective to services with similar, but not identical functional characteristics, such as fixed and mobile voice telephony services.

4.3.2. Impact of the proposed variation on achieving any-to-any connectivity

As noted above, the GSM services were deemed to be declared for the purpose of achieving any-to-any connectivity. The Commission considered that this was necessary to ensure that end-users of a GSM network were able to communicate with end-users of any other network.[63]

Any-to-any connectivity is also important for end-users of other mobile technologies that are currently in use, such as CDMA networks. In the Discussion Paper the Commission noted its understanding that despite CDMA networks not being declared services, end-users connected to them still enjoyed the benefits of any-to-any connectivity. It considered that carriers and carriage service providers, of both fixed-line and mobile networks, who do not provide such connectivity would find it difficult to attract end-users and grow their market share. In this respect it was suggested that the proposed variations are unlikely to impact, either adversely or positively, on the achievement of any-to-any connectivity.

The view expressed in most of the submissions received by the Commission was that any-to-any connectivity is currently achieved by commercial negotiation and without the need for regulatory intervention.[64] In this regard, Optus noted that each network operator has a strong incentive, in a highly competitive market, to ensure that its customers are all able to call the customers of other operators. Telstra noted in its submission that as any-to-any connectivity is achieved through commercial negotiation the proposed variation is not needed in order to satisfy this limb of the LTIE test. Further, Telstra did not consider that the proposed variation is necessary to provide regulatory certainty to the industry as suggested in the Discussion Paper. In addition, Hutchison submitted that it has interconnection

[63] *Deeming of Telecommunication Services*, Australian Competition and Consumer Commission, June 1997, p. 19.

[64] AAPT's submission to the Discussion Paper, p. 5, Hutchison's submission to the Discussion Paper, p. 3, Optus's submission to the Discussion Paper, p. 7 and Telstra's submission to the Discussion Paper, p.8.

agreements with all of the major network operators and that it has not experienced difficulty with obtaining voice interconnection of its CDMA networks.[65]

That said, AAPT noted that while any-to-any connectivity is being achieved it was concerned that this did not mandate a network operator to be an access seeker.[66] AAPT offered the example of a new mobile network operator requiring the dominant network operator to seek terminating access but the dominant network operator deciding not to do so. It suggested that in this case, prior to the new network operator building any scale of operation, the dominant network operator may not be disadvantaged. In this regard, AAPT considered that the declaration of the service and the ability of the Commission to arbitrate termination charges would act as a break on the ability of dominant network operators to refuse to seek terminating access.

In Primus's submission to the Discussion Paper it contended that the proposed variation can only have a positive effect on the objective of any-to-any connectivity because it will provide a degree of regulatory support for the provision of fixed-to-mobile services.[67] It was of the view that this will ensure fixed line customers have greater certainty of access to CDMA mobile customers.

As it appears interconnection and, therefore, any-to-any connectivity is already being achieved with CDMA services, the Commission considers that the proposed variation of the GSM service declarations is unlikely to impact, either adversely or positively, on this objective. Further, it notes that, as the current CDMA operators have reasonable sized subscriber bases, the concerns raised by AAPT are unlikely to result.

4.4. Will varying the declarations encourage economic efficiency?

4.4.1. Principles

The objective of economic efficiency has two aspects – the economically efficient use of, and investment in, infrastructure by which carriage services and services supplied by means of carriage services are supplied.

Economic efficiency has three components.

- Productive efficiency refers to the efficient use of resources within each firm such that all goods and services are produced using the least cost combination of inputs.
- Allocative efficiency refers to the efficient allocation of resources across the economy such that the goods and services that are produced in the economy are the ones most

[65] Hutchison's submission to the Discussion Paper, p. 1.
[66] AAPT's submission to the Commission, p. 5.
[67] Primus submission to the Discussion Paper, p. 4.

valued by consumers. It also refers to the distribution of production costs amongst firms within an industry to minimise industry-wide costs.

- Dynamic efficiency refers to the efficient deployment of resources between present and future uses such that the welfare of society is maximised over time. Dynamic efficiency incorporates efficiencies flowing from innovation leading to the development of new services, or improvements in production techniques.

The Commission must ensure that the Part XIC access regime does not discourage investment in networks or network elements where it is efficient. However, where it is inefficient to require investment in a number of networks or network elements, the access regime may play an important role in ensuring that existing infrastructure is used efficiently.

Efficient infrastructure investment can lead to more efficient methods of production, fostering increased competition and lower prices, as well as enhancing the level of diversity in the goods and services available to end-users. In this respect, it is noted that there is also a strong relationship between competition and efficiency. The Commission's analysis of the likely impact of the proposed variation on competition will, therefore, also influence its analysis of the impact on efficiency. For instance, if the Commission comes to a view that supply of the eligible service is not yet subject to effective competition, then it could conclude varying the service declarations would:

- facilitate the provision of the eligible services to access seekers at a price which is closer to underlying costs, resulting in a more efficient allocation of resources; and

- prevent inefficient duplication of infrastructure used to supply the declared service.

Regulation, however, may have other impacts on efficiency, both positive and negative. For instance, while regulation may promote efficient investment in downstream markets, it may also result in costs as potential access providers comply with the standard access obligations, or discourage efficient investment in infrastructure used to supply the declared service.

Furthermore, in interpreting the objective of encouraging economic efficiency, subs. 152AB(6) of the Act provides that, regard must be had to, but is not limited to, a number of specific matters. These are discussed below.

Firstly, the Commission must have regard to whether it is technically feasible to supply and charge for the particular service. This incorporates a number of elements, including the technology that is in use or available, whether the costs that would be involved in supplying, and charging for, the services are reasonable and the effects, or likely effects, that supplying, and charging for, the services would have on the operation or performance of telecommunications networks. In many cases, the technical feasibility of supplying and charging for particular services given the current state of technology may be clear, particularly where there is a history of providing access. The question will be more difficult where there is no prior access, or where conditions have changed.

Secondly, regard must be given to the legitimate commercial interests of the supplier or suppliers of the service, including the need to recover the cost of providing services and earn a commercial return on the investment in infrastructure. The Commission must also consider whether the access provider has the appropriate incentives to maintain, improve and invest in the efficient provision of the service. In addition, regard must be had to whether the access arrangement may affect the owner's ability to realise economies of scale or scope.

Finally, the Commission must have regard to the impact on the incentives for investment in the infrastructure by which the service is supplied. Various aspects of efficient investment have been discussed already. It is also important to note that while access regulation may have the potential to diminish incentives for some businesses to invest in infrastructure, it also ensures that investment is efficient, reduces the barriers to entry for other (competing) businesses, or barriers to expansion by competing businesses.

4.4.2. Impact of varying the declaration on the economically efficient use of, and investment in, infrastructure

As raised in the Discussion Paper, and discussed above, while the GSM services are declared and, therefore, subject to regulation, similar CDMA services are also currently supplied and charged for by network operators. This suggests that provision of access to CDMA services under the proposed variation would be possible. Hutchison confirmed this by indicating it is currently supplying, and charging for, CDMA services similar to the GSM services.[68]

The Discussion Paper noted that the proposed variation of the GSM service declarations may impact on the access providers currently supplying CDMA services; Telstra and Hutchison. The Commission was conscious that CDMA services to date have not been regulated and that extending the regulatory framework to these services may impact on the commercial interests of these access providers.

In its submission to the Discussion Paper, AAPT was of the view that the proposed variation would not impact on the legitimate commercial interests of access providers supplying CDMA services.[69] It submitted that to the extent the proposed variation would apply a constraint on the CDMA network operators this would not impact on legitimate commercial interests, but rather would be an attempt to constrain any actions by CDMA network operators to exploit market ignorance and provide subsidised entry for their network operation.

Further, Hutchison noted in its submission that it did not anticipate its supply of CDMA services, which are similar to the GSM, would change as a result of the proposed variation.[70]

The Discussion Paper also noted the possible allocative inefficiencies that may result without the proposed variation. In this regard it was noted that in the GSM pricing principles the Commission had concluded the current lack of effective competition in the supply of the

[68] Hutchison's submission to the Discussion Paper, p. 3.
[69] AAPT's submission to the Discussion Paper, p. 5.
[70] Hutchison's submission to the Discussion Paper, p. 4.

GSM terminating services appeared to have lead to higher prices for fixed-to-mobile calls than would be justified by looking at the cost of supply for the larger carriers. That is, there was concern that the larger mobile carriers may be earning excessive returns beyond their commercial interests. The GSM pricing principles noted that as a result there may currently be either:

- allocative inefficiencies caused by cross-subsidisation of mobile phone subscribers by fixed-line subscribers; or

- allocative inefficiencies caused by excess profits being earned by (larger) carriers.

It was, therefore, considered that reductions in access prices would improve allocative efficiency. The Discussion Paper noted that if CDMA services have similar characteristics as the GSM originating and terminating services similar concerns would be raised in the absence of the proposed mobile technology-neutral service declarations.

In its submission to the Commission, Telstra acknowledged the possibility of allocative efficiency losses from high termination rates for fixed-to-mobile calls, but submitted that these losses are likely to be minimal.[71] It was also of the view that such losses must be weighed against the larger productive and dynamic efficiency losses (from inefficient investment) that would likely result from the proposed variation.

Telstra also acknowledged in its submission that there are good reasons for avoiding asymmetric regulation of GSM and CDMA networks if they are found to be in the same market.[72] It noted that if two products are offered at the same prices by two firms, competitive neutrality would occur when consumers are indifferent to purchasing one product over the other and neither firm has been provided with artificial advantages (or disadvantages) that enable it to lower its costs or raise its quality over what they would otherwise be. Therefore, where competitive neutrality does not hold efficient allocation may not occur. Telstra submitted that as a result of asymmetric regulation a relatively more inefficient network operator (or equally efficient network operator) may gain market share at the expense of other operators.

This said, Telstra was of the view that concerns associated with asymmetric regulation would be best resolved by the non-regulation of both GSM and CDMA services.

In relation to the impact of the proposed variation on efficient investment, Telstra submitted that it would be likely to discourage efficient investment in new mobile networks.[73] In particular it considered that declaration brings with it risks and associated distortions arising from regulated access pricing and that real costs come in the form of:

- productive inefficiencies – which are an almost inevitable outcome of regulators setting prices at incorrect level; and

[71] Telstra's submission to the Discussion Paper, p. 1.
[72] Ibid, p. 9.
[73] Ibid, p. 10.

- dynamic inefficiencies – which occur as regulation removes the incentive to invest in innovative, higher quality and lower cost technologies.

Telstra submitted that in relation to mobile technologies, such distortions (arising out of the proposed variation) would likely increase the risks and further delay the roll out of 3G networks. It noted a likely inference that would necessarily be drawn if the proposed variation was accepted, is that each time a new mobile technology is developed, the Commission will seek to add a layer of regulation. This would make the economic justification harder for potential investments as industry will factor in the not-insignificant costs of the resultant uncertainty and potentially necessary compliance.

Optus submitted that revocation of the GSM service declarations, rather than the proposed variation, would tend to promote infrastructure investment.[74] It considered that the future business cases of the mobile operators are undermined by the uncertainty which currently exists as a result of the GSM declaration and pricing principles. Such uncertainty would be reduced by revocation of the declaration. It considered resultant benefits would flow to network operators and consumers as infrastructure competition is the best way of delivering long-term competition-based price, innovation and product range.

However, AAPT did not consider that the proposed variation would have an effect on investment decisions of operators.[75] It noted that when AAPT had previously considered investments it had recognised that the CDMA termination service was always likely to be declared.

Submissions in the main did not address the issue of the impact of the proposed variation on efficient investment and entry in the related downstream fixed-to-mobile services market. AAPT was of the view that the proposed variation would enable operators to make decisions to participate in this market with confidence.[76] It considered that without the proposed variation CDMA network operators would be able to generate inefficiencies through the cross-subsidisation of mobile phone subscribers from fixed-line subscribers. That said, Hutchison did not consider that the proposed variation would have any impact on decisions to invest in the fixed-to-mobile services market.

The Commission understands that it is technically feasible to supply and charge for CDMA services, implying the provision of access to these services under the proposed variation of the GSM service declarations is technically feasible.

Further, the Commission considers that the legitimate commercial interests of mobile carriers operating CDMA networks will not be affected by the proposed variation. Without the proposed variation mobile carriers operating CDMA services should, at a minimum, achieve a commercial return on their investments. However, given access prices for CDMA termination services appear to be above costs there is a concern that the larger mobile carriers

[74] Optus's submission to the Discussion Paper, p. 7.
[75] AAPT's submission to the Discussion Paper, pp.5-6.
[76] AAPT's submission to the Discussion Paper, p. 6.

are, and would continue to, earn excessive returns. This said, as competition intensifies in the mobile services market the opportunity to earn such returns is generally diminishing. Under the proposed variation, and using pricing principles the same or similar as those developed for GSM, the pricing methods of carriers are not likely to change significantly but rather a requirement for continued price decreases is put in place. In this way mobile carriers are allowed to make (at least) a commercial return on prudent investment.

In addition, the Commission considers that allocative efficiency will be improved under the proposed variation. This is for two reasons. Firstly, regulation of CDMA services (using the same or similar pricing principles as for GSM services) would likely cause access prices for CDMA termination to decline and therefore move closer to cost. Allocative inefficiencies caused by cross-subsidisation of mobile phone subscribers by fixed-line subscribers would likely diminish as would excess profits being earned. Secondly, any allocative inefficiencies caused by asymmetric regulation would be avoided.

The Commission considers that the impact, if any, of the proposed variation is likely to be favourable on the efficient investment decisions of network operators in relation to 2G mobile services. This is because under the proposed variation an entry decision would likely be based, in part, on access prices for CDMA which are more efficient than would exist without the variation.

This said, if there is no further deployment of networks providing only 2G mobile services it may be that the proposed variation would not have any impact on efficient investment. In this regard, the Commission considers it unlikely there will be future deployment of networks providing only 2G mobile services (particularly via CDMA technology). Rather, network operators will likely concentrate their efforts on the deployment of networks that can also support 3G mobile services. In any event, the Commission notes that an entry strategy for providing 2G mobile services in the current market would be to acquire and operationalise what was One.Tel's network assets and spectrum. It is noted that this is a GSM network and therefore already subject to regulation. Further, the only significant holding of 800 MHz spectrum that could be utilised for the purpose of developing a CDMA network is held by AAPT who announced earlier this year that it would not be deploying such a network.

It is noted that the proposed variation does not extend the reach of declaration to 2.5 and 3G services. This is quite deliberate as the Commission considers that as these markets are still evolving and that it would be premature to include such services in the proposed service declarations. As noted above, the Commission is of the view that it would be preferable to monitor market developments and consider the need for regulation on a case-by-case basis if bottleneck characteristics arise. Given such an approach, it is not anticipated that the proposed variation will impact on the efficient investment in 2.5G and 3G services.

Further, in the GSM pricing principles the Commission noted that a review of GSM regulation (and CDMA under the proposed variation) will be undertaken in two years. It was proposed that such a review would consider whether there is a need to extend the benchmarking approach beyond the two year initial implementation period or whether the declaration should be revoked. This was viewed as an important part of GSM regulation and the Commission believes that this demonstrates that it is not seeking to add unnecessary

layers of regulation each time a new technology is developed. This will also be the ideal opportunity for industry to put its case comprehensively for deregulation of the mobile market.

4.5. Conclusion

Each of the individual arms of the LTIE test have been considered above and it is now necessary to make an overall assessment of whether the cumulative impacts on each objective will promote the LTIE. In this regard, the Commission considers that on balance the proposed variation will promote the LTIE.

In particular, competition in the fixed-to-mobile services market will likely be improved under the proposed variation. This is because of the likely lower access prices for CDMA termination services which will diminish the opportunity for integrated mobile carriers to price in an anti-competitive manner and provide benefits for end-users making fixed-to-mobile calls (lower prices). Further, the competitive-neutrality associated with the proposed variation will ensure a level playing field in the mobile services market and that one mobile carrier is not advantaged over another.

There will also likely be improvements to allocative efficiency under the proposed variation. With a reduced gap between price and cost any allocative inefficiencies caused by cross-subsidisation of mobile phone subscribers by fixed line subscribers will diminish as will any excess profits being earned. Further, any allocative inefficiencies caused by asymmetric regulation would be avoided.

Finally, it is considered that the proposed variation will have a favourable impact, if any at all, on efficient investment. This is because under the proposed variation any entry decisions would likely be based, in part, on access prices for CDMA termination services which are considered more efficient than would exist without the variation.

Glossary

2G	In mobile telephony, second generation (2G) protocols use digital encoding and include GSM, CDMA and TDMA. 2G networks are currently used around the world and support high bit rate voice and limited data communications. They are capable of offering auxiliary services such as data, fax and SMS.
2.5G	In mobile telephony, two and a half generation (2.5G) protocols extend 2G systems to provide additional features, such as packet-switched connection and enhanced data rates.
3G	In mobile telephony, third generation (3G) protocols support much higher data rates, measured in megabits per second, intended for applications other than voice, such as full-motion video, video conferencing and full Internet access. 3G networks are expected to be available in Australia within the next eighteen months to five years.
Access provider	Carrier or carriage service provider who supplies declared services to itself or other persons - see s. 152AR of the *Trade Practices Act 1974*.
Access seeker	Service provider who makes, or proposes to make, a request for access to a declared service under s. 152AR of the *Trade Practices Act 1974*.
Base station	Radio transmitter and receiver used for transmitting and receiving calls to or from mobile telephones in a particular cell.
Code division multiple access (CDMA)	A digital wireless telephony transmission technique. CDMA allows multiple frequencies to be used simultaneously (spread spectrum). CDMA operates in the 800 MHz band.

Declared service	An eligible service declared by the Commission under s. 152AL of the *Trade Practices Act 1974*. Once an eligible service is declared, access providers are required to supply the service to service providers (that is, access seekers) upon request - see s. 152AR of the *Trade Practices Act 1974*.
Digital mobile networks	A way of encoding information. On digital mobile networks, data does not need to go through the extra step of being converted to analog signals, while voice is sampled and coded in a way similar to how it is recorded on a CD. Digital networks include GSM, CDMA and TDMA mobile systems.
Enhanced data rates for GSM evolution (EDGE)	An enhanced modulation technique designed to increase network capacity and data rates in GSM networks. EDGE should provide data rates up to 384 kilobits per second.
Eligible service	This term is defined in s. 152AL of the *Trade Practices Act 1974*. An eligible service is a carriage service between two or more points (at least one of which is in Australia), or a service that facilitates the supply of such a carriage service.
General packet radio service (GPRS)	A radio technology for GSM networks that adds packet-switching protocols, shorter set-up time for ISP connections, and offers the possibility to charge by amount of data sent rather than connect time.
Global system for mobile (GSM)	The first European digital standard developed to establish cellular compatibility throughout Europe. GSM operates at the 900 and 1800 MHz band.
Home location register	Database for information on subscribers, such as serial number, base station number and mobile phone location.

Mobile services switching centre (MSC)	A switching centre controlling a particular service area and several base stations for mobile phones located in any of the cells.
Packet switching	Technique whereby the information (voice or data) to be sent is broken up into packets, which are then routed by the network between different destinations based on the address within each packet.
Service provider	Defined in s. 86 of the *Telecommunications Act 1997*. The term refers to a carriage service provider or a content service provider.
Short message service (SMS)	The service is available on digital GSM and CDMA networks allowing text messages of up to 160 characters to be sent and received via the network operator's message centre to the mobile phone.
Time division multiple access (TDMA)	A digital wireless telephony transmission technique. TDMA allocates each user a different time slot on a given frequency.
Universal mobile telecommunications service (UMTS)	UMTS is a 3G standard supporting a theoretical data throughput of up to 2 megabits per second.
Visitor location register	Database for temporary storage of information on subscribers
Wireless application protocol (WAP)	A set of communication protocol standards designed to make accessing online services from a mobile device simple.

Attachment A: Submissions received

The Commission received the following submissions on its Discussion Paper:

- AAPT;
- Hutchison;
- Optus;
- PowerTel;
- Primus;
- Telstra; and
- Vodafone.

Attachment B: Current Service Description

3. Domestic GSM Originating Access Service

The following service description is provided for Domestic GSM originating access and applies to the provision of Domestic GSM Originating access service by any AP to any AS (AS).

The Service as described comprises a number of different elements as follows:

a) Access via a AS number ranges required to achieve the objective of any-to-any connectivity unless the AP has not sought or is not seeking terminating access to the end - customers in question

b) Call Barring

c) POI Location

d) Signalling

e) CLI provision

f) Provision of Switchports

g) Network Conditioning

h) Fault Handling -

i) Inter C/CSP Billing

Restrictions on availability and others factors relating to the provision of Access are further described below.

In accordance with the Trade Practices Act Part XIC these elements
- may not be available from all APs
- may have restrictions in their availability

Domestic GSM Originating Access" is an Access Service for the carriage of telephone calls (ie. voice, data over the voice band) to a POI from end-customers assigned numbers from the GSM number ranges of the Australian Numbering Plan and directly connected to the AP's GSM network.

3.1. Availability

The availability of the services may vary depending on the geographic and technical capability of the AP's network at the time at which a request for the service is made or the service is delivered.

The AP will make available to ASs documents describing the availability of this service on its network. See 3.3 & 3.4

3.2. Channel Capacity

The service will establish a connection for the purposes of voice communication with the standard bandwidth of 3.1kHz.

3.3. Services

3.3.1 The service is provided on a call that is made with AS specific codes including Special Services codes and number ranges (with some exceptions) as per table GOASD7, in accordance with the Australian Numbering Plan.

3.3.2(blank)

3.3.3 Service Restrictions

At least annually, the AP will advise of end-customer services that may restrict the provision of this service in a Table GOASD5.

3.3.4 Barring

The AP may provide a service that will allow barring of service codes at the request of the end - customer.

End-customers may request generic barring services which may restrict access to these services.

The AP should detail this barring in a table GOASD6.

3.4. Interconnection Handover arrangements

The AP and the AS are each responsible for the provision, installation, testing, making operational and monitoring of all the network on their respective sides of the POI.

3.4.1. POIs

"**Point of Interconnection**" or "**POI**" means an agreed location which:

(a) is a physical point of demarcation between the networks nominated by the AS and the AP; and

(b) is associated (but not necessarily co-located with) with one or more gateway exchanges of each of the networks nominated by the AS and the AP.

Calls originated by the A-party will be handed over to the AS at Points of Interconnection agreed by the AS and the AP in respect of POIs nominated by the AP in accordance with 3.4.1.1 and 3.4.1.2.

3.4.1.1 POI locations

The AP will provide a table (Table GOASD1) listing of POIs where this service may be provided. This listing will be updated at least annually. The AS may request a point of interconnect with the AP's network at a location other than one specified by the AP. The AP must, to the extent technically and operationally feasible, permit the location of a point of interconnect at that location.

3.4.1.2 Number ranges

The AP will provide a table of the GSM number ranges to which this service will give access. (Table GOASD2)

The POIs GOASD1 will be the POIs for "near end handover" of calls.

3.4.2. Signalling

3.4.2.1. Signals for this service will use CCS#7 signalling. Unless otherwise agreed, this CCS#7 signalling will be in accordance with the NIIF/ACIF Interconnection-ISUP specification.

3.4.2.2 The AP will provide a table (Table GOASD4) of the locations where the AS may interconnect its CCS#7 signalling network with that of the AP for the purpose of accepting this service.

3.4.2.3 Signalling interconnection may not be provided at all POI's. These POIs of 3.4.1.1 may provide for interconnection of voice circuits only. Control of voice circuits where direct signalling interconnection is not provided, will be via "quasi-associated signalling" using Signalling Transfer Point (STP) operation, with signalling via a nominated other gateway where signalling interconnection is provided.

3.4.3. CLI

The CLI of the A-party will be provided as part of the CCS#7 signalling.

3.4.4. Nature of switchports

At POIs the calls will be delivered to the AS at 2.048Mbit/sec Switchports. The switchports will operate at 2.048Mbit/sec in accordance with the ITU Recommendations G.703, G. 704 and G.732 (Blue Book).

3.4.5. Send and receive speech levels

The send and receive levels for speech will be -13 dBr unless specified otherwise in the Australian Network Performance Plan.

3.4.7. The AP will provide Echo Control as per normal practice for GSM calls between the end customer and the AP's gateway exchange.

3.5. Interconnection Forecasting, ordering and provisioning arrangements

3.5.1 Forecasting and planning requirements

3.5.1.1. Forecast of port requirements

For each POI the AS should provide forecasts, at least half yearly, of switchport requirements for 6, 12, 18, 24, 30 and 36 months from the time of the forecast. Forecasts should be provided on dates to be agreed between the AP and the AS and forecast the switchport requirements from operative dates of 31 December and 30 June. Forecasts will be discussed by the AP and the AS with a view to agreement within 30 Business Days. Forecasts will be used by the AP for network planning and not for charging purposes.

3.5.1.2. Forecast of network capacity requirements

For each POI and for each charging district of the AP the AS should provide forecasts, at least half yearly, of traffic requirements for 6, 12, 18, 24, 30 and 36 months from the time of the forecast. These forecasts should provide daily and weekly profiles for the traffic forecasted and advice of any material non-uniformities in the dispersion of the sources of originating access traffic. Forecasts should be provided on dates to be agreed between the AP and the AS and forecast the traffic requirements from operative dates of 31 December and 30 June. Forecasts will be discussed by the AP and the AS with a view to agreement within 30 Business Days.

3.5.1.3. Ordering of Switchports.

The AP will accept orders for switchports up to the level of the agreed forecasts for each POI. The AS should order switchports allowing 6 months for their provision.

3.5.1.4. The AP will provide access up to the level of the agreed traffic forecasts for each POI.

3.5.1.5 The AS may request and the AP will give reasonable

consideration to, and use reasonable endeavours to provide such provision, but is under no obligation to provide access or switchports above the level of the agreed

forecasts. If such access is provided, delivery times may be longer than those specified in 3.5.1.3.

3.6. Interconnection Ordering Requirements

3.6.1. Compliance testing

The AS will be required to demonstrate compliance with the agreed CCS#7 Signalling System prior to the provision of the service.

3.6.1.1 The AP and the AS will develop an agreed test plan and the AS will provide results of tests to this plan from an appropriate test house or other such party. The AP will provide the results of such tests if it is not otherwise seeking a switch access service from the AS.

3.6.1.2 The AP and the AS shall review the test results of 3.6.1.1. within 20 business days and if the AP accepts that the test results of 3.6.1.1 are satisfactory then the AP and the AS will agree a date for commissioning tests.

3.6.1.3. The test results of 3.6.1.1 will form the prime documentary basis for ongoing operations, fault analysis and fault management of signalling between the AP and the AS.

3.6.2. Network Conditioning

Network Conditioning of the AP's network will be required before the provision of the service.

3.7. Operational and Fault handling arrangements

The AP will provide a contact point for the Operation and Maintenance of the service. Faults may be reported to this centre which will manage the clearance of these faults.

3.8 Inter C/CSP Billing frequency

The AP will invoice the AS on a monthly basis.

3.9. Provision of Tones and Network Announcements

Where calls attempting this service do not progress to the POI the call may be connected to tones as per AUSTEL Technical Standard TS002 or to a network RVA in the AP's network.

3.10 Customer Billing

Customer billing should be in accordance with an approved telecommunications access code.

4. Domestic GSM Terminating Access Service

The following service description is provided for Domestic GSM terminating access and applies to the provision of Domestic GSM terminating access service by any AP to any AS.

The Service as described comprises a number of different elements as follows:

a) Access for calls forwarded for termination in the AP's GSM network

b) POI Location

c) Signalling

e) CLI provision

f) Provision of Switchports

g) Network Conditioning

h) Fault Handling -

i) Inter C/CSP Billing

Restrictions on availability and others factors relating to the provision of Access are further described below.

In accordance with the Trade Practices Act Part XIC, these elements:
- may not be available from all APs
- may have restrictions in their availability

Domestic GSM Terminating Access Service is an Access Service for the carriage of telephone calls (ie. voice, data over the voice band) from a POI to B-parties assigned numbers from the GSM number ranges of the Australian Numbering Plan and directly connected to the AP's network.

4.1. Availability

The availability of the services may vary depending on the geographic and technical capability of the AP's network at the time at which a request for the service is made or the service is delivered.

The AP will make available to ASs documents describing the availability of this service on its network. See 4.3 & 4.4

4.2. Channel Capacity

The service will establish a connection for the purposes of voice communication with the standard bandwidth of 3.1kHz.

4.3. Services

4.3.1 The service is provided on a call that is handed over for termination to a customer directly connected to the AP's GSM network..

4.3.2 (Blank).

4.3.3 Service Restrictions

At least annually, the AP will advise of end-customer services that may restrict the provision of this service eg. Services barred from accepting Reverse Charge Calls in a Table TGASD5.

4.4. Interconnection Handover arrangements

The AP and the AS are each responsible for the provision, installation, testing, making operational and monitoring of all the network on their respective sides of the POI.

4.4.1. POIs

"**Point of Interconnection**" or "**POI**" means an agreed location which:

(a) is a physical point of demarcation between the networks nominated by the AS and the AP; and

(b) is associated (but not necessarily co-located with) with one or more gateway exchanges of each of the networks nominated by the AS and the Access.

Calls originated by the A-party will be handed over to the Access Provider at Points of Interconnection agreed by the AS and the AP in respect of the POIs nominated by the AP in accordance with 4.4.1.1 and 4.4.1.2.

4.4.1.1 POI locations

The AP will provide a table (Table TGASD1) listing of POIs where this service may be provided. This listing will be updated at least annually. The AS may request a point of interconnect with the AP's network at a location other than one specified by the AP. The AP must, to the extent technically and operationally feasible, permit the location of a point of interconnect at that location. Handover will be at the POI closest to the A Party

4.4.1.2 Number ranges

The AP will provide a table of the GSM number ranges to which this service will provide access.(TGASD2).

4.4.2. Signalling

4.4.2.1. Signals for this service will use CCS#7 signalling. Unless otherwise agreed, this CCS#7 signalling will be in accordance with the NIIF/CIF Interconnection-ISUP specification.

4.4.2.2 The AP will provide a table (Table TGASD4) of the locations where the AS may interconnect its CCS#7 signalling network with that of the AP for the purpose of accepting this service.

4.4.2.3 Signalling interconnection may not be provided at all POI's. These POIs of 4.4.1.1 may provide only for interconnection of voice circuits. Control of voice circuits where direct signalling interconnection is not provided, will be via "quasi-associated signalling" using Signalling Transfer Point (STP) operation, with signalling via a nominated other gateway where signalling interconnection is provided.

4.4.3. CLI

Unless otherwise agreed the CLI of the A-party should be provided as part of the CCS#7 signalling for this service.

4.4.4. Nature of switchports

At POIs the calls will be delivered to the AP at 2.048Mbit/sec Switchports. The switchports will operate at 2.048Mbit/sec in accordance with the ITU Recommendations G.703, G. 704 and G.732 (Blue Book).

4.4.5. Send and receive speech levels

The send and receive levels for speech will be -13 dBr unless specified otherwise in the Australian Network Performance Plan.

4.4.7. The AP will provide Echo Control as normal for GSM calls between the end customer and the AP's gateway exchange.

4.5. Interconnection Forecasting, ordering and provisioning arrangements

4.5.1 Forecasting and planning requirements

4.5.1.1. Forecast of port requirements

For each POI the AS should provide forecasts, at least half yearly, of switchport requirements for 6, 12, 18, 24, 30 and 36 months from the time of the forecast. Forecasts should be provided on dates to be agreed between the AP and the AS and forecast the switchport requirements from operative dates of 31 December and 30 June. Forecasts will be discussed by the AP and the AS with a view to agreement within 30 Business Days. The forecasts will be used by the AP for network planning and not charging purposes.

4.5.1.2. Forecast of network capacity requirements

For each POI and for each charging district of the AP the AS should provide forecasts, at least half yearly, of traffic requirements for 6, 12, 18, 24, 30 and 36 months from the time of the forecast. These forecasts should provide daily and weekly profiles for the traffic forecasted and advice of any material non-uniformities in the dispersion of the terminating access traffic. Forecasts should be provided on dates to be agreed between the AP and the AS and forecast the traffic requirements from operative dates of 31 December and 30 June. Forecasts will be discussed by the AP and the AS with a view to agreement within 30 Business Days.

4.5.1.3. Ordering of Switchports.

The AP will accept orders for switchports up to the level of the agreed forecasts for each POI. The AS should order switchports allowing 6 months for their provision.

4.5.1.4. The AP will provide access up to the level of the agreed traffic forecasts for each POI.

4.5.1.5 The AS may request and the AP will give reasonable consideration to, and use reasonable endeavours to provide, such provision, but is under no obligation to provide access or switchports above the level of the agreed forecasts. If such access is provided, delivery times may be longer than those specified in 4.5.1.3.

4.6. Interconnection Ordering Requirements

4.6.1 Compliance testing

The AS will be required to demonstrate compliance with the agreed CCS#7 signalling system prior to the provision of the service.

4.6.1.1 The AP and the AS will develop an agreed test plan and the AS will provide results of tests to this plan from an appropriate test house or other such party. The AP will provide the results of such tests if it is not otherwise seeking a switch access service from the AS.

4.6.1.2 The AP and the AS shall review the test results of 4.6.1.1. within 20 business days and if the AP accepts that the test results of 4.6.1.1 are satisfactory then the AP and the AS will agree a date for commissioning tests.

4.6.1.3. The test results of 4.6.1.1 will form the prime documentary basis for ongoing operations, fault analysis and fault management of signalling between the AP and the AS.

4.6.2. Network Conditioning

Network Conditioning of the AP's network will be required before the provision of the service.

4.7. Operational and Fault handling arrangements

The AP will provide a contact point for the Operation and Maintenance of the service. Faults may be reported to this centre which will manage the clearance of these faults.

4.8 Inter C/CSP Billing frequency

The AP will invoice the AS on a monthly basis for this service.

4.9 Provision of Tones and Network Announcements

Where calls attempting this service do not progress to the end customer the call may be connected to tones as per AUSTEL Technical Standard TS002 or to a network RVA in the AP's network.

4.10 Customer Billing

Customer billing should be in accordance with an approved telecommunications access code.

4.11 Interconnect Call Records

If required by the AS to carry out distance based charging of calls made using this service, the AP will provide, at the request of the AS, interconnect call records to the AS which will include the following information:

(a) time and date of answered communication;

(b) communication duration;

(c) charge zone in which the relevant mobile number is taken to have been located;

(d) switch identifier;

(e) calling party number;

(f) called party number;

(g) any other information agreed between the AP and the AS.

Interconnect call records will be provided at times and by electronic means to be agreed between the AP and the AS.

Attachment C: Proposed service descriptions

3. Domestic GSM and CDMA Originating Access Service

The following service description is provided for Domestic GSM and CDMA originating access and applies to the provision of Domestic GSM and CDMA Originating access service by any AP to any AS (AS).

The Service as described comprises a number of different elements as follows:

a) Access via a AS number ranges required to achieve the objective of any-to-any connectivity ~~unless~~ if the AP has not sought or is not seeking terminating access to the end-customers in question

b) Call Barring

c) POI Location

d) Signalling

e) CLI provision

f) Provision of Switchports

g) Network Conditioning

h) Fault Handling -

i) Inter C/CSP Billing

Restrictions on availability and others factors relating to the provision of Access are further described below.

In accordance with the Trade Practices Act Part XIC these elements
- may not be available from all APs
- may have restrictions in their availability

Domestic GSM and CDMA Originating Access" is an Access Service for the carriage of telephone calls (ie. voice, data over the voice band) to a POI from end-customers assigned numbers from the GSM or CDMA mobile service number ranges of the ~~Australian~~ Telecommunications Numbering Plan 1997 and directly connected to the AP's GSM or CDMA network.

3.1. Availability

The availability of the services may vary depending on the geographic and technical capability of the AP's network at the time at which a request for the service is made or the service is delivered.

The AP will make available to ASs documents describing the availability of this service on its network. See 3.3 & 3.4

3.2. Channel Capacity

The service will establish a connection for the purposes of voice communication with the channel capacity approximately equivalent to that which would support the standard bandwidth of 3.1kHz.

3.3. Services

3.3.1 The service is provided on a call that is made with AS specific codes including Special Services codes and number ranges (with some exceptions) ~~as per table GOASD7~~, in accordance with the ~~Australian~~ Telecommunications Numbering Plan 1997.

3.3.2(blank)

3.3.3 Service Restrictions

At least annually, the AP will advise of end-customer services that may restrict the provision of this service ~~in a Table GOASD5~~.

3.3.4 Barring

The AP may provide a service that will allow barring of service codes at the request of the end - customer.

End-customers may request generic barring services which may restrict access to these services.

The AP should detail this barring in a table GOASD6.

3.4. Interconnection Handover arrangements

The AP and the AS are each responsible for the provision, installation, testing, making operational and monitoring of all the network on their respective sides of the POI.

3.4.1. POIs

"**Point of Interconnection**" or "**POI**" means an agreed location which:

(a) is a physical point of demarcation between the networks nominated by the AS and the AP; and

(b) is associated (but not necessarily co-located with) with one or more gateway exchanges of each of the networks nominated by the AS and the AP.

Calls originated by the A-party will be handed over to the AS at Points of Interconnection agreed by the AS and the AP in respect of POIs nominated by the AP in accordance with 3.4.1.1 and 3.4.1.2.

3.4.1.1 POI locations

The AP will provide a table ~~(Table GOASD1)~~ listing of POIs where this service may be provided. This listing will be updated at least annually. The AS may request a point of interconnect with the AP's network at a location other than one specified by the AP. The AP must, to the extent technically and operationally feasible, permit the location of a point of interconnect at that location.

3.4.1.2 Number ranges

The AP will provide a table of the GSM or CDMA mobile services number ranges to which this service will give access. ~~(Table GOASD2)~~

The POIs ~~GOASD1~~ will be the POIs for “near end handover” of calls.

3.4.2. Signalling

3.4.2.1. Signals for this service will use CCS#7 signalling. Unless otherwise agreed, this CCS#7 signalling will be in accordance with the NIIF/ACIF Interconnection-ISUP specification.

3.4.2.2 The AP will provide a table ~~(Table GOASD4)~~ of the locations where the AS may interconnect its CCS#7 signalling network with that of the AP for the purpose of accepting this service.

3.4.2.3 Signalling interconnection may not be provided at all POI’s. These POIs of 3.4.1.1 may provide for interconnection of voice circuits only. Control of voice circuits where direct signalling interconnection is not provided, will be via “quasi-associated signalling” using Signalling Transfer Point (STP) operation, with signalling via a nominated other gateway where signalling interconnection is provided.

3.4.3. CLI

The CLI of the A-party will be provided as part of the CCS#7 signalling.

3.4.4. Nature of switchports

At POIs the calls will be delivered to the AS at 2.048Mbit/sec Switchports. The switchports will operate at 2.048Mbit/sec in accordance with the ITU Recommendations G.703, G. 704 and G.732 ~~(Blue Book)~~.

3.4.5. Send and receive speech levels

The send and receive levels for speech will be -13 dBr unless specified otherwise in the Australian Network Performance Plan.

3.4.7. The AP will provide Echo Control as per normal practice for GSM and CDMA calls between the end customer and the AP’s gateway exchange in relation to the relevant mobile network.

3.5. Interconnection Forecasting, ordering and provisioning arrangements

3.5.1 Forecasting and planning requirements

3.5.1.1. Forecast of port requirements

For each POI the AS should provide forecasts, at least half yearly, of switchport requirements for 6, 12, 18, 24, 30 and 36 months from the time of the forecast. Forecasts should be provided on dates to be agreed between the AP and the AS and forecast the switchport requirements from operative dates of 31 December and 30 June. Forecasts will be discussed by the AP and the AS with a view to agreement within 30 Business Days. Forecasts will be used by the AP for network planning and not for charging purposes.

3.5.1.2. Forecast of network capacity requirements

For each POI and for each charging district of the AP the AS should provide forecasts, at least half yearly, of traffic requirements for 6, 12, 18, 24, 30 and 36 months from the time of the forecast. These forecasts should provide daily and weekly profiles for the traffic forecasted and advice of any material non-uniformities in the dispersion of the sources of originating access traffic. Forecasts should be provided on dates to be agreed between the AP and the AS and forecast the traffic requirements

from operative dates of 31 December and 30 June. Forecasts will be discussed by the AP and the AS with a view to agreement within 30 Business Days.

3.5.1.3. Ordering of Switchports.

The AP will accept orders for switchports up to the level of the agreed forecasts for each POI. The AS should order switchports allowing 6 months for their provision.

3.5.1.4. The AP will provide access up to the level of the agreed traffic forecasts for each POI.

3.5.1.5 The AS may request and the AP will give reasonable

consideration to, and use reasonable endeavours to provide such provision, but is under no obligation to provide access or switchports above the level of the agreed

forecasts. If such access is provided, delivery times may be longer than those specified in 3.5.1.3.

3.6. Interconnection Ordering Requirements

3.6.1. Compliance testing

The AS will be required to demonstrate compliance with the agreed CCS#7 Signalling System prior to the provision of the service.

3.6.1.1 The AP and the AS will develop an agreed test plan and the AS will provide results of tests to this plan from an appropriate test house or other such party. The AP will provide the results of such tests if it is not otherwise seeking a switch access service from the AS.

3.6.1.2 The AP and the AS shall review the test results of 3.6.1.1. within 20 business days and if the AP accepts that the test results of 3.6.1.1 are satisfactory then the AP and the AS will agree a date for commissioning tests.

3.6.1.3. The test results of 3.6.1.1 will form the prime documentary basis for ongoing operations, fault analysis and fault management of signalling between the AP and the AS.

3.6.2. Network Conditioning

Network Conditioning of the AP's network will be required before the provision of the service.

3.7. Operational and Fault handling arrangements

The AP will provide a contact point for the Operation and Maintenance of the service. Faults may be reported to this centre which will manage the clearance of these faults.

3.8 Inter C/CSP Billing frequency

The AP will invoice the AS on a monthly basis.

3.9. Provision of Tones and Network Announcements

Where calls attempting this service do not progress to the POI the call may be connected to tones as per ACA~~USTEL~~ Technical Standard TS002 until 1 January 2003, or AS/ACIF S002/2001 thereafter, or to a network RVA in the AP's network.

3.10 Customer Billing

Customer billing should be in accordance with an approved telecommunications access code.

4. Domestic GSM and CDMA Terminating Access Service

The following service description is provided for Domestic GSM and CDMA terminating access and applies to the provision of Domestic GSM and CDMA terminating access service by any AP to any AS.

The Service as described comprises a number of different elements as follows:

a) Access for calls forwarded for termination in the AP's GSM or CDMA network

b) POI Location

c) Signalling

e) CLI provision

f) Provision of Switchports

g) Network Conditioning

h) Fault Handling -

i) Inter C/CSP Billing

Restrictions on availability and others factors relating to the provision of Access are further described below.

In accordance with the Trade Practices Act Part XIC, these elements:

- may not be available from all APs
- may have restrictions in their availability

Domestic GSM and CDMA Terminating Access Service is an Access Service for the carriage of telephone calls (ie. voice, data over the voice band) from a POI to B-parties assigned numbers from the GSM or CDMA number ranges of the ~~Australian~~ Telecommunications Numbering Plan 1997 and directly connected to the AP's GSM or CDMA network.

4.1. Availability

The availability of the services may vary depending on the geographic and technical capability of the AP's network at the time at which a request for the service is made or the service is delivered.

The AP will make available to ASs documents describing the availability of this service on its network. See 4.3 & 4.4

4.2. Channel Capacity

The service will establish a connection for the purposes of voice communication with the channel capacity approximately equivalent to that which would support the standard bandwidth of 3.1kHz.

4.3. Services

4.3.1 The service is provided on a call that is handed over for termination to a customer directly connected to the AP's GSM or CDMA network..

4.3.2 (Blank).

4.3.3 Service Restrictions

At least annually, the AP will advise of end-customer services that may restrict the provision of this service eg. Services barred from accepting Reverse Charge Calls ~~in a Table TGASD5~~.

4.4. Interconnection Handover arrangements

The AP and the AS are each responsible for the provision, installation, testing, making operational and monitoring of all the network on their respective sides of the POI.

4.4.1. POIs

"**Point of Interconnection**" or "**POI**" means an agreed location which:

(a) is a physical point of demarcation between the networks nominated by the AS and the AP; and

(b) is associated (but not necessarily co-located with) with one or more gateway exchanges of each of the networks nominated by the AS and the Access.

Calls originated by the A-party will be handed over to the Access Provider at Points of Interconnection agreed by the AS and the AP in respect of the POIs nominated by the AP in accordance with 4.4.1.1 and 4.4.1.2.

4.4.1.1 POI locations

The AP will provide a table ~~(Table TGASD1)~~ listing of POIs where this service may be provided. This listing will be updated at least annually. The AS may request a point of interconnect with the AP's network at a location other than one specified by the AP. The AP must, to the extent technically and operationally feasible, permit the location of a point of interconnect at that location. Handover will be at the POI closest to the A Party

4.4.1.2 Number ranges

The AP will provide a table of the GSM or CDMA mobile services number ranges to which this service will provide access.(TGASD2).

4.4.2. Signalling

4.4.2.1. Signals for this service will use CCS#7 signalling. Unless otherwise agreed, this CCS#7 signalling will be in accordance with the NIIF/CIF Interconnection-ISUP specification.

4.4.2.2 The AP will provide a table ~~(Table TGASD4)~~ of the locations where the AS may interconnect its CCS#7 signalling network with that of the AP for the purpose of accepting this service.

4.4.2.3 Signalling interconnection may not be provided at all POI's. These POIs of 4.4.1.1 may provide only for interconnection of voice circuits. Control of voice circuits where direct signalling interconnection is not provided, will be via "quasi-associated signalling" using Signalling Transfer Point (STP) operation, with signalling via a nominated other gateway where signalling interconnection is provided.

4.4.3. CLI

Unless otherwise agreed the CLI of the A-party should be provided as part of the CCS#7 signalling for this service.

4.4.4. Nature of switchports

At POIs the calls will be delivered to the AP at 2.048Mbit/sec Switchports. The switchports will operate at 2.048Mbit/sec in accordance with the ITU Recommendations G.703, G. 704 and G.732 ~~(Blue Book)~~.

4.4.5. Send and receive speech levels

The send and receive levels for speech will be -13 dBr unless specified otherwise in the Australian Network Performance Plan.

4.4.7. The AP will provide Echo Control as normal for GSM and CDMA calls between the end customer and the AP's gateway exchange in relation to the relevant mobile network.

4.5. Interconnection Forecasting, ordering and provisioning arrangements

4.5.1 Forecasting and planning requirements

4.5.1.1. Forecast of port requirements

For each POI the AS should provide forecasts, at least half yearly, of switchport requirements for 6, 12, 18, 24, 30 and 36 months from the time of the forecast. Forecasts should be provided on dates to be agreed between the AP and the AS and forecast the switchport requirements from operative dates of 31 December and 30 June. Forecasts will be discussed by the AP and the AS with a view to agreement within 30 Business Days. The forecasts will be used by the AP for network planning and not charging purposes.

4.5.1.2. Forecast of network capacity requirements

For each POI and for each charging district of the AP the AS should provide forecasts, at least half yearly, of traffic requirements for 6, 12, 18, 24, 30 and 36 months from the time of the forecast. These forecasts should provide daily and weekly profiles for the traffic forecasted and advice of any material non-uniformities in the dispersion of the terminating access traffic. Forecasts should be provided on dates to be agreed between the AP and the AS and forecast the traffic requirements from operative dates of 31 December and 30 June. Forecasts will be discussed by the AP and the AS with a view to agreement within 30 Business Days.

4.5.1.3. Ordering of Switchports.

The AP will accept orders for switchports up to the level of the agreed forecasts for each POI. The AS should order switchports allowing 6 months for their provision.

4.5.1.4. The AP will provide access up to the level of the agreed traffic forecasts for each POI.

4.5.1.5 The AS may request and the AP will give reasonable consideration to, and use reasonable endeavours to provide, such provision, but is under no obligation to provide access or switchports above the level of the agreed forecasts. If such access is provided, delivery times may be longer than those specified in 4.5.1.3.

4.6. Interconnection Ordering Requirements

4.6.1 Compliance testing

The AS will be required to demonstrate compliance with the agreed CCS#7 signalling system prior to the provision of the service.

4.6.1.1 The AP and the AS will develop an agreed test plan and the AS will provide results of tests to this plan from an appropriate test house or other such party. The AP will provide the results of such tests if it is not otherwise seeking a switch access service from the AS.

4.6.1.2 The AP and the AS shall review the test results of 4.6.1.1. within 20 business days and if the AP accepts that the test results of 4.6.1.1 are satisfactory then the AP and the AS will agree a date for commissioning tests.

4.6.1.3. The test results of 4.6.1.1 will form the prime documentary basis for ongoing operations, fault analysis and fault management of signalling between the AP and the AS.

4.6.2. Network Conditioning

Network Conditioning of the AP's network will be required before the provision of the service.

4.7. Operational and Fault handling arrangements

The AP will provide a contact point for the Operation and Maintenance of the service. Faults may be reported to this centre which will manage the clearance of these faults.

4.8 Inter C/CSP Billing frequency

The AP will invoice the AS on a monthly basis for this service.

4.9 Provision of Tones and Network Announcements

Where calls attempting this service do not progress to the end customer the call may be connected to tones as per ACA~~AUSTEL~~ Technical Standard TS002 until 1 January 2003, and AS/ACIF S002/2001 thereafter, or to a network RVA in the AP's network.

4.10 Customer Billing

Customer billing should be in accordance with an approved telecommunications access code.

4.11 Interconnect Call Records

If required by the AS to carry out distance based charging of calls made using this service, the AP will provide, at the request of the AS, interconnect call records to the AS which will include the following information:

(a) time and date of answered communication;

(b) communication duration;

(c) charge zone in which the relevant mobile number is taken to have been located;

(d) switch identifier;

(e) calling party number;

(f) called party number;

(g) any other information agreed between the AP and the AS.

Interconnect call records will be provided at times and by electronic means to be agreed between the AP and the AS.