Abstracts

Microwave Traveling-Wave Tube Millimicrosecond Pulse Generators

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For some time, short pulse techniques have played a useful part in the microwave art. In order to obtain better resolution, equipment for generating and viewing microwave pulses about six millimicroseconds long was developed and described previously. The regenerative pulse generator in that equipment was rather complex and difficult to build and adjust. A much simpler generator of pulses with about the same time duration is now being used. It produces short pulses by properly gating a conventional microwave signal source with a traveling-wave amplifier having suitable transient voltages applied to both its helix and its beam-forming electrode. It is easier to construct and operate, requires fewer components, and gives a more stable output. It can be used at any frequency where a signal source and a traveling-wave amplifier are available. The pulse frequency can be set anywhere within the amplifier bandwidth. Both generators are described and compared. Equipment for receiving, displaying, and measuring the pulses is also briefly discussed. Pulse shapes and resolutions are shown on oscilloscope photos.

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