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Advanced Anti-Radiation Guided Missile: Strengthening DEAD Capability in the Fleet

43rd Annual Armament Systems: Gun and Missile Systems Conference and Exhibition
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Austin Miller

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The Capability to Destroy Enemy Air Defenses (DEAD)



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AARGM Can...

- Defeat Integrated Air Defenses,
- By employing...
- Emitter Geo-location
 - Active Terminal Guidance
 - Network Integrated Communications,

As proven in...

- Numerous Development Tests.



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- **Capabilities**
 - Counter Shutdown
 - High Speed Standoff Strike Weapon
 - Expanded Threat Coverage
 - Geo- Specificity - Reduced Fratricide & Collateral Damage
 - Net Ready Communications
- **Subsystems**
 - Anti-Radiation Homing
 - Millimeter Wave
 - Guidance, Navigation & Controls
 - Network Connectivity
- **Concept of Operations**
 - Target of Opportunity
 - Pre-Briefed Target
 - Point to Point Target
- **Testing**



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AARGM Defeats Integrated Air Defense Systems



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- **New for AGM-88E**

- **Counter Shutdown**

- From SEAD to DEAD

- **High Speed Standoff Strike Weapon**

- GPS guided point-to-point mode

- **Expanded Threat Coverage:**

- Modern Air Defense Threats
 - Expanded Frequency Coverage
 - Non-Emitting Mobile Targets

- **Geo- Specificity - Reduced Fratricide & Collateral Damage**

- GPS Defined Missile Impact and Exclusion zones

- **Net Ready Communications**

- Off-board correlation via Integrated Broadcast Service receiver (IBS-R)
 - Weapon impact assessment via WIA Transmitter





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Anti-Radiation Homing Subsystem



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Key Features

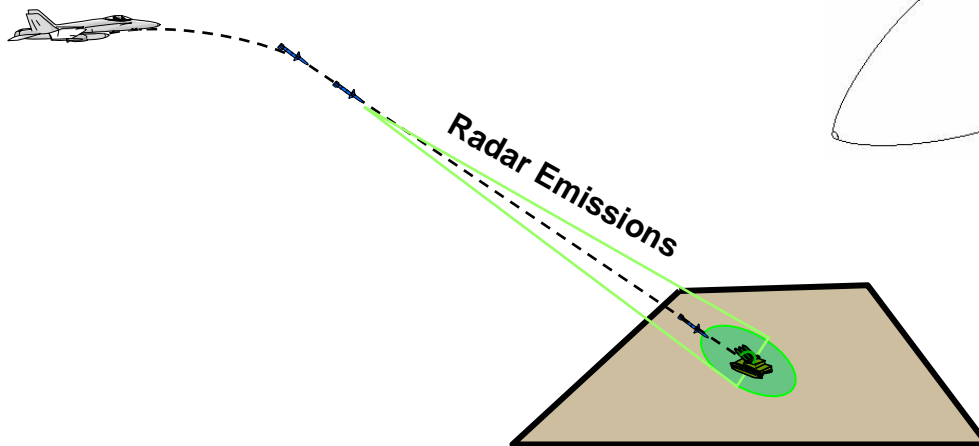
- ARH Seeker
 - Digital Receiver
 - Autonomous Detection and ID
 - Increased Field-of-View from HARM
 - Increased AOA Accuracy from HARM

ARH Digital Processors
MMW Processor
MMW IF Receiver

IBS-R

ARH Antenna

ARH RF Processor



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Millimeter Wave Subsystem

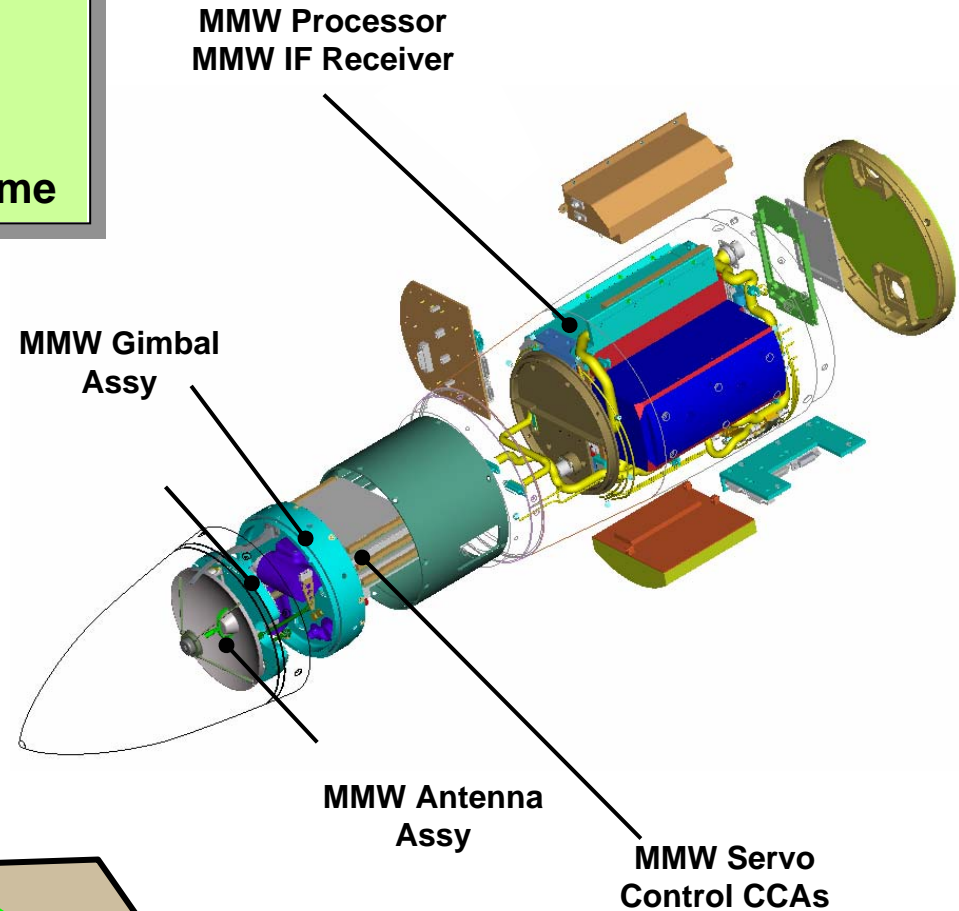
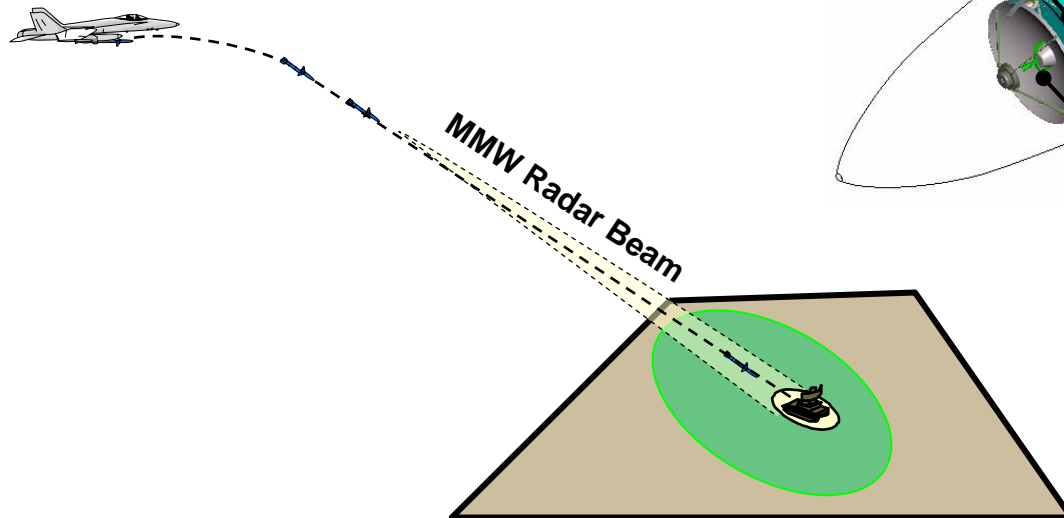


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• Key Features

- MMW Seeker
 - Ball Joint Gimbal
 - High Power Solid State Xmtr
 - Rugged, High Temperature Radome



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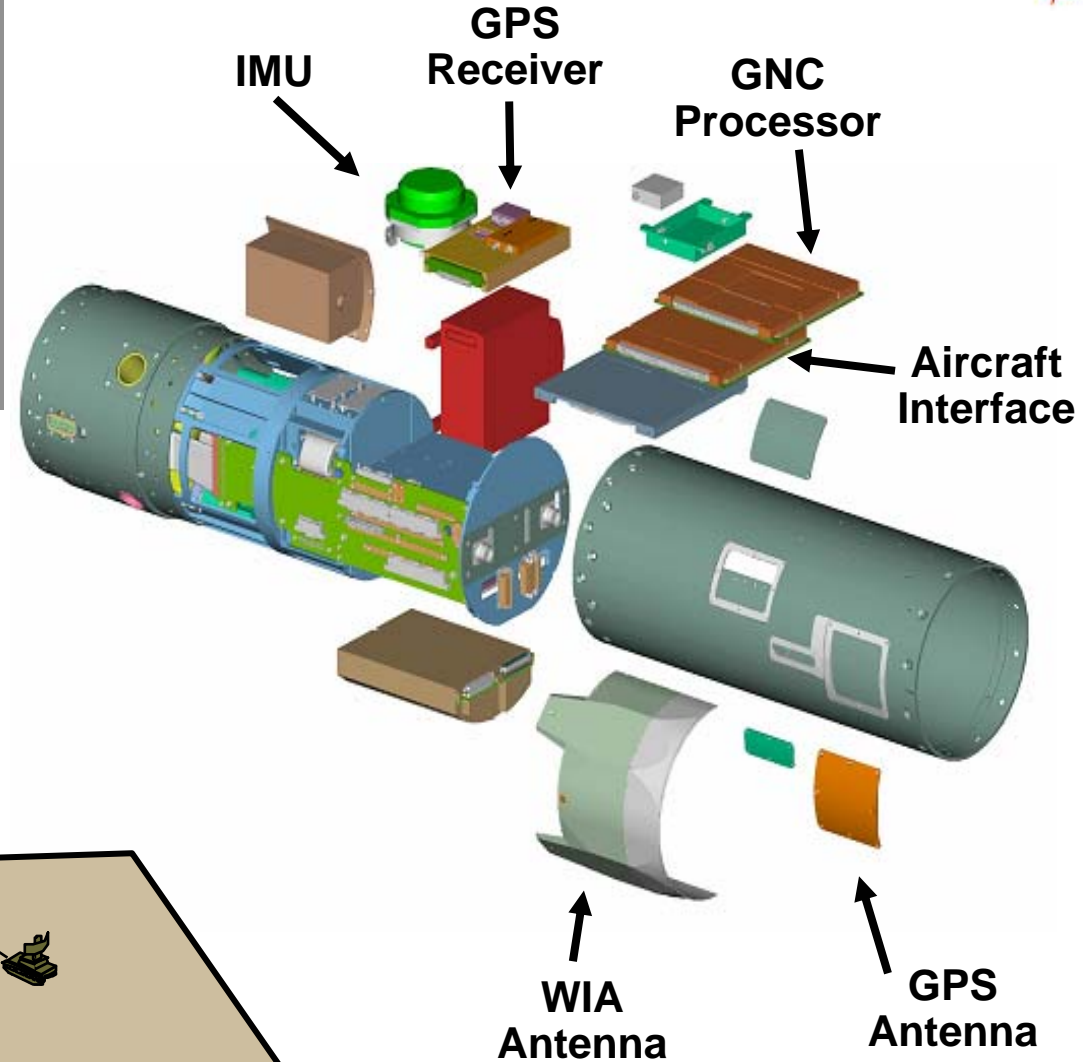
Control Section and GNC Subsystems



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- **Key Features**
- **GNC Subsystem**
 - Tightly Coupled INS
 - A/C Transfer Alignment
 - Target Geo-location (DTED)
 - Geospecificity (IAZ,MIZ,AOR)
 - 1553 Interface Compatible
 - HARM Seeker Compatible



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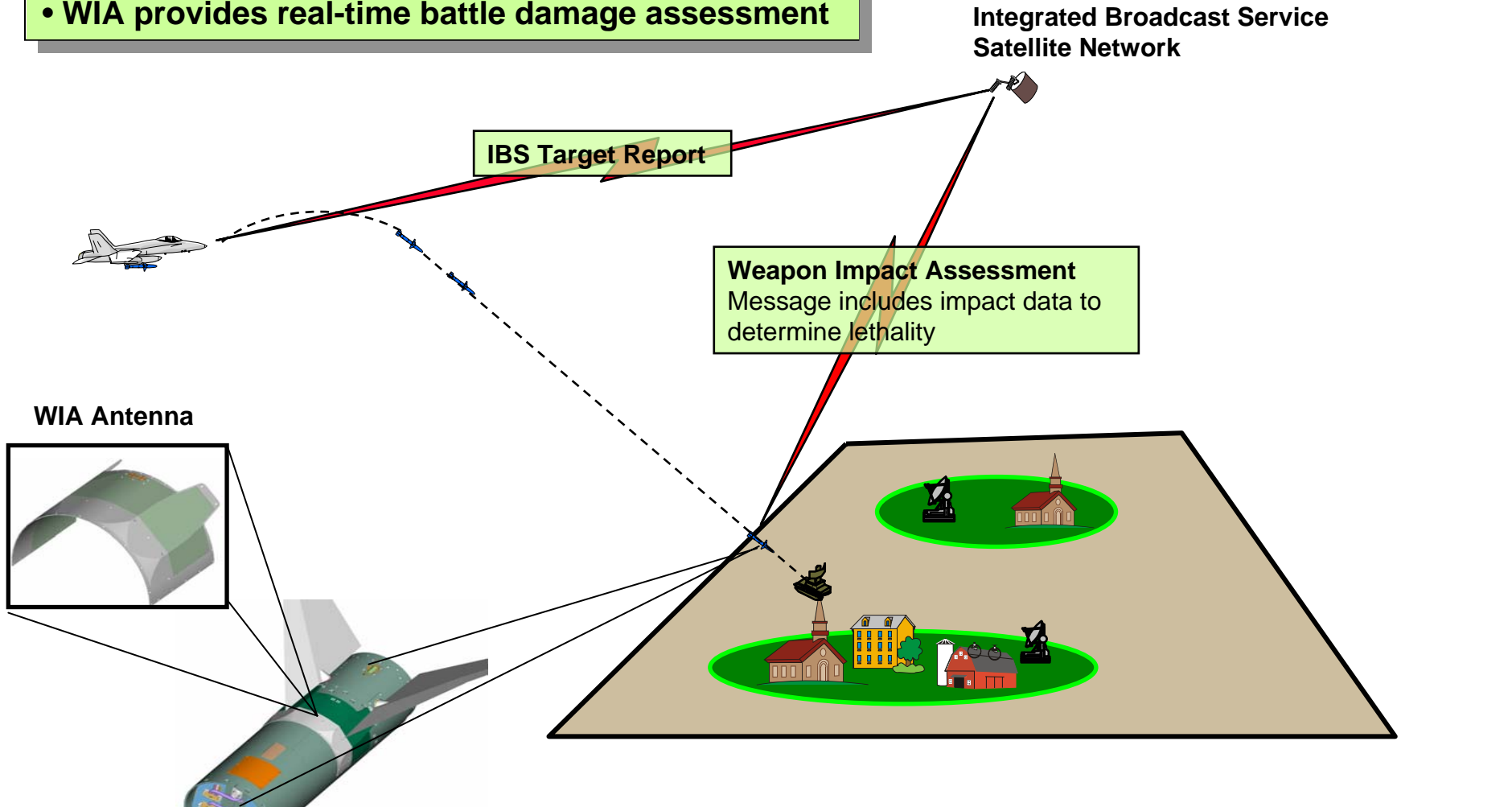
Netcentric Capabilities




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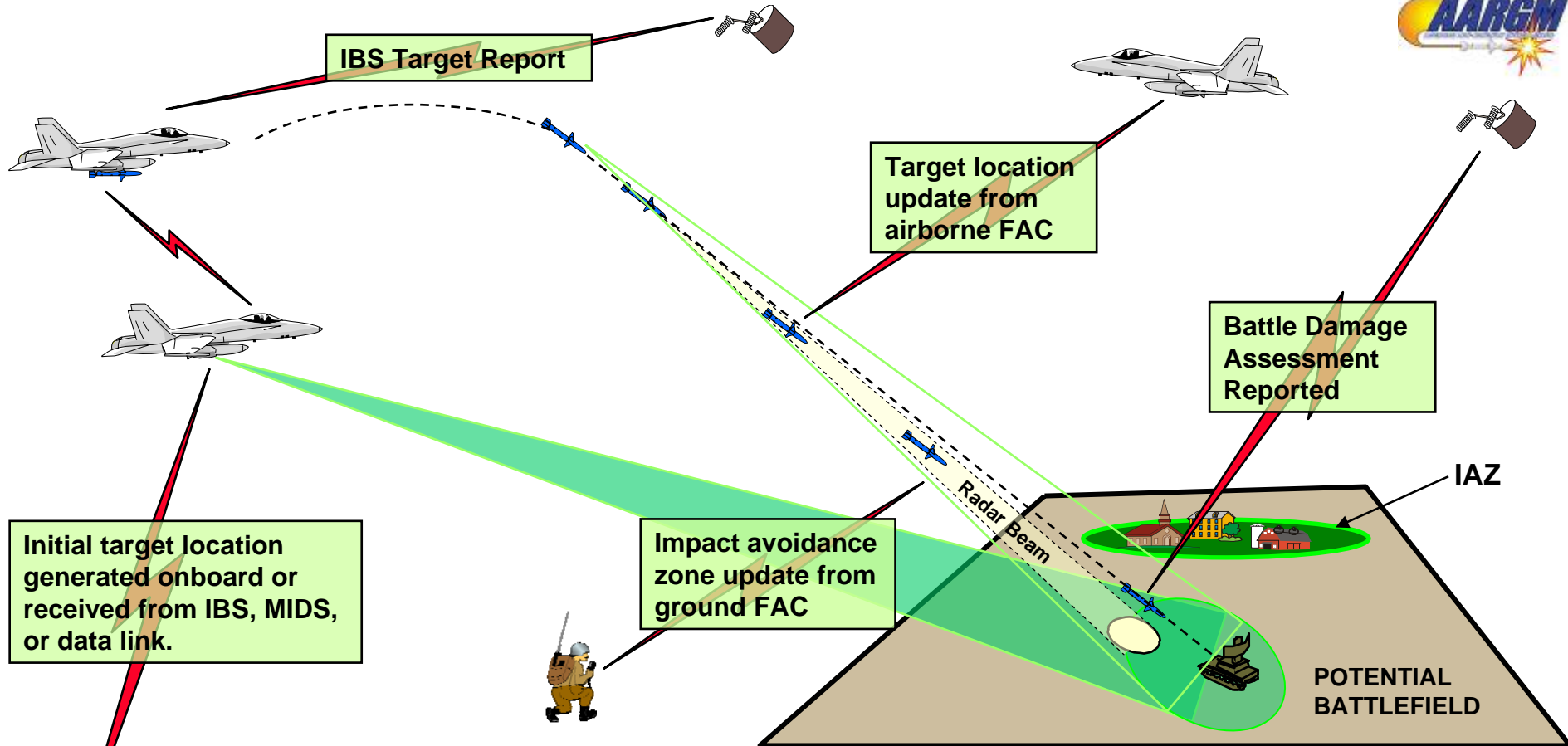


- IBS provides real-time target cue
- WIA provides real-time battle damage assessment



Expanded Capability with Data Link Enabled AARGM

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- Addition of a Two-Way Real Time Weapons Data Link
- Integration of all radio functions (WIA, IBS-R & WDL) into a single radio unit
- Enhanced targeting (end game accuracy, movers, non-emitters)
- Real-Time Impact Avoidance Zones (IAZ) Updates

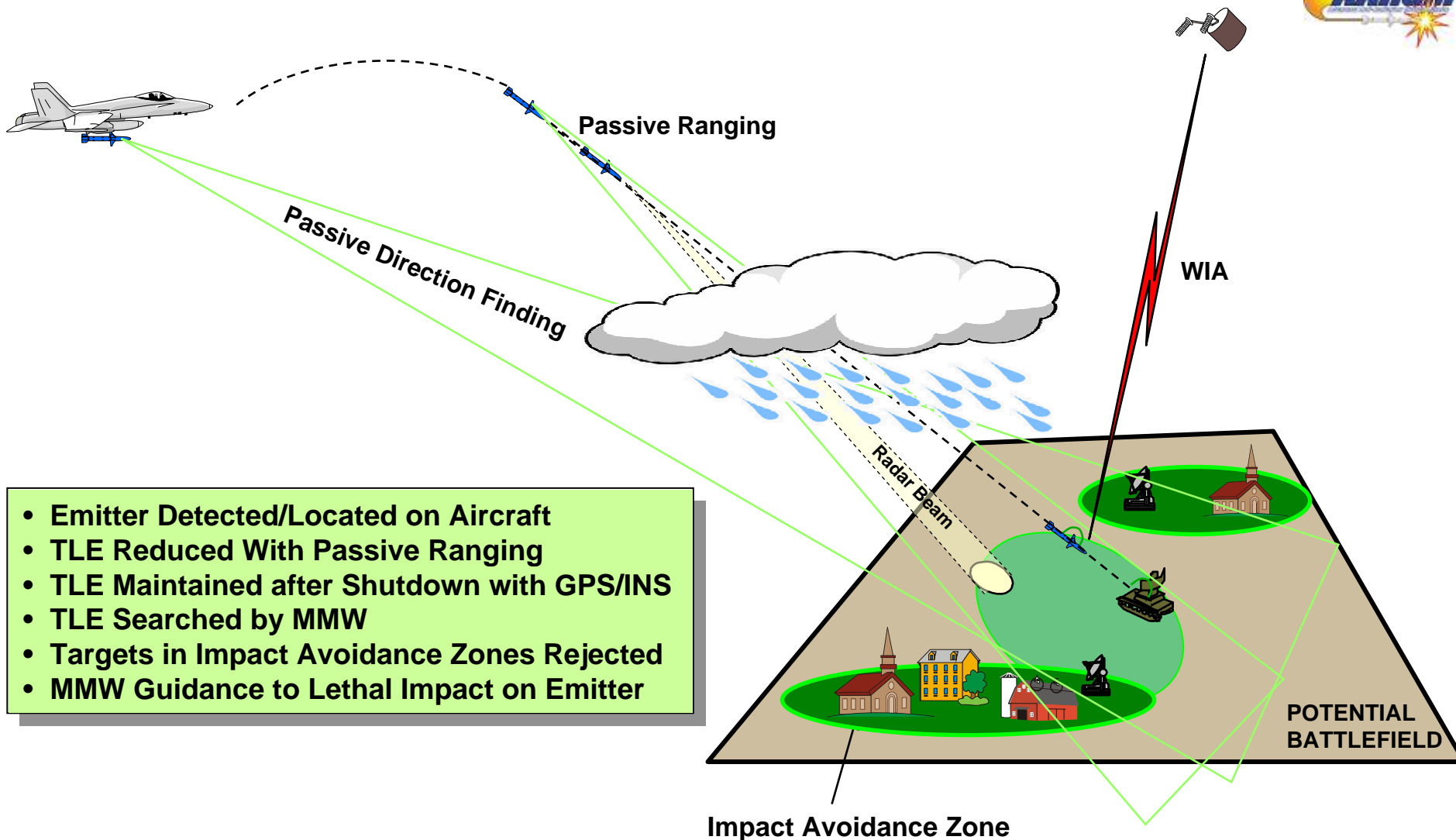


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AARGM Engages a Target of Opportunity



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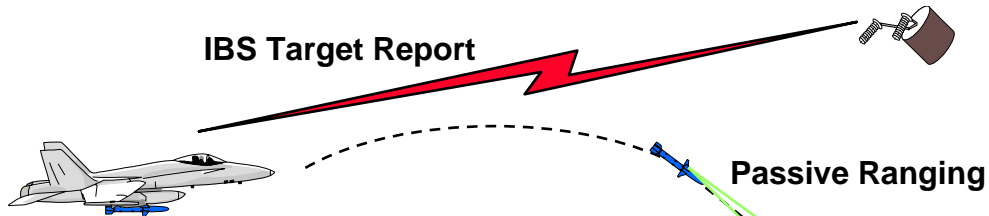
AARGM Engages an Off-board Emitter Cue



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IBS Target Report

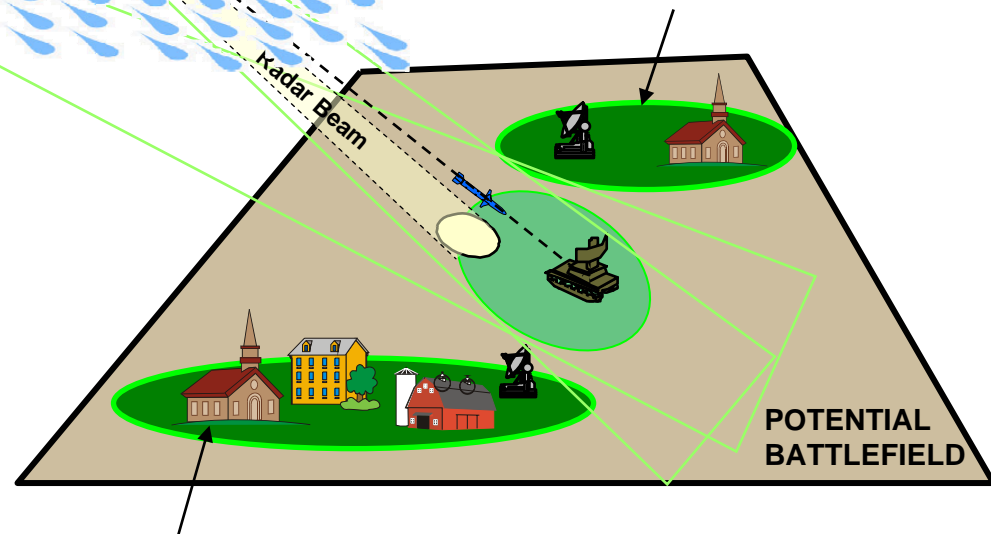


Correlated Target



Impact Avoidance Zone

- IBS Target Report Initiates Search
- IBS/AARGM Correlation
 - Reduces TLE
 - Satisfies ROE
- TLE Maintained after Shutdown with GPS/INS
- TLE Searched by MMW
- Targets in Impact Avoidance Zones Rejected
- MMW guidance to lethal impact on Emitter

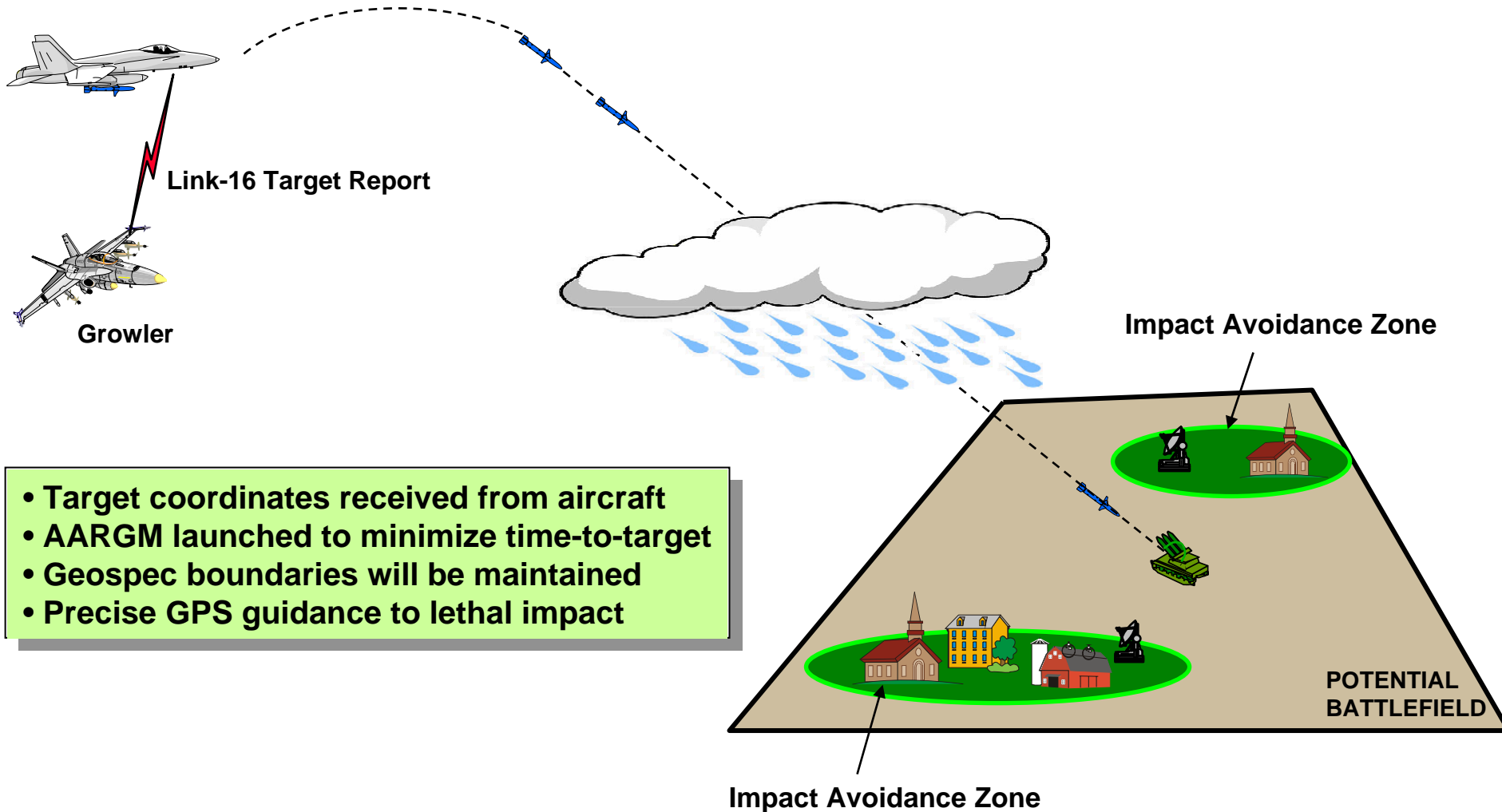


Impact Avoidance Zone

AARGM Engages a Time-Critical GPS Target



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- Target coordinates received from aircraft
- AARGM launched to minimize time-to-target
- Geospec boundaries will be maintained
- Precise GPS guidance to lethal impact



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AARGM Completes 8 Successful Launches



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- CTV-1: Point to Point GPS Guidance
- CTV-2: Point to Point GPS Guidance
- GTV-1: ARH Acquisition Before Launch
- GTV-2: ARH & MMW Terminal Guidance
- QB-1: ARH, MMW, WIA, IBS
- QB-2: ARH, MMW, WIA, IBS, Geospecificity, Emitter Shutdown
- DT-1: Point to Point Tightly Coupled GPS/INS Guidance
- DT-2: Pre-Briefed Cue, ARH Acquisition after launch, Geospecificity

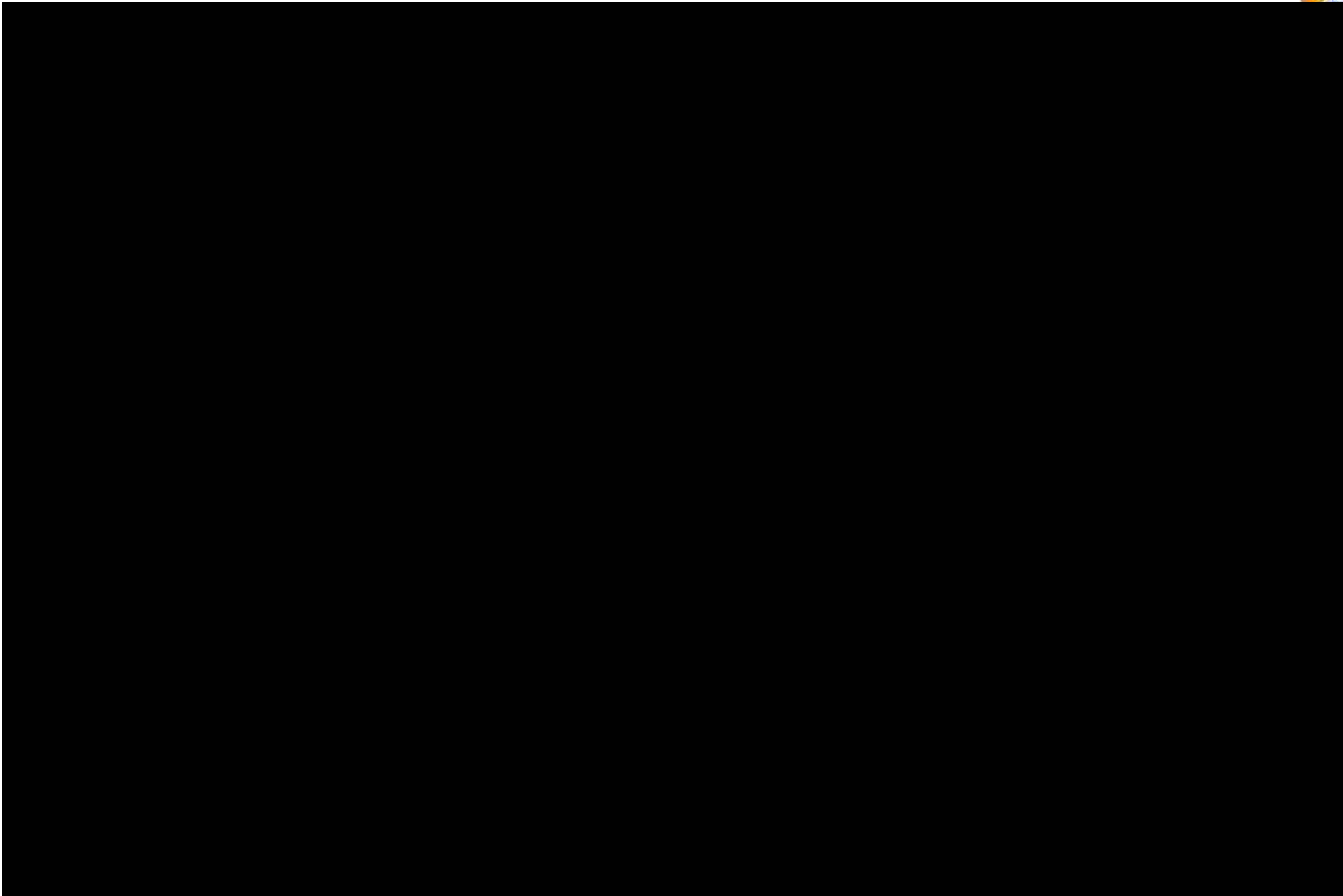


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SD&D Development Test 1: May 25, 2007



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Questions



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