Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force											Date: February 2016	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0408011F / *Special Tactics / Combat Control*							
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
Total Program Element	-	8.081	7.929	7.164	0.000	7.164	8.067	8.116	8.267	8.414	Continuing	Continuing
675138: *ST System Development*	-	8.081	7.929	7.164	0.000	7.164	8.067	8.116	8.267	8.414	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Special Tactics (ST) System Development project focuses on modernization development for the Battlefield Air Operations (BAO) Kit. The project is a program within the overarching Battlefield Airmen Modernization (BA-Mod) Program. BAO Kit will develop, test, train and modernize the existing and future System of Systems (SoS) that provide a state-of-the-art Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR)capability. It also provides a suite of systems for all Air Force Specialty Codes supporting the ST community within the Air Force Special Operations Command's (AFSOC's) Battlefield Airmen. Efforts in the ST System Development project focus on reducing the risk of fratricide and substantially reducing size and weight of the equipment carried through three core capabilities: Human Machine Interface (HMI), Line of Sight (LOS) targeting, and Machine to Machine (M2M) C4ISR System and all other ST capability needs.

This program will develop and enhance technologies for Battlefield Airmen ST operators to recognize, identify, range, nominate, and designate targets during both day and night operations. BAO Kit will also significantly reduce the time required to find, track, fix targets, and engage the enemy by providing highly accurate target grid coordinates in three dimensions, generating target imagery both pre and post-strike, and transmitting target data to Command and Control centers. All BAO Kit systems are light, compact, and portable for use by dismounted Battlefield Airmen. FY17 BAO Kit funding will provide significant improvements in operational capability, situational awareness, and precision lethality in the battle space and while continuing to build and enhance the BAO Kit system of systems. This may be conducted through industry technology demonstrations, prototypes, and associated engineering support to posture the BAO Kit for technology insertion. These efforts will deliver enhanced capability for the dismounted soldier in terms of dramatic weight reduction and increased mission effectiveness across the conflict spectrum. BAO also supports AFSOC TAC C2 programs to develop and enhance communication systems and equipment essential for ST combat controllers, pararescue, combat weather operators, and tactical air control parties within AFSOC to perform their mission. The ST operators use this equipment to gather and transmit assault zone suitability and weather data and to perform tactical airfield/assault landing/drop zone operations.

The Special Tactics (ST) System Development activities also include studies and analysis to support both current and future program planning and execution.

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.

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B. Program Change Summary ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	8.312	7.963	8.046	0.000	8.046
Current President's Budget	8.081	7.929	7.164	0.000	7.164
Total Adjustments	-0.231	-0.034	-0.882	0.000	-0.882
• Congressional General Reductions	0.000	-0.034			
• 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	-0.231	0.000			
• Other Adjustments	0.000	0.000	-0.882	0.000	-0.882

C. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Human Machine Interface	2.814	3.611	2.933	0.000	2.933

Description: HMI is a system of systems that provides integrated operator interface between all the machine components by using unified visual and auditory displays and controls, such as head-mounted displays, tactical earplug connectivity with man pack or handheld communications, integrated tactical computing solution, and power generation and management systems.

FY 2015 Accomplishments:
- Developed and tested special tactics integrated combat system.
- Developed alternative energy and power capabilities to support special tactics mission sets and mission durations.
- Handheld Link-16: Continued development in the handheld form factor enabling the legacy waveform to be utilized by the operators in the field.
- Spectrum Management: Continued research, test and analysis of waveform usage as they evolve.
- Communications Development: Continued upgrading HMI efforts which reduced the SWAP (Size, Weight and Power)required to be carried by the Special Tactics Community.

FY 2016 Plans:
- Continue to develop and implement Mobile User Objective System (MUOS) compatibility waveform features, which will allow the DoD to operate without the dependency of civilian SATCOM services.

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Handheld Link-16 receiver/transmitter development will continue enabling the legacy waveform to be utilized by operators in the field. - Enhance Web-based Geographic Information System (GIS) management tools, which are used to store, display, update, and report operational information on sensitive global airfields and Assault Zones (AZ) while incorporating approval processes designed to support rapid Global Mobility missions for the USG. - Secure Personal Area Network (PAN). The PAN is a development effort that will reduce SWAP by eliminating ancillary cables. The PAN requirement is to have secure wireless communication connections between the BAO Kit and items such as radios. - GPS technology thrust. There is a development effort with the current radio vendor to develop and implement a radio software enhancement that will push the internal GPS signal to the BAO Kit computer. - Wireless technology: Explore future wireless Bluetooth/Blacktooth encrypted data communication for the Special Tactics community - Communications Development: Will continue upgrading HMI efforts which reduced the SWAP (Size, Weight and Power)required to be carried by the Special Tactics Community. ***FY 2017 Base Plans:*** - Will continue to develop and implement Mobile User Objective System (MUOS) compatibility waveform features which will allow the DoD to operate without the dependency of civilian SATCOM services. - Handheld Link-16 receiver/transmitter will be a focus for the dismounted operator and interaction with next generation aircraft. Capability supports digitally aided combat air support operations. - Will continue to Explore Body Wearable Antenna development to reduced exposure to Battlefield Airmen in the field whose unique equipment makes CCT/TACPs appear different than their peers. - Will continue to explore and define requirements for implementation of the Iridium waveform granting DoD dedicated airtime. - Communications Development: Will continue upgrading HMI efforts which reduced the SWAP (Size, Weight and Power) required to be carried by the Special Tactics Community. Specifically includes wireless technology. ***FY 2017 OCO Plans:*** N/A					
Title: Line of Sight ***Description:*** Line of Sight-Short targeting enables the ST Battlefield Airmen to find, fix, track, target and, engage the enemy at close range during day or night operations by providing highly accurate target coordinates	0.481	0.000	0.500	0.000	0.500

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
in three dimensions. Line of Sight – Short generates vital imagery both pre and post-strike at a fraction of the weight and is more efficient than legacy equipment carried by the operator. ***FY 2015 Accomplishments:*** - Developed and enhanced three in one target/geo-locate/designate capability for dismounted operations. - Contractor continued development into FY 16 using FY 15 funds for tech maturation. ***FY 2016 Plans:*** N/A ***FY 2017 Base Plans:*** - Non Line of sight (XLOS) targeting device exploration and development which will capture future capabilities to the Special Tactics community. ***FY 2017 OCO Plans:*** N/A					
Title: Machine to Machine C4ISR System ***Description:*** A suite of map-centric software applications that enables M2M transfer of precision targeting, information management, C4ISR and Situational Awareness (SA) information. Provides the ST Battlefield Airmen the ability to find, fix, track, target and engage the enemy which greatly reduces the kill chain and drastically decreases the possibility of fratricide by enhancing the operator's situational awareness on the battlefield. ***FY 2015 Accomplishments:*** - Developed and tested material prototypes of M2M interfaces for C4ISR; enhanced target mensuration, increasing precision strike capabilities, enabling a reduced kill chain and increase in speed of effects and lethality. - Continued critical tactical data link implementation, increased digital communication and situational awareness capabilities. - Mapping engine optimization: provided greater battlefield situational awareness while engaged with the enemy. - Incorporated Low Probability of Detection (LPD) communications for near peer adversaries in the Anti-Access Area-Denial (A2AD) environment. - Increased interoperability with land and sea based fire systems. ***FY 2016 Plans:***	4.786	4.318	3.731	0.000	3.731

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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C. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Will continue to develop and test material prototypes of M2M interfaces for C4ISR; investigate alternate operating systems and application development. - Will continue development of 5th Generation fighter integration, exploration of Net Enabled Weapons (NEW) employment; exploration of wireless and Bluetooth technologies to reduce the Size, Weight and Power of the system reducing operator load. - Will continue exploitation of two-way Video Data Link capability, increasing interoperability, incorporation of theatre level intelligence systems. ***FY 2017 Base Plans:*** - Will develop and test material prototypes to include market survey of M2M graphical user interfaces (GUI) for C4ISR. - Investigate alternate operating systems (OS), such as Android OS, and application development as required by the user to support urgent combat mission needs and requirements; continued 5th Generation fighter integration; exploration of Net Enabled Weapons (NEW) employment. - Exploration and development of wireless technology to reduce the Size, Weight and Power of the system reducing operator load. -Exploitation of two-way encrypted Video Data Link and Network capability, which will increase interoperability, by incorporating theater level intelligence systems by providing SA to the war fighter. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	8.081	7.929	7.164	0.000	7.164

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA03: Line item #837100: *Tactical C-E Equipment*	16.520	31.107	15.133	0.000	15.133	15.377	15.428	15.914	16.200	Continuing	Continuing

Remarks

E. Acquisition Strategy

BAO Kit is executing an incremental development of Communications and Machine to Machine (M2M) Software. Development will include system engineering, design, integration and fielding support for M2M and IDIQ (Communications) upgrades. Wright Patterson AFB, OH manages the contract effort.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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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 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0408011F / *Special Tactics / Combat Control*	**Project (Number/Name)** 675138 / *ST System Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Human Machine Interface (HMI)	C/Various	Various : Various	-	2.814	Jan 2015	3.611	Oct 2015	2.933	Oct 2016	0.000		2.933	Continuing	Continuing	-
Line of Sight	C/FPIF	Argon ST, Inc : Orlando, FL	-	0.481	Oct 2014	0.000		0.500	Apr 2017	0.000		0.500	Continuing	Continuing	-
Machine-To-Machine Software Development	C/CPFF	Systems Research & Applications Corp : Dayton, OH	-	3.966	Oct 2014	4.167	Oct 2015	3.231	Oct 2016	0.000		3.231	Continuing	Continuing	-
		Subtotal	-	7.261		7.778		6.664		0.000		6.664	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Agency Support	Various	46 TS : Eglin AFB, FL	-	0.820	Oct 2014	0.151	Oct 2015	0.500	Oct 2016	0.000		0.500	Continuing	Continuing	-
		Subtotal	-	0.820		0.151		0.500		0.000		0.500	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force			Date: February 2016
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	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	8.081		7.929		7.164		0.000		7.164	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0408011F / *Special Tactics / Combat Control*	**Project (Number/Name)** 675138 / *ST System Development*

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
Human Machine Interface (HMI)	[redacted]																											
Line of Sight (LOS)	[redacted]																											
Machine to Machine C4ISR System	[redacted]																											

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0408011F / *Special Tactics / Combat Control*	**Project (Number/Name)** 675138 / *ST System Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Human Machine Interface (HMI)	1	2015	4	2021
Line of Sight (LOS)	1	2015	4	2021
Machine to Machine C4ISR System	1	2015	4	2021