

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

February 2000

BUDGET ACTIVITY

PE NUMBER AND TITLE

07 - Operational System Development

0207438F Theater Battle Management (TBM) C4I

COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	48,325	46,406	41,068	32,388	30,119	30,721	31,331	Continuing	TBD
673330 Cmd Cntrl Info Process Sys (C2IPS)	9,933	11,644	9,274	2,195	2,314	0	0	0	55,654
674287 Contingency Theater Automated Planning System (CTAPS)	34,545	0	0	0	0	0	0	0	104,634
674288 Wing C2 System (WCCS)	3,847	0	0	0	0	0	0	0	19,975
674790 Theater Battle Management Core System (TBMCS)	0	25,799	20,258	17,968	17,526	20,236	20,638	Continuing	TBD
674802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)	0	8,963	11,536	12,225	10,279	10,485	10,693	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

Note: Starting in FY00 the RDT&E funding for CTAPS (project 4287), WCCS (project 4288), and Combat Intelligence System (CIS) (PE 27414F, project 4773) will be combined in PE 27438F under project 4790, TBMCS. CTAPS, WCCS and CIS will be integrated in a single Defense Information Infrastructure Common Operating Environment (DII COE) compliant system and will be managed as a single project with the fielding of TBMCS 1.0 in FY00. DCAPES was previously funded in FY99 under PE 33150F.

(U) A. Mission Description

TBM C4I develops force-level and wing-level command, control, and intelligence systems which utilize DoD's Defense Information Infrastructure (DII) common operating environment (COE). Acquisition of these systems will allow the execution of TBM planning, intelligence, and operational functions of the Joint Forces Air Component Commander (JFACC), including generation and dissemination of the air tasking order (ATO). Projects included in this program are Command & Control Information Processing System (C2IPS), Contingency Theater Automated Planning System (CTAPS), Wing Command & Control System (WCCS), Theater Battle Management Core Systems (TBMCS), and Deliberate and Crisis Action Planning and Execution Segment (DCAPES).

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(U) **B. Budget Activity Justification**

The TBMCS effort is post Milestone III effort, and is in Budget Activity 7, Operational Systems Development because it incrementally upgrades and develops capabilities for currently operational systems.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2000 PBR)	30,254	43,727	41,433	TBD
(U) Appropriated Value	30,792	46,727		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-538	-130		
b. Small Business Innovative Research	-857			
c. Omnibus or Other Above Threshold Reprogram	14,228	-191		
d. Below Threshold Reprogram	4,971			
e. Rescissions				
f. Other	-271			TBD
(U) Adjustments to Budget Years Since FY 2000 PBR			-365	
(U) Current Budget Submit/FY 2001 PBR	48,325	46,406	41,068	TBD

(U) **Significant Program Changes:**

FY99: \$2.475M of the below threshold reprogramming action was for EFX'99 initiative where TBMCS is the CORE Operating System. \$.806M of the BTR was to mitigate TBMCS contract cost overruns. The \$14.228M ATR was for Y2K conversion activities.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I				PROJECT 673330	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
673330 Cmd Cntrl Info Process Sys (C2IPS)	9,933	11,644	9,274	2,195	2,314	0	0	0	55,654
<p>(U) <u>A. Mission Description</u> The Command & Control Information Processing System (C2IPS) project develops communications and information processing hardware and software for all echelons of the Air Mobility Command (AMC). C2IPS provides AMC the capability to monitor in real-time the operational airlift and tanker functions associated with mission execution worldwide. The integration of C2IPS computer resources and software with improved High Frequency (HF) equipment and other available communications media will result in a unified AMC C2 System.</p> <p>(U) <u>FY 1999 (\$ in Thousands)</u> (U) \$5,535 Completed C/S software and evaluation (3A/3B/3C) (U) \$4,198 Continued increment 4 (Detailed Planning & Scheduling for integration of AMC Aircraft Schedules) (U) \$200 Started requirements planning for client server architecture (U) \$9,933 Total</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$9,532 Continue Increment 4 (Detailed Planning & Scheduling for integration of AMC Aircraft Schedules) (U) \$1,912 Start next level DII/COE integration (U) \$200 Continue requirements planning for future C2IPS architecture migration (U) \$11,644 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$7,175 Continue Increment 4 (Detailed Planning & Scheduling for integration of AMC aircraft schedules) (U) \$1,900 Continue higher level integration of C2IPS in DII/COE (U) \$199 Continue requirements planning for future C2IPS architecture migration (U) \$9,274 Total</p> <p>(U) <u>B. Project Change Summary</u> N/A</p>									
Project 673330			Page 3 of 20 Pages				Exhibit R-2A (PE 0207438F)		

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2000
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BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT 673330
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(U) **C. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

- (U) AF RDT&E
- (U) Other APPN

(U) **D. Acquisition Strategy**
 The C2IPS will be developed and installed in four increments. A spiral development process is used to produce consecutive software releases within each increment. The first three increments were developed under contract with Computer Sciences Corporation. Increment 1 provided a digital data message handling capability at each Information Processing System (IPS) node and implements mission execution monitoring. Increment 2 builds on Increment 1 software to support mission planning and scheduling. Increment 3 will provide C2IPS with a client server architecture as part of the system migration efforts. Increment 4 continues the evolutionary acquisition process, using modular development through government wide agency contracts. It also lays the foundation for the migration strategy that will enhance interoperability of C2IPS with TBMCS and achieve required DII/COE integration.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Increment 3 Completion Dates												
(U) Spiral A (Rel 3A)			*									
(U) Spiral B (Rel 3B Comm Proc)			*									
(U) Spiral C (Rel 3C Data Partitioning)				*								
(U) Increment 4 Completion Dates												
(U) Spiral A (Planning & Sched)									X			
(U) Spiral B (Plan & Sched, DII/COE)												X

Note: * Denotes Completed Event; X Denotes Planned Event

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I			PROJECT 673330		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Major Product Development Contracts					7,281		9,100		7,424
(U)	Support Contracts					2,161		2,013		1,657
(U)	Program Management Support					491		531		193
(U)	Total					9,933		11,644		9,274
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
CSC	FPIF	Dec 88	TBD	TBD	13,847	3,904	1,271		1,724	20,746
Unisys	IDIQ	Dec 98	TBD	TBD	0	3,377	7,829	7,424	0	18,630
<u>Support and Management Organizations</u>										
MITRE	T&M	Oct 94	N/A	N/A	4,533	1,487	1,178	1,178	1,658	10,034
TEMS/ITSP	Various	Various	N/A	N/A	966	674	835	479	725	3,679
ESC (government organization)	n/a	n/a	N/A	N/A	1,048	491	531	193	302	2,565
<u>Test and Evaluation Organizations</u>										
N/A										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
	<u>Subtotals</u>									
	Subtotal Product Development				13,847	7,281	9,100	7,424	1,724	39,376
	Subtotal Support and Management				6,547	2,652	2,544	1,850	2,685	16,278
	Subtotal Test and Evaluation									
	Total Project				20,394	9,933	11,644	9,274	4,409	55,654

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000	
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I				PROJECT 674287	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674287 Contingency Theater Automated Planning System (CTAPS)	34,545	0	0	0	0	0	0	0	104,634
<p>Note: With the fielding of TBMCS 1.0.1 in FY00, CTAPS functionality will be integrated in TBMCS and further evolution of this functionality will be managed under project 4790, TBMCS.</p> <p>(U) <u>A. Mission Description</u> The Contingency Theater Automated Planning System (CTAPS) program directly supports the Joint Forces Air Component Commander (JFACC) in the planning and execution of the theater air campaign down to the unit level. The system is designed to an open system standard, promoting interoperability among USAF, Services, and Allied command and control systems. The air tasking order generation and dissemination capabilities of CTAPS are the standard for all DoD command and control systems.</p> <p>(U) <u>FY 1999 (\$ in Thousands)</u> (U) \$27,033 Continued TBMCS software version 1.0.1 development. (U) \$2,722 Continued TBMCS v1.1 development. (U) \$1,100 Completed development of new ATO format. (U) \$1,425 System engineering and support. (U) \$2,265 Expeditionary Force Experiment (U) \$34,545 Total</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$0 No further funding in this project. Further evolution of this functionality continues under project 4790, TBMCS. (U) \$0 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No further funding in this project. Further evolution of this functionality continues under project 4790, TBMCS. (U) \$0 Total</p> <p>(U) <u>B. Project Change Summary</u></p>									
Project 674287			Page 6 of 20 Pages				Exhibit R-2A (PE 0207438F)		

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I			PROJECT 674287			
(U) C. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) AF RDT&E										
(U) Other APPN										
See Other Program Funding Summary under project 4790, TBMCS. The summary under 4790 includes other program funding for CTAPS and WCCS in FY99 to provide a consolidated view of other program funding associated with the TBMCS program.										
(U) D. Acquisition Strategy										
Electronic Systems Center (ESC), Hanscom AFB, MA manages the TBMCS program, including CTAPS. Lockheed-Martin Mission Systems (LMMS) was competitively selected after full and open competition. They were awarded a cost plus award fee contract to develop improved capabilities in support of effective Theater Battle Management and to integrate existing capabilities in the DII Common Operating Environment. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.										
(U) E. Schedule Profile										
			<u>FY 1999</u>			<u>FY 2000</u>		<u>FY 2001</u>		
			1	2	3	4	1	2	3	4
(U) TBMCS software Version 1.0.1										
(U) In-Plant Test										
(U) Version 1.0.1 Release										
						X				
(U) TBMCS software Version 1.1										
(U) In-Plant Test										
								X		
(U) Version 1.1 Release										
									X	
Note: * Denotes Completed Event; X Denotes Planned Event										
Project 674287			Page 7 of 20 Pages			Exhibit R-2A (PE 0207438F)				

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I			PROJECT 674287		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	System Integration and Development					33,120		0		0
(U)	System Engineering and Support					1,425		0		0
(U)	Total					34,545		0		0
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
LMMS	CPAF	Oct 95	TBD	TBD	31,307	31,946			0	63,253
SAIC (S/W INT) Hampton VA	CPFF	Mar 94	N/A	N/A	11,085				0	11,085
SAIC (ASOC/BSD) Hampton VA, Anchorage AK	CPFF	Feb 94	N/A	N/A	3,759				0	3,759
PARAMAX (APS) St Paul MN	CPFF	Mar 94	N/A	N/A	1,207				0	1,207
INEL (ASOC) Idaho Falls ID	CPFF	Oct 94	N/A	N/A	2,043				0	2,043
Logicon, Inc San Pedro, CA	CPFF	Jun 94	N/A	N/A	6,160	1,100			0	7,260
Miscellaneous	Various	Various	N/A	N/A	410				0	410
<u>Support and Management Organizations</u>										
MITRE	CPAF	Oct 94	N/A	N/A	6,948	502			0	7,450
TEMS	T&M	Various	N/A	N/A	3,910	923			0	4,833
Miscellaneous	Various	Various	N/A	N/A	2,978				0	2,978
<u>Test and Evaluation Organizations</u>										
46 TS	Project Order	Various	N/A	N/A	205	74			0	279
JTIC	MIPR	Various	N/A	N/A	77				0	77

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 2000
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BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT 674287
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	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development	55,971	33,046			0	89,017
Subtotal Support and Management	13,836	1,425			0	15,261
Subtotal Test and Evaluation	282	74			0	356
Total Project	70,089	34,545			0	104,634

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000	
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I				PROJECT 674288	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674288 Wing C2 System (WCCS)	3,847	0	0	0	0	0	0	0	19,975
<p>Note: With the fielding of TBMCS 1.0.1 in FY00, WCCS functionality will be integrated in TBMCS and further evolution of this functionality will be managed under project 4790, TBMCS</p> <p>(U) <u>A. Mission Description</u> This project includes development of mission critical application software for WCCS operating on commercially available hardware and system software. Wing commanders require an accurate, composite picture of their wing's total resources to effectively command, control, and manage their forces in support of their combat sortie generation and reporting responsibilities. Key functional areas (operations, maintenance, mission planning, intelligence, weather, etc.) use WCCS to support the wing commander in the mission execution and reporting process by exchanging critical command and control and intelligence information with functional counterparts located throughout the wing. The introduction of increasingly sophisticated weapon systems - with their need for and ability to produce large amounts of data - require an automated C2 system to bring meaningful, consolidated information to the Commander in near real-time. At many wings not yet upgraded with WCCS this information is still relayed over secure and unsecured telephones, radios, and other communications devices, as well as by runners to update multi-user status displays (grease boards) or hand written logs. These techniques have not changed substantially since World War II, and are cumbersome, error-prone, are subject to security compromise, and involve duplication of effort. Disparate programs have led to the proliferation of stovepipe systems which can not provide interoperability and do not adequately meet the needs of today's air operations. The WCCS project designs, develops, and installs an automated, standard wing-level C2 system that will be tailored to meet unique organizational requirements, provide interoperability, and reduce training and maintenance costs.</p> <p>(U) <u>FY 1999 (\$ in Thousands)</u> (U) \$2,922 Continued TBMCS software version 1.0 development. (U) \$299 Continued TBMCS v1.1 development. (U) \$626 Systems engineering and support. (U) \$3,847 Total</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$0 No further funding in this project. Further evolution of this functionality continues under project 4790, TBMCS. (U) \$0 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No further funding in this project. Further evolution of this functionality continues under project 4790, TBMCS. (U) \$0 Total</p>									
Project 674288									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2000
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BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT 674288
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(U) **B. Project Change Summary**

(U) **C. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) AF RDT&E									
(U) Other APPN									
See Other Program Funding Summary under project 4790, TBMCS. The summary under 4790 includes other program funding for CTAPS and WCCS in FY99 to provide a consolidated view of other program funding associated with the TBMCS program.									

(U) **D. Acquisition Strategy**

Electronic Systems Center (ESC), Hanscom AFB, MA manages the TBMCS program, including WCCS. Lockheed-Martin Mission Systems (LMMS) was competitively selected after full and open competition. They were awarded a cost plus award fee contract to develop improved capabilities in support of effective Theater Battle Management and to integrate existing capabilities in the DII Common Operating Environment. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.

(U) **E. Schedule Profile**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) TBMCS software Version 1.0.1												
(U) In-Plant Test				*								
(U) Version 1.0.1 Release						X						
(U) TBMCS software Version 1.1												
(U) In-Plant Test									X			
(U) Version 1.1 Release											X	

Note: * Denotes Completed Event; X Denotes Planned Event

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I			PROJECT 674288		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
					<u>FY 1999</u>	<u>FY 2000</u>			<u>FY 2001</u>	
(U)	System Integration and Development				3,221	0			0	
(U)	Systems Engineering and Support				626	0			0	
(U)	Total				3,847	0			0	
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
	<u>Contractor or</u>	<u>Contract</u>								
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
										<u>Total</u>
	<u>Product Development Organizations</u>									
	LMMS	CPAF	Oct 95	TBD	TBD	8,300	3,221			0
	SAIC	CPFF	Jan 94	N/A	N/A	5,000				0
	<u>Support and Management Organizations</u>									
	MITRE	CPAF	Oct 94	N/A	N/A	1,106	215			0
	TEMS & Misc	Various	Various	N/A	N/A	1,594	411			0
	<u>Test and Evaluation Organizations</u>									
	N/A									
(U) <u>Government Furnished Property:</u>										
		<u>Contract</u>								
		<u>Method/Type</u>	<u>Award or</u>							
	<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
										<u>Total</u>
	<u>Product Development Property</u>									
	Local Purchase	Various	Various	Various		128				0
	<u>Support and Management Property</u>									
	N/A									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE				
07 - Operational System Development		0207438F Theater Battle Management (TBM) C4I			February 2000	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
(U) <u>Government Furnished Property Continued:</u>						
<u>Test and Evaluation Property</u>						
N/A						
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Total</u>
		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Program</u>
<u>Subtotals</u>					<u>Budget to</u>	
Subtotal Product Development		13,428	3,221		0	16,649
Subtotal Support and Management		2,700	626		0	3,326
Subtotal Test and Evaluation						
Total Project		16,128	3,847		0	19,975

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I				PROJECT 674790		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674790	Theater Battle Management Core System (TBMCS)	0	25,799	20,258	17,968	17,526	20,236	20,638	Continuing	TBD
<p>Note: Starting in FY00 the RDT&E funding for CTAPS (4287), WCCS (4288), and CIS (27414F, 4773) will be combined in PE 27438F under project 4790, TBMCS. CTAPS, WCCS and CIS will be integrated in a single DII/COE compliant system and will be managed as a single project with the fielding of TBMCS 1.0.1 in FY00. NATO R&D funding was also transferred to this project in FY00 and FY 01.</p> <p>(U) <u>A. Mission Description</u> The Theater Battle Management Core Systems (TBMCS) develops force-level and wing-level command, control, and intelligence systems which utilize DoD's Defense Information Infrastructure (DII) common operating environment (COE). It links planning, intelligence and operations functions in an integrated battle management system for planning and executing the air war at the theater level. Functions supported include generation and dissemination of the air tasking order in support of the Joint Forces Air Component Commander (JFACC). Projects being integrated in TBMCS include the Contingency Theater Automated Planning System (CTAPS), Wing Command & Control System (WCCS), and Combat Intelligence System (CIS). Funds were added in FY00 and FY01 for NATO R&D to collectively enhance interoperability between the emerging NATO Air Command and Control System (ACCS) and TBMCS, and to share relevant research.</p> <p>(U) <u>FY 1999 (\$ in Thousands)</u> (U) \$0 Funds were reflected under CTAPS (4287), WCCS (4288), and CIS (PE 27414F, 4773) (U) \$0 Total</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$4,700 TBMCS software version 1.0.2 development. (U) \$15,559 Continue TBMCS software version 1.1 development. (U) \$2,240 Start TBMCS software version 2.0 development (U) \$1,000 NATO R&D (U) \$2,300 System Engineering (U) \$25,799 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$10,292 Complete TBMCS software version 1.1 development (U) \$6,166 Continue TBMCS software version 2.0 development (U) \$1,500 NATO R&D (U) \$2,300 System Engineering</p>										
Project 674790		Page 14 of 20 Pages				Exhibit R-2A (PE 0207438F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000	
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I				PROJECT 674790	
(U) <u>A. Mission Description Continued</u>									
(U) <u>FY 2001 (\$ in Thousands) Continued</u>									
(U) \$20,258 Total									
(U) <u>B. Project Change Summary</u>									
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) Other Procurement, AF, PE 27438F, WSC 832010	0	17,648							17,648
(U) Other Procurement, AF, PE 27438F, WSC 834520	79,882	47,150	51,844	55,600	54,704	55,880	56,896	Continuing	TBD
(U) RDT&E, AF PE 0207414F, CIS	13,635	0	0	0	0	0	0	0	21,754
(U) Other Procurement, AF, PE 0207414F, WSC 832010, Intelligence Data Handling System, Combat Intelligence System portion	12,439	0	0	0	0	0	0	0	23,610
(U) Other Procurement, AF, PE 0207431F, WSC 832010, Intelligence Data Handling System, Combat Intelligence System portion	2,858	4,650	0	0	0	0	0	Continuing	
<p>Note: This summary includes other program funding associated with CTAPS, WCCS, and CIS in FY99 to provide a consolidated view of other program funding associated with the TBMCS program. Please note, the other program funds associated with PEs 0207414F and 0207431F in FY99 are reported both here and as other program funds under the descriptive summary for PE 0207414F, Combat Intelligence System.</p>									
Project 674790			Page 15 of 20 Pages				Exhibit R-2A (PE 0207438F)		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2000
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BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT 674790
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(U) **D. Acquisition Strategy**
 Electronic Systems Center (ESC), Hanscom AFB, MA manages the TBMCS program. Lockheed-Martin Mission Systems (LMMS) was competitively selected after full and open competition. They were awarded a cost plus award fee contract to develop improved capabilities in support of effective Theater Battle Management and to integrate existing capabilities in the DII Common Operating Environment. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) TBMCS software version 1.0.1												
(U) In-Plant Test				*								
(U) Version 1.0.1 Release						X						
(U) TBMCS software version 1.0.2												
(U) In-Plant Test								X				
(U) Version 1.0.2 Release									X			
(U) TBMCS software version 1.1												
(U) In-Plant Test										X		
(U) Version 1.1 Release												X

Note: * Denotes Completed Event; X Denotes Planned Event

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY 07 - Operational System Development					PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I			PROJECT 674790		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	System Integration and Development					0		23,499		17,958
(U)	System Engineering and Support					0		2,300		2,300
(U)	Total					0		25,799		20,258
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
	<u>Contractor or</u>	<u>Contract</u>								
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Product Development Organizations</u>									
	LMMS	CPAF	Oct 95	TBD	TBD			23,369	17,828	Continuing
	<u>Support and Management Organizations</u>									
	MITRE	CPAF	Oct 94	N/A	N/A			2,300	2,300	Continuing
	<u>Test and Evaluation Organizations</u>									
	46TS	Project Order	Various	N/A	N/A			130	130	Continuing
						<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
						<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Subtotals</u>									<u>Total</u>
	Subtotal Product Development							23,369	17,828	TBD
	Subtotal Support and Management							2,300	2,300	TBD
	Subtotal Test and Evaluation							130	130	TBD
	Total Project							25,799	20,258	TBD

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2000		
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I				PROJECT 674802		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674802	Deliberate and Crisis Action Planning and Execution Segment (DCAPES)	0	8,963	11,536	12,225	10,279	10,485	10,693	Continuing	TBD
DCAPES funding in FY99 was under PE 33150F, project 4667.										
(U) A. Mission Description										
Deliberate and Crisis Action Planning and Execution Segments (DCAPES) are being developed as the next generation AF interface to the Joint Operational Planning and Execution System (JOPES). This effort is an evolutionary follow on to the Contingency Operations Mobility Planning and Execution System (COMPES), which is currently the Air Force interface to JOPES. COMPES is the legacy system ported from WWMCCS to GCCS in 1996 as a stop gap measure. DCAPES will replace the functionality of COMPES with modern relational databases, integrated-distributed database, and common and shared data consistent with the Joint vision for integrated C2. DCAPES is intended to be more tightly coupled with the range of planning support systems to provide a more effective crisis action planning capability for a wider range of operational scenarios. DCAPES provides a real time, two way interchange of manpower, logisitcs, and operational data between the Air Force and the warfighting CINCs. It matches people and airframes/weapons to the CINC's warfighting requirements.										
(U) FY 1999 (\$ in Thousands)										
(U) \$0		No activity (FY99 funding reflected in PE 0303150F)								
(U) \$0		Total								
(U) FY 2000 (\$ in Thousands)										
(U) \$5,512		DCAPES Increment 1 development, prototyping, coding, and internal testing								
(U) \$500		Government deployment and test support								
(U) \$500		DCAPES Increment 2 requirements definition								
(U) \$2,451		DCAPES Increment 2 development, requirements allocation, prototyping, and coding								
(U) \$8,963		Total								
(U) FY 2001 (\$ in Thousands)										
(U) \$10,637		DCAPES Increment 2 development, prototyping, coding, and testing								
(U) \$500		Government development testing and integration and interoperability testing								
(U) \$399		DCAPES Increment 3 requirements definition								
(U) \$11,536		Total								
Project 674802				Page 18 of 20 Pages				Exhibit R-2A (PE 0207438F)		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2000
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BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0207438F Theater Battle Management (TBM) C4I	PROJECT 674802
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(U) **B. Project Change Summary**
 All funding in project 4802, DCAPES was reported in FY99 under PE 33150F, project 4667. It was transferred to group it with other TBM C4I software development efforts intended to operate in the Defense Information Infrastructure Common Operating Environment.

(U) **C. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) PE 33150 (RDT&E, 4667, Global Command and Control System - AF)	9,122								9,122

(U) **D. Acquisition Strategy**
 DCAPES will be managed by Electronic Systems Center, Hanscom AFB, MA. In July 98, the DCAPES contract was awarded to the Raytheon, Computer Sciences Corporation, and Science Applications International team under Command and Control Product Line (CCPL) contracts awarded and maintained by Electronic Systems Center. The program uses an evolutionary acquisition strategy with a series of incremental software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to improvements in commercial technology.

(U) **E. Schedule Profile**

	<u>FY 1999</u>			<u>FY 2000</u>			<u>FY 2001</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Increment 1 Development	*											
(U) Government Acceptance Testing						X						
(U) DCAPES Initial Increment Fielded									X			

Note: * Denotes Completed Event; X Denotes Planned Event

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
07 - Operational System Development				0207438F Theater Battle Management (TBM) C4I				674802		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>		
(U)	Development Contract Effort					0	6,963	8,936		
(U)	Test Support					0	500	700		
(U)	Program Management Support					0	1,200	1,400		
(U)	Expeditionary Force Experiment					0	300	500		
(U)	Total					0	8,963	11,536		
Note: DCAPEs was previously funded in FY98 under PE 33152F, project 4485 and in FY99 under PE 33150F, project 4667.										
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Raytheon/ CSC/ SAIC	FP/LH with award fee	Feb 98	N/A	N/A	0		7,263	9,436	Continuing	TBD
<u>Support and Management Organizations</u>										
Mitre	CPAF						800	800	Continuing	TBD
TEMS	T&M						400	600	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
46 Test Sqdn	MIPR						500	700	Continuing	TBD
Note: DCAPEs was previously funded in FY98 under PE 33152F, project 4485 and in FY99 under PE 33150F, project 4667.										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					0		7,263	9,436	TBD	TBD
Subtotal Support and Management							1,200	1,400	TBD	TBD
Subtotal Test and Evaluation							500	700	TBD	TBD
Total Project					0		8,963	11,536	TBD	TBD