

CLASSIFICATION:

**UNCLASSIFIED**

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: <b>June 2001</b>			
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APPROPRIATION/BUDGET ACTIVITY <b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY/BA-5</b>					R-1 ITEM NOMENCLATURE <b>LIGHTWEIGHT TORPEDO DEVELOPMENT / 0604610N</b>					
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COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	<b>8.984</b>	<b>9.262</b>	<b>10.310</b>						<b>CONT.</b>	<b>CONT.</b>
Lightweight Hybrid Torpedo / V2234 / F2234 <sup>1</sup>	<b>8.984</b>	<b>9.262</b>	<b>10.310</b>						<b>CONT.</b>	<b>CONT.</b>
Quantity of RDT&E Articles										

Note<sup>1</sup>: Due to realignment of Program Executive Office, FY2000 and FY2001 funds allocated under V2234. Funds for FY2002 and beyond are allocated under F2234.

A. (U) Mission Description and Budget Item Justification:

The funding is to design, integrate and test the Lightweight Hybrid Torpedo (MK54 MOD 0). The torpedo will be comprised of hardware and software from the MK 46 Torpedo, MK50 Torpedo, and MK 48 ADCAP Torpedo. The Lightweight Hybrid Torpedo will provide performance improvements in shallow water, littoral, counter-measure filled environments. The Engineering Development Model (EDM) contract was awarded to Raytheon Systems Company (formerly Hughes Aircraft Company) in June 1996. Current contract has delivered twenty-one EDM units to support the in-water test program.

FY 2000 ACCOMPLISHMENTS:

- (U) (\$1.438) Continued development and production of Ancillary Hardware, including Fleet Exercise Section (FES) and Automatic Test Equipment (ATE) to support LHT.
- (U) (\$2.176) Continued development of tactical and signal processing software.
- (U) (\$3.194) Continued simulation and in-water developmental test program.
- (U) (\$2.176) Continued Lightweight torpedo system engineering efforts.

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<p>FY 2001 PLAN:</p> <ul style="list-style-type: none"><li>- (U) (\$1.190) Continue development and production of Ancillary Hardware, including Fleet Exercise Section (FES) and Automatic Test Equipment (ATE) to support LHT.</li><li>- (U) (\$1.596) Continue development of tactical and signal processing software.</li><li>- (U) (\$3.931) Continue simulation and in-water developmental test program.</li><li>- (U) (\$2.157) Continue Lightweight torpedo system engineering efforts.</li><li>- (U) (\$0.375) Support the LHT Command and Decision system software integration into DDG-51 class surface combatants.</li><li>- (U) (\$0.013) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.</li></ul> <p>FY 2002 PLAN:</p> <ul style="list-style-type: none"><li>- (U) (\$0.827) Continue development and production of Ancillary Hardware, including Fleet Exercise Section (FES) and Automatic Test Equipment (ATE) to support LHT.</li><li>- (U) (\$1.541) Continue development of tactical and signal processing software.</li><li>- (U) (\$4.925) Continue simulation and in-water developmental test program.</li><li>- (U) (\$2.297) Continue Lightweight torpedo system engineering efforts.</li><li>- (U) (\$0.720) Support the LHT Command and Decision system software integration into DDG-51 class surface combatants.</li></ul>		

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**Exhibit R-2, RDT&E Budget Item Justification**  
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EXHIBIT R-2, RDT&E Budget Item Justification				DATE: <b>June 2001</b>						
APPROPRIATION/BUDGET ACTIVITY			R-1 ITEM NOMENCLATURE							
<b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY/BA-5</b>			<b>LIGHTWEIGHT TORPEDO DEVELOPMENT / 0604610N</b>							
B. (U) Program Change Summary		FY 2000		FY 2001		FY 2002				
(U) FY 2001 President's Budget:		9.245		9.347		8.772				
(U) Appropriated Value:		9.245		9.282						
(U) Adjustments to FY2000/2001 Appropriated Value/ FY2001 President's Budget:		-0.261		-0.085		1.538				
(U) FY 2002 PRES Budget Submit		8.984		9.262		10.310				
<p>Funding:</p> <p>FY00: Net reduction of \$0.261M is due to a \$0.018M SBIR reduction and \$0.243M USN directed general undistributed reductions.</p> <p>FY01: Net reduction of \$0.085M is due to \$0.065M Congressional directed general undistributed reduction and \$0.020M Government-Wide rescission.</p> <p>FY02: Net increase of \$1.538M accommodates technically driven cost growth and conduct TECHEVAL.</p> <p>Schedule: In-water engineering testing scheduled was delayed six months due technical issues associated with integration of Navy tactical software and contractor hardware and middleware. A MK54 MOD 0 Initial Operating Capability (IOC) is planned for FY03.</p> <p>Technical: Technical difficulties associated with the use of complex contractor hardware have led the Navy to redesign the contractor hardware and signal processing software in order to meet system performance requirements.</p>										
C. Other Program Funding Summary (\$ in millions)										
		FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
Torpedo MK 46 MODS (WPN / PE 0204228N / BA3 / BLI 321500)										
		28.516	7.076	7.444						CONT.
AN/SQQ-89(V) Surface ASW Combat Systems (OPN / PE 0204228N / BA2 / BLI 213600)										
		23.635	9.154	14.559						CONT.
AN/SQQ-89(V) Surface ASW Combat Systems (OPN / PE 0204228N / BA2 / BLI 213605)										
		7.656	5.006	2.002						CONT.
D. (U) Acquisition Strategy: The EDM contract is currently held by Raytheon Systems Company (formerly Hughes Aircraft Company). The contract was awarded as a Cost-Plus-Award Fee in June 1996 and was recently converted to Cost-Plus-Incentive Fee in December 1998.										

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APPROPRIATION/BUDGET ACTIVITY <b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY/BA-5</b>	R-1 ITEM NOMENCLATURE <b>LIGHTWEIGHT TORPEDO DEVELOPMENT / 0604610N</b>
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E. Schedule Profile:

	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07
<b>Development &amp; Upgrades Lightweight Hybrid</b>	ENGINEERING	TESTS	TECHEVAL					
		△	△					

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**Exhibit R-2, RDT&E Budget Item Justification**  
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Exhibit R-3 Cost Analysis (page 1)										DATE: <b>June 2001</b>		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
<b>RDT&amp;E, N/BA-5</b>			<b>0604610N</b>			<b>Lightweight Hybrid Torpedo / V2234/F2234</b>						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Ancillary Hardware Development	WR	NUWC Newport/Keyport	CONT.	1.438	11/99	1.203	10/00	0.826	10/01	CONT.	CONT.	N/A
Systems Engineering	WR	NUWC Newport/Keyport	CONT.	1.204	11/99	1.517	10/00	1.702	10/01	CONT.	CONT.	N/A
Systems Engineering	WR	NAWC China Lake	CONT.	0.057	01/00	0.000		0.000		CONT.	CONT.	N/A
Systems Engineering	WR	NSWC Indian Head	CONT.	0.019	03/00	0.060		0.000		CONT.	CONT.	N/A
Systems Engineering	Various	Various	CONT.	0.275	11/99	0.425	10/00	0.720	10/00	CONT.	CONT.	N/A
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			CONT.	2.993		3.205		3.248		0.000	9.446	N/A
Development Support Equipment											0.000	
Software Development	WR	NUWC Newport	CONT.	2.176	11/99	1.596	10/00	1.541	10/01	CONT.	CONT.	N/A
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Subtotal Support			CONT.	2.176		1.596		1.541		0.000	5.313	
Remarks:												

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**Exhibit R-3, Project Cost Analysis**  
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Exhibit R-3 Cost Analysis (page 2)										DATE: <b>June 2001</b>		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
<b>RDT&amp;E, N/BA-5</b>			<b>0604610N</b>			<b>Lightweight Hybrid Torpedo / V2234/F2234</b>						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
System Test & Evaluation	WR	COMOPTEVFOR	CONT.	0.066	10/99	0.068	10/00	0.100	10/01	CONT.	CONT.	N/A
	WR	NUWC Newport/Keyport	CONT.	3.091	10/99	3.738	10/00	4.825	10/01	CONT.	CONT.	N/A
	WR	NAWC Patuxent River	CONT.	0.037	12/99	0.000		0.000		CONT.	CONT.	N/A
	C,CPFF	ARL/PSU State College, PA	CONT.	0.000		0.125	01/01	0.000		0.000	CONT.	N/A
Subtotal T&E			CONT.	3.194		3.931		4.925		CONT.	CONT.	
Remarks: None.												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	Various	Various	CONT.	0.600	MISC.	0.500	MISC.	0.515	MISC.	CONT.	CONT.	
Travel			CONT.	0.021	MISC.	0.030	MISC.	0.029	MISC.	CONT.	CONT.	
Labor (Research Personnel)											0.000	
Overhead			CONT.	0.000	MISC.	0.000	MISC.	0.052	MISC.	CONT.	CONT.	
Subtotal Management			CONT.	0.621		0.530		0.596		CONT.	CONT.	
Remarks: None.												
Total Cost			CONT.	8.984		9.262		10.310		CONT.	CONT.	
Remarks:												

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**Exhibit R-3, Project Cost Analysis**  
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