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# POLAR CHARACTERISTIC OF ENERGETIC INTENSITY EMITTED BY AN ANISOTROPIC THERMAL SOURCE IRREGULARLY SHAPED

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**Rezumat.** *Lucrarea prezintă o metodă analitică de calcul al distribuţiei spaţiale de intensitate energetică emisă de o sursă termică anizotropă. Problema diferitelor sisteme de localizare a ţintei este calculul iradianţei produse de ţintă într-un punct situat pe o direcţie de observaţie dată. Problema poate fi soluţionată prin utilizarea caracteristicii* $I(\varphi,\theta)$.

**Abstract.** *The paper presents an analytical method to compute the spatial distribution of the energetic intensity emitted by an anisotropic thermal source. The essential problem of different target location systems is the calculus of the irradiance produced by the target in a point on the observation direction. The problem is solvable using the characteristic* $I(\varphi,\theta)$.

**Key words:** locating system**,** anisotropic source, energetic intensity distribution

## 1. Introduction

The calculus of any locating system begins with the evaluation of the energetic intensity $I_e$, emitted by the target along the receiver's direction [1], [2].

Generally, the energetic intensity calculus is a difficult problem, because the characteristics of the radiation depend on many parameters (nature and temperature of the target, roughness, degree of corrosion, orientation in respect with the receiver). Considering a spatial polar reference system (fig.1), the energetic intensity is a function depending on the coordinates $(\varphi,\theta)$:

$$I_e = I(\varphi,\theta) \tag{1}$$

and represents the spatial distribution of intensity.

As the graphical representation of the function $I_e = I(\varphi,\theta)$ is difficult, a family of curves obtained for $\theta =$ ct. or $\varphi =$ ct., is used.

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