

Abstract

A baseband simulation system is disclosed for testing an RF subsystem of a communication device, such as a cellular telephone, cordless telephone, etc. A preferred embodiment has a computer connected to an interface card which in turn is connected to a baseband simulation subsystem. The baseband simulation subsystem is connected to the RF subsystem under test. The baseband simulation subsystem includes three ports: a timing and control (TAC) port, an IQ port, and general purpose input output (GPIO) port. The TAC port receives a master clock signal from an external source and generates plural clocks therefrom. The IQ and GPIO ports receives at least one of these plural clocks. In a transmit mode, in response to one or more of the clocks generated by the TAC port, the IQ port retrieves from its memory prestored discrete I and Q samples and reconstructs therefrom arbitrary transmit analog i and q signals which are provided to the RF subsystem under test. In a receive mode, the IQ port receives analog i and q signals from the RF subsystem. The IQ port, in response to one or more clocks generated by the TAC port, converts the received analog i and q signals receive discrete I and Q samples. These receive discrete I and Q samples are transferred via the PCIF to the PC for analyzing the ability of the RF subsystem under test to modulate the inputted transmit analog i and q signals on one or more RF carrier signals and to demodulate the RF carrier signals to output the receive analog i and q signals. The GPIO port exchanges auxiliary discrete data with the PC and auxiliary analog signals with the RF subsystem under test.

