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Feierbach

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[54] **TRANSDERMAL COMMUNICATION SYSTEM AND METHOD**

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[57] **ABSTRACT**

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A transdermal communication system is disclosed. The system includes an internal communication device implanted inside the body of a patient and an external communication device. The external communication device includes an external transmitter which transmits a carrier signal into the body of the patient during communication from the internal communication device to the external communication device. The internal communication device includes an internal modulator which modulates the carrier signal with information by selectively reflecting the carrier signal or not reflecting the carrier signal. The external communication device demodulates the carrier signal by detecting when the carrier signal is reflected and when the carrier signal is not reflected through the skin of the patient. When the reflected carrier signal is detected, it is interpreted as data of a first state, and when the reflected carrier signal is not detected, it is interpreted as data of a second state. Accordingly, the internal communication device consumes relatively little power because the carrier signal used to carry the information is derived from the external communication device. Further, transfer of data is also very efficient because the period needed to modulate information of either the first state or the second state onto the carrier signal is the same.

[51] **Int. Cl.**⁶ **A61B 5/04**; A61N 1/36

[52] **U.S. Cl.** **600/509**; 600/508; 607/32; 607/60; 128/903

[58] **Field of Search** 607/60, 31, 32; 128/903, 904; 600/508, 509

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34 Claims, 5 Drawing Sheets

