

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

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

**5 - Engineering and manufacturing development**

**0604609A - Smoke, Obscurant and Target Defeating Sys-Eng Dev**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	3336	7854	8153	12604	4295	5380	7358	0	50665
198 TARGET DEFEATING SYSTEM	0	330	350	349	399	5380	7358	0	14319
200 SMOKE/OBSCURANT SYSTEM	3336	7524	7803	12255	3896	0	0	0	36346

**A. Mission Description and Budget Item Justification:** U.S. Forces must be able to effectively neutralize and degrade energy weapon systems and electro-optical systems/smart weapons that operate in the full range of the electro-magnetic spectrum. This program element supports the conduct of System Development and Demonstration (SDD) of logistically supportable, high performance smoke and obscurant agents, munitions, and devices to improve the survivability of the combined armed force and complement combined weapons systems. Improvements are sought across the entire multi-spectral range from visual through infrared (IR) and millimeter wavelengths (MMW) radar for incorporation into self-protection large area and projected smoke systems. The smoke obscuration technologies supported by this program element enhance smoke systems as force multipliers. Program supports critical management studies and analyses that are conducted on a continuing basis to ensure that engineering and manufacturing development efforts are targeted against the emerging threat. Also supports the conduct of SDD in smoke and obscurant agents, munitions, and devices to improve the survivability of the combined armed force, complement combined weapons systems, and enhance force effectiveness and combat power. Systems developed in this PE primarily support the Legacy-to-Objective transition path of the Transformation Campaign Plan (TCP).

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<b><u>B. Program Change Summary</u></b>	FY 2001	FY 2002	FY 2003
President's Previous Budget (FY 2002 PB)	3428	7920	8002
Appropriated Value	3461	7920	0
Adjustments to Appropriated Value (Inflation)	0	0	0
a. Congressional General Reductions	0	-66	0
b. SBIR / STTR	-93	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-32	0	0
Adjustments to Budget Years Since FY2001 PB	0	0	151
Current Budget Submit (FY 2003 PB )	3336	7854	8153

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COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
200 SMOKE/OBSCURANT SYSTEM	3336	7524	7803	12255	3896	0	0	0	36346

**A. Mission Description and Budget Item Justification:** This project supports the conduct of System Demonstration (SD) in smoke and obscurant agents, munitions, and devices to improve survivability of the combined arms force, complement combined weapons systems, and enhance force effectiveness and combat power. Funding supports the development of millimeter wavelength (MMW) radar obscurant for installation on the M56 and any other required vehicle platforms. The MMW obscurant can obscure a target from emerging threat systems which use x-band, Ku-band, Ka-band, and W-band radar sensors. It can also create decoy signals to confuse these threat systems. This developmental effort supports the Legacy-to-Objective transition path of the Transformation Campaign Plan (TCP).

**FY 2001 Accomplishments:**

- 1600 MMW - Continued engineering design program, including logistical requirement studies and cost alternative studies.
  - 1061 MMW - Initiated assembly of engineering development and test prototype obscurant systems onto the M56 smoke system.
  - 300 MMW - Conducted analyses of alternative methods for the production and storage of MMW materials.
  - 375 MMW - Initiated toxicological and environmental studies required for materiel release of MMW materials.
- Total 3336

**FY 2002 Planned Program**

- 2700 MMW - Continues engineering design program including any necessary redesign following engineering design test, logistics program evaluation, and material evaluation.
- 1300 MMW - Conducts contractor engineering design test on components and system.
- 1300 MMW - Fabricates and installs two MMW systems on two M56 smoke systems for conducting Government engineering design tests (Estimated value \$150K each MMW prototype).
- 1000 MMW - Procures necessary MMW material for contractor and Government tests.
- 688 MMW - Continues toxicological and environmental studies.

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## FY 2002 Planned Program (Continued)

- 536 MMW - Initiates Government engineering design tests and conducts User Jury.

Total 7524

## FY 2003 Planned Program

- 500 MMW - Conducts Government engineering design tests.
- 2000 MMW - Continues engineering design program and any necessary redesign after tests.
- 1900 MMW - Fabricates and installs MMW systems on six M56 for production qualification and initial operational tests. (Estimated value \$150K each MMW prototype system)
- 1000 MMW - Procures MMW material for tests.
- 558 MMW - Continues toxicological and environmental studies.
- 1000 MMW - Conducts design effort for integration of MMW into candidate armored platforms and robotic systems.
- 845 MMW - Constructs and initiates testing on prototype systems for candidate armored vehicle or robotic platforms(Quantity and Cost to be determined).

Total 7803

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<u><b>B. Other Program Funding Summary</b></u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
RDTE, A Budget Activity 2, PE 0602622A, Project 552 Smoke/Novel Munitions	3840	3529	3675	3940	3904	4461	4605	Continuing	Continuing
RDTE,A Budget Activity 4, PE 0603627A, Smoke. Obscurant and Target Defeat	0	0	2438	10421	13590	6832	8821	Continuing	Continuing
Other Procurement Army, OPA3, M99103, M56 Smoke Generator	15287	23384	22966	23126	4898	9280	28530	0	139774
Other Procurement Army, OPA3, M99107, M58 Smoke System	4534	0	0	0	0	0	0	0	7939
Other Procurement Army, OPA3, G71300, M6 Discharger	0	0	2987	13464	3890	2966	987	0	26519

**C. Acquisition Strategy:** This project support the Millimeter Wave smoke generation system began engineering development in FY 2000 with a full and open competitive contract for engineering design, construction, and test of prototype systems mounted on the M56 smoke system. In FY 2003, a new effort will be initiated to design and test the integration of obscurant systems into other desired armored platforms. This effort will be guided solely by the selection of the specific vehicle platforms required to meet changing Army requirements and the Transformation Campaign Plan.

<u><b>D. Schedule Profile</b></u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
MMW - Milestone I/II, Program initiation							
MMW - Initiate RDTE competitive contract							
MMW - Conduct engineering design testing (Contractor)		3-4Q					
MMW - Conduct engineering design testing (Government/User Jury)		4Q	1-2Q				
MMW - Initiate construction of prototype systems on armored or robotic platforms			1Q				
MMW - Initiate engineering modeling and design efforts on candidate armored vehicle platforms			1-3Q				

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<b>D. Schedule Profile (continued)</b>	<b>FY 2001</b>	<b>FY 2002</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>
MMW - Construct prototype systems on armored platforms			4Q				
MMW - Conduct Pre-Production Qualification Test (PPQT)				1-3Q			
MMW - Conduct Initial Operational Test and Evaluation (IOTE)				2-3Q			
MMW - Conduct Milestone III and system acceptance				4Q			

## ARMY RDT&E COST ANALYSIS(R-3)

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MMW - Hardware Development	C/CPFF	Titan Industries, Deland, Florida	301	2411	1Q	4668	1Q	4393	1Q	0	11773	0
b . MMW - Armored or robotic system integration planning	In house	SBCCOM, APG, MD	0	0		0	1Q	300	1Q	0	300	0
c . MMW - Armored or robotic system integration	C/CPFF	Titan Industries, Deland, Florida	0	0		0		300	1Q	0	300	0
<b>Subtotal:</b>			301	2411		4668		4993		0	12373	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MMW - Environmental and Toxicological studies	In house effort	SBCCOM, APG, MD	0	374	1Q	525	1Q	558	1Q	0	1457	0
b . MMW - Human factors design efforts on other platforms	In house effort	SBCCOM, APG, MD	0	0		60	1Q	100	1Q	0	160	0

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II. Support Cost (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	374		585		658		0	1617	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MMW - Prototype evaluation	In house	SBCCOM, APG, MD	183	50	1Q	0		0		0	233	0
b . MMW - Engineering design testing - Contractor	C/CPFF	Titan Industries, Deland, Florida	100	0		1200	1Q	1200	1Q	0	2500	0
Subtotal:			283	50		1200		1200		0	2733	0

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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MMW - Project Management Personnel	In-house	SBCCOM, Edgewood, MD	312	501	1Q	1071	1Q	714	1Q	0	2598	0
b . MMW - Project Management Personnel for robotic or armored platforms	In-house	SBCCOM, Edgewood, MD	0	0		0		238	1Q	0	238	0
Subtotal:			312	501		1071		952		0	2836	0

Remarks: 7651

Project Total Cost:			896	3336		7524		7803		0	19559	0
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