
First published in the *Government Gazette*, Electronic Edition, on 15th September 2000 at 5:00 pm.

No. S 412

TELECOMMUNICATIONS ACT 1999
(ACT 43 OF 1999)

CODE OF PRACTICE FOR COMPETITION IN THE
PROVISION OF TELECOMMUNICATION SERVICES

In exercise of the powers conferred by section 26 (1) of the Telecommunications Act 1999, the Info-communications Development Authority of Singapore hereby issues the following Code:

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1. INTRODUCTION

1.1 Goals of This Code

This Code is intended to:

- (a) promote the efficiency and international competitiveness of the information and communications industry in Singapore;
- (b) ensure that telecommunication services are reasonably accessible to all people in Singapore, and are supplied as efficiently and economically as practicable and at performance standards that reasonably meet the social, industrial and commercial needs of Singapore;
- (c) promote and maintain fair and efficient market conduct and effective competition between persons engaged in commercial activities connected with telecommunication technology in Singapore;
- (d) promote the effective participation of all sectors of the Singapore information and communications industry in markets (whether in Singapore or elsewhere);
- (e) encourage, facilitate and promote industry self-regulation in the information and communications industry in Singapore; and
- (f) encourage, facilitate and promote investment in and the establishment, development and expansion of the information and communications industry in Singapore.

1.2 Legal Authority to Promulgate this Code

The Info-communications Development Authority of Singapore (“IDA”), in the exercise of its functions under section 6 of the Info-communications Development Authority of Singapore Act 1999 (Act 41 of 1999) (“IDA Act”), issues this Code pursuant to its authority under section 26 (1) of the Telecommunications Act 1999 (Act 43 of 1999) (“Telecommunications Act”).

1.3 Legal Effect of This Code

Every entity to which IDA grants a licence under section 5 of the Telecommunications Act (“Licensee”) is required, under section 26 (4) of the Telecommunications Act, to comply with the applicable provisions contained in

this Code.* The obligations contained in this Code are in addition to those contained in the Telecommunications Act, other statutes, regulations, directions, licences or codes of practice. To the extent that any provision of this Code is inconsistent with the terms of the Telecommunications Act, other statutes, regulations, directions or the terms of any licence, the provisions of those statutes, regulations, directions or licences shall prevail. To the extent that this Code is inconsistent with the provision of any prior codes of practice issued by IDA or its predecessor, the Telecommunication Authority of Singapore (“TAS”), the terms of this Code will prevail. If any provision of this Code is held to be unlawful, all other provisions will remain in full force and effect. This Code repeals and fully supercedes the Code of Practice (Interconnection, Access and Infrastructure Sharing) issued by TAS.

* Section 75 of the Telecommunications Act provides that any licence granted by the Telecommunication Authority of Singapore under the repealed Telecommunication Authority of Singapore Act shall be deemed to have been granted by IDA under section 5 of the Telecommunications Act.

1.4 Application of This Code to Specific Categories of Licensees

The following chart indicates the applicability of various provisions of this Code to different categories of Licensees:

CATEGORY OF LICENSEE	DOMINANT/ NON-DOMINANT CLASSIFICATION (SECTION 2)	DUTY TO END USERS (SECTION 3)	INTER-CONNECTION AND SHARING (SECTIONS 4-6)	COMPETITION (SECTIONS 7-9)	ENFORCEMENT (SECTION 10)
Dominant Facilities-based Licensees	All Provisions	All Provisions	All Provisions	All Provisions	All Provisions
Non-Dominant Facilities-based Licensees	All Provisions	Subsections 3.1-3.2.7 Only	All Provisions (except subsections 5.3.1-5.3.5.8)	All Provisions	All Provisions
Services-based Licensees that use Switching or Routing Equipment to Provide Telecommunication Services to the Public	Not Applicable	Subsections 3.1-3.2.7 Only	Section 4 (except subsections 4.2.3, 4.2.4 and 4.6.5) and section 5 (except subsections 5.3.1-5.3.5.8) Only	Subsections 7.1-7.1.2, 7.3-7.4.4 and section 8 Only	All Provisions

CATEGORY OF LICENSEE	DOMINANT/ NON-DOMINANT CLASSIFICATION (SECTION 2)	DUTY TO END USERS (SECTION 3)	INTER-CONNECTION AND SHARING (SECTIONS 4-6)	COMPETITION (SECTIONS 7-9)	ENFORCEMENT (SECTION 10)
Services-based Licensees that do not use Switching or Routing Equipment to Provide Telecommunication Services to the Public	Not Applicable	Subsections 3.1-3.2.7 Only	Not Applicable	Subsections 7.1-7.1.2, 7.3-7.4.4 and section 8 Only	All Provisions
Self-provisioning Licensees	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Telecommunication Equipment Dealer Licensees	Not Applicable	Subsections 3.1-3.2.7 Only	Not Applicable	Subsections 7.1-7.1.2, 7.3-7.4.4 and section 8 Only	All Provisions

1.5 Regulatory Principles

The following Regulatory Principles provide the foundation for this Code, and will guide IDA's implementation of its provisions:

1.5.1 Reliance on Market Forces

Market forces are generally far more effective than regulation in promoting consumer welfare. Competitive markets are most likely to provide consumers with a wide choice of services at reasonable prices. Therefore, to the extent that markets or market segments are competitive, IDA will place primary reliance on private negotiations and industry self-regulation, subject to minimum requirements designed to protect consumers and prevent anti-competitive conduct. Consistent with this principle, IDA will promote the establishment of a telecommunication industry body that will formulate technical and operational processes and procedures designed to promote effective competition in the provision of telecommunication services and equipment.

1.5.2 Promotion of Competition

Because of the effectiveness of market forces in promoting consumer welfare, IDA will take resolute measures to promote and maintain effective competition. This will

include measures to foster competition in those markets that, in the past, were protected from competition by special or exclusive government-granted rights.

1.5.3 Proportionate Regulation

To the extent that a given market is not yet competitive, significant *ex ante* regulatory intervention is likely to remain necessary. When this is the case, IDA will seek to impose regulatory requirements that are carefully crafted to achieve IDA's stated goals. Such requirements will be no broader than necessary to achieve IDA's stated goals.

1.5.4 Technological Neutrality

IDA's regulatory requirements will reflect the phenomenon of convergence, which is eroding historic differences among platforms such as wireline, cable, wireless, and satellite. Regulatory requirements will be based on sound economic principles and, to the extent feasible, will be technology-neutral. Because the phenomenon of convergence is in its early stages, with different platforms subject to differing degrees of competition, the objective application of these principles may result initially in the imposition of different regulatory obligations on Licencees that use different platforms.

1.5.5 Elimination or Modification of Unnecessary Provisions of this Code

As competition develops, regulation becomes less necessary and, in many cases, can be counter-productive. Therefore, IDA will strive to eliminate or modify the provisions of this Code to reflect the development of competition. The following 2 procedures will promote the implementation of this principle:

1.5.5.1 Regulatory Review

At least once every 3 years, IDA will review this Code. As part of the triennial review process, IDA will provide an opportunity for public comment. IDA will eliminate or modify provisions that it determines, based on experience and the growth and development of competition, are no longer necessary.

1.5.5.2 Petitions for Elimination or Modification of Provisions of this Code

Licensees may petition IDA to eliminate or modify any provision of this Code. The Licensee shall specify the provisions of this Code that it seeks to have eliminated or modified and shall provide a clear statement of the reasons why the Licensee believes that such action is justified. The Licensee may propose alternative approaches that, if adopted, would achieve IDA's stated goals in a less burdensome manner.

1.5.6 Open and Reasoned Decision Making

IDA will apply the provisions of this Code in a transparent manner. IDA will provide an opportunity for public comment in connection with material issues. Except to the extent a Licensee indicates and IDA agrees that information submitted to IDA is confidential, proprietary, commercially sensitive or raises law enforcement or national security concerns, comments will be made available to the public. In arriving at its decisions, IDA will give full consideration to the comments received. IDA generally will make available to the public its directions adopted pursuant to this Code, and will clearly explain the basis for its action. Where feasible, IDA will make available its decisions and directions on its website (www.ida.gov.sg).

1.5.7 Avoidance of Unnecessary Delay

Recognising the need for Licensees to respond rapidly to changing market forces, IDA will strive to make all decisions and issue all directions pursuant to this Code within the timeframes specified herein and, in any case, as quickly as reasonably possible.

1.5.8 Non-discrimination

IDA's decisions and directions will be non-discriminatory. IDA will treat similarly situated Licensees on an equivalent basis. Where appropriate, IDA's decisions and directions will reflect relevant differences between Licensees or categories of Licensees.

1.5.9 Opportunity for Review

Any Licensee that is adversely affected by a decision rendered or direction issued by IDA pursuant to this Code will have the opportunity to ask IDA to reconsider its decision or direction. IDA will consider those objections or representations and, where appropriate, will modify its decision or direction. Notwithstanding the above, any party that is aggrieved by any decision or direction of IDA may, within 14 days of the date on which the decision or direction is issued, appeal to the Minister for Communications and Information Technology (“Minister”) under sections 27 (4) and 69 of the Telecommunications Act. Unless IDA orders otherwise, the Licensee shall comply with its decision or direction until such time, if any, as the Minister reverses or modifies the decision or direction.

1.6 Reservations of Authority

IDA reserves, among other things, the following rights:

1.6.1 Right to Grant Exemptions

Where good cause is shown, IDA may grant exemptions from specific provisions of this Code. Such exemptions may be applied to individual Licensees or to specified categories of Licensees. An exemption may be on a one-time basis, temporary, permanent, for a fixed period or effective until the occurrence of a specific event. Where appropriate, IDA may grant exemptions subject to compliance with specified conditions.

1.6.2 Right to Modify

IDA reserves the right to modify this Code on its own initiative at any time.

1.6.3 Right to Waive or Suspend Code Provisions Where Necessary in the Public Interest

IDA reserves the right to waive or suspend any provision of this Code in any situation in which such action is necessary in the public interest.

1.7 Rule of Construction

This Code is written in “plain English.” IDA intends for the provisions of this Code to be interpreted in a manner that is consistent with the ordinary meaning of the terms

used. In case of any ambiguity, IDA intends for this Code to be interpreted in the manner most consistent with the Regulatory Principles specified in subsections 1.5–1.5.9 of this Code.

1.8 Effective Date of this Code

This Code will come into effect 14 days after the date on which it is published in the *Gazette*.

1.9 Short Title

This Code may be referred to as the “Telecom Competition Code.”

2. CLASSIFICATION OF FACILITIES-BASED LICENSEES

2.1 Introduction

2.1.1 Application

This section applies only to Facilities-based Licensees. In this section, the term “Licensee” refers to Facilities-based Licensees.

2.1.2 Over-view

This Code distinguishes between Licensees that are subject to competitive market forces and Licensees whose conduct is not constrained adequately by competitive market forces. Because most Licensees are subject to competitive market forces, IDA will impose minimum regulatory “rules of the road,” coupled with the *ex post* enforcement of general prohibitions on anti-competitive conduct. By contrast, where a Licensee’s conduct is not constrained by competitive market forces, IDA will require it to comply with more stringent regulatory requirements.

2.2 Categories of Licensees

IDA will classify a Licensee as either a:

- (a) Non-dominant Licensee; or
- (b) Dominant Licensee.

2.2.1 Dominant Licensees

A Licensee will be classified as dominant if it controls facilities that provide a direct connection to end users within Singapore, regardless of the technology used, and:

- (a) the facilities are sufficiently costly or difficult to replicate that requiring new entrants to do so would create a significant barrier to rapid and successful entry by an efficient competitor; or
- (b) the Licensee has the ability to restrict output or raise prices above competitive levels for telecommunication services provided to end users over those facilities.

In addition to their other obligations, Dominant Licensees must comply with the special provisions governing Dominant Licensees set forth in subsections 3.3–3.3.5, section 5, and subsections 7.2–7.2.2.2 of this Code.

2.2.2 Non-dominant Licensees

Non-dominant Licensees are subject to competitive market forces. In the absence of evidence to the contrary, IDA will presume that all Licensees are non-dominant.

2.3 Designation of Dominant Licensees

By separate notice in the *Gazette*, IDA will list those Licensees classified as dominant and any exemptions to be granted.

2.4 Asset Transfers

A Dominant Licensee may not avoid the obligations specified in this Code by transferring ownership or control to another entity of facilities that the Dominant Licensee uses to provide telecommunication services and equipment to end users and interconnection to other Licensees.

2.5 Classification and Reclassification of Licensees

IDA will ensure that Licensees are classified appropriately. IDA will reclassify a Dominant Licensee as Non-dominant if IDA concludes, based on relevant evidence, that the Licensee no longer satisfies the conditions for dominant classification specified in either subsection 2.2.1 (a) or 2.2.1 (b). Classification and reclassification can occur in any of the following three ways:

2.5.1 Procedures

2.5.1.1 Grant or Renewal of the Licence

At the time it grants or renews a licence to a Licensee, IDA will make an assessment as to whether the Licensee is dominant or non-dominant.

2.5.1.2 Reclassification by IDA of a Licensee

Where appropriate, IDA may initiate a proceeding to reclassify a Licensee. In such cases, IDA will request the Licensee to provide information that will assist IDA in determining whether or not the Licensee meets the conditions specified in subsection 2.2.1 (a) or 2.2.1 (b) of this Code. Before reclassification IDA will seek public comments.

2.5.1.3 Petitions for Reclassification

A Licensee or other interested party may petition IDA to have a Licensee reclassified. A party seeking to have a Licensee reclassified must provide information demonstrating whether or not the Licensee meets the conditions specified in subsection 2.2.1 (a) or 2.2.1 (b) of this Code. Before acting on a petition for reclassification, IDA will seek public comments.

2.5.2 Evidence to be Considered

2.5.2.1 Ability of Competitors to Replicate Facilities

A party seeking to demonstrate whether or not a Licensee meets the conditions specified in subsection 2.2.1 (a) should submit verifiable data regarding: the facilities that the Licensee has deployed to connect to end users; the cost to a new entrant to deploy facilities that perform a comparable function; the extent to which such facilities are commercially available; the extent to which there are technical, economic or regulatory obstacles to the competitive deployment of such facilities; and the extent to which competitive deployment has occurred and is likely to occur within the foreseeable future.

2.5.2.2 Ability of Licensee to Restrict Output and Raise Prices

A party seeking to demonstrate whether or not a Licensee meets the conditions specified in subsection 2.2.1 (b) should submit verifiable data regarding: the relevant

market for the telecommunication services that the Licensee provides to end users; the participants in the market; the Licensee's market share; the level of concentration in the market; the likelihood of timely and sufficient increases in output (either through new entry or the deployment of additional output by current market participants) in response to a significant and non-transitory price increase by the Licensee; and the likelihood that end users would respond to a significant and non-transitory price increase by switching to a competing service provider.

2.6 Exemption from Application of Special Dominant Licensee Requirements

Dominant Licensees are subject to a number of special requirements. IDA recognises, however, that as competition develops, it may no longer be necessary to apply each of these requirements to every facility operated and/or service provided by the Dominant Licensee. IDA therefore will consider requests from Dominant Licensees to exempt them from specific requirements.

2.6.1 Request for Exemption

A Dominant Licensee that seeks exemption from any special requirements applicable to such Licensees should submit an application to IDA that identifies the specific provisions (with subsection numbers) of this Code from which the Licensee seeks exemption. The Dominant Licensee must demonstrate that continued application of the provision to a specific facility and/or service is not necessary to protect end users or promote and preserve effective competition amongst Licensees. The Dominant Licensee must provide verifiable data to support its request.

2.6.2 IDA Review

IDA generally will provide an opportunity for public comment before granting any request for exemption from any special requirements applicable to Dominant Licensees. IDA will seek to issue an order granting or denying such requests within 90 days of receiving the request.

3. DUTY OF LICENSEES TO THEIR END USERS

3.1 Introduction

3.1.1 Application

All provisions in this section apply to Dominant Facilities-based Licensees. In this section, the term “Dominant Licensee” refers to Facilities-based Licensees that IDA has classified as dominant. Subsections 3.1–3.2.7 also apply to Non-dominant Facilities-based, Services-based, and Telecommunication Equipment Dealer Licensees. In these subsections, the term “Licensee” refers to Facilities-based, Services-based and Telecommunication Equipment Dealer Licensees. This section governs the relationship between Licensees and their customers that are business or residential end users (“End Users”). This section does not govern the relationship between a Licensee that purchases telecommunication service and equipment from another Licensee to provide telecommunication service and equipment to third parties.

3.1.2 Over-view

The growth of competition will provide End Users with increased choice amongst Licensees. In competitive markets, market forces, augmented by the minimal requirements and prohibitions contained in this section, will generally be sufficient to ensure that Licensees provide telecommunication services to End Users on just, reasonable and non-discriminatory terms. Where a Licensee is not subject to effective competition, however, IDA will require it to comply with more stringent requirements designed to replicate the operation of a competitive market.

3.2 Duties of All Licensees

Licensees shall include in any agreements with their End Users provisions that obligate the Licensee to embody the applicable requirements contained in this section.

3.2.1 Duty to Comply with Minimum Quality of Service Requirements

Licensees must comply with any applicable minimum quality of service standards issued by IDA. Licensees must make publicly available, no less than once each year, in a format that can be understood easily by End Users, a statement of the extent to which the Licensee has met all applicable IDA quality of service standards. A Licensee and an End User (except an End User that is a residential customer) may agree to a lower quality of service standard. In such cases, the Licensee must inform the End Users of the service level that it will provide and the fact that it does not comply with IDA's minimum quality of service standards.

3.2.2 Duty to Provide Periodic, Accurate and Timely Bills

Licensees must provide End Users with periodic, accurate and timely bills. In particular, Licensees must comply with the following requirements:

3.2.2.1 Advanced Disclosure of All Prices, Terms and Conditions

Licensees must disclose to End Users, in advance, the price and non-price terms governing the provision of telecommunication services or equipment. A Dominant Licensee must disclose this information by publishing in a form available to the public any tariff approved by IDA. Whilst other Licensees may not file tariffs, they must publish the prices, terms and conditions for their standard telecommunication services or equipment offerings.

3.2.2.2 Billing Timeliness

Licensees must provide End Users with statements of charges in a timely manner. Where a Licensee provides telecommunication services or equipment for which the End User must make recurring payments, unless otherwise agreed to by the Licensee and the End User, invoices shall be sent monthly.

3.2.2.3 Billing Clarity

All statements of charges must be clear and concise. In particular, the statements must list, in easy-to-understand terms, the charges for each telecommunication service or equipment provided.

3.2.2.4 Compliance with Tariff or Contract Rates

The statement of charges must reflect the prices, terms and conditions previously specified by the Licensee under subsection 3.2.2.1.

3.2.2.5 No Charges for Unsolicited Telecommunication Services or Equipment

A Licensee may charge an End User only for the specific telecommunication services or equipment that the End User has ordered. In addition to any sanctions that IDA may impose, the End User shall have no liability to pay for any telecommunication services or equipment that the End User has not ordered.

3.2.2.6 No Charges by Unauthorised Providers

No Licensee may switch an End User from one Licensee's telecommunication service to another Licensee's telecommunication service without the prior consent of the End User. In addition to any sanctions that IDA may impose, the End User shall have no liability to pay for any telecommunication services provided by a Licensee from which the End User has not requested services. The Licensee shall also bear any cost necessary to switch the End User back to the End User's original telecommunication service provider.

3.2.3 Duty to Provide Procedures to Contest Charges

Licensees must provide procedures that will allow an End User to dispute any charge for telecommunication services or equipment that the End User reasonably believes to be incorrect. These procedures must, at a minimum, include the following, unless the Licensee and the End User (except an End User that is a residential customer) agree otherwise:

3.2.3.1 Right to Withhold Payment

The End User must pay the undisputed amount of the bill, but must not be required to pay any reasonably disputed amounts pending the resolution of the dispute. Should the End User ultimately be found liable for the payment, the End User will be required to pay the amount due, reasonable compensation for the Licensee's arbitration,

litigation and collection expenses, plus interest. The rate of interest must be set at a commercially reasonable amount, which will be specified in advance by the Licensee.

3.2.3.2 Initiation of Challenge

If the End User intends to withhold payment, the End User must inform the Licensee of any disputed charge prior to the date on which payment becomes due. An End User that pays an invoice and subsequently chooses to contest the invoice must have no less than one year in which to do so.

3.2.3.3 Licensee Review

The Licensee must conduct a complete and objective review of the End User's complaint, and must provide a written response, within 30 days of receiving notification that the End User is contesting a charge.

3.2.3.4 Conciliation

In appropriate cases, IDA will assist the parties in resolving billing or other service-related disputes.

3.2.3.5 Private Dispute Resolution

If the parties are unable to resolve the dispute, they may refer the matter to the Small Claims Tribunal, if the matter is within that body's jurisdiction. Otherwise, the parties may submit the dispute to arbitration or to any court of competent jurisdiction.

3.2.4 Suspension or Termination of Service by Licensee

A Licensee that provides a telecommunication service or that leases telecommunication equipment must specify prominently in the service agreement or equipment lease:

- (a) any basis on which it reserves the right to suspend or terminate that service agreement or equipment lease and
- (b) the procedures for providing the End User with advance notice of any proposed suspension or termination, the basis for the action and the means by which the End User can avoid such suspension or termination.

A Licensee must obtain IDA's written approval before adopting or revising any provision that would allow it to suspend or terminate a service agreement or equipment lease. IDA will not permit any Licensee to suspend or terminate a

service agreement or equipment lease on the ground that the End User is using the service or equipment to engage in illegal or improper activities. Instead, in such a situation, the Licensee should inform the relevant authority and act in conformity with that authority's directions or guidelines.

3.2.5 Prohibition on Excessive Early Termination Liabilities

Licensees may enter into agreements under which they provide an End User with a discount or special considerations in return for the End User's agreement to commit to a minimum service or lease duration period and/or a minimum revenue commitment. Such agreements may contain provisions providing for termination liability in the event that the End User ends the agreement prior to the agreed upon termination date. However, the amount of any early termination liability must be reasonably related to the extent of the discount or special considerations that the Licensee has provided and the duration of the period during which the End User took service or lease.

3.2.6 Duty to Protect End User Service Information

Licensees have a duty to protect End User Service Information ("EUSI").

3.2.6.1 Definition

EUSI consists of all the information that a Licensee obtains as a result of an End User's use of a telecommunication service or equipment provided by the Licensee. This includes, but is not limited to, information regarding: the End User's calling patterns (including number of calls, times of calls, duration of calls and parties called); the services or equipment used by the End User; the End User's telephone number and network configuration; and the End User's billing name, address and credit history.

3.2.6.2 Restriction on Use

Unless the End User has provided authorisation as provided for in subsection 3.2.6.3 of this Code, the Licensee may use EUSI only for the purposes of: planning, provisioning and billing for any telecommunication services or equipment provided by the Licensee; managing

bad debt and preventing fraud; facilitating interconnection and inter-operability between Licensees; or providing assistance to law enforcement or other government agencies. Licensees shall adopt appropriate procedures to ensure that, unless the End User has provided authorisation, they do not use EUSI for the development or marketing of other goods or services, and that this information is not provided to affiliates or third parties.

3.2.6.3 End User Authorisation

An End User will be presumed to have withheld consent from the Licensee to use its EUSI for any purpose other than those specified in subsection 3.2.6.2 of this Code unless the End User affirmatively consents to do so. At the time a Licensee enters into a service agreement (or, for those Licensees that currently provide service or lease equipment, within 180 days of the effective date of this Code), the Licensee shall seek to obtain the consent of the End User to use its EUSI for any lawful purpose. Licensees must also develop, and inform their End User, of easy-to-use procedures by which an End User can subsequently grant or withdraw consent.

3.2.7 Reporting Requirement

Licensees must submit to IDA and make publicly available, on no less than on a quarterly basis, a report indicating the number of complaints that they have received from their End Users during the reporting period. IDA reserves the right to specify the format that Licensees must use.

3.3 Special Duties of Dominant Licensees

Dominant Licensees must comply with the following additional requirements:

3.3.1 Duty to Provide Service on Demand

A Dominant Licensee must provide telecommunication service to any End User upon reasonable request.

3.3.2 Duty to Provide Service at Just and Reasonable Prices, Terms and Conditions

A Dominant Licensee must provide telecommunication services at prices, terms and conditions that are just and reasonable.

3.3.3 Duty to Provide Service on a Non-discriminatory Basis

A Dominant Licensee must provide telecommunication services to End Users at prices, terms and conditions that are not discriminatory. This requires that, except where otherwise permitted or required by IDA, differences in the prices, terms and conditions for comparable service provided to different End Users must be based on objective differences, such as but not limited to variations in the cost of the service provided, variations in the quantity or quality of service provided or variations in the duration of the service agreement period. A Dominant Licensee must not discriminate in favour of a subsidiary, affiliate, or related entity. In particular, the Dominant Licensee must provide telecommunication service to such entities pursuant to the prices, terms and conditions contained in its effective tariffs.

3.3.4 Duty to File and Provide Service Pursuant to Tariffs

Prior to offering any new End User telecommunication service (including new services offered to a limited number of End Users on a trial basis) or modifying an existing telecommunication service offering, or offering or modifying a promotion, a Dominant Licensee must file a tariff with IDA and obtain IDA's written approval. A Dominant Licensee must provide telecommunication services at the prices, terms and conditions specified in its approved tariffs. Dominant Licensees may develop offerings to meet the specific needs of individual End Users for telecommunication services. The Dominant Licensee must file a tariff embodying the prices, terms and conditions of the offering, and must make those prices, terms and conditions available (subject to reasonable modification) to any other End User upon request.

3.3.4.1 Information to be Included

The tariff must contain a clear statement of the prices, terms and conditions on which the telecommunication service will be offered. The tariff must list any discounts or special considerations that the Dominant Licensee will offer and the requirements that must be satisfied (such as

minimum volume or term requirements) to obtain those discounts. The tariff must also indicate the minimum period of time, if any, during which the Dominant Licensee will not increase the filed rates. The tariff filing must be self-contained (i.e., it must not make reference to any other document) and must include charges for any telecommunication service or equipment not generally subject to tariff regulation when offered as part of a package. The tariff filing must be accompanied by a memorandum that describes the proposed offering or modification and provides sufficient information to demonstrate that the proposed offering or modification satisfies the criteria specified in subsection 3.3.4.2 of this Code.

3.3.4.2 Review Criteria

IDA will review the tariff filing. As part of its review, IDA will seek to determine whether or not the proposed prices, terms and conditions are just and reasonable. This will include an assessment of whether the proposed prices, terms and conditions are either excessive or inadequate. To assess whether the proposed prices are excessive, IDA will determine whether the prices are competitive with those in a “basket” of jurisdictions, including neighbouring countries, newly industrialised countries, and major financial markets. To determine whether the proposed prices are inadequate, IDA will assess whether the proposed prices are either: (a) above marginal cost or (b) not less than those offered by Licensees that provide a comparable service. IDA will also seek to determine whether the proposed prices, terms and conditions are not discriminatory by comparing the proposed prices, terms and conditions to those that the Dominant Licensee offers in other tariffs for comparable telecommunication services.

3.3.4.3 Review Procedures

In general, within 7 working days, IDA will either accept or reject the tariff. This period is shortened to 5 working days for joint promotional offerings or 3 working days for stand-alone promotions. A working day means Monday through Saturday, except public holidays. If IDA rejects

the filing, it will provide a statement of the basis for its rejection. Where IDA determines that it would be beneficial, however, it may take any of the following actions: (a) extend the review period; (b) seek public comments; and/or (c) allow the tariff to go into effect on an interim basis, subject to retroactive adjustment if IDA concludes that any price, term or condition in the tariff contravenes this Code.

3.3.4.4 Status of Effective Tariffs

Once IDA allows a tariff to go into effect, IDA will presume that the prices, terms and conditions are just, reasonable and non-discriminatory. IDA may review the tariff periodically to determine whether the prices, terms and conditions remain just, reasonable and non-discriminatory, and may direct the Dominant Licensee to make appropriate adjustments. In addition, any person that believes that the prices, terms and conditions on which a Dominant Licensee is providing telecommunication services are unjust, unreasonable or discriminatory may petition IDA to review these provisions. The petitioner must provide the basis for its belief. IDA may also take enforcement action if it concludes that an effective tariff or the Dominant Licensee's implementation of the tariff contravenes subsections 7.2–7.2.2.2 of this Code.

3.3.5 Duty to Provide Unbundled Telecommunication Services

A Dominant Licensee must provide telecommunication services on an unbundled basis. The Dominant Licensee must not require an End User that wants to purchase a tariffed telecommunication service to purchase any other telecommunication service or equipment as a condition for purchasing the tariffed telecommunications service. However, the Dominant Licensee may offer End Users the option of purchasing a package that contains telecommunication services subject to tariff regulation and other telecommunication services or equipment not generally subject to tariff regulation.

4. REQUIRED COOPERATION AMONGST LICENSEES TO PROMOTE COMPETITION

4.1 Introduction

4.1.1 Application

All provisions in this section apply to Facilities-based Licensees. All provisions in this section except subsections 4.2.3, 4.2.4 and 4.6.5 apply to Services-based Licensees that use switching or routing equipment to provide telecommunication services to the public. In this section, the term “Licensee” refers to Facilities-based Licensees and Services-based Licensees that use switching or routing equipment to provide telecommunication services to the public. The term “Dominant Licensee” refers to a Facilities-based Licensee that IDA has classified as dominant.

4.1.2 Over-view

In order to ensure the deployment of an integrated “network of networks” that provides seamless any-to-any communications throughout Singapore, Licensees are required to co-operate with each other in the manner specified in this section.

4.2 Minimum Interconnection Duties

Licensees must fulfil the following Minimum Interconnection Duties:

4.2.1 Duty to Interconnect With Other Licensees

Licensees have a duty to interconnect with other Licensees. Interconnection may be either direct or indirect. If neither Licensee is a Dominant Licensee, Licensees may agree to interconnect on any mutually agreeable terms, provided they comply with the Minimum Interconnection Duties specified in subsections 4.2–4.2.8 of this Code. IDA generally will not involve itself in interconnection negotiations between Non-dominant Licensees. Any agreement governing direct interconnection between Licensees shall be embodied in a written agreement (“Interconnection Agreement”).*

* Additional requirements applicable to Interconnection Agreements involving Dominant Licensee are contained in section 5 of this Code.

4.2.2 Duty to Establish Compensation Agreements for the Origination, Transit and Termination of Telecommunication Traffic

A Licensee must establish compensation arrangements with wireline Licensees that originate, transit or terminate the Licensee's telecommunication traffic. The Licensees may enter into any mutually acceptable compensation arrangements (including bill-and-keep arrangements).

4.2.3 Duty to Provide Non-discriminatory Interconnection Quality

Unless the parties agree otherwise, a Facilities-based Licensee that provides direct interconnection to other Licensees shall provide sufficient points of interconnection and take other measures to ensure that, on a service-by-service basis, the services that it provides to other Licensees under any Interconnection Agreement ("Interconnection Related Services") are at least equivalent in quality to the quality that the Licensee provides to itself, its affiliates or to any other Licensee.

4.2.4 Duty to Prevent Technical Harm to the Network

A Facilities-based Licensee that directly interconnects with another Licensee shall take reasonable measures to ensure that the interconnection does not cause physical or technical harm to the other Licensee's network.

4.2.5 Duty to Provide Billing Information

Unless the parties agree otherwise, a Licensee must provide to any Licensee with which it interconnects information within its possession that is necessary to allow the interconnecting Licensee to provide accurate and timely billing services to itself, its affiliates or other Licensees.

4.2.6 Duty to Preserve Confidential Information Provided by Other Licensees

Licensees must protect from disclosure any confidential or proprietary information provided by another Licensee in the course of negotiating or implementing an Interconnection Agreement. Licensees may use such information only for the provision of the specific

Interconnection Related Services requested. Licensees shall adopt appropriate procedures to ensure that the information is not used for the development or marketing of other telecommunication services or equipment by the Licensee, its affiliates or third parties.

4.2.7 Duty to Comply with Singapore Law

All Interconnection Agreements must be governed by the laws of the Republic of Singapore.

4.2.8 Duty to Submit to IDA All Interconnection Agreements

Licensees must submit to IDA a copy of all Interconnection Agreements into which they enter. An Interconnection Agreement between Non-dominant Licensees may provide that it will be effective upon submission to IDA. If the Licensees include such a provision, they must further provide that the Interconnection Agreement will remain effective unless IDA informs the Licensees, in writing, within 15 days of the date of submission that it rejects the agreement. Where neither party is a Dominant Licensee, IDA will not reject any Interconnection Agreement that fulfils the Minimum Interconnection Duties specified in subsections 4.2–4.2.8 of this Code. IDA will not publicly disclose such Interconnection Agreements.

4.3 Enforcement of Interconnection Agreements

Once an Interconnection Agreement becomes effective, IDA generally will not involve itself in the day-to-day implementation of the Interconnection Agreement.

4.3.1 Duty to Co-operate

Licensees have a duty to co-operate, in good faith and in a commercially reasonable manner, in implementing the terms of their Interconnection Agreements, avoiding unnecessary disputes and resolving disputes promptly and fairly.

4.3.2 IDA Conciliation

Where Licensees are unable to resolve disputes regarding the implementation of an Interconnection Agreement, they may jointly request IDA to provide assistance in resolving the disputes. Licensees seeking conciliation must submit a joint statement describing the disputed issues and

the position of each party. IDA will seek to accommodate such requests, where appropriate. IDA's role in any conciliation procedure will be to assist the Licensees to reach a mutually acceptable solution, rather than advocating any specific position.

4.3.3 Private Enforcement

Interconnection Agreements are private contracts between the Licensees. If the Licensees are unable to resolve any dispute regarding the implementation of an Interconnection Agreement, they may agree to binding arbitration or may seek relief from a court of competent jurisdiction. To the extent that the dispute turns on an interpretation of the Telecommunications Act, IDA regulations, directions or decisions, or the provisions of this Code, Licensees may ask IDA to provide an interpretation.

4.4 Modification, Suspension or Termination of Interconnection Agreements by Mutual Agreement

Whilst Interconnection Agreements will generally remain effective throughout their specified term, IDA recognises that there may be situations in which the parties will agree to modify, suspend or terminate such Interconnection Agreements. The following provisions govern modification, suspension or termination of such Interconnection Agreements:

4.4.1 Notification to IDA

Except where imminent threats to life or property or compliance with other legal or regulatory obligations require immediate action, prior to modifying, suspending or terminating an Interconnection Agreement by mutual agreement, the Licensees must inform IDA in writing of the actions they propose to take and the reasons why they believe the action is appropriate.

4.4.2 Review by IDA

Where both Licensees agree to modify the Interconnection Agreement, the parties may agree that the modification will become effective upon notification to IDA. If the Licensees include such a provision, they must further provide that the modification will remain effective unless

IDA informs the Licensees within 15 days from the date of notification that the Interconnection Agreement, as modified, no longer complies with the Minimum Interconnection Duties specified in subsections 4.2–4.2.8 of this Code and, if either Licensee is dominant, that it discriminates against any other Licensee. Where both Licensees agree to suspend or terminate the Interconnection Agreement, they may do so upon submission of notification to IDA.

4.4.3 IDA Authorisation

Every Interconnection Agreement must include a statement of the bases, if any, for which unilateral suspension or termination will be permitted. This can include situations where: one party has materially breached the agreement including, but not limited to, repeated failure to make required payments; one party has become insolvent; continued operation of the agreement would be unlawful; or continued operation of the agreement would pose an imminent threat to life or property. Every Interconnection Agreement must further provide that any unilateral suspension or termination, unless by operation of law, will only become effective when, and to the extent that, it is approved by IDA.

4.4.4 Approval by IDA

Except where imminent threats to life or property or compliance with other legal or regulatory obligations requires immediate action, prior to unilaterally suspending or terminating an Interconnection Agreement, the Licensee that seeks to take such action must seek IDA's written approval of the action it proposes to take and the reason why it believes such action is appropriate. Upon reviewing such proposal, IDA will provide the other Licensee, and any other interested parties, with an opportunity to submit their views regarding the proposed suspension or termination of the Interconnection Agreement. IDA will issue an order, within 45 days of the initial notification, granting or denying, in whole or in part, the request.

4.5 Status of Agreements Entered Into Prior to the Effective Date of this Code

Any agreement for the purpose of physically connecting telecommunication networks, exchanging telecommunication traffic and/or providing related services entered into prior to the effective date of this Code (“Pre-Code Agreement”) shall remain in force. To the extent that any Pre-Code Agreement provides that the parties will modify the Pre-Code Agreement if IDA adopts a new Code, issues a Direction, or takes any other action that alters the rights and obligations of the Licensees regarding the matters addressed by the Agreement, IDA intends that the adoption of this Code and the issuance of the accompanying direction to Licensees to comply with this Code, constitutes the requisite action.

4.6 Other Duties

Even in the absence of an Interconnection Agreement, all Licensees have the following duties:

4.6.1 Duty to Disclose Interfaces

A Licensee must make publicly available, in a clear format and in sufficient detail, any physical and logical interfaces of its network necessary to allow the development and deployment of telecommunication services, value-added services and telecommunication equipment that can interconnect to, and interoperate with, that Licensee’s network. A Licensee must also make publicly available, not less than 6 months prior to deployment, any changes in logical or physical interfaces that could materially affect existing interconnection arrangements. A Licensee may not disclose this information to any affiliated entity, whether licensed or not, prior to the time that the Licensee makes this information available to the public.

4.6.2 Duty to Comply With Mandatory Technical Standards

IDA recognises the potential benefits of adoption of technical standards. IDA will consult with the telecommunication industry to determine when such technical standards should be made mandatory. Licensees must comply, within a reasonable period, with

any applicable mandatory technical standard adopted by IDA or, in the absence of such technical standards, with the technical standards adopted by the International Telecommunication Union (“ITU”). In the absence of an IDA or ITU technical standard, Licensees may provide any service or deploy any equipment that: complies with a technical standard adopted by an official standards setting body; complies with an established industry specification; or has been deployed by another Licensee.

4.6.3 Duty to Facilitate Change of Service Providers

Licensees must take any reasonable action necessary to allow an End User that chooses to obtain service from a different Licensee to do so with minimum difficulty. This includes the duty, where technically feasible, to allow the End User to retain the same telephone number or network address and to continue to receive service using the same local loop.

4.6.4 Duty to Assist in the Provision of Integrated Printed Directories and Directory Enquiry Service

A wireline Licensee must exchange the name, address and telephone number of its End Users with other wireline Licensee for the purpose of providing integrated printed directories and directory enquiry services. Licensees must update this information periodically. Licensees may impose a one-time, cost-based charge for each listing or update. Licensees receiving this information may use it solely for the purpose of providing printed directories or directory enquiry services. In particular, Licensees receiving this information may not use this information for marketing or other competitive purposes.

4.6.5 Duty to Reject Discriminatory Preferences Regarding Support Facilities

A Facilities-based Licensee that is affiliated, directly or indirectly, with a non-licensed entity that controls towers, ducts, conduits or similar support facilities may not request or accept access to those facilities and any related services on prices, terms and conditions that are not available to all Facilities-based Licensees.

4.6.6 Duty to Reject Discriminatory Preferences Regarding Space and Support at End User Premises

A Licensee may not accept any special preference from a building owner or manager regarding the provision of space or support for the Licensee's network equipment, where such preference would as a practical matter preclude additional Licensees from providing competing telecommunication service to the building occupants. In addition, a Licensee that places in the common space in a building equipment used to provide telecommunication service must, upon request from another Licensee that wants to place its equipment in the same space, take reasonable measures to allow the Licensee to share the available space, when necessary to allow the competitive provision of telecommunication services. This may include reconfiguring its equipment in a manner that optimises the use of the common space.

5. INTERCONNECTION WITH DOMINANT LICENSEES

5.1 Introduction

5.1.1 Application

All provisions in this section apply to Dominant Facilities-based Licensees. All provisions in this section except subsections 5.3.1–5.3.5.8 apply to Non-dominant Facilities-based Licensees and Services-based Licensees that use switching or routing equipment to provide telecommunication services to the public. In this section, the term “Licensee” refers to Facilities-based Licensees and Services-based Licensees that use switching or routing equipment to provide telecommunication services to the public. The term “Dominant Licensee” refers to Facilities-based Licensees that IDA has classified as dominant.

5.1.2 Over-view

IDA strongly encourages Licensees to enter into Interconnection Agreements through commercial negotiations. IDA recognises, however, that Dominant Licensees lack the economic and commercial incentives to enter voluntarily into Interconnection Agreements with

competing Licensees. Consequently, IDA cannot rely solely on market forces to ensure that these Licensees enter into Interconnection Agreements. IDA, therefore, will take a more active role in ensuring the adoption of just, reasonable and non-discriminating Interconnection Agreements involving a Dominant Licensee.

5.2 Options for Entering into an Interconnection Agreement

A Licensee (“Requesting Licensee”) that seeks to interconnect with a Dominant Licensee may, at its option, do so pursuant to the terms of: (a) an approved Reference Interconnection Offer (“RIO”) extended by the Dominant Licensee (*see* subsection 5.3); (b) any existing Interconnection Agreement between the Dominant Licensee and any similarly situated Licensee (*see* subsection 5.4); or (c) an individualised agreement between the Dominant and Requesting Licensees (*see* subsection 5.5).

5.3 Option One: Interconnection Pursuant to an Approved Reference Interconnection Offer

A Requesting Licensee may obtain interconnection with a Dominant Licensee on the terms specified in the RIO developed by the Dominant Licensee and approved by IDA.

5.3.1 Duty to Develop a Reference Interconnection Offer

Within 30 days of the effective date of this Code, Dominant Licensees must submit a proposed RIO to IDA for approval.

5.3.2 Contents of the Offer

The RIO must contain a comprehensive and complete written statement of the prices, terms and conditions on which the Dominant Licensee is prepared to provide Interconnection Related Services to any Requesting Licensee. The RIO must be clearly written and must be organised in a logical and consistent manner. The RIO must include a complete technical description of the Interconnection Related Services offered, the prices, terms and conditions for such services, the procedures that will be used to order and provide such services, and the timeframes that will apply. The RIO must be modular,

allowing a Requesting Licensee to purchase only those Interconnection Related Services that it wants to obtain. The RIO must be sufficiently detailed to enable a Requesting Licensee that is willing to accept its prices, terms and conditions to obtain Interconnection Related Services without having to engage in negotiations with the Dominant Licensee. If a Requesting Licensee accepts the RIO, further discussions will be limited to implementing the accepted prices, terms and conditions. Such discussions should last no more than 30 days. At a minimum, the RIO must contain the following:

- (a) a list and description of the physical locations at which a Requesting Licensee may interconnect and the means by which interconnection may be achieved;
- (b) a description of the physical and logical interfaces to the Dominant Licensee's network that are necessary to allow physical interconnection and access to Unbundled Network Elements, Unbundled Network Services and Essential Support Facilities and the procedures to be used if the Dominant Licensee chooses to alter those interfaces;
- (c) a description of the quality of service that the Dominant Licensee will provide — including the means by which quality of service will be measured, any short-comings corrected, and the manner in which the Requesting Licensee will be compensated for any adverse impact resulting from the Dominant Licensee's material failure to meet the quality of service standards;
- (d) a description of any operational and technical requirements that the Requesting Licensee must comply with to avoid harm to the Dominant Licensee's network;
- (e) a description of the means by which the Dominant Licensee will provide information (including call type, duration, and points of origination and termination) necessary to allow the Requesting Licensee to bill for telecommunication services that it provides to its End Users;

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- (f) a statement of the terms on which the Dominant Licensee will protect confidential information provided by the Requesting Licensee, and the terms on which the Dominant Licensee requires the Requesting Licensee to protect its confidential information, in connection with any Interconnection Agreement — including a description of the standards to be used to determine whether information is confidential;
 - (g) a description of the means by which the Dominant Licensee will work with the Requesting Licensee to enable its End Users to keep their current telephone numbers or network address if they switch to the telecommunication services provided by the Requesting Licensee;
 - (h) a list and description (including prices, terms and conditions) of the origination, transit and termination services that the Dominant Licensee will provide and the terms on which the Dominant Licensee and the Requesting Licensee will be compensated for such services;
 - (i) a list and description (including prices, terms and conditions) of the Unbundled Network Elements and Unbundled Network Services that the Dominant Licensee will provide to Facilities-based Requesting Licensees — including any modifications that the Dominant Licensee is prepared to make and the extent to which the Dominant Licensee is prepared to combine individual elements;
 - (j) a description (including pricing) of the means by which a Facilities-based Requesting Licensee can physically co-locate equipment within the Dominant Licensee's network — including the locations at which physical co-location is available, the amount of space available at each location, any reasonable restrictions or procedures that the Dominant Licensee intends to impose due to space, safety or security concerns, the situations in which virtual (distant) co-location will be required and the prices, terms and conditions under which virtual co-location will be provided;

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- (k) a list and description (including prices, terms and conditions) of the Essential Support Facilities that the Dominant Licensee is prepared to make available to any Facilities-based Requesting Licensee;
 - (l) a list and description (including prices, terms and condition) of the telecommunication services offered to End Users that the Dominant Licensee will offer Facilities-based Requesting Licensees at wholesale prices;
 - (m) a description of the means by which a Requesting Licensee can order currently available Interconnection Related Services on an unbundled basis — including the contact person, the expected number of days from order to provisioning, the means by which provisioning will be monitored (including quality of service testing procedures), the procedures for reporting operational and technical problems, the procedures and timeframes for correcting any such problems and the means by which the Dominant Licensee will compensate the Requesting Licensee for any material adverse impact resulting from unreasonable delays;
 - (n) the means by which the Requesting Licensee can request additional Interconnection Related Services not currently specified in the RIO — including the timeframe, procedures, processes and standards that the Dominant Licensee will use to assess such requests;
 - (o) a list and description of any reasonable restrictions or conditions that the Dominant Licensee intends to impose on the terms of the offer contained in the RIO — including any situations in which capacity, technical or operational constraints will limit the ability of the Dominant Licensee to meet requests for Interconnection Related Services and any situation in which a Dominant Licensee will not offer (or will limit or condition an offer) of interconnection to a Licensee or class of Licensees;

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- (p) a statement regarding the duration of the proposed Interconnection Agreement, the means by which it can be amended, the impact of any change in governing law (including modifications of this Code) will have on the terms of the Interconnection Agreement and a statement that either Licensee may assign its right to performance;
 - (q) a provision stating that the Licensees will refer disputes regarding interconnection arising from the implementation of the Interconnection Agreement to IDA for resolution and to seek IDA's written approval before unilaterally suspending or terminating the Interconnection Agreement; and
 - (r) statements that: if the RIO is accepted, the Interconnection Agreement will constitute the entire agreement between the Licensees: if any provision of the Interconnection Agreement is held to be unlawful or is required to be amended, that all other provisions of the agreement will survive; and any disputes between the Licensees will be governed by the laws of Singapore, including this Code.

5.3.3 Model Confidentiality Agreement

Within 15 days of the effective date of this Code, the Dominant Licensees must submit a Model Confidentiality Agreement. The Model Confidentiality Agreement will contain provisions, which must be no broader than necessary to protect Licensees' legitimate commercial interests, governing preservation of proprietary or commercially sensitive information disclosed by either party during any negotiation related to the adoption of an individualised Interconnection Agreement. This must include provisions barring either Licensee from disclosing confidential information to affiliates or third parties, except to the extent necessary to adopt and implement the Interconnection Agreement under negotiation. IDA will provide 10 days for public comment and, within 21 days after submission of the proposed Model Confidentiality Agreement, will accept, reject or require modification of

the proposed Model Confidentiality Agreement. The Licensee will have 7 days from the date IDA provides notification to submit a revised proposed Model Confidentiality Agreement that incorporates the modifications required by IDA. IDA will have 7 days from the date on which it receives the revised proposed Model Confidentiality Agreement to approve the Model Confidentiality Agreement or direct the Licensee to incorporate specific language. A Dominant Licensee must notify IDA and obtain IDA's written approval before making any changes to its Model Confidentiality Agreement.

5.3.4 IDA Review

IDA will review the proposed RIO to determine whether it satisfies the Minimum Interconnection Duties specified in subsections 4.2–4.2.8 of this Code, contains all elements specified in subsection 5.3.2 of this Code, fulfils the Minimum Requirements specified in subsections 5.3.5–5.3.5.8 of this Code, and serves the public interest. IDA will promptly seek public comments regarding the proposed RIO, which must be filed within 15 days from the date on which IDA seeks comments. If IDA does not act within 30 days of the date on which it received the proposed RIO, the proposed RIO will be deemed approved unless, prior to the 30th day, IDA notifies the Licensee that it requires an additional 15 days for its review. If IDA rejects any portion of the proposed RIO, it will provide the Licensee with a written explanation of the basis for the rejection and the modifications required to bring the proposed RIO into compliance with IDA's requirements. The Licensee will have 15 days from the date IDA provides notification to submit a revised proposed RIO that incorporates the modifications required by IDA. IDA will have 15 days from the date on which it receives the revised proposed RIO to approve the RIO or direct the Licensee to incorporate specific language. A Dominant Licensee must notify IDA and obtain IDA's written approval before making any changes to its RIO.

5.3.5 Minimum Requirements of the RIO

In addition to the Minimum Interconnection Duties specified in subsections 4.2–4.2.8 of this Code, the RIO must satisfy the following minimum requirements:

5.3.5.1 Absolute Prohibition on Discrimination in Favour of Affiliates

A Dominant Licensee must offer to provide all Interconnection Related-Services to a Requesting Licensee on prices, terms and conditions that are no less favourable than the prices, terms and conditions on which it provides comparable services to itself or its affiliates.

5.3.5.2 Physical Interconnection at Any Technically Feasible Location

A Dominant Licensee must offer to allow the physical linking of facilities-based networks at any technically feasible point. The procedures governing interconnection including the minimum points of interconnection are specified in Appendix Two. Both Licensees must provide adequate capacity to meet reasonably forecast traffic flow.

5.3.5.3 Provision of Unbundled Network Elements and Unbundled Network Services

A Dominant Licensee must offer to allow Facilities-based Requesting Licensees to lease, on an unbundled basis, those elements and services of the Dominant Licensee's network (Unbundled Network Elements ("UNEs") and Unbundled Network Services ("UNSSs")) that are necessary to provide a competing telecommunication service offering. The Facilities-based Requesting Licensee must be allowed to combine the UNEs and UNSSs with its own facilities. IDA will consider an element or service necessary if it is technically or operationally required to provide the competing service and cannot be replicated, or obtained from any sources other than the Dominant Licensee, at commercially reasonable rates. The minimum elements and services that must be offered as UNEs and UNSSs and the prices, terms and conditions at which they must be offered are specified in Appendix Two. Upon request, the Dominant Licensee must take reasonable measures to provide UNEs and UNSSs in a manner that will facilitate their

use by Facilities-based Requesting Licensees including conditioning, provisioning and combining the UNEs and UNSs in an efficient manner.

5.3.5.4 Provision of Essential Support Facilities

A Dominant Licensee must offer to provide Facilities-based Requesting Licensees with access to Essential Support Facilities (“ESFs”). The minimum ESFs that must be made available and the prices, terms and conditions on which they must be offered are specified in Appendix Two.

5.3.5.5 Co-location

A Dominant Licensee must offer to allow Facilities-based Requesting Licensees to co-locate equipment at any technically feasible location within the Dominant Licensee’s network pursuant to the following provisions, which are further elaborated in Appendix Two:

5.3.5.5.1 Physical Co-location, Where Feasible

A Dominant Licensee must offer to allow a Facilities-based Requesting Licensee, to the extent feasible, to physically place its equipment at locations (such as the exchange or remote terminals) within, above or adjacent to the Dominant Licensee’s network. Subject to the provisions of subsection 5.3.5.5.5 of this Code, the Dominant Licensee must allow the Facilities-based Requesting Licensee to have full access (7 days per week, 24 hours per day) to, and physical control over, the equipment. If physical co-location is not feasible, due to actual space constraints or technical or operational considerations, the Dominant Licensee must allow virtual (distant) co-location, in which the Facilities-based Requesting Licensee locates its equipment in a nearby building and uses an interconnection cable to connect to the Dominant Licensee’s network.

5.3.5.5.2 Space Limitations

A Dominant Licensee that claims that space is not available for physical co-location must verify to IDA’s satisfaction that it has taken reasonable measures to provide adequate space. This may include the re-arrangement of the

Dominant Licensee's equipment configuration to eliminate inefficiencies. The Dominant Licensee may not impose discriminatory minimum space requirements. Upon request, the Dominant Licensee must allow the Facilities-based Requesting Licensee to physically inspect any location at which the Dominant Licensee claims space is not available for co-location. Where actual space constraints exist, the Dominant Licensee must take reasonable measures to upgrade its facilities (such as conditioning additional space, optimising use of existing space, or finding adjacent space) to allow co-location of additional equipment. The Dominant Licensee must initially bear these costs, but may recover them, on a non-discriminatory and pro rata basis, from those Licensees that subsequently use the upgraded or expanded facilities.

5.3.5.5.3 Reservation of Capacity

A Dominant Licensee cannot prevent a Facilities-based Requesting Licensee from physically co-locating equipment in currently unused space by asserting that excess capacity has been "reserved" for future use. To the extent that the Dominant Licensee demonstrates that it will need to use a portion of currently unused space in order to achieve reasonably projected rates of growth over a 2 year period, the Dominant Licensee will not be required to provide physical co-location.

5.3.5.5.4 Equipment That May be Co-located

A Dominant Licensee must offer to allow the physical co-location of equipment designated by the Facilities-based Requesting Licensee that will enable the Facilities-based Requesting Licensee to interconnect. The Dominant Licensee must not prevent a Facilities-based Requesting Licensee from physically co-locating any piece of equipment that is customarily located in a telecommunication operator's local exchange or other network locations (other than equipment co-located at the request of a specific end user or general purpose computing equipment not required for the operation or management of the co-located equipment). This includes "multi-functional" equipment that provides both interconnection-related and other functionality. The

Dominant Licensee must allow Facilities-based Requesting Licensees to co-locate any piece of equipment that the Dominant Licensee allows any affiliate or other Licensee to co-locate.

5.3.5.5.5 Security Provisions

A Dominant Licensee may take reasonable and non-discriminatory measures to protect the security of its network. Such measures, however, must be no more burdensome than necessary. If the Dominant Licensee determines that it is necessary to have an escort present when employees or other representatives of another Licensee enters upon its property, the Dominant Licensee must make escort service available 7 days a week, 24 hours a day, whilst taking all reasonable actions to reduce unnecessary costs to be assumed by the Facilities-based Requesting Licensee. Dominant Licensees will not be allowed to require the use of “cages” or similar structures to physically segregate co-located equipment.

5.3.5.6 Pricing

The prices that a Dominant Licensee offers for all Interconnection Related Services must be cost-based. Where feasible, the Dominant Licensee must use an established methodology based on incremental forward-looking economic cost (“FLEC”). This standard seeks to replicate market forces by determining what it would cost a Licensee to accommodate the needs of a new entrant using the most efficient technology and practices available. The FLEC methodology is described in Appendix One. Prices, terms and conditions on which the Dominant Licensee must offer key Interconnection Related Services are specified in Appendix Two.

5.3.5.7 Provision of Wholesale Services

A Dominant Licensee must offer to allow Facilities-based Requesting Licensees to purchase, at wholesale rates, specific telecommunication services designated by IDA that the Dominant Licensee provides to End Users at retail rates. The services designated and the prices, terms and conditions on which they must be offered are specified in Appendix Two.

5.3.5.8 Modification and Duration of the Agreement

The Dominant Licensee must provide that the prices, terms and conditions contained in any Interconnection Agreement arrived at by accepting the RIO will be effective for 3 years from the effective date of this Code unless either: (a) the Dominant and Requesting Licensees agree to modify their Interconnection Agreement pursuant to section 4.4.2 of this Code or (b) IDA directs the Dominant Licensee to modify any provision of its RIO, in which case the Licensees shall amend the Interconnection Agreement to conform to the modifications in the RIO.

5.4 Option Two: Interconnection Pursuant to an Existing Interconnection Agreement

A Licensee may interconnect with a Dominant Licensee on the same prices, terms and conditions that the Dominant Licensee has agreed to with another similarly situated Licensee in any Interconnection Agreement adopted following the effective date of this Code. A Services-based Licensee and a Facilities-based Licensee shall not be deemed to be similarly situated. The Interconnection Agreement between the Requesting Licensee and the Dominant Licensee will terminate on the day that the agreement that the Requesting Licensee “opted-into” terminates.

5.5 Option Three: Interconnection Pursuant to an Individualised Interconnection Agreement

A Licensee may interconnect with a Dominant Licensee pursuant to the prices, terms and conditions of an Individualised Interconnection Agreement between the 2 parties. Such agreements may be arrived at through voluntary negotiations or as the result of the Dispute Resolution Procedure specified in subsections 5.5.6–5.5.6.7 of this Code.

5.5.1 Duty to Negotiate in Good Faith With Any Licensee Requesting Interconnection

A Dominant Licensee has a duty to negotiate, in good faith, with any Requesting Licensee. The Requesting Licensee must also negotiate in good faith with the Dominant Licensee.

5.5.2 Negotiation Process

A Requesting Licensee must comply with the following procedures:

5.5.2.1 Request for Negotiation

At any time after the effective date of this Code, the Requesting Licensee may submit to the Dominant Licensee a written request to negotiate an individualised Interconnection Agreement (“Request”). The Request will specify the forms of interconnection requested, designate a contact person and propose a time and place for initial negotiations.

5.5.2.2 Notification to IDA

At the time it submits the Request to the Dominant Licensee, the Requesting Licensee must submit a copy of the Request to IDA.

5.5.2.3 Initiation of Negotiations

Unless the Licensees agree otherwise, they must begin negotiations within 7 days after the submission of the Request.

5.5.2.4 Confidentiality Agreement

The two Licensees may enter into a confidentiality agreement governing the negotiation process. If they fail to agree to a confidentiality agreement within 15 days of the receipt of the Request, both Licensees must adopt the Model Confidentiality Agreement referred to in subsection 5.3.3, if either Licensee requests to do so.

5.5.3 Interim Interconnection Pursuant to the RIO

At the time it submits its Request, the Requesting Licensee may require the Dominant Licensee to provide interconnection pursuant to the prices, terms and conditions of the RIO, pending the outcome of the requested negotiations. The Licensees shall negotiate appropriate arrangements governing the transition from the RIO to the prices, terms and conditions of their individualised agreement.

5.5.4 IDA Conciliation

Should both parties so request, IDA may provide a representative to assist the Licensees in reaching a voluntary Interconnection Agreement.

5.5.5 Voluntary Agreements

The following provisions govern the adoption of voluntary Interconnection Agreements arrived at through negotiations between the parties:

5.5.5.1 Terms of Agreement

Dominant Licensees are free to enter into Interconnection Agreements on any mutually agreeable prices, terms and conditions, provided that they satisfy the Minimum Interconnection Duties specified in subsections 4.2–4.2.8 of this Code and do not discriminate against any other Licensee.

5.5.5.2 IDA Review

Licensees that have entered into voluntary Interconnection Agreements with Dominant Licensees must specify that such Interconnection Agreements will be submitted to, and will not become effective until approved by, IDA. If IDA takes no action within 30 days after the agreement is submitted to it, the agreement will be deemed approved. IDA will only reject or modify a voluntary agreement if it determines that the agreement does not fulfil the Minimum Interconnection Duties specified in subsections 4.2–4.2.8 of this Code or discriminates against any other Licensee.

5.5.6 Agreements Arrived at Via the IDA Dispute Resolution Procedure

IDA recognises that, in many cases, the Dominant and Requesting Licensees will not voluntarily reach agreement regarding the Interconnection Agreement. The following provisions address this situation:

5.5.6.1 Petition for IDA Dispute Resolution

If the Licensees fail to reach a voluntary Interconnection Agreement within 90 days of the date on which the Requesting Licensee submitted its Request, either Licensee may (but is not required to) file a petition for dispute resolution with IDA (“Petition”). (The Licensee filing the Petition shall be referred to herein as the “Petitioning Licensee.” The other Licensee shall be referred to herein as the “Responding Licensee.”) The Petition must describe, in detail, each point on which the Licensees have reached agreement and each point on which the Licensees have not reached agreement. For those points on which the Licensees disagree, the Petition must provide a clear statement of the Petitioning Licensee’s position. The Petitioning Licensee must provide a copy of the Petition to the Responding Licensee at the same time that it submits the Petition to IDA.

5.5.6.2 Response to the Request

The Responding Licensee will have 15 days from the day on which the Petition is submitted to IDA to submit to IDA (with a copy to the Petitioning Licensee) a written response to the Petition. For each point in the Petition on which the Petitioning Licensee claims that the parties are in agreement, the response must indicate whether the Responding Licensee agrees or disagrees. If the Responding Licensee disagrees, it must provide a statement of its position. For each point in the Petition on which the Petitioning Licensee claims that the parties disagree, the Responding Licensee must provide a clear statement of the way in which its position differs from that of the Petitioning Licensee.

5.5.6.3 IDA Request for Additional Information

IDA may request either or both Licensees to submit additional information at any time during the course of the Dispute Resolution Procedure. Any submission by one Licensee shall be made available to the other Licensee at the time it is submitted to IDA.

5.5.6.4 Binding Effect of Submissions

The positions taken by a Licensee in its Dispute Resolution Procedure submissions made under this section shall be binding against that Licensee, unless the changes are mutually agreed to by the Licensees.

5.5.6.5 Effect of Failure to Respond

If either Licensee fails to submit information required by this Code, or requested by IDA, IDA will base its decision on the information provided by the other Licensee or, if the other Licensee also has not submitted relevant information, on the best publicly available information.

5.5.6.6 Resolution by IDA

IDA will use the following procedure to conduct the Dispute Resolution Procedure:

5.5.6.6.1 Scope of the Dispute Resolution Procedure

Provided that they satisfy the Minimum Interconnection Duties contained in subsections 4.2–4.2.8 of this Code, and do not discriminate against any other Licensee, IDA will not re-open any issues on which the Licensees have reached agreement. Rather, the dispute resolution will be limited to those issues on which the 2 Licensees are unable to reach agreement.

5.5.6.6.2 Timing of the Dispute Resolution Procedure

IDA will seek to complete the Dispute Resolution Procedure, and issue a direction resolving each of the issues presented in the Petition and specifying any further actions that the Licensees must take, within 60 days from the day on which it receives the Petition. This period will be shortened to 30 days where one of the parties is a Services-based Licensee.

5.5.6.6.3 Standards to be Applied

Any direction resolving a dispute presented by the Licensees will require compliance with the Minimum Interconnection Duties specified in subsections 4.2–4.2.8 of this Code. To the extent that an issue in dispute is addressed by the prices, terms and conditions of the Dominant Licensee’s approved RIO, IDA will apply those provisions. To the extent that an issue in dispute is not addressed by the RIO, IDA retains full discretion to impose any solution that it deems appropriate (including solutions not advocated by either Licensee). IDA will require the parties to agree that any disputes regarding the implementation of an Interconnection Agreement arrived at through the Dispute Resolution Procedure will be referred to IDA for resolution.

5.5.6.7 Implementation of Dispute Resolution Decision by Licensees

Within 15 days of the date on which IDA issues a dispute resolution direction, the Licensees must submit to IDA an Interconnection Agreement that complies with the direction. IDA will have 15 days to either approve the Interconnection Agreement or to direct the parties to amend the agreement by including provisions specified by IDA that fully implement its decision.

5.6 Publication of Interconnection Agreements

All Interconnection Agreements involving a Dominant Licensee adopted after the effective date of this Code will be published by IDA. However, IDA on its own motion or at the request of either of the Licensees, may withhold from publication any portion of an Interconnection Agreement if IDA determines that it contains proprietary or commercially sensitive information.

5.7 Enforcement of Agreements

In addition to the procedures specified in subsection 4.3.3 of this Code, any party to an Interconnection Agreement adopted pursuant to the RIO or pursuant to the Dispute Resolution Procedure, may refer any dispute arising out of the Interconnection Agreement to IDA. IDA, at its discretion, may impose a binding resolution on the parties.

5.8 Other Duties of Dominant Licensees

Even in the absence of an Interconnection Agreement, a Dominant Licensee has the following duties:

5.8.1 Duty to Allow Resale of End User Telecommunication Services

A Dominant Licensee must allow any other Licensee to purchase any telecommunication service that the Dominant Licensee makes available to End Users. The Dominant Licensee may not prevent the Licensee from reselling the service to other Licensees or End Users.

5.8.2 Duty to Allow Sales Agency

If a Dominant Licensee allows any other entity (whether or not affiliated) to offer a package containing a tariffed telecommunication service and other communications services or equipment by acting as a sales agent of the Dominant Licensee's tariffed telecommunication service, the Dominant Licensee must, upon request, provide the same opportunity to any other entity on the same prices, terms and conditions.

5.8.3 Duty to Tariff and Make Wholesale Telecommunication Services Generally Available

A Dominant Licensee that chooses to offer any telecommunication service to another Licensee (including itself, a subsidiary or affiliate) on a wholesale basis must submit a tariff to IDA, and obtain IDA's approval, prior to offering that service. The Dominant Licensee must make the service available to any similarly situated Licensee on a non-discriminatory basis.

6. INFRASTRUCTURE SHARING**6.1 Introduction****6.1.1 Application**

All provisions in this section apply to Facilities-based Licensees. In this section, the term "Licensee" refers to Facilities-based Licensees.

6.1.2 Over-view

In general, a Licensee is not required to “share” the use of any infrastructure that it controls with its competitors. Rather, each Licensee is expected to build or lease the use of the infrastructure that it requires. However, where IDA finds that specific infrastructure constitutes Critical Support Infrastructure as defined in section 6.4.1 of this Code, or where IDA concludes that it is in the justified public interest, IDA may mandate, under section 22 of the Telecommunications Act, that a Licensee share the use of the infrastructure with other Licensees.

6.2 Definition of Sharing

Infrastructure sharing refers to an arrangement under which a Licensee that controls infrastructure used to support the provision of telecommunication services allows other Licensees to jointly use the same infrastructure, at cost-based prices, on non-discriminatory terms and conditions. For example, if one Licensee controls a particular “leaky feeder” cable for provision of radio coverage in the Mass Rapid Transit and road tunnels, and if IDA determines that the “leaky feeder” cable is subject to sharing, the Licensee would be required to allow other Licensees to jointly use that infrastructure at a cost-based price.

6.3 Procedures for Requesting Sharing

The following procedures will govern all requests to share infrastructure controlled by a Licensee:

6.3.1 Request to Licensee Controlling the Infrastructure

A Licensee (“Licensee Requesting Sharing”) that wants to share infrastructure that is controlled by another Licensee must first submit to the Licensee that controls the infrastructure a written request to negotiate an agreement to share the infrastructure (“Sharing Agreement”). The Licensees may jointly seek the assistance of IDA in negotiating a voluntary Sharing Agreement. IDA will act as a conciliator, but will not seek to impose any specific solution on the parties.

6.3.2 Request to IDA

If the Licensees are unable to reach a voluntary Sharing Agreement within 30 days after the Licensee Requesting Sharing sends the request to the other Licensee, the Licensee Requesting Sharing may (but is not required to) submit a written request to IDA (“Sharing Request”). The Licensee Requesting Sharing must provide a clear explanation of the specific infrastructure that it seeks to share, the means by which it proposes to share it, and the reasons why it believes it should be given a right to share the infrastructure at cost-based prices. The Licensee Requesting Sharing must provide the Licensee that controls the infrastructure with a copy of the Sharing Request at the same time that the Licensee Requesting Sharing provides the Sharing Request to IDA.

6.3.3 Response by Licensee

Unless IDA dismisses the Sharing Request on its own motion, the Licensee that controls the infrastructure will have 15 days from the date on which the Sharing Request is filed with IDA to submit to IDA a written reply. The Licensee must simultaneously provide a copy of the reply to the Licensee Requesting Sharing. The Licensee must respond to all points made by the Licensee Requesting Sharing, and must provide a full explanation as to the reasons why it does not believe it should be required to share the requested infrastructure at cost-based prices, or, if the Licensee acknowledges that it should be required to share the requested infrastructure at cost-based prices, a full explanation as to the reasons why it has been unable to reach agreement regarding prices, terms and conditions of sharing.

6.3.4 Timing of IDA Decision

IDA may request either Licensee to submit additional information, subject to suitable protections for proprietary or commercially sensitive information. IDA may also seek public comments. Within 30 days of receiving all necessary information, IDA will issue a direction as to whether the Licensee that controls the infrastructure is required to share it with the Licensee Requesting Sharing.

6.4 Standards by Which IDA Will Determine Whether to Require Sharing

IDA will use the following standards to determine whether the infrastructure must be shared:

6.4.1 Critical Support Infrastructure

IDA will require sharing of any infrastructure that it determines is Critical Support Infrastructure (“CSI”). IDA will not deem infrastructure to be CSI based solely on evidence that allowing the Licensee Requesting Sharing to share the infrastructure would reduce its costs, or increase the speed with which it could provide telecommunication services. Rather, IDA will only deem the infrastructure to constitute CSI if it concludes that: the infrastructure is required to provide telecommunication services; an efficient new entrant would not be able to replicate the infrastructure within the foreseeable future, or obtain it from a third-party through a commercial transaction, at a cost that would allow market entry; the Licensee that controls the infrastructure has sufficient current capacity to share with the Licensee Requesting Sharing; the Licensee that controls the infrastructure has no legitimate business justification for refusing to share the infrastructure with the Licensee Requesting Sharing; and that failure to share the infrastructure would limit competition.

6.4.2 Public Interest

In certain cases, IDA may determine that the public interest requires that infrastructure be shared. For example, the deployment of certain types of infrastructure by multiple Licensees could have significant adverse environmental impact. Therefore, even if such infrastructure does not constitute CSI, IDA in consultation with other government agencies, where appropriate may require the sharing of such infrastructure.

6.5 Designation of Infrastructure That Must be Shared

The following types of infrastructure must be shared at cost-based prices: masts; poles; towers; “leaky feeder” cable; in-building cabling (where the occupant elects to take service from another service provider); and lead-in ducts and associated manholes.

6.6 Implementation of IDA Direction

The following procedures must be used to implement IDA's direction to require sharing:

6.6.1 Voluntary Negotiations

Once IDA has directed that specific infrastructure must be shared, a Licensee that controls such infrastructure must, when requested by a Facilities-based Licensee, negotiate a Sharing Agreement. The parties must negotiate in good faith.

6.6.2 IDA Dispute Resolution Procedures

If the Licensees are unable to reach a mutually acceptable Sharing Agreement within 30 days after the date on which IDA issues its direction, the Licensee Requesting Sharing may request IDA to resolve the dispute in accordance with the procedures specified in subsections 5.5.6–5.5.6.7 of this Code. Pending resolution of the dispute, IDA may direct infrastructure sharing on an interim basis.

6.6.3 Compensation for Sharing

Where the Licensees are not able to reach agreement regarding compensation for infrastructure sharing, IDA will establish cost-based rates using the costing methodology described in Appendix One, where appropriate.

7. UNFAIR METHODS OF COMPETITION

7.1 Introduction

7.1.1 Application

All provisions in this section apply to Dominant Facilities-based Licensees. subsections 7.1–7.1.2 and 7.3–7.4.4 apply to Non-dominant Facilities-based Licensees, Services-based Licensees and Telecommunication Equipment Dealer Licensees. In this section, the term “Licensee” refers to Facilities-based, Services-based and Telecommunications Equipment Dealer Licensees. The term “Dominant Licensee” refers to a Facilities-based Licensee that IDA has classified as dominant.

7.1.2 Over-view

Once a Licensee has complied with the applicable provisions contained in sections 3–6 of this Code, IDA generally will not intervene in a Licensee’s day-to-day operations. However, Licensees must not act in a manner that can impede fair competition. Where this occurs, IDA (either on its own motion or at the request of a private party) may initiate an enforcement action, pursuant to the procedures set forth in section 10 of this Code. This section provides standards that IDA will use to determine whether a Licensee has contravened this Code by acting anti-competitively.

7.2 Abuse of Dominant Position in the Singapore Market

A Dominant Licensee must not use its position in the Singapore telecommunication market in a manner that unreasonably restricts competition. This section provides examples of some of the ways in which a Dominant Licensee can seek to abuse its dominant position.

7.2.1 Pricing Abuses

A Dominant Licensee must not price services in a manner that is likely to unreasonably restrict competition. In particular, a Dominant Licensee must not engage in the following types of anti-competitive pricing:

7.2.1.1 Predatory Prices

Whilst vigorous price competition is the hallmark of a competitive market, a Dominant Licensee must not engage in anti-competitive predatory price-cutting. IDA will find that a price cut is predatory if 3 factors are met. First, the Dominant Licensee is selling its service at a price that is less than marginal cost. Second, there is likelihood that such price cutting will drive efficient rivals from the market or deter future efficient rivals from entering the market. Finally, entry barriers are so significant that, after driving rivals from the market or deterring entry, the Licensee could impose an increase in prices sufficient (in amount and duration) to enable the Dominant Licensee to recoup the full amount of the loss that it incurred during the period of price cutting.

7.2.1.2 Price Squeezes

A Dominant Licensee that provides an input used by “down-stream” entities, including an affiliate of the Licensee, must not provide the input at a price that is so high that the Licensee’s down-stream affiliate could not profitably sell its product if it were required to pass on to its customers the full retail price of the input. Similarly, a Licensee that uses an input provided by an upstream affiliate that has market power in the upstream market (i.e., the ability to profitably restrict output and/or charge prices that are above competitive levels) may not obtain the input at a price that is so high that efficient competing non-affiliated Licensees could not profitably sell their end-product if they were required to purchase the input at the same price as the Licensee.

7.2.1.3 Cross-subsidisation

A Dominant Licensee must not use revenues from the provision of a tariffed telecommunication service to cross-subsidise the price of other telecommunication services and equipment. To prevent such abuse, Dominant Licensees must comply with separate regulations and guidelines issued by IDA requiring accounting separation, the correct allocation of costs between competitive and non-competitive operations, and the use of arm’s length transactions between competitive and non-competitive operations. Similarly, a Licensee that is affiliated with an entity that has market power may not accept any cross-subsidisation from that affiliate.

7.2.2 Other Abuses

A Dominant Licensee is also precluded from abusing its position by means other than anti-competitive prices. In particular, a Dominant Licensee may not engage in the following practices:

7.2.2.1 Discrimination

A Dominant Licensee must not provide its down-stream affiliates with access to infrastructure, systems, services, or information on prices, terms or conditions that are more favourable than the prices, terms and conditions on which the Licensee provides those infrastructures, services or

information to non-affiliated competitors of its “down-stream” affiliate. Similarly, a Licensee that is affiliated with an entity that controls infrastructure, systems, services or information that, as a practical matter, is necessary to provide downstream services, may not accept access to the infrastructure, systems, services or information unless the affiliate offers to the Licensee’s competitors access to those infrastructure, systems, services or information on non-discriminatory price, terms and conditions.

7.2.2.2 Predatory Network Alteration

A Dominant Licensee may not alter the physical or logical interfaces of its network in a manner that imposes significant costs on interconnected Licensees, in the absence of a legitimate business, operational or technical justification.

7.3 Abuse of Market Dominance in a Foreign Market

A Licensee may be classified as non-dominant in the Singapore telecommunication market even though it is affiliated with a telecommunication operator or other entity that has market power in a foreign market. Such a Licensee, however, must not use the market position of its foreign affiliate in a manner that enables it to unreasonably restrict competition in the Singapore telecommunication market.

7.4 Unfair Methods of Competition

Whilst Licensees are expected to compete vigorously against their rivals, Licensees must not engage in unfair methods of competition. An unfair method of competition is a practice that improperly deters (or is likely to deter) new entry into the Singapore telecommunication market, or restricts (or is likely to restrict) existing competition in the Singapore telecommunication market, for reasons unrelated to the availability, price or quality of the service that a prospective or current Licensee offers or seeks to offer. In particular, a Licensee may not engage in the following unfair methods of competition:

7.4.1 False or Misleading Claims

A Licensee must not make any claim or suggestion regarding the availability, price or quality of its telecommunication service or equipment, or of the telecommunication service or equipment of another Licensee, that is not supported by objective evidence or that is reasonably likely to confuse or mislead End Users.

7.4.2 Degradation of Service Availability or Quality

A Licensee must not take any action, or induce any other party to take any action, that has the effect of degrading the availability or quality of another Licensee's telecommunication service or equipment, or raising the other Licensee's costs, without a legitimate business, operational or technical justification.

7.4.3 Provision of False or Misleading Information to Competitors

Whilst Licensees are not required to disclose proprietary or commercially sensitive information to their competitors, a Licensee shall not provide information to other Licensees that is false or misleading.

7.4.4 Interference with End User or Supplier Relationships

A Licensee must not seek to induce an End User or supplier to cease doing business with a Licensee providing competing telecommunication services or equipment by providing false or misleading information to the End User or supplier.

8. AGREEMENTS INVOLVING LICENSEES THAT UNREASONABLY RESTRICT COMPETITION**8.1 Introduction****8.1.1 Application**

All provisions in this section apply to Facilities-based Licensees, Services-based Licensees and Telecommunication Equipment Dealer Licensees. In this section, the term "Licensee" refers to Facilities-based, Services-based and Telecommunication Equipment Dealer Licensees.

8.1.2 **Over-view**

IDA will not routinely review agreements entered into by Licensees (other than Interconnection Agreements). However, pursuant to the procedures in section 10 of this Code, IDA may take enforcement action (on its own motion or pursuant to a request from a private party) against any Licensee that enters into an agreement with another Licensee or any unlicensed entity that has the effect of unreasonably restricting competition in the telecommunication service or equipment market. Certain types of agreements are so clearly anti-competitive that a Licensee may not enter into them under any circumstances. IDA will assess the permissibility of other agreements based on their likely competitive effects. IDA's role is limited to determining whether a Licensee has entered into an agreement that contravenes the provisions of this Code. Contravention of these restrictions can result in the imposition of financial penalties or other enforcement measures, as provided for in section 10 of this Code.

8.2 **Determining the Existence of an Agreement**

For the purposes of this section, an agreement can be established in any of 3 ways. First, an agreement can be established through direct evidence of an express agreement, such as a signed document. Second, an agreement can be established using circumstantial evidence that demonstrates the existence of an express agreement. Finally, an agreement may be tacit (i.e., even in the absence of an actual agreement, Licensees may co-ordinate their production and pricing decisions in order to reduce aggregate output and raise market prices). IDA will not find a tacit agreement where Licensees have done nothing more than make similar output and pricing decisions, which could reflect an efficient response to changing market conditions. Rather, IDA will only find that there has been a tacit agreement if the Licensees have employed "signalling devices," such as the sharing of price and output information, and that these devices have facilitated co-ordinated behaviour. For the purposes of this section, an arrangement between a Licensee and an affiliate that it controls does not constitute an

agreement. Nor does this section restrict the ability of a Licensee to enter into an arrangement with another entity in which the second entity acts as a *bona fide* agent of the Licensee.

8.3 Prohibited Agreements Between Licensees Providing Competing Telecommunication Services and Equipment

Licensees providing competing telecommunication services or equipment are prohibited from entering into the following types of agreements:

8.3.1 Price Fixing/Output Restrictions

Licensees must not enter into agreements to fix prices or restrict output, regardless of the levels to which the Licensees agree.

8.3.2 Bid Rigging

Licensees must not enter into agreements to co-ordinate separate bids for assets, resources or rights auctioned by IDA, or for any input into the Licensee's service or for the provision by the Licensee of any telecommunication services or equipment, regardless of the price levels to which the Licensees agree.

8.3.3 Market and Customer Divisions

Licensees are prohibited from entering into agreements not to compete to provide telecommunication services or equipment to specific End Users or not to compete in specific areas, regardless of the terms and conditions on which the Licensees agree.

8.3.4 Group Boycotts

Licensees must not agree to refuse to do business with a specific supplier, competitor or End User.

8.3.5 Agreements Necessary for Legitimate Collaborative Ventures

Nothing in subsections 8.3.1 through 8.3.4 of this Code prohibits agreements amongst Licensees that are ancillary to efficiency-enhancing integration of economic activity, where such agreements are no broader than necessary to achieve the pro-competitive benefit. For example, if competing Licensees establish a joint purchasing or

production venture designed to increase total output and lower prices, the permissibility of an agreement between the 2 Licensees regarding the prices to be paid or charged by the joint venture would be assessed, under subsections 8.4–8.4.3 of this Code, based on its competitive effects. Similarly, if Licensees were to establish a market for trading bandwidth, an agreement between the Licensees to exclude competitors that did not agree to trade on certain standardised terms and conditions designed to allow for the efficient operation of the market would be assessed under subsections 8.4–8.4.3 of this Code.

8.4 Agreements Between Licensees Providing Competing Telecommunication Services or Equipment That Will be Assessed Based on Competitive Effects

Unlike the types of agreements described in subsections 8.3–8.3.4 of this Code, many agreements between competitors have the potential to increase competition. Such agreements include joint agreements to produce inputs used by multiple Licensees, to produce telecommunication services and equipment sold to End Users, to jointly market telecommunication services and equipment, to jointly purchase inputs or to engage in joint research and development activities. If such agreements are challenged in an enforcement proceeding, IDA will assess whether the agreements contravene this Code based on their effect on competition. Where there is evidence that the agreement has caused actual anti-competitive harm, IDA will find it to be in contravention of this Code. Where there is no evidence of actual market effects because the agreement is relatively recent, IDA will determine the permissibility of the agreement by seeking to assess its likely effect on the market. In conducting this assessment, IDA will consider the following factors:

8.4.1 Business Purpose of the Agreement

In reviewing an agreement, IDA will make a preliminary assessment of its likely competitive impact (i.e., IDA will attempt to determine whether the agreement is likely to lead to reductions in output and increase prices of telecommunication services). If the agreement is between

or amongst a small number of Non-dominant Licensees, and the business purpose of the agreement appears to be to increase output and reduce prices, IDA will generally conclude, without conducting any further analysis, that the agreement does not contravene this Code.

8.4.2 Likelihood of Competitive Harm

Where an agreement involves a more significant number of Non-dominant Licensees, or a Dominant Licensee, or where the agreement has the potential to result in higher prices or reductions in output of telecommunication services or equipment, IDA will conduct a more detailed assessment. In particular, IDA will consider the following factors: whether (and, if so, to what extent) the Licensees retain the ability to act independently of the agreed-upon venture; the duration of the agreement; whether, in the event the Licensees acted anti-competitively, new entry into the market would be likely, sufficient and timely enough to deter or counter-act any competitive harm; and any other factors that help predict the likely competitive effect of the agreement. If, after assessing these factors, IDA concludes that the agreement poses no risk of competitive harm, IDA will conclude that the agreement does not contravene this Code.

8.4.3 Efficiencies

If IDA's review demonstrates that the agreement has the potential to result in a restriction of output or an increase in prices of telecommunication services and equipment, IDA will consider whether the agreement is necessary to achieve efficiencies. Such efficiencies could include reductions in the cost of developing, producing, marketing and delivering telecommunication services and equipment. If such efficiencies offset the potential anti-competitive effect, and could not reasonably be achieved through measures that reduce competition to a lesser extent, IDA will conclude that the agreement does not contravene this Code. If such efficiencies do not offset the potential anti-competitive effects, or could reasonably be achieved through measures that reduce competition to a lesser extent, IDA will conclude that the agreement contravenes this Code.

8.5 Agreements Between Licensees and Entities at Different Levels in the Supply Chain

Licensees must not enter into agreements with entities at different levels in the supply chain such as a down-stream reseller of a Facilities-based Licensee's telecommunication service or an upstream provider of telecommunication network equipment that have the effect of unreasonably restricting competition. This subsection provides examples of such agreements.

8.5.1 Vertical Price Fixing

A Facilities-based and a Services-based Licensee must not agree as to the price that the Services-based Licensee can charge End Users to which it resells the Facilities-based Licensee's telecommunication service.

8.5.2 Vertical Market Allocation

A Licensee must not assign specific End Users to, or allocate specific markets amongst, Licensees that resell its services, where this would unreasonably restrict competition.

8.5.3 Exclusive Dealing

A Licensee must not enter into an agreement in which it agrees to package telecommunication service or equipment that it provides exclusively with the telecommunication service or equipment of another entity, where this would unreasonably restrict competition. For example, a Licensee must not agree to package its telecommunication services exclusively with the services of a single provider of terminal equipment, value added services, applications or content provider, where this would unreasonably restrict competition.

9. CONSOLIDATIONS BY FACILITIES-BASED LICENSEES THAT ARE LIKELY TO UNREASONABLY RESTRICT COMPETITION

9.1 Introduction

9.1.1 Application

This section applies only to Facilities-based Licensees. In this section, the term "Licensee" refers to Facilities-based Licensees.

9.1.2 Over-view

In competitive markets, enterprises often seek to merge with, acquire or otherwise consolidate with other enterprises (“Consolidation”). In many cases, such combinations can have pro-competitive effects, such as creating economies of scale and scope. In other cases, however, such consolidations may harm competition. For example, such transactions could create an entity that is not subject to competitive market forces or could facilitate unlawful collusion amongst competing entities. All Facilities-based licences granted by IDA require the Licensee to obtain prior approval from IDA before assigning the licence or before changes on ownership, shareholding or management of a Licensee. In reviewing requests to assign a licence or change the ownership, shareholding or management of a Licensee in connection with a Consolidation, IDA will assess the likely impact of the proposed Consolidation on competition. Where IDA believes that a transaction risks unreasonably restricting competition, IDA will reject the request or will impose appropriate conditions. The provisions of this section do not limit the ability of IDA to condition or prohibit the assignment of a licence or changes in ownership, shareholders or management of a Licensee for other reasons, where IDA concludes that such action is in the public interest.

9.2 Duty of All Licensees to Obtain IDA Approval

Each Licensee, in accordance with the requirement of its licence, must obtain the prior approval of IDA before engaging in either of the following transactions:

9.2.1 Assignments of a Licence

A Licensee must receive the written approval of IDA before assigning, transferring, subletting or otherwise disposing its rights, duties, liabilities, obligations and privileges under its licence to any other entity. For example, if Company A holds a licence, and its assets are to be acquired by Company B, Company A must obtain IDA’s written approval before it assigns its licence to Company B.

9.2.2 Change in Ownership, Shareholding or Management of a Licensee

A Licensee must receive the written approval of IDA before implementing any change in ownership, shareholding or management of the Licensee. For example, if Company B holds a licence, and if Company B is a wholly-owned subsidiary of Company A, and if Company C proposes to acquire Company A, Company B must obtain IDA's prior written approval even though it will remain the Licensee because there will be an indirect change in ownership.

9.3 Standard for Approval

IDA will not approve a request to assign a Licence or allow a change in ownership, shareholding or management of a Licensee in connection with a proposed Consolidation where IDA determines that the proposed Consolidation is likely to unreasonably restrict competition in any market in which the Licensee competes.

9.4 Procedures

Any Licensee that seeks to enter into any Consolidation that will require IDA's approval for the reasons specified in subsections 9.2.1 or 9.2.2 of this Code must submit a request to IDA explaining the nature and purpose of the Consolidation and demonstrating that the proposed Consolidation will not unreasonably restrict competition. The Licensee must also submit a copy of any proposed agreement in connection with the proposed Consolidation. The Licensee bears the burden of providing information that will enable IDA to assess the likely competitive impact of the proposed Consolidation. This may include information regarding: the relevant markets; the market participants; the level of concentration in the market; the structure of the market (and the extent to which it facilitates concerted action by multiple participants); the likelihood that output would be increased (either by existing market participants or new entrants) in response to significant and non-transitory price increase; the likelihood of End User switching in response to a significant and non-transitory price increase; and the likely efficiencies that would result from the proposed Consolidation. Where

appropriate, IDA will request additional information, and will seek comments from interested persons. Parties may request confidential treatment of information submitted to IDA. IDA ordinarily will issue a decision indicating whether it approves, rejects or approves subject to conditions the request within 30 days. IDA may, however, extend this period by up to 90 days in the case of a proposed Consolidation that raises novel or complex issues.

9.5 Action by IDA

At the conclusion of its review, IDA will take one of the following actions:

9.5.1 Grant of the Application

IDA may grant the application in full.

9.5.2 Denial of the Application

IDA may deny the application and if IDA does so, IDA will provide a written statement of the reasons for its denial.

9.5.3 Grant of the Application, Subject to Conditions

IDA may grant the application, subject to conditions designed to reduce any anti-competitive harm. Where IDA imposes conditions, the Licensee filing the application will have 14 days from the date of IDA's decision to notify IDA as to whether it accepts the conditions or wishes to withdraw its application. Conditions that IDA may impose include:

9.5.3.1 Non-discrimination Requirements

As a condition of approval, IDA may require the Licensee to provide access to infrastructure, information or services to other Licensees, other entities or End Users on a non-discriminatory basis. IDA may require the Licensee to contract for independent audits to confirm compliance or to certify periodically its compliance.

9.5.3.2 Accounting Separation

As a condition of approval, IDA may require the Licensee to account separately for revenues from operations that are subject to effective competition and operations that are not

subject to effective competition, and to comply with rules governing allocation of joint costs and transactions between affiliates, in order to deter cross-subsidisation. IDA may also require the Licensee to contract for independent audits to confirm compliance or to certify periodically its compliance.

9.5.3.3 Structural Separation

As a condition of approval, IDA may require the Licensee to establish structurally separate affiliates, which may be required to have separate books of account, separate facilities, separate officers, separate personnel, separate credit lines, and/or other appropriate forms of separation.

9.5.3.4 Partial Divestiture

As a condition of approval, IDA may require the Licensee to divest certain assets to a third party, in an arm's length transaction.

9.5.3.5 Other Pro-competitive Conditions

IDA may impose other conditions on approval of the application that are designed to increase competition. This includes conditions designed to increase entry into markets that are not yet fully competitive.

10. ENFORCEMENT OF THIS CODE

10.1 Introduction

10.1.1 Applications

All provisions of this section apply to Facilities-based Licensees, Service-based Licensees and Telecommunication Equipment Dealer Licensees. In this section, the term "Licensee" refer to Facilities-based, Services-based and Equipment Dealer Licensees.

10.1.2 Over-view

Whilst IDA intends to place maximum reliance on competitive market forces and industry self-regulation, IDA recognises the need for strong enforcement procedures that will detect and deter contraventions of this Code. Enforcement actions can be brought by IDA, either on its own motion or at the request of a private party.

10.2 Specific Regulatory Principles

In addition to the general principles set forth in section 1 of this Code, IDA's enforcement procedures will be subject to the following specific regulatory principles:

10.2.1 Timeliness

Any enforcement action must be timely. IDA will not bring any enforcement action more than 2 years after the date of occurrence of the action that constitutes the alleged contravention of this Code. If the contravention could not reasonably be discovered at the time it was committed, IDA will bring the action within 2 years of the earlier of the date on which the conduct was or reasonably should have been discovered.

10.2.2 Open and Reasoned Decision Making

IDA will provide adequate notice to any Licensee against which an enforcement action is brought, and will provide the Licensee with a full and fair opportunity to respond to any adverse claims. All decisions will be based on the merits of the case. Licensees will have an opportunity to seek review from the Minister. IDA generally will publicly disclose the basis for, and the extent of, any enforcement action taken against a Licensee. IDA will not take any enforcement action unless it has determined, based on the evidence, that the Licensee has failed to act in accordance with the provisions of this Code.

10.2.3 Proportionality

Whilst the enforcement process is designed to provide a significant deterrent to impermissible conduct, any sanction imposed by IDA will be proportionate to the severity of the contravention.

10.3 IDA Enforcement Actions

Where appropriate, IDA will initiate enforcement procedures against a Licensee that it believes has contravened this Code.

10.3.1 Procedures

IDA will use the following procedures in any enforcement proceedings:

10.3.1.1 Notification of Licensee

IDA will provide a written notification to the Licensee. The notification will clearly indicate the specific provisions of this Code that IDA believes the Licensee has contravened, and will describe in reasonable detail the basis for IDA's belief.

10.3.1.2 Opportunity to Respond

A Licensee will have 15 days to respond, in writing, to IDA's notification. IDA may extend this period in appropriate cases. The Licensee's response must provide a clear statement, supported by documents, affidavits, or other relevant material, providing the basis on which the Licensee disputes IDA's allegation.

10.3.1.3 Request for Further Information

After reviewing the material submitted by the Licensee, IDA may request the Licensee to provide additional information. Such requests shall be limited to information necessary to resolve those issues that remain in dispute. IDA will seek to issue a decision within 60 days of receiving all necessary information.

10.3.1.4 Interim Direction to Cease and Desist

At any time during an enforcement proceeding, IDA may issue an interim order directing the Licensee to cease and desist from specified conduct if IDA concludes that: (a) there is prima facie evidence that the Licensee has contravened the provisions of this Code; (b) continuation of the Licensee's conduct is likely to cause serious harm to other Licensees, End Users or the general public; (c) the potential anti-competitive harm from allowing the Licensee to continue its conduct outweighs the burden on the Licensee; or (d) issuance of the order is in the public interest.

10.3.2 Enforcement Actions

Under section 8 of the Telecommunications Act, in the event that IDA concludes that the Licensee has contravened any provisions of this Code, IDA may take the following enforcement actions:

10.3.2.1 Warnings

IDA can issue a warning to the Licensee. The warning will contain a statement of IDA's basis for concluding that the Licensee has acted in contravention of any provision of this Code, but will impose no further sanction.

10.3.2.2 Orders to Cease and Desist

Where appropriate, IDA will direct the Licensee to cease engaging in conduct that is, or if continued will constitute, a contravention of any provision of this Code.

10.3.2.3 Directions by IDA

Where appropriate, IDA will direct the Licensee to take specific remedial action.

10.3.2.4 Financial Penalties

IDA may impose financial penalties on any Licensee that contravenes the provisions of this Code up to the statutory maximum of S\$1,000,000 per contravention.

10.3.2.4.1 Aggravating Factors

In imposing financial penalties, IDA will consider any aggravating factors. These factors include: the severity of the contravention; the duration of the contravention; whether the contravention resulted in injury to persons and property; whether the Licensee acted knowingly, recklessly, or in a grossly negligent manner; whether the Licensee has a previous history of contraventions; and whether the Licensee made any effort to conceal the contravention.

10.3.2.4.2 Mitigating Factors

In imposing financial penalties, IDA also will consider any mitigating factors. These factors include: whether the contravention was minor; whether the adverse consequences from the violation were minor; whether the Licensee took prompt action to correct the contravention; whether the contravention was accidental; and whether the Licensee voluntarily disclosed the contravention to IDA.

10.3.2.5 Suspension or Cancellation of the Licence

In cases in which IDA is satisfied that a Licensee is likely to again contravene any provision of this Code, IDA may temporarily suspend (in whole or in part), reduce the period of or cancel the Licensee's licence.

10.4 Private Requests for Enforcement

Licensees or End Users that have been injured as a direct result of the contravention of any provision of this Code by a Licensee may file a request asking IDA to take enforcement actions.

10.4.1 Procedures

Any party that requests IDA to take enforcement action must submit a written Request for Enforcement. The Request for Enforcement must cite the specific provisions of this Code that the Party Requesting Enforcement alleges the Licensee has contravened and must allege facts that, if proven to be true, would demonstrate a contravention. Each claim and each supporting allegation of fact must be contained in a separate paragraph. Whenever possible, the Party Requesting Enforcement should attach to the Request for Enforcement copies of all relevant documents necessary to prove the allegations of facts contained in the request. Where this is not possible, the Party Requesting Enforcement must provide a statement explaining why it could not provide the supporting documentation. The Request for Enforcement must include a signed statement that: the Party Requesting Enforcement has used reasonable diligence in collecting the facts; the facts alleged are true to the best of the Party Requesting Enforcement's knowledge; the Party Requesting Enforcement has a good faith belief that, if proven, the facts

alleged would constitute a contravention of the provisions of this Code cited in the request; and the Party Requesting Enforcement has made a good faith effort to resolve the underlying dispute through direct negotiation with the Licensee against which enforcement is sought. In an appropriate case, IDA may require a statutory declaration attesting to the facts that provide the basis for the Request for Enforcement.

10.4.2 Enforcement Action

If IDA concludes that the Licensee has contravened any provision of this Code, IDA will take enforcement action under subsections 10.3.2–10.3.2.5 of this Code.

Made this 15th day of September 2000.

LAM CHUAN LEONG
Chairman,
Info-communications Development
Authority of Singapore,
Singapore.

APPENDIX ONE

Principles Governing the Pricing of Interconnection Related Services

1. INTRODUCTION

This Appendix specifies the principles that a Dominant Licensee must use to develop the prices for Interconnection Related Services (“IRS”) contained in its Reference Interconnection Offer (“RIO”).*

2. CHARGING STANDARDS

2.1 Cost Bases

2.1.1 IDA considered 3 methodologies that a Dominant Licensee could use to determine the costs of IRS:

- Historical/Embedded Costs are the costs that a Licensee incurred in the past and that are recorded in the Licensee’s books of accounts. They reflect historical purchase prices, regulatory depreciation rates, system configurations and operating procedures.
- Current/Replacement Costs (“CRC”) are the present-day costs of replacing an asset with another asset that provides the same service potential. The replacement asset need not be the same asset, but rather an asset that hypothetically is the best (least cost) option given the current technology.
- Forward Looking Economic Costs (“FLEC”) are the prospective costs a Licensee would incur in producing a service using best-in-use technology and product practices. When calculating forward-looking economic costs, costs are valued at current prices.

2.1.2 IDA selected the FLEC methodology for the following reasons:

- In a competitive environment, market prices would be driven toward FLEC, even if these were lower than the firm’s embedded costs.
- FLEC creates the right investment incentives for facilities-based entry by competitors, whilst preserving current investments.
- Charges based on FLEC will lead to lower prices for consumers.
- FLEC-based charging minimises the Dominant Licensee’s ability to engage in anti-competitive cross-subsidisation.

2.2 Cost Standards

2.2.1 A Dominant Licensee must use long run average incremental cost (“LRAIC”), which is a common measure of FLEC, for the computation of most IRS prices contained in its RIO.

* IDA used these principles to develop the prices on which Dominant Licensees must offer to provide certain key IRS, which are specified in Appendix Two.

APPENDIX ONE — *continued*

2.2.2 LRAIC consists of all variable costs and those fixed costs that are directly attributable to the incremental change in the IRS and the share of indirect costs that are discernibly caused by the provision of those services.

2.3. Structure of Charges

2.3.1 In establishing IRS charges, a Dominant Licensee must ensure that the structure of charges mirrors the cost behavior of IRS provision, where material. This means that costs that behave differently must remain segregated in the charging structure and must be recovered differently.

2.4. Special Considerations Applicable to Broadband

2.4.1 IDA recognises that, in the broadband context, FLEC poses certain challenges. There are practical issues associated with the application of FLEC, as the Licensees would be required to design the “best-in-use” (or best practice) network architecture. This could be difficult and time-consuming to determine in the evolving broadband context where standards and technologies for network interconnection may be embryonic. The “best-in-use” technology also evolves rapidly, requiring updates to the interpretation of FLEC on a regular basis by IDA and the Licensees. Given the issues in implementing FLEC, a Dominant Licensee may use CRC, where appropriate, to develop prices for IRS used to provide broadband services.

2.4.2 A Dominant Licensee may not impute a “risk premium” in calculating prices for IRS that can be used to support broadband services. The experience in broadband deployment in other jurisdictions does not support the notion that such investments carry a higher risk. To the contrary, publicly available data indicate that many companies in virtually all segments of the info-communications industry have made significant investments in broadband facilities. Moreover, inclusion of a risk premium would increase interconnection costs and impede the development of competition.

3. RESPONSIBILITY FOR BEARING CHARGES**3.1 Physical Interconnection, Unbundled Network Elements, and Essential Support Facilities**

3.1.1 A Dominant Licensee must comply with the following principles governing responsibilities for the bearing of charges in providing Physical Interconnection, Unbundled Network Elements and Essential Support Facilities in its RIO:

- A Dominant Licensee must offer to pay the initial costs of establishing a Point of Access (“POA”). The Dominant Licensee may recover the costs incurred in establishing a POA through the prices that it charges Requesting Licensees to which it provides Essential Support Facilities and Unbundled Network Elements. The Dominant Licensee may require Requesting Licensees to compensate it for the costs incurred in

APPENDIX ONE — *continued*

establishing and maintaining POAs, or in using facilities, based on relative use. The Dominant Licensee must allocate the costs based on the expected number of users and the duration of use. The Dominant Licensee must allocate costs equally for non-traffic-sensitive facilities. For traffic-sensitive facilities, the Dominant Licensee must allocate costs based on the number of connections, actual usage and capacity requested.

- Capacity requirements are typically defined at the time a Point of Interconnection (“POI”) is established. The level of capacity requested can materially affect the cost of the interconnection. Due to the uncertainties in inter-network interconnections, it is difficult to ensure that Requesting Licensees will request no more capacity than required for efficient operations. A Dominant Licensee need only offer to provide specified levels of capacity for 2 key elements where capacity is clearly constrained: co-location space and power supply to co-location spaces.

3.2. Origination/Transit/Termination Services

3.2.1 A Dominant Licensee must comply with the following principles governing responsibilities for the bearing of charges in the provision of Origination/Transit/Termination services in its RIO:

- Origination charges result from the costs of conveying the traffic generated by the originating Licensee’s End User to the terminating Licensee’s system - thereby enabling the originating Licensee’s End User to use a service offered by the terminating Licensee’s system or provided by a Services-based Licensee connected to the terminating Licensee’s system. Termination charges result from the costs of conveying the traffic generated by the originating Licensee’s End User to the terminating Licensee’s system, enabling the End User or Services-based Licensee connected to the originating Licensee to establish one-way or interactive communication. Unless the parties agree otherwise, each Licensee is responsible for its own costs in setting up a POI.
- The origination charge compensates the originating Licensee when the terminating Licensee, or the Services-based Licensee connected to the terminating Licensee, bills the End User directly. The origination charge then compensates the originating Licensee for the incremental cost of access.
- For fixed-to-fixed interconnection, origination and termination charges must be applied on a symmetrical basis.
- A Dominant Licensee need not pay termination charges for fixed-to-mobile interconnection. However, IDA will revisit this issue (along with the issue of “Calling Party Pays”) in future.
- Transit charges must be paid by the Licensee that originates the traffic, regardless of the payment flows between End Users and Licensees. A Dominant Licensee that acts as the transit Licensee need not be a party to the commercial negotiations between the interconnecting Licensees.

APPENDIX TWO**Prices, Terms and Conditions at Which a Dominant Licensee
Must Offer to Provide Interconnection Related Services****1. INTRODUCTION**

- 1.1. This Appendix describes the prices, terms and conditions at which a Dominant Licensee must initially offer to provide certain key Interconnection Related Services (“IRS”)* and wholesale services to Facilities-based Licensees and Services-based Licensees that use switching or routing equipment to provide telecommunication service to the public. The Dominant Licensee must include these terms in its Reference Interconnection Offer (“RIO”).†
- 1.2. In this Appendix, the term “Dominant Licensee” means a Licensee that IDA has classified as dominant. The term “Licensee” means Facilities-based Licensees and Services-based Licensees that use switching or routing equipment to provide telecommunication service to the public. The term “Requesting Licensee” means a Facilities-based or Services-based Licensee that has requested IRS from a Dominant Licensee.
- 1.3. IRS includes those telecommunication facilities and services that Licensees require to interconnect their respective telecommunication networks.
- 1.4. In its RIO, a Dominant Licensee must offer to provide the following IRS:
 - Physical Interconnection (“PI”)
 - Origination/Transit/Termination (“O/T/T”) Services
 - Essential Support Facilities (“ESF”)
 - Unbundled Network Elements (“UNE”)
 - Unbundled Network Services (“UNS”)
- 1.5. A Dominant Licensee must offer to provide all categories of IRS to Facilities-based Licensees, but need only offer to provide O/T/T and UNS to Services-based Licensees. The Dominant Licensee must offer the same price, terms and conditions for such services to Facilities-based and Services-based Licensees. In addition, the Dominant Licensee must offer to allow Facilities-based Licensees to obtain specified wholesale services.

* This Appendix is based on the operation of traditional telephone networks. IDA may, in future, specify additional or different requirements applicable to Dominant Licensees that control cable systems or other infrastructure that can be used to provide telecommunication services.

† The RIO contains the minimum terms on which the Dominant Licensee must offer to provide IRS. Where IDA has not specified prices, terms or conditions for specific IRS, a Dominant Licensee may include prices, terms and conditions in its RIO that are consistent with the requirements of this Code. A Dominant Licensee remains free to enter into Interconnection Agreements with other Licensees that contain prices, terms and conditions that are different from those specified in the Dominant Licensee’s RIO — provided that the agreements satisfy the Minimum Interconnection Duties specified in sections 4.2–4.2.8 of this Code and do not discriminate against any other Licensees.

APPENDIX TWO — *continued*

- 1.6. The list of prices for IRS will be made available by IDA upon request by Licensees where applicable, subject to terms and conditions. Unless modified or eliminated by IDA, the prices, terms and conditions specified in this Appendix will remain effective for 3 years from the effective date of this Code. This approach is intended to facilitate new entry, whilst providing incentive for new entrants to invest in infrastructure. As part of its triennial review of this Code, IDA will assess the competitiveness of the market. At that time, IDA will determine whether to: continue to require Dominant Licensees to comply with the prices and other requirements specified in this Appendix; modify the current requirements; require Dominant Licensees to continue to offer to provide IRS at cost-based prices, subject to specified price floors and/or ceilings; require Dominant Licensees to continue to offer to provide IRS at cost-based prices, without specifying price floors or ceilings; modify or eliminate the requirement that Dominant Licensees provide IRS at cost-based prices; or take any other appropriate action. IDA reserves the right to review and modify or eliminate the interconnection requirements and prices, terms and conditions specified in this Appendix prior to the end of 3 year period.

2. PHYSICAL INTERCONNECTION

- 2.1. PI requires the provision and maintenance of transmission links between each Facilities-based Licensee's network for the purpose of exchanging traffic. The interconnecting transmission links must connect at mutually agreed points and support applicable technical standards and transmission protocols (see section 4.6.2 of this Code). Unless Facilities-based Licensees agree otherwise, each Facilities-based Licensee is responsible for the provision and maintenance of the link on its "side" of the point of interconnection ("POI").
- 2.2. PI may take place at a number of points in the network. A Dominant Licensee must offer to allow traffic exchange to occur at the following POIs:
- Interconnect gateway switches
 - Signaling transfer points
 - Local switches (line side and trunk side)
- 2.3. A Dominant Licensee must offer physical interconnection to Facilities-based Licensees. The Dominant Licensee need only offer Services-based Licensees virtual (distant) interconnection. In a virtual interconnection arrangement, the network nodes are not located at the same site. In this arrangement, the interconnection link between the two nodes is provided by the Dominant Licensee, with the costs of this link borne by the Services-based Licensee.

APPENDIX TWO — *continued*

- 2.4. PI may also take place to provide access to UNE, UNS and ESF. A Dominant Licensee must offer to provide Facilities-based Licensees access to UNE at the following Points of Access (“POA”):
- Distribution frames (exchange MDF, building MDF, roadside cabinet)
 - Fibre distribution frames
 - Digital cross connect frames or add/drop multiplexers
- 2.5. A Dominant Licensee must also offer to provide Facilities-based Licensees access to ESF and UNE at the following POA (when controlled by the Dominant Licensee):
- Lead in ducts/manholes
 - Exchange cable vault
 - Exchange buildings housing tandem, local interconnection and international switches and facilities
 - Building equipment rooms
 - Roof spaces
- 2.6. A Dominant Licensee must provide all relevant signaling plans, including the technical specifications, interconnection test plans and the corresponding test schedules, to any Requesting Licensee. The price that the Dominant Licensee must offer for interconnection must include signaling message interconnection.

3. ORIGINATION/TRANSIT/TERMINATION

- 3.1. O/T/T services involve the switching, routing and transmission of telecommunication traffic between Licensees. O/T/T services allow traffic originated on one Licensee’s network to terminate or transit through another Licensee’s network.
- 3.2. A Dominant Licensee must offer to provide O/T/T services to any Requesting Licensee. A Dominant Licensee need not pay termination charges for fixed-to-mobile interconnection. The Dominant Licensee need only offer to provide transit services between Licensees interconnected to the Dominant Licensee’s interconnection gateway switch (“IGS”). The Dominant Licensee need not offer to route transit traffic between the interconnection gateway switch and a local switch interconnection. In the case of transit traffic, the Dominant Licensee may require the Licensee originating the call to pay the Dominant Licensee for the cost of transit, irrespective of the type of traffic and payment between the End User and the 2 Non-dominant Licensees that are using the transit service.

APPENDIX TWO — *continued*

3.3. A Dominant Licensee must provide the following O/T/T services:

Public Switched Telecommunication Network (“PSTN”) Voice

- Line side (local exchange) origination (3-digit and 4-digit access codes): Priced on a per call-minute basis
- Line side (local exchange) termination (7-digit numbers): Priced on a per call-minute basis
- Trunk side (local exchange) origination (3-digit and 4-digit access codes): Priced on a per call-minute basis
- Trunk side (local exchange) termination (7-digit numbers): Priced on a per call-minute basis
- IGS origination (3-digit and 4-digit access codes): Priced on a per call-minute basis
- IGS termination (7-digit numbers): Priced on a per call-minute basis
- IGS transit: Priced on a per call-minute basis

4. ESSENTIAL SUPPORT FACILITIES

4.1. ESF are those passive support structures, for which no practical or viable alternatives exist, that enable the deployment of telecommunication infrastructure.

4.2. A Dominant Licensee must offer to provide Facilities-based Licensees the following ESF:

4.2.1 Co-Location

4.2.1.1 A Dominant Licensee must offer to allow Facilities-based Licensees to co-locate equipment in the following facilities (when controlled by the Dominant Licensee):

- exchange buildings housing tandem, local, interconnection and international switches and facilities
- telecommunication equipment rooms located in commercial buildings
- telecommunication equipment rooms located in residential buildings
- satellite earth stations
- submarine cable landing stations/frontier stations
- radio tower sites

4.2.1.2 The Dominant Licensee must offer to provide equipment space, power, security and site maintenance at each co-location site.

APPENDIX TWO — *continued*

- 4.2.1.3 In cases where a Dominant Licensee cannot offer physical co-location due to space limitations or any other legitimate reasons, the Dominant Licensee must take reasonable measures to find an alternative solution. An alternative solution may include options such as virtual co-location, conditioning additional equipment space, optimising the use of existing space or finding adjacent space. The Dominant Licensee is not required to offer to construct additional buildings to accommodate co-location requests.
- 4.2.1.4 A Dominant Licensee may not restrict the type of equipment co-located so long as it is telecommunication equipment of a type customarily located in a telecommunication operator's exchange building or other network locations. However, this space cannot be used for the co-location of a specific End-User's equipment (e.g., a PABX) or general purpose computing equipment that is not required for operation or management of the co-located equipment (e.g., a billing system). A Dominant Licensee may impose a minimum of one square metre or a maximum of 10 square metres of equipment footprint space available to each Facilities-based Requesting Licensee at each exchange building, unless the Dominant Licensee can demonstrate that the use of more than 10 metres of footprint space will not preclude any Facilities-based Requesting Licensee from placing permitted equipment in a given exchange building. The Dominant Licensee must offer to provide power at a minimum of 13 fused amps and a maximum of 200 fused amps.
- 4.2.1.5 A Dominant Licensee cannot require the use of co-location cages or equivalent structures. The Dominant Licensee must incur the cost of preparing co-location space, which it can recover through non-discriminatory, pro-rata prices to be paid by Facilities-based Requesting Licensees.
- 4.2.1.6 A Dominant Licensee must offer Facilities-based Requesting Licensees access to their co-located equipment on a 7 days a week, 24 hours a day basis. The Dominant Licensee can require reasonable security precautions. These can include escorted access, provided the escort is available 7 days a week, 24 hours a day. The Dominant Licensee must make escort available on the following basis:
- for service-affecting emergencies, within one hour of notification
 - for non-service affecting emergencies, within four hours of notification
 - in all other cases, within 24 hours of notification

APPENDIX TWO — *continued***4.2.2. Manholes, cable chambers, trenches, ducts, and conduits (duct and trench)**

4.2.2.1 Ducts and trenches are the ESF that house the copper, coaxial and fibre cables in the backbone, inter-exchange and access portions of the telecommunication network. A Dominant Licensee must offer to lease ESF to Facilities-based Requesting Licensees for the purpose of placing their own telecommunication transmission cable/fibre. The Dominant Licensee must maintain the ducts and trenches and also must be responsible for any right-of-way fees payable, where applicable.

4.2.3. Space within cable risers in commercial and residential buildings

A Dominant Licensee must offer to provide Facilities-based Licensees access to space within cable risers used to provide service to the building tenants. This must include access to any distribution frames, cabinets or network interface devices within the buildings where they are the properties of the Dominant Licensee. (The guidelines for building owners in this respect will be set out in the Code of Practice for Info-communications Facilities in Buildings.) The Dominant Licensee must price these facilities using methodology set out in Appendix One.

4.2.4. Masts, towers and poles

A Dominant Licensee must offer to provide Facilities-based Licensees access to masts, towers and poles, used for the location of radio transmission or reception equipment and including space for baseband equipment. The Dominant Licensee must price these facilities on an individual case-basis, provided that the price is cost-based and non-discriminatory.

5. UNBUNDLED NETWORK ELEMENTS

5.1. UNE include physical telecommunication plant and equipment and the associated service functionality that can be de-coupled from a Dominant Licensee's network and made available to a Facilities-based Requesting Licensee for the provision of their telecommunication service offerings.

5.2. A Dominant Licensee may not place any restriction on the buyer of a UNE as to the End Users or Licensees to which the UNE may be resold. For example, a Licensee can purchase copper local loop and upgrade it to a Digital Subscriber Line ("DSL") for resale to other Facilities-based or Services-based Licensees.

APPENDIX TWO — *continued*

- 5.3. A Dominant Licensee must offer to lease to Facilities-based Licensees the following UNE:
- 5.3.1 Local loops — including feeder, distribution, distribution point, and inside wiring (where applicable)***
- 5.3.1.1 A Dominant Licensee must offer to construct additional loops if none are available. The performance quality of these additional loops must be the same as is generally provided by the Dominant Licensee's existing loops.
- 5.3.1.2 The Dominant Licensee must provision the loops in a timely and non-discriminatory manner, and must take all feasible actions to provision loops that are suitable for digital signal transmission. The Dominant Licensee will retain responsibility for the maintenance and administration of the loops.
- 5.3.1.3 A Dominant Licensee must provide loops that are of the same quality and capable of supporting the same transmission characteristics as those it supplies to its own End Users. The Dominant Licensee must also provide maintenance and repair services on the unbundled loops that is equivalent to the service it would provide on loops serving its own End Users.
- 5.3.1.4 To maintain the integrity of the loop and associated equipment, a Dominant Licensee may retain responsibility for performing the necessary cross-connections and circuit-grooming activities required at the distribution frames to connect the Facilities-based Requesting Licensee's equipment to each loop provided. However, the Dominant Licensee must not use this authority in a manner that restricts supply. The cost of these activities is recovered through the loop prices.
- 5.3.1.5 Where the Facilities-based Requesting Licensee plans to use the loop to provide a DSL type service, the loop performance should be typical of those used by the Dominant Licensee for its own DSL services. This requires the Dominant Licensee to "condition" a loop pair. Typically, this will require the Dominant Licensee to remove any impediments to DSL service (such as bridge taps and loading coils) and to choose a pair that is unlikely to suffer from interference caused by other DSL services. A Dominant Licensee does not have any obligation to guarantee loop performance beyond voice-grade standard. However, in so far as it uses loops for their own DSL services, a Dominant Licensee must supply loops to other Requesting Licensees for DSL that perform at a level equivalent to the loops the Dominant Licensee use for its own DSL. If the Dominant Licensee chooses to guarantee its End Users loop performance above a voice-grade standard, loops provided to other Licensees must also meet this guarantee.

* See the attached diagram on page 88

APPENDIX TWO — *continued***5.3.2 Sub-loops — feeder, and distribution, distribution point and inside wiring portion of loops (where applicable)**

5.3.2.1 A Dominant Licensee must also offer sub-loops and the associated distribution points available to Requesting Licensees on the same terms and conditions as loops.

5.3.3 Line Sharing (loop spectrum) — including feeder, distribution, distribution point and inside wiring portion of loop (where applicable)

5.3.3.1 A Dominant Licensee must offer to provide Facilities-based Requesting Licensees line sharing (loop spectrum). The Dominant Licensee will need to provide a DSL capable loop (in the same manner as described in subsection 5.3.1.5) and make co-location space available. The Dominant Licensee must offer to allow each Facilities-based Requesting Licensee to attach its own transmission equipment.

5.3.3.2 A Dominant Licensee need not offer to construct additional loops to meet requests for line sharing (loop spectrum).

5.3.3.3 A Dominant Licensee must provide timely information to other Facilities-based Licensees to assist their deployment of DSL services. The information will be the same as that provided to their own operations in order to assess the capability of providing DSL on a loop.

5.3.3.4 Facilities-based Requesting Licensees must adhere to a spectrum management and deployment plan that will be developed by the Dominant Licensee and approved by IDA. Such plan will be no more restrictive than necessary to minimise cross-talk and to ensure the integrity of the voice network. A Dominant Licensee must include the major elements in its RIO.

5.3.4 Distribution Frame Access — exchange MDF, building MDF and roadside cabinets

5.3.4.1 A Dominant Licensee must offer to provide distribution frame access in order to allow the Facilities-based Requesting Licensees to place the terminal blocks and cabling required to cross-connect the loop to the Facilities-based Requesting Licensee's equipment.

5.3.4.2 A Dominant Licensee must offer to provide Facilities-based Requesting Licensees with pins on the Dominant Licensee's distribution frames for the purposes of connecting their cables. The Dominant Licensee must develop a reasonable process for allocating pins to Facilities-based Requesting Licensees and for updating plant records. Where physical space is available, the Dominant Licensee must offer to construct additional distribution frame capacity to meet requests for access. The Dominant Licensee must detail the process for allocating pins in their RIO.

APPENDIX TWO — *continued***6. UNBUNDLED NETWORK SERVICES**

- 6.1. UNS are those services that are either not economically feasible or rational for a Licensee to replicate.
- 6.2. A Dominant Licensee must offer to provide Facilities-based and Services-based Requesting Licensees with the following UNSs:
- 6.2.1. Emergency Services access
- 6.2.1.1 A Dominant Licensee must offer to provide access to emergency services call centres and the ability to add local telephone location data to the emergency services database.

7. WHOLESALE SERVICES

- 7.1. A Dominant Licensee must offer to make the following services available to Facilities-based Requesting Licensees on a “retail minus” price basis:
- Dark fibre
 - International private leased circuits at the following speeds:
 - E1 (2048 Kbps)
 - Multiples of E1
 - DS 3 (45 Mbps)

7.2. Dark Fibre

- 7.2.1. A Dominant Licensee must offer to allow Facilities-based Requesting Licensees to obtain domestic dark fibre in a timely and non-discriminatory manner. This includes access and inter-exchange fibre. The Dominant Licensee must offer to provide maintenance and repair services equivalent to the services it provides for its own fibre. The Dominant Licensee must not place any devices on the fibre to restrict the available bandwidth; the fibre loss must be no greater than what is considered typical of those experienced by the Dominant Licensee.
- 7.2.2. The price at which a Dominant Licensee must offer dark fibre is based on a discount to current retail prices, and benchmarked against other jurisdictions for reasonableness.

7.3. International Private Leased Circuits

- 7.3.1 A Dominant Licensee must offer to allow Facilities-based Requesting Licensees to obtain international private leased circuits at wholesale (retail minus) prices.

APPENDIX TWO — *continued*

7.3.2. In order to enable Facilities-based Requesting Licensees to access these facilities, Dominant Licensees must offer to provide co-location space at any frontier station, cable landing site, international gateway and the international satellite transmission site for the purposes of accessing and interconnection to international bandwidth. Dominant Licensees must offer to allow Facilities-based Requesting Licensees to physically link to these sites in the following ways:

- Using retail domestic leased circuits
- Via Licensee — provide facilities using leased conduit/duct
- Using unbundled dark fibre

APPENDIX TWO — *continued*

TYPICAL ILLUSTRATION OF FEEDER, DISTRIBUTION, DISTRIBUTION POINTS AND INSIDE WIRING

