

# THE AMERICAN SATELLITE TRANSMISSION SYSTEM

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## ABSTRACT

In 1979, American Satellite Corporation will be the first on-line completely all-digital communications carrier. This will be accomplished when American Satellite Corporation's major trunking earth terminals are converted to operate TDMA at data rates up to 64 Mbps.

Today, a large part of the American Satellite network operates in a digital mode using Single Channel Per Carrier (SCPC) systems at data rates from 56 Kbps to 3 Mbps. These systems are associated with American Satellite Corporation's dedicated and SDX earth stations, many of which have been in operation since 1974. These systems have been installed at the customer's location and connected by hard wire to the user's data processing facilities to provide direct interconnection and networking at each of his respective facilities. Performance of these systems has been outstanding; the probability of bit error ( $P_{be}$ ) generally at  $1 \times 10^{-8}$  and better and reliability performance in excess of 99.99%. To date, there are 26 of these specialized earth terminals under construction throughout the USA (Conus and Hawaii).

The ASC major trunking system on the other hand has consisted of analog carrier facilities interconnecting the major served cities throughout the Continental United States. To provide the same degree of flexibility and performance required for today's and future digital system requirements, ASC is converting these systems to operate in an all-digital transmission mode as well. The facilities include TDMA equipment at the earth stations which operates up to 64 Mbps and digital microwave systems that interconnect the earth stations to the downtown located ASC central offices. The interface equipment provided at the central offices will consist of voice digitizing and digital multiplexing equipment which will be capable of interfacing to the user at both digital and analog interfaces. This approach will afford ASC a maximum capability to meet the future digital communications requirements as they evolve well into the future.