

## INFORMATION PAPER

### ON

## HELMET MOUNTED CUEING SYSTEM (HMCS)

**1. Background.** The addition of day/night helmet mounted cueing system to the A/OA-10 will significantly increase pilot situational awareness (SA), aircraft survivability, and lethality in every mission area. With the capability to cue sensors and weapons off-boresight, using a helmet line of sight (LOS) as the aiming reference, pilots can quickly engage targets of opportunity while still identifying friendly positions via data-link and other means. This enhances time sensitive targeting capabilities, and greatly reduces the risk of fratricide and collateral damage. The HMCS allows pilots to quickly build a three dimensional picture of the battle space by displaying actual target, threat, and friendly positions using information available from existing on and off-board sources. The ability to see these locations outside the head up display (HUD) eliminates the need to fly near the target area, greatly reduces threat exposure, and significantly increases aircraft survivability.

**2. Requirement.** JHMCS-CAF 308-93 MNS, ORD CAF-USN 308-93-II-A Dec 1996. CAF Operational Requirements Document CAF 401-91-I/II/III-D for A/OA-10 Aircraft Multi-Staged Improvement Program (MSIP).

**3. Impact If Not Funded.** The risk of target misidentification, collateral damage and fratricide is increased without HMCS. Also, time sensitive targeting will be hampered by increased verbal coordination to identify the proper target.

**4. Units Impacted.**

|                         |                   |                         |
|-------------------------|-------------------|-------------------------|
| 103 FW Bradley, CT      | 104 FW Barnes, MA | 110 FW Battle Creek, MI |
| 111 FW Willow Grove, PA | 124 WG Boise, ID  | 175 WG Baltimore, MD    |
| 188 FW Ft Smith, AR     |                   |                         |

**5. Contractors.** Vision Systems International San Jose CA, BAE Systems Kent UK, Rafael Tel Aviv Israel.

**6. Cost.**

| Number Units             | Unit Cost | Program Cost    |
|--------------------------|-----------|-----------------|
| RDT&E (3600)             | -         | \$4.20M         |
| 112 (3010)*              | \$400K    | \$44.80M        |
| <b>Total (3600/3010)</b> |           | <b>\$49.00M</b> |

\* Includes 10% spares

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#### F-15 JOINT HELMET MOUNTED CUEING SYSTEM (JHMCS)

**1. Background.** JHMCS optimizes battlefield situational awareness for offensive and defensive measures. In addition, JHMCS provides capability for first look, first shot weapons employment advantage in the air-to-air within visual range (WVR) combat arena. This includes cueing off-boresight sensors and weapons, such as radar, navigation system, and next generation short range missiles (SRM). The helmet provides radar weapon symbology and visual cues of target location. The system is compatible with F-15, F-15E, F-16, F-18, AV-8B, and A-10 aircraft.

**2. Requirement.** JHMCS - CAF 308-93 MNS, ORD CAF-USN 308-93-I-A dated Feb 1995, CAF-USN 308-93-II-A dated Dec 1996

**3. Impacts If Not Funded.** The WVR threat will increase with continued deployment of advanced short range IR air-to-air missiles and high off-boresight cueing systems currently being fielded on exported Russian aircraft such as the Mikoyan-Gurevich MiG-29 FULCRUM, Sukhoi Su-30 FLANKER, and other foreign aircraft. The proliferation of advanced IR All-Aspect Missiles and off-boresight cueing systems will result in a lethal dogfight arena for US fighter aircraft.

**4. Units Impacted.**

|                         |                        |                          |
|-------------------------|------------------------|--------------------------|
| 102 FW Otis ANGB, MA    | 104 FW Westfield, MA   | 120 FW Great Falls, MT   |
| 125 FW Jacksonville, FL | 131 FW St. Louis, MO   | 142 FW Portland, OR      |
| 154 WG Hickam AFB, HI   | 159 FW New Orleans, LA | 173 FW Klamath Falls, OR |

**5. Contractor.** Vision Systems International San Jose CA, Boeing Company St Louis MO

**6. Costs.**

| Units Required | Unit Cost | Program Cost* |
|----------------|-----------|---------------|
| 120 (3010)     | \$570K    | \$68.40M      |

\*Includes 10% spares, TCTOs, installs & support equipment

## INFORMATION PAPER

### ON

#### F-16 HELMET MOUNTED CUEING SYSTEM (HMCS)

**1. Background.** The addition of day and night, helmet-mounted cueing and display capability to the F-16 Block 25/30/32 significantly increases pilot situational awareness (SA), aircraft survivability, and lethality in every mission area. The Helmet Mounted Cueing System (HMCS) allows pilots to quickly build a three dimensional picture of the battle space by providing actual target, threat and friendly line-of-sight (LOS) information into the pilot's helmet visor. This reduces the "head down time" along with the necessity to fly near the target area. With the capability to cue sensors and weapons off bore-sight using the helmet LOS as the aiming reference, pilots can quickly engage targets of opportunity. This enhances time sensitive targeting capabilities and greatly reduces the risk of fratricide or collateral damage. The Joint Helmet Mounted Cueing System (JHMCS) has been integrated in the Block 40/50 Common Configuration Implementation Program (CCIP) F-16, F-15C, and F/A-18 aircraft. Funding is required to integrate HMCS capability in the F-16 Block 25/30/32 aircraft so that it can be fielded in time for SCU-7.

**2. Requirement.** JHMCS-CAF 308-93 MNS, ORD CAF-USN 308-93-II-A Dec 1996, CAF 301-01-B, F-16C/D Block 25/30/32 MSIP ORD (15 Dec 04)

**3. Impact If Not Funded.** The risk of target misidentification, collateral damage and fratricide is significantly increased without HMCS.

#### 4. Units Impacted.

|                        |                         |                          |
|------------------------|-------------------------|--------------------------|
| 113 WG Andrews AFB, MD | 144 FW Fresno, CA       | 177 FW Atlantic City, NJ |
| 114 FW Sioux Falls, SD | 147 FW Ellington, TX    | 178 FW Springfield, OH   |
| 115 FW Truax, WI       | 148 FW Duluth, MN       | 181 FW Terre Haute, IN   |
| 120 FW Great Falls, MT | 149 FW Kelly AFB, TX    | 183 FW Springfield, IL   |
| 122 FW Ft Wayne, IN    | 150 FW Kirtland AFB, NM | 187 FW Dannelly Fld, AL  |
| 127 WG Selfridge, MI   | 158 FW Burlington, VT   | 188 FW Ft Smith, AR      |
| 132 FW Des Moines, IA  | 162 FW Tucson, AZ       | 192 FW Richmond, VA      |
| 140 WG Buckley, CO     | 174 FW Syracuse, NY     |                          |

**5. Contractors.** Vision Systems International, San Jose, CA

#### 6. Cost.

| Number Units * | Unit Cost | Program Cost |
|----------------|-----------|--------------|
| NRE (3600)     |           | \$4.20M      |
| 373 (3010)     | 400K      | \$149.20M    |
| Total Cost     |           | \$153.40M    |

\*Includes 10% spares