

The background features abstract, overlapping green geometric shapes in various shades of green, creating a modern and dynamic look. The shapes are primarily located on the left and right sides of the slide, framing the central text.

18ECE223T - Satellite Communication and Broadcasting UNIT 5 Satellite Mobile Services

Introduction

- ▶ Satellite can provide wide area service for telephone, fax and internet.
- ▶ Satellite Mobile Services do not need extensive ground facilities.
- ▶ It can cover even remote villages.
- ▶ GSM (2G) cellular system is widely used in satellite mobile systems.
- ▶ The user frequencies are in L (1 to 2 GHz) and S (2 to 4 GHz) bands.
- ▶ They use geostationary satellites and require large on-board antennas in the range 100 to 200 meter-square.
- ▶ Suited for developing and under-developed countries
- ▶ Types
 - ▶ Asian Cellular System
 - ▶ Thuraya
 - ▶ MSAT

1. Asian Cellular System

- ▶ Asian Cellular System (AceS)
- ▶ Uses Garuda geosynchronous satellite that covers 11 million sq. miles over Asia Pacific region
- ▶ Its footprint ranges China, Indonesia and Philippines
- ▶ Satellite positioned at 123 degree East
- ▶ It caters to a population of 3.5 billion
- ▶ It can handle 11000 simultaneous subscribers.
- ▶ It uses two L-band antennas. It generates 140 spot beams
- ▶ The gateway frequency is in C band. Mobile links operate in L band

2. Thuraya

- ▶ It uses geosynchronous satellites that are in 44 degree and 28.5 degree East longitude. The inclination is 6.3 degrees.
- ▶ It was launched in the year 2000.
- ▶ It covers more than 110 countries and covers around 2.3 billion people.
- ▶ Foot print is in Europe, North, Central Africa and large parts of Southern Africa.
- ▶ It uses elliptical antenna that provides 300 spot beams.
- ▶ It can handle up to 13,750 telephone channels.
- ▶ Modulation: QPSK
- ▶ Multiple Access: TDMA / FDMA
- ▶ GSM (2G Cellular) is employed
- ▶ The gateway frequency is in C band. Mobile links operates in L band

3. MSAT

- ▶ It has two geostationary satellites MSAT-1 and MSAT-2.
- ▶ Foot prints ranges from North, Central and South America.
- ▶ It offers lot of services. Like vehicle tracking, wireless phone, data and fax, differential GPS.
- ▶ Mobile links operate in L band. Feeder links to ground segment operate in Ku band
- ▶ Power output of L band is 600 W. Ku band power output is 110 W.
- ▶ Satellite operation and maintenance is carried out Telesat, Canada.

THANK YOU