DRAFT

ASSESSMENT OF THE MINIMUM RATES FOR INCOMING INTERNATIONAL TERMINATION, BY APPLICATION OF THE APPLICABLE RULES AND PRINCIPLES ESTABLISHED BY THE AUTHORITY PURSUANT TO SECTION 29(3) OF THE TELECOMMUNICATIONS ACT

1. SUMMARY

On [TO BE INSERTED], pursuant to the provisions of section 29(3) of the Telecommunications Act 2001 (the "Act") the Authority established rules and principles to be applied in the setting of rates for the carriage and termination of incoming international telecommunications traffic on domestic networks in Trinidad and Tobago. Those rules and principles provided, inter alia, as follows:

1. The rate must be no less than the sum of:

   a. the cost to terminate the international telecommunications traffic on the relevant domestic network; plus,

   b. any relevant cost incurred in terminating the international telecommunications traffic.

2. The relevant costs incurred in terminating the international telecommunications traffic are the same as that associated with the operation of an efficient international network. Thus, this cost shall include:

   a. the efficient port charges or its equivalent (if applicable) at the relevant international Network Access Point (NAP);

   b. the efficient backhaul cost from the relevant international NAP to the relevant international Cable Head;

   c. the efficient international connectivity cost from the international Cable Head to the Cable Head in Trinidad and Tobago; and,

d. the efficient backhaul cost from the Cable Head in Trinidad and Tobago, to the point of interconnection on the relevant domestic network in Trinidad and Tobago.

In response to a request from all concessionaires authorized to provide services in that market, for the intervention of the Authority in relation to the setting of a price floor for such services, the Authority hereby provides its assessment of the likely minimum price for such services, having regard to the rules and principles established by the Authority, and the current costs to which the providers of such services are subjected in providing the services.

The Authority assessment, details of which are set out in this document, indicates that based on the proper application of the rules and principles to the costs on a fair and non-discriminatory basis, the price charged for the termination of international incoming telecommunications traffic on a domestic network in Trinidad and Tobago, should be no less than US$0.0758 per minute for termination on a domestic mobile telecommunications network and US$0.0234 per minute for termination on a domestic fixed telecommunications network.

2. BACKGROUND

The Authority has authorized nine (9) concessionaires to provide international telecommunications services, namely:

- Columbus Communications Trinidad Limited (CCTL);
- Columbus Networks International Trinidad Limited (CNITL);
- Digicel (Trinidad and Tobago) Limited (Digicel);
- Laqtel Limited (Laqtel);
- Lisa Communications Limited (Lisa);
- Open Telecom Limited (Open);
- Telecommunications Services of Trinidad and Tobago Limited- (TSTT);
- Three Sixty Communications (Three Sixty);
- Windward Telecom Limited (Windward).

Of these concessionaires, only three, namely TSTT, Digicel and CCTL are possessed of an authorization to operate and provide a public domestic telecommunications network and service.

On *May 22nd 2009*, seven of these eight concessionaires, excluding Columbus Communications Trinidad Limited (CCTL) wrote to the Authority requesting "Regulatory Intervention Under Section 29 of the Telecommunications Act of 2001" vis-à-vis the introduction of a Price Floor for both fixed and mobile incoming international termination rate. The Authority received a similar request from CCTL by letter dated *July 12th 2009*.

The Authority also received a request from Three Sixty by letter dated May 5th 2009 for regulatory intervention in the International Settlement Market Segment of the Telecommunications Sector. This request which was also received by email dated June 9th 2009, sought the imposition of a price floor

In reviewing this request, the Authority:

- Conducted an analysis and review of the international incoming market segment;
- determined specific rules and principles for intervening under Section 29(3) and (4) of the Act; and
- performed an assessment the applicability of its determined rules and principles and ascertain the reasonableness of said rules.

3. REVIEW AND ANALYSIS OF INCOMING INTERNATIONAL MARKET

In investigating the request by concessionaires to intervene under Section 29(3) of the Act, the Authority by letter dated 22nd July 2009 wrote to all concessionaires requesting relevant information necessary for conducting an extensive analysis of the incoming international market segment, namely

- Incoming international traffic, revenues and termination rates by originating and terminating carriers for the period January-June 2009; and
- The statutory accounts for the year ending 2008.

The Authority received responses from those concessionaires operating in the international incoming market segment by letters dated as follows:

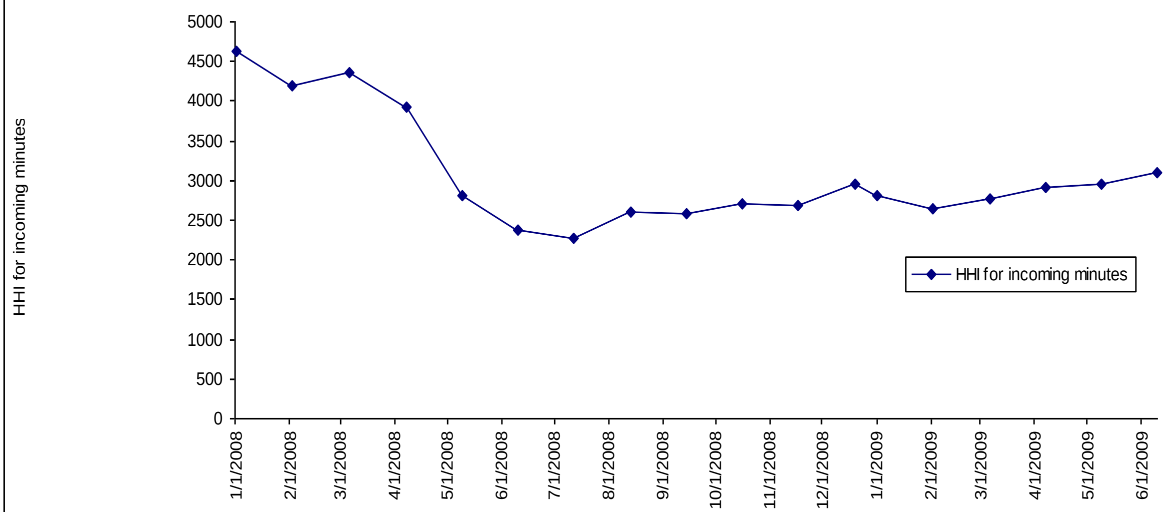
- Columbus Communications Trinidad Limited– *August 21st 2009 (via email);*
- Digicel Trinidad and Tobago Limited – *July 30th 2009 (via email)*;
- Laqtel Limited- *July 31st 2009 (statutory accounts not submitted)*;
- Lisa Communications Limited- *July 20th 2009*;
- Open Telecoms – *October 7th 2009 (statutory accounts not submitted)*;
- Telecommunications Services of Trinidad and Tobago Limited- *July 31st 2009*;
- Three Sixty Communications- *July 30th 2009 (via email)*; and
- Windward Telecom Limited- *July 27th 2009 (via email dated July 27th and 31st 2009).*

The Authority's initial review of the incoming international market suggested that said market approximated that of a competitive market. This was evident from the HHI for the international incoming market segment for the period January 2008 to June 2009 (Figure 1). While it is noted the HHI for this market fluctuated during the specified period, closing at an HHI of 3109 in June 2009, it nonetheless, during its fluctuation, was relatively close to the 1800 requirement for the Authority's definition of a competitive market as proposed in its Pricing Framework (HHI 2385 in June 2008,).

The Authority's review also revealed that international incoming traffic continued its upward growth path since the advent of competition; so much so that total incoming traffic in 2008

(375.4M) almost equaled the highest incoming traffic ever attained in Trinidad and Tobago in 2004 (379.1M) (Figure 2).

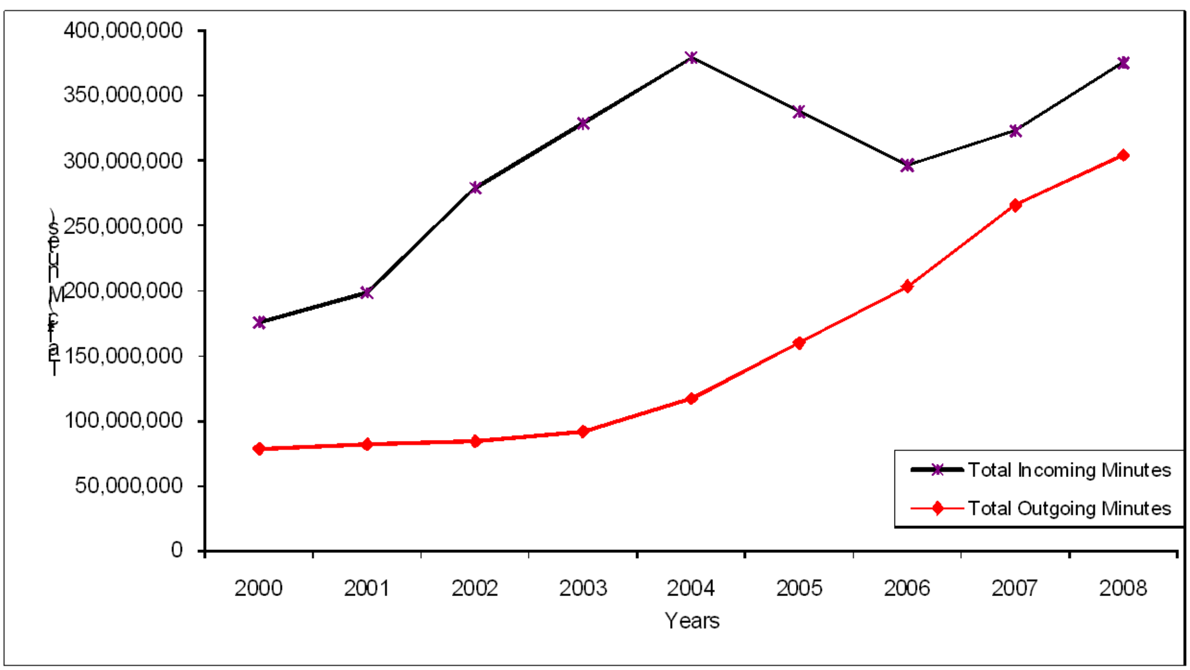
Figure 1: HHI for the International Incoming Market: January 2008- June 2009



	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	January-09	February-09	March-09	April-09	May-09	June-09
HHI for incoming minutes	4633	4202	4370	3924	2809	2385	2271	2604	2578	2705	2687	2955	2816	2652	2776	2923	2962	3108

HHI

Figure 2: Total Incoming and Outgoing Traffic (1999-2008)



international incoming traffic was responsive to price and international carriers were willing to shift traffic to any concessionaire offering the least cost route. The available evidence also revealed that competitive market forces were sufficiently robust to negate any attempt by concessionaires with significant market share to exert upward pressures on termination rates. In fact, the Authority found that while international termination rates charged by Digicel, TSTT and Three Sixty moved upwards in unison between April and September 2008, competitive market forces drove these rates downwards from October 2008 onwards.

Further analysis by the Authority revealed that international incoming traffic was increasingly redirected, during the January-June 2009 time period, towards fixed termination by certain concessionaires, specifically Windward, Lisa, Laqtel and Three Sixty, to take advantage of lower termination rates.

The Authority's analysis and review also suggests that that competition in the incoming international market segment was, during the reviewed period, leading to reduced margins for both fixed and mobile termination. The Authority therefore sought to ascertain the cost structures of concessionaires, to determine the profit margins earned by concessionaires and to evaluate the need to intervention and if appropriate impose a price floor.

4. IMPLEMENTION OF THE PROPOSED RULES AND PRINCIPLES

In the implementation of its rules and principles for determining international incoming telecommunications settlement rates, the Authority was first required to adopted suitable topology for a nominal "efficient international telecommunications network" as referred to in its Determination on rules and principles under Section 29(3) of the Act. Based on the information collected by the Authority regarding the typical configurations in place in the current international telecommunications networks, the Authority proposes to adopt the following network topology:

- the relevant international Network Access Point (NAP) shall be at Miami. Submissions by concessionaires suggested that this was the common NAP for origination of a great majority of the incoming international traffic;

- the international backhaul from the Miami international NAP to the international Cable Head at Hollywood Miami. Information submitted by concessionaires suggested that most concessionaires utilized facilities which landed in the US at the Cable Head at Hollywood, Miami;

- the international connectivity from the international Cable Head at Hollywood Miami to the Cable Head in Trinidad and Tobago at Chaguaramas. Presently Chaguaramas is the only point of landing for international fiber into Trinidad and Tobago; and,

- the domestic backhaul from the Cable Head at Chaguaramas in Trinidad and Tobago, to the point of interconnection (POI) at Nelson Exchange in Trinidad and Tobago. Presently Nelson Exchange is the only POI to domestic telecommunications networks in Trinidad and Tobago.

Based upon the above network topology, by letter dated 20th August 2009, the Authority wrote to all concessionaires providing service in the international telecommunications market segment, requesting specific information, namely:

- The port charges at the Network Access Point in the United States (the NAP Miami Rate);

- The U.S. STM-1 backhaul lease cost from the Cable head at Hollywood Miami to the NAP in Miami;

- The International Network Connectivity Facility Bandwidth and Cost per month (i.e. STM-1 or DS-3 (or other) lease from Trinidad to the Cable head at Hollywood Miami);

- The Trinidad Connectivity backhaul facility and Cost per month (i.e. STM-1 or DS-3 (or other) lease from Chaguaramas to TSTT Nelson).

The Authority required that all charges and/or costs provided be substantiated by relevant documentary proof of their accuracy.

The Authority received responses from those concessionaires to whom a request was made by letters dated as follows:

- Columbus Communications Trinidad Limited– *August 26th 2009*;
- Digicel Trinidad and Tobago Limited – *By email dated September 14th 2009*
- Laqtel Limited- August 27th 2009 (*email with clarifications on September 1st 2009*);
- Lisa Communications Limited- *August 26th 2009*;
- Open Telecoms – *October 7th 2009*;
- Telecommunications Services of Trinidad and Tobago Limited- *August 28th 2009*;
- Three Sixty Communications- *August 25th 2009*; and
- Windward Telecom Limited- *August 25th 2009*.

The Authority's analysis of submissions, revealed the following relevant conditions which exist presently:

- The bandwidth of concessionaires' international network facility (backhauls (domestic and international) and the international connectivity facility) was typically partitioned between voice and data (i.e. specific bandwidth was assigned to voice and data services);
- Concessionaires with partitioned bandwidth on their end to end international facilities derived revenues from both voice and data services;

- Each concessionaire assigned different bandwidth to voice and data services on their respective end-to-end international facility;
- Concessionaires utilized different bandwidth of either a DS-3 or a STM-1 for international facilities connectivity;
- Certain international concessionaires with leased end-to-end international network facility and connectivity, sub-leased international connectivity to other international concessionaires;
- Concessionaires with sub-leased connectivity on their end to end international leased facilities and connectivity derive additional revenues from such sub-leases;
- With the exception of TSTT, all other market participants utilized a single direct route with a common point of origination at the NAP in Miami;
- The single point of origination employed by all market entrants, from an engineering perspective, was perceived by the Authority as the most efficient international network design although, the Authority recognizes that such design may not necessarily be the most resilient or robust design.

The Authority is required by section 29(4) to apply principles of fairness and non-discrimination in its methodology to determine the efficient network cost for each segment of its efficient international network topology. The Authority was also mindful of the negotiating strength and capacity of the concessionaires operating in the international market when identifying the efficient cost for each network segment. The costs used by the Authority for each segment were those that any of the authorized concessionaire would reasonably be able to obtain irrespective of their negotiating strengths.

In furthering its analysis the Authority sought to determine the costs associated with providing international telecommunications services over the efficient network identified. In determining said cost for end-to-end international connectivity and taking into consideration the specific conditions which exist presently in the international market segment (previous articulated), the Authority utilized the following:

- An efficient network design- end-to end international facilities connectivity from the NAP in Miami to the POI at Nelson Exchange in Trinidad;

- Based upon the principles of fairness and non-discrimination, the Authority selected a DS-3 as the base unit of international connectivity facilities to be used in its assessment. This 'unit' for assessment was in the Authority's view reasonable given that it represented the smallest international capacity utilized by concessionaires within the market. In this way the Authority ensured that it did not require efficiencies of scale not available to the smaller operators.;
- The entire bandwidth of the DS-3 shall be assumed to convey voice service. This approach was employed to overcoming variances utilized by concessionaires in partitioning or assigning bandwidth for voice and data services and the utilization of VoIP services.
- A DS-3 was assumed to convey on average 3.5 million minutes per month. This was a conservative but justifiable estimate based upon the unavailability (at this time) of indirect access, the relatively weaker negotiating strength and capacity of the 'smaller' international concessionaires, the volume of traffic presently conveyed by international concessionaires and the likely variations in traffic according to peak and off-peak times.

The Authority's investigations resulted in the following per minute costs for each identified network segment:

- International and domestic switching and aggregation costs: US$0.0006;
- International backhaul: US$0.0004;
- International connectivity to T&T: US$0.0073,
- Domestic backhaul US$0.0023.

The Authority's price floor model yielded a total per minute of US$0.0106 for its efficient international network topology. This Authority validated this result by conducting a sensitivity analysis, in which the Authority it varying the volume of traffic (the network utilization rates), the based unit of international connectivity facilities and the costs for each network segment. The analysis yielded values ranging between US$.0106 and US$.0060 per minute for the international network costs (depending on the factors varied). The Authority thereafter included a reasonable rate of return equivalent to a Weight Average Cost of Capital of fifteen percent (15%) to the base cost.

The Authority notes from the submissions that given the cost differential between a DS-3 and a STM-1 that the migration to higher capacity levels (STM-1) by a concessionaire would likely lead to increased efficiency levels, and lower costs but the Authority considers that such increased efficiency would not be reflective of the existing commercial realities for a wide enough cross section of the relevant concessionaires.

The Authority determined from the application of its model that the maximum per minute rate for international call termination, both fixed and mobile, should be no more than US$0.0123.

The Authority notes that the termination cost payable for domestic fixed and mobile telecommunications networks was established in April 2008 by a Panel established by the Authority to arbitrate an interconnection dispute between TSTT and Digicel. That Arbitration Panel determined that the interconnection rates for mobile and fixed termination shall be US$0.0635 (TT$0.04) for mobile and US$0.0111 (TT$0.07) for fixed.

On the basis of the foregoing exercise the Authority's assessment indicates that based on the proper application of the rules and principles to the costs on a fair and non-discriminatory basis, the price charged for the termination of international incoming telecommunications traffic on a domestic network in Trinidad and Tobago, should be no less than US$0.0758 per minute for termination on a domestic mobile telecommunications network and US$0.0234 per minute for termination on a domestic fixed telecommunications network.

DRAFT

TELECOMMUNICATIONS AUTHORITY OF TRINIDAD AND TOBAGO

20th November 2009