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Rouquette

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[54] TWO-WIRE MULTI-CHANNEL STREAMER COMMUNICATION SYSTEM

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[73] Assignee: The Laitram Corporation, Harahan, La.

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[22] Filed: Jan. 24, 1992

[51] Int. Cl.⁵ G01V 1/22

[52] U.S. Cl. 367/76

[58] Field of Search 367/20, 76, 80; 340/870.18, 870.26, 854.9

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Primary Examiner—Ian J. Lobo

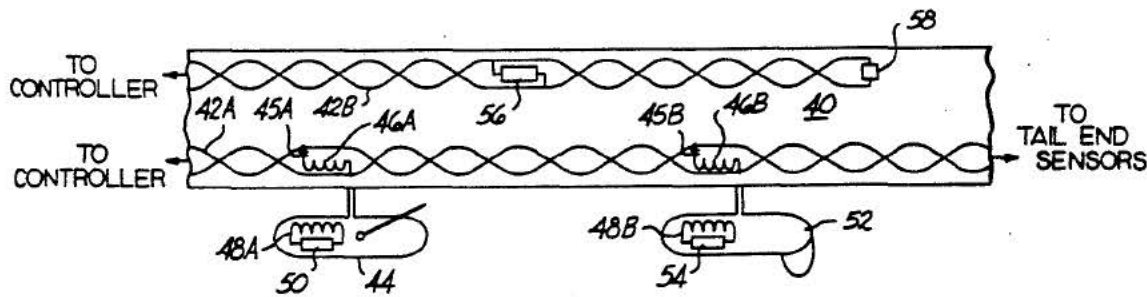
Attorney, Agent, or Firm—James T. Cronvich

[57] ABSTRACT

For use with marine seismic streamers, a two-wire, multi-channel communication system capable of handling the high throughput necessary for effective communication between a central controller aboard a tow vessel and the many sensors deployed along the

streamer. The central controller includes an intelligent modem with the capability of transmitting and receiving frequency-modulated message signals on one or more signal lines, such as conventional twisted-pair wires, over a number of individual inbound and outbound frequency channels. In the preferred embodiment, seventeen channels are spread over a frequency band ranging from about 20 kHz to 100 kHz, thereby making available for communication a bandwidth much wider than available in conventional single-channel streamer communication. In this way, many positioning sensors, such as compasses, depth sensors, cable-leveling birds, and acoustic-ranging transceivers, attached to the streamer and each having a transmitter and receiver tuned to one of the modem's inbound and outbound channels, respectively, can be put in communication with the modem. To take advantage of its high throughput capability, the intelligent modem refers to a stored table of individual sensor parameters, such as sensor type, transmit channel, and receive channel, to schedule an efficient scan of the sensors. As a diagnostic tool, the communication system also monitors the quality and performance of the communication link by measuring and recording such parameters as the transmitted and received signal strengths, signal-to-noise ratios, and number of incorrectly received messages.

25 Claims, 9 Drawing Sheets



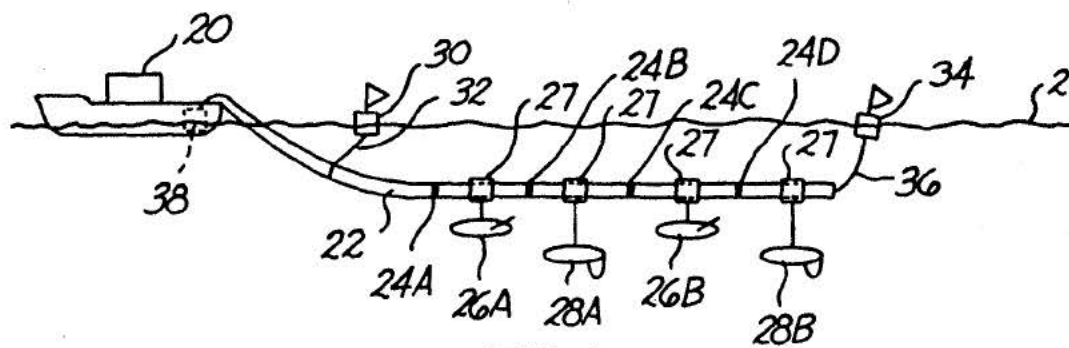


FIG. 1

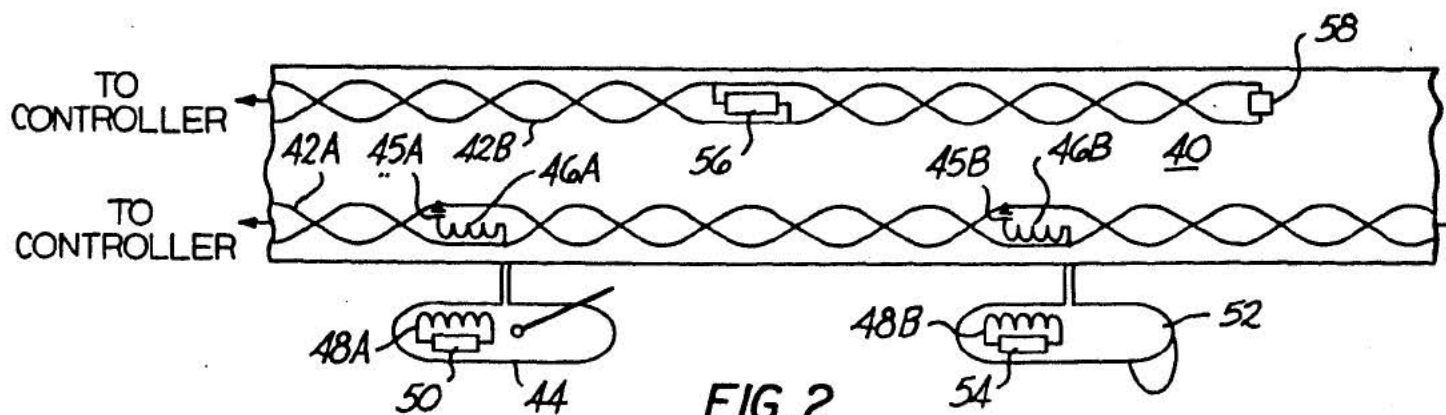


FIG. 2

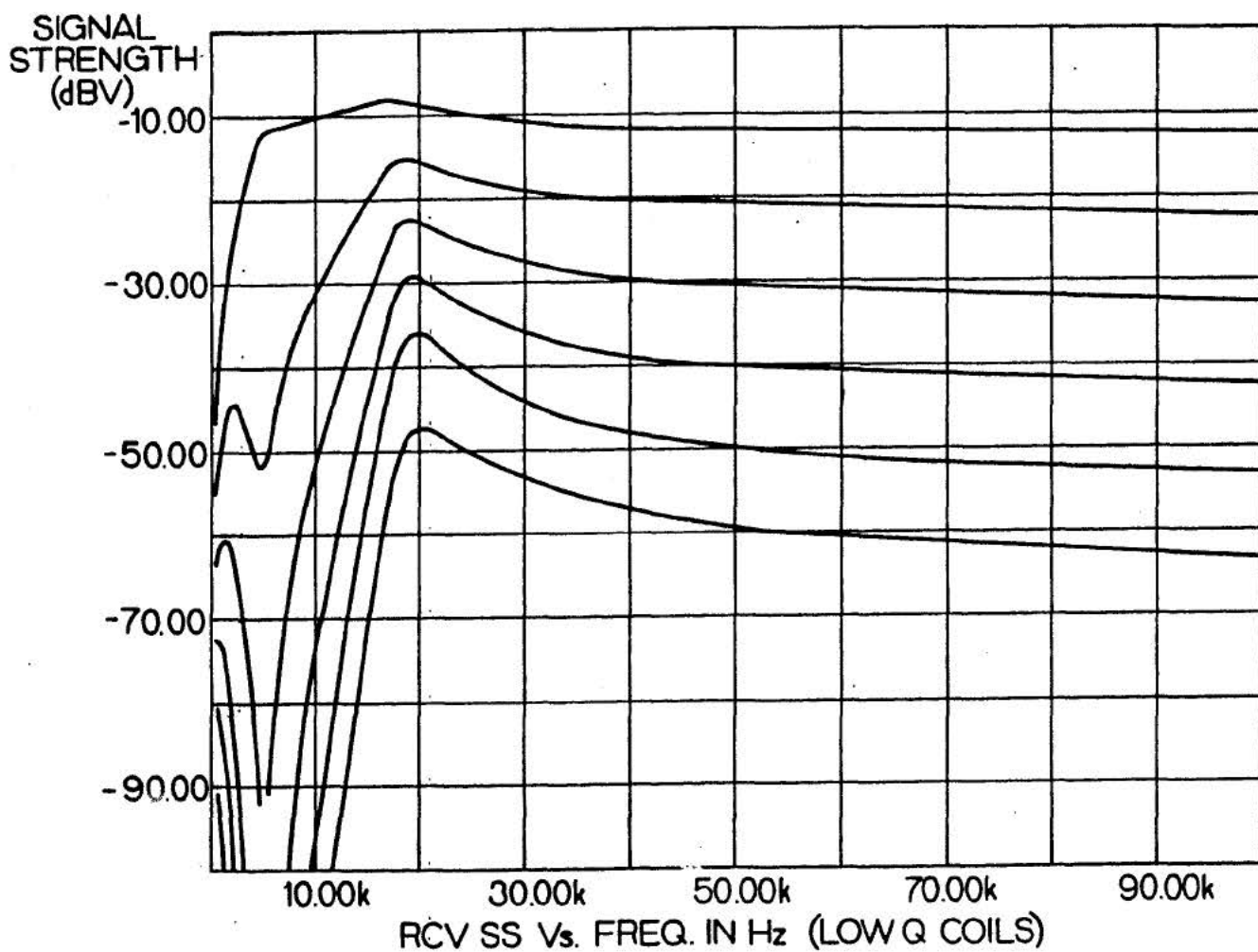


FIG. 3A

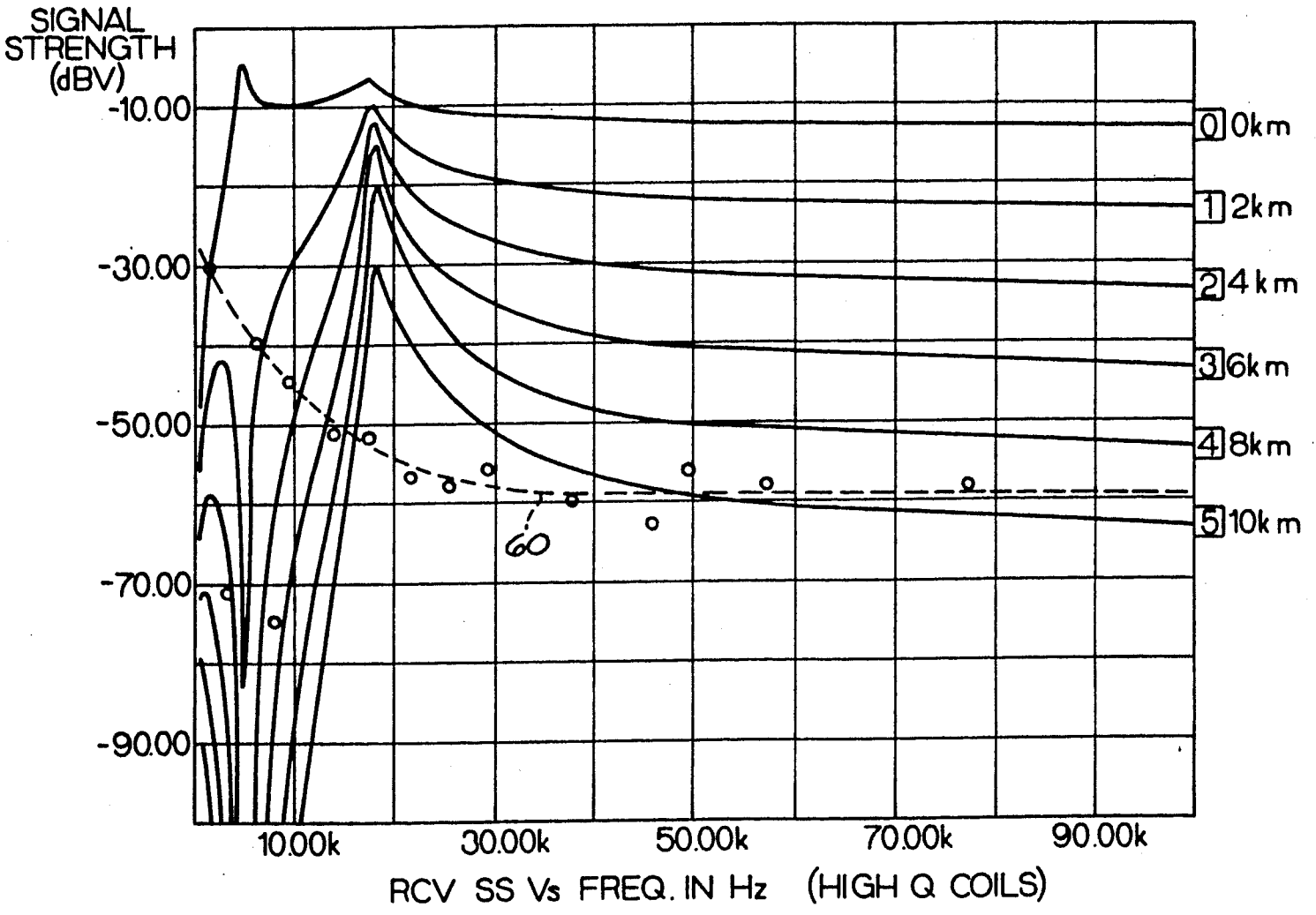


FIG. 3B

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