

IKOS METER FOR MEASURING THE EXTINCTION COEFFICIENT FOR LIGHT

A new instrument for determining spectral extinction coefficients and metrological visibility ranges on horizontal above-water paths on land and sea has been developed at the Institute of Atmospheric Optics of the Siberian Branch of the Academy of Sciences of the USSR.

The meter operates based on the principle of determining the atmospheric turbidity from the degree of diffuseness of the horizon of the sea. In order to ensure efficient ship-board operation the angular distribution of the brightness of the horizon is measured with the help of a multielement photodetector followed by analog-to-digital processing of signals and calculation of the visibility range with the help of an

original algorithm in a built-in microprocessor.

The instrument is designed for investigation and monitoring of the optical and meteorological state of the atmosphere on the vessels of the Hydrometeorological Service and the Environmental Protection Service as well as at ground-based meteorological posts and buoys and in seaports.

The advantages of the instrument lie in the fact that measurements can be performed on extended paths which are not subject to the distorted local action of the "ship" atmosphere. Compared with its analogs, the IKOS meter is completely automatic, its mass-to-size ratios are several times better, and it requires less power.

TECHNICAL CHARACTERISTICS:

range of measurable extinction coefficients not, less than, km^{-1}	0.1–2
range of measurement of visibility range, not less than, km	2–40
measurement error in the range, %	5–50
spectral range of operation, μm	0.4–1
minimum illumination required for operation, lux	10
power requirements, $V \cdot A$	5
mass, kg	5