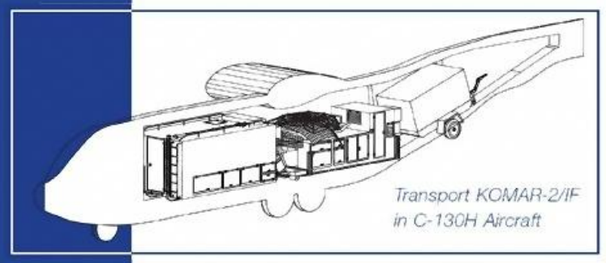
MOBILE AIRFIELD RADAR KOMAR-2/IF

Mobile Surveillance Approach Radar KOMAR-2/IF

To meet the present and future demands of mobile Surveillance-approach radar, T-CZ has combined its expertise in Primary Surveillance Radar (PSR), Precision Approach Radar (PAR), Secondary Surveillance Radar (SSR) technology and data processing to develop the Mobile Surveillance-Approach Radar produced under code name KOMAR-2. The increasing demands on easy and economical transportation with fast deployment raised by Air Forces from several countries resulted into the container based version of **KOMAR-2** called **KOMAR-2/IF** (Integrated Flatrack).

KOMAR-2/IF is highly mobile fully autonomous radar system developed for air traffic control and navigation designed to meet both military and civil applications. Due to its capability to cover 120 km range with SSR system, 60 km range with PSR system and 25 km range with PAR system KOMAR-2/IF is highly priced mobile radar. The Radar can be employed to meet numerous operational needs expected from tactical systems - high mobility, combined surveillance and approach system and effective ECCM measures. Radar KOMAR-2/IF can operate in various combat environments under activity of Low/Fast Attacker, Jammers, including various Environmental factor as ground clutter, clouds and rain. The Radar is able to cooperate with other NATO standardized Radar network. Intercommunication protocol can be designed to customers needs.



Transport KOMAR-2/IF in C-130H Aircraft

Modular Design

KOMAR-2/IF has a modular design permitting progressive updates and interface changes according to customers needs. The complete radar consists of two shelters

- Antenna Unit
- Operation Center

All equipment is self-contained. There are minimal or no site preparation requirements. Radar system could be assembled to full operation with four persons within 30 minutes. Both the Operation center and Antenna Unit could be operated without unloading from the trucks.





Antenna Unit

The Antenna Unit is designed in form of stabilized shelter equipped with FLAT loading provision. This unit contains:

- Integral azimuth antenna for PSR, SSR, PAR
- Elevation antenna for PAR
- Antenna Subsystems
- Transmitter-Receiver Subsystems
- Interrogator Subsystems
- Frequency Agility and Primary Processing Systems
- Antenna for SSR side lobes suppression (ISLS)
- Directional monitoring antenna for PSR and PAR jamming processing

Operation Center

The unit built in standard ISO shelter consists of radar data processing devices including complete operator work places with communication facilities. The shelter is equipped with:

- Two consoles for operators
- Two built in radio-stations (VHF, UHF)
- One console for technician, equipped with PC for control and diagnostics
- Connection between the Operation Center and the Antenna Unit by means fiber-optic cable or radio relay device.
- Power cable for connection to power mains
- Air conditioning and filter ventilation
- Mobile power generator 16 kW (optional)

Main Subsystems

- Radio-stations in VHF, UHF bands
- Radio Direction Finder (RDF)
- Duplex data transmission between the Antenna Unit and the Operation Center by means of fiber-optic cable or radio relay device
- Radar data, voice and time information recording and reproduction
- One or two power generator (optional)
- Portable short range radio

Radar Data Transmission

(Between Operation Center and Antenna Unit)
fiber-optic cable up to 800 meters (2 cable spools - 500m + 300m) radio relay device up to 10 km line of sight

Transportation Possibilities of KOMAR-2/IF

Self transportation with two trucks equipped with shelter loading arms or transport on flat trailer towed by truck.

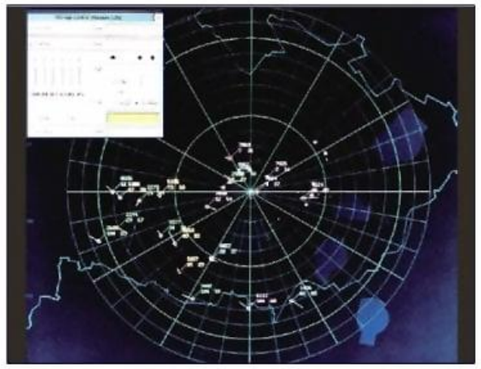
- **By railway**
- **In aircraft** (type IL-76, C-130H, C-160)

Power Supply

- Only one 16 kW power generator with suppressed noise used by concentrated configuration or two power generators in case of spread configuration.

Integration of Radar Functions

The radar is unique due to combination of its mobility and its operation modes. Radar KOMAR-2/IF can operate as Primary Surveillance Radar (PSR), Secondary Surveillance Radar (SSR), and Precision Approach Radar (PAR) with implemented Radio Direction Finder (RDF) function. Radar is also able to detect air targets effectively in the presence of ground and weather clutter. Due to its frequency agility technique and discrimination ability against unwanted signals the radar ensures high level of ECCM measures. The system is also equipped with false target elimination functions and Automatic Target Tracking. SSR operates in military mode 1, 2 and modes 3/A and C. It could be used in civil environment as well as in combat situations.



High Reliability

A built-in test equipment (BITE) monitors, calibrates and isolates faults in electronic circuits of both units. State of the art analyze devices supported with flexible software minimize faults or false signals.

Various Site Organizations

When installed for operation, the Operational Center and the Antenna Unit can be organized in the concentrated configuration when both units are separated up to 100 m or in a spread configuration when the units are seated in distance up to 10 km.

Basic Technical Parameters of KOMAR-2/IF

	PSR	PAR	SSR
Frequency band	I	I	D
Range and coverage*	60 km	25 km	120 km
Coverage in azimuth	0°÷ 360°	±15°	0°÷ 360°
Coverage in elevation	0,5°÷ 45°	-1°÷ +19°	0,5°÷ 45°
Ceiling Height *	4 000 m	2 000 m	10 000 m
Elevation antenna coverage in azimuth	-	5°	-
Tracking capacity	150 targets	30 targets	150 targets
Reliability			
MTBF	≥1000 hours		
MTTR	≤ 30 minutes		
BITE	implemented		
Life time	15 years / 80 000 hours		
Climatic conditions	-30°C ÷ +55°C		
Relative humidity resistance	95% at 40°C		

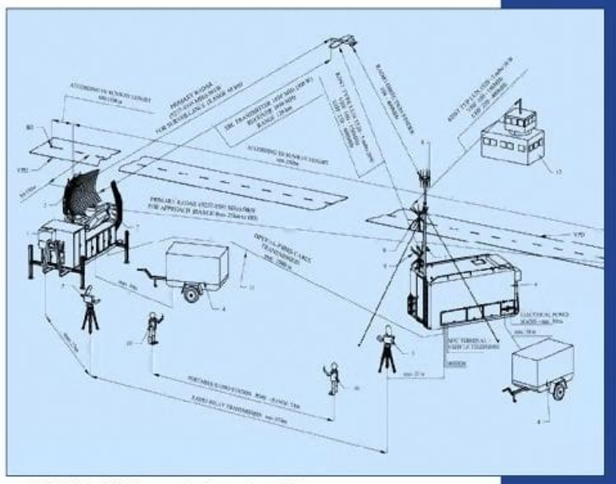
** Range for Pd = 0,8; Pfa = 10^{-6}; σ= 2 m^2; clear weather; SW1*



Summary

Basic Characteristics:

- based on high mobility
- combines functions of PSR, SSR, PAR into three selectable operation modes - surveillance mode (PSR/SSR), combined surveillance - approach mode (PSR/SSR+PAR) and approach (PAR) mode.
- complies with ICAO, ANNEX 10 precision criteria.
- equipped with complementary facilities, for easy and convenient operation even at several climatic and weather conditions.



KOMAR - 2/IF System in Operational Placement

Setup Time in Concentrated Configuration

- deployment to operation 30 minutes
- to transport readiness 30 minutes

Advanced Technology Features:

- highly modern circuits for protection against jamming, for data processing, PLOT and TRACK display, control and BITE diagnostics system.
- Electronics counter-countermeasures (ECCM)
- Frequency agility
- AMTI technique using automatic clutter maps for ground targets and slowly moving surface targets (meteo and chaff) suppression.

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