Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy											Date: May 2017	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0305242M *I (U)Unmanned Aerial Systems (UAS) Payloads*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	9.246	11.181	18.578	-	18.578	10.029	8.187	4.733	4.026	Continuing	Continuing
5501: *Signals Intelligence (SIGINT)*	0.000	3.564	6.062	5.618	-	5.618	3.917	2.792	2.858	2.917	Continuing	Continuing
5502: *Synthetic Aperture Radar/ Motion Target Indicator (SAR/ MTI)*	0.000	5.682	5.119	5.860	-	5.860	3.193	1.067	1.087	1.109	Continuing	Continuing
5504: *Wide Area Persistent Surveillance (TNWAS)*	0.000	0.000	0.000	7.100	-	7.100	2.919	4.328	0.788	0.000	0.000	15.135

A. Mission Description and Budget Item Justification

The Unmanned Aerial Systems (UAS) Payloads integration program will alleviate Marine Corps Intelligence, Surveillance and Reconnaissance (ISR) capability gaps caused by rapidly changing missions, threats and technologies. It will provide responsive capability to integrate and support rapid fielding of ISR payloads for all UAS within the Marine Corps. Sensor payloads will increase the effectiveness and versatility of the Marine Corps UAS currently planned to have Electro-Optic(EO) / Infrared (IR) collection, communications relay, and automatic identification capabilities. Upgrades include, but are not limited to, Signals Intelligence (SIGINT)/ Electronic Warfare Support (ES), Synthetic Aperture Radar (SAR) / Moving Target Indicator (MTI), Wide Area and Hyperspectral Imagery collection.

These payloads provide the Marine Expeditionary Unit (MEU) organic capabilities that facilitate the six functions of Marine Corps Aviation and the Marine Corps Intelligence Surveillance, and Reconnaissance Enterprise across the range of military operations.

The payload development process will follow a Hybrid Acquisition Model of Incremental/Spiral approach while leveraging work conducted by various government laboratories such as the Office of Naval Research (ONR), Defense Advanced Research Projects Agency (DARPA), Air Force Research Lab (AFRL), Joint Improvised Threat Defeat Agency (JIDA), the National Security Agency (NSA), and the National Geospatial Agency (NGA). All payloads will follow similar acquisition paths but on independent time schedules. These acquisition paths will be defined by three (3) phases, each marked by a decision gate. Phase I establishes the preliminary integration design concept and conduct of technology demonstration with validation of a Technology Readiness Level (TRL) 5/6 as the decision gate for Phase II. Phase II establishes full payload-to-Unmanned Aircraft System (UAS) integration during which time all necessary program management, engineering, fabrication, test, and evaluations activities are conducted to achieve Test Article Fabrication, System Test and Evaluation, Integrated Logistics Support (ILS) and Training Concept development, and Data Management and Documentation. Validation of funding, derived requirements, project risks, cost and schedule estimates, contracting strategy and achievement of TRL 7 or higher constitute the decision gate for Phase III. Phase III is program of record transition which supports a production decision based on the exit criteria from Phase II.

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy					Date: May 2017
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*			R-1 Program Element (Number/Name) PE 0305242M *I (U)Unmanned Aerial Systems (UAS) Payloads*		
B. Program Change Summary ($ in Millions)	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**
Previous President's Budget	9.246	11.181	11.412	-	11.412
Current President's Budget	9.246	11.181	18.578	-	18.578
Total Adjustments	0.000	0.000	7.166	-	7.166
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	7.092	-	7.092
• Rate/Misc Adjustments	0.000	0.000	0.074	-	0.074

Change Summary Explanation

The funding increase of $7.4M from FY17 to FY18 reflects the development of a Wide Area Persistent Surveillance (WAS) payload and increase in SAR/MTI and WAS Product Development. The $7.1M reflected in FY18 for Proj 5504 Wide Area Persistent Surveillance is to ensure development efforts are completed within schedule to be able to begin procuring in FY21 in order to address the capability gap.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305242M / *(U)Unmanned Aerial Systems (UAS) Payloads*	Project (Number/Name) 5501 / *Signals Intelligence (SIGINT)*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
5501: *Signals Intelligence (SIGINT)*	0.000	3.564	6.062	5.618	-	5.618	3.917	2.792	2.858	2.917	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The UAS Payloads program will develop and integrate a Signals Intelligence (SIGINT)/ Electronic Warfare Support (ES) payloads for Marine Corps small tactical UASs. SIGINT/ES payloads will fill current capability gaps for the Marine Corps Intelligence, Surveillance and Reconnaissance (ISR) mission and is required as part of the Marine Corps mission to locate and target adversary Signals of Interest (SOI). The SIGINT/ES payload will leverage payloads previously developed by other Services and/or DoD laboratories to reduce cost and minimize schedule. The payload currently under development is Spectral Bat. Future SIGINT payloads include the Tactical EO/IR SIGINT for integrated Targeting (TEISIT).

Test articles required in order to properly conduct testing requirements in order to field products on schedule to the fleet.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Product Development	2.851	5.594	5.139	0.000	5.139
Articles:	2	5	-	-	-
Description: Decrease from FY 2017 to FY 2018 of $0.455M is due to decrease in requirements for system engineering.					
FY 2016 Accomplishments: - Completed Spectral Bat payload component development. - Initiated Spectral Bat V4 development. - Completed Spectral Bat engineering and experimental tests in preparation for FY17 testing. - Completed construction of Spectral Bat V3 payload. - Initiated construction of a prototype Spectral Bat V4 payload that can receive and process a minimum of four signals of interest (SOI). - Initiated a Field User Evaluation of the Spectral Bat V3 payload.					
FY 2017 Plans: - Complete Spectral Bat V4 payload development. - Complete construction of a prototype Spectral Bat system that can receive and process a minimum of four signals of interest (SOI).					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *(U)Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 5501 / *Signals Intelligence (SIGINT)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
- Complete Spectral Bat V4 developmental tests. ***FY 2018 Base Plans:*** - Initiate development of a Tactical EO/IR SIGINT Integrated for Targeting (TEISIT) payload system. ***FY 2018 OCO Plans:*** N/A					
Title: Support ***Articles:*** ***FY 2016 Accomplishments:*** - Initiated development of Spectral Bat payload software to include frequency agile airborne receiver software. ***FY 2017 Plans:*** - Complete development of Spectral Bat payload software to include frequency agile airborne receiver software. ***FY 2018 Base Plans:*** - Initiate development of TEISIT payload software. ***FY 2018 OCO Plans:*** N/A	0.619 -	0.375 -	0.384 -	0.000 -	0.384 -
Title: Management Services ***Articles:*** ***FY 2016 Accomplishments:*** - Completed refinement and documentation of acquisition strategy. - Initiated engineering required for flight clearances. - Initiated development of an integrated master schedule. - Initiated information assurance certification and accreditation. ***FY 2017 Plans:*** - Complete required engineering for flight clearances - Initiate Integrated Logistics Support (ILS), Training Concept development and Data Management/ Documentation. - Complete development of an integrated master schedule. ***FY 2018 Base Plans:***	0.094 -	0.093 -	0.095 -	0.000 -	0.095 -

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *(U)Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 5501 / *Signals Intelligence (SIGINT)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
- Complete Integrated Logistics Support (ILS), Training Concept development and Data Management/ Documentation - Complete information assurance certification and accreditation ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	3.564	6.062	5.618	0.000	5.618

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• PMC/4787: *UAS Payloads*	0.000	2.971	14.193	-	14.193	4.140	0.037	2.247	3.031	0.000	26.619

Remarks

D. Acquisition Strategy

The UAS Payload program utilizes a Hybrid Acquisition Model of Incremental/Spiral approach that leverages upon work conducted by various government laboratories in order to field capability that meets threshold requirements, facilitates the six functions of Marine Corps Aviation and the Marine Corps Intelligence Surveillance, and Reconnaissance Enterprise across the range of military operations.

E. Performance Metrics

Validation of funding, derived requirements, project risks, cost and schedule estimates, contracting strategy and achievement of a TRL 7 or higher for Program of Record transition. Successful development of SIGINT payloads, integration into Marine Corps small tactical UAS, and completion of testing.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305242M / *(U)Unmanned Aerial Systems (UAS) Payloads*	Project (Number/Name) 5502 / *Synthetic Aperture Radar/Motion Target Indicator (SAR/MTI)*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
5502: *Synthetic Aperture Radar/ Motion Target Indicator (SAR/ MTI)*	0.000	5.682	5.119	5.860	-	5.860	3.193	1.067	1.087	1.109	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

NOTE: Increase in FY 2018 from FY 2017 of $0.705M is due to increased requirements in system product development systems engineering.

A. Mission Description and Budget Item Justification

The UAS Payloads program will develop and integrate Synthetic Aperture Radar (SAR) with Moving Target Indicator (MTI) for Marine Corps small tactical UASs. This capability fills current capability gaps for the Marine Corps Intelligence, Surveillance and Reconnaissance (ISR) mission and will allow Marine Corps ISR assets to locate and track ground targets that cannot effectively be located or tracked with the current ground based or EO/IR airborne sensor technology.

The ability to locate and track moving ground targets from small tactical UAS is an essential capability that facilitates the six functions of Marine Corps Aviation and the Marine Corps Intelligence Surveillance, and Reconnaissance Enterprise across the range of military operations.

SAR/MTI payloads will leverage payloads previously developed by other Services and/or DoD laboratories to reduce cost and minimize schedule.

Test articles required in order to properly conduct testing requirements in order to field products on schedule to the fleet.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Product Development	5.399	4.133	4.855	0.000	4.855
Articles:	3	2	2	-	2
FY 2016 Accomplishments: - Continued SAR/MTI payload component development, in preparation for integrated payload development in FY17. - Completed construction of initial prototype payloads (V2.2).					
FY 2017 Plans: - Complete SAR/MTI payload component development and initiate integrated payload development (V3.0). - Complete construction of improved prototype payload.					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *(U)Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 5502 / *Synthetic Aperture Radar/Motion Target Indicator (SAR/MTI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
- Initiated concurrent dual mode functionality of SAR and MTI. ***FY 2018 Base Plans:*** - Complete integrated payload development. - Complete concurrent dual mode functionality of SAR and MTI. - Complete construction of dual mode functionality prototype payload (V3.1). ***FY 2018 OCO Plans:*** N/A					
Title: Support ***Articles:*** ***FY 2016 Accomplishments:*** - Initiated development of SAR/MTI payload software. - Initiated engineering analysis of alternatives for SAR/MTI payload components. ***FY 2017 Plans:*** - Complete development of SAR/MTI payload software. - Complete engineering analysis of alternatives for SAR/MTI payload components. ***FY 2018 Base Plans:*** - Initiate ILS, training concept development and data management/documentation. ***FY 2018 OCO Plans:*** N/A	0.268 -	0.590 -	0.604 -	0.000 -	0.604 -
Title: Management Services ***Articles:*** ***FY 2016 Accomplishments:*** - Completed refinement and documentation of acquisition strategy. - Initiated mapping of payload requirements to specifications. - Initiated development of an integrated master schedule. - Initiated information assurance certification and accreditation. ***FY 2017 Plans:*** - Complete mapping of payload requirements to specifications. - Complete development of an integrated master schedule.	0.015 -	0.104 -	0.104 -	0.000 -	0.104 -

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *(U)Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 5502 / *Synthetic Aperture Radar/Motion Target Indicator (SAR/MTI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
- Initiate engineering required for flight clearances. ***FY 2018 Base Plans:*** - Complete engineering required for flight clearances. - Complete information assurance certification for accreditation. ***FY 2018 OCO Plans:*** N/A					
Title: Test and Evaluation	0.000	0.292	0.297	0.000	0.297
Articles:	-	-	-	-	-
FY 2016 Accomplishments: N/A ***FY 2017 Plans:*** - Initiate and complete contractor component and subsystem level testing. ***FY 2018 Base Plans:*** - Initiate and complete developmental testing. ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	5.682	5.119	5.860	0.000	5.860

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• PMC/4787: *UAS Payloads*	0.000	2.971	14.193	-	14.193	4.140	0.037	2.247	3.031	0.000	26.619

Remarks

D. Acquisition Strategy

The UAS Payload program utilizes a Hybrid Acquisition Model of Incremental/Spiral approach that leverages upon work conducted by various government laboratories in order to field capability that meet threshold requirements, and facilitates the six functions of Marine Corps Aviation and the Marine Corps Intelligence Surveillance, and Reconnaissance Enterprise across the range of military operations.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *(U)Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 5502 / *Synthetic Aperture Radar/Motion Target Indicator (SAR/MTI)*

E. Performance Metrics

Validation of funding, derived requirements, project risks, cost and schedule estimates, contracting strategy and achievement of a technology readiness level of a TRL 7 or higher for Program of Record Transition. Successful development of a SAR/MTI payloads, integration into Marine Corps small tactical UASs, and completion testing.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305242M / *(U)Unmanned Aerial Systems (UAS) Payloads*	Project (Number/Name) 5504 / *Wide Area Persistent Surveillance (TNWAS)*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
5504: *Wide Area Persistent Surveillance (TNWAS)*	0.000	0.000	0.000	7.100	-	7.100	2.919	4.328	0.788	0.000	0.000	15.135
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The UAS Payloads program will develop and integrate Wide Area Persistent Surveillance (WAS) payloads for Marine Corps small tactical UASs. This capability fills current capability gaps for the Marine Corps Intelligence, Surveillance and Reconnaissance (ISR) mission and will allow Marine Corps ISR assets the ability to improve battlefield awareness, improve the capability to assure access and hold at risk, and enable power projection in environments that are not currently accessible is an essential capability that facilitates the six functions of Marine Corps Aviation and the Marine Corps Intelligence Surveillance, and Reconnaissance Enterprise across the range of military operations. The current payload in development is the Tactical Nighttime Wide Area Surveillance (TNWAS) payload. Future WAS payloads include the Spectral and Reconnaissance Imagery for Tactical Exploitation (SPRITE) payload. The WAS payloads will leverage payloads previously developed by other Services and/or DoD laboratories to reduce cost and minimize schedule.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Product Development	0.000	0.000	5.331	0.000	5.331
Articles:	-	-	-	-	-
FY 2016 Accomplishments: N/A					
FY 2017 Plans: N/A					
FY 2018 Base Plans: - Initiate Wide Areas Surveillance payload component development.					
FY 2018 OCO Plans: N/A					
Title: Support	0.000	0.000	1.520	0.000	1.520
Articles:	-	-	-	-	-
FY 2016 Accomplishments: N/A					
FY 2017 Plans:					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *(U)Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 5504 / *Wide Area Persistent Surveillance (TNWAS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
N/A ***FY 2018 Base Plans:*** N/A ***FY 2018 OCO Plans:*** - Initiate development of Wide Area Surveillance software.					
Title: Management Services	0.000	0.000	0.249	0.000	0.249
Articles:	-	-	-	-	-
FY 2016 Accomplishments: N/A ***FY 2017 Plans:*** N/A ***FY 2018 Base Plans:*** - Initiate and complete refinement and documentation of acquisition strategy. - Initiate mapping of requirements to specifications. - Initiate development of an integrated master schedule. ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	7.100	0.000	7.100

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• PMC/4787: *UAS Payloads*	0.000	2.971	14.193	-	14.193	4.140	0.037	2.247	3.031	0.000	26.619

Remarks

D. Acquisition Strategy

The UAS Payload program utilizes a Hybrid Acquisition Model of Incremental/Spiral approach that leverages upon work conducted by various government laboratories in order to field capability that meet threshold requirements, and facilitates the six functions of Marine Corps Aviation and the Marine Corps Intelligence Surveillance, and Reconnaissance Enterprise across the range of military operations.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *(U)Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 5504 / *Wide Area Persistent Surveillance (TNWAS)*

E. Performance Metrics

Validation of funding, derived requirements, project risks, cost and schedule estimates, contracting strategy and achievement of a technology readiness level of a TRL 7 or higher for Program of Record Transition. Successful development of WAS payloads, integration into Marine Corps small tactical UASs, and completion of testing.