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United States Patent [19]

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Thompson et al.

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[54] **FREQUENCY AGILE BROADBAND COMMUNICATIONS SYSTEM**

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(List continued on next page.)

[73] Assignee: **Scientific-Atlanta, Inc.**, Atlanta, Ga.

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[21] Appl. No.: **219,848**

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[22] Filed: **Mar. 30, 1994**

A Passive Optical/Coax Hybrid Network Architecture for Delivery of CATV, Telephony and Data Services; 1993. by M. Mesiya, pp. 358-364.

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 123,363, Sep. 17, 1993, Pat. No. 5,499,241.

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Attorney, Agent, or Firm—Jones & Askew

[51] Int. Cl.⁶ **H04J 1/00**
[52] U.S. Cl. **370/485; 370/524; 455/5.1; 455/6.1; 348/12**

[57] ABSTRACT

[58] **Field of Search** 348/12, 11, 14, 348/15; 370/69.1, 71, 73, 110.1, 112; 375/219, 222, 202; 455/5.1, 6.10, 4.1, 6.3, 6.2, 3.1

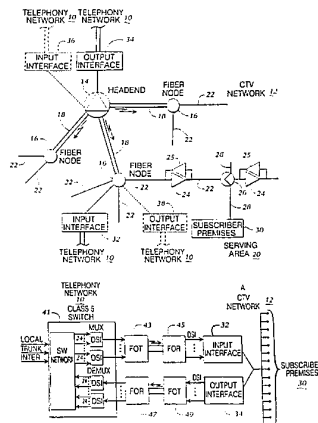
A broadband communications system for coupling telephony or other digital networks to a CATV network. The system transmits a multiplex of telephony signals in the forward band of the CATV network. Each forward channel is QPR modulated on a carrier and contains multiple subscriber telephony signals. The forward telephony channels are demodulated and demultiplexed by a plurality of subscriber terminals into the individual telephony signals directed to an addressed subscriber. Audio and control signals returning from the subscriber are digitized into standard telephony signals and QPSK modulated on a carrier onto the reverse band of the CATV network. The multiplicity of reverse band telephony channels are demodulated and multiplexed into a standard telephony signal which is directly interfaced to the telephony network. The reverse band modulators are frequency agile and modulate telephony signals from a subscriber in a selected one or more frequency subbands in the reverse band of the subscription network, so as to provide selectably changeable frequencies and selectably variable bandwidth in the reverse band commensurate with a selected subscriber communication feature. e.g. a single voice line, multiple voice lines, ISDN service, data communications services, security monitoring services, etc.

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113 Claims, 15 Drawing Sheets



Petitioner ARRIS Group, Inc.'s



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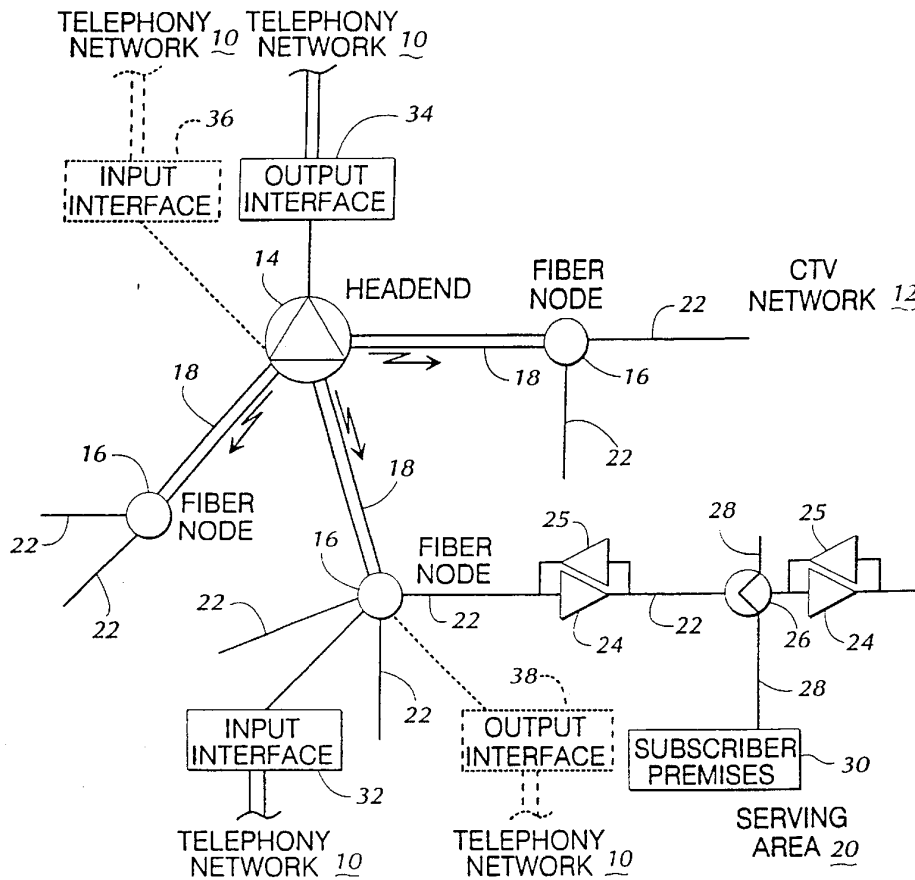


FIG. 1

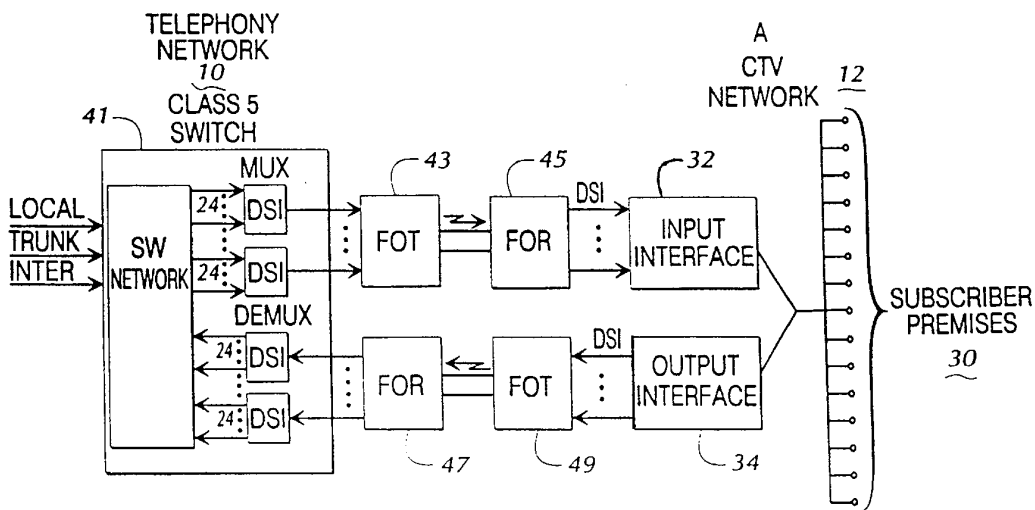


FIG. 2

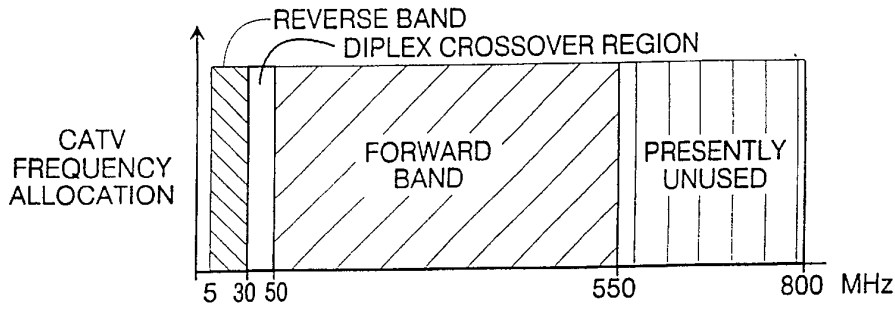


FIG. 3A

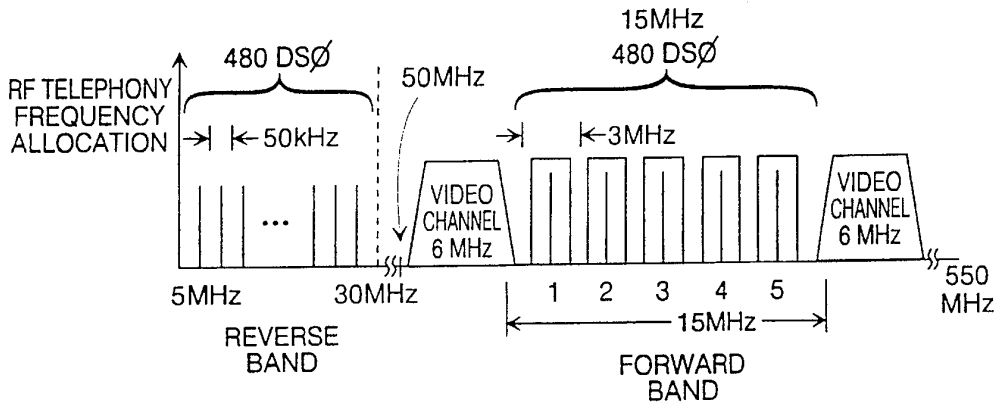


FIG. 3B

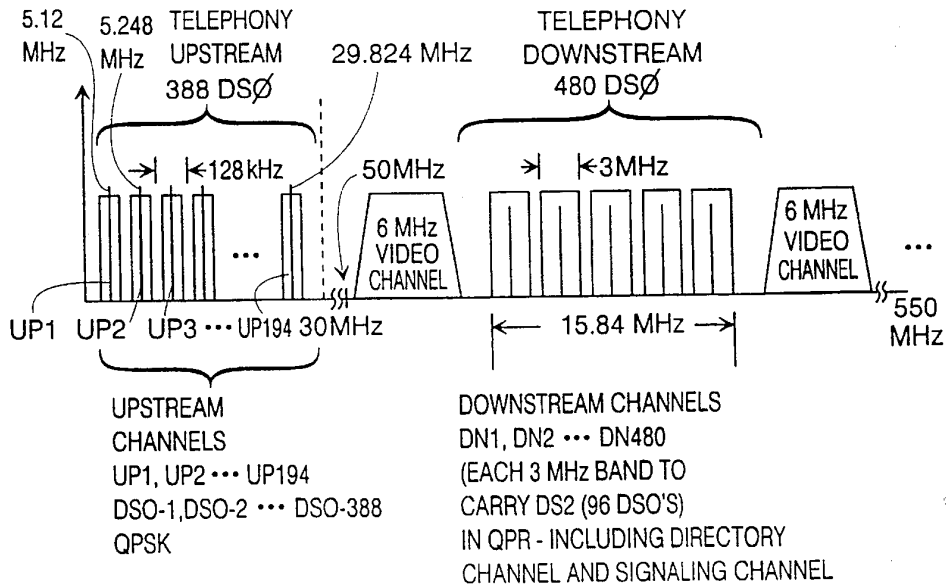


FIG. 3C

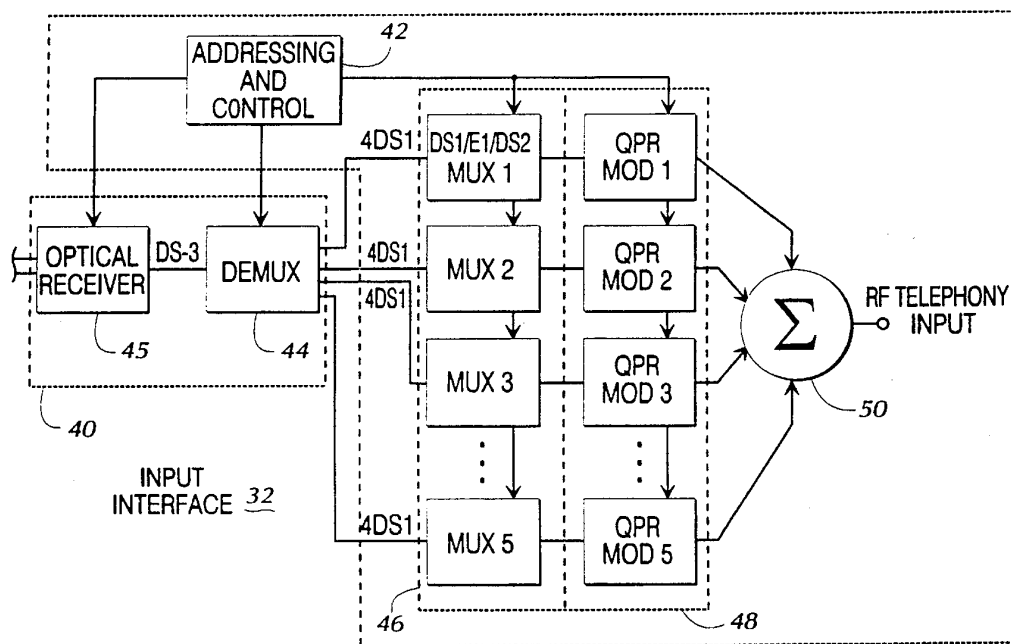


FIG. 4

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