Report on International Telecommunications Markets 2000 Update

Prepared for Senator Ernest F. Hollings
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International Telecommunications Markets
2000 Update

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This report updates the data provided by the Federal Communications Commission in the 1999 "Report on International Telecommunications Markets."[1] As the information below indicates, international calling prices have continued to decline over the past year; countries are continuing to open their markets to competition by foreign telecommunications and satellite companies; and a number of other developments are working to lower prices and increase international calling volumes to the benefit of both U.S. and foreign consumers. These developments are in large measure attributable to the 1997 World Trade Organization (WTO) Basic Telecommunications Agreement (WTO Agreement). In addition to the WTO Agreement, Commission policies such as settlement rate reform have played an important part, along with other political and economic forces taking place independently of any specific Commission action.

I. International Wireline Telecommunications Services

A. Trends in International Pricing

1. Introduction

Less than three years into the implementation of the WTO Basic Agreement on Telecommunications and the Commission's August 1997 *Benchmarks Order*,[2] we have seen dramatic results. These policies have increased liberalization, privatization and competition, which have led to significantly lower international accounting rates. That has resulted in lower international calling rates. In 1996, the year just prior to the *Benchmarks Order* and the WTO Agreement, the average price of an international long distance call originating from the United States was 74 cents per minute. By 1998, the average price fell 25 percent to 55 cents per minute, and in 1999 it fell a further 5 percent to 51 cents per minute. Clearly, the trend toward lower rates is continuing. By the time the *Benchmarks Order* is fully implemented in 2003, we expect to see much deeper reductions in international calling rates. Prices on competitive routes have fallen even more dramatically. For example, rates on the U.S.-U.K. route are as low as 10 cents per minute.

2. International Pricing Trends for Five of the Largest Routes

The following tables detail the three largest U.S. carriers' discount rates available to residential subscribers from 1997 through 2000 on five of the largest international traffic routes by volume of minutes. Rate changes on these routes are typical of rate changes on international routes generally. The table indicates that, with a few exceptions, the rates charged by all three carriers have declined. In 2000, carriers offered customers several plans with differing flat

[1] Report on International Telecommunications Markets 1999 Update, DA 00-87 (IB rel. Jan. 18, 2000). The 1997-1998 and 1999 versions of the report are available on the FCC web-site at http://www.fcc.gov/ib/wto.html.

[2] *International Settlement Rates*, IB Docket No. 96-261, Report and Order, 12 FCC Rcd 19806 (1997) (*Benchmarks Order*), *aff'd sub nom. Cable and Wireless Plc v. FCC*, 166 F.3d 1224 (D.C. Cir. 1999), Report and Order on Reconsideration and Order Lifting Stay, 14 FCC Rcd 9256 (1999).

monthly fees. For 2000, we have included the best rate available from the major carriers 24 hours a day. Some plans with higher flat monthly fees have lower per minute rates.

Residential Rates for International Service

For December 2000 statistics, for each company, we found the 24 x 7 international plan with the lowest monthly fee. Some plans with high monthly fees include domestic long-distance discounts. Plans that provide special discounts only for most-called countries are not selected.

AT&T

	Nov-97	Nov-98	Dec-99	Dec-00
Canada	$0.05 - $0.12	$0.05 - $0.10	$0.05 - $0.10	$0.07
Mexico City	$0.49	$0.44	$0.35	$0.35
Germany	$0.35	$0.25 - $0.29	$0.17	$0.17
Japan	$0.47	$0.30	$0.16	$0.16
India	$0.80	$0.75	$0.55	$0.55
Monthly Fee*	$3.00	$3.00 - $5.95	$5.95	$3.00

Note: Range represents peak/off-peak.
*For 1999, the $5.95 fee includes domestic discounts.
The 2000 rates are derived from AT&T's One-Rate International Value Plan.
For 2000, the $3.00 monthly fee guarantees customers a rate of $0.12 per minute for domestic long-distance service. Customers can also choose a $7.95 monthly fee to obtain a rate of $0.07 per minute for domestic long-distance service.

MCI WorldCom

	Nov-97	Nov-98	Dec-99	Dec-00
Canada	$0.12	$0.05 - $0.12	$0.05 - $0.07	$0.10
Mexico City	$0.61	$0.44	$0.42	$0.35
Germany	$0.35	$0.29	$0.09 - $0.17	$0.25
Japan	$0.48	$0.35	$0.35	$0.14
India	$0.80	$0.80	$1.22	$0.53
Monthly Fee*	$3.00	$3.00	$4.95	$9.95

Note: Range represents peak/off-peak.
*For 1999, the $4.95 fee includes domestic discounts.
The 2000 rates are derived from MCI WorldCom's International Plus Plan.
For 2000, the $9.95 monthly fee guarantees a customer a rate of $0.07 per

Residential Rates for International Service, continued...

Sprint

	Nov-97	Nov-98	Dec-99	Dec-00
Canada	$0.10 - $0.25	$0.10	$0.10	$0.07
Mexico City	$0.55 - $0.75	$0.47	$0.63	$0.35
Germany	$0.30 - $0.70	$0.27	$0.25	$0.17
Japan	$0.43 - $0.87	$0.46	$0.39	$0.14
India	$1.05 - $1.40	$0.78	$0.72	$0.53
Monthly Fee*	$3.00	$3.00	$5.95	$5.95

Note: Range represents peak/off-peak.

*Includes domestic discounts in 1999.

The 2000 rates are derived from Sprint's Global Advantage Plan.

For 2000, the $5.95 monthly fee guarantees a customer a rate of $0.10 per minute for domestic long-distance service. The monthly fee is waived on long-distance bills over $30.00. Other discounts apply based on size of long-distance bill.

B. Countries with WTO Commitments that Allow a Majority Foreign-Owned Company to Provide Facilities-based International Service

The following WTO Basic Telecommunications Agreement signatories have made and implemented WTO commitments to liberalize facilities-based international service and to allow foreign entities to own a majority interest in facilities used to provide international voice and data service:

<u>Europe</u>

Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Italy, Ireland, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom

<u>Asia Pacific</u>

Japan, Australia, New Zealand

<u>Latin America</u>

Chile, Colombia, El Salvador, Guatemala, Peru

New Countries[3]

Argentina, Bolivia, Czech Republic, Georgia, Israel, Singapore, Venezuela

C. U.S. Investment in Foreign Countries

U.S. telecommunications carriers and new entrants continued to invest in foreign markets in 2000, largely in Europe and Asia, and to a lesser degree in Latin America. Many of these investments are in Internet-supporting types of infrastructure, Internet services, and wireless segments – all of which are driving the communications explosion. International revenues of these service providers are rising mostly as a result of the strong upsurge in demand for Internet services and increases in international mobile subscribers.

The following report is only a sampling of U.S. telecommunications carriers' and new players' investments in these areas, and is not exhaustive. Unless otherwise footnoted, the primary source of the information is William Deatherage, CFA, and Bette Massick Colombo, CFA, Bear, Stearns & Company, Wireline Services, Equity Research.[4]

2000 Investments

On April 5, 2000, AT&T, BT, and Concert invested $2 billion in a global network of Internet data centers. This investment, made over a three-year period, will deliver seamless, global e-commerce services via a network of 44 Internet data centers in 16 countries. The centers will provide a wide range of services, including co-location, Web hosting, and networking professional services.

In July 2000, AT&T and BT introduced their first global wireless products and services that will provide wireless coverage using the same phone number to more than 100 countries and 7,000 cities in the U.S., Canada, and Mexico.

AT&T also entered into an agreement with Key Tech LD, a competitive local exchange carrier (CLEC) in Argentina that will have the capability to offer exciting services including video conferencing, e-commerce, and value added services. It was expected to be operational by the

[3] The list of new countries is a list of countries whose commitments under the GATS (General Agreement on Trade in Services) to permit majority foreign-owned entities to provide facilities-based international voice and data service have come into effect in the past year, are scheduled to become effective this year, or whose restrictions previously in effect have been lifted since last year's report. Singapore's obligations became effective April 1, 2000; Georgia's obligations became effective June 1, 2000; Argentina's obligations became effective November 1, 2000; Venezula's obligation went into full effect on November 27, 2000; the Czech Republic's obligations became effective January 1, 2001; Israel's commitments became effective January 1, 2001; and, Bolivia's obligations will become effective November 1, 2001.

[4] Source: William Deatherage, CFA, Bette Massick Colombo, CFA, Bear Stearns, Wireline Services, Equity Research, "The Phone Book, Bear Stearns White Pages," August 2000. In many cases the information is cited verbatim from this source.

fourth quarter of 2000. AT&T Latin America and Firstcom also agreed to invest $500 million in developing Keytech LD. They expect to invest $150 million by mid-2001 and an additional $350 million through 2004. Keytech will deploy networks of 2500 kilometers using advanced fiber optic technology with an Asynchronus Transfer Mode/Internet Protocol (ATM/IP) multi-service platform.

In December 2000, AT&T received approval from the Chinese government to take a 25 percent stake in Shanghai Symphony Telecom., and joint venture with Shanghai Telecom, a wholly owned subsidiary of China Telecom. The venture will begin offering broadband services in the Pudong area of Shanghai in mid-2001.[5]

The Latin American unit of AT&T Corp. pledged $500 million and 2,000 jobs for Argentina over the next five years in its effort to capture a stake in the country's quick growing telecommunications market. AT&T Latin America will invest $150 million by mid-2001 and $350 million through 2004 to develop a broadband fiber and fixed wireless network in the country.[6]

Bell South has augmented the number of persons in international areas covered by its services to 153.6 million, up from 127.4 million a year ago. Bell South's international subscriber cellular base measured 7.6 million, which is an increase from 6.8 million in March 2000, and 4.5 million last year. These figures reflect a 70.6 percent year over year increase. Revenue growth climbed $125 million (17.6%) to $834 million. Revenue growth was primarily boosted by a substantial increase in customer bases consolidated operations.

In June 2000, Bell South extended its footprint into Latin America through its purchase of a controlling interest in Celumovil in Colombia and its transaction between Celumovil and Cocelco. As a result, Bell South now controls more than 50.35 percent of Celumovil. Due to its purchase of Celumovil, Bell South was able to acquire Cocelco for $370 million. Cocelco operates the leading wireless company in Western Colombia. Consequently, Bell South's network covers more than 41 million potential customers in Colombia.

Bell South has increased its international revenue by 16.5 percent. It added 622,000 customers during the third quarter of 2000, a growth rate of 66.8 percent systemwide. In Brazil its number of customers rose 83 percent with the addition of 449,000 subscribers; its customers in Venezuela more than doubled; and its customers in Germany increased 90 percent.

In response to the Argentine government's development of modern regulatory structure to implement opening of its telecom market in November 2000, a group of 10 new companies aiming to enter or increase their presence in the market estimate they have spent or committed some $6 billion for investment in Argentina's telecom sector. These companies include the BellSouth Corp. subsidiary Movicom, Impsat Fiber Networks Inc., Nextel Communications Inc.,

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5 *See* China Pushes Liberalization As AT&T Enters Joint Venture, Telecommunications Reports, Dec. 11, 2000 at 21.

6 *Id.*

VeloCom Inc., Comsat, PSINet, MetroRed, IPlan NetworksTechtel and GTE Corp. unit CTI Movil.[7]

A new player, Equant, now offers IP frame relay service to 54 countries worldwide. On April 11, 2000, Equant reached an agreement with the Communications Authority of Thailand, permitting Equant to offer frame relay, intra-corporate voice over frame relay, and Point-to-Point Protocol dial service.

In July, Equant launched new services in Singapore and South Korea by obtaining an operating license in Singapore and a service distribution agreement with the JC Juyn System in South Korea. In addition, the European Bank for Reconstruction and Development selected Equant for the Central/East European and Commonwealth of Independent States (CIS) Network Services. The network will connect London with 27 other cities, and will provide services including email, voice, and frame relay.

Also in 2000, Asia Global Crossing invested $25 million in Digital United, representing a 4 percent interest. Digital United owns Seednet, an Internet access provider and the largest provider of Web hosting and co-location services in Taiwan. In exchange, Asia Global Crossing became Digital United's largest bandwidth partner.

In June, Asia Global Crossing, Global Center Japan and NTT Data Corporation announced an agreement to cooperate to develop a technology park. NTT Data and Global Center Japan will provide services such as complex Web hosting and systems integration to tenants. Global Crossing will broaden its network at the technology park.

In May, the Pan European Crossing Network (PEC) activated its Eastern Ring to connect six additional German cities to the PEC. Four out of seven rings are now finished; 19 out of 40 major European markets are linked to the network. The company aims to complete its network in 2001.

Asia Global Crossing and Singapore Technologies Telemedia forged a joint venture to build and operate backhaul and telehouses to link Singapore and Hong Kong, Taiwan, South Korea, Malaysia, the Philippines and China (regulations permitting) through the East Asia Crossing System.

Level 3, essentially an IP-based network company, is ahead of schedule in building its European Network Construction. As of the second quarter of 2000, Level 3 had completed 2431 intercity route miles in the Japan-U.S. cable and 340 route miles in Europe. The Hong Kong and Tokyo Gateways are predicted to be in service by the second quarter of 2001; construction of the Japan-U.S. cable is expected to be completed this year. At the end of the second quarter of 2000, Level 3 operated gateways in five European markets; it had built local fiber networks in five European markets.

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[7] Source: Totaltelecom

In May, Level 3 agreed to purchase Next Link, a multiple fiber network, for $306 million. This purchase includes Next Link's European metro fiber networks, consisting of its inter-city Pan European network and transatlantic fiber capacity.

In July the Hong Kong Government awarded Level 3 an extended fixed telecommunications network services license, permitting Level 3 to provide facilities-based services via undersea fiber optic cable linking Hong Kong and Japan. Moreover, Level 3 purchased a coastal site in Japan to carry ashore its broadband cable.

Also in July, Level 3 publicized plans to widen its Asian operations into Taiwan and South Korea. It will construct gateways in Taipei and Seoul to provide colocation space and direct links to Level 3's network. The company also will join its Taipei and Seoul gateways to Hong Kong, Tokyo and the rest of Level 3 via the Asia cable network.

The recently merged entity KPNQwest expanded its pan-European network to France's Atlantic Coast this June. The completion of the incremental 671 route miles and four cities will bring the company's planned network total to 124,000 miles. This comprises connections to 50 cities.

Verizon's international revenue increased $48 million (10.2%) to $518 million. Demand for wireless services bolstered this growth. Verizon international business encompasses wireline and wireless communications operations, investments, and management contracts throughout the globe.

WorldCom operates in more than 65 countries.[8] In 1999, its global revenues reached $36 billion, with more than $15 billion from high growth data, Internet and international services.[9] WorldCom's revenue originating outside the U.S. increased from $188 million, or 44.8 percent, to $608 million. WorldCom provides global on-net availability in 52 countries/204 cities. Besides its 42,000 buildings in the U.S, WorldCom's network provides connectivity to 13,000 buildings in Europe. The company has built 8,000 long distance fiber routes miles in Eurpoe, and approximately 1200 local fiber route miles. The company has established national networks in the U.K., Germany, France, and Spain. Approximately 1000 international sales people are expected to produce revenue growth in 30-35 percent range over the next several quarters. The company added seven local switches and one city network in the second quarter of 2000. It has augmented its local networks in Tokyo, Amsterdam, Sydney, and Milan, while adding local voice switches in Hong Kong, Japan, and France. It has three local switches in the U.K. In addition, the loop built in the U.K. is now complete.

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8 Source: WorldCom's website at www.worldcom.com.

9 *Id.*

D. World Telecommunications Revenues Handled by Global Public Telecommunications Operators and Selected New Entrants

Attachment 1 contains revenue figures for 1997 through 1999 for the twenty largest global public telecommunications operators (PTOs). Attachment 2 shows, for selected U.S. and foreign non-incumbent multinational carriers, revenue figures for 1997 through 1999 as well as the most recent quarter of 2000 for which information is presently available.

E. Number of New Entrants Providing Service

The first list below shows the total number of authorized international carriers providing service in foreign markets.[10] Markets included in the first list are the top ten markets by teledensity, which is measured by the number of telephone lines per inhabitant. The second list shows the number of authorized international carriers providing service in the top five foreign markets by market revenue.[11] We believe this data in these two lists provides a representative picture of changes in the level of competition in the global telecommunications landscape.

1. Top Ten Foreign Markets by Teledensity

	July 1998	July 1999	July 2000
Sweden	13	16	26
Switzerland	21	40	50
Denmark	11	18	45
Canada	21	49	75
Luxembourg	1	4	10
Iceland	1	3	8
France	29	50	89
Finland	8	8	20
Hong Kong	4	80	150
Netherlands	23	30	60

2. Top Five Foreign Markets by Market Revenue

	July 1998	July 1999	July 2000
Japan	13	50	115
Germany	32	40	90
U.K.	144	215	306
France	29	50	89
Italy	9	15	52

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10 Source: Telegeography, Inc. 2000, "Telegeography 2001."

11 *Id.*

F. Change in International Long Distance Market Share of Dominant and Other Carriers in Selected Markets of WTO Signatories

Data are provided below on the outgoing minutes of international telephone traffic carried by several carriers in selected WTO signatories, as reported in Telegeography 2001.[12] Telegeography reports these data each year and is widely considered to be among the most reputable sources for research on international telecommunications.

Carrier Market Shares Based on Percentage of Outgoing Minutes of International Traffic, 1997 and 1998

	1997	1998
EUROPE		
	United Kingdom	
BT	54.9 %	51.6%
C&W Comm	30.3%	32.2%
MCI/WorldCom	5.1%	5.1%
Teleglobe		4.2%
World Exchange	3.6%	3.0%
GlobalOne	1.5%	1.5%
Others	4.6%	2.2%
	Germany	
Deutsche Telekom	100.%	80.3%
Mannesmann		7.2%
WorldCom		1.8%
Viag Interkom		1.4%
Others		7.5%
	Sweden	
Telia AB	66%	62.0%
Tele-2	22%	24.0%
Others	12%	14.0%

12 *Id.* The data is based on outgoing international traffic for the public switched network (PSTN) and international simple resale (ISR) covering the full calendar or fiscal years. Some data aggregated in "others" now includes market shares for carriers shown individually in later years. Market shares may not total to 100 percent due to rounding

	1997	1998
	Finland	
Sonera (Telecom Finland)	58.9%	54.7%
Finnet International	28.2%	28.0%
Telia	9.3%	12.0%
Others	3.5%	5.2%
	Denmark	
Tele Danmark	84.4%	67.5%
Tele2	6.6%	12.4%
Telia A/S	6.3%	9.9%
Others	2.7%	10.3%
	Ireland	
Telecom Eireann	91%	78.0%
Esat Telecommunications	5.0%	8.0%
MCI WorldCom Ireland	3.0%	3.0%
Others	1.0%	11.0%
	Netherlands	
PTT Telecom (KPN)	95%	84.9%
EnerTel	2.0%	2.0%
Others	3.0%	13.3%
ASIA		
	Japan	
KDD	62.7%	58.0%
IDC	18.4%	18.2%
Japan Telecom	19.0%	18.3%
Others		5.5%
	New Zealand	
TNZ	74.6%	77.5%
ClearCom	20.2%	12.3%
Others	5.2%	3.3%

	1997	1998
	Republic of Korea	
Korea Telecom	69%	66.6%
Dacom	27%	21.9%
Onse	4%	11.5%
	Philippines	
PLDT	73.0%	69.0%
Global Telecom	7.0%	8.6%
Philippine Global Com.	3%	1.1%
Eastern Telecom	7%	6.4%
Capitol Wireless	1%	3.5%
Bayan Tel.	5%	5.7%
Eastern	7.0%	6.4%
Digitel	3%	4.3%
Philicom	7%	
Islacom	<1%	<1%
Others		<1%
	Australia	
Telstra	55%	49.0%
Optus	26%	22%
AAPT	11%	13.4%
Primus	3%	4.0%
Teleglobe		4.0%
Others	5%	7.2%
	Indonesia	
PT Indosat	84.8%	88.3%
PT Satelindo	15.2%	11.7%
	Malaysia	
Telekom Malaysia	80.0%	77.0%
Celcom	11.0%	10.0%
Maxis		7.6%
TIME Telekom		5.0%
Others	9.0%	<1%
	Israel	
Bezeq	83%	51.4%
Barak	15.0%	24.8%
Golden Lines	12.5%	23.7%

	1997	1998
AMERICAS		
	United States	
AT&T	44.7%	39.6%
WorldCom	31.2%	28.8%
Sprint	12.0%	11.7%
Teleglobe USA	1.3%	3.3%
World Access	0.3%	2.7%
Viatel	0.3%	0.8%
Primus	0.5%	1.8%
STAR Telecom	0.5%	1.8%
Others	8.7%	10.8%
	Chile	
CTC Mundo/Globus	33.0%	35.0%
Entel Chile	33.0%	31.0%
Chile Sat	17%	13.0%
BellSouth Chile	10.0%	10.0%
AT&T (FirstCom)	3.0%	5.0%
TransAm	3.0%	3.0%
Others	<1%	3.0%
	Canada	
Stentor	41.0%	40.0%
Teleglobe	26.0%	24.0%
ATT Canada LD	10.0%	14.0%
Sprint Canada	17.0%	13.0%
Others	5.0%	4.0%
	Dominican Republic	
Codetel	73.8%	72.2%
Tricom	12.9%	15.5%
AACR	13.3%	12.3%
	Mexico	
Telmex	83%	78.0%
Alestra	8%	10.5%
Avantel	7.5%	8.5%
Protel		1.0%
Others	1%	2.0%

G. International Settlement Rates

Settlement rates are the per minute rates international carriers pay each other to complete international calls. One of the keys to lowering consumer prices has been lowering the settlement rates U.S. carriers pay to foreign carriers. The major reason for the decline in settlement rates is the Commission's *Benchmarks Order.* Attachment 3 details U.S. settlement rates with carriers from WTO signatories. Attachment 3 is separated into two parts: the first part provides data on WTO signatories that have made full market access commitments; the second part provides data from countries with lesser commitments. These tables demonstrate that settlement rates have generally been falling.

As of year-end 2000, the FCC will have achieved compliance with its August 1997 Benchmarks Order for over 99 percent of the net settled minutes for upper income countries (those that were scheduled to be in compliance by January 1, 1999) and for over 99 percent of net settled minutes for upper-middle income countries (those scheduled to be in compliance by January 1, 2000). Approximately 77 percent of all U.S. international traffic goes to countries which are at or below the benchmark rate.

H. Interconnection

1. Interconnection Charges

Interconnection charges refer to the charges competing carriers are required to pay to interconnect directly with the incumbent operator and terminate international and domestic calls. Only countries with liberalized telecommunications markets, in general, have publicly available interconnection charges. Attachment 4 lists national interconnection rates for European Union countries.

2. Number of Interconnection Agreements

Attachment 5 shows the number of interconnection agreements for call termination on fixed and mobile networks for August 2000. The number of interconnection agreements in place in each country depends on the number of licensed/authorized operators for public networks and public voice telephony (local and national) and the content of the interconnection agreements (some countries have separate interconnection agreements for each service, while others have a global interconnection agreement). These figures therefore are not strictly comparable between European Union member states. International interconnection agreements are excluded, except for France. For Finland, separate data for fixed-to-fixed interconnection agreements and mobile-to-fixed interconnection agreements is not available. For the Netherlands, separate data for the different interconnection categories are not available.

I. Foreign and U.S. Billed Traffic with WTO Signatories

Attachment 6 provides information on foreign and U.S. billed traffic with WTO signatories for 1997, 1998 and 1999, as reported by U.S. carriers.

J. Data on Teledensity

Attachment 7 provides teledensity information (telephone lines per 100 inhabitants) for WTO signatories for 1995 through 1999. The table shows that teledensity is generally rising in WTO signatories.

II. Satellite Telecommunications Information

A. Satellite Market Status

In most cases, revenue growth has been dramatic in the past year, evidence of the robust nature of the commercial communications satellite industry. According to recent forecasts by the Teal Group, approximately 500 commercial satellites will be built and launched between 2000 and 2010.[13] C.E. Unterberg, Towbin estimates a 13 percent growth in worldwide industry revenue, from $61.9 billion in 1999 to $70.3 billion in 2000. Part of this increase was due to a surge in satellite-based Internet traffic. Updated revenue figures for 1999 for satellite service providers are provided in Attachment 8. The current status of foreign market access for U.S. Mobile Satellite Services is provided in Attachment 9.

B. Foreign WTO Implementation

The WTO Agreement continues to be regarded favorably by satellite service providers. New business opportunities have been provided as a result of the obligations of signatory countries to liberalize their markets. Additionally, the WTO Agreement may also be indirectly influencing the regulatory actions of non-WTO signatories. While a direct correlation cannot be identified, benchmark dates for market liberalization for satellite services appears to be resulting in new opportunities for competition in the provision of voice, video, data and Internet services in the United States and abroad.

As with previous years, more countries are permitting: 1) multiple entities to obtain service licenses for their own or third-party use, 2) ownership and operation of private Earth station equipment, 3) choice in providers of satellite capacity, and 4) unrestricted private ownership and operation of transmission/broadcast facilities. One foreign market – Canada -- has been opened ahead of the satellite services schedule committed to in the WTO Agreement. Progress has been particularly dramatic in many major markets of the Americas. Regulatory barriers have also been significantly reduced in Western Europe, and some in Asian countries.

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13 Source: Marco A. Caceres, Senior Analyst, Teal Group, Corp., "World Space Systems Briefing," September 2000. This forecast does not include potential commercial microsatellite and nano-satellite ventures.

Regulatory barriers remain in portions of the Americas, Europe, Asia, Africa, and the Caribbean. Reasons vary for these continued barriers. First, certain countries in these regions are not WTO signatories and thus have not agreed to a timetable for liberalizing their satellite telecommunications markets. Second, some countries have insufficient legal and administrative infrastructure for satellite and/or Earth station licensing (the FCC is working with various national administrations to address this issue). Finally, some countries and regions still maintain protective policies toward their own incumbent national/regional satellite service providers.

According to U.S. satellite firms, the WTO Agreement has been beneficial for the first stage of market liberalization. These firms report that they are now recommending further WTO-related steps to the Executive Branch. These steps would include accession to the agreement by new countries, and another round of negotiations and clarifications to the commitments on telecommunications in the WTO Agreement. There would be various objectives for these negotiations which would be undertaken by the Executive Branch. First, satellite companies would like to accelerate the timetables for many countries, and clarify the details of their market liberalization offers. Second, they would like to ensure that market entry is available for all classes of service (e.g., voice, data, Internet, audio). Third, they would like to facilitate service licensing procedures that are "technology neutral" – that is, not favoring specific infrastructure (satellite, fiber optic cable, etc.).

C. FCC Regulations

Since 1998, the FCC has implemented regulations and policies that have increased U.S. market liberalization, privatization, and competition, resulting in lower costs and more choices for U.S. consumers. Under the *DISCO-II First Reconsideration Order*,[14] the Commission streamlined the process by which non-U.S. licensed satellites may obtain authority to serve the U.S. market. The Commission adopted a procedure which permits the operators of in-orbit non-U.S. satellites to request authority to provide space segment capacity service to U.S. Earth stations. Also, the Order created the Permitted List, which enables routinely-licensed U.S. Earth station operators to access certain non-U.S. satellites without further regulatory approval.[15] In 2000 eight additional foreign satellites from Argentina, Canada, Japan, Mexico, the Philippines (Indonesian registry), and EUTELSAT have been granted access to the U.S. market. Most have been granted access through the Permitted List procedure.

In 2000, the Commission also took significant steps to facilitate the privatization of INTELSAT consistent with the recently enacted Open-Market Reorganization for the Betterment of International Telecommunications Act (ORBIT Act),[16] which made privatization a U.S. policy

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14 *Amendment of the Commission's Regulatory Policies to Allow Non-U.S. Licensed Satellites Providing Domestic and International Service in the United States*, Report and Order, IB Docket No. 96-111, 12 FCC Rcd 24094 (1997) (DISCO II).

15 *Id.*

16 Open-Market Reorganization for the Betterment of International Telecommunications Act, Pub. Law 106-180 114 Stat. 48 (2000) (ORBIT Act).

goal. Privatization will promote satellite competition and make INTELSAT a more effective competitor. Last summer, the Commission issued conditional licenses to INTELSAT, effective upon privatization, for operation of its current satellite fleet and planned replacement satellites. INTELSAT will have full access to the U.S. market as a U.S. licensee when it privatizes. The licenses are subject to Commission review of INTELSAT's privatization plan under the ORBIT Act. In November 2000, the INTELSAT Assembly of Parties approved its privatization plan and decided to locate in the United States, subject to FCC jurisdiction, under the terms of the licenses issued to it. This process will entail transfer to the United States of 22 orbital locations associated with the satellites licensed upon privatization (scheduled for July 18, 2001).

Attachment 1

Top 20 Global Public Telecommunications Operators' (PTO's) Revenue
Reported in Billions of U.S. Dollars, 1997, 1998, 1999

1999 Rank	Company	Country	1997 Revenue	1998 Revenue	1999 Revenue
1	NTT	Japan	74.44	79.75	82.11
2	AT&T Corporation	USA	51.58	53.22	62.39
3	Verizon(Bell Atlantic acq.GTE)	USA	53.58	57.08	58.19
4	SBC Comm.(acq.Ameritech)	USA	43.10	46.21	49.49
5	Worldcom	USA	7.79	18.17	37.12
6	Deutsche Telecom	Germany	34.32	34.94	34.66
7	Telecom Italia	Italy	22.55	24.37	26.29
8	France Telecom	France	22.29	23.40	25.92
9	GTE Corp.(bought by Bell Atl)	USA	23.26	25.47	25.33
10	Bell South	USA	20.56	23.12	25.22
11	British Telecom	UK	22.06	23.10	25.04
12	Telefonica	Spain	14.44	17.49	22.91
13	Sprint	USA	14.56	15.76	17.01
14	Qwest	USA	11.52	12.39	13.18
15	Cable & Wireless	UK	8.94	10.34	11.73
16	Telstra	Australia	9.63	10.14	10.14
17	Telmex	Mexico	8.18	8.88	9.73
18	BCE, Inc.	Canada	23.01	18.14	9.48
19	Korea Telecom	Korea	6.34	7.96	9.22
20	Koninkijke NPN N.V.	Netherlands	6.81	7.65	8.69

Notes:

US West/ Qwest was approved March 8, 2000.

SBC/Ameritech merger was approved Oct. 6, 1999.

Bell Atlantic/GTE merger was appoved June, 2000. Bell Atlantic/GTE has adopted the official name Verizon Communications.

Some of the foreign telecom operators report revenues in on March 31, not December 31.

Source: http://yahoo.marketguide.com/

ATTACHMENT 2

NON-INCUMBENT MULTINATIONAL CARRIERS – U.S. AND FOREIGN

Revenues as of December 31, 1997-2000 or Most Recent Quarter for 2000
Reported in millions of U.S. dollars

CARRIER	1997	1998	1999	2000
Teleglobe	1,288.8	1,693.3	2,867.9	1,234.4 (after 2Qs)
Equant	529.1	723.7	1,050.4	1064.2 (after 3Qs)
RSL Communications	300.8	885.9	1,469.8	1,142.2 (after 3Qs)
Star Telecom	434.1	619.2	1,061.8	733.7 (after 3Qs)
Global Telesystems Group	121.5	372.4	852.2	1,023.5 (after 3Qs)
Energis	139.3	240.9	409.8	704.1
IDT Corporation	135.2	335.4	732.2	1093.9
Pacific Gateway Exchange	298.6	466.3	604.6	280.5 (after 3Qs)
COLT Telecom Group	116.9	308.5	576.0	985.5
Primus Telecom Group	280.2	421.6	832.7	1,199.4
Viatel	73.0	135.2	333.1	584.2 (after 3Qs)
Qwest Communications Int.	11,521.0	12,395.0	13,182.0	16,610.0
Level 3	332.0	392.0	515.0	1,185.0
Esprit Telecom Group	65.2	118.5	n/a	n/a

Notes:
Year ends December 31 for all companies except Energis (March 31) and IDT Corporation(July 31).
n/a means not available.
Some additional new entrants were added in this list since last year's submission. And a few of last' year's new entrants were removed because of mergers, etc. For example, because of its merger with MCI in 1998 we no longer consider WorldCom to be a new entrant.

Source: http://yahoo.marketguide.com/

ATTACHMENT 3

U.S. SETTLEMENT RATES WITH WTO SIGNATORIES

Group A: Signatories with Full Market Access Commitments Effective 2000

WTO SIGNATORY	1996	1997	1998	1999	2000	Benchmark Rate	Effective Date
Australia* (1997)	$0.225	$0.210	$0.150	$0.150	$0.140	$0.15	1/1/99
Austria * (1998)	$0.215	$0.205	$0.135	$0.135	$0.130	$0.15	1/1/99
Belgium * (1998)	$0.280	$0.165	$0.135	$0.135	$0.130	$0.15	1/1/99
Canada* (1994)	$0.110	$0.100	$0.100	$0.100	$0.100	$0.15	1/1/99
Chile	$0.500	$0.500	$0.350	$0.350	$0.190	$0.19	1/1/00
Denmark * (1998)	$0.145	$0.135	$0.110	$0.110	$0.100	$0.15	1/1/99
Dominican Republic	$0.450	$0.350	$0.300	$0.190	$0.190	$0.19	1/1/01
El Salvador	$0.550	$0.440	$0.385	$0.385	$0.300	$0.19	1/1/01
Finland * (1999)	$0.255	$0.205	$0.160	$0.135	$0.130	$0.15	1/1/99
France * (1998)	$0.175	$0.130	$0.105	$0.105	$0.095	$0.15	1/1/99
Germany* (1998)	$0.115	$0.100	$0.105	$0.105	$0.095	$0.15	1/1/99
Guatemala	$0.500	$0.450	$0.385	$0.320	$0.190	$0.19	1/1/01
Iceland * (1999)	$0.470	$0.375	$0.240	$0.135	$0.130	$0.15	1/1/99
Ireland * (1998)	$0.175	$0.165	$0.105	$0.105	$0.095	$0.15	1/1/99
Italy * (1998)	$0.260	$0.165	$0.110	$0.110	$0.100	$0.15	1/1/99
Japan* (1998)	$0.455	$0.430	$0.145	$0.145	$0.135	$0.15	1/1/99
Korea	$0.615	$0.490	$0.425	$0.355	$0.190	$0.19	1/1/00
Luxembourg * (1998)	$0.290	$0.135	$0.135	$0.135	$0.070	$0.15	1/1/99
Malaysia	$0.445	$0.395	$0.395	$0.190	$0.190	$0.19	1/1/00
Mexico	$0.485	$0.395	$0.370	$0.190	$0.190	$0.19	1/1/00
Netherlands * (1998)	$0.180	$0.135	$0.095	$0.070	$0.065	$0.15	1/1/99
New Zealand* (1996)	$0.215	$0.135	$0.135	$0.135	$0.130	$0.15	1/1/99
Norway * (1998)	$0.145	$0.110	$0.080	$0.080	$0.075	$0.15	1/1/99
Peru	$0.615	$0.500	$0.350	$0.330	$0.250	$0.19	1/1/01
Philippines * (2000)	$0.500	$0.500	$0.360	$0.285	$0.190	$0.19	1/1/01
Portugal	$0.415	$0.300	$0.197	$0.150	$0.140	$0.15	1/1/99
Spain * (1999)	$0.320	$0.240	$0.135	$0.135	$0.130	$0.15	1/1/99
Sweden * (1996)	$0.085	$0.060	$0.060	$0.060	$0.055	$0.15	1/1/99
Switzerland * (1998)	$0.255	$0.170	$0.135	$0.135	$0.130	$0.15	1/1/99
United Kingdom* (1994)	$0.110	$0.070	$0.060	$0.060	$0.055	$0.15	1/1/99
Group A:							
Average Settlement Rate	$0.319	$0.259	$0.198	$0.168	$0.145		
Percent Change	-----	-18.6%	-23.5%	-15.6%	-13.7%		

ATTACHMENT 3 (continued)

Group B: Signatories without Full Market Access Commitments
Effective 2000

WTO SIGNATORY	1996	1997	1998	1999	2000	Benchmark Rate	Effective Date
Albania	$0.505	$0.275	$0.205	$0.190	$0.190	$0.23	1/1/02
Antigua & Barbuda	$0.500	$0.455	$0.405	$0.365	$0.190	$0.19	1/1/00
Argentina* (2000)	$0.715	$0.425	$0.350	$0.280	$0.190	$0.19	1/1/00
Bangladesh	$1.000	$0.800	$0.800	$0.685	$0.320	$0.23	1/1/03
Barbados	$0.550	$0.475	$0.475	$0.475	$0.190	$0.19	1/1/00
Belize	$0.710	$0.600	$0.475	$0.375	$0.350	$0.19	1/1/01
Bolivia	$0.625	$0.550	$0.460	$0.370	$0.280	$0.19	1/1/01
Brazil	$0.515	$0.425	$0.325	$0.300	$0.190	$0.19	1/1/00
Brunei Darussalam* (2000)	$0.725	$0.475	$0.410	$0.150	$0.150	$0.15	1/1/99
Bulgaria	$0.500	$0.450	$0.350	$0.300	$0.180	$0.19	1/1/01
Colombia	$0.625	$0.500	$0.500	$0.325	$0.300	$0.19	1/1/01
Cote d'Ivoire	$1.100	$1.100	$0.985	$0.825	$0.765	$0.23	1/1/03
Croatia	$0.505	$0.340	$0.275	$0.255	$0.210	$0.19	1/1/01
Cyprus	$0.650	$0.475	$0.390	$0.390	$0.150	$0.15	1/1/99
Czech Republic	$0.360	$0.305	$0.275	$0.185	$0.170	$0.19	1/1/00
Dominica	$0.500	$0.405	$0.405	$0.405	$0.190	$0.19	1/1/01
Ecuador	$0.550	$0.500	$0.500	$0.340	$0.230	$0.19	1/1/01
Estonia	$0.500	$0.390	$0.310	$0.290	$0.190	$0.19	1/1/01
Georgia	$1.000	$0.900	$0.550	$0.270	$0.270	$0.23	1/1/02
Ghana	$0.500	$0.500	$0.500	$0.375	$0.375	$0.23	1/1/03
Greece * (2000)	$0.505	$0.430	$0.275	$0.170	$0.130	$0.19	1/1/00
Grenada	$0.500	$0.405	$0.405	$0.405	$0.190	$0.19	1/1/01
Hong Kong, China* (1998)	$0.470	$0.395	$0.305	$0.070	$0.065	$0.15	1/1/99
Hungary* (2000)	$0.505	$0.305	$0.275	$0.190	$0.140	$0.19	1/1/00
India	$0.800	$0.710	$0.640	$0.640	$0.425	$0.23	1/1/02
Indonesia	$0.700	$0.650	$0.525	$0.425	$0.250	$0.19	1/1/01
Israel * (1999)	$0.590	$0.350	$0.295	$0.150	$0.150	$0.15	1/1/99
Jamaica	$0.650	$0.625	$0.625	$0.525	$0.190	$0.19	1/1/01
Jordan	$0.750	$0.750	$0.675	$0.500	$0.500	$0.19	1/1/01
Kenya	$0.700	$0.650	$0.550	$0.550	$0.550	$0.23	1/1/03
Kyrgyz Republic	$1.000	$1.000	$1.000	$1.000	$1.000	$0.23	1/1/02
Latvia	$0.940	$0.410	$0.410	$0.410	$0.385	$0.19	1/1/01
Lithuania	$1.000	$0.475	$0.425	$0.275	$0.275	$0.19	1/1/01
Mauritius	$0.750	$0.750	$0.750	$0.750	$0.750	$0.19	1/1/00
Morocco	$0.725	$0.545	$0.410	$0.410	$0.385	$0.19	1/1/01
Oman	$1.200	$1.200	$0.750	$0.600	$0.600	$0.19	1/1/00
Pakistan	$1.100	$1.000	$0.600	$0.600	$0.510	$0.23	1/1/02
Papua New Guinea	$0.795	$0.615	$0.520	$0.520	$0.445	$0.19	1/1/01
Poland* (2000)	$0.475	$0.350	$0.275	$0.190	$0.190	$0.19	1/1/01
Romania	$0.755	$0.615	$0.520	$0.345	$0.245	$0.19	1/1/01
Senegal	$1.300	$1.300	$0.690	$0.590	$0.590	$0.23	1/1/03
Singapore * (1999)	$0.450	$0.425	$0.355	$0.150	$0.150	$0.15	1/1/99
Slovak Republic	$0.650	$0.340	$0.290	$0.205	$0.190	$0.19	1/1/01
South Africa	$0.500	$0.500	$0.400	$0.350	$0.190	$0.19	1/1/00
Sri Lanka	$1.000	$1.000	$0.800	$0.600	$0.450	$0.23	1/1/02
Suriname	$1.080	$1.080	$1.080	$0.570	$0.570	$0.19	1/1/01
Thailand	$0.750	$0.600	$0.525	$0.350	$0.240	$0.19	1/1/01
Trinidad & Tobago* (2000)	$0.650	$0.575	$0.500	$0.415	$0.190	$0.19	1/1/00
Tunisia	$0.775	$0.470	$0.480	$0.440	$0.320	$0.19	1/1/01
Turkey	$0.580	$0.410	$0.375	$0.330	$0.211	$0.19	1/1/01
Uganda	$0.600	$0.500	$0.250	$0.250	$0.250	$0.23	1/1/03
Venezuela	$0.575	$0.490	$0.400	$0.320	$0.190	$0.19	1/1/01
Group B:							
Average Settlement Rate	$0.701	$0.582	$0.487	$0.393	$0.308		
Percent Change		-17.0%	-16.3%	-19.3%	-21.8%		
Group A and Group B:							
Average Settlement Rate	$0.554	$0.460	$0.378	$0.308	$0.245		
Percent Change		-16.9%	-17.9%	-18.7%	-20.3%		

Notes:

The rates are in U.S. dollars per minute.

The settlement rates were compiled from "Accounting Rates for International Message Telphone Service of the United States," Federal Communications Commission, International Bureau, Telecommunications Division, January 1, 2001.

An asterisk denotes a country approved by the FCC for the provision of switched services using private lines interconnected to the public switched network. The year when the FCC approved ISR with a country is also indicated. The practice of routing switched serviceover international private lines is referred to as "International Simple Resale" (ISR"). The charges U.S. carriers pay to foreign carriers to terminate service routed over international private lines are the result of commercial agreements between the carriers and may be lower than the settlement rates in the the table. U.S. carriers are not required to report the charges for ISR to the FCC.

Attachment 4
EU interconnection rates

Ecu-cents per minute at peak rates for 1997 and 1998, Euro for 1999

	Local				Single Transit				Double Transit			
Country	1997	1998	1999	2000	1997	1998	1999	2000	1997	1998	1999	2000
Austria	7.61	1.80	1.82	1.02	7.61	1.80	1.82	1.63	8.41	2.37	2.40	2.58
Belgium	2.78	1.11	1.07	0.92	2.78	2.10	1.80	1.48	3.62	2.94	2.56	1.92
Denmark	0.98	0.98	0.93	0.75	1.82	1.82	1.67	0.95	2.22	2.22	1.91	1.35
Finland	1.81	1.42	1.43	1.43	1.81	1.42	1.43	1.43	4.20	2.81	3.28	2.63
France	0.71	0.70	0.61	0.63	1.73	1.71	1.50	1.33	2.55	2.52	2.23	2.01
Germany	1.00	0.99	1.01	0.88	1.71	1.69	1.72	1.89	2.61	2.58	2.63	2.28
Greece	n/a	1.81	n/a	1.18	n/a	1.81	n/a	1.86	n/a	2.59	n/a	2.22
Italy	1.54	1.51	1.00	0.75	2.52	2.47	1.60	1.33	n/a	n/a	2.30	1.80
Ireland	n/a	2.20	1.00	0.84	n/a	4.15	1.60	1.15	n/a	5.18	2.26	1.54
Luxembourg	n/a	2.01	2.25	1.69	n/a	2.01	2.25	1.69	n/a	2.01	2.25	1.69
Netherlands	2.00	1.17	1.00	1.09	2.00	1.60	1.41	1.50	2.52	2.06	1.70	1.71
Portugal	n/a	1.20	0.99	0.99	n/a	2.37	1.63	1.53	n/a	18.00	2.58	2.25
Spain	1.51	1.49	0.99	0.90	1.51	1.49	1.59	1.50	4.22	4.17	3.07	2.16
Sweden	1.68	1.14	0.86	0.91	2.15	1.77	1.16	1.24	2.98	2.41	1.59	1.70
U.K.	0.64	0.61	0.62	0.62	0.91	0.87	0.90	0.90	1.74	1.69	1.27	1.80

Attachment 4
EU interconnection rates

U.S. Cents per minute at peak rates

Country	Local 1997	Local 1998	Local 1999	Local 2000	Single Transit 1997	Single Transit 1998	Single Transit 1999	Single Transit 2000	Double Transit 1997	Double Transit 1998	Double Transit 1999	Double Transit 2000
Austria	8.36	2.00	1.91	0.89	8.36	2.00	1.91	1.42	9.24	2.63	2.52	2.24
Belgium	3.05	1.23	1.12	0.80	3.05	2.33	1.89	1.29	3.98	3.26	2.69	1.67
Denmark	1.08	1.09	0.98	0.65	2.00	2.02	1.75	0.83	2.44	2.46	2.00	1.17
Finland	1.99	1.58	1.50	1.24	1.99	1.58	1.50	1.24	4.61	3.12	3.44	2.29
France	0.78	0.78	0.64	0.55	1.90	1.90	1.57	1.16	2.80	2.80	2.34	1.75
Germany	1.10	1.10	1.06	0.77	1.88	1.88	1.81	1.64	2.87	2.86	2.76	1.98
Greece	n/a	2.01	n/a	1.03	n/a	2.01	n/a	1.62	n/a	2.87	n/a	1.93
Italy	1.69	1.68	1.05	0.65	2.77	2.74	1.68	1.16	n/a	n/a	2.41	1.57
Ireland	n/a	2.44	1.05	0.73	n/a	4.60	1.68	1.00	n/a	5.75	2.37	1.34
Luxembourg	n/a	2.23	2.36	1.47	n/a	2.23	2.36	1.47	n/a	2.23	2.36	1.47
Netherlands	2.20	1.30	1.05	0.95	2.20	1.78	1.48	1.30	2.77	2.29	1.78	1.49
Portugal	n/a	1.33	1.04	0.86	n/a	2.63	1.71	1.33	n/a	19.97	2.71	1.96
Spain	1.66	1.65	1.04	0.78	1.66	1.65	1.67	1.30	4.63	4.63	3.22	1.88
Sweden	1.84	1.26	0.90	0.79	2.36	1.96	1.22	1.08	3.27	2.67	1.67	1.48
U.K.	0.70	0.68	0.65	0.54	1.00	0.97	0.94	0.78	1.91	1.88	1.33	1.57

Notes:
September 1997, \$/ECU = 1.0981
May 1998, \$/ECU = 1.1096
September 1999, \$/EURO = 1.0497
September 2000, \$/EURO = 0.8695

Local exchange call termination: interconnection at or near the incumbent's local exchange.

Single transit exchange termination: interconnection at the tandem exchange in the incumbent's network nearest to the terminating local exchange, typically less that 200 kilometers. Sometimes called single tandem or metropolitan level service.

Double transit exchange termination: The incumbent carries the call through the trunk network for 200 or more kilometers before terminating. Sometimes called double tandem or national level service.

Source: Interconnection Rates: 1997, 1998 from Porte-Parole, Falling Cost of Fixed Networked Telecommunications in Europe, July 1998, 1999, 2000 from The European Commission, Fifth and Sixth Reports on the Implementation of the Telecommunications Regulatory Package, respe

Exchange Rates, Federal Reserve

Attachment 5
European Union Interconnection Agreements

	Fixed-to-fixed		Fixed-to-mobile		Mobile-to-mobile	
	1999	2000	1999	2000	1999	2000
Country						
Austria	33	124	3	54	0	7
Belgium	16	19	3	3	1	3
Denmark	36	129	6	10	2	1
Finland	117	184	n.a.	n.a.	1	3
France	85	200	10	13	0	0
Germany	86	117	3	4	1	n.a.
Greece	0	0	3	3	3	3
Italy	22	51	8	10	3	6
Ireland	12	13	2	2	1	1
Luxembourg	1	5	1	5	1	1
Netherlands	66	63	n.a.	n.a.	n.a.	n.a.
Portugal	1	12	1	10	3	1
Spain	13	35	6	24	2	3
Sweden	17	22	8	11	3	2
U.K.	256	239	5	5	8	6

Note: International interconnection agreements are excluded, except for France
For Finland, separated data for fixed-to-fixed and fixed-to-mobile are not available.
For the Netherlands, separate data for the different categories are not available.

Source: 1999, 2000 from The European Commission, Fifth and Sixth Reports on the Implementation of the Telecommunications Regulatory Package, respectively.

ATTACHMENT 6

U.S. TRAFFIC WITH WTO SIGNATORIES

WTO SIGNATORY	FOREIGN BILLED MINUTES (service to the U.S.)			U.S. BILLED MINUTES (service from the U.S.)		
	1997	1998	1999	1997	1998	1999
Albania	1,757,522	1,792,750	1,388,041	3,157,895	4,605,232	12,968,558
Antigua & Barbuda	7,115,819	7,107,775	6,301,197	54,506,678	66,719,925	62,461,601
Argentina	38,596,380	46,086,064	46,065,037	226,585,250	233,981,041	205,933,799
Australia	131,569,530	261,265,578	446,040,597	389,186,489	445,122,839	397,035,347
Austria	24,951,748	26,127,656	22,638,858	58,888,931	75,985,975	111,764,742
Bangladesh	4,469,719	4,718,364	3,732,046	60,076,079	52,729,727	67,357,760
Barbados	12,667,958	12,575,598	9,368,090	38,785,436	47,696,085	52,715,743
Belgium	50,477,727	39,674,103	34,660,552	122,795,210	116,719,060	145,324,767
Belize	4,170,792	4,972,453	3,898,443	14,686,178	15,061,084	17,519,047
Bolivia	5,385,806	5,456,986	6,476,939	34,427,178	52,838,539	43,965,166
Brazil	159,248,397	180,184,691	185,879,353	495,323,734	591,195,594	586,400,474
Brunei Darussalam	685,163	881,120	380,168	2,362,320	8,229,089	6,150,853
Bulgaria	1,344,957	1,584,034	3,334,622	12,538,600	14,556,691	29,168,224
Canada	3,145,941,566	3,358,956,938	3,922,083,533	3,922,086,328	3,881,035,995	4,292,153,410
Chile	61,028,462	81,136,627	52,669,264	112,992,559	128,227,790	102,194,826
Colombia	67,640,760	51,227,342	57,150,279	263,350,037	224,266,040	320,886,417
Cote d'Ivoire	2,772,729	3,385,163	2,909,504	15,120,099	16,716,097	13,432,800
Croatia	5,997,764	5,107,689	4,345,815	22,543,698	23,960,800	44,170,576
Cyprus	4,102,808	4,564,433	5,393,036	9,827,450	11,093,247	17,487,445
Czech Republic	8,815,481	9,934,223	9,094,826	27,014,751	30,295,227	66,811,656
Denmark	27,994,754	26,519,824	20,824,088	76,302,051	75,841,746	68,252,440
Dominica	2,212,662	2,108,923	2,035,457	17,124,731	29,295,426	20,638,806
Dominican Republic	107,817,532	111,412,775	122,005,428	379,150,470	439,057,321	613,695,642
Ecuador	17,413,209	13,563,630	14,269,553	184,854,451	113,526,248	197,980,110
El Salvador	12,743,151	16,048,993	24,780,442	155,245,851	198,892,640	235,492,127
Estonia	1,311,042	1,523,455	829,720	2,930,421	5,624,290	3,923,288
Finland	17,787,971	14,064,555	13,378,820	29,464,238	32,070,084	35,648,762
France	216,746,922	270,817,706	226,232,015	502,561,833	575,472,724	577,112,632
Georgia	428,463	708,833	736,366	5,947,172	4,784,615	8,328,666
Germany	325,240,908	471,169,441	333,008,031	994,884,808	1,408,763,612	1,465,872,746
Ghana	5,240,219	7,762,385	5,841,539	50,269,789	44,832,311	48,682,985
Greece	35,148,254	42,788,898	38,649,967	97,898,305	116,252,178	183,779,020
Grenada	2,375,226	2,325,612	2,958,015	17,054,700	63,825,297	67,510,372
Guatemala	15,375,065	17,913,027	18,672,224	126,547,737	145,642,331	189,173,023
Hong Kong, China	78,379,209	214,669,927	103,747,659	671,797,709	598,108,183	192,998,146
Hungary	14,863,885	12,682,758	11,907,153	40,909,624	39,380,507	79,746,636
Iceland	6,918,811	8,890,797	8,342,939	10,562,442	14,060,636	20,225,336
India	49,707,870	58,470,938	44,183,720	574,380,674	755,297,617	960,125,187
Indonesia	28,175,746	28,637,808	20,487,196	119,051,535	103,364,245	96,678,435
Ireland	48,663,111	68,971,405	50,140,384	134,329,538	161,006,122	195,912,481
Israel	121,555,694	171,390,354	237,358,512	214,880,358	221,874,627	363,789,257
Italy	117,814,252	133,973,684	201,115,390	476,352,714	529,505,067	701,104,822
Jamaica	49,902,389	51,903,485	54,206,505	254,091,318	291,487,463	364,356,746
Japan	342,893,941	336,428,346	309,132,619	849,358,999	808,781,369	819,898,783
Jordan	5,406,137	6,767,786	6,938,770	57,028,328	51,644,999	47,344,846

ATTACHMENT 6 (continued)

WTO SIGNATORY	FOREIGN BILLED MINUTES (calls to the U.S.)			U.S. BILLED MINUTES (calls from the U.S.)		
	1997	1998	1999	1997	1998	1999
Kenya	3,480,276	4,122,039	3,764,754	25,698,678	26,485,742	35,664,605
Korea	199,932,652	219,729,719	203,743,550	426,476,913	384,149,732	322,930,253
Kyrgyz Republic	8,110	4,892	0	1,746,448	825,642	1,080,609
Latvia	1,209,108	974,333	587,533	3,186,037	4,644,611	4,663,397
Lithuania	265,642	1,111,320	945,635	3,320,585	6,983,190	15,513,927
Luxembourg	6,154,177	6,894,882	6,746,789	11,075,994	16,018,922	17,485,389
Malaysia	23,602,566	25,158,025	19,608,971	86,630,077	103,651,471	71,380,404
Mauritius	487,927	598,379	171,187	6,762,451	14,018,985	15,673,522
Mexico	942,158,920	1,086,310,773	1,124,067,242	2,766,488,494	3,020,570,877	4,053,381,227
Morocco	5,808,115	6,372,647	5,965,226	14,401,988	74,918,664	64,799,913
Netherlands	98,661,319	416,747,866	136,991,004	222,710,538	280,795,926	308,170,059
New Zealand	37,596,723	54,672,922	44,419,326	110,777,088	75,621,277	93,307,739
Norway	52,504,621	51,832,479	42,744,603	66,451,714	90,625,278	80,163,352
Oman	2,065,290	1,581,316	1,313,659	12,465,398	6,210,244	6,385,572
Pakistan	10,518,252	15,610,182	8,816,696	161,013,491	213,480,603	304,548,799
Papua New Guinea	662,939	873,510	506,856	2,376,641	1,803,485	1,796,982
Peru	24,500,128	31,425,645	27,539,112	164,810,714	185,467,465	241,280,350
Philippines	33,363,428	50,688,174	38,914,210	448,866,511	574,574,981	757,563,114
Poland	27,311,276	27,880,730	24,861,407	170,558,158	189,479,771	273,116,947
Portugal	14,972,676	23,130,262	13,192,423	55,159,003	71,957,330	93,471,696
Romania	5,248,333	21,967,892	7,509,091	26,884,438	76,112,046	63,324,165
Senegal	1,717,016	2,016,631	1,468,408	19,342,020	19,925,012	32,714,186
Singapore	61,419,122	65,635,330	26,438,856	202,681,493	175,699,888	120,304,927
Slovak Republic	3,335,617	3,335,101	2,546,908	10,612,303	11,218,818	31,472,446
South Africa	31,119,827	36,484,345	38,902,852	111,618,488	130,778,758	163,889,567
Spain	85,309,869	69,495,669	85,112,372	191,010,953	254,022,029	329,139,209
Sri Lanka	1,987,980	3,054,378	7,908,368	16,938,724	21,174,993	28,855,457
Suriname	868,592	644,589	226,548	9,923,684	3,431,142	7,562,955
Sweden	185,679,847	113,844,782	143,770,604	143,818,519	150,968,300	174,903,856
Switzerland	98,017,798	102,139,822	81,599,198	246,280,971	199,877,106	240,262,863
Thailand	26,280,859	32,215,132	23,503,106	117,177,476	130,337,078	117,910,129
Trinidad & Tobago	29,319,430	31,508,545	27,879,883	94,345,185	105,862,920	132,221,567
Tunisia	1,513,284	1,135,704	1,998,629	4,470,221	3,786,847	10,406,900
Turkey	24,986,937	28,379,378	26,956,268	62,531,049	113,736,357	241,219,453
Uganda	703,254	886,897	798,183	4,812,428	10,645,215	13,608,454
United Kingdom	946,020,819	806,808,330	1,119,090,756	1,553,813,287	1,169,563,822	1,668,855,392
Venezuela	59,069,810	60,244,323	49,200,207	213,508,910	233,340,641	232,198,555

Notes:

The data were compiled from the FCC's 1997, 1998, and 1999 Section 43.61 International Traffic Data reports for all U.S. points and types of international switched telephone service.

ATTACHMENT 7

TELEDENSITY IN WTO SIGNATORY COUNTRIES

WTO SIGNATORY	TELEDENSITY				
	1995	1996	1997	1998	1999
Albania	1.17	1.74	2.33	3.05	3.65
Antigua & Barbuda	38.84	40.81	43.90	46.80	48.86
Argentina	15.91	17.38	18.78	19.74	20.11
Australia	49.25	50.08	50.48	50.93	51.97
Austria	47.18	48.41	49.18	49.13	47.24
Bangladesh	0.24	0.26	0.31	0.30	0.34
Barbados	34.53	36.49	40.77	42.18	42.71
Belgium	46.17	47.39	48.73	50.02	56.24
Belize	13.40	13.33	13.69	13.75	15.57
Bolivia	3.98	5.60	6.88	6.88	6.17
Brazil	8.51	9.57	10.66	12.05	14.87
Brunei Darussalam	23.99	25.83	25.01	24.68	24.59
Bulgaria	30.47	31.67	32.26	32.89	35.43
Canada	60.51	60.58	61.20	63.50	65.45
Chile	12.74	14.92	16.10	18.57	20.70
Colombia	11.03	13.04	14.38	16.13	16.04
Cote d'Ivoire	0.86	0.95	1.03	1.19	1.51
Croatia	28.28	30.91	33.16	34.77	36.49
Cyprus	53.83	54.18	54.47	54.48	54.47
Czech Republic	23.65	27.31	31.84	36.39	37.09
Denmark	61.23	61.92	63.33	65.97	68.47
Dominica	24.13	25.23	Not Available	25.23	27.88
Dominican Republic	7.37	7.68	8.72	9.28	9.81
Ecuador	6.09	6.41	6.86	8.14	9.10
El Salvador	5.28	5.61	6.08	8.00	7.61
Estonia	27.74	29.87	32.14	34.39	35.66
Finland	54.28	55.37	55.59	55.33	55.18
France	55.73	56.36	57.09	56.97	57.91
Georgia	10.23	10.46	11.34	11.55	12.31
Germany	51.33	53.77	55.08	56.72	58.79
Ghana	0.37	0.44	0.57	0.75	0.81
Greece	49.40	50.87	51.61	52.22	52.81
Grenada	26.02	26.72	29.04	29.78	31.51
Guatemala	2.87	3.30	4.08	4.79	5.51
Hong Kong, China	53.25	54.69	56.08	55.77	57.57
Hungary	21.05	25.96	30.42	33.59	37.09
Iceland	55.52	57.61	61.42	64.65	67.74
India	1.29	1.55	1.86	2.20	2.66
Indonesia	1.69	2.11	2.47	2.70	2.91
Ireland	36.33	38.33	41.14	43.47	47.77
Israel	41.69	44.09	44.98	47.11	45.89
Italy	43.33	44.02	44.80	45.31	46.22
Jamaica	11.67	14.03	16.57	16.57	19.91
Japan	48.66	50.15	50.31	50.26	55.75
Jordan	5.83	6.19	7.21	8.34	8.72
Kenya	0.84	0.89	0.92	0.99	1.03
Korea	41.24	43.04	44.40	43.27	43.79

ATTACHMENT 7 (continued)

WTO SIGNATORY			TELEDENSITY		
	1995	1996	1997	1998	1999
Kyrgyz Republic	7.92	7.47	7.56	7.64	7.62
Latvia	27.85	29.55	30.16	30.16	29.99
Lithuania	25.35	26.78	28.29	29.96	31.14
Luxembourg	57.30	62.57	66.87	69.17	72.44
Malaysia	16.57	17.81	19.49	20.16	20.30
Mauritius	13.21	16.22	19.52	21.42	22.36
Mexico	9.39	9.28	9.90	10.36	11.22
Morocco	4.35	4.60	5.00	5.47	5.26
Netherlands	52.52	54.33	56.43	59.31	60.64
New Zealand	47.34	48.40	48.57	49.05	49.03
Norway	56.81	59.08	62.11	66.01	71.20
Oman	7.87	8.59	8.56	9.23	8.96
Pakistan	1.63	1.77	1.83	1.89	2.22
Papua New Guinea	1.07	1.14	Not Available	1.14	1.14
Peru	4.71	5.99	6.75	6.27	6.69
Philippines	2.05	2.55	2.87	3.70	3.88
Poland	14.84	16.91	19.43	22.76	26.27
Portugal	36.72	38.47	40.25	41.35	42.39
Romania	13.09	14.05	15.31	16.24	16.70
Senegal	0.98	1.11	1.32	1.55	1.80
Singapore	47.84	51.33	54.29	56.20	48.20
Slovak Republic	20.84	23.17	25.89	28.63	30.76
South Africa	9.70	10.05	11.18	12.47	13.77
Spain	38.50	39.25	40.32	41.37	41.81
Sri Lanka	1.14	1.39	1.86	2.84	3.64
Suriname	13.21	13.82	15.48	16.25	17.05
Sweden	68.11	68.22	67.93	67.37	66.46
Switzerland	63.43	64.55	66.06	67.42	69.87
Thailand	5.86	7.00	7.96	8.35	8.57
Trinidad & Tobago	16.78	17.37	19.11	20.58	21.58
Tunisia	5.82	6.40	7.08	8.06	8.99
Turkey	21.16	22.36	25.04	25.41	26.47
United Kingdom	50.25	52.19	54.16	55.69	57.45
United States	62.57	63.99	64.37	66.13	68.18
Venezeula	11.38	11.74	12.20	11.67	10.91

Notes:

Teledensity is defined as the number of main telephone lines per 100 inhabitants. The figures are published by the International Telecommunication Union in the "Yearbook of Statistics 1989-1998" and the "World Telecommunication Development Report" (1999).

ATTACHMENT 8

Representative Satellite Service Provider Revenue

Reported in millions of U.S. Dollars

Satellite Company	Revenue	
	1998	1999
American Mobile Satellite	$87.2	$91.1
APT Satellite Holdings Ltd	$75.9	$61.8
AsiaSat	$116.5	$103.4
Boeing - x	$56,154.0	$57,993.0
BSkyB	$2,394.2	$2,684.4
Comsat	$616.5	$618.3
EchoStar	$982.7	$1,602.8
General Electric - x	$100,469.0	$111,630.0
Gilat Satellite Networks	$155.3	$337.9
Globalstar Telecommunications	$0.0	$0.0
Globecomm	$49.1	$78.6
Hughes Electronics - x	$5,963.9	$5,560.3
ICO Global Communications	$0.1	$2.2
Iridium World Communications	$0.2	$6.0
Lockheed Martin - x	$26,266.0	$25,530.0
Loral Space & Communications - x	$1,301.7	$1,457.7
Orbital Sciences - x	$734.3	$874.9
PanAmSat	$767.3	$810.6
Pasifik Satelit Nusantara	$8.9	$8.1
Pegasus	$195.2	$322.8
Qualcomm	$3,347.9	$3,937.3
Shin Satellite	$55.3	$50.1
Sirius Satellite Radio (formerly CD Radio)	$0.0	$0.0
Societe Europeenne des Satellites	$499.6	$611.6
SSE Telecom	$36.7	$22.0
Trimble Navigation	$268.3	$271.4
ViaSat, Inc.	$71.5	$75.9
XM Satellite Radio	$0.0	$0.0

Notes:

1. Fiscal Years Vary By Company
2. Comsat was acquired by Lockheed Martin Telecommunications on August 3, 2000
3. Hughes is majority owner of PanAmSat
6. Shin Satellite revenue does not include 4th Q 1999
7. Iridium revenue figures not available for Apr 1 - Sep 13 1999
8. 1999 Pasifik Satelit Nusantara revenues are estimated
9. x = total revenue, not telecoms-specific

Sources:

C.E. Unterberg, Towbin
Credit Suisse First Boston
ING Barings
Merrill Lynch
Wall Street Journal (www.wsj.com)
Company Annual Reports
US Securities & Exchange Commission Filings

Attachment 9

Satellite Service Provider Market Access in WTO Members*

(total amount)

Country	Iridium (30) **	Orbcomm (44)***	Globalstar (47)
Angola			
Antigua and Barbuda			Licensed
Argentina	Licensed	Licensed	Licensed
Australia	Licensed	Licensed	Licensed
Austria		Provisionally Licensed	Licensed
Bahrain			
Bangladesh	Licensed		
Barbados			Licensed
Belgium		Licensed	Licensed
Belize			
Benin			
Bolivia			
Botswana			
Brazil	Licensed	Licensed	Licensed
Brunei Darussalam			
Bulgaria			
Burkina Faso			
Burundi			
Cameroon			
Canada	Licensed	Licensed	Licensed
Central African Rep.			
Chad			
Chile		Licensed	Licensed
Colombia	Licensed	Licensed	
Congo			
Costa Rica			
Cote d'Ivoire			
Cuba			
Cyprus			
Czech Republic	Testing License (3 years)	Licensed	Licensed
Democratic Republic of the Congo			
Denmark		Licensed	
Djibouti			
Dominica			Licensed
Dominican Rep.			Licensed
Ecuador			
Egypt			
El Salvador			Licensed
Fiji	Licensed		Licensed
Finland		Licensed	Licensed

Country	Iridium (30) **	Orbcomm (44)***	Globalstar (47)
France		Temporarily Licensed	Licensed
Gabon			
Gambia			
Germany		Licensed	
Ghana			
Greece			
Grenada			Licensed
Guatemala	Licensed		Licensed
Guinea		Licensed	
Guinea Bissau			
Guyana			
Haiti			Licensed
Honduras			Licensed
Hong Kong (SAR)			
Hungary		Licensed	
Iceland		Licensed	Licensed
India	Licensed	Provisionally Licensed	
Indonesia			
Ireland		Licensed	
Israel			
Italy	Experimental	Licensed	Licensed
Jamaica		Licensed	Licensed
Japan	Experimental	Licensed	
Kenya		Licensed	
Korea, Rep. of	Licensed	Licensed	Licensed
Kuwait			
Kyrgyz Republic	Licensed		Licensed
Latvia			
Lesotho			
Liechtenstein			Licensed
Luxembourg			
Macau			
Madagascar			
Malawi			
Malaysia	Licensed	Licensed	
Maldives	Partial License		
Mali			
Malta			
Mauritania			
Mauritius			
Mexico		Licensed	Licensed
Mongolia	Licensed		
Morocco		Licensed	Licensed
Mozambique			
Myanmar			

Country	Iridium (30) **	Orbcomm (44)***	Globalstar (47)
Namibia		Licensed	
Netherlands		Licensed	
New Zealand	Licensed		
Nicaragua			Licensed
Niger			
Nigeria			
Norway		Licensed	
Pakistan	Licensed		Licensed
Panama		Licensed	
Papua New Guinea	Licensed		
Paraguay		Licensed	
Peru		Licensed	Licensed
Philippines	Licensed	Licensed	
Poland			
Portugal			Licensed
Qatar			
Reunion			
Romania		Licensed	Licensed
Rwanda			
Saint Kitts & Nevis			Licensed
Saint Lucia			Licensed
Saint Vincent/ Grenadines			Licensed
Senegal	Licensed		
Sierra Leone			
Singapore	Licensed		
Slovak Republic		Licensed	Licensed
Slovenia		Provisionally Licensed	Licensed
Solomon Islands			
South Africa		Provisionally Licensed	
Spain		Licensed	Licensed
Sri Lanka	Licensed		
Suriname			
Swaziland			
Sweden		Licensed	Licensed
Switzerland	Licensed	Licensed	Licensed
Tanzania			
Thailand	Licensed		Licensed
Togo			
Trinidad & Tobago			Licensed
Tunisia			
Turkey	Licensed		Licensed
Uganda			
United Arab Emirates			
United Kingdom	Experimental	Licensed	Licensed
United States	Licensed	Licensed	Licensed

Country	Iridium (30) **	Orbcomm (44)***	Globalstar (47)
Uruguay		Licensed	
Venezuela	Licensed	Licensed	Licensed
Zambia			
Zimbabwe			

*   **Source: Company Web Sites and Reports**

** **1999 Data: Current Iridium Data Unavailable Due to Company's Pending Reorganization**

*** **Figures in Last Year's Report Were Incorrect; As of 12/99, 28 Licenses Had Been Issued**

APPENDIX A

MARKET ENTRY FORUM

On March 14, 2001, the International Bureau (IB) held a public forum to discuss issues relating to entry by U.S. companies into telecommunications markets in foreign countries. The Public Notice announcing the public forum stated that it was intended to provide an opportunity for the public to share experiences regarding entry by U.S. companies into foreign telecommunications markets. [1] The Public Notice noted that the information gathered at this public forum was to be used by the Bureau to supplement the 2000 version of the "International Markets Report." The Public Notice also cautioned that the purpose of the forum was not to discuss the merits of any pending Commission proceedings and is not otherwise part of any pending Commission proceeding. The Federal Register notice was published on February 27, 2001.[2] The forum was held in the Commission Meeting Room at the Federal Communications Commission headquarters.

Over forty industry representatives attended the forum. Representatives from seven different U.S. companies discussed their company's experiences entering into foreign telecommunications markets: AT&T Corporation, Final Analysis, Pan Am Sat, RCN Corporation, Ventel Communications, Western Wireless International, and XO Communications.[3] Attendees also included representatives of the U.S. Department of Commerce (Commerce Department), the U.S. Department of State (State Department), the U.S. Department of Justice, and the Office of United States Trade Representative (USTR), as well as FCC Commissioner Susan Ness. Nine parties submitted written submissions.[4]

Many industry representatives, including all but one of the companies that made a presentation at the forum,[5] have regular contact with other government agencies that handle trade issues. In particular, U.S. companies investing in overseas markets meet regularly with the Commerce Department, the State Department, and USTR. USTR has a formal process for soliciting input from U.S. industry on trade issues. Under section

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[1] *See* International Bureau To Hold Public Forum on Entry by U.S. Companies into Telecommunications Markets in Foreign Countries, *Public Notice*, DA 01-443 (rel. Feb. 16, 2001).

[2] 66 Fed. Reg. 12510 (Feb. 27, 2001).

[3] The speakers were: Joanna McIntosh, AT&T Corporation; Pat Mahoney, Final Analysis; Mathew Botwin, PanAmSat Corporation; Patrick Whittle, RCN Corporation; Carl Widell and Anne Linton, Ventel Telecommunications, Inc.; Brad Horowitz, Western Wireless International; Dan Gonzalez, XO Communications. In addition, Lawrence Spiwak from the Phoenix Center for Advanced Legal and Economic Policy Studies spoke at the forum.

[4] Submissions were made by: Ventel Telecommunications, Inc.; Western Wireless International; the Phoenix Center for Advanced Legal and Economic Public Policy Studies; Pan Am Sat Corporation; RCN Corporation; Covad Communications; VoiceStream; the Competitive Telecommunications Association; and, Paradigm Ventures. Copies of the written submissions are available on the FCC web-site at http://www.fcc.gov/ib/wto.html.

[5] Only XO stated that it has not yet discussed its issues with other government agencies, but XO stated that it would be discussing its concerns with the other government agencies soon.

1377 of the Omnibus Trade and Competitiveness Act of 1988,[6] USTR annually solicits comments on foreign compliance with telecommunications trade agreements and issues an annual report. Of the participants at the IB sponsored forum, AT&T filed comments with the United States Trade Representative as part of the section 1377 review process. In those comments, AT&T raised issues regarding Mexico, South Africa, and Peru.[7] The most recent 1377 report was issued by USTR on April 2, 2001.[8] The Commerce Department also consults with U.S. companies regarding foreign markets, and issues a number of reports. The Office of Telecommunication Technologies in the International Trade Administration (ITA) within the Commerce Department issues reports on the international market by region.[9]

Summary of presentations:

AT&T has a data service network, called AT&T Global Network Service, which travels through 50 countries. In addition, AT&T has invested in basic telecommunications networks in 13 countries. At the forum, AT&T stated that it would not have the security to make such investments if it did not know that the country had legally bound itself to liberalize its telecommunications markets by being a signatory to the World Trade Organization (WTO) Basic Telecommunications Agreement. Further, AT&T said that its business units do not have many, if any, complaints about the practices of foreign governments, mainly because they prefer to work out issues business-to-business rather than take complaints to the government. AT&T did state, however, that it has a problem in South Africa, where the monopoly provider of basic services is not provisioning the services AT&T needs for the provision of value-added network services (VANS).

Final Analysis is a global mobile satellite service provider. It will provide non-voice data, but is not operational yet. At the forum, Final Analysis stated that to provide mobile satellite service a company needs to get a license in every country in which it wants to provide service, as well as getting licenses for terminals. Final Analysis noted that Iridium was able to obtain authorizations to serve about 160 countries.

PanAmSat is a private satellite operator that serves the U.S. domestic and global satellite telecommunications markets. At the forum, Pan Am Sat noted that while it does not need to get licenses from individual foreign countries, its customers have to get earth station licenses. Any difficulties that its potential customers have in getting licenses limits PanAmSat's ability to serve that market. In particular, PanAmSat noted that Uruguay, the Central African Republic, and Madagascar have laws requiring customers to up-link to certain intergovernmental carriers. PanAmSat also noted that it has difficulty in getting permission to carry backhaul traffic for the public switched telephone

[6] 19 U.S.C. § 3107.

[7] AT&T's comments filed in the 1377 review process are available on the USTR web-site at http://www.ustr.gov/enforcement/tradelaw.shtml.

[8] The report, as well as copies of the comments filed in the 1377 review process are available on the USTR web-site at http://www.ustr.gov/enforcement/tradelaw.shtml.

[9] These ITA reports are available on the Commerce Department at http://infoserv2.ita.doc.gov/ot/mktctry.nsf/504ca249c786e20f85256284006da7ab!OpenView.

network (PSTN) in certain countries. In its written presentation, PanAmSat provides greater detail on some of the problems it has had accessing certain foreign markets.

RCN is a part-owner of Megacable Comunicaciones de Mexico S. A. de C. V. (Megacable), a competitive local exchange carrier in Mexico. At the forum, RCN described the difficulties that Megacable has had in obtaining interconnection with Telmex, the monopoly service provider in Mexico. According to RCN, the problem has been the inability of COFETEL, the Mexican regulator, to enforce Telmex's interconnection obligations. In its written comments RCN provided greater detail regarding its experiences with Telmex and COFETEL in entering the Mexican telecommunications market.

Ventel Telecommunications is an international reseller doing business in emerging markets, primarily in Africa. At the forum, Ventel discussed its experiences with interconnection and equal access in Africa. In Somalia, according to Ventel, because there are different regional governments competing for regulatory authority, in practice there is no enforceable telecommunications policy. Competing companies therefore do not share networks, requiring each company to build its own infrastructure, which is duplicative and expensive. In Ghana, on the other hand, the regulator has forced the former monopoly provider to open its facilities to other companies. Ventel also discussed the legal systems in many countries in Africa and South Asia. Ventel states that although many countries' legal systems appear to be based on French legal codes or British common law, in actuality local law prevails, which makes it difficult to do business in those countries. Ventel's written statement discussed the same issues.

Western Wireless International, a majority-owned subsidiary of Western Wireless Corporation, operates wireless telecommunications services in nine foreign countries. At the forum, Western Wireless stated that, because it wants to operate and control its wireless systems, it will only look at markets where there are no foreign ownership restrictions. It said that interconnection in foreign markets is the most challenging issue, particularly the physical provisioning. On the regulatory side, Western Wireless stated that foreign regulators lack of enforcement powers is the biggest challenge. In its written comments, Western Wireless notes that that keys to successful investment are a transparent licensing process, low license fees, and no foreign ownership restrictions.

XO Communications is in the process of acquiring a Pan-European fiber optic network and multiple metropolitan network facilities in Europe. At the forum, XO focused its discussion on the certification process in Europe, using Belgium, as an example. XO stated that, in order to get a certificate to provide service in Belgium, it had to provide very specific data on the commercial, technical, and organizational aspects of XO's operations, including a 15-year business plan, forecasts of subscribers and market share, identify every piece of network equipment, and give detailed job descriptions of every individual that XO will hire. Further, the various stages required for final certification must be done sequentially, rather than simultaneously, as is the practice in the United States. XO stated that the certification process in France is similar to that in Belgium, while Germany and the United Kingdom are better. Finally, XO said that it believes that there is an European Union (EU) Directive in place that should harmonize and simplify the certification process.

Lawrence Spiwak, the president of the Phoenix Center for Advanced Legal and Economic Public Policy Studies, argued at the forum that a problem with entry into foreign telecommunications markets is that foreign regulators look to the U.S. experience to guide them, and, according to Mr. Spiwak, the U.S. has not set a good example. In his written statement, Mr. Spiwak argues that the Commission has engaged in a systematic pattern of behavior to deter foreign entry into the U.S. market and to abrogate the U.S. commitments in the WTO.

Summary of written submissions:

Three of the companies that made presentations at the forum also provided written submissions at the forum: PanAmSat, Ventel Telecommunications, and Western Wireless International.[10] RCN Corporation filed a written submission after the forum. These submissions generally provided more detail than the companies' statements at the forum. In addition, four other parties filed written submissions.[11]

The Competitive Telecommunications Association (CompTel) is a trade association representing U.S. and international competitive communications firms and their suppliers. CompTel submitted copies of comments and information it had previously filed with USTR relating to market access barriers facing its members operating in a broad range of overseas markets.

Covad Communications is a broadband services provider of high-speed Internet and network access utilizing Digital Subscriber Line (DSL) technology. Covad has an operational presence in India, Japan, and Spain, and has licenses in several additional countries. In its written comments, Covad states that it often cites the FCC decisions relating to non-discriminatory treatment of new entrants as an example of best practices that foreign regulators should follow, and encourages the Commission to share its DSL-related experiences with foreign regulators. Covad also filed a copy of its submission to USTR as part of the section 1377 review process.

Paradigm Ventures is an international venture capital firm focused on high technology ventures. In its written comments, Paradigm argues that the U.K. government has improperly handled unbundling, including carrier pre-selection, and has created a cost structure that makes it difficult for consumers to get cost-effective, reasonable access to broadband. Paradigm further alleges that many of the EU countries have not complied with WTO obligations or complied with European Community law. It concludes that for those reasons U.S. investors that have directly or indirectly invested in European telecommunications have lost hundreds of millions of dollars. Paradigm states that the

10 In addition, Lawrence Spiwak from the Phoenix Center for Advanced Legal and Economic Policy Studies provided a written submission at the forum.

11 Copies of the written submissions are available on the FCC web-site at http://www.fcc.gov/ib/wto.html.

Commission should have a strategy to ensure that European governments and their former monopoly phone companies do not benefit from violating international law.

VoiceStream constructs and operates broadband personal communications service (PCS) systems throughout the United States using the global system for mobile communications (GSM) standard, and has international roaming agreements in over 71 countries. VoiceStream submitted a paper that sets out examples of U.S. companies' investments in foreign telecommunications companies.

APPENDIX B

PERIODICAL REVIEW

In addition to holding a public forum,[1] the staff of the International Bureau also conducted a review of major periodicals for articles that discuss entry by U.S. companies into telecommunications markets in foreign countries. The review was designed to locate articles published in 2000 in fourteen major newspapers that discussed entry into foreign telecommunications markets by U.S. companies and problems encountered by U.S. telecommunications companies in foreign markets. The electronic databases for the following newspapers were searched: Atlanta Journal and Constitution, Boston Globe, Chicago Tribune, Dallas Morning News, Detroit Free Press, Financial Times (abstracts), Los Angeles Times, Minneapolis-St. Paul StarTribune, Rocky Mountain News, San Francisco Chronicle, Seattle Times, St. Louis Post-Dispatch, Wall Street Journal, Washington Post.[2] The majority of the articles found in these periodicals concerned issues related to five governments: (1) China, (2) the European Union (EU), (3) Germany, (4) Japan, and (5) Mexico. In addition, there were articles dealing with a number of other countries and business transactions.

During 2000 there were numerous articles in many newspapers regarding the Congressional votes to grant China permanent normal trade status and the negotiations for China to enter the World Trade Organization.[3] Many of the articles noted the business potential of the telecommunications market in China once U.S. companies are allowed to enter and invest in the market.[4] The articles also described the new domestic regulations that China adopted in preparation for entry into the WTO, such as allowing greater foreign ownership of telecommunications facilities.[5] Several articles also reported AT&T's deal to provide broadband Internet services in Shanghai.[6]

There were several articles regarding how the activities of the EU antirust authorities affected proposed mergers involving telecommunications services in Europe. The articles noted the difficulty in getting regulatory approval in the EU for several

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[1] *See* Appendix A for a description of the public forum.

[2] The New York Times was not searched because its database only includes that day's newspaper and does not have archived stories.

[3] *See, e.g.*, Chinese Are Split Over WTO Entry; Monopolies Fear Western Influence, Washington Post, Mar. 13, 2000 at A1; Senate Okays China Trade Bill: Supporters Say Vote Will Boost Human Rights, Chicago Tribune, Sep. 20, 2000 at 1; Permanent Trade Status for China Clears Congress, Los Angeles Times, Sep. 20, 2000; House OKs China Deal, Minneapolis-St. Paul StarTribune, May 25, 2000 at 1A.

[4] *See, e.g.,* Internet Firms Seek to Sway Lawmakers To See Benefits in Wider China Trade, Wall Street Journal, Feb. 15, 2000 at A8; Hong Kong's Investment in China Recedes; Beijing's WTO Membership May Boost U.S. Firms' Role, Washington Post, June 2, 2000 at A30; Foreign Profits in China May Remain Elusive, Wall Street Journal, May 25, 2000 at A21; Membership In WTO Will Bring Change to China: Opportunities Open For Foreign Businesses, Minneapolis-St. Paul StarTribune, Dec. 26, 2000.

[5] *See, e.g.,* In China, Rules Stall Web Growth, Seattle Times, Oct. 22, 2000 at G2; China Sets Regulation on Telecom, Wall Street Journal, Oct. 11, 2000 at A21; China Changes Course on Competition, Wall Street Journal, Oct. 27, 2000 at A15.

[6] *See, e.g.,* AT&T to Offer Internet Services as China Opens Telecom Market, Wall Street Journal, Dec. 6, 2000 at A19; AT&T in Venture to Provide Internet Services in Shanghai Telecom, Los Angeles Times, Dec. 6, 2000 at C1.

proposed mergers.[7] In particular, the European Commission blocked the proposed merger of Worldcom and Sprint.[8] The European Commission also forced Microsoft to take only a minority ownership in Telewest Communications PLC, a provider of high-speed Internet links over cable television systems in the United Kingdom, rather than sharing control as it had proposed.[9]

The proposed merger of Deutsche Telekom (DT) and VoiceStream Wireless has led to a number of articles discussing the telecommunications market in Germany.[10] While most of the articles have focused on the potential impact of the merger on the U.S. market, some have discussed whether the government ownership of DT has led to a less than fully competitive market in Germany.[11] Some editorial articles have argued that the German market is not open,[12] while others have stated that it is sufficiently competitive.[13]

In July there were numerous articles about an agreement reached by the Office of the United States Trade Representative with Japan to lower the rates that carriers must pay the incumbent monopoly telephone carrier – NTT – for interconnection to its facilities.[14] These articles noted both the difficulty in reaching such an agreement, as well as the benefits the agreement may provide for U.S. companies in gaining access to the Japanese markets.[15] Other articles noted that the access rates should be lowered even further.[16] Several articles also discussed the agreement between America Online (AOL) and NTT DoCoMo, which gives AOL greater access to the Japanese market.[17]

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7 *See, e.g.,* Hostility Grows in Europe to Telecom Mergers, Wall Street Journal, June 29, 2000 at A18; Europe Resists Big U.S. Mergers, Washington Post, June 22, 2000 at E1; Senators Warn Europe on Protectionism; Letter Says Opposition to Transatlantic Mergers Discriminates Against U.S. Firms, Washington Post, Oct. 6, 2000 at E3.

8 *See* Worldcom, Sprint Merger Hits European Roadblock, St. Louis Post-Dispatch, June 22, 2000 at C1; Worldcom Deal Seen As Doomed, Washington Post, June 27, 2000 at A1.

9 *See* Microsoft Yields to EU on Telewest Control, Washington Post, July 8, 2000 at E1.

10 *See, e.g.,* FCC Vows Scrutiny of Foreign Takeovers, Washington Post, July 21, 2000 at E3; German Firm reportedly Seeks Sprint, Atlanta Journal and Constitution, Jul. 4, 2000 at F1; Deutsche Telekom to Lower Charges, Aiding a U.S. Deal, Wall Street Journal, Sep. 12, 2000 at A23.

11 *See, e.g.,* Takeover by German Firm Tests Free Trade, Washington Post, Sep. 7, 2000 at E1; Wireless Call From Germany, Minneapolis-St. Paul StarTribune, Jul. 25, 200 at 1D; German Firm's Telecom Bid in U.S. Stirs Rancor, Los Angeles Times, Jul. 25, 2000 at A1.

12 *See* Commentary, A Big "Nien" to Deutsche Telekom Telecommunications, Los Angeles Times, July 26, 2000 at B9.

13 *See* Editorial, Beware Plausible Protectionists, Washington Post, Sep. 12, 2000 at A34.

14 *See, e.g.,* Japan Agrees to Cut NTT Connection Fees, Los Angeles Times, Jul 19, 2000 at C1; Telecom Tiff, Chicago Tribune, Jul. 3, 2000 at 3.

15 *See, e.g.,* Pact Pushes Japan Further Into Net Age, US Says, Boston Globe, Jul. 20, 2000 at D1; Telecom Giant Still Reigns in Japan, Washington Post, Jul. 23, 2000 at H1.

16 *See, e.g.,* U.S., Japan Reach Deal on Telecom Access Fees, Washington Post, Jul. 19, 2000 at A14; Sparring Partner: Trade disputes with Japan May Intensify If U.S. Economy Slows, Dallas Morning News, Nov. 23, 2000 at 1D.

17 *See, e.g.,* AOL To Team Up With DoCoMo, Financial Times, Sep. 26, 2001 at P37; $100 million in NTT DoCoMo Deal gives AOL a foothold in Japan, Minneapolis-St. Paul StarTribune, Sep. 28, 2000 at 3D.

The U.S. trade dispute with Mexico over interconnection fees charged by Telmex also received substantial coverage.[18] In that dispute the United States asked the WTO to appoint a hearing panel to rule on claims that Mexico is not meeting its international commitments and thereby unfairly keeping U.S. companies from competing in Mexico's telecommunications market.[19] Some of the articles discussed how the high interconnection rates keep U.S., and other foreign, companies out of the Mexican market and protect Telmex from competition.[20] Finally, articles at the end of the year reported a tentative deal between Telmex and U.S. companies reducing the interconnection charges, quality standards, resale tariffs and pending debt.[21]

There were also articles dealing with a number of other countries. Articles regarding the expansion of trade relations with Vietnam mentioned how such changes would allow U.S. companies access to telecommunications markets.[22] There was an article on steps taken in Argentina to deregulate telecommunications, and AT&T's subsequent purchase of Keytech LD, an Argentine company that will compete in local, national, and international long-distance telephone service as well as Internet, data and fixed wireless services.[23] Singapore lifted its 49 percent limit on foreign ownership of telecommunications facilities.[24] One article discussed the difficulties in gaining access in Bolivia, Costa Rica, Uruguay and Venezuela, where the incumbent telephone operator continues to collect high prices for interconnection.[25] Many other articles discussed the plans of U.S. companies, such as BellSouth and Motorola, to expand their telecommunications operations in foreign countries.[26] For example, IBasis Inc, which provides international phone calling over the Internet, expanded its operations in Europe

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18 *See, e.g.,* U.S. To File Complaint Against Mexico Over Telecom Market Access, Chicago Tribune, Jul. 28, 2000 at 3;

19 *See, e.g.,* U.S. Seeks WTO Help in Mexico Dispute, Los Angeles Times, Dec. 13, 2000 at C4; U.S. Asks WTO to Hear Case, Washington Post, Nov. 9, 2000 at E11.

20 *See, e.g.,* U.S. accuses Mexico of unfair practices in telephone trade, Minneapolis-St. Paul StarTribune, Jul. 29, 2000 at 10A; U.S. Threatens to Bring WTO Case, Washington Post, Jul. 29, 2000 at E1; Mexicans hung up on high phone-connection fees, Seattle Times, Aug. 19, 2000 at A9.

21 *See* Mexican, U.S. Phone Giants Reach Accord, Wall Street Journal, Dec. 28, 2000; Mexico's Telmex Reaches Accord With Two Long-Distance Operators, Los Angeles Times, Dec. 28, 2000 at C3; Telmex, rivals reach agreement, Dallas Morning News, Dec. 28, 2000 at 1D.

22 *See* U.S. Close to Signing Vietnam Trade Pact, Los Angeles Times, Jul. 13, 2000 at A1; Firms Eye trade with Vietnam in wake of pact, Dallas Morning News, Aug. 17, 2000 at 1D; U.S. Firms Deal With 2 Vietnams, Washington Post, Nov. 17, 200 at E1.

23 *See* Argentina Deregulates to Lure Telecom Dollars and Bites the Bullet on Loss of Low-Tech Jobs, Wall Street Journal, Mar. 1, 2000 at A18.

24 *See*, Singapore Plans Full Liberalization of Telecom Sector by April, Financial Times, Jan. 22, 2000 at 4; Asian Telecom Pair May Join to Create A Regional Giant, Wall Street Journal, Jan. 25, 2000 at A13.

25 *See* Down to the wires: Climate hampers Latin telecom market's growth, Dallas Morning News, Jul. 25, 2000 at 1D.

26 *See* BellSouth looking past international choppiness, Atlanta Journal and Constitution, Nov. 8, 2000 at G1; Motorola to Spin Off Overseas Phone Unit; Chicago Tribune, Sep. 21, 2000 at 1; Portals Seek Entry in Foreign Markets, Chicago Tribune, Mar. 26, 2000 at 5.

and entered the market in Thailand.[27] Nextel announced plans to build operations in Brazil, Mexico, Chile, Peru, Argentina, Japan and the Philippines.[28]

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27 *See* IBasis Aims to Triple Presence in Europe with London Move, Boston Globe, Oct. 2, 2000 at C10; Thailand Awards Phone, Fax Contract to IBasis, Boston Globe, Feb. 25, 2000 at E5.

28 *See* Nextel to Divest Foreign Unit; Firm Eyes Cellular Growth in Latin America, Asia, Washington Post, Aug. 18, 200 at E1.