

METHOD OF TRANSMITTING THE COORDINATES OF THE TOTAL STATION TO THE POINTS OF THE INTERNAL CENTRAL NETWORK OF AN ENGINEERING CONSTRUCTION

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When creating an external planning and high-altitude justification on construction sites, and then internal center networks for the purpose of transmitting coordinates in a number of cases, geodetic measurements are performed through an optical medium, which in some areas has a different refractive index. This is the case when performing such measurements in the winter season, when the transmission is made through the technological gate of the temporary end of an engineering structure, for example, a nuclear or thermal power plant. The disadvantage of this method is the influence of significant air turbulence at the border of a sharp temperature drop in winter. To eliminate this influence, it is proposed to transmit coordinates inside the engineering structure through window openings. In this case, the total station can be located inside the engineering structure or outside it. When implementing the proposed method, the influence of a sharp temperature drop on the measurement results is almost completely excluded. Studies have established that when the coordinates are transmitted through the glass to the points of internal justification, a parallel transfer of the sighting beam occurs. To exclude it, the sighting must be performed at the horizontal position of the total station telescope. The article presents the results of studies of the accuracy of measuring distances and angles when the sighting (laser) beam of the total station passes through two optical media (air-glass-air) at different air temperature differences.

Keywords: total station, determination of coordinates, temperature difference, refractive index of optical media

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