



U.S. Army Research, Development and Engineering Command



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ALAS-MC – 2012 Joint Armaments Conference

*Advanced Lethality and Accuracy System for
Medium Caliber (ALAS-MC)*

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- **Project Purpose**
- **Target Sets**
- **Deliverables**
- **Growth Path**
- **Guns**
- **Turrets**
- **Planned Activities**
 - **Near Term**
 - **Long Term**
- **Questions?**





XM813 – 30mm Gun

Purpose:

- Achieve enhanced lethality and accuracy in Medium Caliber Armament system technologies
- Design advanced munitions capable of defeating materiel, personnel and urban targets at current and extended ranges
- Develop a Medium Caliber Armament system with growth integrated to meet future threats



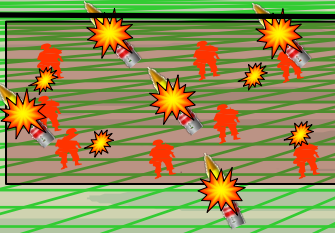
Bushmaster III – 50mm

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Personnel Targets



Materiel Targets



Urban targets with personnel within or behind structures

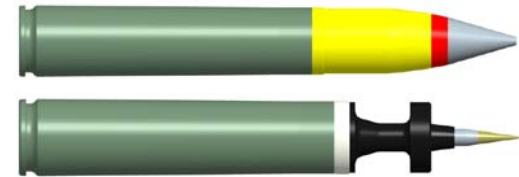


Customer Deliverables:

- Accurate Medium Caliber Armament for stationary and fire on the move capability with turret / vehicle integration
- Programmable Airburst Munition (PABM): Demonstrating optimized effects against Personnel (behind walls and in the open).
- Armor Piercing munition (APFSDS-T): Demonstrating optimized effects against like Materiel targets.
- Integrated Fire Control Enhancements: Scenario based Graphical User Interface (GUI), Dynamic MET Sensor, Down range wind sensor and Enhanced Laser ranging.



30mm "XM813" & 50mm Bushmaster III Chain guns



50mm PABM and AP Munitions



1m Laser Range Finder



Dynamic MET Sensor



Graphical User Interface



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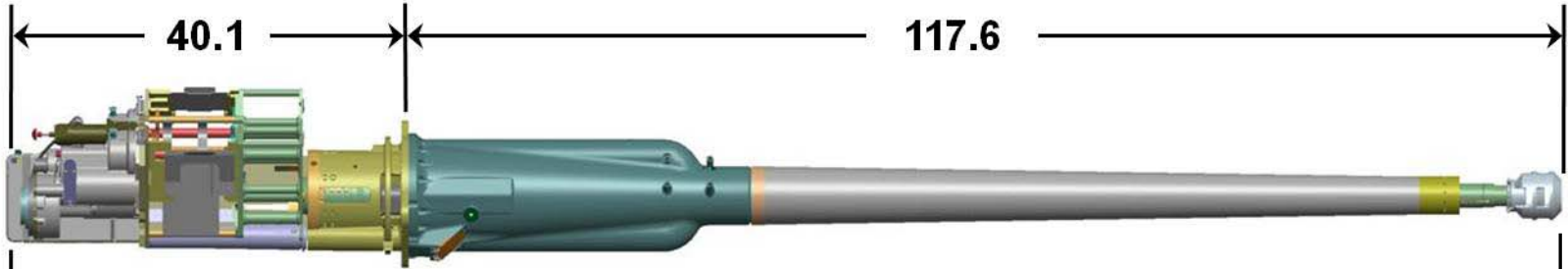


- Acquire baseline XM813 30mm gun (Completed April 2012)
 - Develop gun enhancements (Completion ~ 2QFY13)
 - **Integral mount** – Built in growth with common mounting configuration
 - **Remote Safety** – Required for remote operations
 - **“Sniper firing mode”** – Enhanced first round accuracy
- Acquire ICD for XM813 30mm gun with improvements
- Acquire preliminary space claim ICD for 50mm Bushmaster III gun
- **Provide weapon ICD’s demonstrating lethality path for future growth**



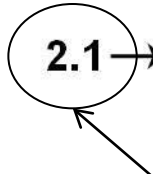
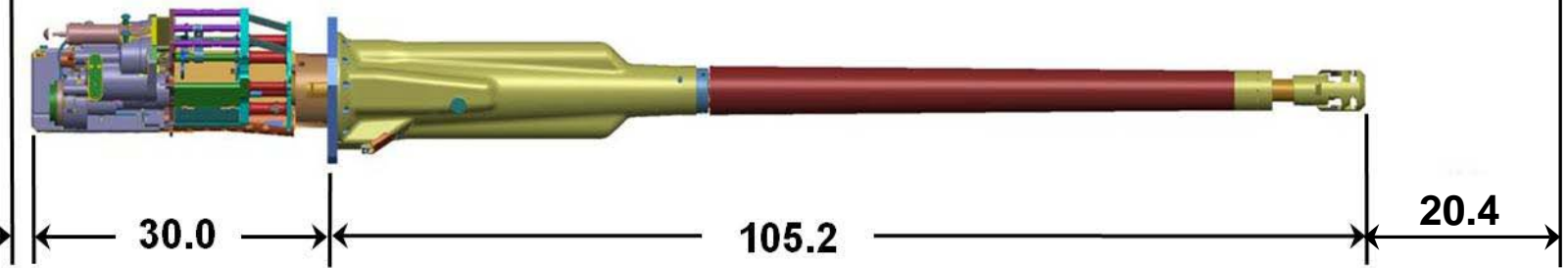
Bushmaster III 50mm

~660 lbs



Feed Path Centers Aligned

Dimensions in inches



**Additional Turret
Intrusion of BMIII**

“XM813” 30mm (Former FCS variant)

~460 lbs



• PHASIR Turret

- Setup PHASIR turret with stand at ARDEC
 - Full functionality - Mid 3rd Qtr. FY13 (Upon Delivery of XM813 gun improvements)
 - Platform integration by end of FY14

• New 50mm Turret

- Design, analyze, fabricate, assemble & control – growth Turret
 - XM813 and Bushmaster III 50mm gun
 - Focus design on “aiming and accuracy”
 - Initial design ready for prototype by beginning of FY14
 - Platform and system integration for final demo – FY16



ALAS-MC “Near Term” Planned Activities

- Perform various live fire tests of XM813 30mm gun with Mk310 air bursting munition by 4QFY12
 - Validate 30mm system level error budget
 - Leverage validation data to develop 50mm PABM and APFSDS munitions
- Demonstrate XM813 30mm gun at TRL6 by 2QFY13
- Develop XM813 enhancements - “remote safety” and “sniper firing mode”
- Develop integral gun mount commonality - XM813 and Bushmaster III 50mm (Growth path)
- Demonstrate XM813 30mm gun system integration with PHASIR turret and linkless ammo handling system
- Baseline 30mm family of ammunition performance (Mk310 air bursting and APFSDS rounds)
- Develop PABM munition engagement doctrine (joint effort with MCoE)
- **Acquire and provide 30mm XM813 ICD and Bushmaster III 50mm space claim ICD to demonstrate armament system growth path for future threats.**



ALAS-MC “Long Term” Planned Activities

- Obtain Bushmaster III 35mm gun and Ammunition from the Dutch Govt. to evaluate KETF (Kinetic Energy Timed Fuze - AHEAD munition) performance
- Design and Develop 50mm Bushmaster III gun
- Design and develop 50mm PABM and APFSDS munitions
- Design and develop fire control system incorporating enhanced sensors to include:
 - Down range wind sensor, dynamic metrology and ammunition temperature sensors
 - Graphical user interface with programmed target selection
 - Enhanced laser ranging.
- Team with contractors to improve burst point accuracy and PD reliability of scalable fuze
 - Current fuze designs consist of either turns counting or time based with muzzle velocity correction
- Develop advanced turret to demonstrate growth from XM813 to Bushmaster III 50mm
- Perform platform integration of turret for system level demonstration with growth capability.



Questions?

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