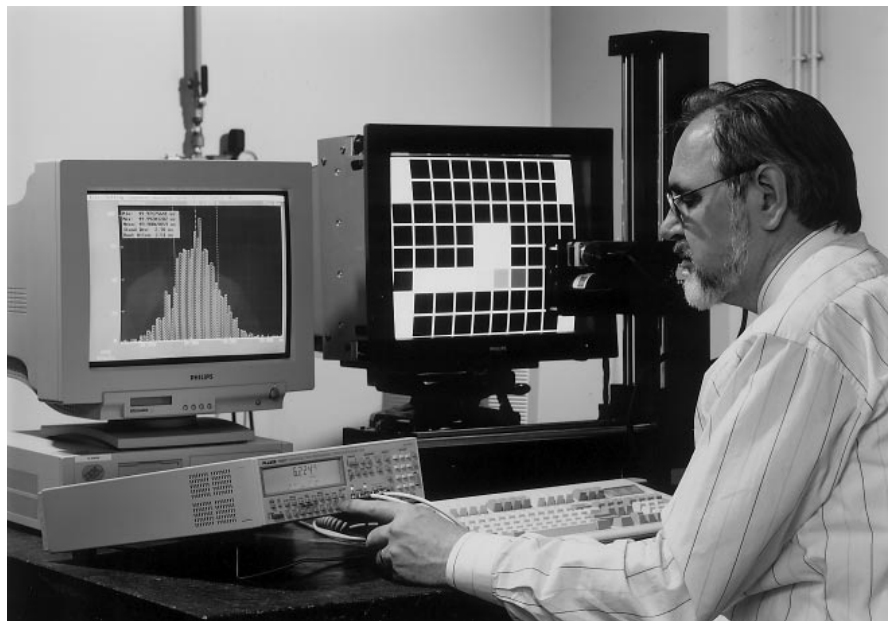


## PM 6681 Timer / Counter / Analyzer and TimeView™ Software Video Jitter Measurement

### Application Note

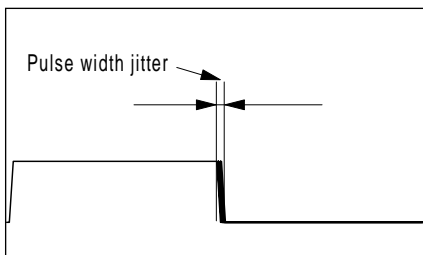
Video monitors and large-screen TV sets demand higher picture quality. The bigger screens, greater number of lines and smaller pixels mean that minor errors caused by timing jitter and the effects of variations in line width and shift will be visible on the screen. This application note describes the measurement of jitter in video monitors for X-ray applications. Jitter can be generated in the X-ray tube, the electronics and the display components of the monitor.

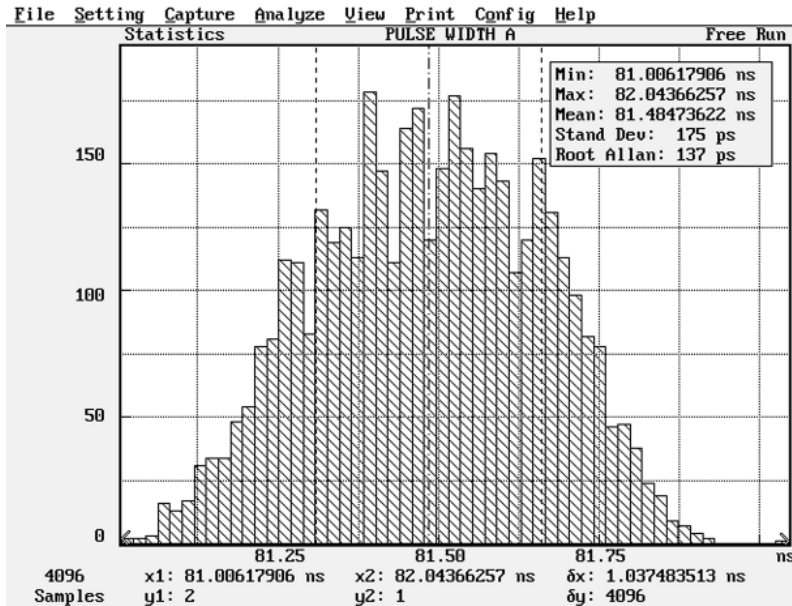
The Fluke PM 6681 counter/timer/analyzer with TimeView (time and frequency domain analysis software) measures the jitter that is generated in the electronics. This counter offers leading-edge performance for cal lab, R&D and systems use.



Jitter is the cycle-to-cycle variation of a periodic event. The variation may be in time, period, pulsewidth or time interval. Examples are the periodic variations of a computer clock

oscillator or clock-to-data jitter. A large amount of jitter can sometimes be detected on analog scopes, and is seen for example as a fuzzy edge of a pulse.





Jitter on a video display appears as 'haze' around the single dot to be displayed. To measure the jitter, you need to make a large number of single pulsewidth measurements, and statistically process the samples to obtain the max., min. and standard deviation values from the samples. The  $\Delta(\text{max.} - \text{min.})$  is called the peak-to-peak jitter, but normally the most important measure is the RMS jitter (standard deviation). An oscilloscope can indicate peak-to-peak jitter but never RMS jitter. TimeView can accurately calculate both types of jitter, and can also display the distribution of the actual measurements in a distribution histogram. Such a histogram may help to reveal the nature of the jitter. Random jitter gives a Gaussian distribution, as the example shows.

#### Fluke Corporation

P.O. Box 9090, Everett, WA 98206

#### Fluke Europe B.V.

P.O. Box 1186,  
5602 BD Eindhoven,  
The Netherlands

For more information call:

In the U.S.A.: (800) 443-5853

or Fax: (425) 356-5116

In Europe/M-East:

+31 (0)40 2 678 200

or Fax: +31 (0)40 2 678 222

In Canada: (905) 890-7600

or Fax: (905) 890-6866

From other countries:

+1(425) 356-5500

or Fax: +1 (425) 356-5116

Web access: <http://www.fluke.com>