

# APPAREO

## AVIATION



**FLIGHT DATA MONITORING  
HARDWARE & SOFTWARE**

# APPAREO AVIATION

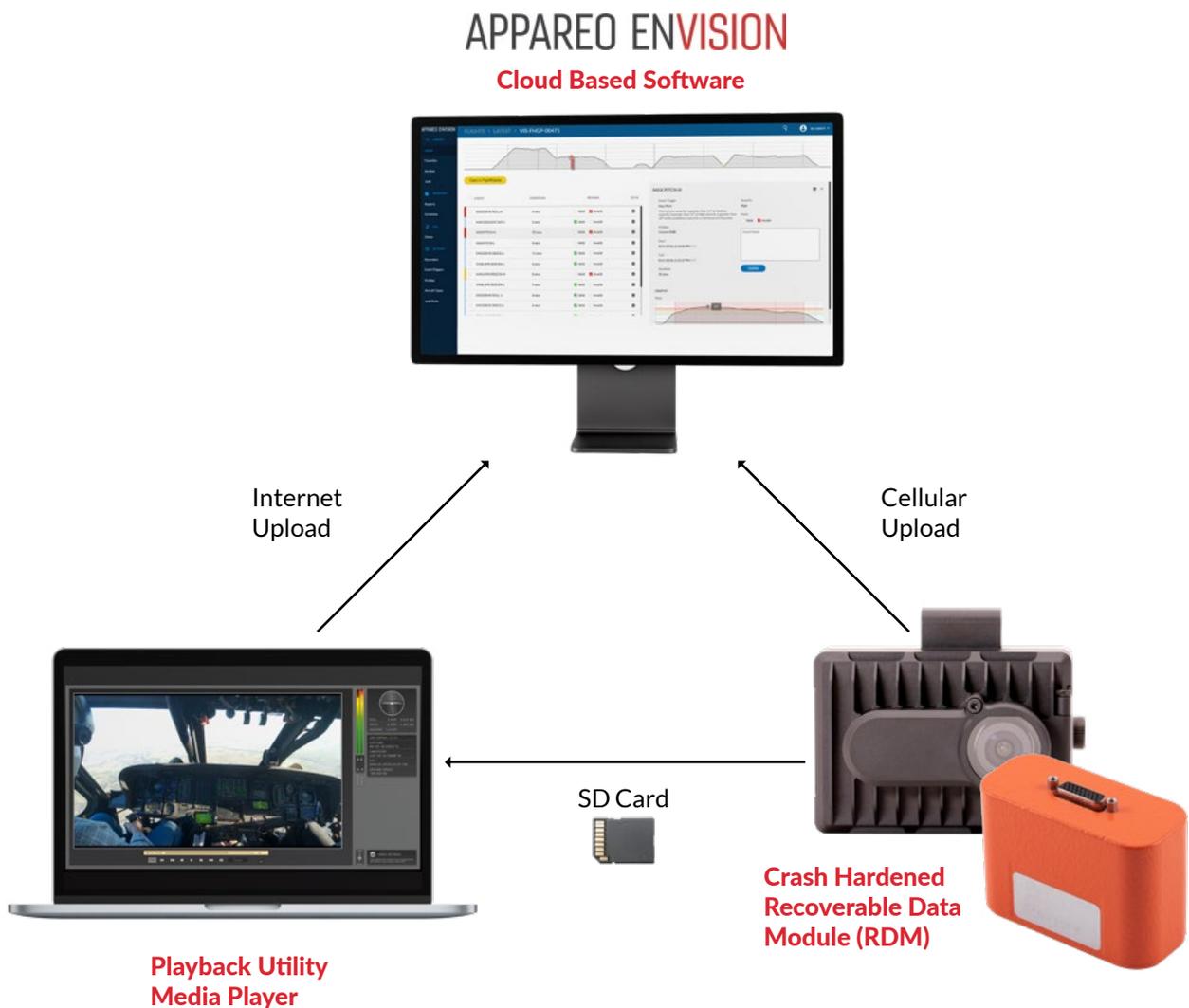


As an industry leader in the Flight Data Monitoring space, Appareo Aviation is at the forefront with its hardware and software ecosystem. With our in-house engineering, manufacturing, technology, and testing capabilities, we develop our own products from concept to completion. Appareo is certified by all the major aviation and manufacturing regulators, and our experienced teams of engineers and manufacturing professionals understand what it takes to create products that adhere to governmental regulations and withstand environmental requirements. Our end-to-end capabilities also enable us to partner with other companies to advance avionics technology. With a proven track record and the capabilities to match, Appareo is a partner the aviation industry trusts to deliver.

# APPAREO AVIATION

## Ecosystem

Appareo's industry-leading advanced hardware + software solutions for Flight Data Monitoring (FDM) are easy to use and implement for your Safety Management System (SMS). Pair Appareo's certified crash-hardened flight data recorder with the playback and analysis software, and your fleet will be equipped to fly safer. Get the benefits of an advanced FDM solution without the complexities.



# AIRS-400

AIRS-400 is a stand-alone flight data recording solution that captures accurate flight data, plus cockpit audio and 4k video. It's small, lightweight, and easy to install, making it ideal for any rotor or fixed-wing aircraft. Using its internal sensors, AIRS-400 records an entire cache of flight data to an internal crash-hardened memory as well as a removable SD card to help you better manage the safety and performance of your aircraft.

## INFORMATION CAPTURED:

- Attitude data (pitch, roll, yaw)
- WAAS GPS data (date/time, latitude, longitude, speeds, altitude)
- Cockpit video
- Crew and ATC communication
- Ambient audio
- Accelerometer data (G-Force)

## TECHNICAL OVERVIEW:

- 4K images (8 MP)
- 30 images per second
- h.264 encoded images
- 90 degree Field-Of-View
- 128 GB to 2 TB SD cards
- 35 GB internal memory
- 100 Mbps Ethernet

## OPTIONAL FEATURES:

- Flight Check (Cellular IMU Data Upload)
- Health Check (Cellular Health Upload)

## CUSTOM INTEGRATIONS AVAILABLE:

- Ethernet Data Output
- RS-422 Output
- ARINC 429 Input

## CERTIFICATIONS

- FAA STC-AML
- Part 27, Part 29, Part 23, Part 25
- field approval or minor modification



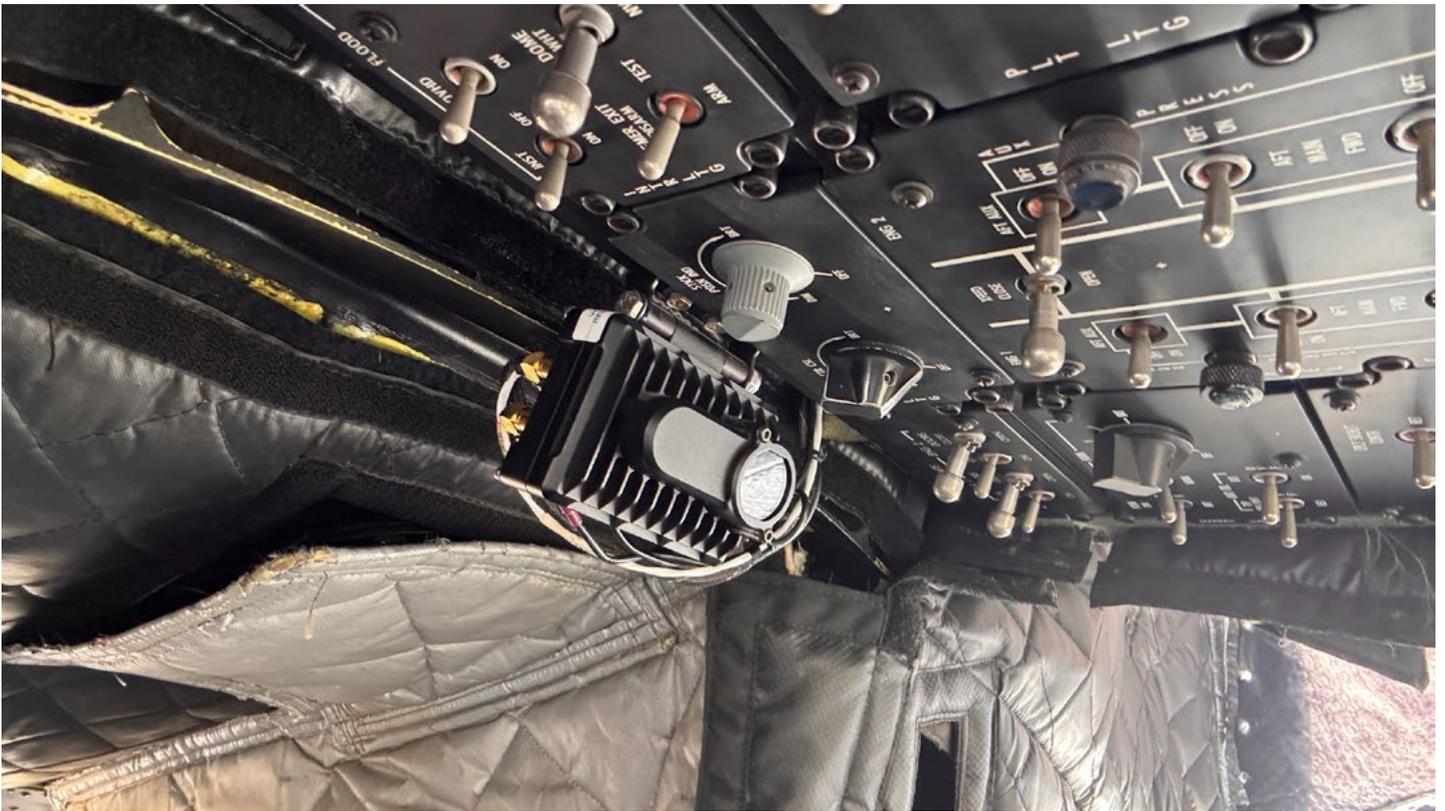
Dimensions: 2.8" x 3.4" x 2.6"  
Weight: 11 ounces (310 grams)



# AIRS-400

## Easy Installation

Unlike other flight recording solutions, Appareo's AIRS-400 can work as a standalone device to capture data. With its own internal sensors, AIRS-400 only requires aircraft power and ground; and a small GPS antenna to be installed inside the aircraft. A standard intercom system connection is included to record crew and ATC communications in addition to the ambient audio already being recorded. There are no special tools required for the installation, and it only takes about one day to complete. The AIRS-400 has been installed in many different airframes. Ranging from UH-60s to MD-83s. With its compact design, easy configuration, lockable bracket, the AIRS-400 can suit the needs of any operation.



## Retrofittable

If you are upgrading from Appareo's Vision 1000, the AIRS-400 bracket mounting pattern, power connector, and GPS connectors are compatible for an easy drop-in replacement. The new locking bracket provides a tamper resistant installation so you know what you are trying to capture stays in view.

# AIRS-400



Image Specifications	
Image Frame Rate	30 fps
Image Size	3840 x 2160 (4K)
Compression Methodology	H.264
Horizontal Field of View	90°
Vertical Field of View	45°

Audio Recording Specification	
ICS Input Range	up to 44.1 KHz
Audio Input per ED-112 Max Input Voltage	3.0 VRMS
Ambient Area Audio Recording (per DO-214)	up to 32 KHz

Inertial Measurement Unit (IMU) Specification	
IMU Record Rate	4 Hz
Rotational Rate Range	250 dps
Acceleration Range	+/- 4g
Sense Axis	6-Axis
GPS Track Accuracy	2°
Roll and Pitch Accuracy	1.5°

GPS Specification	
GPS Constellations Supported	GPS, GLONASS
GPS Receiver Type	WAAS
GPS Update Rate	4 Hz
GPS TTFF	< 2 minutes

On Board Flash Memory	
Storage Capacity	35 GB
Storage Time	200 hours IMU, 100 hours of ARINC 429, 2 hours of image/audio

Removable Flash Memory (SD Card)	
Storage Capacity (based on 512 GB)*	200 hours of IMU, 32 hours of video/audio.

\*Hours of image/audio data changes depending on card size. SD cards with up to 2 TB storage capacity may be supported.

Wired Communication Specifications	
Ethernet	Custom integration
RS-422	Custom integration
ARINC 429	Custom integration

Cellular Communication Specification	
LTE M1 Communication to EnVision Cloud Software	Where Available

General Specifications	
Input Supply Voltage	10.25 - 32.2 VDC
Input Supply Current	2 Amps
Weight	11 ounces (310 grams)
Dimensions	71.09 mm x 86.47 mm x 65.69 mm
Operating Temperature	-40° C to +55° C
Time to Record Power Application	<30 seconds

# COMPLIANCE & CERTIFICATIONS



The AIRS-400 may be used to meet the following mandates –

## **International Association of Oil & Gas Producers (IOGP)**

Offshore Helicopter Recommended Practices – IOGP RP690

Section – 690-5 – Helicopter and Equipment, 16. Cockpit camera

## **Fixed-wing Commercial Air Transport Recommended Practices – IOGP RP691**

Section – 691-5 – Aircraft and Equipment, 16. Cockpit camera

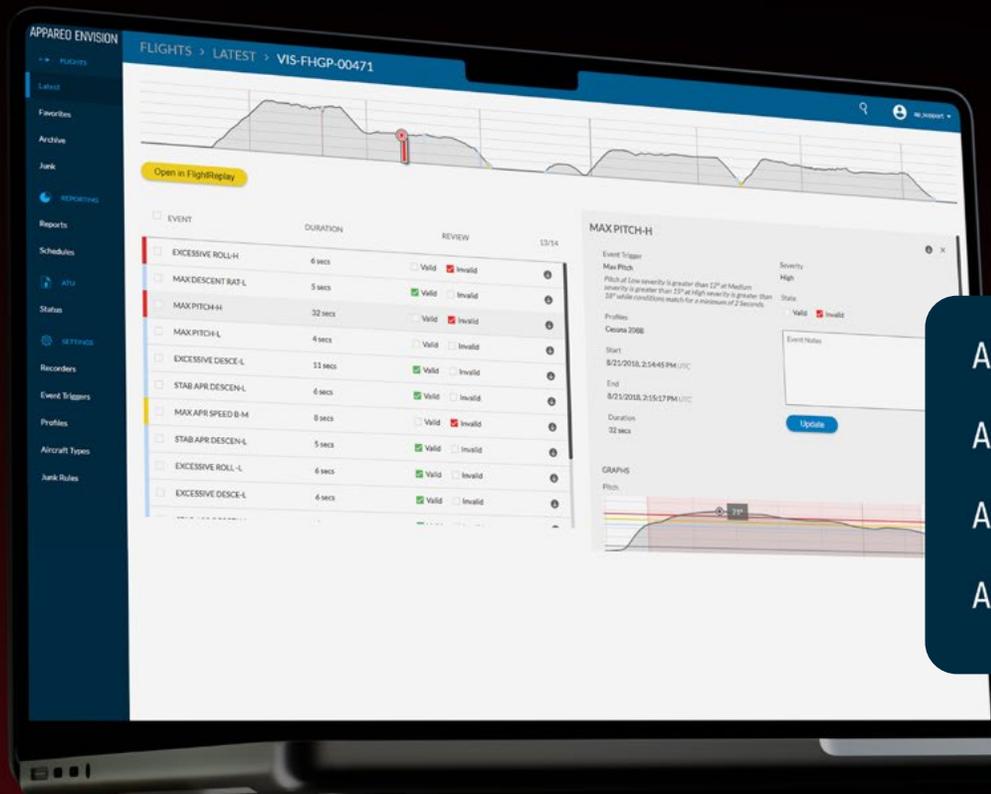
## **USFS MATOC**

US Forest Service (USFS) National Helicopter Support Services Multiple Award Task Order Contract (MATOC)

## **FAA HAA Mandate – 14 CFR 135.607**

Helicopter Air Ambulance (HAA)

# FDM SOFTWARE



APPAREO ENVISION  
**LITE**

APPAREO ENVISION  
**BASE**

APPAREO ENVISION  
**PRO**

APPAREO ENVISION  
**MAX**

## ENVISION

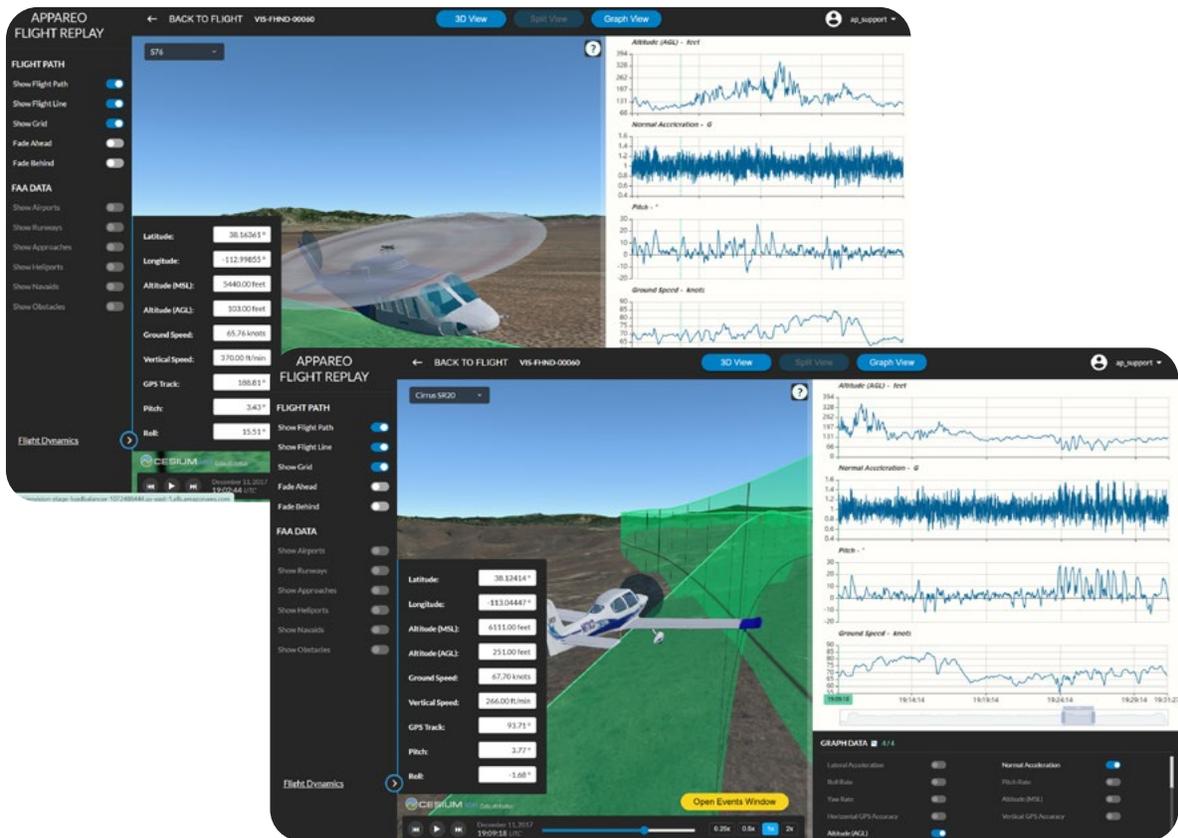
Appareo EnVision is your full service Flight Data Monitoring tool that brings your entire fleet's data at your fingertips. EnVision is cloud-based, so you can easily manage your fleet anywhere you have the internet. Review past and current flight data, generate detailed reports, and trend the safety improvements in your flight operations. Flight data is automatically analyzed against customized event triggers that are set for different aircraft or operations defined in your Safety Management System (SMS). Detailed reports are easy to generate so that you can understand the event duration and severity, and use that information to drive actionable improvements in your flight briefings.

Appareo is introducing a new EnVision experience for different sizes of fleets. Different subscription levels provide differing levels of features. From a free option all the way to a max level FDM service to provide users with the best experience and data. Ask Appareo about which level is right for you!

## FlightReplay

### 3D Flight Visualization

View your entire flight path in a dynamic 3D window. Key flight events and exceedances are shown directly on the visualization for quick insight.



EnVision FlightReplay brings the 3D visualization feature to the cloud! Need to see how the aircraft experienced something in flight? With FlightReplay, the data is at your fingertips as soon as the data is uploaded. With a large terrain database, dozens of recorded parameters, and an easy to follow flight path, FlightReplay makes data analysis easier than ever before.

# FDM SOFTWARE

## Flight Check

AIRS-400 Flight Check provides users with the most up to date and accurate flight data automatically uploaded to your EnVision account after every flight. AIRS-400 units that have been cellularly activated will automatically upload the most recent flight when the unit is powered down and in cell coverage. \$500 subscription per recorder.

The screenshot shows the 'Recorder Configuration View' for recorder 'VIS-001025'. The interface includes a left-hand navigation menu with categories like 'FLIGHTS', 'REPORTING', and 'SETTINGS'. The main content area is divided into three sections: 'RECORDER INFORMATION', 'BUILT-IN TEST RESULTS', and 'AIRCRAFT INFORMATION'. The 'RECORDER INFORMATION' section shows details like Recorder Serial Number (VIS-001025), Recorder Type (AIRS-400), Last Recording Date (10/27/2021, 7:59:18 PM UTC), and Cellular Subscription (Enabled). The 'BUILT-IN TEST RESULTS' section lists 18 tests, all of which passed. The 'AIRCRAFT INFORMATION' section shows Aircraft Type (AS 350B2) and Tail Number (N###).

RECORDER INFORMATION		
Recorder Serial Number	Last Recording Date	Cellular Subscription
VIS-001025	10/27/2021, 7:59:18 PM UTC	Enabled
Recorder Type	Built-In Tests	
AIRS-400	Healthy (18 total tests)	

BUILT-IN TEST RESULTS		
16, Set if a 3D GPS Lock is not achieved after 5 minutes, pass	42, Tests the existence of the Arinc Interface, pass	50, Checks if GPS antenna is not connected, pass
17, Set if a 3D GPS time pulse is not detected. High frequency so the BIT is run, pass	43, Tests the existence of the RS422 interface, pass	52, Calculate Self-test response by measuring the difference in accel and gyro axes, pass
32, Tests Read/Write abilities of the SD Card, pass	44, Checks the memory temperature, pass	53, SPI communication with IMU (via WHO_AM_I register contents). No dropped FIFO packets, as Indicated by FIFO_LOST_PKT register., pass
36, Audio test, pass	45, Checks the CPU temperature, pass	
37, Tests Read/Write abilities of the eMMC, pass	46, Checks the GPU temperature, pass	
39, Low G X Accelerometer Present, pass	47, Checks the PLL temperature, pass	
40, Tests the existence of the cell interface, pass	48, Checks the IMU temperature, pass	
	49, Checks if GPS antenna is shorted, pass	

AIRCRAFT INFORMATION		
Aircraft Type	Tail Number	Profiles
AS 350B2	N###	FW - Training Ops

# Health Check

## Introducing AIRS-400 Health Check

With Health Check, cellular connected AIRS-400 units have the option to upload more data about the health status of the unit, including one small video and audio clip from each recorder every 24 hours. The feature allows a Flight Data Analyst to be able to remotely see which units need attention without having to send a technician to the camera for a regular assessment. \$500 subscription per recorder

The screenshot displays the 'HEALTH CHECK' interface in the APPAREO ENVISION system. The interface is divided into several sections:

- RECORDERS OVERVIEW:** A summary box showing 'Critical - 1 recorder', 'No Video - 2 recorders', and 'Warning - 1 recorder'. It also indicates '15 HEALTHY' and '19 TOTAL' recorders.
- MOST RECENT CHECK-IN:** A table showing the most recent check-in data for several recorders. The table includes columns for Recorder ID, Recorder Type, Last Check-in Date, and Recorder Health.
- Built-in Tests:** A detailed view of the built-in tests for a specific recorder, showing a list of tests and their results (passing, warning, critical).
- History:** A table showing the history of check-ins, including the check-in date, built-in tests results, and the overall health status.

Recorder	Recorder-Type	Last Check-in Date	Recorder Health
VIS-009238	AIRS-400	9/15/2025, 5:33:44 PM UTC	Critical
VIS-009239	AIRS-400	9/15/2025, 5:33:44 PM UTC	Healthy
VIS-009919	AIRS-400	9/15/2025, 5:33:44 PM UTC	Healthy
VIS-009240	AIRS-400	9/15/2025, 5:33:44 PM UTC	Healthy
VIS-008008	AIRS-400	9/15/2025, 5:33:44 PM UTC	Healthy

Check-in Date	Built-in Tests	Health Status
9/15/2025, 5:33:44 PM UTC	35/37 tests passing	1 Warning, 1 Critical
9/14/2025, 5:33:44 PM UTC	36/37 tests passing	1 Warning
9/13/2025, 5:33:44 PM UTC	37/37 tests passing	Healthy
9/12/2025, 5:33:44 PM UTC	37/37 tests passing	Healthy

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APPAREO  
AVIATION

Increase Safety | Flight Training | Asset Management | Incident Investigation | Maintenance