

ABSTRACT**SYSTEM AND METHOD OF AN IN-BAND MODEM FOR DATA
COMMUNICATIONS OVER DIGITAL WIRELESS COMMUNICATION
NETWORKS**

A system is provided for transmitting information through a speech codec (in-band) such as found in a wireless communication network. A modulator transforms the data into a spectrally noise-like signal based on the mapping of a shaped pulse to predetermined positions within a modulation frame, and the signal is efficiently encoded by a speech codec. A synchronization sequence provides modulation frame timing at the receiver and is detected based on analysis of a correlation peak pattern. A request/response protocol provides reliable transfer of data using message redundancy, retransmission, and/or robust modulation modes dependent on the communication channel conditions.

Figure 1