Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force											Date: February 2016	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*							
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
Total Program Element	-	28.345	52.185	41.632	0.000	41.632	14.385	0.000	0.000	0.000	0.000	136.547
657102: *Command and Control Sys-Consolidated (CCS-C)*	-	14.095	8.646	12.248	0.000	12.248	10.168	0.000	0.000	0.000	0.000	45.157
657107: *WGS Space Systems Resiliency Upgrade*	-	14.250	43.539	29.384	0.000	29.384	4.217	0.000	0.000	0.000	0.000	91.390

Note

In FY2014, Project 657102, Command and Control System - Consolidated (CCS-C), efforts were transferred from PE 0603854F, Wideband Global SATCOM (SPACE), Project 644870, CCS-C, in order to transition to Budget Activity 5.

A. Mission Description and Budget Item Justification

The Wideband Global SATCOM (WGS) System provides DoD users with high data rate military satellite communications (MILSATCOM) services in accordance with the Joint Space Management-approved MILSATCOM architecture (Aug 96), the Joint Requirements Oversight Council (JROC)-approved MILSATCOM Capstone Requirements Document (Oct 97), and the JROC-approved WGS Operational Requirements Document (May 00). Dual-frequency WGS satellites augment, then replace the DoD's Defense Satellite Communications System (DSCS) X-band service and augment one-way Global Broadcast Service Ka-band capabilities. In addition, WGS provides a new high capacity two-way Ka-band service.

All WGS Block I (Satellites 1-3) and Block II (Satellites 4-6) have been launched and are operational. With the operation of WGS-5, the constellation has global coverage and Full Operational Capability (FOC) was declared on 12 May 2014. Project 657107, WGS Space Systems Resiliency Upgrade, is an Acquisition Category III (ACAT III) effort. The WGS resiliency upgrade will enable the WGS system to both locate and neutralize ground-based jamming threats, to both X-band and Ka-band.

The Command and Control System-Consolidated (CCS-C) system provides integrated launch and on-orbit command and control (C2) functionality at Schriever AFB and Vandenberg AFB for MILSATCOM satellites. Schriever AFB is used for primary operations and Vandenberg AFB is used for backup operations. CCS-C uses modified commercial off the shelf hardware/software to control emerging and legacy MILSATCOM systems including Milstar, Defense Satellite Communications System (DSCS), Wideband Global SATCOM (WGS) and Advanced Extremely High Frequency (AEHF) satellites.

The CCS-C project 657102 funds system architecture evolution to provide increased performance for additional satellites and to comply with DoD, Air Force, and AFSPC-directed standards for Information Assurance, Satellite Control Standardization, and Net-Readiness. This continuing effort was previously funded in the FY14PB and prior as an ACAT II program. With the 10 October 2013 FOC declaration, the program has transitioned to an ACAT III program, the Command and Control System - Consolidated Assurance and Capability Enhancement (CACE), beginning FY2014. The WGS and AEHF procurement program elements fund the mission unique software and databases for the WGS Block II Follow-On satellites and the AEHF 4-6 satellites, respectively.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production.

B. Program Change Summary ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	31.328	56.343	44.116	0.000	44.116
Current President's Budget	28.345	52.185	41.632	0.000	41.632
Total Adjustments	-2.983	-4.158	-2.484	0.000	-2.484
• Congressional General Reductions	0.000	-0.158			
• Congressional Directed Reductions	0.000	-4.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	1.316	0.000			
• SBIR/STTR Transfer	-4.299	0.000			
• Other Adjustments	0.000	0.000	-2.484	0.000	-2.484

Change Summary Explanation

FY15: Net +$1.3M reprogrammings, +$3.2M from Weather System Follow-on for SBIR correction, -$1.9M from CCS-C to Family of Advanced Beyond Line of Sight Terminals (FAB-T)

FY16: -$4.0M Congressional Directed Reduction for WGS excess to need

FY17: Net -$2.484M, -$5.95M reduces System Program Office management oversight of Command and Control System - Consolidated (CCS-C) due to lower risk as the acquisition program ends and sustainment begins in FY19, +$8.0M for a wideband Analysis of Alternatives,-$4.258M to account for availability of prior execution balances, and -$0.276M inflation adjustment

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*	Project (Number/Name) 657102 / *Command and Control Sys-Consolidated (CCS-C)*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
657102: *Command and Control Sys-Consolidated (CCS-C)*	-	14.095	8.646	12.248	0.000	12.248	10.168	0.000	0.000	0.000	0.000	45.157
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Additional Prior Years funds for Wideband Global SATCOM (SPACE) are in PE 0603854F, Project 644870, Command and Control System - Consolidated (CCS-C), Budget Activity 4.

A. Mission Description and Budget Item Justification

The Military Satellite Communications (MILSATCOM) Command and Control System-Consolidated (CCS-C) system provides integrated launch and on-orbit command and control (C2) functionality at Schriever AFB and Vandenberg AFB for MILSATCOM satellites. Schriever AFB is used for primary operations and Vandenberg AFB is used for backup operations. CCS-C uses modified commercial off the shelf hardware/software to control emerging and legacy MILSATCOM systems including Milstar, Defense Satellite Communications System (DSCS), Wideband Global SATCOM (WGS) and Advanced Extremely High Frequency (AEHF) satellites.

The CCS-C project 657102 funds system architecture evolution to provide increased performance for additional satellites and to comply with DoD, Air Force, and AFSPC-directed standards for Information Assurance, Satellite Control Standardization, and Net-Readiness. This continuing effort was previously funded in the FY14PB and prior as an Acquisition Category II (ACAT II) program. With the 10 October 2013 Final Operational Capability (FOC) declaration, the program has transitioned to an ACAT III program, the Command and Control System-Consolidated Assurance and Capability Enhancement (CACE), beginning FY2014. The WGS and AEHF procurement program elements fund the mission unique software and databases for the WGS Block II Follow-On satellites and the AEHF 4-6 satellites, respectively.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: CCS-C development	14.095	8.646	12.248
Description: Develop system architecture to provide enhanced C2 of MILSATCOM satellites.			
FY 2015 Accomplishments: Continued CCS-C contract to implement new Cross-Domain Solution and Host Based Security System to enhance Information Assurance posture; upgraded, integrated, and tested new cryptologic equipment; and implemented new architecture changes to increase WGS capacity, reduce system downtime, and decrease O&M costs. Conducted Preliminary Design Review (PDR).			
FY 2016 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*	**Project (Number/Name)** 657102 / *Command and Control Sys-Consolidated (CCS-C)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Execute CCS-C modifications to implement new Cross-Domain Solution and Host Based Security System to enhance Information Assurance posture; upgrade, integrate, and test new cryptologic equipment; and implement new architecture changes to increase WGS capacity, reduce system downtime, and decrease O&M costs. Conduct Critical Design Review (CDR). ***FY 2017 Plans:*** Continue to execute implementation, integration, and begin test verification activities for all CCS-C modifications. Manage both the operational CCS-C baseline and the new CCS-C Assurance and Capacity Enhancement (CACE) upgraded baseline throughout testing activities.			
Accomplishments/Planned Programs Subtotals	14.095	8.646	12.248

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA03: Line Item # 836780: *Milsatcom Space*	0.265	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.265
• SPAF: BA01: Line Item # MILSAT: *Milsatcom Space*	0.000	0.269	0.272	0.000	0.272	0.276	0.281	0.000	0.000	0.000	1.098
• MPAF: BA05: Line Item # ADV555: *Advanced EHF*	3.679	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.679
• SPAF: BA01: Line Item # ADV555: *Advanced EHF*	0.000	1.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.906
• MPAF: BA05: Line Item # GAP000: *Wideband Global System Procurement*	2.071	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.071
• SPAF: BA01: Line Item # GAP000: *Wideband Global System Procurement*	0.000	2.083	2.083	0.000	2.083	0.208	0.000	0.000	0.000	0.000	4.374

Remarks

D. Acquisition Strategy

Competitive contract was awarded in November 2012 and began performance in January 2013. The CCS-C Production and Sustainment Contract (CPASC) includes effort to increase the capability of the CCS-C system to provide ongoing C2, launch readiness support, and anomaly resolution for MILSATCOM satellite families.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*	**Project (Number/Name)** 657102 / *Command and Control Sys-Consolidated (CCS-C)*

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*	Project (Number/Name) 657102 / *Command and Control Sys-Consolidated (CCS-C)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Production and Sustainment Contract	C/FPIF	Kratos : San Diego, CA	-	10.866	Oct 2014	5.008	Oct 2015	7.736	Oct 2016	0.000		7.736	Continuing	Continuing	TBD
Technical Mission Analysis	C/Various	Aerospace : El Segundo, CA	-	0.000	Oct 2014	1.654	Oct 2015	1.529	Oct 2016	0.000		1.529	Continuing	Continuing	-
Enterprise SE&I	C/CPIF	LinQuest : Los Angeles, CA	-	0.549	Oct 2014	0.890	Oct 2015	0.812	Oct 2016	0.000		0.812	Continuing	Continuing	TBD
		Subtotal	-	11.415		7.552		10.077		0.000		10.077	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC	Various	Aerospace : El Segundo, CA	-	0.930	Oct 2014	0.097	Oct 2015	0.382	Oct 2016	0.000		0.382	Continuing	Continuing	-
A&AS	Various	Various : Various	-	1.746	Oct 2014	0.947	Oct 2015	1.739	Oct 2016	0.000		1.739	Continuing	Continuing	TBD
Other Support	Various	Various : Various	-	0.004	Oct 2014	0.050	Oct 2015	0.050	Oct 2016	0.000		0.050	Continuing	Continuing	-
		Subtotal	-	2.680		1.094		2.171		0.000		2.171	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*	**Project (Number/Name)** 657102 / *Command and Control Sys-Consolidated (CCS-C)*	

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	14.095		8.646		12.248		0.000		12.248	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*	**Project (Number/Name)** 657102 / *Command and Control Sys-Consolidated (CCS-C)*

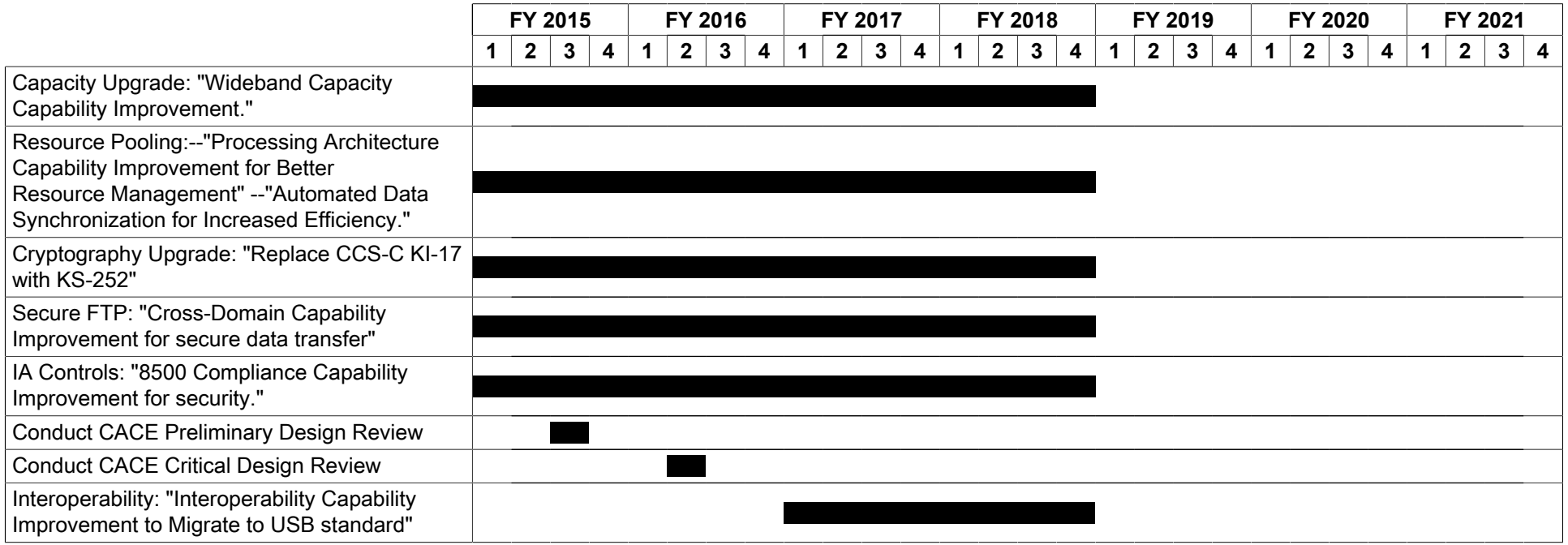

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*	**Project (Number/Name)** 657102 / *Command and Control Sys-Consolidated (CCS-C)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Capacity Upgrade: "Wideband Capacity Capability Improvement."	1	2015	4	2018
Resource Pooling:--"Processing Architecture Capability Improvement for Better Resource Management" --"Automated Data Synchronization for Increased Efficiency."	1	2015	4	2018
Cryptography Upgrade: "Replace CCS-C KI-17 with KS-252"	1	2015	4	2018
Secure FTP: "Cross-Domain Capability Improvement for secure data transfer"	1	2015	4	2018
IA Controls: "8500 Compliance Capability Improvement for security."	1	2015	4	2018
Conduct CACE Preliminary Design Review	3	2015	3	2015
Conduct CACE Critical Design Review	2	2016	2	2016
Interoperability: "Interoperability Capability Improvement to Migrate to USB standard"	1	2017	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*	Project (Number/Name) 657107 / *WGS Space Systems Resiliency Upgrade*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
657107: *WGS Space Systems Resiliency Upgrade*	-	14.250	43.539	29.384	0.000	29.384	4.217	0.000	0.000	0.000	0.000	91.390
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Wideband Global SATCOM (WGS) System provides the DoD with high data rate military satellite communications (MILSATCOM) services in accordance with the Joint Space Management Board-approved MILSATCOM architecture (August 1996), the Joint Requirements Oversight Council (JROC)-approved MILSATCOM Capstone Requirements Document (October 1997), and JROC-approved WGS Operational Requirements Document (May 2000). This program was originally conceived to augment the near-term "bandwidth gap" in warfighter communications needs. Dual-frequency WGS satellites augment, then replace the DoD's Defense Satellite Communications System X-band service and augment one-way Global Broadcast Service Ka-band capabilities. In addition, WGS provides a high capacity two-way Ka-band service.

All WGS Block I (Satellites 1-3), Block II (Satellites 4-6), and the first Block II Follow-on (Satellite 7) have been launched and are operational. With the operation of WGS-5, the constellation has global coverage and Full Operational Capability (FOC) was declared on 12 May 2014. Project 657107, WGS Space Systems Resiliency Upgrade, is an Acquisition Category III (ACAT III) effort. The WGS resiliency upgrade will enable the WGS system to both locate and neutralize ground-based jamming threats, to both X-band and Ka-band. FY17 PB continues X-band anti-jam enhancement and initiates Ka-band ground based anti-jam development.

The FY17 PB includes funding to conduct an Analysis of Alternatives (AoA) on a future Wideband System to determine the next wideband satellite communications architecture.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: WGS Upgrade	14.250	43.539	21.544
Description: Upgrade WGS system to both locate and neutralize ground-based jamming threats.			
FY 2015 Accomplishments: Completed Request For Proposal release, receipt of proposal, and technical evaluation of proposal.			
FY 2016 Plans: X-band: Initiate Ground Based Receiver Equipment Development, Global SATCOM Command and Control Element (GSCCE) Software (SW) Development (GBAN), Random Access Memory (RAM) Patch Development, In Service Calibration/Geolocation/ Beam SW Development, and initiate Rack Integration and Test (I&T).			
FY 2017 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*	**Project (Number/Name)** 657107 / *WGS Space Systems Resiliency Upgrade*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
X-band: Complete Ground Based Receiver Equipment Development, Global SATCOM Command and Control Element (GSCCE) Software (SW) Development (GBAN), Random Access Memory (RAM) Patch Development, In Service Calibration/Geolocation/ Beam SW Development, and Rack Integration and Test (I&T). Initiate System I&T and Information Assurance Certification. Ka-band: Initiate Ground Based Receiver Equipment Development, Global SATCOM Command and Control Element (GSCCE) Software (SW) Development (GBAN), Random Access Memory (RAM) Patch Development, and Geolocation/Beam Pointing SW Development.			
Title: Wideband AoA ***Description:*** Analysis of alternatives for a follow-on wideband communications system to the WGS system. ***FY 2015 Accomplishments:*** N/A ***FY 2016 Plans:*** N/A ***FY 2017 Plans:*** Support the Principal DoD Space Advisor (PDSA) in the conduct of a wideband Analysis of Alternatives to determine the appropriate mix of military and commercial wideband satellite communications.	0.000	0.000	7.840
Accomplishments/Planned Programs Subtotals	14.250	43.539	29.384

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• MPAF: BA05: Line Item # GAP000: *Wideband Global System Procurement*	36.071	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3,018.730
• SPAF: BA01: Line Item # GAP000: *Wideband Global System Procurement*	0.000	74.476	86.272	0.000	86.272	90.659	62.112	0.000	0.000	0.000	313.519

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*	**Project (Number/Name)** 657107 / *WGS Space Systems Resiliency Upgrade*

D. Acquisition Strategy

The Wideband Global SATCOM (WGS) Space Systems Resiliency Upgrade will be accomplished by modifying the WGS Block II Follow-On (B2FO) Firm Fixed Price (FFP) contract definitized in August 2010. The B2FO contract currently provides development, production, and deployment of WGS satellites 7 and beyond.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*	**Project (Number/Name)** 657107 / *WGS Space Systems Resiliency Upgrade*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
WGS Upgrade: X-band Anti-jam enhancement	SS/FFP	The Boeing Company : El Segundo, CA	-	13.250	Feb 2016	24.020	Mar 2016	19.290	Oct 2016	0.000		19.290	Continuing	Continuing	52.620
WGS Upgrade: Ka-band Anti-jam enhancement	C/TBD	TBD : TBD	-	0.000		17.959	Jun 2017	0.966	Jul 2017	0.000		0.966	Continuing	Continuing	-
Technical Mission Analysis	Various	Aerospace : El Segundo, CA	-	0.900	Feb 2015	0.622	Nov 2015	0.631	Oct 2016	0.000		0.631	Continuing	Continuing	-
Wideband Analysis of Alternatives (AoA)	TBD	TBD : TBD	-	0.000		0.000		7.840	Oct 2016	0.000		7.840	Continuing	Continuing	-
		Subtotal	-	14.150		42.601		28.727		0.000		28.727	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC	Various	Aerospace : El Segundo, CA	-	0.100	Feb 2015	0.067	Mar 2016	0.069	Oct 2016	0.000		0.069	Continuing	Continuing	6.180
Other Support	Various	Various : TBD	-	0.000		0.871	Mar 2016	0.588	Nov 2016	0.000		0.588	Continuing	Continuing	1.200
		Subtotal	-	0.100		0.938		0.657		0.000		0.657	-	-	7.380

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*	Project (Number/Name) 657107 / *WGS Space Systems Resiliency Upgrade*	

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	14.250		43.539		29.384		0.000		29.384	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*	**Project (Number/Name)** 657107 / *WGS Space Systems Resiliency Upgrade*

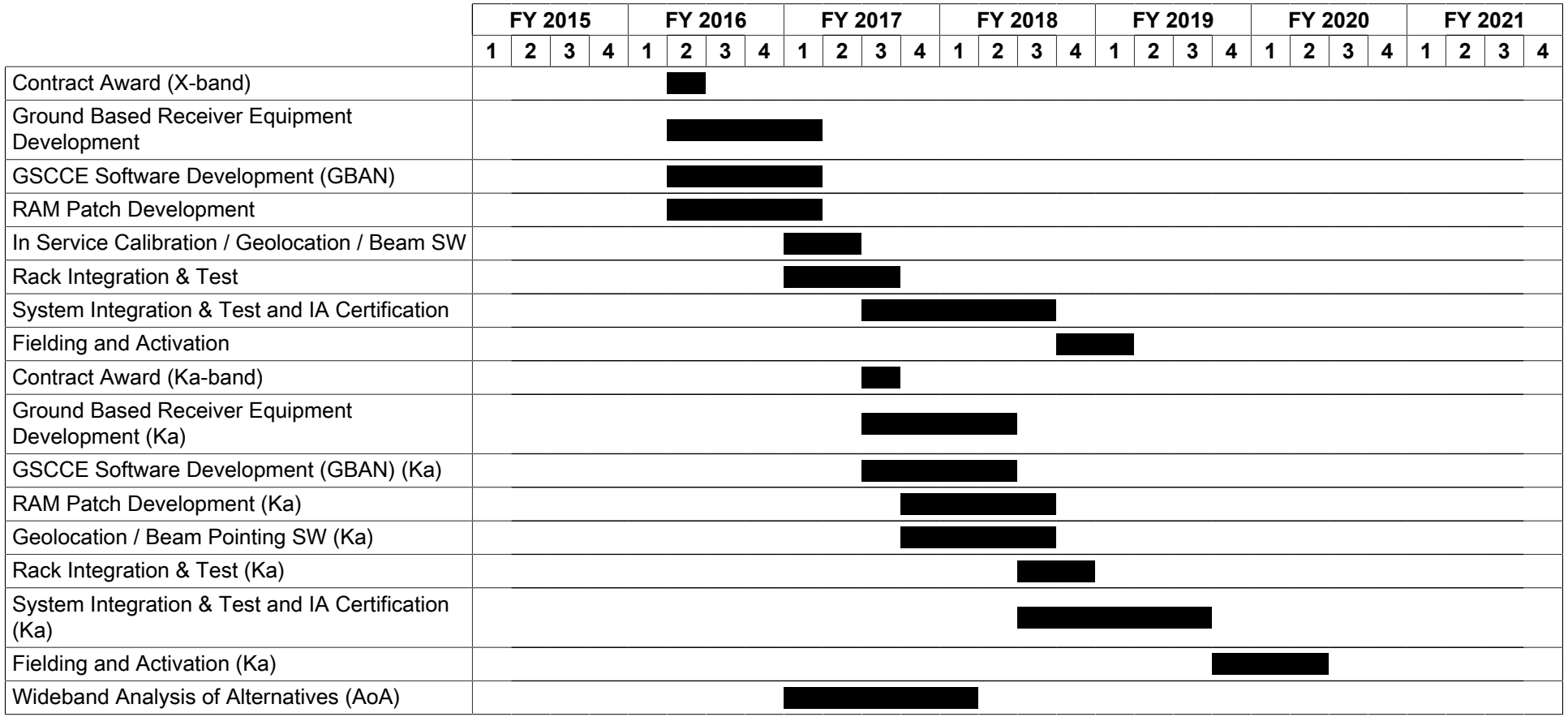

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0605433F / *WIDEBAND GLOBAL SATCOM (SPACE)*	**Project (Number/Name)** 657107 / *WGS Space Systems Resiliency Upgrade*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Contract Award (X-band)	2	2016	2	2016
Ground Based Receiver Equipment Development	2	2016	1	2017
GSCCE Software Development (GBAN)	2	2016	1	2017
RAM Patch Development	2	2016	1	2017
In Service Calibration / Geolocation / Beam SW	1	2017	2	2017
Rack Integration & Test	1	2017	3	2017
System Integration & Test and IA Certification	3	2017	3	2018
Fielding and Activation	4	2018	1	2019
Contract Award (Ka-band)	3	2017	3	2017
Ground Based Receiver Equipment Development (Ka)	3	2017	2	2018
GSCCE Software Development (GBAN) (Ka)	3	2017	2	2018
RAM Patch Development (Ka)	4	2017	3	2018
Geolocation / Beam Pointing SW (Ka)	4	2017	3	2018
Rack Integration & Test (Ka)	3	2018	4	2018
System Integration & Test and IA Certification (Ka)	3	2018	3	2019
Fielding and Activation (Ka)	4	2019	2	2020
Wideband Analysis of Alternatives (AoA)	1	2017	1	2018