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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 I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207253F I Compass Call							
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	-	34.240	43.901	15.888	0.000	15.888	15.883	15.924	16.215	16.507	Continuing	Continuing
674804: Compass Call	-	34.240	43.901	15.888	0.000	15.888	15.883	15.924	16.215	16.507	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

COMPASS CALL is the Air Force's wide-area, Airborne Electronic Attack (AEA) Command and Control Warfare/Information Operations (C2W/IO) weapon system. The employment of this weapon system interrupts adversary's use of the electronic battlespace and is a key active component in the information battlespace and prosecution of Overseas Contingency Operations (OCO). COMPASS CALL's sophisticated electronic attack system is capable of surgical denial and/or disruption of adversary Radio Frequency (RF) communications, radar and sensor systems. The system was fielded in 1983 and to date has evolved through a series of incremental Baseline upgrades. The Baseline 2 (BL2) configuration and the mid-Baseline 2 (MBL2) enhancements are the latest in a line of mission system upgrades to the EC-130H. The BL2 configuration and MBL2 enhancements currently fielded have advanced COMPASS CALL's electronic attack capabilities significantly over the two previously fielded baselines. Baseline 3 (BL3) activities address new target-specific techniques, selective capability against advanced commercial communications, digital voice recognition and digital mission crew systems. Due to the rapid advances in electronic attack techniques and technology, COMPASS CALL was designed to be adaptable and must continuously modernize and evolve to keep pace with adversary tactics and emerging technologies. Continuous system development is required to maintain battlespace superiority. The two COMPASS CALL Mission Crew Simulators (CCMCS #1 and CCMCS #2) are upgraded per the mission system Baseline schedule to ensure training capacity keeps pace and matches the operational and technological upgrades delivered in the fielded aircraft. The Weapons System Trainer (WST) mirrors the capabilities of the fielded aircraft's cockpit avionics and communications equipment as well to ensure training provides the worldwide operational proficiency needed to comply with evolving Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) enhancements, parameters, and guidance.

The COMPASS CALL program employs an incremental development and fielding strategy that puts capability into the warfighter's hands as soon as practical and ensures each iteration of the weapon system is effective against the highest priority threats. To sustain that process requires a steady stream of system development funds. Development funds are required to accomplish subsystem additions and improvements such as Counter Radar technologies, Counter Communications, new target-specific techniques, new modern communications receiver technologies, further weight reduction, repackaged transmit antennas, the next generation of Special Purpose Emitter Array (SPEAR), Human-to-Machine Interface (HMI), and other classified hardware, firmware and software developments necessary to counter military and commercial communications evolutions, command and control operations enhancements, and new/emerging sensor developments.

FY 2020 RDT&E efforts will concentrate on Baseline 3 (BL3) and Baseline 4 (BL4) Prime Mission Equipment (PME) upgrades and integration. The programmed BL3 upgrades will advance the PME capabilities as the FY 2020 development efforts address the evolving electronic attack requirement for the foreseeable future. Obsolescence and Diminishing Manufacturing Sources (DMS)/Vanishing Vendor Items (VVI) are addressed with each baseline upgrade/enhancement as well as annually as part of the sustainment responsibilities. FY 2020 RDT&E efforts include studies and analyses to support current program planning and execution including, but not limited to development efforts for future baseline capability planning to include low-band transmit capability, transition to open architecture and increased

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Software-Defined Radio (SDR) capability, subsystem upgrades, power expansion, transmit and receive development, Size/Weight/Power and Cooling (SWAP-C) reductions and Quick Reaction Capability (QRC) clip-ins.						
Due to the rapidly changing threat environment encountered during COMPASS CALL's prolonged commitment to overseas operations, the acquisition program manager has the authority to redirect funding as necessary to meet current stated and emerging requirements.						
This program element may include necessary program management and administrative (PMA) costs and civilian pay expenses required to manage, execute, and deliver COMPASS CALL capabilities. 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, 0605898F, and 0605833F.						
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		14.040	13.901	15.888	0.000	15.888
Current President's Budget		34.240	43.901	15.888	0.000	15.888
Total Adjustments		20.200	30.000	0.000	0.000	0.000
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	0.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		20.200	30.000			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		0.000	0.000			
• SBIR/STTR Transfer		0.000	0.000			
• Other Adjustments		0.000	0.000	0.000	0.000	0.000
Congressional Add Details (\$ in Millions, and Includes General Reductions)						
Project: 674804: Compass Call						
Congressional Add: EC-37B Compass Call Re-host Congressional Add						
Congressional Add Subtotals for Project: 674804						
		FY 2018	FY 2019			
		20.200	30.000			
		20.200	30.000			

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Congressional Add Details (\$ in Millions, and Includes General Reductions)				FY 2018	FY 2019	
				Congressional Add Totals for all Projects		20.200
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Baseline Upgrade Development		14.040	13.901	15.888	0.000	15.888
Description: Supports development of new PME baseline, other subsystem, and platform upgrades in order to ensure COMPASS CALL capabilities remain ahead of emerging adversary tactics and technologies.						
FY 2019 Plans: Continuing efforts for BL3 and BL4 development on upgraded platform for: • Low Band antenna concepts • Advanced Military & Commercial Communications Offensive capabilities • Emerging and Modern Targets • Open Architecture Migration Verification • Platform integration for future capabilities • Updates to Prime Mission Equipment (PME) infrastructure • Platform upgrades and associated non-recurring engineering • Studies and analysis for current/future baseline development planning						
FY 2020 Base Plans: Will continue efforts for BL3 and BL4 development on upgraded platform for: • Low Band antenna design • Advanced Military & Commercial Communications Offensive capabilities • Emerging and Modern Targets • Platform integration for future capabilities • Updates to BL4 PME infrastructure • Platform upgrades and associated non-recurring engineering • Studies and analysis for current/future baseline development planning						
FY 2020 OCO Plans: N/A						
FY 2019 to FY 2020 Increase/Decrease Statement:						

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Funding increased due to continuing baseline Compass Call development to ensure capabilities remain ahead of emerging adversary tactics and technologies.						
Accomplishments/Planned Programs Subtotals		14.040	13.901	15.888	0.000	15.888
		FY 2018	FY 2019			
Congressional Add: EC-37B Compass Call Re-host Congressional Add		20.200	30.000			
FY 2018 Accomplishments: Continued efforts for BL3 and initial baseline development on upgraded platform for: • Advance the capability for the Advanced Radar Countermeasures Subsystem (ARCS) • Environmental characterization testing • Perform future baseline development of Low Band antenna concepts • Advanced Military Communications Offensive capabilities • Software defined radios for modularity and extensibility objectives • Platform Self Protection concepts • Emerging and Modern Targets • Open Architecture Migration • Platform integration for future capabilities • Updates to PME infrastructure • Platform upgrades and associated non-recurring engineering • Studies and analysis for current/future baseline development planning						
FY 2019 Plans: Continue efforts for baseline acceleration to support aircraft compressed schedule. Efforts include: • Accelerate low-band capability • Platform upgrades and associated non-recurring engineering (installation/mounting concepts for h/w) • PME Development • Maturation of brass-boards • Studies and analysis for current/future baseline development planning; thermal management studies of power amplifiers and transmit antennas						
Congressional Adds Subtotals		20.200	30.000			

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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 04 Line item CALL00: <i>Compass Call Aircraft</i>	111.573	216.113	114.095	-	114.095	117.014	121.221	123.423	125.645	Continuing	Continuing
• APAF 05 Line item CALL00: <i>Compass Call Mods</i>	125.788	172.285	110.754	-	110.754	41.954	38.461	39.159	39.864	Continuing	Continuing
• APAF 06 Line item CALL00: <i>Compass Call Mod Spares</i>	10.050	10.618	10.805	-	10.805	10.999	11.219	11.424	11.630	Continuing	Continuing

Remarks

E. Acquisition Strategy

COMPASS CALL capability is maintained with incremental upgrades per the baseline acquisition strategy plus Quick Reaction Capability (QRC) developments acquired through the 645th Aeronautical Systems Group (645 AESG) in accordance with their Acquisition Strategy Plan (ASP), Program Management Directive (PMD), Class Justification and Approval (J&A) document for acquisition of supplies and services using other than full and open competition criteria, and Life Cycle Management Plan (LCMP) across the full spectrum of system life cycle management ("cradle to grave" support concept). Due to the rapidly changing threat environment encountered during the EC-130H's prolonged commitment to Overseas Contingency Operations (OCO), the acquisition program manager has the authority to redirect funding as necessary to meet current stated and emerging Combatant Commander (CCDR) requirements.

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Baseline Upgrade Development Primary Mission Equipment	SS/CPFF	BAE Sytems : Nashua, NH	-	34.240	Jun 2018	41.049	Dec 2018	15.888	Dec 2019	-		15.888	Continuing	Continuing	-
Subtotal			-	34.240		41.049		15.888		-		15.888	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration (PMA)	Various	AFLCMC : WPAFB, OH	-	-		2.852	Mar 2019	-		-		-	Continuing	Continuing	-
Subtotal			-	-		2.852		-		-		-	Continuing	Continuing	N/A
			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			-	34.240		43.901		15.888		-		15.888	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force	Date: February 2019
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
<i>Compass Call</i>																												
Baseline 3 Development																												
Baseline 3 Integration and Test																												
Baseline 3 Fielding																												
Baseline 4 Development																												
Baseline 4 Integration and Test																												
Future Baseline Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force			Date: February 2019
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Compass Call</i>				
Baseline 3 Development	1	2018	3	2020
Baseline 3 Integration and Test	3	2020	3	2023
Baseline 3 Fielding	2	2023	3	2023
Baseline 4 Development	1	2019	4	2023
Baseline 4 Integration and Test	4	2023	4	2024
Future Baseline Development	3	2019	4	2024

Note

Baseline 3 Fielding End date: 4Q 2025
 Baseline 4 Integration and Test Start date: 1Q 2025; End date: 3Q 2028
 Future Baseline Development End date: 4Q 2026
 (IDECS does not allow dates beyond 2024.)