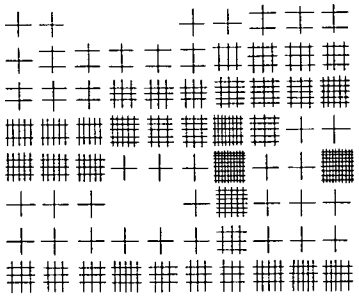
NASA TECH BRIEF

Density Trace Made with Computer Printout



The problem: Although present computer printers can present scientific data in the form of a density trace in which character shading is proportional to data magnitude, they are limited to standard alphameric characters. Because of their nonuniform shapes, the variations in print density are not true representations of data magnitude.

The solution: A special drum for a computer-controlled printer provides uniformly shaped characters and evenly spaced variations of print density that precisely reflect data magnitude.

How it's done: The special drum is provided with horizontal lines (1, 2, 3, 5, or 8 per character) and vertical lines (1, 3, or 5 per character). These characters may be printed singly or in combination by overprinting. To provide deeper shadings, additional sets of identical characters are provided in an offset mode 1/3 space left, right, up, or down. This results in about 180 different combinations, ranging from minimum density (blank) to maximum, which involves the densest horizontal and vertical characters plus their corresponding 1/3 space offset characters.

Notes:

1. Actual order of density may be initially determined by means of a reflectance densitometer which will show the number of evenly spaced combinations required for the data under investigation.
2. Full intensity range may be covered by use of only 20 drum segments if character combinations are efficiently used. Since the standard drum has 64 segments, a full alphameric character set plus several special symbols may be included on the same drum, thereby removing it from a limited specialty category.
3. This invention would be useful in the plotting of temperature profiles, geographical contours, pressure gradients, electric potential gradients, and magnetic field configurations.
4. Inquiries concerning this invention may be directed to:

   Technology Utilization Officer
   Goddard Space Flight Center
   Greenbelt, Maryland, 20771
   Reference: B65-10200

Patent status: NASA encourages the immediate commercial use of this invention. It is owned by NASA and inquiries about obtaining royalty-free rights for its commercial use may be made to NASA, Code AGP, Washington, D.C., 20546.

Source: Meredith Wilson
(GFSC-322)
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