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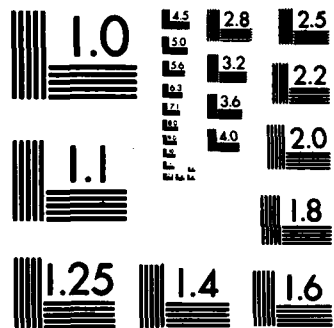
FINAL REPORT FOR CONTRACT N00014-81-C-2293(U) MISSION  
RESEARCH CORP ALEXANDRIA VA W M BOLLEN 12 APR 83  
MRC-8202 N00014-81-C-2293

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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

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April 12, 1983

Naval Research Laboratory  
4555 Overlook Avenue, S.W.  
Washington, D.C. 20375

Attn: Dr. Michael Read  
Code 4740

Subject: Final Report for Contract N00014-81-C-2293

Reference: MRC #8202

Dear Dr. Read:

In accordance with the DD 1423 for the subject contract and in further compliance with Section F of that contract, this letter constitutes the final report for Contract N00014-81-C-2293. All tasks listed in the contract have been successfully completed, and the key results are summarized below. More in-depth information may be found in NRL Memorandum Report 4865.

*go to the author's file*

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The breakdown plasma was observed to travel towards the source with a velocity of  $4.6 \times 10^6$  cm/s. This was a result of the formation of a sufficiently dense plasma to reflect the incident microwaves. This decoupling mechanism makes localized heating of air by microwaves extremely difficult, if not impossible. Rapid heating of the air is further minimized by the large amount of energy trapped by nitrogen vibrational states. These states "lock-up" energy for long periods of time, preventing its transfer to kinetic energy. Observation of the

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for public release and sale; its  
distribution is unlimited.

**April 12, 1983**

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Sincerely,  
W. Michael Boll

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