

Multi-frequency Scintillation Method of Range-Dependent Transversal Current Monitoring.

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Abstract: Transverse flow of inhomogeneous current produces fluctuation of the acoustic signal passing through it. These fluctuations vary with the signal frequency change due to variation of the Fresnel zone. Respectively, the fluctuations of signals at two different frequencies are coherent in a low frequency range of the spectrum and non-coherent in the high-frequency band when ocean inhomogeneous will be smaller then the transverse dimension of Fresnel area cross-section. Frequency cutoff of coherence function of the signals at different frequencies depends on a current flow spatial distribution. For the signal consisting of n different frequencies one can $n(n-1)/2$ independent equations for definition of spatial current flow profile. The comparison to the experiment allows to estimate the method accuracy.