DTH:

DTH stands for direct-to-home television. DTH is defined as reception of satellite programs with a personal dish in an individual home. DTH does away with the local cable operator and puts the broadcaster directly in touch with consumer.

- DTH symbols the transmission of digital video channel to home subscribers through small dish antenna.

History →

- DTH services were first proposed in India in 1996 but failed with approval. Due to national security, again ban was imposed on Rupert Murdoch owned Indian Sky Broadcasting It was finally approved and allowed in 2000.

DTH liscence in India will cost $ 2.14 million and will be valid for 10 years.

Components of DTH:

1. Minidish Antenna
2. Coaxial Cable
5. Connector
4. Set top box.
5. LNBF. (Low Noise Block Downconverter with feed h

satellite

* LNBF is the part of antenna which is positioned in front of the dish to receive the signal and converts the signal to be carried by cable to the receiver.

* A Set top box is the device that connects to a television and external source of signal, turning the signal into the content which is then displayed on the television screen.

Basic Principle :-

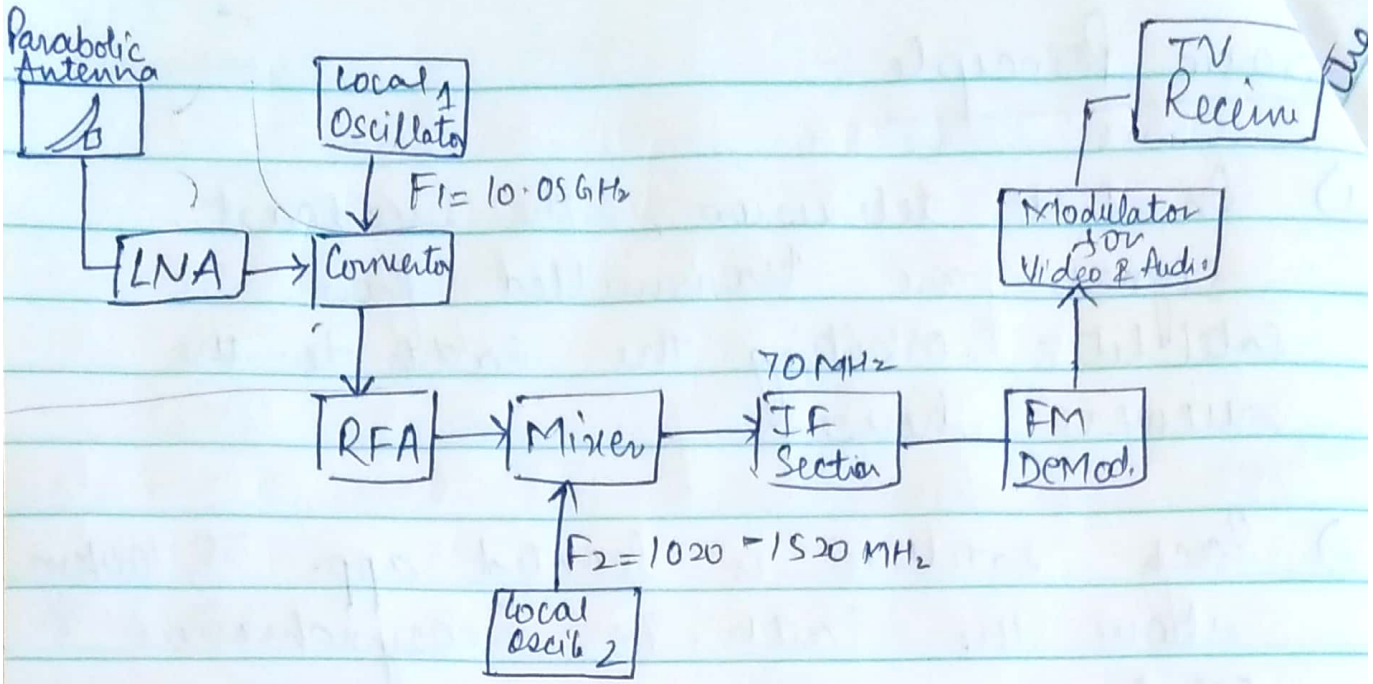
1) In DTH television, the broadcast signals are transmitted from satellites orbiting the Earth to the viewers' house.

2) Each satellite is located app. 35,700km above the Earth, in Geosynchronous Orbit.

3) These satellites receive the signals from the broadcast stations located on Earth and Rebroadcast them to the Earth.

4) The viewer's dish pick up the signal from the satellite and passes it on the receiver located inside the viewer's house.

5) The receiver ~~passes~~ processes the signal and passes it to the television.



This block diagram can be divided into two sections:

(1) Outdoor Unit
(2) Indoor Unit.

(1) Outdoor Unit

- Parabolic Satellite Antenna
- Low Noise Amplifier (LNA)
- Converter

(i) The receiver antenna is a parabolic reflector horn antenna which is directed directly to the satellite to receive the signal.

ii) The received signal from the satellite by

the antenna is applied to LNA which is a wide band amplifier.

iii) LNA amplifies all the frequencies received from the antenna and applies them to the convertor. The second input to this convertor is from Local Oscillator 1.

iv) The convertor output consists of a UHF signal having frequency range from 950 - 1450 MHz with bandwidth of 500 MHz.

(2) Indoor Unit :-

i) It consists of an RF amplifier which is applied to a channel selector to select the channel with help of the mixer and local oscillator 2.

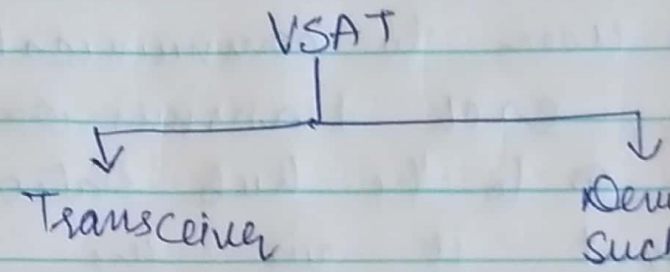
ii) An IF of 70 MHz is produced.

iii) The FM Demodulator and Video-Audio Detector is used with seperated AV, and synchronus pulses.

VSAT:-

A Very Small Aperture Terminal, is a two way satellite ground station with a dish antenna that is smaller than 3 meters.

- It is used for reliable transmission of data, video or voice via satellite.



A VSAT consists of two parts; a transceiver that is placed outdoors in direct LOS to satellite and a device that is placed indoor to interface the transceiver with the end user's communications device such as a PC.

- The transceiver receives or sends a signal to a satellite transponder in the sky.
- The satellite sends and receives signal from ground station computer that acts as a hub for the system.

Working of HUB Station

- Each End user is interconnected with the hub station via the satellite forming a Star Topology.
- The hub controls the entire operation of the network.
- For one end user to communicate with another, each transmission has to first go to the hub station that then retransmit it via the satellite to the other end user's VSAT.
- VSAT can handle upto 56kbps.

Configurations of VSAT :-

- A star topology, using a central uplink site, such as a network operations Centre to transport data back and forth to each VSAT terminal via satellite.

- A mesh topology, where each VSAT terminal relays data via satellite to another terminal by acting as a hub.
- A combination of both Star and Mesh topologies.

These configurations are utilized to minimize the overall cost of the network.

VSAT Customers :-

- Supermarket Shops
- Chemist Shops
- Hotel chains
- Job centres

Characteristics of VSAT :-

1. Reliable Communication
2. Remote Communications
3. Less Time Deployments. [4-6 weeks]
4. Easy Maintanence
5. Simpler Network Management
6. Less Costly.