

(12) **United States Patent**  
**Jenness**

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(54) **APPARATUS USING LOW SPECTRUM SELECTIVELY FOR PROVIDING BOTH ADSL AND POTS SERVICE**

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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.

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(22) Filed: **Feb. 12, 1999**

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

(52) U.S. Cl. .... **375/222; 375/219; 370/465; 370/468; 370/494; 370/495; 379/93.01; 379/93.09**

(58) **Field of Search** ..... **375/222, 220, 375/221, 232, 219; 370/487, 480, 203, 210, 465, 468, 484, 494, 495; 379/93.01, 93.08, 93.09, 93.28, 93.31**

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(57) **ABSTRACT**

Asymmetric Digital Subscriber Line (ADSL) data service and Plain Old Telephone Service (POTS) are provided over a subscriber loop by an ADSL transceiver and a control processor located in a local communication center, and a subscriber ADSL modem at the subscriber location. The control processor is responsive to a detection of an origination of a POTS call for generating a first control signal that causes the ADSL transceiver to load ADSL data into tone bins which are only in a frequency band above a predetermined frequency band used for a POTS call for data transmissions over the subscriber loop. The control processor is also responsive to a detection of a termination of a POTS call for generating a second control signal that causes the ADSL transceiver to load ADSL data into tone bins which are in both the predetermined frequency band used for a POTS call and the frequency band thereabove for ADSL data transmissions over the subscriber loop. The subscriber ADSL modem is responsive to third and fourth control signals received from the control processor and multiplexed into the ADSL data transmissions, to load ADSL data into tone bins which are only in a frequency band above a predetermined frequency band used for a POTS call, and load ADSL data into tone bins which are in both the predetermined frequency band used for a POTS call and the frequency band thereabove for ADSL data transmissions over the subscriber loop, respectively.

**20 Claims, 4 Drawing Sheets**

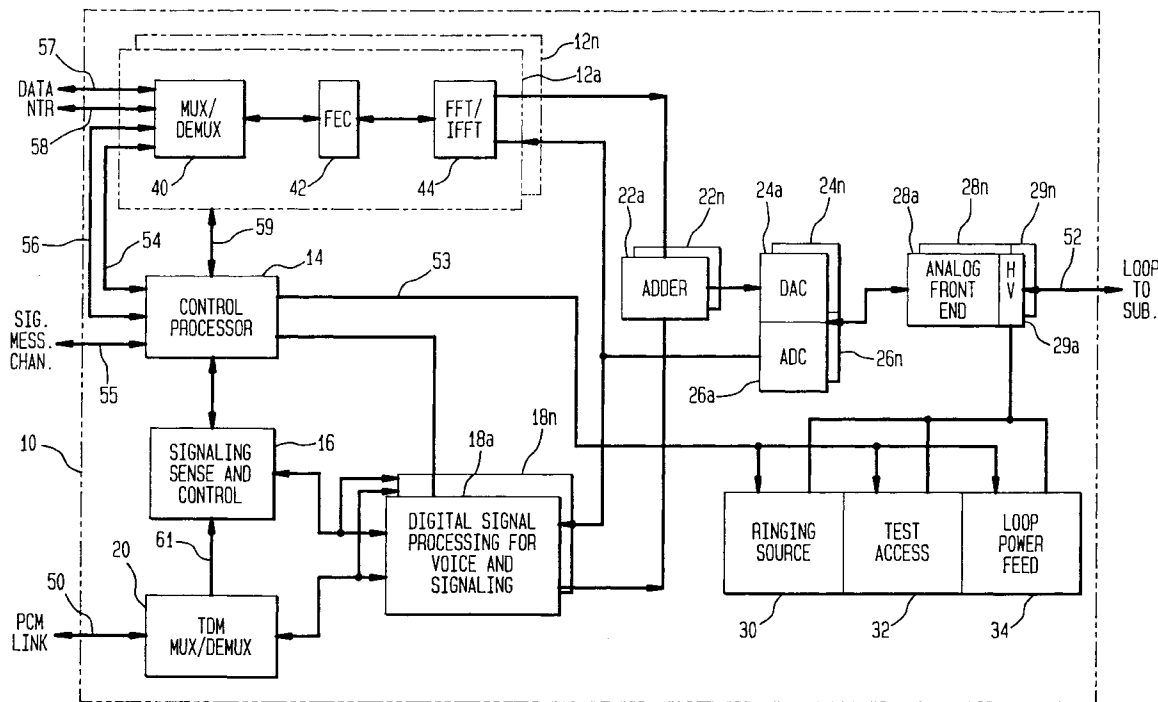


FIG. 1

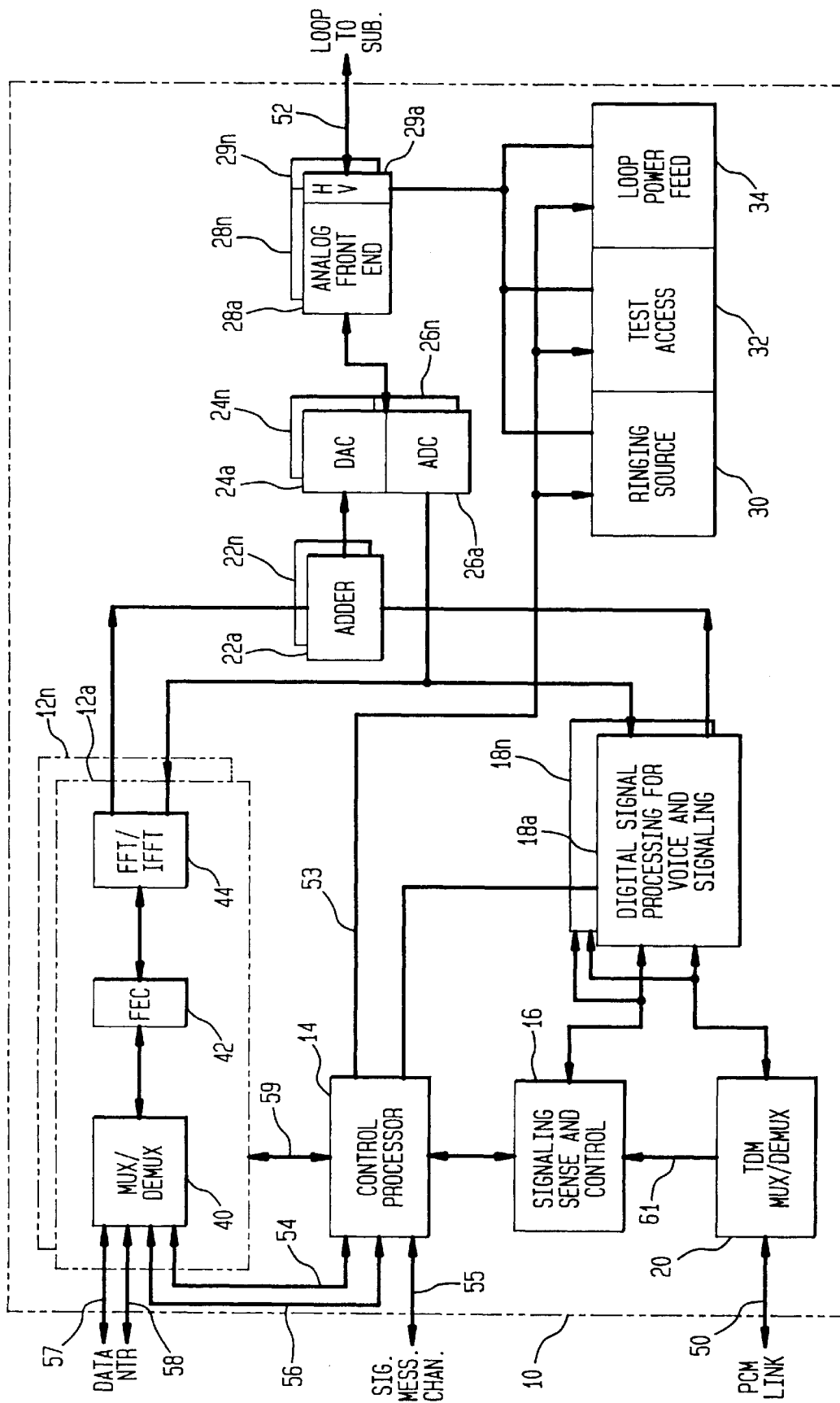


FIG. 2

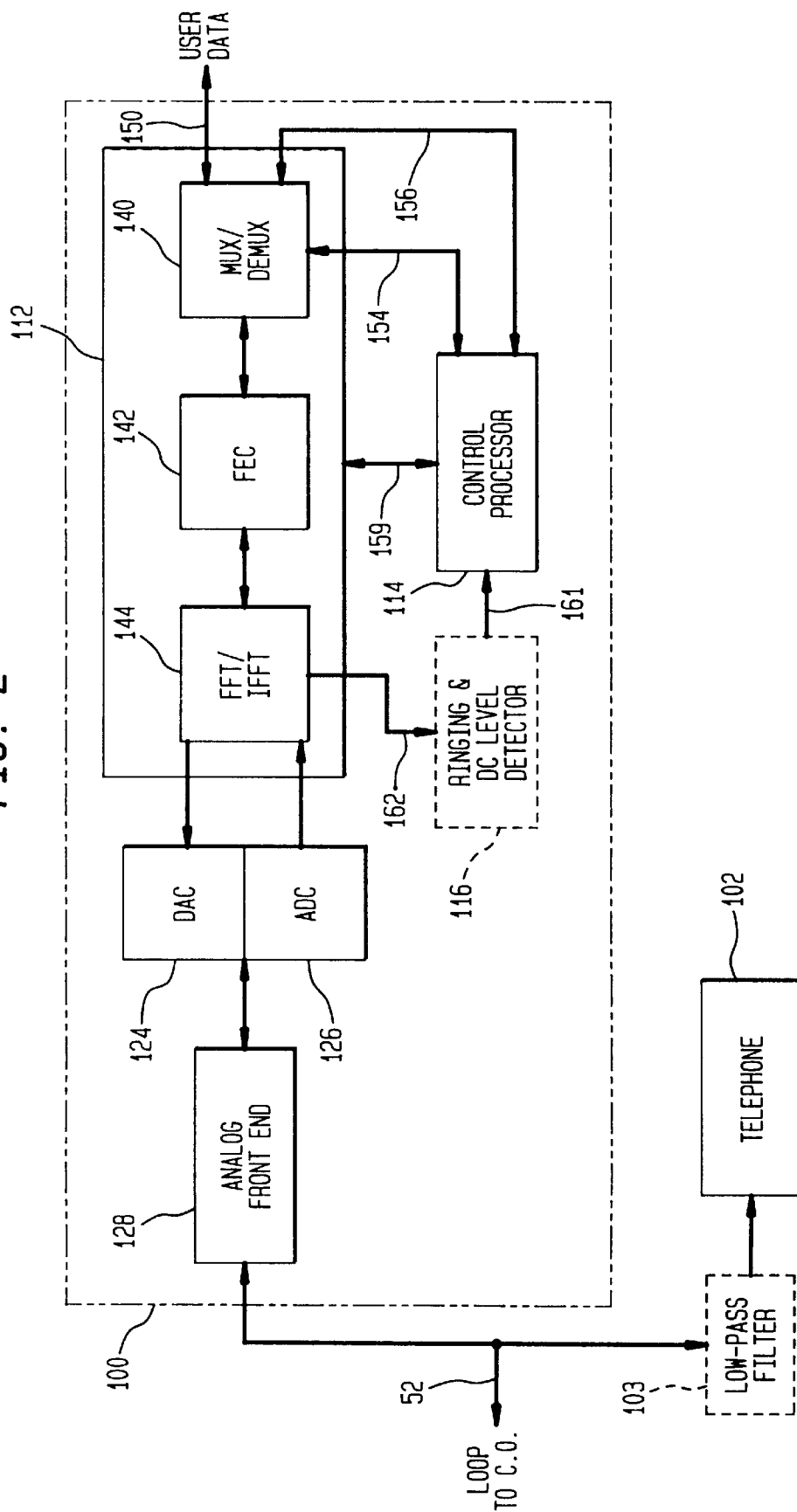


FIG. 3

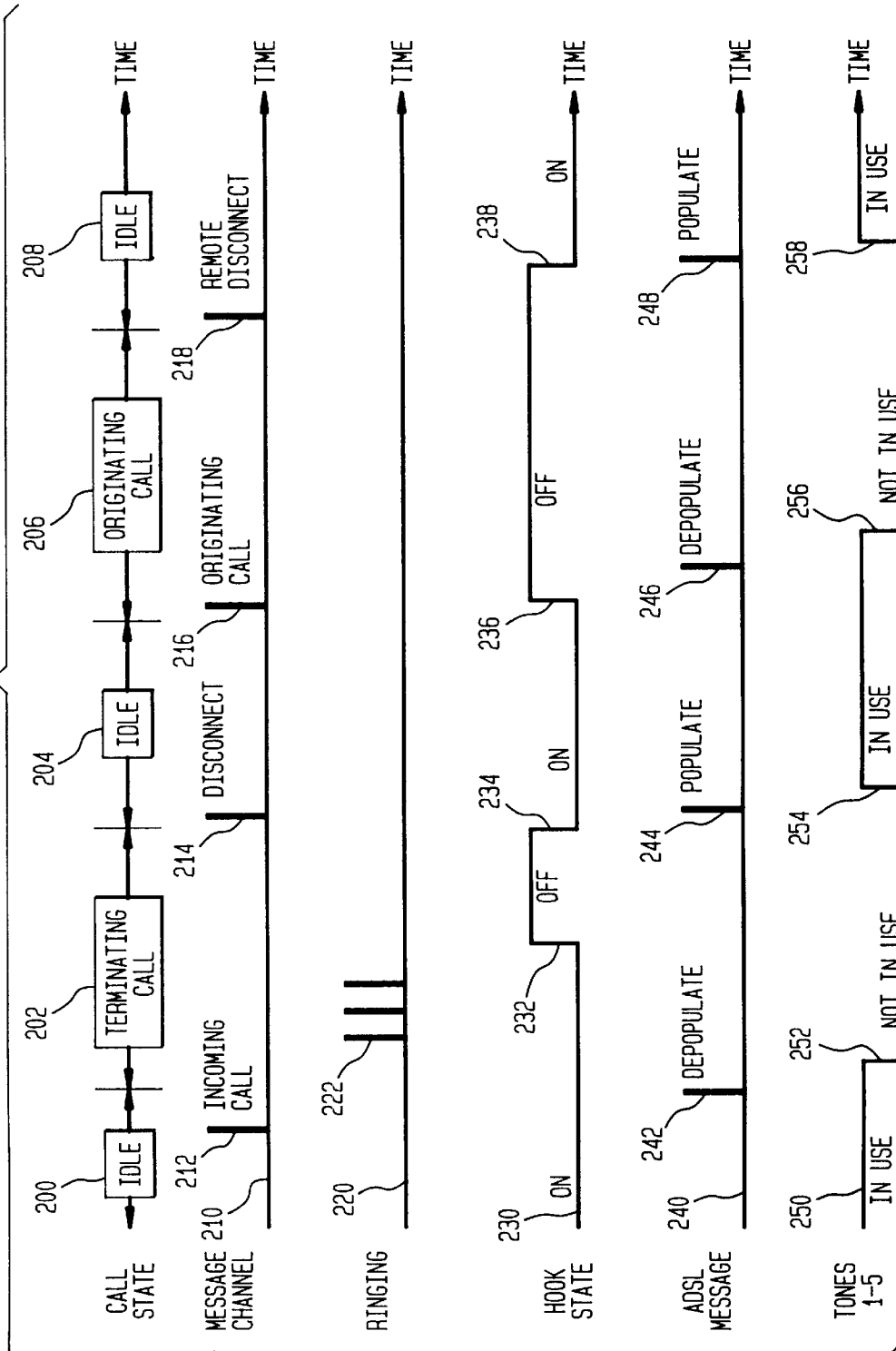
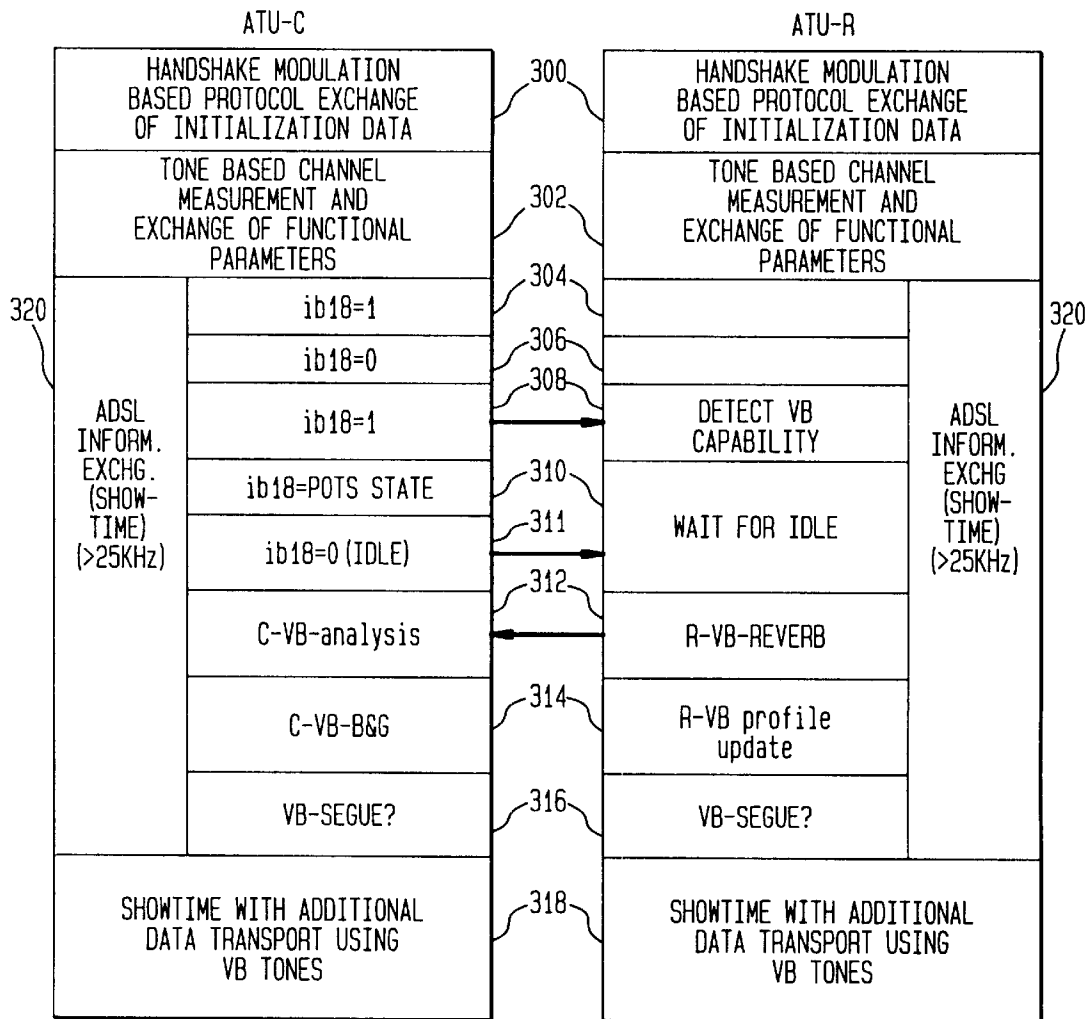


FIG. 4



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