

# CANVYS - VISUAL TECHNOLOGY SOLUTIONS

HP EliteBook Mobile Workstation displays medical images



*"Canvys took the exceptionally powerful and rugged HP EliteBook Mobile Workstation, developed a calibration solution, and created a DICOM 3.14 compliant mobile computing platform. This has never been seen before."*

*—David Sorensen, director of operations, North American Healthcare, Canvys - Visual Technology Solutions, LaFox, Ill.*

## HP CUSTOMER CASE STUDY:

Canvys bases DICOM compliant mobile solution on HP EliteBook Mobile Workstation

**INDUSTRY:**  
Healthcare imaging

### OBJECTIVE:

Deliver DICOM-calibrated imaging in a mobile, affordable device

### APPROACH:

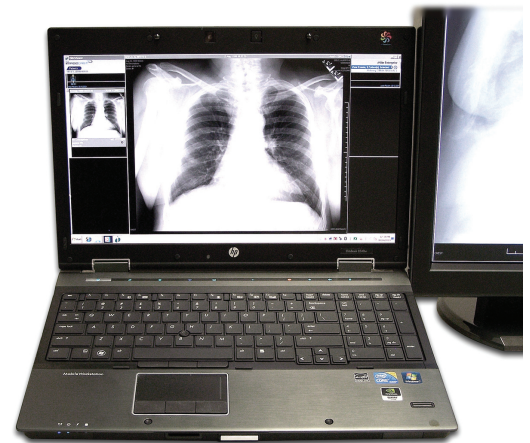
Build a DICOM-calibrated mobile workstation on the HP EliteBook Mobile Workstation platform

### IT IMPROVEMENTS:

- DICOM 3.14-calibrated mobile workstation
- Deliver bright, consistent, high-resolution, mobile medical images to radiologists and clinicians<sup>1</sup>
- Rugged, reliable, high-performance workstation enables breakthrough solution

### BUSINESS BENEFITS:

- Radiologists and clinicians see high-quality medical images from home or traveling among hospitals and clinics
- Significantly less costly than traditional imaging system workstations
- Lower cost puts technology within reach of small- and medium-size medical practices and facilities



**HP recommends Windows® 7 Professional.**

For more than a decade, Canvys - Visual Technology Solutions, based in LaFox, Ill., searched for a mobile device with a display bright, consistent and detailed enough to show high-quality medical images such as X-rays, digital radiography, MRIs, and CAT scans. The problem was, notebook engineers typically sacrificed display quality in favor of low weight and long battery life.

That all changed with the HP EliteBook Mobile Workstation. This powerful device with HP DreamColor LED-backlit display technology offers the rugged reliability, battery life, mobility and high quality display Canvys needed to bring an unprecedented, new solution to market.

"For 10 plus years, I have been looking for a mobile display good enough for high-quality

## CUSTOMER SOLUTION AT A GLANCE

### PRIMARY APPLICATIONS

Mobile, DICOM-calibrated imaging

### PRIMARY HARDWARE

- HP EliteBook 8540w Mobile Workstation
- HP EliteBook 8740w Mobile Workstation

medical images,” says David Sorensen, Canvys director of operations, North American Healthcare. “I traveled to Asia. I talked to manufacturers all over the world. When HP came out with the HP EliteBook Mobile Workstation, I was excited that I’d found what we needed.”

### HP ELITEBOOK QUALITY, MOBILITY, AFFORDABILITY OPEN DOORS

Medical images are best and most accurately viewed on visual displays when they are presented with very specific tone-response curves (i.e. the way the images are scaled from black to white). Display systems that meet Part 3.14 of the Digital Imaging and Communications in Medicine (DICOM®) standard, provide viewers additional assurance that important gray-scale values are accurately and consistently displayed.

That’s the case with the DICOM 3.14 calibrated solutions from Canvys, a company specializing in visual technology solutions. The solution enables the display on select HP Mobile Workstations<sup>1</sup> to be calibrated to the DICOM 3.14 gray-scale display standard. These displays incorporate HP DreamColor display technology and, when integrated with Canvys’ proprietary Image Systems CFS™ calibration software, give providers and users of PACS and other medical viewing software access to DICOM 3.14 images as outlined by the DICOM standards on a powerful mobile workstation platform.

*“Canvys calibration software coupled with the HP EliteBook Mobile Workstation enables mobile, DICOM-compliant viewing not just for radiologists, but also for clinicians such as orthopedic doctors, neurologists, cardiologists, and oncologists.”*

*—David Sorensen, director of operations, North American Healthcare, Canvys - Visual Technology Solutions*

The Canvys DICOM 3.14 calibrated mobile workstation can change how radiologists and clinicians work by providing more accessibility to high-quality images. While radiologists have always used high-caliber imaging systems to interpret medical images; now for the first time the system is mobile as well as affordable, allowing radiologists to view images from home, at clinics or on travel. In addition, clinicians now have access, on a mobile device, to see images rendered at some of the same levels of quality as those being viewed by radiologists, providing understanding of subtle details and enabling healthcare professionals such as neurologists, cardiologists, oncologists and orthopedic doctors to make their treatment plans with full confidence.<sup>1</sup>

“It might be an orthopedic surgeon looking at an X-ray of a hand or an MRI of the spine. It might be a neurologist looking at the head or an oncologist treating cancer,” Sorensen says. “Now a clinician can be in the office, at the clinic or at home, and see an image with the same grey-scale fidelity the radiologist had.”

A cardiologist for whom Sorensen demonstrated the system noted that with this solution, he could receive that 3 a.m. phone call at home when a patient fell ill, view a very high quality image in his den, and give initial treatment directions even before jumping into his car and driving to the hospital.

What’s more, the HP EliteBook-based Canvys solution costs less than a traditional medical-imaging system, opening the door to small- and medium-size facilities and practices to own such a resource.

### CANVYS SOLUTIONS MEET HIGHEST CALIBRATION STANDARDS

Canvys, a division of Richardson Electronics, is a longtime provider of imaging solutions for the healthcare market. It specializes in creating comprehensive solutions for clinical review, 3-D and post processing, surgical suites and modality-specific applications. Its offerings meet the most critical agency certifications and calibration standards for patient monitoring, biomedical displays, ultrasound, cardiac imaging and PACS. DICOM (Digital Imaging and Communications in Medicine) is the standard recognized by the American College of Radiology for handling, storing, printing, and transmitting information in medical imaging.

What Sorensen had searched for was a mobile device that could be calibrated to DICOM standards. Most notebooks use display technology with the drawbacks of poor viewing angles, insufficient brightness and color depth, insufficient pixel resolution, and image inconsistency. They often use integrated processors that share RAM between the central processing unit and the graphics processing unit. This translates into a viewer’s inability to see the subtle shades of grey. And the lack of graphics power can result in poor performance in window/leveling grey shades, running cine-loops, and showing reconstructed 3D images. “In medical imaging applications, it is simply unacceptable to watch subtle grey levels change as you move your head with respect to the display,” Sorensen pointed out.

HP recommends  
Windows® 7 Professional.



#### HP ELITEBOOK DELIVERS EXCEPTIONAL IMAGE QUALITY

The HP EliteBook Mobile Workstation, Sorensen says, is exceptional.

The HP EliteBook line is built rugged, reliable and powerful. The devices meet tough military standards testing for vibration, dust, altitude and high temperature,<sup>2</sup> with spill-resistant keyboards and durable casings. Robust security features include central management for HP ProtectTools, HP Disk and File Sanitizer<sup>3</sup>, Device Access Manager, Pre-Boot OS Authentication and Auto DriveLock.

*“The affordability of the Canvys DICOM-calibrated mobile workstation solution brings the possibility of high-quality medical images within reach of small- and medium-size facilities and locations that never could cost-justify such a resource before.”*

— David Sorensen, director of operations, North American Healthcare,  
Canvys - Visual Technology Solutions

The models on which Canvys based its medical-imaging solutions are the EliteBook 8540w Mobile Workstation and the HP EliteBook 8740w Mobile Workstation. Canvys typically configures the devices with the genuine Windows® 7 Professional operating system; Intel® Core™ i7-720 QM /1.60 GHz (Quad Core) with Turbo Boost up to 2.8 GHz processors, the Intel® QM57 Chipset; 8 GB of RAM; and NVIDIA Quadro FX

Series graphics. The devices' HP DreamColor LED-backlit display is bright, uniform, stable and clear from every viewing angle.

Canvys added its proprietary Image Systems CFS™ calibration software—DICOM 3.14 compliant calibration that enables the human eye to see and best differentiate the “just noticeable differences” between various shades of grey—including those at very low levels. “When a radiologist or medical professional views an image, many times what they’re looking for is contained in the subtle grey details in the image,” Sorensen notes. End users can access the images through enterprise PACS or a cloud-based solution, such as Medweb. The Canvys solution is available from Canvys, from HP and from the extensive network of HP resellers.

#### LOWER COST WIDENS ACCESS TO HIGH-QUALITY MEDICAL IMAGES

One of the great advantages of the Canvys solution is that it brings access to high-quality medical images to facilities and locations that otherwise could not afford it. Considering hardware, software and connections, a traditional medical imaging system workstation may cost between \$15,000 and \$20,000 and it is designed for high-intensity use environments, like a radiology reading room. However, it's not mobile and it is financially out of reach for many facilities, practices and locations. For example, it is hard to justify a home-read station based on this cost.

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The cost justification for purchasing a medical imaging system is typically based on volume. If a small clinic spends \$20,000 on a system and reads just 2,500 images a year, the cost is \$8 an image. With an industry goal to spend \$1.50 per image or less, if the clinic can lower its capital expense, the breakeven point comes faster. The Canvys HP EliteBook-based mobile solution can also be used by the end user in multiple places, increasing the number of images read and spreading out the capital investment for the overall system.

*“For 10 plus years, I have been looking for a mobile display good enough for high-quality medical images.”*

*—David Sorensen, director of operations, North American Healthcare, Canvys - Visual Technology Solutions*

“With the Canvys solution, it can make economical sense to provide access to high-quality digital images in locations where it may have been previously hard to justify,” Sorensen says. “You can save time and money. Small and medium-size users and locations that aren’t looking at images eight hours or more a day can have access to image quality that they’ve never had before.”

Around-the-clock, dedicated support is another advantage. HP Elite Premium Support is included in the cost of every HP EliteBook. To gain access, a user says “Elite” when calling a standard support phone line. A specially trained team of



Elite-certified support professionals stands ready to deliver fast call response times and issue resolution. Canvys also has a service team ready to step in as needed. “It’s important to know that support is always there for you,” Sorensen says.

Looking back, Sorensen notes that the HP EliteBook Mobile Workstation has enabled Canvys to fulfill its longtime goal of combining three great customer advantages: high image quality, mobility and value.

“To call this a notebook is a disservice,” Sorensen says. “It brings the power of a workstation in a mobile notebook format.”

To learn more, visit [www.hp.com](http://www.hp.com)

Contact the HP Reference2Win Program, 866-REF-3734 for more information.

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<sup>1</sup> The display on this product is suitable for some but not all types of radiology purposes. See your PACS software provider and/or the American College of Radiology for additional guidelines. FDA approved viewing software required and sold separately.

<sup>2</sup> Testing was not intended to demonstrate fitness for DOD contracts requirements or for military use. Test results are not a guarantee of future performance under these test conditions.

<sup>3</sup> For the use cases outlined in the DOD 5220.22-M Supplement.

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