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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	13.723	14.040	13.901	0.000	13.901	15.888	15.883	15.924	16.215	Continuing	Continuing
674804: Compass Call	-	13.723	14.040	13.901	0.000	13.901	15.888	15.883	15.924	16.215	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

COMPASS CALL is the USAF's wide-area, airborne Command and Control Warfare/Information Operations (C2W /IO) weapon system. The employment of this 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 the fielding of the Baseline 2 (BL2) configuration and the mid-Baseline 2 (MBL2) enhancements. The BL2 configuration and MBL2 enhancements currently being fielded have advanced COMPASS CALL's electronic attack capabilities significantly over the two previously fielded baselines (BL0 and BL1). 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 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 continually 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 the Digital Signal Analysis and Exciter Subsystem (AXE), the third generation of Special Purpose Emitter Array (SPEAR), new modern communications receiver technologies, new IR and counter radar technologies, the Human-to-Machine Interface (HMI), digital cockpit avionics with multi-function displays (a.k.a. glass cockpits), network centric operations, phased array transmit and receive apertures 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 2019 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 2019 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 2019 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 power expansion, self-protection system development, transmit and receive

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development, upgraded navigation systems, software defined radios, size/weight/power and cost (SWAP-C) reductions and common Quick Reaction Capability (QRC) clip-ins.								
Due to the rapidly changing threat environment encountered during COMPASS CALL's prolonged commitment to OCO, 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 civilian pay expenses required to manage, execute, and deliver COMPASS CALL 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, 0605898F, and 0605833F.								
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total		
Previous President's Budget		23.923	14.040	14.006	0.000	14.006		
Current President's Budget		13.723	14.040	13.901	0.000	13.901		
Total Adjustments		-10.200	0.000	-0.105	0.000	-0.105		
• Congressional General Reductions		0.000	0.000					
• Congressional Directed Reductions		-10.200	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	0.000	-0.105	0.000	-0.105		
Change Summary Explanation								
FY 2017 Decrease due to adjustments:								
Request for Additional Appropriation (RAA) \$10.2M denied in FY 2017 Appropriations Act.								
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Baseline Upgrade Development				13.723	14.040	13.901	-	13.901
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.								

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<b>FY 2018 Plans:</b> Continuing efforts for BL3 development and initiating efforts for BL4 development on upgraded platform for: <ul style="list-style-type: none"><li>• Updates to PME infrastructure</li><li>• Advanced Radar Countermeasures &amp; Receiver Technologies</li><li>• Environmental Characterization</li><li>• New Counter Radar and Receiver Technologies</li><li>• New Array and Target Development</li><li>• Advanced Commercial and Military Communications</li><li>• Counter Satellite Navigation Techniques</li><li>• Platform upgrades and associated non-recurring engineering</li><li>• Studies and analysis for current/future baseline development planning</li></ul> <b>FY 2019 Base Plans:</b> Will continue efforts for BL3 and BL4 development on upgraded platform for: <ul style="list-style-type: none"><li>• Cybersecurity risk management framework</li><li>• Low Band antenna concepts</li><li>• Advanced Military Communications Offensive capabilities</li><li>• Software defined radios for modularity and extensibility objectives</li><li>• Platform Self Protection concepts</li><li>• Emerging and Modern Targets</li><li>• Open Architecture Migration</li><li>• Platform integration and certification data for added capabilities</li><li>• Updates to PME infrastructure</li><li>• Platform upgrades and associated non-recurring engineering</li><li>• Studies and analysis for current/future baseline development planning</li></ul> <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Funding decreased due adjustment in inflation estimate.						
Accomplishments/Planned Programs Subtotals		13.723	14.040	13.901	-	13.901

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D. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost	
• APAF 04 Line item CALL00: Compass Call Aircraft	103.000	108.173	108.113	0.000	108.113	114.095	117.014	121.221	123.423	Continuing	Continuing	
• APAF 05 Line item CALL00: Compass Call Mods	212.657	58.368	49.885	36.400	86.285	44.754	41.954	38.461	39.159	Continuing	Continuing	
• APAF 06 Line item CALL00: Compass Call Mod Spares	50.172	10.228	10.618	0.000	10.618	10.805	10.999	11.219	11.424	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 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 our 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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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2019 Air Force												<b>Date:</b> February 2018			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0207253F / <i>Compass Call</i>				<b>Project (Number/Name)</b> 674804 / <i>Compass Call</i>					
<b>Product Development (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Baseline Upgrade Development Primary Mission Equipment	SS/CPFF	BAE Sytems : Nashua, NH	-	13.723	Dec 2016	14.040	Dec 2017	13.901	Dec 2018	-		13.901	Continuing	Continuing	-
<b>Subtotal</b>			-	13.723		14.040		13.901		-		13.901	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	13.723		14.040		13.901		-		13.901	Continuing	Continuing	N/A
<b>Remarks</b>															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2019 Air Force															<b>Date:</b> February 2018				
<b>Appropriation/Budget Activity</b> 3600 / 7										<b>R-1 Program Element (Number/Name)</b> PE 0207253F / <i>Compass Call</i>					<b>Project (Number/Name)</b> 674804 / <i>Compass Call</i>				

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
<b><i>Compass Call</i></b>																												
Mid Baseline 2 Integration and Test																												
Mid Baseline 2 Fielding																												
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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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Air Force			<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207253F / <i>Compass Call</i>	<b>Project (Number/Name)</b> 674804 / <i>Compass Call</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Compass Call</i></b>				
Mid Baseline 2 Integration and Test	1	2017	3	2017
Mid Baseline 2 Fielding	1	2017	2	2018
Baseline 3 Development	1	2017	2	2019
Baseline 3 Integration and Test	4	2019	1	2022
Baseline 3 Fielding	4	2021	4	2023
Baseline 4 Development	2	2018	2	2022
Baseline 4 Integration and Test	2	2021	4	2023
Future Baseline Development	3	2020	4	2023