Boeing chooses Christie® Matrix StIM™ for Apache Longbow Crew Trainer simulators

Boeing chose the award-winning Christie Matrix StIM™ as the projection system technology for a multi-million dollar display system upgrade for their Apache Longbow Crew Trainer (LCT) simulator program. The three key reasons why the Christie Matrix StIM was chosen were: superior image quality, low maintenance costs and enhanced Night Vision Goggle (NVG) training capabilities.

The Christie Matrix StIM is a scalable environment display system that provides the unique capabilities of achieving eye-limiting resolution while stimulating Night Vision Goggles. Designed and engineered with Christie expertise, this system features extraordinarily long life, quality and ease of service. And, it’s virtually maintenance-free.

The LCT ensures the highest state of readiness and safety for its customers. The device provides a high level of realism that offers top quality training in a safe environment. The Christie Matrix StIM’s solid state, LED-based illumination system also offers unprecedented stability and reliability, critical features that speak to Boeing’s strategy for providing customers with cutting-edge, value-added solutions to meet their specific needs.

Built on an inherently stable long-life platform that doesn’t fade over time, Christie offers a lamp-less illumination system that leads the industry in reliability and stability. With no consumables, the Christie Matrix StIM provides 7 to 10 years of continuous operation.* Low power consumption directly translates to lower operating heat, less cooling requirements, and cost savings in electricity for a significant reduction in sustainment costs.

The innovative technology of the Christie Matrix StIM™ as a revolutionary scalable projection display system has met defense contractor Boeing’s needs for current and emerging technologies for improved capabilities of existing products and new solutions.

Customer:
The Boeing Company

Location:
St. Louis, MS, United States

Industry/Market:
Defence, Space and Security

Requirements:
• Image quality
• Resolution
• Cost of ownership

Summary:
The Apache LCT is a full-mission, high-fidelity flight simulator that provides training for individuals, crews and maintenance test pilots. Used to train in various scenarios in different weather conditions with different terrains, pilots never need to leave their post.

The US Army requested a specification change in the program – making a requirement for Night Vision Goggle training part of the detail.

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The revolutionary scalable projection display system meets the defense contractor’s needs for current and emerging technologies for improved capabilities of existing products and new solutions.

Products:
• Christie Matrix StIM

Results:
To date, 10 complete simulators have been shipped, with additional simulators to follow to complete the program. Boeing is on contract to deliver three additional LCTs to the Army throughout the next two years.
With no moving parts and no lamps to change, sustainment costs for a Christie Matrix StIM are extremely low. Since there are no lamp replacements, resources are conserved and costs are reduced as a technician’s time for system set-up and balancing, proper disposal of used lamps, and lamp maintenance aren’t required.

The Boeing strategy is to understand the enduring needs of customers and provide value-added solutions to meet their requirements. The strategy includes understanding the art of using current and emerging technologies to improve the capabilities of existing products and delivering new solutions.

The Apache LCT was fully designed by Boeing. Christie worked with Boeing during the design phase to ensure that the Christie Matrix StIM met the specific requirements and needs of the program.

“The Apache LCT we delivered to Fort Drum, NY in December is the first device to include the new display-system upgrade,” said Mark McGraw, Boeing vice president of Training Systems and Services. “It incorporates a new out-the-window display using projectors, screens and mirrors to dramatically improve the scene that is presented to the aircrew.”

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The US Army requested a specification change in the program – making a requirement for NVG training part of the detail. The Christie Matrix StIM enables a new level of training by utilizing both visible light and infrared (IR). Through Christie InfraRGB™ illumination (red, green, blue and IR light emitting diodes) and Christie InfraScene™, the unique capability of processing and displaying infrared content, true-to-life NVG stimulation is achieved. This allows for realistic and relevant training in difficult conditions such as limited visibility and nighttime operations.

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Deployed worldwide and used for in-theater training in Iraq and Afghanistan, the LCT supports battalions by allowing pilots ample opportunity to meet their training needs and rehearse missions. The LCTs also may be networked with additional trainers for collective training capability.
The simulator helps pilots prioritize required tasks while engaging in their mission rehearsals in a fluid environment. Trainers can watch how the pilots maintain the safety of the aircraft and crew and do everything they need to do. Trainers can also put the most experienced pilots through challenging situations or work with entire crews on upcoming missions in conditions that include everything from turbulence, wind gusts, lightning, snow, a desert environment, altitude, day, night, sunset and sunrise.

Inside the simulator, which is housed in a container near the flight line, conditions are preset. The pilot sits at the controls in front of three large screens where the scenario is played out. Time can be stopped, backed up and re-played. Fuel and ammunition can be in abundance, or short supply. Perhaps most importantly, no one’s life is in literal danger – having the ability to pause in flight and run the same situation over and over can increase a pilot’s skills tremendously before going into action.

The simulator features two cockpits at either end of a transportable trailer where the training pilots fly in tandem. The mobile simulator includes computers and user workstations. The simulators are used globally and moved around to where the training is required. The trailers, equipped with a generator for electricity and air conditioning, are designed to deploy in a single day.

Each cockpit includes five screens in a 180˚ format. With 10 projectors per simulator, the Christie Matrix StIM LED-based projection systems are packaged together with screens and firmware, then shipped to locations to be retrofitted for the US Army.

To date, 10 complete simulators have been shipped, with additional simulators to follow to complete the program. Boeing is on contract to deliver three additional LCTs to the Army throughout the next two years. One will include a new Department of Defense-directed threat server and another is part of a National Guard modernization program. The third may be used as a development platform for future LCTs.

Contact Christie

Contact us today at sales-us@christiedigital.com to find out how you can benefit from Christie projection and simulation solutions.

The AH-64D Apache Longbow combat helicopter is produced by Boeing in Mesa, AZ.