CAMAG®

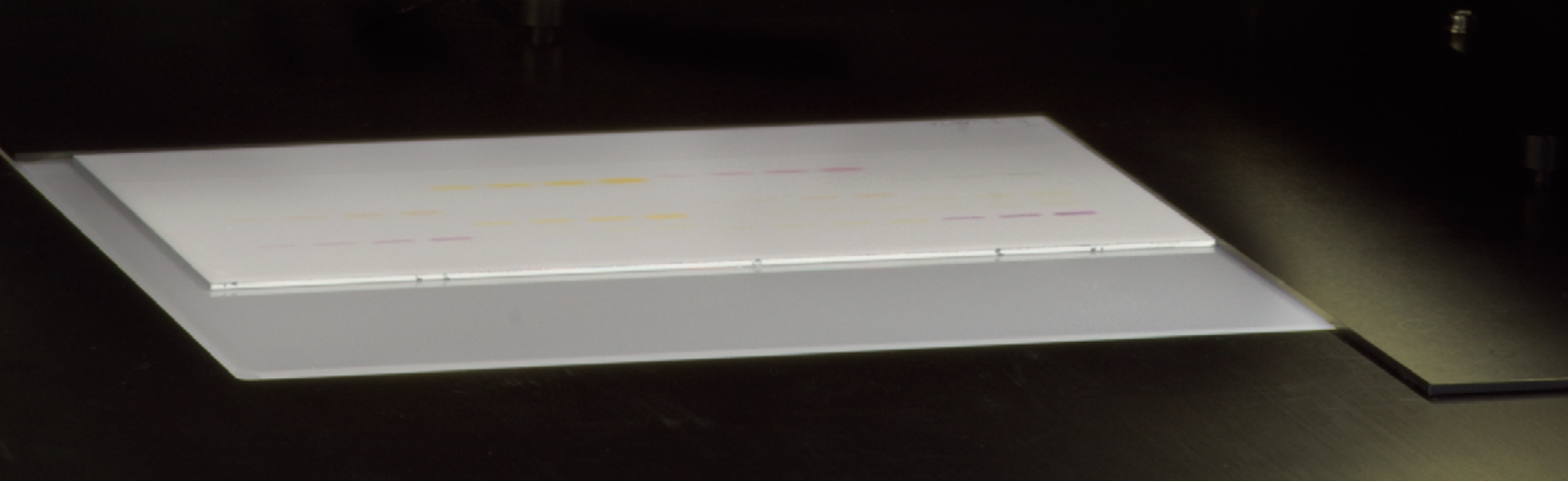**CAMAG**
TLC VISUALIZER 3

High-end imaging and documentation system for white light and UV fluorescence detection

The visual presentation of the entire chromatogram showing references and samples side by side is a unique feature of High-Performance Thin-Layer Chromatography (HPTLC), allowing the convenient evaluation of multiple samples in parallel.

The TLC Visualizer 3 is a high-end imaging and documentation system with superior performance in white light, long-wave UV (366 nm) and short-wave UV (254 nm) ensuring illumination with maximum homogeneity. Designed for the reproducible acquisition of premium-quality images, the TLC Visualizer 3 features a high-performance industrial camera of the newest generation equipped with a CMOS image sensor.

Powered by *visionCATS* HPTLC software, the TLC Visualizer 3 allows the detection of even the faintest zones and ensures reproducibility at a maximum level, while maintaining cGMP/GLP and 21 CFR Part 11 compliance.
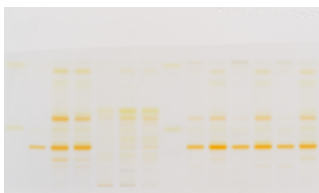

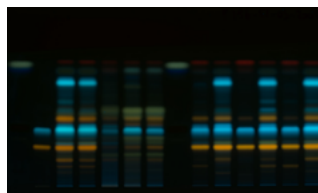
Image of chromatogram in white light
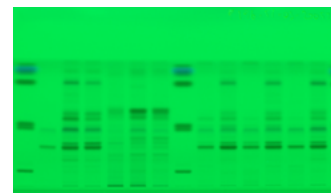

Image of chromatogram in UV 366 nm


Image of chromatogram in UV 254 nm

Key Features

- Maximum illumination homogeneity in white light, UV 366 nm, and UV 254 nm
- High-performance industrial camera with CMOS image sensor
- Powered by *visionCATS* HPTLC analysis software
- Various image enhancement tools for the detection of even the faintest zones
- Side-by-side display of tracks from different plates
- Image-based evaluation
- Full compliance with cGMP/cGLP and 21 CFR Part 11
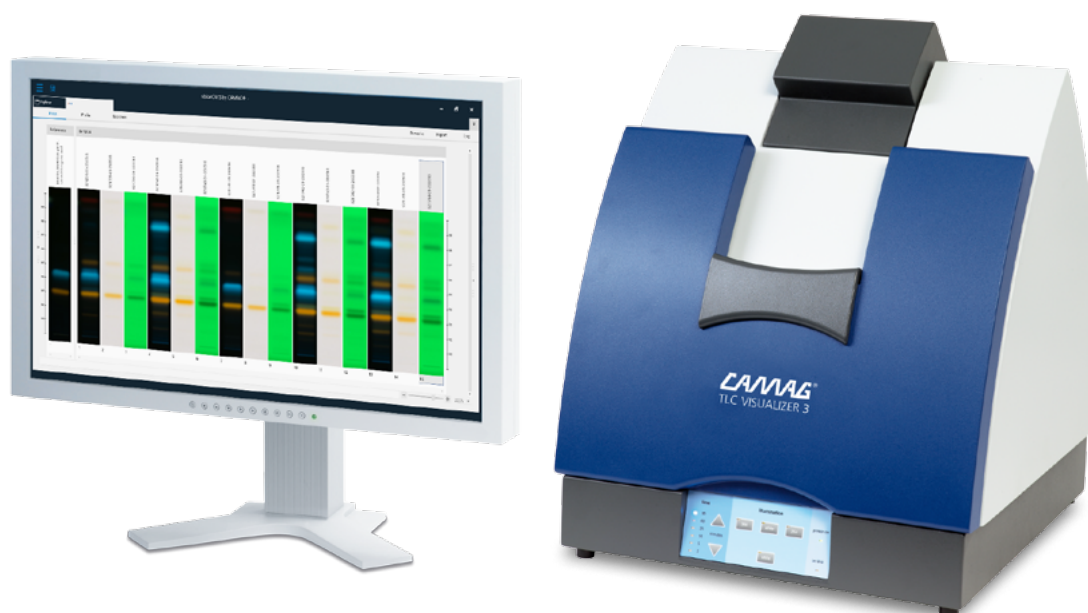
visionCATS allows to display and compare tracks of references and samples acquired from different plates in white light, UV 366 nm, and UV 254 nm.

Operation of the TLC Visualizer 3

Designed for supporting the HPTLC workflow, the *visionCATS* software platform controls instruments and manages data. The best-in-class HPTLC software features a variety of sophisticated image enhancement tools exploiting the full potential of the TLC Visualizer 3 and enables the automatic acquisition of premium-quality images based on the parameters specified in the method. Detailed on-screen instructions effectively guide the user through the image acquistion process.
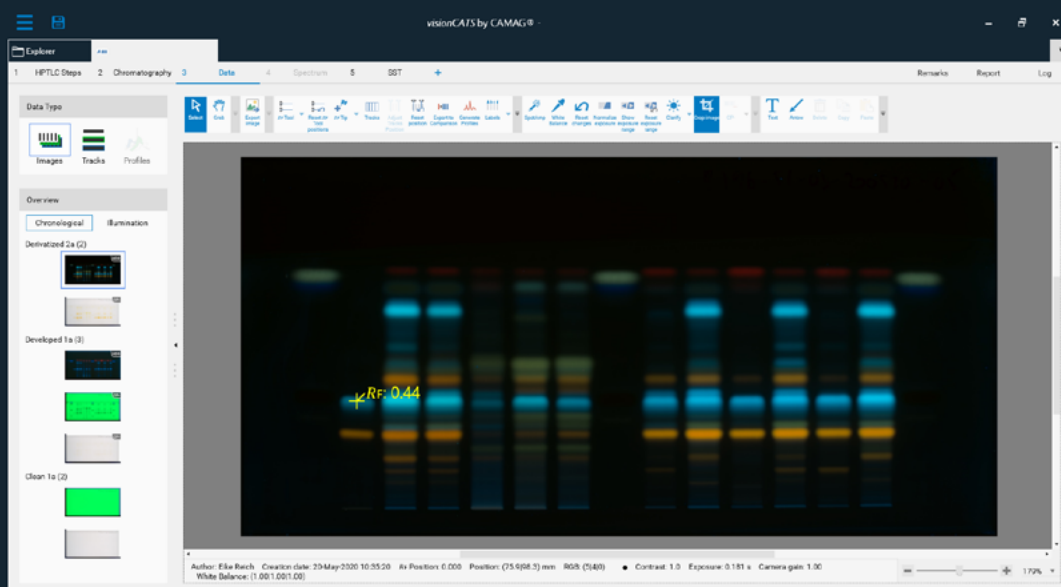
The **Data View** displays the image of the obtained chromatogram for visual evaluation and is the starting point for image enhancement and image data processing.

Image comparison

Powered by *visionCATS*, the TLC Visualizer 3 allows to extract and export selected sample tracks from acquired images for comparison, enabling the display of references and samples originating from the same and/or different plates and/or detection modes side by side. Traceability of all generated data to the original analysis guarantees regulatory compliance.
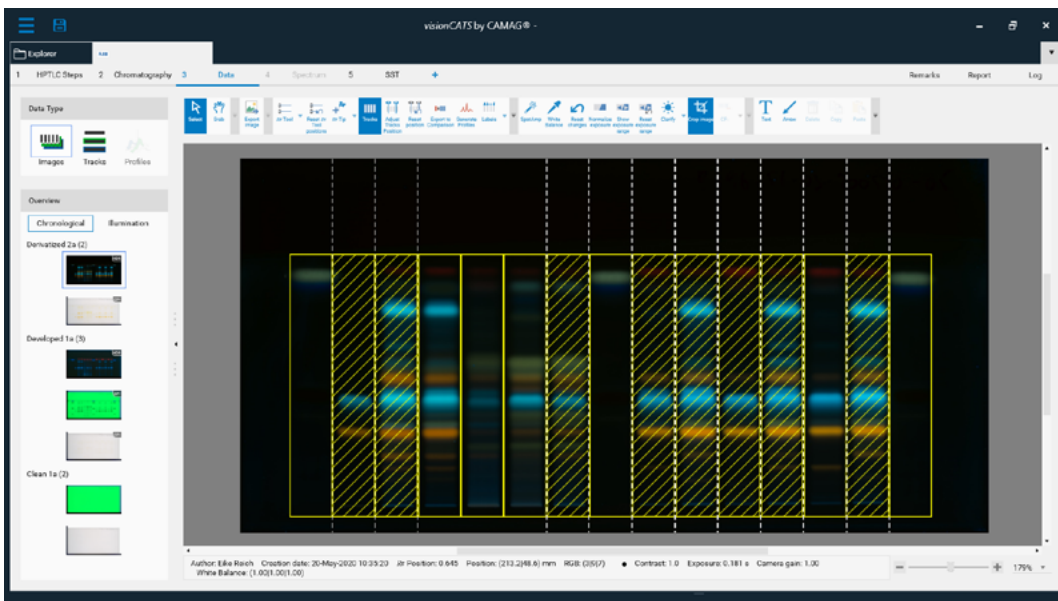
Easily extract and export selected tracks to the Comparison Viewer for detailed evaluation.


The **Comparison Viewer** enables the visual evaluation of selected tracks from the same or different plates in white light, UV 366 nm, and UV 254 nm.

Image enhancement

visionCATS supports low-noise, high dynamic range (HDR) images and includes a comprehensive set of image enhancement tools. Sophisticated algorithms guarantee the highest image quality for identification of even the faintest zones.
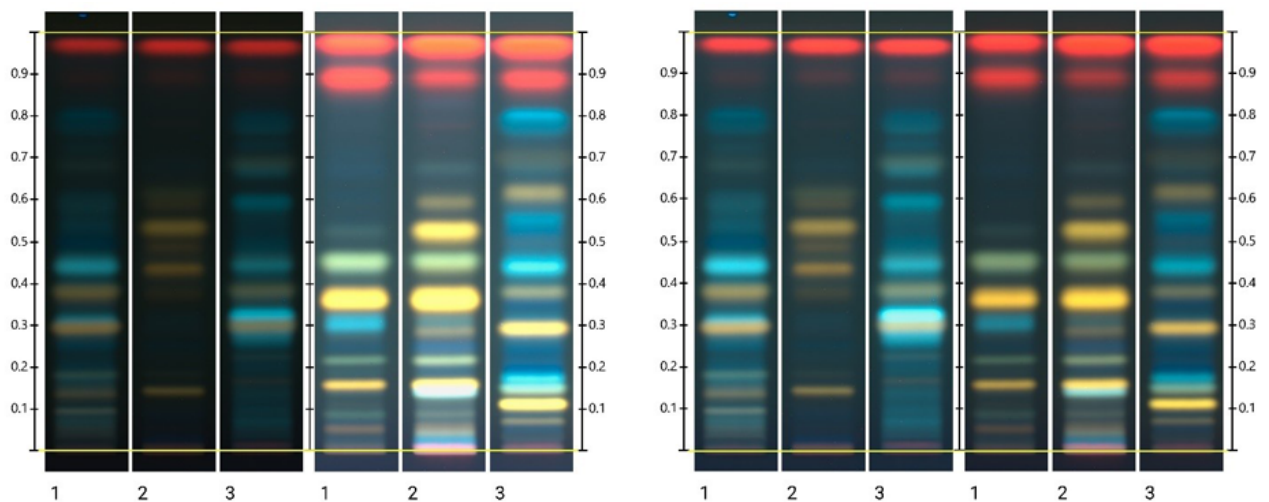

Exposure Normalization allows the post-processing of the image by normalizing the exposure (left without normalized exposure, right with normalized exposure). This tool is designed to visually compare images from different plates with virtually the same exposure settings.
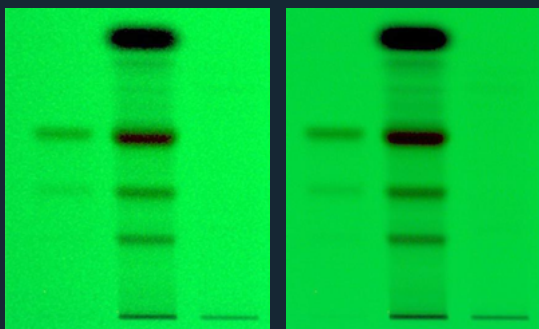
Clean Plate Correction subtracts an image of the clean plate prior to sample application from the image of the developed and derivatized plate. Thus, irregularities of the plate, particularly the structure of the fluorescence indicator, or small variations in layer thickness seen in transmission mode are efficiently corrected, and faint zones become detectable, resulting in highest quality of corrected images (right).
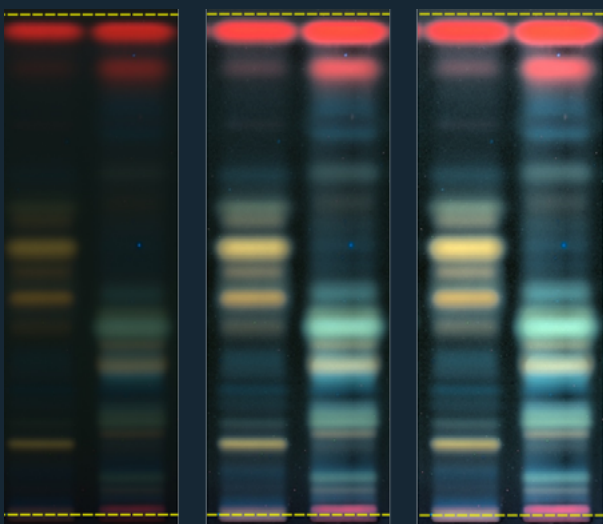
Clarify virtually changes the illumination setting after capturing and makes very faint zones visible on an unchanged background (no enhancement / enhancement 2.4 / enhancement 3.4).
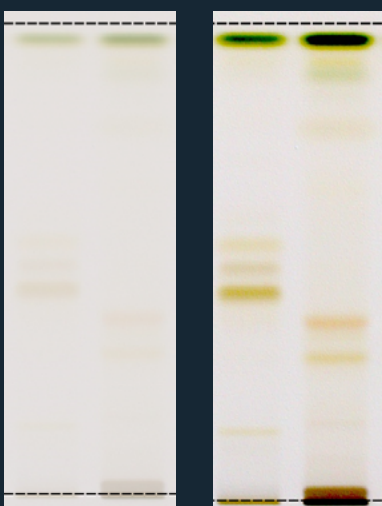
By increasing or decreasing the contrast of the zones, the **Spot Amp** tool efficiently supports the localization of even the smallest fractions on the plate.

Image-based evaluation

The *visionCATS* software enables the image-based quantitative evaluation of chromatograms obtained with the TLC Visualizer 3. Based on the absorption or fluorescence of the separated zones, the software generates image profiles by calculating the resulting luminance from the detected RGB values for each pixel line of the track. Plotting the luminance as a function of R_F values generates the peak profile from image (PPI). Information on peak height and area contained in the PPI data can be used for quantitative assessments. The combination of qualitative and quantitative information from the HPTLC images and the PPI allows testing for identity, purity, and content in a single analysis.
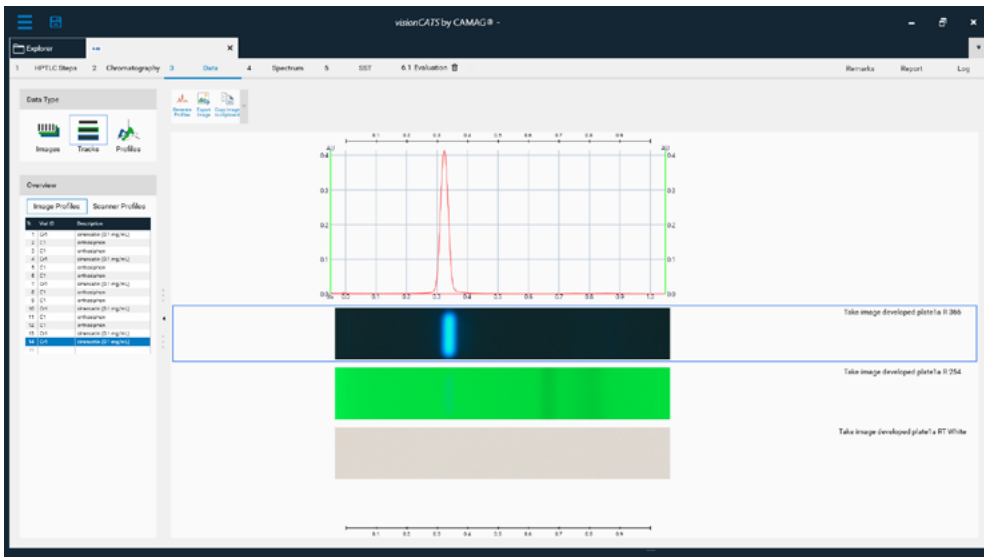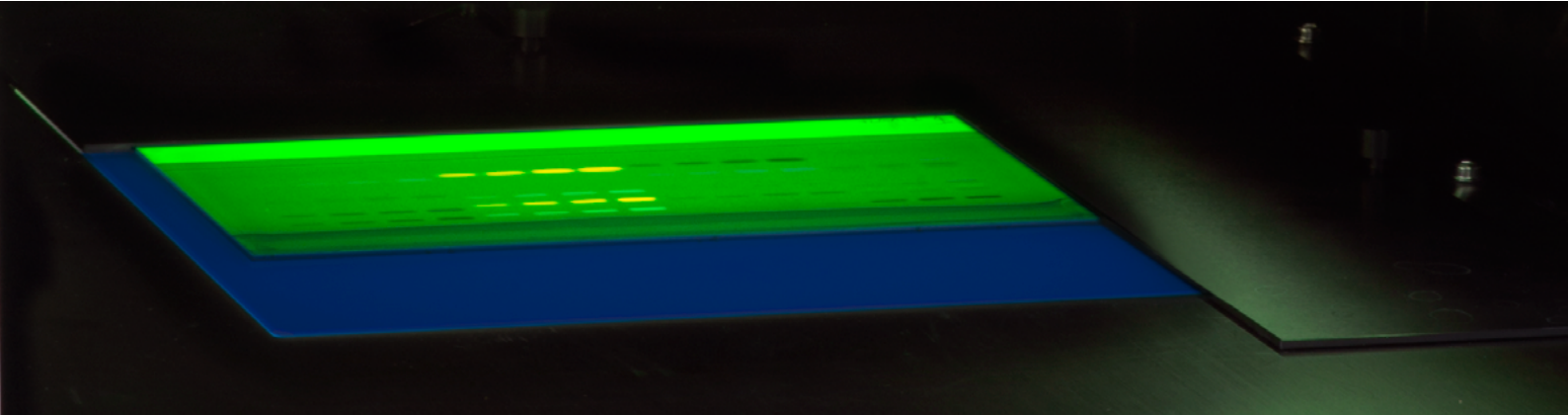
Profile Comparison

- Display of individual chromatograms
- Position of peaks (R_F value / migration distance) can be determined
- Comparison of chromatograms from the same or different plate / image

Evaluation

- Intuitive data management
- Several calibration modes (*e.g.* single level, multi-level, related substances)
- Re-evaluation of data at any time

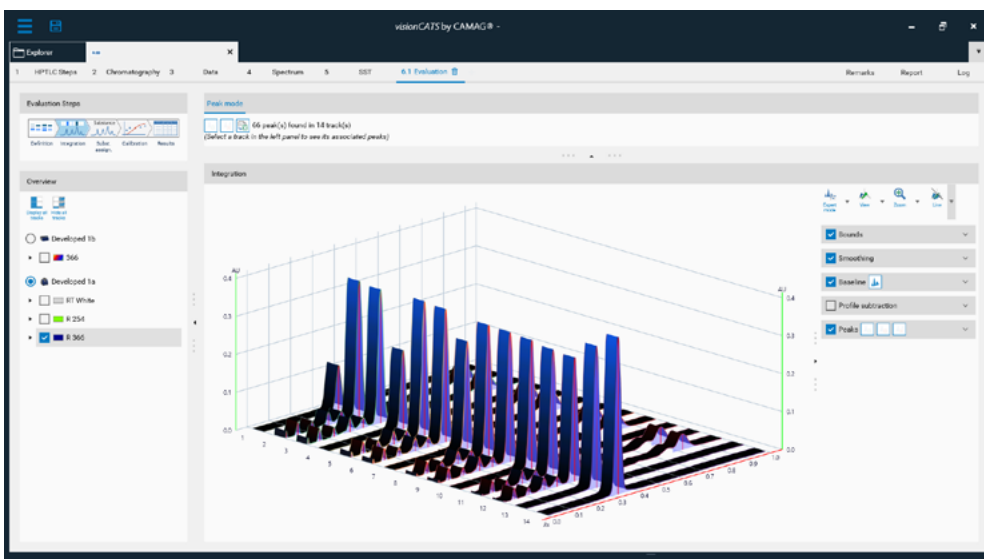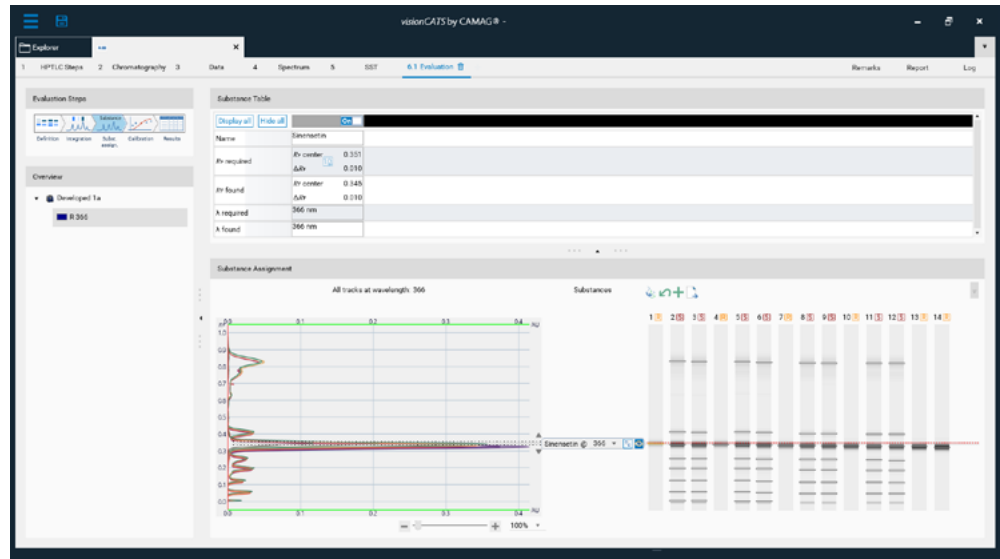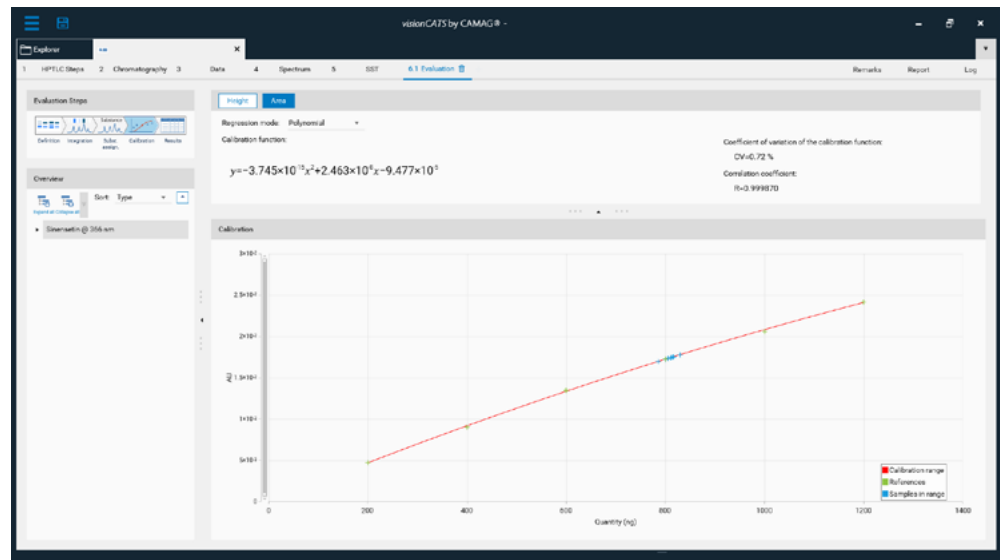Conversion of the image to the peak profile from image (PPI)

Image profile in 3D view

Substance assignment

Calibration curve

Results

Technical Specifications

Supported object sizes
with 12 mm lens: up to 20 x 20 cm; with 16 mm lens: up to 20 x 10 cm

Illumination sources
2 x UV tube short wavelength (254 nm) – direct light
2 x UV tube long wavelength (366 nm) – direct light
2 x white light tube – direct light
2 x white light tube – transmitted light

Detector
Industrial camera with CMOS image sensor

Connections
USB 3.0 and RS-232

Mains voltage
100–240 V AC 50/60 Hz, 50 W

Minimum software requirements
visionCATS 3.2 SP1 on Windows 10

Dimensions (W x D x H)
480 x 537 x 596 mm

Weight
17 kg

Ordering Information

022.9850
CAMAG® TLC Visualizer 3 documentation system
with 12 mm lens, without *visionCATS* software. Suited for object formats up to about 21 x 28 cm (20 x 20 cm TLC plates). *visionCATS* software is mandatory and not included.

022.9860
CAMAG® TLC Visualizer 3 documentation system
with 16 mm lens, without *visionCATS* software. Suited for object formats up to about 16 x 21 cm (20 x 10 and 10 x 10 cm TLC/HPTLC plates). *visionCATS* software is mandatory and not included.

028.0000
CAMAG® HPTLC Software *visionCATS* Basic Version
including access and control of all instruments – 1 server, 1 client Instrument Diagnostics (xQ), analytical reports – access to method library. Needs to be purchased separately and is not included in any package.

028.1000
CAMAG® HPTLC Software *visionCATS*: *visionCATS* Ultimate
combining: Visualizer Ultimate Package (028.2000), Scanner Ultimate Package (028.3000).
visionCATS Basic Version (028.0000) is not included and needs to be purchased separately.

028.2000
CAMAG® HPTLC Software *visionCATS*: Visualizer Ultimate Package
including: Visualizer Qualitative Package (028.2010), Visualizer Enhanced Evaluation Package (028.2020).
visionCATS Basic Version (028.0000) is not included and needs to be purchased separately.

028.2010
CAMAG® HPTLC Software *visionCATS*: Visualizer Qualitative Package
HDRI, Image Enhancement Tool and Comparison Viewer

028.2020
CAMAG® HPTLC Software *visionCATS*: Visualizer Enhanced Evaluation Package