

OSA Airborne Radar

The Osa radar is designed to guide active and semi-active radar-homing and heat-seeking missiles. It can provide combined operation of the air-to-air and air-to-surface channels.

In the air-to-air mode the Osa radar detects targets by their speed, measures their range, provides discrete target tracking with alternable target illumination frequency, track-while-scan, vertical, wide-angle, and cruciform fixed-beam search, and HUD target search. The radar system also provides missile launches and semi-automatic flight control during multiple target attacks.

In the air-to-surface mode the Osa has the "sea" and "micro-plan" modes, and is capable



of real-beam mapping, covert detection with variable range resolution, two-target track-while-scan, moving target indication and target range finding.

Basic specifications

Frequency band	X
Deviation angle, deg:	
azimuth	± 60
elevation	± 60
Air target detection range (RCS = 5 m ²)	85
Number of simultaneously tracked targets	8
Number of simultaneously attacked targets	4
Weight, kg	120
Volume, dm ³	150
Power consumption AC/DC, kVA	3.6/0.5

BARS Airborne Radar



The Bars radar features a phased array with additional mechanical azimuth deflection, and electronic azimuth and elevation scanning.

The radar provides detection, tracking and attack of air and ground/surface targets, while continuing airspace surveillance; supports dog-fighting; identifies types and number of air-

borne targets; provides mapping with zooming and "freezing" modes, moving ground/surface target indication and coordinates measurement.

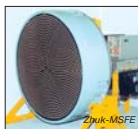
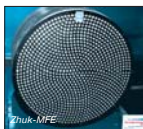
The Bars provides guidance of RVV-AE, R-27, R-73E, and Kh-31A missiles.

Basic specifications

Frequency band	X
Detection sector, deg:	
azimuth	± 70
elevation	± 45
Target detection range, km:	
air-to-air mode	60-140
air-to-surface mode	40-150
Number of simultaneously tracked targets	not more than 15
Number of simultaneously attacked targets	4

ZHUK Family

Airborne Radars



The Zhuk is a multifunction coherent radar designed for multi-role aircraft (MiG-29 and Su-27 fighters).

As part of the avionics suite, the Zhuk airborne radar ensures:

In the air-to-air mode:

- lookup/lookdown detection of air targets and measurement of the angular coordinates, range and speed
- tracking of single and clustered targets
- tracking of a clustered air target and attack of several most dangerous single targets
- lock-on and tracking of visual target for dogfight
- detection and engagement of helicopters, including hovering ones

- identification of target types and classes
- identification of clustered target and determination of its composition
- detection of dangerous weather phenomena.

In the air-to-surface mode:

- ground mapping at a resolution of up to 3 x 3 m (with zooming and "freezing" modes)
- simultaneous tracking of several ground (surface) targets
- detection and tracking of moving ground (surface) targets
- measurement of slant visual range to ground (surface) targets
- information support of low-altitude flight.

Basic specifications

	Zhuk-ME	Zhuk-MFE	Zhuk-MSE	Zhuk-MSFE
Air-to-air mode				
<i>Air target detection range</i>				
<i>(RCS = 5 m²), km:</i>				
<i>forward/rear hemisphere</i>	110 to 120/ 45 to 50	100 to 110/ 45 to 50	180 to 190/ 65 to 70	170 to 180/ 55 to 60
<i>Scanning sector, deg:</i>				
<i>azimuth</i>	±85	±70	±85	±70
<i>slant</i>	+56 to -40	±70	+56 to -40	±70
<i>Number of simultaneously tracked/attacked air targets</i>	to 10/4	to 20/4	to 10/4	to 30/6
Air-to-surface mode				
<i>Ground (surface) target detection range, km:</i>				
<i>group of tanks /railway bridge</i>	25/120	25/120	30/130	30/130
<i>motor boat/destroyer</i>	150/300	150/300	150/300	150/300
<i>Number of simultaneously tracked</i>				
<i>ground (surface) targets</i>	to 2	to 2	to 2	to 4
<i>Antenna type</i>	SA	PA	SA	PA
<i>Antenna diameter, mm</i>	624	700	960	980
<i>Weight, kg</i>	220	285	255	305

KOPYO-211/KOPYO-M

Unified Airborne Radars

The Kopyo is a multimode coherent radar designed for combat aircraft.

Under normal and adverse weather conditions, the Kopyo airborne radar ensures:

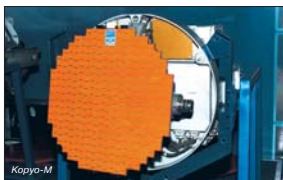
In the air-to-air mode:

- lookup/lookdown detection, lock-on and tracking of single air target
- simultaneous while-scan tracking of several air targets and discrimination of the most dangerous of them in airspace surveillance
- detection and engagement of helicopters, including hovering ones

- information support in combat
- identification of target types and determination of their number
- detection of dangerous weather phenomena.

In the air-to-surface mode:

- ground mapping with zooming and "freezing" modes
- simultaneous tracking of several ground targets
- detection and tracking of moving ground (surface) targets
- measurement of slant visual range to ground (surface) targets.



Basic specifications

	Kopyo-211	Kopyo-M
Air-to-air mode		
Detection range:		
Air target, RCS = 5 m ² , km		
lookup:		
forward/rear hemisphere	57/30	80/40
lookdown:		
forward/rear hemisphere	57/25	80/40
Scanning sector, deg:		
azimuth	±40	±60
elevation	±40	+60 to -40
Number of simultaneously tracked/attacked targets	8/2	10/2
Air-to-surface mode		
Ground (surface) target detection range, km:		
group of tanks/railway bridge	20/80	25/100
motor boat/destroyer	100/200	80/150
Number of simultaneously tracked ground (surface) targets:	2	2
Antenna type	SA	SA
Antenna diameter, mm	500	500
Weight, kg	100	85

KOPYO-25

Airborne Radar



The Kopyo-25 is a multimode radar designed for the Su-25 family aircraft (installed in suspended under-wing unit).

Under normal and adverse weather conditions, the Kopyo-25 airborne radar ensures:

In the air-to-surface mode:

- ground mapping at a resolution of up to 6 x 6 m (with zooming and "freezing" modes and aircraft targeting)
- simultaneous tracking of several ground targets
- sea-surface surveillance
- detection and tracking of moving ground (surface) targets

- generation of the aircraft control signals when attacking ground (surface) targets
- generation of mission tasks for guided missiles of the air-to-surface class
- measurement of slant visual range to ground (surface) targets
- information support of low-altitude flight.

In the air-to-air mode:

- lookup/lookdown detection of air targets
- continuous tracking of single targets
- lock-on and simultaneous tracking of several air targets within the scanning sector
- detection of helicopters, including hovering ones
- determination of air target coordinates and generation of mission tasks for air-to-air guided missiles, as well as signals and commands for fire control system
- information support for attacking aircraft and using guided heat-seeking missiles
- identification of target types and determination of their number in the tracking mode
- detection of dangerous weather phenomena.

Basic specifications

Air-to-surface mode

Detection range, km:

sea targets (RCS=300 m²) 75

columns of armored vehicles 25 to 30

Number of simultaneously tracked

ground (surface) targets: 2

Air-to-air mode

Lookdown air target detection range (RCS=5 m²), km

forward hemisphere/

rear hemisphere 70/35

Number of simultaneously tracked/

attacked targets 10/2

Antenna type SA

Antenna diameter, mm 500

Weight, kg 90