

UNCLASSIFIED

PE NUMBER: 0305099F

PE TITLE: Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2008	
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305099F Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)					
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.115	6.638	6.275	6.120	5.864	5.878	5.890	Continuing	TBD
4689 Global Access Architecture	12.115	6.638	6.275	6.120	5.864	5.878	5.890	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM): the Air Force (AF) program is designed to ensure that all AF acquisitions and modifications conform to appropriate CNS/ATM and Navigation Safety performance requirements to enable access to worldwide civil managed airspace. CNS/ATM and Navigation Warfare (NAVWAR) are major components of the DoD's Global Access, Navigation, and Safety (GANS) management effort. The 853d Electronic Systems Group (ELSG) supports CNS/ATM as the AF's central focal point for identifying, analyzing, and evaluating aviation authority civil operational airspace requirements, as well as identifying, analyzing, and evaluating the technical performance requirements of the CNS capabilities necessary to enable access to civil aviation authority regulated. Furthermore, Department of Defense policy states that military platforms conducting peacetime operations will conform to applicable rules to ensure interoperability and transparency within domestic and international airspace. Additionally, 853d ELSG supports AF aircraft Single Managers in verifying the system's end-to-end performance for each CNS capability integrated into AF aircraft. Per AFPD 63-13, 853d ELSG will develop and maintain CNS/ATM performance matrices used to identify specific CNS/ATM requirements for each AF aircraft. The 853d ELSG will provide acquisition and engineering support services through the entire acquisition framework to include development of technical architectures, program management reviews and test planning. Additionally, the 853d 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 aircraft. The 853d 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 and military CNS/ATM requirements will be explored as well as enhancements to net-centric concepts. 853d ELSG will continue projections of studies and prototyping efforts necessary to ensure AF aircraft are postured to meet current civil standards and future changes to civil standards leading to the concept of free flight. No other program satisfies civil CNS/ATM initiatives. This program is assigned Budget Activity 7, Operational Systems Development. The 853d has also started providing Air Force management oversight support within the federal multi-departmental (Departments of Transportation, Defense, Homeland Security, Commerce, White House Office of Science & Technology Policy, FAA & NASA) 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 and future CNS/ATM Navigation Safety performance requirements in both civil and military environments.

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(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	6.595	6.681	6.250
(U) Current PBR/President's Budget	12.115	6.638	6.275
(U) Total Adjustments	5.520	-0.043	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.043	
Congressional Increases			
Reprogrammings	5.700		
SBIR/STTR Transfer	-0.180		

(U) **Significant Program Changes:**

FY06: Global Air Traffic Management (GATM) name changed to Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM). FY07: 5.7M reprogramming to support the development of the NextGen/DoD Network Enabled Operation (NEO) Spiral 1 Demonstration. FY07/08 : Reductions due to reprogramming to higher DoD priorities. The difference in the FY09 CNS/ATM budget of \$25K is due to inflation.

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BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305099F Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)			PROJECT NUMBER AND TITLE 4689 Global Access Architecture			
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
4689 Global Access Architecture	12.115	6.638	6.275	6.120	5.864	5.878	5.890	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM): the Air Force (AF) program is designed to ensure that all AF acquisitions and modifications conform to appropriate CNS/ATM and Navigation Safety performance requirements to enable access to worldwide civil managed airspace. CNS/ATM and Navigation Warfare (NAVWAR) are major components of the DoD's Global Access, Navigation, and Safety (GANS) management effort. The 853d Electronic Systems Group (ELSG) supports CNS/ATM as the AF's central focal point for identifying, analyzing, and evaluating aviation authority civil operational airspace requirements, as well as identifying, analyzing, and evaluating the technical performance requirements of the CNS capabilities necessary to enable access to civil aviation authority regulated. Furthermore, Department of Defense policy states that military platforms conducting peacetime operations will conform to applicable rules to ensure interoperability and transparency within domestic and international airspace. Additionally, 853d ELSG supports AF aircraft Single Managers in verifying the system's end-to-end performance for each CNS capability integrated into AF aircraft. Per AFD 63-13, 853d ELSG will develop and maintain CNS/ATM performance matrices used to identify specific CNS/ATM requirements for each AF aircraft. The 853d ELSG will provide acquisition and engineering support services through the entire acquisition framework to include development of technical architectures, program management reviews and test planning. Additionally, the 853d 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 aircraft. The 853d 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 and military CNS/ATM requirements will be explored as well as enhancements to net-centric concepts. 853d ELSG will continue projections of studies and prototyping efforts necessary to ensure AF aircraft are postured to meet current civil standards and future changes to civil standards leading to the concept of free flight. No other program satisfies civil CNS/ATM initiatives. This program is assigned Budget Activity 7, Operational Systems Development. The 853d has also started providing Air Force management oversight support within the federal multi-departmental (Departments of Transportation, Defense, Homeland Security, Commerce, White House Office of Science & Technology Policy, FAA & NASA) 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 and future CNS/ATM Navigation Safety performance requirements in both civil and military environments.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue operational requirements analysis, demonstration, and evaluation	1.122	1.122	1.122
(U) Continue development of common avionics and technologies	1.757	1.894	1.701
(U) Continue acquisition of ID/IQ aviation equipment	0.840	0.840	0.840
(U) Continue Nav/Safety and GPS/NAVWAR integration and interoperability evaluations	0.510	0.506	0.506
(U) Continue system architecture definitions, development, and certification	2.186	2.276	2.106

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305099F Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)	PROJECT NUMBER AND TITLE 4689 Global Access Architecture
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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) NextGen/DoD Network Enabled Operation (NEO) Demonstration	5.700		
(U) Total Cost	12.115	6.638	6.275

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) The methodology used to attain CNS/ATM capabilities as required by the MAJCOMs for each platform varies widely - the estimating and tracking of these costs varies even more from program to program. Funding summary information can only be provided by analyzing the specific platform's budget/PE. Please refer to each particular PE affected by CNS/ATM for funding data.

(U) **D. Acquisition Strategy**
 CNS/ATM acquisition strategy enables 853d ELSG to guide CNS/ATM and Nav Safety equipment procurements for AF aircraft Single Managers. 853d ELSG will ensure standardization and support airworthiness certification of AF platforms/systems that operate in the national and global air traffic environments. The Group will collaborate on performance assessment efforts, provide technical expertise and interface with appropriate product/support centers, battle labs, and Department of Defense research and development facilities in the execution of assigned tasks. Program Research and Development Agreements (PDRAs), Cooperative Research and Development Agreements (CDRAs), and Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts will be competitively awarded.

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Exhibit R-3, RDT&E Project Cost Analysis

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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
MIT	FFP			0.697	Oct-06	0.286	Oct-07	0.270	Oct-07	Continuing	TBD	
Honeywell	FFP									Continuing	TBD	
Allied Signal	FFP									0.000	0.000	
Rockwell Collins	FFP									Continuing	TBD	
MITRE Corporation	CPAF			3.158	Oct-06	3.169	Oct-07	3.010	Oct-07	Continuing	TBD	
Horizons Technology Inc	FFP									Continuing	TBD	
TASC	CPFF									0.000	0.000	
Smiths Industries	FFP									Continuing	TBD	
SAIC	T&M									0.000	0.000	
ARINC Inc	FFP									Continuing	TBD	
Lockheed Martin	CPAF									0.000	0.000	
Bremmer Associates	FFP									0.000	0.000	
Northop Grumman	CPAF									0.000	0.000	
MCR	IDIQ			0.193	May-06	0.217	May-07	0.200	May-08	Continuing	TBD	
Federal Tech Services	FFP									0.000	0.000	
DISA/DIT	FFP									Continuing	TBD	
ACS Defense	FFP			1.692	May-06	1.618	May-07	1.521	May-08		4.831	
A&AS Support	FFP			0.620	Aug-07						0.620	
Boeing	FFP			5.000	Jun-07						5.000	
WBB	FFP			0.080	Aug-07	0.000					0.080	
Various	various			0.273		0.909		0.860		Continuing	TBD	
Subtotal Product Development			0.000	11.713		6.199		5.861		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
MITRE Corporation										Continuing	TBD	
Various	Various			0.402		0.439		0.414		Continuing	TBD	
Subtotal Support			0.000	0.402		0.439		0.414		Continuing	TBD	0.000
Remarks:												
<u>(U) Test & Evaluation</u>												
412th FLTS (Edwards AFB)										Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												

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Exhibit R-3 (PE 0305099F)

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PROJECT NUMBER AND TITLE

4689 Global Access Architecture

(U) Total Cost	0.000	12.115	6.638	6.275	Continuing	TBD	0.000
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Exhibit R-4, RDT&E Schedule Profile

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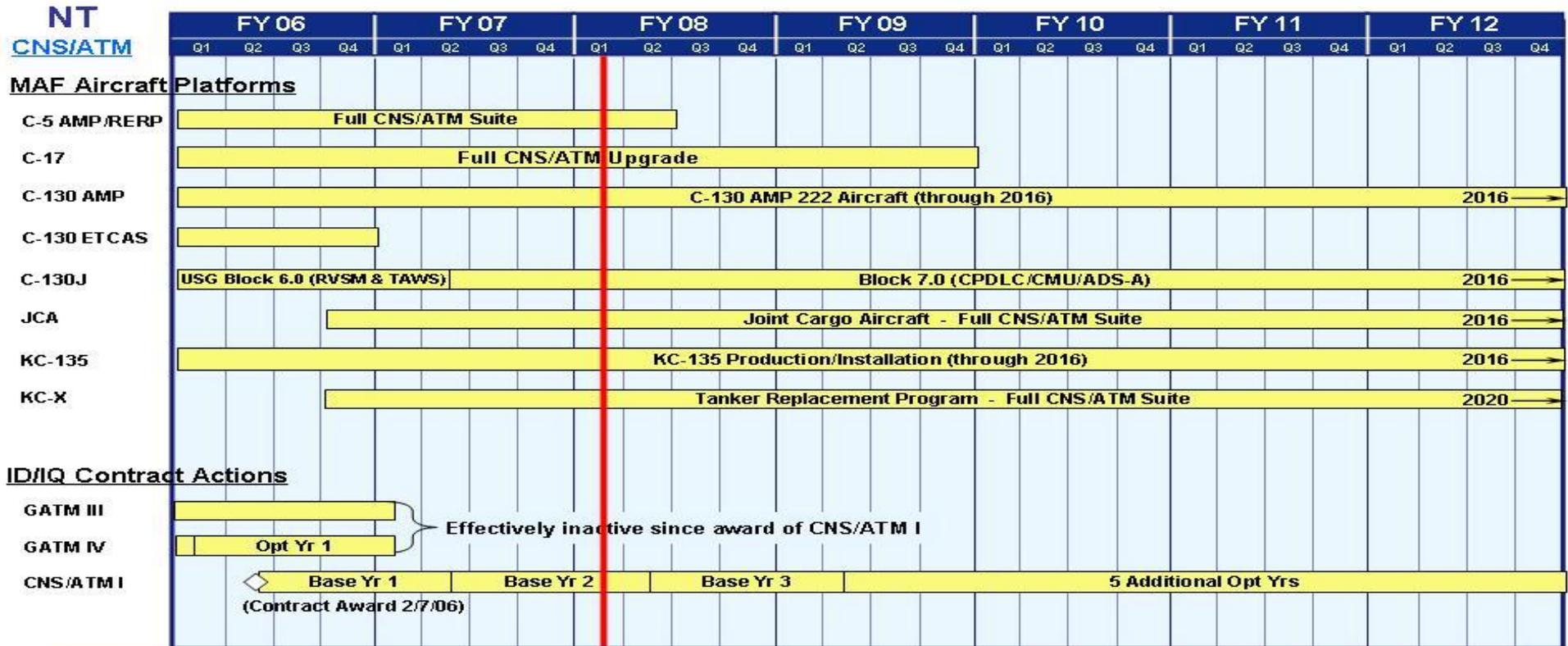
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0305099F Communication,
Navigation, Surveillance/Air Traffic
Management (CNS/ATM)

PROJECT NUMBER AND TITLE
4689 Global Access Architecture



853d ELSG Master Schedule NT (1 of 2)



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Exhibit R-4, RDT&E Schedule Profile

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Management (CNS/ATM)

PROJECT NUMBER AND TITLE
4689 Global Access Architecture



853d ELSG Master Schedule NT (2 of 2)



NT CNS/ATM	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12			
	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
CAF Aircraft Platforms																												
A-10	Mode S Update to Elementary Surveillance/8.33 Radio																											
B-2					RVSM/8.33 Radio Upgrades																2016 →							
B-52	FMI/8.33 Radio/BRNAV Upgrades																2016 →											
E-3 (AWACS)	AWACS IDG Buy/Install								GINS anomalies/NAVWAR																2016 →			
E-8	TCAS/Mode S/8.33 Radio Upgrades																2016 →											
F-15					Mode S																							
F-16	Mode S Update to Elementary Surveillance																2016 →											
F-22					CNS/ATM analysis																2016 →							
F-35 (JSF)	CNS/ATM Capabilities Development																2016 →											
Global Hawk	Mode S																											
U-2					Mode S and 8.33																							

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Exhibit R-4 (PE 0305099F)

Exhibit R-4a, RDT&E Schedule Detail

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(U) Schedule Profile	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) System Architecture Definitions	1-4Q	1-4Q	1-4Q
(U) Operational Requirements Analysis	1-4Q	1-4Q	1-4Q
(U) Development of common avionics and technologies	1-4Q	1-4Q	1-4Q
(U) Acquisition of ID/IQ equipment	1-4Q	1-4Q	1-4Q
(U) GPS/NAVWAR Integration Activities	1-4Q	1-4Q	1-4Q