



Lockheed Martin Expands its Global Deployment of F-35 Simulators with RGB Spectrum's New Video Technology

Full-Mission Flight Simulators Now Equipped with Zio Video Technology to Provide Pilot Training in a Highly Immersive Virtual Environment

With rising geopolitical tensions, the United States is bolstering defense capabilities of our nation and those of our allies across the globe. To this end, the United States is providing our armed forces – Air Force, Marine Corps, and Navy – and 14 of our international allies with next-generation warfighting aircraft and advanced simulators, including full-mission simulators (FMS) capable of training pilots to fly multi-aircraft missions.

The F-35 FMS helps pilots train in air-to-air, air-to-ground, and electronic warfare missions. Beyond individual pilot training, the simulator provides synchronous four aircraft missions for squadron training. Lockheed selected RGB Spectrum's latest Zio networked video platform.

Lockheed Martin's FMS upgrade objectives were to achieve greater system interoperability with H.264 Video-over-IP support, to make recordings more accessible, and to reduce overall system costs. The new Zio platform met these objectives.



Illustration courtesy of Lockheed Martin Corporation

RGB Spectrum's Zio AV-over-IP platform is deployed in Lockheed Martin's F-35 Full Mission Simulators to stream, record and replay visuals pilots observe during maneuvers.

“Its superior performance and scalability, as well as versatile recording and replay capabilities, the Zio platform is ideal for use in simulation and command-and-control applications.”

BOB MARCUS, PRESIDENT, RGB SPECTRUM

A Look Inside the F-35 FMS

Zio encoders stream visuals and data the pilots observe during maneuvers, including avionics, navigation, out-the-window imagery, target acquisition, and weapons control. Streams are transmitted to the Instructor's Operator Station (IOS) to enable instructors to view the live visuals seen by pilots. *Zio* media servers record the exercise and then *Zio* media servers, and multi-image decoders are used in the AAR debriefing rooms to replay the simulation and assess pilots' performance.

Zio media servers are ideally suited to meet the FMS' high-fidelity recording and streaming requirements. They feature concurrent recording/streaming and concurrent recording and playback. During debriefings, instructors can use full playback controls including frame-by-frame jog/shuttle and variable speed forward/reverse playback to enhance review. Instructors can also randomly access any point within the recordings to save time for quick reference.

By combining distribution, display and recording functions in a single platform, the *Zio* Video-over-IP provided a full solution. All components of the system, including encoders, decoders, recording/playback media servers, and multiviewers, are managed through an intuitive user interface featuring video thumbnail previews and drag-and-drop simplicity.

"The *Zio* platform is a new and different approach to Video-over-IP," said Bob Marcus, president, RGB Spectrum. "It sets a new standard for IP video distribution and display in terms of features and simplicity of design. Its superior performance and scalability make the *Zio* platform ideal for use in simulation and command-and-control."



Illustration courtesy of Lockheed Martin Corporation

The *Zio* AV-over-IP platform is used in each of the simulator's main components - the pilot cockpits, Instructor Operator Stations, and After-Action-Review (AAR) debriefing room, tying together the full simulation system.

Marcus continues, "The F-35 FMS is one of the most sophisticated simulators in the world supporting one of the most advanced planes in the world. We are proud to be a part of this effort."

RGB Spectrum's *Zio* platform and other video solutions are deployed in military applications worldwide, including P-8 Poseidon trainers, simulators for the Global Hawk/Triton UAV, F-16 and F-22 aircraft, Apache, Kiowa, Chinook helicopters, at the NASA/Kennedy Space Center, U.S. Army Operational Test Command, on ships of the U.S., Japanese and Canadian navies, and in the THAAD, MEADS, CRAM and BAMS missile defense systems.

For more information, visit www.rgb.com.

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RGB Spectrum HQ: 1-510-814-7000 • Contact your sales manager: rgb.com/contact

1101 Marina Village Pkwy, Suite 101 • Alameda, CA 94501