**ANALOG COMMUNICATION TRAINERS**

**Amplitude Modulation & Demodulation Trainer**

 It has got three parts namely carrier generator, AM modulator And AM demodulator.

 Built in fixed power supplies of +12V,-12V. @ 250mA

 Carrier generator using 8038 IC with fixed frequency 100 KHz and fixed amplitude.

**Frequency Modulation & Demodulation Trainer**

 Built in fixed power supplies of +12V,-12V @ 250mA

 Carrier generator using 8038 IC with fixed frequency 50KHz and fixed amplitude

 Direct method is used for modulation circuit with RC combination

 Phase lock loop 565IC and Op-Amp 741 IC is used in demodulator circuit.

**Balanced Modulator Trainer**

 Built in a fixed power supplies of +12V, -12V @ 250mA

 1496 IC is used as balanced modulator.

 Two potentiometers are provided to vary the carrier suppression

**Characteristics of Mixer Trainer**

 Built in fixed power supply of +12V @ 250mA

 2N 2369 NPN transistors is used as frequency mixer.

**Synchronous Detector Trainer**

 Built in fixed power supplies of +12V, -12V. 250mA

 Built in variable carrier generator from 50KHz to 150KHz.

 Built in AM modulator circuit with external AF frequency and 1496
    IC is used as synchronous detector.

**Pre-Emphasis & De-Emphasis Trainer**

 Built in fixed power supply of +12V @ 250mA

 Two different inductors are used with NPN transistor in Pre – emphasis circuit.

 Two different resistors and capacitors are used in demodulator circuit.

**SSB System Trainer**

 Built in fixed power supplies of +12V,-12V, +5V, -5V

 RF generator with fixed frequency 100 KHz & variable amplitude 0-1.5V

 AF generator with variable frequency 0-5KHz

 Variable amplitude 0-10V. Automatic gain control (AGC)

 Variation to adjust wave shape.

 Two balanced modulators.

 LSB, USB, demodulation blocks individually on one kit Phase shifter method used for modulation

**Receiver Measurement Trainer**

 Built in fixed power supplies of + 15V, -15.

 AF generator with variable frequency 200Hz to 10KHz
    and with variable amplitude.

 RF generator with variable frequency 300KHz to 1200KHz
    and with variable amplitude.

 Digital display for both RF & AF frequency readout.

 IC 1619 is used for AM receiver measurements.

 Built in AM modulator.

**Phase Lock Loop Trainer (using 565) Trainer**

 Built in fixed power supplies of +5V,-5V

 565 IC , 741 IC and 7490 IC divided by 10 counter is given on board .

 Different values of resistors and capacitors

 One 10Kohms Potentiometer is given to vary the output frequencies.

**Phase Modulation Trainer**

 Built in fixed power supplies of +15V, -15V

 IC 2205 is used as phase modulator.

**Frequency Synthesizer Trainer**

 Built in fixed power supplies of +5V, -5V

 Built in fixed frequency of 1KHz. 565 IC , Divided by counter provided on board.

 Different values of resistors and capacitors provided on board.

**AGC Characteristics Trainer**

 Built in fixed power supplies of +15V, -15V, +5V.

 AF generator with variable frequency 200Hz to 10KHz and with variable amplitude.

 RF generator with variable frequency up to 1200KHz and with variable amplitude.

 IC 1619 is used for AM receiver measurements.

 Built in AM Modulator