BAE Systems Platforms & Services

Commander’s Independent Weapon Station Demonstrator

April 22, 2015

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Introduction

- This presentation provides an overview of a Commander’s Independent Weapon Station (CIWS) demonstrator developed to integrate a sensor payload with a weapon system on a high precision pointing gimbal
- DRS developed the CIWS sensor payload and BAE Systems the pointing gimbal
- CIWS provides the Commander a panoramic 360° stabilized sight capable of day / night engagements with the remotely operated M240 commanders weapon, or the vehicle main gun
CIWS System Overview

- M240
- Weapon Elevation Drive
- Sensor Enclosure
- Sensor Elevation Drive & Slip Ring
- Electrical / Mechanical Interface for Add on Capabilities
- Flex Chute
- Weapon Remote Operating Kit (Charges, Fires, Safes, Misfire Clearing)
- EO/IR Sensor & Protective Screen
- Vehicle Interface
- 500 Rounds Ammo Storage on demonstrator (w/expansion capability)
CIWS Field of Regard

Sight and weapon at 0° elevation

Sight and weapon shown at 60° elevation

Sight at stow to protect the optics

Sight at 0° and Weapon at 60° Surveillance with non-threatening posture
CIWS Capabilities and Features

- Excellent Line of Sight (LOS) stabilization (Direct drives, rigid structure, appropriate feedback sensor suite, and control architecture)
- On-board M240 weapon platform capable of on the move precision engagements
- 2nd Generation Forward Looking Infrared (FLIR) & High Definition Color Day Camera Imagery
- Eye-safe Laser Rangefinder, Near Infrared (NIR) and Visible Laser Markers
- Non-Lethal Effects devices
CIWS Capabilities and Features (continued)

- M240 Weapon super elevation provides ballistic range compensation without reticle shift
- M240 Lead angle compensation (Not implemented on demonstrator)
- Remote M240 weapon operation with 500-1000 ready rounds
- Redundancy to continue the fight - CIWS capable of engaging targets with main weapon
- 360° silent watch and sector scanning
- Armored sensor and structure
Sight Only Variant

- Sensor Enclosure
- Sensor
- Azimuth Drive / Brake & Slip Ring
- Spotlight
- Elevation Drive / Brake & Twist Capsule
Mobility Disturbance Pointing Validation

- Assessed gimbal stabilization performance on a 6DOF motion table programmed to provide an input disturbance profile
- Collected RMS LOS stabilization of gimbal from gyro feedback
- Collected FLIR and DVC imagery to calculate the LOS motion of a target board
- Verified operation through a representative bump-course motion profile
- Correlated simulation predictions against test results
Camp Ripley CIWS Live Fire Testing

- All tests were completed and test goals were met
- Fired rounds in Single Shot, Burst and Continuous fire at 0°, 35°, & 60° elevation
- All ammunition system and weapon control functionality verified smooth, predictable, and reliable operation, no hang ups, misfires, or jamming
- Excellent pointing repeatability/accuracy
Demonstrator Photos
Contact Information

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