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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305015F / C2 Air Operations Suite - C2 Info Services
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	8.324	9.313	0.000	0.000	0.000	0.000	6.170	6.315	6.469	0.000	36.591
675218: <i>Applications Development</i>	-	0.470	6.780	0.000	0.000	0.000	0.000	6.170	6.315	6.469	0.000	26.204
675220: <i>Unit Level</i>	-	7.854	2.533	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.387

Note
In FY 2021, PE 0305015F, C2 Air Operations Suite - C2 Information Services (C2AOS-C2IS), Project 675218, Applications Development, was transferred to PE 0207438F, Theater Battle Management (TBM) C4I, Project 675218, Applications Development, in order to improve transparency of development program.

In FY 2021, Project 675220, Unit Level, initial capability development efforts for Command and Control Incident Management and Emergency Response Application (C2IMERA; formerly Unit Command and Control [UC2]) is completed; new user requirements are being scoped and may result in future project restart.

A. Mission Description and Budget Item Justification

Command and Control (C2) Air Operations Suite - C2 Information Services (C2AOS-C2IS) funds operational development necessary to acquire and modify segments of Air Force's (AF) C2 capabilities and services. Applications Development provides worldwide operational capabilities for AF C2 in support of DoD, Coalition Partners, and other government agencies. These efforts focus on support of the Joint Forces Air Component Commander (JFACC) that provides air, space and cyber support as presented to the AOC and to other AF and Joint Services C2 systems. Applications Development efforts deliver capabilities identified in the Joint Command and Control (JC2) Capability Development Document (CDD) (2013). These activities include C2AOS-C2IS needs identified in the Capability Definition Package (CDP) (2012).

Applications Development: C2AOS-C2IS creates web-enabled information services to expose air operations data using standardized schemas, such as those developed by the Air Operations Community of Interest. C2AOS-C2IS also develops and matures net-centric C2 applications for air battle planning, execution, and management functions. These applications include Network Enabled Weapons (NEW); the remainder of the CDP and Theater Battle Management Core Systems - Force Level (TBMCS FL) functionality; services to support air mission and Friendly Order of Battle execution, Alerting, Publish and Subscribe, Content Management and Reporting; and integration with a JC2 Reference Architecture (RA) host infrastructure environment.

Unit Level: Command and Control Incident Management and Emergency Response Application (C2IMERA; formerly Unit Command and Control [UC2]) funds develop and integrate C2IMERA as an evolving sequence of increasing software capabilities that support a wing commander's ability to track base level resources, incident management, and provide a real time Common Operating Picture, enabling a commander to have total situational awareness during peace and wartime operations. C2IMERA operations software systems addresses needs identified in the TBMCS Operational Requirements Document (ORD) (2001), the UC2 Baseline System Requirements Document (SRD), and AF Form 1067, Modification Proposal, requirements documents. C2IMERA is utilizing Agile Software Development and Operations (DevOps) methodology by directly soliciting user feedback for improvements to the software. C2IMERA is fielded to Wing Operations Centers (WOC), the Maintenance Operations Centers (MOC), the Emergency Operations Centers (EOC), Crisis Action Teams (CAT), and many other work-centers across multiple MAJCOMs with plans to expand for use as an AF wide application.

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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305015F / C2 Air Operations Suite - C2 Info Services
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This program element may include necessary civilian pay expenses required to manage, execute, and deliver Applications Development and Unit Level weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	8.608	9.313	7.873	0.000	7.873
Current President's Budget	8.324	9.313	0.000	0.000	0.000
Total Adjustments	-0.284	0.000	-7.873	0.000	-7.873
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.284	0.000			
• Other Adjustments	0.000	0.000	-7.873	0.000	-7.873

Change Summary Explanation

FY 2021 funding decreased \$7.873M due to transfer to PE 0207438F, TBM C4I; based on OSD direction to keep TBMCS FL development supporting joint service AOC applications separate for increased Congressional and Headquarters Air Force oversight.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force										Date: February 2020		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305015F / C2 Air Operations Suite - C2 Info Services				Project (Number/Name) 675218 / Applications Development			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
675218: Applications Development	-	0.470	6.780	0.000	0.000	0.000	0.000	6.170	6.315	6.469	0.000	26.204
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2021, PE 0305015F, C2 Air Operations Suite - C2 Information Services (C2AOS-C2IS), Project 675218, Applications Development, was transferred to PE 0207438F, Theater Battle Management (TBM) C4I, Project 675218, Applications Development, in order to improve transparency of development program.

A. Mission Description and Budget Item Justification

This project funds operational development necessary to acquire and modify segments of Air Force's (AF) Command and Control (C2) capabilities and services. Applications Development provides worldwide operational capabilities for AF C2 in support of DoD, Coalition Partners, and other government agencies. These efforts focus on support of the Joint Forces Air Component Commander (JFACC) that provides air, space and cyber support as presented to the AOC and to other AF and Joint Services C2 systems. Applications Development efforts deliver capabilities identified in the Joint Command and Control (JC2) Capability Development Document (CDD) (2013). These activities include C2 Air Operations Suite - C2 Information Services (C2AOS-C2IS) needs identified in the Capability Definition Package (CDP) (2012). C2AOS-C2IS creates web-enabled information services to expose air operations data using standardized schemas, such as those developed by the Air Operations Community of Interest. C2AOS-C2IS also develops and matures net-centric C2 applications for air battle planning, execution, and management functions. These applications include Network Enabled Weapons (NEW); the remainder of the CDP and Theater Battle Management Core Systems - Force Level (TBMCS FL) functionality; services to support air mission and Friendly Order of Battle execution, Alerting, Publish and Subscribe, Content Management and Reporting; and integration with a JC2 Reference Architecture (RA) host infrastructure environment.

No FY 2021 funding requested; FY 2021 project efforts are detailed in PE 0207438F, Theater Battle Management (TBM) C4I.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Applications Development weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: C2AOS-C2IS Development	0.470	6.130	0.000	0.000	0.000
Description: Conduct C2AOS-C2IS development and integration using FY16 NDAA, Sec 804 rapid prototyping authority. Develop a solution to address joint partner and non-AOC usage of C2AOS-C2IS in the Agile DevOps framework.					
FY 2020 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305015F / C2 Air Operations Suite - C2 Info Services	Project (Number/Name) 675218 / Applications Development

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Deliver software to AOC WS Modifications to fully retire TBMCS FL and the Master Air Attack Plan Tool Kit - Develop and deploy C2AOS-C2IS to joint partner and non-AOC entities FY 2021 Base Plans: See PE 0207438F, Theater Battle Management (TBM) C4I, Project Number 675218, Applications Development. FY 2021 OCO Plans: N/A FY 2020 to FY 2021 Increase/Decrease Statement: Funding decreased due to transfer to PE 0207438F, Theater Battle Management (TBM) C4I, Project Number 675218, Applications Development.					
Title: C2AOS-C2IS Test and Evaluation Description: Agile Test and Evaluation FY 2020 Plans: - Continue to conduct continuous product and cyber testing (e.g., unit, integration and performance) on Agile DevOps framework FY 2021 Base Plans: See PE 0207438F, Theater Battle Management (TBM) C4I, Project Number 675218, Applications Development. FY 2021 OCO Plans: N/A FY 2020 to FY 2021 Increase/Decrease Statement: Funding decreased due to transfer to PE 0207438F, Theater Battle Management (TBM) C4I, Project Number 675218, Applications Development.	0.000	0.650	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.470	6.780	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions) N/A Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
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D. Acquisition Strategy

The acquisition strategy builds on agile development and modification of existing capabilities using evolutionary acquisition to standardize and modernize C2AOS-C2IS. C2AOS-C2IS modifications will operate under FY16 NDAA, Section 804, Middle Tier of Acquisition for Rapid Prototyping and Rapid Fielding, leveraging commercial best practices to fully retire TBMCS FL.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305015F / C2 Air Operations Suite - C2 Info Services	Project (Number/Name) 675218 / Applications Development
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C2AOS-C2IS Development	C/CPFF	Raytheon : Waltham, MA	-	0.470	Mar 2019	3.002	Mar 2020	0.000		0.000		0.000	0.000	3.472	-
C2AOS-C2IS Other Transaction (OT)	Various	Pivotal : Multiple	-	-		1.930	Mar 2020	0.000		0.000		0.000	0.000	1.930	-
Subtotal			-	0.470		4.932		0.000		0.000		0.000	0.000	5.402	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C2AOS-C2IS Lead Development Test and Evaluation Organization	PO	96th Test Wing : Eglin AFB, FL	-	-		0.650	Feb 2020	0.000		0.000		0.000	0.000	0.650	-
Subtotal			-	-		0.650		0.000		0.000		0.000	0.000	0.650	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C2AOS-C2IS Systems Engineering	SS/ Various	MITRE : Bedford, MA	-	-		0.714	Feb 2020	0.000		0.000		0.000	0.000	0.714	-
C2AOS-C2IS Program Support	C/Various	Various : Hanscom AFB, MA	-	-		0.484	Feb 2020	0.000		0.000		0.000	0.000	0.484	-
Subtotal			-	-		1.198		0.000		0.000		0.000	0.000	1.198	N/A

			Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.470	6.780	0.000	0.000	0.000	0.000	7.250	N/A

Remarks
C2AOS-C2IS funding transferred to PE 0207438F, Theater Battle Management (TBM) C4I, Project Number 675218, Applications Development.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305015F / C2 Air Operations Suite - C2 Info Services	Project (Number/Name) 675218 / Applications Development

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Applications Development	
C2AOS-C2IS Development	

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305015F / C2 Air Operations Suite - C2 Info Services	Project (Number/Name) 675218 / Applications Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Applications Development				
C2AOS-C2IS Development	1	2019	4	2020

Note

See PE 0207438F, Theater Battle Management (TBM) C4I, Project Number 675218, Applications Development for continued development events.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force										Date: February 2020		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305015F / C2 Air Operations Suite - C2 Info Services				Project (Number/Name) 675220 / Unit Level			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
675220: <i>Unit Level</i>	-	7.854	2.533	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.387
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Command and Control Incident Management and Emergency Response Application (C2IMERA; formerly Unit Command and Control [UC2]) funds are used to develop and integrate C2IMERA as an evolving sequence of increasing software capabilities that support a wing commander's ability to track base level resources, incident management, and a real time Common Operating Picture, enabling a commander to have total situational awareness during peace and wartime operations. C2IMERA operations software systems addresses needs identified in the TBMCS Operational Requirements Document (ORD) (2001), the UC2 Baseline System Requirements Document (SRD), and AF Form 1067, Modification Proposal, requirements documents. C2IMERA is utilizing Agile DevOps methodology by directly soliciting user feedback for improvements to the software. C2IMERA is fielded to Wing Operations Centers (WOC), the Maintenance Operations Centers (MOC), the Emergency Operations Centers (EOC), Crisis Action Teams (CAT), and many other work-centers across multiple MAJCOMs with plans to expand for use as an AF wide application.

In FY 2021, no funding is requested for Unit Level as initial capability development efforts for C2IMERA development is completed; new user requirements are being scoped and may result in future project restart.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Unit Level weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605831F.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: UC2/C2IMERA Software Development	7.754	2.433	0.000	0.000	0.000
Description: C2IMERA software development and integration.					
FY 2020 Plans:					
- Transition C2IMERA from cloud friendly to cloud native platform					
- Continue to enhance the software to improve the user experience					
- Continue to field C2IMERA via the cloud					
FY 2021 Base Plans:					
N/A					
FY 2021 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305015F / C2 Air Operations Suite - C2 Info Services	Project (Number/Name) 675220 / Unit Level
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: Funding decreased due to no funding requested starting in FY 2021 as development was completed.					
Title: UC2/C2IMERA Testing and Test Support	0.100	0.100	0.000	0.000	0.000
Description: C2IMERA testing and test support activities.					
FY 2020 Plans: - Continue to verify the continuous delivery pipeline - Continue to test C2IMERA modifications					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: Funding decreased due to no funding requested starting in FY 2021 as development was completed.					
Accomplishments/Planned Programs Subtotals	7.854	2.533	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPAF 03 834520: Theater Battle Mgt C2 System	0.967	0.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.467

Remarks

D. Acquisition Strategy
Projects will be awarded via a sole-source contract for Agile DevOps development, fielding and support activities. The acquisition and contracting strategies were approved by the Senior Materiel Leader on 20 June 2018.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305015F / C2 Air Operations Suite - C2 Info Services	Project (Number/Name) 675220 / Unit Level
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
UC2/C2IMERA Development	C/CPFF	Leidos Inc. : Reston, VA	-	7.307	Jan 2019	1.986	Jan 2020	0.000		0.000		0.000	0.000	9.293	-
Subtotal			-	7.307		1.986		0.000		0.000		0.000	0.000	9.293	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
UC2/C2IMERA Testing and Test Support	PO	96th Test Wing : Eglin, FL	-	0.100	Mar 2019	0.100	Mar 2020	0.000		0.000		0.000	0.000	0.200	-
Subtotal			-	0.100		0.100		0.000		0.000		0.000	0.000	0.200	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
UC2/C2IMERA Systems Engineering	SS/ Various	MITRE : Bedford, MA	-	0.327	Oct 2018	0.327	Oct 2019	0.000		0.000		0.000	0.000	0.654	-
UC2/C2IMERA Program Support	C/Various	Various : Hanscom AFB, MA	-	0.100	Oct 2018	0.100	Oct 2019	0.000		0.000		0.000	0.000	0.200	-
UC2/C2IMERA Cyber Support	MIPR	Various : Hanscom AFB, MA	-	0.020	Dec 2018	0.020	Dec 2019	0.000		0.000		0.000	0.000	0.040	-
Subtotal			-	0.447		0.447		0.000		0.000		0.000	0.000	0.894	N/A

			Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	7.854	2.533	0.000	0.000	0.000	0.000	10.387	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305015F / C2 Air Operations Suite - C2 Info Services	Project (Number/Name) 675220 / Unit Level

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Unit Level	
UC2/C2IMERA Development	

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305015F / C2 Air Operations Suite - C2 Info Services	Project (Number/Name) 675220 / Unit Level

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Unit Level</i>				
UC2/C2IMERA Development	2	2019	4	2020