



# Taiwan: Broadcast and Telecommunications

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## Summary

Taiwan authorities are actively promoting digital broadcasting, with plans to deploy full digital services for terrestrial television and digital radio by 2010. In preparation, Taiwan broadcasters must transform their existing analog network to a digital network, requiring a significant upgrades and procurement of digital broadcasting equipment. Taiwan's preeminent telecom carrier, Chunghwa Telecom, plans to transform its existing infrastructure into a next generation network with an estimated investment of USD 1.5 billion over a five-year period. Taiwan's ambitious Worldwide Interoperability for Microwave Access (WiMAX) plan has been allocated USD 154 million for WiMAX projects and Taiwan authorities plan to award six WiMAX licenses in mid-2007. This funding and licensing plan should boost demand for WiMAX-related equipment. Given the on-going digitalization projects of the broadcasters, infrastructure transformation projects of Chunghwa Telecom, and WiMAX plan, Taiwan's market demand for broadcast and telecommunications equipment is projected to remain stable through 2010.

## Market Demand

Despite its small geographic size, Taiwan ranks among the top ten U.S. export markets and is the 16<sup>th</sup> largest economy in the world. With a per capita GDP of about US\$14,000, one of the world's highest cable penetration rates and per capita mobile phone utilization rates, Taiwanese are clearly some of the world's heaviest consumers of information and communication technology (ICT). In fact, Taiwan continues to enhance its capability by investing heavily in its ICT infrastructure.

Taiwan claims one of the highest cable penetration rates in the world with 85% of its households wired for cable. Additionally, nearly all of Taiwan's 7.1 million households have at least one analog color television, and are gradually moving to digital television, paving the way for the deployment of digital broadband services. By 2010, Taiwan authorities are planning for full implementation of digital terrestrial television and digital radio services, as well as the construction of a digital broadband cable platform, which will provide voice, data, and multimedia services island-wide. To reach these goals, Taiwan authorities expect to draw back the spectrum allocated for analog television and radio, as well as actively promote interactive cable and tiering services as an incentive for cable operators to upgrade their existing networks. Driven by network infrastructure upgrades and the gradual consumer shift towards digital television and broadband services, the market for digital broadcasting equipment will remain strong through 2010 with Taiwan relying entirely on imports of digital broadcasting equipment.

Taiwan has liberalized its entire telecommunications sector in keeping with efforts to modernize communications networks and to meet World Trade Organization (WTO) commitments. Taiwan boasts one of the most sophisticated telecommunications infrastructures in Asia and one of the world's highest mobile phone penetration rates, with 100 mobile handsets per 100 people.

Chunghwa Telecom, Taiwan's dominant carrier plans to transform its existing infrastructure into a next generation network with an estimated investment of USD 1.5 billion over a five-year period. The Phase I tender of this project is expected to be awarded in the 2<sup>nd</sup> half of 2007. Demand for next generation network equipment in the Taiwan market will remain strong through 2010.

To propel Taiwan's information and technology industry into the next generation of development, enhance Taiwan's competitiveness, and provide seamless mobile and wireless Internet access to the public, the Taiwan authorities have drafted an ambitious WiMAX plan. A total of USD 154 million has been allocated for WiMAX projects between 2005 and 2008. In addition to financing projects, Taiwan authorities plan to award six WiMAX licenses in mid-2007. This funding and licensing plan should boost demand for WiMAX-related equipment and solutions in the Taiwan market through 2010.

### Major Telecom Indicators

	Number (Million)	Penetration Rate (%)
Fixed-Line Subscribers	13.6	60
Cellular Phone Subscribers	23.0	100
Internet Households	4.9	69
Broadband Internet Households	4.5	91
Cable TV Households	6.0	85

Notes: In 2006, Taiwan had 7.1 million of households and a population of 23 million.

Cellular phone: 2G+3G+PHS subscribers

Broadband Internet: Number of household Broadband Internet Access /

Number of household of HH Internet Access

Source: National Communications Commission (NCC)

### Market Data

In 2006, sales of broadcast and telecommunications equipment in Taiwan totaled USD 4.6 billion; imports accounted for about 85% (USD 3.9 billion) of the total. U.S. firms supplied 7.4% (USD 293 million) of total imports. The following figures on the market size and import market for broadcast and telecommunications equipment in Taiwan is based on customs' import and export statistics and industry estimates.

#### Taiwan Broadcast and Telecommunication Market Statistics

	2004	2005	2006 (estimated)
Total Market Size	3,419.3	4,573.6	4,632.0
Total Local Production	8,325.3	10,061.8	10,309.0
Total Exports	7,958.7	9,447.9	9,639.0
Total Imports	3,052.6	3,959.7	3,962.0
Imports from the U.S.	276.9	293.0	293.0

Notes: Figures are in millions of USD. The exchange rate (1USD=NTD) was NT\$33.48 for 2004, NT\$32.15 for 2005, and NT\$32.49 for 2006. The statistics are unofficial estimates.

### Best Prospects

The product categories below can expect solid sales potential over the next three years.

- Next generation networks
- Fixed mobile convergence
- VoIP
- WiMAX
- Mobile TV
- Wireless sensor networks
- Low-end handsets with a color display and built-in digital camera
- Audio production equipment
- Digital editing systems
- Digital multimedia broadcasting technology
- Broadcasting transmission equipment
- Test equipment

### Key Suppliers

For broadcasting equipment, Japan is the primary competitor for U.S. suppliers, dominating the television camera and video tape recorder markets.

Japanese Broadcasting Equipment Suppliers

Products	Suppliers
Terrestrial TV transmitters	NEC
Radio transmitters	Toshiba, NEC
TV cameras	Ikegami, Sony, Hitachi, Toshiba
Video tape recorders	Sony, JVC
Digital audio consoles	Korg, Otari

Other foreign suppliers active in the Taiwan market Include:

Other Foreign Broadcasting Equipment Suppliers

Products	Suppliers
Radio transmitters	Nautel (Canada)
Digital studio workstations	AMS, SSL and Sound Craft Workstation (Britain)
Audio consoles	Studer (Switzerland)
Speakers	Genelec (Finland)
Digital audio equipment	Philips (Netherlands)

In terms of telecommunications equipment, European firms have led the market for mobile network infrastructure equipment and handsets, with South Korean firms occupying a solid position in the handset market. The majority of Taiwan-produced telecom equipment is for export, mainly comprised of cellular phone handsets, Wireless Local Area Network (WLAN) equipment, Asymmetric Digital Subscriber Line (ADSL) equipment, LAN switches, modems, cable modems, and Global Positioning System (GPS) devices.

**Prospective Buyers**

Taiwan's terrestrial television networks, radio stations, major multiple system operators, and local content providers will all require significant digital upgrades over the next three years.

Terrestrial TV Networks

Taiwan has five terrestrial television networks, each requiring a budget of approximately USD100 million (NTD 3 billion) for digital upgrades over the next three years. Taiwan authorities have adopted a technology neutral position in crafting digital terrestrial television broadcasting standards. Following trial runs between 2001 and 2002, Taiwan's terrestrial television networks reached consensus to adopt the European DAB-T 6MHz standard. The coverage of digital terrestrial TV services reached 71.6% as of December 2006.

Taiwan's Terrestrial TV Networks

Terrestrial TV Networks	Website
Taiwan TV Enterprise	<a href="http://www.ttv.com.tw">http://www.ttv.com.tw</a>
China TV Corporation	<a href="http://www.chinatv.com.tw">http://www.chinatv.com.tw</a>
Chinese TV System	<a href="http://www.cts.com.tw">http://www.cts.com.tw</a>
Formosa Television	<a href="http://www.ftv.com.tw">http://www.ftv.com.tw</a>
Public TV Service	<a href="http://www.pts.org.tw">http://www.pts.org.tw</a>

Radio Networks

Taiwan released the frequency spectrum for civilian use in stages. Currently, Taiwan has seven island-wide F.M. networks and approximately 25 A.M. and 100 F.M. regional radio stations. Approximately USD100,000 is required for each radio network upgrade. After a series of trial runs between 2001 and 2003, Taiwan's radio stations adopted the European Eureka-147 standard. The digital radio broadcasting infrastructure is under construction.

Taiwan's Major Radio Networks

Radio Networks	Websites
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Broadcasting Corporation of China	<a href="http://www.bcc.com.tw">http://www.bcc.com.tw</a>
Public Radio System	<a href="http://www.prs.gov.tw">http://www.prs.gov.tw</a>
Voice of Taipei Broadcasting	<a href="http://www.vot.com.tw">http://www.vot.com.tw</a>
Voice of Han Broadcasting Network	<a href="http://www.voh.com.tw">http://www.voh.com.tw</a>
National Education Radio	<a href="http://www.ner.gov.tw">http://www.ner.gov.tw</a>
UFO Radio	<a href="http://www.ufo.com.tw">http://www.ufo.com.tw</a>
The Central Broadcasting System	<a href="http://www.cbs.org.tw">http://www.cbs.org.tw</a>
Cheng Sheng Broadcasting	<a href="http://www.csbc.com.tw">http://www.csbc.com.tw</a>
Philharmonic Radio Taipei	<a href="http://www.e-classical.com.tw">http://www.e-classical.com.tw</a>

#### Cable TV Networks

After years of consolidation, Taiwan has 64 cable operators. Taiwan's cable industry is currently dominated by several major multiple system operators (MSOs), which control 70% of Taiwan's cable networks and 80% of total households that are wired for cable. Typical cable networks provide around 90 channels. Companies within Taiwan's cable television industry are often interconnected through the investments of large conglomerates. Eastern Multimedia and China Network System (Koo's Group), for example, are probably the most active conglomerates in Taiwan's cable market, with investments in major MSOs and program content providers, simultaneously. Among Taiwan's 64 cable operators, 54.7% of the cable operators, or 35 cable operators, have digitalized their cable headend and paved the way for digital value-added services such digital video services, high-speed Internet, VoIP, and Wi-Fi services.

#### Taiwan's Major Multiple System Operators (MSOs)

Name and Website	Profile
China Network System Co., Ltd. (CNS) <a href="http://www.cns.net.tw">http://www.cns.net.tw</a>	-- Shares in 11 cable operators -- 1.2 million home passed, 750 MHz HFC network -- A joint venture between STAR and Koo's Group
Eastern Multimedia Co., Ltd. (EMC) <a href="http://www.etmc.com.tw">http://www.etmc.com.tw</a>	-- Shares in 11 cable operators -- 1.2 million home passed, 750 MHz HFC network -- The Carlyle Group acquired a majority stake in July 2006
Taiwan Broadband Communications (TBC) <a href="http://www.tbcom.com.tw">http://www.tbcom.com.tw</a>	-- Shares in 5 operators -- 670,000 home passed, 750 MHz HFC network -- Change of ownership to Macquarie Media Group in May 2006
Fu-Yang Multimedia Technology** (**Direct translation from Mandarin) <a href="http://www.elinx.com.tw">http://www.elinx.com.tw</a>	-- Shares in 9 cable operators -- 550,000 home passed, 750 MHz HFC network -- FuBon Group acquired operation rights from Pacific Group in May 2005
Taiwan Infrastructure Network Provider <a href="http://www.tinp.net.tw">http://www.tinp.net.tw</a>	-- 5 operators in Central Taiwan -- 350,000 home passed

#### Program Content Providers

Companies within Taiwan's cable television industry are often interconnected through the investments of large conglomerates. Eastern Multimedia Group and Videoland Television Network (Koo's Group), for example, are probably the most active conglomerates in Taiwan's cable market, with investments in major MSOs and program content providers, simultaneously. Taiwan currently has 56 local program providers producing around 90 cable channels of programming. These cable content providers constantly upgrade equipment to provide the public with higher quality programming.

#### Major Program Content Providers

Name and Website	Profile
Eastern Broadcasting Company (EBC) <a href="http://www.ettv.com.tw">http://www.ettv.com.tw</a>	-- Eastern Multimedia Group -- 13 channels including 5 shopping channels
Videoland Television Network <a href="http://www.videoland.com.tw">http://www.videoland.com.tw</a>	-- Koo's Group -- 7 channels

	-- Sales agent of 4 local foreign channels
Star TV <a href="http://www.startv.com.tw">http://www.startv.com.tw</a>	-- An affiliation of News Corp. -- 8 channels
SETTV <a href="http://www.settv.com.tw">http://www.settv.com.tw</a>	-- 3 channels
TVBS <a href="http://www.tvbs.com.tw">http://www.tvbs.com.tw</a>	-- 3 channels
GTV <a href="http://www.gtv.com.tw">http://www.gtv.com.tw</a>	-- 3 channels

Prospective telecommunications buyers and their respective market shares are stipulated as follows:

Market Share of Fixed Line Carriers

Carrier	International Service	Domestic Long Distance Service	Local Service
<a href="#">Chunghwa</a>	53.4%	79.6%	97.9%
New Entrants	46.6%	20.4%	2.1%

Note: New entrants are [Taiwan Fixed Network](#), [New Century Infocom](#), and [Eastern Broadband Telecom](#)

Market Share of 2G Mobile Operators

Operator	No. Of Subscribers (Million)	Market Share
<a href="#">Chunghwa</a>	7.7	41.4%
<a href="#">Taiwan Mobile</a>	5.5	29.6%
<a href="#">Far Eastone</a>	5.4	29.0%
Total	18.6	100.0%

Note: Figures as of December 2006.

Source: [National Communications Commission](#)

3G Operators

In February 2002, Taiwan completed its 3G-auction process and awarded licenses to Chunghwa Telecom, the incumbent carrier, and four private sector carriers -- Taiwan Mobile, Far Eastone, Asia Pacific Broadband Wireless (APBW, <http://www.apbw.com.tw>), and Vibo Telecom (<http://www.vibo.com.tw>). APBW was Taiwan's first 3G operator, commencing service in July 2003, with other 3G licensees launched services between mid and late 2005 with a total of 3.4 million subscribers as of December 2006.

Personal Hand-held Phone System (PHS) Operator

First Telecom (<http://www.phs.com.tw>) is the only low tier Personal Hand-held Phone System operator in Taiwan with 1.3 million subscribers as of December 2006.

Major ISPs/ICPs

The major ISPs/ICPs in Taiwan include:

- Hinet (<http://www.hinet.net>)
- Seednet (<http://www.seednet.net.tw>)
- APOL (<http://www.apol.net.tw>)
- TTN (<http://www.ttn.net/>)
- Sparq (<http://www.sparq.com.tw/>)
- So-net (<http://www.so-net.net.tw/>)

## Market Entry

The majority of imported broadcast and telecommunications equipment is marketed by sales agents or importers to end-users. Most new-to-market exporters entering Taiwan begin by finding a local partner to serve as agent, distributor, and/or representative. Many Taiwan firms prefer the partnering aspect of an agent relationship. Although some companies are willing to act only as distributors, there is concern that foreign firms that are merely seeking distributors may not be serious about the market and will not support their distributors.

Bank-to-bank Letters of Credit (L/C) are Taiwan's most important import-payment vehicle. Company-to-company payments are also made via two other methods: open account (O/A) and documentary collections, such as documents against payment (D/P) and documents against acceptance (D/A). To minimize financial risk, it is recommended that U.S. exporters require their Taiwan trading partners to finance their imports through L/Cs. A large majority of Taiwan's importers utilize L/Cs with validity of up to 180 days. On the whole, U.S. companies find Taiwan's trade finance system to be efficient and report no widespread pattern of deferred payment.

Taiwan's banking and international remittance systems are well developed, and there are no foreign exchange regulations that would significantly hamper a U.S. exporter from getting paid. Irrevocable letters of credit are widely used and L/Cs from leading Taiwan financial institutions can generally be confirmed by U.S. banks.

## Market Issues & Obstacles

The current Taiwan tariff system is based on the Harmonized System. The duty on imported products is defined on an ad valorem basis. Taiwan is a signatory to the Information Technology Agreement (ITA). Under the ITA, Taiwan phased out tariffs on information technology products on January 1, 2002. Taiwan has a zero tariff on imports of all broadcasting equipment, upon end-users' application. However, a five-percent sales tax (value added tax, VAT) is levied on all products sold in the domestic market.

A foreign supplier's pro forma invoice (quotation) is required for application of an import permit and the establishment of a letter of credit. Documents required for shipments to or from Taiwan include the commercial invoice, bill of lading or airway bill, and packing list. The commercial invoice must show the import license number; FOB, C&F, or CIF value; insurance; freight; and discounts or commissions, if any. The commodity description and value shown on the commercial invoice must agree with those on the import license, if any. No requirements exist as to the form of a commercial invoice or a bill of lading. In addition to the information generally included in a standard bill of lading, all marks and case numbers appearing on packages must be shown. Customs does not permit the grouping of marks or numbers on a shipment of mixed commodities.

### Regulatory Regime

Taiwan's integrated telecommunications and broadcasting regulatory body -- the National Communications Commission (NCC) is the telecommunications standards authority. In general, the NCC adopts a technology-neutral position in standards, following the endorsements of international organizations, such as the International Telecommunications Union (ITU).

### Standards

Taiwan used Global System for Mobile Communications (GSM) as its 2G standard (GSM 900/1800/1900 Megahertz). While three out of the five 3G licensees tendered their infrastructure bids in 2002 using Universal Mobile Telecommunications System (UMTS) mode, one tendered using Code Division Multiple Access-2000 (CDMA-2000) mode. As for broadcasting, after a series of trial runs between 2001 and 2003,



Taiwan's terrestrial television networks reached consensus to adopt the European DAB-T 6MHz standard. Radio stations adopted the European Eureka-147 as the standard.

### Product Certification

Telecommunications terminal equipment, mobile communications base station RF equipment, and low-power RF devices should meet local technical criteria (mainly type approval) pursuant to the relevant regulations and specifications. Consistent with the Asia-Pacific Economic Cooperation (APEC) Mutual Recognition Agreement (MRA) for telecommunications equipment, mutual recognition of test reports between the U.S. and Taiwan was signed in 1999. Relevant information can be obtained through the NCC's website: <http://www.ncc.gov.tw>.

When an imported commodity is introduced for sale on the domestic market, labeling and instructions or sales literature written in Chinese must be added to the commodity by the importer. The label contents provided in Chinese language must not be simpler or more condensed than those from the place of origin of the commodity. The name/title and the address of the foreign manufacturer of an imported commodity may not be labeled in Chinese language. In labeling commodities, the writing must be in Chinese and may be supplemented by English or other foreign language.

### **Trade Events**

Taipei International Information Technology Show  
June 5-9, 2007  
Taipei World Trade Center, Taipei, Taiwan  
Website: <http://www.computextaipei.com.tw/>

### **Resources & Key Contacts**

National Communications Commission: <http://www.ncc.gov.tw/>

Mobile Taiwan Applications Promotion Program Office: <http://www.pwlan.gov.tw>

Taiwan Digital Television Committee: <http://www.dtv.org.tw>

Cable Broadband Institute in Taiwan: <http://www.cbit.org.tw>

### **For More Information**

The U.S. Commercial Service in Taipei, Taiwan can be contacted via e-mail at: [Frances.Li@mail.doc.gov](mailto:Frances.Li@mail.doc.gov); Phone: 886-2-2720-1550 x 329; Fax: 886-2-2757-7162; or visit our website: <http://www.buyusa.gov.tw/taiwan>.

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