

QINETIQ

Target Systems



Product Document

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# Rattler ST™

## Overview

The Rattler ST™ Uncrewed Aerial Vehicle (UAV) is a cost-effective supersonic target platform that emulates various advanced missile threats. It is designed for Threat Representation and military operational training.

Powered by a solid-propellant rocket motor, the Rattler ST is highly effective in operational training and system evaluation. It can achieve air launch speeds up to Mach 2.5. The Rattler supports complex corkscrew and weave manoeuvres and is available as an air-launch payload for the Banshee Jet 80+ Platform from a pneumatic catapult launcher, or ground-launched from a rail using its solid rocket motor.

Constructed from aerospace aluminium alloys and carbon fiber composites. This target's innovative design and high-speed kinematic performance make it an attractive choice compared to other manoeuvrable, supersonic targets. Additionally, the price point of the Rattler ST ensures its position as a competitively low-cost supersonic target in contrast to other products in this high-performance category.

Suitable for use over land and sea with impressive performance and mission range, the Rattler ST is customizable with additional payloads and can meet customer requirements worldwide.

### Key Points

- Air launch capability.
- Ground launch capability.
- Real-time transmission of telemetry data and time space and positioning information (TSPI), from the on-board global navigation satellite system updated internal navigation unit.
- Dual-mode flight termination system for range safety.
- Standard and custom payload options.
- Proven worldwide service and customer support.



## History & Variants

The Rattler Supersonic Target has been available for customer purchase since 2021. From February 2024 and following a successful flight trial at White Sands Missile Range, the Rattler ST-MkI will supersede the 'initial operational capability' ('IOC') version, the Rattler Ground and Air-Launch ST (GAL ST).

Since February 2022, QinetiQ has been developing the Rattler ST High Energy Laser Measurement (HELM) variant with a third-party target board supplier for the U.S. DoD (PEO STRI).

QinetiQ will continue supporting all three variants while they are in customer stock and sponsorship.

## Payloads

The Rattler ST has a payload capacity of 2.8 kg (6 lbs), with a maximum flight weight of 30 kg (66 lbs). These payloads include:

- Passive Radar Cross-section (Luneberg)
- High Bandwidth Data Link Module
- Digital Camera
- High-Speed Telemetry Module

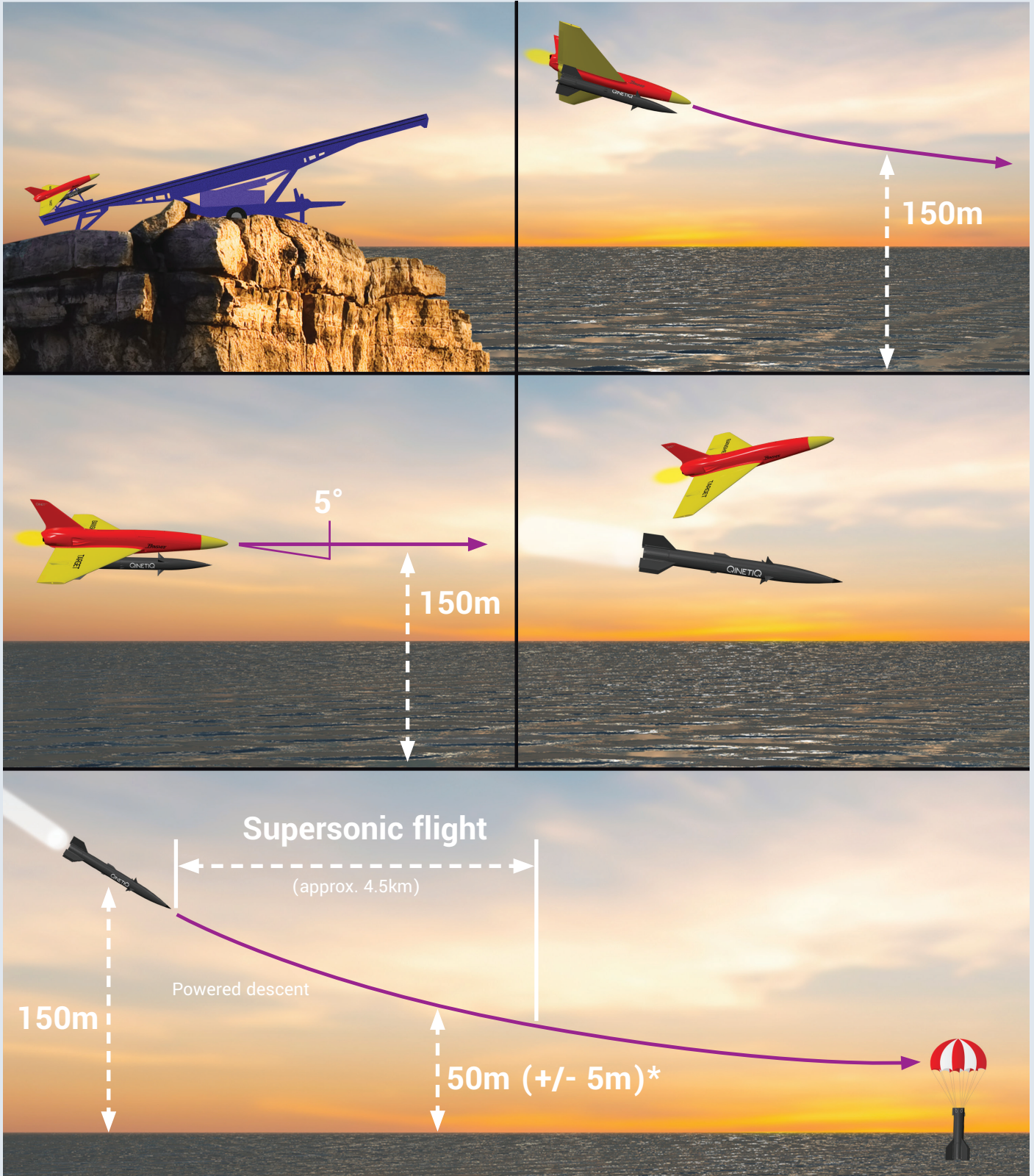
Other experimental or engineering payloads, including a supersonic pitot tube and an additional internal measurement unit, are also available.

## Threat Representation

Threat Representation examples include anti-radiation missiles and high-diver threats. The Rattler ST system is also valuable for evaluating specific threat features and signatures, such as missile separation from platforms, and for evaluating the performance of other systems (such as high-energy laser systems when paired with suitable payloads).

The Rattler system can be used in captive carry mode in advance of launch to enable checkout tracking and systems under evaluation; mission profiles for the Ratter ST post-launch include a 'lofted' long-range profile to simulate high-diver or ballistic threats, level flights for mid-course engagement, and low-level (50m) above local ground 'skim' flights.

## Mission Profile Example



## Case Study:

# The first successful flights of the new design Rattler Supersonic Target.

In March 2024, QinetiQ, in partnership with the United States Department of Defense and White Sands Missile Range High Energy Laser Systems Test Facility (HELSTF), announced the successful flights of the first two Rattler Supersonic Target MkIs.

As part of the High Energy Laser Measurement (HELM) Rattler program and a QinetiQ funded Research and Development project, the flights provided the first flight test data for this design variant of the uncrewed target. It also presented opportunities for the HELSTF Tracking Illuminating Laser System to acquire, track and queue from a supersonic target at a short slant range, aiding the program's Rattler variant development.

### **Graham Ollis, Managing Director, Threat Representation, QinetiQ said:**

"This flight represents an important milestone in the Rattler transition to service project, and demonstrates our supersonic target capability in action for our US customer, as part of the HELM Rattler program, to meet the requirement for evolving threats."

### **Owen Price, Project Manager Target Systems, QinetiQ said:**

"I am proud of the significant progress we've made with our development partners and customer in fielding this flight trial. We have been able to showcase QinetiQ's technical and operational expertise and teamwork, launching the new Rattler ST MkI product and as part of developing the HELM Rattler test and evaluation target system for the war fighter, as requirements for more realistic, instrumented threat representation become ever more important."

Emulating a variety of advanced missile threats, Rattler ST is a cost-effective supersonic target platform designed for threat replication, operational training and system evaluation. QinetiQ is customising the platform to support the US Department of Defense's HELM Rattler Program, integrating a third-party target board to measure high-energy laser characteristics in flight, at supersonic speeds. The \$10 million (USD) program started in February 2022 and is due to conclude in 2025.

QinetiQ's portfolio of targets are built in line with customers' requirements to meet the current and evolving threats that they are needing to defend and train against, delivering realistic Threat Representation.

## Future Development

Constantly evolving, QinetiQ responds to customer requirements and always looks to expand our product offering through additional capabilities. These developments are in the custom payload options for various customers and new/re-engineered variants of existing product lines.

QinetiQ Target Systems will shortly embark on a market and scoping study for its next-generation supersonic target and invite contributions from prospective customers.



'The Rattler ST-Mk1 first flight trial at White Sands Missile Range'

## Choosing QinetiQ

At QinetiQ, we proudly protect lives by serving the national security interests of various nations. Using mission-led innovation we create and deliver tangible solutions that effectively fulfil the requirements of our customers.

Our goal is to be the chosen partner around the world, helping shape the future of defence by solving real-world problems.

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