

Honeywell

ASPIRE 200 DELIVERS CONNECTIVITY TO HELICOPTERS

VIP operator tasked Honeywell to deliver a high-bandwidth, reliable connectivity system for its AW139. Here's how we did it.



An executive/VIP transport operator tasked Honeywell to deliver a high-bandwidth, reliable connectivity solution for its AW139 helicopter. Here's how we did it. The missions of helicopter operators are unique and often complex. In the world of VIP transportation, it's rare for an operator to fly the same route on a daily basis. Schedules change and so do flight plans. So the need for communications on and off the aircraft is critical. The need to be always connected is imperative for safe and efficient operation of the helicopter fleet.



For aircraft operators there are three options for communications — air-to-ground, satellite or cellular service. Air-to-ground and cellular are good options for some operators. They are less effective if an operator needs to conduct missions over water or in remote locations with no signal, which many helicopter operators do.

Satellite communications is available worldwide and can provide the bandwidth and data rates needed for transmitting mission-critical information. But, the structural elements of a helicopter — namely the rotor blades — and the noisy and vibration-filled in-flight environment has historically made the installation of a satellite communications system difficult, if not impossible. However, Honeywell has found a solution.

A VIP operator of a Finmeccanica AW139 helicopter came to Honeywell with this challenge — solve the problem of rotorwash interference on the satellite communications signal, ensure the system is capable of transmission speeds of up to 400+ Kbps, provide connectivity over land and water, and make the system easy to install and maintain.

Honeywell's answer is the Aspire 200 IG satellite communications system. An enhanced software package on the Aspire 200 terminal creates a specialized interleaver waveform to compensate for signal interference from the rotors and enable seamless broadband connectivity. The flexible, four line-replaceable unit system has several available antennas — high- and intermediate-gain options — to suit operators' unique operational needs. The system is designed with common interfaces that provide flexible installation options and make it easy to upgrade to add future capabilities.

Enabled by the Inmarsat I-4 satellite network, the Aspire 200 system suits a range of helicopter missions, including Helicopter Emergency Medical Service (HEMS), Law Enforcement, Oil and Gas, Search and Rescue, and executive/VIP transportation.

Installing the Aspire 200 IG system on its AW139 has enabled Honeywell's customer to improve safety and efficiency, according to several company representatives.

"The Aspire 200 performs beyond our expectations," the AW139's pilot said. "We had specific requirements we were looking to satisfy with this system and it exceeded those. The executives onboard like to be able to stay connected to the home office. In addition, we pilots are able to stay on top of current weather and traffic conditions and the maintenance crew is able to stay ahead of potential helicopter performance issues. This is huge in terms of operational and cost efficiency."



Key System Benefits:

- Consistent, reliable satellite coverage
- High-speed data connectivity
- Services over water and in remote locations
- Scalable, lightweight equipment
- Beyond Line of Sight capabilities

Honeywell achieved FAA and EASA supplemental type certifications (STC) for the Aspire 200 system on the AW139, with more STCs on more airframes planned in the future.

“Quite simply, the Aspire 200 satellite communications system can transmit more data, faster than any other L-Band system on the market, creating a cost-effective, lightweight and highly capable system for a variety of helicopter operators,” said Tom Hart, Vice President, Honeywell Defense and Space.

Pilot Perspective

The operator uses its AW139 helicopter for executive/VIP transport in the Northeast, particularly in the crowded New York City airspace. The executive at the back of the aircraft was certainly interested in the connectivity capabilities, but it was the operational benefits for the pilot and the maintenance departments that made the ultimate business case for the Aspire 200 installation, the stakeholders said.

During the STC process in 2015, the operator’s pilots and maintenance departments were able to interact with the system and put it through its paces to make sure it could hold up in real-world flight operations and deliver what Honeywell has promised. The customer’s pilots and maintainers went into these trials with specific connectivity-enabled operational goals in mind.

During the tests, the executive onboard was able to send and receive PowerPoint presentations, make phone calls, send text messages and surf the web. When utilizing HDR, average data speeds during the tests were 450 Kbps. In the cockpit, the pilot tested voice and data transmissions, and the resulting data rates were on par with those seen in fixed-wing business jets, demonstrating that the Honeywell software had overcome problems inherent with helicopter rotorwash.

“For pilots, the operational benefit of the system is enabling us to maintain constant connectivity. Usage and operation is transparent to the pilots and requires no specific input once the cabin is powered up,” according to the lead pilot of the operator’s flight department.

“The system will allow flight crews to maintain a critical level of connectivity, when outside 3G/4G network coverage, allowing for real time weather and remote site communication updates,” he added.

“The system is able to send data directly back to home base where the mechanics can monitor the systems on the aircraft even while we’re flying. It allows us to communicate in real-time back to the home base. We’re able to discuss maintenance problems or issues with our mechanics immediately and reliably,” he said.





System Applications:

- Email
 - Web
 - Voice
 - Virtual Private Networks (VPN)
 - Video conferencing
 - Text messaging
 - Weather information
 - Positioning information
 - On-board equipment diagnostic information
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Benefits for Maintainers

The capabilities of a satellite communications system extend to the maintenance department as well. Connectivity enables transmission of critical systems performance data that provides valuable information for maintenance personnel to get ahead of mechanical failures before they happen.

Additionally, having the ability to track where aircraft are located provides critical situational awareness to the ground personnel. Connectivity and asset tracking are essential to staying in touch at all times around the globe.

A reliable, high-speed and critical link between the pilot in the air and personnel on the ground that's been missing in the helicopter industry. The Aspire 200 creates that link.

"Connectivity allows the maintenance team to stay ahead of potential mechanical failures on the aircraft," said the operator's aircraft maintenance manager. "Many times, we were able to communicate to the pilot about a potential mechanical issue before he even knew it was a problem. And this was all while the aircraft was in flight."

Another consideration when installing a system such as the Aspire 200 is downtime. Often, executive/VIP helicopter operators need their aircraft with very little notice, so it's critical the aircraft is available when the boss needs it. Installation of the Aspire 200 system was done with minimal downtime while other planned routine maintenance was being performed.

"The Aspire 200 system is very robust and quite frankly very reliable," said the operator's aircraft maintenance manager. "This is a big deal in the helicopter market."

For more information

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