Overview

• MGUE Acquisition Strategy

• MGUE Increment 1 (Inc 1) Schedule

• MGUE Inc 1 Test Plan

• MGUE Increment 2 (Inc 2) Plan

• M-Code Receiver Statistics
MGUE Program Summary

• Incremental Acquisition effort to develop form factors
  – Increment 1 (Inc 1): Ground (GB-GRAM-M) and Aviation/Maritime (GRAM-S/M)
  – Inc 1 form factors evaluated to be at high level of maturity

• Responded to Acquisition Decision Memorandum 20 Feb 14
  – Direction from USD(AT&L) to accelerate MGUE Increment 1
  – Pulled forward items from EMD phase and proceeding to MS B/C
  – Updated Acquisition Strategy Document, signed 10 Apr 15

• Requirements approved by JROC on 24 Jul 14

• Integrate Inc 1 form factors into service-nominated lead platforms
  – Ground: DAGR Distributed Device (D3) and Joint Light Tactical Vehicle (JLTV)
  – Air: B-2
  – Maritime: Arleigh Burke Class Missile Destroyer
A commercial market driven acquisition approach

Accelerating from TD phase to production

Incremental acquisition strategy sets basis for future
MGUE Test Strategy: Path to Operational Test in FY16

MGUE Maturity

MGUE Circuit Card

MGUE Receiver Prototypes

Card level testing and prototype demonstration

Interface Control Document

Technical Requirements Document

PRTA: Production Representative Test Articles

OT: Operational Test

Crawl

Walk

Run

Sprint

Red Flag

Gypsy Juliet

T-38

Demonstrations

Hardware in The Loop

Prototype Box Testing

PRTAs

Goal: reduce risk of discovery during operational test

Operational Relevant Environment

Ready for OT FY16

PEO Certification

Platform Integration

MGUE Test Strategy:
Path to Operational Test in FY16

SPAC E A ND M I S S I L E S Y S T E M S C E N T E R
MGUE Performance: NavFest 2015

• Utilized C-12J to showcase MGUE capabilities
  – More mature hardware/software than Red Flag
  – Additional early integration of B-2 receiver
  – Able to track M-Code in jamming environment
• Test Successful – MGUE card held lock!
  – M-Code tracked in both contested & benign environments
MGUE Inc 2 Current Status

• JCIDS: Inc 2 Capabilities Development Document (CDD) in coordination
  – AFROC approved Draft CDD
  – Defines 3 items:
    • Precision Guided Munitions (PGM)
    • Space Receiver
    • Handheld (HH)

• PPBE: FY16 PB adds MGUE Inc 2
  – Starts in FY17, accelerating two years from FY19 start
Inc 2 Acceleration: Ongoing Efforts to Leverage Inc 1

• Possible Materiel solutions exists for 2 of 3 Inc 2 Platforms
  – Teaming with Army to integrate Increment 1 (Inc 1) technology into Precision Guided Munitions (PGM)
    • Analysis indicates Inc 1 technology can withstand PG environments
  – AF developing low size/weight/power GPS M-Code space receiver
    • Completed Preliminary Design Reviews – Mar 2015

• Potential materiel solution for third platform
  – Investigating NDI to meet Handheld requirements
MGUE Inc 2: Handheld Acceleration

• Continue accelerated commercial market driven approach by using existing Handheld with MGUE Inc 1 receiver

• Inc 2 requires handheld as an end item

• Opportunity to leverage Inc 1 efforts to handheld application

• USAF conducting market research of handheld vendors with potential to integrate MGUE Inc 1 ASIC into an existing product

• Seeking approval to pursue handheld as a non-developmental item
History of GPS User Equipment Development at SMC

Small Lightweight GPS Receiver (SLGR)

Precision Lightweight GPS Receiver (PLGR)

Defense Advanced GPS Receiver (DAGR)

Ground Based-GPS Receiver Application Module (GB-GRAM)

180,000 units, Bosnia and OIF

500,000 units, since 2005

100,000 units, since 2005

MGUE Next Step in Long History
**User Equipment Fielding vs Availability**

**SAASM Receivers Processed**

<table>
<thead>
<tr>
<th>User Equipment</th>
<th>Quantity in the field</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAGR (SAASM)</td>
<td>500,000+</td>
</tr>
<tr>
<td>GB-GRAM (SAASM)</td>
<td>100,000+</td>
</tr>
<tr>
<td>Projected M-Code Receivers (FY17-FY30)</td>
<td>~1.5M+</td>
</tr>
</tbody>
</table>

DAGR: Defense Advanced GPS Receiver  
GB-GRAM: Ground-Based GPS Receiver Application Module  
SAASM: Selective Availability Anti-Spoofing Module

**M-Code receiver demand expected to increase with availability**
• MGUE is an incremental acquisition approach

• MGUE is operating on time

• MGUE Inc 1 accelerating to production

• MGUE Increment 2 will be a pre-planned product improvement

• M-Code is the way forward for GPS receivers