

October 1966

Brief 66-10442

# NASA TECH BRIEF



NASA Tech Briefs are issued to summarize specific innovations derived from the U. S. space program and to encourage their commercial application. Copies are available to the public from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

## An Improved Method for Testing Performance of Vidicons During Vibration

### The problem:

To devise a method for checking the performance of vidicons in mechanical vibration tests. Previously, performance was tested by storing a fine-detail test pattern on the photosensitive surface of the vidicon by means of a light source and lens system. The vidicon with the stored image was then placed on a vibration table and the reading beam turned on while the tube was being vibrated. With this method, however, the tube had to be moved for each test and was limited in resolution due to the distance between the overlay used to produce the image and the photosensitive surface.

### The solution:

Modulate the vidicon electron beam with an external signal during the "write" period thereby storing the image on the vidicon face. No optical test pattern or lens system is employed as was the case in the previous method.

### How it's done:

The photosensitive surface of the vidicon is first primed by exposing it to light. The test pattern is then stored on the primed surface by picking it up on an auxiliary camera tube and transferring it after amplification into the tube under test as video modulation of the control grid during scanning. A second method is to produce black and white bar patterns which are generated by using variable frequency scan generators

with no video modulation. The photosurface is then scanned in the normal manner and the video information displayed on a cathode ray tube or display storage tube. Depending on the test requirements, the desired mechanical vibration may be applied during the storage period, the readout period, or during the entire sequence. Comparison of results obtained during a still condition and during various modes of vibration then yields the performance capabilities of the vidicon.

### Notes:

1. A previous method of testing degradation of performance is described in NASA Tech Brief 66-10042, "Vibration Tests on Vidicons Made by Improved Method," February 1966.
2. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer  
Jet Propulsion Laboratory  
4800 Oak Grove Drive  
Pasadena, California 91103  
Reference: B66-10442

### Patent status:

No patent action is contemplated by NASA.

Source: B. R. Corson  
of Hughes Aircraft Company  
under contract to  
Jet Propulsion Laboratory  
(JPL-SC-113)

Category 01