Artifacts Scanning Thick Objects

Fine art on canvas should be scanned without the frame. If there is enough clearance, it can be scanned with the frame but you will see artifacts on the frame due to the Auto Focus. When the lasers hit the frame, they measure a shorter distance to the frame and will therefore correct the size distortion so that the width of the image is slightly reduced to scale it back to 300 or 600dpi. As soon as the laser hits the canvas, it measures a slightly greater distance and does not scale anymore. This is correct for the canvas but the frame on the left and right are closer to the camera and are left untouched. This results in a slightly wider frame at a more spread out position.

If the canvas is not bowed too much, you can try scanning framed art with **Fixed Focus**. This will not produce artifacts caused by the frame.

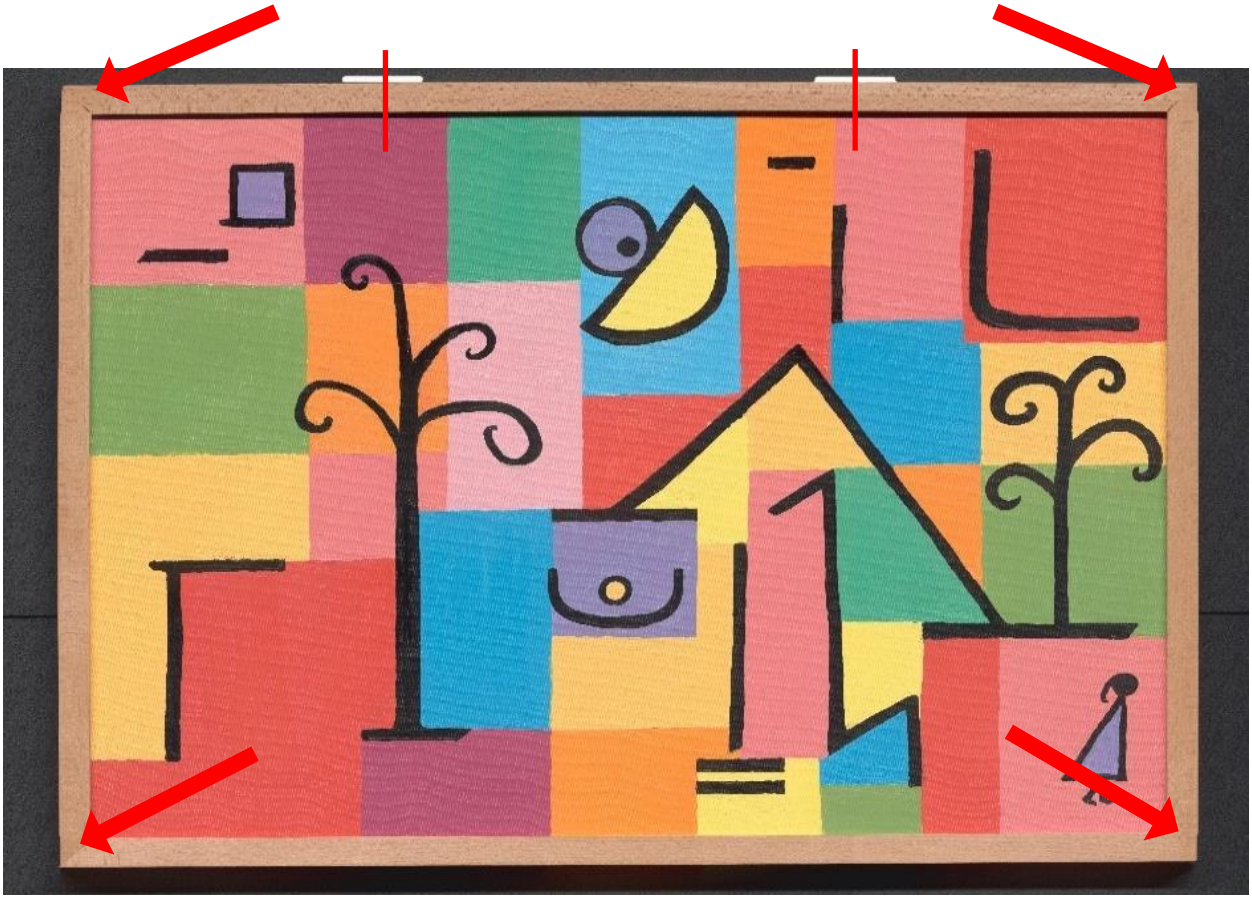

Fig. 21 Fine art scan with frame

BEST PRACTICE	
	Whenever possible scan fine art without a frame. There are many benefits, one of them is, that you can print it out and put it in the same frame without missing any content due to shadows, incorrect cropping and other imperfections.

Artifacts Scanning Structured Objects

As long as the surface of the object in the vicinity of the lasers is smooth, there will be no artifacts. If another object is laying on top of the object to be scanned and caught by a laser set to **Auto Focus**, the laser will assume that the surface is closer and will correct the resolution causing a distortion.

Fig. 23 Structured target scanned with Fixed Focus

Fig. 24 Same target scanned with Auto Focus

This patch of tiles which are glued to a carrier should be scanned with **Fixed Focus**. If they are scanned with **Auto Focus** the laser will detect rapidly changing distances which would trigger geometric corrections across the scan. These corrections are most likely only adequate at the position of the laser and not across the whole scan width.

BEST PRACTICE	
	Scanning structured surfaces can confuse the laser assisted distance measurements and cause unwanted distortions. It is therefore advisable to adjust the focal plane manually and scan with **Fixed Focus**

3D Texture Scanning

The scanner can produce many different illumination scenarios to achieve various effects. Although these techniques are well known from photography, the results from the scanner are a magnitude better, more realistic and most of all, they are reliably repeatable. One setting will produce almost identical results on any WideTEK 36ART anywhere in the world and at any time. A professional photographer can take hours to setup the illumination and since the results are affected not only by the setup but also by many ambient influences, the results will never be the same. The following examples are all derived from the same physical scan. The paper scanned in this example has a shiny finish which has reflections that can partially turn some areas into white.

To the right is a normal scan, similar to the results from any other CCD based flatbed or overhead scanner. To produce this result a good CCD based scanner is required, a CIS scanner will not work.

Fig. 25 Normal scan of crumbled gift wrap paper

The scan to the right was done with **Illumination** set to **3D Light** and the sider **3D Light** at **+2**. Positive values simulate a light source shining from the top which leaves a natural impression.

Fig. 26 3D scan at positive 3D

This scan was done with **Illumination** set to **3D Light** and the slider **3D Light** at **-2**. Negative values simulate a light source shining from the bottom which leaves a rather unnatural impression.

Fig. 27 3D scan at negative 3D

The WideTEK ART has a special setting called **Anti Reflection** which can be selected under the **3D Light** button. This is a unique feature of this scanner. It removes all reflections from the scan when scanning very glossy and uneven surfaces. Its effect can be compared to the uses of polarizers.

Fig. 28 Anti reflection scan

Fig. 29 Image of an oil painting

The WT36ART uses different light scenarios in a single scan and can generate many images from a single scan. Almost all parameters can be changed without the need to physically rescan the object, as long as the illumination mode was 3D. The only exceptions are a longer scan, a higher resolution scan and a 3D scan, if the scanner was set to 2D before scanning.

The upper image on the previous page was scanned the traditional way, with diffuse light from all sides. It is very good scanning quality but looks slightly flat because the viewer can see some texture but expects to see more. The second image is derived from the same scan but with 3D illumination switched on and set to a strength of +2. The viewer can now clearly see the texture of the oil painting. The magnified image below shows how many details are captured, including the structure of the canvas and the brush strokes in the oil paint areas. If this scan is printed on plain paper and framed, it will look better than the original in most locations with less than perfect illumination.

Fig. 30 Magnified area of oil painting

The 3D effect simulates total illumination from above, the natural way. It is a human expectation that the light (sun) shines from above.

The image to the right is only rotated, yet it looks completely different. It is important to ensure that the upper part of an object goes into the scanner first with 3D illumination set to positive values. If the scan unintentionally is done upside down, negative values will compensate this.

Fig. 31 Rotation of magnified area