

# field engineering news

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## Measurement Displays —

# Product Familiarity Breeds Success in OEM Monitor Sales Efforts

By  
**Dennis Chamberlin**  
Sales and Application Engineer  
Measurement Displays

Several Tektronix engineers are benefiting from the rapid growth of the OEM display monitor business — a business characterized by large orders which tend to repeat regularly. Also, a business where, once OEM customers start to use Tektronix equipment, several factors operate to resist competitors' efforts to displace our business. These include the costs of technically qualifying and evaluating a new instrument, making the necessary mechanical changes to accommodate a new configuration and, of course, the possibility of less favorable contract conditions in a two-supplier situation.

Obviously such accounts are worth going after; but choosing the appropriate product to lead with is an important decision, and should be made early.

As might be anticipated, Tektronix' closest competitor in the business of selling OEM display monitors is Hewlett-Packard. Tektronix makes

five display monitors of the X-Y, non-storage variety which compete head-on with HP's four products (see table). As can be seen by the comparisons, we have HP well covered in both performance and price. This position does nothing to take the heat out of the selling situation, but it does mean that we can respond with products that compete effectively with any of theirs.

Our friends in Colorado Springs go after the OEM monitor business with vigor, and you can expect them to be early on the sales scene. Striking first with a Tek instrument that best matches the prospective customer's application can generate important sales momentum in your favor. This means that you must be thoroughly familiar with the differences between display monitors — differences that are important but not immediately obvious to the uninitiated.

### Know your application

In OEM applications, the monitor usually constitutes just one part of the customer's system, whether rackmounted or enclosed in a cabinet with other equipment. The monitor is most often used to display either waveforms, characters, or images.

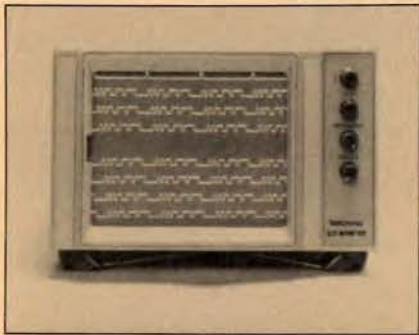
Let us look at these different applications in order of their increasing performance requirements.

Depending upon the application, one or more of the following monitor characteristics will be predominant in the user's considerations: (1) *display brightness*, (2) *resolution*, (3) *cost*, and (4) *mechanical configuration*.

### Waveform displays

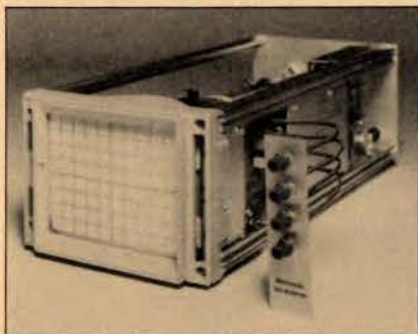
Waveform information can usually be displayed by monitors of only modest brightness and resolution. The 620 usually works exceedingly well in this kind of application, and HP will have an uphill task to overcome our price advantage in this price-sensitive application area (OEM's can get the option 20 in lots of 100 for about \$650 each). Mechanical considerations however, are also important. The 620 is about 20" long, due to the length of the CRT. Watch out for the HP 1340A, which can be configured for about a 1/3 rack width compared to a 1/2 rack width for the 620 and our other monitors. The reduced width may be important to the customer, but you can meet this threat with the 620 Mod BD, priced a little higher, but still lower than the 1340A.





Tek 620 Monitor fits most OEM requirements for inexpensive waveform displays.

Most customers who wish to put the 620 in a system cabinet will have questions about mounting points. We believe we have answers that will suit almost any need. The Measurement Displays business unit will soon publish more material on this subject, supported with drawings and sample parts. Incidentally, if the customer doesn't raise these questions, consider raising them yourself. When the customer looks at an HP monitor, he can easily visualize how it can be mounted. With the 620, mounted in our modular mechanical package, satisfactory answers must be pointed out. The customer should definitely be told that additional support is available from us, particularly in the case of the 620.



620 Mod BD meets competition where reduced rack-width is an important mechanical requirement.

#### Alphanumeric displays

Alphanumeric displays usually require more resolution than do waveforms. If many characters are present in the proposed display, duty-cycle considerations dictate that the monitor should have good brightness capability as well.



Absence of halo and good dynamic range in z-axis make Tek's 624 and 608 natural choices for imaging systems like this ultrasound diagnostic system.

(Incidentally, extra brightness can be surprisingly effective in overcoming the limitations of screen size.) So, unless the characters are large and few in number, these requirements suggest a step up to the 624.

#### Imaging displays

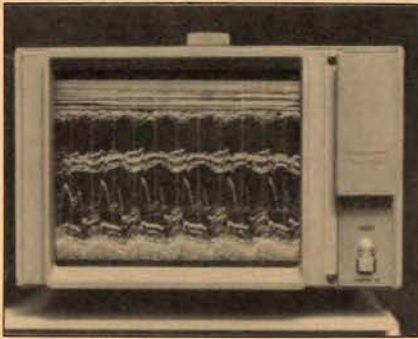
The most severe performance requirements on display monitors are found in imaging applications, where the monitor is used to display what amounts to a "picture" of some kind. Of course, good resolution is required in these applications, but brightness is especially important, since the available brightness is spread over the entire screen. Also, much of the information transmitted to the monitor is in the form of gray-level (beam-intensity) changes; therefore, the monitor must have a good dynamic range in the Z-axis (good brightness and good "darkness"). The dark end of the gray scale is limited by reflected ambient light, and in the case of mesh-type CRT's, electron halo. A contrast-enhancing filter (smoke gray) will help overcome the reflections, and is an accessory HP omits from many of its display products.

In some OEM systems, the primary function of the customer's entire system (which may be priced in the \$100K range) is to produce a high-quality image. Anything that makes a visible improvement in the image is considered valuable so that cost is seldom a big factor. The 608 is our choice offering here, and is noticeably superior to the 1332 on a side-by-side basis. A special feature of the 608 and 624 is the lack of halo in the CRT, which improves the gray-scale response even more than its extra brightness would suggest. If you can show the customer that this extra performance is valuable to him, you've won the contest. HP can't offer it!

#### Special high-resolution applications

There are some special high-resolution imaging applications where brightness requirements are relatively modest, but resolution is highly important. In almost all of these applications a monitor-camera combination records the CRT image on film. Examples of systems that use this technique include scanning electron microscopes (Perkin-Elmer) and medical imaging devices (Ohio Nuclear). Monitors used in these





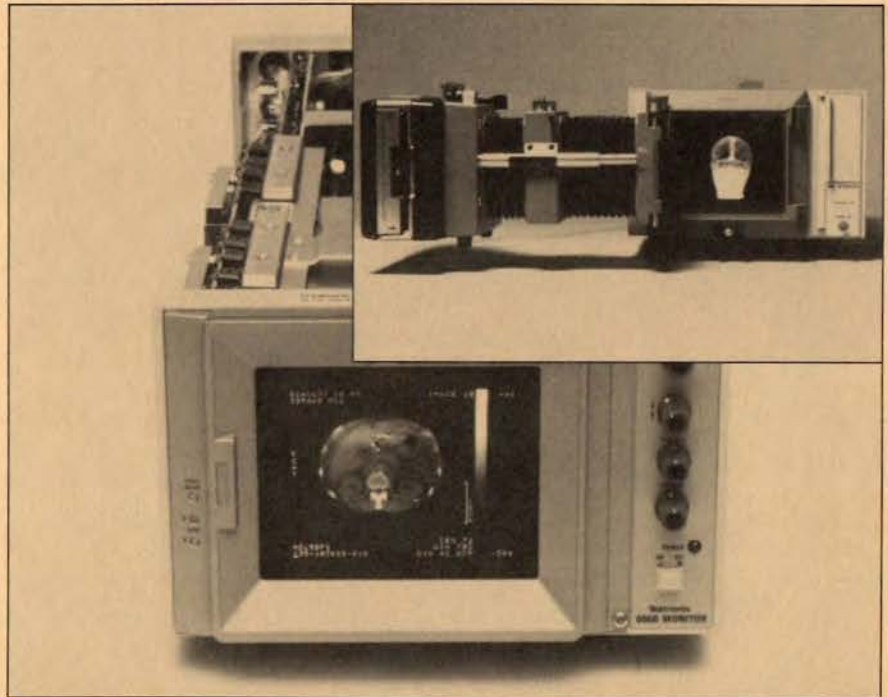
Echo display generated by ultrasound diagnostic system. Parameters of periodic waveforms reveal significant data on patient's heart function.

systems are seldom found in direct-viewing applications. The 606A and 606B, which both use meshless CRT's and dynamic focus-correcting circuitry to produce a uniformly small spot over the entire face of the CRT, are the preferred choices for these applications.

Competitively, the 606A goes up against HP's 1333A. The catalog specs and prices are roughly the same, so the customer may need a careful side-by-side comparison to see the performance edge of the 606A. It seems to consistently deliver a better image than the 1333A, due to better control of the spot size toward the CRT corners.

The 606B provides the best resolution available in an X-Y monitor. The competitive situation is interesting because HP's 1336S specifies a slightly better spot size in their catalog. However, customers have been unanimous in their opinion that better images are produced by the 606B. Better corner focus, again, and the superior brightness of the 606B account for these results.

Demonstrating monitors can be surprisingly tricky. If your customer makes a side-by-side comparison, it is vitally important that the test conditions be exactly the same for both monitors to avoid getting the wrong results. These include brightness, exposure time, film type, cameras, signal levels and many others. Don't be reluctant to get involved in these subjects. They must be dealt with to ensure success with your OEMs.



Superior resolution of 606A and 606B Monitors yield clear photos from medical imaging systems.

Measurement Display Marketing will not only provide hardware support, but will gladly assist in answering the customer's application questions. We specialize in OEM accounts and sometimes make

supporting calls with sales engineers. So don't hesitate to call on Measurement Display Marketing for technical support if you think we can help. ■

Tektronix	HP	Significant Performance/Feature	Tektronix Competitive Position	
			Performance	Cost
606A	1383A	High Resolution	Better	About Same
606B	1336S	Very High Resolution	Better	Lower
608	1333A	High Brightness	Better	About Equal
624	1372A	Mid-Range Performance	About Equal	Lower
620	1340A	Low Cost	About Equal	Lower