

Military Applications & Requirements for Air-Acoustics

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Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE 25 AUG 1999		2. REPORT TYPE N/A		3. DATES COVERED -	
4. TITLE AND SUBTITLE Military Applications & Requirements for Air-Acoustics				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Sanders, a Lockheed-Martin Company				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited					
13. SUPPLEMENTARY NOTES DARPA, Air-Coupled Acoustic Microsensors Workshop held on August 24 and 25, 1999 in Crystal City, VA., The original document contains color images.					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 4	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Potential Military Applications

Applications:

- Situation Awareness
- Cueing & Targeting
- Land Mine Alternatives

Platforms:

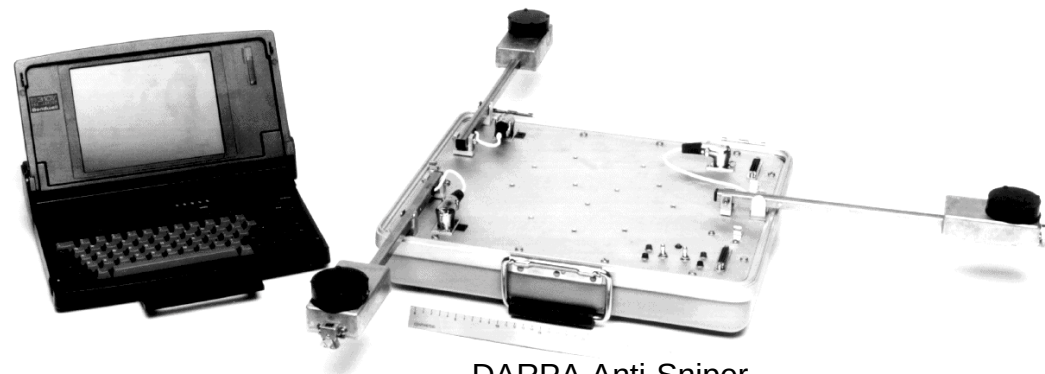
- Vehicle-Mounted
- Unattended Ground Sensors
- Man-Portable



NVL Hunter Sensor Suite



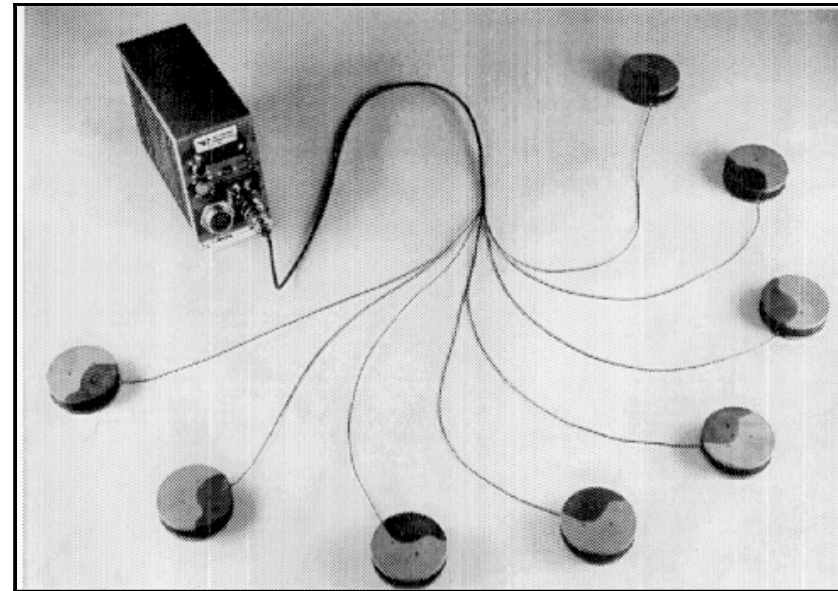
DARPA MIUGS
ARL Distributed Sensor Networks



DARPA Anti-Sniper
NSWC MANPADS

Typical Transducer Requirements

<u>Requirement</u>	<u>Value</u>
Type of response	Pressure
Frequency range	7-500 Hz
Equivalent self-noise	$50-20\log(f)$ dB//1Hz
Equivalent accler. sens.	$64/f$ Pa/ms ⁻²
Pressure tolerance	0-2 atm.
Operation temperature	-40 - 60 °C
Immersion tolerance	1 m
Nonlinearities	-85dB
Amplitude stability	$0.1f$ %
Phase stability	$0.06f$ °
Maximum operating SPL	120dB



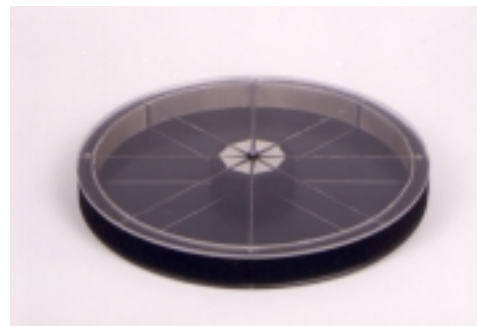
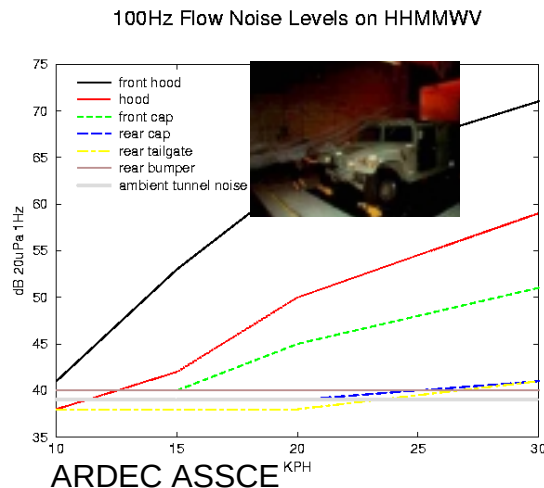
Adaptive Noise Cancellation Challenges

Platform Self-Noise

- more microphones
- ANC algorithms with more accurate transfer function models

Wind Noise

- adaptive algorithms
- multi-microphone windscreens



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