

# APERTURE DIFFRACTION RADIATION ANTENNA WITH COSECANT RADIATION PATTERN



Diffraction radiation antenna as a part of radar complex

## Areas of Application

The antenna is to be used in surveillance radar stations with different bases for ground, water or airspace observing. It provides the receiving of constant object detection signal at variable elevation angle.

## Stage of Development

IRL 6, TRL 4.

Custom design and manufacture of device.

## IPR Protection

IPR2

## Specification

Frequency band – 35–45 GHz

Aperture – 2000×200 mm

Dimensions – 2200×260×120 mm

Beamwidth:

- in azimuth plane (on -3 dB level) –  $2\Delta\theta = 0,3^\circ$ ;
- in elevation plane (on -3 dB level) –  $2\Delta\varphi = 5^\circ$ ,  
(on -30 dB level) –  $2\Delta\varphi = 35^\circ$ .  
(cosecant radiation pattern).

Side lobe level – -18 dB.

Gain – 42 dB.

Total losses – <4,2 dB.

## Advantages

Application variety of diffraction radiation antennas in millimeter and submillimeter range radio complexes. Design for manufacturability of antenna construction. Easy adjustment.

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