

# ARCHIVED REPORT

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## Parametric Airborne Dipping Sonar (PADS) - Archived 5/2008

### Outlook

- U.S. Navy apparently has lost interest in fully developing and procuring PADS
- Producer Sonotech is unlikely to fund production itself without a definite buyer
- It is doubtful that PADS will ever enter full production
- This report will be archived in 2008

### Orientation

**Description.** The Parametric Airborne Dipping Sonar (PADS) is a helicopter-borne, all-digital dipping sonar used for mine countermeasures (MCM) and anti-submarine warfare (ASW).

#### Sponsor

U.S. Navy  
Naval Air Warfare Center Aircraft Division  
Business Development Team  
Bldg 3169, Unit 10  
22541 Millstone Road  
Patuxent River, MD 20670-5304  
USA

**Status.** System reached prototype development, integration, and testing. Further development and

production unlikely. U.S. Navy appears to have lost interest in developing and procuring the system.

**Total Produced.** One known prototype for development and testing.

**Application.** ASW deep water and littoral environments, mine detection and location/classification, and possible secure underwater communications. Potential platform is the U.S. Navy SH-60R helicopter.

**Price Range.** Indeterminate; however, a comparative system analysis once suggested a per-unit cost of \$1.5 million.

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## Contractors

## Prime

<b>Sonetech Corporation</b>	<a href="http://www.sonetechcorp.com">http://www.sonetechcorp.com</a> , 10 Commerce Park N, Unit 1, Bedford, NH 03110-6906 United States, Tel: + 1 (603) 222-2355, Fax: + 1 (603) 222-2098, Prime
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## Technical Data

**Design Features.** PADS is an all-digital dipping sonar that has a tighter beam width (for better accuracy) than current mission systems. It can possibly detect undersea objects at longer ranges, as well as in difficult littoral regions.



Parametric Airborne Dipping Sonar (PADS) during Seneca Lake Test

Source: Sonetech Corporation

## Variants/Upgrades

Only one model has been developed; there are no known variants or upgrades. It is unlikely the system will go into full production.

## Program Review

**Background.** The Parametric Airborne Dipping Sonar (PADS) project began around 1990 as a Small Business Innovative Research effort. In 1997, Sonetech Corporation offered an early demonstration of its technology and is currently the prime PADS development contractor.

### *U.S. Navy Never Seemed Fully Sold on PADS Idea*

Unfortunately, the U.S. Navy never seemed that keen on PADS. Although the Navy did believe that it was (and is) a technologically interesting idea, it still acquired programs more mature than PADS to fulfill its MCM and ASW missions. Such systems included the AQS series of towed mine detection systems, consisting of the AQS-20, the AQS-20X, and the AQS-22, all of which are expected to be in operational fleet service in the next few years or so.

Despite the Navy's lack of desire for PADS (and perhaps more importantly, its lack of willingness to fund development), the U.S. Congress liked the idea, and appeared to step in each year with necessary funding. In FY98, FY99, and FY00, Congress added funds for aircraft integration and flight demonstration. According to a January 1999 report to Congress by the Office of Naval Research, the Navy was willing to continue to develop PADS as long as Congress continued to fund it.

In FY00, Congress noted the significant potential of PADS technology against both mine-like and submarine targets following a successful Navy technology demonstration. However, PADS was not funded in FY01, nor was it submitted for consideration for FY02 and FY03.

In August 2001, it was reported that the Navy had asked Congress to reprogram funding for PADS into science

and technology accounts under the control of the Office of Naval Research, where it would be considered for future capabilities. The Navy apparently was pleased with PADS development and early demonstration, which had been targeted for the SH-60R helicopter platform, and believed better-controlled demonstrations were needed against a submarine target before any decision could be made to continue full development efforts.

Officials from Sonetech, PADS' prime developer, differed with the Navy's opinion on needing better demonstrations, saying PADS had substantially met the performance specifications set by the Navy. The Navy countered such claims by saying the system lacked maturity and had continuing technical problems that hampered substantive testing. A mission effectiveness study conducted by Johns Hopkins University sided with the Navy's opinion of PADS when it concluded that the theoretical PADS would not be a feasible replacement for current ASW and minehunting sonar systems at this time. Sonetech disagreed with the Johns Hopkins' opinion and asked for a more objective review.

Sonetech President Harvey Woodsum said, "The PADS system has substantially met the performance specifications developed for the company by the Navy" (*Inside the Navy*, "Navy Seeks to Shift Parametric Airborne Dipping Sonar to ONR," August 6, 2001).

According to FY08 U.S. Navy RDT&E Project Justification documents, a minor amount of funding was provided in FY06 (the last year of recorded funding) for completion of the engineering system design effort related to the "Physical and Theoretical Design Improvements to the Parametric Airborne Dipping Sonar" program.

## Funding

	U.S. FUNDING							
	FY06	FY06	FY07	FY07	FY08	FY08	FY09	FY09
	QTY	AMT	QTY	AMT	QTY	AMT	QTY	AMT
<b>RDT&amp;E (U.S. Navy)</b>								
PE0604216N								
Multi-Mission Helicopter Upgrade								
Project 1707								
MH-60R Dev: PADS	-	0.015	-	0	-	0	-	0

All \$ are in millions.

Source: FY2008 U.S. Navy RDT&E Project Justification (R-2a)

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## Timetable

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<u>Year</u>	<u>Major Development</u>
1990	PADS program start
1997	Sonetech demonstrates PADS technology
2000	PADS helicopter-borne at-sea test to discriminate bottom clutter
2006	Last known funding

## Worldwide Distribution/Inventories

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This was originally a **U.S. Navy** development effort. There are no known users at this time.

## Forecast Rationale

By most accounts it appears interest in the Parametric Airborne Dipping Sonar (PADS) by Sonotech Corporation has fizzled out. Neither the U.S. Congress nor the U.S. Navy seems willing to continue funding the effort, and Sonotech does not give the impression it is able to continue development on its own, especially given the firm's contention that the system already meets the U.S. Navy's original requirements and specifications.

With the U.S. pumping large sums of money into the military operations in Afghanistan and Iraq, as well as homeland security efforts, anti-submarine warfare is a low priority these days. While PADS should not be considered a total write-off, it probably has been shelved for awhile until the threat environment changes. Any potential PADS sales are more likely to develop from international arenas than from the domestic U.S. market.

## Ten-Year Outlook

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No production is predicted, and thus the forecast chart has been omitted. Barring any sudden surge in activity, this report will be archived in 2008.

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