

MULTIPURPOSE ENERGY CONCENTRATOR

ABSTRACT

The invention relates to antenna design and may be used in a variety of devices operating within a wide waveband range, including visible, UV, IR, shortwave, UHF, VHF, and other wavebands.

The technical effect achieved by the present invention is making the device multifunctional, small, durable, economical, and efficient.

The above technical effect is achieved in a multipurpose energy concentrator comprising a reflector and a radiation source or receiver, wherein the reflector is at least a part of the surface of a solid of revolution, and the radiation source or receiver is a distributed system of active or passive elements, respectively, positioned at an identical distance from the reflector equal to between 0.3 and 0.5 of the radius of curvature thereof. Furthermore, the reflector may be in the shape of a cylindrical surface or a segment thereof, or a spherical surface or a truncated segment thereof, or a reflector cross-section in one, first plane may be an arc of a circle, and second-order curves in planes normal to the first plane, or the offset part of a sphere or a parabola may be used in the vertical plane. In this case, the reflector surface may be a solid of revolution in the form of two ellipses in cross-section joined such that each of the ellipses has one of the foci thereof at the axis of the solid of revolution, and the other focus of the ellipse has a distributed system of active or passive elements positioned therein.

The above technical effect may further be achieved by providing active elements of different power ratings in said distributed system. Moreover, continuous-action irradiators or receivers may be used as active or passive elements. The device may further be provided with at least one reflector and at least one radiation source or receiver, the radiation source or receiver being capable of rotating, and the reflector and the radiation source or receiver being capable of rotating simultaneously.

Fig. 1