



2003 ATEC Industry Days



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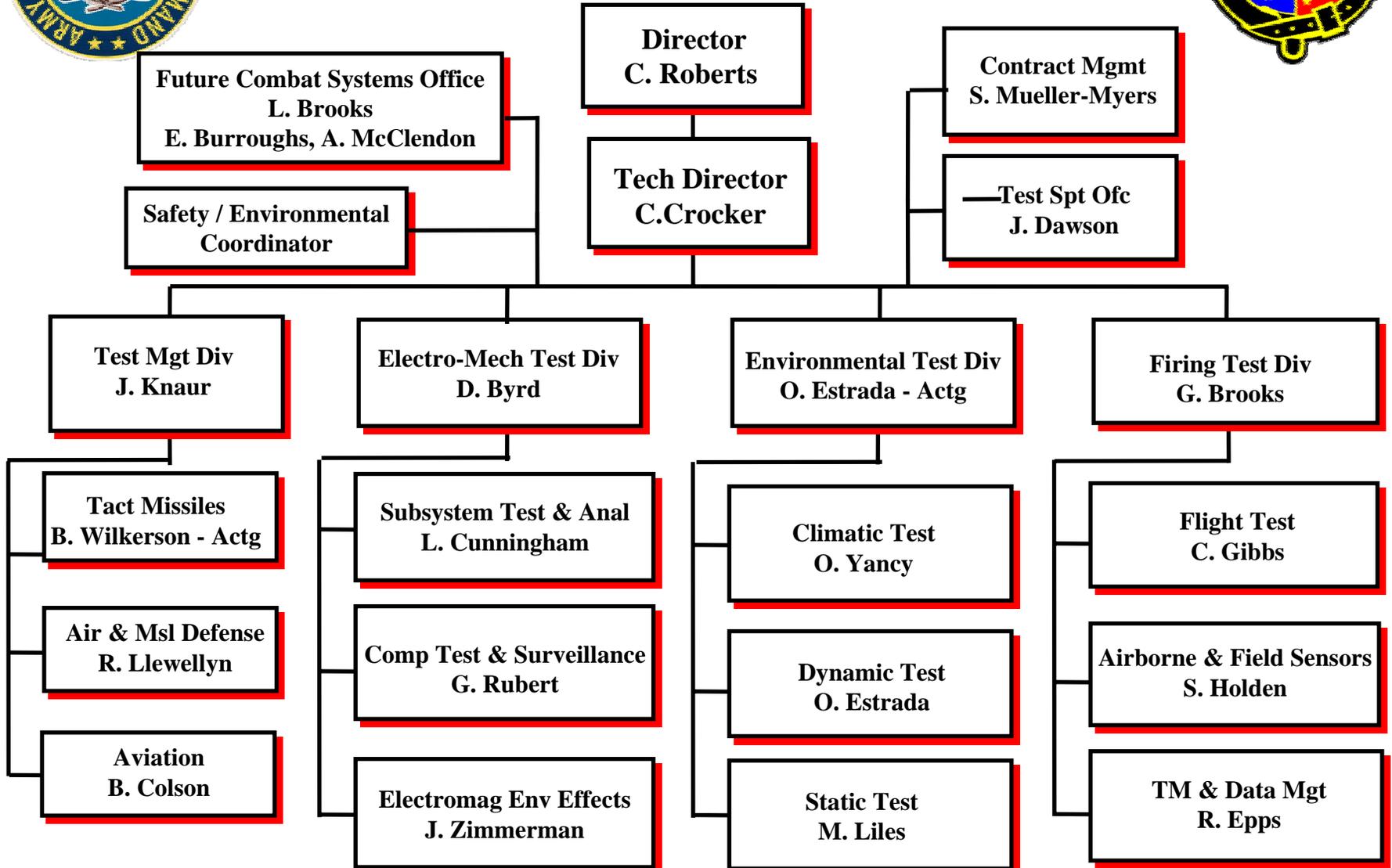
June 24, 2003

U.S. ARMY TEST AND EVALUATION COMMAND

Redstone Technical Test Center



REDSTONE TECHNICAL TEST CENTER





REDSTONE TECHNICAL TEST CENTER



186 Civilian
366 Contractors
552 Total



14,000 Acres
810,000 Building Sq. Ft.
***\$400 Million Investment**

***Excludes Land Valued at \$104 Mil**

RTTC Test Facilities



SENSORS & DESIGNATOR RANGE (TA-3)

HANGAR FACILITY

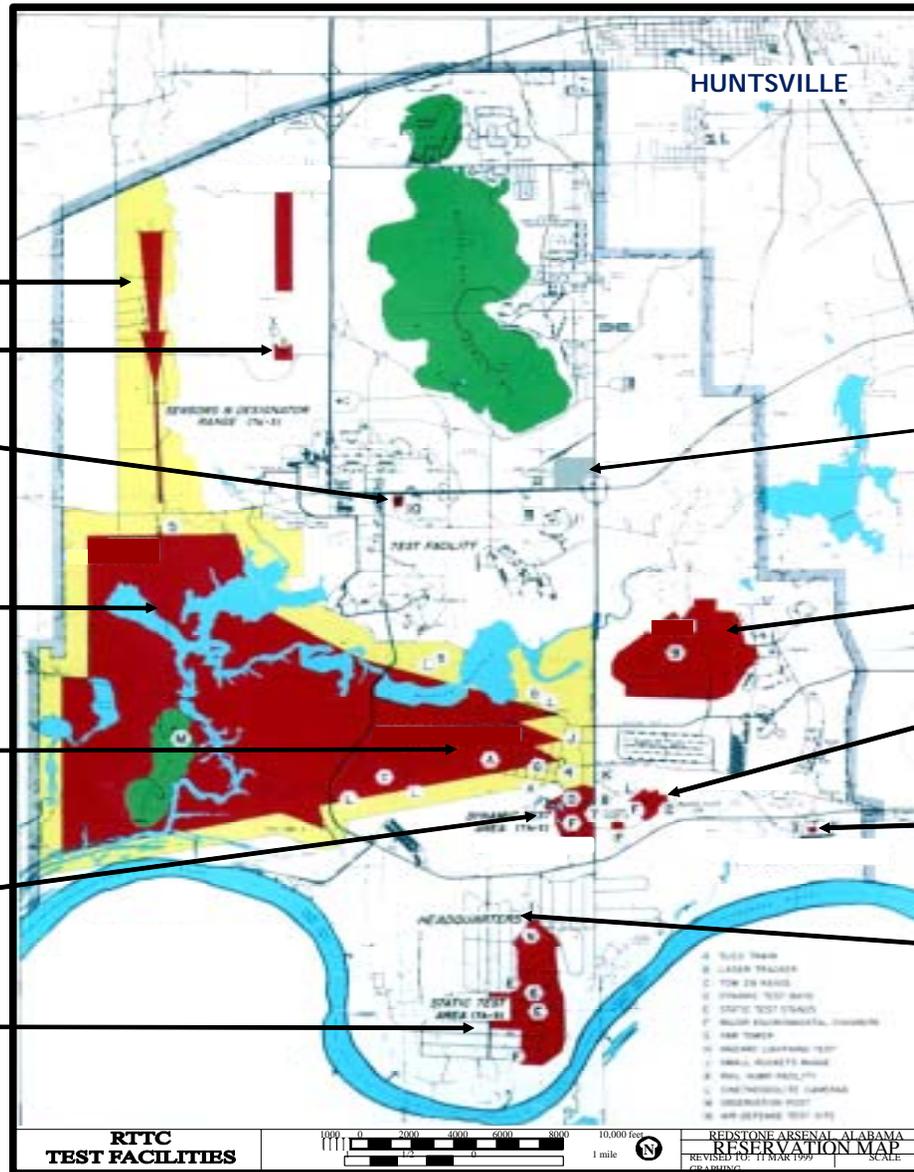
COMPONENT, SUBSYSTEM & SURVEILLANCE TEST FACILITY

PRODUCTION FLIGHT TEST RANGE (TA-6)

FLIGHT TEST RANGE (TA-1)

DYNAMIC TEST AREA (TA-2)

STATIC TEST AREA (TA-5)



SPARKMAN CENTER COMPLEX

TA-10

ENVIRONMENTAL TEST FACILITY

ELECTROMAGNETIC ENVIRONMENTAL EFFECTS (E3) TEST FACILITY

HEADQUARTERS

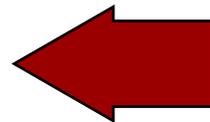
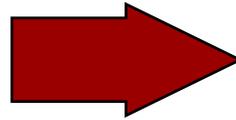


RTTC MISSION

DOD Specialty Test Site

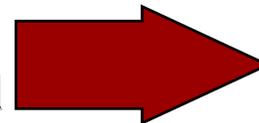


**Army Technical Tester for Small
Rockets and Guided Missiles**



**Army Technical Tester for Weapon
System Components/Subsystems**

**DOD Lightning Tester for
Explosive/Hazardous Materiel**



CONCEPT THRU OPERATIONS & SUPPORT

Redstone Technical Test Center



FY04 Projected RTTC Budget

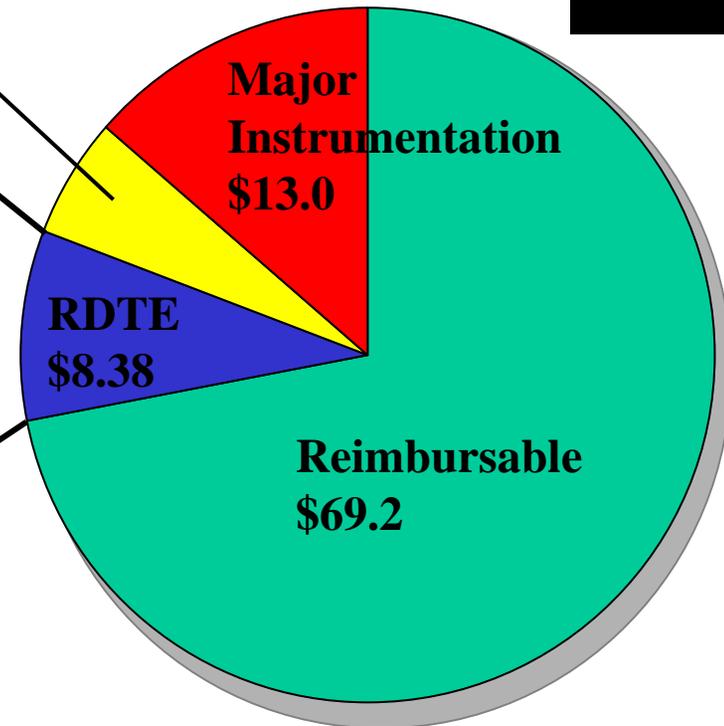


Met Support \$.08



Research, Development,
Test & Engineering

Mil Construction
\$5.5

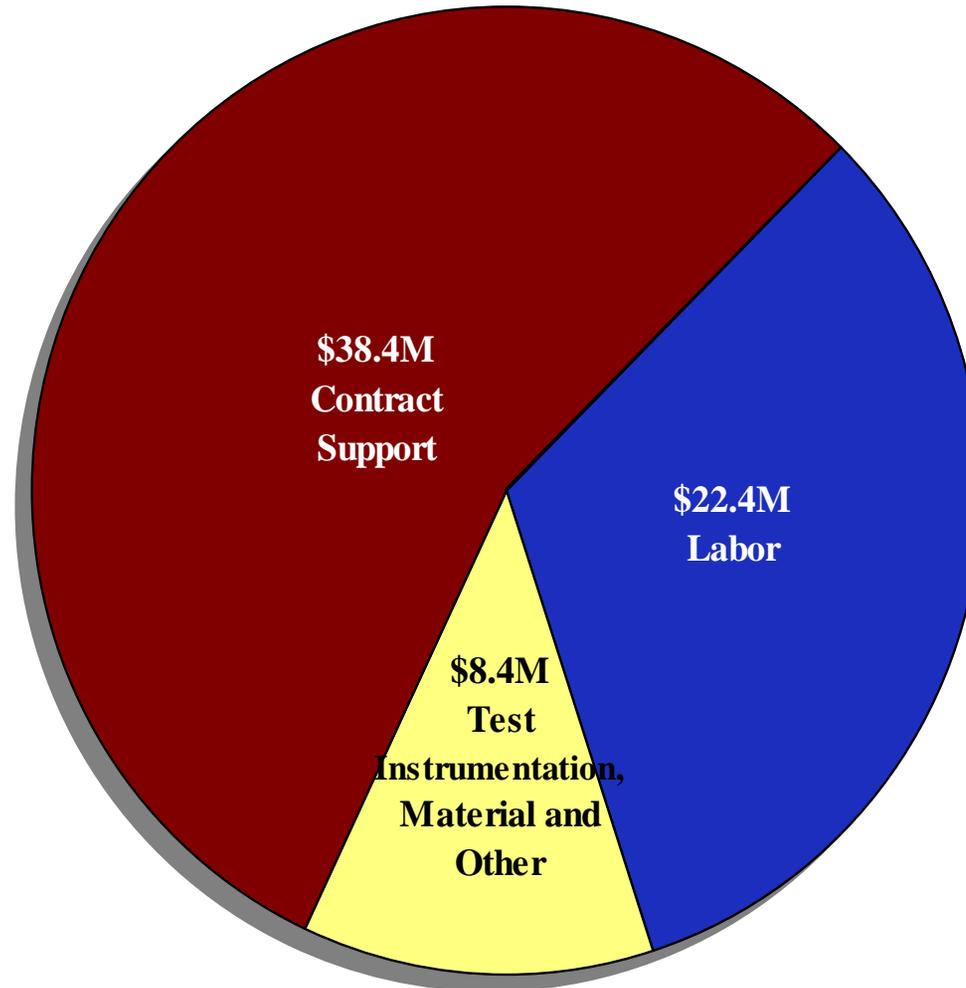


Total \$96.08

\$ Millions



FY04 Projected Budget by Operating Account



\$69.2 Million



Test & Evaluation Support Contracts



DESCRIPTION

EXPIRES

EST. VALUE IN \$ MIL

**Test Management Division
Support Contract(*)**

May 2005

30.2

**Environmental Test Division
Support Contract**

May 2005

73.3

**Firing Test Division
Support Contract**

Oct 2007

88.5

**Electro-Mechanical Test
Division
Support Contract**

Mar 2008

77.4

(*) - 8A Set Aside



Focus Areas for FCS Test Support



- **Principle Technology Capabilities, Competencies and Future Growth Requirements**
 - Sensors & Sensor Fusion T&E
 - Smart Munitions T&E
 - Subsystems & Components T&E
 - Active Protection Systems T&E
 - Environments (Electromagnetic, Climatic, Dynamic, Synthetic)
 - Mobile Test & Instrumentation
 - Telemetry
 - M&S, Live/Virtual Integration
 - Distributed Simulation & Test
 - HPC, Network Integration
- **FCS Systems Focus**
 - Unmanned Ground Vehicles
 - Unmanned Aerial Vehicles
 - Sensors
 - Ground Vehicles
 - Air Vehicles
 - Unattended Ground Sensors
 - Intelligence Surveillance, Reconnaissance (ISR) – Sensor Fusion



Scene Projector Technology



Sensor Fusion /

Multispectral Scene Generation and Projection

Existing IR Scene Generation and Projection



Dynamic Infrared Scene Projector

DIRSP



Flight Motion Simulator IR Scene Projector (FIRSP)



Mobile IR Scene Projectors

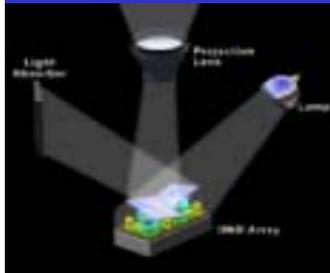
Scene Projector Technology is Used for test planning, test rehearsal, and performance evaluation to:

REDUCE RISK By Expanding the Test Envelope, Providing Repeatability and Improving the Failure Analysis
SAVE COSTS.... By Reducing Dependence on Expensive Live Testing

Proposed Technology Expansion

Mobile Extended Spectrum Electro-Optical Test Transformation Initiative (MEOTTI)

(Partner with AMRDEC)



DMD (1280x1024)



Grain of Salt On DMD

Technology Expansion Areas

- Extended Spectrum (UV, VIS, NIR, MWIR, LWIR)
- Sensor Fusion
- Integrated Sensor Evaluation On Air or Ground Platforms



Portable Test Capabilities

*Providing "Everything but the dirt."
To Support DT/OT Testing*



Required Capabilities

Portable Range Control

Autonomous Self Contained with Complete Data, Status, Communications and Control Networks Integrated with Planning, Execution and Post Test Analysis Tools

Distributed Test Functionality

Portable HWIL Tools (MIRSP)

Portable Data Collection & Real Time Display

- Improved On Platform and On Location Data Collection



Telemetry



Advanced TSPI

JAV-STARS Based UUT Instrumentation



Video, Film, Radar, Meteorological

Portable Testing will Support



Missile Systems



FCS System of System Testing



Airborne Subsystems

Portable Capabilities Allow for Operational Type Testing with Developmental Level Instrumentation and Provide Test Rigor For RTTC Customers with Expanded Use of Undeveloped Ranges



Distributed Testing

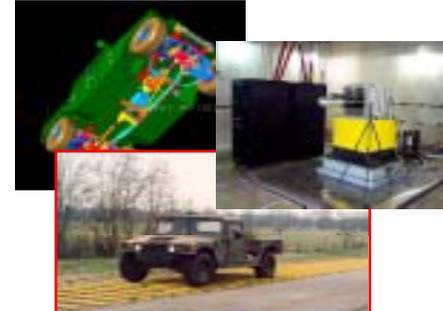
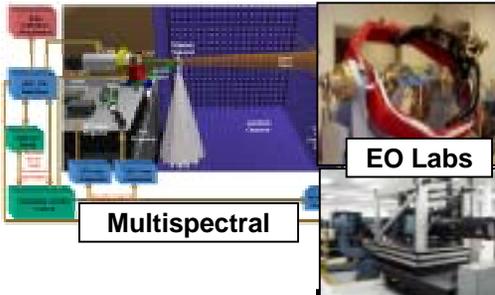


- Required Capabilities**
- Upgraded Infrastructure
 - Distributed Test Tools
 - Synthetic Environments
 - Architecture Development
 - Automated Data Collection & Archive

Laboratory Testing

Range Testing

Environmental Testing



Lab Architecture

Range Architecture

Environmental Architecture

ILH

Data Collection and Archive





Required Local Test Facilities to Support and Involve Aviation Customers

(Testers, PMO, RDEC, Contractors)



Redstone Aviation Propulsion Test and Research (RAPTR) Capabilities

Comanche, Blackhawk and Apache Engine Testing (T-700 Engines) Online With Proposed Phase II that will add Larger Engines and Expansion Proposals for:

- Hydraulic component testing
- Electronic components
- Engine Transmission Testing
- Spin Test Facility



Aviation Subsystem Integration Testing

- Ground System Integration Testing
- On Platform Component/ Subsystem Test & System Integration
- Staging Area for Range and Environmental Testing
- Multispectral Sensor Test Capabilities

Proposed RTTC Environmental Capability Upgrades

- Dynamic Testing Enhancement to Provide High Fidelity 6-DOF Helicopter Motion Replication with Full System Level Dynamic Test Functions and Integrated Sensor Suite Performance Evaluation
- Enhanced E3 Facilities
- Climatic Test Enhancement with Multiple Environments

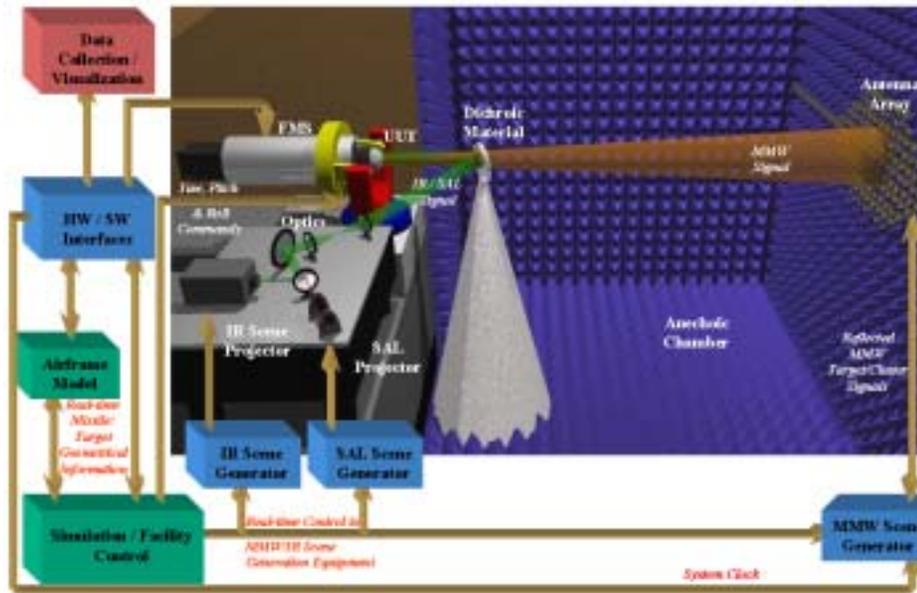


“On Platform” Testing in Multiple Environments





Advanced Multi-Spectral Simulation, Test & Acceptance Resource (AMSTAR)



How Facility Will Be Utilized

- System Design
- Prototype Testing
- Engineering Tests
- Pre-Flight Confidence
- Developmental Testing
- Qualification Testing
- Operational Test Support
- First Article Testing
- Production Testing
- Stockpile Reliability Testing

- High Fidelity Capability
- Multi-targets
 - Countermeasures
 - Performance Testing

- Lower Fidelity Capability
- Simple targets
 - Functional testing
 - Hazardous Rounds

Leverages the Success of the RTTC STAF Facility for Multispectral (MMW, IR, Laser) Missile System Hardware-in-the-Loop Testing in Lieu of Expensive Flight Tests (cradle to grave).

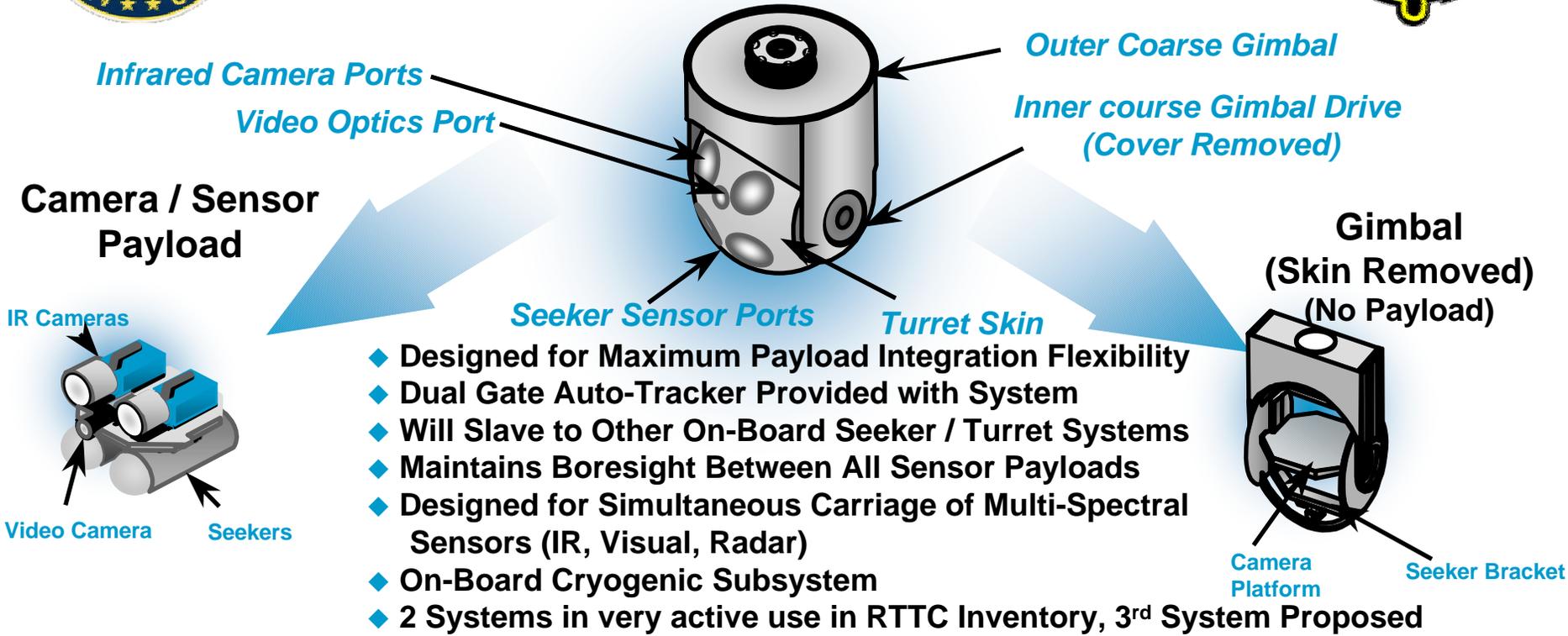
Target Customer: Common Missile

Other Customers: BAT P3I, NetFires PAM and NetFires LAM

Developed, Validated and Operated in Partnership with AMRDEC, PM AGMS, PEO STRI



Investment / Potential Homeland Defense Application: Stabilized Electro-Optic Airborne Instrumentation Platform (SEAIP)



Proposed Homeland Defense Uses

- Chem Bio Sensor Evaluations Using SEAIP- Follow on to current Turbo FT and AIRIS Testing
- Potential Use of SEAIP Platform Itself as a Carrier for Homeland Defense Sensors (example JIGSAW)
- Generation of High Resolution Multispectral Terrain Databases Including 3-D Models of Structures
- Build Urban Terrain Structures with Realistic and Representative Signatures for Sensor Evaluations



Military Systems Test & Integration Hub



Artists Rendering of the T&I Hub



Unmanned Vehicles



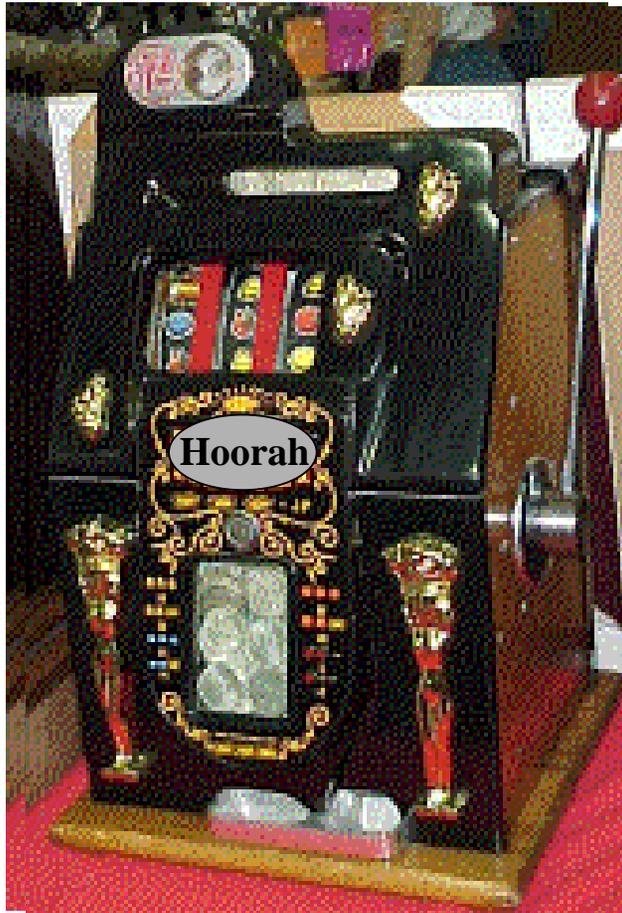
- Test capability for Live Weapons and Ordnance on Unmanned Ground and Arial Vehicles
- Challenge is to guarantee the safety of the soldier/marine in all environments



Wishful
thinking

Wish List

Dream
On





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**Redstone Competition Advocates Shopping List Web Site:
<http://www.redstone.army.mil/cmo/casl.html>**