Wide Format Inkjet Printers

News and Views from
Graphic of the Americas Trade Show, 2004

Contents

Caption for front cover photography: General view of GOA trade show, 2004.

Abstract

GoA is held each year in late January in Miami. The focus is on printing and prepress. Printing includes inkjet printing, quick-print such as Xerox laser printers, small offset presses, and variable data digital presses. Practically no digital cameras and few scanners: the tradition in most trade shows is to forget, or ignore, how to create good input for eventual output on the press. Trade shows concentrate on the final product: the printed sheet. Input is assumed to appear on its own, which of course is totally unrealistic. So you have to wait until PMA, Photokina, or PhotoPlus East trade shows to learn about input, from digital cameras and scanners.

Wide format inkjet printing is well represented but GoA is not on par with PMA, ISA, SGIA, Photokina, or DRUPA, where practically all wide format brands are well represented.

No Mimaki printer at GoA, as though Latin America was not a market for them. One dealer had a Mutoh but no Mutoh booth nor major presence. Another dealer had two Roland printers but was also selling DGI and Seiko. No Epson booth either.

The consensus was that fewer people attended this year. Despite the low turnout the trade show floor had hundreds of booths and thousands of visitors. Just not as crowded as before.

Encad

Kodak had a subdued booth; minimalistic decoration; a monumental decline from the grand Encad booths of previous years of former glory.

Three printers were shown:
- Encad's current CAD printer
- Encad NovaJet 880 flatbed
- Encad VinylJet

The VinylJet lays down substantial quantities of ink so banding is not expected. The ink is then bonded to the special material by heat. You can't print on canvas or low-cost after-market materials. The substrate has to be certified for the specific ink and heater process of the VinylJet.

Encad NovaJet 880 flatbed print

Downsides of the VinylJet are
- Ink is costly
- Ink laydown is high
- Printer is slow due to need for massive heating
- Electricity cost may be substantial: printer uses 220 current.
- Printer accepts media only 36" wide
- Requires special media, and limited to vinyl.

I thank a colleague in the industry for alerting me to the voracious appetite of any printer heater for costly electricity. The same was said about UV-curable ink printers at the recent IMI conference in Phoenix. Electricity is not free.

Tidbits of information were available at Graphics of the Americas on the upcoming Encad NovaJet 1000i, to be presented at PMA in mid-February. We reveal these in our new "Quick Peek" FLAAR Fast Facts, available at no cost from FLAARtest@aol.com.

The Encad 736 had splotchy output, like from a Xaar piezo head on cheap vinyl. The photograph selected by either Encad or Kodak was lousy to begin with: the image of orchids had been oversharpened. Why don't these million dollar companies (especially Kodak, a photo company to begin with) get some professional quality images to begin with.

Encad T200+ appeared to print bright colors quickly on lightweight inexpensive paper. No banding. The image was photo quality and rather nice. We compare and contrast printers of this class in the FLAAR Series on printers for CAD and GIS.

Encad 880 showed great detail on panoramic photos on poster board material.

Canon

Canon had no booth; unlike last year, no Canon in CGS booth either. One reseller had an imagePROGRAF 7200. When speaking with people who know the various printers, the general consensus is that the new Canon printhead (in the 7200, 7250, and 8200) is the most sophisticated printhead on the market today.
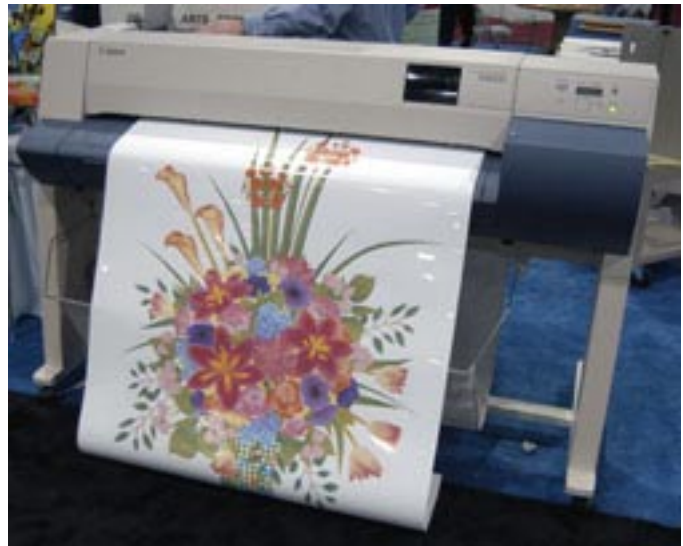
Canon imagePROGRAF W8200

ColorSpan

ColorSpan produces industrial strength printers for commercial production. Although many smaller ma and pa shops and even individually owned print shops have ColorSpan printers, these are machines for mass production of brightly colored signage. The model X-12 is the mature version of what first started as the XII, then evolved into the Mach 12, and based on what users asked for in features, was developed into the X-12. In other words, the Mach 12 has everything that owners asked to be added to the XII and Mach 12.

We have both those models at FLAAR and use them daily. Since these earlier models do fine with the daily grind, to have the next generation X-12 with advanced features and

ColorSpan X-12 printer

minus the occasional quirk of the earlier models would be a real asset. In other words, with the X-12 you are not on the bleeding edge like the Kodak 5260, which was so innovative that neither the media feed system nor the printheads functioned as intended. First generation printers (like the CrystalJet) tend to be filled with unresolved mechanical problems. The X-12 has five years of refinements based on feedback from experience.

- X-12 60" is $23,995
- X-12 72" is $26,995

ColorSpan printers distinguish themselves from all other brands in the presence of color management tools physically on-board the printer.

The ColorSpan 72s was shown with samples printed on "Sihl Weather Pro," a low cost paper for solvent ink that had a high quality appearance.

ColorSpan is also showing samples of décor printed on canvas with solvent ink (from the 72s). Since the rough weave of the canvas hides the size of the ink drop you only need about 300 dpi. The advantage of solvent ink on canvas is that you don't need coated canvas.

ColorSpan 72s solvent ink printer

Epson

Epson had no booth, at least none that I noticed in three days. A few Epson 7600 printers were in other booths, but practically none were printing or even turned on (this is usually to save money on costly ink and expensive media). A lonely Epson model 4000 was not functioning; the booth attendant said "there were no drivers finished yet." Of course we know that the 4000 does work, but it was a revelation that one booth clearly indicated that it was not yet ready for big time.

Epson 4000 printer

Mimaki

No Mimaki booth; did not notice a single Mimaki printer or dealer anywhere. Latin America must not be a focus for this company. Too bad, since Mimaki printers are considered to be among the best available.

Roland

No Roland booth; only one reseller. Had a Pro II SolJet, exhibiting slight banding. Banding is a bugaboo that has shadowed Roland for years. The Pro II is not as prone as earlier models, but it still occurs. We saw no banding on any Epson printer in the show.

Roland SolJet printer

Mutoh

No Mutoh booth; only one reseller. Showed an Outdoor Falcon II. Price is $29,995. 220 milliliters of ink is $75. A bulk ink system from GraphicsOne is $2,000 and then $80 per liter.

Why are these all "two?" Falcon II, Roland SolJet II? This is because the first generation of eco-solvent were a near disaster for people who bought them, deluded by advertising that was generally conceded to be misleading. The "second" generation inks are a whole lot less ecological because they need more solvents to bite into cheap vinyl which is the whole idea behind original solvent ink printing anyway.

Mutoh Falcon II outdoor printer

Hewlett-Packard

HP had the largest booth of any printer company at the show due to the presence of their Indigo division. Indigo is a digital press for short run and variable data printing. An Indigo costs between $170,000 and half a million dollars. They use liquid toner and are not inkjets.

HP tends to use larger trade shows to release any new products, so nothing new at GoA. One end of their tradeshow area had an innovative 3-dimensional printing effect comparable to a lenticular design, but yet different. This is the most spectacular 3-D inkjet printing yet shown anywhere. This is the kind of far-out application
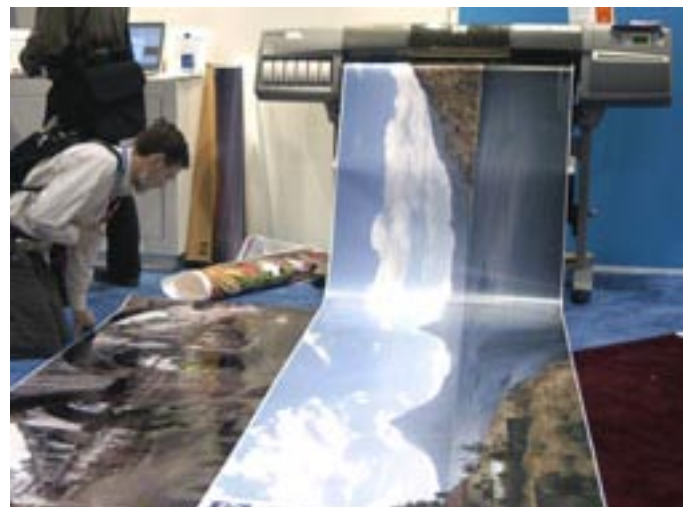
BetterLight pano picture taken by Dr. Nicholas Hellmuth reproduced in a HP 5500 printer

usually seen at an Epson booth. It's great to see such innovation at an HP booth. We discuss this kind of lenticular images in the FLAAR Fast Facts on lenticular printing (available at no cost; if you already filled out the form you don't have to again; just write FLAARtest@aol.com and ask for "FLAAR PDF on lenticular printing."

Since most of the visitors to Graphics of the Americas trade show are from Latin America, it is both a courtesy as well as good marketing idea to use sample prints with a Latin flavor. Last year FLAAR provided some images from Guatemala and this year we did also. The results stopped people in the aisles. To get a photo of the prints we had to clear them away.

Panoramic photos taken by Dr. Nicholas Hellmuth, stopped people in the aisles at the Hewlett Packard booth.

UV-Curable Ink Printers

Oce

Oce bought several brands of older printer models from Gretag about two years ago. Most of these solvent ink printers have been around since the 1990's. In the last several years this bygone technology has been surpassed by Mimaki, Mutoh, and a host of other Japanese, Korean, Chinese, and Taiwanese companies.
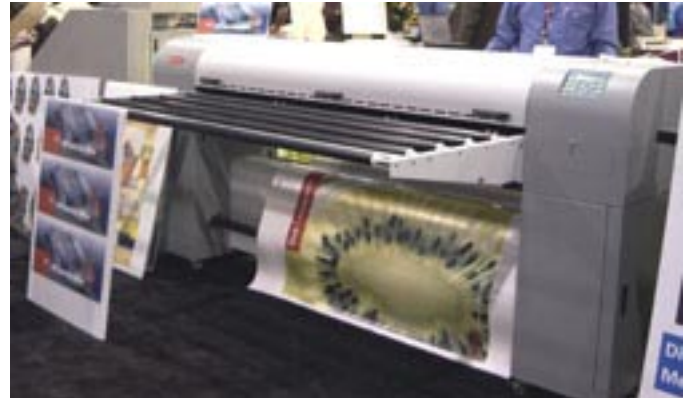
Oce showed a new Arizona model, the "60." Oce has been working on a new printer since 2001. In that year Oce decided not to buy Encad, saying "there is no technology owned by Encad that is worth buying." On this subject, relative to the history of inkjet printers, Ilford

Oce - Arizona 60.

almost bought Encad, but broke off at the last moment. So by the time Kodak came shopping, Encad had no other suitors and was picked up at bargain basement price of about $27 million dollars, less than the cost of Bill Gates' residence. The Oce printer has gone through many design changes over the years. Most recently it was tested as an oil-based printer. The poor sales of XES and Seiko oil printers doomed that attempt and Oce wisely decided not to produce another oil-based dud (see the FLAAR Report on oil-based printers to see why this technology, albeit with positive features, has continued to fail).

The Oce Arizona 60 evidently comes in two versions: solvent or UV (one or the other, you can't switch back or forth). Price was not stated but seemingly the UV version will be the lowest price UV on the market, less even than the Zund. The Oce UV version is a combo roll to roll and flatbed printer. As a flatbed it can handle thick and rigid materials up to 3/8th inch thick (12 mm, so a little over a centimeter; almost half an inch).

Like all UV-curable inkjet printers there was slight edge splatter (stray dots of ink that are out of register, so the edges of lines and letters has splatter along their edges). Splatter is not serious at long viewing distances, but is noticeable at close distance; makes the text look a little fuzzy or out of focus almost.

We discuss this printer in more detail, and describe the pros and cons, in the FLAAR Series on UV-curable ink printers.

Oce also offers a larger flatbed, the 220. The 220 can be outfitted as either a solvent ink printer or as a more desirable UV-curable ink printer. It is one, or the other, not both.

Flora

Although Flora has been exhibiting at sign trade shows in the USA since late 2002, this was about the first time they featured a UV-curable ink printer.

However it was the wrong audience. UV-curable printers are too expensive for Latin American situations. Only the Oce has even a chance in the Latin American market.

Besides, this Flora 2214FUV printer appears still to be in beta stage. Prints on aluminum had severe banding. Output on posterboard was better but still exhibited wide banding lines. A few prints showed splotches as though the printer had stopped printing or otherwise gone into a defective mode.

How can you trust receiving tech support, spare parts, and you never know how long any particular model will last. With Oce their Arizona models sometimes survive for a decade. You can count on Oce service world wide.

I discuss the Flora UV-curable printer in more detail in the updated FLAAR Series on UV-curable printers, available from www.wide-format-printers.NET.

Above: FLORA 2214FUV printer. **Below**: print samples in different materials.

Eastech

We have earlier seen the Eastech UV-curable ink flatbed at SGIA last year. All brands of flatbed printers are discussed in the FLAAR Series on UV-curable ink, especially the crucial information: which brands are mature, which are premature. We also cover white ink in this series.

<div align="center">**Solvent Ink Printers**</div>

Celupal

Celupal mexican printer

This is the first time this Mexican company exhibited. The printer, 113" or 287 cm, CMYK, up to 360 dpi, is described in more detail in the FLAAR Reports on solvent ink printers. We identify who actually manufactures the printer and what other companies rebrand the same machine.

Oce

The Oce booth also showed the venerable Oce Arizona 90, the oldest printer model still for sale. The advantage is that you know what you are getting into, spare parts are available, and service technicians already have plenty of experience with this model.

Flora

Flora had a good sized booth. All the people were pleasant and friendly. They kindly gave away Spiderman posters to all the teenies and kids (and adults too).

Flora 2506 SE, nice but 2" of sudden wide banding, as though the printer had a hiccup at this point.

Flora 3212SE/P, used a poor photo to begin with, out of focus. The image was the worse of any at the trade show.

Infiniti gets a tad bit better every year, but DGI is still ahead in quality. For example, the Infiniti FY-6150 had very thick banding. The DGI VT100 and VTII 62 looked okay.

More and more mainland Chinese printers are switching from Xaar heads to Spectra heads. Although Xaar heads have two major downsides (they fail, they are among the few piezo heads that are definitely not permanent; and the output suffers systematic banding defects), it is primarily the implied impression that Spectra heads are better all around. After all the Durst Rho switched from Xaar to Spectra; several Vutek printers switched from Xaar to Spectra heads. Because Vutek printers today, if perfectly tuned, on good media, can produce photo realistic output, Chinese manufacturers guess that if they add Spectra heads they can achieve the same quality (a solvent ink specialist put this very succinctly to me in a conversation).

Of course it takes more than a printhead to produce quality; Vutek has a lot more going for it than just Spectra printheads. So mainland Chinese printers with Spectra heads are not producing quality much better than mainland Chinese printers with Xaar heads. Besides, the issue is not the bad heads, but the fact that savvy buyers don't trust an off-shore company to be capable of realistically providing either spare parts or service.

DGI

Of all the Taiwanese, Korean, and mainland Chinese manufacturers, the Korean DGI is the most mature. Their dealer, Digital Graphics Systems, had several models of DGI on display, including the DGI VT100 and DGI VT II 62". These look more mature and robust, the quality is a tad better than the Infiniti.

DGI VTII 62″ printer

Infiniti

The Infiniti get better every year, but are still not quite there. However the folks in the booth are always pleasant, knowledgable, and helpful.

Infiniti print sample

General Comments

Nary a Mimaki printer, but keep in mind that Mimaki has sold about 700 JV3 printers in the US alone. That is more than Oce has sold of their Arizona 90 in seven years.

If you want a low-cost, off-shore solvent ink printer, our vote would be for DGI or Eastech. If you need a mainstream printer, with a secure international network for repair, consider the Mimaki. Their reputation for spare parts is reportedly based on delivery from Japan, but at least you are dealing with a substantial company with a well established office in the US (Atlanta, Georgia).

Eco-Solvent, Lite-Solvent Printers

Seiko I Infotech

Seiko I Infotech is a division of Seiko Instruments USA. Seiko is the parent of Epson, but SII is completely separate. For example, Seiko printers use Konica version of the Xaar industrial printheads, not the Epson head. The Xaar head is not permanent, and not as long-lasting as the Epson heads.

- Aspects to be aware of:
    - o Ink is not cheap
    - o Media range is still being evaluated; is better than previous generations but still the ink is not a full-solvent.

Dr. Hellmuth taking notes on the color gamut and print quality, trying to ignore the fact that there are semi-naked women on alluring posters all around him.

- Pros:
    - o Ink containers hold a full liter.
    - o Ink is free from Cyclohexanon (bad stuff that is in other solvent inks)
    - o Inks have an expanded color gamut
    - o High resolution, 720 dpi at 8 passes (360 dpi at two passes).
    - o Media thickness to 63mm
    - o Accepts the top three RIPs for signs
        - ☐ Wasatch (our recommendation)
        - ☐ Onyx PosterShop (also popular)
        - ☐ Scanvec-Amiable

Overall we felt that the Seiko has the best potential. Their advertising is the most honest also.

All solvent ink printers have banding defects; you can't see them at the normal distance that you view a banner. And driving down the highway you for sure won't see banding on the billboard a hundred yards away. Overall the banding on the Seiko is light, shows a wide path, and not as bothersome as narrow banding.

The Seiko images had intense colors including good blacks, good reds, purples, and green. I would rate the color gamut as great.

Seiko Color Painter printer

Air Cleaners (rather useful if you have a solvent ink printer)

Island Clear Air offers air cleaners. The current (second generation) "eco-solvent" and "lite-solvent" ink printers need ventilation as much as full-solvent ink printers. It is a lot less cost to pay for an air cleaner today than medical bills for the rest of someone's life.

Island Clear Air cleaners.

Laminating Equipment for Wide Format Prints

USI had the largest exhibit for laminating equipment. Advanced Greig Laminators had a booth but both Seal and GBC were not present as corporations.

Inkjet Media

Ilford, Sihl, Arkwright (Oce), Ferrari and other media companies had corporate booths. The Sihl booth was quite filled when their gorgeous model was posing with visitors.

Usually all three inkjet magnet companies have an exhibit, but at Graphics of the Americas only Magnum Magnetics had a booth. You can contact them by phone, (740) 373-7770.

ColorSpan solvent ink printer, printing on Sihl media

RIP (Raster Image Processor) Software for Wide Format Inkjet Printers

PerfectProof, RIP IT!, CGS (ORIS), and a few other RIP companies exhibited. We provide comprehensive coverage of RIP software for inkjet printers in a separate FLAAR Series.

Dye Sublimation Heat Transfer

Several companies exhibited dye sub equipment such as inks and heat presses. FLAAR has a separate report on this whole market. We also cover the different companies more in the ISA trade show where a wider range of dye sub companies exhibit.

Variable Data and Short Run Digital Presses

HP showed virtually their entire stable of variable data short run digital presses. Xerox had a more modest booth with a few samples of their impressive iGen3 output. Heidelberg did not exhibit their NexPress.

The Xerox offers a slightly larger paper size than HP and what I must say is very handsome quality, the best I have seen from dry toner (HP uses liquid toner).

Coffee mugs using dye sublimation.

- The entry level HP Indigo Press 1000 is $199.000.
- Six color version is roughly $289,000.
- HP Indigo Press 3000 is $449,000.
- HP Indigo Press w3200 is $800,000
- The industrial versions cost about $329,000 to $549,000. These are for printing labels and other things.

Laser Printers

HP, Konica Minolta, Xante, and Xerox-Tektronix all exhibited laser printers. Although the quality gets better every year, issues still remain when you discuss whether to acquire a laser printer or a desktop-sized inkjet. Thus we have written a completely new report, "Laser vs Inkjet: pros and cons of each." You can obtain that at no cost from FLAAR. If you have previously filled out an Inquiry-Survey Form on any of our web sites, then write FLAARtest@aol.com and ask for the laser-vs-inkjet Report. If you have not yet filled out a form, then go to any FLAAR web site (such as www.wide-format-printers.NET) and fill out the form. Specifically ask for the laser-vs-inkjet report (and any other report that is free; might as well, you get between 3 and 5 at no cost).
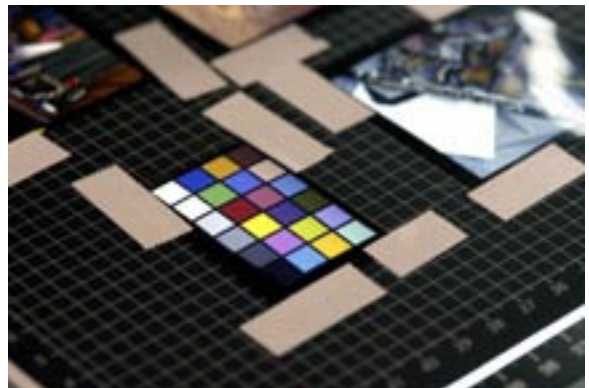
Scanners

Pre-press drum scanners today are available only from Screen and ICG. You may find a Fuji still available, but Heidelberg and all the great drum scanner manufacturers are all totally out of the scanner business. The entry level Howtek-Aztek is not considered by most industry experts as in this class whatsoever. The two tests we had of the Howtek-Aztek showed poor results. We have requested to borrow the equipment to test in more detail; the manufacturer has declined.

Screen had a booth at GoA as well as at Graphics of the Americas; no scanner was shown at either trade show.

Umax was listed in the GoA list, but at a reseller's. We did not notice the scanners from the aisle. Umax has not been active at trade shows the last two years. Consensus is that Umax has lost its momentum; it is no longer the leader as it was four years ago.

Creo had the most scanner presence of any company. Creo had an iQSmart in its own impressive both. A reseller had an EverSmart scanner in their booth too. If you demand the best quality, and don't get suckered with misleading claims by lesser manufacturers, a Creo scanner is the best available today.

Creo also had a scanner in the ColorSpan printer booth. Creo documented how much you can do with a really good 35mm color slide, scanned on a Creo flatbed scanner. We have enlarged our 35mm slides to 36 x 42 inches and kept museum-like visual quality.

Creo iQSmart scanner

Creo's top of the line scanners offer anti-Newton Ring glass. Lesser models of scanners lack this glass. We got Newton Rings scanning on a Umax.

We saw some Fuji scanners; they were top quality but are no longer being manufactured. We thus worry that they are no longer supported with as much vim and vigor as in past years. Indeed the cost of support is one reason Fuji pulled out of the scanner market. Of course their warehouse still has these great scanners available. They were of comparable quality to Scitex scanners in their day.

Purup-Eskofot has a scanner dedicated to the copy-dot application. They would not tend to show a product of this price range in a show dedicated to Latin America.

Microtek did not appear at all, nor did Epson or any other scanner company.

Lenticular 3D, printed on HP 5500

Photography Equipment

There was an Imacon and perhaps a few other medium format digital backs at dealers but no actual manufacturer's booth. The most interesting photographic application was that of HumanEyes, on the far side of the HP booth. HumanEyes uses a unique form of 3D photography plus lenticular lens on the image to create the fully three-dimensional appearance. We cover HumanEyes in the FLAAR Report on Lenticular printing. The depth of the image is impressive, as though you can see forever deeper into the scene.

Best in Show Awards

Best Media in Show: Metamark MD5, white gloss, for solvent and mild-solvent ink.

Best mild-solvent printer: the Seiko produced the nicest output though the Mutoh and Roland came close. Downside of Mutoh and Roland is their earlier first generation advertising was deceiving; the first generation eco-solvent printers did not in fact allow printing on all low-cost media as the ads claimed.

Seiko Color Painter 64S

- Seiko did not have a faulty first generation printer;
- Seiko does not claim their ink is ecological
- Seiko's ads, in general, are a paradigm of integrity compared to the competition

Summary on Graphics of the Americas 2004

Attendance was down. 2004 is the year of DRUPA. DRUPA, held every four years, is the Mecca of printing trade shows. 2004 is also the year of Photokina. So perhaps some folks from Latin America may have been saving their travel budget for one or both of those giant Germanic trade shows.

Kodak's Encad booth was miniscule compared with previous years. HP's booth was two to three times the size of last year now that they added Indigo printers. Several companies were listed but did not in fact have their own booth: Epson America was listed in the GoA directory, but unless their booth was behind a column, I never saw it during three days. Same with Scanvec-Amiable.

Last year they had a huge booth. This year they were in the Directory but I did not see any of their personnel and never found their booth.

Agfa stated in a recent press release that they intend to capture 30% of the wide format inkjet printing market. Yet they did not have a corporate booth with any wide format printers, or at least none that I noticed. Did not see any Agfa inkjet media either. This is unexpected since in some Latin American companies Agfa has had a strong presence in past years. I know that in Guatemala Agfa is among the strongest dealerships. They won't reach even 5% if they don't stage successful trade show presence.

Acknowledgements

I thank several key people in the world of ink, media, and printers for providing behind the scenes information that is a great asset for insuring that FLAAR Reports provide unique factual information.

Hewlett Packard booth

www.wide-format-printers.org	www.fineartgicleeprinters.org	**CLICK HERE TO VIEW EACH FLAAR NETWORK SITE**
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