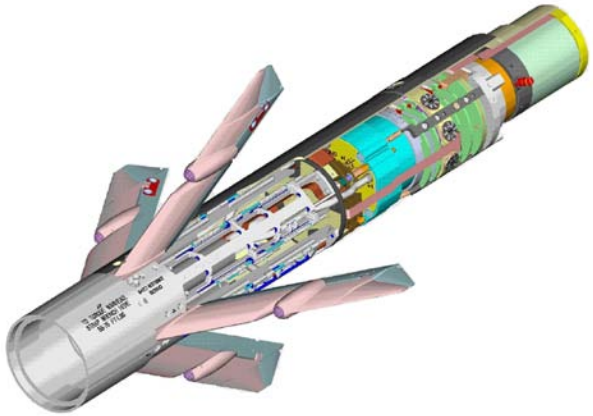
APKWS II

Turning 2.75-Inch Rockets into Precision Guided Munitions

15 May 2012



Chuck Paras
Atkinson Aerospace and Technology Engineering Support
PMA-242
Direct and Time Sensitive Strike Program

Advanced Precision Kill Weapon System II (APKWS II)

APKWS is highly effective weapon that allows aviators to complete their missions while minimizing the risk of harm to allies and non-combatants.

Advanced Precision Kill Weapon System II (APKWS II)

- APKWS is a Semi-Active Laser (SAL) guidance kit added to current 2.75-inch Rockets
  - Manufactured by BAE Systems
- Low collateral damage and minimal aircraft integration
- Accurate: <1 meter CEP in Test Program
- Increased Kills/Sortie: up to 76 per sortie
- Status:

  Jan 2012 - Completed Operational Testing
  Feb 2012 - Fielding Decision by USMC
  Mar 2012 - Initial Operational Capability

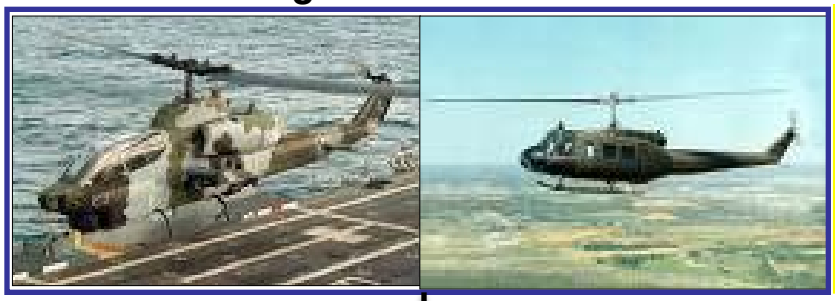
  Full Rate Production Decision 2012

High Precision, Low Collateral Damage Weapon Deployed

APKWS II Weapons System Overview

LAUNCH PLATFORM

Program of Record

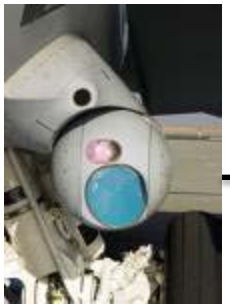


Joint Capabilities Tech Demo

Legacy Launchers
USN / USMC - LAU-61 / LAU-68

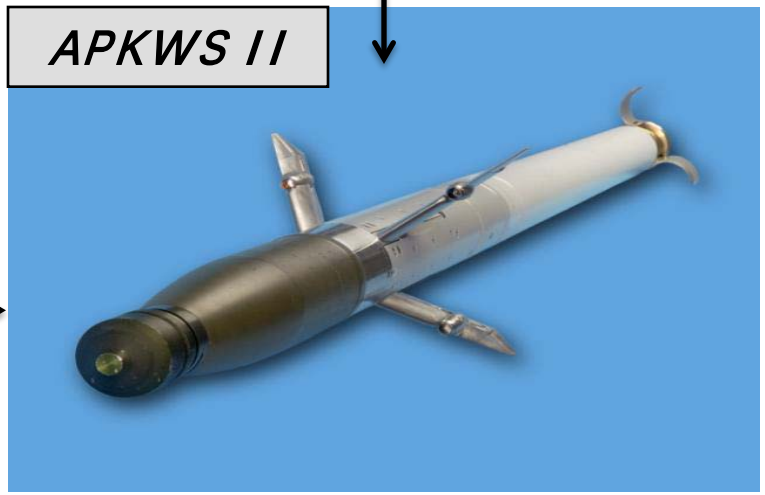
Legacy Launchers
USN / USMC - LAU-61 / LAU-68
USAF - LAU-131
USA - M260 / M261

LASER SOURCE



NTS **GLD** **FLIR**

APKWS II



Distribution Statement A: Approved for Public Release; distribution is unlimited. NAVAIRSYSCOM #12-570

APKWS II System

Aiming Cues
UH-1Y SCS 7

Shipping and Storage Container, CNU-711/E (4 WGU-59/B)

Fastpack
PA-150 (4 AUR)

Guidance System, WGU-59/B

Fuze **Warhead** **MK 66 Mod 4 Rocket Motor**

Mk 152 HE w/ Mk435 Mod 0 fuze
M151 HE w/ M423 fuze

AUR Length/Weight: 73.8-inches /32.8 lbs

7-Tube LAU-68 F/A Launcher

AH-1W, UH-1Y

APKWS HE Impact

APKWS Comparison

WGU-59/B APKWS II 2.75-Inch Rocket

Length	73.8 inches
Weight	32 lbs
Diameter	2.792 inches
Longitudinal CG	41.39 inches
Lateral CG	0.001 inches

LAU-68 F/A Launcher

Features	Unguided 2.75-inch	APKWS II
MK-66 Mod 4 RM	X	X
M151/MK152 WH	X	X
Point Detonating Fuze	X	X
LAU-61/LAU-68 Launcher	X	X
PA-92 Shipping & Storage Container	X	X
SAL Guidance Section		X

MK 435 Fuze

MK 152 HE Warhead

APKWS II Guidance Section

MK 66 Rocket Motor

Unguided 2.75 Inch Rocket

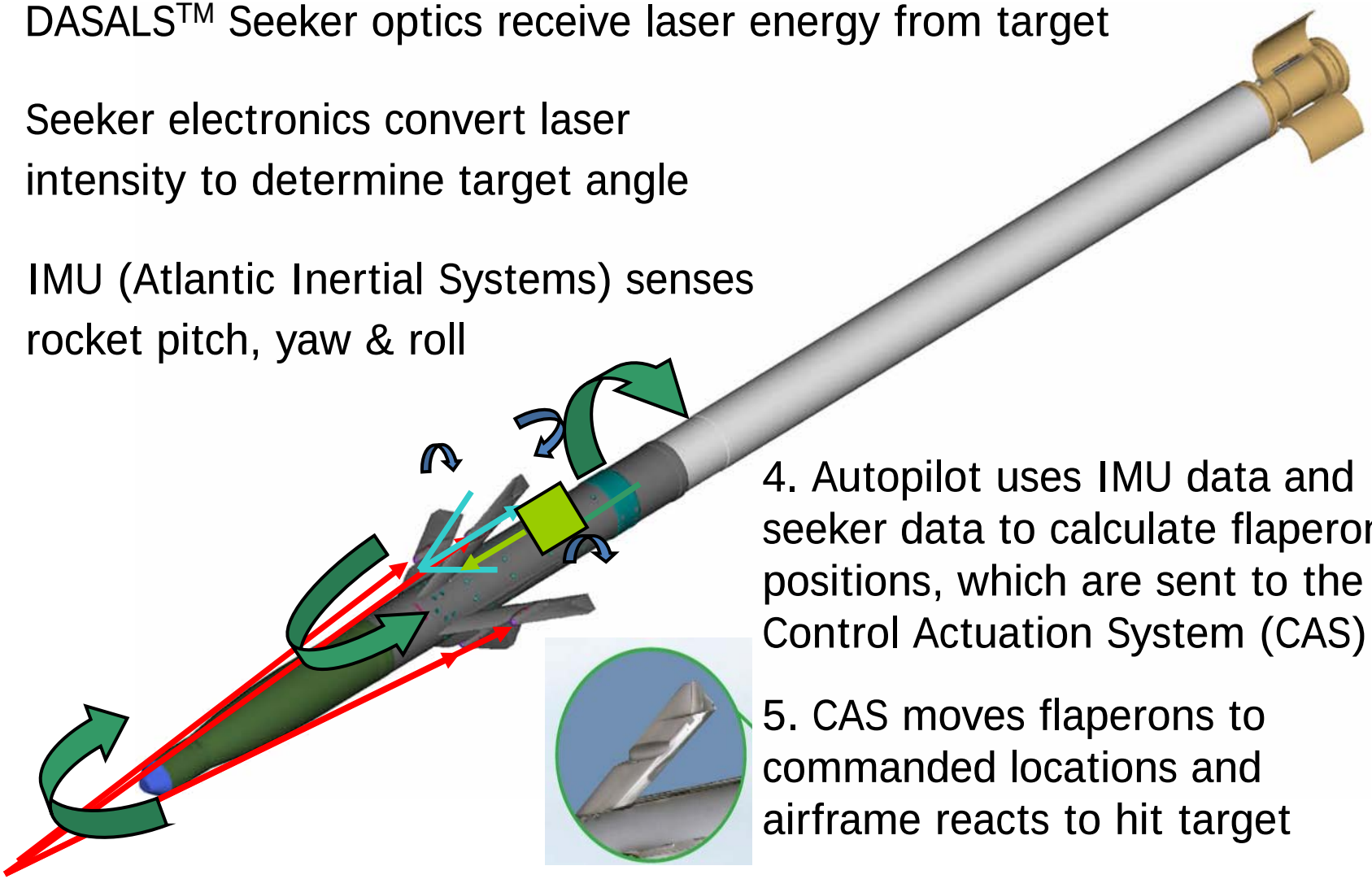
Length	55.3 inches
Weight	23 lbs
Diameter	2.792 inches
Longitudinal CG	29.92 inches
Lateral CG	0.001 inches

LAU-68 D/A or LAU-61 C/A Launcher

CNU-711/C Shipping and Storage Container

APKWS – How it Works

1. DASALS™ Seeker optics receive laser energy from target
2. Seeker electronics convert laser intensity to determine target angle
3. IMU (Atlantic Inertial Systems) senses rocket pitch, yaw & roll



4. Autopilot uses IMU data and seeker data to calculate flaperon positions, which are sent to the Control Actuation System (CAS)
5. CAS moves flaperons to commanded locations and airframe reacts to hit target

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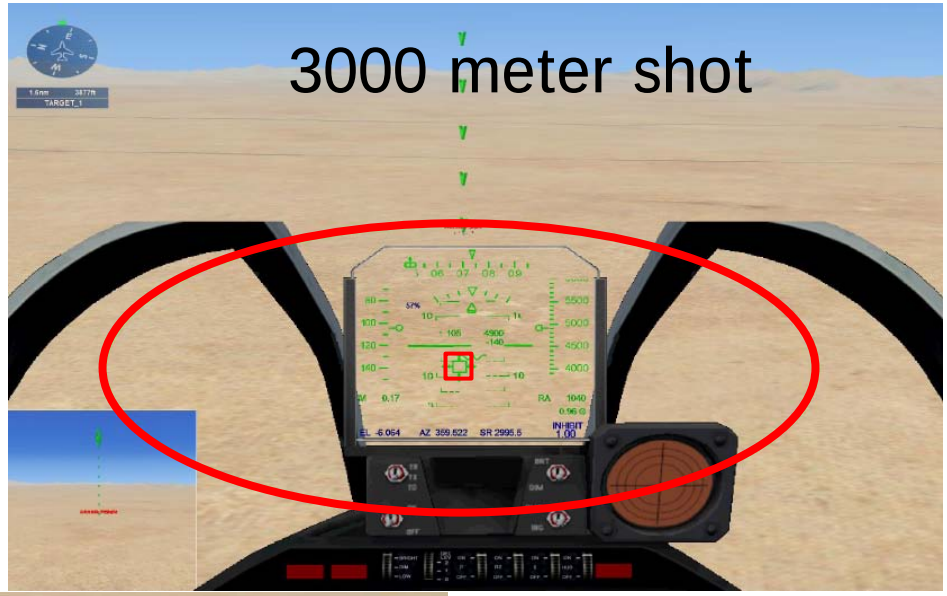
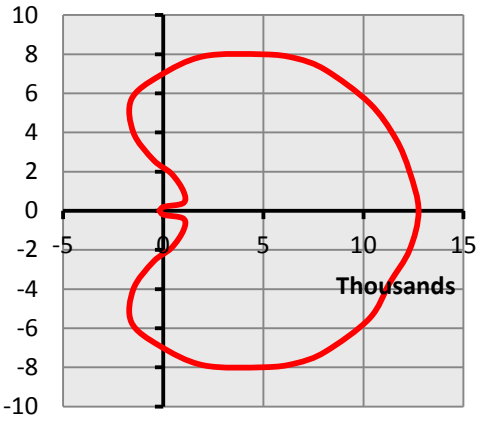
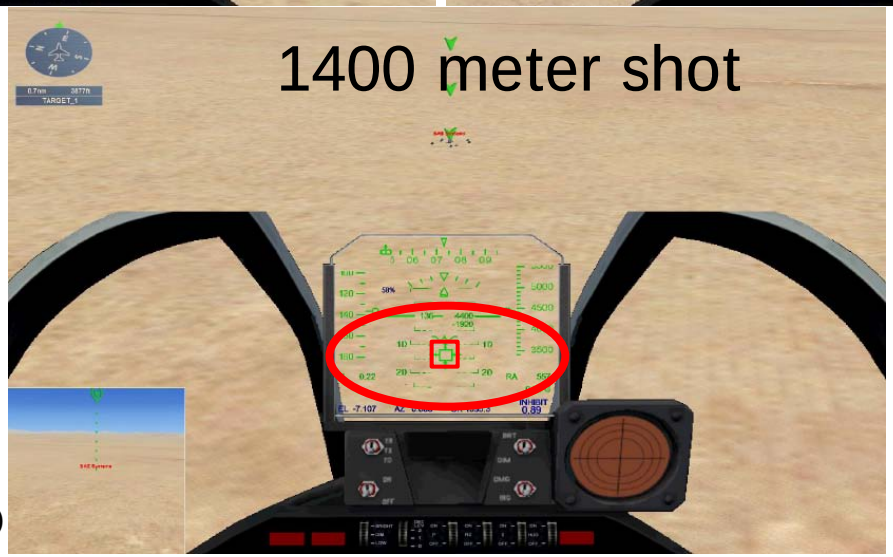
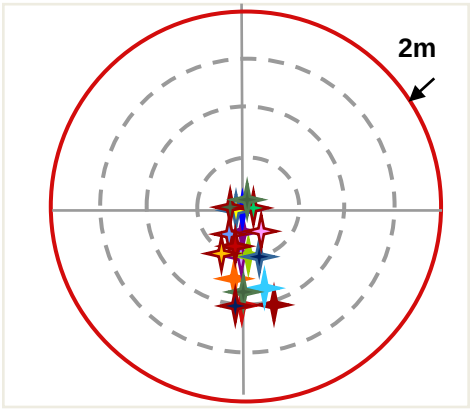
APKWS Off Axis Capability





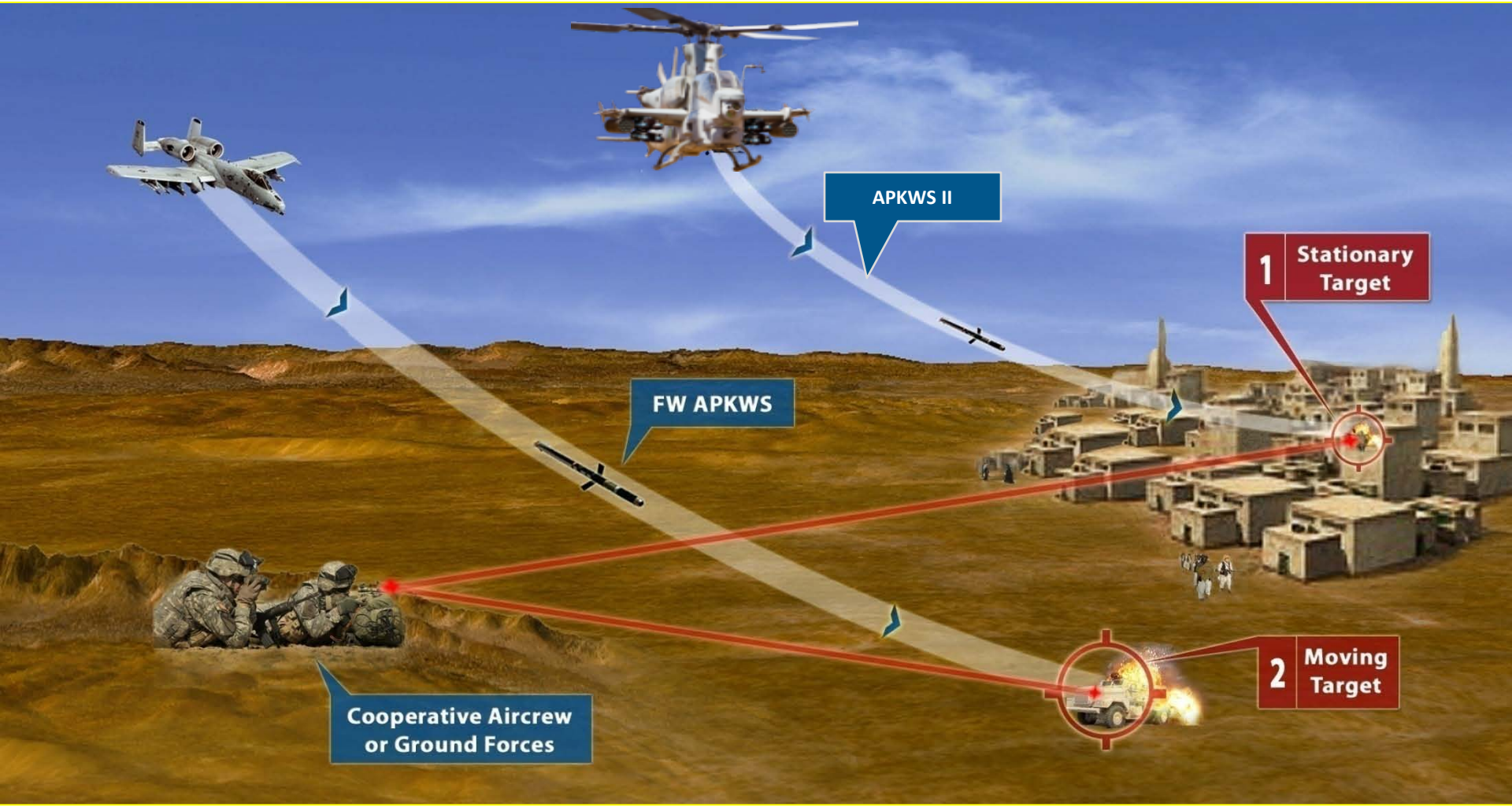
Surface Danger Zone
-1,600 to 12,750 meters (longitudinal)
±8,000 meters (lateral)





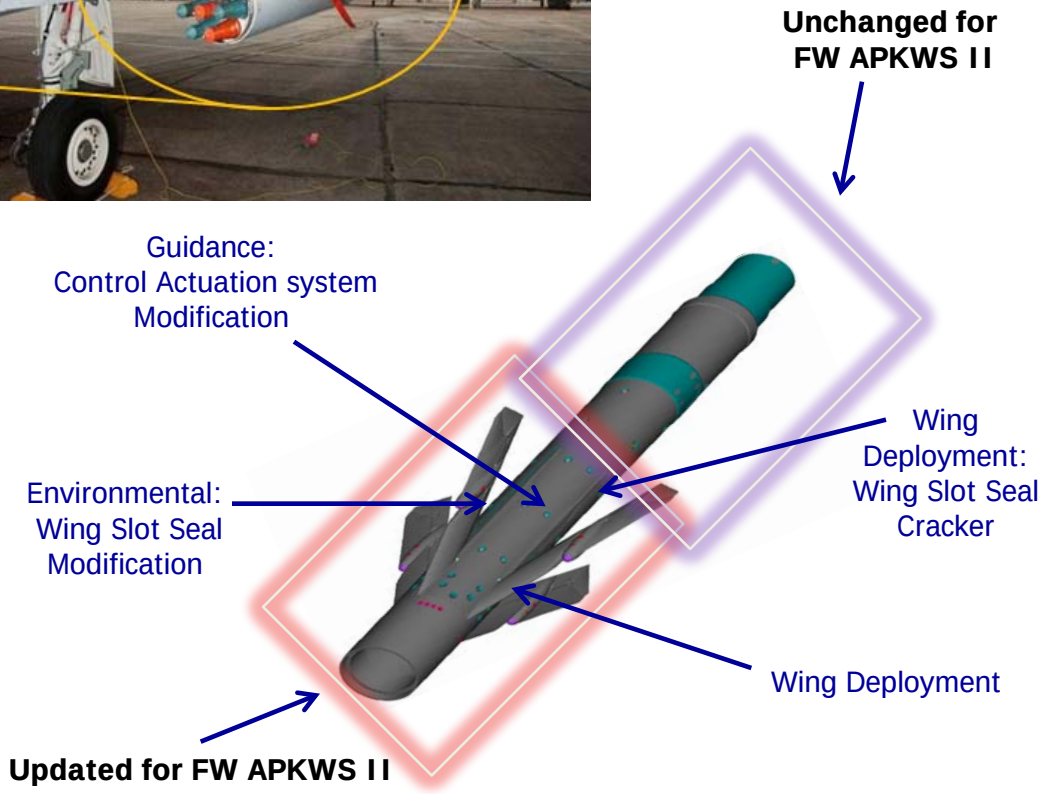
Average Miss Distance: 0.44 meters

Concept of Operations



Fixed Wing APKWS JCTD

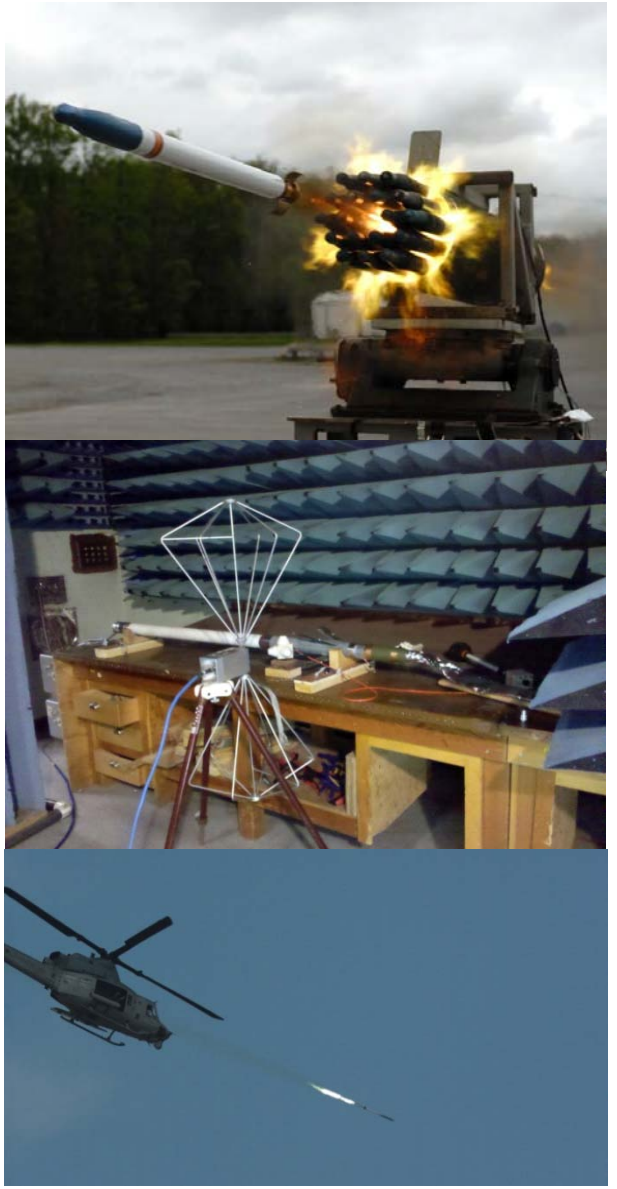
- Shots & Military Utility Assessment Spring 2013



APKWS II Program of Record Qualification Testing Complete

- **Laboratory/Ground Tests Summary**
  - Environmental Qualification
  - Adjacent Rocket Fire
  - Hazards of Electromagnetic Radiation to Ordnance
  - Drop Tests – Handling (37”) & Safety (40’)
  - Shipboard Shock
  - Electromagnetic Environmental Effects (E^3)
  - Ground Launch at Targets from 1.5 to 5 Km
  - First Article and Lot Acceptance Tests

- **Flight Tests**
  - Captive Carriage & Safe Separation
  - Integrated Flight Tests (IT-B and IT-C)
  - Operational Assessment (OT-B)
  - Initial Operational Test and Evaluation (IOT&E)



Production

- Low Rate Initial Production
  - Lot 1 Delivered
  - Lot 2 in Manufacture
- Full Rate Production
  - In Negotiation

Other Applications

- Same interface as unguided rockets
  - Simple qualification for follow-on platforms

Rapid Deployment Capability

Follows Fixed Wing JCTD

Industry Funded Demonstration

Summary

- APKWS II in production
- Units being tested in combat
- Success in combat will inform future plans

Questions?

Contact Info

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