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PACIFIC ADVANCED TECHNOLOGY

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March 4, 1994

Jim Buss ONR 4412
Office of Naval Research
800 North Quincy Street
Arlington, Virginia 22217-5660

Ref: Contract N00014-94-C-0005

Dear Jim:

Please find enclosed a copy of R&D Status Report No. 2 for the report period from Feb 11, 1994 to March 4, 1994.

Sincerely,
Pacific Advanced Technology

Michele Hinnrichs
President

Enc.: (1) 1copy of R&D Status Report No. 1.

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1.0 TECHNICAL PROGRESS DURING REPORT PERIOD

1.1 OBJECTIVE

1.1.1 SCOPE

The objective of this program is to demonstrate, using computer modeling, the expected performance of an IMSS in several Navy applicable scenarios, missile seekers, missile warning, surveillance, clutter rejection, target discrimination non-cooperative target identification and identification of friend or foe.

1.1.2 WORK PLAN

Pacific Advanced Technology will use its best efforts to perform the following task;

- Determine the Naval warfare requirements and scenarios.
- Based upon task 1 a first order design will be performed.
- Analysis and modeling of this design will be done to determine performance predictions.
- Evaluation and trades will be done to determine the appropriate technique for spatial filtering
- Final report will be written
- Phase II proposal will be submitted.

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PROGRESS DURING THIS REPORT PERIOD

During this report period we have accomplished the following tasks:

- A briefing of the IMSS sensor concept and capabilities was given to the JMSP working group held at NRL on February 24, 1994. The objective was to determine if the IMSS system could be used to gather data on targets and backgrounds that are of interest to the JMSP group. There was considerable interest in using the IMSS sensor as a field measurements and data collection sensor. The question is where will the funding come from.
- A proposal was written to develop the IMSS sensor into a LWIR version. Also the cost to take the existing system to the field and gather useful signature and background data was evaluated.
- It was determined that there are several Naval scenarios where an IMSS sensor could be used. Tactical missile warning, shipboard IRST, and chemical and biological agent detection. It was also determined that the scenario of most interest for the phase II program is IMSS as an IRST auxiliary sensor for target ID. It is also possible to add the capability to IMSS for acoustic signatures measurements. This can be done by using a FPA with area of interest readout capability. This will allow detector readout at a frequency high enough to measure acoustic signals from distant targets. In this manner both spectral and acoustic information can be used to target ID unresolved non-cooperative targets.

OBJECTIVES FOR NEXT REPORT PERIOD

The objectives for the next report period are the following:

- Continue the modeling of IMSS for shipborne IRST applications.
- Start writing the phase II proposal.

COST AND FUNDING STATUS REPORT

The budgeted amount for this phase I program is \$61,428.00. A DD250 for \$12,285.00 is submitted with this report. The amount spent to date is \$24,570.00, 40% of the budgeted amount. We are within budget for all categories and we are on schedule for everything.