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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0305099F: Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	10.584	5.654	5.708	0.000	5.708	5.429	5.414	5.493	5.575	Continuing	Continuing
674689: Global Access Architecture	10.584	5.654	5.708	0.000	5.708	5.429	5.414	5.493	5.575	Continuing	Continuing

A. Mission Description and Budget Item Justification

Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM): this Air Force (AF) program centralizes engineering and technical expertise for CNS capability acquisitions and modifications to ensure that all AF aircraft and Unmanned Aerial Systems (UAS) comply with appropriate CNS/ATM and Navigation Safety performance standards and requirements enabling access to U.S. and international nation/state managed airspace. The 853 Electronic Systems Group (ELSG) supports AF aircraft and UAS CNS/ATM acquisitions as the AF's centralized focal point for identifying, analyzing, and evaluating internationally accepted civil aviation authority operational airspace rules, procedures and requirements worldwide. This group of experts works to identify, analyze, and evaluate the technical performance standards and requirements of the prescribed CNS capabilities and assist platform program offices in the design and integration of the capabilities required to ensure access to civil airspace worldwide. Department of Defense policy states that military platforms conducting peacetime operations will conform to applicable rules to ensure interoperability and transparency within national and international airspace. The 853 ELSG verifies that the system's end-to-end performance for each CNS capability integrated into AF platforms complies with these internationally accepted rules and standards. Per AFD 63-13, the 853 ELSG will develop and maintain CNS/ATM performance matrices used to identify specific CNS/ATM requirements and will provide acquisition and engineering support services through the entire acquisition management effort to include development of technical architectures, program management reviews and test planning for each AF platform. Furthermore, the 853 ELSG will develop and award Indefinite Delivery/Indefinite Quantity contracts for centralized procurement and sustainment of CNS/ATM and Nav Safety products and promote commonality of CNS equipment and architectures between platforms. The 853 ELSG will also participate in the development of Operational Safety, Suitability and Effectiveness assurance and Airworthiness Certification Plans. Dual-use capabilities of avionics to satisfy both civil CNS/ATM and military unique capability requirements will be explored as well as interoperability enhancements to expand net-centric concepts. The 853 ELSG will facilitate and participate in development and testing of CNS box-level prototypes. The 853 ELSG conducts studies and prototyping efforts to ensure AF aircraft are postured to meet current and evolving civil standards leading to the concept of "free flight." This program is assigned Budget Activity 7, Operational Systems Development, based on RDT&E work to implement and integrate appropriate civil standards to ensure transparent Air Force operations and access to worldwide civil airspace. The 853 ELSG also provides acquisition and engineering support to the DoD Lead Service Office for the interagency Next Generation Air Transportation System (NextGen) initiative. The Next Gen initiative, and similar initiatives globally (e.g. Single European Sky) will impact all Air Force platforms. 853 ELSG will develop and coordinate CNS/ATM architectures with the FAA and other regulatory agencies to allow unrestricted access for UAS into global civil airspace. The 853 ELSG will identify UAS equipage roadmaps, facilitate technology development and advocate policy changes to allow unfettered airspace access.

UNCLASSIFIED

R-1 Line Item #185

Page 1 of 10

UNCLASSIFIED

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B. Program Change Summary (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	6.275	6.120	0.000	0.000	0.000
Current President's Budget	10.584	5.654	5.708	0.000	5.708
Total Adjustments	4.309	-0.466	5.708	0.000	5.708
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.174	0.000			
• Other Adjustments	4.483	-0.466	5.708	0.000	5.708
Change Summary Explanation					
FY09: Other Adjustments: \$4.5M for PACARS prototype and NextGen/CNS/ATM reports and studies, \$0.017 Congressional Program Reduction, and \$0.174 SBIR/STIR transfer.					
FY10: Other Adjustments: \$-0.466 for RMD 702 and non-fuel purchase inflation.					

UNCLASSIFIED

R-1 Line Item #185

Page 2 of 10

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0305099F: <i>Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)</i>				PROJECT 674689: <i>Global Access Architecture</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
674689: <i>Global Access Architecture</i>	10.584	5.654	5.708	0.000	5.708	5.429	5.414	5.493	5.575	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
A. Mission Description and Budget Item Justification <p>Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM): this Air Force (AF) program centralizes engineering and technical expertise for CNS capability acquisitions and modifications to ensure that all AF aircraft and Unmanned Aerial Systems (UAS) comply with appropriate CNS/ATM and Navigation Safety performance standards and requirements enabling access to U.S. and international nation/state managed airspace. The 853 Electronic Systems Group (ELSG) supports AF aircraft and UAS CNS/ATM acquisitions as the AF's centralized focal point for identifying, analyzing, and evaluating internationally accepted civil aviation authority operational airspace rules, procedures and requirements worldwide. This group of experts works to identify, analyze, and evaluate the technical performance standards and requirements of the prescribed CNS capabilities and assist platform program offices in the design and integration of the capabilities required to ensure access to civil airspace worldwide. Department of Defense policy states that military platforms conducting peacetime operations will conform to applicable rules to ensure interoperability and transparency within national and international airspace. The 853 ELSG verifies that the system's end-to-end performance for each CNS capability integrated into AF platforms complies with these internationally accepted rules and standards. Per AFDP 63-13, the 853 ELSG will develop and maintain CNS/ATM performance matrices used to identify specific CNS/ATM requirements and will provide acquisition and engineering support services through the entire acquisition management effort to include development of technical architectures, program management reviews and test planning for each AF platform. Furthermore, the 853 ELSG will develop and award Indefinite Delivery/Indefinite Quantity contracts for centralized procurement and sustainment of CNS/ATM and Nav Safety products and promote commonality of CNS equipment and architectures between platforms. The 853 ELSG will also participate in the development of Operational Safety, Suitability and Effectiveness assurance and Airworthiness Certification Plans. Dual-use capabilities of avionics to satisfy both civil CNS/ATM and military unique capability requirements will be explored as well as interoperability enhancements to expand net-centric concepts. The 853 ELSG will facilitate and participate in development and testing of CNS box-level prototypes. The 853 ELSG conducts studies and prototyping efforts to ensure AF aircraft are postured to meet current and evolving civil standards leading to the concept of "free flight." This program is assigned Budget Activity 7, Operational Systems Development, based on RDT&E work to implement and integrate appropriate civil standards to ensure transparent Air Force operations and access to worldwide civil airspace. The 853 ELSG also provides acquisition and engineering support to the DoD Lead Service Office for the interagency Next Generation Air Transportation System (NextGen) initiative. The Next Gen initiative, and similar initiatives globally (e.g. Single European Sky) will impact all Air Force platforms. 853 ELSG will develop and coordinate CNS/ATM architectures with the FAA and other regulatory agencies to allow unrestricted access for UAS into global civil airspace. The 853 ELSG will identify UAS equipage roadmaps, facilitate technology development and advocate policy changes to allow unfettered airspace access.</p>											

UNCLASSIFIED

R-1 Line Item #185

Page 3 of 10

UNCLASSIFIED

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Supporting platform program offices in their efforts to ensure the platform meets the performance standards to ensure access to airspace to conduct operations, assessing CNS capabilit... FY 2009 Accomplishments: In FY 2009: Development of PACARS unit prototype. Ensure air transportation system meets the national air transportation safety, security, mobility, efficiency, and capability needs in support of NextGen. The NextGen initiative, and similar initiatives globally (e.g. Single European Sky) will impact all Air Force platforms. Continuation of operational requirements analysis, demonstration, and evaluation of CNS/ATM, as well as system architecture design and development. FY 2010 Plans: In FY 2010: Gather data to build safety case for unrestricted UAS operations at Palmdale, CA/Grand Forks AFB, ND. UAS equipage roadmaps, technology development and policy changes will allow unfettered airspace access. CNS/ATM architectures will be developed and coordinated with the FAA and other regulatory agencies to allow unrestricted access for UAS into global civil airspace. Continuation of operational requirements analysis, demonstration, and evaluation of CNS/ATM, as well as system architecture design and development. FY 2011 Base Plans: In FY 2011: CNS/ATM architectures will be developed and coordinated with the FAA and other regulatory agencies to allow unrestricted access for UAS into global civil airspace. UAS equipage roadmaps, technology development and policy changes will allow unfettered airspace access. Continuation of operational requirements analysis, demonstration, and evaluation of CNS/ATM, as well as system architecture design and development. Gather data to build safety case for unrestricted UAS operations at Palmdale, CA/Grand Forks AFB, ND.	10.584	5.654	5.708	0.000	5.708

UNCLASSIFIED

R-1 Line Item #185

Page 4 of 10

UNCLASSIFIED

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B. Accomplishments/Planned Program (\$ in Millions)											
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total			
<i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not applicable											
Accomplishments/Planned Programs Subtotals				10.584	5.654	5.708	0.000	5.708			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (13970): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
D. Acquisition Strategy											
853ELSG CNS/ATM Acquisition Strategy guides CNS and NAV safety equipment procurements for AF Aircraft/UAS Single Managers. This strategy ensures systems standardization and interoperability and directly supports the air worthiness certification of AF aircraft/UAS that operate in national and international air traffic environments. The Group will collaborate to provide technical support and expertise, execute system performance assessments and will interface with product/support centers, battle labs, and DoD research facilities in the execution of the assigned task. Program research and development agreements, cooperative research and development agreements, and Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts will be competitively awarded.											
E. Performance Metrics											
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.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force											DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development						R-1 ITEM NOMENCLATURE PE 0305099F: Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)				PROJECT 674689: Global Access Architecture				
Product Development (\$ in Millions)														
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
The tasks defined cover technical development of systems to monitor avionics equipage of US military aircraft, participation in US and international specification and standards-setting organization...	TM	CNS/ATM MIT/Lincoln Labs: Lexington Ma	0.000	1.176	Jan 2010	1.523	Jan 2011	0.000		1.523	Continuing	Continuing	0.000	
The tasks defined cover technical development of systems to monitor avionics equipage of US military aircraft, participation in US and international specification and standards-setting organiza... (1)	TM	NextGen MIT Lincoln Labs Lexington Ma	0.200	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000	
Providing various technical support, operational requirments, and assessing CNS cababilities	TM	CNS ATM MITRE: Bedford Ma	3.010	2.678	Jan 2010	2.876	Jan 2011	0.000		2.876	Continuing	Continuing	0.000	
Providing various technical support	TM	NextGen MITRE, Bedford Ma	0.148	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000	

UNCLASSIFIED

R-1 Line Item #185

Page 6 of 10

UNCLASSIFIED

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Product Development (\$ in Millions) <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2">Cost Category Item</th> <th rowspan="2">Contract Method & Type</th> <th rowspan="2">Performing Activity & Location</th> <th rowspan="2">Total Prior Years Cost</th> <th colspan="2">FY 2010</th> <th colspan="2">FY 2011 Base</th> <th colspan="2">FY 2011 OCO</th> <th>FY 2011 Total</th> <th rowspan="2">Cost To Complete</th> <th rowspan="2">Total Cost</th> <th rowspan="2">Target Value of Contract</th> </tr> <tr> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>Develope PACARS communication management unit prototype</td> <td>TBD/TBD</td> <td>CNS ATM Rockwell Collins</td> <td align="right">2.000</td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td>Continuing</td> <td>Continuing</td> <td align="right">0.000</td> </tr> <tr> <td>Research risk assessment of Air Force mission sets and user requirements environments against changing policies within airspace environments</td> <td>TBD/TBD</td> <td>NextGen DTIC</td> <td align="right">1.670</td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td>Continuing</td> <td>Continuing</td> <td align="right">0.000</td> </tr> <tr> <td>Provide various technical support-A&AS-ETASS</td> <td>TM</td> <td>CNS ATM Jacobs Technology Lincoln Ma</td> <td align="right">0.934</td> <td align="right">0.785</td> <td>Jan 2010</td> <td align="right">0.747</td> <td>Jan 2011</td> <td align="right">0.000</td> <td></td> <td align="right">0.747</td> <td>Continuing</td> <td>Continuing</td> <td align="right">0.000</td> </tr> <tr> <td align="right" colspan="3">Subtotal</td><td align="right">7.962</td><td align="right">4.639</td><td></td><td align="right">5.146</td><td></td><td align="right">0.000</td><td></td><td align="right">5.146</td><td></td><td></td><td align="right">0.000</td></tr> </tbody> </table>														Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Develope PACARS communication management unit prototype	TBD/TBD	CNS ATM Rockwell Collins	2.000	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000	Research risk assessment of Air Force mission sets and user requirements environments against changing policies within airspace environments	TBD/TBD	NextGen DTIC	1.670	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000	Provide various technical support-A&AS-ETASS	TM	CNS ATM Jacobs Technology Lincoln Ma	0.934	0.785	Jan 2010	0.747	Jan 2011	0.000		0.747	Continuing	Continuing	0.000	Subtotal			7.962	4.639		5.146		0.000		5.146			0.000
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract																																																																													
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UNCLASSIFIED

R-1 Line Item #185

Page 7 of 10

UNCLASSIFIED

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Support (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Provide program office support-A&AS-PASS	TM	CNS ATM Quantech Lexington MA	0.083	0.098	Jan 2010	0.093	Jan 2011	0.000		0.093	Continuing	Continuing	0.000
Provide program office support-A&AS-PASS (1)	TM	NextGen Quantech Lexington MA	0.336	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
Provide program office support-A&AS-SCS	TM	CNS ATM Tecolote Goleta CA	0.063	0.096	Jan 2010	0.091	Jan 2011	0.000		0.091	0.000	0.250	0.000
Program Office Support	Various/ Various	TBD CNS ATM	1.657	0.821	Aug 2010	0.378	Aug 2011	0.000		0.378	0.000	2.856	0.000
Program Office Support (2)	Various/ Various	NextGen TBD	0.483	0.000		0.000		0.000		0.000	0.000	0.483	0.000
Subtotal			2.622	1.015		0.562		0.000		0.562			0.000
Remarks													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			10.584	5.654		5.708		0.000		5.708			0.000
Remarks													
Total Prior Years Cost may include only FY 2009 data.													

UNCLASSIFIED

R-1 Line Item #185

Page 8 of 10

UNCLASSIFIED

Exhibit R-4. RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 7: Operational Systems Development

R-1 ITEM NOMENCLATURE

PE 0305099F: *Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)*

PROJECT	
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674689: *Global Access Architecture*

853d ELSG/NT Schedule (FY11 PBR-Round 2)



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NT CNS/ATM	FY 09				FY 10				FY 11				FY 12				FY 13				FY 14				FY 15			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
C-5 AMP/RERP					Full CNS/ATM Upgrade																							
C-17									Blocks 17, 18 and 19 (through 2016)																			
C-130 AMP									222 Aircraft (through 2016)																			
C-130J									Block 7.0 (CPDLC/CMU/ADS-A), Block 8.0 (RNP/RNAV, ADS-B)																			
KC-135									Blocks 40.5 and 45 Production/Installation (through 2016)																			
B-52									FMI/8.33 Radio/BRNAV Upgrades																			
A-10					Mode S ELS/8.33 Radio																							
E-3									GINS anomalies/NAVWAR/Dragon																			
F-35									RVSM, RNP/RNAV, ADS-B																			
F-16									Mode S Update to Elementary Surveillance																			
F-22									CNS/ATM Capability Analysis																			
EC-130					CNS/ATM Avionics Baseline, Requirements Development, Acquisition and Integration																							
AFSOC					Fixed Wing/Rotary Wing CNS/ATM Avionics Baseline, Requirements Development, Acquisition and Integration																							
UAS					Ground Based Sense and Avoid Capabilities Analysis																							
					Airborne Sense and Avoid Capability Development																							
ID/IQ Contract (Award 2/7/06)																												
CNS/ATM I													Year 1 of 5 Additional Opt Yrs															

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R-1 Line Item #185

Page 9 of 10

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force			DATE: February 2010
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Continue operational requirements analysis, demonstration, and evaluation	1	2009	4	2011
Continue assessing CNS capability compliance with nation/state rule making	1	2009	4	2011
Continue acquisition of ID/IQ CNS avionics equipment and components	1	2009	4	2011
Continue Nav/Safety and GPS/NAVWAR integration and interoperability evaluations	1	2009	4	2011
Continue system architecture design and development	1	2009	4	2011
Gather data to build safety case for unrestricted UAS operations at Palmdale, CA/Grand Forks AFB, ND	1	2010	4	2011
Program Office Support	1	2009	4	2011

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