

VPS-A05/VPG-A06

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Combined search and tracking radar for air-defence weapon systems

GENERAL

The system is composed by a S-band search and a Ka-band tracking radar for the detection, tracking and designation of low flying targets, in all weather, clutter and environmental conditions.

The system was developed for defence of armoured and mechanized infantry units against attacking aircraft and in particular against pop-up or hovering helicopters. The System's performances allow its deployment for short range air defence of any ground or naval platform.

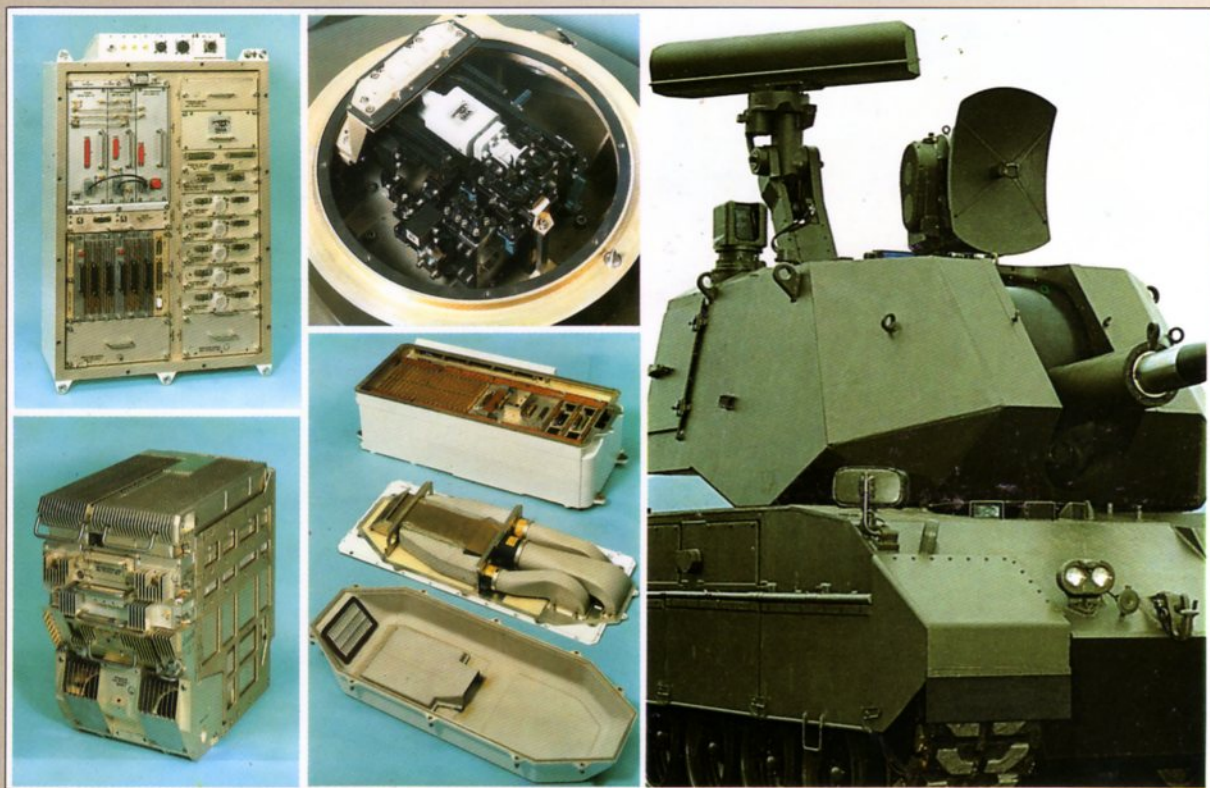
When associated with a weapon system (35, 40, 76 mm guns or short range missiles) the system can perform:

- Single scan detection, even when installed on a moving platform, of flying aircraft (up to 15 Km) and hovering helicopters (up to 8 Km)
- Automatic hovering helicopter single scan recognition with a dedicated processing channel

- Unambiguous single scan data in RVO (and friend or foe detection if IFF interrogator, is provided)
- Fully automatic TWS up to 8 targets, with threat evaluation logics for tracks initialization.
- Target acquisition and tracking with output-data in range, azimuth and elevation error to designate the weapon system.

It shall be pointed out that the two radars can also be employed separately.

In particular the search radar can be associated to A/A batteries provided with optical aiming devices while the tracking radar can be employed in conjunction with existing search radars.



SEARCH RADAR VPS-A05

The search radar is an all solid state, fully coherent pulse doppler and pulse compression system operating in S-band

ECCM

- Frequency agility
- Very low ERP
- Very low sidelobes
- Strobe on jammer
- Broad band transmission
- Interference suppression

Clutter suppression

- High dynamic range (55 dB)
- Very high improvement factor (60 dB)
- Digital processing using MTI and FFT filtering
- Adaptive CFAR

Short reaction time

- High data rate (60 RPM)
- Single scan helo identification
- Fully integrated IFF (optional)
- Bright display on color TV without clutter residues

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* MAINTAINABILITY

The system consists of line replaceable units (LRU). The computer data controller performs the Bit processor function using continuous monitoring sensors and stimulus signals.

TRACKING RADAR VPG-A06

The tracking radar is a coherent on receive pulse doppler system operating in Ka-band

ECCM

- Monopulse configuration
- Frequency transmission selection on a large bandwidth
- Silence radar modality
- Antirange gate stealer tracking
- Variable PRF

Clutter suppression

- High improvement factor contemporary on rain and ground clutter (25 and 35 dB) obtained by FFT processing and PRF automatic selection logic
- unambiguous velocity range coverage up to mach 1

Anti-nodding capability

- Based on a very narrow elevation beamwidth (0.6°) and a dedicated algorithm for nodding detection allowing the fire control computer to select special operational modality

Accuracy

- Better than 2 m (at 1 sigma) in range
- Better than 0,8 mR in angle on 1 Sq.m. RCS at 10 Km

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The System was developed for the OTOMATIC tank a self-propelled version of the very successful 76/62 mm. naval gun.



SMA
SEGNALAMENTO MARITTIMO ED AEREO

HEADQUARTERS AND PLANT: 50100 FIRENZE - VIA DEL FERRONE - P.O. BOX 200
CABLE: SMA - FIRENZE - PHONE 055/27.501 - TELEX 570622 SMARAD I - TELEFAX 055-71.49.34
ROMA OFFICE: 00100 ROMA - LUNGOTEVERE FLAMINIO 60 - PHONE 06/39.64.896