PASSIVE IMAGING SYSTEM IN THE MILLIMETER WAVE BAND

Areas of Application

Passive (radio-thermal) imaging system in the millimeter wave (MMW) band is intended for people inspection and supervision in the interests of security and customs services when detecting various objects hidden on the human body under clothing. It may also be used in medical studies of human skin conditions at the presence of burn injuries without removal of medical bandages.

Specification

Frequency band:	86-100 GHz (W-band).
Number of beams:	64.
Focal length / (pixel size):	
	6 m / (60 mm),
	3 m / (30 mm),
	1.5 m / (15 mm),
	0.8 m / (8 mm).
Sensitivity*: 1-2	K (* - may be improved).
Polarization of radiation:	linear horizontal.
Image speed:	4 / s.
Power consumption:	100 watts.

Advantages

Unlike similar imaging systems the beams forming in the flat diffraction type antenna is carried out by division of the operational frequency band on sub-bands when using only one MMX amplifier that greatly reduces total cost of the system. Scanning in space of the multi-beam directional pattern of the antenna is carried out due to it mechanical rotation around horizontal axis. High productivity and relatively low cost of manufacturing.

Additional information with detailed system description: www.ire.kharkov.ua/p389



W-band 64-beam imaging system for people supervision with rotating diffraction type antenna



Examples of radio-thermal images of people at W-band

Stage of Development

IRL6, TRL5

Working prototype is developed, which may be additionally improved. Product with experimental level of functionality may be proposed on the markets.

IPR Protection

IPR3

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