Development of new high-precision technology for echo sounding in acoustic multimode wave guides and creation of hardware&software complex for its implementation.

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Results

The aim of work are creation and introduction of hardwarily-programmatic complex with the increased exactness of echolocation of fuel in the tanks of trucks and level of underwaters through pipe waveguides with the use of normal waves.

As a research method is used computer design of echolocation in waveguides on normal waves, experimental design on the laboratory model of complex.

For the working method of measuring of level of liquid the new acoustic impulsive method of sounding is select with the use of eho-sound two and more normal waves which spread in pipe waveguides, and optimal algorithms of their sentinel treatment. Advantage of this method is absence of dependence of measuring results from speed of sound in the environment of distribution of waves.

Using the theory of normal waves the acoustic field is first expected in interpipe space of mining holes, which shows by itself an acoustic waveguide with round hard границями. A working frequency range is select for the acoustic sounding. The base algorithm of echolocation is created, that allows to realize the computer model of process of exposure of eho-sound of normal waves of higher orders, from реперів and level of liquid.

It is worked out and inculcated in exploitation on the enterprises of joint-stock COMPANY "Obolon" and ПДРГП "Північгеологія" acoustic level of "Aqva-01" for measuring of level of liquid in artesian mining holes. The hardwarily-programmatic complex of waveguide type is worked out for determination of level combustible in the tanks of trucks. Separate knots and blocks of complex, which are successfully tested in laboratory terms, are created.

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