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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401218F / KC-135s
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	0.000	4.583	3.564	0.000	3.564	-	-	-	-	-	-
675261: <i>KC-135 Upgrades</i>	-	0.000	4.583	3.564	0.000	3.564	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The KC-135 currently utilizes the legacy V/UHF satellite system, UHF Follow-On (UFO), to communicate with their controlling Command & Control (C2) agencies and other warfighters. This program adds to the current system by providing Beyond Line Of Sight (BLOS) and Line Of Sight (LOS) capability for secure voice and C2 data communications exchange between MAF aircraft and C2 agencies and is capable of operating with new crypto algorithms being developed under the VINSON/ANDVT Crypto Modernization (VACM) Program.

This program has 4 combined 1067s to meet the requirement:

AF Form 1067 AMC 10-050 Crypto - KC-135 currently uses the ARC-210 Gen 3 (RT-1794) radios to provide secure and non-secure voice communications. The ARC-210 Gen 3 requires replacement due to Diminishing Manufacturing Sources issues and due to NSA Crypto Modernization requirements. This 1067 covers the requirement to replace KC-135 COMM 3 radio installation with a modern crypto capable radio.

AF Form 1067 AMC 15-046 MUOS- KC-135 requires global BLOS secure voice and secure data communications via UHF MILSATCOM connectivity. This 1067 dictates the requirement to install a MUOS capable radio solution in order to fully utilize DOD's new UHF MILSATCOM constellation and waveform.

AF Form 1067 AMC 16-053 SATURN- KC-135 requires the significantly improved anti-jam capabilities provided by Second-generation Anti-jam Tactical UHF radio for NATO (SATURN) to replace the currently installed HAVE QUICK II anti-jam capability. HAVE QUICK II is a sunseting crypto program that requires replacement by SATURN. This 1067 requires KC-135 to implement SATURN capability when installing a MUOS capable radio.

AF Form 1067 AMC 17-039 IW - KC-135 will ensure, when installing a MUOS capable radio, that installation will also support secure BLOS voice communications connectivity with the legacy Integrated Waveform (IW) communications system.

KC-135 funding also supports Program Management Administration (PMA), various studies, analyses, and KC-135 requirements definition and demonstrations in support of Air Force Advanced Battle Management Systems (ABMS) initiative.

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This program element may include necessary civilian pay expenses required to manage, execute, and deliver the KC-135 weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY 2020 \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2021 \$0.000 million is forecasted for civilian pay expenses in this program element.

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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	0.000	4.591	0.249	0.000	0.249
Current President's Budget	0.000	4.583	3.564	0.000	3.564
Total Adjustments	0.000	-0.008	3.315	0.000	3.315
• 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	0.000	0.000			
• Other Adjustments	0.000	-0.008	3.315	0.000	3.315

Change Summary Explanation

FY 2022 funding request increase for communication modernization and upgrades.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Title: KC-135 MUOS radio	0.000	4.583	3.564
Description: The KC-135 utilizes the legacy V/UHF satellite system, UHF Follow-On (UFO), to communicate with their controlling Command & Control (C2) agencies and other warfighters. This program upgrades COMM 3 by adding Beyond Line Of Sight (BLOS) and Line Of Sight (LOS) capability for secure voice and C2 data communications exchange between MAF aircraft and C2 agencies and is capable of operating with new crypto algorithms being developed under the VINSON/ANDVT Crypto Modernization (VACM) Program by National Security Agency.			
FY 2021 Plans: Procure 4 long lead B-Kits for RDT&E effort.			
FY 2022 Plans:			

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Prototype and integration efforts for first articles.			
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Funding decrease due to utilizing existing contract vehicle for prototype cost savings.			
Accomplishments/Planned Programs Subtotals	0.000	4.583	3.564

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• APAF 05 Line Item C13500: C-135	28.581	16.274	23.682	-	23.682	-	-	-	-	-	-

Remarks

E. Acquisition Strategy

Procure B-Kit components through PMA-209 a Navy IDIQ contract.
Utilize existing contract vehicle for RDT&E effort. To include integration, testing, and prototypes.
Potential small business for A-Kit and depot-level for installs.

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401218F / KC-135s	Project (Number/Name) 675261 / KC-135 Upgrades

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
KC-135 MUOS Radio				
Original strategy Contract Award, EMD, and Test	1	2022	2	2024
Long Lead B-Kit components for RDT&E	2	2021	2	2022