CATS is used by:
- Australian Army Aviation
- Royal Australian Army
- European Defence Agency
- Colombian National Police
- AgustaWestland Helicopters
- Priority 1 Air Rescue
- Amber Tiger Aviation

Complete Aircrew Training System

Save Lives.
Save Money.

CATS is a cost-effective solution to all aspects of synthetic and procedural training for aircraft crews, from crew interaction to hoisting and door gunnery.
Background

CATS History

The VSS Complete Aircrew Training System (CATS) incorporates an expanded configuration covering all disciples of aircrew training with modules such as a physical/virtual hoist module, pilot cockpit, projection domes and replica door gunnery.

CATS worldwide users include:
- Australian Army Aviation
- Royal Australian Navy
- UK Ministry of Defence
- European Defence Agency
- Colombian National Police
- Qatari Emiri Air Force
- AgustaWestland Helicopters
- Priority 1 Air Rescue
- CareFlight
- Amber Tiger Aviation

Virtual Simulation Systems (VSS)

VSS designs and creates a broad range of simulation hardware and related technologies, constantly innovating to deliver new solutions. From modular projection domes and simulated military devices, to part task trainers and full custom simulators to meet any training need. VSS's industry customers include Raytheon, Rockwell Collins, CAE, Airbus, and many other fine organizations.

CATS features a wide variety of operational environments, including Afghan villages, western cities, cliffsides, coastlines, forests and mountains. VSS can provide any required geotypical or geospecific training area.

CATS cockpit for tactical and whole crew procedural training

CATS Door Gunnery Module

CATS can be expanded with a range of door gunnery options at any level of fidelity. Training can be achieved using high definition VSS Helmet Mounted Displays, VSS modular projection domes, or a combination of both for maximum NVG realism. Any type of replica weaponry with or without recoil can be supplied or custom-made by VSS, such as MAG58/M240, M2, M3M or M134 Minigun. NVG, Stoppages and Runaways can all be utilized.

“Students are now at a far more advanced level before even entering the real aircraft. This saves time and allows the trainees to be much better prepared.”

Quotes from senior Loadmaster Instructors at Oakey ADF base.

“[T]he results have been amazing. Three training rotations will have 100% pass rates, which is unheard of - traditionally we have around a 25% failure rate. [This] training solution has been a huge success.”
Complete Aircrew Training System

Overview
CATS combines a multi-configurable airframe mockup, virtual reality tracking and simulation software in a cost-effective and flexible system that can adapt quickly to changing needs.

This approach has proven to be extremely reliable under extensive use, requires no dedicated on-site administrator, and allows rapid start-up/shut-down operation.

Operation
Crew members are equipped with Virtual Reality headsets and their positions are tracked in 3D space. Trainees view a high-fidelity representation of the aircraft and surrounding environment that is completely immersive. Trainees are free to move about the cabin mockup and operate as they would in a real aircraft, including lying down to view the craft’s underside.

An Internal Communication System (ICS) allows crew members to develop and practice effective crew coordination. CATS presents a full crew mission environment either by the CATS instructor acting as the pilot, by incorporating a cockpit module, or by linking to an existing pilot simulator via HLA/DIS.

CATS Hoist Module
This hybrid physical/virtual module consists of a hoist system with a functioning pendant control modelled on any aircraft type. The virtual hoisting environment enables any situation: forests, cliffs, urban areas, or maritime scenarios with ocean swell. Hoist cables conform to terrain and objects to simulate standard techniques. Any role equipment can be modeled, including rescue strop and basket, and malfunctions simulated for advanced training.

Facilities
An Instructor Station with full After Action Review capabilities allows precise control over training and feedback.

A wide range of scenarios can be employed via real-time mission editors. Additionally, scenarios can be developed to recreate previous real missions to evaluate the decision making process.

Dynamic weather effects can be adjusted, and terrain can be customised to geo-specific requirements.

Expansion Modules
- Door Gunnery Module - using VR or with Projection Dome
- Hoisting/Winching Module
- Cockpit Module - reconfigurable instruments
- Marshalling Module - deck or land, incorporates VSS Virtual Marshalling Simulator used by the RAAF, RAN and AAv.
- Airborne Sniping Module - using VSS MK2 virtual scope as used by Australian Special Forces and School of Infantry.
Enhance aircrew skill sets and develop positive crew habits in a high-fidelity benign environment, improving overall safety and reducing costs.

CATS Training Capabilities

- Confined Area Operations
- Cabin Security Training
- Slope Landings (inc. one/two wheel)
- Obstacle Awareness (Low Level/NOE ops)
- Obstacle Clearances
- External Load Operations
- Situational Awareness
- Rescue Hoist Operations
- Pinnacle Approaches
- Wire and Tower Awareness
- Role Equipment Malfunctions
- Inflight Emergencies
- Ground Threat Awareness
- NVG Training
- Airborne Threat/Traffic Awareness
- Door Gunnery
- Ship Operations/Deck Landing
- Full Crew Interaction
- Crew Resource Management
- Instructor Training
- Fast Roping
- Trainee Remediation/Refresher Training
- Airborne Sniping
- Instructional Rehearsal
- Instructor Standardisation/Development

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