



Sciencetech 2810 OFDM Modulator and Demodulator Training System Recently, a worldwide convergence has occurred for the use of Orthogonal Frequency Division Multiplexing (OFDM) as an emerging technology for high data rates. In particular, many wireless standards (Wi-Max, IEEE802.11a, LTE, DVB) have adopted the OFDM technology as a mean to increase dramatically future wireless communications. OFDM is a particular form of Multi-carrier transmission and is suited for frequency selective channels and high data rates. This technique transforms a frequency-selective wide-band channel into a group of non-selective narrowband channels, which makes it robust against large delay spreads by preserving orthogonality in the frequency domain. Moreover, the ingenious introduction of cyclic redundancy at the transmitter reduces the complexity to only FFT processing and one tap scalar equalization at the receiver.

In this 2810, we have focused on the practical learning and experimentation of OFDM with signal analysis at various stages.

Features

- OFDM Modulator and Demodulator system in a handy 2810
- User friendly real-time interactive control and acquisition software for detail study of OFDM
- Software control built-in data pattern generator
- 64 point IFFT & FFT with Baseband QPSK modulation & Demodulation Techniques.
- Built-in Mixed signal oscilloscope to analyze in time domain at various stages of OFDM
- Built-in noise generator for analysis of noise gain effect on the signal.
- On-board BNC connector for OFDM baseband I-Q signal analysis on external DSO.
- LED indications on 2810
- Interface USB

Scope of Learning

- OFDM Modulator and Demodulator Experimentation with and without noise gain. Signal Analysis at various stages like, Transmit data & Received data, IFFT & FFT, Symbol mapper & de-mapper per channel, and Cyclic prefix & its removal.

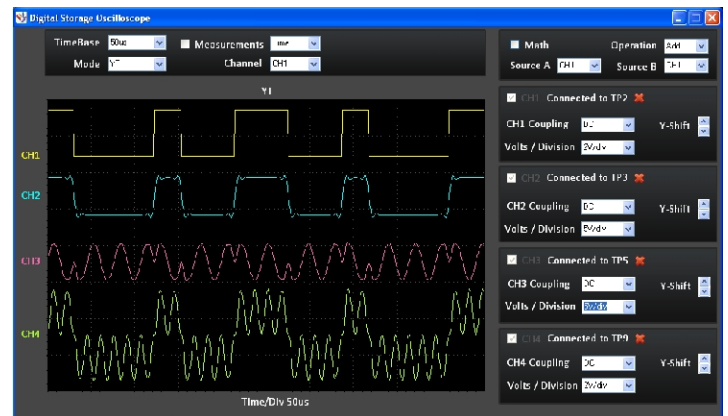
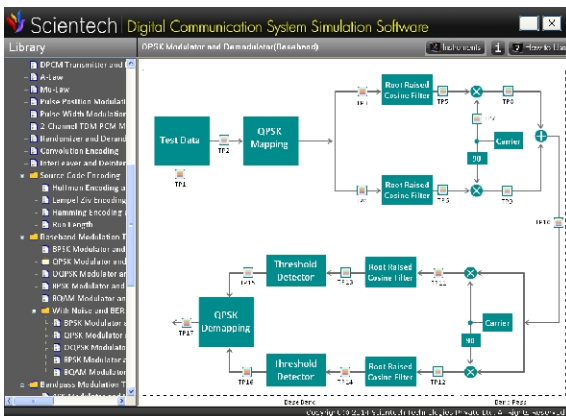
Technical Specifications

- Technique : OFDM with QPSK modulation & Demodulation
- Software programmable data rate
- Built in real-time data acquisition system with time domain signal analysis
- Built in Two channel Additive White Gaussian Noise Generator
- I & Q Channel DACs-10 bit
- Anti aliasing low pass filter with 3dB bandwidth of I & Q channel filter: Sallen Key 6-pole Butterworth.
- Block Level LED indication on 2810.
- Mains Supply : 110-220 V AC, 50/60Hz
- Operating Conditions : 0-40°C, 80% RH
- Weight : 2 Kg (approximately)

Package contains

- Power Cord & Patch Cord : 1 no.
- Host to Device USB cable : 1 no.
- BNC to BNC cable : 2 nos

Simtel 11 - Digital Communication Interactive Software (optional)



Topics

- Source: Signal Source, Pulse Generator, Data Generator, Delay
- Math Operations: Adder, Subtractor, Multiplier
- Natural and Flat Top Sampling
- Line Encoding and Decoding
- Delta Modulator and Demodulator
- Adaptive Modulator and Demodulator
- Sigma Delta Modulation and Demodulation

- PCM Transmitter and Receiver
 - DPCM Transmitter and Receiver
 - DPCM Transmitter and Receiver
 - A-Law and MU-Law
 - Pulse Position Modulation and Demodulation
 - Pulse width Modulation and Demodulation
 - 2-Channel TDM-PCM Multiplexer
- For more details refer Simtel 11 Catalog