



# **GRIFFIN<sup>®</sup>**

## **Surface Launch Applications**

**Briefer  
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05/15/2012**

# Overview

- Griffin<sup>®</sup> missile background and overview
- Griffin<sup>®</sup> capabilities
- Advantages
- Ground launch system
- Ground launch examples
- Production
- Summary



# Griffin<sup>®</sup> Program

## ■ Background

- Started on company funding in 2004
- Initial ground-launch demonstration in 2007
- Program built upon Quick Reaction Capability efforts
- Demonstrated reliability, accuracy, and lethality

## ■ Griffin<sup>®</sup> Production

- More than 1,200 missiles produced

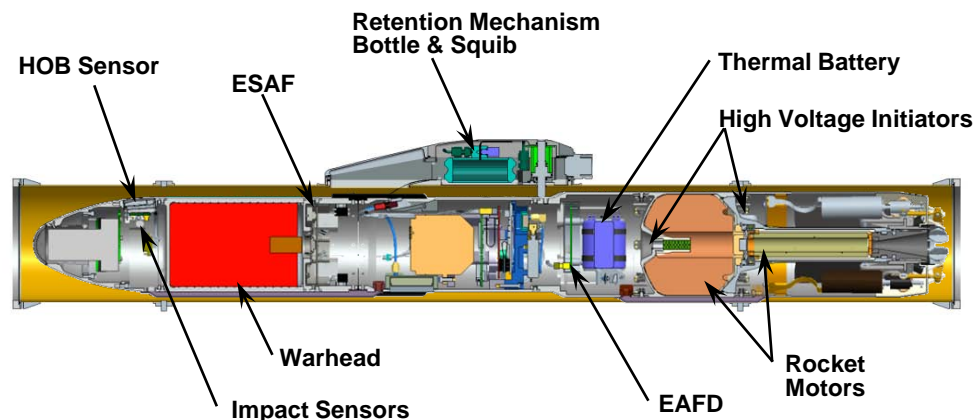
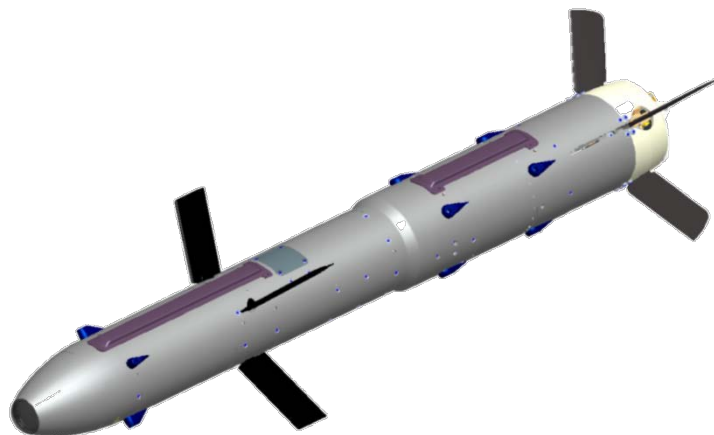


**GRIFFIN<sup>®</sup>**



- **Griffin® Missile Production – More than 1,200 produced**
  - Production initiated 2008
  - Production floor area upgraded in 2009 for improved flow and capacity

# Griffin<sup>®</sup> B Block II missile

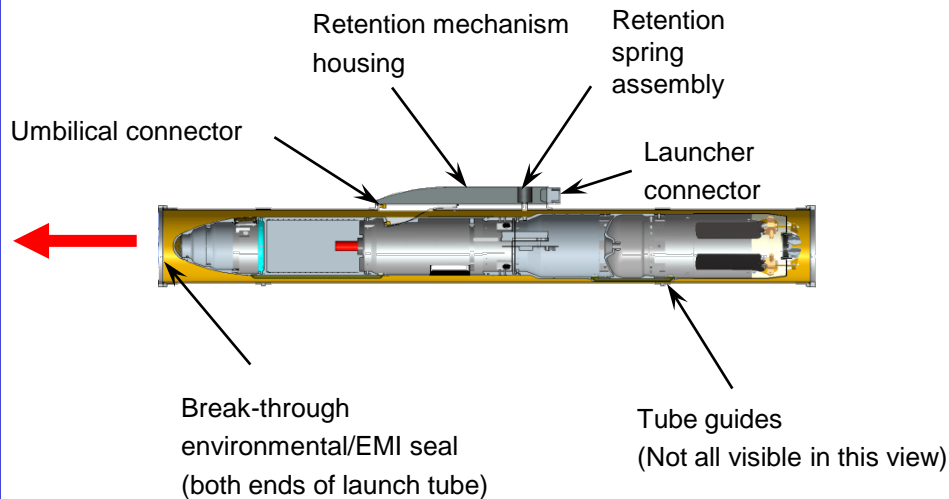


- **Small and light:**
  - 43 inches
  - 33 lbs
- **Precise:**
  - SASSM GPS/INS
  - Semi-active laser (SAL)
- **Reliable**
  - Tube carriage/launch
  - Proven component heritage
- **Lethal with low collateral damage:**
  - 13 lb blast fragmentation warhead
  - Warhead fuzing options:
    - Height of Burst (HOB)
    - Point Detonate (PD)
    - Delay
  - Confined lethality
- **Cockpit selectable options provide real-time flexibility / assessment**
  - Fuze settings: PD, HOB, Delay
  - Laser PRF codes
  - Built In Test (BIT)

# Griffin<sup>®</sup> Ground Launch Missile

## Griffin<sup>®</sup> - B Block II – Ground Launch

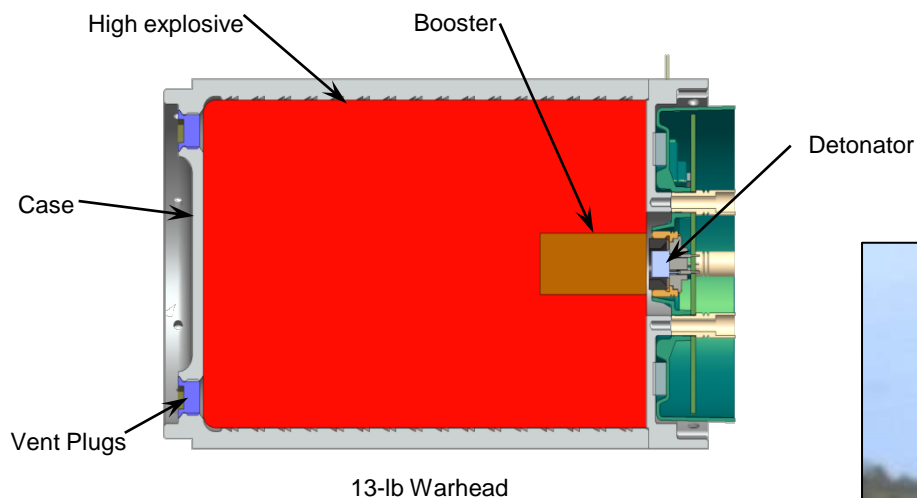
- Fires forward out of Tube using Launch Motor



## ■ Vertical or Angled Launch



# Current Griffin<sup>®</sup> Warhead



- 13 lbs total weight
- 4.9 lbs high explosive
- Steel case internally scored

# Griffin<sup>®</sup> Target Set

## Personnel in the Open



## Personnel in Urban Environments



## Light Trucks



## Heavy Trucks



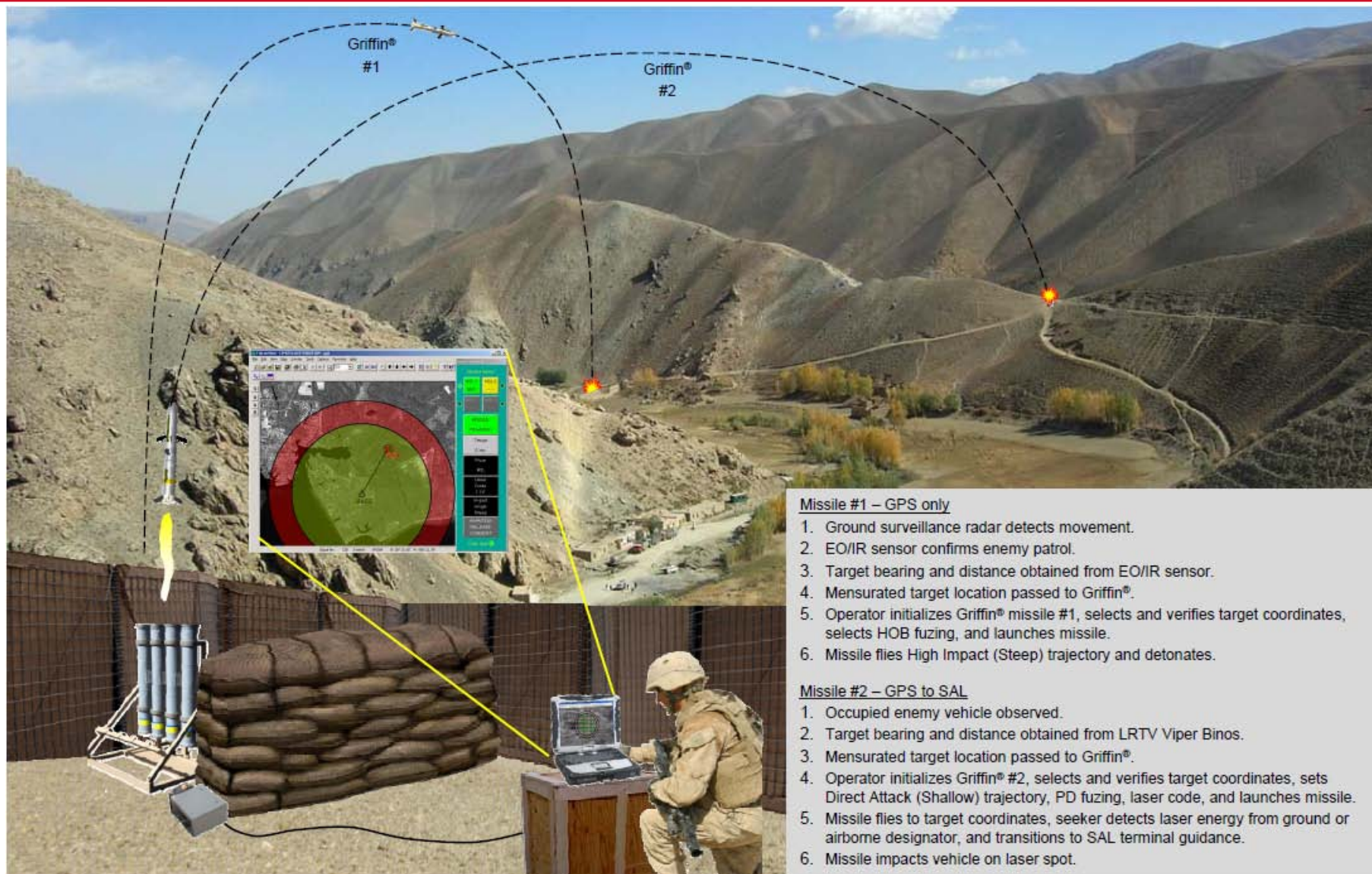


# Griffin<sup>®</sup> Advantages

- Small, light
  - 44 lbs AUR weight (w/ tube), 45” x 5.5” tube
- Cockpit/GCS-selectable capability
  - Point Detonate, Height-of-Burst, Delay Fuze mode
  - Laser PRF codes
  - Direct attack, High Impact Angle guidance
- Low collateral damage
  - Precise guidance, confined lethality, selectable effects
- SASSM GPS/INS navigation
  - All weather capability
  - Indirect fire / non-LOS target engagements
- Wide field of view SAL seeker
- Simplified logistics
  - No user / field assembly / diagnostics – no special skill required
  - Common missile for surface, rotary and fixed wing applications
  - No special equipment (SE) for loading
  - Small logistics footprint



# Griffin<sup>®</sup> ConOps Example



### Missile #1 – GPS only

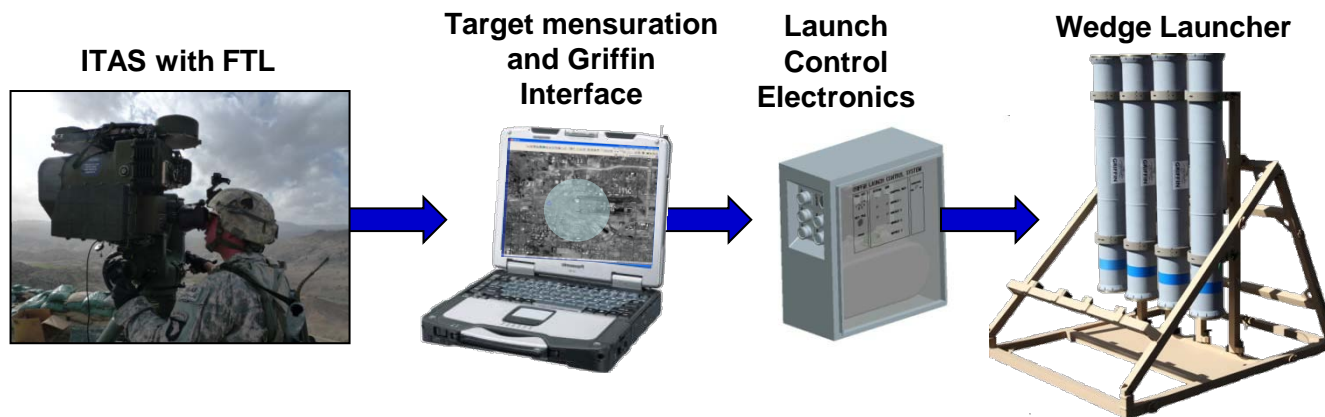
1. Ground surveillance radar detects movement.
2. EO/IR sensor confirms enemy patrol.
3. Target bearing and distance obtained from EO/IR sensor.
4. Mensurated target location passed to Griffin<sup>®</sup>.
5. Operator initializes Griffin<sup>®</sup> missile #1, selects and verifies target coordinates, selects HOB fuzing, and launches missile.
6. Missile flies High Impact (Steep) trajectory and detonates.

### Missile #2 – GPS to SAL

1. Occupied enemy vehicle observed.
2. Target bearing and distance obtained from LRTV Viper Binocs.
3. Mensurated target location passed to Griffin<sup>®</sup>.
4. Operator initializes Griffin<sup>®</sup> #2, selects and verifies target coordinates, sets Direct Attack (Shallow) trajectory, PD fuzing, laser code, and launches missile.
5. Missile flies to target coordinates, seeker detects laser energy from ground or airborne designator, and transitions to SAL terminal guidance.
6. Missile impacts vehicle on laser spot.

# Griffin<sup>®</sup> Launch - Apr 10

- Initial ITAS targeting with further target mensuration



Target: Cement Bunker w/Mortar Pit  
Range: 4 km  
Guidance: GPS  
Fuze: Delay



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# Griffin<sup>®</sup> Launch - Nov 10

## ■ Launch #1

- Target: Mortar Crew
- Target Range: 2.8 km
- Guidance: GPS/INS
- Fuze: HOB



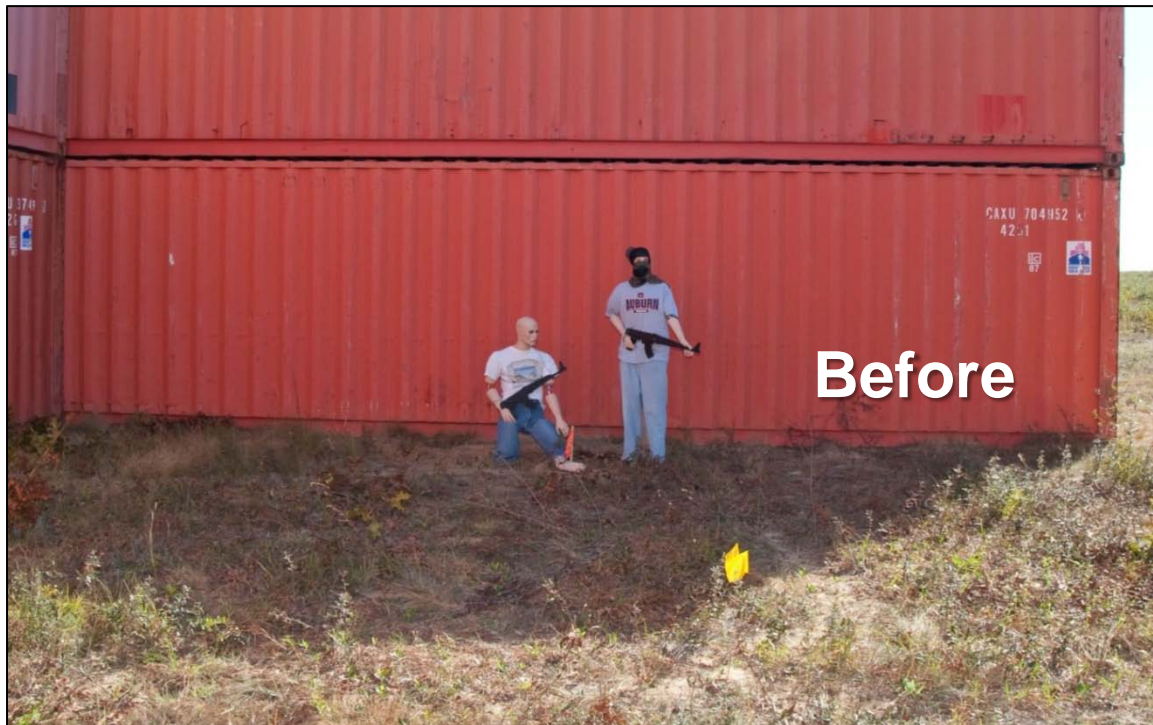
## ■ Launch #2

- Target: Urban Courtyard
- Target Range: 3.8 km
- Guidance: GPS/INS
- Fuze: PD



# Urban Courtyard

(40 ft long x 30 ft wide x 17 ft high)



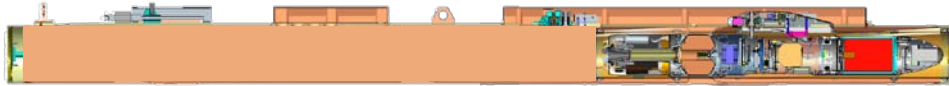
# Wedge Launcher on HMMWV



# Notional Griffin<sup>®</sup> / RAM Integration Field Configuration

Griffin<sup>®</sup> Adapted RAM Launch Tube:

- Initially, B-Missile
- Ultimately, SeaGriffin<sup>™</sup>



RAM Launcher



Launcher loaded for  
mission requirements:  
Mix of RAM / Griffin<sup>®</sup>

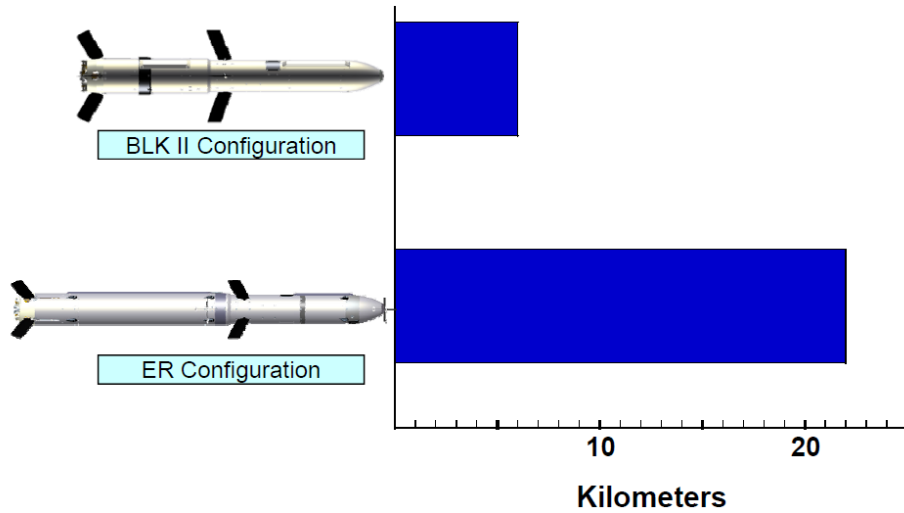


Dual-Capable  
(RAM & Griffin<sup>®</sup>)  
Launch System

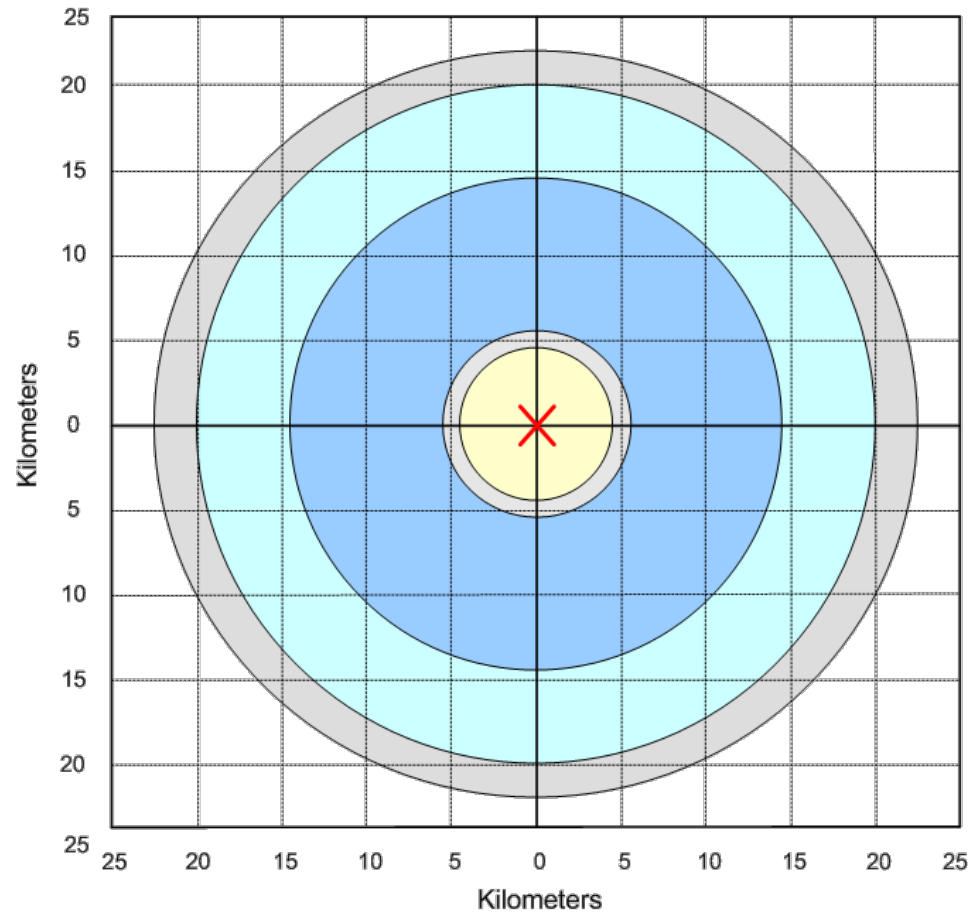


Fire control system IDs weapon: RAM, Griffin<sup>®</sup>-B, SeaGriffin<sup>™</sup>

# Griffin<sup>®</sup> Vertical Launch Range



Griffin ER – Max range, No Alt limit
Griffin ER – High Impact Angle, No Alt limit
Griffin ER – High Impact Angle, 3K' AGL Alt limit
Griffin – Max range
Griffin – High Impact Angle, 3K' AGL Alt limit





# Summary

- **Griffin<sup>®</sup> is a mature weapon system**
  - Fielded system with over 1,200 units produced
  - Low-risk path to future capability spirals
- **Griffin<sup>®</sup> is readily adaptable to wide range of systems for all services**
  - Light weight
  - Operator-selectable options
  - Simple RS-422 interface
- **Griffin<sup>®</sup> can provide an immediate ground launch capability**
  - Griffin<sup>®</sup> B Block II Missile and Wedge Launcher
  - Additional capability achieved with incorporation of Extended Range rocket motor

