# A MULTIPURPOSE DEVICE FOR TRANSMITTING RADIATION FROM A SOURCE TO AN OBJECT

## ABSTRACT

The invention relates to an antenna design and may be used for effectively concentrating radiation emitted by a distributed source on an object placed in the focal area of the antenna.

The technical result achieved by the use of the claimed invention consists in greater efficiency of radiation transmission from a source to an object, the possibility of radiation power variation, a more uniform concentration of radiation, a significant increase in the volume of the focal area without replacing the radiation source itself, increased reliability of the system, and reduced power requirements.

The claimed technical result is achieved in a multipurpose device for transmitting radiation from a source to an object comprising two antennas, each designed as a truncated segment of a spherical or cylindrical surface, a radiation source provided in the aperture plane of one of the antennas, and an object placed in the combined focal area of the two antennas. The antennas are positioned opposite one another at a distance of 0.6 to double the radius of the spherical or cylindrical surface, and the radiation source is of a distributed type.

The device may further be provided with at least one additional pair of antennas positioned opposite one another at a distance of 0.6 to double the radius of the spherical or cylindrical surface in a plane normal to the plane of the first pair of antennas. In this embodiment, the combined focal area of two or three pairs of antennas has the shape of a three-dimensional cross or a three-coordinate cross, respectively.

Furthermore, the device may be provided additionally with a second radiation source in the aperture plane of the second antenna in each pair of antennas.

A single spherical or cylindrical antenna may also be used in one plane and a single distributed source may be placed in the aperture of each antenna. In this embodiment, the object is placed in the focal area of these antennas.

Fig. 1