

Design of antiglare structures

Project example

28/12/2023



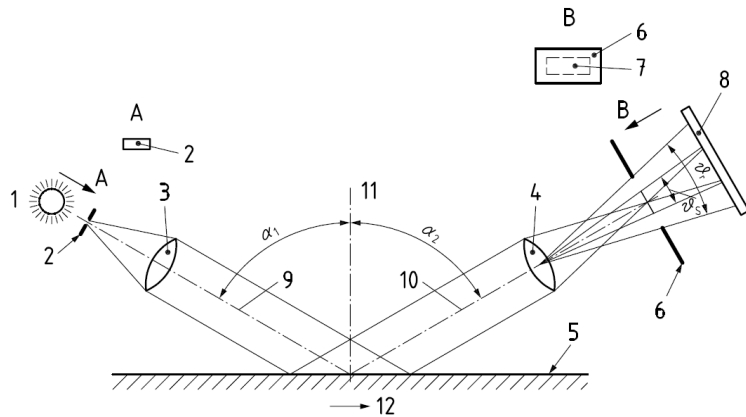
- ❖ **Display image quality is reduced by glare:** reflections of the outside world from lamps, sunlight, other screens
- ❖ To reduce glare an **anti-glare structure** can be applied to the front glass
- ❖ Technical requirements for anti-glare glass panels:
 - **Low gloss** low reflection of outside world
 - **Low haze** clear image from screen
 - **High clarity** : good readability of text
- ❖ PlanOpSims task was to optimize the structure shape for best gloss/haze/clarity

Untreated glass
suffers reflection
issues

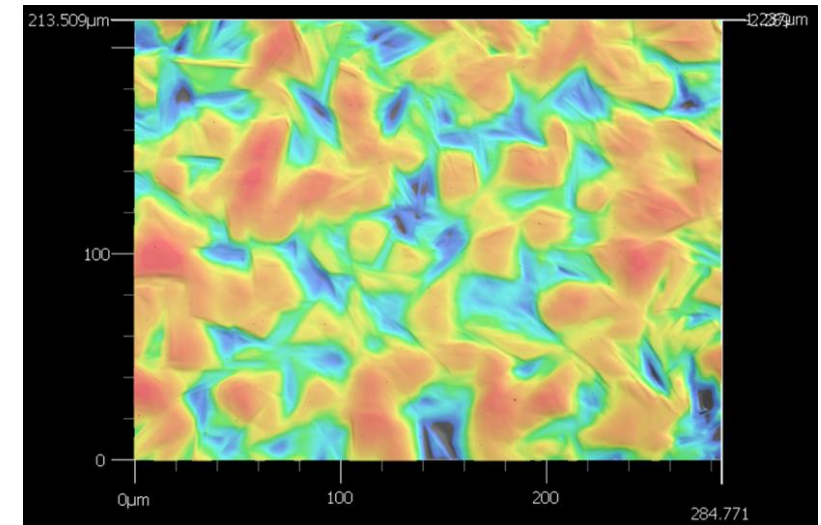
With antiglare



1. Construction of **simulation model**
 - a) Nano-structure: RCWA
 - b) Micro-structure: fourier optics and multi-domain RCWA stitching
2. **Model validation** from measured sample topography (AFM) and optical gloss/haze measurements
3. **Parametric Structure optimization** via simulation model

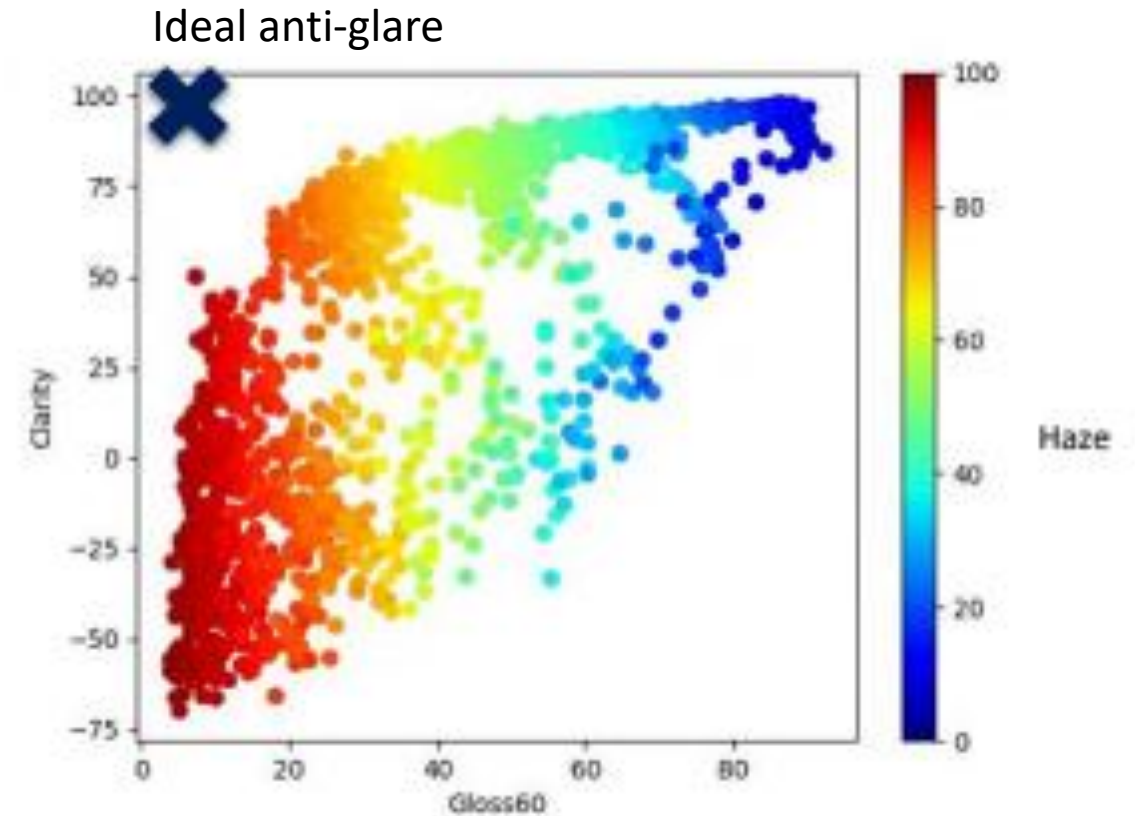


Gloss measurement setup



Anti-glare structure topography

- ❖ High quality anti glare structures were found
- ❖ Design trade-offs between glare, haze and clarity could be
- ❖ Effect of randomization studied
- ❖ Best identified structure outperformed best commercially available sample



Parametric study for spherical anti-glare structure
1 circle = 1 configuration