Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force	Date: February 2019
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305114F / *Air Traffic Control, Approach, and Landing System (ATCALS)*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	5.791	13.271	5.651	0.000	5.651	6.565	6.701	6.822	6.944	Continuing	Continuing
673587: *Air Traffic Control Systems*	-	5.791	13.271	5.651	0.000	5.651	6.565	6.701	6.822	6.944	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

To support the Air Force worldwide flying mission, this program element funds research, development, and management of new air traffic control communications, surveillance, automation, positioning, and precision approach and landing systems. When applicable, this includes joint efforts with the Federal Aviation Administration (FAA) and coordination with the International Civil Aviation Organization and the North Atlantic Treaty Organization. ATCALS development funding currently focuses on Future Air Traffic Control (ATC) Technologies within the Next Generation (NextGen) Air Transportation System (ATS) and Deployable Radar Approach Control (DRAPCON) programs as described below.

NextGen ATS. This is the United States initiative for the transformation of the National Airspace System (NAS) over the next 20-30 years to enhance safety, security, efficiency, affordability and capacity, meeting the requirements of all users of the NAS. This interagency effort is designed to identify the warfighter's emerging airspace needs, analyze technologies, formulate requirements and positions, and advise DoD aviation and air traffic communities in order to enable safe and efficient military flight operations in a changing global airspace. Future ATC Technology will be built on key elements from the NextGen ATS projects, leveraging those systems and studies to further advance ATC systems under development. As these technologies and architectures mature, ground system upgrades will be coordinated and fielded concurrently with aircraft avionics capabilities that are acquired and integrated into Air Force aircraft (manned and unmanned). These efforts will involve aircraft avionics as well as fixed based and deployable air traffic control and landing systems. FY20 efforts will continue to research and develop new technologies in the areas of aircraft launch and recovery, airspace interoperability, and optimization of flight capability, as well as continue enabling Unmanned Aircraft System (UAS) access to the NAS, develop a NextGen ATS DoD Strategic Roadmap, add new capabilities to Notice to Airmen (NOTAMs) software, and outline DoD and Air Force equities and requirements via in-depth analysis of FAA NextGen ATS programs and timelines. Portfolio analysis will be captured in DoD NextGen ATS charters to guide Services through a broad and complex NextGen ATS environment. To minimize integration costs, the AF will work across the DoD to adopt a common framework with practical guidelines to evaluate the validity of NextGen ATS initiatives with the Air Force's mission. These efforts support the development of operational strategies that realize the achievement of valid NextGen ATS initiatives in concert with acquisition strategies in integrated avionics advances for focus areas such as Aircraft Launch and Recovery for both fixed and expeditionary operations, Airspace Interoperability, Optimized Flight Capability, and any DoD/USAF or civil US and International Mandates. FY20 tasks will also continue NextGen ATS strategic planning efforts, the conduct of service operational test and evaluation as required, and evaluation of new civil air traffic control and landing system technologies that may have military utility to include an Early Operational Assessment (EOA) of Remote Virtual ATC Tower System technology. In total, these efforts will focus on enabling DoD aircraft to take advantage of NextGen ATS envisioned efficiencies, developing policies/procedures to reduce costs while ensuring airspace access, seamlessly integrating UASs into the NAS and international airspaces, improving the display of aircraft position to air traffic controllers, determining future requirements for digital communications with manned and unmanned aircraft, and enhancing flight safety.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force	Date: February 2019
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305114F / *Air Traffic Control, Approach, and Landing System (ATCALS)*

Deployable Radar Approach Control (D-RAPCON). D-RAPCON will replace the 50 year old Air National Guard (ANG) AN/MPN-14K and Active Duty (AD) AN/TPN-19 Airport Surveillance Radar and Operations Shelter subsystems with state-of-the-art digital systems. Due to diminishing manufacturing sources, modification and overhaul of the existing systems has proven to be ineffective. On average, due to systemic equipment failures, no more than four of the existing 14 systems are deployable at any given time and none are fully mission capable. Three of these systems are currently deployed. Two of which are at a single location (one for spare parts). D-RAPCON will provide aircraft surveillance/sequencing, air traffic control communications, automation capabilities for terminal area air traffic control operations, and Mode 5 Identification Friend or Foe and secure communication capabilities (a deferred key system attribute). D-RAPCON will also be deployed with a fixed base or deployable Instrument Landing System, a fixed or mobile control tower, and a fixed or mobile Tactical Air Navigation system to provide a complete air traffic control capability. D-RAPCON will support the full range of tactical military, worldwide humanitarian, and domestic disaster relief operations. The primary surveillance radar coverage (non-cooperative targets) extends out 60 nautical miles (nm) and the secondary surveillance radar coverage (cooperative targets) will increase from 120 nm to 200 nm. The D-RAPCON Capability Development Document was approved by the Air Force Requirements Oversight Council on 8 Feb 11. Related OPAF funds are in PE 0305114F Weapon System Code 833010.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver the ATCALS weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.

As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is $14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	6.306	6.271	6.452	0.000	6.452
Current President's Budget	5.791	13.271	5.651	0.000	5.651
Total Adjustments	-0.515	7.000	-0.801	0.000	-0.801
• Congressional General Reductions	-0.328	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	7.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.187	0.000			
• Other Adjustments	0.000	0.000	-0.801	0.000	-0.801

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force	Date: February 2019
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305114F / *Air Traffic Control, Approach, and Landing System (ATCALS)*

Change Summary Explanation

The FY2020 funding request was reduced by $0.801 million to account for the availability of prior year execution balances.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: NextGen ATS	5.791	13.271	5.651	0.000	5.651
Description: Includes efforts to implement NextGen ATS efficiencies and capabilities. Focus is on aircraft launch and recovery, airspace interoperability, optimization of flight capability, adherence to mandates, technical support/architecture development, surveillance radar/Automatic Dependent Surveillance Broadcast (ADS-B) integration/automation system upgrades, D-RAPCON Mode 5/Secure Communications integration analysis, Notice to Airmen software upgrades, Air Traffic Control (ATC) training and technology study, expeditionary ATC technology development, conduct of an Early Operational Assessment of Remote Virtual Air Traffic Control Tower technology, development of standards for certification of Infill radars for civil implementation, and development of procedures and tools to support ATC Management of Unmanned Aircraft Systems (UASs) in close proximity with manned aircraft.					
FY 2019 Plans: - Continue to execute analysis of NextGen ATS programs and capture results through charters and incorporate into NextGen ATS DoD Strategic Roadmap which will include the following tasks: -- Continue to analyze FAA radar divestiture impacts and AF radar and FAA ADS-B coverage data for establishing a minimum operating network (MON). -- Continue to develop policy and strategy for UAS implementation in global civil and military airspace. -- Continue to support implementation of ADS-B Out through ATC accommodation procedures for DoD aircraft not equipped with ADS-B Out. -- Begin analysis on avionics security based on known threats. -- Begin development and maturation of technology to support Aircraft Launch and Recovery for both expeditionary and fixed operations. -- Begin supporting advancement in airspace interoperability between civilian and military fleets in both national and international airspace. -- Begin analyzing current and emerging aviation technology to help optimize the efficiency, effectiveness, and safety of flight capabilities. -- Continue to monitor emerging DoD/USAF and civil US and International mandates to ensure compliance of USAF fleets. -- Continue D-RAPCON lead Service operational test and evaluation.					

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force	Date: February 2019
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305114F / *Air Traffic Control, Approach, and Landing System (ATCALS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
-- Begin development of Notice to Airmen (NOTAMs) software upgrades to enhance NOTAM creation and query applications and add interface for foreign procedure review requests. -- Complete integration analysis of Mode 5 IFF/Secure Comm into D-RAPCON. -- Begin ATC Training and Technology Study. -- Continue Early Operational Assessment of a Remote Virtual Air Traffic Control Tower capability to assess ability to meet AF flying/ATC missions in lieu of brick and mortar control towers. -- Begin development of Infill radar certification requirements and threshold parameters to enable operational use in the National Airspace System. -- Support on-going FAA and Air Force Research Laboratory development of air traffic control management technology and tools/procedures to ensure unmanned and manned aircraft can safely operate in close proximity.					
FY 2020 Base Plans: -- Will continue to execute analysis of NextGen ATS programs and capture results through charters and incorporate into NextGen ATS DoD Strategic Roadmap which will include the following tasks: -- Will continue to advance Instrument Approach Operations. -- Will continue to investigate areas of optimized Flight Operations. -- Will continue to support implementation of ADS-B Out through ATC accommodation procedures for DoD aircraft not equipped with ADS-B Out. -- Will continue analysis on avionics security based on known threats. -- Will continue to coordinate with interagency partners to promote UAS integration into civil airspace. -- Will continue development and maturation of technology to support Aircraft Launch and Recovery for both expeditionary and fixed operations. -- Will continue supporting advancement in airspace interoperability between civilian and military fleets in both national and international airspace. -- Will continue analyzing current and emerging aviation technology to help optimize the efficiency, effectiveness, and safety of flight capabilities. -- Will continue to monitor emerging DoD/USAF and civil US and International mandates to ensure compliance of USAF fleets. -- Will continue development of Notice to Airmen (NOTAMs) software upgrades to enhance NOTAM creation and query applications. -- Will continue ATC Training and Technology Study. -- Will complete Early Operational Assessment of a Remote Virtual Air Traffic Control Tower capability to assess ability to meet AF flying/ATC missions in lieu of brick and mortar control towers.					

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force	Date: February 2019
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305114F / *Air Traffic Control, Approach, and Landing System (ATCALS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
-- Will complete development of Infill radar requirements and threshold parameters to enable operational certification for use in the National Airspace System. -- Will complete effort with FAA and Air Force Research Laboratory to develop air traffic control management technology and procedures/tools to ensure unmanned and manned aircraft can safely operate in close proximity ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** N/A					
Title: D-RAPCON ***Description:*** Effort supports D-RAPCON engineering, manufacturing, and development and government developmental and operational testing of one Pre-Production Unit (PPU) leading to Milestone C and exercise of PPU refurbishment/upgrade option in FY19. Additional RDT&E funds are required to complete D-RAPCON developmental and operational testing. Funds will be realigned from within the Program Executive Office portfolio to complete these tasks. ***FY 2019 Plans:*** - Complete Federal Aviation Administration certifications - Complete government developmental testing and user operational assessment in support of Milestone C decision in Jun 19. - Exercise production option for refurbishment of the pre-production unit in Jul 19 ***FY 2020 Base Plans:*** - Will continue operational testing. Completion of operational testing and full rate production decision/contract award planned in 1st quarter FY21 ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** N/A	0.000	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	5.791	13.271	5.651	0.000	5.651

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force	Date: February 2019
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305114F / *Air Traffic Control, Approach, and Landing System (ATCALS)*

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPAF 03 Line Item 833010: *Air Traffic Control and Landing Systems*	5.277	51.012	5.363	-	5.363	36.831	56.568	37.077	19.421	Continuing	Continuing
• OPAF 05 Line Item 861900: *Spares and Repair Parts*	0.000	0.932	0.950	-	0.950	3.120	4.798	1.613	1.642	Continuing	Continuing

Remarks

E. Acquisition Strategy

ATCALS is a basket program element with multiple programs in various stages of acquisition which provide the air traffic control infrastructure to support peacetime and wartime missions. The current acquisition strategy is focused on replacing 1960/70s era deployable and fixed based equipment with mature off-the-shelf technology with remote maintenance capability while also looking to the future under the NextGen ATS initiative.

Current contracting efforts include D-RAPCON development, NextGen ATS planning and implementation, and conduct of an Early Operational Assessment (EOA) of Remote Virtual ATC Control Tower technology. The contracting strategy for D-RAPCON development is based on award of a competitive fixed price incentive firm contract emphasizing off-the-shelf technology and maximizing the use of non-developmental items. The contract includes engineering, manufacturing, and development and test with follow-on production options. NextGen ATS Enterprise Architecture Implementation Tasks, Infill radar certification, and ATC Management of UASs are being executed via Military Inter-Departmental Purchase Requests, and Project Orders with various organizations (FAA, MITRE, Army, Air Force Research Laboratory, and Air Force Flight Standards Agency). The Remote Virtual ATC Control Tower EOA contract award was a full and open competition using Other Transaction Authority procedures.

The Air Force Program Executive Officer (PEO) Digital is the PEO for ATCALS and is also the delegated milestone decision authority. Program management, contracts, logistics, and financial management support is provided by the Air Force Life Cycle Management Center Aerospace Management Systems Division (AFLCMC/HBA) which is aligned under PEO/Digital.

F. 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 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305114F / *Air Traffic Control, Approach, and Landing System (ATCALS)*	**Project (Number/Name)** 673587 / *Air Traffic Control Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NOTAM Software	C/FFP	AFDW/PK : JB Andrews, MD	-	-		0.418	Aug 2019	0.421	Mar 2020	-		0.421	Continuing	Continuing	-
		Subtotal	-	-		0.418		0.421		-		0.421	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NextGen ATS Enterprise Architecture Implementation Support	MIPR	FAA : Washington, DC	-	2.688	Mar 2018	3.341	Mar 2019	3.280	Mar 2020	-		3.280	Continuing	Continuing	-
NextGen ATS Strategic Planning	WR	MITRE : Hanscom AFB, MA	-	0.298	Jan 2018	0.350	Jan 2019	0.250	Jan 2020	-		0.250	Continuing	Continuing	-
NextGen ATS Support Cost	WR	Various : Various	-	0.087	Feb 2018	0.121	Feb 2019	0.450	Feb 2020	-		0.450	Continuing	Continuing	-
NextGen ATS GBDAA Support	MIPR	Various : Various	-	0.400	May 2018	-		-		-		-	0.000	0.400	-
		Subtotal	-	3.473		3.812		3.980		-		3.980	Continuing	Continuing	N/A

Remarks

Various contract types, performing activity and city/states are result of the use of Military Interdepartmental Purchase Requests (MIPR), Work Request (WR), Purchase Requests (PR), Project Orders (PO), etc. that are sent to multiple agencies in support of some tasks.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NextGen ATS Surveillance Radar/Automation System Upgrades (Mode 5)	WR	Various : Various	-	1.401	Nov 2018	1.441	Mar 2019	-		-		-	0.000	2.842	-
Remote Air Traffic Control Tower Capability EOA	WR	Various : Various	-	0.767	Nov 2018	0.350	Feb 2019	0.900	Feb 2020	-		0.900	0.000	2.017	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305114F / *Air Traffic Control, Approach, and Landing System (ATCALS)*	**Project (Number/Name)** 673587 / *Air Traffic Control Systems*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ATCALS Operational Test & Evaluation (OT&E)	WR	Various : Various	-	0.150	Nov 2017	0.250	Jun 2019	0.350	Nov 2019	-		0.350	Continuing	Continuing	-
Infill Radar Certification	MIPR	FAA/AFRL : Washington/Griffiss, DC	-	-		2.000	Apr 2019	-		-		-	0.000	2.000	-
Air Traffic Control of UASs	MIPR	AFRL : Griffiss, NY	-	-		5.000	Apr 2019	-		-		-	0.000	5.000	-
		Subtotal	-	2.318		9.041		1.250		-		1.250	Continuing	Continuing	N/A

Remarks

Various contract types, performing activity and city/states are result of the use of Military Interdepartmental Purchase Requests (MIPR), Work Request (WR), Purchase Requests (PR), Project Orders (PO), etc. that are sent to multiple agencies in support of some tasks.

Additional funds are required to complete D-RAPCON developmental and operational testing in FY19. Funds will be realigned from within the Program Executive Office portfolio to complete these tasks.

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	5.791		13.271		5.651		-		5.651	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305114F / *Air Traffic Control, Approach, and Landing System (ATCALS)*	**Project (Number/Name)** 673587 / *Air Traffic Control Systems*

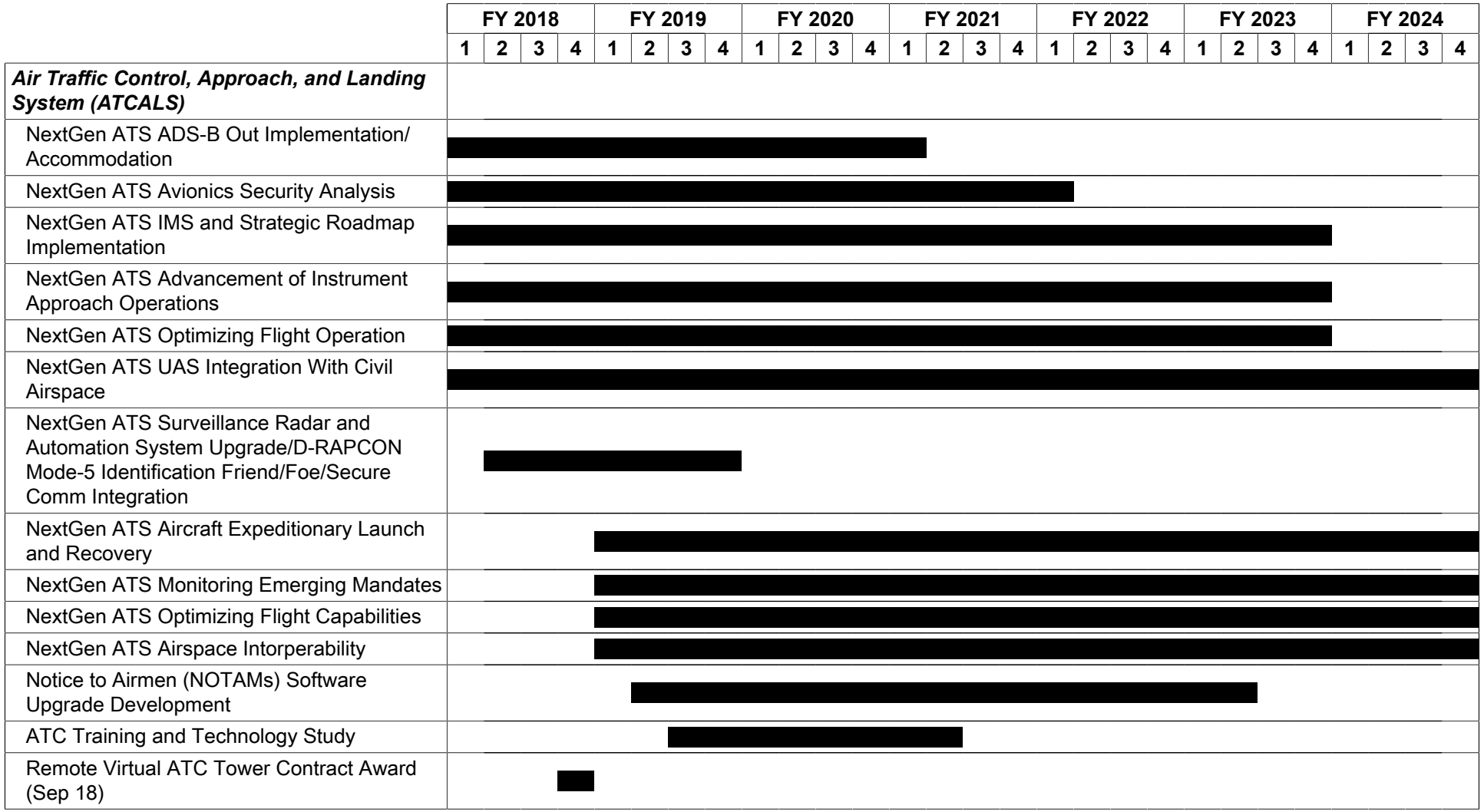

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305114F / *Air Traffic Control, Approach, and Landing System (ATCALS)*	**Project (Number/Name)** 673587 / *Air Traffic Control Systems*

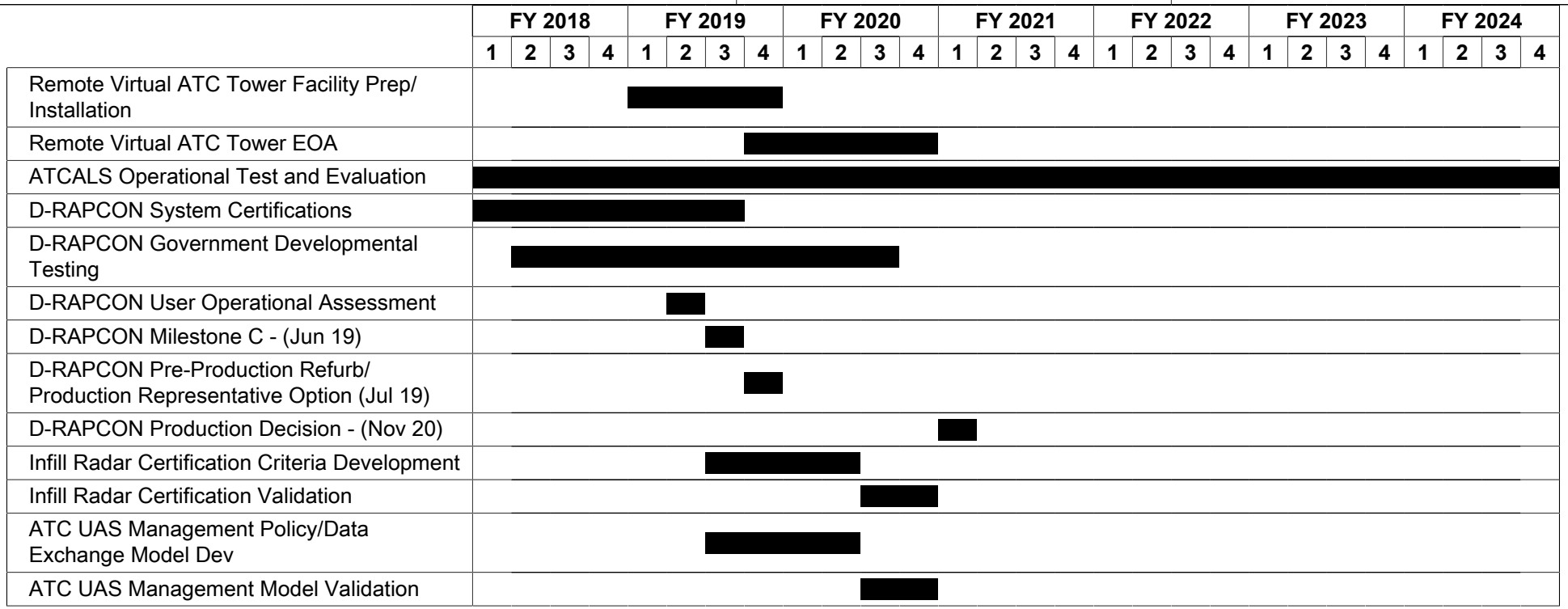

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305114F / *Air Traffic Control, Approach, and Landing System (ATCALS)*	**Project (Number/Name)** 673587 / *Air Traffic Control Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Air Traffic Control, Approach, and Landing System (ATCALS)				
NextGen ATS ADS-B Out Implementation/Accommodation	1	2018	1	2021
NextGen ATS Avionics Security Analysis	1	2018	1	2022
NextGen ATS IMS and Strategic Roadmap Implementation	1	2018	4	2023
NextGen ATS Advancement of Instrument Approach Operations	1	2018	4	2023
NextGen ATS Optimizing Flight Operation	1	2018	4	2023
NextGen ATS UAS Integration With Civil Airspace	1	2018	4	2024
NextGen ATS Surveillance Radar and Automation System Upgrade/D-RAPCON Mode-5 Identification Friend/Foe/Secure Comm Integration	2	2018	4	2019
NextGen ATS Aircraft Expeditionary Launch and Recovery	1	2019	4	2024
NextGen ATS Monitoring Emerging Mandates	1	2019	4	2024
NextGen ATS Optimizing Flight Capabilities	1	2019	4	2024
NextGen ATS Airspace Intorperability	1	2019	4	2024
Notice to Airmen (NOTAMs) Software Upgrade Development	2	2019	2	2023
ATC Training and Technology Study	3	2019	2	2021
Remote Virtual ATC Tower Contract Award (Sep 18)	4	2018	4	2018
Remote Virtual ATC Tower Facility Prep/Installation	1	2019	4	2019
Remote Virtual ATC Tower EOA	4	2019	4	2020
ATCALS Operational Test and Evaluation	1	2018	4	2024
D-RAPCON System Certifications	1	2018	3	2019
D-RAPCON Government Developmental Testing	2	2018	3	2020
D-RAPCON User Operational Assessment	2	2019	2	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305114F / *Air Traffic Control, Approach, and Landing System (ATCALS)*	**Project (Number/Name)** 673587 / *Air Traffic Control Systems*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
D-RAPCON Milestone C - (Jun 19)	3	2019	3	2019
D-RAPCON Pre-Production Refurb/Production Representative Option (Jul 19)	4	2019	4	2019
D-RAPCON Production Decision - (Nov 20)	1	2021	1	2021
Infill Radar Certification Criteria Development	3	2019	2	2020
Infill Radar Certification Validation	3	2020	4	2020
ATC UAS Management Policy/Data Exchange Model Dev	3	2019	2	2020
ATC UAS Management Model Validation	3	2020	4	2020