



Satellite Communication platform provides an in-depth study of basic Satellite communication system. It consists of Uplink Transmitter, Satellite Link and Downlink Receiver, which can be conveniently placed in the laboratory. The Satellite can be placed at an elevated position if needed. The Satellite Transponder receives signal from Uplink Transmitter and retransmit at different frequencies to a Downlink Receiver. The Uplink and Downlink frequencies are selectable and can have variety of signals such as Video, Audio, Voice, Tone, Data and Telemetry (Temperature and Light intensity). The operating manual illustrates basic theory and glossary of Satellite Communication terms along with Experiments.

Features:

- ◆ Transmitter with selectable frequency conversion
- ◆ Simultaneous communication of three different signals
- ◆ Communicate Audio, Video, Digital data, PC data, Tone, Voice, function generator waveforms etc.
- ◆ 2414 - 2468MHz PLL microwave operation.
- ◆ Communication of external broad band digital signal.
- ◆ Choice of different transmitting and receiving frequencies.
- ◆ Built-in Speaker and Microphone for Voice and Audio link.
- ◆ Remote detection of Light intensity and environment temperature.
- ◆ Detachable Dish Antenna at each station.
- ◆ USB port for PC communication.
- ◆ 2 Year Warranty.

Scope of Learning:

- ◆ Transmitting & receiving three separate Signals (Audio, Video, and Tone/ Voice) simultaneously through satellite link and perform Link Fail Operations.
- ◆ Transmitting & receiving Function Generator Waveforms through Satellite Link.
- ◆ Transmitting and receiving PC data through satellite link.
- ◆ Study the delay between Uplink transmitter and Downlink receiver during data transmission.
- ◆ Send Tele-command and receive Temperature & intensity of light from satellite.
- ◆ Calculate the carrier to noise ratio for a satellite link.
- ◆ Calculate signal to noise ratio for a satellite link.

Note: Specifications are subject to change.

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Technical Specifications:

Uplink Transmitter

- ◆ Transmitter with selectable frequency conversion
- ◆ 2450-2468 MHz up-linking selectable frequencies
- ◆ Wide band RF amplifier. No manual matching required.
- ◆ 16 MHz Bandwidth
- ◆ Frequency select switch and LED indication.
- ◆ FM Modulation of Audio and Video.
- ◆ Coverage area 35m Indoor and 100m outdoor
- ◆ Transmit Audio, Video, Digital data, PC data, Tone, Voice, function generator waveforms etc.
- ◆ Separate section for telemetry operation.

Inbuilt Tone Generator:

- ◆ Frequency: 100Hz to 1 KHz.
- ◆ Amplitude: 0V to 1Vpp.
- ◆ Separate terminals provided for different inputs.
- ◆ Power Supply: 230 V AC $\pm 10\%$, 50/60 Hz

Satellite Link:

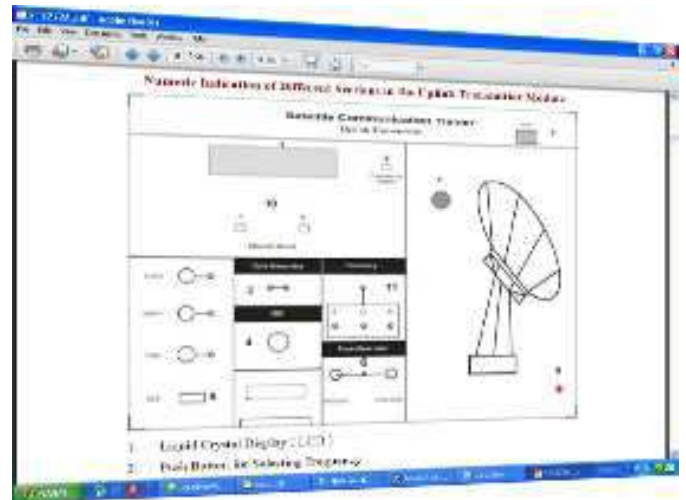
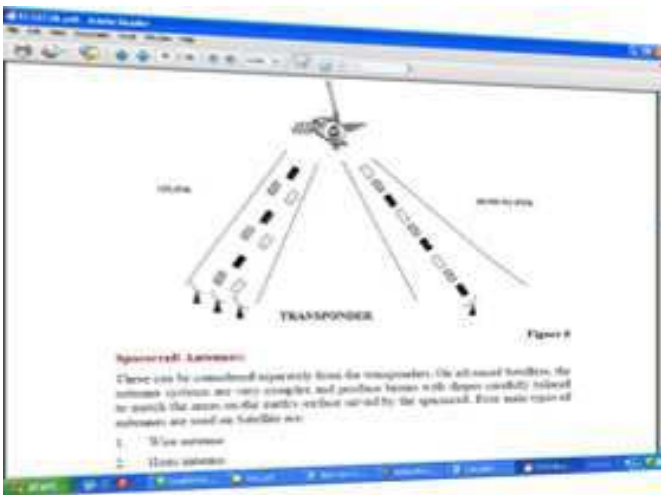
- ◆ Transponder with selectable Uplink and downlinks frequency conversion.
- ◆ Light and Temperature sensors for telemetry operations.
- ◆ Delay knob provided for simulated Transition delay experiment.
- ◆ Optional Solar power supply for Transponder Unit.
- ◆ Detachable Dish Antennas.
- ◆ Power Supply: 230 V AC $\pm 10\%$, 50/60 Hz

Downlink Receiver:

- ◆ Receiver with selectable frequency conversion.
- ◆ Receives and demodulate three signals simultaneously.
- ◆ Built in speaker for audio and video output.
- ◆ Detachable Dish Antenna.
- ◆ Power Supply: 230 V AC $\pm 10\%$, 50/60 Hz

Included Accessories

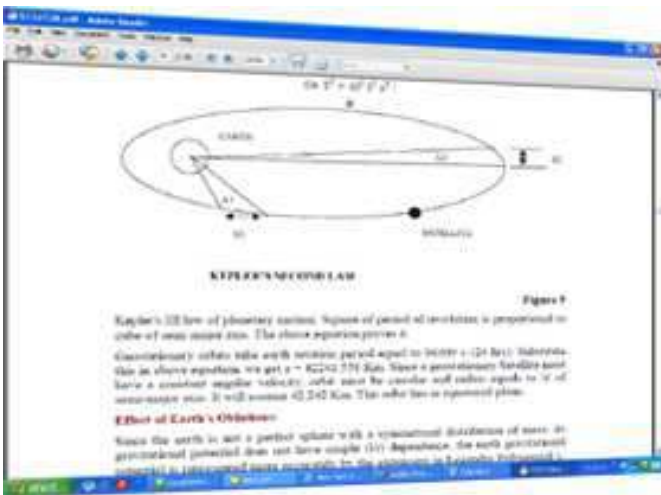
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|-----------------------------|--------|
| 1. Audio-Video Cable 2 Pin | 2 nos. |
| 2. Patch Cord 16"(4mm) | 2 nos. |
| 3. Microphone | 1 no. |
| 4. Dish Antenna | 4 nos. |
| 5. USB Cable | 2 nos. |
| 6. Pencil Cell (Microphone) | 1 no. |
| 7. Mains Cord | 3 nos. |
| 8. PC Software | 1 no. |



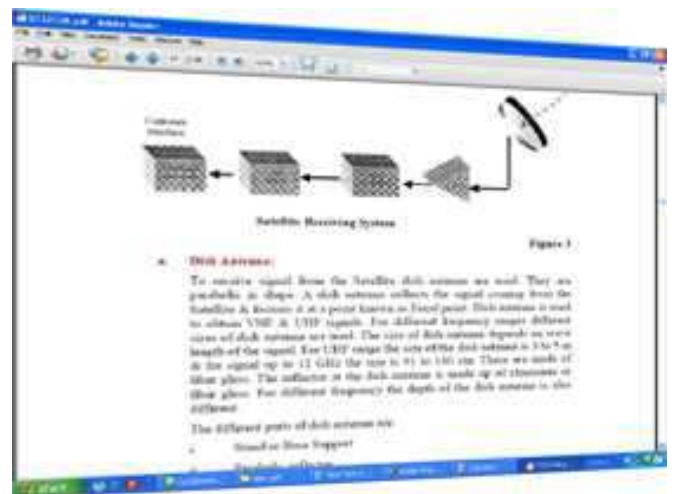
Numeric Indication of Different Sections in the Uplink Transmitter Module



Numeric Indication of Different Sections in the Transponder Module



Orbital Aspects of Satellite Communication (Kepler's Second Law)



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