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Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Air Force									DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0305164F: NAVSTAR Global Positioning System User Equipment Space							
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	155.778	131.832	29.621	-	29.621	-	-	-	-	Continuing	Continuing
673028: Navstar GPS	155.778	131.832	29.621	-	29.621	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**Note**

Beginning in FY13, funds for Military GPS User Equipment (MGUE) are transferred to Project 643833 in this Program Element (PE).

**A. Mission Description and Budget Item Justification**

The Navstar Global Positioning System (GPS) is a space-based radio Positioning, Navigation, and Time (PNT) distribution system. GPS User Equipment (UE) consists of standardized receivers, antennas, antenna electronics, etc., grouped together in sets to derive navigation and time information transmitted from GPS satellites. These receiver sets are used by DoD. RDT&E funds UE development, test, and analysis for new PNT receiver capabilities in Navigation Warfare (Navwar) across all military platforms using GPS services.

The Modernized User Equipment (MUE) program serves as a technology demonstration and risk reduction effort to provide the technical foundation for the Military GPS User Equipment (MGUE) program which is the next generation of GPS UE. The objectives of the MUE program are to demonstrate that enhanced modernized capabilities are achievable in ground embedded and aviation form factor solutions, successfully mature the Critical Technologies Elements (CTE), establish a modernized Information Assurance architecture, implement the USD(AT&L) Trusted Foundry process, and subject the receiver prototypes to the Government's pilot Security Certification and Performance Evaluation process.

This program element is in Budget Activity 7 - Operational System Development, because UE supports operational systems.

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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	165.936	133.601	133.527	-	133.527
Current President's Budget	155.778	131.832	29.621	-	29.621
Total Adjustments	-10.158	-1.769	-103.906	-	-103.906
• Congressional General Reductions	-	-1.769			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-8.649	-			
• Other Adjustments	-1.509	-	-103.906	-	-103.906

**Change Summary Explanation**

FY11: Congressional General Reduction: (-1.509), SBIR: (-8.649).

FY12: Congressional General Reduction: (-1.769)

FY13: Reallocation of funding to higher Department priorities: (-7.066)

Starting in FY13, Military GPS User Equipment (MGUE) funding (96.840) is transferred in this Program Element (PE) to Project 643833 in BA-04. Current User Equipment (CUE) including Modernized User Equipment (MUE) remains in Project 673028 in this PE.

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> GPS User Equipment	155.778	113.250	29.621
<b>Description:</b> The Modernized User Equipment (MUE) program serves as a technology demonstration and risk reduction effort to provide the technical foundation for the MGUE program.			
<b>FY 2011 Accomplishments:</b> MUE contractors developed, demonstrated, and delivered proof of concept Precise-Encrypted (P(Y))-Code, Military (M)-Code, and Coarse Acquisition (C/A)-Code (YMCA) receiver cards for the ground-embedded (GB-GRAM-M) applications. The ground-embedded prototype receivers entered independent government testing to support the Technology Readiness Assessment establishing TRL 6.			
<b>FY 2012 Plans:</b> Execute the MUE completion effort. Initiate the design and fabrication of new Application Specific integrated Circuits (ASICs) to resolve performance and security deficiencies identified in contractor and government testing of the ground embedded prototype receiver cards. Design additional processing and memory capacity to support updated system requirements. Update GPS system			

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C. Accomplishments/Planned Programs (\$ in Millions)									FY 2011	FY 2012	FY 2013
Interface Control Documents (ICDs). Complete development and functional qualification testing (FQT) of the aviation (GRAM-S/M) form factor; evaluate performance/security with government independent testing. Provide program and technical support, receiver testing, integration and security/performance certification efforts. <b>FY 2013 Plans:</b> Conclude the MUE effort; complete ASIC redesign and deliver to government as tech samples. This effort will conclude shortly before MGUE Increment 1 Preliminary Design Review (PDR) ensuring discovery and risk reduction activities for the MGUE Increment 1 Technology Development phase.											
<b>Title:</b> Military GPS User Equipment (MGUE) <b>Description:</b> MGUE program is responsible for the development of standard modernized receiver form factors for the service nominated lead platforms identified in the draft MGUE Capability Development Document (CDD). <b>FY 2012 Plans:</b> Award and execute the Technology Development phase contracts for MGUE Increment 1. Up to three sole source contracts will be awarded to the current MUE contractors for the completion of MGUE Increment 1 Preliminary Design Review (PDR). Provides program and technical support as well as receiver testing, integration and security/performance certification efforts.									-	18.582	-
Accomplishments/Planned Programs Subtotals									155.778	131.832	29.621
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• TBD: APAF, PE 0305164F, GPS User Equipment	8.149	10.201	1.000	0.000	1.000	15.013	13.826	10.670	0.000	0.000	58.859
• P-42: OPAF, PE 0305164F, GPS User Equipment	5.151	2.008	2.031	0.000	2.031	2.061	2.112	2.158	2.187	2.200	188.563
• R-56: RDT&E AF, PE 0305164F, GPS User Equipment	0.000	0.000	96.840	0.000	96.840	125.926	122.756	153.727	160.642	403.599	1,063.562
E. Acquisition Strategy											
The Modernized User Equipment (MUE) program awarded three competitive MUE technology demonstration contracts to develop and produce Ground-Based GPS Receiver Application Module (GB-GRAM-M) (ground) and GRAM-S/M (aviation) receiver form factors to mature the five critical technology elements (CTEs), test and demonstrate these CTEs in a relevant environment to achieve Technology Readiness Level (TRL) 6, and subject the prototypes to the Government's pilot security certification and performance evaluation processes. To further reduce technology and manufacturing risk in MGUE Increment 1, the three contractors will continue											

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<p>risk reduction activities under the MUE completion effort. This activity is a two part effort: (1) Refining software to resolve any deficiencies revealed during functional qualification tests (FQT) and independent government test &amp; evaluation, and (2) Initiating ASIC modifications to accommodate new updates to GPS system Interface Control Documents (ICDs). This effort will conclude shortly before MGUE Increment 1 PDR, ensuring each contractor has completed discovery and technology maturation in preparation for entry into the Engineering, Manufacturing, and Development phase.</p> <p><b>F. Performance Metrics</b></p> <p>Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.</p>		

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Exhibit R-4, RDT&E Schedule Profile: PB 2013 Air Force		DATE: February 2012
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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Air Force		<b>DATE:</b> February 2012
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Delivery of GRAM S/M Aviation Receivers	1	2012	1	2012
Complete government T&E of GB-GRAM and GRAM S/M	4	2012	4	2012
MUE Tech Sample Demonstrations	1	2013	1	2013
MUE Contract Close out	1	2013	3	2013