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# NASA TECH BRIEF

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## Pocket-Sized Tone-Modulated FM Transmitter



Figure 1. Remote Transmitter

#### The problem:

To provide an individual with an easily operated means of communicating a choice of simple signals to a nearby receiver.

#### The solution:

A pocket-sized crystal-controlled transmitter, as shown in Figures 1 and 2, with an integral loop antenna, is frequency-modulated by crystal-derived

This document was prepared under the sponsorship of the National Aeronautics and Space Administration. Neither the United States Government nor any person acting on behalf of the United States tones. It transmits the tone-modulated frequencymodulation (FM) to a narrow-band receiver/detector.

#### How it's done:

Pressure of a button on the transmitter causes generation of a tone. The tone modulates the FM transmitter which in turn radiates, by way of the enclosed loop antenna, through the radio-frequency-transparent wall of the transmitter's case to the receiver. The (continued overleaf)

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unit is powered by a 9.8-v. mercury battery housed in the case. The signals are so extremely stable that a very narrow detector bandwidth may be used. The advantage over a voice channel is significant. **Notes:** 

- 1. Designers and users of miniature remote radiocontrol systems may be interested.
- 2. Requests for further information may be directed to: Technology Utilization Officer

NASA Pasadena Office 4800 Oak Grove Drive Pasadena, California 91103 Reference TSP69-10725

### Patent status:

Inquiries about rights for commercial use of this invention may be made to NASA, Code GP, Washington, D. C. 20546.

Source: L. A. Couvillon et al. of Caltech/JPL under contract to NASA Pasadena Office (NPO-11180)



Figure 2. Transmitter and Modulator Circuits

Category 01