

LICENSING & REGULATORY FRAMEWORK

INTERCONNECTION HANDBOOK



**AUTHORITY FOR INFO-COMMUNICATIONS
TECHNOLOGY INDUSTRY OF BRUNEI DARUSSALAM (AiTi)**

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INTERCONNECTION HANDBOOK FOR THE AUTHORITY FOR INFO-COMMUNICATIONS TECHNOLOGY INDUSTRY OF BRUNEI DARUSSALAM

1 PURPOSE

- 1.1 The purpose of this document is to describe the access and interconnection framework of the Authority for Info-communications Technology Industry of Brunei Darussalam (“AiTi”) for the facilitation of interconnection arrangements between players in the telecommunications industry of Brunei Darussalam. The document sets out the principles upon which AiTi will facilitate access and interconnection arrangements, the situations where AiTi will intervene in such arrangements, the basis for determining interconnection charges, and the manner in which AiTi will resolve disputes relating to interconnection issues and enforce compliance with these regulatory requirements.
- 1.2 Please note that this document is only intended as a guide for parties involved in access and interconnection arrangements. AiTi reserves the right to change its policies and to amend this document from time to time as it sees fit and without prior notice. AiTi is not bound by the contents of this document in relation to the handling of any interconnection issue. The contents of this document have no legal standing and are not intended as a substitute for legal advice. Licensees should seek advice from their own legal counsel for the purposes of negotiating interconnection arrangements with another licensee and in seeking dispute resolution by AiTi.
- 1.3 AiTi reserves the right to disclose information regarding the interconnection arrangements of parties and the disputes that it handles in relation to interconnection.

2 OBJECTIVES

2.1 There are multiple regulatory objectives bearing on interconnection – economic, technical and consumer.

2.1.1 *Economic.* The economic objectives for access and interconnection are:

- (a) To promote consumer markets that offer choice, quality and affordability;
- (b) To promote any-to-any connectivity for network services used for communication between end-users;
- (c) To promote competition in the telecommunication market; and
- (d) To promote investment and innovation in network infrastructure and services, and their efficient utilisation.

2.1.2 *Technical.* The technical objectives for access and interconnection are:

- (a) To promote industry development and the effectiveness of economic regulation by facilitating technical interoperability of networks;
- (b) To promote efficient allocation of resources; and
- (c) To promote the safety, security and integrity of network infrastructure and services.

2.1.3 *Consumer.* The consumer objectives for access and interconnection are:

- (a) To promote industry responsiveness to consumer requirements;
- (b) To promote consumer confidence in the quality and the terms and conditions of service delivery;
- (c) To promote widespread consumer access to services; and
- (d) To promote the affordability of services.

3 PRINCIPLES

- 3.1 As a general principle, as far as possible, AiTi will rely on market forces to create an environment that will lead to the efficient use of telecommunication resources and infrastructure in Brunei Darussalam. However, it is recognised that under the present market structure, there are players with different strengths and market dominance, resulting in the absence of a level playing field when licensees have to deal and negotiate with each other. In particular, where an incumbent player has extensive infrastructure that is very costly or not economically feasible for a new entrant to replicate, the new entrant will be at a significant disadvantage when negotiating with the incumbent for the access or use of critical services or infrastructure controlled by the incumbent, or for interconnection with the incumbent. It is in such instances where there is an imbalance of bargaining positions that AiTi will intervene to address how interconnection and access issues are to be dealt with and ensure that fair competition can take place.
- 3.2 To develop a competitive telecommunications industry with certainty for the players, AiTi will also endeavour to make its decisions and determinations in an open and transparent manner.
- 3.3 To achieve the above, AiTi will:
- 3.3.1 Define situations where a licensee is deemed to have market dominance such that the provisions of the interconnection framework will apply;
 - 3.3.2 Define the critical points of access and interconnection where there will be regulatory intervention;
 - 3.3.3 Specify the approach to be taken by licensees when seeking access and interconnection with the defined critical points;
 - 3.3.4 Specify the charging mechanism to be applied in the access and interconnection arrangements; and
 - 3.3.5 Define the dispute resolution and enforcement mechanisms to deal with issues arising out of the access and interconnection arrangements.
- 3.4 It should be noted that in situations where AiTi is involved in dispute resolution, AiTi is not bound to make its decision or determination purely on the basis of commercial considerations, but it may take into account broader public or consumer interest concerns.
- 3.5 Further, once an access or interconnection arrangement is entered into between the parties (with or without AiTi's intervention), AiTi will generally not deal with any dispute arising out of that arrangement unless both parties agree to submit the dispute to be resolved by AiTi, or it is provided under the agreement that the dispute will be resolved by AiTi. Where one party does not agree to submit to AiTi's jurisdiction, the dispute resolution provisions within the access or interconnection arrangement is to be complied with (e.g. mediation, arbitration or litigation).

4 SCOPE

- 4.1 Inter-working between licensees involves both technical interconnection and a commercial pricing regime. Interconnection in Brunei Darussalam will involve fixed networks, mobile networks, fixed to mobile inter-working, and the handling of transit traffic. **Figure 1** below shows the generic model for inter-working between licensees:

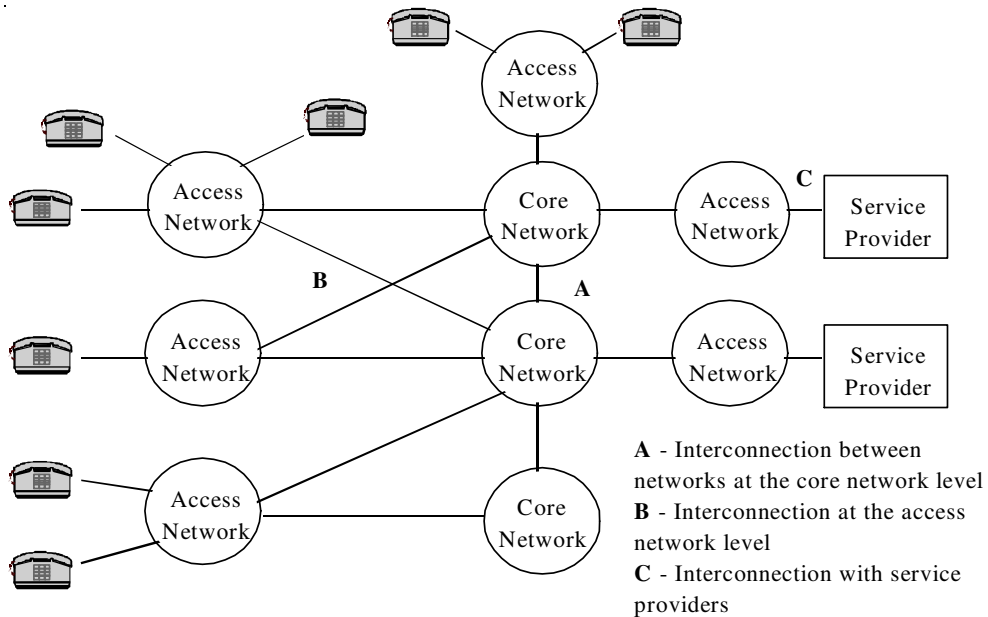


Figure 1: Generic Models of Interconnection

- 4.2 Interconnection is implemented through special network interfaces nominated as Points of Interconnection (“POIs”), as illustrated by **Figure 2** below:

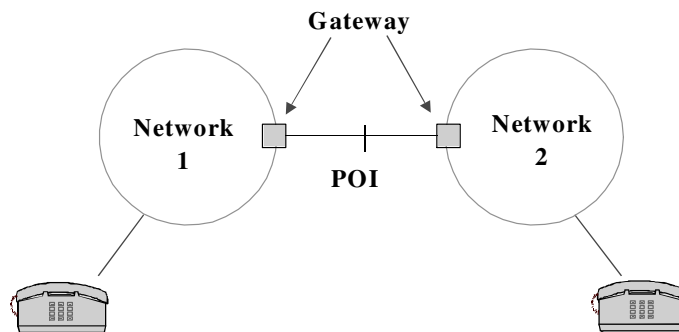


Figure 2: Interconnection between Network Gateways

- 4.3 Particular regulatory requirements to facilitate interconnection and a competitive market include:
- 4.3.1 *Call termination.* The handover of calls or communications that originate on one network and terminate on another network.

4.3.2 *Facility Co-location.* The dominant fixed network licensee is required to provide housing within exchange buildings for other licensees to facilitate points of interconnection and access to unbundled network facilities.

4.3.3 *Number portability.* Number portability is required across licensees to address a major hurdle to competition where an end user is unable to retain an existing number allocated to him when changing service provider.

4.4 A related regulatory policy involves access by one licensee to another licensee's network facilities. Two situations are involved:

4.4.1 *Access to bottleneck facilities of a dominant licensee.* This typically occurs in the fixed local access network. A licensee will acquire an unbundled network element such as the subscriber line and resell the service as part of a value added package (as in the case of a digital subscriber line service over copper pairs to provide high capacity broadband services). Due to the market power of a dominant fixed network provider, regulatory controls are needed to ensure fair market behaviour.

4.4.2 *Infrastructure sharing.* This is a special case of access regulation and is invoked where there are public policy imperatives to:

- (a) Maximize geographical coverage (as in the case of inter-operator roaming);
- (b) Minimise infrastructure duplication, where this is economically inefficient or where there are environmental and urban planning reasons to promote shared infrastructure (as in the case of shared use of street ducts, radio towers, man holes, etc.).

4.5 **Figure 3** below represents the generic options for inter-working through access to unbundled network elements in the access network:

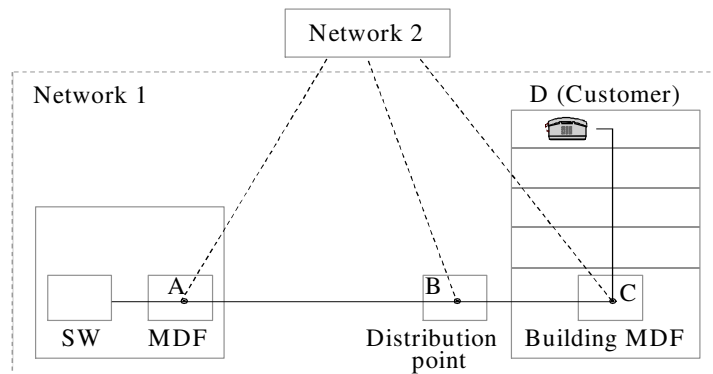


Figure 3: Access models for unbundled network elements

- 4.6 In Figure 3, interconnection from Network 1 to Network 2 is possible at any of the points A, B or C¹. Interconnection in this configuration is only possible upon the request of the customer at point D to become a direct customer of Network 2. After interconnection, the customer at point D becomes a direct access customer of Network 2. After interconnection, the operator of Network 1 continues to own and support the local loop.
- 4.7 Therefore, AiTi's access and interconnection framework mandates:
- 4.7.1 Interconnection between licensees, unless specifically exempted by AiTi in the case of special niche services (such as closed private network facilities or special purpose links);
 - 4.7.2 Automatic roaming between mobile licensees in geographical areas where there is only one mobile infrastructure;
 - 4.7.3 Number portability across network licensees, both fixed and mobile; and
 - 4.7.4 Shared use of radio towers, street ducts, manholes and such other infrastructure as AiTi may mandate from time to time, except for such specific facilities that AiTi may exempt from shared use on the application of a licensee. The onus will be on the licensee to establish the case for the exemption from the requirement for infrastructure sharing.
- 4.8 The resolution of interconnection disputes is costly and time consuming, and there is inherently no commercial incentive for dominant licensees to promote an efficient regulatory regime. Investigations of regulatory disputes require specialist skills and resources, which can significantly increase the cost of regulation (which the regulator imposes on the industry and end users through licence fees). As a regulator of a small market and with a regulatory bias to simplicity and transparency, AiTi will review, determine or approve interconnection and access agreements referred to it by reference to relevant regional and international benchmarks. Interconnection terms and conditions will be evaluated by reference to a basket of Interconnection Reference Markets ("IRM"). The IRM will comprise initially of:
- 4.8.1 Singapore (IDA);
 - 4.8.2 Hong Kong (OFTA);
 - 4.8.3 Malaysia (MCMC);
 - 4.8.4 Australia (ACCC);
 - 4.8.5 United Kingdom (OFTEL, and in 2004, OFCOM).

¹ MDF is "Main Distribution Frame", the front end of a local telephone exchange (switching point) or in the case of a building, the control point for the building wiring.

- 4.9 Licensees should have regard to the IRM benchmarks in the development of their reference agreements. AiTi will establish bilateral links with regulators in IRM countries and examine the option of an ASEAN reference group.

5 MARKET DOMINANCE

- 5.1 AiTi will deem a licensee to be a Dominant Licensee in the following circumstances²:
- 5.1.1 The licensee controls infrastructure that provides a direct connection to the end user customers and the infrastructure is sufficiently costly or economically infeasible for another licensee to replicate that it becomes an entry barrier for the rapid and successful entry by a competitor; or
 - 5.1.2 The licensee controls infrastructure that gives the licensee the ability to restrict output, or raise prices above competitive levels for telecommunication services to the end user customers through the infrastructure.
- 5.2 In dealing with issues of market dominance, AiTi will give consideration to the following:
- 5.2.1 *Behavioural factors*. Such factors include:
 - (a) The ability to make independent pricing decisions; and
 - (b) The ability to make independent supply decisions.
 - 5.2.2 *Structural Factors*. Such factors create the conditions for independent behaviour, including:
 - (a) Market share and level of market concentration;
 - (b) Level of vertical integration;
 - (c) Extent of barriers to entry;
 - (d) Global technology and commercial trends; and
 - (e) Level of product differentiation and sales promotion.
- 5.3 Because of their incumbency control of the fixed and mobile network markets respectively, AiTi will initially designate Telekom Brunei Berhad (TelBru) and DST Communications Sdn Bhd (DST) as Dominant Licensees for each of their markets when the new regulatory regime is introduced. By 1 January 2007, AiTi will review the designation of Dominant Licensees through a public consultation process and a re-assessment of the market conditions.

² As a reference, the UK telecommunications regulator has defined the test for dominance as follows: “*The standard test of whether a firm is dominant is whether it has the power to behave to an appreciable extent independently of its competitors and customers in terms of pricing and other decisions.*”

6 INTERCONNECTION DUTIES

- 6.1 All licensees (i.e. whether or not they have market dominance), are to comply with the following minimum duties in relation to interconnection with another licensee:
- 6.1.1 All licensees have a duty to interconnect with other licensees. The parties shall enter into a written agreement (the “Interconnection Agreement”) that captures the terms governing the interconnection relationship between the licensees.
 - 6.1.2 All licensees that interconnect 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.
 - 6.1.3 A licensee must provide to any other licensee to which it interconnects the necessary information within its possession necessary to allow the interconnecting licensee to provide accurate and timely billing to its customers.
 - 6.1.4 A licensee shall not discriminate in the quality of the interconnection or the availability of any other support services or facilities that it provides to other licensees (i.e. a licensee must provide interconnection at the same rates and terms to all other licensees seeking such interconnection under similar circumstances), and shall ensure that there are sufficient points of interconnection available.
 - 6.1.5 All licensees shall make information regarding the physical and logical interfaces of its network publicly available to allow the development and deployment of telecommunication services, value added services and telecommunication equipment that can interconnect and interoperate with another licensee’s network. Any changes must be made publicly available at least six (6) months before the change if it has a material impact on interconnection arrangements. Such changes may not be made known to any licensee’s affiliated companies at any time before the intended changes are announced publicly.
 - 6.1.6 All licensees shall comply with any mandatory technical standards that may be stipulated by AiTi from time to time.
 - 6.1.7 A licensee must take reasonable steps to allow a customer who chooses to obtain services from another licensee to do so with minimum difficulty. This includes a duty on the licensee to allow a customer to retain its same telephone number or other address information to allow the continued access to the service.
 - 6.1.8 All licensees must submit to AiTi for approval copies of all Interconnection Agreements that they enter into. If the Interconnection Agreements are modified, the revised agreements must also be submitted to AiTi for approval of the amendments.

- 6.2 In addition, a Dominant Licensee shall:
- 6.2.1 provide interconnection and access on terms, conditions (including technical standards and specifications) and rates that are transparent, reasonable, have regard to economic feasibility, and sufficiently unbundled so that other licensees seeking interconnection and access need not pay for network components or facilities that they do not require for the service to be provided;
 - 6.2.2 provide for physical interconnection at any technically feasible location in the licensee's network; and
 - 6.2.3 submit to AiTi for approval and then make publicly available a Model Interconnection Agreement ("MIa") (see Section 8) or other standard interconnection offer containing the rates, terms and conditions that the licensee offers generally to other licensees, and shall make publicly available the terms and conditions of each interconnection agreement concluded.
- 6.3 Where licensees seeking to negotiate a new Interconnect Agreement fail to reach an agreement, the parties may choose to use the dispute resolution mechanism described in Section 8 below.

7 CRITICAL POINTS OF ACCESS & INTERCONNECTION

7.1 Where a licensee is designated by AiTi as a Dominant Licensee in accordance with Section 5 above, the licensee will need to follow the procedures set out in Section 8 below in relation to entering into agreement with other licensees for the following types of services and infrastructure controlled by the Dominant Licensee:

7.1.1 Infrastructure that will be sufficiently costly or economically infeasible for the licensee seeking access or interconnection to replicate, or to obtain from a third party provider at a cost that will allow market entry; or

7.1.2 Infrastructure that AiTi deems to be in the public or consumer interest for it to be shared.

7.2 The specific services and infrastructures that fall under the above categories are:

7.2.1 Access / Sharing

- (f) Transmission link between infrastructure³;
- (g) Manhole, cable chamber, ducts and conduit and lead-in ducts⁴;
- (h) Exchange building⁵;
- (i) Building Equipment room, power, roof spaces and floor spaces;
- (j) Satellite earth station;
- (k) Submarine cable landing station; and
- (l) Radio tower mast⁶.

7.2.2 Interconnection

- (a) Switch (international⁷, interconnection⁸ and tandem⁹);

³ Propagation of telecommunication signal via any medium such as wire, coaxial cable, microwave, optical fibre or radio frequency.

⁴ These are considered as the essential support facilities that house the copper, coaxial and fibre cables in the backbone, inter-exchange and access portion of the telecommunication network.

⁵ A building or a room which consists of one or more central offices together with the associated facilities used to provide communications services within that area.

⁶ These are used for the location of the radio transmission and reception equipment.

⁷ Local interconnection is the Interconnection gateway switch.

⁸ International switch is the switch connecting to the outside world.

⁹ A tandem switch is an intermediate switch or connection between an originating telephone call or location and the final destination of the call.

- (b) Local loop¹⁰ (all exchange MDF, building MDF, roadside cabinet, distribution point and internal wiring) for the provision of services such as DSL, broadband services, wireless local loop and other voice services;
- (c) Fibre backbone,¹¹ which includes the fibre, digital cross connects or add drop multiplexer and fibre distribution frames;
- (d) Mobile phone infrastructure for Mobile Virtual Network Operator (“MVNO”)¹².

7.2.3 Wholesale

- (a) Dark Fibre¹³;
- (b) International private leased circuit¹⁴;
- (c) Unbundled network element¹⁵.

7.3 The Dominant Licensee sharing its infrastructure shall be entitled to compensation for the sharing on the basis set out in Section 9 below.

¹⁰ The part of a communications circuit between the subscriber’s equipment and the equipment in the local exchange. More formally, a transmission path that extends from the vertical side of a main distribution frame to the demarcation point in or at an end user’s premises.

¹¹ High-capacity network infrastructure; the part that carries the heaviest traffic.

¹² A Mobile Virtual Network Operator or MVNO is a mobile telecommunications operator who provides cellular mobile phone services under its own ‘brand’, without owning any radio license or network infrastructure. A MVNO relies upon the Mobile Network Operator or MNO for interconnection and access to its radio communications infrastructure and possibly other network subsystems. A MVNO can operate its own subsystem e.g. Switching, billing, intelligent networks, but has no right to the radio spectrum.

¹³ Raw, unconnected optical fibre without any particular assigned function. the owner who lease this optical network has complete freedom to design its architecture and to choose transport technologies and the equipment installed at each end of the network. So the network owner can keep its own pace with technological change, without being affected by a telecommunications carrier’s decisions. No limits can be imposed on usage or bandwidth. The owner has total control over all applications.

¹⁴ Circuits leased from infrastructure providers, which cross one or more international boundaries.

¹⁵ Include physical telecommunication and equipment and the associated service functionality that can be decoupled from a infrastructure licensees network and made available to a service requesting licensee company for the provision of their telecommunication service offerings.

8 APPROACH

8.1 Where a licensee is designated by AiTi as a Dominant Licensee in accordance with Section 5 above, and a licensee wishes to seek interconnection with that Dominant Licensee in relation to access or interconnection with the services or infrastructure listed in Section 6.2 above, the following procedure shall apply:

8.1.1 A licensee designated by AiTi as a Dominant Licensee shall publish a **Model Interconnection Agreement** (“MItA”), as approved by AiTi from time to time, setting out the terms that any other licensee may interconnect with it. The MItA must comply with the minimum interconnection duties as set out in Section 6 above, and in addition:

- (d) The MItA must not discriminate between licensees in terms of price, terms and conditions and quality;
- (e) The MItA must provide for physical interconnection at any technically feasible location in the licensee’s network;
- (f) The MItA must require the Dominant Licensee to offer services to other licensees on an unbundled basis necessary to offer a competing telecommunication service;
- (g) The MItA must provide access to critical infrastructure and allow for co-location where feasible. Any claims of technical, space or capacity limitation to provide such access or co-location must be verified by AiTi;
- (h) The MItA may allow the licensee to take reasonable and non-discriminatory steps to protect the security of its network; and
- (i) The prices offered under the MItA must be in compliance with Section 9 of this document.

8.1.2 A licensee seeking interconnection with a Dominant Licensee may:

- (a) adopt the MItA as is; or
- (b) commercially negotiate a new Interconnection Agreement.

8.1.3 Apart from the MItA that must be approved by AiTi prior to its publication, licensees entering into interconnection arrangements using one of the approaches in paragraph 8.1.2 above need not seek AiTi’s approval for the individual agreements. However, licensees are obliged to notify AiTi and deposit a copy of the finalised interconnection agreement with AiTi upon the successful entry into such agreements.

8.1.4 Where licensees seeking to commercially negotiate a new Interconnection Agreement fail to reach an agreement, the parties may choose to use the dispute resolution mechanism described in Section 10 below.

- 8.2 For the purposes of this section, a licensee designated as a Dominant Licensee may use a reference market agreement referred to in Section 4.8 above, such as, for example, a Singapore agreement as a guide.
- 8.3 A licensee may also choose to use an agreement with another licensee that has already been authorised by AiTi as a MITA.

9 ACCESS AND INTERCONNECTION CHARGES

- 9.1 Where a licensee is designated by AiTi as a Dominant Licensee in accordance with Section 5 above, and a licensee wishes to seek interconnection with that licensee in relation to access or interconnection with the services or infrastructure listed in Section 6.2 above, the following approach on charges shall apply.
- 9.2 Model interconnection agreements may reflect any of the relevant charging models for interconnection, having regard to international best practice in each case. Charging models may vary depending on the parties to interconnection and the relevant market segments.
- 9.3 Some charging models that have been deployed in interconnection agreements include:
- 9.3.1 Bill and Keep, where each party retains the revenues and carries the cost of traffic originating on their network and terminating on another network;
 - 9.3.2 Retail minus, where the costs and margins associated with retail service provision are discounted to establish a wholesale price for independent service providers; or
 - 9.3.3 Cost based charging models.
- 9.4 In reviewing the charging models and price levels in interconnection agreements submitted by licensees, or in resolving disputes about pricing, AiTi will look to the prices used in other telecommunication markets and develop benchmarks based on the experiences of reference markets. **Appendix A** of this handbook provides a list of references and benchmarks designed to provide guidance on interconnection matters and the implementation of interconnection regimes.

10 DISPUTE RESOLUTION

10.1 In the event that during a negotiation between licensees where one party is a Dominant Licensee, prior to the parties entering into an access or interconnection agreement, if the parties fail to reach a satisfactory conclusion of the agreement ninety (90) days after the commencement of such negotiations, the following procedure may be initiated by either party:

10.1.1 Either party may make a formal written request to AiTi setting out all of the following:

- (a) the identity and particulars of the licensees;
- (b) the background to the access or interconnection being sought between the parties;
- (c) the commencement date of the negotiations;
- (d) an undertaking that the requesting party has carried out the negotiations in good faith;
- (e) the points of disagreement between the parties and the position taken by each party in relation to the points of disagreement;
- (f) the requesting party's arguments for the position it has taken;
- (g) any other relevant background information or supporting material; and
- (h) an undertaking by the requesting party to enter into the access or interconnection agreement on the terms that AiTi will determine at the end of the process.

If the request contains incomplete information and the party making the request does not furnish such additional information as required by AiTi, AiTi shall have the discretion not to proceed any further with the request.

10.1.2 AiTi will provide a copy of the submission to the responding party for that party to make a formal written response setting out the following:

- (a) an undertaking that the responding party has carried out the negotiations in good faith;
- (b) confirmation of the points of disagreement and the position taken by each party;
- (c) arguments by the responding party in relation to the position it has taken;
- (d) any other relevant background information or supporting materials; and

- (e) an undertaking by the responding party to enter into the access or interconnection agreement on the terms that AiTi will determine at the end of the process.
- 10.1.3 AiTi will also inform the responding party that if the responding party fails to make a formal response, AiTi will issue a direction for the responding party to enter into the access or interconnection agreement on the terms that AiTi will determine at the end of the process without further input from the responding party.
- 10.1.4 The responding party will be given thirty (30) working days to provide a response to the AiTi. In the absence of receiving a response from the responding party or any request for an extension of time from the responding party, AiTi will proceed to make its determination. AiTi, at its discretion, may grant one extension of time to the responding party for an additional fourteen (14) working days.
- 10.1.5 If AiTi receives a response from the responding party, AiTi will provide a copy of the response to the submitting party to make a final reply setting out the following:
- (a) counter arguments to the points raised by the responding party; and
 - (b) any other relevant background information or supporting materials.
- 10.1.6 The requesting party will be given fourteen (14) working days to provide a reply to AiTi. In the absence of receiving a reply from the requesting party or any request for an extension of time from the submitting party, AiTi will proceed to make its determination without further input from the submitting party. AiTi, at its discretion, may grant one (1) extension of time to the requesting party for an additional seven (7) working days.
- 10.1.7 If required, AiTi will seek further information and clarifications from the parties.
- 10.1.8 AiTi will deliberate on the submissions received from both parties and will make a final determination within 90 days of the receipt of the last submission or the expiry of the submission deadline. The final determination made by AiTi on the points of disagreement between the parties will become the binding terms of the access or interconnection arrangement to be entered into between the requesting and responding parties without further negotiation.
- 10.1.9 If the licensee wishes to appeal the decision or determination of AiTi, the procedure as set out in Section 8 of the Telecommunications Order in relation to the appeal to the Minister shall be followed.
- 10.2 **Figure 4** below illustrates the process flow for dispute resolution by AiTi prior of the entry into an agreement between the parties:

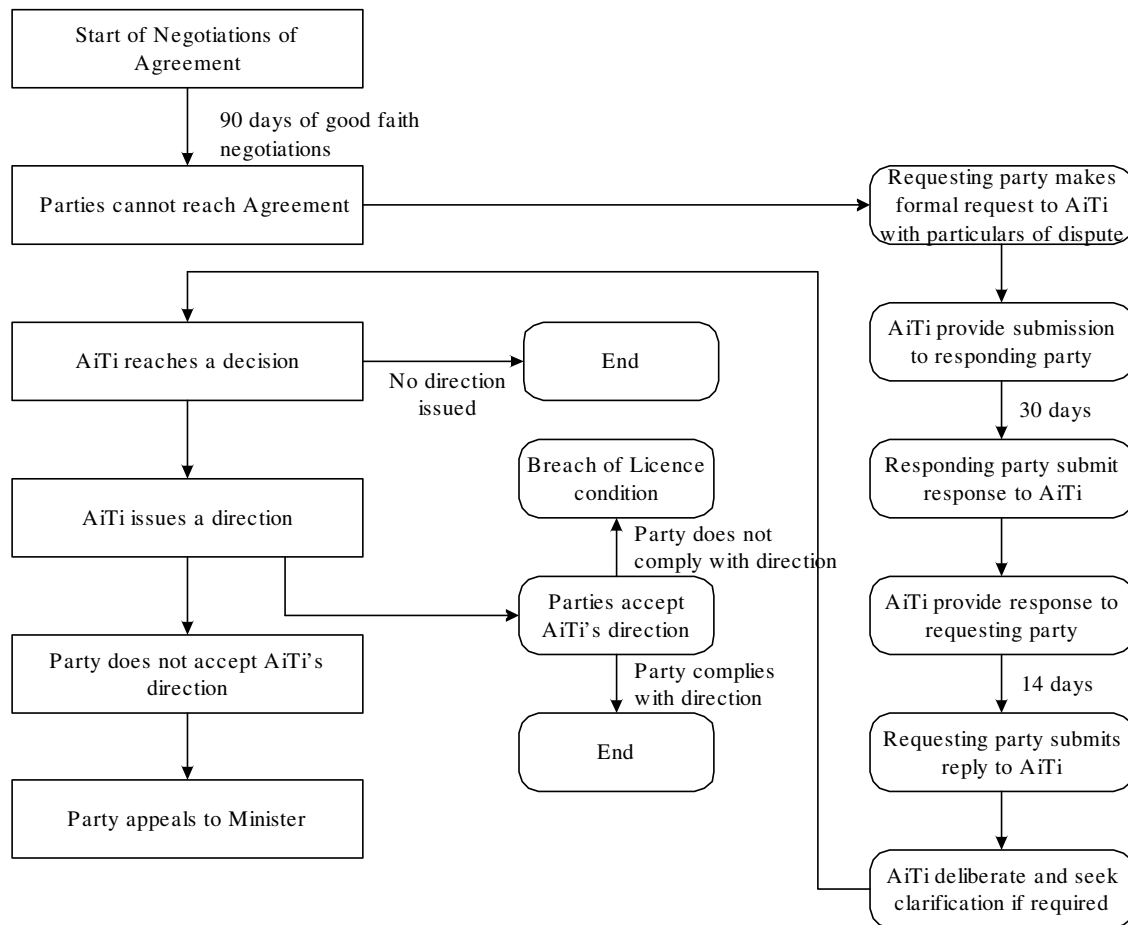


Figure 4: Dispute Resolution Process without Agreement

10.3 If a dispute arises between licensees in relation to an access or interconnection arrangement already entered into between the parties, if the parties cannot reach an amicable solution within ninety (90) days of the dispute having arisen, the following procedure may be initiated by either party, provided both parties have agreed to submit the dispute to AiTi:

10.3.1 Either party to the dispute may make a formal request to AiTi setting out:

- (a) the identity and particulars of the licensees;
- (b) the background to the access or interconnection agreement entered into between the parties, including whether AiTi's intervention was involved in the entering into the agreement;
- (c) the commencement date of the dispute;
- (d) the efforts taken in amicably resolving the dispute;
- (e) an undertaking that the party has carried out the negotiations in good faith;
- (f) the nature of the dispute between the parties and the position taken by each party in relation to the points of disagreement;

- (g) the requesting party's arguments for the position it has taken;
- (h) any other relevant background information or supporting material; and
- (i) an undertaking by the requesting party to abide by AiTi's determination at the end of the process and a waiver to take legal action to resolve the dispute.

10.3.2 AiTi will provide a copy of the request to the responding party for that party to make a formal response setting out the following:

- (a) an undertaking that the responding party has carried out the negotiations in good faith;
- (b) confirmation of the points of dispute and the position taken by each party;
- (c) arguments by the responding party in relation to the position it has taken;
- (d) any other relevant background information or supporting materials; and
- (e) an undertaking by the responding party to abide by AiTi's determination at the end of the process and a waiver to take legal action to resolve the dispute.

10.3.3 If the responding party does not agree to submit the dispute to AiTi for resolution, AiTi will take no further action on the dispute, unless AiTi, in its discretion, determines that it is in the public or consumer interest for it to intervene. In such circumstances, AiTi will inform the responding party that if the responding party fails to make a formal response, AiTi will issue a direction for both parties to abide by determination to be made by AiTi at the end of the process.

10.3.4 The responding party will be given thirty (30) working days to provide a response to the AiTi. In the absence of receiving a response from the responding party or any request for an extension of time from the responding party, AiTi will proceed to make its determination without further input from the responding party. AiTi, at its discretion, may grant one (1) extension of time to the responding party for an additional fourteen (14) working days.

10.3.5 If AiTi receives a response from the responding party, AiTi will provide a copy of the response to the requesting party to make a final reply setting out the following:

- (a) counter arguments to the points raised by the responding party; and
- (b) any other relevant background information or supporting materials.

10.3.6 The requesting party will be given fourteen (14) working days to provide a reply to AiTi. In the absence of receiving a reply from the submitting party or any request for an extension of time from the submitting party, AiTi will proceed to

make its determination without further input from the submitting party. AiTi, at its discretion, may grant one extension of time to the requesting party for an additional seven (7) working days.

10.3.7 If required, AiTi will seek further information and clarifications from the parties.

10.3.8 AiTi will deliberate on the submissions received from both parties and will make a final determination within ninety (90) days of the receipt of the last submission or the expiry of the submission deadline. The final determination made by AiTi made in relation to the dispute will be binding on the parties and will be carried out by the parties without further negotiation.

10.3.9 If the licensee wishes to appeal the decision or determination of AiTi, the procedure as set out in Section 8 of the Telecommunications Order in relation to the appeal to the Minister shall be followed.

10.4 **Figure 5** below illustrates the process flow for dispute resolution by AiTi where an agreement exists between the parties:

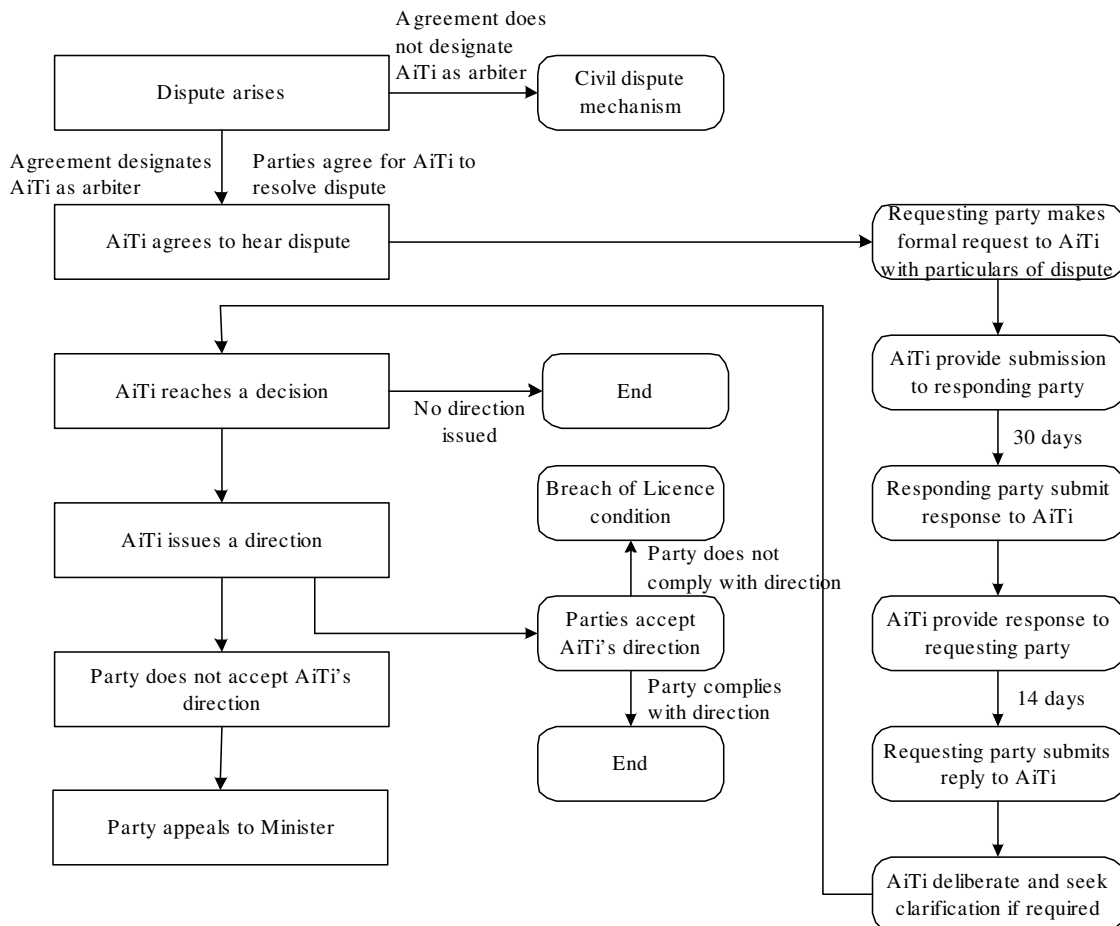


Figure 5: Dispute Resolution Process With Agreement

11 ENFORCEMENT

- 11.1 The failure on the part of a licensee to follow any directions or determinations issued by AiTi will result in enforcement actions being taken against it. The following steps will be taken in relation to any enforcement actions against a licensee:
- 11.1.1 AiTi will notify the licensee in writing. The notification will set out the breach by the licensee, with sufficient details regarding the basis of the breach.
 - 11.1.2 The licensee shall have fourteen (14) working days to respond in writing to AiTi's notification, setting out its reasons and any supporting documents, sworn statements or other relevant material concerning the basis that the licensee disputes that a breach has occurred. The licensee may seek an extension of time from AiTi. AiTi, at its discretion, may grant the licensee one (1) extension of time for an additional seven (7) working days.
 - 11.1.3 Upon reviewing the information submitted by the licensee, AiTi may request for further information or clarifications.
 - 11.1.4 In the interim, AiTi may, at its discretion, issue a direction to the licensee to cease and desist any ongoing conduct or to continue any previous conduct that is subject to the allegation of breach. Such directions shall take effect immediately and continue to have effect until such time that AiTi issues a final decision or determination.
 - 11.1.5 AiTi will deliberate on the information received and will make a final determination within sixty (60) days on whether a breach has occurred, and if so, the enforcement actions that will be taken against the licensee.
 - 11.1.6 The enforcement actions that AiTi may taken against the licensee, based on its powers under Section 8 of the Telecommunications Order, includes the following:
 - (a) AiTi may issue a warning to the licensee;
 - (b) AiTi may issue a cease and desist order relating to the conduct in breach;
 - (c) AiTi may issue a direction to the licensee for compliance;
 - (d) AiTi may impose a financial penalty on the licensee up to the statutory limit of B\$1,000,000; and
 - (e) Where there are factors indicating that the licensee is likely to commit the breach again, or if there are other aggravating factors, AiTi may (in lieu of the order or financial penalty) do all or any of the following:
 - (i) cancel the licence or part thereof;

- (ii) suspend the licence or part thereof for a period as AiTi thinks fit; and
- (iii) reduce the period for which the licence is to be in force.

11.1.7 If the licensee wishes to appeal the decision or determination of AiTi, the procedure as set out in Section 8 of the Telecommunications Order in relation to the appeal to the Minister shall be followed.

11.2 **Figure 6** below illustrates the process flow for enforcement actions taken by AiTi:

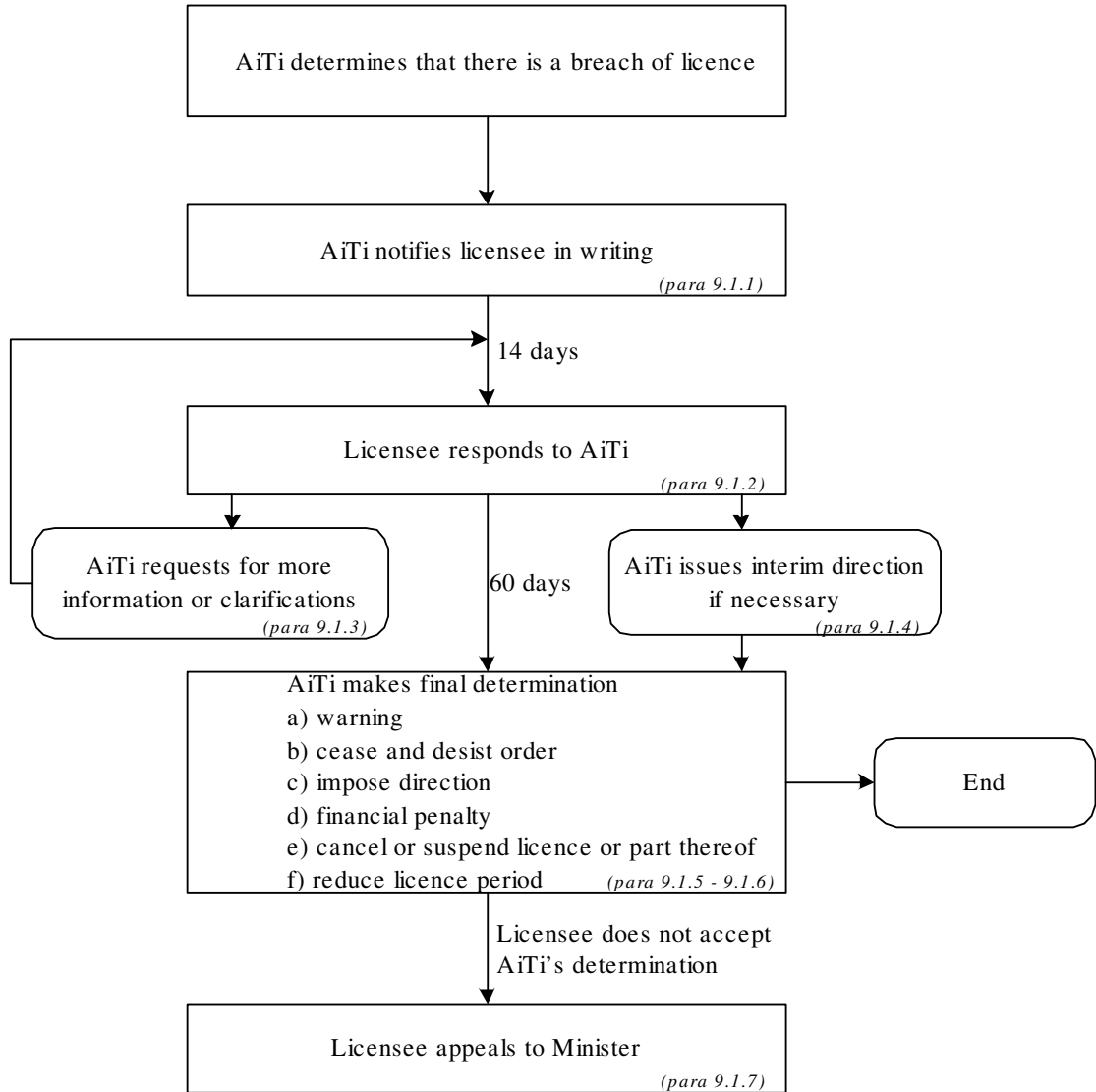


Figure 6: Enforcement Process Flow

12 APPEAL TO MINISTER

12.1 Where a licensee is aggrieved by a direction issued by AiTi under Section 27 of the Telecommunications Order, the licensee may appeal to the Minister under Sections 27(4) and 72 of the Telecommunications Order. Such appeal must be made to the Minister in accordance with the following procedure:

12.1.1 The appeal must be submitted in writing to the Minister within fourteen (14) days of the direction being issued by AiTi.

12.1.2 The written appeal must include information concerning the following:

- (a) The particulars of the direction by AiTi being appealed against;
- (b) The grounds for making the appeal to the Minister;
- (c) The factual background relating to direction issued by AiTi;
- (d) The arguments for the basis that the licensee has been aggrieved by the direction;
- (e) The modification(s) to AiTi's direction sought; and
- (f) Any other relevant information.

12.1.3 The licensee must continue to comply with the direction until the determination of the appeal, unless AiTi has provided otherwise.

12.1.4 The Minister, upon receiving the appeal, will convene the Dispute Advisory Panel. The Panel will review the appeal and to make a recommendation to the Minister. The Panel may require the appellant and any other party it deems necessary (including AiTi) to make submissions for the Panel's consideration.

12.1.5 Upon receiving the advice from the Dispute Advisory Panel, the Minister will assess the recommendations and issue a final decision concerning the appeal.

12.1.6 The decision of the Minister shall be final.

12.2 Where a licensee is aggrieved by a decision of AiTi in the exercise of any discretion vested in it or by anything contained in any code of practice or standard of performance, the licensee may appeal to the Minister under Section 72 of the Telecommunications Order. Such appeal must be made to the Minister in accordance with the following procedure:

12.2.1 The appeal must be submitted in writing to the Minister.

12.2.2 The written appeal must include information concerning the following:

- (a) The particulars concerning the matter being appealed against;
- (b) The grounds for making the appeal to the Minister;
- (c) The factual background relating to the matter being appealed;
- (d) The arguments for the basis that the licensee has been aggrieved by the matter;
- (e) The outcome desired by the appellant; and
- (f) Any other relevant information.

12.2.3 The licensee must continue to comply with the matter being appealed against until the determination of the appeal, unless AiTi has provided otherwise.

12.2.4 The Minister, upon receiving the appeal, will convene the Dispute Advisory Panel. The Panel will review the appeal, and to make a recommendation to the Minister. The Panel may require the appellant and any other party it deems necessary (including AiTi) to make submissions for the Panel's consideration.

12.2.5 Upon receiving the advice from the Dispute Advisory Panel, the Minister will assess the recommendations and issue a final decision concerning the appeal.

12.2.6 The decision of the Minister shall be final.

12.3 **Figure 7** below illustrates the appeal process.

Under Section 27(4) and 72

Under Section 72

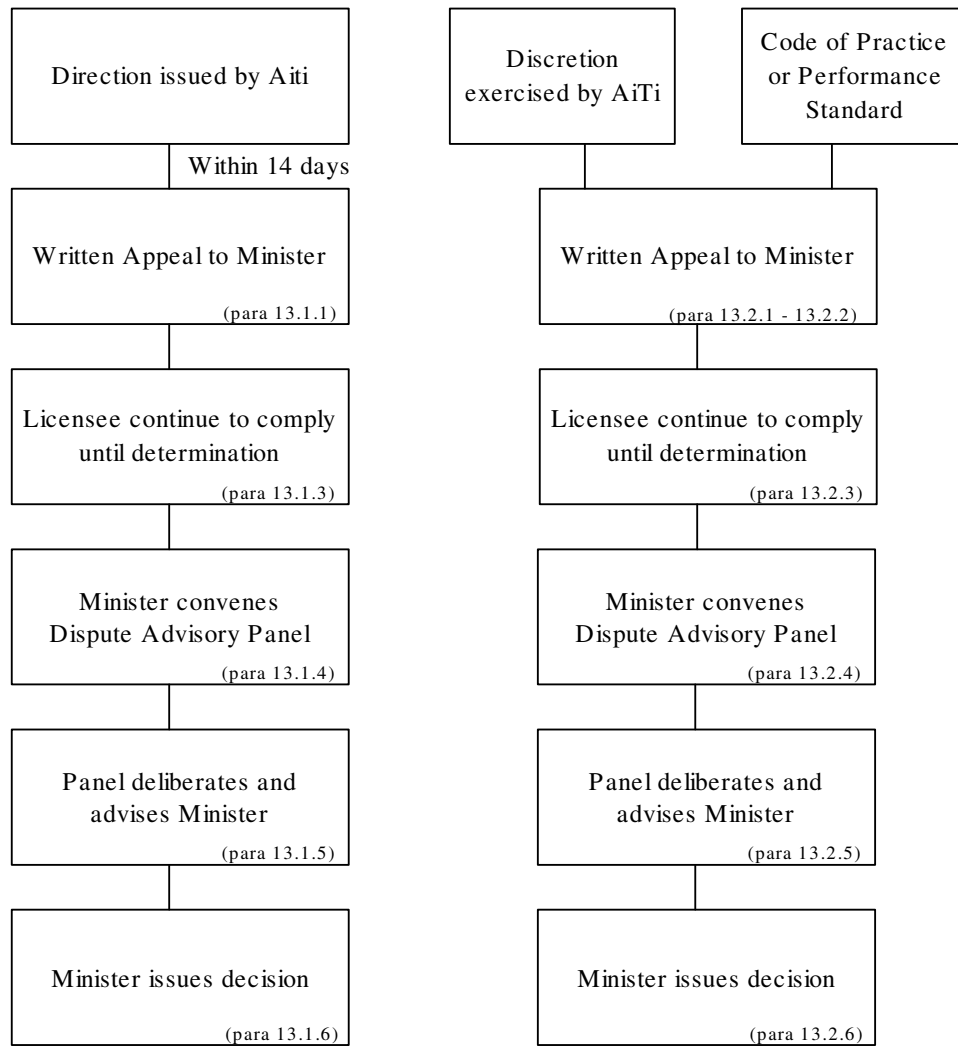


Figure 7: Ministerial Appeal Process

13 ENQUIRIES

- 13.1 Any enquiries about the access and interconnection framework should be made in writing and addressed to the following:

ENQUIRIES ON ACCESS & INTERCONNECTION

Authority for Info-communications Technology Industry of Brunei Darussalam
Block B14, Simpang 32-5,
Kg. Anggerek Desa, Jalan Berakas,
Bandar Seri Begawan BB3713,
Brunei Darussalam

Tel: +673-2-323232

Fax: +673-2-382445

Email: enquiries@aiti.gov.bn

Appendix A: Interconnection Benchmarks¹⁶

1 PRINCIPLES OF INTERCONNECTION

1.1 Asia Pacific Economic Cooperation (“APEC”)

Principles of Interconnection¹⁷

General information on interconnection in APEC region¹⁸

1.2 Inter-American Telecommunication Commission (“CITEL”)

Interconnection Best Practices¹⁹

1.3 European Union

Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive)²⁰

1.4 World Trade Organisation (“WTO”)

Basic Telecommunications Agreement. Reference Paper on Regulatory Principles²¹

¹⁶ Adapted from the US Federal Communications Commission guide, dated 22 November 2002.

¹⁷ <http://www.apectelwg.org/apecdata/telwg/interTG/principl.html>

¹⁸ <http://www.apectelwg.org/apec/atwg/pritgtgr.html>

¹⁹ <http://www.citel.oas.org/pcc1/guidelines/guidelines%20and%20practices.doc>

²⁰ <http://www.radio.gov.uk/topics/eudirectives/directives-mar02/accessinterconnect.pdf>

²¹ http://www.wto.org/english/tratop_e/serv_e/telecom_e/tel23_e.htm

2 REGULATORY FRAMEWORK FOR INTERCONNECTION

2.1 Australia

*Telecommunications Act 1997*²²

2.2 France

*Telecommunications Act of 26 July 1996*²³

2.3 Hong Kong, China

*Telecommunications Ordinance*²⁴ with the *Telecommunication (Amendment) Ordinance 2000*²⁵

2.4 Malaysia

*Communications and Multimedia Act 1998*²⁶

2.5 Singapore

*Info-communications Development Authority of Singapore Act 1999*²⁷

2.6 Spain

Telecommunications Law, Articles 22-29. Ley 11/1998, de 24 de abril, General de Telecomunicaciones. www.cmt.es, under “Centro de información” under “Legislacion.”

2.7 United States

Communications Act of 1934. amended 1996. See especially Title II, Sec. 251.

2.8 Reference Materials: Administrative rules

2.8.1 *Argentina*. Interconnection regulation, from 2000²⁸

2.8.2 *Denmark*. The Danish Interconnection Policy, 1997²⁹

2.8.3 *Canada*. Canadian Radio-Television Commission. “Local Competition.” Telecom Decision CRTC 97-8. May 1, 1997³⁰

²² <http://scaleplus.law.gov.au/html/pasteact/2/3021/top.htm>

²³ <http://www.bild.net/france.htm> (English version)

²⁴

<http://www.justice.gov.hk/blis.nsf/e1bf50c09a33d3dc482564840019d2f4/fc7ef990d740c089c82564800040c259?OpenDocument>

²⁵ http://www.ofta.gov.hk/whats_new/to-amend-2000-eng.pdf

²⁶ http://www.mcmc.gov.my/mcmc/the_law/ViewAct.asp

²⁷ <http://www.ida.gov.sg>, “Policy & Regulation” -> “Legislation”; Second Schedule, Sec.7(1)

²⁸ <http://www.secom.gov.ar/normativa/d764-00/interconexion.htm>

²⁹ <http://www.oecd.org/dataoecd/49/12/1911790.pdf>

- 2.8.4 *Malaysia*. MCMC Guideline on substantial lessening of competition, 2000³¹
- 2.8.5 *Malaysia*. MCMC Guideline on dominant position in a communications market, 2000³²
- 2.8.6 *Hong Kong, China*. Office of the Telecommunications Authority. “Review of the Telecommunications Authority’s Statements No. 4, 5, 6, 7 (Revised) and 8 on 4 Interconnection and Related Competition Issues.” Statement of the Telecommunications Authority. March 18, 2002³³
- 2.8.7 *United States*. Federal Communications Commission. “In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 and Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers.” Released August 8, 1996³⁴
- 2.8.8 *United States*. Federal Communications Commission. “In the Matter of Developing a Unified Intercarrier Compensation Regime.” CC Docket No. 01-02. Released April 27, 2001. This Notice of Proposed Rulemaking discusses and seeks comment on alternative approaches to interconnection pricing, including “bill and keep.”³⁵

³⁰ <http://www.crtc.gc.ca/archive/ENG/Decisions/1997/DT97-8.HTM>

³¹ http://www.mcmc.gov.my/mcmc/facts_figures/codes_gl/index.asp

³² http://www.mcmc.gov.my/mcmc/facts_figures/codes_gl/index.asp

³³ http://www.ofta.gov.hk/frameset/documents_index_eng.html

³⁴ http://www.fcc.gov/Bureaus/Common_Carrier/Orders/1996/fcc96483.txt

³⁵ http://ftp.fcc.gov/Bureaus/Common_Carrier/Orders/2001/fcc01132.doc

3 INTERCONNECTION AGREEMENTS – TECHNICAL CONDITIONS

3.1 General

“Globalization of Interconnection.” International Engineering Consortium. A short, basic introduction to the technical issues related to interconnection.³⁶

3.2 Reference Agreements Posted by Governments and/or Regulatory Bodies

- 3.2.1 *Australia.* ACCC Final Determination – Model Non-price Terms and Conditions October 2003³⁷
- 3.2.2 *Canada.* Model Tariff. September 2002³⁸
- 3.2.3 *European Union members.* Reference Interconnect Offerings³⁹
- 3.2.4 *ETP - Framework Interconnection Agreement Guidelines*⁴⁰
- 3.2.5 *Ireland.* Telecom Éireann’s Reference Interconnect Offer Decision Notice D12/99⁴¹
- 3.2.6 *Mauritius.* Reference interconnect model, 2003⁴²
- 3.2.7 *Singapore.* SingTel’s reference interconnection agreement, 2001⁴³
- 3.2.8 *United States.* New York State Public Service Commission makes interconnection agreements public⁴⁴
- 3.2.9 *United States.* A list of California interconnection agreements are available⁴⁵
- 3.2.10 *United States.* Illinois Commerce Commission has interconnection agreements available to download from their website⁴⁶

³⁶ http://www.iec.org/online/tutorials/global_interconnect/

³⁷ <http://www.accc.gov.au/>

³⁸ <http://www.crtc.gc.ca/cisc/eng/cisf3g5.htm>

³⁹ [http://www.analysis.com/atlas/FindAndShowArticles.asp?strKeys=30,](http://www.analysis.com/atlas/FindAndShowArticles.asp?strKeys=30)

⁴⁰ <http://europa.eu.int/ISPO/infosoc/telecompolicy/en/intercover.pdf>

⁴¹ <http://www.odtr.ie/docs/odtr9954.doc>

⁴² <http://ncb.intnet.mu/icta/download/inter.pdf>

⁴³ <http://www.ida.gov.sg/idaweb/pnr/infopage.jsp?infopagecategory=&infopageid=1288&versionid=1>

⁴⁴ http://www.dps.state.ny.us/Interconnection_Agreements.htm

⁴⁵

<http://www.cpuc.ca.gov/static/industry/telco/current+information/ordering+interconnection+agreements/index.htm>

3.3 Reference Agreements Posted by Incumbent Operators

- 3.3.1 *Denmark.* Tele Danmark, Standard Interconnect Agreement Between Tele Danmark A/S and the “Operator”, 1998⁴⁷
- 3.3.2 *France.* France Telecom⁴⁸
- 3.3.3 *Germany.* Deutsche Telekom⁴⁹
- 3.3.4 *Japan.* Guidebook for interconnection with NTT East⁵⁰.
- 3.3.5 *New Zealand.* Telecom New Zealand interconnect agreements⁵¹
- 3.3.6 *United Kingdom.* British Telecom⁵².
- 3.3.7 *United States.* Qwest⁵³

3.4 Co-location Rules

- 3.4.1 *United States.* “In the Matter of Deployment of Wireline Services Offering Advanced Telecommunications Capability.” FCC 01-204. August 8, 2001⁵⁴

3.5 Dispute Resolution Rules

- 3.5.1 *Australia.* “Resolution of telecommunications access disputes – a guide.” 2002. Australian Consumer and Competition Commission⁵⁵
- 3.5.2 *Malaysia.* MCMC Guidelines for Dispute Resolution. July 2003⁵⁶
- 3.5.3 *Singapore.* Dispute resolution framework to resolve any dispute arising out of the implementation of an interconnection agreement between IDA’s licensees⁵⁷

⁴⁶ <http://www.icc.state.il.us/tc/library.aspx?key=Telecom&key=InterConXAgree>

⁴⁷ <http://www.analysys.com/resources/denmark/DEN1998.pdf>

⁴⁸ <http://www.francetelecom.com/vfrance/pdf/L33-1-2002.pdf>

⁴⁹ http://www.telekom.de/dtag/ipl1/cda/level3_a/0,3680,161,00.html

⁵⁰ <http://www.ntt-east.co.jp/info-st/e/conguide/guide1/>

⁵¹ <http://www.telecom.co.nz/content/0,2502,200656-1553,00.html>

⁵² <http://www.btinterconnect.com/wwwrsia.htm> (opens to <http://www.btinterconnect.com/nsia/nmain.rtf>)

⁵³ <http://www.qwest.com/wholesale/clecs/sgatswireline.html> (opens to http://www.qwest.com/wholesale/downloads/2003/030801/Negotiation_Template_1.5.doc)

⁵⁴ http://www.fcc.gov/Bureaus/Common_Carrier/Orders/2001/fcc01204.pdf

⁵⁵ <http://www.accc.gov.au/telco/fs-telecom.htm>

⁵⁶ http://www.mcmc.gov.my/mcmc/facts_figures/codes_gl/index.asp

⁵⁷

<http://www.ida.gov.sg/idaweb/pnr/infopage.jsp?infopagecategory=factsheet:pnr&versionid=1&infopageid=I161>

3.5.4 *United Kingdom.* “Requesting the Director General of Telecommunications to resolve an interconnection dispute: guidance for the telecommunications industry.” November 2001. Office of Telecommunications, United Kingdom⁵⁸

3.5.5 *United States.* California Public Utilities Commission’s rules for mediation and arbitration of interconnection are available⁵⁹

3.6 Dispute Resolution Cases

3.6.1 *United Kingdom.* Enforcement of interconnection obligation. “Interconnection with BT’s ATM Network. June 14, 2002⁶⁰

3.6.2 *United States.* Texas Public Utilities Commission. The major documents on interconnection dispute resolution, before and after agreements have been reached are available⁶¹

⁵⁸ http://www.oftel.gov.uk/publications/ind_guidelines/disp1101.htm

⁵⁹ http://www.cpuc.ca.gov/PUBLISHED/FINAL_RESOLUTION/2853.htm

⁶⁰ <http://www.oftel.gov.uk/publications/broadband/dsl/atmi0602.htm>

⁶¹ <http://www.puc.state.tx.us/telecomm/interconn/index.cfm>

4 INTERCONNECTION AGREEMENTS – PRICING CONDITIONS

4.1 Reference Pricing

- 4.1.1 *Australia*. ACCC Final Determination for model price terms and conditions of the PSTN, ULLS and LCS services, October 2003⁶²
- 4.1.2 *European Union*. Member countries interconnection tariffs⁶³
- 4.1.3 *Germany*. RegTP current rates⁶⁴
- 4.1.4 *Malaysia*. MCMC Guideline on Implementation of the Commission Determination on Mandatory Standard on Access Pricing, September 2003⁶⁵
- 4.1.5 *Organization of Economic Development and Cooperation (OECD)*. “The Practice of Access Pricing in Telecommunications.” Directorate for Financial, Fiscal, and Enterprise Affairs, Competition Committee. DAFPE/COMP/WP2(2002). Discusses pricing of access services in OECD member countries.
- 4.1.6 *United States*. A list of rates set for unbundled network elements for New York is available⁶⁶
- 4.1.7 *United States*. “A Survey of Unbundled Network Element Prices in U.S.” by Billy Jack Gregg. July 2002⁶⁷
- 4.1.8 *United States*. The Federal Communications Commission’s Electronic Tariff Filing System is an Internet based system through which incumbent Local Exchange Carriers must submit official tariffs. Click “Public Access” to view information⁶⁸. Also available is a direct link to tariff filings⁶⁹.

4.2 Pricing Models

- 4.2.1 *United States*. Federal Communications Commission. Hybrid Cost-Proxy Model⁷⁰

⁶² <http://www.accc.gov.au/>

⁶³ <http://www.analysys.com/atlas/Series/Default.asp>

⁶⁴ <http://www.regtp.de/aktuelles/02285/01/index.html>

⁶⁵ http://www.mcmc.gov.my/mcmc/facts_figures/codes_gl/index.asp

⁶⁶ http://www.dps.state.ny.us/UNE_Rates.htm

⁶⁷ <http://www.cad.state.wv.us/Intro%20to%20Matrix.htm>

⁶⁸ <http://svartifoss2.fcc.gov/prod/ccb/etfs/>

⁶⁹ http://www.fcc.gov/cgi-bin/EFBoards/systemstatus.cgi?index_t=%2e%2e/%2e%2e/pub/e-file/EFBoards.html

⁷⁰ <http://www.fcc.gov/wcb/tapd/hcpm/welcome.html>

4.2.2 *Germany. RegTP Analytical Cost Model*⁷¹

⁷¹ <http://www.regtp.de/en/> under “Telecoms Regulation,” under “Analytical Cost Model.”

5 MONITORING COMPLIANCE WITH INTERCONNECTION AGREEMENTS

5.1 “Operations Support Systems (OSS).” International Engineering Consortium

A discussion of operations support systems that perform management, inventory, engineering, planning, and repair functions for communication service providers and their networks⁷²

5.2 United States

5.2.1 A proposal to identify a number of national performance measurements and standards for evaluating the provision of unbundled network elements (UNEs) by incumbent local exchange carriers with the aim of providing greater consistency, certainty, and clarity in the marketplace⁷³.

5.2.2 “Section 271 Compliance Monitoring of Southwestern Bell Telephone Company of Texas. Project Archive #20400.” Beginning in 2000, performance remedy plans issued by the Texas Public Utility Commission⁷⁴.

5.2.3 “Verizon Performance Assurance Plan. Case 99-C-0949.” Beginning in 2002, performance assurance plans issued by the New York State Public Service Commission⁷⁵

5.2.4 Bell South performance results⁷⁶

5.2.5 Qwest performance results⁷⁷

⁷² <http://www.iec.org/online/tutorials/oss/>

⁷³ http://www.fcc.gov/wcb/cpd/special_access/

⁷⁴ <http://www.puc.state.tx.us/telecomm/projects/20400/20400arc/20400arc.cfm>

⁷⁵ http://www.dps.state.ny.us/Case_99C949.htm

⁷⁶ <http://pmap.bellsouth.com/content/documentation.aspx>

⁷⁷ <http://www.qwest.com/wholesale/results/>

6 ENFORCEMENT OF INTERCONNECTION AGREEMENTS

6.1 United States

Federal Communications Commission Enforcement of regional Bell operating companies' local market opening requirements, including information on Bell Atlantic consent decree case⁷⁸.

⁷⁸ <http://www.fcc.gov/eb/LoTelComp/271.html>