RAVEN ES-05

ACTIVE ELECTRONICALLY SCANNED ARRAY

ELECTRONICS DIVISION

(AESA) FIRE CONTROL RADAR

RAVEN ES-05 is a high performance AESA radar designed for the Saab Gripen NG swing role fighter that builds on over 60 years of fire control radar experience. RAVEN ES-05 has been designed in close collaboration with Saab.

RAVEN ES-05 features an innovative roll-repositionable AESA antenna to provide a full ±100° field of regard allowing maximum situational awareness and platform survivability. This Wide Field of Regard (WFoR) allows the aircraft to turn away after missile launch, whilst still maintaining datalinks to the missile. The highly reliable AESA transmit-receive module technology incorporated in RAVEN ES-05 significantly improves system availability leading to reduced lifecycle costs.

RAVEN ES-05 is part of a family of AESA Radars delivering greater performance and higher reliability than comparable mechanically scanned radars and offers all the advantages of multi-function AESA arrays with significant through life cost savings.

KEY FEATURES

The RAVEN ES-05 Radar has been designed from the outset to meet worldwide fire control radar detection and target tracking needs combined into one efficient modular system. The RAVEN ES-05 builds on common modular units for a scaleable system architecture to meet the needs of fire control and intercept radar operational requirements whilst remaining resistant to radar countermeasures.

The AESA antenna is coupled to fully digital multi-channel exciter/receiver and processor Line Replaceable Units (LRUs). These provide a comprehensive mode suite which includes air-to-air, air-to-surface, interleaved and support functions, which can be readily adapted or extended in software to meet future needs.

The radar makes use of AESA alert-confirm techniques to confirm targets on first detection. This combined with optimised AESA waveforms results in increased track initiation ranges, whilst simultaneously maintaining situational awareness. The instantaneous scanning ability of the AESA also provides a comprehensive suite of interleaved air and surface modes, thus providing the pilot with all round situational awareness.

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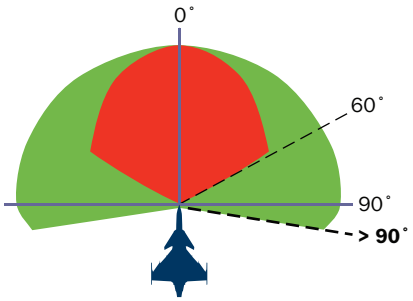

Wide Field of Regard
RAVEN ES-05 AESA Fire Control Radar

Fixed Plate AESA Radar

KEY BENEFITS

- Wide field of regard
- Low cost ownership
- Superior performance
- Superior reliability
- Software driven
- Easy to use
- Mode interleaving
- High availability
- Electronic beam steering
- Missile support

RELIABILITY

At the core of the AESA radar design is the ability to tolerate individual item failure. Component failures in the array result in graceful performance degradation rather than complete system failure, delivering high operational availability when compared with conventional radar systems.

Significant cost benefits over the life of the system are realised due to the high reliability, increased availability and reduced maintenance requirements.

MODES CAPABILITIES

The mode set allows the system to deliver all of the functional capabilities of a Fire Control Radar within an acceptable platform volume. This is combined with the full capabilities of a detection, tracking and prosecution system to meet the needs of emerging new world threats. The system utilises all the benefits of an electronically scanned array to deliver:

- Significantly enhanced performance relative to similar sized systems with the same weight, volume and power
- Comparable performance to larger mechanically scanned system whilst offering reduced weight and power

TECHNICAL SPECIFICATION

Frequency	X Band
Scan coverage	+/- 100°
Scan velocity	Instant beam switching
Cooling	Liquid and air
Weight	215kg
Key interfaces	Ethernet, 1553B

MODES

AIR-TO-AIR MODES

- Search while track
- Single target track

AIR COMBAT MODES

- HUD search
- Vertical scan
- Slewable scan
- Boresight

AIR-TO-SURFACE MODES

- Real beam ground map
- Doppler beam sharpening
- Sea surface search and track
- Ground moving target indication and track
- Spotlight and stripmap synthetic aperture radar
- Inverse synthetic aperture radar imaging
- Air to surface ranging

INTERLEAVED MODES

- Customer configurable
- Interleaved air and surface modes

SUPPORT FUNCTIONS

- Passive search while track
- Missile datalinks
- Cued search
- Non-cooperative target recognition
- Comprehensive ECCM suite
- Weather mode

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