

# NASA TECH BRIEF

*Lyndon B. Johnson Space Center*



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## **Table-Lookup Algorithm for Pattern Recognition: ELLTAB [Elliptical Table]**

### **The problem:**

Conventional classification methods of remotely-sensed multispectral scanner data require a great amount of central processing unit (CPU) time.

### **The solution:**

The computer program ELLTAB has been developed which classifies remotely sensed data approximately 30 times faster than conventional methods.

### **How it's done:**

The program applies an advanced table-lookup approach to pattern recognition. The essence of the table-lookup approach is that at classification time a remotely sensed unit, or pixel, is assigned to a category by merely looking up its channel readings in a four-dimensional table, as opposed to making the lengthy calculations required in a maximum likelihood computation.

The table-lookup approach makes it possible to process multispectral scanner data, using a mini-computer (i.e., a low-cost, small-scale, general-purpose digital computer). Results from ELLTAB are shown to be of the same quality as that received from LARSYS III classification (NASA Tech Brief B75-10235).

### **Notes:**

1. The ELLTAB program, which has been tested on the UNIVAC 1108 and the Varian 620F mini-computer, is written entirely in FORTRAN and operates in batch or demand mode.
2. Inquiries concerning this program should be directed to:

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