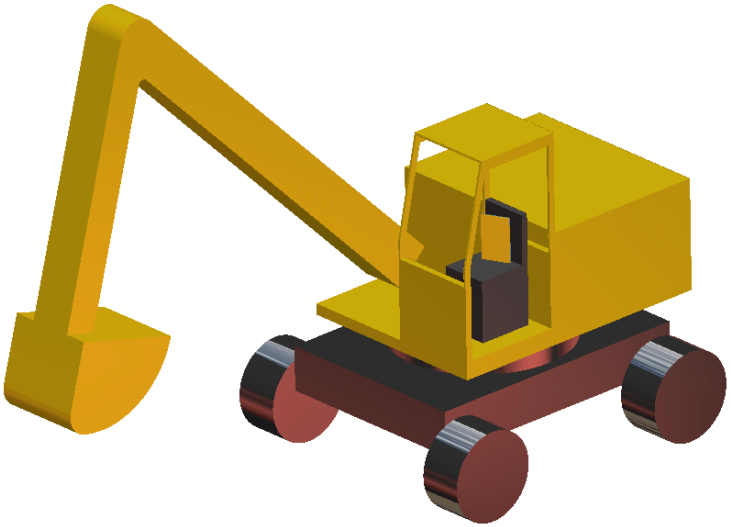
B&W SmartOptics



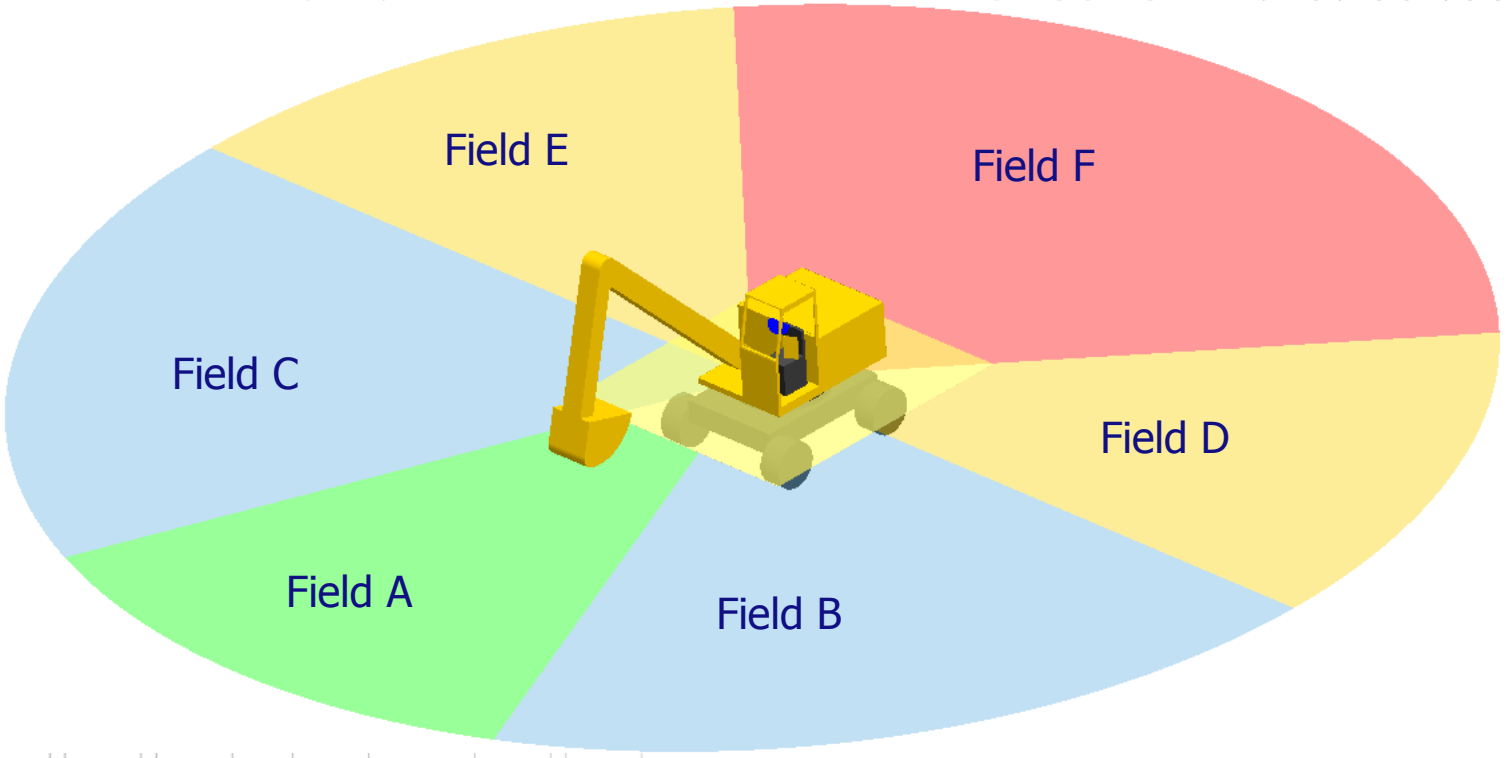
Optimizations for an excavator

Overview

- SmartOptics provides among other functions also visual field tests for Pro/ENGINEER assemblies
- A couple of possibilities and optimization approaches are presented by means of an excavator
- The excavator arm, the windshield and the rear view mirror will be optimized to improve the drivers visibility
- The eyes of the driver were defined as an illuminant object which spreads rays of light

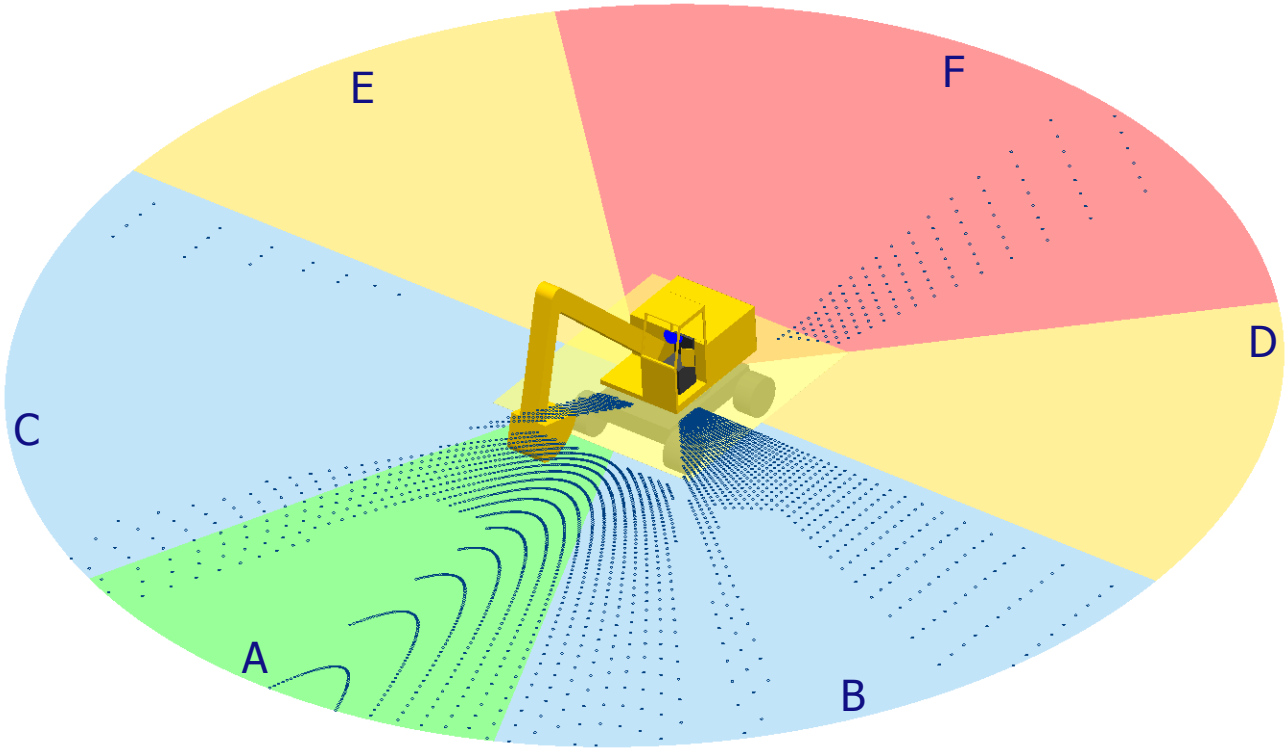
Example assembly

- For the evaluation of the visibility there were defined several fields



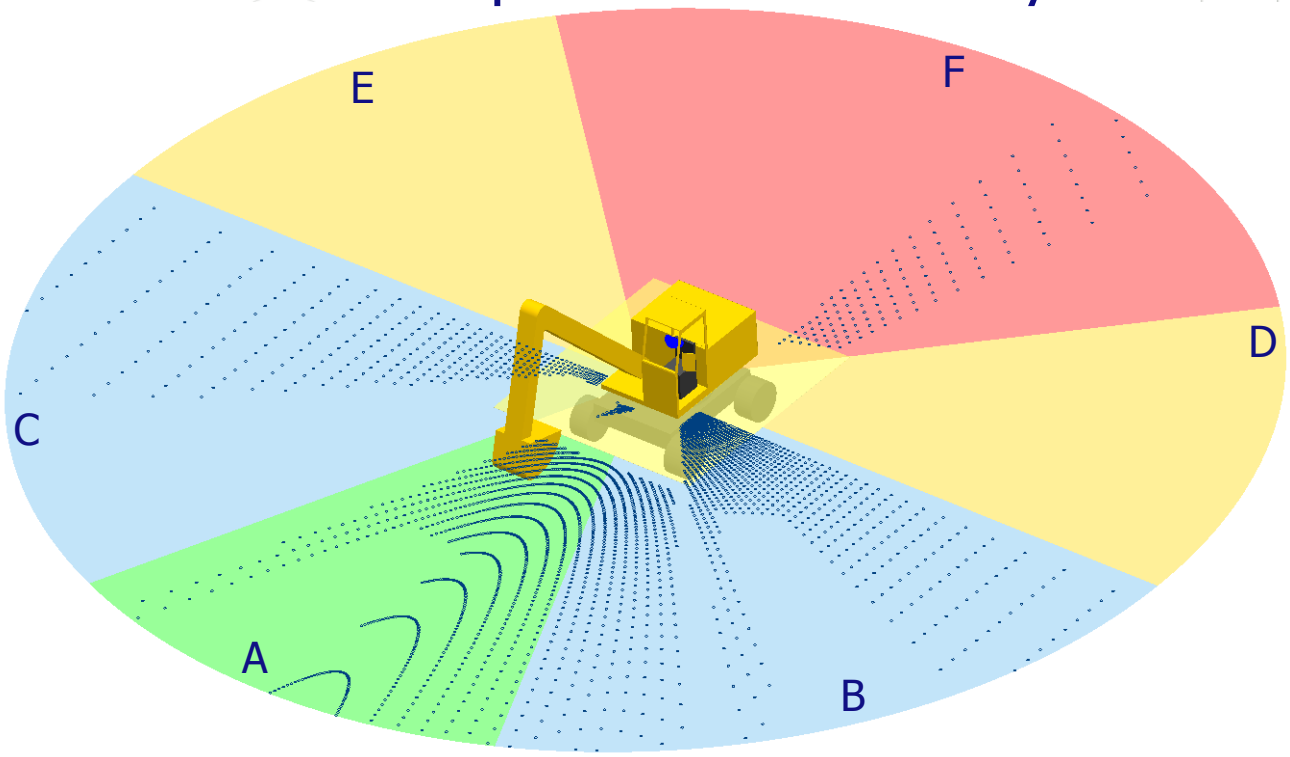
Position of the arm 1/2

- The visibility in the field C is strongly affected by the position of the excavator arm.



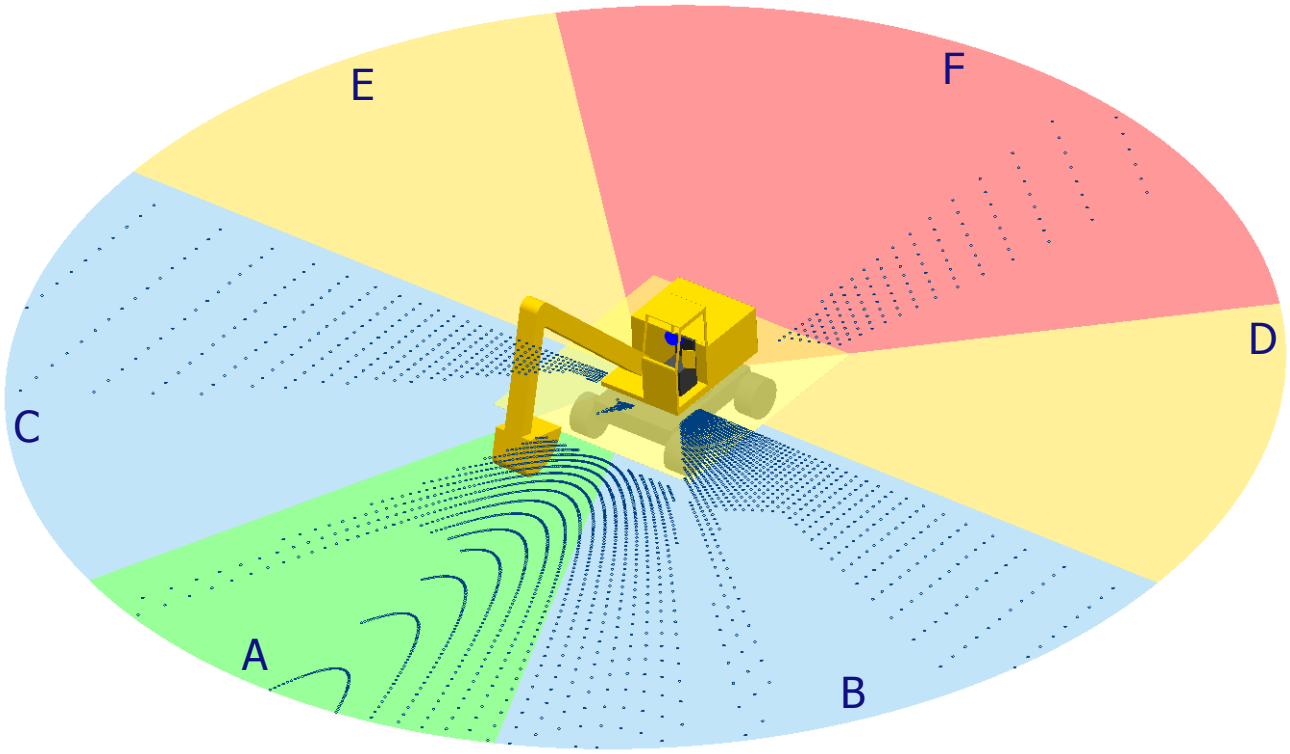
Position of the arm 2/2

- The excavator arm was moved 500 mm forward. Visibility in the field C has improved substantially.



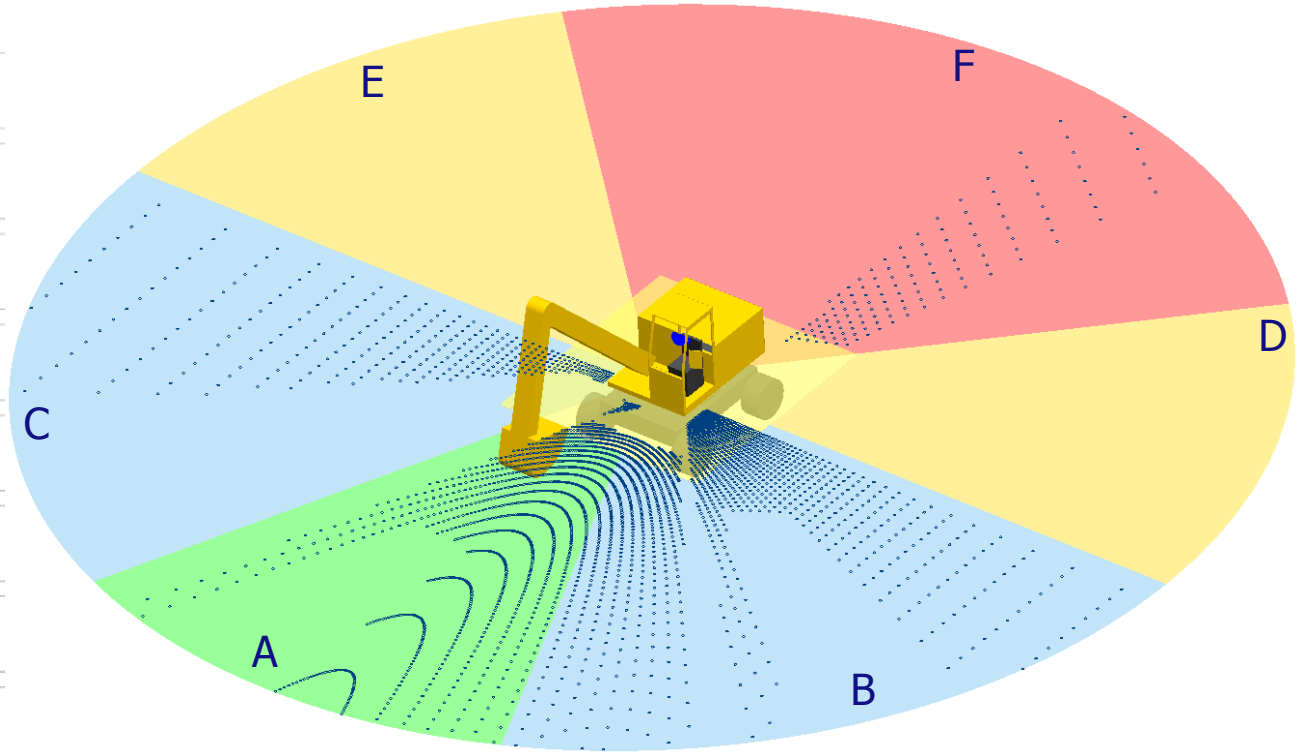
Size of the windshield 1/2

- The visibility in the field A is not completely due to the small windshield.



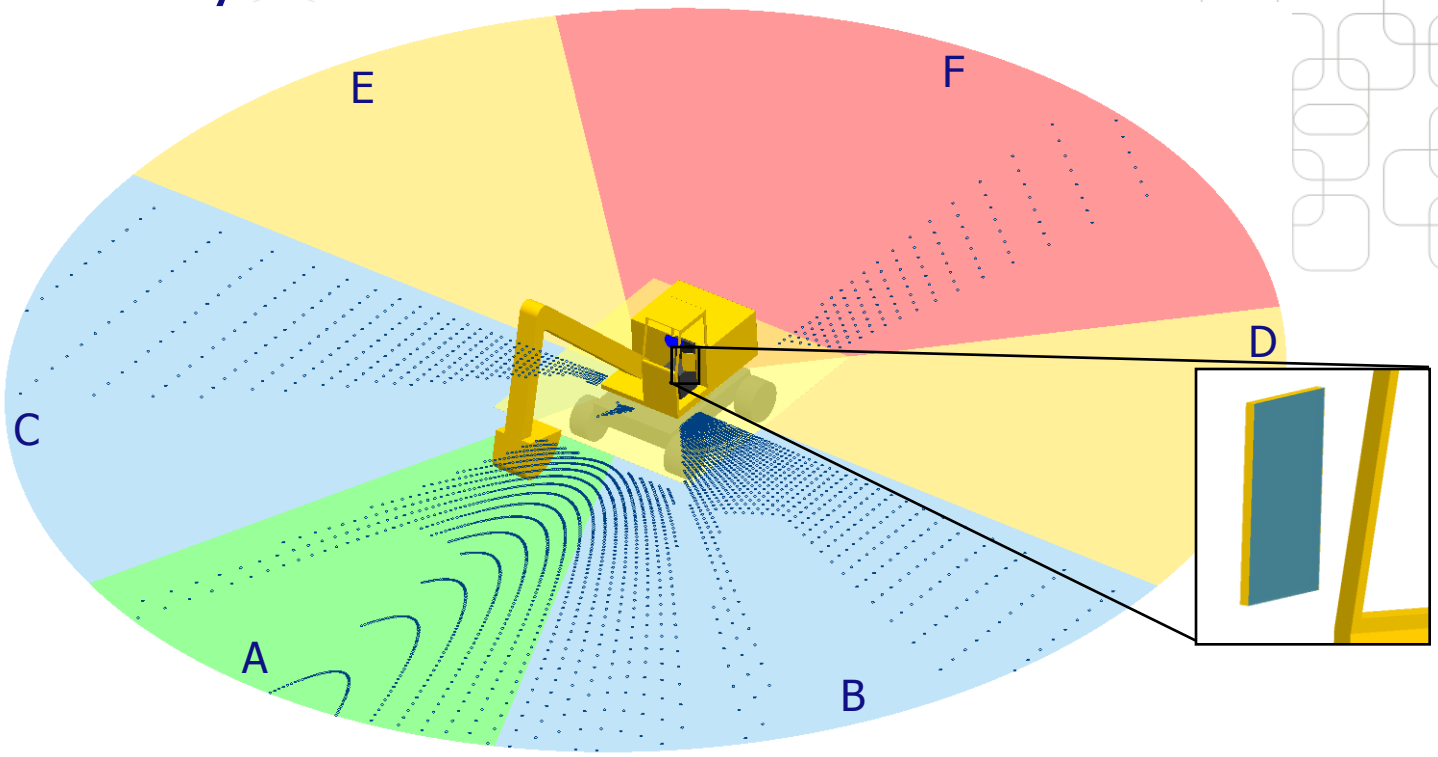
Size of the windshield 2/2

- A deeper by 200 mm windshield improves the visibility in the field A.



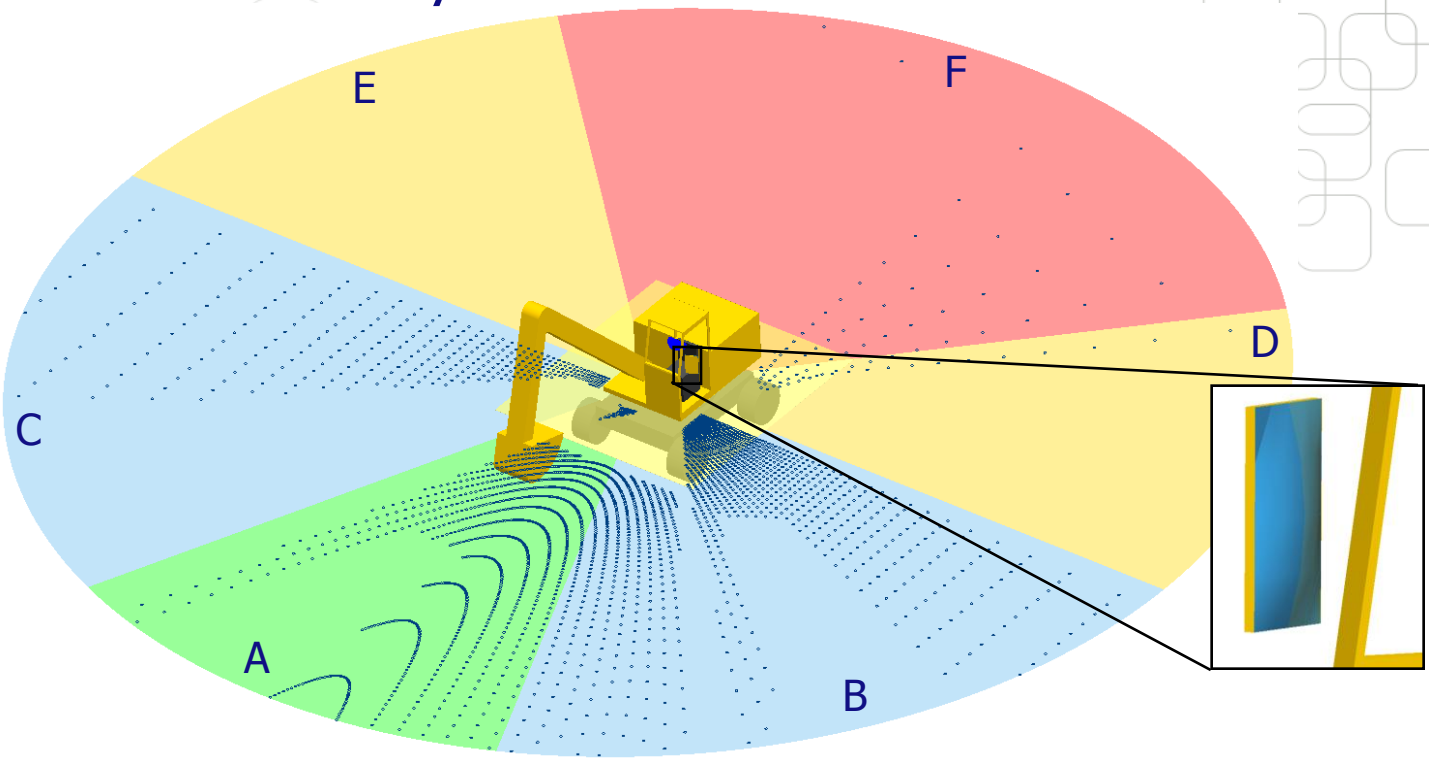
Rearview mirror 1/2

- When using a flat mirror, the field of vision in the field F is relatively narrow



Rearview mirror 2/2

- The use of an aspherical mirror enlarges the field of vision considerably.



Advantages

- Changes to the Pro/E model are updated and taken into account before every new analysis
- Hit points and rays can be assembled into the Pro/E model for future investigations or demonstrations
- An analysis of the light distribution for the headlamps are also possible

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