Appendix A
Acronyms and Glossary of Terms

Ad Hoc 206: A subcommittee of the IRAC that was established to coordinate Federal agencies' preparations for WARC-92.

Allocation: The designation of a band of frequencies to a specific radio service or services. Allocations are made internationally at World Administrative Radio Conferences and are incorporated into the international Table of Frequency Allocations. International allocations are usually, but not always, incorporated into domestic frequency tables.

Analog: In analog radio communication, information is transmitted by modulating a continuously varying electronic signal, such as a radio carrier wave. Voice and video messages originate in analog form since sound and light are wave like functions. In order to send these analog signals over digital media, such as fiber optics or digital radio, they must be converted into a digital format. See digital, and modulation.

APC: Aeronautical public correspondence. APC refers to radiocommunication services that allow airline passengers to place telephone calls while in flight. Also known as air-to-ground (ATG) communication.

Assignment: The granting by a government of the right to use a specific frequency (or group of frequencies) to a specific user or station. Each television station, for example, is granted a small group of frequencies that correspond to a specific channel number.

Bandwidth: The total range of frequencies required to transmit a radio signal without undue distortion is its bandwidth. It is measured in hertz. The bandwidth of a radio signal is determined by the amount of information in the signal being sent. More complex signals contain more information, and hence require wider bandwidths. An AM radio signal, for example takes 10 kHz, while an FM signal requires 200 kHz, and a television signal takes up 6 MHz. The bandwidth required by a television channel is 600 times greater than that of an AM radio channel.

BSS: Broadcasting-Satellite Service. An ITU-designated service that refers to the delivery of information or programming from satellites directly to user receivers. Subsets of BSS include new systems planned to deliver high-definition television services (BSS-HDTV) and audio services (BSS-Sound).

Carrier: **A** radio wave that is used to communicate information. Information to be transmitted is impressed onto the carrier, which then carries the signal to its destination. At the receiver the carrier is filtered out from the radio signal to recover the original information. See modulation.

CCIR: International Radio Consultative Committee. An organ of the ITU that studies and makes recommendations on the technical standards for radiocommunication.

CCITT: International Telegraph and Telephone Consultative Committee. An organ of the ITU that studies and makes recommendations on the technical and operational standards for international wireline communications. CCITT also addresses international tariff issues.

CDMA: Code division multiple access. CDMA is a recently developed radiocommunication format that uses digital technology and spread spectrum transmission to send information. Each radio signal is assigned its own unique code and is then spread over a range of frequencies for transmission. At the receiving end the receiver can reconstruct the original signal by following the code.

CEPT: Conference of European Postal and Telecommunications Administrations. Established in 1959, CEPT consists of 31 European telecommunications administrations. It acts to coordinate and reconcile regional telecommunications policy.

CIP: Bureau of International Communications and Information Policy. Bureau of the State Department that represents the United States in international telecommunications negotiations and conferences.

CITEL: The Inter-American Telecommunications Conference. A specialized conference of the Organization of American States (OAS) that deals with both radio and wireline communications. CITEL is a permanent, ongoing series of conferences that has 35 members from North and South America and the Caribbean.

C-band: C-band is the designation for satellite communications that use 6 GHz uplinks and 4 GHz downlinks. These frequencies are also extensively used for terrestrial microwave communication.

CT2: Cordless telephone 2. Personal communications system that allows users to make calls, but not receive them. CT2 systems have been demonstrated in Europe, but only one system has been demonstrated in the United States.

DAB: Digital audio broadcasting. DAB refers to the transmission of audio broadcasts in digital form as opposed to today's (AM or FM) analog form. DAB promises compact disc quality sound over the air. Many formats are being developed, and transmission is possible via terrestrial transmitters, satellites, or hybrid systems.

DBS: Direct broadcast satellite. Medium- to high-power satellites that are designed to transmit programming directly to small satellite receive dishes at users' homes. No DBS systems are operating in the United States, although several systems are planned.

Digital: In digital communication, the continuously varying signals of images and voice are converted to discrete numbers represented in binary form by O's and 1's. These binary digits, or bits, can then be sent as a series of 'on' '/''off pulses or can be modulated onto a carrier wave by varying the phase, frequency, or amplitude according to whether the signal is a 1 or a O.

Downlink: In satellite communications, the signal that travels from the satellite down to the receivers on Earth. The direction the downlink signal travels is also called space-to Earth. See uplink.

FCC: Federal Communications Commission. An independent Federal agency that regulates private and all non-Federal government use of the radio frequency spectrum. The FCC is also responsible for regulating most other forms of communication, including broadcast and cable television, and some telephone services.

FMAC: Frequency Management Advisory Committee. A committee within IRAC, composed of representatives from the private sector, that advised IRAC on matters of spectrum policy. The FMAC was recently rechartered as the Spectrum Planning Advisory Committee and will include government representation and a broader mandate.

FPLMTS: Future public land mobile telecommunication systems. FPLMTS is the ITU designation for terrestrial public mobile services, including PCS.

Frequency: The number of complete cycles a radio wave completes in 1 second. Frequency is measured in hertz (1 cycle per second equals 1 hertz). Radio frequencies are described as multiples of hertz:

kHz, kilohertz: thousand cycles per second;
MHz, megahertz: million cycles per second;
GHz, gigahertz: billion cycles per second.

Groundwave: Groundwaves are characteristic of very low frequency radio waves that follow the curve of the Earth as they travel. see ***also*** skywave.

GSM: Global System for Mobile communications, formerly, Groupe Special Mobile. A digital mobile communications standard that has been proposed to provide next generation cellular/mobile services all over Europe.

HDTV: High-definition television. Refers to future generations of television that will have higher picture resolution, a wider aspect ratio, and digital quality sound.

Hertz (Hz): Cycles per second. See frequency.

HF: High frequency. Refers to radio frequencies in the range 3-30 MHz. These frequencies are used by international broadcasting services including Voice of America, religious broadcasters, and fixed services such as the point-to-point communication systems used by developing countries.

HFBC: High Frequency Broadcasting Conference. Specialized world radio conferences were held in 1984 and 1987. A future conference on planning the HF bands has been proposed for 1995.

HLC: High Level Committee. The HLC was established by the Administrative Council of the ITU, in response to instructions from the Nice Plenipotentiary, in November 1989 in order to review the structure and various functions of the ITU. The study included structure, organization, finance, staff, and coordination. The group finished its work in June 1991.

IAC: Industry Advisory Committee. The FCC setup the IAC to coordinate and focus private sector input for the WARC-92 preparation process. It consisted of 35 representatives from the private sector and was co-chaired by FCC Commissioner Sherrie Marshall. It issued its final report in April 1991.

IFRB: International Frequency Registration Board. The organ of the ITU responsible for maintaining the list of radio frequencies used worldwide. It also conducts technical and planning studies for the ITU.

IRAC: Interdepartment Radio Advisory Committee. Established in 1922 and now located in the Department of Commerce, the IRAC consists of approximately 20 to 25 representatives from the various Federal Government agencies involved in or using radio frequencies. The IRAC advises NTIA on matters relating to Federal Government use of the radio frequency spectrum.

ITU: International Telecommunication Union. The ITU is a specialized agency of the United Nations responsible for international regulation of telecommunications services of all kinds, including telegraph, telephone, and radio.

Ka-band: Ka-band is the designation for frequencies in the 30/20-GHz range that will be used for future generations of communications satellites.

Ku-band: Ku-band colloquially refers to frequencies in the 14/12-GHz bands that are used for satellite communications.

LEOS: Low-Earth orbiting satellite. LEO satellites are smaller and cheaper to design, build, and launch than traditional geosynchronous satellites. Networks of these small satellites are being planned that will provide data and voice services to portable receivers all over the world.

Modulation: The process of encoding information onto a radio wave by varying one of its basic characteristics —amplitude, frequency, or phase-in relation to an input signal such as speech, music, or television. The input signal, which contains the information to be transmitted, is called the modulating or baseband signal. The radio wave that carries the information is called the carrier wave. The radio wave that results from the combination of these two waves is called a modulated carrier. Two of the most common types of modulation are amplitude modulation (AM) and frequency modulation (FM).

MSS: Mobile Satellite Service. MSS is an ITU-designated service in which satellites are used to deliver communications services (voice or data usually, one- or two-way) to mobile users such as cars, trucks, boats, and planes. It is a generic term that encompasses several types of mobile services delivered by satellite, including Maritime MSS (MMSS), Aeronautical MSS (AMSS), and Land MSS (LMSS).

NTIA: National Telecommunications and Information Administration. The agency in the Department of Commerce that oversees all Federal Government use of the radio frequency spectrum. NTIA also serves as the President's adviser on all telecommunication matters.

OIA: Office of International Affairs. The office in NTIA responsible for international aspects of telecommunications, including preparation and participation in international communications negotiations and conferences.

OIC: Office of International Communications. Established by the FCC in January 1990 to coordinate and serve as the focal point for international activities in the FCC.

OSM: Office of Spectrum Management. The office of NTIA responsible for day-to-day management of Federal Government spectrum use. Also provides technical assistance to OIA in preparation for international negotiations and conferences.

PCN/PCS: Personal communication network/service. Although the terms are not yet clear, PCS seems to be emerging as an umbrella term that refers to any of the many services (voice and data) designed to serve individuals wherever they are (walking, driving, flying). PCN generally refers to specific networks (in specific locations) that providers want to set up to provide communication services. Alternatively, *the* **PCN** has been used to describe the evolution of the current (wire-based) public telephone network into a comprehensive network integrating wire-based and PCS services.

Period: The length of time it takes a radio wave to complete one full cycle. The inverse of the period is a radio wave's frequency.

Phase: A measure of the shift in position of a radio wave in relation to time. Phase is measured in degrees.

PTC: Permanent Technical Committee. Three PTCs provide technical support to ClTEL. PTC-I deals with public (wireline) telecommunications systems, PTC-11 addresses broadcasting issues, and PTC-III deals with all other areas of radiocommunication.

PTT: Post, telegraph, and telephone administration. PTTs are the government agencies that have been the sole providers of telecommunication services in many foreign countries for years. Today, their power and monopolies are declining in the face of liberalization and privatization.

RDSS: Radiodetermination-Satellite Service. RDSS is an ITU-designated service in which satellites provide location information to ships, planes, vehicles, and even individuals such as hikers.

Refraction: The bending a radio wave experiences as it travels through the atmosphere. As frequency increases, the amount of bending or refraction decreases.

RPOA: Recognized private operating agency. A category for participation in CCIR activities. RPOAs are private telecommunication service providers such as AT&T and COMSAT.

Sideband: Sideband frequencies are generated as part of the modulation process. They consist of newly created frequencies both above (upper sidebands) and below (lower sidebands) the carrier wave frequency. While AM produces a set number of sideband frequencies, FM produces a theoretically infinite number of sidebands.

SI0: Scientific and industrial organizations. A specific category for participation in CCIR activities. SI0s are designers or manufacturers of telecommunication equipment.

Skywave: Skywaves are characteristic of higher frequency radio waves that travel straight (as opposed to groundwaves) and can be bounced off the atmosphere in a process called reflection. This allows radio signals to travel many miles and makes long-distance radiocommunication possible.

SMR: Specialized Mobile Radio. SMR is a radio service created by the FCC to allow providers to offer mobile radio services, such as dispatch and two-way voice communications, to users on a private (as opposed to public cellular service) basis.

Spectrum: The spectrum of an individual radio signal is the range of frequencies it contains. The width of the spectrum is also called the bandwidth of the signal. More broadly, the radio frequency spectrum consists of all the radio frequencies that are used for radio communications.

SSB: Single sideband. A method of transmitting radio signals in which only one sideband is transmitted and, often, the carrier is transmitted at reduced power. See sideband.

Uplink: In satellite communications, the signal that travels from an Earth transmitting station up to the satellite. The direction the uplink signal travels is also known as Earth-to-space. See downlink.

VGE: Voluntary Group of Experts. The VGE was established by the ITU Administrative Council in 1990 to examine ways to simplify the international Radio Regulations. The first meeting of the **VGE** was held in January 1991. Representatives from 22 Administrations participated and observers from 4 international organization also attended.

WARC: World Administrative Radio Conference. WARCs are the primary forum for distributing the frequencies

of the spectrum to the various radiocommunication services. They can address all radio services (a general WARC) or only specific portions of the spectrum (specialized WARC). The Final Acts of a WARC have international treaty status and must be signed by member governments. The allocations decided on at a WARC usually are incorporated into domestic tables of allocations.

SOURCES: Harry Mileaf (cd.), ***Electronics One,*** revised 2d ed. (Rochelle Park, NJ: Hayden Book Company, Inc., 1976); U.S. Congress, Office of Technology Assessment ***The Big Picture: HDTV & High-Resolution Systems,*** OTA-BP-CIT-64 (Washington DC: U.S. Government Printing Office, June 1990); William Stallings, ***Data and Computer Communications (New*** York NY: MacMillan Publishing Co., 1985).