



### Specification

- Designed using advanced DDS technology on silicon
- The necessary LED indications are provided to know the status of the experiments
- The system comes with descriptive experimental manual

### Clock and signal generation

#### Sine wave

- Fixed frequency 1KHz with 0 ~ 2V

#### Carrier

- Synchronized carrier of 00phase
- Synchronized carrier of 900phase
- Synchronized carrier of 1800phase
- Synchronized carrier of 2700phase

#### Data pattern

- 8-bit, 16-bit and 24-bit

#### PRBS generator

- 16-bit with switch selectable

#### Noise

- White noise 0 ~ 2Vpp

#### Transmitter clocks

- 16 KHz, 32 KHz, 64 KHz, 128 KHz, 256 KHz, 512 KHz and 1.024 MHz

#### Output

- 4 digit, 7 segment, LED bank

#### Input

- Three 8-bit switch banks for data generation

#### Transmitter section

- Differential encoder
- Dibit encoder
- Tribit encoder
- Scrambler
- BPSK, DPSK modulation
- QPSK modulation
- QAM modulation

Note: Specifications are subject to change.

- MSK modulation
- DPCM and ADPCM modulation

#### **Receiver section**

- Differential decoder
- Dibit decoder
- Tribit decoder
- Unscrambler
- BPSK, DPSK demodulation
- QPSK demodulation
- QAM demodulation
- MSK demodulation
- DPCM and ADPCM demodulation
- Digital PAM
- Error bit adder and inter symbol interference
- Low pass butterworth filters

#### **Experiments**

- Study of BPSK modulation and demodulation
- Study of DPSK modulation and demodulation
- Study of dibit data encoder
- Study of QPSK modulation and demodulation
- Study of constellation diagram for QPSK
- Study of tribit data encoder
- Study of QAM modulation and demodulation
- Study of constellation diagram for QAM
- Study of MSK modulation and demodulation
- Study of pulse amplitude modulation of digital data for base band transmission
- Study of transmission and reception of band limited pulse train in base band transmission system
- Study of eye pattern
- Measurement of bit error rate using digital data
- Study of message scrambler and unscrambler
- Study of DPCM modulation and demodulation
- Study of ADPCM modulation and demodulation
- Quantization noise in DPCM
- Bit error rate (BER) measurement
- Study of eye pattern

Note: Specifications are subject to change.

