Constant Resolution Visual System

Description and Purpose:
The Constant Resolution Visual System (CRVS) family of products provides high fidelity, immersive, visual environments for flight simulation and other training applications. Unlike traditional visual systems, the patented screen design of the CRVS provides the warfighter with constant target acuity throughout the entire field of view.

The standard CRVS is available in a full 360° field of view configuration, as well as 300° and 180° configurations. A range of projectors in popular commercial formats are available to meet customer cost and performance targets. Boeing has also implemented an optional hinged rear screen into the CRVS design to allow rapid cockpit exchange and maintenance.

Through an exclusive agreement with JVC, Boeing offers a higher-resolution version of CRVS with 8k e-Shift technology, providing 20/25 visual acuity over the entire field of view. The Boeing 8k e-Shift solution results in significantly improved target identification and realism in day and night flight scenarios when compared to competing systems.

Boeing has added the CRVS Landscape to the family of products as an alternative to the standard CRVS. The CRVS Landscape has been designed for applications where a high fidelity visual system is required but space is at a premium. The CRVS Landscape device provides an immersive 64-degree vertical by 110-degree horizontal field of view. The CRVS Landscape visual system fits within a 10 ft. x 10 ft. area, with a single projector providing imagery over the entire field of view.

The display system is image generation equipment agnostic, but is typically delivered with the Boeing common image generator using commercial-off-the-shelf hardware and software. The 8k e-Shift version of the CRVS uses the Boeing common image generator equipped with unique synchronization software to take full advantage of the 8k e-Shift technology provided by JVC.

The Boeing common image generator also allows users to take advantage of the Boeing common data set which significantly reduces the cost of database development.
The Boeing common data set is a database library consisting of scenery accurate to one meter within the continental United States and accurate to 15 meters for the rest of the world, with additional high resolution gaming areas available. The Boeing common data set allows customer specific content to be efficiently integrated by either Boeing or the customer.

The Boeing common image generator uses the Common Image Generator Interface (CIGI), an international standard, providing an easy upgrade path to existing simulators using the CIGI interface protocol.

CRVS is compatible with a wide range of fast jet and rotary-wing cockpits. Existing CRVS customers can upgrade to JVC 8K e-Shift technology to increase their visual system acuity by 250%.

Customers:
The first CRVS displays were delivered in 2010 to the U.S. Air Force for use on tactical aircraft simulators. CRVS has been delivered on a variety of fast-jet and rotorcraft simulators, including F-15, F-22 Raptor, AH-64 Apache, M-346 Master, BAE Hawk and F-16.

CRVS can be equipped with Boeing’s Simulated Joint Helmet Mounted Cueing System. In combination with the Boeing common image generator the CRVS family of products is compatible with flight hardware night vision goggles, the panoramic night vision goggles and the night vision cueing device, producing accurate night vision stimulation through all light illumination levels.

Benefits of Constant Resolution:
Through the patented principle of constant resolution, each CRVS projector covers a larger portion of the field of vision, requiring fewer projectors to build a fully immersive environment. Fewer projectors equates to lower acquisition, maintenance and operating costs. These benefits are provided over a broad range of product offerings, from entry level to fully immersive, constant resolution systems.

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