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Satellite Communication Uplink Transmitter, Downlink Receiver and Transponder

Scientech 2272A

Scientech 2272A Satellite Communication platform provides an indepth 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 retransmits 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

- Simultaneous communication of three different signals
- Communicate Audio, Video, Digital data, PC data, Tone, Voice, function generator waveforms etc
- 2.4GHz Band 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

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

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Technical Specifications

Uplink Transmitter :

- Transmitter with selectable frequency conversion
- 2.4GHz Band uplink 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.

Satellite Link :

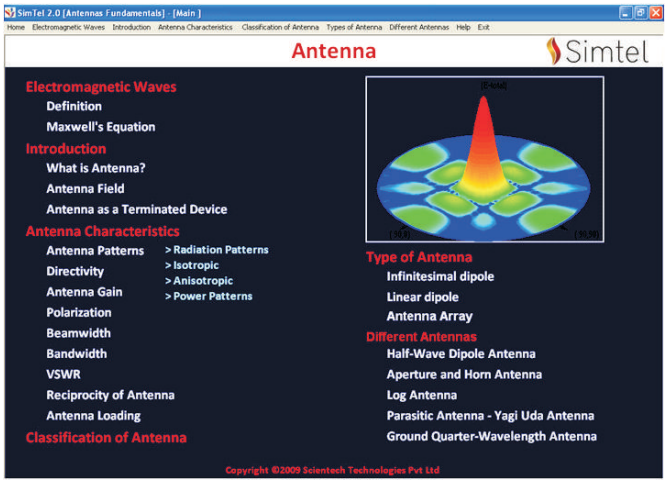
- Transponder with selectable Uplink and downlinks frequency conversion.
- Light and Temperature sensors for telemetry operations.
- Delay knob provided for simulated Transition delay experiment.
- Optional Solar power supply for Transponder Unit.
- Detachable Dish Antennas.

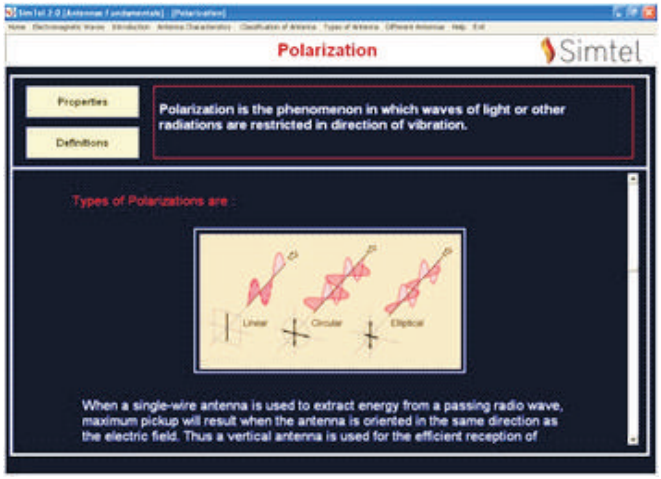
Downlink Receiver :

- 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 ±10 %, 50/60 Hz

Package contains	Nos
• Audio-Video Cable 2 Pin	2
• Patch Cord 16”(4 mm)	2
• Microphone	1
• Dish Antenna	4
• USB Cable	2
• Pencil Cell (Microphone)	1
• Mains cord	3
• PC Software	1

Simtel - Antenna and Radar Interactive Software (optional)





Topics

- Electromagnetic Waves
- Maxwell's Equation
- Antenna Parameters: Radiation pattern, Power pattern, Directivity, Gain, Beamwidth, Bandwidth, Polarization, VSWR, Reciprocity and Antenna Loading
- Classification of Antenna: Wire Antenna, Aperture Antenna, Printed Antenna, Leaky Wave Antenna, Reflector Antenna, and Lens Antenna
- Different Antennas: Infinitesimal Antenna, Linear Antenna, Antenna Array, Half-Wave Dipole Antenna, Horn Antenna, Log and Helical Antenna, Parasitic Antenna – YAGI Antenna, Ground Quarter Wavelength Antenna

For more details refer Simtel 11 Catalog

Subject to Change

Designed and Manufactured in India by -

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