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Morelli et al.

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(54) **TRANSCIVER CONTROL WITH SLEEP MODE OPERATION**

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(List continued on next page.)

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(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

(57) **ABSTRACT**

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

A transceiver which keeps circuitry associated with a receiver in a powered down state during periods when a Received Signal Strength Indicator (RSSI) indicates that a signal being received is below a pre-determined threshold level, and which begins to power up the transmitter as soon as it is determined that a packet being received requires a response. The RSSI signal represents the strength of any signal current being received, and if the RSSI signal falls below a given threshold level, digital circuitry associated with the back-end circuitry of the receiver system is disabled. If the RSSI signal rises above the threshold level, the digital circuitry of the receiver is enabled. A control circuit within the transceiver processes the packet as it is received to determine whether the packet requires a response. If it is determined that a response is necessary, the control circuit provides a control signal to the transmitter to power up the transmitter from a sleep mode even before the entire packet has been received and processed. The control circuit then continues to process the remainder of the packet as it is received while the transmitter powers up from the sleep mode. In this manner, the transmitter will become stabilized much earlier. Accordingly, the transceiver is able to respond more quickly than conventional devices and is thus able to increase response times and overall data exchange rates. Moreover, battery power of the transceiver is utilized more efficiently compared to devices which must continuously maintain the receiver and transmitter in fully powered modes.

(21) Appl. No.: **08/619,797**

(22) Filed: **Mar. 20, 1996**

Related U.S. Application Data

(63) Continuation-in-part of application No. 08/605,914, filed on Feb. 23, 1996, now Pat. No. 5,838,720.

(51) **Int. Cl.**⁷ **H04B 1/38**; H04B 1/16; H04B 7/00; H04L 5/16

(52) **U.S. Cl.** **375/219**; 375/220; 375/222; 455/38.3; 455/73; 455/31.1; 455/343; 455/574

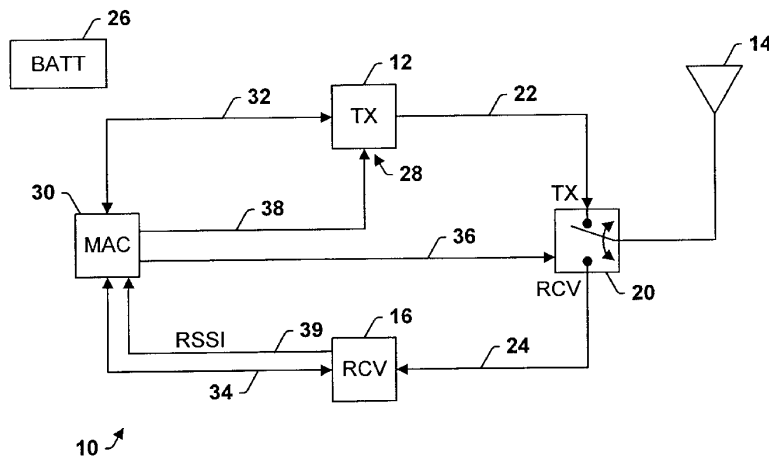
(58) **Field of Search** 375/220, 219, 375/222; 455/343, 574, 73, 31.1, 38.3

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43 Claims, 11 Drawing Sheets



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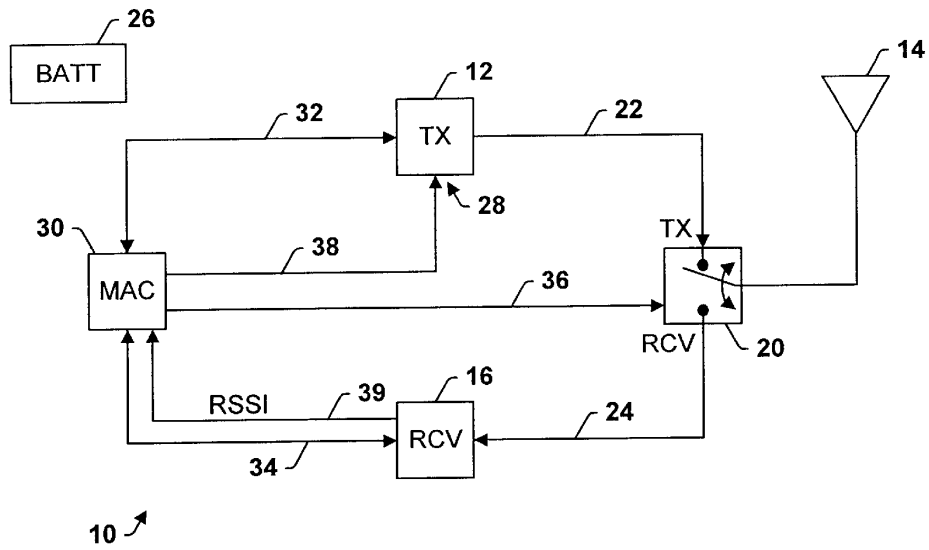


Fig. 1

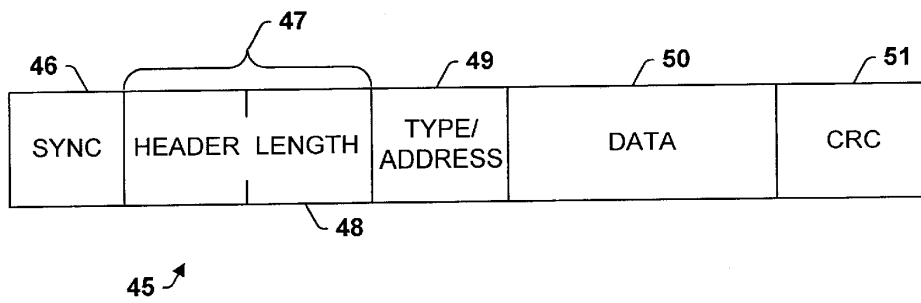


Fig. 2

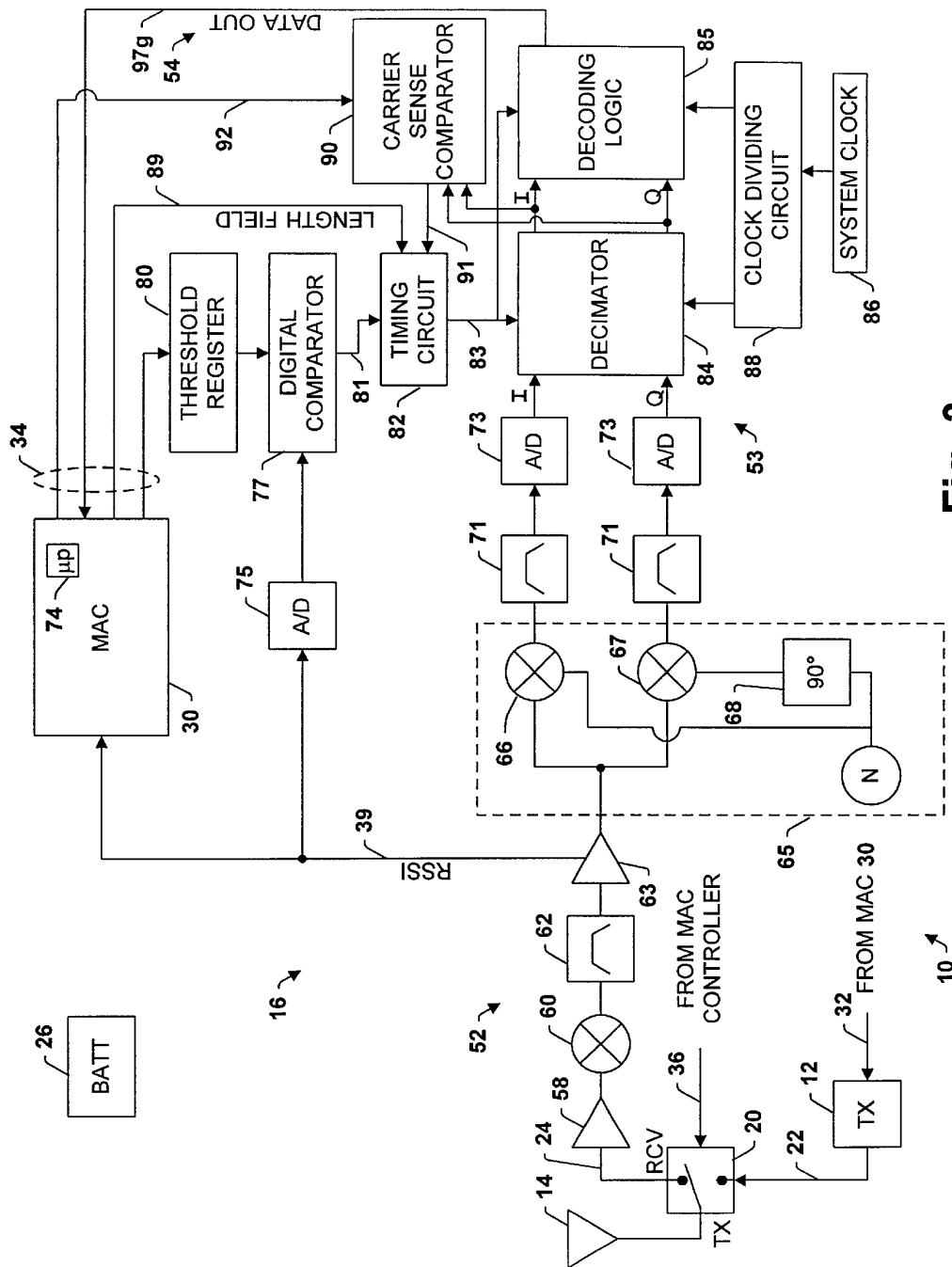


Fig. 3

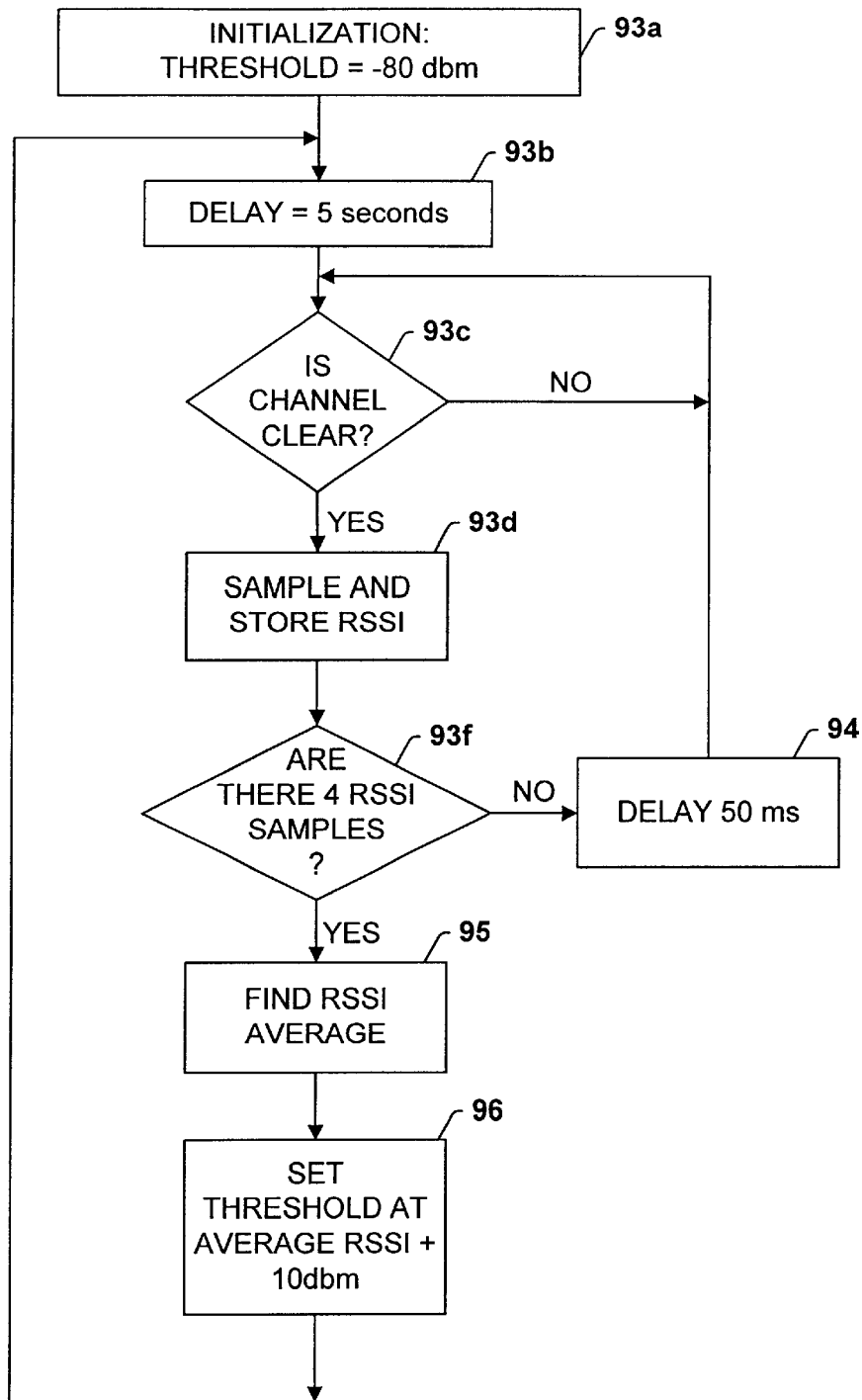


Fig. 4

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