

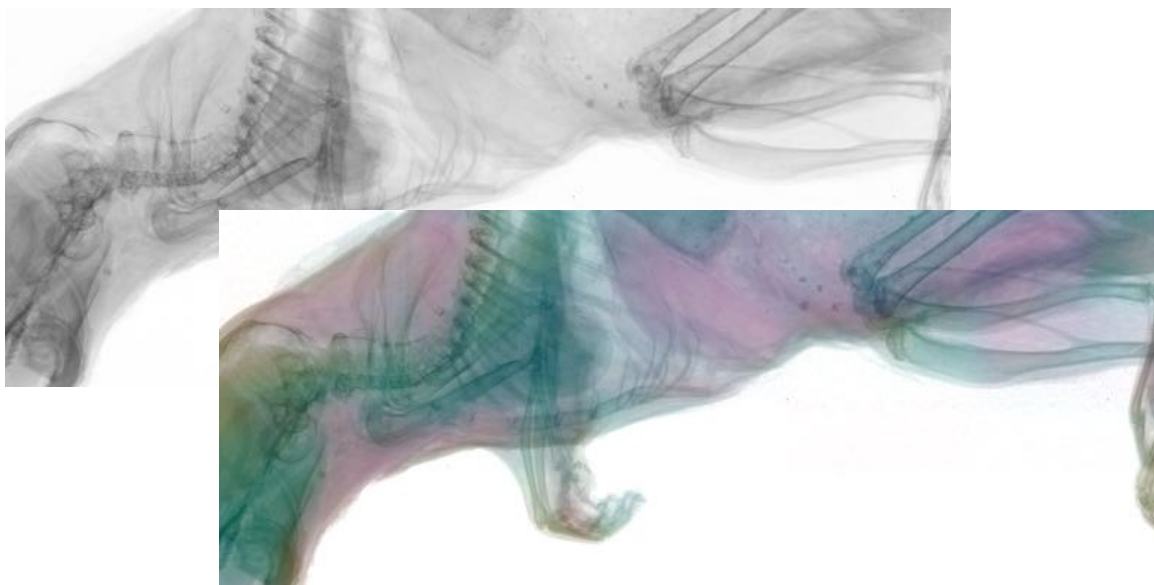


# COLOR-X-SCAN

2D Spectral X-ray  
Imaging System Specifications

## Color-X-Scan description

Color-X-Scan is a 2D imaging device that utilizes the cutting-edge photon counting X-ray imaging detectors. The device can measure spectrum of X-rays in every pixel providing a tool to differentiate materials in the sample. Differences in materials are visualized by associating colors with them. Therefore, even materials that are shown in regular X-ray imaging at the same gray level could be differentiated.



Regular X-ray image (top left) and spectral X-ray image where colors are linked to different types of tissue (bottom left)

## X-ray imaging detector

Manufacturer	ADVACAM s.r.o.
Model	WidePIX® 1x5 or WidePIX® 2x5
Type	Photon counting
Pixel array	256x1280 or 512x1280
Pixel pitch [µm]	55
Sensor option 1	Si, thickness 300 µm
Sensor option 2	CdTe, thickness 1000 µm
Minimum detectable X-ray energy [keV]	5
Cooling option 1	Water cooling with precise chiller
Cooling option 2	Peltier element

## X-ray tube

Manufacturer	Oxford Instruments
Model	Apogee 5500
Max. acceleration voltage [kV]	50
Min. acceleration voltage [kV]	10
Max. beam current [mA]	1.0
Max. power [W]	50
Target material	W

Focal spot size [ $\mu\text{m}$ ]	35 (nominal per IEC60336, NEMA XR5-1992)
Cone of illumination [deg]	22
Window material	Be, 127 $\mu\text{m}$ thick
HV source	Oxford Instr. Shasta 50 kV

### Scanner properties

Cooling option	Water chiller	Peltier
Max. field-of-view [mm] (FOV, elliptical)	150x133	122x100
Max. FOV [pixels] (FOV, elliptical)	2700x2400	2200x1800
Source-to-detector distance [mm]	400	293
Adjustable sample-to-detector distance	Yes	Yes
Minimum exposure time <sup>1</sup> [s]	0.01	
Maximum resolution [ $\mu\text{m}$ ]	30	
Minimum resolution [ $\mu\text{m}$ ]	55	

### Operating conditions

Power consumption [W]	200
Power supply [V]	230
Maximum humidity [%]	60
Maximum ambient temperature [deg C]	40
Minimum ambient temperature [deg C]	15

### Device dimensions & X-ray shielding

Width [mm]	780
Depth [mm]	830
Height [mm]	1010 (1060 including support stands)
Weight [kg]	approx. 320
External radiation dose [ $\mu\text{Sv/h}$ ]	<1

<sup>1</sup> When taking static images of 256x1280 resp. 512x1280 pixels in size