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Market study on telecommunication  
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**Market Study on  
Telecommunication Equipment and  
Systems in Mexico.**



**INFORMATION FOR CANADIAN BUSINESSMEN  
PREPARED BY THE COMMERCIAL DIVISION,  
CANADIAN EMBASSY, MEXICO.**



# Market Study on Telecommunication Equipment and Systems in Mexico.

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This market guide booklet has been prepared with the problems inherent to the initiating exporter in mind. However it is not exhaustive; individual circumstances, interests and needs will dictate how companies should tailor their approach and strategy to the Mexican market. While every attempt has been made to ensure accuracy in this study, no responsibility can be accepted for errors or omissions.

Further assistance can be obtained by addressing requests directly to the Commercial Division of the Canadian Embassy in Mexico City located at Calle Schiller No. 529, Col. Polanco, 11560 México, D.F., Telephone 254-32-88, telex 177 1191 and fax (sending from Canada) 011 (525) 545-17-69; or the Latin American Division Department of External Affairs, Industry Science and Technology Canada, 125 Sussex Drive, Ottawa, Ontario, K1A 0G2. Phone 9950460 fax (613) 996-0677.

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# MARKET STUDY ON TELECOMMUNICATIONS EQUIPMENT AND SYSTEMS IN MEXICO

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## 1. BACKGROUND

Mexico entered the age of telecommunications in 1851, with the inauguration of the first telegraph circuit. Local telephone service began in 1882 with the foundation of the Mexican Telephone Company. By the end of the 19th century, the first long distance telephone conference was held between Mexico and the United States, while submarine telegraphic cables reached Mexican coasts. The first Mexican radio station was inaugurated in 1923. In the 1930s, Mexico was linked to Europe, Orient and South America through radio-telegraphic systems. For many years, telephone services were supplied by two private companies, subsidiaries of Ericsson (Sweden) and ITT (U.S.A.). Between 1963 and 1972, the Mexican government gradually purchased stock held by these two companies and became majority (51%) owner of the new Telefonos de Mexico. By the end of the Second World War, Mexico initiated a second phase in its telecommunications infrastructure with the installation of the microwave system and spatial communications began in 1957. In 1963, the first microwave route was inaugurated between Mexico City, Monterrey and the U.S. border. The national system was completed in 1966 for the 1968 Olympic Games. Telex service began in 1957 using the existing long distance network and by 1971 it was linked to the world network. The first television channel in Latin America was inaugurated in Mexico in 1950 by the company Televisión de México. The following year, Televisión was born, now the Televisa corporation.

Since then, Mexican telecommunications have come a long way and have grown significantly, to be among the world's most advanced. During the last decade, telegraphic channels have duplicated, ionospheric radiocommunications have grown 57%, satellite communications have boomed through the installation of the Morelos satellite System and its 237 local stations, telex lines have grown 150%, data communications systems grew over 500%, television stations multiplied by seven and 220 radio stations were concessioned, the number of telephone apparatus more than doubled, as well as the number of lines, telephone density increased from 6.7 to 11.4 per 100 inhabitants and the number of locations with telephone service grew from 4,200 to 7,200.

The Mexican telecommunications sector is undergoing fundamental changes. New policy initiatives are opening opportunities for Canadian and other foreign companies wishing to enter the market. As a result of Mexico's accession to GATT, tariffs have been lowered to a maximum 20%, down from 100% in 1982, and prior import licenses are no longer required to import telecommunications equipment. This enables foreign companies to export their products more easily to Mexico. Additionally, the Mexican government gradually has been changing its policies regarding the telecommunications sector, which has repeatedly been stressed as a crucial factor for Mexico's sustained economic development and growth. Deregulation and privatization are the crucial factors changing the face of Mexico's telecommunications sector.

## 2. ECONOMIC ENVIRONMENT

During 1988 and 1989, the Mexican authorities adopted a tough anti-inflationary program, entailing tight fiscal and monetary policies complemented by price and wage controls, which brought about a reduction in Mexico's inflation rate from 159.2% in 1987 to 51.7% in 1988 and 14% in 1989. At the same time, Mexico's Gross Domestic Product (GDP) increased again 1.3% in 1989, for the third consecutive year, after the economic

crisis, reaching close to \$200 billion. It is estimated that GDP will grow at an average 2% to 3% between 1990 and 1994. During this period, the present administration will continue to promote and develop non-oil exports, private sector investments, tourism and the in-bond industry, while at the same time strengthening internal demand.

International trade will continue to play a major role in the economy. Mexico's trade surplus was \$1.8 billion in 1988, 80% lower than in 1987, due largely to a dramatic increase in imports as a result of Mexico's trade liberalization policies, while exports held 1987 levels. Total imports were \$18.9 billion in 1988 (vs \$12.2 million in 1987), while exports amounted to \$20.7 million. In 1989, exports are expected to reach \$22.8 billion and imports \$22.5 billion.

### 3. TELECOMMUNICATIONS IN MEXICO

Mexico's telecommunications services are provided by two government-owned entities, the Secretariat for Communications and Transportation (Secretaría de Comunicaciones y Transportes-SCT), through the Directorate General for Telecommunications (DGT), the newly created Telecomunicaciones de México (TM) and Teléfonos de México (TELMEX) and its wholly owned subsidiary TELNOR.

SCT, through DGT and TM, provides:

Telephone service to small towns (under 1,500 inhabitants) Distribution of the following signals:

- Television
- Teleaudition
- Telegraph
- Voice and data
- International telegraph
- Telex
- Data transmission
- Facsimile and telephotography
- Marine radio
- Time sharing

and international services using the Morelos Satellite System and the Intelsat network.

SCT also grants the concessions required for the provision by private firms of the following telecommunications services:

- Radio and television broadcasting
- Public telephone services
- Common radiotelephones
- Mobile radiotelephones (incl.cellular telephone services)
- Cable television
- Continuous music
- Paging systems

Additionally it grants permits for the following services:

- Studio links (plant for broadcasting stations)
- Remote mobile transmissions of radio and TV stations
- Private data communications system
- Private radio telephone
- Mobile aeronautic
- Mobile marine
- Civil band

- Amateur radio
- Private telephone line service with links to the national network and point to point with border crossing

TELMEX provides voice, sound, data and text transmission services and has the exclusive right to install, maintain and operate the public telephone network on a national basis, and to provide public local, national and long distance telephone service. TELMEX is also able to offer fax, cellular telephone and other transmission services.

### 3.1 SECRETARIAT OF COMMUNICATIONS AND TRANSPORTATION

The National Development Program for the 1989-1994 period stresses the importance of telecommunications for Mexico's sustained growth and development in all areas of the economy. SCT is working along similar guidelines as TELMEX, looking to increase private investments in the telecommunications sector in order to expand and modernize the existing network and services. Quality and efficiency are being stressed, together with increased competition. Tariffs levied on different telecommunications services will be brought into those charged in other countries. The regulatory framework will be reviewed to allow for increased private sector participation and to guarantee legal security to participants in this sector.

Among the most pressing problems identified by SCT that need to be resolved are the following:

- modernization of the 20 year old microwave network through the installation of 8,500 kms. of digital microwave networks, 3,000 kms of optic fibres and a satellite network of 14 master earth stations;
- digitalizing the local trunk cable network by 65% and installing 4,000 kms. of optic fibres;
- greater utilization of the Morelos Satellite System through increased installation of earth stations and greater commercialization;
- overhauling of the present tariff schedule for services;
- modernization of telegraph services;
- expansion of access to private telephone lines for greater utilization of telex services;
- improved quality and greater access to data transmission services;
- increased facilities for computer networks;
- improvements to radio stations;
- diversification and expansion of television broadcasting;
- improvement of postal service;
- modernization of the legal framework for telecommunications in order to encourage new services and increased competition.

The Program for the Modernization of Telecommunications published at the end of 1989 sets six basic objectives:

1. Improving the quality of telecommunications services in order to be internationally competitive;
2. Increasing service coverage in rural and urban areas to link Mexico's population both internally and internationally;
3. Diversifying and modernizing services;

4. Setting competitive tariffs and attaining financial self-sufficiency and reducing telephone taxes;
5. Fostering increased private investment participation and competitiveness and reducing state participation in order to attract new investments and reduce government spending in this sector;
6. Modernizing the regulatory framework in order to allow for increased competition by allowing private companies to provide telecommunications services, while the federal government retains planning, regulation and supervision functions.

This program calls for a one billion dollar investment during the 1989-1994 period. Of this amount, 54% will be directed toward the federal microwave and optic fiber network, 30% toward the satellite network, 8% toward data communications, 5% toward telegraph and 3% toward special services. Private investors will have an increasing participation in telecommunications, particularly in areas such as private networks for data transmission, installation and operation of earth stations, cellular telephone services, paging systems, fax and electronic mail. Foreign and national private investors are expected to invest approximately \$30 billion in the telecommunications sector in the next ten years.

The government will continue operating the basic telecommunications network through a new decentralized office called Telecomunicaciones Nacionales de México. It will operate the basic network, satellite earth stations, data communications and telegraph systems. In the area of radio, new concessions are expected to be granted and old ones reviewed. New concessions are also expected to be granted for television stations, UHF channels and side-band frequencies for music, teletext and cable TV.

SCT has stressed the importance of developing a solid infrastructure for satellite communications. Priority will be given to the integrated use of the system and facilitating the installation and operation of earth stations by the private sector. SCT plans to add 250 new ground stations to the 237 now operating in the Morelos Satellite System; expand coverage and increase the number of users of MSS by increasing the capacity of the existing ground stations, in particular those to operate on the KU band for rural and private applications; and to install 500 earth stations for the educational system. On October 4, 1989, TELMEX announced a tender for two master, five semi-master and 50 remote earth stations. In 1994, SCT plans to launch a new satellite, Morelos III.

SCT has announced the renewal of 430 radio broadcasting and 67 TV broadcasting stations within the Secretariat's program to enhance radio and TV coverage. The program calls for the installation of 400 new stations under concession, 250 for TV and 150 for radio. However, these concessions are exclusively for Mexican citizen. The system will operate both through concessions and permits. It also contemplates incorporating new technology to update installations already functioning, improving the quality of operating programs and the development of human resources. A recent agreement assigned 100 kilocycles on the radio band to Latin American countries, extending the AM band to 1,750 kc. This expansion increases the capacity to permit 1,000 new radio stations in Mexico.

### **3.2 TELEFONOS DE MEXICO**

TELMEX is one of the largest corporations in Mexico. It has nine subsidiaries and is involved in the whole range of telephone related services, such as construction, telephone equipment production (since 1983 in a joint venture with Mitel) and providing the telephone service itself.

On September 19, 1989, Carlos Salinas de Gortari, Mexico's President, ordered the state-run company Teléfonos de México privatized. The government will become a minority partner, foreign investors will be able to hold up to 49% of the company, while Mexican private investors, with a marginal participation of the Telephone Workers Union, will be majority owners of the company. This move is expected to attract new capital that is needed to improve services and delivery, to expand the present network and to invest in R&D.

The State will retain authority over the telecommunications sector, through the legal network standards and regulations. TELMEX will control local and long distance telephone service based on a new concession. Concessions in new technologies, such as fiber optics and cellular telephones, will be granted to private investors. Other services will be open to competition, such as the construction and operation of complementary public telephone networks, radiotelephone service, installation and operation of telephone booths, high quality private networks, private satellite services and the manufacture and distribution of equipment, among others.

Privatization and concession of TELMEX are subject to the following conditions:

1. That the state retains authority over telecommunications through the definition of the regulatory framework for TELMEX and the supervision of the company's operations. The regulatory framework will be based on the existing General Communications Law. The new concession, valid for 30 years, will be reviewed every five years. SCT also will review and approve the tariffs for TELMEX's services to promote efficiency and international competitiveness. This integral telecommunications system will be open to competition in those areas not exclusively concessioned to TELMEX based on two criteria: efficient service and financial balance of TELMEX.
2. That TELMEX improves telephone service significantly through the expansion and modernization of the telephone network in order to provide both households and commercial establishments greater access to high quality telephone service. By 1994, TELMEX will be required to: provide long distance telephone service to all towns with more than 500,000 inhabitants (10,000 locations have no phone at present); to increase to 100,000 the number of public telephones to reach 2 for every 100 inhabitants (vs 40,000 at present); to reduce the number of lines out of order; to speed up repair service and to answer all operator-assisted calls within 10 seconds (now only 70% of calls are answered within that time).
3. That the firm continues to respect the worker's rights and improve their conditions as spelled out in the terms and conditions of the agreement for the modernization of TELMEX signed by the government, the workers union and TELMEX. This agreement specifically takes into account productivity and technological change. Workers also will participate on an equity basis in the company.
4. That it continues to expand and modernize the telephone system according to an annually published five year plan spelling out the minimum coverage and modernization goals. Starting in 1990, the public telephone network will increase from five to ten terminal lines per 100 inhabitants by 1994 and to 20 by 2000; during the first five years TELMEX will install four million new terminal lines, representing a 12% annual increase; starting in 1992, TELMEX will provide telephone service to small rural locations within six months of their request for service and will provide connection to all private and public telecommunications systems in any city with automatic service; the local urban telephone network will be expanded and modernized through the substitution of obsolete switching systems with digital systems (digital technology is expected to represent at least 60% of the telephone network and 100% of the new overlay network in 22 cities by 1994).

5. That it undertakes some technological and industrial research and development on telecommunications technology to foster the company's competitiveness and to increase the technological capacity of the country in the area of telecommunications.

6. That it be owned by majority Mexican citizens. Foreign investment in TELMEX will not be permitted to exceed 49% and no foreign partner will be permitted to hold more than 10% of the capital (foreign investment now represents approximately 25% and is held in the form of non-voting ADR's sold in the U.S. market). In addition to capital, new investors will be expected to provide access to state-of-the-art technology to contribute to TELMEX's expansion program in terms of service quality and efficiency. National private investors will be the majority owners. The analyses of the proposals by investors will take into account their contribution to the company's development, expansion and service quality and its workers security.

TELMEX needs an estimated 9.8 billion dollars within the next six years to revamp its infrastructure, expand and improve service as outlined above. Telephone service in Mexico is characterized by numerous inefficiencies. The new measures are aimed at removing them through new investments. The following are some of the most salient inefficiencies:

- 20% of the population has no access to telephones;
- the demand backlog for phone service is estimated to be 1.5 million requests;
- 45,000 phones are out of order every day;
- service quality is below international standards;
- international long distance calls are significantly more expensive than in other countries;
- data banks and other data transmission services are not yet available to the general public.

The modernization program for TELMEX calls for a 12% annual growth rate between 1989 and 1994. This means installing 800,000 new lines and 3.3 million apparatus per year, in order to reach the goal of 25 million installed telephones by 1994, as compared to 8.5 million in 1988. In 1989 alone, 913,000 apparatus were installed and 493,000 lines. With telephone service now available to approximately one in every 11 inhabitants, this growth rate will result in service availability for three in every ten by the end of the century. A 100% increase in rural service is expected and over 80,000 urban phone booths will be installed. Long distance infrastructure will increase 60% by installing 8,500 kms. of digital lines and 3,000 kms of fiber optics, at the same time modernizing the service.

Fiber optic technology will be used extensively in the future, due to its advantages over other types of transmission systems, in particular for the new overlay network and ISDN.

The new phone lines being installed are predominantly digital, so that by the year 2000 approximately 70% of the system will be digital. These lines will increase both system capacity and transmission speed, and will allow for better and newer services. The new digital switching system manufactured by Indetel/Alcatel and Ericsson is expected to increase long distance capacity by 10% a year, raising the system's capacity from 700 million calls in 1986 to 2.8 billion calls by the year 2000. At present, 13% of the total network and 40% of the international long distance network are digital. By 1990, 50% of the long distance and 20% of the local network will be digital. By 1994, 50% will be digitalized across the board. With 80% of the network digitalized by the end of the century, access to high capacity voice, data and image networks will be nearly universal.

TELMEX appears to be ready to allow additional companies to provide long distance carrier service from Mexico. Also, to improve communications with the United States, it is considering opening five "gateways" to the U.S. using R-1 signals instead of the currently used European R-2 signals.

A few months ago, TELMEX announced plans to modernize its home and commercial service, to increase telephone networks for banks and hotels, and to develop value added services, such as call waiting, speed dialing, touchtone dialing, call forwarding, automatic redialing, triplex system, automatic reminders and consulting calls, toll free service and Ladatel (long distance public telephones and credit card telephones).

The firm has also increased local tariffs and reduced international long distance tariffs in order to assure international competitiveness and adequate financial resources, since tariffs applicable on local calls used to cover only about 40% of the cost, while charges on long distance calls were up to three times higher than those applicable in other countries.

Another priority for network expansion is providing service to the more than 1,500 maquiladora (in-bond) industry facilities in Mexico, by making long distance and data communications services more accessible. There is a large and growing need for advanced communications services between the U.S. and other foreign based parent companies and the assembly plants in Mexico. Many of these plants have had to resort to private communications channels.

TELMEX has created the Service Plan to supply the maquiladora industry with necessary telephone and telecommunications services through border crossing installations. An investment of \$350,000 was made to install five centers in Tijuana to service 15 maquiladora companies in that city. Other targeted cities under this program are Agua Prieta, Hermosillo, Nogales (Sonora), Cd. Acuña, Torreón (Coahuila), Cd. Juárez, Chihuahua (Chihuahua), Durango (Dgo), Matamoros, Reynosa, Nuevo Laredo (Tamps), Guadalajara (Jalisco), Mérida (Yucatán), Mexicali (BC). This is one of the areas which is expected to grow significantly in the future, representing major opportunities for foreign companies.

TELMEX and Fonatur, the National Fund for Tourism Development, have agreed to develop telecommunications infrastructure in Mexico's major tourism centers. The emphasis on developing the tourism industry in the National Development Plan and the attendant demand for access to internationally competitive telecommunications services should result in growing opportunities for sales of products aimed at this market segment.

SCT received 106 requests for concessions to operate cellular networks in Mexico's eight regions: I-Baja California (8), the II-Northwest (10), III-North (12), IV-Northeast (17), V-West (17), VI-Center (16), VII-Gulf and South (15) and VIII-Southeast (12). In March 1990, SCT announced the business groups awarded the cellular service franchises, which will involve a combined total of over \$250 million in addition to the \$55 million concession fee payable to the federal government. Foreign participation in these companies ranges from 40% to the maximum 49%.

The concessions were awarded to the following companies by region:

COMPANY	MEXICAN PARTNERS	FOREIGN PARTNERS
I. Baja Celular Mexicana	A.López Rocha E.Vázquez A. Telcemex	General Cellular
II. Movitel del Noroeste	TAMSA Bachoco	Mc. Caw Cellular Comm. Contel Cellular
III. Telefonía Celular del Norte	J.Garza C.	Motorola Centel Cellular
IV. Celular de Telefonía	Protexa	Millicom
V. Comunicaciones Celulares de Occidente	Hermes Banamex Canadá	Bell South Racal
VI. Sistemas Telefónicos Portátiles Celulares	G.Alarcón	Bell Canada
VII. Telecomunicaciones del Golfo	Gpo.Mex.Des. Ind.Unidas	Bell Canada
VIII.Portatel del Sureste	L.Niño de R.	Associated Communications

Two Mexican firms, which hold fifty year concessions, that are good until 2006, to provide exclusively all land mobile radio communications services in Mexico, have been given permission to begin operating cellular telephone service in Mexico City. The two firms, IUSACELL, a subsidiary of Servicio Organizado Secretarial (S.O.S.), and DIPSA, a subsidiary of TELMEX will be the exclusive providers of this service in Mexico City. DIPSA is presently using Ericsson equipment, while IUSACELL uses Northern Telecom systems from Canada. DIPSA was also granted permission to begin offering cellular service in Tijuana. Nevertheless, these two firms are not guaranteed the exclusive rights to provide service anywhere else. Northern Telecom will attempt to sell switching equipment to the concession holders in all regions.

In an effort to improve the quality and quantity of the telephone services available to the private sector, TELMEX has established its Center for Integrated Electronic Telephone Service (CITE). This assigns a representative to handle the relationship between high volume users and TELMEX. The representative can tailor the system to the customer's needs. The most important service provided to corporations requiring a private network is a Private Branch Exchange (PBX).

TELMEX recently began the overlay network project to supply its major users with a highly sophisticated and efficient network for data, voice, text and image transmission with high fidelity, security and speed. It will consist, in its first phase, of 950 kms of fiber optic cable and highly sophisticated technology. On August 23, 1989, the concession for this project was granted to Ericsson and Indetel-Alcatel, who will supply the equipment supply. The equipment used to assign circuits and channels electronically will be supplied by AT&T. The overlay network will provide the following advantages: high speed digital access and point to point connection for digital system users for voice and/or data communication; digital access to analog system users through multiplexors for the transmission of voice and data; security through the use of state-of-the-art technology to avoid errors; noise suppression for high fidelity communications through the use of a fully digital system; value added telephone services; private networks or temporary digital linkages for the configuration of semi-permanent networks; total digitalization of point to point communication, both local and national; and high quality service, immediate availability of services and safety through a backup



system. In order to provide long distance service to the network users, it will be linked to the Automatic Long Distance Center (CALD) and, for local calls, to the Public Telephone Switched Network (RTPC). The first phase will link Mexico City with Monterrey and Guadalajara and will begin operating soon. In 1990, the northern part of the country will be serviced through Chihuahua, Ciudad Juárez, Nuevo Laredo, Matamoros and Reynosa. By 1993, it is expected to encompass 22 cities. Between 1989 and 1993, the \$450 million overlay network is expected to be fully installed. The first users of the network include Bancomer, Banamex, Banca Cremi, Bolsa Mexicana de Valores, The Secretariat of State (Gobernación), General Motors, Ford and Camino Real hotels.

The overlay network will eventually lead to ISDN. TELMEX is developing the Red Digital de Servicios Integrados (Integrated Services Digital Network ISDN) in conjunction with Ericsson. This will enable the user to transmit voice, data and text with only one line. ISDN will include carrier services for packet and circuit switching; teleservices, including telephone and data transmission with a capacity of 64 kbits, voice transmission, videotext, telex text transmission and high speed facsimile; telex and fax combinations on one terminal; telemetering, videoconferences, etc. ISDN will permit handling of these services with one network in order for users to access all services. In its first phase, this project will be developed with a selected group of firms and utilize the existing fiber optic network. This trial phase will begin at the end of 1989, but ISDN will not be commercially available until 1992.

#### 4. MEXICO'S TELECOMMUNICATIONS INFRASTRUCTURE

The infrastructure supporting the National Telecommunications Network is comprised of the following networks:

- Federal Microwave Network
- Network of Stations for Spatial Communications
- Marine Radio-communication Network
- National Radio-monitoring and Measuring Network
- TELMEX Microwave Network

**Cable and carrying circuits:** In 1989, Mexico had 88,600 kms of carrying cable, 171 centers of carrying currents and 8027 installed telegraph channels. The fiber optic network now consists of 240 kms of cables. Fiber optics are a major area of expansion, and probably will increasingly be employed for telecommunications services, instead of the satellite system.

There are 17 **ionospheric radio stations**, through which 16,200 radio-telegraphic messages and 42,800 radiotelephonic messages were transmitted in 1989.

**The Federal Microwave Network** consists of 16,400 kms of simple length and 105,400 kms-R.F.channel of developed length, 110 terminal stations and 235 repeating stations. The microwave network provides channels between centers and national and international locations. The total network consists of two branches, one run by SCT and one by TELMEX. The latter covers 70% of the total telephone network. The present systems use RF semiconductor technology, however, the network will be modernized through installation of digital linkages.

In 1985, Mexico established the **Morelos Satellite System (MSS)**, which has greatly expanded the telecommunications sector, enabling the provision of nationwide commercial and educational TV and radio broadcasting, an increase in data and voice

traffic, the establishment of private networks and the introduction of several new products and services.

The MSS consists of two geosynchronous satellites, Morelos I and II, launched in June and November 1985 respectively. Both satellites are identical. They each have 22 transponders, and use two frequency bands (C or 6/4 GHz and KU or 14/12 GHz). In the C-band, each satellite has 12 transponders with a 36 MHz width and six with 72 MHz; in the KU-band each has 4 transponders of 108 MHz. A 36 MHz transponder has the capacity for up to 900 telephone channels, two TV channels, or data transmissions of up to 60 million bits per second.

Morelos I is presently operating with six international earth stations and 237 local earth stations. Morelos II began operating in 1989, and will operate in conjunction with Morelos I for six years and alone for another five years, expanding the system's service life to 1999. The major function of Morelos II will be to insure continuing TV, radio, telephone and data transmission services in case of a failure of Morelos I, until it eventually replaces Morelos I. In order to control the position and orientation of each satellite, SCT constructed the Contel Ixtapalapa, a tracking, telemetry and command station.

Satellite communications are channeled through the Ixtapalapa, Hermosillo, Parque Industrial and three Tulancingo earth stations and 237 local earth stations for public service; 32 of these stations are reserved for the exclusive use of SCT. Within the C band, 211 earth stations operate throughout the country, of which 189 are for TV reception, 16 for both TV transmission and reception and telephone and six are mobile earth stations for the transmission of TV and telephone signals. On the KU band, 18 earth stations are installed in rural areas and nine in urban areas for rural telephony; five stations are installed at the SENEAM for voice and data transmission. There is at present an installed capacity for 361 telephone circuits, 230 telex circuits and two video channels; 43 countries are telephonically linked and 24 linked through telex to Mexico through satellite communications.

There are also 490 private earth stations, of which 270 are transmitter-receivers for voice and data transmission on the KU band, used mainly for private networks; 150 for radio; 50 for one-directional data transmission and 20 for TV broadcasting. The number of public and private earth stations in Mexico is always growing. The Secretariat of Public Education alone plans to install 500 earth stations in rural areas for use in providing secondary school education classes through television broadcasting.

The MSS now operates at approximately 60% of its capacity, as follows: Television, 21%; telephone, 15%; special TV programs, 13%; voice and data, 8%; and teleaudition, 3%. The goal set by SCT for 1989 is to expand the utilization rate to 75% or 80% of occupancy. By 1994, Morelos I should be operating at capacity (80%-90%) and Morelos II at 50%-60% of capacity. Nine C-band transponders of the Morelos Satellite System are presently being used for countrywide transmission of TV channels 2, 4, 5, 7 and 13, as well as cable TV, and educational and cultural TV programs in conjunction with various government agencies. Six transponders are presently used by TELMEX to provide services in Mexico's largest cities; this number will be expanded to 15 by 1994.

The rural telephony program of SCT operates with a network of 27 earth stations. Voice and data transmission services are given through SCT earth stations as well as through private stations authorized by SCT. Additionally, the INFOSAT service transmits data to various cities in Mexico using 55 earth stations. Radio broadcasting is also done through the MSS.

Among the most important users of the MSS are TELMEX, PEMEX, the Federal Electricity Commission, the public health and education institutions, banks and financial services institutions, the army and the navy.

**National telex network:** SCT provides telex service to 102 locations connected to the network by 62 telex centers. The network size in 1989 was 24,000 telex user lines. The telex centers are electronic. The actual network configuration is centered around the cities of Mexico City, Monterrey, Hermosillo, Guadalajara and Coatzacoalcos.

**Data Communications:** The data communications network consists of 1,126 private systems with 35,600 terminals, 13,400 modems and 27 connected cities. The public network has eight public data communications systems with 1716 terminals and 1055 users. There are approximately 63,000 private lines in use, of which 50% are in Mexico City and 3,600 of which are interurban. Additionally, 4,200 lines are used exclusively for data transmission. Data transmission is done primarily using private lines and analog long distance circuits.

Since 1981, SCT has operated the National Data Transmission Network (TELEPAC), which employs packet switching technology introduced by GTE Telenet. At present, it covers 25 cities with a capacity of 1,152 installed ports. In its final stage it will cover 55 cities with 1,734 ports. Four links are presently used for data transmission in the country, all supported by voice circuits. Computer access is obtained by dialing a telephone number and establishing a physical connection for the time the communication is made. The public network offers 59 urban access lines; Infonet has 32 access lines to users switched to its concentrating office. PEMEX is the most important user of this system, which is connected to several computer networks throughout the world, including Tymnet and Telenet in the U.S. and Datatex-P, Transpac, Itapac and Iberopac in Europe. Increasingly the maquiladora industry is a major user of this system.

The use of the connected network is authorized by SCT, which has a network for data transmission using packet switches in 27 cities in the country. Development of a good data communications network will make it possible to organize vast amounts of information, store it in places other than where it is used, and provide it to a multitude of end users at a reasonable price. Services arising from the network include data consulting, teletext and videotext, access to computer networks, teleconferences, electronic mail and interactive games.

**Telephone:** Public telephone service is provided by TELMEX under concession from SCT. There are 9.6 million apparatus in operation, of which 93% have automatic service (and over five million connected telephone lines). Telephone penetration has increased an average of 8% per year since 1980, when there were five million apparatus and 2.5 million lines. Close to 7,200 towns and villages, representing a density of 11.4 apparatus per 100 inhabitants, are linked by over 30 million kms of long distance lines in a microwave network covering most of the country. Additionally, 9,200 villages are serviced by rural telephones. The number of telephone calls made in 1988 was 3.1 billion urban calls, 845 million national long distance calls and 49 million international calls.

Approximately 65% of the external plant is based on technology developed prior to 1973, even though some fiber optic technology has been installed recently. Almost all telephone centers have spatial switching technology, although digital switching centers continue to be installed. TELMEX and SCT operate on European CCITT standards. The automatic long distance network was introduced in 1968. At present 80% of the centers are automatic and cover 98% of all lines.

**Telegraph** services are provided by National Telegraphs (TELENALES), a state-owned corporation operated by SCT. TELENALES operates out of 2,527 offices nationally and uses the installations of TELMEX and SCT, as well as its own lines covering 83,000 kms of developed lines and 36,000 kms of simple length lines. In 1989, 31 million domestic telegrams and 9.6 million domestic telegraphic payment orders were sent. The national telegraph service has 61 million beneficiaries in 2,250 towns. Internationally, 256,000 messages and 772,000 payment orders were sent to 193 countries in 1989. In December 1987, TELENALES inaugurated facsimile and girofax services. The new fax service enables users to send copies of all types of documents to Mexico's major cities and should reduce the demand for telegraphic services.

In the area of **television** broadcasting, there are 588 TV channels (229 under concession, 25 complementary, 333 under permit and one owned by the government). Local TV stations are owned either by Televisa, some other private company, or by Imevisión, a state-owned company. Cable TV has increased significantly in the last five years. In Mexico City alone, where most of the broadcasting is concentrated, there are 16 TV stations, of which four belong to Televisa, four to Imevisión and eight to Cablevision (channels from the U.S).

In September 1989, a group of Mexican businesspeople launched a new TV network called MVS-Multivisión, that offers eight channels to paying viewers and two channels to cable subscribers in rural areas. The network will be transmitted on super-UHF, or microwave, and subscribers will receive the signal via a special antenna fitted with a receiver and decoder. Two of the channels will be transmitted through the Morelos Satellite System and distributed to some 400,000 cable subscribers in the country. Most cable TV is concentrated in only six cities: Mexico City, Toluca, León, Monclova, Uruapan and Zamora. On the other hand, Monterrey and Guadalajara, the two largest cities after Mexico, have less subscribers to cable TV because of the wide use of satellite dishes.

In 1989, there were 950 radio stations in Mexico as follows:

	COMMERCIAL (under concession)	CULTURAL (under permit)
AM	696	39
FM	243	36
SHORTWAVE	11	8

Approximately 60% belong to the government.

**Paging services** are presently not very common in Mexico. Nevertheless, several Mexican companies are involved in this market, which has attracted the attention of new suppliers. There are three major providers of these services in Mexico: Servicios Modernos, which has been in the market 34 years and has some 10,000 subscribers in the Mexico City area; Radio Beep, which was established in 1974 and has some 6,000 subscribers; and Enlaces Radiofónicos, which services 18,000 subscribers through its six subsidiaries.

Since 1980, the telereservation system was introduced for the management of airplane seat reservations with the national carriers. This service will be broadened to include hotel, train and bus reservations, and to computerize travel agencies. At present, the telereservations service has 3,200 terminals throughout the Western world. In 1989 its computer capacity was 380 million messages and it handled ten million reservations.

## 5. MARKET ASSESSMENT

The Mexican market for telecommunications related equipment, including telephone, telex, telegraph, radio, video and TV broadcasting, transmission and data communication equipment, was estimated at \$446.7 million in 1987 and \$500.9 million in 1988 (see Table 1). Between 1989 and 1994, total apparent consumption is expected to increase at an average annual rate of seven percent per year, rising to \$754 million the latter year.

**TABLE 1**  
**THE MEXICAN MARKET FOR TELECOMMUNICATIONS EQUIPMENT**  
(U.S. \$ million)

	1985	1986	1987	1988	1989	1995 <sup>P</sup>
Production (1)	425.2	610.8	367.0	389.7	396.2	620.0
+ Imports (2)	110.8	146.9	85.1	129.7	149.5	288.0
- Exports (2)	3.4	5.1	5.4	5.8	6.0	9.0
=TOTAL	532.6	752.6	446.7	513.6	539.7	899.0

Source: (1) Based on data by CANIECE

(2) Import-Export data by Secretaría de Comercio y Fomento Industrial (SECOFI)

In 1985, total apparent consumption of telecommunications equipment was \$532.6 million. In 1986, demand increased 41% as a result of major one-time investments in conjunction with the launching of the Morelos Satellite System, the 1986 World Soccer Tournament and the major repairs to the telephone system after the 1985 earthquake. In 1987, the market decreased by 40%, to its normal level, and resumed a healthy growth rate of 12% in 1988 and 9% in 1989, reaching \$539.7 million. During the next five years, the telecommunications market is expected to grow rapidly as a result of the privatization of TELMEX, the liberalization of the telecommunications sector, and the increased demand for access to the latest technology as Mexican firms become more internationally oriented, reaching a total of \$899 million by 1995.

### 5.1 IMPORTS

The relative participation of imports in the apparent consumption of telecommunications equipment has increased gradually in the last few years. In 1985 and 1986, the import share of the market increased from 10% in 1984 to 20.8% and 19.5% respectively, as a result of increased investments in conjunction with the 1986 World Soccer Cup, the reconstruction of the telephone system, the digitalization of Mexico's telephone system and continuing investments that resulted from the increased capacity made available by the Morelos Satellite System.

In 1987 the import share of the market remained constant. However, it increased again to 25.9% in 1988 and 27.7% in 1989 as a result of the reduction in import duties and the elimination of the prior import permit requirements for telecommunications equipment. Imports will continue to play an important role in the Mexican market, within the new regulatory environment, particularly in high technology areas such as satellite communications, fiber optics, data communications, cellular telephones and TV and broadcasting equipment.

Total imports in 1988 were valued at \$129.7 million, up 52% from the \$85.1 million of 1987. In 1989 they increased 15% to \$149.5 million. Imports for 1990 are estimated to be even higher, as a result of the privatization and modernization policies announced by the Mexican government. By 1995, imports are expected to represent 32% of total demand, or \$288 million. The importation of parts also represents major opportunities, since most components of locally manufactured products are imported. In 1988, imports of parts and components amounted to \$272.5 million and in 1989 to \$264 million, of which over 70% are for the assembly and manufacture of telephone and telegraph equipment.

The U.S. is the largest single supplier of telecommunications equipment to Mexico, with exports to Mexico of \$87 million in 1989, enjoying an import market share of over 60%, followed by Japan (20%), Sweden (4.5%), West Germany (3%), France (3%) and Canada (2%).

Canadian trade statistics which, as opposed to Mexican data, do include in-bond transactions, report total Canadian telecommunications equipment exports to Mexico of Cdn\$5.1 million in 1989, reflecting an 82%% increase over 1988. Parts, which are mostly used for manufacture in in-bond (maquiladora) plants, accounted for Cdn \$2 million in 1988 and Cdn \$12.8 million in 1989. On the other hand, Canadian imports from Mexico amounted to Cdn \$7.7 million in 1988, and dropped 30% to Cdn \$5.3 million in 1989. Imports of parts, however, increased from Cdn \$39.3 million to Cdn \$49.7 million between 1988 and 1989 as a result, also of maquiladora operations.

**TABLE 2**  
**CANADIAN TRADE WITH MEXICO OF TELECOMMUNICATIONS EQUIPMENT**  
(CDN \$ million)

	1986	1987	1988	1989
<b>EXPORTS</b>				
Telephone & telegraph	1,485.6	531.4	2,149	1,687
Radio & TV	2,293.5	896.4	657	3,391
Parts			2,063	12,778
<b>TOTAL</b>	<b>3,779.1</b>	<b>1,427.8</b>	<b>4,869</b>	<b>17,856</b>
<b>IMPORTS</b>				
Telephone & telegraph	179.0	100.9	6,152	849
Radio & TV	7,420.3	9,955.5	1,526	4,471
Parts			39,275	49,697
<b>TOTAL</b>	<b>7,599.3</b>	<b>10,056.4</b>	<b>46,953</b>	<b>55,017</b>

Source: Statistics Canada - International Trade Division

Note: 1986 and 1987 do not list parts separately; they are included with the equipment.

United States, European and Japanese suppliers have an important share of this market and are aggressively trying to increase their market penetration. The Europeans and Japanese were particularly successful at taking advantage of the opportunity represented by the World Soccer Cup through innovative payment mechanisms. Both

price and financing are the most important factors affecting demand for telecommunications equipment in Mexico. Third country competitors have been able to penetrate the market and increase their market share mostly as a result of offering attractive financing packages, both in terms of interest rates and payment periods. Canadian companies could increase sales by doing likewise, particularly since domestic credit is tight.

Major world companies in telecommunications with a presence in Mexico include:

AT&T (USA)	MCI
Bull (France)	NEC (Japan)
CGE (France)	Northern Telecom (Canada)
Ericsson (Sweden)	Philips (Holland)
Fujitsu (Japan)	Siemens (FGR)
Hitachi (Japan)	U.S. Sprint
IBM (USA)	

Best sales prospects for Canadian suppliers of telecommunications equipment include the following: telephone switching equipment, PBXs, data transmission equipment, customer premise equipment, private networks, fiber optics, satellite support services and equipment, cellular telephone systems, digital switches, TV and broadcasting equipment, new test and maintenance products, and possibly in the future value added services.

## 5.2 DOMESTIC PRODUCTION

As a result of economic pressures and political considerations, domestic production has played an increasingly important role in this market. In 1986, domestic production was estimated at \$610 million and in 1989 at \$396 million. The Mexican telecommunications industry employs approximately 11,000 people. In the last few years, domestic production has accounted for an average 80% of the country's apparent consumption of telecommunications equipment. However, as a result of Mexico's trade liberalization policies, its share has decreased to 72% in 1989 and this trend is expected to continue. This predominance of locally manufactured products is particularly noticeable in the area of telephone equipment, which accounts for 65% of total production of telecommunications equipment in Mexico. Mexico has a well developed telecommunications equipment manufacturing industry, mostly based on multinational firms, such as Ericsson and Indetel/Alcatel. These firms have done well in the past and established a major presence in Mexico by installing production facilities in the country. This has been viewed favorably by Mexican authorities.

### Telephone

Until recently, all single line telephones in Mexico were produced by Indetel or Ericsson and then distributed by Teléfonos de México (TELMEX), the public telephone company. These two companies still dominate the market for central switching systems, but PBX and other telephones are now supplied by local as well as foreign firms. Conmutel, General de Telecomunicaciones (GTE), Grupo Setel, Industria de Telecomunicaciones (Indetel), Industrias Retsa, Manufactura de Telecomunicaciones, Materiales de Telecomunicación, Mitel, Nacional de Telecomunicaciones, Phone System, Rolm, Standard Eléctrica, Tele-Team de México, Telecomunicaciones y Sistemas Profesionales, Telectra, Telefonía y Conmutación Digital and Teleindustrias Ericsson produce telephone and switching equipment in Mexico, and install and service the apparatus.

Presently installed central office switches are roughly 60% Ericsson, and 40% Indetel. The inventory of central office switches is still heavily analog, but new installations are mostly digital.

Ericsson is 70% owned the Swedish corporation and 30% by Mexican investors through the stock exchange. Ericsson plans to invest \$25 million between 1989 and 1990 in order to increase its annual production capacity to one million lines, mostly to supply equipment needed for the overlay network. During 1989 and 1990 Ericsson is expecting to supply 400,000 new lines to TELMEX.

Indetel-Alcatel, a joint venture with ITT and Alcatel of France, has been in Mexico for 30 years and employs some 3,000 people. It is the principal public network supplier, having supplied over two million lines, and is a major supplier of fiber optics and digital equipment.

In 1990, the demand generated by TELMEX is expected to increase by 11%. Private sector demand for switching equipment is expected to increase 15-20% in 1990, as a result of a need to substitute old and obsolete equipment as well as expand their technological capacity. The market for telephone equipment is expected to increase at an average annual rate of 10% between 1990 and 1995.

### **Telex and Facsimile**

In the area of telex equipment, a relatively recent change in government policy has allowed end users to buy or lease teleprinting equipment directly from approved suppliers instead of having to lease it from the Government. This has broken the monopoly previously held by Siemens (West Germany) and allowed the entry of other suppliers, such as the Mexican manufacturers Comutex, Telectra and Termidata Mexicana. This offers increased opportunities for Canadian companies. However, facsimiles are rapidly substituting telexes and the Mexican telex market is expected to decrease in size in the years to come. Fax sales have increased dramatically, from \$1.2 million in 1986 to \$36 million in 1989. Among the largest suppliers of fax equipment in Mexico are Canon, Xerox, Toshiba, Murata, NEC and Sharp.

### **Transmission equipment**

Total demand for transmission equipment for microwave, optic fiber, multiplexors and satellite transmission is expected to increase eight percent annually between 1990 and 1995 as a result of increased investments in the telephone and data communications sectors, as well as in heavy end user sectors.

The domestic production of transmission equipment covers approximately 70% of total demand. Mexico is practically self-sufficient in the area of coaxial cable, presently supplied by Conductores Monterrey, Conductores Guadalajara, Latincasa and Conдумex.

Latincasa was established in 1949 and currently produces and distributes telephone cable (56% of total sales), fiber optic cable (3%), electric commercial cables (21%), power cable (14%), magnetic cable (6%) and other related products.

Conдумex also produces fiber optic cables for domestic consumption. Conдумex has the capacity to produce 60 kilometers (kms) of fiber optic cable a month. Approximately half of this capacity is utilized. 85% of Conдумex cable is sold to TELMEX. According to a market research study prepared by Conдумex, there are some 450 private companies in Mexico that are potential buyers of light guides for data transmission. At present, the demand for fiber optic cable in Mexico is estimated at



2,000 kms per year. The high purity glass filament, which is the core of the optic fiber, representing 60% of the cable's cost, is imported. The remainder is made of locally produced materials.

### **Video and broadcasting equipment**

Local production of video and broadcasting equipment accounts for 20% of total apparent consumption. In the area of mobile radio, local production has grown significantly in the last few years. Companies registered for the production of broadcasting equipment in Mexico include: Enlaces Radiofónicos, General de Radio, Industrias Sintronic, Intec de México, K.G. Comunicación, Macromex, MBO Especialidades Electromecánicas, Motorola, NEC, Tecnología Eléctrica y en Comunicaciones, Tele Electrónica Japonesa, Telectra and Teleitra.

There were some 20 producers of parabolic antennae in Mexico, located in Mexico City, Monterrey, Guadalajara, San Luis Potosí and Mérida, producing an estimated 3,000 antennae annually. Those registered with Secofi are Diseños Electromecánicos, Empresas JL and Lehmex,. They all need imported electronics.

### **Data communications services**

This area is considered one of the most important potential growth areas in the telecommunications market, involving simultaneously the computer market and the telecommunications market. This sector is expected to experience the highest growth rate in the telecommunications industry over next five years; it is expected to grow at a rate of 15% annually. At present, most of the technology in this area is imported, except for some modems, which are made in Mexico. The maquiladora industry has the greatest need and is an excellent market for data communications equipment and services.

## **6. END USERS**

The most important users of telecommunications equipment are two Mexican government agencies: TELMEX, the national telephone company, and DGT/Telecomunicaciones de México, which is part of SCT. These two entities dominate the purchases of telephone, telex and telegraph equipment. It is estimated that only 20% of total sales in the telecommunications market are to private companies, while the rest is sold to state-owned companies.

Other major end users are PEMEX, the state-owned oil company; the Federal Electricity Commission (CFE), the state-owned electric power company; the banking system; the maquiladora industry; the Social Security System; the Secretariat of Defense; Televisa and Imevisión, the two major TV networks; radio broadcasting companies; CONASUPO, the government-owned food purchasing and distributing company; the national railway; Metro and air traffic control systems; and educational institutions.

Some of the most promising applications for telecommunications are in the following areas:

Petroleum industry: PEMEX controls exploration, production, distribution and commercialization of oil, gas, petroleum products and petrochemicals. It has offices and plants throughout Mexico. Telecommunications provide increased efficiency through voice and data circuits which link the central administration with rigs, wells, exploration teams, as well as with all potential buyers in the world.

Electricity: The Federal Electricity Commission (CFE) is responsible for generating and distributing energy to all of Mexico. CFE uses the MSS to monitor and control the operation of its generators and its distribution stations, to synchronize generating power units with its distribution network, and to cover countrywide management, engineering and operation requirements.

Banking and Financial Institutions: Mexico's nationalized banking system includes six banks operating on a national basis, eight on a multiregional basis and six on a regional basis. Banks require telecommunications to operate transactions between the main office and its branches; maintain security, precision and confidentiality requirements; to operate private networks within one bank and to link up to other institutions; to utilize integrated services such as fax, teleconferencing, electronic mail, electronic funds transfer, etc.; access to networks to link up users to the bank network; and automatic cashiers. Banks basically use five telecommunications services for data transmission: private lines, the switched telephone network, private long distance circuits, the public packet switching network Telepac and the Morelos Satellite System.

Maquiladora Industry: This industry, together with industrial parks, are priorities for network expansion. There is a great demand for telecommunications services in order to communicate between the U.S. and foreign-based parents and the assembly plants located in Mexico. These include regular telephone service, private lines for transmission of digital data and voice, facilities for high speed digital and special applications.

Social Security: The Mexican Institute for Social Security (IMSS) operates over 2,200 rural clinics without communications. The MSS enables this and other health organizations to operate more effectively by providing voice and data networks. These are greatly needed to keep track of patients, order medicines, consult specialists, and to check availability of beds and facilities.

Food Distribution: CONASUPO is the most important purchaser and distributor of agricultural and other food products. It operates an extensive chain of stores, of which some 2,500 are located in rural areas with no communications. Voice and data circuits are needed to coordinate acquisitions and sales, to ascertain what and when products are purchased and at what prices, and in general, to supervise inventories throughout the country through a central office. Even though CONASUPO already coordinates this information through mainframe computers, it needs telecommunications circuits to access the computer from all locations. The National Consumer Institute handles updated information on prices and quality of a great variety of products and uses this to provide support to individual buyers.

Education: Schools and universities could be linked for library and bibliographical information, research projects, student exchanges and administrative controls, among others, not to mention video programs on the Morelos Satellite.

Listed below are the present users of private networks through the MSS by sector:

Education: Monterrey Technological Institute and UNAM;

Corporations and Services: Black & Decker, Cementos Cruz Azul, Cemex, Chrysler, Industrias Axa, Industrias Resistol, Mexhon, Pyosa, Redsat, S. Comerciales Benavides, Sersa, Stars, Tamsa, Telenales and Televisa;

Banks: Banamex, Banca Serfín, Banco del Atlántico, Banco Internacional and Bancomer;

Financial services: Casa de Bolsa Abaco, Casa de Bolsa Arka, Casa de Bolsa Invermex, Casa de Bolsa Multivalores, Casa de Bolsa Vector, Inverlat, Operadora de Bolsa, Probursa, Seguros América and Valores Finamex;

News: Editora El Sol, El Financiero and El Nacional.

Additionally, companies using the SCT satellite infrastructure include Notimex, Banco de México, Associated Press and the following radio chains: OIR, RASA, Radio Impulsora de la Provincia, El Heraldó, Radio Centro, Radio Programas de México, Estereo Rey, Núcleo Radio Mil and Grupo ACIR.

## 7. THE MEXICAN IMPORT SYSTEM AND TECHNICAL STANDARDS

As a result of Mexico's accession to GATT, the Mexican government has gradually opened the economy to international markets. Tariffs have been lowered from a maximum 100% in 1983, to 20% in December, 1988. The official price system has been totally eliminated and import permits are required on only 320 of the total 11,950 items in the Mexican Harmonized Tariff System.

The import climate for telecommunications equipment has improved significantly as a result of this commercial liberalization. Maximum duty rates have been reduced to 20% and prior import permits are only required on imports of parts for switchboards and modems. Therefore, imports of telecommunications equipment are subject to an ad valorem duty (AVD) of maximum 20% assessed on the invoice value. In addition, a customs processing fee of 0.6% is assessed on the invoice value. A 15% value added tax is then assessed on the cumulative value of both taxes in addition to the invoice value. Some manufacturers who use imported inputs for their products under a Mexican Government approved manufacturing plan may have the duty and/or VAT waived or rebated. Raw materials, intermediates and machinery for use in manufacturing or assembling products for export are generally eligible to be imported either duty free or under bond. Telecommunications equipment imported into Mexico needs to follow international standards and often requires a special homologation permit from SCT to be sold in Mexico. Mexico has employed predominantly European telecommunication standards (CCITT). Further information can be obtained from Mexican customs brokers or directly from Mexican Customs.

There are no official metric requirements applicable to imports into Mexico. However, since the metric system of units is, by law, the official standard of weights and measures in Mexico, importers will usually require metric labeling for packaged goods, although the English system is also used. Dual labeling is acceptable. Imported products should be labeled in Spanish containing the following information: name of the product, trade name and address of the manufacturer, net contents, serial number of equipment, date of manufacture, electrical specifications, precautionary information on dangerous products, instructions for use, handling and/or product conservation and mandatory standards. Mexico adheres to the International System of Units (SI). Electric power is 60 cycles with normal voltage being 110, 220 and 400. Three phase and single phase 230 volt current is also available.

Canadian Embassy  
Mexico City  
March 1990

NUCLEO Radio Mill and Grupo AOR.  
Radio Nacional, Radio Gama, Radio Programas de Mexico, Estereo Ray,  
Mexico Associated Press and the following: Radio Onda, Radio Infrasonica,  
Adicionalmente, compañías como la SCT, entre otras, incluyen Normas, Banco de  
Credito y Estaciones de Radio.

### IV. THE MEXICAN IMPORT SYSTEM AND TECHNICAL STANDARDS

As a result of Mexico's accession to GATT, the Mexican Government has gradually  
opened the economy to international markets. Tariffs have been lowered from a  
maximum 100% in 1962 to 20% in December, 1985. The official price system has been  
totally eliminated, and import permits are issued on only 5% of the total 11,950 items  
in the Mexican Harmonized Tariff System.

The import climate for telecommunications equipment has improved significantly as a  
result of this commercial liberalization. Maximum duty rates have been reduced to 20%  
and import permits are only required on items of value for equipment and  
components. Therefore, imports of telecommunications equipment are subject to an 8%  
value-added tax (VAT) at maximum 20% assessed on the invoice value. In addition, a  
customs processing fee of 0.5% is assessed on the invoice value. A 15% value added  
tax is then assessed on the cumulative value of both rates in addition to the invoice  
value. Some manufacturers who use imported inputs for their products under a  
Mexican Government approved manufacturing plan may have the duty and VAT  
waived or reduced. Raw materials, spare parts, and machinery used in  
manufacturing or assembling products for export are generally eligible to be imported  
without duty under bond. Telecommunications equipment imported into Mexico  
needs to follow international standards and must obtain a valid certification  
from SOT to be sold in Mexico. Mexico's employed predominantly European  
telecommunication standards (CITT). Further information can be obtained from  
Mexico's telecommunications authority, Comision Mexicana de Telecomunicaciones.

There are no official metric requirements applicable to imports into Mexico. However,  
since the metric system of units is by law the official standard of weight and measure  
in Mexico, importers will usually require metric labels for their goods, although  
the English systems are also used. Unit labeling is required for most products and  
is included in Spanish containing the following information: name of the product, type,  
name and address of the manufacturer, net content, serial number, or equivalent data  
of manufacturer, technical specifications, presentation, information on the groups  
products, instructions for use, handling and/or product composition and nationality  
standards. Mexico adheres to the International System of Units (SI). Electric power is  
60 cycles with nominal voltage being 110, 220 and 240. Three phase and single phase  
240 volt outlets are available.

Canadian Embassy  
Mexico City  
Mexico City, Mexico  
Cable: CANMEX  
Telex: CANMEX  
Telephone: (52) 52 2 22 22 22  
Fax: (52) 52 2 22 22 22  
Cable: CANMEX  
Telex: CANMEX  
Telephone: (52) 52 2 22 22 22  
Fax: (52) 52 2 22 22 22

**WHEN SELLING TO THE MEXICAN GOVERNMENT AND ITS AGENCIES, IT IS  
REQUIRED TO HAVE REGISTRY NUMBER AS FOREIGN SUPPLIER.  
FOLLOWING IS RELATED INFORMATION.**

**REGISTRATION WITH SECRETARIA DE PROGRAMACION Y PRESUPUESTO**

(SPP)

Following is a summary of Registration Procedures for Canadian Companies wishing to sell to the Mexican Government and its decentralized agencies.

Note: Registration procedures now cannot be done by the foreign (Canadian) supplier, and must be done by the company's official local agent/representative in Mexico.

To obtain registry, the following documents should be submitted to the Registro de Proveedores Office of the Secretaría de Programación y Presupuesto (SPP) (Ministry of Planning and Budgeting) located at the following address:

Registro de Contratistas y  
Proveedores de la Administración  
Pública Federal S.P.P.  
Av. San Antonio Abad No. 124 - Piso 1  
Col. Tránsito  
06380 México, D.F.

- a) Applications for registration of foreign supplier forms SPP in original and 3 copies, all signed separately.
- b) A copy of the company's balance sheet and profit and loss statement with data not older than two months with respect to the date of application entry into the Foreign suppliers registry, also translated into Spanish and legalized by the Mexican Consulate.
- c) Copy of power of company's legal representatives in Canada notarized, and certified by Mexican Consul (documents mentioning full name of person or persons, legally authorized to sign documents on behalf of company showing his (their) signature.
- d) Copy of agency/representative contract in Mexico notarized and then certified by Mexican Consul.
- e) Copy of a document that proves and guarantees legal existence of company in Canada.  
A certificate of incorporation from a Canadian -

Chamber of Commerce or Industry Chamber. This letter must be presented in its original form and must state that interested company has been legally incorporated in accordance to the laws of the country and must include the date of incorporation. The letter cannot be more than six months old from the date it was issued. In addition it must be translated into Spanish and legalized by the Mexican Consulate.

- f) Limited power to local agent to act on behalf of foreign firm on disputes and collection matters.
  - g) A photocopy of sample past invoices for each product to be supplied duly translated and legalized by the Mexican Consulate with the date and the names of the buyer and the seller underlined and highlighted.
2. Once application forms and supporting documents are approved, registration number is issued in two to four weeks time. To claim registration number, foreign firm's representative will have to present original and copy of HD-1 form "Declaración General de Pago de Derechos" duly paid.
3. To obtain HD-1 forms. As first step, payment of \$366,000 Mexican Pesos (as of April 1990 and rate subject to changes) should be made at any office of the Secretaría de Hacienda y Crédito Público (SHCP) in cash, or with Mex. Peso bank draft in favor of the "TESORERIA DE LA FEDRACION" payable through a Mexican bank located in Mexico City and should be accompanied by four (4) payment forms DH1. Each form should be signed separately. Forms can be obtained at any SHCP's offices.

**IMPORTANT**

**TO AVOID REFUSAL OF APPLICATIONS**

- I Copies of documents b, c, d, e, f, g, must be translated into Spanish by certified local translator if done in Mexico. However if documents b, c, d, e, f, g and respective translations are done into Spanish in Canada, these do not have to be done by certified translator, as above, but documents and translations must be duly notarized, and then certified by nearest Mexican Consul in your area.
- II Original and copies of application forms must be signed separately by company's legal representative.

III Corporate name should appear exactly the same in all documents: (i.e.: spelling, company names which have changed over the years).

Legal representative's signature should be signed separately on following documents:

- . DH-1 Payment forms
- . Registry application forms (both pages)
- . Power of legal representative of company in Canada.
- . Copy of agency/representative contract in Mexico.
- . Limited power to local agent.

While every effort has been made to provide the above information accurately, the Canadian Embassy cannot assume responsibility for errors, omissions or subsequent changes in procedure which may occur.

Information  
updated April/90  
Canadian Embassy  
Mexico City

Deputy Minister of  
Communications and  
Technological Development

Deputy Minister of Operations

III Corporate name should appear exactly the same in all documents (i.e. spelling, company names which have changed over the years) legal representative's signature should be signed separately on following documents: Dual Payment form, to state that Registry application form (both pages) Power of legal representative of company in Canada. Copy of agency/representative contract in limited power to local agent.

Write every effort has been made to provide the above information accurately, the Canadian Embassy cannot assume responsibility for errors, omissions or subsequent changes in procedure which may occur. The undersigned's office is not responsible for any errors or omissions in this information. Error 108 in your listing instead of avoid.

Information updated April 1988 Canadian Embassy Mexico City. The undersigned's office is not responsible for any errors or omissions in this information. Error 108 in your listing instead of avoid.

IMPORTANT

EXHIBITS TO LISTING

- I. Original copy of application to be signed by legal representative of company.
- II. Copy of agency/representative contract in limited power to local agent.



**USEFUL MEXICAN GOVERNMENT AND DECENTRALIZED GOVERNMENT MINISTRIES AND AGENCIES**

**SECRETARIA DE COMUNICACIONES Y TRANSPORTES**

**MINISTRY OF COMMUNICATIONS AND TRANSPORT**

LIC. ANDRES CASO LOMBARDO  
SECRETARIO DE COMUNICACIONES Y TRANSPORTES

(NOTE: After name of official and position/title the name of the ministry should be given followed by the street address, as shown)

Secretaria de Comunicaciones y Transportes

Minister of Communications and Transport

Av. Universidad Esq. Xola Centro  
SCOP Cuerpo C Piso 1  
Col. Narvarte  
03028 México, D.F.

Phones 519 74 56 530 09 03

ING. CARLOS MIER Y TERAN ORDIALES  
SUBSECRETARIO DE COMUNICACIONES Y DESARROLLO TECNOLOGICO

Deputy Minister of Communications and Technological Development

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Subsecretario de Operación

Deputy Minister of Operations

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Informática

General Director of Information  
and Telecommunication  
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Col. del Valle  
03100 México, D.F.

Phone 534 19 79

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Director General de Normas de  
Radio y Televisión

General Director of Radio and  
Standards

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SCOP Cuerpo C Piso 1  
Col. Narvarte  
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Phones 519 28 00 519 16 21

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Director General de Obra y  
Operación

General Director of Projects and  
Operations

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SCOP cuerpo B Planta Baja  
Col. Narvarte  
03028 México, D.F.

Phone 530 30 60 Ext 6109

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Director General de Recursos  
Financieros

General Director of Financing

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Col. Narvarte  
03020 México, D.F.

Phones 579 60 66 590 27 89

Lic. Antonio García Rojas  
Barbosa

Eugenia No. 197 Piso 1  
Col. Narvarte  
03020 México, D.F.

Phones 682 22 01 682 24 51

General Director of Materials  
Resources

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Director General de Recursos  
Circuitos Culturales  
Edificio Universitario  
Col. Narvarte  
03020 México, D.F.

Ing. Eduardo Treviño  
Director de Estructuras  
y Fomento Tecnológico  
Circuitos Culturales  
Edificio Universitario  
Col. Narvarte  
03020 México, D.F.

Ing. Roberto Barba  
Col. Verónica Anzures  
1130 México, D.F.  
Fax: 55 28 18

**DECENTRALIZED GOVERNMENT  
AGENCIES**

**CONSEJO NACIONAL DE CIENCIA Y  
TECNOLOGIA (SPP)**  
(Scientific and Technological  
Development)

Circuito Cultural  
Edificio Universitario  
Conacyt  
Col. Cd. Universitaria  
04515 México, D.F.

Dr. Manuel V. Ortega  
Director General  
Circuito Cultural  
Universitario Edificio A  
Piso 3  
Col. Cd. Universitaria  
04515 México, D.F.

(Technology Develop and  
co-ordination)

Ing. Eduardo Tovar  
Martínez  
Director de Enlace  
y Fomento Tecnológico  
Circuito Cultural  
Universitario Edificio B  
Piso 1  
Col. Cd. Universitaria  
04515 México, D.F.

**TELETRA INDUSTRIAL, S.A.**  
**(SEMP)**

(Mfg. of Microwave and  
Electronic Equip)

Bahía de Santa Barbara No. 130  
Col. Verónica Anzures  
11300 México, D.F.  
Fax: 254 58 18

**TELEFONOS DE MEXICO, S.A. DE  
C.V. (SCT)**

(Mexican Telephone Company)

Parque Vía No. 198  
Col. Cuauhtémoc  
06599 México, D.F.  
A.P. 50-Bis

Lic. Alfredo Baranda García  
Director General  
Parque Vía No. 198 Piso 11  
Oficina 1102  
Col. Cuauhtémoc  
06599 México, D.F.

**TELECOMUNICACIONES DE MEXICO  
(SCT)**

(Telegram and money order  
services. Also phono-telegrams  
by phone and printer)

Eje Central Lázaro Cárdenas  
No. 567 Ala Norte Piso 11  
Col. Narvarte  
03020 México, D.F.

Phones 519 91 61 519 09 08

C.P. Carlos Lara Sumano  
Director General  
Eje Lázaro Cárdenas No. 567  
Ala Norte Piso 11  
Col. Narvarte  
03020 México, D.F.

Phones 519 91 61 519 09 08

**COMISION FEDERAL DE ELECTRICIDAD  
(SEMP)**

(Mexican Hydro Electric Company)

Río Ródano No. 14  
Col. Cuauhtémoc  
06598 México, D.F.  
Telex CFE GCME 01771031

Phone 203 09 55

Lic. Roberto Alemán Maldonado  
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Phones 250 90 88 203 09 94

**NACIONAL FINANCIERA, S.N.C.**  
(Mexican Industrial Development  
Bank)

Avenida Insurgentes Sur No. 1971  
Col. Guadalupe Inn  
01020 México, D.F.

Phone 550 69 11

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Phones 553 71 33 553 64 00

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Phones 553 64 00 553 65 00

Ing. Juan Eibenschut Hartman  
Subdirector General

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Col. Cuauhtémoc  
06598 México, D.F.

Phones 553 19 79 553 71 33

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Subdirector de Operación

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06598 México, D.F.

Lic. José Luis García Ramos  
Gerente de Abastecimientos  
(Responsable de Adquisiciones)

Río Ródano No. 14 Piso 7  
Col. Cuauhtémoc  
06598 México, D.F.

Phones 286 95 36 286 95 56

**FERROCARRILES NACIONALES DE MEXICO (SCT)**  
**(SCT)**

Mexican National Railways

Av. Jesús García No. 140  
Col. Buenavista  
06358 México, D.F.

Phone 547 52 40

Ing. Carlos Orozco Sosa  
Director General  
Av. Jesús García No. 140  
Ala A Piso 13  
Col. Buenavista  
06358 México, D.F.

Phones 547 35 56 547 79 20

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Subdirector General de Vías  
y Telecomunicaciones  
Av. Jesús García No. 140  
Ala A Piso 8  
Col. Buenavista  
06358 México, D.F.

Phone 547 69 19

Purchasing

Lic. Carlos Alcerreca Curiel  
Gerente de Adquisiciones  
García No. 140  
Ala B Piso 4  
Col. Buenavista  
06358 México, D.F.

Phone 547 63 56

**CONSTRUCCIONES TELEFONICAS MEXICANAS, S.A. DE C.V. (SCT)**

Construction install of  
telephone line networks.  
Switchboard install.

Liverpool No. 72-A  
Col. Juarez  
06600 México, D.F.  
A.P. 61-258  
Telex 207 28 06

Phone 211 30 00

Ing. Gustavo L. Ramírez Hubard  
Director General  
Liverpool No. 72-A Piso 2  
Col. Juarez  
06600 México, D.F.

Phones 511 67 08 211 30 00  
Purchasing

C.P. Rodolfo Torres Mosqueda  
Subdirector General  
Administrativo y Adquisiciones  
Dinamarca No. 51 Piso 1  
Col. Juarez  
06600 México, D.F.

Phones 511 67 08 211 30 00

Engineering

Ing. Marco A. Amezcua Sandoval  
Subdirector General de Av. Jesús  
Ingeniería  
Dinamarca No. 51 Piso 4  
Col. Juarez  
06600 México, D.F.

Phones 511 31 81 211 30 00

**FERROCARRILES NACIONALES DE  
MEXICO DIVISION BAJA CALIFORNIA  
(SCT)**

Nal Rlwys Baja Calif Division

Final Ulises Irigoyen S/N  
Col. Industrial  
21010 Mexicali, B.C.

A.P. 182  
Telex 569835-FCSBC DEME

Phones 572102 572103

**FERROCARRILES NACIONALES DE  
MEXICO REGION PACIFICO (SCT)**

Nal Rlys Pacific Division

Enrique Díaz de León No. 336  
Col. Centro  
44100 Guadalajara, Jal.  
A.P. 44100  
Telex 0681712

**FERROCARRILES NACIONALES DE  
MEXICO REGION NOROESTE (SCT)**

Nal Rlys Northwest Division

Méndez Esq. Calle 24A  
Col. Pacífico  
31030 Chihuahua, Chih.  
Telex 0349822

**INSTITUTO MEXICANO DEL PETROLEO  
(SEMIP)**

Mexican petroleum institute.  
Investigation and tech develop.

Av. Lázaro Cárdenas No. 152  
Col. San Bartolo Atepehuacan  
07730 México, D.F.

Telex 017 73 116

Phones 567 91 00 567 66 00

Ing. Fernando Manzanilla Sevilla  
Director General

Av. Lázaro Cárdenas No. 152  
Col. San Bartolo Atepehuacan  
07730 México, D.F.

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Engineering and projects

Ing. Oscar Ruíz Carmona  
Subdirector de Ingeniería y  
Proyectos

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Lic. Lourdes Ortiz Uruchurtu  
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Col. San Bartolo Atepehuacan  
07730 México, D.F.

Phone 567 66 00

**RADIOMOVIL DIPSA, S.A. DE C.V.**  
**(SCT)**

Mobile radio telephone service

Río Pánuco No. 55 Piso 5  
Col. Cuauhtémoc  
06500 México, D.F.

Phones 535 60 14 535 63 72

Ing. Eduardo Aguilar Rivero  
Director General  
Río Pánuco No. 55 Piso 5  
Col. Cuauhtémoc  
06500 México, D.F.

**PETROLEOS MEXICANOS (SEMIP) (PEMEX)**

Mexican Petroleum Company

Av. Marina Nacional No. 329  
Col. Huasteca  
11311 México, D.F.  
Telex 1173912

Phones 250 26 11 254 20 44

C.P. Francisco Rojas Gutiérrez  
Director General  
Av. Marina Nacional No. 329  
Torre Ejecutiva Piso 44  
Col. Huasteca  
11311 México, D.F.

Phone 250 34 57

Office in New York City

Representación en Nueva York  
655 Madison Av. 16th Floor  
Nueva York, Nueva York  
U.S.A.  
Telex 421694

Office in Houston, Texas

Representación en Houston  
3600 South Gessner Suite  
100 Houston, Texas, U.S.A.

Lic. Adrian Lajous Vargas  
Subdirector de Planeación y  
Coordinación  
Av. Marina Nacional No. 329  
Torre Ejecutiva Piso 36  
Col. Huasteca  
11311 México, D.F.

Phones 545 99 04 254 33 35

Ing. Jaime Hernández Balboa  
Subdirector de Proyecto  
Y Construcción de Obras  
Av. Marina Nacional No. 329  
Torre Ejecutiva Piso 39  
Col. Huasteca  
11311 México, D.F.



Telex 791397

**TELECONSTRUCTORA, S.A. (SCT)**  
Install of telephone networks.  
Switchboard installation.

Leibnitz No. 11 Piso 5  
Col. Nueva Anzures  
11590 México, D.F.

Phone 203 02 87

Ing. Armando Douance Villanueva  
Director General  
Leibnitz No. 11 Piso 5  
Col. Nueva Anzures  
11590 México, D.F.

Phone 203 29 04

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Jefe de Servicios Generales y  
Abastecimiento  
(Responsable de Adquisiciones)  
Leibnitz No. 11 Piso 5  
Co. Nueva Anzures  
11590 México, D.F.

Phone 545 31 84

**TRANSPORTACION MARITIMA MEXICANA,**  
**S.A. DE C.V. (SCT)**  
Mexican Government Maritime Shipping  
Company

Av. de la Cúspide No. 4755  
Col. Parques del Pedregal  
14010 México, D.F.  
A.P. 4950  
Telex TMM1771153

Phone 652 4111

Sr. Enrique Rojas Guadarrama  
Presidente del Consejo y  
Presidente Ejecutivo  
Av. de la Cúspide No. 4755  
Piso 11  
Col. Parques del Pedregal  
14010 México, D.F.

Phones 652 41 62 652 71 15

Telex 791397

C.P. Francisco López Barredo  
Director General  
Av. de la Cúspide No. 4755  
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Col. Parques del Pedregal  
14010 México, D.F.

TELÉCOMUNICACIONES S.A. (TELECOM)  
Install of telephone networks  
Switchboard installation

Edificio No. 11 Piso 2  
Col. Nueva Américas  
11550 México, D.F.

Phones 652 47 94 652 60 41

Phone 203 02 87

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Telex 1777272 CIRTME
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- Cámara Nacional de Transportes y Comunicaciones (CNTC)  
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Col. Condesa  
Del. Cuauhtémoc  
06140 México, D.F.
- Phone 286-16 51
- National Chamber of Transport and Communications
- Consejo Nacional de la Industria Maquiladora de Exportación, A.C.  
Av. Parque de Chapultepec 105  
Col. El Parque  
53390 Naucalpan, Mex.
- Phone 576 21 11
- National Council of the Mexican "In-Bond" assembly industry for Export
- Cámara Nacional de Manufacturas Eléctricas (CANAME)  
Thiers 84 esq. Lafayette  
Col. Anzures  
Del. Miguel Hidalgo  
11590 México, D.F.
- Phone 250 50 82
- National Chamber of Electrical Manufacturers
- Cámara Nacional de la Industria Electrónica y de Comunicaciones Eléctricas (CANIECE)  
Guanajuato 65  
Col. Roma  
Del. Cuauhtémoc  
06700 México, D.F.
- Phone 574 74 11  
1773527 CNIEME
- National Chamber of the Electronic and Communications Industries

**Cámara Nacional de Aerotransportes/National Chamber of Air Carriers (CAMAERO)**

P. de la Reforma 76, 17vo Piso  
Col. Juarez  
Del. Cuauhtémoc  
06600 México, D.F.

Phone 535 14 58

**Cámara Nacional de la Industria de Televisión por Cable**

Monte Albán 281  
Col. Narvarte  
Del. Benito Juárez  
03020 México, D.F.

Phone 590 80 78

**National Chamber of the Cable Television Industry**

National Council of the Mexican "in-bond" assembly industry for Export

Consejo Nacional de la Industria Manufacturera de Exportación, A.C.  
Av. Parque de Chapultepec 185  
Col. El Parque  
03350 Naucalpan, Mex.

Phone 576 21 11

National Chamber of Electrical Manufacturers

Cámara Nacional de Manufacturera Eléctrica (CANAME)  
Tercera 84 esp. Jalisco  
Col. Anáhuac  
Del. Miguel Hidalgo  
06100 México, D.F.

Phone 550 50 82

National Chamber of the Electronic and Communications Industries

Cámara Nacional de la Industria Electrónica y de Comunicaciones (CANIEC)  
Guatemala 55  
Col. Roma  
Del. Cuauhtémoc  
06700 México, D.F.

Phone 576 74 21  
173527 CANIEC

LOCAL AGENTS

## PROTECTOLADA, S.A.

Ing. Arturo Cepeda  
Salvador Díaz Mirón No. 216  
Col. Sta. María  
06400 México, D.F. Tel. 541-19-39

## GRUPO SIT

Sr. Guillermo Aviña  
Ave. Lomas de Sotelo No 1112-2 piso  
Col. Loma Hermosa  
11200 México, D.F.  
A.P. M-7624 Tel 395-24-77 Telex 1772053 (EISAME)

## ELECTRONICA TELECOMUNICACIONES Y ANTENAS, S.A.

Ing. José A. Perles  
Director Gral.  
Alconedo No. 45  
Col. Merced Gómez  
01600 México, D.F. Tel. 680-20-18

## DATOS EN LINEA INTERNACIONAL, S.A.

Ing. José Ma. Barba García  
Director General  
Shakespeare 30-4 piso  
Col. Anzures  
11590 México, D.F. Tels. 254-36-82/254-38-92 Telex 1763563

## HEUER Y BOEHME, S.A.

Ing. Ernesto Heuer  
Balderas 96-6 piso  
México 66070, D.F. Tels. 518-16-34

## ITSA

Ing. Miguel A. Rivera  
Inglaterra No. 85  
Col. Coyoacán  
04040 México, D.F. Tels 689-21-21 or 549-14-85

## SISTEMAS Y SERVICIOS DE TELECOMUNICACIONES Y ELECTRONICA, S.A. de C.V.

Ing. José R. Aguirre M.  
Representante  
Miguel Serrano 21-501  
Col. del Valle  
03100 México, D.F. Tel. 559-36-66

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Director de la Div. de Tecnología  
Bosque de Ciruelos 162  
Bosques de las Lomas  
11700 México, D.F. Tel. 596-22-44

2....

NUCLEOELECTRONICA, S.A.  
Ing. Manuel Diego  
Calzada Las Aguilas 101  
01710 México,D.F.

TEL. 593-63-22

BRAMEX,S.A.  
Ing. José de Morales  
M. Villalongin No. 20-3  
06500 México, D.F.

Tel. 546-61-70 or 397-49-61

GRUPO CORPORATIVO  
Ing. José L. González  
Orizaba No. 43  
Col. Roma  
México,D.F.

Tel. 525-70-36 or 533-46-80

GENERAL DE SEMICONDUCTORES  
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Gerente Comercial Div. Redes  
Saltillo No. 19 Desp. 804  
Col. Condesa  
06140 México,D.F.

Tel. 211-73-07

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DOCS

CA1 EA953 90M16 ENG

Market study on telecommunication  
equipment and systems in Mexico.

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ACCOPRESS  
2507

BF - RED	BY - YELLOW
BG - BLACK	BA - TANGERINE
BD - GREY	BB - ROYAL BLUE
BU - BLUE	BX - EXECUTIVE RED
BP - GREEN	

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ACCO CANADIAN COMPANY LTD.  
TORONTO CANADA



60984 81800

