Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604512N *I Shipboard Aviation Systems*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	403.318	58.179	69.615	122.083	-	122.083	121.226	44.886	18.706	11.781	Continuing	Continuing
2232: *CV/CVN Launch and Recover*	403.318	58.179	69.615	122.083	-	122.083	121.226	44.886	18.706	11.781	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

CV Launch & Recovery System - This Navy unique project addresses the System Development and Demonstration of all systems required to recover and launch Navy/ Marine Corps Aircraft (Fixed/Rotary Wing and Vertical/Short Take Off and Landing) operating aboard aircraft carriers, amphibious assault ships and air capable ships. This program element includes the following:

(1) Advanced Arresting Gear
(2) Aviation Data Management and Control System
(3) Compact Swaging Machine
(4) Aircraft Launch & Recovery Equipment Modernization
(5) Aircraft Launch and Recovery Equipment Service Life Management program

This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	55.826	69.615	25.668	-	25.668
Current President's Budget	58.179	69.615	122.083	-	122.083
Total Adjustments	2.353	-	96.415	-	96.415
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	7.000	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	96.752	-	96.752
• Rate/Misc Adjustments	-	-	-0.337	-	-0.337

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604512N *I Shipboard Aviation Systems*

• Congressional General Reductions Adjustments	-4.647	-	-	-	-

Change Summary Explanation

Cost: Added funding in FY 13, FY15, FY16 and FY17 to the Advanced Arresting Gear effort to properly price the System Development and Demonstration effort.

Schedule:
Advanced Arresting Gear (AAG) - The AAG program experienced technical challenges due to subcomponent design issues which were identified during integrated system testing. These subcomponents required redesign and retest. Additionally, system performance issues were identified during the Jet Car Track Site (JCTS) Performance Test Readiness Review and these issues are hampering performance test progress. Execution of the test program and completion of the System Design and Development phase have been delayed. Accordingly, the program was rebaselined driving out planned events and moving milestone C to 3rd quarter FY18.

Aircraft Launch & Recovery Equipment Modernization Improved Manually Operated Visual Landing Aid System - Due to higher program and Navy priorities, the program's scheduled events, including production representative model procurement and milestones have slipped one year.

Aircraft Launch and Recovery Equipment Service Life Management program (SLMP) - Due to higher program and Navy priorities, SLMP scheduled events have been extended into 4th Quarter of FY19.

Aviation Data Management and Control System (ADMACS) - ADMACS scheduled events were adjusted due to the ADMACS Blk II program undergoing a Milestone Decision Authority directed rebaseline due to software deficiencies found during final Developmental Testing shipboard testing and the resultant need to defer Initial Operational Test and Evaluation.

Technical: Not Applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604512N / *Shipboard Aviation Systems*				Project (Number/Name) 2232 / *CV/CVN Launch and Recover*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
2232: *CV/CVN Launch and Recover*	403.318	58.179	69.615	122.083	-	122.083	121.226	44.886	18.706	11.781	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	4.000	-	4.000	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This Navy unique project addresses the System Development and Demonstration (SDD) of all systems required to recover and launch Navy/Marine Corps Aircraft (Fixed/Rotary Wing and Vertical/Short Take-Off and Landing) operating aboard aircraft carriers (CVN), amphibious assault ships and air capable ships. This program includes the following systems under Project 2232, including the funding of production representative models for:

(1) Advanced Arresting Gear (AAG): The AAG program will design, develop, test and field an aircraft arrestment system to replace the legacy Mark 7 arresting gear. AAG systems will be installed on all new construction aircraft carriers. AAG will provide the U.S. Navy with improved operational capability, while reducing operating and support costs. The AAG system will recover all existing and projected carrier based tail hook-equipped air vehicles well into the 21st century. The AAG Program's SDD phase test articles will consist of a land based, single wire configured aircraft arresting system, which includes associated hardware and software needed to conduct system integrated testing by arresting both dead-loads and aircraft.

(2) Aviation Data Management and Control System (ADMACS): ADMACS is an integrated, network-centric, shipboard aviation operations information management system, which will provide data required for aircraft carriers aviation operations planning, execution and readiness assessment. ADMACS communicates aviation and command related data elements across the ADMACS Local Area Network and Integrated Shipboard Network System that electronically displays position and location of aircraft on the flight and hangar decks, status of aircraft, Aircraft Launch and Recovery Equipment, fuel, weapons types and quantity as well as a wide variety of other aviation related and ship information. Shipboard Aviation Information Management System providing CVN Aviation Planning, Execution & Readiness Assessment.

(3) Compact Swaging Machine: Funded by ONR (OSD PE# 060051D8Z) in FY 2009. The current process of pouring zinc sockets to attach the arresting gear purchase cable will be replaced with a new swaged terminal design that will be pressed on by means of a high density, compact swaging machine.

(4) Aircraft Launch & Recovery Equipment (ALRE) Modernization: Improved Manually Operated Visual Landing Aid System (IMOVLAS): IMOVLAS will be the manual backup for Improved Fresnel Lens Optical Landing System (IFLOLS), which is the primary carrier Visual Landing Aid. IMOVLAS will be used in high sea states or if IFLOLS is inoperable, and will mirror current IFLOLS configuration in size & display. Two production representative models will be procured in FY15; the models will be utilized for environmental and developmental testing.

(5) Aircraft Launch & Recovery Equipment (ALRE) Service Life Management Program (SLMP): The ALRE SLMP for Launcher and Recovery is required to sustain carrier aviation operations of higher energy aircraft launch and recoveries that are increasing loads on the ALRE systems, and that are affecting availability, maintainability and cost. This program will consist of service life assessment and extension initiatives and will establish the design foundation (structural, reliability, and

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604512N / *Shipboard Aviation Systems*	**Project (Number/Name)** 2232 / *CV/CVN Launch and Recover*

maintainability analyses), permit appropriate assessment, track and focus design changes where most needed. Two SLMP Mark 7 prototypes will be procured in FY 2015.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Advanced Arresting Gear (AAG)	49.735	55.597	109.027
Articles:	-	-	-
Description: The AAG program is designing, developing, testing and fielding an aircraft arrestment system to replace the legacy Mark 7 arresting gear. ***FY 2013 Accomplishments:*** Completed Jet Car Track Site (JCTS) AAG Commissioning deadload arrestment testing. Commenced JCTS AAG Performance testing. Continued AAG Hardware Environmental Qualification testing. ***FY 2014 Plans:*** Complete JCTS performance testing utilizing deadloads. Complete planning and site preparations for equipment transfer and installation at the Runway Arrested Landing Site test facility. ***FY 2015 Plans:*** Continue execution of Jet Car Track Site (JCTS) Performance Test events utilizing deadloads Conduct Installation and Checkout (INCO) and non-aircraft Commissioning of Advanced Arresting Gear hardware and software installed at the Runway Arrested Landing Site (RALS) test facility. Conduct CVN-78 pre-commissioning training for maintainers and operators who will participate in AAG OPEVAL. Continue development of AAG logistics products and system documentation.			
Title: Aviation Data Management and Control System (ADMACS)	5.166	0.643	-
Articles:	-	-	-
Description: ADMACS provides a real time, fault tolerant (redundant), tactical information management system. ADMACS will integrate the Electromagnetic Aircraft Launch System and Advanced Arresting Gear interfaces into its baseline. ***FY 2013 Accomplishments:*** Conducted System Requirements Review on ADMACS software and develop software code. ***FY 2014 Plans:*** Complete software development, conduct integration testing and conduct Initial Operational Test & Evaluation on CVN. ***FY 2015 Plans:*** N/A			
Title: Compact Swaging Machine	0.123	0.252	-
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604512N / *Shipboard Aviation Systems*	**Project (Number/Name)** 2232 / *CV/CVN Launch and Recover*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Description: Compact Swaging Machine - This program will replace the current process for attaching the terminal on the arresting gear purchase cable with a swaged terminal design that will be pressed on by means of a high density, compact, swaging machine. ***FY 2013 Accomplishments:*** Completion of CSM ruggedization and terminal performance testing. ***FY 2014 Plans:*** Commence fleet terminal testing, evaluation, and training of CSM. ***FY 2015 Plans:*** N/A			
Title: Aircraft Launch & Recovery Equipment Modernization ***Articles:*** ***Description:*** Improved Manually Operated Visual Landing Aid System (IMOVLAS) to improve carrier aviation operations. ***FY 2013 Accomplishments:*** Removed IMOVLAS components from CVN 65 for use in developmental testing. ***FY 2014 Plans:*** IMOVLAS - Begin the design, development and integration of the program, conduct Systems Requirements Review (SRR) and Preliminary Design Review (PDR). ***FY 2015 Plans:*** IMOVLAS - Commence System Design and Development of two production representative models.	0.086 -	1.662 -	1.766 2.000
Title: Aircraft Launch & Recovery Equipment (ALRE) Service Life Management Program (SLMP) ***Articles:*** ***Description:*** ALRE SLMP analyzes launch and recovery equipment to determine feasible fielded equipment improvements. ***FY 2013 Accomplishments:*** Continued modeling and analysis of the Mark 7 (MK-7) arresting gear and C13-2 Catapult components and subcomponents. ***FY 2014 Plans:*** Continue modeling and analysis of the launch and recovery equipment. Continue design, development and testing of MK-7 components and subcomponents. ***FY 2015 Plans:***	3.069 -	11.461 -	11.290 2.000

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Procurement of Mk-7 arresting gear prototypes and commence prototype testing. Continue design, development and testing of Mk-7 components and subcomponents.			
Accomplishments/Planned Programs Subtotals	58.179	69.615	122.083

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/4213: *Aircraft Launch & Recovery Equipment*	-	-	36.456	-	36.456	66.863	82.605	78.650	80.182	Continuing	Continuing
• OPN/9020: *Aircraft Launch & Recovery Equipment Spares*	-	8.101	0.639	-	0.639	6.264	0.007	0.406	0.090	-	15.507
• SCN/2001: *Carrier Replacement Program*	490.960	1,505.653	1,963.000	-	1,963.000	3,000.183	2,290.837	2,849.342	1,864.514	Continuing	Continuing
• OPN/4216: *Aircraft Launch & Recovery Equipment*	69.312	57.502	-	-	-	-	-	-	-	-	214.998

Remarks

D. Acquisition Strategy

Advanced Arresting Gear (AAG): The Navy competitively awarded two Cost Plus Fixed Fee Technical Development phase contracts to develop the AAG system. Upon completion of the Preliminary Design and Integrated Baseline reviews, the Navy awarded a single Cost Plus Award Fee option to General Atomics for the System Development and Demonstration (SDD) phase to develop and demonstrate a production representative Advanced Arresting Gear (AAG) at the NAVAIR Lakehurst Jet Car Track Site and Runway Arrested Landing Site. In March 2009, the AAG program awarded a SDD contract modification to General Atomics for Transition to Production planning.

Aviation Data Management and Control System (ADMACS): The Navy continues to design and develop ADMACS using commercially available servers, switches, workstations and database and communications software. One Engineering Development Model and 2 Low Rate Initial Production systems have been procured from a directed 8(a) Alaskan Native Corporation source.

Compact Swaging Machine: The Navy amended an existing Small Business Technology Transfer Phase III contract in order to build and test a prototype high density swaging machine which has been developed under Defense Acquisition Challenge Program funding (OSD PE 060051D8Z).

Aircraft Launch & Recovery Equipment Modernization:
Improved Manually Operated Visual Landing Aid System (IMOVLAS): The Navy will develop IMOVLAS using commercial equipment racks, processors and displays.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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Aircraft Launch & Recovery Equipment Service Life Management Program (SLMP): This program will consist of Service Life Assessment and Extension initiatives and will establish the design foundation (structural, reliability and maintainability analyses), permit appropriate assessment, track and focus design changes where most needed. SLMP will develop a competitive procurement package to build and test the Mark 7 arresting gear prototypes.

E. Performance Metrics

Advanced Arresting Gear (AAG) will complete System Development and Demonstration Integrated testing at Jet Car Track Site and Runway Arrested Landing Site. AAG will demonstrate its key performance parameters and readiness for operational test.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
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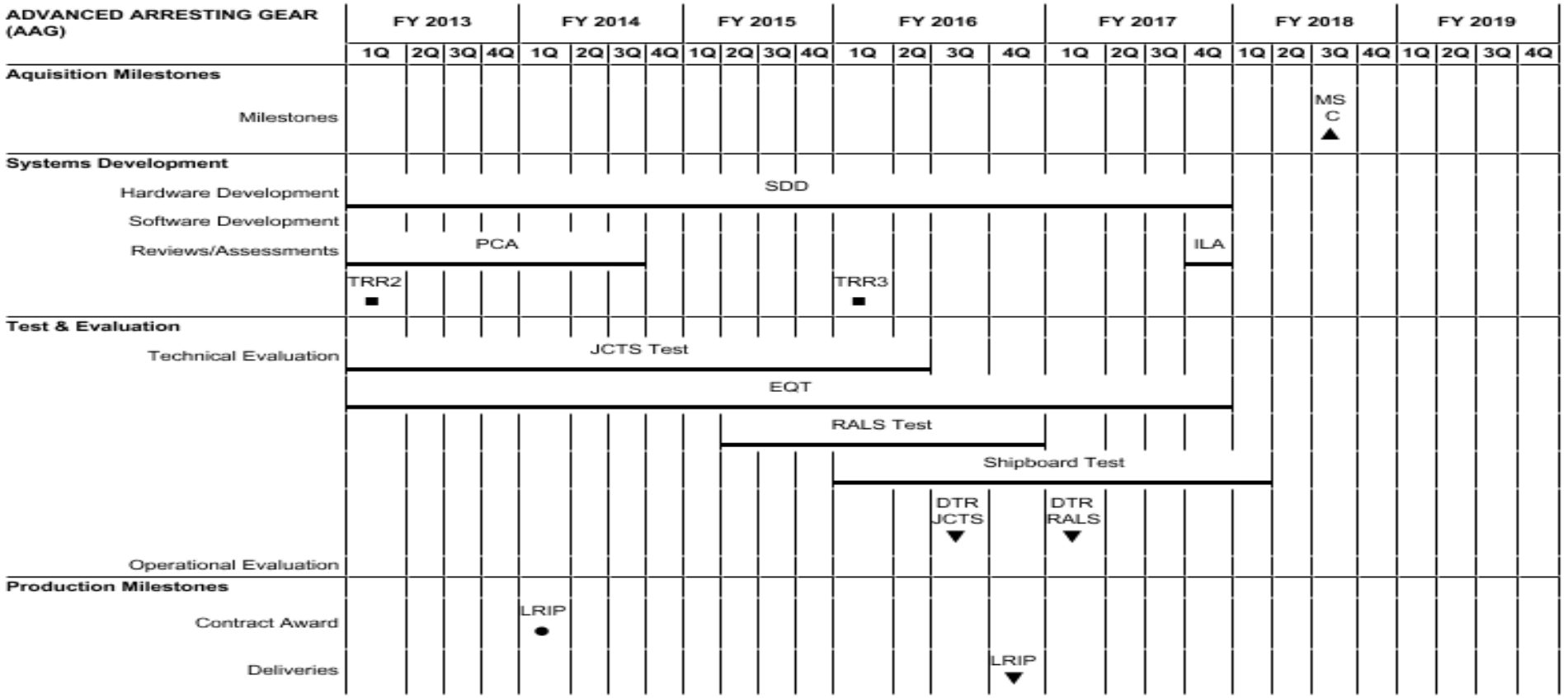

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
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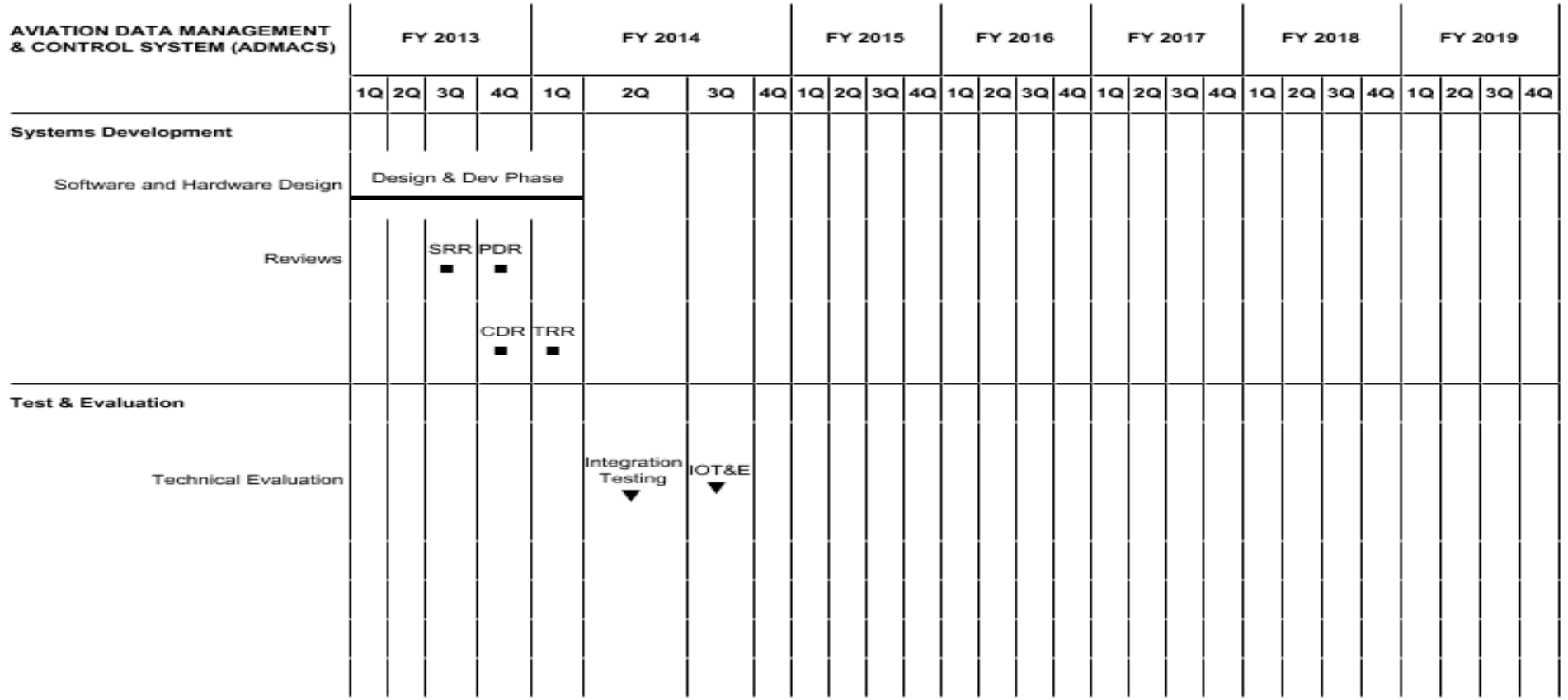

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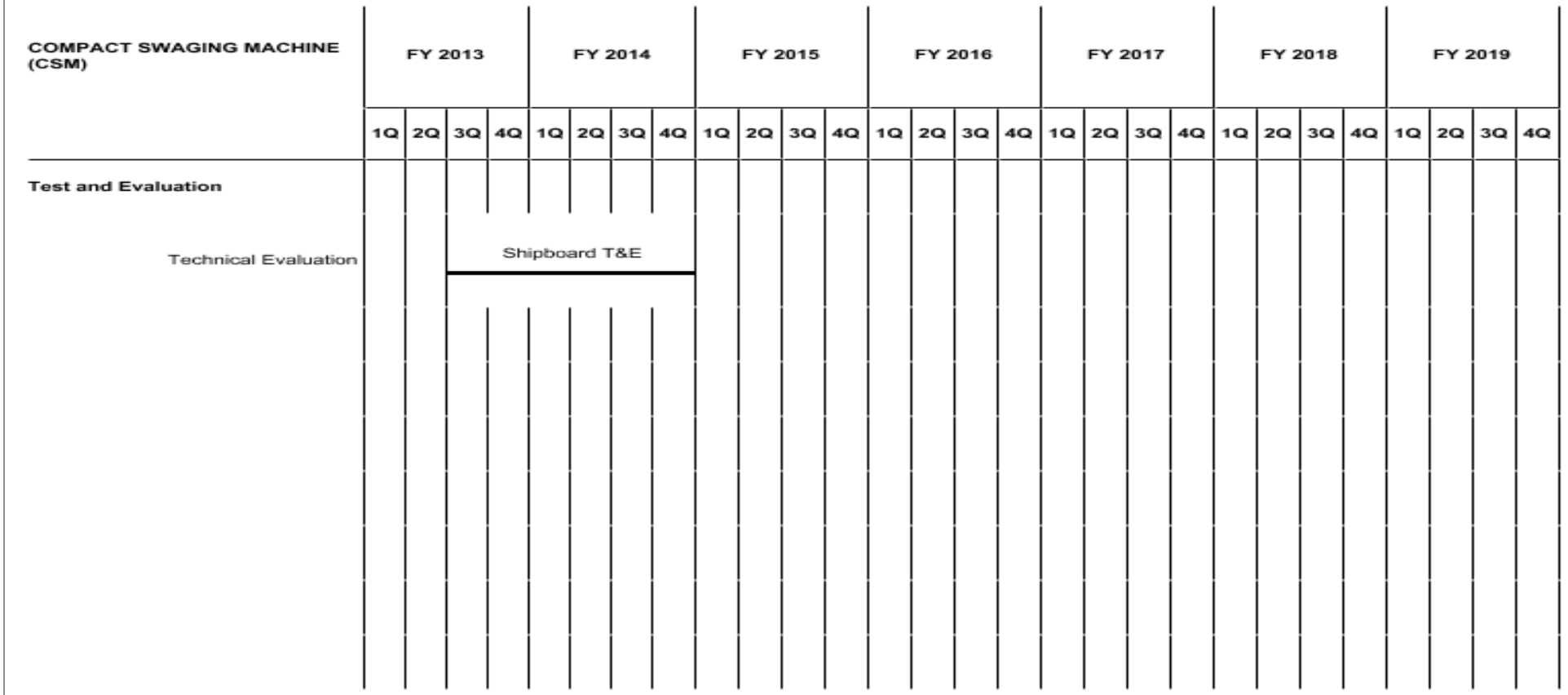

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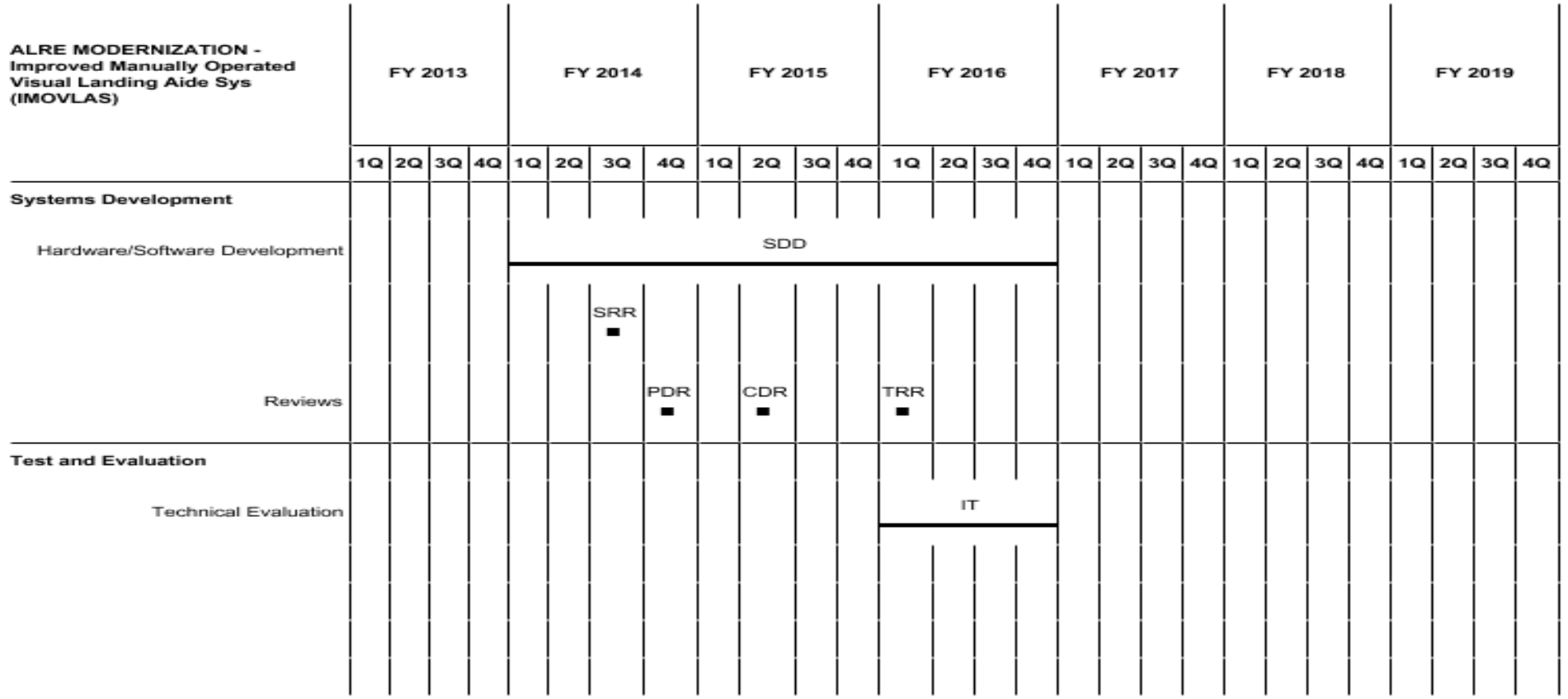

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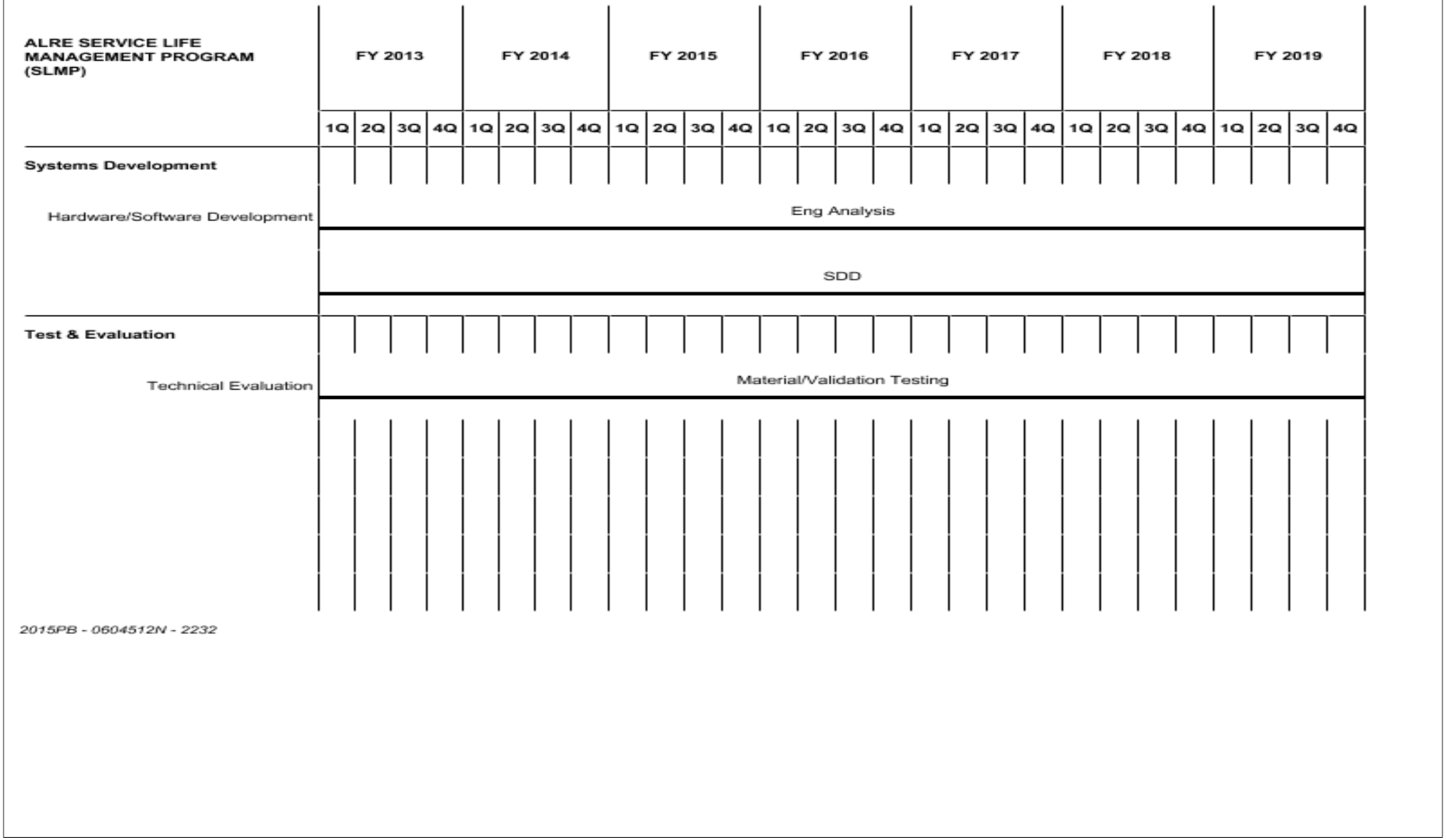

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