T A C

Total   Appearance   Capture

Taking Footwear Design Virtualization to a New Level

x-rite **PANTONE**®

Why Total Appearance Capture

In the highly competitive apparel and footwear business, time to market and cost-effectiveness are critical to success. Today's often highly manual design processes require multiple phases in the design stage and the creation of thousands of sales samples in the go-to market stage. Significant costs are incurred the design stage when there are multiple rounds of color and material sampling because decision-makers do not know what the color and materials are going to look like in real life, leading to long design cycle. Significant cost are also incurred in the go-to-market stage where thousands of sales samples are unnecessarily created because Buyers are unable to trust the real-life accuracy of virtual renderings.

One obstacle to achieving true realism for footwear designs has been the inability to accurately measure and capture every appearance characteristic of the many materials used in footwear, and to accurately portray the full range of colorways for a product line in real-life manner.

METHODS TO GENERATE VIRTUAL MATERIALS

FULL APPEARANCE MEASUREMENT

TOTAL APPEARANCE CAPTURE

IS THE DIGITIZATION OF MATERIALS
WITH TRUE, FULL APPEARANCE MEASUREMENT.

PHYSICALLY CORRECT AS BASED ON MEASUREMENTS

HIGH ACCURACY EVEN FOR COMPLEX MATERIALS

SCENE INDEPENDEND

TEXTURE SCANNER

PLAUSIBLE COLOR
DECLINING ACCURACY WITH
INCREASING MATERIAL COMPLEXITY

ARTISTIC PROCESSES

ARBITRARY RESULTS DEPENDING ON ARTISTIC SKILL OF OPERATOR
TYPICALLY OPTIMISED FOR A SPECIFIC SCENE

ACCURACY

The Total Appearance Capture (TAC) Ecosystem from X-Rite Pantone is a revolutionary innovation that is reinventing the way footwear designs are imagined, including accurate portrayal of both color and appearance of a wide variety of complex materials and shapes, by truly harnessing the full capabilities of 3D visualization.

The TAC is a seamless ecosystem of sophisticated but intuitive software and instruments that automates and streamlines the creation of dimensional and virtual material libraries, and true-to-the-eye product renderings – even for complex materials independent of lighting conditions. **The TAC Ecosystem takes virtualization a giant leap forward.** Its physically accurate measurements mean that the virtual material will agree with its physical counterpart under any lighting condition and in any scenario, enabling reuse of materials across multiple product lines and product variations. **Footwear and apparel designers can design digitally without losing the emotional value of the material.**
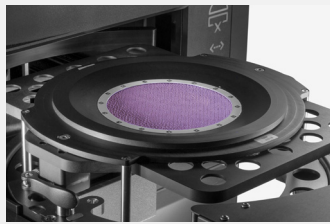
How TAC Works

Physical material samples are scanned using the TAC7 scanner under a multitude of lighting conditions. The result is a digital representation in an AxF file with the exact same optical characteristics as the real material. The AxF file can then be ingested by popular CAD and PLM software, and rendering engines. Material scans can also be stored in the Pantora Material Hub for distribution and reuse. Material scans can be viewed in the Virtual Light Booth (VLB) for comparison with physical samples and/or virtually applied to a CAD model in the VLB's various lighting conditions. TAC7 scans delivers significant time and cost savings due to the reduced requirement for manual adjustments made to files within most design tools—ensuring realistic, accurate and consistent appearance throughout the design, production and marketing processes.
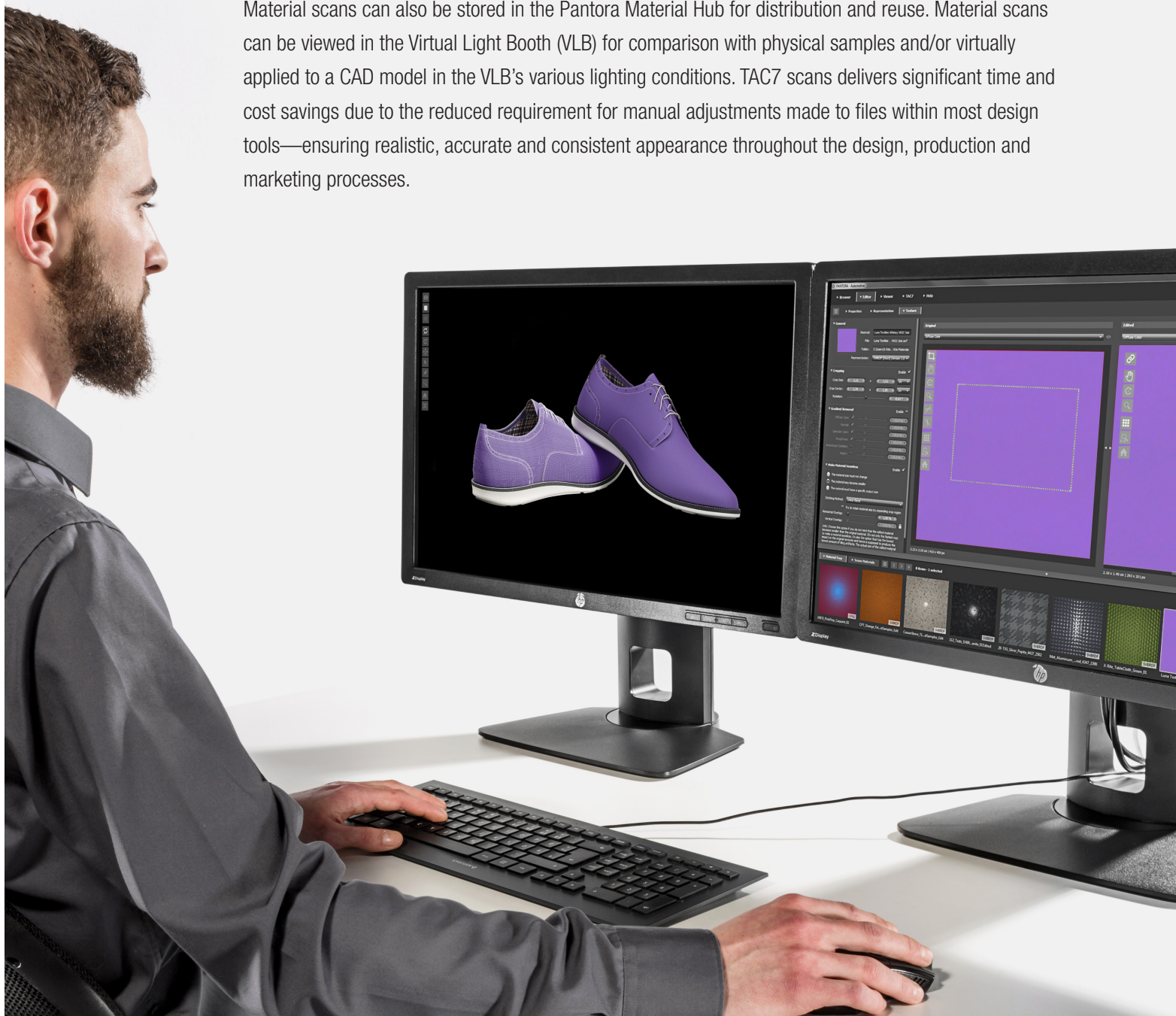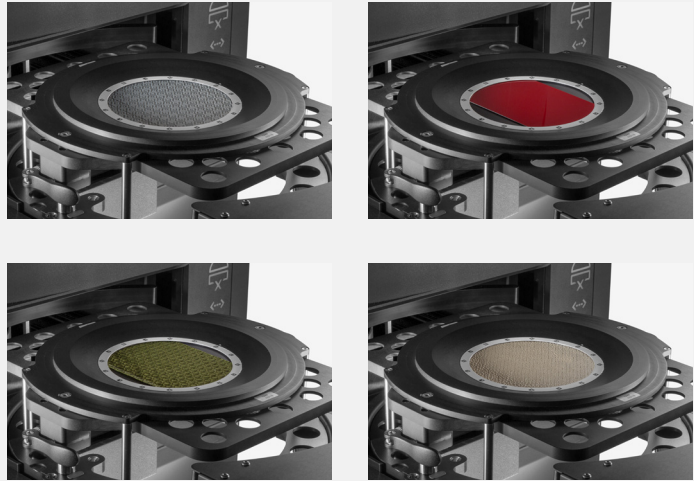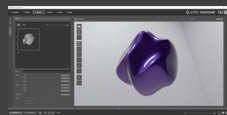
Material Workflow

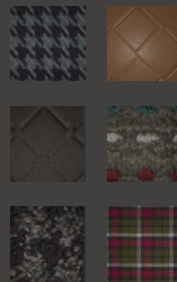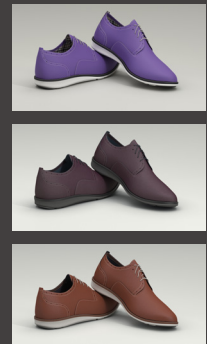| CAPTURE	⟹	COMMUNICATE	⟹	VISUALIZE & COMPARE	⟹	ASSEMBLE	⟹	USE
TAC7 Scanner		PANTORA™ Material Hub		Virtual Light Booth		PLM or Internal Database		Render Engines

AxF

Enabling Realism

Anyone can apply the same scientific approach to capture material properties for footwear and apparels with the X-Rite TAC Ecosystem. Eliminate wasted time spent estimating, guessing and adjusting color and appearance. Acquire exact measurements of appearance properties for even the most complex materials and use them to achieve physically precise visualization.

The TAC Ecosystem makes it easy to ensure material appearance accuracy and consistency from design and manufacturing through marketing, ecommerce and more. Typical benefits include:

Design

- Unleash designer creativity by making available a robust material library to explore and consider new footwear designs, reducing the early-stage need for time-consuming physical comps and enabling designers to capture reality in a physically precise way.
- With more accurate material capture, key design decisions in regards to color and material are made earlier and with more confidence, shortening the design cycle.
- Simplify maintenance of easily accessible digital material libraries and make it easy to re-use existing materials in design derivatives and variants.

Manufacturing

- Accelerate time to market and reduce costs by requiring fewer physical prototypes.
- Improve communication with material suppliers and manufacturers with more accurate renderings and benefit from systematic appearance-based quality control.

Marketing and Sales

- Benefit from photo realistic digital assets that can enter marketing and sales channels such as online storefronts and retail purchasing (including collateral creation), creating a consistent and accurate representation of across multiple product lines. No need to wait for physical samples or conduct expensive photo shoots.
- Reduce the number of physical sales samples required by providing sales representatives with one real-life sample for each model, using physically precise 3D renderings to demonstrate additional colorways.
- No need to simulate material texture or light effects—virtual material will agree with its physical counterpart under any lighting condition.
- Improve Buyer satisfaction and shorten buying cycles with accurate renderings that clearly set expectations for product appearance, and help the Buyer reduce customer returns.

A Single Solution to Achieve Consistency Across All Tools

With TAC, there is no need to change your current infrastructure or software investments. TAC's AxF file format is vendor neutral. TAC easily integrates with popular PLM and CAD software, and rendering engines. With access to a single library of physically-accurate digital materials, design and marketing teams can now achieve a universally consistent look and feel from digital prototyping to online and point-of-sale environments.

Unmatched Realism

TAC enables designers to capture reality in a physically precise way. Measure and capture every appearance characteristic of a physical material, and experience unmatched realism in the virtual world. From leather and PU grains and specialty meshes to fabrics and shoe bottoms, it is now possible to capture appearance properties such as color, gloss, texture, translucency, and transparency.

Built on decades of color science, TAC brings a new level of accuracy and efficiency to virtual design, empowering designers, 3D artists, material specifiers and marketers to bring product designs to life with digital materials that have the same visual characteristics as their physical counterparts.

Accelerate Time to Market

Footwear design and production cycles can take as long as 18 months. TAC has been proven to help to cut design time, accelerating speed to market and reducing waste throughout the design-to-production-to-marketing process.

By leveraging one library of physically-accurate digital materials across all product design and marketing tools, TAC enables an efficient virtualization workflow with its ability to accurately capture material appearance, reduce manual file manipulation, and provide consistency in virtual designs with a single-source library of physically accurate digital materials. It allows designers, 3D artists and marketers to speed up and improve the design, production and marketing processes, reducing approval steps and related rework.
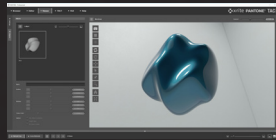
Total Appearance Capture Ecosystem

CAPTURE ⟹ **COMMUNICATE** ⟹ **VISUALIZE & COMPARE**

PANTORA™
Material Hub

TAC7 Scanner

Virtual Light Booth

AxF

Where Can I Get a Demo?

X-Rite has multiple demostration centers in North America, Europe, China and Japan for the TAC Ecosystem.
To request a demo please visit: www.xrite.com/tac-request-a-demo

---

x·rite PANTONE®

The Total Appearance Capture (TAC) Ecosystem is the latest technology advancement from X-Rite Pantone, continuing a long legacy of innovation in the art and science of color. For more than 60 years, we've created tools and technologies to help companies master color management. The TAC technology solution builds on this legacy by extending our expertise in color communication and measurement to appearance, taking virtualization and 3D technology to the next level by offering a new level of realism and efficiency in digital material capture.

X-Rite Pantone has extensive expertise and resources distributed around the globe providing customers with unmatched technology and service.

Next Level Realism in Virtualization

xrite.com/tac