AESA RBE2
Active Electronically Scanned Array Radar
ACTIVE ANTENNA

In a radar, an antenna is said to be «active» when it has a single subassembly for amplification of radiated power and pre-amplification of received power. This is achieved by the antenna front end, which comprises an array of several hundreds transmit/receive modules (T/R modules). By controlling each T/R module individually, the active antenna can steer the radar beam at speeds of an electronic chip. This is called «electronic scanning in space» and effectively allows the radar to overcome the mechanical constraints of steering a single antenna. It also allows the radar to track multiple targets simultaneously in all directions. The active antenna thus replaces the conventional antenna and its mechanical steering system, along with the radar transmitter and the first stage of signal reception.

CAPABILITIES

All radar functions are performed in the same flight:

Air Defence
- Very long detection and track ranges
- Fully automatic, sorting and ranking of tracked targets
- Fully target tracks independent of search volume
- Meteor compatible

Deep low-level penetration
- Automatic terrain following and avoidance

Strike mission
- En Route update of target area situation
- High resolution imagery modes (SAR) - Designations

Sea skimming attacks
- Detection and multi-tracking
- Active electronic scanning makes it possible to switch radar modes quickly, thereby enabling operational functions to run simultaneously.

TECHNICAL FEATURES

Antenna Block
- Active electronic scanning
- Very low-side and scattered lobes in azimuth and elevation
- Very high reliability (T/R modules)

Active transmit/receive modules and exciter/receiver
- Multipole Waveforms
- Coherent X band frequency generation
- Excellent spectral purity
- Wide bandwidth
- Full monopulse
- MMIC/GaAs technologies

Programmable signal processor and data processor
- Target detection and ECCM processing
- Fully programmable
- Anti-obsolescence solutions:
  - open architecture - COTS components
  - Tracking computation
  - High-resolution map generation