

Integrated Defense Systems  
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## Joint Helmet-Mounted Cueing System (JHMCS)



### Description & Purpose:

The Joint Helmet-Mounted Cueing System (JHMCS) is a multi-role system that enhances pilot situational awareness and provides head-out control of aircraft targeting systems and sensors. In an air-to-air role, the JHMCS, combined with the AIM-9X missile, form the High-Off-BoreSight (HOBS) system. HOBS is an airborne weapon-interception system that enables pilots to accurately direct, or "cue," onboard weapons against enemy aircraft merely by pointing their heads at the targets to guide the weapons, while performing high-g aircraft maneuvers that may be required to complete the attack. In an air-to-ground role, the JHMCS is used in conjunction with targeting sensors (radar, FLIR, etc.) and "smart weapons" to accurately and precisely attack surface targets. In all roles, the JHMCS provides the pilot with aircraft performance, targeting, weaponry and threat warning information, regardless of where the pilot is looking, significantly enhancing pilot situation awareness throughout the mission. In a dual-seat aircraft, each crewmember can wear a JHMCS helmet, perform operations independent of each other, and have continuous awareness of where the other crewmember is looking.

### Customer(s):

- F-15 – U.S. Air Force and Air National Guard, Korea
- F-16 – U.S. Air Force and Air National Guard, Belgium, Chile, Denmark, Greece, Netherlands, Norway, Oman, Poland, Turkey
- F/A-18 – U.S. Navy, Australia, Canada, Finland, Switzerland

### JHMCS Operation:

The JHMCS has a magnetic helmet-mounted tracker that determines where the pilot's head is pointed, combined with a miniature display system that projects information onto the pilot's visor. The head tracker and visor display act as a targeting device that can aim sensors and weapons wherever the pilot is looking.

- To obtain a variety of information and sensor-based data, such as airspeed, altitude, target range, etc., pilots can refer to the visual display on the inside of the helmet while remaining in a "heads-up" position during combat; this eliminates the break in visual contact that occurs when they look away to check the display readouts in the cockpit.
- To aim and fire a missile, pilots simply point their heads at the targets and press a switch on the flight controls to direct and fire a weapon.

- To attack a ground target, pilots can acquire the target with a sensor and note its location on the helmet display. Alternatively, pilots can use the helmet display to cue sensors and weapons to a visually-detected ground target.

## **JHMCS Details**

As a cueing system, JHMCS is a two-way interface that comprises the following capabilities:

- Sensors aboard the aircraft can cue pilots to potential targets; conversely, pilots can cue weapons and sensor systems to areas of interest, aiming radar, air-to-air missiles, infrared sensors and air-to-ground weapons by pointing their heads at the targets.
- The system graphically displays critical information and symbols, such as targeting cues, threat warnings and aircraft-performance parameters, directly on the pilot's visor. This significantly improves pilot situational awareness during all mission elements.
- The system can be used without requiring the aircraft to be maneuvered, significantly reducing the time needed to prosecute an attack, which also minimizes the time spent in the threat environment.
- Since targets may be located at high-off-boresight line-of-sight locations in relation to the shooter, the system delivers a short-range intercept envelope that is significantly larger than any other air-to-air weapon in use.
- When used in conjunction with a datalink, the system permits handoff of visually detected targets from one aircraft to another, with the second aircraft receiving visual cueing to the target.

JHMCS is deployed operationally on more than 2,500 F-15, F-16 and F/A-18 aircraft worldwide, including several international air forces that employ those aircraft.

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