X-RAY MICROSCOPY

X4 POSEIDON – Camera lens for smartphone

Application Report 5

In today's world, every smartphone is equipped with multiple cameras, enabling users to capture photos and videos at any moment. These cameras are marvels of modern engineering, with each camera lens comprising several plastic aspherical lenses meticulously layered on top of one another and precisely fitted at the edges. This intricate design ensure the high-quality imaging capabilities that we often take for granted.

As the demand for sleeker and thinner smartphones continues to rise, the challenge for manufacturers is to make camera lenses equally thin without compromising could be left out performance. This has led to advancements in camera lens manufacturing, where there is a critical need to swiftly identify and measure defective areas such as mating faults, foreign objects, peeling, and cracks. Additionally, it is essential to observe suspicious areas in greater detail to ensure the highest quality standards are met.

Enter the X4 POSEIDON, a state-of-the-art solution designed to meet these rigorous demands. The X4 POSEIDON can be equipped with both an a Flat-panel detector for high-sensitivity wide-field measurement and a sCMOS detector for high-resolution measurement.

The X4 POSEIDON microCT imaging workstation is a 3D imaging core facility on your desktop. The following settings were used for this study:

- 7 Mpixel Flat-panel X-ray camera
- 70 kV, 57 µA
- Scan duration: 2 min
- Voxel resolution: 8.0 µm

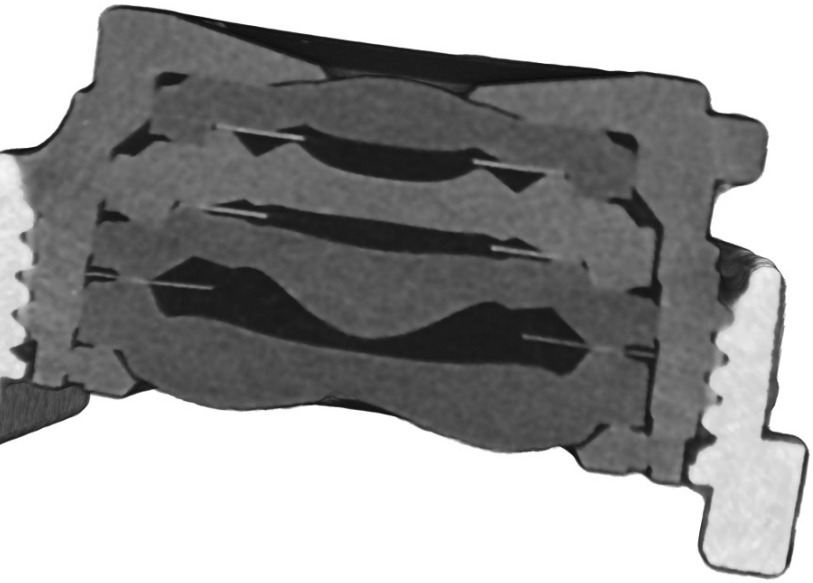

Figure 1
3D volume rendered image of the smartphone lens assembly.

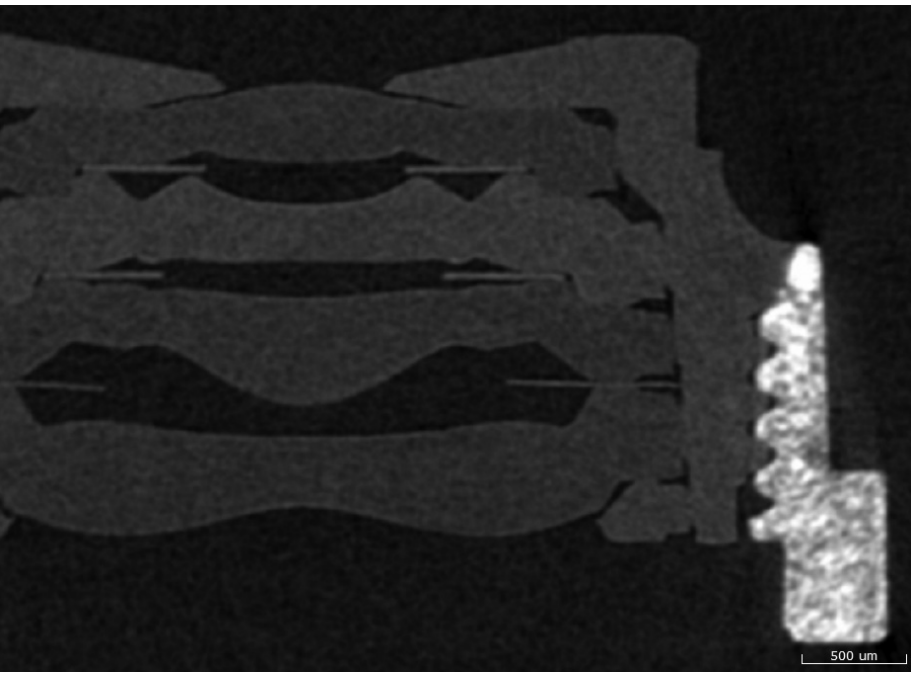

Figure 2
2D section view extracted from the 3D volume.

Figure 3
Lens installed on sample mount before scan.

Figures 1 and 2 present images of data measured in a brief period of just 2 minutes using the X4 POSEIDON system. The measurements, conducted with a voxel size of 8 µm in continuous rotation mode, utilized a flat-panel detector renowned for its high sensitivity and expansive field of view.

This comprehensive measurement captured the entire sample, enabling a thorough observation of the lens fitting. The short-time measurement data allows for a swift and efficient view of areas of interest, such as the lens fitting, foreign objects, peeling, and cracks.

Bruker AXS
info.baxs@bruker.com

Worldwide offices
bruker.com/baxs-offices

Online information
bruker.com/x4poseidon

bruker.com