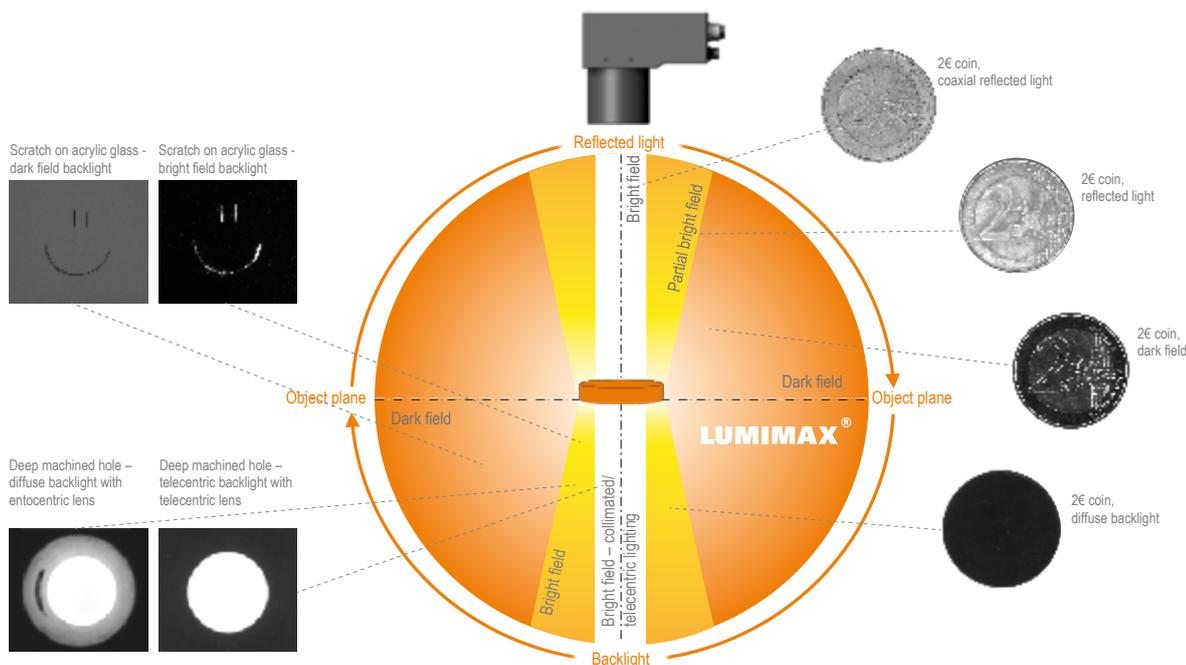


# 1. Influence of the lighting angle

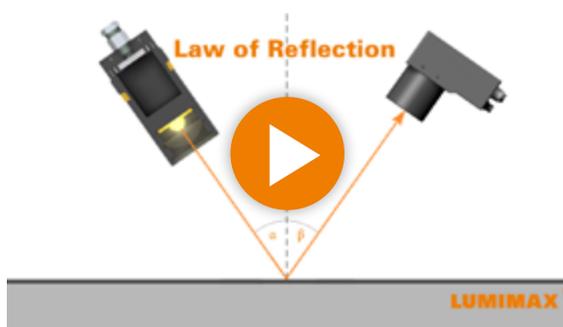
A camera can only “see” what is made visible to its sensor by light. For this reason, the first and perhaps most important step is the selection of a suitable lighting geometry and the optimal angle at which to position the test object. Indeed, the appearance of an identical test object in the camera image can be drastically altered by the relative arrangement of camera, test object and lighting.



When selecting the type of lighting and its arrangement, there is a fundamental difference between

- **reflected-light lighting**, which comes from the direction of the camera and is thus positioned above the object plane; and
- **backlight lighting**, which is positioned behind the test object.

When choosing a lighting arrangement for reflected light, the ground rule is the Law of Reflection – which you probably still remember from school. This in itself is naturally common knowledge. Yet the awareness – and more importantly, application – of this simple law when selecting an appropriate lighting type and arrangement is really and truly half the battle.



Video can be viewed at <https://iimag.de/en/lumimax/useful-facts/videos/video-law-of-reflection.html>

The first chapter of the LUMIMAX<sup>®</sup> Knowledge Base tells you everything you need to know about lighting types and angles, as well as how they affect your Machine Vision solution.

Influence of the lighting angle

Wavelengths

Optical filters

Flash vs. continuous

Fluorescence applications

Lighting systems for the reading and verification of codes

Lighting technology for shape-from-shading