



US006940893B1

(12) **United States Patent**
Pinkney et al.

(10) **Patent No.:** **US 6,940,893 B1**
(45) **Date of Patent:** **Sep. 6, 2005**

(54) **HIGH-SPEED INDOOR WIRELESS CHIRP SPREAD SPECTRUM DATA LINK**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/407,133**

(22) Filed: **Sep. 27, 1999**

(51) **Int. Cl.**⁷ **H04B 1/69**

(52) **U.S. Cl.** **375/139; 375/130; 375/146; 375/152; 370/307; 370/441**

(58) **Field of Search** **375/130, 139, 375/152, 146, 296, 346, 348, 349, 240; 370/307, 370/441; 342/383; 708/813**

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(57) **ABSTRACT**

This invention modulates data onto a radio channel in such a way that the deleterious effects of the channel are reduced. This is accomplished in three steps: first, the information signal is modulated using a phase-differential modulation scheme. Second, the modulated signal is spread in both time and frequency by passing it through a dispersive filter, transmitting it through the channel, and removing the spreading using a dispersive filter in the receiver with the opposite characteristics of the filter in the transmitter. The third step, after demodulation, is to pass the signal through a low-pass filter to gather up the signal energy which has been dispersed by the channel. All three of these steps can be implemented with simple functional blocks, making this system very inexpensive to implement. Also included are two methods for enhancing the data throughput of the basic system, making it more bandwidth efficient.

10 Claims, 10 Drawing Sheets

