Non Line Of Sight-Launch System
(NLOS-LS)
PAM Overview

Mr. Glen Sutton
PAM Program Manager
Raytheon Missile Systems
# PAM Requirements

<table>
<thead>
<tr>
<th></th>
<th>Current</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RANGE</strong></td>
<td>40 km</td>
<td>60 km</td>
</tr>
<tr>
<td><strong>BATTLE DAMAGE INFORMATION</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>AUTONOMOUS ENGAGEMENT</strong></td>
<td>ATA (UCIIR)</td>
<td>Theater-specific Updates</td>
</tr>
<tr>
<td><strong>EXTERNAL DESIGNATION</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

- **Target Set:** T-90, BMP-2, Field Fortifications
Precision Attack Missile
Technical Achievements

GPS/INS Navigation System

- 2nd Successful Control Test Flight (Jun 2003)
  - Demonstrated Pintle Rocket Motor
  - Missile Flew 19.5 kms with a Boost Glide Trajectory and Hit Within .74M (29") of Target Center
- Guided Test Vehicle (GTV2) SAL mission successfully engaged T72 (Nov 03)
- Pintle Rocket Motor (Missile Flight)
  - Extends Range Variable Speed Enhances Search and ATA Capability
- GPS/Inertial Navigation System (INS) Missile Flight
  - Extremely Accurate Guidance System in Jammed and Un-jammed Environment
- Multi-Mode Seeker (Flown Captive Flight Test)
  - SAL and Uncooled IIR Seeker Functioned Perfectly Flown under Helicopter
- Automatic Target Acquisition (Flown Captive Flight Test)
  - Ability to Recognize Targets in Open Terrain

Multi-Mode Seeker
- Semi-Active Laser (SAL)
- Un-Cooled Imaging Infra Red (UCIIR)

PAM Provides A 40km Precision Kill Capability Against Moving Armored & Soft Targets Using Laser Guidance or Automatic Target Acquisition
Demonstration vs. Tactical PAM

**System**
- Seeker Head
- Seeker Electronics
- Missile Electronics
- Warhead
- ESAD
- GPS / INS
- CAS
- Rocket Motor
- Airframe
- Wings
- Fins
- Batteries
- Network Radio
- Canister

**Demo To Tactical**
- Producibility
- Producibility / Design Enhancement
- New
- New / Commonality
- Commonality
- Commonality
- Producibility / Design Enhancement
- Producibility
- New
- Directed Change
- Producibility

**Raytheon**
PAM
Guided Test Vehicle 2
Flight Test
NLOS-LS PAM

Precision Engagement
Back Up
Raytheon PAM & CLU Technical Maturity

Accomplishments

- Worlds First Variable Thrust Solid Rocket Motor
- World’s First Dual Mode Uncooled Semi-active Laser Seeker
- Industry First Platform-independent Vertical Launch
- Industry First 7” Concentric Canister Launcher
- 3 Successful Guided Flight Tests, Passive IR, ATA Demonstrated

PAM - BLK-I (2008)

<table>
<thead>
<tr>
<th>Accuracy Delivery:</th>
<th>5.0 M CEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hit: UCIR w/ATR:</td>
<td>0.5 M CEP</td>
</tr>
<tr>
<td>SAL:</td>
<td>0.25 M</td>
</tr>
<tr>
<td>Seeker:</td>
<td>UCIR w/ATR; SAL</td>
</tr>
<tr>
<td>Warhead:</td>
<td>Shape Chg/Blast Frag - ~17lb</td>
</tr>
<tr>
<td>Guidance:</td>
<td>GPS/INS</td>
</tr>
<tr>
<td>Uplink/Downlink C2</td>
<td>MSL to MSL C3</td>
</tr>
<tr>
<td>Autonomous or MITL</td>
<td></td>
</tr>
<tr>
<td>Data Input:</td>
<td>Network (MMA)</td>
</tr>
</tbody>
</table>