

India's indigenous BVRAAM



Evolution of the Astra

Self-reliance in air launched missiles, particularly Beyond Visual Range Air-to-Air Missile (BVRAAM) systems is of strategic importance considering the new paradigm of air superiority warfare. With the service entry of an indigenous hypersonic (Mach 4 plus) Active-Radar Homing (ARH) Astra BVRAAM, India's Defence Research and Development Organisation (DRDO) seems to have produced a missile that is arguably capable of matching – or outmatching – similar class of missiles of United States, Russian and European origin.

As part of its development, this missile was first tested on 18 March 2015, launched from an Indian Air Force Su-30MKI fighter against a simulated live target to verify the control system and missile stability during flight. Prototype of the missile was first tested on 9 May 2003 from the Integrated Test Range (ITR) at Chandipur-on-Sea off the Odisha coast. On 27 March 2007, vertical launch of the missile was carried out, suggesting possible development of a Surface-to-Air Missile (SAM) variant as well. Following further tests, dual-mode guidance was proved during May 2009 followed by captive flight tests on a Sukhoi

Su-30MKI, carried out from Pune in November 2019 when several sorties were conducted. The series of numerous tests initiated on 20 May 2011, also from the ITR at Chandipur focussed on evaluating performance of the smokeless non-metallised high specific impulse propulsion system, rocket motor, and configurations of

the vehicle. Aero-dynamic evaluation with the missile incorporating significant changes and incorporating advanced technologies was also done in due course.

The project is led by the Hyderabad-based Defence Research and Development Laboratory (DRDL). The single stage, smokeless, solid fuelled Astra with a length

